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2292  7590  02/06/2013

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

**ISSUE NOTIFICATION**

The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1219 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Jang Yong Kim, Seoul, KOREA, REPUBLIC OF;
Young Ki Kim, Suwon-si, KOREA, REPUBLIC OF;
Sung Ick Cho, Seoul, KOREA, REPUBLIC OF;
Kyung Lae Roh, Seoul, KOREA, REPUBLIC OF;

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Complete and send this form, together with applicable fee(s), to: Mail
Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
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or Fax (571)-273-8850

INSTRUCTIONS: This form must be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, may be directed either to Block 1, or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

2292 7590 12/14/2012
BIRCH STEWART KOLASCH & BIRCH, LLP
PO BOX 747
FALLS CHURCH, VA 22040-0747

APPLICATION NO. 10/498,213
FILING DATE 06/10/2004
FIRST NAMED INVENTOR Jang Yong Kim
ATTORNEY DOCKET NO. 5200-01022PUS1 CONFIRMATION NO. 8207

TITLIE OF INVENTION: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

APPLN. TYPE SMALL ENTITY ISSUE FEE DUE PUBLICATION FEE DUE PREV. PAID ISSUE FEE TOTAL FEE(S) DUE DATE DUE
nonprovisional YES NO $300 $0 $485 $2070 03/14/2013

EXAMINER ASU UNIT CLASS-SUBCLASS
HOANG, DANIEL L 2436 380-201000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
   □ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
   □ Fee Address* indication (or "Fee Address" indication form PTO/SB/47, Rev 03-02 or more recent) attached. Use of a Customer Number is required.
   2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 Birch, Stewart, Kolasch & Birch, LLP
   (2) the name of a single firm (having as a member a registered patent attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
   3. ____________________________

3. ASSIGNED NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
   PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.
   (A) NAME OF ASSIGNEE
   HUMAX CO., LTD.
   (B) RESIDENCE: (CITY AND STATE OR COUNTRY)
   SEONGNAM-SI, REPUBLIC OF KOREA

   Please check the appropriate assignee category or categories (will not be printed on the patent): □ Individual □ Corporation or other private group entity □ Government

   4a. The following fee(s) are submitted:
   □ Issue Fee
   □ Publication Fee (No small entity discount permitted)
   □ Advance Order - # of Copies

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   □ A check is enclosed.
   □ Payment by credit card. Form PTO-2038 is attached.
   □ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 02-2448 (enclose a copy of this form).

   5. Change in Entity Status (from status indicated above)
   □ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
   □ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

   NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

   Authorized Signature
   Typed or printed name: Esther H. Chong
   Date JAN 24 2013
   Registration No. 40,953

   This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

   Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
## Electronic Patent Application Fee Transmittal

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**Filed as Large Entity**

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- Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)
- Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

2292  7590  12/14/2012
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
HOANG, DANIEL L

ART UNIT  PAPER NUMBER
2436

DATE MAILED: 12/14/2012

APPLICATION NO.  FILING DATE  FIRST NAMED INVENTOR  ATTORNEY DOCKET NO.  CONFIRMATION NO.
10/498,213  06/10/2004  Jang Yong Kim  5200-0102PUS1  8207

TITLE OF INVENTION: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

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THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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Page 1 of 3
### PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail
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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
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(571)-273-2885

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

2292 7590 12/14/2012
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

APPLICATION NO. 10/498,213  FILING DATE 06/10/2004  FIRST NAMED INVENTOR Jang Yong Kim
ATTORNEY DOCKET NO. 5200-0102PUS1  CONFRMATION NO. 8207

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EXAMINER HOANG, DANIEL L 2436 380-201000
ART UNIT 30
CLASS-SUBCLASS

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
   - Change of correspondence address (or Change of Correspondence Address form PTOB/122) attached.
   - "Fee Address" indication (or "Fee Address" Indication form PTOB/847; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
   (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. INDIVIDUAL NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
   PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent.
   If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

   (A) NAME OF ASSIGNEE
   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

4. The following fee(s) are submitted:
   - Issue Fee
   - Publication Fee (No small entity discount permitted)
   - Advance Order - # of Copies

5. Change in Entity Status (from status indicated above)
   - a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
   - b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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Authorized Signature Date
Typed or printed name Registration No.

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PTOL-85 (Rev. 02/11) Approved for use through 08/31/2013.

OMB 0651-0033  U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 827 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 827 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
**Notice of Allowability**

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<td>Art Unit</td>
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<tr>
<td>DANIEL HOANG</td>
<td>2436</td>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/13/12.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1,3,6-10 and 17-21. As a result of the allowed claim(s), you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see [Link](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All  b) ☐ Some*  c) ☐ None  of the:
   1. ☒ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as replacement sheets) must be submitted.

   - including changes required by the attached Examiner’s Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner’s comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner’s Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
5. ☐ Examiner’s Amendment/Comment
6. ☒ Examiner’s Statement of Reasons for Allowance
7. ☐ Other _____.

/MICHAEL S MCNALLY/
Primary Examiner, Art Unit 2436
DETAILED ACTION

STATUS OF THE CLAIMS

1. Claims 1-10 and 17-21 were pending per the previous office action.
2. Claims 2 and 4-5 are canceled.
2. Claims 1, 3, 6-10, and 17-21 are currently pending.
2. Claims 1, 3, 6-10, and 17-21 are allowed.

EXAMINER’S STATEMENT OF REASONS FOR ALLOWANCE

Prior art was found which disclosed:
A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:
a first storage device;
a second storage device being detachable;
a controller configured to receive the real-time digital broadcast program, and while receiving the real-time digital broadcast program, first detect that the second storage device is not installed in the digital broadcast receiver and automatically store a first part of the real-time digital broadcast program in the first storage device; and later detect that the second storage device is installed in the digital broadcast receiver, automatically store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device;
a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.
The following is examiner's statement of reasons for allowance:

The prior art of record does not teach or render obvious the limitations as recited in independent claims 1 and 17 of the currently pending claims, specific to:

"wherein the first and the second storage devices comprise a digital storage medium, including a hard disk, wherein the electrical and mechanical couplers are configured to perform a hot swap, and wherein, for the hot swap, the electrical coupler is configured to be connected in an order of an earth connection, a signal and power connection, and a storage device detection signal connection, and separated in an order of the storage device detection signal connection, the signal and power connection, and the earth connection."

Claims 3, 6-10, and 18-21 depend on independent claims. Dependent claims are allowable as they depend from an allowable independent claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

**POINTS OF CONTACT**

*Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to
Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

*.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Philip Chea can be reached on 571-272-3951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436

/MICHAEL S MCNALLY/
Primary Examiner, Art Unit 2436
5 December 2012
**BIB DATA SHEET**

**CONFIRMATION NO. 8207**

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**APPLICANTS**
- Jang Yong Kim, Seoul, KOREA, REPUBLIC OF;
- Young Ki Kim, Suwon-si, KOREA, REPUBLIC OF;
- Sung Ilk Cho, Seoul, KOREA, REPUBLIC OF;
- Kyung Lae Roh, Seoul, KOREA, REPUBLIC OF;

**CONTINUING DATA**
This application is a 371 of PCT/KR03/02238 10/23/2003

**FOREIGN APPLICATIONS**
- REPUBLIC OF KOREA 10-2002-0066697 10/26/2002

**IF REQUIRED, FOREIGN FILING LICENSE GRANTED**
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**ADDRESS**

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747
UNITED STATES

**TITLE**
DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

**FILING FEE RECEIVED**
540

FEES: Authority has been given in Paper
No.__________ to charge/credit DEPOSIT ACCOUNT
No.__________ for following:

- All Fees
- 1.16 Fees (Filing)
- 1.17 Fees (Processing Ext. of time)
- 1.18 Fees (Issue)
- Other
- Credit
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/DANIEL HOANG/  
Examiner, Art Unit 2436  
12/05/2012

Assistant Examiner

O.G. Print Claim(s): 1
O.G. Print Figure: 8

Total Claims Allowed: 12

U.S. Patent and Trademark Office
Part of Paper No. 20121205
### Request for Continued Examination (RCE) Transmittal

**Address to:**
Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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**This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.**
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCE (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114**
   a. [ ] Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
      i. [ ] Consider the arguments in the Appeal Brief or Reply Brief previously filed on ________________
      ii. [ ] Other __________________
   b. [ ] Enclosed
      i. [ ] Amendment/Reply
      ii. [ ] Affidavit(s)/ Declaration(s)
      iii. [ ] Information Disclosure Statement (IDS)
      iv. [ ] Other __________________

2. **Miscellaneous**
   a. [ ] Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of ________ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(f) required)
   b. [ ] Other __________________

3. **Fees**
   a. [ ] RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   b. [ ] Check the amount of $ ________________ enclosed
   c. [ ] Payment by credit card (Form PTO-2038 enclosed)

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

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**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED**

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**CERTIFICATE OF MAILING OR TRANSMISSION**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

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This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:

Jang Yong KIM et al.

Application No.: 10/498,213

Confirmation No.: 8207

Filed: June 10, 2004

Art Unit: 2436

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Examiner: D. L. Hoang

AMENDMENT UNDER 37 C.F.R. § 1.114

MS RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In reply to the Office Action dated March 20, 2012, the following amendments and remarks are respectfully submitted in connection with the above-identified application.

Amendments to the Claims begin on page 2.

Remarks begin on page 7.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

   a first storage device;

   a second storage device being detachable;

   a controller configured to

   receive the real-time digital broadcast program, and

   while receiving the real-time digital broadcast program,

   first detect that the second storage device is not installed in the digital broadcast receiver and automatically store a first part of the real-time digital broadcast program in the first storage device; and

   later detect that the second storage device is installed in the digital broadcast receiver, automatically store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device;

   a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and
an electrical coupler configured to electrically connect the second storage device to the
digital broadcast receiver, the electrical coupler configured to supply power and data to the
second storage device,

wherein the first and the second storage devices comprise a digital storage medium,
including a hard disk,

wherein the electrical and mechanical couplers are configured to perform a hot swap, and
wherein, for the hot swap, the electrical coupler is configured to be
connected in an order of an earth connection, a signal and power connection, and
a storage device detection signal connection, and

separated in an order of the storage device detection signal connection, the signal
and power connection, and the earth connection.

2. (Cancelled)

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
electrical and mechanical couplers are combined in one body.

4-5. (Cancelled)

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
mechanical coupler comprises a shock absorber configured to protect the second storage device
from internal/external impacts, and an attachment and separation guide.
7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.

8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)

17. (Currently Amended) A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, the method comprising the following steps, each performed by the controller:

receiving the real-time digital broadcast program;

while receiving the real-time digital broadcast program,

first detecting that the second storage device is not installed in the digital broadcast receiver and automatically storing a first part of the real-time digital broadcast program in the first storage device; [[and]]
later detecting that the second storage device is installed in the digital broadcast receiver, automatically storing a second part of the real-time digital broadcast program in the second storage device, and automatically transferring the first part of the real-time digital broadcast program from the first storage device to the second storage device, the step of automatically transferring being performed while the second part is stored in the second storage device,

wherein the first and the second storage devices comprise a digital storage medium, including a hard disk; and

performing a hot swap comprising:

connecting the second storage device in an order of an earth connection, a signal and power connection, and a storage device detection signal connection;

and

disconnecting the second storage device in an order of the storage device detection signal connection, the signal and power connection, and the earth connection.

18. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and
redetecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising:
detecting at regular intervals whether or not the second storage device is installed.

21. (Previously Presented) The method according to claim 17, further comprising:
inputting a power signal and a control signal to the second storage device, and updating a
file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3, 6-10 and 17-21 are pending, with claims 1 and 17 amended, and claims 2 and 4-5 cancelled without prejudice or disclaimer, by the present amendment. Claims 1 and 17 are independent.

In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964), Hassell (U.S. Patent Pub. No. 2003/0149980), Papa (U.S. Patent No. 6,418,492) and Kuroda (EP 1014715); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm in view of Rodriguez and Morehead (U.S. Patent 5,149,048). The above rejections, insofar as they may pertain to the presently pending claims, are respectfully traversed.

A review of the file history reveals that Applicant’s claim to foreign priority has been acknowledged; Applicant’s drawings have been accepted by the Examiner; and the references of Applicant’s IDS of June 10, 2004, have been considered.

Claim 1 is amended to recite features related to those of previously pending claims 2 and 4-5. Claim 17 is similarly amended. Support for this amendment is found in Applicant’s originally filed specification. No new matter is added.

The rejection of claim 1 is moot in view of the current amendment. The following comments are directed to the rejection of previously pending claim 5. Briefly recapitulating, claim 1 recites, inter alia, an electrical coupler that is controlled, for the hot swap, to be
connected in an order of an earth connection, a signal and power connection, and a storage
device detection signal connection, and separated in an order of the storage device detection
signal connection, the signal and power connection, and the earth connection. Claim 17 is
directed to a method substantially corresponding to the device of claim 1.

In rejecting previously pending claim 5, the Official Action acknowledged that Holm,
Rodriguez and Hassell fail to disclose or suggest a hot swap. To cure this deficiency, the
Official Action applied Papa.

Papa describes a computer hot swap capability. However, contrary to the Official Action,
Papa does not disclose or suggest an electrical coupler that is controlled, for the hot swap, to be
connected in an order of an earth connection, a signal and power connection, and a storage
device detection signal connection, and separated in an order of the storage device detection
signal connection, the signal and power connection, and the earth connection. Indeed, the
Official Action provides no citations to any reference that allegedly describes the sequence
recited in amended independent claims 1 and 17. Accordingly, amended independent claims 1
and 17 patentably define over Holm, Rodriguez, Hassell and Papa.

Applicant has considered Kuroda and Morehead and submits Kuroda, Papa and
Morehead do not cure the deficiencies of the other applied references, as discussed above. As
none of the cited art, individually or in combination, discloses or suggests at least the above-
noted features of independent claims 1 and 17, Applicant submits the inventions defined by
claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted
references for at least the reasons stated above.

MPEP 2141 notes that an obviousness-type rejection must explain why the difference(s)
between the prior art and the claimed invention would have been obvious to one of ordinary skill
in the art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of obviousness. However, Applicant submits that the Official Action and the applied references present no objective evidence that would support an obviousness-type rejection of Applicant's amended claims based on one of these exemplary rationales.
CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Registration No. 52041, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: June 13, 2012

Respectfully submitted,

By  
Esther H. Chong
Registration No.: 40953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000
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- Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)
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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
**FEE TRANSMITTAL**

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<tr>
<td>Application Number: 10/498,213</td>
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<tr>
<td>Conf. No.: 8207</td>
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<td>First Named Inventor: Jang Yong KIM</td>
</tr>
<tr>
<td>Examiner Name: D. L. Hoang</td>
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<td>Art Unit: 2436</td>
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**TOTAL AMOUNT OF PAYMENT ($)** 930.00

**METHOD OF PAYMENT** (check all that apply)

- [ ] Check
- [✓] Credit Card
- [ ] Money Order
- [ ] None
- [ ] Other (please identify):

**Deposit Account**

- [✓] Deposit Account Number: 02-2448
- Deposit Account Name: Birch, Stewart, Kolasch & Birch, LLP

For the above-identified deposit account, the Director is hereby authorized to:
- [ ] Charge fee(s) indicated below
- [✓] Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
- [✓] Credit any overpayments

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

**FEE CALCULATION**

1. **BASIC FILING, SEARCH, AND EXAMINATION FEES**

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**APPLICATION SIZE FEE**

- If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(e).
- **Total Sheets** - 100 = **Extra Sheets** / 50 = Number of each additional 50 or fraction thereof (round up to a whole number) = 0.00

4. **OTHER FEE(S)**

- Non-English Specification, $130 fee (no small entity discount)
- Other (e.g., late filing surcharge): RCE - $930

**SUBMITTED BY**

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<tr>
<th>Signature</th>
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<tr>
<td>Esther H. Chang</td>
<td>40953</td>
<td>703-205-8000</td>
</tr>
<tr>
<td>Date June 13, 2012</td>
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This collection of information is required by 37 CFR 1.138. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
# PATENT APPLICATION FEE DETERMINATION RECORD

**APPLICATION AS FILED – PART I**

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**APPLICATION AS AMENDED – PART II**

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**AMENDMENT**

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Legal Instrument Examiner: SHERRY DAVIS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\** If the "Highest Number Previously Paid For" in this space is less than 20, enter "20".

\*** If the "Highest Number Previously Paid For" in this space is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

Application No. 10/498,213
Applicant(s) KIM ET AL.
Examiner DANIEL HOANG
Art Unit 2436

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) □ Responsive to communication(s) filed on 09 November 2011.
2a) ☑ This action is FINAL. 2b) □ This action is non-final.
3) □ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
4) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☑ Claim(s) 1-10 and 17-21 is/are pending in the application.
   5a) Of the above claim(s) _____ is/are withdrawn from consideration.
6) □ Claim(s) _____ is/are allowed.
7) ☑ Claim(s) 1-10, 17-21 is/are rejected.
8) □ Claim(s) _____ is/are objected to.
9) □ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10) □ The specification is objected to by the Examiner.
11) □ The drawing(s) filed on ____ is/are: a) □ accepted or b) □ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
12) □ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☑ All b) □ Some * c) □ None of:
   1. ☑ Certified copies of the priority documents have been received.
   2. ☑ Certified copies of the priority documents have been received in Application No. _____.
   3. ☑ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) □ Notice of References Cited (PTO-892)
2) □ Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3) □ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) □ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5) □ Notice of Informal Patent Application
6) □ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 03-11) Office Action Summary Part of Paper No./Mail Date 20120313
DETAILED ACTION

RESPONSE TO ARGUMENT

Applicant’s arguments filed 11/9/11 have been fully considered but they are not persuasive.

Applicant argues that the Hassell reference does not teach automatically storing a first and a second part of real-time digital data in respective storage devices. Examiner respectfully disagrees. The Hassell reference was relied upon in the previous office action to teach detecting that a second storage device is installed. The Hassell reference was not relied upon to teach storing of data. The Rodriguez reference was cited to teach storing of data. Rodriguez teaches that the data is stored on the first storage device and either later stored on the second storage device after the data is completely stored on the first device or the data is stored concurrently on both the first and second storage devices. In the case where the data is first stored on the first storage device, the data is later transferred to the second storage device. Both cases of storage occur without user input which examiner views as automatically storing. Furthermore, the Kuroda reference was previously cited to automatically transferring data from the first storage to the second storage device without user command (see Kuroda, paragraphs 63-68. 

"...without the need for user command...”). Applicant’s specification does not mention the word automatically so examiner assumes that the storage of data occurring without user command as satisfying the automatic requirement. 

Due to the above arguments, the rejections of the previous action are maintained.

CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

1. CLAIM REJECTIONS
Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.


As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, “fixed storage”]

a second storage device being detachable;

[see paragraph 60, “removable storage”]

a controller configured to receive the real-time digital broadcast program, and

[see paragraph 61]

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver;

and

[see paragraph 0034, “...may include a storage interface that couples the removable storage device to the communications bus.”]
The Holm reference has been discussed above. While Holm teaches a digital broadcast receiver with a first and second storage device, Holm is mute in teaching the limitations below:

“while receiving the real-time digital broadcast program, first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device.”

In order to cure the deficiencies of the Holm reference in regard to the limitations above, examiner relies upon the Rodriguez reference. Rodriguez teaches at col. 14, lines 23-67 and col. 15, lines 1-16, of a primary and secondary storage device. It is further taught that content may be stored onto primary storage device 413. Rodriguez then teaches that content recorded onto primary storage device 413 may be transferred to secondary storage device. The remaining content not yet stored on primary storage device may either be concurrently downloaded onto both the primary storage device and the secondary storage device or it can continue to be stored on primary storage device until completely received and then transferred to secondary storage device. Nonetheless, a portion of the content is first stored on a primary storage device and at a later point, all portions of the content are stored on the secondary storage device. This is analogous to the limitation claimed above by applicant. It would have been obvious to one of ordinary skill in the art to modify the Holm reference to include the limitations taught by Rodriguez so that data that requires a high transfer rate can be recorded onto a primary storage device and data requiring a slower seek time and lower data transfer rates can be recorded onto a secondary storage device such as a multiple compact disk drive or a multiple digital video disk carousel or magazine drive (see col. 14, lines 31-54).

The Holm and Rodriguez reference have been discussed above. Said references are mute in teaching that detection is made as to whether a secondary storage device is installed and based on the detection, storing a part
of the program on the first or second storage device. For the purpose of clarity, the previous references are specifically mute in teaching that detection occurs. For the limitation of detecting, examiner relies on the Hassell reference. Hassell teaches at paragraphs 89-90 of a digital storage device in which a user may read and write to an optical jukebox with multiple recordable optical disks. When the user chooses to write to a certain disk and the disc is not attached, a display indicates that the disc must be loaded. Examiner views this as clearly showing that a detection must be made in order to determine if the disc is first attached in order to display a message indicating whether it is attached. Once the user is notified that the disc is not loaded, the user has the option of loading the disc and data may be written to the chosen disc. Examiner views this as analogous to the claimed "based on the detection, storing a part of the program on either the first or second storage device". Since Rodriguez already teaches that data may be downloaded to a second storage device, it would be obvious to one of ordinary skill in the art to modify the Rodriguez reference to include the detection taught by Hassell to give the user the ability to store data on the second storage device in case it is not attached.

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

Holm, Rodriguez, and Hassell do not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.

The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm and Rodriguez inventions to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.
The Holm, Rodriguez, Hassell, and Papa references have been discussed above. Said references do not teach the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device. For this limitation, examiner relies on the Kuroda reference. Kuroda teaches at paragraphs 13-15, of a second recording module which can record current content signals which are currently received by the video recorder without recording in the first storage device and a indirect recording module for copying content signals that have been recorded in the first storage device into the second storage device. Examiner views this as analogous to applicant's limitation of transferring the content from the first storage to the second storage while storing real-time data in the secondary storage. It would have been obvious to one of ordinary skill in the art to modify the Holm and Rodriguez references to include the above limitations taught by Kuroda in order to record data that may be too large to be stored on a recording medium with a small capacity (see Kuroda, paragraphs 3-7).

The Holm, Rodriguez, Hassell, Papa and Kuroda reference have been discussed above. Said references are mute in teaching that detection is made as to whether a secondary storage device is installed and based on the detection, storing a part of the program on the first or second storage device. For the purpose of clarity, the previous references are specifically mute in teaching that a detection occurs. For the limitation of detecting, examiner relies on the Kuroda reference. Kuroda teaches at paragraphs 13-15, of a second recording module which can record current content signals which are currently received by the video recorder without recording in the first storage device and a indirect recording module for copying content signals that have been recorded in the first storage device into the second storage device. Examiner views this as analogous to applicant's limitation of transferring the content from the first storage to the second storage while storing real-time data in the secondary storage. It would have been obvious to one of ordinary skill in the art to modify the Holm and Rodriguez references to include the above limitations taught by Kuroda in order to record data that may be too large to be stored on a recording medium with a small capacity (see Kuroda, paragraphs 3-7).
As per claim 2, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

As per claim 3, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]

As per claims 4 and 5:

The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages.]
The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:

The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, “compact disc”]

As per claim 9, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, “RAM”]

As per claim 10, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full...”]

As per claim 19, Holm teaches:
The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:

The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:

The method according to claim 17, farther comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm and Rodriguez as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048.

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock
absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

Conclusion

1. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

   A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

POINTS OF CONTACT

*. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

*. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Daniel L. Hoang/
Examiner, Art Unit 2436

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2436
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Filed: June 10, 2004

For: DIGITAL BROADCAST RECEIVER
HAVING ATTACHABLE AND SEPARABLE
STORAGE MEANS

Confirmation No.: 8207
Art Unit: 2436

Examiner: D. L. Hoang

AMENDMENT UNDER 37 C.F.R. § 1.111

MS AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action dated August 09, 2011, the following amendments and remarks are respectfully submitted in connection with the above-identified application:

Amendments to the Claims begin on page 2.

Remarks begin on page 6.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

   a first storage device;

   a second storage device being detachable;

   a controller configured to

   receive the real-time digital broadcast program, and

   while receiving the real-time digital broadcast program,

   first detect that the second storage device is not installed in the digital broadcast receiver and automatically store a first part of the real-time digital broadcast program in the first storage device; and

   later detect that the second storage device is installed in the digital broadcast receiver, automatically store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device;

   a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

   an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.
2. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device is a digital storage medium, including a hard disk.

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are combined in one body.

4. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are capable of hot swap.

5. (Previously Presented) The digital broadcast receiver according to claim 4, wherein for hot swap, the electrical coupler is configured to be connected in order of an earth connection, a signal and power connection, and a storage device detection signal connection, and is configured to be separated in order of the storage device detection signal connection, the signal and power connection, and the earth connection.

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the mechanical coupler comprises a shock absorber configured to protect the second storage device from internal/external impacts, and an attachment and separation guide.

7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.
8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)

17. (Currently Amended) A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, the method comprising the following steps, each performed by the controller:

receiving the real-time digital broadcast program;

while receiving the real-time digital broadcast program,

first detecting that the second storage device is not installed in the digital broadcast receiver and automatically storing a first part of the real-time digital broadcast program in the first storage device; and

later detecting that the second storage device is installed in the digital broadcast receiver, automatically storing a second part of the real-time digital broadcast program in the second storage device, and automatically transferring the first part of the real-time
digital broadcast program from the first storage device to the second storage device, the step of automatically transferring being performed while the second part is stored in the second storage device.

18. (Previously Presented) The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

21. (Previously Presented) The method according to claim 17, further comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending, with claims 1 and 17 amended by the present amendment. Claims 1 and 17 are independent.

In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964), Hassell (U.S. Patent Pub. No. 2003/0149980), Papa (U.S. Patent No. 6,418,492) and Kuroda (EP 1014715); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm in view of Rodriguez and Morehead (sic) (U.S. Patent 5,149,048).

Applicant believes paragraph 3 of the Official Action intends to indicate that claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm in view of Rodriguez, Hassel, Papa, Kuroda and Morehead. Applicant requests all grounds of rejection be clearly described in any future Official Actions.

Briefly recapitulating, claim 1 recites, inter alia, a controller configured to receive the real-time digital broadcast program, and

while receiving the real-time digital broadcast program,

first detect that the second storage device is not installed in the digital broadcast receiver and automatically store a first part of the real-time digital broadcast program in the first storage device; and

later detect that the second storage device is installed in the digital broadcast receiver, automatically store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically
**transfer the first part to the second storage device while the second part is being stored in the second storage device.**

Claim 17 is directed to a method substantially corresponding to the device of claim 1.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program automatically stored in a first storage device to a second storage device on detecting that the second storage device has been attached. To cure this deficiency, the Official Action applies Rodriguez.

Rodriguez describes a recordable media content archiving system that includes, among other elements, a memory for storing recordable media content characterizing information, a storage device for storing a plurality of portable mediums, and a processor configured with the memory to receive the recordable media content characterizing information into the memory, wherein the processor is further configured to provide a user interface for the recordable media content archiving system.

In the cited embodiment of Rodriguez, media content that is received and stored on a primary storage device 413 is transferred by way of a memory 449 to a secondary storage device
414 wherein it is written to one or more removable media residing in the secondary storage
device 414. The transfer of content from the primary storage device 413 to the secondary storage
device 414 can occur a) *concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413*. In the concurrent case, a second temporary buffer in the memory 449 is used to implement the transfer of content from the primary storage device 413 to the secondary storage device 414. Alternatively, content is transferred from the memory 449 to the secondary storage device 414 with higher data rate transfer characteristics, or yet in other embodiments, content is transferred from a remote server or other remote device to a communication port and then directly to the secondary storage device 414.

However, while Rodriguez describes that the transfer of content from the primary storage
device 413 to the secondary storage device 414 can occur a) *concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413*, as acknowledged by the Official Action, Holm and Rodriguez do not disclose or suggest a) first detecting that the second storage device is not installed in the digital broadcast receiver and storing a first part of the real-time digital broadcast program in the first storage device; and b) later detecting that the second storage device is installed in the digital broadcast receiver, storing a second part of the real-time digital broadcast program in the second storage device, and automatically transferring the first part of the real-time digital broadcast program from the first storage device to the second storage device, the step of automatically transferring the first part to the second storage device occurring while the second part is being stored in the second storage device. To cure this deficiency regarding a detection-based storing, the Official Action applies Hassel.
Cited paragraphs [0089]-[0090] of Hassel describe a disc control method that includes a feature where, if a user selects a program of a disc that is not in a jukebox, the program guide prompts the user to load the disc.

However, while Hassel discloses a method for automatically prompting a user to insert a disc, Hassel does not disclose or suggest a method that includes automatically transferring the first part of the real-time digital broadcast program from the first storage device to the second storage device, the step of automatically transferring the first part to the second storage device occurring while the second part is being stored in the second storage device. That is, once the disc is installed in Hassel, the user must again prompt the jukebox to do something. Nothing in Hassell occurs automatically based on a detection. Thus, for a first reason, Applicant’s previously pending claims patentably define over Holm, Rodriguez and Hassell. Nonetheless, to advance progress toward allowance, Applicant has further amended the claims to clarify the invention. Applicant submits that Holm, Rodriguez and Hassell each fail to disclose or suggest a) first detecting that the second storage device is not installed in the digital broadcast receiver and automatically storing a first part of the real-time digital broadcast program in the first storage device; and b) later detecting that the second storage device is installed in the digital broadcast receiver, automatically storing a second part of the real-time digital broadcast program in the second storage device, and automatically transferring the first part of the real-time digital broadcast program from the first storage device to the second storage device, the step of automatically transferring the first part to the second storage device occurring while the second part is being stored in the second storage device.

Applicant has considered Kuroda, Papa and Morehead and submits Kuroda, Papa and Morehead do not cure the deficiencies of the other applied references, as discussed above. As
none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.

MPEP 2141 notes that an obviousness-type rejection must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of obviousness. However, Applicant submits that the Official Action and the applied references present no objective evidence that would support an obviousness-type rejection of Applicant’s pending claims based on one of these exemplary rationales.

**CONCLUSION**

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.
Dated: NOV 09 2011

Respectfully submitted,

By

Esther H. Chong
Registration No.: 40953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
AMENDMENT TRANSMITTAL LETTER
Application No. 10/498,213 - Conf. #8207
Filing Date June 10, 2004
 Examiner D. L. Hoang
Art Unit 2436

Applicant(s): Jang Yong KIM et al.

Invention: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith is an amendment in the above-identified application.
The fee has been calculated and is transmitted as shown below.

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☐ Small Entity

☐ No additional fee is required for this amendment.

☐ Please charge Deposit Account No. 02-2448 in the amount of $ 0.00

A duplicate copy of this sheet is enclosed.

☐ A check in the amount of $ 0.00 is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

X The Director is hereby authorized to charge and credit Deposit Account No. 02-2448 as described below.

☐ Credit any overpayment.

☐ Charge any additional filing or application processing fees required under 37 C.F.R. §§ 1.16 and 1.17.

Esther H. Chong
Attorney Reg. No.: 40953

Dated: NOV 09 2011

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703-205-8000

BIRCH, STEWART, KOLASCH & BIRCH, LLP
EHC/MEM/mmm
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**SUBSTITUTE FOR FORM PTO-875**

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Legal Instrument Examiner: [Initials]

*This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.*

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

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Examiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.135(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.

- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on 28 April 2011.

2a) ☐ This action is FINAL.

2b) ☑ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☑ Claim(s) 1-10 and 17-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☑ Claim(s) 1-10, 17-21 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All  b) ☐ Some  c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson’s Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: ______.
DETAILED ACTION

RESPONSE TO ARGUMENTS

The 112 rejections of the previous action have been withdrawn.

1. Applicant's arguments filed 4/28/11 have been fully considered but they are not persuasive. ***

   a) Kuroda does not teach automatically transferring a first part to a second storage device while a second part is stored in the second storage device because the copying is not performed automatically but rather is performed in response to a user command.

   In response to a), examiner respectfully disagrees. Kuroda teaches at paragraphs 63-68 of signals being copied from one storage device to another without the need for user command. Examiner views this as the copying being done automatically.

   2. Applicant's arguments, filed 4/28/11, with respect to the rejection(s) of claim(s) 1-10 and 17-21 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hassell, US PGP No. 20030149980.

CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

1. CLAIM REJ2CTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negativised by the manner in which the invention was made.


As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, "fixed storage"]

a second storage device being detachable;

[see paragraph 60, "removable storage"]

a controller configured to receive the real-time digital broadcast program, and

[see paragraph 61]

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage device to the communications bus."]

The Holm reference has been discussed above. While Holm teaches a digital broadcast receiver with a first and second storage device, Holm is mute in teaching the limitations below:

"while receiving the real-time digital broadcast program, first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast..."
program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device.”

In order to cure the deficiencies of the Holm reference in regard to the limitations above, examiner relies upon the Rodriguez reference. Rodriguez teaches at col. 14, lines 23-67 and col. 15, lines 1-16, of a primary and secondary storage device. It is further taught that content may be stored onto primary storage device 413. Rodriguez then teaches that content recorded onto primary storage device 413 may be transferred to secondary storage device. The remaining content not yet stored on primary storage device may either be concurrently downloaded onto both the primary storage device and the secondary storage device or it can continue to be stored on primary storage device until completely received and then transferred to secondary storage device. Nonetheless, a portion of the content is first stored on a primary storage device and at a later point, all portions of the content are stored on the secondary storage device. This is analogous to the limitation claimed above by applicant. It would have been obvious to one of ordinary skill in the art to modify the Holm reference to include the limitations taught by Rodriguez so that data that requires a high transfer rate can be recorded onto a primary storage device and data requiring a slower seek time and lower data transfer rates can be recorded onto a secondary storage device such as a multiple compact disk drive or a multiple digital video disk carousel or magazine drive (see col. 14, lines 31-54).

The Holm and Rodriguez reference have been discussed above. Said references are mute in teaching that detection is made as to whether a secondary storage device is installed and based on the detection, storing a part of the program on the first or second storage device. For the purpose of clarity, the previous references are specifically mute in teaching that detection occurs. For the limitation of detecting, examiner relies on the Hassell reference. Hassell teaches at paragraphs 89-90 of a digital storage device in which a user may read and write to an optical jukebox with multiple recordable optical disks. When the user chooses to write to a certain disk and the disc is not attached, a display indicates that the disc must be loaded. Examiner views this as clearly showing that a detection must be made in order to determine
if the disc is first attached in order to display a message indicating whether it is attached. Once the user is notified that the disc is not loaded, the user has the option of loading the disc and data may be written to the chosen disc. Examiner views this as analogous to the claimed "based on the detection, storing a part of the program on either the first or second storage device". Since Rodriguez already teaches that data may be downloaded to a second storage device, it would be obvious to one of ordinary skill in the art to modify the Rodriguez reference to include the detection taught by Hassell to give the user the ability to store data on the second storage device in case it is not attached.

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

*Holm, Rodriguez, and Hassell do not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.*

*The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm and Rodriguez inventions to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.*

The Holm, Rodriguez, Hassell, and Papa references have been discussed above. Said references do not teach the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device. For this limitation, examiner relies on the Kuroda reference. Kuroda teaches at paragraphs 13-15, of a second recording module which can record current content signals which are currently received by the video recorder without recording in the first storage device and a indirect recording module for copying content signals that have been recorded in the
first storage device into the second storage device. Examiner views this as analogous to applicant's limitation of transferring the content from the first storage to the second storage while storing real-time data in the secondary storage. It would have been obvious to one of ordinary skill in the art to modify the Holm and Rodriguez references to include the above limitations taught by Kuroda in order to record data that may be too large to be stored on a recording medium with a small capacity (see Kuroda, paragraphs 3-7).

The Holm, Rodriguez, Hassell, Papa and Kuroda reference have been discussed above. Said references are mute in teaching that detection is made as to whether a secondary storage device is installed and based on the detection, storing a part of the program on the first or second storage device. For the purpose of clarity, the previous references are specifically mute in teaching that a detection occurs. For the limitation of detecting, examiner relies on the Kuroda reference. Kuroda teaches at paragraphs 13-15, of a second recording module which can record current content signals which are currently received by the video recorder without recording in the first storage device and a indirect recording module for copying content signals that have been recorded in the first storage device into the second storage device. Examiner views this as analogous to applicant's limitation of transferring the content from the first storage to the second storage while storing real-time data in the secondary storage. It would have been obvious to one of ordinary skill in the art to modify the Holm and Rodriguez references to include the above limitations taught by Kuroda in order to record data that may be too large to be stored on a recording medium with a small capacity (see Kuroda, paragraphs 3-7).

As per claim 2, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]
As per claim 3, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]

As per claims 4 and 5:

The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:

The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, "compact disc"]
As per claim 9, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, "RAM"]

As per claim 10, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, "finite storage becomes full..."]

As per claim 19, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:

The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]
As per claim 21:

The method according to claim 17, farther comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm and Rodriguez as applied to claim 1 above, and further in view of Morehead et al. US Patent No. 5149048.

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

POINTS OF CONTACT

* Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to
Customer Service Window
Randolph Building
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436

/Nasser Moazzami/
Supervisory Patent Examiner, Art Unit 2436
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**EAST Search History (Interference)**

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*8/1/2011 11:38:33 AM*
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Confirmation No.: 8207

Filed: June 10, 2004
Art Unit: 2436

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS
Examiner: D. L. Hoang

REPLY UNDER 37 C.F.R. § 1.111

MS AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action dated October 29, 2010, the following remarks are respectfully submitted in connection with the above-identified application:

Listing of the Claims begin on page 2.

Remarks begin on page 6.
LISTING OF THE CLAIMS

1. (Previously Presented) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

   a first storage device;

   a second storage device being detachable;

   a controller configured to receive the real-time digital broadcast program, and while receiving the real-time digital broadcast program,

   first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

   later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device;

   a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and
an electrical coupler configured to electrically connect the second storage device to the
digital broadcast receiver, the electrical coupler configured to supply power and data to the
second storage device.

2. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
first storage device is a digital storage medium, including a hard disk.

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
electrical and mechanical couplers are combined in one body.

4. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
electrical and mechanical couplers are capable of hot swap.

5. (Previously Presented) The digital broadcast receiver according to claim 4, wherein for
hot swap, the electrical coupler is configured to be connected in order of an earth connection, a
signal and power connection, and a storage device detection signal connection, and is configured
to be separated in order of the storage device detection signal connection, the signal and power
connection, and the earth connection.

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the
mechanical coupler comprises a shock absorber configured to protect the second storage device
from internal/external impacts, and an attachment and separation guide.
7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.

8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)

17. (Previously Presented) A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, comprising:

    receiving the real-time digital broadcast program;

    while receiving the real-time digital broadcast program,

    first detecting that the second storage device is not installed in the digital broadcast receiver and storing a first part of the real-time digital broadcast program in the first storage device; and
later detecting that the second storage device is installed in the digital broadcast receiver, storing a second part of the real-time digital broadcast program in the second storage device, and automatically transferring the first part of the real-time digital broadcast program from the first storage device to the second storage device, the step of automatically transferring being performed while the second part is stored in the second storage device.

18. (Previously Presented) The method according to claim 17, further comprising:
storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising:
storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and
redetecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising:
detecting at regular intervals whether or not the second storage device is installed.

21. (Previously Presented) The method according to claim 17, further comprising:
inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending. No claims are amended. Claims 1 and 17 are independent.

In the Official Action, claims 1 and 17 were rejected under 35 U.S.C. § 112, first paragraph; claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964), Papa (U.S. Patent No. 6,418,492) and Kuroda (EP 1014715); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm in view of Rodriguez and Morehead (sic) (U.S. Patent 5,149,048).

Applicant believes paragraph 3 of the Official Action intends to indicate that claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm in view of Rodriguez, Papa, Kuroda and Morehead. Applicant requests all grounds of rejection be clearly described in any future Official Actions.

Applicant acknowledges with appreciation the interviews between the Examiner and Applicant’s representative on January 28 and February 28, 2011. During the interview, various options for advancing prosecution were discussed. However, no agreement was reached.

Briefly recapitulating, claim 1 recites, *inter alia*, a controller configured to receive the real-time digital broadcast program, and

*while receiving the real-time digital broadcast program,*

*first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and*
later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device.

Claim 17 is directed to a method substantially corresponding to the device of claim 1.

Applicant traverses the current rejections under 35 U.S.C. § 112, first paragraph. Regarding the claimed terms “automatically transfer the first part” and “the controller configured to automatically transfer,” Applicant directs the Examiner’s attention to paragraph [0061] of Applicant’s originally filed specification which recites:

[0061] "According to a storage status in the display or in response to a warning message from the controller, the user or the system controller input a storage means changing signal, in order to transfer the data being received to the first storage means to the storage medium 208 that is the second storage portion (S401).

By describing that the user or the system controller inputs the signal, Applicant’s specification describes both a non-automatic (i.e., user input) and automatic (e.g., system controller input) method for inputting the signal. That is, Applicant’s disclosed genus of inputting the signal includes two disclosed species: a) a user input signal; and b) a controller input signal.

Furthermore, because the signal is input automatically by the controller, the data received by the first storage means is automatically transferred to the storage medium 208 that is the second storage portion. Thus, Applicant’s specification supports the claimed features of "automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device” and “the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device.”
Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. To cure this deficiency, the Official Action applies Rodriguez.

Rodriguez describes a recordable media content archiving system that includes, among other elements, a memory for storing recordable media content characterizing information, a storage device for storing a plurality of portable mediums, and a processor configured with the memory to receive the recordable media content characterizing information into the memory, wherein the processor is further configured to provide a user interface for the recordable media content archiving system.

In the cited embodiment of Rodriguez, media content that is received and stored on the primary storage device 413 is transferred by way of memory 449 to a secondary storage device 414 wherein it is written to one or more removable media residing in the secondary storage device 414. The transfer of content from primary storage device 413 to secondary storage device
414 can occur *a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413*. In the concurrent case, a second temporary buffer in memory 449 is used to implement the transfer of content from the primary storage device 413 to secondary storage device 414. Alternatively, content is transferred from memory 449 to the secondary storage device 414 with higher data rate transfer characteristics, or yet in other embodiments, content is transferred from a remote server or other remote device to a communication port and then directly to the secondary storage device 414.

However, while Rodriguez describes that the transfer of content from primary storage device 413 to secondary storage device 414 can occur *a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413*, Rodriguez does not disclose or suggest Applicant’s claimed detections, let alone detections while receiving a real-time digital broadcast program. Indeed, Rodriguez is silent on how the device determines whether to store the data concurrently or sequentially. Thus, contrary to the Official Action, Rodriguez does not cure the deficiencies of Holm. If Rodriguez is again asserted as teaching Applicant’s claimed detections, Applicant requests a specific explanation for where and how this feature is taught by Rodriguez.

Furthermore, as acknowledged by the Official Action, Holm and Rodriguez do not disclose or suggest *automatically transferring a first part to a second storage device while a second part is being stored in the second storage device*. To cure this deficiency, the Official Action applies Kuroda.
Kuroda describes a video recorder. Paragraph [0013] of Kuroda notes that the video recorder may further comprise a second storage device and a second recording module for recording content signals in the second storage device according to a direction given from outside of the video recorder in order to record contents. Paragraph [0014] of Kuroda notes that the second recording module may comprise a direct recording module for recording current content signals which are currently received by the video recorder in the second storage device without recording in the first storage device, an indirect recording module for copying content signals that have been recorded in the first storage device into the second storage device, and a module for merging content signals recorded by both the direct recording module and the indirect recording module. Paragraph [0015] of Kuroda notes that the second recording module may copy content signals in order of the data stream of the content signals from the first storage device to the second storage device. In this case, the second recording module may be operable in parallel with the first recording module. The second recording module may be operated after operation of the first recording module.

However, while Kuroda may describe copying content signals in order of the data stream of the content signals from the first storage device to the second storage device, this copying by Kuroda is not performed automatically. Instead, the copying of Kuroda is performed in response to a user command (i.e., according to a direction given from outside of the video recorder.) Thus, contrary to the Official Action, Kuroda does not cure the acknowledged deficiencies of Holm and Rodriguez.

Applicant has considered Papa and Morehead and submits Papa and Morehead do not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits
the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.

MPEP 2141 notes that an obviousness-type rejection must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of obviousness. However, Applicant submits that the Official Action and the applied references present no objective evidence that would support an obviousness-type rejection of Applicant’s pending claims based on one of these exemplary rationales.
Conclusion

In view of the above remarks, Applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Registration No. 52041 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: April 28, 2011

Respectfully submitted,

[Signature]

Esther H. Chong
Registration No.: 40953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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## Warnings:

### Information:

| 2 | Fee Worksheet (PTO-875) | fee-info.pdf | 29993 | no | 2 |

### Total Files Size (in bytes): 671730

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

### New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

### National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

### New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEES TRANSMITTAL
For FY 2009

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 1,110.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify):

☑ Deposit Account [Deposit Account Number]: 02-2448

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17

☑ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

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3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

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SUBMITTED BY

Signature: Esther H. Chong
Registration No. (Attorney/Agent): 40953
Telephone: 703-205-8000
Date: April 28, 2011

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

FY 2009

(Feas pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818)).

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Docket Number (Optional)

Filed June 10, 2004

Application Number 10/498,213

For DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Art Unit 2436

Examiner D. L. Hoang

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

- [ ] One month (37 CFR 1.17(a)(1)) $130 $65
- [ ] Two months (37 CFR 1.17(a)(2)) $490 $245
- [X] Three months (37 CFR 1.17(a)(3)) $1110 $555 $1,110.00
- [ ] Four months (37 CFR 1.17(a)(4)) $1730 $865
- [ ] Five months (37 CFR 1.17(a)(5)) $2350 $1175

- [ ] Applicant claims small entity status. See 37 CFR 1.27.
- [ ] A check in the amount of the fee is enclosed.
- [ ] Payment by credit card. Form PTO-2038 is attached.
- [ ] The Director has already been authorized to charge fees in this application to a Deposit Account.
- [X] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 02-2448.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the [ ] applicant/inventor.
- [ ] Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).
- [X] attorney or agent of record. Registration Number 40953
- [ ] attorney or agent under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34

Signature

Esther H. Chong

Date April 28, 2011

Typed or printed name
703-205-8000

Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

Total of [ ] forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
**PATENT APPLICATION FEE DETERMINATION RECORD**

Substitute for Form PTO-875

**APPLICATION AS FILED – PART I**

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- If the difference in column 1 is less than zero, enter "0" in column 2.

**APPLICATION AS AMENDED – PART II**

- **04/28/2011**
  - CLAIMS REMAINING AFTER AMENDMENT
    - Total (37 CFR 1.16(i)) - 15 Minus **20** = 0
    - Independent (37 CFR 1.16(h)) - 2 Minus **3** = 0
- **First Presentation of Multiple Dependent Claim (37 CFR 1.16(j))**

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**AMENDMENT**

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- If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
- **"If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".**
- **"If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".**

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner: /DESHONNE MARTINO/
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

<table>
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<td>10/498,213</td>
<td>KIM ET AL.</td>
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<th>Examiner</th>
<th>Art Unit</th>
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<tbody>
<tr>
<td>DANIEL L. HOANG</td>
<td>2436</td>
</tr>
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</table>

--- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) [ ] Responsive to communication(s) filed on **02 April 2010**.
2a) [ ] This action is FINAL. 2b) [x] This action is non-final.
3) [ ] Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) [x] Claim(s) **1-10 and 17-21** is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) [ ] Claim(s) _____ is/are allowed.
6) [x] Claim(s) **1-10, 17-21** is/are rejected.
7) [ ] Claim(s) _____ is/are objected to.
8) [ ] Claim(s) _____ are subject to restriction and/or election requirement.

### Application Papers

9) [ ] The specification is objected to by the Examiner.
10) [ ] The drawing(s) filed on _____ is/are: a) [ ] accepted or b) [ ] objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) [ ] The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

12) [ ] Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) [ ] All  b) [ ] Some  c) [ ] None of:
   1. [ ] Certified copies of the priority documents have been received.
   2. [ ] Certified copies of the priority documents have been received in Application No. _____.
   3. [ ] Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1) [x] Notice of References Cited (PTO-892)
2) [ ] Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3) [ ] Information Disclosure Statement(s) (PTO/SB/08)
4) [ ] Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5) [ ] Notice of Informal Patent Application
6) [ ] Other; _____.
DETAILED ACTION

RESPONSE TO ARGUMENTS

Applicant's arguments with respect to claims 1 and 17 have been considered but are moot in view of the new ground(s) of rejection.

CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 112

1. Claims 1 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Said claims recite the limitation “automatically transfer the first part” and “the controller configured to automatically transfer”. It is unclear what applicant intends for the term automatically to encompass as these limitations are not present in applicant's specification. Further, applicant's specification cites at paragraphs 25 and 82 that the user has the option of choosing to store on a general STB or a PVR with a built in storage medium at any time. Based on this it appears that the user can decide which storage device to record on and thus the decision is not automatic. Appropriate correction is required.
Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, “fixed storage”]

a second storage device being detachable;

[see paragraph 60, “removable storage”]

a controller configured to receive the real-time digital broadcast program, and

[see paragraph 61]

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage device to the communications bus."]

The Holm reference has been discussed above. While Holm teaches a digital broadcast receiver with a first and second storage device, Holm is mute in teaching the limitations below:
“while receiving the real-time digital broadcast program, first detect that the second storage
device is not installed in the digital broadcast receiver and store a first part of the real-time digital
broadcast program in the first storage device; and later detect that the second storage device is
installed in the digital broadcast receiver, store a second part of the real-time digital broadcast
program in the second storage device, and transfer the first portion of the real-time digital
broadcast program from the first storage device to the second storage device.”

In order to cure the deficiencies of the Holm reference in regard to the limitations above, examiner relies
upon the Rodriguez reference. Rodriguez teaches at col. 14, lines 23-67 and col. 15, lines 1-16, of a
primary and secondary storage device. It is further taught that content may be stored onto primary
storage device 413. Rodriguez then teaches that content recorded onto primary storage device 413 may
be transferred to secondary storage device. The remaining content not yet stored on primary storage
device may either be concurrently downloaded onto both the primary storage device and the secondary
storage device or it can continue to be stored on primary storage device until completely received and
then transferred to secondary storage device. Nonetheless, a portion of the content is first stored on a
primary storage device and at a later point, all portions of the content are stored on the secondary storage
device. This is analogous to the limitation claimed above by applicant. It would have been obvious to
one of ordinary skill in the art to modify the Holm reference to include the limitations taught by Rodriguez
so that data that requires a high transfer rate can be recorded onto a primary storage device and data
requiring a slower seek time and lower data transfer rates can be recorded onto a secondary storage
device such as a multiple compact disk drive or a multiple digital video disk carousel or magazine drive
(see col. 14, lines 31-54).

an electrical coupler configured to electrically connect the second storage device to the digital broadcast
receiver, the electrical coupler configured to supply power and data to the second storage device.
Holm and Rodriguez do not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.

The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm and Rodriguez inventions to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.

The Holm and Rodriguez references have been discussed above. Neither references teach the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device. For this limitation, examiner relies on the Kuroda reference. Kuroda teaches at paragraphs 13-15, of a second recording module which can record current content signals which are currently received by the video recorder without recording in the first storage device and a indirect recording module for copying content signals that have been recorded in the first storage device into the second storage device. Examiner views this as analogous to applicant's limitation of transferring the content from the first storage to the second storage while storing real-time data in the secondary storage. it would have been obvious to one of ordinary skill in the art to modify the Holm and Rodriguez references to include the above limitations taught by Kuroda in order to record data that may be too large to be stored on a recording medium with a small capacity (see Kuroda, paragraphs 3-7).

As per claim 2, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.
[see paragraph 0033, "hard disk"]

As per claim 3, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]

As per claims 4 and 5:

The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:

The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.
As per claim 9, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, “RAM”]

As per claim 10, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:
The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full…”]

As per claim 19, Holm teaches:
The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:
The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:

The method according to claim 17, farther comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm and Rodriguez as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048.

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

POINTS OF CONTACT

* Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436

/Eleni A Shiferaw/
Primary Examiner, Art Unit 2436
# Notice of References Cited

**Application/Control No.** 10/498,213  
**Applicant(s)/Patent Under Reexamination** KIM ET AL.  
**Examiner** DANIEL L. HOANG  
**Art Unit** 2436  
**Page 1 of 1**

## U.S. Patent Documents

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# Request for Continued Examination (RCE) Transmittal

**Address to:**

Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Application Number** | 10/498,213-Conf. #8207
---|---
**Filing Date** | June 10, 2004
**First Named Inventor** | Jang Yong Kim
**Art Unit** | 2436
**Examiner Name** | D. L. Hoang
**Attorney Docket Number** | 5200-0102PUS1

---

**This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.**

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

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**1. Submission required under 37 CFR 1.114**

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. [ ] Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
   i. [ ] Consider the arguments in the Appeal Brief or Reply Brief previously filed on ________________
   ii. [ ] Other _____________________________

b. [X] Enclosed
   i. [X] Amendment/Reply
   ii. [ ] Affidavit(s)/Declaration(s)
   iii. [ ] Information Disclosure Statement (IDS)
   iv. [ ] Other _____________________________

---

**2. Miscellaneous**

a. [ ] Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of ________ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b. [ ] Other _____________________________

---

**3. Fees**

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

a. [X] The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 02-2448.
   i. [X] RCE fee required under 37 CFR 1.17(e)
   ii. [X] Extension of time fee (37 CFR 1.136 and 1.17)
   iii. [ ] Other _____________________________

b. [ ] Check in the amount of $ ___________ enclosed

c. [ ] Payment by credit card (Form PTO-2038 enclosed)

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**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

---

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED**

**Signature**

[Signature]

**Date** | April 2, 2010
**Name (Print/Type)** | Esther H. Chong
**Registration No.** | 40,953

---

**DAVID A. BIODEAU**

USPTO #42,325

---

[Signature]

---
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213 Confirmation No.: 8207

Filed: June 10, 2004 Art Unit: 2436

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS Examiner: D. L. Hoang

AMENDMENT UNDER 37 C.F.R. § 1.114

MS RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated December 2, 2009, and the Advisory Action dated March 19, 2010, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:
   a first storage device;
   a second storage device being detachable;
   a controller configured to
   receive the real-time digital broadcast program, and
   while receiving the real-time digital broadcast program,
   first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and
   later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device;[[ ]] a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and
an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

2. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device is a digital storage medium, including a hard disk.

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are combined in one body.

4. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are capable of hot swap.

5. (Previously Presented) The digital broadcast receiver according to claim 4, wherein for hot swap, the electrical coupler is configured to be connected in order of an earth connection, a signal and power connection, and a storage device detection signal connection, and is configured to be separated in order of the storage device detection signal connection, the signal and power connection, and the earth connection.

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the mechanical coupler comprises a shock absorber configured to protect the second storage device from internal/external impacts, and an attachment and separation guide.
7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.

8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)

17. (Currently Amended) A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, comprising:

   receiving the real-time digital broadcast program;

   while receiving the real-time digital broadcast program,
first detecting that the second storage device is not installed in the digital
broadcast receiver and storing a first part of the real-time digital broadcast program in the
first storage device; and

later detecting that the second storage device is installed in the digital broadcast
receiver, storing a second part of the real-time digital broadcast program in the second
storage device, and **automatically transferring the first portion-part of the real-time digital
broadcast program from the first storage device to the second storage device, the step of
automatically transferring being performed while the second part is stored in the second
storage device.**

18. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device does
not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device is
separated when storing the broadcast program; and

re-detecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising:

detecting at regular intervals whether or not the second storage device is installed.
21. (Previously Presented) The method according to claim 17, further comprising:

inputting a power signal and a control signal to the second storage device, and updating a
file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending, with claims 1 and 17 amended by the present amendment. Claims 1 and 17 are independent.

In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964) and Papa (U.S. Patent No. 6,418,492); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm, Rodriguez and Papa in view of Morehead (U.S. Patent 5,149,048).

Applicant acknowledges with appreciation the interview between the Examiner and Applicant’s representative on March 4, 2010. During the interview, the Examiner acknowledged that Rodriguez does not explicitly describe detecting the presence or absence of a secondary storage device, let alone any actions taken based upon these interactions. However, the Examiner said that he believed that these detections were inherent in Rodriguez. Applicant rebutted any finding of inherency and noted that the official record did not include any rejections based on a finding of inherency. Accordingly, no agreement was reached.

Claims 1 and 17 are amended in order to more clearly describe and distinctly claim Applicant’s invention. Support for this amendment is found in Applicant’s originally filed specification. No new matter is added.

Briefly recapitulating, claim 1 recites, *inter alia*, a controller configured to receive the real-time digital broadcast program, and
while receiving the real-time digital broadcast program,

first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and automatically transfer the first part of the real-time digital broadcast program from the first storage device to the second storage device, the controller configured to automatically transfer the first part to the second storage device while the second part is being stored in the second storage device.

Claim 17 is directed to a corresponding method.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. To cure this deficiency, the Official Action applies Rodriguez.
Rodriguez describes a recordable media content archiving system that includes, among other elements, a memory for storing recordable media content characterizing information, a storage device for storing a plurality of portable mediums, and a processor configured with the memory to receive the recordable media content characterizing information into the memory, wherein the processor is further configured to provide a user interface for the recordable media content archiving system.

In the cited embodiment of Rodriguez, media content that is received and stored on the primary storage device 413 is transferred by way of memory 449 to a secondary storage device 414 wherein it is written to one or more removable media residing in the secondary storage device 414. The transfer of content from primary storage device 413 to secondary storage device 414 can occur \textit{a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413.} In the concurrent case, a second temporary buffer in memory 449 is used to implement the transfer of content from the primary storage device 413 to secondary storage device 414. Alternatively, content is transferred from memory 449 to the secondary storage device 414 with higher data rate transfer characteristics, or yet in other embodiments, content is transferred from a remote server or other remote device to a communication port and then directly to the secondary storage device 414.

However, while Rodriguez describes that the transfer of content from primary storage device 413 to secondary storage device 414 can occur \textit{a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413}, Rodriguez does not disclose
or suggest Applicant’s claimed detections, let alone detections while receiving a real-time digital broadcast program. Indeed, Rodriguez is silent on how the device determines whether to store the data concurrently or sequentially. Thus, for a first reason, Rodriguez does not cure the deficiencies of Holm.

Furthermore, Rodriguez only describes the methods of storing in the alternative (i.e., method a or method b). Rodriguez does not disclose or suggest a mode of operations where both method a and method b are used simultaneously. Specifically, Rodriguez does not disclose or suggest automatically transferring a first part to a second storage device while a second part is being stored in the second storage device. Thus, for a second reason, Rodriguez does not cure the deficiencies of Holm.

Applicant has considered Papa and Morehead and submits Papa and Morehead do not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.

MPEP 2141 notes that prior art is not limited just to the references being applied, but includes the understanding of one of ordinary skill in the art. MPEP 2141 further notes that the prior art reference (or references when combined) need not teach or suggest all the claim limitations. However, an obviousness-type rejection must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of obviousness. However, Applicant submits that the Official Action and the applied references
present no objective evidence that would support an obviousness-type rejection of Applicant’s pending claims based on one of these exemplary rationales.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.

Dated: April 2, 2010

Respectfully submitted,

[Signature]

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant
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| **Authorized User** | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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**Warnings:**

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
**FEE TRANSMITTAL**
For FY 2009

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- [ ] Other (please identify:)
- [X] Deposit Account
  - Deposit Account Number: 02-2448
  - Deposit Account Name: Birch, Stewart, Kolasch & Birch, LLP

For the above-identified deposit account, the Director is hereby authorized to:
- [X] Charge fee(s) indicated below
- [X] Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
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**FEE CALCULATION**

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3. **APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

- Total Sheets
- Extra Sheets
- Number of each additional 50 or fraction thereof
- Fee ($)
- Fee Paid ($)

4. **OTHER FEE(S)**

- Non-English Specification, $130 fee (no small entity discount)
- Other (e.g., late filing surcharge): 1801 Request for continued examination (RCE) (see 37 ...) 810.00
- 1251 Extension for response within first month 130.00

**SUBMITTED BY**

<table>
<thead>
<tr>
<th>Signature</th>
<th>Registration No.</th>
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<tbody>
<tr>
<td>[Signature]</td>
<td>40,953 (Attorney/Agent)</td>
</tr>
<tr>
<td>Name (Print/Type)</td>
<td>(703) 205-8000</td>
</tr>
<tr>
<td>Date</td>
<td>April 2, 2010</td>
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</tbody>
</table>

**DAVID A. BILODEAU**
USPTO #42,325

Birch, Stewart, Kolasch & Birch, LLP
PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)  
FY 2009  
(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)  

<table>
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<th>Application Number</th>
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<tr>
<td>10/498,213-Conf. #8207</td>
<td>5200-0102PUS1</td>
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<td>June 10, 2004</td>
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**For** DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

<table>
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<th>Art Unit</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
<tr>
<td>2436</td>
<td>D. L. Hoang</td>
</tr>
</tbody>
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This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

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<tr>
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</table>

- Applicant claims small entity status. See 37 CFR 1.27.
- A check in the amount of the fee is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director has already been authorized to charge fees in this application to a Deposit Account.
- The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 02-2448.

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the  
- [ ] applicant/inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).
- [x] attorney or agent of record. Registration Number 40,853.
- [ ] attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34

**Signature**  
D. L. Hoang  
April 2, 2010

**Typed or printed name**  
Esther H. Chong  
(703) 205-8000

Notice: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

- [ ] Total of _____ 1 forms are submitted.
### Patent Application Fee Determination Record

**Application or Docket Number:** 10/498,213  
**Filing Date:** 08/10/2004

#### Application asFiled – Part I

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- **Basic Fee (37 CFR 1.18(a), (b), or (c))**
  - N/A
  - N/A

- **Search Fee (37 CFR 1.18(b), (i), or (m))**
  - N/A
  - N/A

- **Examination Fee (37 CFR 1.18(o), (p), or (q))**
  - N/A
  - N/A

**Total Claims (37 CFR 1.18(u))**
- 16 minus 20 =  
- X $ =

**Independent Claims (37 CFR 1.18(h))**
- 2 minus 3 =  
- X $ =

**Application Size Fee (37 CFR 1.18(e))**
- If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.18(s).

**Total**

#### Application as Amended – Part II

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- **Application Size Fee (37 CFR 1.18(e))**
- **First Presentation of Multiple Dependent Claim (37 CFR 1.18(j))**

**Total Add'l Fee**

### Amendments

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- **Application Size Fee (37 CFR 1.18(e))**
- **First Presentation of Multiple Dependent Claim (37 CFR 1.18(j))**

**Total Add'l Fee**

---

*If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

**If the "Highest Number Previously Paid For" in this SPACE is less than 20, enter "20."**

***If the "Highest Number Previously Paid For" in this SPACE is less than 3, enter "3."***

*The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.*

---

Legal Instrument Examiner: /PEGGY YARBOROUGH/

---

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
**PATENT APPLICATION FEE DETERMINATION RECORD**

Substitute for Form PTO-875

**APPLICATION AS FILED – PART I**

<table>
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<tr>
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**APPLICATION AS AMENDED – PART II**

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**AMENDMENT**

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</tbody>
</table>

* If the difference in column 1 is less than zero, enter “0” in column 2.

**LEGAL INSTRUMENT EXAMINER:**

/PEGGY YARBOROUGH/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Filed: June 10, 2004

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Confirmation No.: 8207
Art Unit: 2436

Examiner: D. L. Hoang

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.116

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated December 2, 2009, our comments on the above-identified U.S. patent application are as follows:

Remarks/Arguments begin on page 2 of this paper.
REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending. Claims 1 and 17 are independent.

In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964) and Papa (U.S. Patent No. 6,418,492); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm, Rodriguez and Papa in view of Morehead (U.S. Patent 5,149,048).

Briefly recapitulating, claim 1 recites, *inter alia*, a controller configured to
receive the real-time digital broadcast program, and

*while receiving the real-time digital broadcast program,*

*first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

*later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device.*

Claim 17 is directed to a corresponding method.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step
the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. To cure this deficiency, the Official Action applies Rodriguez.

Rodriguez describes a recordable media content archiving system that includes, among other elements, a memory for storing recordable media content characterizing information, a storage device for storing a plurality of portable mediums, and a processor configured with the memory to receive the recordable media content characterizing information into the memory, wherein the processor is further configured to provide a user interface for the recordable media content archiving system.

In the cited embodiment of Rodriguez, media content that is received and stored on the primary storage device 413 is transferred by way of memory 449 to a secondary storage device 414 wherein it is written to one or more removable media residing in the secondary storage device 414. The transfer of content from primary storage device 413 to secondary storage device 414 can occur a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413. In the concurrent case, a second temporary buffer in memory
449 is used to implement the transfer of content from the primary storage device 413 to secondary storage device 414. Alternatively, content is transferred from memory 449 to the secondary storage device 414 with higher data rate transfer characteristics, or yet in other embodiments, content is transferred from a remote server or other remote device to a communication port and then directly to the secondary storage device 414.

However, while Rodriguez describes that the transfer of content from primary storage device 413 to secondary storage device 414 can occur a) *concurrently to the download of the respective contain in a coordinated sequential fashion* or b) *after the respective content has been completely received and stored in the primary storage device 413*, Rodriguez does not disclose or suggest Applicant’s claimed detections, let alone detections while receiving a real-time digital broadcast program. Indeed, Rodriguez is silent on how the device determines whether to store the data concurrently or sequentially. Thus, for a first reason, Rodriguez does not cure the deficiencies of Holm.

Furthermore, Rodriguez only describes the methods of storing in the alternative (i.e., method a or method b). Rodriguez does not disclose or suggest a mode of operations where both method a and method b are used. Specifically, Rodriguez does not disclose or suggest storing a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device a) after the second device is detected and b) while receiving the real-time digital broadcast program. Thus, for a second reason, Rodriguez does not cure the deficiencies of Holm.
Applicant has considered Papa and Morehead and submits Papa and Morehead do not
cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses
or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits
the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered
obvious by the asserted references for at least the reasons stated above.

MPEP 2141 notes that prior art is not limited just to the references being applied, but
includes the understanding of one of ordinary skill in the art. MPEP 2141 further notes that the
prior art reference (or references when combined) need not teach or suggest all the claim
limitations. However, an obviousness-type rejection must explain why the difference(s) between
the prior art and the claimed invention would have been obvious to one of ordinary skill in the
art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of
obviousness. However, Applicant submits that the Official Action and the applied references
present no objective evidence that would support an obviousness-type rejection of Applicant’s
pending claims based on one of these exemplary rationales.
Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.

Dated: March 2, 2010

Respectfully submitted,

By

[Signature]

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Advisory Action
Before the Filing of an Appeal Brief

The mailing date of this communication appears on the cover sheet with the correspondence address.

THE REPLY FILED 02 March 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☑️ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

   a) ☑️ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. If no event occurs, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on __________. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because

   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____ (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): ________.

6. ☐ Newly proposed or amended claim(s) ____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☑️ For purposes of appeal, the proposed amendment(s): a) ☑️ will not be entered, or b) ☑️ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: ________.
   Claim(s) objected to: ________.
   Claim(s) rejected: 1-10, 17-21.
   Claim(s) withdrawn from consideration: ________.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☑️ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.

12. ☐ Note the attached Information Disclosure Statement(s). (PTO/ SB/08) Paper No(s). ________

13. ☐ Other: ________.

/Eleni A Shiferaw/
Primary Examiner, Art Unit 2436
Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments pertain to the Rodriguez reference not teaching the limitations of storing a second part of the real time digital broadcast program in the second storage device and transfer the first portion of the program from the first storage device to the second storage device after the second device is detected and while receiving the real time digital broadcast program. As cited by applicant, Rodriguez teaches recording to the second storage device can occur concurrently to the download or after the download is completely stored on the first storage device. At some point during the download or after the download is complete, a user may transfer the program from the first storage to the second storage. Regardless of when this occurs, the step of transferring from the first storage to the second storage must undoubtedly occur after a second storage device is confirmed as being attached. Otherwise said transferring would be impossible. It is further clear that the transferring can be done in real time while receiving the digital broadcast program because it is occurring concurrently with the download of the program.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Filed: June 10, 2004
For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Confirmation No.: 8207
Art Unit: 2436
Examiner: D. L. Hoang

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.116

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INTRODUCTORY COMMENTS

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Remarks/Arguments begin on page 2 of this paper.
REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

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In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Rodriguez (U.S. Patent No. 7,512,964) and Papa (U.S. Patent No. 6,418,492); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm, Rodriguez and Papa in view of Morehead (U.S. Patent 5,149,048).

Briefly recapitulating, claim 1 recites, inter alia, a controller configured to receive the real-time digital broadcast program, and

while receiving the real-time digital broadcast program,

first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device.

Claim 17 is directed to a corresponding method.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step
604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. To cure this deficiency, the Official Action applies Rodriguez.

Rodriguez describes a recordable media content archiving system that includes, among other elements, a memory for storing recordable media content characterizing information, a storage device for storing a plurality of portable mediums, and a processor configured with the memory to receive the recordable media content characterizing information into the memory, wherein the processor is further configured to provide a user interface for the recordable media content archiving system.

In the cited embodiment of Rodriguez, media content that is received and stored on the primary storage device 413 is transferred by way of memory 449 to a secondary storage device 414 wherein it is written to one or more removable media residing in the secondary storage device 414. The transfer of content from primary storage device 413 to secondary storage device 414 can occur a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413. In the concurrent case, a second temporary buffer in memory
449 is used to implement the transfer of content from the primary storage device 413 to secondary storage device 414. Alternatively, content is transferred from memory 449 to the secondary storage device 414 with higher data rate transfer characteristics, or yet in other embodiments, content is transferred from a remote server or other remote device to a communication port and then directly to the secondary storage device 414.

However, while Rodriguez describes that the transfer of content from primary storage device 413 to secondary storage device 414 can occur *a) concurrently to the download of the respective contain in a coordinated sequential fashion or b) after the respective content has been completely received and stored in the primary storage device 413*, Rodriguez does not disclose or suggest Applicant’s claimed detections, let alone detections while receiving a real-time digital broadcast program. Indeed, Rodriguez is silent on how the device determines whether to store the data concurrently or sequentially. Thus, for a first reason, Rodriguez does not cure the deficiencies of Holm.

Furthermore, Rodriguez only describes the methods of storing in the alternative (i.e., method a or method b). Rodriguez does not disclose or suggest a mode of operations where both method a and method b are used. Specifically, Rodriguez does not disclose or suggest storing a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device *a) after the second device is detected and b) while receiving the real-time digital broadcast program*. Thus, for a second reason, Rodriguez does not cure the deficiencies of Holm.
Applicant has considered Papa and Morehead and submits Papa and Morehead do not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.

MPEP 2141 notes that prior art is not limited just to the references being applied, but includes the understanding of one of ordinary skill in the art. MPEP 2141 further notes that the prior art reference (or references when combined) need not teach or suggest all the claim limitations. However, an obviousness-type rejection must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. MPEP 2141 goes on to list exemplary rationales that may support a conclusion of obviousness. However, Applicant submits that the Official Action and the applied references present no objective evidence that would support an obviousness-type rejection of Applicant’s pending claims based on one of these exemplary rationales.
Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.

Dated: March 2, 2010

Respectfully submitted,

By  

Esther H. Chong  
Registration No.: 40,953  
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Falls Church, Virginia 22040-0747  
(703) 205-8000  
Attorney for Applicant
# Electronic Acknowledgement Receipt

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**Title of Invention:** Digital broadcast receiver having attachable and separable storage means

| **First Named Inventor/Applicant Name:** | Jang Yong Kim |
| **Customer Number:** | 02292 |
| **Filer:** | Esther Hyeri Chong/Jose Chang |
| **Filer Authorized By:** | Esther Hyeri Chong |
| **Attorney Docket Number:** | 5200-0102PUS1 |
| **Receipt Date:** | 02-MAR-2010 |
| **Filing Date:** | 10-JUN-2004 |
| **Time Stamp:** | 20:52:40 |
| **Application Type:** | U.S. National Stage under 35 USC 371 |

## Payment information:

- Submitted with Payment: no

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**Warnings:**

**Information:**

Total Files Size (in bytes): 282572

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
AMENDMENT TRANSMITTAL LETTER

Application No. 10/498,213-Conf. #8207
Filing Date June 10, 2004
Examiner D. L. Hoang
Art Unit 2436

Applicant(s): Jang Yong KIM et al.

Invention: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

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Multiple Dependent Claims (check if applicable) □

Other fee (please specify): ■

TOTAL ADDITIONAL FEE FOR THIS AMENDMENT: 0.00

□ Large Entity
□ Small Entity

□ No additional fee is required for this amendment.

□ Please charge Deposit Account No. ______________ in the amount of $ ______________.
   A duplicate copy of this sheet is enclosed.

□ A check in the amount of $ ______________ is enclosed.

□ Payment by credit card. Form PTO-2038 is attached.

□ The Director is hereby authorized to charge and credit Deposit Account No. 02-2448
   as described below. A duplicate copy of this sheet is enclosed.

□ Credit any overpayment.

□ Charge any additional filing or application processing fees required under 37 CFR 1.16 and 1.17.

Esther H. Chong
Attorney Reg. No.: 40,953

BIRCH, STEWART, KOLASCH & BIRCH, LLP
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Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000

Dated: March 2, 2010
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

Application No. 10/498,213
Applicant(s) KIM ET AL.
Examiner DANIEL L. HOANG
Art Unit 2436

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply to the final office action will result in ABANDONMENT of the application. See 37 CFR 1.133(c).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) X Responsive to communication(s) filed on 16 July 2009.
2a) X This action is FINAL. 2b) □ This action is non-final.
3) D Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) X Claim(s) 1-10 and 17-21 is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
   5) □ Claim(s) _____ is/are allowed.
   6) X Claim(s) 1-10, 17-21 is/are rejected.
   7) □ Claim(s) _____ is/are objected to.
   8) □ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) □ The specification is objected to by the Examiner.
10) □ The drawing(s) filed on _____ is/are: a) □ accepted or b) □ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) □ The oath or declaration is objected to by the Examiner. Note the attached Office action or form PTO-152.

Priority under 35 U.S.C. § 119

12) □ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) □ All b) □ Some * c) □ None of:
    1. □ Certified copies of the priority documents have been received.
    2. □ Certified copies of the priority documents have been received in Application No. _____.
    3. □ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).
    *
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) X Notice of References Cited (PTO-892)
2) □ Notice of Draftsman’s Patent Drawing Review (PTO-948)
3) □ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date ____.
   4) □ Interview Summary (PTO-413)
   Paper No(s)/Mail Date ____.
   5) □ Notice of Informal Patent Application
   6) □ Other: ____.
DETAILED ACTION

RESPONSE TO ARGUMENTS

1. Applicant's arguments, see REMARKS, filed 1/29/09, with respect to the 112 rejections of claims 1, 2, 6, 7, and 10 have been fully considered and are persuasive. The 112 rejections of said claims has been withdrawn.

2. Applicant's arguments filed 1/29/09 with regards to the 103 rejections have been fully considered but they are not persuasive. Applicant argues the following:

   a) Holm does not teach "automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. Specifically applicant argues that Holm does not disclose detecting that the second storage device has been attached.

Examiner respectfully disagrees. Holm's invention is directed towards overcoming the finite storage limitation of conventional systems and provides a user with much greater flexibility in managing the increasing amount of content and data being receiving by way of interactive TV services (see abstract). Clearly the fixed storage in fig. 2 refers to finite storage limitations and the removable storage is used to increase flexibility of maintaining storage of content and data. Paragraph 61 cites that if the removable storage was chosen (either actively or by default), then the digital content is transferred and store via the removable storage device to a removable medium (CD, DVD, etc.). Examiner views the choice of transferring the content being by default as analogous to applicant's claim of "automatically transferring". While Holm does not specifically cite that the CD/DVD is detected before transferring occurs, examiner believes that it is certain that this step must occur since that lack of a CD/DVD being present would not allow the transfer of the content to the CD/DVD to occur.

The previous action's rejections are maintained.
CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.


As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, "fixed storage"]

a second storage device being detachable;

[see paragraph 60, "removable storage"]

a controller configured to receive the real-time digital broadcast program, and

[see paragraph 61]

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and
[see paragraph 0034, “...may include a storage interface that couples the removable storage
device to the communications bus.”]

The Holm reference has been discussed above. While Holm teaches a digital broadcast receiver with a
first and second storage device, Holm is mute in teaching the limitations below:

“while receiving the real-time digital broadcast program, first detect that the second storage
device is not installed in the digital broadcast receiver and store a first part of the real-time digital
broadcast program in the first storage device; and later detect that the second storage device is
installed in the digital broadcast receiver, store a second part of the real-time digital broadcast
program in the second storage device, and transfer the first portion of the real-time digital
broadcast program from the first storage device to the second storage device.”

In order to cure the deficiencies of the Holm reference in regard to the limitations above, examiner relies
upon the Rodriguez reference. Rodriguez teaches at col. 14, lines 23-67 and col. 15, lines 1-16, of a
primary and secondary storage device. It is further taught that content may be stored onto primary
storage device 413. Rodriguez then teaches that content recorded onto primary storage device 413 may
be transferred to secondary storage device. The remaining content not yet stored on primary storage
device may either be concurrently downloaded onto both the primary storage device and the secondary
storage device or it can continue to be stored on primary storage device until completely received and
then transferred to secondary storage device. Nonetheless, a portion of the content is first stored on a
primary storage device and at a later point, all portions of the content are stored on the secondary storage
device. This is analogous to the limitation claimed above by applicant. It would have been obvious to
one of ordinary skill in the art to modify the Holm reference to include the limitations taught by Rodriguez
so that data that requires a high transfer rate can be recorded onto a primary storage device and data
requiring a slower seek time and lower data transfer rates can be recorded onto a secondary storage
device such as a multiple compact disk drive or a multiple digital video disk carousel or magazine drive (see col. 14, lines 31-54).

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

Holm and Rodriguez do not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.

The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm and Rodriguez inventions to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.

As per claim 2, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

As per claim 3, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]
As per claims 4 and 5:
The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:
The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, "compact disc"]

As per claim 9, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, "RAM"]
As per claim 10, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full…”]

As per claim 19, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:

The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:
The method according to claim 17, further comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm and Rodriguez as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048.

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

CONCLUSION

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Points of Contact

Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436
## Notice of References Cited

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### NON-PATENT DOCUMENTS

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)*

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong Kim et al.

Application No.: 10/498,213  Confirmation No.: 8207
Filed: June 10, 2004  Art Unit: 2436
For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS  Examiner: D. L. Hoang

AMENDMENT UNDER 37 C.F.R. § 1.111

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated April 16, 2009, the remarks for the above-identified U.S. patent application is as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

a second storage device being detachable;

a controller configured to

receive the real-time digital broadcast program, and

while receiving the real-time digital broadcast program,

first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device,

detect whether the second storage device is installed in the digital broadcast receiver;

store the real-time digital broadcast program in the second storage device if the second storage is detected;

store the real-time digital broadcast program in the first storage if the second storage device is not detected;
automatically transfer a previously received portion of the real-time digital broadcast program from the first storage device to the second storage device when the second storage device is detected; and

store a subsequently received portion of the real-time digital broadcast program in the second storage device when the second storage device is detected;

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

2. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device is a digital storage medium, including a hard disk.

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are combined in one body.

4. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are capable of hot swap.

5. (Previously Presented) The digital broadcast receiver according to claim 4, wherein for hot swap, the electrical coupler is configured to be connected in order of an earth connection, a
signal and power connection, and a storage device detection signal connection, and is configured to be separated in order of the storage device detection signal connection, the signal and power connection, and the earth connection.

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the mechanical coupler comprises a shock absorber configured to protect the second storage device from internal/external impacts, and an attachment and separation guide.

7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.

8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)
17. (Currently Amended) A method of storing a real-time digital broadcast program in a
digital broadcast receiver having a first storage device, a second storage device, and a controller,
comprising:

receiving the real-time digital broadcast program;

receiving a user command to store the real-time digital broadcast program in the second
storage device being detachable;

while receiving the real-time digital broadcast program,

first detecting whether the second storage device is not installed in the digital
broadcast receiver and storing a first part of the real-time digital broadcast program in the
first storage device; and

later detecting that the second storage device is installed in the digital broadcast
receiver, storing a second part of the real-time digital broadcast program in the second
storage device, and transferring the first portion of the real-time digital broadcast
program from the first storage device to the second storage device,

storing the real-time digital broadcast program in the second storage device if the second
storage is detected;

storing the real-time digital broadcast program in the first storage if the second storage
device is not detected;

automatically transferring a previously received portion of the real-time digital broadcast
program from the first storage device to the second storage device when the second storage
device is detected; and
storing a subsequently received portion of the real-time digital broadcast program in the second storage device when the second storage device is detected.

18. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and

redetecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising:

detecting at regular intervals whether or not the second storage device is installed.

21. (Previously Presented) The method according to claim 17, further comprising:

inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending, with claims 1 and 17 amended by the present amendment. Claims 1 and 17 are independent.

In the Official Action, claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Papa (U.S. Patent No. 6,418,492); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm and Papa in view of Morehead (U.S. Patent 5,149,048).

Applicant acknowledges with appreciation the telephone discussion between the Examiner and Applicant’s representative on July 8, 2009. During the interview, the Examiner appeared to agree that Applicant’s previously filed claims distinguished over the applied references. Nonetheless, to expedite progress toward allowance, the Examiner suggested that the independent claims be clarified via amendment (i.e., to clarify that the invention later detects that the second storage device is installed in the digital broadcast receiver, stores a second part of the real-time digital broadcast program in the second storage device, and transfers the first portion of the real-time digital broadcast program from the first storage device to the second storage device.) Independent claims 1 and 17 are amended along the lines discussed during the interview. No new matter is added.

Briefly recapitulating, claim 1 recites, inter alia, a controller configured to receive the real-time digital broadcast program, and while receiving the real-time digital broadcast program,
first detect that the second storage device is not installed in the digital broadcast receiver and store a first part of the real-time digital broadcast program in the first storage device; and

later detect that the second storage device is installed in the digital broadcast receiver, store a second part of the real-time digital broadcast program in the second storage device, and transfer the first portion of the real-time digital broadcast program from the first storage device to the second storage device.

Claim 17 is directed to a corresponding method.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen (either actively or by default), then the digital content is transferred to and stored in the removable medium. In step 610, if a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, as acknowledged by paragraph 2 of the Official Action, Holm does not disclose or suggest transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. Nonetheless, the Official Action states that the Examiner believes it is certain that the CD/DVD is detected before transferring occurs. Thus, Applicant interprets the rejection as being based upon an unstated finding of inherency.
Applicant submits that the assertion of inherency is insufficient to show that Holm inherently teaches detecting before transferring because the rejection fails to show "that the alleged inherent characteristic necessarily flows from the teachings of the applied prior art"\(^1\) "The fact that a certain result may occur or be present in the prior art is not sufficient to establish inherency of that result or characteristic."\(^2\) "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'\(^3\)

Here, it is not necessary for the device of Holm to detect the CD/DVD before transferring data. It is equally possible for the device to transfer based upon a user input or some undefined criteria, regardless of the presence of the CD/DVD. In such a scenario, an error message may be displayed if the transfer is attempted when a CD/DVD is not present. Because it is not necessary for the device of Holm to detect the CD/DVD before transferring data, Applicant submits that the current rejection based on inherency is improper. Thus, for a first reason, Applicant requests that the current rejection be withdrawn.

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\(^{1}\)See MPEP 2112 (emphasis in original) (citation omitted). See also same section stating that "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic," (emphasis in original). See also In re Robertson, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999) ("[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill,' citing Continental Can Co. v. Monsanto Co., 948 F2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991); and "[i]nherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient," Id, at 1269 (citation omitted)).

\(^{2}\) In re Bijou, 9 F.3d 1531, 1534, 28 USPQ2d 1995, 1957 (Fed. Cir. 1993).

\(^{3}\) In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).
Furthermore, Holm does not disclose or suggest detecting whether the second storage device is installed in the digital broadcast receiver. There is no mention of detecting a CD/DVD in Holm. Paragraph 2 of the Official Action argues that, because the removable storage option can be chosen by default, the removable storage device must be detected. Applicant disagrees. The default setting only applies to where the data is stored. As noted above, the device of Holm may attempt to transfer data to the CD/DVD based upon a user input or some undefined criteria, without verifying the presence of the CD/DVD. Holm clearly explains that the choice of storage location is either a user choice or a default choice. Holm does not say that the user/default choice is predicated on or related to detecting the presence of the CD/DVD. Thus, for a second reason, Applicant requests that the current rejection be withdrawn.

Finally, as discussed during the interview, Holm does not disclose or suggest later detecting that the second storage device is installed in the digital broadcast receiver, storing a second part of the real-time digital broadcast program in the second storage device, and transferring the first portion of the real-time digital broadcast program from the first storage device to the second storage device. Thus, for a third reason, Applicant requests that the current rejection be withdrawn.

Applicant has considered Papa and Morehead and submits Papa and Morehead does not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits
the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.⁴

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.

Dated: July 16, 2009

Respectfully submitted,

By: [Signature]

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

DAVID A. BILODEAU
USPTO #42,325

⁴ MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest all the claim limitations.
AMENDMENT TRANSMITTAL LETTER

Docket No. 5200-0102PUS1

Application No. 10/498,213-Conf. #8207  Filing Date June 10, 2004  Examiner D. L. Hoang  Art Unit 2436

Applicant(s): Jang Yong KIM et al.

Invention: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

CLAIMS AS AMENDED

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TOTAL ADDITIONAL FEE FOR THIS AMENDMENT: 0.00

Large Entity  x  Small Entity

x No additional fee is required for this amendment.

Please charge Deposit Account No. _______ in the amount of $ ________

A duplicate copy of this sheet is enclosed.

x A check in the amount of $ ________ is enclosed.

x Payment by credit card. Form PTO-2038 is attached.

x The Director is hereby authorized to charge and credit Deposit Account No. 02-2448 as described below. A duplicate copy of this sheet is enclosed.

x Credit any overpayment.

x Charge any additional filing or application processing fees required under 37 CFR 1.16 and 1.17.

David Bilodeau
USPTO #42,325  Dated: July 16, 2009

Esther H. Chong
Attorney Reg. No.: 40,953

BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000

Birch, Stewart, Kolasch & Birch, LLP
EHC/MEM/rtl
### Patent Application Fee Determination Record

**Application or Docket Number:** 10/498,213  
**Filing Date:** 08/10/2004  
**To Be Mailed:**

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#### Application as Amended – Part II

**Date:** 07/16/2009

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TOTAL ADD'L FEE 0 | OR TOTAL ADD'L FEE

### Legal Instrument Examiner

Rochelle C. Geter

---

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-866-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

Application No. 10/498,213
Applicant(s) KIM ET AL.
Examiner DANIEL L. HOANG
Art Unit 2436

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Response to communication(s) filed on 29 January 2009.
2) This action is FINAL.
2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-10 and 17-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-10, 17-21 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
4) Interview Summary (PTO-413)
   Paper No(s)/Mail Date ______.
5) Notice of Informal Patent Application
6) Other: ______.
DETAILED ACTION

RESPONSE TO ARGUMENTS

1. Applicant's arguments, see REMARKS, filed 1/29/09, with respect to the 112 rejections of claims 1, 2, 6, 7, and 10 have been fully considered and are persuasive. The 112 rejections of said claims has been withdrawn.

2. Applicant's arguments filed 1/29/09 with regards to the 103 rejections have been fully considered but they are not persuasive. Applicant argues the following:

   a) Holm does not teach "automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. Specifically applicant argues that Holm does not disclose detecting that the second storage device has been attached.

Examiner respectfully disagrees. Holm's invention is directed towards overcoming the finite storage limitation of conventional systems and provides a user with much greater flexibility in managing the increasing amount of content and data being receiving by way of interactive TV services (see abstract). Clearly the fixed storage in fig. 2 refers to finite storage limitations and the removable storage is used to increase flexibility of maintaining storage of content and data. Paragraph 61 cites that if the removable storage was chosen (either actively or by default), then the digital content is transferred and store via the removable storage device to a removable medium (CD, DVD, etc.). Examiner views the choice of transferring the content being by default as analogous to applicant's claim of "automatically transferring". While Holm does not specifically cite that the CD/DVD is detected before transferring occurs, examiner believes that it is certain that this step must occur since that lack of a CD/DVD being present would not allow the transfer of the content to the CD/DVD to occur.

The previous action's rejections are maintained.
CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-10, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holm, US PGP 20030070181, and further in view of Papa et al., US Patent No. 6418492.

As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, "fixed storage"]

a second storage device being detachable;

[see paragraph 60, "removable storage"]

a controller configured to

[see fig. 5, element 212]

store the real-time digital broadcast program in the second storage device.

[see paragraph 61]
store the real-time digital broadcast program in the second storage device only upon detecting
the second storage device is installed, and

[see paragraph 61]

store the real-time digital broadcast program in the first storage device only upon detecting the
second storage device is not installed, automatically transfer a portion of the real-time digital broadcast
program stored in the first storage device to the second storage device upon detecting that the second
storage device has been attached and thereafter store a portion of the real-time digital broadcast program
not stored in the first storage device in the second storage device:

[see paragraph 61 and response to arguments above]

a mechanical coupler configured to physically connect the second storage device to the digital broadcast
receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage
device to the communications bus."]

an electrical coupler configured to electrically connect the second storage device to the digital broadcast
receiver, the electrical coupler configured to supply power and data to the second storage device.

Holm does not explicitly cite a electrical coupler as a path for power supply of the storage means
for allowing the user to attach and separate the second storage means while power is supplied to the
receiver.

The Papa reference teaches hot swapping and plug and play technology (see background). Upon
further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the
Holm invention to include that which is taught by Papa to have a continuous power supply to the receiver
while allowing the user to attach and separate the second storage means. One would be motivated to do
this because it would allow to receiver to continuously receive broadcast programs without interruption
while the user is removing or attaching the second storage means.
As per claim 2, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

As per claim 3, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]

As per claims 4 and 5:
The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]
As per claim 8, Holm teaches:

The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, “compact disc”]

As per claim 9, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, “RAM”]

As per claim 10, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full…”]

As per claim 19, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]
As per claim 20, Holm teaches:

The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:

The method according to claim 17, farther comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048.

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

**POINTS OF CONTACT**

*. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

* Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436

/Nasser G Moazzami/
Supervisory Patent Examiner, Art Unit 2436
# Index of Claims

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**FEE TRANSMITTAL**
For FY 2009

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($810.00)

**METHOD OF PAYMENT**
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- [ ] Money Order
- [ ] None
- [ ] Other (please identify): Birch, Stewart, Kolasch & Birch, LLP

**Deposit Account Number:** 02-2448

**FEE CALCULATION**

1. **BASIC FILING, SEARCH, AND EXAMINATION FEES**

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**2. EXCESS CLAIM FEES**

- Each claim over 20 (including Reissues): $52 per claim
- Each independent claim over 3 (including Reissues): $220 per claim
- Multiple dependent claims: $390 per claim

**Fee Description**

- Small Entity

2. **APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

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4. **OTHER FEE(S)**

- Non-English Specification: $130 fee (no small entity discount)
- Other (e.g., late filing surcharge): 1801 Request for continued examination (RCE) (see 37...

**$810.00**

**SUBMITTED BY**

- Signature: [Signature]
- Registration No. (Attorney/agent): 40,953
- Telephone: (703) 205-8000
- Date: January 29, 2009

Birch, Stewart, Kolasch & Birch, LLP
Request for
Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number 10/498,213-Conf. #8207
Filing Date June 10, 2004
First Named Inventor Jang Yong KIM
Art Unit 2436
Examiner Name D. L. Hoang
Attorney Docket Number 5200-0102PUS1

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.  Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application.  See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114
   Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on ________________
      ii. ☐ Other ________________________________
   b. ☑ Enclosed
      i. ☑ Amendment under 37 C.F.R. § 1.114
      ii. ☐ Information Disclosure Statement (IDS)
      iii. ☐ Affidavit(s)/Declaration(s)
      iv. ☐ Other ________________________________

2. Miscellaneous
   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of __________ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(f) required)
   b. ☐ Other ________________________________

3. Fees
   The RCE fee under 37 CFR 1.117(e) is required by 37 CFR 1.114 when the RCE is filed.
   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any Overpayments, to Deposit Account No. 02-2448 .
      i. ☑ RCE fee required under 37 CFR 1.17(e)
      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)
      iii. ☐ Other ________________________________
   b. ☐ Check in the amount of $ ________________________________ enclosed
   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature

Date January 29, 2009
Registration No. 40,953

Birch, Stewart, Kolasch & Birch, LLP

EHC/MEM/rtl
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Filed: June 10, 2004

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Confirmation No.: 8207
Art Unit: 2436

Examiner: D. L. Hoang

AMENDMENT UNDER 37 C.F.R. §1.114

MS RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated October 29, 2008, finally rejecting claims 1-10 and 17-21, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

a second storage device being detachable;

a controller configured to

   detect whether the second storage device is installed in the digital broadcast receiver,

   store the real-time digital broadcast program in the second storage device if the second storage is detected,

   store the real-time digital broadcast program in the first storage if the second storage device is not detected,

   automatically transfer a previously received portion of the real-time digital broadcast program from the first storage device to the second storage device when the second storage device is detected, and

   store a subsequently received portion of the real-time digital broadcast program in the second storage device when the second storage device is detected;

   store the real-time digital broadcast program in the second storage device,

   store the real-time digital broadcast program in the second storage device only upon detecting the second storage device is installed, and

   store the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed, automatically transfer a portion of the...
real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached and thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device;

a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

2. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device is a digital storage medium, including a hard disk.

3. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are combined in one body.

4. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are capable of hot swap.

5. (Previously Presented) The digital broadcast receiver according to claim 4, wherein for hot swap, the electrical coupler is configured to be connected in order of an earth connection, a signal and power connection, and a storage device detection signal connection, and is configured
to be separated in order of the storage device detection signal connection, the signal and power connection, and the earth connection.

6. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the mechanical coupler comprises a shock absorber configured to protect the second storage device from internal/external impacts, and an attachment and separation guide.

7. (Previously Presented) The digital broadcast receiver according to claim 1, further comprising a detector configured to detect whether or not the second storage device is installed.

8. (Previously Presented) The digital broadcast receiver according to claim 1, the second storage device includes at least one storage disc.

9. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the first storage device comprises a temporary memory.

10. (Previously Presented) The digital broadcast receiver according to claim 1, wherein the second storage device further comprises a structure for facilitating attachment and separation of the second storage device from outside.

11-16. (Cancelled)
17. (Currently Amended) A method of storing a real-time digital broadcast program in a
digital broadcast receiver having a first storage device, a second storage device, and a controller,
comprising:

receiving the real-time digital broadcast program;

receiving a user command to store the real-time digital broadcast program in the second
storage device being detachable;

detecting whether the second storage device is installed in the digital broadcast receiver;

storing the real-time digital broadcast program in the second storage device if the second
storage is detected;

storing the real-time digital broadcast program in the first storage if the second storage
device is not detected;

automatically transferring a previously received portion of the real-time digital broadcast
program from the first storage device to the second storage device when the second storage
device is detected; and

storing a subsequently received portion of the real-time digital broadcast program in the
second storage device when the second storage device is detected.

storing the real-time digital broadcast program in the first storage device only upon
detecting the second storage device is not installed;

automatically transferring a portion of the real-time digital broadcast program stored in
the first storage device to the second storage device upon detecting that the second storage
device has been attached; and
storing a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device.

18. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (Previously Presented) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and

redetecting the installation of the second storage device.

20. (Previously Presented) The method according to claim 17, further comprising:

detecting at regular intervals whether or not the second storage device is installed.

21. (Previously Presented) The method according to claim 17, further comprising:

inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.
REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-10 and 17-21 are pending, with claims 1 and 17 amended by the present amendment. Claims 1 and 17 are independent.

In the Official Action, claims 1, 2, 6, 7 and 10 were rejected under 35 U.S.C. § 112 second paragraph; claims 1-5, 7-10 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Papa (U.S. Patent No. 6,418,492); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm and Papa in view of Morehead (U.S. Patent 5,149,048).

As a first point of order, Applicant traverses the current rejection under 35 U.S.C. § 112 second paragraph. However, to advance progress toward allowance, claims 1 and 17 are amended to clarify the present invention. Thus, the rejection under 35 U.S.C. § 112 second paragraph, is moot.

Briefly recapitulating, claim 1 recites, *inter alia*, a controller configured to

a) detect whether the second storage device is installed in the digital broadcast receiver,

b) store the real-time digital broadcast program in the second storage device if the second storage is detected,

c) store the real-time digital broadcast program in the first storage if the second storage device is not detected,
c) store the real-time digital broadcast program in the first storage if the second storage device is not detected,

d) automatically transfer a previously received portion of the real-time digital broadcast program from the first storage device to the second storage device when the second storage device is detected, and

e) store a subsequently received portion of the real-time digital broadcast program in the second storage device when the second storage device is detected.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen, then the digital content is transferred to and stored in the removable medium. In step 610, a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, contrary to the Official Action, Holm does not disclose or suggest automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. Holm does not disclose or suggest detecting that the second storage device has been attached. Indeed, paragraph 2 of the Response to Arguments section of the Official Action
makes no reference to Applicant's feature of detecting that the second storage device has been attached. Similarly, Holm does not disclose or suggest all features of independent claim 17.

Applicant has considered Papa and Morehead and submits Papa and Morehead does not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicant submits the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.¹

**CONCLUSION**

In view of the above amendment, applicant believes the pending application is in condition for allowance. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

¹ MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest all the claim limitations."
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.147; particularly, extension of time fees.

Dated: January 29, 2009

Respectfully submitted,

By

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant
# Patent Application Fee Determination Record

**Substitute for Form PTO-875**

**Application or Docket Number:** 10/498,213  
**Filing Date:** 06/10/2004  
**To Be Mailed:** □

## APPLICATION AS FILED – PART I

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

## AMENDMENT

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

Legal Instrument Examiner: 
/DIANIE JACOBS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form are suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
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2292 7590 10/29/2008
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

Application No. 10/498,213
Applicant(s) KIM ET AL.

Examiner DANIEL L. HOANG
Art Unit 2436

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 02 April 2008.
2a)☒ This action is FINAL.
2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10 and 17-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) 1-10, 17-21 is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. ______.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SD/08)
   Paper No(s)/Mail Date ______.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date ______.
5)☐ Notice of Informal Patent Application
6)☐ Other: ______.
RESPONSE TO ARGUMENTS

1. Applicant’s arguments, see REMARKS page 9, filed 4/02/08, with respect to the 112 rejections of claims 1, 2, 6, 7, and 10 have been fully considered and are persuasive. The 112 rejections of said claims has been withdrawn.

2. Applicant's arguments filed 4/02/08 with regards to the 103 rejections have been fully considered but they are not persuasive. Applicant argues the following:

   a) Holm does not teach automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device.

   b) Holm does not teach storing a portion of the real time digital broadcast program not yet stored in the first storage device on the second storage device.

   c) Holm does not teach a controller.

Examiner respectfully disagrees. With respect to a), Holm teaches in paragraphs 58-61 a method comprising five steps. The first step comprises providing the user with a selection of programming from which he/she can choose from. The second step comprises receiving a selection choice from the user. The third step comprises allowing the user to choose between fixed or removable storage mediums. The user can choose between storage mediums during the selection process or prior to the selection process (setting a default). If the user sets the selection to a removable storage medium by default, the digital content is transferred to the removable medium by default. This is viewed as being analogous to the claimed “automatically transfer”.

With respect to b), if the user chooses to store the digital content to a fixed medium and then later chooses to store digital content to a removable storage medium, it is clear that said content being stored on the removable medium is not yet stored on the fixed storage medium.
With respect to c), see fig. 5, element 212, wherein the command receiver is viewed as analogous to the claimed “controller”.

CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:
   
   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
   
2. Claims 1, 2, 6, 7, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite the limitation “thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device”. The claim language cites that the real-time digital broadcast program is stored in a first storage device when it is detected that a second storage device is not installed. Based on this claim language, it appears that the real-time digital broadcast program is stored in the first storage device. Thus it appears impossible to have the same "the real-time digital broadcast program" not stored in the first storage device, to be stored in a second storage device. It is unclear whether applicant intends to mean a new real-time digital broadcast portion is stored or whether a portion of the already stored content is transferred to the second storage device. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-10, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holm, US PGP 20030070181, and further in view of Papa et al., US Patent No. 6418492.

As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, “fixed storage”]

a second storage device being detachable;

[see paragraph 60, “removable storage”]

a controller configured to

[see fig. 5, element 212]

store the real-time digital broadcast program in the second storage device,

[see paragraph 61]

store the real-time digital broadcast program in the second storage device only upon detecting the second storage device is installed, and

[see paragraph 61]

store the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed, automatically transfer a portion of the real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached and thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device:

[see paragraph 61 and response to arguments above]
a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage device to the communications bus."]

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

*Holm does not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.*

*The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm invention to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.*

**As per claim 2, Holm teaches:**

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

**As per claim 3, Holm teaches:**

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]
As per claims 4 and 5:
The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:
The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, “compact disc”]

As per claim 9, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, “RAM”]
As per claim 10, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:
The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full…”]

As per claim 19, Holm teaches:
The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:
The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:
The method according to claim 17, farther comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048.

**As per claim 6:**

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

**CONCLUSION**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

POINTS OF CONTACT

*. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulaney Street  
Alexandria, VA 22314

*. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436
# Notice of References Cited

**Application/Control No.** 10/498,213  
**Applicant(s)/Patent Under Reexamination** KIM ET AL.  
**Examiner** DANIEL L. HOANG  
**Art Unit** 2436  
**Page 1 of 1**

## U.S. Patent Documents

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## Non-Patent Documents

*Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages*

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(o).)*  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office  
PTO-892 (Rev. 01-2001)  
Notice of References Cited  
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## Index of Claims

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply to the Office within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) [x] Responsive to communication(s) filed on 02 April 2008.
2a) [x] This action is FINAL.
2b) [ ] This action is non-final.
3) [ ] Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) [x] Claim(s) 1-10 and 17-21 is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) [ ] Claim(s) _____ is/are allowed.
6) [x] Claim(s) 1-10, 17-21 is/are rejected.
7) [ ] Claim(s) _____ is/are objected to.
8) [ ] Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) [ ] The specification is objected to by the Examiner.
10) [ ] The drawing(s) filed on _____ is/are: a) [ ] accepted or b) [ ] objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) [ ] The oath or declaration is objected to by the Examiner. Note the attached Office action or form PTO-152.

Priority under 35 U.S.C. § 119

12) [ ] Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) [ ] All  b) [ ] Some *  c) [ ] None of:
    1. [ ] Certified copies of the priority documents have been received.
    2. [ ] Certified copies of the priority documents have been received in Application No. ______.
    3. [ ] Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) [x] Notice of References Cited (PTO-892)
2) [ ] Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3) [ ] Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) [ ] Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.
5) [ ] Notice of Informal Patent Application
6) [ ] Other: _____.
DETAIL ACTION

RESPONSE TO ARGUMENTS

1. Applicant’s arguments, see REMARKS page 9, filed 4/02/08, with respect to the 112 rejections of claims 1, 2, 6, 7, and 10 have been fully considered and are persuasive. The 112 rejections of said claims has been withdrawn.

2. Applicant's arguments filed 4/02/08 with regards to the 103 rejections have been fully considered but they are not persuasive. Applicant argues the following:
   a) Holm does not teach automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device.
   b) Holm does not teach storing a portion of the real time digital broadcast program not yet stored in the first storage device on the second storage device.
   c) Holm does not teach a controller.

Examiner respectfully disagrees. With respect to a), Holm teaches in paragraphs 58-61 a method comprising five steps. The first step comprises providing the user with a selection of programming from which he/she can choose from. The second step comprises receiving a selection choice from the user. The third step comprises allowing the user to choose between fixed or removable storage mediums. The user can choose between storage mediums during the selection process or prior to the selection process (setting a default). If the user sets the selection to a removable storage medium by default, the digital content is transferred to the removable medium by default. This is viewed as being analogous to the claimed “automatically transfer”.

With respect to b), if the user chooses to store the digital content to a fixed medium and then later chooses to store digital content to a removable storage medium, it is clear that said content being stored on the removable medium is not yet stored on the fixed storage medium.
With respect to c), see fig. 5, element 212, wherein the command receiver is viewed as analogous to the claimed “controller”.

CLAIMS PRESENTED

Claims 1-10 and 17-21 are pending.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2, 6, 7, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite the limitation “thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device”. The claim language cites that the real-time digital broadcast program is stored in a first storage device when it is detected that a second storage device is not installed. Based on this claim language, it appears that the real-time digital broadcast program is stored in the first storage device. Thus it appears impossible to have the same "the real-time digital broadcast program" not stored in the first storage device, to be stored in a second storage device. It is unclear whether applicant intends to mean a new real-time digital broadcast portion is stored or whether a portion of the already stored content is transferred to the second storage device. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-10, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holm, US PGP 20030070181, and further in view of Papa et al., US Patent No. 6418492.

As per claim 1, 17, Holm teaches:

A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

a first storage device;

[see paragraph 60, “fixed storage”]

a second storage device being detachable;

[see paragraph 60, “removable storage”]

a controller configured to

[see fig. 5, element 212]

store the real-time digital broadcast program in the second storage device,

[see paragraph 61]

store the real-time digital broadcast program in the second storage device only upon detecting the second storage device is installed, and

[see paragraph 61]

store the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed, automatically transfer a portion of the real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached and thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device:

[see paragraph 61 and response to arguments above]
a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage device to the communications bus."]

an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.

_Holm does not explicitly cite a electrical coupler as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver._

_The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm invention to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means._

**As per claim 2, Holm teaches:**

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

**As per claim 3, Holm teaches:**

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]
As per claims 4 and 5:
The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]

As per claim 8, Holm teaches:
The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, “compact disc”]

As per claim 9, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, “RAM”]
As per claim 10, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 18, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

[see paragraph 5, “finite storage becomes full…”]

As per claim 19, Holm teaches:

The method according to claim 17, further comprising: storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and redetecting the installation of the second storage device.

[see paragraph 63]

As per claim 20, Holm teaches:

The method according to claim 17, further comprising: detecting at regular intervals whether or not the second storage device is installed.

[see paragraph 60-61, wherein the regular intervals comprise teach time the user makes a particular selection and is prompted to choose between storage mediums]

As per claim 21:
The method according to claim 17, further comprising: inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.

[see Papa, fig. 3, element 138 and 140]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048. 

As per claim 6:

The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

CONCLUSION

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**POINTS OF CONTACT**

*. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

*. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/
Examiner, Art Unit 2436
Application/Control Number: 10/498,213
Art Unit: 2136

/Nasser G Moazzami/
Supervisory Patent Examiner, Art Unit 2436
# Notice of References Cited

## U.S. Patent Documents

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## Non-Patent Documents

Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)*

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong Kim et al.

Application No.: 10/498,213
Confirmation No.: 8207

Filed: June 10, 2004
Art Unit: 2136

For: DIGITAL BROADCAST RECEIVER
HAVING ATTACHABLE AND
SEPARABLE STORAGE MEANS

Examiner: D. L. Hoang

REPLY TO NOTICE OF NON-COMPLIANT AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Responsive to the June 16, 2008 Notice of Non-Compliant Amendment, attached hereto is a corrected version of the “specification” section of the Non-Final Amendment submitted on April 2, 2008.

The present submission is being timely filed within thirty (30) days of the mailing date of the Notice. Accordingly, no extension of time fees should be due.
AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 7, lines 2-16, as follows:

FIG. 2 is a block diagram of a set top box (STB) mounted with an attachable and separable and hot swap-capable storage means according to a preferred embodiment of the present invention. As shown in the drawing, the STB includes a controller 206 for controlling system components, a tuner 201 for turning received signals, a QPSK decoder 202 for decoding received signals using QPSK modulation, a DEMUX 203 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 204 for decoding MPEG audio/video data, an A/V encoder 205 for encoding audio/video video in order to output them to another device, an internal storage device 207 as a first storage means for storing received data, the device including a buffer 207a for temporarily storing received data whenever necessary, a plurality of storage medium 208 as a second storage means being attachable and separable, and a display 209 for displaying an operational state of system and informing or warning an amount of data being stored in the storage means.
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: July 16, 2008

Respectfully submitted,

By

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOILASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
**PATENT APPLICATION FEE DETERMINATION RECORD**

*Substitute for Form PTO-875*

**APPLICATION AS FILED – PART I**

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**APPLICATION AS AMENDED – PART II**

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**LEGAL INSTRUMENT EXAMINER:**

/ADRIENE D. SELLMAN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 36 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22314-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22314-1450.

If you need assistance in completing the form, call 1-866-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Notice of Non-Compliant Amendment (37 CFR 1.121)

The amendment document filed on _____ is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- 1. Amendments to the specification:
  - A. Amended paragraph(s) do not include markings.
  - B. New paragraph(s) should not be underlined.
  - C. Other _____.

- 2. Abstract:
  - A. Not presented on a separate sheet. 37 CFR 1.72.
  - B. Other _____.

- 3. Amendments to the drawings:
  - A. The drawings are not properly identified in the top margin as “Replacement Sheet,” “New Sheet,” or “Annotated Sheet” as required by 37 CFR 1.121(d).
  - B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - C. Other _____.

- 4. Amendments to the claims:
  - A. A complete listing of all of the claims is not present.
  - B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - D. The claims of this amendment paper have not been presented in ascending numerical order.
  - E. Other: _____.

- 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):
  _____

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given no new time period if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the entire corrected amendment must be resubmitted.

2. Applicant is given one month, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a Quayle action. If any of above boxes 1. to 4. are checked, the correction required is only the corrected section of the non-compliant amendment in compliance with 37 CFR 1.121.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a Quayle action.

Failure to timely respond to this notice will result in:

Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a Quayle action; or

Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/Naseer Moazzami/

Legal Instruments Examiner (LIE), if applicable

Telephone No.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jang Yong KIM et al.

Application No.: 10/498,213
Confirmation No.: 8207

Filed: June 10, 2004
Art Unit: 2136

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS
Examiner: D. L. Hoang

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated January 2, 2008, please amend the above-identified U.S. patent application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Amendments to the Drawings begin on page 8 of this paper and include both an attached replacement sheet and an annotated sheet showing changes.

Remarks/Arguments begin on page 9 of this paper.
AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 7, lines 2-16, as follows:

FIG. 2 is a block diagram of a set top box (STB) mounted with an attachable and separable and hot swap-capable storage means according to a preferred embodiment of the present invention. As shown in the drawing, the STB includes a controller 206 for controlling system components, a tuner 201 for turning received signals, a QPSK decoder 202 for decoding received signals using QPSK modulation, a DEMUX 203 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 204 for decoding MPEG audio/video data, an A/V encoder 205 for encoding audio/video video in order to output them to another device, an internal storage device 107—device 207 as a first storage means for storing received data, the device including a buffer 207a for temporarily storing received data whenever necessary, a plurality of storage medium 208 as a second storage means being attachable and separable, and a display 209 for displaying an operational state of system and informing or warning an amount of data being stored in the storage means.
AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A digital broadcast receiver configured to receive a real-time digital broadcast program, comprising:

   a first storage device;

   a second storage device being detachable;

   a controller configured to

   store the real-time digital broadcast program in the second storage device,

   store the real-time digital broadcast program in the second storage device only upon detecting the second storage device is installed, and

   store the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed, automatically transfer a portion of the real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached and thereafter store a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device;

   a mechanical coupler configured to physically connect the second storage device to the digital broadcast receiver; and

   an electrical coupler configured to electrically connect the second storage device to the digital broadcast receiver, the electrical coupler configured to supply power and data to the second storage device.
A digital broadcast receiver having an attachable and separable storage means, wherein the digital broadcast receiver for receiving real-time digital broadcast programs comprises:

a second storage means for storing broadcast programs, being attachable and separable to and from a set without taking the set apart by a user;

a first storage means for storing data being received, before changing a data path being received to the second storage means in real-time mode;

a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and

a connection means as a path for power supply of the storage means, and signal, for allowing the user to attach and separate the second storage means to and from the receiver while power is supplied to the receiver.

2. (Currently Amended) The digital broadcast receiver according to claim 1, wherein the first storage device means is a digital storage medium, including a hard disk.

3. (Currently Amended) The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means electrical and mechanical couplers are combined in one body.

4. (Currently Amended) The digital broadcast receiver according to claim 1, wherein the electrical and mechanical couplers are connection means is capable of hot swap.
5. (Currently Amended) The digital broadcast receiver according to claim 4, wherein for hot swap, the connection means electrical coupler is configured to be connected in order of an earth portion connection, a signal and power connection portion, and a storage means device detection signal connection portion, and is configured to be separated in order of the storage means device detection signal connection portion, the signal and power connection portion, and the earth connection portion.

6. (Currently Amended) The digital broadcast receiver according to claim 1, wherein the coupling means mechanical coupler comprises a shock absorber for protecting configured to protect the second storage medium device from internal/external impacts, and an attachment and separation guide means for facilitating the attachment and separation of the storage medium.

7. (Currently Amended) The digital broadcast receiver according to claim 1, wherein further comprises comprising a detector for detecting configured to detect whether or not the second storage means device is installed.

8. (Currently Amended) The digital broadcast receiver according to claim 1, the second storage means device includes at least one storage means disc.

9. (Currently Amended) The digital broadcast receiver according to claim 1, wherein further the first storage device comprises a temporary memory for storing real-time digital broadcast programs in the set.
10. (Currently Amended) The digital broadcast receiver according to claim 1, wherein the second storage means device further comprises a structure for facilitating attachment and separation of the second storage means device from outside.

11-16. (Cancelled)

17. (New) A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, comprising:

receiving the real-time digital broadcast program;

receiving a user command to store the real-time digital broadcast program in the second storage device being detachable;

storing the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed;

automatically transferring a portion of the real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached; and

storing a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device.
18. (New) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device does not have a sufficient storage for storing the broadcast program.

19. (New) The method according to claim 17, further comprising:

storing the broadcast program in the first storage device if the second storage device is separated when storing the broadcast program; and

redetecting the installation of the second storage device.

20. (New) The method according to claim 17, further comprising:

detecting at regular intervals whether or not the second storage device is installed.

21. (New) The method according to claim 17, further comprising:

inputting a power signal and a control signal to the second storage device, and updating a file system for an operation of the second storage device.
AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include changes to: Figures 1 and 4.

Figure 1 has been labeled as "Related Art". Figure 4 has been amended to replace the Korean symbols near box 403 with "yes" and "no". No new matter is added.

Attachments: Replacement Sheets
            Annotated Sheets
REMARKS

Applicants submit that the present application, as currently amended, is in condition for allowance.

Claims 1-10 and 17-21 are pending, with claims 1-10 amended, claims 17-21 added, and claims 11-16 cancelled without prejudice or disclaimer.

In the Official Action, claims 1, 2, 6, 7 and 10 were rejected under 35 U.S.C. § 112 second paragraph; claims 1-3 and 7-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm (U.S. Patent Publication No. 2003/0070181) in view of Papa et al. (U.S. Patent No. 6,418,492, hereinafter "Papa"); and claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm and Papa in view of Morehead et al. (U.S. Patent 5,149,048, hereinafter "Morehead"). Applicants note that the status of claims 4 and 5 was not included in any numbered paragraph of the Official Action. However, Applicants further note that claims 4 and 5 appear to have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Holm and Papa. Applicants request the status of claims 4 and 5 be clarified in the next Official Action.

Claims 1-10 are amended and claims 17-21 is added to more clearly describe and distinctly claim Applicants' invention. Support for this amendment is found in Applicants' originally filed specification1. Claims 1-10 are further amended to avoid an interpretation under 35 U.S.C. § 112, sixth paragraph. Figure 1 is amended to add the label "Related Art". Figure 4 is amended to replace Korean language symbols with English. The specification is amended to correct a typographical error. No new matter is added.

1 Specification Figure 4
New claim 17 is directed to

A method of storing a real-time digital broadcast program in a digital broadcast receiver having a first storage device, a second storage device, and a controller, comprising:

receiving the real-time digital broadcast program;

receiving a user command to store the real-time digital broadcast program in the second storage device being detachable;

storing the real-time digital broadcast program in the first storage device only upon detecting the second storage device is not installed;

automatically transferring a portion of the real-time digital broadcast program stored in the first storage device to the second storage device upon detecting that the second storage device has been attached; and

storing a portion of the real-time digital broadcast program not stored in the first storage device in the second storage device.

Amended claim 1 is directed to a device having a controller configured, in response to a user command, to store the real-time digital broadcast program in the second storage device, to store the real-time digital broadcast program in the second storage device only upon detecting the detachable storage device is installed, and to store the real-time digital broadcast program.

Holm describes a set top box device that includes an integrated removal digital storage system coupled to a digital tuner. Figure 6 of Holm shows a flow diagram of a method 600 for capturing and storing digital content from a videocasting system. The process begins with step 602 which presents a user with a selection of programming from the videocasting system. In step 604 the user makes a selection. In step 606, the user is provided with the ability to choose between removable and fixed storage options. In step 608, if the removable storage option is chosen, then the digital content is transferred to and stored in the removable medium. In step
610, a fixed storage is chosen, then the digital content is transferred to and stored in a fixed storage drive.

However, Holm does not disclose or suggest automatically transferring a portion of a real time digital broadcast program stored in a first storage device to a second storage device on detecting that the second storage device has been attached. Furthermore, Holm does not disclose or suggest storing a portion of the real time digital broadcast program not yet stored in the first storage device and the second storage device. Holm also does not disclose or suggest the controller of amended claim 1.

Applicants have considered the remaining applied references and submits that the remaining applied references do not cure the deficiencies of Holm. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 1 and 17, Applicants submit the inventions defined by claims 1 and 17, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.²

² MPEP § 2142 “...the prior art reference (or references when combined) must teach or suggest all the claim limitations.
Conclusion

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: April 2, 2008

Respectfully submitted,

By

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicants

Attachments:
Replacement Drawings
FIG. 4

Start

Changing signal? 401

Store real-time data in internal storage device of system or other storage device(s) besides storage device to be operated 402

Detect new storage medium led-in signal? 403

no

yes

Input power to new storage medium by controller of STB/PVR, main body 404

Operation delay for a certain time 405

Input control signal from controller to new led-in storage medium 406

Operate new storage medium or activate function menu 407

Disable new storage medium menu 410

File system update 408

File system unload 411

Store part of data stored in internal storage device and real-time data being received in new storage medium 409

End
FIG. 4

Start

Changing signal? 401

Store real-time data in internal storage device of system or other storage device(s) besides storage device to be operated 402

Detect new storage medium led-in signal? 403

NO

YES

Input power to new storage medium by controller of STB/PVR, main body 404

Operation delay for a certain time 405

Input control signal from controller to new led-in storage medium 406

Operate new storage medium or activate function menu 407

File system update 408

Store part of data stored in internal storage device and real-time data being received in new storage medium 409

End

Disable new storage medium menu

File system unload 411

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**Warnings:**

**Information:**

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
AMENDMENT TRANSMITTAL LETTER

Application No. 10/498,213-Conf. #8207
Filing Date June 10, 2004
Examiner D. L. Hoang
Art Unit 2136

Applicant(s): Jang Yong KIM et al.

Invention: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

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TOTAL ADDITIONAL FEE FOR THIS AMENDMENT: 0.00

x Large Entity [ ] Small Entity

x No additional fee is required for this amendment.

[] Please charge Deposit Account No. in the amount of $ .

A duplicate copy of this sheet is enclosed.

[] A check in the amount of $ is enclosed.

[] Payment by credit card. Form PTO-2038 is attached.

x The Director is hereby authorized to charge and credit Deposit Account No. 02-2448 as described below. A duplicate copy of this sheet is enclosed.

x Credit any overpayment.

x Charge any additional filing or application processing fees required under 37 CFR 1.16 and 1.17.

Esther H. Chong
Attorney Reg. No.: 40,953

BIRCH, STEWART, KOLASCH & BIRCH, LLP
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P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000

Dated: April 2, 2008
### PATENT APPLICATION FEE DETERMINATION RECORD

**APPLICATION AS FILED – PART I**

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**APPLICATION AS AMENDED – PART II**

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* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

**LEGAL INSTRUMENT EXAMINER**

/doris m. burns/

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This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com
Office Action Summary

Application No. 10/498,213

Applicant(s) KIM ET AL.

Examiner Daniel L. Hoang

Art Unit 2136

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. 
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. 
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on 10 June 2004.
2a) ☐ This action is FINAL.  
2b) ☑ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☑ Claim(s) 1-16 is/are pending in the application.
   4a) Of the above claim(s) ______ is/are withdrawn from consideration.
5) ☐ Claim(s) ______ is/are allowed.
6) ☑ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) ______ is/are objected to.
8) ☐ Claim(s) ______ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☑ The drawing(s) filed on 10 June 2004 is/are: a) ☑ accepted or b) ☐ objected to by the Examiner. 
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☑ All  b) ☐ Some  c) ☐ None of:
      1. ☑ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. ______.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage 
         application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☑ Information Disclosure Statement(s) (PTO/SB/08) 
   Paper No(s)/Mail Date 6/10/04
4) ☐ Interview Summary (PTO-413) 
   Paper No(s)/Mail Date: ______
5) ☐ Notice of Informal Patent Application
6) ☐ Other: ______
DETAILED ACTION

CLAIMS PRESENTED

Claims 1-16 are presented.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

   The specification shall conclude with one or more claims particularly pointing out and distinctly
   claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2, 6, 7, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for
   failing to particularly point out and distinctly claim the subject matter which applicant regards as the
   invention. The claims recite the limitation “the storage means” or “the storage medium”. There is
   improper antecedent basis for these limitations because it is unclear whether applicant intends to mean
   the first or the second storage means when “the storage means” is cited. The limitation “the storage
   medium” currently has no antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
   obviousness rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set
   forth in section 102 of this title, if the differences between the subject matter sought to be patented and
   the prior art are such that the subject matter as a whole would have been obvious at the time the
   invention was made to a person having ordinary skill in the art to which said subject matter pertains.
   Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable
   over Holm, US PGP 20030070181, and further in view of Papa et al., US Patent No. 6418492.
As per claim 1, Holm teaches:

A digital broadcast receiver having an attachable and separable storage means, wherein the digital broadcast receiver for receiving real-time digital broadcast programs comprises:
a second storage means for storing broadcast programs, being attachable and separable to and from a set without taking the set apart by a user;

[see paragraph 0034, "integrated removable digital storage system"]
a first storage means for storing data being received, before changing a data path being received to the second storage means in real time mode;

[see paragraph 0033, "STB including a fixed digital storage system"]
a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and

[see paragraph 0034, "...may include a storage interface that couples the removable storage device to the communications bus."]
a connection means as a path for power supply of the storage means, and signal, for allowing the user to attach and separate the second storage means to and from the receiver while power is supplied to the receiver.

Holm does not explicitly cite a connection means as a path for power supply of the storage means for allowing the user to attach and separate the second storage means while power is supplied to the receiver.

The Papa reference teaches hot swapping and plug and play technology (see background). Upon further consideration, examiner believes it would be obvious to one of ordinary skill in the art to modify the Holm invention to include that which is taught by Papa to have a continuous power supply to the receiver while allowing the user to attach and separate the second storage means. One would be motivated to do this because it would allow to receiver to continuously receive broadcast programs without interruption while the user is removing or attaching the second storage means.
As per claim 2, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

[see paragraph 0033, "hard disk"]

As per claim 3, Holm teaches:

The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

[see paragraph 0034 and fig. 3]

As per claims 4 and 5:

The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

[Please see above rejection of claim 1 wherein hot swap is taught by the Papa reference]

As per claim 7, Holm teaches:

The digital broadcast receiver according to claim 1, wherein further comprises a detector for detecting whether or not the storage means is installed.

[see paragraph 0060 wherein the user can choose between which of the two storage devices to store the programming to. Examiner deems that it is clear that there must be a determination by the system as to whether or not the removable storage means is installed in order to make this option available to the user. Element 606 of figure 6 teaches providing capability to choose between removable and fixed storages. The claimed "detector" in the claim is deemed to be equivalent to the structure in the Holm reference which implements element 606.]
As per claim 8, Holm teaches:
The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

[see paragraph 0034, "compact disc"]

As per claim 9, Holm teaches:
The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.

[see paragraph 0029, "RAM"]

As per claim 10, Holm teaches:
The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

[see fig. 2, element 304]

As per claim 11, Holm teaches:
A method for storing real-time digital broadcast programs, the method comprising:
extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner;

[see paragraph 0058-0059]
detecting whether a storage means is installed in a broadcast receiver;

[see rejection of claim 7]
if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means.

[see paragraph 0060]
As per claim 12, Holm teaches:
The method according to claim 9, wherein further comprises if the storage means does not have a sufficient storage for storing the broadcast program, storing the broadcast program in the temporary memory.

[see paragraph 0062-0064]

As per claim 13, Holm teaches:
The method according to claim 9, wherein further comprises if the storage means is separated when storing the broadcast program, storing the broadcast program in the temporary memory, and redetecting the installation of the storage means.

[see paragraph 0062 and 0060, "...parallel"]

As per claim 14, Holm teaches:
The method according to claim 9, wherein further comprises detecting at regular intervals whether or not the storage means is installed.

[see paragraph 0060, "...parallel"]

As per claim 15, Holm teaches:
The method according to claim 9, wherein further comprises inputting a power signal and a control signal to the storage means, and updating a file system for an operation of the storage means.

[see paragraph 0028]

As per claim 16, Holm teaches:
A method for storing digital broadcast programs in a digital set top box (STB) for receiving real-time data, the method comprising:

storing data being received in a first storage portion;

[see paragraph 0063]

inputting a storage portion changing signal to store the data being received in a second storage portion according to a status of the first storage portion;

[see paragraph 0061]

storing the data being received in the first storage portion for a predetermined amount of time;

[see paragraph 0063]

deciding whether or not a second storage means is led in;

[see paragraph 0061]

if the second storage portion is led in the STB, inputting a power signal and a control signal to the second storage portion, under control of a controller;

[see paragraph 0028]

establishing a suitable configuration for an operation of the second storage portion;

[see paragraph 0053]

storing the data from the first storage portion in the second storage portion; and

[see paragraph 0053]

storing a data being received in the second storage data.

[see paragraph 0053]

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holm as applied to claim 1 above, and further in view of Morehead et al, US Patent No. 5149048. As per claim 6:
The Holm reference has been discussed above. Holm does not explicitly cite that the coupling means comprises a shock absorber. Morehead teaches a shock absorbent jacket for a disk drive used as a removable storage device in a computer (see figs 7 and 8). It would have been obvious to one of ordinary skill in the art to combine the shock absorbent jacket taught by Morehead with the removable storage medium taught by Holm above in order to “protect the storage medium against internal or external shock forces”.

CONCLUSION

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

POINTS OF CONTACT

* Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

* Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel L. Hoang
12/21/07

Nasser Moazzami
Supervisory Patent Examiner
Technology Center 2100

12/21/07
# INFORMATION DISCLOSURE CITATION IN AN APPLICATION

(Use several sheets if necessary)

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## OTHER DOCUMENTS

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with M.P.R. 200. Cross out through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

DATE CONSIDERED: [11/26/07]

ATTY. DOCKET NO. 3449-0338PUS1
APPLICATION NO. 3449-0338PUS1
FILING DATE June 10, 2004

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**NON-PATENT DOCUMENTS**

Include as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)*

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.
## Index of Claims

**Application/Control No.**  
10498213  

**Applicant(s)/Patent Under Reexamination**  
KIM ET AL.  

**Examiner**  
Hoang, Daniel L  

**Art Unit**  
2136  

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The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

- **06/10/2004**
  - DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS
- **06/10/2004**
  - DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Indication of Small Entity Status
- Copy of the International Application filed on 06/10/2004
- Copy of the International Search Report filed on 06/10/2004
- Information Disclosure Statements filed on 06/10/2004
- Oath or Declaration filed on 06/10/2004
- Small Entity Statement filed on 06/10/2004
- Request for Immediate Examination filed on 06/10/2004
- U.S. Basic National Fees filed on 06/10/2004
- Assignment filed on 06/10/2004
- Priority Documents filed on 06/10/2004
- Power of Attorney filed on 06/10/2004
Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

BARRABA A CAMPBELL
Telephone: (703) 305-3631

PART 3 - OFFICE COPY

FORM PCT/DO/EO/903 (371 Acceptance Notice)
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

INTERNATIONAL APPLICATION NO. PCT/KR2003/002238
INTERNATIONAL FILING DATE October 23, 2003
PRIORITY DATE CLAIMED October 26, 2002

TITLE OF INVENTION
DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

APPLICANT(S) FOR DO/EO/US
Jang Yong KIM; Young Ki KIM; Sung Ick CHO; and Kyung Lae ROH

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   The Power of Attorney or Authorization of Agent and Certificate under 37 CFR 3.73(b) Showing Chain of Title are: ☐ attached hereto. ☐ will follow.
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15. ☐ A substitute specification.
16. ☐ A power of attorney and/or change of address letter.
20. ☑ Other items or information:
     PCT/IB/308
     PCT/IB/304
     Six (6) sheets of Formal Drawings
21. The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5):
Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.
and International Search Report not prepared by the EPO or JPO. ...... $1,080.00

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International preliminary examination fee (37 CFR 1.482) paid to USPTO
but all claims did not satisfy provisions of PCT Article 33(1)-(4). ...... $730.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO
and all claims satisfied provisions of PCT Article 33(1)-(4). ...... $100.00

ENTER APPROPRIATE BASIC FEE AMOUNT = $1080.00

Surcharge of $130.00 for furnishing the oath or declaration later than 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

$ 0.00

CLAIMS NUMBER FILED NUMBER EXTRA RATE

Total Claims 16 - 20 = 0 X $18.00 $ 0.00
Independent Claims 3 - 3 = 0 X $86.00 $ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable) + $290.00 $ 0.00

TOTAL OF ABOVE CALCULATIONS = $1080.00

Applicant claims small entity status. See 37 C.F.R. § 1.27. The fees indicated above are
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$ 540.00

SUBTOTAL = $ 540.00

Processing fee of $130.00 for furnishing the English translation later than 30
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$ 0.00

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Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
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$ 40.00

TOTAL FEES ENCLOSED = $ 580.00

Amount to be refunded $ 0.00

charged $ 0.00

a. A check in the amount of $580.00 to cover the above fees is enclosed.

b. Please charge my Deposit Account No. 02-2448 in the amount of $0.00 to cover the above fees. A duplicate copy of this
sheet is enclosed.

c. The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to
Deposit Account No. 02-2448.

NOTE: Where an appropriate time limit under 37 C.F.R. § 1.495 has not been met, a petition to revive (37 C.F.R. § 1.137(a)
or (b)) must be filed and granted to restore the application to pending status.

Send all correspondence to:
Birch, Stewart, Kolasch & Birch, LLP or Customer No. 02292
P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

Date: June 10, 2004

By James T. Eller, Jr., #39,538
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

INTERNATIONAL APPLICATION NO. PCT/KR2003/002238
INTERNATIONAL FILING DATE October 23, 2003
PRIORITY DATE CLAIMED October 26, 2002

TITLE OF INVENTION
DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

APPLICANT(S) FOR DO/EO/US
Jang Yong KIM; Young Ki KIM; Sung Ick CHO; and Kyung Lae ROH

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- Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +

**TOTAL FEES ENCLOSED =** $580.00

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Date: June 10, 2004

By [Signature]
James T. Eller, Jr., #39,538
DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Technical Field

The present invention relates to a recording and storage means in digital STB (Set Top Box) and PVR (Personal Video Recorder) and method thereof, more particularly, to a digital broadcast receiver having an attachable and separable storage means for storing digital broadcast programs.

Background Art

A digital set top box (STB) has rapidly spread in recent years largely because the digital STB presents a variety of advantages, compared to general analog televisions, such as it maximized channel usage, improved video and sound signal qualities, and provided a more convenient way to transmit supplementary service data.

Digital (satellite) broadcast system is different from analog broadcast system adapted in general analog televisions in terms of the transmission method of broadcast programs.

Specifically speaking, a digital STB receives a broadcast in a compressively encoded packet stream under an MPEG algorithm, and decodes (restores) the broadcast to original signals before being encoded. An analog television, on the other hand, receives program broadcast signals in analog and regenerates them.

Moreover, the STB, similar to a VCR function in the analog television, allows a user to record or schedule to record in advance (i.e. reserve recording) a particular broadcast program on a particular channel the user selected. The recorded broadcast program data are stored in a memory space like a hard disk in compressively encoded form.
Because of this, many attempted to increase memory capacity in order to record or reserve recording more broadcast programs. However, it is also a well-known fact that increased storage capacity of memory like hard disk is accompanied with increased price. Therefore, in view of price competitiveness, it is rather an unrealistic notion to increase memory capacity for use in the STB without limit.

A conventional device and method thereof are now discussed below.

Fig. 1 is a block diagram of a conventional STB/PVR.

As is seen in the drawing, a STB includes a controller 106 for controlling system components, a tuner 101 for turning received signals, a QPSK decoder 102 for decoding received signals using QPSK modulation, a DEMUX 103 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 104 for decoding MPEG audio/video data, an A/V encoder 105 for encoding audio/video video in order to output them to another device, and an internal storage device 107 for storing received data.

In case of a STB or a PVR having a built-in storage device illustrated in Fig. 1, the storage device is fixed in a certain position inside of the product. Hence, when a user wants to add a new program after recording and storing TV broadcasts for a certain period of time, one of already recorded programs had to be deleted, and storage extension to avoid this problem was fundamentally impossible.

According to another traditional embodiment, a separate storage device like a VCR could be added. However, broadcast signals, which are real-time data, cannot be recorded when a tape (for the general VCR) or a storage device (for a STB/PVR with a fixed storage device) is being changed.

Particularly, in case of the conventional fixed storage device, because all individuals could handle and manage recordings only through one single storage device
built in the STB/PVR, different users could easily damage files in the storage device and it was virtually impossible to utilize the storage device segregately.

Further, the recordings could not be transmitted, duplicated or stored without the help of an external storage device.

To be short, the fixed storage device, once recording is complete, cannot be independently separated for individual handling or management. For separate handling, a separate external recording device is required to transmit, duplicate and store the stored recordings, but if there is no such external recording device, the fixed storage device normally has to be taken into pieces by a specially trained handling expert therefor. What happens if the storage device is exchanged, extended and separated by a general user not by the handling expert is that when the product with a built-in fixed storage device, which is a magnetic storage device being very sensitive to impact, receives any form of shock during the usage or the separation or installation procedure, it is not buffed from the shock and the surface of the storage device is likely to be damaged thereby. As a result, stability of the product and durability of the recordings cannot be secured.

In other words, a fixed storage device built in the STB/PVR can be easily damaged by internal/external defects and impacts.

However, since the recording device cannot be separately shipped and carried, a separate handling management and transport means is required for the STB/PVR having a built-in fixed storage device.

If the fixed storage device is forcibly separated, recordings therein and the storage device itself can be easily damaged.

That is to say, if the fixed storage device is forcibly separated from the STB/PVR, the already stored recordings and the storage device are often damaged.

Disclosure of Invention
It is, therefore, an object of the present invention to provide a digital broadcast receiver having an attachable and separable storage means for storing received data, wherein the storing means can be attached and separated even when power is being applied, and a method for continuously storing real-time broadcast programs simply by exchanging a storage means, regardless of the capacity thereof, with another storage means.

Another object of the present invention is to increase the user's convenience by providing a display device that helps the user to see a fixed device in a cooled and buffed, mounted module and a state whether the device is attached or separated.

To achieve the above object, there is provided a digital broadcast receiver for receiving real-time digital broadcast programs, including: storage means for storing broadcast programs, being attachable and separable to and from a set by a user without taking the set apart; a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and a connection means as a path for power supply of the storage means, and signal.

Another aspect of the invention provides a method for storing real-time digital broadcast programs, which includes the steps of: extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner; detecting whether a storage means is installed in a broadcast receiver; if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means.

If the storage means is separated when storing the broadcast program, the broadcast program is stored in the temporary memory, and the installation of the storage means is redetected.

Also, the installation of the storage means is detected at regular intervals.
If the installation of the storage means is confirmed, a power signal and a control signal are input to the storage means, and a file system is updated for an operation of the storage means.

According to the present invention, without deleting already stored programs, a user is able to record and store broadcast programs for an extended period of time regardless of capacity limit, and has an option to choose a general STB or a PVR with a built-in storage medium at any time.

In case of the STB/PVR to which the present invention is applied, the user can temporarily store a broadcast program in an internal storage device even when he changes a storage means module, and later store the broadcast program in a storage means.

The present invention also allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.

As for a traditional conventional fixed storage device, all individual users could handle and manage respective recordings only through one single storage device built in the STB/PVR. The present invention, however, allows a user to attach and separate a plurality of discrete storage means, whereby a file can be protected from damages caused by other users and used independently.

Moreover, since storage medium can easily be attached and separated even when power is on, users are not able to transfer, duplicate and store recordings in the storage medium, without using an external recording device. In this way, the storage medium is much less damaged by an inexperienced user or from users' carelessness.

In addition, the storage medium, which is sensitive to external shocks and vibration, can be shipped and carried individually, and thus transportation expenses can be greatly reduced and handling can be much easier.
Brief Description of Drawings

The above objects, features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a block diagram of a related art STB/PVR;

Fig. 2 is a block diagram of a set top box mounted with an attachable and separable and hot swap-capable storage means according to a preferred embodiment of the present invention;

Fig. 3 is a diagram illustrating a structure of a signal connector for recognizing a new storage means suggested by the present invention at a STB/PVR when loading the storage means to the STB/PVR;

Fig. 4 is a flow chart describing a hot swap storage method according to a lead-in storage means in a STB/PVR of the present invention;

Fig. 5 is a detailed view of a storage means module assembly, in which a storage medium, namely a new storage means, is mounted and the assembly is led in an opening portion of a STB/PVR;

Fig. 6 illustrates an inside structure of a STB/PVR and how an attachable and separable storage means module is inserted;

Fig. 7 depicts an inside structure of a STB/PVR having a built-in attachable storage means module;

Fig. 8 depicts an attachable and separable storage means module being separated from a STB/PVR; and

Fig. 9 illustrates a STB/PVR having a built-in attachable and separable storage means.

Best Mode for Carrying Out the Invention
A preferred embodiment of the present invention will now be described with reference to the accompanying drawings.

Fig. 2 is a block diagram of a set top box (STB) mounted with an attachable and separable and hot swap-capable storage means according to a preferred embodiment of the present invention. As shown in the drawing, the STB includes a controller 206 for controlling system components, a tuner 201 for turning received signals, a QPSK decoder 202 for decoding received signals using QPSK modulation, a DEMUX 203 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 204 for decoding MPEG audio/video data, an A/V encoder 205 for encoding audio/video video in order to output them to another device, an internal storage device 107 as a first storage means for storing received data, the device including a buffer 207a for temporarily storing received data whenever necessary, a plurality of storage medium 208 as a second storage means being attachable and separable, and a display 209 for displaying an operational state of system and informing or warning an amount of data being stored in the storage means.

Referring to Fig. 2, the controller 206 controls general operations of a STB by means of a microprocessor for example.

Particularly, the controller 206 controls the internal storage device, which is the first storage means, to receive/store data. And then if the second storage means is inserted, the controller 206 informs this to a user at the user's request or when predetermined data is stored in the first storage means, to control a path for changing data storage to the second storage means, and transfers the stored data in the first storage means to the second storage means during the storage path change.

Also, the controller controls specific information to be stored in respective storage means.
In other words, the user is allowed select a broadcast program he wants to record or reserve recording, using a keypad or a remote control (not shown), and based on recording or reservation recording information the user input (i.e. channel, kind of broadcast program, start time of recording or reserved recording, end time of recording or reserved recording and so forth), the controller 206 stores this information in the internal storage device or a pre-designated area in the storage medium.

The operation of the STB of Fig. 2 is now discussed.

The tuner 201 and the QPSK decoder 202, complying to a tuning control signal provided from the controller 206, extract audio and video packet data for use in a broadcast program of a selected channel, out of broadcast signals that are received through a broadcast signal receiver (not shown) the user selected, or broadcast signals that are received by tuning a specific reserved channel; convert to an intermediate frequency, decode and correct errors in those extracted audio and video packet data in order to restore the data to a transmission stream; and transmits the restored data stream to the DEMUX 203.

The DEMUX 203 then separates audio packet data and video packet data from the transmission stream, and transmits the audio and video packet data to the MPEG audio/video decoder 204.

On the other hand, by applying a general audio decoding process, the MPEG audio decoder 204 decodes (restores) compressively encoded digital audio signals to original signals before being encoded, under a control signal and a MPEG audio algorithm standard (e.g. MPEG-2 audio algorithm). Likewise, by applying a general video decoding process, the MPEG audio decoder 204 decodes (restores) compressively encoded digital video signals to original signals before being encoded, under a control signal and a MPEG video algorithm standard (e.g. MPEG-2 video algorithm).

Output signals from the MPEG audio/video decoder 204 are transmitted to the
MPEG audio/video encoder 205 for selective compression (i.e. encoding under a selected compression rate) before being recorded (or stored).

The controller controls specific information to be stored in respective storage means.

To be more specific, the user can select a broadcast program he wants to record or reserve recording, using a keypad or a remote control (not shown), and based on recording or reservation recording information the user input (i.e. channel, kind of broadcast program, start time of recording or reserved recording, end time of recording or reserved recording and so forth), the controller 206 stores this information in the internal storage device or a pre-designated area in the storage medium.

The controller decides whether the second storage means is inserted when controlling the internal storage device, the first storage means, to receive/store data.

If the user requests or predetermined data is stored in the first storage means, the controller informs the user that the second storage means is now available, to control a path for changing data storage to the second storage means, and transfers the stored data in the first storage means to the second storage means during the storage path change.

Fig. 3 is a diagram illustrating the structure of a signal connector for recognizing a new storage means suggested by the present invention at a STB/PVR when loading the storage means to the STB/PVR.

As illustrated in the drawing, in case of connecting a module with a built-in storage medium to a main body, a pattern length of the module is pre-adjusted to connect to the main body in order of GND, VCC&SIGNAL CD. After a CD signal is detected, the controller of the STB/PVR applies power to the storage medium and controls a control signal of this newly inserted storage means in a certain delay, whereby the user can easily attach or separate the storage medium at any time even when power is on.

That is, when the storage means module is installed at a connection means, it is
connected in order of an earth portion, a power/signal line, and the storage medium. On the other hand, when the storage means module is separated from the connection means, it is separated in order of the storage medium, the power/signal line, and the earth portion.

Fig. 4 is a flow chart describing a hot swap storage method according to a lead-in storage means in a STB/PVR of the present invention.

As for the real-time receiving STB having the constitution illustrated in Fig. 2, received data is stored in the internal storage device 207, which is the first storage portion.

According to a storage status in the display or in response to a warning message from the controller, the user or the system controller inputs a storage means changing signal, in order to transfer the data being received to the first storage means to the storage medium 208 that is the second storage portion (S401).

Under the changing signal, the real-time data is stored in the buffer of the internal storage device for a certain period of time, or since there is more than one storage medium, other already existing storage medium are also used for storing the real-time data (S402).

As shown in Fig. 3, it is decided whether or not a CD signal for informing the insertion of a new storage means as the second storage means is detected (S403). In case the second storage means is led in the STB, a power signal and a control signal are input to the second storage means, under the control of the controller (S404).

Since the control signal is input to the second storage means after a predetermined time delay followed by the power signal input, the user can attach or separate the storage means even when the power is on (S405, S406).

Next is a procedure for establishing a suitable configuration to enable the operation of the second storage means.

In other words, an operation and function menu for the second storage means is activated, and a file system is updated (S407, S408).

Afterwards, the stored data in the first storage means is transferred to the second
storage means, and other data being received is stored in the second storage (S409).

Meanwhile, if it turns out that the second storage means is not led in the STB in Step 403, the configuration for the second storage means needs not to be established (S410, S411).

Fig. 5 is a detailed perspective view of a storage means module assembly, in which a storage medium, namely a new storage means, is mounted and the assembly is led in an opening portion of a STB/PVR.

As depicted in the drawing, the storage means module assembly includes a storage medium 1 for storing recordings; a case 2 for protecting the storage medium from internal/external impacts, in which the case contains a shock absorber and a cooler, and has a handle for permitting a user to easily attach and separate the storage medium; a signal connection portion having a data transfer connection portion 10 and guide rails 3, for safely guiding the storage medium module to a connection cite, and transmitting and connecting data to a main body; a shock absorber 4 for preventing recorded data from being damaged by vibration of the storage medium or an external impact; an insertion slot 5 enabling data transfer between the storage medium and a set; a cover 6 having a safety structure from an external impact and a ventilation structure; and fixing screws 7 and 9 for fixing the entire module more firmly.

More details follow to provide a better description on each component.

Fig. 5 shows the storage means module assembly to be mounted on a STB or a PVR, more specifically, at an outside surface of the STB or the PVR. The storage means module assembly includes the storage means module having a connection means 5 (i.e. the insertion slot) at a rear surface, for electrically connecting the assembly with internal parts of STB or the PVR; and the signal connection portion having the guide rails 3 attached to both sides for facilitating the insertion of the storage means module, and the connection means 10 disposed at a rear surface, for connection with the storage means module.
The storage means module includes the storage medium 1 for storing recordings, the shock absorber 4 for protecting the storage medium from internal/external impacts, the case 11 with a handle for making the attachment and separation of the storage medium easy, the insertion slot 5 attached to the rear surface, transferring recording data in the storage medium to the STB, screws 7 for fastening or fixing the storage means module more firmly, and the cover 6 with a ventilation structure, for protecting the assembly from an external impact.

As aforementioned, the signal connection portion includes guide rails 3 on both sides for facilitating the insertion of the storage means module, the connection means 10 on the rear surface for connection with the storage means module, and the fixing means 9 on one side for fixing the signal connection portion.

Fig. 6 illustrates the inside structure of a STB/PVR and how an attachable and separable storage means module is inserted.

Fig. 7 depicts the inside structure of a STB/PVR having a built-in attachable storage means module.

Fig. 8 depicts an attachable and separable storage means module being separated from a STB/PVR.

Fig. 9 illustrates a STB or a PVR having a built-in attachable and separable storage means.

While the invention has been shown and described with reference to certain preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims. For example, the invention is also applicable when the storage medium 208 of Fig. 2 is installed.

That is to say, when the storage medium, the second storage means, takes over the role of the internal storage device 207, namely receiving/storing real-time data, the
procedure of the invention can be applied as well.

**Industrial Applicability**

Without deleting already stored programs, a user is able to record and store broadcast programs for an extended period of time regardless of capacity limit, and has an option to choose a general STB or a PVR with a built-in storage medium at any time.

In case of the STB/PVR to which the present invention is applied, the user can temporarily store a broadcast program in an internal storage device even when he changes a storage means module, and later store the broadcast program in a storage means.

The present invention also allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.

In the present invention, a plurality of discrete storage means is attachable and separable, whereby a file can be protected from damages caused by other users and used independently.

Moreover, since storage medium can easily be attached and separated even when power is on, users are not able to transfer, duplicate and store recordings in the storage medium, without using an external recording device. In this way, the storage medium is much less damaged by an inexperienced user or from users’ carelessness.

In addition, the storage medium, which is sensitive to external shocks and vibration, can be shipped and carried individually, and thus transportation expenses can be greatly reduced and handling can be much easier.

The foregoing embodiments and advantages are merely exemplary and are not to be construed as limiting the present invention. The present teaching can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives,
modifications, and variations will be apparent to those skilled in the art. In the claims, means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents but also equivalent structures.
What Is Claimed Is:

1. A digital broadcast receiver having an attachable and separable storage means, wherein the digital broadcast receiver for receiving real-time digital broadcast programs comprises:
   a second storage means for storing broadcast programs, being attachable and separable to and from a set without taking the set apart by a user;
   a first storage means for storing data being received, before changing a data path being received to the second storage means in real time mode;
   a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and
   a connection means as a path for power supply of the storage means, and signal, for allowing the user to attach and separate the second storage means to and from the receiver while power is supplied to the receiver.

2. The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

3. The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

4. The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.

5. The digital broadcast receiver according to claim 4, wherein for hot swap, the connection means is connected in order of an earth portion, a signal and power portion, and
a storage means detection signal portion, and separated in order of the storage means
detection signal portion, the signal and power portion, and the earth portion.

6. The digital broadcast receiver according to claim 1, wherein the coupling means
comprises a shock absorber for protecting the storage medium from internal/external
impacts, and an attachment and separation guide means for facilitating the attachment and
separation of the storage medium.

7. The digital broadcast receiver according to claim 1, wherein further comprises
a detector for detecting whether or not the storage means is installed.

8. The digital broadcast receiver according to claim 1, the second storage means
includes at least one storage means.

9. The digital broadcast receiver according to claim 1, wherein further comprises a
temporary memory for storing real-time digital broadcast programs in the set.

10. The digital broadcast receiver according to claim 1, wherein the storage means
further comprises a structure for facilitating attachment and separation of the storage
means from outside.

11. A method for storing real-time digital broadcast programs, the method
comprising:
   extracting a broadcast program to be stored from a digital broadcast stream being
   received by a tuner;
   detecting whether a storage means is installed in a broadcast receiver;
if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means.

12. The method according to claim 9, wherein further comprises if the storage means does not have a sufficient storage for storing the broadcast program, storing the broadcast program in the temporary memory.

13. The method according to claim 9, wherein further comprises if the storage means is separated when storing the broadcast program, storing the broadcast program in the temporary memory, and redetecting the installation of the storage means.

14. The method according to claim 9, wherein further comprises detecting at regular intervals whether or not the storage means is installed.

15. The method according to claim 9, wherein further comprises inputting a power signal and a control signal to the storage means, and updating a file system for an operation of the storage means.

16. A method for storing digital broadcast programs in a digital set top box (STB) for receiving real-time data, the method comprising:

- storing data being received in a first storage portion;
- inputting a storage portion changing signal to store the data being received in a second storage portion according to a status of the first storage portion;
storing the data being received in the first storage portion for a predetermined amount of time;

deciding whether or not a second storage means is led in;

if the second storage portion is led in the STB, inputting a power signal and a control signal to the second storage portion, under control of a controller;

establishing a suitable configuration for an operation of the second storage portion;

storing the data from the first storage portion in the second storage portion; and

storing a data being received in the second storage data.
Abstract of the Disclosure

The present invention relates to a recording and storage means in digital STB (Set Top Box) and PVR (Personal Video Recorder) and method thereof. The digital broadcast receiver for receiving real-time digital broadcast programs comprises: storage means for storing broadcast programs, being attachable and separable to and from a set by a user without taking the set apart; a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and a connection means as a path for power supply of the storage means, and signal. The method for storing real-time digital broadcast programs comprises the steps of: extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner; detecting whether a storage means is installed in a broadcast receiver; if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means. The present invention allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.
FIG. 4

Start

Changing signal? 401

Store real-time data in internal storage device of system or other storage device(s) besides storage device to be operated 402

Detect new storage medium led-in signal? 403

Yes

Input power to new storage medium by controller of STB/PVR, main body 404

Operation delay for a certain time 405

Input control signal from controller to new led-in storage medium 406

Operate new storage medium or activate function menu 407

File system update 408

Store part of data stored in internal storage device and real-time data being received in new storage medium 409

No

End

Disable new storage medium menu 410

File system unload 411
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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** CONTINUING DATA **********************

This application is a 371 of PCT/KR03/02238 10/23/2003

** FOREIGN APPLICATIONS *****************

REPUBLIC OF KOREA 10-2002-0065697 10/26/2002

** SMALL ENTITY **

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** ADDRESS **

02292

** TITLE **

Digital broadcast receiver having attachable and separable storage means
PATENT APPLICATION SERIAL NO. 10/498213

Rec'd PCT/PTO 10 JUN 2004

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

06/17/2004 LLRDMGRA 00000031 10498213
01 FC:2611 540.00 OP

PTO-1556
(5/87)

**PATENT APPLICATION FEE DETERMINATION RECORD**

Effective October 1, 2003

### CLAIMS AS FILED - PART I

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**TOTAL CHARGEABLE CLAIMS**

16 minus 20 = *

**INDEPENDENT CLAIMS**

3 minus 3 = *

**MULTIPLE DEPENDENT CLAIM PRESENT**

*If the difference in column 1 is less than zero, enter "0" in column 2.*

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**TOTAL ADDIT. FEE**

"*If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

"""If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

"***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

"The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

---

**FORM PTO-875 (Rev 10/03)**

Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Jang Yong KIM et al.

Appl. No.: NEW Group:

Filed: June 10, 2004 Examiner:

For: DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

INFORMATION DISCLOSURE STATEMENT
(SUBMISSION CONCURRENT WITH THE FILING OF A NEW PATENT APPLICATION)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 10, 2004

Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, applicant(s) hereby submit(s) an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS OR OTHER INFORMATION

The patents, publications, or other information submitted for consideration by the Office are listed on PTO-1449, attached hereto.

II. COPIES

a. This application was filed before June 30, 2003. Accordingly, submitted herewith is a legible copy of (i) each U.S. and foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed.

b. This application was filed on or after June 30, 2003. Accordingly, copies of cited US patents and patent application publications therefore are not included. Copies of foreign patent documents and non-patent literature are included.
c. ☒ This application is a National Phase of a PCT application. Some or all of the documents listed on the PTO-1449 are not enclosed because they were cited in the International Search Report and copies should be forwarded from the International Search Authority. If copies are needed, please contact the undersigned.

III. CONCISE EXPLANATION OF THE RELEVANCE
(check at least one box)

a. ☐ DOCUMENTS IN THE ENGLISH LANGUAGE

The patents, publications, or other information listed on the attached PTO 1449 are in the English language and therefore, do not require a statement of relevancy.

b. ☐ DOCUMENTS NOT IN THE ENGLISH LANGUAGE

A concise explanation of the relevance of all patents, publications, or other information listed that is not in the English language is as follows:

c. ☒ ENGLISH LANGUAGE SEARCH REPORT

An English language version of the search report or action that indicates the degree of relevance found by the foreign office is attached, thereby satisfying the requirement for a concise explanation. See MPEP 609(III)(A)(3).

d. ☐ OTHER

The following additional information is provided for the Examiner's consideration.
FEES

This Information Disclosure Statement is being filed concurrently with the filing of a new patent application; therefore, no fee is required.

If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule and charge the appropriate fee to Deposit Account No. 02-2448.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By

James T. Eller, Jr., #39,538

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

Attachment(s): ☒ Form PTO-1449(s)

☐ Documents

☒ Foreign Search Report

☐ Fee

☐ Other: __________________________________________________________________

(Rev. 02/12/2004)
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**OTHER DOCUMENTS** (Include Name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.)

- 

**EXAMINER**

**DATE CONSIDERED**

EXAMINER: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

Application Number
10-2002-0065697

Date of Application
2002년 10월 26일
OCT 26, 2002

Applicant(s)
아이디 디지털 주식회사
ID DIGITAL CO., LTD.

COMMISSIONER

PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)
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우편번호
서울특별시 양천구 신정동 목동아파트 1211동 106호

주소
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국적

발명자
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주소
KR

국적

심사청구

취지
특허법 제42조의 규정에 의한 출원, 특허법 제60조의 규정에 의한 출원심사를 청구합니다. 대리인
김기문 (인)

수수료

기본출원료
20 면 29,000 원

가산출원료
6 면 6,000 원

우선권주장료
0 건 0 원

심사청구료
15 항 589,000 원

합계
624,000 원

감면사유
소기업 (70%감면)

감면후 수수료
187,200 원

첨부서류
1. 요약서·명세서(도면) 1통 2. 기타 법령에서 정한 증명서류 1통

출력 일자: 2003/10/30

27-2
요약

본 발명은 디지털 위성 방송 수신기(STB)(SET TOP BOX) 및 PVR(Personal Video Recorder)의 기록 및 저장수단과 그 방법에 관한 것이다.

본 발명은 실시간 디지털 방송 프로그램을 수신하는 방송 수신기에 있어서, 사용자가 세트의 해제없이 세트 내외로 착탈 가능한 방송 프로그램을 저장하는 저장수단과; 상기 저장수단과 방송수신기 본체와의 착탈을 위한 결합수단과;

상기 저장수단의 전원 및 신호 이동을 위한 접속수단;으로 구성된 것을 특징으로 한다.

또한 본 발명은 튜너에 의해 수신된 디지털 방송 스트림에서 저장하고자 하는 방송 프로그램을 추출하는 단계; 방송 수신기에 저장수단이 장착되었는지 검출하는 단계; 상기 저장수단이 장착되어 있는 경우, 상기 방송 프로그램을 상기 저장수단에 저장하고, 상기 저장수단이 미장착되어 있는 경우에는 상기 방송 프로그램을 임시 메모리에 저장하고, 상기 저장수단이 장착되었는지 점검하여 상기 저장수단 장착이 확인된 경우, 임시 메모리에 저장된 상기 방송 프로그램 및 상기 방송 프로그램을 상기 저장수단에 저장하는 단계;를 포함하는 것을 특징으로 한다.

따라서 본 발명에 의하면, 수신데이터 중단없이 새로운 기록매체로 교체가능하므로 장시간 기록, 저장이 가능하다.

대표도

도 4
【명세서】

【발명의 명칭】

착탈가능한 저장수단을 구비한 디지털 방송 수신기 및 디지털 방송 프로그램 저장방법

{Digital broadcast receiver having attachable and separable storage means}

【도면의 간단한 설명】

도 1은 본 발명의 실시예에 따른 착탈 및 hot swap이 가능한 저장매체를 구비한 위성방송수신기의 블록도

도 2는 본 발명의 실시예에 따른 착탈 및 hot swap이 가능한 저장매체를 구비한 위성방송수신기의 블록도

도 3은 본 발명에서 제안한 새로운 저장수단을 STB/PVR에 탑재시 상기 STB/PVR에서 인지하는 신호 연결부의 구조를 나타낸 도면

도 4는 본 발명에 따른 STB/PVR에서 새로운 저장수단 인입에 따라 핫 스왑저장 방법을 설명한 도면

도 5는 새로운 저장수단인 기억매체(208)가 탑재되며, STB/PVR의 개구부로 인입되는 저장수단 모듈 어셈블리 상세도

도 6은 STB/PVR의 내부 구조와 착탈식 저장수단 모듈이 장착되는 것을 나타낸 도면

도 7은 STB/PVR에 착탈식 저장수단 모듈이 내장된 내부 구조 제품도

도 8은 STB/PVR와 분리 되어져 있는 착탈식 저장수단 모듈 제품도.

도 9는 착탈식 저장수단을 내장한 STB 또는 PVR의 구조를 나타낸 도면
【발명의 상세한 설명】

【발명의 목적】

【발명이 속하는 기술분야 및 그 분야의 종래기술】

본 발명은 디지털 위성 방송 수신기(STB)(SET TOP BOX) 및 PVR (Personal Video Recorder)의 기록 및 저장수단과 그 방법에 관한것으로, 특히 착탈가능한 저장수단을 구비한 디지털 방송 수신기 및 디지털 방송 프로그램을 저장하기 위한 것이다.

이하 본 발명과 관련된 종래 및 일반적인 기술을 설명한다.

급격하게 확대되고 있는 디지털 위성 방송 수신기는, 일반 아날로그 텔레비전에 비해, 채널 이용의 극대화, 영상 및 음향신호 품질의 개선, 부가 서비스 데이터 전송의 용이성 등 많은 장점을 갖고 있다.

이때, 위성 방송 방식은 방송 프로그램의 전송 방식에 있어서 일반 아날로그 텔레비전에서 이용하는 전송 방식과는 다르다.

즉, 위성 방송 수신기는 MPEG 알고리즘에 따라 압축 방호화된 패킷의 전송 스트림으로 된 방송 프로그램을 수신하여 방호화된 원신호로 디코딩(복원)한 후 재생하는 방식을 갖는 반면에, 일반 아날로그 텔레비전은 아날로그 방송신호 자체를 수신받아 재생하는 방식을 갖는다.

또한, 상기 위성 방송 수신기는, 일반 아날로그 텔레비전에서 보이새알을 이용하는 방식과 유사하게, 사용자가 선택한 특정 채널의 특정 방송 프로그램을 녹화 또는 예약 녹화할 수 있는 기능을 제공하고 있는데, 녹화되는 방송 프로그램 데이터들은 압축 방호화된 형태로서 하드 디스크 등과 같은 메모리 공간에 저장된다.
이러한 점을 고려할 때 메모리 용량을 크게 합으로서 보다 많은 방송 프로그램을 녹화 또는 예약 녹화할 수 있을 것이나, 하드 디스크 등과 같은 메모리들의 저장 용량이 가격에 비례하여 증가된다는 일반적인 사실을 고려할 때, 위성 방송 수신기에 채용되는 메모리 용량을 한정없이 늘린다는 것은 가격 경쟁력의 제고 측면에서 볼 때 현실성이 멀어질 수밖에 없다.

이하 종래의 구현장치 및 그 방법에 대해 설명한다.

도 1은 종례의 STB/PVR의 블록도이다.

도면에서 보는바와 같이, 위성 방송 수신기는 시스템의 구성요소를 계어하는 제어부 (106), 수신신호를 투닝하는 튜너 (101) 및 직교위상변이변조방식(QPSK)으로 복조하는 QPSK 디코더부 (102), 원래의 독립 신호 또는 이들 신호의 군을 복원시키기 위해 다중화된 복합 신호를 분리하여 원래의 신호 또는 신호의 군으로 복원하는 디미리플렉서부(DEMUX) (103), MPEG 오디오/비디오 디코딩 하는 MPEG DECODER부 (104), 다른장치로 출력하기 위해 오디오/비디오 엔코딩하는 A/V 엔코더부 (105), 수신되는 데이터를 저장하기위한 고정식 내부기억장치 (107)를 포함하여 구성된다.

상기 도 1과 같은 종래의 기억장치를 내장한 STB 또는 PVR의 경우, 기억장치가 제품의 내부 특성 위치에 고정되어 있어, 일정 시간 이상 방송을 기록, 저장하고 나면 새로운 프로그램을 저장하기 위해서는 종래의 저장된 프로그램 중 하나를 선택하여 삭제한 후에만 기록가능하였으며, 이를 회피하기 위한 용량의 확장이 원칙적으로 불가능하였다.

종래의 다른 실시예로, VCR 테이프처럼 별도의 기억장치를 부가하여 사용가능하나, Real-time 데이터인 방송 신호의 특성상 일반 VCR의 경우는 Tape 교체 시 및 고정식 기억장치를 내장한 STB/PVR의 기억장치를 교체 시에는 교체 중의 방송은 기록이 불가능하다.
또한 분리의 고정식 기억장치에 있어서는 모든 개별적인 PVR 전부가 STB/PVR에 내장된 1개의 기억장치만을 통한 별개의 기록물을 취급, 관리해야 하는 한계를 가지므로 서로 다른 USER에 의한 파일의 손상 및 독립적인 사용이 불가능하게 된다.

또한 별도의 외부 기억장치없이 기록물의 이동, 복사, 보관이 불가능하였다.

즉, 고정식 기억장치는 기록이 완료된 기억장치를 독립적으로 분리하여 별도로 보관, 관리하는 것이 불가능하였다. 별도 보관을 원하는 경우에는 별도의 외부 기억장치가 있어야만 저장된 기록물을 저장, 복사, 보관 가능하며 이러한 외부 기억장치가 없을 시에는 원칙적으로 고정식 기억장치를 해체하여야만 분리가 가능하므로, 이에 따른 특정 취급 전문가가 아닌 일반 USER가 기억장치를 교체 및 확장. 분리작업을 진행시, 고정식 기억장치를 내장한 제품은 충격에 약한 자기 저장 장치로서의 특성상, 사용 중 또는 분리, 장착과정 중에 충격을 받으면 완충이 어려워 기억장치 표면에 이상이 발생할 가능성이 높으므로 그에 따른 제품의 안정성과 기록물의 내구성을 보장, 관리하기 어렵다.

부연하면, 고정식 기억장치를 내장한 STB/PVR의 경우 내,외부적인 접합 및 충격에 의해 기억장치의 손상을 유발할 수 있다.

기록장치만 별도 포장 및 운반이 불가능하므로 고정식 기억장치를 내장한 STB/PVR은 별도의 취급관리 및 운반수단이 필요하다.

또한 고정식의 기억장치를 강제 분리시 저장률 및 기억장치의 손상이 발생할 수 있다.

즉, 고정식 기억장치를 STB/PVR에서 강제로 분리시 기존에 저장되어 있는 기록물의 손상 및, 기억장치 자체가 손상되는 경우가 발생할 수 있다.
【발명이 이루고자 하는 기술적 과제】

따라서 본 발명에서는 상기와 같은 문제점을 해결하고자 하였으므로, 위성 방송 수신기에 수신 데이터를 저장할 수 있는 저장수단을 확보가능하며, 전원 안보중에도 상시 확탈 가능할 수 있도록, 실시간 전송된 방송프로그램을 저장된 저장수단의 용량에 상관없이 상시 간단히 다른 저장수단을 교체함으로써 연속적으로 프로그램을 저장하게 하는 방법을 제안한다.

또한 본 발명에서는 냉각 및 완충, 장착된 모듈의 고정장치, 확탈 상태를 시각적으로 알 수 있는 표시장치를 구비하여 사용자의 편리성을 도모하였다.

【발명의 구성 및 작용】

본 발명의 실시간 디지털 방송 프로그램을 수신하는 방송 수신기에 있어서,

사용자가 세트의 해체없이 세트 내외로 확탈 가능한 방송 프로그램을 저장하는 저장수단과; 상기 저장수단과 방송수신기 본체와의 확탈을 위한 결합수단과; 상기 저장수단의 전원 및 신호 이동을 위한 접속수단;으로 구성된 것을 특징으로 한다.

예를들어, 상기 저장수단은 하드 디스크와 같은 디지털 저장매체인 것을 특징으로 한다.

예를들어, 상기 결합수단과 접속수단이 일체인 것을 특징으로 한다.

예를들어, 상기 접속수단은 활용 가능한 것을 특징으로 하는 한다.

예를들어, 상기 접속수단은 활용을 위해 저장수단의 접지부, 신호부 및 전원부, 저장수단 결함 신호부 부분으로 접속되고, 저장수단 결함 신호부, 신호부 및 전원부, 접지부 부분으로 분리됨을 특징으로 한다.
예를 들어, 상기 장합수단은, 상기 저장 메체를 내외적인 충격으로 부터 보호하는 방진 장치와, 착탈을 용이하게 하는 착탈 안내 수단을 더 구비한 것을 특징으로 한다.

예를 들어, 상기 저장수단의 장착 유무를 검출하는 검출기를 더 구비한 것을 특징으로 한다.

예를 들어, 상기 저장수단이 하나 이상인 것을 특징으로 한다.

예를 들어, 방송 수신기는 실시간 디지털 방송을 저장하기 위해 세트 내부에 임시 메모리 를 더 구비하는 것을 특징으로 한다.

예를 들어, 상기 저장수단은 외부에서 착탈이 용이하게 하는 구조물을 더 구비한 것을 특 징으로 한다.

본 발명의 실시간으로 전송되는 디지털 방송 프로그램을 수신하여 저장하는 방법에 있어서,

유니어에 의해 수신된 디지털 방송 스트림에서 저장하고자 하는 방송 프로그램을 추출하는 단계; 방송 수신기에 저장수단이 장착된다는지 검출하는 단계;

상기 저장수단이 장착되어 있는 경우, 상기 방송 프로그램을 상기 저장수단에 저장하고, 상기 저장수단이 미장착되어 있는 경우에는 상기 방송 프로그램을 임시 메모리에 저장하고, 상 기 저장수단이 장착되었는지 재검출하여 상기 저장수단 장착이 확인된 경우, 임시 메모리에 저장된 상기 방송 프로그램 및 상기 방송 프로그램을 상기 저장수단에 저장하는 단계;를 포함하는 것을 특징으로 한다.

예를 들어, 상기 방송 프로그램의 저장시, 상기 저장수단에 저장 공간이 부족한 경우, 상 기 방송 프로그램을 임시 메모리에 저장하는 단계를 더 포함하는 것을 특징으로 한다.
예를들어, 상기 방송 프로그램의 저장 중에, 상기 저장수단이 분리된 경우, 상기 방송 프로그램을 임시 메모리에 저장하고, 상기 저장수단의 장착을 재검출하는 단계를 더 포함하는 것을 특징으로 한다.

예를들어, 상기 저장수단의 장착 유무를 일정 주기로 검출하는 단계를 더 포함하는 것을 특징으로 한다.

예를들어, 상기 저장수단의 장착이 검출된 경우, 상기 저장수단에 전원 및 제어신호를 인가하고, 상기 저장수단의 동작을 위해 파일 시스템을 갱신하는 단계를 더 포함하는 것을 특징으로 한다.

본 발명의 다른 목적, 특징들은 첨부한 도면을 참조한 실시예들의 상세한 설명을 통해 명백해질 것이다.

이하 첨부된 도면을 참조하여 본 발명에 따른 착탈가능한 저장수단을 구비한 디지털 방송 수신기 및 디지털 방송 프로그램 저장방법에 대하여 설명한다.

도 2는 본 발명의 실시예에 따른 착탈 및 hot swap이 가능한 저장매체를 구비한 위성방송수신기 (STB)의 분류도로서, 위성 방송 수신기는 시스템의 구성요소를 제어하는 제어부 (206), 수신신호를 투영하는 튜너 (201) 및 직교위상변이변조방식(QPSK)으로 복호하는 QPSK 디코더부 (202), 원래의 독립 신호 또는 이들 신호의 군을 복원시키기 위해 다중화된 복합 신호를 분리하여 원래의 신호 또는 신호의 군으로 복원하는 디밀터플렉서부(DEMUX) (203), MPEG 오디오/비디오 디코딩 하는 MPEG DECODER부 (204), 다운장치로 출력하기 위해 오디오/비디오 엔코딩하는 A/V 엔코더부 (205), 수신되는 데이터를 저장하며, 필요시 수신되는 데이터를 임시 저장하기 위한 버퍼(207a)를 포함하는 제 1 저장수단이 내부기억장치(207)와, 착탈가능한 제 2
저장수단인 하나 이상의 기억매체(208), 시스템의 동작상태 및 상기 저장수단에 저장되고 데이터의 양을 표시 또는 경고등을 나타낼 수 있는 디스플레이부(209)를 포함하여 구성된다.

도 2를 참조하면, 제어부(206)는, 예를 들면 마이크로 프로세서 등을 포함하여 위성방송수신기(STB)의 전반적인 동작을 제어한다.

특히, 제 1 저장수단인 내부기억장치에 데이터가 수신/저장되도록 제어를 수행하다가, 제 2 저장수단의 인입여부를 판단하여 사용자의 요구, 또는 상기 제 1 저장수단에 미리정한 데이터가 저장되면 사용자에게 알려주거나, 제 2 저장수단으로 데이터의 저장을 전환하도록 경로를 제어하며, 상기 저장경로 변경중에 제 1 저장수단에 저장되어 있는 데이터를 제 2 저장수단으로 옮기는 동작등을 수행한다.

또한 제어부는 특정한 정보를 각 저장수단에 저장할 수 있도록 제어한다.

즉, 사용자는 키패드 또는 리모컨(미도시)을 이용하여 녹화 또는 예약 녹화하고자 하는 방송 프로그램을 선택할 수 있으며, 이와 같이 사용자가 선택한 녹화 또는 예약 녹화 정보(즉, 채널 정보, 방송 프로그램 정보, 녹화 또는 예약 녹화 시작 정보, 녹화 또는 예약 녹화 종료 시간 정보등)가 입력되면, 제어부(206)에서는 내부기억장치 또는 기억매체의 소정 영역에 이를 저장한다.

이하 도 2의 동작을 설명한다.

튜너(201) 및 QPSK DECODER(202)는, 제어부(206)로부터 제공되는 튜닝 제어신호에 따라, 방송신호 수신부(미도시)를 통해 수신되는 위성방송신호에서 사용자가 선택하거나 혹은 예약한 특정 채널을 튜닝을 통해 수신되는 위성 방송신호에서 선택 채널의 방송 프로그램용 오디오 및 비디오 패킷 데이터들을 추출하고, 이 추출된 오디오 및 비디오 패킷 데이터들에 대해
중앙주파로의 변환, 복조 및 오류 정정 등의 과정을 거쳐 전송 스트림으로 복원한 다음 디지털티플렉서(203)로 전달한다.

디지털티플렉서(203)는 전송 스트림에서 오디오 패킷 데이터와 비디오 패킷 데이터를 분리하며, MPEG 오디오/비디오 디코더부 (204)로 전달한다.

한편, MPEG 오디오 디코더부 (204)는, 제어신호에 따라 규정된 MPEG 오디오 알고리즘(예를들어 MPEG-2 오디오 알고리즘)에 따라 압축 부호화된 디지털 오디오 신호를 통상의 오디오 복호화 기법을 통해 부호화전의 원신호로 디코딩(복원)한다.

또한 MPEG 비디오 디코더부 (204)는, 제어신호에 따라 규정된 MPEG 비디오 알고리즘(예를들어 MPEG-2 비디오 알고리즘)에 따라 압축 부호화된 디지털 비디오 신호를 통상의 비디오 복호화 기법을 통해 부호화전의 원신호로 디코딩(복원)한다.

상기 MPEG 오디오/비디오 디코더부(204)에서 출력된 신호는 녹화(또는 저장)를 위한 선택적 압축(즉, 선택된 압축율에 따른 엔코딩)등을 위해 MPEG 오디오/비디오 엔코더부(205)로 전달된다.

또한 제어부는 특정한 정보를 각 저장수단에 저장할 수 있도록 제어한다.

즉, 사용자는 키패드 또는 리모컨 (미도시)을 이용하여 녹화 또는 예약 녹화하고자 하는 방송 프로그램을 선택할 수 있으며, 이와 같이 사용자가 선택한 녹화 또는 예약 녹화 정보(즉, 채널 정보, 방송 프로그램 정보, 녹화 또는 예약 녹화 시작 정보, 녹화 또는 예약 녹화 종료 시간 정보등)가 입력되면, 제어부 (206)에서는 내부기억장치 또는 기억매체의 소정 영역에 이를 저장한다.

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제어부에서는 제 1 저장수단 내부기억장치에 데이터가 수신/저장되도록 제어를 수행하다가, 제 2 저장수단의 인입여부를 판단한다.

또한 사용자의 요구시 또는 외기 제 1 저장수단에 미리 정한 데이터를 저장되면 사용자에게 알려주어, 제 2 저장수단으로 데이터의 저장을 전환하도록 경로를 제어하며, 상기 저장경로 변경중에 제 1 저장수단에 저장되어 있는 데이터를 제 2 저장수단으로 옮기는 동작등을 수행한다.

도 3은 본 발명에서 제안한 새로운 저장수단을 STB/PVR에 탑재시 상기 STB/PVR에서 인지하는 신호 연결부의 구조를 나타낸 것이다.

도면에서 보는바와 같이, 저장매체를 내장한 모듈을 본체와 연결시 먼저 GND, VCC & SIGNAL CD의 순으로 본체와 연결이 되도록 모듈의 PATTERN 길이가 조정되어 있으며, CD 신호가 검출된 후에 STB/PVR의 제어부는 기억매체에 전원을 인가하며 또 임정시간 DELAY 후 상기 인입된 새로운 저장매체의 CONTROL SIGNAL을 제어함으로써 전원이 들어온 상태에서도 USER로 하여금 상시 착탈이 가능하도록 한다.

즉, 저장수단 모듈이 접속수단에 장착시는 접지, 전원/신호선, 저장매체 순서로 접속되고, 저장수단 모듈을 접속수단에서 분리시는 저장매체, 전원/신호선, 접지 순서로 분리된다.

도 4는 본 발명에 따른 STB/PVR에서 새로운 저장수단 인입에 따라 핫 스왑저장 방법을 설명한 흐름도이다.

상기 도 2와 같이 구성되어 실시간으로 데이터를 수신하는 세톱박스(STB)에 있어서, 수신하고 있는 데이터를 제 1 저장부인 내부기억장치(207)에 저장하는 과정이 진행된다.
디스플레이부에 디스플레이된 저장 상태 또는 제어부에서 알려주는 경고 메시지등에 따라 상기 제1 저장수단에 수신하고 있는 데이터를, 제2 저장부인 기억매체(208)에 저장하기 위해 저장부 교체신호를 사용자 또는 시스템의 제어부에서 인가하는 과정이 진행된다. (단계 401).

상기 교체신호에 따라 지금까지 수신하고 있는 데이터는 상기 내부기억장치의 버퍼부에 일정시간 동안 계속 저장되거나, 기억매체가 하나이상이므로 기존에 삽입되어 있는 다른 기억매체에 저장되는 과정을 진행한다. (단계 402).

상기 도3에 나타난 바와 같이, 제2 저장수단인 새로운 저장수단의 삽입을 알려주는 CD 신호가 검출되는지 판단하여(단계 403), 제2 저장수단이 상기 STB에 인입된 경우에는 제어부의 제어에 따라 상기 제2 저장수단에 전원 및 제어신호를 인가한다. (단계 404).

상기 제2 저장수단에 전원을 인가후 일정시간 지연후 제어신호를 인가하므로써 전원이 들어온 상태에서도 사용자로 하여금 상기 착탈이 가능하도록 한다. (단계 405, 406).

제2 저장수단이 동작되도록 환경을 설정하는 과정을 진행한다.

즉, 제2 저장수단의 동작 및 기능의 메뉴에 대한 활성화와 파일 시스템을 갱신하는 과정을 수행한다. (단계 407, 408).

이후 상기 제1 저장수단에 저장된 데이터를 제2 저장수단으로 옮기어 저장 및 수신하는 데이터를 제2 저장부에 저장하는 과정을 진행한다. (단계 409).

한편, 상기 단계 403 판단결과, 제2 저장수단이 상기 STB에 인입되지 않는 경우에는 제2 저장수단의 환경을 설정하지 않는다. (단계 410, 411).
도 5는 새로운 저장수단인 기록매체(208)가 탑재되며, STB/PVR의 개구부로 인입되는 저장수단 모듈 어셈블리 상세도이다.

도면에서 보는바와 같이, 저장수단 모듈 어셈블리는 기록을 저장 할 수 있는 기록매체 (1), 상기 기록매체를 내외적인 충격으로부터 보호하고 방진장치와 냉각장치를 내포하며 착탈을 용이하게하는 손잡이형 구조물을 가진 Case (2), 기록매체 모듈을 접속위치 까지 안전하게 이송 안내하며 본체에 데이터를 전송 및 연결 하여주며 본체와의 데이터 이동 접속부(10)와 가진 Guide rail (3)를 포함하는 신호연결부, 기록매체의 진동이나 외부로부터의 충격에 의한 기록 데이터의 손상을 방지하기 위한 방진장치 (4), 저장수단인 기록매체로부터 세트사이에 데이터 이송을 가능하게 하는 삽입 슬롯부 (5), 외부로부터의 충격이나 기타안전 및 통부구조가 내포되어져 있는 커버 (6), 전체 모듈을 견고하게 고정하여 주는 고정용 Screw (7), (9)로 구성되어 있다.

상기 도 5를 볼록부로 구분하여 설명한다.

도 5는 STB 또는 PVR에 탑재되는 저장수단 모듈 어셈블리를 나타낸 것으로, 상기 STB 또는 PVR의 외면으로 개구되게 구비되고 상기 STB 또는 PVR 내부의 부품과 전기적으로 연결하기 위한 접속수단(5)이 후면에 구성되는 저장수단 모듈과, 상기 저장수단 모듈이 삽입되도록 가이드레일(3)이 양측면에 구성되며, 후면에 상기 저장수단 모듈과 접속되기 위한 접속수단(10)이 구비된 신호연결부가 구성되어 있다.

상기 저장수단 모듈에는 기록을 저장 할 수 있는 기록매체 (1), 상기 기록매체를 내외적인 충격으로부터 보호하는 방진장치(4)와, 착탈을 용이하게하는 손잡이형 Case (11), 상기 기록매체의 기록 데이터를 STB로의 이송역할을 하도록 후면에 설치되는 삽입 슬롯부 (5), 저장수
단 모듈은 고정하여 주는 스쿠류(7), 외부로부터의 충격 및 통부구조가 내포되어져 있는 커버(6)를 포함하여 구성된다.

또한 상기 신호연결부에는 상기 저장수단 모듈이 삽입되도록 양측면에 가이드레일(3)이 구성되며, 상기 저장수단 모듈과 접속되기 위한 접속수단(10)이 후면에 구비되고, 신호연결부를 고정하기 위한 고정수단(9)이 측면에 구성된다.

도 6은 STB/PVR의 내부 구조와 착탈식 저장수단 모듈이 장착되는 것을 나타낸 도면이다.

도 7은 STB/PVR에 착탈식 저장수단 모듈이 내장된 내부 구조 제품도이다.

도 8은 STP/PVR와 분리 되어져 있는 착탈식 저장수단 모듈 제품도이다.

도 9는 착탈식 저장수단을 내장한 STB 또는 PVR의 구조를 나타낸 도면이다.

이상에서 본 발명의 바람직한 실시예를 설명하였으나, 본 발명은 다양한 변화와 변형 및 균등물을 사용할 수 있다. 본 발명은 상기 실시예를 적절히 변형하여 동일하게 응용할 수 있음이 명확하다.

예를 들어, 도 2의 기억메체(208)가 장착된 경우에도 적용할 수 있을 것이다.

즉, 도 2의 내부 기억장치(207)에 데이터 수신/저장되다가 제 2 저장수단인 기억메체로 데이터 수신/저장을 변경하는 경우에도 상기에서 설명한 절차를 적용 가능하다.

따라서 상기 기재 내용은 하기 특허청구범위의 한계에 의해 본 발명의 범위가 정해지는 것이 아니다.
【발명의 효과】

본 발명에 의하면, 기존의 저장된 프로그램의 삭제 등의 작업없이 새로운 기억매체로 교체함으로써 용량의 제약없이 장시간의 기록, 저장이 가능하며 USER에 의한 일반 STB와 기억매체가 내장된 PVR로의 선택이 가능하다.

또한 본 발명이 적용된 STB 또는 PVR의 경우는 저장수단 모듈의 교체 시에도 내부 기억장치에 모듈이 교체될 동안의 방송을 임시, 기역하여, 교체된 후 저장수단에 기록할 수 있다.

또한 종래의 고정식 기억장치에 있어서는 모든 개별적인 USER전부가 STB/PVR에 내장된 1개의 기억장치만을 통한 별개의 기록물을 취급, 관리해야 하는 한계를 가지나, 본 발명에 의하면 하나이상의 별개의 저장수단이 자제가능하므로 서로 다른 USER에 의한 파일의 손상을 방지하고, 독립적인 사용이 가능하게 된다.

또한 본 발명에 의하면, 전원이 들어온 상태에서도 상시로 기억매체록의 채탈이 가능하게 됨으로써 별도의 외부 기록장치없이 기록물을 이동, 복사, 보관할 수 있으며 일반 USER의 미숙한 관리 및 부주의로 인한 기억매체의 손상을 방지할 수 있다.

또한 본 발명에 의하면, 외부 충격 및 진동에 약한 기억매체록같은 별도 포장 및 운반이 가능함으로서 운반비절감효과 및 취급이 간편해 질 수 있다.
【특허청구범위】

【청구항 1】

실시간 디지털 방송 프로그램을 수신하는 방송 수신기에 있어서,

사용자가 세트의 해제없이 세트 내외로 착탈 가능한 방송 프로그램을 저장하는 저장수단과;

상기 저장수단과 방송수신기 본체와의 착탈을 위한 결합수단과;

상기 저장수단의 전원 및 신호 이동을 위한 접속수단;으로 구성된 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기

【청구항 2】

제 1항에 있어서, 상기 저장수단은 하드 디스크와 같은 디지털 저장매체인 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 3】

제 1항에 있어서, 상기 결합수단과 접속수단이 일체인 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 4】

제 1항에 있어서, 상기 접속수단은 한 수와 가능한 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.
【청구항 5】

제 4항에 있어서, 상기 접속수단은 핫 수합을 위해 저장수단의 접지부, 신호부 및 전원부, 저장수단 검출 신호부 순으로 접속되고, 저장수단 검출 신호부, 신호부 및 전원부, 접지부 순으로 분리됨을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 6】

제 1항에 있어서, 상기 결합수단은, 상기 저장 매체를 내외적인 충격으로부터 보호하는 방진 장치와, 착탈을 용이하게 하는 착탈 안내 수단을 더 구비한 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 7】

제 1항에 있어서, 상기 저장수단의 착착 유무를 검출하는 검출기를 더 구비한 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 8】

제 1항에 있어서, 상기 저장수단이 하나 이상인 것을 특징으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.
【청구항 9】

제 1항에 있어서, 방송 수신기는 실시간 디지털 방송을 저장하기 위해 세트 내부에 임시 메모리를 더 구비하는 것을 특징으로 하는 작동 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 10】

제 1항에 있어서, 상기 저장수단은 외부에서 작동이 용이하게 하는 구조물을 더 구비한 것을 특징으로 하는 작동 가능한 저장수단을 구비한 디지털 방송 수신기.

【청구항 11】

실시간으로 전송되는 디지털 방송 프로그램을 수신하여 저장하는 방법에 있어서, 튜너에 의해 수신된 디지털 방송 스트림에서 저장하고자 하는 방송 프로그램을 추출하는 단계;

방송 수신기에 저장수단이 장착되었는지 검출하는 단계;

상기 저장수단이 장착되어 있는 경우, 상기 방송 프로그램을 상기 저장수단에 저장하고, 상기 저장수단이 미장착되어 있는 경우에는 상기 방송 프로그램을 임시 메모리에 저장하고, 상기 저장수단이 장착되었는지 재검출하여 상기 저장수단 장착이 확인된 경우, 임시 메모리에 저장된 상기 방송 프로그램 및 상기 방송 프로그램을 상기 저장수단에 저장하는 단계;를 포함하는 것을 특징으로 하는 디지털 방송 프로그램 저장 방법.

【청구항 12】

제 9항에 있어서, 상기 방송 프로그램의 저장시, 상기 저장수단에 저장 공간이 부족한 경우, 상기 방송 프로그램을 임시 메모리에 저장하는 단계를 더 포함하는 것을 특징으로 하는
디지털 방송 프로그램 저장 방법.

【청구항 13】

제 9항에 있어서, 상기 방송 프로그램의 저장 중에, 상기 저장수단이 분리된 경우, 상기 방송 프로그램을 임시 메모리에 저장하고, 상기 저장수단의 장착을 제거하는 단계를 더 포함하는 것을 특징으로 하는 디지털 방송 프로그램 저장 방법.

【청구항 14】

제 9항에 있어서, 상기 저장수단의 장착 유무를 일정 주기로 검출하는 단계를 더 포함하는 것을 특징으로 하는 디지털 방송 프로그램 저장 방법.

【청구항 15】

제 11항에 있어서, 상기 저장수단의 장착이 검출된 경우, 상기 저장수단에 전원 및 제어신호를 인가하고, 상기 저장수단의 동작을 위해 파일 시스템을 개신하는 단계를 더 포함하는 것을 특징으로 하는 디지털 방송 프로그램 저장방법.
[도 4]

시작

교체신호인가

시스템의 내부기억장치 또는 동작할 저장장치 이외의 저장장치에 Real-time data 저장

새로운 저장매체 인입신호 Detect?

예

본체인 STB/PVR의 제어부에서 새로운 저장매체에 전원인가 함

일정시간 동작 Delay

제어부에서 새로 인입된 저장매체에 제어신호 인가

새로운 기억매체의 동작 또는 기능들의 메뉴 활성화

File system update

내부기억장치에 저장된 일부 데이터와 Real-time으로 수신되는 data를 새로운 저장매체에 저장

종료

새로운 저장매체 메뉴 비활성화(disable)

File system unload
【도 9】
【서지사항】
명세서 등 보정서
특허청장
2003.03.29

【명칭】
아이디디지털 주식회사

【출원인코드】
1-2001-026746-9
【사건과의 관계】
출원인

【대리인】
【성명】 김기문
【대리인코드】 9-2001-000068-8
【포괄위임등록번호】 2002-026767-4

【사건의 표시】
【출원번호】 10-2002-0065697
【출원일자】 2002.10.26
【심사청구일자】 2002.10.26
【발명의 명칭】 착탈 가능한 저장수단을 구비한 디지털 방송 수신기 및 디지털 방송 프로그램 저장방법

【제출원인】
【접수번호】 1-1-02-0353121-67
【접수일자】 2002.10.26
【보정할 서류】 명세서등
【보정할 사항】
【보정대상항목】 별지와 같음
【보정방법】 별지와 같음
【보정내용】 별지와 같음
【추가청구항목】
【취지】
특허법 시행규칙 제13조·실용신안법 시행규칙 제8조의 규정에 의하여 위와 같이 제출합니다. 대리인 김기문 (인)
【수수료】
【보정료】 0 원
【추가심사청구료】 32,000 원
【기타 수수료】 0 원
【합계】 32,000 원
【첨부서류】
1. 보정내용을 증명하는 서류 1통
【보정대상항목】 청구항 1
【보정방법】 정정
【보정내용】

실시간 디지털 방송 프로그램을 수신하는 방송 수신기에 있어서,

방송프로그램을 저장가능하며, 사용자가 세트의 분리없이 세트 내외로 착탈 가능
한 제 2저장수단과;

수신되는 데이터의 경로를 상기 제 2저장수단으로 실시간으로 변경하여 저장하
기전에 상기 수신되는 데이터를 저장하는 제 1저장수단과;

상기 저장수단과 방송수신기 본체와의 착탈을 위한 결합수단과;

상기 저장수단의 전원 및 신호의 경로가 되며, 상기 수신기에 전원이 인가된 상
태로 상기 수신기와 상기 제 2저장수단과의 착탈을 가능하게 하는 접속수단;으로 구성
된 것을 특정으로 하는 착탈 가능한 저장수단을 구비한 디지털 방송 수신기.

【보정대상항목】 청구항 16
【보정방법】 추가
【보정내용】

실시간으로 데이터를 수신하는 디지털방송수신기(STB)에 있어서,

수신하고 있는 데이터를 제 1저장부에 저장하는 과정과;

상기 제 1저장부의 상태에 따라, 수신하고 있는 데이터를 제 2저장부에 저장
하기 위해 저장부 변경신호를 인가하는 과정과;

수신하고 있는 데이터를 제 1저장부에 일정시간 저장하는 과정과;
제 2 저장수단이 인입되었는지를 판단하는 과정과;

상기 판단결과, 제 2 저장부에 상기 STB에 인입되는 경우에는 제어부의 제어에 따라 상기 제 2 저장부에 전원 및 제어신호를 인가하는 과정과;

제 2 저장부가 동작되도록 환경을 설정하는 과정과;

상기 제 1 저장부에 저장된 데이터를 제 2 저장부에 저장하는 과정과;

수신하는 데이터를 제 2 저장부에 저장하는 과정;을 포함하는 것을 특정으로 하는 디지털 방송 프로그램 저장 방법.
UNITED STATES NATIONAL STAGE WORKSHEET (DO/EO)

BAC, Paralegal

Publication No. WO 04/039679 Publication Date 05-06-04

U. S. Application No. 10/492813

International Application Number: PCT/KR03/02238 International Filing Date: 10-23-03

Application Filed by 30 Month: Yes No Language: English

Copy in International Application: Yes no Translation: no Defective: Yes

371 Filing Fees paid Insufficient Meet Article 33 Requirement: Yes No & why not

Original claims: 1-10 Added Claims: ~ Total Claims: 16 Chargeable 16 Independent 3 multiple N

Claims Cancelled via Article 34 and/or Pre-Amt: 

Total Number of Drawing Sheets: 6 Foreign Text: 

Oath/Declaration: Yes no signed unsigned defective Date Signed: 

PCT/RO/101/Request Form Declaration: Yes signed Unsigned

Small Entity: Yes Small Entity Statement Assertion by filing fee paid

1st Submission: Biochemical Seq. Diskette: yes no entered & date not entered & date

2nd Submission: Biochemical Seq. Diskette: yes no entered & date not entered & date

Biochemical Seq. Listing: yes no statement yes no other submission date(s):

Biochemical Diskette/Listing not needed:

Copy of ISR: with references without references Yes Non-Establishment of ISR PCT/ISA/203

Article 19 Amendment: entered not entered Replaced by Article 34 Amendment

Copy of IPER: without Annexes: with Annexes: Annexes entered Annexes not entered

Reason Annexes have not been entered:

Preliminary Amendment(s): yes not entered & Why Other Amendment dates:

IDS: Yes with references without references Other IDS Dates:

Request for Immediate Examination: Yes no, Other Early Processing Date:

Substitute Specification: yes no

Assignment: Yes no Assignment for PG Publication: Yes No

Power of Attorney: Application Data Sheet Priority Document(s): Yes

Application Fees: owed/paid

Declaration Claims Multiple Translation Extension Petition

Date of 35 USC Receipt of Request: Rec'd PCT/PTO 10 JUN 2004

Date Completion USC 371 Requirements: Rec'd PCT/PTO 10 JUN 2004

Notice of Missing Requirements:

371 Formalities Letter: (Sequence) 922 or (Fees Owed) 923

Notice of Defective Response:

Notice of Acceptance: 12-03-04

Notice of Abandonment: Petition to Revive Petition 1.47:
PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

<table>
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<th>Date of mailing (day/month/year)</th>
<th>11 November 2003 (11.11.03)</th>
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<tr>
<td>Applicant's or agent's file reference</td>
<td>GOGHP055PCT</td>
</tr>
<tr>
<td>International application No.</td>
<td>PCT/KR03/02238</td>
</tr>
<tr>
<td>International filing date (day/month/year)</td>
<td>23 October 2003 (23.10.03)</td>
</tr>
<tr>
<td>International publication date (day/month/year)</td>
<td>Not yet published</td>
</tr>
<tr>
<td>Priority date (day/month/year)</td>
<td>26 October 2002 (26.10.02)</td>
</tr>
<tr>
<td>Applicant</td>
<td>ID DIGITAL CORPORATION et al</td>
</tr>
</tbody>
</table>

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).

2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.

3. An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

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<td>26 Octo 2002 (26.10.02)</td>
<td>10-2002-0065697</td>
<td>KR</td>
<td>06 Nove 2003 (06.11.03)</td>
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The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 338-70-90

Form PCT/IB/304 (July 1998)
PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

Date of mailing (day/month/year) 06 May 2004 (06.05.2004)

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INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC7 H04N 7/20
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KR IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Relevant to claim No.</th>
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<td>KR 1999-39064 A (HUNDAI ELECTRONICS CO.) 5 JUNE 1999 see the abstract, figure 3</td>
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<table>
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The present invention relates to a recording and storage means in digital STB (Set Top Box) and PVR (Personal Video Recorder) and method thereof. The digital broadcast receiver for receiving real-time digital broadcast programs comprises: storage means for storing broadcast programs, being attachable and separable to and from a set by a user without taking the set apart; a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and a connection means as a path for power supply of the storage means, and signal. The method for storing real-time digital broadcast programs comprises the steps of: extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner; detecting whether a storage means is installed in a broadcast receiver; if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means. The present invention allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.

Published: — with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
DIGITAL BROADCAST RECEIVER HAVING ATTACHABLE AND SEPARABLE STORAGE MEANS

Technical Field

The present invention relates to a recording and storage means in digital STB (Set Top Box) and PVR (Personal Video Recorder) and method thereof, more particularly, to a digital broadcast receiver having an attachable and separable storage means for storing digital broadcast programs.

Background Art

A digital set top box (STB) has rapidly spread in recent years largely because the digital STB presents a variety of advantages, compared to general analog televisions, such as it maximized channel usage, improved video and sound signal qualities, and provided a more convenient way to transmit supplementary service data.

Digital (satellite) broadcast system is different from analog broadcast system adapted in general analog televisions in terms of the transmission method of broadcast programs.

Specifically speaking, a digital STB receives a broadcast in a compressively encoded packet stream under an MPEG algorithm, and decodes (restores) the broadcast to original signals before being encoded. An analog television, on the other hand, receives program broadcast signals in analog and regenerates them.

Moreover, the STB, similar to a VCR function in the analog television,
allows a user to record or schedule to record in advance (i.e. reserve recording) a particular broadcast program on a particular channel the user selected. The recorded broadcast program data are stored in a memory space like a hard disk in compressively encoded form.

Because of this, many attempted to increase memory capacity in order to record or reserve recording more broadcast programs. However, it is also a well-known fact that increased storage capacity of memory like hard disk is accompanied with increased price. Therefore, in view of price competitiveness, it is rather an unrealistic notion to increase memory capacity for use in the STB without limit.

A conventional device and method thereof are now discussed below.

Fig. 1 is a block diagram of a conventional STB/PVR.

As is seen in the drawing, a STB includes a controller 106 for controlling system components, a tuner 101 for turning received signals, a QPSK decoder 102 for decoding received signals using QPSK modulation, a DEMUX 103 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 104 for decoding MPEG audio/video data, an A/V encoder 105 for encoding audio/video video in order to output them to another device, and an internal storage device 107 for storing received data.

In case of a STB or a PVR having a built-in storage device illustrated in Fig. 1, the storage device is fixed in a certain position inside of the product. Hence, when a user wants to add a new program after recording and storing
TV broadcasts for a certain period of time, one of already recorded programs had to be deleted, and storage extension to avoid this problem was fundamentally impossible.

According to another traditional embodiment, a separate storage device like a VCR could be added. However, broadcast signals, which are real-time data, cannot be recorded when a tape (for the general VCR) or a storage device (for a STB/PVR with a fixed storage device) is being changed.

Particularly, in case of the conventional fixed storage device, because all individuals could handle and manage recordings only through one single storage device built in the STB/PVR, different users could easily damage files in the storage device and it was virtually impossible to utilize the storage device segregately.

Further, the recordings could not be transmitted, duplicated or stored without the help of an external storage device.

To be short, the fixed storage device, once recording is complete, cannot be independently separated for individual handling or management. For separate handling, a separate external recording device is required to transmit, duplicate and store the stored recordings, but if there is no such external recording device, the fixed storage device normally has to be taken into pieces by a specially trained handling expert therefor. What happens if the storage device is exchanged, extended and separated by a general user not by the handling expert is that when the product with a built-in fixed storage device, which is a magnetic storage device being very sensitive to impact, receives any form of shock during the usage or the separation or
installation procedure, it is not buffed from the shock and the surface of the storage device is likely to be damaged thereby. As a result, stability of the product and durability of the recordings cannot be secured.

In other words, a fixed storage device built in the STB/PVR can be easily damaged by internal/external defects and impacts.

However, since the recording device cannot be separately shipped and carried, a separate handling management and transport means is required for the STB/PVR having a built-in fixed storage device.

If the fixed storage device is forcibly separated, recordings therein and the storage device itself can be easily damaged.

That is to say, if the fixed storage device is forcibly separated from the STB/PVR, the already stored recordings and the storage device are often damaged.

Disclosure of Invention

It is, therefore, an object of the present invention to provide a digital broadcast receiver having an attachable and separable storage means for storing received data, wherein the storing means can be attached and separated even when power is being applied, and a method for continuously storing real-time broadcast programs simply by exchanging a storage means, regardless of the capacity thereof, with another storage means.

Another object of the present invention is to increase the user’s convenience by providing a display device that helps the user to see a fixed device in a cooled and buffed, mounted module and a state whether the
device is attached or separated.

To achieve the above object, there is provided a digital broadcast receiver for receiving real-time digital broadcast programs, including: storage means for storing broadcast programs, being attachable and separable to and from a set by a user without taking the set apart; a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and a connection means as a path for power supply of the storage means, and signal.

Another aspect of the invention provides a method for storing real-time digital broadcast programs, which includes the steps of: extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner; detecting whether a storage means is installed in a broadcast receiver; if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means.

If the storage means is separated when storing the broadcast program, the broadcast program is stored in the temporary memory, and the installation of the storage means is redetected.

Also, the installation of the storage means is detected at regular intervals.
If the installation of the storage means is confirmed, a power signal and a
control signal are input to the storage means, and a file system is updated for an operation of the storage means.

According to the present invention, without deleting already stored programs, a user is able to record and store broadcast programs for an extended period of time regardless of capacity limit, and has an option to choose a general STB or a PVR with a built-in storage medium at any time.

In case of the STB/PVR to which the present invention is applied, the user can temporarily store a broadcast program in an internal storage device even when he changes a storage means module, and later store the broadcast program in a storage means.

The present invention also allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.

As for a traditional conventional fixed storage device, all individual users could handle and manage respective recordings only through one single storage device built in the STB/PVR. The present invention, however, allows a user to attach and separate a plurality of discrete storage means, whereby a file can be protected from damages caused by other users and used independently.

Moreover, since storage medium can easily be attached and separated even when power is on, users are not able to transfer, duplicate and store recordings in the storage medium, without using an external recording device. In this way, the storage medium is much less damaged by an inexperienced user or from users’ carelessness.
In addition, the storage medium, which is sensitive to external shocks and vibration, can be shipped and carried individually, and thus transportation expenses can be greatly reduced and handling can be much easier.

**Brief Description of Drawings**

The above objects, features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which:

- Fig. 1 is a block diagram of a related art STB/PVR;
- Fig. 2 is a block diagram of a set top box mounted with an attachable and separable and hot swap–capable storage means according to a preferred embodiment of the present invention;
- Fig. 3 is a diagram illustrating a structure of a signal connector for recognizing a new storage means suggested by the present invention at a STB/PVR when loading the storage means to the STB/PVR;
- Fig. 4 is a flow chart describing a hot swap storage method according to a lead–in storage means in a STB/PVR of the present invention;
- Fig. 5 is a detailed view of a storage means module assembly, in which a storage medium, namely a new storage means, is mounted and the assembly is led in an opening portion of a STB/PVR;
- Fig. 6 illustrates an inside structure of a STB/PVR and how an attachable and separable storage means module is inserted;
- Fig. 7 depicts an inside structure of a STB/PVR having a built–in attachable storage means module:
Fig. 8 depicts an attachable and separable storage means module being separated from a STB/PVR; and

Fig. 9 illustrates a STB/PVR having a built-in attachable and separable storage means.

**Best Mode for Carrying Out the Invention**

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings.

Fig. 2 is a block diagram of a set top box (STB) mounted with an attachable and separable and hot swap-capable storage means according to a preferred embodiment of the present invention. As shown in the drawing, the STB includes a controller 206 for controlling system components, a tuner 201 for turning received signals, a QPSK decoder 202 for decoding received signals using QPSK modulation, a DEMUX 203 for restoring original independent signals or a group of those signals by separating multiplexed composite signals and restoring them to original signals or a signal group, a MPEG decoder 204 for decoding MPEG audio/video data, an A/V encoder 205 for encoding audio/video video in order to output them to another device, an internal storage device 107 as a first storage means for storing received data, the device including a buffer 207a for temporarily storing received data whenever necessary, a plurality of storage medium 208 as a second storage means being attachable and separable, and a display 209 for displaying an operational state of system and informing or warning an amount of data being stored in the storage means.
Referring to Fig. 2, the controller 206 controls general operations of a STB by means of a microprocessor for example.

Particularly, the controller 206 controls the internal storage device, which is the first storage means, to receive/store data. And then if the second storage means is inserted, the controller 206 informs this to a user at the user’s request or when predetermined data is stored in the first storage means, to control a path for changing data storage to the second storage means, and transfers the stored data in the first storage means to the second storage means during the storage path change.

Also, the controller controls specific information to be stored in respective storage means.

In other words, the user is allowed select a broadcast program he wants to record or reserve recording, using a keypad or a remote control (not shown), and based on recording or reservation recording information the user input (i.e. channel, kind of broadcast program, start time of recording or reserved recording, end time of recording or reserved recording and so forth), the controller 206 stores this information in the internal storage device or a pre-designated area in the storage medium.

The operation of the STB of Fig. 2 is now discussed.

The tuner 201 and the QPSK decoder 202, complying to a tuning control signal provided from the controller 206, extract audio and video packet data for use in a broadcast program of a selected channel, out of broadcast signals that are received through a broadcast signal receiver (not shown) the user selected, or broadcast signals that are received by tuning a
specific reserved channel; convert to an intermediate frequency, decode and correct errors in those extracted audio and video packet data in order to restore the data to a transmission stream; and transmits the restored data stream to the DEMUX 203.

The DEMUX 203 then separates audio packet data and video packet data from the transmission stream, and transmits the audio and video packet data to the MPEG audio/video decoder 204.

On the other hand, by applying a general audio decoding process, the MPEG audio decoder 204 decodes (restores) compressively encoded digital audio signals to original signals before being encoded, under a control signal and a MPEG audio algorithm standard (e.g. MPEG-2 audio algorithm). Likewise, by applying a general video decoding process, the MPEG audio decoder 204 decodes (restores) compressively encoded digital video signals to original signals before being encoded, under a control signal and a MPEG video algorithm standard (e.g. MPEG-2 video algorithm).

Output signals from the MPEG audio/video decoder 204 are transmitted to the MPEG audio/video encoder 205 for selective compression (i.e. encoding under a selected compression rate) before being recorded (or stored).

The controller controls specific information to be stored in respective storage means.

To be more specific, the user can select a broadcast program he wants to record or reserve recording, using a keypad or a remote control (not shown), and based on recording or reservation recording information the user
input (i.e. channel, kind of broadcast program, start time of recording or reserved recording, end time of recording or reserved recording and so forth), the controller 206 stores this information in the internal storage device or a pre-designated area in the storage medium.

The controller decides whether the second storage means is inserted when controlling the internal storage device, the first storage means, to receive/store data.

If the user requests or predetermined data is stored in the first storage means, the controller informs the user that the second storage means is now available, to control a path for changing data storage to the second storage means, and transfers the stored data in the first storage means to the second storage means during the storage path change.

Fig. 3 is a diagram illustrating the structure of a signal connector for recognizing a new storage means suggested by the present invention at a STB/PVR when loading the storage means to the STB/PVR.

As illustrated in the drawing, in case of connecting a module with a built-in storage medium to a main body, a pattern length of the module is pre-adjusted to connect to the main body in order of GND, VCC& SIGNAL CD. After a CD signal is detected, the controller of the STB/PVR applies power to the storage medium and controls a control signal of this newly inserted storage means in a certain delay, whereby the user can easily attach or separate the storage medium at any time even when power is on.

That is, when the storage means module is installed at a connection means, it is connected in order of an earth portion, a power/signal line, and
the storage medium. On the other hand, when the storage means module is separated from the connection means, it is separated in order of the storage medium, the power/signal line, and the earth portion.

Fig. 4 is a flow chart describing a hot swap storage method according to a lead-in storage means in a STB/PVR of the present invention.

As for the real-time receiving STB having the constitution illustrated in Fig. 2, received data is stored in the internal storage device 207, which is the first storage portion.

According to a storage status in the display or in response to a warning message from the controller, the user or the system controller inputs a storage means changing signal, in order to transfer the data being received to the first storage means to the storage medium 208 that is the second storage portion (S401).

Under the changing signal, the real-time data is stored in the buffer of the internal storage device for a certain period of time, or since there is more than one storage medium, other already existing storage medium are also used for storing the real-time data (S402).

As shown in Fig. 3, it is decided whether or not a CD signal for informing the insertion of a new storage means as the second storage means is detected (S403). In case the second storage means is led in the STB, a power signal and a control signal are input to the second storage means, under the control of the controller (S404).

Since the control signal is input to the second storage means after a predetermined time delay followed by the power signal input, the user can
attach or separate the storage means even when the power is on (S405, S406).

Next is a procedure for establishing a suitable configuration to enable the operation of the second storage means.

In other words, an operation and function menu for the second storage means is activated, and a file system is updated (S407, S408).

Afterwards, the stored data in the first storage means is transferred to the second storage means, and other data being received is stored in the second storage (S409).

Meanwhile, if it turns out that the second storage means is not led in the STB in Step 403, the configuration for the second storage means needs not to be established (S410, S411).

Fig. 5 is a detailed perspective view of a storage means module assembly, in which a storage medium, namely a new storage means, is mounted and the assembly is led in an opening portion of a STB/PVR.

As depicted in the drawing, the storage means module assembly includes a storage medium 1 for storing recordings; a case 2 for protecting the storage medium from internal/external impacts, in which the case contains a shock absorber and a cooler, and has a handle for permitting a user to easily attach and separate the storage medium; a signal connection portion having a data transfer connection portion 10 and guide rails 3, for safely guiding the storage medium module to a connection cite, and transmitting and connecting data to a main body; a shock absorber 4 for preventing recorded data from being damaged by vibration of the storage
medium or an external impact; an insertion slot 5 enabling data transfer between the storage medium and a set: a cover 6 having a safety structure from an external impact and a ventilation structure; and fixing screws 7 and 9 for fixing the entire module more firmly.

More details follow to provide a better description on each component.

Fig. 5 shows the storage means module assembly to be mounted on a STB or a PVR, more specifically, at an outside surface of the STB or the PVR. The storage means module assembly includes the storage means module having a connection means 5 (i.e. the insertion slot) at a rear surface, for electrically connecting the assembly with internal parts of STB or the PVR; and the signal connection portion having the guide rails 3 attached to both sides for facilitating the insertion of the storage means module, and the connection means 10 disposed at a rear surface, for connection with the storage means module.

The storage means module includes the storage medium 1 for storing recordings, the shock absorber 4 for protecting the storage medium from internal/external impacts, the case 11 with a handle for making the attachment and separation of the storage medium easy, the insertion slot 5 attached to the rear surface, transferring recording data in the storage medium to the STB, screws 7 for fastening or fixing the storage means module more firmly, and the cover 6 with a ventilation structure, for protecting the assembly from an external impact.

As aforementioned, the signal connection portion includes guide rails 3 on both sides for facilitating the insertion of the storage means module, the
connection means 10 on the rear surface for connection with the storage means module, and the fixing means 9 on one side for fixing the signal connection portion.

Fig. 6 illustrates the inside structure of a STB/PVR and how an attachable and separable storage means module is inserted.

Fig. 7 depicts the inside structure of a STB/PVR having a built-in attachable storage means module.

Fig. 8 depicts an attachable and separable storage means module being separated from a STB/PVR.

Fig. 9 illustrates a STB or a PVR having a built-in attachable and separable storage means.

While the invention has been shown and described with reference to certain preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims. For example, the invention is also applicable when the storage medium 208 of Fig. 2 is installed.

That is to say, when the storage medium, the second storage means, takes over the role of the internal storage device 207, namely receiving/storing real-time data, the procedure of the invention can be applied as well.

Industrial Applicability

Without deleting already stored programs, a user is able to record and
store broadcast programs for an extended period of time regardless of capacity limit, and has an option to choose a general STB or a PVR with a built-in storage medium at any time.

In case of the STB/PVR to which the present invention is applied, the user can temporarily store a broadcast program in an internal storage device even when he changes a storage means module, and later store the broadcast program in a storage means.

The present invention also allows users to record and store real-time data for an extended period of time, simply by changing the storage medium with a new one without interruption of the data being received.

In the present invention, a plurality of discrete storage means is attachable and separable, whereby a file can be protected from damages caused by other users and used independently.

Moreover, since storage medium can easily be attached and separated even when power is on, users are not able to transfer, duplicate and store recordings in the storage medium, without using an external recording device. In this way, the storage medium is much less damaged by an inexperienced user or from users’ carelessness.

In addition, the storage medium, which is sensitive to external shocks and vibration, can be shipped and carried individually, and thus transportation expenses can be greatly reduced and handling can be much easier.

The foregoing embodiments and advantages are merely exemplary and are not to be construed as limiting the present invention. The present teaching can be readily applied to other types of apparatuses. The
description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art. In the claims, means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents but also equivalent structures.
What is Claimed Is:

1. A digital broadcast receiver having an attachable and separable storage means, wherein the digital broadcast receiver for receiving real-time digital broadcast programs comprises:
   - a second storage means for storing broadcast programs, being attachable and separable to and from a set without taking the set apart by a user;
   - a first storage means for storing data being received, before changing a data path being received to the second storage means in real time mode;
   - a coupling means for attachment and separation of the storage means to and from a main body of the broadcast receiver; and
   - a connection means as a path for power supply of the storage means, and signal, for allowing the user to attach and separate the second storage means to and from the receiver while power is supplied to the receiver.

2. The digital broadcast receiver according to claim 1, wherein the storage means is a digital storage medium, including a hard disk.

3. The digital broadcast receiver according to claim 1, wherein the coupling means and the connection means are combined in one body.

4. The digital broadcast receiver according to claim 1, wherein the connection means is capable of hot swap.
5. The digital broadcast receiver according to claim 4, wherein for hot swap, the connection means is connected in order of an earth portion, a signal and power portion, and a storage means detection signal portion, and separated in order of the storage means detection signal portion, the signal and power portion, and the earth portion.

6. The digital broadcast receiver according to claim 1, wherein the coupling means comprises a shock absorber for protecting the storage medium from internal/external impacts, and an attachment and separation guide means for facilitating the attachment and separation of the storage medium.

7. The digital broadcast receiver according to claim 1, wherein further comprises
   a detector for detecting whether or not the storage means is installed.

8. The digital broadcast receiver according to claim 1, the second storage means includes at least one storage means.

9. The digital broadcast receiver according to claim 1, wherein further comprises a temporary memory for storing real-time digital broadcast programs in the set.
10. The digital broadcast receiver according to claim 1, wherein the storage means further comprises a structure for facilitating attachment and separation of the storage means from outside.

11. A method for storing real-time digital broadcast programs, the method comprising:
   extracting a broadcast program to be stored from a digital broadcast stream being received by a tuner;
   detecting whether a storage means is installed in a broadcast receiver;
   if the storage means is installed, storing the broadcast program in the storage means, if the storage means is not yet installed, storing the broadcast program in a temporary memory, and redetecting the installation of the storage means and if the installation of the storage means is confirmed, storing the broadcast program stored in the temporary memory in the storage means.

12. The method according to claim 9, wherein further comprises if the storage means does not have a sufficient storage for storing the broadcast program, storing the broadcast program in the temporary memory.

13. The method according to claim 9, wherein further comprises if the storage means is separated when storing the broadcast program, storing the broadcast program in the temporary memory, and redetecting the installation of the storage means.
14. The method according to claim 9, wherein further comprises detecting at regular intervals whether or not the storage means is installed.

15. The method according to claim 9, wherein further comprises inputting a power signal and a control signal to the storage means, and updating a file system for an operation of the storage means.

16. A method for storing digital broadcast programs in a digital set top box (STB) for receiving real-time data, the method comprising:
   storing data being received in a first storage portion;
   inputting a storage portion changing signal to store the data being received in a second storage portion according to a status of the first storage portion;
   storing the data being received in the first storage portion for a predetermined amount of time;
   deciding whether or not a second storage means is led in;
   if the second storage portion is led in the STB, inputting a power signal and a control signal to the second storage portion, under control of a controller;
   establishing a suitable configuration for an operation of the second storage portion;
   storing the data from the first storage portion in the second storage portion; and
storing a data being received in the second storage data.
FIG. 1

LNB → Tuner → QPSK Decoder → DEMUX → MPEG Decoder → A/V Encoder → Controller → Storage device

FIG. 2

LNB → Tuner → QPSK Decoder → DEMUX → MPEG Decoder → A/V Encoder → Controller

Controller ➔ Internal storage device ➔ Storage medium ➔ Display
FIG. 3

MODULE

GND
CD
VCC
SIGNAL 1
SIGNAL 2

SIGNAL N
CD
GND

Main body

① GND
② VCC & signal
③ Cartridge detect

→
FIG. 4

Start

Changing signal? 401

Store real-time data in internal storage device of system or other storage device(s) besides storage device to be operated 402

Detect new storage medium led-in signal? 403

- 아니요

Input power to new storage medium by controller of STB/PVR, main body 404

Operation delay for a certain time 405

Input control signal from controller to new led-in storage medium 406

- 410

Operate new storage medium or activate function menu 407

File system update 408

Store part of data stored in internal storage device and real-time data being received in new storage medium 409

End

Disable new storage medium menu 410

File system unload 411
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