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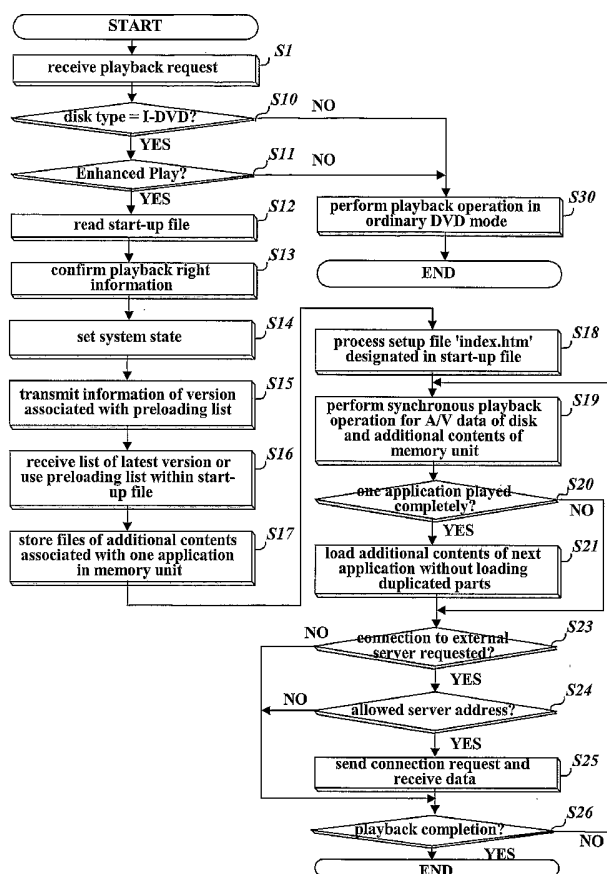
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(54) Title: METHOD FOR PROCESSING CONNECTION REQUEST OF A DISK PLAYER



(57) Abstract: A method for connecting a media player to a remote server is provided. The method comprises processing a request for connecting to an remote server while reproducing data recorded on an enhanced navigation medium, processing connection information recorded on the enhanced navigation medium to determine whether connection to the remote server is permitted, and requesting connection to the remote server, if connection to the remote server is permitted in accordance with the connection information.



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DESCRIPTION

METHOD FOR PROCESSING CONNECTION REQUEST OF A DISK PLAYER

1. TECHNICAL FIELD

5 The present invention relates to a method for setting a
playback environment for reproducing audio/video (A/V) data in an
interactive or enhanced recording medium, such as an interactive
digital versatile disk (also known as I-DVD or Enhanced Digital
Versatile Disk (ENAV)), along with additional contents associated
10 with the A/V data.

2. BACKGROUND ART

High-density optical disks (e.g., digital versatile disks
(DVDs)) are capable of recording and storing large-capacity
digital data. The DVDs are large-capacity recording mediums
15 capable of permanently recording and storing not only high-quality
digital audio data, but also high-quality moving picture data.

A DVD includes a data stream recording area for recording a
digital data stream, such as moving picture data and a navigation
data recording area for recording navigation data needed for
20 controlling playback of the moving picture data. A typical DVD
player first reads the navigation data recorded on the navigation
data recording area, if the DVD is seated in the player, stores
the read navigation data in a memory provided in the player, and
reproduces the moving picture data recorded on the data stream
25 recording area using the navigation data.

The DVD player reproduces the moving picture data recorded

on the DVD, such that a user can view and hear a movie recorded on the DVD. Information (control or additional information) associated with the playback of audio/video (A/V) data recorded on the DVD can be recorded as a file written in a hypertext markup language (HTML) on the DVD. Standardization work of an interactive digital versatile disk (I-DVD) is ongoing. The A/V data recorded on the I-DVD is reproduced according to the user's interactive request. Where I-DVDs are commercialized, the supply of contents through digital recording mediums will be more prevalent.

10 A method is being developed for seamlessly and continuously reproducing A/V data in an I-DVD, at the time of a synchronous playback operation for the A/V data and additional contents, i.e., ENAV data, associated with the A/V data recorded on the DVD. Various playback environments must be set before the data of the disk is reproduced so that the A/V data and the ENAV data on the disk can be seamlessly reproduced and outputted under limited resources of the player.

3. DISCLOSURE OF INVENTION

In accordance with one or more embodiments, a method for connecting a media player to a remote server comprises processing a request for connecting to an remote server while reproducing data recorded on an enhanced navigation medium; processing connection information recorded on the enhanced navigation medium to determine whether connection to the remote server is permitted; and requesting connection to the remote server, if connection to the remote server is permitted in accordance with the connection information.

The connection information is recorded in a start-up file that is read prior to reproduction of the data recorded on the enhanced navigation medium. The start-up file comprises information associated with a list of additional contents to be

loaded before the data on the enhanced navigation medium is reproduced. The start-up file comprises information associated with a right to reproduce the data recorded on the enhanced navigation medium.

5 In some embodiments, the start-up file comprises information associated with a region code, a language of the additional contents, memory management, and a file to be processed after the start-up file is processed. The connection information comprises a list of servers to which the media player
10 may connect or alternatively a list of servers to which the media player may not connect.

 The data recorded on the enhanced navigation medium comprises audio/video (A/V) data. The data recorded on the enhanced navigation medium comprises additional contents
15 associated with the A/V data, in some embodiments, for example. The A/V data and the additional contents are reproduced in synchronization.

 The connection information comprises at least one connection address for connecting to the remote server. The
20 start-up file comprises the connection information, wherein the start-up file comprises information associated with a walled-garden file comprising location information about at least one server.

 The walled-garden file comprises information about at least
25 one server to which the media player may connect to retrieve additional contents associated with the data recorded on the enhanced navigation medium. In one embodiment, the walled-garden file comprises information about at least one server to which the media player may not connect to retrieve additional contents
30 associated with the data recorded on the enhanced navigation medium.

 The walled-garden file comprises at least one entry

associated with loading information that controls access to information available on the at least one server. The loading information comprises at least a condition for loading information available on the at least one server, and at least
5 one of a language or a profile supported by the media player.

In one or more embodiments, a method for processing a connection request of an enhanced navigation media player comprises determining a current operating mode and connection limitation information, in response to a connection request for
10 connecting the player to a remote server; and submitting the request to the remote server to establish a connection, based on the current operating mode and the connection limitation information.

The connection request is submitted, if the current
15 operating mode is an enhanced navigation playback mode. Also, the connection request is submitted, if the connection limitation information provides permission for the remote server to be contacted. That is, the connection request is submitted, if the current operating mode is an interactive disk playback mode and
20 if the connection limitation information indicates that the remote server may be contacted.

In certain embodiments, the connection limitation information is included in a start-up file residing on an enhanced navigation medium. The start-up file is read prior to
25 the player reproducing data recorded on the enhanced navigation medium. The start-up file comprises information associated with a list of additional contents to be loaded before data recorded on the enhanced navigation medium is reproduced.

In accordance with another embodiment, an enhanced
30 navigation media player for processing data recorded on a recording medium is provided. The player comprises an audio/video (A/V) player engine; and an enhance navigation (ENAV) engine,

wherein if the recording medium is not an enhance navigation medium then A/V data recorded on the recording medium is reproduced by the A/V player engine, and wherein if the recording medium is an enhanced navigation medium, then a start-up file is
5 loaded into a first memory so that the ENAV engine can extract connection information about at least one server with additional contents.

In one or more embodiments, the start-up file comprises information associated with a walled-garden list that provides
10 the connection information about the at least one server. The start-up file may also comprise loading information that controls access to the additional contents available on the at least one server. The loading information comprises at least a condition for loading the additional contents available on the at least one
15 server, a language condition to limit access to the additional contents available on the at least one server based on the language condition, a profile condition to limit access to the additional contents available on the at least one server based on the profile condition, and parental condition to limit access to
20 the additional contents available on the at least one server based on the parental condition.

In some embodiments, an enhanced navigation recording medium comprises audio/video (A/V) data; and connection information for controlling access to additional contents available through at
25 least one remote server, wherein the additional contents is reproduced in synchronization with the A/V data. The connection information comprises at least a condition for loading the additional contents available on the at least one server and a language condition to limit access to the additional contents
30 available on the at least one server based on the language condition.

A profile condition to limit access to the additional

contents available on the at least one server based on the profile condition, and parental condition to limit access to the additional contents available on the at least one server based on the parental condition, may be also included. In one embodiment, 5 the connection information limits access to the at least one remote server or permits access to the at least one remote server.

In accordance with yet another embodiment, a method of playing back audio/video (A/V) data recorded on an enhanced navigation medium comprises identifying a playback mode; decoding 10 a start-up file recorded on the enhanced navigation medium, if the playback mode identifies an enhanced navigation mode, wherein the start-up file comprises first and second information; decoding the first information to determine location of at least one remote server that provides access to additional contents to be played 15 back in synchronization with the A/V data; and decoding the second information to determine at least one condition associated with the additional contents.

In one embodiment, a first enhanced navigation application is launched based on the decoded first and second information. The 20 second information comprises at least one of a profile, language, and parental condition for loading the additional contents, for example.

These and other embodiments of the present invention will also become readily apparent to those skilled in the art from the 25 following detailed description of the embodiments having reference to the attached figures, the invention not being limited to any particular embodiments disclosed.

4. BRIEF DESCRIPTION OF DRAWINGS

The accompanying drawings, which are included to provide a 30 further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate

embodiments of the invention and together with the description serve to explain the principles of the invention.

Fig. 1 is a block diagram of an optical disk device to which a method for setting a playback environment of an interactive disk, in accordance with one embodiment of the invention, is applied;

Fig. 2 is a schematic diagram illustrating a directory structure of an interactive digital versatile disk (I-DVD) in accordance with one embodiment of the invention; and

Fig. 3 is a flowchart illustrating a method for setting the playback environment of the interactive disk, in accordance with an embodiment of the invention.

Features, elements, and aspects of the invention that are referenced by the same numerals in different figures represent the same, equivalent, or similar features, elements, or aspects in accordance with one or more embodiments of the system.

5. MODES FOR CARRYING OUT THE INVENTION

Referring to Fig. 1, in accordance with one embodiment of the present invention, an optical disk device comprises an optical pickup 11 that reads a signal recorded on an enhanced navigation recording medium such as an interactive digital versatile disk (I-DVD) 10. A signal processor 12 processes a read radio frequency (RF) signal and recovers digital data. A memory unit 13 stores the recovered data and externally received data. A DVD engine 14 decodes the data stored in the memory unit 13. An iDVD engine 15 interprets an information file stored in the memory unit 13, and processes certain additional contents (i.e., ENAV data).

A synthesizer 18 synthesizes and outputs an A/V signal from the DVD engine 14 and another A/V signal from the iDVD engine 15. A network interface 17 performs a network connection function and a web browser function. A control unit 16 sets a playback environment of the I-DVD 10 and controls the above-described

components so that data of the I-DVD 10 can be reproduced along with the additional contents, under the set playback environment.

An exemplary directory structure of the I-DVD 10 is shown in Fig. 2. An additional contents directory "DVD_ENAV" 203 is arranged under a root directory and comprises a start-up file "StartUp.mls" 204, for example. The start-up files comprises information about the system environment settings. In some embodiments, the environment is set before data of the I-DVD is reproduced.

10 An information file "EnDVD.Inf", for example, for reproducing A/V data recorded on the I-DVD, an initial screen setup file "index.html", for example, for playback, and synchronization file "index.syn", for example, for the synchronization between data items of different attributes may be
15 part of the start-up file or settings. The directory "DVD_ENAV" 203 may further comprise a fonts directory 206 storing font files for outputting a text of the additional contents.

In some embodiments, an additional contents directory 207 comprising the additional contents for providing additional A/V
20 contents (i.e., ENAV data files 208, html files, image files, sound files, etc.) may be present. The additional contents directory 207 can comprise additional contents (for example, e.g., subdirectories 209), on the basis of a hierarchical structure, for example.

25 A video title set directory "Video_TS" 201, for example, comprising video data and an audio title set directory "Audio_TS" 202, for example, comprising audio data is arranged under the root directory, in some embodiments. An item of disk version information associated with the I-DVD and an item of contents
30 manufacturer information are recorded in, for example, the "EnDvd.inf" file of the directory 203. Further, uniformed resource identifier (URI) information associated with a contents provider's

server for providing, through a communication network, the additional contents information relating to A/V data to be read and reproduced from the I-DVD can be recorded in the directory 203.

Items of setup information for the initial screen setting at 5 the time of reproducing the data of the interactive DVD can be recorded in the setup file "index.html" of the directory 203.

Items of time stamp information for performing the synchronization between the A/V data and ENAV data to be read and reproduced from the I-DVD are recorded in the synchronization file "index.syn".

10 Before the A/V data of the I-DVD is reproduced, various information items for system environment setting are recorded in the start-up file "StartUp.mls", for example. The various information items may comprise information about contents to be loaded in a memory before the playback, location information of a 15 source for providing the contents information, a parental ID indicating a right to access the recorded A/V data, the language of the additional contents, a website connection during the playback, memory management information, a file to be processed after the start-up file is processed, and a version of the start- 20 up file.

Referring to Fig. 3, a method for reproducing the data of the I-DVD 10 is provided. If a disk is inserted and seated within the player shown in Fig. 1, at step S1, then the control unit 16 searches for a "StartUp.mls" or "EnDVD.Inf" file from a "DVD_ENAV" 25 directory, for example. If a corresponding file is found, the seated disk is detected as an I-DVD, at step S10. Otherwise, the seated disk is detected as a general DVD.

If the seated disk is a general DVD, the control unit 16 performs a playback operation in a general DVD mode in response to 30 a user request, at step S30. If the playback operation is completed, procedure ends. In the playback operation of the DVD mode, data reproduced from the disk is processed through the DVD

engine 14 and the processed data is outputted as a video and audio signal.

On the other hand, if the seated disk is an I-DVD 10, it is determined whether data of the I-DVD is to be reproduced in an enhanced mode, at step S11. The enhanced mode is a synchronous playback mode for the additional data (i.e., ENAV data). The enhanced mode can be turned ON/OFF by the user. The initial setting corresponds to an ON state, in one embodiment. If the enhanced mode is in an OFF state, the above-described general DVD playback operation is performed at the above step S30, even if the seated disk is an I-DVD.

In certain embodiments, if the enhanced mode is in an ON state, the start-up file "StartUp.mls", for example, arranged under the "DVD_ENAV" directory is read, at step S12. The start-up file is stored in the memory unit 13, and the iDVD engine 15 is requested to interpret the start-up file. In one embodiment, the iDVD engine 15 interprets the start-up file "StartUp.mls" stored in the memory unit 13, and confirms a parental ID for authorization to reproduce data of the I-DVD at step S13. The iDVD engine then sets a system state, at step S14.

Information of the system state comprises information associated with a language to be used at a time of processing the ENAV data, website connection limitation (i.e., walled garden list), memory management, loading information, etc. For example, the system state can be defined as:

```

30      <conf type=language con=euc-kr>
        <wgarden>http://www.warner.com</wgarden>
        <memset>
        <pload>36</pload>
        </memset>

```

In this exemplary embodiment, The tag "<conf type>", for example, designates the Korean language as the used language. A tag "<wgarden>", for example, designates the website connection limitation or the walled garden list. The tag "<wgarden>", for

example, indicates that connections to web sites other than "<http://www.warner.com>", for example, are not allowed. In conjunction with the memory setting, a tag "<pload>", for example, designates a memory space to be occupied. The tag "<pload>"

5 indicates that a memory space of 36 Mbytes in the memory is occupied, in one or more embodiments. The loading information, for example defines a list of URIs to be preloaded into a memory space and can also provide an ENAV buffer configuration.

The website connection limitation information (i.e., the
10 walled garden list") can comprise a plurality of website addresses. The website connection limitation information is provided to the network interface 17. Then, while the data of the I-DVD is reproduced, the website connection limitation information can be referred to by the user at a time of surfing the web, for example.

15 In certain embodiments, the walled garden list includes information about websites that can be accessed during the I-DVD playback. In other embodiments, the walled garden list includes information about websites that cannot be accessed during the I-DVD playback. Other implementations are also possible, where a
20 combination of access permission or restrictions may be granted, according to the content of the walled garden list.

The iDVD engine 15 confirms a version of a preloading list from the start-up file, and transmits the confirmed version information to a specified server through the network interface 17,
25 at step S15. Location information of the specified server can be confirmed from information designated in the tag "<wgarden>", for example, or from URL information recorded in the "EnDvd.inf" file. A corresponding server receiving the version information transmits the preloading list of a latest version to the player, if the
30 latest version higher than the received version exists in the server. In one embodiment, if the latest version higher than the received version does not exist, the corresponding server notifies

the player that the received version is the latest version.

If the preloading list is downloaded, the memory unit 13 receives and stores the downloaded list. The downloaded list is used as preloading information. If the preloading list is not
 5 downloaded, the preloading list contained in the start-up file is used as the preloading information, at step S16. Contents recorded in the preloading list and certain ENAV data (e.g., html files, image files, sound files, text files, etc.) is stored in the memory space designated by the above-described tag "<pload>".

10 The preloading list can be defined in the following formats, in one or more embodiments. Files to be preloaded can vary according to a level of a right to reproduce the data of the DVD as described below or according to a region code.

```

15     <preload>
        <unit no="1">
            <DATA name="aaa" able="TRUE">
                <INDEX>2th</INDEX>
                <TYPE>doc</TYPE>
                <src    t_ID="5"    t_lang="all">http://www.disney.com/a/b.htm
20 </src>
                <src    t_ID="1"    t_lang="all">http://www.disney.com/a/c.htm
                </src>
            </DATA>
            ...
25 </unit>
            ...
        </preload>

```

In the above example, "unit" means a section in which the ENAV data is seamlessly reproduced along with the A/V data linked
 30 to the ENAV data. All A/V data items recorded on the I-DVD (i.e., titles) can be configured by one or more applications. One application can be linked to one ENAV unit. An additional contents item to be preloaded for each unit (i.e., an ENAV data item) is defined by a tag "<DATA>" contained in the unit. In the above
 35 example, if a playback level (parental ID) is confirmed from the start-up file (i.e., t_ID, is "5") then a file of <http://www.disney.com/a/b.htm>, for example, is loaded in the memory unit 13.

If a playback level (parental ID) is confirmed from the start-up file (i.e., t_ID, is "1"), then a file of <http://www.disney.com/a/c.htm>, for example, is loaded in the memory unit 13. The file to be preloaded can be in a remote web
5 site, according to the above-described example, but the file also can be designated as a file recorded in the specified directory of the seated disk. In some embodiments, data files for presentation of "html" files (e.g., image files), sound files, or banner files) are designated under a subsequent tag "<DATA>", for example. **

10 Thus, items designated in each tag "<DATA>" are, for example, read from the seated disk or received from a remote server. The read or received items are sequentially stored in the memory unit 13, in one embodiment. If all files designated within the unit "<unit>", for example, for one application have been stored, a
15 preloading operation is completed, at step S17. If size of files designated within the one unit exceeds, for example, 36 Mbytes described above, the preloading operation is terminated, even if the preloading operation for another unit is not completed.

In one embodiment, the iDVD engine 15 confirms, from the
20 start-up file, a file (e.g., a setup file "index.html") designated to be performed after the start-up file is performed. The iDVD engine 15 requests the control unit 16 to read the confirmed file from the I-DVD 10. If the setup file is loaded in the memory unit 13 in response to the request, the iDVD engine 15 interprets the
25 file at step S18, and configures and outputs an initial screen by the user's selection.

If the user selects "playback start" from the initial screen, the control unit 16 requests the iDVD engine 15 to notify it of a confirmed playback right level. The control unit 16 compares the
30 playback right level received from the iDVD engine 15 with a playback right level set in the player. If the playback right level set in the player is lower than the playback right level

confirmed from the start-up file, the control unit 16 does not perform the requested playback, and configures and outputs a message indicating that the requested playback cannot be performed.

In one embodiment, if the playback right level set in the
5 player is not lower than the playback right level confirmed from the start-up file, the control unit 16 begins to reproduce the data of the seated I-DVD 10. A region code set in the player is compared with a region code confirmed from the start-up file. If the region code set in the player is different from the region
10 code confirmed from the start-up file, the playback operation is not performed. Otherwise, the playback operation can be performed.

If the playback operation is initiated, the control unit 16 buffers recorded A/V data in the memory unit 13 while driving the seated I-DVD 10. The buffered A/V data is decoded by the DVD
15 engine 14 so that an A/V signal can be outputted. During this operation, the iDVD engine 15 reads the ENAV data preloaded in the memory unit 13, and performs a decoding operation to output an A/V signal. The A/V signal from the iDVD engine 15 is synthesized with an output signal from the DVD engine 14 by the synthesizer 18. The
20 synthesized signals are outputted externally, at step S19.

In some embodiments, the iDVD engine 15 refers to synchronization information (e.g., linkage information between each file name and time) recorded in a synchronization file "index.syn" to synchronize files configuring the ENAV data with
25 A/V data being reproduced from the I-DVD 10. When a latest version list associated with a preloading list designated in a start-up file "StartUp.mls" recorded on the I-DVD 10 is received from a remote server, a synchronization file "index.syn" is also received. The received synchronization file "index.syn" can be used in place
30 of a synchronization file "index.syn" recorded in the I-DVD 10.

If ENAV data units for a current application preloaded in the memory unit 13 have been outputted, at step S20, the iDVD

engine 15 notifies the control unit 16 that some or all of the ENAV data units have been outputted. In response to the notification, the control unit 16 stops the operation of the DVD engine 14. Then, the iDVD engine 15 refers to the above-described
5 interpreted preloading list information, and preloads ENAV data, such as the ENAV units of a next application, in the memory unit 13.

When a file to be preloaded matches a file preloaded in the memory unit 13, for example, a corresponding file is not newly
10 loaded. That is, the corresponding file is not read from the I-DVD 10 or not received from an external server. Data of a previous file stored in the memory unit 13 is used, at step S21, in one embodiment. The exclusion of a loading operation repeat can reduce a preloading time. If the ENAV data of next units has been loaded,
15 then the control unit 16 is notified that the ENAV data has been completely loaded, and the playback operation is initiated from a point when it has been stopped.

The A/V data recorded on the disk and additional contents (ENAV data) associated with the A/V data are synchronized with
20 each other and seamlessly outputted in a synchronized state. The above-described operation is continuously performed until the I-DVD playback is completed or a playback stop request is received from the user, at step S26.

If the user makes a specified website connection request, at
25 step S23 in a synchronous playback or non-playback state, the control unit 16 provides input information to the network interface 17 and requests the network interface 17 to perform a specified website connection. Then, the network interface 17 determines whether a website address for the specified website
30 connection is contained in previously received website connection limitation information, at step S24. If so, the network interface 17 sends a connection request with a received address, and

receives a corresponding web page to store the received web page in the memory unit 13, at step S25. The iDVD engine 15 interprets the stored web page, and then a video signal is outputted on the basis of the interpreted web page.

5 If a website address for the specified website connection is not contained in previously received website connection limitation information, the network interface 17 confirms a current operating mode through the control unit 16. If the current operating mode is in the non-playback state or a general DVD playback state, then an
10 operation is performed as in the case where the website address for the specified website connection is contained in the previously received website connection limitation information.

 If the current operating mode is in an I-DVD playback state, the connection to the web site based on the request is not
15 performed. At this time, the control unit 16 outputs a message indicating that the connection to the website based on the request cannot be performed in the I-DVD playback state.

 In some embodiments, this website connection limitation information is set in the start-up file "StartUp.mls" by a
20 manufacturer of the I-DVD such that a time delay or the memory's load caused by a certain website connection can be prevented in the I-DVD playback state.

 Embodiments of the invention are described by way of example as applicable to systems and corresponding methods that provide a
25 method for processing a connection request of a disk player. In this exemplary embodiment, logic code for performing these methods is implemented in the form of, for example, application software. The logic code, in one embodiment, may be comprised of one or more modules that execute on one or more processors in a distributed or
30 non-distributed communication model.

 It should also be understood that the programs, modules, processes, methods, and the like, described herein are but an

exemplary implementation and are not related, or limited, to any particular computer, apparatus, or computer programming language. Rather, various types of general-purpose computing machines or devices may be used with logic code implemented in accordance with the teachings provided, herein. Further, the order in which the steps of the present method are performed is purely illustrative in nature. In fact, the steps can be performed in any order or in parallel, unless indicated otherwise by the present disclosure.

The method of the present invention may be performed in either hardware, software, or any combination thereof, as those terms are currently known in the art. In particular, the present method may be carried out by software, firmware, or macrocode operating on a computer or computers of any type. Additionally, software embodying the present invention may comprise computer instructions and stored on a recording medium of any form (e.g., ROM, RAM, magnetic media, punched tape or card, compact disk (CD), DVD, etc.). Furthermore, such software may also be transmitted in the form of a computer signal embodied in a carrier wave, or accessible through web pages provided on computers networks such as the Internet, for example. Accordingly, the present invention is not limited to any particular platform, unless specifically stated otherwise in the present disclosure.

The present invention has been described above with reference to preferred embodiments. However, those skilled in the art will recognize that changes and modifications may be made in these preferred embodiments without departing from the scope of the present invention. The embodiments described above are to be considered in all aspects as illustrative only and not restrictive in any manner. Thus, other exemplary embodiments, system architectures, platforms, and implementations that can support various aspects of the invention may be utilized without departing from the essential characteristics described herein. These and

various other adaptations and combinations of features of the embodiments disclosed are within the scope of the invention. The invention is defined by the claims and their full scope of equivalents.

CLAIMS

1. A method for connecting a media player to a remote server, the method comprising:

processing a request for connecting to a remote server
5 while reproducing data recorded on an enhanced navigation medium;
processing connection information recorded on the enhanced navigation medium to determine whether connection to the remote server is permitted; and
requesting connection to the remote server, if connection
10 to the remote server is permitted in accordance with the connection information.

2. The method of claim 1, wherein the connection information is recorded in a start-up file that is read prior to reproduction of the data recorded on the enhanced navigation
15 medium.

3. The method of claim 2, wherein the start-up file comprises information associated with a list of additional contents to be loaded before the data on the enhanced navigation medium is reproduced.

20 4. The method of claim 2, wherein the start-up file comprises information associated with a right to reproduce the data recorded on the enhanced navigation medium.

5. The method of claim 2, wherein the start-up file comprises information associated with a region code.

25 6. The method of claim 2, wherein the start-up file comprises information associated with a language of the additional contents.

7. The method of claim 2, wherein the start-up file comprises information associated with memory management.

30 8. The method of claim 2, wherein the start-up file

comprises information associated with a file to be processed after the start-up file is processed.

9. The method of claim 1, wherein the connection information comprises a list of servers to which the media player
5 may connect.

10. The method of claim 1, wherein the connection information comprises a list of servers to which the media player may not connect.

11. The method of claim 1, wherein the data recorded on the
10 enhanced navigation medium comprises audio/video (A/V) data.

12. The method of claim 11, wherein the data recorded on the enhanced navigation medium comprises additional contents associated with the A/V data.

13. The method of claim 12, wherein the A/V data and the
15 additional contents are reproduced in synchronization.

14. The method of claim 1, wherein the connection information comprises at least one connection address for connecting to the remote server.

15. The method of claim 1, wherein a start-up file
20 comprises the connection information, wherein the start-up file comprises information associated with a walled-garden file comprising location information about at least one server.

16. The method of claim 15, wherein the walled-garden file comprises information about at least one server to which the
25 media player may connect to retrieve additional contents associated with the data recorded on the enhanced navigation medium.

17. The method of claim 15, wherein the walled-garden file comprises information about at least one server to which the
30 media player may not connect to retrieve additional contents associated with the data recorded on the enhanced navigation medium.

18. The method of claim 15, wherein the walled-garden file comprises at least one entry associated with loading information that controls access to information available on the at least one server.

5 19. The method of claim 18, wherein the loading information comprises at least a condition for loading information available on the at least one server.

20. The method of claim 19, wherein the loading information comprises at least one of a language or a profile supported by
10 the media player.

21. A method for processing a connection request of an enhanced navigation media player, the method comprising:

 determining a current operating mode and connection limitation information, in response to a connection request for
15 connecting the player to a remote server; and

 submitting the request to the remote server to establish a connection, based on the current operating mode and the connection limitation information.

22. The method of claim 21, wherein the connection request
20 is submitted, if the current operating mode is an enhanced navigation playback mode.

23. The method of claim 21, wherein the connection request is submitted, if the connection limitation information provides permission for the remote server to be contacted.

25 24. The method of claim 21, wherein the connection request is submitted, if the current operating mode is an interactive disk playback mode and if the connection limitation information indicates that the remote server may be contacted.

25. The method of claim 21, wherein the connection
30 limitation information is included in a start-up file residing on an enhanced navigation medium.

26. The method of claim 25, wherein the start-up file is

read prior to the player reproducing data recorded on the enhanced navigation medium.

27. The method of claim 25, wherein the start-up file comprises information associated with a list of additional
5 contents to be loaded before data recorded on the enhanced navigation medium is reproduced.

28. The method of claim 25, wherein the start-up file comprises information associated with a right to reproduce data recorded on the enhanced navigation medium.

10 29. The method of claim 25, wherein the start-up file comprises information associated with a region code.

30. The method of claim 27, wherein the start-up file comprises information associated with at least one of a language of the additional contents, a memory management, and a file to be
15 processed after the start-up file is read.

31. An enhanced navigation media player for processing data recorded on a recording medium, the player comprising:

an audio/video (A/V) player engine; and
an enhance navigation (ENAV) engine,

20 wherein if the recording medium is not an enhance navigation medium then A/V data recorded on the recording medium is reproduced by the A/V player engine, and

wherein if the recording medium is an enhanced navigation medium, than a start-up file is loaded into a first memory so
25 that the ENAV engine can extract connection information about at least one server with additional contents.

32. The player of claim 31, wherein the start-up file comprises information associated with a walled-garden list that provides the connection information about the at least one server.

30 33. The player of claim 31, wherein the start-up file comprises loading information that controls access to the additional contents available on the at least one server.

34. The player of claim 33, wherein the loading information comprises at least a condition for loading the additional contents available on the at least one server.

35. The player of claim 34, wherein the loading information
5 comprises a language condition to limit access to the additional contents available on the at least one server based on the language condition.

36. The player of claim 34, wherein the loading information comprises a profile condition to limit access to the additional
10 contents available on the at least one server based on the profile condition.

37. The player of claim 34, wherein the loading information comprises parental condition to limit access to the additional contents available on the at least one server based on the
15 parental condition.

38. The player of claim 32, wherein the connection information limits access to at least one remote server.

39. The player of claim 32, wherein the connection information permits access to at least one remote server.

20 An enhanced navigation recording medium comprising:
audio/video (A/V) data; and

connection information for controlling access to additional contents available through at least one remote server, wherein the additional contents is reproduced in synchronization with the A/V
25 data.

41. The medium of claim 40, wherein the connection information comprises at least a condition for loading the additional contents available on the at least one server.

42. The medium of claim 41, wherein the connection
30 information comprises a language condition to limit access to the additional contents available on the at least one server based on the language condition.

43. The medium of claim 41, wherein the connection information comprises a profile condition to limit access to the additional contents available on the at least one server based on the profile condition.

5 44. The player of claim 41, wherein the connection information comprises parental condition to limit access to the additional contents available on the at least one server based on the parental condition.

45. The player of claim 41, wherein the connection
10 information limits access to the at least one remote server.

46. The player of claim 41, wherein the connection information permits access to the at least one remote server.

47. A method of playing back audio/video (A/V) data recorded on an enhanced navigation medium, the method comprising:

15 identifying a playback mode;

decoding a start-up file recorded on the enhanced navigation medium, if the playback mode identifies an enhanced navigation mode, wherein the start-up file comprises first and second information;

20 decoding the first information to determine location of at least one remote server that provides access to additional contents to be played back in synchronization with the A/V data; and

decoding the second information to determine at least one
25 condition associated with the additional contents.

48. The method of claim 47, further comprising:

launching a first enhanced navigation application based on the decoded first and second information.

49. The method of claim 47, wherein the second information
30 comprises at least one of a profile, language, and parental condition for loading the additional contents.

AMENDED CLAIMS

[received by the International Bureau on 14 July 2004 (14.07.04);
original claim 39 replaced by new claims 39-40 (1 page)]

34. The player of claim 33, wherein the loading information comprises at least a condition for loading the additional contents available on the at least one server.

35. The player of claim 34, wherein the loading information
5 comprises a language condition to limit access to the additional contents available on the at least one server based on the language condition.

36. The player of claim 34, wherein the loading information comprises a profile condition to limit access to the additional
10 contents available on the at least one server based on the profile condition.

37. The player of claim 34, wherein the loading information comprises parental condition to limit access to the additional contents available on the at least one server based on the
15 parental condition.

38. The player of claim 32, wherein the connection information limits access to at least one remote server.

39. The player of claim 32, wherein the connection information permits access to at least one remote server.

20 40. An enhanced navigation recording medium comprising:
audio/video (A/V) data; and
connection information for controlling access to additional contents available through at least one remote server, wherein the additional contents is reproduced in synchronization with the A/V
25 data.

41. The medium of claim 40, wherein the connection information comprises at least a condition for loading the additional contents available on the at least one server.

42. The medium of claim 41, wherein the connection
30 information comprises a language condition to limit access to the additional contents available on the at least one server based on the language condition.

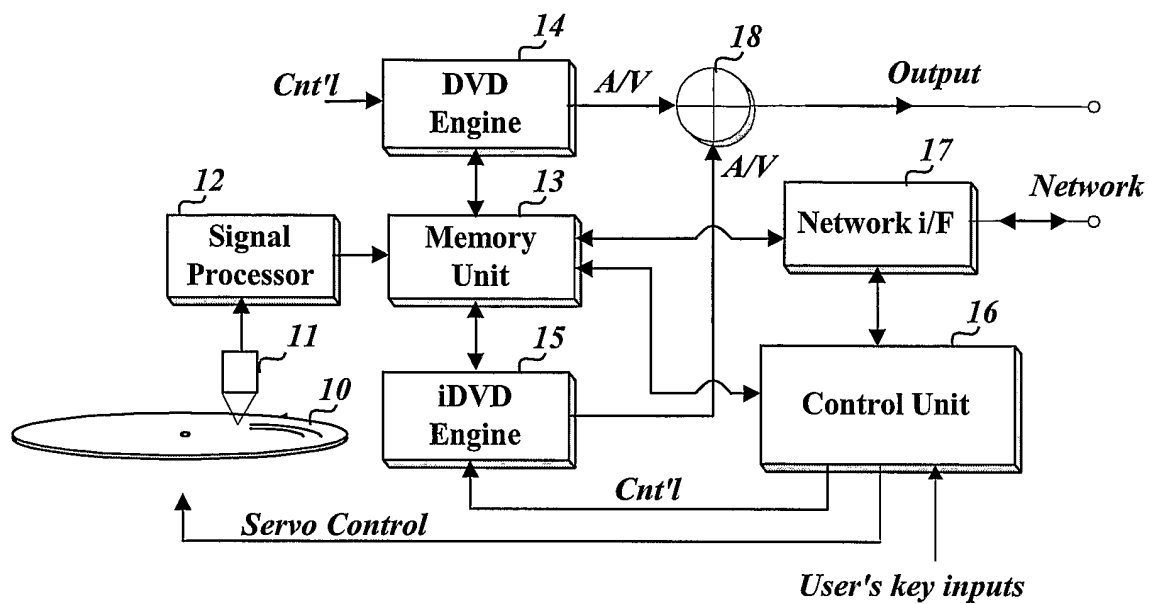
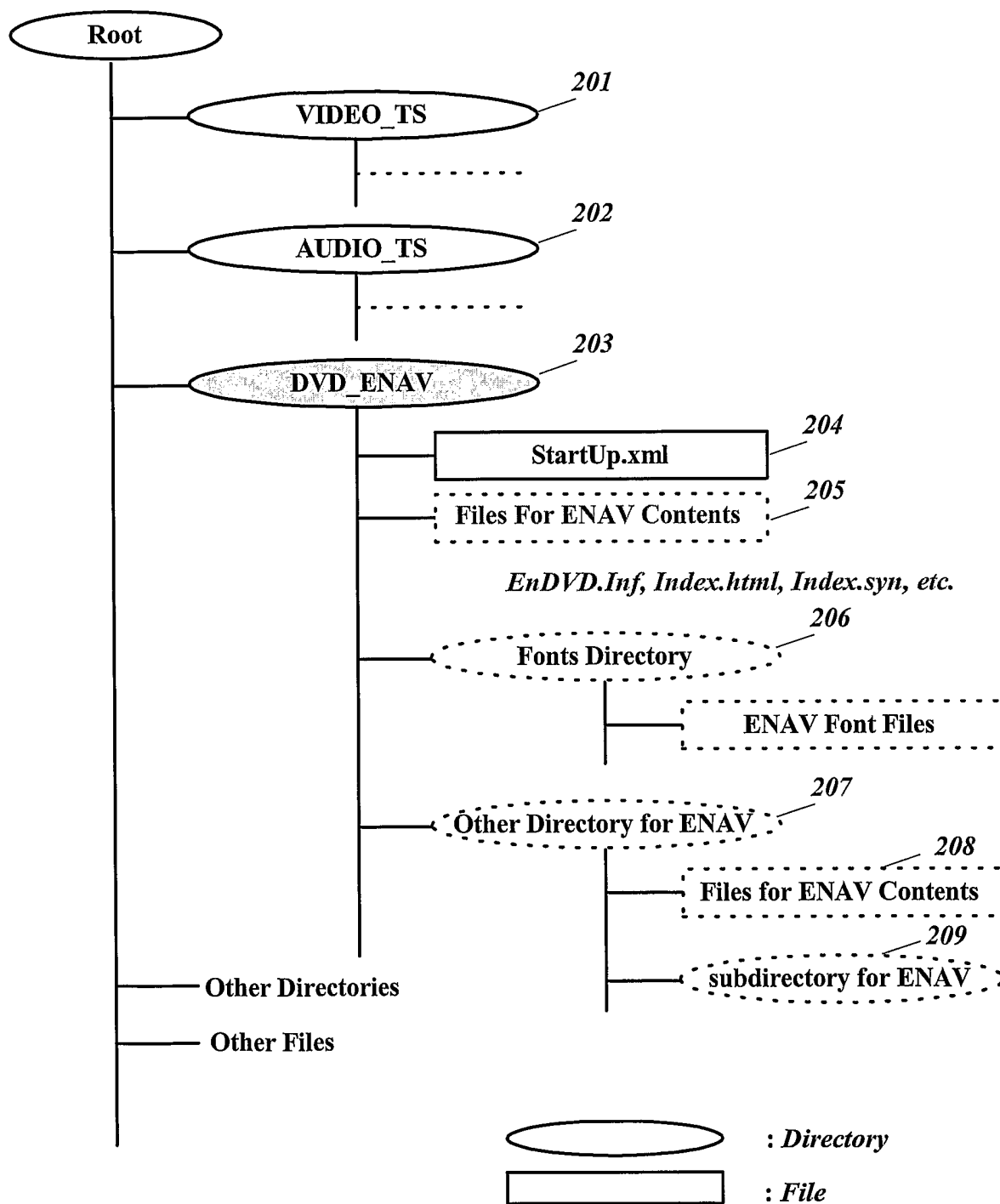
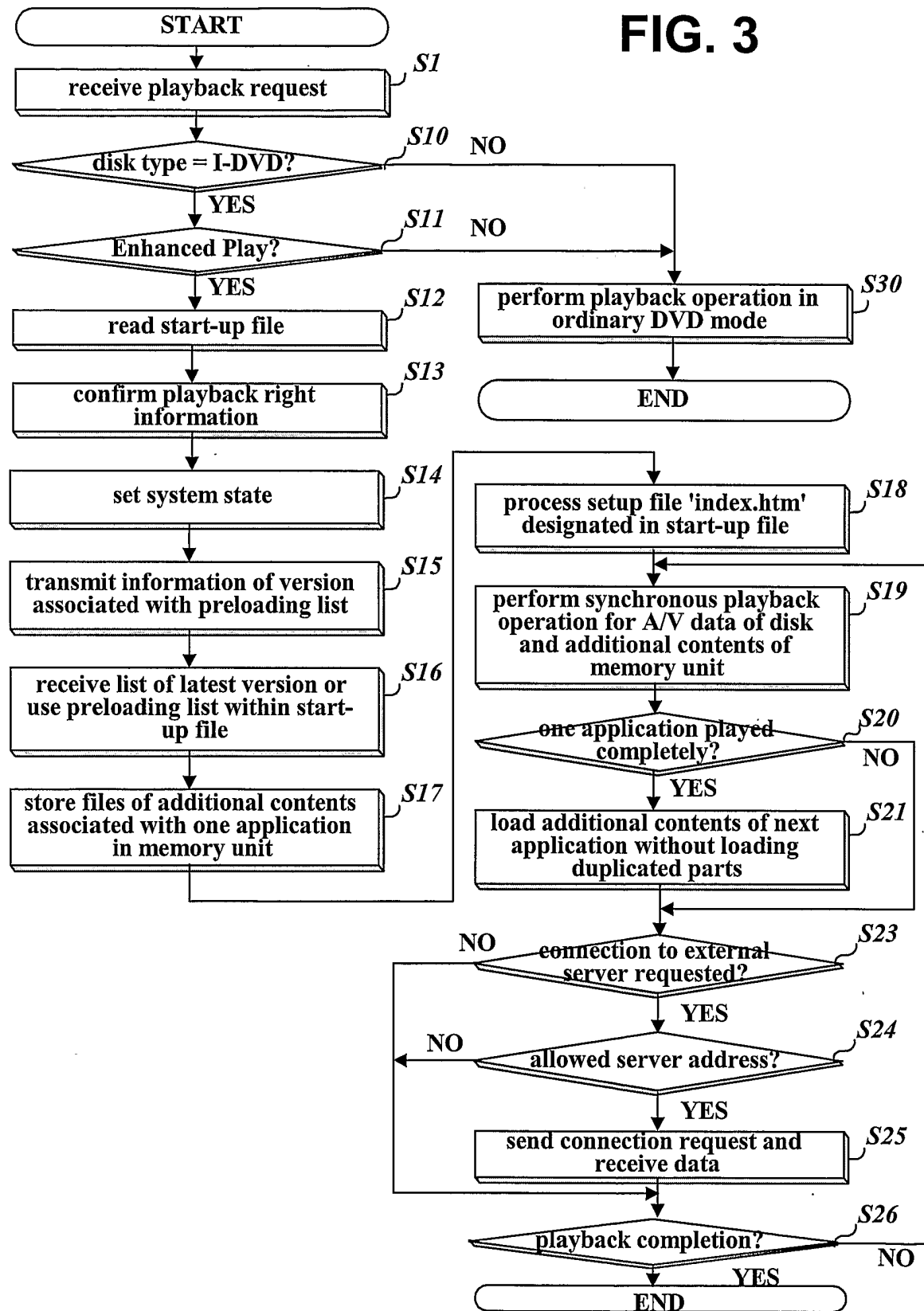
FIG. 1

FIG. 2

3/3

FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR03/02039

A. CLASSIFICATION OF SUBJECT MATTER**IPC7 G11B 20/10**

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)

H04N 7/173 G06F 15/16 G11B 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Korean utility models and applications for utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, PAJ "interactive, connect*", ENAV, request*, permit*, dvd, server, web-site"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	US 2002-0107909 A1 (Mark Kenneth Eyer et al.) 08 Aug. 2002 See the whole document	1 21, 31, 47
A	US 2002-0181356 A1 (Katsuya Watanabe et al.) 05 Dec. 2002 See the whole document	1, 21, 31, 47
A	US 2001-0032265 A1 (Masashi Tanaka et al.) 18 Oct. 2001 See the whole document	1, 21, 31, 47
A	US 2002-0116455 A1 (David C. Mitchell et al.) 22 Aug. 2002 See the whole document	1, 21, 31, 47
P,A	US 2003-0055912 A1 (BRUCE K. MarTIN JR. et al.) 20 Mar. 2003 See the whole document	1, 21, 31, 47

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

30 DECEMBER 2003 (30.12.2003)

Date of mailing of the international search report

31 DECEMBER 2003 (31.12.2003)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR03/02039

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