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INFORMATION PROCESSOR, INFORMATION PROCESSING METHOD AND INFORMATION RECORDING MEDIUM ON WHICH INFORMATION PROCESSING METHOD IS RECORDED

The present invention relates to an information processing apparatus which processes an image by selecting image information hierarchically stored inside as well as selects information available outside of the apparatus upon request, such an information process method, and a medium recorded such process method.

BACKGROUND OF THE INVENTION

A Video-CD is one of information recorded media, and the disc thereof as well as the playback apparatus thereof has been commercialized. The first published standard of the Video-CD was Video-CD Version 1.1, which only specified how to playback moving images and so on. Video-CD Version 2.0, a new standard, is published with enhanced functions which allow a user to interleave stored still images and moving images arbitrarily so that the user can edit an order of playing back stored information as well as select thereof. Such playback control functions provide the user with higher convenience.

The technical terms and playback control system described in this specification are cited from the Video-CD Version 2.0 Standard.

The conventional video-CD as an information recorded medium can be used only for playback purpose, therefore, it cannot meet a requirement such as updating the stored information even partially. According to Video-CD Version 2.0 Standard, a playback control simply within a disc is considered, thus selecting means for outside information is not provided.

The present invention aims to provide an information processing apparatus which allows a user to select the information stored outside of the disc, an information process method of the same, and a medium recorded the same method, while maintaining the compatibility with a conventional information recorded medium such as a video-CD.

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SUMMARY OF THE INVENTION

The information processing apparatus described in Claim 1 of the present invention comprises (a) playback means having inside image information, (b) "n" pcs. of selection lists having their own proper numbers, and (c) an An address list of outside information other than the inside image information. The selection list comprises the following items:

(1) An address of inside information

(2) One or more selection numbers, and

(3) Selection list ID numbers corresponding to the selection numbers.

The address list of outside information comprises the following items:

(4) Each proper number of the "n" pcs. selection lists,

(5) One or more addresses of outside information corresponding to each proper number.

The information processing apparatus described in Claim 2 of the present invention comprises (d) playback means having inside image information, (e) "n" pcs. of selection lists having their own proper numbers, and (f) "n" pcs. of address files of outside information other than the inside image information. Each of the "n" pcs. selection list comprises the following items:

(1) An address of inside information

(2) One or more selection numbers, and

(3) Selection list ID numbers corresponding to the selection numbers.

Each address file of the outside information comprises the following items:

(4) Each proper number (file name) of the "n" pcs. selection lists,

(5) One or more addresses of outside information corresponding to the selection list ID numbers.

Through one of the above structures, during the playback operation of inside image information, the present invention allows a user to search an address list of outside information, or for an address file of outside information based on the now

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used selection list upon request for outside information, and then move on to the process of the selection to outside based on the corresponding address.

The information process method described in Claim 3 comprises the following steps:

(a) Using an information recorded medium, get a selection list based on the initial selection list ID number, where the information recorded medium is recorded image information and comprises the following items:

1. A field recorded "n" pcs. selection lists having their own proper selection list ID numbers, and

2. A field recorded address lists of the information storing outside of the medium.

The selection lists comprises (1-1) An address of inside information of the image information recorded in the medium, (1-2) One or more selection numbers, and (1-3) Selection list ID numbers corresponding to the selection numbers.

The address lists comprises (2-1) Selection list ID numbers of the "n" pcs. of selection lists, (2-2) One or more addresses of outside information other than the information stored inside of the medium.

(b) Playback an image based on the address of inside information recorded in the selection list.

(c) Further select a number from the played back image.

(d) Select outside information upon request.

(e) Playback the image based on the address of inside information recorded in the selection list which was selected on Step (c).

(f) When the outside information is selected, get one or more addresses of the information stored outside of the medium, the addresses correspond to the selection list number now used.

The information process method described in Claim 4 of the present invention comprises the following steps:

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(A) Using an information recorded medium, get a selection list ID number based on the initial selection list ID number, where the information recorded medium is recorded image information and comprises the following items:

1. A field recorded "n" pcs. selection lists having their own proper selection list ID numbers, and

2. "n" pcs. of address files of the information stored outside of the medium.

The selection lists comprises (1-1) An address of inside information of the image information recorded in the medium, (1-2) One or more selection numbers, and (1-3) Selection List ID numbers corresponding to the selection numbers.

The "n" pcs. of files comprises (2-1) the corresponded each selection list ID number, (2-2) One or more addresses of the information stored outside of the medium, the addresses correspond to the selection list ID numbers.

(B) Playback an image based on the address of inside information recorded in the selection list.

(C) Further select a number from the played back image.

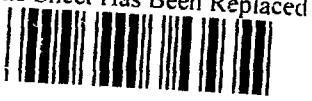
(D) Select outside information upon request.

(E) Playback the image based on the address of inside information recorded in the selection list which was selected on Step (C).

(F) When the outside information is selected, get one or more addresses of the information stored outside of the medium, the addresses correspond to the address lists of "n" pcs. address files.

Through one of the above methods, the present invention allows a user to get an initial selection list ID number and get the first selection list, then playback an image based on an address of inside information stored in the selection list. When a selection number is selected based on the first image, the image with the address of inside information stored in the selection list selected by the first selection is played back. In this operation, if an instruction is given to select the information stored outside of the medium, a user can select the selection number to search for an address list or an address file of the outside information.

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The information recorded medium described in Claim 5 of the present invention is recorded image information, and comprises the following items:

1. A field recorded "n" pcs. selection lists having their own proper selection list ID numbers, and

2. A field recorded address lists of the outside information.

The selection lists comprises (1-1) An address of inside information of the image information recorded in the medium, (1-2) One or more selection numbers, and (1-3) Selection list ID numbers corresponding to the selection numbers.

The address list comprises (2-1) Selection list ID numbers of the "n" pcs. of selection lists, (2-2) One or more addresses of outside information other than the information stored inside of the medium.

The information recorded medium described in Claim 6 of the present information is recorded image information, and comprises the following items:

1. A field recorded "n" pcs. selection lists having their own proper selection list ID numbers, and

2. "n" pcs. of address files of the information stored outside of the medium.

The selection lists comprises (1-1) An address of inside information of the image information recorded in the medium, (1-2) One or more selection numbers, and (1-3) Selection list ID numbers corresponding to the selection numbers.

Each on of the "n" pcs. of address files comprises (2-1) the corresponded each selection list ID number, (2-2) One or more addresses of the information stored outside, the addresses correspond to the selection list ID numbers.

When one of the above information recorded media is loaded into an information processing apparatus, the user can obtain the same performance as the user did from the information processing apparatus described in Claim 1 or Claim 2, and also the user can get the same performance got from the method described in Claim 3 or Claim 4.

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a chart depicting relationship between the selection lists which are recorded in the information recorded medium according to the exemplary embodiment 1 of the present invention.

Fig. 2 is a chart depicting an address list of outside information.

Fig. 3 is a flow chart depicting a looped process within a disc and a process of the selection to outside information.

Fig. 4 is a flow chart detailing the process of the selection to outside information shown in Fig. 3.

Fig. 5 is a flow chart detailing the process of reproducing an image in the disc.

Fig. 6 is a chart depicting an address file of outside information, the address file is recorded in the medium according to Exemplary Embodiment 2 of the present invention.

Fig. 7 illustrates another concept of the address file of outside information.

EXEMPLARY EMBODIMENT

Exemplary embodiments are explained here by using drawings. In the following embodiments, a disc represents an information recorded medium, a home page of Inter-net represents the information stored outside, and an address of Inter-net (Uniform Resource Locator is used some time, and the abbreviation URL is also used) represents an address of outside information.

A video CD (hereinafter called a disc) is used as an example of an information recorded medium. In this disc, image information including moving and still images, and audio information are recorded arbitrarily, which a user can select of his/her choice. The exemplary embodiments handle image information in order to make an explanation simple, and show how to reproduce or select the stored image information using the selection lists.

Exemplary Embodiment 1

Fig. 1 is a chart depicting relations between plural selection lists recorded in a disc as an information recorded medium (not shown). In Fig. 1, selection lists numbered 1 thorough 4 have addresses of information to be displayed as address

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of inside informations of image information stored in the disc, in order to display an image including selection numbers, the image to be displayed corresponds to the selection numbers 1 through 3 listed in Fig. 1. A display device is not shown in Fig. 1. Further, the selection lists have plural selection numbers and selection list ID numbers corresponding to the selection numbers. The selection list having the above structure allows a user to make selection in a tree or loop structure system shown in Fig. 1.

Fig. 2 is a chart depicting an address list recorded in the disc, the address list contains the address of information stored outside. In Fig. 2, the list is a URL (Uniform Resource Locator) list listing addresses of Inter-net . Code 20 represents a field where the selection list ID number are listed, Code 21 represents a field where actual URL letters are shown as addresses of information stored outside.

During a regular playback operation, selections are looped within the disc; however, when a user requests to select outside information, the URL list shown in Fig. 2 is retrieved from the now used selection list ID number, and a corresponding URL is found. For example, when the image information corresponding to the selection list 2 in Fig. 1 is played back, the user requests to select outside information. Let's assume the user clicks a button of a display device, the button is assigned to select outside information, since the image information corresponding to the selection list ID number 2 is now played back, a row of letters //www.mei.co.jp/avcl/mm7/sub2/ is found as an address of outside information, thus, the user successfully find where the outside information is located.

The above embodiments are now explained using the flow charts as follows: Fig. 3 is a flow chart depicting a looped process in a disc and a process of the selection to outside information. Fig. 4 is a flow chart detailing the process of the selection to outside information shown in Fig. 3. Fig. 5 is a flow chart detailing the process of reproducing an image stored inside the disc.

When a process starts in Fig. 3, an initial selection list ID number is got on Step 31. In the case of Fig. 1, Selection list ID number 1 is the starting point for all the selection lists, thus the initial value is to be 1. Based on the initial value 1, get

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the selection list 1 on Step 32, then on Step 33, locate an address of inside information as an address of image information to be displayed recorded in the disc. The image recorded in the disc is played back based on this address on Step 34.

On Step 35, the user gives a selecting instruction by clicking a selection number, or input through a keyboard. On Step 36, this selecting instruction is checked if it is valid or not. When the instruction is invalid, return to Step 35, and move on to Step 37 when valid. On Step 37, select outside information, if necessary. On Step 38, check if a selection to outside is valid or not. When no valid selection to outside is found, a selection is deemed to be an inside selection on Step 39, and then select another selection list ID number based on the selected number on Step 35 and return to Step 32 in order to playback an image recorded in the disc. On Step 38, when the selection to outside is judged that a process to outside is required, the process to outside is given on Step 40, and then return to Step 35.

The details of Step 40 is shown in Fig. 4. On Step 41, get the address list of outside information of Fig. 2, and search the field in the list for the selection list ID number, and find the corresponding URL. When plural URLs are listed, select the one based on the selected number on Step 35. Then, activate BROWSER on Step 43, and give the URL to BROWSER and end the subroutine, finally return to Step 35 of Fig. 3.

Fig. 5 details Step 34 of Fig. 3 in reproducing image information recorded in the disc. On Step 51, get the image information of the address of inside information selected in the play item area of the disc, and display the image on Step 52 to end the subroutine before going back to Step 35 of Fig. 3.

As explained above, providing each selection list with an address list of outside information allows a user to select arbitrarily outside information relevant to the image information recorded in the disc. In this embodiment, a URL is used as an address of the information stored outside of the disc.

In this exemplary embodiment, the address list of outside information is described that each selection list has one URL; however, plural URLs as addresses of outside information can be assigned to each selection number. As

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a result, when selecting outside information, a user can give an instruction of selecting a URL instead of selecting a selection list, thereby allowing the user to make a finer selection.

Exemplary Embodiment 2

Fig. 6 is a chart depicting address files of information stored outside of the disc. The address files are recorded in the disc. Fig. 6 shows a file structure in which each address of outside information is stored in each individual file. For example, the disc has a directory 60 named URL/, and files named Sel_ 1.dat through Sel_n.dat belong to this directory 60.

Code 61 in Fig. 6 represents the file Sel_1.dat corresponding to the selection list 1, and Code 62 represents the content of the file Sel_1.dat. As this, each file records one URL. A file name is specified to correspond to a selection list ID number, so that an apparatus can retrieve a file corresponding to the selection list ID number when the user selects outside information, and then get a URL according to the content of the file.

For example, "n" pcs of selection lists are available and they have their own number "1" through "n". When the selection list 1 (Selection list ID number 1) is played back, a user select outside information. At this time, the file Sel_1.dat corresponding to the selection list ID number 1 is retrieved and the address of information stored outside of the disc is got as "//www.mei.co.jp/avcl.mm7/sub1/".

As explained above, providing each selection list with an address file of outside information allows a user to select arbitrarily outside information relevant to the image information recorded in the disc. In this embodiment, a URL is used as an address of the information stored outside of the disc.

Fig. 7 depicts an example where an address file of Exemplary Embodiment 2 has plural addresses. URL's directory 70 in the disc has an address file 71 named Sel_1.dat, the file corresponds to the selection list ID number 1. In the file coded71, as Code 72 represents, three URLs are stored as addresses of information stored outside of the disc. As this, plural URLs are recorded responsive to the number of selection items in a selection list so that a user can

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give an instruction of selecting a URL instead of selecting a selection list, thus a user can make a finer selection.

The number of selection lists or selection numbers used in the above exemplary embodiments are only examples, and some selection list may have only one selection number. The hierarchic selection used in the above embodiments is also an example. The first selection list of Selection list ID number 1 may have only one step thereunder, and each selection list may have a different number of selection numbers. Every step under the first selection list may have a selection number which returns to the first selection list. As such, there may be various combinations.

Display information recorded in the medium corresponding to a selection list is not limited to the selected items shown in the exemplary embodiments, it may include a moving image and audio information in addition to the selected item.

Further, the exemplary embodiments cited an access to Inter-net; however, the user naturally can access not only to Inter-net but to peripherals coupled to this information processing apparatus, which can realize the following application: Record the data about the operation of an outside audio & video apparatus into the medium, and also record the information how to communicate with the audio & video apparatus into an address list or address file of information, then when a user select the audio & video apparatus, the information processing apparatus communicates with the audio & video apparatus, thus the user can operate the audio & video apparatus according to its special performance or setting condition based on the data recorded in the medium.

Regarding the medium, the medium is not limited to a disc, but it may be a magnetic recording medium, or a memory, etc. It is also not limited to a playback only medium, but it may be a recording or a write-once type.

As explained above, when the information processing apparatus, information process method, or information recorded medium which records the same method, of the present invention is used, since an address list or file of information stored outside of the medium is available in the medium, a user can retrieve the address list or file from the now used selection list during a regular playback operation of image information stored in the medium, and can reach to an address

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of outside information. This selection does not require to change the structure or contents of the conventional selection list.

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What is claimed is;

1. An information processing apparatus including;

(a) inside image information,

(b) playback means for playing back said inside image information,

(c) "n" pcs. of selection lists having proper numbers, said selection lists comprising;

(1) an address of inside information of said inside image information,

(2) one or more selection numbers,

(3) a selection list ID number to be selected corresponding to said selection numbers,

(d) an address list of information stored outside other than said inside image information, said address list comprising;

(1) said proper numbers of said "n" pcs of selection list,

(2) one or more addresses of outside information.

2. An information processing apparatus including;

(a) inside image information,

(b) playback means for playing back said inside image information,

(c) "n" pcs. of selection lists having proper numbers, said selection lists comprising;

(1) an address of inside information of said inside image information,

(2) one or more selection numbers,

(3) a selection list ID number to be selected corresponding to said selection numbers,

(d) "n" pcs of address files of information stored outside said information processing apparatus other than said inside image information, each address file comprising;

(1) a file name corresponding to said selection list ID numbers,

(2) one or more addresses of outside information corresponding to said selection list ID numbers other than said inside image information.

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3. An information process method using an information recorded medium being recorded image information, said information recorded medium including;

(1) a field recorded "n" pcs. of selection lists having proper numbers, each of said selection lists comprising;

(1-1) an address of inside information of said image information,

(1-2) one or more selection numbers, and

(1-3) a selection list ID number to be selected corresponding to said selection numbers,

(2) a field recorded an address list of information stored outside of said information recorded medium, said address list comprising;

(2-1) "n" pcs. of said selection list ID numbers,

(2-2) one or more addresses of outside information corresponding to said selection list ID numbers,

said information process method comprising the steps of;

(a) get the first selection list based on the initial selection list ID number,

(b) playing back an image based on an address of inside information of image information recorded in said first selection list,

(c) selecting a selection number based on the instruction of the first image,

(d) selecting outside information upon request,

(e) playing back an image based on the address of inside information of image information recorded in the selected selection list,

(f) when selecting outside information, retrieving one or more addresses of information stored outside of said information recorded medium, said addresses corresponding to said selection list of said selection list ID number.

4. An information process method using an information recorded medium being recorded image information, said information recorded medium including;

(1) a field recorded "n" pcs. of selection lists having proper numbers, each of said selection lists comprising;

(1-1) an address of inside information of said image information,

(1-2) one or more selection numbers, and

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(1-3) a selection list ID number to be selected corresponding to said selection numbers,

(2) "n" pcs. of address files recorded information stored outside of said information recorded medium, each of said address files comprising;

(2-1) "n" pcs. of said selection list ID numbers,

(2-2) one or more addresses of outside information corresponding to said selection list ID numbers,

said information process method comprising the steps of;

(a) get the first selection list based on the initial value of the selection list ID number,

(b) playing back an image based on an address of inside information of image information recorded in said first selection list,

(c) selecting a selection number based on the instruction of the first image,

(d) selecting outside information upon request,

(e) playing back an image based on the address of inside information of image information recorded in the selected selection list,

(f) when selecting outside information, retrieving one or more addresses of information stored outside of said information recorded medium, said addresses corresponding to said selection list of said "n" pcs. of address files.

5. An information recorded medium in which image information is recorded including;

(a) a field recorded "n" pcs. of selection lists having proper numbers, each of said selection lists comprising;

(1) an address of inside information of said image information,

(2) one or more selection numbers, and

(3) a selection list ID number to be selected corresponding to said selection numbers,

(b) a field recorded an address list of information stored outside of said information recorded medium, said list comprising;

(1) "n" pcs. of said selection list ID numbers,

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(2) one or more addresses of outside information corresponding to said selection list ID numbers,

6. An information recorded medium in which image information is recorded including;

(a) a field recorded "n" pcs. of selection lists having proper numbers, each of said selection lists comprising;

(1) an address of inside information of said image information,

(2) one or more selection numbers, and

(3) a selection list ID number to be selected corresponding to said selection numbers,

(b) "n" pcs. of address files of addresses of information stored outside of said information recorded medium, each of said address files comprising;

(1) "n" pcs. of said selection list ID numbers,

(2) one or more addresses of outside information corresponding to said selection list ID numbers.

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