

(19) JAPANESE  
PATENT OFFICE  
(JP)

(12) KOKAI TOKUYO PATENT  
JOURNAL (A)

(11) PATENT APPLICATION PUBLICATION  
NO. HEI 5[1993]-181609

(43) Publication Date: July 23, 1993

(51) Int. Cl.<sup>5</sup>: Identification Codes: Sequence Nos. for Office Use: FI Technical Disclosure Section  
G06F 3/06 301 Z 7165-5B

Examination Request: Not filed

No. of Claims: 1 (Total of 4 pages)

(21) Filing No.: Hei 4[1992]-333

(71) Applicant: 000004237

NEC Corporation  
5-7-1 Minato-ku shiba, Tokyo

(22) Filing Date: January 6, 1992

(72) Inventor: Hideo Hirai

NEC Corporation  
5-7-1 Minato-ku shiba, Tokyo

(74) Agent:

Tadashi Wakabayashi, patent attorney

(54) Title: PERSONAL COMPUTER SYSTEM

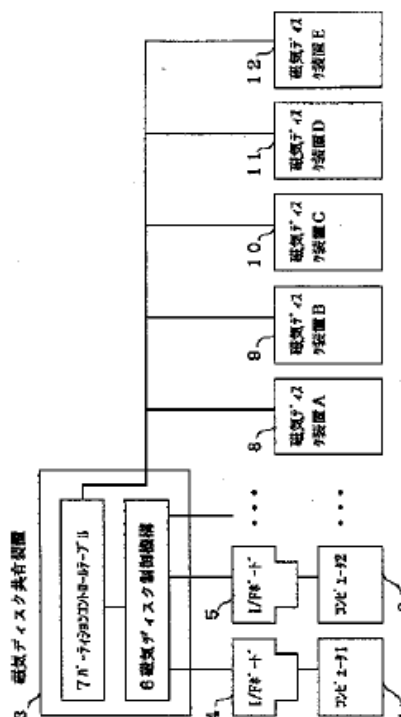
(57) Abstract

Objective

To offer a personal computer system that allows sharing of multiple magnetic disk devices by multiple personal computers.

Structure

It has a magnetic disk sharing device 3 equipped with a magnetic disk controlling mechanism 6 that controls multiple magnetic disk devices 8-12 by considering them as 1 virtual magnetic disk device with all of their memory regions as a memory region, and a partition control table 7 that manages and specifies the access right of the respective personal computers 1, 2, ... for each partition in the memory region of the virtual magnetic disk device, and each computer accesses the virtual magnetic disk device according to its respective access right.



[Figure is translated at the end of the document.]

### Claim

1. A personal computer system, which is a personal computer system that includes multiple personal computers and multiple magnetic disk devices, characterized in that it has a magnetic disk sharing device equipped with a magnetic disk device controlling means that controls the aforementioned multiple magnetic disk devices by considering them as 1 virtual magnetic disk device with all of the memory regions of said multiple magnetic disk devices as its memory region, and a security management means that manages the access right of the respective aforementioned multiple personal computers in the memory region in said virtual magnetic disk device,  
and the aforementioned multiple personal computers access the aforementioned virtual magnetic disk device according to the aforementioned respective access right.

### Detailed explanation of the invention

[0001]

#### Industrial application field

This invention pertains to a personal computer system that includes multiple personal computers and multiple magnetic disk devices.

[0002]

#### Prior art

A magnetic disk controlling device in a conventional personal computer system can place in correspondence only 1 physical magnetic disk device with 1 logical magnetic disk device, and this is also true with regard to magnetic disk management of the host software (operation system).

[0003]

Magnetic disk devices also cannot be shared by multiple personal computers.

[0004]

#### Problems to be solved by the invention

The conventional magnetic disk controlling device described above has a specification where only 1 physical magnetic disk device can be placed in correspondence with 1 logical magnetic disk device, and there is a disadvantage that an amount of data that exceeds the capacity of 1 magnetic disk cannot be handled. There also is a disadvantage that a magnetic disk device cannot be shared by multiple personal computers.

[0005]

The objective of this invention is to offer a microcomputer system that has a magnetic disk controlling device that allows sharing of multiple magnetic disk devices by multiple microcomputers by handling data of a size that exceeds the capacity of one magnetic disk device by accessing all the memory regions of multiple magnetic disk devices as if the multiple memory regions were the memory region in 1 magnetic disk device from individual personal computers and managing the access right of individual personal computers.

[0006]

Means to solve the problems

The personal computer system in this invention has a magnetic disk sharing device equipped with a magnetic disk device controlling means that controls multiple magnetic disk devices by considering them as 1 virtual magnetic disk device with all of the memory regions of these multiple magnetic disk devices as its memory region, and a security management means that manages the access right of the respective multiple personal computers in the memory region in that virtual magnetic disk device, and multiple personal computers access the virtual magnetic disk device according to the respective access right.

[0007]

Operation

This allows individual personal computers to access all of the memory regions of multiple magnetic disk devices as if the memory regions were a memory region of 1 magnetic disk device, and the respective access right of the multiple personal computers for that memory region in 1 virtual magnetic disk device is specified and managed for each microcomputer.

[0008]

Application examples

Next, an application example of this invention will be explained while referring to figures.

[0009]

Figure 1 is a block diagram that shows the structure of an application example of a personal computer system that includes the magnetic disk sharing device in this invention.

[0010]

In Figure 1, personal computers main bodies 1, 2, ...are connected to a magnetic disk sharing device 3 through interface boards 4, 5, .... The magnetic disk sharing device 3 is also connected to magnetic disk devices 8-12. The magnetic disk sharing device 3 comprises a magnetic disk controlling mechanism 6 and a partition control table 7.

[0011]

An access request from the personal computers 1, 2, ...to the magnetic disk devices 8-12 is notified to the magnetic disk controlling mechanism 6 through the magnetic disk interface boards 4, 5, ..., and it is converted to an access request to a virtual magnetic disk device that extends over the magnetic disk devices 8-12 in the magnetic disk controlling mechanism 6. Through the process above, the magnetic disk devices 8-12 can be handled from the personal computer main body as 1 virtual magnetic disk device with all of the memory regions of the magnetic disk devices 8-12 as its own [memory] region.

[0012]

The security management divides the memory region of the virtual magnetic disk device described above, sets up the access right for each personal computer in each divided part (will be referred to as partition), and prevents illegal access. This is implemented by preparing a partition control table 7. The access right to a partition includes R (read), W (write), C (create), D (delete), and X (execute).

[0013]

Figure 2 shows an example of a partition control table. A personal computer 1 can read, write, create, and execute with a partition 1, can read and write with a partition 2, and can read with a partition 3. A personal computer 2 can read, write, create, and execute with partition 1, and can read with partition 3. A personal computer 3 can read, write, create, and execute with partition 1, and can read with partition 2. The aforementioned security management means can prevent illegal access for utilization from a personal computer that is not authorized.

[0014]

Effect of the invention

As explained above, the personal computer system with the magnetic disk sharing device in this invention has the effect of handling data in a size that exceeds the memory capacity of 1 magnetic disk device by accessing all memory regions of multiple magnetic disk devices as if the multiple memory regions were the memory region of 1 magnetic disk device from individual

personal computers and managing the access right of each personal computer and sharing multiple magnetic disk devices by multiple microcomputers for managing data in an aggregate instead of storing them in individual personal computers.

Brief description of the figures

Figure 1 is an application example of a personal computer system in this invention.

Figure 2 is an example of a partition control table.

Explanation of symbols

- 1 Personal computer main body 1
- 2 Personal computer main body 2
- 3 Magnetic disk sharing device
- 4-5 Interface boards
- 6 Magnetic disk controlling mechanism
- 7 Partition control table
- 8-12 Magnetic disk devices

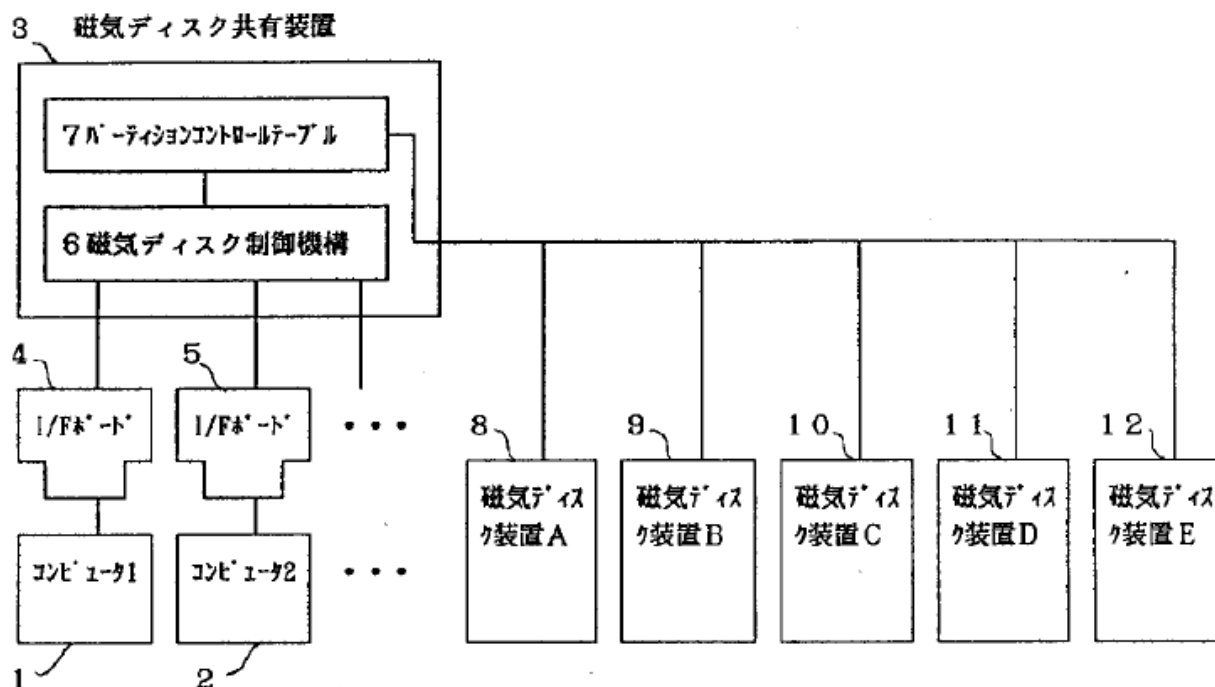


Figure 1

- Key:
- 1 Computer 1
  - 2 Computer 2
  - 3 Magnetic disk sharing device

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.