

CLAIMS

1. A computer system (10) comprising: a system processor (26); a read only memory (36); a random access main memory (32); and at least one direct access storage device (62) capable of storing a plurality of data records;

characterised in that the system (10) further comprises:

initialising means included in the read only memory (36) for initialising the system processor (26) and for generating a reset signal to the direct access storage device (62) to permit access to the data records;

loading means for loading data records from the direct access storage device (62) into main memory (32), the loading means being stored in a protectable partition of the direct access storage device (62), the loading means being read from the direct access storage device (62) into main memory (32) by the initialising means wherein the initialising means activates the loading means;

a main memory resident program image being stored in the protectable partition of the direct access storage device (62), the main memory resident program image being read from the direct access storage device (62) into main memory (32) by the loading means to produce a main memory resident program;

protection means for protecting the protectable partition of the direct access storage device (62), the protection means being activated by the main memory resident program to prevent unauthorized access to the loading means and the main memory resident program image.

2. A computer system (10) as claimed in claim 1, wherein ~~in~~ the read only memory (36) stores a first protion of BIOS, and wherein

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the main memory resident program image is a remaining portion of BIOS

3. A computer system (10) as claimed in claim 2, wherein the loading means further includes a validation means for confirming the system (10) is compatible with the main memory resident program.

4. A computer system (10) as claimed in claim 2 or claim 3, wherein the loading means comprises a master boot record having an executable code segment for effecting the loading of the main memory resident program, wherein the initialisation means transfers control to the executable code segment to effect the loading of the main memory resident program image into main memory (32).

5. A computer system (10) as claimed in claim 1, wherein the initialisation means includes power on self test means, the power on self test means initializing and testing only those system functions necessary to load the main memory resident program.

6. A computer system (10) as claimed in claim 5, wherein the power on self test means initializes the system processor (26) functions, memory subsystems, and direct access storage device (62) subsystem.

7. A computer system (10) as claimed in claim 3, wherein the validation means includes data representing the type of system processor (26) and configuration of a system planar (24) coupled to the system processor (26).

8. A computer system (10) as claimed in claim 2, wherein the at least one direct access storage device (62) comprises a fixed disk drive wherein the loading means loads data records from the fixed disk drive into main memory (32).

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9. A computer system (10) as claimed in claim 8, wherein the fixed disk drive includes a disk controller and further wherein the system processor (26) transfers data records to the disk controller in blocks being in a format which numbers the blocks sequentially, and further wherein the master boot record and the remaining portion of BIOS are effectively stored in the higher order numbered blocks.

10. A computer system (10) as claimed in claim 9, wherein the protection means comprises setting a maximum block addressable, the maximum block addressable being the lowest order numbered block of the master boot record and remaining portion of BIOS, the protection means preventing access to blocks greater than or equal to the maximum block addressable while permitting access to blocks less than the maximum block addressable.

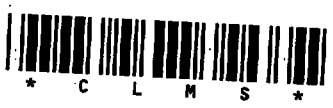
11. A computer system (10) as claimed in claim 10, wherein the initialisation means initiates generation of the reset signal in response to power being applied to the system (10).

12 A computer system (10) as claimed in claim 10, wherein the initialisation means initiates generation of the reset signal in response to a reset condition being applied to the system (10).

13. A computer system (10) as claimed in claim 4, wherein the master boot record further includes a data segment, the data segment representing a hardware configuration of the system (10) which is compatible with the master boot record, and

wherein the read only memory (36) includes data representing a hardware configuration of the system processor (26), wherein before the remaining portion of BIOS is loaded into the main memory (32), the first portion of BIOS compares the hardware configuration data from the master boot record with the hardware configuration data from the read only memory (36) to verify the master boot record is compatible with the system processor (26).

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14. A computer system (10) as claimed in claim 13, wherein the data segment of the master boot record includes a value representing a system planar (24) which is compatible with the master boot record and further wherein the system planar (24) further includes a means for uniquely identifying the system planar (24) in order to verify that the master boot record is compatible to the system planar (24).

15. A computer system (10) as claimed in claim 14, wherein the hardware configuration data on the master boot record includes a model value and a submodel value, wherein the model value identifies a system processor (26) which is compatible with the master boot record and the submodel value represent an I/O configuration of a system planar (24) which is compatible with the master boot record, and further wherein the read only memory (36) includes a corresponding model value identifying the system processor (26) and submodel value representing the I/O configuration of the system planar (24), wherein the model value and submodel value of the master boot record are compared to the corresponding model and submodel values of the read only memory (36) respectively, in order to verify that the master boot record is compatible with the system processor (26) and the I/O configuration of the system planar (24).

16. A computer system (10) as claimed in claim 4 further comprising a nonvolatile random access memory (58) being electrically coupled to the system processor (26), the nonvolatile random access memory (58) including data representing the system configuration, the data being updated when the configuration of the system (10) is changed, wherein the first portion of BIOS compares the data in the nonvolatile random access memory (58) to corresponding data in the read only memory (36) to determine if the configuration of the system (10) has changed.

17. A computer system (10) as claimed in claim 4 wherein the direct access storage device (62) comprises a fixed disk.

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18. A computer system (10) as claimed in claim 17, wherein the system processor (26) transfers data records to the disk controller in blocks being in a format which numbers the blocks sequentially, and further wherein the master boot record and the remaining portion of BIOS are effectively stored in the higher order numbered blocks.

19. A computer system (10) as claimed in claim 18, wherein the protection means comprises setting a maximum block addressable, the maximum block addressable being the lowest order numbered block of the master boot record and the remaining portion of BIOS, the protection means preventing access to blocks equal to greater than the maximum block addressable while permitting access to blocks less than the maximum block addressable.

20. Apparatus for preventing the unauthorised access of BIOS stored in a mass storage device (62) in a personal computer system (10) having a system processor (26), the mass storage device (62) capable of storing a plurality of data blocks defined between a first and second data block extreme, BIOS being accessible by the system processor (26) in the form of individual definable contiguous blocks of data, BIOS extending from a third data block extreme to a fourth data block extreme, the third and fourth extremes being bounded by the first and second extremes, the apparatus comprising:

a controller device coupled between the system processor (26) and the mass storage device (62) for transforming an input or output request from the system processor (26) to physical characteristics of the mass storage device (62), the input/output requests being in the form of individual definable contiguous blocks of data;

first logic means for initiating the generation of a reset signal;

second logic means for generating a second signal for preventing access to the BIOS code; and

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protection means responsive to the reset signal for permitting access to the BIOS code, the protection means being responsive to the second signal for setting a boundary at the third data block to prevent access to the BIOS code during normal execution of authorized programs by the system processor (26).

21. Apparatus as claimed in claim 20, wherein the mass storage device (62) comprises a fixed disk having input/output requests in the form of a cylinder, head and sector format, and further wherein the controller converts from data block format to cylinder, head and sector format.

22. Apparatus as claimed in claim 21, wherein the controller device includes a SCSI adapter card responsive to the system processor (26).

23. Apparatus as claimed in claim 22, wherein the first logic means initiates generation of the reset signal in response to a power on condition for the system processor (26).

24. Apparatus as claimed in claim 23, wherein the first logic means initiates generation of the reset signal in response to an input from a keyboard connected to the system (10).

25. A method for protecting BIOS in a personal computer system (10), the system (10) including a system processor (26), a read only memory (36), a random access memory (32),

and direct storage access device, the method comprising the steps of:

(a) storing a first portion of BIOS in the read only memory (36), the first portion of BIOS including means for initializing the system (10);

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(b) storing a master boot record and a remaining portion of BIOS in a protectable partition on the direct access storage device (62), the remaining portion of BIOS being resident in the random access memory (32) during normal operations of the system (10);

(c) initializing the system (10) and initiating the generation of a reset signal being sent to the direct access storage device (62);

(d) removing the protection to the protectable partition to permit the system processor (26) to access the master boot record and remaining portion of BIOS, the protection being removed in response to the reset signal;

(e) loading the master boot record into random access memory (32), the master boot record including an executable code segment;

(f) transferring control to the executable code segment to load the remaining portion of BIOS into the random access memory (32); and

(g) transferring control to the remaining portion of BIOS in random access memory (32), the remaining portion of BIOS setting the protection on the protectable partition to prevent unauthorized access to the master boot record and the remaining portion of BIOS stored in the protectable partition on the direct access storage device (62).

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