WHAT IS CLAIMED IS:

1. A secure memory card, comprising:

a non-volatile memory device for storing data, including a regular range of addresses and a reserved range of addresses~~a specific address and a regular address different from the first specific address~~;

a secure element for conducting a securing operation; and

a non-volatile memory controller in communication with the non-volatile memory device and the secure element, adapted to receive a command from a host,

wherein the non-volatile memory controller interacts with the secure element to conduct the securing operation in response to the command from the host if the command from the host is a secure-element control command, which is a single command taking a single instruction cycle and corresponding to ~~the~~ a specific address belonging to the reserved range of addresses, and the non-volatile memory controller interacts with the non-volatile memory device while having no interaction with the secure element in response to the command from the host if the command from the host is a non-secure-element control command corresponding to ~~the regular~~ an address belonging to the regular range of addresses, and

wherein when the secure-element control command is a write command corresponding to a first specific address belonging to the reserved range of addresses, the securing operation is that a firmware of the non-volatile memory controller recognizing the first specific address sets the secure element to be in a first encryption mode, and when the secure-element control command is a write command corresponding to a second specific address belonging to the reserved range of addresses and different from the first specific address, the securing operation is that the firmware of the non-

volatile memory controller recognizing the second specific address sets the secure element to be in a second encryption mode different from the first encryption mode.

2. The secure memory card according to claim 1, wherein ~~the non-volatile memory device includes a regular range of addresses, which the regular address belongs to, and a reserved range of addresses, which the specific address belongs to, and~~ the regular range of addresses and the reserved range of addresses do not overlap with each other.

~~3. The secure memory card according to claim 2, wherein the command from the host is a write command corresponding to a first specific address, which belongs to the reserved range of addresses of the non-volatile memory device, a firmware of the non-volatile memory controller, when recognizing the first specific address, sets the secure element to be in a first encryption mode; and when the command from the host is a write command corresponding to a second specific address belonging to the reserved range of addresses of the non-volatile memory device but different from the first specific address, the firmware of the non-volatile memory controller, when recognizing the second specific address, sets the secure element to be in a second encryption mode different from the first encryption mode.~~

3. ~~The~~ A secure memory card ~~according to claim 2~~, comprising:

a non-volatile memory device for storing data, including a regular range of addresses and a reserved range of addresses;

a secure element for conducting a securing operation; and

a non-volatile memory controller in communication with the non-

volatile memory device and the secure element, adapted to receive a command from a host,

wherein the non-volatile memory controller interacts with the secure element to conduct the securing operation in response to the command from the host if the command from the host is a secure-element control command, which is a single command taking a single instruction cycle and corresponding to a specific address belonging to the reserved range of addresses, and the non-volatile memory controller interacts with the non-volatile memory device while having no interaction with the secure element in response to the command from the host if the command from the host is a non-secure-element control command corresponding to an address belonging to the regular range of addresses, and

wherein when the secure-element control command ~~from the host~~ is a write command containing a first specific data to be written into a third specific address belonging to the reserved range of addresses ~~of the non-volatile memory device~~, the securing operation is that a firmware of the non-volatile memory controller~~, when~~ recognizing the third specific address~~,~~ revises a set of parameters of the secure element according to the first specific data.

4~~5~~. ~~The~~ A secure memory card ~~according to claim 2~~, comprising:

a non-volatile memory device for storing data, including a regular range of addresses and a reserved range of addresses;

a secure element for conducting a securing operation; and

a non-volatile memory controller in communication with the non-volatile memory device and the secure element, adapted to receive a command from a host,

wherein the non-volatile memory controller interacts with the secure element to conduct the securing operation in response to the command from the host if the command from the host is a secure-element control command, which is a single command taking a single instruction cycle and corresponding to a specific address belonging to the reserved range of addresses, and the non-volatile memory controller interacts with the non-volatile memory device while having no interaction with the secure element in response to the command from the host if the command from the host is a non-secure-element control command corresponding to an address belonging to the regular range of addresses, and

wherein when the secure-element control command ~~from the host~~ is a write command corresponding to a fourth specific address belonging to the reserved range of addresses ~~of the non-volatile memory device~~, the securing operation is that a firmware of the non-volatile memory controller~~, when~~ recognizing the fourth specific address~~,~~ reads a specific information from the secure element.

5~~6~~. The secure memory card according to claim 4~~5~~, wherein the specific information is a firmware version of the secure element, and the firmware of the non-volatile memory controller writes the read-out firmware version into an address belonging to the reserved range of addresses or temporarily store the read-out firmware version to be accessed by the host.

~~7. The secure memory card according to claim 2, wherein when the command from the host is a write command containing a second specific data to be written into a fifth specific address belonging to the reserved range of addresses of the non-volatile memory device, a firmware of the non-~~

~~volatile memory controller, when recognizing the fifth specific address, drives the secure element to encrypt the second specific data and send the encrypted second specific data back to the non-volatile memory controller, and the firmware of the non-volatile memory controller writes the encrypted second specific data into an address belonging to the reserved range of addresses or temporarily store the encrypted second specific data to be accessed by the host.~~

~~8~~6. ~~The~~ A secure memory card ~~according to claim 2~~, comprising:

a non-volatile memory device for storing data, including a regular range of addresses and a reserved range of addresses;

a secure element for conducting a securing operation; and

a non-volatile memory controller in communication with the non-volatile memory device and the secure element, adapted to receive a command from a host,

wherein the non-volatile memory controller interacts with the secure element to conduct the securing operation in response to the command from the host if the command from the host is a secure-element control command, which is a single command taking a single instruction cycle and corresponding to a specific address belonging to the reserved range of addresses, and the non-volatile memory controller interacts with the non-volatile memory device while having no interaction with the secure element in response to the command from the host if the command from the host is a non-secure-element control command corresponding to an address belonging to the regular range of addresses, and

wherein when the secure-element control command ~~from the host~~ is a data access command taking a single instruction cycle and corresponding to

a sixth specific address belonging to the reserved range of addresses ~~of the non-volatile memory device~~, the securing operation is that a firmware of the non-volatile memory controller~~, when~~ recognizing the sixth specific address~~,~~ performs data access to the sixth specific address.

~~9. The secure memory card according to claim 8, wherein the sixth specific address is configured as a multi-bit digit.~~

~~10. The secure memory card according to claim 8, wherein the sixth specific address is one dynamically selected from a group consisting of a plurality of multi-bit digits, which comply with a specific formula.~~

~~11~~7. A control method of a secure memory card, the secure memory card being adapted to be used with a host, the host including a file system, the secure memory card including a non-volatile memory device, a secure element and a non-volatile memory controller, and the control method comprising:

in response to the host ~~optionally~~ issuing a secure-element control command, which a single command taking a single instruction cycle and corresponds to a specific address belonging to a reserved range of addresses of the non-volatile memory device, to the non-volatile memory controller~~;~~,

the non-volatile memory controller ~~interacting~~ interacts with the secure element to conduct a securing operation ~~in response to the secure-element control command,~~; and

in response to the host ~~optionally~~ issuing a non-secure-element control command, which corresponds to an ~~regular~~ address belonging to a regular range of addresses of the non-volatile memory device and different from the

reserved range of addressesspecific address, to the non-volatile memory controller; and,

the non-volatile memory controller interacting interacts with the non-volatile memory device while having no interaction with the secure element in response to the non-secure-element control command,

wherein:

in response to determining the secure-element control command is a write command corresponding to a first specific address, the securing operation is that the firmware of the non-volatile memory controller recognizing the first specific address sets the secure element to be in a first encryption mode, and in response to determining the secure-element control command is a write command corresponding to a second specific address different from the first specific address, the securing operation is executed by the firmware of the non-volatile memory controller recognizing the second specific address to set the secure element to be in a second encryption mode different from the first encryption mode;

in response to determining the secure-element control command is a write command containing a first specific data to be written into a third specific address belonging to the reserved range of addresses, the securing operation is that the firmware of the non-volatile memory controller recognizing the third specific address revises a set of parameters of the secure element according to the first specific data;

in response to determining the secure-element control command is a write command corresponding to a fourth specific address belonging to the reserved range of addresses, the securing operation is that a firmware of the non-volatile memory controller recognizing the fourth specific address reads a specific information from the secure element; or

in response to determining the secure-element control command is a data access command taking a single instruction cycle and corresponding to a sixth specific address belonging to the reserved range of addresses and dynamically selected from a group consisting of a plurality of multi-bit digits, which comply with a specific formula, the securing operation is that a firmware of the non-volatile memory controller recognizing the sixth specific address performs data access to the sixth specific address.

~~12~~8. The control method according to claim ~~11~~7, wherein ~~the regular address belongs to a regular range of addresses of the non-volatile memory device, and the specific address belongs to a reserved range of addresses of the non-volatile memory device, and~~ the regular range of addresses and the reserved range of addresses do not overlap with each other.

~~13. The control method according to claim 12, wherein the securing operation is setting of an encryption mode, and the control method comprises:~~

~~when the secure-element control command is a write command issued by the file system and corresponding to a first specific address belonging to the reserved range of addresses of the non-volatile memory device, a firmware of the non-volatile memory controller, when recognizing the first specific address, setting the secure element to be in a first encryption mode; and~~

~~when the secure-element control command is a write command issued by the file system and corresponding to a second specific address belonging to the reserved range of addresses of the non-volatile memory device and different from the first specific address, the firmware of the non-volatile~~

memory controller, when recognizing the second specific address, setting the secure element to be in a second encryption mode different from the first encryption mode.

14. The control method according to claim 12, wherein the securing operation is revision of parameters of the secure element, and the control method further comprises:

when the secure-element control command is a write command issued by the file system and containing a first specific data to be written into a third specific address belonging to the reserved range of addresses of the non-volatile memory device, a firmware of the non-volatile memory controller, when recognizing the third specific address, revising a set of parameters of the secure element according to the first specific data.

15. The control method according to claim 12, wherein the securing operation is reading of a specific information of the secure element, and the control method further comprises:

when the secure-element control command is a write command issued by the file system and corresponding to a fourth specific address belonging to the reserved range of addresses of the non-volatile memory device, a firmware of the non-volatile memory controller, when recognizing the fourth specific address, reading a specific information from the secure element.

16. The control method according to claim 15, wherein the specific information is a firmware version of the secure element.

17. The control method according to claim 16, further comprising:

~~the firmware of the non-volatile memory controller writing the read-out firmware version into a specified address belonging to the reserved range of addresses or temporarily storing the read-out firmware version; and~~

~~the file system reading the firmware version of the secure element from the specified address belonging to the reserved range of addresses or the non-volatile memory controller.~~

~~18. The control method according to claim 12, wherein the securing operation is encryption of a specific data, and the control method comprises:~~

~~when the secure-element control command is a write command issued by the file system and containing a second specific data to be written into a fifth specific address belonging to the reserved range of addresses of the non-volatile memory device, the control method further comprises: a firmware of the non-volatile memory controller, when recognizing the fifth specific address, driving the secure element to encrypt the second specific data and sending the encrypted second specific data back to the non-volatile memory controller.~~

~~19. The control method according to claim 18, further comprising:~~

~~the firmware of the non-volatile memory controller writing the encrypted second specific data into a specified address belonging to the reserved range of addresses or temporarily storing the encrypted second specific data; and~~

~~the file system reading the encrypted second specific data from the specified address belonging to the reserved range of addresses or the non-volatile memory controller.~~

~~20. The control method according to claim 12, wherein when the secure-element control command is a data access command taking a single instruction cycle and corresponding to a sixth specific address belonging to the reserved range of addresses, a firmware of the non-volatile memory controller, when recognizing the sixth specific address, performs data access to the sixth specific address.~~

~~21. The control method according to claim 20, wherein the sixth specific address is configured as a multi-bit digit.~~

~~22. The control method according to claim 20, wherein the sixth specific address is one dynamically selected from a group consisting of a plurality of multi-bit digits, which comply with a specific formula.~~