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 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 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 regular range of addresses and the reserved range of addresses do not overlap with each other.

3. 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 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 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 a 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.

4. 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 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 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.

5. The secure memory card according to claim 4, 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.

6. 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 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 is a data access command taking a single instruction cycle and corresponding to a sixth specific address belonging to the reserved range of addresses, 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.

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 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 interacts with the secure element to conduct a securing operation ; and

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

the non-volatile memory controller interacts with the non-volatile memory device while having no interaction with the secure element,

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.

8. The control method according to claim 7, wherein the regular range of addresses and the reserved range of addresses do not overlap with each other.