CLAIMS

1. A computer device, wherein the computer device comprises a hardware layer, a host runs at the hardware layer, the host being a virtualization platform and the hardware layer comprises a first processor, a virtual machine VM runs on the first processor, and the first processor comprises a redirection apparatus;

the first processor is configured to obtain an exception instruction triggered by the VM;

the redirection apparatus is configured to:

switch from a virtualization privilege level of the VM to a user mode of the host; and

the first processor is further configured to execute, in the user mode of the host, an exception processing function corresponding to the exception instruction, wherein the exception processing function is comprised in a thread of a virtual processor that runs in the user mode of the host; an execution environment allocated to the thread of the virtual processor comprises a main thread execution environment, an execution environment of the VM, and a shadow execution environment, wherein the shadow execution environment has user-mode memory space independent of the main thread execution environment and the execution environment of the VM; and the shadow execution environment is used to execute the exception processing function, and the exception processing function is used to process an exception that triggers the exception instruction; and

the first processor is specifically configured to: switch from a context of the VM to a context of a user-mode shadow execution environment, and the user-mode memory space of the shadow execution environment is used to store the context of the VM that is migrated out during context switching.

2. The device according to claim 1, wherein

the redirection apparatus is further configured to write an entry address of the exception processing function into a first register; and

the first processor is specifically configured to: read the entry address of the exception processing function from the first register, invoke the exception processing function based on the entry address, and execute, in the user mode of the host, the exception processing function corresponding to the exception instruction.

3. The computer device according to claim 1 or 2, wherein the exception instruction is

triggered by an input/output I/O operation performed by the VM.

4. An exception processing method, wherein the method is applied to a computer device, a host and a virtual machine VM run on the computer device, the host being a virtualization platform, and the method comprises:

obtaining an exception instruction triggered by the VM; and

switching from a virtualization privilege level of the VM to a user mode of the host; and

executing, in the user mode of the host, an exception processing function corresponding to the exception instruction, wherein the exception processing function is comprised in a thread of a virtual processor that runs in the user mode of the host; an execution environment allocated to the thread of the virtual processor comprises a main thread execution environment, an execution environment of the VM, and a shadow execution environment, wherein the shadow execution environment has user-mode memory space independent of the main thread execution environment and the execution environment of the VM; and the shadow execution environment is used to execute the exception processing function, and the exception processing function is used to process an exception that triggers the exception instruction; and

the first processor specifically switching from a context of the VM to a context of a user-mode shadow execution environment, and the user-mode memory space of the shadow execution environment is used to store the context of the VM that is migrated out during context switching.

5. The method according to claim 4, wherein the method further comprises:

writing an entry address of the exception processing function into a first register; and

the executing, in the user mode of the host, an exception processing function corresponding to the exception instruction comprises:

reading the entry address of the exception processing function from the first register, invoking the exception processing function based on the entry address, and executing, in the user mode of the host, the exception processing function corresponding to the exception instruction.

6. The method according to claim 4 or 5, wherein the exception instruction is triggered by an input/output I/O operation performed by the VM.

7. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is executed by a processor, the method according to any one of claims 4 to 6 is implemented.

8. A chip system, comprising a processor, wherein the processor is invoked to perform the method according to any one of claims 4 to 6.

9. A computer program product, comprising a computer program, wherein when being executed by one or more processors, the computer program is used to implement the method according to any one of claims 4 to 6.