

CLAIMS

1. A computer program product for executing an instruction to execute a Configure Storage Class Memory command in a computing environment comprising main storage and storage class memory, said computer program product comprising:

a computer readable storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:

obtaining by an input/output (I/O) subsystem a request block, the request block comprising a command code indicating the Configure Storage Class Memory command and a total size value to specify a requested number of increments of storage class memory to be allocated;

based on the command code, initiating a configuration process for configuring the storage class memory, the process configured to allocate the requested number of increments of storage class memory specified in the total size value, wherein the initiating comprises performing one or more validity checks;

continuing to perform the configuration process of the storage class memory responsive to the one or more validity checks being successful, wherein the one or more validity checks comprises determining that the total size requested does not exceed a number of storage class memory increments in an initialized state; and

storing in a response code field of a response block a response code indicating whether the configuration process has been initiated, the response block having a length code indicating a length of the response block and the response code field.

2. The computer program product of claim 1, wherein the one or more validity checks further comprises determining whether a count of storage class memory increments already configured plus the total size requested exceeds a maximum configurable storage class memory increments limit, and wherein the configuration process continues responsive to not exceeding the maximum storage class memory increments.

3. The computer program product of claim 2, wherein the one or more validity checks further comprises a check of a length field of the request block; a check of whether the Configure Storage Class Memory command is available to be executed; a check that the

request block has a valid format; and a check that the I/O subsystem is able to perform the Configure Storage Class Memory command, and wherein the configuration process continues responsive to the one or more validity checks being successful.

5 4. The computer program product of claim 1, wherein the initiating further comprises commencing an asynchronous process to perform the configuration of the storage class memory responsive to the one or more validity checks being successful, wherein configured storage class memory content is initialized to zero.

10 5. The computer program product of claim 4, wherein the method further comprises indicating completion of the asynchronous process in a notification response.

15 6. The computer program product of claim 5, wherein the notification response block includes a response code that indicates results of the attempt to execute the Configure Storage Class Memory command.

7. The computer program product of claim 6, wherein the notification response block is obtained via execution of a store event information command to obtain event information.

20 8. The computer program product of claim 5, wherein the request block is further configured to include an asynchronous completion correlator to be returned in the notification response block, the asynchronous completion correlator to be used to resume processing of the Configure Storage Class Memory command.

25 9. The computer program product of claim 1, wherein the configuration process comprises:

 adjusting one or more internal controls to make accessible the increments of storage class memory; and

 setting a state of the increment of storage class memory to operational.

10. A computer system for executing an instruction to execute a Configure Storage Class Memory command in a computing environment comprising main storage and storage class memory, said computer system comprising:

a memory; and

5 a processor in communications with the memory, wherein the computer system is configured to perform a method, said method comprising:

obtaining by an input/output (I/O) subsystem a request block, the request block comprising a command code indicating the Configure Storage Class Memory command and a total size value to specify a requested number of increments of storage class memory to be
10 allocated;

based on the command code, initiating a configuration process for configuring the storage class memory, the process configured to allocate the requested number of increments of storage class memory specified in the total size value, wherein the initiating comprises performing one or more validity checks;

15 continuing to perform the configuration process of the storage class memory responsive to the one or more validity checks being successful, wherein the one or more validity checks comprises determining that the total size requested does not exceed a number of storage class memory increments in an initialized state; and

20 storing in a response code field of a response block a response code indicating whether the configuration process has been initiated, the response block having a length code indicating a length of the response block and the response code field.

11. The computer system of claim 10, wherein the one or more validity checks further comprises determining whether a count of storage class memory increments already
25 configured plus the total size requested exceeds a maximum configurable storage class memory increments limit, and wherein the configuration process continues responsive to not exceeding the maximum storage class memory increments.

12. The computer system of claim 11, wherein the one or more validity checks further
30 comprises a check of a length field of the request block; a check of whether the Configure Storage Class Memory command is available to be executed; a check that the request block has a valid format; and a check that the I/O subsystem is able to perform the Configure

Storage Class Memory command, and wherein the configuration process continues responsive to the one or more validity checks being successful.

13. The computer system of claim 10, wherein the initiating further comprises commencing an asynchronous process to perform the configuration of the storage class memory responsive to the one or more validity checks being successful, wherein configured storage class memory content is initialized to zero.

14. The computer system of claim 13, wherein the method further comprises indicating completion of the asynchronous process in a notification response block.

15. The computer system of claim 14, wherein the notification response block includes a response code that indicates results of the attempt to execute the Configure Storage Class Memory command.

16. The computer system of claim 14, wherein the request block is further configured to include an asynchronous completion correlator to be returned in the notification response block, the asynchronous completion correlator to be used to resume processing of the Configure Storage Class Memory command.

17. The computer system of claim 10, wherein the configuration process comprises:
adjusting one or more internal controls to make accessible the increments of storage class memory; and
setting a state of the increment of storage class memory to operational.

18. A method of executing an instruction to execute a Configure Storage Class Memory command in a computing environment comprising main storage and storage class memory, said method comprising:
obtaining by an input/output (I/O) subsystem a request block, the request block comprising a command code indicating the Configure Storage Class Memory command and a total size value to specify a requested number of increments of storage class memory to be allocated;

based on the command code, initiating a configuration process for configuring the storage class memory, the process configured to allocate the requested number of increments of storage class memory specified in the total size value, wherein the initiating comprises performing one or more validity checks;

5 continuing to perform the configuration process of the storage class memory responsive to the one or more validity checks being successful, wherein the one or more validity checks comprises determining that the total size requested does not exceed a number of storage class memory increments in an initialized state; and

10 storing in a response code field of a response block a response code indicating whether the configuration process has been initiated, the response block having a length code indicating a length of the response block and the response code field.

15 19. The method of claim 18, wherein the initiating further comprises commencing an asynchronous process to perform the configuration of the storage class memory responsive to the one or more validity checks being successful, wherein configured storage class memory content is initialized to zero.

20 20. The method of claim 18, wherein the configuration process comprises:
adjusting one or more internal controls to make accessible the increments of storage class memory; and
setting a state of the increment of storage class memory to operational.

CLAIMS:

1. A method of executing an instruction to execute a Configure Storage Class Memory command in a computing system, said system having access to main storage and storage class memory, the storage class memory comprising a plurality of solid state devices, said method
5 comprising:

obtaining, by an input/output (I/O) subsystem based on a request of a control program executing within a partition of the system or a virtualized guest of the system, information about a configuration of the storage class memory, the storage class memory not being directly accessible to the control program;

0 communicating by the I/O subsystem to the control program at least a portion of the information obtained about the configuration of the storage class memory, the at least a portion of the information obtained comprising a maximum number of increments of storage class memory that may be configured to a requesting configuration, the requesting configuration comprising a partition of the system or a virtualized guest of the system;

5 obtaining, by the input/output (I/O) subsystem based on the communicating to the control program, a request block, the request block comprising a command code indicating the Configure Storage Class Memory command and a total size value to specify a requested number of increments of storage class memory to be configured into a storage class memory address space from an available pool of storage class memory for the system, the requested
0 number of increments being configured for the requesting configuration, and wherein the storage class memory address space is a single address space spanning the plurality of solid state devices into which storage class memory increments are populated for the requesting configuration, the storage class memory address space hiding details of physical implementation of the storage class memory;

25 based on the command code, initiating a configuration process for configuring the storage class memory, the process configured to allocate to the storage class memory address space the requested number of increments of storage class memory specified in the total size value, wherein the initiating comprises performing one or more validity checks;

continuing to perform the configuration process of the storage class memory
30 responsive to the one or more validity checks being successful, wherein the one or more validity checks comprises determining that the total size requested does not exceed a number of storage class memory increments in an initialized state, and wherein the continuing to

perform the configuration process includes changing an internal control for each increment being configured to allow the increments being configured to be accessible to I/O move requests of the requesting configuration; and

storing in a response code field of a response block a response code indicating whether the configuration process has been initiated, the response block having a length code indicating a length of the response block and the response code field.

2. The computer program product of claim 1, wherein the one or more validity checks further comprises determining whether a count of storage class memory increments already configured plus the total size requested exceeds a maximum configurable storage class memory increments limit, and wherein the configuration process continues responsive to not exceeding the maximum storage class memory increments.

3. The computer program product of claim 2, wherein the one or more validity checks further comprises a check of a length field of the request block; a check of whether the Configure Storage Class Memory command is available to be executed; a check that the request block has a valid format; and a check that the I/O subsystem is able to perform the Configure Storage Class Memory command, and wherein the configuration process continues responsive to the one or more validity checks being successful.

4. The computer program product of claim 1, wherein the initiating further comprises commencing an asynchronous process to perform the configuration of the storage class memory responsive to the one or more validity checks being successful, wherein configured storage class memory content is initialized to zero.

5. The computer program product of claim 4, wherein the method further comprises indicating completion of the asynchronous process in a notification response.

6. The computer program product of claim 5, wherein the notification response block includes a response code that indicates results of the attempt to execute the Configure Storage Class Memory command.

7. The computer program product of claim 6, wherein the notification response block is obtained via execution of a store event information command to obtain event information.

8. The computer program product of claim 5, wherein the request block is further configured to include an asynchronous completion correlator to be returned in the notification response block, the asynchronous completion correlator to be used to resume processing of the Configure Storage Class Memory command.

5 9. The computer program product of claim 1, wherein the configuration process comprises:

adjusting one or more internal controls to make accessible the increments of storage class memory; and

setting a state of the increment of storage class memory to operational.

0 10. The method of claim 1, wherein the request block is further configured to include an asynchronous completion correlator to be used to resume an original thread that initiated the Configure Storage Class Memory command.

11. A computer system for executing an instruction to execute a Configure Storage Class Memory command in a computing environment comprising main storage and storage class memory, the storage class memory comprising a plurality of solid state devices, said computer system comprising:

a memory; and

a processor in communications with the memory, wherein the computer system is configured to perform the method according to any preceding claim.

20 12. A computer program product for executing an instruction to execute a Configure Storage Class Memory command in a computing environment comprising main storage and storage class memory, the storage class memory comprising a plurality of solid state devices, said computer program product comprising:

a computer readable storage medium readable by a processing circuit and storing

25 instructions for execution by the processing circuit for performing the method according to any one of claims 1 to 10.