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To: T10 Committee (SCSI)

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Subject: Command Classification Field

1 Overview

The following proposed wording represents changes to SCSI Block Commands - 2 (SBC-2) to enable the transmission of classification information on a per-command basis.

This proposal standardizes a function that allows application clients to classify commands into groups so that device servers can collect information about each class of command. A application client can then, in turn, read the information collected by the device server and use that information to do things like work load balancing.

SBC-2 additions

1.1 Affected commands

It is proposed that a 7-bit field (CLASSIFY) be added to at least the following commands:

a) READ (10)
b) READ (12)
c) READ (16)
d) VERIFY (10)
e) VERIFY (12)
f) VERIFY (16)
g) WRITE (10)
h) WRITE (12)
i) WRITE (16)
j) WRITE AND VERIFY (10)
k) WRITE AND VERIFY (12)
l) WRITE AND VERIFY (16)

In addition the CLASSIFY field should be added to the following commands:

a) PRE-FETCH (10)
b) PRE-FETCH (16)
c) REBUILD (16)
d) REBUILD (32)
e) REGENERATE (16)
f) REGENERATE (32)
g) SEEK (10)
h) SYNCHRONIZE CACHE (10)
i) SYNCHRONIZE CACHE (16)
j) WRITE SAME (10)
k) WRITE SAME (16)
l) XDREAD (10)
m) XDREAD (32)
n) XDWRITE (10)
o) XDWRITE (32)
p) XDWRITEREAD (10)
q) XDWRITEREAD (32)
r) XDWRITE EXTENDED (16)
s) XDWRITE EXTENDED (32)
t) XDWRITE EXTENDED (64)
u) XPWRITE (10)

v) XPWRITE (32)

The CLASSIFY field would be in bits 6-0 in byte 6 of 10-byte commands, byte 10 of 12-byte commands, byte 14 of 16-byte commands, byte 6 of 32-byte commands and byte 6 for variable length commands.

1.1.1 READ (10) command

The READ (10) command (see table 1) requests that the device server transfer data to the application client. The most recent data value written in the addressed logical block shall be returned.

Table 1 — READ (10) command

Byte\Bit	7	6	5	4	3	2	1	0
0	OPERATION CODE (28h)							
1	Reserved			DPO	FUA	Reserved		RELADR
2	(MSB)	LOGICAL BLOCK ADDRESS						
5								(LSB)
6	Reserved	CLASSIFY						
7	(MSB)	TRANSFER LENGTH						
8								(LSB)
9	CONTROL							

The CLASSIFY field specifies the group in which information about this task should be collected into. For a defination of the groups see the extended control mode page in SPC-3.

1.1.2 Extended control mode page

Add a field into the extended control mode page titled: CLASSIFICATION GROUPS

The CLASSIFICATION GROUPS field (see table 2) specifies groups into which a device server collects infromation.
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Table 2 — Classification groups

Value [a]	Description
00h	The device server shall ignore the CLASSIFY field (see SBC-2).
01h	The device server shall collect information, per the classify value, on the task being received (e.g., write operation, read operation, amount of data read or written, the time required to complete the data transfer, or the number of disconnects required).
02h	The device server shall collect information, per the classify value, on tasks received from each SCSI initiator port.
04h	The device server shall collect information, per the classify value, on tasks received from each I_T nexus.
80h	Vendor Specific
All others	Reserved
[a] The CLASSIFICATION GROUPS field is a bit mask which allows the collection of information on any combination of classification groups at the same time.	