

To: T10 Technical Committee  
 From: Rob Elliott, HP (elliott@hp.com)  
 Date: 18 July 2002  
 Subject: T10/02-246r1 SPC-3 protocol-specific changes for SAS SSP

**Revision History**

Revision 0 (25 June 2002) first revision  
 Revision 1 (18 July 2002) incorporated comments from July CAP WG – fixed size of SAS address in TransportID table

**Related Documents**

sas-r00c - Serial Attached SCSI revision 00c

**Overview**

Adds SAS SSP content to the SPC-3 protocol-specific chapter.

**Suggested Changes**

***A.1 Protocol identifier***

In the protocol-specific parameters section, assign a protocol identifier for SAS SSP.

**Section 8.5.1 Protocol specific parameters introduction**

**SPC-3 Table 231 - PROTOCOL IDENTIFIER values**

Protocol identifier	Description	Protocol standard
6h	Serial Attached SCSI (SAS) Serial SCSI Protocol (SSP)	SAS

***A.2 Transport ID***

[Add this to section 8.5.4 Access controls TransportID access identifiers]

**Section 8.5.4.x SAS SSP TransportIDs for initiators using SAS SSP**

A Serial Attached SCSI (SAS) Serial SCSI Protocol (SSP) TransportID (see Table xxx) identifies a SAS SCSI initiator device using SSP.

**Table xxx. SAS SSP TransportID format**

Byte	7	6	5	4	3	2	1	0
0	Reserved			PROTOCOL CODE (6h)				
1	Reserved			Reserved				
2	Reserved			Reserved				
3	Reserved			Reserved				
4	Reserved			Reserved				
11	Reserved			SAS ADDRESS				
12	Reserved			Reserved				
23	Reserved			Reserved				

The SAS ADDRESS field specifies the SAS address of the initiator device.

***A.3 Target descriptor***

In the EXTENDED COPY section, add a descriptor type code for SAS SSP.

**SPC-3 Table 24 - EXTENDED COPY descriptor type values**

Descriptor type code	Reference	Description	Shorthand
E9h	8.5.3.x	SAS SSP target descriptor	

Add this section to the protocol-specific parameters chapter:

### Section 8.5.3.xx SAS SSP target descriptor

The target descriptor format shown in Table xxx is used to identify an EXTENDED COPY target using its SAS address (see SAS).

**[Editor’s note: “target” is not “target port” here, it’s the misnamed EXTENDED COPY data source or destination. Maybe SPC-3 will rename target descriptors to “logical unit descriptors.”]**

**Table xxx. SAS SSP target descriptor format**

Byte	7	6	5	4	3	2	1	0
0	DESCRIPTOR TYPE CODE (E9h)							
1	Reserved		NUL	PERIPHERAL DEVICE TYPE				
2	Reserved							
3	Reserved							
4	Reserved							
11	LOGICAL UNIT NUMBER							
12	Reserved							
19	SAS ADDRESS							
20	Reserved							
27	Reserved							
28	Reserved							
31	Device type specific parameters							

The DESCRIPTOR TYPE CODE, PERIPHERAL DEVICE TYPE and NUL fields and the device type specific parameters are described in 7.3.6.1.

The LOGICAL UNIT NUMBER field specifies the logical unit within the SCSI device addressed by the data in the SAS ADDRESS field that shall be the target (source or destination) for EXTENDED COPY operations.

The SAS ADDRESS field specifies the SAS address of the SCSI target port to be used when this target descriptor identifies the source or destination of an EXTENDED COPY operation.

#### A.4 Additional sense codes

Assign new additional sense codes for a sense key of ABORTED COMMAND under DATA PHASE ERROR (4Bh/00h) for:

- 4Bh/01h ILLEGAL TARGET PORT TRANSFER TAG RECEIVED;
- 4Bh/02h TOO MUCH WRITE DATA;
- 4Bh/03h ACK/NAK TIMEOUT; and
- 4Bh/04h NAK RECEIVED.

Assign new additional sense codes for a sense key of ILLEGAL REQUEST:

- TBD/00h INVALID INFORMATION UNIT;
- TBD/01h INFORMATION UNIT TOO SHORT; and
- TBD/02h INFORMATION UNIT TOO LONG.