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Subject: SAS definitions

Introduction

The following proposes adjustments to the definitions clause in the SAS draft. Some of the other modifications required to incorporate this proposal into the draft document are detailed in the Maxtor SAS letter ballot comments document. However, more checking of the standard is required to insure consistency. I recommend that this checking begin by searching on "ATA" as this will find occurrences of both "ATA" and "SATA" to delete or change. The following proposal is based on SAS-r03. Following the proposed changes is a table that compares many of the proposed definitions to the previous content of the draft standard.

The following is the list of terms and definitions to be deleted:

- ATA device
- ATA initiator device
- ATA initiator port
- ATA port
- ATA target device
- ATA target port
- ATA target/initiator device
- ATA target/initiator port
- Device
- SATA domain
- SATA target port

The following are new or modified definitions:

ATA device: An ATA device is a storage peripheral. Traditionally, a device on the ATA interface has been a hard disk drive, but any form of storage device may be placed on the ATA interface provided the device adheres to the ATA/ATAPI-7 standard (see ATA/ATAPI-7 v1).

ATA domain: An I/O system consisting of a set of ATA hosts and ATA devices that communicate with one another by means of a service delivery subsystem (see 4.1.1).

ATA host: An ATA host is the computer system executing the software BIOS and operating system device driver controlling the device and the adapter hardware between the computer system data bus and the ATA interface to the device (see ATA/ATAPI-7 v1).

SAS device: A device in a SAS domain (e.g., a SAS initiator device, SAS target device, or SAS target/initiator device).

SAS initiator device: A device containing SSP, STP, and/or SMP initiator ports in a SAS domain.

SAS initiator port: An SSP initiator port, STP initiator port, and/or SMP initiator port in a SAS domain.

SAS target device: A device containing SSP, STP, and/or SMP target ports in a SAS domain.

SAS target port: An SSP target port, STP target port and/or SMP target port in a SAS domain.

SAS target/initiator device: A device that has all of the characteristics of a SSP target/initiator device and an STP target/initiator device.

SAS target/initiator port: A port that has all of the characteristics of a SAS target port and a SAS initiator port in a SAS domain.

SATA device: An ATA device containing a SATA device port in an ATA domain (a SATA device is analogous to a SCSI target device).

SATA device port: An ATA device object in an ATA domain that interfaces to the service delivery subsystem with SATA (a SATA device port is analogous to a SCSI target port).

SATA host: An ATA host containing a SATA host port in an ATA domain (a SATA host is analogous to a SCSI initiator device).

SATA host port: An ATA host object in an ATA domain that interfaces to the service delivery subsystem with SATA (a SATA host port is analogous to a SCSI target port).

Serial ATA Tunneled Protocol (STP): The protocol defined in this standard used by STP initiator ports to communicate with STP target ports in a SAS domain.

Serial Attached SCSI (SAS): The set of protocols and the interconnect defined by this standard.

Service delivery subsystem: The part of an SCSI I/O system that transmits information between an initiator port to a target port, or the part of an ATA I/O system that transmits information from an ATA host to an ATA device.

SMP port: An SMP initiator port or an SMP target port.

SMP initiator port: An initiator device object in a SAS domain that interfaces to the service delivery subsystem with SMP.

SMP target port: A target device object in a SAS domain that interfaces to the service delivery subsystem with SMP.

SMP target/initiator port: A port that has all of the characteristics of an SMP target port and an SMP initiator port.

SSP initiator port: A SCSI initiator port in a SAS domain that implements the SSP.

SSP port: An SSP initiator port or an SSP target port.

SSP target port: A SCSI target port in a SAS domain that implements SSP.

SSP target/initiator port: A port that has all of the characteristics of an SSP target port and an SSP initiator port.

STP/SATA bridge device: A device containing an STP target port, a SATA host port, and the functions required to perform communication between an STP initiator device and a SATA device.

STP port: An STP target port or an STP initiator port.

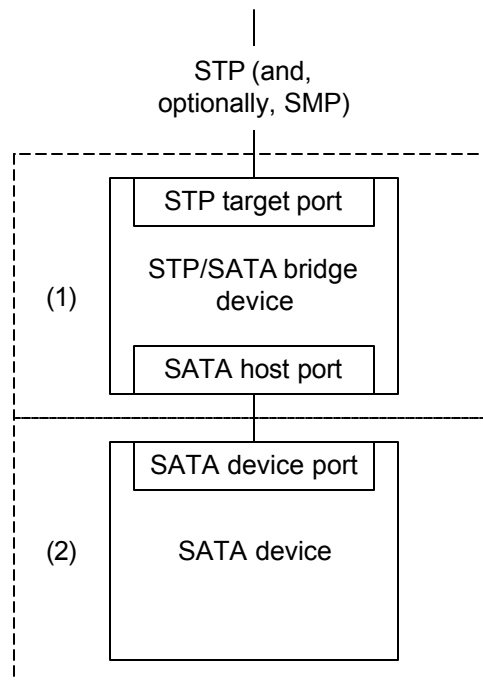
STP initiator port: An initiator device object in a SAS domain that interfaces to the service delivery subsystem with STP.

STP target port: A target device object in a SAS domain that interfaces to the service delivery subsystem with STP.

STP target/initiator port: A port that has all of the characteristics of an STP target port and an STP initiator port.

Something like the following figure should be included to illustrate an STP target device:

Note: (1) and (2) when taken together logically are a SAS target device. However, (1) may be physically contained in an expander device and (2) may be a separate SATA device, or (1) and (2) may be physically contained in a SAS target device.



In the following table the text in rev 3 of the draft standard is *italicized*. Proposed new text or action is in **blue**. Where there is no change proposed, there is no blue text in the cell.

Term	SAS	SCSI (keep all as is)	SSP	SMP	STP	SATA	ATA
Definition of the term itself	<i>The protocol defined by this standard.</i> The set of protocols and the interconnect defined by this standard.		<i>The protocol defined in this standard used by SCSI initiator ports to communicate with SCSI target ports in a SAS domain.</i>	<i>The protocol defined in this standard used by SAS devices to communicate management information with other SAS devices in a SAS domain.</i>	<i>The protocol defined in this standard used by ATA initiator ports to communicate with SATA target ports in a SAS domain.</i> The protocol defined in this standard used by STP initiator ports to communicate with STP target ports in a SAS domain.	<i>The protocol defined by SATA.</i>	<i>A standard for the internal attachment of storage devices to host systems (see ATA/ATAPI-7 V1).</i>
domain	<i>The I/O system defined by this standard that may serve as an ATA domain and/or a SCSI domain (see 4.1.9).</i>	<i>An I/O system consisting of a set of SCSI devices that communicate with one another by means of a service delivery subsystem (see SAM-3).</i>	<i>none</i>	<i>none</i>	<i>none</i>	<i>The I/O system defined by SATA that serves as an ATA domain.</i> Delete.	<i>An I/O system consisting of a set of ATA devices that communicate with one another by means of a service delivery subsystem (see 4.1.1).</i> An I/O system consisting of a set of ATA hosts and ATA devices that communicate with one another by means of a service delivery subsystem (see 4.1.1).
device	<i>A SCSI device, an ATA device, or an expander device in a SAS domain (see 4.1.4).</i> A SAS initiator device, SAS target device, or SAS target/initiator device.	<i>A device that contains one or more SCSI ports that are connected to a service delivery subsystem and supports a SCSI application protocol (see SAM-3).</i>	<i>none</i>	<i>none</i>	<i>none</i>	<i>none</i> A storage device that contains a SATA device port and communicates with STP initiators in a SAS domain via an STP/SATA bridge device (a SATA device is analogous to a SCSI target device).	<i>A device that contains one or more ATA ports that are connected to a service delivery subsystem and supports an ATA application protocol (see 4.1.1).</i> Delete.

Term	SAS	SCSI (keep all as is)	SSP	SMP	STP	SATA	ATA
initiator device	A SCSI initiator device or an ATA initiator device in a SAS domain (see 4.1.5). A device containing SSP, STP, and/or SMP initiator ports in a SAS domain.	A SCSI device containing application clients and SCSI initiator ports that originate device service and task management requests to be processed by a SCSI target device and receives device service and task management responses from SCSI target devices.(see SAM-3).	none	none	none	none	An ATA device containing application clients and ATA initiator ports that originate device service and task management requests to be processed by an ATA target device. Equivalent to a host system in ATA (see ATA/ATAPI V1). Delete.
target device	A SCSI target device or an ATA target device in a SAS domain (see 4.1.6). A device containing SSP, STP, and/or SMP target ports in a SAS domain.	A SCSI device containing logical units and SCSI target ports that receives device service and task management requests for processing and sends device service and task management responses to SCSI initiator devices.(see SAM-3).	none	none	none	none	An ATA device containing logical units and ATA target ports that receives device service and task management requests for processing. Equivalent to a device in ATA (see ATA/ATAPI V1) Delete.
target/initiator device	A SCSI target/initiator device or an ATA target/initiator device in a SAS domain (see 4.1.7). A device that has all of the characteristics of a SAS target device and a SAS initiator device.	A device that has all the characteristics of a SCSI target device and a SCSI initiator device (see SAM-3).	none	none	none	none	A device that has all the characteristics of an ATA target device and an ATA initiator device. Delete.

Term	SAS	SCSI (keep all as is)	SSP	SMP	STP	SATA	ATA
port	A SAS initiator port or a SAS target port.	A SCSI initiator port or a SCSI target port (see SAM-3).	none An SSP initiator port or an SSP target port.	none An SMP initiator port or an SMP target port.	none An STP initiator port or an STP target port.	none	An ATA initiator port or an ATA target port (see 4.1.1). Delete.
initiator port	A SCSI initiator port or an ATA initiator port in a SAS domain. An SSP initiator port, STP initiator port, and/or SMP initiator port in a SAS domain.	A SCSI initiator device object that acts as the connection between application clients and the service delivery subsystem through which requests and responses are routed (see SAM-3).	A SCSI initiator port containing one or more phys in a SAS domain. A SCSI initiator port in a SAS domain that implements SSP.	none An initiator device object in a SAS domain that interfaces to the service delivery subsystem with SMP.	An ATA initiator port containing one or more phys in a SAS domain. An initiator device object in a SAS domain that interfaces to the service delivery subsystem with STP.	none	An ATA initiator device object that acts as the connection between application clients and the service delivery subsystem through which requests and responses are routed. Equivalent to a host adapter in ATA (see ATA/ATAPI V1). Delete.
target port	A SCSI target port or an ATA target port in a SAS domain. An SSP target port, STP target port, and/or SMP target port in a SAS domain.	A SCSI target device object that contains a task router and acts as the connection between device servers and task managers and the service delivery subsystem through which requests and responses are routed (see SAM-3).	A SCSI target port containing one or more phys in a SAS domain. A SCSI target port in a SAS domain that implements SSP.	none A target device object in a SAS domain that interfaces to the service delivery subsystem with SMP.	An ATA target port containing one or more phys in a SAS domain. A target device object in a SAS domain that interfaces to the service delivery subsystem with STP.	An ATA target port containing one phy in a SAS domain or a SATA domain. Delete.	An ATA target device object that contains a task router and acts as the connection between device servers and task managers and the service delivery subsystem through which requests and responses are routed. Equivalent to a device in ATA (see ATA/ATAPI V1). Delete.
target/initiator port	A SCSI target/initiator port or an ATA target/initiator port in a SAS domain. A port that has all of the characteristics of a SAS target port and a SAS initiator port in a SAS domain.	A SCSI target/initiator device object that has all the characteristics of a SCSI target port and a SCSI initiator port (see SAM-3).	none A port that has all of the characteristics of an SSP target port and an SSP initiator port.	none A port that has all of the characteristics of an SMP target port and an SMP initiator port.	none A port that has all of the characteristics of an STP target port and an STP initiator port.	none	An ATA target/initiator device object that has all the characteristics of an ATA target port and an ATA initiator port. Delete.