

Date: April 24, 2003

To: T10 Committee (SCSI)

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Subject: SAS: SATA Information to Annex

1 Overview

There are parts of SAS that contains information that is only relevant to SATA. This information is currently scattered throughout the SAS standard and are not relevant to implementation of SAS. Although, I would like to see that information removed from SAS it appears many believe there is value in keeping it in SAS. As a result I made several letter ballot comments requesting that information be moved to an informative annex. Those comments were rejected by the editor. This proposal is an extension of those letter ballot comments that contains what I believe section 5.2.1, table 31, and section 6.6.2 except for table 43 (see below) should be removed and placed in an annex as shown below.

Annex L (informative)

Additional SATA Information

L.1 SATA cables and connectors

Figure L.1 shows a schematic representation of the cables and connectors defined by SATA (see ATA/ATAPI-7 V3). A SATA host is analogous to a SAS initiator device; a SATA device is analogous to a SAS target device.

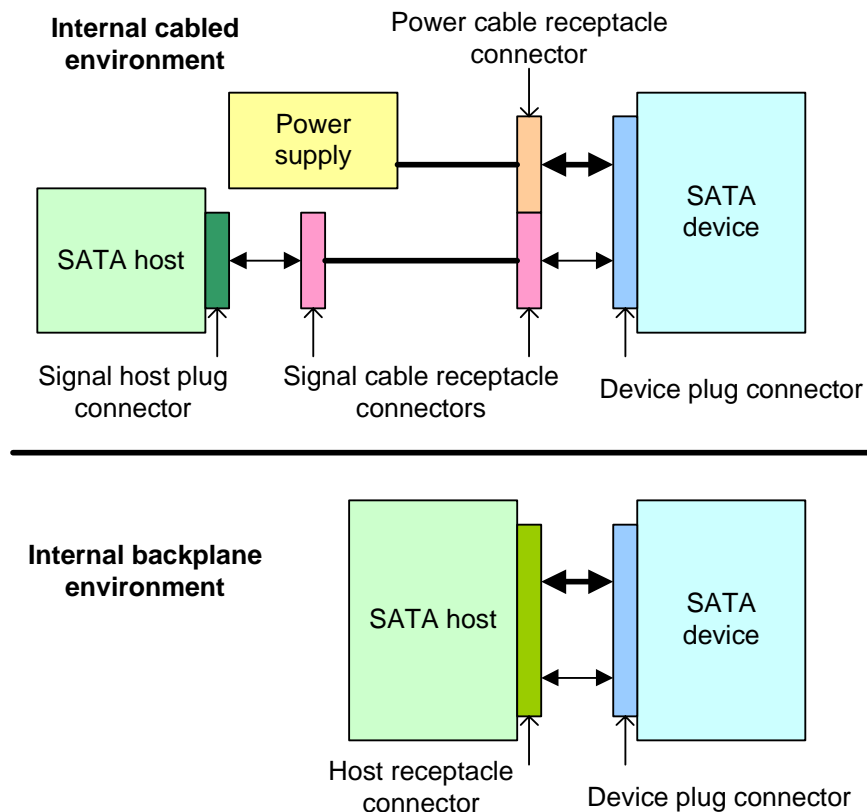


Figure L.1 — SATA cables and connectors

L.2 SATA encoding overview

All data bytes transferred in SATA are encoded into 10-bit data characters using 8b10b coding. Additional characters not related to data bytes are called control characters.

All characters transferred in SATA are grouped into four-character sequences called dwords. A primitive is a dword whose first character is a control character and remaining three characters are data characters.

Primitives are defined with both negative and positive starting running disparity. SATA defines primitives starting with the K28.5 control characters. Table L.1 shows special character usage in SATA.

Table L.1 — SATA special character usage

First character	Usage in SATA (informative)
K28.3	All primitives except ALIGN
K28.5	ALIGN
K28.6	Not used
Dxx.y	Data

Primitives are defined by SATA (see ATA/ATAPI-7 V3).

A data dword is a dword starting with a data character.

L.3 SATA phy reset sequence

L.3.1 SATA OOB sequence

Figure L.2 shows the SATA OOB sequence between a SATA host and SATA device. The SATA OOB sequence is defined by SATA; see ATA/ATAPI-7 V3 for detailed requirements.

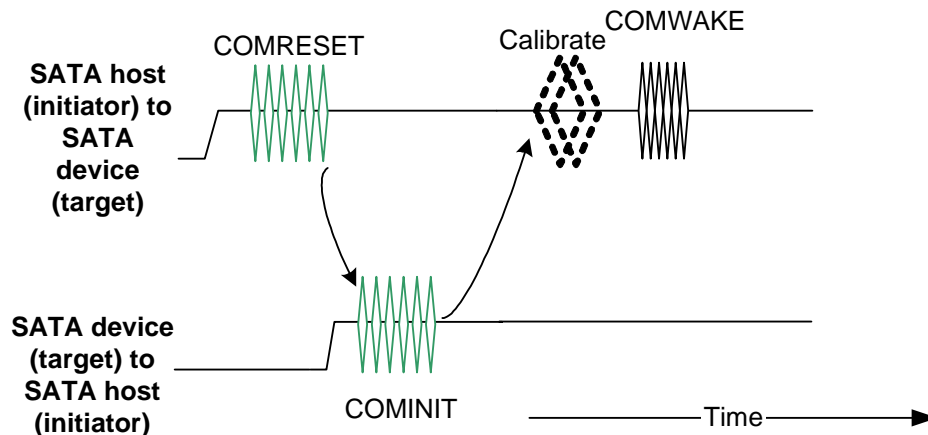


Figure L.2 — SATA OOB sequence

L.3.2 SATA speed negotiation sequence

Figure L.3 shows the speed negotiation sequence between a SATA host and SATA device. The SATA speed negotiation sequence is defined by SATA; see ATA/ATAPI-7 V3 for detailed requirements.

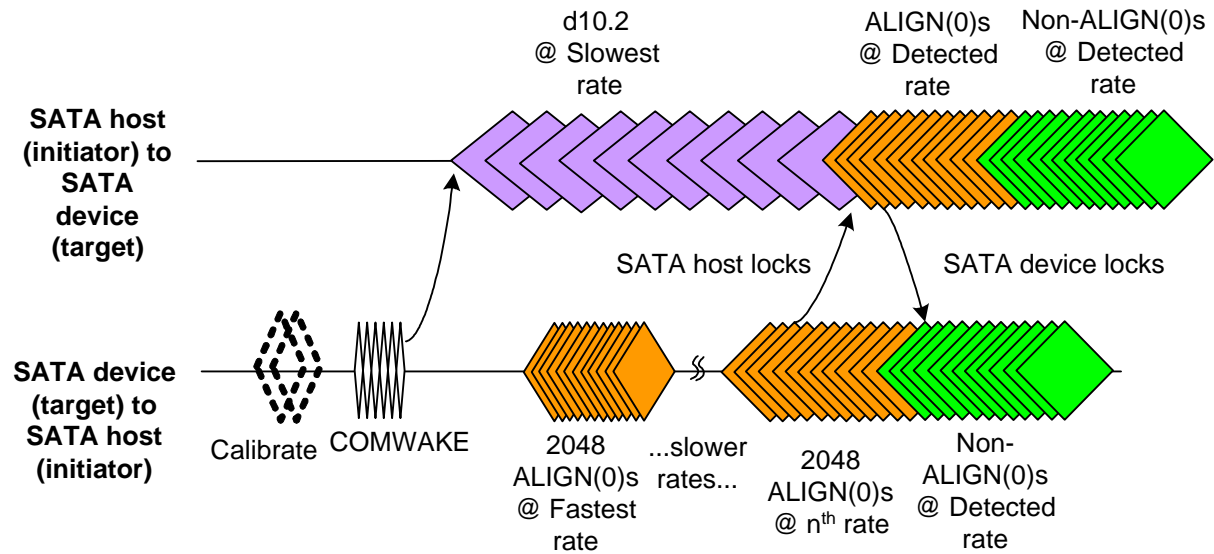


Figure L.3 — SATA speed negotiation sequence

This section would replace the current section 6.6.2

6.6.2 SATA speed negotiation sequence timing

Table 43 defines SATA speed negotiation sequence timing parameters used by the SP state machine (see 6.7).

Table 43 — SATA speed negotiation sequence timing specifications

Parameter	Time	Comments
Await ALIGN timeout	32 768 OOBIs	The minimum time during SATA speed negotiation that a phy shall allow for an ALIGN to be received after detecting COMWAKE Completed.
COMWAKE response time	533 ns	The maximum time during SATA speed negotiation after detecting COMWAKE Completed before which a phy shall start transmitting D10.2 characters.