

To: T10 Technical Committee
 From: Bill Bissonette (Bill.Bissonette@intel.com)
 Date: January 13, 2005
 Subject: 05-019r1 SAS-1.1 SAS-SATA OOB Algorithm Proposal

Revision history

Revision 0 (January 4, 2005) First revision
 Revision 1 (January 13, 2005) Removed question related to all SAS TX phys. Referenced changes to 04-370r2.

Related documents

04-370r2 - Serial Attached SCSI 1.1 revision 7
 SATA 1.0a
 SATA II Electrical specification 1.0

Overview

This proposal also addresses the prevention of OOB amplitudes that exceed maximum SATA input voltage allowance for phys that support attachment of SATA devices.

Proposed change

1. Create a new row to table 6 in 04-370 for maximum OOB amplitude for phys that support SATA attachment that reads that reads:

Signal characteristic at probe point	Units	IR		CR	
		1,5 Gbps	3,0 Gbps	1,5 Gbps	3,0 Gbps
Maximum peak to peak voltage (i.e., 2 x Z2) if SATA device attached	mV(P-P)	600	750	1600	1600

2. Modify text in subclause 5.3.4 of 04-370r2 as follows:

Current text:

[Transmitter devices](#) supporting being attached to SATA devices shall use SATA 1.0 signal levels (see ATA/ATAPI-7 V3) during the first OOB sequence after a power on or hard reset if the 1,5 Gbps transfer rate is supported. As soon as COMSAS has been exchanged, the [transmitter device](#) shall increase its transmit levels to the SAS voltage levels specified in table 4. If a COMINIT is not received within a hot-plug timeout at SATA 1.0 signal levels, the [transmitter device](#) shall increase its transmit levels to the SAS voltage levels and perform the OOB sequence again. If no COMINIT is received within a hot-plug timeout of the second OOB sequence the [transmitter device](#) shall initiate another OOB sequence using SATA 1.0 signal levels. The [transmitter device](#) shall continue alternating between sending COMINIT at SATA 1.0 signal levels and SAS signal levels until a COMINIT is received.

If the OOB sequence is completed at the SAS voltage level and a SATA device is detected rather than a SAS target device, the [transmitter device](#) shall switch to SATA 1.0 voltage levels and repeat the OOB sequence.

[Transmitter devices that do not support being attached to SATA devices](#) shall transmit OOB signals using SAS signal levels.

Proposed text:

Transmitter devices supporting being attached to SATA devices shall use SATA 1.0 signal levels (see ATA/ATAPI-7 V3) during the first OOB sequences ~~after a power on or hard reset if the 1,5 Gbps transfer rate is supported~~. As soon as COMSAS has been exchanged, the transmitter device shall increase its transmit levels to the SAS voltage levels specified in table 4. ~~If a COMINIT is not received within a hot-plug timeout at SATA 1.0 signal levels, the transmitter device shall increase its transmit levels to the SAS voltage levels and perform the OOB sequence again. If no COMINIT is received within a hot-plug timeout of the second OOB sequence the transmitter device shall initiate another OOB sequence using SATA 1.0 signal levels. The transmitter device shall continue alternating between sending COMINIT at SATA 1.0 signal levels and SAS signal levels until a COMINIT is received.~~

~~If the OOB sequence is completed at the SAS voltage level and a SATA device is detected rather than a SAS target device, the transmitter device shall switch to SATA 1.0 voltage levels and repeat the OOB sequence.~~

Transmitter devices that do not support being attached to SATA devices shall transmit OOB signals using SAS signal levels.