

To: T10 SAS Protocol Working Group

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Subject: SAS-2 : Minor correction to STP flow control formula

Revision History

Revision 0 - Initial draft (Feb 15, 2006)

Related Documents

sas2r02 - Serial Attached SCSI - 2 Draft revision 02

Overview

The formula shown in Note 47 is incorrect. The values of "n" need to start at zero instead of one.

A value of n=3 for 6.0 Gbps link rates results in a value of 36 dwords of receive buffering.

Proposed Changes

Change Note 47 in section 7.17.3 to:

NOTE 47 - The receive buffer requirements are based on $(20 + (4 \times 2^n))$ where n is ~~4~~₀ for 1,5 Gbps and ~~2~~₁ for 3,0 Gbps. The 20 portion of this equation is based on the frame transmitter requirements (see ATA/ATAPI-7 V3). The ~~(4 × n)~~ (4×2^n) portion of this equation is based on:

- a) One-way propagation time on a 10 m cable = (5 ns/m propagation delay) × (10 m cable) = 50 ns;
 - b) Round-trip propagation time on a 10 m cable = 100 ns (e.g., time to send SATA_HOLD and receive SATA_HOLD_A);
 - c) Time to transmit a 1,5 Gbps dword = (0,667 ns/bit unit interval) × (40 bits/dword) = 26,667 ns; and
 - d) Number of 1,5 Gbps dwords on the wire during round-trip propagation time = (100 ns / 26,667 ns) = 3,75.
- Receivers may support longer cables by providing larger buffer sizes.