

To: T10 Technical Committee
From: Rob Elliott, HP (elliott@hp.com)
Date: 8 November 2004
Subject: 04-339r1 SAS-1.1 Remove minimum ALIGN counts from summary table

Revision history

Revision 0 (18 October 2004) First revision

Revision 1 (8 November 2004) Incorporated comments from November SAS WG - use the table with more explanations

Related documents

sas1r06 - Serial Attached SCSI 1.1 revision 6

Overview

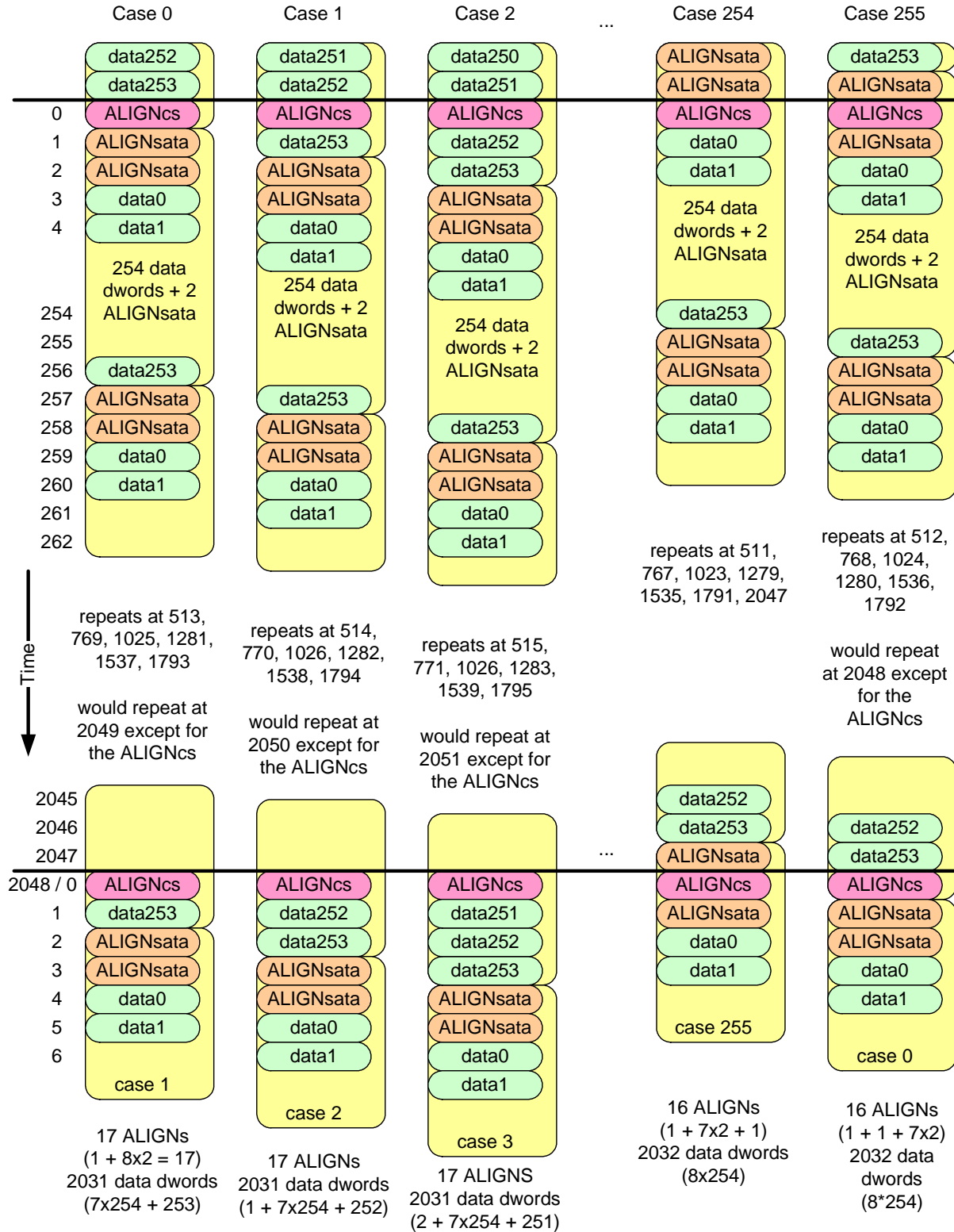
The minimum number of ALIGNs summary column in Annex G provides incorrect numbers for the STP entries.

For example, the "17 ALIGNs per 2048 dwords" calculation for the "STP connection; 1.5 Gbps physical link rate and 1.5 Gbps connection rate" combination is not always correct; as shown in the following figure, the count actually alternates between:

- 1) 17 ALIGNs for 2046 overlapping windows of 2048 dwords; then
- 2) 16 ALIGNs for 2 overlapping windows of 2048 dwords.

The example in the figure assumes that the ALIGNs for SATA are sent together within each 256 dwords, although that is not necessarily the case for STP; no matter when then are sent, the result is the same.

This also affects the STP entries for the 3.0 Gbps physical link rate with both connection rates.



Suggested changes

Since the actual numbers are complicated, simply remove the offending column.

Annex A
(informative)

ALIGN and/or NOTIFY insertion rate summary

Table A.1 shows all the possible combinations of ALIGN and/or NOTIFY insertion rates for clock skew management (see 7.3), rate matching (see 7.13), and STP initiator phy throttling (see 7.17.2).

Replace.

Table A.1 — ALIGN and/or NOTIFY insertion rate examples

Physical link rate	Connection rate	Type of dword stream	ALIGN and/or NOTIFY insertion rate (per dword)	Minimum number of ALIGNs and/or NOTIFYs within the specified window
3,0 Gbps	3,0 Gbps	all but to STP target	2 per 4 096	2 per 4 096
		to STP target	2 per 4 096 + 2 per 256	34 per 4 096
	1,5 Gbps	all but to STP target	2 per 4 096 + 1 per 2	2 049 per 4 096
		to STP target	2 per 4 096 + 1 per 2 + 2 per 256	2 065 per 4 096
1,5 Gbps	1,5 Gbps	all but to STP target	1 per 2 048	1 per 2 048
		to STP target	1 per 2 048 + 2 per 256	17 per 2 048

with:

Table A.2 — ALIGN and/or NOTIFY insertion rate summary

Physical link rate	Connection rate	Type of dword stream	ALIGN and/or NOTIFY insertion rate (per specified number of dwords)
3,0 Gbps	3,0 Gbps	all but to STP target	2 per 4 096 (clock skew management)
		to STP target	2 per 4 096 (clock skew management) + 2 per 256 (STP initiator phy throttling)
	1,5 Gbps	all but to STP target	2 per 4 096 (clock skew management) + 1 per 2 (rate matching)
		to STP target	2 per 4 096 (clock skew management) + 1 per 2 (rate matching) + 2 per 256 (STP initiator phy throttling)
1,5 Gbps	1,5 Gbps	all but to STP target	1 per 2 048 (clock skew management)
		to STP target	1 per 2 048 (clock skew management) + 2 per 256 (STP initiator phy throttling)