SAS jitter study group
May 09, 2004
Dana Point, CA

This was the first (and possibly only) off meeting to address the
general subject of jitter for SAS. This is not part of the SAS/PHY ad
hoc group.

1. Introduction
Bill Ham, HP called this meeting and acted as chair. A document,
T10/04-090r0 has been posted with the meeting details. It was expected
that this work would result in a set of actions/recommendations for the
SAS/PHY and general SAS working groups.

The general purpose of this study group was to determine if the new FC
specifications in MJSQ and in documents that support FC-PI-2 are
applicable to SAS.

Bill led a round of introductions.

2. Attendance

The following folks were present:

Mike Wingard, Amphenol
James Lott, Dallas Semiconductor
Phil Colline, Dot Hill Systems
Mike Fitzpatrick, Fujitsu
Bill Ham, HP
Andrew Cable, Intel
Mark Evans, Maxtor
Henry Kuo, QLogic
Vit Novak, Sun
Doug Cole, Dallas Semiconductor

3. Agenda

   • Introduction – Ham
   • Review 04-090r0
   • Review MJSQ rev 13
   • Review present FC-PI-2 signal specification architecture (T11/04-
     024v6)
   • Review of the present SAS specification
   • Creation of a list of items that need to be addressed so that MJSQ
     and FC-PI-2 methodologies can be referenced by SAS

4. Overview of effort

- SAS is presently patterned after Fibre Channel (FC) in terms of signal quality requirements
- FC developed a basic methodology several years ago that was documented in a technical report called MJS (Methodologies for Jitter Specification), and in two standards: FC-PH3 and FC-PI
- Since that time several developments have occurred that changed some important details and are now documented in FC-MJSQ (Methodologies for Jitter and Signal Quality specification - rev 13 now available with the latest thinking) and FC-PI-2 (not yet available publicly)
- Queries have been raised in the SAS community about whether the newer MJSQ methodologies (and possibly PI-2) can/should be referenced for SAS standards and other work
- Since both MJSQ and PI-2 are still in the final approval process in T11 it may still be possible to incorporate features required by SAS that are not presently in MJSQ
- The SAS jitter study group is intended to start a process to examine the optimal response to these queries

5. Results of meeting

After executing the agenda as stated the following recommendations were made:

- SAS adopts the definitions in MJSQ that relate to signal quality
- SAS adopts the overall MJSQ methodologies (actually already in place for the most part)
- SAS adopts the signal quality measurement methodologies in MJSQ
- SAS references MJSQ for most of the practical methodology details
- It appears that since scrambling is done BEFORE encoding into 8b10b that the MJSQ DJ/TJ separation methods and compliance methods can be applied without change, however – whether the scrambled CJTPAT in SAS has the required properties needs to be evaluated
- The SAS documents needs to be tweaked in a few places to adopt the signal specification architecture defined in T11/ 04-024v6

Action to Bill Ham to schedule an agenda item for the May SAS/Phy working group to further discuss the referenced topics.

6. Next meeting

No future meetings of this study group is presently contemplated. Further work on this topic may occur in the SAS/PHY or general SAS working groups.

7. Adjournment

At 5:10 PM the meeting adjourned.