

SCSITA T10 Plenary Report

STA Technical Committee
STA General



SCSI Trade Association

STA Technical Committee

- **STA Technical meeting July 18th – Colorado Springs 01s013r0**
 - May 2nd Nashua Minutes 01s008r0 on www.scsita.org/STATech
 - Parallel SCSI roadmap to 2012 - 01s001r2, 2X2Y (twice the performance every 2 years) adopted for Ultra640 to Ultra5120 SCSI.
 - Ultra640 SCSI, Maxtor presentation 01s012r0
 - Ultra640 SCSI Key issues, restrictions and guidelines presentation was developed 01s014r0
 - The next meeting will be in Huntington Beach - Sept 12, 2001.
 - Server and PC ease of use documents, approved May 4th - Rev 1.0 of both documents 00s018r4 and 00s019r4

STA General

- **STA**
 - Roadmap was approved
 - 20th anniversary May 22nd Fairmont Hotel with IDC
 - Good turn out, excellent show of the history of SCSI and the roadmap chart to Ultra5120 SCSI.
 - The last STA General was in Nashua 4-May-2001 –
 - Booth at Applied Computing coming up May 14-17
 - Revise website went on line in December - Marketing to web based, last year over 100,000 hits
 - Product data base allows non STA member product listings for a fee
 - Several Articles published, RTC, CTR, EDN, IEEE
 - Next STA General meeting – July 19th 1:30PM–
Colorado Springs

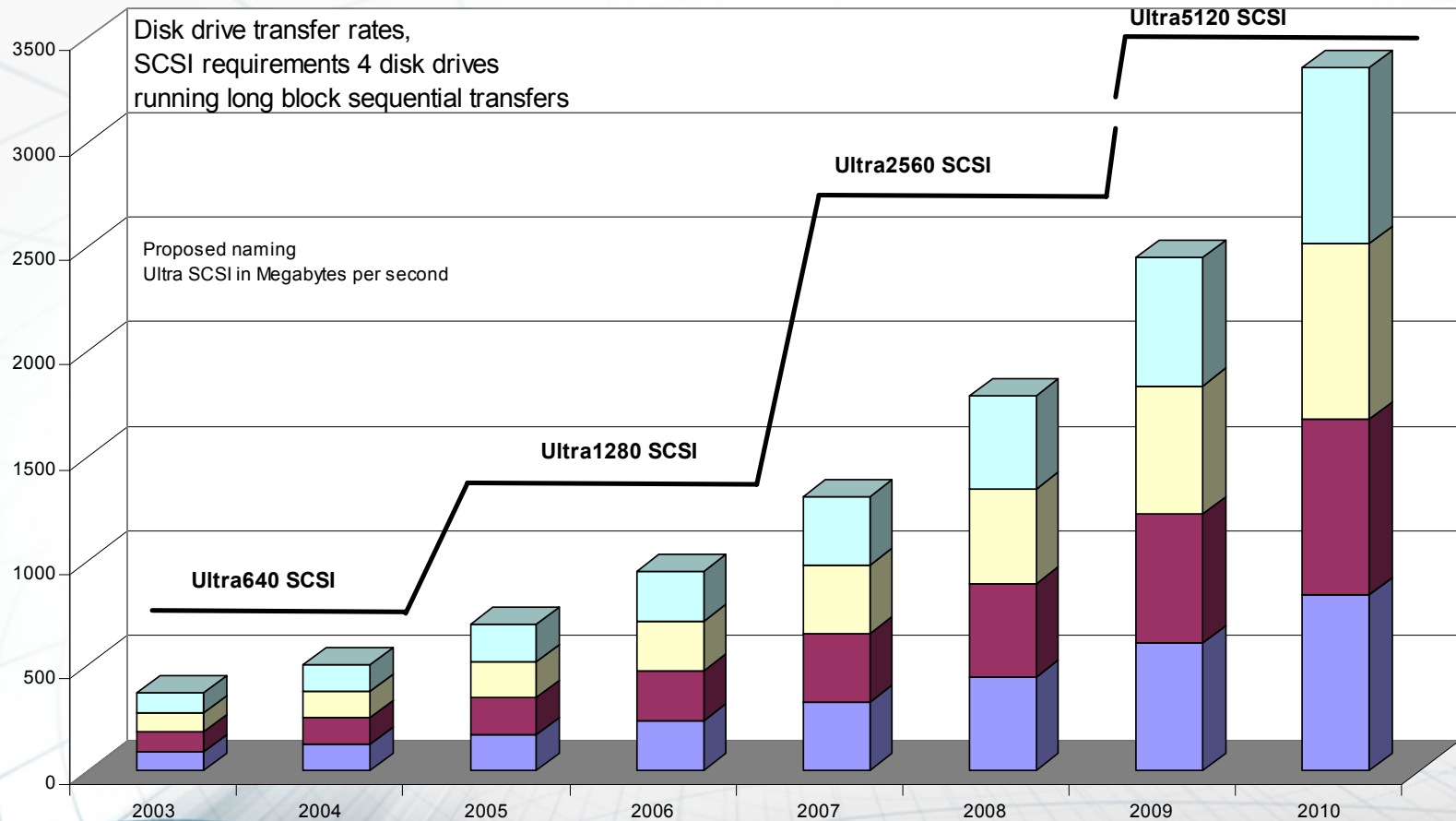


Planned Steps

- **Ultra640 SCSI – SPI-5 - 2003**
- **First generation Multilevel- SPI-6 – 2005**
 - **Ultra1280 SCSI (1.2 Gigabyte/second)**
- **Step in 2007 Ultra2560 SCSI**
- **Step in 2009 to Ultra5120 SCSI**



Requirements for drive performance



Marketing Roadmap

- **Ultra640 SCSI – 2003**
 - Extension of the current technology developed for Ultra320
 - Expanders and Bus tuning may be required
- **Ultra1280 SCSI – Approximately 2005**
 - Encoded SCSI – backward compatible with LVD SCSI
 - Multimode transceivers will not be supported.
 - Expanders required for Single ended.
- **Ultra2560 SCSI – Approximately 2007**
 - Second generation encoding.
- **Ultra5120 SCSI – Approximately 2009**



Step Details

- **Ultra640 SCSI**
 - SPI-5, Fast-320 SCSI
 - adjustable - Precomp or AAF
 - No major impedance mismatches
 - Expanders for cable to backplane matching
 - Tuning the termination
 - Expanded domain validation
- **Ultra1280 SCSI**
 - SPI-6, Fast-640 SCSI
 - Encoding with self clocking proposed
 - Multilevel proposed
 - Works on LVD SCSI bus



Step Details

- **Ultra2560 SCSI**
 - SPI-X, Fast-1280
 - Encoding, self clocking - proposed
 - 2nd generation multilevel proposed
 - Works on the LVD SCSI bus
- **Ultra5120 SCSI**
 - SPI-x, Fast-2560

Summary

- **The roadmap for performance is clear.**
- **The steps are in definition, but the technical community is starting down the roadmap with the new project proposals for SPI-5 and SPI-6**
- **SPI-6 involves a new technology approach that will take time to test and develop.**
 - **We are starting the work now to be ready in 4 years with the technology that will have follow on generations.**
 - **The long term roadmap to 2012 continues to double performance every 2 years.**



Ultra640 SCSI

Key issues proposed

New Restrictions

Develop Guidelines for Ultra640 testing



SCSI Trade Association

Key issues

- Reflections as large as signals
- Major impedance mismatch between cables and backplanes.
- Crosstalk to signal ratio marginal on large configurations
- Periodic structure issues (Comb filter effects)
- SE – 5 volt requirement – problem for technology and eliminating will reduce capacitance
- Stub effects

New Restrictions

- **Restricting applications**
 - Cable assembly defined by Electrical parameters, not an open statement of wire gauge and distance.
 - Applications of unshielded cable – restriction
 - Impedance problems, crosstalk, common noise, sweep attenuation – avoiding periodic structures
 - Expanders for heavily loaded backplanes and long cable applications
- **SPI-5 cables marking - Performance differences**
- **Programmable terminators**
 - Reducing the impedance to match the loaded bus impedance for backplanes

New Restrictions

- **LVD only**
 - Drop MSE, there have been three generations for the transition to LVD SCSI
 - Drop SE in SPI-5
 - Series resistors for devices to reduce stub effects
- **Backplane design rules**
 - Reduce the effects of periodic structures
 - Reduce the crosstalk
- **Twisted and flat cable spacing**
 - Reduce the effects of periodic structures
 - Reduction of the impedance change of the flat section

Develop Guidelines for Ultra640 testing

- **Cable to backplane restrictions**
 - **Cable to backplane**
 - Electrical specifications that limit cable connections to backplanes. (Crosstalk)
 - 5 or X slot maximum backplane – electrical specifications on backplanes
 - **Backplanes over 5 or X slots**
 - Restrict to expander
 - **Termination on the backplane matches the impedance**
 - Programmable termination that can be adjusted to the backplane loading.
 - Adjust with switch or I2C bus, out side of the SCSI bus to keep the terminator cost down – 55 to 135 ohm range, adjustable bias current for negation
 - Expanders, SES and SCSI should plan to control

Develop Guidelines for Ultra640 testing

- **Reduce stub effects with series resistors on drives**
- **Backplanes**
 - periodic structures at 160 MHz should not be used.
 - Crosstalk
 - Strip line? Tutorial or annex
 - Tutorial on designing backplanes
- **SPI-5 cables marking - Performance differences**
- **White Box profile definitions**

