

Notes from 10GBASE CX-4 Study Group Meeting -- January 7,8 2002

- Approved Minutes from last meeting.
- Clause 54 will be used for CX-4
- Peter Bradshaw volunteered to be the comment editor. He will keep track of comments that come into the reflector so that they can be addressed by the committee and incorporated into the document if appropriate.
- Agenda was reviewed. Presentation was added by Dimitry Taich.
- Working paper needs to be complete two weeks prior to the 802.3 Plenary in March. We could delay the schedule by 4 months if it is not ready.
- Recommend another interim meeting in February. Jeff Warren from Extreme Networks offered to host the meeting on Feb 17,18 in Triangle Park, North Carolina at the Embassy Suites.
- Steve Dreyer Presentation – Transmit Levels
Main issue was regarding what transmit levels can be achieved with parts designed to operate with a single 1.2 Volt supply. Modeling showed that it may be difficult to achieve 800 mV p2p differential swings with this constraint.
- Dimitry Taich Presentation – Modeling of CX-4 Link
Issues: EQ levels described by template seemed too high (80%) and the template would be difficult to be compliant with. Suggested using eye pattern for pre-emphasized signal after going through 10 meter compliant interconnect as acceptance criteria for driver.

FEC will not be included as part of the spec.

Dimitry believes that a 6dB improvement in the compliant channel spec would be needed for the link to work with pre emphasis and no receive EQ.

- Chris Diminico Presentation – Compliance Channel Spec
Need to define common nomenclature to describe link in terms of individual pairs and overall link.

Need to come up with a topology of the link relative to losses.

Current proposed channel limits were just a totally worst case starting point. Need to understand characteristics of the individual link components to develop a better more accurate model of the WC Cable assembly.

Dan Dove commented that since these assemblies are currently specified in the InfiniBand standard, they should already be well characterized. The issue is that the IB standard uses different spec parameters that may not be suitable for 10G CX-4.

Concerns raised about how to measure cable assemblies and what are the most suitable test points

- Peter Bradshaw – Clause edit
Need to determine best way to add PMD control to identify CX-4. Peter had added a extra bit to register to allow more options. Concerns were raised that current implementations may not look for this extra bit.
- Other issues and concerns from line by line review by Howard Baumer
 - Instead of using X as a unknown variable in the spec, use TBD. This will make it easier to search the document to find places where the spec is incomplete.
 - All references to jumpers in the spec should be changed to Shielded Cable Assembly or similar descriptive term.
 - Modifications to Figure 4-2 should be made to more clearly identify test points and compliance points. TP1, TP2, TP3, TP4 to be removed along with all references in document (This was later changed during the last day issues review)
 - The group still needs information about IEC approval for the InfiniBand style connector. Bob Thornton should know more next week about getting a IEC standard for this connector style.
 - Howard to reword Section 54.6.3
 - Relative to Section 54.5, Petre Popescu will draft something to be used for this part of the spec. It was suggested that we leverage off of other specs.
 - 54.6.7 Need definition for turning “off” the transmitter.
 - When in loopback mode, transmit will still be enabled unless turned off by disable control bit.
 - Need to modify cable assembly schematic to show signal common line which is the individual shield around each pair as well as the overall shield which is isolated from the signal common shields and tied to equipment ground.
 - 54.3 For transmit test fixture, change the diagram to show the output connecting directly to the 50 ohm input of the scope.
 - References to ground in the spec should be changed to signal common.
 - To better clarify Transmit amplitude, a diagram showing a 1-0-1-0-1-0-... pattern should be used to eliminate confusion with de-emphasis voltage levels.
 - Accurate numbers for Fig 54-5 need to be determined through measurements and simulation
 - Specification for transmit transition time can be removed because it will be addressed by the template.
- Action Items
 - Petre Popescu to draft paragraph for Signal Detect
 - Schelto van Doorn will provide text for issue around AC coupling capacitors
 - Bob Thornton to follow up on IEC Connector issue
 - All Study Group members to review changes to clause 45 and consider how to implement change to PMD ID register.
 - All Study Group members to review Objectives prior to February Interim
 - Next Interim meeting to be held in Triangle Park, NC area on the days of Feb 17th and 18th. Host will be Jeff Warren of Extreme Networks. Chair will post details next week.

– 802.3 10GBASE CX-4 Study Group Meeting Attendees
January 7,8 2002

Name	e-mail	Tuesday	Wednesd
Howard Baumer	hbaumer@broadcom.com	X	X
Allan Liu	allan.liu@agilent.com	X	X
Roger Wendelken	Roger@accelerant.net	X	X
Petre Popescu	popescu@quaketechnology.com	X	X
Marc Dupuis	mdupuis@madisoncable.com	X	X
Kamran Azadet	ka@agere.com	X	-----
Naresh Raman	naresh@lsil.com	X	X
Steve Dreyer	steve.dreyer@intel.com	X	X
Schelto van Doorn	schelto.vandoorn@intel.com	X	X
Herb Van Deusen	hvandeus@wlgore.com	X	X
Gary Oleynick	goleynick@fciconnect.com	X	X
Steven Yang	steveny@cisco.com	X	-----
Jeff Warren	jwarren@extremenetworks.com	X	X
Eric Lynskey	elynskey@iol.unh.edu	X	-----
Jay Neer	jneer@molex.com	X	X
Jeff Cain	jcain@cisco.com	X	X
Ryan Carlson	Ryan@velio.com	X	X
Hidehiro Toyoda	htoyoda@crl.hitachi.co.jp	X	X
Peter Bradshaw	pbradshaw@bitblitz.com	X	X
Greg Vaupotic	gvaupotic@spectra-strip.com	X	X
Fred Villiard	fred.villiard@aipce.com	X	X
Don Alderron	don.alderron@intel.com	X	X
Larry Rennie	Larry.rennie@nse.com	X	X
Dimitry Taich	dimitryt@mysticom.com	X	X
Adam Healey	ahealey@agere.com	X	X
Shawn Rogers	s-rogers@ti.com	X	X
Takeshi Horie	horie@fla.fujitsu.com	X	X
Takeshi Okuyama	tokuyama@fcai.fujitsu.com	X	X
Muneo Fukaiishi	m-fukaiishi@ct.jp.nec.com	X	X
David Culley	culleyd@pmc-sierra.com	X	X
Ted Rado	trado@analogixsemi.com	X	X
Chris Diminico	dc@mohawk-cdt.com	X	X
Alan Iguchi	Alan@myricanet.com	X	-----
John DeAndrea	jdeandrea@iterrac.com	X	X
Dave Hobbs	duhobbs@shaw.com	X	X
Henri Koeman	henriecus.koeman@flukenetworks.com	X	X
Dan Ray	dray@jatotech.com	X	X
Kamal Dalmia	kdalmia@marvell.com	X	X
Stephen Bates	stephen.bates@massana.com	X	X
Bob Thornton	bob.thornton@fcai.fujitsu.com	X	X
Steven Yang	steveny@cisco.com	X	X
Hiroshi Takatori	hiroshi.takatori@sbcglobal.net	-----	X
Ron Nordin	rano@panduit.com	-----	X