

Unapproved Minutes
IEEE P802.3ba Task Force Interim Meeting
January 13-16, 2009
New Orleans, LA

Prepared by: Steve Trowbridge

Interim meeting convened at 8:40am, Monday, Jan. 13, 2009.

Agenda & General Information

By – John D'Ambrosia

See – agenda_01_0109.pdf

- Introductions – Everyone introduced themselves and stated their affiliation.
- Steve Trowbridge was appointed as acting recording secretary for this meeting.
- Motion to approve the agenda
 - Motion moved to accept the agenda by Steve Trowbridge, 2nd by Paul Kolesar.
 - Meeting agenda was approved by voice vote without objection.
- Motion to approve the November plenary minutes
 - Motion moved to accept minutes by Pete Anslow, 2nd by Ilango Ganga
 - November plenary Meeting Minutes were approved by voice vote without objection.
- Chair went through his introduction presentation “agenda_01_0109.pdf”
- Goals for the week
 - Progress Towards Generating Draft 1.2
 - Comment Resolution of Draft 1.1
 - Lay groundwork for the next meeting
 - Request to IEEE 802.3 WG to go to Working Group Ballot.
- Ground Rules
- Chair asked if there were any reporters in the room. No one responded. Chair reminded everyone that photographs are not allowed without permission.
- IEEE Structure, Bylaws & Rules
- IEEE Patent Policy
 - Chair read and presented the IEEE Patent Policy slide set
 - Chair advised the Task Force:
 - The IEEE’s patent policy is consistent with the ANSI patent policy and is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which may be essential for the use of standards under development is encouraged;
 - There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.

- An opportunity was provided for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for the use of that standard. No one came forward.
- Inappropriate Topics for IEEE meetings read to the body by Chair.
- Presented Task Force Schedule and Timeline, and items to be addressed this week.
- Reviewed the work we need to do in the Task Force Review with the goal to get to WG ballot.
- Reviewed Meeting Map for the week.
- Discussed which sub-groups some of the topics should reside.
- Received one Liaisons:
 - Need to review ITU-T SG15 liaison.
- Meeting attendance
 - Must use the IEEE-SA Meeting Attendance Tool as it will be the basis of the official attendance record for this meeting. The paper book is a backup.
- Chair reminded everyone to declare his or her affiliation.

Presentation #1

Title – Chief Editor's Report
 By – Ilango Ganga, Intel
 See – ganga_01_0109.pdf

Discussion

- There were no questions.

Presentation #2

Title – ITU-T SG15 Liaison
 By – Pete Anslow, Nortel
 See – LS23.pdf

Discussion

- There were no questions.

Presentation #3

Title – 802.3ba nAUI Ad Hoc Status
 By – Ryan Latchman, Gennum
 See – latchman_01_0109.pdf

Discussion - none

Presentation #4

Title – Logic SubTask Force - Opening Report
 By – Mark Gustlin, Cisco
 See – gustlin_01_0109.pdf

Discussion

- The chair asked whether there were any comments that would be difficult to close, and the presenter affirmed that he expected to be able to close all comments.

Presentation #5

Title – Cu SubTask Force - Opening Report
By – Chris DiMinico, MC Communications
See – diminico_01_0109.pdf

Discussion

- The chair asked whether there were any comments that would be difficult to close, and the presenter affirmed that it was possible. Most current issues are refinements and it is a question of where you draw the line.

Presentation #6

Title – Optical SubTask Force - Opening Report
By – Pete Anslow, Nortel Networks
See – anslow_01_0109.pdf

Discussion

- Clarifying questions were asked and answered.

Break at 9:55 AM

Reconvene at 10:30 AM

The meeting was turned over to Ilango Ganga, chief editor, to chair comment resolution.

Presentation #7

Title – Service Interfaces and Physical Instantiations
By – John D'Ambrosia, Force 10 Networks and David Law, 3COM
See – dambrosia_01_0109.pdf

Discussion

- Clarifying questions were asked and answered.

Break for lunch at 12:02PM

Reconvene at 1:15

Attendance Straw Polls:

Straw Poll #1: (Room Count: 48)

Will you be attending the March 2009 802 Plenary in Vancouver, Canada?

Yes: 35

Not Sure: 11

Straw Poll #2 (Chicago Rules): (Room Count: 52)

Will you attend the May 2009 802.3 Interim if it is held in:

North America: 46

Europe: 28

Asia: 23

Straw Poll #3 (Chicago Rules): (Room Count: 52)

Will you attend the September 2009 802.3 Interim if it is held in:

North America: 45

Europe: 28

Asia: 26

Presentation #8

Title – Skew comment resolution
By – Pete Anslow, Nortel Networks
See – anslow_06_0109.pdf

Discussion

- Compromise proposal on terms and definitions largely supported, changing "skew change" to "skew variation".

Presentation #9

Title – Proposal for the revision on Skew budget for PMD portion (40GBASE-LR4, 100GBASE-LR4/ER4)
By – Hiroshi Hamano, Fujitsu
See – isono_01_0109.pdf

Break at 3:00 PM

Reconvened at 3:20 PM

Presentation #10

Title – Loopback comment resolution
By – Mark Gustlin, Cisco
See – gustlin_04_0109.pdf

Presentation #11

Title – Define PMA loopback, test patterns.
By – Frank Chang, Vitesse
See – chang_03_0109.pdf

Presentation #12

Title – Test modes and loopbacks.
By – Piers Dawe, Avago
See – dawe_02_0109.pdf

Presentation #13

Title – PMA Test patterns and loopbacks.
By – Steve Trowbridge, Alcatel-Lucent
See – trowbridge_02_0109.pdf

Presentation #14

Title – Test patterns comment resolution.
By – Pete Anslow, Nortel Networks
See – anslow_07_0109.pdf

Break for dinner at 6:15 PM

Reconvened 8:00 PM –

Based on attendance it was not clear that everyone understood the plan to continue with test pattern discussion in the Evening. Therefore, it was decided by the members of the Task

Force present Tuesday night to defer comment resolution related to test patterns until Wednesday morning when all task force members could participate.

Discussion proceeded to XLAUI/CAUI comment resolution according to the following outline provided by the Copper sub-task force chair:

Presentation #15

Title – Annex 83A – Task Force Discussion New Orleans, LA - Jan 2009.
By – Chris DiMinico, MC Communications
See – diminico_05_0109.pdf

Meeting broke for day at 10:15PM

Task Force meeting reconvened 8:30 AM on January 14. The patent slides were displayed. An opportunity was offered to identify potentially essential patents. No one came forward.

Presentation #16

Title – Test patterns (slides 8, 9, 10 only)
By – Piers Dawe, Avago
See – dawe_01_0109.pdf

Presentation #17

Title – Test pattern characteristics
By – Pete Anslow, Nortel Networks
See – anslow_08_0109.pdf

Joint meeting concluded at 9:36 AM, split into separate tracks after that point.

Logic Track

Meeting chaired by Mark Gustlin
Farhad Shafai volunteered as recording secretary
Meeting convened at 9:46am on January 14

Logic Track Presentation #1

Title – Logic Sub-Task Force Agenda
By – Mark Gustlin, Cisco
See – gustlin_02_0109.pdf
The Chair reviewed gustlin_02_0109.pdf to set the agenda for the meeting.

The Patent Policy slides were reviewed. The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for the use of that standard. No one came forward.

Comment resolution

Meeting break at 10:01am
Meeting reconvened at 10:15am
Comment resolution continued

Meeting break at 12:00pm
Meeting reconvened at 1:20pm
Comment resolution continued

Break at 2:56pm
Meeting reconvened at 3:20pm
Comment resolution continued

Meeting break for day at 7:30pm
Meeting reconvened at 9:12am on January 15.

The Patent Policy slides were reviewed. The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for the use of that standard. No one came forward.

Comment resolution continued

It was noted that there are no TBDs left in the clauses. It was noted that everyone feels the logic clauses are technically complete.

Meeting break for the day at 10:35am

Optical Track

Minutes Optics Sub-Task Force Meeting January 14, 2009

Prepared by Pete Anslow

Meeting convened at 9:40 am chaired by Pete Anslow

The Agenda was reviewed.

Comment resolution on Clauses 87 & 88

Break at 10:30 am

Reconvened at 10:47 am

Comment resolution on Clauses 87 & 88 continued

Break for lunch at 12:05 pm

Reconvened at 1:23 pm

Comment resolution on Clauses 87 & 88 continued

Break at 3:04 pm

Reconvened at 3:25 pm

Comment resolution Clauses 87 & 88 continued

Break for dinner at 6:25 pm

Reconvened at 8:10 pm

Comment resolution on Clauses 87 & 88 completed

Comment resolution on Clause 86

Optical Sub-Task Force meeting broke for the day at 10:00 pm.

Minutes Optics Sub-Task Force Meeting January 15, 2009

Prepared by Pete Anslow

Meeting convened at 8:32 am chaired by Pete Anslow

The Patent Policy slides were reviewed. The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for the use of that standard. No one came forward.

Comment resolution on Clause 86 continued

Break at 10:20 am

Reconvened at 10:37 am

Comment resolution on Clause 86 continued

Break for lunch at 12:02 pm

Reconvened at 1:20 pm

Comment resolution on Clause 86 continued

Break at 3:10 PM
Reconvened at 3:35 pm
Comment resolution on Clause 86 continued

Break for dinner at 6:30 pm
Reconvened at 8:10 pm
Comment resolution on Clause 86 completed

Optical Sub-Task Force meeting adjourned at 11:59 pm.

Copper Track

Minutes, Wednesday, January 14, 2009
Prepared by David Chalupsky

Meeting called to order at 9:43am, 1/14/09, by Chris DiMinico, sub task force Chair.

Opening Information: Chair went through his introductory presentation.

http://grouper.ieee.org/groups/802/3/ba/public/jan09/diminico_02_0109.pdf

- Introductions – everyone introduced themselves and stated their affiliation
- David Chalupsky was appointed recording secretary.
- Chair reviewed the ground rules.
- Chair displayed the Patent Policy and made a call for patents. No response to call for patents.
- Chair reviewed the agenda for the sub task force and goals for the meeting: comment resolution toward creating a technically complete draft.
- 142 T/TRs to be resolved against the Copper Track clauses.

10:07 John D'Ambrosia enters with the attendance book and gives reminder of the on-line attendance tool.

Comment resolution was initiated at 10:10am. Results are recorded in the comment database. (Only comments which included presentations or generated significant discussion are recorded in the minutes.)

Comment resolutions begins with Annex 83A (nAUI) related comments.

Comment 255: Jitter

- 255 is one of many comments related to Jitter. Major discussion point is the use of non-EQ jitter vs. DJ/RJ or J2/J9/J12 method.
- Supporting material presented by Ali Ghiasi
http://grouper.ieee.org/groups/802/3/ba/public/jan09/ghiasi_01_0109.pdf
- After discussion, Chair summarizes that the difference is primarily in measurement technique.
- Presentation: Ryan Latchman reviews
http://grouper.ieee.org/groups/802/3/ba/public/jan09/latchman_02_0109.pdf giving information in support of change to maximum deterministic jitter per Latchman_02_0109.pdf. Further discussion: non-EQ jitter is defined in other, non-

802.3, documents. Is it more expedient to bring in that definition or stay with other methods in 802.3?

- 11:00am – vote taken on comment 255: Yes=13, No=2. Comment is accepted to adopt DJ parameter. Multiple jitter-related comments are retired with reference to 255 resolution.

11:25am: Moving to de-emphasis oriented comments.

Comment 54: Ali presents relevant slide from ghiasi_01_0109.pdf to support de-emphasis. Clarifying questions were asked and answered. Additional data taken from latchman_02_0109.pdf. Comment accepted to add min de-emphasis, min VMA as a function of Tr/Tf.

Break for lunch at 12:30pm.

Meeting reconvened at 1:44pm. Comment resolution resumes.

2:00pm - De-emphasis related comments complete. Move to Channel comments.

Referring again to Ghiasi_01_0109.pdf, page 3-5, for discussion.

Comment 59: Accept (add an SDD11 spec.) after some discussion.

2:24pm: Channel comments complete.

Discussion of BER and adjusting jitter values to achieve 1E-15 BER.

- Ali Ghiasi presents pages from Ghiasi_01_0109.pdf to support comment regarding nAUI BER of 1E-15.
- (3pm, break. Resumed at 3:30pm.)
- Comment 58: Accept in Principal. Add note for jitter values that would achieve 1E-15 BER.
- Comment 495: AiP, see 58.
- BER related comments complete at 3:40pm.

Comment 60: Ali Ghiasi provided new SDD21 equation and curve to support #60. Discussion about 2.5dB Rx eye margin allocated to crosstalk and reflection penalties in addition to the 10.5dB IL, resulting is Rx eye height of 85mV.

Comment 48: Review of Ghiasi_02_0109.pdf, page 5, module compliance board limit.

Discussion on “shall” statements vs. PICS. Editor will attempt to reconcile in next draft, but invites reviewers to put some effort into that as well, submitting comments as appropriate.

Annex 83a comments nearly complete. Break for dinner at 6:10pm.

At 8:00pm the meeting is reconvened for resolution of backplane related comments. Arthur Marris chairs the activity.

9:05pm: backplane comments completed.

Chris Diminico discusses plans for work on Thursday.

Meeting break for the evening at 9:25pm. Track will resume at 8:30am.

Thursday, January 15, 2009

Cu Track Meeting called to order at 8:40am by Chris DiMinico, Cu Track Chair, and Ryan Latchman.

Opening Information: Chair went through his introductory presentation.

http://grouper.ieee.org/groups/802/3/ba/public/jan09/diminico_02_0109.pdf

- Introductions – everyone introduced themselves and stated their affiliation
- David Chalupsky was appointed recording secretary.
- Chair reviewed the ground rules.
- Chair displayed the Patent Policy and made a call for patents. No response to call for patents.

Agenda review:

- Chair reviews work completed so far this week.
- 142 T/TRs to be resolved for all clauses. Most nAUI and backplane comments have been resolved on Tuesday and Wednesday. Copper cable related comments remain.
- 6 nAUI comments remain, related to module applications.

Chair reviews http://grouper.ieee.org/groups/802/3/ba/public/jan09/diminico_04_0109.pdf to summarize copper cable related open items: channel parameters, test points, transmitter characteristics consistent with KR referenced to TP0, with additional compliance point at TP2 – an externally testable point, which accounts for PCB trace loss and connector impairments. Same presentation also provides supporting information for return loss related comments.

9:20am: Chair calls a 5 minute break while the comment database is prepared for use.

9:25am: Comment resolution begins on Clause 85 (CR4/CR10) related comments.

Comment 362: TP2 test method.

Ali Ghiasi presents

http://grouper.ieee.org/groups/802/3/ba/public/jan09/valliappan_01_0109.pdf as supporting material for TP2 specifications. Some discussion followed. Clarifying questions were asked and answered.

Comment 667: Reject. Vital presents

http://grouper.ieee.org/groups/802/3/ba/public/jan09/balasubramanian_01_0109.pdf as supporting material for issues identified for ICR fit. Discussion follows. Participants acknowledge that this presentation identifies a potential issue with KR, but it warrants further investigation and may be more appropriate to address through Maintenance rather than 802.3ba.

Comment 663: Accept in Principal. Comment addresses Return Loss Limits. Supporting material in http://grouper.ieee.org/groups/802/3/ba/public/jan09/diminico_04_0109.pdf.

Comment 601: Reject. Comment addresses AC coupling. Discussion addresses the placement of the AC coupling capacitors, whether or not it is in the cable assembly. Several other AC coupling related comments addressed at this time as well.

11:09am – break.

11:30am – Comment resolution resumes.

Comment 284: Data Dependent Pulse Width Shrinkage.

- Comment gives rational why DDPWS does not apply to copper cable assembly channels, only DCD is necessary. This comment resolution applied to several comments related to DDPWS.

12:20pm: Break for lunch

1:30pm: reconvened

Comment 297: .Discussion of need for Receiver Interference Tolerance test. Ali Ghiasi presents supporting information from

http://grouper.ieee.org/groups/802/3/ba/public/jan09/ghiasi_03_0109.pdf. Editor asserts that further investigation into the need for RIT test is needed, but the material is not available for inclusion in this draft; invites further contributions on the topic. No opposition to said resolution.

Comment 287: Accept In Principal. Adam Healy presents supporting material in

http://grouper.ieee.org/groups/802/3/ba/public/jan09/healey_01_0109.pdf. Ed Sayre presents additional information on PCB trace attributes, concluding that PCB crosstalk can be kept suitably low to satisfy this comment. (Not yet posted)

nAUI module compliance:

- 3:10pm: move to nAUI chip to module application discussion while participants from Optical Track are available.
- Ryan Latchman leads discussion, reviewing proposed parameters in presentation (latchman_03_0109.pdf – not yet posted).
- Straw poll of whether PMA should be in the diagram: Yes=4, No=9. No change to the current diagram.
- Comment 295. Accept in Principal. Adds Annex 83B. Additional information per latchman_03_0109.pdf. No opposition.
- Remaining module compliance related comments are dispositioned with reference to Comment 295.

3:45pm: All Annex 83A comments are now closed. Returning to Cable related comments.

4:40pm – backplane comments complete. Chair reviewing comment database for completeness.

All T/TRs complete. .

4:50pm - Copper Sub-taskforce meeting adjourned.

Full P802.3ba Task Force

Meeting convened at 9:13am on January 16

Recorded by Steve Trowbridge

Presentation #18

Title – Logic Sub-Task Force Closing Report

By – Mark Gustlin, Cisco

See – gustlin_03_0109.pdf

The report noted that there were two editor's notes that needed to be removed. There was no objection to removing these editor's notes. There were some questions about the BIP-8, which was accepted per nicholl_01_0109.pdf without changes.

Presentation #19

Title – Copper Sub-Task Force Closing Report

By – Chris DiMinico, MC Communications

See – diminico_03_0109.pdf

Presentation #20

Title – Optical Sub-Task Force Closing Report

By – Pete Anslow, Nortel

See – anslow_03_0109.pdf

Presentation #21

Title – Chief Editor's Closing Report

By – Ilango Ganga, Intel

See – ganga_02_0109.pdf

Motion #1:

Move to:

- Charter the editorial team to create Draft 1.2, based on Draft 1.1 and all resolved comments (with unresolved editorial comments to be addressed by the editorial team), as recorded in "p8023ba-D11_Accepted_Responses_byClause.pdf"
- Pre-submit Draft 1.2 to IEEE 802.3 in anticipation of requesting WG ballot at the March Plenary.

M: Ilango Ganga 2nd: Mark Gustlin
technical (≥75%)

All in the room 802.3 voters

Y: 57 Y: 40

N: 0 N: 0

A: 0 A: 0

Motion Passes

Future Meetings:

Future Meeting information can be found at: <http://iee802.org/3/interims/index.html>.

March 2009 Plenary

- March 8 – 13
- Hyatt Regency Vancouver and Fairmont Hotel (note that 802.3 will meet in the Fairmont)
- Vancouver, BC, Canada

May 2009 Interim

- To be announced

July 2009 Plenary

- July 12 – 17
- Hyatt Regency San Francisco at Embarcadero Center
- San Francisco, California

Motion to adjourn - moved by Wael Diab; 2nd by Steve Trowbridge. Motion approved by voice vote without objection.

Task Force meeting adjourned at 10:09 AM on Friday, January 16, 2009

IEEE 802.3ba Attendance Sheet - Interim Meeting, Jan. 12-16, 2009, Dallas, TX				1/13	1/14	1/15	1/16
Last Name	First Name	Employer	Affiliation	Tue	Wed	Thu	Fri
Abbas	Ghani	Ericsson, UK	Ericsson, UK	x	x	x	
Abbott	John	Corning	Corning	x	x	x	
Abraham	Menachem	Columbus Advisors	MultiPhy	x	x	x	x
Alie	Stephen	Cortina Systems	Cortina Systems	x	x	x	x
Alping	Arne	Ericsson AB	Ericsson AB	x	x	x	x
Alush	Yehuda	Nokia Siemens Networks	Nokia Siemens Networks	x	x	x	
Anslow	Pete	Nortel	Nortel	x	x	x	x
Baird	James	Agilent Technologies		x	x	x	x
Balasubramanian	Vittal	FCI	FCI	x	x	x	
Baldwin	Thananya	Ixia	Ixia		x	x	x
Bandyopadhyay	Jaya	Juniper Networks	Juniper Networks	x	x	x	x
Barrass	Hugh	Cisco	Cisco			x	x
Bergmann	Ernest	Circadiant Systems	Circadiant Systems	x	x	x	x
Booth	Brad	AMCC	AMCC		x	x	x
Breuer	Dirk	Deutsche Telekom, T-Systems	Deutsche Telekom, T-Systems	x	x	x	x
Brown	Matt	AMCC	AMCC	x	x	x	x
Caldwell	Maurice	Broadcom	Broadcom	x	x	x	
Carroll	Martin	Verizon	Verizon	x	x	x	x
Chalupsky	David	Intel	Intel	x	x	x	
Chang	Frank	Vitesse	Vitesse	x	x	x	x
Cole	Chris	Finisar	Finisar	x	x	x	x
Coleman	Doug	Corning	Corning	x	x		
Crisp	Stefan	Agilent Technologies	Agilent Technologies	x	x	x	x
Dabirc	Dariush	Teranetics	Teranetics	x	x		
D'Ambrosia	John	Force 10 Networks	Force 10 Networks	x	x	x	x
Dawe	Piers	Avago Technologies	Avago Technologies	x	x	x	x
Diab	Wael	Broadcom	Broadcom		x	x	x
DiMinico	Christopher	MC Communications/LEONI	MC Communications/LEONI	x	x	x	x
Drolet	Patrick	EXFO	EXFO		x	x	
Dudek	Mike	JDSU	JDSU	x	x	x	x
Dupuis	Mark	Madison Cable	Madison Cable	x		x	
Erickson	Chris	Gore Associates	Gore Associates	x	x	x	
Flatman	Alan	LAN Technologies	LAN Technologies	x	x	x	x
Frazier	Howard	Broadcom	Broadcom	x			
Fromm	Galen	Molex	Molex		x	x	
Ganga	Ilango	Intel	Intel	x	x	x	x
Ghiasi	Ali	Broadcom	Broadcom	x	x	x	x
Green	Larry	Ixia	Ixia	x	x	x	x

Gustlin	Mark	Cisco	Cisco	x	x	x	x
Hamano	Hiroshi	Fujitsu Labs	Fujitsu Labs	x	x	x	x
Hammond	Bernie	ADC Telecommunications	ADC Telecommunications		x	x	
Healey	Adam	LSI	LSI	x		x	x
Iwadate	Hirotake	Sumitomo Electric		x	x	x	x
Kim	Seung-Hwan	ETRI	ETRI	x	x		
King	Jonathan	Finisar Corp.	Finisar Corp.	x	x	x	x
Kipp	Scott	Brocade	Brocade	x	x		
Kobayashi	Shoukei	NTT	NTT	x	x	x	x
Kolesar	Paul	CommScope	CommScope	x	x	x	x
Kumamoto	Tadashi	Fujitsu Component America	Fujitsu Component America		x	x	
Latchman	Ryan	Gennum	Gennum	x	x	x	
Law	David	3Com	3Com	x		x	
Lee	Kyu Sang	ICU	ICU	x	x		
Li	Mike	Altera	Altera	x	x	x	x
Lutz	Sharon	US Conec LTD.	US Conec LTD.	x	x	x	
Maki	Jeffery	Juniper Networks	Juniper Networks	x	x	x	x
Marlett	Mark	Xilinx	Xilinx	x	x	x	
Marris	Arthur	Cadence	Cadence	x	x	x	x
McDonough	John	NEC America	NEC America	x	x	x	
McGrath	Jim	Cinch Connectors	Cinch Connectors	x	x	x	
McSorley	Greg	Amphenol	Amphenol	x	x	x	
Moeller	Merrick	Cinch Connectors		x	x	x	
Morris	John	Spirent Communications	Spirent Communications	x	x	x	x
Muller	Shimon	Sun	Sun	x	x	x	x
Noh	George	Vitesse Semiconductors	Vitesse Semiconductors	x	x	x	x
Nordin	Ron	Panduit Corp.	Panduit Corp.	x	x	x	x
Ofelt	David	Juniper Networks	Juniper Networks	x	x	x	x
Palkert	Tom	Xilinx, Luxtera	Xilinx, Luxtera	x	x	x	x
Patel	Shashi	Brocade	Brocade	x	x	x	x
Peeters Weem	Jan	Aprius	Aprius	x	x	x	x
Pepper	Gerald	Ixia	Ixia		x	x	x
Petrilla	John	Avago Technologies	Avago Technologies	x	x	x	x
Sambasivan	Sam	AT&T	AT&T	x	x	x	x
Sawdy	John	Meritec	Meritec	x	x	x	x
Sayre	Edward	NESA	NESA	x	x	x	x
Shafai	Farhard	Sarance	Sarance		x	x	x
Swanson	Steve	Corning	Corning	x	x	x	
Swenson	Norm	Clariphy Communications	Clariphy Communications	x	x	x	
Takahashi	Hidenori	KDDI R&D Laboratories Inc.	KDDI R&D Laboratories Inc.	x	x	x	x

Thaler	Pat	Broadcom	Broadcom				x
Thornton	Bob	Fujitsu Component America	Fujitsu Component America	x	x	x	
Tracy	Nathan	Tyco Electronics	Tyco Electronics	x	x	x	x
Trowbridge	Steve	Alcatel-Lucent	Alcatel-Lucent	x	x	x	x
Turner	Brad	Juniper	Juniper	x	x	x	x
Vaden	Sterling	SMP	SMP	x	x	x	x
Vanderlaan	Paul	Nexans	Nexans	x	x	x	x
Vareljian	Albert	Altera Corp.	Altera Corp.	x	x	x	x
Zivny	Pavel	Tektronix	Tektronix	x			