

Approved Minutes  
IEEE 802.3 Higher Speed Study Group  
April 17-19, 2007  
Ottawa, ON, Canada

Prepared by: George Oulundsen

Meeting convened at 9:00 am, Tuesday, April 17, 2007.

Agenda & General Information

By – John D'Ambrosia

See – agenda\_01\_0407.pdf

- Introductions
- Announcements: Glen Parsons from Nortel
- Appointed Secretary – George Oulundsen appointed by Chair as Secretary for this meeting
- Motion to approve the agenda-
  - moved by Schelto van Doorn, 2<sup>nd</sup> by Steve Trowbridge
  - Approved by voice vote without objection
- Motion to approve the March Plenary minutes
  - Motion moved to accept minutes, with change to add Frank Chang to the attendee list, by Pete Anslow, 2<sup>nd</sup> by Mark Nowell.
  - March Plenary Meeting Minutes were approved by voice vote without objection
- Goals for meeting
  - Hear presentations related to objectives and 5 Criteria
  - Finalize HSSG Objectives
  - Finalize number of recommended PAR
  - Start developing consensus on:
    - Project Authorization Request (PAR)s
    - 5 Criteria Responses
  - Tutorial preparations
- Ground Rules
- IEEE Structure, Bylaws & Rules
- IEEE Patent policy read to the body by Chair.
  - Chair advised the HSSG to review the tutorial on the IEEE website on the new Patent policy.
  - Chair read the IEEE Patent Policy
  - The Chair advised the HSSG that:
    - 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 disclosure of patents which may be essential for the use of standards under development is encouraged;
    - Disclosures made of such patents may not be exhaustive of all patents that may be essential for the use of standards under development, and that neither the IEEE, the WG, nor the WG Chairman ensure the accuracy or

completeness of any disclosure or whether any disclosure is of a patent that, in fact, may be essential for the use of standards under development.

- Opportunity was given for anyone to come forward with a patent. No one came forward.
- Inappropriate Topics for IEEE meetings read to the body by Chair.
- Study Group function
  - Function is to draft a complete PAR and Five Criteria
  - Provide a plenary week tutorial to the LMSC
  - Gain approval at the WG 802.3, 802 SEC, IEEE NesCom and IEEE-SA Standards Board.
  - We have the approval to develop more than one PAR
- IEEE Standards Process Flow
- Reviewed HSSG Objectives
- Reviewed HSSG “PAR A” (Working Draft)
- Resolution of HSSG Objectives from last meeting: one adopted, three proposed
- Discussed how the HSSG should proceed (e.g. “serial PARs” vs “parallel PARs”)
- Presented possible Study Group Schedule and Timeline
- Present list of presentations
  - Chair had to change the order of presentations and received one late presentation request. The Chair asked if there were any objections to hearing the post-deadline presentation (goergen\_01\_0407.pdf). There was no objection to allowing the presentation.
- Chair reminded the HSSG to make sure they declared their affiliation.

#### Ad Hoc Report #1

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Title – Fiber Optic Ad Hoc  
By – Chris Cole, Finisar (on behalf of Dan Dove, Procurve Networking by HP)  
See – dove\_01\_0407.pdf

#### Presentation #1

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Title – Network Provider's View - Rate Adaption  
By – Shoukei Kobayashi, NTT  
See – kobayashi\_01\_0407.pdf

#### Presentation #2

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Title – Networking with 1/10/40/100G: Design and Deployment Perspective  
By – Donn Lee, Google  
See – lee\_01\_0407.pdf

- Presenter will update presentation with verbal quote (from Amazon, CTO) read during presentation.

Break at 11:15 AM

Reconvened at 11:25 AM

### Presentation #3

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Title – 40GbE Market Potential  
By – Robert Hays, Intel; and Howard Frazier, Broadcom  
See – hays\_01\_0407.pdf

- Presentation has been updated and presenter will send update to Chair.

Lunch Break at 12:20 PM

Reconvened at 1:45 PM

### Presentation #4

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Title – 802.3ad link aggregation  
By – Howard Frazier, Broadcom  
See – frazier\_01\_0407.pdf

- Presentation has been updated and Chair will post updated presentation to the web.

During the discussion of “frazier\_01\_0407.pdf” there was a fire drill in the hotel. We took a 10-minute break.

Break at 2:23 PM

Reconvened at 2:33 PM and continued discussion of “fraizer\_01\_0407.pdf”.

### Presentation #5

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Title – Standardizing 40Gb Ethernet  
By – Shimon Muller, Sun  
See – muller\_01\_0407.pdf

Break at 3:33 PM

Reconvened at 3:55 PM

Chair received a presentation request from Robert Hays related to 40 Gb/s and asked if the HSSG would object to hearing the presentation at the end of the scheduled presentations today. There was no objection.

### Presentation #6

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Title – Economic Feasibility 10G vs 40G vs 100G  
By – Schelto van Doorn, Intel  
See – vandoorn\_01\_0407.pdf

### Presentation #7

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Title – MSO Usage and Forecasting for Ethernet-based Services  
By – Jason Weil, Cox Communications  
See – weil\_01\_0407.pdf

### Presentation #8

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Title – Applications that Limit Network Performance  
By – Joel Goergen, Force10 Networks  
See – goergen\_01\_0407.pdf

### Presentation #9

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Title – Server Form Factors & Physical Networking Requirements  
By – Robert Hays, Intel  
See – hays\_02\_0407.pdf

Chair presents summary slides (see “dambrosia\_01\_0407.pdf” - Presentation #10 below) and opens the floor for discussion.

### Presentation #10

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Title – IEEE 802.3 Higher Speed Study Group Tuesday Discussions  
By – John D’Ambrosia, Force10 Network  
See – dambrosia\_01\_0407.pdf

- **Straw Poll #1**: Does the HSSG believe that there is broad market potential for 40 GbE (in addition to 100 GbE)?

Results:

- Yes - 24
- No - 24
- Abstain – 26

- **Straw Poll #2**: Should the HSSG adopt the following objective:

- “Support a speed of 40 Gb/s at the MAC/PLS service interface.”

Results:

- Yes - 22
- No - 24
- Abstain – 24

Meeting breaks for the day at 7:05 PM

Meeting reconvenes at 9:06 AM, Wednesday, April 18, 2007.

Chair received a request from Chris Cole to add a few slides to “cole\_01\_0407.pdf” regarding 2-km lengths. Chair asked if there were any objections to the additional slides. There were no objections.

### Presentation #11

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Title – Technical Feasibility of 40km SMF 100GE Transceivers  
By – Chris Cole, Finisar  
See – cole\_01\_0407.pdf

#### Presentation #12

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Title – Updates on Approach on 40km PMD  
By – Matt Traverso, Opnext  
See – traverso\_01\_0407.pdf

#### Presentation #13

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Title – Optical Specifications for 2km Link  
By – Matt Traverso, Opnext  
See – traverso\_02\_0407.pdf

Break at 10:30 AM

Reconvened at 10:51 AM

#### Presentation #14

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Title – 4 x 25 G Transmitter for 10km SMF  
By – Wenbin Jiang and Diechi Sun, JDSU  
See – jiang\_01\_0407.pdf

#### Presentation #15

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Title – Technical Feasibility of 100G Designs  
By – Farhad Shafai, Sarance Technologies  
See – shafai\_01\_0407.pdf

Lunch Break at 11:35 PM

Reconvened at 1:05 PM

#### Presentation #16

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Title – HSSG Copper  
By – Chris DiMinico, MC Communications  
See – diminico\_01\_0407.pdf

#### Presentation #17

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Title – HSSG Presentation Mapping to 5 Criteria Responses (Update)  
By – John Jaeger, Infinera  
See – jaeger\_02\_0407.pdf and jaeger\_03\_0407.xls

#### Presentation #18

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Title – Draft HSSG Tutorial Outline & Discussion Points  
By – John Jaeger, Infinera  
See – jaeger\_01\_0407.pdf

Both the Chair and John Jaeger requested help in preparing the Tutorial. Anyone interested should contact the Chair and/or John Jaeger.

Chair presented summary slides and Straw Polls based on discussions had at this meeting, see “dambrosia\_02\_0407.pdf” (Presentation #18, below).

## Presentation #19

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Title – IEEE 802.3 Higher Speed Study Group Wednesday Discussions  
By – John D'Ambrosia, Force10 Network  
See – dambrosia\_02\_0407.pdf

- **Straw Poll #3:** The HSSG has demonstrated technical feasibility for a 40-km SMF PMD at 100 Gb/s.

Results:

- Yes - 50
- No - 0
- Abstain – 10

- **Straw Poll #4:** The HSSG has demonstrated economic feasibility for a 40-km SMF PMD at 100 Gb/s.

Results:

- Yes - 35
- No - 1
- Abstain - 24

- **Straw Poll #5:** Does the HSSG believe that the 40-km reach objective should be added to HSSG PAR A?

Results:

- Yes - 48
- No - 1
- Abstain – 15

The following four Straw Polls (#6 through #9) related to copper were requested by Chris DiMinico.

- **Straw Poll #6:** Does the HSSG believe that there is broad market potential for a copper solution to support up to 10-m reach at 100 Gb/s?

Results:

- Yes - 55
- No - 0
- Abstain – 9

- **Straw Poll #7:** Should the HSSG adopt the following objective for 100 Gb/s:
  - “Support up to 10-m on copper media (not backplane).”

Results:

- Yes - 51
- No - 0
- Abstain - 12

- **Straw Poll #8:** The HSSG has demonstrated technical feasibility for a copper solution to support up to 10-m reach at 100 Gb/s.

Results:

- Yes - 44
- No - 3
- Abstain – 18

- **Straw Poll #9:** The HSSG has demonstrated economic feasibility for a copper solution to support up to 10-m reach at 100 Gb/s.

Results:

- Yes - 38
- No - 3
- Abstain – 21

- **Straw Poll #10:** Does the HSSG believe that the copper reach objective should be added to HSSG PAR A?

Results:

- Yes - 35
- No - 2
- Abstain – 23

Meeting breaks for the day at 3:05 PM

Meeting reconvenes at 9:06 AM, Thursday, April 19, 2007.

#### Presentation #20

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Title – IEEE 802.3 Higher Speed Study Group Thursday Discussions

By – John D'Ambrosia, Force10 Network

See – dambrosia\_03\_0407.pdf

#### **Motion #1:** Move that:

The HSSG add the 40-km reach objective to PAR A:

- Support at least 40-km on SMF.

Moved by Joel Goergen, 2<sup>nd</sup> by Chris Cole

Technical (≥75%)

Results:

All	Yes – 49	No – 1	Abstain – 11
802.3 voters	Yes – 22	No – 1	Abstain – 7
Motion passes			

**Motion #2:** Move that:

The HSSG adopt an objective:

- To support at least 10-m over a copper cable assembly.

Moved by Chris DiMinico, 2<sup>nd</sup> by Joel Goergen

Technical (≥75%)

Results:

All	Yes – 51	No – 0	Abstain – 15
802.3 voters	Yes – 23	No – 0	Abstain – 7
Motion passes			

**Motion #3:** Move that:

The HSSG include the copper objective, “to support at least 10-m over a copper cable assembly,” into PAR A.

Moved by Chris DiMinico, 2<sup>nd</sup> by Joel Goergen

Technical (≥75%)

Results:

All	Yes – 47	No – 0	Abstain – 22
802.3 voters	Yes – 20	No – 0	Abstain – 11
Motion passes			

Howard Frazier requested the following Straw Poll #11:

- **Straw Poll #11:** A standard for higher speed Ethernet should specify:
  - A. 100 Gbps operation only
  - B. 40 Gbps operation & 100 Gbps operation
  - C. No Opinion

Results:

- A - 27
- B - 26
- C – 14

Break at 10:45 AM

Reconvened at 11:03 AM

Geoff Thompson requested a few minutes from the Chair to discuss a possible visit to CERN during the May Interim meeting in Geneva, Switzerland. Chair granted Geoff the time. Geoff Thompson requested Straw Poll #12:

- **Straw Poll #12:** Who would be interested in touring CERN?

Results: Yes – 31

All those interested in touring CERN should contact Geoff Thompson.



Joel Goergen requested the following Straw Poll #13:

- **Straw Poll #13:** If a 40G objective is to happen, should it be included in:
  - A. PAR A
  - B. Separate HSSG PAR
  - C. Separate SG effort

Results:

- A - 28
- B - 16
- C - 16

Mike Dudek requested the following Straw Poll #14:

- **Straw Poll #14:** Should the 100G PAR A (including objectives approved at this meeting) be delayed due to lack of consensus on an additional 40G MAC rate option?

Results:

- Yes - 0
- No - 39

Lunch Break at 12:20 PM

Reconvened at 1:40 PM

Chair received a request from Howard Frazier to present what he understands to be issues regarding the lack of consensus of including a 40G MAC rate option. Chair asked if there were any objections to hearing Howard's presentation. There were no objections.

#### Presentation #21

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Title – List of 40G issues  
By – Howard Frazier, Broadcom  
See – frazier\_02\_0407.pdf

The Chair continued with "dambrosia\_03\_0407.pdf" (continuation of Presentation #19) - Presented the current HSSG Objectives and reviewed the PAR A working draft.

- HSSG "PAR A" Working Draft Review (see "dambrosia\_03\_0407.pdf"):
  - Title – no modifications; Approved by voice vote without objection
  - Scope – modified with hard stop after 100 Gb/s; Approved as modified by voice vote without objection
  - Purpose – no modifications; Approved by voice vote without objection
  - Need - no modifications; Approved by voice vote without objection
- During the review of the HSSG "PAR A" Working Draft Review, discussion was had regarding the word "Approved" in the phrase "Approved by voice vote without objection" (see "dambrosia\_03\_0407.pdf" and text above). It was duly noted and recorded in

these minutes that approval of verbiage for the PAR by the HSSG does not grant Chair the right to submit the PAR.

- Chair asked if there was any objection to changing the word “Approved” above with the word “Confirmed”. There were no objections. Text in “dambrosia\_03\_0407.pdf” and the above text in these minutes will now read:
  - **HSSG “PAR A” Working Draft Review** (see “dambrosia\_03\_0407.pdf”):
    - **Title** – no modifications; *Confirmed* by voice vote without objection.
    - **Scope** – modified with hard stop after 100 Gb/s; *Confirmed* as modified by voice vote without objection.
    - **Purpose** – no modifications; *Confirmed* by voice vote without objection.
    - **Need** - no modifications; *Confirmed* by voice vote without objection.

Chair continued review of the HSSG PAR A Working Draft with the critter statements.

- **Broad Market Potential** (PAR A Working Draft) was reviewed.
  - Discussion was had regarding the terminology in the text. Particularly, the word “interconnect” and it’s meaning was discussed.
  - Confirmed as modified by voice vote without objection.
- **Compatibility** (PAR A Working Draft) was reviewed.
  - Howard Frazier identified a typo and the Chair corrected it.
  - Confirmed by voice vote without objection.
- **Distinct Identity** (PAR A Working Draft) was reviewed.
  - Discussion was had regarding the wording in the Management Information Base paragraph and the manageability of the 100 GBE standard regarding whether or not the MIB will get done in the standards.
  - Bob Grow recommended that we delete the last sentence in the Management Information Base paragraph. Chair asked if there was any objection to Bob’s recommendation. There were no objections.
  - Confirmed as modified by voice vote without objection.
- **Technical Feasibility** (PAR A Working Draft) was reviewed.
  - Confirmed by voice vote without objection.
- **Economic Feasibility** (PAR A Working Draft) was reviewed.
  - Chris DiMinico recommended a modification to include text to capture our copper objective in the Economic Feasibility statement.
  - Confirmed as modified by voice vote without objection.

Break at 3:12 PM

Reconvened at 3:32 PM

Chair discussed Tutorial Preparation. Chair encouraged more members of the HSSG to help prepare the Tutorial. If you are interested in helping with the Tutorial contact either the Chair or John Jaeger.

## Future Meetings:

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- May 2007 Interim
  - May 28 – 31
  - ITU
  - Geneva, Switzerland
  - For information, see:  
<http://www.ieee802.org/1/files/public/docs2006/meetingsmay07-interim+workshop-1106.pdf>
- July 2007 IEEE 802 Plenary
  - July 16 – 19
  - Hyatt Regency
  - San Francisco, CA, USA

Motion to adjourn – moved by Steve Swanson; 2<sup>nd</sup> by Frank Chang. Approved by acclamation.

Meeting adjourns at 3:48 PM on Thursday, April 19, 2007

HSSG Attendance Sheet		
Last Name	First Name	Affiliation
Anslow	Pete	Nortel
Barrass	Hugh	Cisco
Belhadj	Med	Cortina Systems
Bharat	Tailos	Genum
Brennen	Scott	Molex, Inc.
Breuer	Dirk	Deutsche Telekom, T-Systems
Brown	Matt	AMCC
Cady	Ed	MERITEC
Carroll	Martin	Verizon
Chang	Frank	Vitesse
Chesa	Loca Della	Cisco
Christian	Burt	Flextronics Canada Design Services
Clairardin	Xavier	Kotura
Cole	Chris	Finisar
Congson	Herb	Tyco Enterprises
Connaughton	Mike	Belden
Dada	Faisal	Innocor
D'Ambrosia	John	Force 10 Networks
Diab	Wael	Broadcom
DiMinico	Chris	MC Communications
Dobson	Ian	Integrated Device Technologies
Dudek	Mike	Picolight
Duncan	Ian	Ciena
Dupuis	Mark	Madison Cable
Fischer	Thomas	Siemens Networks
Flatman	Alan	LAN Technologies
Folkens	Norbert	Innocor
Frazier	Howard	Broadcom

GadelRab	Serag	Double-Pole Technologies
Ganga	Ilango	Intel
Goergen	Joel	Force 10 Networks
Green	Larry	Ixia
Grow	Robert	Intel Corporation
Hadaway	Bob	Nortel
Holster	David	Tyco Enterprises
Ishida	Osamu	NTT
Jaeger	John	Infinera
Jewell	Jack	Picolight
Jiang	Wenbin	JDSU
Kanama	Rami	Redfern Integrated Optics
Kim	Yong	Broadcom
Kobayashi	Shoukei	NTT
Kumamoto	T.	Fujitsu
Law	David	3Com
Lee	Donn	Google
Maki	Jeffery	Juniper Networks
Maplass	Trey	Huawei
Martin	David W.	Nortel Networks
McDonough	John	NEC America
Moorwood	Andy	Extreme Networks
Morgan	Joseph (Jay)	AOL
Muller	Shimon	Sun
Nabili	Bobby	Scintera
Nicholl	Gary	Cisco
Nishimura	Shinji	Hitachi
Nowell	Mark	Cisco
Oulundsen	George	OFS
Parsons	Glenn	Nortel
Peeters Weem	Jan	Aprius
Pepper	Gerald	Ixia
Piede	Dave	SiOptical
Ring	Bill	WSR Optical Device Soln's rep OIDA
Rosetti	D.	Cisco
Salemi	Hojjat	Cortina Systems
Salisbury	Neil	Optium
Sanders	Ross	Stratalight
Savi	Olindo	The Siemon Co.
Schmitt	George	Naval Research Laboratory
Schoenmaker	Peter	NTIA
Seely	Ted	Sprint
Sefiduash	Kory	Broadcom
Shafai	Farhard	Sarance
Shew	Stephen	Nortel
Shigematsu	Masayuki	Innovation Core SEI, Inc.
Siemon	John	Siemon Co.
Silveira	Brian	Flextronics
Steerman	Henk	AMS-1X

Swanson	Steve	Corning
Takai	Atsushi	Opnext, Inc.
Takeda	Noriyuki	KDDI R&D Laboratories Inc.
Thompson	Geoff	Nortel
Thornton	Bob	Fujitsu
Tokoro	Takehiko	Hitachi Cable
Tourvier	Hughes	Nortel
Traverso	Matt	Opnext
Trowbridge	Steve	Alcatel-Lucent
Tsumura	Eddie	Excelight Communications
Turner	Brad	Juniper
Van Deusen	Herb	Gore Associates
vanDoorn	Schelto	Intel
Vareljian	Albert	Altera
Weil	Jason	Cox Comm.
Woodaff	Bill	Aquantina
Zhong	Charlie	LSI Logic