Approved Minutes
IEEE 802.3 Higher Speed Study Group
May 28-31, 2007
Geneva, Switzerland

Prepared by: Trey Malpass

Meeting convened at 1:00 pm, Monday, May 28, 2007.

Agenda & General Information
By – John D'Ambrosia
See – agenda_01_0507.pdf

- Introductions – there were only a few new participants
- Appointed Secretary – Trey Malpass appointed by Chair as Secretary for this meeting
- Motion to approve the agenda-
    - moved by Schelto van Doorn, 2nd by Brad Turner
    - Approved by voice vote without objection
- Motion to approve the April Plenary minutes
    - Motion moved to accept minutes by Pete Anslow, 2nd by Brad Turner.
    - April Plenary Meeting Minutes were approved by voice vote without objection
- Chair reviewed the HSSG organization
- Goals for meeting
    - Hear presentations related to objectives and 5 Criteria
    - Finalize HSSG Objectives
    - Finalize number of recommended PAR
    - Completion and approval of PAR A
        - Project Authorization Request (PAR)s
        - 5 Criteria Responses
    - If there is a new PAR, then
        - 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 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.
    - Bob Grow encouraged everyone to review the section on competition and reviewed rules on obtaining 802 voting status.
    - 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.
- 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.
    - SG only exists for 6 months
        - Extensions can be requested, voted on by 802.3, ratified by SEC
    - Development of Objectives helps set the goals for the Task Force
    - Consensus (>75%) required to move forward
    - Not a goal – choosing a solution
- IEEE Standards Process Flow and Study group creation (July 2006)
- Reviewed HSSG Objectives
- Reviewed HSSG "PAR A" (Working Draft)
- Discussed how the HSSG should proceed (e.g. "serial PARs" vs "parallel PARs")
    - Decision on 40G objective
    - How should the group proceed?
        - Super Project – everything in one PAR
        - Initial Super Project – Split out efforts that lag
        - Study and define all PARs simultaneously
    - Alternative mechanisms for "serial PARs"
        - 802.3 WG Chair email to HSSG reflector - http://grouper.ieee.org/groups/802/3/hssg/email/msg00519.html
- Presented possible Study Group Schedule and Timeline
    - Consequences of no PAR approval at May meeting
    - July vs. November LMSC PAR consideration
- Reviewed voting privileges and requirements to maintain those rights.
- Chair reminded the HSSG to make sure they declared their affiliation.
- Reviewed list of presentations

Presentation #1

Title – HSSG Presentation Mapping to 5 Criteria Responses
By – John Jaeger, Infinera
See – jaeger_02_0507.pdf, jaeger_02_0507.xls

Presentation #2

Title – Technical & Economic Feasibility of 40km SMF 100GE Transceivers
By – Chris Cole, Finisar
See – cole_01_0507.pdf

- Presentation will be updated with a technical correction on slide 7.

Presentation #3
Title – Technical Feasibility of 4x25 Gb/s PMD for 40km at 1310nm using SOAs
By – Ramon Gutierrez, Institute of Engineering, UNAM (presented by Marcus Duelk)
See – gutierrez_01_0507.pdf

Presentation #4
Title – 4 x 25 G WDM of 200 GHz Grid for Both 10 km & 40 km Distance Objectives
By – Wenbin Jiang, JDSU
See – jiang_01_0507.pdf

Break at 3:30 PM
Reconvened at 3:54 PM

Presentation #5
Title – Higher Speed Copper Ethernet
By – Chris DiMinico, MC Comumunications
See – diminico_01_0507.pdf

Presentation #6
Title – Modifications to IEEE 802.3 HSSG objectives to include 40 G
By – Howard Frazier, Broadcom
See – frazier_02_0507.pdf

Presentation #7
Title – Modifications to IEEE 802.3 HSSG PAR to include 40 G
By – Howard Frazier, Broadcom
See – frazier_04_0507.pdf

Presentation #8
Title – 40 Gb/s Ethernet 5 Criteria Responses
By – Howard Frazier, Broadcom
See – frazier_03_0507.pdf

Break at 5:30 PM
Reconvened at 6:00 PM

Presentation #9
Title – 40 Gigabit Ethernet Answers
By – Scott Kipp, Brocade
See – kipp_01_0507.pdf

Meeting breaks for the day at 7:10 PM

Meeting reconvenes at 9:10 AM, Tuesday, May 29, 2007.

The Chair reviewed the consequences of not achieving consensus on a PAR at this meeting.

Presentation #10

Title – Link Aggregation: A Server Perspective
By – Shimon Muller, Sun
See – muller_01_0507.pdf

Presentation #11

Title – Requirements from an operator perspective
By – Ad Bresser, KPN
See – bresser_01_0507.pdf

Presentation #12

Title – Market Potential for 100 Gb/s and 40 Gb/s Ethernet in HPC Applications
By – Ron Luijten, IBM
See – pepeljugoski_01_0507.pdf

Break at 11:25 AM
Reconvened at 11:40 AM

Presentation #13

Title – Evolution from 10G to 40G & 100G
By – Howard Frazier, Broadcom
See – frazier_01_0507.pdf

Break for lunch at 12:30 PM
Reconvened at 1:55 PM

Presentation #14

Title – 40GbE for Blade Server and ATCA Systems
By – Ilango Ganga, Intel
See – ganga_01_0507.pdf

Presentation #15

Title – 40GbE Host Controller Economics
By – Schelto van Doorn, Intel
See – vandoorn_01_0507.pdf

Presentation #16

Title – Cost analysis of 40G & 100G MMF variants
By – Schelto van Doorn, Intel
See – kolesar_01_0507.pdf

Presentation #17

Title – 100G & 40G Market Timing & Broad Industry Support
By – John Jaeger, Infinera
See – jaeger_01_0507.pdf

Break at 3:35 PM
Reconvened at 3:55 PM

Presentation #18

Title – 100GbE or 40GbE – which represents a compelling market opportunity?
By – John Jaeger, Infinera
See – jaeger_03_0507.pdf

Presentation #19

Title – 100G versus '40G and 100G' or Single Rate versus Dual Rate
By – Gary Nicholl, Cisco
See – nicholl_01_0507.pdf

Presentation #20

Title – 40G, 100G Ethernet or Both - How do we proceed?
By – Dan Dove, HP
See – dove_01_0507.pdf

Presenter requested to present additional data. Chair asked group, and there was no opposition to hearing the data.

Break at 5:30 PM
Reconvened at 6:00 PM

Presentation #21

Title – IFS Stretch for WAN
By – Osamu Ishida, NTT
See – ishida_01_0507.pdf

Presentation #22

Title – Enabling 100G Transport (PHY Layer OAM Objective)
By – Trey Malpass, Huawei
See – malpass_01_0507.pdf

Meeting breaks for the day at 7:20 PM

Meeting start on Wednesday was delayed due to a Tram derailment; Chair decided to allow more time for participants to arrive.

Meeting reconvenes at 10:25 AM, Wednesday, May 30, 2007.

Schedule changes were announced related to the CERN tour and the time for the afternoon sessions. The plan is to reconvene at 4:15 PM after the CERN tour and end the session around 8:00 PM. The Thursday session will start at 8:30 AM. There was no objection from the group.

Break at 12:00 Noon
Reconvened at 4:40 PM

Chair reviewed the timeline and implications of delaying the study group schedule.

Chris Cole requested time for a presentation titled "Low Cost 10GE/40GE/100GE Switch-Server Interconnect". There was no opposition from the group on hearing this presentation.

Presentation #23

Title – Low Cost 10GE/40GE/100GE Switch-Server Interconnect
By – Chris Cole, Finisar
See – cole_02_0507.pdf

Presentation will be updated as discussed during the meeting.

Chair presented some slides that will be uploaded as dambrosia_01_0507.pdf. The presentation contained a straw-man compromise proposal for moving forward. b

- **Straw Poll #1**: Do you believe that the HSSG has proven broad market potential for a 40G objective?
  - Requested by – Robert Hays
  - Yes – 46
  - No – 4
  - Abstain – 19

- **Straw Poll #2**: Which of the following would you support:
  - A: Forward PAR A as is (100G only) for July consideration
  - B: Forward modified PAR A with 40G added for July consideration
  - C: Forward dambrosia_01_0507 proposal (2 separate PARs) for July consideration
  - D: Forward PAR A as is (100G only) for July consideration and find a mechanism to study 40G
  - Chicago rules apply
  - Requested by Steve Swanson
    - A – 36
    - B – 28
    - C – 28
    - D – 36

- **Straw Poll #3**: Which of the following would you support:
  - A: Forward PAR A as is (100G only) for July consideration
  - B: Forward modified PAR A with 40G added for July consideration
  - C: Forward dambrosia_01_0507 proposal (2 separate PARs) for July consideration
  - D: Forward PAR A as is (100G only) for July consideration and find a mechanism to study 40G
  - Choose one option only
  - Requested by Wael Diab
    - A – 2
    - B – 26
    - C – 6
    - D – 35

- **Straw Poll #4**: Which of the following would you support:
  - A: Forward PAR A as is (100G only) for July consideration
  - B: Forward modified PAR A with 40G added for July consideration
  - C: Forward dambrosia_01_0507 proposal (2 separate PARs) for July consideration
  - D: Forward PAR A as is (100G only) for July consideration and find a mechanism to study 40G
  - Choose one option only – one vote per affiliation (41 total)
  - Requested by Dan Dove
    - A – 3
    - B – 13
    - C – 3
    - D – 22

- **Straw Poll #5**: Do you feel that 100G has been demonstrated to be sufficient for a PAR?
  - Requested by Dan Dove
  - Yes – 37
  - No – 16
  - Abstain – 13

A room count was requested; the number of participants in the room at the time of the count was 71. A count of 802.3 voters was also conducted; the result was 41.

The chair called for continued work in building consensus and reminded the group of the 8:30 AM start time for Thursday.

Meeting breaks for the day at 7:50 PM

Meeting reconvenes at 9:00 AM, Thursday, May 31, 2007.

Chair has received three requests for presentation time: Dan Dove, Marcus Duelk, and Chris Cole. There was no objection from the group to hearing these presentations.

Chair reviewed the timeline and reminded the group that a fourth study group extension is unprecedented.

Presentation #24

Title – 40G, 100G Ethernet or Both…How do we proceed? - Post Debate
By – Dan Dove, HP
See – dove_02_0507.pdf

Presentation #25

Title – Considerations for 40 Gigabit Ethernet
By – Marcus Duelk, tbd
See – duelk_01_0507.pdf

Presentation #26

Title – HSSG Next Steps Proposal
By – Chris Cole, Finisar
See – cole_03_0507.pdf

Break at 10:00 AM
Reconvened at 10:40 AM

- **Motion #1**: That the HSSG develop the specifics of 1) how to move 100G PAR A forward and 2) how to move a 40G Study Group forward, both at the July meeting.
  - Made by – Dan Dove
  - Second – Chris Cole
  - Procedural – (>50% required)
  - Motion withdrawn by mover and seconder

- **Motion #2**: Adopt the objectives for 40 Gb/s operation shown below:
  - Support a speed of ~40 Gb/s at the MAC/PLS service interface while ensuring compatibility with OTN infrastructure
  - Define a family of physical layers for 40 Gb/s operation
    - Support at least 100m on OM3 MMF
    - Support at least 10m over a copper cable assembly
    - Support at least 1m over a backplane
  - Made by – Howard Frazier
  - Second – Schelto vanDoorn
  - Technical Motion (≥75% required)
  - Results:

All	Yes – 41	No – 17	Abstain – 10
802.3 voters	Yes – 28	No – 8	Abstain – 4

  - Motion fails

Break at 11:35 AM
Reconvened at 12:00 Noon

- **Motion #3**: Move the HSSG request 802.3 working group approval of the PAR A objectives contained in agenda_01_0507 slide 21.
  - Made by – Brad Booth
  - Second – Dan Dove
  - Technical motion (≥75% required)
  - (Tabled by motion 4)

- **Motion #4**: Table Motion 3.
  - Made by – John Jaeger
  - Second – Chris Cole
  - Procedural motion (>50% required)
  - Results
    - All: Yes – 53 No – 0
  - Motion passes

- **Motion #5**: The Higher Speed Study Group recommends the IEEE 802.3 WG form a 40G Study Group to evaluate definition of approximately 40Gb/s MAC data rate and related PHY capability to IEEE Std 802.3
  - Made by – John Jaeger
  - Second – Chris Cole
  - Procedural motion (>50% required)
  - Interrupted by motion 6

- **Motion #6**: Adjourn the meeting
  - Made by – Geoff Thompson
  - Second – Terry Cobb
  - Procedural (>50% required)
  - Results
    - All: Yes – 30 No – 31
  - Motion fails

- **Motion #7**: Close debate on motion 5 (call the question)
  - Made by – Gary Nicholl
  - Second – Mike Dudek
  - Results
    - All: Motion passes by voice vote

- **Motion #5 (vote results)**: The Higher Speed Study Group recommends the IEEE 802.3 WG form a 40G Study Group to evaluate definition of approximately 40Gb/s MAC data rate and related PHY capability to IEEE Std 802.3
  - Procedural motion (>50% required)
  - Results
    - All: Yes – 33 No – 22 Abstain - 7
    - 802.3 Voters Yes – 16 No -15 Abstain - 5
  - Motion passes

- **Motion #8**: Remove motion 3 from the table
  - Made by – Ted Woodward
  - Second – Dan Dove
  - Procedural motion (>50% required)
  - Results
    - All: Yes – 32 No – 8 Abstain - 10
  - Motion passes

- **Motion #9**: Close debate on motion 3 (call the question)
  - Made by – Dan Dove
  - Second – Ted Woodward
  - Results - Passes with no opposition

- **Motion #3 (vote results)**: Move the HSSG request 802.3 working group approval of the PAR A objectives contained in agenda_01_0507 slide 21.
  - Technical motion (≥75% required)
  - Results:
    - All: Yes – 34 No – 20 Abstain - 5
    - 802.3 Yes – 18 No – 11 Abstain - 6
  - Motion fails

Future Meetings:

- July 2007 IEEE 802 Plenary
  - July 16 – 19
  - Hyatt Regency
  - San Francisco, CA, USA

- September 2007 IEEE 802.3 HSSG Interim
  - September 11 – 13
  - Hotel tbd
  - Seoul, Korea

Motion to adjourn – moved by Wael Diab; 2nd by Howard Frazier. Approved by acclamation.

Meeting adjourns at 1:25 PM on Thursday, May 31, 2007.

HSSG Attendance Sheet – May 28-31, 2007

Last Name	First Name	Affiliation
Abbas	Ghani	Ericsson, UK
Anslow	Pete	Nortel
Barnette	Jim	Vitesse
Barrass	Hugh	Cisco
Belhadj	Med	Cortina Systems
Bennett	Mike	LBNL
Booth	Brad	AMCC
Bossard	Martin	Helix AG
Braun	Ralf-Peter	Deutsche Telekom, T-Systems
Bresser	Ad	KPN
Carlson	Steve	HSD
Carroll	Martin	Verizon
Chang	Frank	Vitesse
Chow	Jacky	Marvell
Cobb	Terry	Systimax
Cole	Chris	Finisar
Cvijetic	Milorad	NEC America
Dallesasse	John	Emcore Corp.
D'Ambrosia	John	Force 10 Networks
Dawe	Piers	Avago Technologies
Diab	Wael	Broadcom
DiMinico	Chris	MC Communications
Dong-Soo	Lee	ETRI
Dove	Dan	DoveNetworking - Procurve by HP
Dudek	Mike	Picolight
Duelk	Marcus	Alcatel-Lucent
Endres	Herbert	Molex
Fischer	Thomas	Nokia Siemens
Flatman	Alan	LAN Technologies
Frazier	Howard	Broadcom
Ganga	Ilango	Intel
Green	Larry	Ixia
Grow	Bob	Intel
Hankins	Greg	Force 10 Networks
Hays	Robert	Intel
Hazarika	Asif	Fujitsu
Herve	Pierre	Intel
Ishida	Osamu	NTT
Jaeger	John	Infinera
Jewell	Jack	Picolight
Jiang	Wenbin	JDSU
Jones	Nevin	LSI
Jorgensen	Thomas	Vitesse
Kang	Tae-kyu	ETRI
Kim	Jung-sik	ETRI
Kipp	Scott	Brocade

Kobayashi	Shoukei	NTT
Koenen	David	HP
Kohl	Blaine	Tehuti Networks
Law	David	3Com
Li	Zeng	Huawei
Lingle	Robert	OFS
Luijten	Ronald	IBM
Maki	Jeffery	Juniper Networks
Malpass	Trey	Malpass Technology - Huawei
Marris	Arthur	Cadence
McDonough	John	NEC America
Mei	Richard	Systimax
Muller	Shimon	Sun
Ngi	Alex	Helix AG
Nicholl	Gary	Cisco
Nowell	Mark	Cisco
Patel	Shashi	Foundry Networks
Peers	Neil	ADVA Optical Networking LTD
Pepper	Gerald	Ixia
Perkins	Drew	Infinera
Pregernig	Ludwig	CERN
Salisbury	Neil	Optium
Saner	Martin	SNT
Savi	Olindo	The Siemon Co.
Schoenmaker	Peter	NTT
Seely	Ted	Sprint
Swanson	Steve	Corning
Takeda	Noriyuki	KDDI R&D Laboratories Inc.
Tawa	Katsuhisa	Sumitomo Electric
Thaler	Pat	Broadcom
Thompson	Geoff	Nortel
Toyoda	Hidehiro	Hitachi
Trainin	Oded	Cisco
Trowbridge	Steve	Alcatel-Lucent
Tsukahara	Tomo	Hirose
Turner	Brad	Juniper
Urricariet	Christian	Finisar
vanDoorn	Schelto	Intel
Weber	Markus	Fujitsu
Woodruff	Bill	Aquantia
Woodward	Ted	Telcordia
Yeong	Yoon-Bin	ETRI
Yu	Shaohua	WRI,China