IEEE 802.3WG
Closing Plenary Report

IEEE P802.3bj

100 Gb/s Backplane and Copper Cable

Task Force

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Dell

Big Island, Hawaii, USA, March 2012

A bunch of Happy Campers

Reflector and Web

- To subscribe to the 100GCU reflector, send an email to:

  ListServ@ieee.org

  with the following in the body of the message (do not include "<>"):

  subscribe stds-802-3-100GCU <yourfirstname> <yourlastname>

  end

- Send 100GCU reflector messages to:

  STDS-802-3-100GCU@listserv.ieee.org

- Task Force web page URL:

  http://www.ieee802.org/3/bj/index.html

Project Documentation

- PAR
  - http://www.ieee802.org/3/bj/PAR_approved_0911.pdf
- 5 Criteria
  - http://www.ieee802.org/3/bj/5C_0911.pdf
- Objectives
  - http://www.ieee802.org/3/bj/objectives_0711.pdf
- Adopted Timeline
  - http://www.ieee802.org/3/bj/timeline_0911.pdf

Task Force Private Area

- URL: http://www.ieee802.org/3/bj/private/index.html
  - Username: XXXXXX
  - Password: XXXXXXXX
- Write it down…
- Note - The drafts within are posted for your review only, and neither the drafts nor access information should be copied or redistributed to others in violation of document copyrights.

This Week's Progress

- Heard 23 Presentations
  - Change of objectives
  - Baseline proposals: NRZ, PAM-4, AutoNegotiation, FEC, EEE, MDI, 100GBASE-CR4 Channel, Test Points, Tx/Rx specifications
  - Editor's Report
- Change to Backplane "Reach" Objective
- Adopted major baselines
- Lay the ground work for the next meeting & D1.0

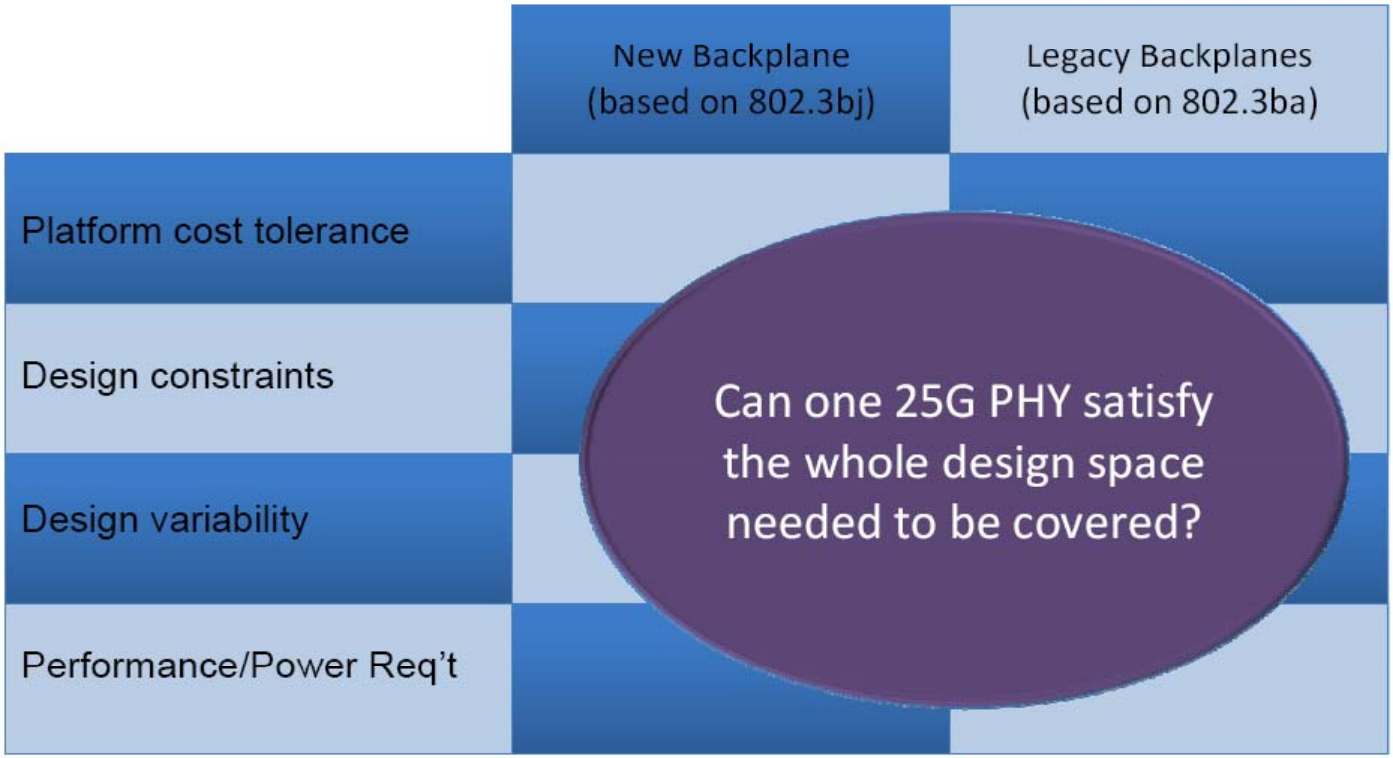
Motion Results Summary

- Motion #3 — All (y/n/a): 52 / 0 / 3; 802.3 (y/n/a): 42 / 0 / 1
- Motion #4 — All (y/n/a): 52 / 0 / 2
- Motion #5 — All (y/n/a): 54 / 0 / 2
- Motion #6 — All (y/n/a): 55 / 0 / 3
- Motion #7 — All (y/n/a): 55 / 0 / 2
- Motion #8 — All (y/n/a): 54 / 0 / 3
- Motion #9 — Motion Withdrawn
- Motion #10 — All (y/n/a): 54 / 0 / 2

- Consensus was in the air!

The Key: patel_01_0312.pdf

The Design Space Challenge



* Two backplane channel represent two distinct media

Reference: nowell_01_0112.pdf

Motion #3

Replace the existing backplane PHY objective:

Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.

With the following two objectives:

- Define a 4 lane PHY for operation over a printed circuit board backplane with a total channel insertion loss of <= 35 dB at 12.9 GHz
- Define a 4 lane PHY for operation over a printed circuit board backplane with a total channel insertion loss of <= 33 dB at 7.0 GHz

Moved by: Pravin Patel Seconded by: Joel Goergen

(technical, >=75%)

All:	Yes	52	No	0	Abstain 3
802.3 voters:	Yes	42	No	0	Abstain 1

Motions

- Motion #4:
  - Move that the following be adopted as baseline proposals:
    - dudek_03_0312.pdf for the 12.9GHz-related objective
    - brown_01a_0312.pdf (excluding slides 4 and 26) and brown_02_0312.pdf for the 7.0GHz-related objective
  - Results: All (y/n/a): 52 / 0 / 2
- Motion #5:
  - Adopt the proposed auto-negotiation changes outlined in slides 4-5, 7-15 of marris_01_0312.pdf.
  - Results: All (y/n/a) : 54 / 0 / 2
- Motion #6:
  - Move to adopt gustlin_01_0312 pages 5-19, and cideciyan_01a_0312 pages 8-19 as the baseline FEC proposal for PAM-2 modulation over copper cables and backplanes.
  - Results: All (y/n/a): 55 / 0 / 3

Motions

- Motion #7:
  - Move that QSFP28, per tracy_01_0312.pdf, be adopted as a baseline proposal for a type of MDI for 100GBASE-CR4.
  - Results: All (y/n/a): 55 / 0 / 2
- Motion #8:
  - Move that the 802.3bj Task Force adopt barrass_01_0312.pdf as a baseline for optional Energy-Efficient Ethernet operation for 100G Backplane and Twinaxial cable PHYs.
  - Results: All (y/n/a): 54 / 0 / 3
- Motion #9:
  - Motion to accept as the baseline the test points TP0 and TP5 as per zivny_01_0312, page 3
  - Results: Withdrawn (Subject of future consensus building)

Motions

- Motion #10:
  - Move to adopt the 100GBASE-CR4 channel baseline proposal described in slides 7-8 and 12-17 of diminico_01a_0312.pdf
  - Results: All (y/n/a): 54 / 0 / 2

Strawpolls

- Strawpoll #1:
  - Do you support mandatory FEC with the ability to turn it off:
    - Copper Cable (CR4) Results: Y: 37 N: 1
    - Backplane Results: Y: 28 N: 8

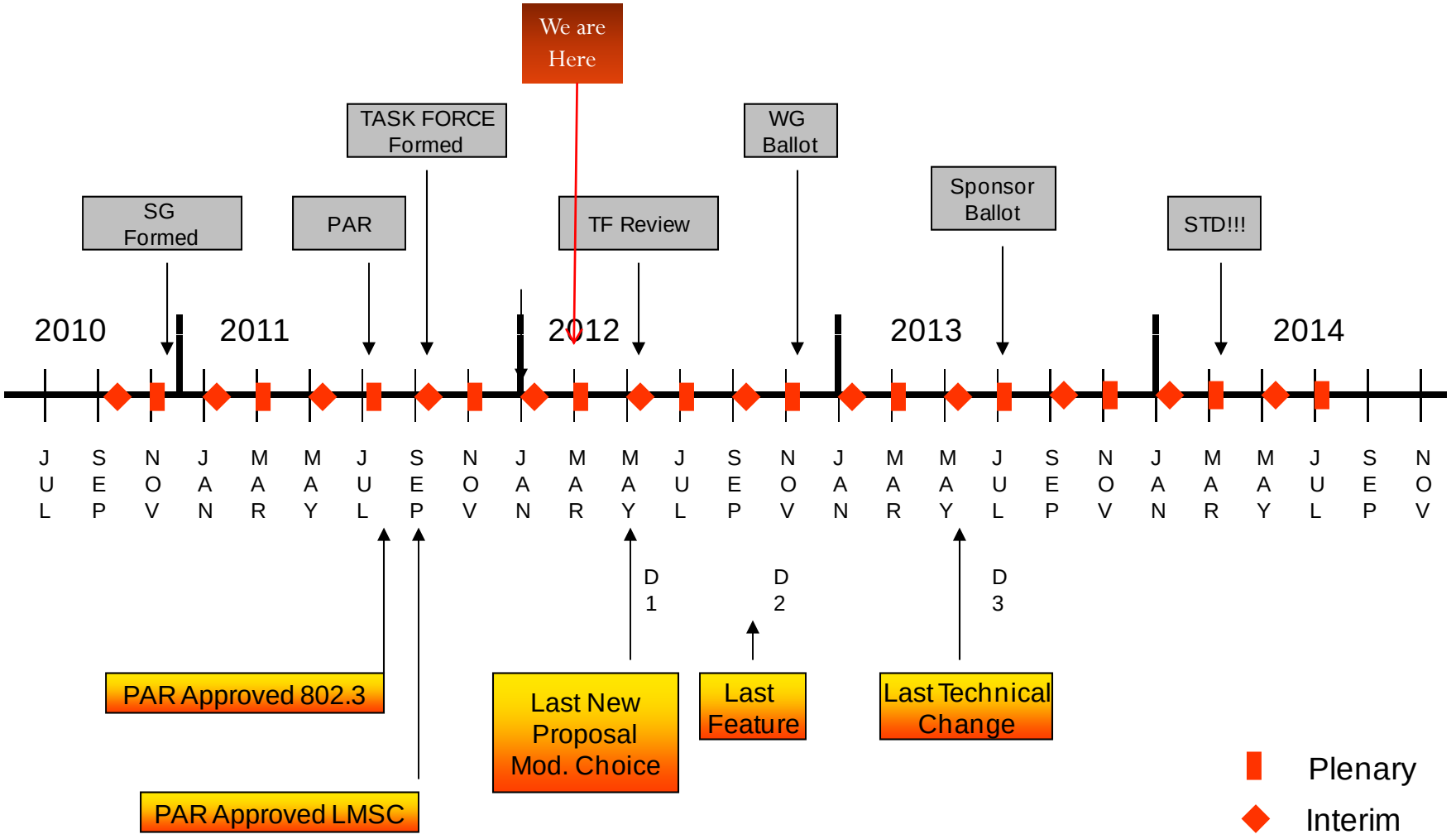
- Strawpoll #2:
  - Do you support further efforts on developing time/frequency domain statistical channel compliance method?
  - Results All (y/n/a) 32 / 1 / 18

Strawpolls

- Strawpoll #4:
  - Would you prefer to see Tx/Rx normative specs in the backplane application (per zivny_01_0312.pdf) of:
    - A) TP0/TP5 Results: 6
    - B) TP0a/TP5a Results: 19
    - C) need more data Results: 20

- Strawpoll #5: For the backplane spec, do you prefer the DC blocking cap to be allocated in:
  - Receiver Results: 15
  - B) Channel Results: 8
  - C) no preference Results: 5
  - D) Need more data Results: 16

Adopted Timeline



http://www.ieee802.org/3/bj/timeline_0911.pdf

WG Motion:

- Move that 802.3 approve the proposed revision to IEEE P802.3bj Task Force objectives, as per 0312_bj_close_report.pdf

- Technical (>=75%)
- Moved by: John D'Ambrosia
- Second: Adam Healey

- 802.3 Voters (Y/N/A): 89 / 3 / 14
- Motion passes / fails

IEEE P802.3bj Task Force Objectives: Update

- Support full-duplex operation only
- Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
- Preserve minimum and maximum FrameSize of current 802.3 standard
- Support a BER of better than or equal to 10^{-12} at the MAC/PLS service interface
- ~~Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on "improved FR-4" (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.~~
- **Define a 4 lane PHY for operation over a printed circuit board backplane with a total channel insertion loss of <= 35 dB at 12.9 GHz**
- **Define a 4 lane PHY for operation over a printed circuit board backplane with a total channel insertion loss of <= 33 dB at 7.0 GHz**
- Define a 4-lane 100 Gb/s PHY for operation over links consistent with copper twin-axial cables with lengths up to at least 5m.
- To define optional Energy-Efficient Ethernet operation for 100G Backplane and Twinaxial cable PHYs specified in P802.3bj

Thank You!