

# Updated Proposal for a 1 Gb/s LS path with 7.5Gb/s or 5Gb/s HS path

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# Forward

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- The 802.3dm has specified numerous asymmetric data rates up to 10Gbps with 100Mbps in the reverse path. Several participants in 802.3dm task force have mentioned the value of specifying 1 Gb/s in the reverse path.
- There are applications that are mentioned to use 1Gbps in the reverse path:
  - [https://www.ieee802.org/3/ISAAC/public/100423/matheus\\_ISAAC\\_01c\\_10042023.pdf](https://www.ieee802.org/3/ISAAC/public/100423/matheus_ISAAC_01c_10042023.pdf)
  - [https://www.ieee802.org/3/dm/public/0526/schedl\\_gorshe\\_3dm\\_01b\\_0526.pdf](https://www.ieee802.org/3/dm/public/0526/schedl_gorshe_3dm_01b_0526.pdf)
- It is proposed that options for 1 Gb/s in LS path, 7.5 Gb/s and 5.0 Gb/s in HS path is added to the clause 192.
- The proposal reuses the existing specifications in the clause 192 and does not affect the clause 191.
- Changes are proposed for draft 2.0
- Task force members are welcome to contribute to this proposal.

# 1 Gb/s LS Path Specification Proposal for Clause 192

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- ❑ To support the optional 1 Gb/s in the LS path, the burst length in the HS path is shortened, allowing for longer bursts in the LS path.
  
- ❑ The proposal uses the existing specification to support the new rates with minimal added logic.
  - Existing baud rates of 3G and 6G
  - Same TDD Cycle
  - Same FEC Coding, Interleaving and Decoding
  - Same 64/65 Encoding
  - Existing Scramblers, Modulations and Signal levels as previously specified
  - Same Electrical specifications (PSD, Droop, Jitter, Distortion)
  - Same Link segments
  - Same Link-up process
  
- ❑ HS path of 7.5Gbps and 5Gbps are specified with 1Gbps LS path.

# 7.5Gbps/1Gbps Specification For Clause 192

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## LS path: 1Gbps

6Gbaud-PAM2, 5 x RS (128, 122), L=2.

This is same as HS 5Gbps specification but a shorter burst of 1706.66ns length.

## Total Refresh Period

368ns as in the current specifications

## Total IBG Period

352ns as in the current specifications

## HS path: 7.5Gbps

6Gbaud-PAM4, 25 x RS (128,122), L=3.

This is same as HS 7.5Gbps specification other than the scrambler and modulation that follows HS 10Gbps and a shorter burst duration of 6400ns.

## Additional Capacity

There is a 773.33ns extra capacity;

Add 1 x RS (128,122), L=2 to LS path plus a padding of 32Bytes

Add 1 x RS (128,122), L=3 to HS path plus a padding of 200Bytes

\* L is the interleaving degree

# 5Gbps/1Gbps Specification For Clause 192

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## LS path: 1Gbps

6Gbaud-PAM2, 5 x RS (128, 122), L=2.

This is same as HS 5Gbps specification but a shorter burst of 1706.66ns length.

## Total Refresh Period

368ns as in the current specifications

## Total IBG Period

352ns as in the current specifications

## HS path: 5Gbps

6Gbaud-PAM3(3B2T), 25 x RS (128,122), L=2.

This is same as HS 5Gbps specification other than the scrambler and modulation that follows HS 7.5Gbps and a shorter burst duration of 5688.88ns.

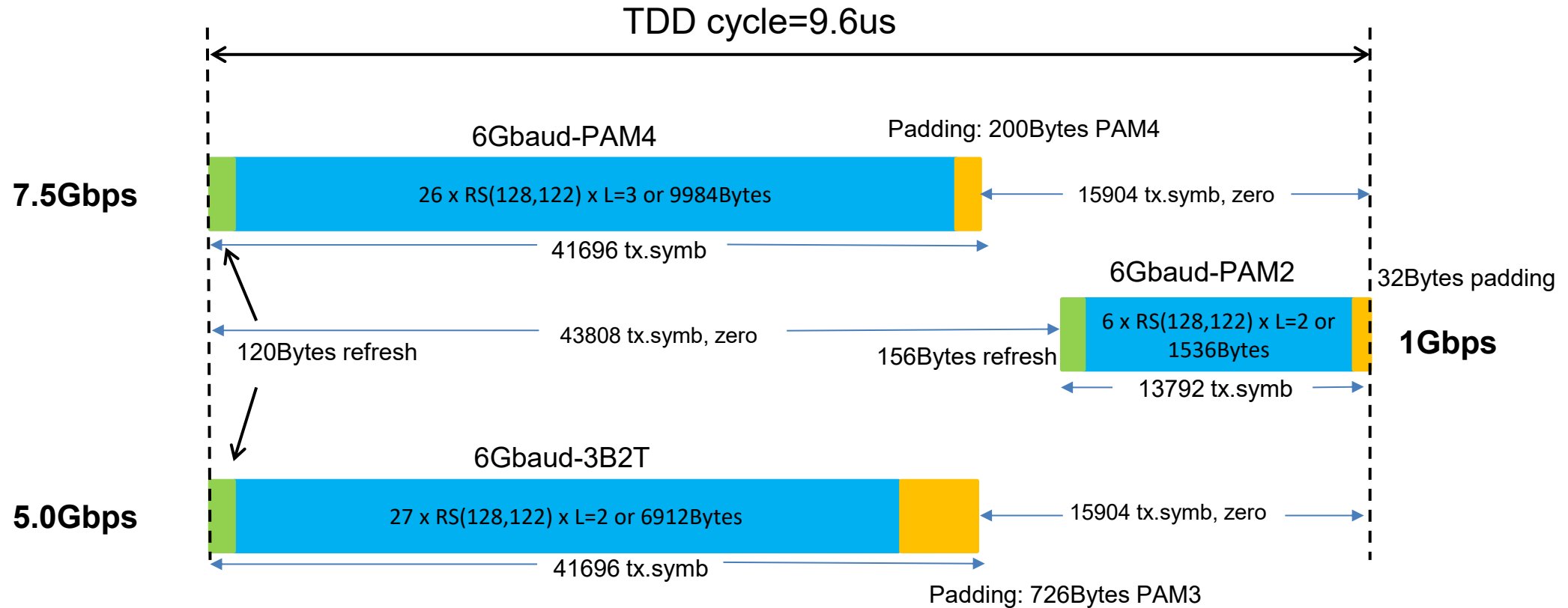
## Additional Capacity

There is a 1484.44ns extra capacity;

Add 1 x RS (128,122), L=2 to LS path plus a padding of 32Bytes

Add 2 x RS (128,122), L=2 to HS path plus a padding of 726Bytes

# 1Gbps Bursts in LS Path with 7.5Gbps or 5Gbps Bursts in HS Path



\* There is an extra coded capacity in all three bursts which is proposed to be used for other user-defined purposes.

# Summary

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- ❑ Changes proposed to clause 192 to support 7.5Gbps+1Gbps and 5Gbps+1Gbps.
- ❑ The proposed additions to the clause 192 re-uses the existing 802.3dm draft specification and should not affect the 802.3dm completion timeline.
- ❑ The proposed changes do not affect clause 191.

**Thank You**