Power Considerations for 400GAUI-4

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Caveats and Disclaimers

The figures contained within are examples based on reasonably understood industry abilities/targets. They do not represent any specific vendors product or products.

Power Considerations for 400GAUI-4

- Statements have been made indicating a 2x400G (8x100G) optical module with 100G/lane electrical interfaces will be desired in the market
  - Instead of a 1x100G
- Assuming that is the case it is reasonable to expect that current eight lane module form factors will be targeted for such products:
  - OSFP and QSFP-DD
- These form factors have certain power/thermal constraints, which may be challenging even for some 1x400G optical modules
  - Max demonstrated power for either around 14-15 W for a DC environment

Power Considerations for 400GAUI-4

- First generation 400G-DR4 solutions expected to consume between 8-14 W (max power)
  - Electrical PMA (400GAUI-8) ~ 2-3W (5-7 pJ/bit)
  - Remainder (Optical PMD + Other) ~ 6-12 W

- Second generation* 400G-DR4 solutions may be slightly lower
  - Perhaps 10% improvement on the low end, 20% on the high end.
  - Max Power ~ 7.2 – 11.2 W
  - PMA ~ 1.8-2.2 W
  - PMD + Other ~ 5.4 – 9.0 W

** Some vendors may not do multiple generations of 400G-DR4*

Power Considerations for 400GAUI-4

- A 2x400G-DR4 optical module would use the same optical PMD types as a 1x400G-DR4 optical module
  - PMD + Other power per 400G ~ 5.4 - 9.0W
  - PMD + Other power per 2x400G ~ 10.8 - 17.9 W
- Very little (or no) power left for a 2x400GAUI-4 electrical PMA assuming a 15W module limit
  - Best case ~ 4.2 W for 2x400GAUI-4 PMA
  - Worst case < 0 W for 2x400GAUI-4 PMA
- Expected to be even less PMA power available for longer reach optics
  - Ie, 2x400G-FR4

Summary

- Assuming 2x400G solutions are desired then **very little power is available** for the 400GAUI-4 electrical PMA
  - If only 1x400G solutions are desired then things may look quite different

- Taking all reasonable steps to **minimize module side power consumption** in a 400GAUI-4 PMA standard would increase the odds of 2x400G modules being possible.