eFEX at 10 Gbit/s?

Murrough Landon

9 December 2013

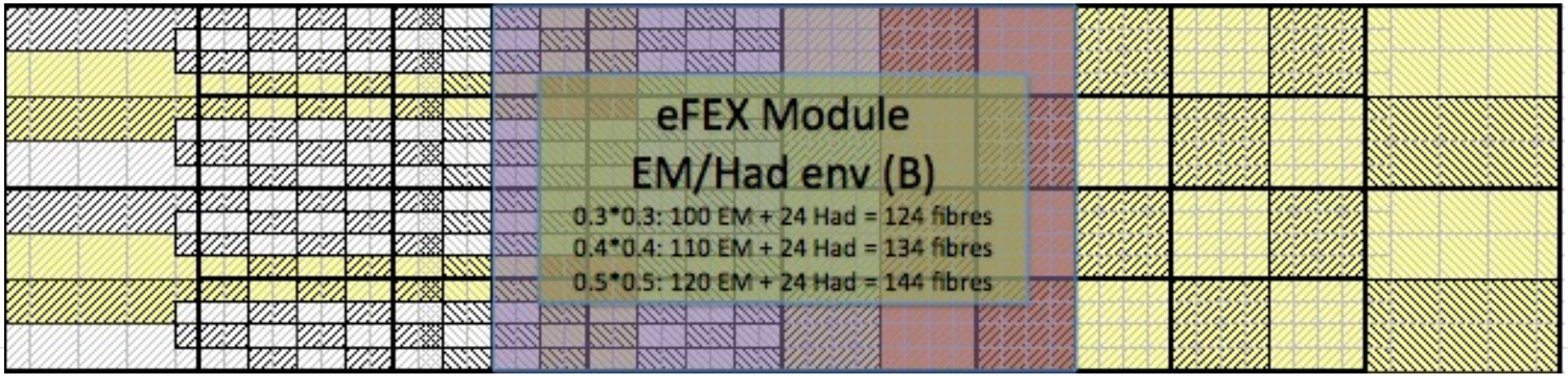
- What if eFEX modules work at 10 Gbit/s?

eFEX at 10 Gbit/s (1)

- TDR baseline links are 6.4 Gbit/s
- eFEX modules have 100 EM + 36 hadronic fibres
  - Currently 12 minipods * 12 fibres = 144 fibres total
  - EM fibres have 2 towers (20 supercells) with 0.2*0.1 geometry
  - Hadronic fibres have 8 towers with 0.4*0.2 geometry
- Suppose eFEX prototype works nicely at 10 Gbit/s?
  - We will need fewer hadronic fibres (now with 16 towers/fibre)
    - Drop from 36 to 24 hadronic fibres
      - Either 0.8*0.2 geometry (original idea) or 0.4*0.4 (new for phi ring jFEX)
    - Possibly only 18 0.4*0.4 fibres with eFEX core 0.2 shifted by in phi
    - NB check hadronic 1:2 and 1:3 fanout is subset of the 6.4 Gb/s pattern
- What could we do with the extra spare fibres?

eFEX at 10 Gbit/s (2)

- (A) Remove a minipod, redesign the PCB
- (B) Leave extra spares unused
- (C) Add more EM fibres
  - Another 10 EM fibres allows 0.4*0.4 environment
    - 110 EM + 24(18) hadronic = 134(128) total
  - Another 20 EM fibres allows 0.5*0.5 environment
    - 120 EM + 24(18) hadronic = 144(138) total - No spare fibres!!
  - NB the 0.2*0.1 EM fibres mapping means the baseline 0.3*0.3 actually provides 0.5*0.3 environment already
  - Extra EM fibres => more fanout at corners from the DPS (Check its OK!?)



eFEX at 10 Gbit/s (3)

- Diagram with 0.2 phi shift
  - Showing two quadrants in phi