

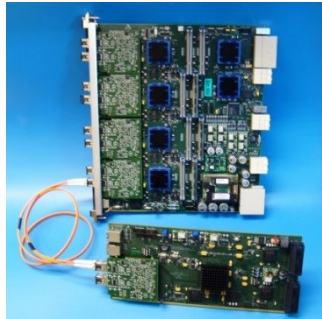


# Fibre Link Technology

9 May 2017

Maged Sallam

# Electronic System Design Group



*XFEL LPD FEM/TB/SC ATCA Boards*



*SKA Field Tests & 10G/40G F/W*



*CFI DAQ MP - FEM-II*



*ISIS DAE-III Board*



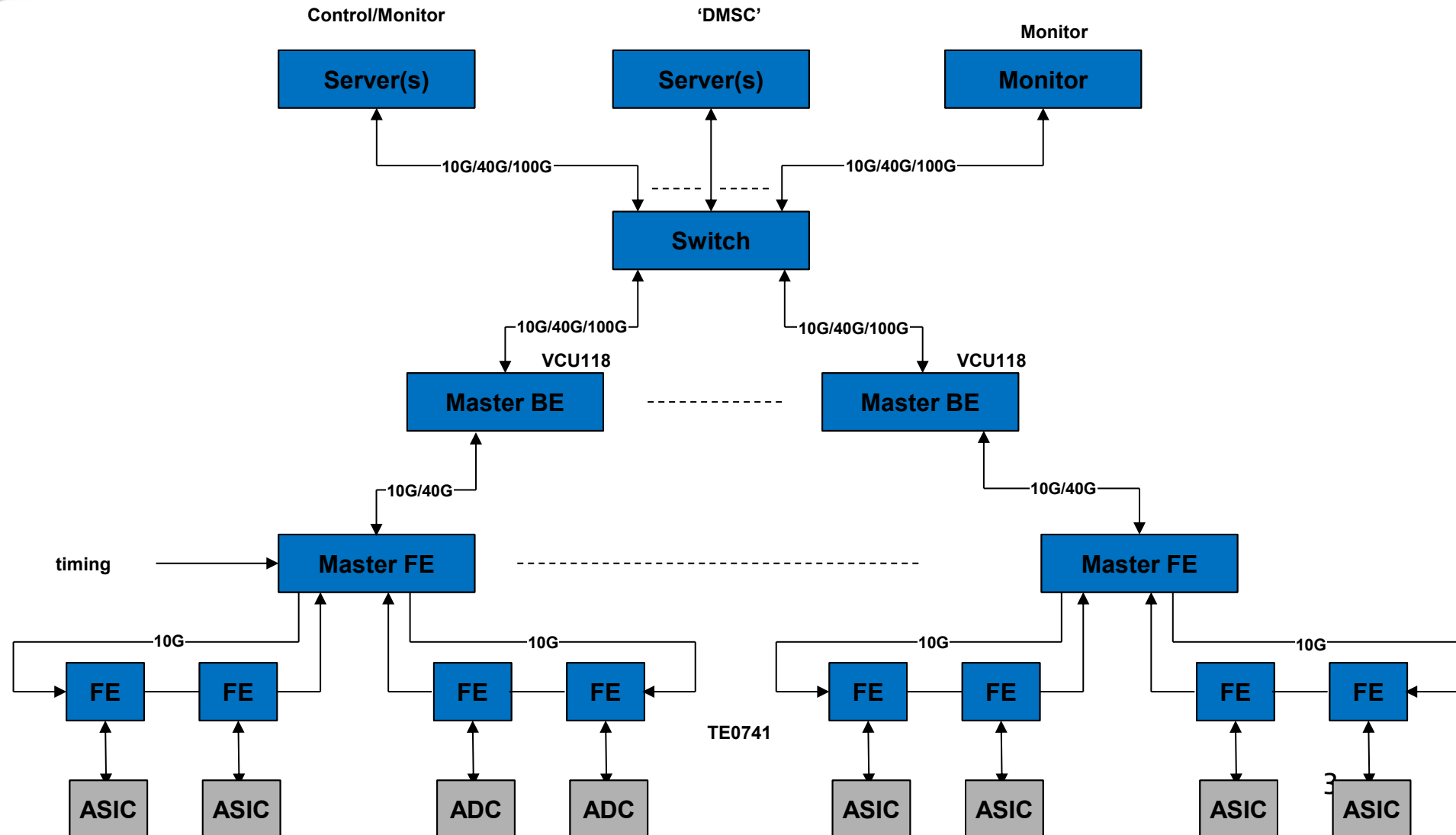
*ISIS MERLIN ADC Board*



*ATLAS eFEX*

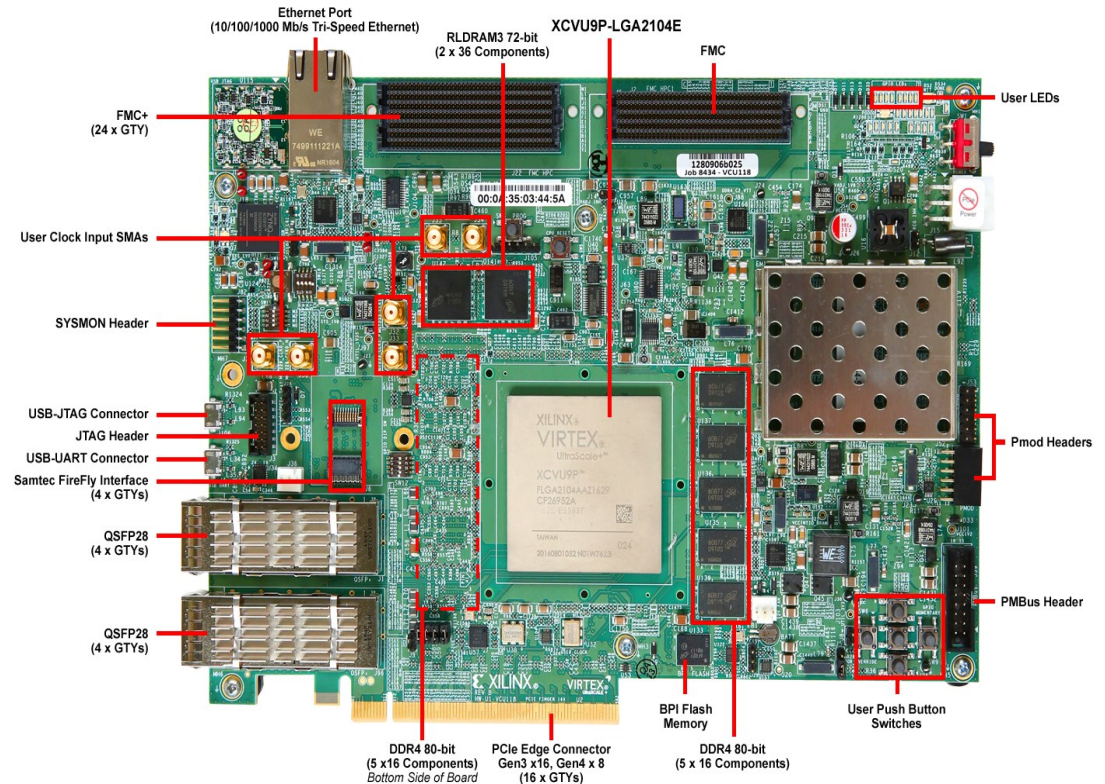
- SKA, XFEL, ESS , ATLAS, DIAMOND, CFI DAQ, E-ELT, ISIS
- SKA 10G/40G Firmware
- ATLAS eFEX ATCA Board
- CFI DAQ MP - FEM-II
- XFEL FEM, TB & Switch Card
- ISIS DAE-III module & Merlin ADC Board
- EXCALIBUR FEM & EXPRESS-III FEM
- ISIS Choppers & DAQ

# ESS Detector Module Prototyping



# Dev board VCU118 (Back End)

- Dual 80-bit DDR4 Component Memory
- RLD RAM3 (2x36-bit) Memory
- Dual QSFP28 Interfaces (2 x 4 GTY)
- PCIe Gen3 x16
- VITA 57.4 FMC+ Interface (24 GTY)
- VITA 57.1 FMC Interface
- Samtec FireFly Interface (4 GTY)



# 100Gb optical interfaces

| 100Gb interfaces | Distance | Connector Type | Cable type          | Transceiver  |
|------------------|----------|----------------|---------------------|--------------|
| 100GBASE-SR10    | 100-300m | MPO/MTP        | Multimode (OM3-OM4) | CFP/CXP      |
| 100GBASE-SR4     | 100-300m | MPO/MTP        | Multimode (OM3-OM4) | CXP/QSFP/CFP |
| 100GBASE-LR4     | 10 Km    | LC             | Single mode         | QSFP/CFP     |
| 100GBASE-PSM4    | 500M     | MPO/MTP        | Single mode         | QSFP/CFP     |
| 100GBASE-CWDM4   | 2 KM     | LC             | Single mode         | QSFP/CFP     |



# Transceivers



Avago



- MSA Optical Transceivers

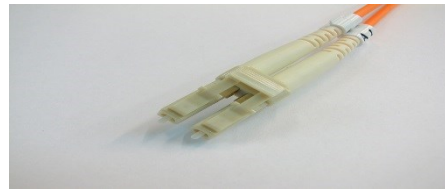
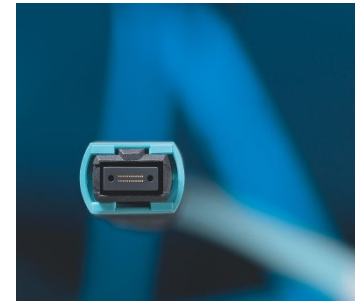
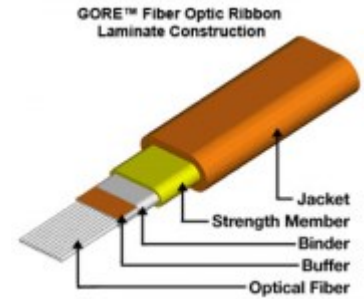
- XFP 10G
- SFP+ 10G+
- zSFP+ 25G
- QSFP 40G
- QSFP28 100G
- CFP 100G
- CXP 120G+
- CFP2 100G
- CFP4 100G
- CFP8 400G
- CDFP 400G



# Media

- MSA/MTP Cables

- Transceivers.
- Active Optical
- Passive Electrical
- Breakout Cables
  - 12 SFP or 3 QSFP
- SMA Test Cables & Loopbacks
- Off the shelf...



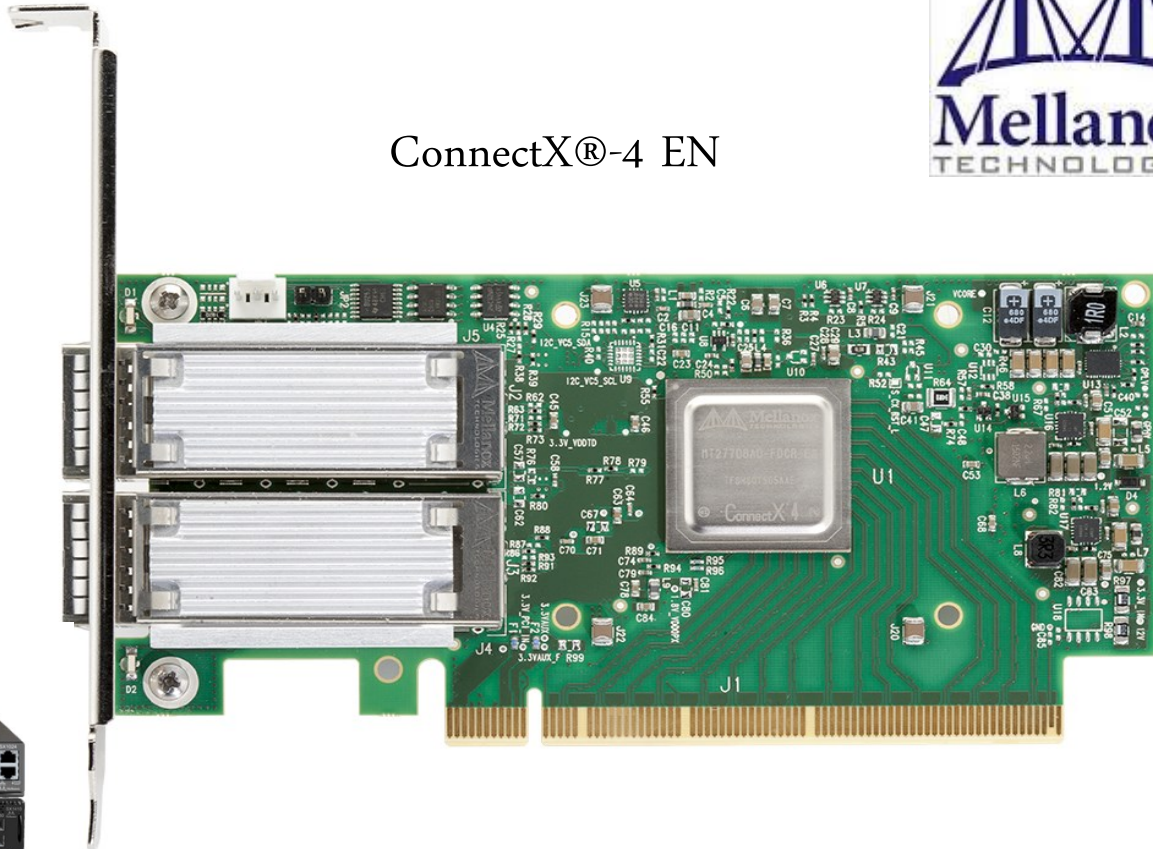
# Network adapter

- 2 x QSFP28
- 1/10/40/100Gb/s
- PCIe 3

ConnectX®-4 EN



Mellanox Switch



# Extras

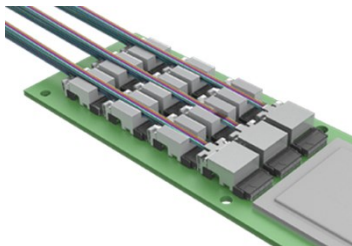
- Parallel Optics
- Vendor Specific
  - In board
  - 12x 10G/25G
  - 16 x 10G/25G
  - SR ~100m



Avago



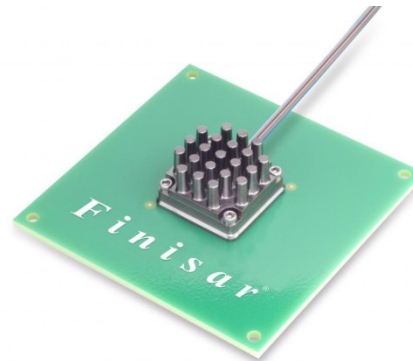
TE



Samtec



Reflex Photonics



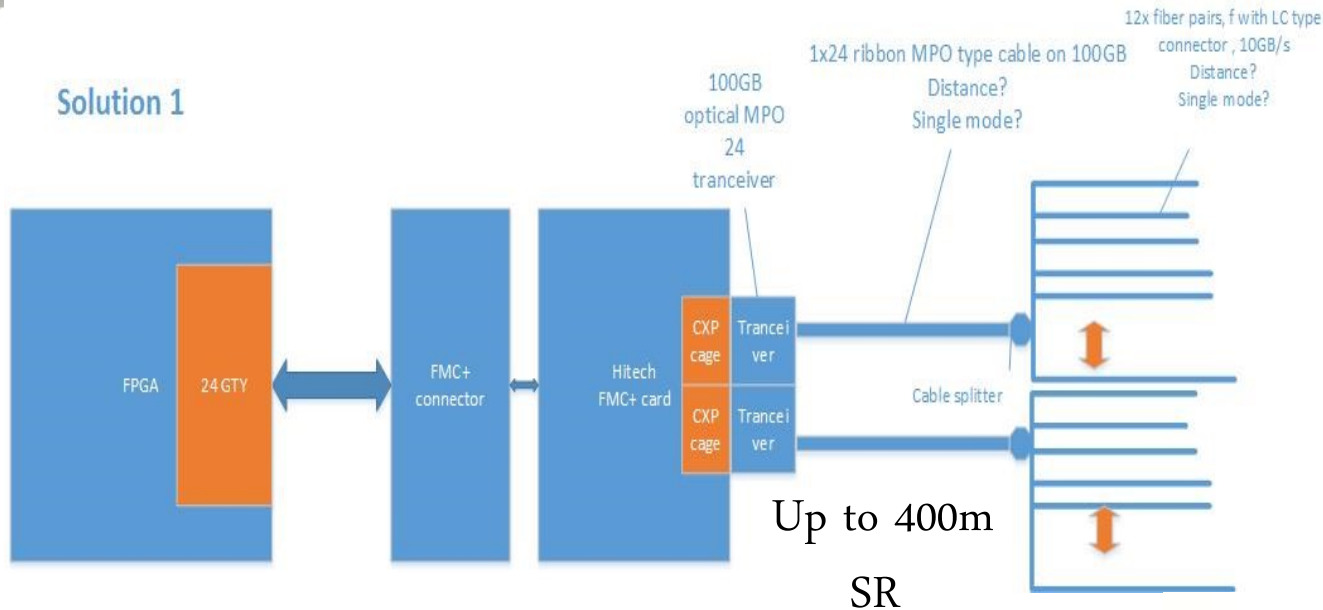
Avago  
 Reflex photonics  
 TE  
 Samtec firefly  
 Molex  
 • Finisar...

# Extras2

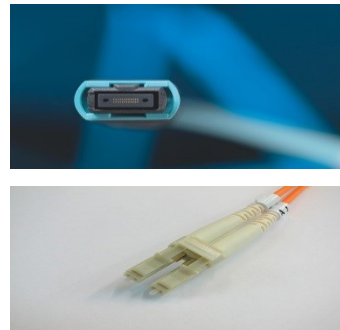
FMC+ CXP card



Solution 1



CXP transceiver

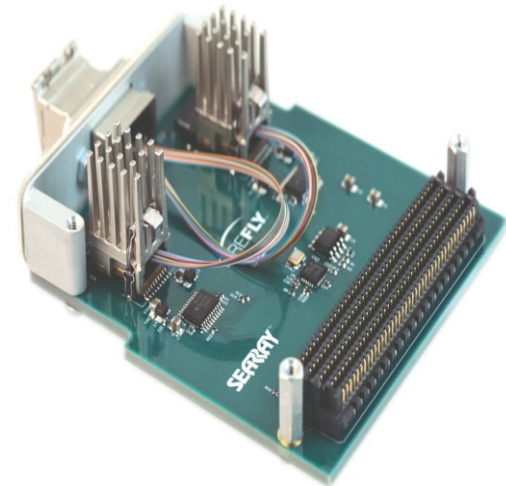
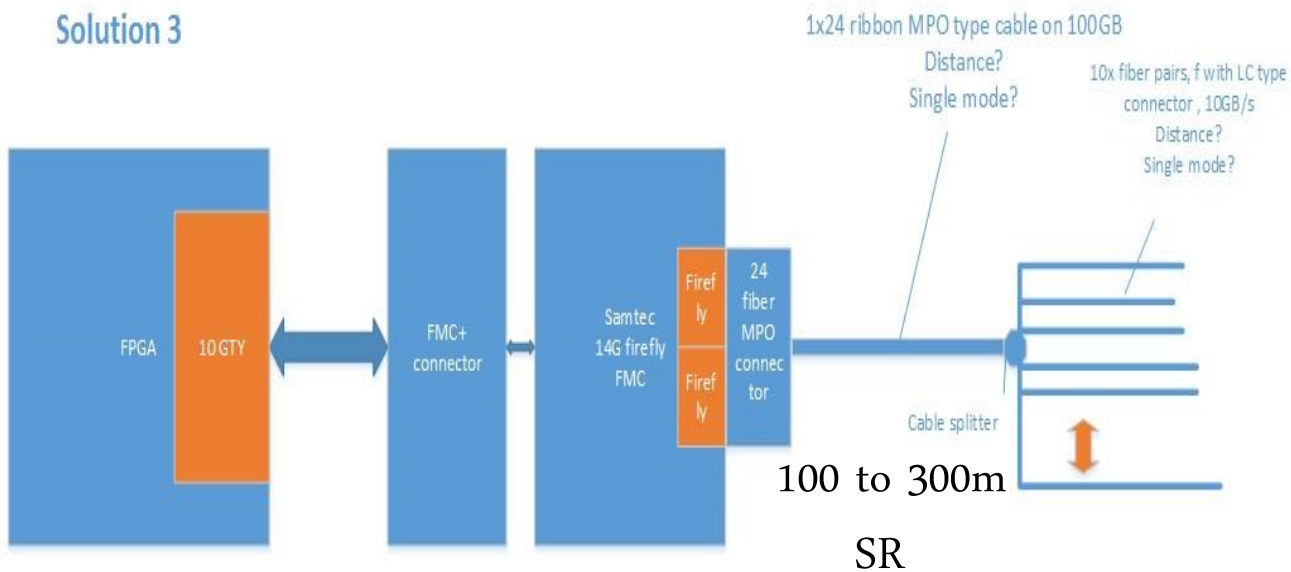


MPO to LC breakout cable

# Extras3

## Tiger FMC Firefly card

### Solution 3

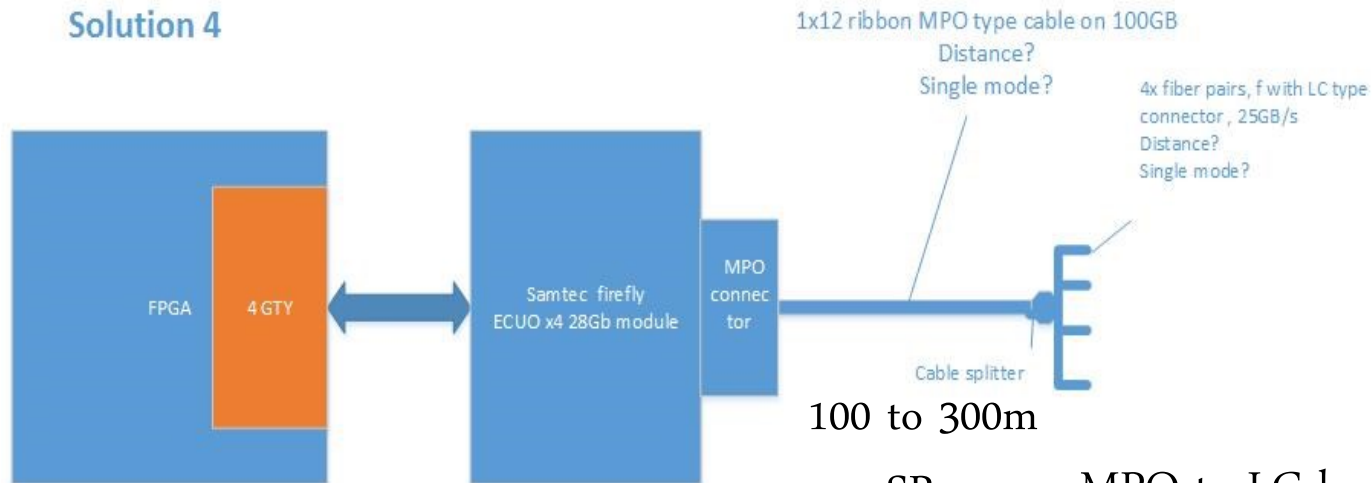


MPO to LC breakout cable



# Extras4

## Solution 4

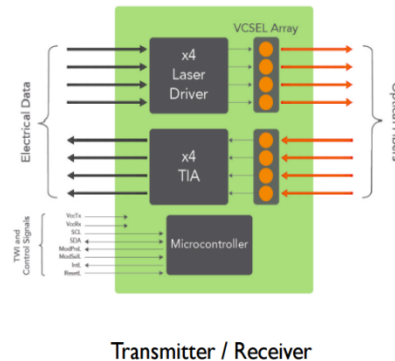


SR

MPO to LC breakout cable



ECUO Firefly



Transmitter / Receiver

