OFC-2 Module for KOTO

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OFC-2 - Block Diagram

6U VME Module with 9 QSFPs and one Stratix 10Mx FPGA
1SM21BHN3F53E3VG (48 Transceivers and 8 GBytes Memory per chip)
OFC-2 - Block Diagram

http://edg.uchicago.edu/~bogdan/KOTO_OFC_2/schematics.html
OFC-2 – Power Options

Largest power consumption is the VCC-CORE (0.9V):
- Current Estimate ~ 30A
With more complex firmware designs, we’ll need more power -> Module can provide up to 80A.

Developed 3 ways to power the OFC-2:
• Regular VME: 5V, 3.3V, 12V - Ivcc < 45A.
• User Defined VME: 48V/3A on +V1,+V2 – Ivcc > 45A.
• Front Panel Power 12V/10A – Ivcc > 45A.
OFC-2 – Power Tree

Note: Output Voltage between 9V and 13.5V

1. Three different power options:

1.1. Standard VME64 Backplane Power: 5V, 12V, 3.3V
   - Install: Fuse_5V, Fuse_12V, Fuse_3V3.
   - Do Not Install: Fuse_48V1, Fuse_48V2, R001, R002, R003, R004.

1.2. Optional VME64 Backplane Power via pins V1, V2: 48V
   - Do Not Install Fuse_5V, Fuse_12V, Fuse_3V3.
   - Install: Fuse_48V1, Fuse_48V2, R001, R002, R003, R004.

1.3. Optional Power via 12V Power Connector on the Front Panel
   - Do Not Install Fuse_5V, Fuse_12V, Fuse_3V3, Fuse_48V1, Fuse_48V2, R001.
   - Install: R002, R003, R004.

2. The following power rails are provided with Chold capacitors:
   - 5V - 30mF, 3.3V - 30mF, 12V - 10mF.
12V Power  9 pieces QSFP+  RJ45
OFC-2 Status

Schematic: 60%
Layout: 85%
PCB Stackup: 100%
PCB Routing: 0%
Firmware VME FPGA: 90%
Firmware Power Manager FPGA: 60%
Firmware Processor FPGA: 0%