# MTCA.4 1U CRATE

# The new 1U Crate by nVent SCHROFF



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#### **MTCA.4 1U Crate - Main Features**

- 1 U height, 19" width, 373 mm depth
- Shielded steel case, powder coated
- Two Double Mid-size AMC Slots with RTM
- Two Single Mid-size AMC Slots
- Integrated eMCH (embedded MicroTCA Carrier Hub)
- 1 GbE uplink on front side
- Wide range AC power input on rear side
- Integrated 400 W Power Supply
- Integrated side to side cooling
- Power and cooling management







#### MTCA.4 1U Crate - Front, Rear and Top View

- 1. eMCH
- 2. AMC slots 1 & 3
- **3.** AMC slots 2 & 4
- **4. ESD Wrist Strap Terminal** (4 mm banana jack)
- 5. RTM slots
- 6. Ground Terminal (Equipotential bonding)
- 7. AC input with Mains / line switch and fuse
- 8. PSU
- 9. Air filter
- **10.** Fans rear section
- **11.** Fans front section
- **12.** Connector for 3rd party eCLK module





## MTCA.4 1U Crate - Backplane Topology

- GbE Links from MCH to all AMC Slots
- Direct S-ATA / SAS connections:
  - AMC 1 <-> AMC 3: Port 2
  - AMC 2 <-> AMC 4: Port 3
  - AMC 1 & 3: Port 3 <-> SATA Headers on eCLK connector
- Fat pipe and extended fat pipe contains 4 PCIe Gen 3 x4 MUX's that allows the user to select through the eMCH two different fat pipe / extended fat pipe configurations
- Configuration 1
  - AMC1 port 4-5 to AMC4 port 4-5;
  - AMC1 port 6-7 to AMC3 port 4-5;
  - AMC1 port 8-11 to AMC2 port 4-7;
  - AMC2 port 8-11 to AMC4 port 8-11;
  - AMC3 port 6-7 to AMC 4 port 6-7



FCLK for PCIe Gen3 clock generated on backplane

- Configuration 2
  - AMC1 port 4-5 to AMC4 port 4-5;
  - AMC1 port 6-7 to AMC4 port 6-7;
  - AMC1 port 8-11 to AMC2 port 4-7;
  - AMC2 port 8-11 to AMC4 port 8-11







# MTCA.4 1U Crate - Option for eCLK Module

- The system provides a connector, stand-offs and mounting space for a third party clock module
- The connector pin out is in the Crate's User Manual
- 1x MP pins (3.3V / 1.5A) and 4x PP pins (12V / 6A)
- Port 17 to 20 busses routed to eCLK connector
- TCLK A & B routed from each AMC to the eCLK connector
- Either external Clk and trigger feedthrough or internal CLK module can be realized









### MTCA.4 1U Crate - Cooling & Power

- Cooling from right to left
- ATTENTION: To fit 2 Mid-size AMC's one above the other, the AMC's are mounted upside down (pcb on the bottom side)
  - Better heat dissipation from pcb (air convection)
  - Air flow direction is from top of the AMC module to the bottom
- Air filter in the inlet section can be removed after top cover is disassembled
- 7x 40 mm fans located in the air outlet section
- 100 240 V AC power input with mains switch and fuse on the crate backside
- Integrated 400 W open frame PSU, PP and MP switching by eMCH on the backplane





#### MTCA.4 1U Crate - eMCH

- The eMCH provides basic MicroTCA functionality for switching and managing AMC modules
- Switching and hub functionality for the system fabric gigabit ethernet (GbE)
- Supports the typical hot swap management and its transition state machine (M0 to M6) for each AMC module
- The embedded MCH monitors and verifies local sensor data of the chassis and installed FRU devices and supplies MicroTCA power and cooling
- Remote administration can be done locally over the CLI (Command Line Interface) served by the front USB port
- 4 front panel status LEDs for the AMCs, and 2 LEDs (OK, FAIL) for the system's operation status
- Sockets for a RJ45 plug and a micro USB cable







