



NAT-MCH-SCIxE

The **NAT-MCH-SCIxE** is a pre-configured package aiming for the special demands of the science community, featuring high-speed Ethernet connections as well as broad FatPipe bandwidth.

It comprises of the **NAT-MCH-S4** Carrier Hub (the double-width variant of the **NAT-MCH-G4**), a **NAT-MCH-G4-CLKP** clock mezzanine, and a **NAT-MCH-G4-HUB-EX** Hub module.

With regards to the base fabric (FabricA), the combination features 1G / 2.5G / 10G FabricA connections to each AMC, as well as a two 1GbE available at two RJ45 interfaces at the front panel. As an assembly option, the RJ45 interfaces could be replaced by SFP fibre uplinks.

CLK1 and CLK2 (MLVDS signalling standard) can be routed by two low-jitter clock multiplexers, while CLK3 is carried out as a PCIe Reference Clock (100MHz Spread Spectrum Clock, HCSL). A precision timing option consisting of a GPS input and an onboard OCXO is available as a separately orderable assembly option.

The **NAT-MCH-SCIxE** offers features a QSFP-DD front uplink with 8x 1-25G and various combinations of backplane connections .

NAT-MCH-S4 Base Board Features

- Double-width, full-size MCH
- IPMI
- Console via USB and web interface
- 16 LEDs reflecting AMC / CU / PM status
- Firmware update via HPM
- Graphical system and FRU status
- Front Uplink (assembly options):
 - 1-10G Base Ethernet via RJ45
 - 1-25G optical Base Ethernet via SFP-28-DD
- Backplane:
 - Up to 12x 1GbE / 2.5GbE / 10GbE

NAT-MCH-G4-CLKP Features

- CLK1 / CLK2 (MLVDS):
 - 2x low-jitter cross-point mux
- CLK3: PCIe Ref CLK (HCSL)
- PLL synthesizer
- CLK IN / OUT via SMA
- Optional precision timing support

NAT-MCH-G4-HUB-EX Features

- Marvel 98EX5520 Ethernet Switch
- Front Uplink via QSFP-DD with 8x 1-25G
 - 2 x4 ports with up to 100GbE or
 - 8 x1 ports with up to 25GbE
- Backplane:
 - 12 x4 ports each 40GbE or
 - 12 x4 ports each 10GbE (XAUI) or
 - 4 x1 ports with 1-10G to each AMC

Refer to the [product website](#) or the [Technical Reference Manual](#) for more information.

