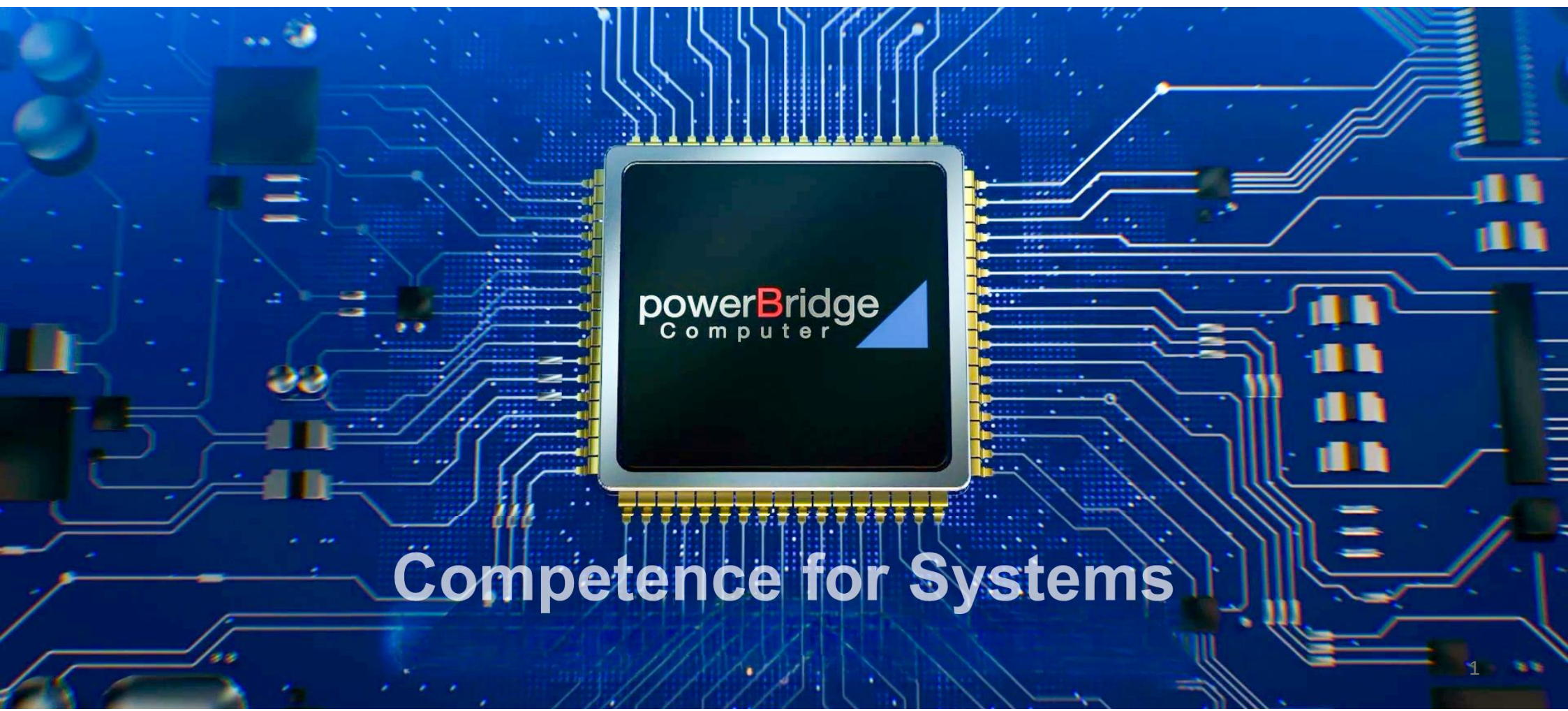
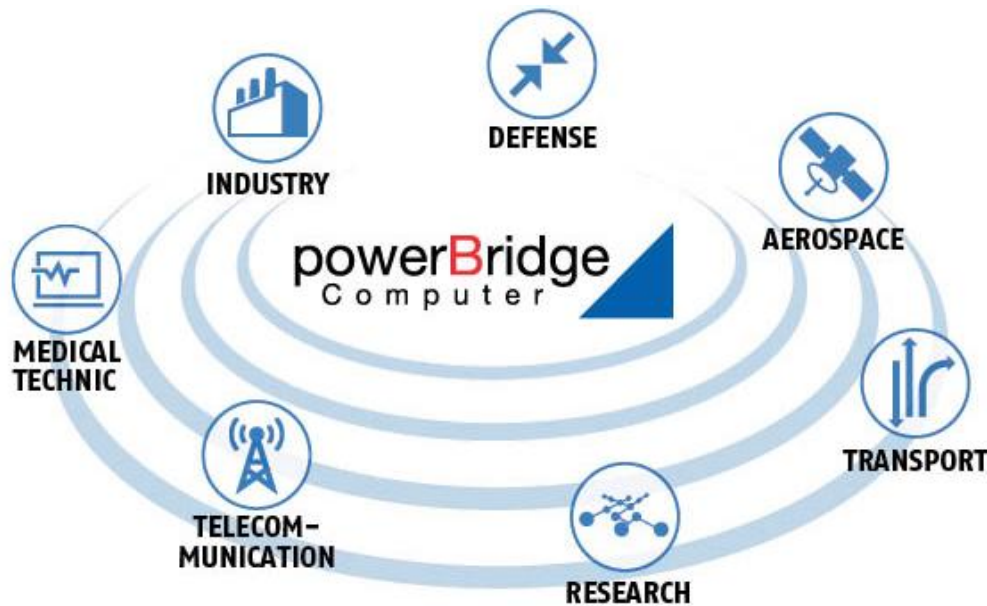


MTCA Starterkits, next evolution



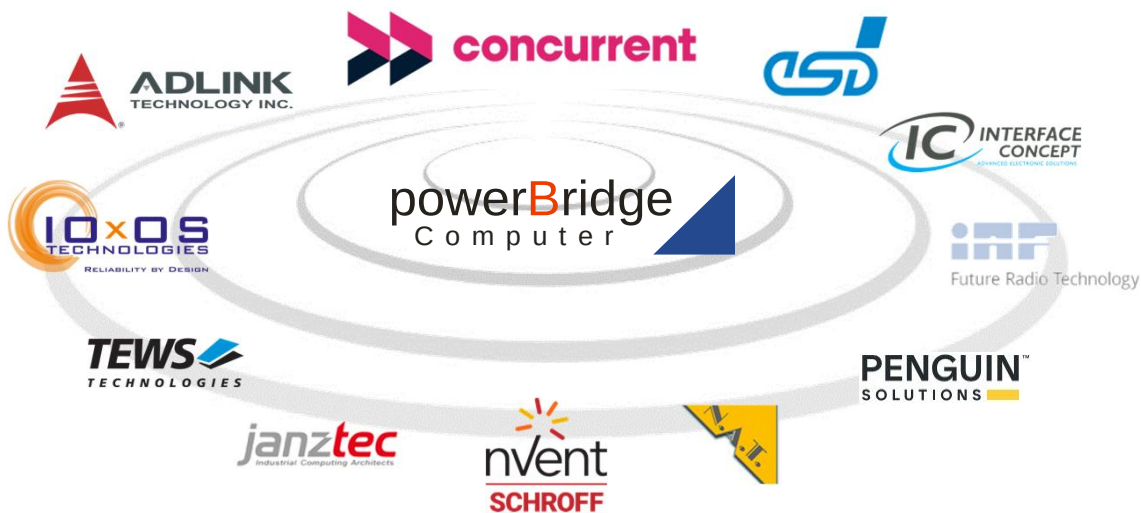
Competence for Systems

Facts and Figures



- Over 30 years on the market
- Owner managed company
- Over 30 years of embedded experience
- Own laboratory and integration facilities
- PICMG member, actively working on the MTCA.4 and Next Gen specification
- ISO 9001:2015 and 14001:2015 certified

powerBridge partner network



- well established network
- technical leadership
- state of the art partners
- long term relation ships
- complimenting product offerings

MTCA starterkits

includes

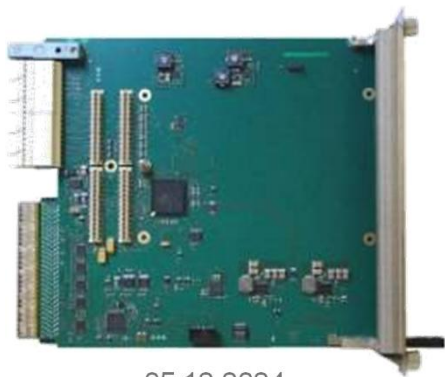
- Chassis
- AMC CPU
- Power module
- MCH
- Filler panels
- Linux OS installed
- Adapter cables



MTCA starterkits add ons

Payload and carrier boards for

- FPGA-based AMC and uRTM
- PMC
- XMC
- FMC



05.12.2024

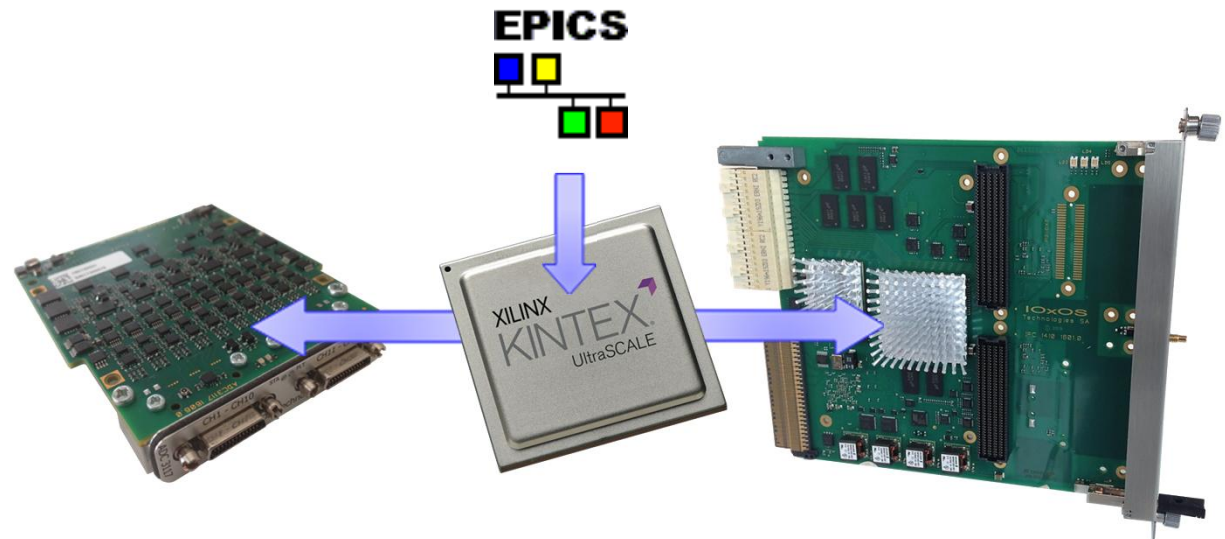
MTCA starterkits add ons

- Board Support Packages (CPU vendor)
- Source code drivers (payload card vendor)
- FPGA framework TOSCA (IOxOS)
- Sample application (IOxOS)

Payload: A MicroTCA Comprehensive Ecosystem

A modular and long term available MicroTCA ecosystem

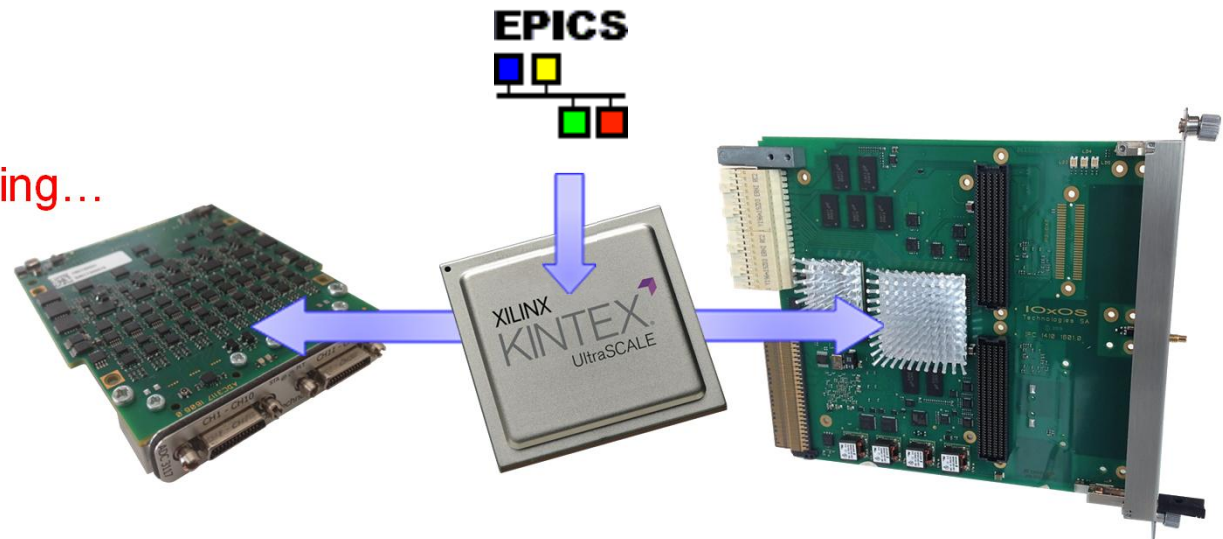
- MicroTCA product line of FPGA-based AMCs and μ RTMs
- Comprehensive family of FMC modules
- FPGA Design Kits
- EPICS Integration



Payload: A MicroTCA Comprehensive Ecosystem

A modular and long term available MicroTCA ecosystem

- MicroTCA product line of FPGA-based AMCs and μ RTMs
- Comprehensive family of FMC modules
- FPGA Design Kits
- EPICS Integration
- But one key component is missing...



Processor AMC, The Challenge

Today, the demand for high performance computing and seamless connectivity intersects with long-term availability, superior performance and reduced power consumption

Selection of PICMG's MTCA open standard by Industry and Big Science community marks a step toward fulfilling this need

Yet, the challenge of finding CPU boards that truly harnesses the power of MTCA remains



The Breakthrough: COM-HPC Mini

PICMG's COM-HPC Mini unveils as the key to unlock the full potential of MTCA systems

It represents a leap toward implementing embedded systems that do not compromise on performance, connectivity, or power efficiency

The COM-HPC Mini's compact size and high density I/O resources allow the integration of latest generation Intel® CPUs across all form factors

Relevant OEMs (Adlink, Congatec, Kontron and Avnet TRIA) exhibit a solid roadmap for these modules with long term availability up to 15 years



MTCA & COM-HPC Mini, a Win-Win Approach

A new and long-lasting generation of MTCA CPU boards

- **AHP_1300** – AMC.0 COM-HPC Mini based Processor platform
- **IFC_1416** – MTCA.4 COM-HPC Mini based Processor AMC and FMC Carrier with Xilinx Kintex UltraScale+ and D1.4 compliant μ RTM
- **MHC_1418** – MTCA.4 COM-HPC Mini based Processor AMC with advanced interconnect and D1.4 compliant μ RTM



AHP_1300 – Single Width Processor AMC

Concentrated High Performance Computing

COM-HPC Mini based Single Width Processor AMC.0

Intel® Core™ 13th Gen Processors Raptor Lake-P

Intel® Core™ i3-1320PRE | 4 E-cores @ 3.3 GHz | 16 GBytes LPDDR5x

Intel® Core™ i5-1350PRE | 8 E-cores @ 3.4 GHz | 16 GBytes LPDDR5x

Intel® Core™ i7-1370PRE | 8 E-cores @ 3.7 GHz | 32 GBytes LPDDR5x

128 GBytes to 1 TByte onboard NVMe

Enhanced Security: Trusted Platform Module (TPM 2.0)

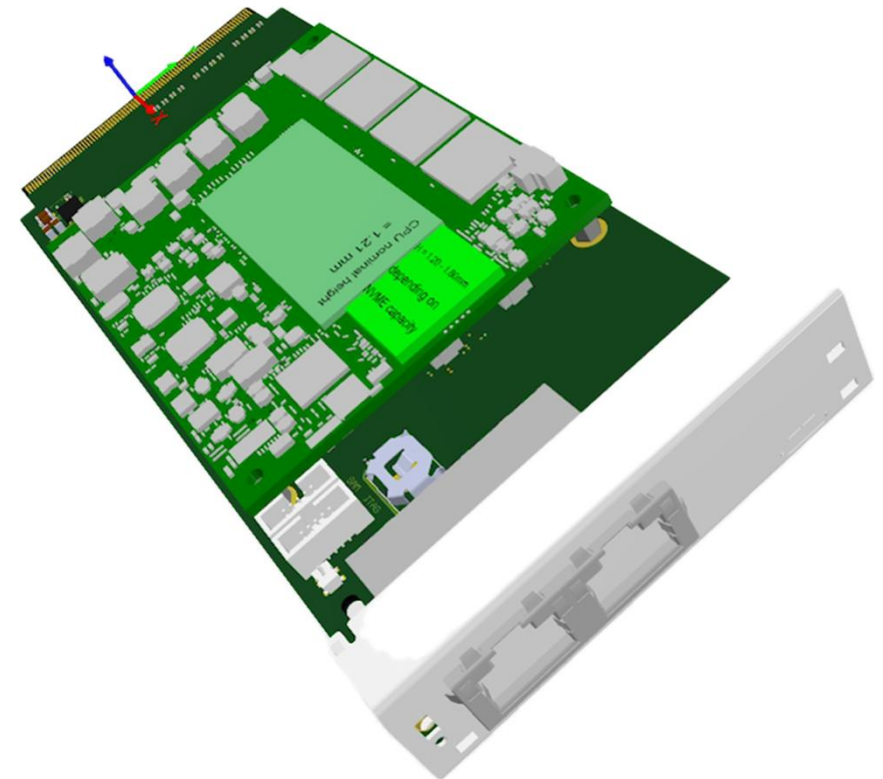
Enhanced Mezzanine Management Controller (MMC)

Artix-7™ Companion FPGA – Full control of M-LVDS & Telecom Clocks

High-Density Connectivity

Front-panel: 2 x 2500 BASE-T GETH (RJ45), USB-C and microUSB

AMC backplane: 2 x PCIe x4 Gen4, M-LVDS, Telecom clocks



IFC_1416 – MTCA.4 Processor AMC & FMC Carrier

Concentrated High Performance Computing

COM-HPC Mini based MTCA.4 Processor AMC

Intel® Core™ 13th Gen Processors Raptor Lake-P

Intel® Core™ i3-1320PRE | 4 E-cores @ 3.3 GHz | 16 GBytes LPDDR5x

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Intel® Core™ i7-1370PRE | 8 E-cores @ 3.7 GHz | 32 GBytes LPDDR5x

128 GBytes to 1 TByte onboard NVMe

Enhanced Security: Trusted Platform Module (TPM 2.0)

Enhanced Mezzanine Management Controller (MMC)

High-end FPGA – Xilinx Kintex™ UltraScale+™ (KU3P, KU5P, KU11P)

Up to 4 GBytes GDDR6 @ 16 GBytes/s

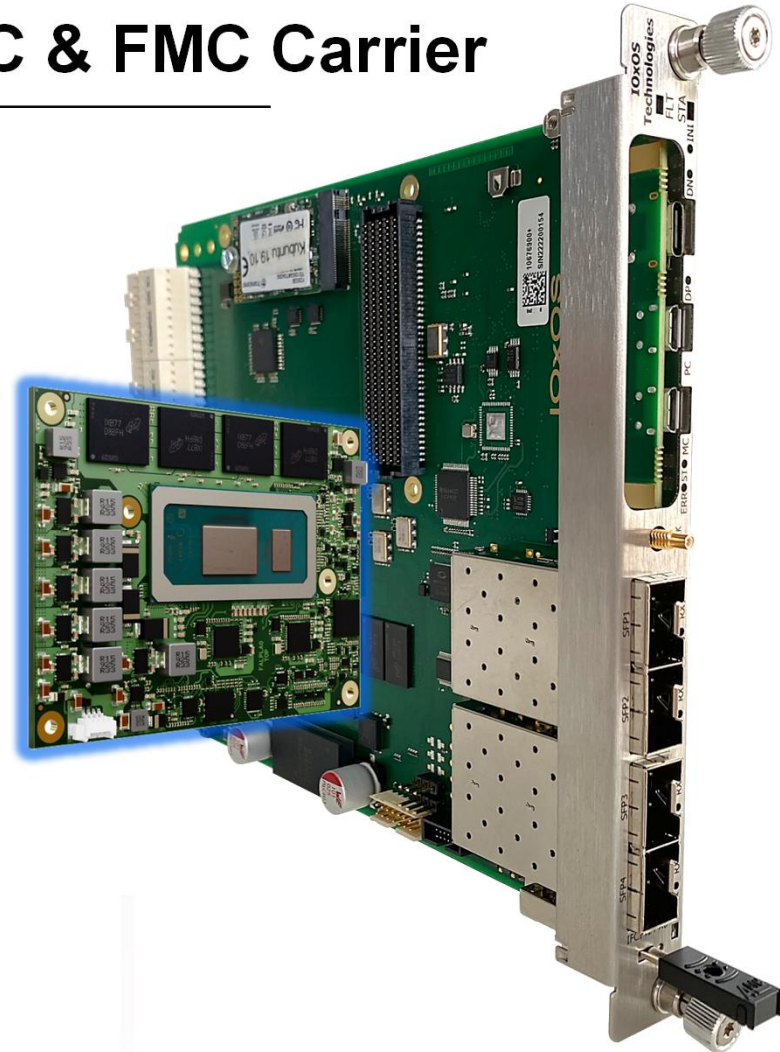
Single HPC VITA57.1 FMC slot

High-Density Connectivity

Front-panel: 2 x 2500 BASE-T GETH (IX), Dual SFP+ (10 Gbps) or QSFP+ (40 Gbps)

AMC backplane: 2 x PCIe x4 Gen4, M-LVDS, Telecom clocks

ADF Interface with RTM D1.3 and D1.4: PCI Express x4 Gen3



MHC_1418 – MTCA.4 Processor AMC

COM-HPC Mini based MTCA.4 Processor AMC

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Enhanced Mezzanine Management Controller (MMC)

Artix-7™ Companion FPGA – Full control of M-LVDS & Telecom Clocks

High-Density Connectivity

Front-panel: 2 x 2500 BASE-T GETH (RJ45), Dual SFP+ (10 Gbps) and USB-C

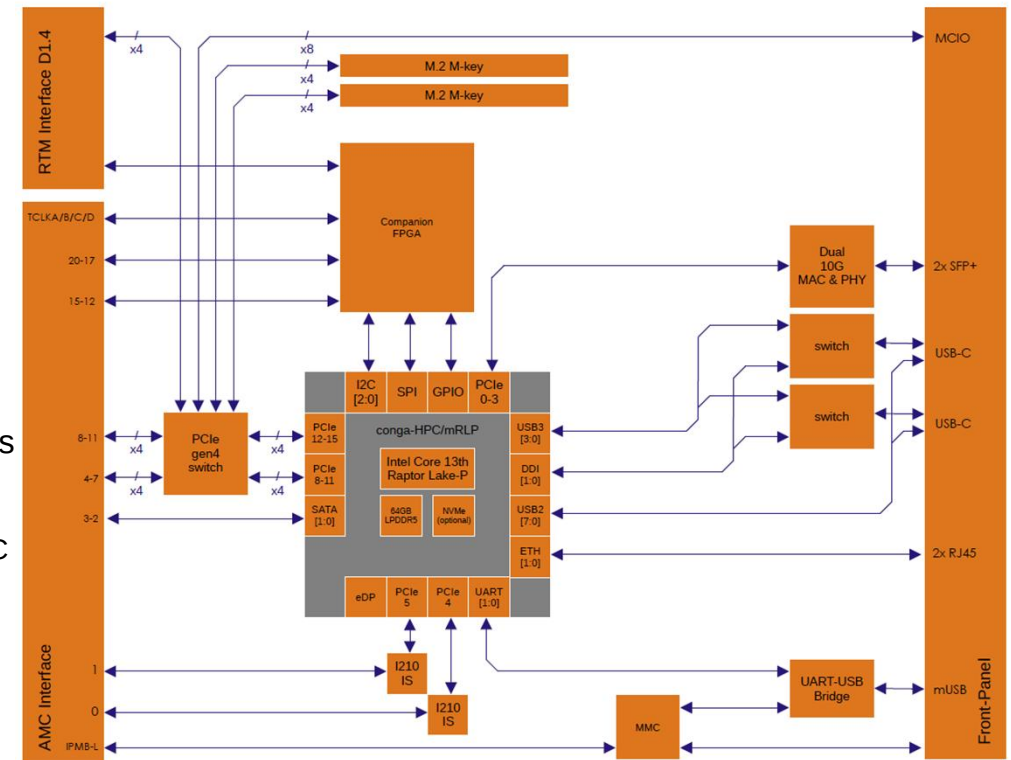
AMC backplane: 2 x PCIe x4 Gen4, 2 x GETH, 2 x SATA, M-LVDS, T-clocks

ADF Interface with RTM D1.4: PCI Express x4 Gen3

Multiple Mass Storage Options:

Local: 2 x M.2 M-Key connected to PCIe x4 Gen4

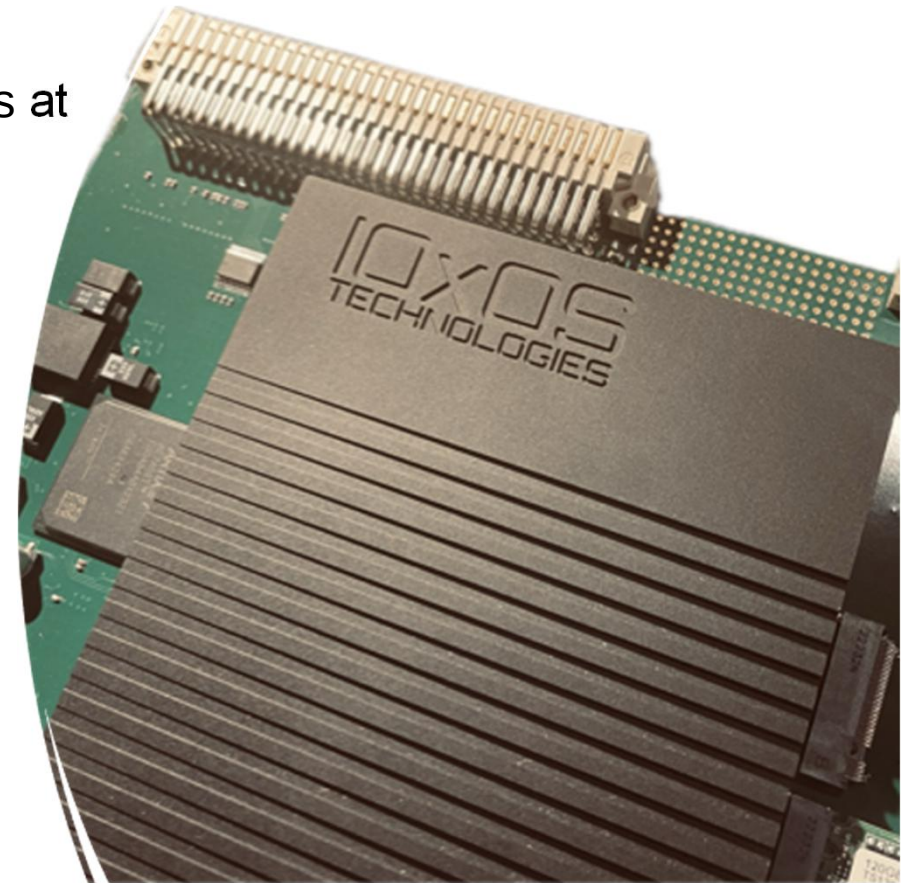
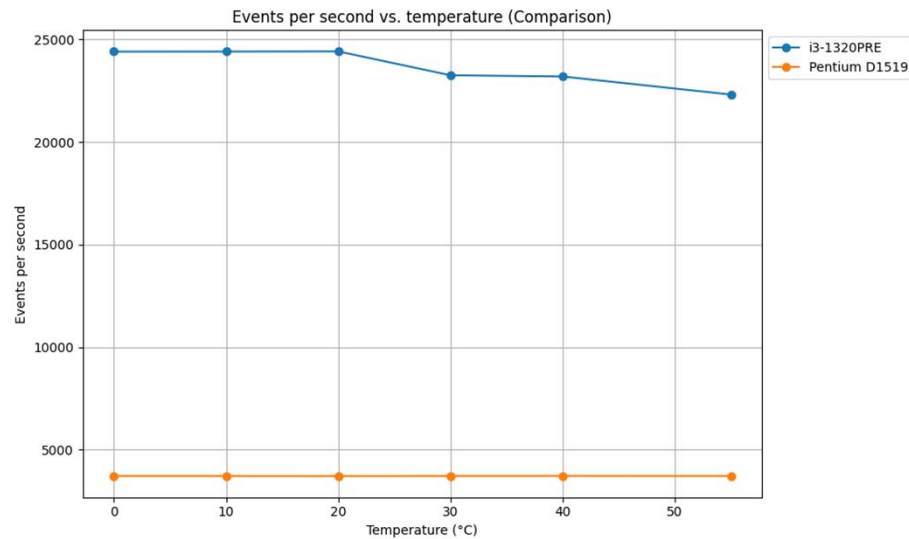
Remote: Front-panel MCIO providing PCIe x8 Gen4 and RTM PCIe x4 Gen4



Intel® Core™ i3-1320PRE Performance

Replacement of +1'000 VME Single Board Computers at
CERN's Control Division

Intel® Pentium™ D1519 Vs Intel® Core™ i3-1320PRE



Technical Standards



Starterkit users

HZB Helmholtz
Zentrum Berlin



ibS Institute for
Basic Science



Commonwealth Fusion Systems



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www.powerbridge.de