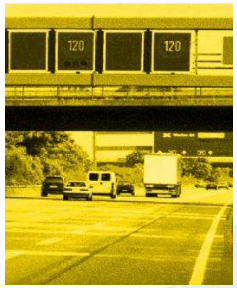
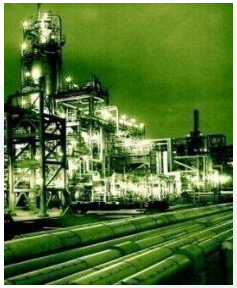
powerBridge
Computer




GSI Roadshow

MTCA/PXIe in Science and Industry

May 2023

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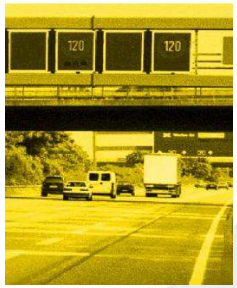

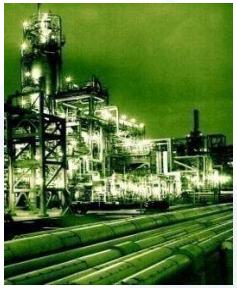


Company presentation

Product portfolio

May 2023

powerBridge Computer

At A Glance

ISO 9001 • ISO 14001
LL-C (Certification)

- Since 30 years in the market
- Privately owned
- Over 25 years VME experience
- Own Lab and integration facilities
- powerBridge has delivered over
  - 30.000 VME boards and 6.000 systems
  - 2010 rd. 2000 MTCA.4 and -.0 Systems for large research facilities worldwide
- PICMG member, actively working on MTCA.4 specification
- ISO 9001:2008 and 14001:2009 approved

powerBridge Computer and their partners are the backbone of VITA & PICMG Technology. We are experts of technologies.

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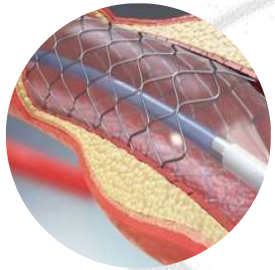
Telekom-
munikation

Defense

Luft- und
Raumfahrt



Medizintechnik

powerBridge
Computer

Transport

Industrie

Forschung

powerBridge Computer has the right solution …
From building blocks to systems for any branch

powerBridge
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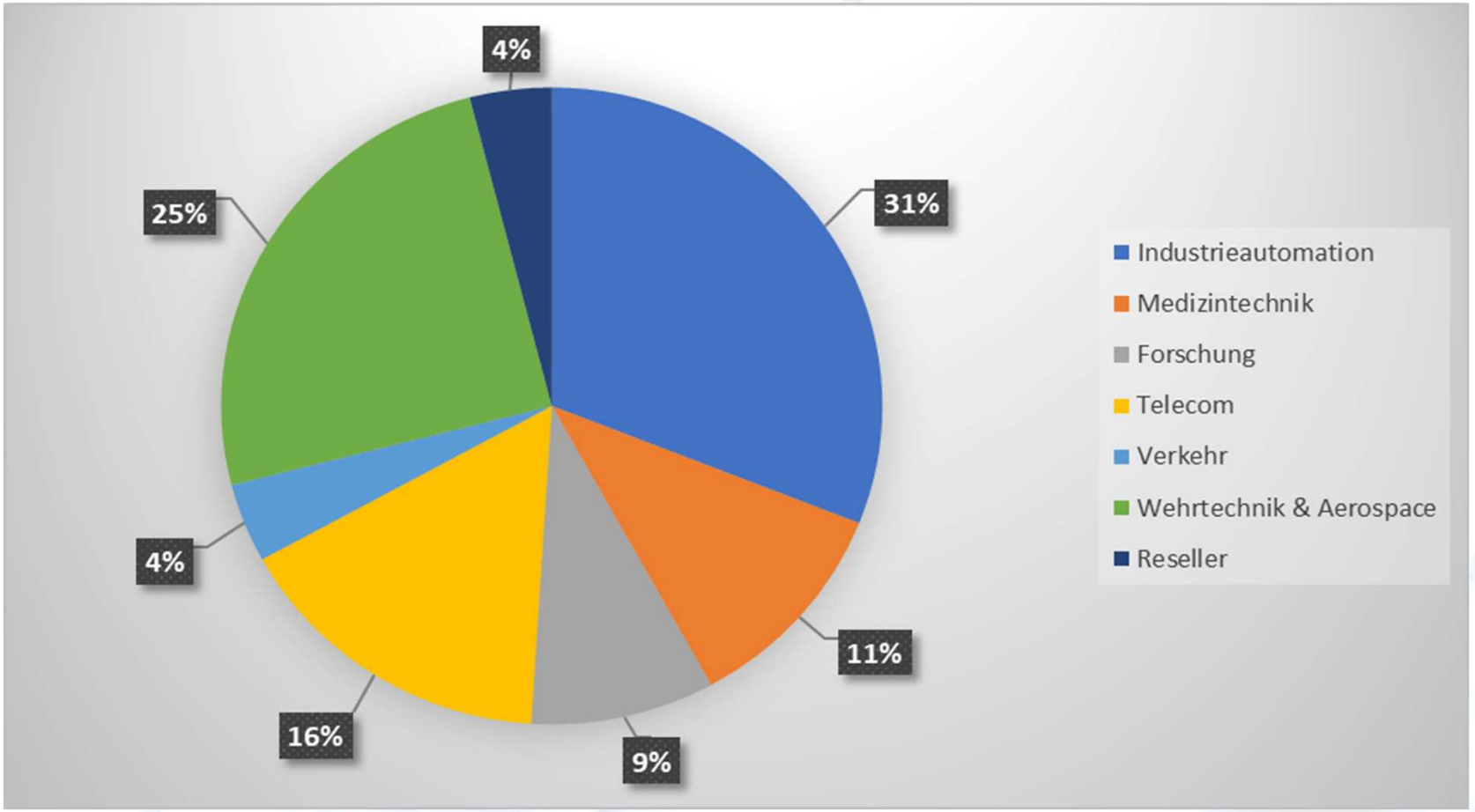

powerBridge Computer

Portfolio

- **Backplane based Computer systems:**
  - CPCI, CPCI Serial, MTCA, VME, ATCA, VPX
- **Industrial computer**
  - IPCs, Tablet PCs
- **Flexible I/O Boards**
  - Additional I/O Functions with Mezzanines :
  - PMC, XMC, FMC, IP
- **Carrier Boards for Mezzanine Modules**
  - Available for all form factors:
  - CPCI, CPCI Serial, MTCA, VME, ATCA, VPX und PCIe

powerBridge Computer **CPCI**

TEWS TECHNOLOGIES

ADLINK TECHNOLOGY INC.

- CPCI Chassis with Backplane and powersupplies

- Optionally with redundant power supplies and replaceable fan unit
- 3U/6U cards and chassis available

- CPCI CPU Boards 3U/6U

- some I/O- and Carrier boards

powerBridge Computer

CPCI CPU Boards

ADLINK TECHNOLOGY INC.

- 3U CPCI 3510 CPU board
- 4- core 4/5. Generation Intel i7 processor
- Up to 16GB DDR3L ECC memory
- Up to 3 independent displays
- Can be used in the system or peripheral slot
- Various I/O possibilities

- 6U CPCI 6636 CPU board
- 6/7 Generation Intel Xeon E3 and Core i3/ i7
- Up to 32GB DDR4-2133 memory
- XMC slot
- Up to 8x USB 3.0 and 6x RS-232 (Tx/Rx)
- Up to 4x GbE via rear I/O
- Various front I/O options

powerBridge Computer **CPCI-S**

ADLINK TECHNOLOGY INC.

- CPCI Serial Chassis, Backplanes and power supplies

Optionally with redundancy and replaceable fan unit

- CPCI-S CPU Boards 3U

- some I/O- and carrier Boards

powerBridge Computer

CPCI-S CPU Boards

ADLINK TECHNOLOGY INC.

- 3U CPCI Serial A3620 CPU
- 6/7 Generation Intel Core i7 CPU
- Up to 32 GB DDR3L ECC memory
- Up to 4 independent displays
- Various front I/O possibilities
- GbE, USB, DP, RS232
- Optional extended temperature range: -40 to +85°C

cPCI-3620 cPCI-3620D cPCI-3620S cPCI-3620T cPCI-3620TR cPCI-3620N

- Interface:
  - 1x PCIe x8
  - 2x PCIe x4
  - 3x PCIe x1
  - 4x SATA 6Gb/s
  - 2x USB 3.0
  - 8x USB 2.0

powerBridge Computer

Fanless Rugged Industrial PC´s

janztec Industrial Computing Architects

- Fanless Rugged Industrial PC
- 2-core 1.33GHz Intel Atom E3825
- 1-core 1.46GHz Intel Atom E3815
- 2GB DDR3L RAM
- CFast slot
- 2 CANbus or 2 serial interfaces
- 2GbE ports
- 3 USB 2.0 ports
- 1 mPCIe slot

- Fanless Rugged Industrial PC
- 4-core NXP i.MX6Q processor based on 800MHz ARM Cortex-A9
- 2GB DDR3 RAM
- 128KB NVRAM
- DVI-D port
- CFast slot
- 2GbE ports
- 2 USB 2.0 ports
- iXBus 8/16bit interface

- Fanless Rugged Industrial PC
- 600MHz Freescale processor based on ARM Cortex-A8
- Vector floating point coprocessor
- 256MB DDR2 RAM
- VGA port
- 2 CANbus or 2 serial interfaces
- 2GbE Ethernet ports

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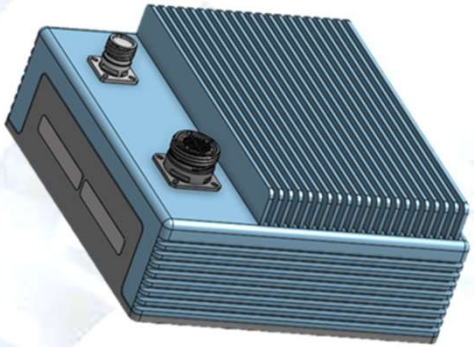
Rugged PCs

ADLINK TECHNOLOGY INC.

- VITA 75 cold plate mounting
- Intel® Xeon® Processor E3-1505M v6,
- quad-core; 16GB DDR4-2400 with
- ECC soldered down
- Compliant with MIL-STD-810G/461F/704F/1275E
- Quad Gigabit Ethernet and
- 6x USB ports
- Available GPGPU on PCI Express x16 Gen3



Designed by

powerBridge Computer

Available Form Factors

- ComEx 6
- ComEx 7
- ComEx 10
- Qseven
- Smarc
- Miriac Modules
- Designed by Microsys
- Based on NXP Processors

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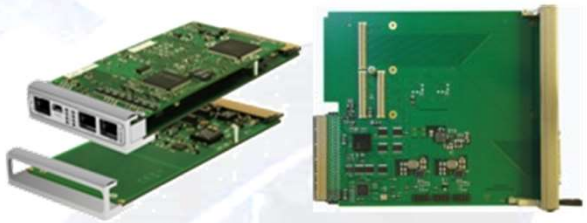
Mezzanine Boards

- Carrier for PMC/XMC

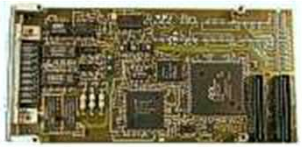
PCIe PMC/XMC Carrierboard

CPCI/CPCI-S PMC/XMC Carrierboard



AMC PMC/XMC Carrierboard
single and double width

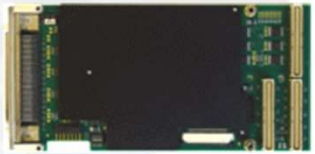
- PMCs/XMCs



32-fach 12-bit AD-converter
with Isolation

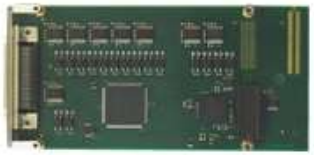
16/8-times 16-bit ADC,
8/4-times 16-bit DAC and
14-times TTL Digital I/O

2- oder 4-times Gigabit
Ethernet Interface



Reconfigurable FPGA-Modul
with 64 or 32 Differential-IOs

4-fach CAN-FD Bus
Controller



8 serial Interfaces with
programable RS-
232/422/485 Interfaces

6-Channel SSI-Interface,
Incremental encoder 24V
Inputs

Dual Display Graphic
Controller

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Systemintegration
Test and Documentation

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Manufacture of computer systems in constant high quality

ISO Certification:

- Prerequisites and measures to achieve the highest and consistent quality in the manufacture of customer-specific computer systems with the aim of minimizing overall costs.
- Ensuring component quality.
- Importance of system design, manufacturing quality, and manufacturing and testing documentation.
- Influence of the Device History Record.

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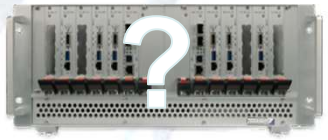
Systemidentification Version I

Customer´s functional specifications, system requirements with regard to the application

Plattform selection is done by pBC

Design proposal by pBC



Board selection is done by pBC

Chassis selection is made in relation to the application

Necessary tests?

Organized by pBC

Monitored by pBC performed in certified laboratories

powerBridge Computer

Systemidentification Version II

Design and platform specifications from the customer, system requirements are fixed

Platform selection Based on customer specifications

Board selection follows the requirements

Design proposals can
be discussed within the context of the specification

selection

Chassis selection is made by the customer in relation to the application

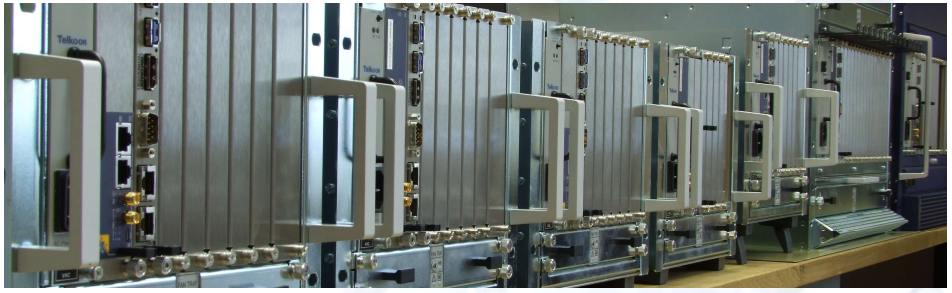
Necessary tests?

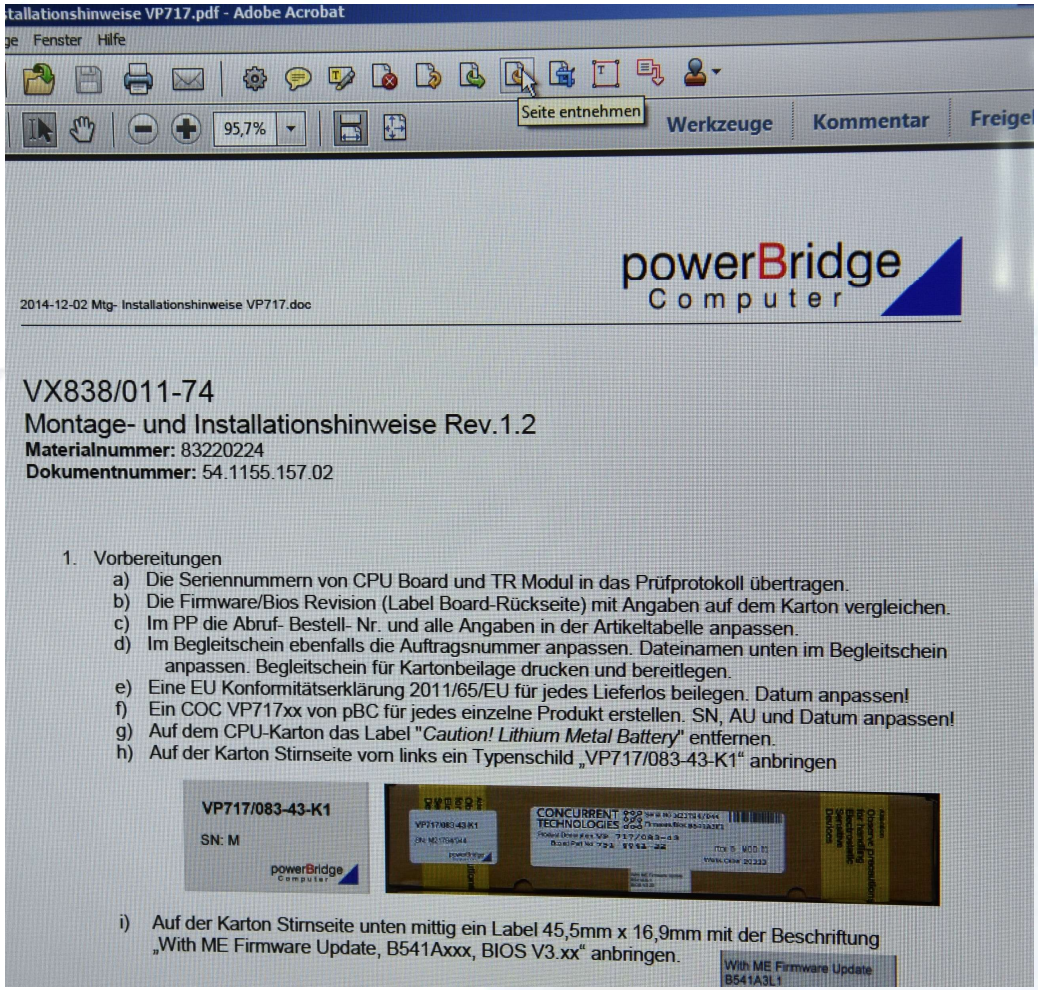
Organized by pBC

Monitored by pBC performed in certified laboratories

Requirements for the highest product quality

- quality of the components
- system build
- Quality of manufacturing and manufacturing documentation
- Tests, during production, final test, safety test
- Quality of the test instructions
- Device History Record





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Manufacture of computer systems, examples

VME basiertes Control system with Dual-Core PPC CPU with OS-9

Application:

Medical technology automation system for the pharmaceutical industry

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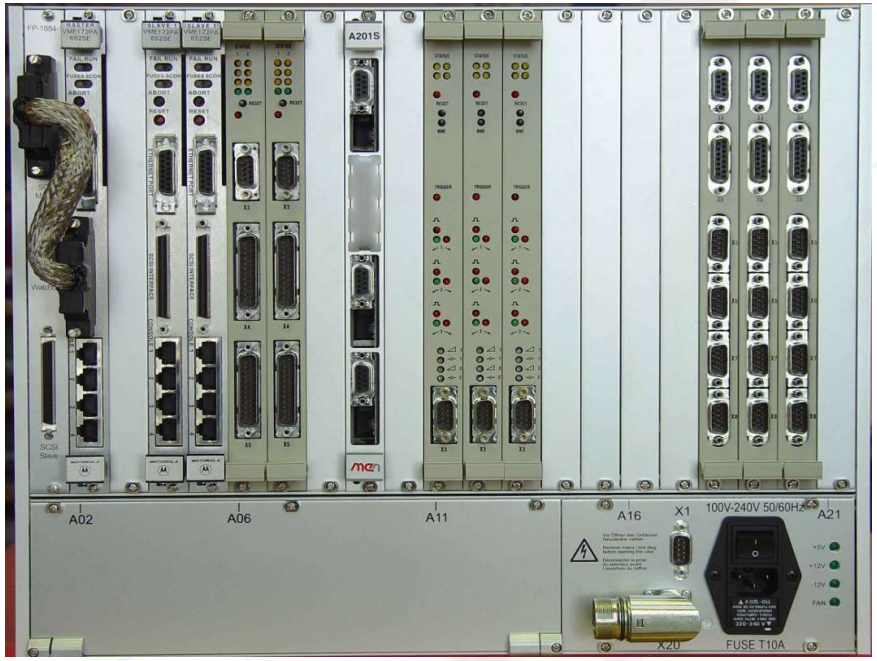
Manufacture of computer systems, examples



VMEbus based control system with 3 PPC CPUs

Application: Transmission and brake test stand for vehicle construction

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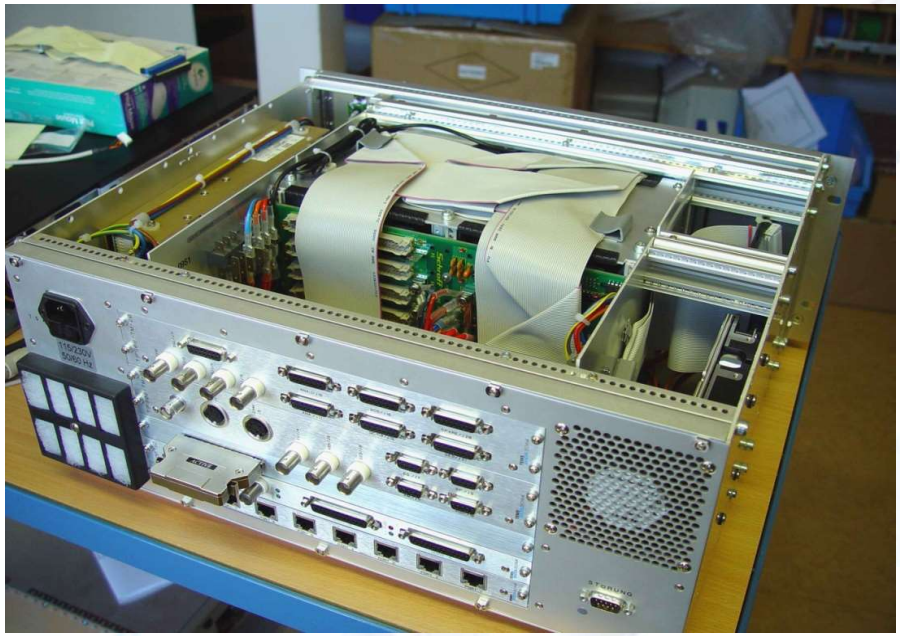
Manufacture of computer systems, examples



VME based control system with VxWorks

Application: Wafer inspection system for semiconductor manufacturers

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Manufacture of computer systems, examples

customized VME System with VME64 Backplane

VME Rack für military Application,

Suitable for use in harsh environments with shock and vibration, low noise, front and rear view

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Manufacture of computer systems, examples

cPCI based system with dual core CPUs and embedded Linux

Application:

Medical technology, detection of dirt or particles in ampoules

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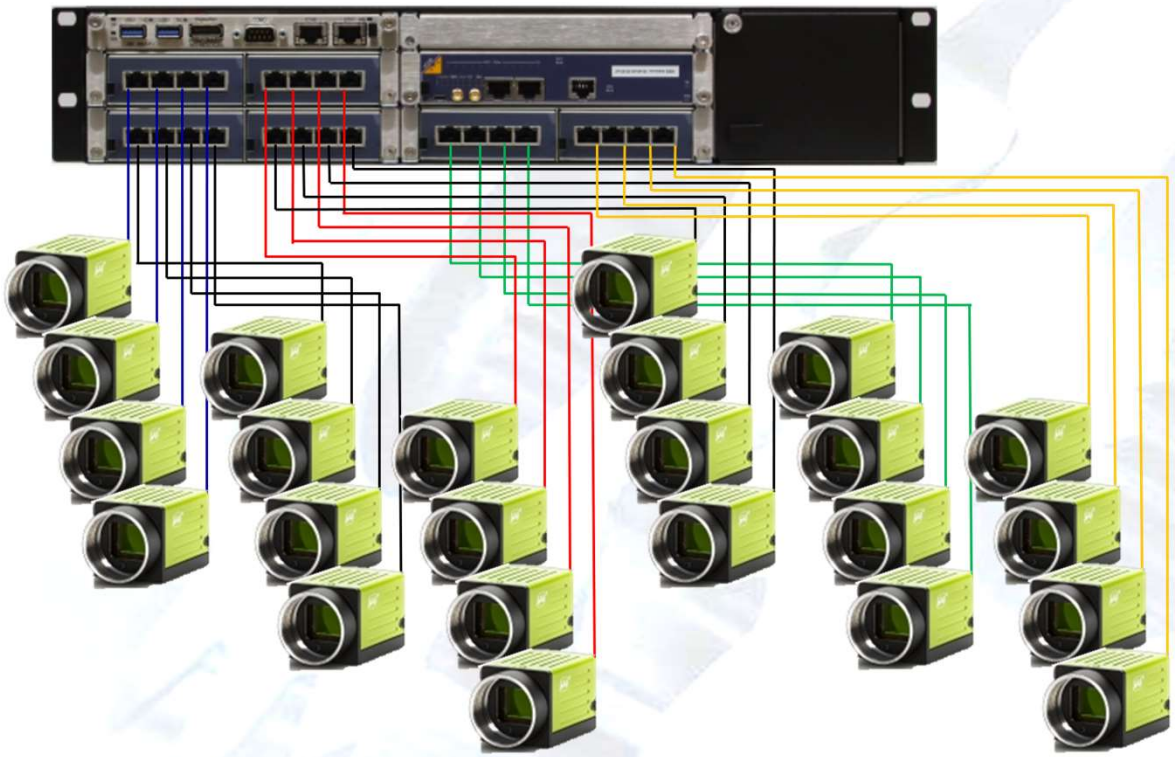
Manufacture of computer systems, case study



24 cameras in one 2U System

- Error detection, material testing, quality assurance,...
- Each camera can be used for a specific task
- Image matching by software such as Visual Applets
- Data storage on the CPU up to 4TB and accessible via
- 10GbE in the front panel
- Scalable to a maximum of 24 cameras in a 2U system

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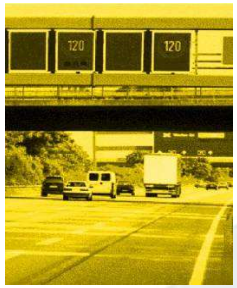
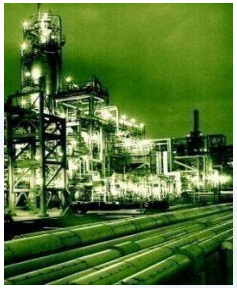


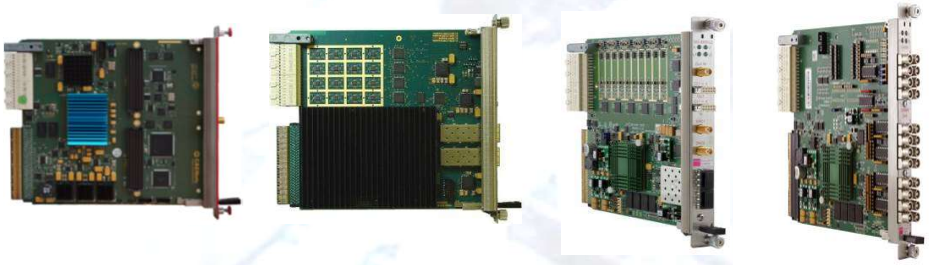




MTCA

powerBridge Computer **MTCA**

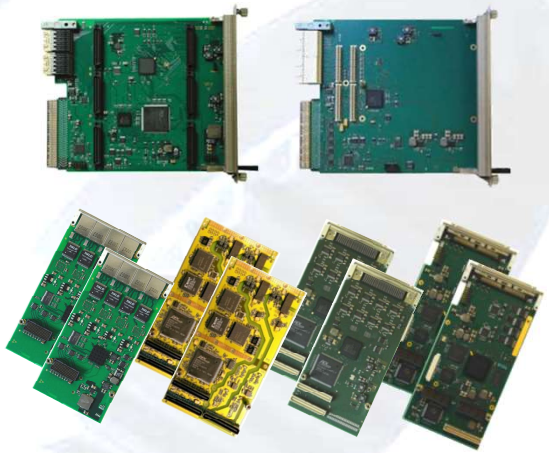
- MTCA.4 Starter Kits, consists MCH, CPU & PSU

- AMC Modules



- Filler Modules, Adapter cable, Programming and Debugging Tools as well as Test Adapter

- Carriers + Mezzanines (IP, PMC, XMC, FMC)



- SW & FW Support as well as BSP, source code Drivers, sample applications, FPGA framework

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2U MTCA.4 Crate

Starter Kit Basic configuration:

- CPU >> AMG 6x/msd
- PSU >> NAT-PM-AC1000
- MCH >> NAT- MCH

Other and additional modules are available on request

- 2U 19“ MTCA.4 crate, PICMG MTCA.4 R1.0
- 5 double mid-size AMC slots
- 1 double full-size AMC slot
- 5 double mid-size µRTM slots
- Double full-size MCH slot with µRTM Slot
- Double full-size Power module slot
- Exchangeable cooling unit with front to left or right to left air flow
- Dust filter exchangeable

powerBridge Computer

Two Computer in one single Chassis

Solution

- One single MTCA Chassis (e.g. 2HE)
- Plug in your required AMCs; e.g. 2x CPU, several I/0

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Two Computer in one single Chassis

Solution

- One single MTCA Chassis (e.g. 2HE)
- Plug in your required AMCs; e.g. 2x CPU, several I/0

powerBridge Computer

Two Computer in one single Chassis

Solution

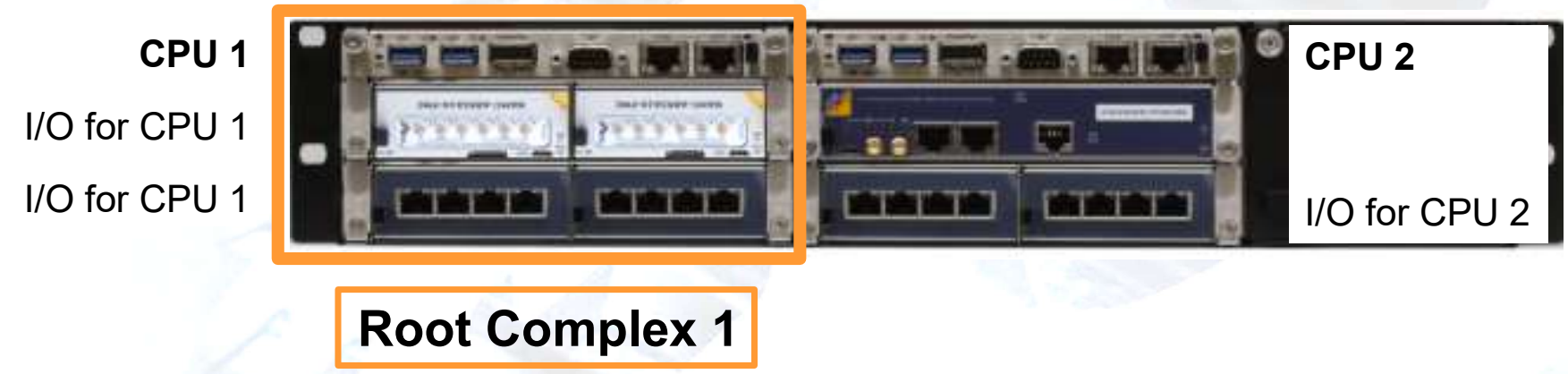
- One single MTCA Chassis (e.g. 2HE)
- Plug in your required AMCs; e.g. 2x CPU, several I/0
- Define Root Complex

powerBridge Computer

Two Computer in one single Chassis

Solution

- One single MTCA Chassis (e.g. 2HE)
- Plug in your required AMCs; e.g. 2x CPU, several I/0
- Define Root Complex



powerBridge Computer

Two Computer in one single Chassis

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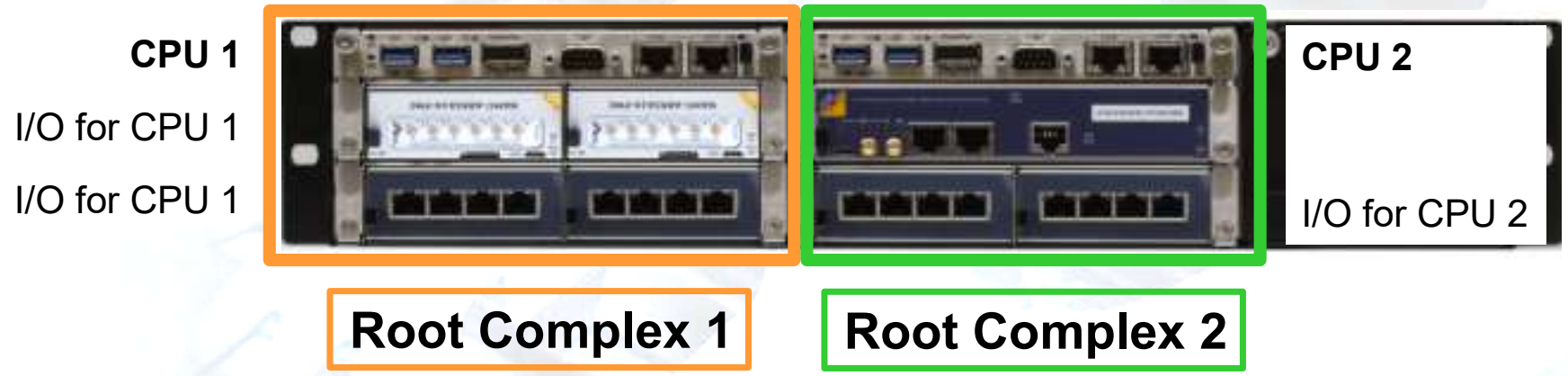

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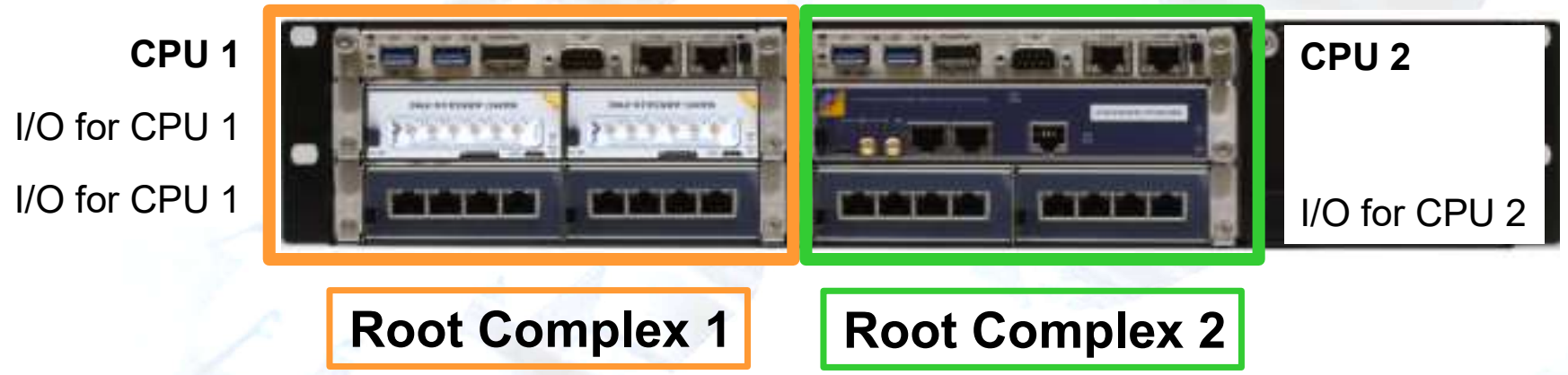
Two Computer in one single Chassis

Solution

- One single MTCA Chassis (e.g. 2HE)
- Plug in your required AMCs; e.g. 2x CPU, several I/0
- Define Root Complex



… up to six Root Complexes are possible

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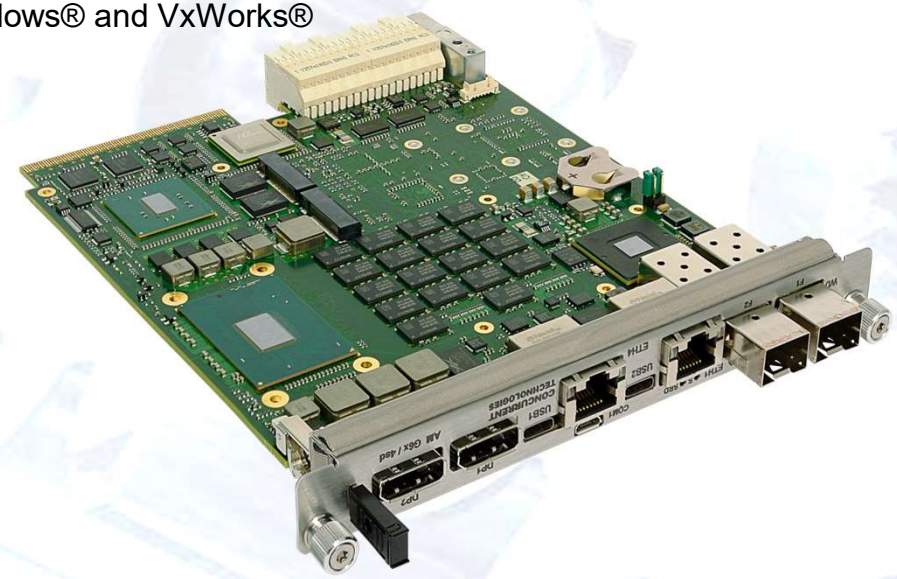
Processor AMC´s

- 4-core Intel® Xeon® processor E3-1505M v6:
- 8 Mbytes Cache, 3.0 GHz
- Intel® HD Graphics P630
- 2-core Intel® Core™ i3-7102E processor:
- 3 Mbytes Cache, 2.1 GHz
- Intel® HD Graphics 6302-core
- Front panel connections including option for 2 x 10 Gigabit
- SFP+ modules for remote connectivity
- Built in SATA microSSD™ for local boot and data storage
- Two M.2 sites for M-key SSD high speed RAID storage
- Optional µRTM
- Optional I/O in extended options region
- Support for Linux®, Windows® and VxWorks®



AM G6x/msd

CONCURRENT TECHNOLOGIES

AM F5x/msd

- Intel® 4-core processor variants for CPU or GPU intensive processing loads
- 4-core Intel® Xeon® processor E3-1515M v5:
  - 8 Mbytes Cache, 2.80 GHz
  - Intel Iris™ Pro Graphics P580
- Gen 3 PCI Express® fabric interface options for flexible connection to other payloads
- Front panel connections including:
  - 2 x 10GBASE-T Ethernet for networking
  - 1 x DisplayPort®, USB and Serial for configuration
  - Optional Flash Drive Module for local boot and data storage
  - Optional I/O in extended options region

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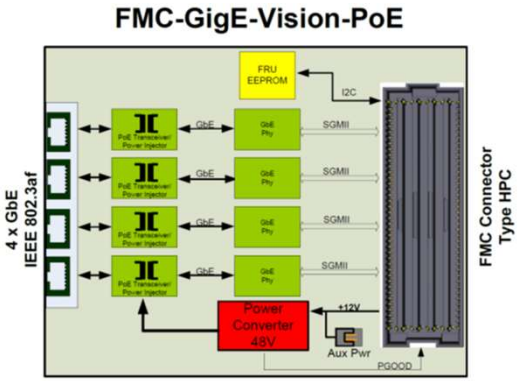
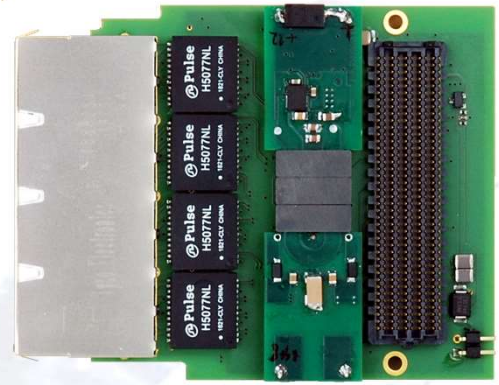
Image Processing Boards





Key Features:

- 4 IEEE 802.3af compatible front ports
- High efficient power converter
- FMC HPC Connector

Ethernet Switching

The four front panel Ethernet connections can be routed/aggregated to the MTCA backplane's.
1GbE ports (0/1) or to the 10GbE fatpipe ports (4-7 or 8-11).

PoE

The board is capable to drive power to 4 Ethernet links per IEEE802.3 af standard (15.4W per link) or two links per IEEE802.3 at standard (25.5W per link)

FPGA Carrier Boards

The **FMC-GigE-Vision** is dedicated to powerful FPGA based FMC carrier boards like the *NAMC-ARRIA10-FMC* or the *NAMC-ZYNQ-FMC* boards for first level picture or video processing/analysis. Due to their high speed interconnect topology FMC modules are the ideal platforms to aggregate and process high bandwidth data streams as provided i.e. by camera links and video streams.

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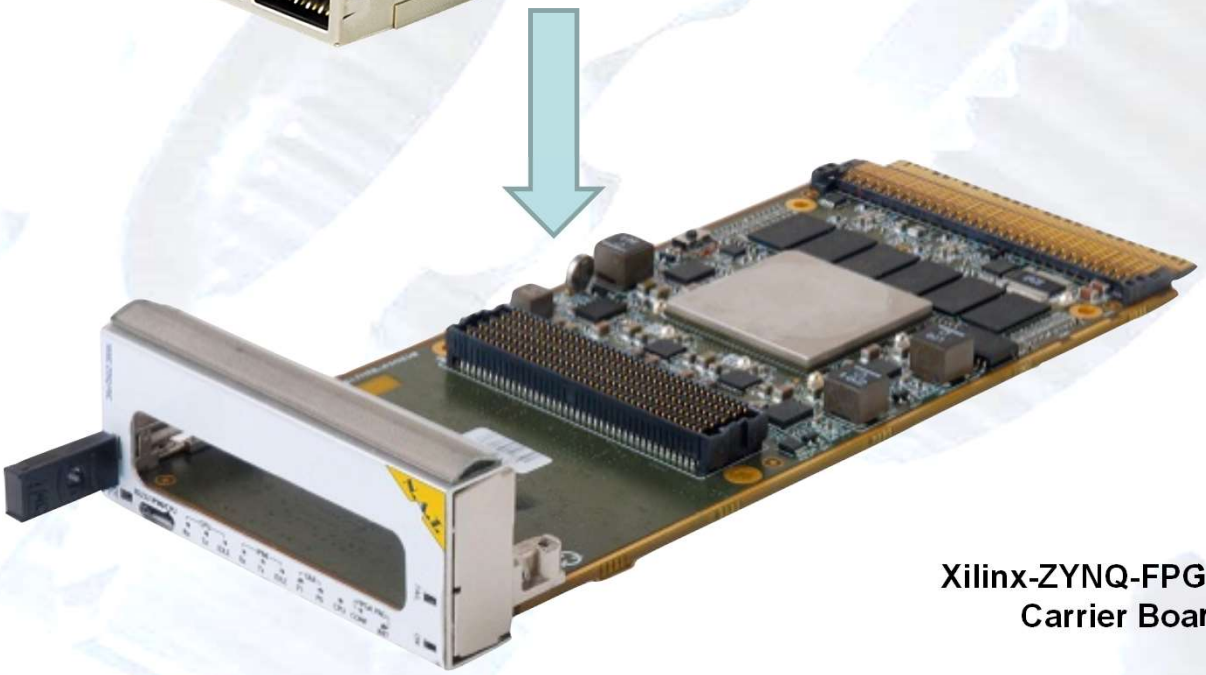
MTCA Image Processing System

4 port GigE Vision
PoE FMC



Xilinx-ZYNQ-FPGA FMC
Carrier Board

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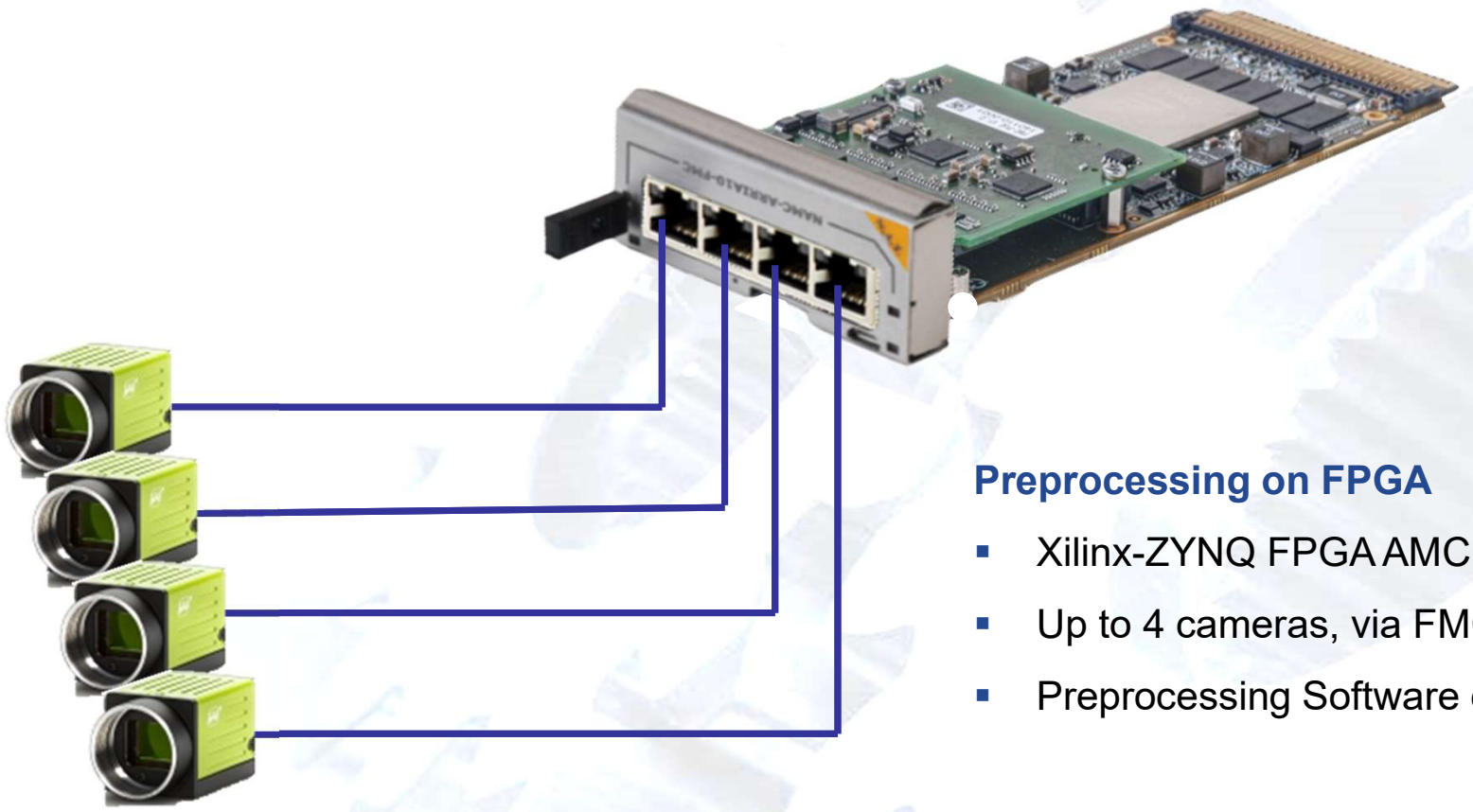
MTCA Image Processing System



Preprocessing on FPGA

- Xilinx-ZYNQ FPGA AMC Board
- Up to 4 cameras, via FMC connected
- Preprocessing Software on FPGA, f.e.Visual Applets

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Image Processing Boards

- **ZYNQ FPGA Board**
  - Xilinx ZYNQ-7000 XC7Z045 or XC7Z100 FPGA
  - High pin-count FMC slot complies with VITA 57.1
  - Dual banks of DDR3 memory (1 GB 64-bit, 512MB 32-bit)
  - 256 MB NOR quad SPI flash memory
  - MicroSD card slot
  - AMC.1, AMC.2, AMC.3, AMC.4 and IPMI 2.0 compliant
  - JTAG access over backplane
  - FMC adapter GbE Vision (see small mezzanine)
- **SanBlaze Storage Board**
  - One Integrated 2.5″ disk drive /SSD
  - SAS or SATA protocol and signaling
  - Select active Port
  - AMC port 3 only
  - AMC port 2 only
  - Both Ports (SAS only)
  - Serial burst data rate 6.0Gb/s
  - Capacity options up to 1TB
  - Front panel disk activity LED

Pictures: similar to the original boards

powerBridge Computer

Wireless Boards

- **ZYNQ FPGA Board**
  - Xilinx ZYNQ-7000 XC7Z045 or XC7Z100 FPGA
  - High pin-count FMC slot complies with VITA 57.1
  - Dual banks of DDR3 memory (1 GB 64-bit, 512MB 32-bit)
  - 256 MB NOR quad SPI flash memory
  - MicroSD card slot
  - AMC.1, AMC.2, AMC.3, AMC.4 and IPMI 2.0 compliant
  - JTAG access over backplane
  - FMC adapter GbE Vision (see small mezzanine)
- **Digital Board**
  - Xilinx Zynq XC7Z045-2FFG900C AP SoC, consisting of an integrated processing system (PS) and programmable logic on a single die
  - 1 Gb 32-bit wide DDR3 SDRAM (8X 256 MB x 4 SDRAMs)
  - 2X 256 Mbit Quad SPI-Flash for non-volatile storage
  - Clock synthesizer, clock jitter attenuator and clock distribution network
  - The board provides access to 12 GTX transceivers:
  - Eight of the GTX transceivers are wired to the MicroTCA backplane
  - Four of the GTX transceivers are wired to the QSFP Module connector (QSFP1)
  - 4 x 10 Gbps optical lanes for CPRI and 10 GbE to the front panel via QSFP
  - Programmable logic JTAG connector
  - 1X SD card slot available, memory extension up to 64 Gbyte, bootable
- **Analog Board**
  - Up to 4x AD9361 RF agile transceiver devices each supporting two antennas
  - Each transceiver can be fully synchronized up to 4 GHz
  - Integrated ADCs/DACs
  - Tunable carrier frequency between 70 MHz and 6 GHz
  - Up to 56 MHz analog bandwidth
  - Noise figure < 2.5 dB
  - Each receive (RX) subsystem includes independent automatic gain control (AGC), dc offset correction, quadrature correction, and digital filtering.

Pictures: similar to the original boards

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DAC Boards

Upcoming Board with Zynq Ultrascale +

- **ZYNQ FPGA Board**
  - Xilinx ZYNQ-7000 XC7Z045 or XC7Z100 FPGA
  - High pin-count FMC slot complies with VITA 57.1
  - Dual banks of DDR3 memory (1 GB 64-bit, 512MB 32-bit)
  - 256 MB NOR quad SPI flash memory
  - MicroSD card slot
  - AMC.1, AMC.2, AMC.3, AMC.4 and IPMI 2.0 compliant
  - JTAG access over backplane
  - FMC adapter GbE Vision (see small mezzanine)

- **FMC Module with 4x 310 MSPS 16-bit A/D with PLL and Timing Controls**
  - FMC module, VITA 57.1 High Pin Count
  - Four A/D Inputs
  - 310 MSPS, 16-bit
  - AC or DC coupled
  - Sample clocks and timing and controls
  - Both Front panel and FMC Ref Clock and Trig/Sync inputs
  - Front panel Clock/Vref output
  - Programmable PLL
  - 20 MHz TCXO Ref
  - No SERDES required
  - 2.5V VADJ
  - Power monitor and controls
  - 8.8W typical (AC-coupled inputs)
  - Conduction Cooling Supported
  - Environmental ratings for -40 to 85C
  - 9g RMS sine, 0.1g2/Hz random vibration

Pictures: similar to the original boards
Sources: NAT, Innovative Integration

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Onboard video (pre-)processing by FPGA or ARM

Xilinx-ZYNQ-FPGAs

Kintex-7-FPGA

Intel-Altera-ARRIA10-FPGA

Xilinx-ZYNQUP-FPGAs

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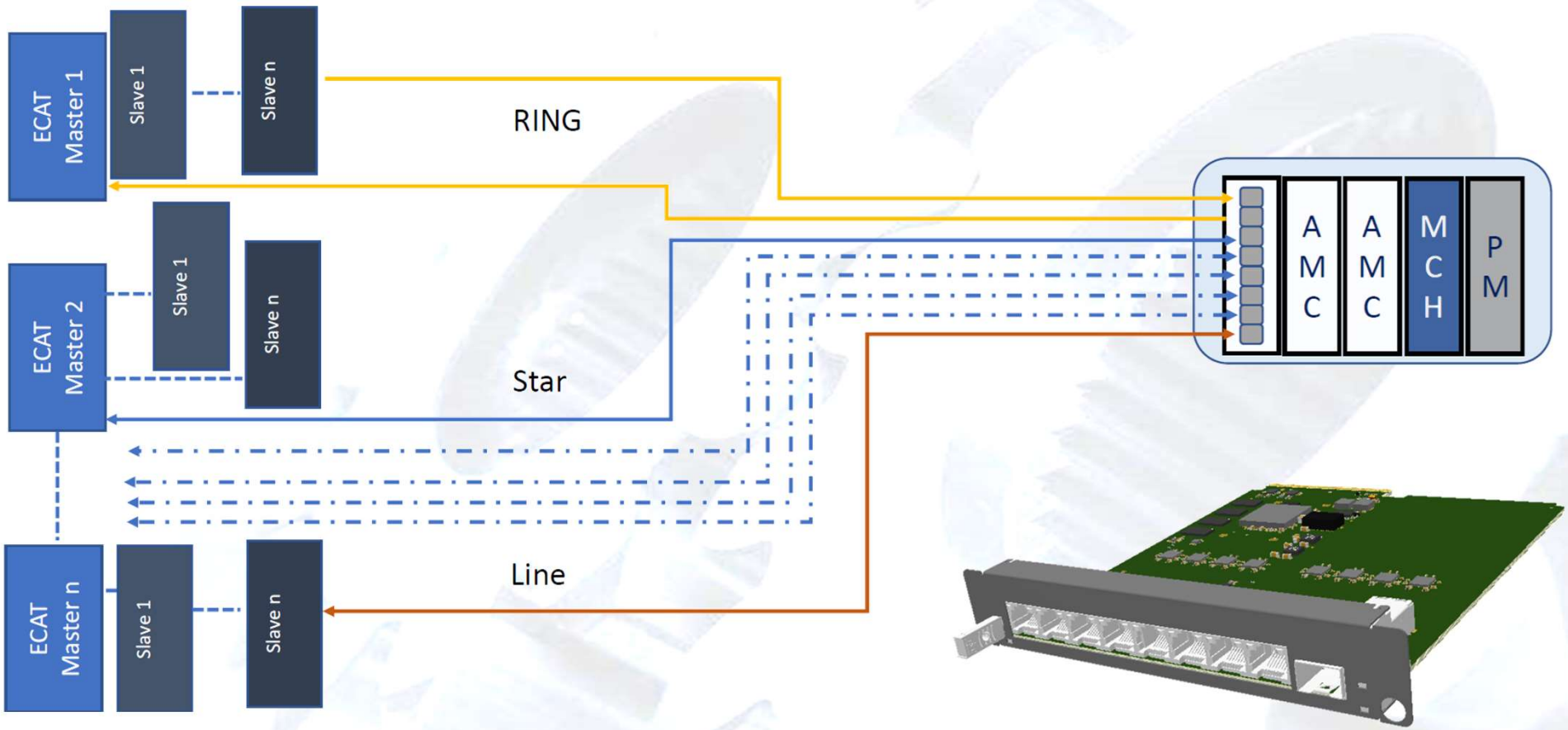
EtherCAT with NAT-AMC-ZYNQUP-ECAT



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Fieldbus EtherCAT

EtherCAT Slave modules

- EPS-9905 6-slot DIN rail mount with EPS-6000 EtherCAT bus coupler

- EPS-1132 digital input 32 channel with SPI interface (sinking type)
- EPS-2032 digital output 32 channel with SPI interface (sourcing type)
- EPS-2308 relay output 8 channel and 8 digital input with SPI interface
- EPS-3032 analogue input 32 channel (+/-10V) with SPI interface
- EPS-3216 analogue input 16 channel (0~20mA) with SPI interface
- EPS-3504 RTD input thermal 4 channel with SPI interface
- EPS-4008 analogue output 8 channel with SPI interface
- EPS-7002 pulse output motion controller 2 channel with SPI interface

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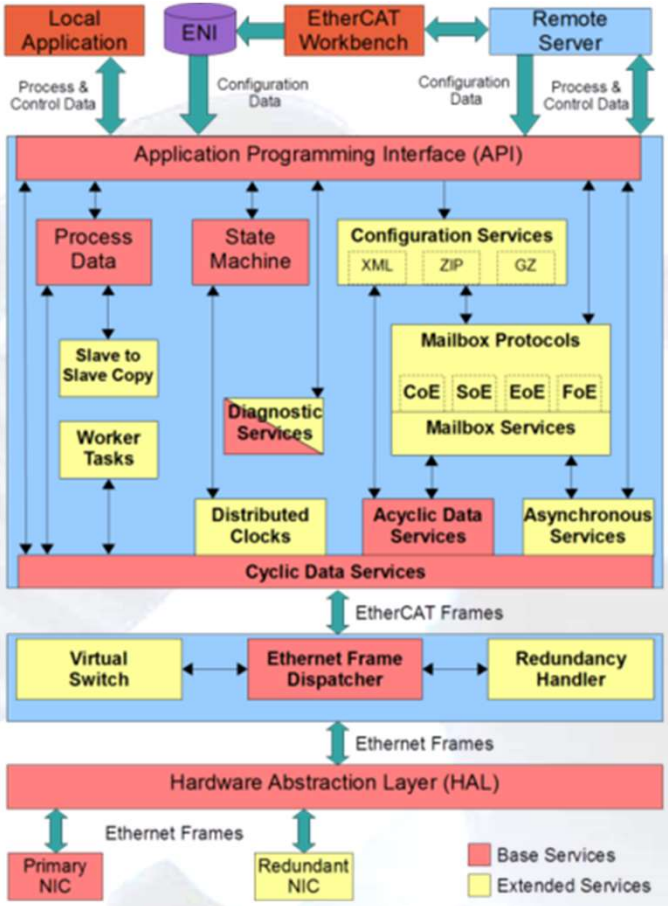
Fieldbus

EtherCAT. Master

- **MTCA System can act as EtherCAT Master**
  - Configuration and management of EtherCAT networks
  - Cyclic exchange of process data
  - Sophisticated API common to all implementations as interface between the application and the EtherCAT master stack
  - Mailbox based communication with:
    - CAN application protocol over EtherCAT (CoE)
    - Ethernet over EtherCAT (EoE)
    - File over EtherCAT (FoE)
    - Servo Drive over EtherCAT (SoE)
  - Built-in detailed diagnostics and profiling functions
  - Written in ANSI-C designed with high performance, small resource usage and scalability in mind
  - The core components are operating system (OS) and CPU architecture independent
  - Adaption to many prevalent (real-time) operating systems available from stock
  - EtherCAT Master Class A according to ETG.1500



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Standalone 2nd FMC, SDR Solution

Features

- **NAT-FMC-SDR4**
- **FMC mezzanine board with RF front-end**
- 2x Analog Devices ADRV9009 dual RF transmitters, receivers, and observation receivers
- 4x Rx/Tx channels with large bandwidth
- Synchronizable for creating large phased-arrays
- Multiboard synchronization
- VITA 57.1 FMC high pin count (HPC) connector
- Direct access to the inputs via 2nd FMC with HDMI Interfaces.

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Wireless Solutions SDR Systems

NAT-SDR-FLEX-L

19” 3U rack-mount fully redundant system

- 1x **NATIVE-C3-PTM**
- 2x **NAT-MCH** for system management and switching
- 2x **NAT-PM-AC600**
- 2x **NAT-AMC-ZYNQUP-SDR8** mini-coax-to-SMA adapter cable
- 1x PrAMC (Intel® Xeon® E3-1500 v5)
- 7x spare AMC slots for further system extension + 2x spare slots each for PTMs and PMs

NAT-SDR-FLEX-M

19” 1U rack-mount non-redundant system

- 1x **NATIVE-C1**
- 1x **NAT-MCH** for system management and switching
- 1x **NAT-PM-AC600**
- 2x **NAT-AMC-ZYNQUP-SDR8** mini-coax-to-SMA adapter cable
- 1x PrAMC (Intel® Xeon® E3-1500 v5)
- 1x spare AMC slot for further system extension

NAT-SDR-FLEX-S

1U table-top/set-top-box system

- 1x **NATIVE-mini including 150WAC open frame PM and NAT-eMCH**
- 1x **NAT-AMC-ZYNQUP-SDR8 mini-coax-to-SMA adapter cable**
- 1x **PrAMC (Intel® Xeon® E3-1500 v5)**

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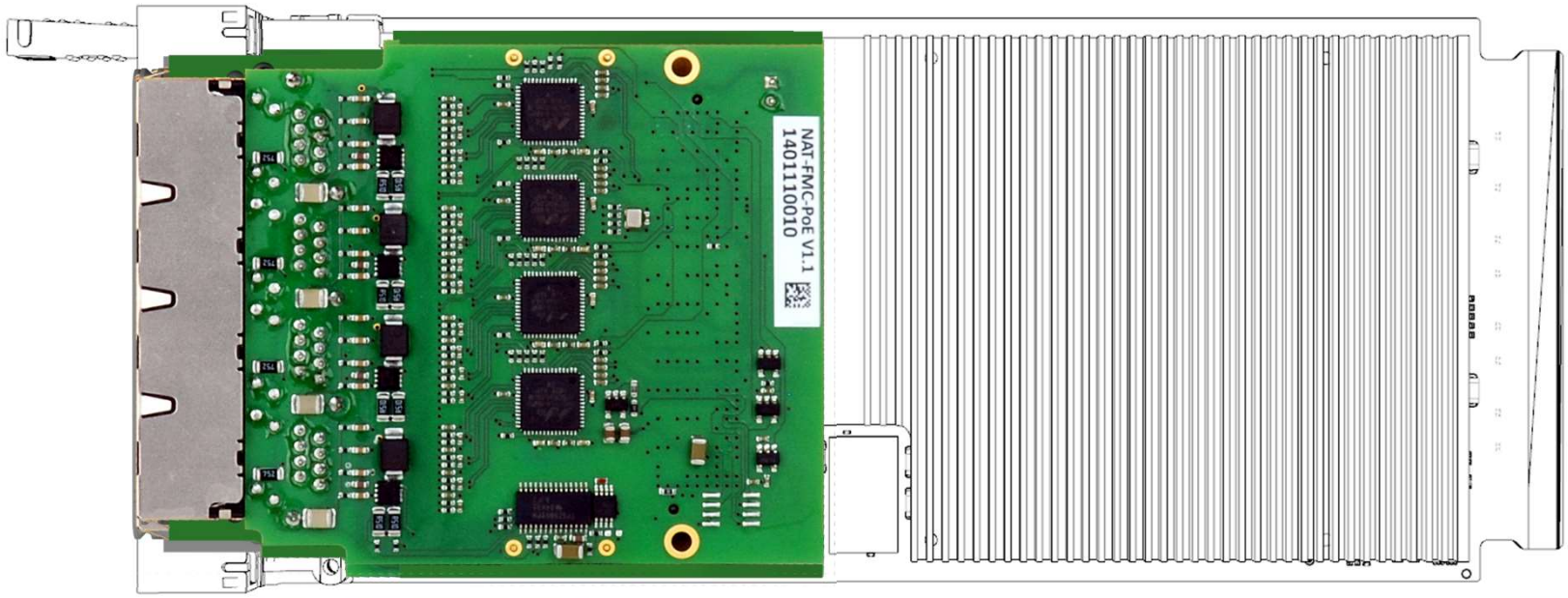
Standalone 2nd FMC

Features

- Data Input via GiG E Vision FMC
- Direct access to the inputs via 2nd FMC with HDMI Interfaces.

NAT-AMC -FMC



FMC: Flexible IO

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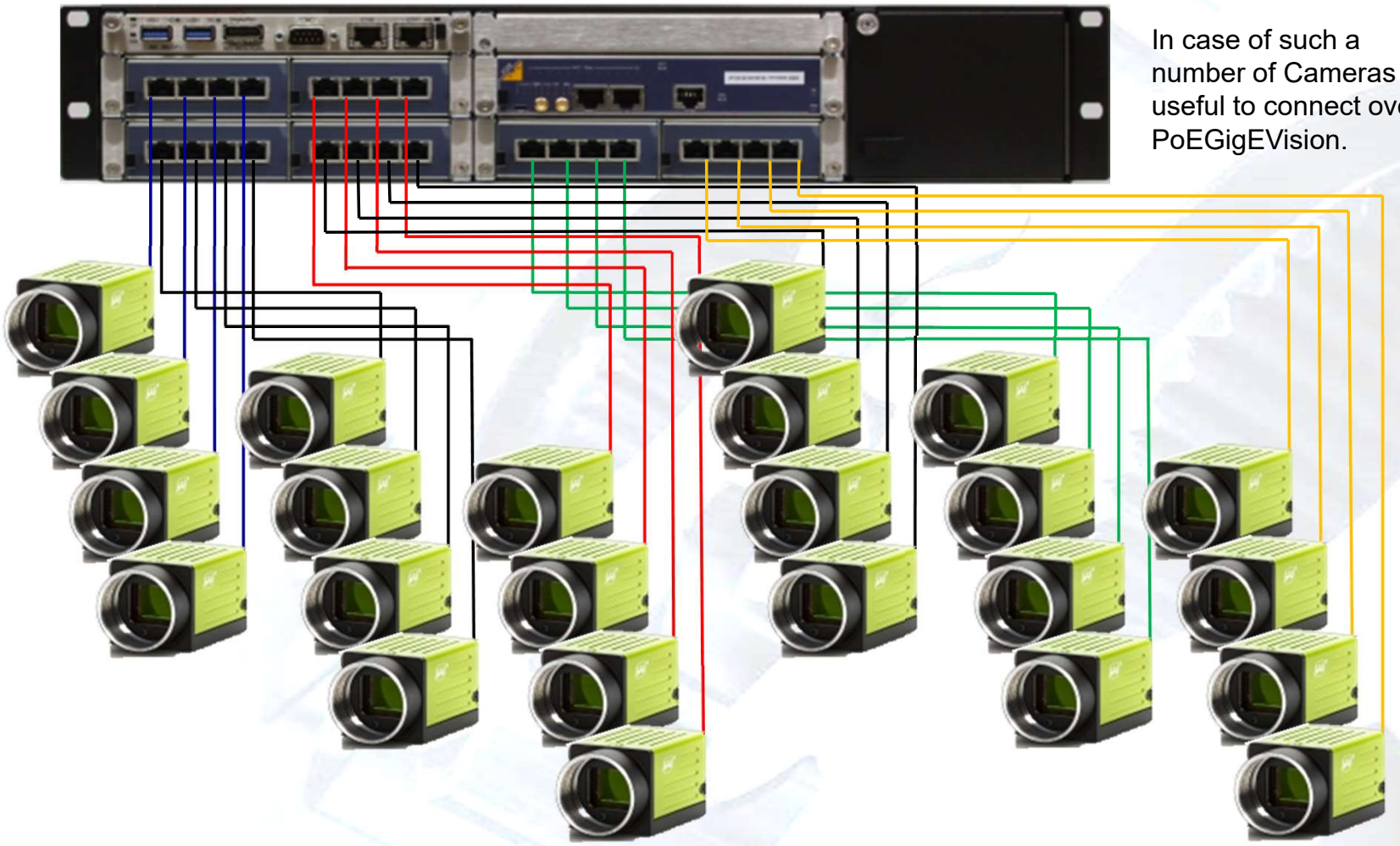
Image Processing System mid range



In case of such a number of Cameras it`s useful to connect over PoEGigEVision.

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Image Processing System minimized

The following project needs only 8 cameras for these complex imaging processes. The application should work with two FPGA AMC´s and two GiGEVision FMC´s Usable with Ethernet uplink to Storage or external Computer

Requirements for the test:

- each two cameras deliver overlayed pictures
- to identify different faults, the pictures of all cameras will be compared
- For supporting the identification it´s possible to use software features like recouloring, pixel recalculation also.

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Powervision System Advantage
Modularity, Flexibility, Bandwidth

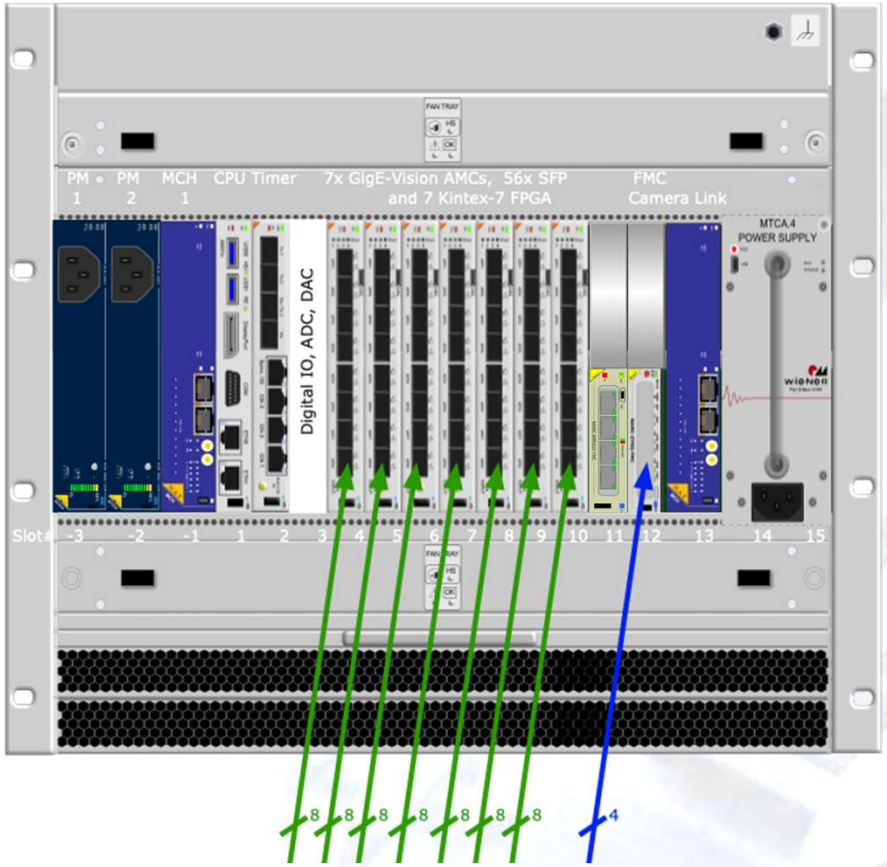

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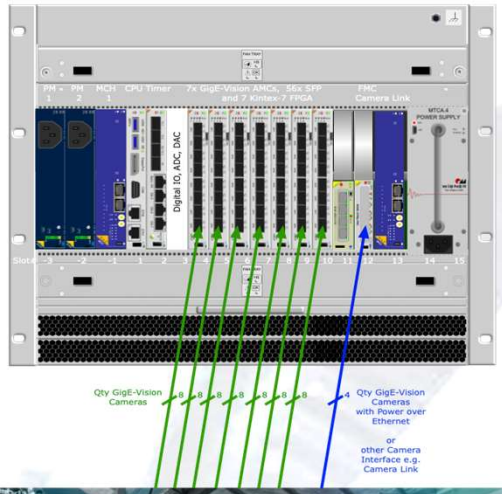
Image Processing System maximized

9U
12x8 GigE-Vision
= 96 cameras



4 x 2U = 8U
4 x 48 GigE-Vision
192 cameras

3 x 3U = 9U
3 x 4 and 2 x 8 GigE-Vision
= 72 cameras
or 6 x 8 GigE-Vision
= 96 cameras

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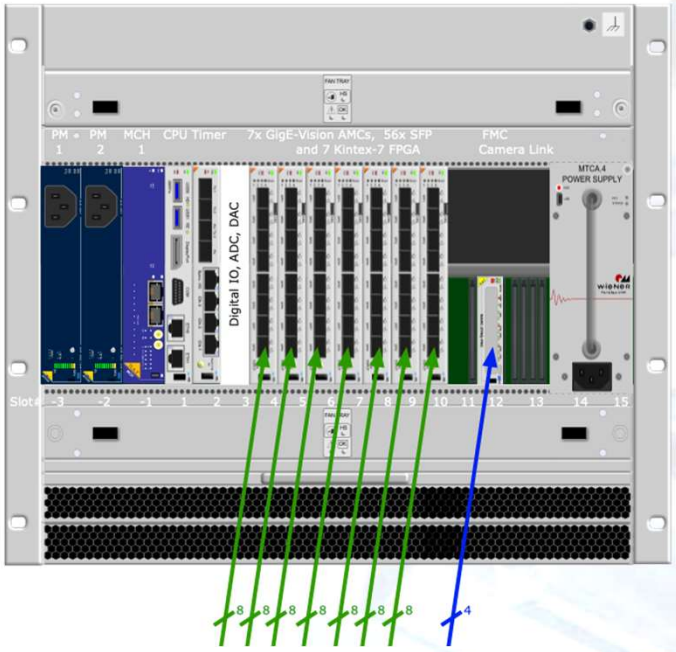
MTCA Systems for Image-, Signal-processing and Wireless applications

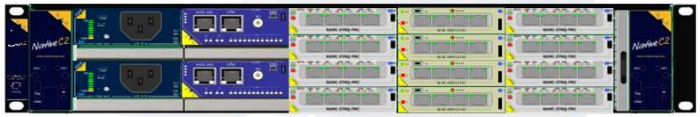
9U MTCA.4 Camera System

- 12x NAMC-TCK7 = 96 GigE-Vision Cameras
- 12x NAMC-FPGA-FMC = 48 Cameras
- Mixture of NAMC-TCK7 & NAMC-FPGA-FMC
- **Timing & Triggerbus,**
- **Low-Latency P2P Realtime-Fieldbus Master, e.g. EtherCat**



2U MTCA.0 DAC System

- 12x NAMC-FPGA-FMC= 48 DAC Channels
- Mixture of NAMC-TCK7 & NAMC-FPGA-FMC optional



2U MTCA.4 multi using system

- 6x NAMC-TCK7 = 48 GigE-Vision Cameras
- 6x NAMC-SDR = 72 Wireless User
- Mixture of NAMC-TCK7 & NAMC-FPGA-FMC
- Realtime-Fieldbus Master, e.g. EtherCat
- **Timing & Triggerbus, Low-Latency P2P**
- 4 USB-3 Cameras

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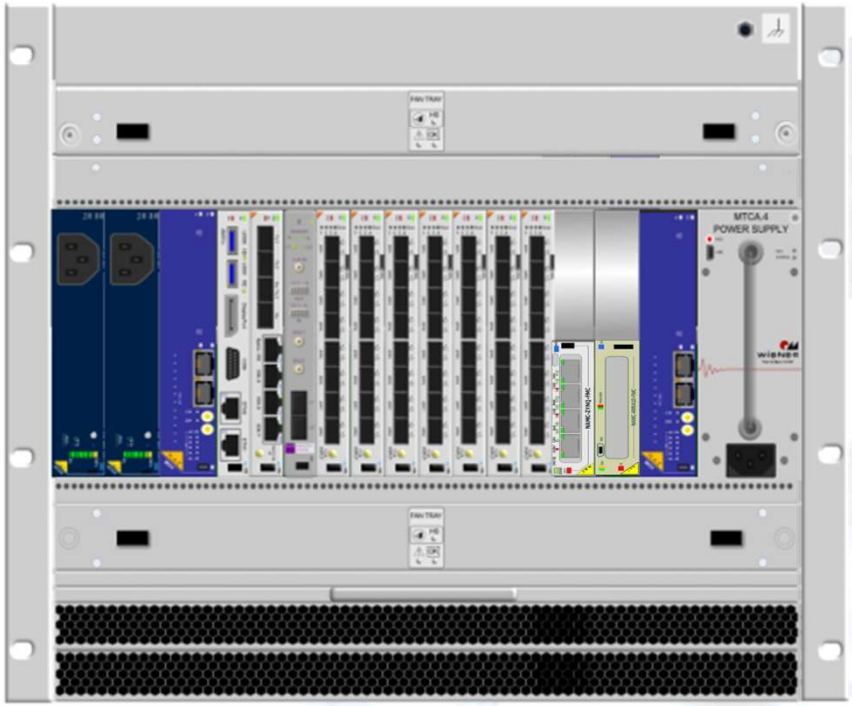
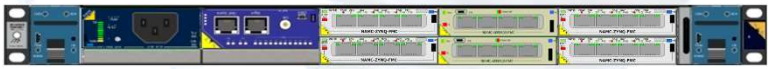
powerBridge UDAC System

Universal **D**ata **A**quisition **C**omputing System



2nd FMC
with HDMI



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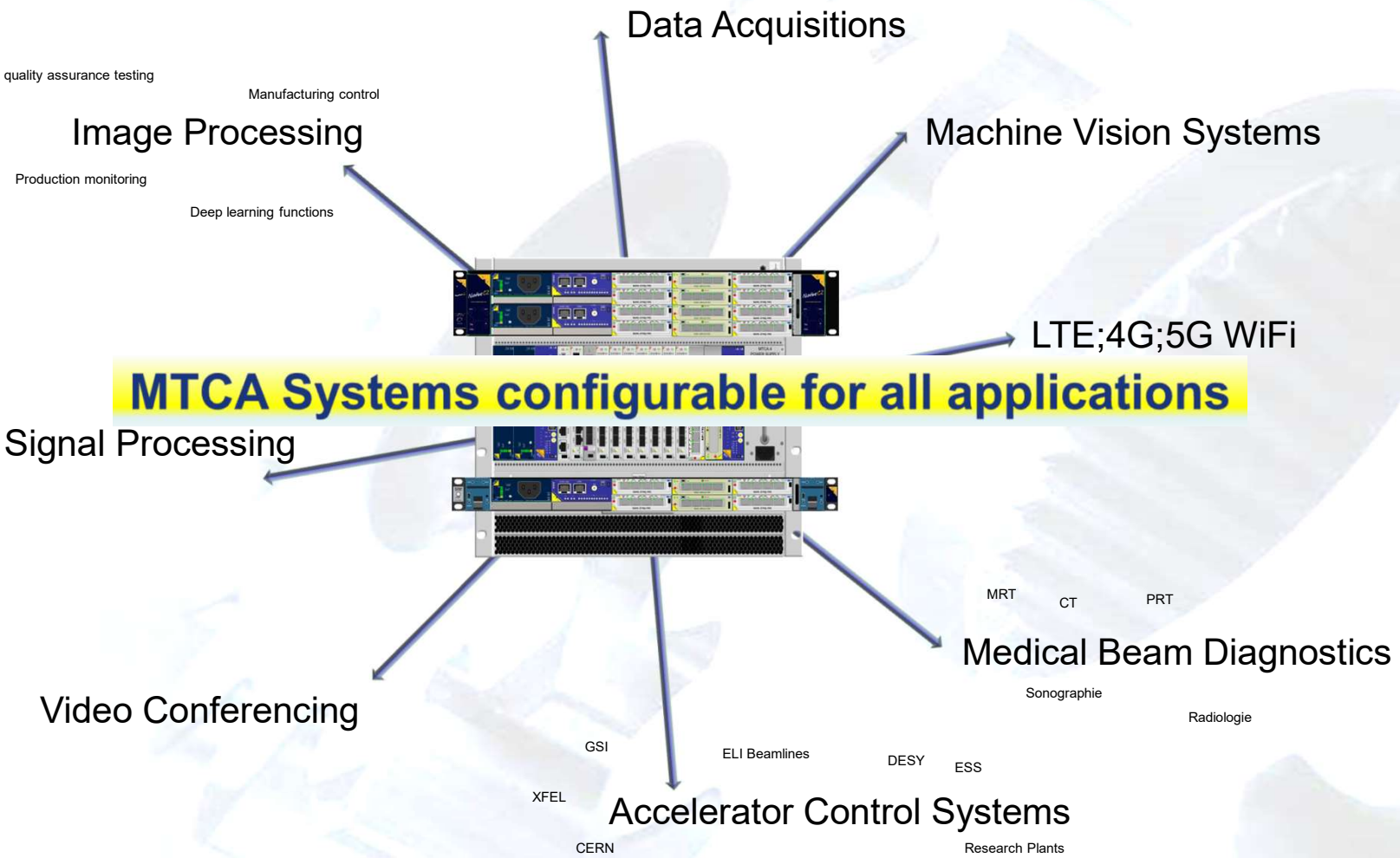
powerBridge UDAC Systems



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Design-In Infrastructure

- Starter Kits Hardware & Development
- Starter-Kits
- Infrastructure Components

- Integration Components
- Standalone
- Right Function

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Synergy of ADLINK/Nvidia+pBC

- **powerBridge:**
  - Boardselection (for new applications)
    - GPGPU Boards
    - Deep Learning Modules
  - Systemintegration
    - Example: Imageprocessing with deep learning effects)
  - Test and Certification
- **Adlink/NVIDIA**
  - Board development
  - OEM/ODM Products for value added solutions
  - Management Software, Security and Cloud solutions

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EGX-MXM-P1000/(P2000*)

Pascal P1000(GP107) MXM Embedded Graphic module

EGX-M-P1000 features

- MXM 3.1 Type A FF (82 x 70 mm)
- 640 CUDA cores
- 1.8 TFLOPS peak FP32 performance
- 4 GB GDDR5 memory
- 96 GB/s maximal memory bandwidth
- Support up to 4 UHD displays
- Maximum Package power 48W
- 5-years longevity support

Environmental

- Operating Temperature: CT 0~55C/WT -40~ 85C
- Operating RH 5% to 90%

P620/P2000* is under planning in 2H'18

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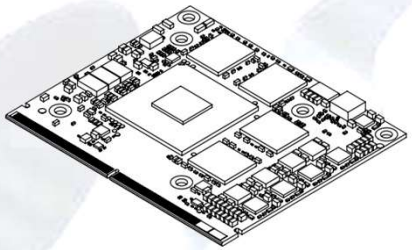
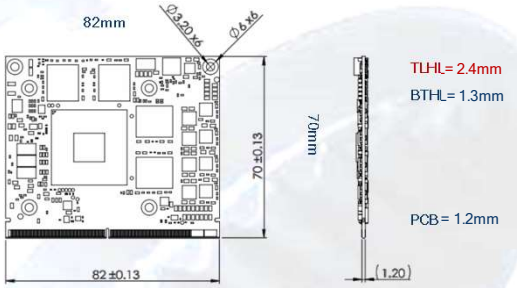
Product Requirements

ADLINK

Pascal P1000(GP107) MXM Embedded Graphic module

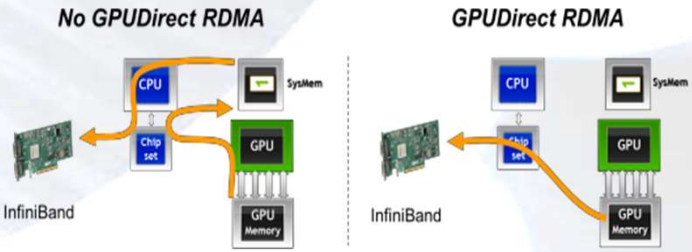
- 4 DisplayPort 1.4 digital video outputs:
- support for High Dynamic Range (HDR) video
- 4K at 120Hz or 5K at 60Hz with 10-bit color depth
- Pascal GPGPU parallel processing:





step file available for mechanical fitting

- 640 CUDA® cores
- CUDA Toolkit 8.0, CUDA Compute version 6.1
- OpenCL™ 1.2, DirectX® 12, OpenGL 4.5, Vulcan 1.0
- Memory width: 128-bit
- Maximum memory bandwidth: 96 GB/s
- PCIe x16 Gen3 supports



- NVENC/NVDEC accelerator for HEVC (H.265) and AVC (H.264) hardware encode/decode
- Windows (7/10) and Linux drivers, 64bit
- Mechanicals
  - PCB thickness (1.2 mm)
  - Gold plating on connector card edge (30 µin)
  - Standard MXM 3.1 connector
- Conformal coating options
- Operating temperature: CT / WT

NVIDIA CUDA

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MTCA.4 AMC (RTM) as MXM Carrier

Applications

- Data acceleration
- Graphic processing
- Number crunching (relief of the CPU)
- and a lot more add ons for the System.

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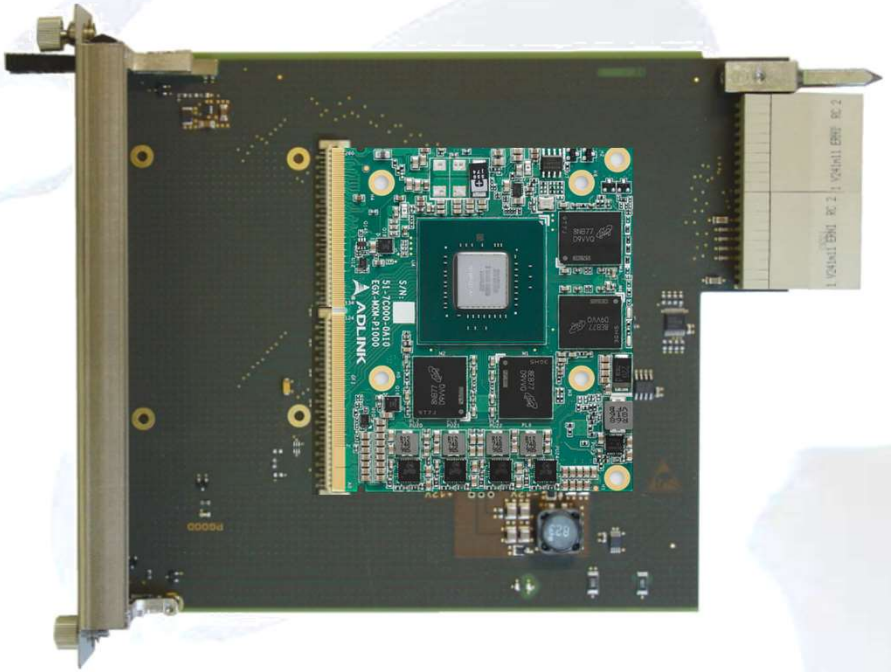
MTCA.4 RTM as MXM Carrier

Form Factor: PICMG MTCA.4 Rear Transition Module

- Board size: Double Mid-Size or Double Full-Size
- MTCA.4 compatible IPMI support
- MXM slot
- Carrier Board for Type A MXM 3.0/3.1 Graphics Module
- Module Dimensions 70mm x 82mm x 7mm
- MXM 3.0 Edge Card Connector 314/281 Pins
- PCI Express® Gen3 (8GT/s) Redriver on-Board, PCIe x 8
- Heatsink Available (full size Module),
- CUDA (Compute Unified Device Architecture) capable with NVIDIA MXM GPU



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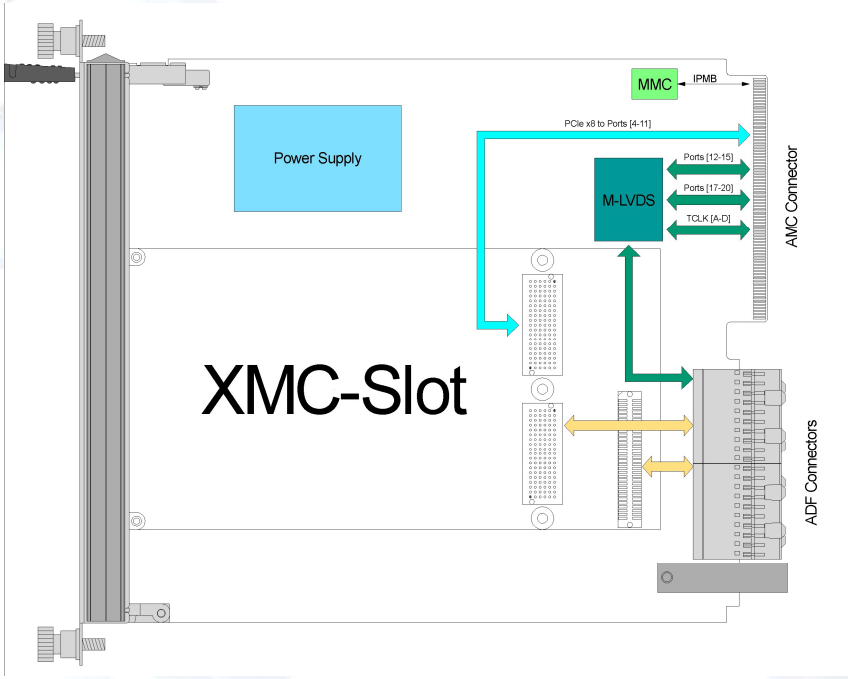
MTCA.4 AMC as XMC Carrier

XMC-G1050TI Pascal Technology

- NVIDIA GTX 1050Ti
- 768 CUDA Cores
- OpenGL 4.5, OpenCL 1.2, DirectX 12
- GDDR 5 up to 4GB
- PCIe Gen3 x8
- Conduction cooled: -40 to +75 degrees
- Air cooled: 0 to +55 degrees



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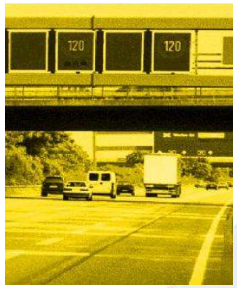


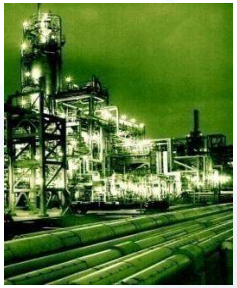


CPCIs

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CPCI-Serial Chassis

ADLINK Leading EDGE COMPUTING

nVent

- CPCI Serial Chassis, Backplanes and Power supplies
- Optional redundant power supplies and removable fan cassettes

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PXI/PXIe Chassis

ADLINK Leading EDGE COMPUTING

PXES-2785

18-Slot 3U 24GB/s PXI Express Chassis – Up to 8 GB/s, 50W power and cooling capacity per slot

PXES-2301

6 All-Hybrid Slot 3U PXIe Chassis; AC Powered with Up to 8GB/s System Bandwidth

PXES-2590

9-Slot 3U PXI Express Chassis with AC - Up to 8GB/s, All Hybrid

PXIS-2719A

19-Slot 3U PXI Chassis with AC

PXIS-2630 Series

8-Slot 3U PXI Chassis with ATX power

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CPCI-Serial CPU Board

ADLINK Leading EDGE COMPUTING

- 3HE CPCI Serial A3525 CPU
- PICMG® CPCI-S.0 CompactPCI® Serial Processor Blade
- 14nm multi-core 9th Gen Intel® processor,
- Max. 32GB DDR4-2666 by 2x SODIMM
- Supports 2x PCIe x8 Gen 3 and 2x PCIe x4 Gen 3
- Up to 10x USB 2.0/3.0,
- up to 7x SATA to rear Optional extended
- Temp. Range: -40 to +85°C

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CPCI-Serial I/O and Carrierboards

ADLINK Leading EDGE COMPUTING

Communication

cPCI-3544
4-Port RS-422/485 Isolated Serial Communications

cPCI-3548
new 8-Port RS-422/485 Isolated Serial Communications Card

Storage

cPCI-A3H10
3U CompactPCI Serial 2.5" SATA Storage Carrier

Carrier

cPCI-A3X10
3U CompactPCI Serial XMC Module Carrier

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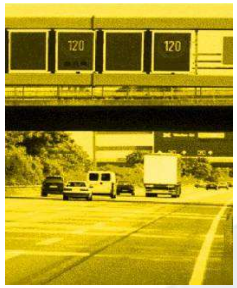


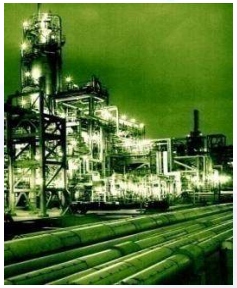


PXIe

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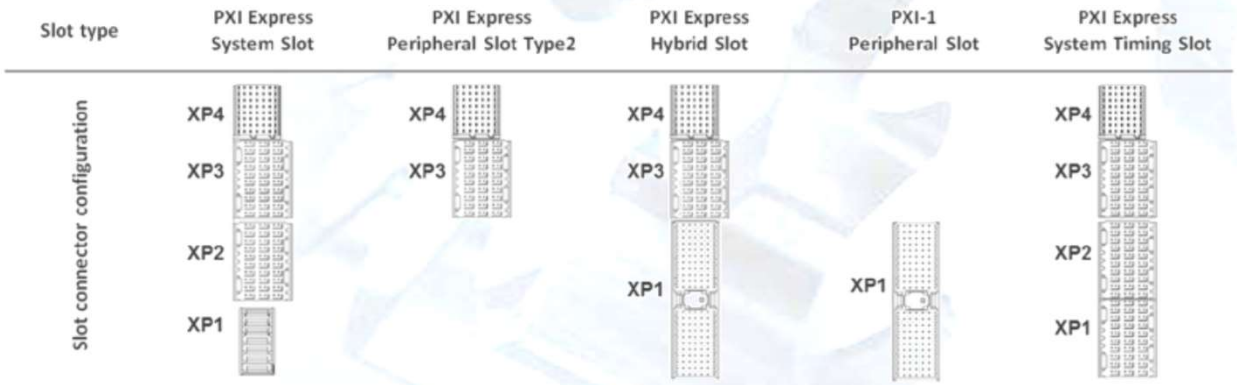
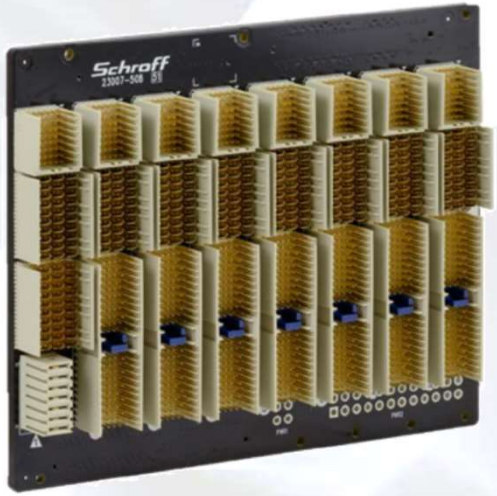
PXI Express

nVent SCHROFF

Based on CPCI Express

- Identical form factor and connectors
- Similar performance parameters
  - PWR Management based on the ATX specification
  - five 3 U / 6 U* slot types available
  - Fully downwards compatible to 32bit CPCI and PXI-1 modules
  - PXI-1 signals on XP4 (Trigger, daisy chaining, CLK10, star trigger)
  - Enhanced PXIe timing functionality on XP3
  - Highly precise, low jitter clock generation and switching
- Differential clock signals PXIe_CLK100, PXIe_SYNC100
- Differential trigger signal DSTAR_TRIG[A:C]





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Flexible System Topology

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Defining a PXIe Topology

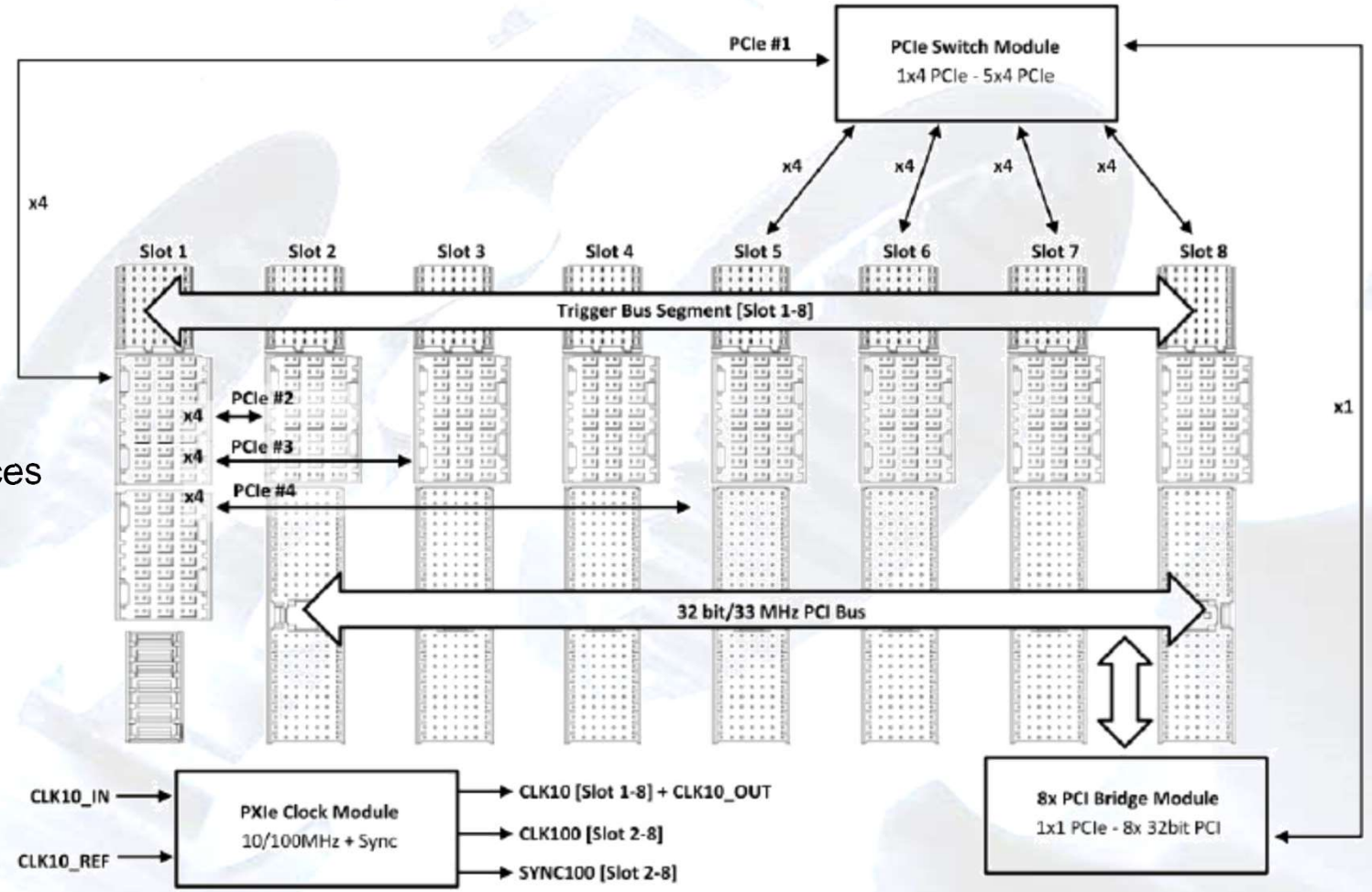
(1) Number of Slots

(2) Slot types

(3) Customer requirement

(4) Selection of required function modules

(5) Definition of chassis interfaces



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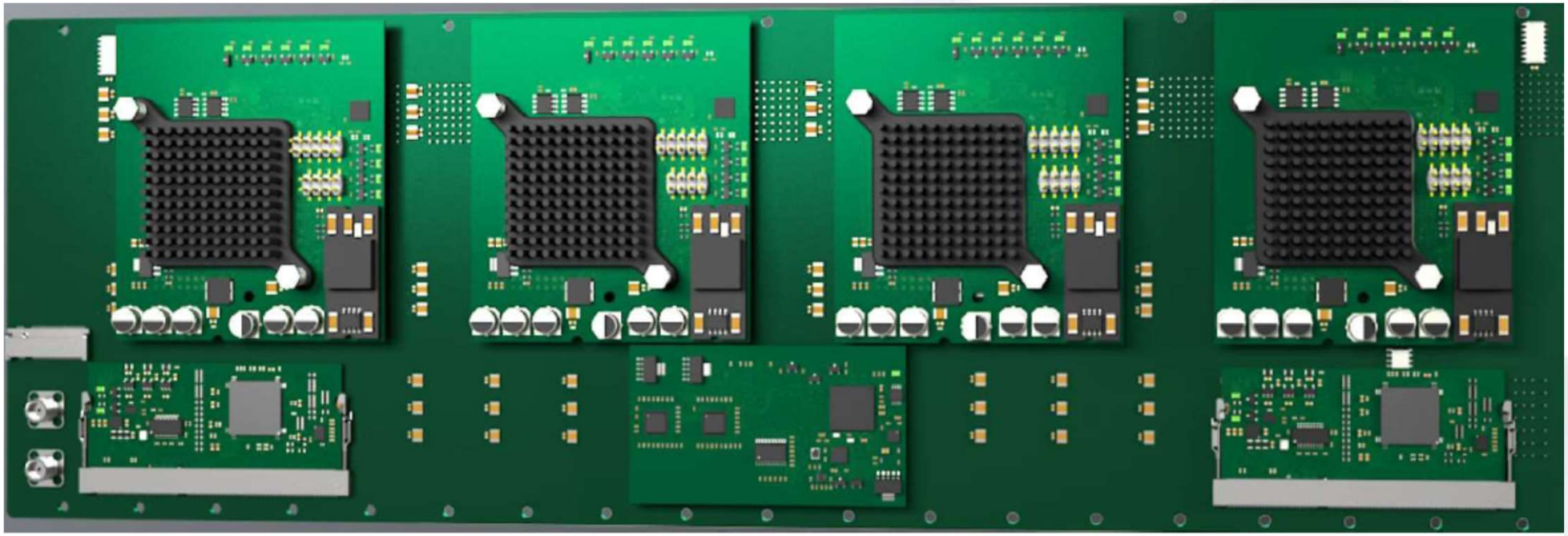
Backplane (example): 18 Slot full hybrid



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Backplane>> Core element of PXIe Systems

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System scaling and Module requirements

Backplane	PXI Express Clock Module	PCIe Switch Module	PCI Bridge Module	PXI Trigger Bridge
4 Slot Full Hybrid	1	0	1	0
6 Slot Full Hybrid	1	1	1	0
8 Slot Full Hybrid	1	1	1	0
10 Slot Full Hybrid	1	2	2	1
12 Slot Full Hybrid	1	3	2	1
14 Slot Full Hybrid	1 + expansion	3	2	1
16 Slot Full Hybrid	1 + expansion	4	2	1
18 Slot Full Hybrid	1 + expansion	4	2	2

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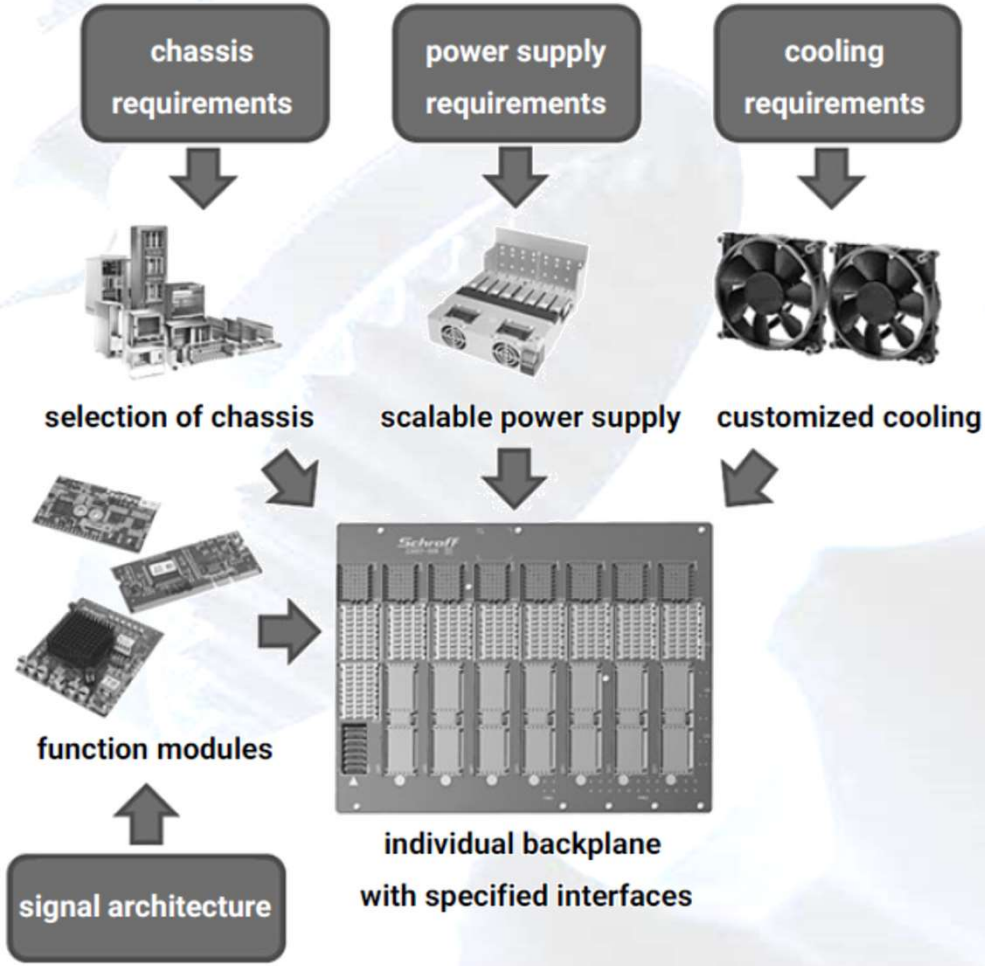
Modular Chassis Structure

nVent SCHROFF

Benefits through modularity

- Quality and properties guaranteed
- by verified standard components
- Customer requirements can be
- easily implemented
- Reduction of development time &
- costs
- attractive system costs even for
- customer-specific projects
- high maintainability and direct
- technical support



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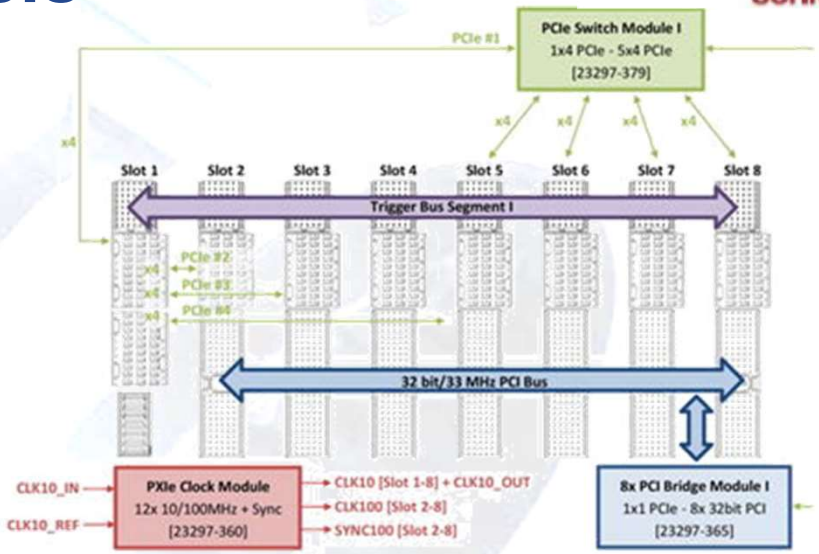
PXI-Express Chassis

nVent SCHROFF

Specification: PXI Express 4 U, 8 Slot, 44 HP

- Dimension: 19“ 4HE
- Slotnumber: 8
- Numbers of Hybrid Slots: 7
- Numbers of PXI Express Slots: 0
- Numbers of PXI Slots: 0
- Max. System Bandwidth GB/s: 16
- Power/ Slot: 50 Watt
- Number of PXI Express Timing Slots: 1



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PXIe Chassis 18 Slot, 4U, 84 HP

nVent SCHROFF

- PXI Express Desktop Chassis, 4 U, 84 HP, with handles and 19“ mounting brackets
- 1 PXI Express System Slot with 12 HP width, 1
- PXI Express Timing Slot and 16 Hybrid Slots
- Ultra-high performance Gen 3 PCIe switching with a default four-link (4x4) system slot
- Powerful cooling concept with low fan noise, 50 W per slot 15K temperature increase
- Air flow from bottom to rear with temperature controlled fans;
- Integrated Chassis Monitoring Modul (CMM)
- Wide range AC input with mains switch on the rear side, power push bottom on the front (top) Rear panel
- external 10 MHz clock inputs/outputs

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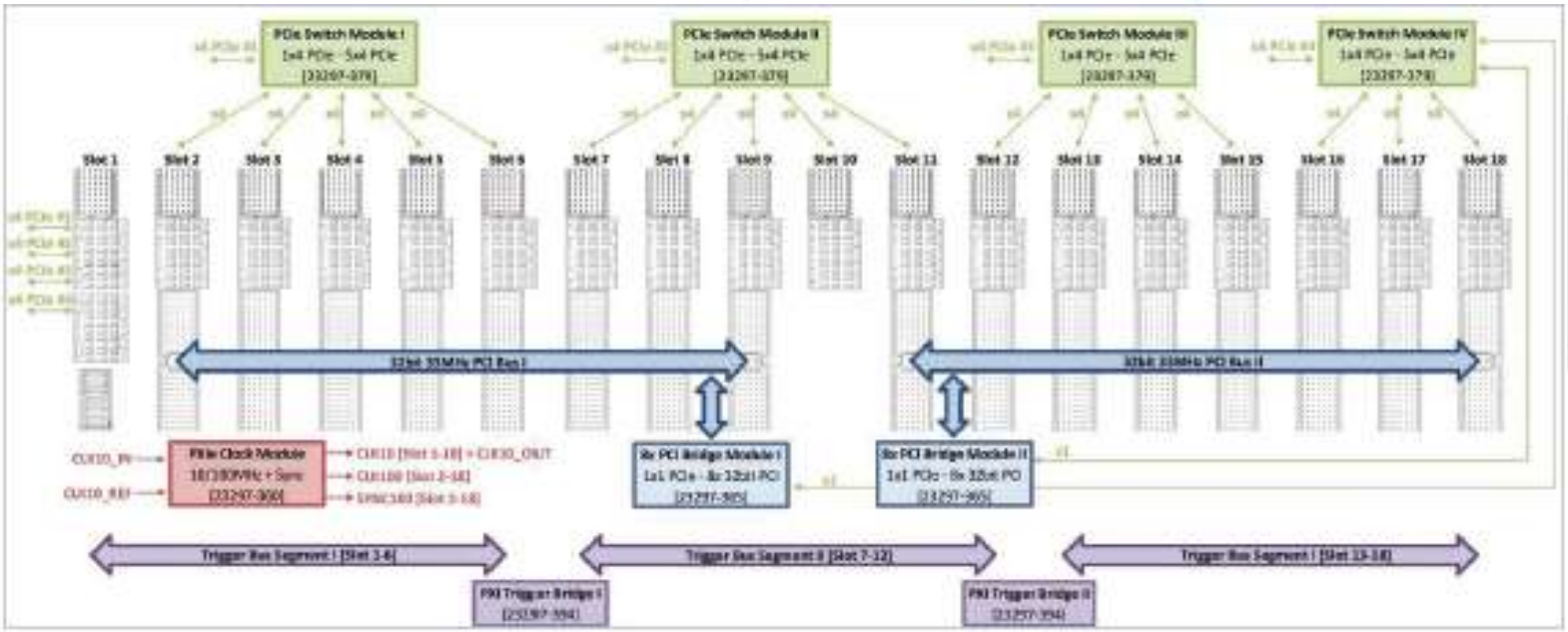
PXIe Chassis 18 Slot, 4U, 84 HP

nVent SCHROFF



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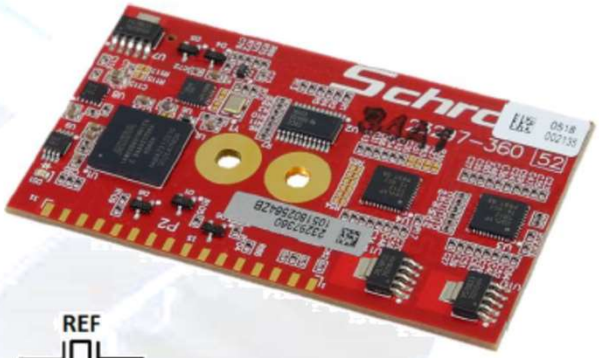
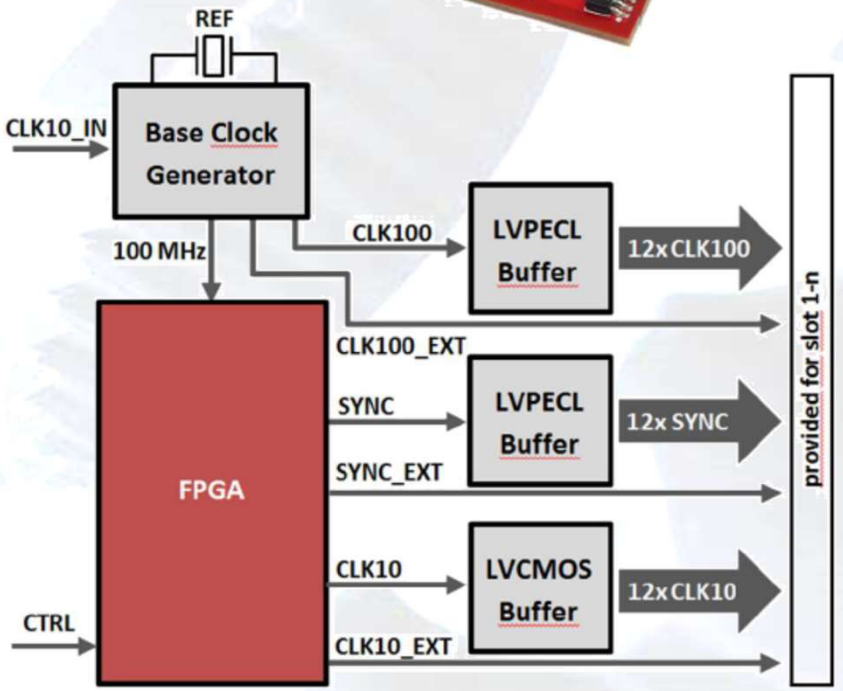
PXIe Clock Module

nVent SCHROFF

FEATURES

- Generates PXI-1 & PXI-5 CLKs for up to 24 Slots
- CLK10 [10 MHz single-ended]
- CLK100 [100 MHz differential]
- SYNC [100 MHz differential]
- Switching to external clock sources via BNC jack or to a assembled System Timing Slot
- Ultra low phase noise and high frequence stability [<25ppm]
- Customizable SYNC / CTRL scenarios





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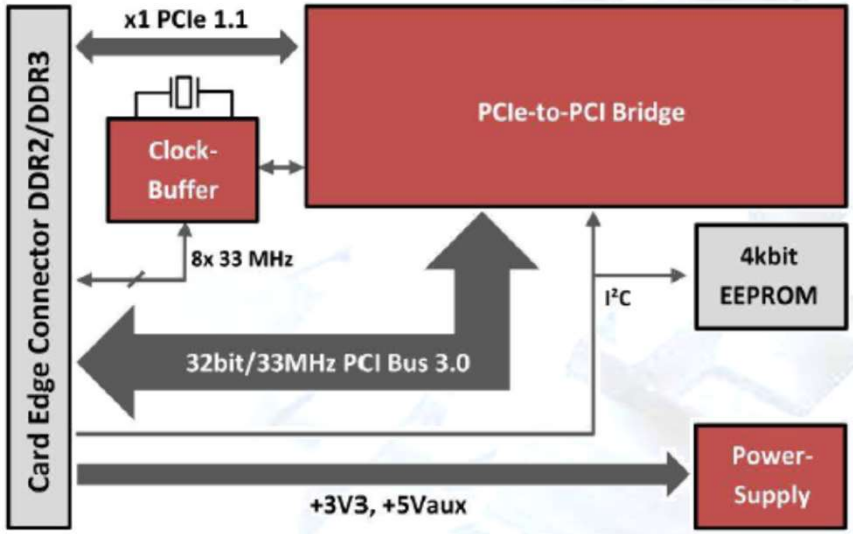
PCI Bridge Module

nVent SCHROFF

FEATURES

- Downwards compability to PXI-1 and CPCI-Modules
- [VIO 3V3 and 5V0 supported]
- Translates a PCIe x1 upstream port to a
- PCI 32bit - 33MHz downstream port
- Supports up to eight PCI-Master simultaneously
- Highly efficient and low power consumption



	PCIe –PCI Bridge Module	
I/O Controller	Diodes Inc. –PI7C9X112SL	
Port Count	Supports up to x8 PCI Masters	
Primary Bus	X1 PCI Express Base Specification R1.1 compliant	
Secondary Bus	33MHz/32bit PCI Local Bus Specification R3.0 compliant	
Module Bandwidth	133MByte/s	
Operating Voltage	+3,3V +/-5% +5V +/-5%	250mA 75mA
Interconnection	DDR2/DDR3 card Edge compatible	
Power	Typical 700mW	max. 1200mW
Dimensions(LxBxH)	67,6mmx30,0mmx4,5mm	
MTBF	>3.500.000 h at 40°C	
Environental	Op. Temp. Storage Humidity	-40°C to 85°C -65°C to 150°C 20-80% non condensing

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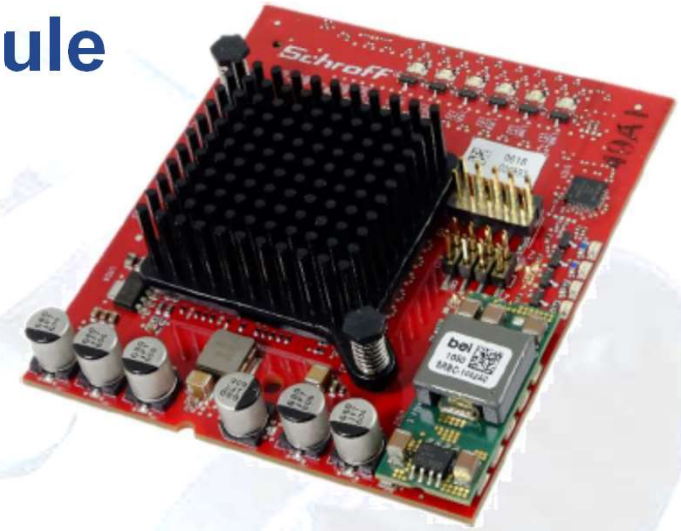
PCIe Switch Module

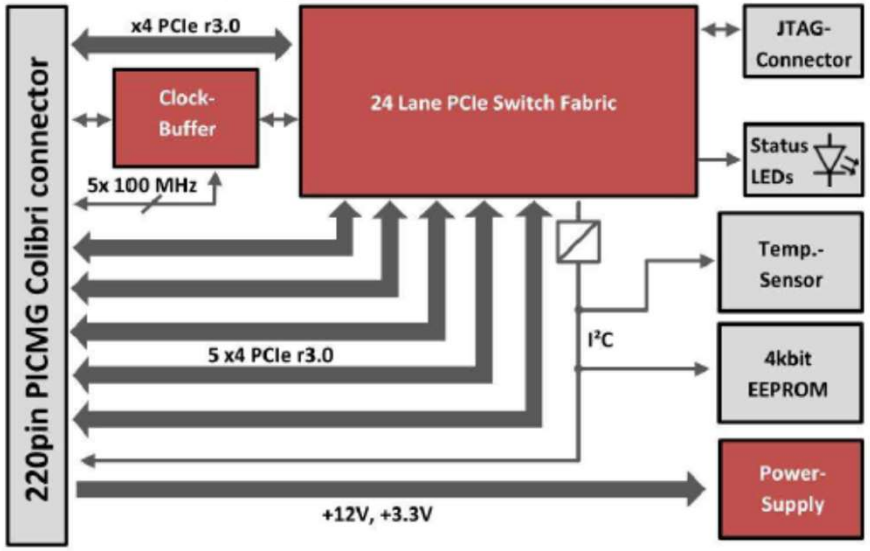
nVent SCHROFF

FEATURES

- Extends PCIe port capability up to 400%
- PCI Express Gen3 by default
- High Switching Performance through intelligent Packet-Flow-Control
- Excellent signal integrity and EMV behavior



	PCIe 24 Lane Switch Module	
Fabric Switch	Broadcom-PEX8724	
Bandwidth	4GB/s- PCIe Gen3	
Port Configuration	1 x4 upstream port < - > 5 x4 downstream ports	
Combatibility	PCIe Base Specification R3.0 PCIe Base Specification R2.0 PCIe Base Specification R1.0a/1.1	
Operating Voltage	+12V +/- 5% 1000mA +5V +/- 5% 200mA	
Power	Typical 6,3W Max. 13,0W	
Interconnection	220pin PICMG Colibri connector	
Interfaces	4kbit SPI-EEPROM, JTAG, Local I²C, 2x GÜIO, Status LEDs	
Dimensions(LxBxH)	80,0mmx70,0mmx20,0mm	
MTBF	>3.500.000 h at 40°C	
Environental	Op. Temp. Storage Humidity	0°C to 70°C -55°C to 125°C 20-80% non condensing
Customized Version with 1 x8 >> 2 x8 port configuration up to 8GB/s		



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PXI Trigger Bridge

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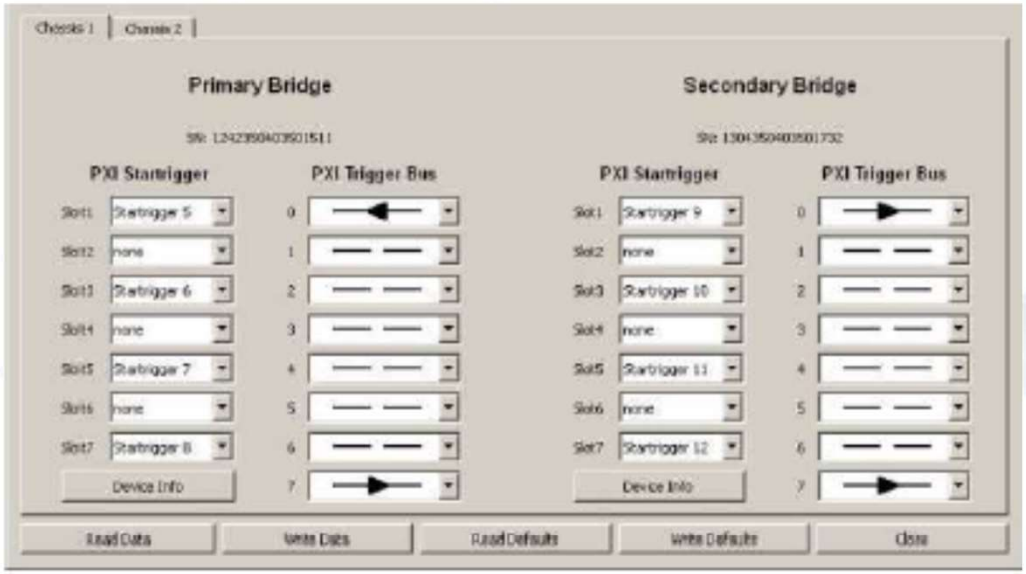
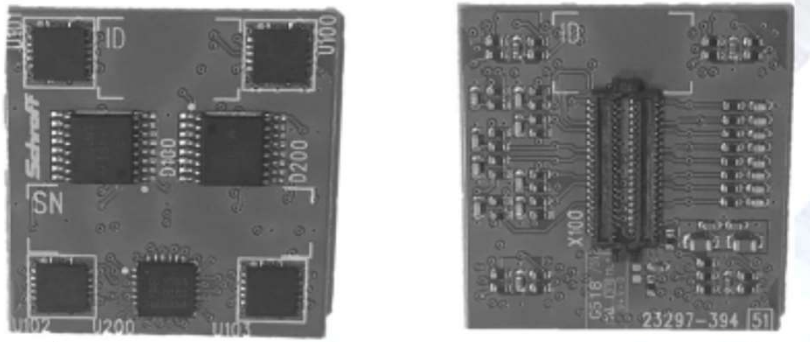
FEATURES

- Linking of separate system trigger segments, as max. 8 slots per trigger segment are possible according to specification by default
- unipolar connection A_PXI_TRIGX to B_PXI_TRIGX via software to host PC possible
- PXI compliant termination of trigger lines on trigger bridge
- Runtime-compensated trigger signals





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PXI/PXIe Boards, PCIe Switches & Bridges

PXI Express Embedded Controller 3U 4TE

- PXI™-5 PXI Express hardware spec. Rev.2.0 compliant
- Maximum System Throughput 6 GB/s1
- Integrated m.2 NVMe PCIe Gen3 Storage
- 8th Intel® Core™ Generation with Hyper-Threading
- Most compact PXIe Embedded Controller on market
- Customizable BIOS
- 1 Four-Link mode PCIe Gen 3 x2 - x2 - x1 - x1

PCIe-PCI BRIDGE MODULE

- Enables PCIe compatibility for multiple legacy PCI systems
- Operates in a fully transparent forward bridge mode
- 3.3 V and 5.0 V I/O compatible
- Wide industrial temperature range for various applications
- Very low power consumption at a common small form factor

PCIe 24 LANE SWITCH MODULE

- Enlarges PCIe usability of PCIe limited host systems
- High Performance Switching Capability through flexible packet flow control
- Full PCI Express Gen3 –Gen1 backward compatibility
- Excellent signal integrity and EMC characteristics
- Very low power consumption at a small form factor

nVent SCHROFF

powerBridge Computer Benfits

Max. System bandwidth garantueed

- PCI Express Gen3 supported by default for PXI Express Chassis
- Signal architecture without bottle necks

Improved system cooling concept

- Low pressure & highly efficient
- Base-to-Rear-Airflow
- Less installation space required compared to competitors with several air in-/outtakes
- Each PXI Express chassis verified by simulation and post production thermal measurement

Attractive pricing policy

- Especially for large systems, with non standard form factors or for customized requirements

Maintainability

- short system downtime in failure event due to modularic chassis concept
- easy replacement with functional spare parts

Smallest PXI Express form factor

- Chassis can be shrinked to 4HP System Slot Module size without a common constructional offset

Customization

- Fully customizable due to modulization
- Chassis can be customized easily and with low development time & costs

Backplanes and Chassis are desigend by nVent SCHROFF

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PXI/PXIe Boards, Controller and more

PXIe-3988

Key Features

- 9th Gen Intel® Xeon® E processor (codename "Coffee Lake")
- Up to 64GB GB dual channel DDR4 at 2133/2400 MHz (non-ECC)
- Maximum system throughput up to 16 GB/s by PCI Express 3.0 bus
- Supports four links x4 or two links x8 PXI Express link indent to PXI Express chassis
- 2x GbE, 4x USB 2.0, 2x USB 3.0, GPIB (IEEE488) controller
- 2x DisplayPort connectors, 1x RS-232/422/485 DB-9 connector
- Trigger I/O for advanced PXI trigger functions

PXIe-9834

4CH 16-Bit 80 MS/s PXI Express Digitizer

PXIe-9852

Dynamic Signal Analyzer

CPCI-3544
Video Capture Card

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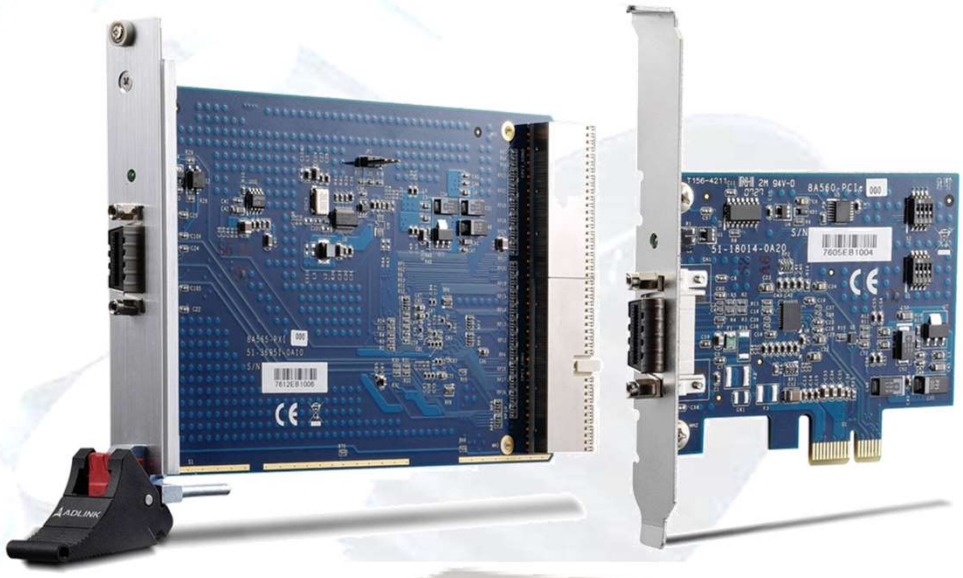
PXI/PXIe Boards, uplink Boards

PCIe-8560/PXI-8565



Key Features

- PCI Express-based control of PXI/CompactPCI
- High-speed PCI Express x1 interface
- Direct control of PXI/CompactPCI systems
- Supports 32-bit/66 MHz PCI™ interface
- Expansion distance of up to 7 meters (expansion cables at 1 M, 3 M, and 7 M)
- Comprehensive hardware and software transparency

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Contact Information

Let´s discuss your requirements and test our performance!

- Thomas Holzapfel
- Email: thomas.holzapfel@powerbridge.de
- Tel: +49-5139-9980-21

- Friedrich Fix
- Email: friedrich.fix@powerbridge.de
- Tel: +49-5139-9980-15

- Tobias Naber
- Email: tobias.naber@powerbridge.de
- Tel: +49-5139-9980-37

powerBridge Computer Vertriebs GmbH,
Ehlbeek 15a, 30938 Burgwedel, Germany
http://www.powerbridge.de

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