EMCOMO Solutions AG

MicroTCA.0 R.3 and other new products

We create first class Embedded Computer Solutions based on world leading Suppliers

Agenda

- EMCOMO Introduction
- VadaTech Introduction
- EMCOMO Project Examples
- MicroTCA.0 Revision 3
- Rev. 3 Products
- Other new products

EMCOMO Introduction

… we create Embedded Solutions

About EMCOMO

- EMCOMO Solutions AG, Neu-Ulm, Germany
- Founded 2010
- Management:

Thomas Sabisch
CEO

Karl Judex
CTO/COO

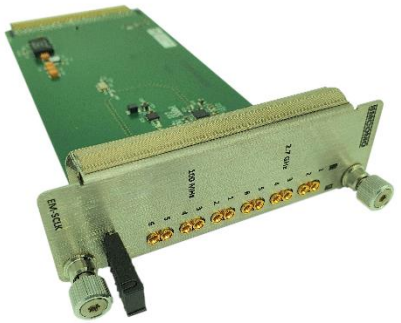
- Shareholders:
  - Management (>50%)
  - Private Investors

Our Portfolio

- Embedded Computer Systems
  - MicroTCA, cPCI, VME, VPX and ATCA based Systems
  - Various MicroTCA modules
  - Box-PCs, HMI
  - Various I/O components from leading vendors
  - Customized Hard- and Software components

EM-AM4024

- Services
  - Consulting and system design according to the customer requirements
  - Project specific adaptions and extensions (Software, Hardware, mechanics)
  - System setup and installation
  - Integration tests and system tests
  - Technical support



EM-SCLK

- Distribution of Embedded Systems/Boards/Modules

VadaTech Introduction

About VadaTech

Headquarter in Henderson, Nevada

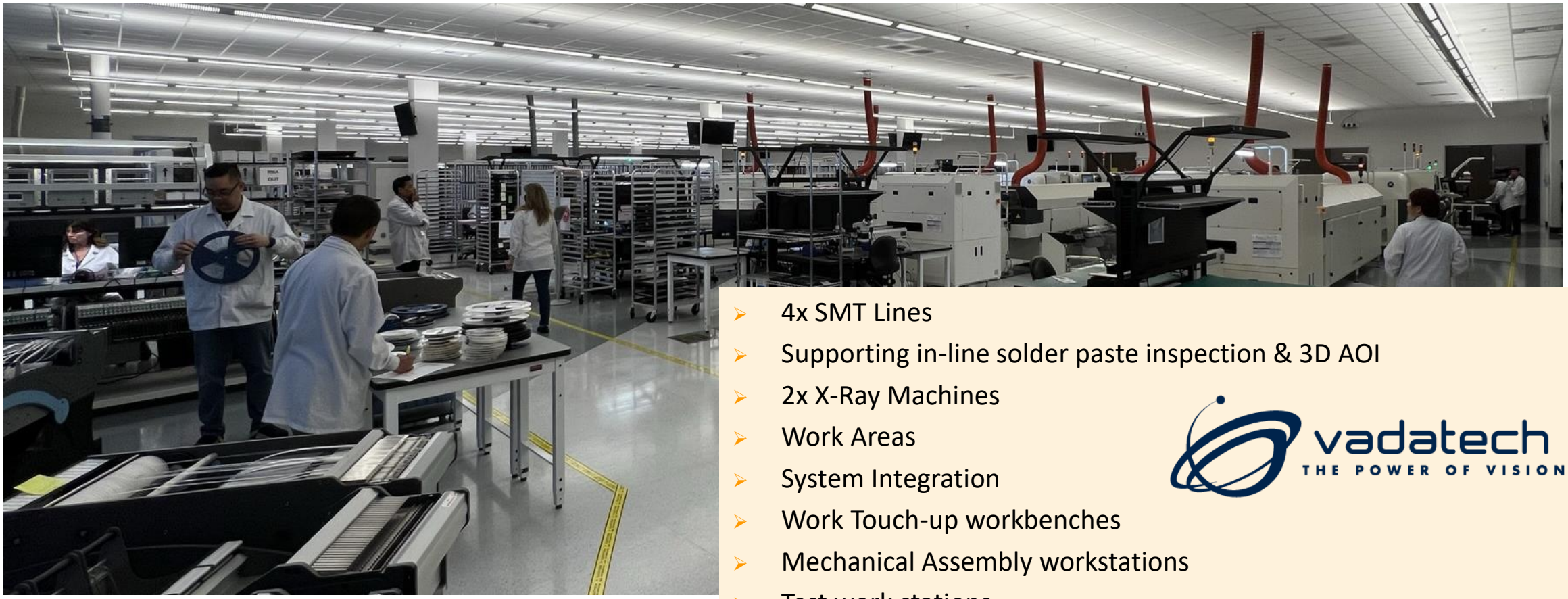
VadaTech is a world leader in the design and manufacture of embedded computing solutions with a focus in PICMG and VITA open standards.

VadaTech offers unmatched product selection and expertise in MicroTCA, VPX and AdvancedTCA.

Details

- Founded 2004
- 300 Employees worldwide
- 5 locations (USA, Europe, Asia)
- AS9100 certified
- RoHS, REACH and WEEE compliant

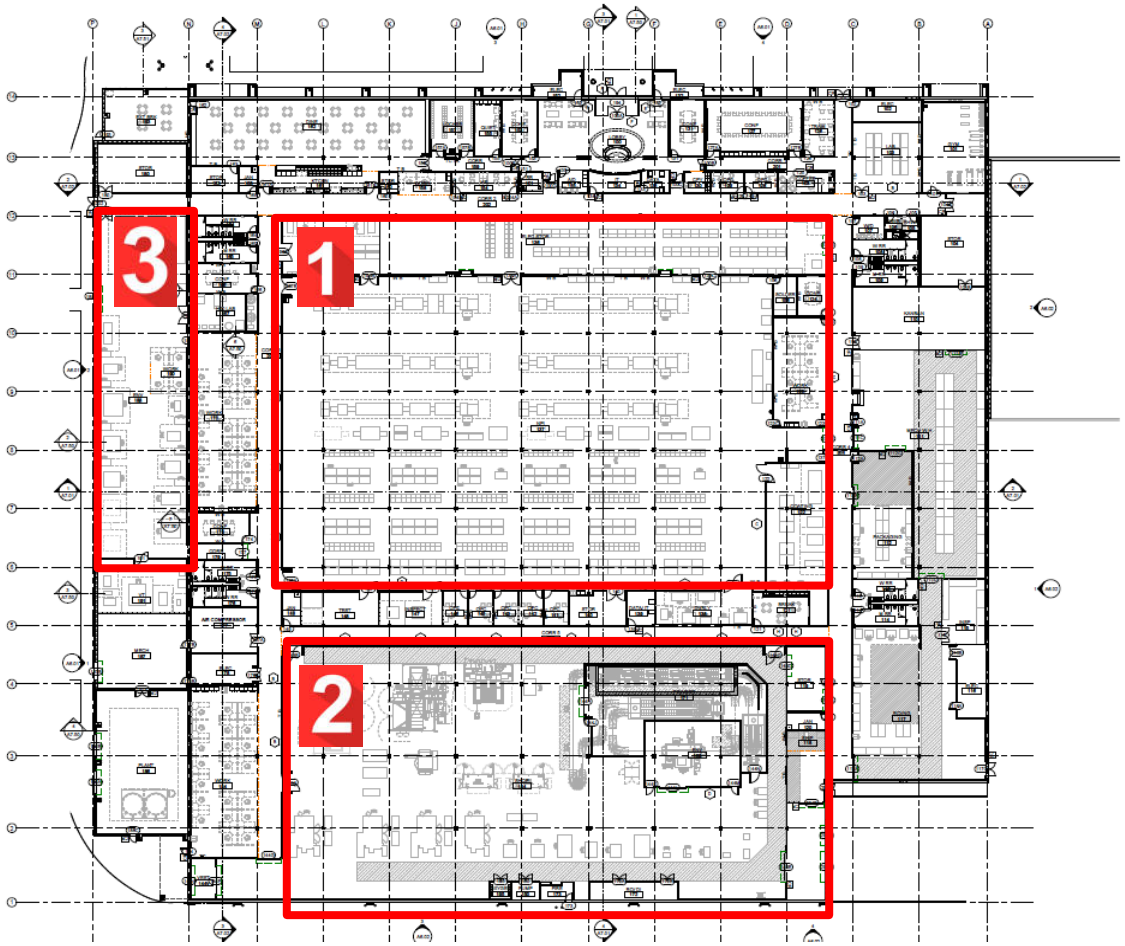
Vadatech HQ - 92,500 SQFT



- 4x SMT Lines
- Supporting in-line solder paste inspection & 3D AOI
- 2x X-Ray Machines
- Work Areas
- System Integration
- Work Touch-up workbenches
- Mechanical Assembly workstations
- Test work stations
- Inspection points at Receiving, SMT, Touchup, Mechanical and Final

vadatech
THE POWER OF VISION

new Production Facility - 140,000 SQFT



Production Facility consists of
3 primary work centers:

1. Electronic board production with 6x SMT Lines
2. Metalwork manufacturing
3. Full environmental test laboratory

Located close to HQ

EMCOMO Project Examples

Project Example 1 - Small size – MTCA.0 System

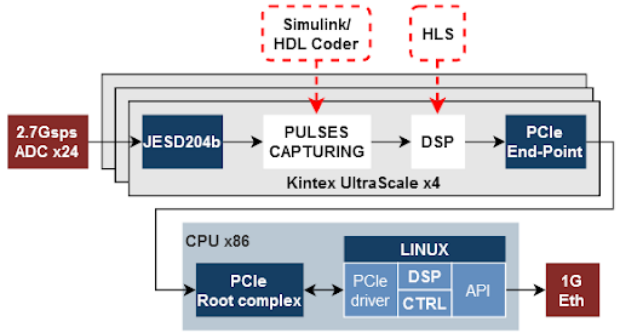
Features

- VadaTech components:
  - 1U 19“ MTCA.0 Chassis with integrated MCH
  - Xilinx Virtex UltraScale+ FPGA with Dual ADC 6.4 GSPS @ 12-bit, Dual DAC 12 GSPS @ 16-bit

EMCOMO services

- System design, integration and test

Project Example 2 – HSDAQ System



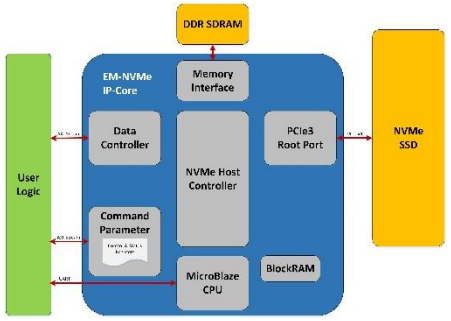
Features

- VadaTech components:
  - 5U 19“ MicroTCA system with MCH
  - 24 x ADC with 2.7 GSPS @ 14-bit with Kintex UlstraScale processing FPGA
- Clock module for phase synchronous ADC clocks
- X86 application CPU with Linux

EMCOMO services

- System design, integration and test
- IP-Core and software development
- Hardware development of components and production
- Cable/Frontend development and production

Project Example 3 – EGSE System



Features

- VadaTech components:
  - 9U 19“ MTCA.4 system VT815 with 2 MCH
  - 3 x FPGA dual FMC carrier for high speed serial connections
  - 3 x NVMe carrier for M.2 SSD modules
- Separate PCIe domains for maximum data transfer performance
- X86 application CPU with Linux

EMCOMO services

- System design, integration and test
- NVMe IP-Core and software development

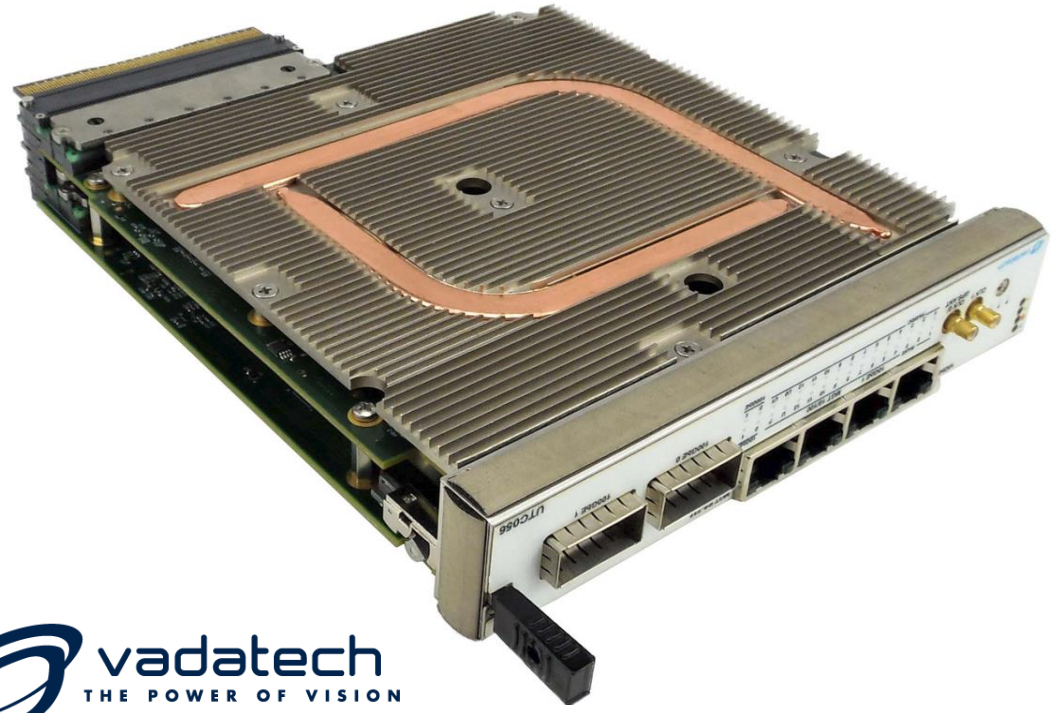
MicroTCA.0 Revision 3

MicroTCA.0 Revision 3

- Specification ratified September 9, 2023
- Performance Improvement for next-generation MicroTCA Systems
  - 100 GBASE-KR4 and PCIe Gen. 4/5 support
  - Platform TDP expanded (110W per module)
  - Surprise Extraction feature clarified
- Implementation details
  - New backplane connectors are currently for 25 Gbit/s vs. 10 Gbit/s per differential pair to support implementation of 100 GbE and PCIe Gen. 4
  - PCIe Gen. 5 will need 32 Gbit/s per differential pair
  - Added an Extra Power Pin so each module can dissipate more power
- New products conforming to MTCA.0 Rev. 3 will become available soon

Rev. 3 Products

5th Generation MCH



vadatech
THE POWER OF VISION

Features

- Supported Fabrics
  - 100G Ethernet (40G and/or quad 10G supported per slot) with dual 100G uplink on the front panel
  - PCIe Gen.4 with dual uplink via OCuLink on the front panel
- Available double-width and single-width

VT815 Chassis Upgrade to R3.0

vadatech
THE POWER OF VISION

Features

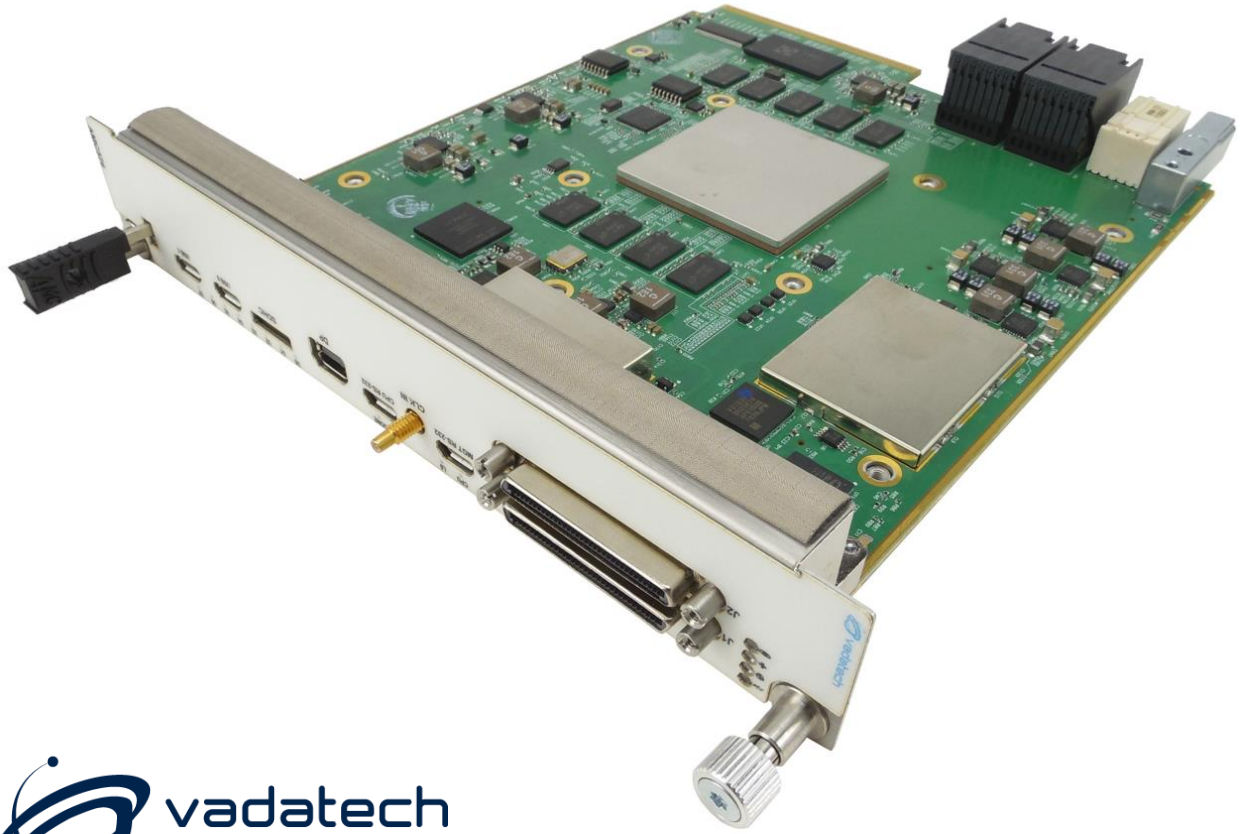
- MTCA4.0 with RTM
- Front to back cooling with dual tongue on each slot
- 3600W with full redundancy across the power modules
- Dual MCH, 12 slots full-height double-width
- Support of 100 GbE and PCIe Gen.4 on the Backplane
- Single Tongue with 110W, dual Tongue with 120W per slot

Other R3.0 products planned for 2024

- CPU
  - Intel Ice Lake-D LCC (Low Core Count)
    - dual 100 GbE or PCIe Gen.4 to the backplane
- FPGA
  - AMD Versal FPGA with high speed ADC/DAC
    - AD9084 with 4 channels 12-Bit 20 GSPS ADCs / 4 channels 16-Bit 28 GSPS DACs
    - RF analog bandwidth up to 18 GHz
    - dual 100 GbE or PCIe Gen. 4/5 to the backplane
  - Intel Agilex 9 Direct RF SoC
    - double tongue to provide more power (>150W)
    - 4 channels ADC / DAC with up to 64 GSPS @ 10 bits
    - RF analog bandwidth up to 36 GHz
    - dual 100 GbE or PCIe Gen. 4/5 to the backplane

Other new Products

RFSoC AMC

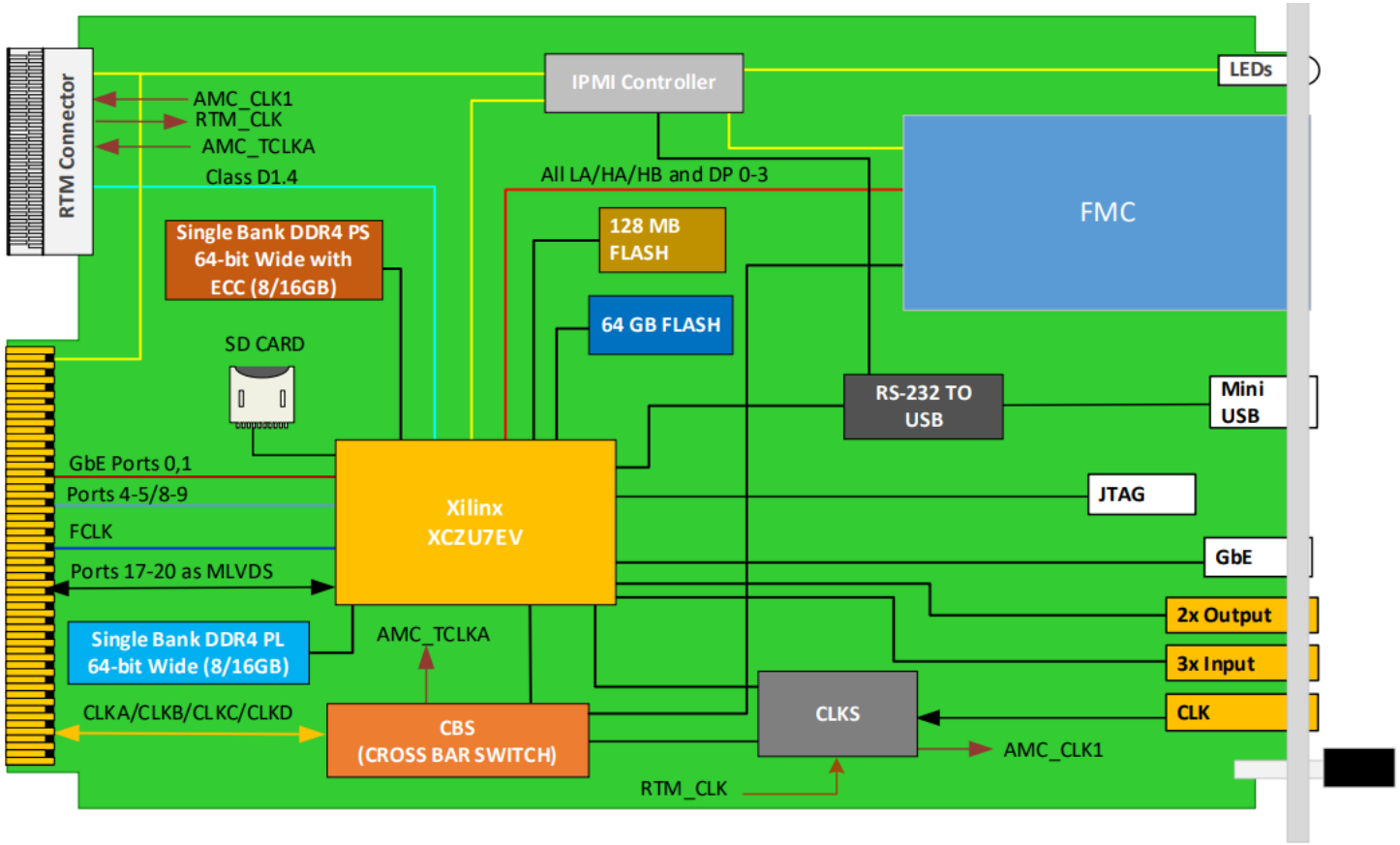


vadatech
THE POWER OF VISION

Features

- based on AMD XCZU49DR
- 16 Channels ADC 14-bit @ 2.5 GSPS
- 16 Channels DAC 14-bit @ 9.7 GSPS
- All RF to the RTM

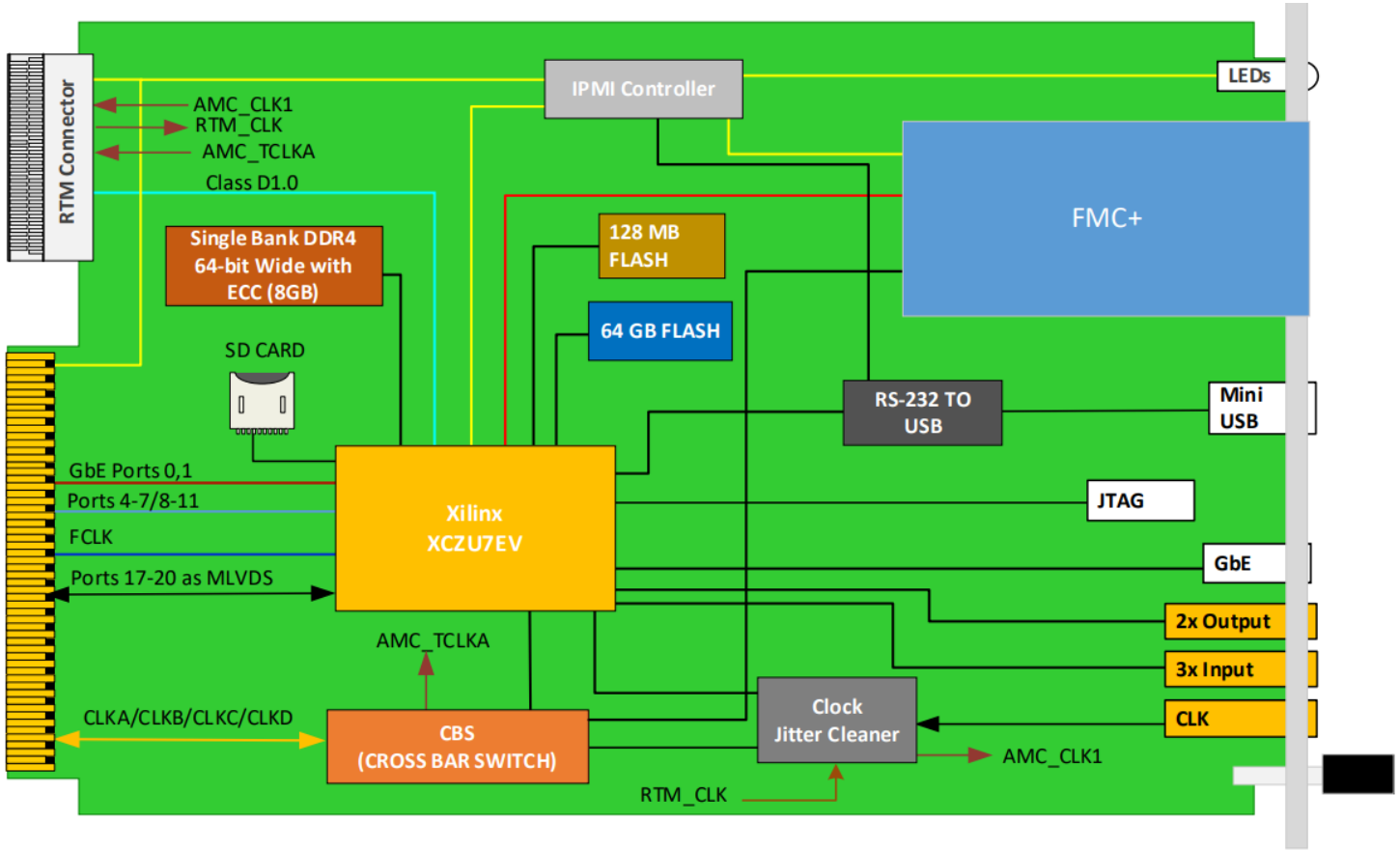
Zynq Ultrascale+ AMC (1)



Features

- based on AMD XCZU7EV
- RTM pinout based on the Class D1.4 from DESY
- FMC to allow optical interfaces and other FMC modules

Zynq Ultrascale+ AMC (2)



Features

- based on AMD XCZU7EV
- RTM pinout based on the Class D1.0 from DESY
- FMC to allow optical interface and other FMC modules

Largest Portfolio of FMC/FMC+ Modules

Latest Features

- FMC263 based on the AD9081
- Quad ADC 12-bit @ 4 GSPS
- Quad DAC 16-bit @ 12 GSPS
- JESD204C

vadatech
THE POWER OF VISION

Thank you!
Any Questions

Web: www.emcomo.de Email: microtca@emcomo.de