# VT842

## MTCA 1U Chassis Platform with SFP+, 6 AMC Slots



**VT842**

## Key Features

- MicroTCA 1U 19" rack mount chassis platform
- Six mid-size AMC slots per 1U Carrier or two double module mid-size with two mid-size AMC slots
- Cascade any number of 1U Carriers for Fabric expansion and management
- Management can run as Shelf/MCMC (MicroTCA Carrier Management Controller) or MCMC
- AMC.1, AMC.2, AMC.3 and AMC.4 compliant
- Telecom/GPS Clock on TCLKA, TCLKB, TCLKC and TCLKD and Fabric Clock on FCLK
- Telco Alarm and Carrier Locator
- Dual SFP+ for 10GbE
- GbE Managed Layer Two (ports 0 and 1)

## Benefits

- 1U chassis in 19" rackmount
- Scorpionware Shelf Management Software included
- Electrical, mechanical, software, and system-level expertise in house
- AS9100 and ISO9001 certified company
- Full system supply from industry leader





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The VT842 is a 1U MTCA chassis that provides six mid-size AMC slots that can accept any of the following Fabrics: PCIe, SRIO or 10GbE on ports 4 to 7 and 8 to 11, AMC.2 (ports 0 and 1) and AMC.3 (ports 2 and 3 are routed to adjacent slots). Ports 12-15 are routed to ports 17-20 of adjacent AMC slot. It provides FLCK, TCLKA, TCLKB, TCLKC and TCLKD to each AMC.

The VT842 has redundant Cooling Units. The Air Filter and Fan Trays are all hot swappable. The Power Entry Module (PEM) is removable for ease of serviceability.

The VT842 runs VadaTech proven second generation Management software based on its VT002 product. The shelf manager implements IPMI management, FRU management, and shelf environment management for power, thermal, E-keying, etc. The VT002 can run as the Shelf/MCMC or MCMC.

The VT842 has dual SFP+ on the front panel when utilizing the 10GbE as a fabric.



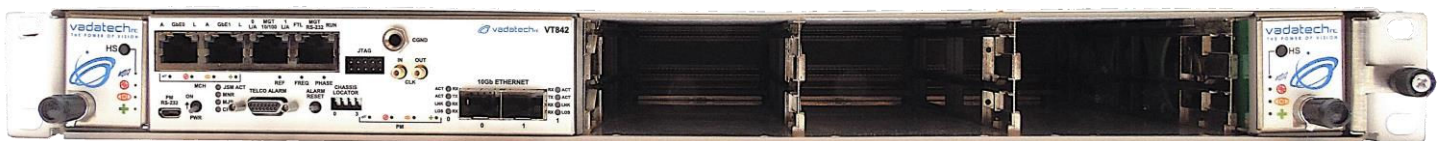*Figure 1: VT842*



*Figure 2: VT842 Chassis Rear View*



*Figure 3: VT842 Chassis Front View*

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## Power Supplies

The VT842 input power is from DC (-36V to -75V) or Universal AC.

## Cooling and Temperature Sensors

The VT842 has intelligent Cooling Units that are removable. The cooling airflow is from right to left. There are Temperature sensors throughout the chassis that monitors the intake and the outtake air temperature.

## Scorpion™ Software

VadaTech's Scorpionware software can be used to access information about the current state of the Shelf or the Carrier, obtain information such as the FRU population, or monitor alarms, power management, current sensor values, and the overall health of the Shelf. The software GUI is very powerful, providing a Virtual Carrier and FRU construct for a simple, effective interface.

## Front Panel

The front panel provides six AMC slots. The front I/O interface provides out of band 10/100 Ethernet (it interfaces to the Shelf Manager/MCMC directly), Serial interface (RS-232) to the Shelf Manger/MCMC, Dual GbE to the on-board GbE Switch, Dual SFP+ to the 10GbE Fabric, Serial interface (RS-232) to the power module, GPS/Telco clock, as well as provide status indication such as Telco Alarm, Health Monitoring LED, etc.

The front panel also has dual hot swappable Fan Tray.

## Managed Layer 2 GbE

The GbE layer two managed switch fabric routes GbE to each of the AMC slots. The GbE fabric has an interface to the on-board Carrier/Shelf manager. It also has a port routed to the front for uplink. Ethernet/IEEE 802.3 Packet size (64 bytes to 1522 bytes) with Jumbo packets up to 9216 bytes.

## Telecom, GPS and Fabric Clocks

The MTCA specification defines a set of clocks for Telecom and non-Telecom applications. The VadaTech VT841 has the most sophisticated clocking distribution in the market to meet the most stringent requirements such as wireless infrastructure, high speed A/D, etc. The VT841 has three types of clocks defined:

- Telecom clock
- GPS clock
- Fabric clock

The VT842 has two SMA clock connectors on the front panel. One is used as an external reference clock and the second one is an output for expansion. This provides the most flexibility to the overall system architecture.

## 10 GbE Layer 3 Managed Switch

The 10GbE switch fabric is layer two/three managed and each of the AMC modules has a 10GbE interface to the Fabric. This switch has the richest set of features in the market by running carrier grade management software under Linux.

## Fabrics on Ports 4-7 and 8-11

The VT842 supports the following fabrics:

- PCIe Gen 2
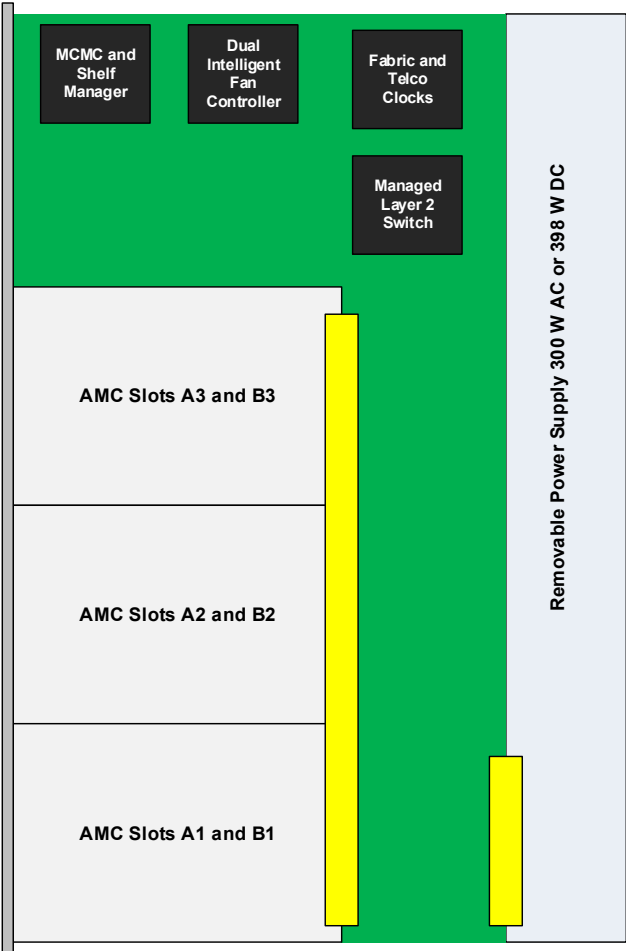- 10 GbE layer three managed (option for unmanaged)
- SRIO

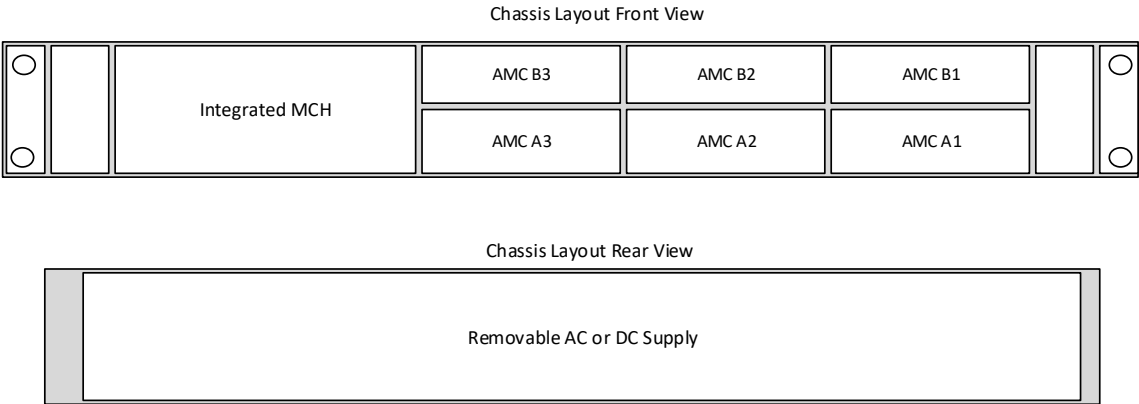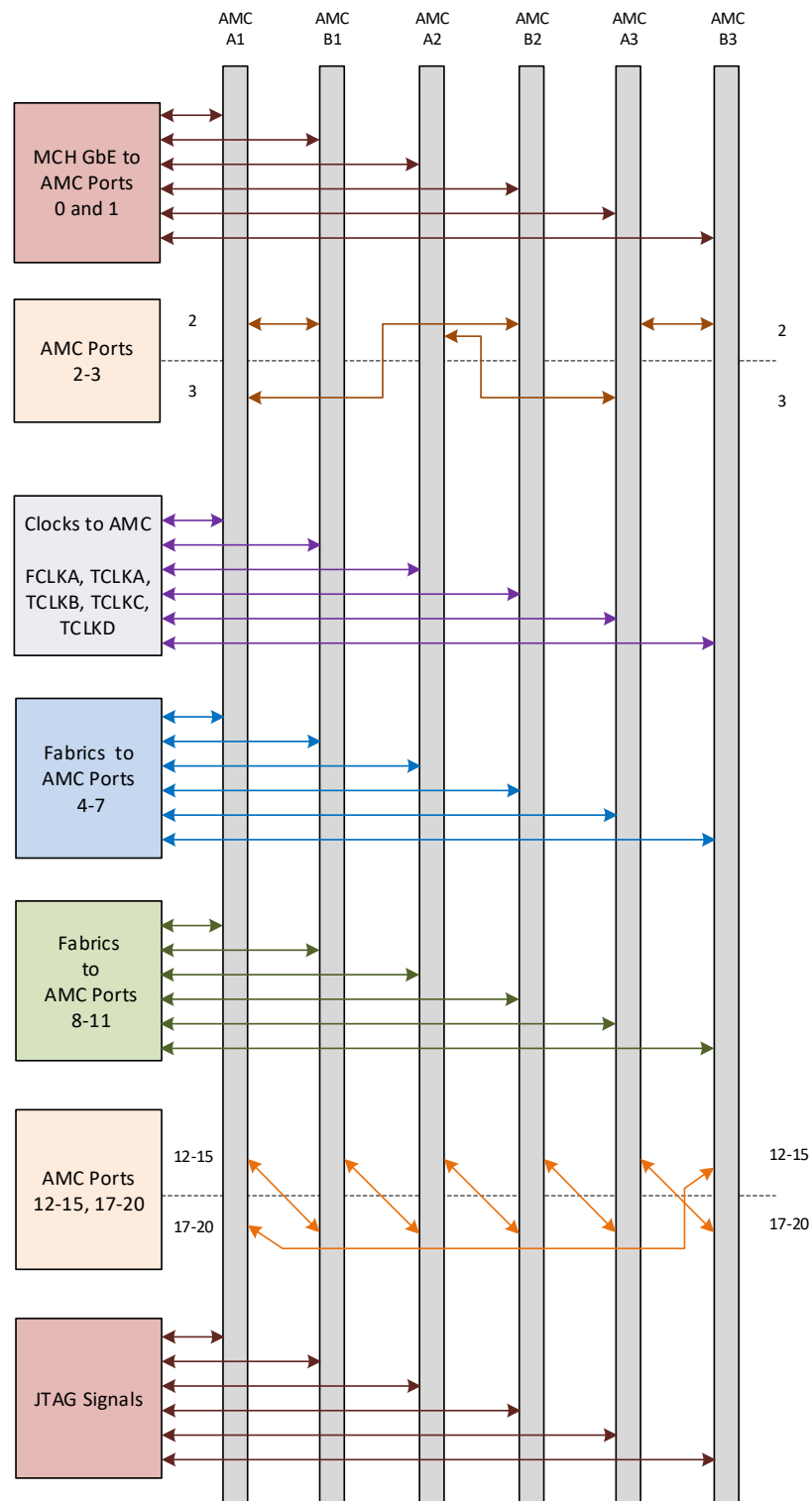# Block Diagram



*Figure 4: VT842 Block Diagram*

# Chassis Layout



*Figure 5: VT842 Chassis Layout*

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# Backplane Connections



NOTE: Since the PCIe Fabric has 12 ports of x4 (48 lanes total) there is option to run all the ports as x8 ( on ports 4 to 11) or single dual x4. With the SRIO there are two options, SRIO x4 on all the ports 8-11 or on slots B2 and B3 only.

*Figure 6: VT842 Backplane Connections*

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# Specifications

| Architecture | | |
|---|---|---|
| **Physical** | **Dimensions** | Width: 19" |
| | | Depth: 13" |
| | | Height: 1U |
| **Type** | **MTCA Chassis** | 6 AMC.0 single module, (mid-size slots) |
| **Standards** | | |
| **AMC** | **Type** | AMC.0, AMC.1, AMC.2, AMC.3 and AMC.4 |
| **MTCA** | **Type** | MicroTCA.0 |
| **Module Management** | **IPMI** | IPMI v2.0 |
| **PCIe** | **Lanes** | PCIe x1, x2, x4 or x8 lanes on each AMC slot |
| **SRIO** | **Lanes** | Each AMC slot has two x4 (ports 4-7 and 8-11) |
| **10 GbE** | **Lanes** | Each AMC slot has a dual XAUI interface (ports 4-7 and 8-11) |
| **GbE** | **Lanes** | Two GbE SerDes per AMC (ports 0 and 1) |
| **Telecom Clock** | **MVLDS** | TCLKA, TCLKB, TCLKC and TCLKD per AMC.0 |
| **Fabric Clock** | **HCSL** | 100 MHz HCSL per AMC.1 |
| **Configuration** | | |
| **Power** | **VT842** | 300 W AC supply, 110 to 240 V AC with frequency from 47 to 63 Hz or |
| | | 398 W DC: -36 V to -75 V |
| **Environmental** | **Temperature** | Operating Temperature: -5° to 55°C |
| | | Storage Temperature: −40° to +70°C |
| | **Altitude** | 10, 000 ft operating |
| | | 40, 000 ft non-operating |
| | **Relative Humidity** | 5 to 95% non-condensing |
| **Front Panel** | **LEDs** | IPMI management LEDs, Activity, Link and PCIe Good Lane |
| | **Interface** | MGT 10/100, MGT RS-232, PM RS-232, Telco Alarm, Chassis Locator, JTAG, Clocks, Dual GbE via RJ-45 and Dual 10 GbE via Dual SFP+ |
| **Cooling** | | Right to Left |
| **Other** | | |
| **MTBF** | | MIL Hand book 217-F@ TBD hrs |
| **Certifications** | | Designed to meet FCC, CE and UL certifications, where applicable |
| **Standards** | | VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards |
| **Warranty** | | Two (2) years |

**INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS**

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

# Ordering Options

## VT842 – ABC-DEF-GHJ

| A = Management Software | D = SFP+ TXCVRs Port 0 | G = Power Module |
| --- | --- | --- |
| 1 = MCMC<br>2 = MCMC and Shelf Manager | 0 = No SFP+<br>1 = 10GBASE-SR<br>2 = Reserved<br>3 = 10GBASE-LRM<br>4 = 10GBASE-LR | 0 = AC Universal<br>1 = DC -36 to -75 V |
| **B = JTAG Switch Module (JSM)** | **E = SFP+ TXCVRs Port 1** | **H = Temperature Range** |
| 0 = No JSM<br>1 = JSM included | 0 = No SFP+<br>1 = 10GBASE-SR<br>2 = Reserved<br>3 = 10GBASE-LRM<br>4 = 10GBASE-LR | 1 = Commercial<br>2 = Industrial |
| **C = Fabric on Ports 4-7 and 8-11** | **F = Telecom/GPS Clock** | **J = Conformal Coating** |
| 0 = No Fabric<br>1 = 10GbE Full Managed Layer 2/3<br>2 = 10GbE Light Managed<br>3 = PCIe Gen2 on ports 4-7 and 10GbE on ports 8-11 | 0 = No Telecom/GPS Clock<br>1 = Clock Distribution only<br>2 = Telecom TCXO*<br>3 = GPS TCVCXO* 30.72 MHz**<br>4 = GPS TCVCXO* 10.00 MHz**<br>5 = Reserved | 0 = No coating<br>1 = Humiseal 1A33 polyurethane<br>2 = Humiseal 1B31 acrylic |

Notes: *The crystal oscillator is Stratham-3, for lower cost solutions contact VadaTech Sales.
   **Frequencies from 8 MHz to 52 MHz are available.

# Related Products

AMC516



- AMC FPGA carrier for FMC per VITA 57
- Xilinx Virtex-7 690T FPGA in FFG-1761 package with optional P2040
- AMC Ports 12-15 and 17-20 are routed to the FPGA

AMC526



- Dual AD9625 ADC, 12-Bit @ 2.6 GSPS in single module, mid-size
- Xilinx Virtex-7 690T FPGA in FFG-1761 package
- Quad bank QDR-II+ memory (576 Mb total) and 1Gb DDR3

AMC720



- Single module, mid-size per AMC.0
- Intel® Xeon™ E3 processor
- Up to 16 GB of DDR3 w/ ECC and 32 GB Flash

# Contact

VadaTech Corporate Office

198 N. Gibson Road, Henderson, NV 89014

Phone: +1 702 896-3337    |    Fax: +1 702 896-0332

Asia Pacific Sales Office

7 Floor, No. 2, Wenhu Street, Neihu District, Taipei 114, Taiwan

Phone: +886-2-2627-7655    |    Fax: +886-2-2627-7792

VadaTech European Sales Office

VadaTech House, Bulls Copse Road, Southampton, SO40 9LR

Phone: +44 2380 016403

info@vadatech.com    |    www.vadatech.com

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