

## VT853 – $\mu$ TCA 1U Chassis Platform with Front to Back Cooling, 6 AMC Slots

1U Chassis, Dual QSFP, 6 AMCs



### 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
- Front to back cooling
- 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, AMC.4 compliant
- PCIe, SRIO, 10GbE available on ports 4 to 7 and 8 to 11
- GbE Managed Layer Two (ports 0 and 1)
- Telco Alarm and Carrier Locator
- Telecom/GPS Clock on TCLKA, TCLKB, TCLKC and TCLKD and Fabric Clock on FCLK
- Redundant Cooling Units (CU)
- Removable Air Filter and Fan Trays
- IPMI 2.0 compliant
- RoHS compliant

**$\mu$ TCA™**

### Benefits of Choosing VadaTech

- 1U chassis in 19" rackmount
- Scorpionware Shelf Management Software included at no additional cost
- Electrical, mechanical, software, and system-level expertise in house
- Full ecosystem of front and rear boards, enclosures, specialty modules, and test/dev products from one source
- AS9100 and ISO9001 certified company

The VT853 is a 1U  $\mu$ TCA 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). The chassis also routes ports 12-15 to 17-20 of the adjacent slot. It provides FLCK, TCLKA, TCLKB, TCLKC and TCLKD to each AMC.

The VT853 ports 4-7 and 8-11 are routed so that any mix of the fabrics are allowed (for example ports 4-7 could be PCIe and 8-11 could be 10GbE). Contact VadaTech for ordering options.

The VT853 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 VT853 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 input power is from DC (-36V to -75V).

## COOLING AND TEMPERATURE SENSORS

The VT853 has intelligent Cooling Units that are removable. The cooling airflow is from front to back. There are Temperature sensors throughout the chassis that monitors the intake and the outtake air temperature.

## SCORPIONWARE™ 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 VT853 front panel provides six AMC slots. The I/O interfaces with the chassis to provide out of band 10/100 Ethernet which interfaces to the Shelf Manager/MCMC directly, Serial interface (RS-232) to the Shelf Manager/MCMC, Dual GbE link to the on board GbE Switch, Dual QSFP to the 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..

## MANAGED LAYER2 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  $\mu$ TCA specification defines a set of clocks for Telecom and non-Telecom applications. The VadaTech VT853 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 VT853 has three types of clocks defined:

- Telecom clock
- GPS clock
- Fabric clock

The VT853 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 VT853 supports the following fabrics:

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

CHASSIS CONFIGURATION

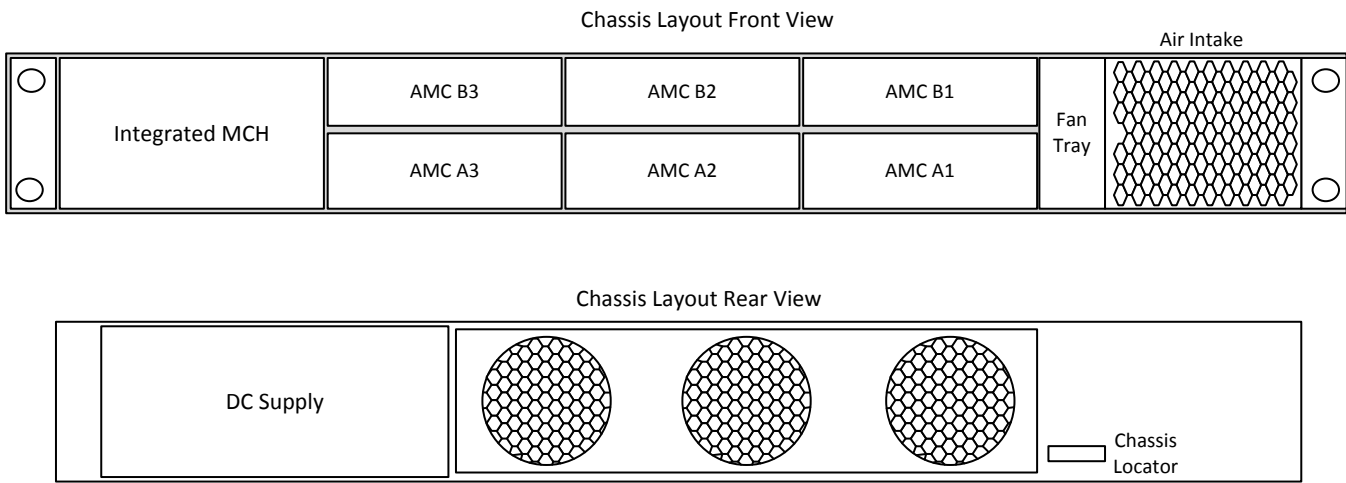


Figure 1: Chassis Layout

## BACKPLANE CONNECTIONS

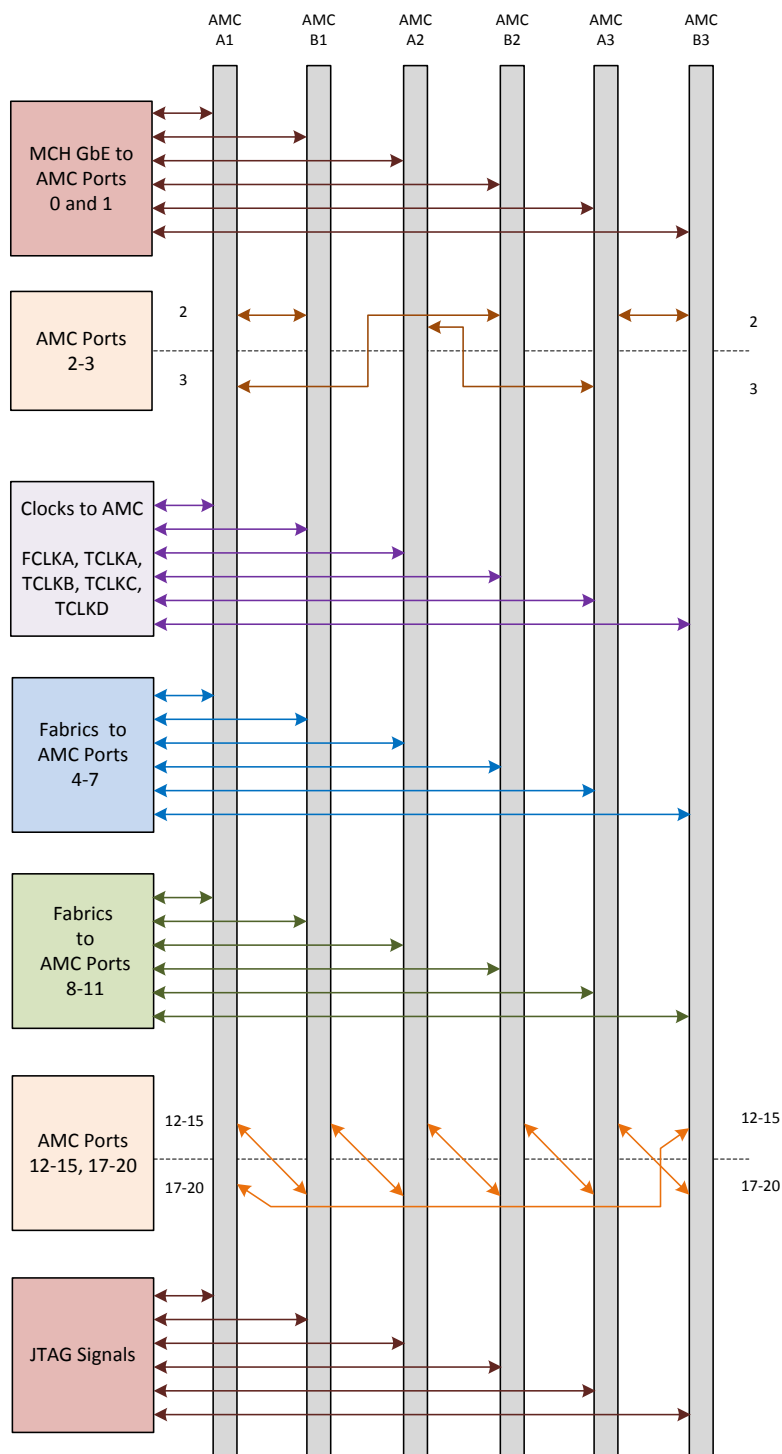


Figure 2: Backplane Connections

BLOCK DIAGRAM

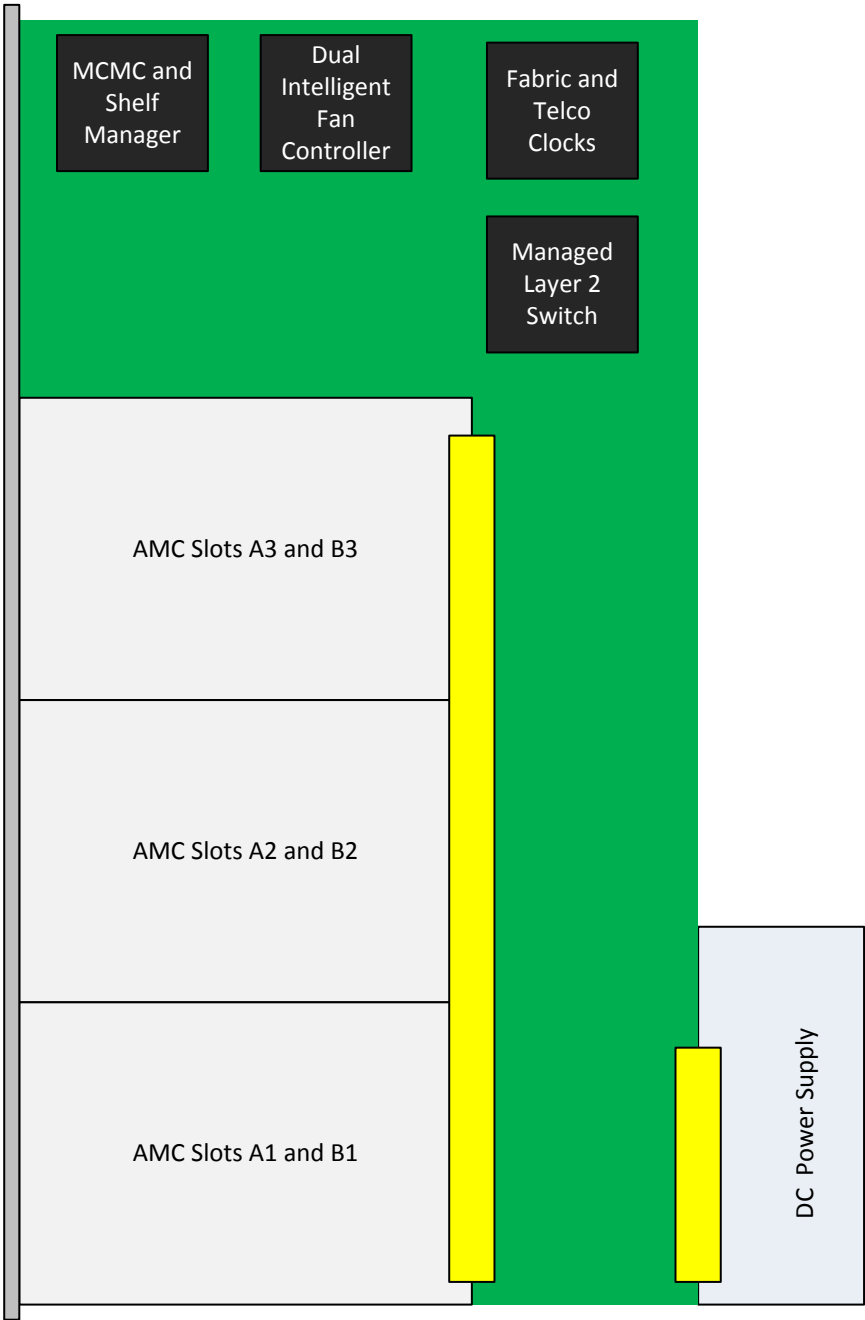


Figure 3: Top Level Block Diagram

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## SPECIFICATIONS

| Architecture      |   |   |
|-------------------|---|---|
| Physical          | Dimensions  | Height 1U   |
|                   |   | Width 19"   |
|                   |   | Depth 11.47" (291 mm)   |
| Type              | $\mu$ TCA Chassis   | Six AMC.0 single module, mid-size slots   |
| Standards         |   |   |
| AMC               | Type  | AMC.0, AMC.1, AMC.2, AMC.3 and AMC.4  |
| $\mu$ TCA         | Type  | MicroTCA.0  |
| Module Management | IPMI  | IPMI version 2.0  |
| PCIe              | Lanes   | PCIe x1, x2, x4 on each AMC slot  |
| SRIO              | Lanes   | Each AMC slot has x4  |
| 10 GbE            | Lanes   | Each AMC slot has a XAUI interface (  |
| 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             | VT853   | 392W DC   |
|                   |   | Input supply: -36V to -75V  |
| Environmental     | Temperature   | Operating Temperature: 0° to 55° C  |
|                   |   | Storage Temperature: -40° to +70° C   |
|                   | Altitude  | 10,000 ft operating   |
|                   |   | 40,000 ft non-operating   |
| Front Panel       | Relative Humidity   | 5 to 95 percent, non-condensing   |
|                   | LEDs  | IPMI management LEDs, Activity, Link and PCIe Good Lane   |
|                   | Interface   | MGT 10/100, MGT RS-232, PM RS-232, JTAG, Telco Alarm, Clocks, Dual GbE via RJ-45 and 10 GbE via dual QSFP |
| Conformal Coating |   | Humiseal 1A33 Polyurethane (Optional)   |
|                   |   | Humiseal 1B31 Acrylic (Optional)  |
| 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 ATCA and  $\mu$ TCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTM), 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.

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## ORDERING OPTIONS

### VT853 – ABC – 0E0 – GHJ

#### A = Management Software

- 1 = MCMC
- 2 = MCMC and Shelf Manager

#### B = JTAG Switch Module

- 0 = Without JSM
- 1 = With JSM

#### C = Fabric on Ports 4-7 and 8-11

- 1 = Reserved
- 2 = PCIe Gen2 on ports 4-7 and 8-11
- 3 = SRIO
- 4 = 10GbE Light Managed
- 5 = 10GbE Full Managed Layer 2/3
- 6 = PCIe Gen2 on ports 4-7 and Point to Point on A1 to B1, A2 to A3 and B2 to B3 on ports 8-11
- 7 = SRIO (8-11 not available on B1, A1, A3 and B3)
- 8 = PCIe Gen2 on ports 4-7 and 10GbE on ports 8-11

#### E = Telecom/GPS Clock

- 0 = None
- 1 = Clock Distribution only
- 2 = Telecom TCXO\*\*
- 3 = GPS TCVCXO\*\* 30.72MHz†
- 4 = GPS TCVCXO\*\* 10.00MHz†
- 5 = Reserved

#### G = Power Module

- 0 = DC -36 to -75V
- 1 = Reserved

#### H = Temperature Range

- 1 = Commercial
- 2 = Industrial

#### J = Conformal Coating

- 0 = None
- 1 = Humiseal 1A33 Polyurethane
- 2 = Humiseal 1B31 Acrylic

\*\* The Crystal Oscillator is Stratum-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, Virtex-7



**AMC526**  
AMC Dual ADC, Virtex-7, 12-Bit @ 2.6 GSPS



**AMC720**  
Xeon E3-1125 Processor AMC

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