VT855

1U MTCA Chassis Platform with 2 AMC Slots (Double wide option)

VT855

Key Features

- MicroTCA 1U 19" rack mount chassis platform
- Two mid-size AMC slots per 1U Carrier or two double module mid-size with two mid-size AMC slots
- Management can run as Shelf/MicroTCA Carrier Management Controller (MCMC) or MCMC
- AMC.1, AMC.2, AMC.3, AMC.4 compliant
- PCIe, SRIO, 10GbE, Aurora, etc. available on Ports 4 to 7 and 8 to 11
- GbE Switch (not managed)
- Removable dual 2.5" SATA/SAS disk with direct connect via SATA/SAS (port 2 or 3) or PCIe (port 4)
- RAID zero or one option
- Telco Alarm and Carrier Locator
- Front to back cooling with removable Air filter and Fan trays
- Removable AC or DC input option
- IPMI 2.0 compliant

Benefits

- Scorpionware Shelf Management Software included at no additional cost
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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The VT855 is a 1U MTCA chassis that provides two mid-size AMC slots or two double-width mid-height with direct connection between the two slots on ports 4-7, 8-11, 12-15 and 17-20. The ports 2-3 are routed directed between the two slots or to dual 2.5" disk. The AMC.2 (ports 0 and 1) are routed to the on board GbE switch.

The Air Filter and Fan Trays are hot swappable. The VT855 has option for AC or DC input. The power supply is removable for ease of service.

The VT855 has Dual 2.5" SATA/SAS disk that are removable from the rear. The dual disk could run as dual independent disk or as RAID zero/one. The Disk interfaces to the AMC slots via the PCIe Gen2 (Gne1) or direct connect via ports 2 and 3 of the AMC.

The VT855 runs VadaTech proven second generation Management software based on it's 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 universal AC (110-240VAC) or from DC (-36V to -75V).

Figure 1: VT855 Chassis

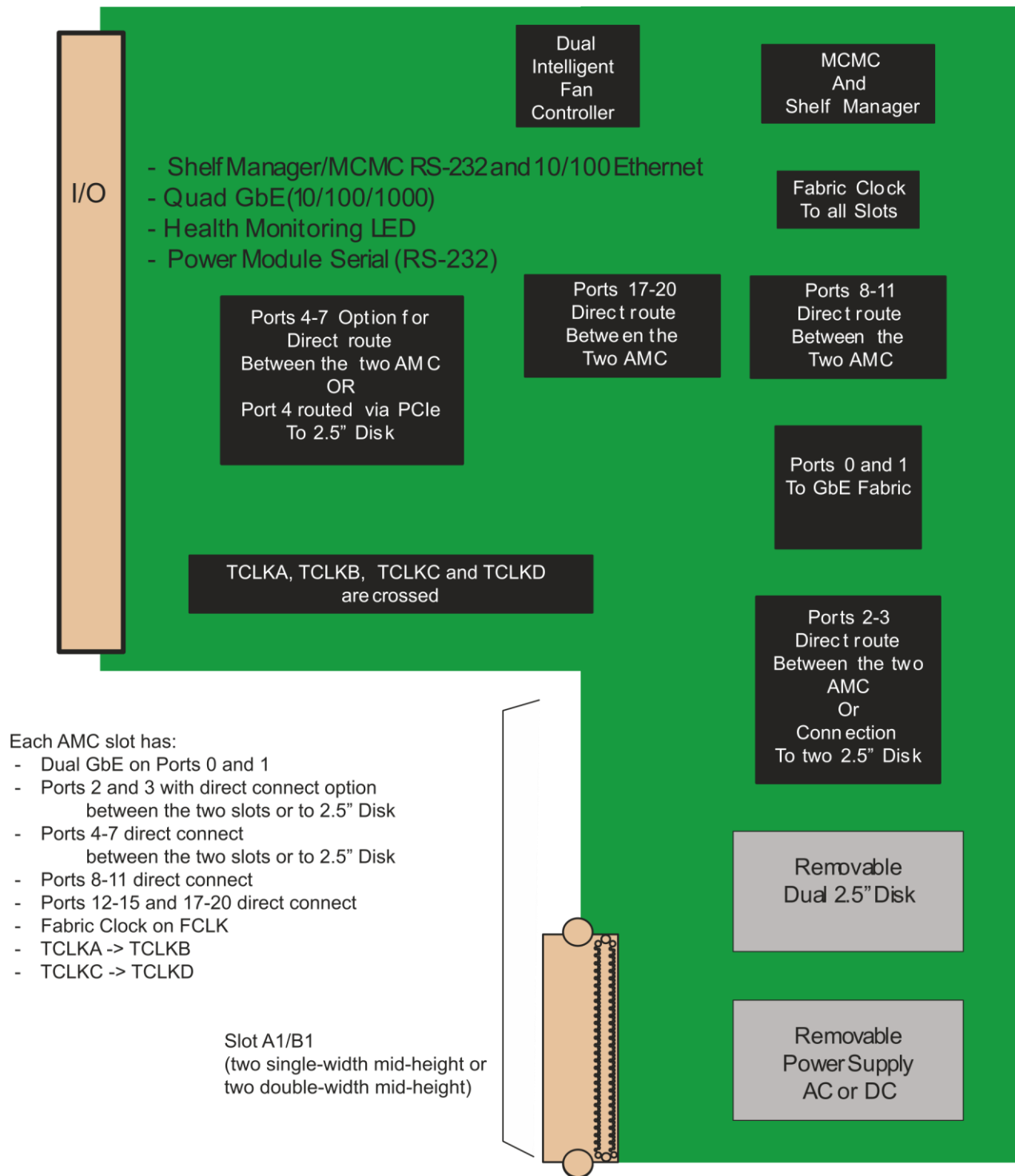
Figure 2: VT855 Chassis Front View

Block Diagram

Figure 3: VT855 Functional Block Diagram

The diagram contains the following labeled blocks:

I/O panel with:
- Shelf Manager/MCMC RS-232 and 10/100 Ethernet
- Quad GbE (10/100/1000)
- Health Monitoring LED
- Power Module Serial (RS-232)

- Dual Intelligent Fan Controller
- MCMC And Shelf Manager
- Fabric Clock To all Slots
- Ports 17-20 Direct route Between the Two AMC
- Ports 8-11 Direct route Between the Two AMC
- Ports 4-7 Option for Direct route Between the two AMC OR Port 4 routed via PCIe To 2.5" Disk
- Ports 0 and 1 To GbE Fabric
- TCLKA, TCLKB, TCLKC and TCLKD are crossed
- Ports 2-3 Direct route Between the two AMC Or Connection To two 2.5" Disk
- Removable Dual 2.5" Disk
- Removable Power Supply AC or DC

Each AMC slot has:
- Dual GbE on Ports 0 and 1
- Ports 2 and 3 with direct connect option between the two slots or to 2.5" Disk
- Ports 4-7 direct connect between the two slots or to 2.5" Disk
- Ports 8-11 direct connect
- Ports 12-15 and 17-20 direct connect
- Fabric Clock on FCLK
- TCLKA -> TCLKB
- TCLKC -> TCLKD

Slot A1/B1
(two single-width mid-height or two double-width mid-height)

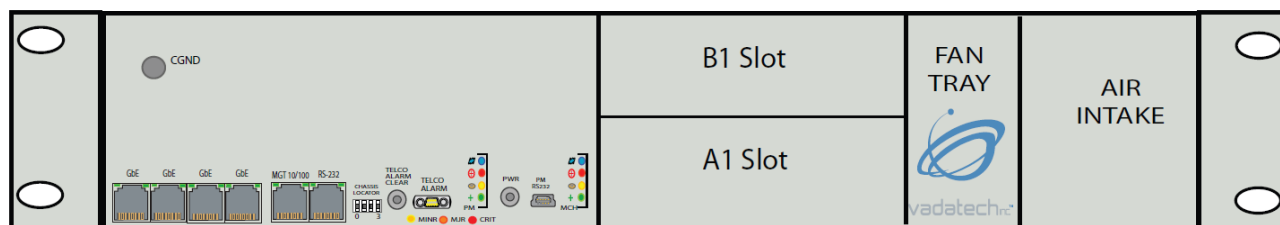VT855 - 1U MTCA Chassis Platform with 2 AMC Slots

Chassis Layout

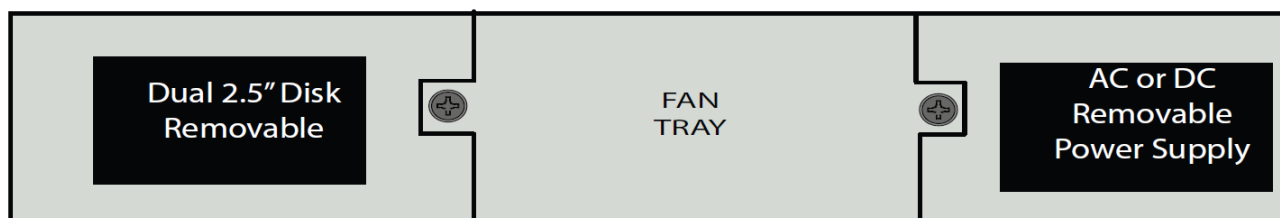Figure 4: VT855 Chassis Layout - Front View

Figure 5: VT855 Chassis Layout - Rear View

Figure 6: Rear view with AC and DC power supply option

Front Panel

- The front I/O has an out of band 10/100 Ethernet which interfaces to the Shelf Manager/MCMC directly. Further the front also provides Serial interface (RS-232) to the Shelf Manger/MCMC, quad GbE link to the on board GbE Switch, Serial interface RS-232 to the power module, as well as provide status indication such as Telco Alarm, Health Monitoring LED, and Chassis locator.

Rear Panel

- The rear of the chassis has the AC/DC input supply, 2.5" hard drive, and the rear Fan Tray. All FRU in the back are removable for ease of serviceability.

Airflow

- The air flow is from front to rear. The Air filter is removable from the front.

Key Software Features

- Linux 2.6 embedded OS
- IPMI version 2.0
- Interface to Sensor Data Record repositories, System Event logs, FRU inventory storage devices
- Monitors temperature, voltage and current sensors
- Shelf cooling policy
- Shelf activation and power management
- Alarm controls
- Event notification and flexible alerting policies
- E-Keying
- CLI, SNMP, RMCP+, HTTP and HPI
- IPMI 1.5 compatibility
    - IPMI device global
    - Watchdog timer
    - Session management
    - Event management
    - PEF and alerting
    - Sensor device
    - FRU device access and update
    - SDR device access and update
    - SEL device access and management
    - LAN device configuration
- IPMI 2.0 extension
    - Enhanced encryption
    - Firmware firewall
    - Enhanced authentication

Carrier Manager Functions

- Cooling Management
- LED Controls
- AMC Management
    - Radial IPMB-L
    - Support for 12 AMCs
    - AMC Payload Control
    - Electronic Keying
- Power and Cooling Management

Shelf Manager Functions

- Sensor monitoring and alerting
    - Actively monitors local and remote temperature, voltage and current sensors on the shelf FRUs
    - Access to raw sensor readings
    - Logs all critical events reported by shelf FRUs
    - Events are processed using Platform Event Filtering (PEF)
    - Alerts using SNMP trap and PEF alert policy
    - Capability to reset major/minor alarms with timeout
    - Controls major/minor/critical alarm LEDs
- Shelf manager interface
    - Command Line Interface (CLI)
        - CLI connects to the Shelf Manager and the boards on the shelf
        - IPMI-based library of commands
        - Accessible via telnet, SSH or shelf serial port
        - Commands provide access to information such as the current state of the system, sensor values, events, health, fan speeds, FRU storage, etc.
    - SNMP
        - Supports v1 and v3 of the Simple Network Management Protocol (SNMP)
        - The Shelf Manager can support SNMP queries and send SNMP traps in either v1 or v3
        - Provides custom Management Information Base (MIB) tree accessed using SNMP
        - The MIB hierarchy is defined in a text file that describes the shelf and platform objects to be managed and can be used by a remote application such as an SNMP/MIB manager
    - HPI
        - Provides HPI interface to the shelf resources
        - Access to resource tables to enable applications to discover, manage, and monitor the resources in the system:
            - Reset state management
            - Power state management
            - Managed hot swap
            - Alarm management
            - Management instruments associated with entities
            - Event notifications
            - Configuration
            - System and resource event logs

Backplane Connections

Ports 0 and 1

- Port 0 and 1 of each AMC is routed to the on board GbE Fabric.

Figure 7: VT855 Backplane Connections - Ports 0 and 1

- In addition, the un-managed GbE has four ports routed to the front and one port routed to the Management processor.

Clocking Routing

- Fabric clock (FCLK, 100Mhz HCSL) is routed directly from the clock generator to each AMC. The TCLKA and TCLKB are crossed and TCLKC and TCLKD are crossed.
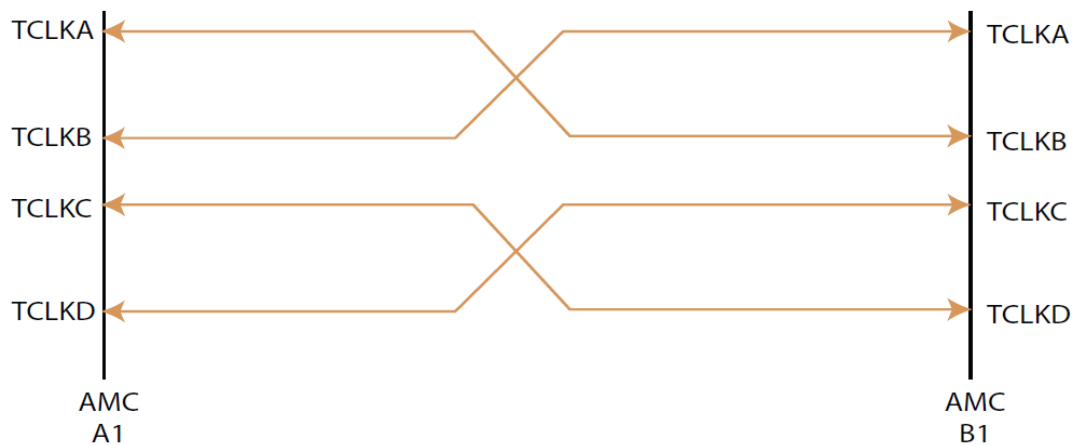

Figure 8: VT855 Backplane Connections - Clocking Routing

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Ports 2 and 3

- The mid-plane routes ports 2 and 3 with the following options:

Table 1: Ports 2 and 3 Connections

Ordering Option (Option C)	A1 slot Ports 2 and 3	B1 slot Ports 2 and 3
0	Direct connect to B1 slot (ports 2-3)	Direct connect to A1 slot (ports 2-3)
1	Port 2 to the second 2.5" disk (port 3 to B1)	Port 2 to the first 2.5" disk (port 3 to A1)
2	No connect on ports 2 and 3	Port 2 and 3 to Dual 2.5" Disk

Ports 4 to 7

- The mid-plane routes ports 4-7 with the following options:

Table 2: Ports 4 to 7 Connections

Ordering Option (Option D)	A1 slot Ports 4-7	B1 slot Ports 4-7
0	Direct connect to B1 slot (ports 4-7)	Direct connect to A1 slot (ports 4-7)
1	No connect on ports 4-7	Port 4 to the 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7)
2	No connect on ports 4-7	Port 4 to the 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7). Dual independent disk
3	No connect on ports 4-7	Port 4 to the 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7). RAID 0
4	No connect on ports 4-7	Port 4 to the 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7). RAID 1
5	Port 4 to the second 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7)	Port 4 to the first 2.5" Disk via PCIe (Gen1 or Gen2) (no connect on ports 5-7)

Ports 8 to 11

- Ports 8 to 11 are routed point to point between the two AMC.

Ports 12 to 20

- Ports 12-15 and 17-20 are routed point to point between the two AMC.

Specifications

Architecture		
Physical	**Dimensions**	Width: 19" with extension to fit into a 23" Telco shelf
		Depth: 13' (330 mm)"
		Height: 1U
Type	**MTCA Chassis**	Two AMC.0 mid-height single-width or double-width
Standards		
AMC	**Type**	AMC.0, AMC.1, AMC.2, AMC.3 and AMC.4
MTCA	**Type**	PICMG 3.0 Rev 3.0
Module Management	**IPMI**	IPMI v2.0
PCIe	**Lanes**	PCIe x1, x2, x4 or x8 lanes between the two slots
SRIO	**Lanes**	Dual x4 connection between the two slots
10GbE	**Lanes**	Dual XAUI interface between the two slots
GbE	**1000-BX**	Two GbE SerDes per slot routed to the GbE switch or to the front
SATA/SAS	**Lanes**	Routed point to point between the two slots or dual 2.5" disk
Fabric Clock	**HCSL**	100 MHz HCSL per AMC.1
Configuration		
Power	**VT855**	300W AC supply, input 110-240VAC with frequency from 47-63Hz
		216W DC supply, input supply from -36 to -75V DC
Environmental	**Temperature**	See Ordering Options
		Storage Temperature: –40° to +90°C
	Vibration	0.5Gs RMS, 20-2000 Hz random (Operating): 6Gs RMS (non-operating)
	Shock	30Gs each axis
	Relative Humidity	5 to 95% non-condensing
Cooling		Front to Back
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		One (1) year, see VadaTech Terms and Conditions

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

VT855 – ABC-DE0-GHJ

A = Management Software	D = Ports 4-7	G = Disk Size* (Solid State Disk)
1 = MCMC 2 = MCMC and Shelf Manager	0 = Per Table 2 1 = Per Table 2 2 = Per Table 2 3 = Per Table 2 4 = Per Table 2 5 = Per Table 2	0 = None 1 = 32GB 2 = 80GB 3 = 160GB 4 = 300GB 5 = 500GB 6 = Reserve
B = AMC Slot Size	**E = No. of Disks***	**H = Power Supply**
0 = Single Module 1 = Double Module	0 = None 1 = One 2 = Two	0 = DC -36V to -75V (216W) 1 = AC (300W) 2 = Reserved
C = Ports 2 and 3		**J = Operating Temp and Conformal Coating**
0 = Per Table 1 1 = Per Table 1 2 = Per Table 1		0 = Commercial Temp 1 = Industrial Temp 2 = Commercial Temp and Humiseal 1A33 polyurethane 3 = Commercial Temp and Humiseal 1B31 acrylic 4 = Industrial Temp and Humiseal 1A33 polyurethane 5 = Industrial Temp and Humiseal 1B31 acrylic

Notes: *If two disks are ordered, they will be identical.

Related Products

VT806

- MicroTCA.4 low-profile chassis platform, 19" x 1U x 14.2" deep
- Integrated Intel Xeon W-11865MRE (Tiger Lake-H) 11th-Generation (8 core with Turbo 4.7 GHz)
- 64GB of DDR4 with ECC

VT814

- MicroTCA rack mount or desktop chassis platform, 19" x 2U x 14.2" deep
- Compliant to MTCA.4 specifications with rear I/O for High-Energy Physics and other applications
- Supports up to six MTCA.4 mid-size, double module AMCs and RTMs

VT815

- MicroTCA rack mount or desktop chassis platform, 19" x 2U x 14.2" deep
- Compliant to MTCA.4 specifications with rear I/O for High-Energy Physics and other applications
- Supports up to six MTCA.4 mid-size, double module AMCs and RTMs

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