VT864 KEY FEATURES

- μTCA System Platform 19” x 5U x 10.5” deep (with handles 12” deep)
- Full redundancy with dual MicroTCA Carrier Hub (MCH), dual Cooling Units and dual Power Modules
- Up to 10 AMCs: 10 full-size
- Dual star topology
- Radial I2C bus to each AMC
- High-speed routing on 30 layers
- High-speed μTCA connectors (12.5 GHz)
- Redundant FRU information devices
- Redundant Carrier Locator
- 1000W AC Power supply option
- Telco Alarm
- FCLKA, TCLKA, TCLKB, TCLKC and TCLKD with advanced redundancy capability
- No active components on the backplane
- ESD-Jack at the top front
- RoHS compliant

The VT864 is a 5U μTCA chassis that provides 10 AMC full-size slots that can accept any AMC.1, AMC.2, AMC.3 and/or AMC.4. It provides FCLK, TCLKA, TCLKB, TCLKC and TCLKD to each slot with clock redundancy between the two MCH modules.

The VT864 is capable of having redundant MCH, Power Modules, and Cooling Units for high availability.

The CLK3 option can be configured for the Fabric clock, Telcom clock, or Fabric B.

There is an option for Port 2 and 3 to be directly connected among the adjacent AMCs or to the fabric B (AMC.3 SATA/SAS switch option on the MCH).

The VT864 has a Telco Alarm as well as Redundant FRU information devices and carrier locators.

VadaTech can modify this product to meet special customer requirements without NRE (minimum order placement is required).
**SPECIFICATIONS**

### Architecture

<table>
<thead>
<tr>
<th></th>
<th>Height 5U</th>
</tr>
</thead>
</table>

### Physical Dimensions

<table>
<thead>
<tr>
<th></th>
<th>Width: 19”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depth 10.25” without the handles and 12” with the handles</td>
</tr>
</tbody>
</table>

### Type

<table>
<thead>
<tr>
<th></th>
<th>µTCA Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 AMC.0 full-size slots</td>
</tr>
</tbody>
</table>

### Standards

#### AMC

| Type          | AMC.0, AMC.1, AMC.2, AMC.3, and AMC.4 |

#### µTCA

| Type          | Telco Alarm, Dual MCH, Dual Power Module and Dual Intelligent Cooling units |

### Configuration

#### Power

<table>
<thead>
<tr>
<th>VT864</th>
<th>1000W supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>110-240VAC with frequency from 47-63Hz</td>
</tr>
</tbody>
</table>

#### Temperature

| Operating Temperature: 0° to 55° C |
| Storage Temperature: -40° to +70° C |

#### Altitude

| 10,000 ft. Operating |
| 40,000 ft. Non-Operating |

#### Relative Humidity

| 5 to 95 percent, non-condensing |

### Conformal Coating

| Humiseal 1A33 Polyurethane |
| Humiseal 1B31 Acrylic |

### 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 |

#### Compliance

| RoHS and NEBS |

#### Warranty

| Two (2) years |

#### Trademarks and Logos

* The VadaTech logo is a registered trademark of VadaTech, Inc. Other registered trademarks are the property of their respective owners. AdvancedTCA™ and the AdvancedMC™ logo are trademarks of the PCI Industrial Computers Manufacturers Group. All rights reserved. Specification subject to change without notice. |

---

**Table 1. Comparison chart between VadaTech 5U VT86x series**

<table>
<thead>
<tr>
<th>Model</th>
<th>No. of MCH Slots</th>
<th>No. of Power Module Slots</th>
<th>JSM Slot</th>
<th>Telco Alarm</th>
<th>No. of AMC FH* Slots</th>
<th>No. of AMC MH* Slots</th>
<th>No. of AMC CH* Slots</th>
<th>Dual Redundant Fan Tray</th>
<th>1000W Power Supply</th>
<th>Advance Clock Redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT860</td>
<td>2</td>
<td>2</td>
<td>Yes</td>
<td>Yes</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VT861</td>
<td>2</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VT862</td>
<td>2</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VT863</td>
<td>2</td>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VT864†</td>
<td>2</td>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* FH (Full-Height), MH (Mid-Height), CH (Compact-Height)

† VT862 and VT864 are identical other than their clock routing architecture. The VT864 routes clocks to CLK1/TCLKA, CLK2/TCLKB, CLK3/FCLKA, TCLKC, and TCLKD of the AMC whilst the VT862 routes to CLK1/TCLKA, CLK2/TCLKB, and CLK3/FCLKA of the AMC.
**IPMB Bus**

The I2C bus from each AMC is routed radially to each of the MCH.

*F-S (Full-Size)

**FIGURE 1.** VT864 Topology for AMC I2C Bus

**Ports 0 and 1**

*F-S (Full-Size)

**FIGURE 2.** VT864 Topology for AMC Ports 0 and 1
Ports 2 and 3

When CLK3 is non-redundant, Fabric B will be partially provided only on ports 1 to 6. CLK3 is routed on Fabric B on ports 7 to 12.

**FIGURE 3.** VT864 Topology for AMC Ports 2 and 3
Ports 4-7 and 8-11

*F-S (Full-Size),

**FIGURE 4.** VT864 Topology for AMC Ports 4-7 and 8-11

Ports 12-15 and 17-20

*F-S (Full-Size)
Clock Options

The μTCA specification provides for three AMC 1.0 clocks: CLK1, CLK2, and CLK3. It defines non-redundant and redundant clock networks for these three clocks as either CLK1, CLK2, CLK3 or CLK1A, CLK2, CLK1B respectively. However, this may not be enough to support all of the clocking needs of telco customers needing full redundancy across two pairs of clocks such as a framing clock plus a bit clock or a GPS 1PPS signal plus bit clock. The AMC 2.0 specification provides for four telco clocks (TCLKA through D) and a fabric clock (FCLKA) which the VT864 chassis leverages to do enhanced clock redundancy to solve these advanced clocking requirements.

With the VT864 topology it is possible to source/sink two AMC telco clocks, TCLKA/B, from/to the primary MCH (plus the FCLKA) and in addition source/sink two AMC telco clocks, TCLKC/D, from/to the secondary MCH for a total of all five AMC clocks being handled by the μTCA system. Two additional clock update channels between the MCH modules are also provided which can be used for forwarding clocks as needed between them. This enhanced backplane is fully compatible with standard μTCA MCH modules and AMC 2.0 cards. An additional benefit of this enhanced clock architecture is the ability to run PCIe with the fabric clock on FCLKA at the same time as the redundant telco clocking; which is something that is not possible with the original μTCA redundant clocking architecture.

If your application requires the original μTCA redundant clocking architecture using AMC 1.0 modules please refer to our other available VadaTech chassis.

NOTE: CLK3/FCLKA can be devoted to the telco clocking (for AMC 1.0), become the FCLKA per AMC.1 specification, or be used for Fabric B based on the ordering option of the chassis and MCH 0. Fabric B will be partially provided only on ports 1 to 6 when CLK3/FCLKA is ordered (which occupies the Fabric B ports 7 to 12).

FIGURE 5. VT864 AMC 2.0 Enhanced Clock Redundancy Topology
Power supply

The VT864 has an option for a 1000W power supply. The input voltage is from 110-240 VAC (frequency from 47-63 Hz). The VT864 provides -48V connectors to the front of the chassis to power the Dual Power Modules. The AC input is from the back of the chassis. The AC supply has an on/off switch on front top center of the chassis.

Cooling and Temp Sensors

The VT864 has Dual intelligent Cooling Units. This redundancy allows fail-safe operation in case one of the cooling units becomes non-operational. The cooling airflow is from front to back. The removable Air Filter has a switch to detect its presence and can be monitored for when it needs to be replaced.

There are a total of 12 Temperature sensors in the chassis that monitor the intake and the outtake air temperature throughout the chassis.

Telco Alarm

The VT864 provides Telco Alarm functionality to alert about any anomaly within the chassis. The Telco Alarm is provide via a Micro DB-9 as well as LED’s in the front to show any anomaly. The Telco Alarm has its own dedicated slot.

FRU Information and Carrier Locator

The VT864 has dual redundant FRU information and Carrier Locators. The Carrier Locator is assigned by mechanical dip switches which are easily accessible. The MCH reads the Locator via its private I2C bus.

No active components

Unlike other μTCA chassis in the market, the VT864 has no active components on its back plane. This allows ease of serviceability.

End to End Integrated Solution

VadaTech has the entire μTCA infrastructure: MicroTCA Carrier Hub (product UTC001, UTC002 or UTC004), and Power Module (UTC010, ~800W). Please consult the appropriate data sheet to obtain more information.

VadaTech can integrate any of its over 75 AMC modules, customer AMCs, as well as other third party AMCs into the chassis and deliver a complete system for deployment. Please contact VadaTech Sales for more information.
ORDERING OPTIONS

VT864 - ABC - 000 - 00J*

A = AC Power supply
0 = None
1 = 1000W

B = Ports 2 and 3
1 = Direct connection per Fig. 3
2 = To MCH

C = MCH CLK3 Channels
1 = Telco
2 = FCLKA
3 = Fabric B

J = Conformal Coating
0 = None
1 = Humiseal 1A33 Polyurethane
2 = Humiseal 1B31 Acrylic

*VadaTech has an MCH (UTC001, UTC002, etc.), Power Module (UTC010, UTC012, etc.) as well as over 90 AMC modules. Contact your sales representative for an end-to-end integrated solution.