GE Intelligent Platforms

MicroTCA™ MP-3000
GE Modular Platform

**Features**
- 8U 15-slot MicroTCA™ chassis
- MicroTCA backplane supports AMC.0, AMC.1, AMC.2, AMC.3 and AMC.4
- Power module, DC input
- Hot swappable push/pull CU accessible from the chassis front
- Single MicroTCA Carrier Hub (MCH)
- MCH-based PCI Express switch and fabric
- MCH-based Carrier and Shelf Management
- AdvancedMCs included:
  - Telum™ ASLP10 Intel®-based Processor AdvancedMC
  - Two Telum™ 200-SATA storage AdvancedMCs
  - Telum™ 2001-VGA graphics AdvancedMC
  - Telum™ GE-QT 4-port Gigabit Ethernet AdvancedMC
- Six single full-size slots available for additional AdvancedMCs
- One slot supports Full-Size and Compact AdvancedMCs
- JTAG connector on backplane
- Flexible card guide supporting single and double AdvancedMCs
- IPMI v1.5 compliant
- Designed to meet NEBS
- Pre-installed Linux® operating system with Linux Support Package (LSP)
- Supports Hot Swap per AMC.0
- Early-access platforms available to help you define production platform requirements
- RoHS 2002/95/EC compliant

GE MicroTCA modular platforms are high-speed, scalable platforms that deliver the performance and flexibility needed for cost-sensitive network-centric and MicroTCA development applications in a variety of markets including Telecom, Commercial and Military markets. Based on MicroTCA and incorporating the best-of-class system components from GE and its ecosystem partners, these modular pre-validated systems deliver true GE quality and reliability.

Pre-validation shortens customer development time by minimizing costly MicroTCA integration and reducing interoperability testing to a minimum. GE delivers an application ready platform that has been tested, including the AdvancedMCs, for mechanical and thermal stability. Plus, proven IPMI code is provided to ensure interoperability and provide a level of platform management including an easy-to-use graphical user interface. Complete platform management is ensured by a Carrier Manager and a Shelf Manager implemented in the MCH.

Ideal for use as a MicroTCA development platform, the MicroTCA MP-3000 platform includes:
- 8U chassis with Power Module (PM)
- One Cooling Unit (CU)
- MicroTCA Carrier Hub (MCH) with PCI Express fabric module
- Telum ASLP10 Processor AdvancedMC
- Two Telum 200-SATA storage AdvancedMCs
- Telum 2001-VGA graphics AdvancedMC
- Telum GE-QT Gigabit Ethernet AdvancedMC.

Six single full-sized payload slots are available for additional AdvancedMCs. One of these slots supports Full-Size or Compact AdvancedMCs.

A MicroTCA Carrier Management Controller (MCMC) using an Intelligent Platform Management Interface (IPMI) provides the low-level hardware management interface that controls the AdvancedMCs, PM, and CU.

MicroTCA specified IPMI management, networking, and clock infrastructure are supplied by the MCH. The PM provides power conversion, management, and distribution. Both the MCH and PM provide support for hot insertion and extraction of AdvancedMCs. Direct serial console access to the embedded management firmware is enabled via a front-panel connector on the MCH. A convenient Command Line Interface (CLI) provides easy access and control of the firmware.

GE modular platform solutions are fully compliant with open standards such as PICMG MTCA.0 R1.0, AMC.0 R1.0, and the IPMI specifications.

Customer specific configurations and backplane routing are available upon request.
MicroTCA™ MP-3000 Modular Platform

**IPMI and JTAG Support**
The IPMI-based management architecture provides all hardware management support. The MicroTCA Carrier Management Controller (MCMC), located on the MCH, provides the primary management function. Radial IPMB-L connections are routed from the MCH to individual AdvancedMC slots. Dual Redundant IPMB-0 buses are routed from the MCH to the power subsystem and CU.

A JTAG Switch Module (JSM) connector on the backplane enables a JSM that provides a mechanism for system-level test based on the JTAG architecture in a star topology.

A JSM model supporting this platform is planned.

**Thermals**
The 8U chassis has a front replaceable CU arranged so that air flows through the chassis from bottom front to top back. The CU provides up to 43cfm (73m³/h) at 82% fan speed. Sufficient airflow is provided to cool a 40 watt board in each AdvancedMC slot.

**Backplane Interconnect**
The platform provides Common Option (CO) and Fat Pipe (FP) region connectivity to each installed AdvancedMC. These are non-blocking Gigabit Ethernet channels to Port 0 of each AdvancedMC slot that are provided by the MCH for CO connectivity. External access to the CO interconnect is available via an RJ-45 connectors on the MCH front panel.

X4 PCI Express FP connections to each AdvancedMC slot are supported.

Point-to-point backplane connections between AdvancedMC slot ports 2 and 3 provide support for SATA or SAS AdvancedMCs in the system.

**Linux Support Package**
A Linux operating system that uses the included Linux Support Package (LSP) is pre-installed on the platform. The LSP includes Linux drivers for devices on the Telum ASLP10 Processor AdvancedMC as well as for other pre-validated AdvancedMCs.

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**Why choose GE modular platforms?**
GE has a wealth of expertise in Military, Commercial and Telecommunications markets. This makes us unique in the embedded computing industry – we understand application requirements and we know communication protocols.

Our line of modular platforms and AdvancedMC I/O products is unmatched. Not only is our product selection extensive, but we leveraged our product ecosystem – and it takes a lot to be part of the GE ecosystem – selecting only the best-of-class to create complete, modular platforms that are tested and pre-validated to work seamlessly so that your time-to-revenue is minimized.

GE is your one-stop-shop for complete modular platforms, piece parts, customized backplanes and AdvancedMCs. Call GE Intelligent Platforms’ knowledgeable sales team for help in selecting modular platforms and AdvancedMC products that best meet your application requirements.

**Platform Configuration**

<table>
<thead>
<tr>
<th>Optional CU 2</th>
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<tbody>
<tr>
<td>MCH 4 Tongue</td>
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<tr>
<td>AMC 10</td>
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<tr>
<td>AMC 07</td>
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<tr>
<td>CU 1</td>
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<tr>
<td>JTAG</td>
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Specifications

Chassis
• 8U chassis: with cable tray 355 x 224 x 234 mm (HxWxD)
• Weight: 10.8 kg pre-configured
• 15 slots: 1 slot occupied by MCH; 1 slot occupied by the PM
• Anodized for highest stiffness; meets NEBS requirements
• Designed for NEBS and EN levels

Backplane
• Backplane support
  - 1x Gigabit Ethernet on Port 0
  - 2x SATA/SAS on Ports 2 & 3
  - 4x PCI Express on Ports 4, 5, 6 & 7
• MicroTCA backplane supports AMC.0, AMC.1, AMC.2, AMC.3 and AMC.4 specifications
• JTAG connector for debug and test
• AdvancedMC connectors based on con:card+ design
• Processor AdvancedMC can communicate with adjacent SAS/SATA module via point-to-point connection

MCH
• MCMC supports up to 12 AdvancedMC, up to 4 PMs and up to 2 CUs
• Support for 12 Gigabit Ethernet ports Fabric A (routed to AdvancedMC Port 0)
• Supports one Gigabit Ethernet port, connected to Fabric A on the front panel
• Supports one 10/100/1000BaseT Ethernet port on the front panel
• Supports x4 PCI-E to all 12 AdvancedMCs
• Carrier Manager processor
• Integrated Shelf Manager with Open HPI interface
• Application providing a Graphical User Interface (GUI) and communicating via Open HPI is included
• PCI Express fabric switch module
• Clock support: two Telecom clocks and one fabric clock (spread-spectrum PCI-E clock)
• Front panel connector for bidirectional external reference clock
• Status and hot swap LEDs
• Front panel connectors for serial debug

Power Module (PM)
• 355W
• Capable of supporting -48VDC inputs and provides management and payload power to 12 AdvancedMCs, 2 MCH, and 2 CUs
• EMMC with IPMB to facilitate communication with the Carrier Manager
• Status and hot swap LEDs

Cooling Unit (CU)
• Intelligent CU with 6 fans (push & pull)
• Provides up to 43 cfm (73 m3/h) at 82% fan speed.

System Mounting
• Use standalone, wall mounted or mounted in a 19-inch rack with two chassis mounted together.

Environmental
• Temperature
  - Operating: 0° to +55 °C
  - Storage: -40° to +85 °C
• Relative Humidity
  - Designed to meet NEBS
• Shock & Vibration
  - Designed to meet NEBS

MTBF
• Contact GE Intelligent Platforms

Safety
• All PCBs are manufactured with flammability rating of 94V-0

EMC Requirements
• Designed to meet NEBS

Regulatory Compliance
• FCC Part 15, Class A
• Designed to meet UL60950-1
• CSA C22.2, No. 60950-1
• Designed to meet EN60950-1
• EN55024/EN55022v

Specifications: Included AdvancedMCs

Telum™ ASLP10 Processor AdvancedMC
• Low power Intel® Pentium® M processor LV, 1.4 GHz, 2 MB L2
• Single, full-size AMC.0 form factor
• 1 GB DDR2 SDRAM (400 MHz) with ECC
• 2 GB Flash drive
• Two Gigabit Ethernet ports
  - AMC.2 E2 routed to Port 0 & 1
• Two SATA ports
  - AMC.3 Type 52 on ports 2 & 3
• PCI Express x8 data port
  - AMC.1 Type 8 on ports 4 - 11
• One USB 2.0 port on front panel
• Fabric clock input (FCLKA for SS PCI Clock)
• Watchdog, temperature sensor

Telum™ 200-SATA Storage AdvancedMC
• Serial ATA (SATA) hard disk drive with 80 GB capacity
• Single, full-size AMC.0 form factor
• Single SATA port, selectable for either Port 2 or 3 connectivity
• Support for SATA (150 MB/s) interface
• Fast read/write performance

Telum™ 2001-VGA Graphic AdvancedMC
• Resolution of 1024 x 768 pixel x 24 bit at 60 Hz
• Single, full-size AMC.0 form factor
• x1 PCI-E interface, Port 4
• Single display device
• DB15 connector

Telum™ GE-QT Gigabit Ethernet Interface AdvancedMC
• Four Gigabit Ethernet ports
• Single, full-size AMC.0 form factor
• x4 PCI-E interface, Ports 4-7
• 10/100/1000BaseT
• TCP CRC calculation and segmentation offloading
• 802.1Q VLANs, with up to 4096 VLANs
• Accommodates Ethernet Jumbo frames (16 KB)
For detailed specifications, see individual datasheets: http://www.ge-ip.com.
About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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