

# Centellis™ 500

## MicroTCA Platform

■ Embedded Computing for  
Business-Critical Continuity™

### PRELIMINARY DATA SHEET

#### MicroTCA technology will be used in a wide range of applications

- Low profile, lightweight, solidly constructed injection molded plastic table-top or shelf placement chassis is easily transportable
- Three (3) available AMC mid-size expansion payload slots for application customization
- Best-in-class MicroTCA Carrier Hub (MCH) and Intel Core2 Duo processor AMC (PrAMC-7211)
- Dynamic cooling for low noise enterprise deployment
- Managed system supporting hot-swap of AMC modules
- SpiderWareM<sup>3</sup> Platform Management software
- Fully FCC part 15 Class A certified for enterprise deployment
- PICMG® MicroTCA.0 R1.0, AMC.0 R2, AMC.1, AMC.2, AMC.3 compliant
- Highly robust AMC connectors stringently tested to prevent AMC insertion failure
- Extensively tested system passing vigorous 48 hour stress, power cycle and boot tests
- Backplane supports signaling rates up to 3.125 Gbaud
- 48 V DC MicroTCA power module for full MicroTCA compatibility
- OEM branded deployment options

Engineered for dependable embedded applications, the Centellis™ 500 is an innovative MicroTCA™ solution that is suitable for use in enterprise applications. It has been designed from the ground up to be an economically viable solution by utilizing an injection molded plastic enclosure with the smallest number of internal components possible for low-cost high volume manufacture. The MicroTCA backplane, card cage, fans, power module, MicroTCA Carrier Hub (MCH) are included and the system is supplied fully tested including SpiderWare®M<sup>3</sup> Platform Management software and an Emerson designed Intel® Core™2 Duo based processor Advanced Mezzanine Card (AdvancedMC™ or AMC) module to speed up your time to market.

Centellis 500 is a solidly constructed and meticulously engineered table-top or shelf placement MicroTCA system. As a complete system, the Centellis 500 ships ready to go out of the box with SpiderWareM<sup>3</sup> Platform Management software designed for system management through a set of graphical tools. It is supplied complete with an Ethernet MCH-1011-LC, a PrAMC-7211 Intel Core2 Duo based processor AMC, and a DC input power module. The MCH-1011-LC is a high performance and dependable solution that supports Gigabit Ethernet (GbE) fabric to all the AMC payload slots. The MCH also provides individual status and power control to each AMC for hot swap support with in-service, out-of-service and GbE link status LEDs on the front panel for ease of operation.

PrAMC-7211 is based on a 1.5 GHz Intel Core2 Duo processor with 2GB of DRAM for use as an application and development processor. With both USB 2.0 and Ethernet front panel connectivity for ease of use, PrAMC-7211 also has a 1GB on-board flash disk for robust storage.

MicroTCA technology will be used in a wide range of applications such as VoIP gateways, packet processing appliances, IP-PBX, industrial automation, telemedicine, healthcare office management, remote radiology, patient monitoring and access gateways where reducing the capital cost of installing or extending next-generation network elements is very important. With its stylish design, table-placement, and innovative low-noise cooling, the Centellis 500 is uniquely suitable for a variety of enterprise deployment scenarios.



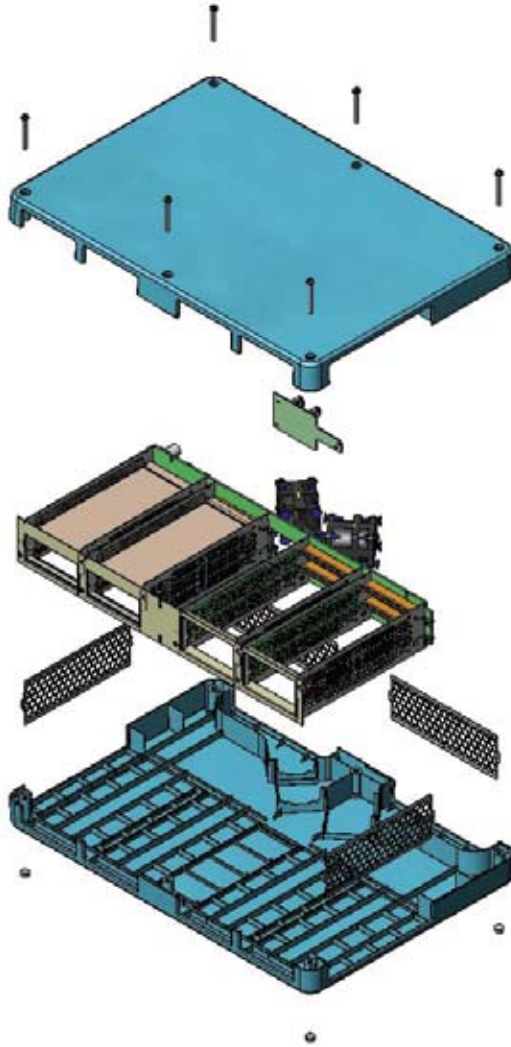
SpiderWare™ M<sup>3</sup>



μTCA™

  
**EMERSON**™  
Network Power

## Centellis 500 Exploded View



## Hardware

### CHASSIS

- Low profile injection molded plastic chassis
- Lightweight (about 4Kg/8.5 lbs. populated)
- Solidly constructed
- Easily transportable
- Table-top or shelf placement

### AMC EXPANSION

- Includes industry-leading PrAMC-7211 with high performance, low power Intel Core2 Duo processor
- Three (3) free mid-size AMC payload slots available for application customization
- Validated rotating storage AMCs available (see Tested and Validated AMC section for ordering information)

### POWER MODULE

- 48 V DC MicroTCA power module for full MicroTCA compatibility (External AC power supply available, see Additional Components section)

### MICROTCA CARRIER HUB

- Integrated Shelf Manager
- Layer 2 unmanaged Gigabit Ethernet switching to each of the payload slots with Gigabit Ethernet front panel uplinks for external connections
- IPMI management functions
- Narrowband PCI reference clock (HCSSL)

### DYNAMIC COOLING

- Ideal for low noise enterprise deployment
- Dynamic cooling efficiently controls the fan speed for low noise
- Innovative side inlet, rear outlet cooling reduces AMC preheating
- Fully thermally modeled and tested in Emerson's advanced thermal and airflow laboratory
- Quietly cools a variety of AMC configurations including AMCs up to 45W
- Minimum total aggregated airflow of 32 CFM for superior cooling

## SpiderWareM<sup>3</sup> GUI

The screenshot displays the SpiderWareM<sup>3</sup> GUI for Emerson hardware. The interface is divided into several sections:

- Filter Alarms:** A sidebar on the left allows filtering by type (Temperature, Voltage, Current, Fan, Processor) and status (Include Acked). It also includes severity filters (Info, Minor, Major, Critical).
- Carrier Manager:** A central view showing a rack of server units with an Emerson logo.
- Hardware Sensors:** A table showing sensor data for Chassis 1, Carrier 1, PM 1. The table includes columns for Name, Type, Value, and Settings.
 

Name	Type	Value	Settings
12V Current	Current	2.5 Amps	Settings
3V3 Current	Current	0.1 Amps	Settings
Input Volt A	Voltage	-46.0 Volts	Settings
Input Volt B	Voltage	0.0 volts	Settings
Input Volt Cn	Voltage	-46.0 volts	Settings
Input Current	Current	0.0 Amps	Settings
- Board Alarms:** A panel on the right showing board information (Board: MTC000-4ER15S3, P/N: 7001229-J200, S/N: 2F PD0217, Daemons: No Daemons) and a 'Reset Board' button.
- Chassis Selection:** A panel on the bottom left for selecting chassis to view, listing EMC7000 and C500.
- IP Server Status:** A panel on the bottom right showing connection status (Connected) and IPMI management status (Ready).

### PLATFORM MANAGEMENT SOFTWARE

- Easy-to-use SpiderWareM<sup>3</sup> Platform Management software for management, monitoring and maintenance
- Graphical interface for quick and easy platform setup
- Uses each module's IPMB\_L or IPMB\_0 link
- Manage function
  - ▲ User-friendly GUI makes it easy to get up and running within minutes of installation
  - ▲ Single screen presentation of hardware management
  - ▲ DHCP service for 1-n shelves (future)

- Monitor function

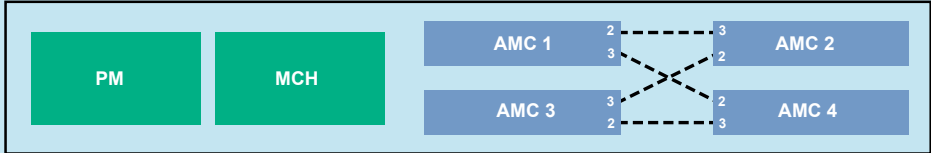
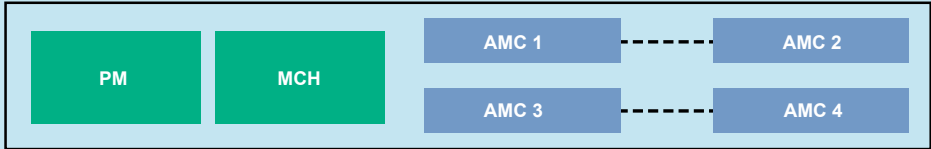
- ▲ FRU discovery, inventory and rev-level reporting
- ▲ Monitor hardware and event sensors
- ▲ Monitor CPU and memory usage (Emerson processor AMCs - Q1 '09)

- Maintain function

- ▲ MCH IP addressing maintenance
- ▲ Platform Event Filtering
- ▲ Set FRU information
- ▲ Firmware upgrade and fallback (future)

### OEM Deployment Options

- Options for logo placement
- Chassis color can be changed
- AMC module overlay can be customized

Backplane	
Ports	Mapping
Port 0	Radial to Fabric A: MCH 1 (ports 0-5)
Port 1	Radial to Fabric A: MCH 1 (ports 6-9)
Ports 2, 3	Point-to-point SATA 
Ports 4-7	Radial to Fabric D/E/F/G:MCH 1
Ports 8-11	Point-to-point XAUI 
IPMB -L	Radial to MCH
IPMB-0 (A:B)	Bussed to PM
TCLKA/CLK1	Radial from Each AMC to MCH
TCLKB/CLK2	Radial from Each AMC to MCH
TCLKC/CLK3	Radial from Each AMC to MCH

## Specifications

### CHASSIS

- Injection molded plastic chassis
- Four (4) mid-size AMC payload slots
- One (1) power module and one (1) MCH full-size slot

### SHELF MANAGEMENT

- One (1) MicroTCA carrier hub
  - Carrier manager provides control/status of AMC and power
  - LEDs for IS, OOS, HS and GbE link status

### COOLING

- Two (2) controlled fans
- Operating temperature: 5° – 40°C (41° – 104°F)
- Total airflow: 32 CFM
- Cooling architecture: Side ingress, rear egress (center plenum with rear output)

### ACOUSTICS

ETSI ETS 300 753 Class T3.1 Office floor-standing equipment at or below 5.5 bels when operating in ambient temperature of 25°C or below

### POWER DISTRIBUTION

- One (1) 355W -48V DC power module
- 12V payload and 3.3V management power

### BACKPLANE

- Signal rates of up to 3.125Gbaud
- Radial IPMB-L from MCH slot for payload slots; bussed IPMB-0 (A:B) to power module
- Three (3) radial clocks from MCH to payload slots
- Radial port 0 and 1 from payload slots to MCH
- Radial ports 4-7 from payload slots to MCH (extended fabric)
- Point-to-point ports 8-11 to payload slots (AMC slot 2 to slot 1; AMC slot 4 to slot 3)
- Point-to-point [daisy-chain] Ports 2 and 3 between payload slots

#### ENVIRONMENTAL

- ETSI 300 019-2-3 Class T3.1 operating temperature of +5° to +40°C
- Storage temperature range of -40°C to 70°C
- ETSI 300 019-2-3 Class T3.1 relative humidity of 5% to 85%
- MicroTCA.0 REQ 2.193 IEC 61587-1 Shock and Vibration
- Transportation temperature and humidity exposure requirements of GR-CORE sections 4.1.1.1, 4.1.1.2 and 4.1.1.3
- Transportation vibration criteria requirement of GR-63-CORE section 4.4.5
- Package equipment shock criteria requirement of GR-63-CORE section 4.3.1

#### REGULATORY COMPLIANCE

- FCC part 15 Class A and EN55022 Class A
- Safety - 60950-1 (North America), EN 60950-1 (Europe), CSA 6095-1 (Canada)
- UL 60950
- CE Certification Mark
- UL94-V0 Flammability Compliance
- RoHS (6 of 6) Compliant
- ICES-003 (Interference Causing Equipment Standard)
- EN55022:1998, EN55024:1998

#### NETWORK INFRASTRUCTURE

- Gigabit Ethernet base fabric
  - ▲ Two (2) GbE link from the MCH to the AMC slots
  - ▲ Two (2) GbE link ports on the MCH front panel for inter-shelf connections
  - ▲ Layer 2 switch architecture (unmanaged)
- PCI Express extended fabric (requires upgraded MCH)
  - ▲ x1, x2 or x4 PCI Express from MCH to AMC slots
- SATA/SAS storage fabric
  - ▲ Point-to-point daisy-chain (Ports 2 and 3)

#### SOFTWARE

- Linux
  - ▲ Wind River, PNE/LE 2,0 evaluation runtime kernel and filesystem
  - ▲ PXE (x86) or TFTP (PPC/Uboot) boot images
  - ▲ Installation scripts for HD or flash
- Basic Blade Services
  - ▲ Operating system initialization scripts
  - ▲ Standard Linux SNMP MIB support (module-level mgmt)
  - ▲ Hardware Platform Mgmt CLI/daemon (local MMC interface)
  - ▲ Module Firmware Upgrade Facility (with latest firmware images)
  - ▲ FRU Information Utility (backplane FRU data view/change)
  - ▲ MCH GbE Switch Configuration utility (not persistent)

Ordering Information	
Part Number	Description
Pre-Configured Tested and Validated Bundle Configurations	
MTCA-C500T-7211-0001	MicroTCA plastic chassis with Ethernet MCH, PrAMC-7211 Intel Core2 Duo processor AMC, 48V DC power module and 3-filler panels
Tested and Validated AMCs	
AMC-S302-M-80G	Mid-size 80GB Hard Disk Drive AMC
Additional Components	
MTCA-MCH-1021-LC	MicroTCA Control Hub (MCH) Layer 2 Gigabit Ethernet and PCI Express switch plus SSC, HCSL and no Telco clocking
MTCA-C500-ACPWS250-1	AC to 48V DC external power supply (brick) for Centellis 500 with US power cable
5051R	AC power cable – North American
5052R	AC power cable – Australia/New Zealand
5053R	AC power cable – Denmark
5054R	AC power cable – EU Con
5056R	AC power cable – Italy
5057R	AC power cable – Switzerland/Norway
5058R	AC power cable - UK
5059R	AC power cable - Japan













## SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

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