UTC040C – MicroTCA Carrier Hub (MCH) Conduction Cooled, PCIe Gen3

μTCA.3 MCH, PCIe Gen 3

KEY FEATURES

- Double module, mid-size per AMC.0
- Conduction cooled for rugged applications
- Unified 1GHz quad-core CPU for MCMC (MicroTCA Carrier Management Controller), Shelf Manager, Clocking, and Fabric management
- Layer 2/3 managed GbE Switch
- Front panel provides 12 ports of GbE
- Non-blocking PCIe Gen3 Switch with up to four PCIe Virtual Domains

μTCA®

Benefits of Choosing VadaTech

- Robust, field proven shelf manager software
- Double module design enhances thermal performance
- Virtual JTAG capability for remote programming and debugging
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

The VadaTech UTC040C is the most feature-rich conduction cooled MicroTCA Carrier Hub (MCH) in the market. Its management software is based on VadaTech's robust Carrier Manager and Shelf Manager which have been deployed for years with proven results. It also manages PCIe Gen 3 Switch as well as the GbE Switch.

The UTC040C runs Linux on its centralized quad-core CPU and is hot-swappable/fully redundant when used in conjunction with a second instance of the module.

The firmware is HPM.2 compliant which allows for easy upgrades. It provides Master JTAG services to the AMCs via the JSM.

IPMI CARRIER MANAGER / SHELF MANAGER / PROTOCOL ANALYZER

The UTC040C utilizes the same proven standards-compliant IPMI management stack that has been utilized successfully in our previous generation MCH products. It supports carrier manager, shelf manager, and protocol analyser operations to help facilitate a seamless chassis integration experience. The IPMI stack enables a rich feature set including:

- IPMI Version 2.0 with IPMI v1.5 compatibility
- SDR, FRU, and SEL storage interfaces (SEL stored in MRAM for high-speed/non-volatile/no-wear-out access)
- Intelligent temperature, voltage, and current sensing
- Shelf cooling policy
- Shelf activation and power management / Automatic fail-over/redundancy management
- Alarm controls
- Event notification and flexible alerting policies
- Backplane E-Keying
- CLI, SNMP, RMCP+, HTTP, and HPI
- IPMB Protocol Analyzer GUI for use on PC
- ScorpionWare GUI system manager integration tool on PC available separately

BASE CHANNEL ETHERNET SWITCH

The UTC040C provides includes as standard a managed layer two/three GbE switch with12 ports 10/100/1000-BaseT interface via the front panel.

FAT PIPES FABRICS

The UTC040C provides the following fat pipes fabric capability:

- PCIe Gen3 Switch
    - Automatic speed negotiation for 2.5/5/8Gbps per lane
    - Virtual Switch/Multiple domain/Non-transparent port support to enable partitioning of the system with multiple root complexes
    - Includes an extra internal port which enables the GPS precision time-stamping engine (accessible from an AMC root complex board)
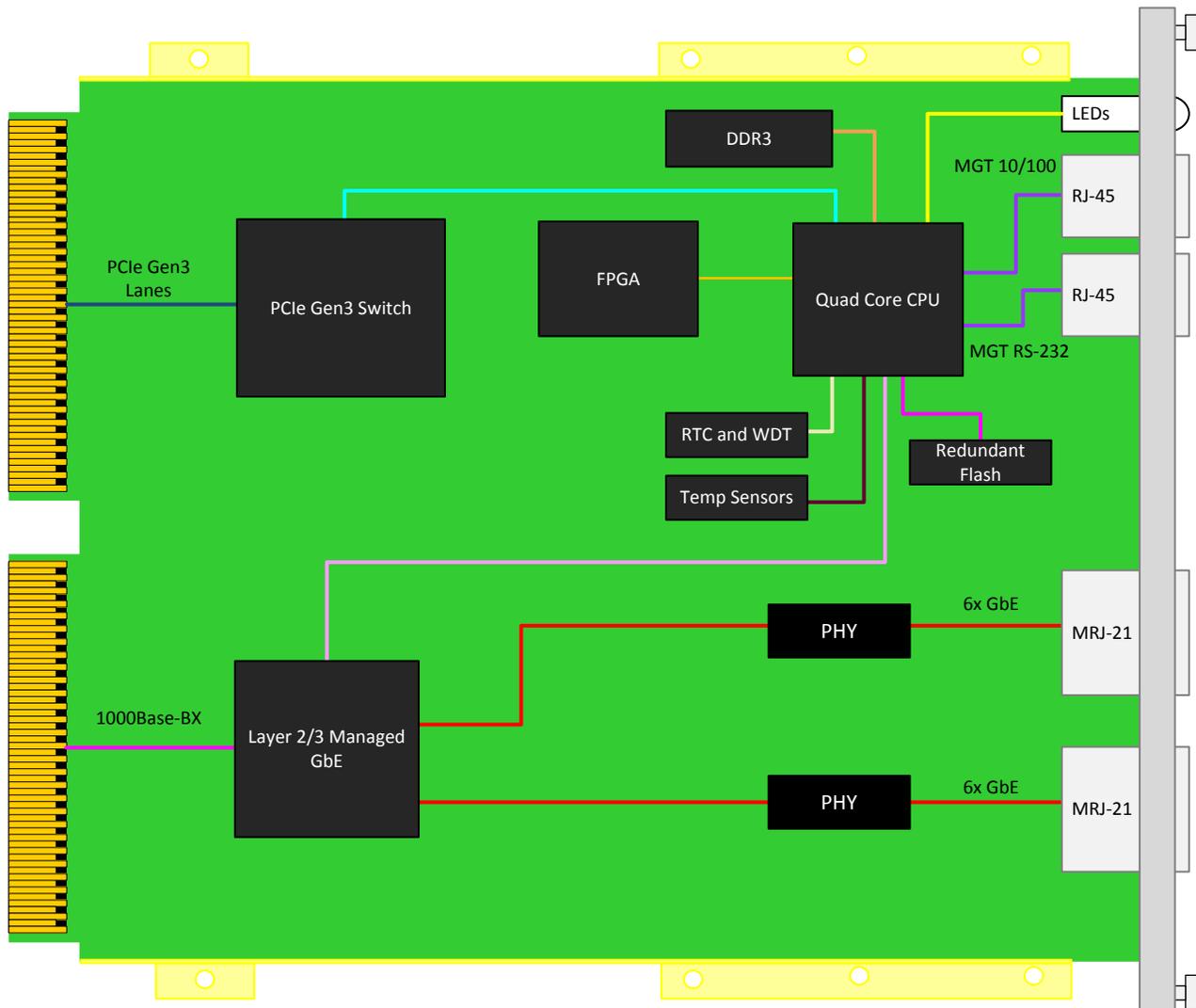   - 1024Gbps aggregate bandwidth / non-blocking / cut-through architecture

FABRIC CLOCK OPTION

The UTC040C has the capability to provide a 100 MHz HCSL PCIe Gen3-compliant fabric clock to each AMC. This option enables the recommended synchronous PCIe clocking approach within the chassis when used in combination with the PCIe fabric.
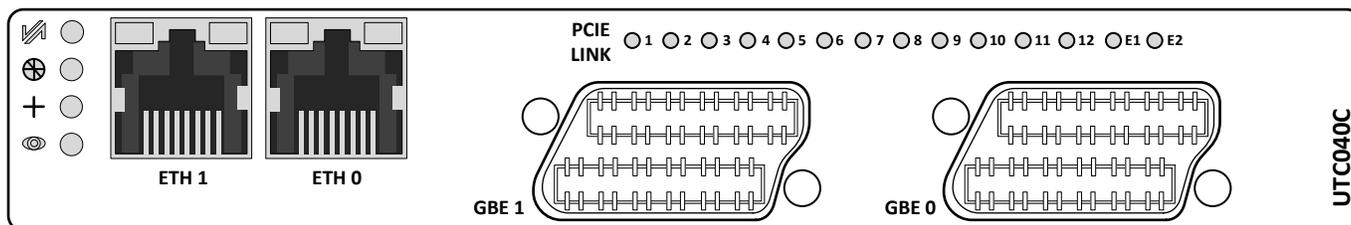
JTAG MASTER / JTAG VIA ETHERNET VIRTUAL PROBE

The UTC040C provide JTAG Master Capability to send out configuration data streams via the chassis JTAG Switch Module (JSM) to configure arbitrary JTAG Slave devices on AMC cards. Virtual Probe services are also available to provide JTAG via Ethernet for specific vendors such as Xilinx and Altera. This allows for standard development tools such as Xilinx iMPACT/ChipScope and Altera Programmer/SignalTap to treat the MCH/JSM combination as if it was a standard JTAG probe. This approach frees the developer from having to attach JTAG probes directly to the AMC or JSM which can be difficult when systems are already fully assembled. It also allows for remote debugging across long distances when required without the need to install additional JTAG equipment on-site.

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BLOCK DIAGRAM

FRONT PANEL

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SPECIFICATIONS

Architecture		
Physical	Dimensions	Double module, mid-size
		Width: 5.85" (148.5 mm)
		Depth: 7.11" (180.6 mm)
Type	Controller	µTCA Carrier Hub (MCH) – Conduction Cooled

Standards		
µTCA	Type	µTCA.3
AMC	Type	AMC.0 Revision 1
Module Management	IPMI	IPMI Version 2.0
	HPM	HPM.1 Revision 1.0

Configuration		
Power	UTC040C	45W with PCIe Fabric (without PCIe Fabric, GbE only 20W)
Environmental	Temperature	Operating temperature: -40° to 80° C (performance restrictions may apply) (See environmental spec sheet)
		Storage Temperature: –45° to +95° C
	Vibration	MIL-STD-810E Method 514.4 Procedure 1, Cat. 4 propeller, Cat. 5 Jet aircraft Cat. 6 helicopter
	Shock	MIL-STD-810 Method 516.4 Procedure 1 20g, ½ sine, 11 ms
	Relative Humidity	5 to 95 percent, non-condensing
Front Panel	Interface Connectors	RS-232 console port (RJ-45) for serial console
		Out-of-band LAN 10/100 from MCMC/Shelf Manager (RJ-45)
		12 in-band 10/100/1000GbE from Base Switch Fabric (MRJ-21)
	LEDs	IPMI Management Control: Blue, Red, Amber, Green
		Link and Activity LEDs for each RJ-45
	Mechanical	Dual wedge lock
	Temperature Sensor	Multiple temperature sensors on-board

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 µTCA 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.

Trademarks and Disclaimer

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ORDERING OPTIONS

UTC040C – A00 – 000 – G0J

A = Fabric *
0 = None
1 = PCle Gen3 with Virtual Domain

G = JTAG Virtual Probe
0 = None
1 = Included

J = Temperature & Coating
0 = Commercial, no coating (-5 to +55° C)
1 = Commercial Humiseal 1A33 Polyurethane (-5 to +55° C)
2 = Commercial, 1B31 Acrylic (-5 to +55° C)
3 = Industrial, no coating (–20 to +70° C)
4 = Industrial, Humiseal 1A33 Polyurethane (–20 to +70° C)
5 = Industrial, 1B31 Acrylic (–20 to +70° C)
6 = Extended, Humiseal 1A33 Polyurethane (–40 to +85° C) **
7 = Extended, 1B31 Acrylic (–40 to +85° C) **

Notes: * A base channel GbE included
**At the edge of the module.

RELATED PRODUCTS

UTC041
MTCA.3 Conduction Cooled MCH

AMC720C PrAMC Intel Xeon E3-1125
Conduction Cooled

AMC526C Dual ADC, Virtex-7
Conduction Cooled

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