AMC004

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KEY FEATURES

- AMC.1 PCIe x1, AMC.4 SRIO x1, single-width, half-height (mid-height or full-height)
- On board GPS receiver
- Accepts active +3.3V GPS antenna
- 100ns precision UTC timestamps, system status and GPS positions via PCIe/SRIO
- NMEA serial out and DGPS serial in
- Battery or SuperCap Almanac/Ephemeris/Last position backup
- 1PPS PCIe/SRIO interrupt for software synchronization
- 1PPS signal output to the front panel SMB and to the rear
- Disciplined clock output to the front panel SMB and to the rear
- Provides re-generated 1PPS signal even during holdover
- Flexible clock input/output routing
- Stratum 3 oscillator w/ automatic holdover
- LED indication for Reference OK, Frequency lock, Phase lock, and holdover

The AMC004 provides a complete GPS bus-level timing solution to a µTCA/ATCA system. The on-board GPS receiver is used to discipline the local oscillator and cancel out any oscillator drift or aging. Precision UTC timestamps, GPS receiver status, satellite data, and current GPS position are all made available via zero-latency PCIe/SRIO registers to the host CPU/application. All data is presented as binary with no need for parsing or conversion so that there is minimal overhead for the host application. To further support µTCA/ATCA-specific needs, the disciplined clock and 1PPS may be output to any TCLKA/TCLKB/TCLKC/TCLKD backplane channel as desired.

To support advanced software synchronization on the host CPU a precise 1PPS interrupt is provided as well as interrupts for alarms. A backup battery or SuperCap provides non-volatile storage of the Almanac, Ephemeris, and Last position data to enable rapid "warm start" re-acquisition usually within 45 seconds.

The module has a serial port in the front that enables advanced configuration and monitoring support. Locking/holdover status is also available via IPMI sensors. A secondary serial port enables NMEA data out and supports input of Differential GPS corrections from an external source.

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

AdvancedMC™

SPECIFICATIONS

| Architecture		
Physical	**Dimensions**	Single-width, mid-height or full-height
		Width: 2.89 in. (73.5 mm)
		Depth: 7.11 in. (180.6 mm)
Product Type	**AMC Clock**	GPS Clock
Standards		
AMC	**Type**	AMC.1
Module Management	**IPMI**	IPMI Version 2.0
Configuration		
Power	**AMC004**	2.5W
Environmental	**Temperature**	Operating Temperature: -20° to 75° C
		Storage Temperature: -40° to +95° C
	Vibration	1G, 5-500Hz each axis
	Shock	30G each axis
	Relative Humidity	5 to 95 percent, non-condensing
Front Panel	**LEDs**	IPMI Management Control
		Payload power, power good, reset, etc.
	Connectors	SMB for GPS Antenna
		Three RS-232 ports
		Two SMA for clocks
	Mechanical	Hot-swap ejector handle
Other		
MTBF	MIL Hand Book 217-F > TBDHrs.	
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	The VadaTech logo is a registered trademark of VadaTech, Inc. Other registered trademarks are the property of their respective owners. AdvancedMC™ and the AdvancedTCA™ logo are trademarks of the PCI Industrial Computers Manufacturers Group. All rights reserved. Specification subject to change without notice.	
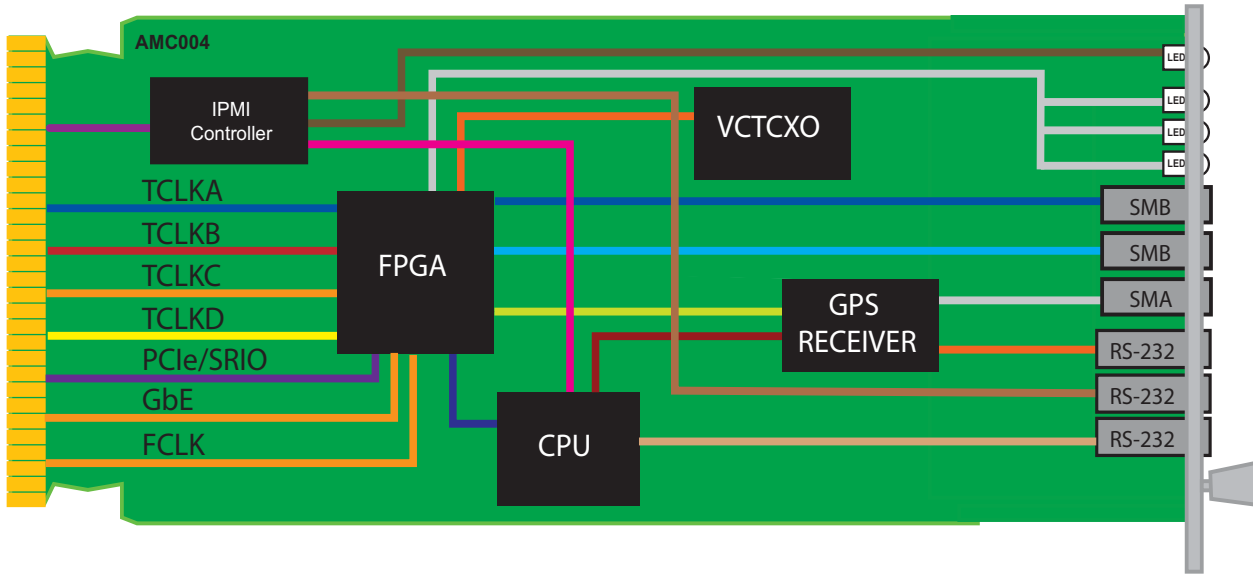
FIGURE 1. AMC004 Functional Block Diagram
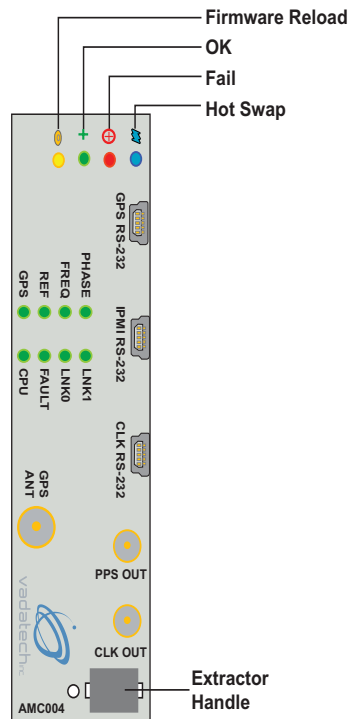
FIGURE 2. AMC004 Front Panel

ORDERING OPTIONS

AMC004 - ABC - D00 - 00J

A = Telcom/GPS Clock*

1 = GPS TCVCXO** 10.00MHz†
2 = GPS TCVCXO** 30.72MHz†
3 = Reserved
4 = Reserved

B = Fabric Interface

1 = PCIe (AMC.1)
2 = SRIO (AMC.4)
3 = GbE (AMC.2)
4 = Reserved

C = Front Panel Height

1 = Reserved
2 = Mid-height
3 = Full-height

D = Backup††

0 = None
1 = Lithium Battery
2 = SuperCap
3 = Lithium Battery and
SuperCap

J = Conformal Coating

0 = None
1 = Humiseal 1A33 Polyurethane
2 = Humiseal 1B31 Acrylic

*The 10MHz Oscillator is recommended for PCIe/SRIO precision time-stamping applications. Time-stamping functionality may be limited and/or require host-side correction for other frequencies.

**The Crystal Oscillator is Stratum-3; for lower cost solutions contact VadaTech Sales.

†Frequencies from 8MHz to 52MHz are available.

††For application that can not use the Lithium Battery, SuperCap could be utilized.

Document No_____ Date:. March 2009 Pass 7