AMC Time and Frequency with on-board GPS

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
- TSIP data Broadcast/Unicast via Ethernet w/ bonding/failover
- NMEA serial out and serial in
- Battery or SuperCap Almanac/Ephemeris/Last position backup
- 1PPS PCIe/SRIO interrupt, time events, time trigger for overall system synchronization
- 1PPS signal output to the front panel SMB and to the rear
- Optional PPS IN when GPS not available
- 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

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 and GPS location/time/status are all made available via PCIe/SRIO registers to the host CPU/application. Time trigger output and time event interrupts scynchronized to GPS UTC are available under host control. GPS location/time/status data Broadcast/Unicast output via backplane Ethernet with selectable bonding/failover behavior.

The disciplined clock, 1PPS, divided-down clock, and time trigger may be output in any combination to the TCLKA / TCLKB / TCLKC / TCLKD backplane channels. PPS IN synchronization pulse usually comes from the on-board GPS but can alternatively come from the front/back inputs if the GPS signal is not available.

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 35 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 in/out.

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

AdvancedMC™

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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	SMA for GPS Antenna
		Three RS-232 ports
		Three SMB 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.	

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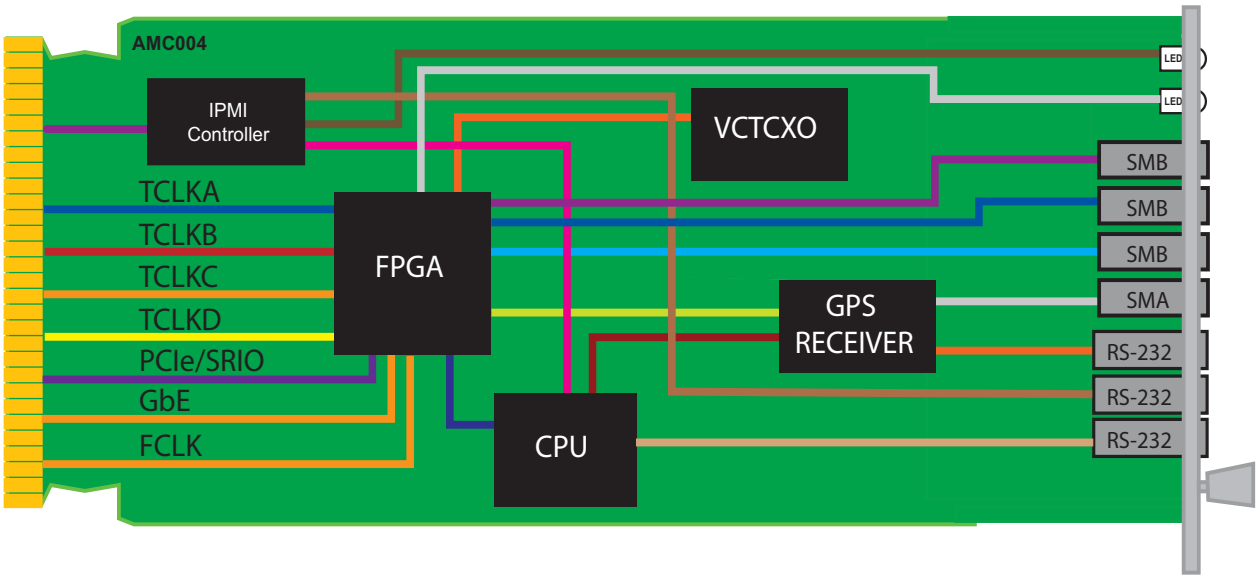

FIGURE 1. AMC004 Functional Block Diagram

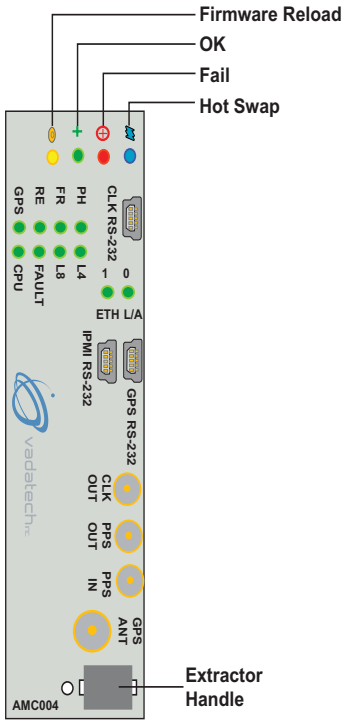

FIGURE 2. AMC004 Front Panel

ORDERING OPTIONS

AMC004 - ABC - D00 - 00J

A = Telcom/GPS Clock

1 = GPS TCVCXO* 10.00MHz†
2 = GPS TCVCXO* 30.72MHz†
3 = GPS TCVCXO* 50MHz†
4 = Reserved

B = Fabric Interface

1 = PCIe (AMC.1) Lane 4 + GbE (AMC.2) Lanes 0/1
2 = SRIO (AMC.4) Lane 4 + GbE (AMC.2) Lanes 0/1
3 = Reserved
4 = Only GbE (AMC.2) Lanes 0/1
5= 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 Crystal Oscillator is Stratum-3; for lower cost solutions contact VadaTech Sales.
†Frequencies from 8MHz to 52MHz are available.
††For applications that can not use the Lithium Battery, SuperCap could be utilized.

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