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THE POWER OF VISION

AMC Altera 5SGXEA FPGA – AMC532

AMC Altera 5SGXEA FPGA Carrier

KEY FEATURES

- AMC FPGA based on Altera Stratix-V (5SGXEA) in F1932 package
- Single module, mid-size or full-size
- VITA 57.1 FMC HPC Connector (compatible with LPC)
- All FMC LA, HA, HB pairs routed bi-directionally
- AMC Ports 0-15, 17-20 and FMC ports DP0-9 are routed for high speed SERDES protocols
- High-speed SERDES protocols such as PCIe x4, SRIO, XAUI, 1000Base-X, and more are FPGA programmable
- On board PLL for buffering/multiplying and jitter cleaner (Stratum-3)
- M-LVDS/LVDS Clock crossbar switch for flexible clock routing
- 4GB of DDR3 memory to FPGA (4 channels x 1GB each)
- Serial Over L AN (SOL) with hardware RNG
- IPMI 2.0 compliant

AdvancedMC™

Benefits of Choosing VadaTech

- High-performance Altera 5SGXEA FPGA
- All FMC DP lanes, LA/HA/HB pairs, and clocks are routed from the FMC to the FPGA, providing great flexibility in FMC selection and capabilities
- Four banks of DDR3 memory allows large buffer sizes and queuing during processing
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full ecosystem of front and rear boards, enclosures, specialty modules, and test/dev products from one source
- AS9100 and ISO9001 certified company

The AMC532 is an FPGA based on the Altera Stratix-V 5SGXEA. The module is compliant to the AMC.1, AMC.2, AMC.3 and/or AMC.4 specification. It has an on-board, reconfigurable FPGA which interfaces directly to the AMC backplane and FMC connectors.

The FPGA has interfaces to four banks of DDR3 memory (32-bit wide per bank). This allows for large buffer sizes to be stored during processing as well as for queuing the data to the host.

The AMC532 includes a sophisticated Quad PLL and M-LVDS/LVDS crossbar switch for low-jitter/low-latency clock handling with maximum flexibility between the backplane, FMC, and FPGA. The PLL has an option for Stratum-3 holdover.

The AMC532 has Serial Over LAN per the IPMI specification and a hardware RNG (Random Number Generator) for secure session to redirect the console serial port of an FPGA-based soft-core CPU.

VadaTech can modify this product to meet special customer requirements. Contact us to discuss your application.

REFERENCE DESIGN

VadaTech provides a reference design implementation for our FPGAs complete with VHDL source code and configuration binaries. The reference design focuses on the I/O ring of the FPGA to demonstrate low-level operation of the interconnections between the FPGA and other circuits on the board and/or backplane. It is geared to prove out the hardware for engineering/factory diagnostics and customer acceptance of the hardware, but it does not strive to implement a particular end application.

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.

BLOCK DIAGRAM

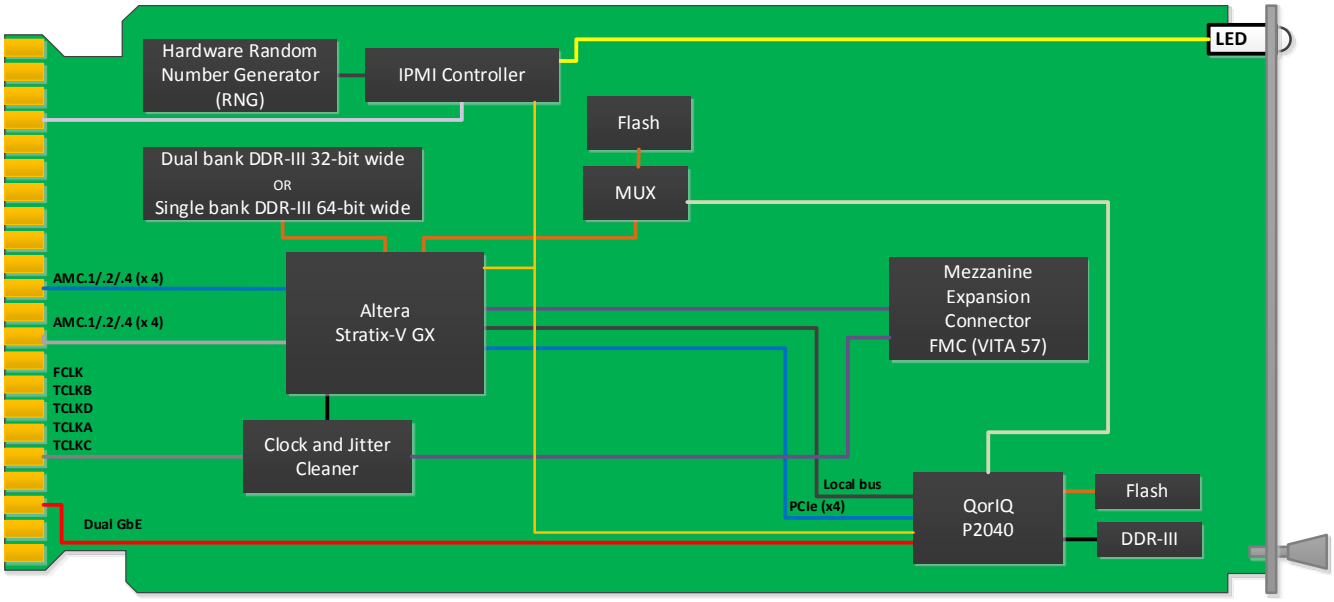

Figure 1: AMC532 Functional Block Diagram

SPECIFICATIONS

Architecture		
Physical	Dimensions	Single module, mid-size or full-size
		Width: 2.89" (73.5 mm)
		Depth 7.11" (180.6 mm)
Type	AMC FPGA Carrier	Altera FPGA Stratix-V GX Device
		Single FMC slot
		Four banks of DDR3 (32-bit each)
Standards		
AMC	Type	AMC.1, AMC.2, AMC.3, and AMC.4 (FPGA programmable)
Module Management	IPMI	IPMI version 2.0
PCIe	Lanes	Dual x4 via FPGA to AMC
SRIO	Lanes	Dual x4 via FPGA to AMC
Ethernet	10 GbE and GbE	Dual 10GbE (XAUI) and Dual 1000Base-BX to AMC
Configuration		
Power	AMC532	Carrier is ~16 W (without mezzanine) application specific
Environmental	Temperature	Operating Temperature: 0° to 65°C (air flow >400LFM)
		Storage Temperature: -40° to +90°C
	Vibration	Operating 9.8 m/s^2 (1.0G), 5-500Hz
	Shock	Operating 30Gs each axis
	Relative Humidity	5 to 95 per cent, non-condensing
Front Panel	Interface Connectors	Front panel FMC
	LEDs	IPMI management control
		4 user defined LEDs
	Mechanical	Hot swap ejector handle
Software Support	Operating System	n/a
Conformal Coating		Humiseal 1A33 Polyurethane (Optional)
		Humiseal 1B31 Acrylic (Optional)
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	
Trademarks and Disclaimer	The VadaTech logo is a registered trademark of VadaTech, Inc. Other registered trademarks are the property of their respective owners. AdvancedTCA™ and the AdvancedMC™ logo are trademarks of the PCI Industrial Computers Manufacturers Group. All rights reserved. Specification subject to change without notice	

ORDERING OPTIONS

AMC532 – A0C – DEF – 0HJ

A = FPGA PCIe Option
0 = No PCIe on ports 4-11
1 = PCIe on ports 4-7 (Single x4)
2 = PCIe on ports 8-11 (Single x4)
3 =PCIe on ports 4-11 (Dual x4)

C = Front Panel Size
1 = Reserved
2 = Mid-size
3 = Full-size

D = FPGA Density
0 = Reserved
1 = 5SGXA5
2 = 5SGXA7
3 = 5SGXA9
4 = 5SGXAB

E = FPGA Speed
1 = Low
2 = High

F = Clock Holdover Stability
0 = Standard (XO)
1 = Stratum-3 (TCXO)

COMMON CONFIGURATIONS

AMC532-202-110-000

H = Temperature Range
0 = Commercial
1 = Industrial

J = Conformal Coating
0 = None
1 = Humiseal 1A33 Polyurethane
2 = Humiseal 1B31 Acrylic

RELATED PRODUCTS

FMC223 High Speed FMC for DAC

AMC713 Processor AMC

ARP200 FPGA Application-Ready Platform

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