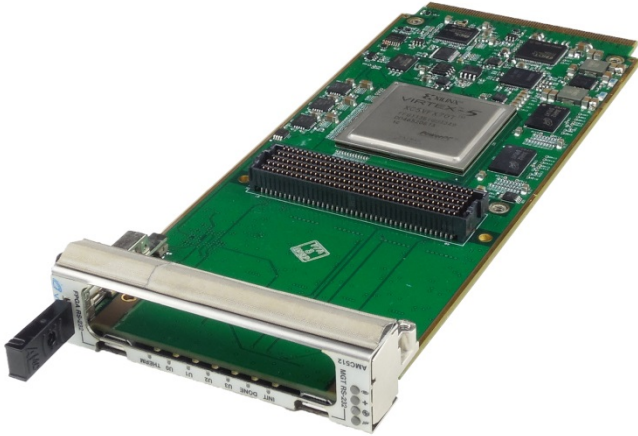# AMC FPGA Carrier for FMC, Virtex-5 – AMC512

KEY FEATURES

- AMC FPGA carrier for FPGA Mezzanine Card (FMC) per VITA-57
- Xilinx Virtex-5 FPGA in FF1136 package
- Up to 512 MB of FPGA DDR2 memory
- AMC Ports 4-7 and 8-11 routed to FPGA per AMC.1, AMC.2 and AMC.4 (FPGA programmable per protocol such as PCIe, 10 GbE or SRIO)
- AMC FCLKA, TCLKA, TCLKB, TCLKC and TCLKD are routed

Benefits of Choosing VadaTech

- Various Xilinx Virtex-5 FX/LX and SX FPGAs available
- Dual bank of DDR2 memory allows larger buffer sizes while processing and queuing data to the host
- The LVDS cross-bar switch provides improved clock flexibility
- 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 AMC512 is an AMC FPGA Carrier with an FMC (VITA 57) interface. The AMC512 is compliant to the AMC.1, AMC.2, AMC.3 and/or AMC.4 specification. The unit has an on-board, re-configurable FPGA which interfaces directly to AMC FCLKA, TCLKA-D, FMC DP0-3, and all FMC LA/HA/HB pairs. The FPGA interfaces to dual bank of DDR2 memory (32-bit wide) for a total of 512MB. This allows for large buffer sizes to be stored during processing as well as for queuing the data to the host.

The AMC512 has a single FMC connector per VITA-57 allowing the versatility of various FMC modules to be implemented.

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.
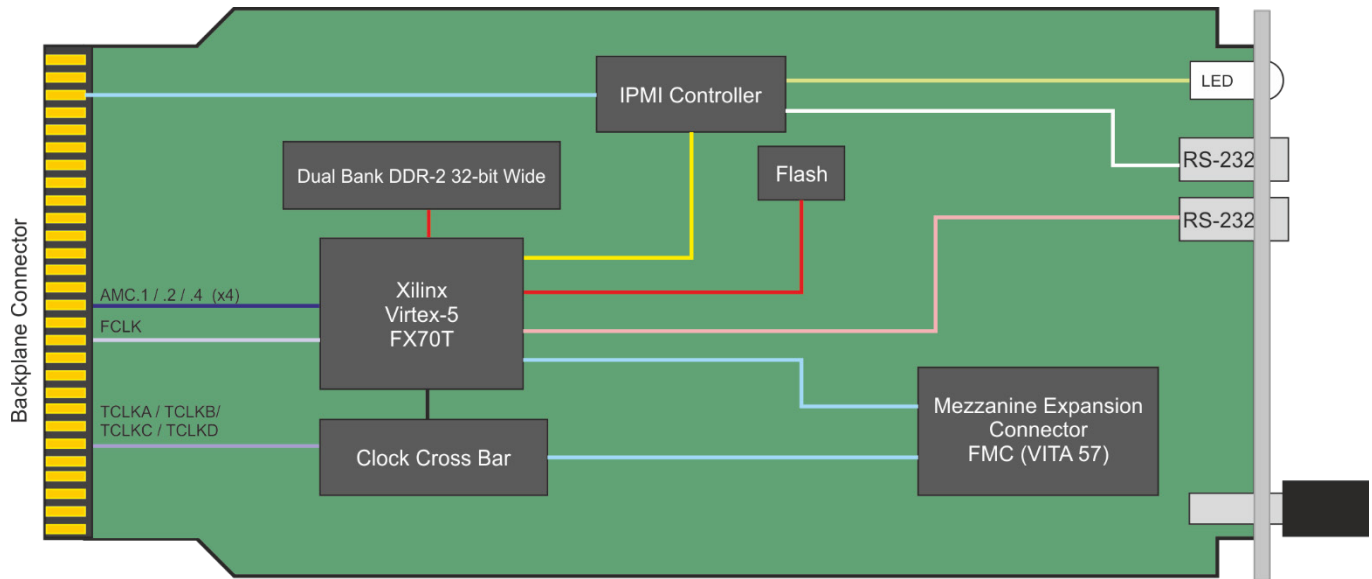
BLOCK DIAGRAM

Figure 1: AMC512 Block Diagram

AMC FPGA Carrier for FMC, Virtex-5 – AMC512

SPECIFICATIONS

Architecture		
Physical	Dimensions	Single module, full-size
		Width: 2.89" (73.5 mm)
		Depth 7.11" (180.6 mm)
Type	AMC FPGA Carrier	Xilinx Virtex-5 Device
		DDR2 memory
		Single FMC slot

Standards		
AMC	Type	AMC.1, AMC.2, AMC. 3 and AMC.4 (FPGA programmable)
Module Management	IPMI	IPMI version 2.0
PCIe	Lanes	x4 or x8
XAUI	Lanes	x4
Aurora/SRIO	Lanes	x4 (if the x8 PCIe is not used)
Ethernet	GbE	1000-BaseBX

Configuration		
Power	AMC512	Carrier is ~20W (without mezzanine) application specific
Environmental	Temperature	Operating Temperature: -5° to 55°C (air flow > 400LFM) industrial and military versions also available (See environmental spec sheet))
		Storage Temperature: –40° to +85°C
	Vibration	Operating 9.8 m/s^2 (1.0 G), 5 to 500Hz
	Shock	30Gs on each axis
	Relative Humidity	5 to 95 per cent, non-condensing
Front Panel	Interface Connectors	Front panel FMC, IPMI RS-232, FPGA RS-232
	LEDs	IPMI management control
		4 user defined LEDs
	Mechanical	Hot swap ejector handle
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

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AMC FPGA Carrier for FMC, Virtex-5 – AMC512

ORDERING OPTIONS

AMC512 – ABC – DE0 – 0HJ

A = FPGA DDR2 Memory
0 = None
1 = Reserved
2 = 512 MB (total)

B = PCIe Option
0 = No PCIe (Ports 4-11)
1 = PCIe on Ports 4-7
2 = PCIe on Ports 8-11
3 = PCIe on Ports 4-11

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

D = FPGA
1 = Reserved
2 = Reserved
3 = Reserved
4 = XC5VSX95T (MOQ required)
5 = XC5VLX110T (MOQ required)
6 = XC5VLX155T (MOQ required)
7 = XC5VFX70T
8 = XC5VFX100T (MOQ required)

E = FPGA Speed
1 = Low
2 = High

H = Temperature Range
0 = Commercial (–5° to +55° C)
1 = Industrial (–20° to +70° C)
2 = Military (–40° to 85° C)*

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

*Edge of module for conduction-cooled boards

COMMON CONFIGURATIONS

AMC512-123-710-000

RELATED PRODUCTS

AMC534 100G
FPGA

FMC210 FMC
10-bit ADC

FMC108 FMC
Dual QSFP+

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