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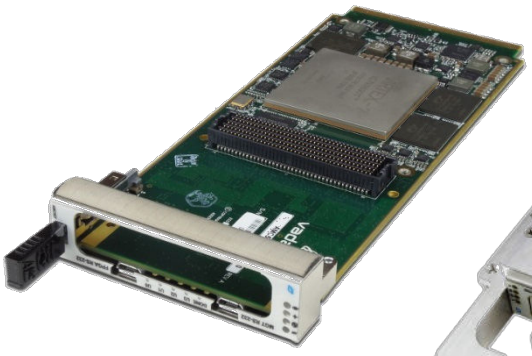
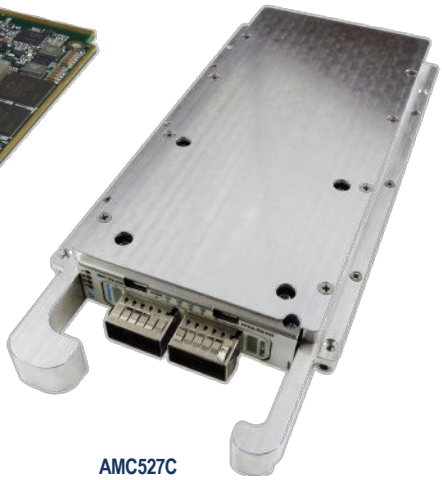
THE POWER OF VISION

AMC527 / AMC527C – AMC FPGA Carrier for FMC, Virtex-7, QDR-II+

AMC FPGA Carrier, Virtex-7



AMC527



AMC527C
(shown with FMC)

KEY FEATURES

- Xilinx Virtex-7 690T FPGA in FFG-1761 package
- Quad bank QDR-II+ memory (576 Mb total) and 1GB DDR3
- Conduction cooled version available
- Single module, mid-size per AMC.0
- AMC Ports 4-11 are routed to FPGA per AMC.1, AMC.2 and AMC.4 (PCIe, SRIO, XAUI, etc. are FPGA programmable)
- AMC Ports 12-15 and 17-20 optionally routed to the FPGA
- Internal, external or backplane clock with on-board wide-band PLL
- IPMI 2.0 compliant

AdvancedMC™

Benefits of Choosing VadaTech

- Compatible with industry standard FMCs
- Flexible clocking
- Fast local buffer (36-bit wide)
- BSP support and example code
- Strong mil/aero support
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

The AMC527 supports a single FMC per VITA-57, making it suitable for use with industry standard modules including VadaTech's broad range of ADC, DAC, RF and network interface FMCs. The on-board Virtex-7 690T is suitable for local signal processing and data reduction prior to transfer out via the backplane using PCIe, SRIO or Ethernet.

The AMC ports 12-15 and 17-20 are optionally routed to the FPGA from the AMC connector, providing the user with flexibility to support custom high-bandwidth interconnects between compatible FPGA modules (depending on backplane capabilities). The FPGA is supported by FLASH memory for boot image storage, four banks of QDR-II+ for fast data buffering and a further bank of DDR3 for local data.

TCLKA-D are routed to the FPGA via an on-board clock and jitter cleaner while FCLK is routed directly. The module includes a very flexible clocking sub-system, supporting internal or external (backplane or FMC connector) clock source with internal PLL/jitter cleaner.

The AMC527 is available in both air-cooled (MTCA.0 and MTCA.1) and rugged conduction-cooled (MTCA.2 or MTCA.3) versions.

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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.

AMC527

BLOCK DIAGRAM

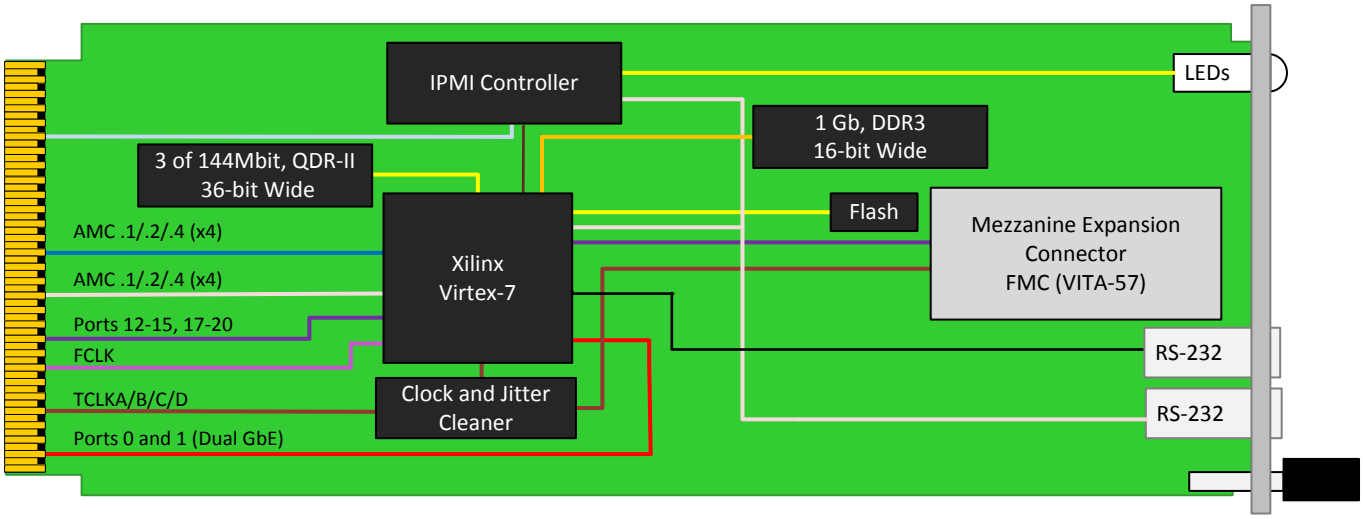

Figure 1: AMC527 Block Diagram

FRONT PANEL

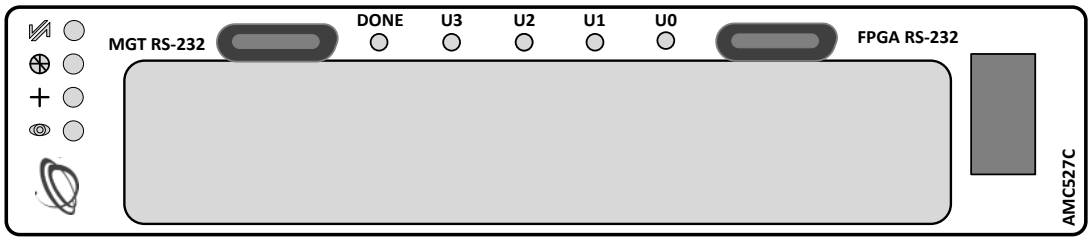

Figure 2: AMC527 Front Panel

AMC527C

BLOCK DIAGRAM

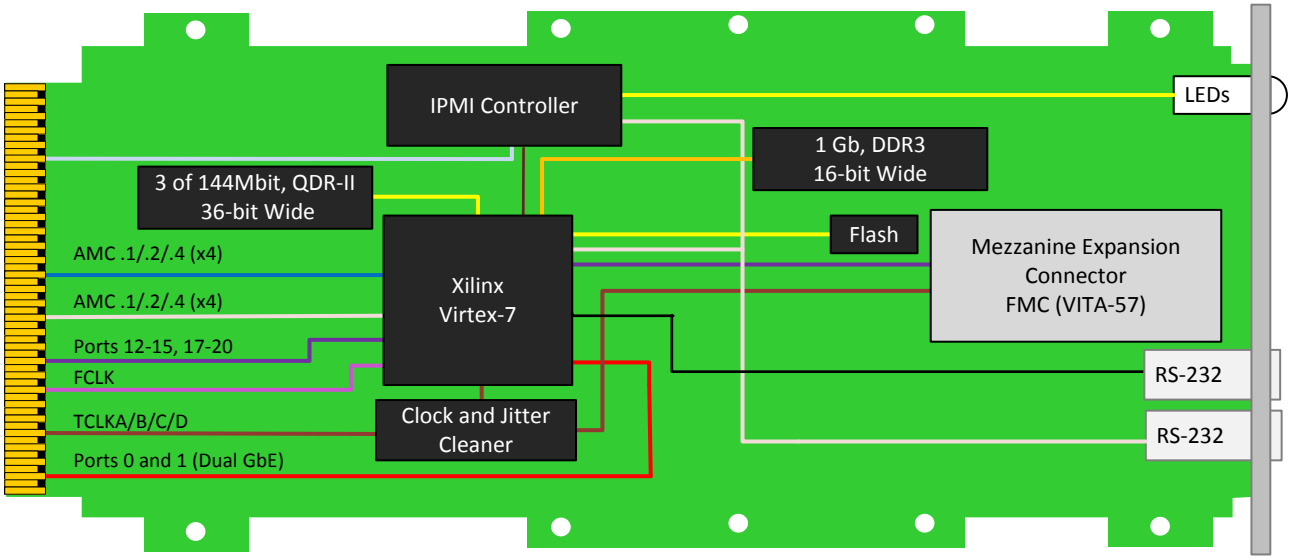

Figure 3: AMC527C Block Diagram

FRONT PANEL

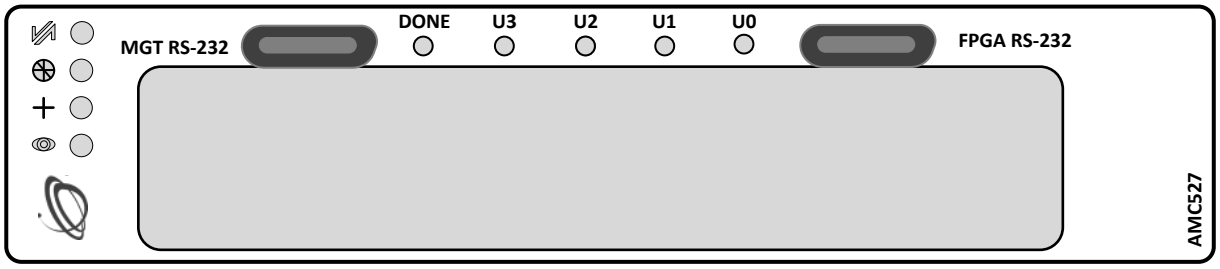

Figure 4: AMC527C Front Panel

SPECIFICATIONS

Architecture		
Physical	Dimensions	Single module, mid-size (full-size optional)
		Width: 2.89" (73.5 mm)
		Depth 7.11" (180.6 mm)
Type	AMC FPGA Carrier	Xilinx Virtex-7 device
		432 Mb QDR-II (36-bit wide each)
		Single FMC slot
Standards		
AMC	Type	AMC.1, AMC.2, and AMC.4 (FPGA programmable)
Module Management	IPMI	IPMI version 2.0
PCIe	Lanes	Dual x4/x8 via FPGA to AMC
SRIO/Aurora	Lanes	Dual x4 via FPGA to AMC
Ethernet	GbE	Dual GbE via FPGA
Configuration		
Power	AMC527	Carrier is ~30 W (without mezzanine) application specific
Environmental	Temperature	Operating temperature: -5° to 45° C (55°C for limited time, performance restrictions may apply), 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, MGT RS-232, CPU RS-232
	LEDs	IPMI management control
		4 user defined LEDs
	Mechanical	Hot swap ejector handle (AMC527); wedgelocks (AMC527C)
Software Support	Operating System	Linux (consult VadaTech for other options)
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	

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

ORDERING OPTIONS

AMC527 – 0BC – DEF – GHJ

B = Ports 12-15 and 17-20
0 = To FPGA
1 = Not Routed

C = Front Panel Size
1 = Reserved
2 = Mid-size
3 = Full-size
4 = Reserved
5 = Mid-size, MTCA.1 (captive screw)
6 = Full-size, MTCA.1 (captive screw)

D = FPGA
0 = Reserved
1 = Reserved
2 = XC7VX690T

E = FPGA Speed
1 = Reserved
2 = High
3 = Highest

F = PCIe Option
0 = No PCIe
1 = PCIe on ports 4 – 7
2 = PCIe on ports 8 – 11
3 = PCIe on ports 4 – 11

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

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

AMC527C – 0BC – DEF – GHJ

B = Ports 12-15 and 17-20
0 = To FPGA
1 = Not Routed

C = Ruggedization Level*
0 = None
1 = Contact Vadatech
2 = Contact Vadatech
3 = Contact Vadatech

D = FPGA
0 = Reserved
1 = Reserved
2 = XC7VX690T

E = FPGA Speed
1 = Reserved
2 = High
3 = Highest

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2 = Humiseal 1B31 Acrylic

*Ruggedization level is per the uTCA.2 and uTCA.3 specification.
**Edge of module

RELATED PRODUCTS

VT899 Cube Chassis

FMC223 High Speed FMC for DAC

VT872 ½ ATR Short, 6 AMC Conduction Cooled Chassis

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