

AMC540

Xilinx Virtex-7 FPGA AMC with Dual TI DSP



AMC540

Key Features

- Xilinx Virtex-7 XC7VX690T FPGA
- DDR3 Memory (3 banks of 64-bit, 6 GB Total)
- Dual DSP (TMS320C6678)
- 8 GB of DDR3 per CPU with ECC
- 24 TX/RX Fibre via MTP/MPO Connector
- PCIe (AMC.1) and SRIO (AMC.4) on Ports 4-7 and 8-11 per FPGA load
- GbE on Ports 0,1 (AMC.2)
- Ports 12-15 and 17-20 routed to FPGA
- Layer two managed switch

Benefits

- FPGA/DSP combination provides dense signal processing
- Hyperlink provides tight coupling between DSP processors
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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AMC540

The AMC540 incorporates the Xilinx Virtex-7 XC7VX690T FPGA. This re-configurable FPGA connects directly to the backplane allowing the core to interface to a host with multiple protocols such as 10GbE, PCIe or SRIO. Dual multicore Digital Signal Processors (DSP) TMS320C6678 connect to the FPGA via PCIe x2, and SRIO x4. The FPGA also interfaces to the AMC FCLKA and TCLKA-D via a clock and jitter cleaner, and has three external banks of 64-bit DDR3 memory.

The unit routes GbE on Ports 0 and 1 per AMC.2, PCIe Gen3/SRIO/10GbE dual x4 or single x8 on Ports 4-11 per AMC.1/ AMC.2/ AMC.4 specifications. Ports 12-15 and 17-20 are also routed to the FPGA.

An onboard managed Layer two switch interconnects the DSP, FPGA and external GbE (front panel, and rear Ports 0/1), supporting flexible signal processing applications.



Figure 1: AMC540

Block Diagram

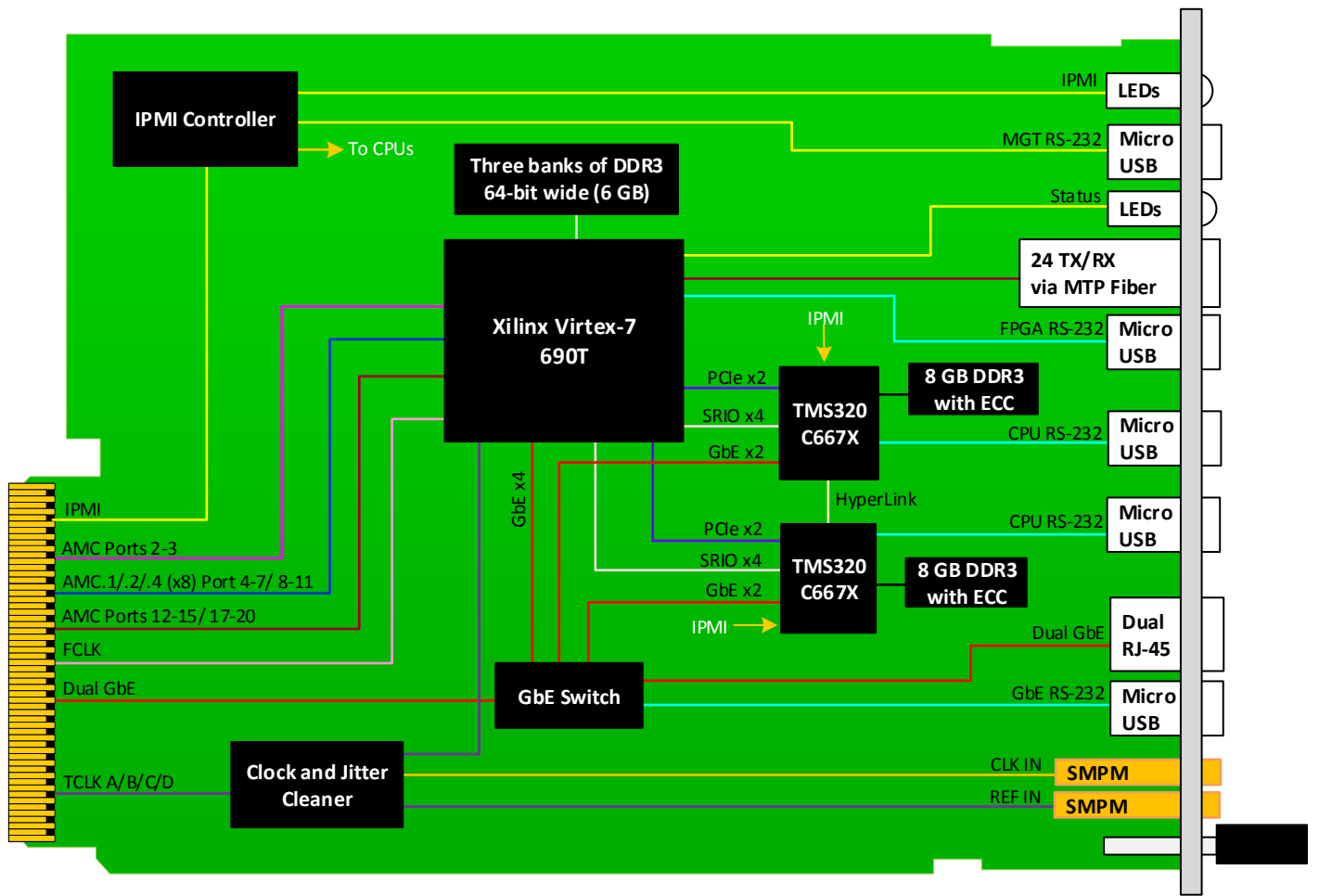


Figure 2: AMC540 Functional Block Diagram

Front Panel

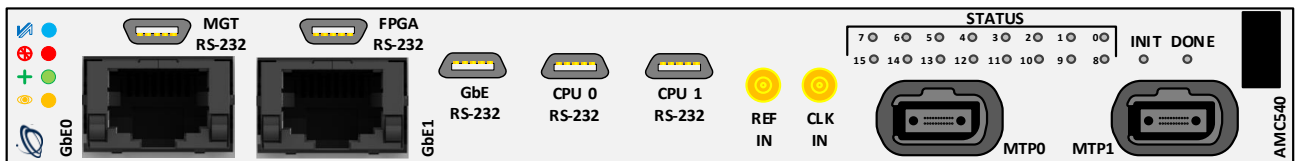


Figure 3: AMC540 Front Panel

Specifications

Architecture	
Physical	Dimensions Double module, mid-size (optional full-size) Width: 5.85" (148.5 mm) Depth 7.11" (180.6 mm)
Type	FPGA AMC Xilinx Virtex-7 XC7VX690T with three banks of DDR3 (64-bit)
Standards	
AMC	Type AMC.0, AMC.1, AMC.2 and AMC.4
Module Management	IPMI IPMI v2.0
PCIe	Lanes x4 or x8 (Ports 4-11), additional Ports on 12-15/17-20
XAUI/SRIO	Lanes Dual x4 (Ports 4-11), additional Ports on 12-15/17-20
40 GbE	Lanes Dual x4 (Ports 4-11), additional Ports on 12-15/17-20
Configuration	
Power	AMC540 55W (application specific)
Environmental	Temperature See Ordering Options and Environmental Spec Sheet Storage Temperature: -40° to +85°C
	Vibration Operating 9.8 m/s ² (1G), 5 to 500Hz on each axis
	Shock Operating 30G on each axis
	Relative Humidity 5 to 95% non-condensing
Front Panel	Interface Connectors Dual GbE via RJ-45 24 RX/TX high speed SERDES via MTP/MPO style fiber Clk In and Ref In via SMPM MGT RS-232, FPGA RS-232, GbE RS-232, CPU RS-233 via Micro USB
	LEDs IPMI management control Status
	Mechanical Hot-swap ejector handle
Software Support	Operating System Independent
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, see VadaTech Terms and Conditions

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), 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

AMC540 – ABC-DEF-G0J

A = DDR3 Memory 0 = Per CPU 8 GB, FPGA 6 GB	D = PCIe Option 0 = No PCIe 1 = PCIe on Ports 4-7 2 = PCIe on Ports 8-11 3 = PCIe on Ports 4-11	G = Fiber Optic MTP/MPO 0 = No Fibre Optic MTP/MPO 1 = 12 TX/RX 2 = 24 TX/RX
B = DSP Option 0 = Reserved 1 = TMS320C6678	E = Ports 12-15/17-20 to FPGA 0 = No Ports 12-15/17-20 to FPGA 1 = Ports 12-15/17-20 to FPGA	
C = Front Panel 1 = Reserved 2 = Mid-size 3 = Full-size 4 = Reserved 5 = Mid-size, MTCA.1 (captive screw) 6 = Full-size, MTCA.1 (captive screw)	F = Clock Holdover Stability 0 = Standard (XO) 1 = Stratum-3 (TCXO)	J = Temperature Range and Coating 0 = Commercial (–5° to +55°C), No coating 1 = Commercial (–5° to +55°C), Humiseal 1A33 Polyurethane 2 = Commercial (–5° to +55°C), Humiseal 1B31 Acrylic 3 = Industrial (–20° to +70°C), No coating 4 = Industrial (–20° to +70°C), Humiseal 1A33 Polyurethane 5 = Industrial (–20° to +70°C), Humiseal 1B31 Acrylic 6 = Extended (–40° to +85°C), Humiseal 1A33 Polyurethane* 7 = Extended (–40° to +85°C), Humiseal 1B31 Acrylic*

Notes: *Conduction cooled temperature is at edge of module. Consult factory for availability.

For operational reasons VadaTech reserves the right to supply a higher speed FPGA device than specified on any particular order/delivery at no additional cost, unless the customer has entered into a Revision Lock agreement with respect to this product.

Related Products

AMC725



- Intel® Xeon E3 processor options with PCH
- DVI graphics (SM750 w/ 16 MB DDR), up to 1920x1440 resolution
- Optional up to 256 GB SSD with RAID option

VT815



- 9U MTCA Chassis Platform, 12 slots, double-module
- Full redundancy
- High-bandwidth (20-lane) connections between adjacent slots

UTC004



- Single module, full size per AMC.0
- Unified 1 GHz quad-core CPU for MicroTCA Carrier Management Controller (MCMC), Shelf Manager, Clocking, and Fabric management
- Automatic fail-over with redundant UTC004s

Contact

VadaTech Corporate Office

198 N. Gibson Road, Henderson, NV 89014

Phone: +1 702 896-3337 | Fax: +1 702 896-0332

Asia Pacific Sales Office

7 Floor, No. 2, Wenhua Street, Neihu District, Taipei 114, Taiwan

Phone: +886-2-2627-7655 | Fax: +886-2-2627-7792

VadaTech European Sales Office

VadaTech House, Bulls Copse Road, Southampton, SO40 9LR

Phone: +44 2380 016403

info@vadatech.com | www.vadatech.com

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