AMC540

Xilinx Virtex-7 FPGA AMC with Dual TI DSP

AMC540

Key Features

- Xilinx Virtex-7 XC7VX690T FPGA
- DDR-3 Memory (3 banks of 64-bit, 6 GB Total)
- Dual DSP (optionally TMS320C6670 or TMS320C6678)
- 8 GB of DDR-3 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
- Full system supply from industry leader

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AMC540

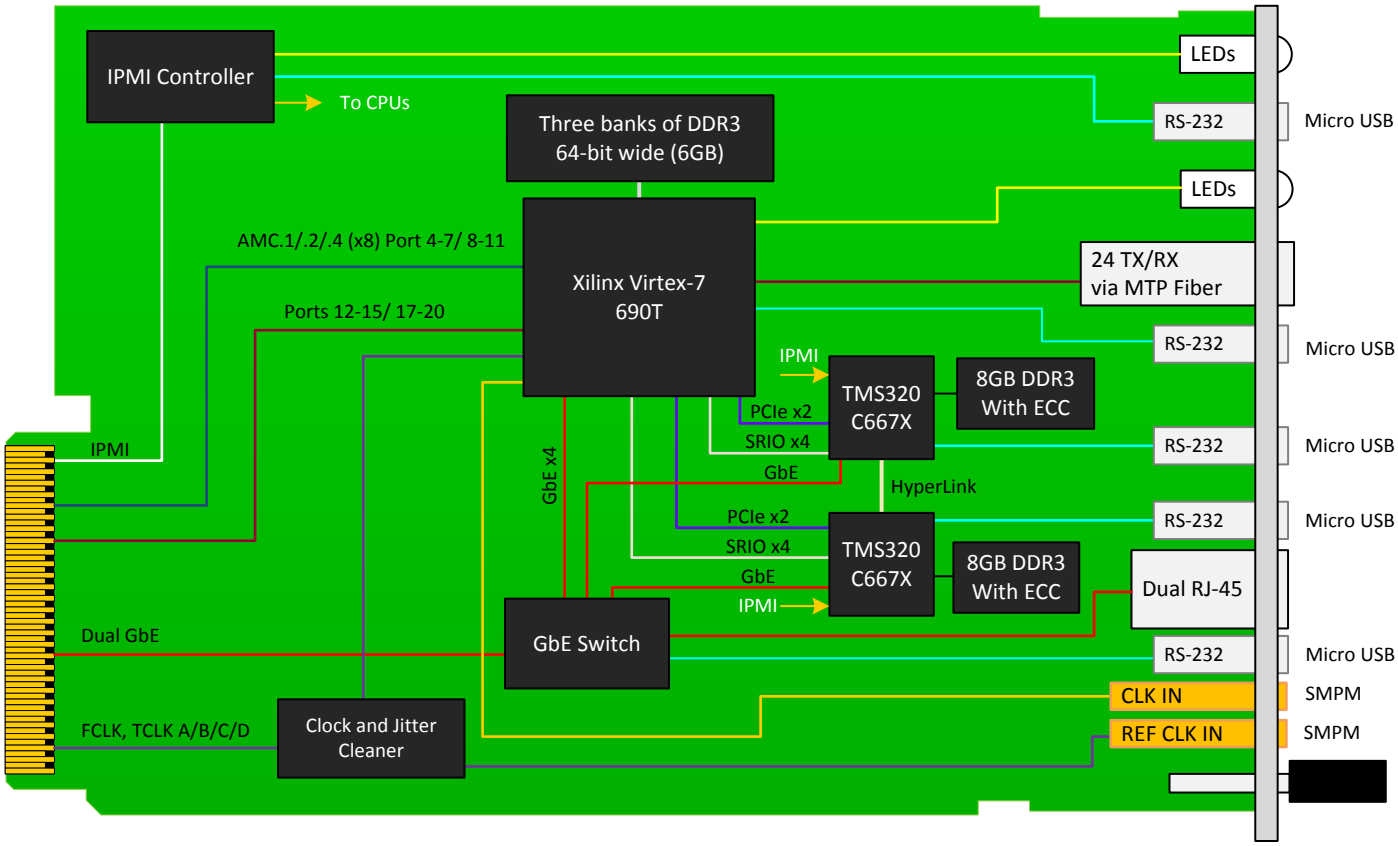
The AMC540 is based on Xilinx Virtex-7 XC7VX690T FPGA. The FPGA interfaces directly to the AMC connector, allowing the core to interface to the host with multiple protocols such as 10GbE, PCIe or SRIO. The FPGA has three external banks of 64-bit DDR3 memory.

The AMC540 has dual multicore Digital Signal Processors (DSP) optional TMS320C6670 or TMS320C6678. The DSPs are routed to the FPGA via PCIe x2, and SRIO x4. The DSP's are also connected via dual GbE to the on board managed switch, allowing for flexible signal processing applications.

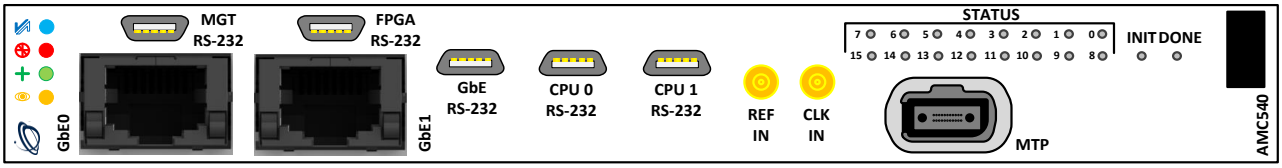
The module routes GbE on ports 0 and 1 per AMC.2, PCIe Gen3/SRIO/10GbE dual x4 or single x8 on ports 4-11 per AMC.1/ AMC.2/ AMC.4 specifications. Ports 12-15 and 17-20 are also routed to the FPGA.

AMC540 has on board managed Layer two switch which interconnect the GbE via the front, DSP, FPGA and rear (ports 0/1). The on-board, re-configurable FPGA interfaces to the AMC FCLKA and TCLKA-D via a clock and jitter cleaner. The module also has Ref CLK IN/OUT and Trig IN to the front.

Block Diagram



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 version 2.0
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**	55 W (application specific)
Environmental	**Temperature**	Operating temperature: -5° to 45° C (55°C for limited time, performance restrictions may apply), industrial and extended versions also available (See environmental spec sheet)
		Storage Temperature: –40° to +85°C
	Vibration	Operating 9.8 m/s² (1G), 5 to 500Hz on each axis
	Shock	Operating 30G on each axis
	Relative Humidity	5 to 95 per cent, 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	

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.

Trademarks and Disclaimer

Ordering Options

AMC540 – ABC-DEF-G0J

A = DDR3 Memory	D = PCIe Option	G = Fiber Optic MTP/MPO
0 = Per CPU 8 GB, FPGA 6 GB	0 = None 1 = PCIe on ports 4-7 2 = PCIe on ports 8-11 3 = PCIe on ports 4-11	0 = None 1 = 12 TX/RX 2 = 24 TX/RX
B = DSP Option	**E = Ports 12-15/17-20 to FPGA**	
0 = TMS320C6670 1 = TMS320C6678	0 = No 1 = Yes	
C = Front Panel	**F = Clock Holdover Stability**	**J = Temperature Range and Coating**
1 = Reserved 2 = Mid-size 3 = Full-size 4 = Reserved 5 = Mid-size, MTCA.1 (captive screw) 6 = Full-size, MTCA.1 (captive screw)	0 = Standard (XO) 1 = Stratum-3 (TCXO)	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 *

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

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 slot, double-module
- Full redundancy
- High-bandwidth (20-lane) connections between adjacent slots

UTC004

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

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