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AMC524/AMC524C – Quad ADC, 16-bit @ 125 MSPS, Dual DAC, Artix-7

Quad ADC, Dual DAC, Artix-7

AMC524C

KEY FEATURES

- Quad ADC 16-bit @ 125 MSPS (AD9653)
- Dual DAC 12-bit @ 2.5 GSPS (DDS AD9915)
- Artix-7 FPGA with dual banks of DDR-3, 2 GB total
- Conduction cooled version available
- Internal, external or backplane clock with onboard Wideband PLL
- AMC Ports 4-7 and 8-11 are routed to FPGA per AMC.1, AMC.2 and AMC.4 (PCIe, SRIO, XAUI, etc. are FPGA programmable)
- Single module, mid-size per AMC.0
- IPMI 2.0 compliant

AdvancedMC™

Benefits of Choosing VadaTech

- Calibration-free stable dynamic performance at all temperatures
- 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 AMC524 provides a Direct Digital Synthesizer (DDS) capable of generating a frequency-agile analog sinusoidal waveform (up to 1.0 GHz). The chipset includes a PLL for clock cleaning, along with a versatile internal timing and control mechanism. The unit supports fast frequency hopping and a linear sweep mode of frequency, phase or amplitude.

The AMC Ports 0-15 are all routed to the FPGA from the AMC connector, providing the user with flexibility to support standard base and fabric interface or custom high-bandwidth interconnects (depending on backplane capabilities). The FPGA is supported by 1 GB Flash memory for boot image storage and dual banks of DDR3 for local data storage.

TCLK A-D and FCLK are routed to the FPGA via an onboard clock and jitter cleaner. The module supports internal or external clocking. The module allows for RF Clock synthesis for the DAC and the ADC to come from the front panel or from the onboard Wideband PLL.

The AMC524 is available in both air-cooled (MTCA.0 and MTCA.1) and rugged conduction-cooled (MTCA.2 or MTCA.3) versions.

See VadaTech ADI Offerings for the advantages of using our products during application development.

AMC524 with Front Panel

Doc No. 4FM737-12 Rev 01

www.vadatech.com

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THE POWER OF VISION

Version 5.2 – JUN/20

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REFERECE 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.
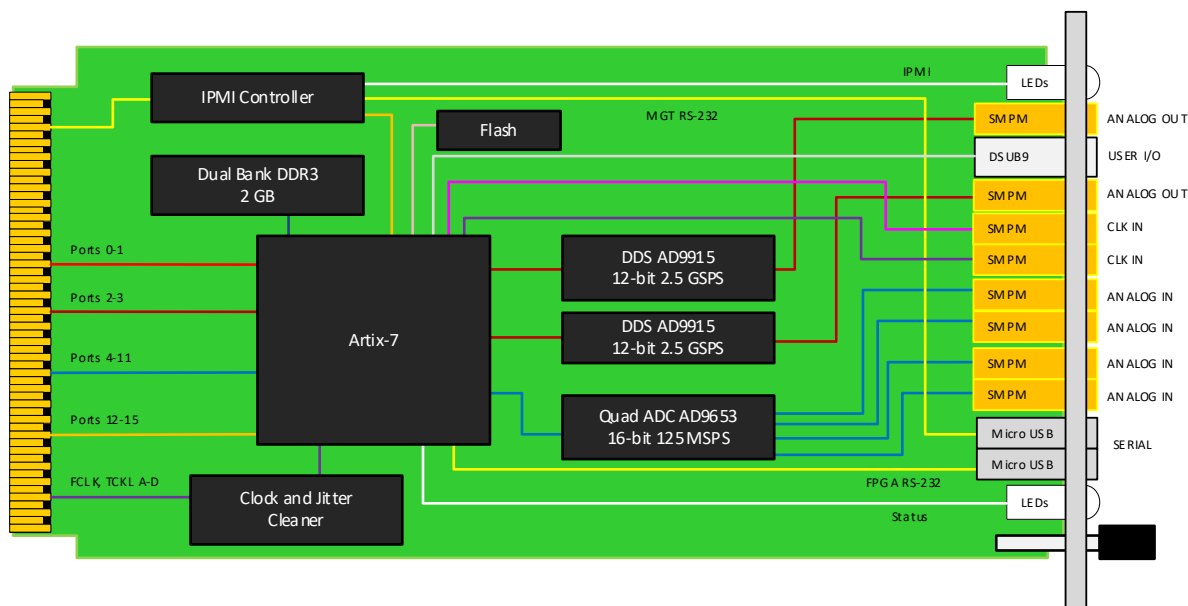
AMC524

BLOCK DIAGRAM

Figure 1: Functional Block Diagram
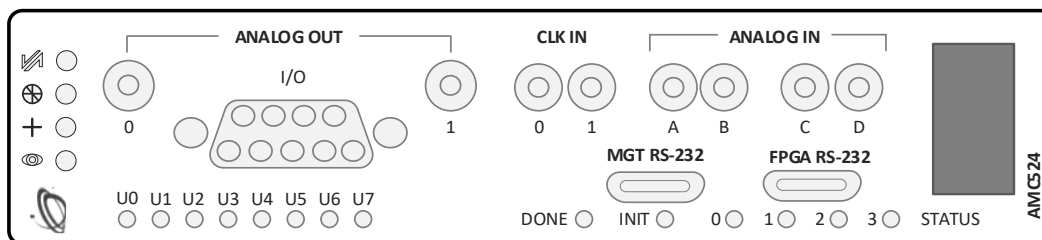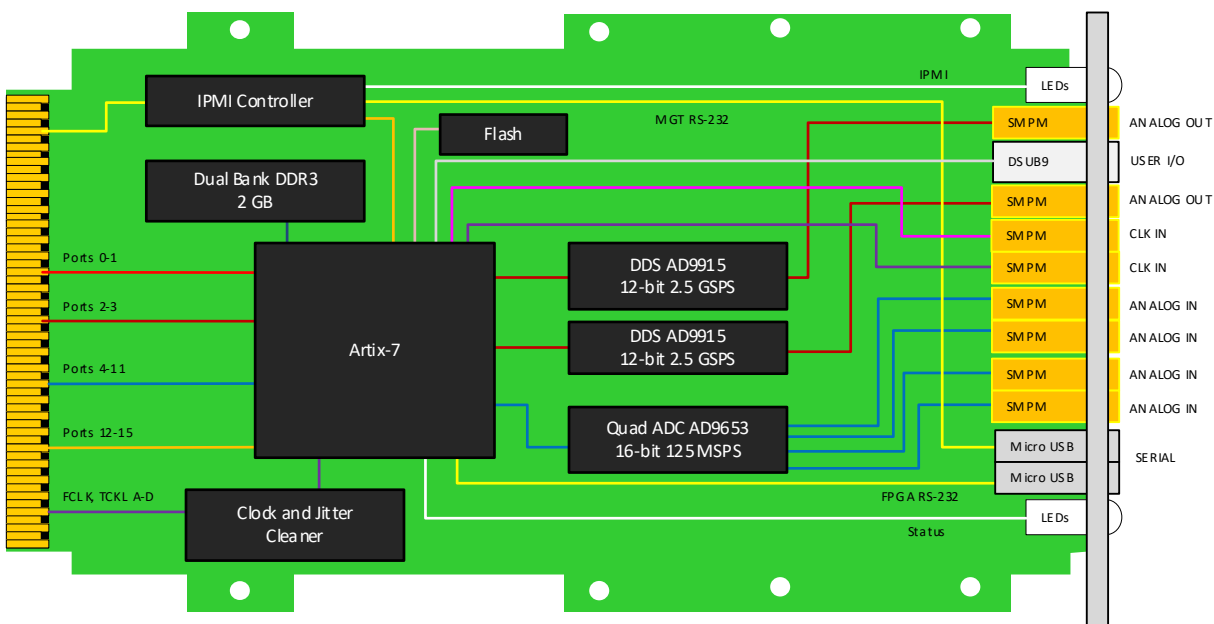
FRONT PANEL
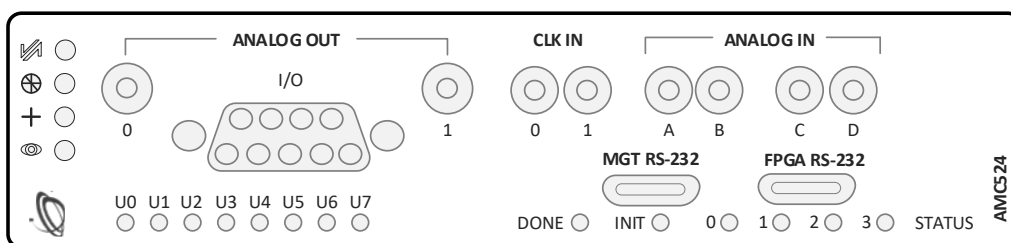

Figure 2: AMC524 Front Panel

AMC524C

VadaTech offers the AMC524 in a rugged clamshell variant, available as either MTCA.3 (conduction cooled) or MTCA.2 (hybrid cooled, forced air and conduction). For these versions of the module the ground planes are extended into the wedge lock region of the clamshell to enhance thermal transfer, as shown below. Such units are typically used in ATR style chassis such as the VT87x series.

BLOCK DIAGRAM

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 ADC	Quad ADC with Artix-7 FGPA (XC7A200T)
		16-bit resolution per Port on ADC
		Internal/External clock with TRIG IN/OUT

Standards		
AMC	Type	AMC.0, AMC.1, AMC.2, AMC.4 (FPGA programmable)
Module Management	IPMI	IPMI v2.0
PCIe	Lanes	Dual x4 via FPGA to AMC
SRIO	Lanes	Dual x4 via FPGA to AMC
XAUI	Lanes	Dual Port XAUI
Ethernet	Lanes	Dual GbE per AMC.1

Configuration		
Power	AMC524	15W (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	1G, 5 to 500 Hz on each axis
	Shock	30Gs each axis
	Relative Humidity	5 to 95% non-condensing
Front Panel	Interface Connectors	FPGA JTAG port via a flex cable
		4 ADC and 2 DAC via SMPM connector
		FPGA and IPMI RS-232 via Micro USB
		Trigger I/O via SMPM
	LEDs	IPMI Management
		Eight user defined LEDs
	Mechanical	Hot-Swap Ejector Handle
Software Support	Operating Systems	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 ISO9001:2015 and AS9100D standards
Warranty	Two (2) years, see VadaTech Terms and Conditions

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of ATCA and MTCA 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

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ORDERING OPTIONS

AMC524 – ABC – DEF – G0J

A = DAC RF Clock Synthesis
0 = Front panel
1 = Onboard Wideband PLL

B = ADC RF Clock Synthesis
0 = Front panel
1 = Onboard Wideband PLL

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)

D = FPGA
0 = XC7A200T
1 = Reserved
2 = Reserved

E = FPGA Speed
0 = Reserved
1 = High
2 = 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 = Ports 12-15
0 = Routed to FPGA
1 = Not Routed to FPGA

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

AMC524C – ABC – DEF – G0J

A = DAC RF Clock Synthesis
0 = Front panel
1 = Onboard Wideband PLL

B = ADC RF Clock Synthesis
0 = Front panel
1 = Onboard Wideband PLL

C = Ruggedization Level*
0 = No ruggedization
1 = Contact Vadatech
2 = Contact Vadatech
3 = Contact Vadatech

D = FPGA
0 = XC7A200T
1 = Reserved
2 = Reserved

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

F = PCIe Option
0= None
1 = PCIe on Ports 4-7
2 = PCIe on Ports 8-11
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5 = Industrial (–20° to +70°C), Humiseal 1B31 Acrylic
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7 = Extended (–40° to +85°C), Humiseal 1B31 Acrylic

Notes:

* Ruggedization level is per the MTCA.2 and MTCA.3 specification

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

RELATED PRODUCTS

VT875 MTCA Conduction Cooled Development Chassis 8 Slots

UTC004 3rd Gen MCH for MTCA Chassis

AMC720/720C Xeon E3-1125 Processor AMC

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