AMC594

Dual ADC 8-bit @ up to 56 GSPS, 2 or 4 Channels, UltraScale™ XCVU190, AMC

AMC594

Key Features

- Dual ADC 8-bit @ up to 56 GSPS
- 2 x 56 or 4 x 28 GSPS channels
- Xilinx UltraScale™ XCVU190 FPGA
- 16 GB of DDR4 Memory (2 banks of 64-bit)
- ADC is 65 nm CMOS process technology)
- Double module, full-size
- Calibration warning and over-range flags
- –3 dB analog input bandwidth nominally 15 GHz
- Internal 14 GHz VCO/PLL per I/Q ADC pair
- Differential analog input: 1 VPP

Benefits

- Highest sampling rate for the module size in the industry, uses MB8AC2070 ADC
- Flexible selection of sample rate and channel count
- Zone 3 connector board-to-board interconnect for multi-module configurations
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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AMC594

The AMC594 uses the Fujitsu MB8AC2070 ADC (Analog to Digital Converter) to provide dual 56 GSPS or quad 28 GSPS from four channels ADC (user selectable).

The AMC594 makes use of extremely fast ADCs in CMOS process technology. The ADC is ideal for applications that require ultra-high-performance analog and digital processing such as 100G applications. Achieved input bandwidth depends on system configuration and operating conditions, contact VadaTech for details.

The AMC594 features a Xilinx UltraScale™ XCVU190 FPGA with 1800 DSP Slices. The FPGA interfaces directly to a secondary backplane via a high-speed Zone 3 connector. The connector provides primary digital I/O routing and allows the core to interface to other such modules through 22 GTY lanes and LVDS for board-to-board connectivity. The FPGA has 2 banks of 64-bit DDR4 memory (16 GB total).

A tongue 2 connector provides additional power to the board.

Multiple AMC594s can be connected together (e.g. for sampling I/Q or multi-polarizations), or the I/O can be routed to further FPGA AMCs for additional processing. Contact sales for further information.

Figure 2: AMC594 Front View

Figure 1: AMC594 Rear View

Block Diagram

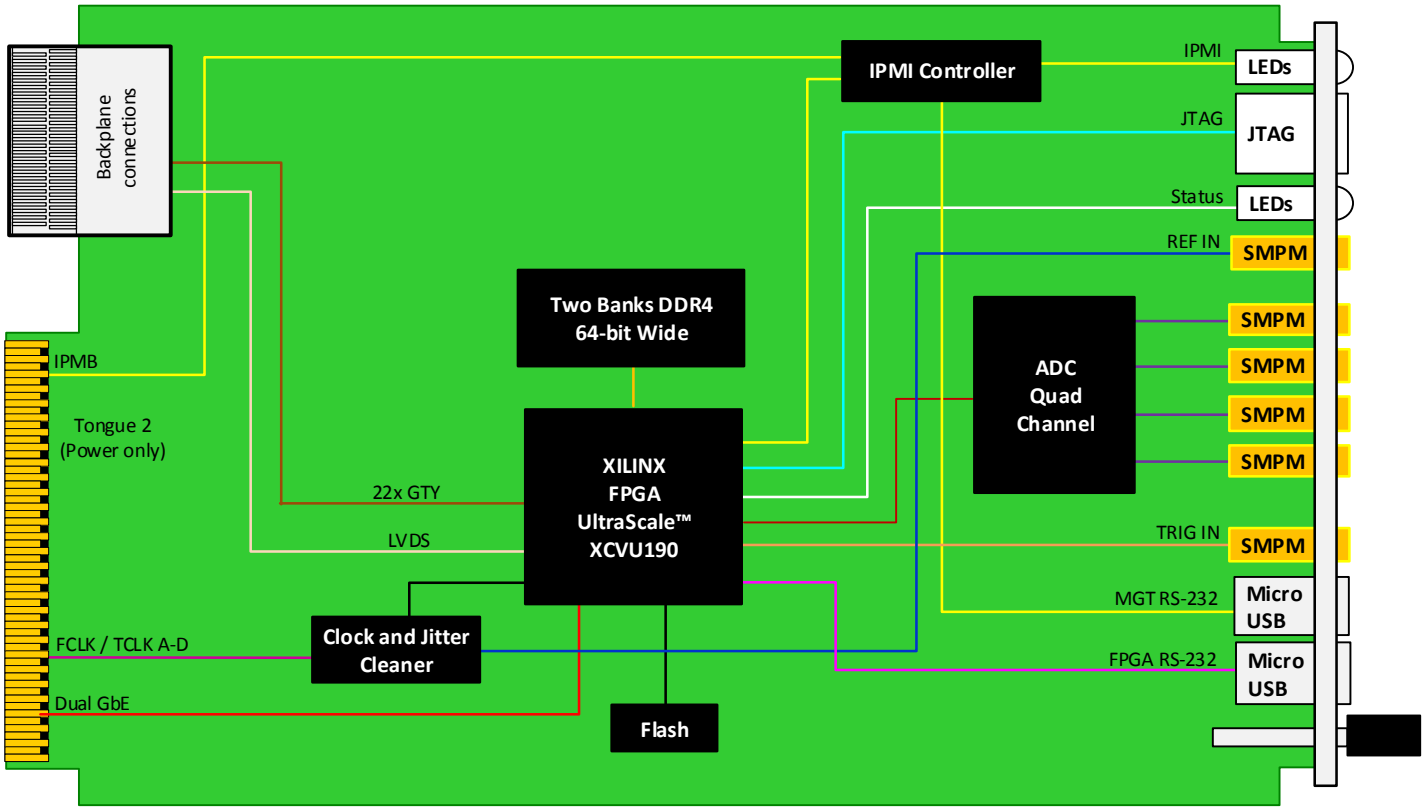

Figure 3: AMC594 Functional Block Diagram

Front Panel

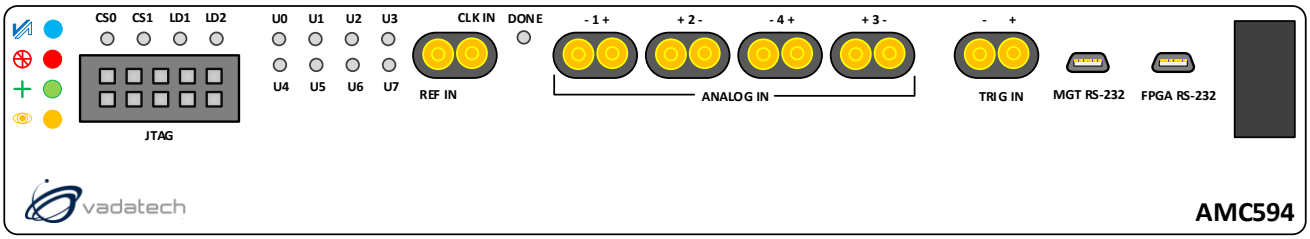

Figure 4: AMC594 Front Panel

Specifications

Architecture		
Physical	**Dimensions**	Double module, full-size
		Width: 5.85” (148.5 mm)
		Depth 7.11” (180.6 mm)
Type	**AMC ADC**	ADC, up to 4 input channels, quad 28 GSPS or dual 56 GSPS
Standards		
AMC	**Type**	AMC.0, AMC.1, AMC.2 and AMC.3
Module Management	**IPMI**	IPMI v2.0
PinoutPlus	**Lanes**	Tongue 2 for power only
Configuration		
Power	**AMC594**	~100W (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 30Gs on each axis
	Relative Humidity	5 to 95% non-condensing
Electrical	**DNL/INL**	+/- 0.5 LSB, +/-1.0 LSB
	SNDR	40 dBFS @ Fin – 1 GHz, 36 dBFS @ Fin = 17 GHz
	Output Rate	128 samples x 8-bit @ 437.5 MHz
	Signals	<100 fs RMS jitter, <500 fs I/Q sample time error
Front Panel	**Interface Connectors**	SMPM: Differential input for each channel, Trig IN/OUT, Clock In, Reference IN
		Micro USB for MGT RS-232 and FPGA RS-232
	LEDs	IPMI management control LEDs
		8 User defined LEDs
		5 Activity/status LEDs
	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

AMC594 – A0C-D00-00J

A = Direct RF Clock synthesis	D = Zone 3 Connector Module*	
0 = Front panel 1 = Onboard Wideband PLL	0 = No Zone 3 Module 1 = Zone 3 Module	
C = Front Panel		**J = Temperature Range and Coating**
1 = Reserved 2 = Reserved 3 = Full-size 4 = Reserved 5 = Reserved 6 = Full-size, MTCA.1 (captive screw)		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

Notes: *This module can mate two AMC594s together via high speed SERDES

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

VT815

- MTCA Chassis Platform with rear I/O
- 19” x 9U x 14.9” deep (with handles 16.23” deep)
- Full redundancy with dual MicroTCA Carrier Hubs (MCH), dual cooling units and 3 PSUs

AMC104

- AMC PCIe Gen 3 carrier (x4 or x8)
- Double module, full-size
- Accepts any standard PCIe edge style module connector is x16

AMC750

- Xeon E5 Processor AMC, PCIe Gen 3, with PinoutPlus™
- Intel® Xeon E5-2648L v4 (Haswell-EP)
- PCIe Gen 3 on Ports 4-7 and 8-11(AMC.1)

Contact

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