

AMC590 – 56 GSPS 8-bit ADC, 1, 2 or 4 channel, UltraScale™

56 GSPS, 8-bit ADC, UltraScale™



KEY FEATURES

- 8-bit ADC at up to 56 GSPS
- 1 x 56, 2 x 28 or 4 x 14 GSPS channels
- Xilinx UltraScale™ XCKU115 FPGA
- 24 GB of DDR-4 Memory (3 banks of 64-bit)
- ADC is 65 nm CMOS process technology
- Very low power consumption (5 W for the ADC)
- Single module, mid-size or 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: 1.0V PPD

Benefits of Choosing VadaTech

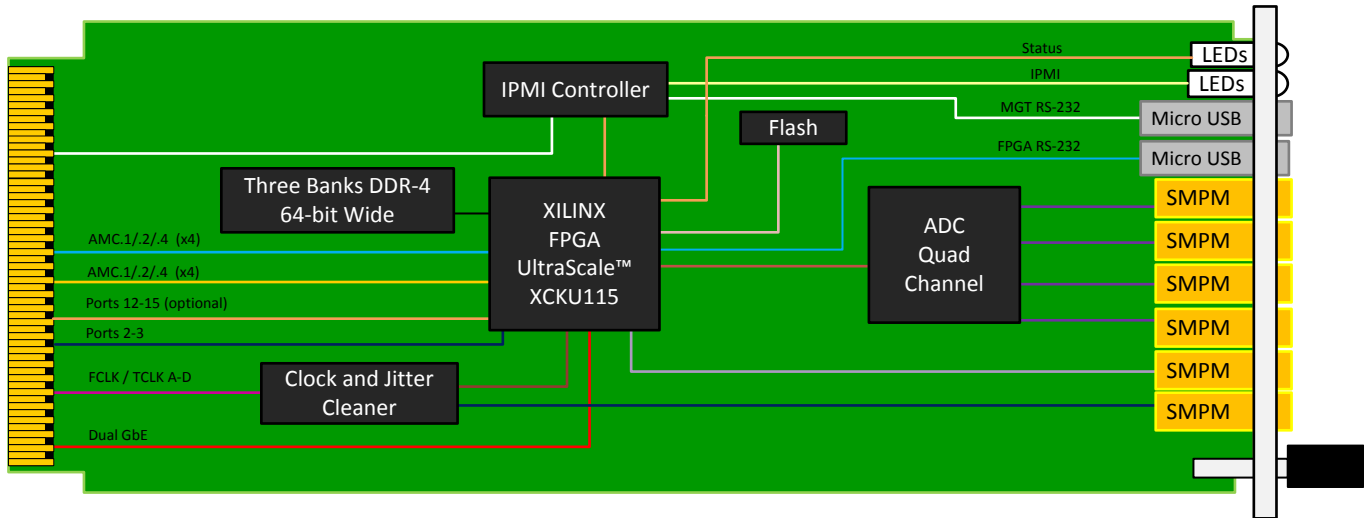
- Highest sampling rate for the module size in the industry
- Uses MB8AC2070 ADC
- Low power consumption – CMOS process technology
- Flexible selection of sample rate and channel count
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

The AMC590 uses the Fujitsu MB8AC2070 ADC (Analog to Digital Converter) to provide 56 GSPS from a single channel, 28 GSPS from two channels, or 14 GSPS from four channels (user selectable). The board is compliant to the AMC.1 and AMC.2 specifications.

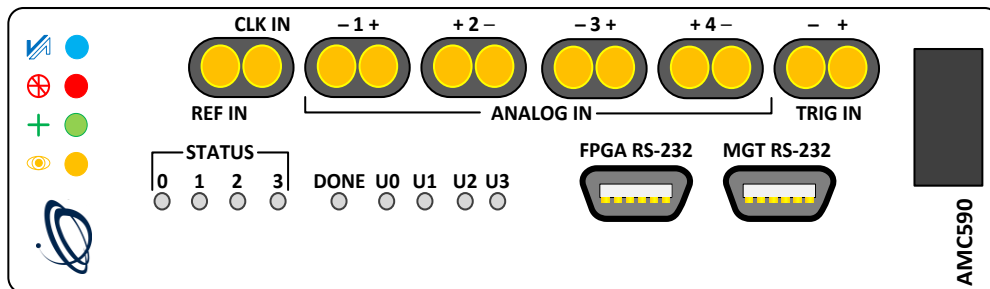
The AMC590 allows the implementation of extremely fast, high-resolution ADCs in CMOS process technology. The ADC is ideal for applications that require ultra-high-performance analog and digital processing such as 100G applications. Achieved input bandwidth depends on system configuration and operating conditions, contact VadaTech for details.

The AMC590 has a Xilinx UltraScale™ XCKU115 FPGA which has 5520 DSP Slices. The FPGA interfaces directly to the AMC, allowing the core to interface to the host with multiple protocols such as 40GbE, 10GbE, PCIe or SRIO. The FPGA has 3 banks of 64-bit DDR4 memory (24 GB total).

BLOCK DIAGRAM



FRONT PANEL



SPECIFICATIONS

Architecture		
Physical	Dimensions	Single module, mid-size with full-size option Width 2.89" (73.5 mm) Depth 7.11" (180.6 mm)
Type	AMC ADC	ADC, up to 4 input channels, quad 14 GSPS or dual 28 GSPS or single 56 GSPS
Standards		
AMC	Type	AMC.0, AMC.1, AMC.2
Module Management	IPMI	IPMI Version 2.0
PCIe	Lanes	x4 or x8 (ports 4-11), additional ports on 12-15
XAUI/SRIO	Lanes	Dual x4 (ports 4-11), additional ports on 12-15
40GbE	Lanes	Dual x4 (ports 4-11), additional ports on 12-15
Configuration		
Power	AMC590	65W (application specific)
Environmental	Temperature	Operating Temperature: -5° to 55° C Storage Temperature: -40° to +85° C
	Vibration	1G, 5 to 500 Hz on each axis
	Shock	30Gs each axis
	Relative Humidity	5 to 95 percent, 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	FPGA JTAG port SMPM TRIG IN as differential SMPM as differential input for each channel SMPM clock input (CLK and REF) IPMI RS-232 via micro USB
	LEDs	IPMI Management Control 4 Debug (user defined) and 4 status and Done 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 ISO9001:2000 and AS9100B:2004 standards
Warranty		Two (2) years

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of ATCA and μ TCA 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

AMC590 – A0C – DE0 – 00J

A = Direct RF Clock synthesis

- 0 = Front panel
- 1 = On board Wide-Band 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 = PCIe Option

- 0 = None
- 1 = PCIe on ports 4-7
- 2 = PCIe on ports 8-11
- 3 = PCIe on ports 4-11

E = Ports 12-15 to FPGA

- 0 = No
- 1 = Yes

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 = Military (–40° to +85° C), Humiseal 1A33 Polyurethane
- 7 = Military (–40° to +85° C), Humiseal 1B31 Acrylic

RELATED PRODUCTS



VT899 Cube
Chassis Platform



AMC104 PCIe Gen3
Carrier



AMC626 RAID
Storage

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