

AMC521 – 24 Channels ADC, Mixed Sampling Rate, 16-Bit

AMC 24 Channels ADC



AdvancedMC™

Benefits of Choosing VadaTech

- Low Jitter Clock distribution via an M-LVDS Cross Bar Switch
- Backplane TCLKA, TCLKB, TCLKC, TCLKD, and FCKLA
- Onboard VCXO
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full ecosystem of front and rear boards, enclosures, specialty modules, and test/dev products from one source
- AS9100 and ISO9001 certified company

KEY FEATURES

- Sixteen channel of TI ADS42JB69 ADC 16-bit @ 250 MSPS
- Eight channel SAR TI ADS8568 ADC 16-bit @ 650 KSPS simultaneous
- Interface to the FPGA via JESD204B
- 24 LVDS for Clock/Trig and/or GPIO
- Virtex-7 FPGA 415T or 690T in FFG1158
- Internal/External clock
- Clock Jitter Cleaner with Dual Loop PLLs
- Trig In/Out
- A/D input via SSMC connectors

The AMC521 utilizes eight dual channel ADS42JB69 ADC converters at 250 MSPS with 16-bit resolution for 16 high sampling rate channels. In addition the module has eight 16-bit Successive Approximation Register (SAR) based on TI ADS8568 ADC at a lower sampling rate for measurements up to 650 KSPS. There are also 24 LVDS I/O which can be used for Clock In/Out, Trig In/Out or GPIO.

The unit has an M-LVDS Cross Bar Switch (CBS) for clock distribution which allows clocking from front panel, backplane, or onboard VCXO. The clock outputs to the backplane for distribution to other modules. The AMC521 has a Virtex-7 FPGA with option of 415T or 690T in FFG1158 package.

The AMC Ports 4-7 and 8-11 are routed to the FPGA for PCIe, XAUI, SRIO, or other SerDes protocols. AMC Ports 0, 1 and 2, 3 are also routed to the FPGA for base channel and storage point-to-point connectivity.

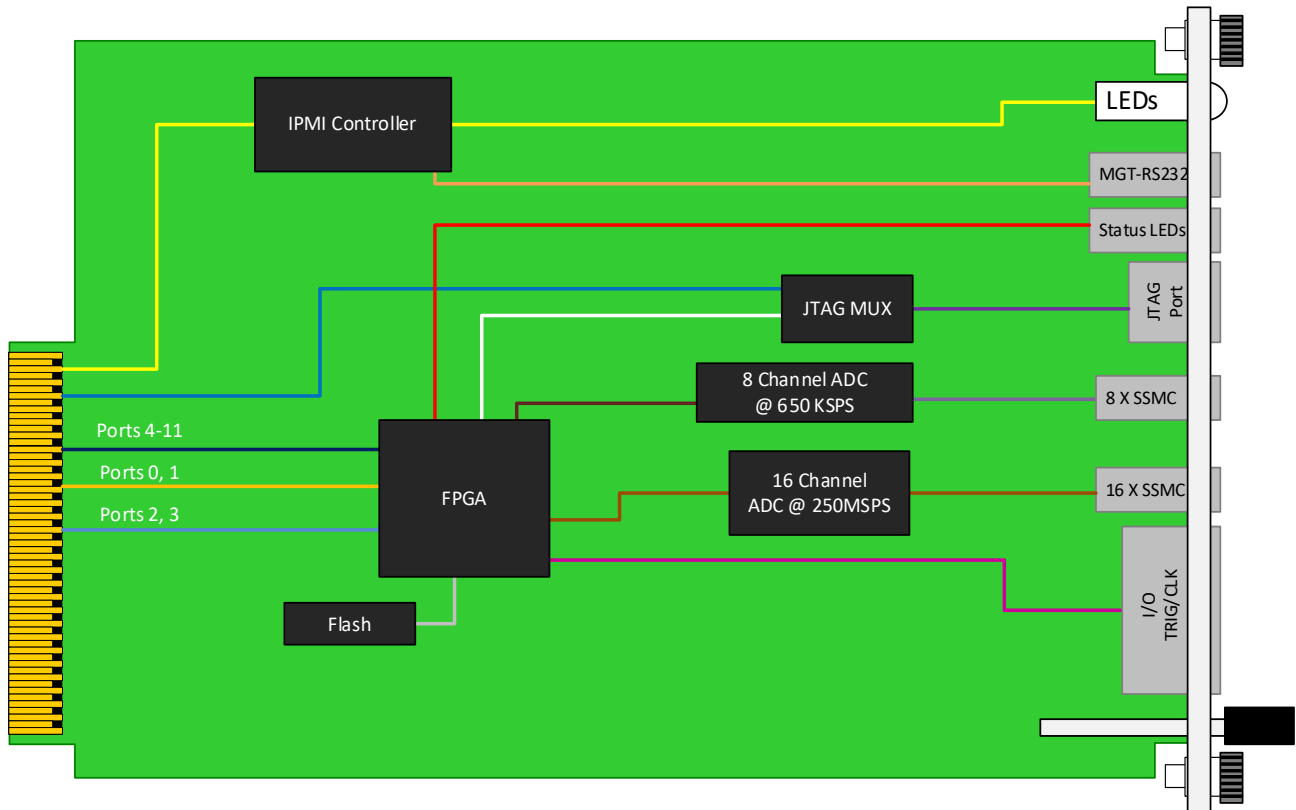
This VadaTech Product can be incorporated into [High Energy Physics](#) architecture.

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CLOCK JITTER CLEANER

The clock to the ADC has an Ultra-Low RMS Jitter Cleaner with Dual Loop PLLs, with 88 fs RMS jitter (12 KHz to 20 MHz) and 162.5 dBc/Hz noise floor at 245.76 MHz.

BLOCK DIAGRAM



FRONT PANEL



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SPECIFICATIONS

Architecture		
Physical	Dimensions	Double module, Full-size Width 5.85" (148.5 mm) Depth 7.11" (180.6 mm)
Type	AMC FPGA	24 ADC (16 fast and 8 slower sampling rate) @ 16-bit
Standards		
MTCA	Type	MTCA.0, MTCA.1
AMC	Type	AMC.0, AMC.1, AMC.2, AMC.3, AMC.4
Module Management	IPMI	IPMI v2.0
PCIe	Lanes	Dual x4 or single x8 via FPGA to AMC
SRIO	Lanes	Dual x4 via FPGA to AMC
Ethernet	Lanes	Dual 10GbE via FPGA and dual GbE via FPGA
Configuration		
Power	AMC521	~25W, application specific (up to 50W)
Environmental	Temperature	Operating Temperature: -5° to 55°C (air flow requirements >400 LFM) (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 24 I/O via DensiShield connectors ADC inputs via SSMC connectors IPMI RS-232
	LEDs	IPMI Management Control Four user defined LED
	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

AMC521 – A0C – DEF – GHJ

A = ADC Channels

- 0 = 24 Channels
- 1 = 16 Channels (no SAR)

D = FPGA

- 1 = XC7V415T
- 2 = XC7V690T

G = Front Panel Type

- 0 = MicroTCA.0
- 1 = MicroTCA.1

E = FPGA, Speed

- 1 = Low
- 2 = High
- 3 = Highest

H = Temperature Range

- 0 = Commercial (-5 to +55° C)
- 1 = Industrial (-20 to +70° C)

C = Front Panel

- 1 = Reserved
- 2 = Reserved
- 3 = Full-size
- 4 = Extended-size (8 HP)

F = PCIe Option

- 0 = No PCIe
- 1 = PCIe on Ports 4-7
- 2 = PCIe on Ports 8-11
- 3 = PCIe on Ports 4-11

J = Conformal Coating

- 0 = No coating
- 1 = Humiseal 1A33 Polyurethane
- 2 = Humiseal 1B31 Acrylic

RELATED PRODUCTS



AMC520 250 MSPS
DAC Converter



VT891 U4
Chassis



UTC018 1000W
Power Module

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