FMC215

FMC ADC 12-bit @ 4.0 GSPS and DAC 12-bit @ 4.5 GSPS

FMC215

Key Features

- FPGA Mezzanine Card (FMC) per VITA 57.1
- TI ADC12J4000 12-bit ADC supports 1-4 GSPS with a full-power input bandwidth of 3.2 GHz
- E2V EV12DS400 12-bit DAC supports up to 4.5 GSPS with output bandwidth 7 GHz
- Excellent dynamic performance
- Front panel interface includes CLK In and TRIG In, Analog In/Out and GPIO
- Ultra-Low Noise Wideband PLL
- On-chip delay locked loops (DLLs) optimize timing between different clock domains.

Benefits

- High dynamic range for versatility in video/broadcast requirements
- Ideal for Broadband communications systems, Wireless infrastructure, LTE, ATE, RADAR/Jamming
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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FMC215

The FMC215 is an FPGA Mezzanine Module per VITA 57 specification that provides a single ADC at 4 GSPS and a single DAC at 4.5 GSPS. The module is suitable for signal capture and low-latency feedback applications such as COMINT/SIGINT, radar, jamming, research and instrumentation.

TI ADC12J4000 ADC provides:

- Usable output bandwidth of 800 MHz at 4x decimation and 4000 MSPS
- Usable output bandwidth of 100 MHz at 32x decimation and 4000 MSPS
- Bypass Mode for full Nyquist output bandwidth

E2V EV12DS400 DAC provides:

- –3 dB Analog output Bandwidth of 7 GHz
- 1st Nyquist NPR = 47.5 dB, 9.4-bit Equivalent at Fs = 4.5 GSPS
- 2nd Nyquist NPR = 42 dB, 8.5-bit Equivalent at Fs = 4.5 GSPS
- 3rd Nyquist NPR = 39 dB, 8-bit Equivalent at Fs = 4.5 GSPS

The Module offers the option for an RF sampling clock, accessed via the front panel for both ADC/DAC as disjoint or a common clock.

The FMC215 has a trigger input which is routed to the FMC connector as well as to the ADC. The analog input/output, clock input and trigger inputs are routed via SSMC connectors.


Figure 1: FMC215

FMC215 – FMC ADC 12-bit @ 4.0 GSPS and DAC 12-bit @ 4.5 GSPS
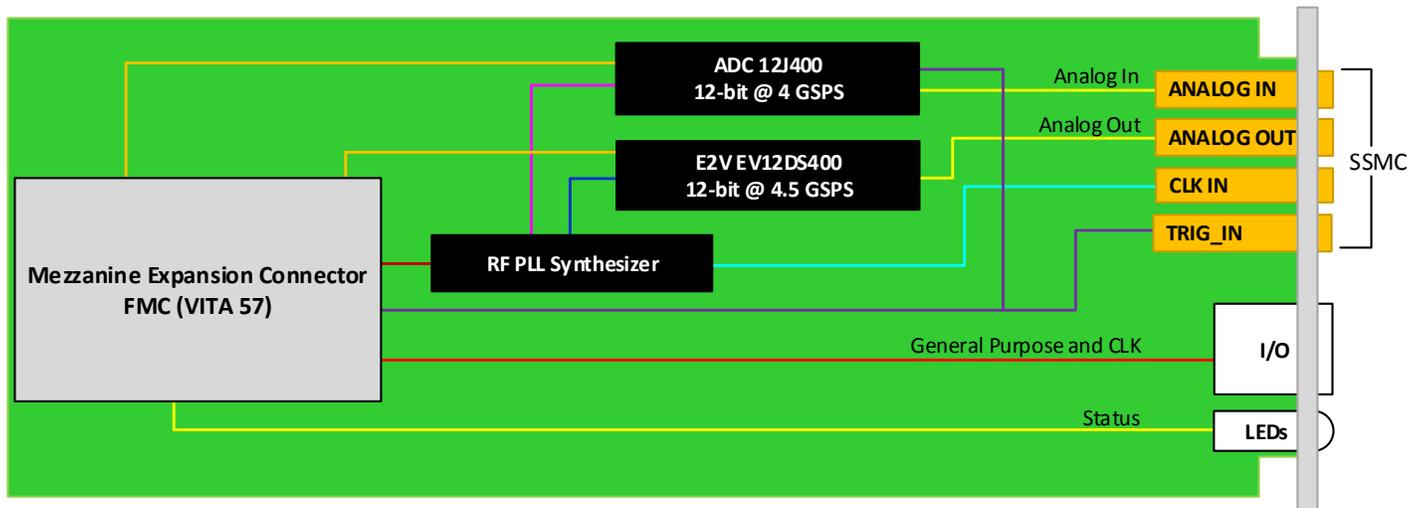
Block Diagram

Figure 2: FMC215 Functional Block Diagram

Front Panel
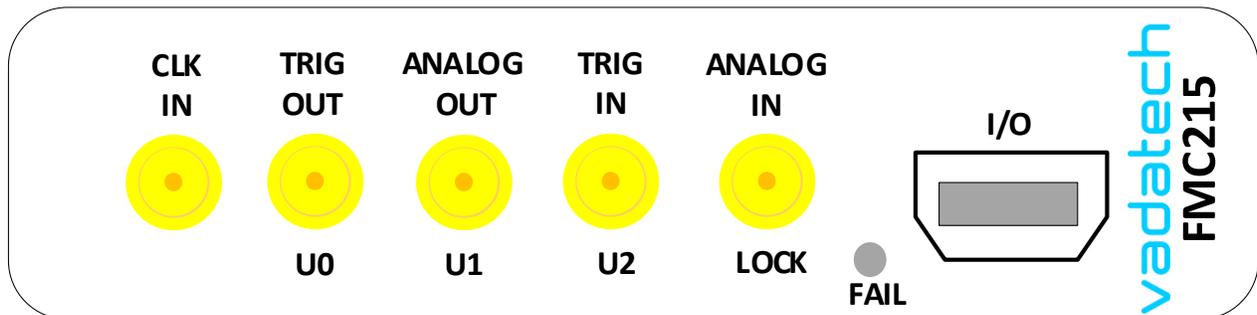
Figure 3: FMC215 Front Panel

FMC215 – FMC ADC 12-bit @ 4.0 GSPS and DAC 12-bit @ 4.5 GSPS

Specifications

Architecture		
Physical	**Dimensions**	Single Module
		Width: 2.71" (69 mm)
		Depth: 3.01" (76.5 mm)
Type	**FMC**	Single port ADC and single port DAC
		Single FMC slot
Standards		
FMC	**Type**	ANSI/VITA 57.1 – 2008
Configuration		
Power	**FMC215**	~6W
Environmental	**Temperature**	See Ordering Options (air flow requirements >400 LFM)
		Storage Temperature: –40° to +85°C
	Vibration	1G to 5-500 Hz on each axis
	Shock	30Gs each axis
	Relative Humidity	5 to 95% non-condensing
Front Panel	**Interface Connectors**	5x SSMC and Display Port
	LEDs	Status
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 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

FMC215 – AB0-000-G0J

A = Front Panel Trig In/Time Stamp		G = FMC Board Spacing
0 = Trig In 1 = Time Stamp		0 = 10 mm (per VITA 57 specification) 1 = 17.5 mm*****
B = RF Sampling Clock		
0 = Onboard Wideband PLL 1 = Front panel (ADC/DAC are disjoint clocks) 2 = Front panel (ADC/DAC utilizing same sampling clock)		
		J = Conformal 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 = Extended Industrial (–40° to +70°C), No coating 4 = Extended Industrial (–40° to +70°C), Humiseal 1A33 Polyurethane 5 = Extended Industrial (–40° to +70°C), Humiseal 1B31 Acrylic 6 = Extended (–40° to +85°C), Humiseal 1A33 Polyurethane****** 7 = Extended (–40° to +85°C), Humiseal 1B31 Acrylic******

Notes:

*For use with carriers that require higher mating clearance, such as VadaTech AMC595. Requires full size AMC.

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

Related Products

AMC516

- AMC FPGA carrier for FMC per VITA 57
- Xilinx Virtex-7 690T FPGA in FFG-1761 package with optional P2040
- Supported by DAQ Series™ data acquisition software

AMC532

- AMC FPGA based on Altera Stratix-V (5SGXEA) in F1932 package
- VITA 57.1 FMC HPC Connector (compatible with LPC)
- All FMC LA, HA, HB pairs routed bi-directionally

FMC210

- FPGA Mezzanine Card (FMC) per VITA 57
- Single ADC EV10AS150B @ 2.6 GSPS
- 5 GHz Full Power Input Bandwidth (–3dB)

FMC215 – FMC ADC 12-bit @ 4.0 GSPS and DAC 12-bit @ 4.5 GSPS

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