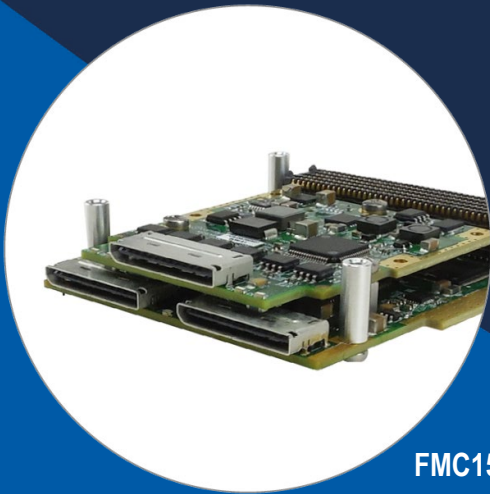


# FMC158

Multi I/O FMC Module, M-LVDS,  
RS-485/RS-422, GPIO +3.3V/+5V,  
8 ADC and 8 DAC



FMC158

## Key Features

- Multiple I/O in single FMC form-factor
- 32x M-LVDS input/outputs with speed up to 350 MHz and programmable crossbar circuit routing
- 5x RS-485/RS-422 with speed up to 50 Mbps
- Programmable termination per port for RS-485/RS-422
- 8x GPIO with +3.3V and 8x GPIO with +5V
- 8x DAC 16-bit @ 1 MSPS (TI DAC80508ZC)
- 8x ADC 16-bit @ 500 KSPS (TI ADS8588H)

## Benefits

- Single module to provide multiple I/O
- Utilizing commercially-available, standard high-density connector for ease of cabling
- All I/O types utilize differential signaling between the transceivers on the FMC and the FPGA on the carrier for optimal signal integrity across the FMC connector
- Programmable M-LVDS termination and routing
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company



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# FMC158

The FMC158 is an FPGA Mezzanine Card (FMC) per VITA 57.1 standard, offering a small footprint and allowing for general-purpose I/O expansion.

The FMC158 provides 32 x M-LVDS input/outputs, 5x RS-485/RS-422 (per configured port), 8x GPIO +3.3V, 8x +5V GPIO, 8x ADC at 512 KSPS and 8x DAC at 1 MSPS.

The M-LVDS signals go through a Cross Bar Switch (CBS), which allows input/output routing within each group of eight M-LVDS signals. Each CBS Port can be individually software-configured for routing, termination, and direction.

Each of the single-ended Ports can be configured as input or output. The RS-485/422 configuration can be selected as full-duplex RS-422 (independent RX/TX pairs with RX termination) or half-duplex RS-485. Each RX is programmable for termination.

The module includes 8x ADC and 8x DAC both with 16-bit resolution.

**The FMC158 is 13 mm high (the VITA 57 specification is 10 mm). The carrier must not have any components under the FMC. The FMC158 does not come with a front panel and the carrier must have a monolithic panel to cover the I/O of the FMC158. Please contact VadaTech sales for the I/O 3D model.**

The FMC158 can provide power of up to 12W to an external module.

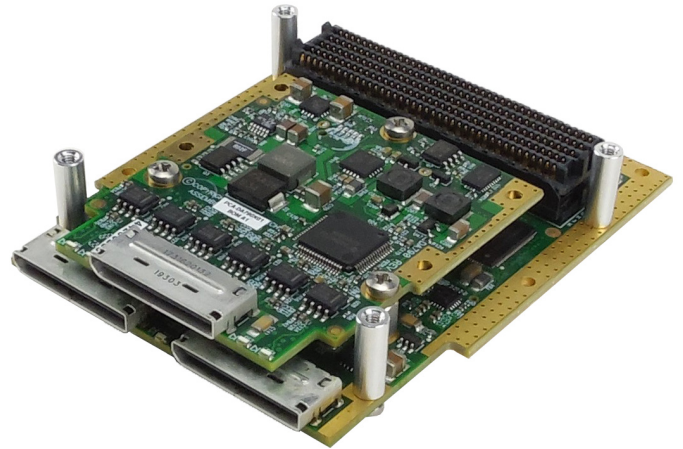


Figure 1: FMC158

# Block Diagram

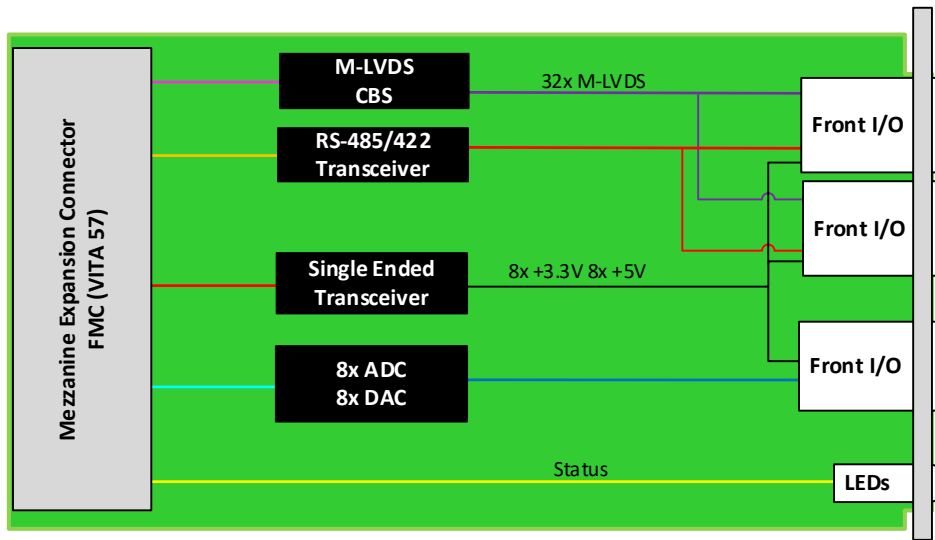


Figure 2: FMC158 Functional Block Diagram

# Specifications

Architecture		
Physical	Dimensions	Single Module
		Width: 2.71" (69 mm)
		Depth: 3.01" (76.5 mm)
Type	FMC	Digital I/O
Standards		
FMC	Type	ANSI/VITA 57.1 - 2008
Configuration		
Power	FMC158	4W without the external module taking any power (external module can take up to 12W)
Environmental	Temperature	See <a href="#">Ordering Options</a>
		Storage Temperature: -40° to +85°C
	Altitude	40,000 ft non-operating
	Vibration	Operating 9.8 m/s <sup>2</sup> (1G), 5-500 Hz
	Shock	Operating 30Gs each axis
	Relative Humidity	5 to 95% non-condensing
Front Panel	Interface Connectors	Triple high-density connector
	LEDs	Status
Software Support	Operating System	Agnostic
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 <a href="#">VadaTech Terms and Conditions</a>

## 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

## FMC158 – A00-000-G0J

A = ADC Input Range		G = FMC Board Spacing
0 = +/-5V (can take differential input) 1 = +/-10V (single ended, direct to ADC input pins)		0 = 13 mm (VITA 57 specification is 10 mm)* 1 = 17.5 mm**
		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***

**Notes:**

\*The Carrier front panel must be modified to allow the FMC158 to mate properly.

\*\*For use with carriers that require higher mating clearance, such as VadaTech AMC595.

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

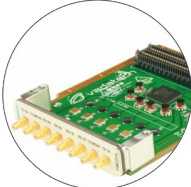
## Related Products

VT951



- MicroTCA rugged 1U 19" rackmount chassis platform
- Designed to meet MIL-STD-810F, MIL-STD-901D for shock/vibration
- Designed to meet MIL-STD-461E for EMI

FMC214



- Dual complete transceiver signal chain solution using Analog Devices AD9361 transceiver
- Frequency range 70 MHz to 6 GHz with instantaneous bandwidth from 200 kHz to 56 MHz
- MIMO transceiver is Time Domain Duplex (TDD) and Frequency Domain Duplex (FDD) compatible

AMC599



- Xilinx UltraScale™ XCKU115 FPGA
- Dual ADC 12-bit @ 6.4 GSPS or quad ADC at 3.2 GSPS
- Dual DAC 16-bit @ 12 GSPS (AD9162 or AD9164)

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