

# FMC155

Multi I/O FMC Module, M-LVDS,  
RS-485/422, Single-ended +3.3V



FMC155

## Key Features

- Multiple I/O in single FMC form-factor
- M-LVDS, RS-422, and singled-ended +3.3V
- 16x M-LVDS input/outputs with speed up to 350 MHz and programmable crossbar circuit routing
- 8x RS-485/RS-422 TX with speed up to 20 Mbps
- 8x RS-485/RS-422 RX with speed up to 52 Mbps
- 16x Singled-ended +3.3V GPIO

## 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



**vadatech**  
THE POWER OF VISION



# FMC155

The FMC155 is an FPGA Mezzanine Card (FMC) per VITA 57.1 standard, offering a small footprint and allowing for general-purpose I/O expansion.

The FMC155 provides sixteen M-LVDS input/outputs, eight RS-485/422 RX plus eight RS-485/422 TX, and sixteen single-ended +3.3V input/outputs.

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 (RX/TX pairs tied together, no termination onboard) based on the ordering option. The FMC155 can provide power of up to 12W to an external module.

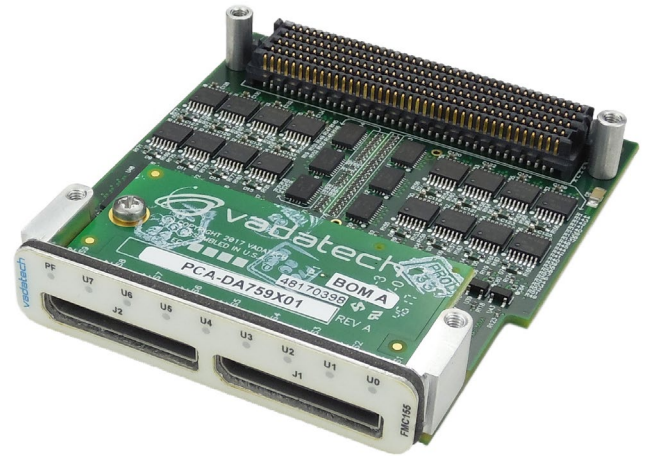


Figure 1: FMC155

# Block Diagram

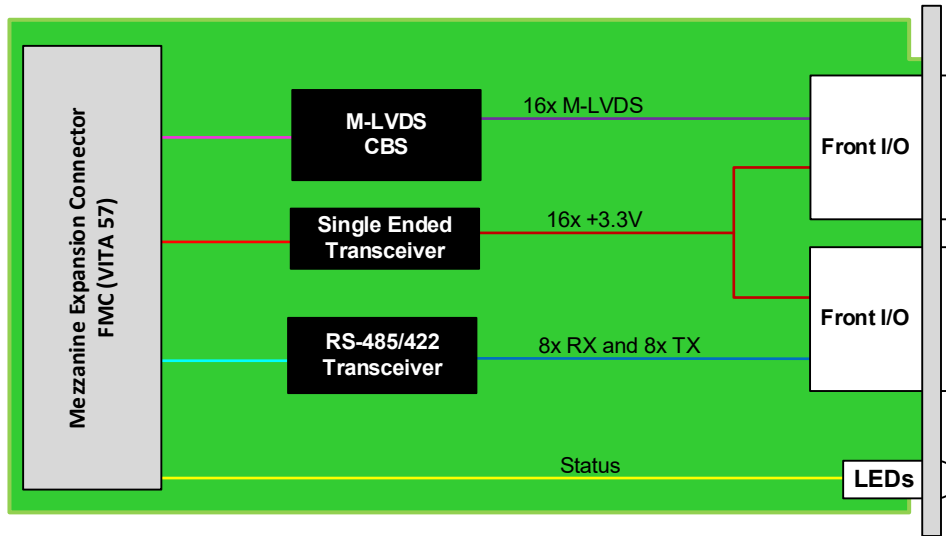


Figure 2: FMC155 Functional Block Diagram

# Specifications

<b>Architecture</b>		
<b>Physical</b>	<b>Dimensions</b>	Single Module Width: 2.71" (69 mm) Depth: 3.01" (76.5 mm)
<b>Type</b>	<b>FMC</b>	Digital I/O
<b>Standards</b>		
<b>FMC</b>	<b>Type</b>	ANSI/VITA 57.1 - 2008
<b>Configuration</b>		
<b>Power</b>	<b>FMC155</b>	3W without the external module taking any power (external module can take up to 12W)
<b>Environmental</b>	<b>Temperature</b>	See <a href="#">Ordering Options</a> Storage Temperature: -40° to +85°C
	<b>Altitude</b>	40,000 ft non-operating
	<b>Vibration</b>	Operating 9.8 m/s <sup>2</sup> (1G), 5-500 Hz
	<b>Shock</b>	Operating 30Gs each axis
	<b>Relative Humidity</b>	5 to 95% non-condensing
<b>Front Panel</b>	<b>Interface Connectors</b>	Dual high-density connector (latching style)
	<b>LEDs</b>	Status
<b>Software Support</b>	<b>Operating System</b>	Agnostic
<b>Other</b>		
<b>MTBF</b>		MIL Hand book 217-F@ TBD hrs
<b>Certifications</b>		Designed to meet FCC, CE and UL certifications, where applicable
<b>Standards</b>		VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards
<b>Warranty</b>		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

## FMC155 – A00-000-G0J

A = I/O Configuration for RS-485/422		G = FMC Board Spacing
0 = Full-duplex (8 RS-422 RX w/ termination and 8 RS-422 TX) 1 = Half-duplex - 8 RS-485 TXCVRs (RX & TX pairs tied) 2 = Reserved 3 = Reserved 4 = Reserved		0 = 10 mm (per VITA 57 specification) 1 = 17.5 mm*
		<b>J = Temperature Range and Coating</b>  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** 8 = Extended (–40° to +85°C) with no coating

Notes: \*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.

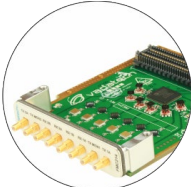
## Related Products

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)

# Contact

## VadaTech Corporate Office

198 N. Gibson Road, Henderson, NV 89014

Phone: +1 702 896-3337 | Fax: +1 702 896-0332

## Asia Pacific Sales Office

7 Floor, No. 2, Wenhua Street, Neihu District, Taipei 114, Taiwan

Phone: +886-2-2627-7655 | Fax: +886-2-2627-7792

## VadaTech European Sales Office

VadaTech House, Bulls Copse Road, Southampton, SO40 9LR

Phone: +44 2380 016403

[info@vadatech.com](mailto:info@vadatech.com) | [www.vadatech.com](http://www.vadatech.com)

# Choose VadaTech

## We are technology leaders

- First-to-market silicon
- Constant innovation
- Open systems expertise

## We commit to our customers

- Partnerships power innovation
- Collaborative approach
- Mutual success

## We deliver complexity

- Complete signal chain
- System management
- Configurable solutions

## We manufacture in-house

- Agile production
- Accelerated deployment
- AS9100 accredited



**vadatech**  
THE POWER OF VISION

## Trademarks and Disclaimer

The VadaTech logo is a registered trademark of VadaTech, Inc. Other registered trademarks are the property of their respective owners. AdvancedTCA™ and the AdvancedMC™ logo are trademarks of the PCI Industrial Computers Manufacturers Group. All rights reserved. Specification subject to change without notice.

© 2019 VadaTech Incorporated. All rights reserved.  
DOC NO. 4FM737-12 REV 01 | VERSION 1.6 – JAN/22