Key Features

- 24 full duplex transceivers on FMC+ module
- Supports link lengths up to 70 m (option for 100 m)
- Multi-rate capability, options up to 28.1 Gb/s per channel
- Total bi-directional bandwidth >1.344 Gb/s
- On board Ultra-low Jitter Clock generator with two independent PLL

Benefits

- Extremely compact fiber I/O
- Array of FMC’s and FMC carriers available from VadaTech
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from the industry leader
- AS9100 and ISO9001 certified company
FMC259

The FMC259 is an FPGA Mezzanine Module per VITA 57.4 (FMC+) specification. The FMC259 has dual Board-Mount Optical Assemblies, each providing 24 channel full-duplex transceivers with Clock Data Recovery and front-panel fiber I/O via MTP/MPO.

Transceivers are available in two speed grades, 10.6 Gb/s and 28.1 Gb/s per channel, both with multi-rate capability. The 10.6 Gb/s can drive 100 m over OM3 MM Fiber and 28.1 Gb/s can drive 100 m over OM4 MM Fiber.

The module has an on board Ultra-Low Jitter Clock Generator with two independent, fractional PLL. The clocking allows synchronization to an external clock input or on board. Six clocks are routed to the GBT’s on the FMC+ pinouts and two are routed to CLK0 and CLK1 for a total of 8 clock outputs.

The Module has LEDs in Green/Yellow to allow for LNK/ACT, debugging or as defined by user.

Figure 1: FMC259
Block Diagram

![Block Diagram of FMC259](image)

Figure 2: FMC259 Functional Block Diagram

Front Panel

![Front Panel](image)

Figure 3: FMC259 Front Panel
## Specifications

### Architecture

<table>
<thead>
<tr>
<th>Physical</th>
<th>Dimensions</th>
<th>Single Module</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>2.71” (69 mm)</td>
</tr>
<tr>
<td></td>
<td>Depth</td>
<td>3.01” (76.5 mm)</td>
</tr>
</tbody>
</table>

### Type

- **FMC**: 24 channel fiber transceiver

### Standards

- **FMC**: VITA 57, ANSI/VITA 57.4

### Configuration

**Power**

- **FMC259**: 15W with CDR enabled

**Environmental**

- **Temperature**
  - See [Ordering Options](#)
  - Storage Temperature: -40° to +85°C
- **Vibration**
  - Operating 9.8 m/s² (1G), 5 to 500 Hz on each axis
- **Shock**
  - Operating 30G on each axis
- **Relative Humidity**
  - 5 to 95% non-condensing

### Front Panel

- **Interface Connectors**: 2x MTP/MPO
- **LEDs**: TBD

### 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 ISO9001:2000 and AS9100B:2004 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

FMC259 – AB0-000-G0J

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Transceiver Speed</td>
<td>G = FMC Board Spacing</td>
</tr>
<tr>
<td>0 = 10.6 Gb/s (&gt;480Gb/s total bi-directional)</td>
<td>0 = 10 mm (per VITA 57 specification)</td>
</tr>
<tr>
<td>1 = 28.1 Gb/s (&gt;1344Gb/s total bi-directional)</td>
<td>1 = 17.5 mm*</td>
</tr>
<tr>
<td>B = Link Distance for 28.1 Gb/s</td>
<td></td>
</tr>
<tr>
<td>0 = 70 Meter</td>
<td>J = Temperature Range and Coating</td>
</tr>
<tr>
<td>1 = 100 Meter**</td>
<td>0 = Commercial, No coating</td>
</tr>
<tr>
<td></td>
<td>1 = Commercial, Humiseal 1A33 polyurethane</td>
</tr>
<tr>
<td></td>
<td>2 = Commercial, Humiseal 1B31 acrylic</td>
</tr>
<tr>
<td></td>
<td>3 = Industrial, No coating</td>
</tr>
<tr>
<td></td>
<td>4 = Industrial, Humiseal 1A33 polyurethane</td>
</tr>
<tr>
<td></td>
<td>5 = Industrial, Humiseal 1B31 acrylic</td>
</tr>
</tbody>
</table>

Notes: *For use with carriers that require higher mating clearance, such as VadaTech AMC595. Requires full size AMC.
**Apply only to the 28.1 Gb/s with minimum order qty required (OM4 MM Fiber). The 10.6 Gb/s can drive 100 m by default over OM3 MM Fiber.

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

- AMC530
  - Altera Stratix IV Device EP4S100Gx in 1517 pin count (40 mm x 40 mm)
  - On board PLL for buffering/multiplying and jitter cleaner
  - Three banks of QDR-II+ each 72-bit wide

- FMC210
  - FPGA Mezzanine Card (FMC) per VITA 57
  - Single ADC EV10AS150B @ 2.6 GSPS
  - 5 GHz Full Power Input Bandwidth (~3 dB)
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

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.