FMC210
FMC High-speed ADC 10-bit @ 2.6 GSPS Module

Key Features
- FPGA Mezzanine Card (FMC) per VITA-57
- Single module
- Single ADC EV10AS150B @ 2.6 GSPS
- 5 GHz Full Power Input Bandwidth (–3dB)
- True single core architecture (no calibration required)
- External Interleaving:
  - Gain Adjust
  - Offset Adjust
  - Sampling Delay Adjust
- Full scale Analog input Voltage Span 500 mVpp
- All front panel input/outputs are via SSMC:
  - Analog Input
  - Reference clock
  - Trig in/out
- Super low phase noise RF PLL Synthesizer
- RoHS compliant

Benefits
- Array of FMC’s and FMC carriers available from VadaTech
- 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
The FMC210 is an FPGA Mezzanine Card per the VITA 57 specification with a high-speed ADC. The ADC converter utilizes the e2v EV10AS150B device which has a high linearity ADC. The module has a super low phase noise RF PLL Synthesizer for sampling.

The ADC device has single Tone Performance in 1st Nyquist (–1 dBFS): ENOB = 8.0 bit, SFDR = –57 dBFS at 2.6 GSPS, Fin = 495 MHz and ENOB = 7.9 bit, SFDR = –57 dBFS at 2.6 GSPS, Fin = 1295 Mhz, with the single Tone Performance in 2nd Nyquist (–3 dB): ENOB = 7.9 bit, SFDR = –59 dBFS at 2.6 GSPS, Fin = 2,595 MHz.

The module has a low Bit Error Rate (BER) of 10 to -12 at 2.6 GSPS with no missing codes at 2.6 GSPS, 1st and 2nd Nyquist.

FMC210 has an on board PLL that generates the RF clock. The RF clock could be synced with an external clock or carrier clock.
Block Diagram

Figure 1: FMC210 Functional Block Diagram

Front Panel

Figure 2: FMC210 Front Panel
## Specifications

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Dimensions</th>
<th>Single Module</th>
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</thead>
<tbody>
<tr>
<td>Width</td>
<td>2.71&quot; (69 mm)</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>3.01&quot; (76.5 mm)</td>
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</tr>
<tr>
<td>Type</td>
<td>FMC</td>
<td>Analog to Digital Converter (ADC) EV10AS150B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Depth: 3.01&quot; (76.5 mm)</td>
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<tr>
<td>Standards</td>
<td>FMC</td>
<td>ANSI/VITA 57.1-2008</td>
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<table>
<thead>
<tr>
<th>Configuration</th>
<th>Power</th>
<th>FMC210</th>
<th>10W</th>
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<tbody>
<tr>
<td>Environmental</td>
<td>Temperature</td>
<td>See Ordering Options</td>
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<tr>
<td></td>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
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</tr>
<tr>
<td></td>
<td>Altitude</td>
<td>40,000 ft non-operating</td>
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<tr>
<td></td>
<td>Vibration</td>
<td>1G, 5 to 500 Hz on each axis</td>
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<tr>
<td></td>
<td>Shock</td>
<td>Operating 30Gs each axis</td>
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<tr>
<td></td>
<td>Relative Humidity</td>
<td>5 to 95% non-condensing</td>
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<tr>
<td>Front Panel</td>
<td>Interface Connectors</td>
<td>4x SSMC Front Panel Connectors</td>
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<tr>
<td></td>
<td>LEDs</td>
<td>Status</td>
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<td></td>
<td></td>
<td>Humiseal 1A33 Polyurethane (Optional)</td>
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<tr>
<td></td>
<td></td>
<td>Humiseal 1B31 Acrylic (Optional)</td>
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</tr>
<tr>
<td>Other</td>
<td>MTBF</td>
<td>MIL Hand book 217-F@ TBD hrs</td>
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<tr>
<td></td>
<td>Certifications</td>
<td>Designed to meet FCC, CE and UL certifications, where applicable</td>
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<tr>
<td></td>
<td>Standards</td>
<td>VadaTech is certified to both the ISO9001:2015 and AS9100D standards</td>
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<tr>
<td></td>
<td>Warranty</td>
<td>Two (2) years, see VadaTech Terms and Conditions</td>
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## 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

FMC210 – 000-000-GHJ

<table>
<thead>
<tr>
<th></th>
<th>G = FMC Board Spacing</th>
<th>H = Operating Temperature</th>
<th>J = Conformal Coating</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0 = 10 mm (per VITA-57 specification)</td>
<td>0 = Commercial</td>
<td>0 = None</td>
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<tr>
<td></td>
<td>1 = 17.5 mm **</td>
<td>1 = Industrial</td>
<td>1 = Humiseal 1A33 Polyurethane</td>
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<td></td>
<td></td>
<td></td>
<td>2 = Humiseal 1B31 Acrylic</td>
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Notes:
* Please contact VadaTech for other PLL Synthesizer Frequencies and input clocks.
** For use with carriers that require higher mating clearance, such as VadaTech AMC595. Requires full size AMC.

Related Products

- **AMC518**
  - AMC FPGA carrier for FMC per VITA 57
  - Xilinx Zynq-7000 FPGA in FFG-900 package
  - Supported by DAQ Series™ data acquisition software

- **AMC519**
  - AMC FPGA carrier for FMC per VITA-57
  - Xilinx Artix-7 FPGA in FBG-676 package
  - AMC Ports 0 and 1 as GbE to FPGA

- **FMC223**
  - FPGA Mezzanine Card (FMC) per VITA 57
  - Single module AD9739 DAC 14-bit at 2.5 GSPS
  - 2 Vpp differential Analog output swing
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

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