# FMC230

## MIMO 300 MHz to 6 GHz Versatile Wideband Transceiver FMC



**FMC230**

## Key Features

- Utilizing Analog Devices AD9371 or AD9375
- Complete transceiver signal chain solution
- Frequency range 300 MHz to 6 GHz
- Tx synthesis bandwidth (BW) up to 250 MHz
- Rx bandwidth: 8 MHz to 100 MHz
- Supports Time Division Duplex (TDD) and Frequency Division Duplex (FDD) operation
- On-board clocking or external clock with multi-transceivers synchronization capability

## Benefits

- High density transceiver with intensive data processing capability
- Flexible clocking
- Observation channels for implementation of error correction functions
- Sniffer Receiver channels can monitor different frequency bands





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# FMC230

The FMC230 is a FPGA Mezzanine Card (FMC) per VITA 57.1 standard, offering small footprint and low power dual fully featured wideband transceivers.

The FMC230 utilizes single AD9371 or AD9375. The AD9371/AD9375 is a highly integrated, wideband radio frequency transceiver offering dual channel transmitter (TX) and receivers (RX) with integrated synthesizer, and digital signal processing functions. Each complete Rx and Tx subsystem includes dc offset correction, Quadrature Error Correction (QEC), and programmable digital filters.

The AD9375 further provides a fully integrated Digital Pre-Distortion (DPD) actuator and adaptation engine.

The FMC230 operates within the 300 MHz to 6.0 GHz frequency range, covering most licensed and unlicensed bands. The clocking is via the front panel or an internal clock. The FMC230 is an ideal choice for the development and/or deployment of advanced RF solutions. This Multiple Input Multiple Output (MIMO) module is the most versatile FMC in the market.
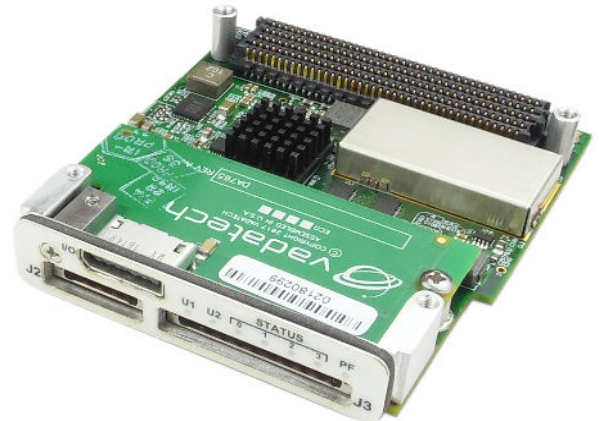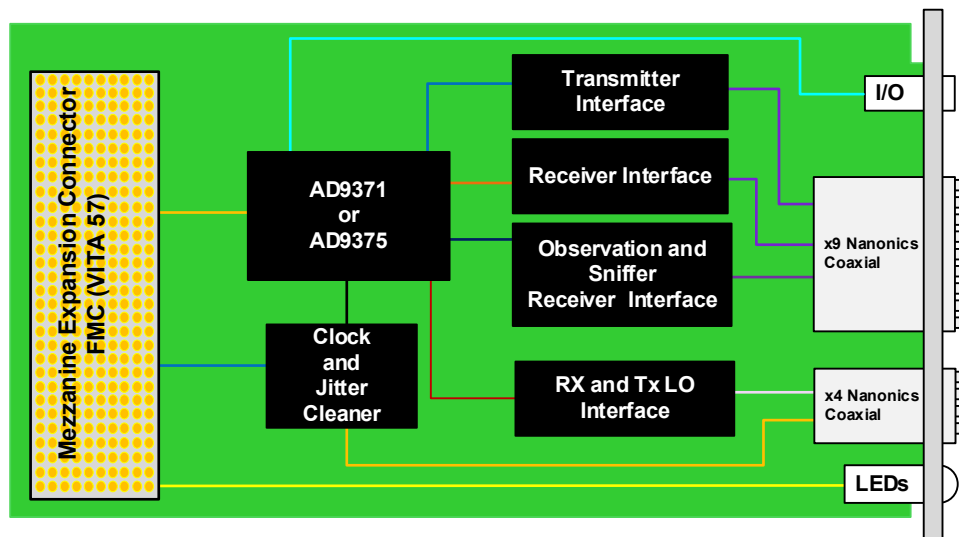


*Figure 1: FMC230*



FMC230 – MIMO 300 MHz to 6 GHz Octal Versatile Wideband Transceiver FMC

# Block Diagram



*Figure 2: FMC230 Functional Block Diagram*

# Front Panel
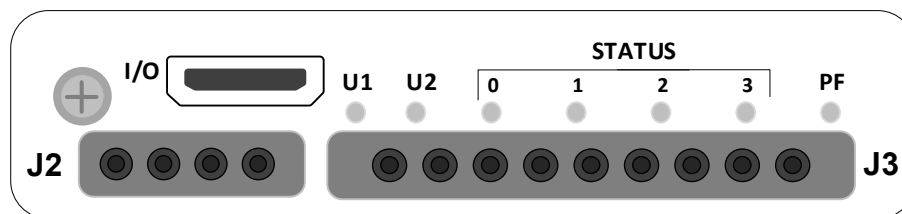


*Figure 3: FMC230 Front Panel*

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# Supported Software

The FMC230 is compatible with Analog Devices design tools for AD9371 or AD9375

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# Specifications

| Architecture | | |
|---|---|---|
| **Physical** | **Dimensions** | Single Module |
| | | Width 2.71" (69 mm) |
| | | Depth 3.01" (76.5 mm) |
| **Type** | **FMC** | MIMO |
| **Standards** | | |
| **FMC** | **VITA 57** | ANSI/VITA 57.1-2008 |
| **Configuration** | | |
| **Power** | **FMC230** | 6 W |
| **Environmental** | **Temperature** | See ordering options and environmental spec sheet |
| | | Storage Temperature: –40° to +85°C |
| | **Vibration** | Operating 9.8 m/s$^2$ (1 G), 5 to 500 Hz on each axis |
| | **Shock** | Operating 30 G on each axis |
| | **Relative Humidity** | 5 to 95% non-condensing |
| **Front Panel** | **Interface Connectors** | 9x Nanonics coaxial for Rx, Tx and listener interface |
| | | 4x Nanonics for CLK, TRIG and LO interface |
| | | 10 singled ended or 5 LVDS I/O via 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 ISO9001:2000 and AS9100B:2004 standards |
| **Warranty** | | Two (2) years |

**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

**FMC230 – 0B0-000-G0J**

| | | G = FMC Board Spacing |
|---|---|---|
| | | 0 = 10 mm (per VITA 57 specification)<br>1 = 17.5 mm* |
| **B = MIMO Device** | | |
| 0 = AD9371<br>1 = AD9375 | | |
| | | **J = Temperature Range and Coating** |
| | | 0 = Commercial (–5° to +55°C), No coating<br>1 = Commercial (–5° to +55°C), Humiseal 1A33 Polyurethane<br>2 = Commercial (–5° to +55°C), Humiseal 1B31 Acrylic<br>3 = Industrial (–20° to +70°C), No coating<br>4 = Industrial (–20° to +70°C), Humiseal 1A33 Polyurethane<br>5 = Industrial (–20° to +70°C), Humiseal 1B31 Acrylic<br>6 = Extended (–40° to +85°C), Humiseal 1A33 Polyurethane**<br>7 = Extended (–40° to +85°C), Humiseal 1B31 Acrylic** |

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 @ 6.4 GSPS 12-bits or quad ADC at 3.2 GSPS
- Dual DAC (AD9162 or AD9164) @ 12 GSPS, 16-bits

# Contact

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## We deliver complexity

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- System management
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