

## EnsembleSeries™ DCM6222

Virtex Ultrascale 6U OpenVPX Rx/Tx module



- Multi-channel, highly configurable Rx/Tx module
- High IBW, high analog I/O frequency, low latency
- Integrated FPGA processing

Mercury's EnsembleSeries™ DCM6222 is a versatile OpenVPX FPGA-based, Rx/Tx module designed for agile system integration and optimized to support system security engineering (SSE). This digital transceiver/processor includes Virtex® UltraScale™ FPGA processing power, low-latency ADC/DAC performance and is ideal for operating in harsh environments. For a complete EW solution, the DCM6222 can be integrated with Mercury's ultra-wideband microwave transceivers, such as the RFM3101.

To enable modular direction finding and beam forming applications, the DCM6222 digital Rx/Tx module offers subsample coherency optimized to minimize the phase deviation between ports. Additionally, the product includes the hardware to enable multi-board coherency through factory-level configuration. This technology integrates clock generation and distribution hardware with proprietary phase alignment algorithms to achieve a scalable, coherent solution.

### Specifications

#### Processor

Two Xilinx Virtex® Ultrascale+™ VU9P Processors  
One Ultrascale+ ZU11EG Governor  
16,560 DSP Slices

#### Memory

20 GB of DDR4 SDRAM

#### ADC

2 12-bit ADC Channels up to 6.4 GSPS

FS IP power across first 3 nyquist zones @ 5 GSPS: +5dBm to +15dBm, typ.

#### DAC

2 12-bit DAC Channels up to 6.4 GSPS

FS OP power across first 3 nyquist zones @ 5 GSPS: -2dBm to -25dBm, typ.

#### Configurable Options

Front I/O or Vita 67 rear I/O

#### Security

System Security Engineering Ready

#### Other

Integrated IPMI controller

Manufactured in an AS9100D facility

#### Specifications

OpenVPX Packaging

OpenVPX (VITA 65) encompasses: VITA 46.0, 46.3, 46.4, 46.6, 46.11 and VITA 48.1, 48.2 (REDI)

Data Planes

PCIe Gen 3

40GbE

And/or VITA 49.2

Configurable, low-latency, coherent 6U OpenVPX Rx/Tx module

Mercury Systems is a leading commercial provider of secure sensor and safety-critical processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.



ACQUIRE



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PROCESS



STORAGE



EXPLOIT



DISSEMINATE

## Low-latency ADC/DAC Performance

Mercury's low-latency ADC/DAC products are developed to support EW applications that require real-time IF digitization and processing in harsh environments. Dual interleaving ADC channels offer sampling rates up to 6.4 GSPS on the receive side, and two DAC channels operate up to 6.4 GSPS on the transmit side. Each of these DACs have convenient, user-selectable output modes to provide multi-nyquist signal projection. Optimized for EW systems, these highly configurable Rx/Tx modules deliver excellent spectral purity and efficiency, coherent multi-channel functionality and exceptional LPOI (low probability of intercept) signal detection capability. The customizable architecture can support a variety of applications including DRFM systems, beamforming, and SIGINT.

## Advanced FPGA Functionality

Mercury's processing modules are built around our EchoCore® FPGA IP to provide basic infrastructure functionality right out of the box. Mercury facilitates the re-use of common IP across FPGAs to optimize time-to-market and reduce development time. EchoCore IP allows customers to focus on their application while building upon the groundwork provided.

Mercury simplifies application integration by providing a standard control plane interface using AXI4-Lite control plane connectivity. Mercury uses a simple AXI4-Stream interface for our data plane with AXI4-Stream switches for routing data within the FPGA and to external interfaces, such as PCIe. Our customers can choose their tool of choice, such as parameterizable Xilinx IPs, HLS, or RTL to generate signal processing algorithms. The cores are then instantiated into a reserved user block and compiled into the FPGAs.

### Need More Help? Need a Variant of This Product?

Contact Mercury's Mixed Signal Engineering team at: [digital.rf@mrcy.com](mailto:digital.rf@mrcy.com) or visit [www.mrcy.com/mixed-signal-processing](http://www.mrcy.com/mixed-signal-processing) for a detailed listing of OpenVPX products

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