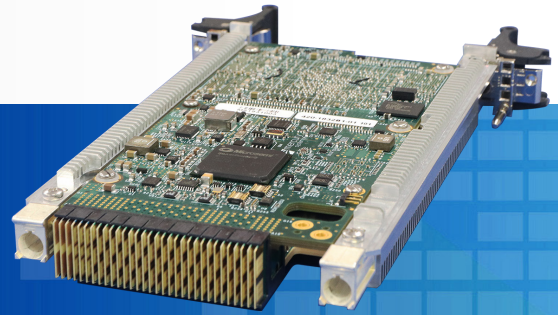*Ensemble**Series*™ **SCFE3821**

OpenVPX™ FPGA processing module

- **Zynq® UltraScale+™ FPGA processing power**
- **Virtex® UltraScale+™ FPGA processing power**
- **Processing subsystem in data path for max performance**
- **OpenVPX™ architecture for easy integration**

Mercury's EnsembleSeries™ SCFE3821 is a versatile Open-VPX FPGA processing module designed for high performance and agile system integration. Incorporating Virtex® and Zynq® Ultrascale+™ FPGA processing power and an open architecture, this advanced module maximizes performance by locating the processing subsystem directly in the data path. With the Virtex® mounted on the mezzanine site, maximum processing power is possible on a small form factor. With multiple cooling options available, the SCFE3821 is ideal for SWaP-focused applications that require high-performance operation in harsh environments.

Advanced FPGA functionality

Mercury's processing modules are built around our EchoCore® FPGA IP, providing basic infrastructure functionality right out of the box, which enables customers to focus on their specific application needs. The reuse of common IP across FPGAs reduces development time, optimizing time to market.

Mercury's application integration is simplified by providing a standard control plane interface using AXI4-Lite control plane connectivity. Mercury uses an AXI4-Stream interface for the data plane, combined with the AXI4-Stream switches, for routing data within the FPGA and to external interfaces, such as PCIe. Customers can select their own tool, 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 in the FPGAs.

Specifications

Physical
Single Slot 3U OpenVPX form factor
OpenVPX interface architecture with ANSI/VITA 65-2010 (R2013)

Backplane Interface
VITA 65.0 SLT-PAY-2F1F2U-14.2.1 slot profile

FPGA processor
One Xilinx Zynq® Ultrascale+™ ZU11EG governor
One Xilinx Virtex® Ultrascale+™ VU7P prosecutor

Memory
8 GB DDR4 (512M x 16)

Other
Vita 46.11 IPMI controller
Sensor interface to monitor temperature, voltage
Power sequencing
Secure JTAG
Manufactured in an AS9100D facility
Advanced FPGA functionality

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   DIGITIZE   PROCESS   STORAGE   EXPLOIT   DISSEMINATE

SCFE3821 functional block diagram

Application Notes

Mercury delivers a full suite of software libraries to facilitate quick customer algorithm development via an application programming interface (API). The product is pre-loaded with diagnostic application software to fully exercise the product capabilities, such as packing and checking of interface links, verifying external memory and monitoring system health. The SCFE3821 Zynq subsystem is loaded with embedded Linux to allow customization of system management and control. A Linux board support package (BSP) as well as a full set of source code is distributed with the product.

Need more help? Need a variant of this product?

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

www.mrcy.com

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