

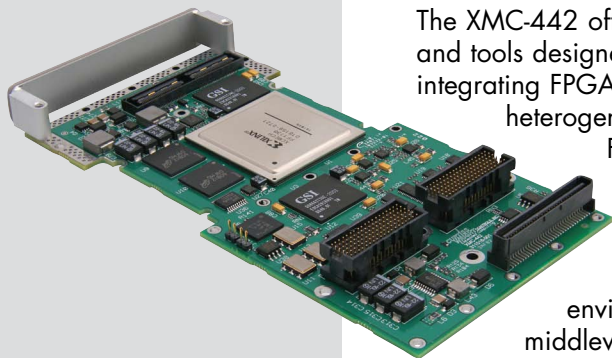


Fact Sheet

XMC-442

Xilinx® Virtex®-5 based XMC FPGA Accelerator Signal Processing Platform

The XMC-442 is an FPGA-based computing platform targeted at demanding, high-performance signal and image processing applications such as radar, sonar, and signal intelligence. The XMC-442 is an XMC daughtercard with a state-of-the-art user programmable Xilinx Virtex-5 FPGA (SX50T or SX95T) with attached memories and off-board discrete and serial I/O. Optimized for either DSP operations on streaming data or algorithm acceleration in an embedded multicomputing application, the XMC-442 provides a high-performance deployable solution on a number of platforms.



The computing power of the Xilinx Virtex-5 FPGA is complemented by a balanced mix of I/O and memory. Attached to the FPGA is one bank of DDR2 SDRAM and two banks of quad data rate QDR-II+ SRAM. Three high-speed serial ports provide a total of 7.5GB/s bandwidth between the FPGA and the bascard and/or the front panel connector. The XMC-442 also offers both front-panel and back-panel LVDS/TTL discrete I/O.

The XMC-442 may be used on a range of basecards including Curtiss-Wright's CHAMP-AV6, VPX6-185 Single Board Computer (SBC), or CHAMP-FX2. The DSP-centric SXT parts on the XMC-442, when combined with the reconfigurable logic heavy LXT parts and general-purpose computation power of the Freescale Power Architecture™ MPC8641 processor on CHAMP-FX2, gives users a powerful computational platform for either single-slot or distributed multi-computing applications. When mounted on a CHAMP-FX2 the XMC-442 offers additional features including direct serial connections to the FPGAs on the FX2 baseboard, runtime reconfiguration or reloading of the configuration PROM, and a control bus, giving the MPC8641 on the CHAMP-FX2 out-of-band access to the FPGA on the XMC-442.

The XMC-442 offers a rich set of system and support software and tools designed specifically to ease the developers' task of integrating FPGA-based processing performance into a larger heterogeneous multicomputer application. The Continuum FXtools package for the XMC-442 provides a set of highly-optimized IP blocks (memory control, serial and LVDS interfaces, etc.), FPGA-specific function libraries (configuration, command bus mappings, etc.) and a scriptable FPGA simulation environment. In addition, the IPC communications middleware package has been extended to directly support transfers between the FPGAs or other PowerPC™-based nodes within the system.



Learn More

Sales Info: sales.cwembedded.com

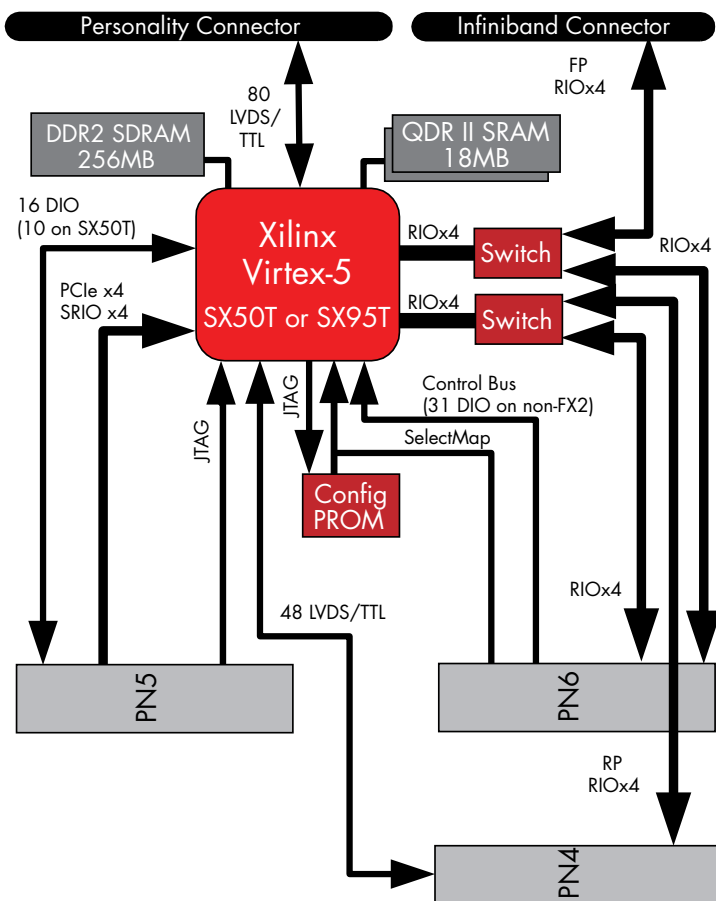
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The XMC-442 is designed to operate in rugged environments and is available in air- and conduction-cooled formats. Innovative cooling techniques are employed to handle high-performance FPGA implementations. Rugged or commercial, the XMC-442 provides the developer with a flexible, high-performance computing platform to complement other FPGA or general purpose processing in today's challenging signal or image processing applications. When combined with the various software packages, the developer can expect significant time-to-market/time-to-deployment improvements due to the high-performance IP blocks, tools, and communications infrastructure.

Figure 1: XMC-442 User FPGA External I/O and Memory Interfaces



Features

- ◆ One user-programmable Xilinx Virtex-5 FPGA (SX50T or SX95T) with:
 - One bank of DDR2 SDRAM (256MB total). Up to 2.2GB/s of bidirectional bandwidth.
 - Two banks of QDR-II+ SRAM (18MB total). Up to 4.4GB/s of bidirectional bandwidth.
 - Three high-speed serial ports with up to 7.5GB/s of bi-directional bandwidth. Two are configurable offering front-panel, rear-panel, or baseboard connectivity.
 - 40 pairs (80 pins) of discrete LVDS or LVTTTL signals from the FPGA to the front panel personality connector.
 - 24 pairs (48 pins) of discrete LVDS or LVTTTL signals from the FPGA to the base board connectors.
- ◆ Thermal sensors for monitoring board temperatures
- ◆ Sensors for monitoring FPGA power consumption
- ◆ Support for ChipScope™ Pro and JTAG processor debug interfaces
- ◆ Continuum FXtools FPGA design kit with highly-optimized VHDL libraries, development environment, reference designs, scriptable SystemVerilog-based simulation test bench, and software libraries
- ◆ Continuum IPC – inter-processor communications middleware available
- ◆ XMC form factor with auxiliary Pn4 and Pn6 connectors
- ◆ Range of air- and conduction-cooled ruggedization levels available