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AD1500 Dual Channel 1.5 GSPS, 8-bit ADC XMC/PMC module with User Programmable Virtex-5 SX95T/LX110T FPGA

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- Dual Channel 1.5 GSPS, 8-bit ADC
- Xilinx Virtex-5 LX110T or SX95T FPGA (user programmable)
- Dual banks of QDR and SDRAM memories
- XMC/PMC Format (including rugged)
- Windows, VxWorks and Linux support

The AD1500 offers market leading performance and processing density in a single XMC/PMC card. This is achieved by combining an analog front end (2 channels at 1.5 GSPS each) and a powerful Xilinx Virtex™-5 FPGA with large banks of memory, allowing both processing and acquisition in a single mezzanine card. The AD1500 is intended as a user programmable FPGA card with an analog input port.

The AD1500 is ideal for DSP applications including: Electronic Counter Measures (ECM), Spectral Analysis and Radar.

A Virtex-5 SXT or LXT FPGA is used to control the analog to digital converter and provides the off-board digital interfaces of PCI-X and the GTP multi-Gbit serial I/O used for the XMC interface. The combination of user programmable FPGA closely coupled to both data I/O sub-systems and multiple banks of fast memory provide a platform for acquiring and processing the data in one board.

An LVPECL trigger input, an LVPECL output, an LVTTL output and the sample clock input are provided on the front panel. This connectivity allows the AD1500 to be operated in a range of modes subject to the user application, including multi-board synchronous sampling. The FPGA is connected to two 9 MB memory banks of QDRII SRAM capable of accepting the incoming data at full speed from the ADC, and two 128 MB banks of DDR2 SDRAM. Although the use of these memories is defined by the application, they can be used to help maximize the FPGA's DSP processing ability and provide large data buffers. FPGA reconfiguration is stored in local FLASH memory. The PCI-X interface can be used to send commands to the FPGA to reconfigure itself from a file stored in this FLASH. Alternatively, a JTAG header is provided for code development under the ChipScope Pro development tool chain. Off board data links are provided through either PCI-X or PCI via the PMC connectors or high-speed, multi-Gbps Virtex-5 RocketIO transceivers using the XMC connectors. There are sixteen full-duplex low-power serial transceivers arranged across two XMC connectors. Each of the sixteen transceivers can operate at up to 3.2 Gbps. A PCI Express end-point controller is available within the FPGA supporting x1, x2, x4 or x8 PCI Express operation.

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