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PMC Virtex-5 FPGA I/O with PowerPC

Acromag's new PMC-VFX modules bring together the computing power of a reconfigurable Virtex-5 FPGA and a PowerPC processor in a single package. The onboard Virtex-5 VFX FPGA has an embedded PowerPC 440 with a 32-bit RISC core to handle the most complex and memory-intensive computing applications.

The module's processing power is supported with plenty of memory. A minimum of 1 Gb of DDR2 memory is directly coupled to the PowerPC block for storage of program code and variables. Additionally, 256K x 64-bit dual-port SRAM is positioned between the FPGA and a 64-bit PCI-X bus capable of 133 MHz data rates. This large data bank optimizes high-speed DMA transfer to and from the bus. The combination of high-performance processors, plentiful memory, and a fast data interface provides a complete system package capable of solving your most demanding embedded processing challenges.

Now you can customize an off-the-shelf PMC module to your requirements using high-performance parallel and serial processing. With a PowerPC on the FPGA, you are able to design system-on-chip functionality with real-time processing capabilities. Offload CPU-intensive operations such as video processing, 3D data processing, and floating-point math for superior system performance. The possibilities are unlimited, but the time and cost savings will keep your project within schedule and budget requirements.

To further simplify development, Acromag's Engineering Design Kit provides utilities to help write custom programs, load VHDL into the FPGA, and establish DMA transfers between the FPGA and CPU. Example VHDL code for all major functions is included.

FEATURES

- User-configurable Xilinx Virtex-5 FPGA with embedded PowerPC
- XC5VFX70T FPGA provides 70K logic cells and 128 DSP48E slices
- FPGA has embedded PowerPC® 440 processor block
- Supports front I/O (via extension modules) and rear I/O (internal)
- Plug-in I/O extension modules available with 16-bit 105 MHz A/D, RS-485 differential, CMOS, or LVDS I/O interface
- 64 I/O lines with direct connection to FPGA via rear J4 connector
- FPGA code loads from PCI bus or flash memory
- Two banks of 256 Kb x 32-bit dual-ported SRAM
- Two banks of 32 Mb x 16-bit DDR2 SDRAM
- Supports dual DMA channel data transfer to CPU/bus
- Supports both 5 V and 3.3 V signaling
- Conduction-cooled or up to -40 °C to +85 °C operating range

For more information, contact: solutions@acromag.com

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