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THE LEADER IN INDUSTRIAL I/O

## PMC-CX1002RE/2002RE Conduction-Cooled Reconfigurable FPGA with Differential I/O

- PMC-CX1002RE: 32 diff. I/O; 11,500 logic cells

- PMC-CX2002RE: 32 diff. I/O; 24,192 logic cells

These modules provide users with the capability to implement complex, customized digital I/O solutions. Application-specific logic routines and algorithms can be downloaded into the on-board reconfigurable FPGA to control operation of the I/O channels.

Both models are ideal for advanced differential RS422/485 I/O functions. Typical uses are hardware simulation, in-circuit diagnostics, and communication processing. Modules are able to generate recipe-based responses to input stimulus and to translate communication protocols.

Powerful and versatile, these PMC modules are designed around a reconfigurable FPGA, the Xilinx® Virtex®-II. Two versions are available with either 12K or 24K logic cells. Both DSP-capable FPGAs feature adaptable logic resources, large on-chip memories, and a high-speed interface. Dual-port memory is provided for DMA. Conduction cooling or standard -40 to 85°C operating temperatures are supported.

The PCI bus interface is handled by a PLX® PCI 9656 device which provides 64-bit 66MHz bus mastering with dual-channel DMA support.

### Features

- 32 bi-directional RS422/485 differential I/O lines

- Rear I/O connection

- Customizable FPGA with 11,500 or 24,192 logic cells (Xilinx Virtex-II XC2V1000 or XC2V2000)

- FPGA code loads from PCI bus or flash memory

- 256K x 36-bit dual ported SRAM memory

- Supports dual DMA channel data transfer to CPU

- Supports both 5V and 3.3V signalling

- Extended temperature operation (-40 to 85°C)
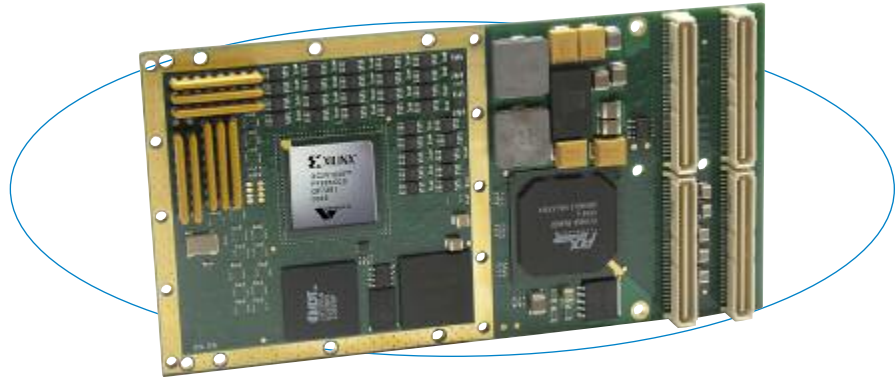
*Download your own logic programs and algorithms into the on-board user-configured FPGA to quickly create a custom digital I/O module.*

## Specifications

### FPGA
FPGA: Xilinx Virtex-II FPGA
  PMC-CX1002RE: XC2V1000 FPGA with 11,500 logic cells
  PMC-CX2002RE: XC2V2000 FPGA with 24,192 logic cells

FPGA configuration: Downloadable via PCI bus or from flash memory.

Input/output signals: 32 differential lines via P4 connector.

Example FPGA program: VHDL provided implements interface to PCI bus IC, interface to SRAM, PLL control, and digital I/O control. Program requires user proficiency with Xilinx software tools. See Engineering Design Kit.

### Digital I/O
I/O channel configuration: 32 bi-directional differential signals. Direction is controlled independently.

Differential driver output voltage with 50 ohm load: 1.5V minimum, 5V maximum.

Common mode output voltage: 3V maximum:

Minimum input resistance: 96k ohms.

Termination resistors: 120 ohm termination resistor networks are installed in sockets.

### Engineering Design Kit
Provides user with basic information required to develop a custom FPGA program. Kit must be ordered with the first purchase of a PMC-CX module. *(see Design Kit for details)*

### PMC Compliance
Conforms to PCI Local Bus Specification, Revision 2.2 and CMC/PMC Specification, P1386.1.

Electrical/Mechanical Interface: Single-Width Module.

64-bit PCI Master: Implemented by PLX PCI 9656 device.

PCI bus clock frequency: 66MHz.

Signaling: 5V and 3.3V compliant.

Interrupts (INTA#): Interrupt A is used to request an interrupt.

### Environmental
Operating temperature: -40 to 85°C

Storage temperature: -55 to 105°C.

Relative humidity: 5 to 95% non-condensing.

Power: Consult factory. Operates from 3.3V supply.

MTBF: MIL-HDBK-217F, Notice 2.
  PMC-CX1002RE: 991,395 hours at 25°C
  PMC-CX2002RE: 994,589 hours at 25°C

## Ordering Information

### PMC FPGA Modules
**PMC-CX1002RE**: Differential I/O with 11,500 logic cells

**PMC-CX2002RE**: Differential I/O with 24,192 logic cells

**PMC-CX-EDK**: Engineering Design Kit (one kit required)

**Software** *(see software documentation for details)*
**PMCSW-API-VXW**: VxWorks® software support package

**PCISW-API-QNX**: QNX® software support package

**PCISW-API-WIN**: Windows® DLL software support

**PCISW-LINUX**: Linux™ support (website download only)

**Accessories** *(see accessories documentation for details)*
**5025-288**: Termination panel, SCSI-3 connector, 68 screw terminals

**5028-432**: Cable, shielded, SCSI-3 connector both ends

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