

PMC571

Rugged Transceiver PMC with Xilinx FPGA and PCI 64/66 Interface

Features

- Single channel software radio rugged transceiver PMC module
- Sample rates up to 105 MHz (ADC), up to 200 MHz (DAC)
- Analog bandwidth 40 MHz
- 14-bit data conversion on ADC and DAC
- PCI 2.2 64-bit, 66 MHz PCI interface
- 64-bit User I/O on P4
- Xilinx XC2V4000 Virtex-II user-programmable FPGA
- Air- and conduction-cooled ruggedization levels
- Extensive application and technical support data available

The PMC571 is a high performance digital transceiver in a rugged PMC format, intended for Software Defined Radio (SDR) applications. It offers wide bandwidth analog-to-digital and digital-to-analog conversion capabilities with 14-bit resolution.

A user-programmable Xilinx Virtex-II FPGA allows signal processing functions such as digital up- and down-conversion, time tagging, FFT and signal modulation/demodulation to be implemented on the module.

Designed specifically for applications where environmental conditions dictate the deployment of hardware platforms capable of surviving wide operational temperatures and high levels of shock, vibration and humidity, the PMC571 combines the best in ADC, DAC and DSP technologies to provide the ultimate advantage in size, performance and cost. Ideal applications for the product include Military Communications, Unmanned Aerial Vehicles (UAVs), Fielded Comms Test Sets, All-Terrain Vehicles, Signal Intelligence, Smart Antenna, Radar Beamforming, Satellite Transceivers and Tactical Radio.

A powerful 4 million gate FPGA provides the platform for application-specific firmware development within a Xilinx Virtex-II environment.

The PMC571 brings to rugged environments the features and functionality offered by software radio technology. The 64-bit, 66 MHz PCI interface ensures compatibility with the latest generation of GE Fanuc's Quad PowerPC® Signal Processor boards in addition to PowerPC-based and Intel®-based single board computers in VMEbus and CompactPCI formats.

Included with the PMC571 is a Hardware Development Kit (HDK) to support users who need to develop FPGA code. Standard functions such as digital down- and up-conversion (DDC, DUC) are available as off-the-shelf items. For customers who do not wish to develop FPGA code themselves, we have an experienced team of FPGA engineers who are able to provide this service.

The PMC571 is supported by software development kits for VxWorks®, Linux® and Windows®. Other operating systems can be supported on request.

When coupled with the enormous processing power provided by the hardware platforms above, the application support, mission-critical long-term support, configuration control and obsolescence management services offered through GE Fanuc Intelligent Platforms; PMC571 gives system integrators a complete tool set for their software radio needs.

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Specifications

Analog Input

- Sample rates up to 105 MHz
- 14-bit ADC resolution
- MMCX coaxial connectors
- 50 ohm input/output impedances
- Input voltage 1.2 volts peak to peak (+5 dBm) into 50 ohms
- Analog bandwidth 40 MHz
- 30 MHz minimum sampling rate (ADC)
- Internal sampling clock 409.6 MHz, with programmable divider
- SINAD [Signal/(Noise+Distortion)] 0 – max. $F_s/2$ > 70 dB
- SFDR [0 – max. $F_s/2$] > 85 dB

Analog Output

- Conversion rates up to 200 MHz
- 1.0 volts peak to peak into 50 ohms
- Analog bandwidth 40 MHz
- < 1 MHz minimum conversion rate
- 14-bit DAC resolution
- Internal fixed frequency with dividers, or external sampling clock
- Internal (software controlled) or external trigger
- MMCX coaxial connectors
- SFDR [0 – max. $F_s/2$] > 63 dB

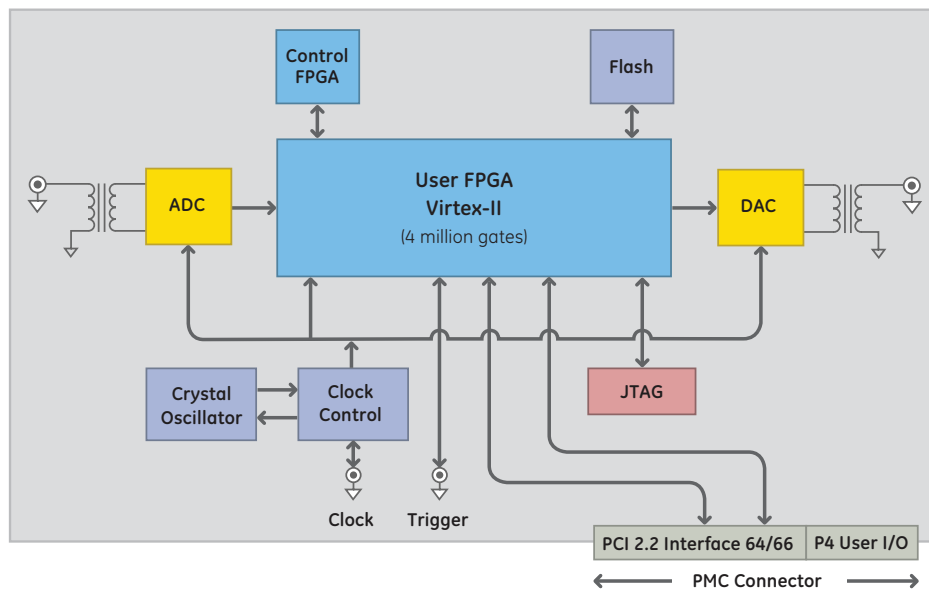
General

- 64-bit/66 MHz, master/target PCI interface
- 64-bit user I/O via PMC P4 connector
- 4 million gate Xilinx FPGA
- Levels 1-3 convection-cooled
- Levels 4-5 conduction-cooled

Software

- Full source code device drivers available for VxWorks and Linux
- Built-in test software
- Custom FPGA coding

Block Diagram



Ordering Information

PMC571-4-X00: PMC571 ADC & DAC module where X is the build level.

- Level 1: 0 °C to +55 °C convection cooled
- Level 2: -20 °C to +65 °C convection cooled
- Level 3: -40 °C to +75 °C convection cooled
- Level 4: -40 °C to +75 °C conduction cooled
- Level 5: -40 °C to +85 °C conduction cooled

Software device drivers are available for Linux and VxWorks real-time operating systems.

DRV-571-VXW: Software development kit for VxWorks

DRV-571-LX: Software development kit for Linux

DRV-571-WIN: Software development kit for Windows

HDK-571: Hardware Development Kit for PMC571, included with board

About GE Fanuc Intelligent Platforms

GE Fanuc Intelligent Platforms is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Intelligent Platforms has the breadth, experience and 24/7 support to deliver what you need. For more information, visit www.gefanuc.com.

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Additional Resources

For more information, please visit the GE Fanuc Intelligent Platforms web site at:

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