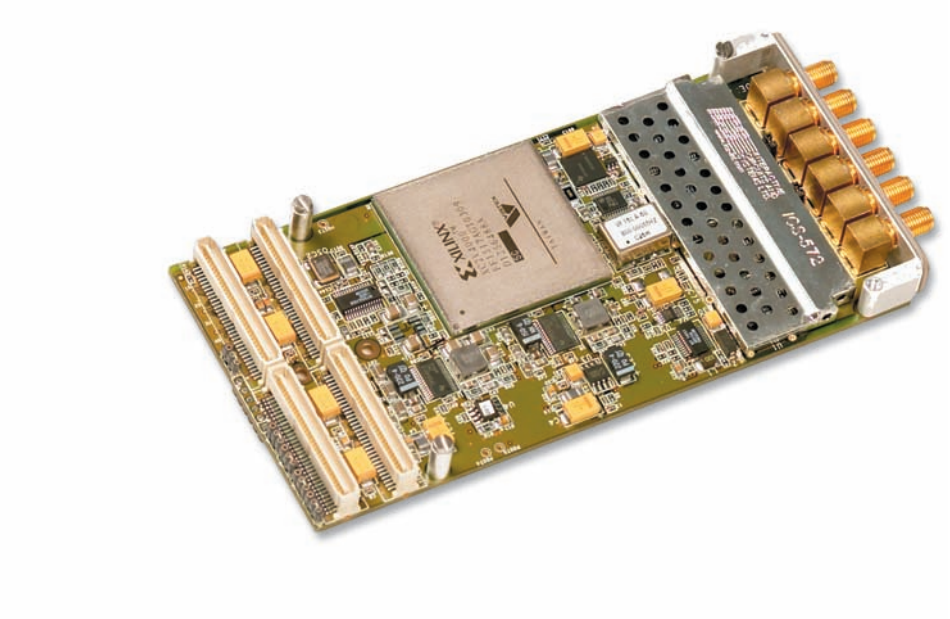
GE Fanuc
Embedded Systems



ICS-572

2-Channel ADC, 2-Channel DAC with Xilinx FPGA, SDRAM, QDR SRAM & PCI 64/66 Interface

Features

- 2-channel Software Radio Transceiver
- Receive and transmit on a single PMC
- Sample rates: ADC 105 MHz; DAC 200 MHz
- 14-bit ADC and DAC technologies
- 4 or 6 million gate Xilinx FPGA
- Pn4 user I/O PMC interface
- Full 64-bit, 66 MHz PCI DMA interface
- Windows , Linux and VxWorks software device drivers
- Optional configurations
- Extensive application and technical support available

Providing both receive and transmit capability for demanding communications, signal intelligence, public safety, arbitrary waveform generation, radar and test & measurement applications, the ICS-572 PMC module combines industry-leading ADC, DAC and DSP technologies with a high density, high-speed FPGA to offer an efficient combination of cost, size and performance in a single PMC site.

The ICS-572 PMC includes two 14-bit ADCs that sample synchronously at frequencies up to 105 MHz and two 14-bit DACs that sample synchronously at frequencies up to 200 MHz. Each DAC includes quadrature digital upconverter for programmable complex modulation of a baseband signal. Up to two signals can be transmitted simultaneously. The ICS-572 has an onboard 4 or 6 million gate Xilinx Virtex-II user programmable FPGA that is used for baseband processing. The ICS-572 also offers a large amount of onboard data storage (64 MBytes of SDRAM and 16 MBytes of QDR SRAM) and a fast PCI 2.2 64-bit, 66 MHz DMA interface. The clock generator that generates the ADC and DAC sampling clocks, may be synchronized and phase locked to an external reference.

The ICS-572 can be used with any type of carrier card that will accept a PMC module, including VME, PCI and cPCI. When used with an appropriate DSP / processor carrier card, the ICS-572 offers a very powerful single-slot transceiver solution for a variety of Software Defined Radio applications.

Available with two FPGA size options and several different software support options (Linux, Windows and VxWorks), the ICS-572 PMC is ideally suited to high bandwidth applications that require both receive and transmit functions in a single small footprint. GE Fanuc Embedded Systems also includes a Hardware Development Kit (HDK) to support customers who wish to develop their own firmware for user FPGA along with a custom core development service for those customers not wishing to perform in-house FPGA development.

GE FANUC

2-Channel ADC, 2-Channel DAC with Xilinx FPGA, SDRAM, QDR SRAM & PCI 64/66 Interface

Specifications

Analog Input

- Two analog transformer-coupled input channels
- Full scale input 1.2 Vpp (+5.5 dBm)
- Input transformer bandwidth:
  - 2 MHz to 775 MHz (- 3 dB point)
  - 6 MHz to 250 MHz (- 1 dB point)
- 105 MHz/ch (simultaneous) maximum ADC sampling rate (Fs)
- 30 MHz/ch (simultaneous) minimum ADC sampling rate (Fs)
- 14-bit ADC resolution
- >80 dBFs spurious free dynamic range
- >80 dB crosstalk/isolation
- >72 dB signal-to-noise ratio @ 105 MHz sampling rate (Fs)

Analog Output

- 2 analog transformer-coupled output channels
- Typical output power -12 dBm into 50 Ohms
- Output transformer bandwidth:
  - 0.3 MHz to 300 MHz (- 3 dB point)
  - 0.5 MHz to 90 MHz (- 1 dB point)
- 204.8 MHz/ch (simultaneous) maximum DAC conversion rate
- 2 MHz/ch (simultaneous) minimum DAC conversion rate
- 14 bits DAC resolution
- Spurious free dynamic range:
  - > 63 dBFs @ 20 MHz output
  - > 60 dBFs @ 80 MHz output
- >80 dB crosstalk/isolation

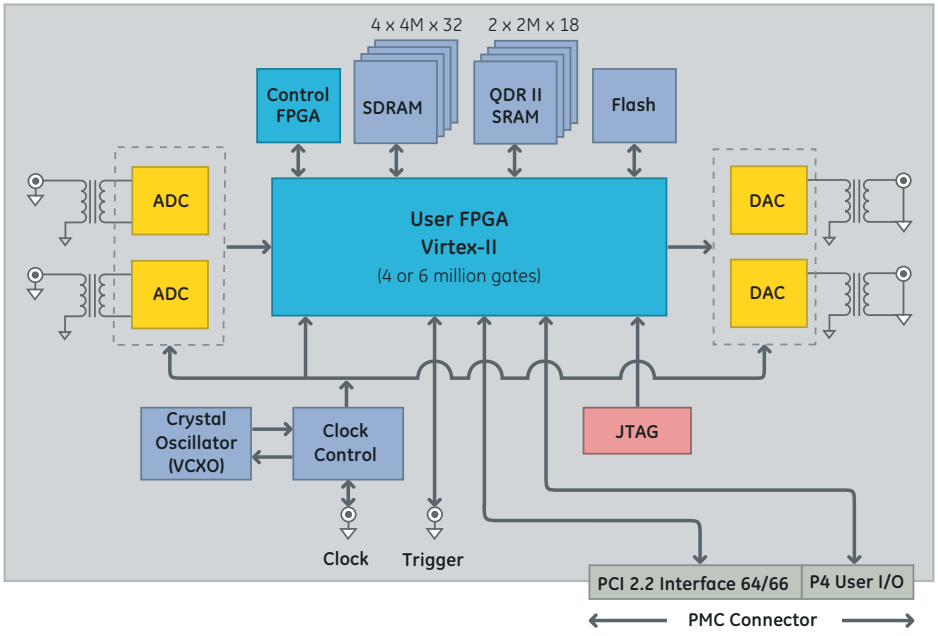
Common Features

- SMA coaxial connectors
- 50 Ohm input/output impedance
- 64 MBytes SDRAM, 8 MBytes QDR-II SRAM onboard storage
- 4 or 6 million gate user programmable FPGA
- > 70 dB for all combinations of channels ADC/DAC crosstalk/isolation
- PCI Mezzanine Card compatible with IEEE P1386.1
- PCI 2.2 64-bit, 66 MHz PCI bus interface
- 64 user programmable I/O via Pn4 connector

General

- 0 to +50 C° operating temperature
- -40 to +85 C° storage temperature
- 95% non-condensing humidity
- ~ 200 linear feet per minute (lfpm) cooling
- Current draw: (i- 1.0 A @ +5 V) (ii- 2.0 A @ +3.3 V)

Block Diagram



Order Information

ICS-572E-x-y

2-channel, 14-bit, 105 MHz ADC, 2-channel, 14-bit, 200 MHz DAC transceiver board with Xilinx FPGA, 64 MBytes SDRAM & 8 MBytes QDR SRAM. Hardware Development Kit (HDK) included.

x:	4 or 6 million gate Xilinx FPGA
y:	ADC receiver board or DAC transmitter board
HDK-572E	Hardware Development Kit. Included for user programming of Xilinx FPGA
DRV-572-WIN	Full source code for Windows device driver
DRV-572-VXW	Full source code for VxWorks device driver
DRV-572-LX	Full source code for Linux device driver
DRV-572-SCA	SCA compliant driver
LIB-572-ML	Matlab Application Library (for Windows device drivers)
Custom FPGA Coding	Contact factory for details

About GE Fanuc Embedded Systems

GE Fanuc Embedded Systems 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 Embedded Systems has the breadth, experience and 24/7 support to deliver what you need. For more information, visit www.gefanucembedded.com.

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Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

www.gefanucembedded.com