

ICS-8561

Rugged PMC Module Provides 400 MSPS DACs and Virtex-4 Processing Power

Features

- 2 AC-coupled analog outputs, 16-bit resolution
- $F_s \leq 200\text{MHz}$ (Single Data Rate mode), $F_s \leq 400\text{MHz}$ (Double Data Rate mode)
- Xilinx Virtex-4 FX60
- Hardware Development Kit included
- 8-connector Samtec GRF1-J connector (Ruggedization Levels 1 - 3)
- 8 individual MMCX connectors (Ruggedization Levels 4 & 5); optional for Levels 1 - 3
- VxWorks, Linux and Windows software drivers
- Phase synchronized analog outputs

The ICS-8561 is a PMC form factor digital transmitter module intended for Software Defined Radio applications such as communications and radar in benign and hostile environments.

The combination of high performance FPGA and DAC resources allows VHF signals to be processed and converted directly on the PMC module. Algorithms such as digital up-conversion, waveform generation and interpolation can be developed for implementation in the Virtex-4 FPGA, using the included Hardware Development Kit (HDK). The module is available in five levels of ruggedization, three for air-cooled environments and two for conduction-cooled environments. Details of the environmental specifications are available from our web site.

The ICS-8561 HDK includes a default logic core, designed to provide minimum occupancy of the FPGA, include buffering from

the data input interfaces and a D/A interface, and provide a basis for customers to program their own functionality. Input data is provided by the PCI bus. The default HDK logic supports burst and continuous modes of operation as well as a test waveform generator.

The 64/66 PCI interface provides control of the module and can also be used for data transfer at sustained data rates in excess of 400 MBytes/s. The actual data rate that can be achieved will be dependent on system implementation. The Pn4 User I/O port allows the user to define direct point-to-point connections to the FPGA, eliminating interrupt latencies.

Optional front panel connectors include an 8-plug Samtec GRF1-J connector (for ruggedization levels 1, 2 and 3), or 8 individual MMCX connectors (for ruggedization levels 4 & 5), also available for levels 1 - 3.



ICS-8561 – Rugged PMC Module Provides 400 MSPS DACs and Virtex-4 Processing Power

Specifications

Analog Output

- Two AC-coupled analog outputs, 16-bit, 400 MHz
- 8-plug Samtec GRF1-J connector (Levels 1 – 3)
- 8 individual MMCX connectors (Levels 4 & 5)
- Max. conversion rate 400 MSPS
- 50 Ohm output impedance
- Internal sampling clock 409.6 MHz VCXO with dividers
- Ext. clock LVTTTL or sine wave 0dBm min., 20dBm max., ≤ 400 MHz
- Ext. trigger LVCMOS, rising or falling edge
- SFDR 75dB typ. @ f_{OUT} = 20 MHz, f_{DAC} = 400 MHz
- THD -92 dB typ. @ f_{OUT} = 1 MHz, f_{DAC} = 400 MHz
- Cross-talk <-80dB

General Specifications

- 8 lanes; four PMC connectors included (Pn1 – Pn4)
- ANSI/VITA 20-2001 conduction-cooled PMC

Onboard Resources

- Xilinx Virtex-4 FPGA (XC4VFX60)

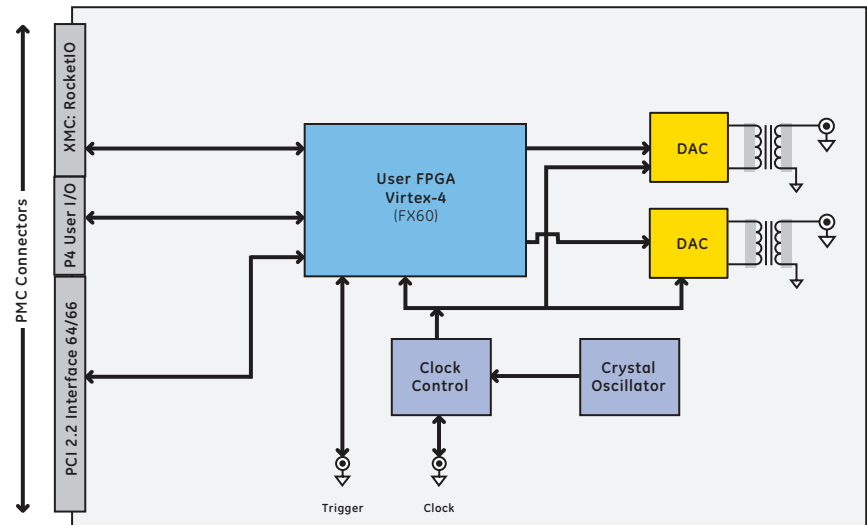
I/O Specifications

- PCI 2.2 64-bit, 66 MHz PCI bus interface, universal signaling
- 32 user configurable LVDS I/O pairs directly connect P4 to FPGA

Environmental

- Five build levels available. Air and conduction cooled versions
- -40 to +85°C operating temperature
- 95% non-condensing humidity

Block Diagram



Ordering Information

ICS-8561A-X02	ICS-8561 with Virtex-4 FX60 FPGA
DRV-8561-VXW	Software device driver for VxWorks operating system
DRV-8561-LX	Software device driver for Linux operating system
DRV-8561-WIN	Software device driver for Windows operating system

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

GE Intelligent Platforms Contact Information

Americas: **1 800 433 2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at www.ge-ip.com/contact

www.ge-ip.com/sensorprocessing

