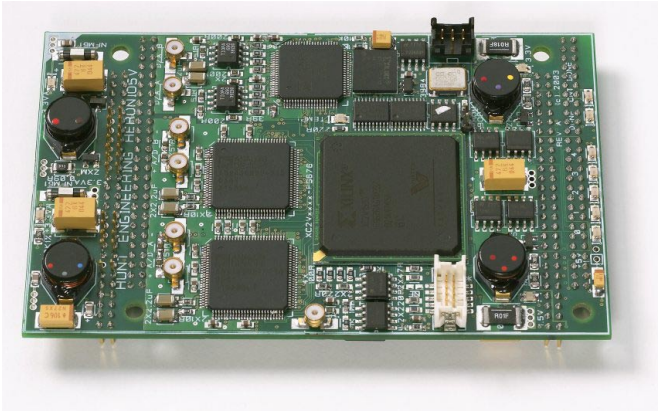
HUNT ENGINEERING
Chestnut Court, Burton Row,
Brent Knoll, Somerset, TA9 4BP, UK
Tel: (+44) (0)1278 760188,
Fax: (+44) (0)1278 760199,
Email: sales@hunteng.co.uk
http://www.hunteng.co.uk
http://www.hunt-dsp.com

'one of the many tools we have to help us build your system solution'



HERON-IO5 FPGA module with 2 channels of 12bit 210Mhz A/D and 2 channels of 16bit 160Mhz D/A

- **HERON-IO5V has Xilinx Virtex II FPGA with 1.5 or 3M gates**
- **FPGA configuration downloaded using the HERON Serial Bus.**
- **Choice of clocking options**
- **Two 210MSPS 12 bit A/Ds connected to the FPGA**
- **Two 160MSPS 16 bit D/As connected to the FPGA**
- **High analog signal bandwidth of 450Mhz in and 200Mhz out.**
- **8 uncommitted digital I/Os**
- **Connects to all of the HERON FIFOs, UMI and module ID signals**

The HERON-IO5 provides a user programmable FPGA along with fast Analog Inputs and outputs for a HERON system. The FPGA controls the sampling of the A/Ds and D/As. The incoming digitised data is then fed to the FPGA where it can be processed, buffered or simply written to a HERON FIFO for use in the rest of the system. The outgoing digitised data is then fed from the FPGA where it can be processed, buffered or simply read from a HERON FIFO.

Using the HERON serial bus allows the FPGA to be configured with a standard module configuration, or a custom one provided by the user or HUNT ENGINEERING. After configuration the module can accept user messages over the HERON serial bus, allowing registers etc to be programmed. If a more significant programming change is required a complete new FPGA configuration can be downloaded. The FLASH based configuration PROM can load the configuration data into the FPGA when it is used in an embedded system This PROM can be programmed using the standard JTAG cable available from Xilinx (such as Xilinx Parallel cable 4 or USB-JTAG cable).

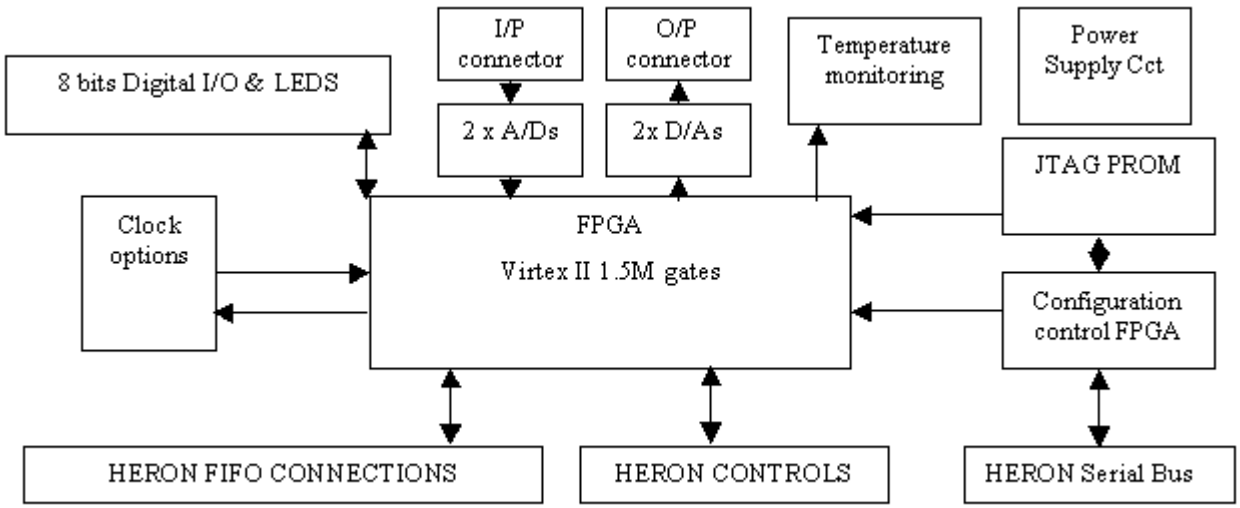
The Digital I/O has a number of voltage formats such as LVTTL or LVCMOS defined by the configuration downloaded to the FPGA.

The HERON-IO5 can access HERON-FIFOs at a rate of 32 bits per FIFO clock in AND 32 bits per FIFO clock out concurrently. For example with a FIFO clock of 100Mhz this is 400Mbytes/sec in AND 400Mbytes/sec out.

The use of a Virtex II XC2V*fg676-6 part allows clock rates of up to 365Mhz, and also provides hard coded multipliers and extended I/O formats such as Low Voltage Differential Signalling (LVDS)
NOTE VIRTEX II I/Os are not 5v tolerant!

"Find your system solution at www.hunteng.co.uk"

Block diagram



Technical Specification

Processor:
Virtex II

Memory:
None external to FPGA

Host Bus:
HERON

Maximum Dimensions:
4.0 inches x 2.5inches x 6.5mm high.

Power requirements:
5V dependent on FPGA configuration
12V Max: 500 mA
Typ: 300 mA

FPGA Power Consumption/Dissipation
Max Bare FPGA package dissipation: 2.8W

From 5V supply :
FPGA PSU power can source 18.39W for Virtex II
Rest of logic uses 7.25W

Clocking Speed:
A/Ds 40Mhz to 210Mhz
D/As 0hz to 160Mhz
FPGA max: dependent on your FPGA design

I/O bandwidth:
e.g. HEPC9 400Mb/s in + 400Mb/s out

Analog I/P specifications
Channels
2 in with common or independent clocking
Connectors
Two connectors per channel: microminiature 50 Ohm coaxial, Radiall MMT
Standard Input characteristics:
A/C coupled 50R, signal B/W from 200Hz to 450Mhz
Zero input noise typically 3 levels maximum 8 levels
Offset typically +-3 levels maximum +-8 levels
(differential input mode)
Input voltage +/-0.768mV
Optional Input types:
A/C
A/C coupled, with 50R on each input to ground as standard, but choose I/P impedance from 50R to 1.7K
D/C
D/C coupled choose I/P impedance between differential inputs from 50R to 1.7K, Signal B/W 0hz to 450Mhz but each input must not exceed the range 0v to +3.3V (of this module). This means a 2.8V DC offset is required.
Zero input noise typically 3 levels maximum 10 levels
Offset typically +-8 levels maximum +-16 levels
in differential input mode

Analog O/P specifications
Channels
2 with common clocking. These converters are configurable over a serial bus to give functions including interpolation and modulation
Connectors
One connector per channel: microminiature 50 Ohm coaxial, Radiall MMT
Standard Output characteristics:
Output voltage +/-0.374V
A/C coupled 50R, signal B/W from 750Hz to 200Mhz
Optional Output types:
D/C – 50R, signal B/W 0 – 200Mhz

Ordering Information

HERON-IO5V1500
Version with 1.5M gate
Virtex II FPGA
HERON-IO5V3000
Version with 3M gate
Virtex-II FPGA

Distributor details: