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FPGA, SDR and Data Acquisition News from KCL

A number of FPGA related products have recently been announced including C Libraries, SDR RF Transceivers, Altera Cyclone IV boards and 400Msample per second data capture card.

- [PROCSparkIV - Cyclone IV PCIe x 4 computation accelerator](#)
- [X6-400M - Virtex 4 XMC module with 2x400 MSPS ADCs and DACs](#)
- [RADIO420X - Multi-mode SDR RF Transceiver, 300MHz to 3GHz](#)
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PROCSparkIV - Cyclone IV PCIe x 4 computation accelerator

The PROCSparkIV™ is targeted for low cost high volume applications. It offers high performance PCIe x 4 lanes interface with Cyclone IV 40 or 115, 512MB DDR II on board and 4GB DDR II on SODIMM as well as optional PSDB daughter boards as standard in all GiDEL platform.

The ProcSparkIV™ system is an FPGA-based platform founded on Altera's next-generation Cyclone IV devices. Powerful FPGA devices conjoined with GiDEL's innovative architecture and IPs, at an unprecedented cost-performance, makes the ProcSparkIV ideal for OEM production requirements. The board's unique architecture is comprised of large multi-level memories, flexible and massive connectivity and a variety of daughter board interface possibilities (SDI, DVI, Camera Link, HDMI, user proprietary, etc.) enabling the user to build complex designs and seamlessly integrate with peripheral I/Os. Abundant memory (512MB on-board + 4GB SODIMM) coupled with fast 4-Lane PCIe connection enable strong coprocessing between a standard PC operating system and the FPGA acceleration.



[More Information](#) ▶

X6-400M - Virtex 4 XMC module with 2x400 MSPS ADCs and DACs

The X6-400M provides dual 400MSPS, 14-bit ADCs and 500 MSPS 16-bit DACs combined with the latest Virtex 6 FPGA and 6GB DRAM on an XMC module for high end SDR, RADAR and medical imaging. Complete chassis embedded PC solutions and XMC carriers are also available to support PCI-Express 64-bit PCI and Compact PCI based systems.



[More Information](#) ▶

RADIO420X - Multi-mode SDR RF Transceiver, 300MHz to 3GHz

The Radio420X FPGA mezzanine card (FMC) is a powerful multimode SDR RF transceiver module designed around the state-of-the-art, multistandard, multiband Lime Microsystems LMS6002D RF transceiver IC, which supports broadband coverage, as well as TDD and FDD full duplex modes of operation.

The product provides SISO, dual band and 2x2 MIMO RF Transceiver for RF frequencies between 300MHz and 3GHz with selectable bandwidths between 1.5 and 28MHz.

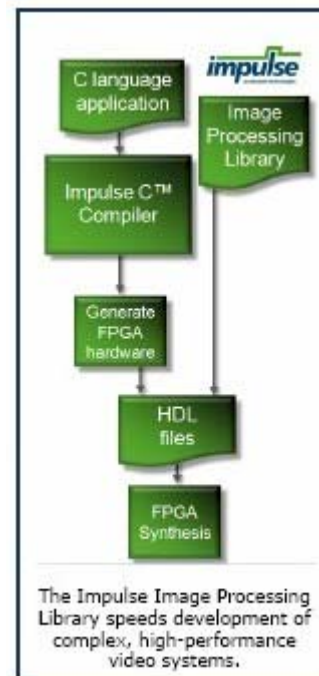
The Radio420X is also completely integrated to the Lyrtech μ TCA Perseus AMCs, but it can as easily be used on any FMC carrier on the market. It is compatible with low-pin-count (one RF transceiver) RADIO420S and high-pin-count (two RF transceivers) FMC interfaces RADIO420M.



[More Information](#) ►

Impulse C FPGA Image Processing Library

The Impulse C™ Image Processing Library accelerates your image processing development and reduces project risk. Library components are provided with standard C-language function prototypes allowing them to be easily connected together, and combined with other C code, to create complex image processing systems. These C-callable functions and C-language processes represent optimized image processing filters that are instantiated, through the use of synthesis and place-and-route tools, in the target FPGA.



[More Information](#) ►

Impulse C FPGA Fast Fourier Transfer (FFT) reference design

The Impulse Fast Fourier Transform (FFT) reference design uses two Radix 4 butterflies, pipelining and special indexing for eight way memory bank access to double the throughput over a simpler single Radix 4 algorithm. You can use this starter code and add elements of your own processing logic, in-line, in the actual transform. This can speed up your scaling process and equip you to try multiple iterations involving coefficient changes and in determining optimal configurations much more quickly. The example also allows you to customize the module and optimize data or coefficient sizes to control for precision or resource usage. Finally, you can change the datapath to efficiently implement functionality and create real FFTs, 2-dimensional FFTs or perform autocorrelation. Impulse



software users report they can iterate programming cycles
80% faster as compared to Verilog.

More Information ▶

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