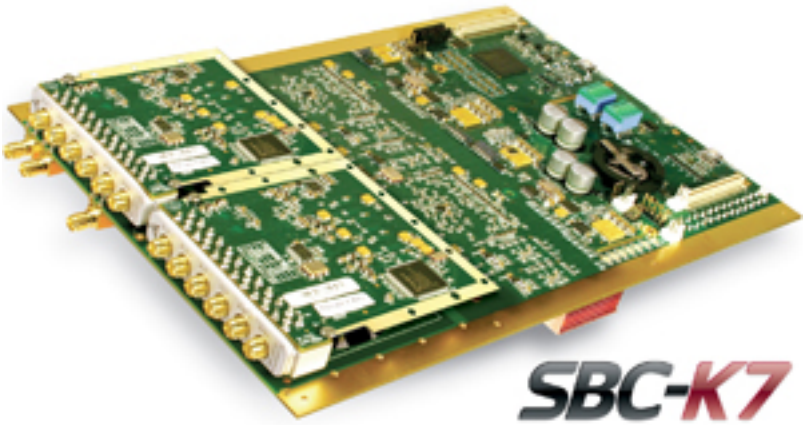
Type-6 COM Express module provides full PC software and hardware compatibility



Innovative Integration announces the new SBC-K7. SBC-K7 is an ideal platform for embedded instrumentation that combines an Atom or i7 PC running Windows/Linux/VxWorks with a Xilinx Kintex7 FPGA plus dual, industry-compliant FMC (FPGA mezzanine card) I/O sites. The SBC-K7 incorporates a Type-6 COM Express module which provides full PC software and hardware compatibility.

Available variants support Intel dual-core Atom (consuming just 6W) or quad-core i7 processors (45W) and up to 16 GB DDR3 ram. Gigabit ethernet, USB, SATA, DisplayPort, touchscreen LCD, RS232/485, ultra low-jitter programmable sample clock generation and PCI Express connectivity are standard. The FPGA computing core features the Xilinx Kintex 7 FPGA family, from K325T to K410T. The K410T provides 1540 DSP MAC elements operating at up to 500 MHz and 400K logic cells. The FPGA core has two LPDDR2 DRAM memory banks providing 512MB x 16bit and 1024 MB x 32 bit, respectively.

Two FMC I/O sites are provided. HPC (high-pin count) -compatible site 0 features 80 LVDS pairs connected to the FPGA, plus clocks, controls, and eight lanes of PCIe gen2 connectivity. LPC (low-pin count) -compatible site 1 provides eight, gen2 PCIe lanes, 22 HB and 34 LB differential pairs pins – perfect for connection to custom-designed user hardware. Innovative offers an expanding line of FMC analog and digital I/O modules which can be readily customized to meet customer requirements. Timing features include clock and trigger I/O for multi-card

synchronization. GPS, IEEE 1588 PTP and IRIG-B timing references are integrated with on-card timing features for system-level timing coordination.

For system communications the SBC-K7 includes dual 1Gb Ethernet, two USB3 and two USB2 ports. The Ethernet and USB ports provide instant connectivity to host PCs and networks. A USB client port also allows operation as a USB device. 10 Gb communications are available via optional FMC modules. The 10Gb Ethernet port connects directly to the FPGA, providing sustained “wire speed” rates of ~1GB/s over a fiber optic connection. The SBC-K7 is rugged and low power. Power consumption is <30W (K325T FPGA) excluding FMC and operates from a 9-32V input. Air and conduction-cooled versions are available rated for -40 to +85C, with up to 5 g vibration.

The FPGA logic can be fully customized using VHDL/Verilog or Matlab using the the Frame Work Logic toolset. Real-time hardware-in-the-loop development using the graphical Simulink block diagrams is supported. IP cores for signal processing applications such down-conversion, demodulation and FFT are also available. Software tools for host development include C++ libraries and drivers for Windows and Linux. Application examples demonstrate card use and features.

Interconnect Systems, Inc: http://www.isipkg.com [1]. To learn more, visit www.innovative-dsp.com [2].

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