



Light up the Virtex-4 FX's PowerPC™ Cores

After announcing PowerPC™ support for the Virtex-II/pro family last October, Sundance has now established a communication link between the PowerPC™ RISC processor cores in Virtex-4 FX FPGAs, and multiprocessor systems.

Up to two IBM PowerPC 405s can be used for custom hardware acceleration and co-processing thanks to Xilinx EDK and the SMT6400 support package.

Real Time Operating System (RTOS) for the built-in PowerPC core will be based on 3L Diamond Embedded. The PowerPC tasks will be then able to communicate directly to FPGA hardware and DSP software tasks.

The SMT362 with its mixed parallel architecture based on dual C6455 DSPs and a Virtex-4 FPGA can be used to terminate IP-based protocol such as TCP or UDP thanks to the cutting-edge Gigabit Ethernet MAC system built-into the Virtex-4 FX60 FPGA.

More Details

Zoom in on the Fast Host Interfaces

The steady proliferation of PCI Express and Gigabit Ethernet, with their fast point-to-point serial lanes will, in the future, make scalable image processing possible on a rack PC like an SMTPC3. For the time being however, the performance solutions are driven by the de-facto standard parallel bus of Peripheral Component Interface (PCI).

The latest host motherboards do still feature the PCI bus and the performance from the more advanced 64-bit/66MHz bus of the SMT145 module carrier offers a bus bandwidth of over 500MB/s between our FPGA and DSP processing modules and the host PC. This includes all our new Virtex-5 FX modules that will be introduced later this year as well as the current Virtex-4 FX and Virtex-II Pro modules.

Maximum data transfer speed to the host PC is required for the fast transfers found in multimedia systems. Optimised applications can be developed with the SMT339 populated with the TMS320DM642 DSP and the XC4VFX60 FPGA.

The combination of this 64-bit PCI-X carrier and the SMT339 module is ideally suitable to achieve a real-time H.264/AVC encoding solution (reference design architecture by XILINX). Applications compiled with 3L Diamond can be held in and booted from the SMT339's FLASH ROM to get a full standalone or embedded system.

More Details

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- SMT145 - PCI-64 Carrier
SMT339 - DM642 + FX60
SMT362 - C6455s + FX60
SMT368 - SX35
SMT391 - Giga ADC
SMT381 - Giga DAC
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64-bit/66MHz PCI-X with SMT339 Advanced Vision

I/Q Recording and Digitization Systems for Radio applications



SMT8191: 64-bit PCI-X with SMT391-SX35



SMT8181: 64-bit PCI-X with SMT381-SX35

High-speed data acquisition, conversion and processing with modular COTS solutions find a wide range of applications in Software Defined Radio, Medical imaging, RADAR and advanced semiconductor research...

With twin 8-bit ADCs sampling at up to 1GSPS per channel, the SMT391 is a perfect fit for IQ modulation algorithms. Better still, the SMT391 becomes a single 8-bit ADC channel sampling at 2GSPS when the ADCs are programmed to work in their interleaving mode.

The SMT381 is the ideal complement to the SMT391 with its dual 14-bit DAC channels outputting data at up to 1GSPS each.

Each analogue daughter board can be fitted onto an SMT368 FPGA module via the Sundance LVDS Bus (SLB) connector. Then, the data recovery and processing can take place in the Xilinx Virtex-4 SX35 FPGAs. The architecture of the FPGA is tailored to implement ultra-high performance signal processing, as featured for example in the Sundance 1024, 2048 or 4096-point custom FFT cores.

The cPCI/PXI carrier boards - SMT300 and SMT300Q - can integrate these modules in instrumentation racks to provide portable and standalone RF spectrum analyser and frequency synthesizer solutions.

More Details

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