Sundance Multiprocessor Technology

embedded signal processing solutions

SUNDANCE

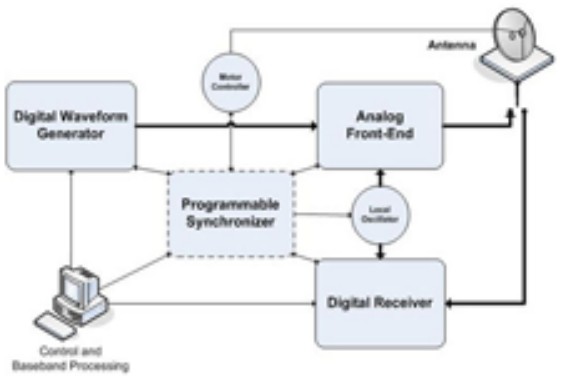
Government, Aerospace & Military

- ELINT
- UAVs
- RADAR

Edition: February 2010

Application's corner

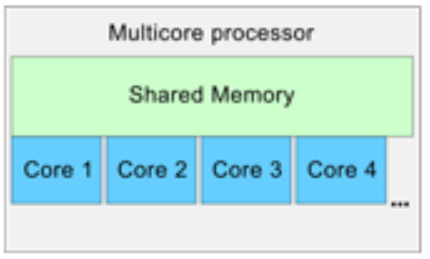
Software Defined RADAR



Software defined radar (SDR) platforms can adaptively switch between different modes of operation by modifying both transmit waveforms and receive signal-processing tasks in real time. Key components of such architectures are high-speed A/D and D/A modules along with FPGA devices and fast digital signal processors allow for maximum flexibility in algorithm design. The **ElectroScience Laboratory** has successfully designed a multicore and hyrid multiprocessor architecture allowing them to explore the performance of multi-channel radar modes such as **multiple-input multiple-output (MIMO) radar and polarimetric radar** by analysing parallel coherent transmit and receive channels. The system is based on octal 1GHz C6416T DSP processors, Virtex-4 FPGA devices and multi-channel wide-band ADCs and DACs in order to obtain a 500MHz or greater waveform bandwidth with a tunable RF front-end operating from 1 to 18GHz.
More information

EVP6472: Multicore and Multiprocessor Evaluation Platform

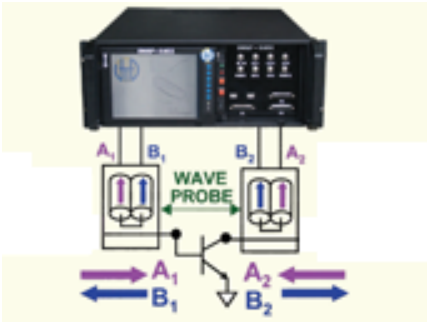
Is Multicore a technological dead-end?



Multicore systems are defined as single-chip computers containing two or more processing cores each connected to a common shared memory. These devices and multicore-based architectures are announced as the ultimate solution to the performance problems faced by embedded systems. However, design engineers may feel reluctant to jump into this new technology since at this early stage the lack of efficient software programming methodology and tools is still present. In order to evaluated the multicore architecture, we have released the EVP6472 evaluation platform, which features **two C6472 Multicore DSPs** *(each DSP has six C64x+ cores running at 500MHz)*, 512MB of **DDR2 SDRAM**, and a **Virtex-5 FX30T FPGA** with embedded **PowerPC 440 core**. It is bundled with a 60-day evaluation version of the 3L Diamond Multicore software design tool. Parallel processes and strategies will be then possible by designing simple processing components that communicate efficiently and program them using straightforward, sequential techniques based on communicating programs. The full version of **3L Diamond Multicore** will be released from 2Q 2010. *Contact your Sundance sales office for more information.*

Spotlight: Success story from VTD

Characterizing Microwave Power Transistors



VTD have successfully launched **SWAP-X402**: an advanced instrument for the time domain load-pull characterization of microwave transistors (see: introduction to measurements for power transistor characterization). **SWAP-X402** measures the time domain waveforms of voltages and currents at the transistor terminals under realistic operating conditions. The additional time domain data result in an unprecedented insight in transistor behaviour and are needed for validating large signal models, designing amplifiers, studying reliability... **SWAP-X402** features a **4-channel sampler-based receiver capable of L band and S band time domain**. One of the key component of **SWAP-X402** is the Sundance high-speed, multi-channel data acquisition system with Virtex-5 FPGA accelerator guaranty VTD the performance they were looking for. VTD have now decided to commercialise their current and future test and measurement instruments based on the Sundance technology.