

## Power Efficient DSP Devices



Xilinx added Spartan-3A DSP devices to its XtremeDSP portfolio of products for signal processing applications. The Spartan-3A DSP low power (LP) devices are said to provide a 50 percent static power savings, and a 70 percent savings while in suspend mode, compared to the standard devices and are available in industrial rated grades. The lower power complements the dynamic power advantage inherent in the Spartan-DSP series due to the integration of dedicated DSP circuitry. DSP power efficiency refers to the amount of power consumed performing signal processing calculations. DSP power efficiency measurements can be applied to systems, function, building blocks and common operations. The Spartan-3A DSP LP devices deliver 4.06 GMACs per mW at a speed of 250 MHz in the lowest cost speed grade when analyzing the common multiply-and-accumulate operation. The XtremeDSP DSP48A slices that make up the dedicated DSP circuitry include dedicated  $18 \times 18$  multipliers along with 18-bit pre-adder and 48-bit post-adder/accumulator to deliver superior performance of DSP functions at a low cost. Power efficiency can also be derived from the static power management suspend mode feature in the Spartan-3A DSP FPGA platform, which reduces FPGA power consumption while retaining the FPGA's configuration data and maintaining the application state. This means devices can quickly enter and exit suspend mode as required in an application. The devices can be used in applications such as ultra portable ultrasound equipment, where digital beamforming is a key DSP application and channel counts vary from 16 to 128 depending on system requirements. The suspend mode capabilities of the Spartan-3A DSP FPGA platform also helps to extend battery life in these applications.

Xilinx

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