16-bit Digital Signal Processor

Analog Devices announced the availability of the ADSP-2192, a 16-bit digital signal processor (DSP). Designed specifically for multi-channel applications such as voice/fax/data over Internet, multi-mode modems and data acquisition cards, the ADSP-2192 delivers 320 MIPS with up to 26 toll-quality channels of voice over network (VoN) and six channels of V.90 modem. The monolithic IC features a programmable, 16-bit fixed point architecture and is the first product based on ADI's 219X reusable core that speeds development of application-optimized products. The 219X family is a code-compatible extension of ADI's popular ADSP-218X.

The ADSP-2192 consists of two DSP cores for processing multiple channels of voice, fax and modem data using less board space than other single-core models and requiring less power per channel. It integrates 132K words of on-chip random access memory (RAM) including 4K words of shared RAM. The shared memory facilitates performance and flexible inter-processor communication. The high level of memory integration along with the shared memory simplifies programming and eliminates bottlenecks that occur with off-chip data access.

Each core is independent, containing a powerful program sequencer that controls the flow of instruction execution. As a result, any two instructions can be executed in every clock cycle&#151this serves to maximize performance and program flexibility. The ADSP2192 also delivers increased processing power through a fully transparent instruction cache that allows simultaneous mathematical operations to be performed in every instruction cycle. Multiple operations performed in parallel complete tasks faster, in fewer clock cycles. Finally, the device can connect directly to peripheral component interconnect (PCI), universal serial bus (USB) and AC'97 system devices. This is the first DSP with PCI and USB interfaces.

ADI is currently developing a complete family of single and multi-core ADSP-219x code compatible DSPs, addressing applications spanning low power 2-way pagers to high-density multi-channel voice/data over network, remote access servers and high speed IP gateways. For example, a future 219x DSP will include three serial ports and two serial peripheral interface (SPI) compatible ports, a UART and host port interface (HPI). The road map for this highly-integrated, general-purpose product will span from low-voltage, power efficient DSPs to 1200 MIPS high performance, multi-core DSPs. The ADSP-219x core enhances ADI's popular ADSP-21xx by extending the addressable memory space to 16M word and improving C code compiler efficiency without compromising object code compatibility.

Customers familiar with the 218x family can move very quickly to develop software for the ADSP-2192. A wide range of software and hardware development tools support the ADSP-219x family. Products include an integrated development environment (IDE), code generation tools, evaluation kit, simulators, and emulators. VisualDSP&reg is an integrated software development environment, allowing for fast and easy development, debug and deployment. The EZ-KIT Lite&#153 evaluation kit provides an easy way to investigate the power of the Analog Devices' family of DSPs and begin to develop applications. Emulators are available for PC-AT,

PCI, USB and Ethernet host platforms.

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