CompactPCI DSP Board for 3G Wireless, Broadband and Protocol Transcoding

Ixthos, Inc has introduced a high performance CompactPCI DSP board designed specifically for 3G wireless and broadband telecommunications applications. Four AltiVec PowerPC 7400/7410 processors at 400-600 MHz, providing over 16 GFLOPs of available DSP performance, Ixthos' CHAMP (Common Heterogeneous Architecture for Multi-Processing) architecture, and seven on-board, intelligent DMA controllers combine to make this board ideal for high density advanced voice, video and data convergence.

The seven intelligent DMAs with segmented IXPacket&#153 technology provide maximum data throughput and unrivaled transcoding capability for conversion from network IP or ATM protocols. A reprogrammable IXTRIX&#153 interrupt multiplexer provides dynamic reallocation of critical systems resources. This board is ideal for the most demanding high data flow, high channel density applications, including VoIP, video-conferencing, e-911, wireless networking, and more.

The new high performance DSP board provides support for tightly coupled PMC (PCI Mezzanine Card) expansion modules that allow flexible and expandable I/O modifications with industry standard modules. These PMC expansion sites and Ixthos' strategic Embedded partners create solutions for T1/E1, ATM, DWDM (Dense Wave Division Multiplexing) Fibre, Frame relay OC3/OC48, 10.100 BaseT and Gigabit Ethernet.

The Champ architecture enables for the development of systems based on two scalable, redundant signal processing elements where each SPE &quotcluster&quot contains two MPC7400/7410 PowerPC processors running at 400-600 MHz. Each SPE has a dedicated 10/100 BaseT Ethernet interface and all the required resources to send, receive and process voice/data channels with additional I/O data fed through the dedicated PMC sites.

The four signal processing PowerPCs are supported by a core processing element (CPE) which is made up of an additional PowerPC controller (a 250 MHz MPC8240), global memory, semaphores, interrupt multiplexers, a dedicated Ethernet interface, and an H.110 Telephony bus interface. The core processor can process data from any of its I/O sources independent of the SPEs, or seamlessly serve as an I/O manager to DMA data to the four AltiVec processor for concurrent, symmetrical multi-processing.

Independent PCI-PCI data bridges separate the new board's core and signal

processors, providing over Gbyte/sec of simultaneous I/O movement, enabling concurrent I/O, Ethernet and CompactPCI bus transfers. Global CPE memory for the CompactPCI CHAMP-AV is 32 or 64 Mbytes of high speed SDRRAM, 64-bits wide. Local memory is 64 to 128 Mbytes of 64 bit wide SDRAM per SPE PowerPC pair. L2 cache is up to 2 Mbytes of SBSRAM (Synchronous Burst SRAM) per processor and FLASH memory is up to 16MB.
CompactPCI Champ-AV software support includes Ixthos' IXATools, used to configure and control the DSPs and all the board level resources and provide a common suite of DSP math libraries. This software suite includes Host/Target support libraries, Smart DMA firmware that presents a command interface to the backplane, and PowerPCs and operating system-specific board support packages. Additional DSP libraries are provided by the comprehensive IXLibs-AV software. Supported operating systems include VxWorks and Linux.

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