Preliminary Information

Ingliston
Quad TMS320C6202 or TMS320C6203 PCI Board

NEW

▶ *Processor choice:*
  • *Four 250 MHz TMS320C6202 processors providing total peak performance of 8000 MIPS*
  • *Four 300 MHz TMS320C6203 processors providing total peak performance of 9600 MIPS*

▶ *16kx32 shared global SRAM; 4Mx32 words of local Synchronous DRAM per DSP for a total of 64 MB of DRAM*

▶ *Comprehensive software support:*
  • *An advanced software development environment which provides interprocessor communications and system-level tools for optimizing multi-processing applications*
  • *Full support for Texas Instruments' Code Composer Studio™ development environment*
  • *WinNT® based Software Development Kit*

▶ *Flexible I/O:*
  • *1 PMC site provides 132 MB/s maximum throughput*
  • *Two PEM sites which provide up to 400 MB/s of data transfer to each DSP*
  • *DSP~LINK3™ provides easy access to over 150 IndustryPack® and Spectrum I/O modules*

▶ *Local PCI bus provides access to the Test Bus Controller (TBC) and the PCI host*

▶ *Debug via on-board TBC or via a JTAG based emulator*

▶ *Comprehensive documentation, internet technical support, and online technical training workshops*

The Ingliston PCI Board is a quad TMS320C6202 or TMS320C6203 DSP-based product. It provides a total of 8,000 or 9,600 MIPS respectively, of signal processing power in a standard format PCI board. Ingliston combines this raw processing power with all the necessary I/O, drivers and software tools, including Spectrum's integrated development environment to develop and deploy multi-DSP signal processing applications.

Hardware Features
Ingliston features four fixed-point 250 MHz, TMS320C6202 or 300 MHz TMS3206203 DSPs. Each 'C6202/ 'C6203 device features 3Mbits or 7Mbits (respectively) of internal memory, three McBSP serial ports, and a 32-bit Expansion Bus. The DSPs are based on the high-performance, advanced VelociTI™ very-long-instruction-word (VLIW) architecture ensuring code compatibility with existing 'C6000 DSPs.

Each DSP is equipped with one bank of 4Mx32 synchronous SDRAM. Ingliston augments the DSP's internal memory by incorporating one bank of 16kx32 synchronous SRAM provided on the shared DSP expansion bus. This bank of SSRAM will be accessible to any device on the PCI bus, and all DSP devices.

A PCI bus interface provides access to an expansion port interface bus (X-bus), shared between the four DSPs. This bus provides PCI access to all DSP memory and peripherals, and is the path by which the processors are booted. In addition, the bus provides the DSP with access to the PCI bus using expansion bus DMA cycles. The interface to the local PCI bus provides direct bus mastering from each of the four DSPs.

PMC Support
The DSP expansion bus allows for a range of I/O modules to be mounted on the board. The expansion bus is routed to a PLX PCI bridge chip which provides direct access to the PCI local bus. One fully IEEE 1338.1 compliant, single-width PMC module site provides access to a wide range of Spectrum and third party I/O modules, both analog and digital I/O.

PEM Sites
Processor Expansion Module (PEM) sites provide four independent high-speed, full-bandwidth, bi-directional, dataflow channels between each of the four DSPs and the PEMs. Customers may choose from a variety of Spectrum designed PEMs, such as Digital Radio and FPGA-based PEMs, or elect to build their own PEM to meet unique application requirements.

DSP~LINK3™ Connector
A DSP~LINK3™ connector provides off-board access to over 150 IndustryPack® I/O modules which support a wide variety of analog and digital I/O standards.

Software Features
Software Development Kit
To allow developers to accelerate their application development and harness the power of the Ingliston hardware, Spectrum supplies multiple levels of software that a developer can exploit to build and deploy their application. Spectrum's WinNT® SDK (Software Development Kit) allows the developer to efficiently control and communicate with the Ingliston platform while being abstracted from the details of the hardware. The SDK gives the developer the ability to reset and initialize the target platform (DSP and hardware peripherals), download code, communicate between DSPs, and communicate between the DSP target and the host.

Debug and Compile Tools
Spectrum offers comprehensive software support through a combination of Texas Instruments' eXpressDSP™ Software Technology and Spectrum's advanced software environment. Spectrum builds on TI's proven software tool-set to provide system-level, multi-processing tools and configuration utilities that enable application developers to work at a system level.

Through an advanced tool-set and a significant base of pre-tested third party algorithms and host tool plug-ins, TI offers reusable DSP software including Code Composer Studio™ which comes complete with:
- *Code Composer Studio™ IDE*
- *DSP/BIOS with RTDX*
- *VLIW C Compiler, Assembly Optimizer and linker tools*
- *Instruction set architecture simulator*

Accelera™ Graphical Component-based Development Environment
To compliment the SDK, Spectrum also provides a scaleable parallel processing software development environment designed specifically to allow application developers to move their code from a host-based simulation environment to a DSP-based environment in the shortest amount of time. This environment has been designed to leverage the underlying Spectrum hardware to ensure the most efficient, and optimized environment for your DSP application.

DSP Solutions
Texas Instruments
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