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Find the *Pentek 4290* at our website: ***Click HERE***

Model 4290
Model 4291

Quad TMS320C6201 Processor - VME
Quad TMS320C6701 Processor - VME



General Information

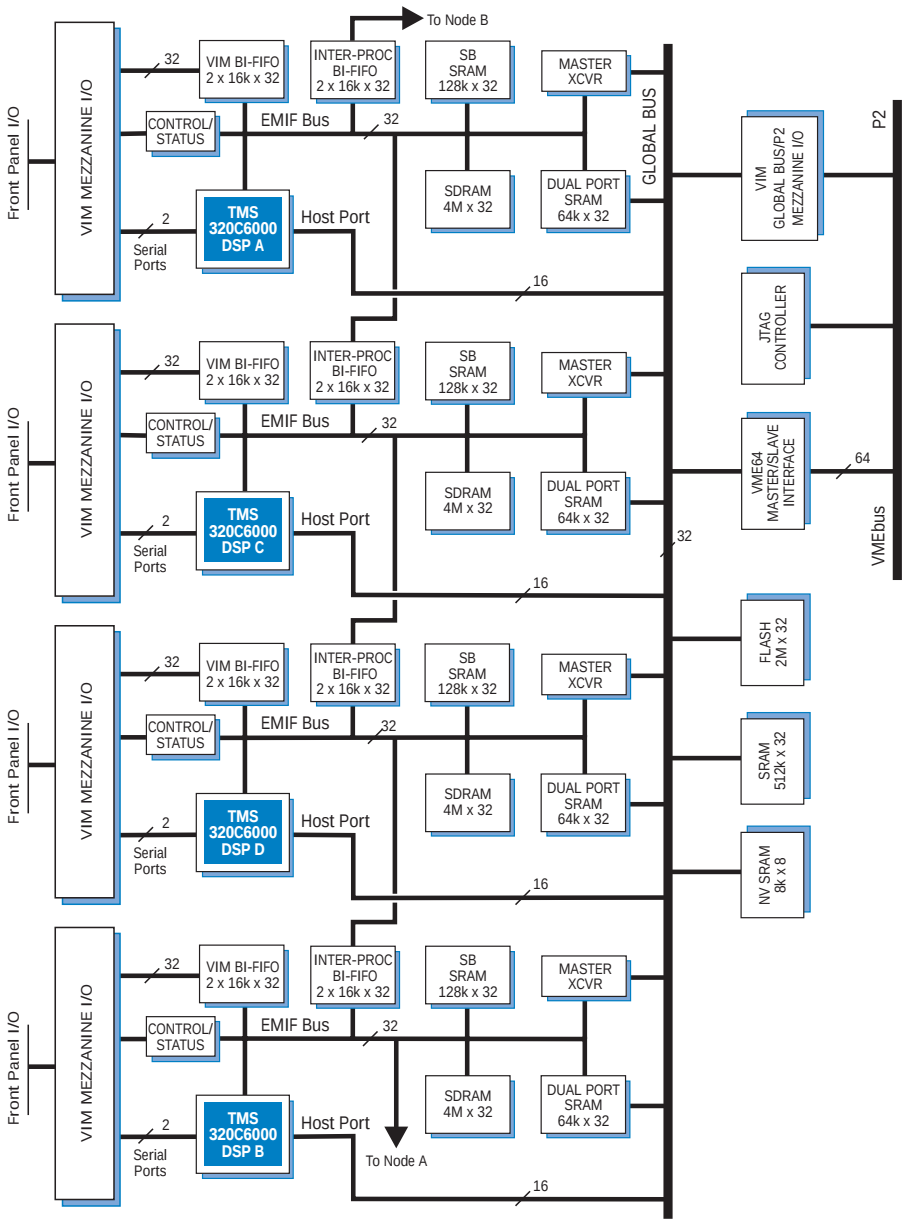
Model 4290: Model 4290 features Texas Instruments' TMS320C6201 fixed-point digital signal processor which employs the VelociTI ™ architecture to achieve a remarkable 1600 MIPS performance.

Incorporating four of these devices, the Model 4290 is a single-slot 6U VMEbus board delivering up to 6400 MIPS of processing power and a wealth of high-speed interface options to handle the 'C6201's voracious appetite for data.

Model 4291: Model 4291 features Texas Instruments' TMS320C6701 floating- point digital signal processor which achieves 1 GFLOPS performance.

The Model 4291 incorporates four of these DSPs in a single-slot 6U VMEbus board delivering up to 4 GFLOPS of processing power. A range of high-speed interface options perfectly compliments the C6701's impressive processing performance.

The boards are organized as four identical processing nodes, each equipped with several types of I/O and memory resources. This unique architecture has been optimized for handling the most demanding real-time signal processing applications in high-performance VMEbus systems. ➤



Features

- **Model 4290:** Four TMS320C6201 DSPs operating at 200 MHz
- 6400 MIPS performance
- **Model 4291:** Four TMS320C6701 DSPs operating at 167 MHz
- 4 GFLOPS performance
- **Both Models:** High performance VIM mezzanine module sites

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Model 4290
Model 4291

Quad TMS320C6201 Processor - VME
Quad TMS320C6701 Processor - VME

Support Software

Pentek's **SwiftNet** supports a network of distributed VMEbus systems and allows the developer to run development tools on the host, while maintaining remote access to the VMEbus system.

Pentek's **ReadyFlow** Board Support Libraries reduce development time by providing C-language callable functions for hardware initialization, control and operation of board resources.

TI's **Code Composer Studio** provides a comprehensive set of tools for software development including an optimizing C Compiler, an interactive debugger, the DSP/BIOS operating system and an assortment of profiling and optimizing tools.

Ordering Information

Model	Description
4290	Quad C6201 Processor - VME
Model	**Description**
4291	Quad C6701 Processor - VME

Processor Node Memory

Each processor node features three major memory sections: the SB SRAM (synchronous burst SRAM), the SDRAM (synchronous DRAM) and the DP SRAM (dual port SRAM). These resources are all attached to the 32-bit External Memory Interface (EMIF) bus.

The SB SRAM is the fastest memory on the board delivering zero-wait state performance for maximum utilization of the C6000 data bus at 800 MB/sec for the Model 4290 or 667 MB/sec for the 4291. This 512 kB memory may be used to store critical data or program code which must be accessed frequently.

The SDRAM provides a large, fast 16 MB work space operating at transfer rates of 400 MB/sec for the Model 4290 and 333 MB/sec for the 4291.

The DP SRAM allows the C6000 to efficiently move data quickly in and out of a 256 kB region using one port while the other port enables direct memory-mapped access from the VMEbus, global bus expansion masters and by other C6000 processors.

VIM Mezzanine

Each processor is equipped with its own VIM (Velocity Interface Mezzanine) connector, providing three types of interfaces. A high-speed synchronous bidirectional FIFO (BI-FIFO) buffers 32-bit parallel data transfers between the mezzanine and the processor's expansion bus at rates up to 400 MB/sec for the 4290, and 333 MB/sec for the 4291. Two of the C6000's synchronous serial ports are also brought to the mezzanine connector. The EMIF bus of the C6000 provides memory-mapped control and status functions to the mezzanine circuitry.

Processor Node FIFOs

The EMIF bus of each processor node connects to three BI-FIFOs, one for VIM mezzanine I/O and two for interprocessor communication. Each BI-FIFO is organized internally as a pair of 1k x 32 FIFOs, (optionally 16k x 32), one FIFO for each direction.

The VIM BI-FIFO connects data streaming devices located on the mezzanine boards to the EMIF bus and supports C6000 data transfers up to 400 MB/sec. The BI-FIFO effectively decouples the mezzanine device data flow and allows the processor to efficiently move data in blocks for maximum processor utilization.

The interprocessor BI-FIFOs connect the EMIF bus of adjacent C6000's and are ideal for pipelined processing applications. Block transfers at rates up to 400 MB/sec for the 4290 and 333 MB/sec for the 4291minimize data movement overhead and maximize interprocessor communications speed.

Global Bus Resources

The global bus acts as the data path to shared slave resources including the four DP SRAMs, the global SRAM, the NV SRAM, the Boot/User flash, the Global Bus Expansion Port and the 16-bit Host Port of all four processors.

Global Bus Memory

The global bus is supported by 2 MB of fast SRAM accessible by all processors, the I/O interface and the VME64 interface. This shared resource facilitates data passing between global bus masters.

8 MB of FLASH memory provides non-volatile memory for factory boot code and user-defined parameters for self-booting application programs.

8 kB of fast non-volatile SRAM for storing and sharing critical parameters is accessible by all processors and the VMEbus.

VME64 Master Interface

All four processors can directly utilize the VME64 master interface to become full VMEbus masters. This allows the C6000's to move data or perform control and status transfers to virtually any VMEbus device. The VME interface supports all data widths up to 64 bits.

Specifications

Processor Node Resources: 4 total
Processor: Model 4290: TMS320C6201;
Model 4291: TMS320C6701
Processor Clock: Model 4290: 200 MHz
Model 4291: 167 MHz
SDRAM: 4M x 32, 1-wait state
SBSRAM: 128k x 32
DPSRAM: 64k x 32
Mezzanine: VIM site
Mezzanine and Interprocessor BI-FIFO: 2 x 1k x 32; 2 x 16k x 32 optional
Shared Global Resources:
Global SRAM: 512k x 32
FLASH: 2M x 32
NVSRAM: 8k x 8
VME64 Interface: master/slave
Mezzanine: VIM site, global bus/P2
RACEway Interface: optional
Size: standard 6U VMEbus board, single slot; board 160 mm (6.3 in.) x 233.5 mm (9.2 in.), panel 0.8 in. wide

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