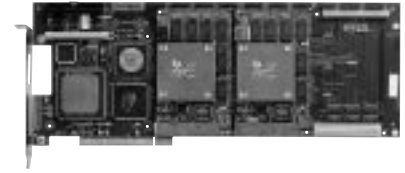


Dakar

TMS320C44-Based PCIbus Processor



The Dakar is designed around Texas Instruments' TMS320C4x parallel DSP to meet the needs of fast processing and real-time embedded applications. The Dakar features one embedded C44 processor, three TIM-40 module sites, 10 external communication ports, a JTAG emulation port, a shared memory architecture, a PCI Master/Slave interface, and an optimized decoupled I/O interface.

Scalable and Modular Architecture

The Dakar offers comprehensive board functionality and a scalable, modular architecture fully configured through I/O expansion and TIM modules. A large range of system building blocks conforming to the TIM-40 industry standard are available including digital radio, DSP acceleration, memory, and multi-processor modules. Featuring one embedded C44 processor and three TIM-40 Module sites, the Dakar is capable of up to 420 MFLOPS of processing power.

TIM modules can run independently from the host processor by booting from their own 32 kByte PEROM. This allows multi-processing operating systems to identify each module and its processing and memory capabilities when dynamically determining system configurations.

PCI Master/Slave Host Interface

The Dakar provides shared access for any processor to both the PCI Local Bus interface and the shared SRAM. The PCI Local Bus offers a high performance system I/O bus. Its shared memory architecture is ideal for passing small data packets between processors or storing global system variables. Larger inter-processor data transfers are more efficient using TMS320C4x communications ports with multiple processors communicating at the same time. Operating on a round-robin basis, access to the shared PCI interface and shared SRAM is efficiently controlled using a programmable high performance arbiter.

Inter-Processor Communication

Two communications ports from each processor are routed to connectors allowing off-board access to communication ports. All processors are interconnected with TMS320C4x 20 MBytes/s bi-directional asynchronous communication ports.

Memory Architecture

The Dakar supports a shared bus architecture which allows the on-board DSP, the TIM-40 module sites, and the PCI interface to access an optional bank of on-board shared SRAM. The on-board C44 DSP has 0.5MB or 2MB zero wait-state SRAM on both its local and global bus, and 32k x 8 PEROM on its local bus.

DSP~LINK3 System Expansion Interface

The Dakar offers Spectrum's open standard DSP~LINK3. This is a 32-bit, 40 MByte/s I/O interface with low interrupt latency. All processors have direct access to this I/O expansion interface via an arbitrated shared bus. The full DSP~LINK3 specifications are published.

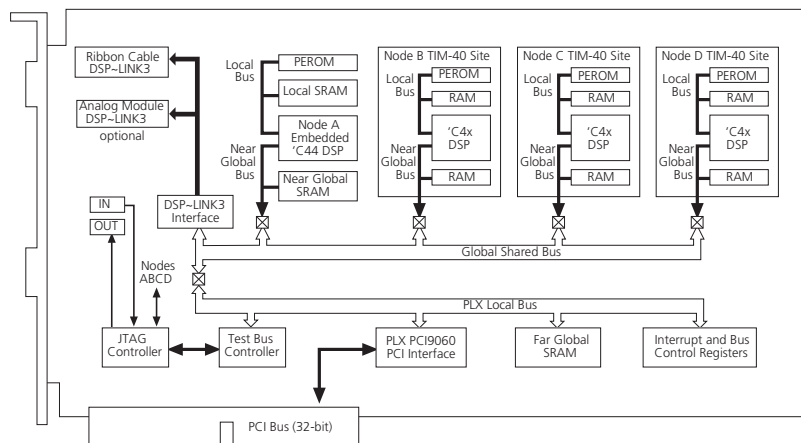
The DSP~LINK3 interface has been specially designed for optimal performance when used with Spectrum's line of IndustryPack™ I/O products. The DSP~LINK3 interface on the Dakar is compatible with the DSP~LINK2 specification when used with the appropriate mechanical adapter.

Software Development Tools

Spectrum offers an integrated High Level Language Interface Library with Device Drivers for a range of operating systems including Microsoft Windows 95 and Windows NT.

A wide range of software tools are available including real-time operating systems and debugger utilities. An on-board JTAG Test Bus Controller (TBC) is mapped to the PCI Local Bus to provide comprehensive debug capability.

- ▶ Up to seven 50/60 MHz TMS320C4x processors using TIM modules
- ▶ Up to 420 MFLOPS PCI Master/Slave DSP board with TIM-40 modules
- ▶ Three TIM-40 module sites offer a wide range of memory and I/O options
- ▶ 132 MBytes/s peak transfer rates from 32-bit PCI (Master/Slave) Local Bus
- ▶ Up to 1M x 32 0ws SRAM for the embedded processor
- ▶ Up to 512k x 32 1ws SRAM shared between processors
- ▶ Real-time multi-processor C Source debugging using JTAG
- ▶ PEROM for boot-strapping and identification
- ▶ 10 comm ports
- ▶ DSP~LINK3 interface for connection to IndustryPack™ carriers and modules
- ▶ I/O board site for Spectrum's I/O board or custom I/O
- ▶ Comprehensive software support



C4x-based carrier boards Do Not include TIM modules

