BLACKTIP-CPCI
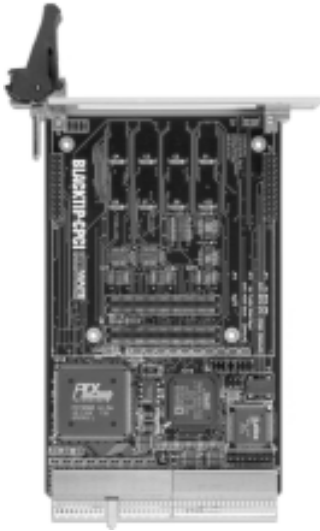
FEATURES

▲ One ADSP-2106x SHARC® processor running at 40 MHz

▲ CompactPCI® interface for direct, high-speed master/slave access to the SHARC processor and external DRAM

▲ PXI interface for board-to-board communication

▲ SHARC-optimized high-performance BITSI I/O mezzanine site

▲ CompactPCI 3U form-factor

▲ 4M × 32 bank of DRAM

▲ 2M × 8 bootable FLASH RAM

▲ Compatible with Analog Devices' EZ-ICE® in-circuit emulators

▲ Complete development tools available

BLACKTIP-CPCI SINGLE PROCESSOR ADSP-2106X COMPACTPCI BOARD

SHARC Processing on Rugged CompactPCI

BittWare's Blacktip-CPCI matches powerful SHARC digital signal processing with the rugged CompactPCI platform, PXI modular instrumentation technology, and a flexible I/O interface. All of these features mesh together perfectly to meet the demands of your DSP application.

SHARC Processing

The Blacktip-CPCI features a high-performance ADSP-2106x SHARC processor, which has direct access to a 4M × 32 bank of DRAM and to external devices via its CompactPCI, PXI, and BITSI interfaces.

I/O Interface

Using the flexible BITSI mezzanine interface, the Blacktip-CPCI's SHARC processor can perform optimized I/O transfers with one of BittWare's many off-the-shelf I/O mezzanines. The mezzanines transfer real-world signals to the SHARC via link ports, serial ports, and a 32-bit data bus.

CompactPCI Host Interface

The rugged CompactPCI interface gives host computers direct access to the SHARC processor's IOP registers and internal SRAM, allowing the host to reset and boot the SHARC, load program images, and examine memory. The host can also use the CompactPCI interface to access the Blacktip-CPCI's bank of DRAM.

PXI Interface

The PXI interface adds to the capability of the CompactPCI interface, allowing custom board-to-board communication via four high-speed link ports without affecting the bandwidth of the CompactPCI bus. In addition, a flag and interrupt are available for board-to-board interrupt generation.

Available Development Tools

BittWare offers a complete Windows GUI-based software development kit that allows you to easily integrate the Blacktip-CPCI into your system. The software tools provide a modern development environment that features a host interface library, a standard I/O library, and a built-in software debugger. The Blacktip-CPCI is also fully compatible with Analog Devices' VDSP software development tools and supports in-circuit emulation with Analog Devices' EZ-ICE emulator.

SPECIFICATIONS

SYSTEM

Processor
▲ One 40 MHz Analog Devices ADSP-2106x SHARC DSP

External Memory
▲ Up to 4M × 32 one-wait-state DRAM
▲ 2M × 8 of Flash RAM for hostless boot or user non-volatile data storage

Link Ports
▲ Six 40 MB/s link ports are available for connection to link-port compatible devices:
- Two links to the PXI interface
- Two links to the BITSI interface
- Two links are factory configurable as PXI or BITSI links

Serial Ports
▲ Two 40 Mb/s synchronous serial ports are routed to the BITSI interface:
- One serial port is configurable for either a standard two-way connection or a two-wireTDM connection to the BITSI interface
- One serial port is a standard two-way connection to the BITSI interface

CPCI Interface
▲ Provides direct 32-bit (132 MB/s peak transfer rate) access to the SHARC's IOP registers and internal SRAM and to external DRAM

▲ Supports hardware interrupts in both directions and host-based booting of SHARC

PXI Interface
▲ Supports four link ports to external devices; two links are factory configurable as either BITSI or PXI links
▲ Supports board-to-board interrupt generation

I/O Interface
▲ The BITSI mezzanine site supports four SHARC link ports, three serial ports, and a 32-bit data bus

Debug Port
▲ 14-pin IDC header for IEEE JTAG 1149.1 boundary scan with extensions for in-circuit emulation
▲ Supports Analog Devices' EZ-ICE emulator

Power
▲ 5 V@1.25 A typical, 2.3 A max (not including optional BITSI mezzanine)

Size
▲ 3U single slot (160mm × 100mm, 6.3" × 3.9")

ADSP-2106x SHARC PROCESSOR

Processing Rate
▲ 40 MHz, 25 ns instruction rate, 120 MFLOPS, 40 MIPS

Arithmetic
▲ 32/40-bit floating point, 32-bit integer

On-Chip Memory
▲ 2/4 Mbits (21062/21060) dual-ported SRAM organized ×32 or ×48

Off-Chip Addressing
▲ 4 Gigawords addressable memory space
▲ Memory addressable as 16-, 32-, 40-, or 48-bit words
▲ Programmable wait-state generation

I/O
▲ Integrated I/O processor with ten-channel DMA controller, six 40 MB/s link ports, and two 40 Mb/s serial ports

SOFTWARE SUPPORT

Host Interface
▲ BittWare's Windows GUI-based software development kit for Windows 95 and Windows NT contains a C-callable library of board control and communications routines
▲ A porting kit is available for other operating system platforms

Development Tools
▲ Analog Devices VDSP tools include C compiler, assembler, linker, simulator, and source code debugger
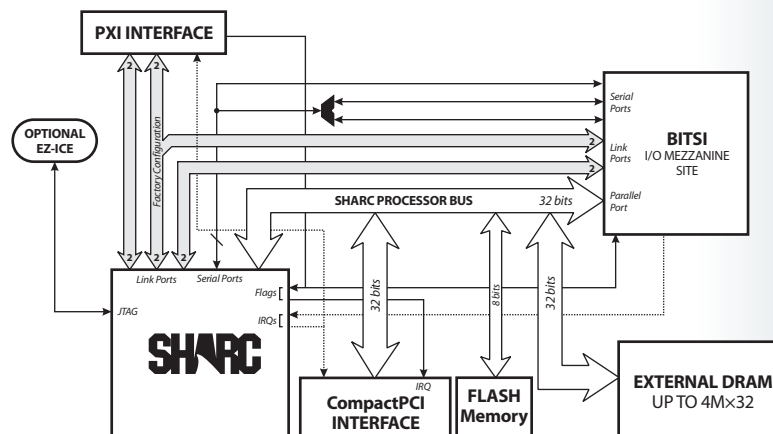
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