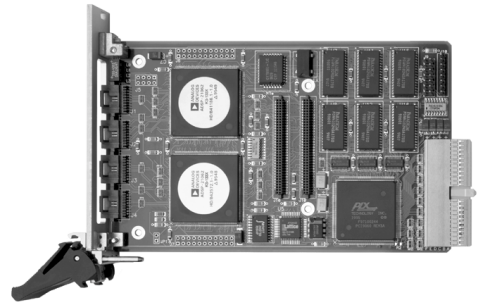


Snaggletooth-cPCI

Dual Processor ADSP-2106x CompactPCI Board



SHARC® DSP on Rugged CompactPCI Platform

The Snaggletooth-cPCI combines the power of the industry's fastest floating-point DSP with the rugged CompactPCI platform, allowing you to add high-performance SHARC-processor-based digital signal processing to your CompactPCI system. The Snaggletooth-cPCI features two Analog Devices ADSP-2106x SHARC DSPs - each with 2 or 4 Mbits of on-chip dual-ported SRAM, up to 512K x 48 bits of zero-wait-state external SRAM, four external link ports, and a BITS I mezzanine site for off-the-shelf I/O interfaces.

ADSP-2106x SHARC DSPs

The two SHARC DSPs share a common processor bus, which gives both of them access to the optional bank of SRAM, I/O devices on a BITS I mezzanine, and the internal SRAM of the other SHARC DSP. The processors can also communicate via two bi-directional link ports and a serial port.

I/O Interface

Using the flexible BITS I mezzanine interface, the Snaggletooth-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 processor via link ports, serial ports, and a 32-bit data bus.

CompactPCI Host Interface

The CompactPCI bus interface gives host computers direct access to the SHARC processors' IOP registers and their internal dual-ported SRAM, allowing the host to reset and boot the SHARC processors, load program images, and examine memory. Read and write access to the internal SRAM can occur while the SHARC's DSP core is operating without affecting the core's performance. The CompactPCI interface also has direct access to the shared bank of external SRAM.

Available Development Tools

BittWare offers a complete software development kit that allows you to easily integrate the Snaggletooth-cPCI into your system. The software tools include a comprehensive host interface library, a standard I/O library, and diagnostic utilities. The board is also fully compatible with Analog Devices' VisualDSP® software development tools, and it supports in-circuit emulation.

Features

- Two ADSP-2106x SHARC DSPs running at 40 MHz
- CompactPCI® 3U form-factor
- Up to 512K x 48 zero-wait-state external SRAM
- SHARC-optimized high-performance BITS I I/O mezzanine site
- Four external link ports (each up to 40 MB/s)
- CompactPCI interface for direct, high-speed master/slave access to both SHARC DSPs and external memory
- Supports in-circuit emulation
- Complete development tools available



Specifications

BOARD ARCHITECTURE

Processors

- Two 40 MHz Analog Devices ADSP-2106x SHARC DSPs

External Memory

- The SHARC DSPs share up to 512K x 48 bits (3MB) zero-wait-state SRAM in addition to their on-chip SRAM

Link Ports

- Twelve 40 MB/s link ports (six per DSP) are available for connection to link-port compatible devices:
 - Four links are for interprocessor communications
 - Four links are for I/O
 - Four links are on external connectors

Serial Ports

- Four 40 Mb/s synchronous serial ports (two per DSP)

CPCI Interface

- 32-bit master/slave (132 MB/s peak transfer rate)
- All internal SHARC processor memory, IOP registers, and external memory are mapped to PCI memory space
- Supports hardware interrupts in both directions and host-based booting of SHARC processors

I/O Interface

- The BITS I mezzanine site supports four SHARC processor 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 White Mountain DSP ICE emulators

Power

- 5V @ 1.5 A typical, 2.5 A max (not including optional BITS I mezzanine)

Size

- 3U single slot (160mm x 100mm, 6.3" x 3.9")

ADSP-2106x SHARC DSPs

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 x32 or x48

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 40MB/s link ports, and two 40 Mb/s serial ports

SOFTWARE SUPPORT

Host Interface

- BittWare's software development kit for Windows 95®, Windows 98, and Windows NT contains a C-callable library of board control and communications routines
- Porting kit available for other operating system platforms
- Linux port available

Development Tools

- Analog Devices VisualDSP tools include C compiler, assembler, linker, simulator, and source code debugger
- Eonic Systems' Virtuoso™ operating system

