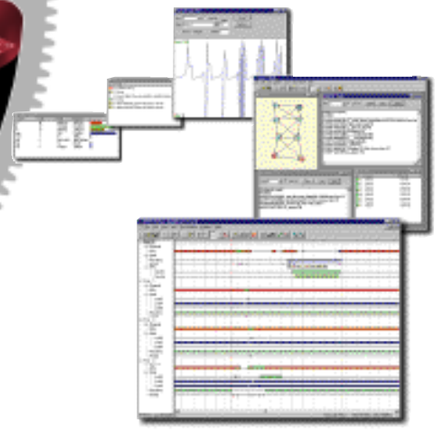
APEX Software

With APEX-Pro professional SHARC development tools, Spectrum offers the most advanced native software development environment in the industry. Highlights include a sophisticated inter-processor communication infrastructure, fully integrated and extendible host interface software, plus a variety of high-level visual tools for system configuration and diagnostics. Using APEX, any of Spectrum's SHARC products can be seamlessly integrated through a system of SHARC nodes.

Apex-Pro: Professional SHARC Toolset
Apex-Lite: Standard SHARC Toolset
Apex-Debug: Multi-Processor Debugger

APEX-Pro is complemented by a powerful, multi-processor debugger known as APEX-Debug. Features include a completely interactive GUI front-end, true multiprocessor support across any number of boards, and complete integration with APEX-Pro's system-level data-routing structures. APEX-Debug is not a JTAG-based debugger and therefore requires no additional hardware. With an aim at helping customers debug and optimize large, complex systems at the application level, APEX-Debug is one of the most powerful parallel SHARC application development tools available. APEX supports multiple host operating systems including WindowsNT, VXWorks, Solaris and Lynx O/S.
Download the APEX demo at http://www.spectrumsignal.com/sharc/



High-level visual tools speed system configuration and diagnostics

www.spectrumsignal.com/sharc/

DSP SYSTEMS WORLDWIDE SPECTRUM

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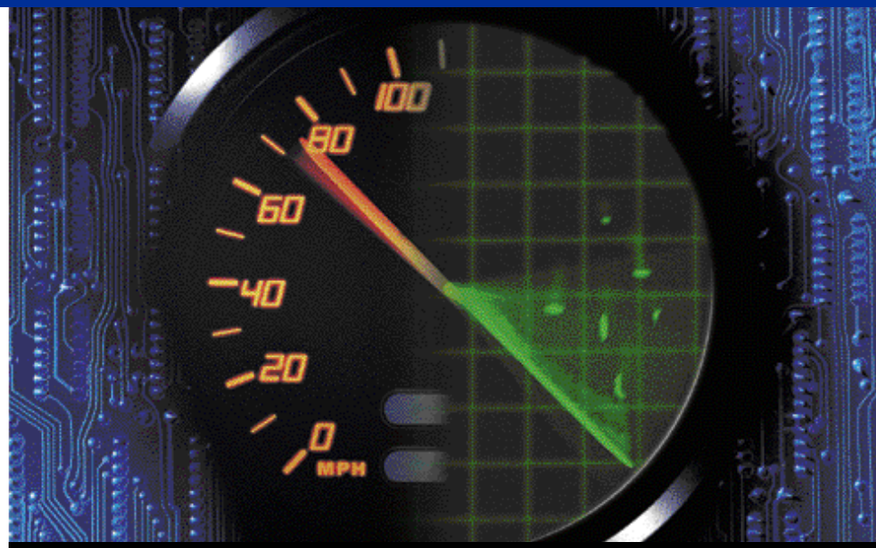


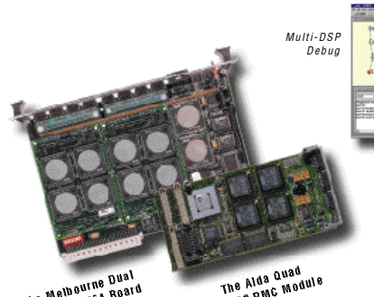
SPEED UP YOUR DSP PROJECT WITH A HEADSTART FROM SPECTRUM.

Highest Performance SHARC® DSP Systems

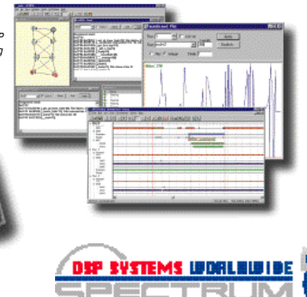
Spectrum offers DSP engineers the most comprehensive range of Commercial-Off-The-Shelf (COTS) DSP products.

The key to making effective use of the SHARC's processing power is an advanced software environment. Spectrum's high-level features such as multi-tasking, network communication and through routing, shield the user from complex hardware details. Thanks to the advanced kernel design which minimizes context switching, overheads and interrupt latencies, Spectrum software delivers the computational and communications performance that customers demand.

Armed with a vast array of SHARC-based hardware and software solutions, our customers now have access to all the building blocks necessary to construct not only the highest performance but also the most flexible COTS DSP systems.



The Melbourne Dual SHARC® VME64 Board



The Alda Quad SHARC® PMC Module

Multi-DSP Debug

Memory Plotting

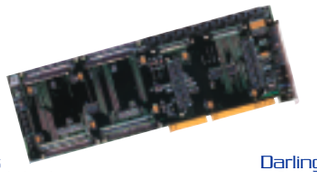
DSP Optimization

System Optimization

DSP SYSTEMS WORLDWIDE SPECTRUM

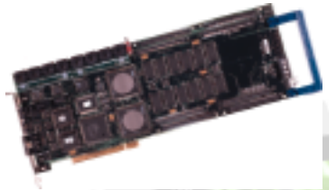
SHARC Carrier Boards

Spectrum's SHARC product range is based on the industry-standard SHARCPAC module specification supported by Analog Devices. Carrier boards in this series are designed to accommodate either 1, 2 or 3 industry-standard SHARCPAC modules. When populated with Spectrum's exclusive octal SHARCPAC-DSP8 module, customers are able to integrate as many as 18 SHARC processors (for a total of 2.16 GFLOPS) in a single PCI or VME slot. Spectrum offers a wide range of SHARCPAC processing modules with 1, 2, 4, or 8 SHARC processors and a variety of external memory configurations, allowing the customer to select the relationship between density of processors and external memory in the system.



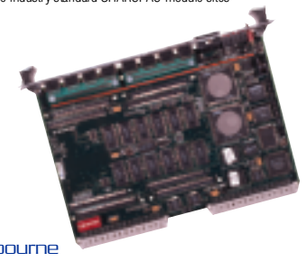
Interlagos

- Passive ISA carrier board
- Up to 24 SHARC processors and 2.88 GFLOPS performance
- 20 external link ports
- Three industry standard SHARCPAC module sites



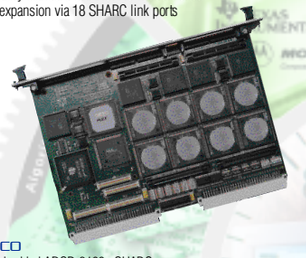
Darlington

- Dual embedded ADSP-2106x carrier board
- Up to 18 SHARC processors and 2.16 GFLOPS in a single PCI slot
- 32-bit Master/Slave PCI interface
- Two industry standard SHARCPAC module sites
- System expansion via 18 SHARC link ports



Melbourne

- Dual embedded ADSP-2106x VME carrier board
- Up to 18 SHARC processors and 2.16 GFLOPS in a single 6U-VME slot
- Two industry standard SHARCPAC sites
- VME64 Master/Slave interface
- Ruggedized for vibration-sensitive environments
- System expansion via 18 SHARC link ports



Morocco

- Eight embedded ADSP-2106x SHARC processors
- 960 MFLOPS performance in a single 6U VME slot
- Four banks of 128K/512K x 32 Cluster 0ws SRAM, each shared by 2 SHARCs
- 128K x 32 Global 0ws SRAM shared with all 8 SHARCS
- Up to 250 MB DRAM
- VME64 Master/Slave Interface
- PMC site for Fibre Channel, ATM & FPDP

Montreal

- Single embedded ADSP-2106x carrier board
- 200 MHz, 8-bit A/D, 6U VME board
- 120 MFLOPS performance
- System expansion via SHARC link ports

Estoril

- Single embedded ADSP-2106x PCI carrier board
- Up to 9 SHARC processors and 1 GFLOP of performance in a single PCI slot
- 32-bit Master/Slave interface
- One industry standard SHARCPAC module site
- System expansion via 18 SHARC link ports

SHARC Processing Modules

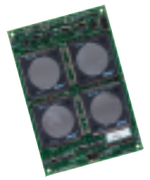
The key to Spectrum's SHARC product line is modularity. Spectrum customers have the ability to scale their system performance and/or integrate application specific I/O by simply adding the appropriate modules. Scalability is achieved through the use of a completely distributed memory architecture. All inter-processor communication takes place via the SHARC's high-speed (40MBytes/s) link ports, eighteen of which may be brought to external connectors on the VME and PCI carrier boards. This results in a net board-to-board bandwidth in excess of 700MBytes/s. By using the link ports to provide multiple data transfer channels from one board to another, customers are able to avoid the bottlenecks inherent in systems offering only a single data transfer gateway per board.

SHARCPAC DSP1

- Single ADSP-2106x SHARC Processor
- 120 MFLOPS aggregate core performance
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM
- 6 SHARC link ports
- 6 or 16 MB SRAM

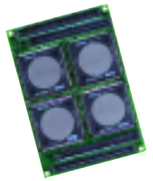
SHARCPAC DSP2

- Dual ADSP-2106x SHARC Processors
- 240 MFLOPS aggregate core performance
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM
- 10 SHARC link ports
- 6 or 16 MB SRAM



SHARCPAC DSP4

- Quad ADSP-2106x SHARC Processors
- 480 MFLOPS aggregate core performance
- 0, 2 or 8MB 0ws, dual-ported SRAM
- 12 SHARC link ports



SHARCPAC DSP8

- Octal ADSP-2106x SHARC Processors
- 960 MFLOPS aggregate core performance
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM
- 16 SHARC link ports

Aida Quad SHARC® PMC Module

- ADSP-2106x PMC Module
- Scalable between one, two or four 3.3V SHARC DSPs
- Hurricane PCI-DSP Interface for 132MBytes/s data transfer rate to SHARCs
- 128K x 32 or 512K x 32 SRAM shared between all SHARCs

Application Specific I/O

Spectrum's SHARC product line includes a wide range of specialized I/O SHARCPAC modules, allowing customers to take even the most demanding applications from drawing board, to prototype, to production in record time. Included in the evolving range of I/O products is: a programmable digital I/O port, a digital camera interface, an RS170/SVGA/CCIR graphics display module, a SCSI interface, an Avionics 1553-bus interface, plus a number of A/D, and D/A modules.

Spectrum's modular products also allow users to obtain application-specific I/O modules from other SHARCPAC vendors, or to develop modules in-house based on the publicly available SHARCPAC specification. This assures customers of an open hardware environment with a clear path for expansion and/or system upgrades.

SHARCPAC-FPGA

- Single ADSP-2106x SHARC Processors
- Altera 81500A or Xilinx 4020E FPGA
- 32-bit data path between FPGA and SHARC
- FIFO buffering between FPGA and SHARC
- 110 programmable I/O pins
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM

SHARCPAC-FPGA10K

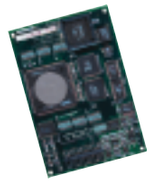
- Altera 10K100 FPGA
- Single ADSP-2106x SHARC Processor
- 32-bit data path between FPGA and SHARC (via FIFO)
- Over 100 programmable I/O pins at external connectors
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM

SHARCPAC-Grabber

- Single ADSP-2106x SHARC Processors
- Four independent video acquisition channels
- Up to 2 MB of external 0ws SRAM
- ADSP-21060: 4MB 0ws, dual-ported SRAM
- ADSP-21062: 2MB 0ws, dual-ported SRAM

SHARCPAC-1553

- Single ADSP-2106x SHARC Processors
- Modular 1553-bus to SHARC interface
- Six 40 MB/s SHARC link ports
- 12K x 16-bit internal SRAM

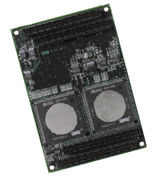


SHARCPAC-A1

- Single ADSP-2106x SHARC processor
- Dual channel, 60 MHz, 8-bit A/D interface
- Two 12-bit D/A convertors for calibration and offset adjustment
- Six digital status inputs
- Four digital programmable outputs

SHARCPAC-Video

- Single ADSP-2106x SHARC Processor
- High resolution, real-time color graphics display
- 3 MB of SRAM for frame buffering
- Two 1 MB video buffers and a 0.5 MB overlay buffer
- True-color and pseudo-color operation

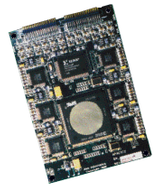


SHARCPAC-A2

- Dual ADSP-2106x processors
- Quad A/D interface (2 in, 2 out), 40 MHz, 12-bit
- Programmable sample clock (2 MHz to 40 MHz)
- Module throughput of up to 80 Million s/s
- Separate SHARC processors for D/A and A/D channels
- Separate 1K x 32-bit FIFOs for D/A and D/A channels

SHARCPAC-SCSI

- Single ADSP-2106x SHARC Processor
- Symbios Fast-20 wide SCSI-3 interface processor
- 2 MB of SRAM and 4 MB DRAM for data buffering
- Intelligent 16 or 32-bit DMA bus master core
- 96-bit DMA FIFO



SHARCPAC-A3

- Single ADSP-2106x processor
- 24 channel, 3-48 kHz, 16-bit A/D/A converters
- 12 AD1847 stereo CODECs
- External sample clock input
- One 120 MFLOP SHARC Processor
- Low-profile, high-density I/O connector

NEW!

SHARCPAC-FPDP

- Front Panel Data Port (FPDP), VITA 17-1990x Rev 1.3
- 32-bit parallel data
- Personality module mates to SHARCPAC FPGA10K