Aureal

VORTEX® AU8820

PCI-Based AC'97 Digital Audio Processor

3D

Believe Your Ears™

BASELINE FEATURES

- Sound Blaster® and Sound Blaster Pro® compatibility
- 64 voice (32 HW/32 SW)
- Professional studio quality 32 voice wavetable synthesis
- Analog/digital gameport and MPU-401 UART
- Windows 95 drivers and installation
- 3.3V operation, 5V compatible
- Advanced power management features
- 128-pin PQFP package (20x14mm)
- Tone controls

ADVANCED FEATURES

- A3D positional audio support
- PCI bus master with 48-channel DMA interface
- AC'97 and other CODECs supported
- High-quality sample rate converter
- Digital mixer and volume control
- WDM streaming and USB ready
- Auxiliary ports
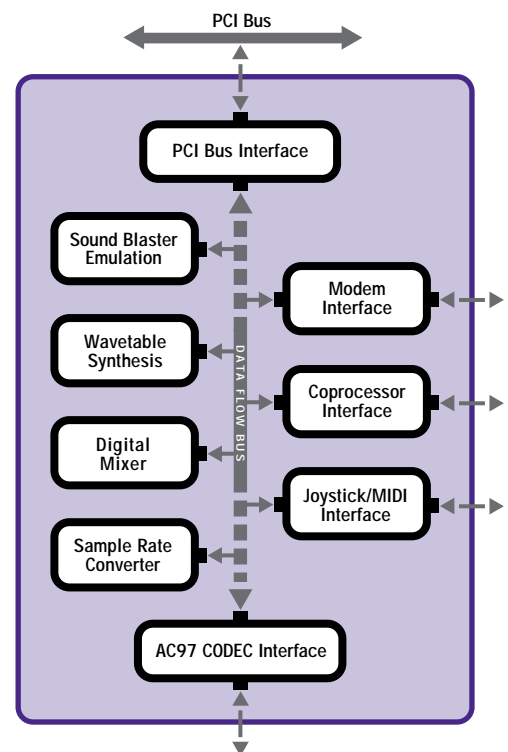- DirectSound and DirectSound3D acceleration

VORTEX—
A Breakthrough PCI Audio Architecture

Aureal's VORTEX chip architecture is designed from the ground up to take optimal advantage of the PCI bus to deliver extremely high-quality audio processing at aggressive cost targets. VORTEX uses an innovative, dataflow hardware architecture that connects highly optimized audio processing engines on a programmable, internal digital audio dataflow bus. The resulting design offers efficiency due to the high level of silicon integration and flexibility due to the programmability of the dataflow bus.

The AU8820 is the first in a series of audio chips based on Aureal's VORTEX architecture. It can be used in multiple configurations, with or without a S/P DIF transmitter or receiver, with or without a sound coprocessor, on add-in cards or on motherboards.

The VORTEX data flow hardware architecture delivers over 300 MIPS of audio processing.

AU8820

DirectSound Acceleration and WDM

New PC games use the Microsoft DirectSound standard, part of the DirectX subsystem. The AU8820 accelerates DirectSound via PCI streaming, advanced sample rate conversion, and digital mixing in hardware. The result is a dramatic increase in DirectSound playback quality and substantial reduction of host CPU loading.

The AU8820 delivers over 300 audio MIPS for sound processing, freeing up the system CPU for faster video and other tasks. Additionally, due to its programmable dataflow bus, the AU8820 is ideally suited for Microsoft's upcoming WDM driver architecture, which requires complete flexibility in routing audio streams among hardware acceleration blocks.

Complete Legacy Support

No PC audio solution is complete without support for DOS legacy applications. The AU8820 provides hassle-free DOS audio legacy emulation (Soundblaster and Soundblaster Pro with OPL3 FM synthesis) for both Windows DOS boxes and real-mode DOS operation. The legacy emulation technology used in the AU8820 has been in production for over two years. Very high levels of DOS legacy compatibility are achieved for both mother-board and add-in card solutions, without the need for a work-around PC/PCI or D/DMA side band connection to the ISA-bus.

Wavetable Synthesis

The AU8820's DLS-compatible 32 voice hardware wavetable syn-thesis engine delivers a brilliant music listening experience. It uses studio quality instrument samples and advanced algorithms, such as fourth-order interpolation and sweepable filters, previously only found in professional music synthesizers. Cost is minimized by stor-ing the 4MB General MIDI instrument sample set in host memory rather than external RAM or ROM. An additional 32 voices can be rendered in software for a total of 64 wavetable voices.
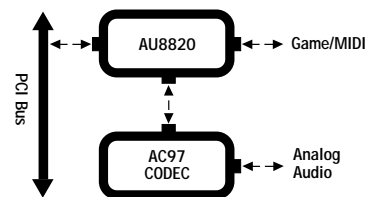
Industry Leading 3D Audio

New 3D games are designed to take advantage of DirectSound3D to immerse players with interactive 3D sounds. Most of those games are optimized for Aureal's industry leading A3D technology which supports high-quality acceleration of DirectSound3D. In conjunction with an MMX enabled host CPU, AU8820 provides A3D compatible rendering of DirectSound3D.
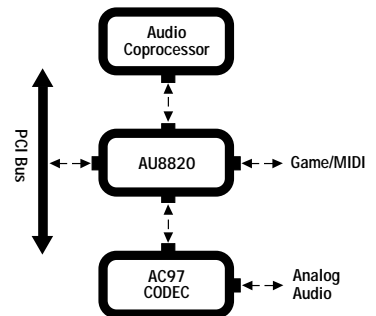
Analog/Digital Gameport and MIDI support

The AU8820 further accelerates game play by performing remote polling of the joystick interface without CPU intervention. The MIDI interface incorporates industry-standard MPU-401 capabilities.

AUDIO ACCELERATOR

ADVANCED AUDIO ACCELERATOR

Contact Aureal Semiconductor for more information on the AU8820 PCI-based AC'97 Digital Audio Processor.
General information about Aureal, product updates, and freeware are available at our Web sites: http://www.aureal.com and http://www.A3D.com.