



Turtle Beach™

The leaders in award-winning PC sound technology.

Montego A3D™ 64 Voice PCI Sound Card



Turtle Beach Systems

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Your new PC includes the Turtle Beach Montego A3D sound card, which combines the latest in 3D sound technology with high quality 64 voice wavetable synthesis.

Please take a moment to register your product online. You can reach the TBS website by going to the TBS Montego A3D program group and clicking on the Turtle Beach website icon.

If you have any further questions after reading this guide, please refer to the online help guide on the Dell Web site.

Your Turtle Beach Montego A3D sound card takes optimal advantage of the PCI bus to deliver extremely high quality audio. Montego A3D supports all of the latest PC audio standards, including, DirectSound acceleration, AC-97, and 64-voice wavetable synthesis. In addition, the Montego A3D maintains compatibility with DOS games designed to work on an ISA bus Sound Blaster® compatible card.

Most new Windows® games are DirectSound applications. Montego A3D PCI accelerates DirectSound by providing low-latency mixing and sample rate conversion of audio streams during soundtrack playback.

Montego A3D PCI requires at least:

- Intel Pentium 90MHz with CD ROM drive (Pentium 200MHz MMX is required for running A3D-I)
- 16 MB RAM
- 20MB free hard disk space
- Windows 95, 3.1, NT (not all features are supported in 3.1 and NT)

64-voice Wavetable Synthesizer with DVX™

Montego A3D uses an advanced 64 voice wavetable synthesizer engine with **Dynamic Voice Exchange™ (DVX)** comprised of 32 hardware voices and 32 hardware-accelerated voices. When playing MIDI music, the synthesizer first utilizes the 32 hardware voices and then adds the 32 hardware accelerated voices if they are required for MIDI songs with more than 32 simultaneous voices.

DVX assures that MIDI music will first use the hardware voices, (which eliminates processing overhead on the CPU) while making the additional hardware-assisted voices available with minimal CPU overhead.

The wavetable synthesizer uses a 4 MB General MIDI patch set with 128 instrument sounds and more than 50 drum sounds (assigned to MIDI channel 10.) To minimize PC RAM overhead, the instrument sounds are stored using DVX technology, which only stores the sounds that are currently required.

Running DOS Games in WIN95

Montego A3D's complete, professional quality PC sound system offers legacy game compatibility in real-mode DOS and DOS boxes. If you still need assistance after reading this section, please contact your game manufacturer.

Note: *DOS game compatibility is not available in Windows NT.*

DOS games should be configured for Sound Blaster Pro operation. If Sound Blaster Pro is not supported, choose Sound Blaster. The following settings are available:

Setting	Available	Typical Setting
IRQ	2, 5, 7, 10	5
I/O Port	220h, 240h	220h
DMA	0, 1, 3	3

In most cases, you will not need to change these settings for running DOS games. However, if you are using a non-standard game, you may need to change these settings.

You can verify or change these settings in *Control Panel -> Device manager -> Sound Video, and Game Controllers -> Montego Sound Blaster Emulation -> Resources*. Note that the game must still use the same hardware settings as configured for the Montego A3D sound card.

Although many games can be run from the Windows DOS box, some games will not run in the Windows DOS box because of the nature of the game. For those games, shutdown Windows and restart in MS-DOS mode.

MIDI Music in DOS Games

If you select MIDI as your music device in a DOS box application, you can play the game's music with the Montego A3D's wavetable synthesizer. *Montego A3D wavetable synthesis is not available when running DOS in real mode.* To choose between the internal General MIDI wavetable synthesizer and an external synthesizer connected to the MPU-401 connector on the joystick/ MIDI port, use the Montego A3D's control panel "MIDI" tab to select between "General MIDI" and "MPU-401." To get to the Montego A3D's control panel double-click on the TBS Montego Audio icon in the Windows Control Panel. The default setting is General MIDI.

Note: *When running a game in real mode DOS, the MIDI music will play using the Montego A3D's FM synthesizer emulator.*

Aureal 3D Effects

In Windows 95 and Windows 98 your Turtle Beach Montego A3D PCI sound card supports Aureal 3D-Interactive sound (A3D-I), now implemented in many new games. A3D-I creates a more life-like listening experience by replicating the 3D audio cues that the ears hear in the real world. Through HRTF (Head Related Transfer Functions) signal processing the Montego A3D-I only requires two speakers to deliver an immersive audio experience by actually positioning the sounds in particular places on a virtual 3D sound stage. When using games that support A3D-I, sound sources move to the game action—race cars or aliens zoom past and bullets zip around the listener's head.

The Aureal A3D-I effect is designed for speaker placement at an approximate 30-degree angle between the centerline of the listener and the speakers. The A3D-I effect can also be heard on headphones. For optimum A3D-I performance select between speaker or headphone output. To change the output, launch the A3D configuration applet from the Windows Control Panel and choose the settings tab.

Note: *The Montego A3D-I effect requires an MMX-enabled CPU running at 200MHz or faster. When using games that do not support A3D-I you will hear normal stereo sound.*

The easiest way to experience the A3D-I effects is to run the demos, which are available in the TBS Montego A3D program group or from the TBS WAVE Player.

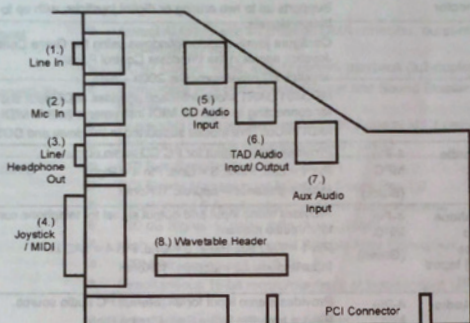
The Montego A3D also features MIDI Reverb and Chorus effects. These effects can be adjusted in the MIDI tab of the Montego A3D's control panel which can be accessed through the **AudioStation® 2** Mixer or MIDI player.

AudioStation® 2

AudioStation 2 lets you run your multimedia PC just like a home stereo system. An intuitive, hardware-style interface unites your PC's MIDI, WAV, and CD functions so they're easy to control and fun to use. You'll find it's a welcome alternative to the separate utilities (Media Player, CD Player, Sound Recorder and Volume Control) supplied with Windows .®

AudioStation 2 lets you edit MIDI and digital audio WAV files and group your favorite files into playlists for easy automated playback. You can also play audio CDs with your CD-ROM drive and create custom playlists of your favorite songs—complete with CD titles and song names. As an added bonus, AudioStation 2 includes MIDI and digital audio files. AudioStation 2 can be found in the TBS Montego program group. For more information on how to use AudioStation 2, please see the online help.

Turtle Beach Montego A3D - Connector Layout



Connector	Type	Function
1. Line In Jack	3.5 mm Stereo (Blue)	Connects to external line-level devices to listen to or record from cassette players, CD players, minidisc, etc. Ring = Right. Tip = Left Input impedance = approx. 10Kohm. Input sensitivity with maximum mixer level = 250mVpp for full output level of 2Vpp.
2. Mic In Jack	3.5 mm Stereo (Red)	Connects to mono microphones to listen to or recording voice. Tip = signal. Ring = +5V bias through 12K resistor. Input impedance = approx. 7Kohm <i>High gain:</i> Set gain to +20dB using mixer application software. Input sensitivity with maximum mixer level = 75mVpp for full output level of 2Vpp. <i>Low gain:</i> Set gain to +0dB using mixer application software. Input sensitivity with maximum mixer level = 200mVpp for full output level of 2Vpp.
3. Line Out Jack	3.5 mm Stereo (Green)	Stereo output for driving headphones, powered speakers or line level inputs on CD recorders, etc. 2vpp maximum output signal. Ring = Right. Tip = Left Output impedance = approx. 100ohm. <u>NOTE:</u> This output cannot drive non-amplified speakers.

4. Joystick/ MIDI Connector	15 Pin D sub	Connects to a joystick or MIDI device (using a MIDI interface cable.) Supports up to two analog or digital joysticks, with up to 4 button signals. Configure joystick under Windows using the Game Controller or Joystick applet in the Windows Control Panel. Joystick I/O programmable: 200h - 208h MPU401 UART Mode Interface provides MIDI Input and Output for connecting to external MIDI instruments (with a MIDI cable) MIDI In/Out/Thru modes supported in Windows and DOS
5. CD Audio Input	4-Pin MPC (Black)	Provides stereo input for PC CD audio output. Pin 1 = Left. Pin 2, 3 = Gnd. Pin 4 = Right Input impedance = approx. 10Kohm
6. Telephone Audio Device (TAD) Input/ Output	4-Pin MPC (Green)	Provides mono input and output signal for telephone connection to an audio modem. Pin 1 = TAD out. Pin 2, 3 = Gnd. Pin 4 = TAD in Input impedance = approx. 10Kohm
7. Aux Audio Input	4-Pin MPC (White)	Provides stereo input for an internal PC audio source. Pin 1 = Left. Pin 2, 3 = Gnd. Pin 4 = Right Input impedance = approx. 10Kohm
8. Wavetable Header	26 pin dual in- line	Connects an optional wavetable synthesizer card that will play in parallel with the MIDI output signal on the Joystick connector.

For accessories and other product information, click on the Turtle Beach website icon in the TBS Montego A3D program group.

Please check out the Turtle Beach Systems website to:

- Purchase a MIDI Cable and music software for both education and composition.
- Download more specifications such as the MIDI implementation chart, list of supported A3D games, and more!

Note:

Accessories for the TBS Montego A3D can not be purchased through Dell.

Specifications

Chipset	■ Aureal AU8820 with 48 channel DMA controller, burst-mode and scatter/gather support.
	■ AC'97 Codec, 18 bit, 48KHz record/ playback (full-duplex)
Compatibility	■ Compatible with most Sound Blaster and Sound Blaster Pro games.
	■ Wavetable synthesizer complies with General MIDI patch standard.
	■ MIDI interface complies with MPU401 UART
Features	■ PCI Bus Specifications Revision 2.1
	■ PCI Power Management Interface Specs Rev 1.0
	■ DirectSound 5 Acceleration (up to 16 audio streams)
	■ >90 dB Signal to noise ratio (A weighted)
	■ High-quality hardware-based Sample Rate Converters
	■ WDM Streaming and USB Ready
	■ Simultaneous 16-bit record/playback at independent sample rates (full-duplex)
	■ Selectable sample rates up to 48kHz
	■ 32 hardware wavetable voices plus 32 DVX software wavetable voices
	■ Software OPL2 FM Emulation
	■ Aureal A3D-Interactive Positional Sound (requires Pentium 200MHz MMX processor or better)
Wavetable Synthesizer	■ 32 hardware voices and 32 hardware-accelerated voices
	■ 4MB patch set stored in PC RAM
	■ Dynamic patch allocation minimizes PC RAM patch storage
	■ 16 channel multi-timbral
	■ Chorus & reverb effects
Aureal A3D Interactive Engine	■ General MIDI compatible (128 musical instruments + drum kit)
	■ Real-time interactive sound movement of up to 8 3D sources
	■ Requires Pentium 200MHz MMX CPU or better
	■ Utilizes HRTF signal processing to position sounds on 2 speakers
	■ Supported by numerous games

Declaration of Conformity

According to the FCC96 208 and ET95-19 documents:

Name: Voyetra Technologies Inc.

Address: 5 Odell Plaza, Yonkers, NY 10701 USA

Tel: (914) 966-0600 **Fax:** (914) 966-1102
declares under its sole responsibility that the product:

Trade Name: Montego A3D

Model Number : TB400-3355-01

Has been tested according to the FCC/CISPR22/85 requirements for Class B devices and found compliant with the following standards:

EMI/EMC: ANSI C63.4 1992, FCC Part 15 Subpart B

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesirable operation.

Compliance Manager,
Voyetra Technologies Inc.
January 1, 1998

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Turtle Beach Systems is a subsidiary of Voyetra Technologies, Inc.

Montego A3D is a product of:

Turtle Beach Systems, 5 Odell Plaza, Yonkers, NY 10701

(914) 966-0600 Fax: (914) 966-1102

<http://www.tbach.com>



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