

**Sonic
Studios™**

USB Audio EQUIPMENT REVIEW:

USB FAQ

Special Note: OPCODE was purchased, and then scudded by the buyer about 5 years ago, laying off everyone in the original Opcode company. The product reviewed below works quite well in most cases (*see [FAQ](#) below*), but no customer service or repair facilities remain. If you are uncomfortable with using unsupported orphaned equipment be cautious about purchasing (*now only found second-hand or used*) OPCODE products.

For one practical way of configuring a laptop recording system using a current USB soundcard [click here](#) OR visit www.m-audio.com site for other currently available external USB/Firewire soundcard models.

OPCODE USB Digital Audio Soundcard

HAVE DATport, WILL TRAVEL

By Leonard Lombardo, Owner Sonic Studios

(An edited version of this review article appeared in Pro Audio Review April '99 edition on pp. 77- 78, 80, readers should find the unedited full version most informative for learning little known but highly useful aspects of USB DATport audio device operation. Much thanks given to Tom Sherman, VP of Product Development at Opcode Systems, Inc for providing the insightful DATport content which was mostly absent from the published version for lack of 'edition' schedule time and available print space.)



I had this dream, a vision of starting a part time location sound recording service making 'house calls' and handing the customer an edited CD-R recording within just hours of arriving.

Instead of a Van full of gear, I'd be carrying nothing more than one travel case filled with all the necessary gear to do the job. That same portable system needed to be occasionally battery powered for location wilderness wildlife and acoustic music festival recording.

Assembling the minimum required system included an ambient stereo microphone, portable DAT for Analog/Digital conversion and for a working tape backup. Also required was a laptop computer for editing sound files and a SCSI hard disk/CD-R drive satellite box for CD image file storage/CD-R burning. These items were finally assembled over a period of a year.

However, my location recording system dream bubble burst (or at least greatly deflated) when NO DAT deck 'Digital-to-laptop' interface method was found short of buying a PCMCIA sound card costing thousands and had many super-cool, but (for me) unneeded features.

In short, nobody made affordable hardware to port DAT digital audio into any laptop as stored-to-hard-disk sound files suitable for CD-R editing. Unless I was able to lug around a full size computer (no way!), or buy one of those costly audio PC Cards (definitely out of the question!).

WHERE'S A PRACTICAL DAT TO LAPTOP COMPUTER INTERFACE?

All DAT decks have at least one way of digital input/output connection that's either optical fiber or 75 ohm coaxial (video RCA type). Some DAT decks have both Optical Toslink and Coaxial S/PDIF input/output available.

The Sony Mini-DAT decks that I planned to use on location have a proprietary 7 pin Digital I/O 'connector' that attaches to a family of digital interface accessories that include the two SPDIF types mentioned. But laptop computers, while having most the usual port interfaces found on desktops, have no means of using the available PCI (internal) slot type of soundcards that feature DAT compatible Digital I/O ports. Laptops (and the new iMAC) have no available 'motherboard' slots like most desktops and cannot use this moderate costing method of connecting digital audio.

Anyway, when first assembling this portable recording to CD-R system last year, the reality of a DAT deck to laptop interface problem was not fully appreciated until I had exhausted finding any solutions short of spending a few thousand on that deluxe PCMCIA soundcard mentioned.

ENTER THE USB PORT

It seems that every once in a while a new digital I/O port appears on a computer. The Universal Serial Bus (USB) port is a fairly recent arrival that may have had its origins with WIN95 laptops but is more fully supported by WIN98 and now iMAC and MAC G3 systems.

The bandwidth of USB is about 12-15 Million bits per second and is one of the faster ways to get digital information into or out of a laptop. USB ports have also become standard on recent desktop computers. Finding two USB connectors is now common, however, the two connectors may be really one port operating on a two port 'mini-hub'. This means the bandwidth resource of 12 Mhz for a single USP connection is being shared by the two USB connectors.

Much USB hardware with suitable drivers has arrived in the marketplace over the past year for printer, digital cameras, video, and other popular devices, but no digital audio hardware or drivers could be found, that is, until very recently.

I'm happy to report my search for a solution for porting digital audio in/out of my laptop has finally ended with the arrival of a new product called the 'DATport' from Opcode Systems, Inc. Those also looking for a simple way to port digital sound in/out of WIN98, iMAC, and MAC G3 USB equipped systems, listen up for some really good news

WHAT IT IS

The DATport is the very first of a family of Opcode USB audio products to be shipped, an evaluation unit arrived one rainy Saturday afternoon. With little hesitation, I got started with installation just a few hours afterwards.

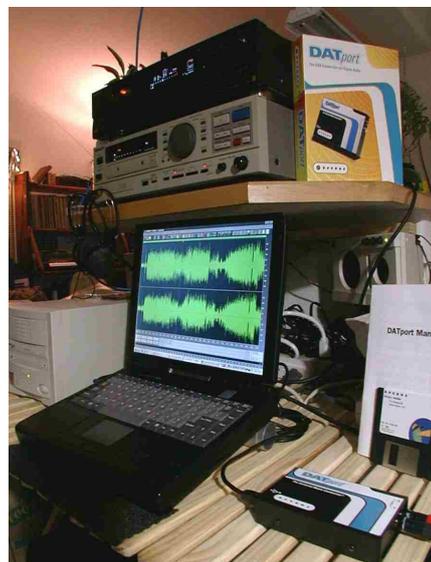
DATport came in a software sized shrink-wrapped box that included the DATport, a floppy disk with WIN98 drivers, a 19 page manual, and a USB port to device connecting cable. The DATport itself is housed in a sturdy U type metal box with one rear device connector and two front gold plated RCA jacks for the digital audio input/output. Also on the front was a 'transmission' status indicator light.

As previously mentioned, WIN98 PC desktop computers or the new iMAC will have one or two USB ports available. USB ports give us a new option of using single or multiple devices (with suitable USB Hub). This allows potential of using multiple DATport devices as capable digital I/O sound cards each with different settings and/or features such as Optical Toslink and Analog to Digital converter.

HEY NOW! WHERE'S THOSE iMAC USB AUDIO DRIVERS?

The iMAC is Apple's first Mac to offer a USB port. Apple IS intensely motivated in providing as much support as needed for USB devices connected to the iMAC product line. However, they are a bit new at USB audio development and are quickly catching up to having the driver support now found in WIN98 systems. Look for those iMAC USB audio device drivers to be released any day now and likely available at the time this article is published. The DATport (with apple USB drivers) is going to make that cute little iMAC about as good for digital audio as it is for the Internet surfing.

THE TEST SYSTEM



The Trek has 96 Meg EDO Ram, 233 Mhz PII, and a 3.1 Gig hard disk that checks out as 8x CD-R burn capable with CeQuadrat's 'speed o' meter' program. Attached to the one of the Trek's PCMCIA slots is an Adaptec 1460B Ultra SCSI bus mastering adapter plugged into the self powered satellite box containing a 4.5G Barracuda SCSI drive and Smart & Friendly (4x/12x) CD-R.

A single S-Video Cable of 16 foot length (it's a bit long seeming, but this is really a 75 ohm video connection that's very tolerant of cable lengths of at least 25 if not a 100 foot runs). Neutrik Phono (very precision) connectors were used for connection to the S/PDIF ports of both DAT deck and DATport.

The DAT decks used for this test: Panasonic SV-3700 (Pro) and Sony DTC-60ES (Consumer with SCMS).

Most of the tests involved shuffling 'stored' .wav files and DAT tape recordings to/from the SCSI connected drives and DAT decks, but also used just the internal Trek HD when recording, playing, and editing a sound files using Windows Recorder, SoundForge XP or Cool Edit 96. I figured if the DATport works well with these lower cost digital audio programs, the more professional and featured software versions should work even better.

GETTING DOWN TO TRYING IT OUT

Installation of the drivers was fairly easy by very carefully following the supplied manual and the two late edition errata sheets that gave complete instructions of what was needed. The DATport needs three distinct WIN98 drivers loaded (USB Composite Device, USB Human Interface Device, and USB Audio Device) to operate, but on my system, I had to manually initiate windows to load the other two that were missed with the 'Plug and Play' recognition system. Getting my WIN98 system to actually recognize the DATport early in the evaluation did take a few cycles of unplugging the USB connector and rebooting. Once it was recognized as an alternative or preferred audio card, there was no further problems with the DATport always showing up as the an available audio recording/playback soundcard in Windows Multimedia settings or when using the audio recording, playback, and editing software installed on my system

The Trek Laptop now reliably recognized the Opcode DATport as USB Audio Device (2). To get that recognition, connecting this USB audio device AFTER booting up seemed to work best on my system, but I'm told there are several existing WIN98 versions (also motherboard variations) and as such, USB device recognition may act less particular to procedure on other systems. My (now vintage) Trek laptop system seems more prone to being a bit particular in this regard.

A DATport Icon appears in the Windows tray area indicating that WIN98 has accepted it. Clicking the Icon brings up the DATport options window with recording/playback sample rate (32K, 44.1K, 48K) as well as choice of 16 or 24 bit depth choices. Multiple connected DATport devices (up to four) can be selected for recording any of these three sample rate options. While playback sample rate can be different from the set recording rate of any connected DATport device, a single working playback bit rate is set for all Opcode DATport devices connected.

I was also able to uniquely rename the DATport to "#1 Tested Opcode" using Opcode's 'device naming' feature that allows for up to 4 (hub or separate USB port) such devices to be connected simultaneously with unique names assigned to aid in multiple selection.

INSTANT PLAYBACK?

Opcode's 'Instant Playback' feature eliminates a likely 3-5 second 'pre-roll' delay in playback and is constructed as an option, (like, when would you **NOT** want this seemingly important feature ON?) However, to my understanding, you'd leave this feature always ON when using the DATport, but unchecked (OFF) just **before** unplugging from it from USB port to avoid a potential WIN98 system instability from the removal.

The 'Instant Playback' feature came late during DATport product refinement and remains one of the more innovative but mysterious features best described by Opcode's Tom Sherman:

"You know that we put in some special circuitry to tame the bad jitter that unprocessed USB has. Well, because of the way Windows handles audio output (it turns it on and off) - there was a 3-5 second delay in output until the jitter was resolved.

OUR FIX - we turn on our exclusive "Instant Playback" and Lock On the S/PDIF audio output - therefore - no delay - no jitter. You should probably use it all the time. Check it out."

DATport's 'once selected' single playback and recording sample rate limitation might be a pesky little disappointment to those with varied 32, 44.1 & 48k sampled audio to file away or playback, especially within a single session; and with having just one DATport connected. It 'might' (sometimes) be necessary (depending on your WIN98 system/version) to reload some USB drivers if WIN98 demands such, then exit and restart windows after changing any of these working Playback/Record DATport sample rate settings.

However, it seems that turning off the Instant Playback feature removes at least the fixed playback rate limitation.

This may be more or less true with multiple DATport devices on line as with having multiple DATport devices set to different session required 'recording' sample rates, just plugging into the correctly 'bit rate set' DATport absolutely eliminates needing to reboot for at least this reason.

Tom Sherman again comments about DATport multiple sample rates and more on Instant Playback:

DATport is capable of accurate bit-for-bit transfer of files sampled at 32, 44.1 and 48 kHz. Playback will automatically change to match the sample rate of the file playing back. The recording sample rate has to be manually selected, requiring the DATport to be reset, either by disconnecting and reconnecting DATport, or by rebooting your machine, whichever is easier. If you have multiple DATport systems, you can send a different sample rate file to each without difficulty.

INSTANT PLAYBACK BACKGROUND:

For example, one of the biggest design advantages of the DATport is its extremely low jitter performance, despite the very high jitter of USB itself. We are receiving about 1 msec of jitter from the bus. Our advanced circuitry reduces that to about less than 10 nsec (at 44.1 kHz, even lower jitter at 48 kHz). To maximize sound quality and allow compatibility with older S/PDIF equipment (which may not operate unless jitter is very low), we've invested quite a bit into our de-jittering design.

What that means is that we have consistently high sound quality and broad compatibility with S/PDIF devices, despite the problems of USB itself. That is why it takes 3-4 seconds for a device to "lock". That's the function of "Instant Playback" - it gives you the best of both worlds: Very low jitter - without the "lock" delay.

We provide Instant Playback as an option (instead of hard-wired) for the following reason:

MULTIPLE DATport CONFIGURATION: *We can support multiple DATports at different record and playback sample rates if Instant Playback is off. Many users will prefer this arrangement if they want many different devices with different sample rates hooked up simultaneously. Conversely, customers wishing to avoid the "lock" delay may wish to run at one consistent playback sample rate.*

In addition, speaking of sample rates, that leads us to the following:

SAMPLE RATE SETTING: *Our configuration application (and no, it is not quirky - imagine USB without it! We're compensating for the lack of USB audio support within Windows 98. Without our app, SR and bit depth changes would be unavailable) simply needs you to*

click the "SET" button after you change the sample rate or bit depth. If you change one of these and do not press "SET" button, nothing will happen. It is possible this is where you were confused.

One final issue is...

SAMPLE ACCURACY: To clarify, DATport is bit-for-bit accurate. Unlike many sound cards, we're not doing sample rate conversion on the fly behind your back. The record path is always in bit-for-bit mode. However, if you set your SR playback option wrong, Windows may try and "help" you and do the SR on the fly. You can avoid this by making sure that only one application is using DATport at a time and that the sample rate of the application matches the sample rate set for DATport.

It does seem less than convenient NOT to be able to 'audibly monitor' a digital input to DATport to file recording process within the WIN98 system. Setting the options in Sound Forge XP and Cool Edit 96 to list my internal sound card as the playback device made no difference in having any monitoring ability during DATport recording. Monitoring off the phones or line analog output of the DAT deck does solve the need for monitoring when transferring audio to hard disk. The audio monitoring limitation will not exist with the planned release of the SONICport (with internal A/D & D/A) models.

I did notice that any unplugging or bad connection of the coax connectors (output AND input) while playback or recording was in progress, caused the DATport's front transmission status light to go out, but the output transfer still continued anyway. This seemed a kind of connector troubleshooting feature as well as 'data in transfer progress' indication. It does seem to need both Input and Output connections secured for the indicator to show.

A WORD ABOUT DIGITAL AUDIO PATCH CABLES

It does seem very important to remind users of coaxial plug connected digital audio devices that keeping all connections VERY CLEAN and STABLE is of utmost importance and seems MUCH MORE critical than the transferring of analog audio signals. For best results with this, use newer very high quality RCA S/PDIF (phono plug type 75 ohm video) patch cords that are precision cabled with VERY SECURELY FITTING PLUG TO DATport/DAT jacks. Even a few microseconds of disconnection caused by loosely fitting plugs, cable movement, or interfering grungy coating on a connector can potentially ruin the successful transferring an entire audio file. Use only clean, precision engineered, and snug fitting video cables for getting the most consistent results with any digital audio device using these types of interconnections. Optical Toslink also needs to be grunge and dust free to give consistently good service, but seem far easier to maintain. Toslink seems more precision engineered from the ground up as compared to the sad state of audio/video RCA phono jacks/plugs that seem 'born prone to get loose and dirty'.

The DATport is considered a professional audio device and as such, allows working with re-recording any digital audio file without SCMS limitations found on consumer equipment.

Now that the USB system is verified working solid on my less than State o' Art WIN98 system, I plan to try returning (step by step) two of the less than 'optimum for windows performance' settings suggested for having optimal WIN98 DATport settings.

These settings are...

File System: "Read-ahead optimization set to none" from full.

Troubleshooting Option: "Disable write-behind caching for all drives". This did seem necessary (at least in my system) for the USB audio to work without audio recording gaps; audio playback performance was not affected with or without these settings.

However, these settings seem to slow my already 'less than stellar performing' WIN98 system for other applications. Rebooting is necessary when changing these system settings so it would be nicer not to need them for solely enhancing audio recording USB applications.

SUMMARY

On the very, very bright side, the DATport delivers all that's promised. I heard audio NO GLITCHES (recording or playback) to report 'once everything' had been selected as directed in the instructions. This was very good to experience and first time ever (for me) with a USB audio device. I had previously tried a 'sold in Japan only' USB audio device that while full of really nifty and useful features, needed much more WIN98 USB driver work for 'glitch-free' digital recording to hard disk.

Congratulations to Tom Sherman (VP of Product Development), and Opcode's dedicated staff on success in producing the very first DAT USB audio device that's solid in doing all the basics of getting digital audio to/from a computer using any type of digital audio deck.

I'm absolutely thrilled at now having an affordable and completed laptop location sound editing and CD-R system thanks to the much-awaited arrival of the DATport.

Now to get those business cards made that say "Have DATport, Will Travel".

AT A GLANCE

Applications:

Digital soundcard recording/playback

Key Features:

Uses simple USB interface; handles both 16/24-bit depths; record/playback of 32K, 44.1K, and 48K sampled audio; USB port powered; RCA S/PDIF Connectors; compatible with WIN98/iMAC & MAC G3 USB ported systems.

Price:

List at \$249

Contact:

Opcode Systems, Inc. at (650) 429-2400 or web site at: <http://www.opcode.com>

Product Points

DATport

Plus

- Selectable 16 & 24 Bit depth
- Selectable 32, 44.1, 48K Sample Rates
- Recording/Playback Sample Rates May Differ
- Connect or Disconnect Anytime
- Cost Effective Laptop/Desktop Digital Audio Soundcard Solution
- Solid Performance & Build Quality
- Connect Up to Four DATport Devices With Unique Names

Minus

- Only For WIN98 or MAC USB
- No Analog/Monitor Output
- May Be Critical of WIN98 File & Disk System Settings

The Score

The simplest, most cost-effective soundcard available to port digital audio in/out of WIN98/MAC USB equipped systems. While it may demand careful attention to system settings/overhead activities, it's well worth the little extra effort with rewarding solid performance. The DATport is revolutionary as the very first USB digital audio product of its kind to make it to the marketplace.

SIDEBAR

The DATport reviewed here represents just the first in a family of at least (7) seven USB audio devices from Opcode Systems. The remaining products are being finalized for series release that will continue throughout this year. A few more DATport models should be available as you read this.

Opcode's DATport USB family:

- DATport (as reviewed) \$249.95
- SONICport (Coax S/PDIF plus 20 Bit Philips A/D, D/A) \$299.95
- SONICport Optical (Toslink S/PDIF plus 20 Bit Philips A/D, D/A) \$299.95

- **MIDIport 32 \$ TBD**
- **MIDIport 64 \$ TBD**
- **MIDIport 128 \$ TBD**
- **STUDIOport AMX \$ TBD**

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<< ----- The following is an except recently gleaned from a NG posting from someone inside Opcode Systems,Inc ----->>

DATport- SRP \$249.95

Creates a high-quality two channel digital link between any external digital coaxial S/PDIF audio device and any USB-compatible computer running Windows 98. These devices include DAT machines, digital multi-track recorders, and front-end A/D converters. Since it works with Laptops, this is perfect for field recording transfers. After audio is inside the computer, editing, reordering music tracks, EQing, etc. can be accomplished digitally. Big fun.

SONICport SRP \$299.95

Creates a high-quality two channel analog and digital audio link between any analog instrument or external digital coaxial S/PDIF audio device and any USB-compatible computer running Windows 98. These devices include DAT machines, digital multi-track recorders, MiniDisc systems, front-end A/D converters, DVD players, CD players and recorders. Includes recording software, 20 BIT Phillips A/ D, D/ A converters, and the fact that it is an external box means that signal to noise is better than many higher priced PCI based converters.

SONICport Optical- SRP \$299.95

(Same as SONICport but with Toslink connectors instead of coaxial)

Creates a high-quality two channel analog and digital audio link between any analog instrument or external digital optical (toslink) S/PDIF audio device and any USB-compatible computer running Windows 98. These devices include DAT machines, digital multi-track recorders, MiniDisc systems, front-end A/D converters, DVD players, CD players and recorders. Includes recording software.

<<

USB AUDIO FAQ SECTION

From: Carl Sxxxx <sxxxxxh@pacific-ocean.com>

Subject: Opcode DATport problems

Date: Tue, 15 May 2001 10:36:50 -0700

Hi Folks,

I bought an Opcode DATport a while back but have never gotten the \$#\$% thing to run properly. Lots of clicks and pops using the supplied "n-track studio" software.

These days, however, it is worse. The lil' connector icon comes on briefly at boot, but the DATport is not recognized when I plug it into the USB port. When I go through the Windahs 98 "install new hardware" routine, it tells me that I have an unknown USB device, and that although the device is installed, it is not working properly. When I first tried the DATport, I got the whole range of install windows, etc. and could do stuff like change the bit rates and all that. Now, nothing.

So the system recognizes that "something" is out there, the cable is good, the port works with other USB devices, and the DATport recognizes if there is s/pdif input coming into it. Where could it be getting lost?

Any ideas from anyone who's used this device would be greatly appreciated. Of course, the supposed technical support on this product has been nil, as others have reported.

Thanks for any comments!

-- carl (the barefoot dancin' tapir)

Hello Carl,

Having installed a DATport on a Windows 95 laptop running WIN98 (not SE), I can attest to having a high anxiety initial install, most people will encounter similar struggles on anything less than a WIN98 SE 'native'

system.

If you do not have WIN98 SE OS, I suggest upgrading for getting the superior USB audio plug-in-play driver support. Easy recognition and support of USB audio devices has been an uphill battle that peaked with W98SE AND the motherboards designed to fully support USB.

Completely remove your DATport from device manager listing and then carefully follow the first few install steps in the Opcode installation manual up to and including the reboot. Upon reboot, a true WIN98 SE system will recognize the DATport as a USB audio device if it is already plugged in at boot-up and then configure the additional drivers and system support automatically.

If you instead plug it in later on, then the additional needed support will automatically be installed upon first device recognition. Sometimes, you'll have to plug the USB device in several times after a long pause in-between tries to get device recognition. But this is usually not a problem encountered on newer USB systems.

The other Opcode drivers you were supposed to check for being installed and (if need be) manually install, seem not needed with W98SE. These additional drivers seem now only (as designed by Opcode) to get around some limitations of earlier motherboards and Windows 98 versions that had little USB audio driver support.

If you have an older computer system, and are having problems, then you may have to manually install what seems missing for USB Audio Drivers as mentioned in the Opcode manual. Also see the DATport review article at: <http://www.sonicstudios.com/datport.htm> for more details about my first W98 OS on a W95 laptop (worst case) installation experiences.

NOTE: The Opcode suggested need for check-boxing the windows performance troubleshooting setting "Disable write-behind caching for all drives" before or especially if DATport performance problems occur. However, this seems not needed for at least native WIN98 systems and generally is not needed in my experience. Good thing too because this really slo-ooows down windows a lot when working some programs.

Clicks and pops in your audio files can be from you computer system doing other things during real-time audio transfer. Turn off all unnecessary (virus, screen saver, CD auto insert notification, local networks) background programs and features. These things left running may distract some computer systems to interrupt (for too long) streaming audio data, therefore producing gaps or errors of omission in the data stream.

If you have a low (<8MEG) RAM graphics board and/or a moderate (<350Mhz) CPU system, turn down the number of colors displayed to 256 (or less).

If you usually have a number of ISA or PCI devices (like a LAN network card), that are not immediately needed and are known to take up valuable system resources, **then try removing them** in the 'My Computer_Properties_Hardware Profiles' box, save your existing "original configuration." Using the Device Manager window, remove all those potential interrupt generating devices **that are not needed when doing digital audio**; save this new "digital audio minimized system" in Hardware Profile as your "DAW configuration."

When your system boots, you'll now have two choices, your "original" or "DAW" configurations.

Installing a RAM memory manager is suggested for WIN <128K Ram systems and remains a good idea even with much more RAM installed depending on number of critical programs loaded. The one manager I've grown to love is **MemTurbo II** produced by **Silicon Prairie Software**, but many such programs exist.

Ram memory management programs can be a lifesaver for being able to immediately free up, defragment, and do a complete scrub of an entire system for lost RAM. It will find RAM remaining 'captured' from closed applications. I've had windows programs grind to a stuttering halt from too little resources (RAM or whatever) available, then I operate the RAM recovery quick keys and be off and running (usually at near full speed again or if in real serious trouble, be able close a freezing application down before it locks up (for whatever reason) by resupplying a minimum amount of RAM to the system.

All Windows CACHE and I/O parameters are also adjustable (using MemTurbo) to set for optimum MIN-MAX settings for best system performance based on the function(s) of the computer. I see little real effect of these settings and just go for the MemTurbo Min-Max setting recommendations provided in the online settings guide.

Although MemTurbo has available automatic settings that restores available RAM according to your Minimum/Recover-to settings, I usually **do not use this**, but manually recover RAM especially **BEFORE** starting an 'audio critical' function so that no streaming data is interrupted (*those clicks*) by a MemTurbo memory recovery action. The RAM recovery process itself can sometimes cause a brief temporary halt in any process running.

So if you use something like MemTurbo, recover all the RAM you need first, then go do the work uninterrupted by the system.

General Bottom line: For ALL REAL-TIME or streaming Digital audio work on a PC, you'll have fewer problems using a minimized (quieted with less things running) specially configured system that is also controlled by a memory manager.

DATport seems to install best on native WIN98(SE) systems, but can be made to work reliably (with a bit of trouble shooting while being very careful about EXACTLY following instructions involving the custom Opcode USB driver install procedure) on WIN95 systems, **especially with WIN98(SE) upgraded systems**. Reports of operating the DATport loaded into a WIN98SE system successfully and then operated when upgraded to WIN2000 OS have been reported.

However, working with a native WIN2000 OS and trying to get the DATport to work is NOT recommended. Instead consider a DUAL boot system that runs both WIN98SE for using the DATport and gives a choice of booting up whatever other WIN OS you may desire.

On older WIN systems where USB "Plug-in-Play" is not working as expected, you just have to 'bit the bullet' and MANUALLY install the audio USB device and the necessary drivers, sometimes one at a time after doing several reboots.

Regards in Sound & Music Recording,
Leonard Lombardo

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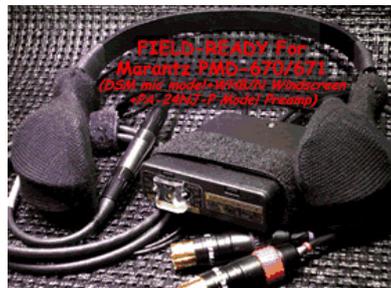
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Portable Deck Power Solutions



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Patch/Adapter Cables



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