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Introduction

Congratulations on your purchase of the Audiophile USB by M-Audio.

The Audiophile USB is your audio and MIDI upgrade for any PC or Macintosh computer*, utilizing the convenience of your computer's USB port—no tools or computer disassembly is required. The Audiophile brings you true 24-bit 96kHz audio and the highest-quality stereo, and digital multi-channel surround sound available today.

Even if you are experienced in digital recording, please take the time to read this manual. It will give you valuable information on installing your new interface and the supporting software, plus help you to fully understand the function and usability of the Audiophile USB. Once you're up and running, you will quickly discover the power and brilliance, both in sound and design, of your new Audiophile USB.

* Must meet minimum system requirements.

What's in the Box?

Your Audiophile USB box contains:

1. One (1) Audiophile USB
2. One (1) Standard USB cable
3. One (1) 9V AC 1 Amp "Wall Wart" power supply
4. Driver CD containing driver software and Audiophile USB Control Panel software for Windows and Macintosh OS 9 or X
5. M-Audio Warranty Registration card
6. This Owner's Manual

About the Audiophile USB

The Audiophile USB gives you two analog line inputs and two analog line outputs, plus coaxial S/PDIF digital inputs and outputs for a total of 4 ins/ 4 outs of high quality audio I/O. All audio channels support 24-bit data width and any sampling rate from 8kHz to 96kHz. The Audiophile USB is compatible with all major software programs running on PC and Macintosh computers. The coaxial digital outputs are multi-channel surround sound capable (Dolby, DTS, etc.), making the Audiophile USB the perfect "high end" sound interface for digital recording, analog or digital transfers, mixing and mastering, as well as DVD and home theater applications.

The Audiophile USB allows you to connect a line-level signal from your line level instrument, mixer, or pre-amp into the Audiophile's analog 1/4" phone

jacks. Alternatively, you can connect the record outputs of your stereo receiver into the Audiophile's RCA jacks located on the back panel. Record a digital audio signal from your DAT, MiniDisc, CD, or external A/D converter via the Audiophile's coaxial S/PDIF input. Control all hardware settings with the Audiophile USB Control Panel software.

The Audiophile USB also includes MIDI I/O connectors. Provided are one input and one output for use with external MIDI equipment such as sound modules and drum machines. The MIDI I/O may also be used to synchronize your computer to external devices via MIDI time code.

Features & Specifications

- 24-bit/96kHz, full-duplex recording interface with MIDI I/O.
- Two (2) analog inputs accept common unbalanced audio connections on 1/4″ or RCA jacks.
- Two (2) analog outputs with level control provide common unbalanced audio connections on RCA jacks.
- Two (2) channels of coaxial RCA S/PDIF I/O.
- 1x1 (16 channel) MIDI I/O.
- Headphone output with level control.
- High analog dynamic range: D/A 107dB, A/D 109 dB (both A-weighted).
- All data paths support up to 24-bit/96kHz performance.
- Windows 98Se, Me, 2000, XP drivers included supporting MME, ASIO, and WDM (Me or greater) Mac OS drivers with ASIO support also included.

Minimum System Requirements

- Windows 98Se, 2000, Me, or XP. Mac OS 9.x or X.
- Pentium II 266MHz for 96kHz operation. Pentium 200 MMX for 48kHz or less.
- 128 MB of RAM for 96kHz operation. 64MB RAM for 48kHz or less.
- Mac G3 with 64 MB of RAM (128 recommended) with native USB. OMS required for MIDI support under Mac OS 9.x
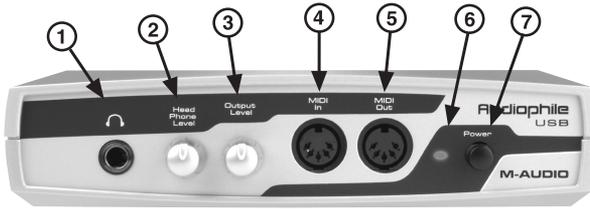
Front Panel Features

1. Headphone Out: This is a stereo headphone output on a 1/4" TRS jack. Connect only a stereo plug to this jack.
2. Headphone Level: This knob controls the level of the stereo output signal sent to the headphone jack.
3. Output Level: This knob controls the level of the stereo output signal sent to the RCA analog output jacks.
4. MIDI In: This 5-pin DIN accepts MIDI data from any external MIDI device via a standard MIDI cable, supporting up to 16-channels of MIDI data on a single cable.
5. MIDI Out: This 5-pin DIN outputs MIDI data to any external MIDI device via a standard MIDI cable, supporting up to 16-channels of MIDI data on a single cable.
6. Power Indicator LED: When power is supplied to the Audiophile, this LED will light and remain lit.
7. Power Switch (On/Off): Pressing this switch and locking to the "in" position will apply power to the Audiophile USB, provided that the proper power supply is attached correctly. This is the power "On" position. To switch power "Off," press in and release this switch to the "out" position.
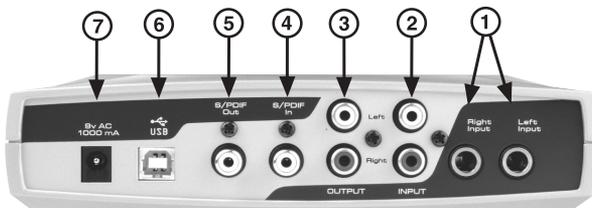
Rear Panel Features

1. Left Input and Right Input (1/4" Analog Inputs): These jacks input analog audio from a variety of external sources. Each jack is female 1/4" tip-sleeve, compatible with common male 1/4" TS cables. When plugs are inserted into these jacks, the RCA inputs are defeated.

2. Left Input and Right Input (RCA Analog Inputs): These jacks input analog audio from a variety of external sources. Each jack is female RCA, compatible with common male RCA cables. When plugs are inserted into the 1/4″ jacks, these RCA inputs are defeated.

3. Left Output and Right Output (RCA Analog Outputs): These jacks output analog audio to a variety of external destinations. Each jack is female RCA, compatible with common male RCA cables.

4. S/PDIF In: This RCA connector receives a S/PDIF signal from your coaxial S/PDIF digital source such as a DAT, MiniDisc player or external A/D converter. Use a quality digital cable, rated at 75 Ohms.

5. S/PDIF Out: This RCA connector sends a S/PDIF signal to your coaxial S/PDIF digital target device such as a DAT, MiniDisc player or external D/A converter. This output is also used as a digital multi-channel surround output (Dolby, DTS, etc.) for DVD or Home Theater use. Use a quality digital cable, rated at 75 Ohms.

6. USB Jack: This standard USB connector connects to the "device end" of a standard USB cable (included).

7. 9V AC 1000 mA PSU Jack: This jack connects to the included power supply, which connects to common house current. Use only a 2.5mm plug with a 9V AC, 1000 mA power rating. Using any other power supply could give undesirable results and/or damage the Audiophile USB.

Guide to Getting Started Quickly

Here is what is required to get your Audiophile USB up and running:

1. Insert the included Drivers CD into your CD drive and locate the Audiophile USB folder. Within that folder, open the folder for the operating system that you are currently using and run the Audiophile USB Installer program.

    NOTE: Windows 98SE users will need the Microsoft Windows 98SE CD-ROM.

2. Plug the included power supply into your wall socket and the Audiophile USB's Power Jack. Then attach the Audiophile USB to your computer with the included USB cable and power the unit "On." (On Windows, this will bring up the New Hardware Wizard, after which installation will be complete.)

3. Configure your digital recording software to use the Audiophile USB as its active audio device (see "Using the Audiophile USB with your Software Application" and also your software application's manual).

4. Hook up your digital and analog audio gear (see "Audiophile USB Recording Tutorials"). Configure your Audiophile USB Control Panel software for proper monitoring and playback.

Hardware Installation

Find a convenient spot near your computer for the Audiophile USB. With the Audiophile's power switched "Off," plug the included power supply into your wall socket, and plug its 2.5mm plug into the Audiophile's 9V AC 1000 mA Power Jack. Then, simply connect the USB cable to your computer and to the Audiophile USB.

Please follow the Driver and Software installation carefully. Apply power to the Audiophile USB, switching the unit "On" ONLY when prompted.

Audiophile USB Driver & Software Installation

The Audiophile USB system includes a "Software Drivers CD" for Windows and Macintosh, containing all Windows and Macintosh drivers (including ASIO drivers), and Audiophile USB Control Panel software. To install on your system, please follow these steps:

Windows Installation

An "Installer" program is provided for Windows operating systems. The Audiophile USB Installer greatly simplifies the work that the Windows New Hardware Wizard has to do, and helps to ensure a trouble-free and simplified installation.

You may also notice that a "Windows Driver Signing" dialog box will pop up a few times during the installation, and you will be asked to press "Continue Anyway." This dialog box indicates that this is a relatively new product. While we are going through the driver certification procedure with Microsoft, we assure you that your Audiophile USB drivers are of the highest quality, and will cause no problems in your system.

1. Insert the Drivers CD into your CD ROM drive. Locate and open the Audiophile USB folder. Double click on the Audiophile USB Installer program in that folder.
2. As the Installer loads the Audiophile USB drivers, a "Windows Driver Signing" (XP and 2000 Users only) dialog box may pop up a few times during the installation. Click, "Continue Anyway."
3. When asked to switch "On" your Audiophile USB, do so. This will bring up the Windows New Hardware Wizard. Click "Next" at each prompt, and the Hardware Wizard should automatically recognize all of the Audiophile Drivers.

   NOTE: Windows 98SE users will need their Microsoft Windows 98SE CD-ROM here.

4. The Wizard reports that Windows has finished installing the software. Click "Finish". Your Audiophile USB is ready for action.

After completion of the driver installation, Windows may require you to restart Windows. If it does request a restart, remove the Drivers CD from the CD drive and respond by clicking "Yes". The system will restart and your Audiophile USB is ready for play.

Macintosh OS 9 Installation

> NOTE: To use the Audiophile USB on Mac OS 9, you must also install Opcode's OMS. This should be done BEFORE running the Audiophile USB's Installer program. By installing OMS first, the Installer program will then be able to place the OMS driver in the proper folder. Then, after running the Installer, you will need to configure OMS. See the section, "OMS Configuration," for more information on installing and configuring OMS.

1. Insert the Drivers CD into your CD ROM drive. Locate and open the Audiophile USB folder. Open the folder for your current Macintosh OS, and double click on the Installer program in that folder.
2. As the Installer loads the Audiophile USB drivers, you will be asked if you wish to place a shortcut to the Audiophile USB Control Panel on your desktop. This is your choice, but it's probably a good idea to choose this option. You can always trash the shortcut if you find it unnecessary.
3. After you run the Installer, you may switch "On" your Audiophile USB. Your Audiophile USB is now ready for action.

OMS Configuration

To configure the Audiophile USB for MIDI on Mac OS 9.x, you will need to have Opcode's OMS (Open Music System) installed first. OMS is a "MIDI Manager" program, and it is necessary to install this in order to run all OS 9 music programs that have a MIDI engine, i.e., programs that use MIDI.

You need to install OMS before you run the Audiophile USB's driver Installer program. OMS is provided on the Drivers CD that came with the unit, and is located in the "OS 9" folder, or it can be downloaded from the M-Audio Website's "Drivers" page. Opening the OMS 2.3.8 folder and double-clicking on the "Install OMS 2.3.8" program will install OMS in your system. Restart your computer, and continue with the driver installation (see previous section).

To configure your Audiophile USB MIDI in OMS, go to the Control Panel or Chooser under the Apple Menu, and make sure AppleTalk is turned off

(this is recommended, although OMS will sense that it is on and prompt you to turn it off). If you are configuring OMS for the first time, follow these instructions to configure OMS.

1. In the Opcode folder, which you will find on your hard drive, locate the OMS Applications folder, "then OMS Setup." Double-click on OMS Setup.
2. OMS will inform you that it has not yet been configured. Click OK.
3. The "Create a New Studio Setup" dialog box now appears. Click OK.
4. The "OMS Driver Search" dialog asks you to choose the port on which you've attached the Audiophile USB MIDI (either Modem or Printer). DO NOT choose a port, just click "Search." OMS begins Searching.
5. "OMS Driver Setup" shows the "Audiophile USB" MIDI in a list when OMS successfully finds the driver. Click OK. OMS will now define (shows "Identifying") the Audiophile USB output port. The "OMS MIDI Device Setup" dialog box will appear showing the Audiophile's output port with a check box to the left of the port, indicating that the port is enabled. Now click on OK.
6. Next, the "My Studio Setup" appears with a "file save" dialog box over it. You will now need to save your new Studio Setup before you can assign an instrument to the Audiophile's MIDI output and input. Assign your instrument and you are done. You may now exit OMS Setup by quitting the application.

Macintosh OS X Installation

1. Insert the Audiophile USB Driver CD into your CD-ROM Drive and open the CD to view its contents.
2. Double click "M-Audio Audiophile USB Installer.dmg" file. An Icon will appear on your desktop marked " Audiophile USB."
3. Double click the " Audiophile USB " icon on your desktop.
4. Now double click on the "M-Audio Audiophile USB Installer.mpkg."
5. You will need your Administrator Password for the next step. To continue, click the lock icon in the lower left corner of the window that states, "Click The Lock To Make Changes."
6. Enter your password and click "OK."
7. The next window "Welcomes You..." to the installation process. Click "Continue."
8. Select your OS X hard drive. Click "Continue."
9. When prompted, click "Upgrade" to continue.
10. When prompted, click "Continue Installation."
11. When prompted, click "Restart" to finish the installation.
12. After the computer has restarted, now plug the Audiophile USB into your computer's USB Port.

13. Go to "System Preferences" in the Apple Menu. Select the "Sound" preference panel, and click the "Output" tab. Select "M-Audio Audiophile USB" to choose the Audiophile USB as your default output device.

Mac OS X Installation is now complete. Proceed to the next section, "Hardware Installation".

Verifying Windows Driver Installation

Windows displays the Audiophile USB driver status in the Device Manager page of the System Properties dialog box. The Device Manager page can be opened by right-clicking on "My Computer," either from the Start menu or your desktop (depending on your operating system), and selecting "Properties" from the list. Select "Hardware," then "Device Manager." With the Device Manager displayed, click on the "+" next to "Sound, video and game controllers" to open a list of devices, the Audiophile USB being a device of that nature. You will also see an entry for the Audiophile USB under "Universal serial bus controllers." Below is an example view of the Device Manager.

This example shows the M-Audio Audiophile USB entries in the Windows Device Manager device list. The Audiophile USB is properly installed with no conflicts. If you do not see your M-Audio Audiophile USB in your Device Manager in this fashion, please jump ahead to the "Troubleshooting" section of this manual.

Verifying Control Panel Installation, PC/Macintosh

On the PC: Once the Audiophile USB is properly installed, an "M-Audio Audiophile USB" icon will be displayed in your Windows Control Panel, which can be accessed from the Start menu. By double-clicking on that icon, you will launch the Audiophile USB Control Panel software. Once the Audiophile USB Control Panel software has been opened, you will see the various controls for enabling inputs and outputs and for setting other parameters.

With the control panel open, you will see in the lower left hand corner a checkbox that states, "Place Audiophile icon in the task bar." You may create a shortcut on your Windows taskbar by clicking on this checkbox. Upon closing the control panel, the M-Audio logo will appear in your taskbar. Double-clicking this icon will then open the Audiophile USB Control Panel. Unchecking the control panel checkbox will remove the M-Audio logo from the taskbar upon closing the control panel. Note that the M-Audio logo will only appear on the taskbar when the Audiophile is attached and powered "On."

On Macintosh: During the driver installation, a dialog box will ask you if you wish to place a shortcut to the control panel on your desktop. Clicking this checkbox will, upon completion of the driver software installation, place a shortcut to the Audiophile USB Control Panel on your computer's desktop. The control panel program itself will install to your system's hard drive. In OS 9, the Audiophile USB Control Panel will be placed in the Control Panel folder, which allows it to be accessed from the Apple Control Panel drop-down list. In OS X, the control panel is installed into the System Preferences folder.

If you choose not to place a shortcut icon on your desktop during the installation process, you may create an alias by highlighting the Audiophile USB Control Panel on the hard drive and pressing the Command Key+M. The alias may then be dragged to the desktop. The control panel can be launched from any of the above locations. Once the Audiophile USB Control Panel software has been opened, you will see the various controls for enabling inputs and outputs and for setting other parameters.

> **NOTE: When using a music software program that is ASIO capable, launch the Audiophile USB Control Panel software from within that program. If you need to change the master clock settings, for instance (in other words, change from the Audiophile's internal clock to an external clock by selecting "S/PDIF In" from the control panel), it is desirable to launch the music program first, and then the Audiophile USB Control Panel from the program's "launch" or "control panel" button. Without the music program open however, it is okay to open the Audiophile USB Control Panel from your desktop or other location.**

The Audiophile USB Control Panel

Certain audio settings are made in the USB Audiophile Control Panel, and are important to the way the Audiophile performs. You may never need to change them for your particular purposes, but it's good to know how these settings affect what you do and how they interact.

When the Audiophile USB driver and control panel software are first installed, a "default" setting is created that will work for you in most circumstances. The analog inputs are active, as well as the analog outputs and the S/PDIF output. The S/PDIF Input is left unchecked. The "16-bit" radio button is selected, but can be switched to 24-bit if you wish to record at that bit depth from your music program. The Audiophile is capable of recording at sample rates up to and including 48000Hz.

You should only check the S/PDIF Input port if you are recording audio from the S/PDIF Input, or otherwise wish to synchronize to an external

sampling clock. Continue reading this section for more information on making selections in the Audiophile USB Control Panel.

Active Channels & Sample Depth: Activation of the Analog and S/PDIF inputs and outputs is done with a set of four check boxes. Two radio buttons allow selection between sample bit depths of 16-bit or 24-bit. These settings will interact with each other, either expanding or limiting your Active Ports, Sample Depth, and/or Maximum Sample Rate settings. Using the full USB bandwidth will allow for 4x4 audio streams at 16 bits with a sampling rate of 48kHz or below. A higher bit depth or sampling rate will demand a trade-off from your system, which can be achieved by disabling your Active Ports.

On the right side of the control panel there are two columns labeled "Active Channels" (Analog and S/PDIF inputs and outputs) and "Sample Depth" (16-bit and 24-bit). Choosing the 24-bit setting will allow your music program to record at any bit depth up to 24-bit, depending on the variety of selections within that program.

With any combination of three stereo pair "Active Ports" enabled, the Audiophile USB is capable of 48kHz or 44.1kHz (or lower) sampling rates at either 24- or 16-bits. When you uncheck and deactivate any one of the Active Ports, the 24-bit option will become available. If you select the 24-bit radio button, and then activate all four Active Ports, the control panel will automatically switch back to the 16-bit setting and gray out the 24-bit option.

> NOTE: Please exit any audio applications running before switching between bit depths.

The Audiophile USB will perform at 96kHz sampling rate with any one of the stereo pairs enabled, and with the 24-bit Sample Depth selected. This is most useful if your CD/DVD player is capable of playing "audiophile" 96kHz recordings. The Audiophile USB will not operate at 96kHz when the control panel is set to 16-bits. In the example below, Output 1&2 is enabled and 24-bit Sample Depth is selected, with the Maximum sample rate showing 96kHz.

If you activate both sets of input and output channels, you will notice that the 24-bit setting in the Sample Depth column is grayed out and the "Maximum sample rate" is shown as 48000 Hz.

> NOTE: Whenever S/PDIF Input is selected as an Active Port, the Audiophile is expecting a digital signal at that port and to lock to the sample rate of that signal. When S/PDIF Input is selected and there is no signal present at the S/PDIF Input port, or the S/PDIF signal is not recognized or invalid, the Audiophile USB will not operate properly. Most likely, you will hear audio from the Audiophile, but it will be running at an odd sample rate and sound like it is playing at the wrong speed.

DD/DTS Pass-Thru: Just below the Sample Depth column, you will see a checkbox labeled, "DD/DTS Pass-Thru." If you are using a Software DVD player and wish to send encoded multi-channel audio such as Dolby Digital or DTS to the Audiophile USB's S/PDIF output port, then check this box. If you are only sending stereo audio (standard PCM—not encoded surround) to the S/PDIF output port during normal operation, then leave this box unchecked.

If you have this box checked, you can still send stereo digital audio to the S/PDIF port without any problems. However, you will notice that when the DD/DTS Pass-Thru box is checked, ONLY the S/PDIF port is active in the Active Ports column. Unchecking the DD/DTS Pass-Thru box will restore the port selection to the previous configuration.

Latency: Driver "Latency" can be selected from a range of values shown in a drop-down list located just below the "Maximum Sample Rate." The default setting when the Audiophile is first installed is "Very High." Because slower computer systems require larger sample buffers to avoid dropouts in the audio stream, a higher latency value is often necessary.

How low you will able to set the Latency will depend on several factors, such as your system's performance and the performance of the music program itself. To test your system for lower Latency, try the "very low" setting first (as shown in the previous screenshot), and if your system stutters or performance falters, try the next higher setting until the system performance stabilizes. Once you are satisfied with any of the control panel settings, click OK to close the Audiophile USB Control Panel.

Version Numbers: The lower left corner the Audiophile USB Control Panel page displays the ASIO Driver Version, USB Driver Version, and the Firmware Version numbers currently in use. This is useful when checking for driver updates on the M-Audio website, or in the event that you need to call tech support and give them your system information.

Windows Sound System and the Audiophile USB

Windows may be set up to use the Audiophile as its default audio device, allowing system sounds to be played through the Audiophile. This also enables you to use the Audiophile with the sound applets included with Windows. To set this up, go to Control Panel | Sounds and Audio Devices (or, "Multimedia" in Windows 98). In the Audio Properties page, set the Playback and Recording devices to the Audiophile USB input and output devices of your choice.

Windows may also use the Audiophile USB as its default MIDI device. This allows the Audiophile USB to be used with the MIDI applications included with Windows. To set this up, go to Control Panel | Sounds and Audio Devices | Audio. (Or, go to Control Panel | Multimedia | MIDI in Windows 98.) Set the Audiophile MIDI driver as the default Windows MIDI driver by clicking on the "Out USB Audiophile" entry in the drop-down list, then selecting "OK" or "Apply".

Macintosh Sound Manager and the Audiophile USB

The Macintosh Sound Manager will allow you to select the Audiophile USB as the system's audio input and output device. Open the Apple menu and select "Sound" from the Control Panels list. Then choose Audiophile as both input and output driver. However, you may also leave the Sound control panel set to "Built-in" if you wish to use the Audiophile only with your music program and use the internal audio for system sounds.

Audiophile USB Inputs & Outputs

The Audiophile USB Digital Recording Interface's analog inputs and outputs are compatible with a variety of audio products. The Audiophile USB has both female RCA and female 1/4" TS (tip-sleeve) input jacks, and female RCA output jacks. These jacks allow connection to unbalanced (typically consumer or semi-pro) line level equipment.

Only one pair of analog inputs can be used at any given time. When a 1/4" TS plug is connected to the 1/4" line inputs, the corresponding RCA input jack is defeated. If you have RCA cables connected to the Audiophile and then connect 1/4" plugs to the 1/4" jacks, the Audiophile will then get its signal from the 1/4" line inputs.

NOTE: In order to preserve its high dynamic range and minimize distortion, the Audiophile USB does not have microphone preamplifiers built into it. Therefore, directly connecting a

microphone is not recommended. Instead, pass the microphone signal through a microphone pre-amp (such as the M-Audio TAMPA™, DMP3™, or Audio Buddy™), and then connect the pre-amp output to the input of the Audiophile USB. Some additional cable and/or cable adaptors may also be needed to ensure proper connectivity.

The Audiophile USB also has digital inputs and outputs in S/PDIF format. These are available on RCA connectors, as stereo pairs. These jacks receive or transmit a digital audio stream that is independent of the analog audio streams. However, because of the bandwidth limits of USB there can be a tradeoff between the number of inputs and outputs that are active and the sampling rate and bit depth of the audio being processed. Also, you should ONLY activate the S/PDIF Input if you are connecting an active digital audio device to this input. This is detailed in the previous section, "The Audiophile USB Control Panel."

Also detailed in the previous section is the use of the S/PDIF Output for sending encoded surround sound signals. Checking the "DD/DTS Pass-Thru" box in the Audiophile USB Control Panel will allow you send Dolby Digital, Dolby Surround, DTS, or any encoded surround sound signal to the S/PDIF Output of the Audiophile USB. You can connect this output to a home theater system, or any device that will decode this signal. Using most DVD players, select the "S/PDIF" option in the DVD players audio setup page, and your computer becomes a high-end home theater player in conjunction with the Audiophile USB.

Audiophile USB with Your Music Software

Once the Audiophile USB hardware and software drivers are properly installed, the Audiophile is ready for use with your music application software. Some software applications may require you to highlight or enable the Audiophile USB drivers within the program in order to use the Audiophile, while others may have a utility that analyzes or profiles the audio devices in your system and enables the drivers. Your software should have an audio device driver setup page. If you have problems locating it, consult your software's documentation.

The Audiophile drivers include MME and WDM drivers for Windows, ASIO drivers for both Windows and Mac, and Sound Manager drivers for Mac. WDM drivers are a more modern driver architecture for Windows operating systems Me, 2000, and XP, but only certain programs like Cakewalk's "Sonar" will take advantage of them. Other Windows programs will automatically access and use the MME drivers. WDM drivers, similar to ASIO, will give you

low latency monitoring through the application (check your application's documentation for information regarding input monitoring).

If your Windows or Macintosh program is ASIO compliant, like Steinberg's "Cubase" or Emagic's "Logic," then the program's audio device driver setup page will allow you to select the USB Audiophile ASIO driver. This selection is advised, and described more fully later in this section.

Windows MME and WDM Audio Input Devices: Within the setup page of your software application(s), the names of the Audiophile USB audio input devices will be:

"M-Audio USB Audiophile Line", and
"M-Audio USB Audiophile SPDIF".

The "M-Audio USB Audiophile Line" device allows recording a stereo stream directly from the analog Left and Right Input pair, while the "M-Audio USB Audiophile S/PDIF" device allows you to record a stereo stream directly from the S/PDIF Input.

> **Note that the input devices are stereo. Your application software may break these down further to "left" and "right" mono devices. Therefore you may see them as "Left M-Audio USB Audiophile Line" and "Right M-Audio USB Audiophile Line," or "Left M-Audio USB Audiophile S/PDIF" and "Right M-Audio USB Audiophile S/PDIF" from within your recording software. If your application allows for recording stereo tracks, you will also be able to select "Stereo M-Audio USB Audiophile Line" and "Stereo M-Audio USB Audiophile S/PDIF."**

Windows MME and WDM Audio Output Devices: Within your software application(s), the names of the Audiophile USB audio output devices are:

"M-Audio USB Audiophile Line", and
"M-Audio USB Audiophile SPDIF "

Most application software will handle the outputs as stereo pairs but allow you to pan audio left or right within the pair. Therefore, to send a mono output to the Audiophile's Left Output (for example), choose "M-Audio USB Audiophile Line" and pan that track hard left. To send a mono output to the Audiophile's Right Output, choose "M-Audio USB Audiophile Line" and pan that track hard right.

ASIO Input and Output Devices: If your music program is ASIO compliant, you may use the "USB Audiophile ASIO" driver with your Audiophile USB. Open your music program and go to the audio setup page. The "USB Audiophile ASIO" driver will show up in the program's ASIO Driver list, allowing you to select it at this time if it is not already selected by default.

If you are using an ASIO compliant music program, we suggest that you enable and use the Audiophile's ASIO drivers. ASIO gives you the advantage of being able to monitor your source through the program, similar to monitoring the record inputs of a tape machine. ASIO input devices will appear as:

"M-Audio USB Audiophile Line Left",
"M-Audio USB Audiophile Line Right",
"M-Audio USB Audiophile SPDIF Left", and
"M-Audio USB Audiophile SPDIF Right".

ASIO Output devices will appear as these stereo pairs, which you will be able to pan left and right from within your music program:

"M-Audio USB Audiophile Line", and
"M-Audio USB Audiophile SPDIF".

Once the Audiophile USB ASIO driver is selected in your music program's audio setup page, you will find a button that allows you to launch the ASIO device's control panel. Clicking this button will now launch the Audiophile USB Control Panel, allowing you to view the Audiophile USB audio settings.

Audiophile USB MIDI Setup

The Audiophile's MIDI input and output ports may be connected to external MIDI devices. The following diagram shows connection to a MIDI keyboard instrument, which is also being used as a sound module. The MIDI output of the Audiophile USB may be used with just a sound module, while the MIDI input may alternately be used to receive MIDI time code for synchronization purposes.

1. Connect the MIDI out port of your controller keyboard to the Audiophile's MIDI In port using a standard MIDI cable.
2. Connect the Audiophile's MIDI Out port to the MIDI in of your keyboard instrument (or a sound module), also using a standard MIDI cable.
3. Connect the audio outputs of the keyboard to either a mixer, sound system, or the audio inputs of the Audiophile USB.
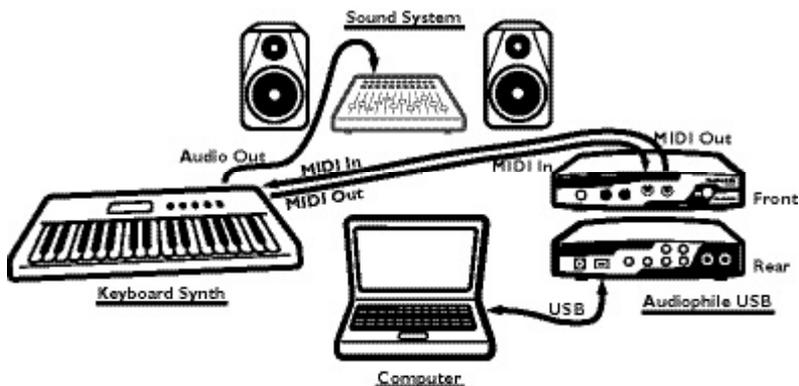
The Audiophile USB MIDI drivers, once enabled in your software's MIDI Setup, will appear as a MIDI source and a MIDI port within that program's track configuration windows. The MIDI input driver is named "In Audiophile USB", and the MIDI output driver is named "Out Audiophile USB". Some software applications allow you to redefine/rename these devices per supplied or manually entered instrument definitions.

Troubleshooting

Problem: No sound output.

Possible Cause 1: The Audiophile USB hardware or software device drivers are not properly installed. See the installation sections of this manual for further information.

Possible Cause 2: There is a resource conflict between your computer's USB controller and another device in your computer (PC only). Check the Device Manager for your USB controller's IRQ against those of the other installed devices. If necessary, change the settings for the one or more of the devices (refer to your computer or motherboard manual).

Possible Cause 3: Your application software has not been properly configured to use the Audiophile USB as its audio output device.

Possible Cause 4: Improper connections of the audio accessories. Verify that the Audiophile USB analog audio outputs are properly connected to a digital mix deck or external mixer/amplifier, or the S/PDIF Out is connected to an external digital audio device capable of receiving S/PDIF.

• **Problem:** I'm trying to record digital audio through the S/PDIF input but I don't hear any output.

• **Possible Cause:** The settings in the Audiophile Control Panel may be incorrect. Double check that you have S/PDIF Input enabled and that your settings don't exceed the bandwidth limitations of USB. Remember that the more inputs and outputs you have enabled, the lower the allowable sampling rate and bit depth.

Problem: The Device Volume control in Windows' Sounds and Audio Devices (or other software such as MUSICMATCH Jukebox) is grayed out and does not function.

Possible Cause: Audiophile USB does not make its volume control parameter available to the host computer's operating system. Use the Head Phone Level and Output Level knobs on the front panel of your Audiophile to adjust volume.

• **Problem:** No visual activity on Audio Input volume (VU) meters of user software.

• **Possible Cause 1:** The Audiophile USB input devices are not properly selected in the user's application software.

• **Possible Cause 2:** Improper connections to audio accessories.

Problem: Repetitious Sound.

Possible Cause: An IRQ resource conflict with the USB controller and another device (PC only). Often this will result in a small segment of sound (0.5 to 1 second) repeating itself over and over, sometimes completely locking up the computer. See the general troubleshooting suggestions at the beginning of this section.

• **Problem:** I'm getting some pops and clicks in my audio recording.

• **Possible Cause 1:** Input levels are too "hot," causing clipping or input distortion. Make sure you have the proper signal levels coming from your source audio device, and lower the output if necessary. The incoming levels may be easily viewed from the Audiophile USB Control Panel peak meters.

• **Possible Cause 2:** Your application software may not have the proper audio buffer sizes set. Each software application handles this differently, but typically there is somewhere in the software's setup to set the size of the playback and recording buffers used by the application. Some applications also require you to run a calibration (sometimes called "profiling") the first time you use the software with a new audio interface. For instance, if the clicks are present when using Cakewalk SONAR, then try to run SONAR's Wave Profiler.

• **Possible Cause 3:** Some accelerated graphics cards use excessive amounts of system bandwidth, preventing the recording buffer of an audio interface from keeping up with demand. This can cause clicks in the recording. Reducing or turning off the graphics card's graphics acceleration feature often resolves this problem. In Windows, the level of graphics acceleration is accessed from Start | Settings | Control Panel | System | Performance | Graphics.

Problem: My software application keeps telling me "sample rate not supported" or some similar message.

Possible Cause: This would most likely occur if you were trying to select 96000Hz as a sample rate, and the Maximum Sample Rate available from the Audiophile USB Control Panel is 48000. Open the control panel, and uncheck the Active Port boxes until you have only one port selected for either input or output.

Problem: I am playing AC-3 or surround sound data from a software application on my computer, sending the data from Audiophile USB S/PDIF Out to my home theater's AC-3 decoder. However, the decoder does not recognize the signal and therefore refuses to put out any audio.

Possible Cause: There is a bit within the S/PDIF digital audio stream that defines the S/PDIF content as audio or non-audio. Most AC-3 surround sound decoders expect this setting to be non-audio and will otherwise reject the information. Go to the S/PDIF page of the Audiophile USB Control Panel, select Consumer and Advanced Settings, and then select "DD/DTS Pass-Thru."

• **Problem:** I have Windows 98SE and I want to install the Audiophile USB, why do I need the original operating system CD-ROM to install your drivers?

• **Answer:** Windows 98SE does not have the system files to support USB Audio installed as part of the core installation. Instead these files must be added. The necessary files are located on the Windows 98SE CD. If you do not have your original Windows 98SE CD, contact Microsoft Technical about how to acquire the files for USB Audio support in Windows 98SE.

Contact Information

For additional help, contact M-Audio Technical Support by telephone (626-445-8495, 9-5 PST M-F), by fax (626-445-7564) or by e-mail (techsupt@m-audio.com).

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Audiophile USB Warranty

M-Audio warrants that this product is free of defects in materials and workmanship under normal use for a period of One (1) year, so long as the product is: owned by the original purchaser; the original purchaser has proof of purchase from an authorized M-Audio dealer; and the purchaser has registered his/her ownership of the product by sending in the completed warranty card.

This warranty explicitly excludes power supplies and included cables which may become defective as a result of normal wear and tear.

In the event that M-Audio receives written notice of defects in materials or workmanship from such an original purchaser, M-Audio will either replace the product, repair the product, or refund the purchase price at its option. In the event any repair is required, shipment to and from M-Audio and a nominal handling charge shall be borne by the purchaser. In the event that repair is required, a Return Authorization number must be obtained from M-Audio.

After this number is obtained, the unit should be shipped back to M-Audio in a protective package with a description of the problem and the Return Authorization clearly written on the package.

In the event that M-Audio determines that the product requires repair because of user misuse or regular wear, it will assess a fair repair or replacement fee. The customer will have the option to pay this fee and have the unit repaired and returned, or not pay this fee and have the unit returned unrepaired.

The remedy for breach of this limited warranty shall not include any other damages. M-Audio will not be liable for consequential, special, indirect, or similar damages or claims including loss of profit or any other commercial damage, even if its agents have been advised of the possibility of such damages, and in no event will M-Audio's liability for any damages to the purchaser or any other person exceed the price paid for the product, regardless of any form of the claim. M-Audio specifically disclaims all other warranties, expressed or implied. Specifically, M-Audio makes no warranty that the product is fit for any particular purpose.

This warranty shall be construed, interpreted, and governed by the laws of the state of California. If any provision of this warranty is found void, invalid or unenforceable, it will not affect the validity of the balance of the warranty, which shall remain valid and enforceable according to its terms. In the event any remedy hereunder is determined to have failed of its essential purpose, all limitations of liability and exclusion of damages set forth herein shall remain in full force and effect.

Appendix A - Technical Specifications

Analog Audio:

Peak Signal, Analog Input: +2dBV

Peak Signal, Analog Output: +2dBV

Dynamic Range, Inputs: 109dB (A-weighted)

Dynamic Range, Outputs: 107dB (A-weighted)

THD (at 0dBFS):   -92dB (typical)

Frequency Response: 22Hz - 22kHz, -0.4,-0.4dB

Maximum Converter Data Width: 24 bits

Input Impedance: 10k ohms minimum

Connector Type: Gold-plated RCA female, back panel

Digital Audio:

Digital Input Sample Rate: 8kHz to 96kHz

Maximum Word Width: 24 bits

Digital Input Format: S/PDIF coaxial, 0.5 to 5V peak-to-peak

Digital Output Format: S/PDIF coaxial, 0.5V peak-to-peak

Digital Output Sample Rate: 8kHz to 96kHz

Data format: S/PDIF (not AES/EBU)

Connector Type: Gold-plated RCA and 1/4", female

MIDI:

I/O Configuration: 1-in/1-out (16 MIDI channels, in & out)

Connector Type: Standard MIDI 5-pin DIN

Appendix B - Driver/Software Install, Step by Step

Windows XP:

1. During this installation, the Audiophile USB must be powered off. Begin the installation process by inserting the Drivers CD ROM in your computer.
2. A Setup window will appear. Click "Next," to continue.

3. A Software Installation window will come up regarding Windows Logo testing. As this is a relatively new product, it has not gone through Windows Logo testing or certification yet. Rest assured, our USB drivers are of the highest quality and will not cause problems in your system. Click "Continue Anyway."

4. A second Software Installation window will appear again with a similar alert. Click "Continue Anyway."

5. A third Software Installation window will appear. Click "Continue Anyway."
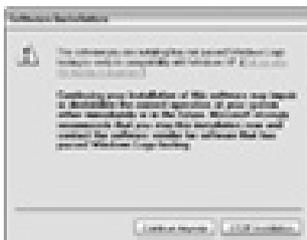
6. An M-Audio USB Audiophile Setup window will appear next. Make sure both the Enable Digital CD and Enable DMA Transfer Mode boxes are checked, then click "Next."

7. Another M-Audio USB Audiophile Setup window will appear next. Click "Next," to successfully install the USB Audiophile.

8. Windows will prompt you to restart the computer. Make sure that "Yes, restart my computer now," is checked and then click "Finish," to restart.

9. When you are completely restarted and at the desktop, power up the USB Audiophile.

10. The New Hardware Wizard will appear. Please select "Install the software automatically (Recommended)," then click "Next."

11. A Hardware Installation window will come up. Click "Continue Anyway."

12. A "Completing the Found New Hardware Wizard" window will appear next. Click "Finish," to complete this portion of the installation.

13 Another Windows Logo testing window will come up. Once again, click "Continue Anyway."
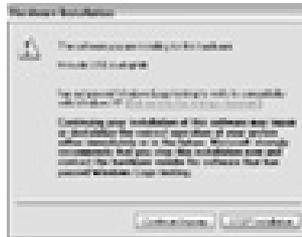
14. The New Hardware Wizard will appear again. Select "Install the software automatically (Recommended)," by clicking on the radio button and then clicking "Next."

15. Another Hardware Installation window will appear regarding Logo Testing. Click "Continue Anyway."
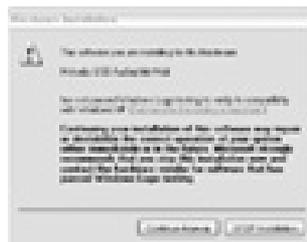
16. The final "Completing the Found New Hardware Wizard" window will appear. Click "Finish," to complete the installation of your Audiophile USB.

17. Open the Windows Control Panel and click on the Audiophile USB Control Panel. Select "Place Audiophile Icon in the task bar." The Audiophile USB will have a small black "M" in the system tray for easy access to the control panel.

Windows 2000:

Windows 2000 comes installed with DirectX version 7. You must have DirectX version 8.1 in order to install the Audiophile USB. The Audiophile USB installer will automatically check for the correct version of DirectX and install the latest DirectX update (this update will be skipped if you already have DirectX version 8.1 or higher in your system).

1. During this installation, the Audiophile USB must be powered off. Begin the installation process by inserting the Drivers CD ROM in your computer. and double-click on the Audiophile USB.EXE icon in the Window that appears. **The installer will now check your computer for the correct version of DirectX. If DirectX version 8.1 (or higher) is already installed, proceed directly to step number 6.**

2. Assuming that the installer has not found Direct X 8.1 or higher, it will now install (DirectX) version 8.1. Proceed with the DirectX installation by clicking "Next."

3. Click "Yes," to confirm that you wish to continue with the installation.

4. Verify that you have read the license agreement and agree to the terms. Click "Yes," to continue.

5. Windows will need to restart your machine to complete the DirectX 8.1 installation. Click "OK," to restart your system.

6. This is the first setup window for installing the Audiophile USB drivers after the installer has confirmed that you have DirectX version 8.1 (or higher) installed on your system. Make sure your Audiophile USB is powered off and that no other Windows programs are running, then click "Next," to continue.

7. A Digital Signature Not Found window will appear. As this is a relatively new product, it has does not have an official Windows Digital Signature yet. Rest assured, our USB drivers are of the highest quality and will not cause problems in your system. Click "Yes."

8. An M-Audio Setup window will appear next. Make sure both Enable Digital CD and Enable DMA Transfer Mode boxes are checked, then click "Next."
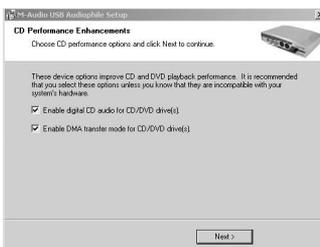
9. An M-Audio Setup window will come up confirming a successful setup. Click "Next," to successfully install the USB Audiophile.

10. Windows will prompt you to restart the computer. Make sure that "Yes, restart my computer now," is checked and then click "Finish," to restart.

11. When you are completely restarted and at the desktop, power up the USB Audiophile.
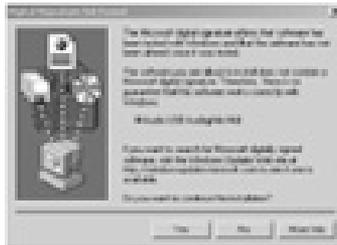
12. A Digital Signature Not Found window will appear next Click "Yes."

13. A second Digital Signature Not Found Box will appear. Click "Yes," again.

14. The driver is now installed in your computer. Next, open the Windows Control Panel and click on the Audiophile USB Control Panel. Select "Place Audiophile Icon in the task bar." A button which contains a small black "M" and represents the Audiophile USB control panel will now appear in the system tray, for easy control panel access.

Windows ME:

Windows ME comes installed with DirectX version 7. You must have DirectX version 8.1 in order to install the Audiophile USB. The Audiophile USB installer will automatically check for the correct version of DirectX and install the latest DirectX update. This update will be skipped if you already have DirectX version 8.1 (or higher) in your system.

1. During this installation, the Audiophile USB must be powered off. Begin the installation process by inserting the Drivers CD ROM in your computer. and double-click on the Audiophile USB.EXE icon in the Window that appears. **The installer will now check your computer for the correct version of DirectX. If DirectX version 8.1 (or higher) is already installed, proceed directly to step number 6.**
2. Assuming that the installer has not found Direct X 8.1 or higher, it will now install (DirectX) version 8.1. Proceed with the DirectX installation by clicking "Next."

3. Verify that you wish to continue installing DirectX 8.1 by clicking "Yes."

4. Verify that you have read the license agreement and agree to the terms. Click "Yes," to continue.

5. Windows will need to restart your machine to complete the DirectX 8.1 installation. Click "OK," to restart your system.

6. This is the first setup window for installing the Audiophile USB drivers after the installer has confirmed that you have DirectX version 8.1 (or higher) installed on your system. Make sure your Audiophile USB is powered off and that no other Windows programs are running, then click "Next," to continue.

7. An M-Audio Setup window will appear next. Make sure both Enable Digital CD and Enable DMA Transfer Mode boxes are checked, then click "Next."

8. An M-Audio Setup window will come up confirming a successful setup. Click "Next," to successfully install the USB Audiophile.

9. Windows will prompt you to restart the computer. Make sure that "Yes, restart my computer now," is checked and then click "Finish," to restart.

10. When you are completely restarted and at the desktop, power up the USB Audiophile.
11. Open the Windows Control Panel and click on the Audiophile USB Control Panel. Select "Place Audiophile Icon in the task bar." The Audiophile USB will have a small black "M" in the system tray for easy access to the control panel.