M-AUDIO

Fast Track Ultra 8R

Rack-mountable 8 x 8 USB 2.0 Interface with MX Core DSP Technology

English
User Guide

1   Introduction

Thanks for choosing M-Audio Fast Track Ultra 8R. Fast Track Ultra 8R is a professional, high-quality audio and MIDI interface for your Windows or Macintosh laptop or desktop computer. Using the convenience and dependability of a USB 2.0 connection, Fast Track Ultra 8R provides your computer with an exceptionally flexible audio interface that will handle virtually any recording task with ease. Fast Track Ultra 8R delivers high-resolution 24-bit audio to and from your computer at sampling rates up to 96kHz. Its on-board DSP gives you a useful selection of reverb and delay effects and versatile monitoring options. Fast Track Ultra 8R also gives you sixteen channels of MIDI in and out – all in a sleek, rugged, compact single rack space design. It connects to your computer with a single USB cable – no tools needed, no cards to install.

Fast Track Ultra 8R was created with the home or project studio user in mind. With eight inputs, eight outputs and eight high-quality preamps featuring M-Audio's award-winning Octane™ technology, Fast Track Ultra 8R gives you a great sounding, easy-to-use interface for your digital audio software. The eight combo XLR/TRS inputs can accommodate microphone or line levels, with phantom power switchable in groups of four and individual 20dB pads. Channels one and two also provide insert points, and are switchable to accommodate instrument level input. The rear panel also offers you MIDI input and output ports, as well as dedicated S/PDIF inputs and outputs on the included breakout cable.

The front panel is also set up for easy monitoring, and features input signal and clipping indicators, two discrete headphone outputs with independent level controls, MIDI input and output LEDs, and phantom power indicators, making Fast Track Ultra 8R an ideal solution for beginning and advanced computer recording users alike.

Even if you're an experienced musician and digital recording enthusiast, please take some time to read through this User Guide and familiarize yourself with the features and operation of Fast Track Ultra 8R. You may also want to refer to your audio software's documentation to better understand how Fast Track Ultra 8R may be integrated with the program. Your experience and enjoyment of your Fast Track Ultra 8R will be greatly enhanced by a good working knowledge of your audio software.

2   What's in the Box

Your Fast Track Ultra 8R package contains the following:

- Fast Track Ultra 8R
- Breakout cable providing MIDI and S/PDIF I/O connectors
- Printed Quick Start Guide
- Fast Track Ultra 8R CD-ROM, including drivers and documentation
- Software Bundle CD-ROM
- USB Cable
- 9VDC 4000mA power supply

3   Fast Track Ultra 8R Features

- Eight balanced/unbalanced Mic/Line Inputs on combo XLR/TRS jacks

- Two front-panel 1/4" Instrument-level inputs

- Eight high-quality microphone preamps, featuring M-Audio's award-winning Octane™ technology

- Individual mic pre input level controls with 20dB pads

- Dual front-panel Signal and Clip LED indicators

- Eight balanced/unbalanced line outputs on TRS jacks

- Two 1/4" inserts on TRS jacks

- Phantom Power switches with front-panel indicator LEDs

- Stereo S/PDIF digital I/O on coaxial jacks

- Two stereo headphone jacks with individual level controls

- MIDI Input and Output with front-panel MIDI I/O indicators

- Output Level control for main output pair 1/2

- Powerful onboard DSP providing four near-zero latency 16x2 monitor mixers

- Built-in reverb and delay effects

- Supports sample rates up to 96kHz, with full 24-bit resolution

- Integrated rear-panel Kensington security lock port

- Driver support for WDM/MME, ASIO2 (Windows XP, Windows Vista (32-bit editions)) and CoreAudio (Mac OS X 10.4.11 / 10.5.2 or later)

> ➜ **_IMPORTANT NOTE_**: *Fast Track Ultra 8R is a USB 2.0 device. USB 1.1 operation is not supported.*

> ➜ **_IMPORTANT NOTE_**: *Fast Track Ultra 8R must be powered via the included power supply. It will not operate on USB bus power.*

4   Minimum System Requirements

Windows

Fast Track Ultra 8R is supported under Windows XP with Service Pack 2 or later, or Windows Vista (32-bit editions). It is not supported under Windows 2000, Windows 98, 98SE or Windows ME. Please see the note below regarding System Updates before making any updates to your operating system.

Minimum System Requirements*

Windows XP with SP2

- 1.6 GHz CPU
  (CPU requirements may be higher for laptops)

- DirectX 9.0c

- USB 2.0 port

- 512 MB RAM

Windows Vista (32-bit editions)

- 1.6 GHz CPU
  (CPU requirements may be higher for laptops)

- USB 2.0 port

- 1 GB RAM

Mac OS X

Fast Track Ultra 8R is supported by Intel-based and PowerPC-based Macs running Mac OS X version 10.4.11 or 10.5.2 or later.

Minimum System Requirements*

PowerPC

- Mac OS X – 10.4.11/10.5.2

- native USB 2.0 port

- 512 MB RAM

- G4 1GHz CPU
  (G4 accelerator cards not supported)

Intel

- Mac OS X – 10.4.11/10.5.2

- native USB 2.0 port

- 512 MB RAM

- Intel CPU

*M-Audio suggests that you also check the minimum system requirements for your audio software, as they may be greater than the above.

IMPORTANT NOTE: *Fast Track Ultra 8R has been designed as a USB 2.0 device. USB 1.1 operation is not supported.*

A Note About System Updates: *Please check the M-Audio driver download page at http://www.m-audio.com/drivers for the availability of an updated driver before you decide to install operating system updates.*

Before new M-Audio device drivers are released, they are tested for use with the operating system versions that are available at that time. When updates for an operating system are released by Microsoft or Apple, all M-Audio device drivers have to be retested and possibly updated to ensure proper operation.

M-Audio recommends refraining from installing operating system updates until a driver has been posted to the M-Audio website for that specific operating system.

5   Controls and Connectors

Front Panel
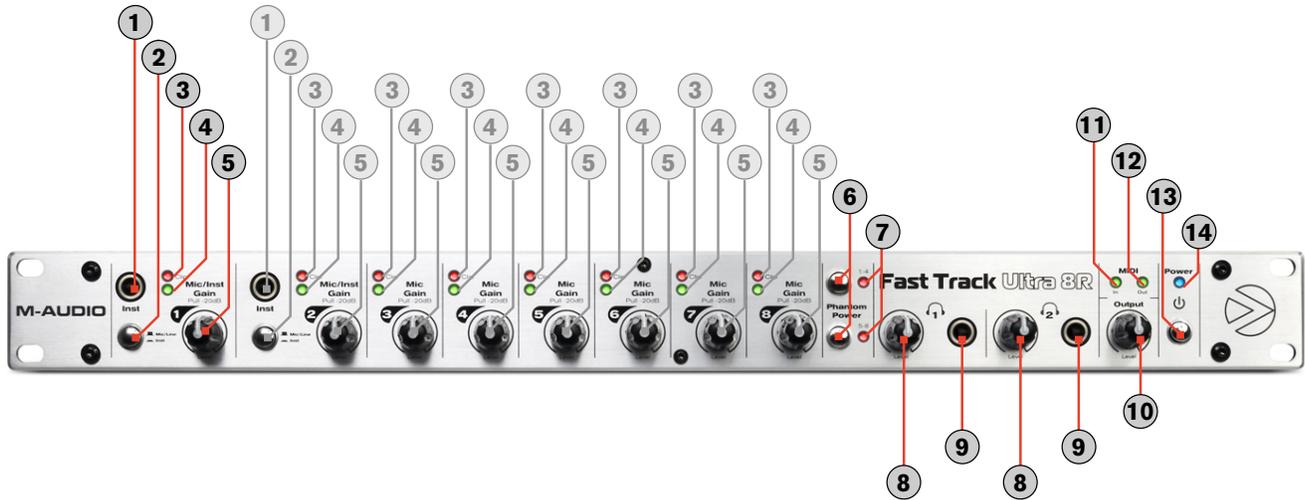
1.   **Instrument Inputs 1 and 2 (Inst) –** These front-panel connectors provide instrument-level inputs for channels 1 and 2. Each of these two inputs will accept a high-impedance instrument level signal on an unbalanced 1/4" plug. Set the Mic/Line - Instrument switch ② to the "in" position to activate the corresponding front-panel input.

2.   **Mic/Line - Instrument Level Switches (▣ Mic/Line / ▭ Inst) –** These switches select the input source for channels 1/2 between the front-panel Instrument inputs ① and the rear-panel Mic/Line inputs ⑳.

3.   **LED Clip Meters (Clip) –** These red LEDs illuminate when an input signal reaches a sustained clipping level. Reduce the channel's Input Gain level ⑤ if the LED glows steadily red.

4.   **LED Level Meters –** These green LEDs illuminate when an input signal of -40 dBFS is present at the corresponding input.

5.   **Mic/Instrument Gain/Pad 1-8 (Mic/Inst Gain Pull -20dB) –** These knobs adjust the input gain level for channels 1 through 8. Pulling the knob out will engage a 20 dB pad on the Mic and Instrument input. Pushing the knob in will disengage the pad. (Note that the level controls only affect the XLR mic and front panel instrument inputs, but do not affect the line-level inputs.)

6.   **Phantom Power Switches (Phantom Power) –** Pressing these switches activates the phantom power circuitry for the corresponding group of four mic inputs (1 through 4 or 5 through 8), illuminating the Phantom Power LED ⑦ and sending 48V power to the four associated XLR inputs ⑳, for use with condenser microphones requiring external power.

7.   **Phantom Power LED –** These red LEDs light to indicate that the corresponding phantom power switch ⑥ has been pressed, applying +48V phantom power to the selected group of four mic inputs.

8.   **Headphone Output Levels (🎧₁ / 🎧₂) –** These two knobs control the volume level for the two headphone outputs ⑨.

9.   **Headphone Outputs (🎧₁ / 🎧₂) –** These two 1/4" stereo (TRS) jacks are independent of the main audio output level, and are controlled by the headphone output knobs ⑧. The first headphone jack outputs the same audio signal as rear-panel outputs 1/2 while the second headphone jack outputs the same audio signal as rear-panel outputs 3/4.

10.   **Main Output Level (Output) –** This knob controls the main output level (output pair 1/2).

11.   **MIDI Input LED (MIDI In) –**This green LED lights when MIDI data is present at the MIDI input ⑱.

12.   **MIDI Output LED (MIDI Out) –** This green LED lights when MIDI data is present at the MIDI output ⑱.

13.   **Power Switch (⏻) –** Pressing this button will power on Fast Track Ultra 8R, illuminating the front-panel Power LED ⑭. The unit must be connected to the external power supply.

14.   **Power LED (Power) –** This blue LED lights when the power switch ⑬ has been pressed and power is being received from the external power supply.

Rear Panel
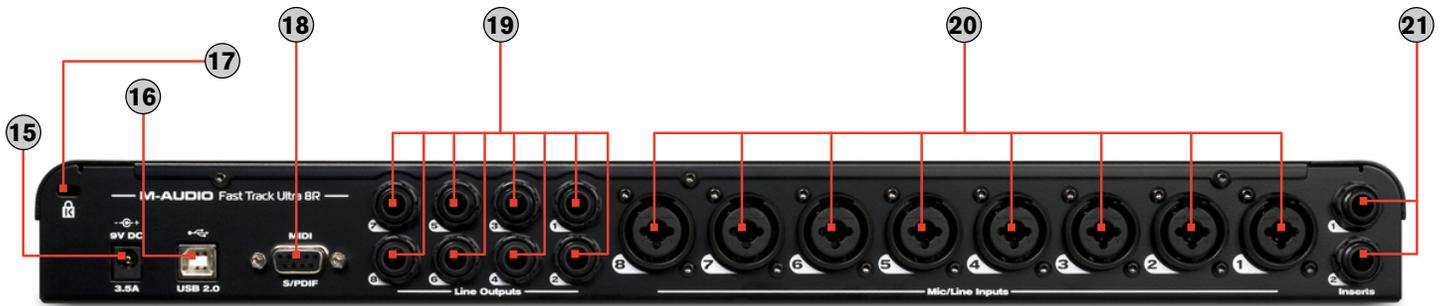
15. **Power Input ((9V DC 3.5A - 4A) –** Connect the included power supply to this jack.

    NOTE: Fast Track Ultra 8R is designed to work with 9V DC power supplies with a 3.5 - 4A rating. If you need to purchase an additional power supply for your Fast Track Ultra 8R, be sure to buy one with the correct rating and polarity. Replacement power supplies are available at the M-Audio webstore.

16. **USB Connector (•←↔ USB 2.0) –** Connect a standard USB cable to this port, connecting the other end to your host computer.

    NOTE: Fast Track Ultra 8R is a USB 2.0 device and must be connected to a USB 2.0 port on your computer. USB 1.0/1.1 operation is not supported.

17. **Kensington® Lock Port (⚿) –** This connector is compatible with Kensington® security cables to protect your device from theft.

18. **MIDI and S/PDIF Connector (MIDI S/PDIF) –** The accompanying breakout cable connecting to this multi-pin jack provides MIDI input and output on 5-pin DIN connectors, and S/PDIF input and output on coaxial RCA connectors.

    • When the Sync Source drop-down menu is set to "External" in the Control Panel, input channels 7 and 8 will receive their signal from the S/PDIF input instead of analog inputs 7/8.

    • The S/PDIF output signal is identical to the output of Line Outputs 7/8.

    • The S/PDIF output will also support pass-through of AC-3 or DTS encoded surround formats.

19. **Line Outputs –** These eight balanced/unbalanced 1/4" (TRS) jacks provide eight analog outputs. The level of output pair 1/2 is controlled by the front-panel master volume knob ⑩. Signal present at outputs 7 and 8 is duplicated at the S/PDIF outputs.

20. **Mic/Line Inputs –** These eight combo jacks provide eight analog inputs, and can accommodate microphone or line-level sources via XLR or 1/4" TRS or TS connectors. The microphone (XLR) inputs route signals to the interface's preamplifiers while the line-level (1/4") jacks bypass the preamplifiers.

    The input source for channels 1 and 2 can be selected via the front-panel Mic/Line – Instrument switches ② between Mic/Line inputs ⑳ or the front-panel Instrument inputs ①.

    Selecting "External" from the Sync Source drop-down menu in the control panel will activate the S/PDIF input as the signal source for input channels 7 and 8. Mic/Line inputs 7 and 8 will be disabled in this configuration.

21. **Inserts –** Insert jacks allow you to add analog outboard effects (compressors, limiters, etc.) into the signal path of the first two channels of your Fast Track Ultra 8R. Outboard effects are "inserted" between the preamp and the A/D converter.

    These 1/4" TRS jacks are only active when a a special "insert" cable is connected to these jacks (see the box entitled "About Insert Cables" to learn more about these cables). If no insert cable is connected, these jacks do not affect the signal path.

About Insert Cables:

An insert cable is wired in a way that lets you send and receive signals over a single cable. This cable features a "TRS" (tip-ring-sleeve) connector on one side and two "TS" (tip-sleeve) connectors on the other. The TRS side connects to one of the insert jacks of Fast Track Ultra 8R. The TS connectors are usually labeled "tip" (send) and "sleeve" (return). Attach the "tip" connector to your external device's input and the "sleeve" connector to the device's output. This allows signals to be sent to the external device and returned to the A/D converter on Fast Track Ultra 8R.

6   Installing Fast Track Ultra 8R

For instructions on installing Fast Track Ultra 8R, please refer to the accompanying Quick Start Guide.

7   Hardware Connections

Recording Microphones

Fast Track Ultra 8R can record audio from up to eight individual microphones simultaneously, connected to input channels 1 through 8 via the rear-panel Mic/Line input connectors ⑳. On inputs 1 and 2, the Mic/Line – Instrument selector switches ② must be set to the Mic/Line (out) position.

Recording Line-Level Inputs

Fast Track Ultra 8R can record audio from up to eight individual line inputs simultaneously, connected to input channels 1 through 8 via the rear-panel Mic/Line input connectors ⑳. On inputs 1 and 2, the Mic/Line – Instrument selector switches ② must be set to the Mic/Line (out) position.

Additionally the gain pots for the associated mic inputs should be turned down when using the line inputs to avoid unwanted amplification of idle noise.

Recording Instruments

Fast Track Ultra 8R can record audio from up to two individual instrument-level sources simultaneously, connected to input channels 1 and 2 via the two front-panel Instrument inputs ①. The Mic/Line – Instrument selector switches ② must be set to the Instrument (in) position.

Recording Digital Input

Fast Track Ultra 8R can record two channels of digital input signal, on input channels 7 and 8 via the rear-panel S/PDIF input ⑱. Connect a digital S/PDIF source to the rear-panel S/PDIF input. Go to the Settings tab in the Fast Track Ultra 8R Control Panel and select "External" as the sync source to activate the S/PDIF input and ensure proper digital clocking. See the Sync Source section of this User Guide for more information on digital synchronization.

Adjusting the Output Level

Connect the rear-panel line outputs ⑲ to a mixing console, amplifier or powered monitors. Output pair 1/2 can be directly controlled by the front-panel main output level knob ⑩. Other outputs are controlled via your DAW application or the Fast Track Ultra 8R Control Panel.

Headphone Monitoring

Use the "Monitor 1/2" and "Monitor 3/4" Control Panel tabs to create separate monitor mixes for the two front-panel headphone outputs. See the section titled "Monitor Tabs" for more information about creating monitor mixes.

8   Using Fast Track Ultra 8R

Setting Your Recording Levels

Using the Mic, Line or Instrument Inputs

Connect your microphone, instrument or line level source to the Mic/Line - Instrument inputs ①, ⑳. Make sure the associated channel's Mic/Line - Instrument switch ② is set to the correct position for your chosen inputs, and that the input gain is turned fully counter-clockwise to the lowest level. If you are using a condenser microphone, be certain to activate the Phantom Power switch ⑥ for the corresponding group of input channels (after connecting the microphone to the XLR input). If you are using the Microphone or Instrument inputs, slowly raise the input level until the Input Signal LED ④ shows input with a fairly steady green signal while audibly testing your input levels (i.e., strumming the guitar, or speaking into the mic). If your microphone signal causes an input to clip even at the minimum gain setting, pull the Mic Input Gain knob ⑤ to activate the 20 dB pad. This will further attenuate (reduce) signal levels to prevent distortion at the input.

> ➜ ***IMPORTANT***: *When recording from a microphone and monitoring in the same room, it is recommended that you turn off your speakers and monitor with headphones. This will greatly reduce the possibility of creating loud feedback loops that may damage your equipment (or hearing).*

Using the Coaxial S/PDIF Inputs

Connect the S/PDIF output of your external audio device to the S/PDIF Input, located on the rear-panel breakout cable ⑱. The signal level you receive at the S/PDIF In will be the signal level that you record. Any adjustments to that signal level must be made at the source. If you have an output level control on the device that you've connected to the S/PDIF inputs, adjust that output level control to change the recording level. Most recording software will allow you to add gain to a recorded track that was made at a level that is initially too low, but be careful that the recording level is not reaching digital clipping (signal going into the red) while recording.

> ***Note***: *To use the S/PDIF input, you will need configure the sync source of Fast Track Ultra 8R to "External." Refer to the section below on the Control Panel and your software's documentation for more information.*

Setting the Sample Rate

The default sample rate for Fast Track Ultra 8R is 44.1 kHz. Supported sample rates are 44.1, 48, 88.2 and 96 kHz. Most applications allow you to change the sample rate from within your audio software. You can also change the sample rate in the Control Panel. It is recommended that you do not change the sample rate from the Control Panel while your DAW application is running, as this can cause some applications to exhibit unexpected behavior.

In order to receive a digital signal via the S/PDIF input, you will need to change the Control Panel's Sync Source setting (in the Settings tab) to "External," after which Fast Track Ultra 8R will automatically detect an incoming digital signal and receive its sample rate from that incoming S/PDIF source.

Monitor Mixing

Fast Track Ultra 8R features four separate 16x2 monitor mixers. These four mixers are found in the Control Panel under the tabs labeled "Monitor 1/2", "Monitor 3/4", "Monitor 5/6", and "Monitor 7/8" and route their mixed outputs to hardware outputs 1/2, 3/4, 5/6, and 7/8, respectively.

Each of these mixers can be used to create a stereo, near-zero latency, "monitor mix" consisting of any combination of hardware inputs or software outputs. This is a very convenient feature to have while "overdub" recording since it allows you to easily set up customized monitor mixes for up to four different people. For example, you can create separate mixes for the vocalist, guitarist, bassist, and drummer of a band and provide each member with an individual mix to suit their personal preference.

Furthermore, since monitor mixing is handled by the powerful MX Core DSP within Fast Track Ultra 8R, you do not have to worry about audio latency that may occur when monitoring through your audio recording application—all hardware inputs and all signals output by your recording software* can be mixed with virtually no latency and sent to the hardware outputs.

*** Software Output Signal Routing:**

When selecting output channels 1/2 from your audio application, the signal is not sent directly to the physical hardware outputs on the rear-panel of Fast Track Ultra 8R; The signal is first sent to the Monitor 1/2 section of the Control Panel.

By default, the monitor mixer on this Control Panel tab then passes the unaltered signal on to hardware outputs 1/2. However, this tab gives you additional control over signals sent to hardware outputs 1/2.

You can use the faders, pan knobs and other controls on the Monitor 1/2 tab to add and blend signals from the physical inputs 1-8 and from the remaining six software return channels and create a stereo mix that is then routed to the rear-panel hardware outputs 1/2.

The same principle applies when selecting output channels 3/4, 5/6 or 7/8 from your audio application. These signals are sent to their respective Control Panel tabs "Monitor 3/4", "Monitor 5/6" and "Monitor 7/8", mixed with other signals if desired, and then routed to their respective physical output pairs 3/4, 5/6 or 7/8.

**Inputs**
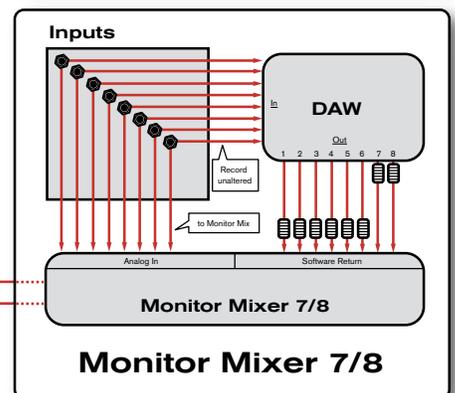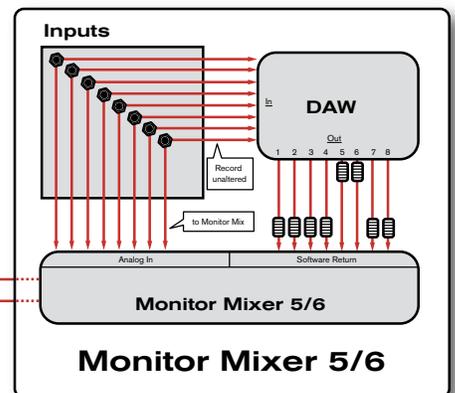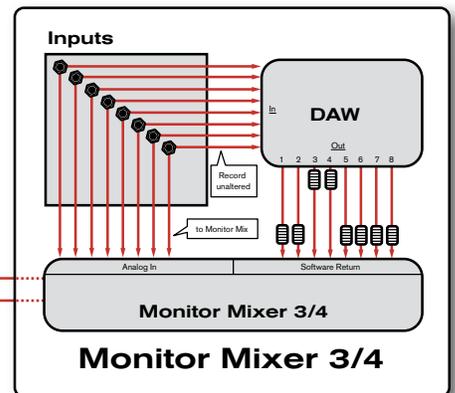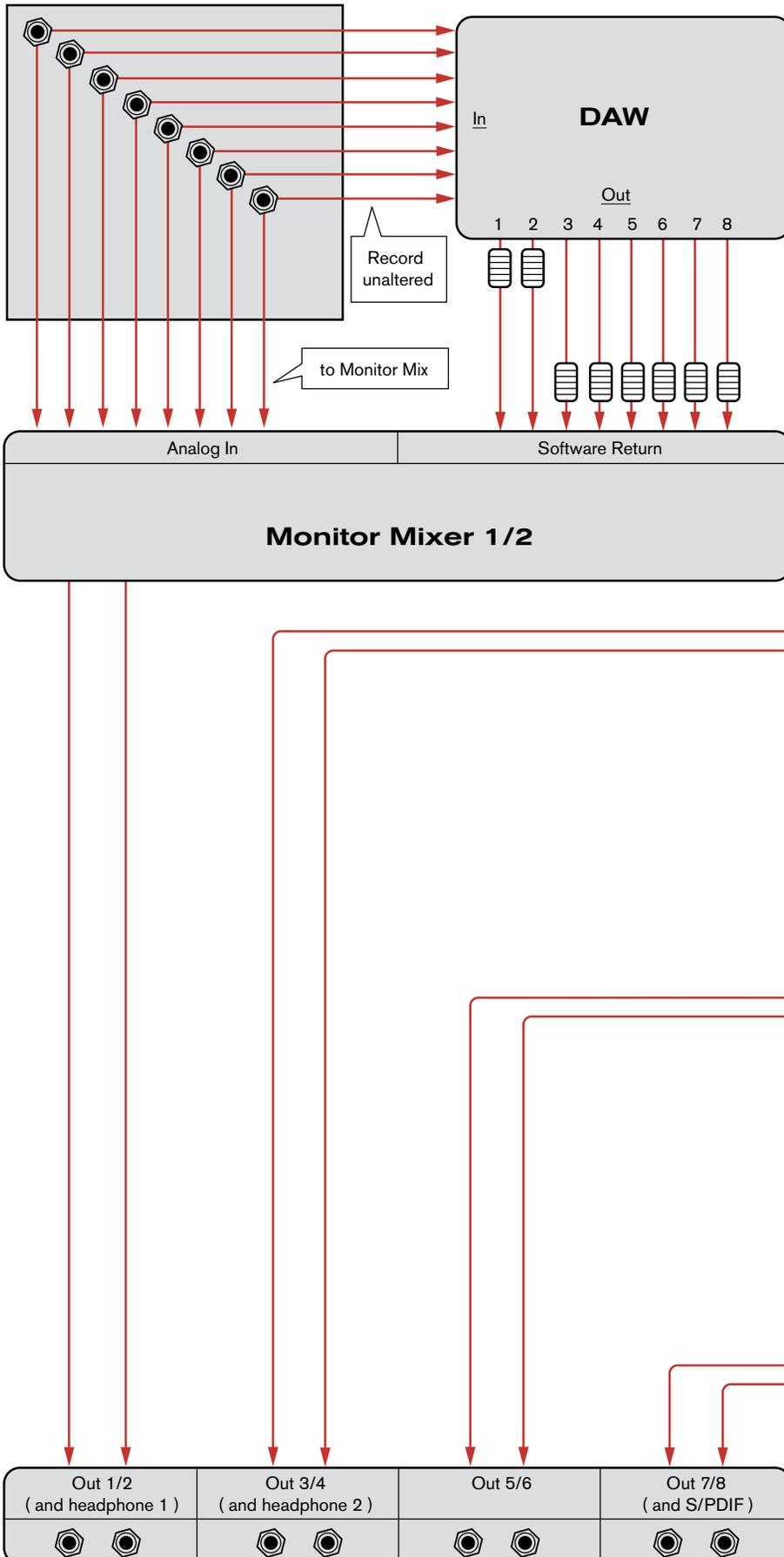
9   The Software Control Panel

The software Control Panel for Fast Track Ultra 8R is designed to provide a simple, intuitive interface to control and monitor signals from your DAW and from Fast Track Ultra 8R's inputs and outputs. To open the Control Panel:

In Windows, open the Fast Track Ultra 8R Control Panel by double-clicking on the M-Audio icon in the system tray, or from Start > Control Panel (Classic View).

*Double-click on the
red M-Audio icon*

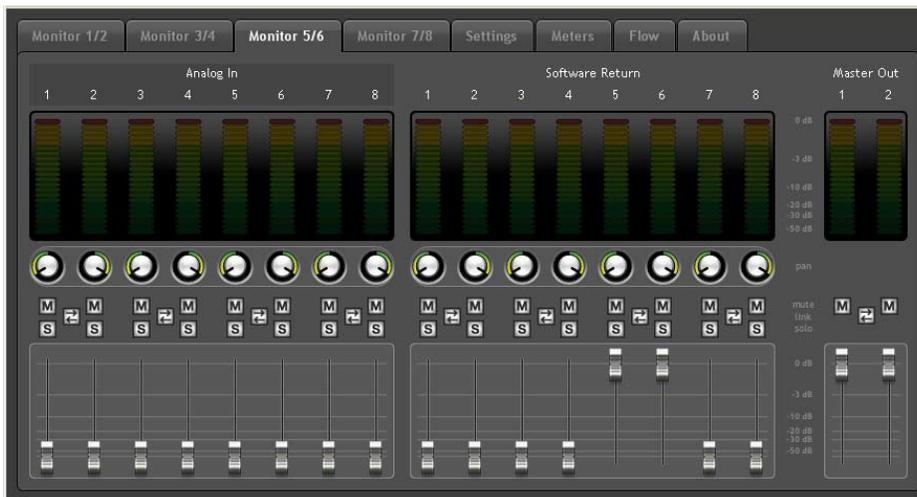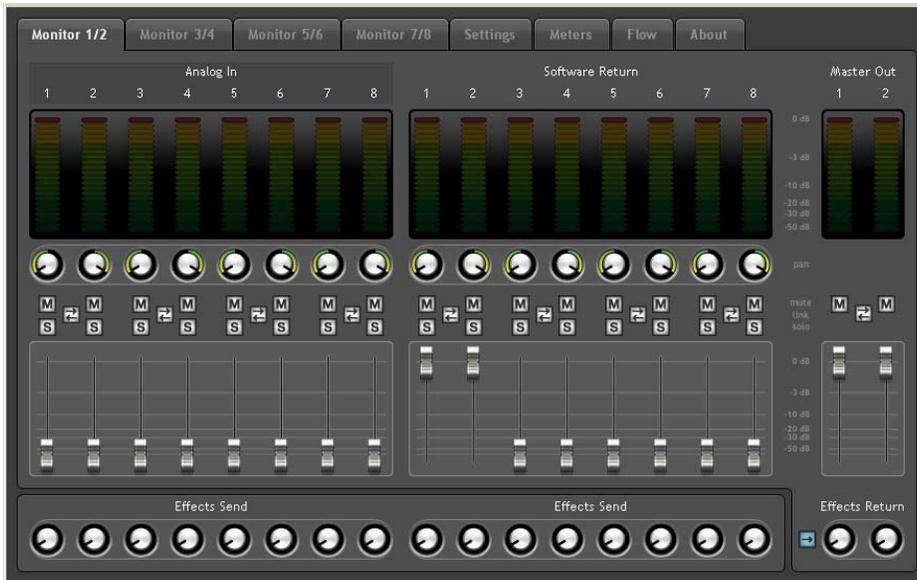*Windows XP*   *Windows Vista*
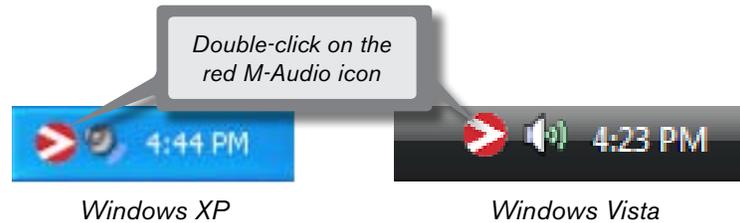
In Mac OS X, click the M-Audio icon in the system preferences window.

The Control Panel features eight tabs across the top of the screen. These tabs provide access to specific features of Fast Track Ultra 8R. These tabs are described in detail below.

Monitor Tabs

The four Monitor tabs are similar in layout and in operation and allow you to create four separate monitor mixes from the eight hardware inputs and eight software returns from your audio application.

Each tab controls a separate pair of outputs:

Monitor 1/2 → Hardware Outputs 1/2 (and Headphone Out 1)
Monitor 3/4 → Hardware Outputs 3/4 (and Headphone Out 2)
Monitor 5/6 → Hardware Outputs 5/6
Monitor 7/8 → Hardware Outputs 7/8 (and S/PDIF output)

The Monitor tabs' outputs correspond to Fast Track Ultra 8R's hardware outputs. Monitor outputs 7/8 are duplicated at the analog Line Outputs ⑲ and the S/PDIF digital output ⑱.

Input Channels

The first eight channels on each of the Monitor pages correspond to the eight analog inputs. Inputs 7 and 8 are switchable between the analog inputs and the S/PDIF digital inputs, via the Sync Source drop-down menu in the Control Panel. When the sync source is set to "External," input channels 7 and 8 receive their signal from the S/PDIF input. The next eight channels are returns from your DAW application software. Any of these 16 channels can be sent to any of eight possible output busses by selecting the Monitor tab for the desired output pair and setting the levels for the input and software return channels respectively.

Each channel provides the following:

■   **Level meter** – monitors the channel's input level

■   **Pan control** – sets the position of the signal within the left and right output channel pair

■   **Solo button** – solos that channel's output signal in the output channels

■   **Mute button** – mutes that channel's output signal to the output channels

■   **Link button** – links a pair of channels together. When the Link button is active, changes made to one channel affect the adjacent (linked) channel as well.

■   **Level fader** – controls the level of that channel's signal sent to the output channels.

■   **Send control** – controls the level of that channel's signal sent to the internal DSP effects.

> *NOTE: Only Monitor outputs 1/2, and 3/4 and can utilize the Fast Track Ultra 8R's internal DSP. Therefore the Monitor mixer tabs for outputs 5/6 and 7/8 do not provide Send controls.*

> ➜ *IMPORTANT: Note that changes made to the monitoring mix are completely independent from, and do not affect signals being recorded to your DAW.*

Output Channels

The right side of each Monitor tab provides level meters and faders for its corresponding stereo pair of outputs. Each Monitor tab's output faders control the output level sent to that pair of hardware outputs.

The Monitor tabs correspond to each pair of hardware Line outputs ⑲. Monitor outputs 7 and 8 are duplicated at the analog Line Outputs ⑲ and the S/PDIF digital output ⑱.

Between the sixteen channel inputs and the two channel outputs is a Bypass button. Activating this button will bypass the internal DSP effects, allowing you to monitor the signal without effects.

> *NOTE: Only Monitor outputs 1/2 and 3/4 can utilize the Fast Track Ultra 8R's internal DSP. Therefore the Monitor mixer tabs for outputs 5/6 and 7/8 do not provide Bypass buttons.*

Settings Tab

Sample Rate Settings
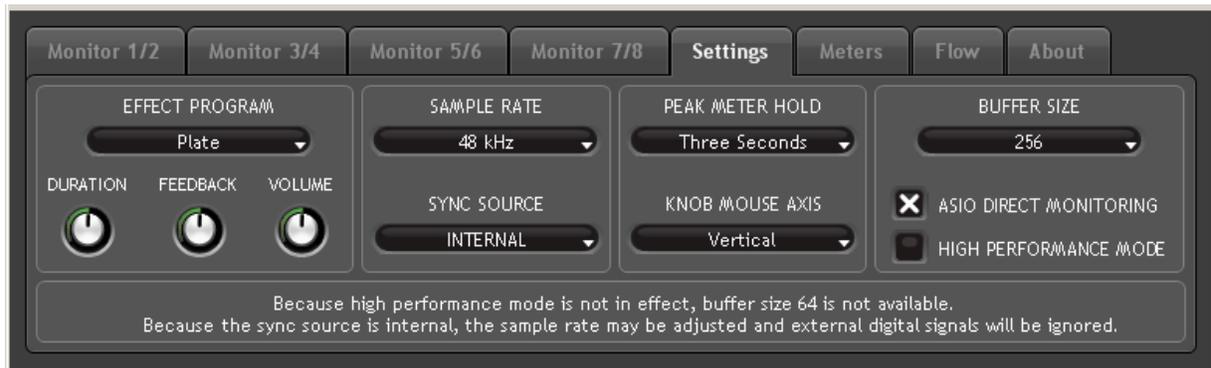
The "Sample Rate" drop-down menu lets you select the current sample rate for the internal clock of
Fast Track Ultra 8R. Available sample rates are 44.1, 48, 88.2 and 96 kHz. The default sample rate is 44.1 kHz.
Note that this drop-down menu is disabled if Fast Track Ultra 8R is set to sync to external clock.

External Signal Status

This box displays messages indicating the current synchronization status:

If the status in the Settings tab (see the Clock section below) is set to "Internal," the Signal Status will display this message:

*"Because the sync source is internal, the sample rate may be adjusted and external
digital signals will be ignored."*

You will be able to adjust the sample rate using the Sample Rate drop-down menu.

It is recommended that you do not change the sample rate from the Settings tab while your DAW application is running, as this can cause some applications to exhibit unexpected behavior.

If the status in the Settings tab (see the Clock section below) is set to "external," and a valid digital signal is received at the S/PDIF input, the Signal Status panel will display this message:

*"Because the sync source is external, the sample rate may not be adjusted. However,
since there is a valid external digital signal, the sample rate will automatically match it."*

The Sample Rate is determined by the external device and cannot be changed from the Fast Track Ultra 8R Control Panel. Because of this, the Sample Rate drop-down menu will display the incoming sample rate, but will not allow changes.

If the status in the Clock panel (see the Clock section below) is set to "External" but no valid digital signal is received at Fast Track Ultra 8R's S/PDIF input, the Signal Status will display this message:

*"Because the sync source is external, the sample rate my not be adjusted. While there is
no valid external signal, the sample rate will remain 44.1 kHz.."*

Sync Source

This drop down menu lets you select the clock source of Fast Track Ultra 8R. To synchronize the interface to an external digital source (i.e., the incoming S/PDIF signal), select the "External" setting. To synchronize Fast Track Ultra 8R to its own internal clock, select "Internal." Please see the box below for more information about the digital input and external clocking.

> ### About External Clock
>
> *Digital audio is based on samples. For example, a digital recording at a sample rate of 44.1 kHz contains 44,100 samples, or digital "snapshots," per second. Each digital audio device has its own internal clock, or crystal, to generate and control the exact rate and timing of these samples during every second. In order for two or more digital audio devices to function together, only one of their clocks can be in control (the Master), while any other devices must be synchronized to that device's clock (the Slave). Otherwise, the resulting audio will sound distorted, play at the wrong speed, or have clicks and pops.*
>
> *You can set Fast Track Ultra 8R to run as the Word Clock Master ("Internal") when digitally connected to other digital audio devices:*
>
> > *Connect the S/PDIF output of Fast Track Ultra 8R to the S/PDIF input of another digital audio device and configure that device to synchronize to its S/PDIF input (making it the word clock Slave).*
>
> *Alternatively, you can set another device to act as the Word Clock Master and designate Fast Track Ultra 8R to run as the word clock slave:*
>
> > *Connect the S/PDIF output of a 3rd party audio device to the S/PDIF input of Fast Track Ultra 8R. Select "External" as the clock source setting from within the Fast Track Ultra 8R Control Panel. Fast Track Ultra 8R now runs in sync to the digital S/PDIF signal generated by the other device.*
> >
> > *Note that Fast Track Ultra 8R can only receive input signal from its S/PDIF input when the clock setting has been set to "External." In this configuration, Input channels 7 and 8 receive their signal from the S/PDIF input instead of from Mic/Line Inputs 7/8.*

Driver Settings

ASIO/WDM Buffer Size (Windows only)

Latency is defined as the time it takes for your input signal to pass through your audio software and appear at the outputs. This latency can result in a delay that is undesirable when overdubbing to existing tracks.

This drop-down menu lets you select the size of the buffer in samples. Smaller buffer sizes result in lower latency, but may not function well with slower systems, causing clicks, pops and dropouts in the audio playback.

The default buffer size is 256 samples. If you are experiencing clicks and pops in your audio, try increasing the buffer size.

ASIO Direct Monitoring (Windows only)

Many Windows applications that support ASIO 2.0, also support ASIO direct monitoring. ASIO Direct Monitoring allows your ASIO-compatible software to remotely access and control some routing and monitoring functions of the Fast Track Ultra 8R Control Panel. If you prefer to not use ASIO Direct Monitoring, uncheck the box marked "ASIO Direct Monitoring" on this tab. Please refer to your DAW application's user guide for more information on implementing ASIO direct monitoring.

High Performance Mode (Windows only)

Clicking this box engages High Performance Mode, which further reduces software monitoring latency and also reduces the load placed on your CPU. Most computers support High Performance Mode, however, if you experience any unexpected results (e.g., system instability, unresponsiveness, etc.), disable High Performance Mode. By default, this box is left unchecked.

Effects Settings

This box controls the algorithm and parameters of the internal effects unit. Any channels routed to the internal DSP section will be effected by selections made on this page.

> ➜ **IMPORTANT**: *Only the Monitor tabs for channels 1/2 and 3/4 have "send" knobs. Signals from tabs 5/6 or 7/8 cannot be sent to the internal DSP.*

Effects Algorithm Presets

This drop-down menu lets you select from a range of reverb and delay algorithms. The presets are:

• Room 1	• Room 3	• Hall 2	• Delay
• Room 2	• Hall 1	• Plate	• Echo

The three controls beneath the algorithm display offer the following controls for fine tuning the effect:

- Duration
- Feedback**
- Volume

***Feedback is only available for Delay and Echo effects*

Metering and Knob Control Options:

Peak Meter Hold:

The meters of Fast Track Ultra 8R feature a "peak hold" function designed to assist in finding the loudest transients of a signal. This drop-down menu determines how long the peak indicator will remain before resetting. Select "Off" to disable the peak hold function. Select "1 Second" or "3 Seconds" to enable one or three seconds of peak holding, respectively. Select "Infinite" to indefinitely hold peak levels until the meters are cleared.

> **TIP**: *Peak levels can be cleared at any time by clicking the meters in the DSP mixer.*

Knob Mouse Axis:

The knobs of the Fast Track Ultra 8R Control Panel can be adjusted by using up-down, left-right, or both up-down and left-right mouse movements. Selecting "Vertical" allows you to turn a knob clockwise by clicking and dragging upward (the knob can be turned counter-clockwise by clicking and dragging downward). Similarly, selecting "Horizontal" allows you to turn a knob clockwise by clicking and dragging to the right. Selecting "Both" allows you to adjust a knob setting by clicking and dragging on either axis (e.g., up-down or left-right).

Saving and Recalling Settings

The "Save Settings" and "Load Settings" options under the File menu allow you to save and load all of the parameters of the Control Panel. This is useful if you'd like to save various configurations (i.e., a multi-tracking setup, a surround mixing setup, etc.) so that you do not have to manually reconfigure your system each time you work on a different type of project.

The "Load Recent Settings" sub-menu lists up to five of the most recent Control Panel configurations that you have loaded. The "Clear Menu" option clears the list of recently loaded files (this option does not affect the actual configuration files—it simply removes the recent file names from the sub-menu).
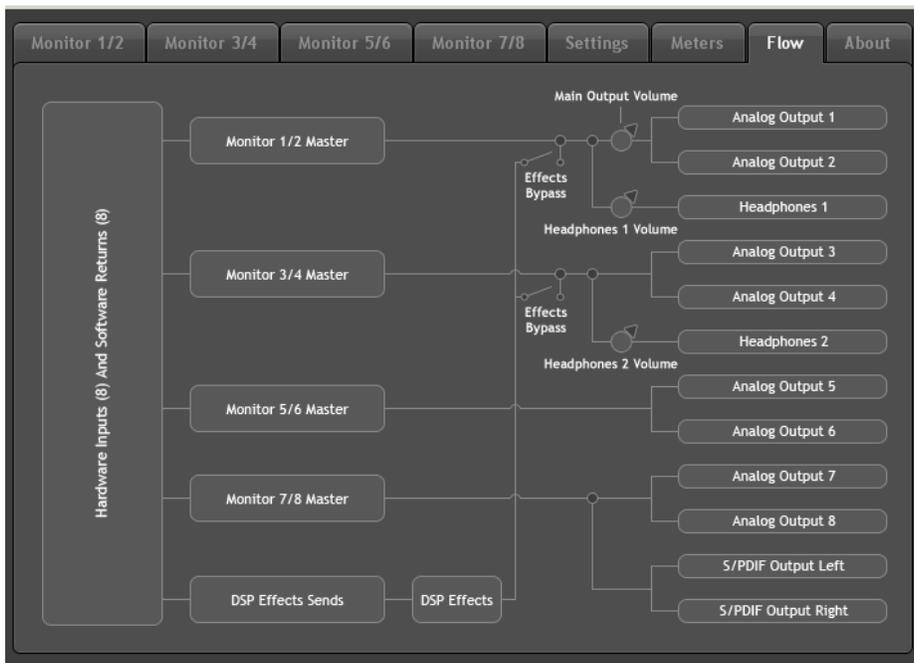
The "Revert to Factory Settings" option allows you to reset all of the Fast Track Ultra 8R Control Panel parameters to their factory default settings.

Meters Tab
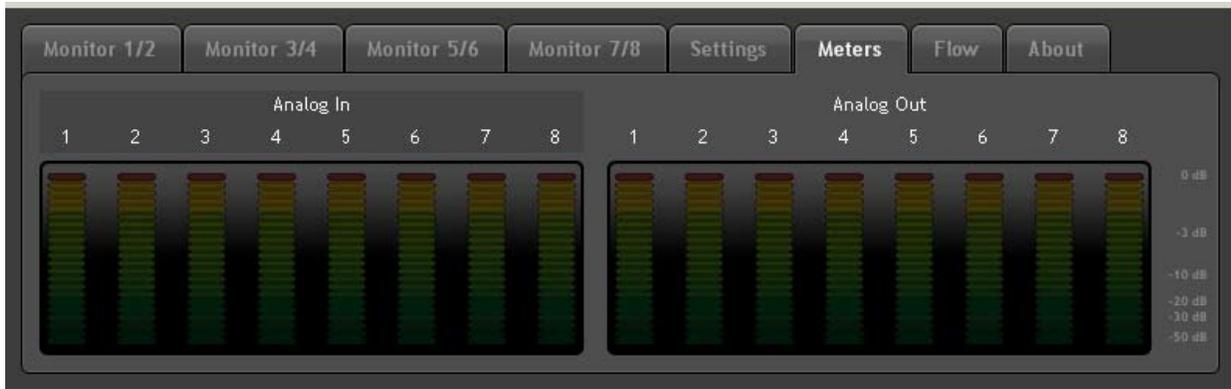
This tab features 16 meters that display levels of your eight hardware inputs and eight hardware outputs. This is useful in setting up levels for live tracking or mixdown.

Flow Tab

This tab displays a graphic of the Fast Track Ultra 8R signal flow.

About Tab

This page contains information on your hardware and current driver software versions. This information may be helpful, should you ever have the occasion to call for technical support. Clicking the buttons in the lower right will take you to useful pages on the M-Audio website.

If your computer does not see a valid connection to Fast Track Ultra 8R, or if the unit is powered off, you will see a message noting that on this page.

10 About Overdub Recording and Monitor Mixing

Much of the popular music that you hear today is created using a method called "overdub" recording. Overdub recording allows artists to record their music while listening to previously recorded parts of the song. For example, a vocalist may record his or her parts while listening to the previously recorded guitar, bass, and drum parts in his/her headphones. This method is popular because each recorded part is completely separate from the other parts and can be more easily edited and mixed into a "polished" song. For example, if the guitarist is not happy with the solo, it is possible to edit problematic notes, re-record the entire solo, or even "splice" together the best parts of multiple takes to create one seamless performance. This kind of detailed editing is generally not possible with "live" recording situations in which all sounds are captured at once.

To record overdubs, each artist must have a monitor or "cue" mix sent to his/her headphones. This mix contains the previously recorded tracks combined with the "live" signal that is being recorded. For example, the vocalist would need to hear the guitar, bass, and drum tracks along with his/her own vocal performance as it is being recorded into the computer.

Fast Track Ultra 8R allows you to create up to four stereo monitor mixes using the first four tabs of the Control Panel. Each tab controls a stereo mixer with 16 inputs (eight hardware inputs plus eight outputs from your audio software). The "Software Output Signal Routing" section of this User Guide covers this topic in greater detail.

Each tab routes signals to a separate pair of outputs as shown in the following table:

Tab Name:	The output of this tab is routed to:
Monitor 1/2	Hardware Output 1/2 and Headphone Output 1
Monitor 3/4	Hardware Output 3/4 and Headphone Output 2
Monitor 5/6	Hardware Output 5/6
Monitor 7/8	Hardware Output 7/8 and S/PDIF Output

TIP: Keep in mind that the first and second headphone outputs are hardwired to analog outputs 1/2 and 3/4. If you would like to route your monitor mixes to the first or second headphone outputs, select the "Monitor 1/2" or "Monitor 3/4" tabs, respectively.

Using the Monitor Mixer

To use the Fast Track Ultra 8R Monitor Mixer:

1. Select the tab that corresponds to the hardware outputs to which you would like to send your monitor mix. For example, if you wish to create a mix that routes to analog outputs 7/8, select the "Monitor 7/8" tab.

2. Adjust the level faders for the hardware input and software return channels to create a comfortable monitor mix for the listener.

    • The eight channels on the left side of the mixer represent the "live" hardware inputs. For example if you have connected a microphone and guitar to the first two inputs, signals from these devices will appear on channels one and two of the mixer.

    • The eight "Software Return" channels correspond to the outputs of your audio application.

    • The last two channels on the right side represent the monitor mixer's master outputs that are sent to the mixer's associated hardware output pair (on the rear-panel of Fast Track Ultra 8R).

    Keep in mind that this mixer is for monitoring purposes only. All signals received at the hardware inputs are also sent directly to the recording application without being altered. The Monitor Mixer receives duplicates of these input signals to allow you to create a near-zero latency monitor mix. Changes made to the monitor mixer do not affect your recordings (or your audio software), since the Monitor Mixer's output is not actually being recorded.

    For example, if the singer would prefer to not hear guitars while recording, the guitar channel of the singer's monitor mixer can simply be muted without affecting the recording application in any way.

3. Use the pan knob to adjust the position of a sound between the left and right channels. Note that double-clicking a knob will "center" it.

4. When creating monitor mixes via the "Monitor 1/2" or "Monitor 3/4" tabs, you have the option of adding reverb or delay effects to any of the channels by using the "Effects Send" knobs located at the bottom of the tab:

Turning a channel's send knob clockwise will increase the amount of signal that is routed to the digital effects processor; turning the send knob counter-clockwise will reduce the amount of signal sent to the processor.

To hear the effects, make sure that the right-facing arrow button is illuminated (i.e., the effects are enabled) and the effects return knobs are turned up, as shown below:

If you would like to change the effect type or to adjust its parameters, click the "Settings" tab and make any desired adjustments to the "Effect Program", "Duration", "Feedback" and "Volume" parameters. This section is covered in detail in the Settings Tab section of this manual.

5. If you are routing signals to Headphone Outputs 1 and 2, make sure the Headphone Level Knobs ④ are set to a comfortable listening level. Alternatively, if you are routing monitor mixes to external headphone amplifiers, make sure those amplifiers are configured properly.

> **Why use effects in a monitor mix?**
>
> *Closely mic'ed sources often sound very detailed, dry, and unnatural to performers who are monitoring on headphones. This can make performers uncomfortable and may adversely impact the recording session.*
>
> *Many performers (particularly vocalists) find it much easier to record overdubs when there is a small amount of reverb present on the recorded voice or instrument. This is because the reverb "smoothes out" the sounds that the vocalist hears in the headphones and makes him/her feel more comfortable (and confident) about their performances. This often results in better takes being captured during the session.*
>
> *Note that effects added through the Fast Track Ultra 8R Control Panel will not be present in your recordings. You will only hear the effects in real-time while monitoring. The actual recordings will be captured "dry."*

NOTE: When using the Fast Track Ultra 8R Monitor Mixer to create monitor mixes, be sure to mute your DAW application's active recording channels (or, if possible, turn off the application's monitor mixing functionality altogether) to prevent two separate cue mixes from being created (this can cause undesirable effects such as phasing and slap-back delays). Conversely, if you wish to use your application's own monitor mixing capabilities, you will need to bypass the Fast Track Ultra 8R Monitor Mixer to prevent "double-monitoring" from taking place. This can be done by simply muting the input channels of the Monitor Mixer.

11 MIDI

Fast Track Ultra 8R provides 16 channels of MIDI I/O over standard 5-pin DIN connectors found on the breakout cable. These I/O ports can be used to connect MIDI-compatible devices to your computer such as controller keyboards, drum machines, or sound modules. Alternatively, these ports can be used to send and receive MIDI Time Code (MTC) and other synchronization formats for locking to a hardware or software sequencer.

MIDI is an extensive protocol and covering it in detail is beyond the scope of this guide. If you would like to learn more, please refer to one of the many books and articles that have been written about this subject and are available online or through your local music retailer.

The diagram below demonstrates a scenario in which a controller keyboard and a sound module are connected to Fast Track Ultra 8R:
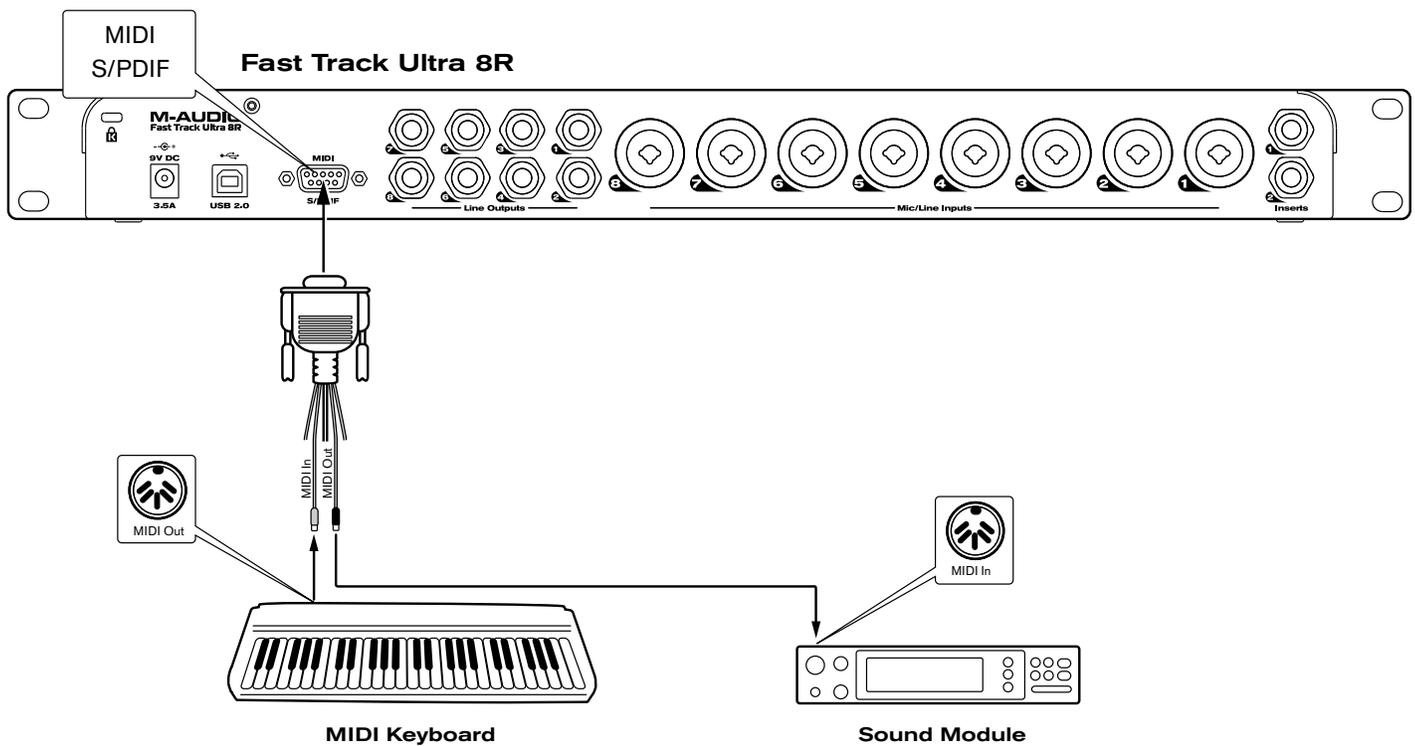
1.   Make sure the breakout cable is connected to the back of Fast Track Ultra 8R.

2.   Connect the controller keyboard's MIDI output to the Fast Track Ultra 8R MIDI input.

3.   Connect the Fast Track Ultra 8R's MIDI output to the MIDI input of the sound module.

Once the hardware connections have been made, you may need to configure your music software to make use of the Fast Track Ultra 8R MIDI input and output ports. This configuration process varies from program to program; Please see your audio application's user guide to learn how to do this.

12 Troubleshooting

Fast Track Ultra 8R has been designed to give you high performance and professional-quality audio. It has been tested under a wide range of systems and operating conditions. However, there are a virtually limitless number of operating scenarios, any of which could affect your system's performance. Though this section cannot cover all possible issues you may encounter, we would like to offer you some suggestions for dealing with common problems.

We recommend that you avoid connecting too many devices via USB. The USB bus is a dependable protocol that is ideally suited for digital audio. Nevertheless, it is important to remember that audio and multimedia streaming place considerable demands on your processor and the USB bus.

If you are having trouble getting audio in or out of your Fast Track Ultra 8R, please check the following:

- If you have no sound:

     Check to see if Fast Track Ultra 8R drivers are properly installed.

     - In Windows XP, go to the Control Panel and double-click the System icon (under Performance and Maintenance if you are in Category view).

     - Select the Hardware tab and click the Device Manager button.

     - Click the plus sign ("+") next to Sound, Video and Game Controllers, and locate the Fast Track Ultra 8R listing. If you see a question mark or exclamation point next to it, or if you don't see it listed, you may need to reinstall the driver software.

- Make sure your audio software has been set up to use Fast Track Ultra 8R.

     - Open your application's audio settings page and check to see if the correct ASIO, WDM, or Core Audio drivers have been selected.

- If you're certain Fast Track Ultra 8R is correctly installed and configured for your audio software, check your signal path. Make sure your inputs are routed correctly by verifying that your application is receiving audio signal. Make sure your outputs are routed correctly so that your signal is sent to your headphones, amp and/or monitors.

     - Check your audio connections and cables to make sure everything is plugged in correctly.

     - Check the LED Level Meters ④ to see if input signal is present.

     - Check the Control Panel to verify that the output volume levels are turned up, and that signal is present at the input meters.

     - Check to see that the power adapter is connected to an outlet and to Fast Track Ultra 8R, the power button is enabled, and that the USB cable is connected to the unit and the host computer.

     - Check the input selector switch to verify that you've chosen the proper input.

- If you're trying to record a digital input to Fast Track Ultra 8R and have no sound, or are experiencing clicks and pops in your recordings:

     - Make sure the input source on the Settings tab of the Control Panel is set to "External." See the section titled "About External Clock" for more information about digital synchronization.

     - Make sure your input levels are not too hot, as this can cause distortion and clipping.

     - Check the input level meters in your audio application.

     - Try using a larger buffer size (higher latency setting) in the Control Panel (Windows only). Larger buffer sizes can increase input latency time, but this is not an issue if you're mixing, for example. Increasing the buffer size can be helpful, particularly in the case of older or lower-powered systems.

     - If you are using a USB hub, try connecting Fast Track Ultra 8R directly to your computer.

For more troubleshooting tips, visit the Knowledge Base at www.m-audio.com

13 Specifications

Line Outputs	
Frequency response:	20 Hz to 22 kHz, +/- 0.1 dB @ 48 kHz sample rate
SNR and Dynamic Range:	-104 dB, A-weighted
THD+N:	0.002%@ -1dBFS, 1kHz
Signal Level:	+10 dBu balanced
	+2 dBV, unbalanced
Impedance:	300 Ohm balanced/150 Ohm unbalanced
	150 Ohm unbalanced
Crosstalk:	< -100 dB @ 1 kHz
Line Inputs	
Frequency response:	20 Hz to 22 kHz, +/- 0.3 dB @ 48 kHz sample rate
SNR and Dynamic Range:	-103 dB, A-weighted
THD+N:	0.002% @ -1dBFS, 1kHz
Signal Level:	+3.4 dBu balanced
	+1.2 dBV, unbalanced
Impedance:	20K Ohm balanced
	10K Ohm unbalanced
Crosstalk:	< -100 dB @ 1 kHz
Headphone Outputs	
Frequency response:	20 Hz to 22 kHz, +/- 0.7 dB @ 48 kHz sample rate
SNR and Dynamic Range:	96 dB, A-weighted
THD+N:	< 0.065% at maximum volume
Working Range:	24 to 600 ohms
Maximum Output Level	0dbv into 32ohms
Crosstalk:	< -65 dB @ 1 kHz
Microphone Input	
Pre-amp Gain:	0dB to 60dB or greater.
SNR (min gain):	-103 dB, A-weighted
Dynamic Range (min gain):	103 dB, A-weighted
THD+N (min gain):	0.003% @ -1dBFS
Freq. Response (min gain):	20 Hz to 22 kHz, +/- 0.1 dB @ 48 kHz sample rate
Sensitivity:	+1dBu max level at min input
Phantom Power	48 Volts DC @ 16mA
Instrument Input	
Pre-amp Gain:	0dB to 40dB or greater
Impedance	1M Ohm unbalanced
SNR (min gain):	-103 dB, A-weighted
Dynamic Range (min gain):	103 dB, A-weighted
THD+N (min gain):	0.005% (-92.3 dB) @ -1 dBFS, 1 kHz
Freq. Response (min gain):	20 Hz to 22 kHz, +/- 0.3 dB @ 48 kHz sample rate
Maximum Input	14dbv
Power Requirements	Power is derived from the included 9VDC 4000mA power supply.
Supported Sampling Rates	44.1, 48, 88.2, 96 kHz

14 Warranty Terms and Registration

Warranty Terms

M-Audio warrants products to be free from defects in materials and workmanship, under normal use and provided that the product is owned by the original, registered user. Visit www.m-audio.com/warranty for terms and limitations applying to your specific product.

Warranty Registration

Immediately registering your new M-Audio product entitles you to full warranty coverage and helps M-Audio develop and manufacture the finest quality products available. Register online at www.m-audio.com/register to receive FREE product updates and for the chance to win M-Audio giveaways.

M-AUDIO Fast Track Ultra 8R

FC Tested to comply with FCC standards

FOR HOME OR STUDIO USE

Avid®   C E

WARNING: This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. ***Wash hands after handling.***

M-Audio USA
5795 Martin Rd., Irwindale, CA 91706

Technical Support	
web	www.m-audio.com/tech
tel (pro products)	(626) 633-9055
tel (consumer products)	(626) 633-9066
fax (shipping)	(626) 633-9032
Sales	
e-mail	sales@m-audio.com
tel	1(866) 657-6434
fax	(626) 633-9070
Web	www.m-audio.com

M-Audio U.K.
Floor 6, Gresham House, 53 Clarendon Road, Watford
WD17 1LA, United Kingdom

Technical Support	
e-mail	support@maudio.co.uk
tel (Mac and PC support)	+44 (0)1753 658630
Sales	
tel	+44 (0)1923 204010
tel	+44 (0)1923 204039
Web	www.maudio.co.uk

Benelux

Technical Support	
Belgium tel	+32 22 54 88 93
Holland tel	+31 35 625 0097

M-Audio France
Floor 6, Gresham House, 53 Clarendon Road, Watford
WD17 1LA, United Kingdom

Renseignements Commerciaux	
tel	0 810 001 105
email	info@m-audio.fr
Assistance Technique	
PC	0 820 000 731
Mac	0 820 391 191
e-mail (PC)	support@m-audio.fr
email (Mac)	mac@m-audio.fr
fax	+33 (0)1 72 72 90 52
Web	www.m-audio.com

M-Audio Germany
Kuhallmand 34, D-74613 Ohringen, Germany

Technical Support	
email	support@m-audio.de
tel	+49 (0)7941 - 9870030
tel	+49 (0)7941 - 98 70070
Sales	
e-mail	info@m-audio.de
tel	+49 (0)7941 98 7000
fax	+49 (0)7941 98 70070
Web	www.m-audio.de

M-Audio Canada
1400 St-Jean Baptiste Ave. #150, Quebec City,
Quebec G2E 5B7, Canada

Technical Support	
e-mail	techcanada@m-audio.com
tel	(418) 872-0444
fax	(418) 872-0034
Sales	
e-mail	infocanada@m-audio.com
tel	(866) 872-0444
fax	(418) 872-0034
Web	www.m-audio.ca

M-Audio Japan
エムオーディオ／アビッドテクノロジー株式会社
〒107-0052　東京都港区赤坂 2-11-7 ATT新館ビル4F
Avid Technology K.K. │M-Audio
4F ATT Bldg. 2-11-7 Akasaka, Minato-ku Tokyo 107-0052 Japan

カスタマーサポート（Technical Support）	
e-mail	win-support@m-audio.jp
e-mail (Macintosh 環境専用)	mac-support@m-audio.jp
tel	052-218-0859（10:00~12:00/13:00~17:00）
セールスに関するお問い合わせ（Sales）	
e-mail	info@m-audio.jp
tel	052-218-3375
fax	052-218-0875
Web	www.m-audio.jp

M-AUDIO