MIDI Lab Manual

THEA 220/330

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1 Introduction

Welcome to the Theater Department's MIDI Lab. This room offers students who take/TA for the MIDI class (THEA 230/330) a place to play with synthesizers and make music. By taking this class you join a community of people interested in synthesizers, sound, audio technology, and music.

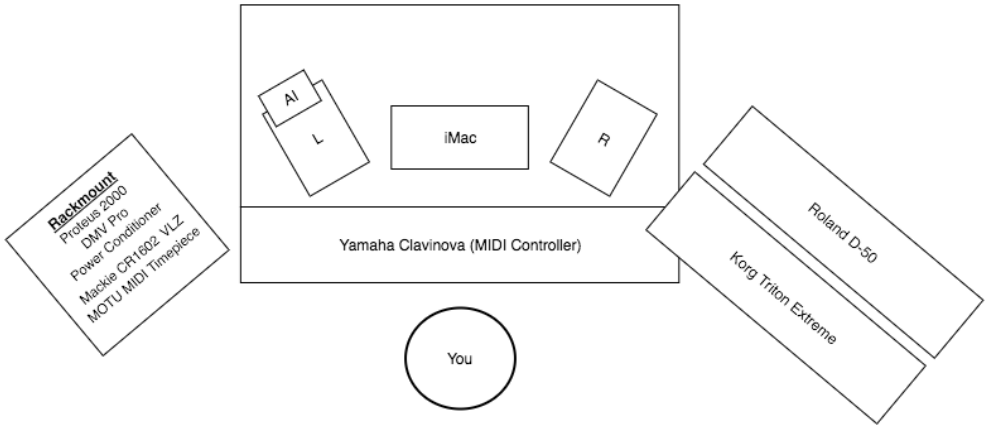


Figure 1: Arrangement of the MIDI Lab

1.1 Basic Rules

Be respectful of the furniture and the equipment. Please wash your hands before touching any of the instruments, audio equipment, and computer.

Do not eat or drink close to any of the instruments, audio equipment, and computer.

Return the lab it's default state. Make sure the room is neat, window is closed and locked, and the door is locked. Return all faders and knobs to neutral position. Close all opened applications on the computer.

1.2 Computer Rules

Please refrain from installing illegal or foreign applications, virtual software instruments, and commercial samples on the MIDI Computer.

Install commercial-free samples in the sample folder located in *USER/Music/Samples*.

Feel free to use a personal computer for recording and mastering in the MIDI Lab. Two stereo TRS cables are available to connect to the IN's and OUT's of a personal audio interface. Please do not unplug the TonePort audio interface from the iMac.

2 Synthesizers

2.1 Roland D-50

The Roland D-50 is a polyphonic 61-key synthesizer produced by Roland in 1987. It features Linear Arithmetic synthesis, onboard effects, a joystick, and analog synthesis-styled layout. Linear Arithmetic synthesis combines sample playback with digital synthesis. Roland used samples to simulate the most realistic attack and then the D-50 uses the synthesizer section to sustain the sound. This method saved on the expense of RAM and gave the synthesized sound a texture that made it popular with choir, wind, and string patches. Notable users are: 808 State, Alphaville, Aphex Twin, Enya, Duran Duran, George Michael, Michael Jackson, Phil Collins, Prince, and Rush.

Roland D-50 Manual (PDF)

Figure 2: Roland D-50

Quick Patching

1. Select the bank number with the numbers on the lower left side
2. Select the patch number within the ban with the numbers on the lower right side
3. Press [PATCH EDIT] and select the parameters to change in the menu
4. The Modulation Bender and [PORTAMENTO] on the left side allow for live changes

2.2 Korg Triton Extreme

The Korg Triton made its debut in 2004. It is a workstation and sampler (16 MB sample RAM, 2 minutes and 54 seconds in mono at 48 kHz), has a programmable arpeggiator, ribbon controller, 2 USB ports, and "Valve Force" which can convert the signal into analog form. Notable users are: David Bowie, Coldplay, Lady Gaga, Ronald Jenkees, Linkin Park, Moby, Paul Oakenfold, Scooter, Mike Shinoda, Serj Tankian, and Timbaland.

Korg Triton Extreme Manual (PDF)

Figure 3: Korg Triton Extreme

Edit Suggestions

1. Press [PROG] (Program) Mode
2. Press Bank & Program keys, turn dial, use touchscreen or use up and down keys to select patches.
3. Press [MENU]
4. Press [REAL TIME CONTROLS]

Add Effects

1. Press [MENU] key, Page Jump Menu, press P8 (or hold MENU key down)
2. Press routing tab in window, choose IFX
3. Press Insert FX tab at the bottom of the window and choose a tab at the bottom of the window
4. Choose desired effect (change to ON by pressing OFF button)
5. Check CHAIN box to add another effect; press OFF button of that effect to change to ON

2.3 E-mu Proteus 2000

The E-mu Proteus 2000 was released in 1999. Contains thousands of waves utilizing 32 MB of ROM. Features 128 voice polyphony and 32-part multi-timbrality. E-mu Systems became a popular company with their Emulator sampler and continued to pioneer sample-based synthesis with the Proteus range. The sampler does not allow users to record sounds, but offers a range of factory sounds that then can be layered, filtered, modulated by LFO's, and shaped by envelopes.

E-mu Proteus 2000 Manual (PDF)

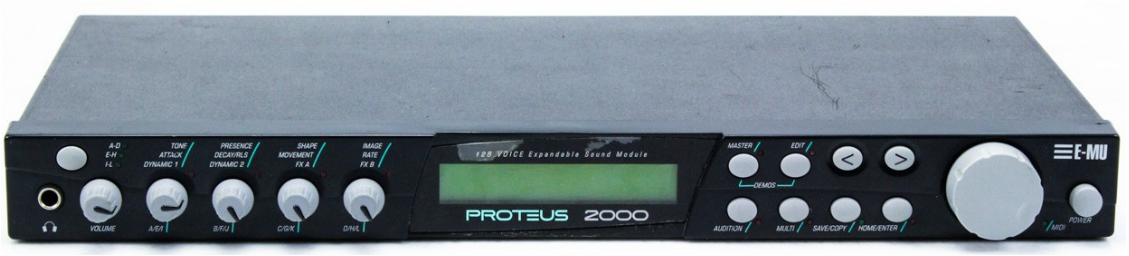


Figure 4: E-mu Proteus 2000

Quick Patching

1. Turn the large knob (data entry knob) to switch through patches
2. Change parameters with the 5 smaller knobs (realtime control knobs) on the left side. The button to the left of the realtime control knobs changes the function of the row of knobs (written list above knobs).
3. For more complex control, press the [EDIT] button and use the data entry knob to select the parameters you want to change. Press the in the data entry knob as an enter function and then change the data values by turning the knob.

3 Audio Equipment

3.1 Audio Signal Path

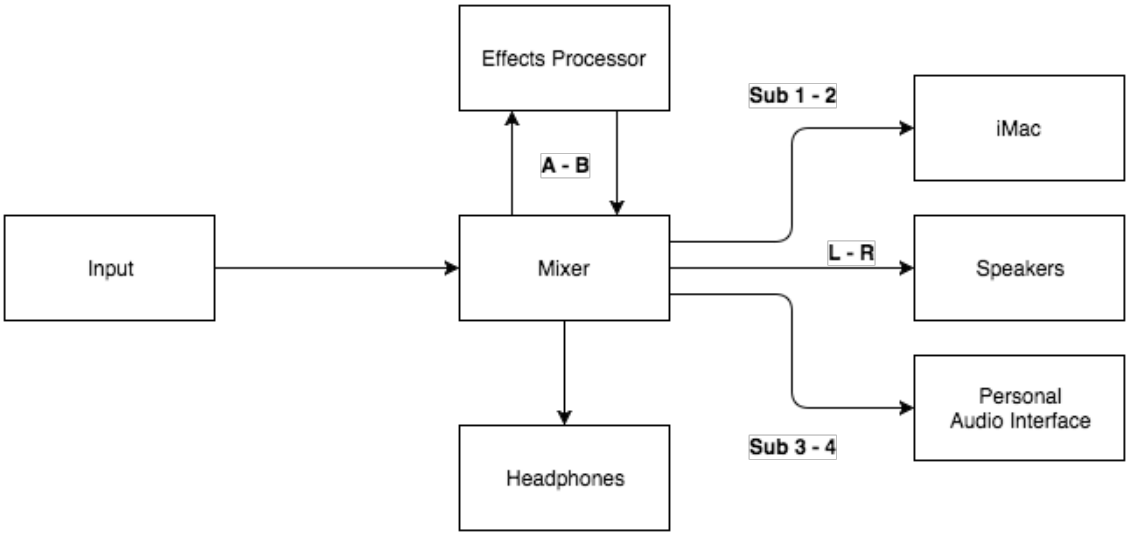


Figure 5: Block Diagram of Audio Signal Path

3.2 Line 6 TonePort MK2

The audio interface for the MIDI Lab. Please do not change any parameters on the hardware or the supporting software.

3.3 DMV-Pro Effects Processor

The DMV-Pro is the MIDI Lab's hardware effects processor with dual true-stereo inserts. To send audio to the effects processor, select the synth channel and pot the first two red auxiliary knobs. To change the parameters, rotate the three large black knobs on the effects processor.

DMV-Pro Effects Processor Manual (PDF)

Figure 6: DMV-PRO Effects Processor

3.4 Mackie CR1604 VLZ Mixer

16 channel audio mixer with ability to send audio to effects processor, other keyboards (for sampling), and for recording on the iMac as well as to a personal computer through a personal audio interface.

Mackie CR1604 VLZ Mixer Manual (PDF)

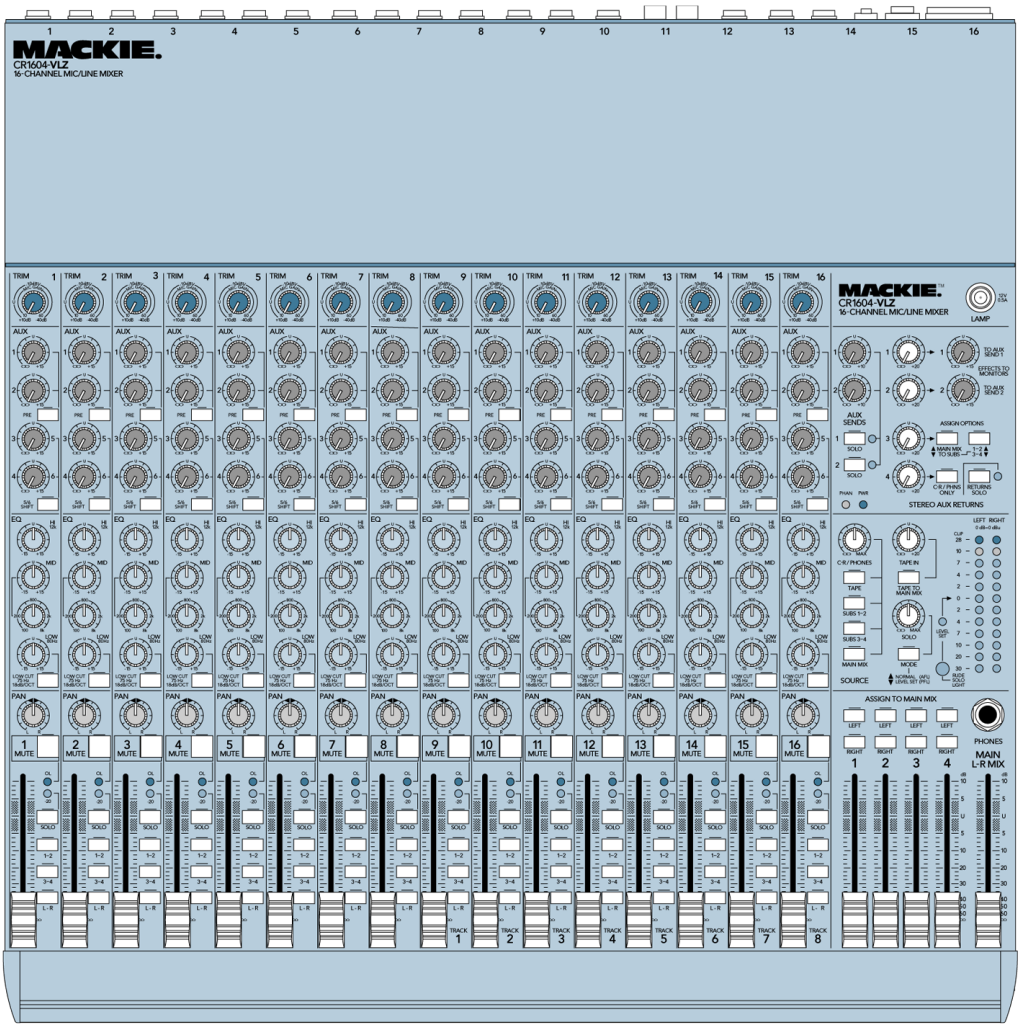
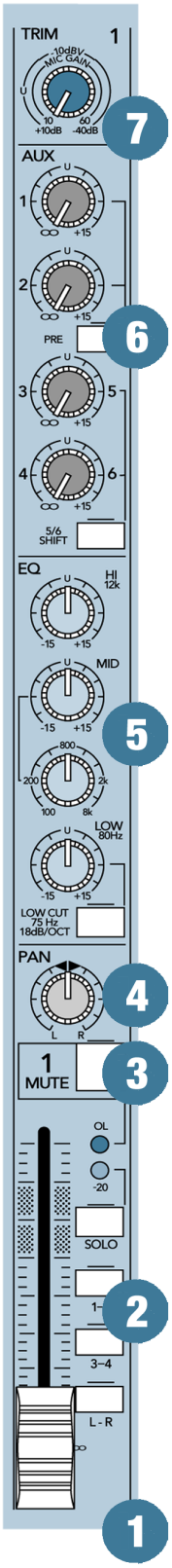


Figure 7: Mackie CR1604 Mixer

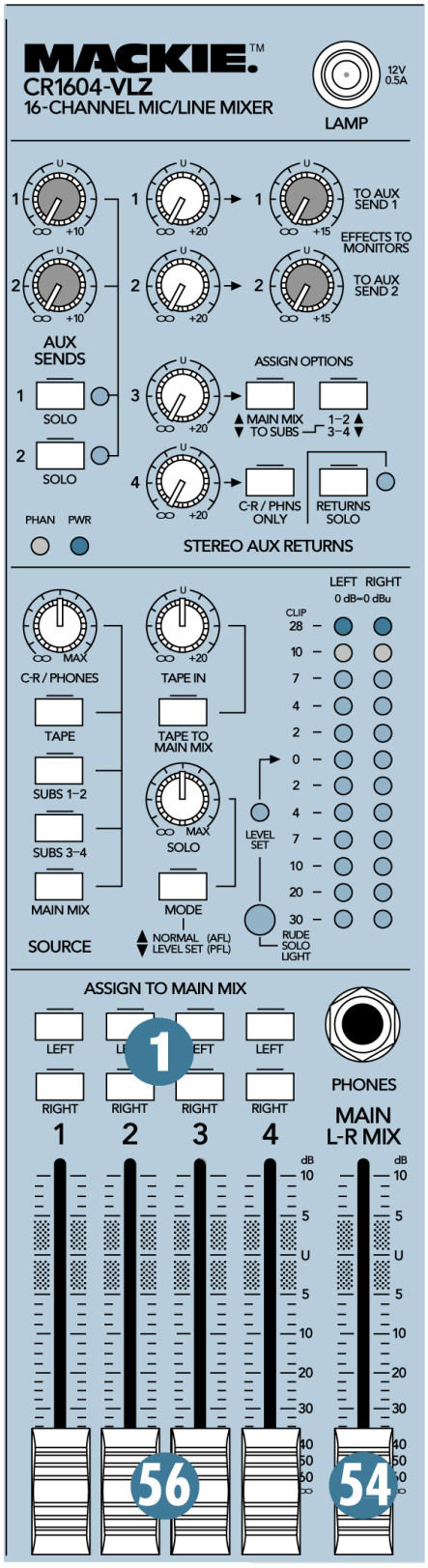
3.4.1 Control of Individual Channel

1. Volume Fader: Controls the volume of the channel within the mixer
2. Path (Subs): Chooses where the channel signal is directed to
   (a) **Solo**: Isolates the channel in the mix. Useful for when you only want to hear the specific channel without other ones.
   (b) **1-2**: Sends to Computer for Recording
   (c) **3-4**: Sends to stereo $\frac{1}{4}$" cables for use with personal audio interfaces.
   (d) **L-R**: Sends only to Monitors (Speakers)
3. Mute: Mutes the Channel
4. Pan: Controls the amount of signal sent to the left vs right, 1 vs 2, or 3 vs 4
5. Equalization (EQ)
   (a) **High EQ**: ±15 dB at 12 kHz
   (b) **Mid EQ**: ±15 dB within 1.5 octaves of the frequency center (Determined by Frequency Sweep)
   (c) **Frequency Sweep**: Selects the center of the Mid EQ between 100 Hz and 8 kHz
   (d) **Low Cut Switch**: Removes all signal below 75 Hz (High Pass Filter)
6. Auxiliary Sends: Sends a parallel signal path to other outputs on the mixer. See **??** for more information.
   (a) **Aux A-B**: The DMV Pro effects processor has two inputs and can run different effects on each input. Aux **A** sends a signal to input 1 on the processor and Aux **B** sends a signal to input 2. See the section on the effects processor.
   (b) **Aux C-D**: Not used
7. Trim (Gain): Controls the amplitude of the signal going into the mixer. Input sensitivity is adjusted by −10 dB to 40 dB. Please do not adjust unless necessary.



3.4.2 Control of Mixer

1. Effects to Monitors: Adds effects to monitors.
2. Aux 1-2 Sends: Controls the gain of the AUX 1-2 send output into the mixer.
3. AUX Returns: Controls the volume of the signal returning from the AUX within the mixer.
4. 1-2/3-4 Toggles: Controls the path of the signal to
5. IGNORE ABOVE
6. C-R/Phones: Controls volume to the Control Room out and the Headphone Jack
7. Selects what inputs are routed to the meter display
8. Meter Display: Visually shows the strength of the signal. Want the highest possible signal strength (green) without clipping (red light). At yellow compression occurs.
9. Selects what inputs are routed to the meter display, the C-R out and the headphone jack.
10. Solo Knob: Controls the level of the soloed channels
11. Mode Control:
    (a) **Normal (AFL)**: solo signal is post EQ, Pan, and Fader
    (b) **Level Set (PFL)**: solo signal is pre EQ, Pan, and Fader
12. Headphone Jack: Accepts $\frac{1}{4}$ in. plug. Feel free to use your own headphones.
13. Main Mix Assigns: Allows fader subgroups 1-4 to be assigned left, right, or both channels in main mix.
14. Subgroup Volume Faders: Control the output levels of chosen group. Adjusting the volume of subgroup 1-2 will change the volume audio into the iMac. Adjusting 3-4 will change volume of the audio going into personal audio equipment.
15. Master Fader: controls output to speakers.



4 MIDI Equipment

4.1 MIDI Signal Path

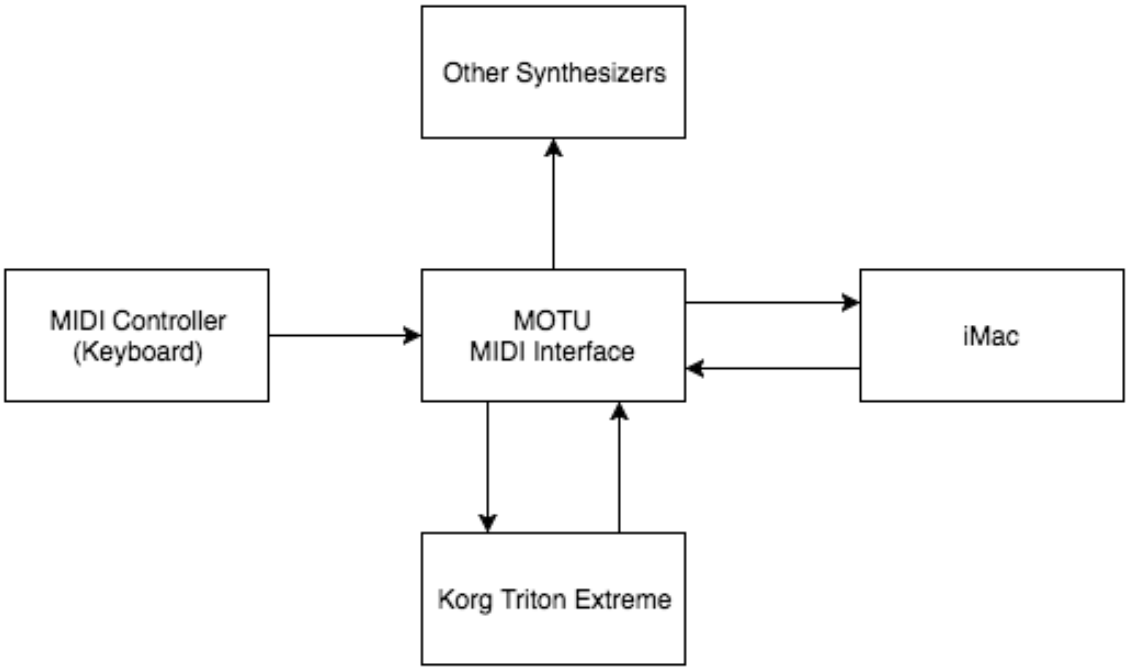


Figure 8: Block Diagram of MIDI Signal Path

4.2 Yamaha Clavinova CLP-50

The Yamaha Clavinova CLP-50 is used as the MIDI controller in the MIDI Lab. It is used to control the other synthesizers and the DAW. By default the keyboard plays sound through its built in speaker. To turn this off, turn local off.

To Turn Local Off

1. Press and hold [TRANSPOSER]
2. While holding [TRANSPOSER], press [PIANO NORMAL]

4.3 MOTU MIDI Time Piece MTP AV

The Mark of the Unicorn MIDI Time Piece allows for MIDI communication between the MIDI controller (Yamaha Clavinova), the iMac, and the other synthesizers in the MIDI lab.

Figure 9: MOTU MIDI Time Piece MTP AV

Control other synths using Yamaha Clavinova

1. Turn the [VALUE] knob until desired synth is selected (Computer, Korg Triton, Roland D-50, E-mu Proteus 2000)
2. Select the synth using the [YES/NO ENTER] button

Send MIDI from DAW to Synth

1. In chosen DAW create a MIDI channel
2. Have the MIDI To send to "MIDI Timepiece Port 1" for the Korg Triton, "MIDI Time Piece Port 2" for the Roland D-50, and "MIDI Time Piece Port 3" for the E-mu Proteus 2000.