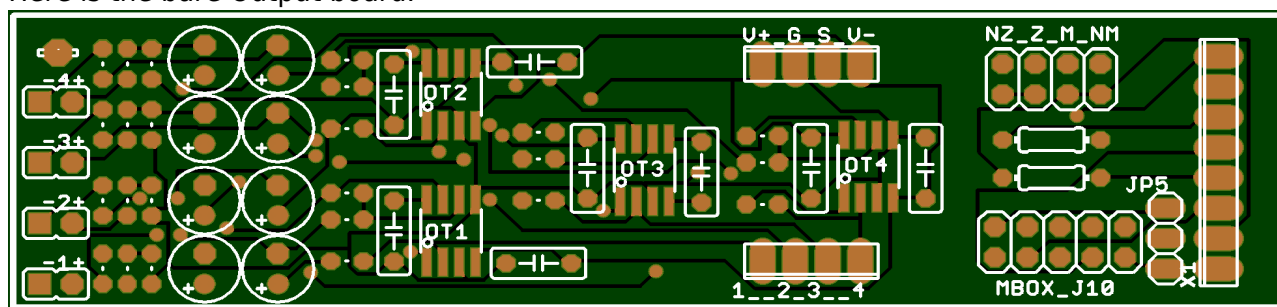Building the Output Board:

The output board has two purposes. It provides 1 to 4 audio outputs from your mixer, and also provides the interface to the MIDIBox.
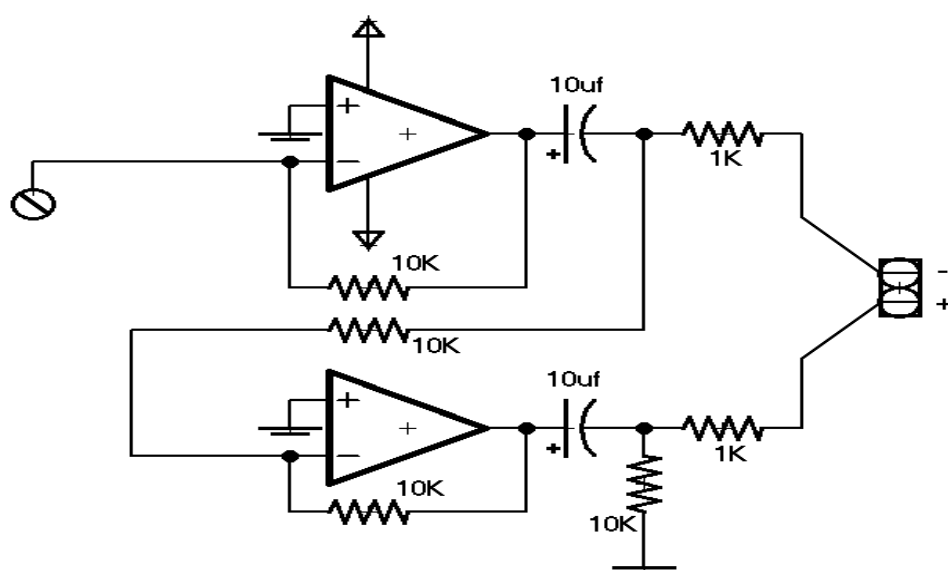
Here is the bare Output board:

The outputs:

Depending on your board, you may need only two outputs (line mixer) or all four for a "full" mixer with effects sends. You only need parts for the outputs you will use. There are four amplifier channels on this board, labeled OT1,OT2,OT3 and OT4. For a line mixer, just build 1 and 2.
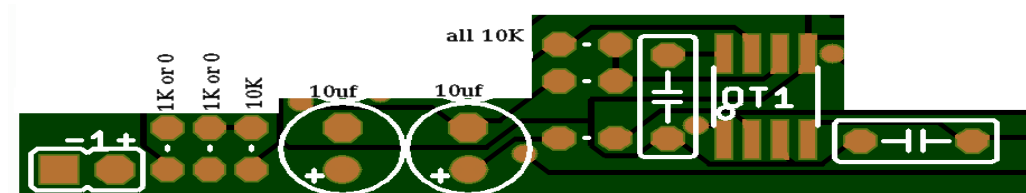
Parts needed:

1 NE5532 SO op-amp per channel (surface mount, small outline package)

2 10uf capacitors per channel

4 10K resistors per channel

2 1K resistors per channel, ONLY if balanced outputs are desired.

The schematic diagram for channel 1 is here:

This is what the board space looks like for channel 1:

Each of the four mixer channels are identical, so I will document only channel 1 here. The other three are just like it.

From left to right, the two pins marked – 1 + are the output pins. Balanced outputs will use both. Unbalanced outputs will use either one and a ground. Most users will want to mount a dual row right angle header here, so that you can just plug the output connections as you wish. Next to those are three resistors. The first two will be 1K if you want balanced outputs, or just wire jumpers for unbalanced. The third resistor, as well as the other three, should all be 10K. The two big circles with a + near the bottom of each are the 10uf capacitors. The positive side is marked, but I used bipolar caps, which go either way. Finally, furthest to the right are two 0.1uf capacitors and the NE5532 op amp chip. It is SMT, and pin 1 should be in the lower-left corner, as shown by the little circle there. If this is your first time soldering SMT, I have a few suggestions for you here.

Build as many output channels as you need. Then we move on to the MIDIBox interface.

The PGA chips allow you to select MUTE and ZERO_CROSSING by wire. These are all connected together and brought down to this board. If you don't need these features, you can just add the two 10K resistors and be done with them. If you would like a MUTE input or you would like to play with the zero crossing feature, you can add a right angle header and use jumpers to select them. The jumper positions, from left to right, are "NZ" for No Zero Crossing, "Z" for Zero Crossing, "M:" for mute, and "NM" for No Mute. Just place the jumper where you would like, If you want a remote MUTE switch, just wire it across the two pins in the "M" position. When the switch closes, it will get very quiet. With no jumpers installed, the board will NOT be muted, and zero-crossing will be enabled. The zero crossing feature will delay volume changes until the next time the audio signal crosses the zero point, to reduce switching noise.

The lower connector, marked MBOX_J10, will connect the mixer to the MIDIBox for control. The pins are straight across, so you should be able to use a 10 wire ribbon cable with 2×5 IDC connectors at each end. You should also add a jumper wire between the lower two pins of JP5. This was for a feature that is no longer needed. To connect this board to J10, the GND pin on the right side of this connector should match the ground pin on the TOP of the J10 port of the MIDIBox.