

Pedalboard Technical Report

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ABSTRACT

This pedalboard is based on the [RockBoard 4.2 model](#) and has been modified in two ways:

- Addition of a 3D printed house-made patchpanel (see page [3](#))
 - Integration of a removable traveling mini-board (see page [5](#))
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1 Necessary tool/equipment, material and component

- A 3D printer (here, [Bambulab X1C](#))
- A rigid plastic filament (here, [ArianPlast recycled PETG](#))
- Aluminimm plate (here, 3mm thick)
- Angle grinder
- Drill
- Metal file
- Sandpaper
- Panel connectors of your choice
- M3 screw and nuts
- Cable ties
- Cutting pliers
- Hook-and-loop strips

2 Patchpanel

The functional requirement must be clearly identified prior to implementation. In certain configurations, locating the connector on the front panel facilitates accessibility, particularly when the spacing between pedals is limited.

The current design provides a centralized power distribution for the board via a bipolar switch. Three USB-C (female-to-female) ports are available for a computer connection with the amplifier, the MIDI controller and the impulse response simulator unit.

Then, the correponding four slots are foreseen in the design phase, as shown on the Figure 1. The size of the slots depends on the connectors. Usually the needed informations are available online, but the measurements can also be done in-house. A 0.5 mm gap between the theroretical connector shape and the slot size is recommended.

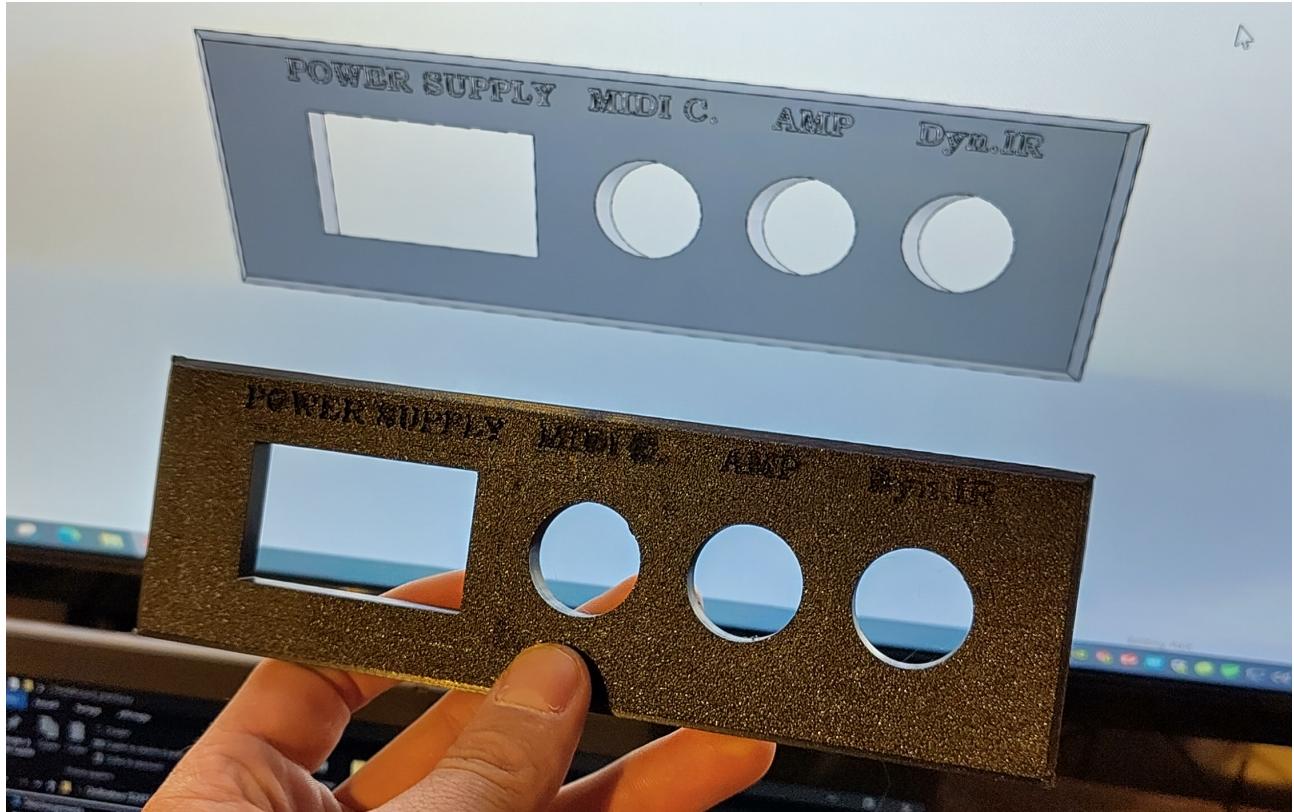


Figure 1: Patch panel 3D design

The fixing holes location on the technical sheets online are not always accurate. It is recommended to place the real connector on the pannel and note the exact position of the holes. Then, all elements can be screwed to the panel as shown in Figure 2.



Figure 2: Switch and connectors fixed on the pannel

The patchpanel has an extra-width on its both side to be screwed on the board structure. The switch and

connectors can then be wired from inside as demonstrated in Figure 3.



Figure 3: Inside wiring of the patchpanel

3 Integrated mini-board

In the new pedalboard configuration, the core is built around the Neural DSP Quad Cortex, mounted on a Ritter PowerAmp, and paired with a Mission Engineering expression pedal. This setup is already very versatile, practical, efficient and powerful. In addition, several devices from the previous pedalboard version have been retained to make the new one even more versatile and convenient: the MC6 Pro MIDI controller and the Morley Volume Plus pedal. However, these two are not essential for smaller gigs. From this idea emerged the concept of an integrated mini-board that can be detached from the main setup when needed.

At first, it is important to correctly place the pedal dedicated to full-board on one hand and to mini-board on the other hand so the footprint of the mini-board appears clearly. Figure 4 presents the aluminum plate which will be the mini-board base, and Figure 5 shows the mini-board with its dedicated devices.



Figure 4: Mini-board plate positionned on full-board



Figure 5: Mini-board standalone

The mini-board plate is designed to be both self-contained and compatible with integration into the full board. To this end, feet were added and precisely positioned so that they align with corresponding slices of the full board. This placement ensures both proper localization and stability of the mini-board, which is particularly important given that the expression pedal tends to be subjected to significant force. Furthermore, this configuration prevents the feet from increasing the overall assembly height, accommodating the dimensional constraints of the protective case. Figure 6 shows the feet mounted beneath the mini-board plate.



Figure 6: Mini-board feet

Some SCRATCH have been added on both sides, to be attached to the full-board and on receive the dedicated devices. Figure 7 and 8 show the front and back side on the mini-board plate.



Figure 7: Mini-board front side



Figure 8: Mini-board back side

As shown on Figure 9, to ensure a proper cable wiring, the cable are routed and fasten thanks to cable ties, going through holes in the aluminum plate.



Figure 9: Mini-board wiring

To include the mini-board on the full-board, the only thing to do is to plug few cables to link one board with the other.



Figure 10: Mini-board included on full-board

For information, the mini-board as it is here can be transported in a 18" computer soft case. The devices attached on it allow a very large amount of configurations with several instrument inputs. The outputs can be line level mono or stereo, or speaker level with 1×280 W mono / 2×140 W stereo.