

# MB-SIDR8TR

This is a project built around making a MidiBox SID in a 3U rackmount case using the MB-6582 mainboard. This is a **huge** work in progress however feel free to contribute!

## Status

### 2011-10-14

Approached the control surface from an entirely new angle but putting the shift registers directly on the boards. This branches away from the MB-6582 design but can be configured with minimal code modifications, and makes the design of the control surface, and various parts, easier. Wiring it all up is also easier and now involves largely DIL headers. The board that is further along is currently the LED matrix, which is actually two boards (the LED matrix board itself plus a daughterboard housing the shift registers that is mounted behind it).

### 2011-09-11

Added jumpers to the LED matrix board to make it a bit more flexible since you can choose whether or not to share 2 pins from the JD8 header. The board would still require using a button-matrix, however. This was to make the board more compatible for other MidiBoxers (I plan on using the same wiring as the MB-6582 control surface).

### 2011-09-06

Back at it again. I set this project down for a while to work on my band's debut album (which used more the NES than the SID). I also was feeling overwhelmed with designing the control surface stuff. But I'm back it! Worked on the LCD module and ended up trying out a 2x20 setup instead which makes the LCD control board smaller by directly mounting the LCD itself to the front panel via blind threaded screws on the back. That's the idea, anyway. [This](#) post has some good thoughts on using blind screw-holes for mounting the LCD to the front panel.

Also received some good advice in [this](#) post for using a line-drive to provide balanced outs. Thinking of using that for the passive mixer out although doing that for all inputs may require some further thought since it takes up a lot of space and pushes the limits of Eagle Standard (could modularize it though).

### 2011-05-12

Finished the wiring for the LCD module, though it's somewhat unoptimized (lots of vias). Thinking of doing it again but with a smaller wire size. The other modules should be a bit easier.

## 2011-03-31

Panel design is nearing completion, though there are a few ideas I still need to try such as some of the ones in [this](#) post. From that same post, I learned that using set screws on the back of the panel can be used to secure the panel for some of the additional screws I was going to add to the CS boards for rigidity. That means I need to go with at least a 3mm panel though, so I may need to put in a cut-out for the LCD panel on the back.

## 2011-03-26

Updated the LED Matrix board to have an option for both SMD and through-hole

## 2011-03-21

BZZT! Setbacks. Turns out I over measured the available inside space of the 3U chassis so I had to reduce the vertical height of my control surface, which mucked things up a bit. I think I have things basically fixed, although things are a bit asymmetric vertically now which sort of bugs me. I can likely resolve that by using a smaller LCD panel - either a 4x20 with a smaller overall size or a 2x20 with a standard size. I will miss the cool progress indicator for the 4x20 but the 2x20 gives me way more colors to choose from, including cool inverted colors, oooh! See [this](#) forum post for more info.

I think I've settled on the spacers to use. I am going with male/female spacers 11/32" (8.75mm) in length, which will be a bit less than was used for the MB-6582, meaning the buttons may stick out a bit more, but otherwise it will allow me to use a 2mm or 2.5mm front-panel. Thanks to nebula for the male/female spacers. See [this](#) forum post for more info. One thing I didn't account for was the LCD, and that may make things a little tight.

## 2011-03-17)

All of the boards with knobs have been designed, leaving only the LCD panel board and the SID selector board. I am behind on updating the wiki but will do so probably once I finish all the boards since I don't want to have to re-upload revisions of the front panel or control surface PCBs as I refine the measurements and things. If anyone wants to see the work in progress, send me a [PM](#).

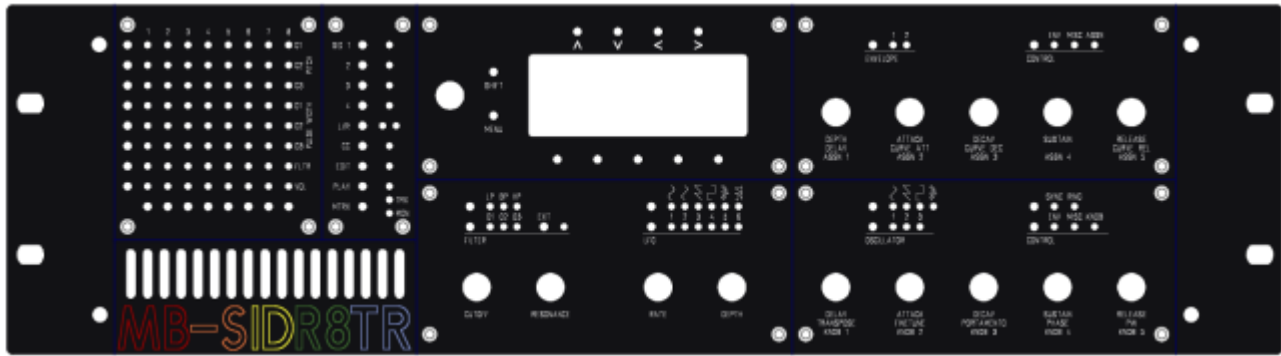
## Parts

- [3U Chassis](#) - Jameco Part # 132848
- Encoders: I am planning on using similar ones to the MB-6852. You can find Eagle parts for these at the MidiBox [parts](#) library.

## Panels

This is the current iteration of the panel, though alternative designs can be found on the forum [post](#)

relating to this project as well.



[frontpanel-rev2.zip](#)

## Boards

Here are the collection of boards required to populate the control surface. Since a single-board solution would be quite expensive (starting with the full version of EagleCAD), the design is more similar to the standard C64-based control surface in that various parts of the control surface can be populated using smaller boards.

That said, since the MB-6582R uses the MB-6582 mainboard, the wiring reflects the use of LED and button arrays. The wiring can be found here at the following:

- [mb-6582\\_cs\\_dout\\_wiring.pdf](#)
- [mb-6582\\_cs\\_din\\_wiring.pdf](#)
- [Encoder Assignments](#)

From the MB-6582 page:

- “LFO Sin” and “LFO Tri” are swapped and “Sync”, “CC”, “Edit”, “Play” are in the wrong order (should be “Play”, “Edit”, “CC”, “Sync”)
- The menu button should be at the intersection of “JD8-D3 & JD5-D3” NOT “JD8-D3 & JD5-D4”

Further details can be found on the MB-6582 [wiki](#) page.

## LED Matrix

This is a proposed layout for an LED matrix board to be used coupled with the above panel design. While other boards can likely be made from home using various methods, it might be wise to have this one printed. Note that this design currently has the mounting holes up higher than the current design of the front panel. The mounting holes were moved down on the panel so the design was more uniform. Modify per your needs!





## Parts List

Part	Description	Allied Part No
C1	4700uF Electrolytic Capacitor	613-0203
C2	2200uF Electrolytic Capacitor	613-0201
C3, C4	47uF Electrolytic Capacitor	613-0112
C5, C6, C11, C14	330nF Ceramic Capacitor	507-0238
C7, C8, C12, C15	22uF Electrolytic Capacitor	613-0712
C9, C10, C13, C16	100nF Ceramic Capacitor	507-0211
R1, R2, R3	4 Ohm, 5 Watt Power Resistor	296-5275
IC1	7812 Voltage Regulator	568-0489
IC2	7912 Voltage Regulator	935-3055
IC3	7809 Voltage Regulator	568-0960
IC4	7805 Voltage Regulator	568-0488
B1	Rectifier (1.5A)	935-6268
X1, X2, X3	KK-156 Molex Headers	863-0328
9x	Crimp Pins	863-0435
3x	Pin housing	863-0414
1-4x	TO-220 Heatsink	619-0127
Transformer	24VCT / 50VA	967-7285
Crimp Connectors	(For Transformer	??
Fuse Holder		Radio Shack

## Props

Thanks to TK, Wilba, SmashTV, and nLS for their help, inventions, and support. Without them, this would not have been possible!

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