MB-6582 Parts List

Please read the entire construction guide before buying parts or starting to solder anything.

It is important that you understand what options you have for the PSU and sockets before buying parts. Therefore, you should read the MB-6582 Base PCB Construction Guide and decide on the PSU option and sockets you plan to use.

If you are constructing the base PCB, you will require all the parts listed here, with the exception of:

- Parts that are optional and only required by the PSU Option A, B, C or D you are using
- Parts that are PCB mounted sockets (if you are not using the PacTec PT-10 case)
- 1x PIC18F4685 per Core module (and thus per SID module)
- 1 or 2 SID chips per SID module.
- 2x 74HC595 per SID module.
- 2x or more 24LC512 (one for patches, one for ensembles)

To clarify: Each SID module can have 1 or 2 SIDs, each SID module requires a Core module. So if you have less than 8 SIDs, you only *need* the ICs in the Core and SID modules you will use. Thus for each Core/SID module you use, you can buy just 1x PIC18F4685 and 2x 74HC595 (plus 3x 74HC595 for DOUT modules to connect to control surface).

However, please buy enough *other* parts to fully construct all Core and SID modules on the base PCB, including all 8x 74HC595 for the four SID modules, all IC sockets, all other sockets, resistors, capacitors, etc.. Even if you only want to use less than 4 Core and 4 SID modules, you might get more SIDs in future, and you might also have trouble with one Core/SID module combination. Having other Core/SID modules on the PCB will help solve any problems you might have, because you can test the PIC and SID in another Core/SID module. It really is not much extra time or cost to fully construct the PCB and just not buy (leave out) the PICs and SIDs.

For each IC (designators starting with “U”), you will require an IC socket of the same size. Take note that the 28-pin IC socket required for the SIDs come in “narrow” and “wide”. You want the “wide” kind. I used the cheap, “dual-wipe” type, but you could use the more expensive “machined pin” type, which looks a little more professional.

Here is a quick tally of the ICs and IC sockets:

Part	Required	Size
6N138	1	8-pin
24LC512	8	8-pin
74HC595	11	16-pin
74HC165	5	16-pin
SID	8	28-pin (wide)
PIC18F4685	4	40 pin

Again I remind you to buy all these IC sockets and solder them all to the PCB, even if you don't use them all.

I would also advise people buy an extra set of of 28-pin and 40-pin sockets (of the dual-wipe kind), so

you can use an *extra IC socket* in between the IC and the IC socket on the PCB. This allows easy insertion and removal of the PICs and SIDs while testing, and while constructing you can easily pull out all the PICs and SIDs before doing more soldering! You will want to test one “working” PIC and SID in each socket first, so extra IC sockets makes this easy with no chance of bending pins during testing.

I have listed all headers, some are single in-line (SIL) headers, some are dual row. 18 of the 5-pin single inline (SIL) headers can be replaced with 9 dual inline (DIL) 5-pin headers. (J8, J9, J6_COREx/J7_COREx and J8_COREx/J9_COREx). It is cheaper to get 40-pin headers strips and cut to the sizes required. You probably will not need any connectors for the headers other than one for the LCD (J15_CORE1, 8-pin dual row) which should be an IDC connector (crimps onto ribbon cable). If you are planning to connect analog inputs (i.e. joysticks, sliders, etc.) or connect analog outputs (i.e. CV-controlled external filters, FX units, etc.) then refer to other documentation about these options. FYI, the ports on the Core modules *should have* identical pinouts to SmashTV's Core PCB.

All the resistors I used on the prototype were metal film 1% tolerance (except 10K resistor networks, I don't know what type they are). But carbon resistors work just as well.

The bypass capacitors and most other capacitors are monolithic (anything else might not fit the PCB). The spacing of non-electrolytic capacitors is 5.08mm (200mil) to better deal with the different sizes.

Trim potentiometers are horizontal type, I think they are pretty standard, they are **not** the multiturn type.

If none of this is making much sense and you're stuck identifying what parts you need to buy, then you can wait for SmashTV to prepare a complete “parts kit” of the base PCB components, or ask for help on the forum from more experienced MIDIboxers building this PCB, or wait for the step-by-step-with-photos construction guide which I will write as I construct one of the base PCBs myself. However, I encourage everyone to go and read the documentation about each MIDIbox module (Core, SID, DIN, DOUT, BankStick) and how they fit together (i.e. into a MIDIbox SID Synthesizer V2).

Here is the full parts list.

Base PCB

Designator	Description	Value	Notes	Image
B1	Bridge Rectifier	W04 400V 1.2 Amp	Optional: See Note 1	
C1	Electrolytic Capacitor (Radial)	2200µF, 25V	Optional: See Note 1	
C2	Monolithic Capacitor	330nF	Optional: See Note 1	
C3	Electrolytic Capacitor (Radial)	2200µF, 25V	Optional: See Note 1	
C4	Monolithic Capacitor	100nF	Optional: See Note 1	

C11	Electrolytic Capacitor (Radial)	10µF	Optional: See Note 1	
C12	Monolithic Capacitor	100nF	Optional: See Note 1	
C13	Electrolytic Capacitor (Radial)	10µF	Optional: See Note 3	
C14	Monolithic Capacitor	100nF	Optional: See Note 3	
C16	Monolithic Capacitor	100nF	-	
C17	Monolithic Capacitor	100nF	-	
C18	Monolithic Capacitor	100nF	-	
C19	Monolithic Capacitor	100nF	-	
C20	Monolithic Capacitor	100nF	-	
C21	Monolithic Capacitor	100nF	-	
C22	Monolithic Capacitor	100nF	-	
C23	Monolithic Capacitor	100nF	-	
C24	Electrolytic Capacitor (Radial)	100µF	Bend leads and mount flat against PCB	
D1	Diode	1N4148	-	
J1	DIN Socket, 7-Pin	-	Optional: See Notes 1, 4	
J1A	Header, 4-Pin	-	Optional: See Notes 1, 4	
J2	Header, 2-Pin	-	Power LED connects here, uses R81 for current limiting	
J3	Header, 2-Pin	-	-	
J4	Header, 4-Pin	-	-	
J8	Header, 5-Pin	-	Optional, combine with J9 in 5×2 DIL header	
J9	Header, 5-Pin	-	Optional, combine with J8 in 5×2 DIL header	
J11	Header, 4-Pin, Dual row	-	Use jumper to select which PIC connects to MIDI Out (for uploading apps)	

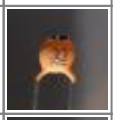
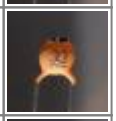
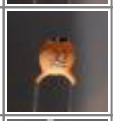
J12	DIN Socket, 5-Pin	-	-	
J12A	Header, 3-Pin	-	-	
J13	DIN Socket, 5-Pin	-	-	
J13A	Header, 3-Pin	-	-	
J21	Stereo Phono Jack with Switch	-	Optional: See Note 11	
J22	Stereo Phono Jack with Switch	-	Optional: See Note 11	
J23	Stereo Phono Jack with Switch	-	Optional: See Note 11	
J24	Stereo Phono Jack with Switch	-	Optional: See Note 11	
J21B	Header, 3-Pin	-	-	
J22B	Header, 3-Pin	-	-	
J23B	Header, 3-Pin	-	-	
J24B	Header, 3-Pin	-	-	
J25	Header, 2-Pin	-	-	
J70	Header, 3-Pin	-	-	
J71	-	-	Bridge for PSU Option	
J72	-	-	Bridge for PSU Option	
J73	Header, 2-Pin	-	Optional: See Note 2	
J74	Header, 2-Pin	-	Optional: See Note 2	
JD1	-	-	Optional: See Note 5	
JD2	-	-	Optional: See Note 5	
JD3	-	-	Optional: See Note 5	
JD4	-	-	Optional: See Note 5	
JD5	-	-	Optional: See Note 5	
JD6	-	-	Optional: See Note 5	
JD7	-	-	Optional: See Note 5	
JD8	-	-	Optional: See Note 5	
JD9	-	-	Optional: See Note 5	
P1	Potentiometer	10K	-	
R3	Resistor	10K	-	
R4	Resistor	1K	-	
R5	Resistor	5.6K	-	
R7	Resistor	220 Ohm	-	
R8	Resistor	220 Ohm	-	
R11	Resistor	220 Ohm	-	
R13	Resistor	1K	-	
R14	Resistor	1K	-	
R15	Resistor	1K	-	
R16	Resistor	1K	-	
R17	Resistor	1K	-	
R18	Resistor	1K	-	
R19	Resistor	1K	-	
R20	Resistor	1K	-	

R30	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R31	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R32	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R33	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R34	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R35	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R36	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R37	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R38	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R39	Resistor network (5-pin or 6-pin)	10K	See Note 12	
R40	Resistor	220 Ohm	Solder last, must match LED brightness	
R41	Resistor	220 Ohm	Solder last, must match LED brightness	
R42	Resistor	220 Ohm	Solder last, must match LED brightness	
R43	Resistor	220 Ohm	Solder last, must match LED brightness	
R44	Resistor	220 Ohm	Solder last, must match LED brightness	
R45	Resistor	220 Ohm	Solder last, must match LED brightness	
R46	Resistor	220 Ohm	Solder last, must match LED brightness	
R47	Resistor	220 Ohm	Solder last, must match LED brightness	
R48	Resistor	220 Ohm	Solder last, must match LED brightness	
R49	Resistor	220 Ohm	Solder last, must match LED brightness	
R50	Resistor	220 Ohm	Solder last, must match LED brightness	
R51	Resistor	220 Ohm	Solder last, must match LED brightness	
R52	Resistor	220 Ohm	Solder last, must match LED brightness	
R53	Resistor	220 Ohm	Solder last, must match LED brightness	
R54	Resistor	220 Ohm	Solder last, must match LED brightness	
R55	Resistor	220 Ohm	Solder last, must match LED brightness	
R57	Resistor	10K	Not required if R38 is 6-pin	

R58	Resistor	10K	Not required if R36 is 6-pin	
R59	Resistor	10K	Not required if R34 is 6-pin	
R60	Resistor	10K	Not required if R32 is 6-pin	
R61	Resistor	10K	Not required if R30 is 6-pin	
R70	Resistor	10K	-	
R71	Resistor	10K	-	
R72	Resistor	10K	-	
R73	Resistor	10K	-	
R74	Resistor	10K	-	
R75	Resistor	10K	-	
R76	Resistor	10K	-	
R77	Resistor	10K	-	
R80	Resistor	1K	-	
R81	Resistor	220 Ohm	Current limiting resistor for power LED connected to J2	
S1	Double-Pole, Single-Throw Switch	-	Optional: See Notes 1, 6	
T1	BC337	-	-	
T2	BC547	-	Optional: Current sinking for LED and switch matrix	
T3	BC547	-	Optional: Current sinking for LED and switch matrix	
T4	BC547	-	Optional: Current sinking for LED and switch matrix	
T5	BC547	-	Optional: Current sinking for LED and switch matrix	
T6	BC547	-	Optional: Current sinking for LED and switch matrix	
T7	BC547	-	Optional: Current sinking for LED and switch matrix	
T8	BC547	-	Optional: Current sinking for LED and switch matrix	
T9	BC547	-	Optional: Current sinking for LED and switch matrix	
U2	6N138 Optocoupler	-	-	
U4	24LC512	-	-	
U5	24LC512	-	-	
U6	24LC512	-	-	
U7	24LC512	-	-	
U8	24LC512	-	-	
U9	24LC512	-	-	
U10	24LC512	-	-	
U11	24LC512	-	-	
U16	74HC165	-	-	

U17	74HC165	-	-	
U18	74HC165	-	-	
U19	74HC165	-	-	
U20	74HC165	-	-	
U21	74HC595	-	-	
U22	74HC595	-	-	
U23	74HC595	-	-	
V1	7809 Voltage Regulator	-	Optional: See Notes 1, 10	
V2	7809 Voltage Regulator	-	Optional: See Notes 2, 10	
V3	7812 Voltage Regulator	-	Optional: See Notes 2, 10	
V4	7805 Voltage Regulator	-	Optional: See Notes 3, 10	

Core Modules

Designator	Description	Value	Notes	Image
D1_CORE1	Diode	1N4148	-	
D1_CORE2	Diode	1N4148	-	
D1_CORE3	Diode	1N4148	-	
D1_CORE4	Diode	1N4148	-	
C1_CORE1	Ceramic Capacitor	33pF	-	
C1_CORE2	Ceramic Capacitor	33pF	-	
C1_CORE3	Ceramic Capacitor	33pF	-	
C1_CORE4	Ceramic Capacitor	33pF	-	
C2_CORE1	Ceramic Capacitor	33pF	-	
C2_CORE2	Ceramic Capacitor	33pF	-	
C2_CORE3	Ceramic Capacitor	33pF	-	
C2_CORE4	Ceramic Capacitor	33pF	-	
C3_CORE1	Monolithic Capacitor	100nF	-	
C3_CORE2	Monolithic Capacitor	100nF	-	

C3_CORE3	Monolithic Capacitor	100nF	-	
C3_CORE4	Monolithic Capacitor	100nF	-	
J11_CORE1	Header, 2-Pin	-	-	
J11_CORE2	Header, 2-Pin	-	-	
J11_CORE3	Header, 2-Pin	-	-	
J11_CORE4	Header, 2-Pin	-	-	
J4_CORE1	Header, 4-Pin	-	-	
J4_CORE2	Header, 4-Pin	-	-	
J4_CORE3	Header, 4-Pin	-	-	
J4_CORE4	Header, 4-Pin	-	-	
J6_CORE1	Header, 5-Pin	-	Can combine with J7_CORE1 in 5×2 DIL header	
J6_CORE2	Header, 5-Pin	-	Can combine with J7_CORE2 in 5×2 DIL header	
J6_CORE3	Header, 5-Pin	-	Can combine with J7_CORE3 in 5×2 DIL header	
J6_CORE4	Header, 5-Pin	-	Can combine with J7_CORE4 in 5×2 DIL header	
J7_CORE1	Header, 5-Pin	-	Can combine with J6_CORE1 in 5×2 DIL header	
J7_CORE2	Header, 5-Pin	-	Can combine with J6_CORE2 in 5×2 DIL header	
J7_CORE3	Header, 5-Pin	-	Can combine with J6_CORE3 in 5×2 DIL header	
J7_CORE4	Header, 5-Pin	-	Can combine with J6_CORE4 in 5×2 DIL header	
J8_CORE1	Header, 5-Pin	-	Can combine with J9_CORE1 in 5×2 DIL header	
J8_CORE2	Header, 5-Pin	-	Can combine with J9_CORE2 in 5×2 DIL header	
J8_CORE3	Header, 5-Pin	-	Can combine with J9_CORE3 in 5×2 DIL header	
J8_CORE4	Header, 5-Pin	-	Can combine with J9_CORE4 in 5×2 DIL header	
J9_CORE1	Header, 5-Pin	-	Can combine with J8_CORE1 in 5×2 DIL header	
J9_CORE2	Header, 5-Pin	-	Can combine with J8_CORE2 in 5×2 DIL header	
J9_CORE3	Header, 5-Pin	-	Can combine with J8_CORE3 in 5×2 DIL header	
J9_CORE4	Header, 5-Pin	-	Can combine with J8_CORE4 in 5×2 DIL header	
J15_CORE1	Header, 8-Pin, Dual row	-	-	
J15_CORE2	Header, 8-Pin, Dual row	-	-	
J15_CORE3	Header, 8-Pin, Dual row	-	-	
J15_CORE4	Header, 8-Pin, Dual row	-	-	

J5_CORE1	Header, 10-Pin	-	-	
J5_CORE2	Header, 10-Pin	-	-	
J5_CORE3	Header, 10-Pin	-	-	
J5_CORE4	Header, 10-Pin	-	-	
P2_CORE1	Potentiometer	10K	-	
P2_CORE2	Potentiometer	10K	-	
P2_CORE3	Potentiometer	10K	-	
P2_CORE4	Potentiometer	10K	-	
Q1_CORE1	Crystal	10MHz	Low Profile HC49 Type	
Q1_CORE2	Crystal	10MHz	Low Profile HC49 Type	
Q1_CORE3	Crystal	10MHz	Low Profile HC49 Type	
Q1_CORE4	Crystal	10MHz	Low Profile HC49 Type	
R10_CORE1	Resistor	10K	-	
R10_CORE2	Resistor	10K	-	
R10_CORE3	Resistor	10K	-	
R10_CORE4	Resistor	10K	-	
R12_CORE1	Resistor	1K	-	
R12_CORE2	Resistor	1K	-	
R12_CORE3	Resistor	1K	-	
R12_CORE4	Resistor	1K	-	
R1_CORE1	Resistor	100 Ohm	-	
R1_CORE2	Resistor	100 Ohm	-	
R1_CORE3	Resistor	100 Ohm	-	
R1_CORE4	Resistor	100 Ohm	-	
R2_CORE1	Resistor	1K	-	
R2_CORE2	Resistor	1K	-	
R2_CORE3	Resistor	1K	-	
R2_CORE4	Resistor	1K	-	
R6_CORE1	Resistor	1.2K	-	
R6_CORE2	Resistor	1.2K	Not required, but can mount if you want	
R6_CORE3	Resistor	1.2K	Not required, but can mount if you want	
R6_CORE4	Resistor	1.2K	Not required, but can mount if you want	
R9_CORE1	Resistor	10K	-	
R9_CORE2	Resistor	10K	-	
R9_CORE3	Resistor	10K	-	
R9_CORE4	Resistor	10K	-	
U1_CORE1	PIC18F4685	-	-	
U1_CORE2	PIC18F4685	-	-	
U1_CORE3	PIC18F4685	-	-	

U1_CORE4	PIC18F4685	-	-	

SID Modules

Designator	Description	Value	Notes	Images
U3_SID1	74HC595	-	-	
U3_SID2	74HC595	-	-	
U3_SID3	74HC595	-	-	
U3_SID4	74HC595	-	-	
U4_SID1	74HC595	-	-	
U4_SID2	74HC595	-	-	
U4_SID3	74HC595	-	-	
U4_SID4	74HC595	-	-	
T1_SID1	BC547	-	-	
T1_SID2	BC547	-	-	
T1_SID3	BC547	-	-	
T1_SID4	BC547	-	-	
T21_SID1	BC547	-	-	
T21_SID2	BC547	-	-	
T21_SID3	BC547	-	-	
T21_SID4	BC547	-	-	
C1_SID1	Capacitor	470pF or 22nF	See Note 7	 or 
C1_SID2	Capacitor	470pF or 22nF	See Note 7	 or 
C1_SID3	Capacitor	470pF or 22nF	See Note 7	 or 
C1_SID4	Capacitor	470pF or 22nF	See Note 7	 or 
C2_SID1	Capacitor	470pF or 22nF	See Note 7	 or 
C2_SID2	Capacitor	470pF or 22nF	See Note 7	 or 
C2_SID3	Capacitor	470pF or 22nF	See Note 7	 or 
C2_SID4	Capacitor	470pF or 22nF	See Note 7	 or 
C21_SID1	Capacitor	470pF or 22nF	See Note 7	 or 

C21_SID2	Capacitor	470pF or 22nF	See Note 7	 or 
C21_SID3	Capacitor	470pF or 22nF	See Note 7	 or 
C21_SID4	Capacitor	470pF or 22nF	See Note 7	 or 
C22_SID1	Capacitor	470pF or 22nF	See Note 7	 or 
C22_SID2	Capacitor	470pF or 22nF	See Note 7	 or 
C22_SID3	Capacitor	470pF or 22nF	See Note 7	 or 
C22_SID4	Capacitor	470pF or 22nF	See Note 7	 or 
C3_SID1	Ceramic Capacitor	1nF	-	
C3_SID2	Ceramic Capacitor	1nF	-	
C3_SID3	Ceramic Capacitor	1nF	-	
C3_SID4	Ceramic Capacitor	1nF	-	
C23_SID1	Ceramic Capacitor	1nF	-	
C23_SID2	Ceramic Capacitor	1nF	-	
C23_SID3	Ceramic Capacitor	1nF	-	
C23_SID4	Ceramic Capacitor	1nF	-	
C4_SID1	Ceramic Capacitor	470pF	-	
C4_SID2	Ceramic Capacitor	470pF	-	
C4_SID3	Ceramic Capacitor	470pF	-	

C4_SID4	Ceramic Capacitor	470pF	-	
C24_SID1	Ceramic Capacitor	470pF	-	
C24_SID2	Ceramic Capacitor	470pF	-	
C24_SID3	Ceramic Capacitor	470pF	-	
C24_SID4	Ceramic Capacitor	470pF	-	
C5_SID1	Electrolytic Capacitor (Radial)	10µF	-	
C5_SID2	Electrolytic Capacitor (Radial)	10µF	-	
C5_SID3	Electrolytic Capacitor (Radial)	10µF	-	
C5_SID4	Electrolytic Capacitor (Radial)	10µF	-	
C25_SID1	Electrolytic Capacitor (Radial)	10µF	-	
C25_SID2	Electrolytic Capacitor (Radial)	10µF	-	
C25_SID3	Electrolytic Capacitor (Radial)	10µF	-	
C25_SID4	Electrolytic Capacitor (Radial)	10µF	-	
C6_SID1	Electrolytic Capacitor (Radial)	1µF	-	
C6_SID2	Electrolytic Capacitor (Radial)	1µF	-	
C6_SID3	Electrolytic Capacitor (Radial)	1µF	-	
C6_SID4	Electrolytic Capacitor (Radial)	1µF	-	
C26_SID1	Electrolytic Capacitor (Radial)	1µF	-	

C26_SID2	Electrolytic Capacitor (Radial)	1µF	-	
C26_SID3	Electrolytic Capacitor (Radial)	1µF	-	
C26_SID4	Electrolytic Capacitor (Radial)	1µF	-	
C7_SID1	Ceramic Capacitor	1nF	-	
C7_SID2	Ceramic Capacitor	1nF	-	
C7_SID3	Ceramic Capacitor	1nF	-	
C7_SID4	Ceramic Capacitor	1nF	-	
C27_SID1	Ceramic Capacitor	1nF	-	
C27_SID2	Ceramic Capacitor	1nF	-	
C27_SID3	Ceramic Capacitor	1nF	-	
C27_SID4	Ceramic Capacitor	1nF	-	
C8_SID1	Monolithic Capacitor	100nF	-	
C8_SID2	Monolithic Capacitor	100nF	-	
C8_SID3	Monolithic Capacitor	100nF	-	
C8_SID4	Monolithic Capacitor	100nF	-	
C28_SID1	Monolithic Capacitor	100nF	-	
C28_SID2	Monolithic Capacitor	100nF	-	
C28_SID3	Monolithic Capacitor	100nF	-	

C28_SID4	Monolithic Capacitor	100nF	-	
C9_SID1	Monolithic Capacitor	100nF	-	
C9_SID2	Monolithic Capacitor	100nF	-	
C9_SID3	Monolithic Capacitor	100nF	-	
C9_SID4	Monolithic Capacitor	100nF	-	
C29_SID1	Monolithic Capacitor	100nF	-	
C29_SID2	Monolithic Capacitor	100nF	-	
C29_SID3	Monolithic Capacitor	100nF	-	
C29_SID4	Monolithic Capacitor	100nF	-	
C13_SID1	Monolithic Capacitor	100nF	-	
C13_SID2	Monolithic Capacitor	100nF	-	
C13_SID3	Monolithic Capacitor	100nF	-	
C13_SID4	Monolithic Capacitor	100nF	-	
C14_SID1	Monolithic Capacitor	100nF	-	
C14_SID2	Monolithic Capacitor	100nF	-	
C14_SID3	Monolithic Capacitor	100nF	-	
C14_SID4	Monolithic Capacitor	100nF	-	
J1_SID1	Header, 3-Pin	-	Optional: See Note 8	
J1_SID2	Header, 3-Pin	-	Optional: See Note 8	
J1_SID3	Header, 3-Pin	-	Optional: See Note 8	

J1_SID4	Header, 3-Pin	-	Optional: See Note 8	
J2_SID1	Header, 3-Pin	-	Optional: See Note 8	
J2_SID2	Header, 3-Pin	-	Optional: See Note 8	
J2_SID3	Header, 3-Pin	-	Optional: See Note 8	
J2_SID4	Header, 3-Pin	-	Optional: See Note 8	
J3_SID1	Header, 3-Pin	-	See Note 9	
J3_SID2	Header, 3-Pin	-	See Note 9	
J3_SID3	Header, 3-Pin	-	See Note 9	
J3_SID4	Header, 3-Pin	-	See Note 9	
J23_SID1	Header, 3-Pin	-	See Note 9	
J23_SID2	Header, 3-Pin	-	See Note 9	
J23_SID3	Header, 3-Pin	-	See Note 9	
J23_SID4	Header, 3-Pin	-	See Note 9	
R2_SID1	Resistor	1K	-	
R2_SID2	Resistor	1K	-	
R2_SID3	Resistor	1K	-	
R2_SID4	Resistor	1K	-	
R22_SID1	Resistor	1K	-	
R22_SID2	Resistor	1K	-	
R22_SID3	Resistor	1K	-	
R22_SID4	Resistor	1K	-	
R3_SID1	Resistor	10K	-	
R3_SID2	Resistor	10K	-	
R3_SID3	Resistor	10K	-	
R3_SID4	Resistor	10K	-	
R23_SID1	Resistor	10K	-	
R23_SID2	Resistor	10K	-	
R23_SID3	Resistor	10K	-	
R23_SID4	Resistor	10K	-	
R4_SID1	Resistor	1K	-	
R4_SID2	Resistor	1K	-	
R4_SID3	Resistor	1K	-	
R4_SID4	Resistor	1K	-	
R24_SID1	Resistor	1K	-	
R24_SID2	Resistor	1K	-	
R24_SID3	Resistor	1K	-	
R24_SID4	Resistor	1K	-	
U1_SID1	SID 6581/6582/8580	-	-	
U1_SID2	SID 6581/6582/8580	-	-	

U1_SID3	SID 6581/6582/8580	-	-	
U1_SID4	SID 6581/6582/8580	-	-	
U2_SID1	SID 6581/6582/8580	-	-	
U2_SID2	SID 6581/6582/8580	-	-	
U2_SID3	SID 6581/6582/8580	-	-	
U2_SID4	SID 6581/6582/8580	-	-	

Notes

1. Parts B1, C1, C2, C3, C4, C11, C12, J1, V1, S1 are for PSU Options A or B.
2. Parts V2, V3 are for PSU Option B only (for +9v and +12v supplies, mixing 8580/6582 and 6581 SIDs.
3. Parts C13, C14, J73, J74, V4 are for PSU Option C only.
4. Use a four-pin SIL header in J1A as an alternative to J1 if using a panel mounted power socket.
5. JD1, JD2, JD3, JD4, JD5, JD6, JD7, JD8, JD9 are pads to connect to a control surface. If using the MB-6582 control surface PCB in a PT-10 case (or similar sized case), do not solder SIL headers to these pads, the connection to the control surface PCB is via ribbon cables soldered directly to the pads. Refer to MB-6582 Control Surface Construction Guide.
6. The switch S1 is the same switch as found in a Commodore 64. You can temporarily use any DPDT switch until a good supply of these switches is located. **The DPDT rocker switch from Mountain Switches which was previously suggested (http://www.mouser.com/catalog/specsheets/MS-100818.pdf) does not suit the rearpanel design.**
7. These capacitors on the SID control the filter cutoff frequency. For 6581, they should be 470pF. For 8580/6582, they should be 22nF. To allow for interchangeable capacitors (should you wish to swap between 6581 and 8580/6582), solder a strip of 6 machine pins into the pads for these capacitors. Alternately, cut up an IC socket. Even if you plan to only use one type of SID, not soldering the capacitors gives you the opportunity to tweak the capacitors, install better ones later, etc.
8. If using PSU Option B, 3-pin SIL headers in these pads allow switching the voltage supply to the SID between +9v and +12v. Use a jumper (shunt). If using PSU Option A, bridge between middle pin and “9V” pin with a resistor lead.
9. These are the SID's audio input and output headers, which can be used to connect feedback pots (like on the rear panel of MB-6582). If not using (or until you connect) feedback pots, use a jumper (shunt) between “IN” and “GND” pins. You can also use these headers to connect audio sockets for external audio input to the SID (but preferably sockets with switch so unused socket will ground the input).
10. If you plan to use heatsinks on voltage regulators, it is best to attach them first, or you may solder the regulator too close to the PCB.
11. Audio sockets (jacks) are Neutrik NMJ6HFD2 http://www.neutrik.com/fl/en/audio/210_301451/NMJ6HFD2_detail.aspx or equivalent (check Neutrik's datasheet for comparison). Other parts (even from Neutrik) are similar enough to fit. Note that some brands of this kind of audio socket have the switch pins on the opposite side and will not work “as is” on the PCB and require bridging the switch pins from the pins normally in contact with the phono plug. Ideally the socket should mount flat against the PCB and only the threaded part extend past the PCB (i.e. so sockets can mount flush with rear panel holes).
12. These are 5 or 6 pin **common bus** resistor networks, in which one pin is “common” and is connected to all the other pins via resistors. The dot indicates pin 1 (the common pin), which goes in the square pad (left-side) directly above/below the component identifier (eg. “R31”). Do

not get a 6-pin resistor network which is three isolated resistors connected to three pairs of pins. The correct one is Mouser part 264-10K-RC. If buying elsewhere, I believe if given a choice between parts with an “A” or “B”, the “A” means “common bus” and “B” means “isolated”. (See here: http://au.mouser.com/catalog/636/619.pdf)

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Last update: **2009/10/19 20:57**