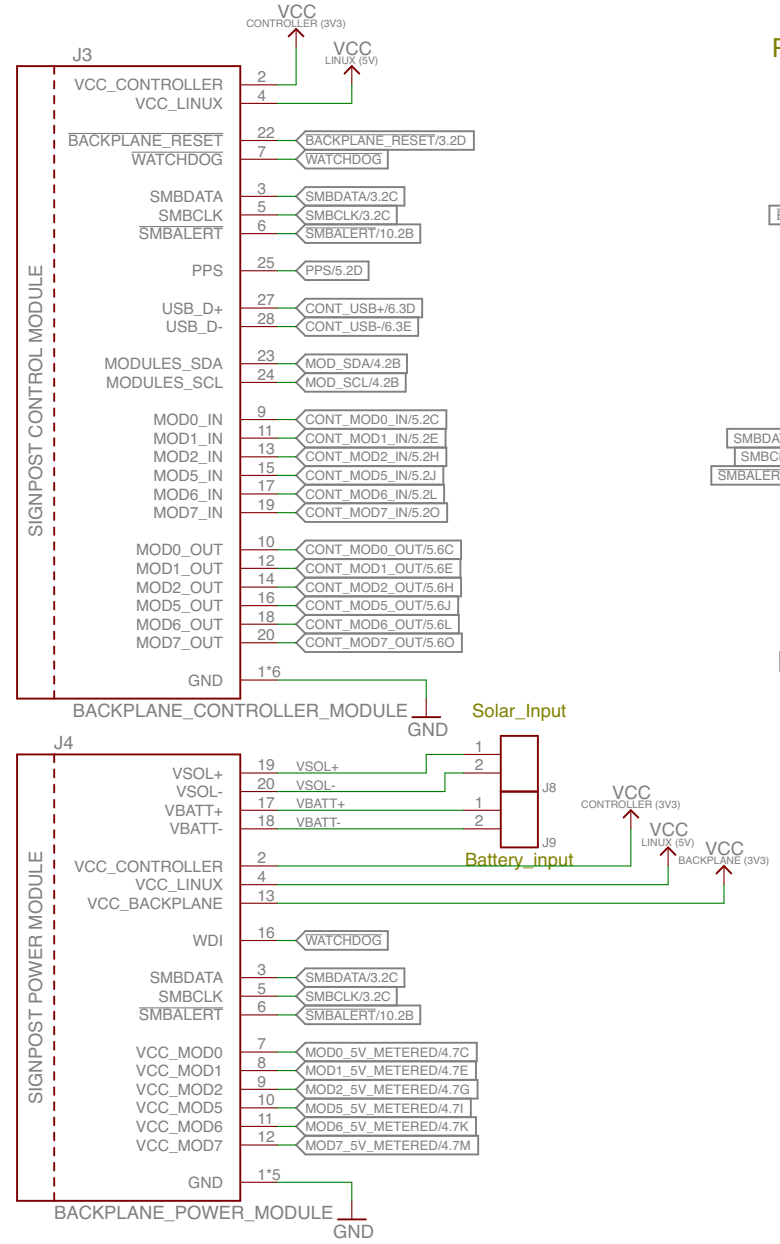
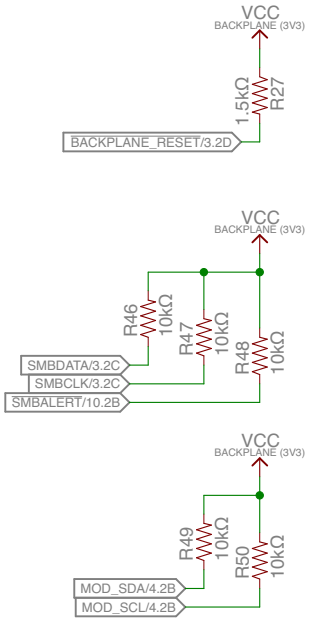
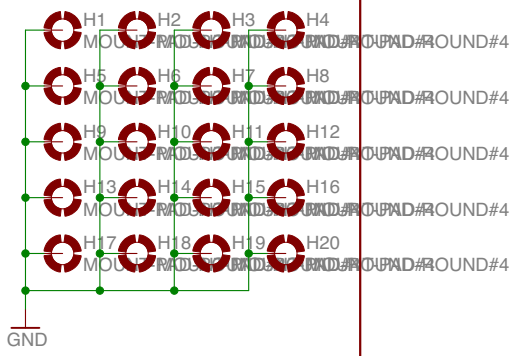
Special Modules



Pull-up/downs



Plated Mounting Holes



Fiducials

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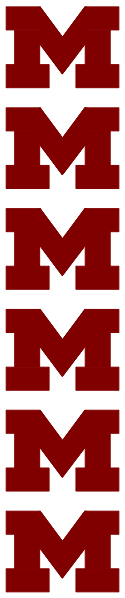
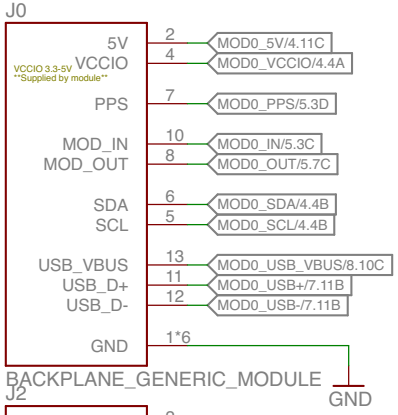
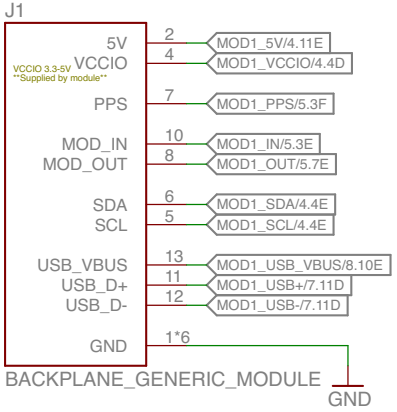
Generic Modules



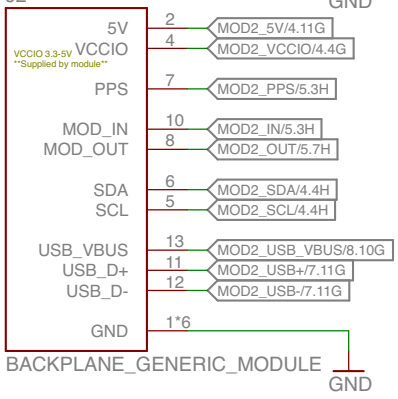
J0



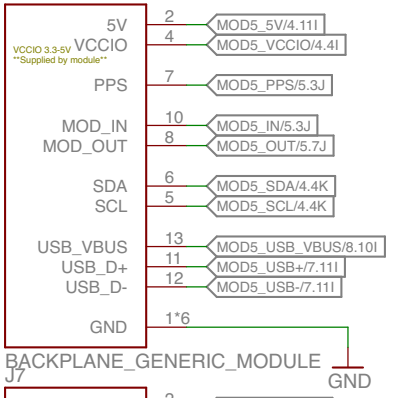
J1



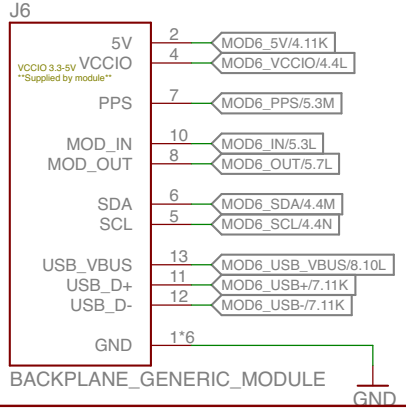
J2



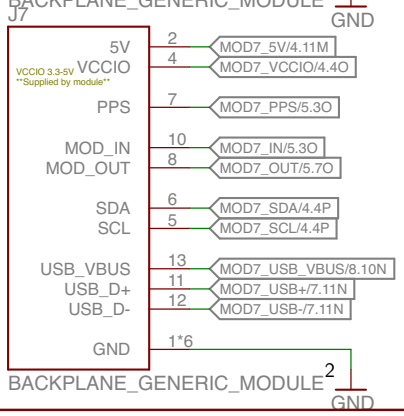
J5



J6



J7



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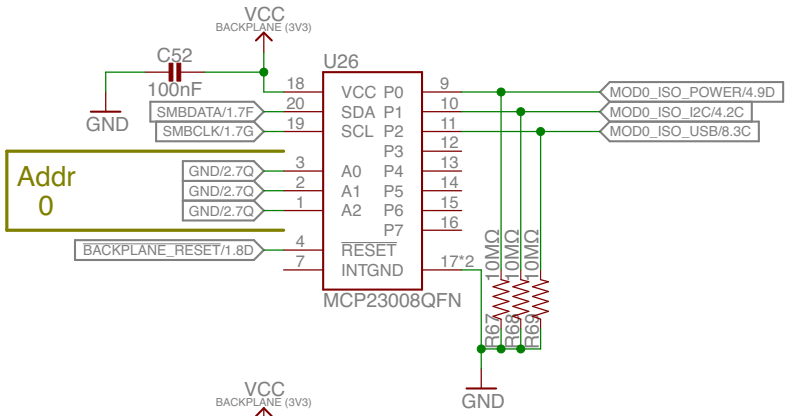
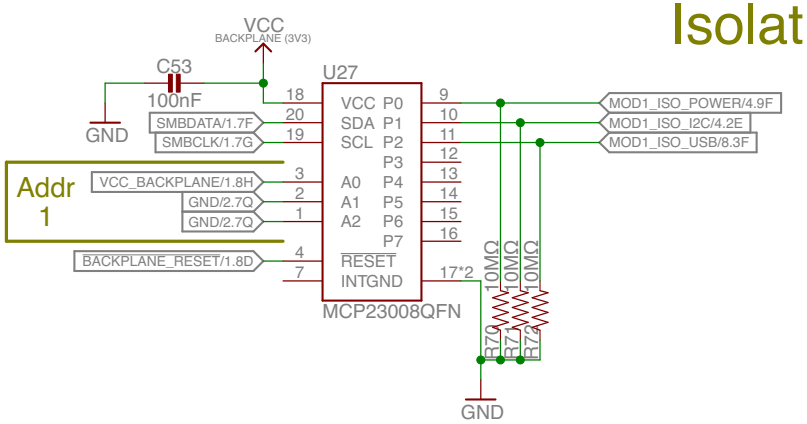
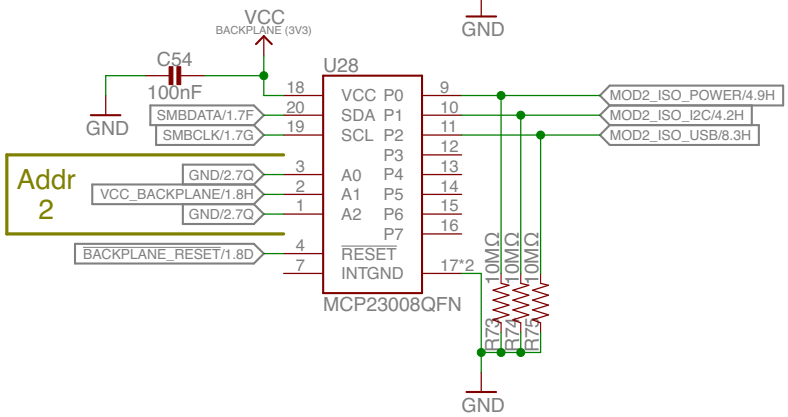
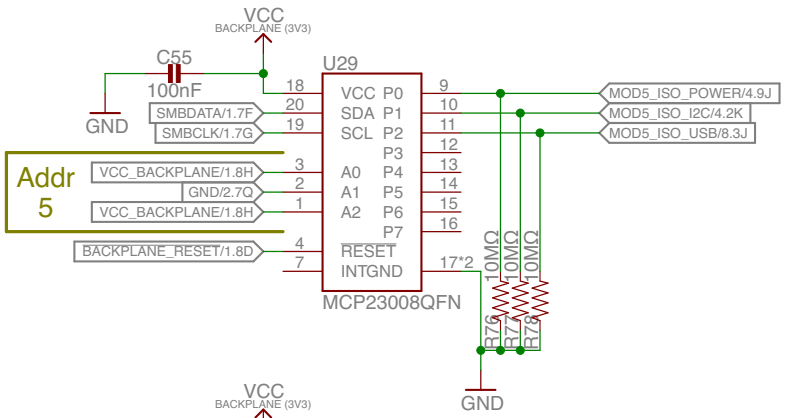
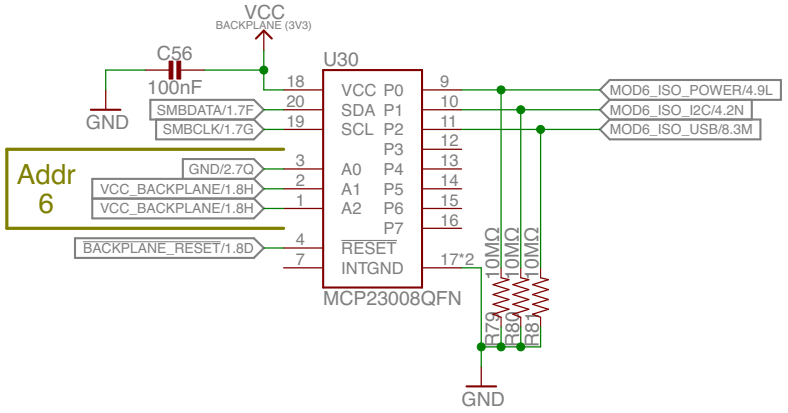
Isolation Control

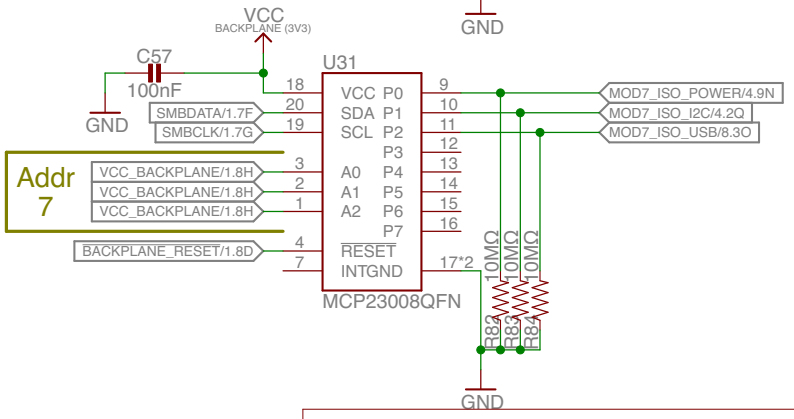












Note:
An additional GPIO extender found on the USB sheet consumes address 3 (the controller slot) to facilitate run-time reset and monitoring of USB status

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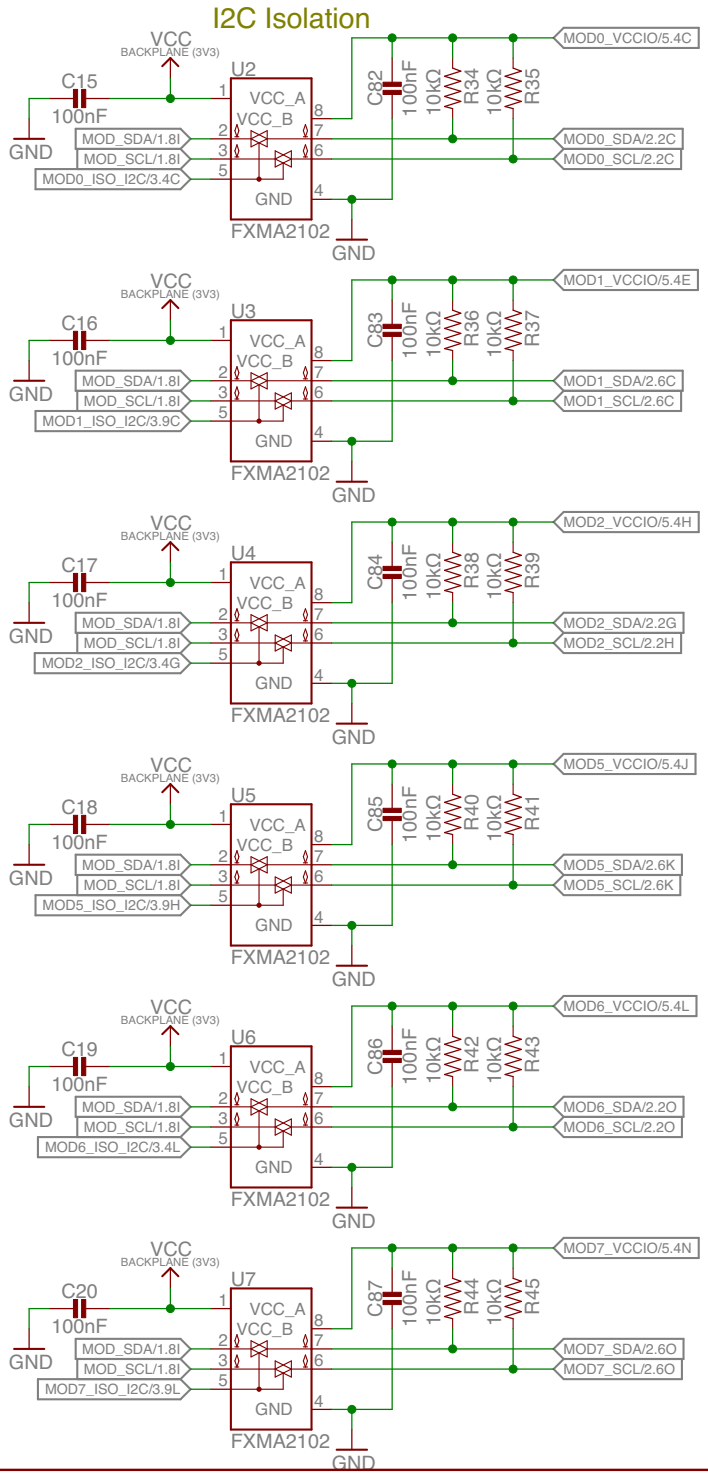
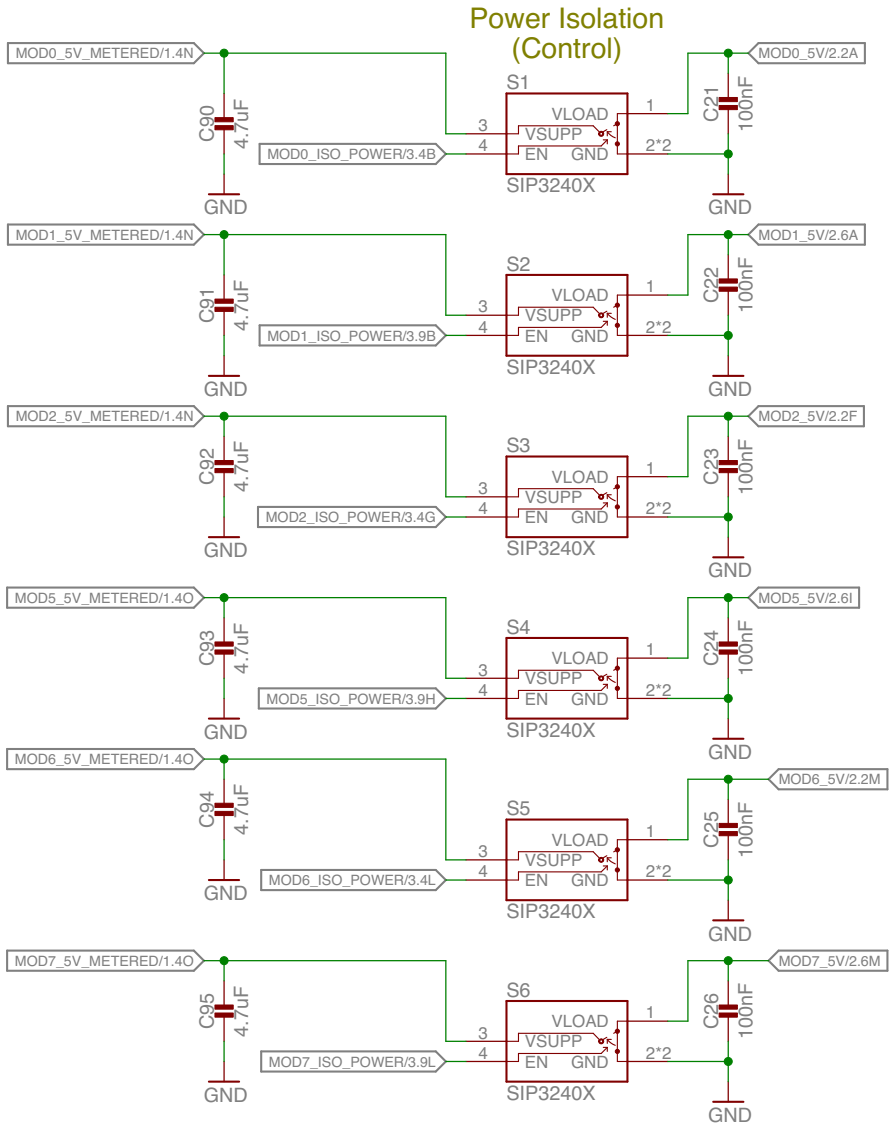
Module Isolation





Signpost Backplane

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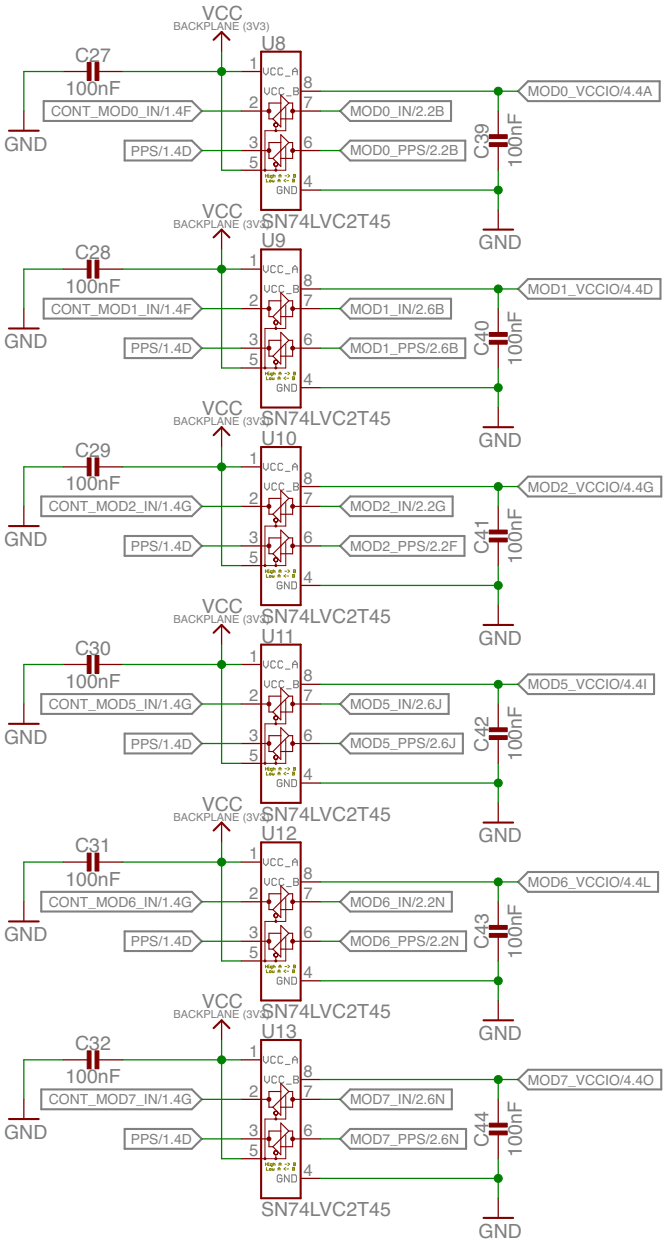
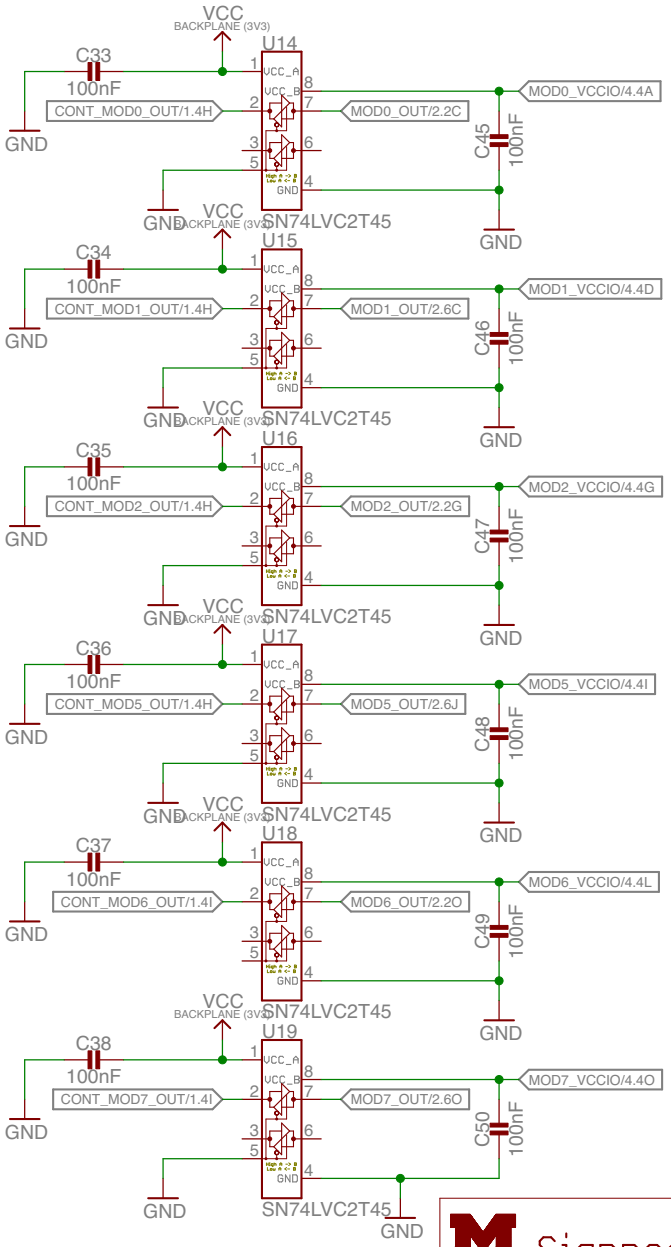
Module Isolation

Buffer / Level
Backplane --> Module



Buffer / Level
Backplane <-- Module



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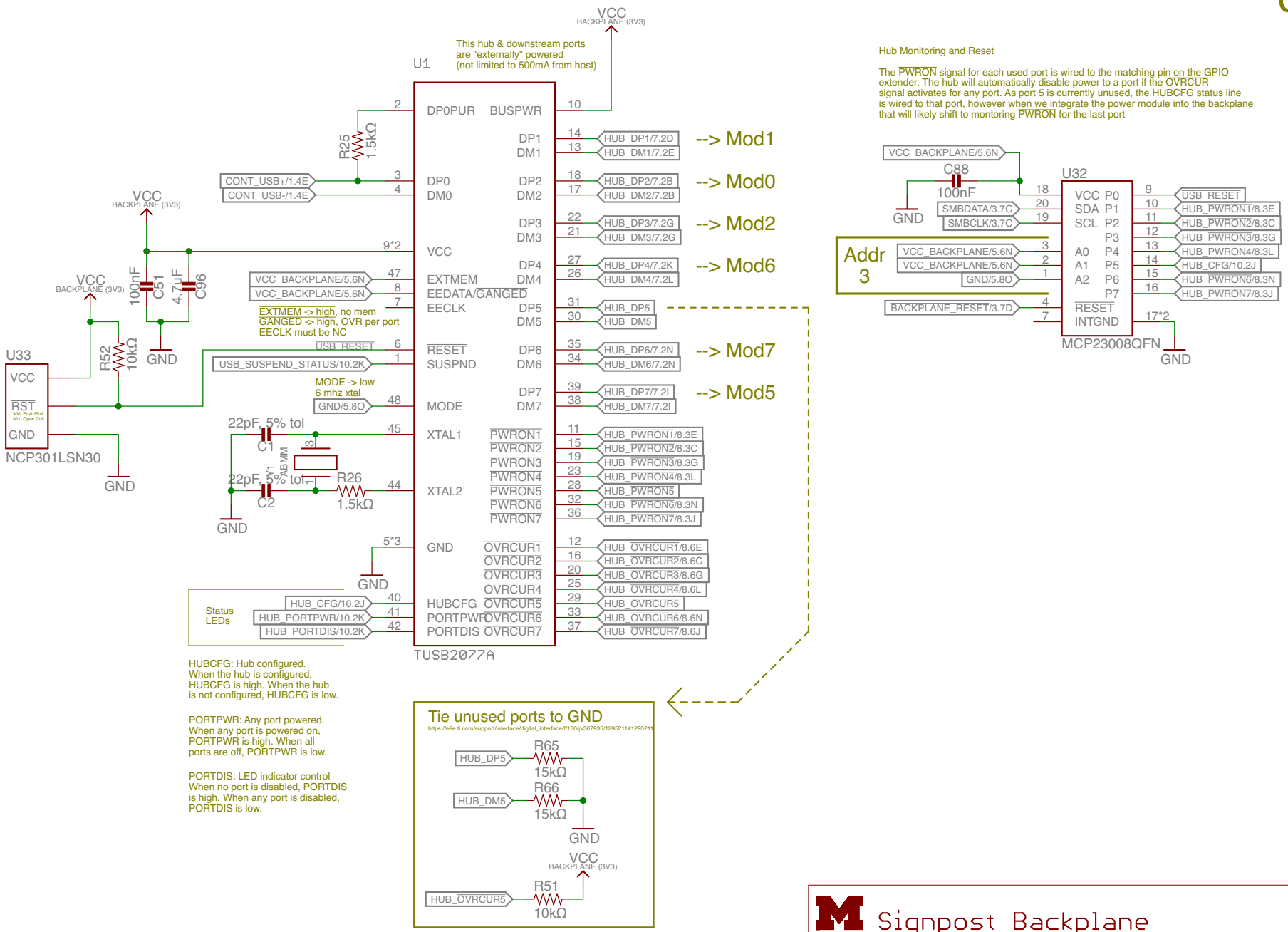
USB
Hub



Signpost Backplane	REV: D
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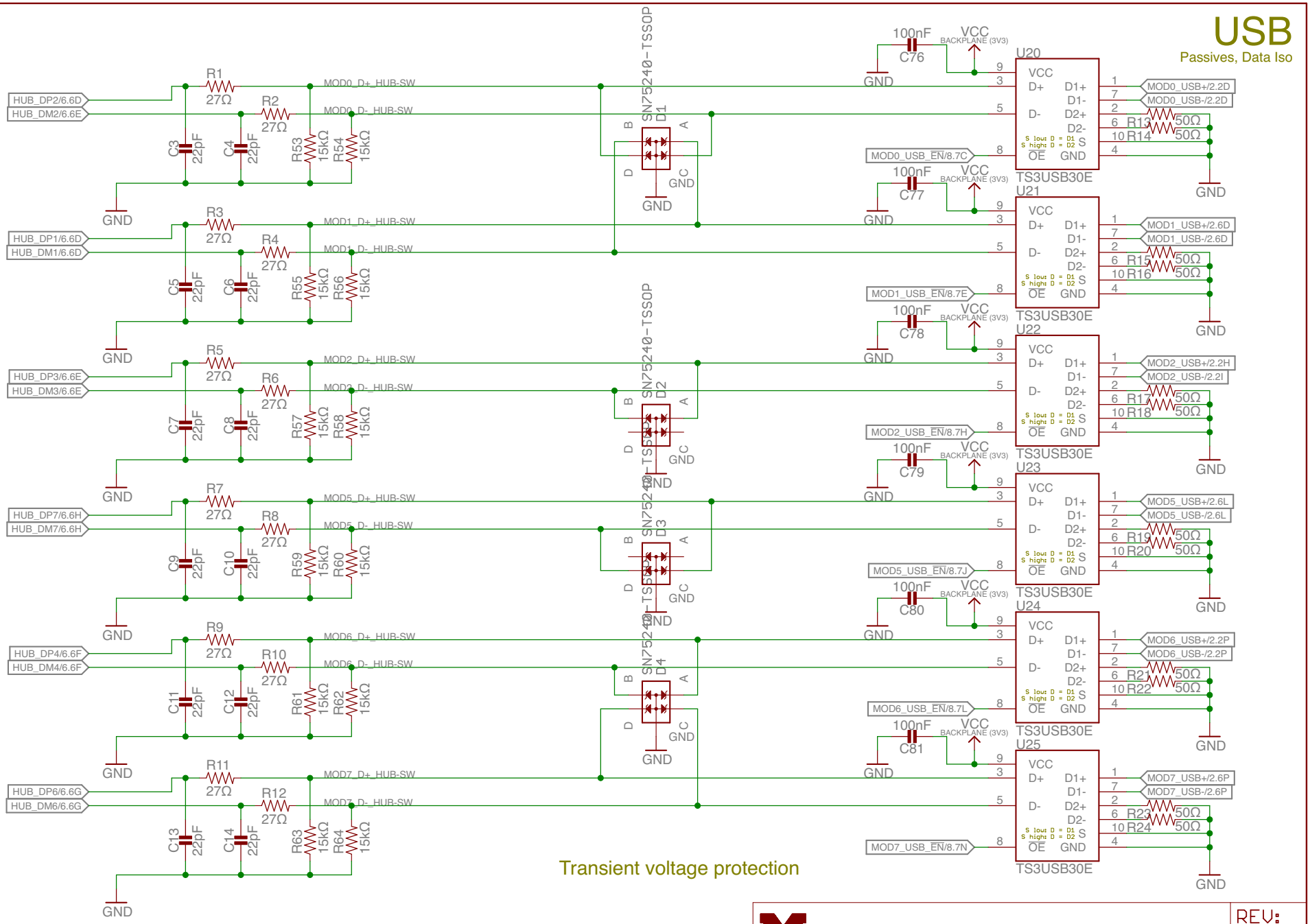
USB
Passives, Data Iso
HUB_DP2/6.6D
HUB_DM2/6.6E
HUB_DP1/6.6D
HUB_DM1/6.6D
HUB_DP3/6.6E
HUB_DM3/6.6E
HUB_DP7/6.6H
HUB_DM7/6.6H
HUB_DP4/6.6F
HUB_DM4/6.6F
HUB_DP6/6.6G
HUB_DM6/6.6G
R1 27Ω
R2 27Ω
R3 27Ω
R4 27Ω
R5 27Ω
R6 27Ω
R7 27Ω
R8 27Ω
R9 27Ω
R10 27Ω
R11 27Ω
R12 27Ω
C3 22pF
C4 22pF
C5 22pF
C6 22pF
C7 22pF
C8 22pF
C9 22pF
C10 22pF
C11 22pF
C12 22pF
C13 22pF
C14 22pF
R53 15kΩ
R54 15kΩ
R55 15kΩ
R56 15kΩ
R57 15kΩ
R58 15kΩ
R59 15kΩ
R60 15kΩ
R61 15kΩ
R62 15kΩ
R63 15kΩ
R64 15kΩ
GND
MOD0_D+_HUB-SW
MOD0_D-_HUB-SW
MOD1_D+_HUB-SW
MOD1_D-_HUB-SW
MOD2_D+_HUB-SW
MOD2_D-_HUB-SW
MOD5_D+_HUB-SW
MOD5_D-_HUB-SW
MOD6_D+_HUB-SW
MOD6_D-_HUB-SW
MOD7_D+_HUB-SW
MOD7_D-_HUB-SW
SN75240-TSSOP
D1
D2
D3
D4
100nF
C76
C77
C78
C79
C80
C81
VCC
BACKPLANE (3V3)
U20
U21
U22
U23
U24
U25
TS3USB30E
MOD0_USB_EN/8.7C
MOD1_USB_EN/8.7E
MOD2_USB_EN/8.7H
MOD5_USB_EN/8.7J
MOD6_USB_EN/8.7L
MOD7_USB_EN/8.7N
MOD0_USB+/2.2D
MOD0_USB-/2.2D
MOD1_USB+/2.6D
MOD1_USB-/2.6D
MOD2_USB+/2.2H
MOD2_USB-/2.2I
MOD5_USB+/2.6L
MOD5_USB-/2.6L
MOD6_USB+/2.2P
MOD6_USB-/2.2P
MOD7_USB+/2.6P
MOD7_USB-/2.6P
R13 50Ω
R14 50Ω
R15 50Ω
R16 50Ω
R17 50Ω
R18 50Ω
R19 50Ω
R20 50Ω
R21 50Ω
R22 50Ω
R23 50Ω
R24 50Ω
Transient voltage protection
Signpost Backplane
REV: D
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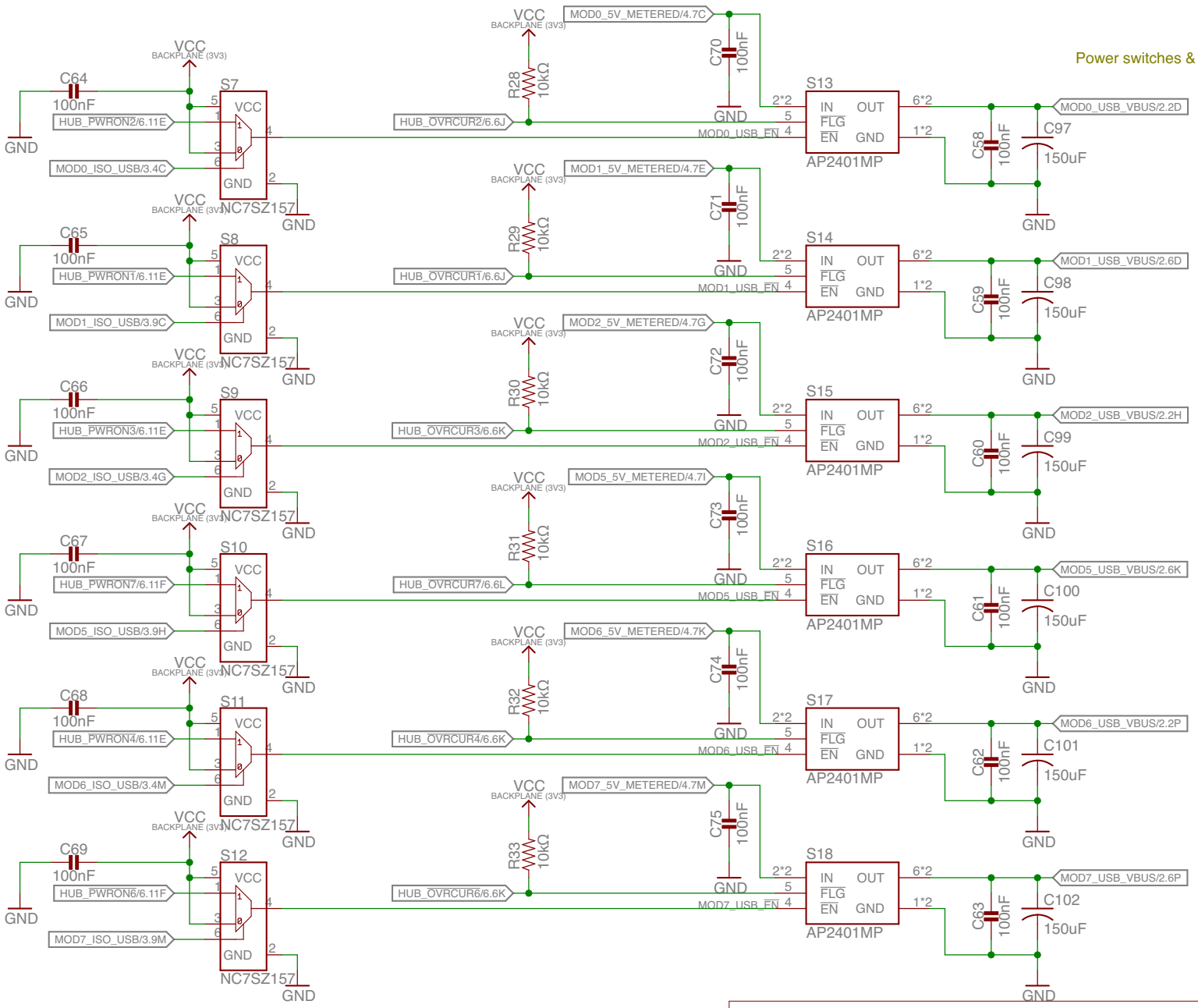

Signpost Backplane

REV: D

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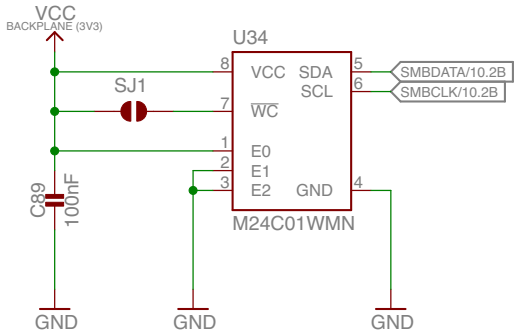
EEPROM ID



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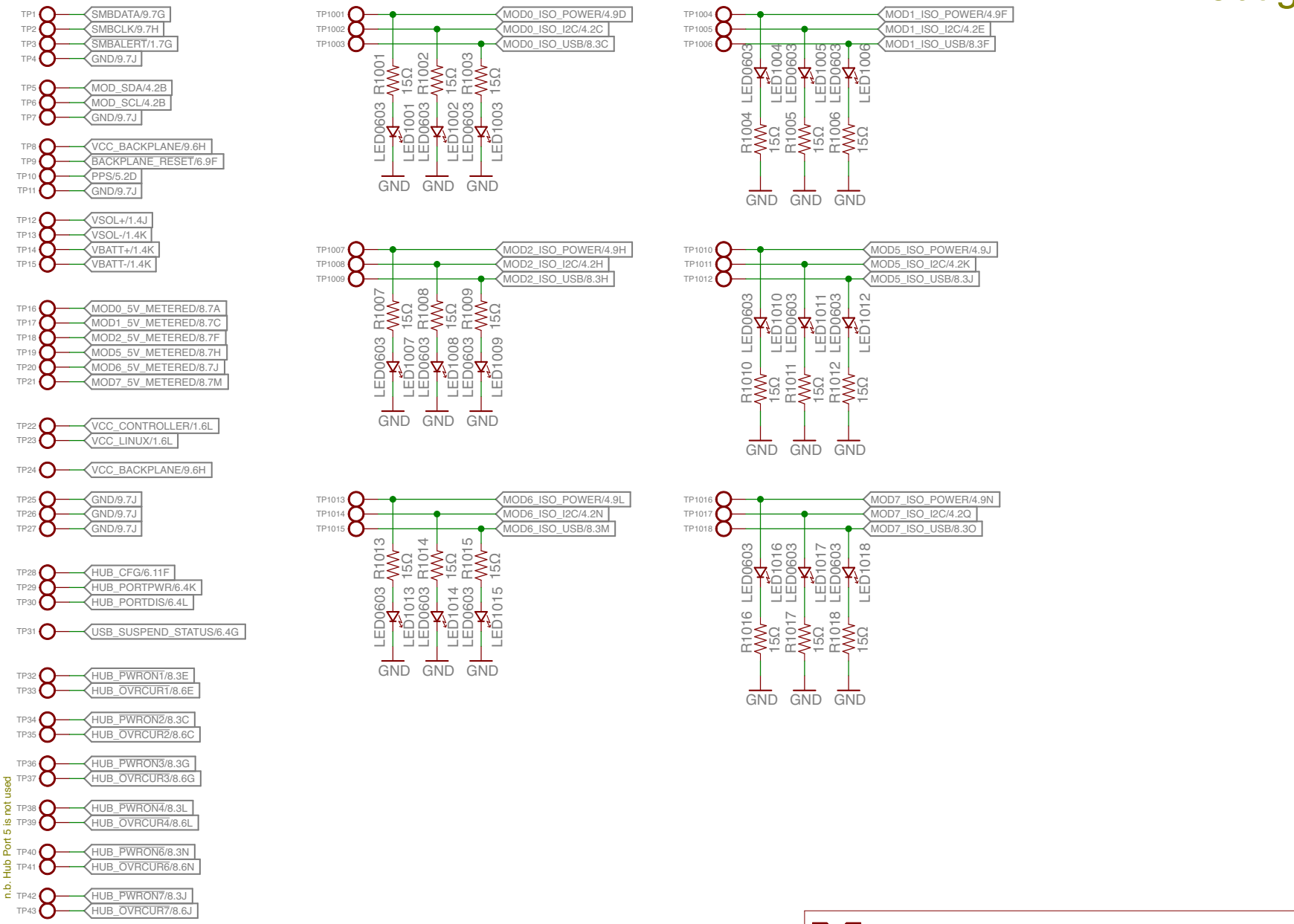
Debugging



Signpost Backplane	REV: D
Author: Pat Pannuto	
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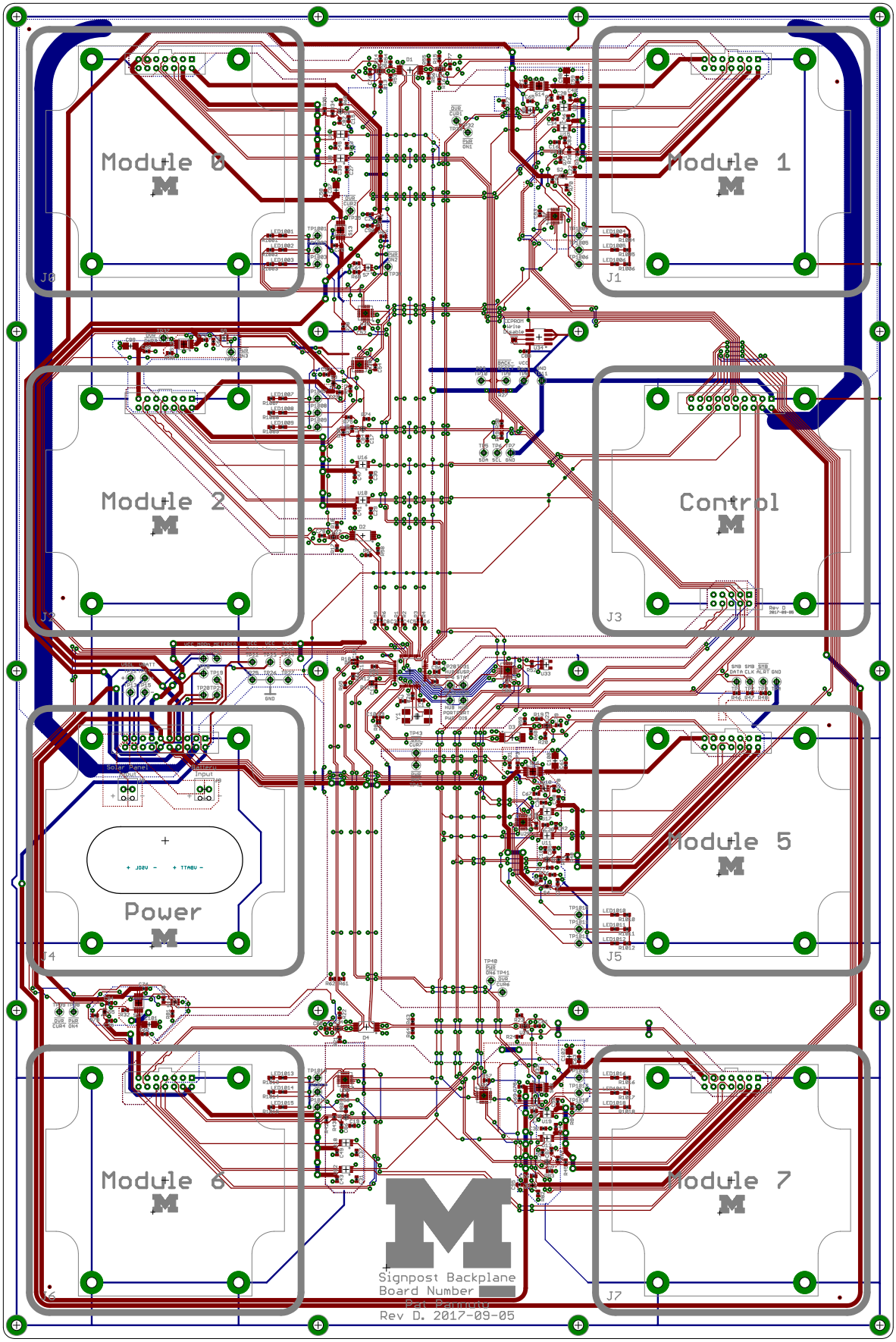
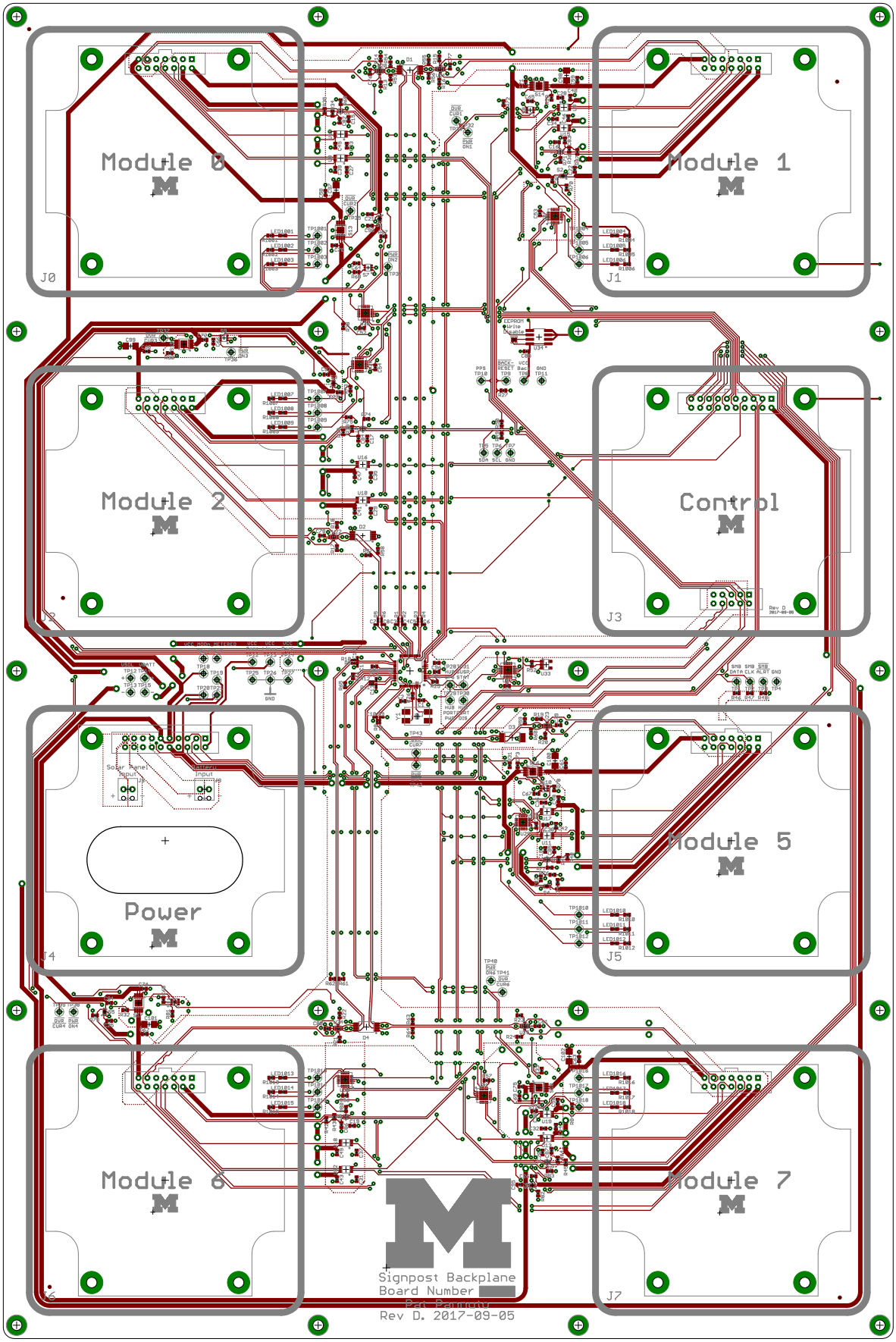
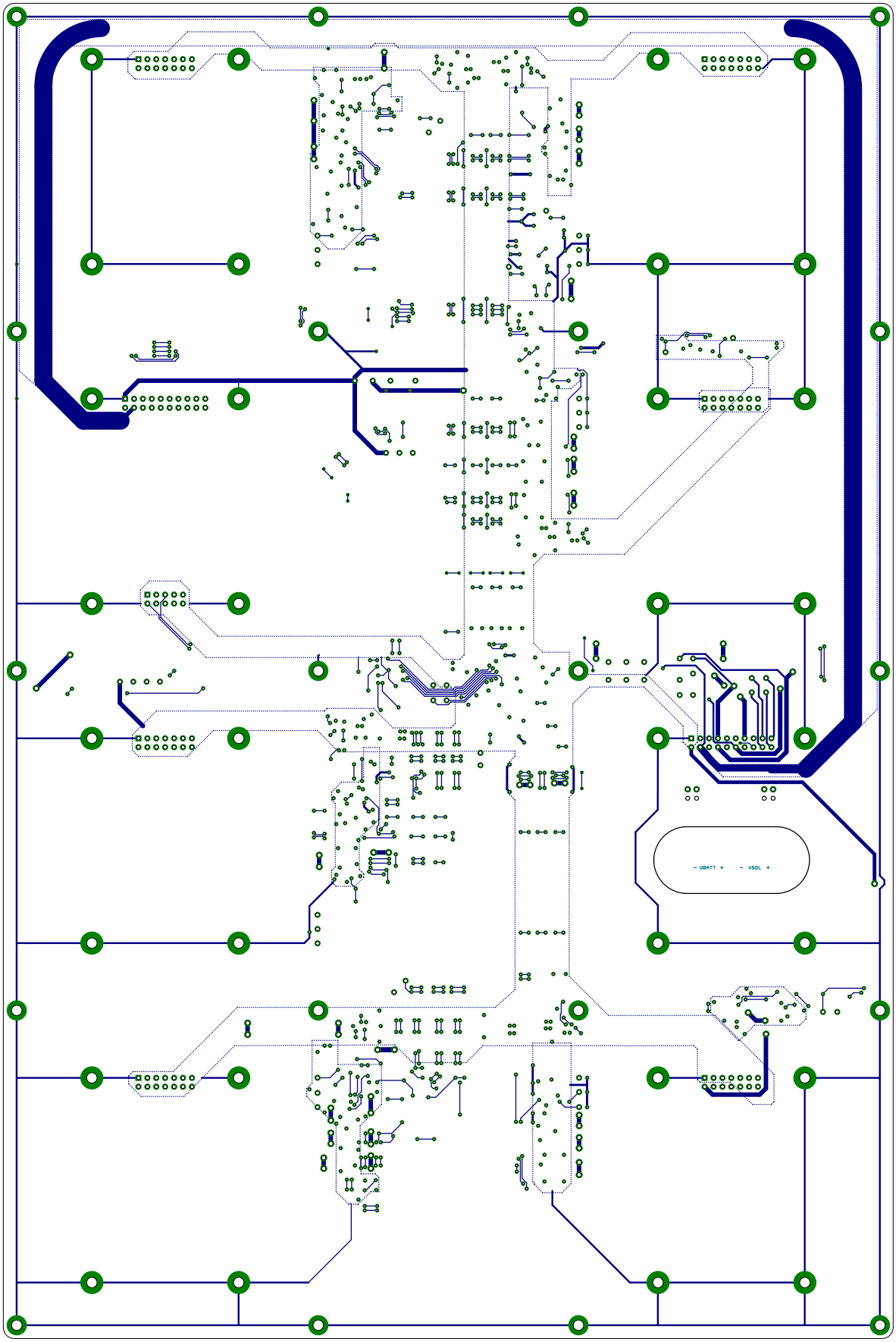
Top and Bottom Layers

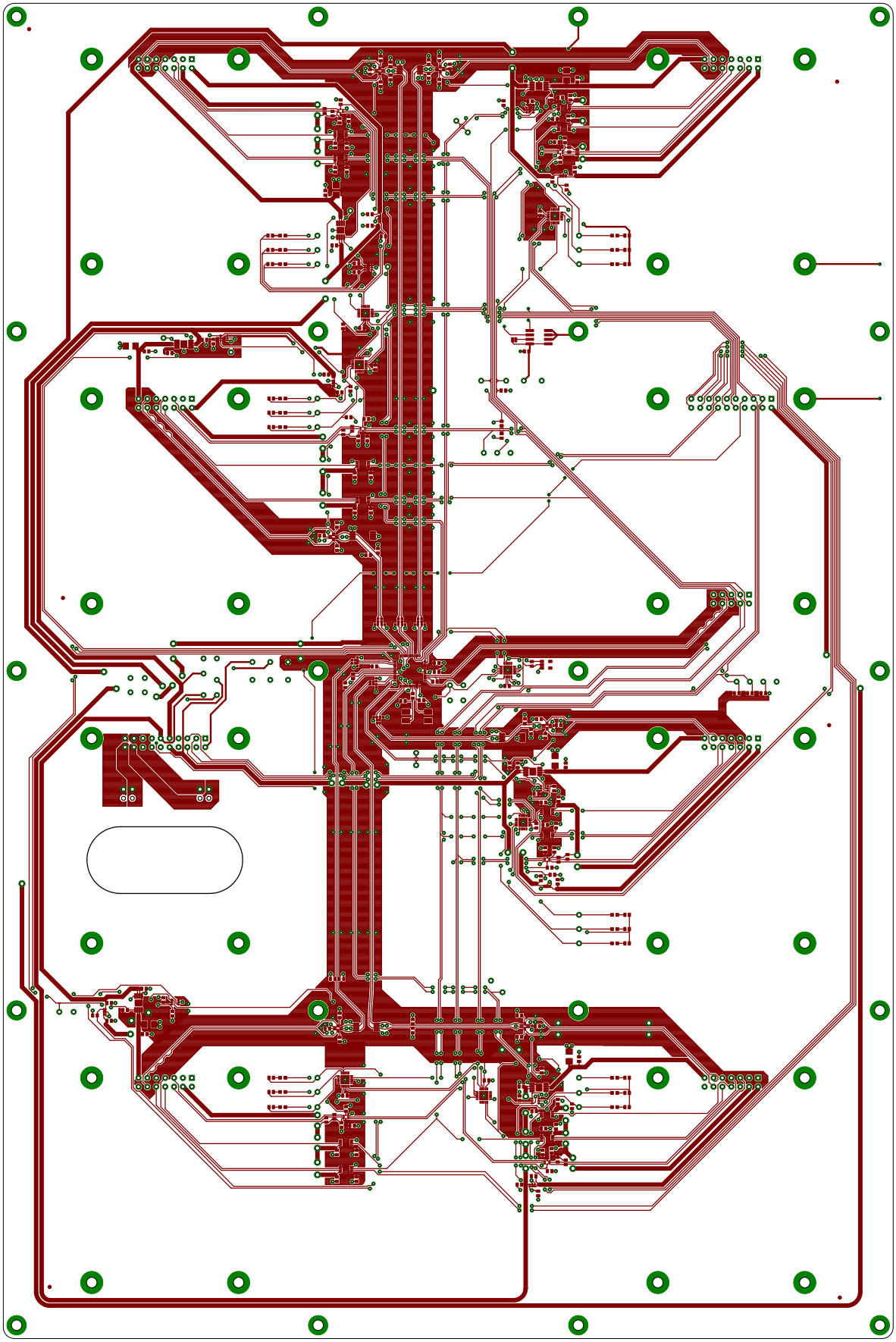



Module 0
Module 1
Module 2
Control
Power
Module 5
Module 6
Module 7
J0
J1
J2
J3
J4
J5
J6
J7
Signpost Backplane
Board Number
Rev D. 2017-09-05

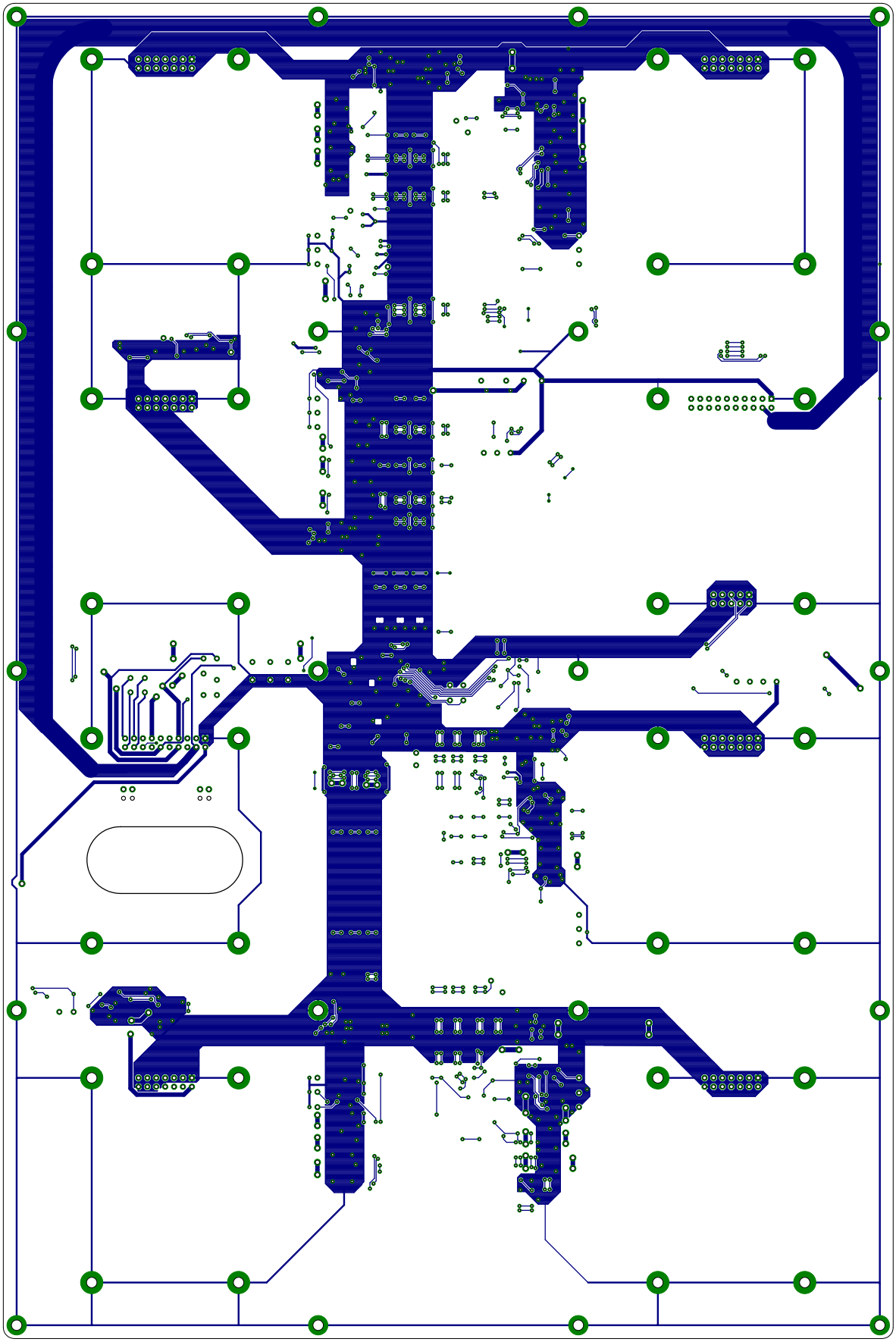
Bottom Layer



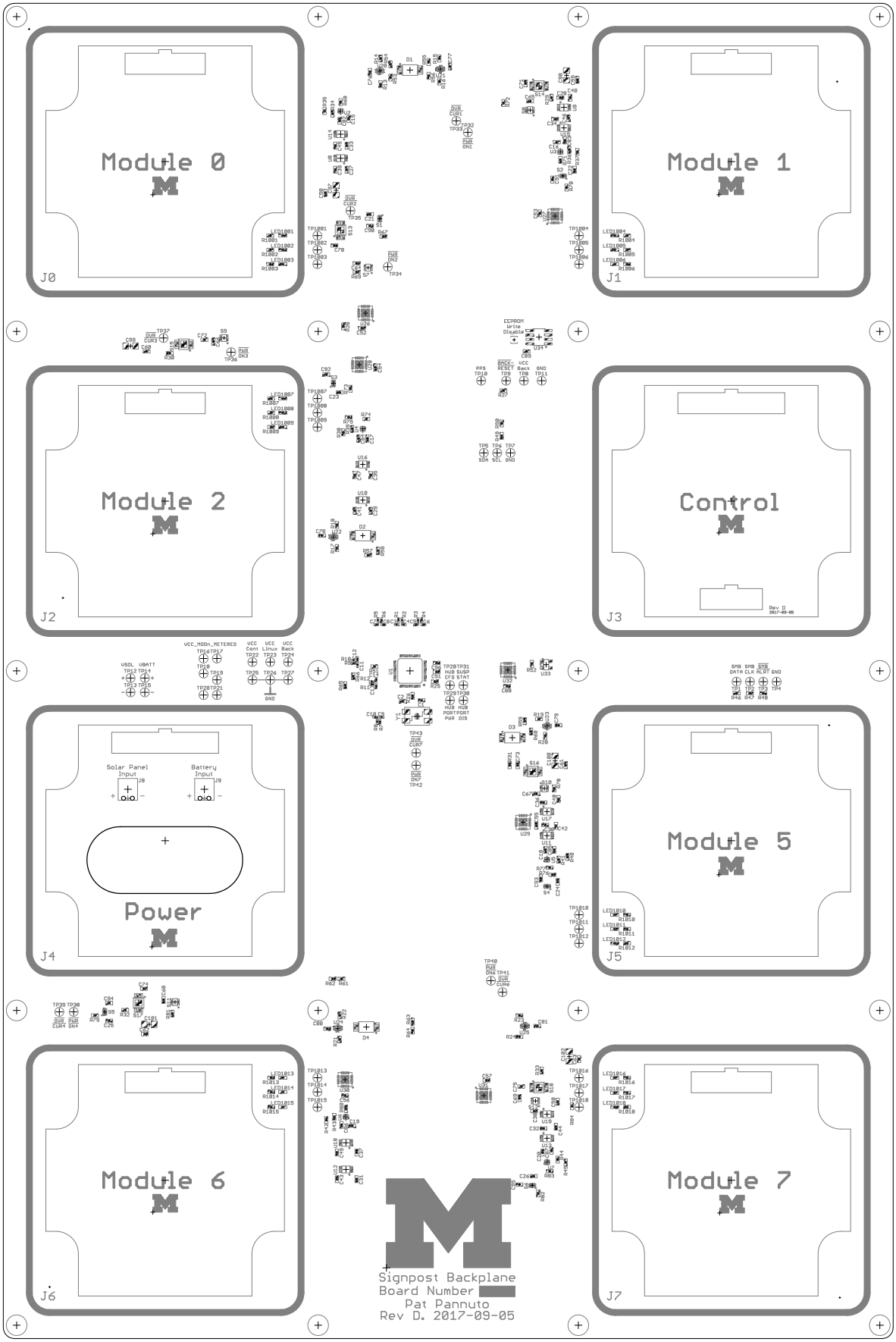
Top Copper Layer

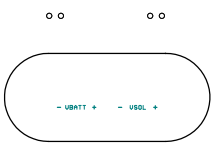


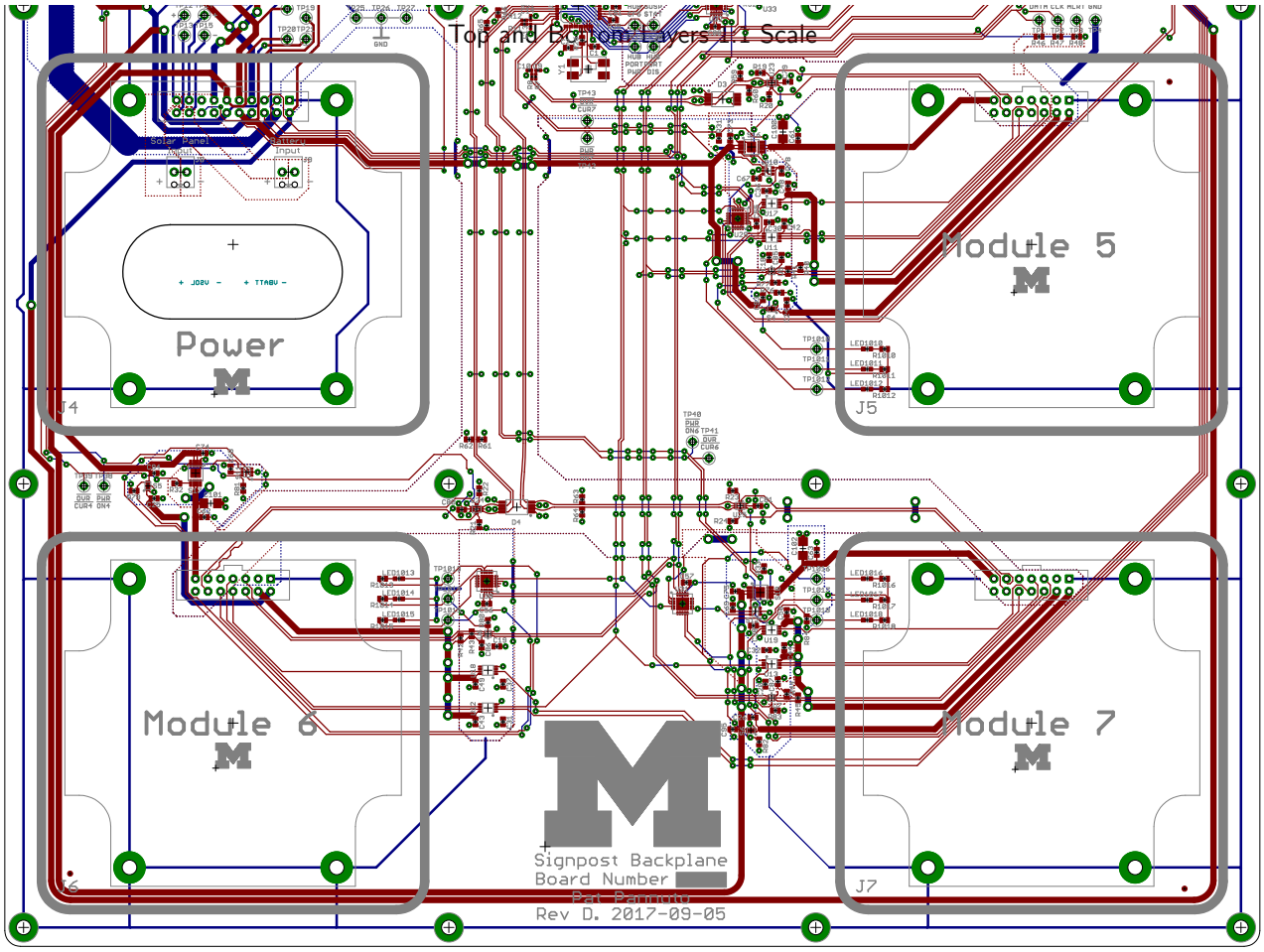
Bottom Copper Layer



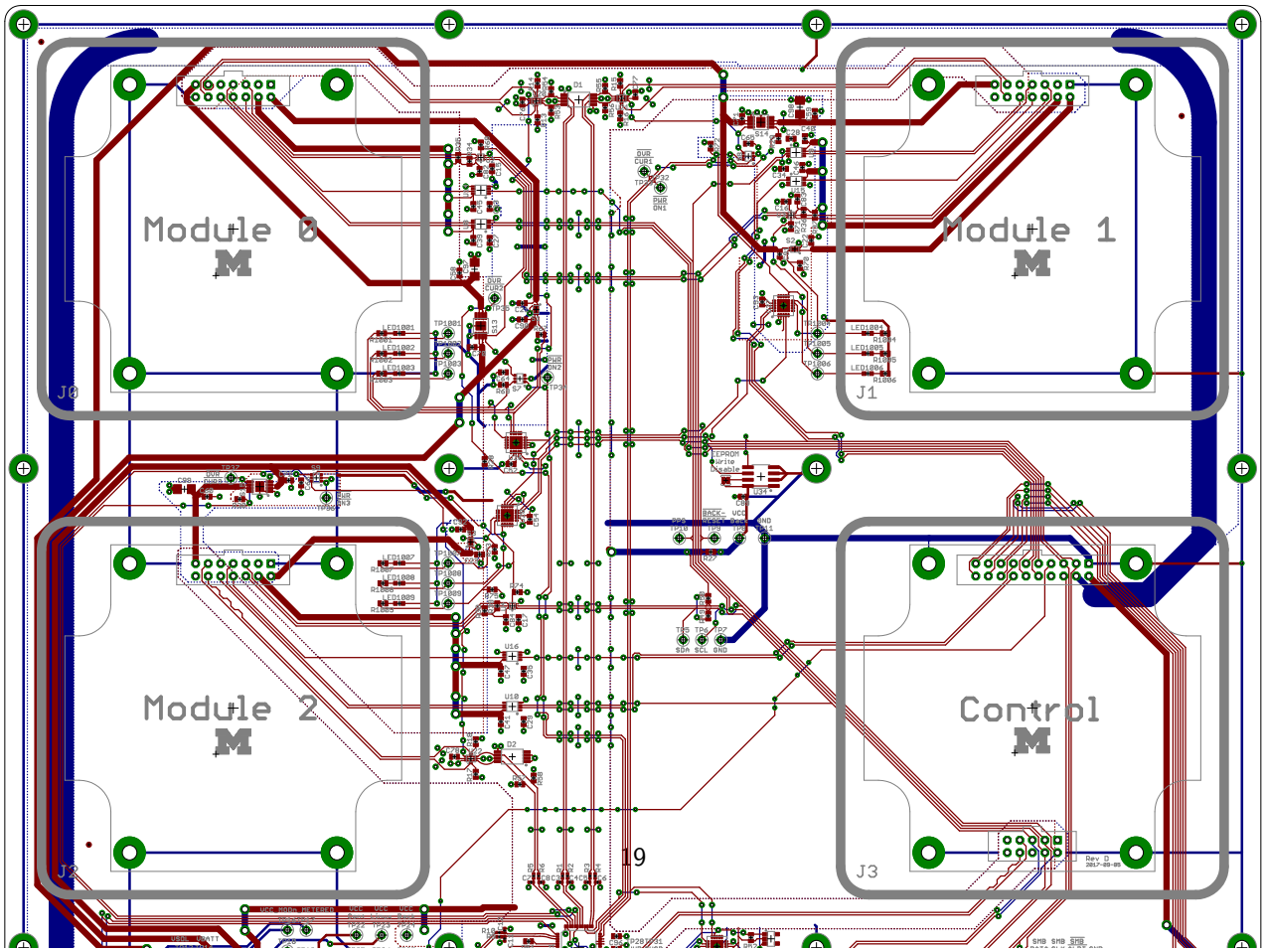
Top Paste Layer with Silkscreen

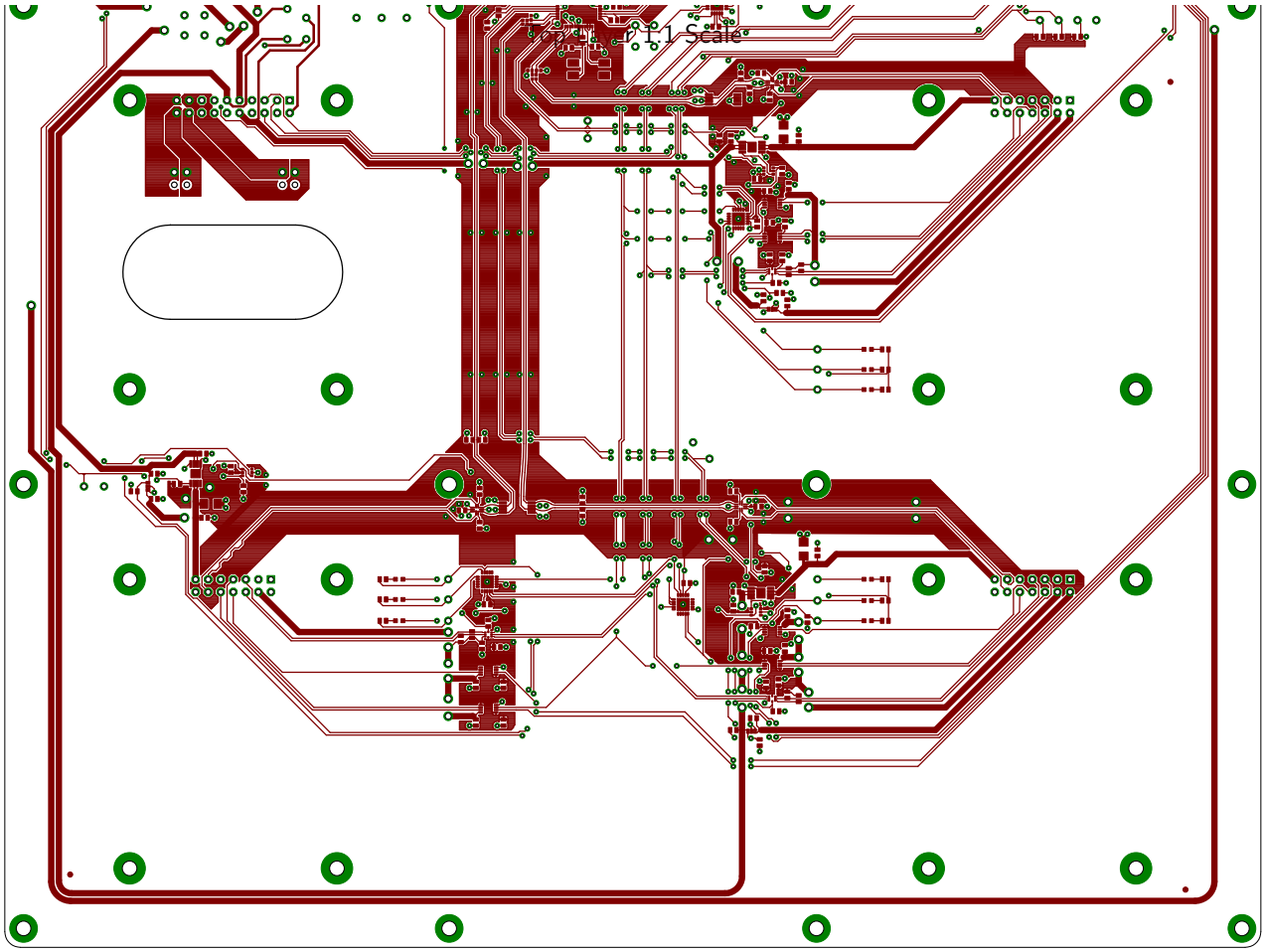



– VBATT +
– USOL +

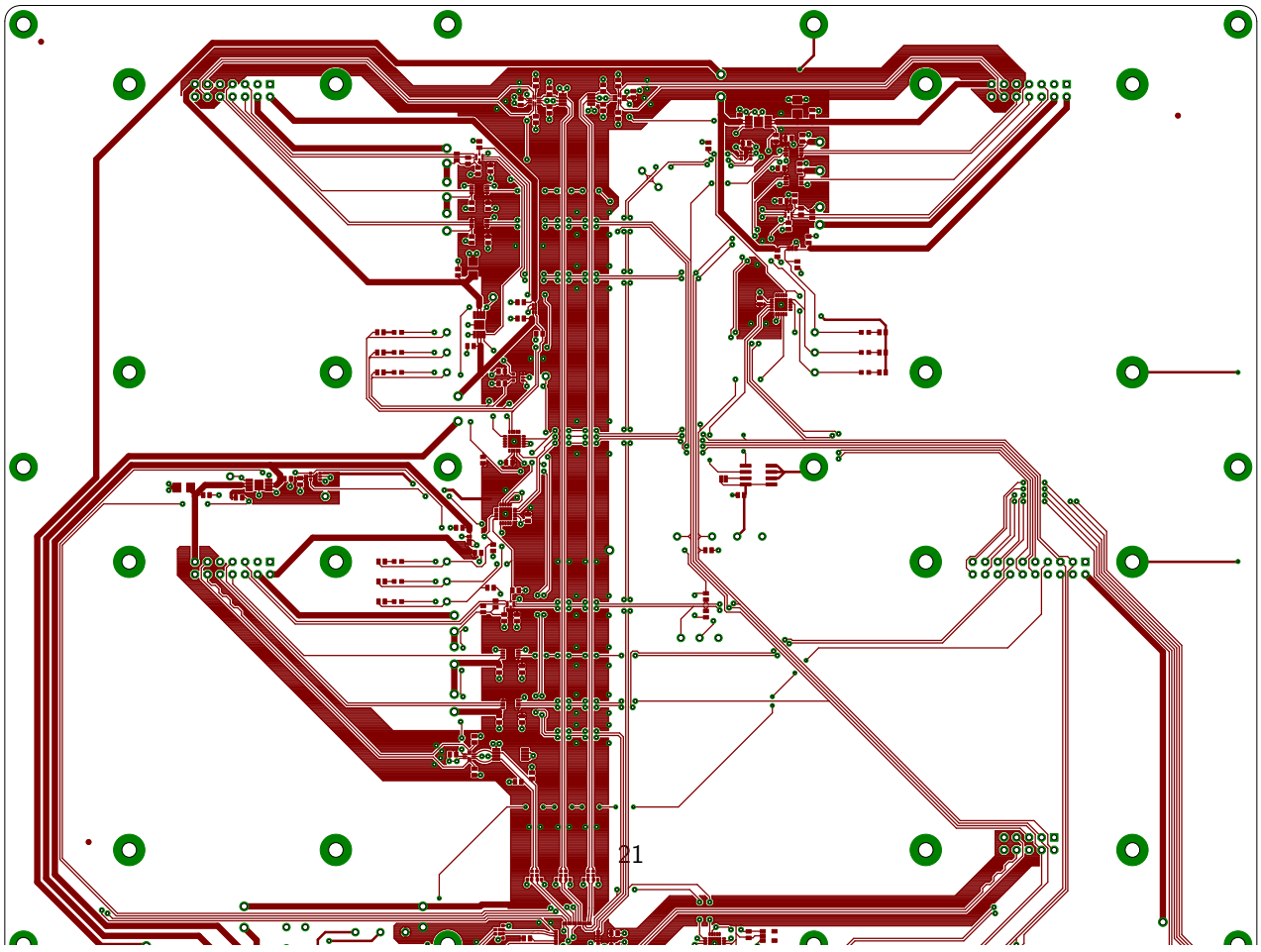

Top and Bottom Layers 1:1 Scale
Power
J4
Module 5
J5
Module 6
J6
Module 7
J7
Signpost Backplane
Board Number
Rev D. 2017-09-05

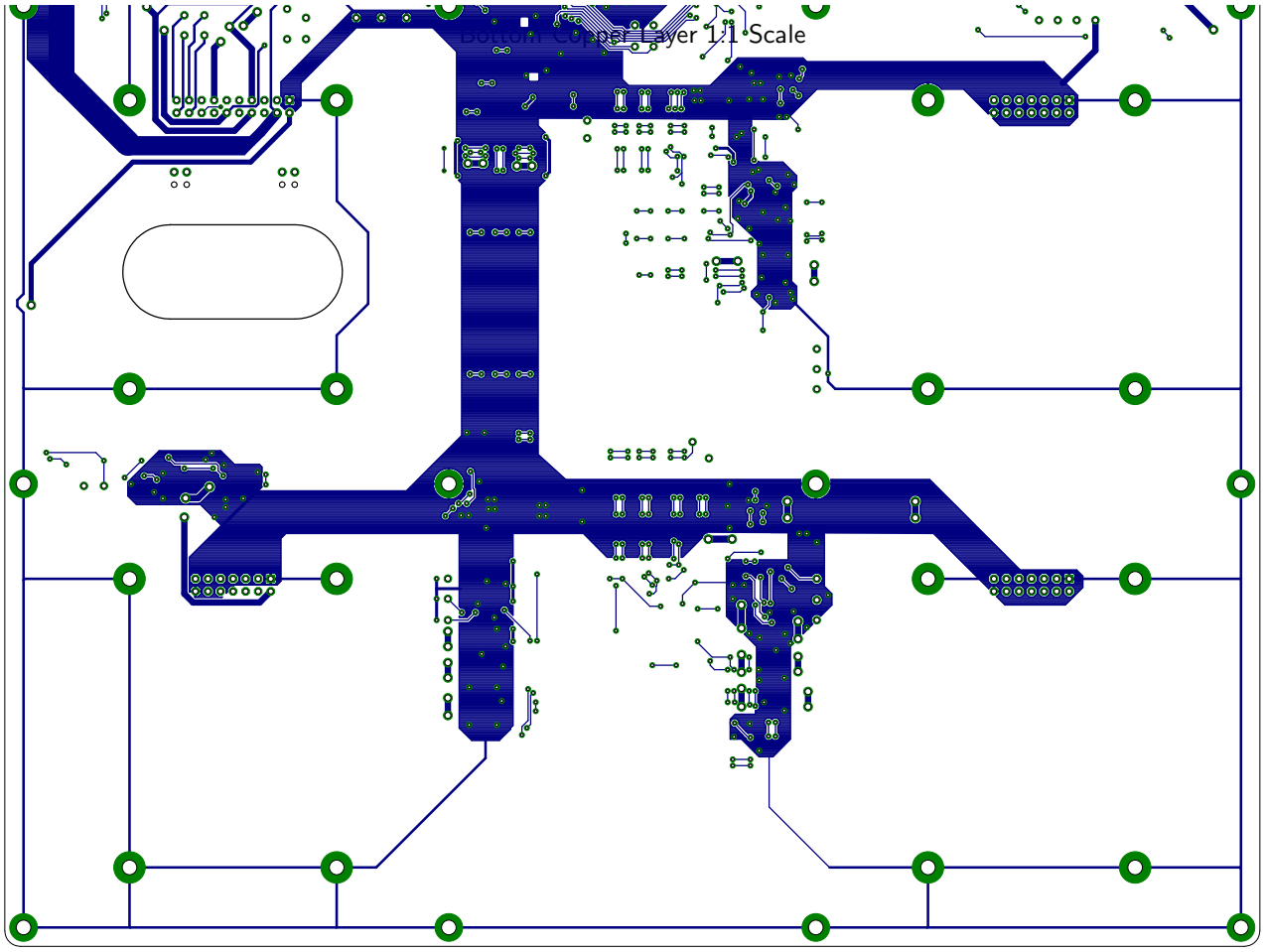
Top and Bottom Layers 1:1 Scale



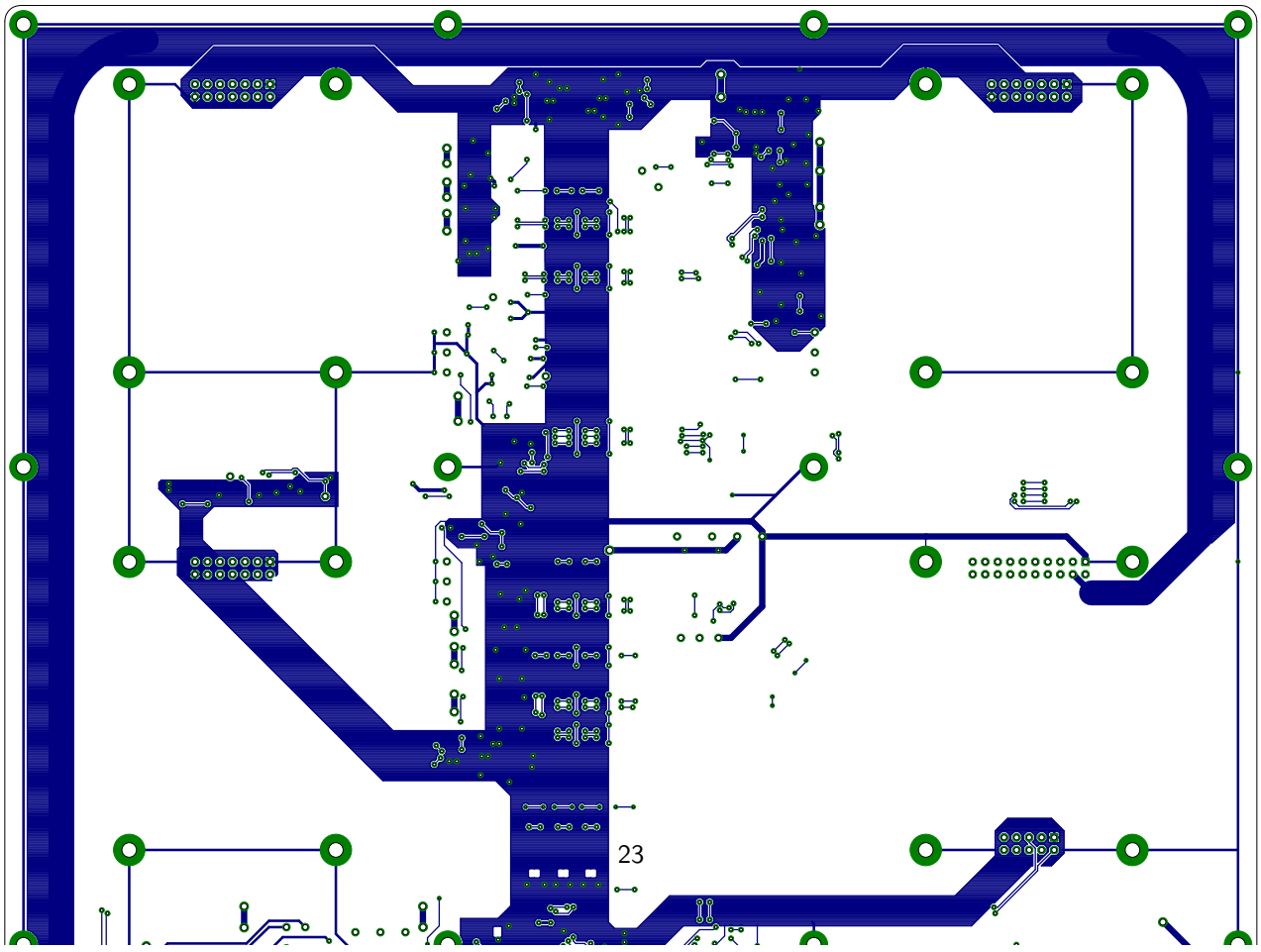

Scale 1:1

Top Layer 1:1 Scale




Bottom Copper Layer 1:1 Scale

Bottom Copper Layer 1:1 Scale



Qty	Part Reference	Do Not Insert	Can Substitue?	Value	Package	Description	Footprint	MPN	Manufacturer	DIGIKEY	DIGIKEY2	MOUSER	NEWARK	NOTES
2	C1, C2		Y	22pF, 5% tol	0603_CAP	SMD Capacitor	SMD	CL10C220JB8NNNC	Samsung	1276-1023-1-ND				Must be 5% or better
12	C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14		Y	22pF	0402_CAP	SMD Capacitor	SMD	GRM1555C1H220JA01D	Murata	490-5868-1-ND				
75	C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89		Y	100nF	0603_CAP	SMD Capacitor	SMD	GRM188R71E104KA01D	Murata	490-1524-1-ND				
7	C90, C91, C92, C93, C94, C95, C96		Y	4.7uF	0603_CAP	SMD Capacitor	SMD	CL10B475KQ8NQNC	Samsung	1276-2087-2-ND				
6	C97, C98, C99, C100, C101, C102		Y	150uF	C1206	CAPACITOR, American symbol	SMD	GRM31CR60J157ME11L	Murata	490-13969-1-ND				
4	D1, D2, D3, D4		N	SN75240-TSSOP	TSSOP-8	TVS Diodes (suggested for TI USB	8-TSSOP	SN75240PWR	Texas Instruments	296-6596-1-ND				
6	J0, J1, J2, J5, J6, J7		N	BACKPLANE_GENERIC_M	BACKPLANE_MODULE_14PS	Signpost generic module receptic	PTH 14 pins	SFH11-PBPC-D07-ST-BK	Sullins Connector	S9195-ND				
1	J3		N	BACKPLANE_CONTROLLE	BACKPLANE_MODULE_20PS	Signpost controller receptacle	**2 Parts** PTH 20 pins + PTH 10 pins	SFH11-PBPC-D10-ST-BK and SFH11-PBPC-D05-ST-BK	Sullins Connector	S9197-ND	S9194-ND			J3 is two physical parts
1	J4		N	BACKPLANE_POWER_M	BACKPLANE_MODULE_20PS	Signpost power module receptacl	PTH 20 pins	SFH11-PBPC-D10-ST-BK	Sullins Connector	S9197-ND				
2	J8, J9		Y	SCREW-TERMINAL_2_0.	CONN_BLOCK_2	2x 0.100 in screw terminal block	PTH 2 pins	1725656	Phoenix Contact	277-1273-ND		651-1725656	71C4107	
18	LED1001, LED1002, LED1003, LED1004, LED1005, LED1006, LED1007, LED1008, LED1009, LED1010, LED1011, LED1012, LED1013, LED1014, LED1015, LED1016, LED1017, LED1018	X	-	DNP	LED-0603	LED				DNP				
12	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12		Y	27Ω	0402_RES-HIGH_SPEED	Resistor	SMD	MCR01MRTJ270	Rohm	RHM27CECT-ND				
12	R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24		Y	50Ω	0603-RES	Resistor	SMD	MCR03ERTF49R9	Rohm	RHM49.9CFCT-ND				
3	R25, R26, R27		Y	1.5kΩ	0603-RES	Resistor	SMD	MCR03EZPFX1501	Rohm	RHM1.50KHCT-ND				
25	R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52		Y	10kΩ	0603-RES	Resistor	SMD	MCR03EZPFX1002	Rohm	RHM10.0KHCT-ND				
14	R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66		Y	15kΩ	0603-RES	Resistor	SMD	MCR03ERTF1502	Rohm	RHM15.0KCFCT-ND				
18	R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84		Y	10MΩ	0603-RES	Resistor	SMD	ESR03EZPJ106	Rohm	RHM10MDCT-ND				
18	R1001, R1002, R1003, R1004, R1005, R1006, R1007, R1008, R1009, R1010, R1011, R1012, R1013, R1014, R1015, R1016, R1017, R1018	X	-	DNP	0603-RES	Resistor				DNP				
6	S1, S2, S3, S4, S5, S6		N	SIP32401X	TDFN4	High power (2.4 A) high-side switc	4-UFDFN Exposed Pad	SIP32402ADNP-T1GE4	Vishay	SIP32402ADNP-T1GE4CT-ND				
6	S13, S14, S15, S16, S17, S18		N	AP2401MP	MSOP-8EP	USB Power Switch	8-TSSOP Exposed Pad	AP2401MP-13	Diodes Incorporated	AP2401MP-13DICT-ND				
6	S7, S8, S9, S10, S11, S12		N	NC7SZ157	SC70-6	MUX	6-TSSOP	NC7SZ157P6X	Fairchild/ON Semiconductor	NC7SZ157P6XCT-ND				
61	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP1001, TP1002, TP1003, TP1004, TP1005, TP1006, TP1007, TP1008, TP1009, TP1010, TP1011, TP1012, TP1013, TP1014, TP1015, TP1016, TP1017, TP1018		Y	TEST_POINT_0.040IN	TESTPOINT_0.040IN	0.040in Test Point	PTH 1 pin	5001	Keystone Electronics	5001K-ND				
1	U1		N	TUSB2077A	LQFP-48	Full Speed USB Hub - 7 Port	48-LQFP	296-37871-1-ND	Texas Instruments	296-37871-1-ND				
6	U2, U3, U4, U5, U6, U7		N	FXMA2102	UMLP-8	Dual Supply, 2-Bit Voltage Transl	8-UFQFN	FXMA2102UMX	Fairchild/ON Semiconductor	FXMA2102UMXCT-ND				
6	U20, U21, U22, U23, U24, U25		N	TS3USB30E	UQFN-10	USB Mux with OE control and ESC	10-UFQFN	TSNJUSB30ERSWR	Texas Instruments	296-24684-1-ND				
7	U26, U27, U28, U29, U30, U31, U32		N	MCP23008QFN	QFN-20-4MM	GPIO Extender via I2C - 8 Pin	20-VFQFN Exposed Pad	MCP23008-E/ML	Microchip	MCP23008-E/ML-ND				
1	U33		Y	NCP301LSN30	SOT23-5	Power-on-reset. LSN30 -> Fixed 3	5-TSOP	NCP301LSN30T1G	ON Semiconductor	NCP301LSN30T1GOSCT-ND				Power-on-Reset with Open Collector output - 2.9-3.1V threshold okay
1	U34		N	M24C01WMN	SOIC-8	1K I2C™ Serial EEPROM	8-SOIC	M24C01-WMN6TP	STMicroelectronics	497-8631-1-ND				
12	U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U18, U19		N	SN74LVC2T45	VFSOP-8	Bidirectional Buffer / Level Conve	8-VFSOP	SN74LVC2T45DCUR	Texas Instruments	296-17014-1-ND				
1	Y1		N	ABMM	ABMM	Low-Profile SMD crystal	SMD	ABMM-6.000MHZ-B2-T	Abracon LLC	535-10156-1-ND				
6	JP1 JP2 JP3 JP4 JP5 JP6	X				Fiducials								
1	SJ1	X				Solder Jumper								
	Note: Any part marked "Can Substitue" can be substituted for any equal size/value parts													