

EAT20 (Sakhir 10GC)

LA-2492 Schematics Document

Intel Dothan / AlvisoPM / DDR-1 / ICH6-M / Select Bay

(nVIDIA NV43M & NV44M/ ATi M22 & M24)

2004 / 12 / 22

Rev:1.0

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		E	

Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+1.05VS	1.05V switched power rail	ON	OFF	OFF
+DDRVTT	1.25V switched power rail for DDR terminator	ON	OFF	OFF
+1.5VALW	1.5V always on power rail	ON	ON	ON*
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+DDRVCC	2.5V power rail for DDR	ON	ON	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VS	5V switched power rail	ON	OFF	OFF
+5VCD	5V switched power rail for Direct CD	ON	OFF	OFF
+5VMOD	5V switched power rail for Module Bay	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
CardBus	AD20	2	PIRQA/PIRQB
1394	AD20	2	PIRQA/PIRQB
SD	AD20	2	PIRQA/PIRQB
Mini-PCI	AD18	1	PIRQG/PIRQH

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 110X b
EEPROM(24C16/02)	1010 000X b	2nd Battery	1001 011X b
(24C04)	1011 000Xb	Docking	1010 000X b

ICH6M SM Bus address

Device	Address
Clock Generator (ICS 952623)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 001Xb

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 5%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

BOARD ID Table

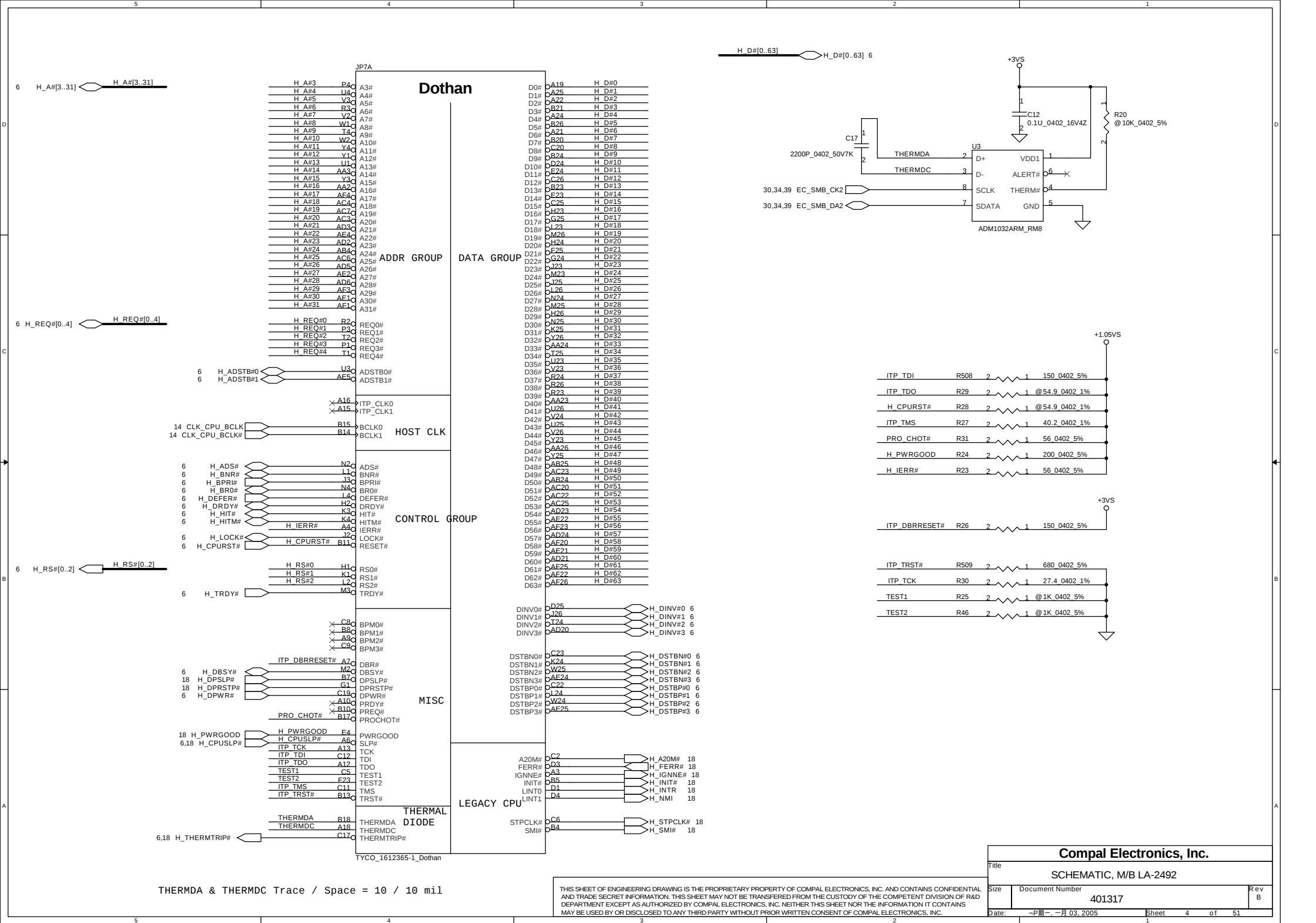
Board ID	PCB Revision
0	0.1
1	NC
2	0.2
3	1.0
4	
5	
6	
7	

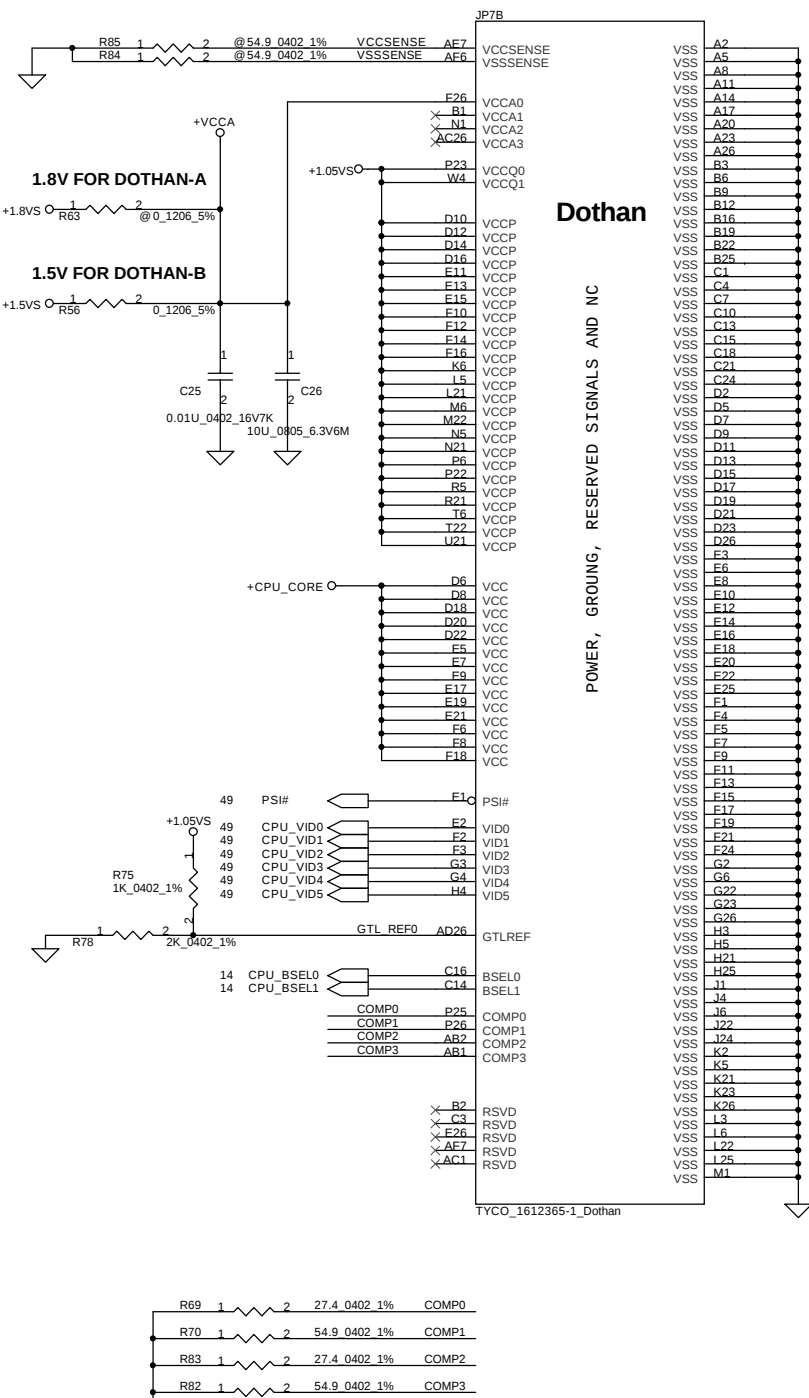
SKU ID Table

	SKU_ID_CHECK_1	7	6	5
SKU_ID_CHECK_0		1-Button	3-Buttons	7-Buttons
0	10	1		0
1	10C	3	12	2
2	10G	5		4
3	10GC	7	13	6
4	10J	11		10
5				
6				

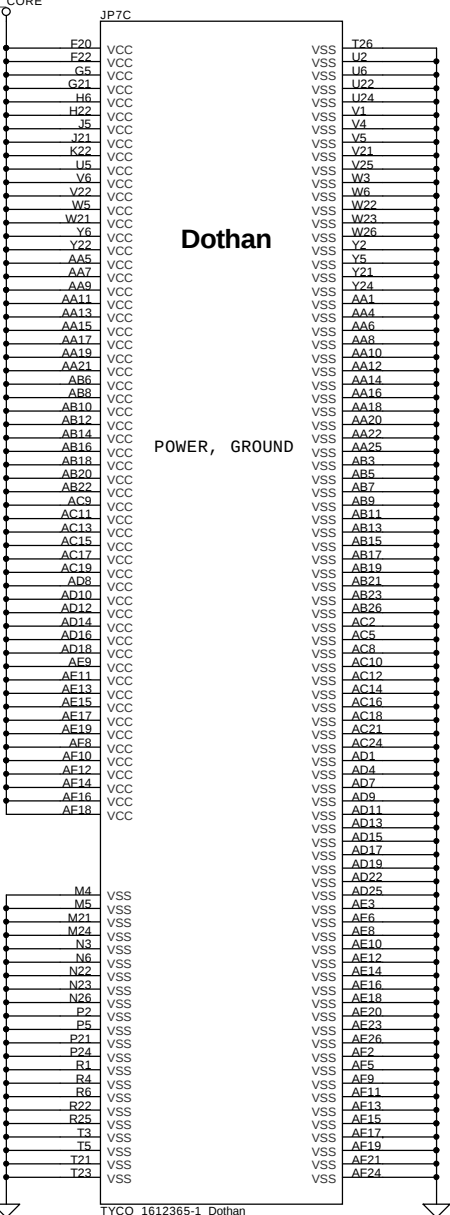
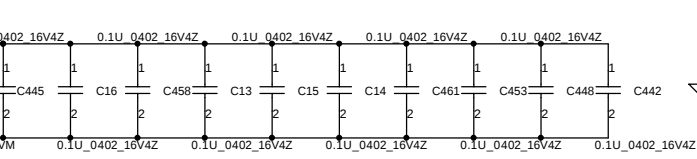
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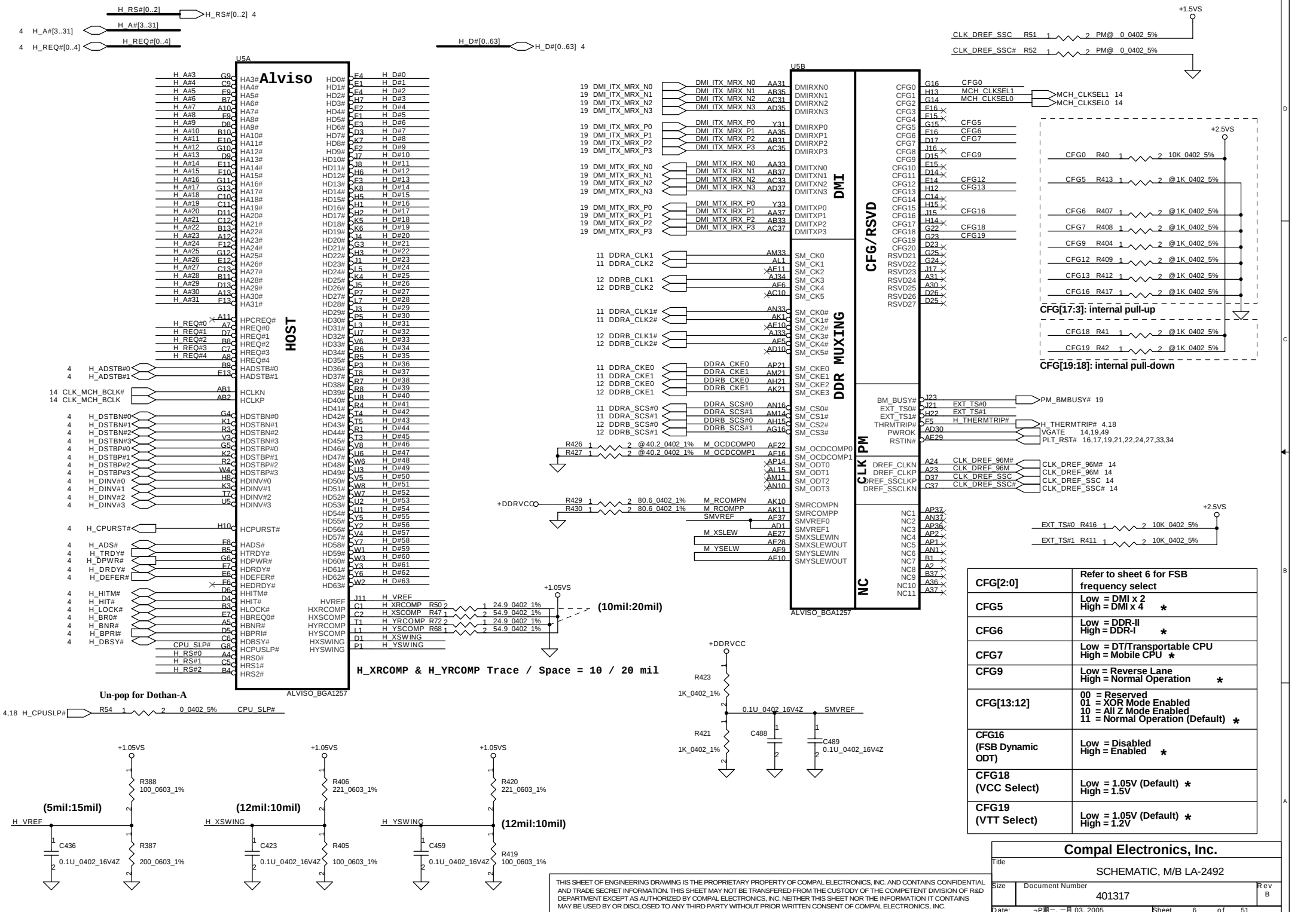
Vcc-core Decoupling	C, uF	ESR, mohm	ESL, nH
SPCAP, Polymer	2X330uF	7m ohm/2	3.5nH/2
MLCC 0805 X5R	35X10uF	5m ohm/35	0.6nH/35



TRACE CLOSELY CPU < 0.5'
COMP0, COMP2 layout : Width 18mils and Space 25mils
COMP1, COMP3 layout : Space 25mils

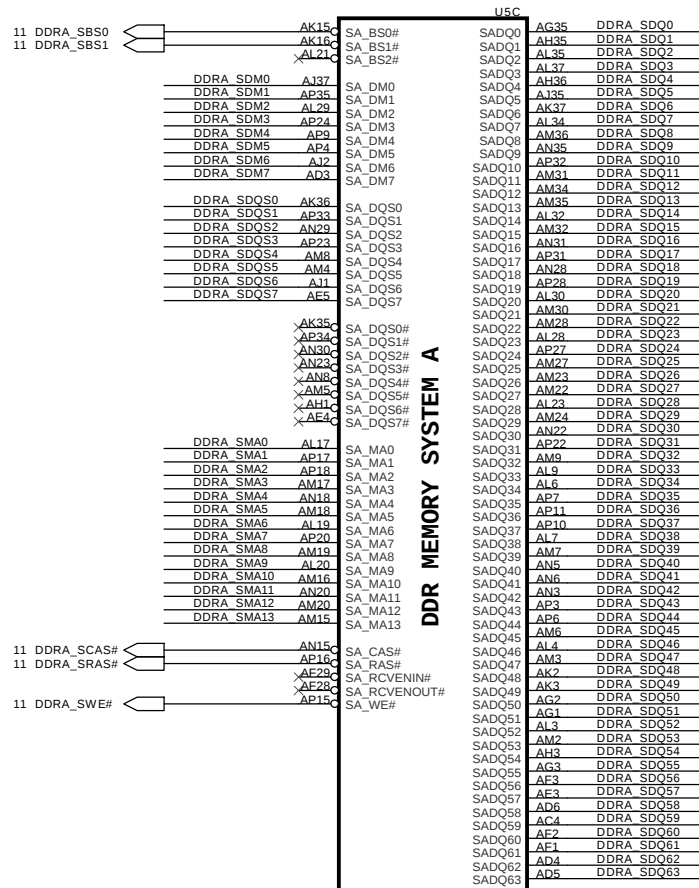
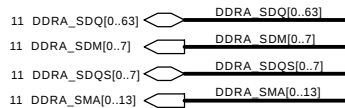
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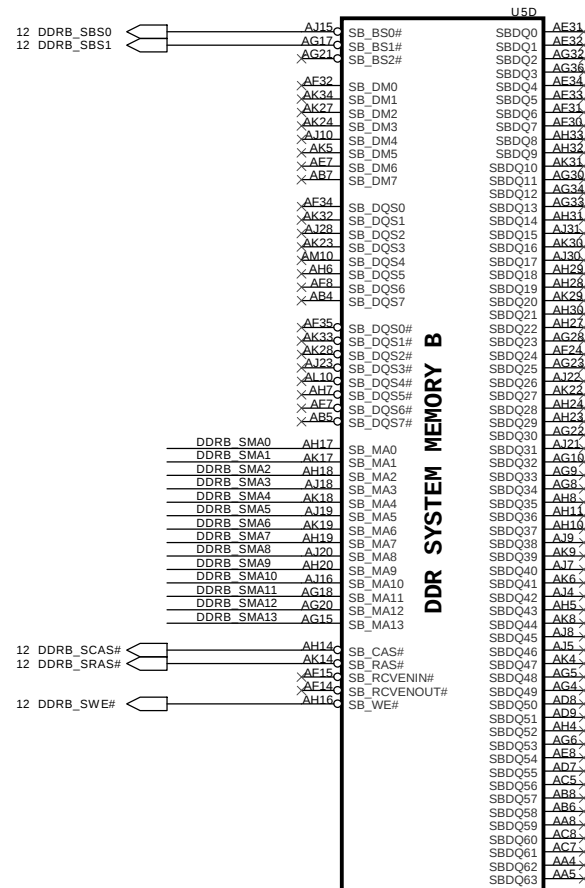


CFG[2:0]	Refer to sheet 6 for FSB frequency select
CFG5	Low = DMI x 2 High = DMI x 4 *
CFG6	Low = DDR-II High = DDR-I *
CFG7	Low = DT/Transportable CPU High = Mobile CPU *
CFG9	Low = Reverse Lane High = Normal Operation *
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation (Default) *
CFG16 (FSB Dynamic ODT)	Low = Disabled High = Enabled *
CFG18 (VCC Select)	Low = 1.05V (Default) *
CFG19 (VTT Select)	Low = 1.05V (Default) *

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ALVISO_BGA1257



ALVISO_BGA1257

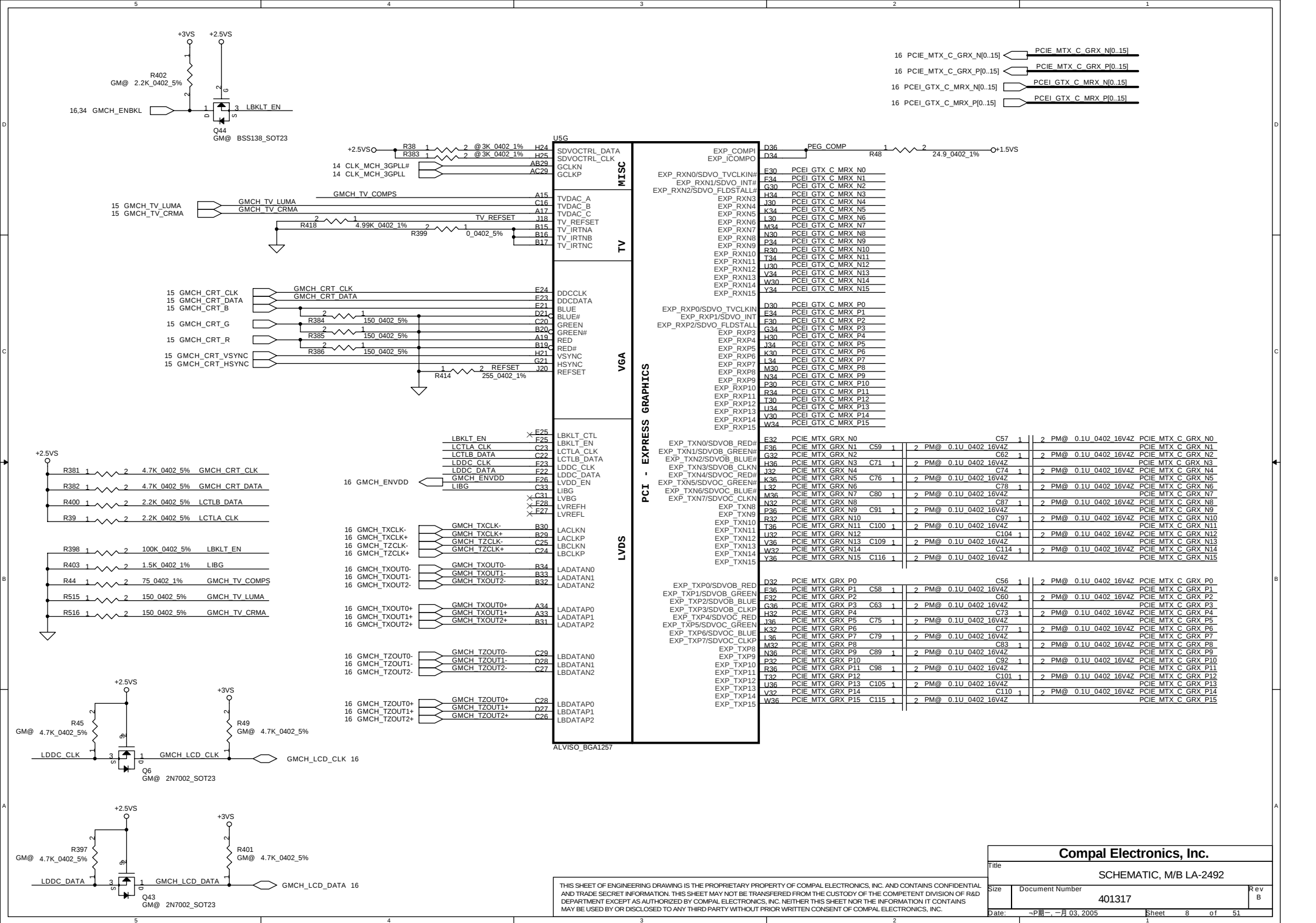
DDR MEMORY SYSTEM A

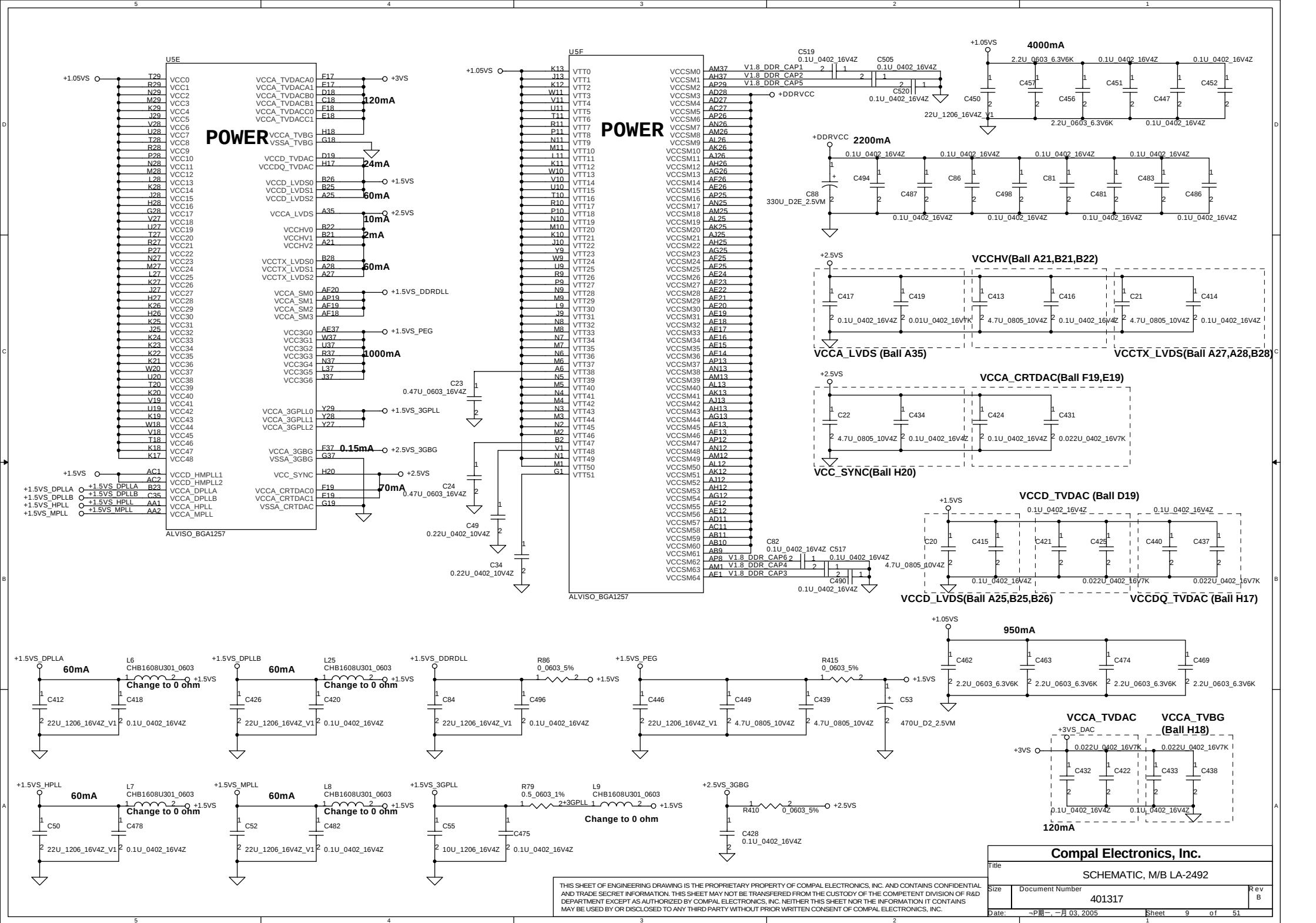
DDR SYSTEM MEMORY B

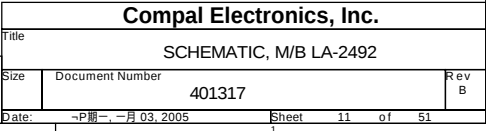
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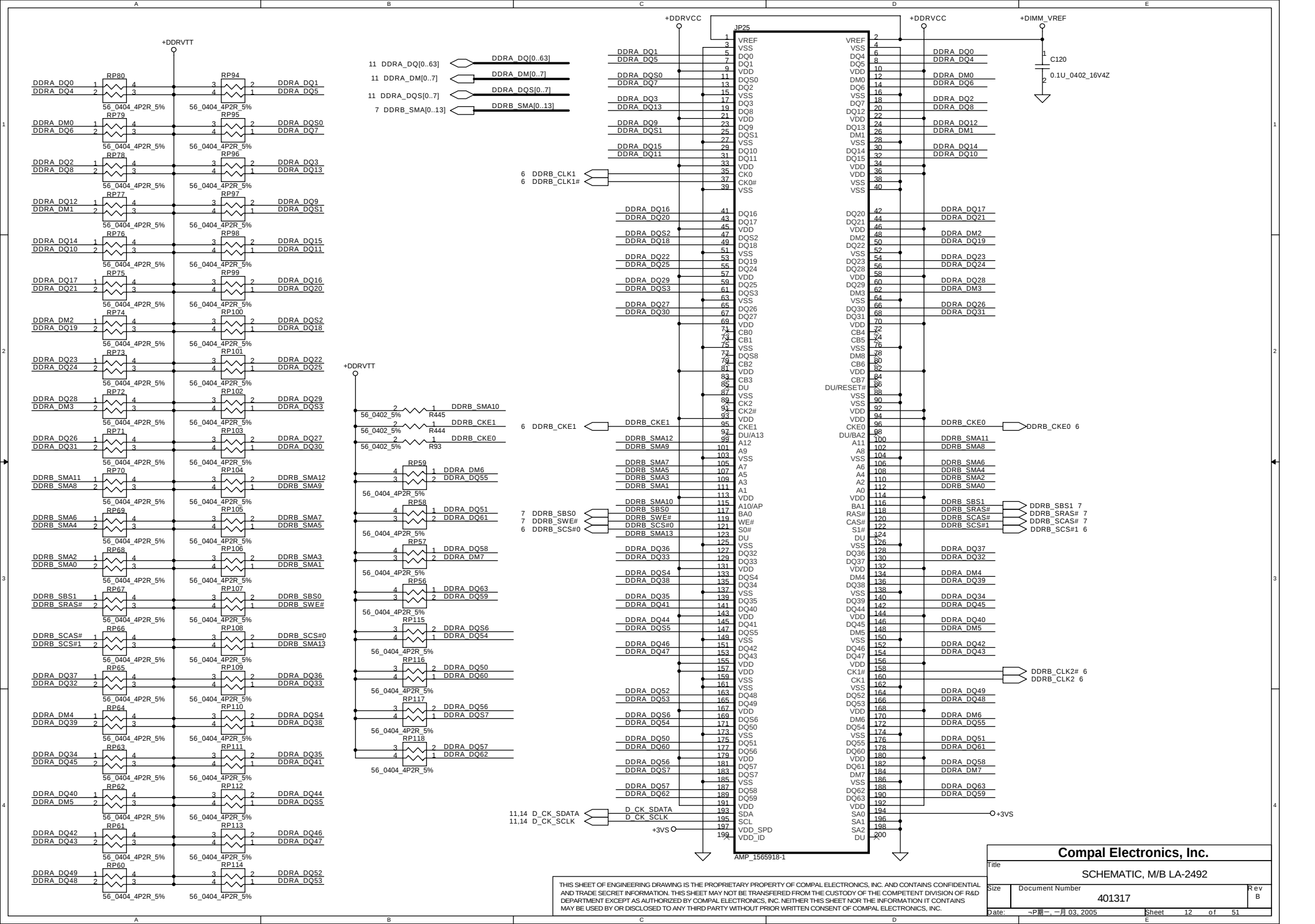
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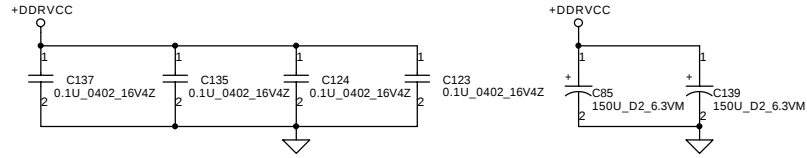
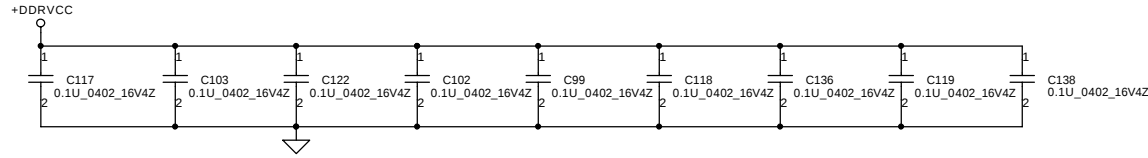




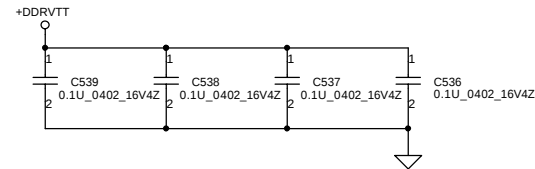
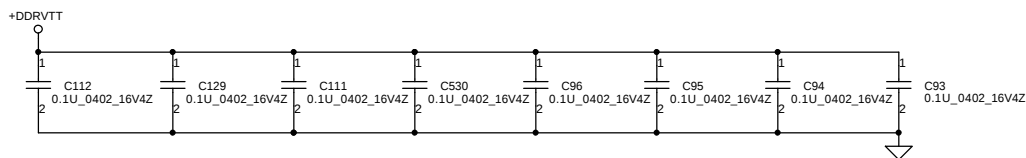
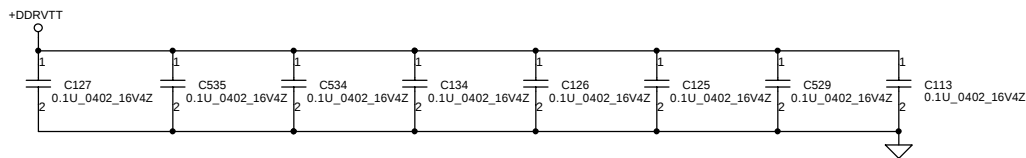
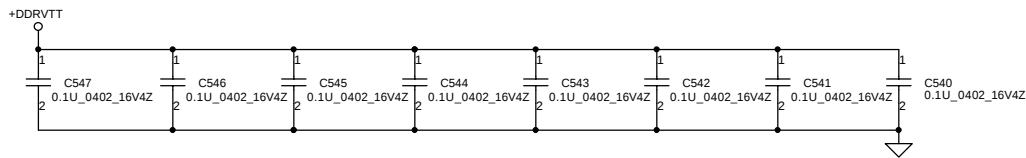
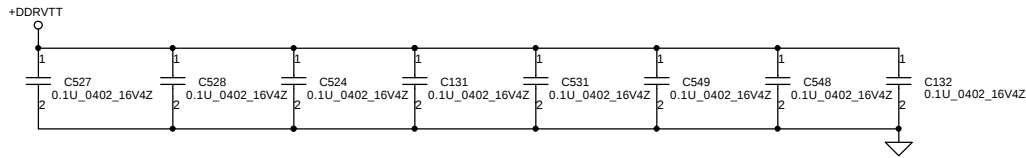
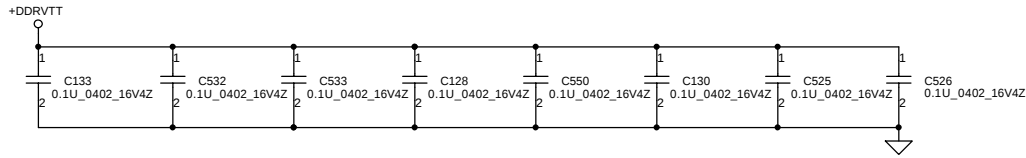




Layout note :
Distribute as close as possible
to DDR-SODIMM.



Layout note :
Place one cap close to every 2 pull up resistors termination to
+1.25V

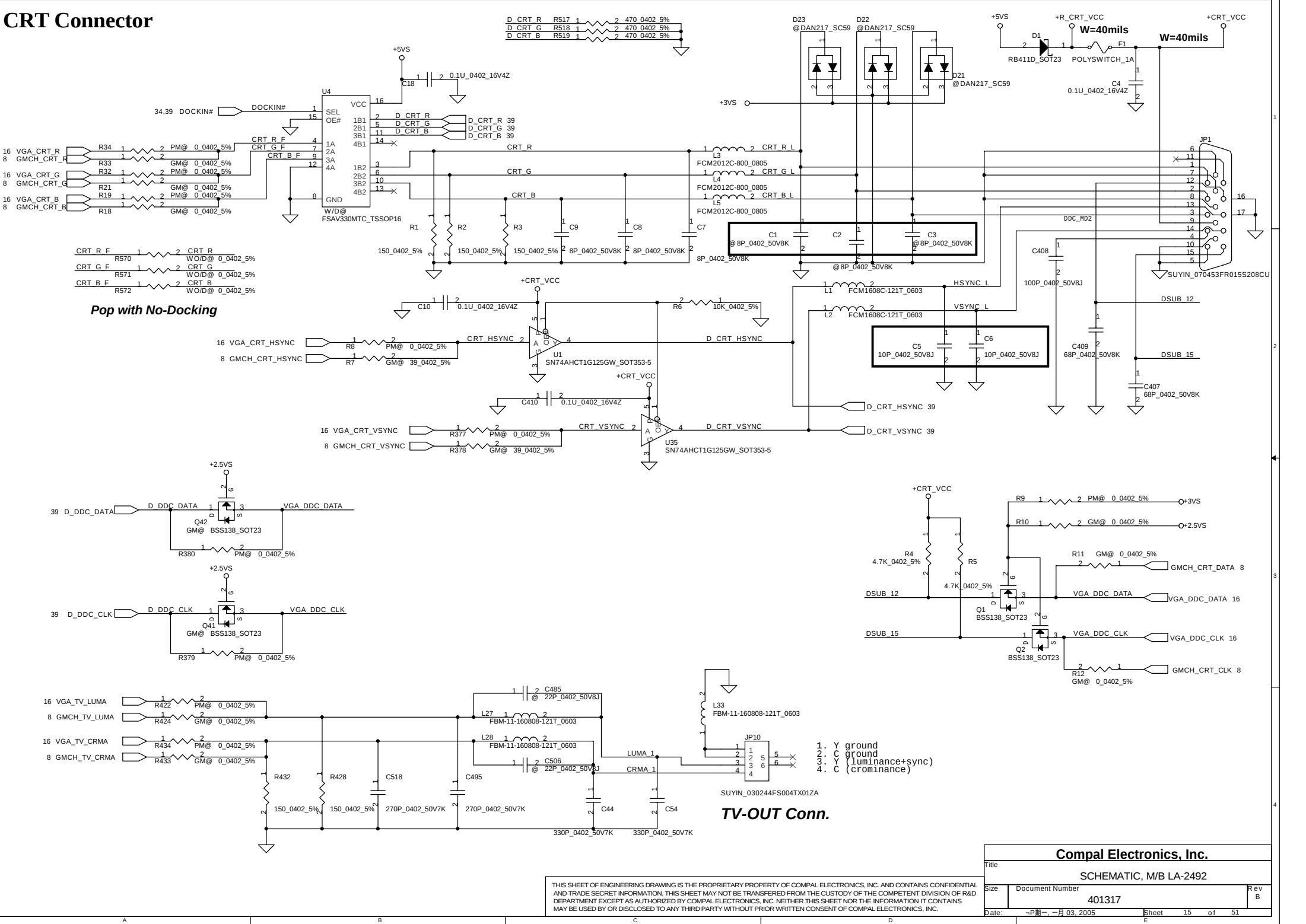


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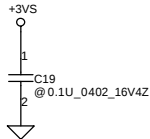
CRT Connector



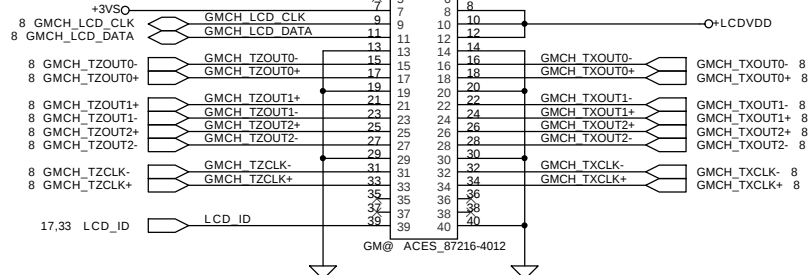
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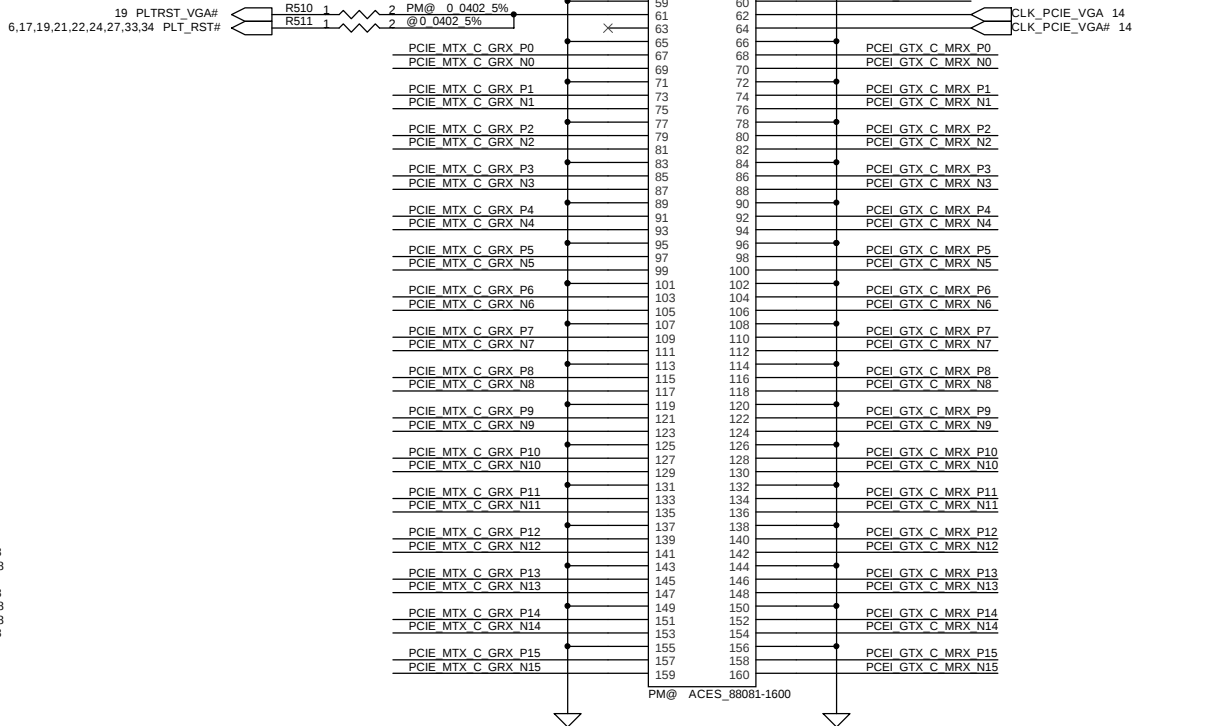
8 GMCH_ENVDD



LCD/PANEL BD. Conn.



VGA BOARD Conn.



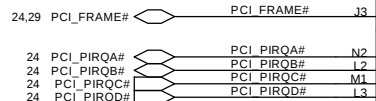
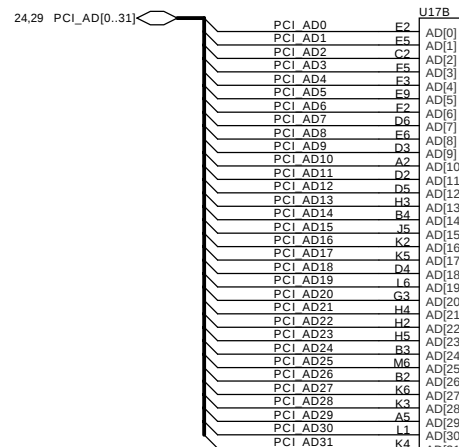
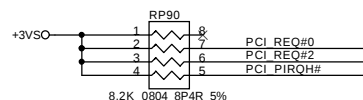
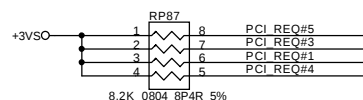
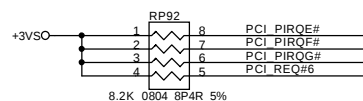
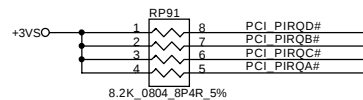
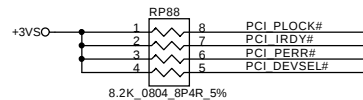
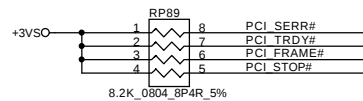
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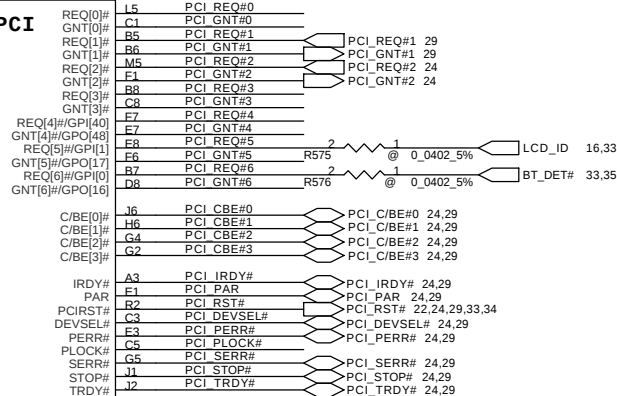
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U17B

PCI



Interrupt I/F

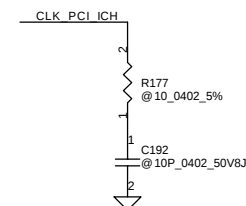
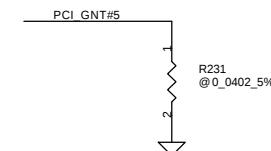


RESERVED



ICH6_BGA609

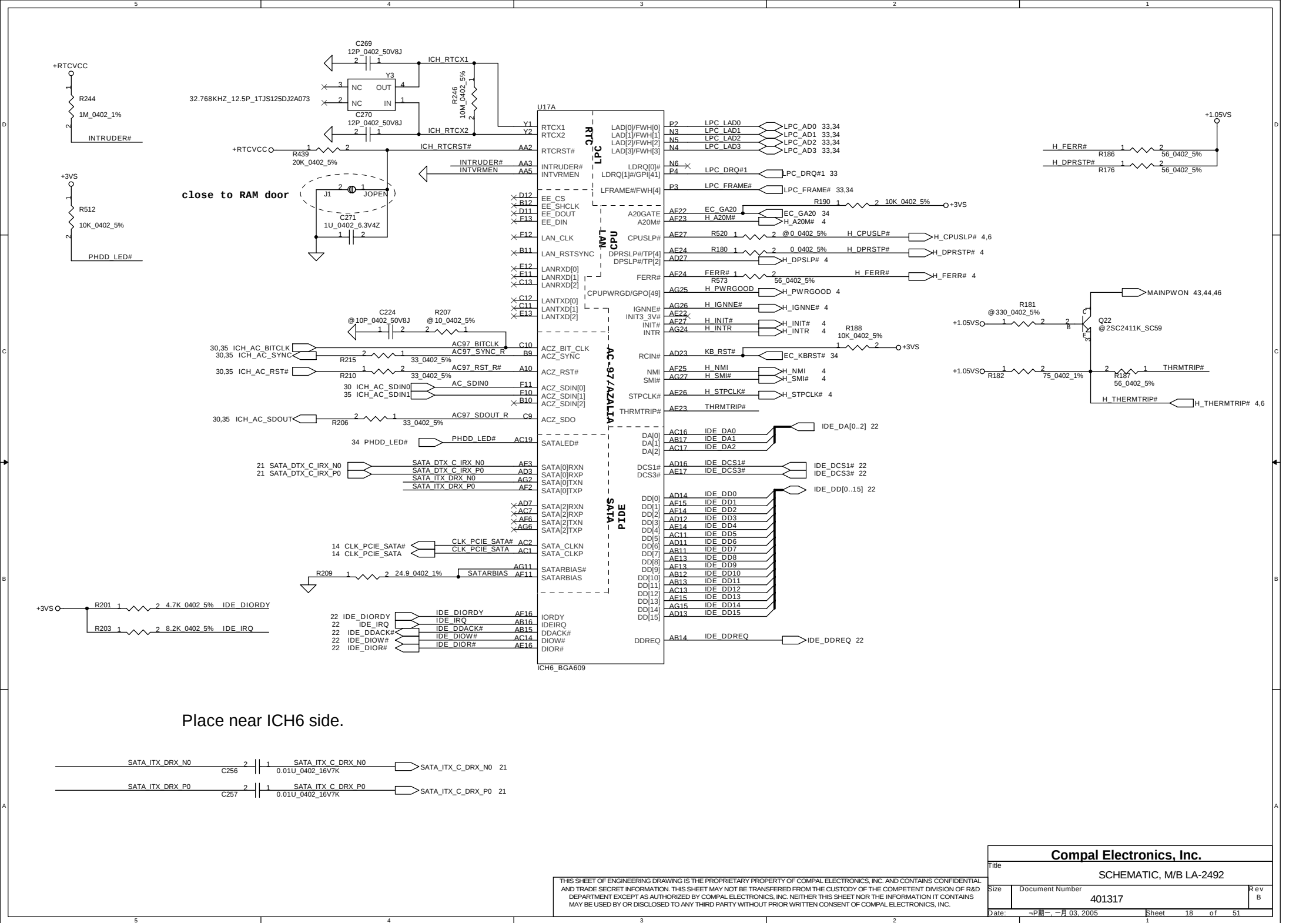
Internal Pull-up.
Sample high destination is LPC.



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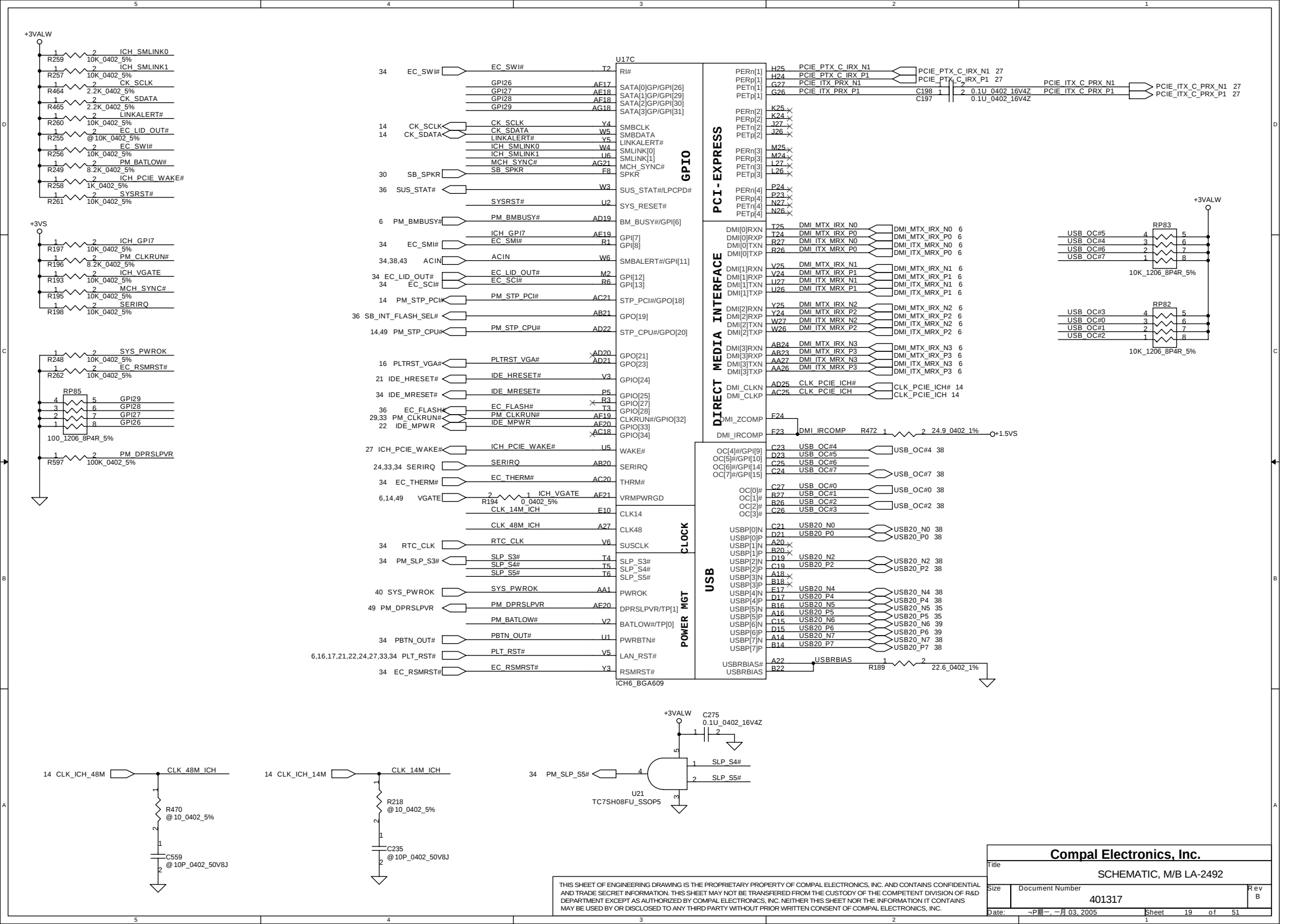
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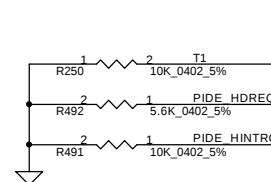
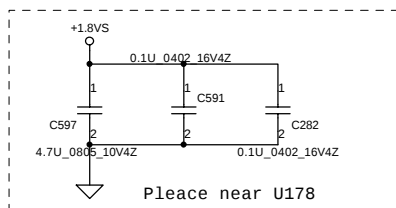


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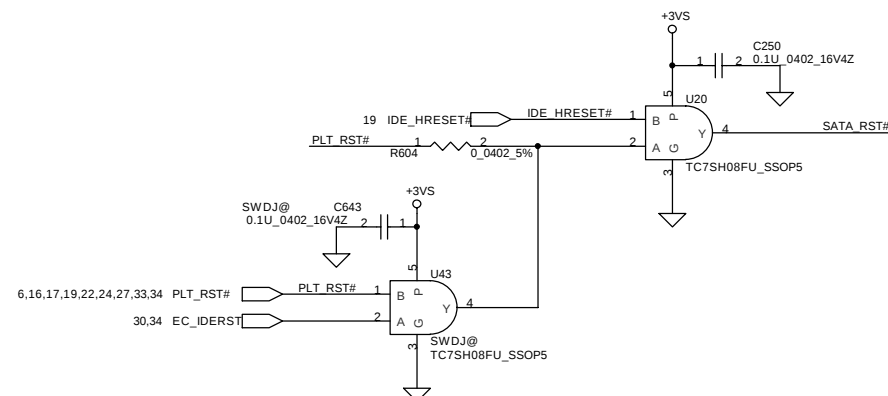
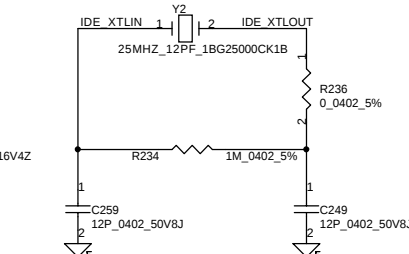
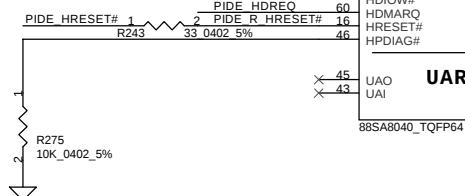
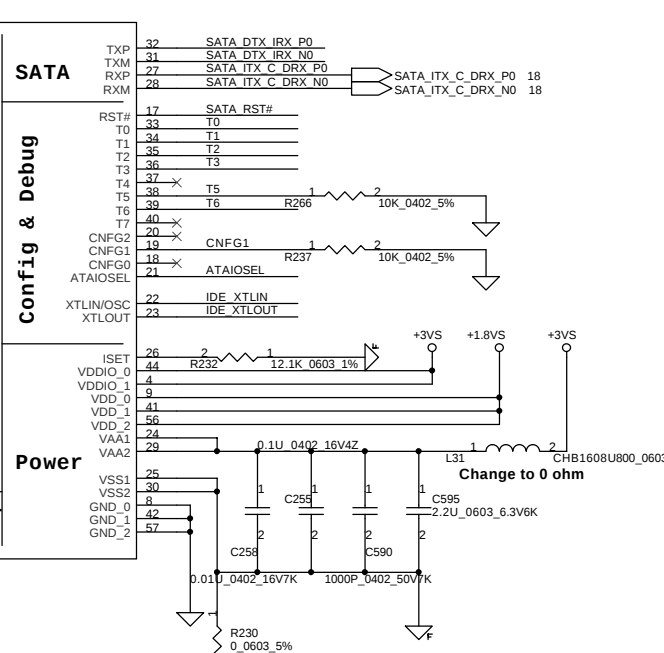
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Sets maximum transfer rate and UDMA mode

CNFG2 INT PD	CNFG1	CNFG0 INT PD	NOTE
0	0	0	Device Mode 100MB/s
0	0	1	Device Mode 133MB/s
0	1	0	Device Mode 150MB/s
1	0	0	Host Mode 100MB/s
1	0	1	Host Mode 133MB/s
1	1	0	Host Mode 150MB/s
0	1	1	Reserved
1	1	1	Reserved



JP18 MOLEX 54782-4411

Pin	Signal	Value	Pin	Signal	Value
48	PIDE_HRESET#		43	PIDE_HDD8	
47	PIDE_HDD7		41	PIDE_HDD9	
46	PIDE_HDD6		39	PIDE_HDD10	
45	PIDE_HDD5		37	PIDE_HDD11	
44	PIDE_HDD4		36	PIDE_HDD12	
43	PIDE_HDD3		34	PIDE_HDD13	
42	PIDE_HDD2		32	PIDE_HDD14	
41	PIDE_HDD1		30	PIDE_HDD15	
40	PIDE_HDD0		29		
39	PIDE_HDREQ		27		
38	PIDE_HDIOW#		26		
37	PIDE_HDIOR#		25		
36	PIDE_HIORDY		24		
35	PIDE_HDMACK#		23		
34	PIDE_HINTRQ		22		
33	PIDE_HDA1		21		
32	PIDE_HDA0		20		
31	PIDE_HCS0#		19		
30			18		
29			17		
28			16		
27			15		
26			14		
25			13		
24			12		
23			11		
22			10		
21			9		
20			8		
19			7		
18			6		
17			5		
16			4		
15			3		
14			2		
13			1		
12					
11					
10					
9					
8					
7					
6					
5					
4					
3					
2					
1					

SEC_CSEL R503 1 2 470 0.402 5%

R504 1 2 10K 0.402 5%

R322 1 2 10K 0.402 5%

PIDE_HDA2

PIDE_HCS1#

+5VS

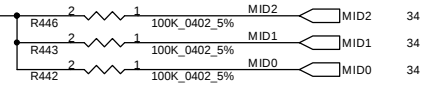
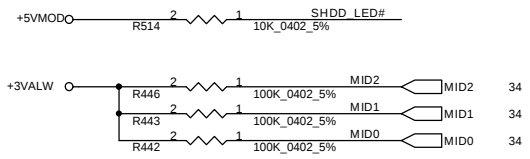
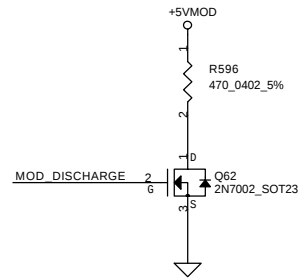
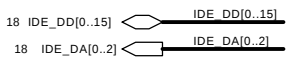
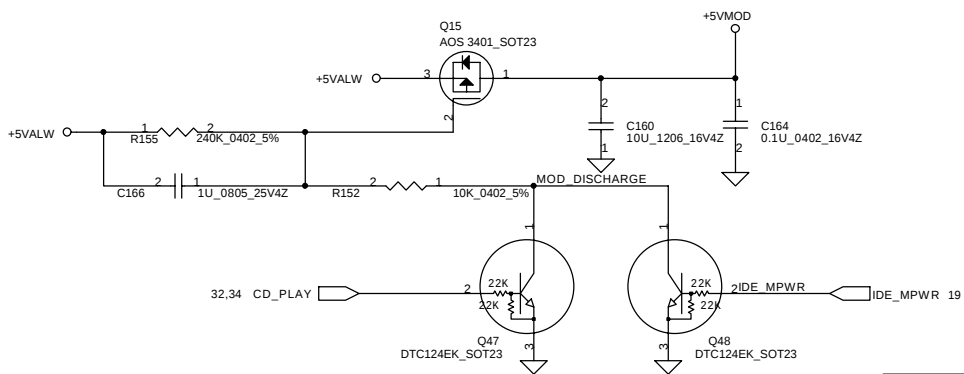
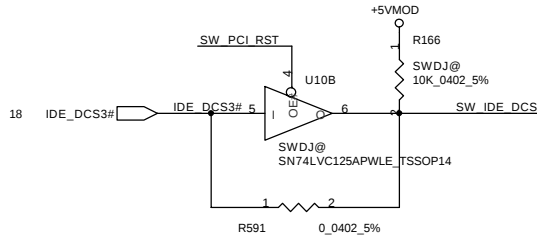
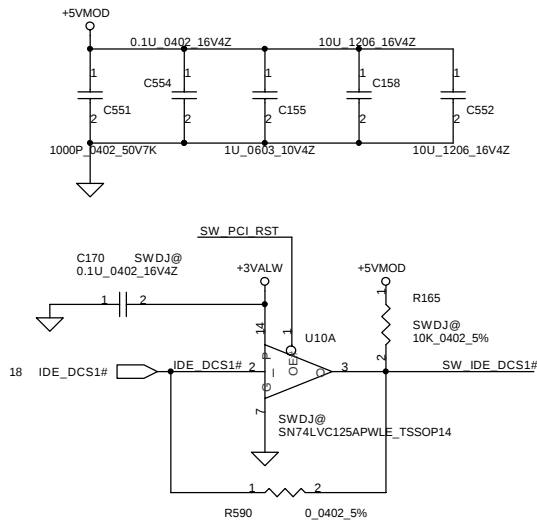
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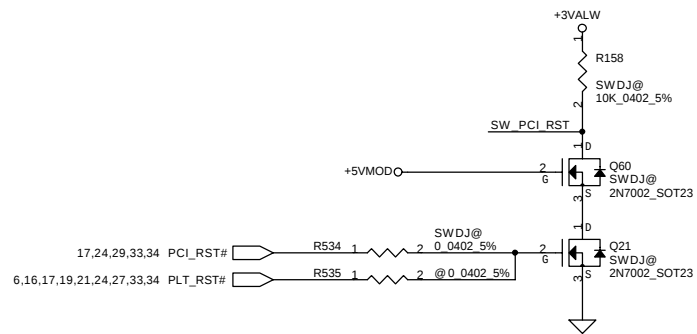
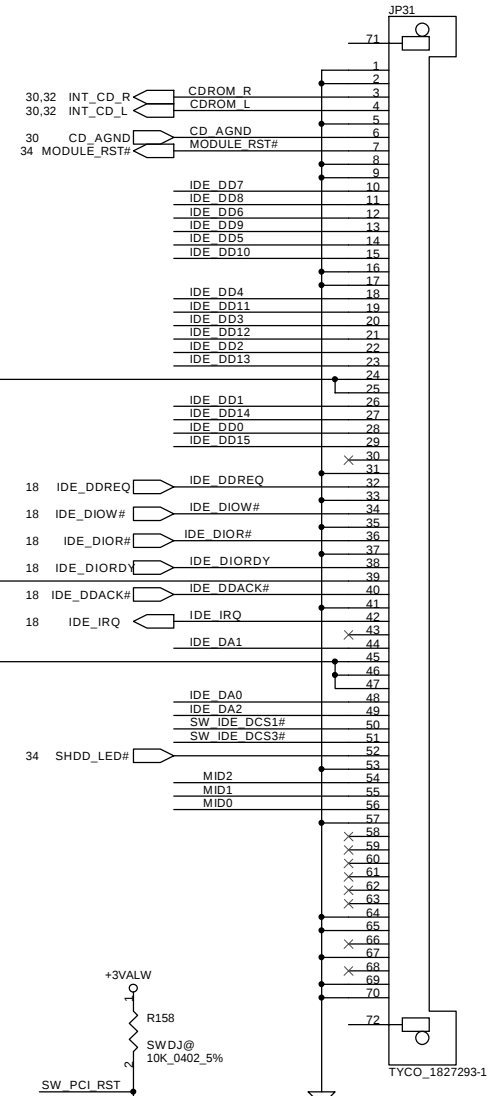
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Place caps. near ODD CONN.

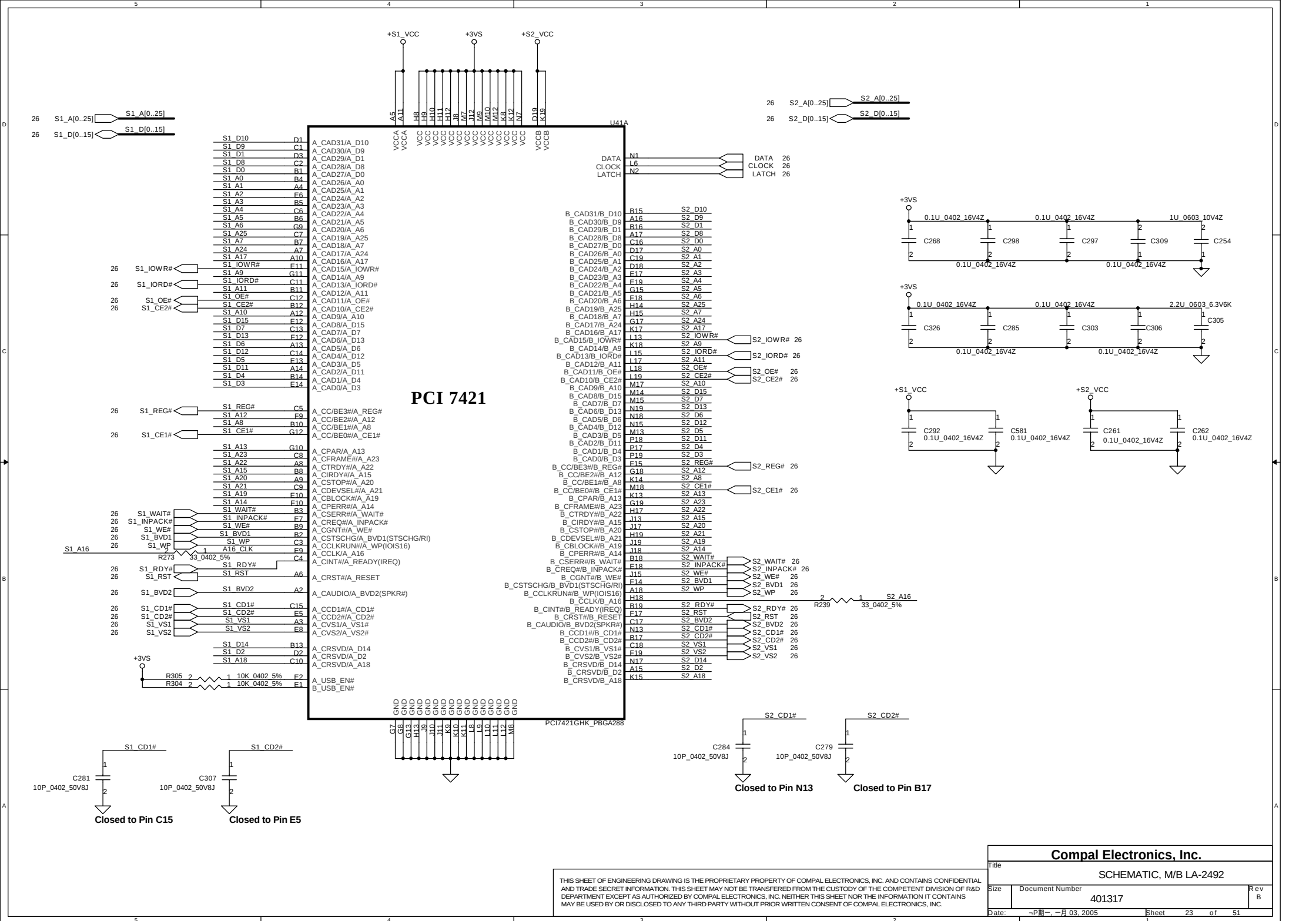


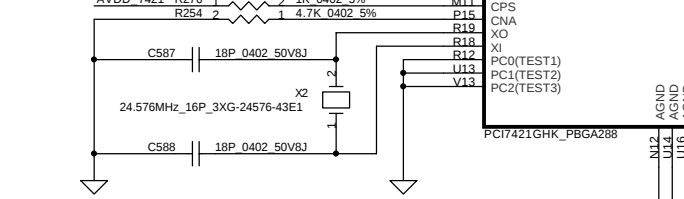
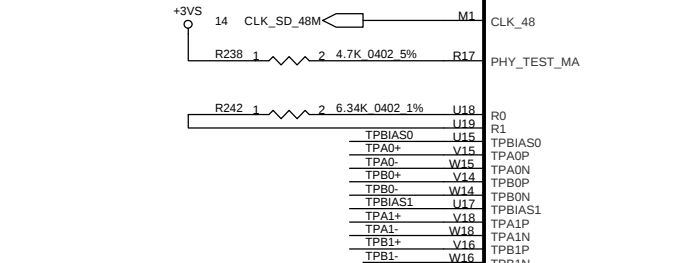
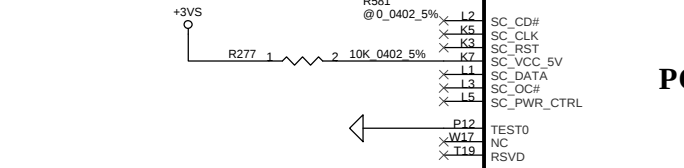
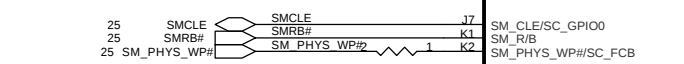
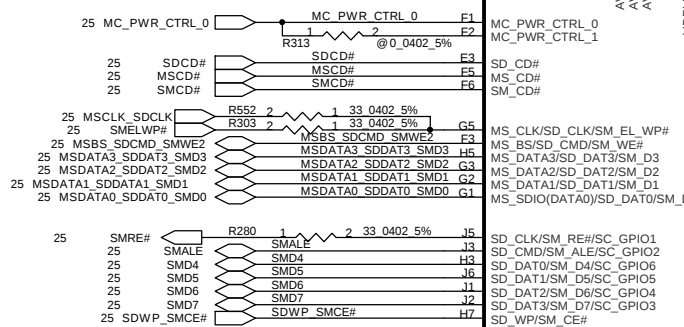
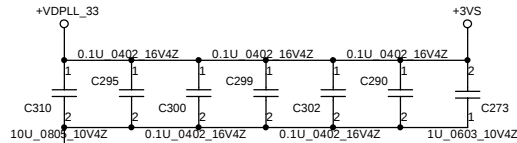
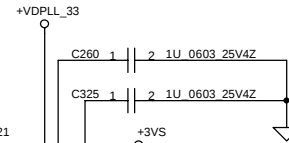
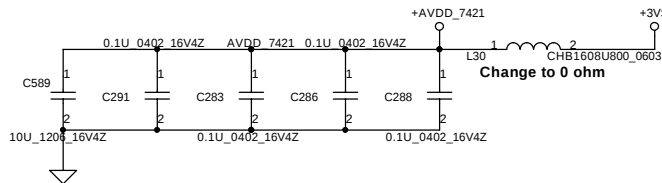
Module Conn.



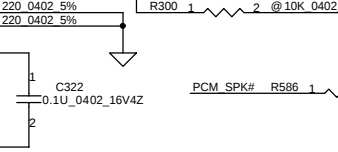
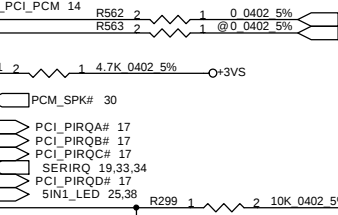
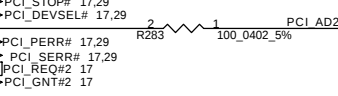
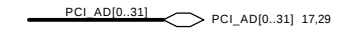
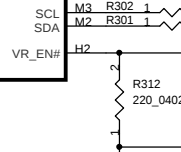
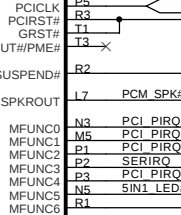
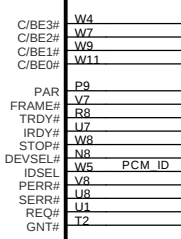
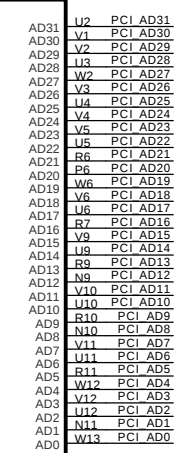
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PCI7421

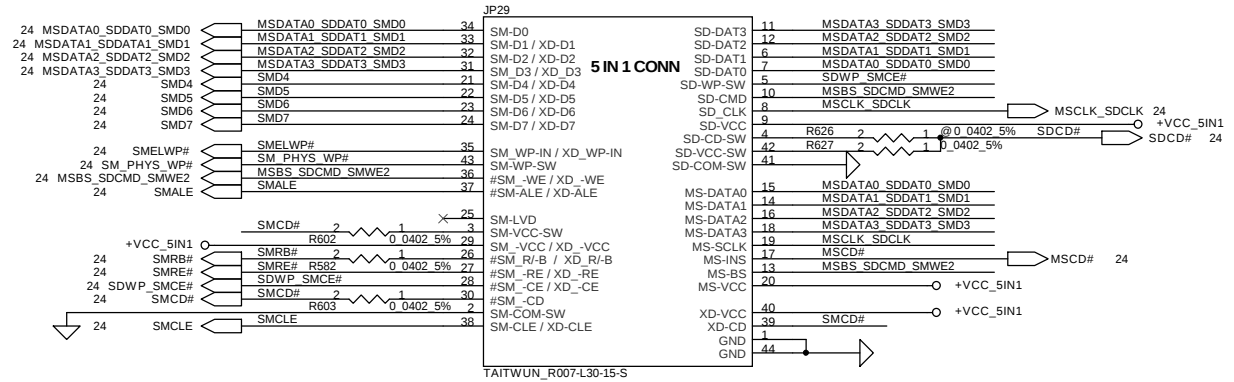
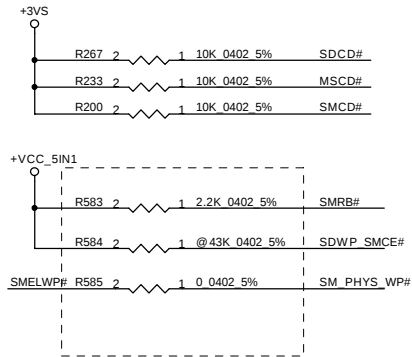


LED R MAY CHANGE TO 1500HM

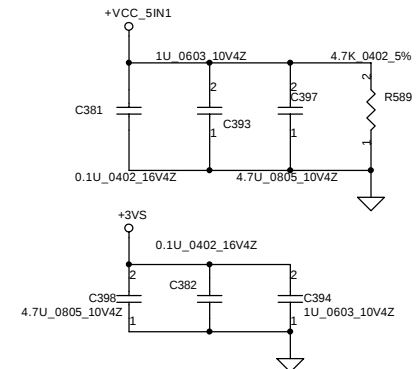
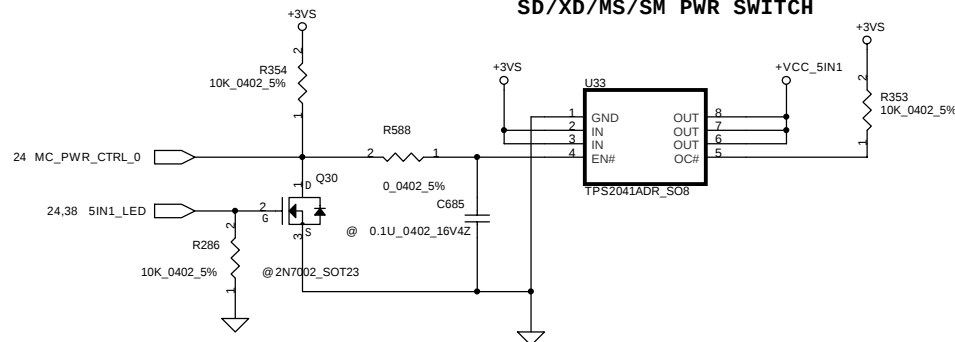
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5 in 1 CardReader Conn.



SD/XD/MS/SM PWR SWITCH



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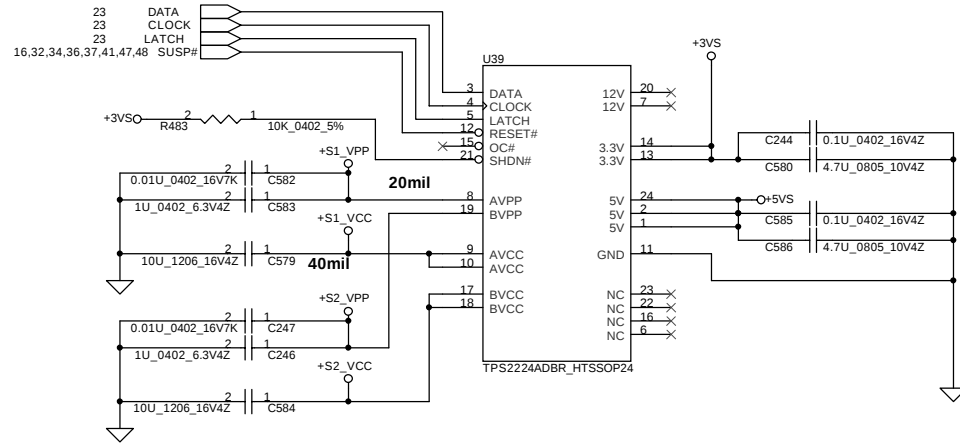
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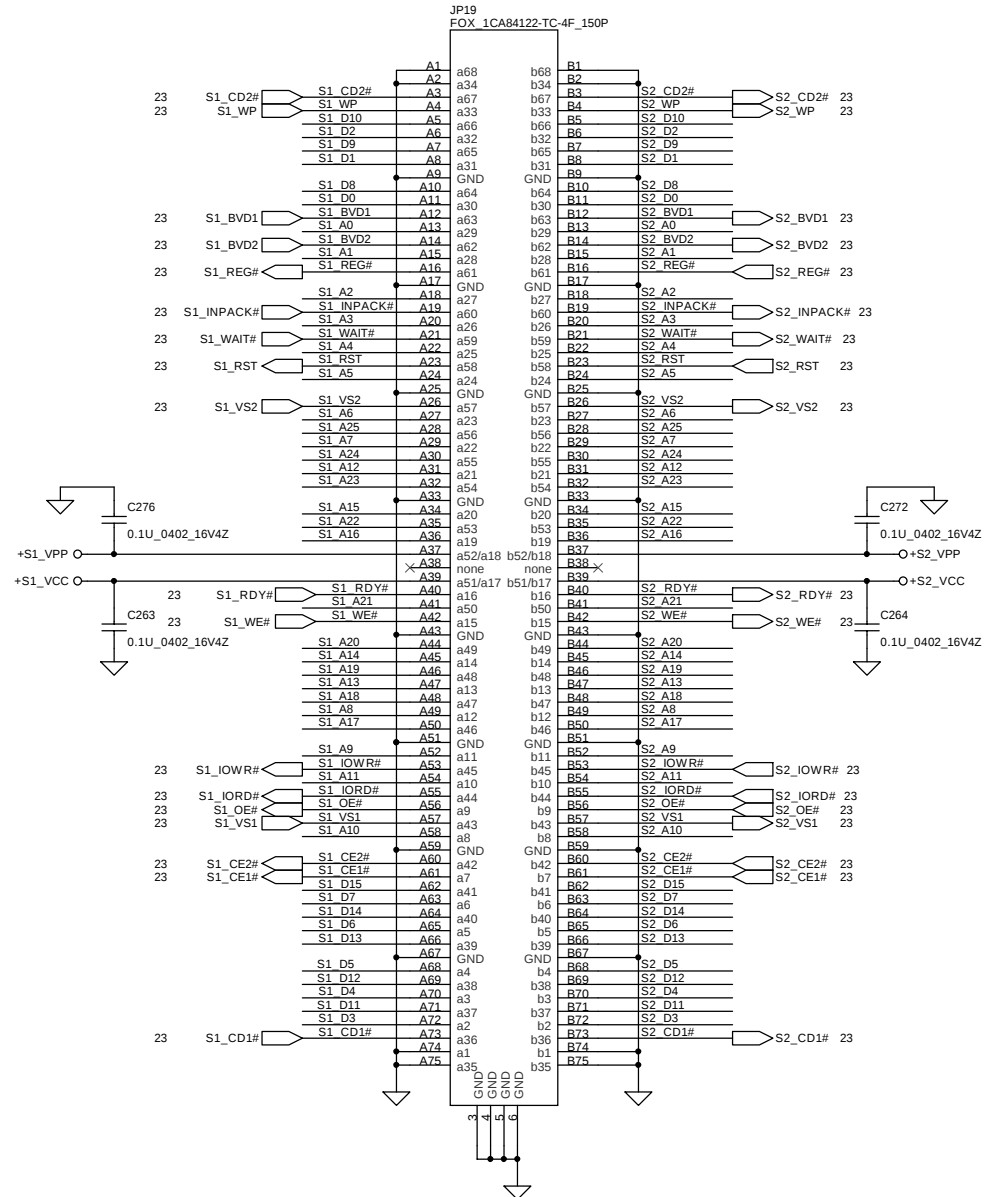
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Power Switch for PCMCIA



CardBus Socket



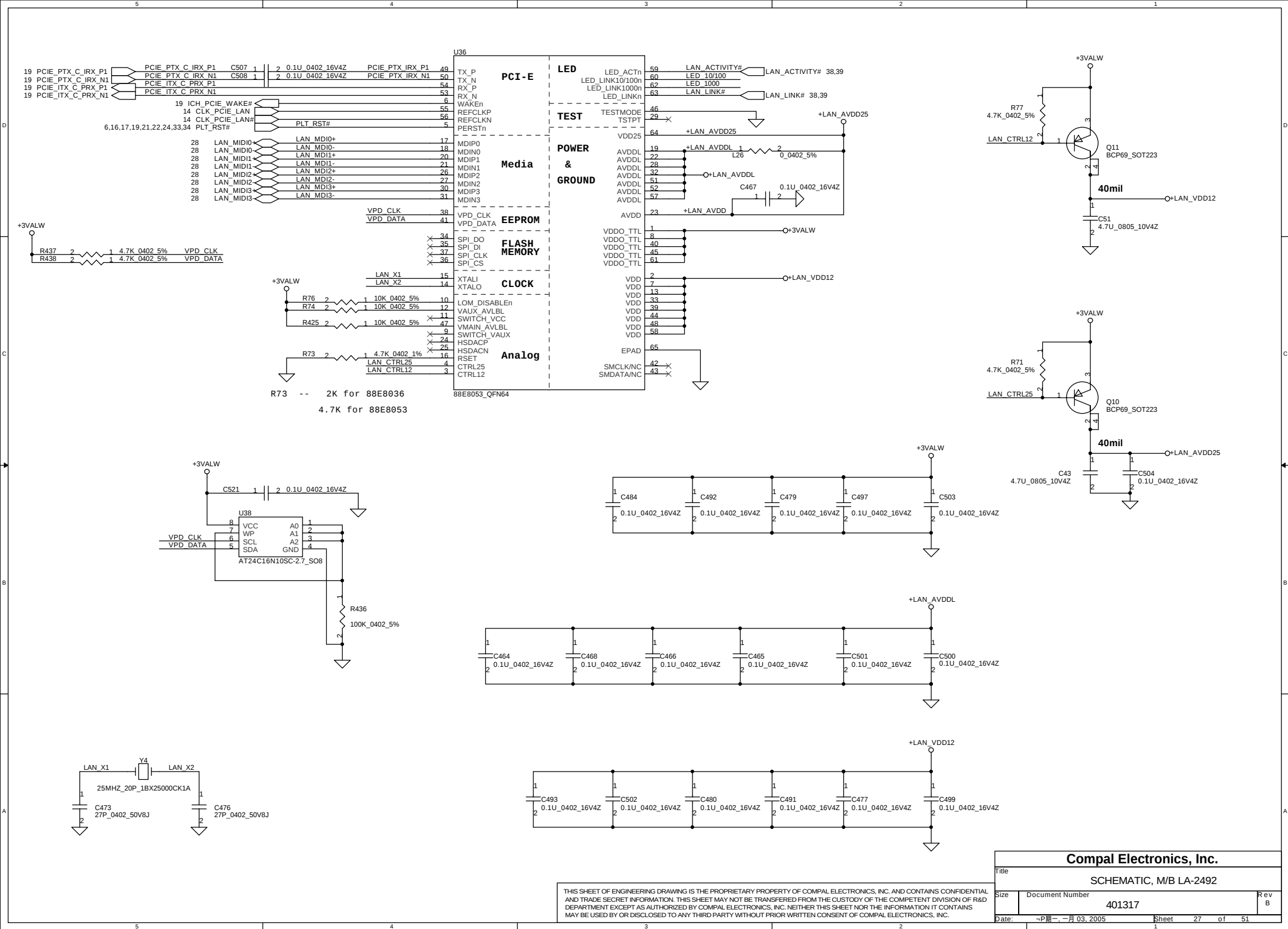
Compal Electronics, Inc.

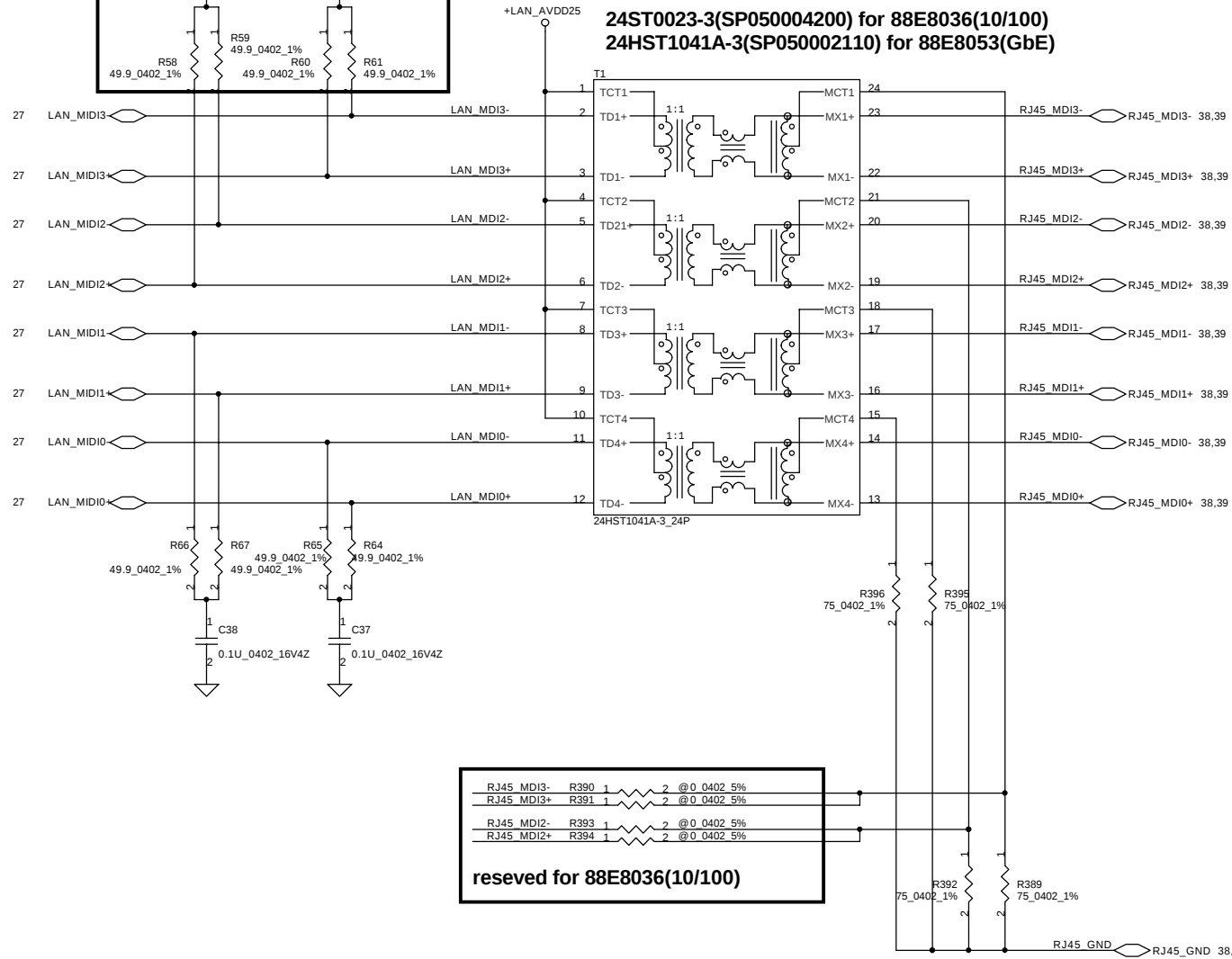
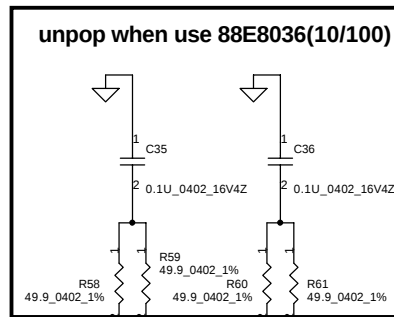
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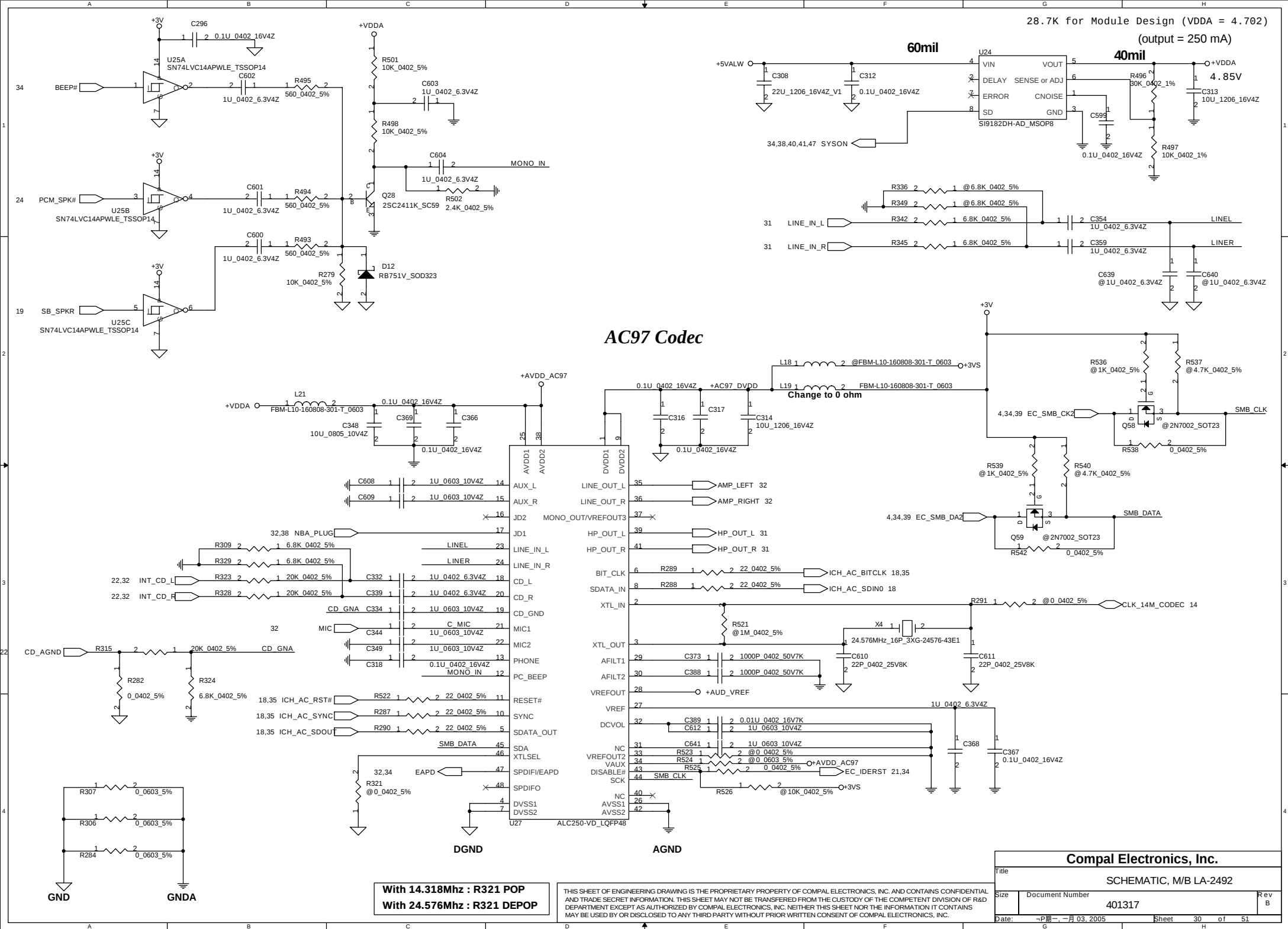
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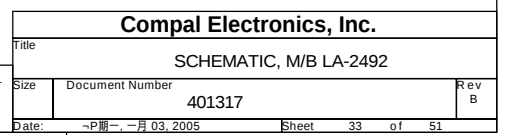
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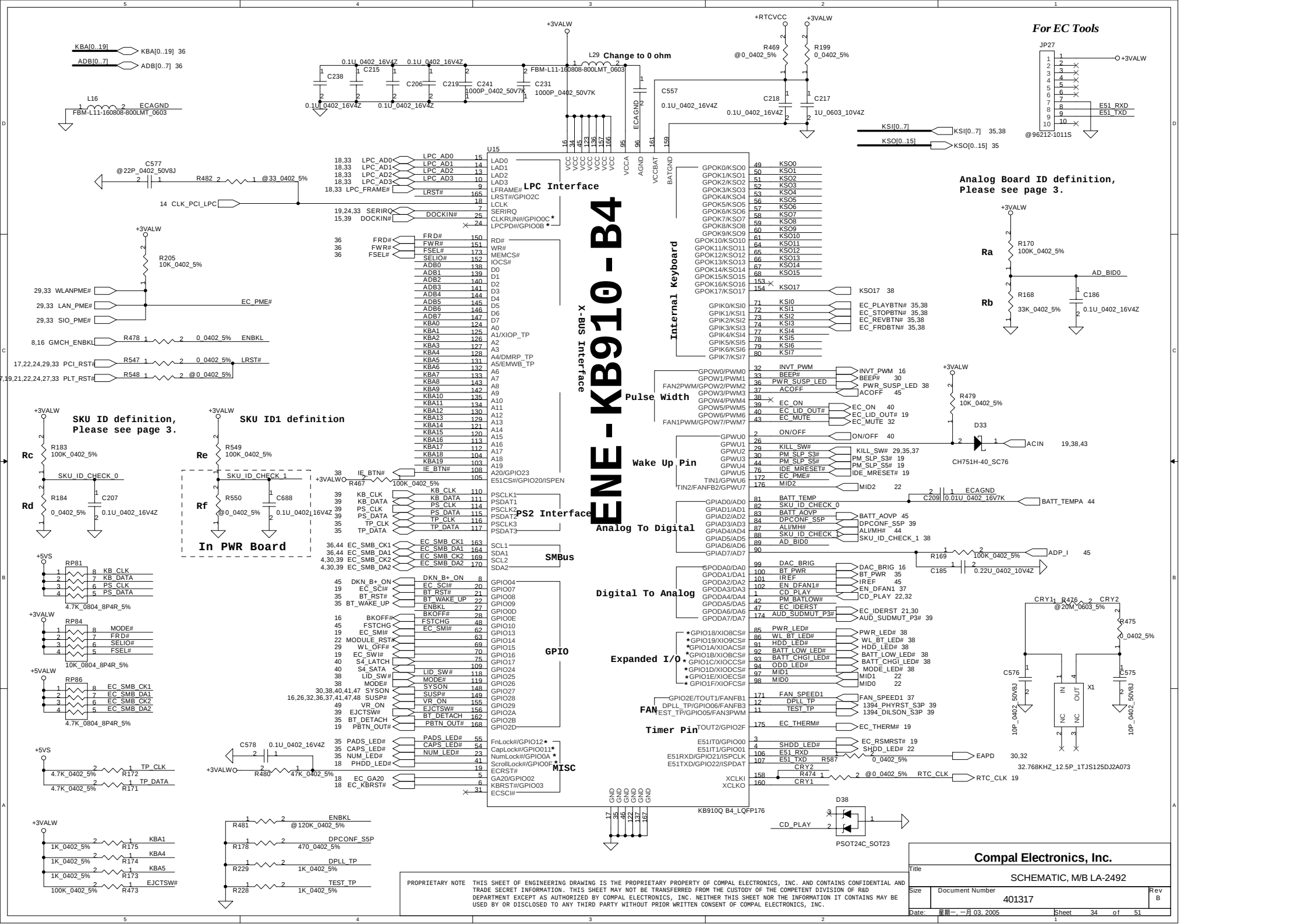


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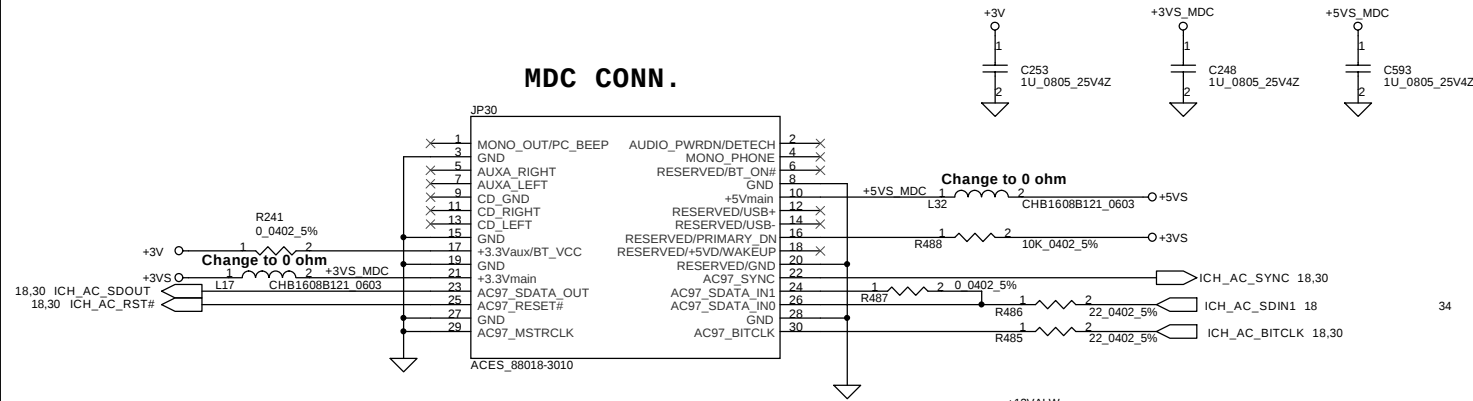


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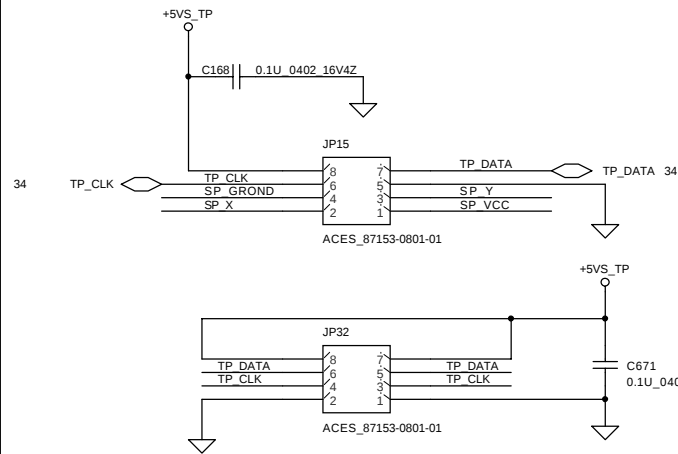




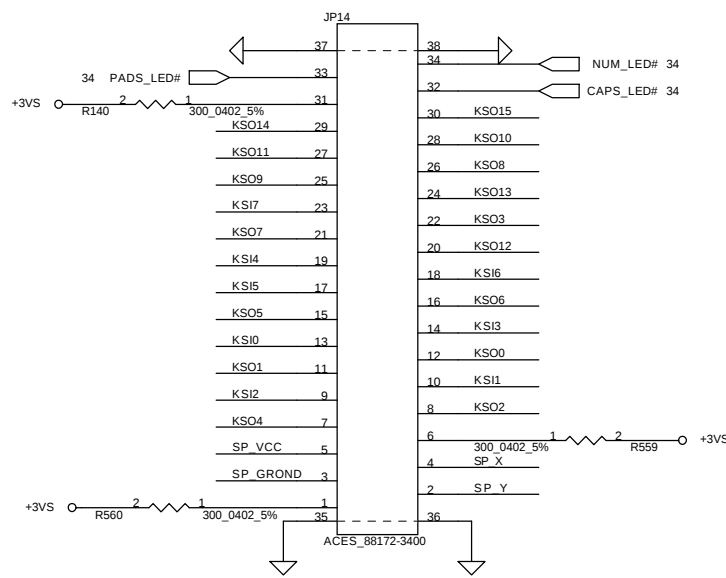
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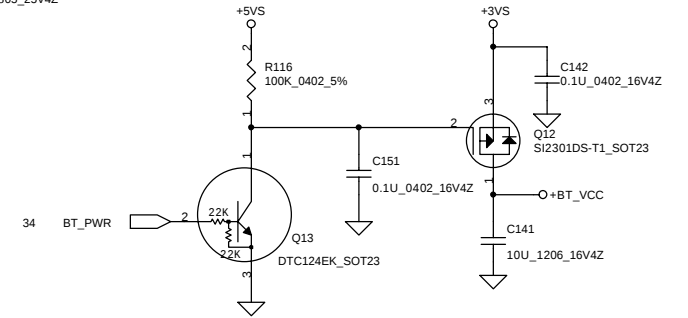
TP CONN.



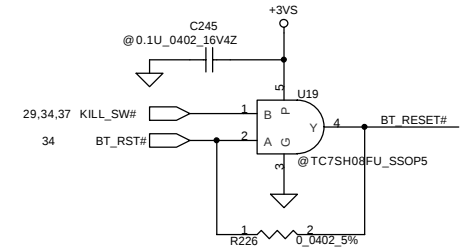
INT_KBD CONN.



BlueTooth Interface

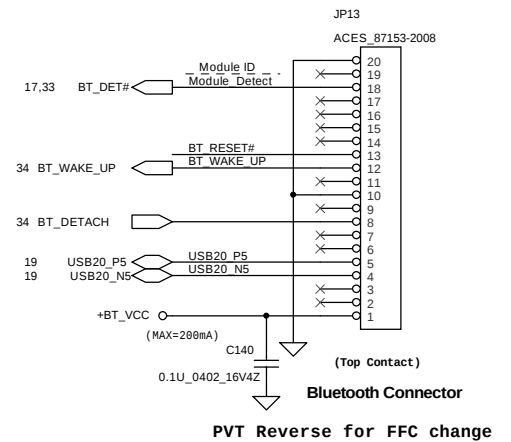


Module ID
Indication for polarity of reset
Reset input High Active -> Low,
Reset input Low Active -> Open



KSO7	C625	100P 0402 25V8K
KSO6	C626	100P 0402 25V8K
KSO5	C627	100P 0402 25V8K
KSO4	C628	100P 0402 25V8K
KSO3	C629	100P 0402 25V8K
KSI4	C630	100P 0402 25V8K
KSO2	C631	100P 0402 25V8K
KSO1	C632	100P 0402 25V8K
KSO0	C633	100P 0402 25V8K
KSI5	C634	100P 0402 25V8K
KSI6	C635	100P 0402 25V8K
KSI7	C636	100P 0402 25V8K
KSO8	C624	100P 0402 25V8K

KSO15	C613	100P 0402 25V8K
KSO14	C614	100P 0402 25V8K
KSO13	C615	100P 0402 25V8K
KSO12	C616	100P 0402 25V8K
KSI0	C617	100P 0402 25V8K
KSO11	C618	100P 0402 25V8K
KSO10	C619	100P 0402 25V8K
KSI1	C620	100P 0402 25V8K
KSI2	C621	100P 0402 25V8K
KSO9	C622	100P 0402 25V8K
KSI3	C623	100P 0402 25V8K
PADS_LED#	C682	100P 0402 25V8K
NUM_LED#	C683	100P 0402 25V8K
CAPS_LED#	C684	100P 0402 25V8K

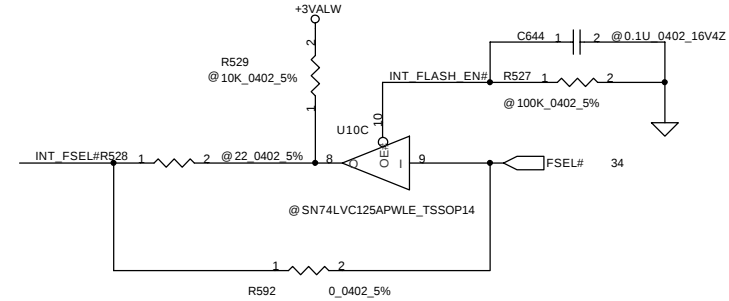
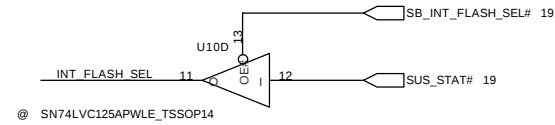


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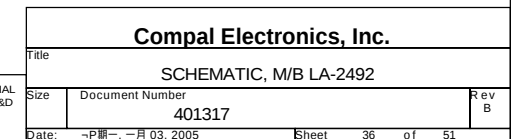


JP17

KBA16 1
 KBA15 2
 KBA14 3
 KBA13 4
 KBA12 5
 KBA11 6
 KBA9 7
 KBA8 8
 FWE# 9
 RESET# 10
 INT_FLASH_EN# 11
 INT_FLASH_SEL 12
 KBA18 13
 KBA7 14
 KBA6 15
 KBA5 16
 KBA4 17
 KBA3 18
 KBA2 19
 KBA1 20

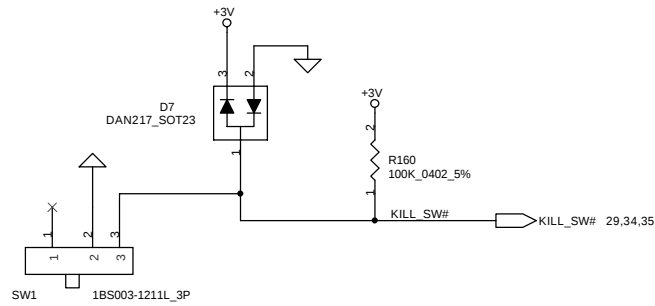
KBA17 21
 KBA19 22
 KBA10 23
 AD7 24
 AD6 25
 AD5 26
 AD4 27
 +3VALW 28
 AD3 29
 AD2 30
 AD1 31
 AD0 32
 FRD# 33
 FSEL# 34
 KBA0 35

@ SUYIN_80065AR-040G2T

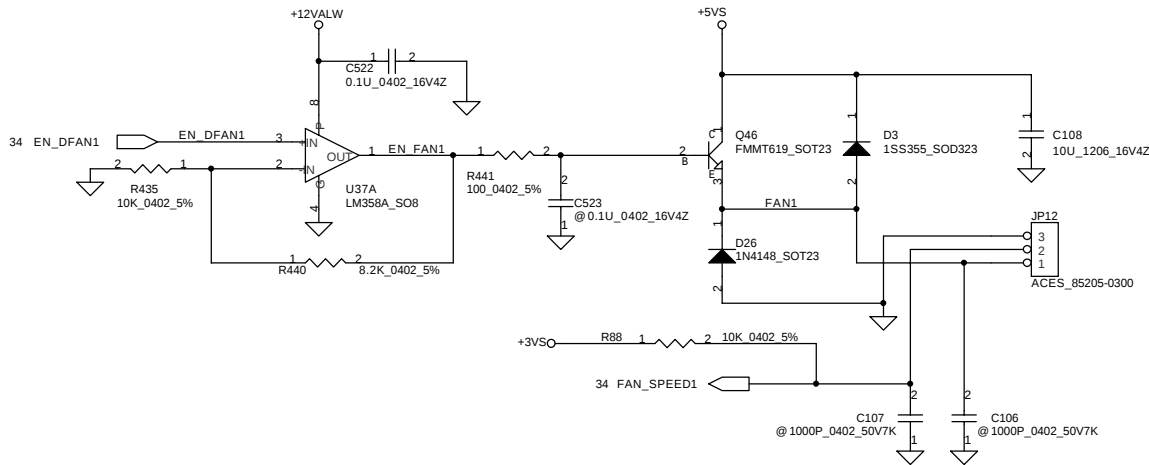


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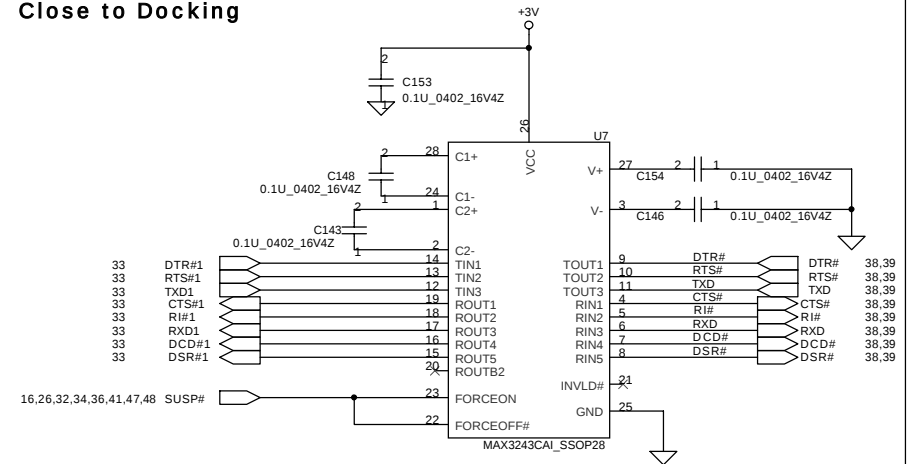
Kill SWITCH



FAN Conn



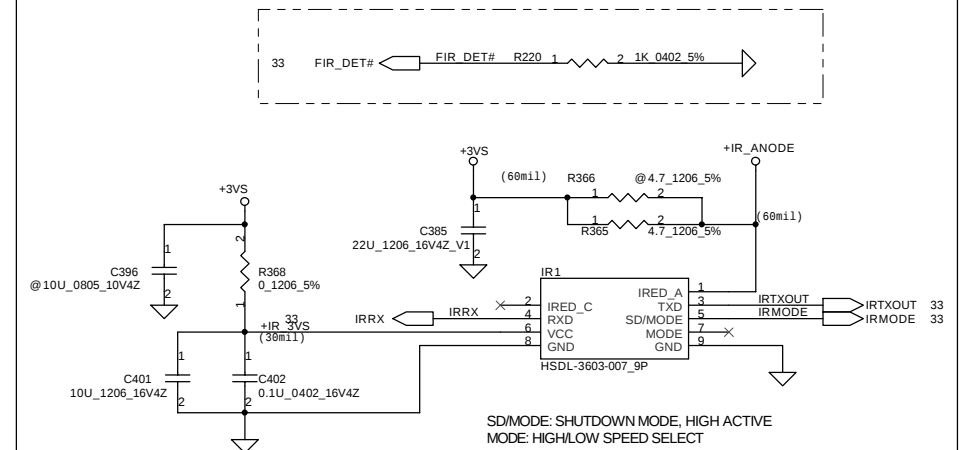
Close to Docking



No Docking and Serial Port -----> Del

FIR Module

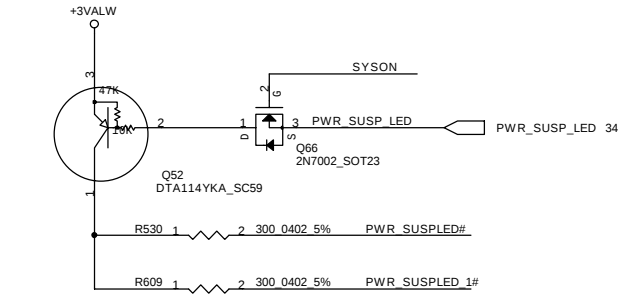
L: R POP; FIR Enable
H: R De-POP; FIR Disable



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[illegible]

Pin connection diagram for the ACES_87216-3002 module. The diagram shows a 30-pin connector (JP16) with pins 1 through 15 on the left and pins 16 through 30 on the right. Pin 1 is connected to +5VALW. Pins 2 through 5 are connected to SYSON#. Pins 6 through 9 are connected to SYSON#. Pins 10 through 15 are connected to NBA PLUG. Pins 16 through 19 are connected to USB20_N0, USB20_P0, USB20_N2, and USB20_P2. Pins 20 through 23 are connected to USB20_N4 and USB20_P4. Pins 24 through 25 are connected to LID. Pins 26 through 27 are connected to ORTCVREF. Pins 28 through 29 are connected to +5VCD. Pins 30 and 31 are connected to GND.

[illegible]

POWER/ON LED

POWER/SUSP LED

Diagram illustrating the connection of the HT-297UD/NB_BLUE/AMB_0603 component to a +5VSW input. The input is connected to a network of resistors (R374, R561) and a diode array (D16). The diode array has four outputs: 1 (BATT_LOWLED#), 2 (BATT_CHGLED#), 3, and 4. The diode symbols indicate signal direction.

5VS

R376

1

2

120_0402_5%

2

D19

HT-191NB_BLUE_0603

1

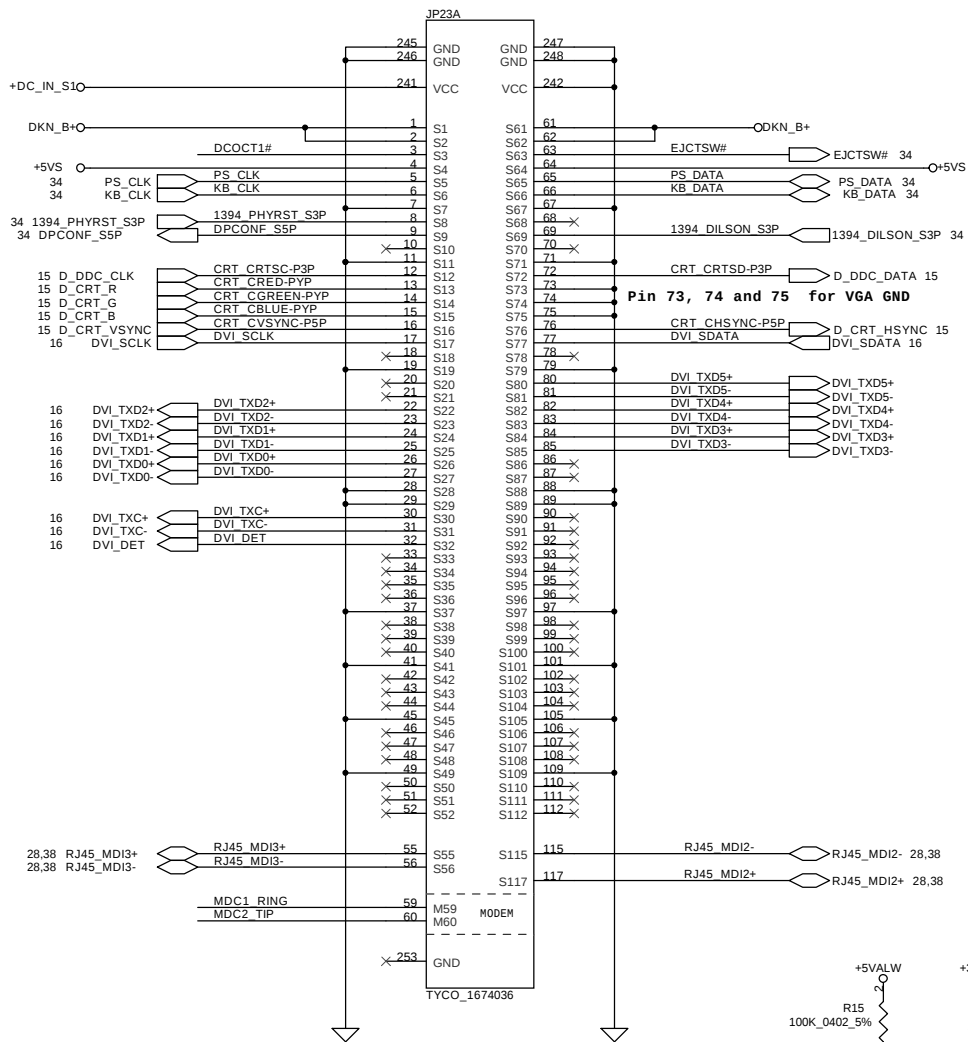
MODE_LED#

34

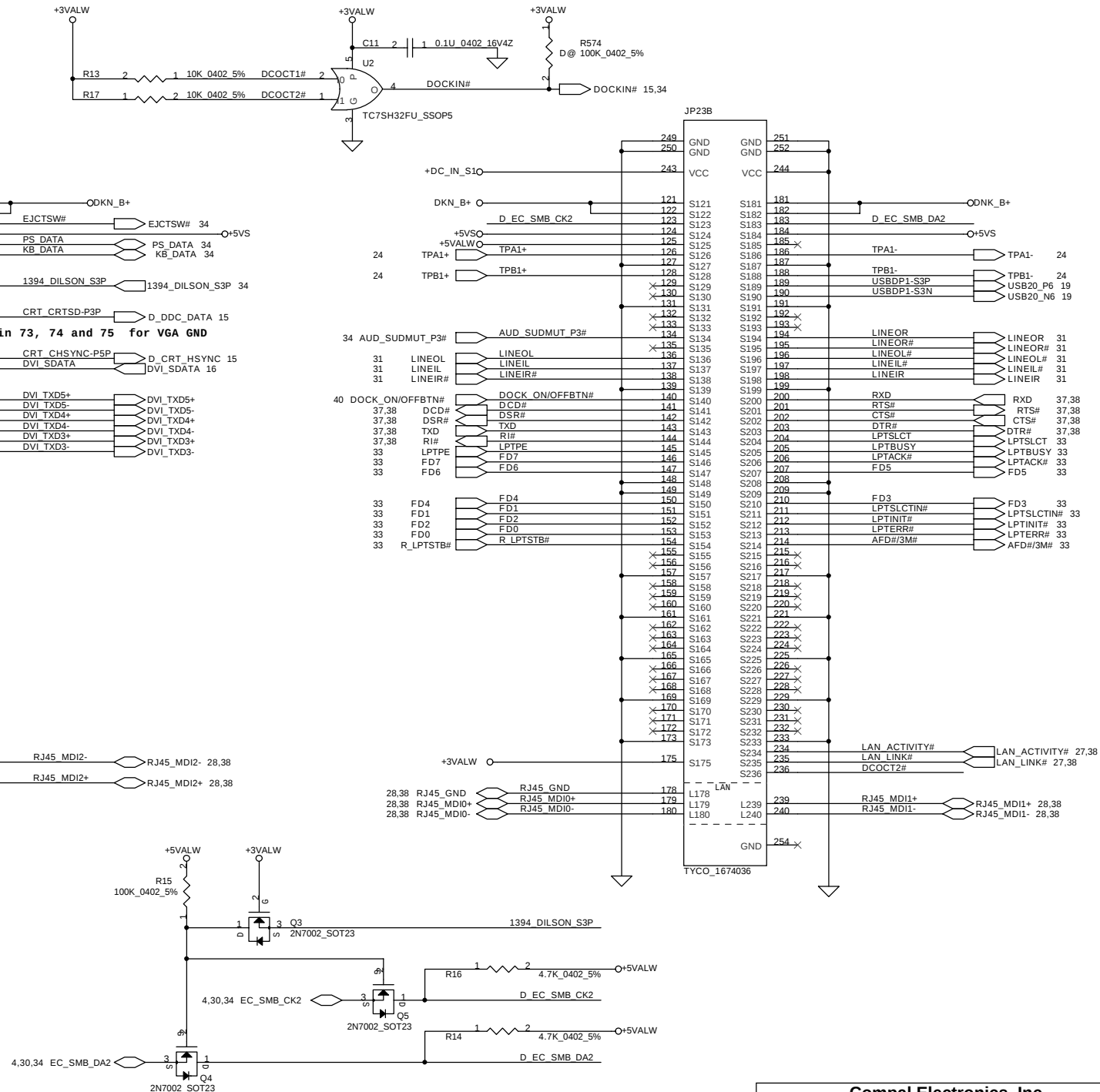
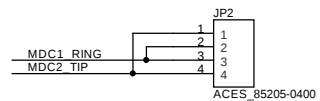
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Docking Conn.



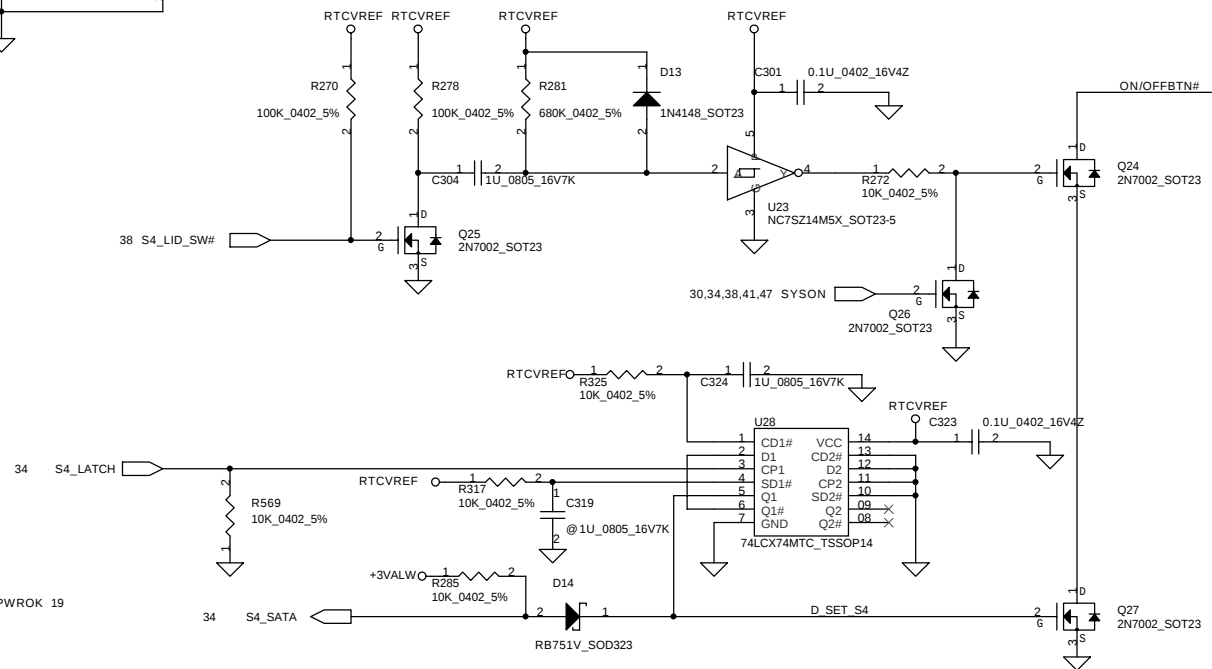
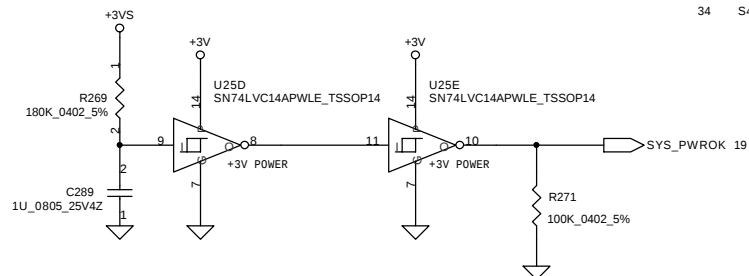
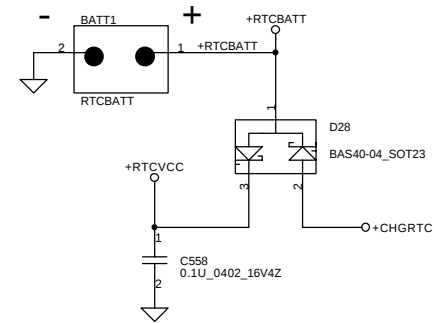
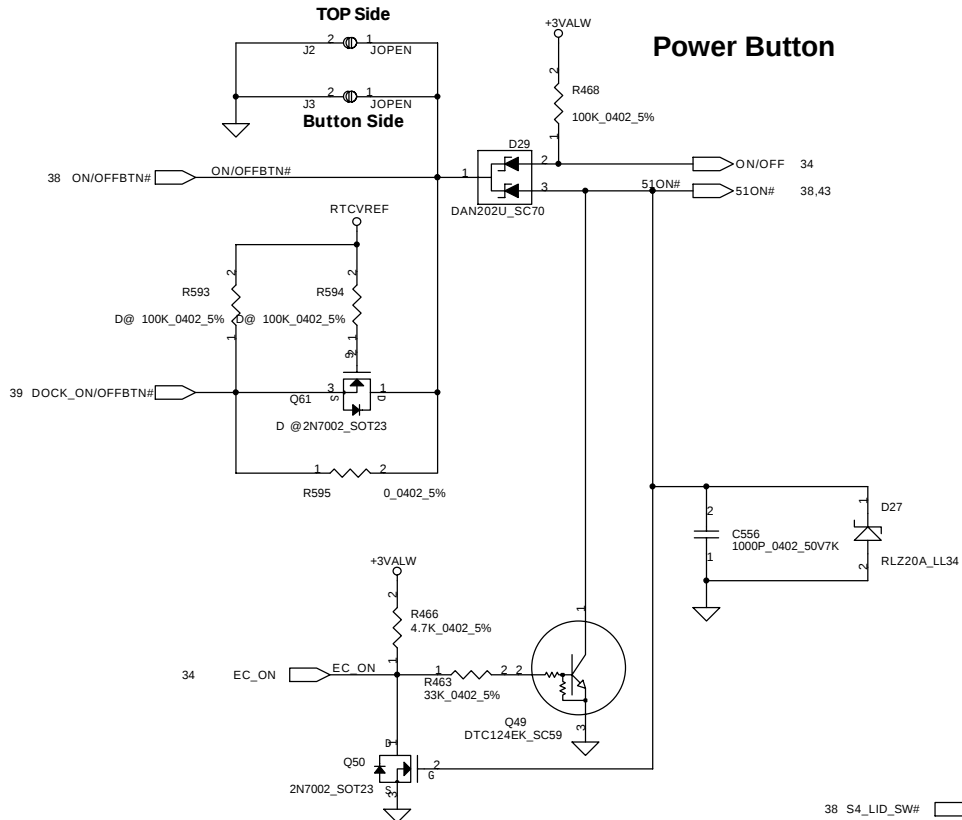
MDC to Docking Conn.



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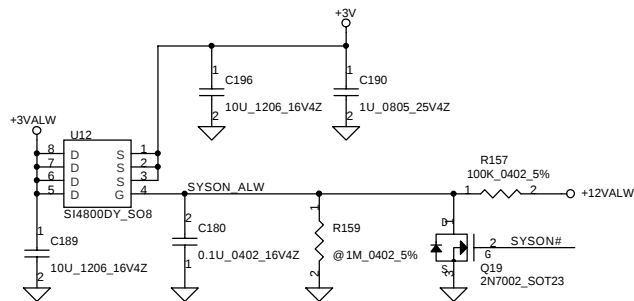
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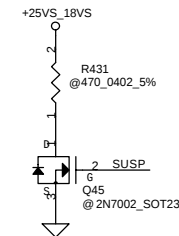
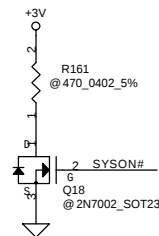
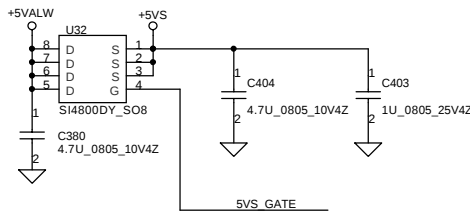


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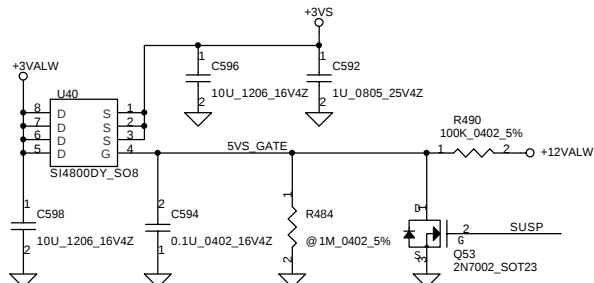
+3VALW TO +3V



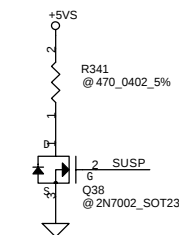
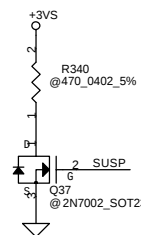
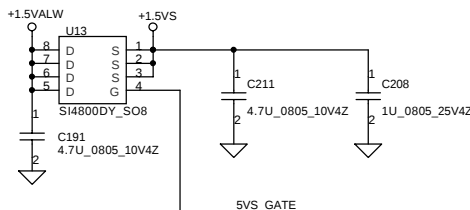
+5VALW TO +5VS



+3VALW TO +3VS

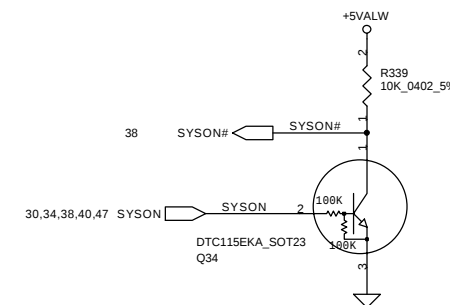
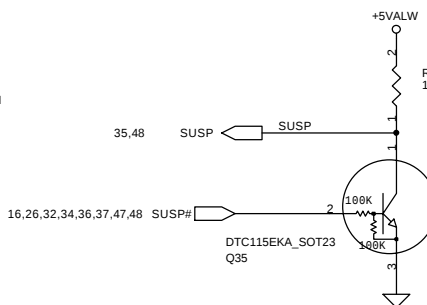
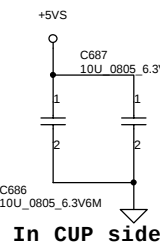
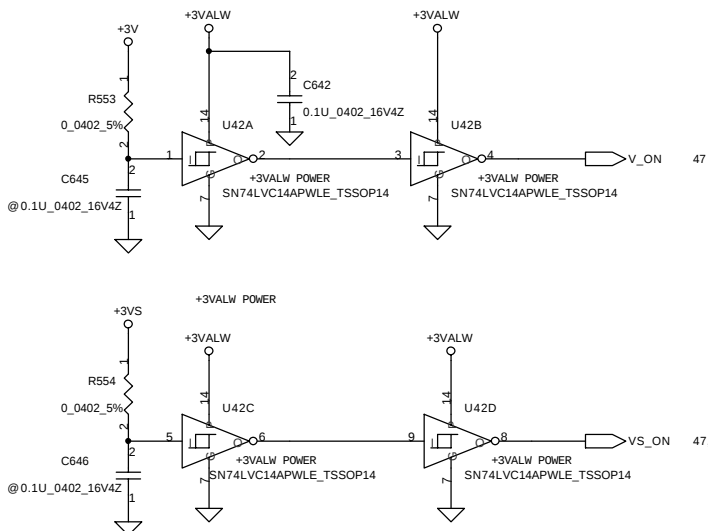
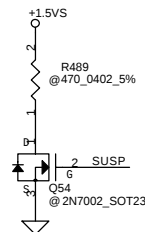
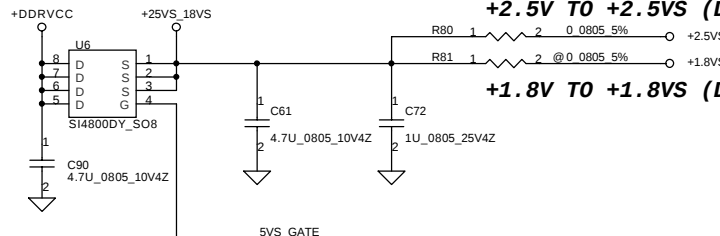


+1.5VALW TO +1.5VS



+2.5V TO +2.5VS (DDR1)

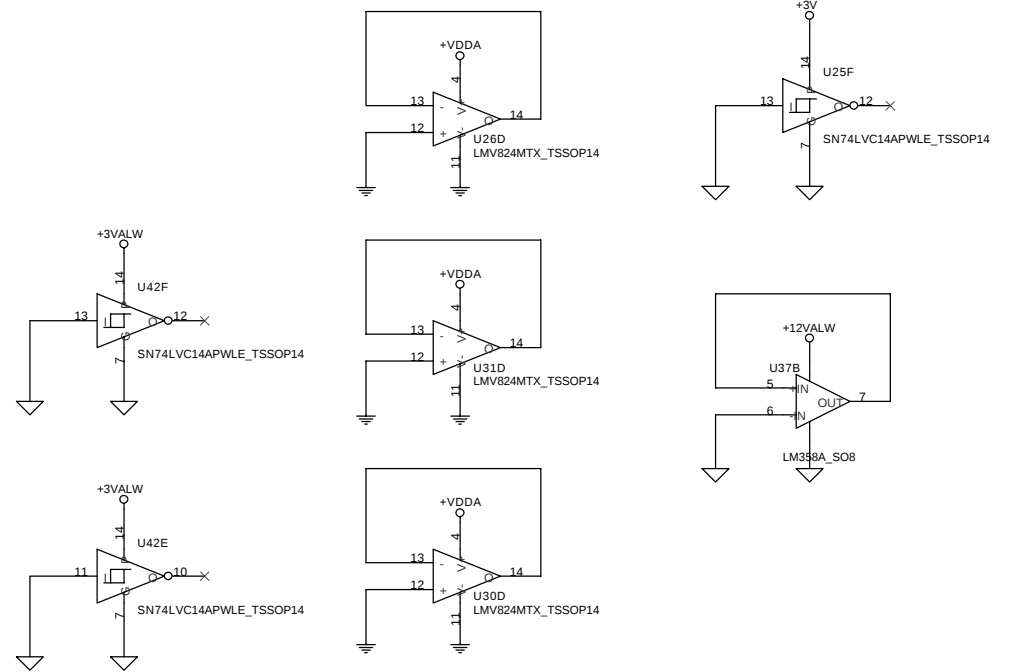
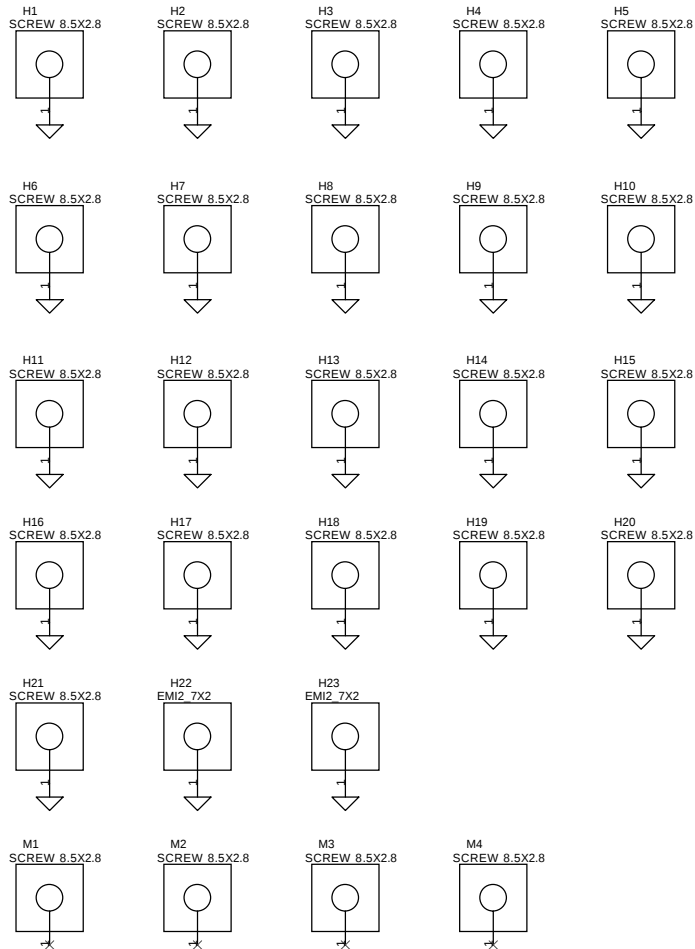
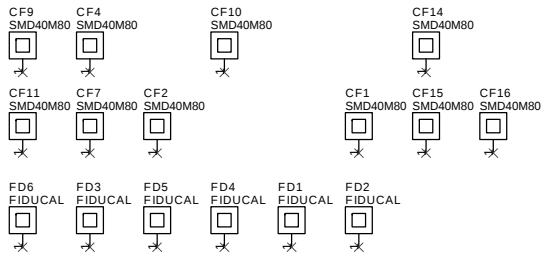
+1.8V TO +1.8VS (DDR2)



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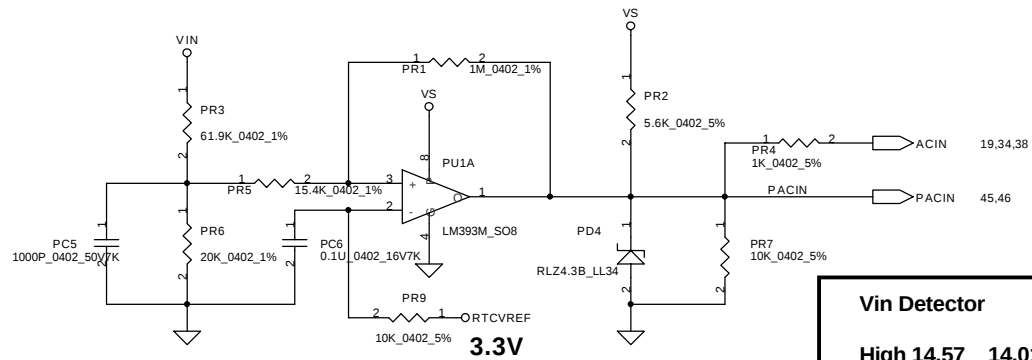
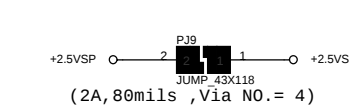
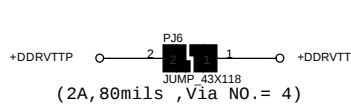
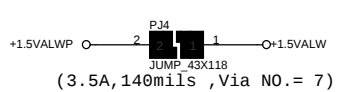
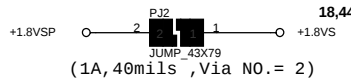
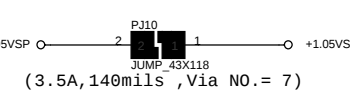
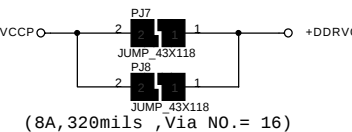
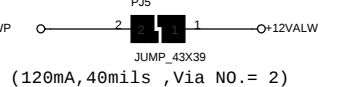
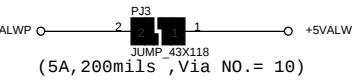
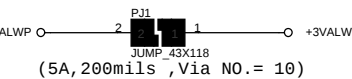
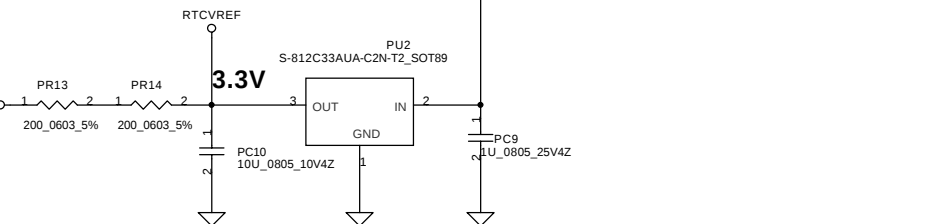
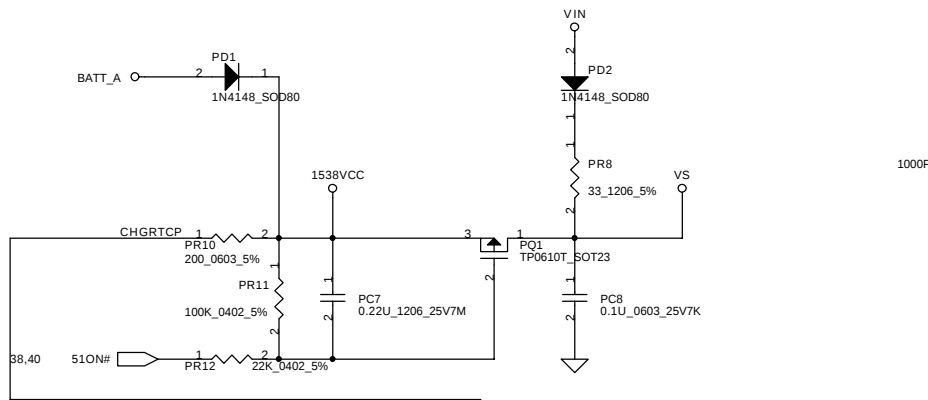
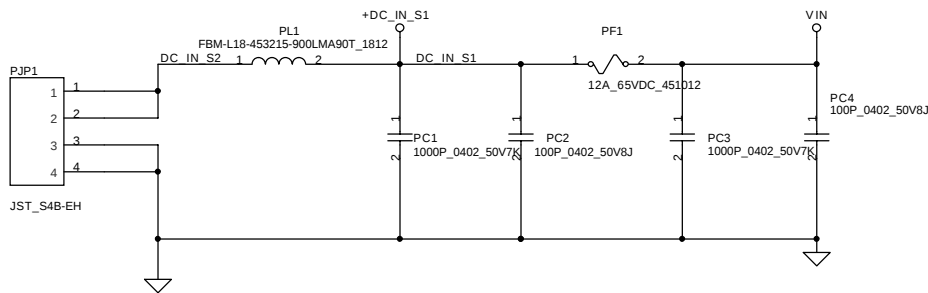
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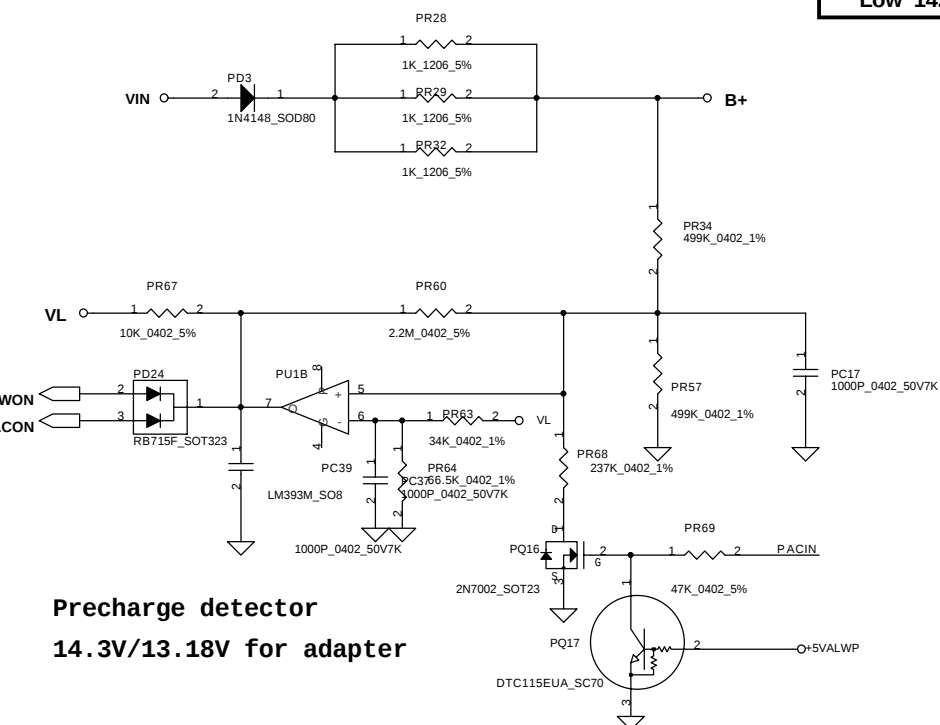
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Vin Detector

High 14.57 14.01 13.46
Low 14.06 13.51 12.98



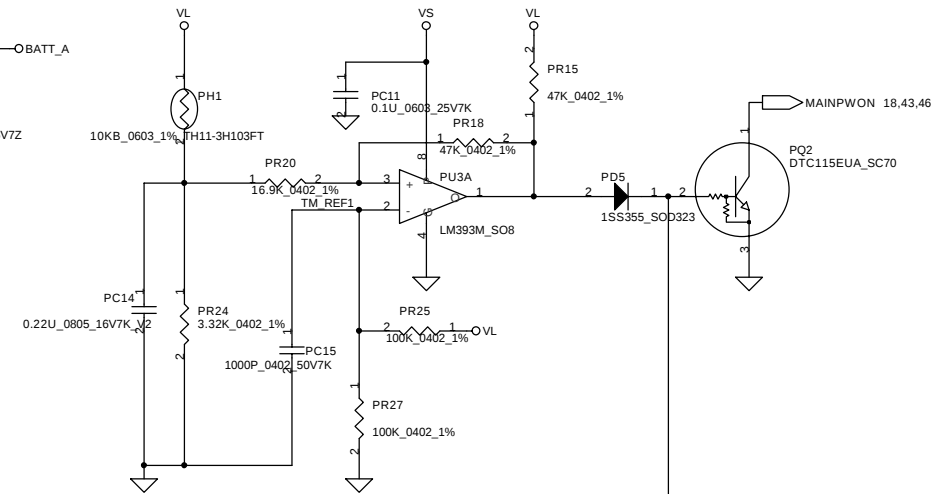
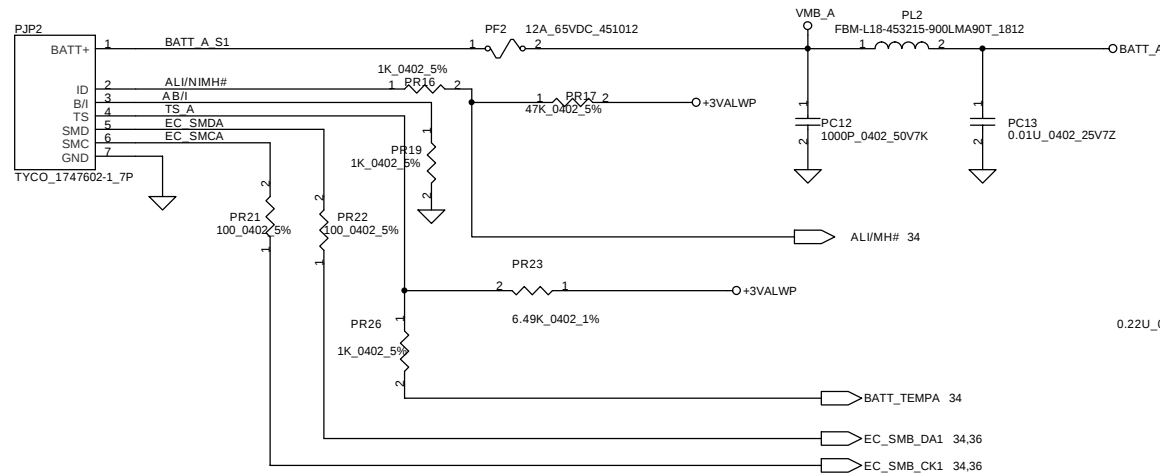
Precharge detector

14.3V/13.18V for adapter

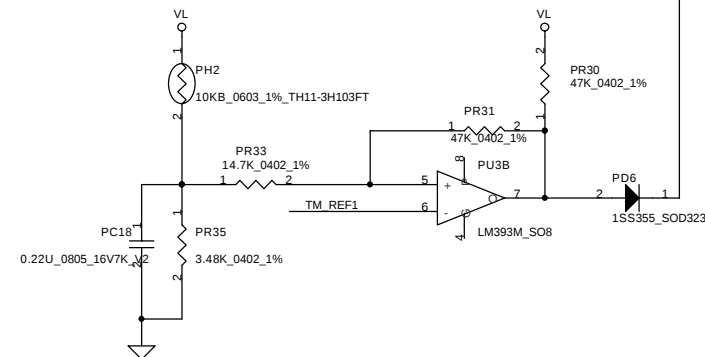
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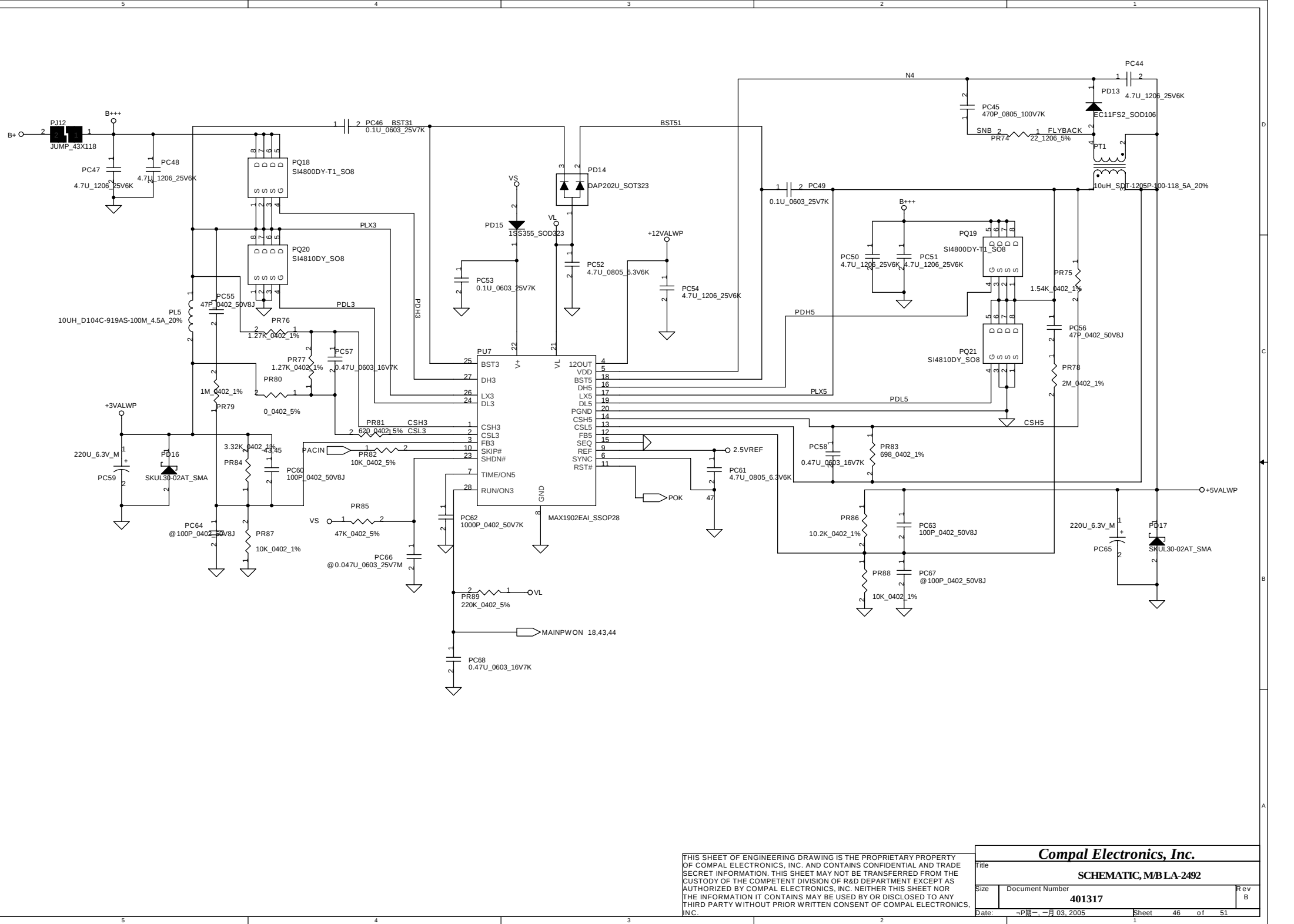
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PH1 under CPU botten side :
 CPU thermal protection at 84 degree C
 Recovery at 45 degree C



PH2 near main Battery CONN :
 BAT. thermal protection at 79 degree C
 Recovery at 45 degree C

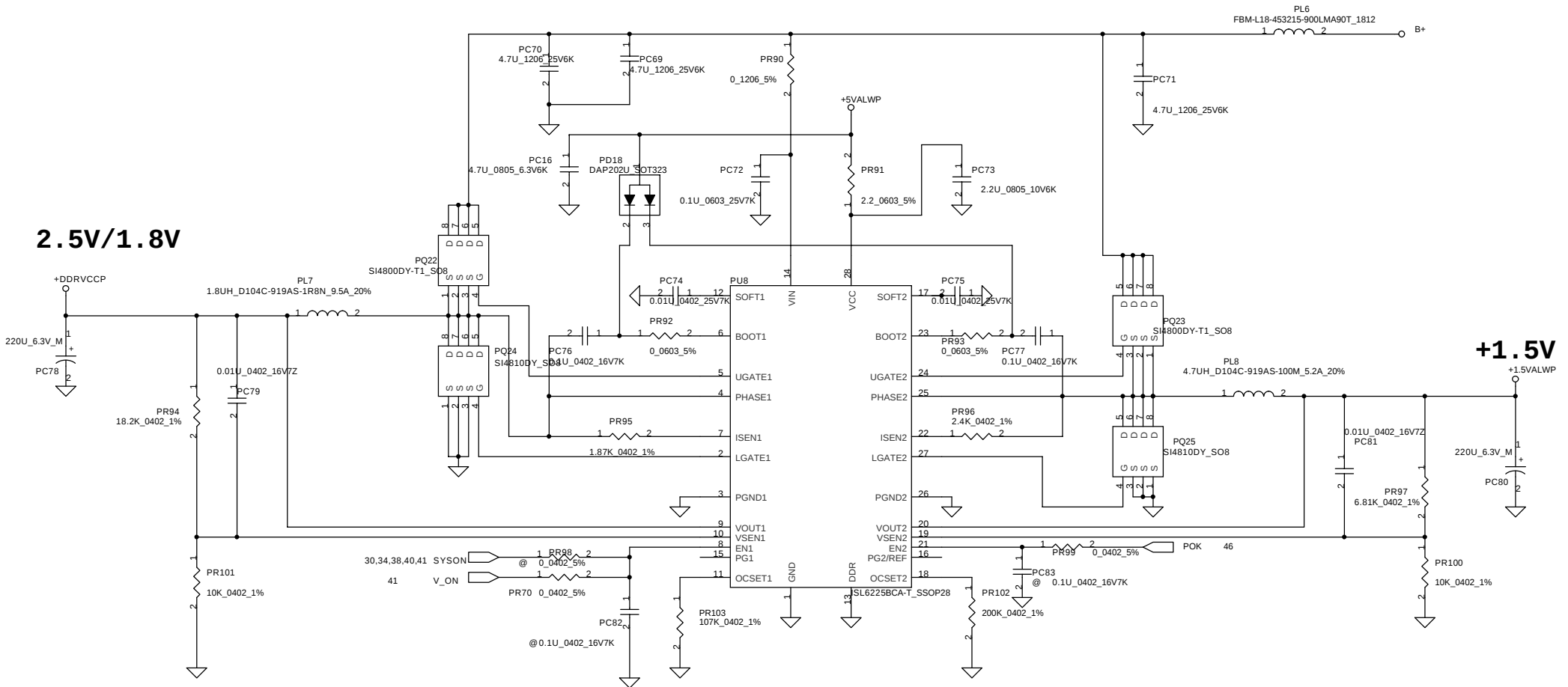




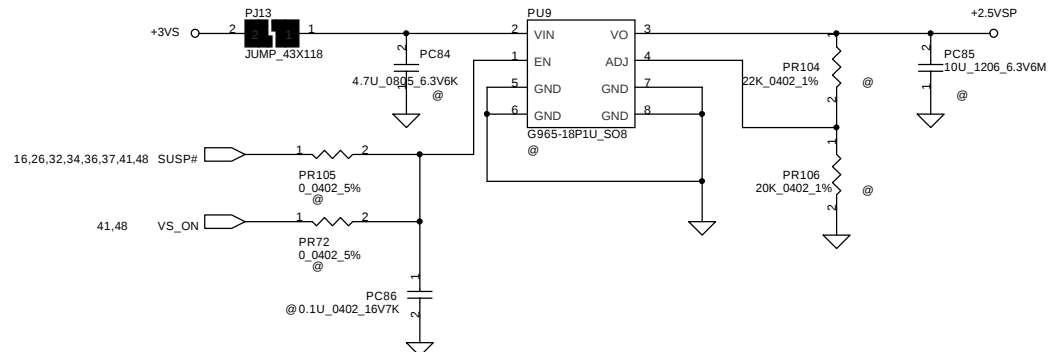
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2.5V/1.8V

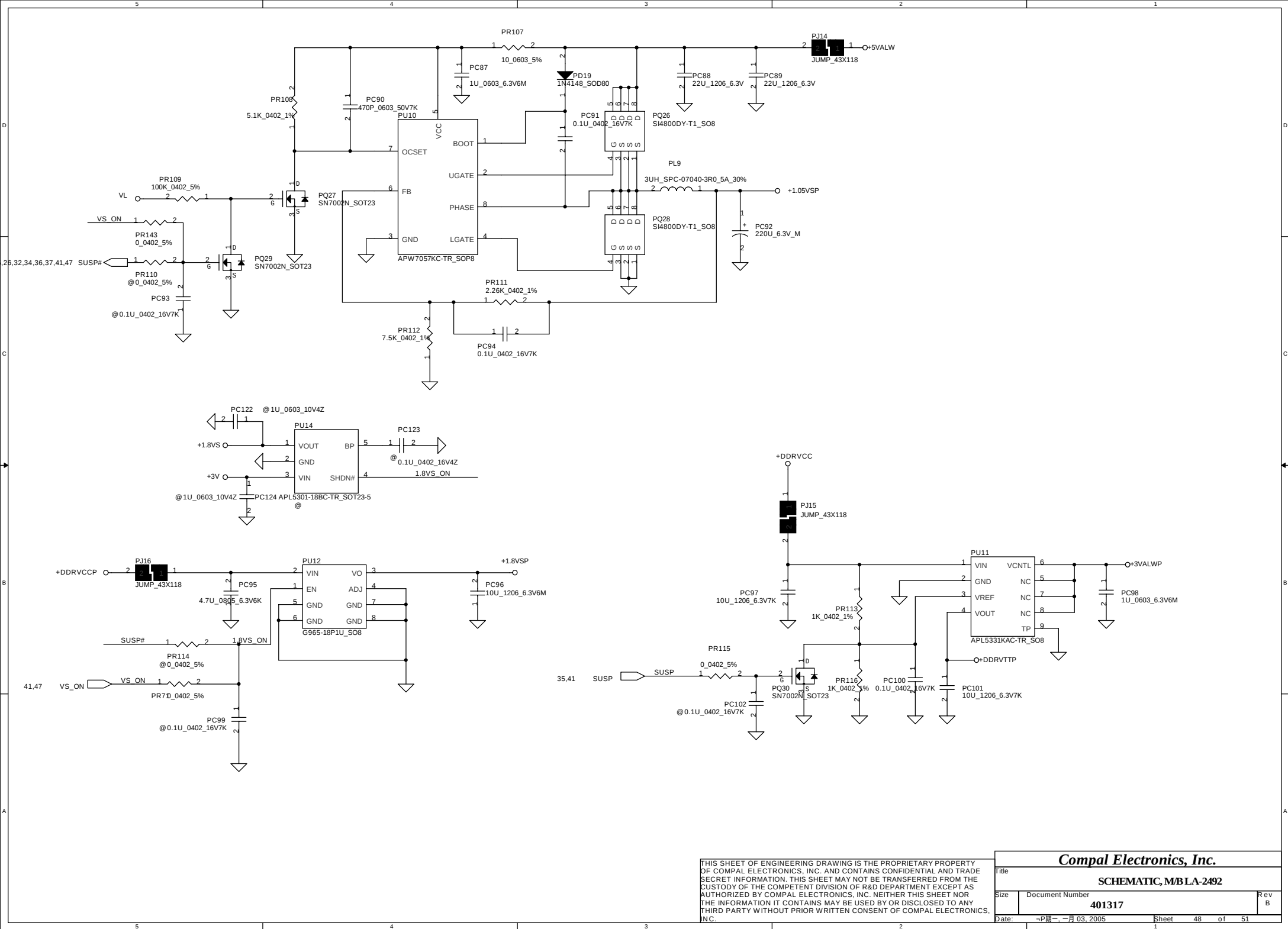


	PR94	UNPOP
DDRI	18.2K_0402_1% (2.5V)	PU9, PC84, PR105, PR104, PR106, PC85
DDRII	10K_0402_1% (1.8V)	PU12, PC95, PR114, PC96



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EAT10 PIR List

***** Rev:0.2 PIR List 2004/10/26 Writer by Sam Tsai *****

P04:Add @ in R28	Intel Recommend
P06:Add @ in C441, C427 D12,D9 C460 Change Value from 220U to 330U	Power Team testing OK
P12:+3VS change from JP25.196 to JP25.194	Intel Recommend
P15:New add R570, R571 & R572 New add L33 Del D2 & D25	RGB without Docking EMI EMI
P16:Change U44 from 7404 to 74125	LCDVDD Soft-Start
P18:New add R573 R439 Change Value from 180K to 20K C271 Change Value from 0.1U to 1U	Intel Recommend Intel Recommend Intel Recommend
P20:R214 Change Value from 1K to 10ohm	Intel Recommend
P22:New add @R , @R& Q	SwDJ testing
P24:New add R586 New add @R581	TI Recommend
P25:New add R582, R583, @R584, R585, R588, R589 & @C685	TI Recommend
P27:R73 Change Value from 4.99K to 4.7K	Marvwl1 Recommend
P31:R361 & R371 Change Value from 47K to 22K	Design Change
P33:New add R543, R544 P32:Modify C399 Net to SPKL+	Design Change
P33:New add L34 add@ in C647 ~ C662	EMI
P34:New add R587	Design Change
P35:New add JP32 & C671 New add C682 ~ C684 JP13 reverse	Design Change EMI Design Change
P36:New add	SwDJ testing
P37:Sw1 change to 1BS003-1211L_3P	Design Change
P38:Q52.3 change from +3VALW to +3V Q57.3 change from +5VALW to +5VS Lid Switch IC Power change from JP16.26 +3VALW to JP16.27 New add C672 ~ C681	Design Change RTCVREF EMI
P39:New add R574	Design Change
P40:Del D11	Design Change

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Version Change List (P. I. R. List) for Power Circuit

[illegible]

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