

SHANGHAI 100

BTK20 LA-1521 Schematics Document

REV 1.0A
PVT2

INTEL Mobile P4 uFCBGA/uFCPGA Northwood Celeron
MCH-M(845MZ) + ICH3-M + M6-C(16MB VRAM)

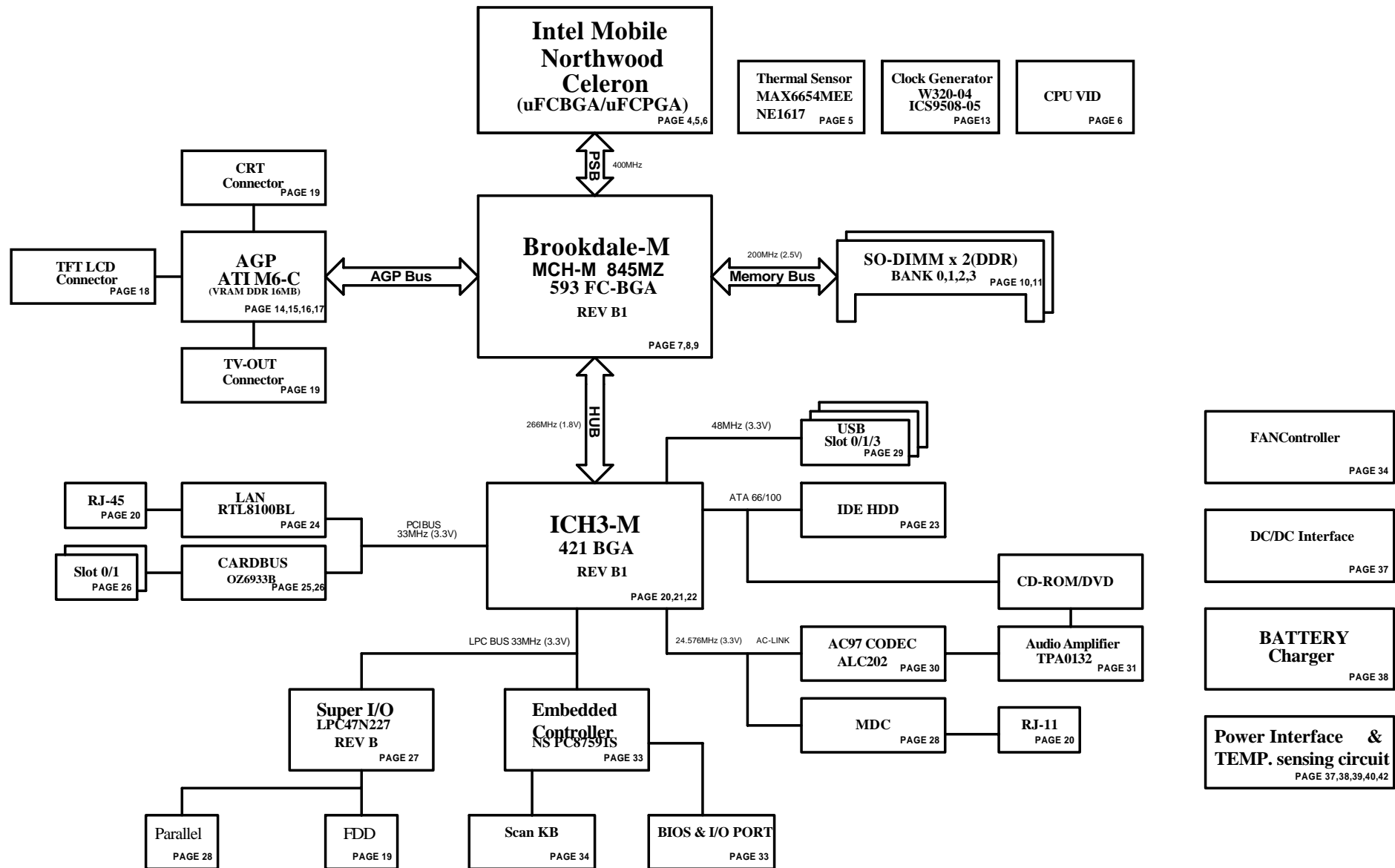
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BTK20 LA-1521 BLOCK DIAGRAM



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
1.2VP	1.2VP switched power rail for CPU VID	ON	OFF	OFF
+1.25VS	1.25VS power rail	ON	OFF	OFF
+1.5VS	AGP 4X	ON	OFF	OFF
+1.8VALW	1.8V always power rail	ON	ON	ON*
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5V	2.5V power rail	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*
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched power rail	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON*
+12V	12V power rail	ON	ON	OFF
+12VS	12V switched power rail	ON	OFF	OFF
RTCVCC	RTC power	ON	ON	ON
+SDREF	+SDREF power	ON	ON	OFF

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
LAN	AD17	3	PIRQB

EC SM Bus1 address

EC SM Bus2 address

Device	Address	Device	Address
Smart Battery	0001 011Xb	MAX6654MEE	1001 110Xb
EEPROM(24C16/02)	1010 000Xb	Smart Battery	0001 011Xb
(24C04)	1011 000Xb	DOT Board	XXXX XXXXb

ICH3-M SM Bus address

Device	Address
Clock Generator W320-D4 / ICS9508-05	1101 0000

DDR SODIMM SM Bus address

DDR SLOT	SA2	SA1	SA0
DDR SODIMM0 (REVERSE)	0	0	0
DDR SODIMM1 (NORMAL)	0	0	1

PIR

REV 0.1 (EVT/DVT PHASE)

Date	Page	Description
07/06 2002	07	ADD R441,R442 AND C622 FOR "+AGP_REF"
07/06 2002	14	Change R137 Pin2 power name from "+AGP_NBREF" to "+AGP_VGAREF" for can't boot issue.
07/06 2002	16	Change R181 Pin2 power plane from "+2.5V" to "+2.5V_VGA" for leakage.
07/06 2002	17	DEL R43,R255,R40 and J1.
07/06 2002	24	ADD Q47 FOR LAN POWER "+2.5VLAN". ADD Q48 and Q49 FOR LAN Layout Rule.
07/06 2002	27	JP8 Pin25 Create "FDD_READY#" for W/O FDD (GI BTO).
07/06 2002	30	Change R122 to 10K, R121 to 2.4K for MDC Noise. Change R340 to 100K_1%, R347 to 33K_1% for Back-Grand Noise. Change R159 to 0, C220 to 0 for Vendor(Realtek) Recommend.
07/06 2002	32	ADD R443, JP22 FOR EC JTAG Connector.
07/06 2002	34	Change JP5 form 20pins to 26pins type.
07/06 2002	36	DEL R352,R277,R243,R287,R301 and R355.
07/06 2002	37	Change PR15 pin2 power name form "+2.5VREF" to "2.5REF"
07/12 2002	05	ADD Q50,Q51,Q52,R445 and R446 for "H_THERMTRIP#" Function.
07/12 2002	39	ADD PF3 for "NA" of Battery type.
07/12 2002	33	Update EC BOARD ID: 001 for PVT1.(Remove R331, Add R327)

REV 0.2 (PVT1 PHASE)

Date	Page	Description
07/26 2002	05	Improved Q50,Q51,Q52,R445 and R446 for "H_THERMTRIP#" Function. Change R446 pin1 power from "+5VS" to "+CPU_CORE" Change R445 pin1 power from "+5VS" to "+5V"
07/26 2002	24	Update BOM by DEL Q47, ADD R106 for LAN unstable.
07/26 2002	33	Update EC BOARD ID: 011 for PVT2.(Remove R325, Add R324)

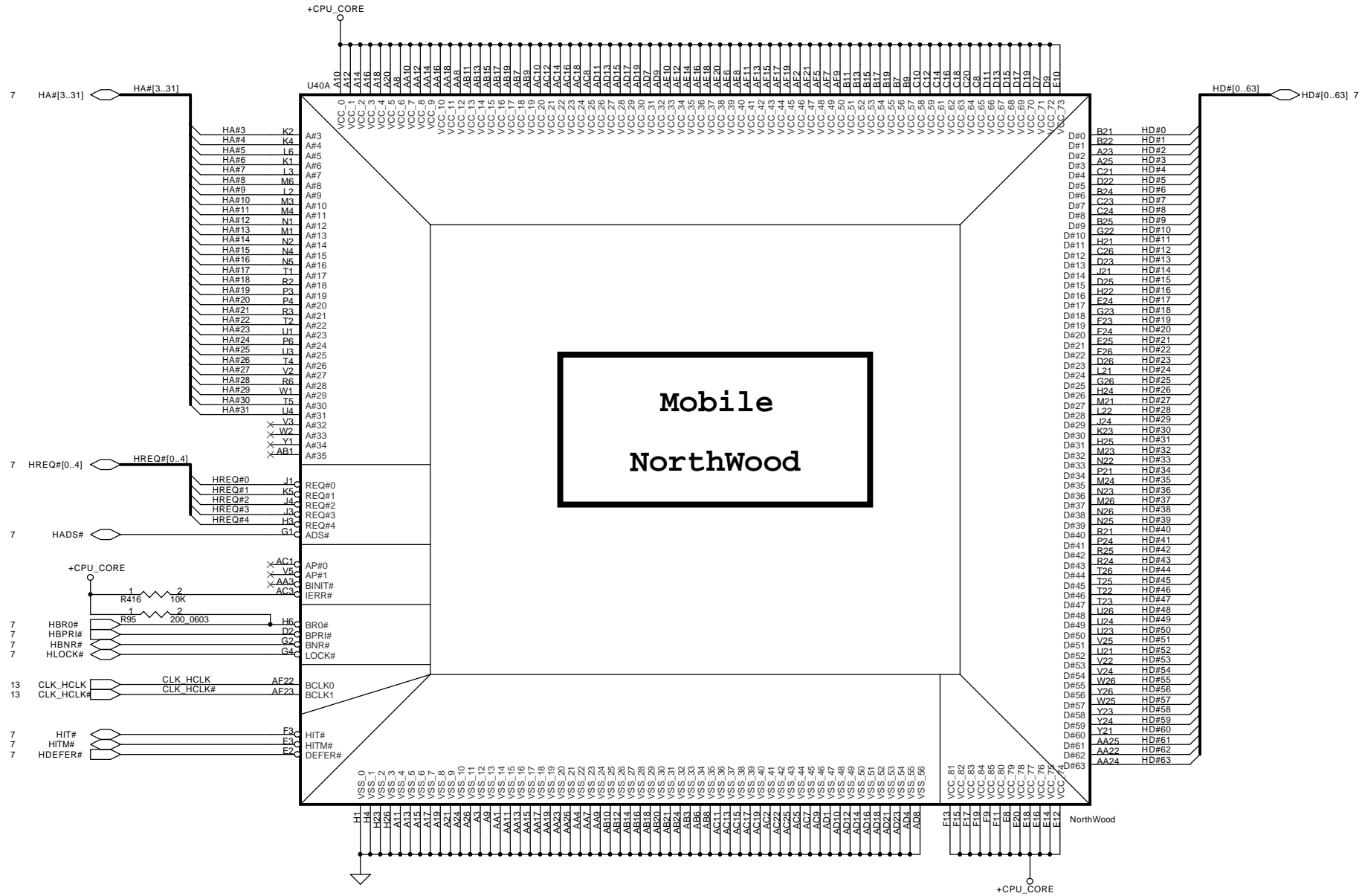
REV 1.0

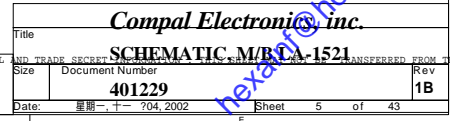
Date	Page	Description
07/30 2002	33	Update EC BOARD ID Description :EC_BID2 <-> EC_BID0.

REV 1.0A (PVT2 PHASE)

Date	Page	Description
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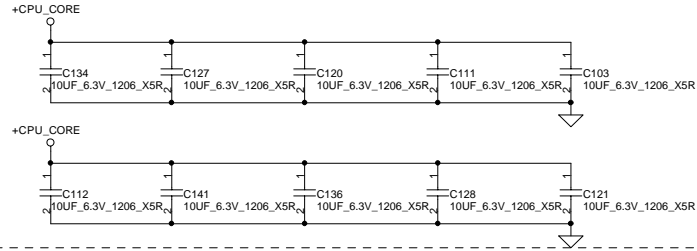




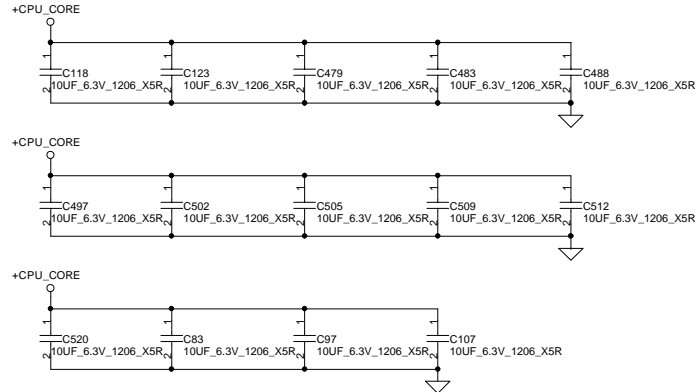
Layout note :

Place close to CPU, Use 2~3 vias per PAD.
Place .22uF caps underneath balls on solder side.
Place 10uF caps on the peripheral near balls.
Use 2~3 vias per PAD.

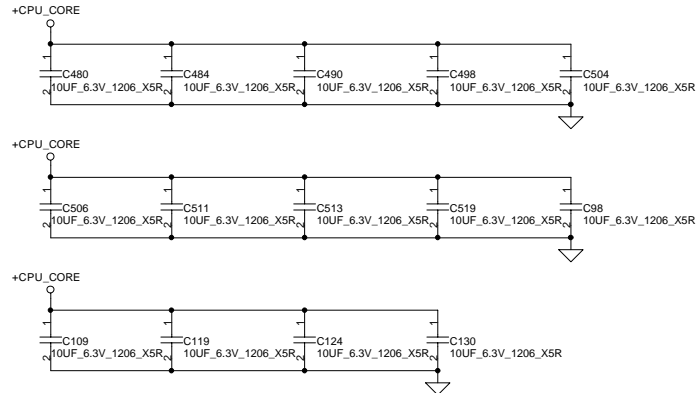
Please place these cap in the socket cavity area



Please place these cap on the socket north side



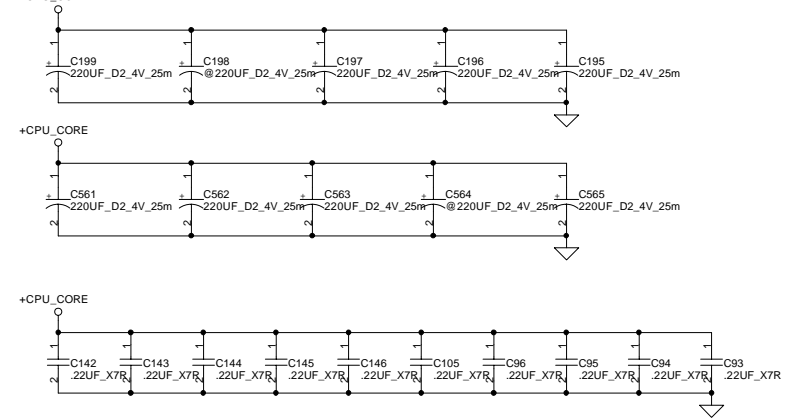
Please place these cap on the socket south side



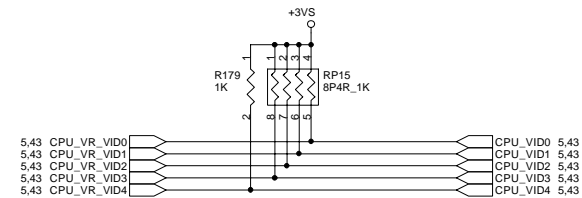
Layout note :

Place close to CPU power and ground pin as possible (<1inch)

Used ESR 25m ohm cap total ESR=2.5m ohm

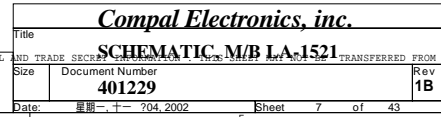


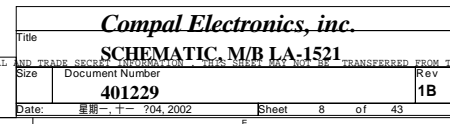
CPU Voltage ID



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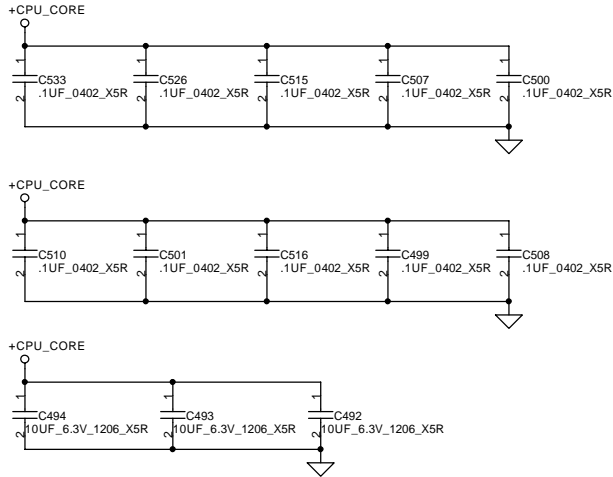
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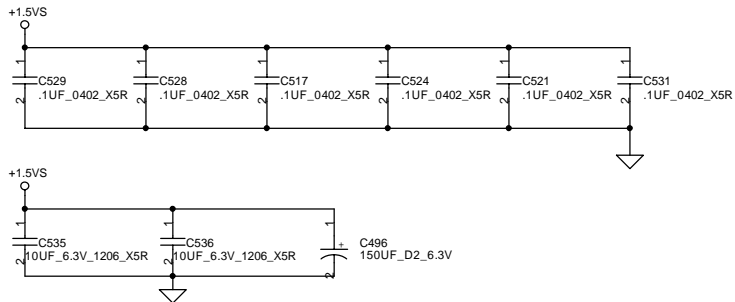
Layout note : Processor system bus

Distribute as close as possible
to MCH Processor Quadrant.(between VTTFSB and VSS pin)



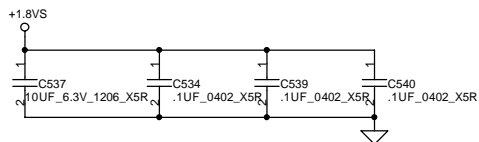
Layout note : AGP/CORE

Distribute as close as possible
to MCH Processor Quadrant.(between VCCAGP/VCCCORE
and VSS pin)



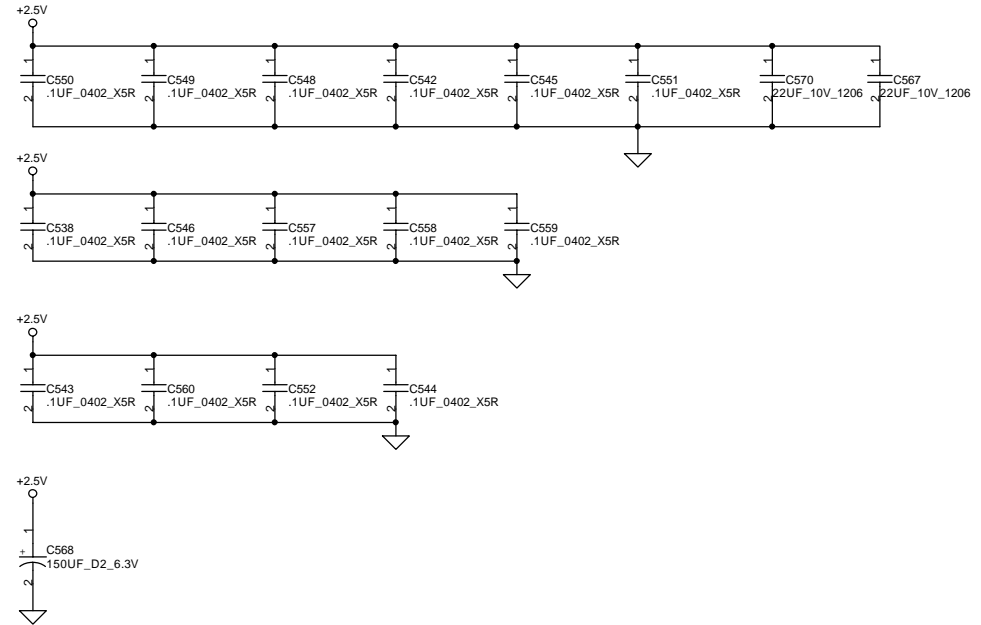
Layout note : Hub-Link

Distribute as close as possible
to MCH Processor Quadrant.(between VCCHL and VSS pin)



Layout note : DDR Memory interface

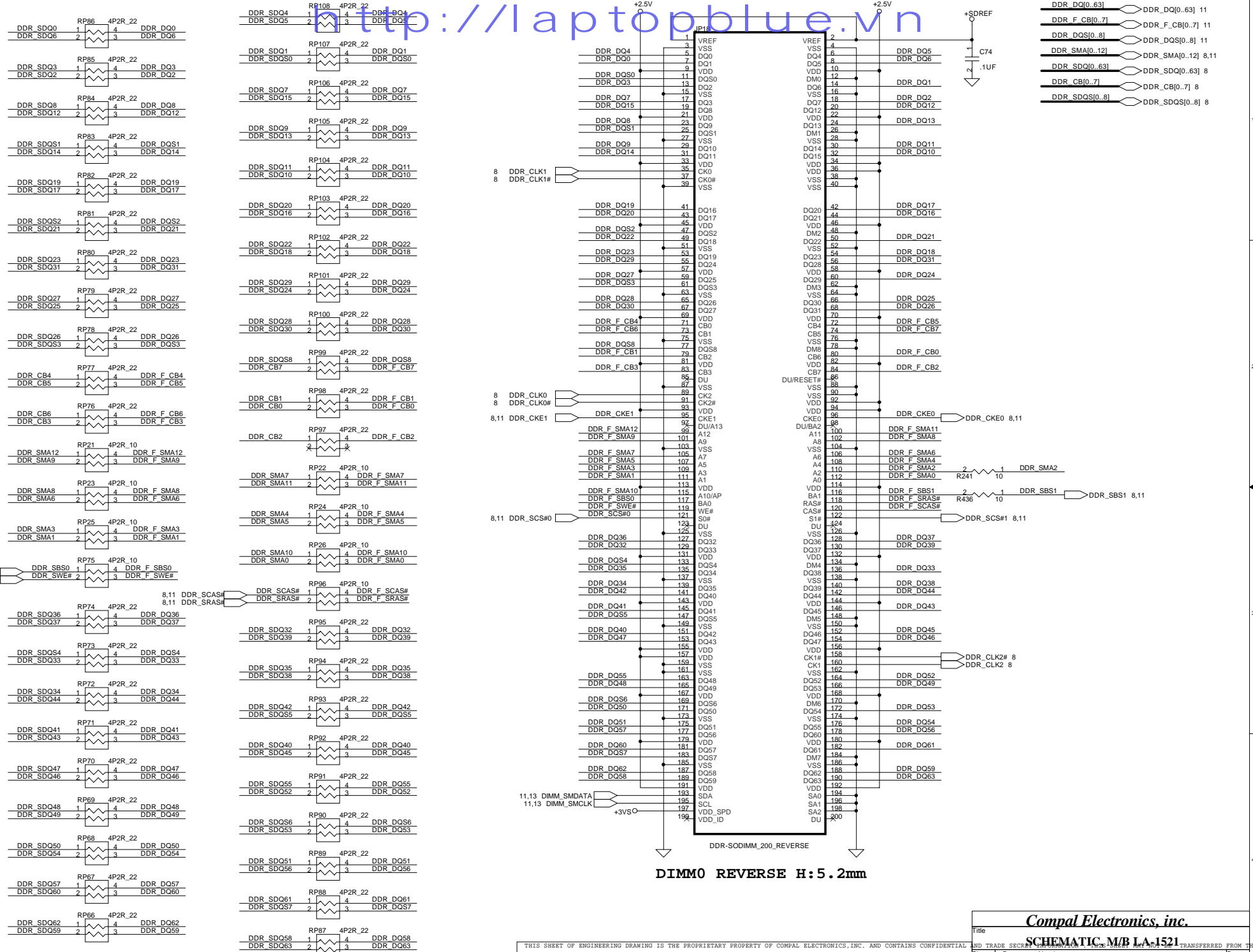
Distribute as close as possible
to MCH Processor Quadrant.(between VCCSM and VSS pin)



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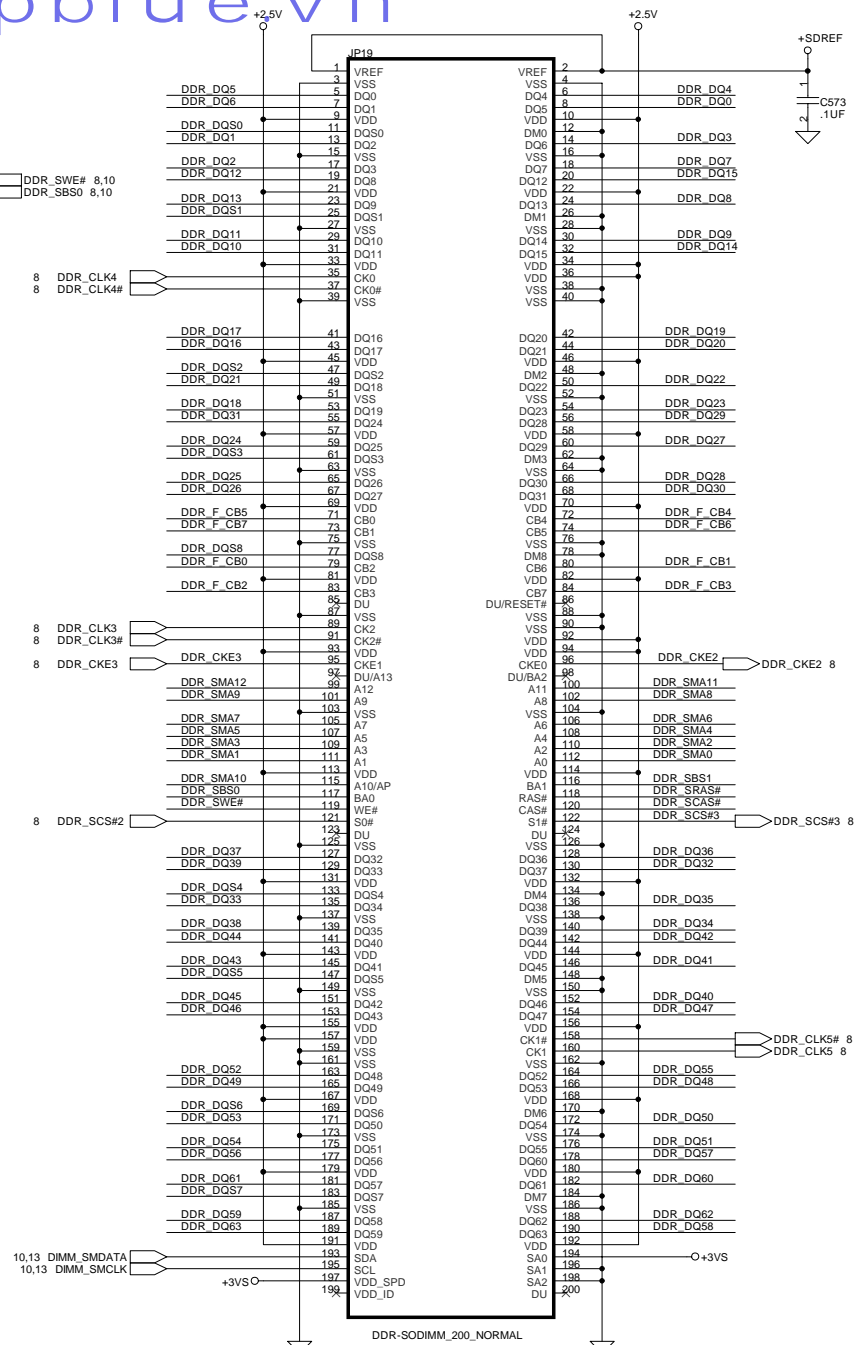
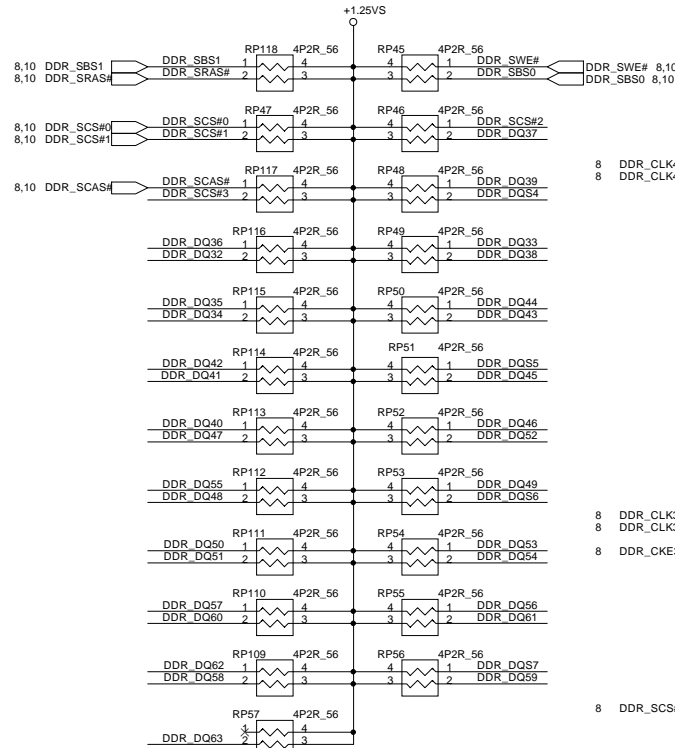
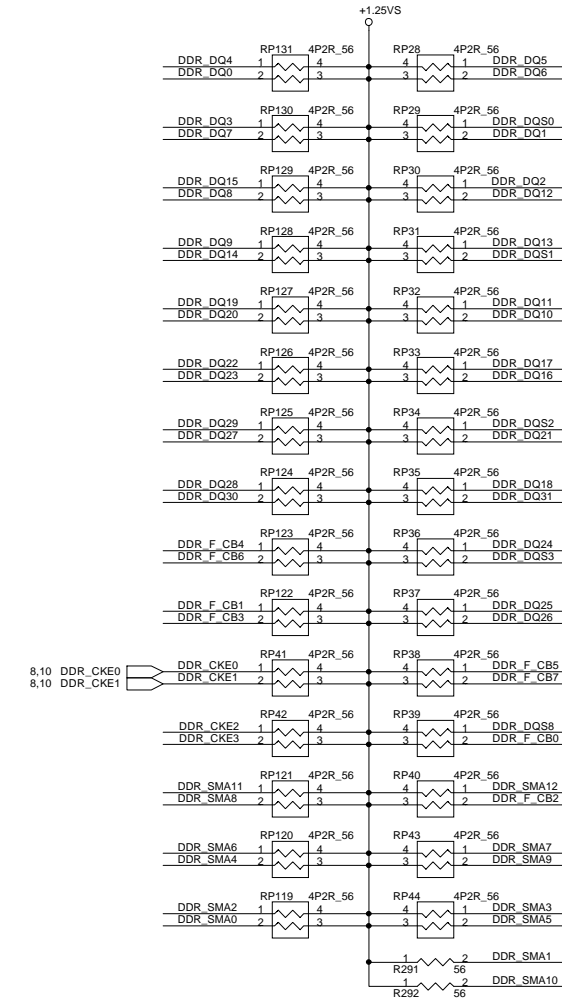
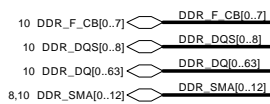


DIMM0 REVERSE H:5.2mm

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DIMM1 NORMAL H:9.2mm

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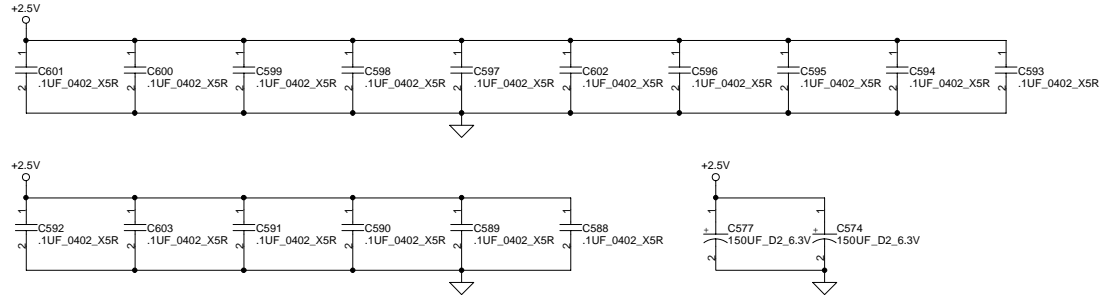
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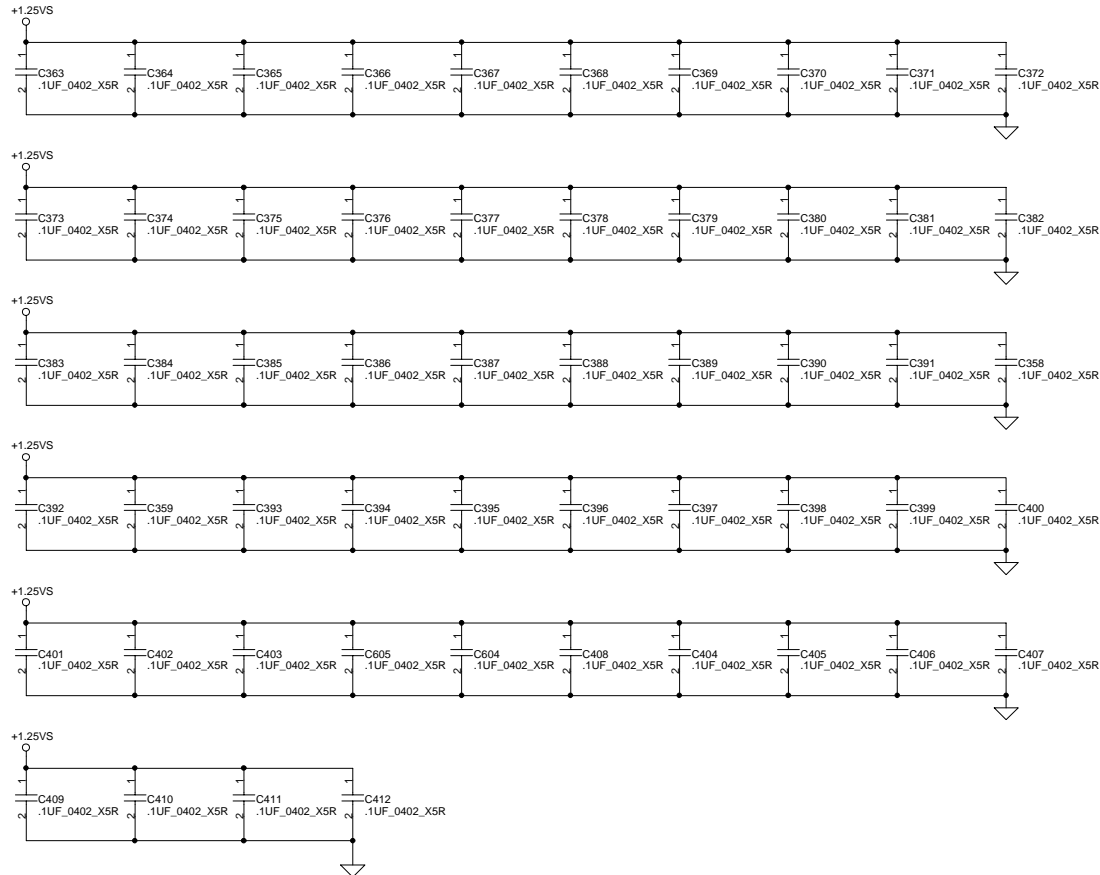
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Layout note :
Distribute as close as possible
to DDR-SODIMM.

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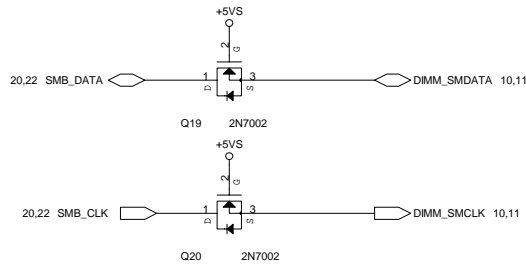
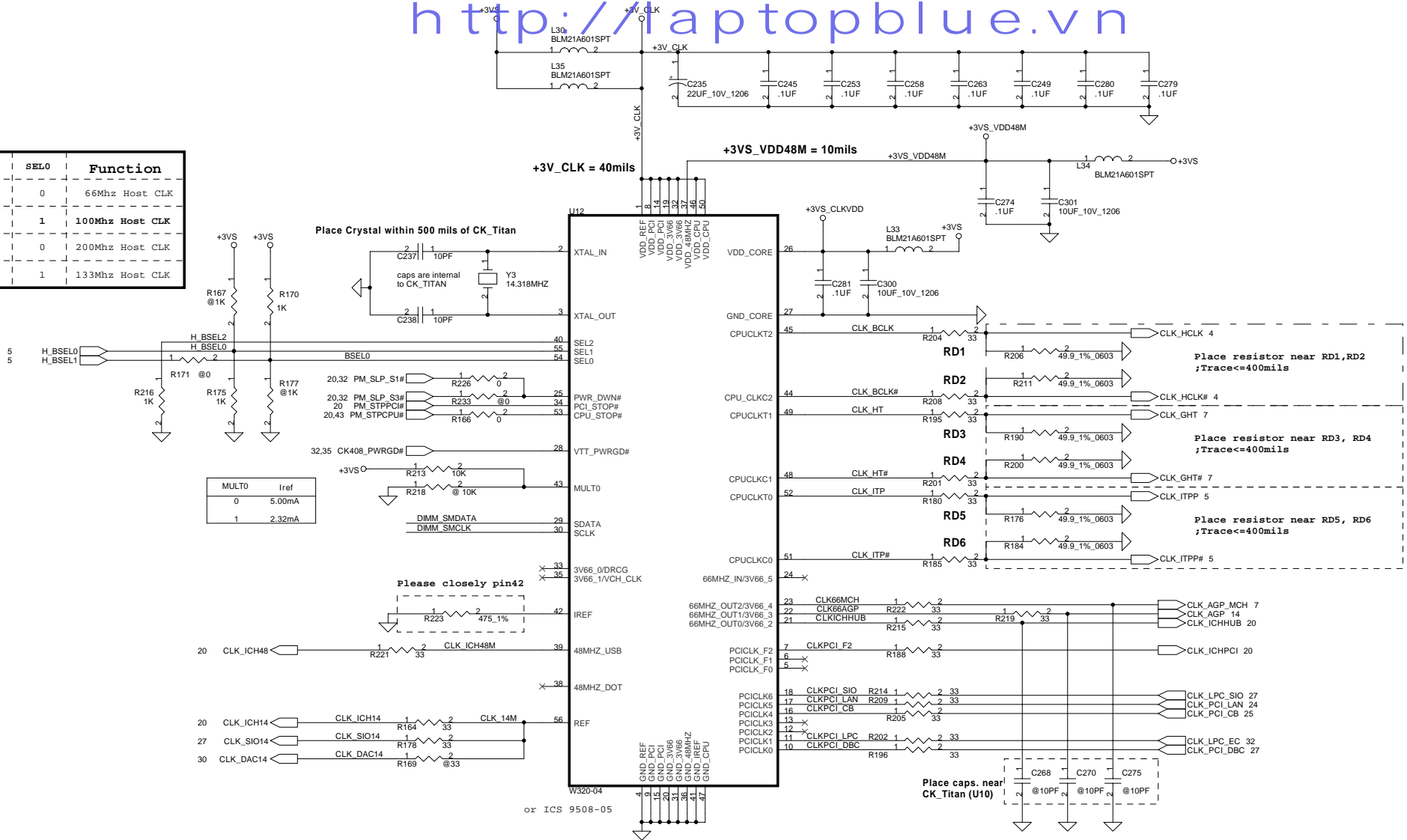
Layout note :
Place one cap close to every 2 pull up resistors termination to
+1.25V

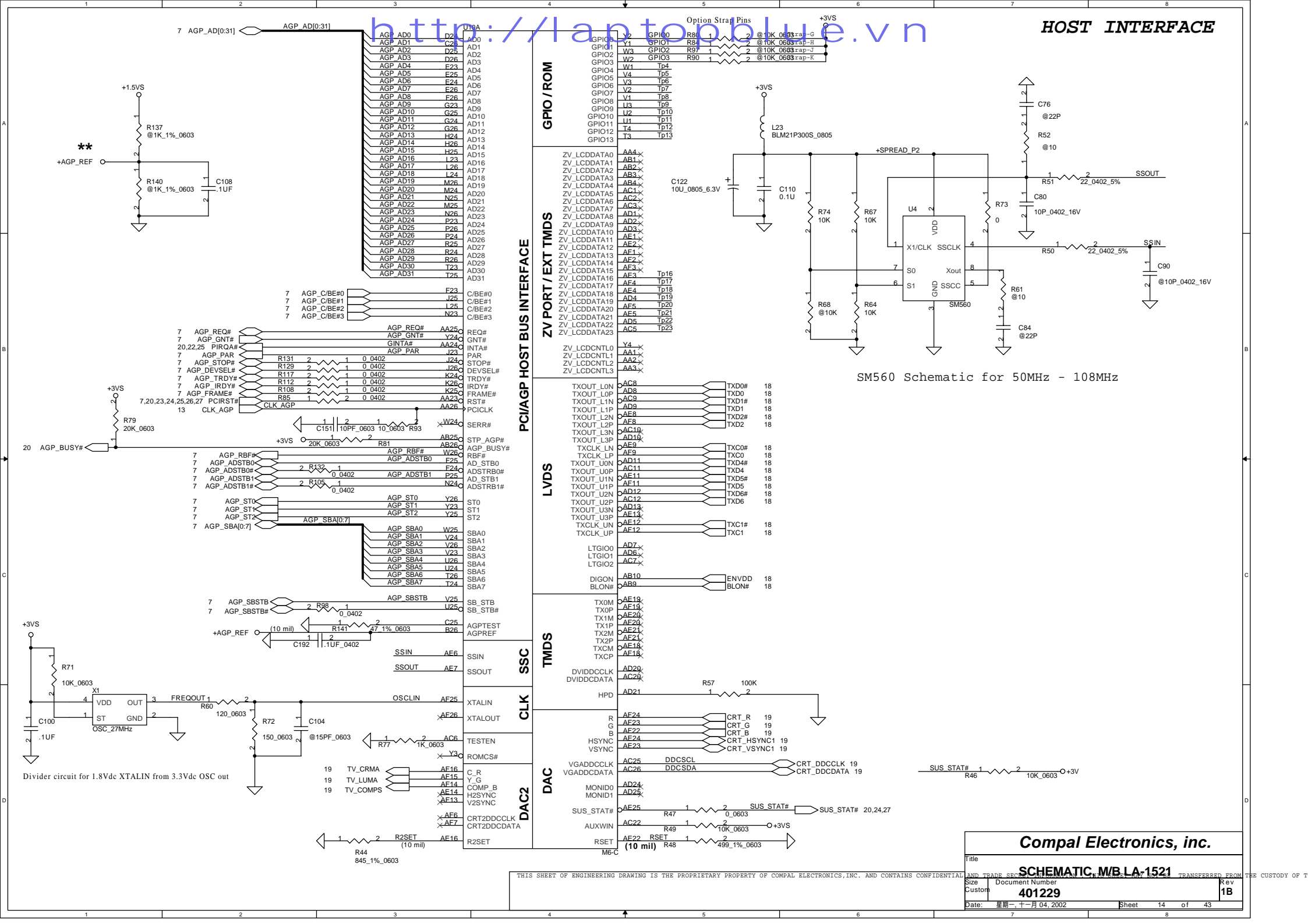


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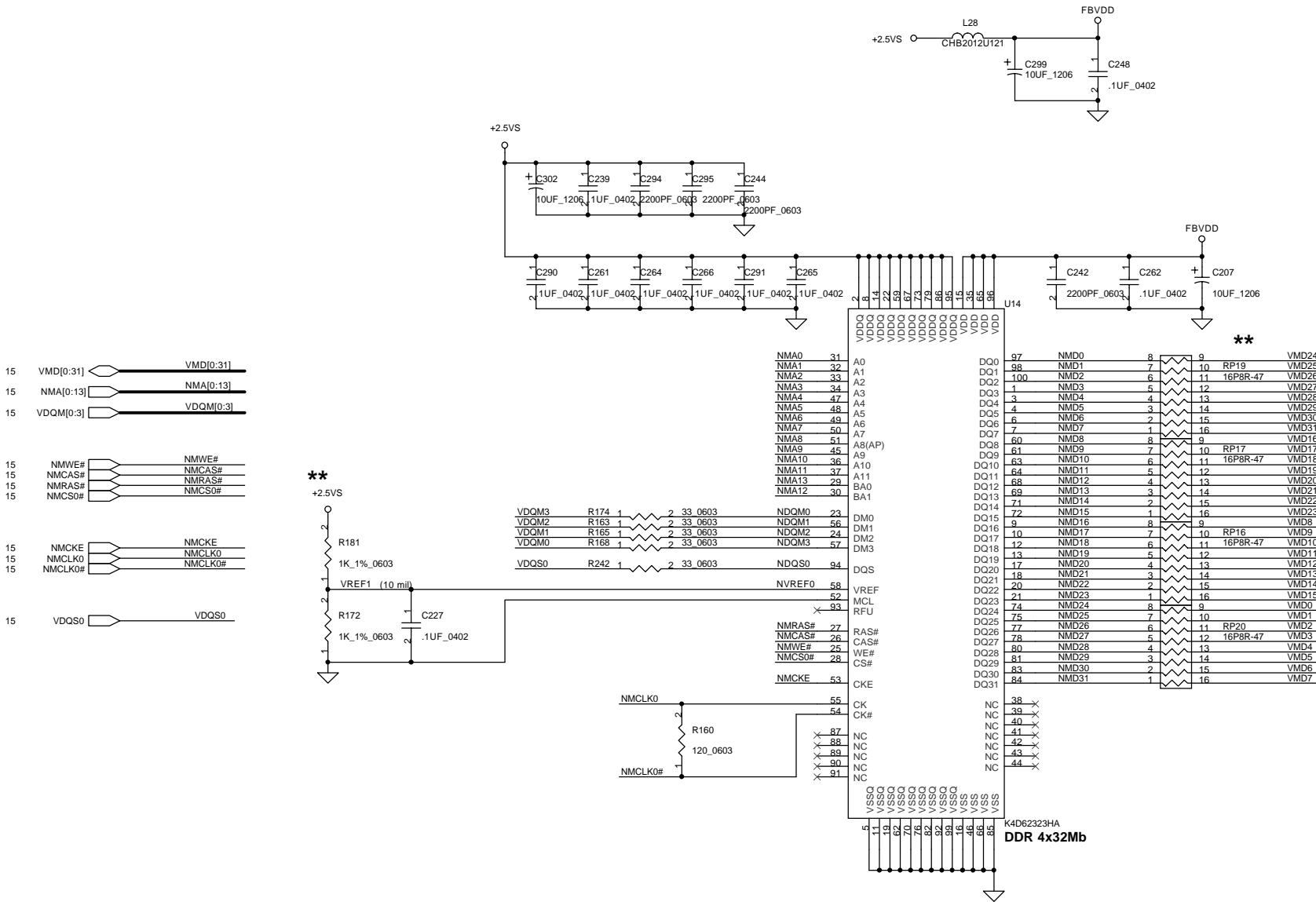
SEL1	SEL0	Function
0	0	66Mhz Host CLK
* 0	1	100Mhz Host CLK
1	0	200Mhz Host CLK
1	1	133Mhz Host CLK







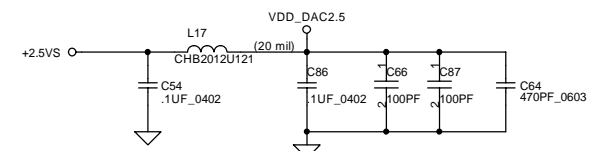
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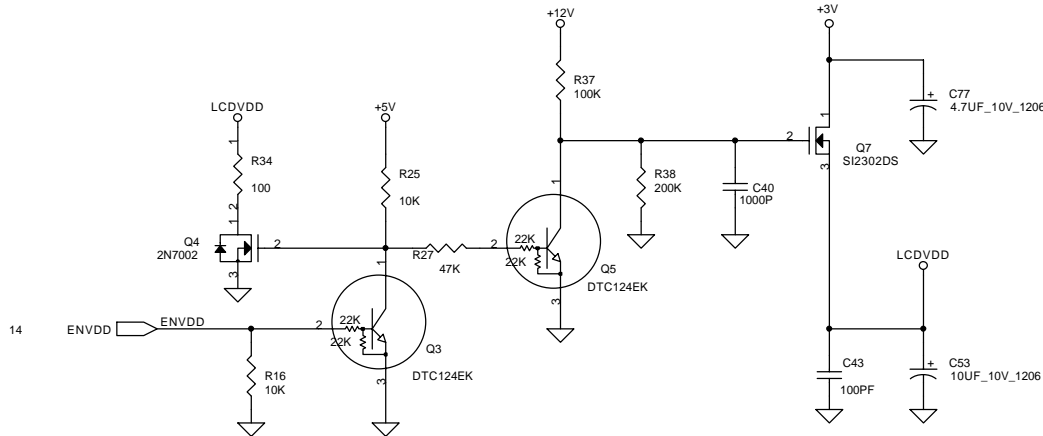
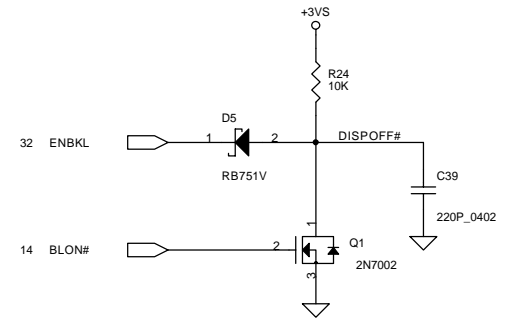
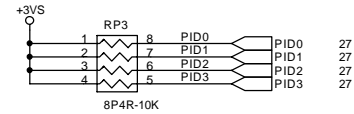
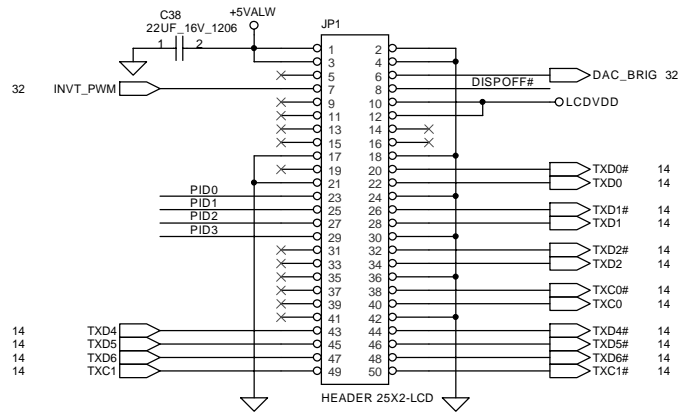
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LVDS Connector

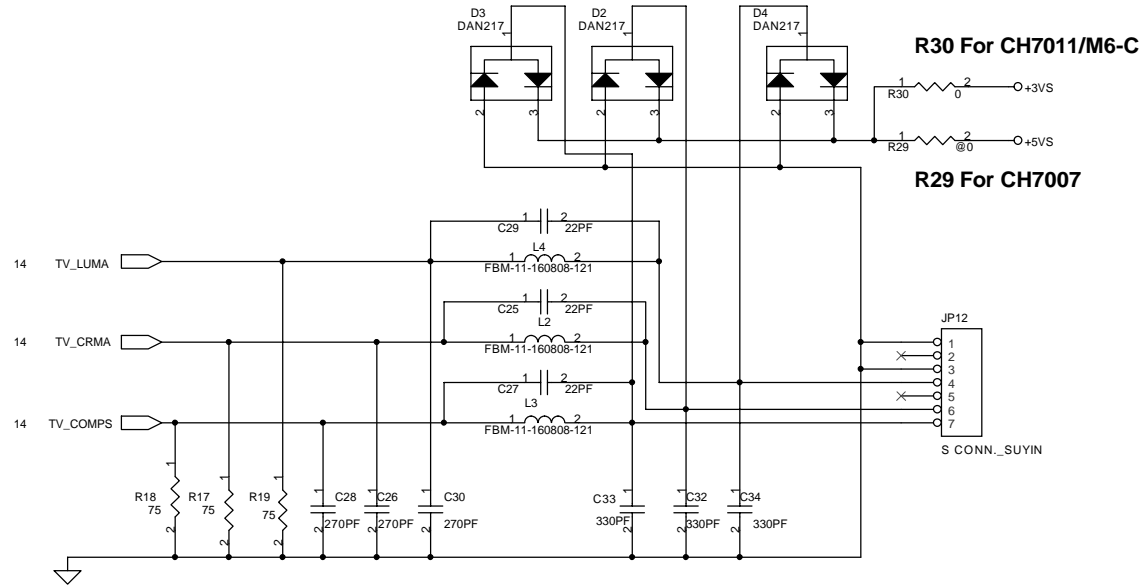
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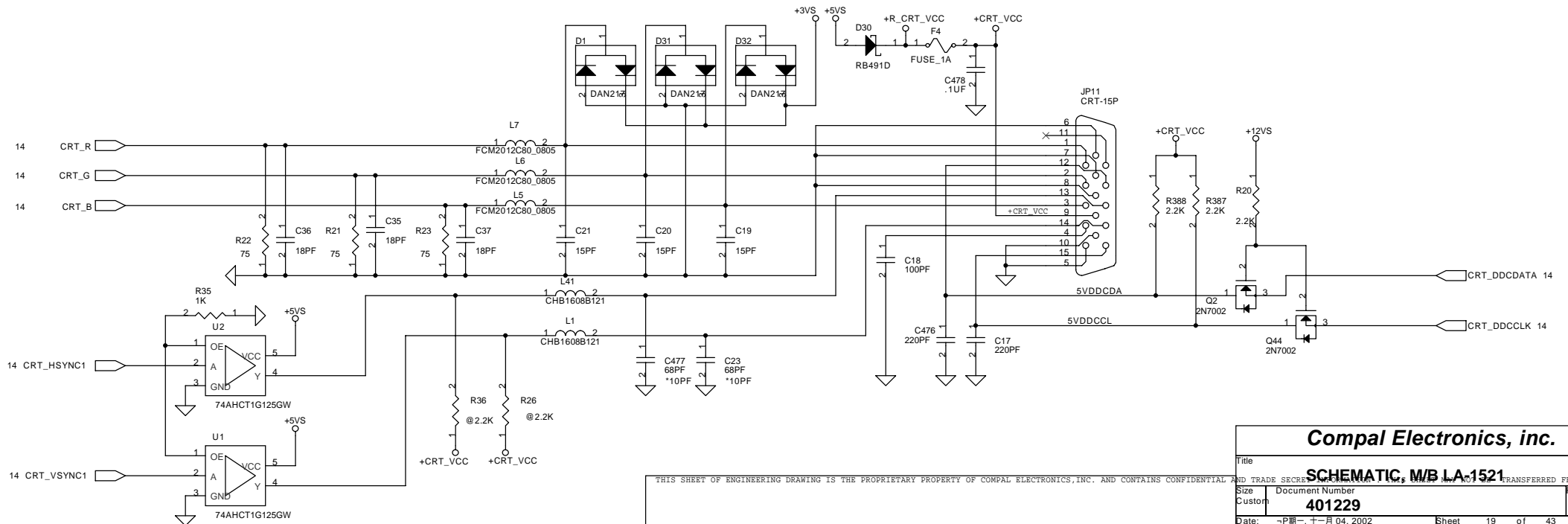
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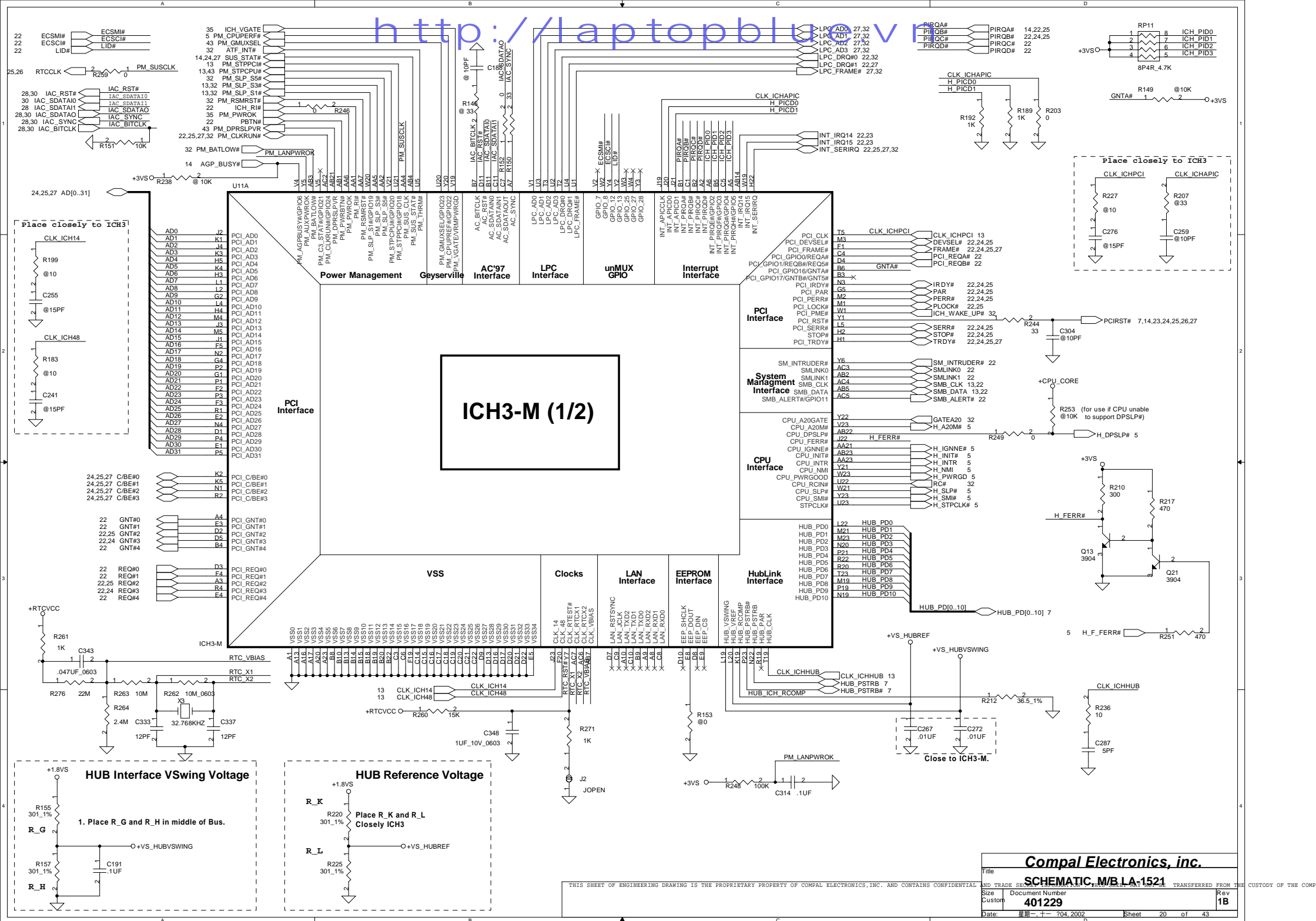
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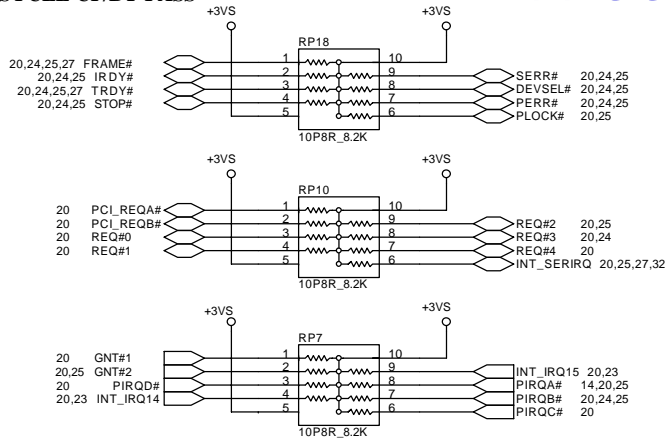


CRT CONNECTOR

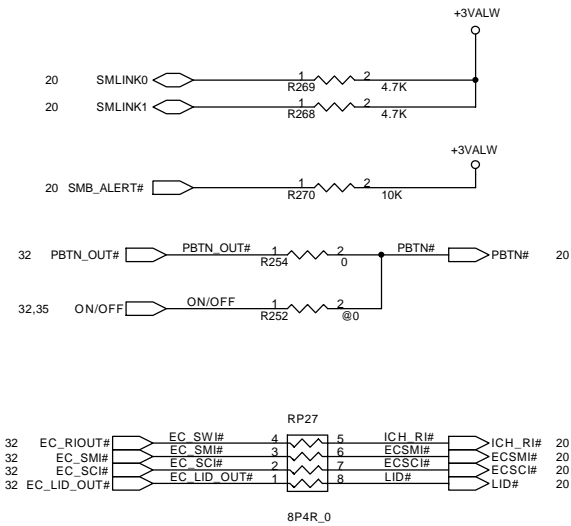




+3VS PULL-UP/BY-PASS

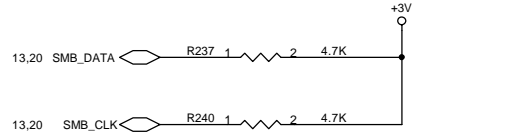


+3VALW PULL-UP

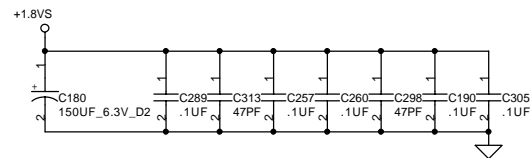


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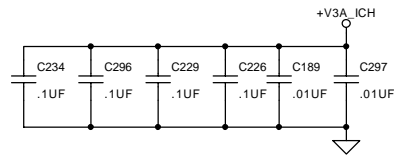
+3V PULL-UP/BY-PASS



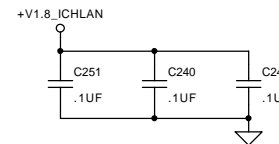
+1.8SV BY-PASS



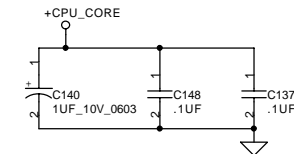
+V3A_ICH BY-PASS



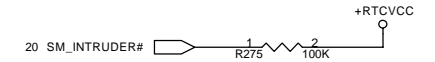
+V1.8S_ICHLAN BY-PASS



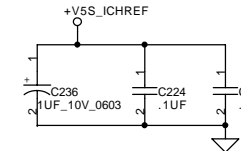
+CPU_CORE BY-PASS



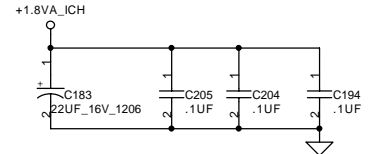
+RTCVCC PULL-UP



+V5S_ICHREF BY-PASS



+1.8VA_ICH BY-PASS



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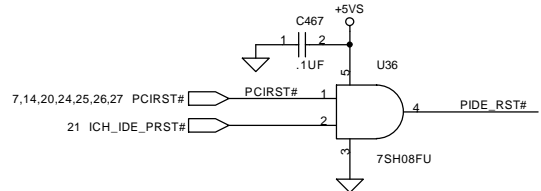
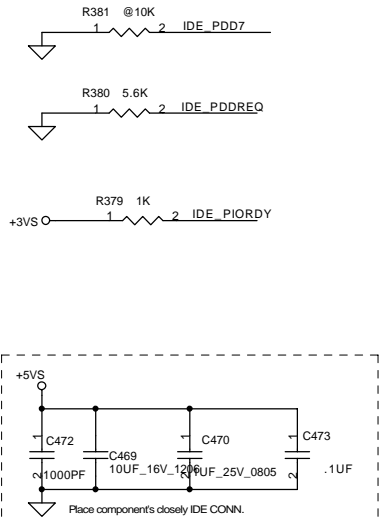
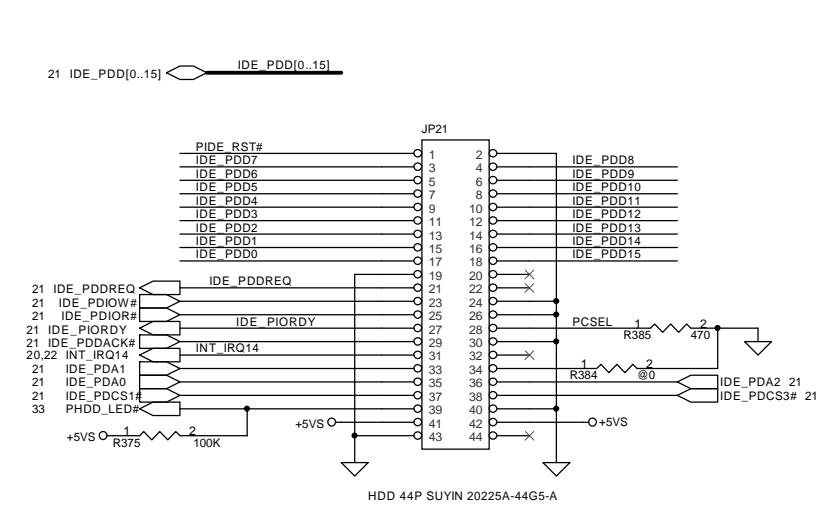
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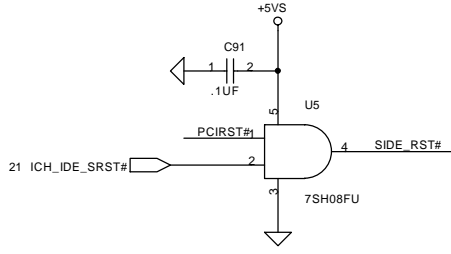
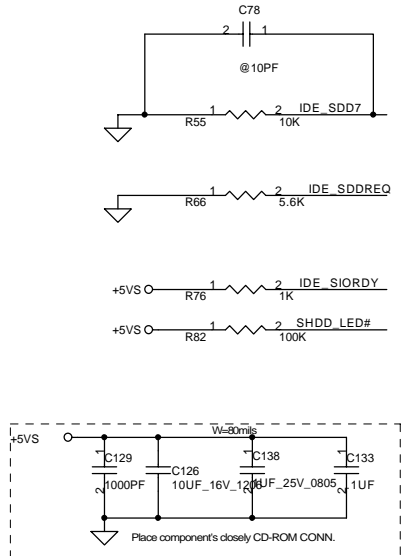
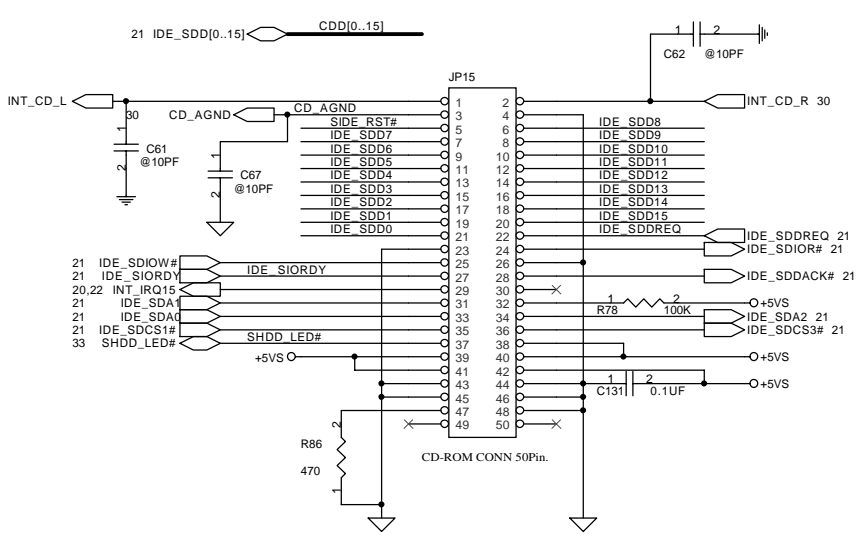
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IDE Module CONN.

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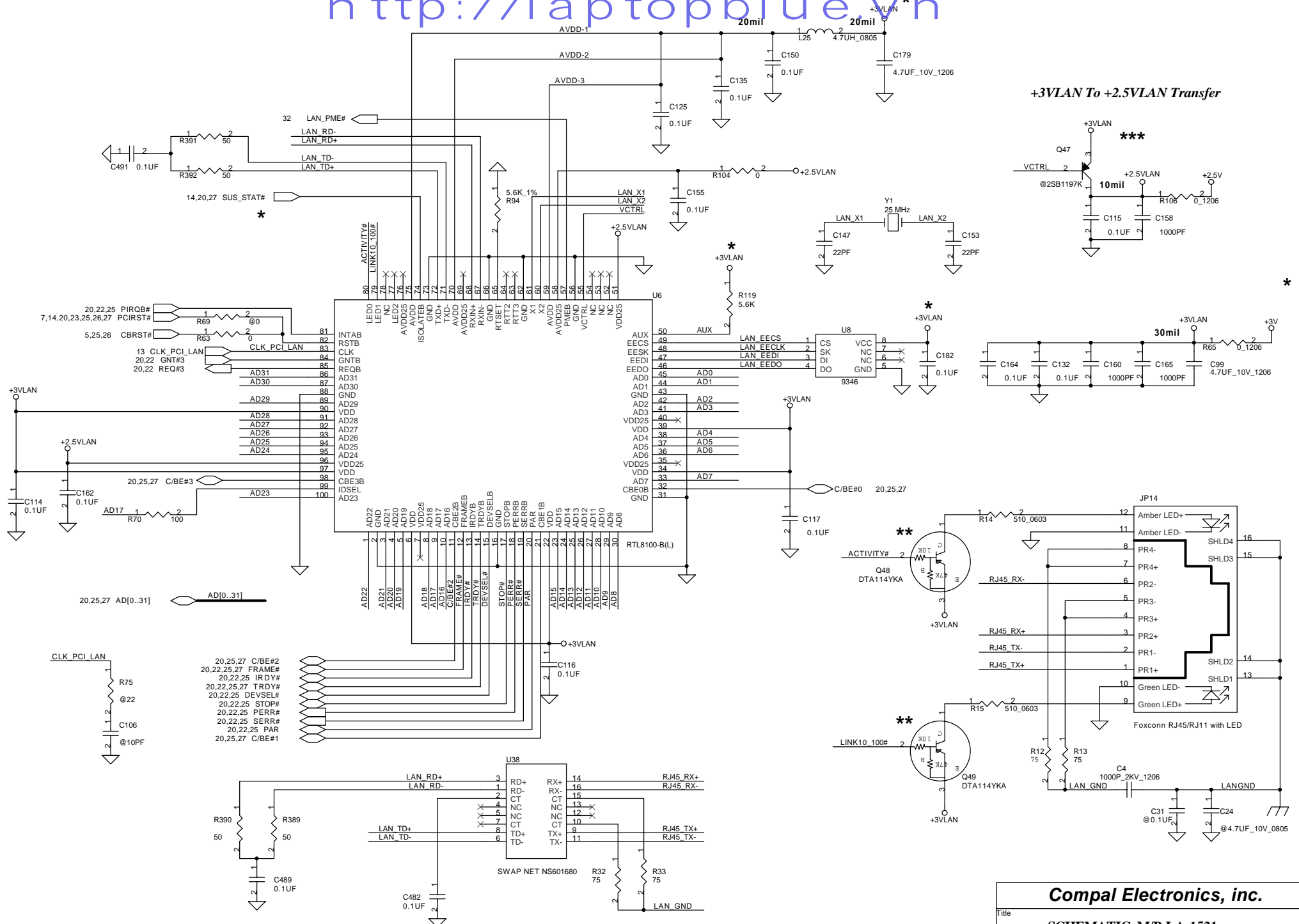
CD-ROM Module CONN.



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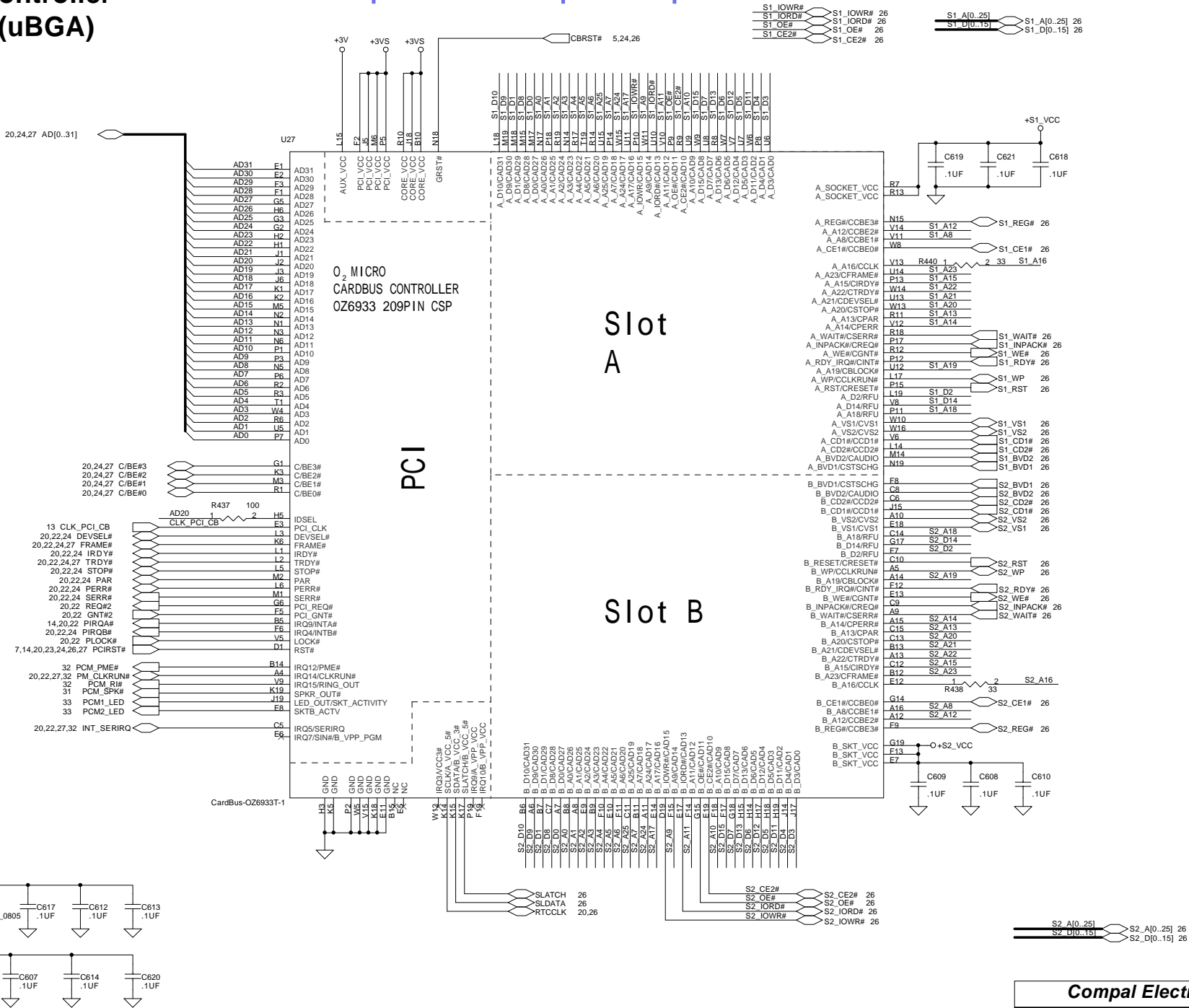
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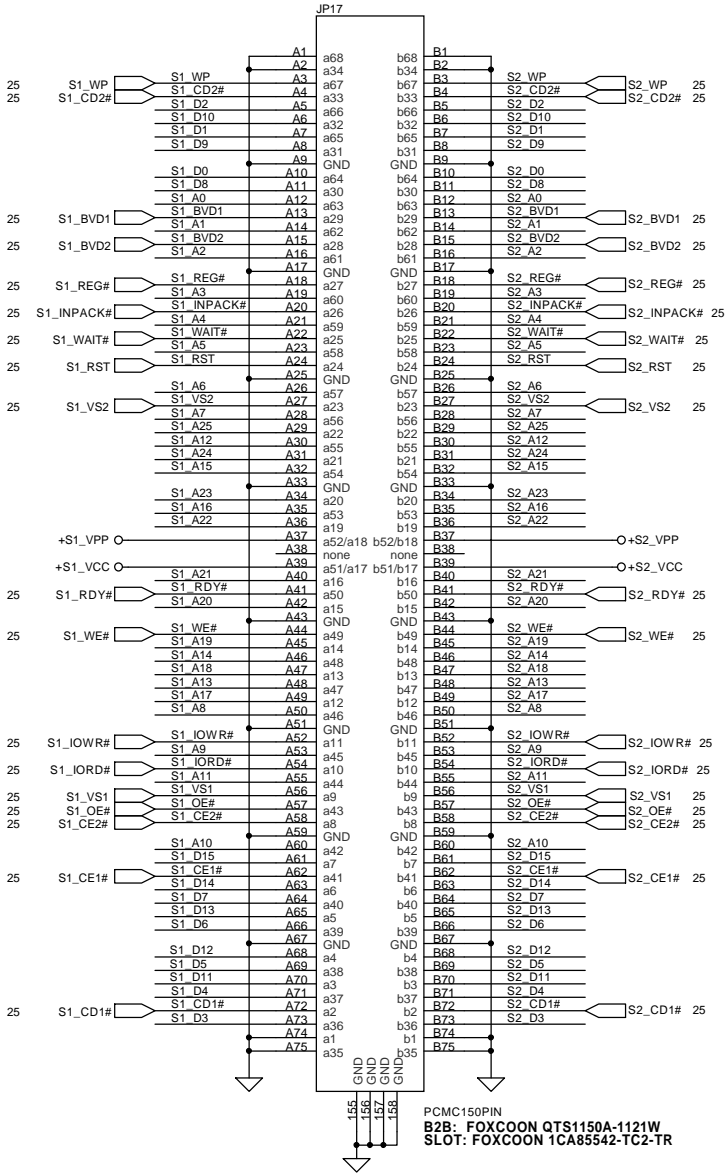
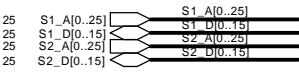
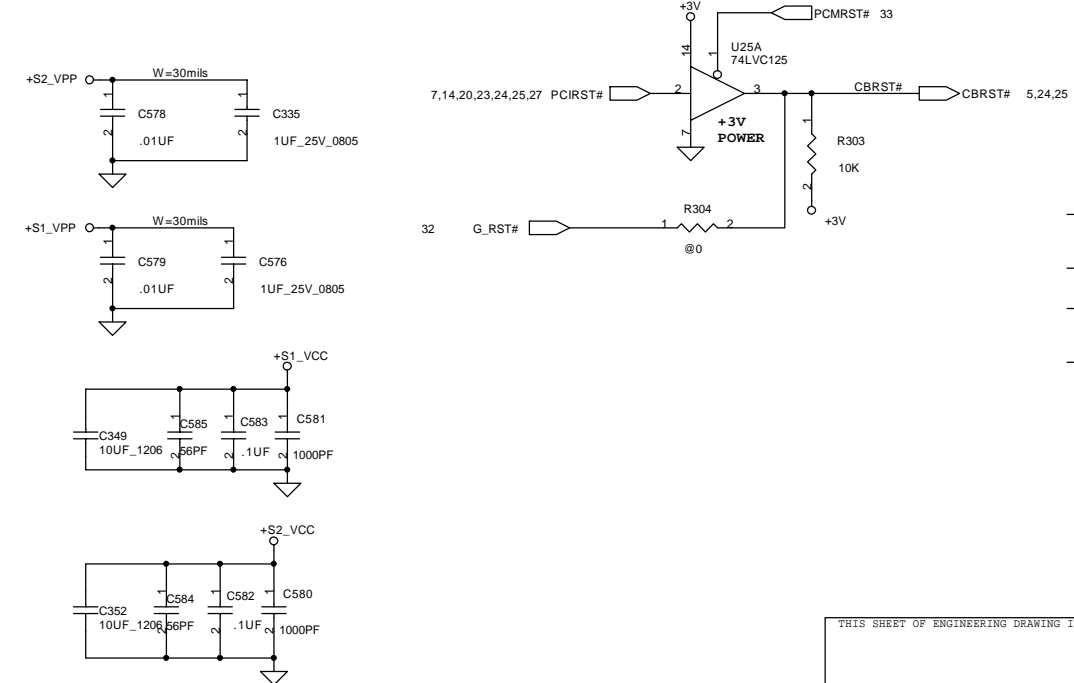
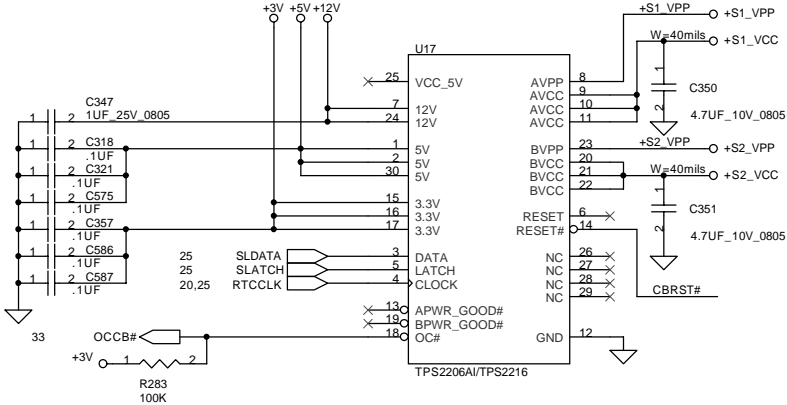


CardBus Controller
OZ6933B (uBGA)

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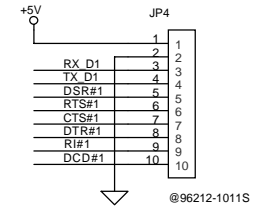
CARDBUS
SOCKET



PCMC150PIN
B2B: FOXCOON QTS1150A-1121W
SLOT: FOXCOON 1CA85542-TC2-TR

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http://laptopbluenet.acpi-debug-connector



ctor

20, 24, 25 C/BE#0

20, 24, 25 AD7

20, 24, 25 AD6

20, 24, 25 AD5

20, 24, 25 AD4

20, 24, 25 AD3

20, 24, 25 AD2

20, 24, 25 AD1

20, 24, 25 AD0

20, 24, 25 AD7

20, 24, 25 AD8

20, 24, 25 C/BE#1

20, 24, 25 C/BE#2

20, 24, 25 C/BE#3

13 CLK_PCI_DBC

+5VS

20, 22, 24, 25 FRAME#

20, 22, 24, 25 TRDY#

20, 24, 25 AD9

JP3

20

19

18

17

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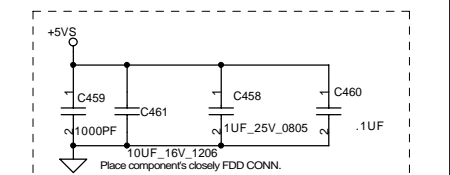
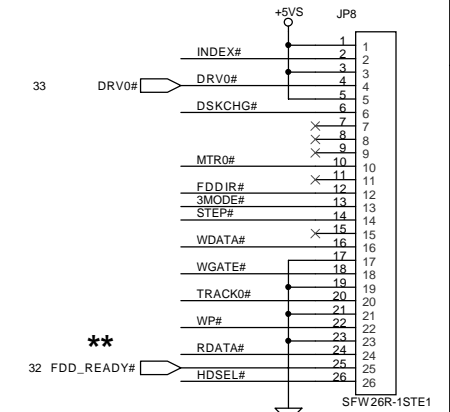
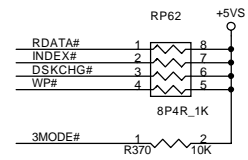
3

2

1

HEADER 20

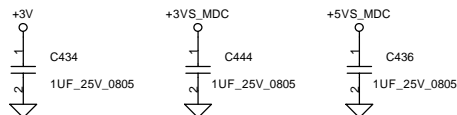
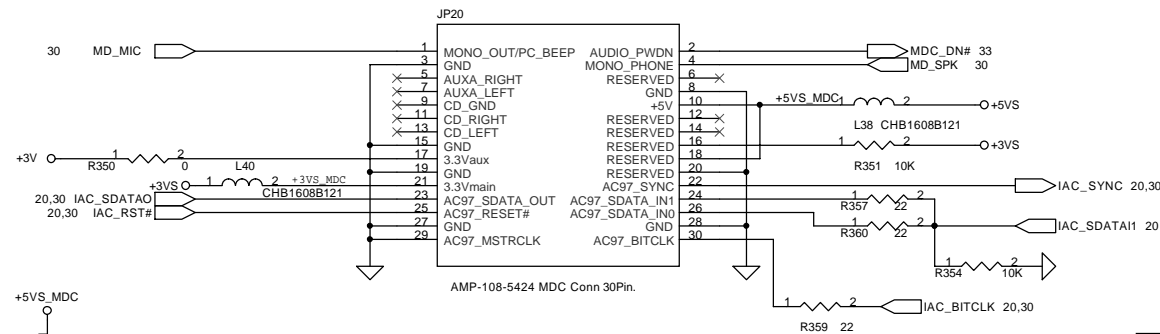
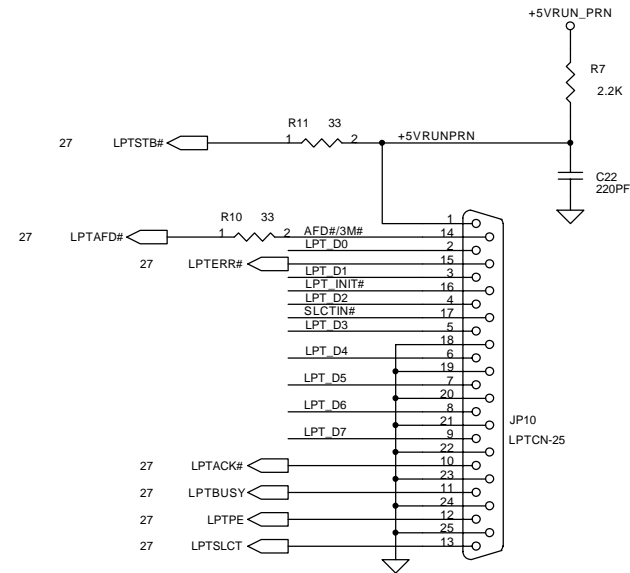
Figure 1: Pin connection diagram of the RP61. The diagram shows a 10-pin connector with pins 1 through 10. Pins 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 are connected to various signals: WDATA# (pin 6), WGATE# (pin 7), HDSEL# (pin 8), FDDIR# (pin 9), +5VS (pin 10), STEP# (pin 4), MTR0# (pin 3), DRV0# (pin 2), and TRACK0# (pin 1). The connector is labeled RP61 and 10P8R_1K.



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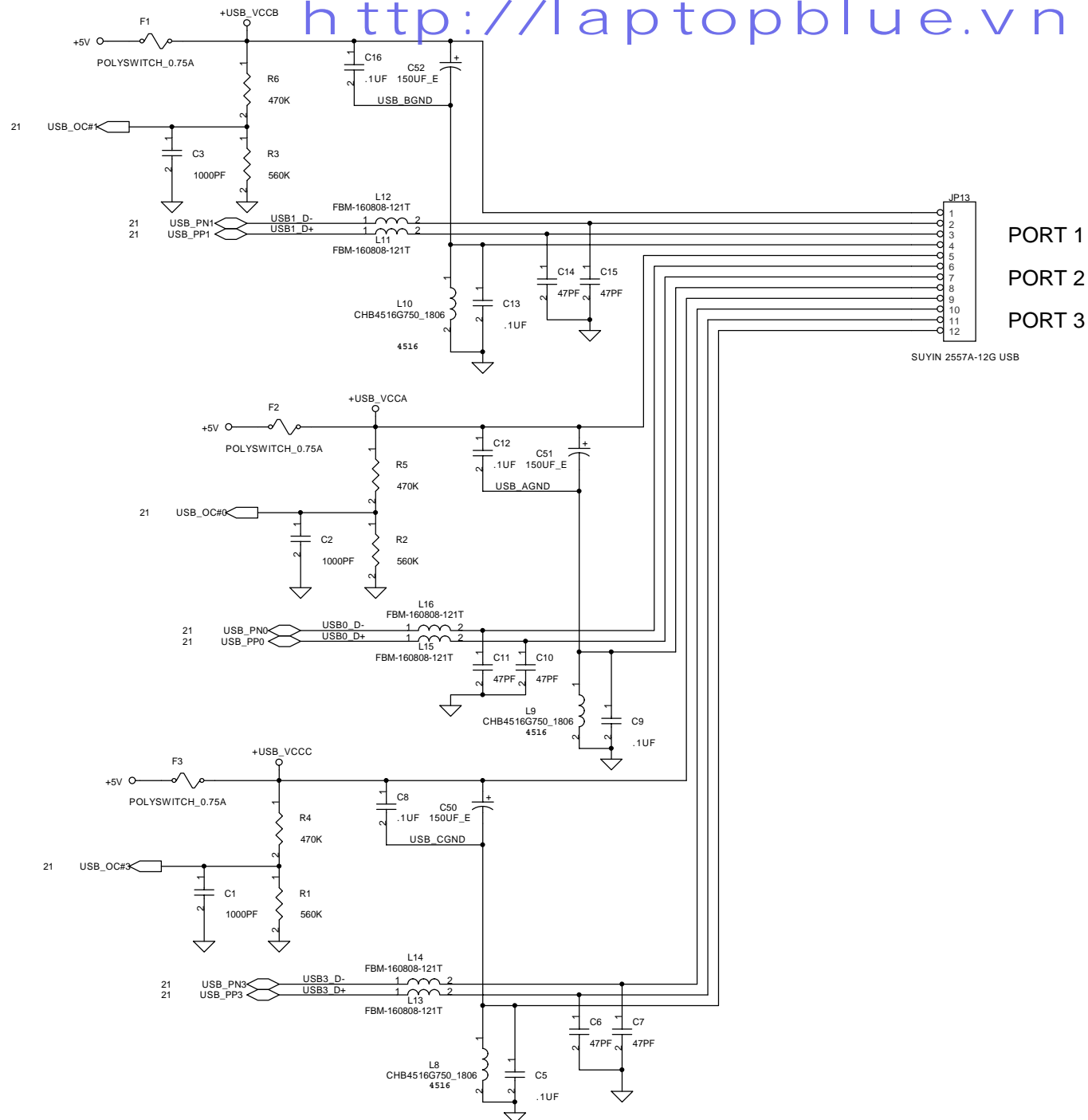
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USB Port

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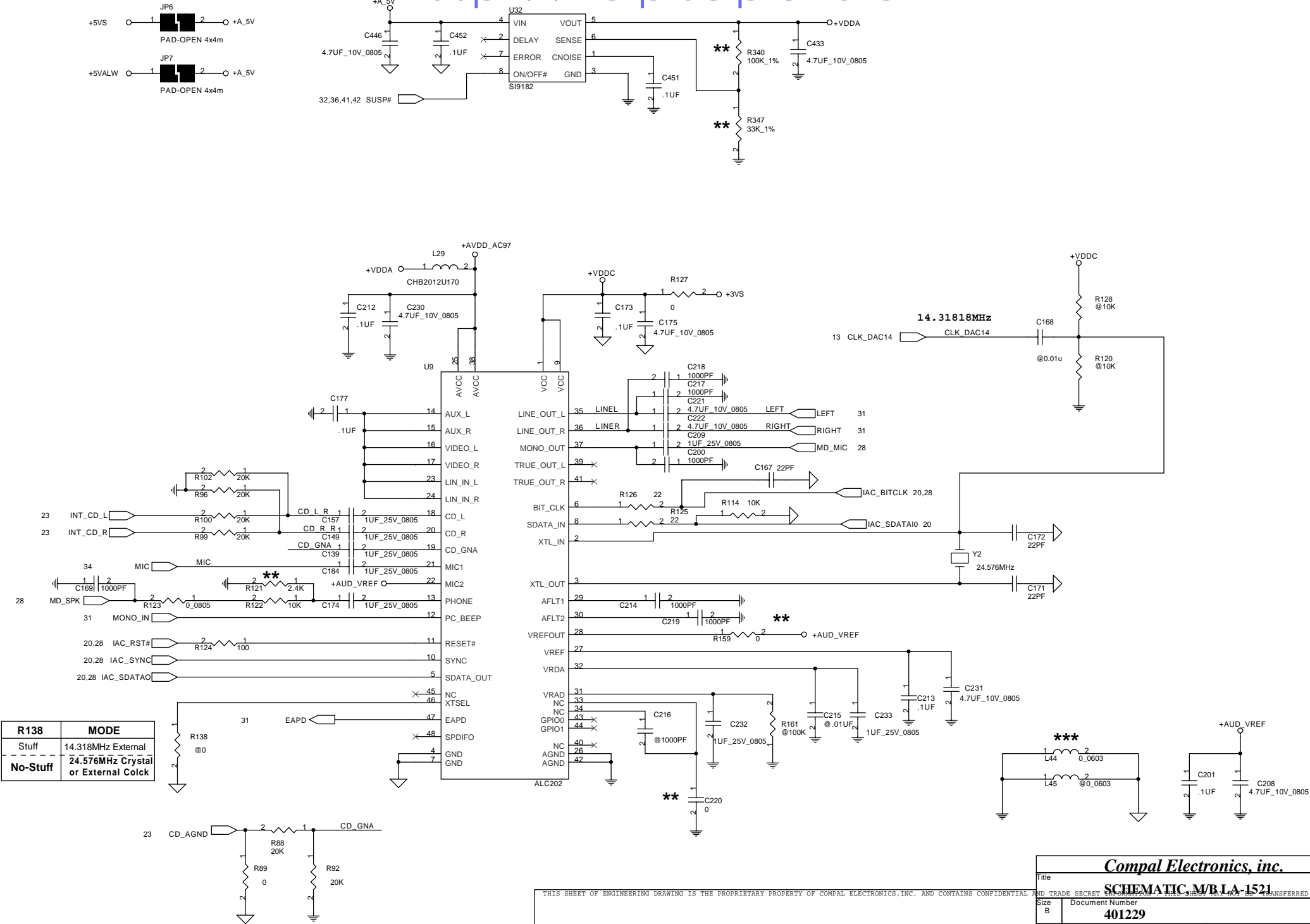


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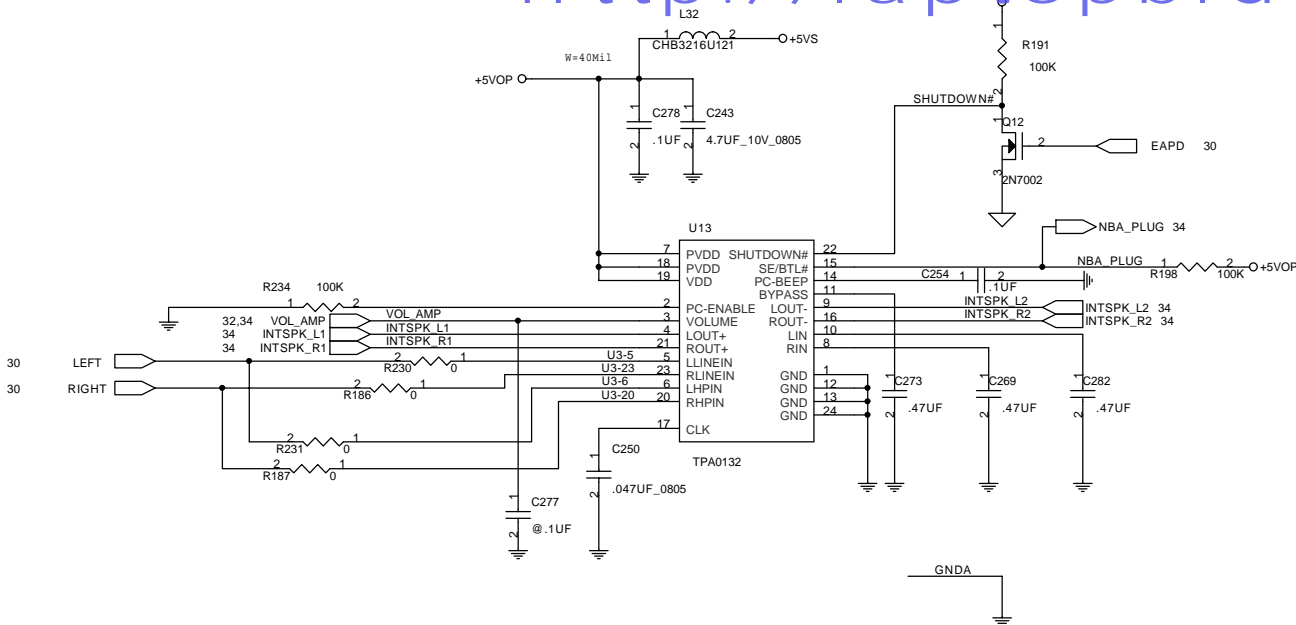
AC97 Audio Codec

http://laptopblue.vn

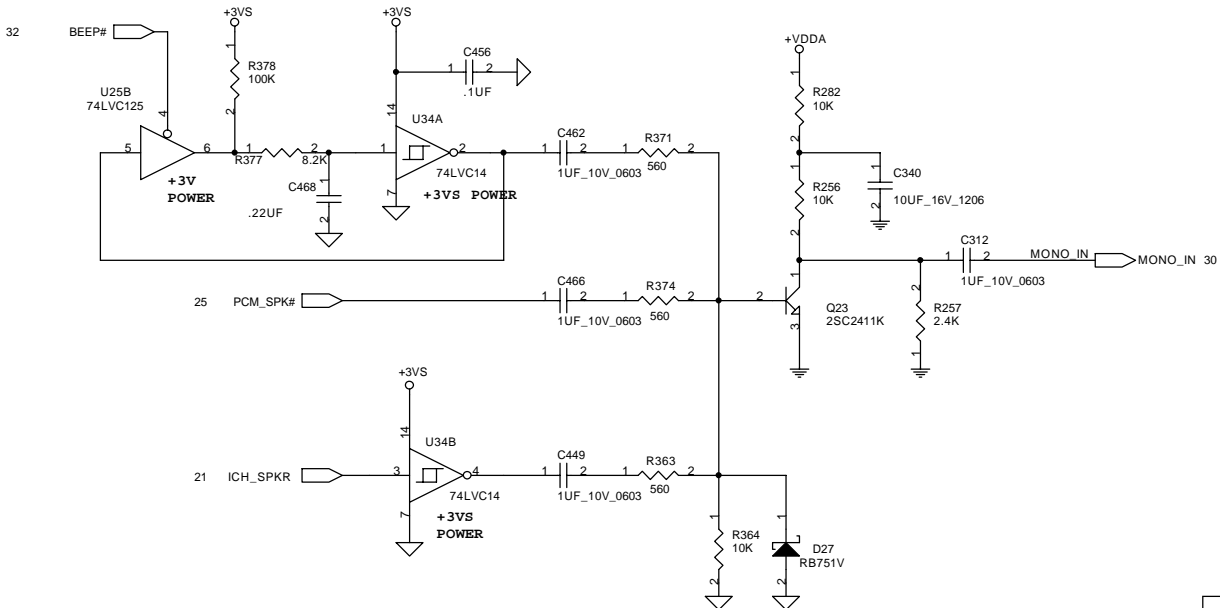


Audio AMP

h t t p : / / l a p t o p b l u e . v n



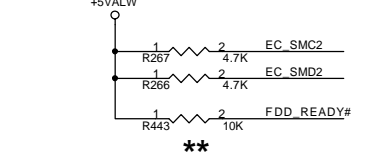
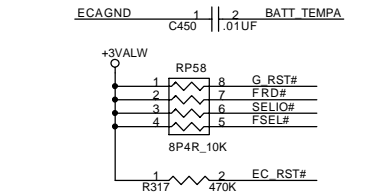
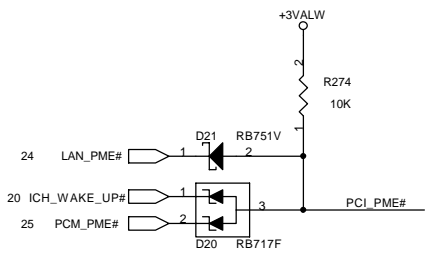
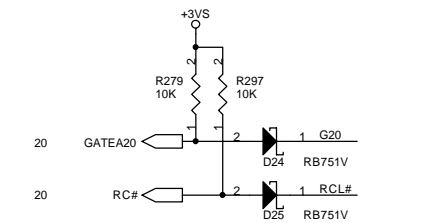
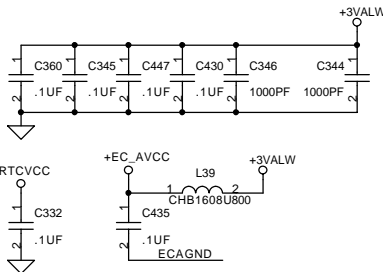
System Sound



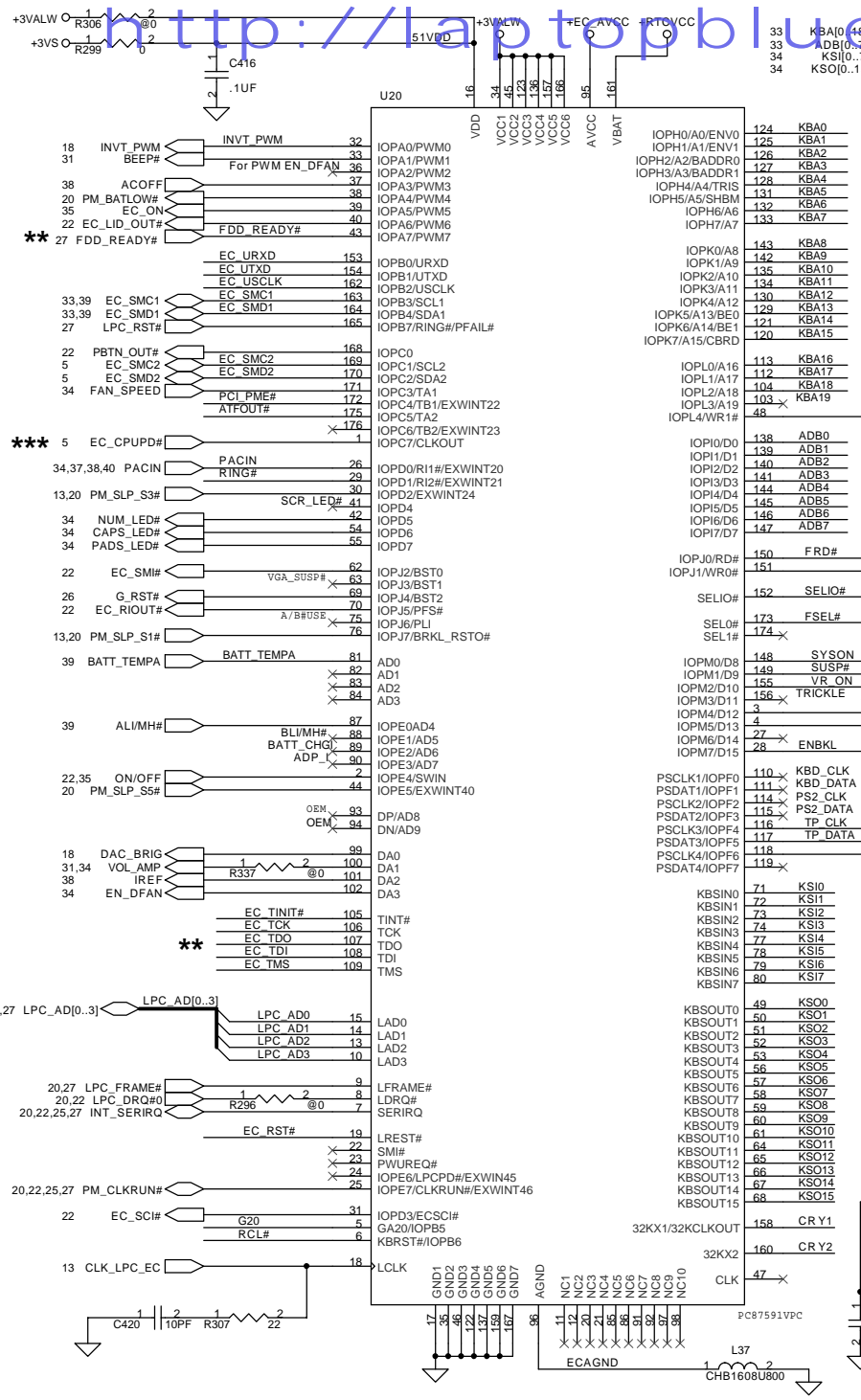
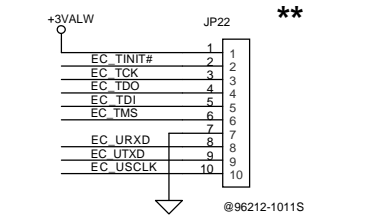
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EC JTAG Connector



I/O Address			
BADDR1(KBA3) BADDR0(KBA2)		Index	Data
0	0	2E	2F
0	1	4E	4F
* 1	0	(HCFGBAH, HCFGBAL)	(HCFGBAH, HCFGBAL)+1
1	1	Reserved	

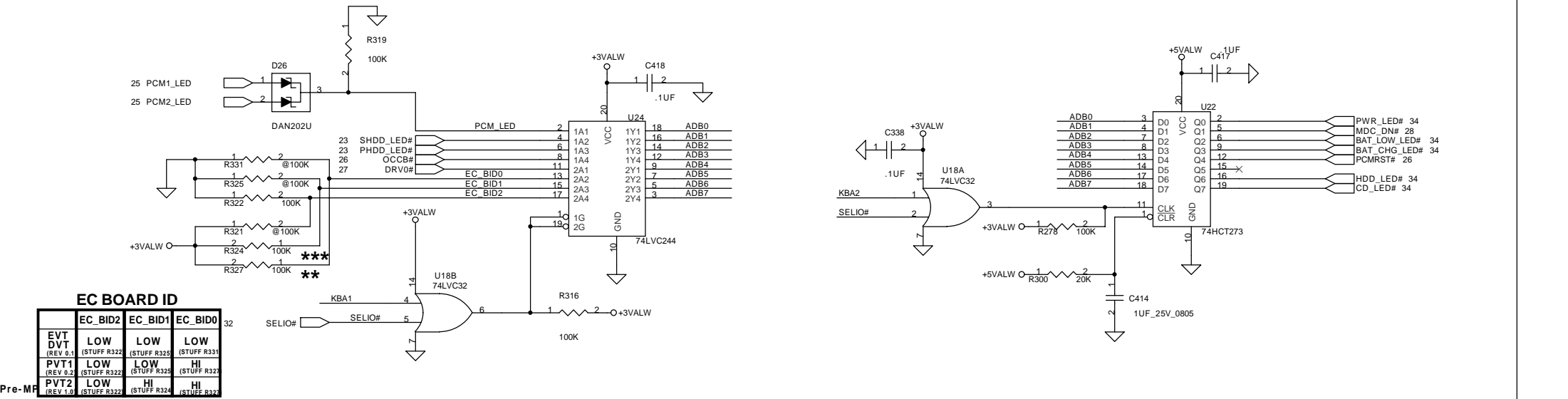
ENVO (KBA0) ENV1 (KBA1) TRIS (KBA4)

IRE	0	0	0
* OBD	0	1	0
DEV	1	0	0
PROG	1	1	0

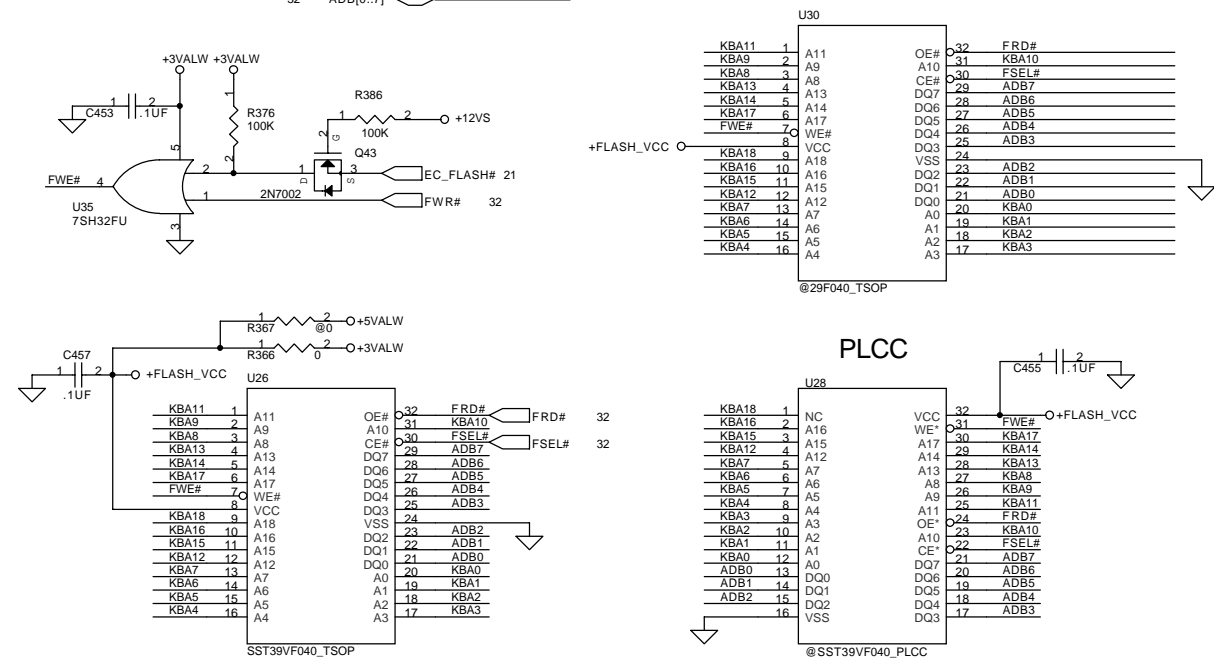
SHBM(KBA5)=1: Enable shared memory with host BIOS
TRIS(KBA4)=1: While in IRE and OBD, float all the signals for clip-on ISE use

INPUT PORT

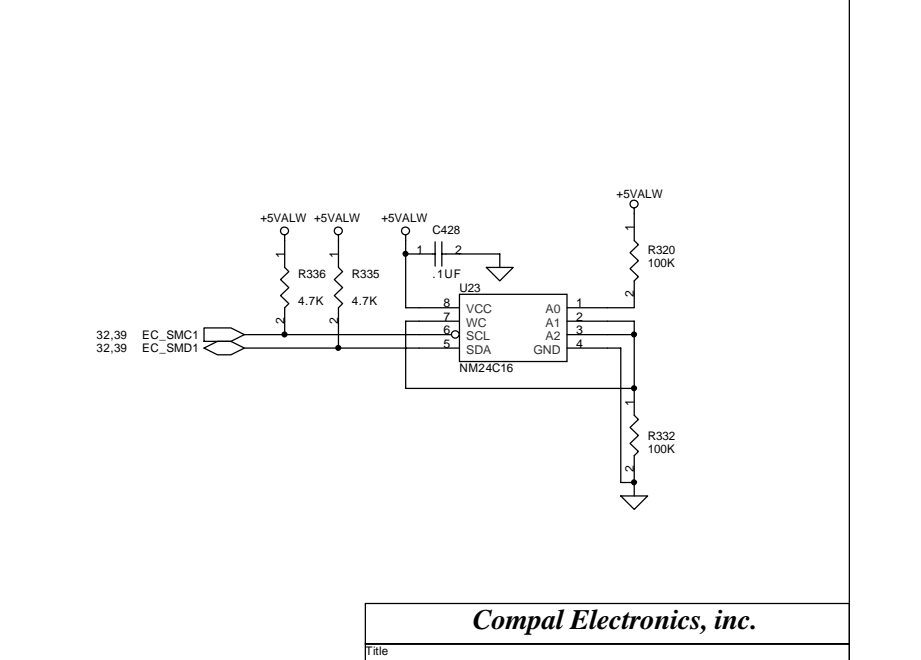
OUTPUT PORT



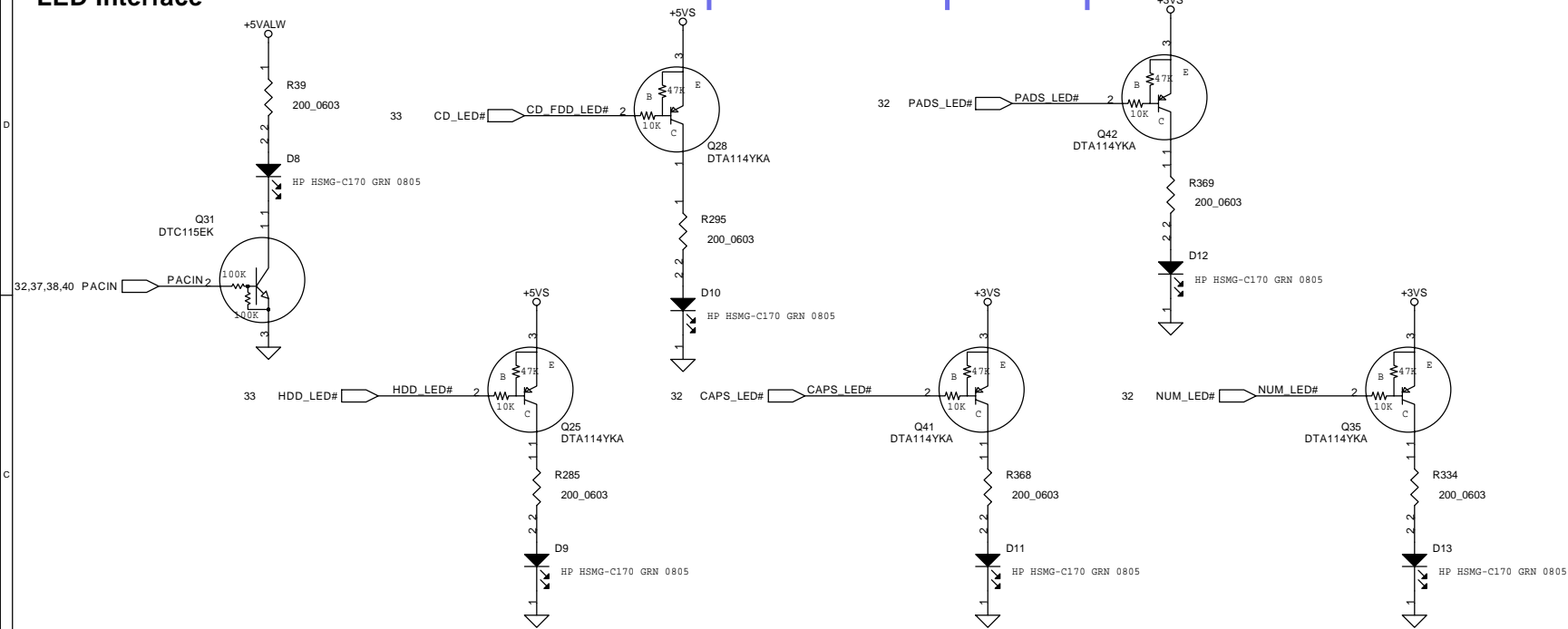
SYSTEM BIOS



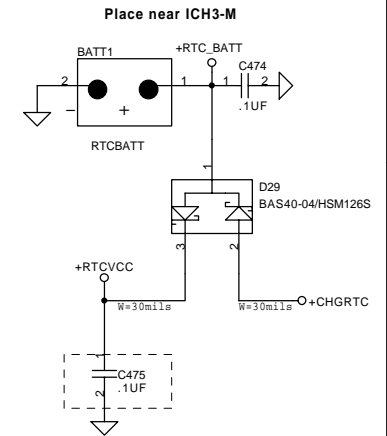
SMBUS EEPROM



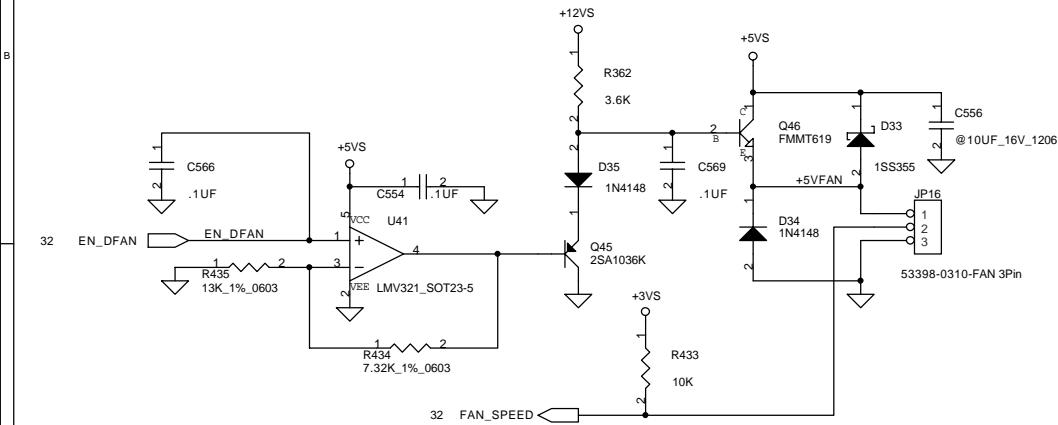
LED Interface



RTC Batt.

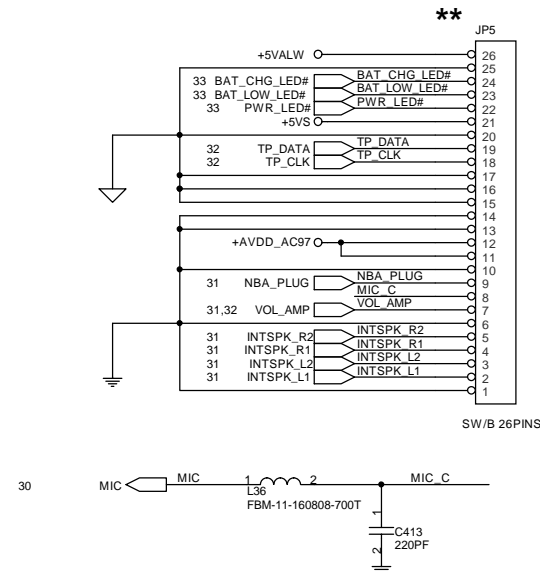


FAN Connector

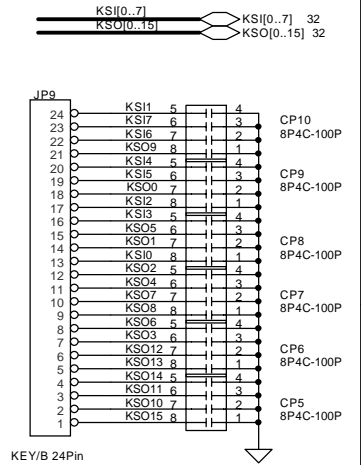


System Connector

Switch Board Connector



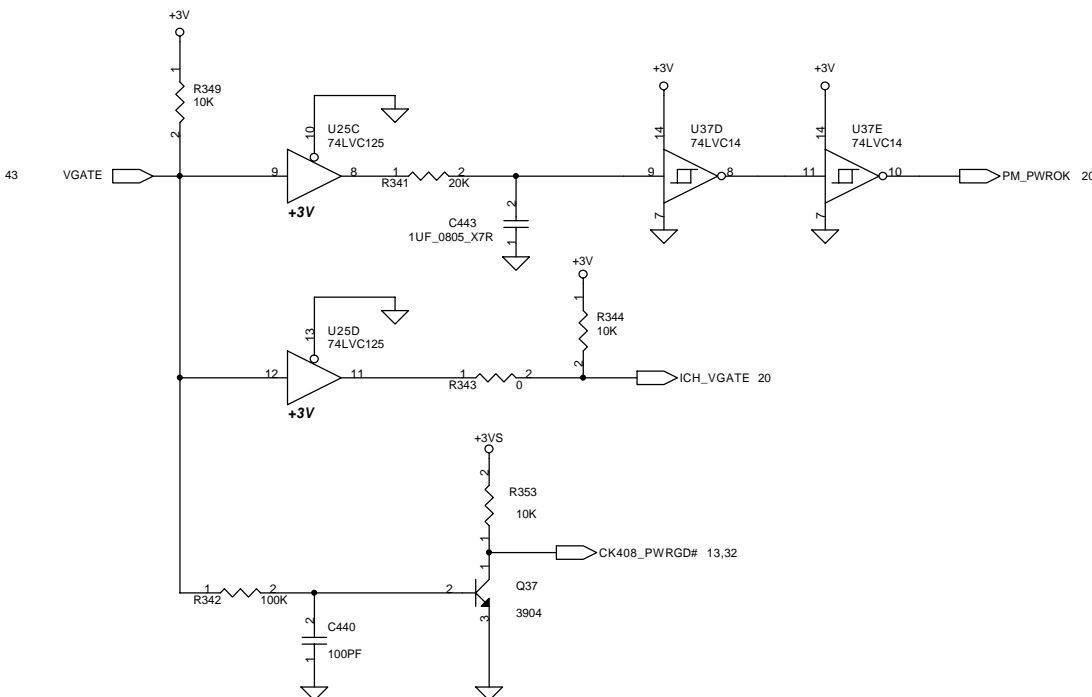
Int. Keyboard Connector



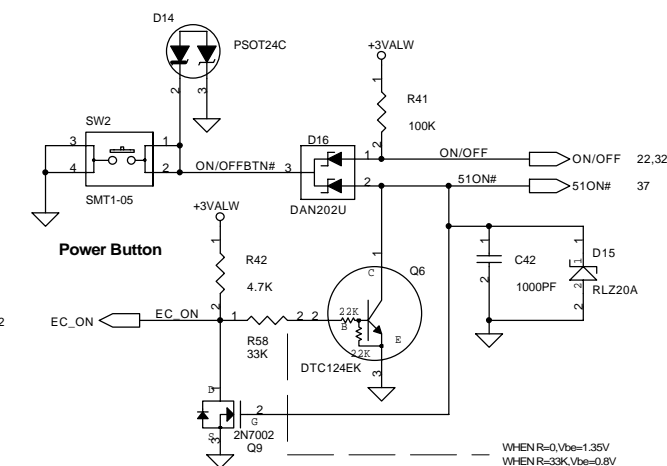
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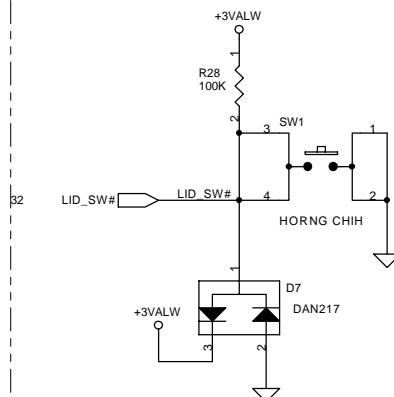
Power Good Circuit



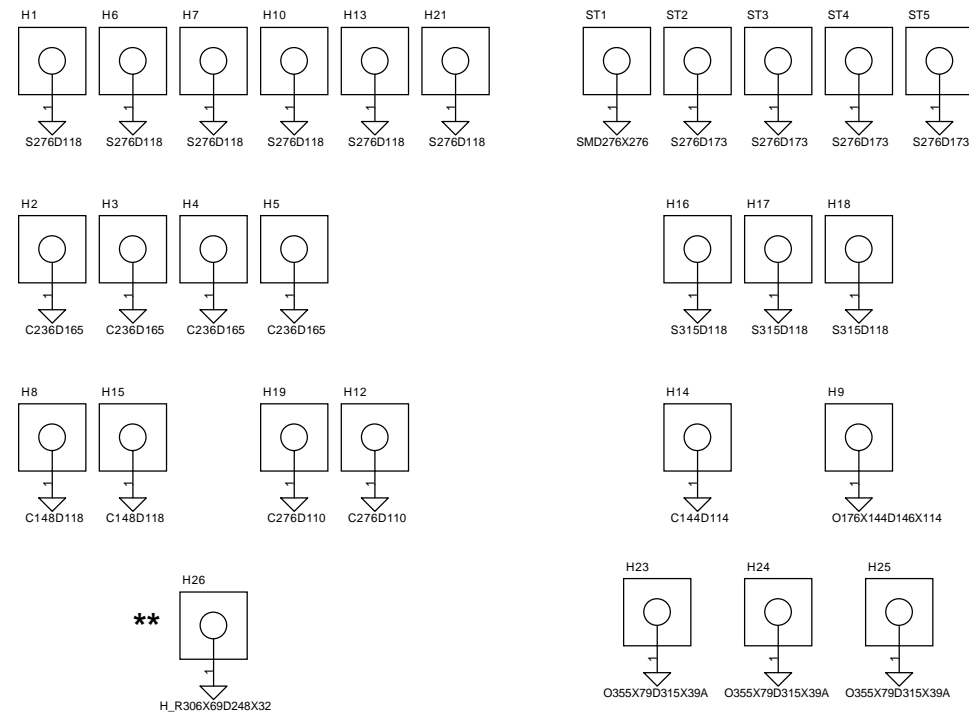
SW for Power Button



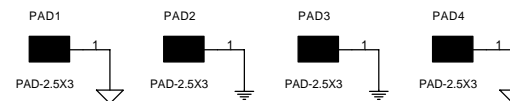
LID Switch



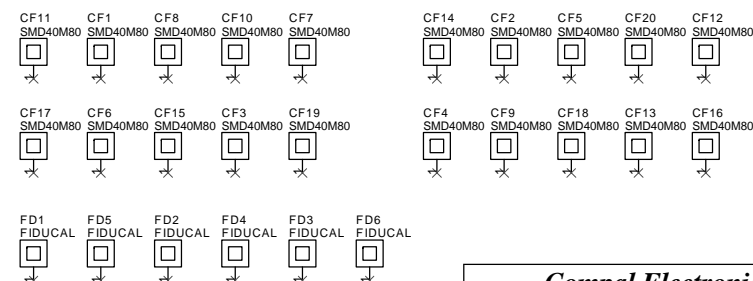
Screw Hole



EMI CLIP PAD

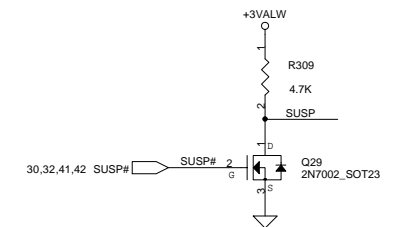
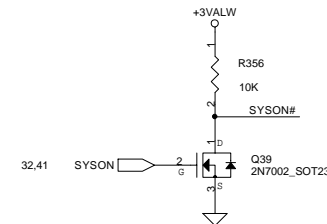
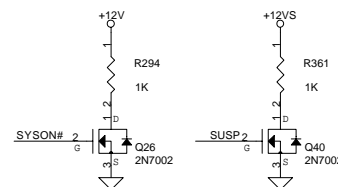
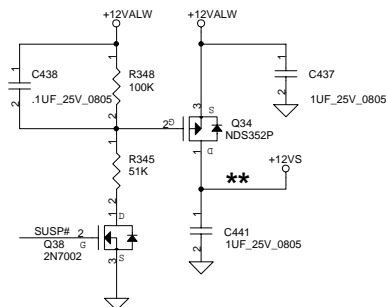
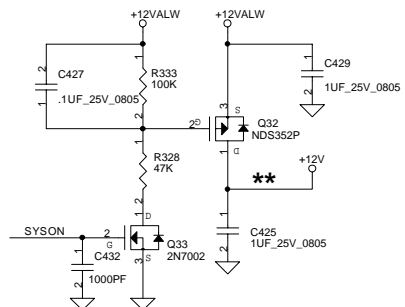
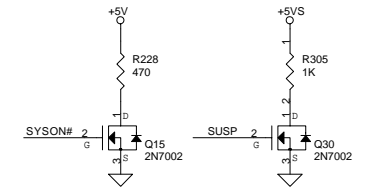
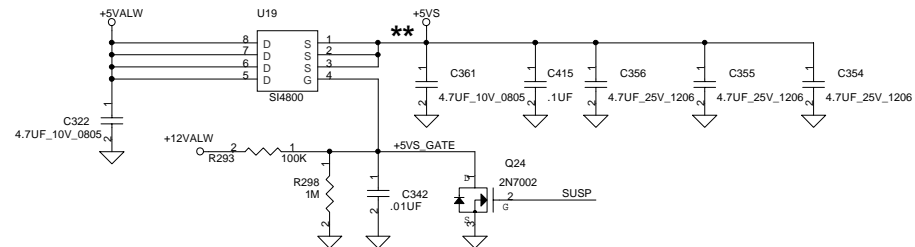
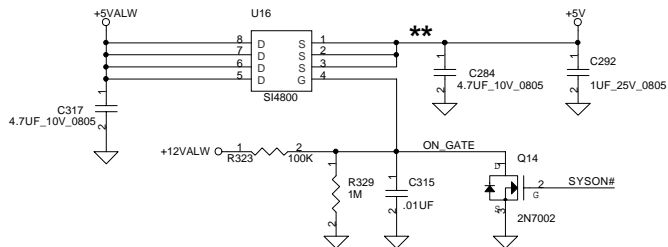
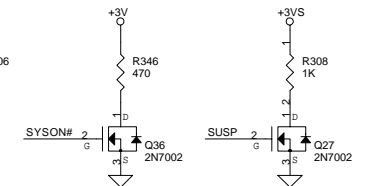
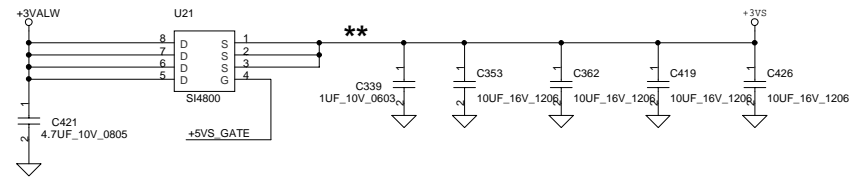
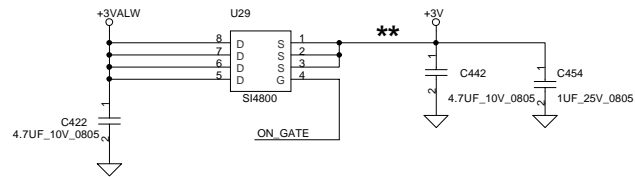
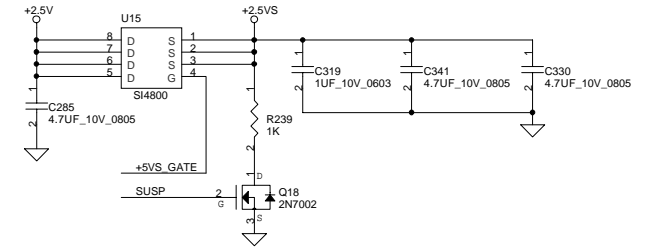
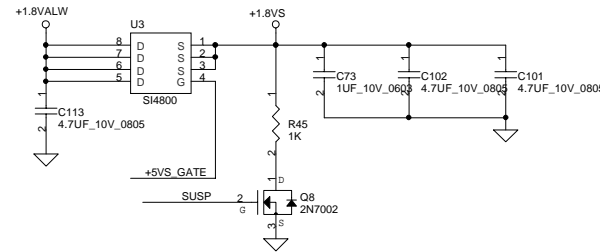


Fiducial Mark

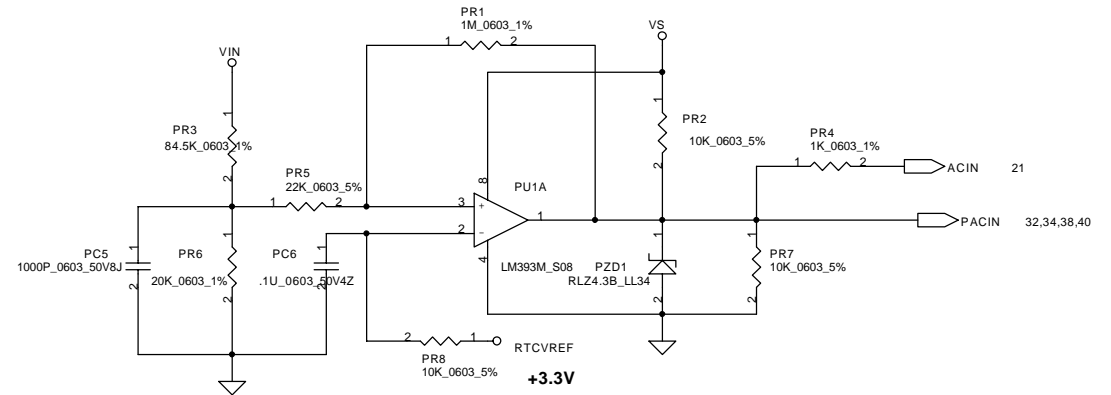
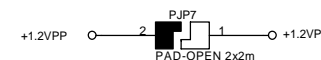
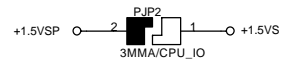
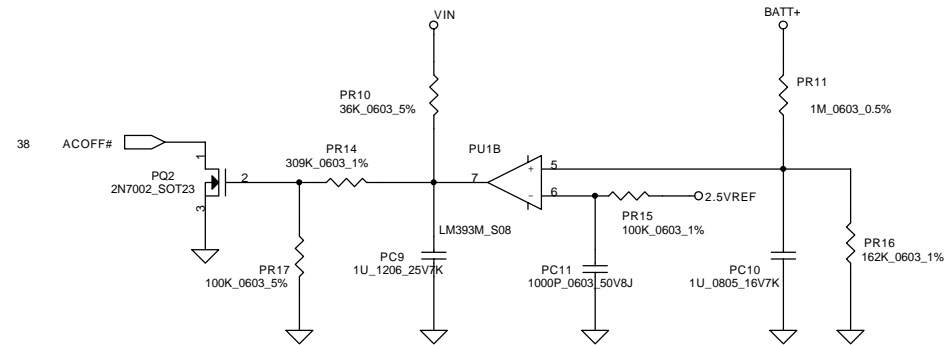


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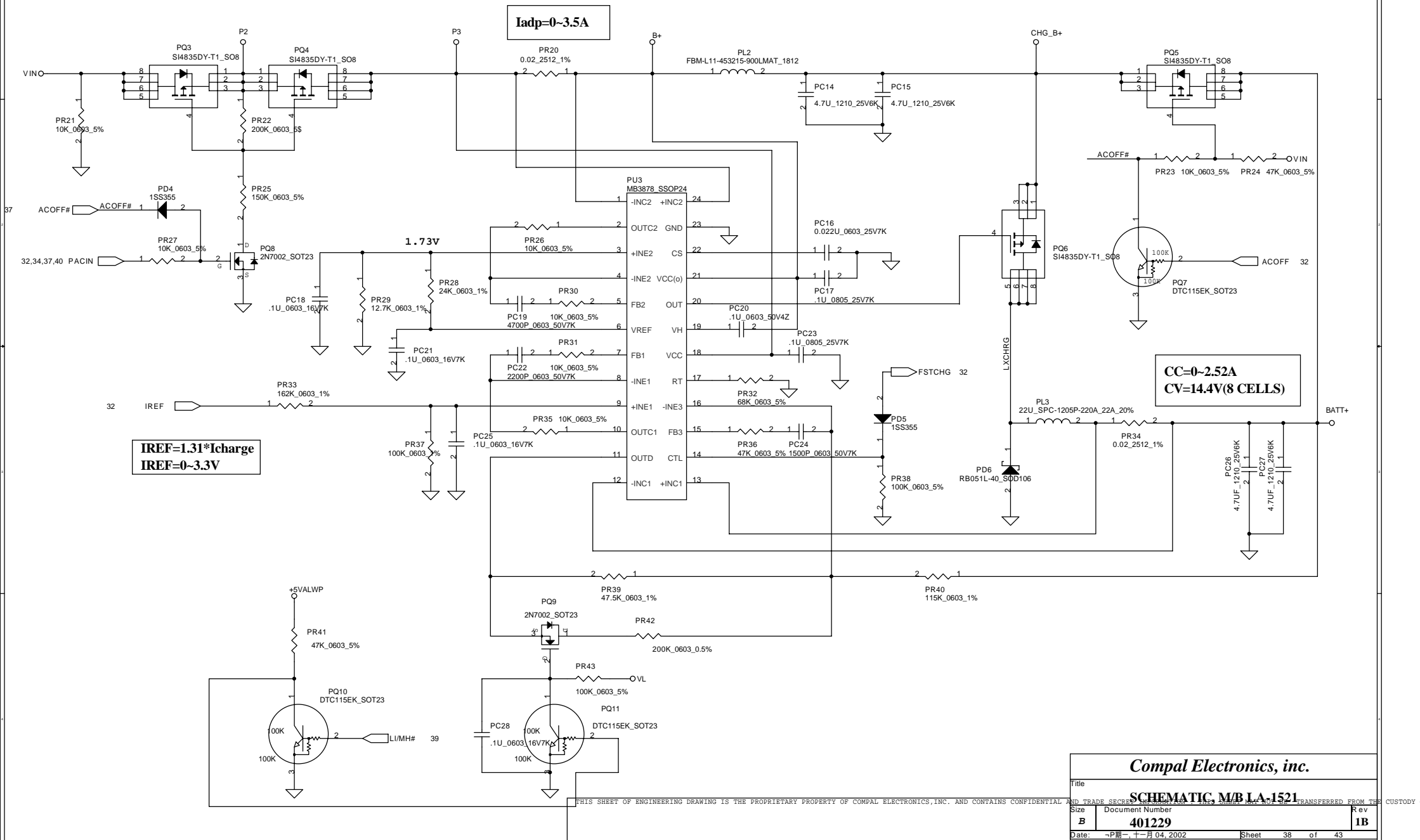


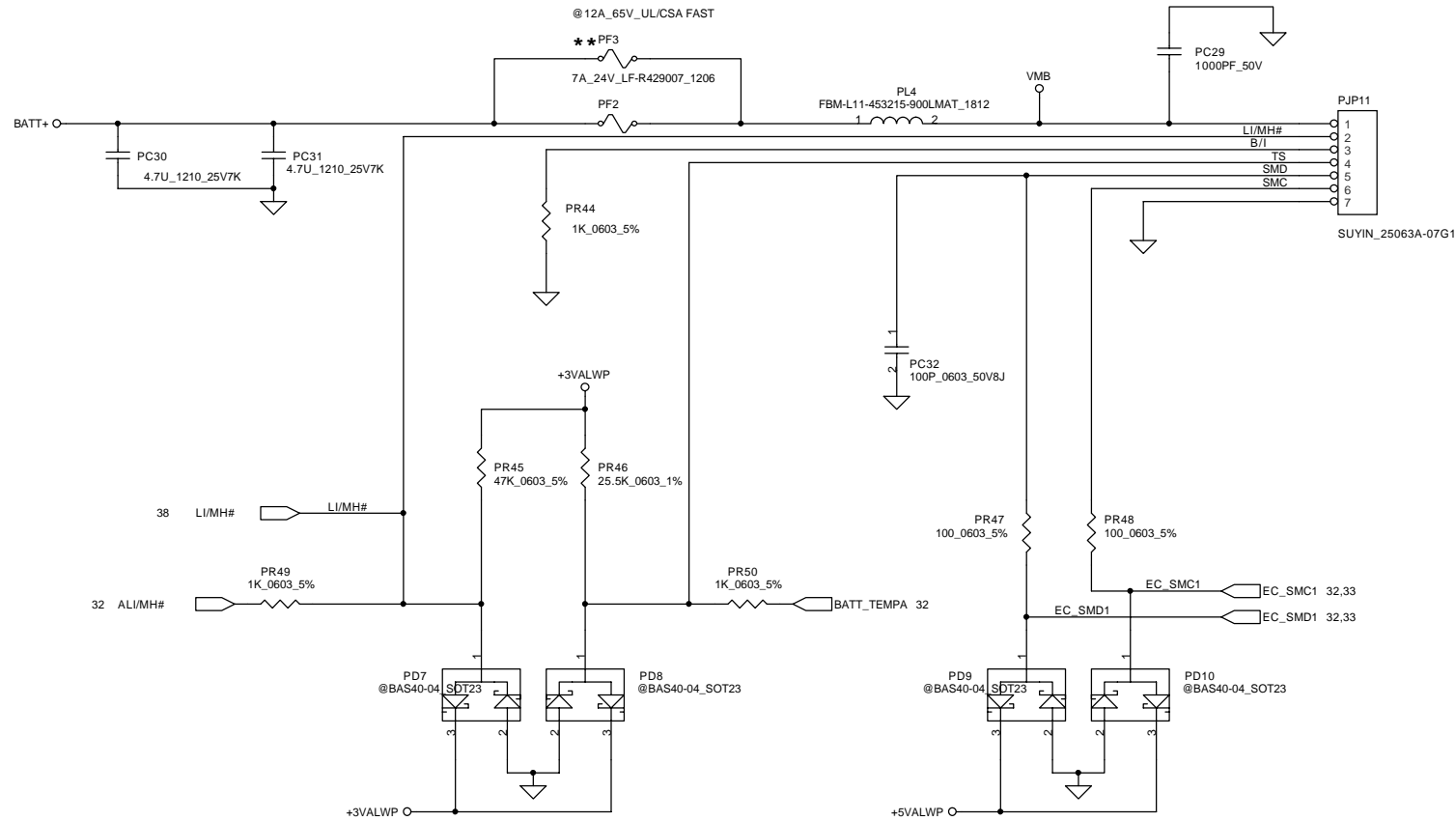
The schematic diagram illustrates a power supply circuit. The input voltage is labeled VIN. The circuit includes a fuse (7A_24V_LF-R429007_1206), a diode (PD1 EC10QS04), and four capacitors (PC1, PC2, PC3, PC4, all 1000P_0603_50V8J). The output is connected to a load (represented by a triangle symbol). The circuit is labeled with component names and values: PJP1 SUYIN_ZDC-S315-B01, PL1 CHC4532U800_1812, and VIN.

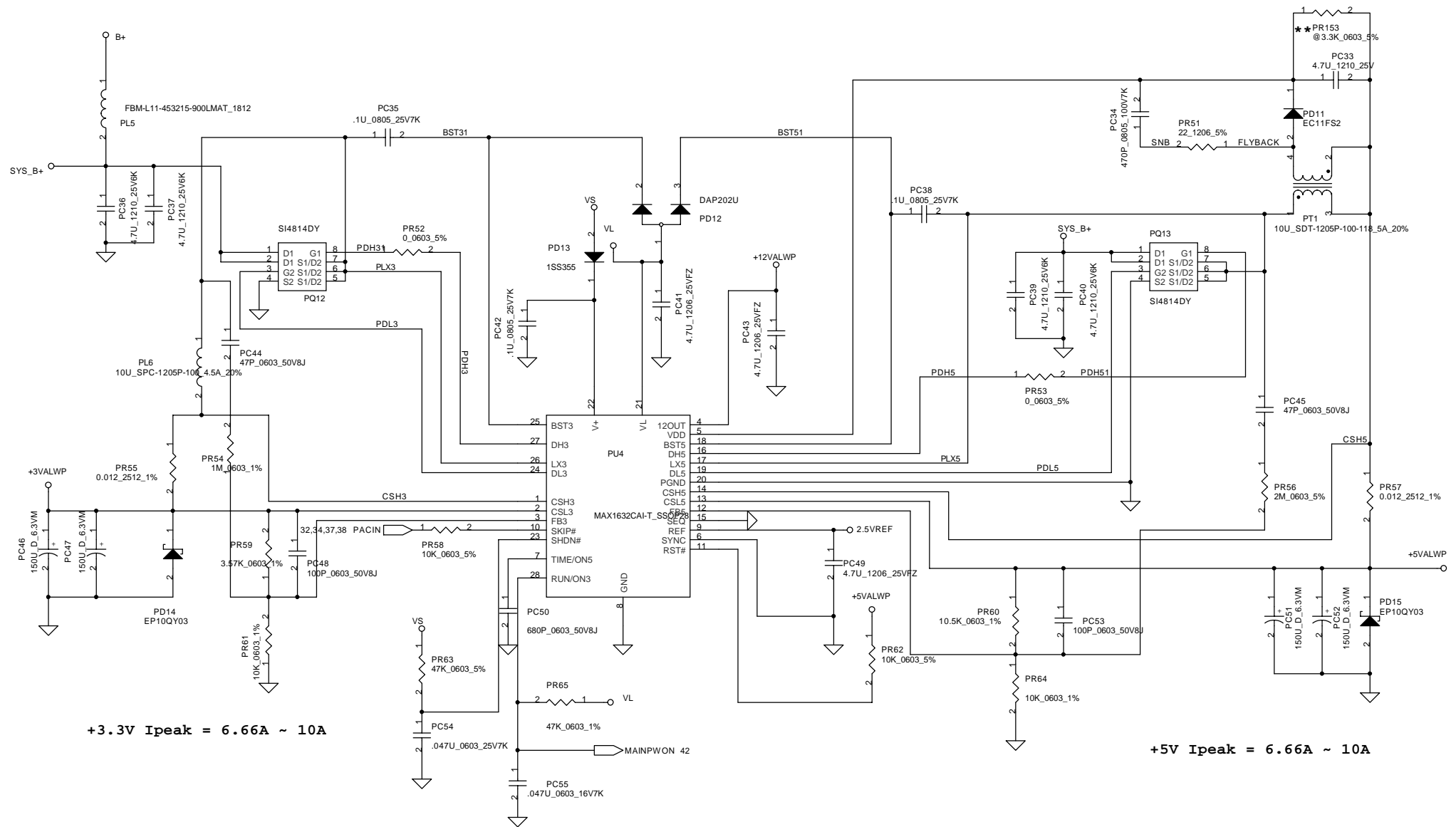
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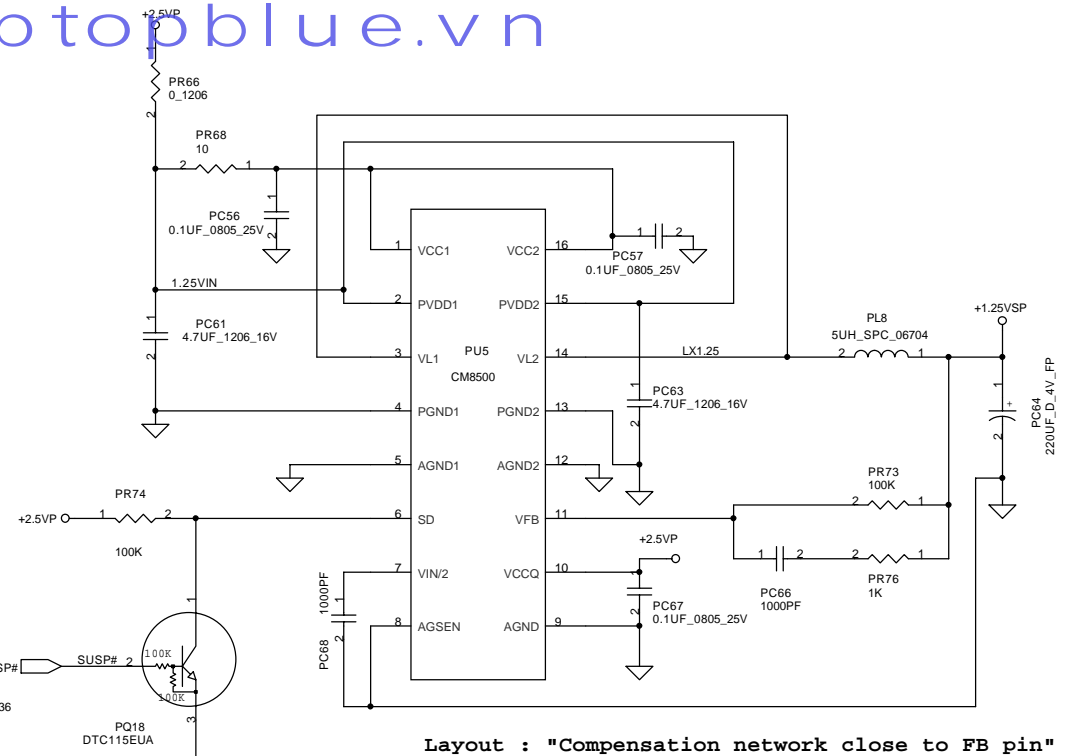
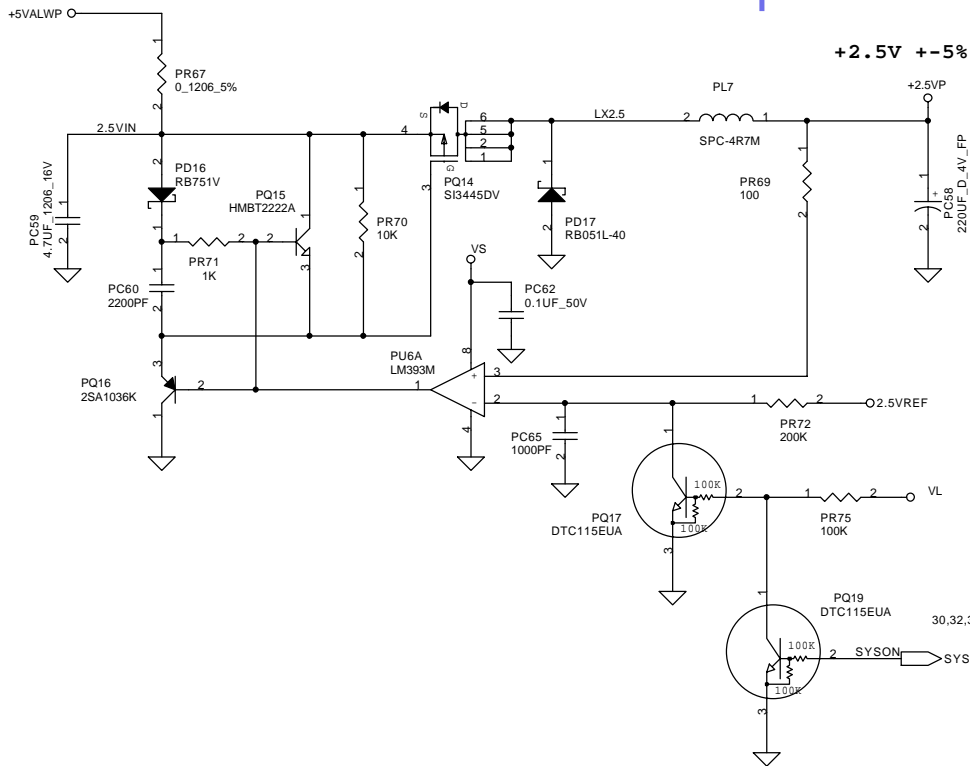
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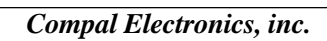
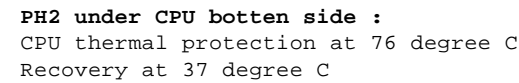
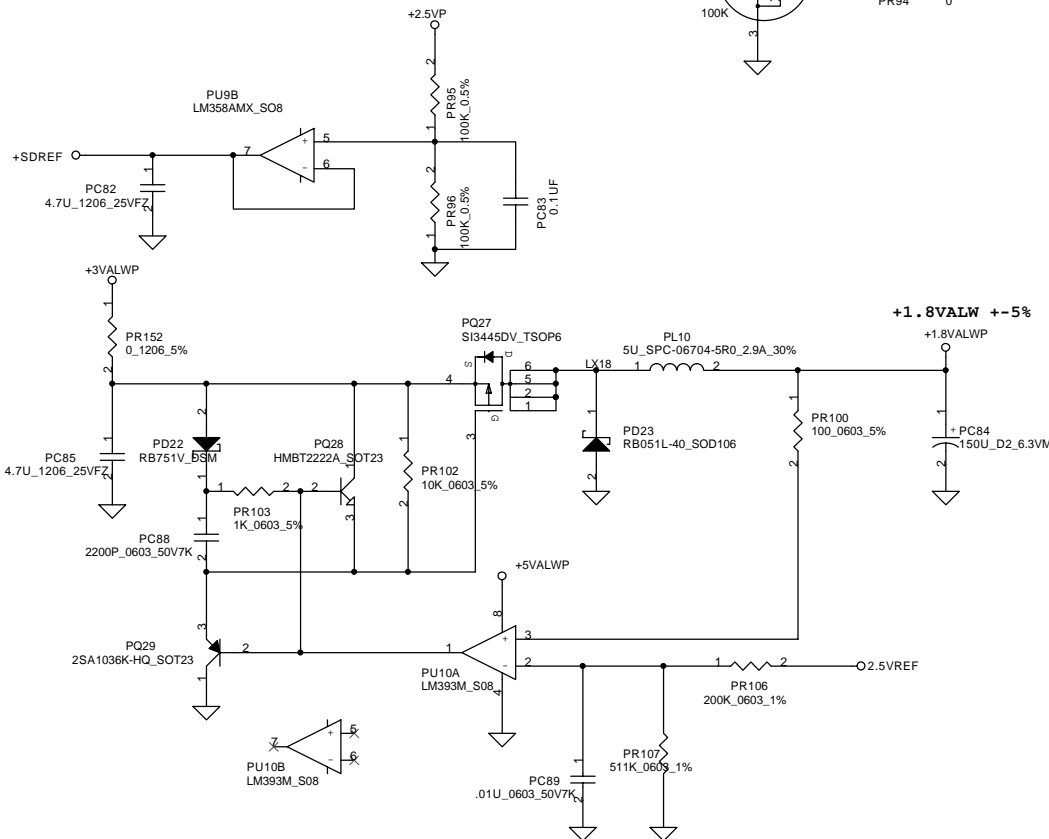




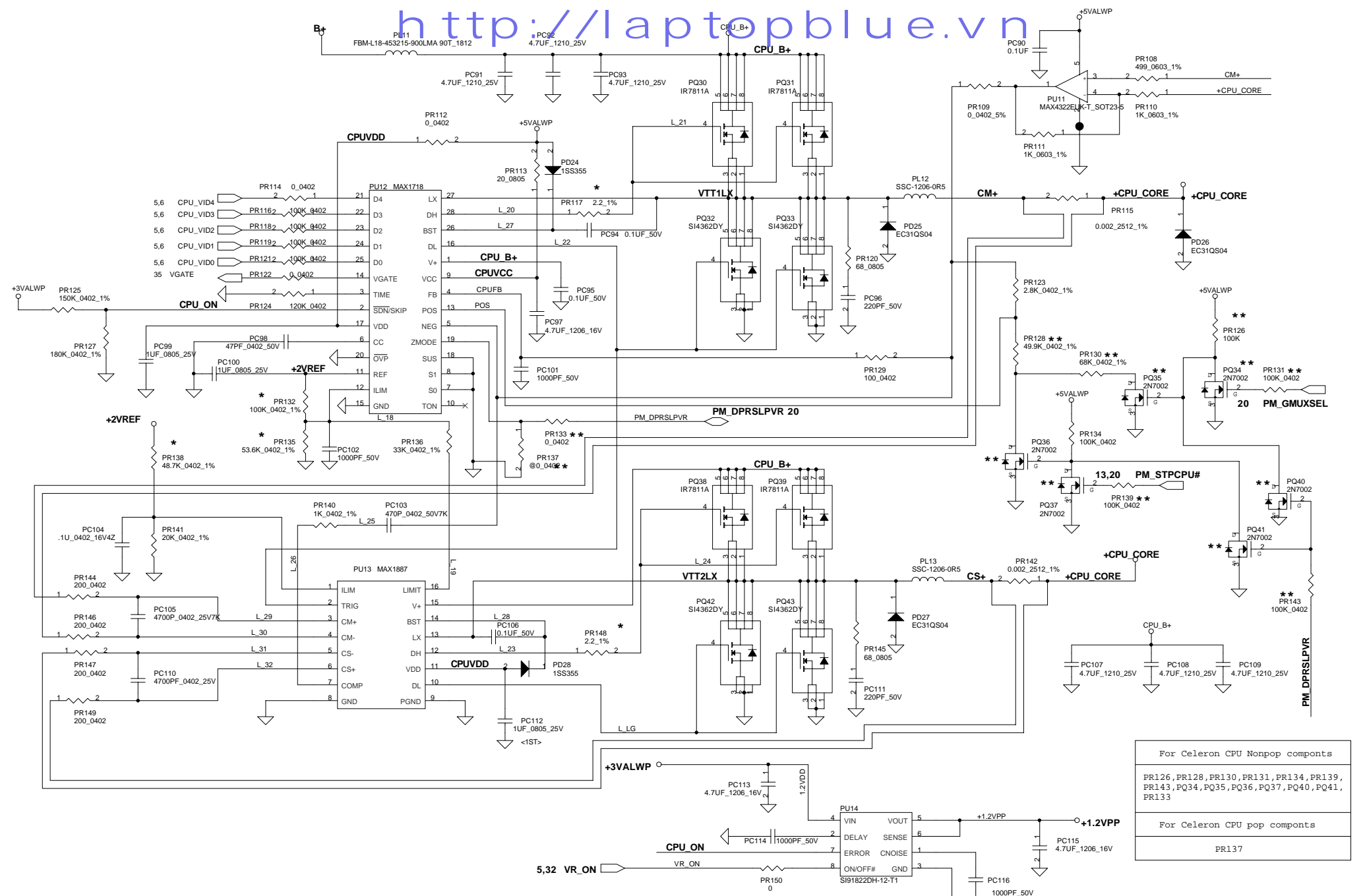




PH1 near main Battery CONN :
BAT. thermal protection at 65 degree C
Recovery at 40(41) degree C



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	GMUXSEL	STPCPU#	DPRSLPVR	VCORE'	Offset	VCORE
PM	1	1	0	1.30V	0%	1.30V
PM D-S	1	0	0		4.62%	1.239V
BM	0	1	0	1.20V	2.0%	1.176V
BM D-S	0	0	0		4.62%	1.144V
Deeper	X	0	1	1.0V	0%	1.0V

For Celeron CPU Nonpop compnts
PR126,PR128,PR130,PR131,PR134,PR139, PR143,PQ34,PQ35,PQ36,PQ37,PQ40,PQ41, PR133
For Celeron CPU pop compnts
PR137

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