

Compal confidential

Schematics Document
Mobile Yonah uFCPGA with Intel
Calistoga_PM+ICH7-M core logic
2005-06-01

REV:0.1

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Model:HAQAA

File Name : LA-3011

NAPA

Mobile Yonah

uFCPGA-479 CPU

page 4,5,6

Thermal Sensor
ADM1032AR

page 4

Clock Generator
ICS9LPRS325AKLFT

page 15

Accelerometer
KXP84-0200

page 28

Intel Calistoga MCH
945PM
PCBGA 1466
page 7,8,9,10,11,12

DDR2 -400/533/667

Dual Channel

DDR2-SO-DIMM X2
BANK 0, 1, 2, 3

page 13,14

Intel ICH7-M
mBGA-652
page 19,20,21,22

DMI

Intel ICH7-M

mBGA-652

page 19,20,21,22

CardBus Controller
TI PCI7412

page 22,23

Slot 0

page 23

1394 port

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5in1 Slot

page 22

LPC BUS

TPM1.2

SLB9635TT1.2

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Super I/O

LPC47N217&207

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FIR

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ENE KB910QF

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CIR

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Touch Pad

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Int.KBD

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BIOS

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AMP & Audio Jack

page 30

SATA HDD Connector

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PATA ODD Connector

page 19

Audio CKT

ALC861

page 29

AMP & Audio Jack

TPA0232

page 30

MDC1.5

page 37

Azalia

USB2.0

BT Conn

page 24

USB conn x2

page 24

USB2.0 HUB /

FP Conn

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USB conn x1

(Docking)

page 34

(port 6)

(port 0)

(port 4,5)

(port 7)

(port 2,3)

FingerPrinter UPEK TCS3C/TCD42A

USBx1

page 38

PCI-E x 16

PCI-E BUS

PCI BUS

(port 1)

Mini Express Card

page 28

10/100/1000 LAN

82562GX/82573E/82573V

page 26,27

RJ45/11 CONN

page 26

LCD CONN

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nVIDIA G72/G73

ATI M52/M54

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CRT / TV-OUT

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LED

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RTC CKT.

page 19

Docking

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Power On/Off CKT.

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DC/DC Interface CKT.

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Power Circuit DC/DC

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Voltage Rails

Power Plane	Description	S0-S1	S3	S5
VIN	Adapter power supply (18.5V)	NA	NA	NA
B+	AC or battery power rail for power circuit	NA	NA	NA
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+VCCP	1.05V power rail for Processor I/O and MCH/ICH core power	ON	OFF	OFF
+0.9VS	0.9V switched power rail for DDRII Vtt	ON	OFF	OFF
+1.5VS	1.5V switched power rail for PCI-E interface	ON	OFF	OFF
+1.8V	1.8V power rail for DDRII	ON	ON	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5VS	2.5V switched power rail for MCH video PLL	ON	OFF	OFF
+2.5VALW	3.3V always on power rail	ON	ON	ON*
+3VALW	3.3V always on power rail	ON	ON	ON*
+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
+RTC_VCC	RTC power	ON	ON	ON

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

Internal PCI Devices

DEVICE	Bus	PCI Device ID	IDSEL #
LAN	1	D8	AD24
Azalia	0	D27	AD11
PCI-E	0	D28	AD12
USB1.1/2.0	0	D29	AD13
PCI to PCI (DMI to PCI)	0	D30	AD14
AC97 MODEM	0	D30	AD14
AC97 Audio	0	D30	AD14
PATA/SATA	0	D31	AD15
LPC I/F	0	D31	AD15
SMBUS	0	D31	AD15
CPU I/F	0	D31	AD15
DMA	0	D31	AD15
PMU	0	D31	AD15

External PCI Devices

DEVICE	PCI Device ID	IDSEL #	REQ/GNT #	PIRQ
CARD BUS	D6	AD22	2	ABCD

I2C / SMBUS ADDRESSING

DEVICE	HEX	ADDRESS
DDR SO-DIMM 0	A0	1 0 1 0 0 0 0 0
DDR SO-DIMM 1	A4	1 0 1 0 0 1 0 0
CLOCK GENERATOR (EXT.)	D2	1 1 0 1 0 0 1 0

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 1%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0.100 V
1	8.2K +/- 1%	0.216 V	0.250 V	0.289 V
2	18K +/- 1%	0.436 V	0.503 V	0.538 V
3	33K +/- 1%	0.712 V	0.819 V	0.875 V
4	56K +/- 1%	1.036 V	1.185 V	1.264 V
5	100K +/- 1%	1.453 V	1.650 V	1.759 V
6	200K +/- 1%	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	
2	
3	
4	
5	
6	
7	

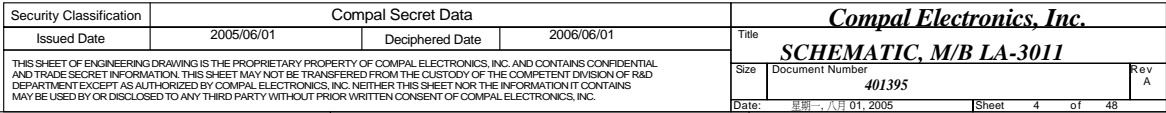
SKU ID Table

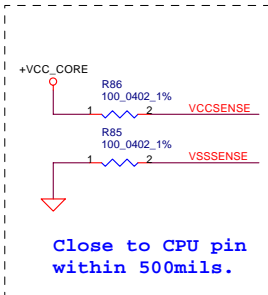
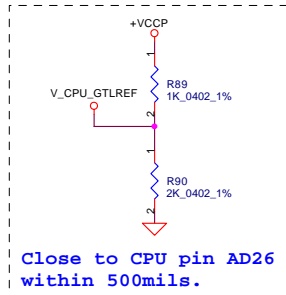
SKU ID	SKU
0	
1	
2	
3	
4	
5	
6	
7	

BTO Option Table

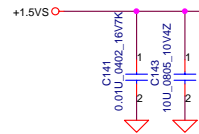
BTO Item	BOM Structure
VGA	PM@ GM@
LAN	82573G@ 82573L@ 82573@ 82562@
INT MIC.	45MIC@
DOCKING	WD@ WOD@
CIR	CIR@
FIR	FIR@
SUPER I/O	217@ SI207@
Battery	45@

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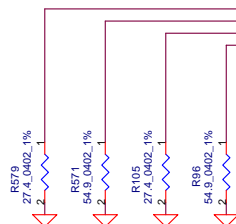
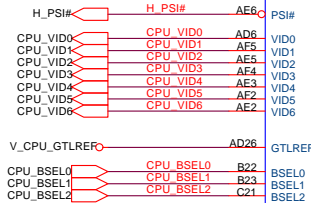




Length match within 25 mils
The trace width 18 mils space
7 mils



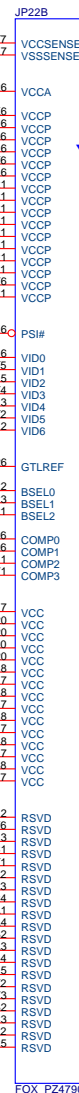
CPU_BSEL	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
133	0	0	1
166	0	1	1



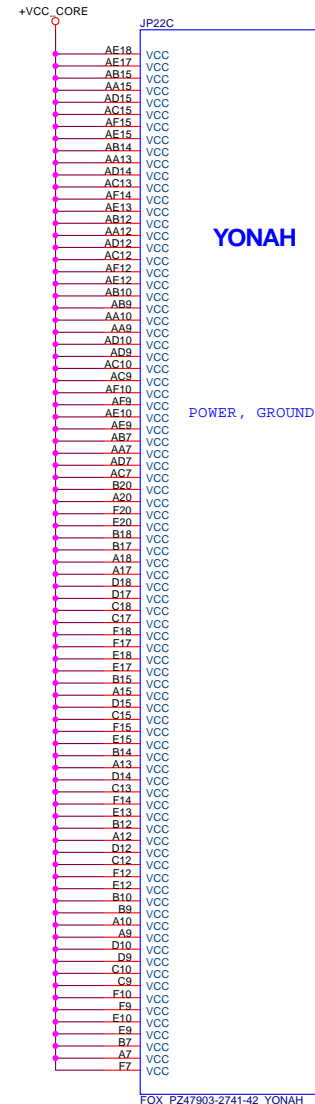
Resistor placed within 0.5" of CPU pin. Trace should be at least 25 mils away from any other toggling signal.

YONAH

POWER, GROUND, RESERVED SIGNALS AND NC



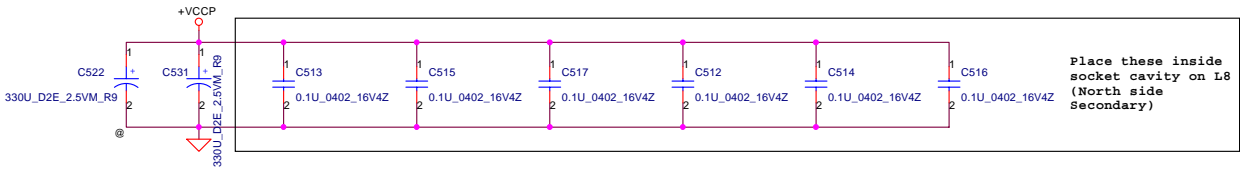
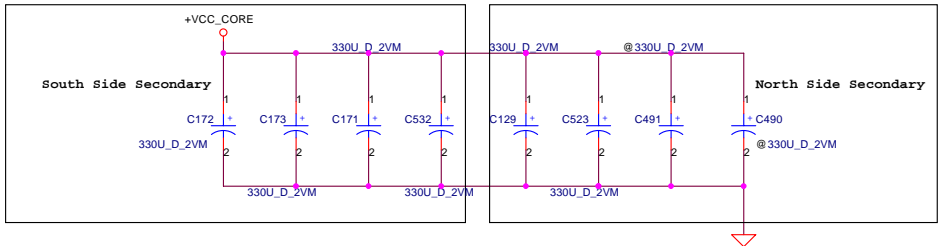
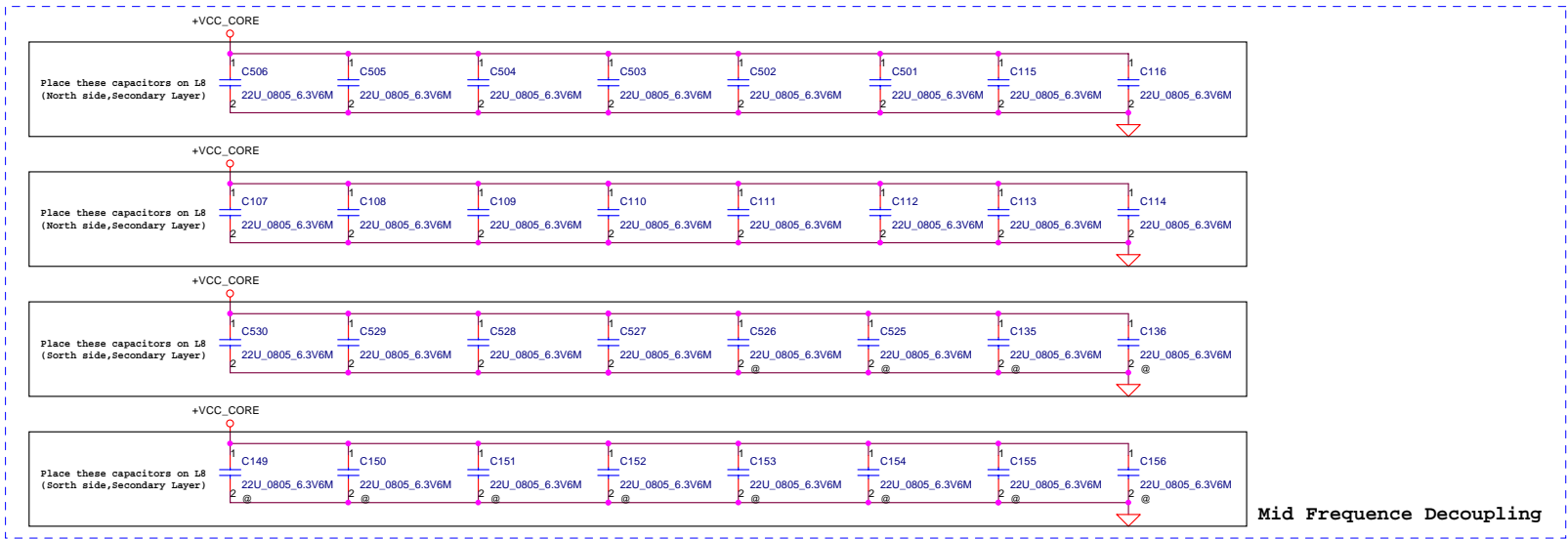
FOX_PZ47903-2741-42_YONAH



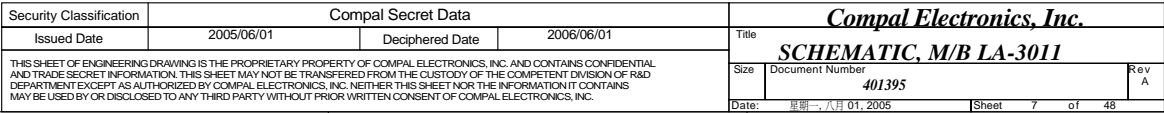
YONAH

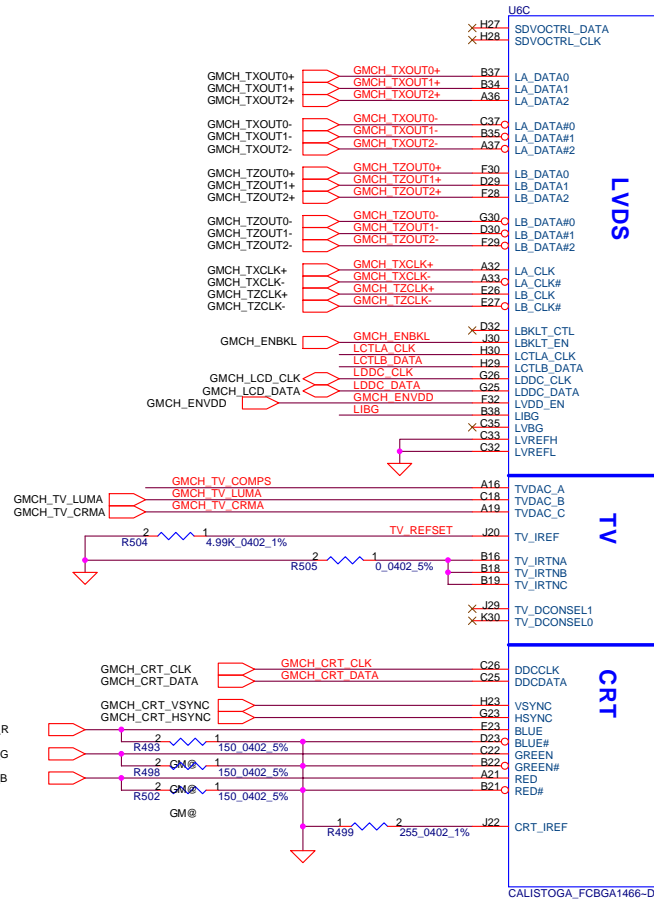
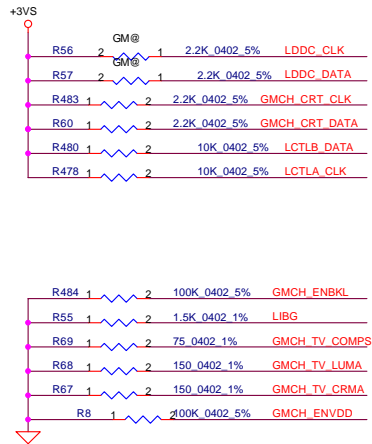
POWER, GROUND

FOX_PZ47903-2741-42_YONAH

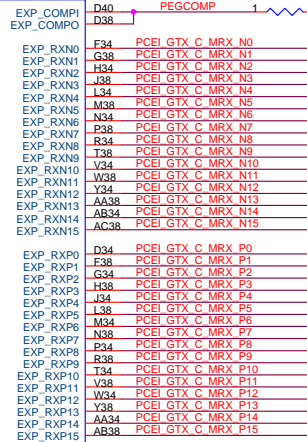


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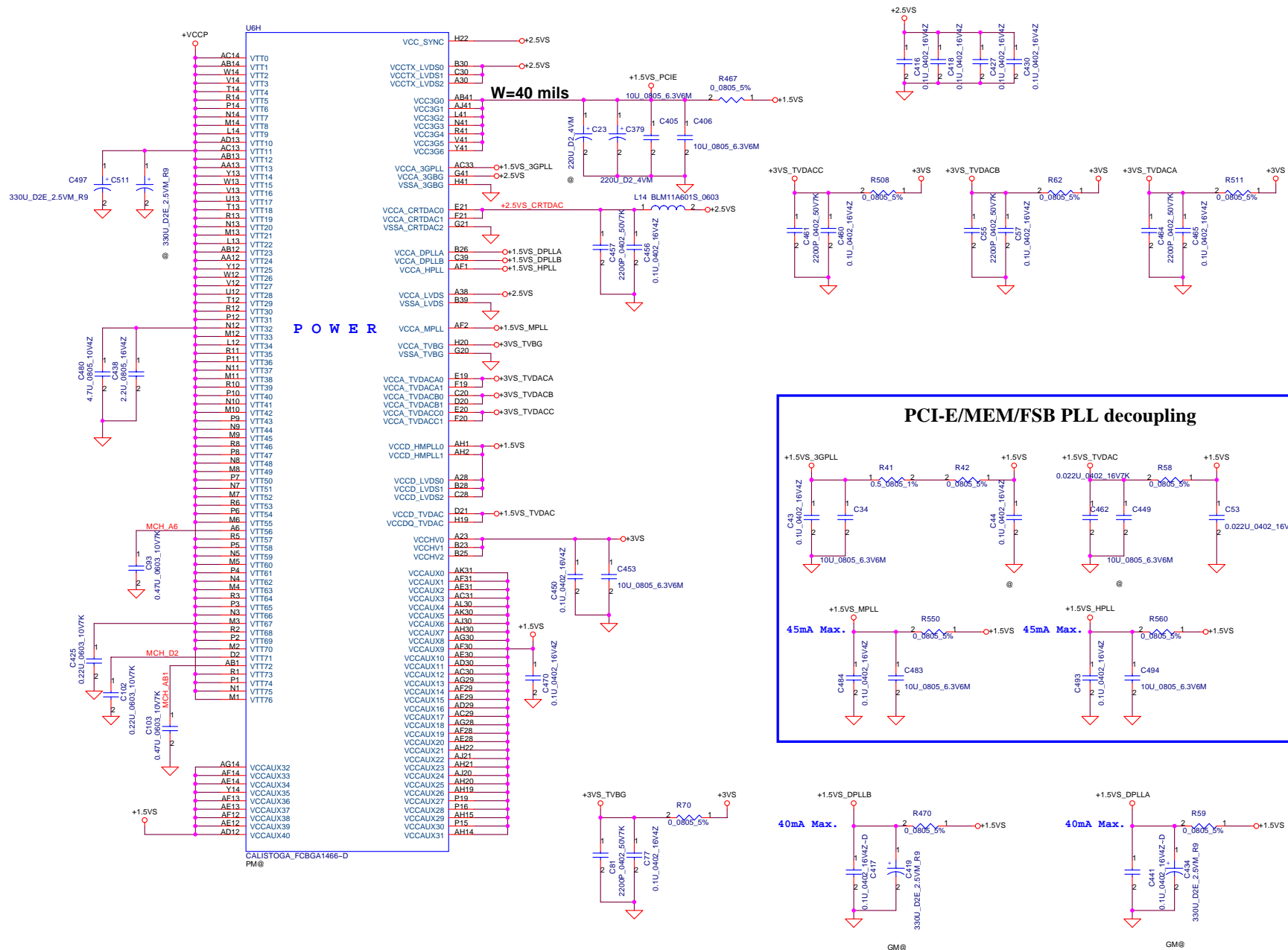


PEGCOMP trace width
and spacing is 18/25 mils.



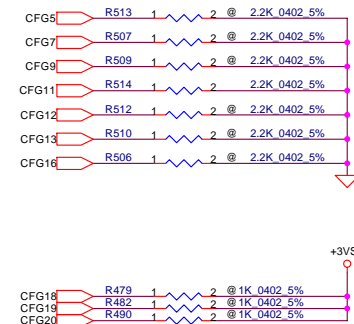
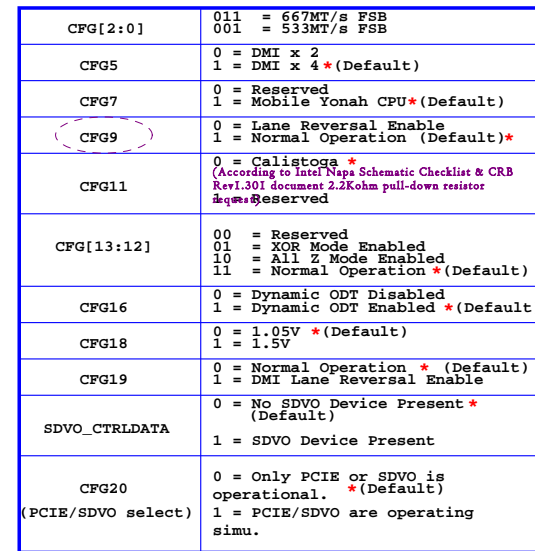
PCIE_MTX_C_GRP_N[0..15]
PCIE_MTX_C_GRP_P[0..15]
PCIE_GTX_C_GRP_N[0..15]
PCIE_GTX_C_GRP_P[0..15]

EXP_TXN0	F36	C400	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N0
EXP_TXN1	G40	C36	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N1
EXP_TXN2	H36	C384	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N2
EXP_TXN3	J40	C25	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N3
EXP_TXN4	L36	C398	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N4
EXP_TXN5	M40	C38	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N5
EXP_TXN6	N36	C382	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N6
EXP_TXN7	P40	C27	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N7
EXP_TXN8	R36	C386	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N8
EXP_TXN9	T40	C40	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N9
EXP_TXN10	V36	C380	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N10
EXP_TXN11	W40	C29	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N11
EXP_TXN12	Y36	C384	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N12
EXP_TXN13	AA40	C42	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N13
EXP_TXN14	AB36	C387	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N14
EXP_TXN15	AC40	C31	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_N15
EXP_TXP0	D36	C401	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P0
EXP_TXP1	E40	C35	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P1
EXP_TXP2	F36	C385	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P2
EXP_TXP3	H40	C24	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P3
EXP_TXP4	J36	C399	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P4
EXP_TXP5	L40	C37	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P5
EXP_TXP6	M36	C383	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P6
EXP_TXP7	N40	C26	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P7
EXP_TXP8	P36	C387	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P8
EXP_TXP9	R40	C39	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P9
EXP_TXP10	T36	C381	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P10
EXP_TXP11	V40	C28	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P11
EXP_TXP12	W36	C385	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P12
EXP_TXP13	Y40	C41	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P13
EXP_TXP14	AA36	C388	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P14
EXP_TXP15	AB40	C30	PM@ 0.1U 0402 16V7K	PCIE_MTX_C_GRP_P15

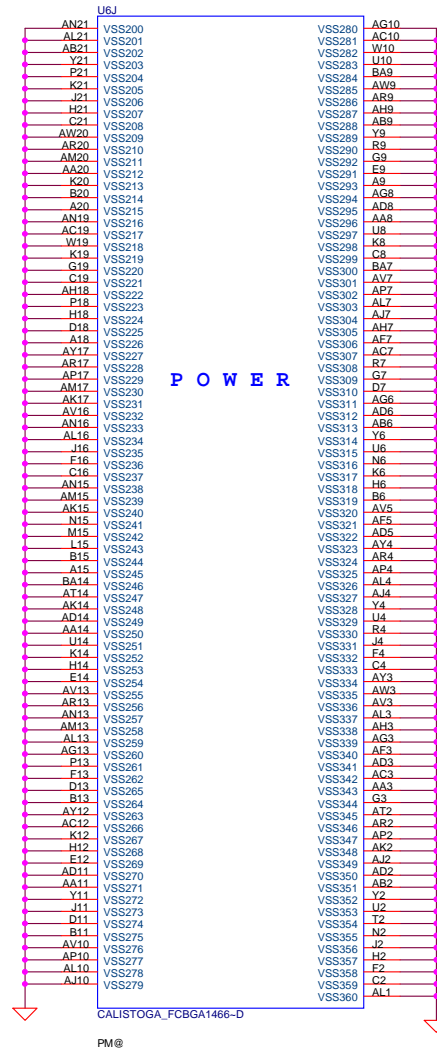
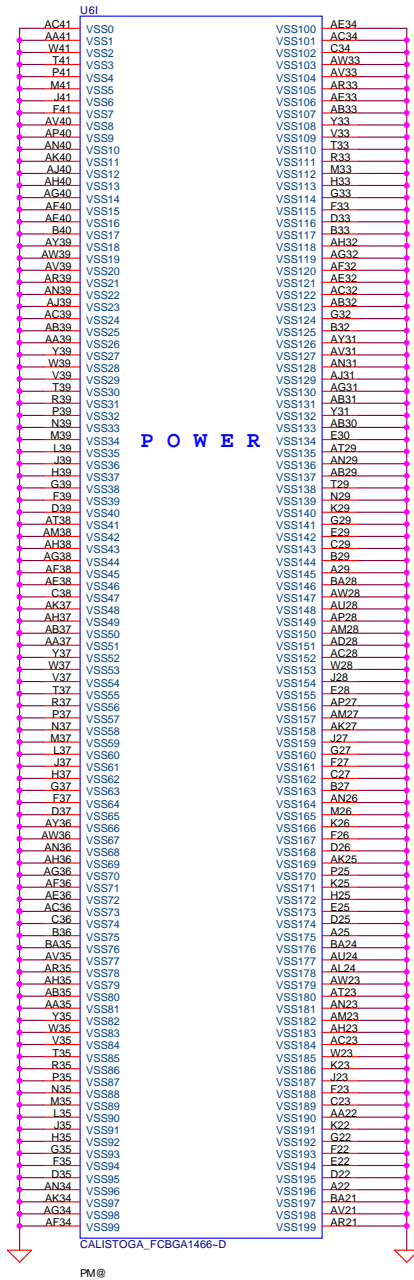


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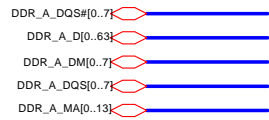
CFG[3:17] have internal pull up
CFG[19:18] have internal pull down



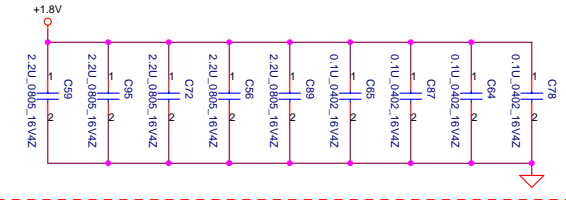
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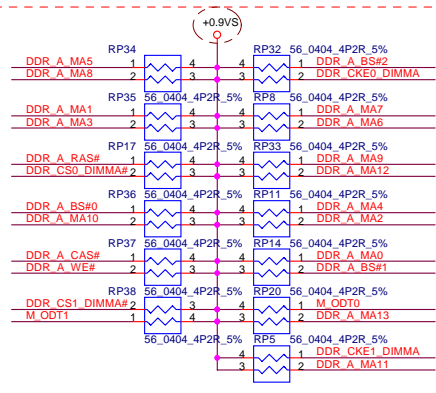
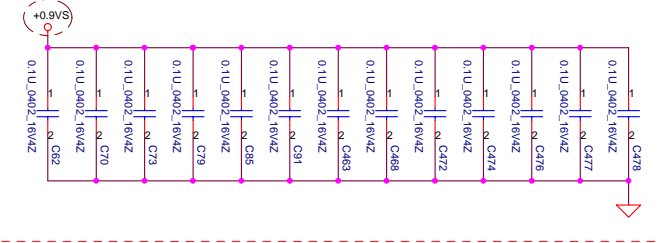
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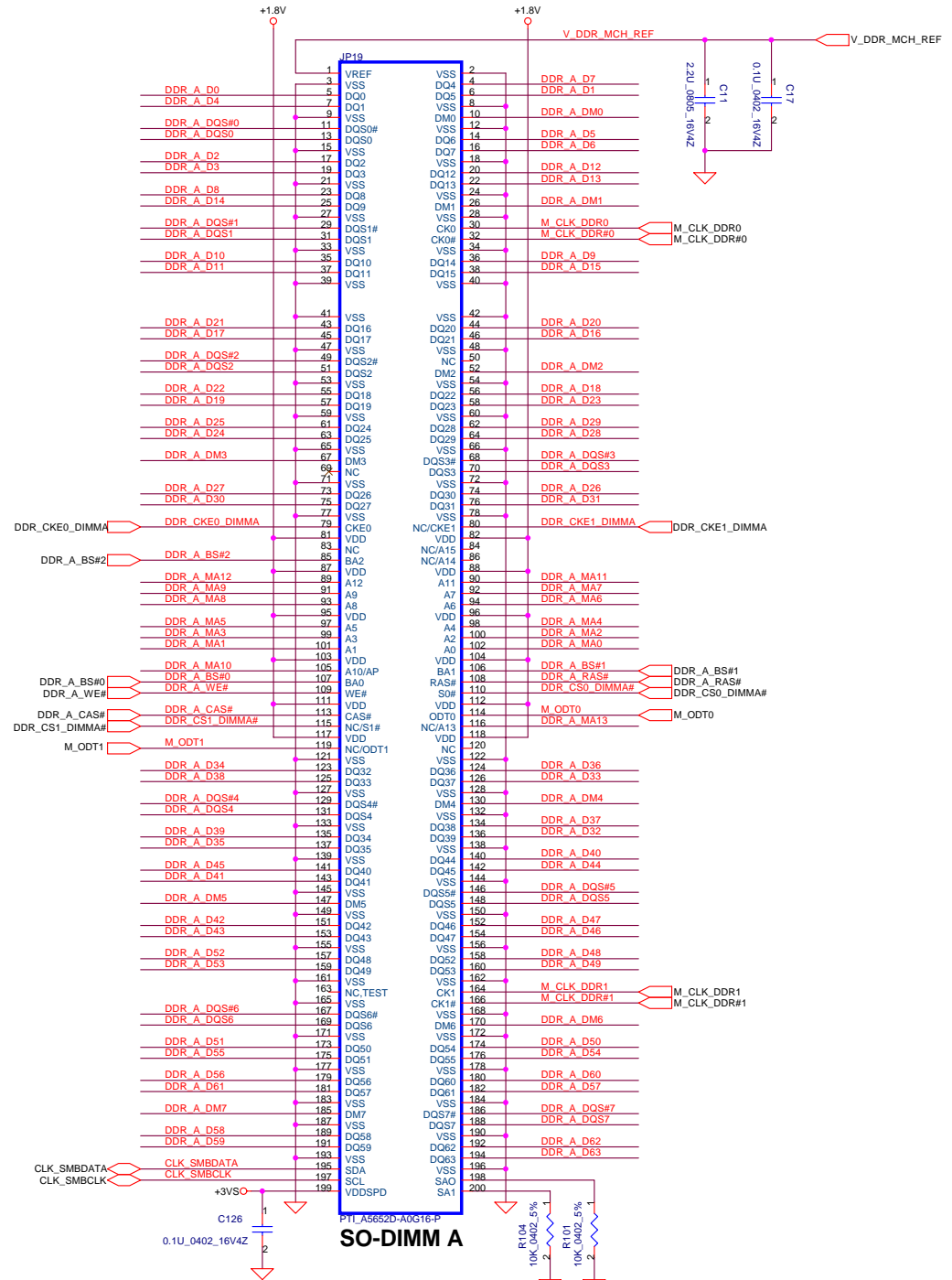
Layout Note:
Place near JP27



Layout Note:
Place one cap close to every 2 pullup
resistors terminated to +0.9VS

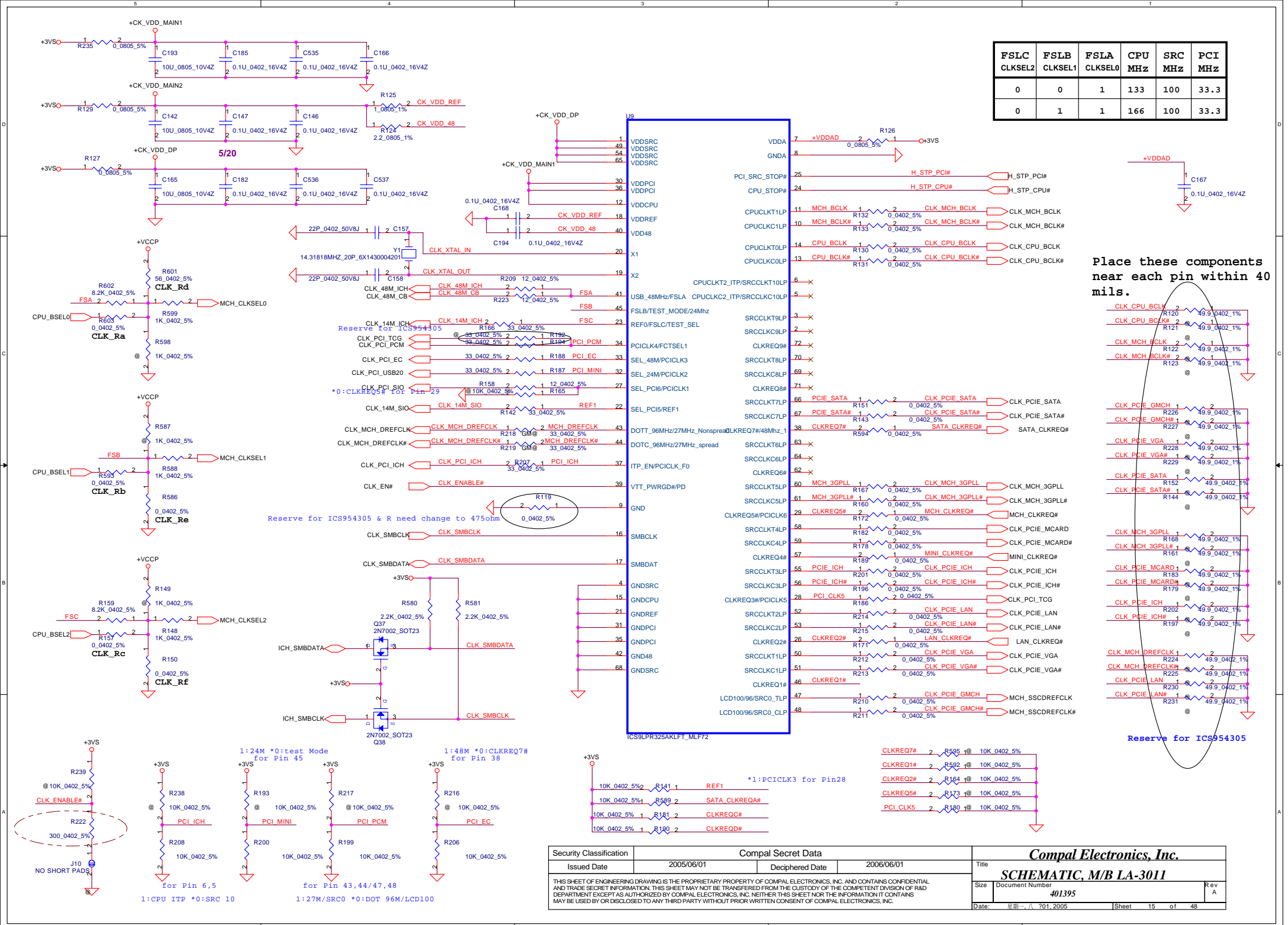


Layout Note:
Place these resistor
closely JP27,all
trace length Max=1.5"



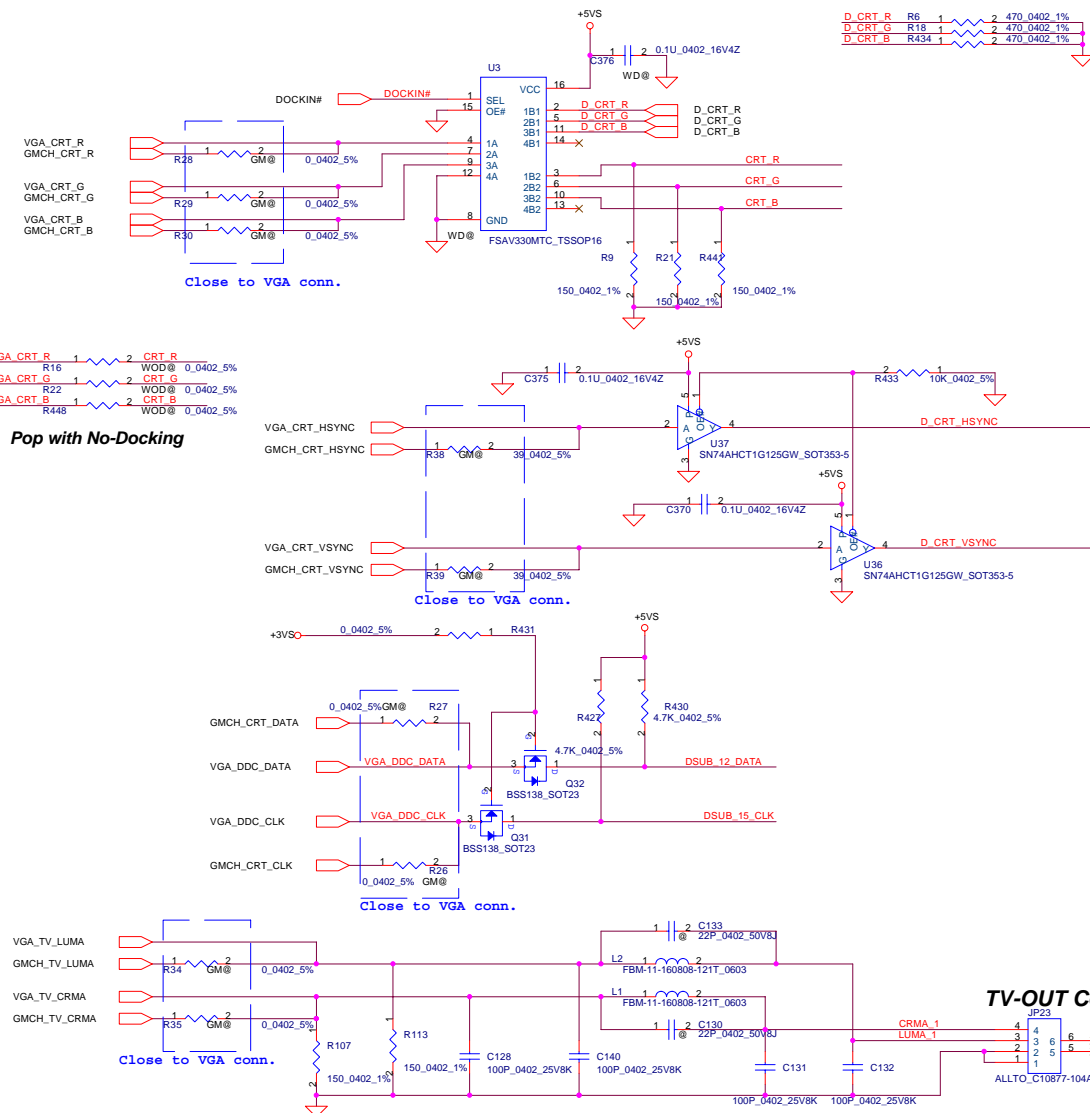
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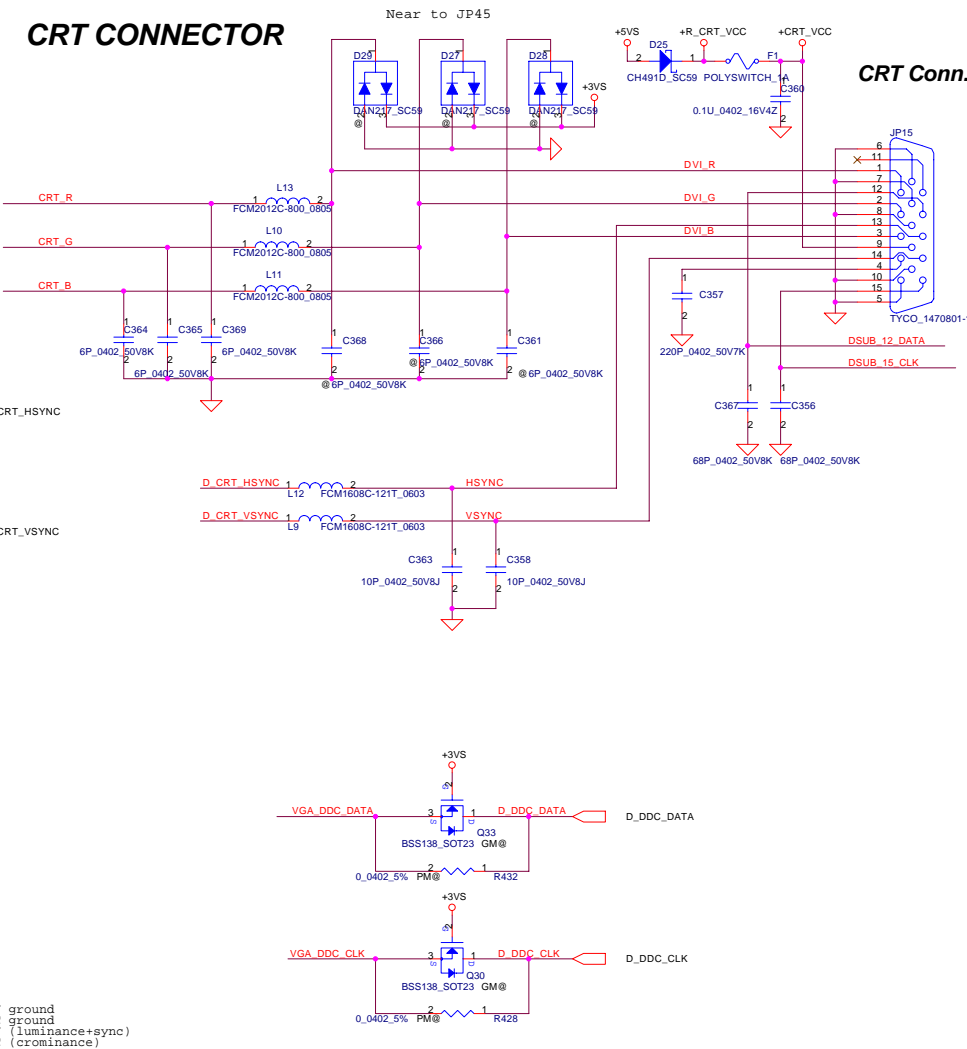
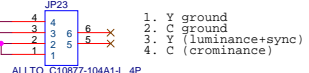


CRT Connector

Match with Docking resistor to 150ohm

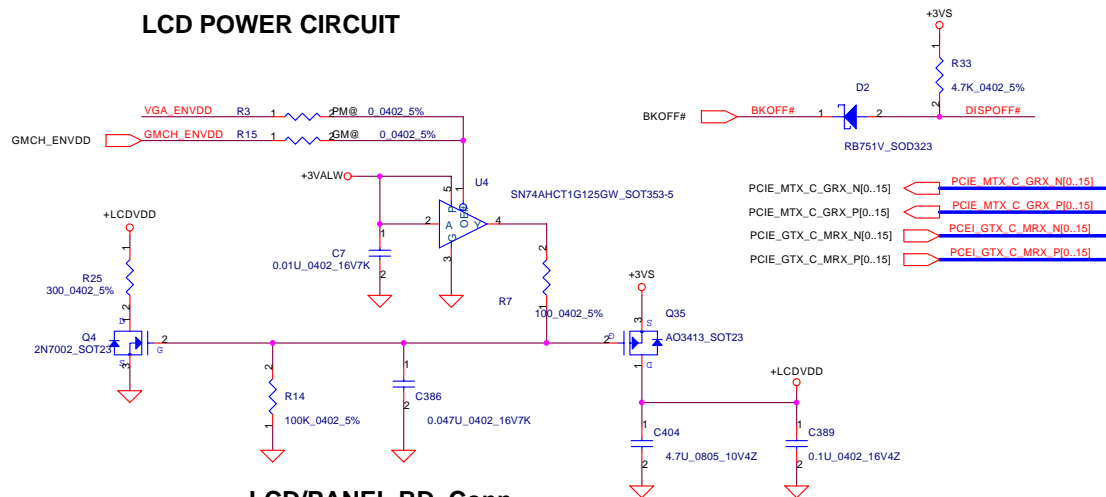


CRT CONNECTOR

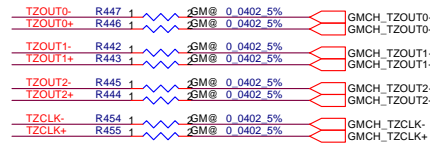
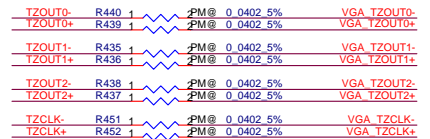
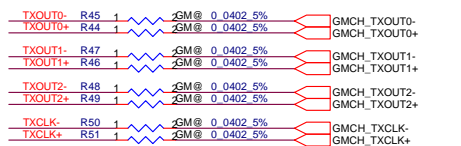
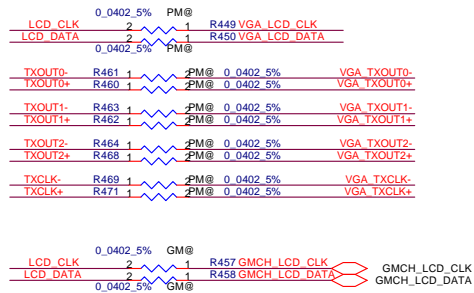
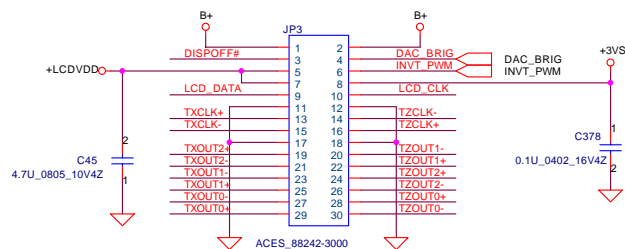
**TV-OUT Conn.**

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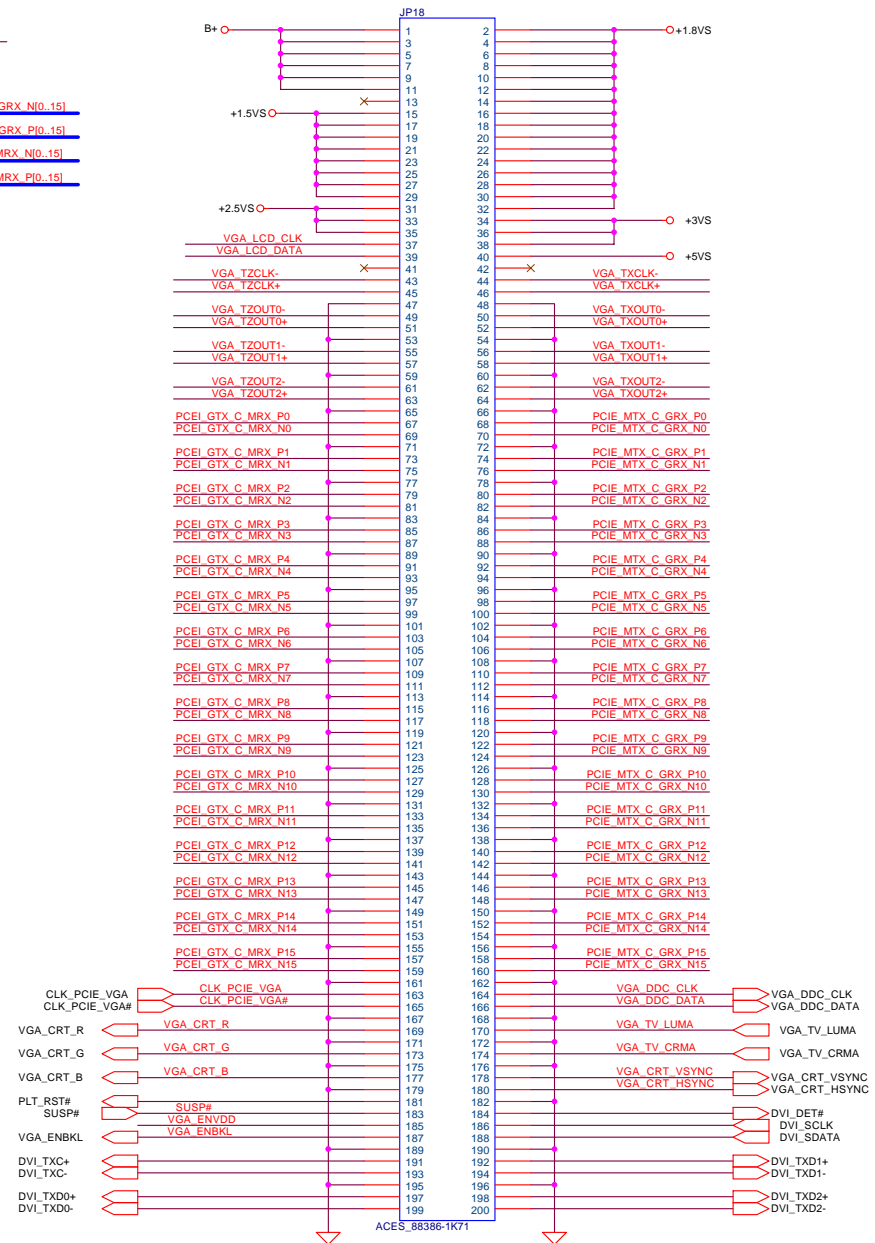
LCD POWER CIRCUIT



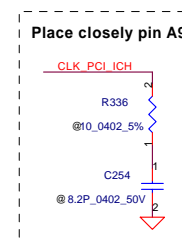
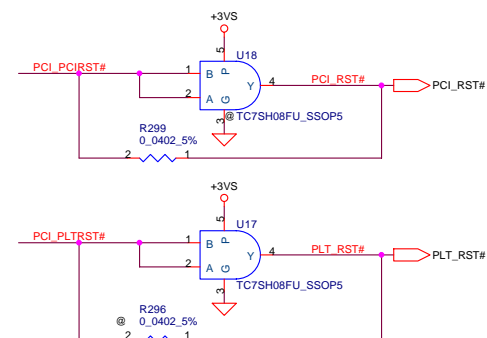
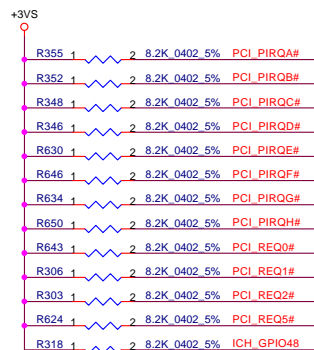
LCD/PANEL BD. Conn.



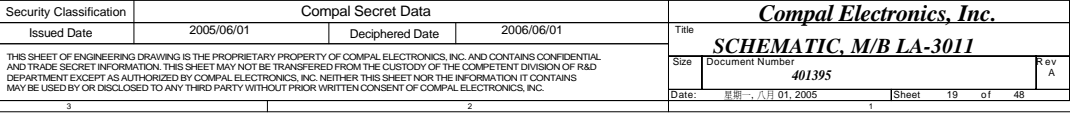
VGA BOARD Conn.

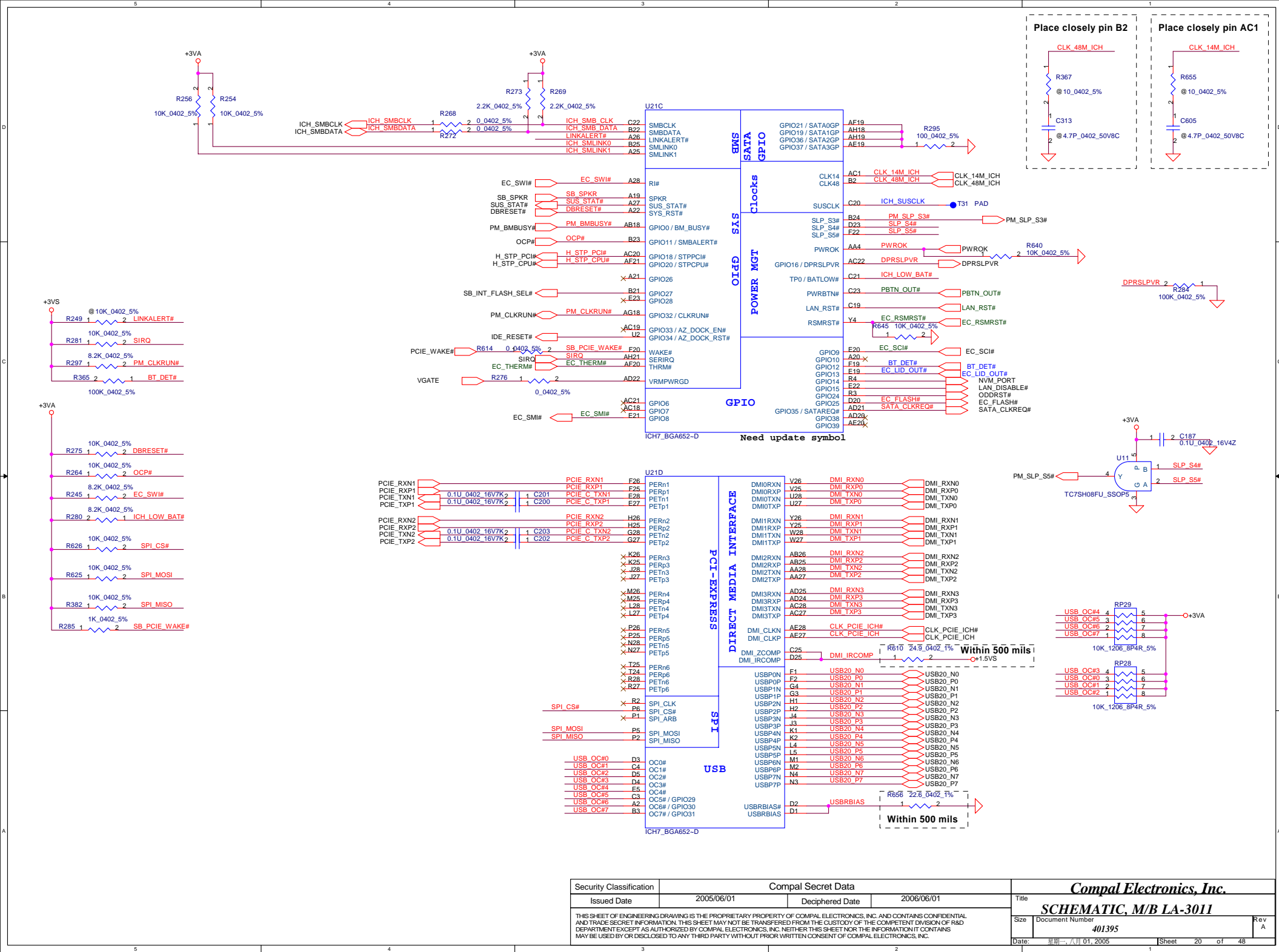


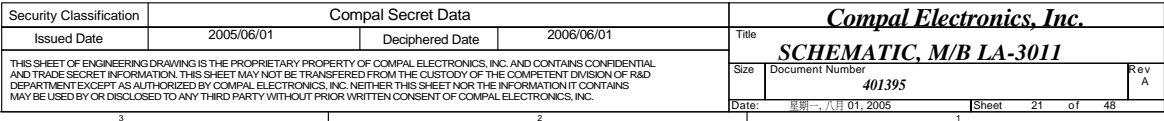
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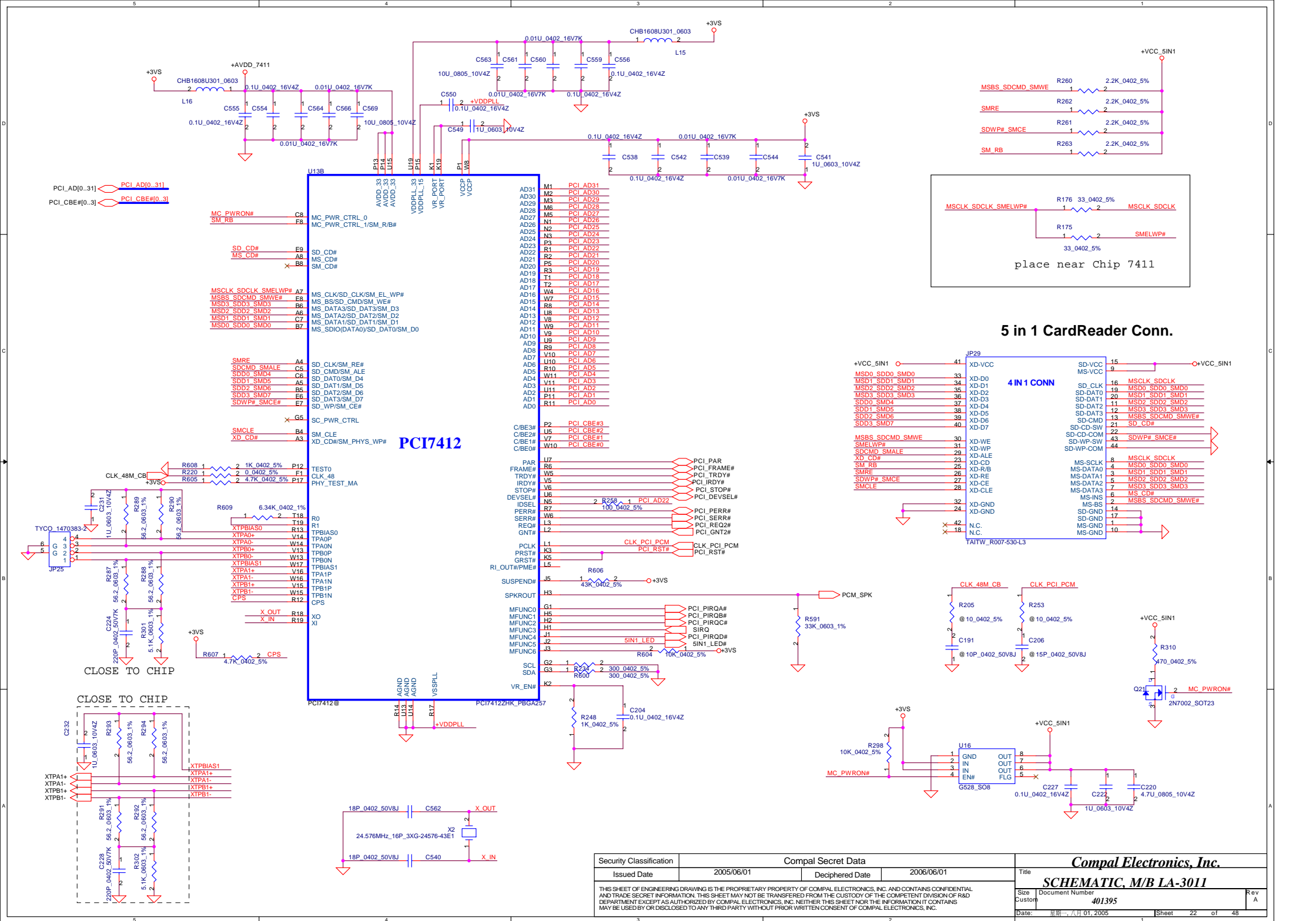


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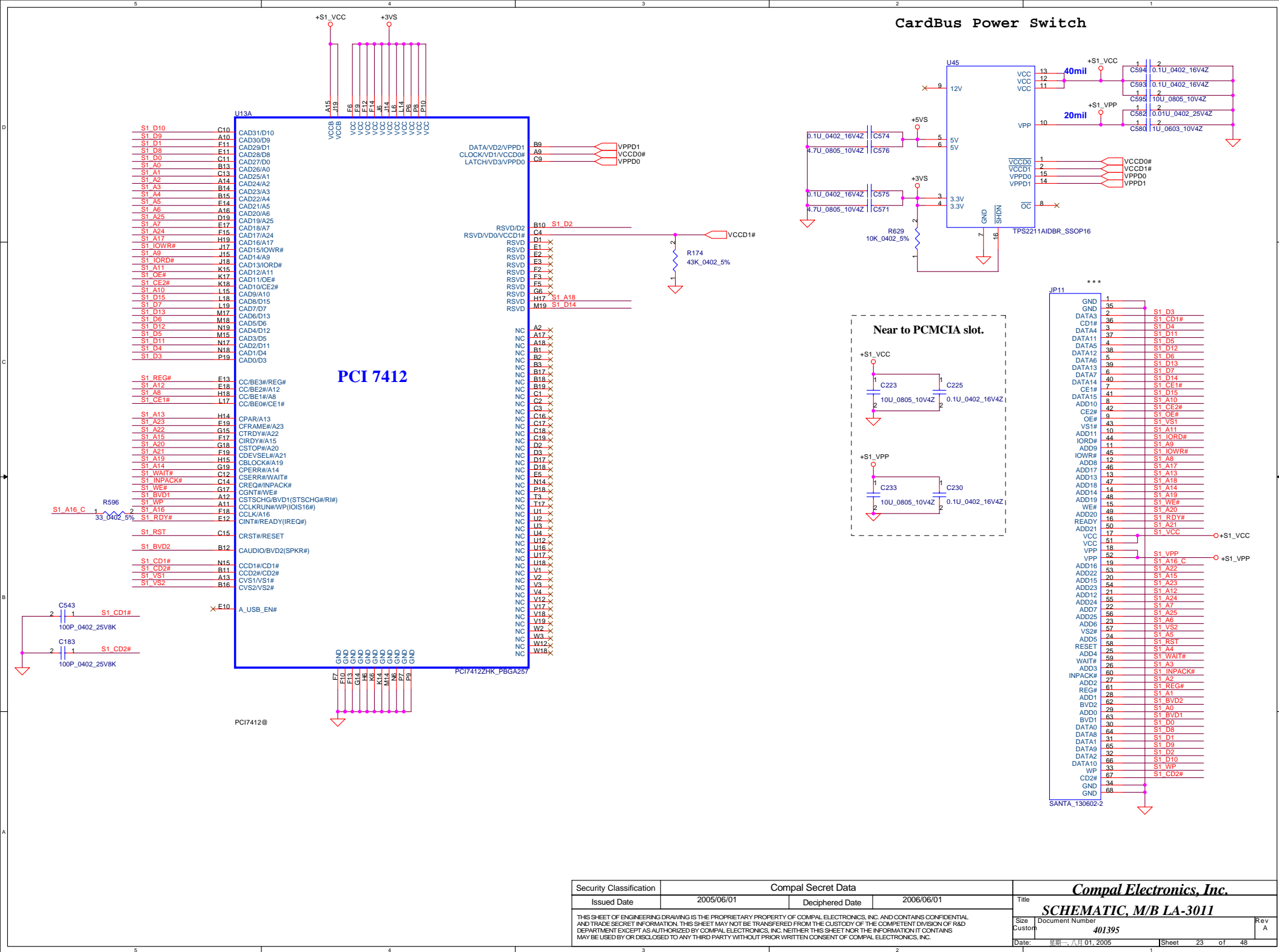


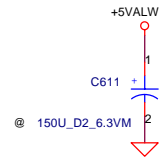




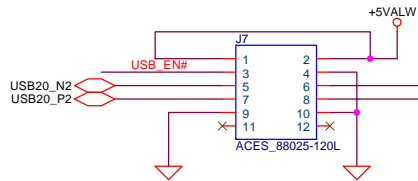


CardBus Power Switch

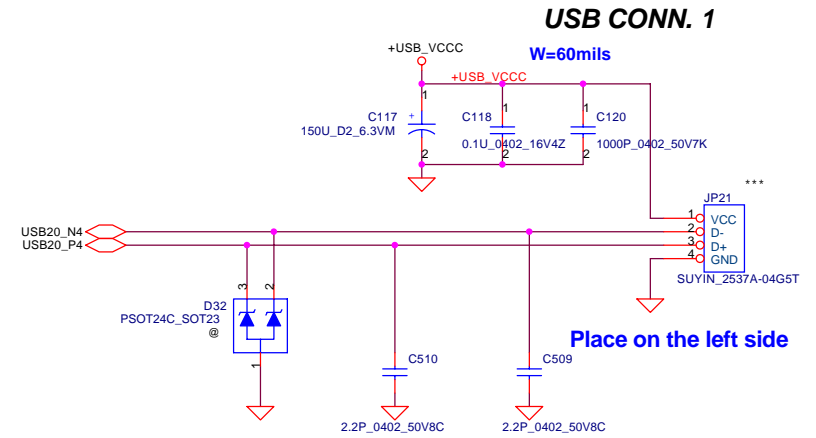
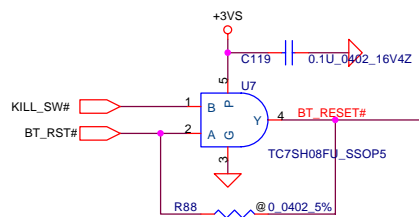
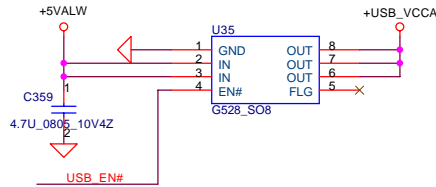
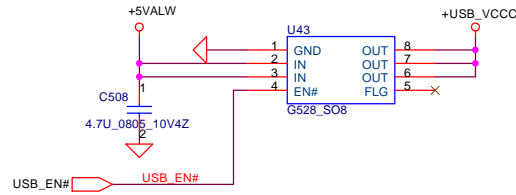
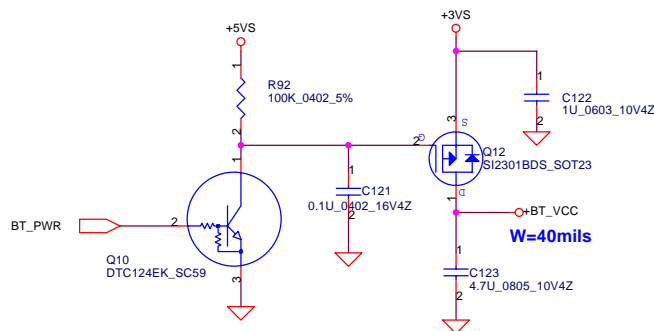




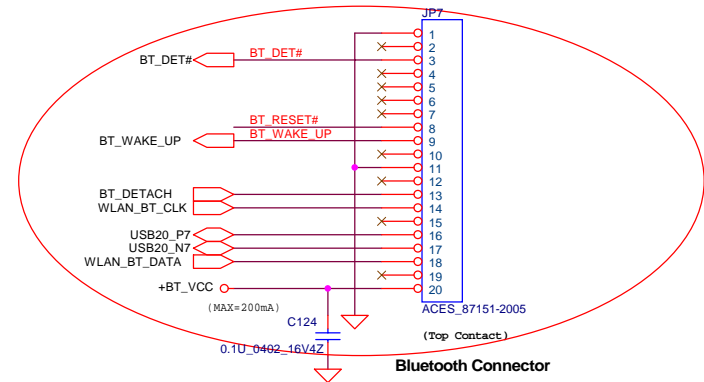
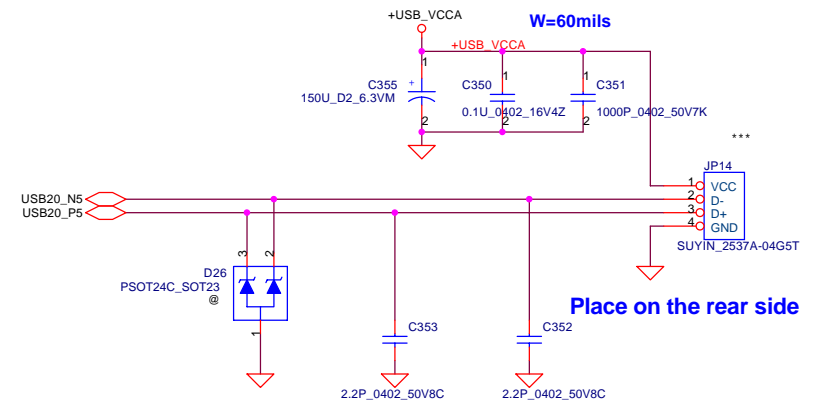
2 port in right side



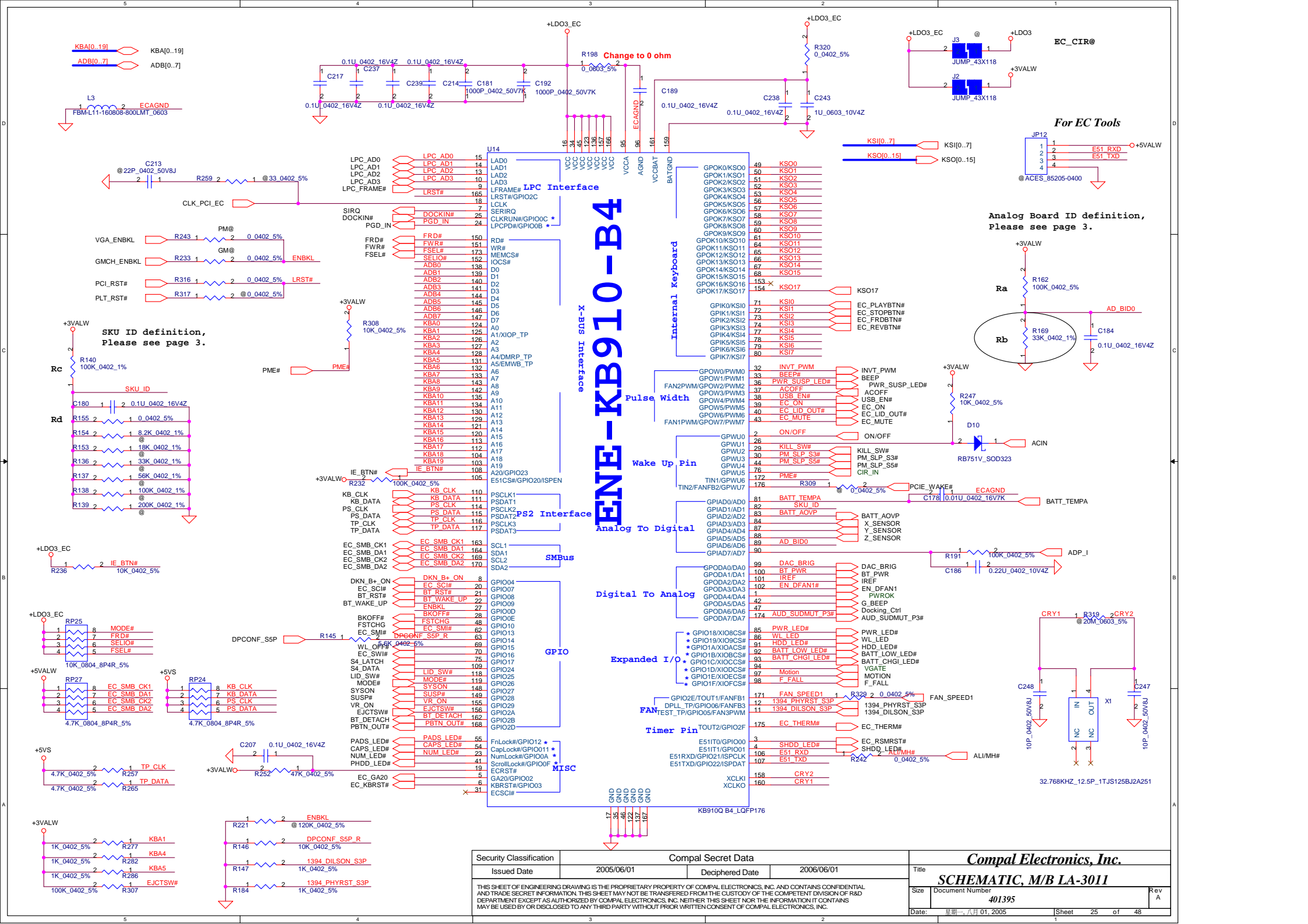
Bluetooth Conn.



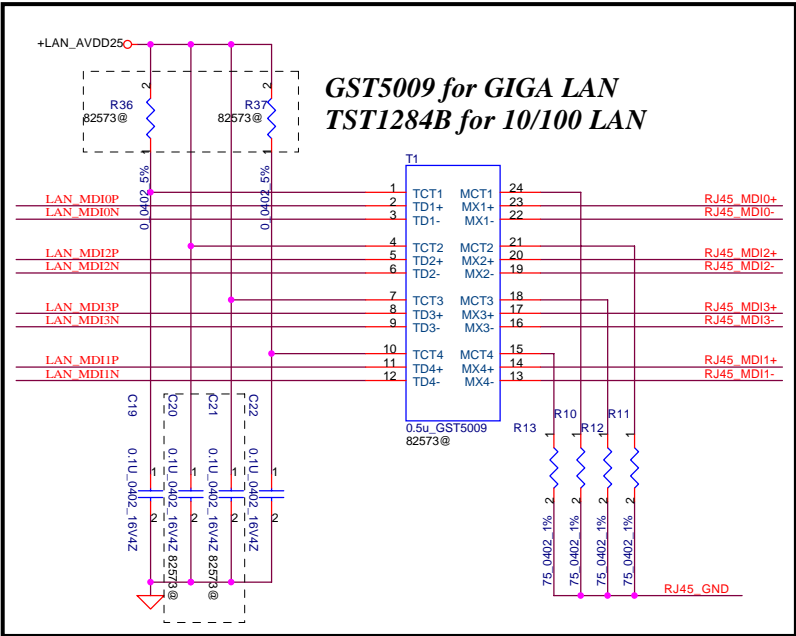
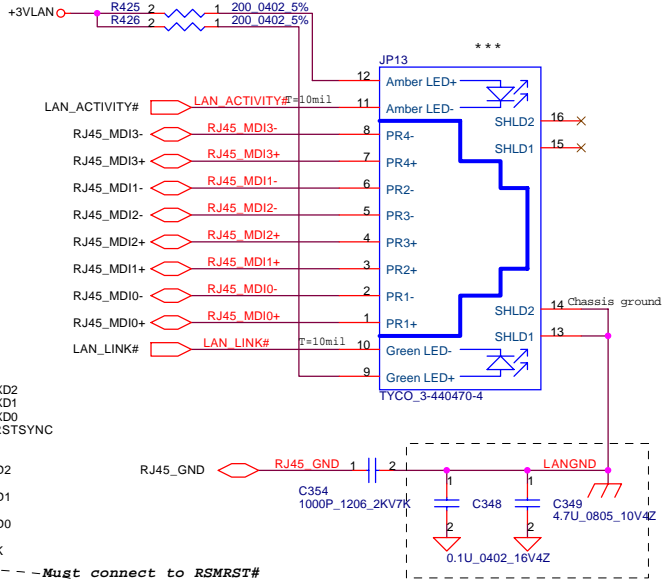
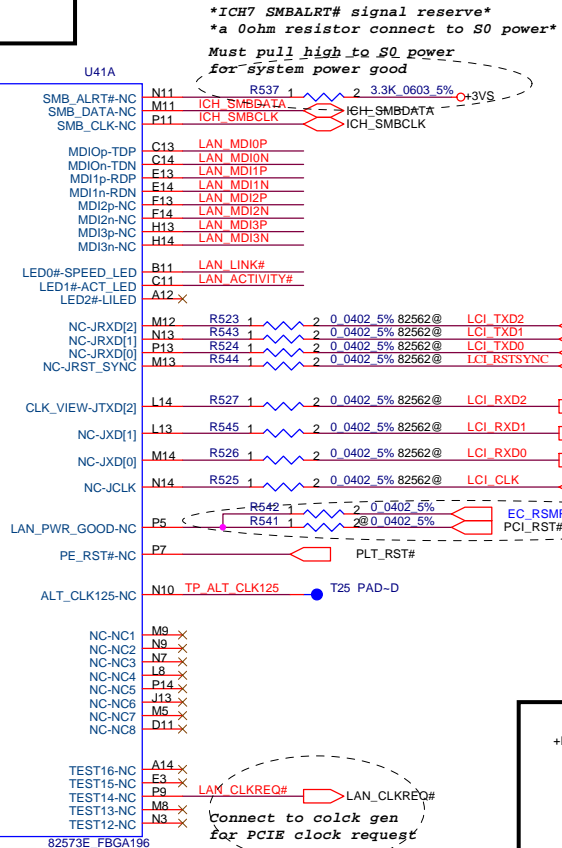
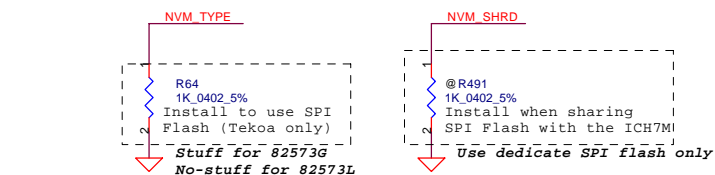
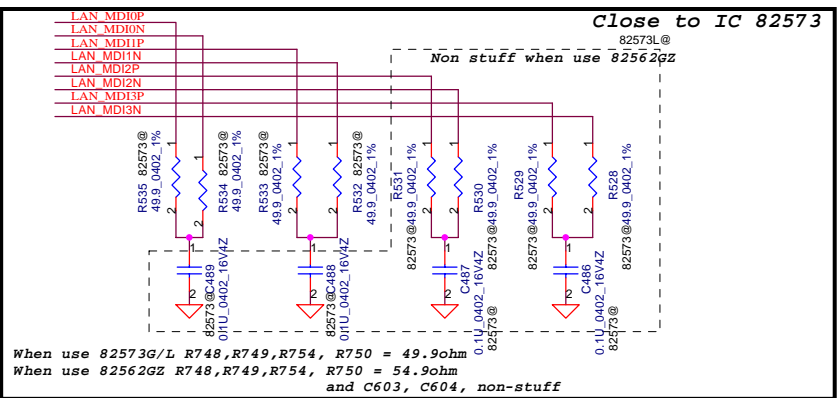
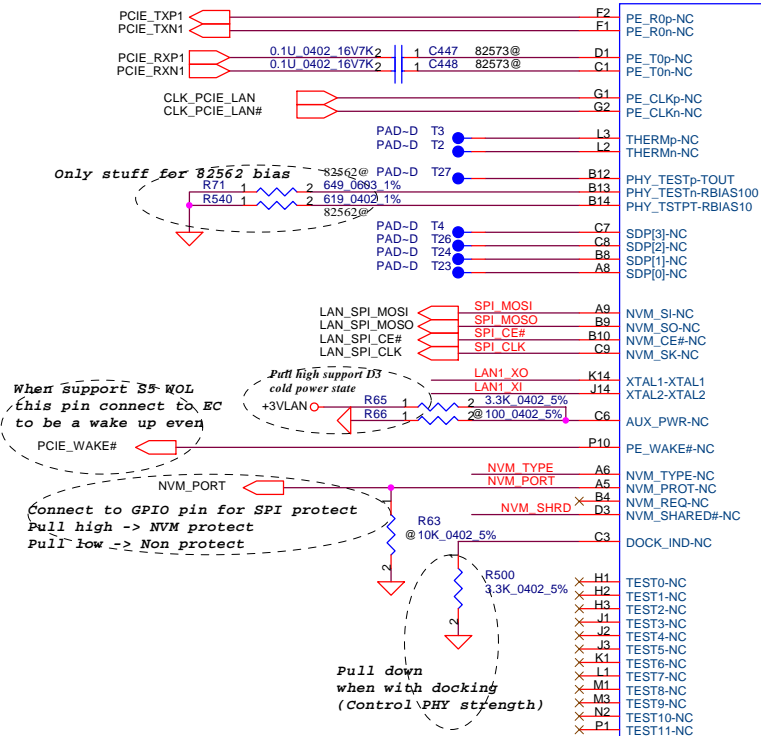
USB CONN.2



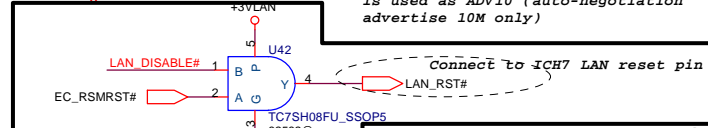
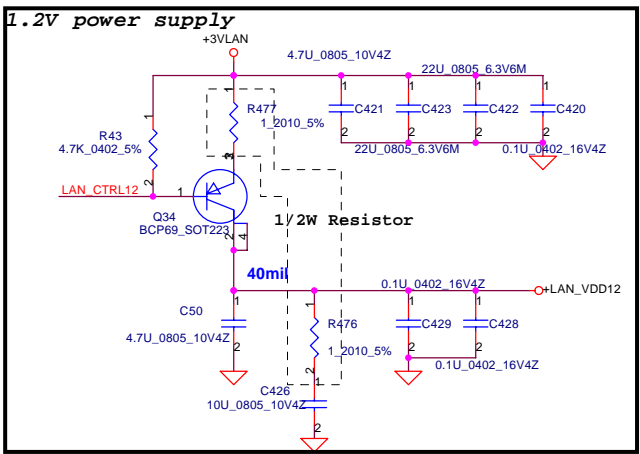
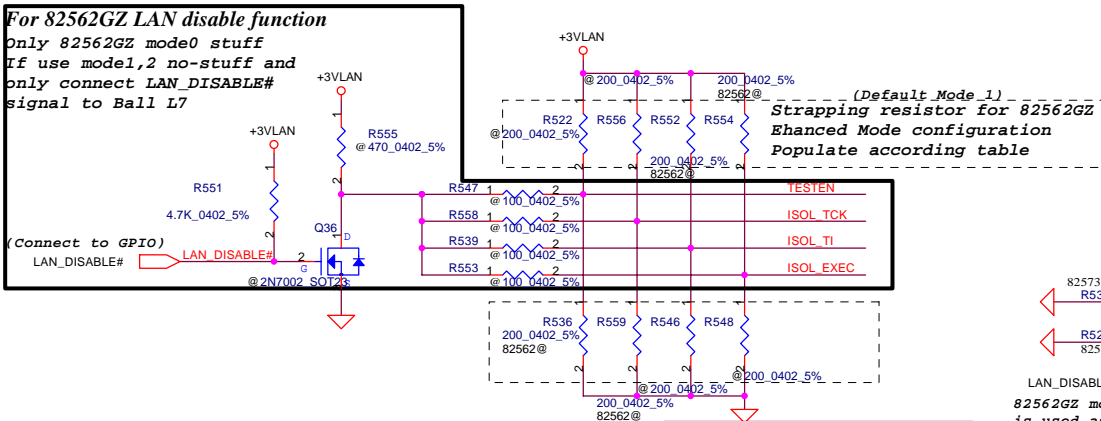
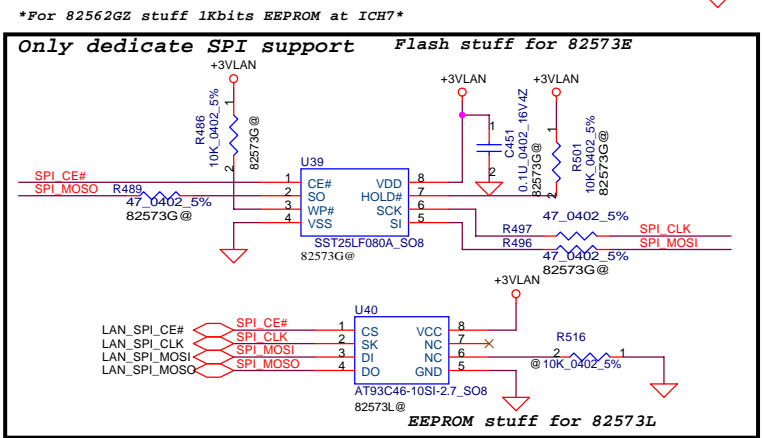
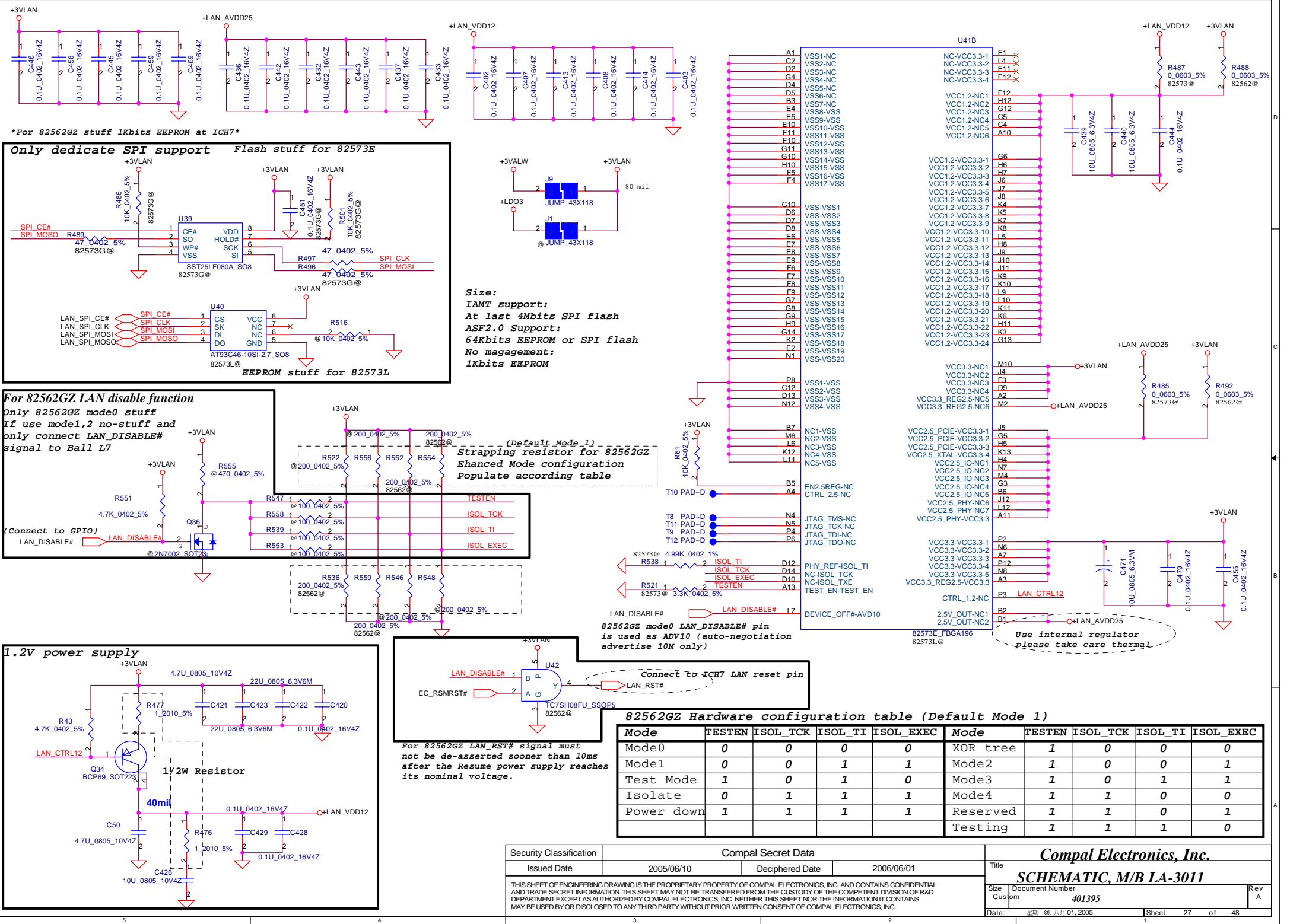
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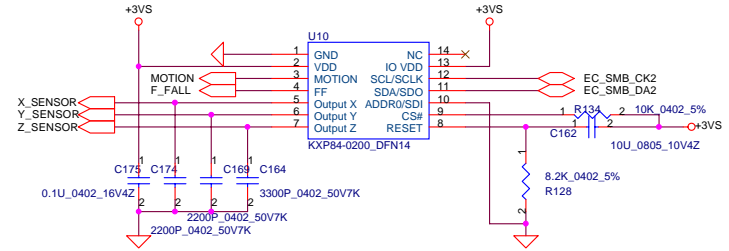
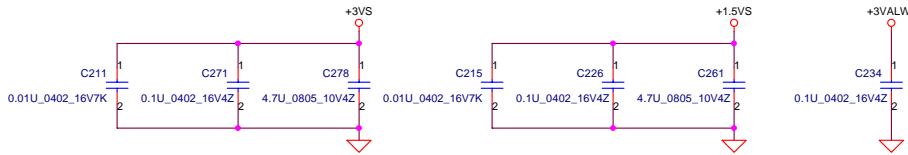
```
Tekoa 82573E -> IAMT support only (WoL Support)
Vidalia 82573L -> No management
82562GZ -> 10/100 support
```



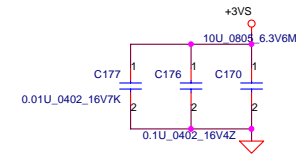
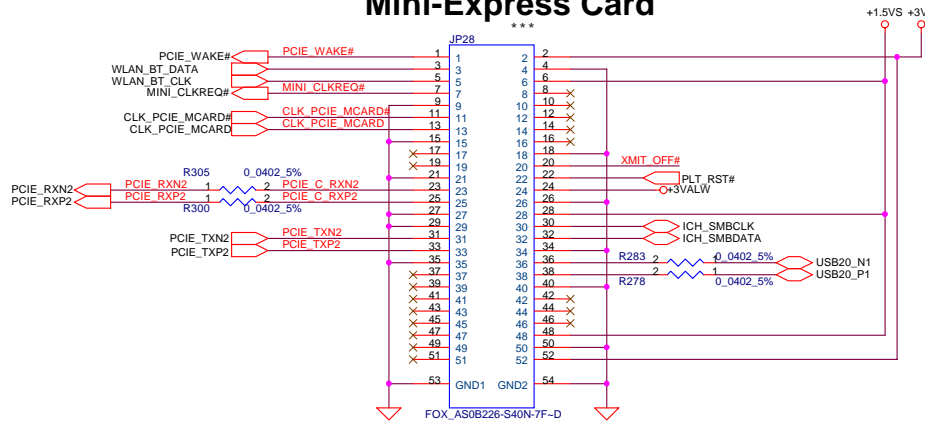
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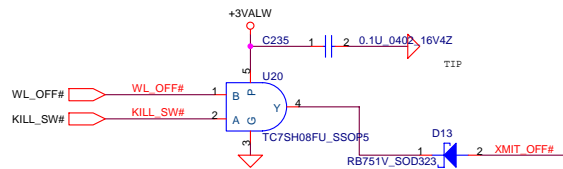
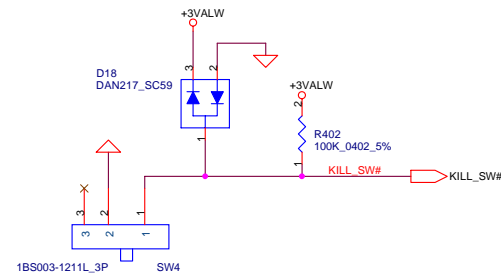
82562GZ Hardware configuration table (Default Mode 1)									
Mode	TESTEN	ISOL_TCK	ISOL_TI	ISOL_EXEC	Mode	TESTEN	ISOL_TCK	ISOL_TI	ISOL_EXEC
Mode0	0	0	0	0	XOR tree	1	0	0	0
Model	0	0	1	1	Mode2	1	0	0	1
Test Mode	1	0	1	0	Mode3	1	0	1	1
Isolate	0	1	1	1	Mode4	1	1	0	0
Power down	1	1	1	1	Reserved	1	1	0	1
					Testing	1	1	1	0



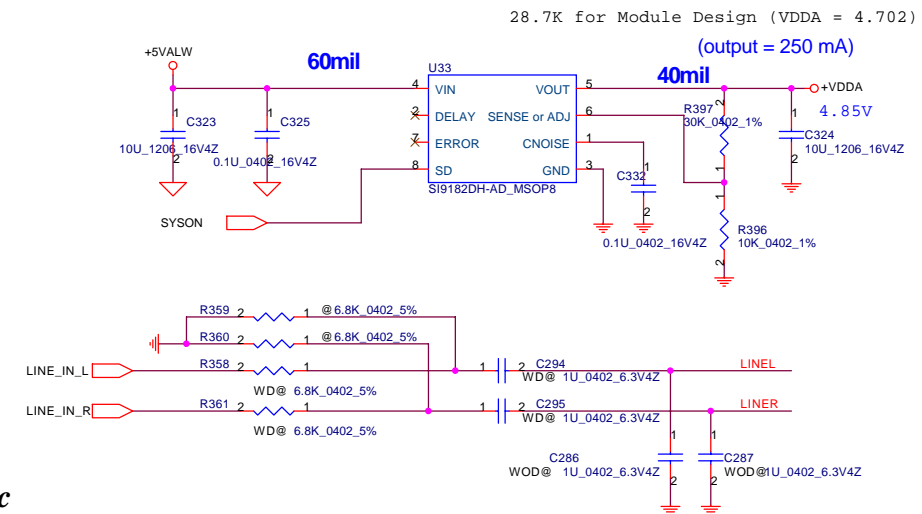
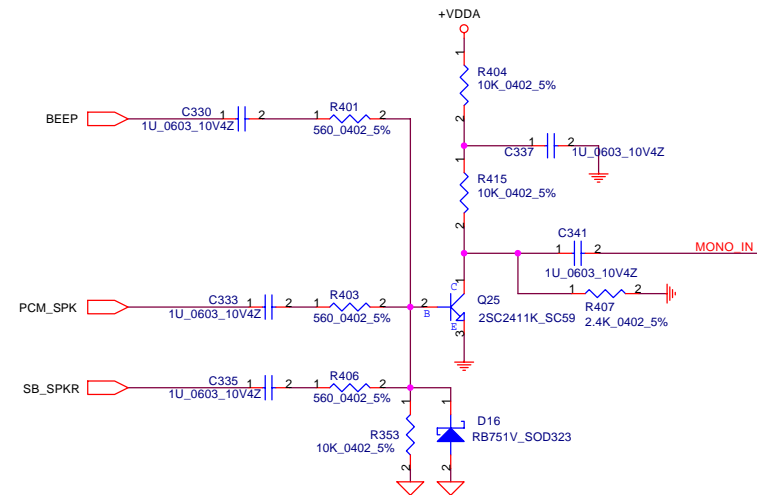
Mini-Express Card



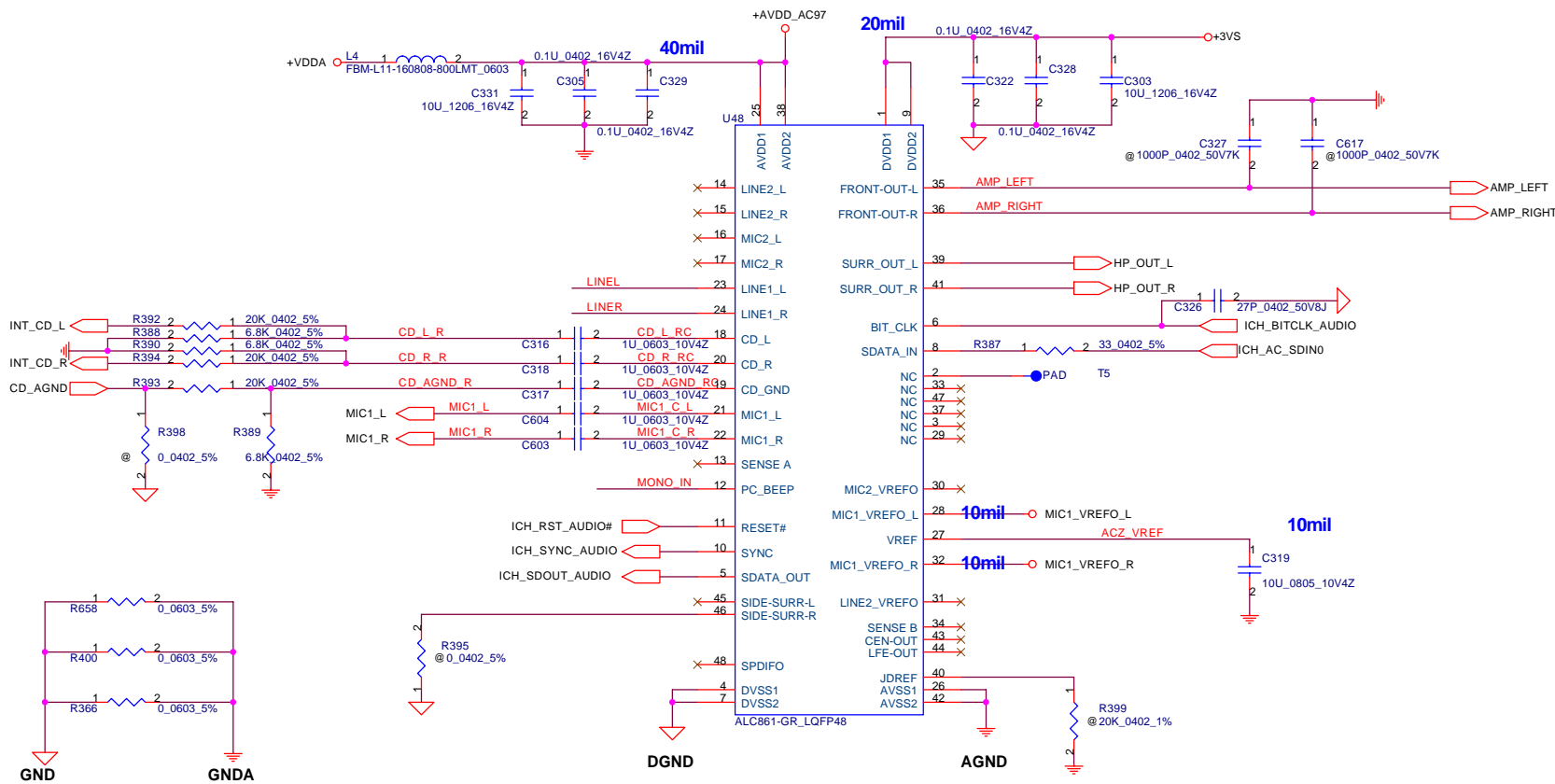
Kill Switch



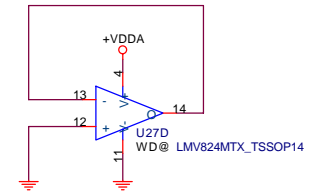
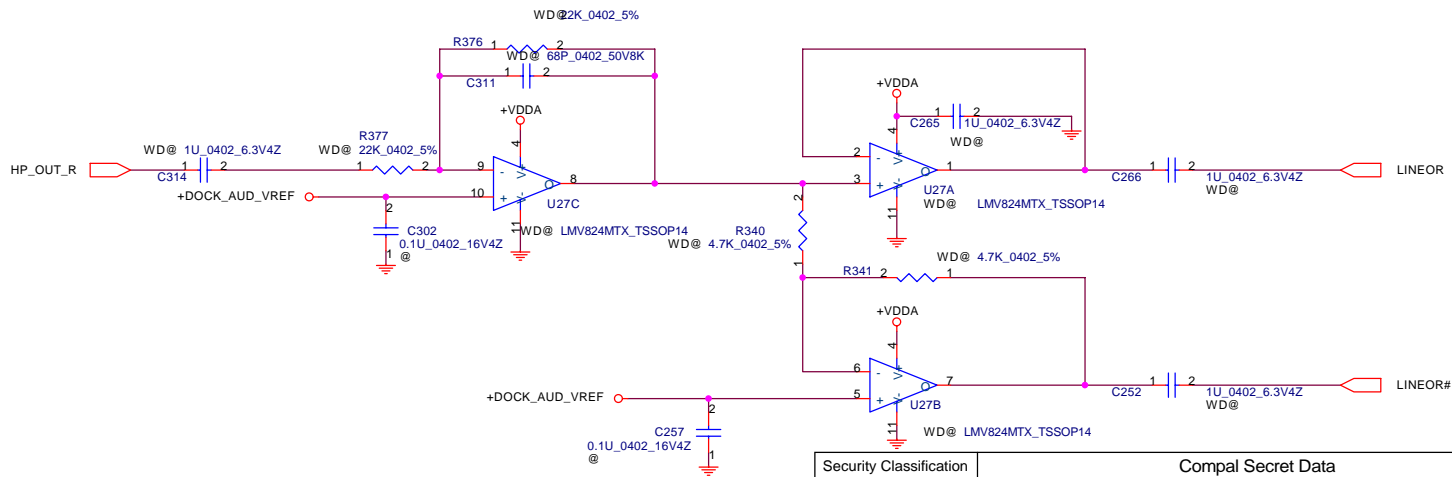
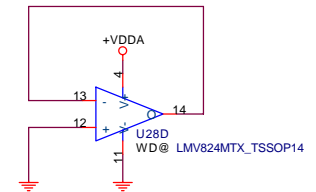
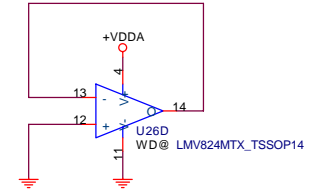
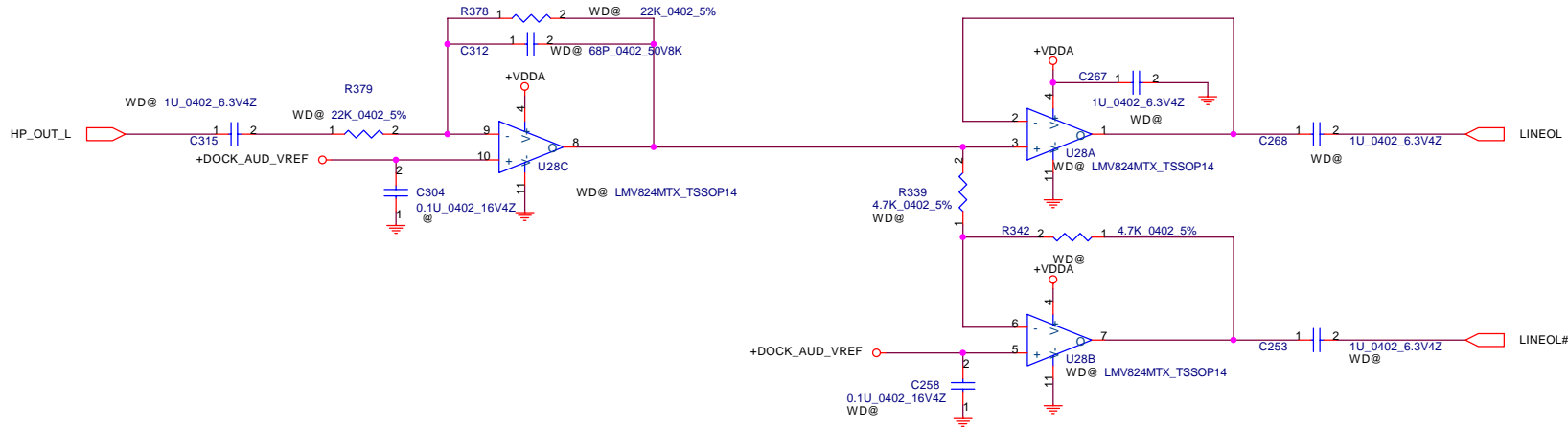
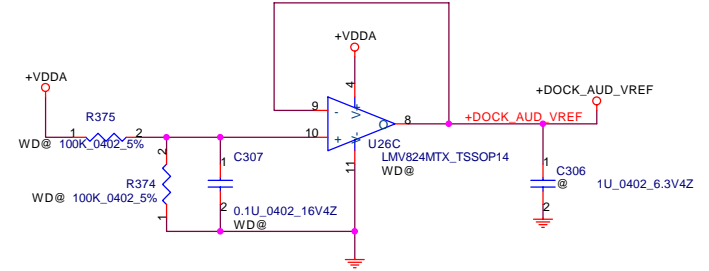
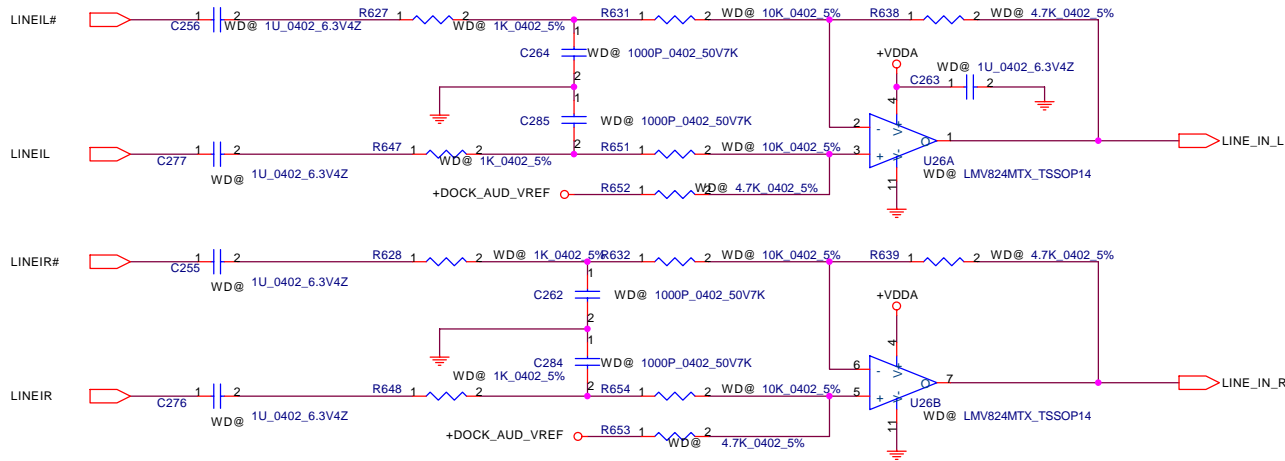
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HD Audio Codec

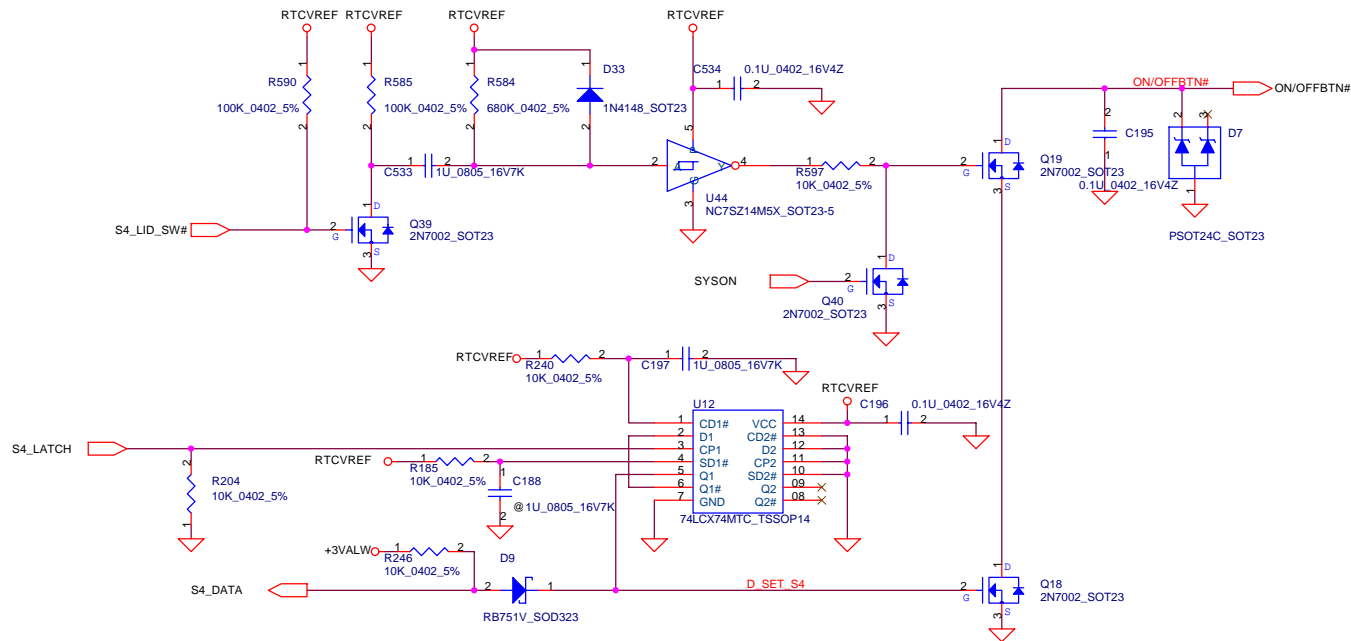


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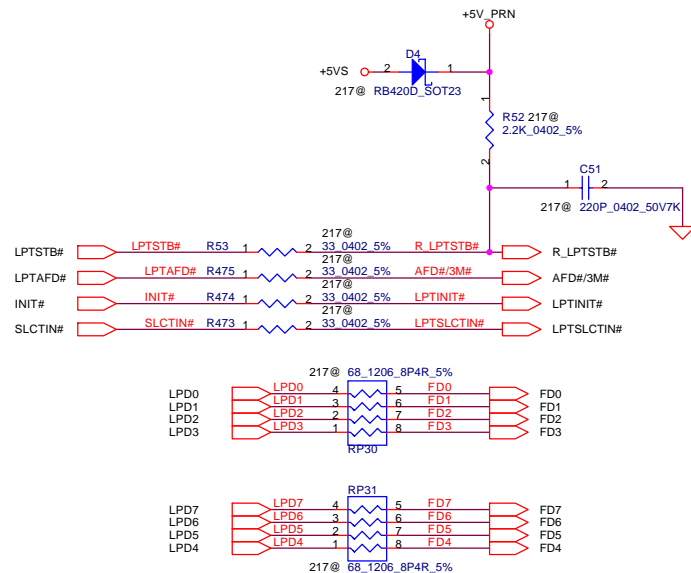


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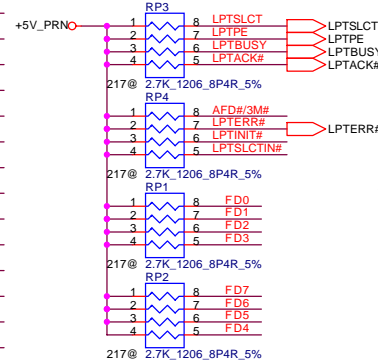
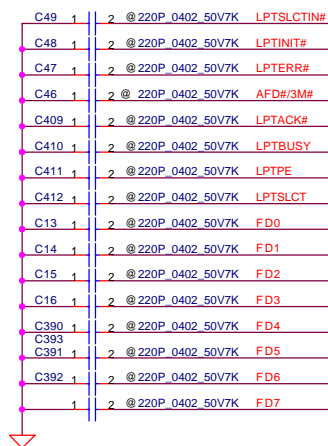
PROPRIETARY NOTE



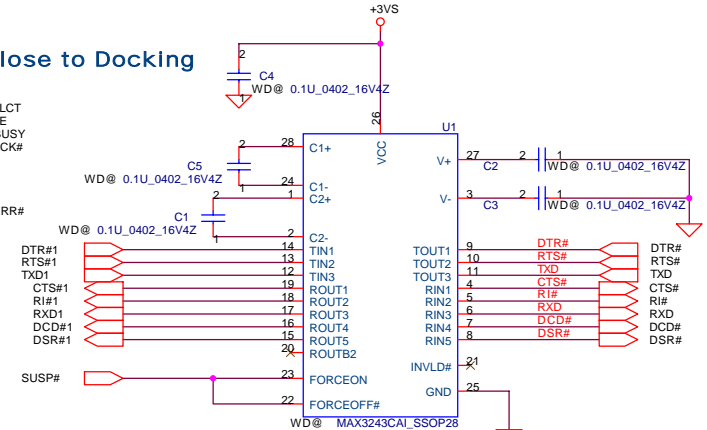
Docking Parallel Port



Close to Docking

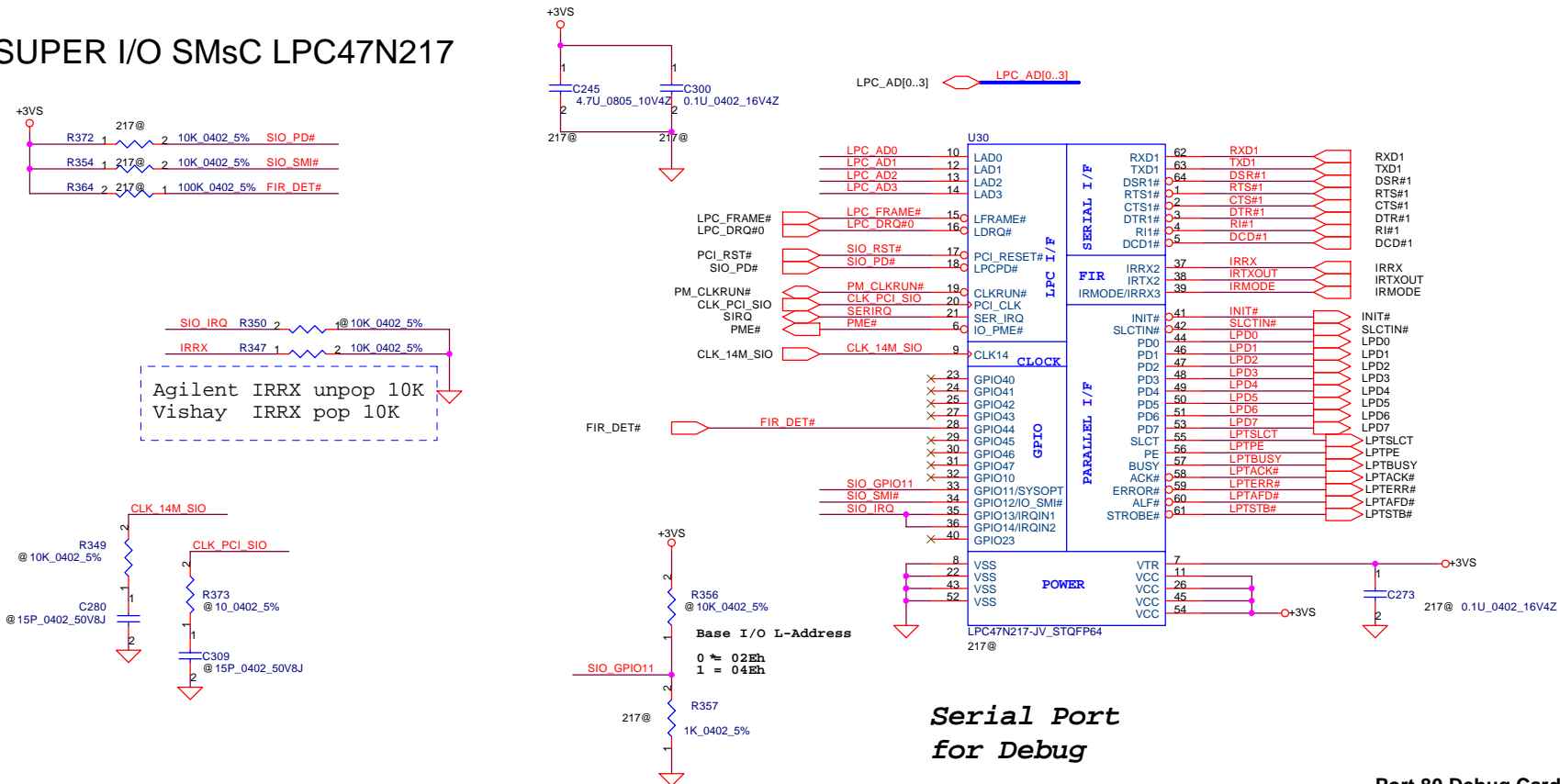


Close to Docking



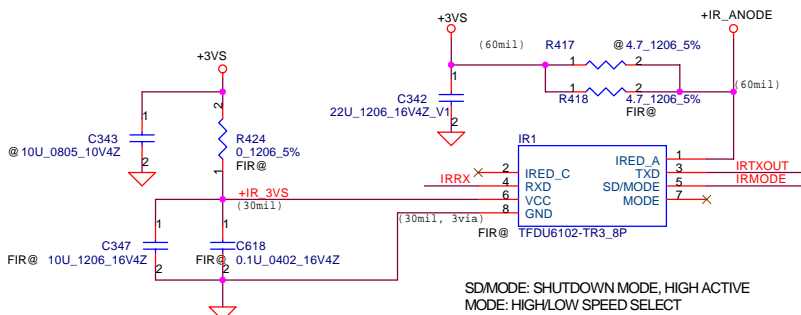
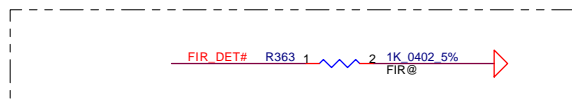
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SUPER I/O SMsC LPC47N217

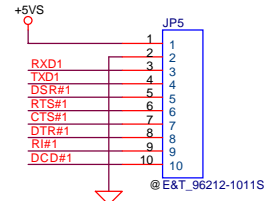


FIR Module

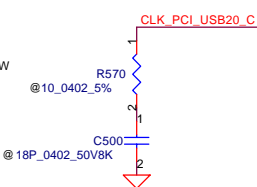
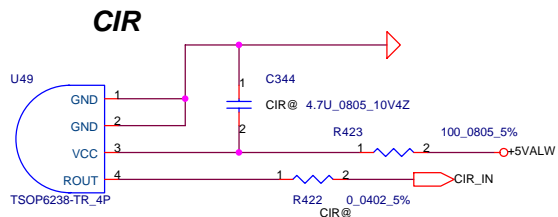
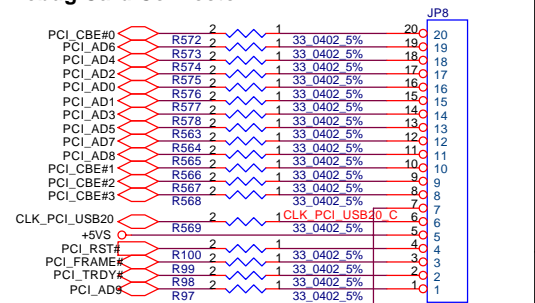
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L: R POP; FIR Enable
H: R De-POP/FIR Disable
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Serial Port for Debug

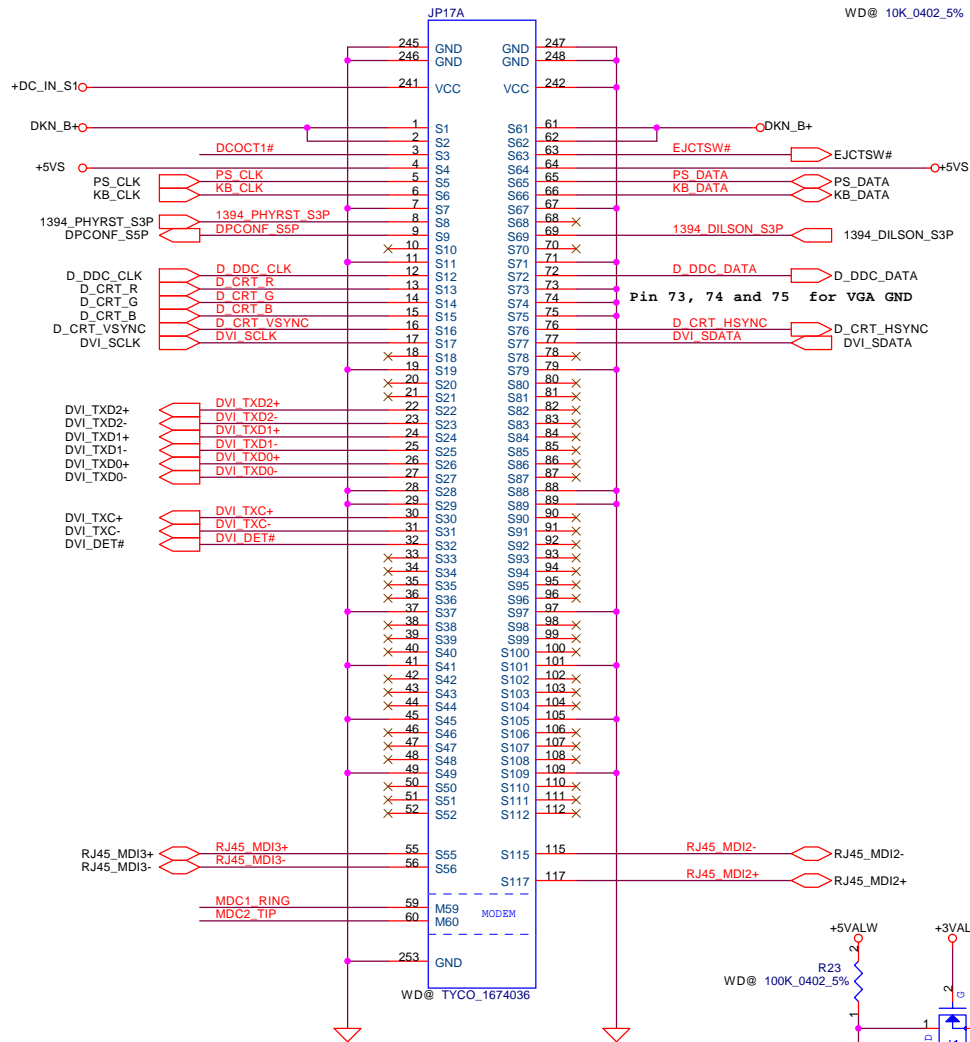


Port 80 Debug Card Connector

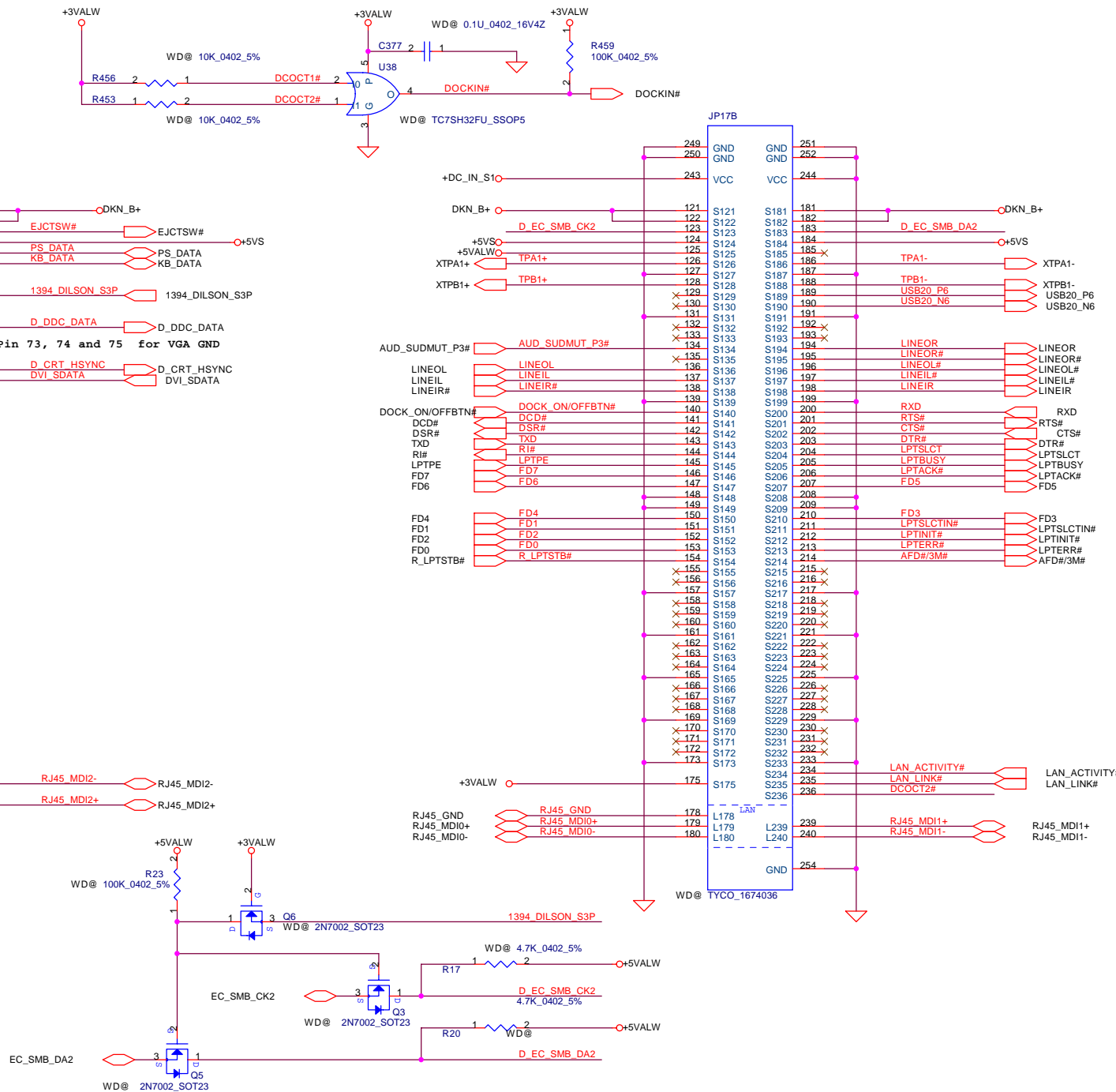
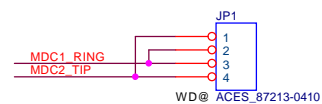


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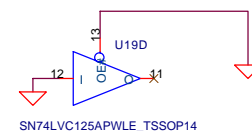
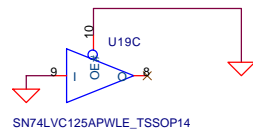
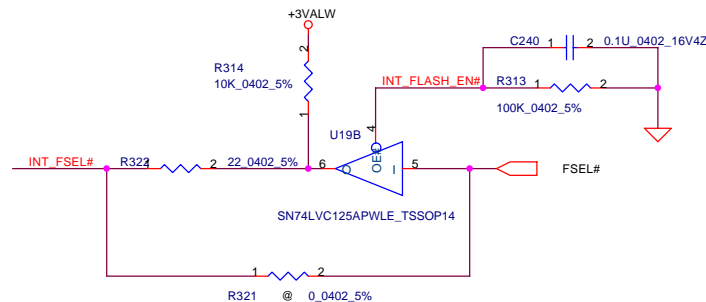
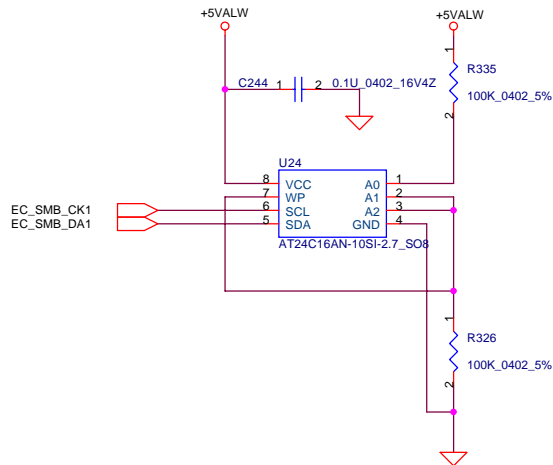
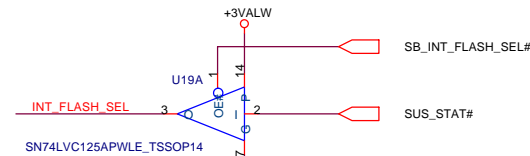
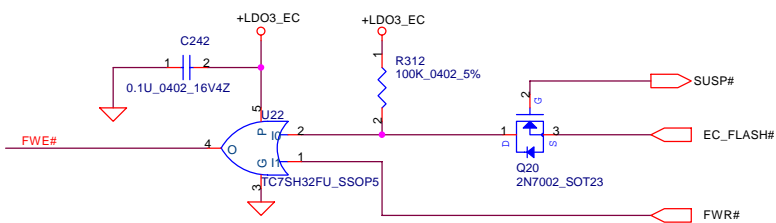
Docking Conn.



MDC to Docking Conn.



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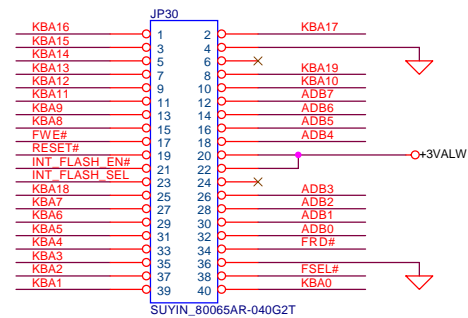
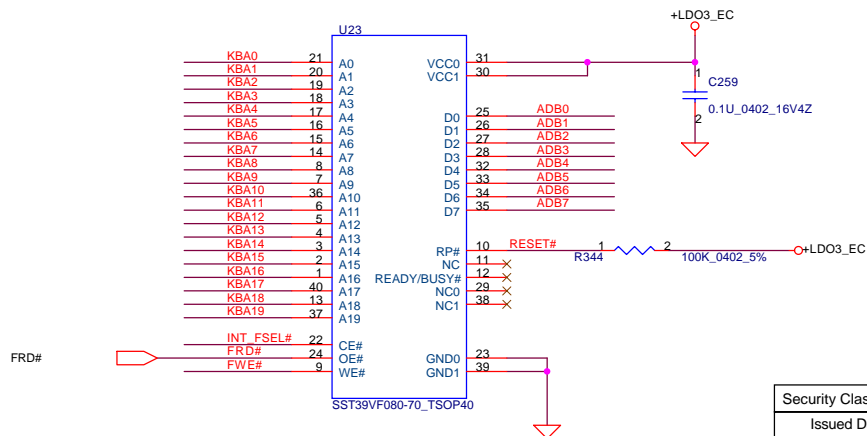


KBA[0..19] KBA[0..19]

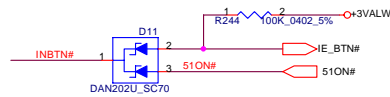
ADB[0..7] ADB[0..7]

1MB ROM Socket

1MB Flash ROM

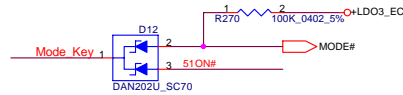


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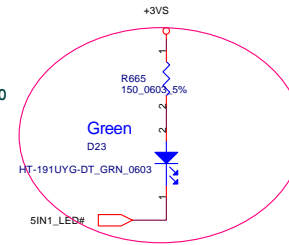


10C/10GC:Green:SC591UYG000
10/10C:Blue:SC5191NB000

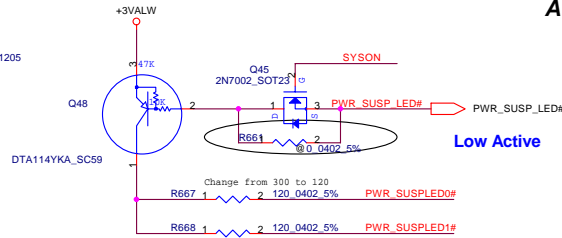
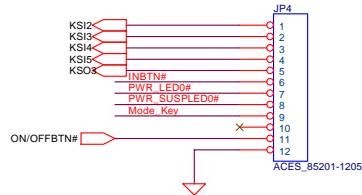
Vivace(SW-DJ) Button



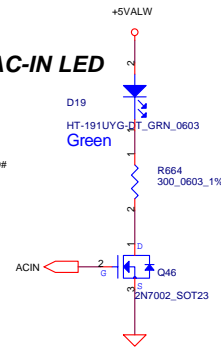
5 In 1 Card LED (Close to Socket)



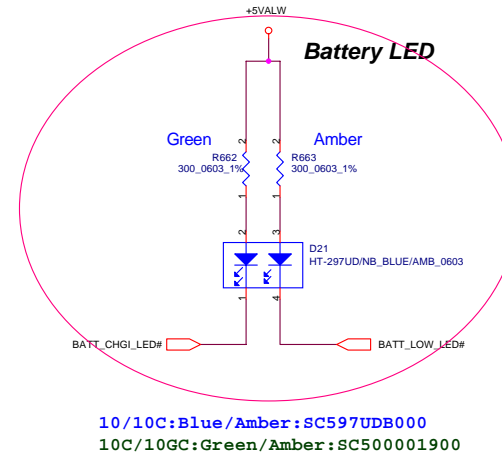
PWR BTN/B



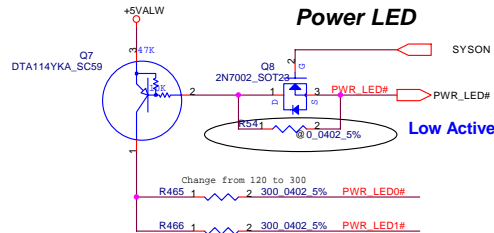
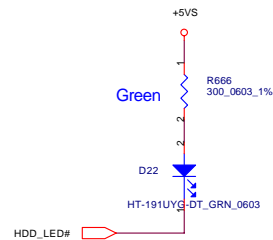
AC-IN LED



Battery LED



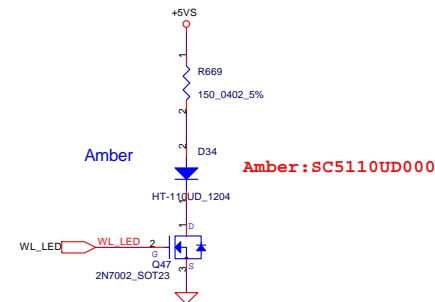
HDD LED



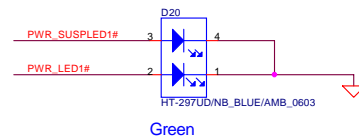
Power LED

Low Active

Wireless Lan LED



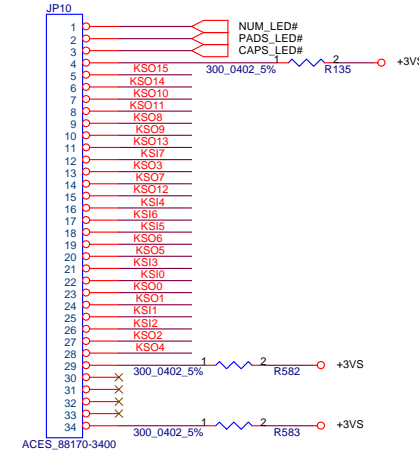
Amber



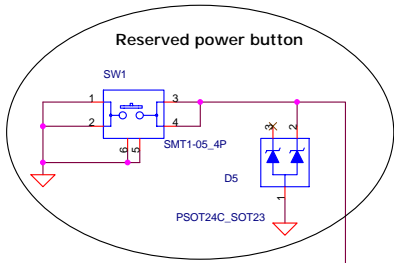
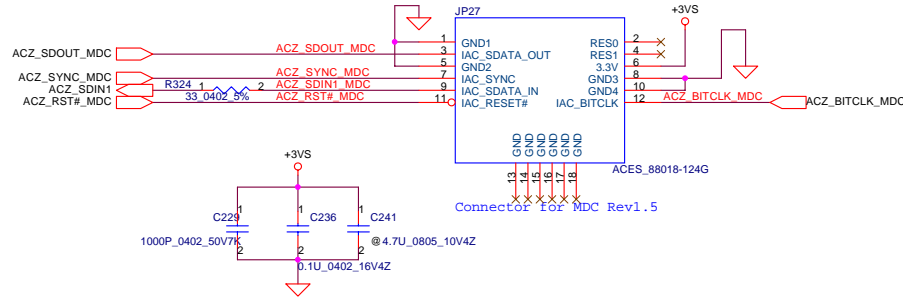
Green

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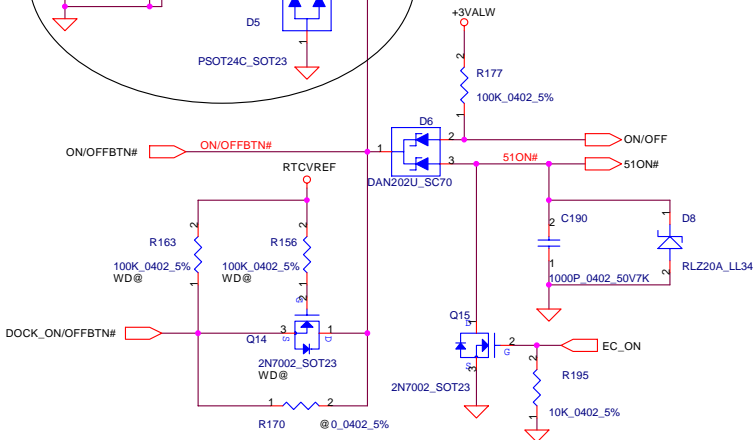
INT_KBD CONN.



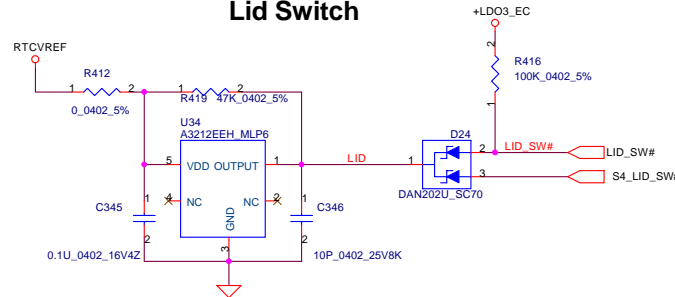
MDC 1.5 Conn.



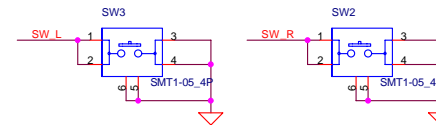
Power Button



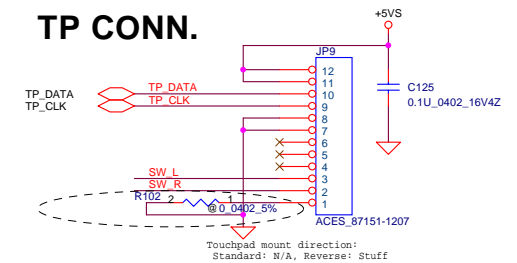
Lid Switch



TP Button



TP CONN.

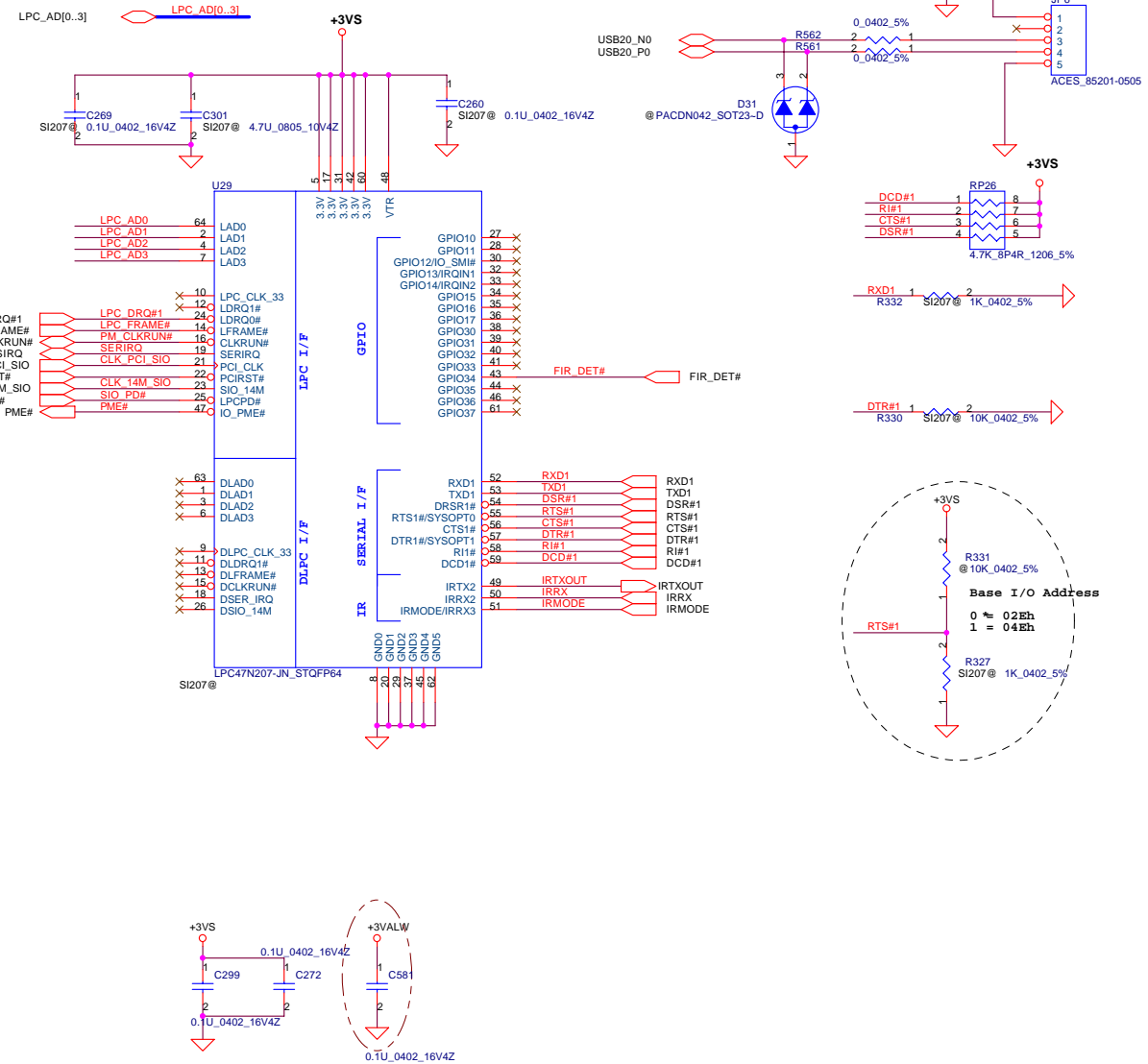
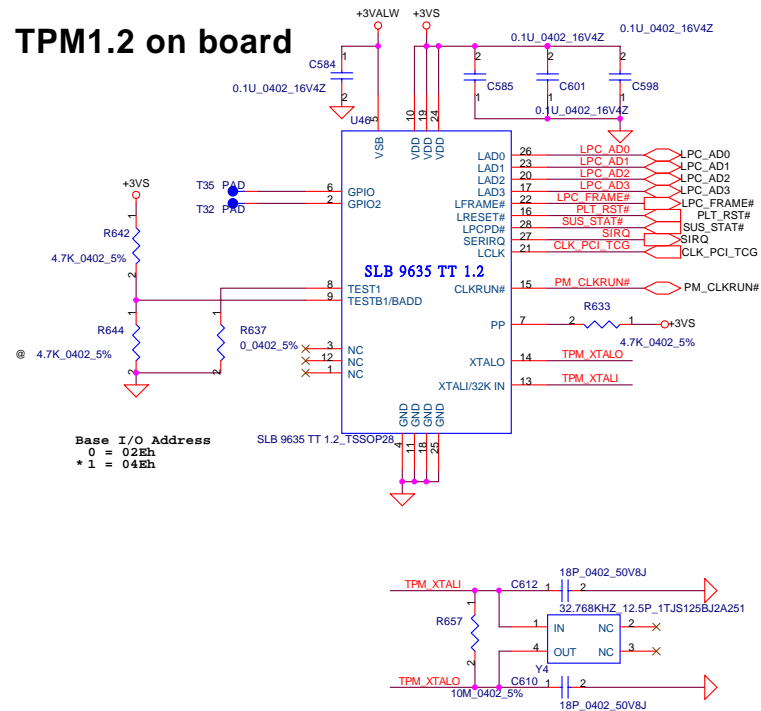


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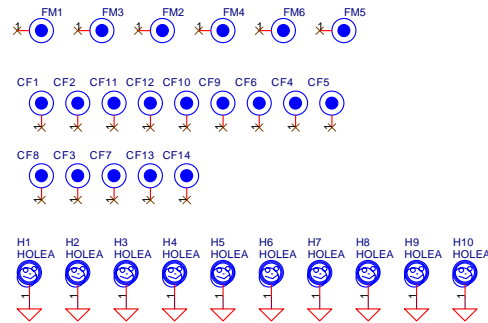
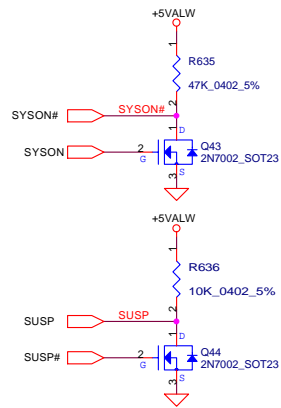
SUPER I/O SMsC LPC47N207

Finger printer

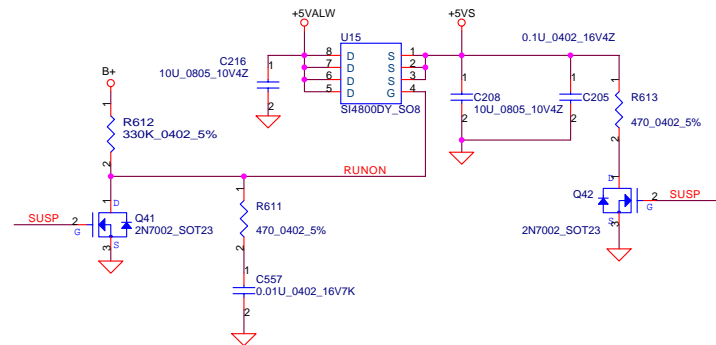
TPM1.2 on board



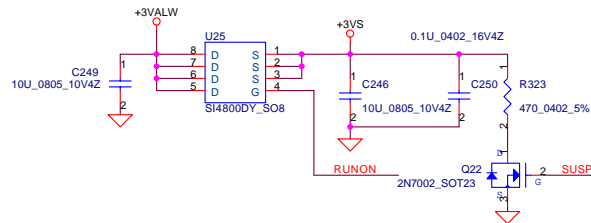
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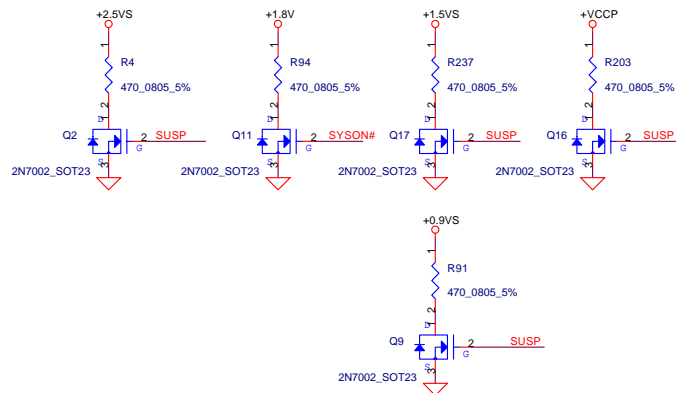
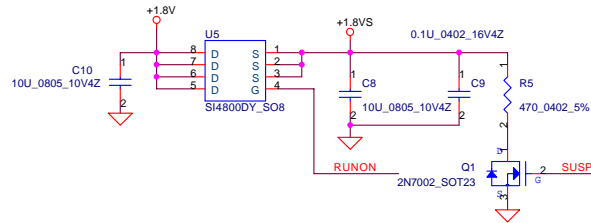
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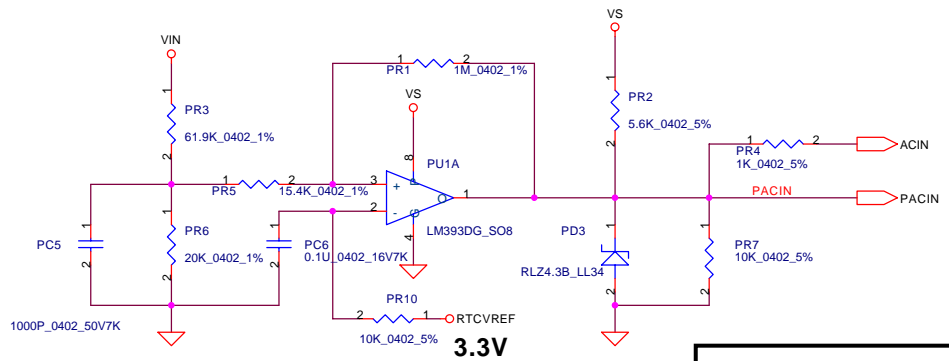
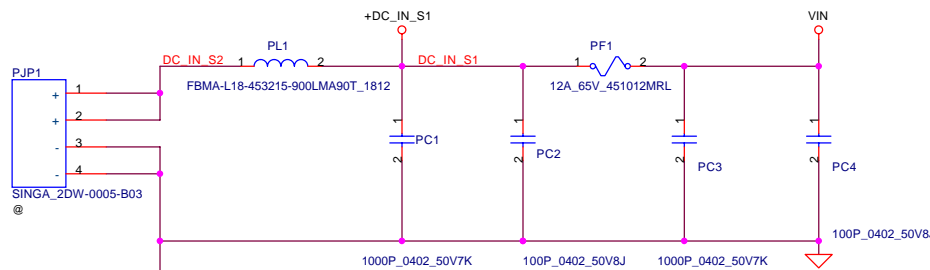
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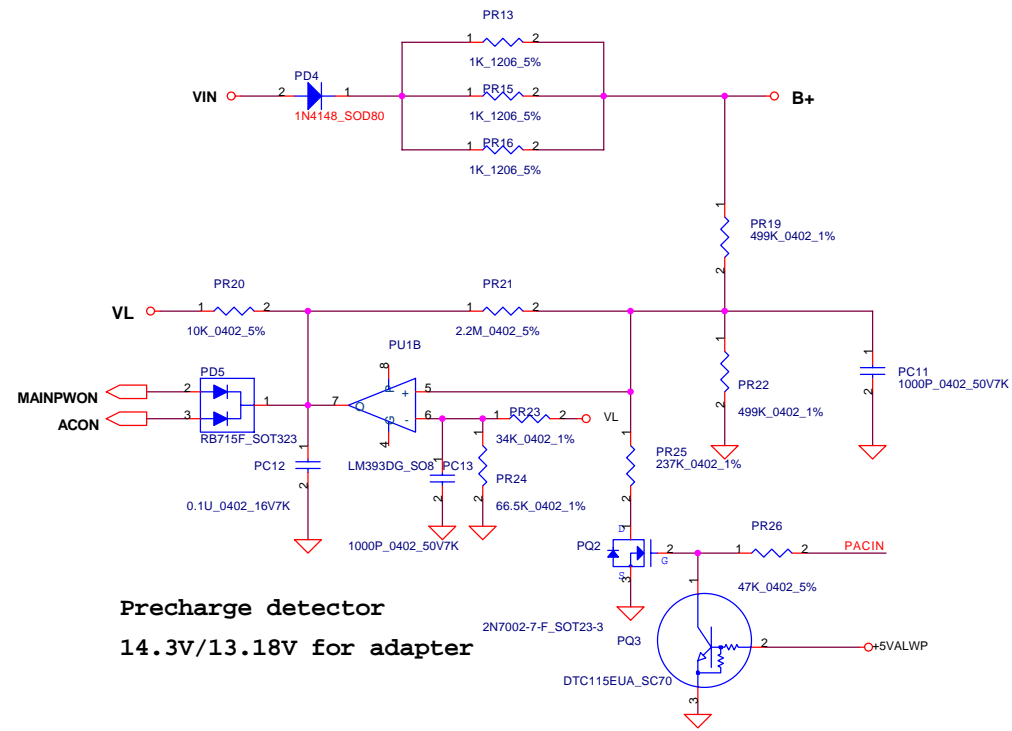
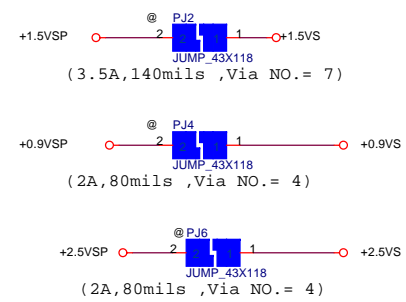
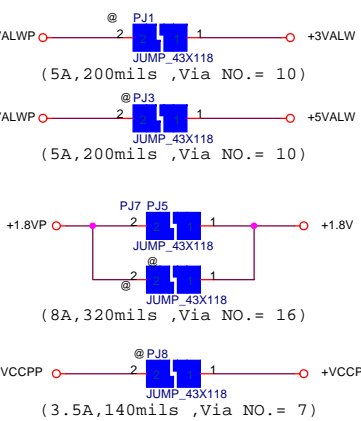
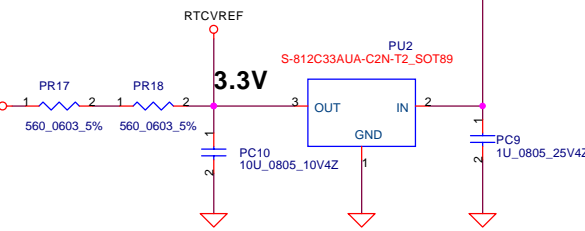
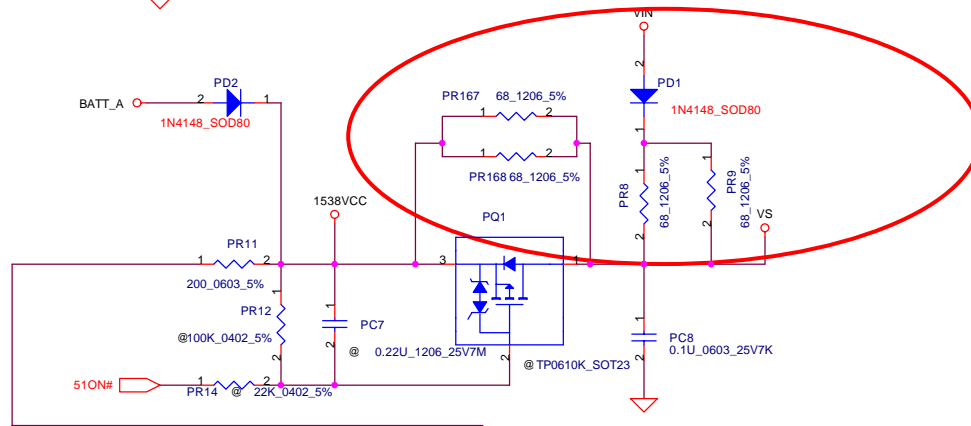
+1.8V to +1.8VS Transfer



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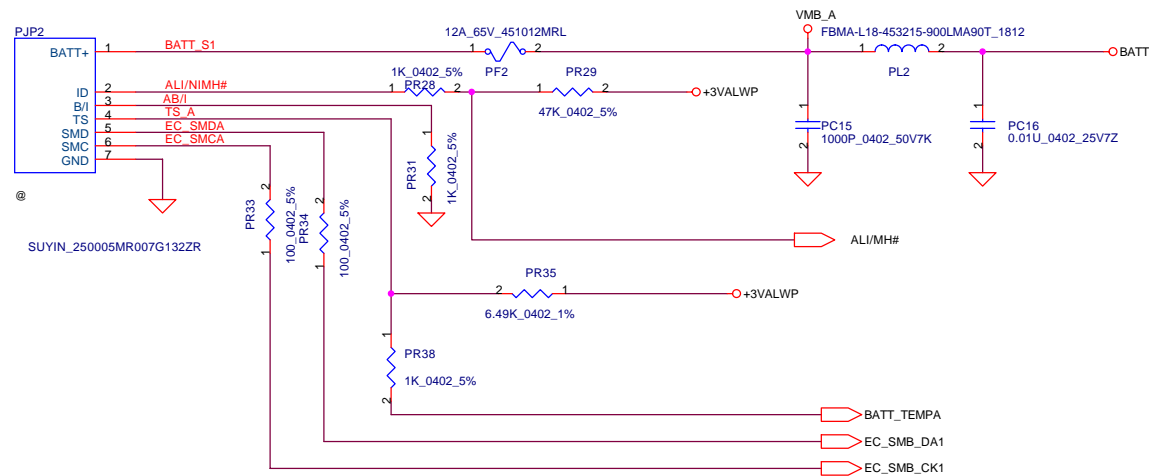


Vin Detector				
High	14.57	14.01	13.46	
Low	14.06	13.51	12.98	

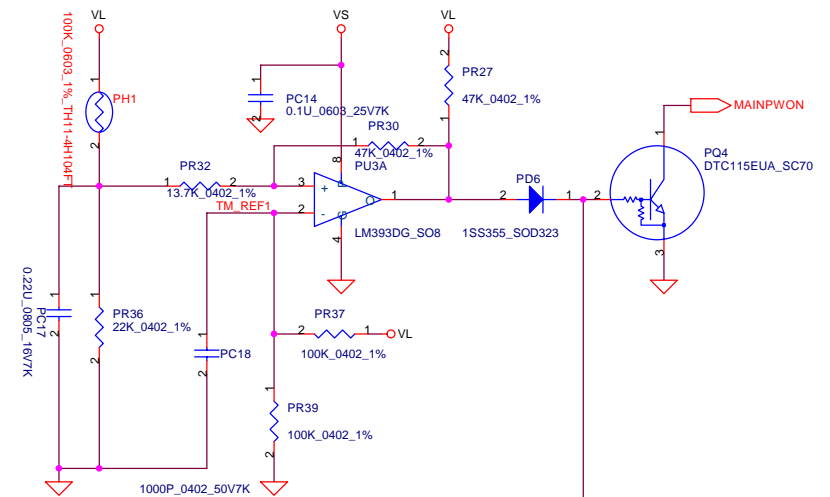


Precharge detector
14.3V/13.18V for adapter

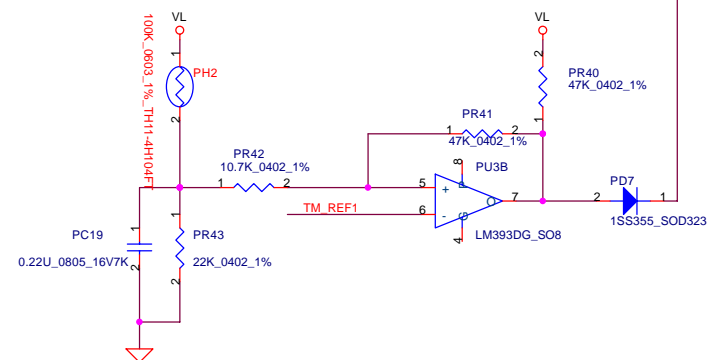
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PH1 under CPU botten side :
CPU thermal protection at 84 degree C
Recovery at 45 degree C

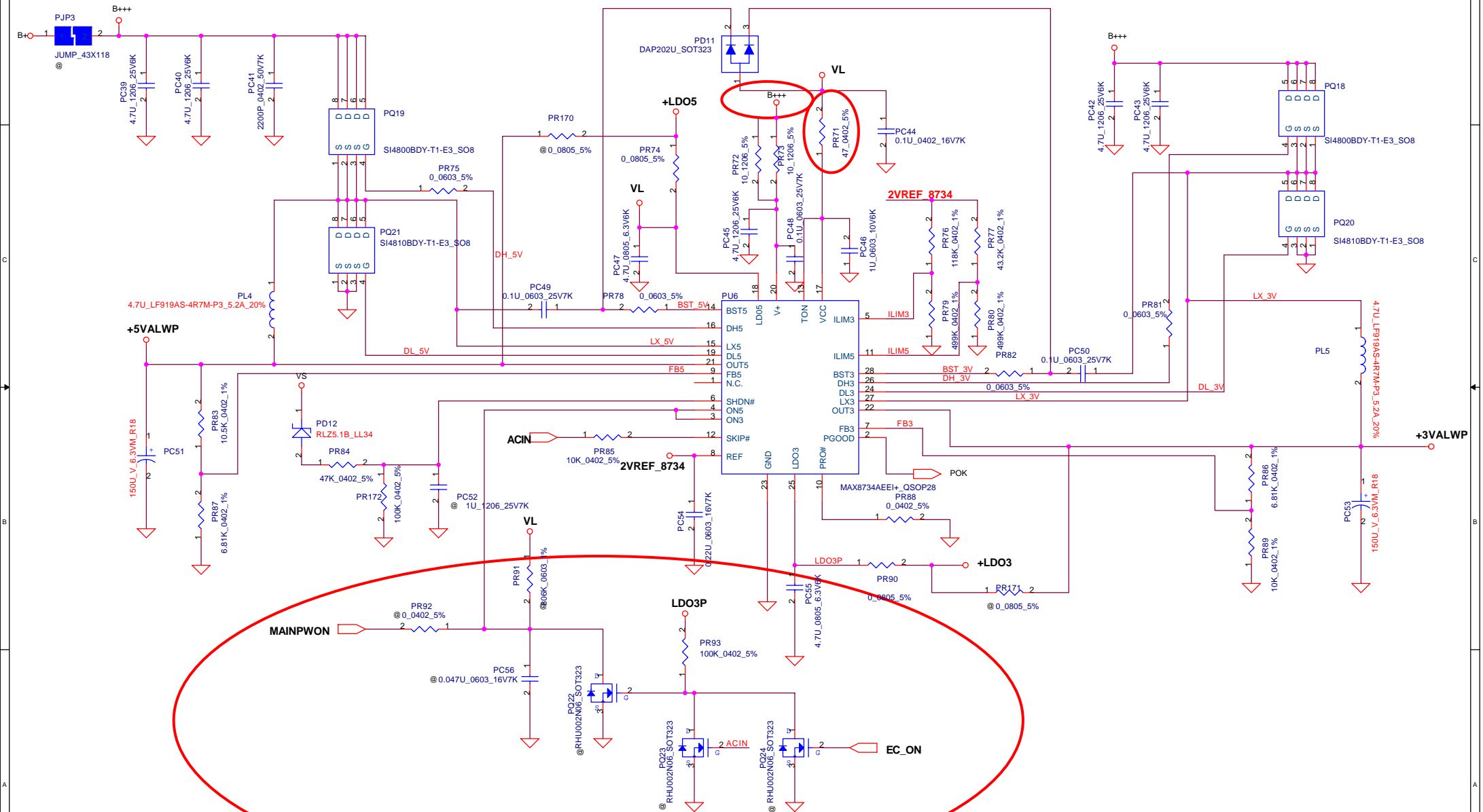


PH2 near main Battery CONN :
BAT. thermal protection at 79 degree C
Recovery at 45 degree C

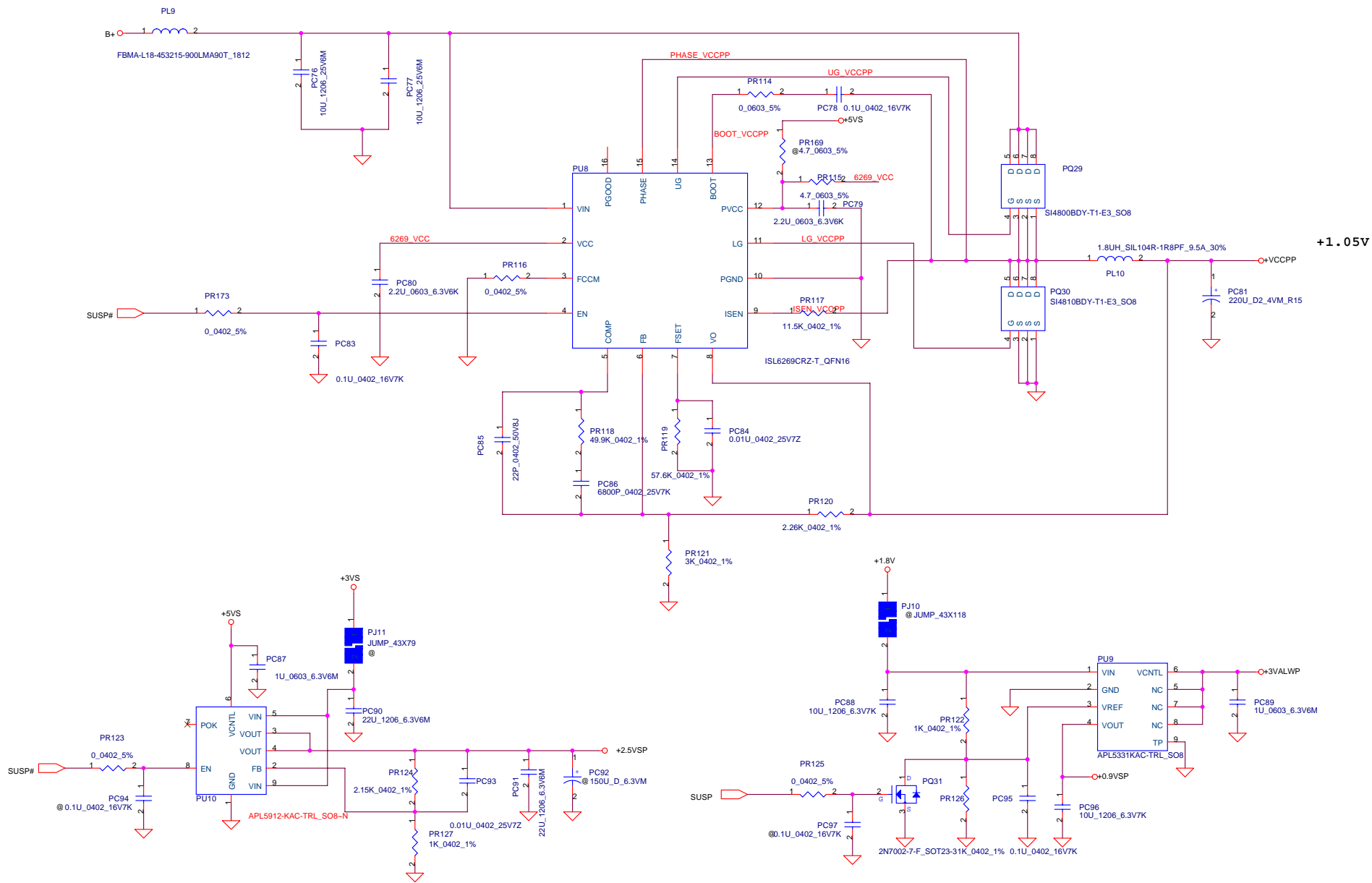


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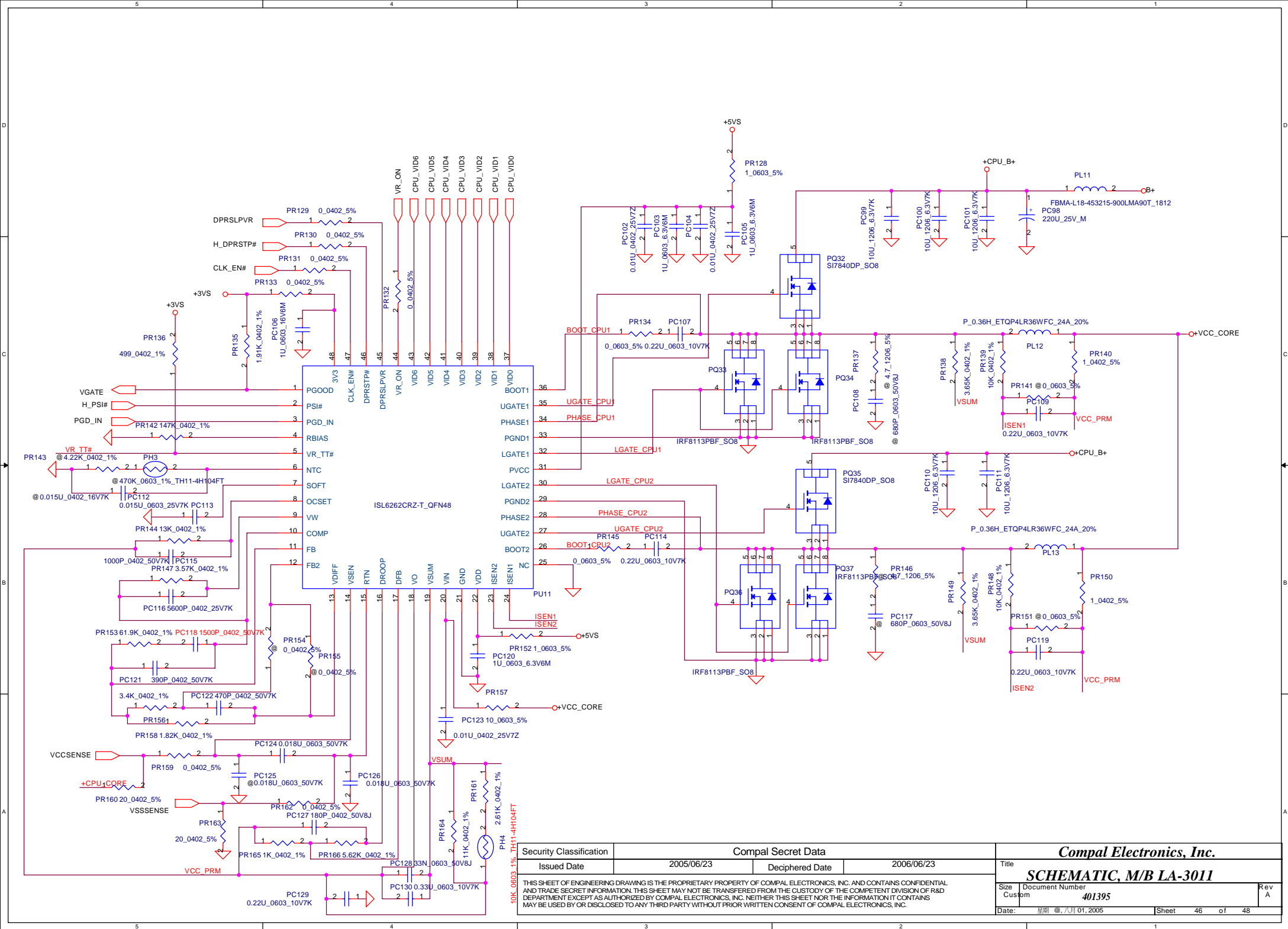
+3.3VALWP/+5VALWP



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82573E @



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82562 @



PCB ZKU LA-3011 REV0



PCI8412
PCI8412@

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