

Compal Confidential

NTV00

LA-5661 Rev 0.4 Schematics

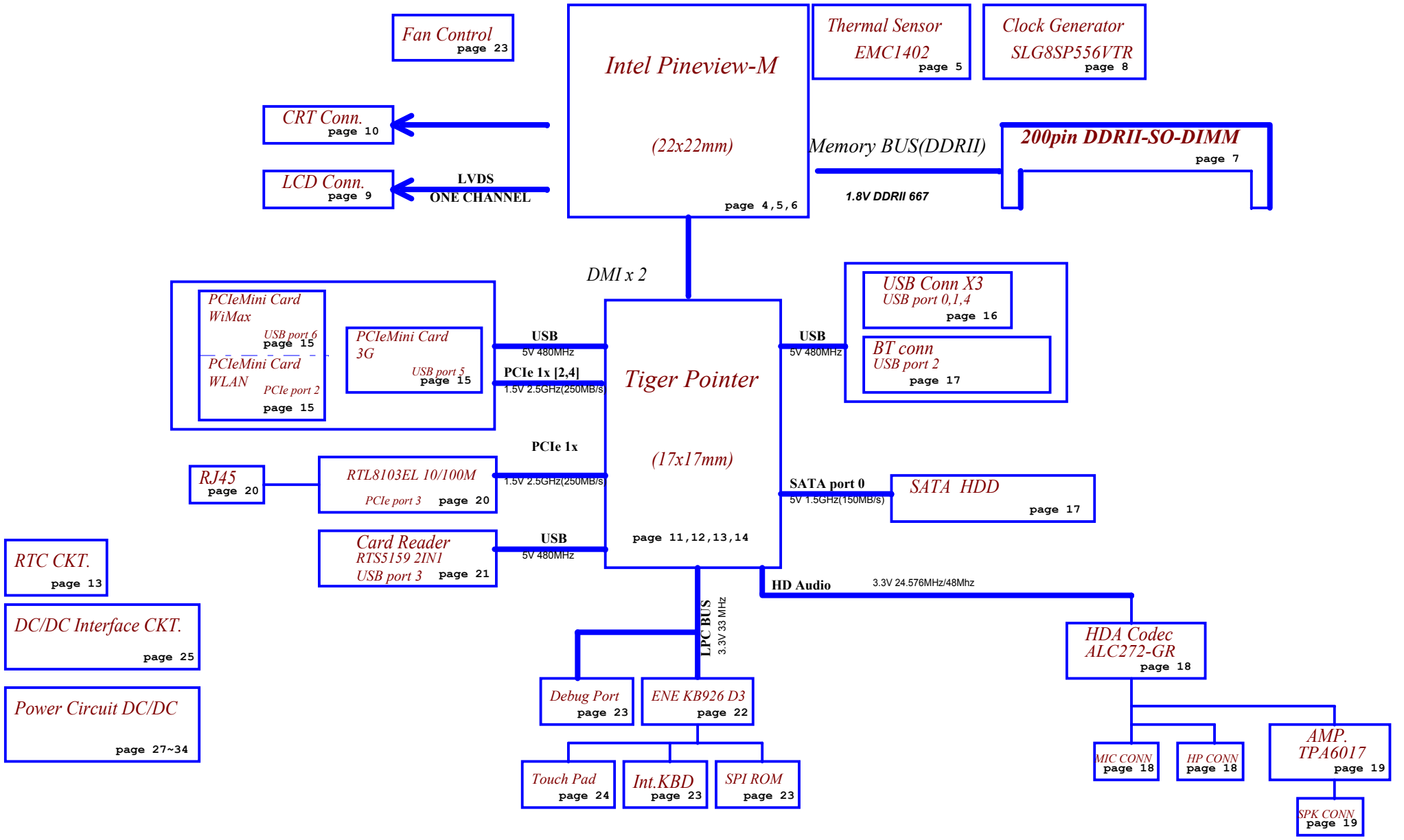
Intel PineView Processor/ Tiger point

2009-12-08 REV : 0.4

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Compal Confidential

Model Name : NTV00
File Name : LA-5661P



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Voltage Rails

Power Plane	Description	S1	S3	S5	G3
VIN	Adapter power supply (19V)	ON	ON	ON	OFF
B+	AC or battery power rail for power circuit.	ON	ON	ON	ON
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF	OFF
+0.89VS	0.89VS GFX support voltage	ON	OFF	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF	OFF
+1.05VS	VCCP switched power rail	ON	OFF	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF	OFF
+1.8VS	1.8VS switched power rail	ON	OFF	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON	OFF
+3V_SB	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_LAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+RTCVCC	RTC power	ON	ON	ON	ON
+3VS	3.3V switched power rail	ON	OFF	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON	OFF
+5V_SB	5V power rail for SB	ON	ON	OFF	OFF
+5VS	5V switched power rail	ON	OFF	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON	OFF

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

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	EMC1402	1001 010X b

EC SM Bus2 address

Tiger point SM Bus address

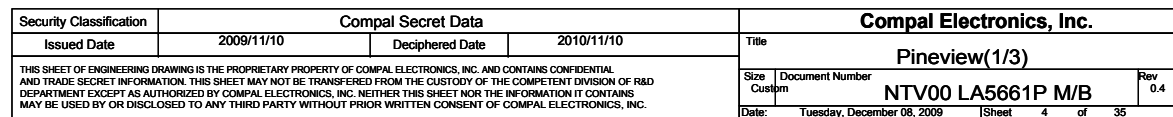
Device	Address
Clock Generator (SLG8SP56VTR)	1101 001Xb
DDR DIMMA	1010 000Xb

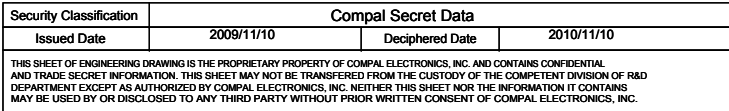
STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	ON	OFF	OFF	OFF

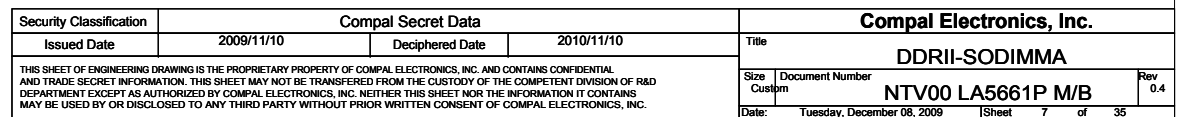
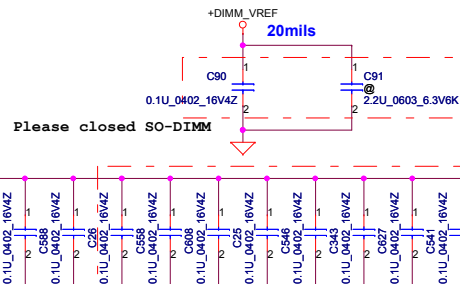
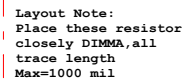
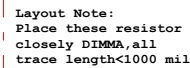
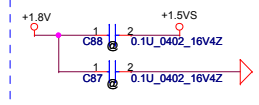
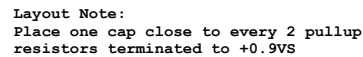
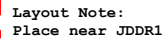
BTO Option Table

Function	Mini PCI-E SLOT				STAR			
description								
explain	Wi-Fi	WiMax	3G		POWER SAVING			
BTO	WLAN@	WIMAX@	3G@		STAR@			

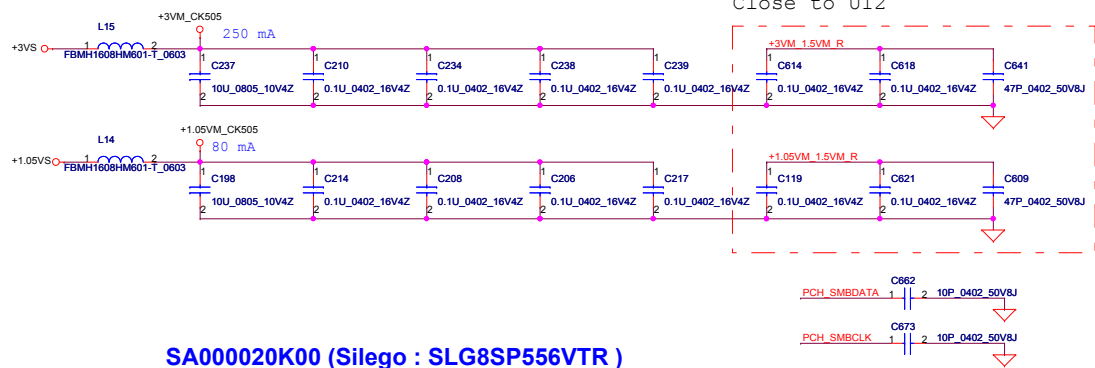
Function			
description			
explain			
BTO			



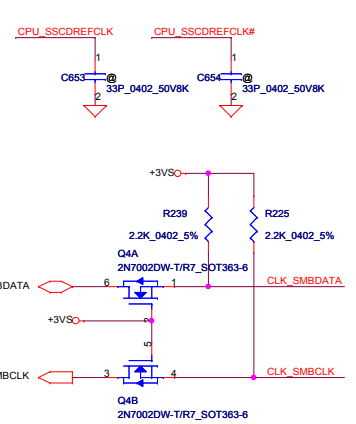




FSC	FSB	FSA	CPU	SRC	PCI	REF	DOT_96	USB
CLKSEL2	CLKSEL1	CLKSEL0	MHz	MHz	MHz	MHz	MHz	MHz
0	0	0	266	100	33.3	14.318	96.0	48.0
0	0	1	133	100	33.3	14.318	96.0	48.0
0	1	0	200	100	33.3	14.318	96.0	48.0
0	1	1	166	100	33.3	14.318	96.0	48.0
1	0	0	333	100	33.3	14.318	96.0	48.0
1	0	1	100	100	33.3	14.318	96.0	48.0
1	1	0	400	100	33.3	14.318	96.0	48.0
1	1	1	Reserved					



SA000020K00 (Silego : SLG8SP556VTR)



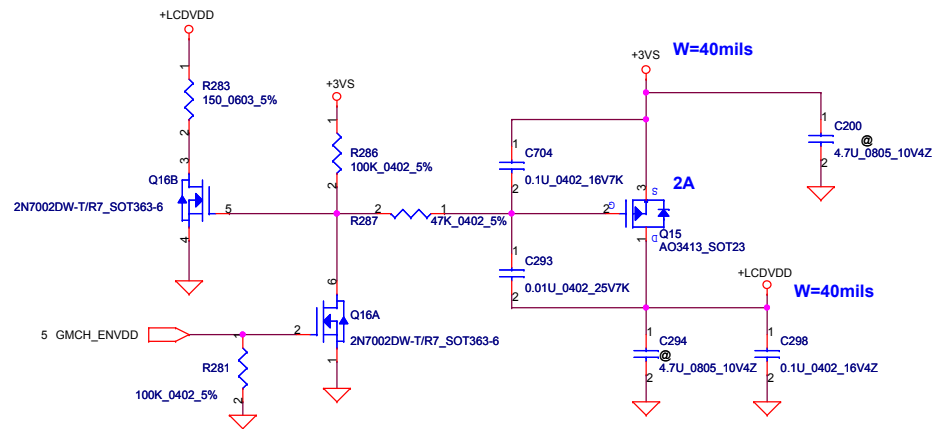
SRC PORT LIST

PORT	DEVICE
SRC0	CPU_DREFCLK
SRC2	CPU_EXP
SRC3	PCIE_SATA
SRC4	PCIE_WLAN
SRC6	PCIE_LAN
SRC7	PCIE_PCH
SRC8	PCIE_LAN
SRC9	PCIE_PCH
SRC10	PCIE_PCH
SRC11	PCIE_PCH

REQ PORT LIST

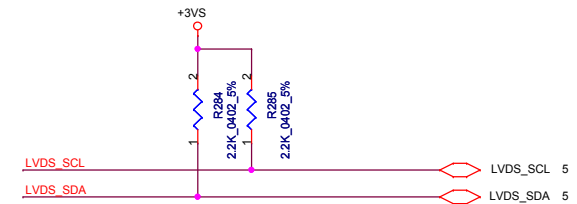
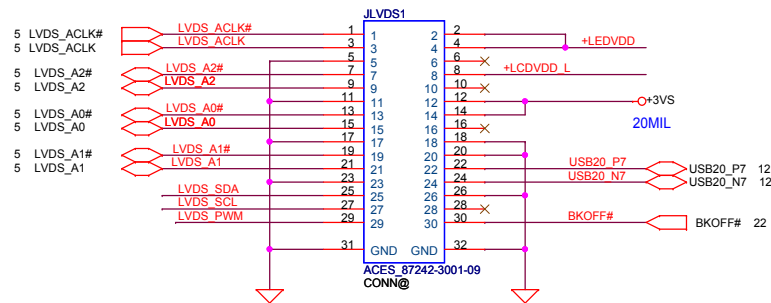
PORT	DEVICE
REQ_3#	
REQ_4#	
REQ_6#	PCIE WLAN
REQ_7#	
REQ_9#	PCIE LAN
REQ_10#	
REQ_11#	
REQ_A#	

LCD POWER CIRCUIT

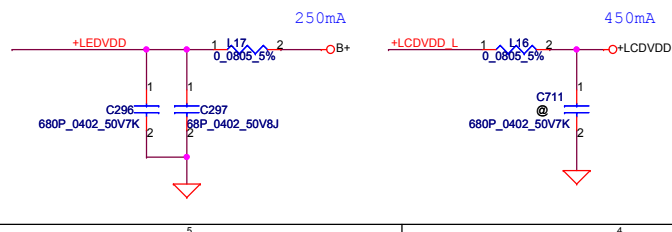
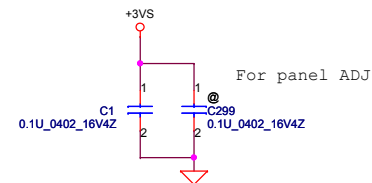
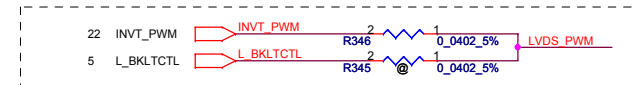


LED/PANEL BD. Conn.

Combine INT.CAMERA with LVDS

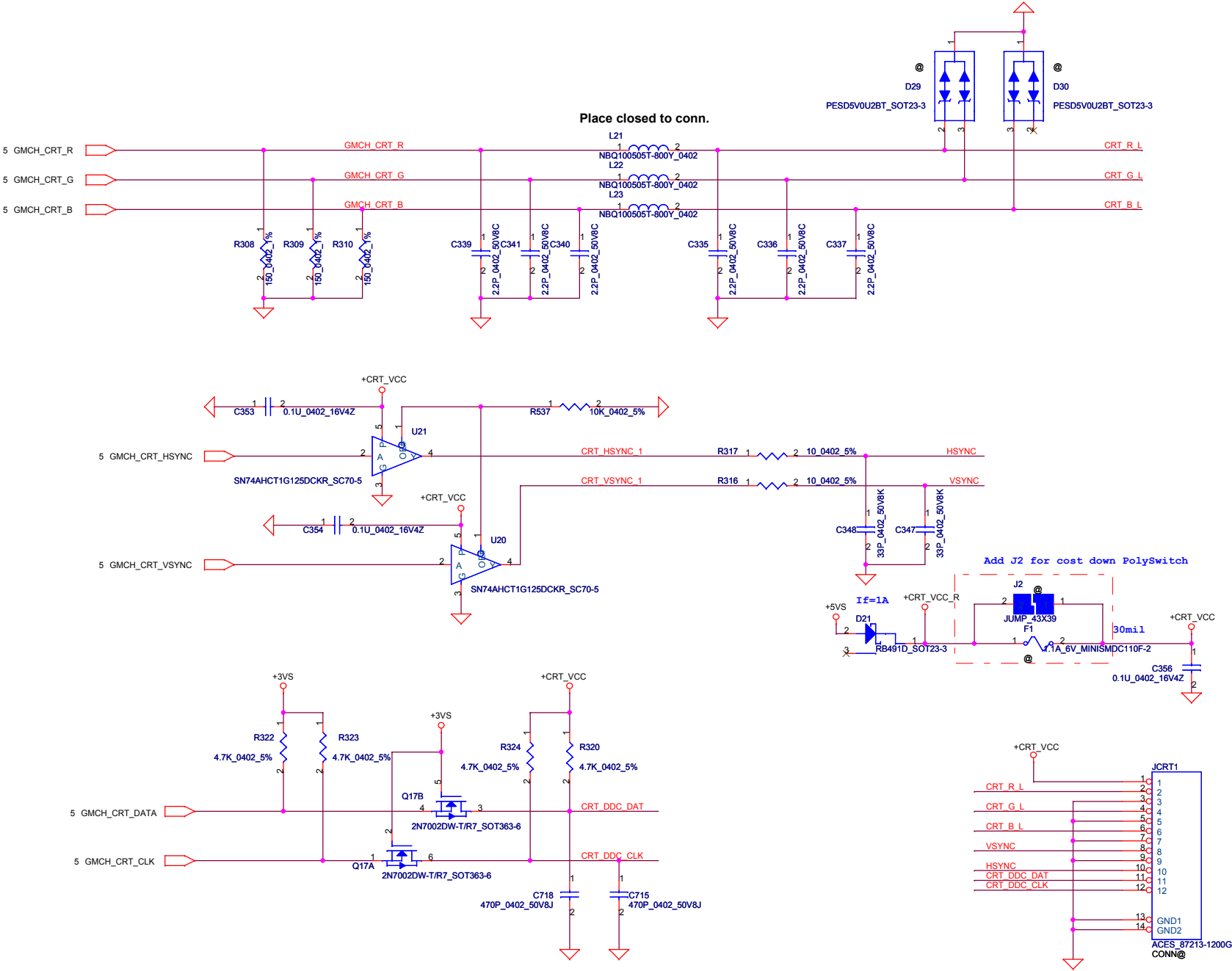


Option panel brightness control

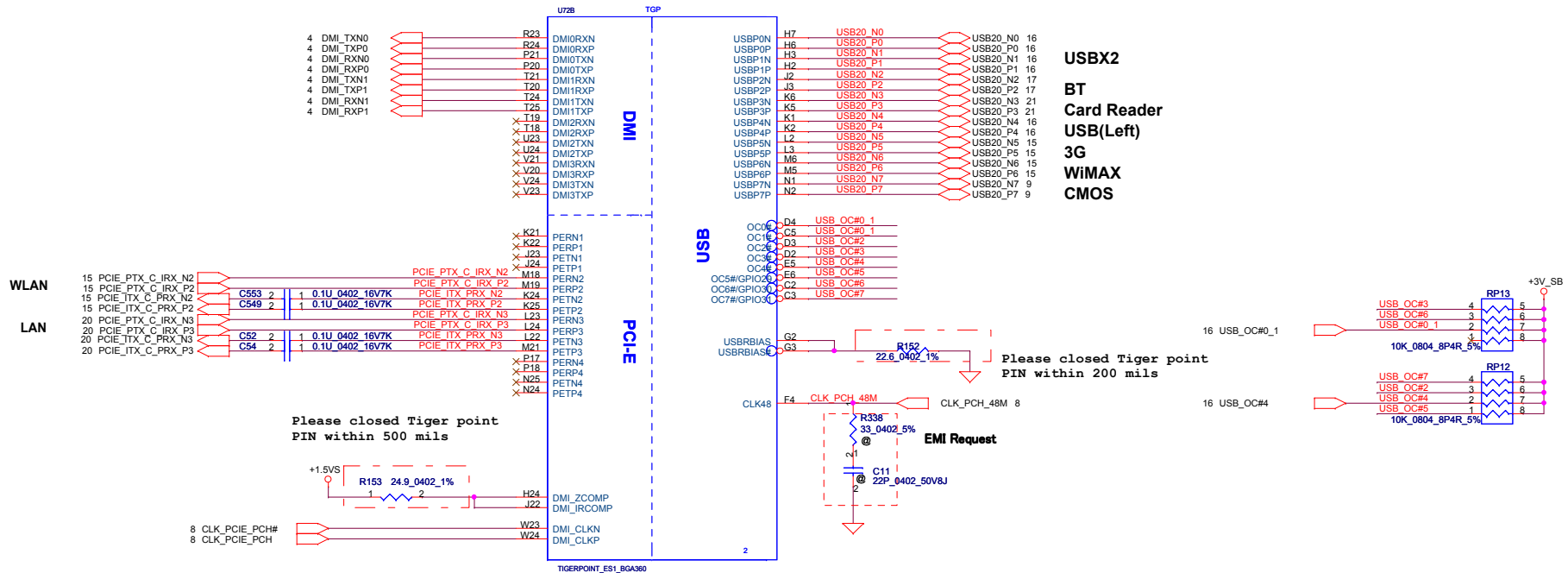


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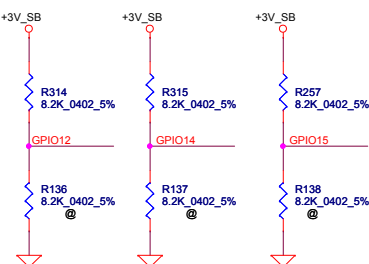
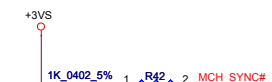
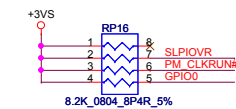
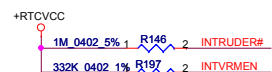
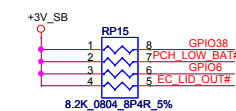
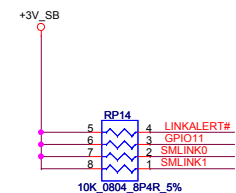
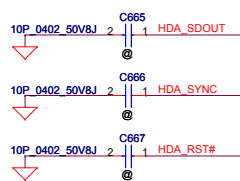
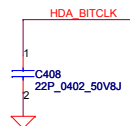
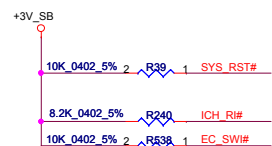
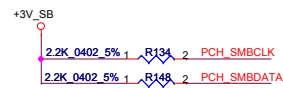
CRT CONNECTOR



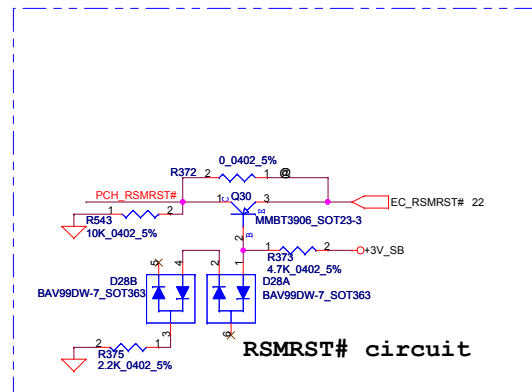
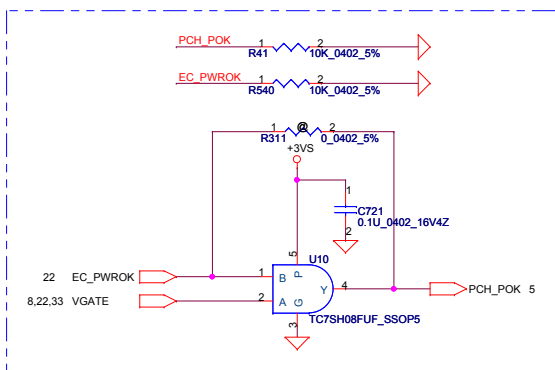
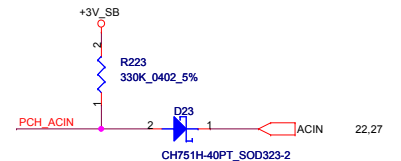
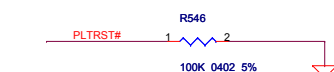
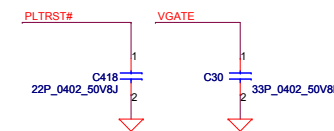
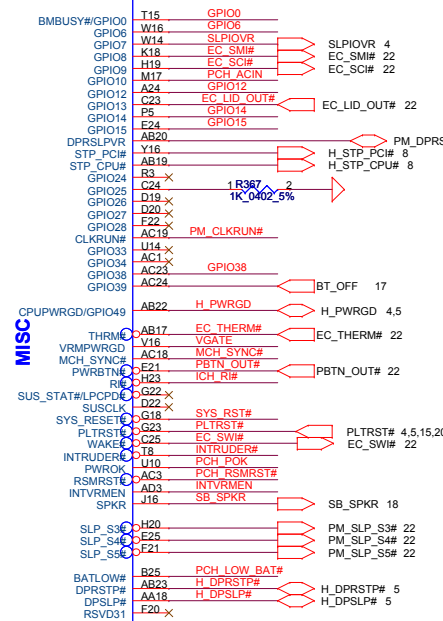
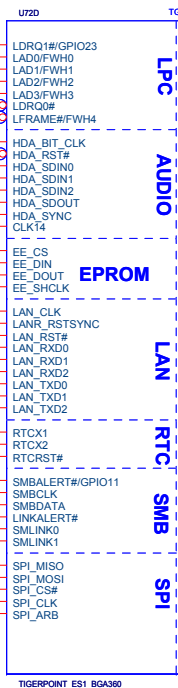
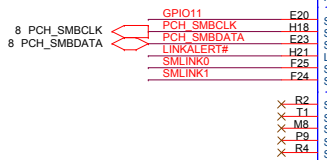
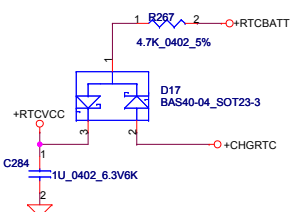
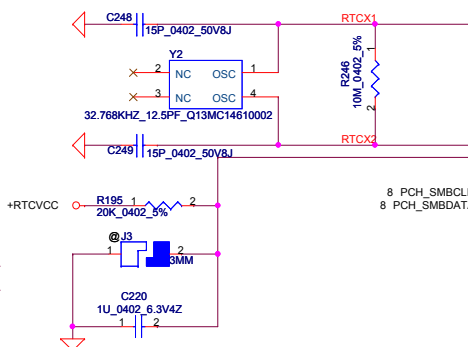
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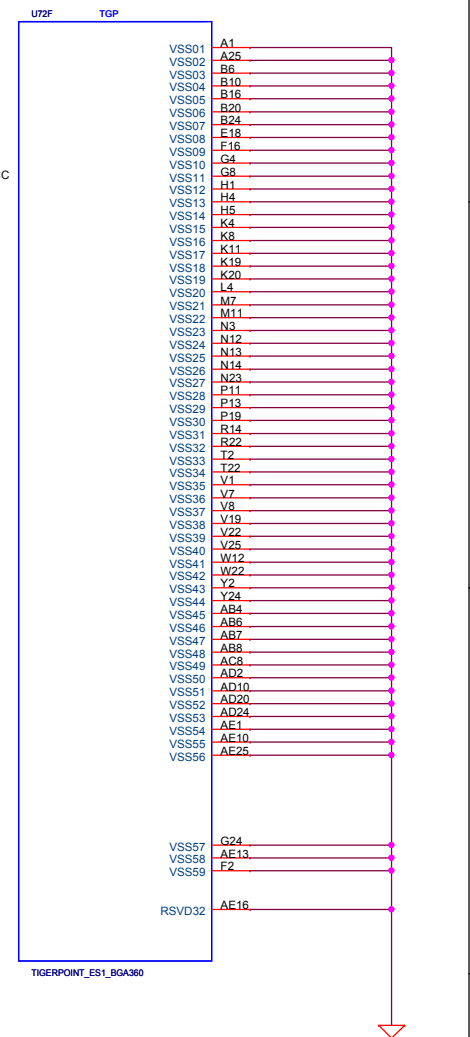
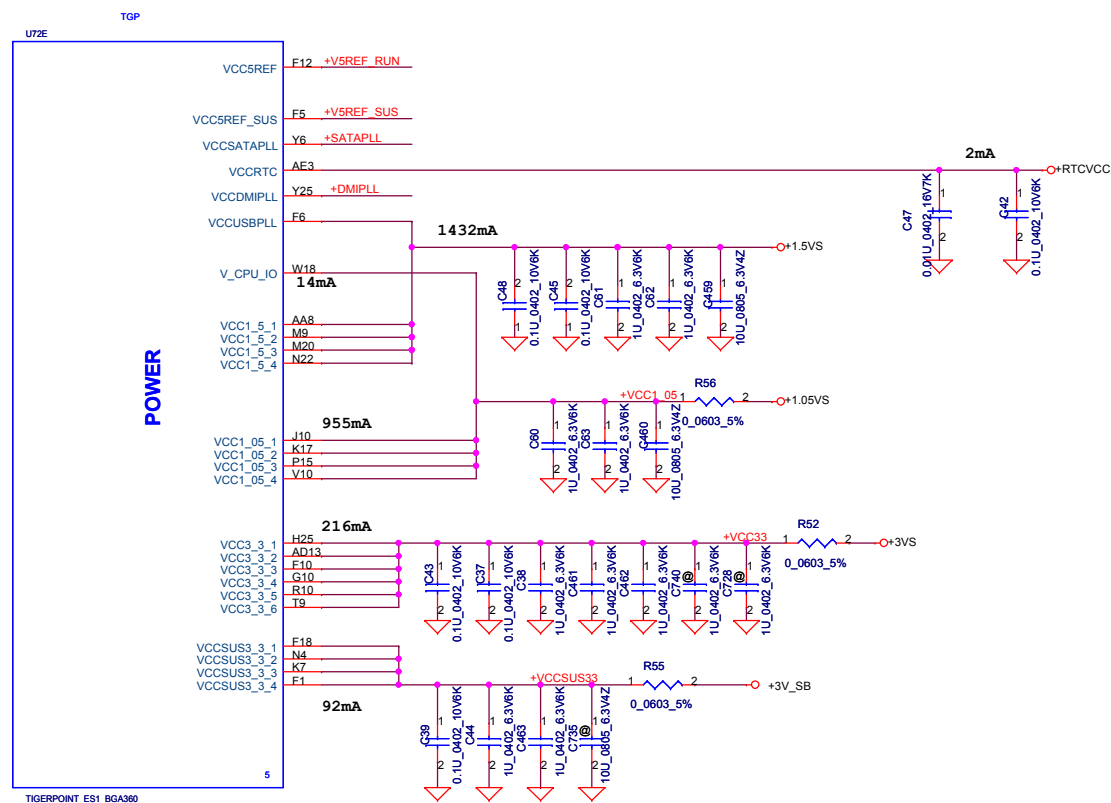
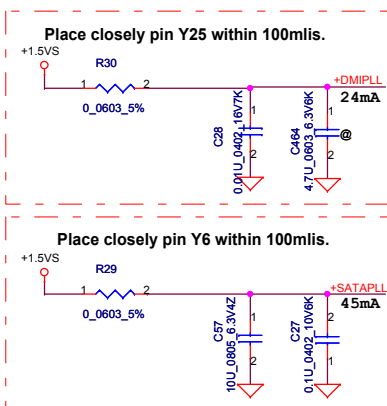
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For EMI, Close to TigerPoint

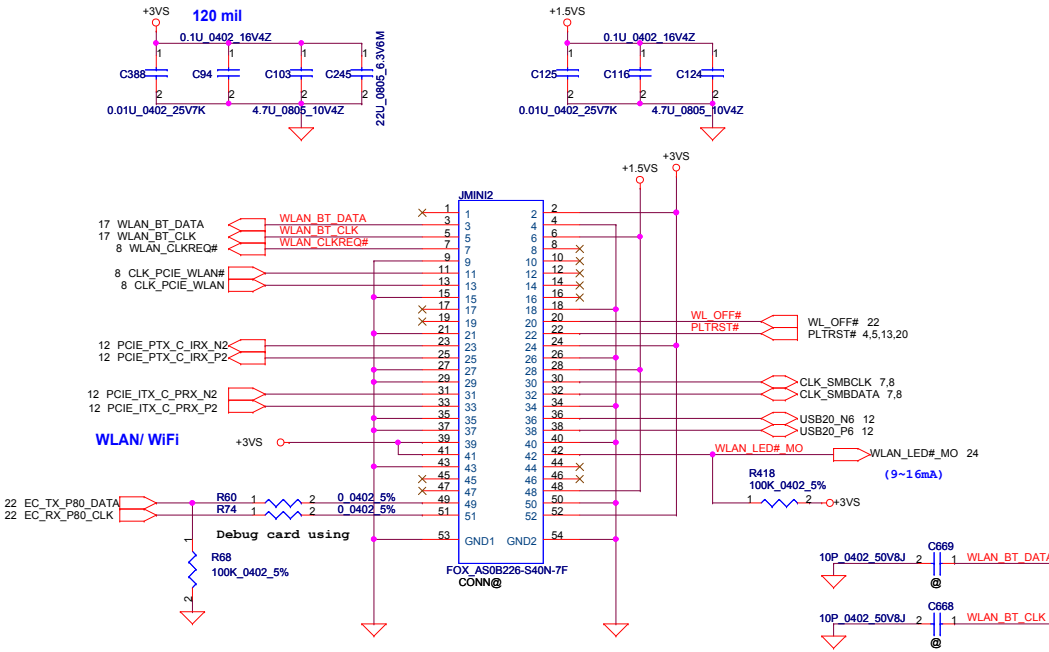


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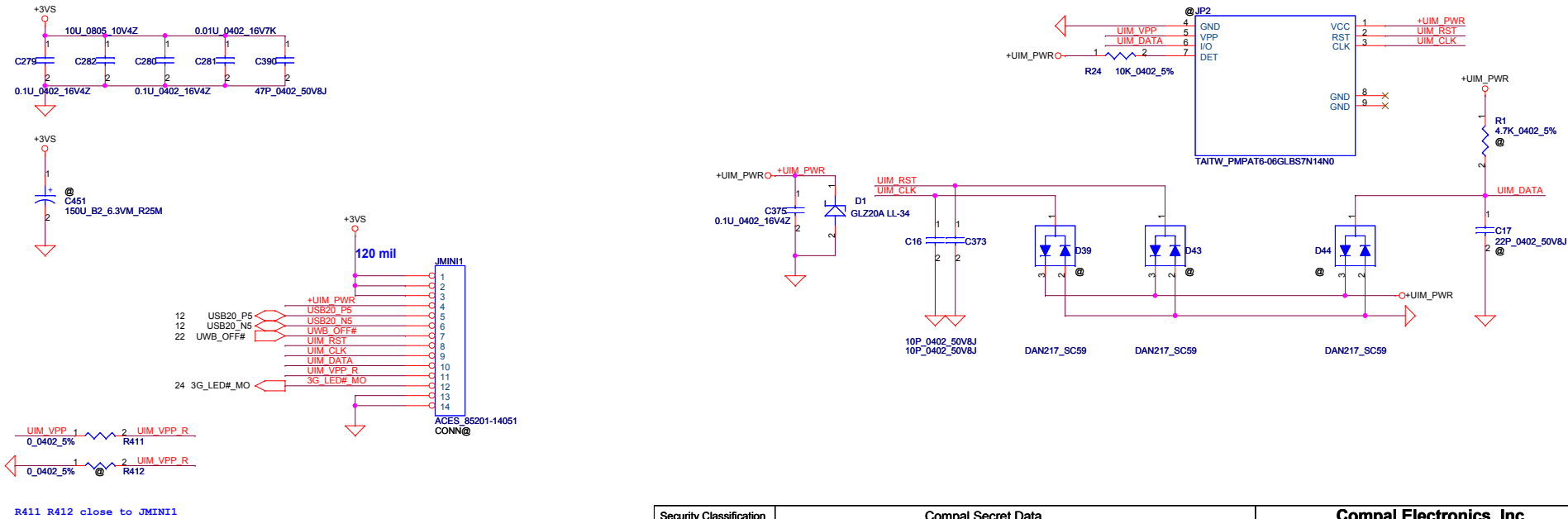


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Mini-Express Card for WLAN

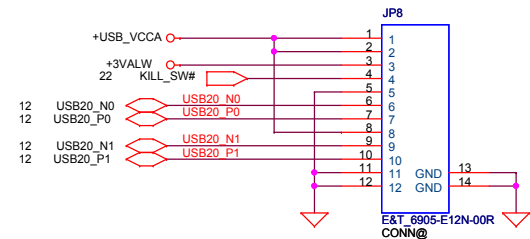
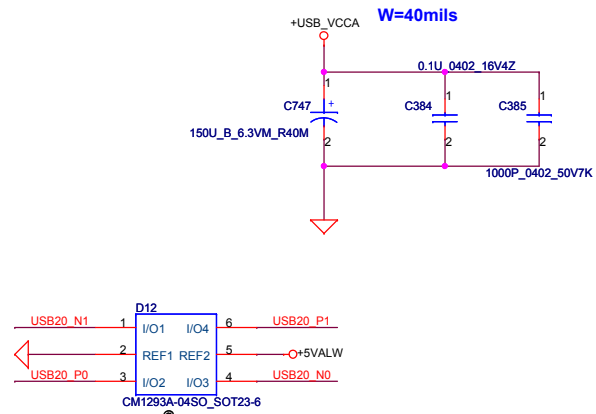
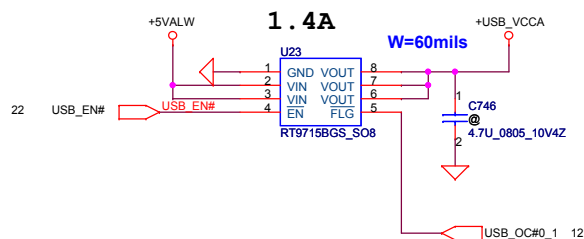


Mini-Express Card for 3G

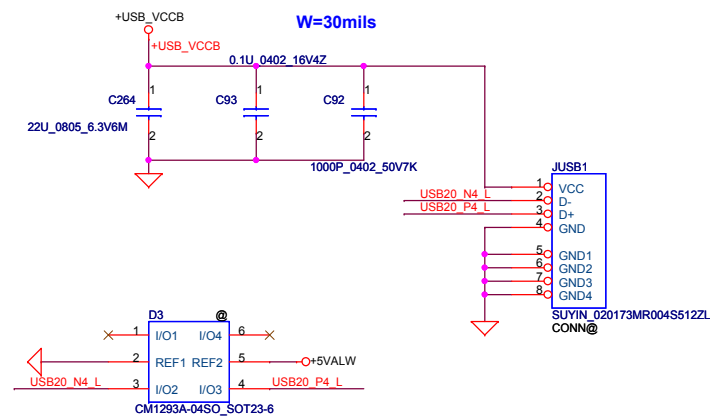
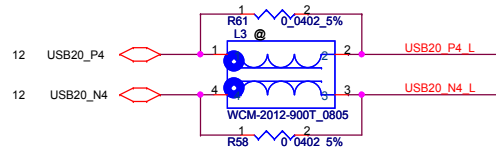
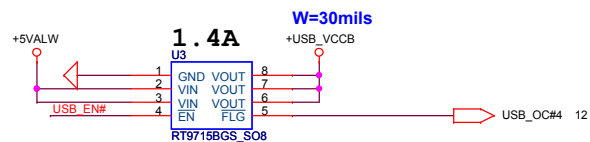


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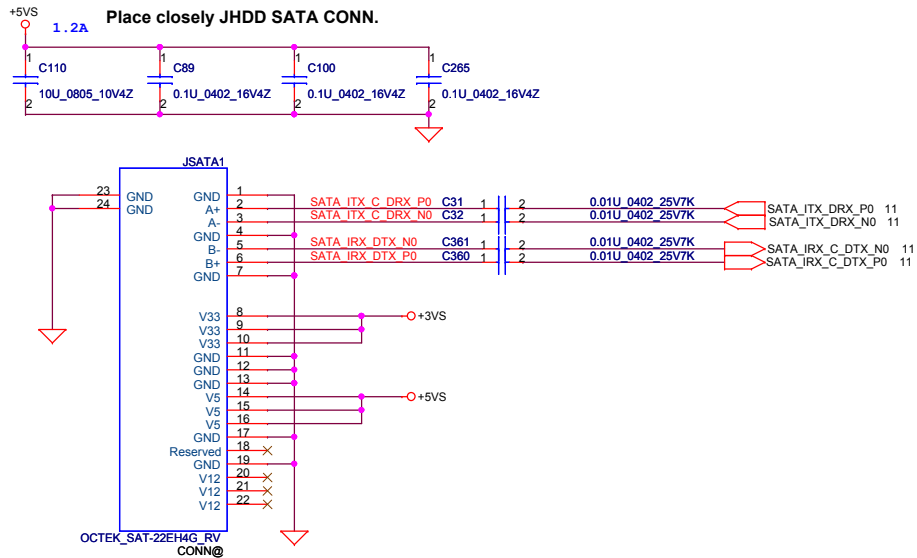
USB X2



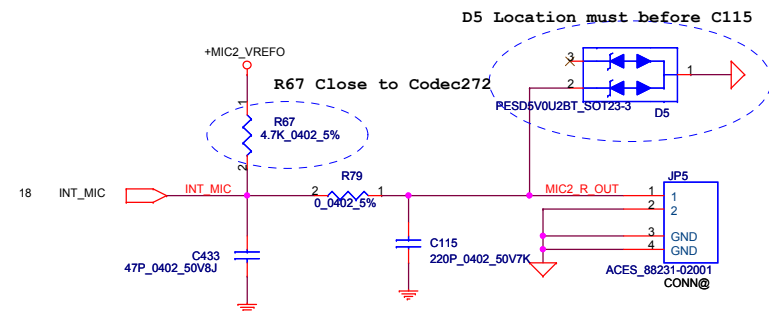
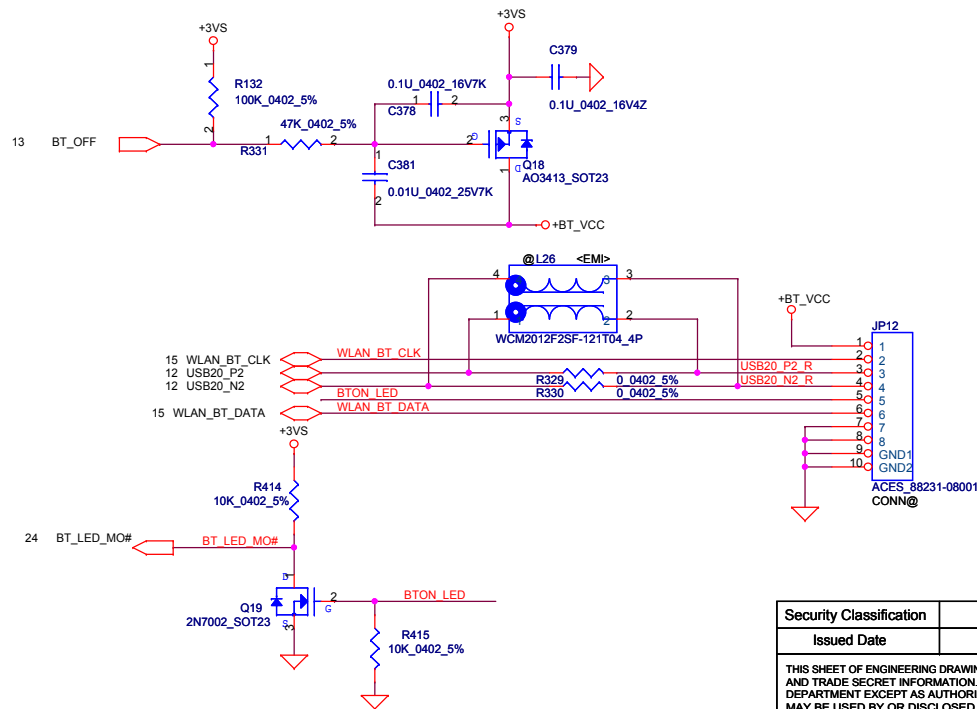
USB Board--Left



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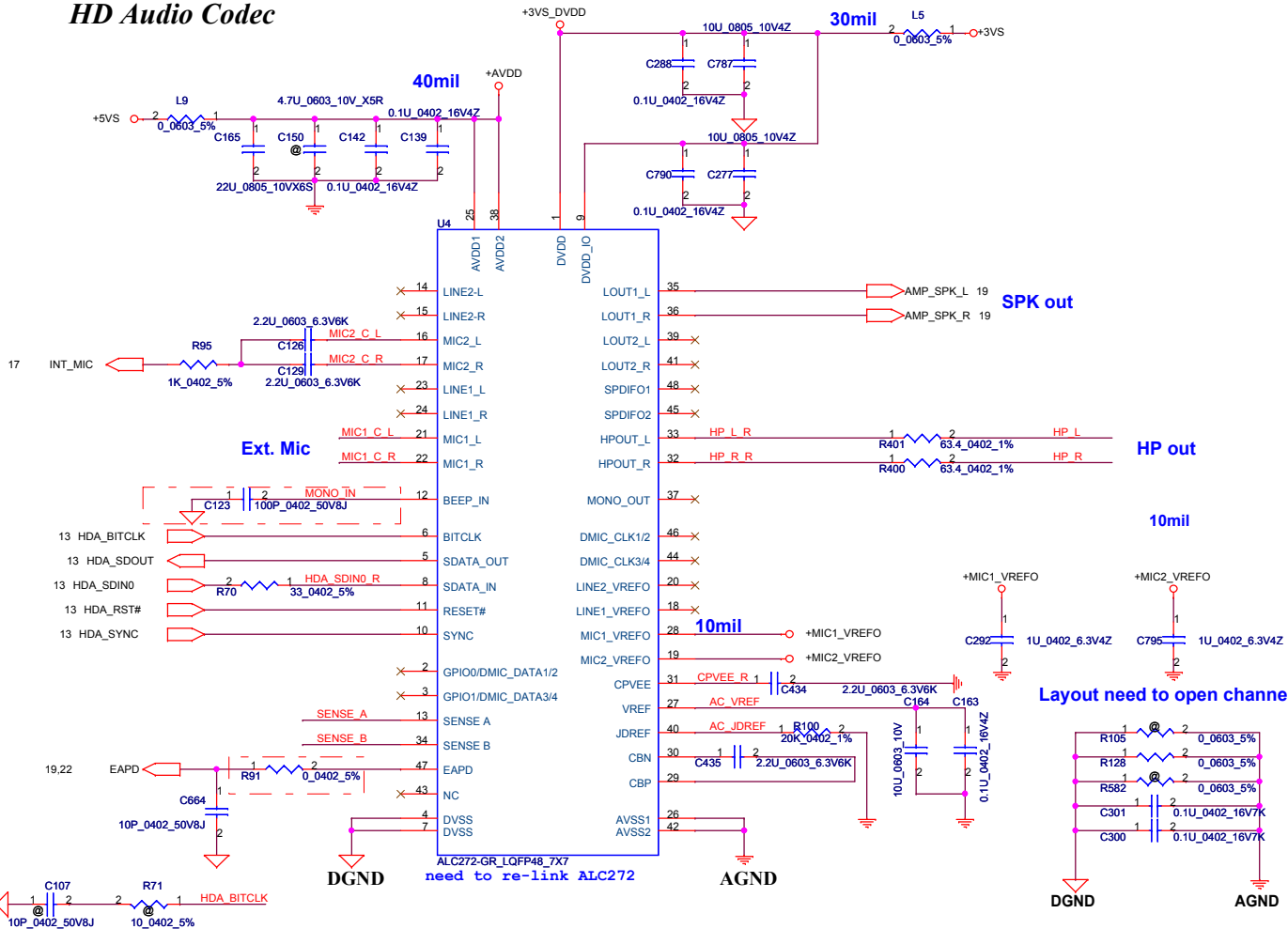
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Bluetooth Interface



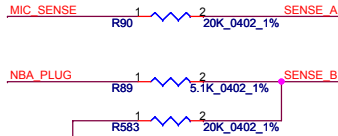
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Issued Date	2009/11/10	Deciphered Date	2010/11/10	Title SATA /BT/Int MIC			
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				Custom	NTV00 LA5661P M/B	0.4	
				Date:	Tuesday, December 08, 2009	Sheet	17 of 35

HD Audio Codec

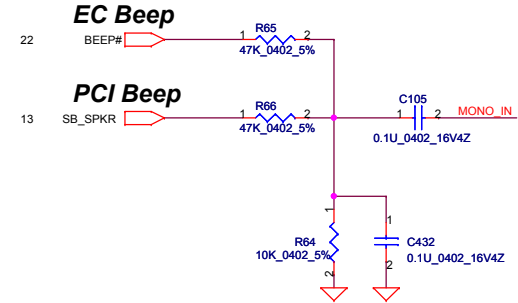


Sense Pin	Impedance	Codec Signals	Function
SENSE A	39.2K	PORT-A (PIN 39, 41)	
	20K	PORT-B (PIN 21, 22)	Ext. MIC
	10K	PORT-C (PIN 23, 24)	
	5.1K	PORT-D (PIN 35, 36)	SPK out
SENSE B	39.2K	PORT-E (PIN 14, 15)	
	20K	PORT-F (PIN 16, 17)	Int. MIC
	10K	PORT-H (PIN 37)	
	5.1K	PORT-I (PIN 32, 33)	Headphone out

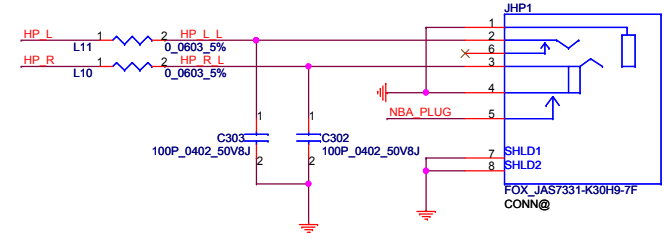
place close to chip



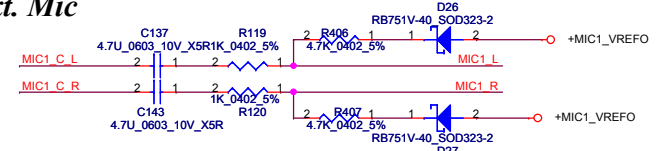
Beep sound



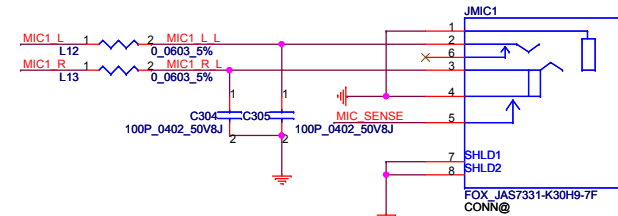
Head Phone JACK



Ext. Mic



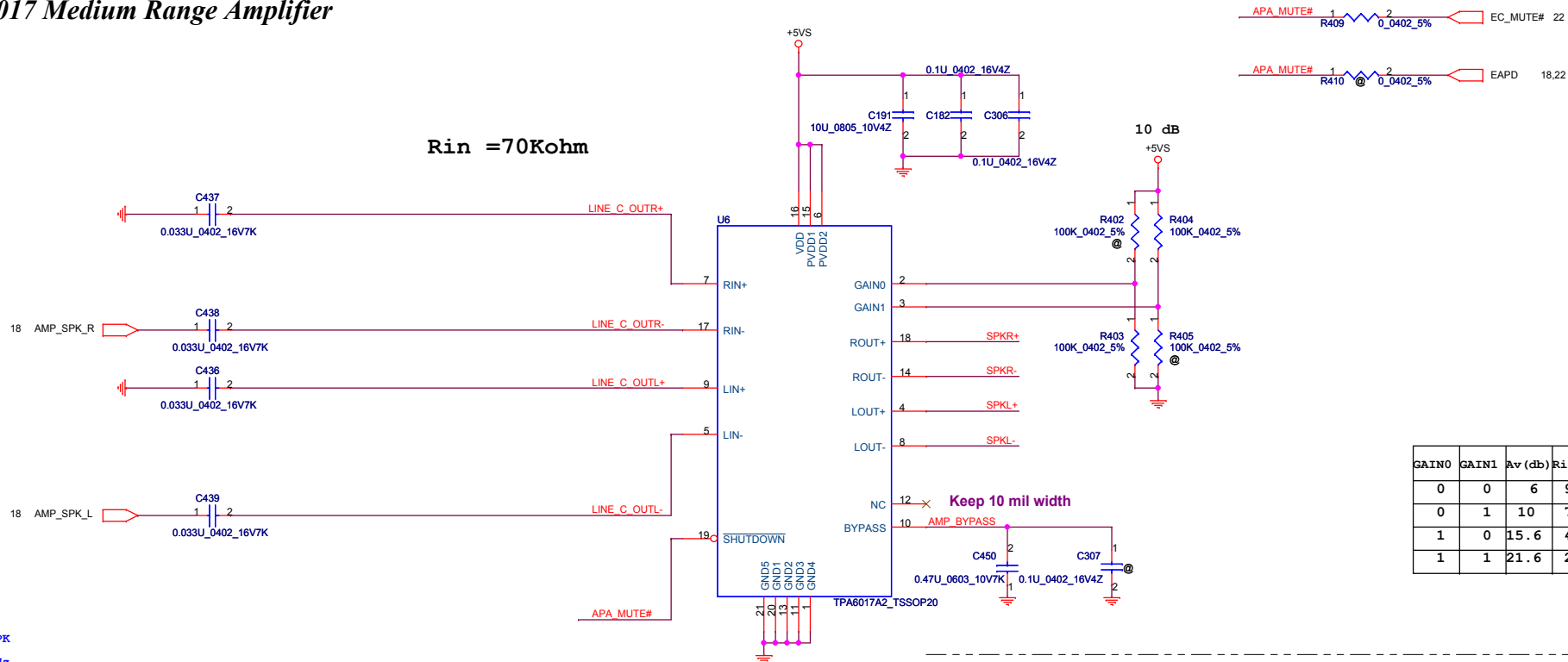
Ex.MIC JACK



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				Custom	0.4
				Document Number NTV00 LA5661P M/B	
Date:	Tuesday, December 08, 2009	Sheet	18	of	35

TPA6017 Medium Range Amplifier

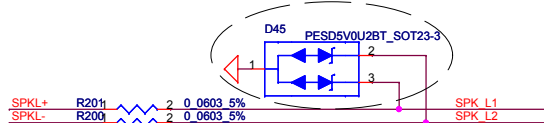
Rin =70Kohm



GAIN0	GAIN1	Av (db)	Rin (ohm)
0	0	6	90K
0	1	10	70K
1	0	15.6	45K
1	1	21.6	25K

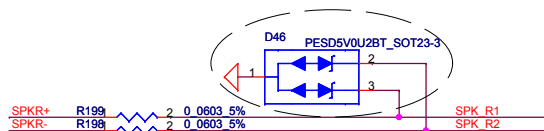
Use mono SPK
setting 68Hz
F=1/2nRC --> -3db
C=0.033U, R=70K, F=68Hz

Left Speaker Connector

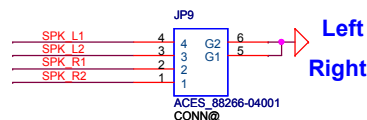


7/3 Change to SCA00000T00 for ESD request

Right Speaker Connector

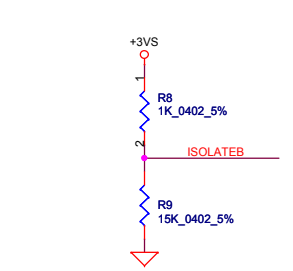
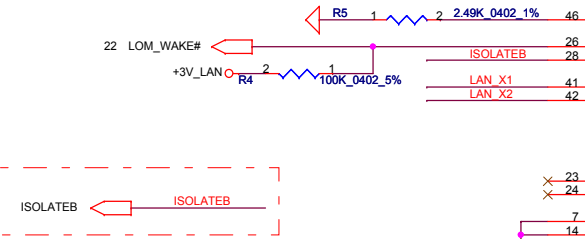
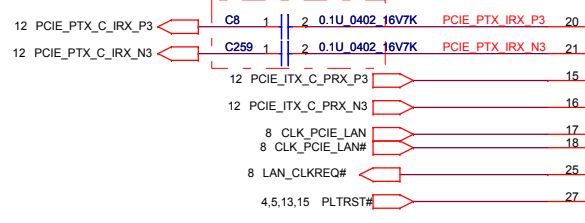


7/3 Change to SCA00000T00 for ESD request

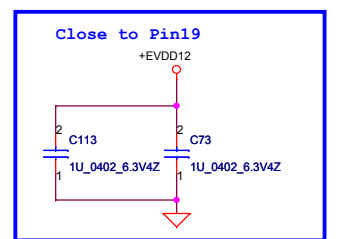
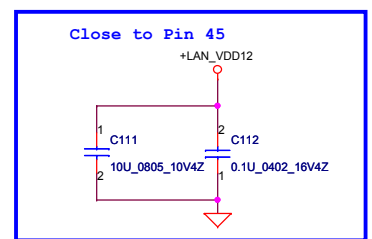
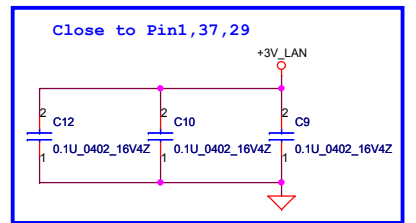
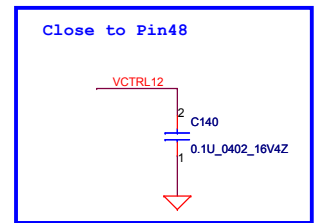
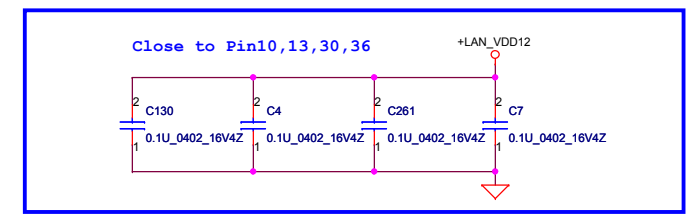
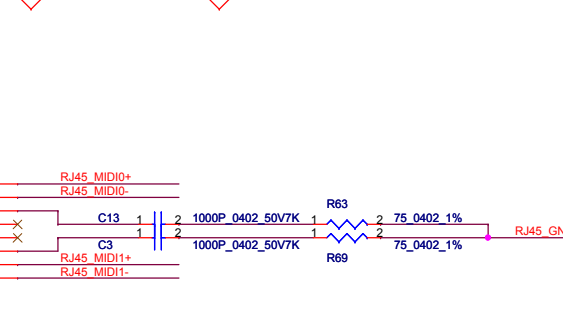
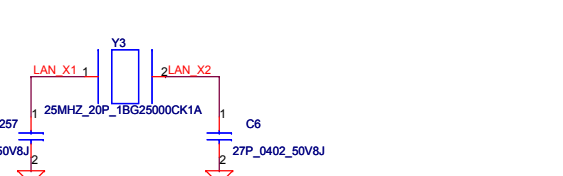
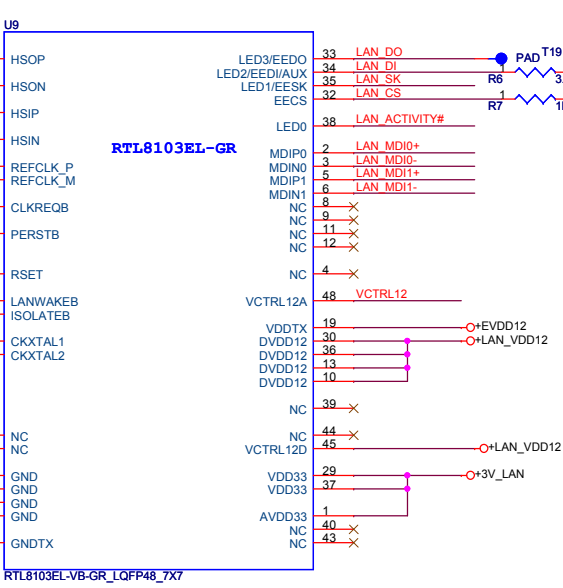
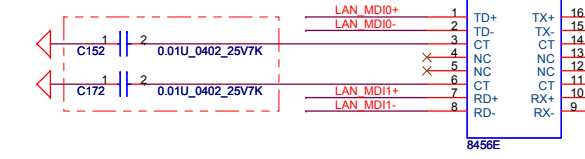


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2010/11/10				Title				AMP/VR/Audio Jack/MIC			
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				Custom				NTV00 LA5661P M/B			
				Date				Tuesday, December 08, 2009			
				Sheet				19 of 35			
								Rev			
								0.4			

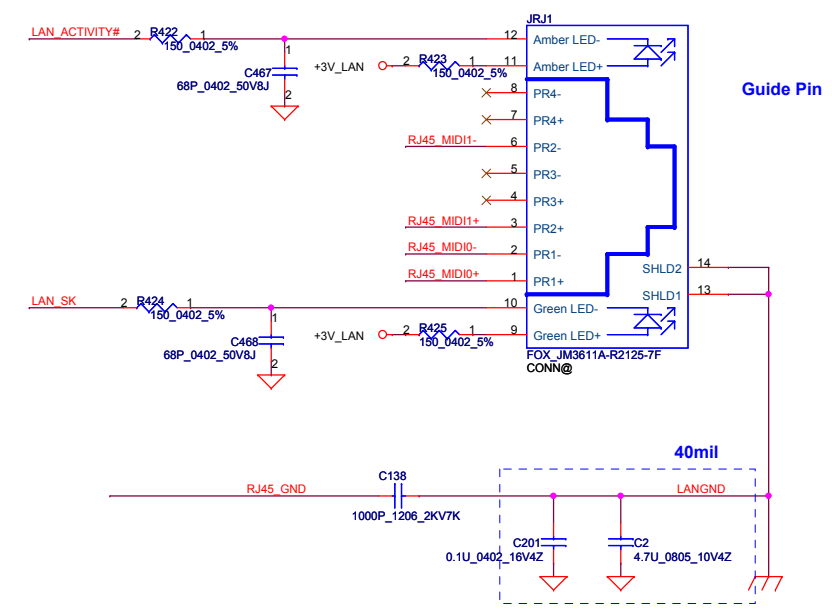
Place Close to Chip



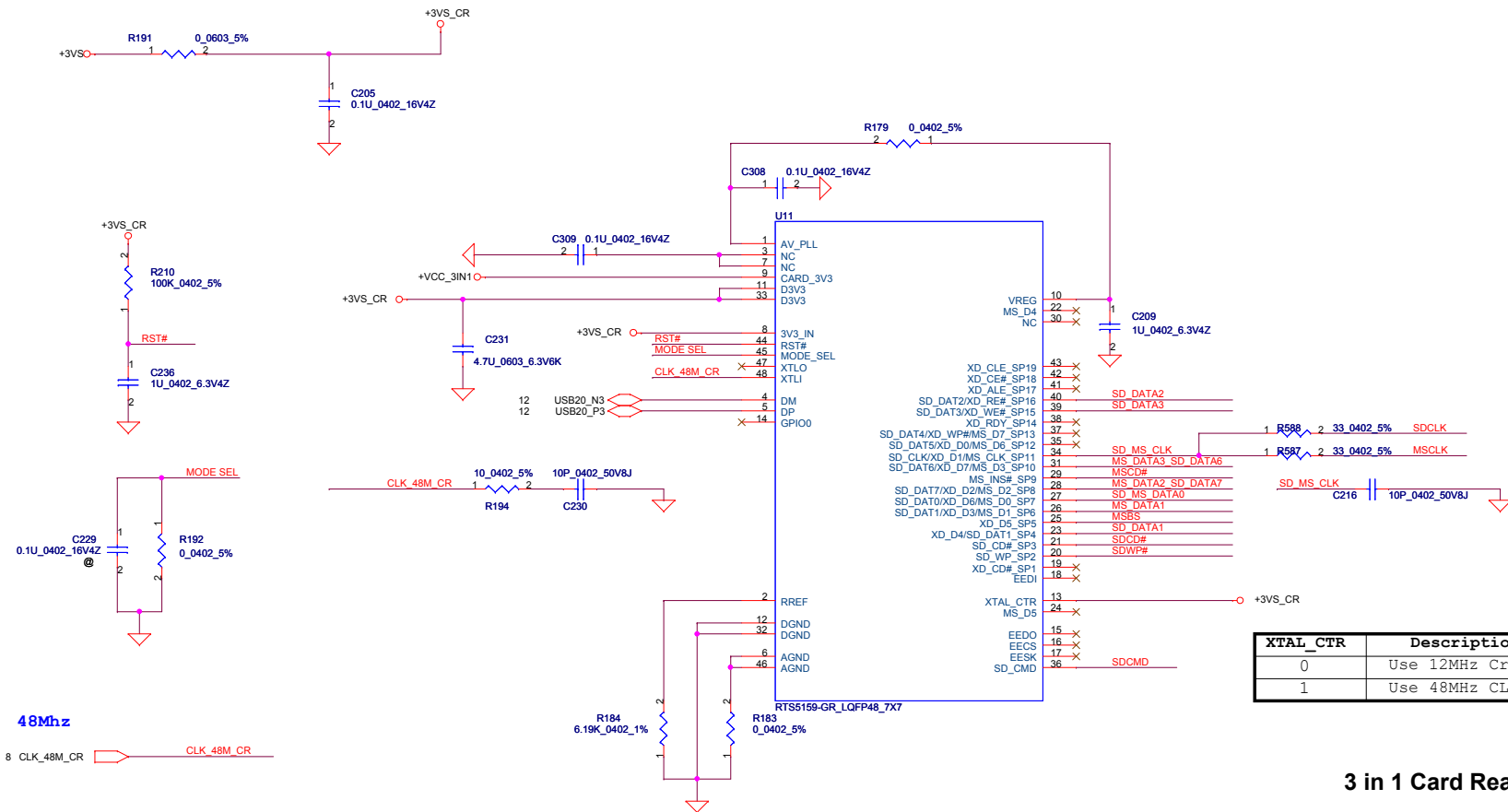
Place C152,C172 closed to T18



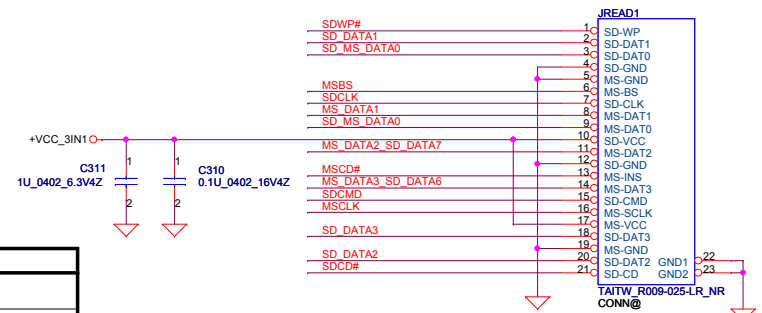
Lan Conn.



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										Size	
										Document Number	
										NTV00 LA5661P M/B	
										Date	
										Tuesday, December 08, 2009	
										Sheet	
										20	
										of	
										35	
										Rev	
										0.4	

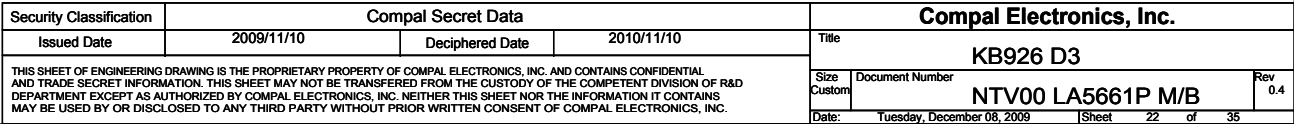


3 in 1 Card Reader

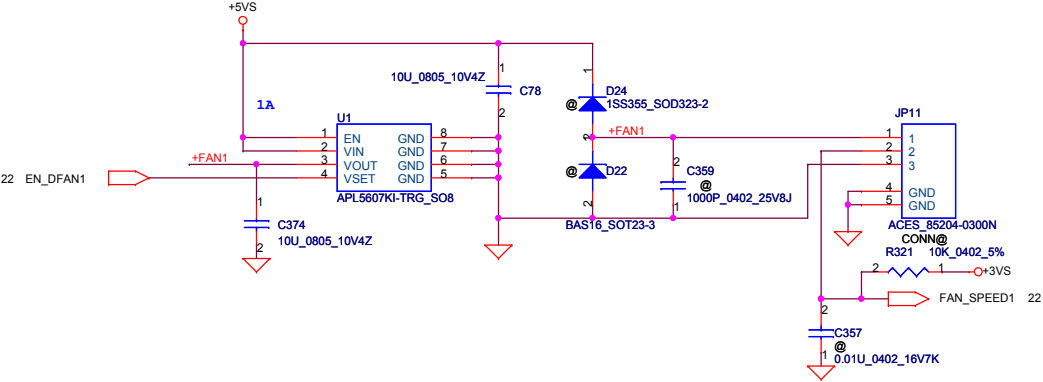


R	C	USB AUTO DE-LINK	MS FORMATTER	Description
0	NC	YES		Recommended
NC	47P	YES	YES	
NC	NC			Compatible with RTS5158E
NC	680P	YES		LED ON
10K	180P			LED ON
10K	680P		YES	

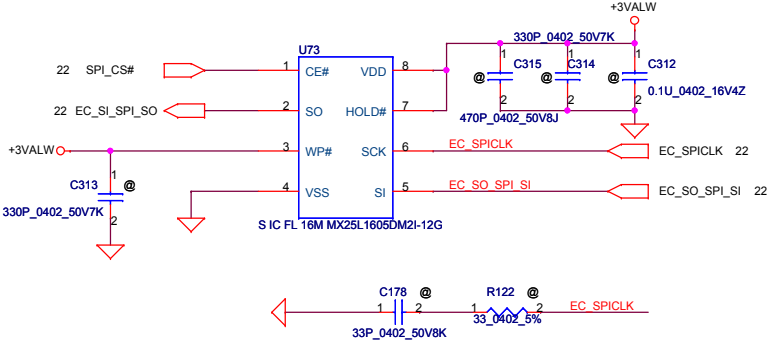
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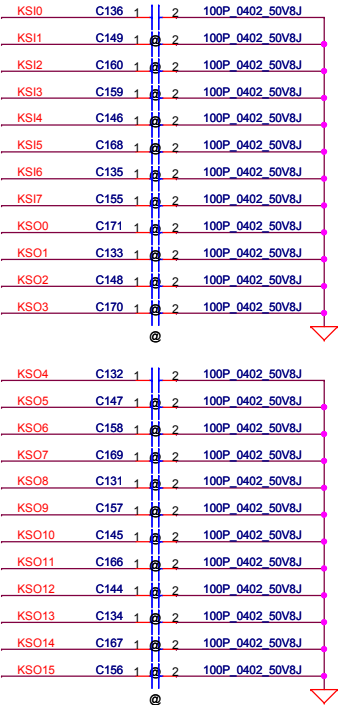
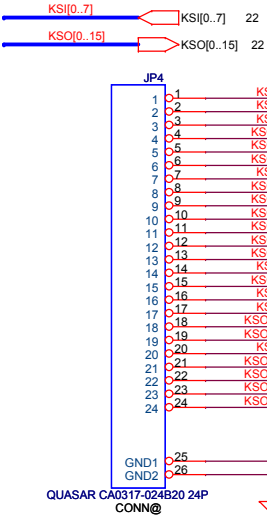
FAN Control Circuit



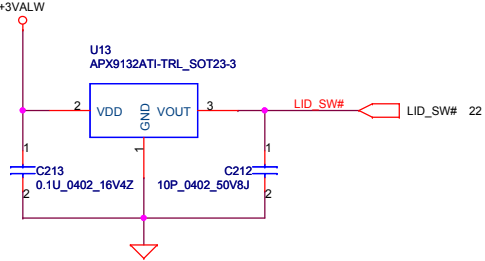
SPI Flash (16Mb*1)



KEYBOARD
CONN .

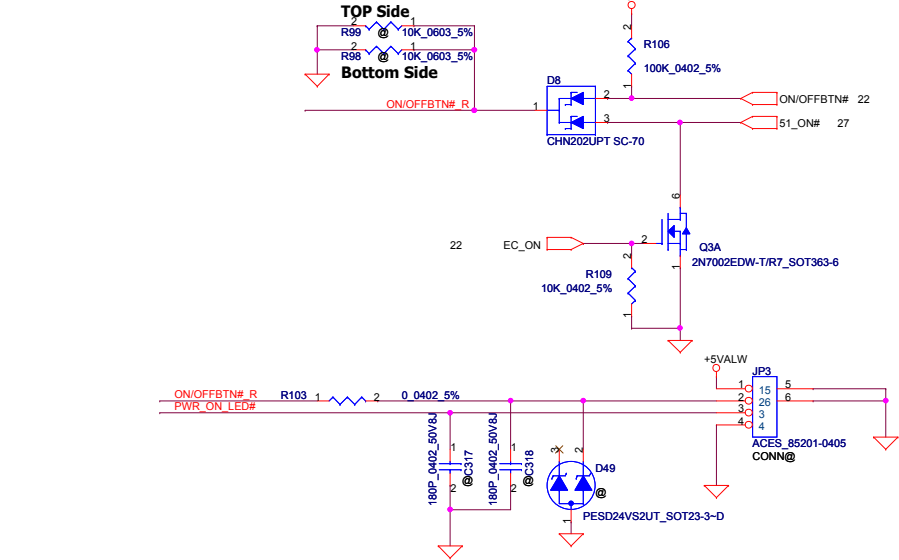


Lid SW

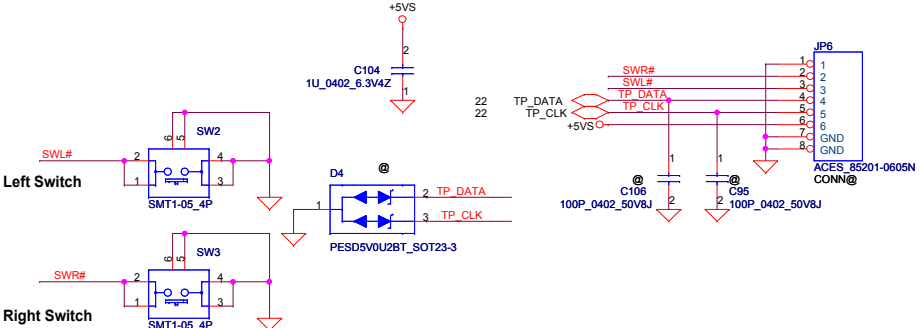


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Issued Date	2009/11/10	Deciphered Date	2010/11/10	SPI ROM//KB//FAN/Lid SW		
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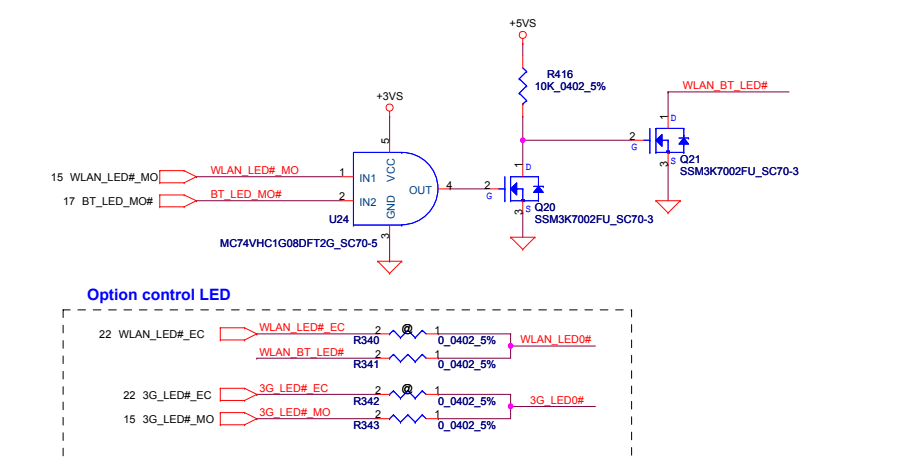
Power Button



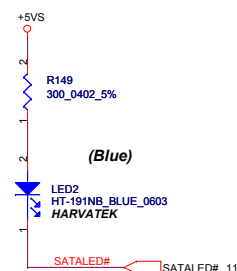
Touch/B Connector



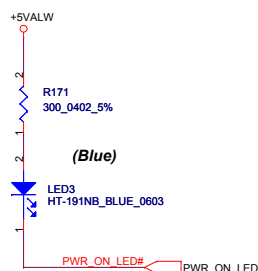
ISPD



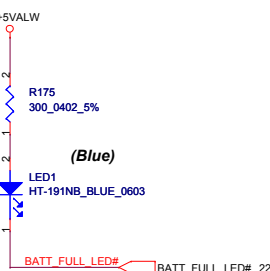
HDD_LED



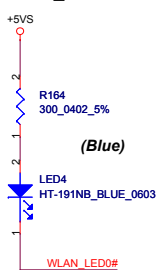
Power_LED



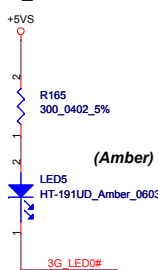
Charge_LED



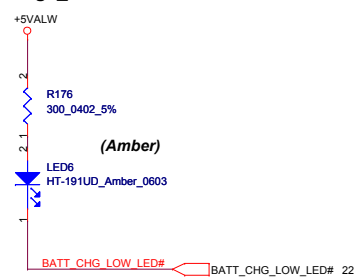
WLAN_LED



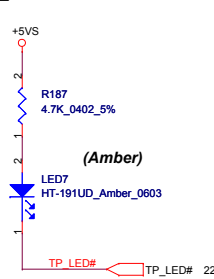
3G_LED



Charge_LED

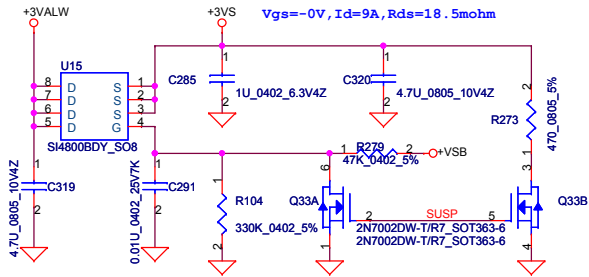


TP_LED

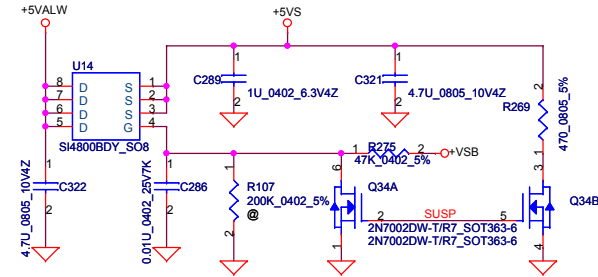


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Size		Document Number		Rev	
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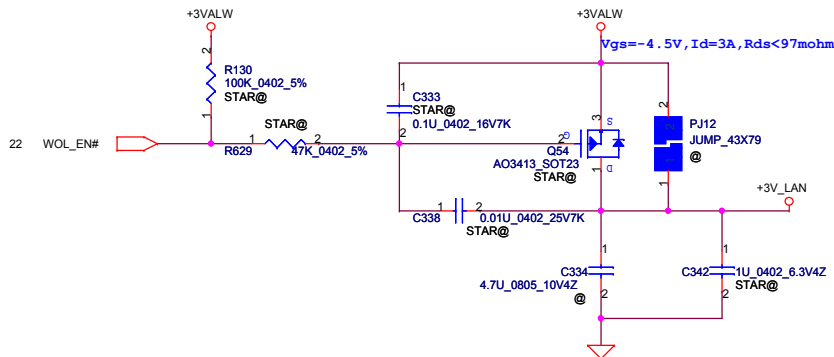
+3VALW TO +3VS



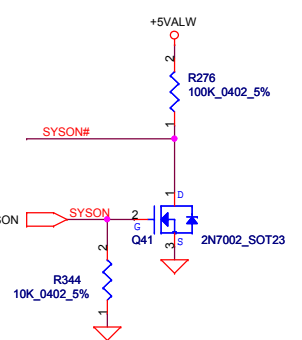
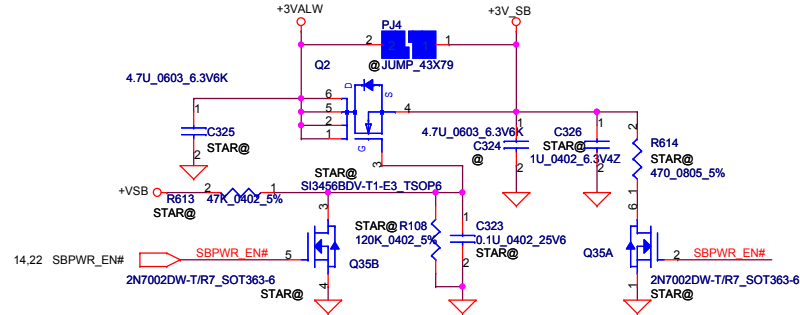
+5VALW TO +5VS



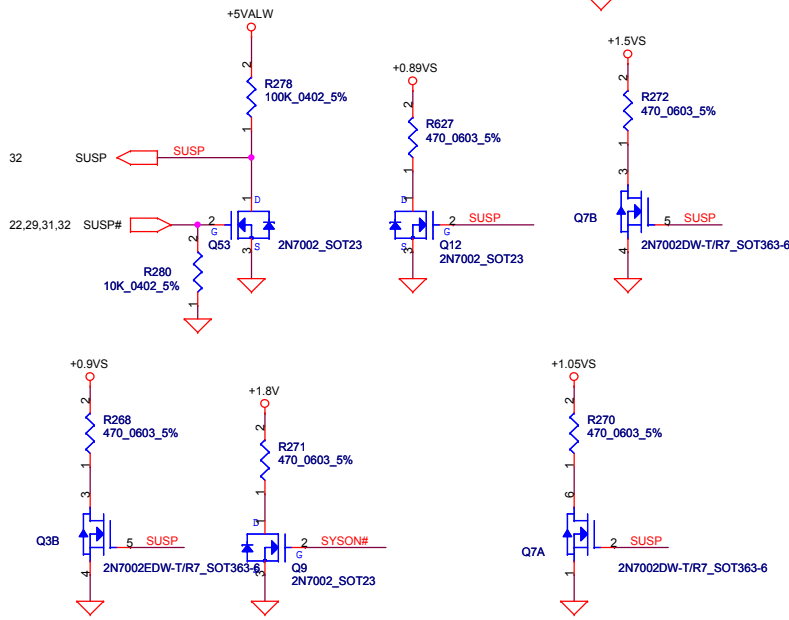
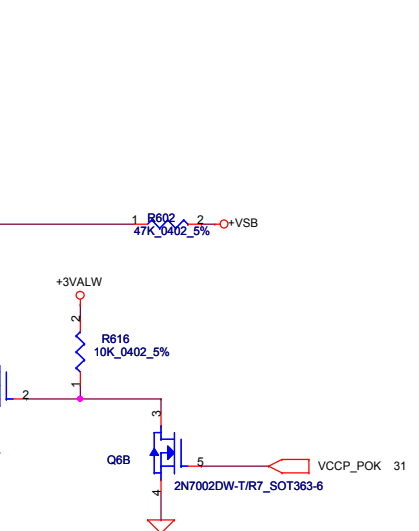
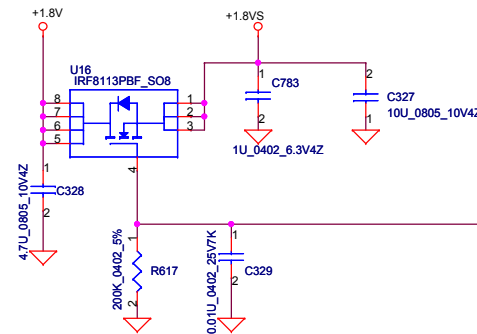
+3VALW TO +3V_LAN



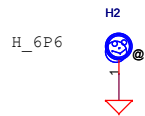
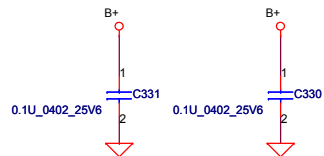
+3VALW TO +3V_SB



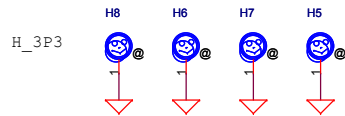
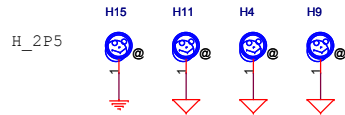
+1.8V TO +1.8VS



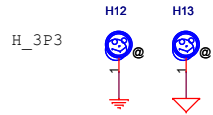
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Size		Document Number		Rev	
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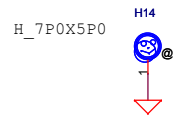
02/12 H2 change to H_6P6



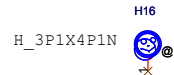
01/06 H_3P8 change to H_3P3



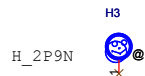
01/06 H_3P1 change to H_3P3



02/12 H_7P0X5P0N change to H_7P0X5P0

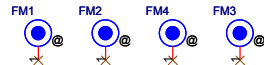


01/06 Add a H_3P1X4P1N



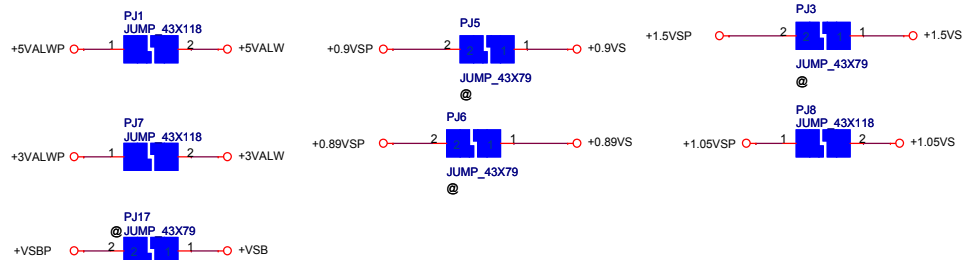
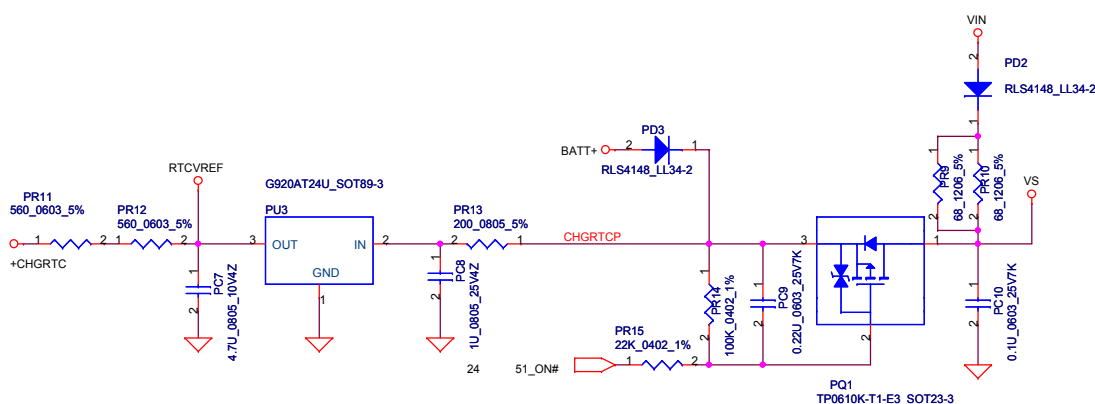
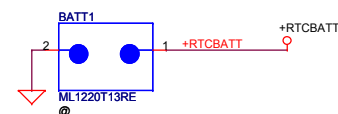
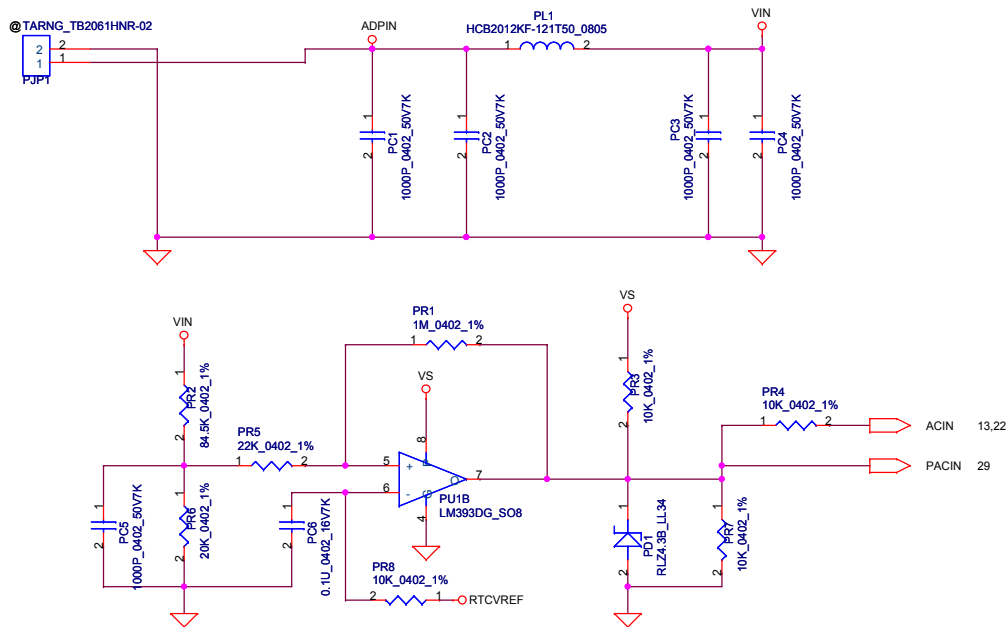
01/06 H_2P9N change to H_2P7N

03/11 H_2P7N change to H_2P9N



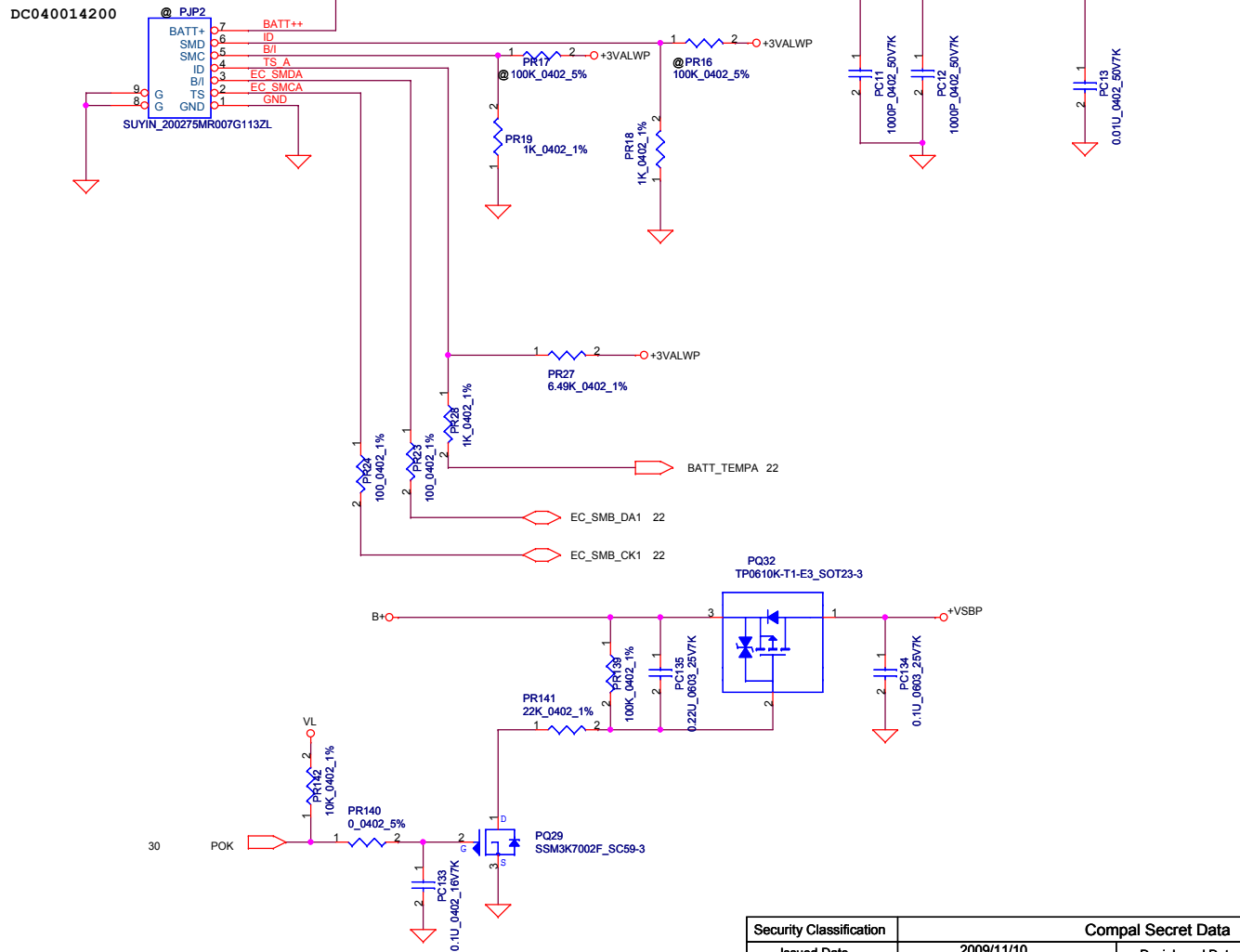
FIDUCIAL_C40M80

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				Date	Wednesday, November 25, 2009
				Sheet	26 of 35
				Rev	0.4

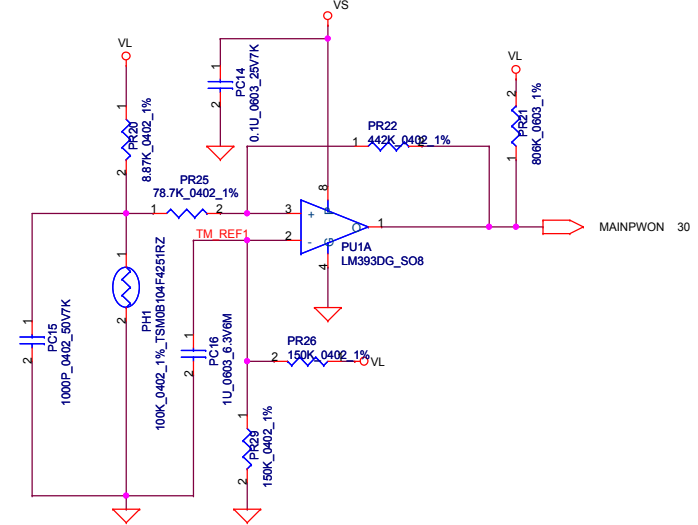


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Size	Custom	Document Number		<Doc>	
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DC040014200

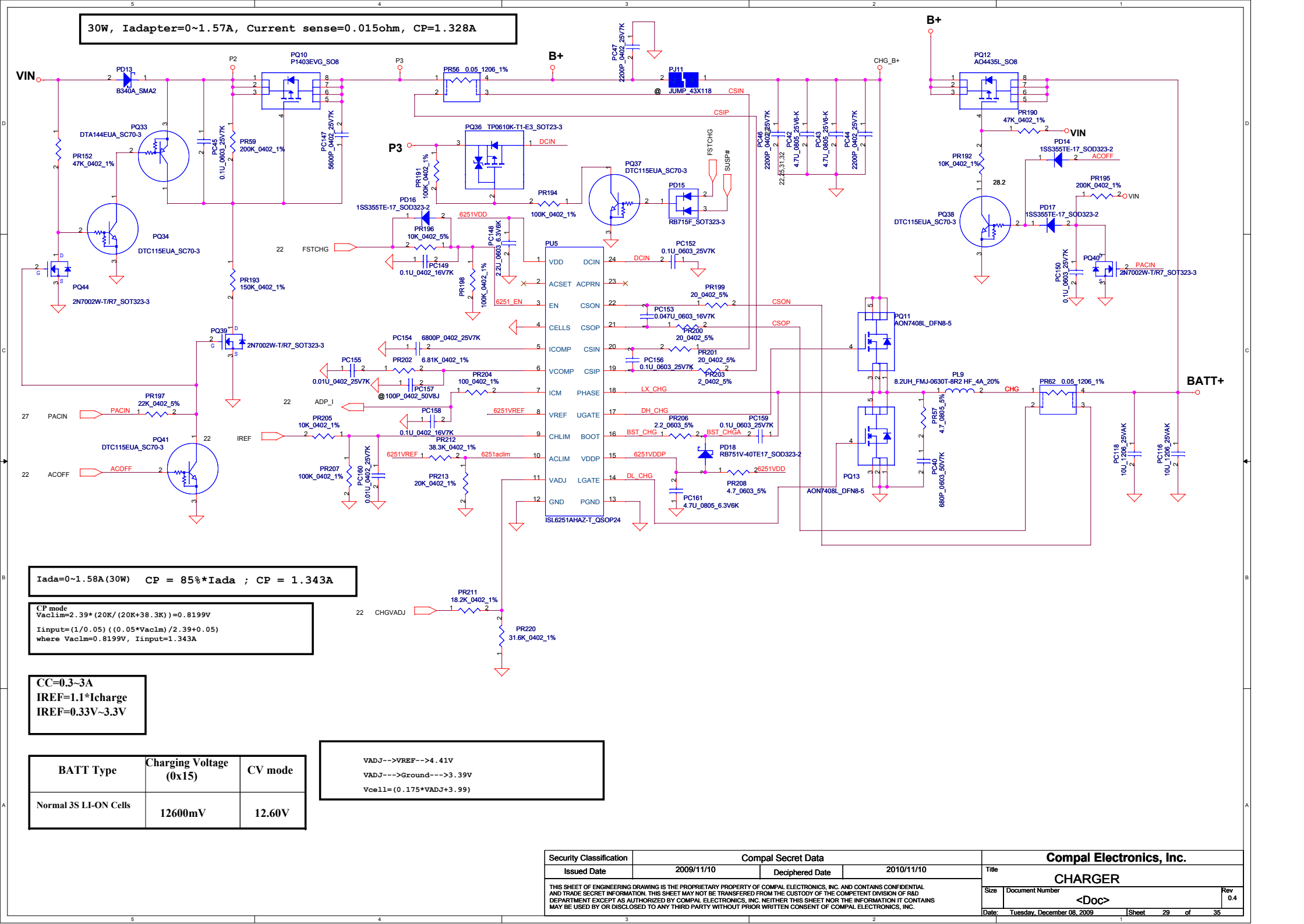


PH1 under CPU botten side :
 CPU thermal protection at 95 degree C
 Recovery at 75 degree C



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30W, Iadapter=0~1.57A, Current sense=0.015ohm, CP=1.328A



Iada=0~1.58A(30W) CP = 85%*Iada ; CP = 1.343A

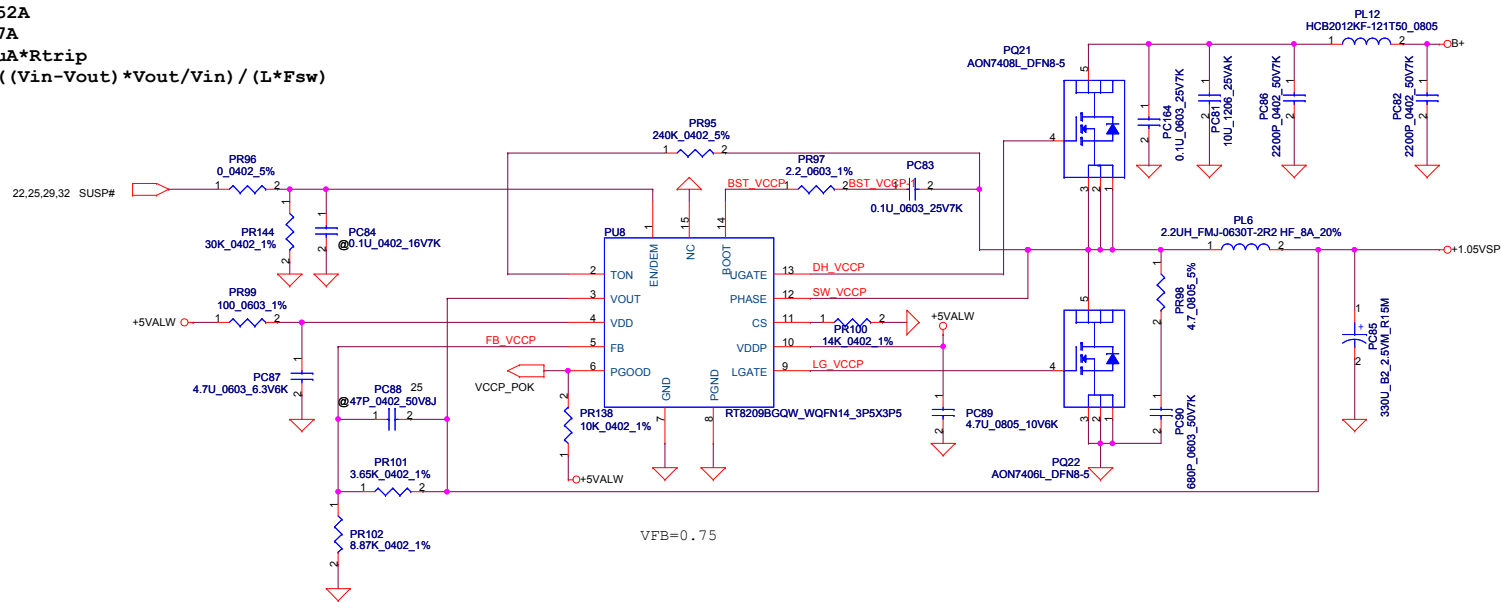
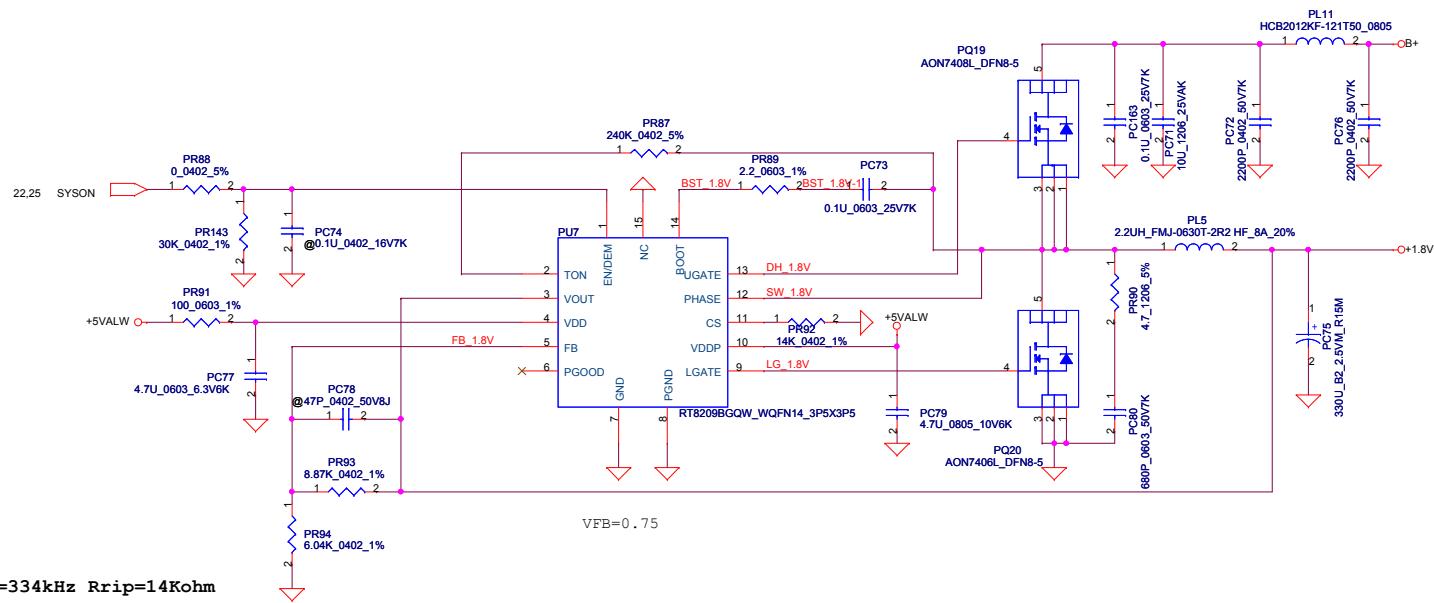
CP mode
 $V_{ac1m} = 2.39 * (20K / (20K + 38.3K)) = 0.8199V$
 $I_{input} = (1 / 0.05) * ((0.05 * V_{ac1m}) / 2.39 + 0.05)$
 where $V_{ac1m} = 0.8199V$, $I_{input} = 1.343A$

CC=0.3~3A
 IREF=1.1*Icharge
 IREF=0.33V~3.3V

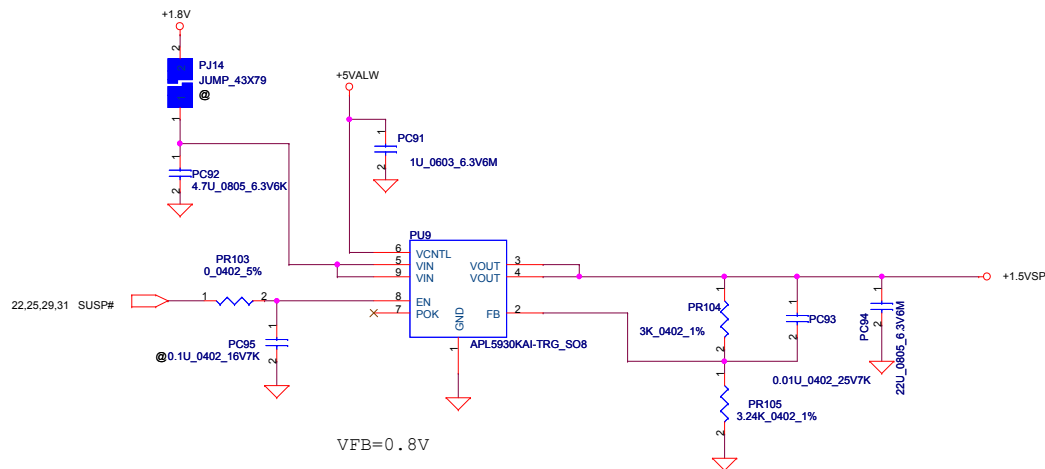
VADJ-->VREF-->4.41V
 VADJ--->Ground--->3.39V
 $V_{cell} = (0.175 * VADJ + 3.99)$

BATT Type	Charging Voltage (0x15)	CV mode
Normal 3S LI-ON Cells	12600mV	12.60V

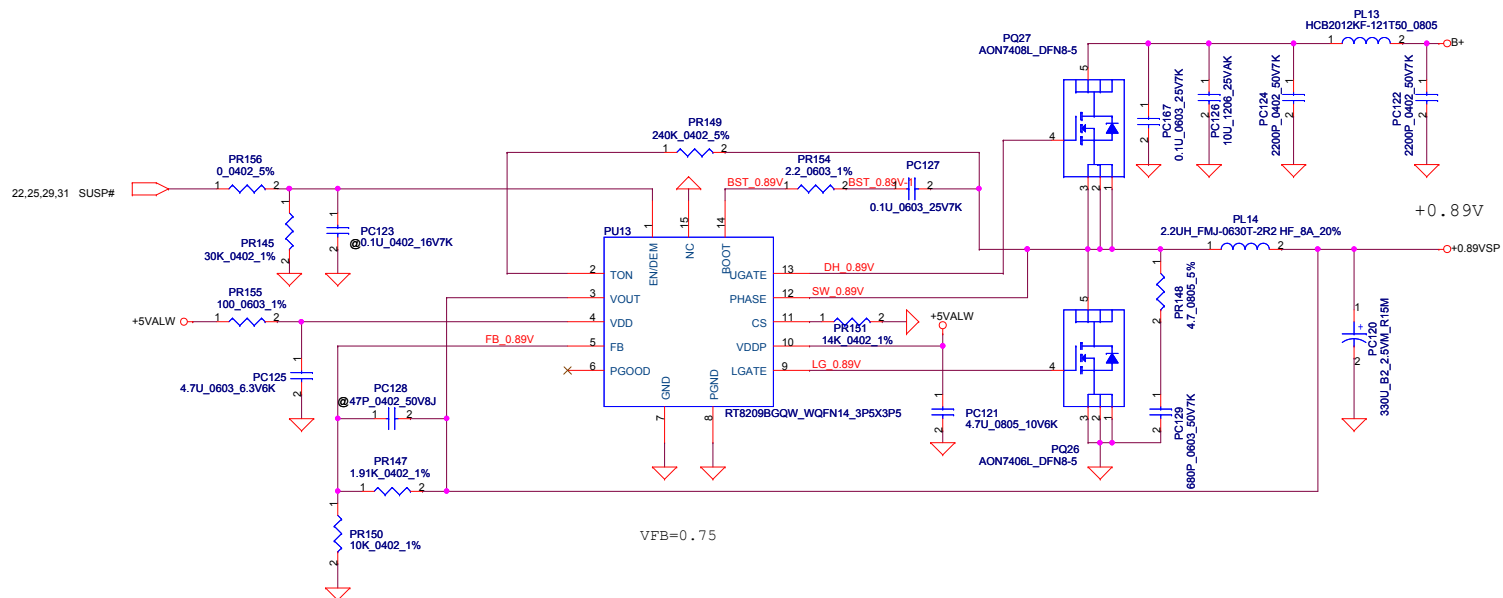
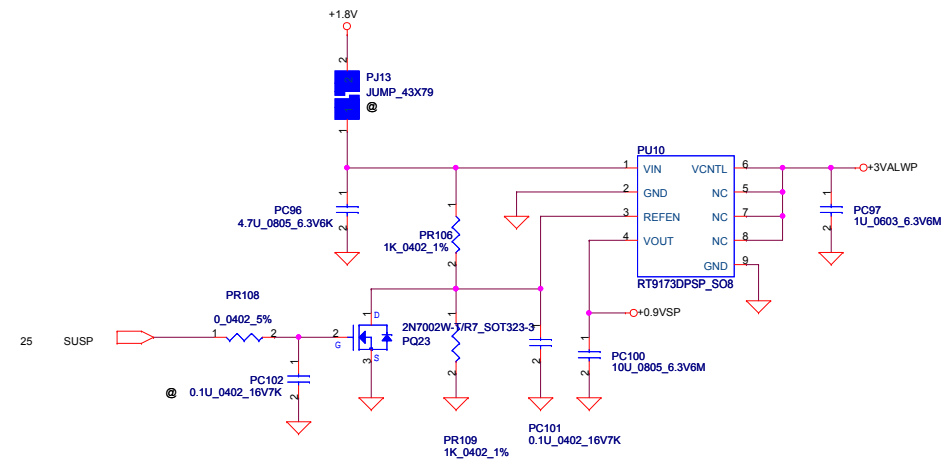
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VFB=0.8V



VFB=0.75

0.89VP Fsw=339kHz Rrip=14Kohm
 I_{max}=1.848A
 I_{peak}=2.64A
 I_{ocp}=5.92A
 V_{trip}=10uA*R_{trip}
 I_{ripple}=((V_{in}-V_{out})*V_{out}/V_{in})/(L*F_{sw})

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Page

EVT-2

Reason for change

Change PC77,PC87,PC125 from 10V to 6.3V

Add PR233 for enable CLK_GEN by HW request

Add snubber for EMI request

Change CPU OCP from 6A to 9A, PR210 from 1.8K to 2.61K

Change PC77, PC87, PC125 from 10V to 6.3V for standard part

DVT

Romve BattOVP function, EC support

Combine OTP to LM393

Change OTP from 89 to 92 degree for thermal request

Change PL15 to common part

PVT

shortage in factory

HW request

change net name

cost consideration

prevent noise coupling

prevent floating

adjust sequence

HW circuit request

OCP modify for power budget

cost consideration

Modify list

Add PR57, PC40, PR68, PC63, PR69, PC64,

Add PR90, PC80, PR98, PC90, PR148, PC129, PR122, PC109

Change PR210 from 1.8K to 2.61K

Del PU4, PC115,PC117,PR138,PR139,PR140,PR141

DEL PD5

Change PR20 from 10K to 8.87K

Change PC9,PC135 from 0.22U_1206 to 0.22U_0603
Change PC42,PC43 from 0.22U_1206 to 0.22U_0805
Change PC66 from 0.22U_0603_10V7K to 0.22U_0603_25V7K

Add B+>>+VSB circuit and +VSB jump

Add PGOOD circuit in PU8

change CLK_EN# to CLK_ENABLE#, +VCCPP to +1.05VSP, +VCCP to +1.05VS, SPOK to POK, BATT_TEMP to BATT_TEMP_A

change PU7,PU8,PU13 from TPS51117RGYR to RT8209BGQW

change PR101 13.7k to 3.65k and PR102 31.6k to 8.87k
change PR93 30.1k to 8.87k and PR94 20.5k to 6.04k
change PR147 5.9k to 1.91k and PR94 31.6k to 10k

Add 30K resistance between EN pin and GND in PU7,8,13

change PR21 from 100K to 806K

change page-off connector to port

change PR80,81 from 210K to 270K and PR92 from 14.7K to 10K and PR210 from 2.61K to 3K

take off PC98 and CPU_CORE jump

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PIR (Product Improve Record)

SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.1

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1	12/02	6	Change C278 footprint from B2 to D2	Cost down
2	12/02	5	Add R193,R221,R209,R214,R218,R224 closed to Processor Pin	EMI request
3	12/03	14	Remove R562 let +VCC1_5 connect to +1.5VS directly	Layout shape non-enough
4	12/03	7	Add C589,C46,C559,C610,C41,C547,C344,C628,C542	Layout signal dirty
5	12/03	13	Add C665,C666,C667	Layout signal dirty
6	12/03	15	Add C668,C669	Layout signal dirty
7	12/08	6	Change C278 PN to SGA00001Q80	Power request

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