

Compal confidential

Schematics Document Mobile Dothan uFCPGA with Intel Alviso_GM+ICH6-M core logic

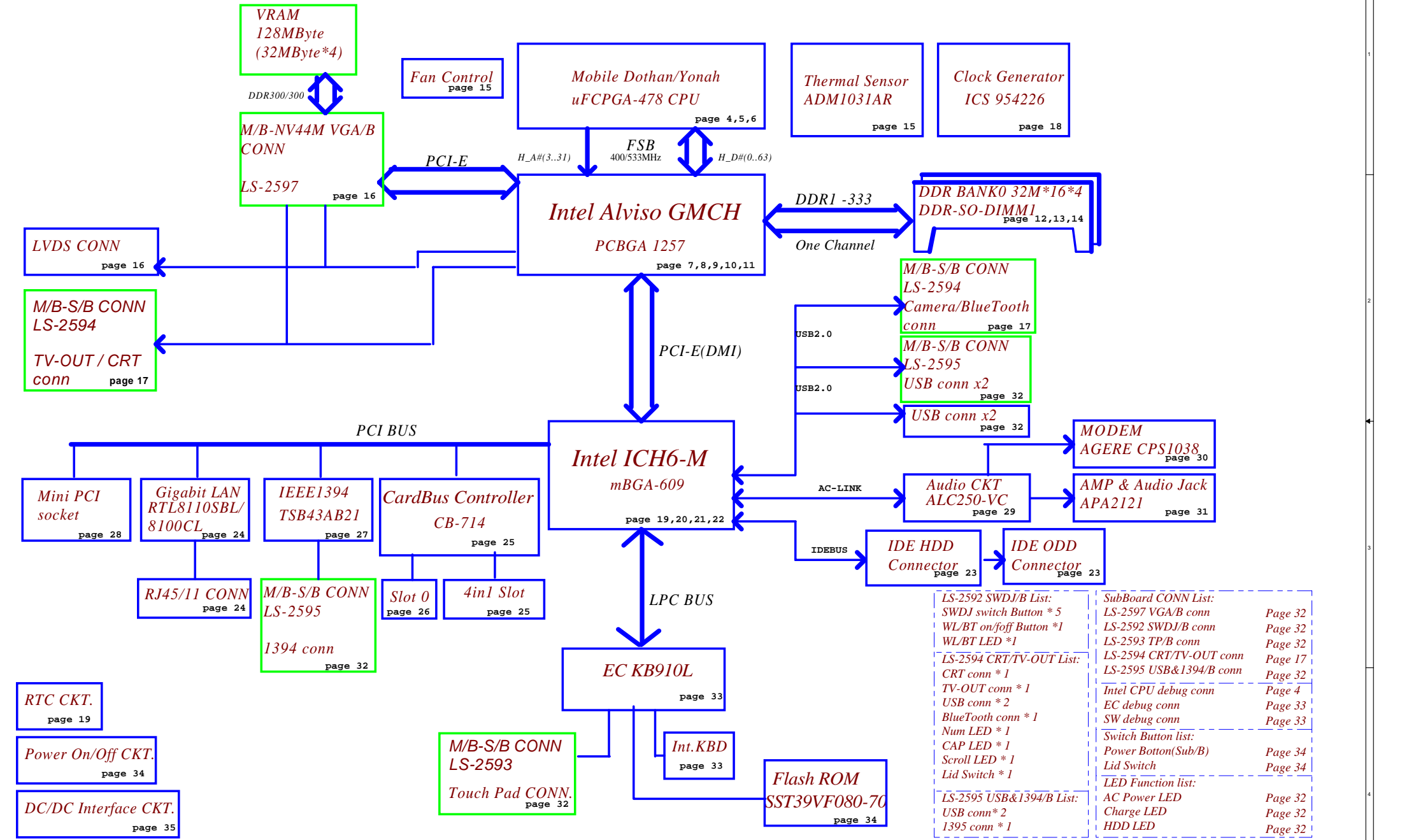
2005-02-15

LA-2592

REV:0.3

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Cover Sheet			
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I2C / SMBUS ADDRESSING

External PCI Devices

DEVICE	IDSEL #	REQ/GNT #	PIRQ
LAN	AD17	0	F
CARD BUS	AD20	1	A
Cardreader			B
1394	AD16	2	E
Wireless LAN(MINI PCI)	AD18	3	G,H

Power Managment table

Signal State	+12VALW +3VALW +5VALW	+3V +2.5V	+CPU_CORE +VCCF(1.05v) +5VS +3VS +2.5VS +1.5VS +1.25VS +1.1VS (VGA/B) +1.2VS (VGA/B) +1.8VS (VGA/B)
S0	ON	ON	ON
S1	ON	ON	ON
S3	ON	ON	OFF
S5 S4/AC	ON	OFF	OFF
S5 S4/AC don't exist	OFF	OFF	OFF

SMBUS Control Table

	SOURCE	INVERTER	BATT	SERIAL EEPROM	THERMAL SENSOR (CPU) ADM1032	SODIMM	CLK CHIP	MINI PCI	LCD
SMB_EC_CK1 SMB_EC_DA1	KB910L	×	✓	×	×	×	×	×	×
SMB_EC_CK2 SMB_EC_DA2	KB910L	×	×	×	✓	×	×	×	×
ICH_SMBCLK ICH_SMBDATA	ICH6-M	×	×	×	×	✓	✓	×	×
LCD_DDCCLK LCD_DDCDATA	Alviso GM-GP	×	×	×	×	×	×	×	✓
I2CC_SCL I2CC_SDA	NV44M	×	×	×	×	×	×	×	✓

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Title			
Design Note			
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	1		

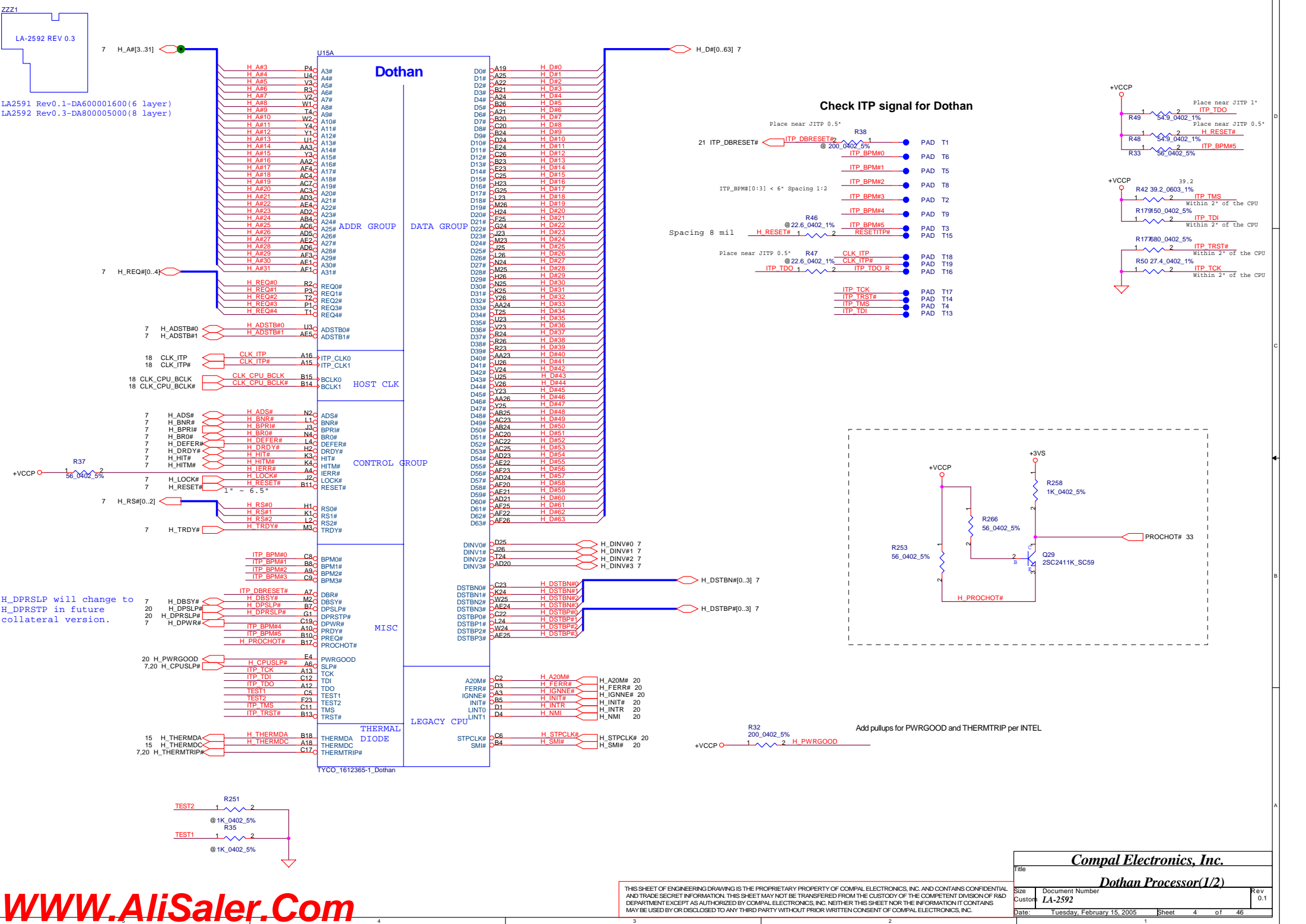
ZZZ1

LA-2592 REV 0.3

LA2591 Rev0.1-DA600001600(6 layer)
LA2592 Rev0.3-DA800005000(8 layer)

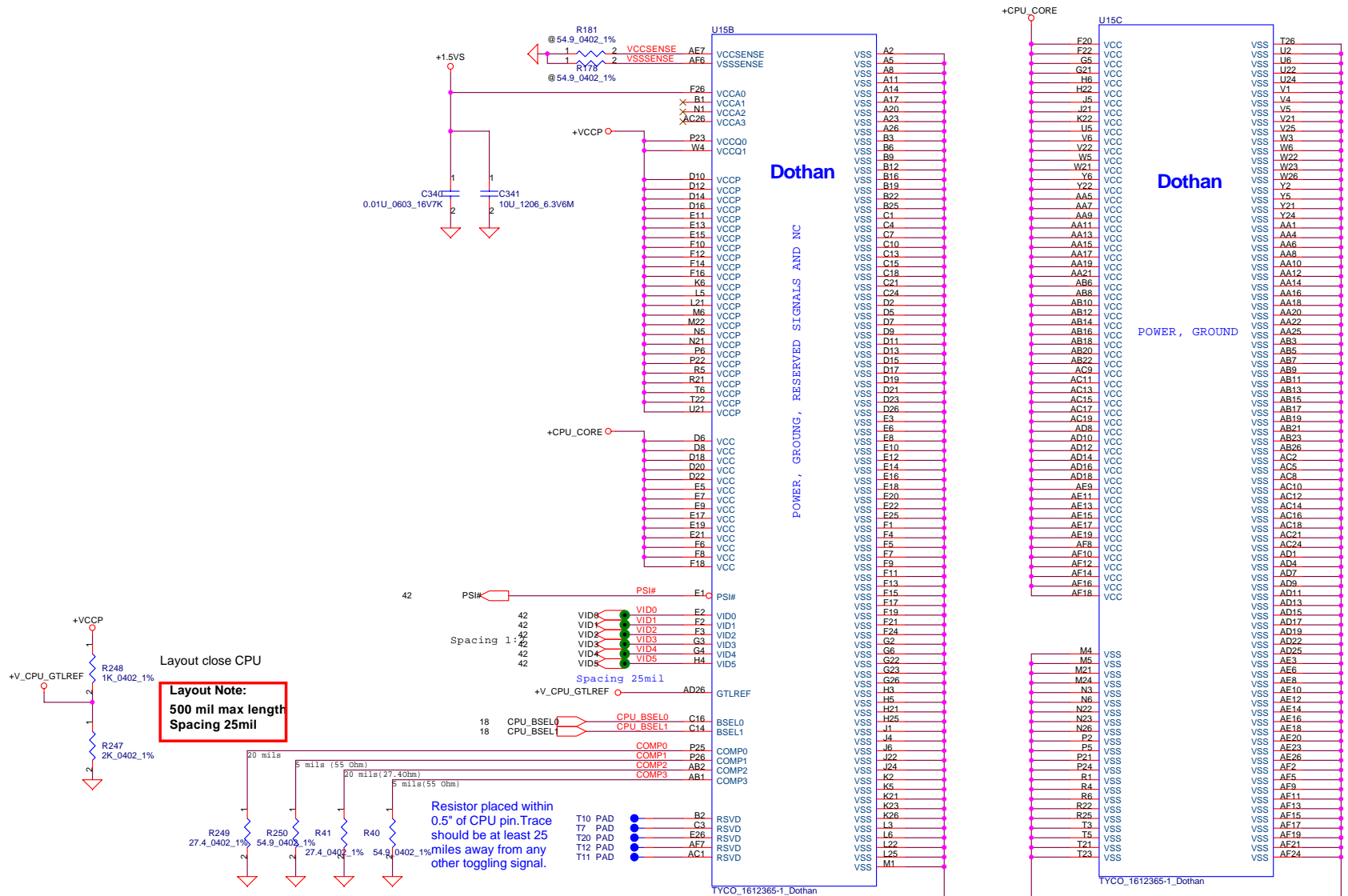
H_DPRSLE will change to
H_DPRSTP in future
collateral version.

WWW.AliSaler.Com



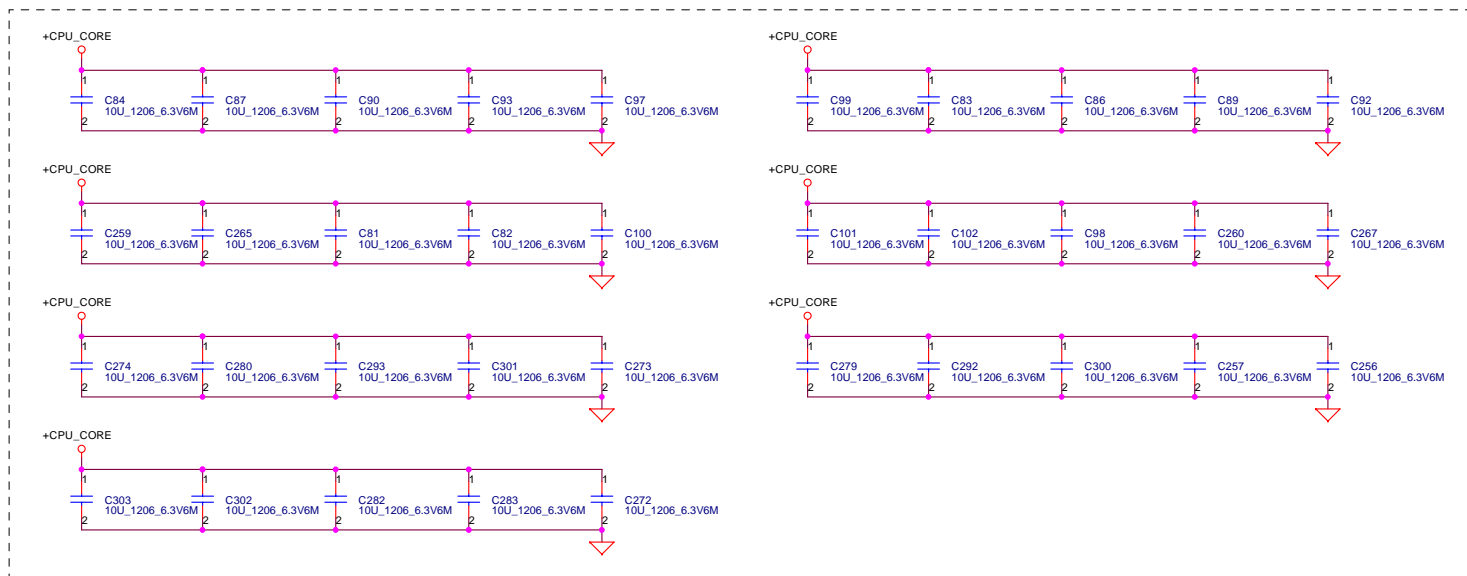
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Dothan Processor(U2)			
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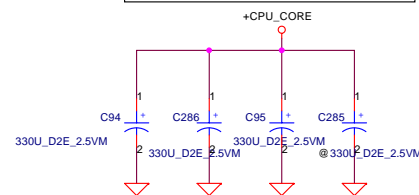


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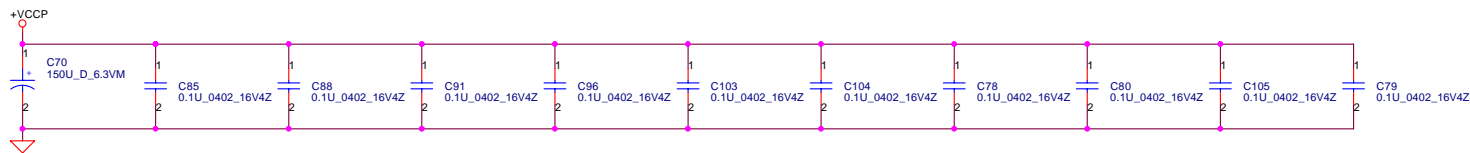
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Dothan Processor(2/2)			
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Near VCORE regulator.

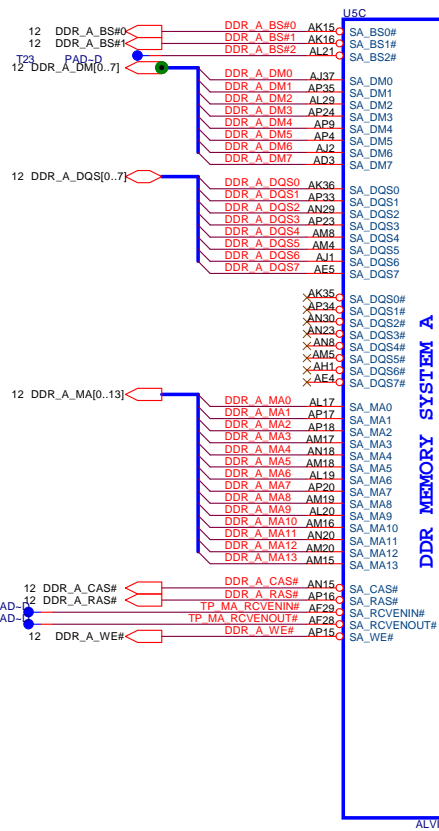


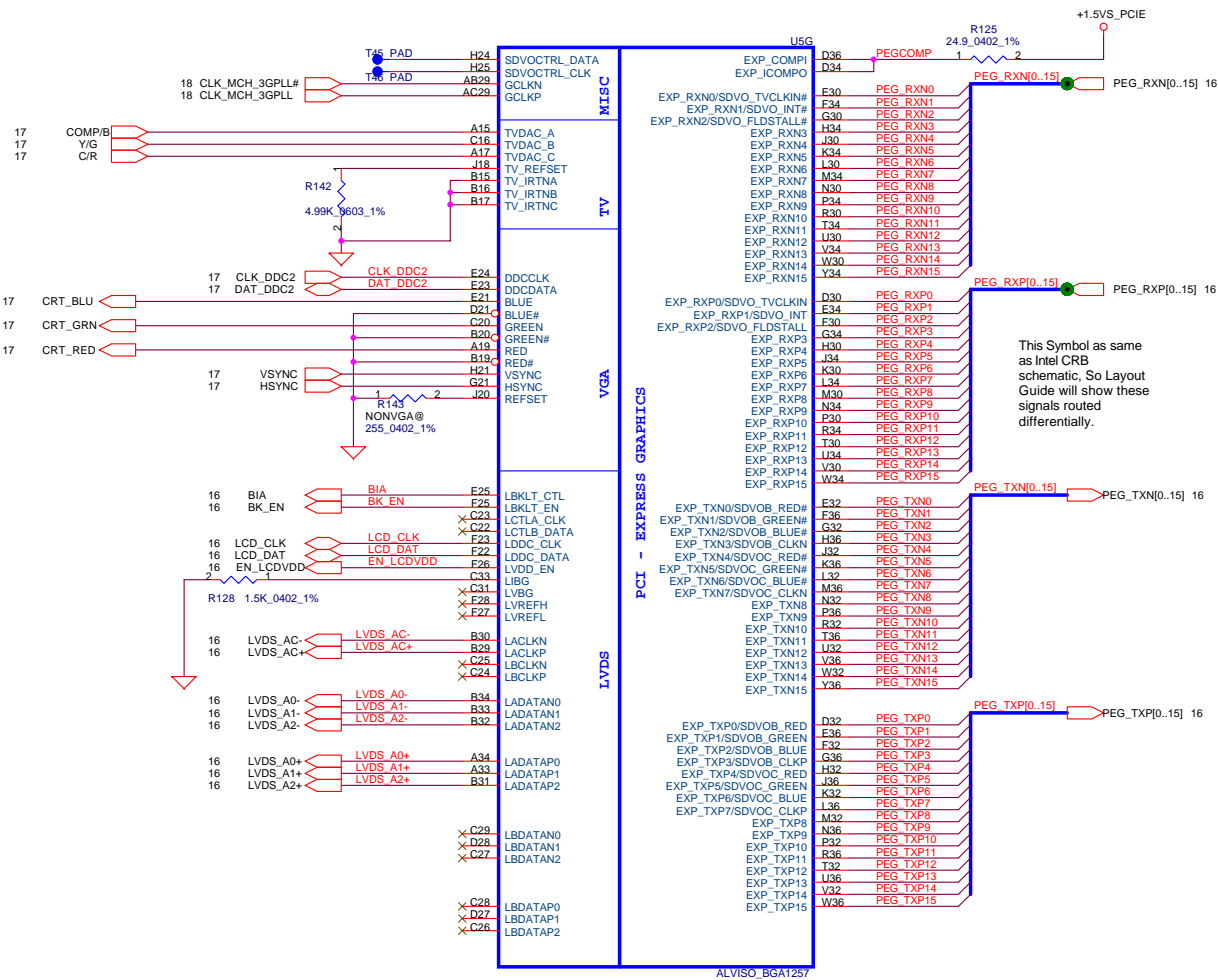
ESR <= 3m ohm
Capacitor > 880 uF



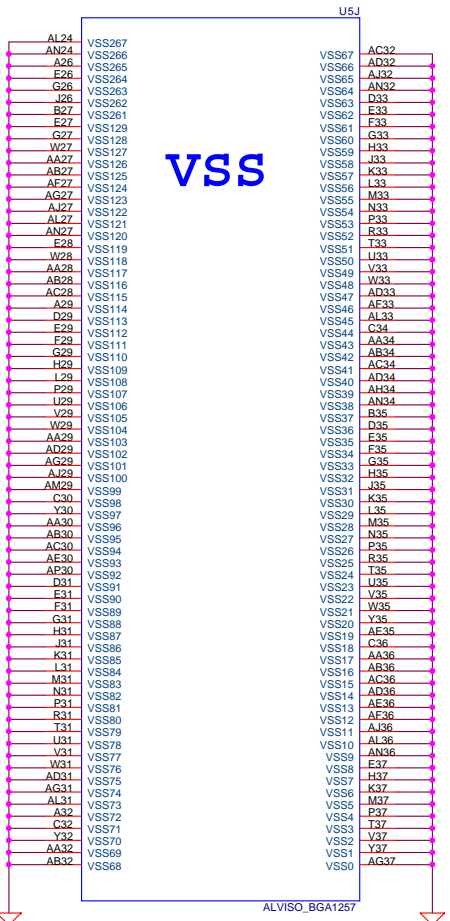
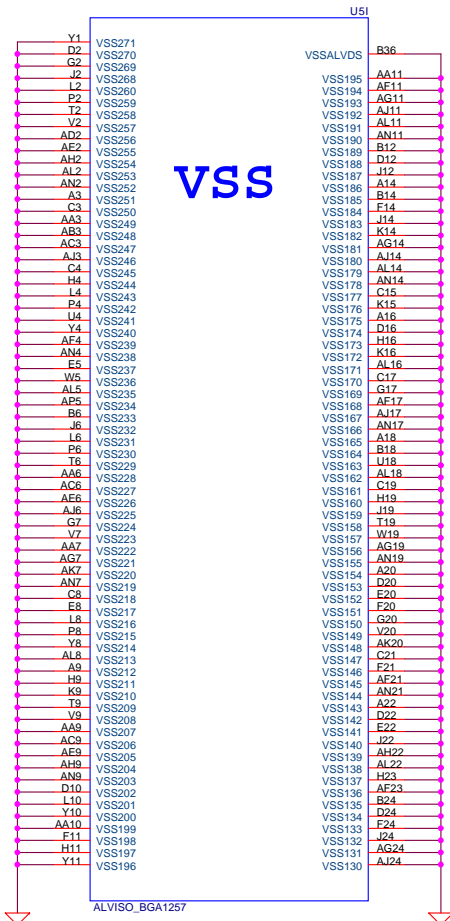
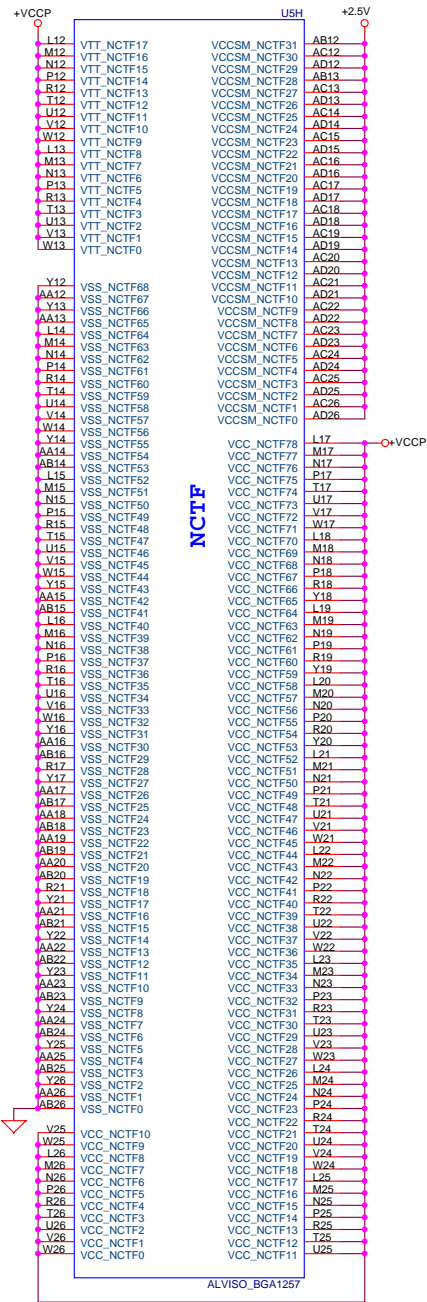
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Dothan Bypass			
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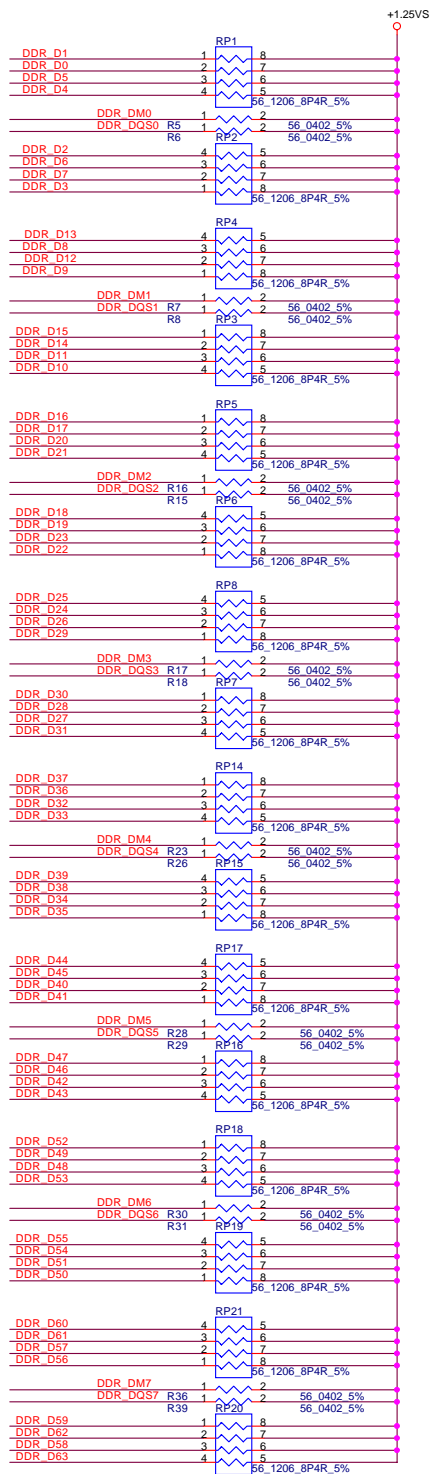
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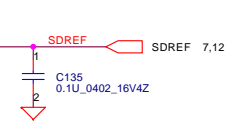
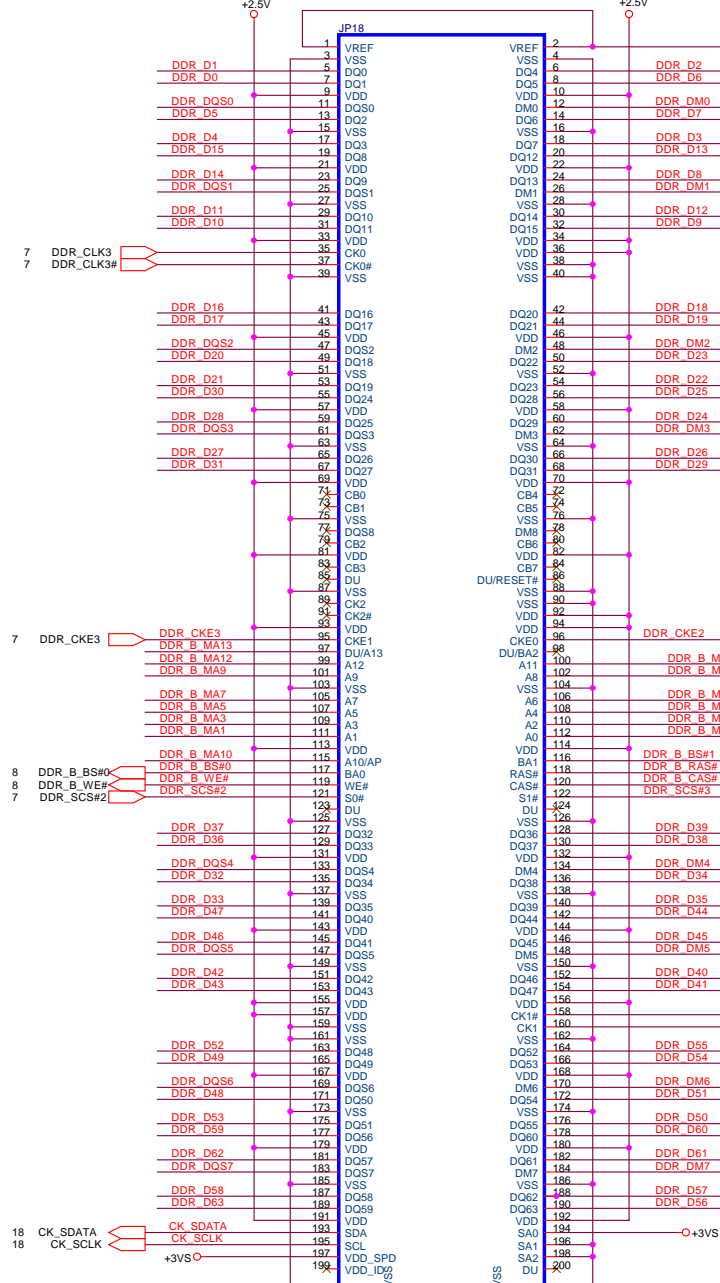
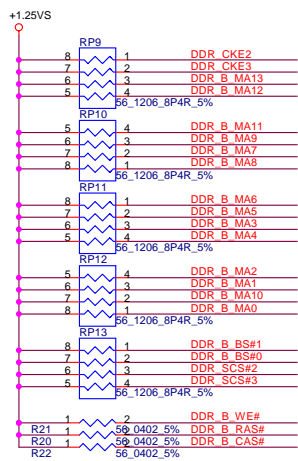


This Symbol as same as Intel CRB schematic, So Layout Guide will show these signals routed differentially.





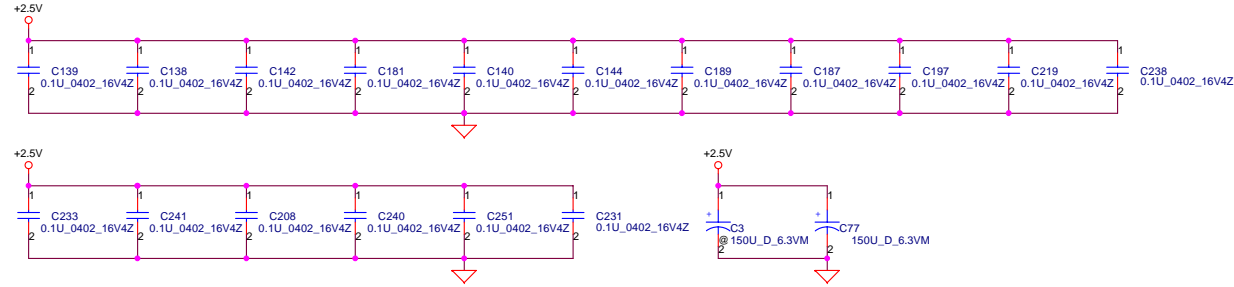
DDR_D[0..63] → DDR_D[0..63] 12
DDR_DM[0..7] → DDR_DM[0..7] 12
DDR_DQS[0..7] → DDR_DQS[0..7] 12
8 DDR_B_MA[0..13] → DDR_B_MA[0..13]



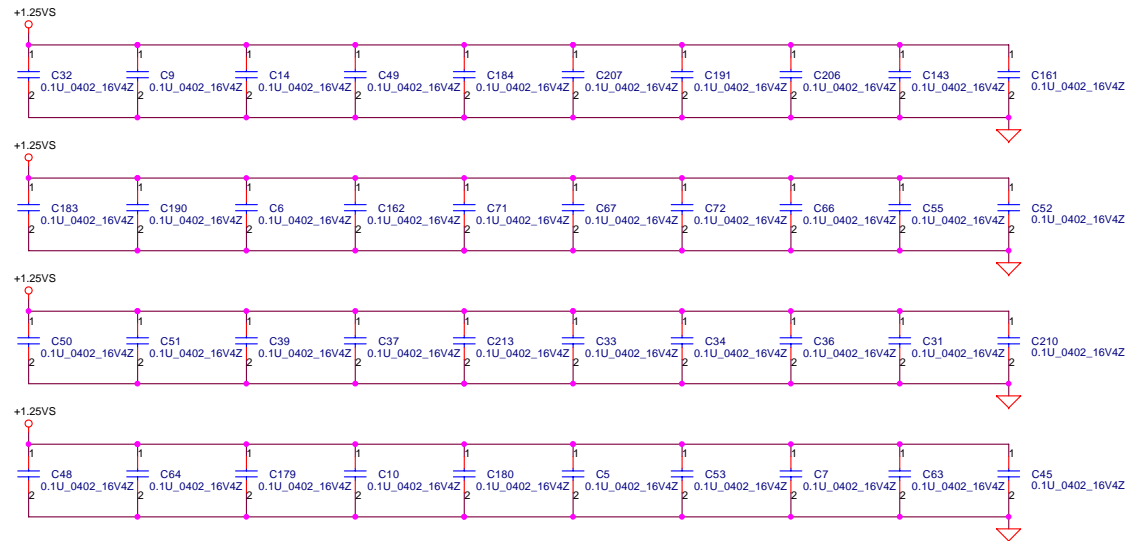
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Title			
DDR-SODIMM SLOT1			
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Layout note :
Distribute as close as possible
to DDR-SODIMM.

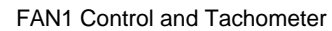
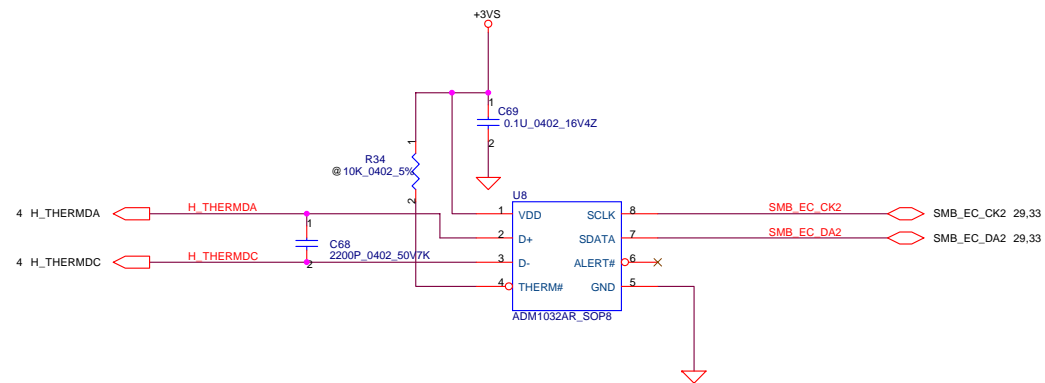


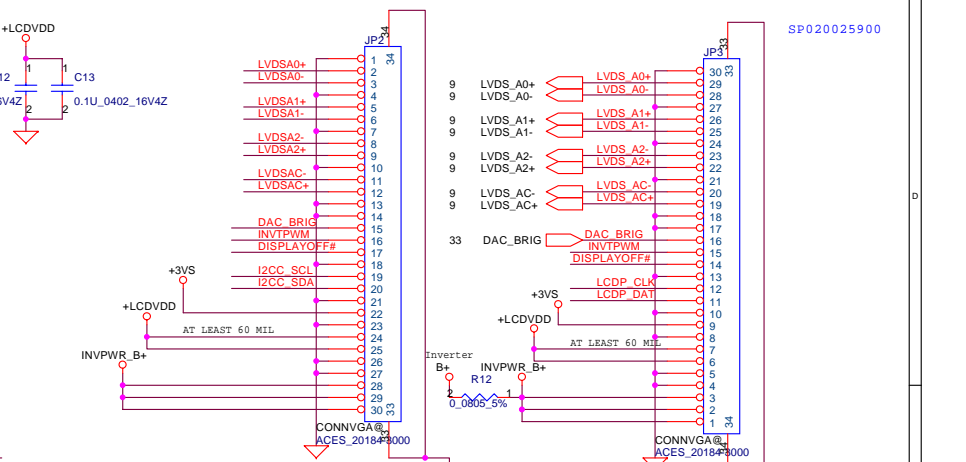
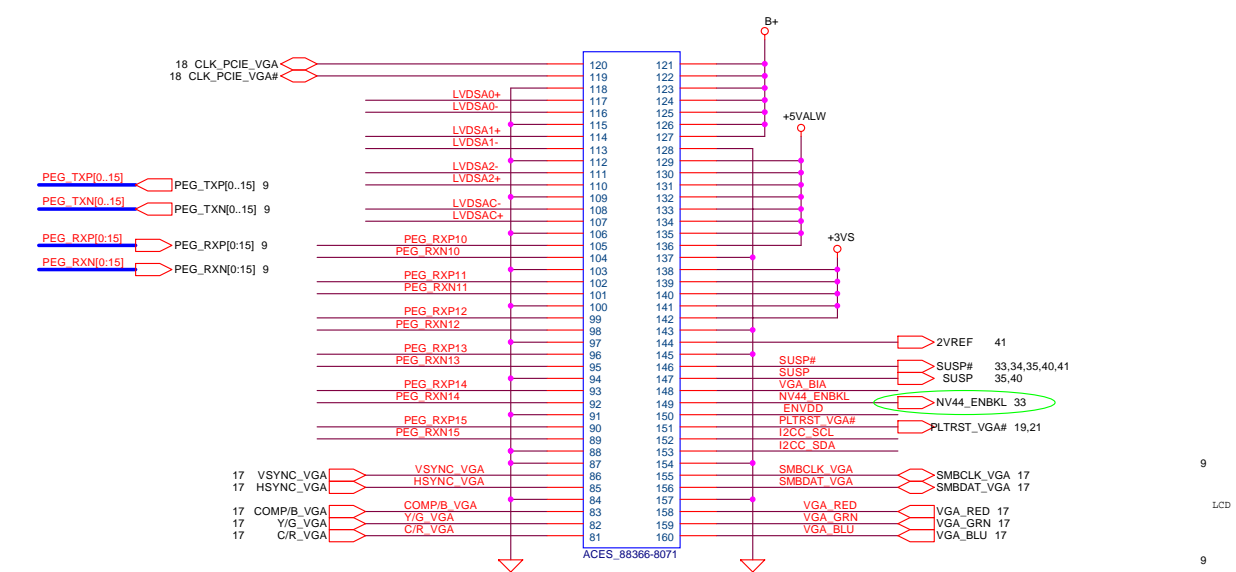
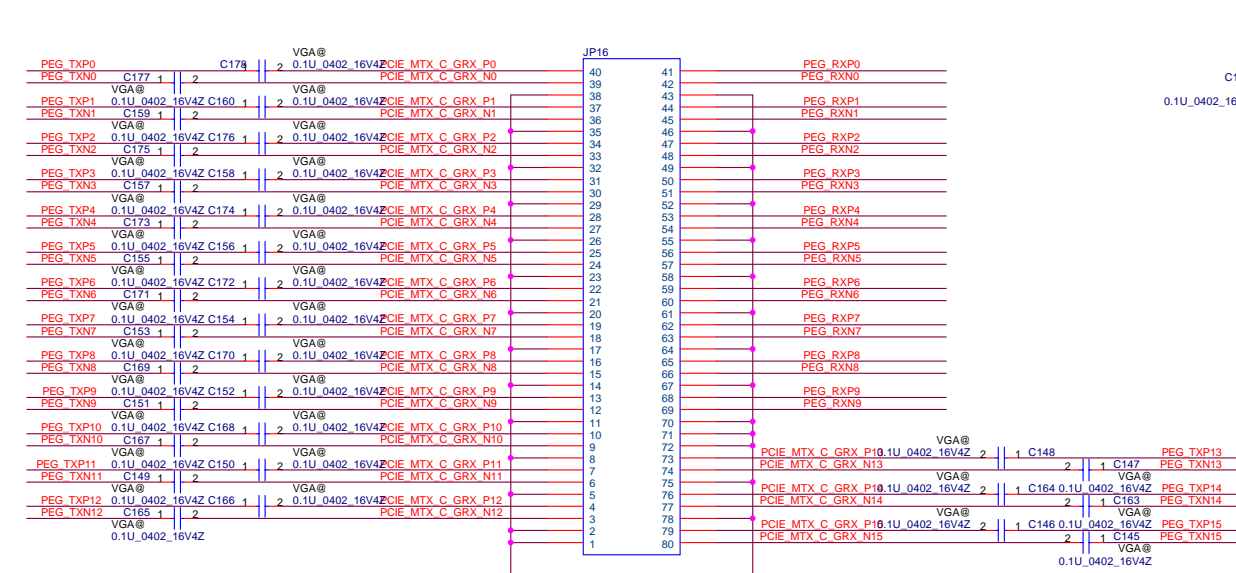
Layout note :
Place one cap close to every 2 pull up resistors termination to
+1.25V



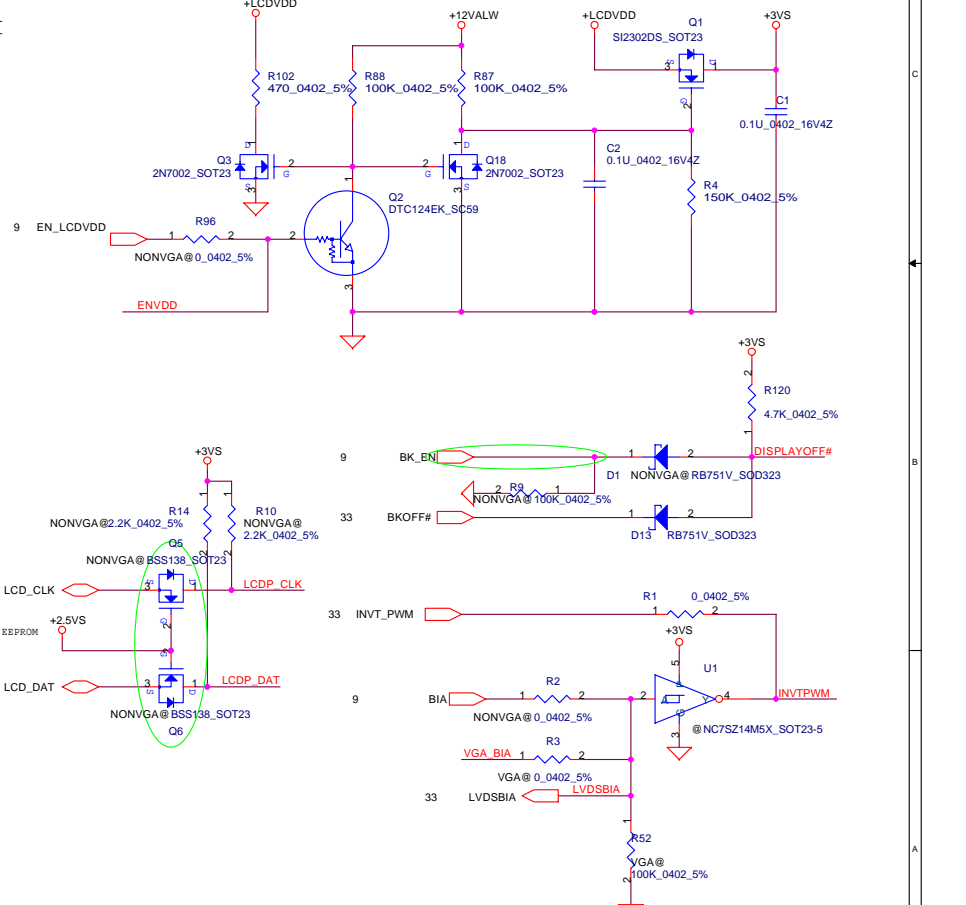
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Title			
DDR SODIMM Decoupling			
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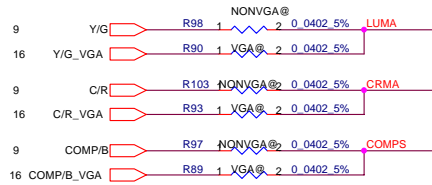
Aviso LCD/PANEL BD. CONN.



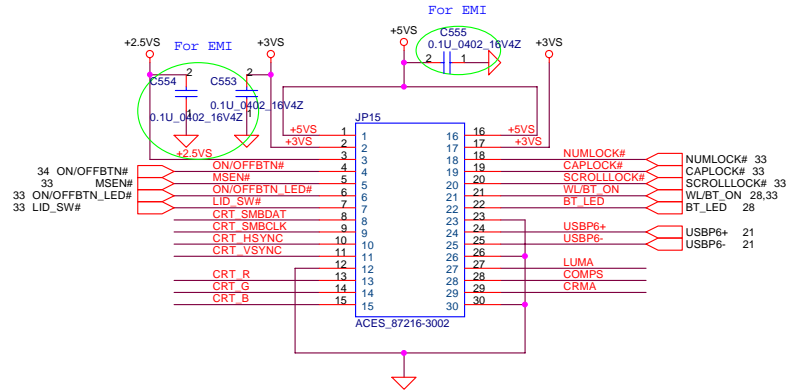
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VGA/B connector			
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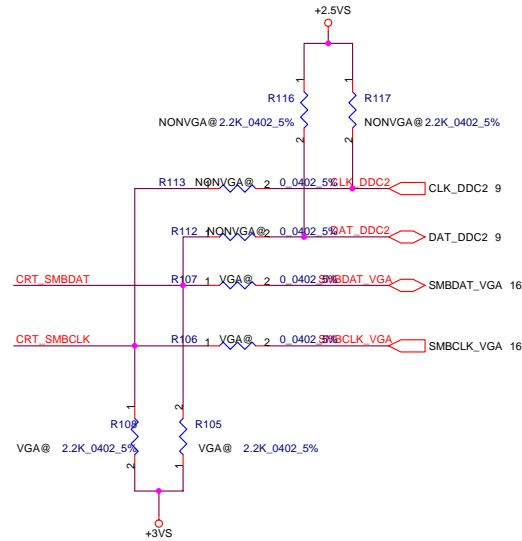
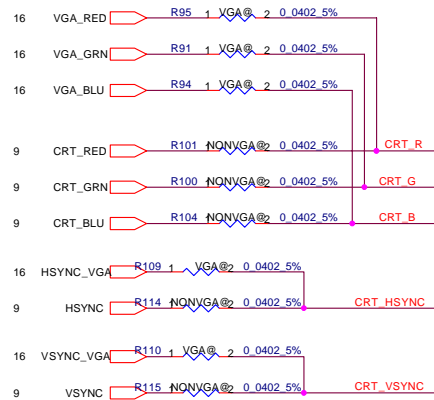
TV-Out Connector



VGA I/O PORT Connector

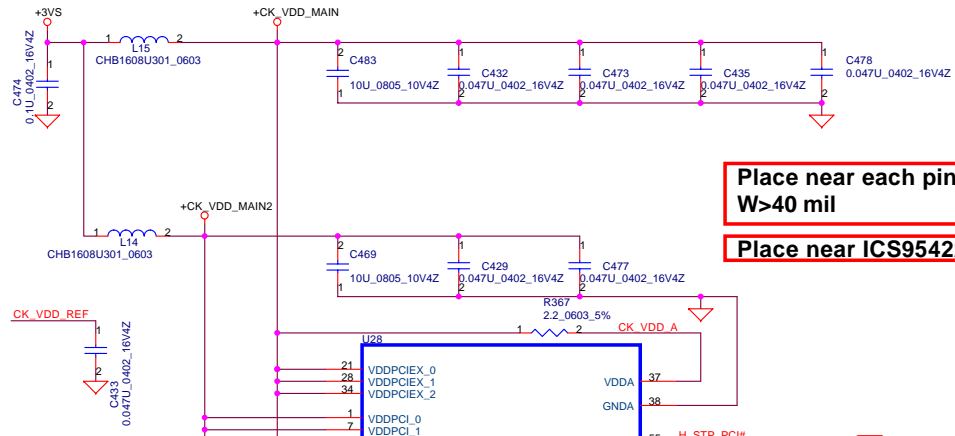


CRT CONNECTOR

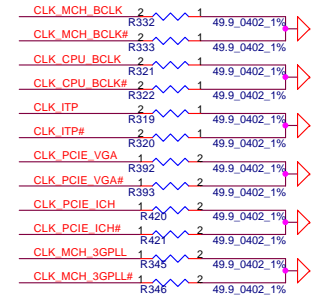


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Title	TV_OUT and DVI connector		
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Place near ICS954226



**Place crystal within
500 mils of CKGEN**

33P_0402_50V8J 2 1

CK_XTAL_IN

14.318MHZ_20P_1BX14318CC1A

X1

33P_0402_50V8J 2 1

CK_XTAL_OUT

C431

714@

25 CLK_48M_CB CLK_48M CB 1 R398 2 12.0402 5% 1 CLK_SEL2

21 CLK_48M_ICH CLK_48M ICH 1 R415 2 12.0402 5% 1 CLK_SEL2

CLK_SEL0

PS : When CB714 unpop, R415 12 Ohm change to 33 Ohm

CLK_SEL1

25 CLK_33M_CBS CLK_33M CBS 2 R375 33.0402 5% 1 PCICLK5

27 CLK_33M_1394 CLK_33M 1394 2 R378 33.0402 5% 1 PCICLK4

28 CLK_33M_MPCI CLK_33M MPCI 2 R377 33.0402 5% 1 PCICLK3

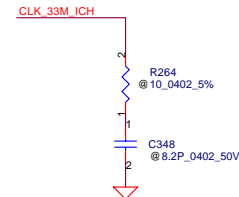
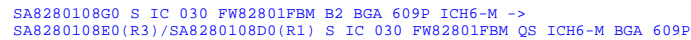
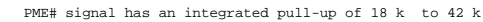
24 CLK_33M_LAN CLK_33M LAN 2 R374 33.0402 5% 1 PCICLK2

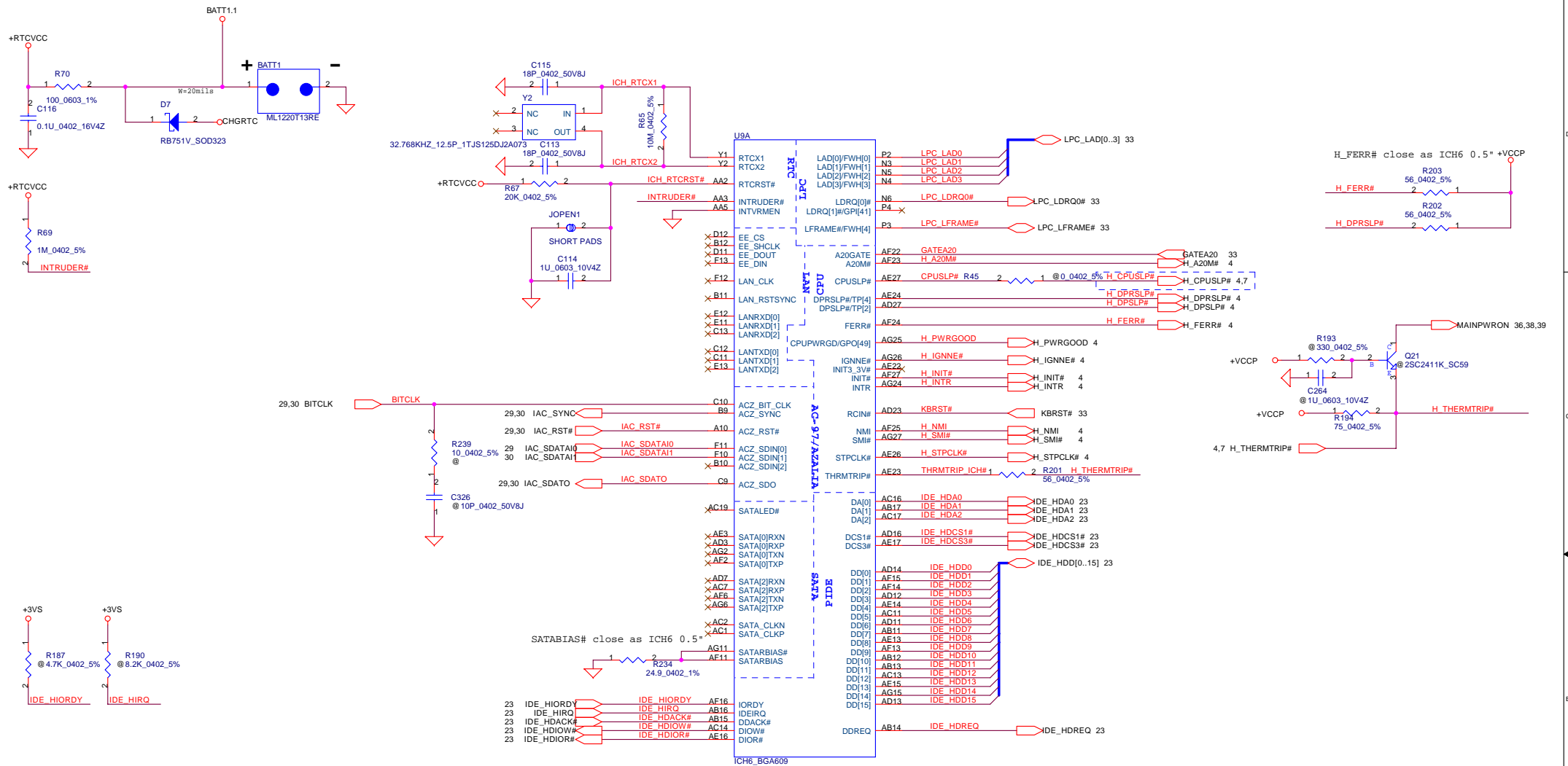
19 CLK_33M_ICH CLK_33M ICH 2 R379 33.0402 5% 1 PCICLK1

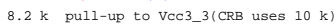
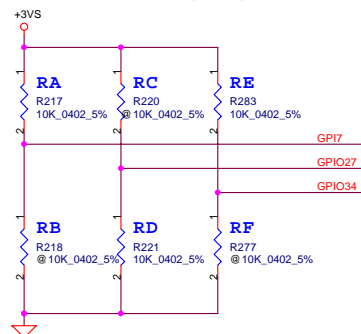
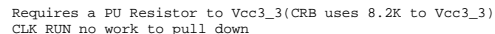
33 CLK_33M_LPCEC CLK_33M LPCEC 2 R376 33.0402 5% 1

Timing diagram for the iC954226AG1_TSSOP56 package. The diagram shows various digital signals and their timing relationships. Signals include VDDPCIE*_0, VDDPCIE*_1, VDDPCIE*_2, VDDPCPU, VDDREF, VDD48, X1, X2, FS_A/USB_48MHz, REF1/FSLC/TEST_SEL, FSLB/TEST_MODE, PCICLK5, PCICLK4, PCICLK3, PCICLK2/REQ_SEL, SELPCIE_X_LCDCCLK#/PCICLK_F1, ITP_EN/PCICLK_F0, SCLK, SDATA, IREF, GND_0, GND_1, GND_2, GND_3, GND_4, GND_5, VTT_PWRGD#/PD, and REF0. The diagram also shows the timing of these signals relative to the clock signals CLK_MCH_BCLK, CLK_CPU_BCLK, CLK_ITP, CLK_MCH_3GPLL, CLK_MCH_3GPLL#, CLK_PCIE_VGA, CLK_PCIE_VGA#, CLK_PCIE_ICH, CLK_PCIE_ICH#, SSC_DREFCLK, SSC_DREFCLK#, DREFCLK, and DREFCLK#. The signals are grouped into three main sections: VDDPCIE*_0, VDDPCIE*_1, VDDPCIE*_2; VDDPCPU, VDDREF; and VDD48, X1, X2. The timing is shown in nanoseconds (ns) and picoseconds (ps).

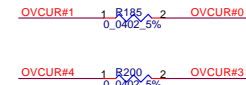
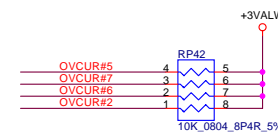
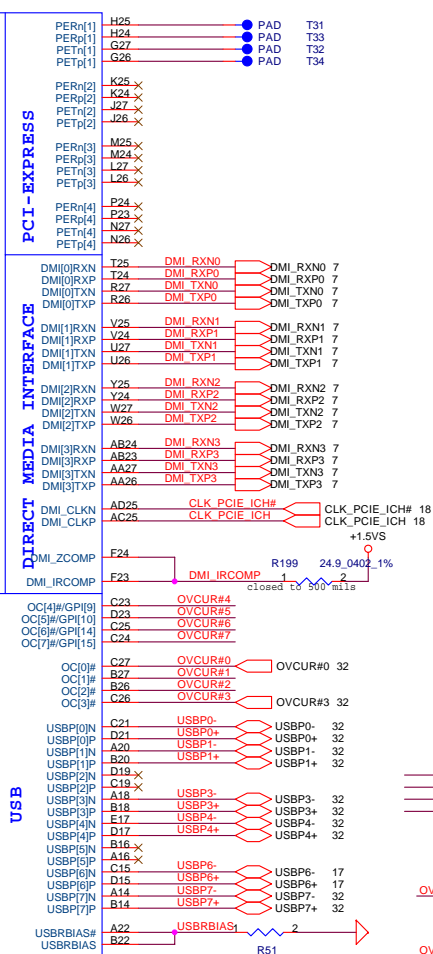
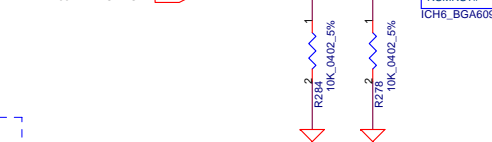
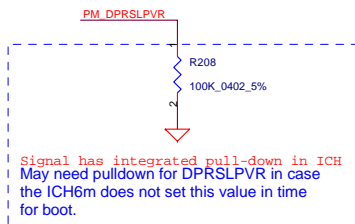




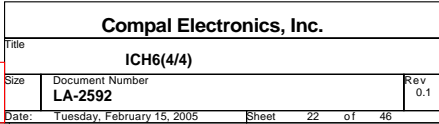




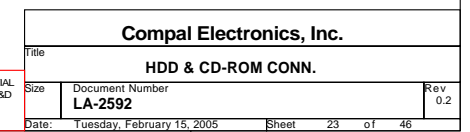
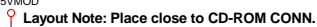
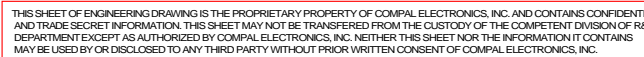
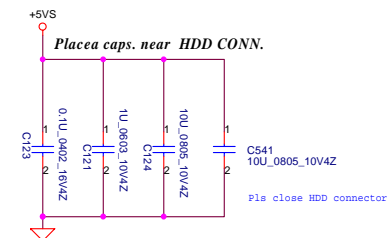
GPIO7/GPIO27/GPIO34			Vendor
0	0	0	Reserved
0	0	1	Reserved
0	1	0	Reserved
0	1	1	Reserved
1	0	0	Reserved
1	0	1	Infineon
1	1	0	Samsung
1	1	1	Hynix

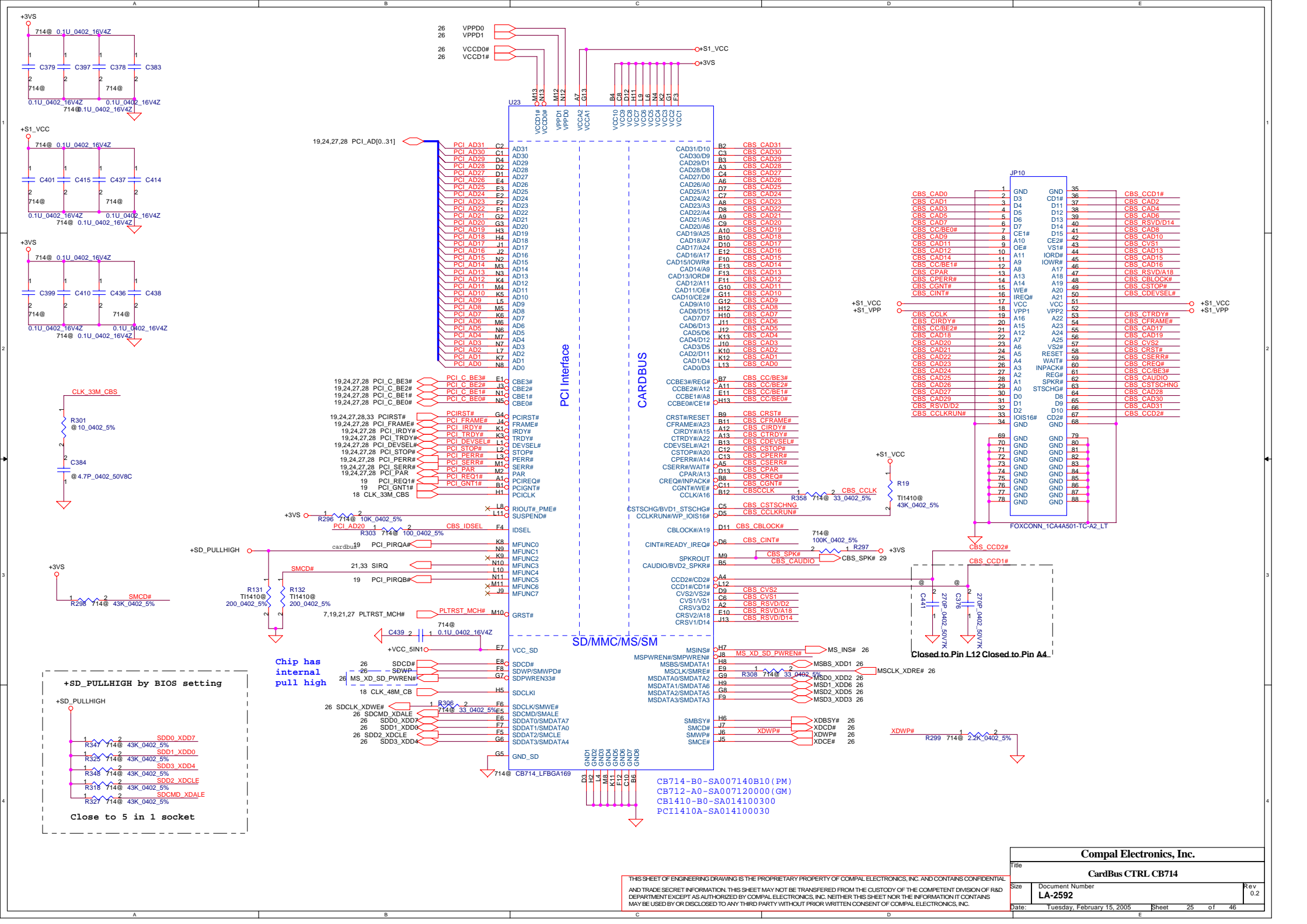


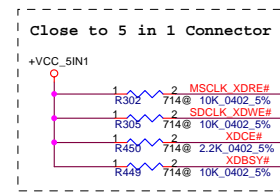
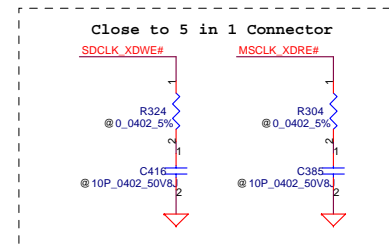
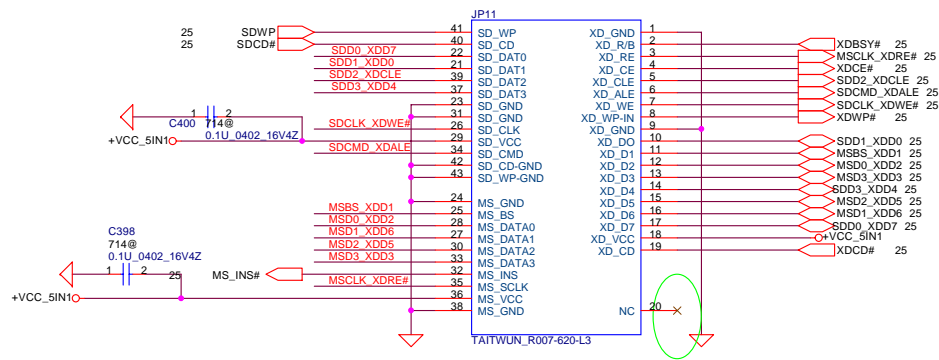
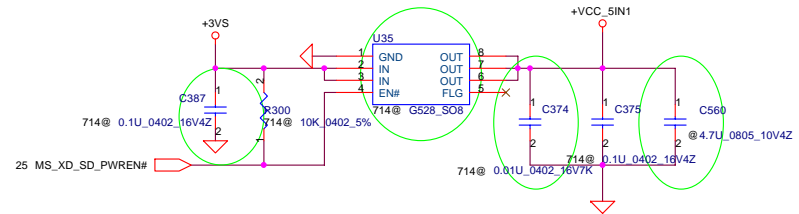
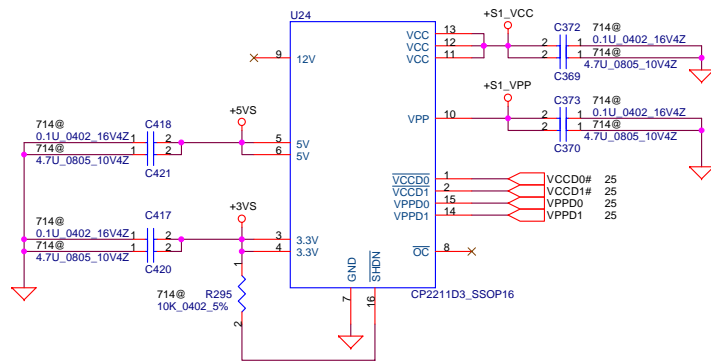
USBPN/USBPP impedance 45 Ohm



IDE_HDD[0..15] 20

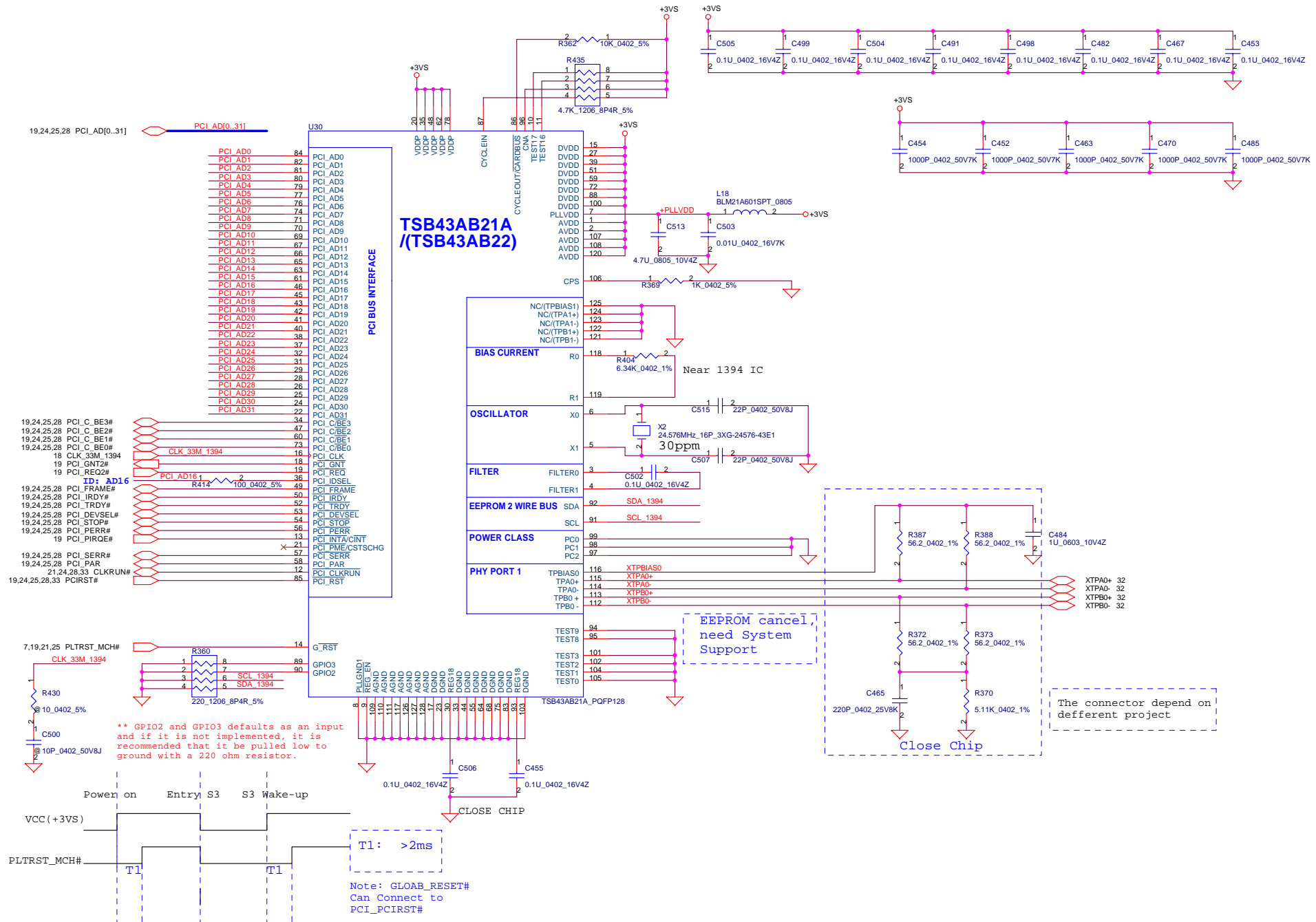


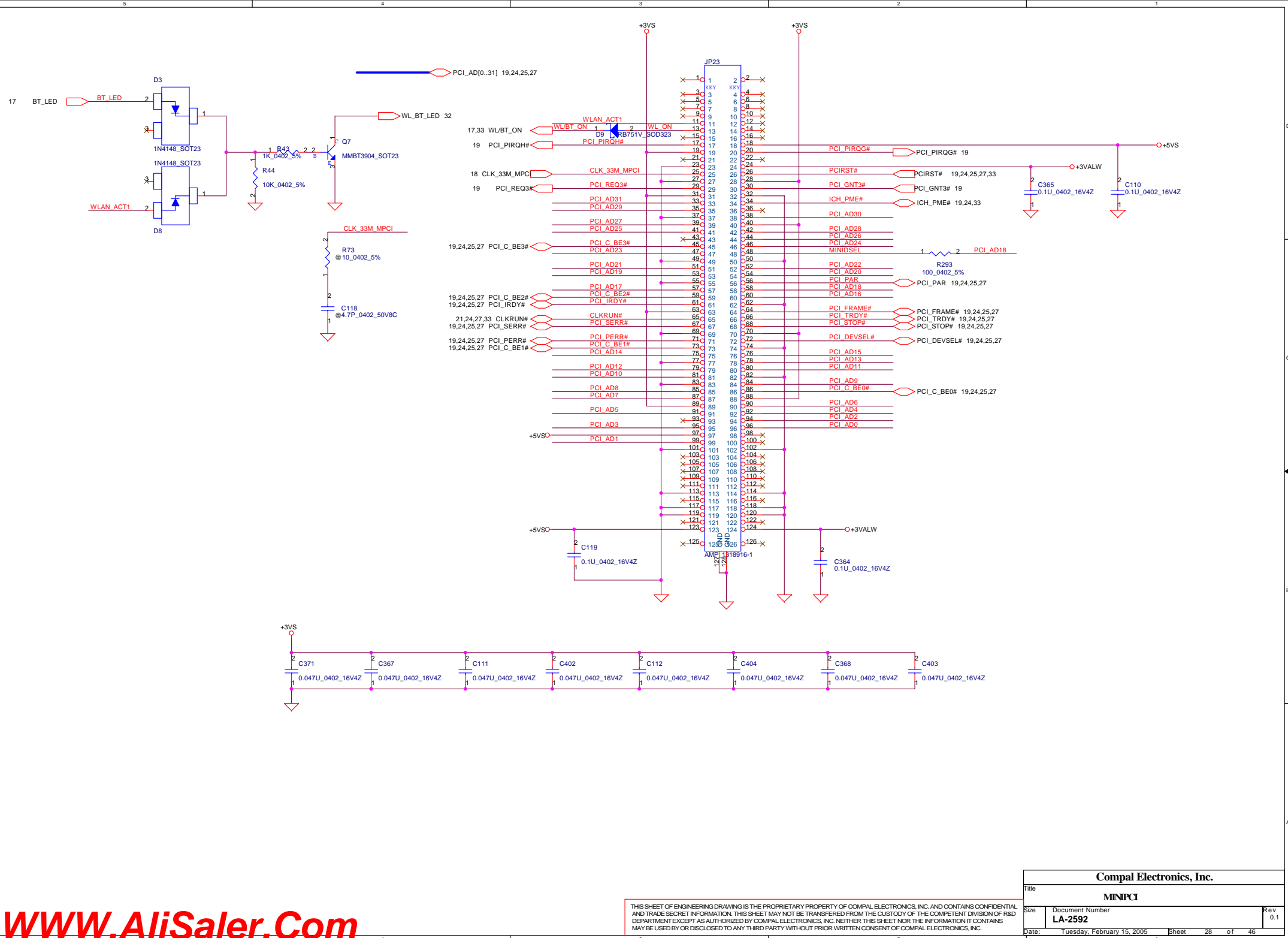


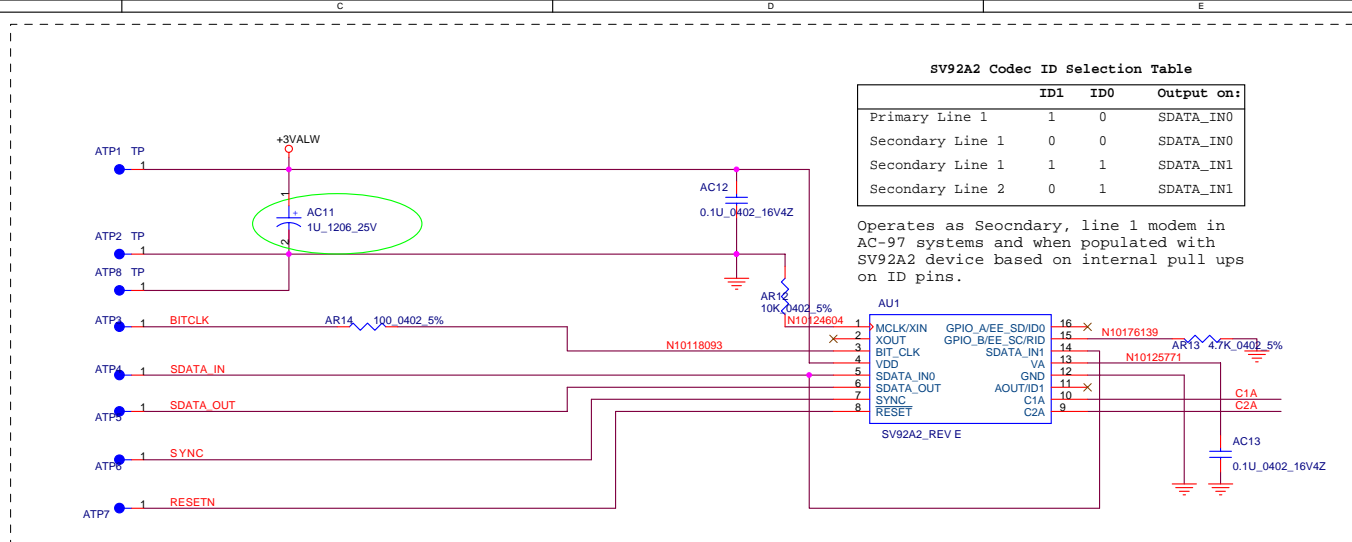
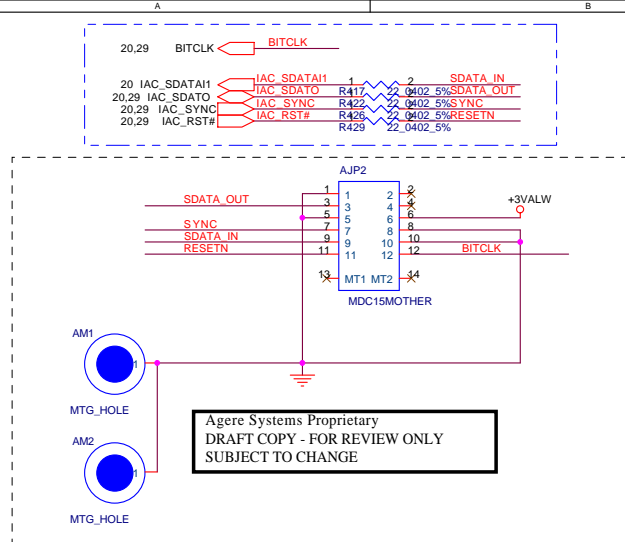


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CARD BUS SOCKET			
Size	Document Number	Rev	
LA-2592		0.3	
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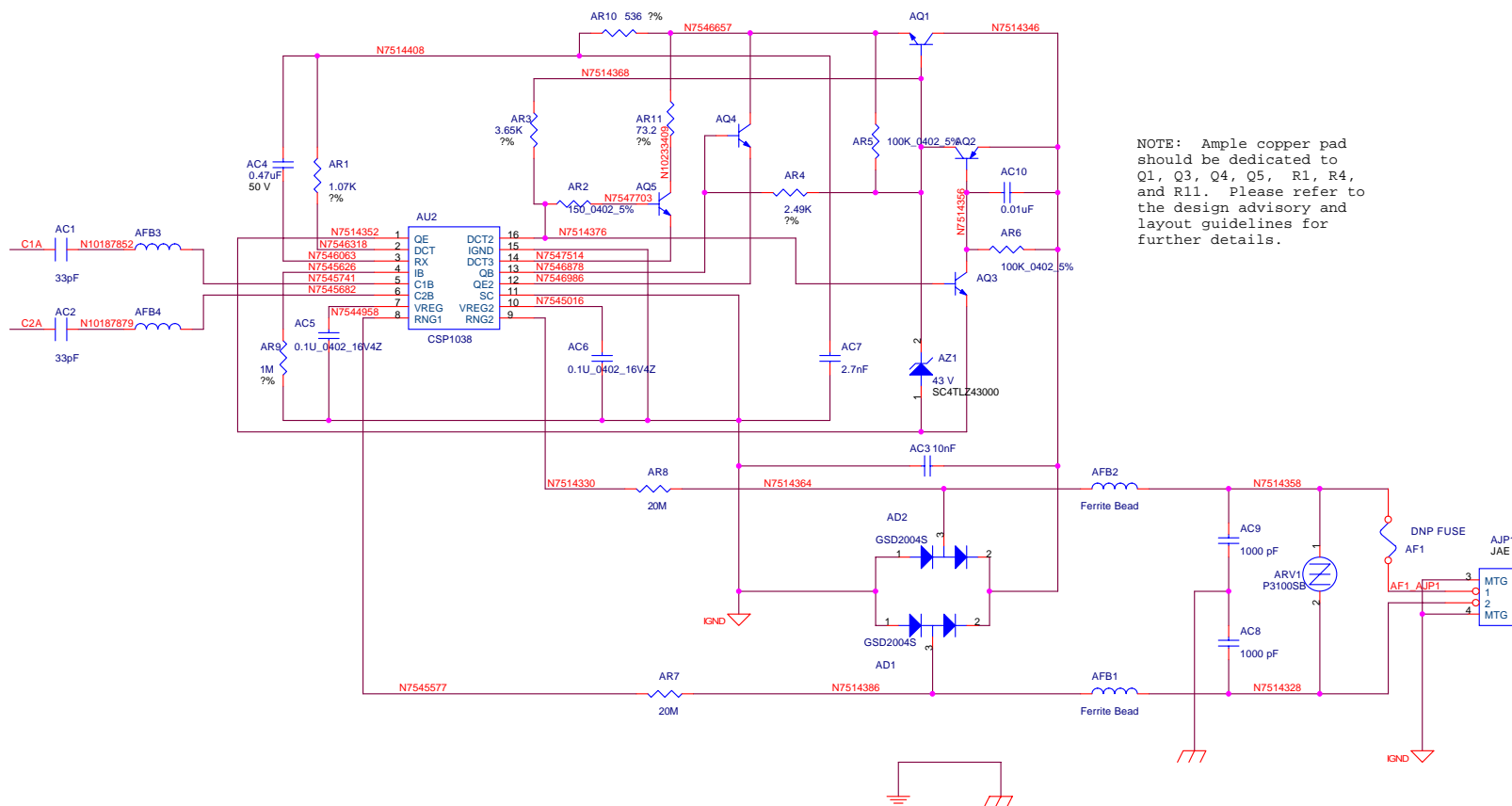
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No Ground Plane In DAA Section

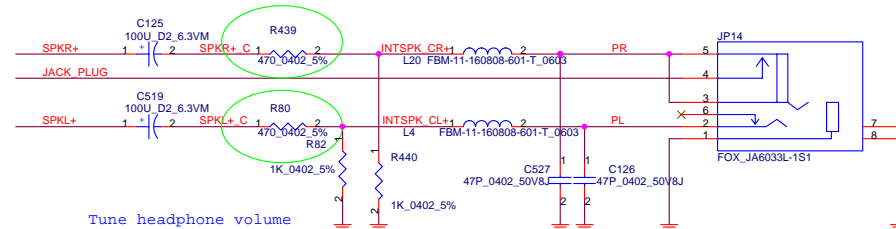
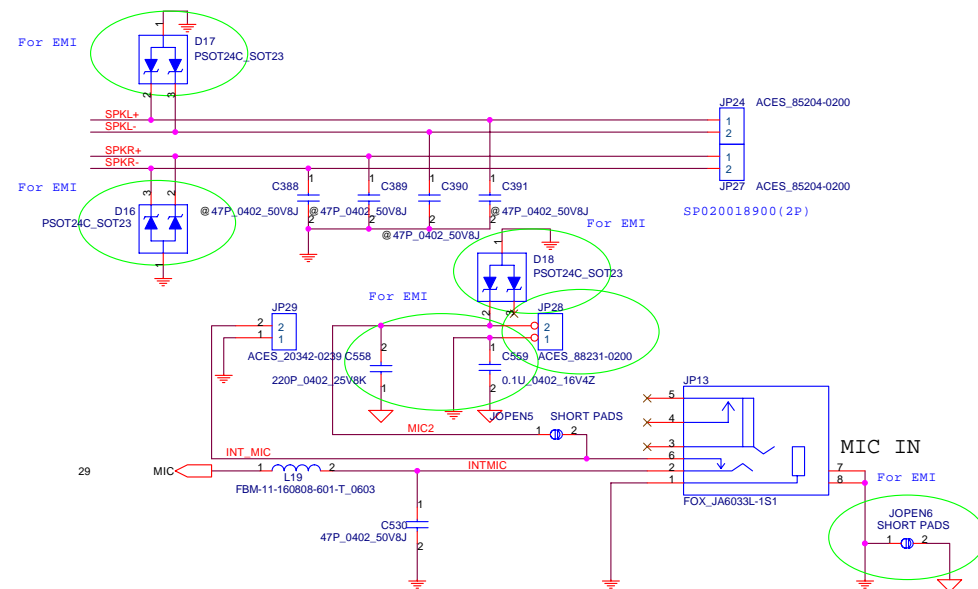


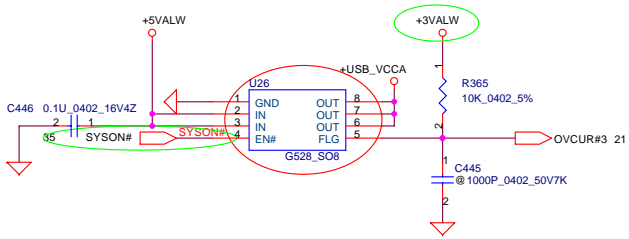
CSP1038A Line Side DAA

Agere Systems Proprietary
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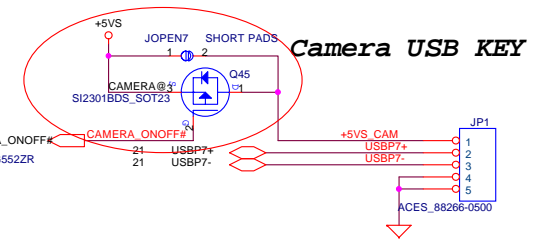
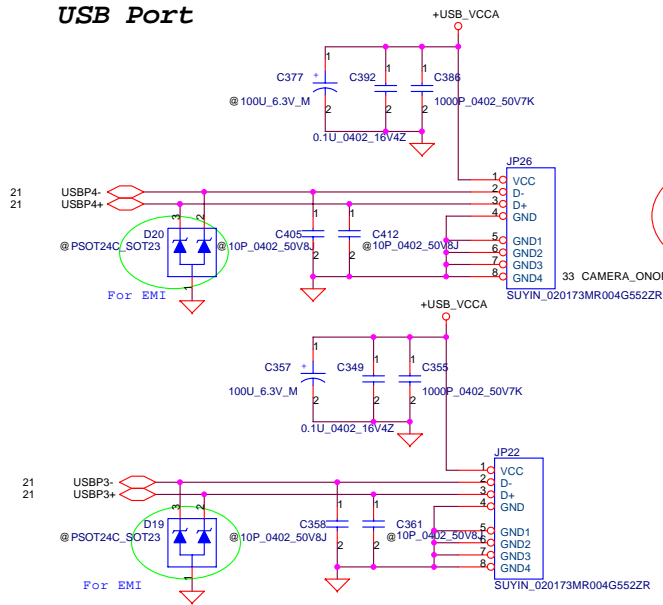
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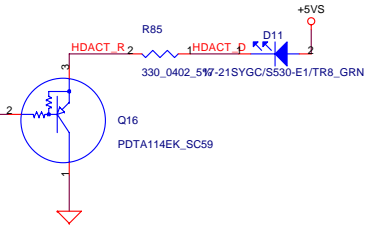
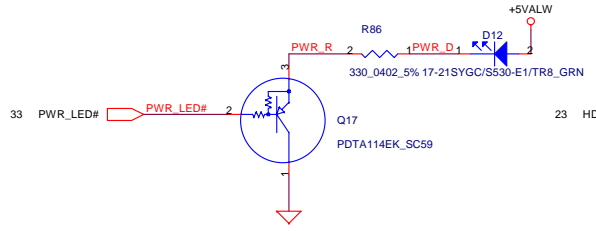
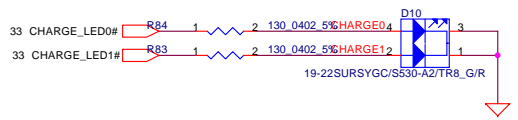




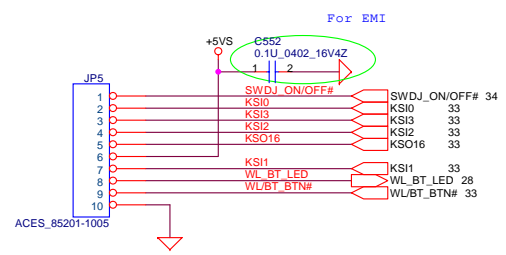
USB Port



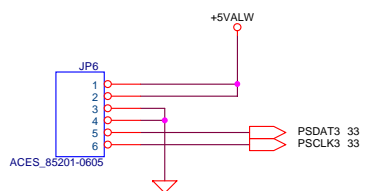
LED Function



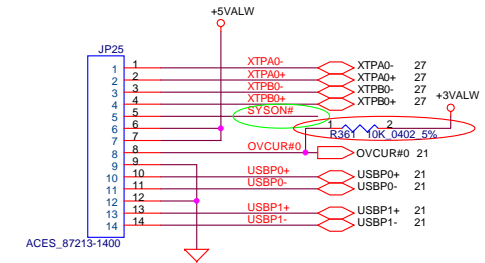
SWDJ Board



T/P Board

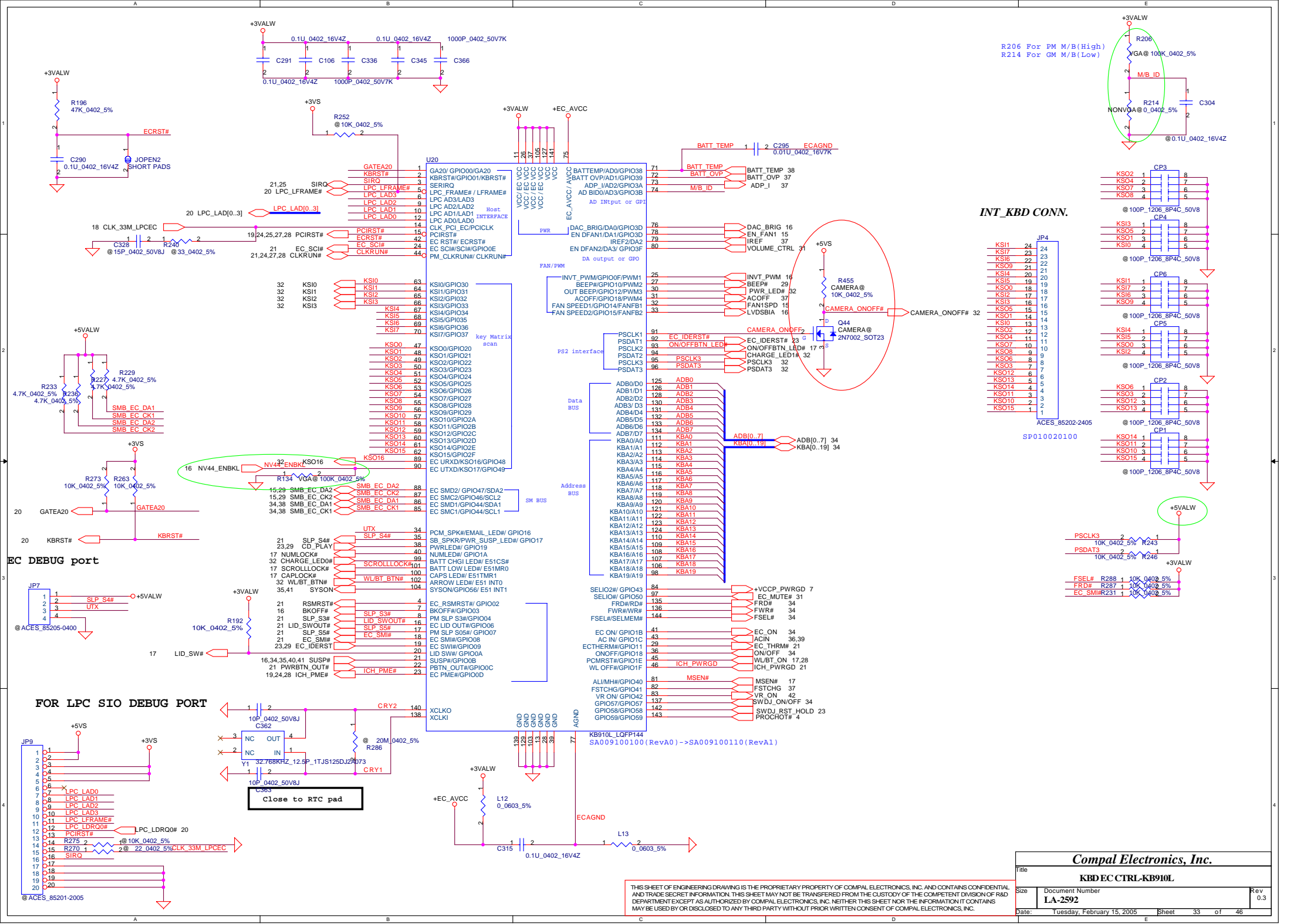


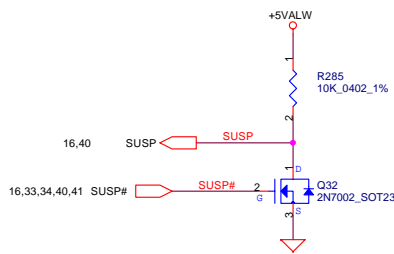
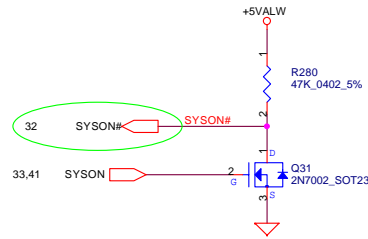
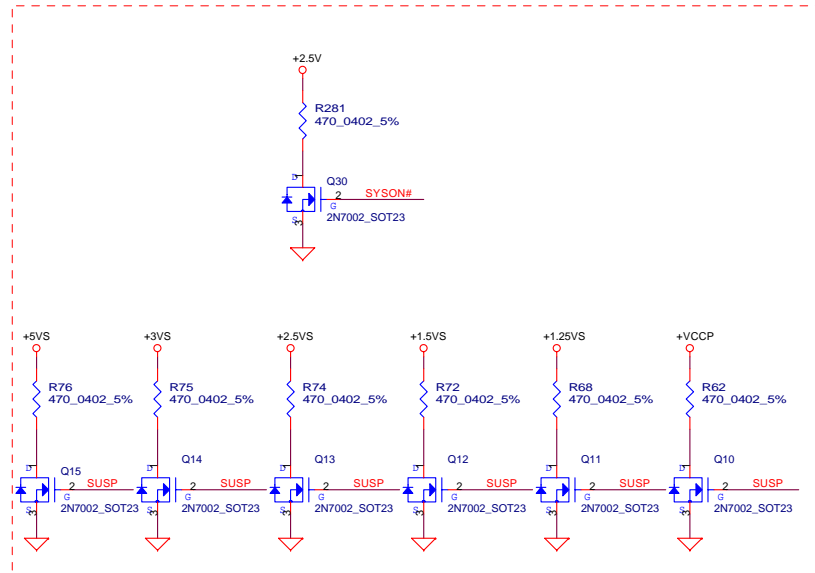
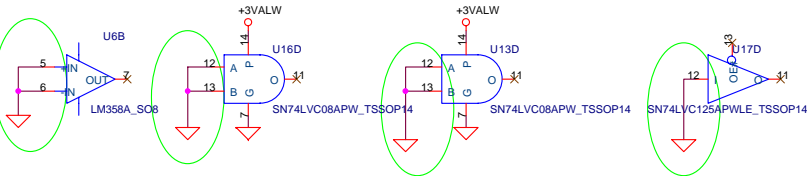
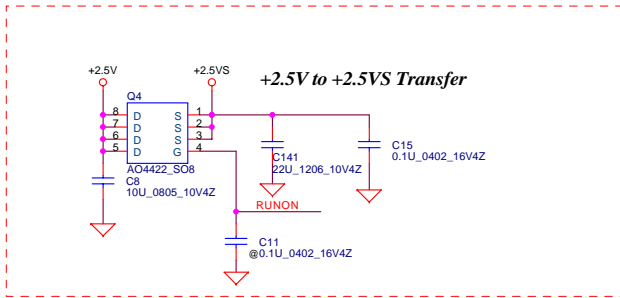
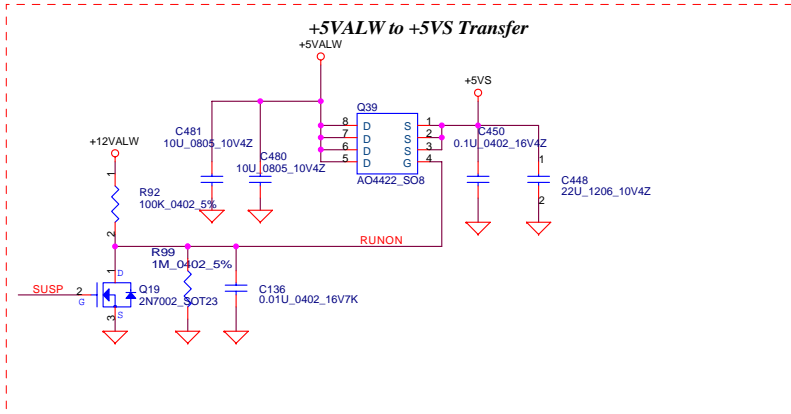
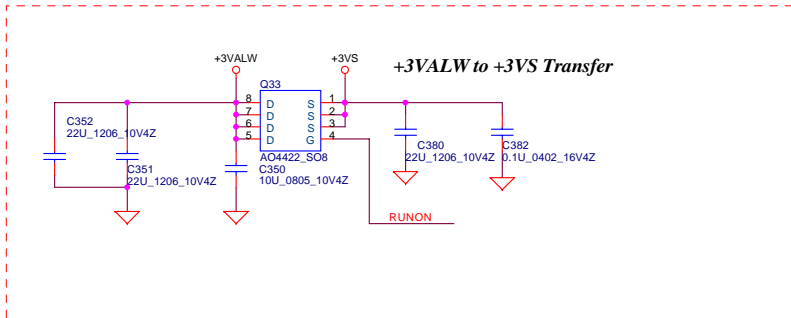
1394/USB Board



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USB Port			
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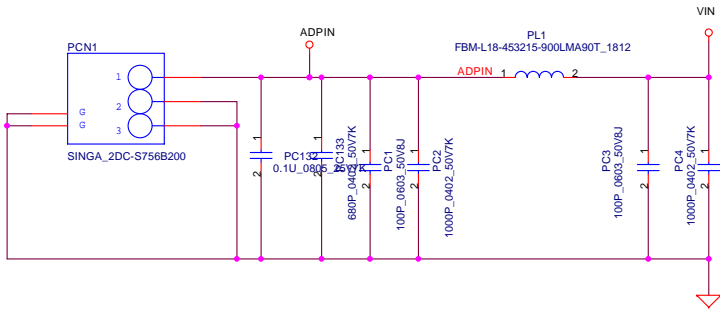
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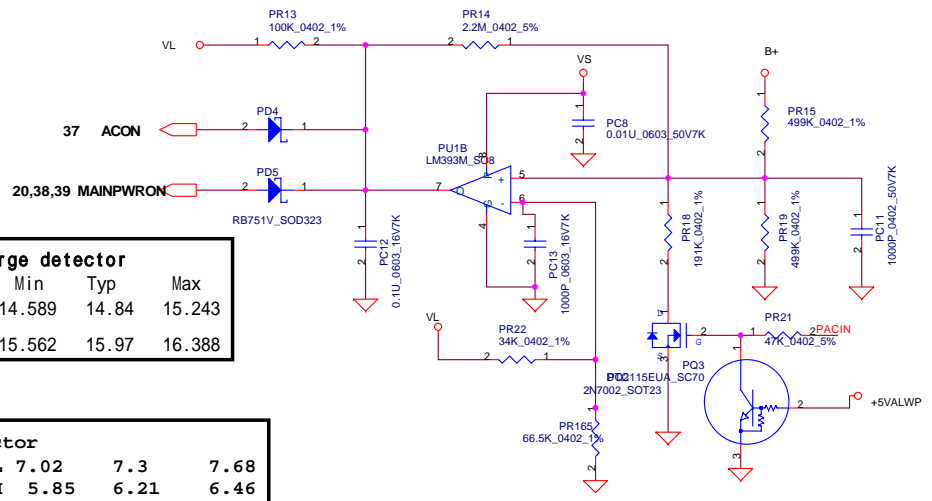
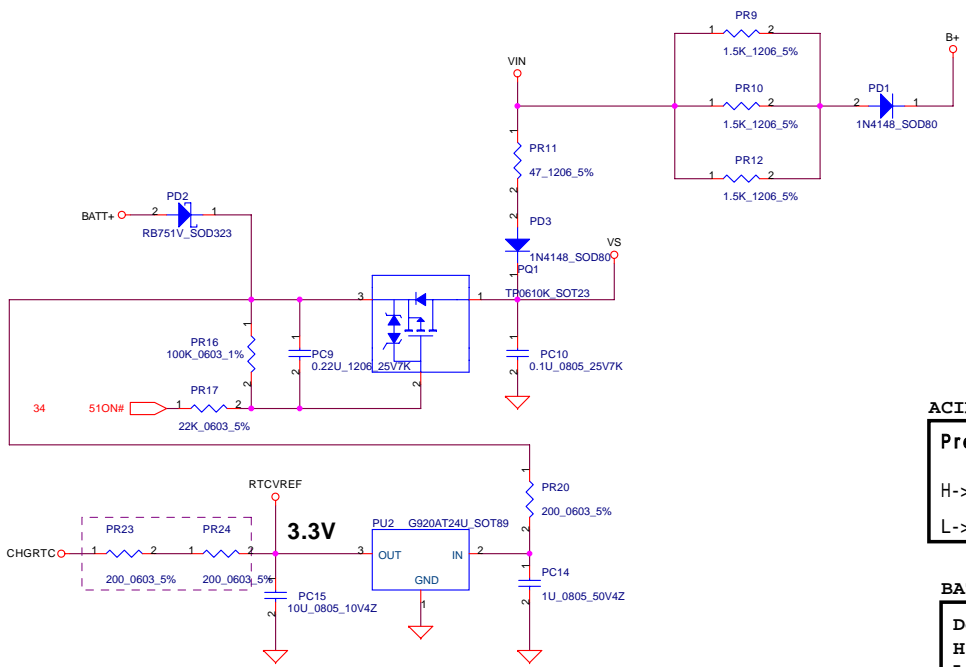
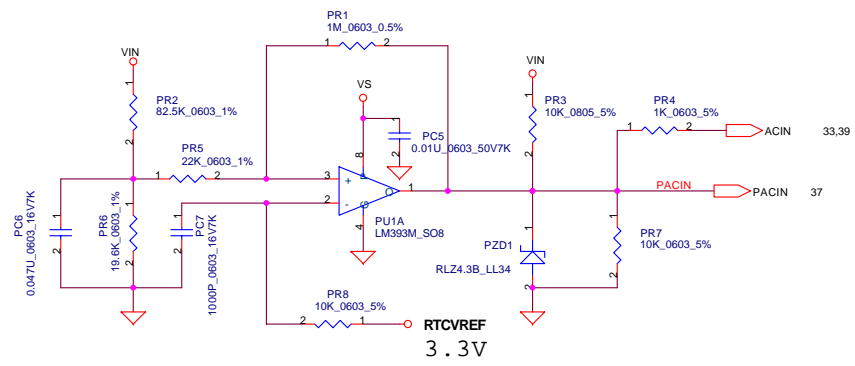


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POWER CONTROL			
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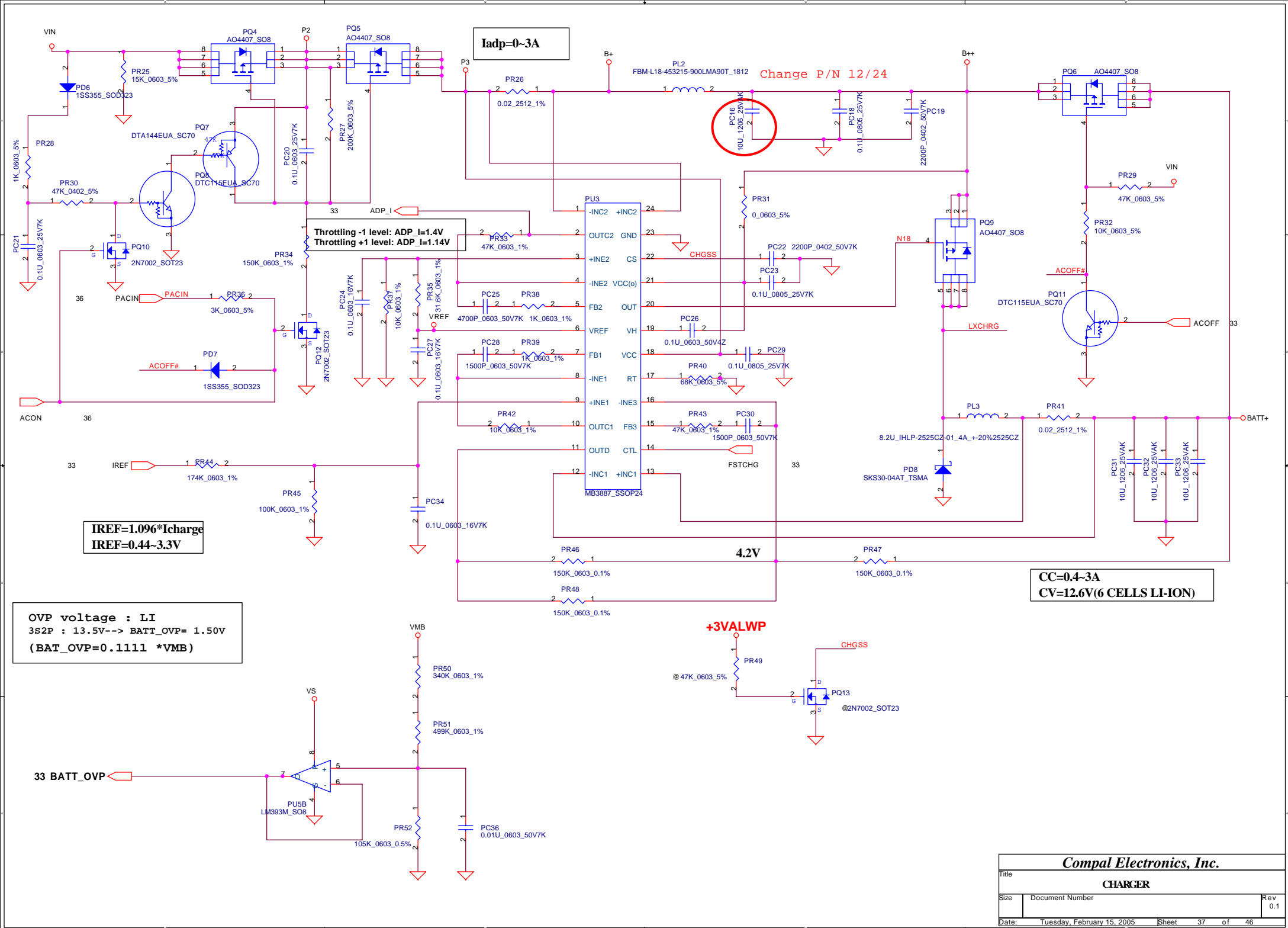
Vin Detector		
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17.597	17.210	16.813

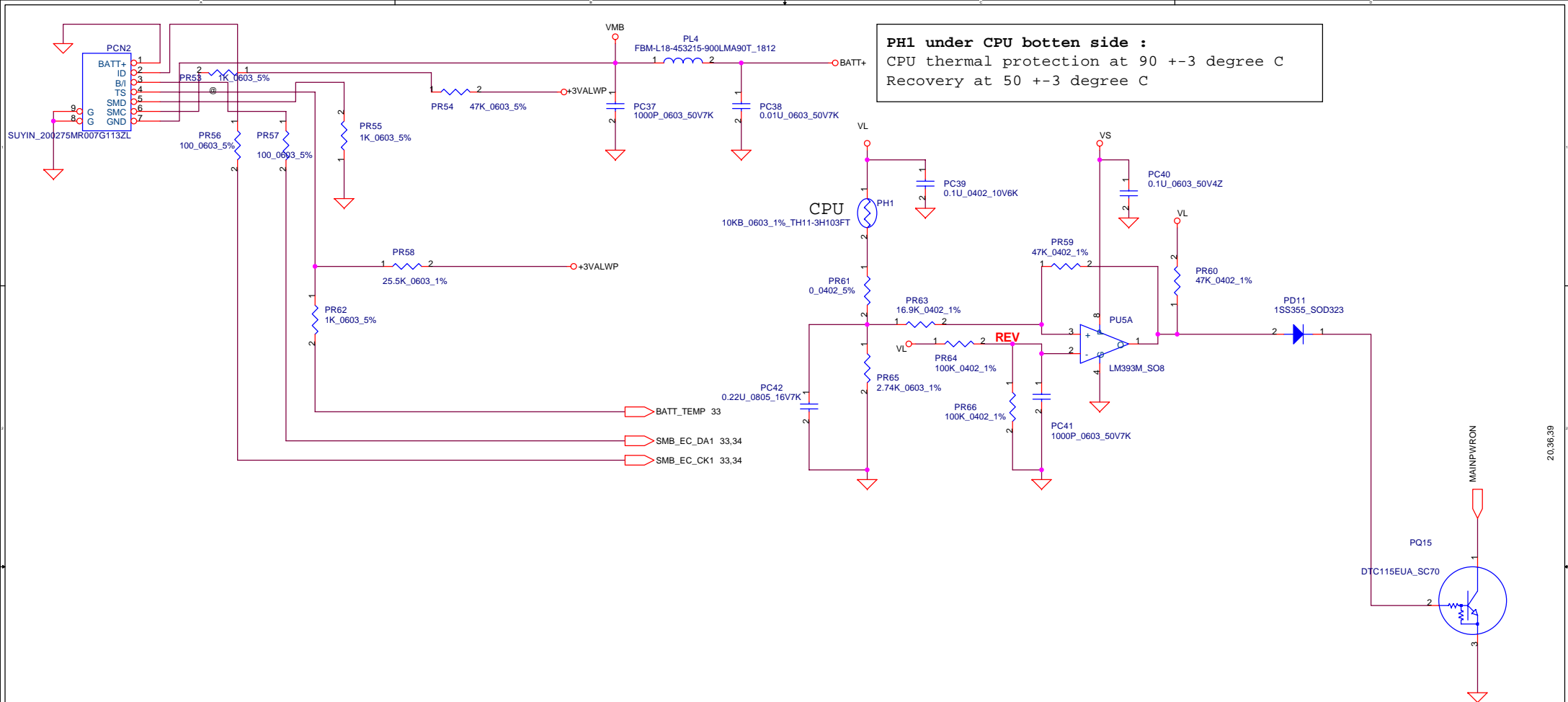


ACIN			
Precharge detector			
	Min	Typ	Max
H->L	14.589	14.84	15.243
L->H	15.562	15.97	16.388

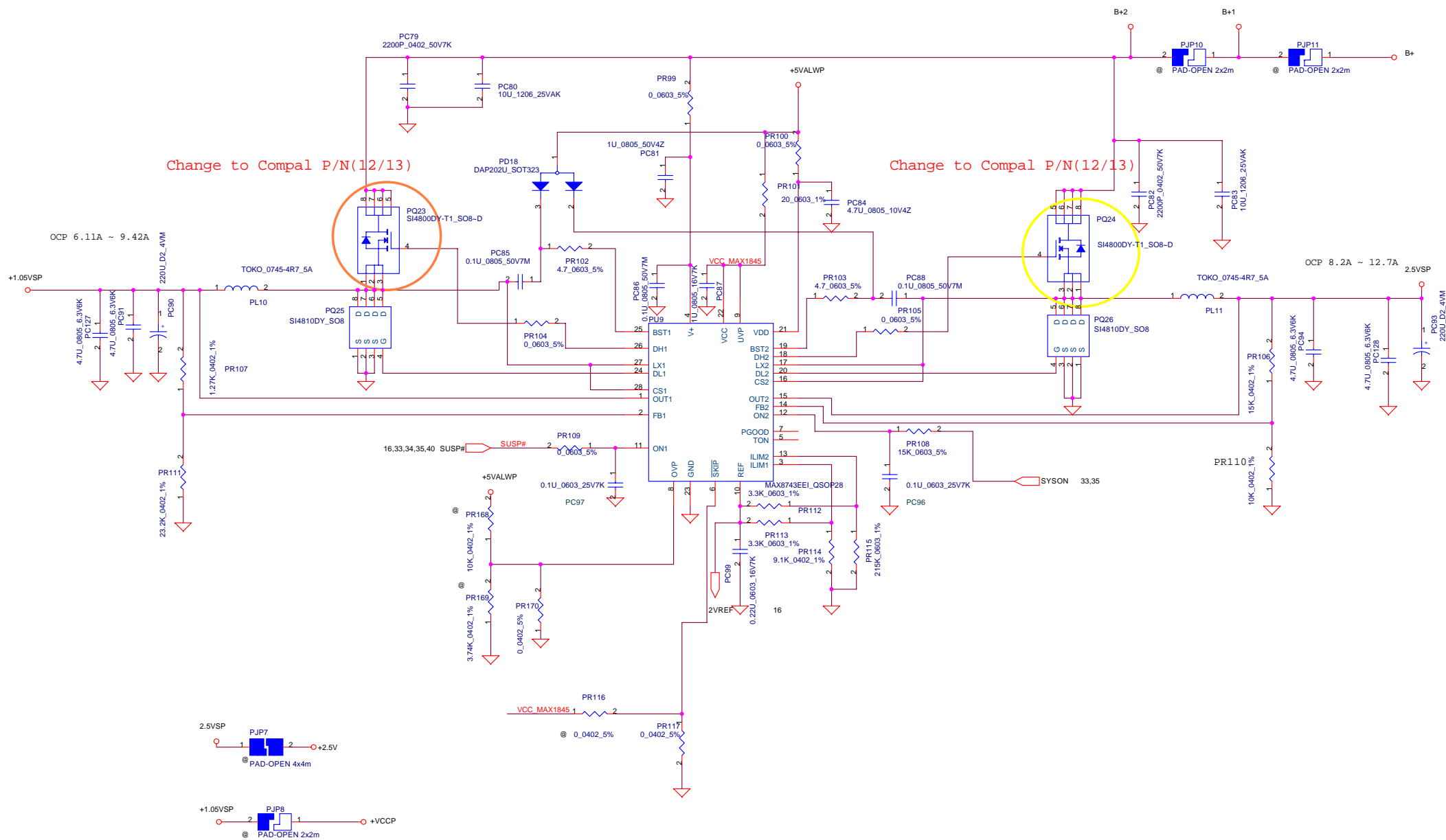
BATT			
Detector			
H->L	7.02	7.3	7.68
L->H	5.85	6.21	6.46

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Detector			
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+2.5VP / +1.05VP			
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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	B. Ver#	Phase
1	Change USB Power MOS form AATI4610AIGV-T1_SOT23-5 to RT9702ACB_SOT23-5 SA097020100	Cost down	Rev0.2	P31			
2	Add new part U33 74LVC1G125GW_SOT3535 SA411250200 & C540 0.1U_0402_16V4Z SE070104Z00 & R366 10K_0402_5% SD028100200	HDD IOR# issue	Rev0.2	P31			
3	Add new part C541 10U_0805_10V4Z SE053106Z00	HDD Power ripple	Rev0.2	P31			
4	Del R412 0_0402_5% SD028000000	BITCLK 0 ohm passthought	Rev0.2	P31			
5	Del R192(DPRSLP#)/R195(FERR#) 0_0402_5% SD028000000	Passthought Dothan B signal	Rev0.2	P31			
6	BOM Del R136/R147 40.2_0402_1% SD034402A00	Intel recommand	Rev0.2	P31			
7	Add new part C542/C543 10U_0805_6.3V6M SE093106K00	NB +VCCP Power ripple	Rev0.2	P31			
8	Add new part R192 0_0402_5% SD028000000	Passthought FWR# to FWE#	Rev0.2	P31			
9	BOM del C377 100U_6.3V_M SF100001M100	USB Power 100UF * 2 -> 100UF *1	Rev0.2	P32			
10	Del R412 0_0402_5% SD028000000	Del MODEM AC97 BITCLK 0 Ohm	Rev0.2	P30			
11	BOM add C35 330U_D2E 2.5VM SGA19331D00	NB +2.5V Power ripple	Rev0.2	P10			
12	BOM add C77 150U_D 6.3VM SG020151330	+2.5V Power ripple	Rev0.2	P14			
13	BOM add C285 330U_D2E 2.5VM SGA19331D00	+CPU_CORE Power ripple	Rev0.2	P6			
14	CRT LUMA/COMPS/CRMA & USBP6-/USBP6+ swap	layout swap avoid power noise cover	Rev0.2	P17			
15	1394 PCI BUS swap PCI_AD[0..31]	1394 PCI BUS Layout update	Rev0.2	P27			
16	Add new part R192 10K_0402_5% SD028100200	Lid SW# M/B pull high.	Rev0.2	P33			
17	RTC BATT1 pin swap	RTC Battery pin define error	Rev0.2	P20			
18	Del part R19 BOM part change R19 0_0603_5% to L21 BLM18PG600SN1_0603 SM010022000	CRT power filter noise NB power plan R19 -> L21	Rev0.2	P10			
19	BOM change part 10 to 56: RP1, RP2, RP3,RP4,RP5,RP6,RP7,RP8,RP14,RP15,RP16,RP17,RP18,RP19,RP20,RP21 -> 56_1206_8P4R_5% SD302560A00	Rev0.1 BOM error	Rev0.2	P13			
20	BOM change part 10 to 56: R5,R6,R7,R8,R15,R16,R17,R18,23,R26,R28,R29,R30,R31,R36,R39 -> 56_0402_5% SD028560A00	Rev0.1 BOM error	Rev0.2	P13			
21	Add new part C544,C545,C546,C548,C550 0.1U_0402_16V4Z SE070104Z00	NB Power plan filter	Rev0.2	P10			
22	Add new part C549,C551,C547 0.22U_0603_16V4Z SE027224NT5	NB Power plan filter	Rev0.2	P10			
23	Add new part L21,L22,L23,L24,L25 CHB1608U301_0603 SM010012500	NB Power plan filter	Rev0.2	P10			
24	U20Pin93 - Del ON/OFFBTN_LED# JP15.Pin6 - chagne ON/OFFBTN_LED# to GND	ON/OFFBTN_LED# need EC control, LED direct pull +3VS	Rev0.2	P17,P33			
25	BOM D6 change 1N4148_SOT23 to DAN202U_SC70 SC2N202U0T4	SWDF ON/OFF# no function	Rev0.2	P34			
26	JOPEN1,JOPEN3,JOPEN4 follow JOPEN2 footprint	DFX review recommand	Rev0.2	P20,P29			
27	JOPEN5,JOPEN6,JOPEN7 reserve MIC second rounting	For ME recommand	Rev0.2	P31			
28	Pin73 - EC_IDERST Move to Pin19 Pin19 - ADP_I Move to Pin73	For EC Swap signal	Rev0.2	P33			

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	B. Ver#	Phase
29	Del C443 0.47U_0603_16V7K SE026474KT6 Del BOM C445 1000P_0402_50V7K SE074102K00	Del +USB_VCCA CAF	Rev0.2	P32			
30	Add BOM R208 100K_0402_5% SD028100300	PM_DPRS LPVR stuff on resistor	Rev0.2	P21			
31	Add new part R19 43K_0402_5% SD028430200	Option ENE1410 & TI1410 resistor	Rev0.2	P25			
32	Add new part C443 150U_D_6.3VM SG020151330	NB power +2.5VS BOM non-stuff	Rev0.2	P10			
33	Change BOM part U11 74AHCT1G125GW to 74LVC1G125GW_SOT3535 SA411250200	BIOS block schematic part change	Rev0.2	P34			
34	Change BOM part L1 BLM18PG600SN1_0603 to 74BLM18PG330SN1_2P SM010019400	NB power +1.5VS ripple	Rev0.2	P10			
35	Add net U20.pin93 EC_IDERST# for gating HD_IOR#	Gating HD_IOR#	Rev0.2	P33			
36	Add BOM part R27 10K_0402_5% SD028100200 & C54 1000P_0402_50V7K SE074102K00	FAN schematic FAN1SPD stuff on pull high & CAF	Rev0.2	P15			
37	Add new part R195,R412,R452 0_0402_5% SD028000000	Option SWDJ@ & NONSWDJ@	Rev0.2	P23			
38	Del part R151,R152,R153,R154,R146,R158,R148,R138,R134	NB pin name CFG part change to test point.	Rev0.2	P07			
39	Del part R131,R132	NB pin name SDVOCTRL change to test point.	Rev0.2	P09			
40	ME change connector for LVDS/HDD/Keyboard/VGA B-B/Speaker/USB/RJ45/INT MIC		Rev0.2				
41	Del RJ45 LED function part R188, R224(10/100), R225(GLAN)	RJ45 connector no LED function	Rev0.2	P24	A2 MEMO		
42	BOM AC10 0.01UF NPO SE069103K00 change to 0.01UF X7R SE000000H00	Short part	Rev0.2	P30	A2 MEMO		
43	BOM AC11 SE168103M00 01U 250V M X7R 0805 change to SE093106K00 10U 6.3V M X5R 0805	BOM error	Rev0.2	P30	A2 MEMO		
44	BOM U23 CB714 A revision change to B0 SA007140B10	Change revision and all BOM's CB712 change to CB714.	Rev0.2	P25	A2 MEMO		
45	BOM U20 KB910L A0 revision change to A1 revision SA009100L10	Change revision	Rev0.2	P33	A2 MEMO		
46	Add new part U34 74LVC1G125GW SA411250200	IDE_HDIOR# gating.	Rev0.2	P23	A2 MEMO		
47	Add new part R131,R132 200 ohm 0402 SD028200000	For PCI-1410 BOM	Rev0.2	P27	A2 MEMO		
48	Del part U11,R57,R59,R60,C108,C109 Add part R58 0 0402 +-5% SD028000000	FSEL# pass-through INT_FSEL#	Rev0.2	P34	A2 MEMO		
49	Del part R206,C304	Signal M/B_ID	Rev0.2	P33	A2 MEMO		
50	SMT JP29 un-marked		Rev0.2	P31	A2 MEMO		
51	Del part C3, Add part C77	DDR +2.5V Cap change	Rev0.2	P14	A2 MEMO		
52	BOM AR7,AR8 SD010200500 20M Ohm +-1% change to SD015200500 20M Ohm +-5%	Short part	Rev0.2	P21	A2 MEMO		
53	BOM AC5,AC6,AC12,AC13 SE07104K00 0.1U 25V +-10% Y5V change to SE070104Z00 0.1U 16V +-10% Y5V	Short part	Rev0.2	P30	A2 MEMO		
54	Del part R237	Del SB's AC_IN	Rev0.3	P30	B MEMO		
55	Change part DDR Hynix A die SA216220000 -> B die SA000023200	Chagne Hynix DDR version	Rev0.3	P12	B MEMO		
56	NB's signal COMP/B & Y/G swap	Schematic pindefine error.	Rev0.3	P09			

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	B.Ver#	Phase
57	Change BOM part Q5,Q6 2N7002 to BSS138	LVDS EDID Vih, Vil no match spec	Rev0.3	P16			
58	Net GMCH_ENBRK connect to EC_U20.p90 Add new part R134 100K pull down. Del part R11 0 ohm	PM panel white back light issue.	Rev0.3	P21			
59	Add new part C552,C553,C554,C555,C558,C559,D16,D17,D18,D19,D20.	EMI issue.	Rev0.3	P17,P31,P32			
60	Add new part R453,Q43.	For SWDJ geting RIQ.	Rev0.3	P23			
61	Pop part R434.	For SWDJ A-A issue.	Rev0.3	P29			
62	Change BOM part AC11 10U_0805 to 1U_1206	ME issue.	Rev0.3	P30			
63	Add part C557,C558.	Boost audio "BO" sound issue.	Rev0.3	P31			
64	Change BOM part R439,R80 0_0402 to 470_0402.	Ear phone sound too big issue.	Rev0.3	P31			
65	Change BOM part JP28 footprint no match spec.	layout spec issue.	Rev0.3	P31			
66	U6, U13, U16, U17 nc pin connect to GND.		Rev0.3	P35			
67	Add jumper JOPEN5	EMI issue.	Rev0.3	P31			
68	Add part C560 SE053475Z05 4.7U 10V Z Y5V 0805	Change Card Reader power MOS for MS card conn issue	Rev0.3	P26			
69	Del BOM part Q34 SB923010010 SI2301BDS	Change Card Reader power MOS for MS card conn issue	Rev0.3	P26			
70	Add part U34 SA005280100 G528	Change Card Reader power MOS for MS card conn issue	Rev0.3	P26			
71	Change BOM part C374 SE076103K00 .01U 16V K X7R 0402 to SE070104Z00 .1U 16V Z Y5V 0402	Change Card Reader power MOS for MS card conn issue	Rev0.3	P26			
72	Add part R454, C357. net EC_MUTE# pull high chanGe to +5V_AMP	For audio CD-L/R noise option +VDDA & +5VAMP.	Rev0.3	P31			
73	Change BOM part R361 20K Ohm to 10K Ohm	For camera power switch.	Rev0.3	P32	C TEST BOM MEMO.		
74	Add part R455, Q45, Q44, JOPEN7. Add net CAMERA_ONOFF&+5VS_CAM	For camera power switch.	Rev0.3	P33,32	C TEST BOM MEMO.		
75	Change BOM part U26 to G528 for USB power MOS. Change Net U26.4 to SYSON# & OVCUR#3 pull high +3VALW	For camera power switch.	Rev0.3	P32	C TEST BOM MEMO.		
76	Change BOM part U32 Change SA021210000 S IC APA2121RI_TR TSSOP-24 AUDIO AMP to SA002320300 S IC TPA0232PWP TSSOP-24 AUDIO AMP	For APA AMP audio power up "bo" sound	Rev0.3	P31	C TEST BOM MEMO.		
77							
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Version change list (P.I.R. List)

Power section

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Item	Reason for change	PG#	Modify List	Date	B. Ver#
1	Update 1.05V, 2.5V, 1.5V, 3.3V and 5V CHOKE for cost down	38	PL7, PL6, PL10, PL11, PL8 update to TOKIN 4.5mm(High) from VISHAY(3mm High)	Nov/12	A. Ver#
2	Add Capacity 4.7UF 2 pcs for reduce ribble voltage	38	Add 4.7U in pC?	Nov/12	A. Ver#
3	Update BST Resistor to 4.7 ohm 2 pcs for reduce switching node noise	38	PR72, PR76 update to 4.7 ohm from 0 ohm	Nov/12	A. Ver#
4	Update 12VALWP 16V Zener to 12V Zener	38	Update PD26 to 12V Zener from 16V Zener	Nov/12	A. Ver#
5	Add CPU Thermal protect circuit	37	Add PR61, PR65, PC42, PR63, PR64, PR66, PC41, PR59, PU5, PC40, PR60 PD11, PQ15	Nov/12	A. Ver#
6	Delete Battery Thermal Protect circuit	37	Delete PH2, PC43, PR68, PC45, PR70, PR71, PR67, PR69, PR14	Nov/12	A. Ver#
7	Update Output Voltage to 1.26V from 1.25V	39	Update PR96 to 2K from 1K Update PR98 to 2.05K from 1K	Nov/12	A. Ver#
8	Reduce Ripple Voltage for 1.05V and 2.5V	40	Add 4.7U Capacity in pC128, PC127	Nov/12	A. Ver#
9	Update Out put Voltage to 1.054V from 1.05V	40	Update PR111 to 23.2K from 25.5K	Nov/12	A. Ver#
10	Reduce switching node noise	40	Update PR102, PR103 to 4.7 ohm from 0 ohm	Nov/12	A. Ver#
11	Reduce noise for SUSP#	40	Update PR1092, PR103 to 4. to 27 ohm from 0 ohm	Nov/12	A. Ver#
12	Reduce CPU noise for Vgate	41	Update PR166 to 10K from 100K	Nov/12	A. Ver#
13	Reduce CPU noise	41	Update PL12 to 13A from 8A	Nov/12	A. Ver#
14	Reduce CPU switching node noise	41	Update PR121, PR149 to 3 ohm from 0 ohm	Nov/12	A. Ver#
15	Reduce CPU noise for input side	41	Add 68UF Capacity in PC 129, PC104	Nov/12	A. Ver#
16	Adjust load line	41	Update PR137, PR143 to 2K from 3K	Nov/12	A. Ver#
	Delete shocket Diode for Maxium 8743 and Maxium 1999 solution	40 38	Delete PD24, PD25, PD19, PD20	Nov/12	A. Ver#

Compal Electronics, Inc.

Title
PWR PIRSize
Custom LA-2592Rev
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