

Compal Confidential

Model Name : P5LJ0 & P5LS0

File Name : LA-7221P

Compal Confidential

JM50-HR M/B Schematics Document

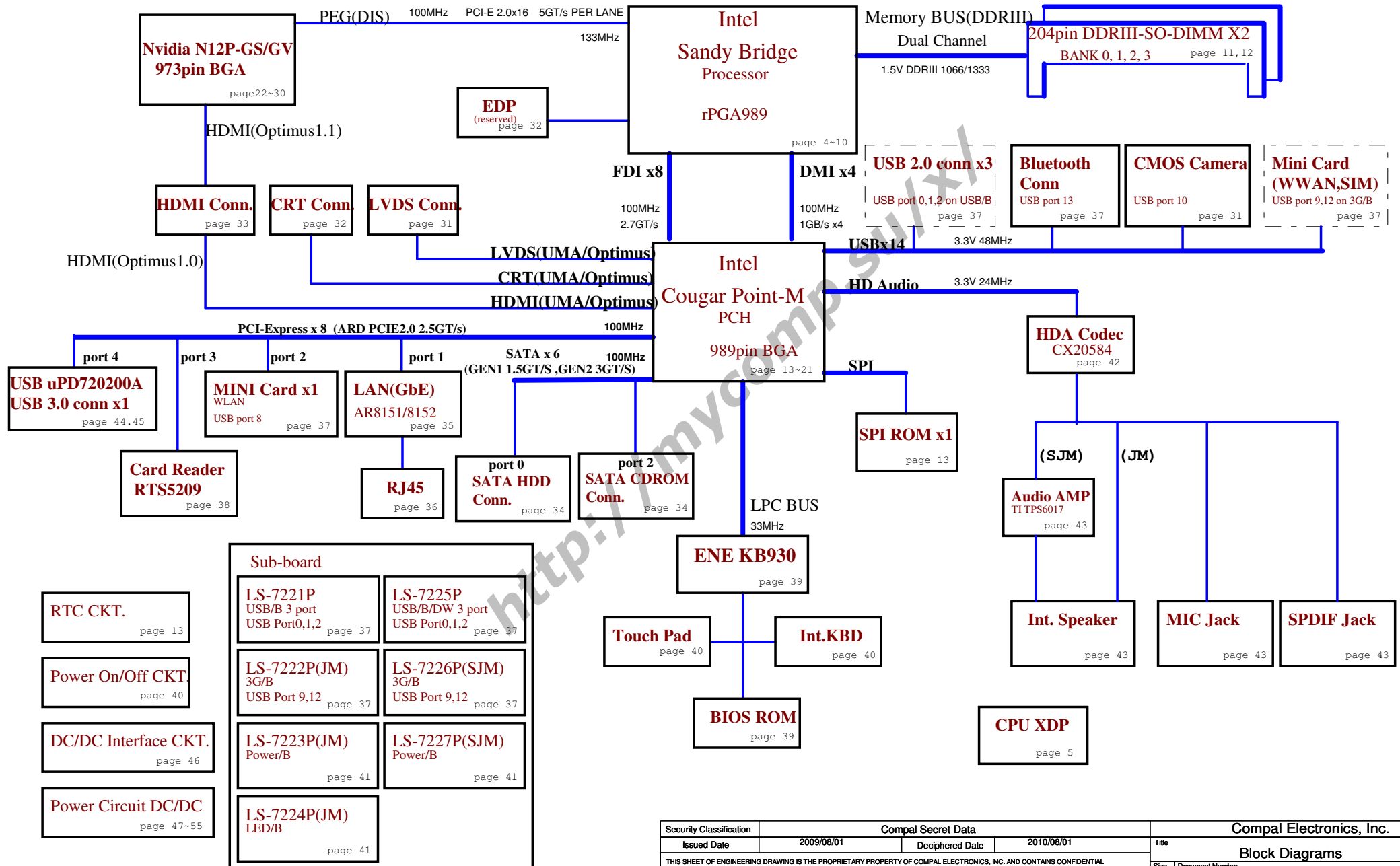
Intel Sandy Bridge Processor with DDRIII + Cougar Point PCH  
Nvidia N12P-GS/GV

2010-02-16

REV: 0.5

MB PCB	
Part Number	Description
DAB0000MA00	PCB 01N LA-7221P REV0 M/B

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## Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
BATT+	Battery power supply (12.6V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+VGA_CORE	Core voltage for GPU	ON	OFF	OFF
+VGFX_CORE	Core voltage for UMA graphic	ON	OFF	OFF
+0.75VS	+0.75VP to +0.75VS switched power rail for DDR terminator	ON	OFF	OFF
+1.0VSDGPU	+1.0VSPDGPU to +1.0VSDGPU switched power rail for GPU	ON	OFF	OFF
+1.05VS_VCCP	+1.05VS_VCCPP to +1.05VS_VCCP switched power rail for CPU	ON	OFF	OFF
+1.05VS_PCH	+1.05VS_VCCP to +1.05VS_PCH power for PCH	ON	OFF	OFF
+1.5V	+1.5VP to +1.5V power rail for DDRIII	ON	ON	OFF
+1.5VS	+1.5V to +1.5VS switched power rail	ON	OFF	OFF
+1.5VSDGPU	+1.5VS to +1.5VSDGPU switched power rail for GPU	ON	OFF	OFF
+1.8VS	(+5VALW or +3VALW) to 1.8V switched power rail to PCH & GPU	ON	OFF	OFF
+3VALW	+3VALW always on power rail	ON	ON	ON*
+3VALW_EC	+3VALW always to KBC	ON	ON	ON*
+3V_LAN	+3VALW to +3V_LAN power rail for LAN	ON	ON	ON*
+3VALW_PCH	+3VALW to +3VALW_PCH power rail for PCH (Short Jumper)	ON	ON	ON*
+3VS	+3VALW to +3VS power rail	ON	OFF	OFF
+5VALW	+5VALWP to +5VALW power rail	ON	ON	ON*
+5VALW_PCH	+5VALW to +5VALW_PCH power rail for PCH (Short resister)	ON	ON	ON*
+5VS	+5VALW to +5VS switched power rail	ON	OFF	OFF
+VSB	+VSBP to +VSB always on power rail for sequence control	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

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

## EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b		

## EC SM Bus2 address

## PCH SM Bus address

Device	Address
Clock Generator (9LVS3199AKLFT, RTM890N-631-VB-GRT)	1101 0010b
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

## 3G & BT Config

3G SKU: 3G@

BT SKU: BT@

## BOM Config

JM UMA Only: BT@/3G@/UMA@/UMAO@/JM@/8151@  
 JM OPTIMUS: BT@/3G@/UMA@/OPT@/JM@/8151@/GV@/GS@  
 SJM UMA Only: BT@/3G@/UMA@/UMAO@/SJM@/8151@  
 SJM OPTIMUS: BT@/3G@/UMA@/OPT@/SJM@/8151@/GV@/GS@

## BOM P/N (JM/SJM)

4319BOBOL01/L21 UMA W3G HDMI  
 4319BOBOL02/L22 UMA N3G HDMI  
 4319BOBOL03/L23 N12PGS 1GW3G HDMI  
 4319BOBOL04/L24 N12PGS 1GN3G HDM  
 4319BOBOL05/L25 N12PGS 2GW3G HDMI  
 4319BOBOL06/L26 N12PGS 2GN3G HDMI  
 4319BOBOL07/L27 N12PGV 512W3G HDMI  
 4319BOBOL08/L28 N12PGV 512N3G HDMI

## VRAM BOM Config

X76289BOL01 512M SAM 64M16  
 X76289BOL02 512M HYN 64M16  
 X76289BOL03 1G SAM 64M16  
 X76289BOL04 1G HYN 64M16  
 X76289BOL05 2G SAM 128M16  
 X76289BOL06 2G HYN 128M16

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

## Board ID / SKU ID Table for AD channel

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

## BOARD ID Table

Board ID	PCB Revision
0	0.1
1	0.2
2	0.3
3	1.0
4	
5	
6	
7	

## BTO Option Table

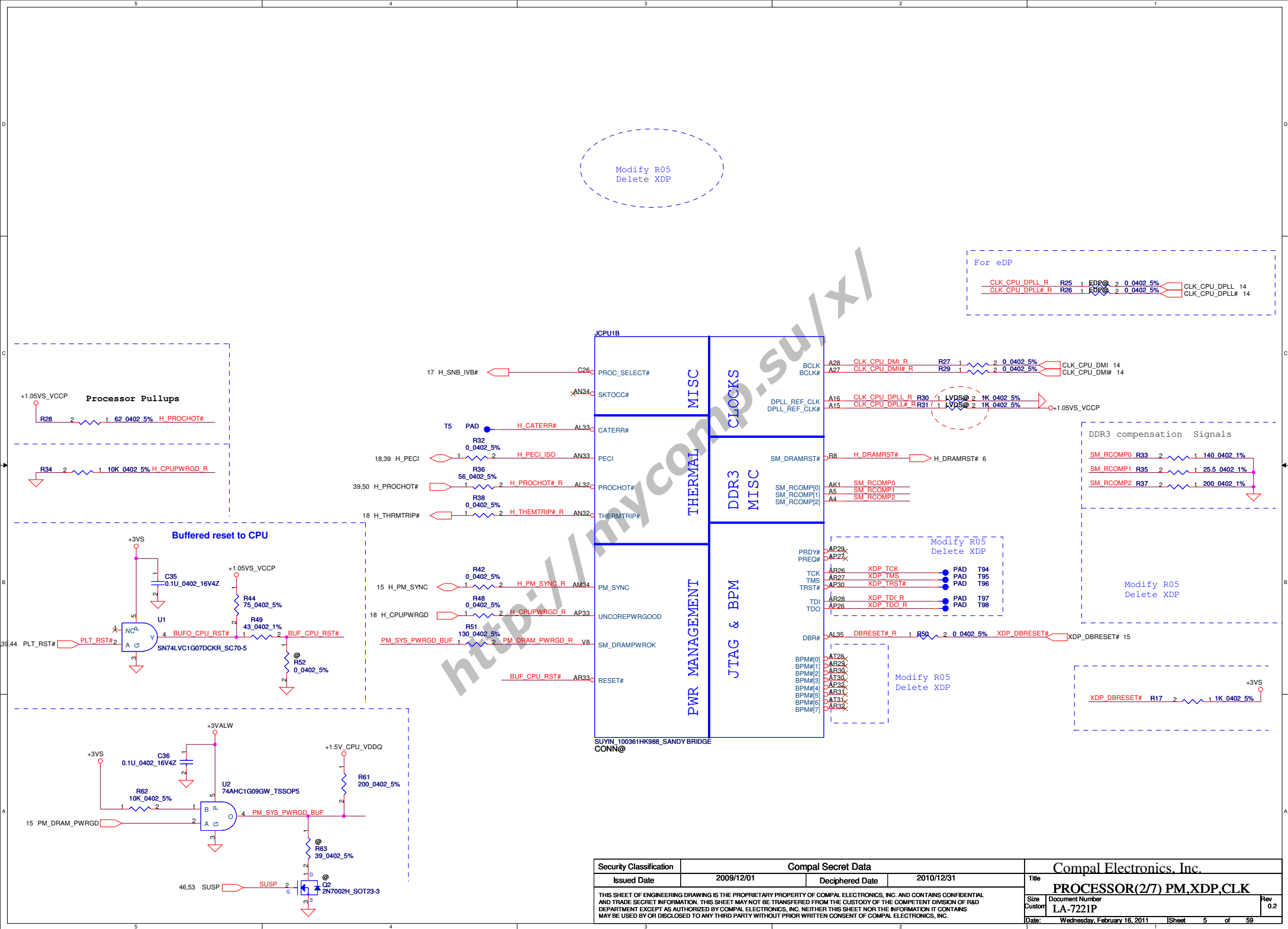
BTO Item	BOM Structure
UMA Only	UMAO@
UMA with OPTIMUS	UMA@
OPTIMUS1.0	OPT@
OPTIMUS1.1	OPT11@
N12P-GS@	GS@
N12P-GV@	GV@
VRAM	X76@
Connector	CONN@
3G	3G@
Blue Tooth	BT@
EDP	EDP@
LAN Chip AR8151	8151@
LAN Chip AR8152	8152@
JM Board	JM@
SJM Board	SJM@
Unpop	@
Power GPU	VGA@

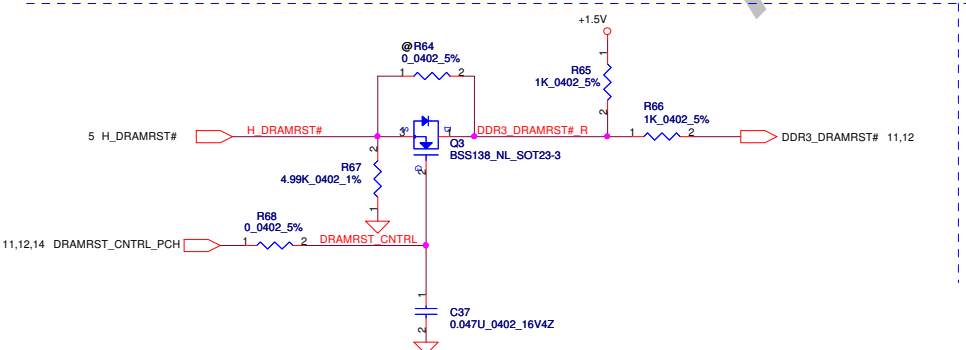
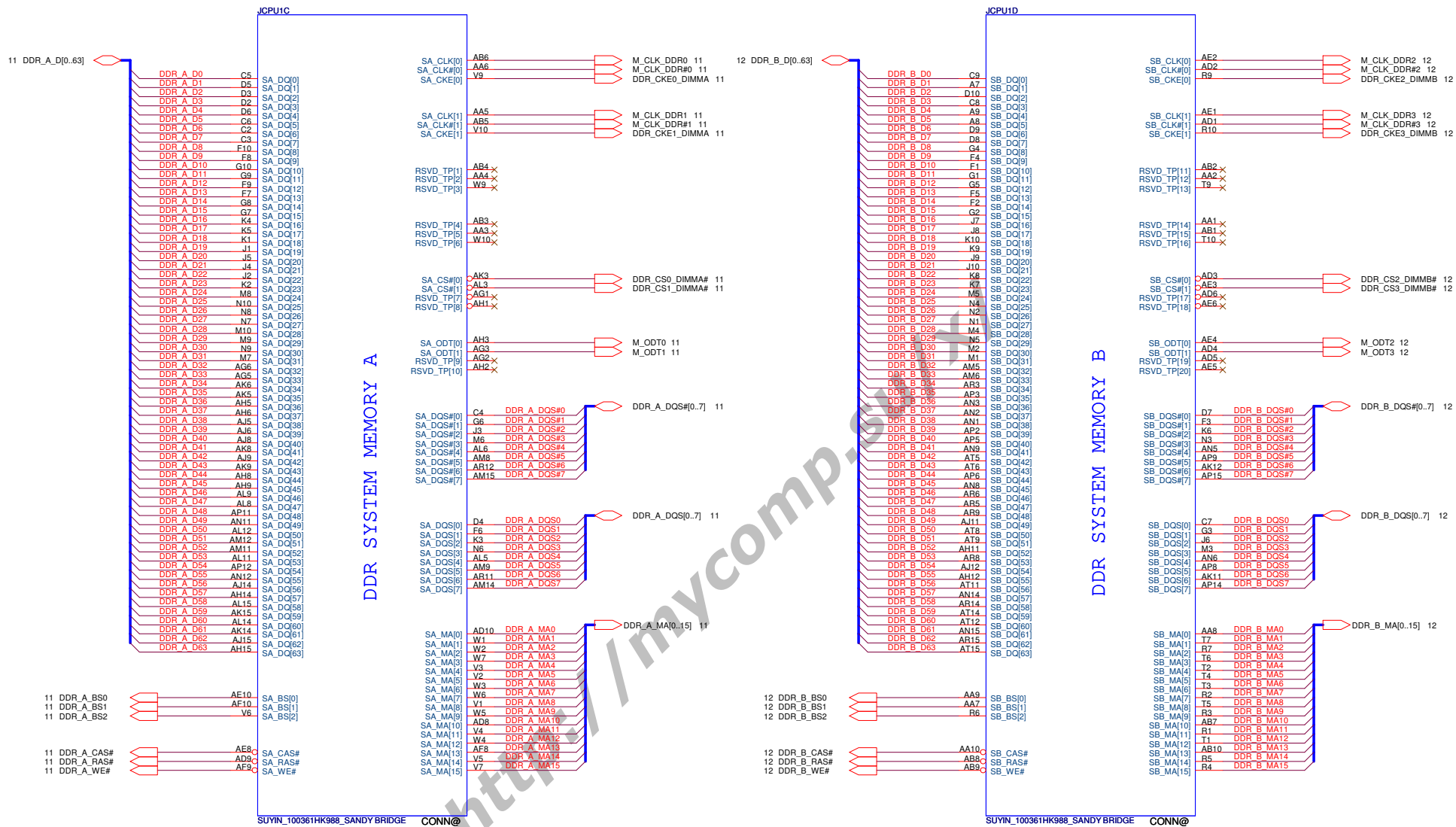
## USB Port Table

USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB/B (Right Side)
		1	USB/B (Right Side)
		2	USB/B (Right Side)
	UHCI1	3	
		4	
		5	
EHCI2	UHCI2	6	
		7	
		8	Mini Card(WLAN)
	UHCI3	9	Mini Card(WWAN)
		10	Camera
		11	
	UHCI4	12	SIM Card
		13	Blue Tooth

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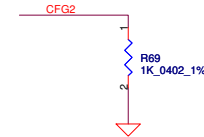




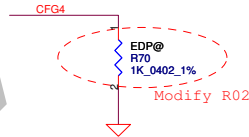


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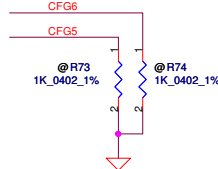
# CFG Straps for Processor



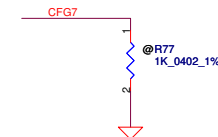
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition * 0: Lane Reversed



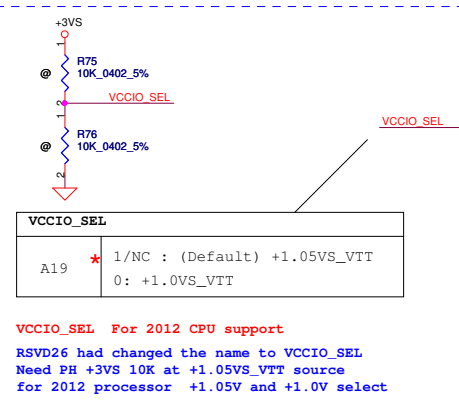
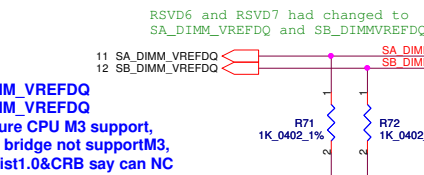
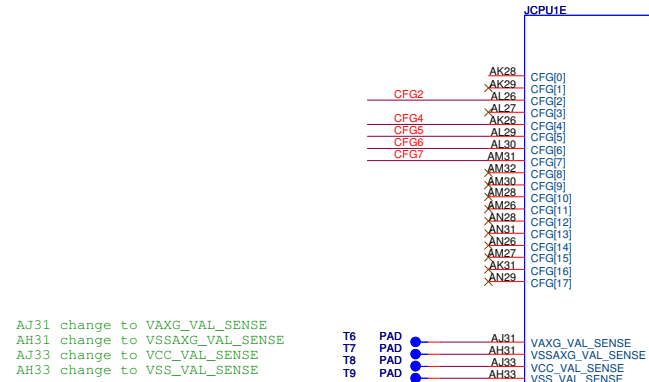
Display Port Presence Strap	
CFG4	1 : Disabled; No Physical Display Port attached to Embedded Display Port * 0 : Enabled; An external Display Port device is connected to the Embedded Display Port



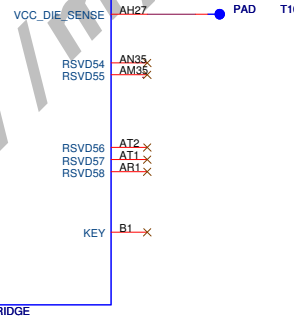
PCIe Port Bifurcation Straps	
CFG[6:5]	* 11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled



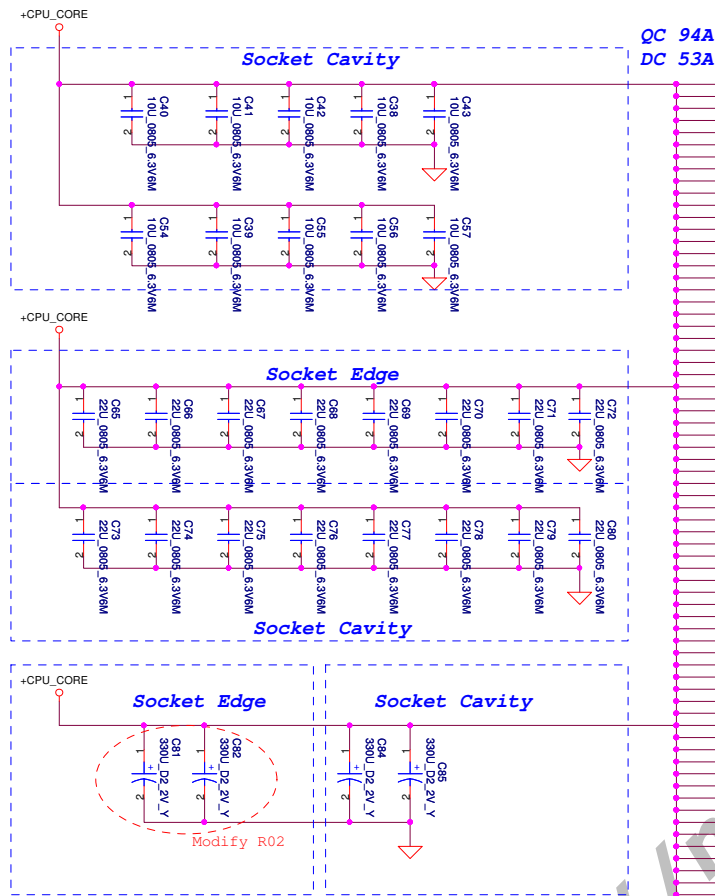
PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training



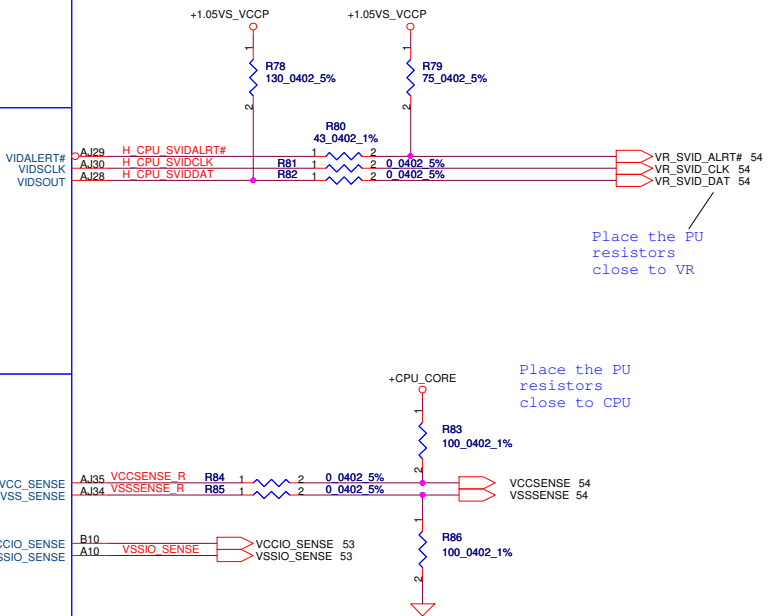
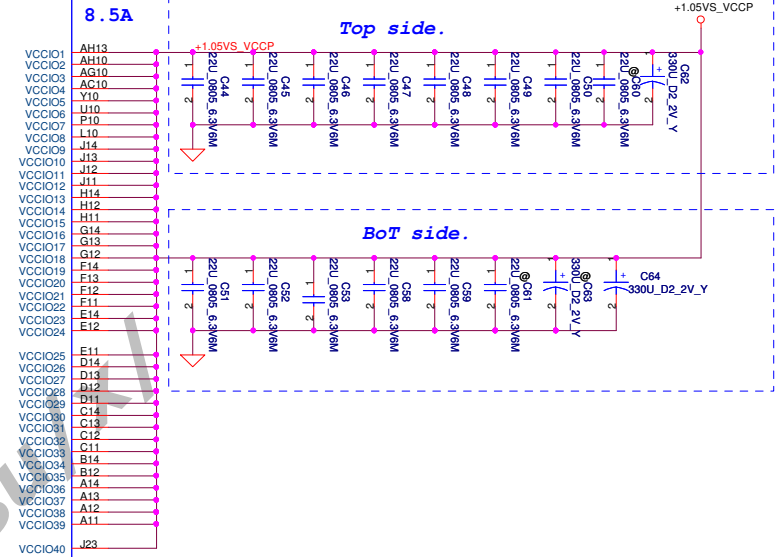
RESERVED



JCPU1F



4x 470  $\mu$ F Bottom Socket Edge  
8x 22  $\mu$ F Top Socket Cavity  
8x 22  $\mu$ F Top Socket Edge  
10x 10  $\mu$ F Bottom Socket Cavity



Place the PU  
resistors  
close to VR

Place the PU  
resistors  
close to CPU

CODE CRIPDTV

SVTD

## SENSE LINES

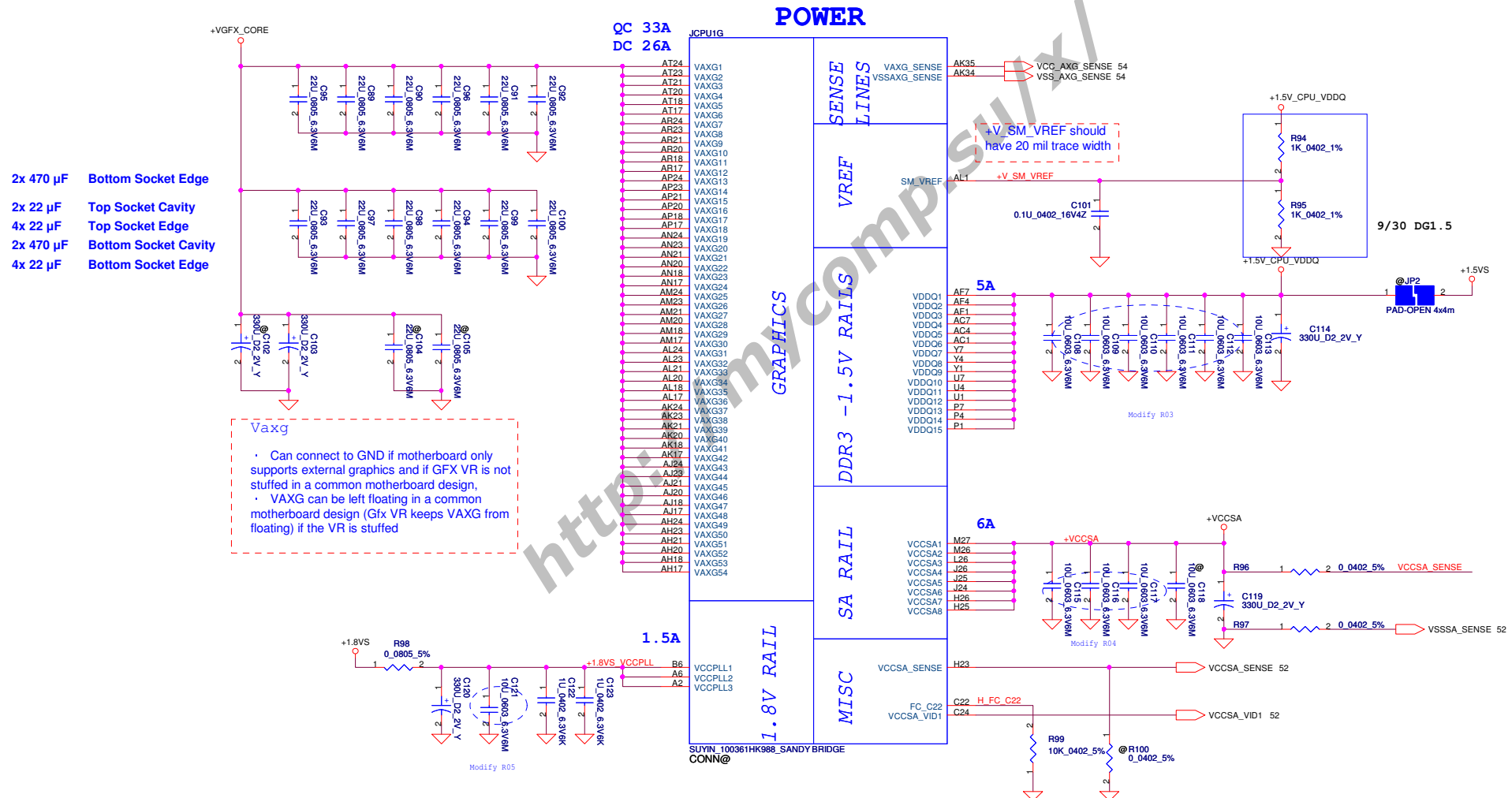
SUYIN 100361HK988 SANDY BRIDGE CONN@

SECURITY CLASSIFICATION SUTIN 100361R388 SANDY BRIDGE GUNN@			
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Delete  
+1.5V\_CPU\_VDDQ Source



JCPU1H

AT35	VSS1	AJ22
AT32	VSS2	AJ19
AT29	VSS3	AJ16
AT27	VSS4	AJ13
AT25	VSS5	AJ10
AT22	VSS6	AJ7
AT19	VSS7	AJ4
AT16	VSS8	AJ3
AT13	VSS9	AJ2
AT10	VSS10	AJ1
AT7	VSS11	AH35
AT4	VSS12	AH34
AT3	VSS13	AH32
AR25	VSS14	AH30
AR22	VSS15	AH29
AR19	VSS16	AH28
AR16	VSS17	AH26
AR13	VSS18	AH25
AR10	VSS19	AH22
AR7	VSS20	AH19
AR4	VSS21	AH16
AR2	VSS22	AH7
AP34	VSS23	AH4
AP31	VSS24	AG9
AP28	VSS25	AG8
AP25	VSS26	AG4
AP22	VSS27	AF6
AP19	VSS28	AF5
AP16	VSS29	AF3
AP13	VSS30	AF2
AP10	VSS31	AE35
AP7	VSS32	AE34
AP4	VSS33	AE33
AN30	VSS34	AE32
AN27	VSS35	AE31
AN25	VSS36	AE30
AN22	VSS37	AE28
AN19	VSS38	AE27
AN16	VSS39	AE26
AN13	VSS40	AE9
AN10	VSS41	AD7
AN7	VSS42	AC9
AN4	VSS43	AC8
AM29	VSS44	AC6
AM25	VSS45	AC5
AM22	VSS46	AC3
AM19	VSS47	AC2
AM16	VSS48	AB35
AM13	VSS49	AB34
AM10	VSS50	AB33
AM7	VSS51	AB32
AM4	VSS52	AB31
AM3	VSS53	AB30
AM2	VSS54	AB29
AM1	VSS55	AB28
AL34	VSS56	AB27
AL31	VSS57	AB26
AL28	VSS58	Y9
AL25	VSS59	Y8
AL22	VSS60	Y6
AL19	VSS61	Y5
AL16	VSS62	Y3
AL13	VSS63	Y2
AL10	VSS64	W35
AL7	VSS65	W34
AL4	VSS66	W33
AL2	VSS67	W32
AK33	VSS68	W31
AK30	VSS69	W30
AK27	VSS70	W29
AK25	VSS71	W28
AK22	VSS72	W27
AK19	VSS73	W26
AK16	VSS74	U9
AK13	VSS75	U8
AK10	VSS76	U6
AK7	VSS77	U5
AK4	VSS78	U3
AJ25	VSS79	U2
AJ22	VSS80	VSS160

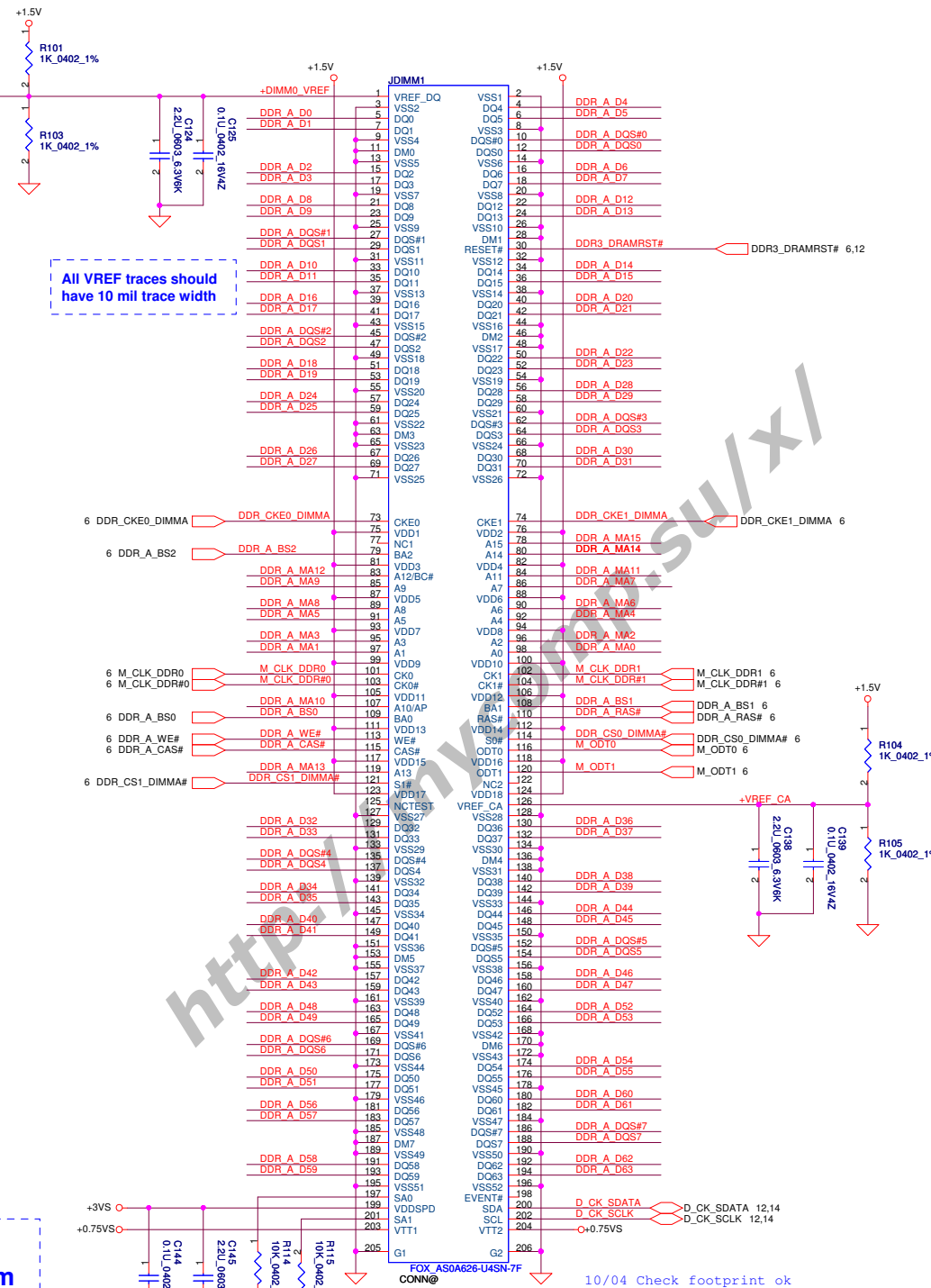
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CONN@

JCPU1I

T35	VSS161	VSS234	F22
T34	VSS162	VSS235	F19
T33	VSS163	VSS236	E30
T32	VSS164	VSS237	E27
T31	VSS165	VSS238	E24
T29	VSS166	VSS239	E18
T28	VSS167	VSS240	E15
T27	VSS168	VSS241	E13
T26	VSS169	VSS242	E10
P9	VSS170	VSS243	E9
P8	VSS171	VSS244	E8
P6	VSS172	VSS245	E7
P5	VSS173	VSS246	E6
P3	VSS174	VSS247	E5
P2	VSS175	VSS248	E4
N35	VSS176	VSS249	E3
N34	VSS177	VSS250	E2
N33	VSS178	VSS251	E1
N32	VSS179	VSS252	D35
N31	VSS180	VSS253	D32
N30	VSS181	VSS254	D29
N29	VSS182	VSS255	D26
N28	VSS183	VSS256	D20
N27	VSS184	VSS257	D17
N26	VSS185	VSS258	D17
N25	VSS186	VSS259	C34
N24	VSS187	VSS260	C28
N23	VSS188	VSS261	C27
N22	VSS189	VSS262	C25
N21	VSS190	VSS263	C23
N20	VSS191	VSS264	C10
N19	VSS192	VSS265	C1
N18	VSS193	VSS266	B22
N17	VSS194	VSS267	B19
N16	VSS195	VSS268	B17
N15	VSS196	VSS269	B15
N14	VSS197	VSS270	B13
N13	VSS198	VSS271	B11
N12	VSS199	VSS272	B9
N11	VSS200	VSS273	B8
N10	VSS201	VSS274	B7
N9	VSS202	VSS275	B5
N8	VSS203	VSS276	B3
N7	VSS204	VSS277	B2
N6	VSS205	VSS278	A35
N5	VSS206	VSS279	A32
N4	VSS207	VSS280	A29
N3	VSS208	VSS281	A26
N2	VSS209	VSS282	A23
N1	VSS210	VSS283	A20
H35	VSS211	VSS284	A3
H34	VSS212	VSS285	
H33	VSS213		
H32	VSS214		
H31	VSS215		
H30	VSS216		
H29	VSS217		
H28	VSS218		
H27	VSS219		
H26	VSS220		
H25	VSS221		
H24	VSS222		
H23	VSS223		
H22	VSS224		
H21	VSS225		
H20	VSS226		
H19	VSS227		
H18	VSS228		
H17	VSS229		
H16	VSS230		
H15	VSS231		
H14	VSS232		
H13	VSS233		

SUYIN\_100361HK988\_SANDY BRIDGE  
CONN@

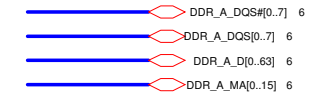
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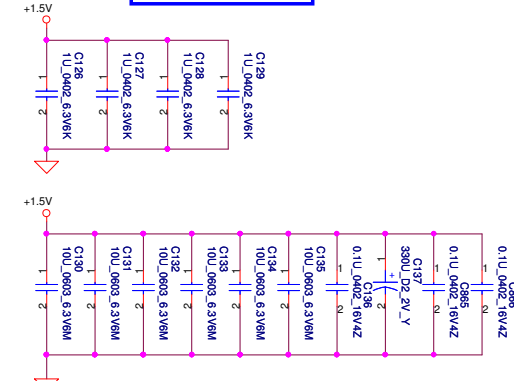
**All VREF traces should have 10 mil trace width**

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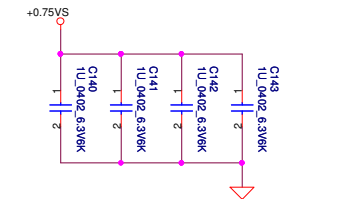
**DIMM A Reserve H:4mm**



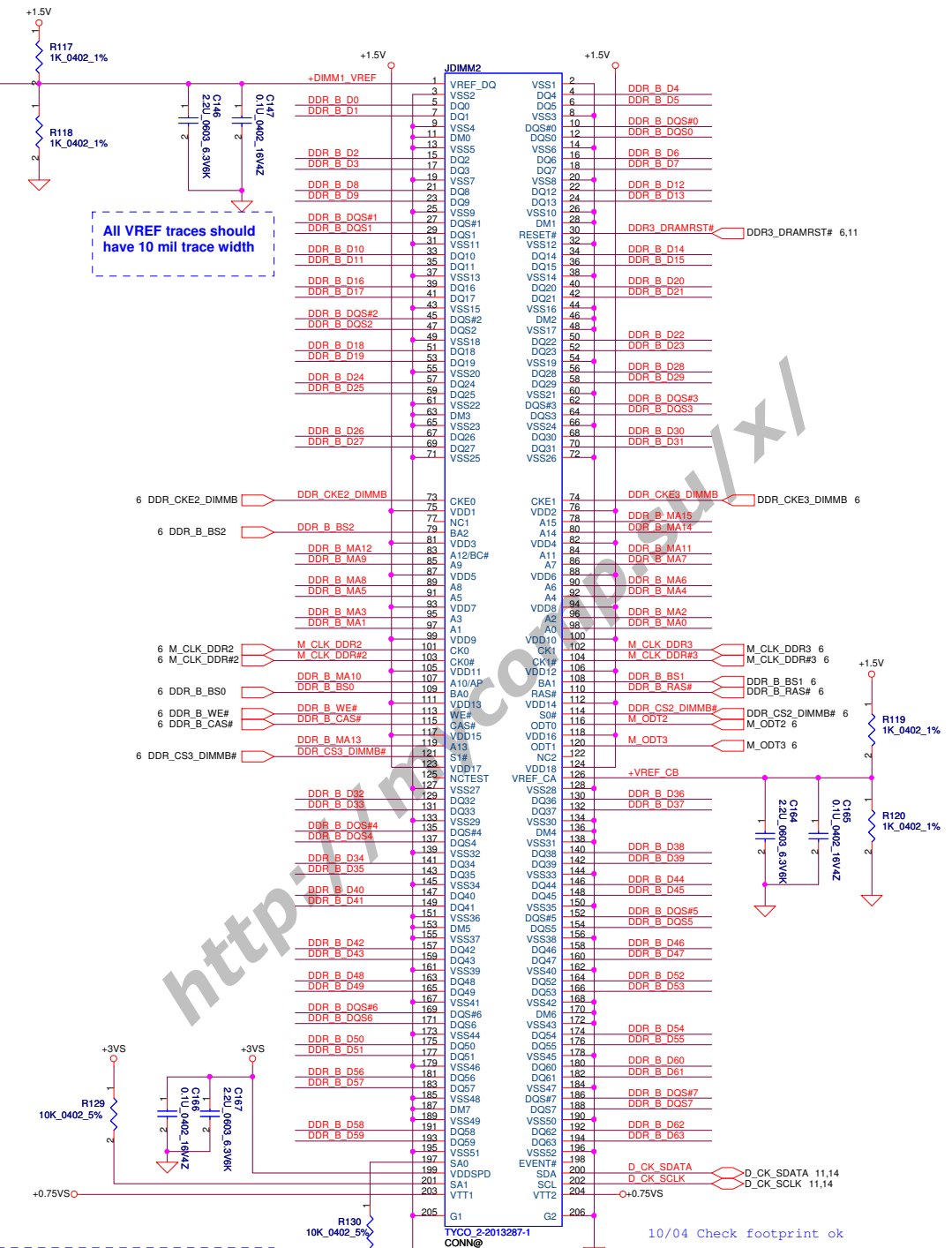
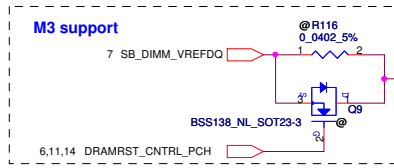
**Layout Note:**  
Place near JDIMM1



Layout Note:  
Place near JDIMM1.203,204

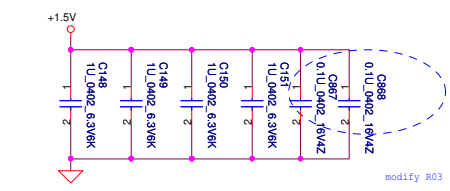


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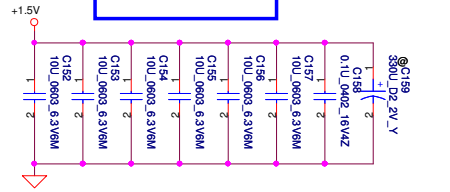


All VREF traces should have 10 mil trace width

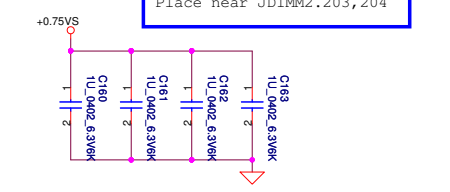
- DDR\_B\_DQS#0[0..7] 6
- DDR\_B\_DQS#1[0..7] 6
- DDR\_B\_DQS#2[0..7] 6
- DDR\_B\_DQS#3[0..7] 6
- DDR\_B\_DQS#4[0..7] 6
- DDR\_B\_DQS#5[0..7] 6
- DDR\_B\_DQS#6[0..7] 6
- DDR\_B\_DQS#7[0..7] 6



Layout Note:  
Place near JDIMM2

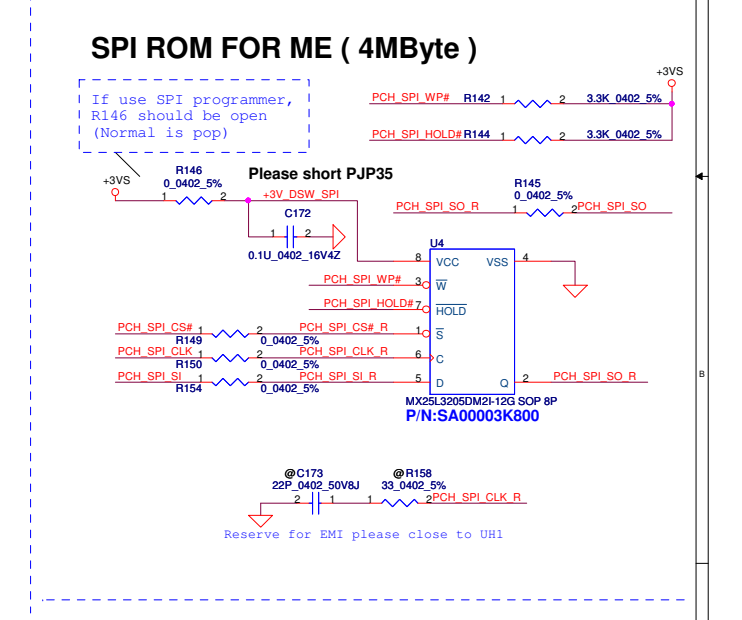
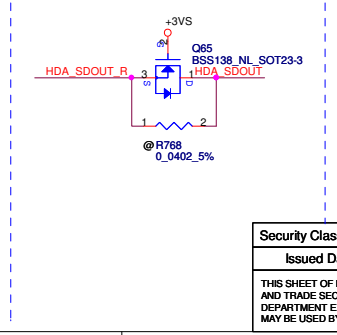
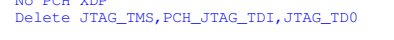


Layout Note:  
Place near JDIMM2.203,204

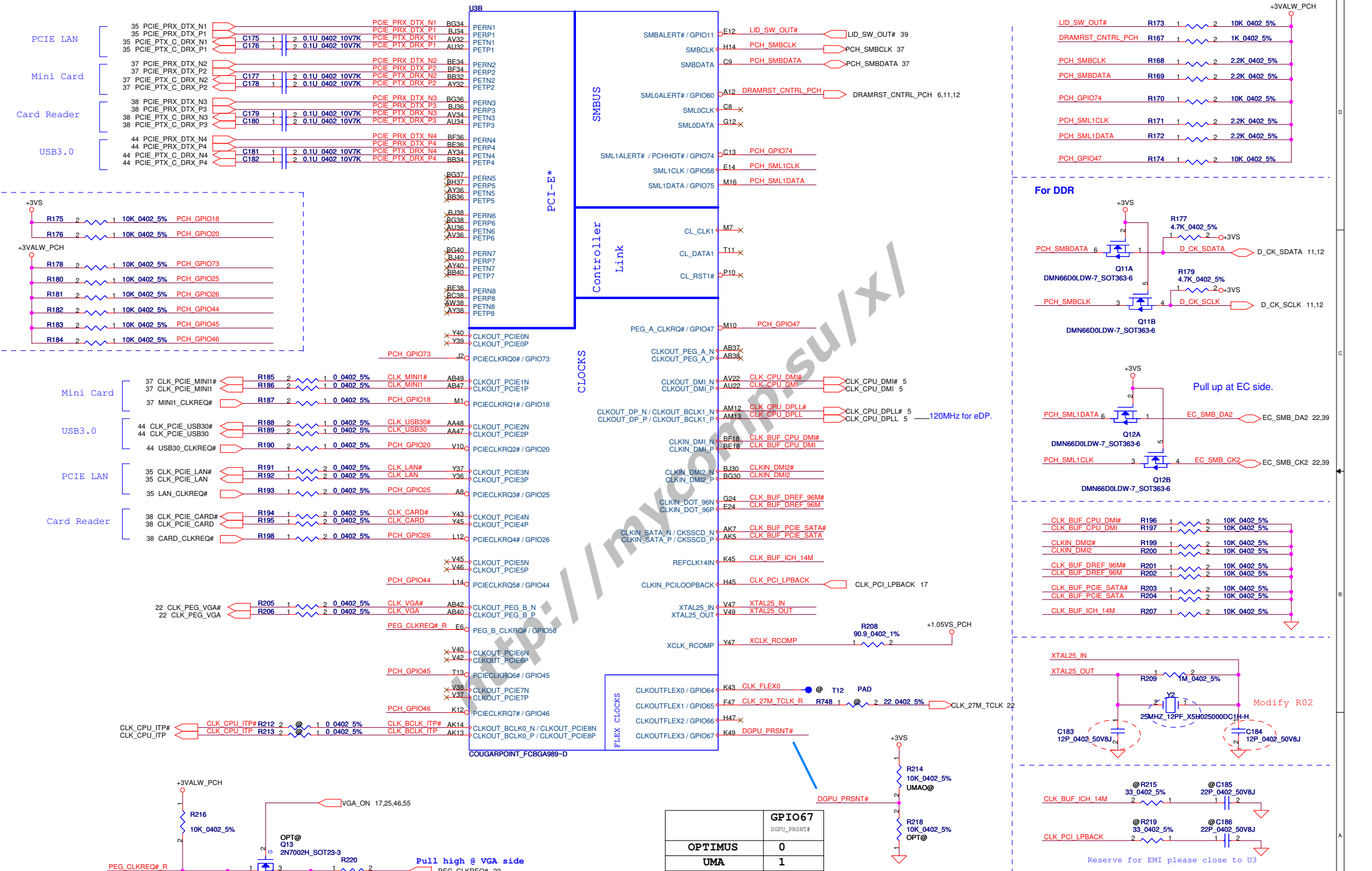


<Address: 01>  
**DIMM\_B Reverse type H:4mm**

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				DDRIII DIMMB					
				Size		Document Number		Rev	
				LA-7221P		0.2			
3		1		2		Date: Wednesday, February 16, 2011			
				Sheet		12 of 59			

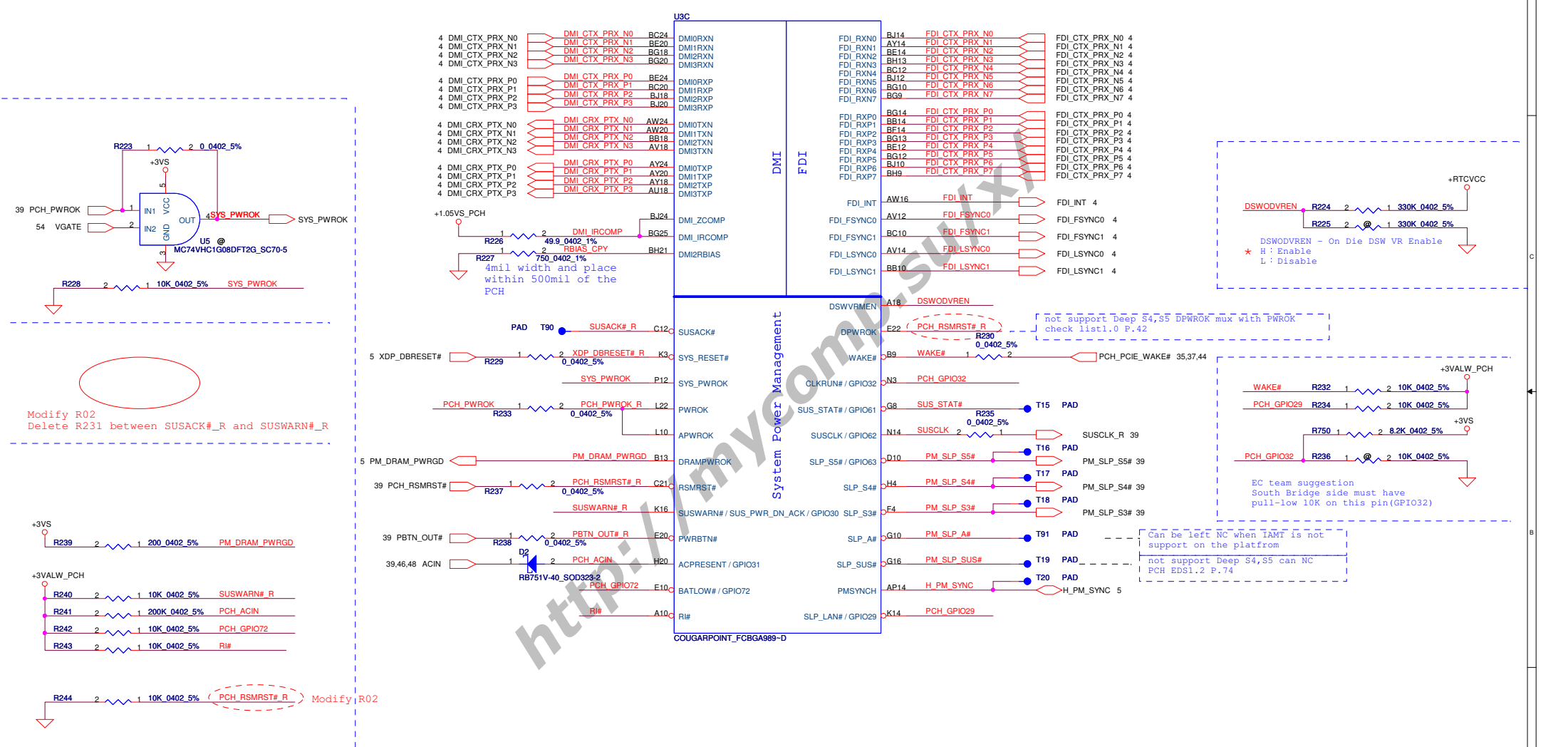


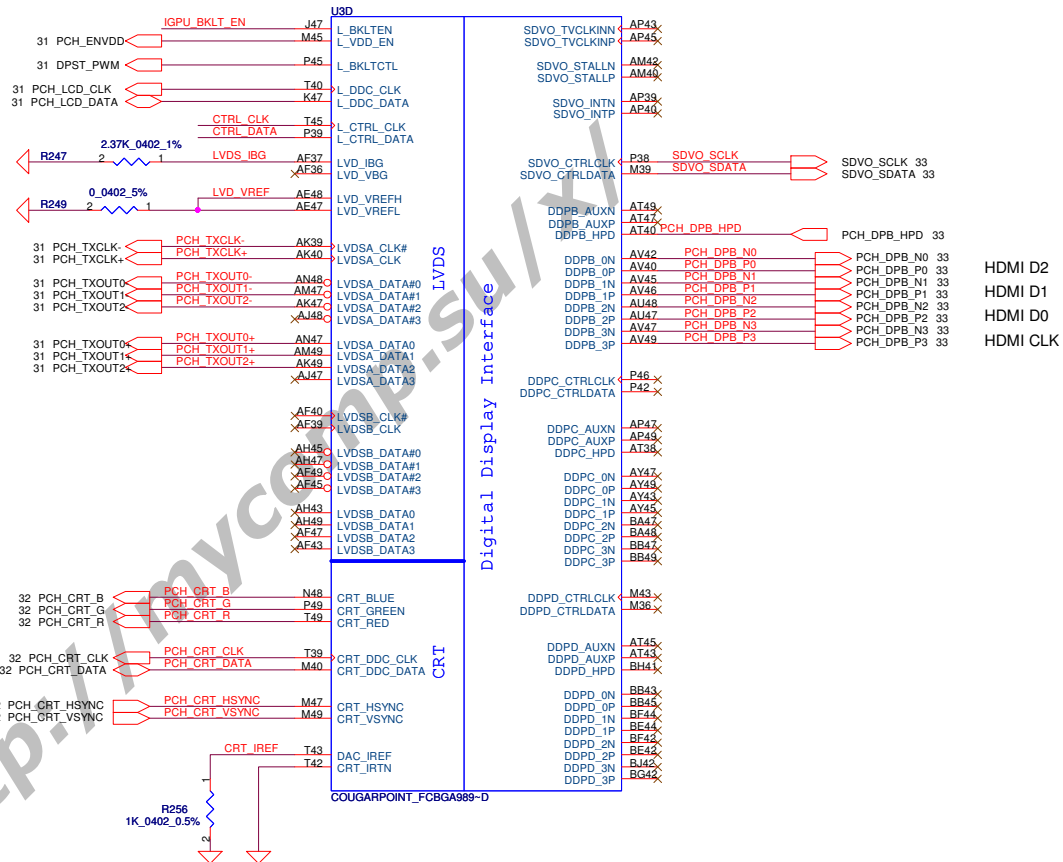
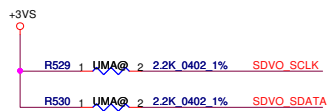
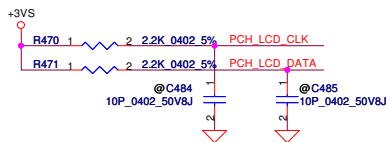
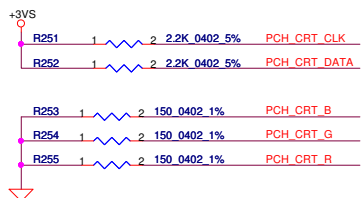
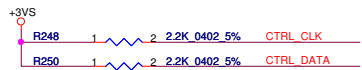
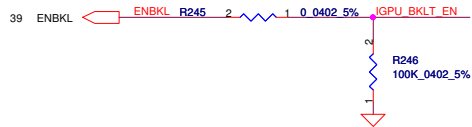
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				Date:	Wednesday, February 16, 2011
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	GPI067
OPTIMUS	0
UMA	1

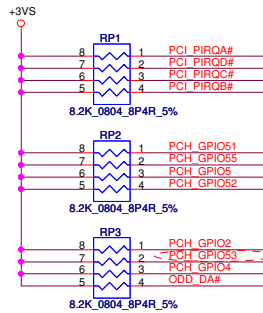




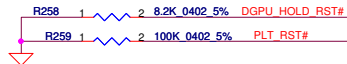


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
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				Size	Rev
				Custom	0.2
				Date:	Wednesday, February 16, 2011
				Sheet	16 of 59

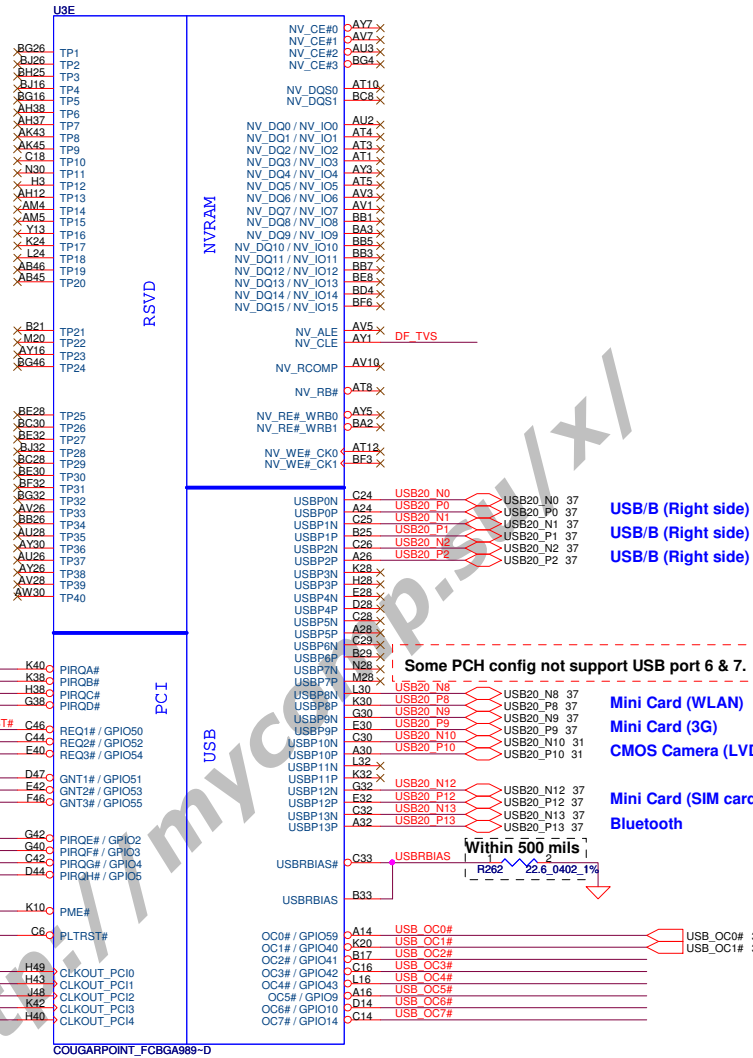
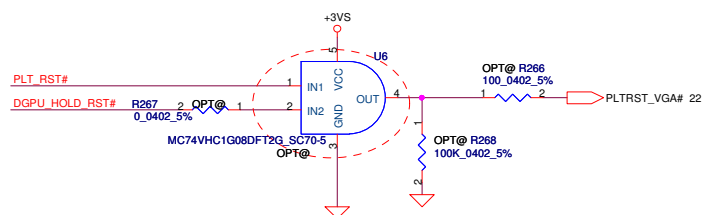
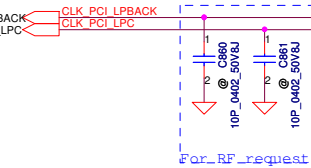




Modify R02

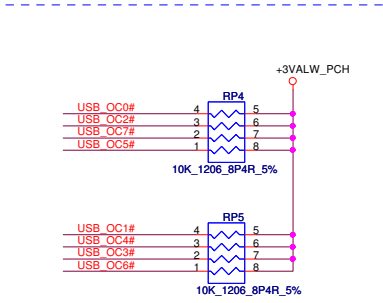
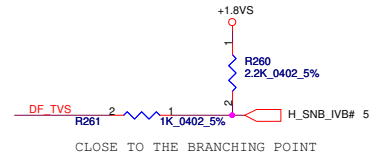


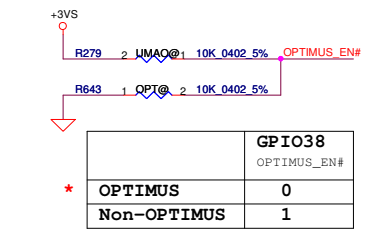
Boot BIOS Strap bit1 BBS1			
Bit11 Bit10		Boot BIOS Destination	
GNT1# / GPIO51	0	1	Reserved
	1	0	PCI
	1	1	SPI
	0	0	LPC



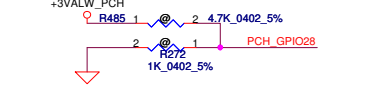
DMI Termination Voltage	
DF_TVSS	Set to Vcc when HIGH
	Set to Vss when LOW

DI1.2 CRB1.0 PH 2.2K series 1K

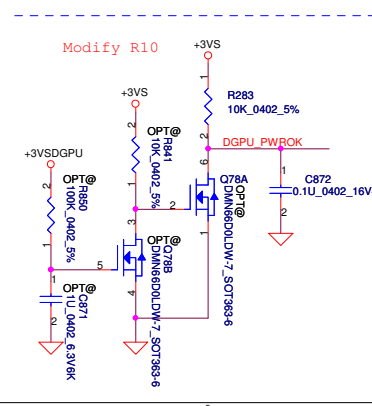
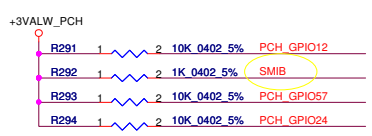
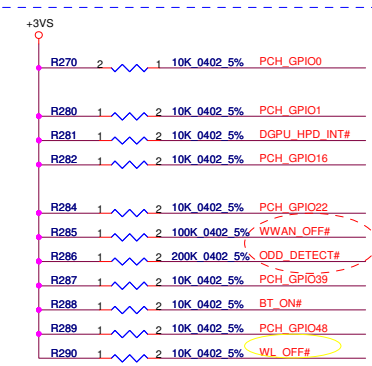
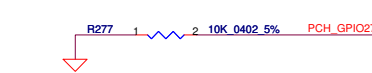




**GPIO38**  
**On-Die PLL Voltage Regulator**  
This signal has a weak internal pull up  
\* H : On-Die PLL voltage regulator enable  
\* L : On-Die PLL Voltage Regulator disable



Deep S4,S5 wake event signal  
RTC alarm,Power BTN,GPIO27  
PCH\_GPIO27 (Have internal Pull-High)  
Deep S4,S5 wake event signal  
No use PD to GND Check list1.0 P.70

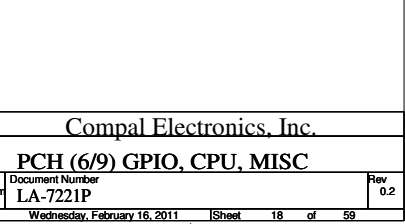
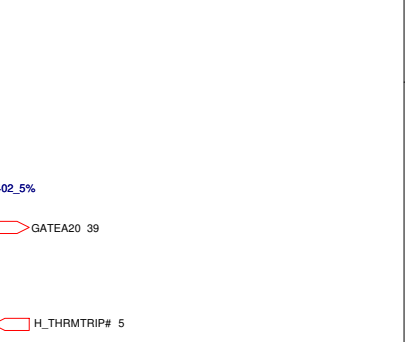
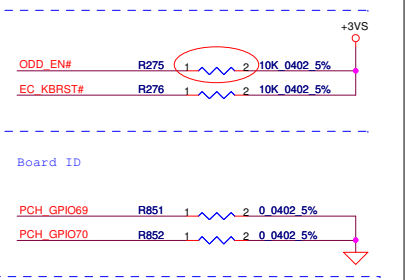
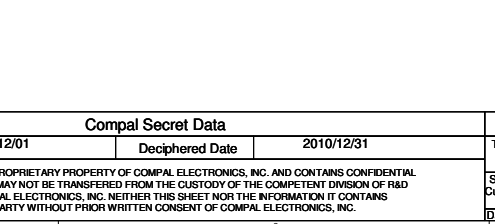
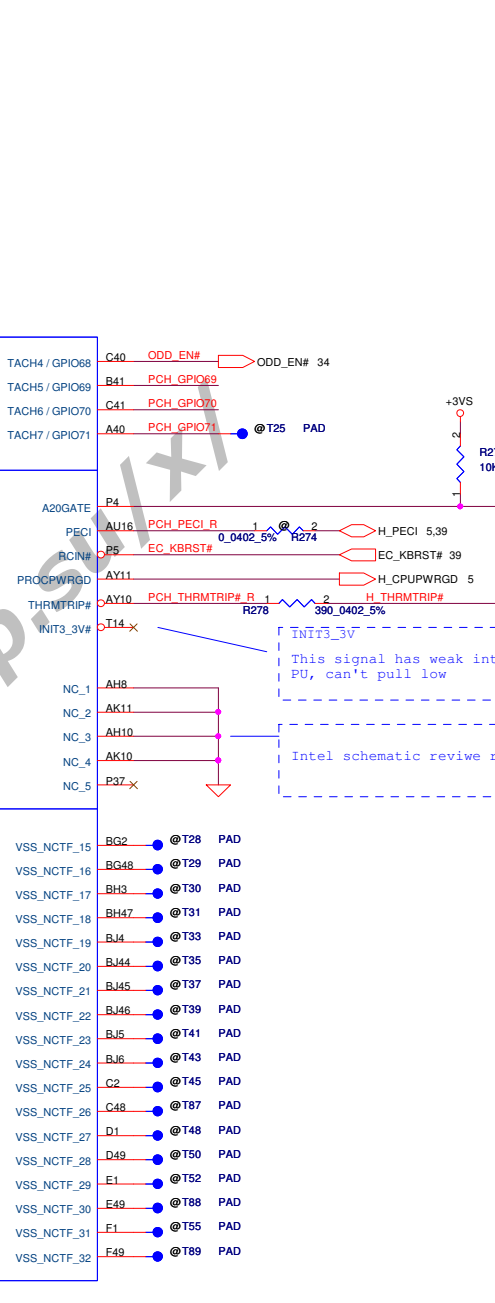
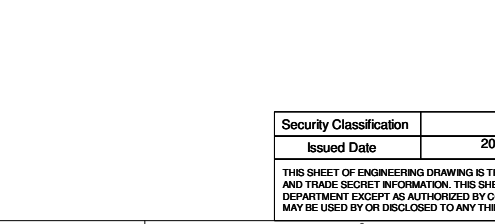
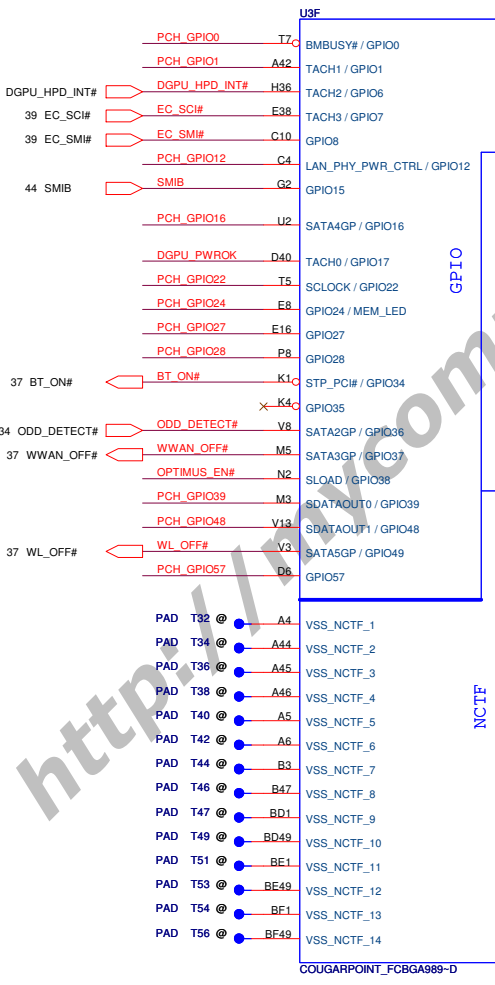
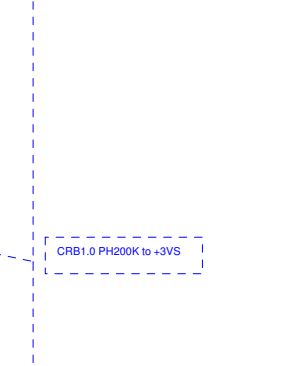


	GPIO38
	OPTIMUS_EN#
* OPTIMUS	0
Non-OPTIMUS	1

**GPIO28**  
**On-Die PLL Voltage Regulator**  
This signal has a weak internal pull up  
\* H : On-Die PLL voltage regulator enable  
\* L : On-Die PLL Voltage Regulator disable

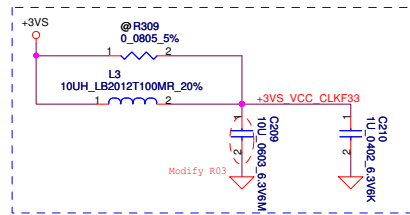


Deep S4,S5 wake event signal  
RTC alarm,Power BTN,GPIO27  
PCH\_GPIO27 (Have internal Pull-High)  
Deep S4,S5 wake event signal  
No use PD to GND Check list1.0 P.70

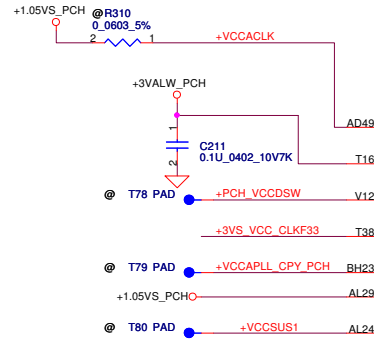


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Have internal VRM



## POWER

USB

Clock and Miscellaneous

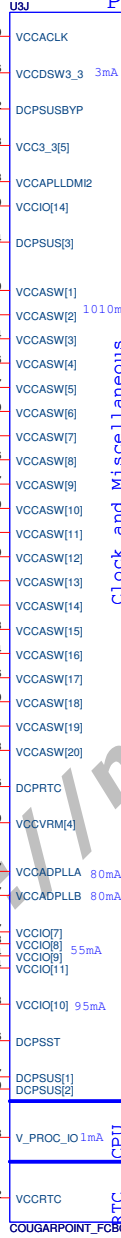
PCI/GPIO/LPC

SATA

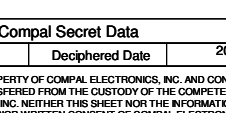
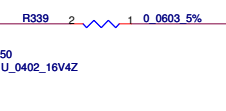
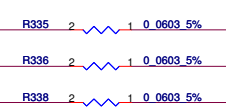
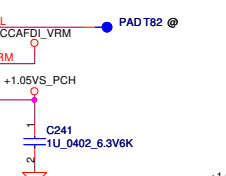
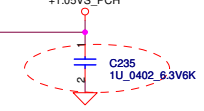
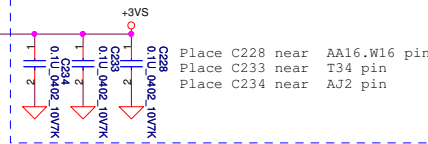
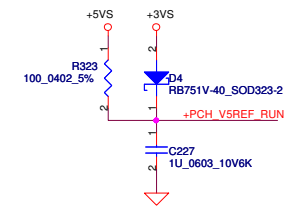
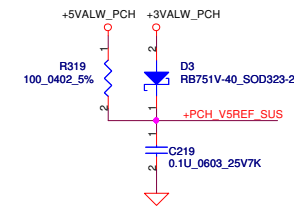
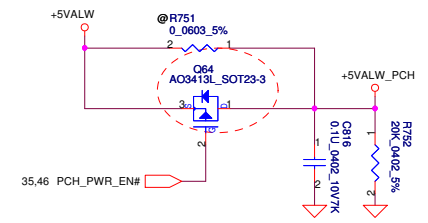
MISC

CPU

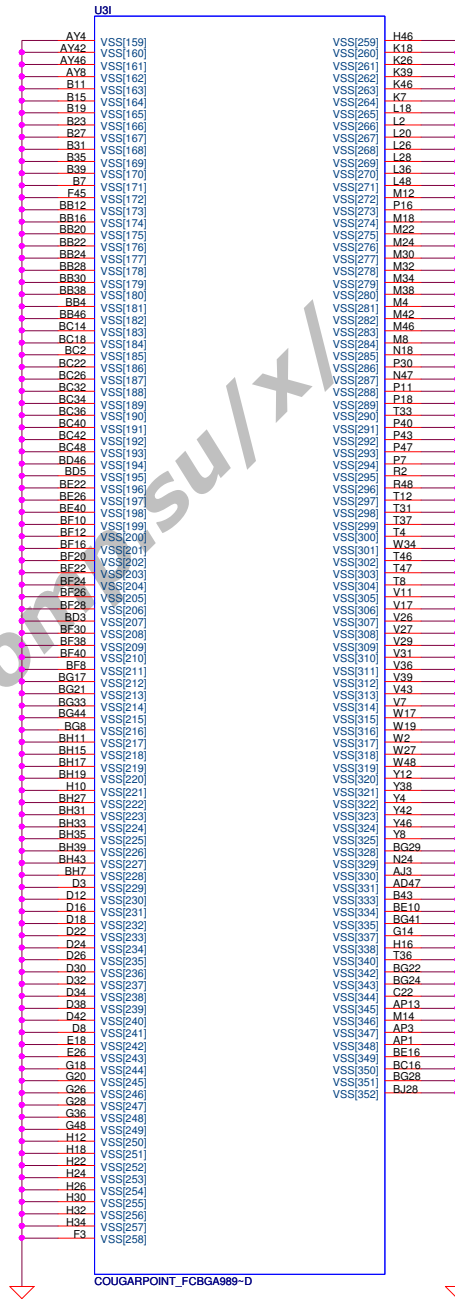
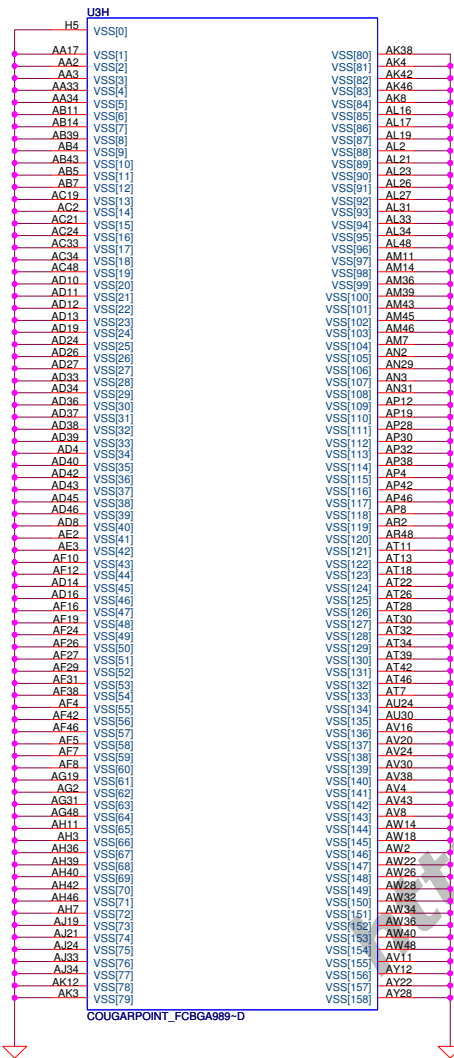
RTC



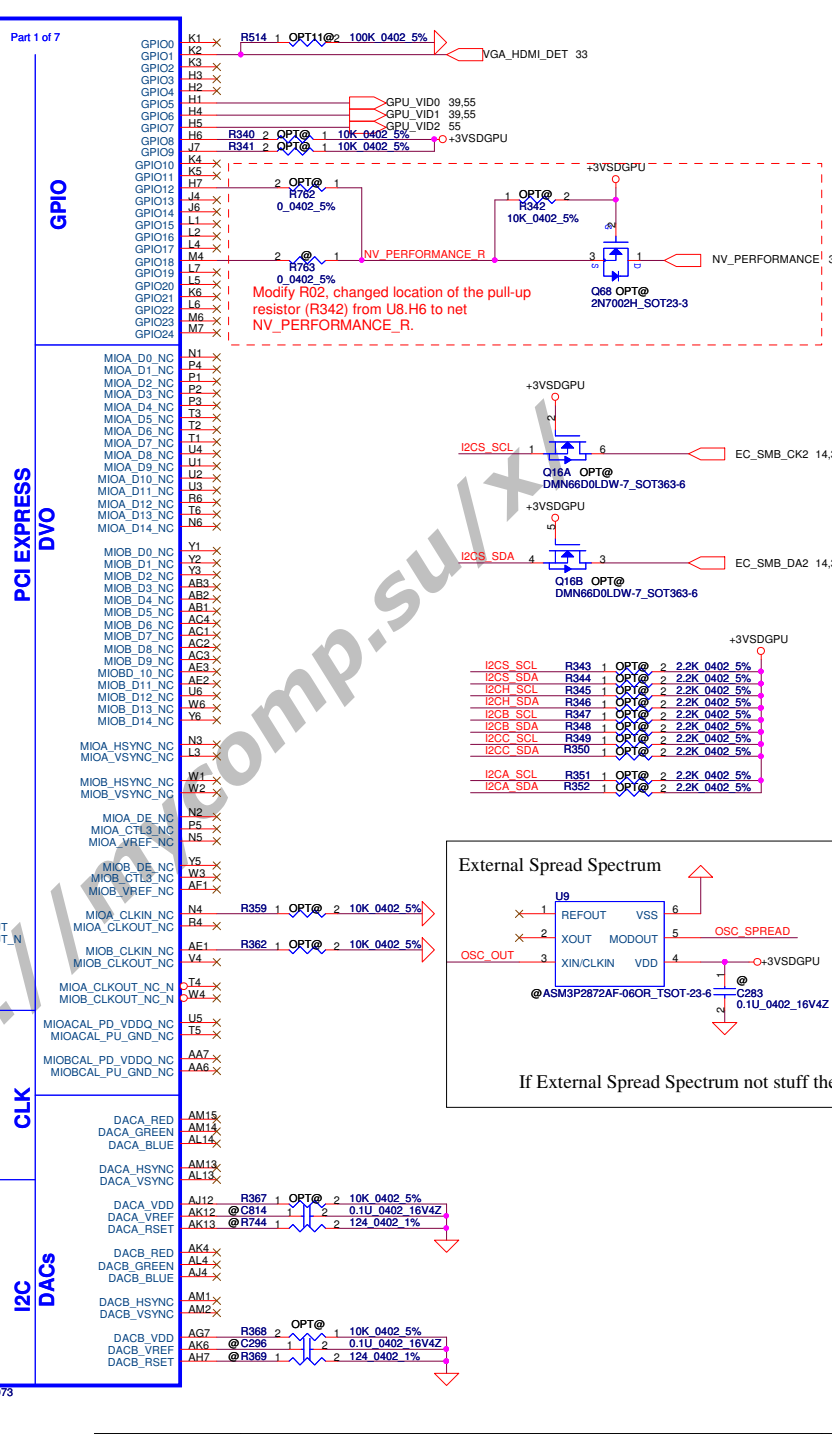
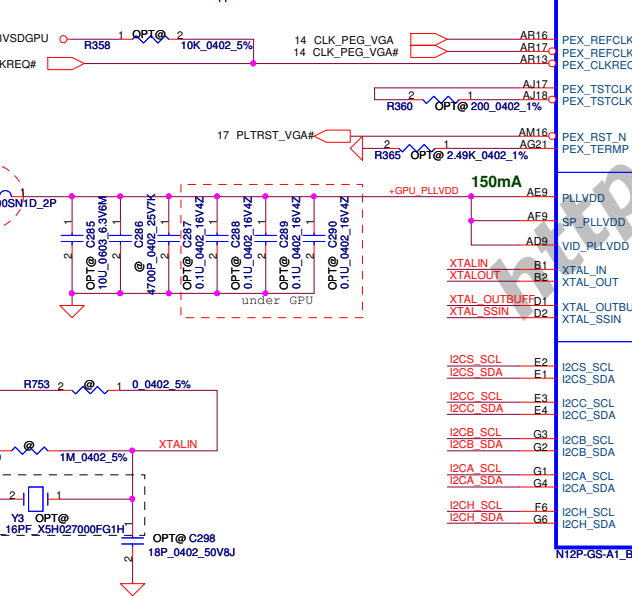
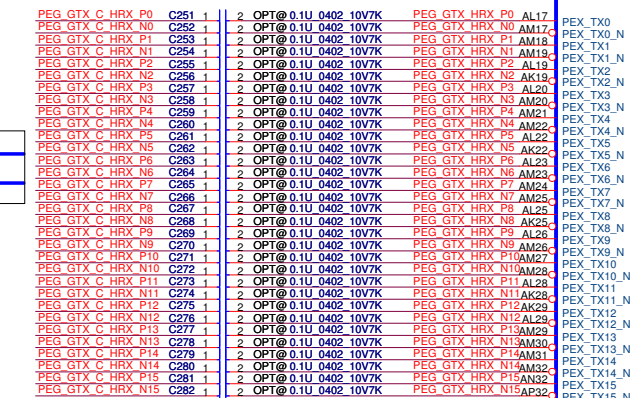
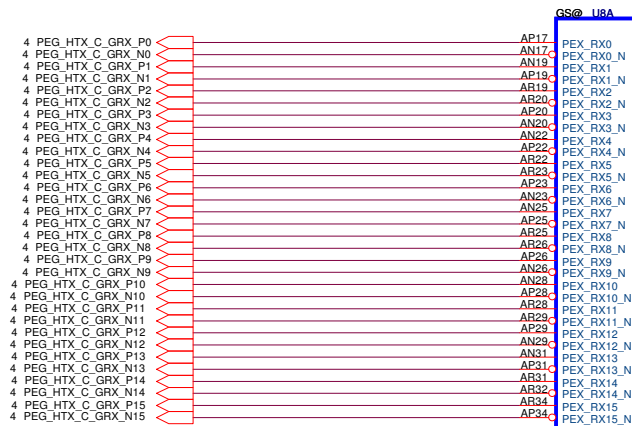
VCC3\_3 = 266mA detal waiting for newest spec  
VCCDMI = 42mA detal waiting for newest spec



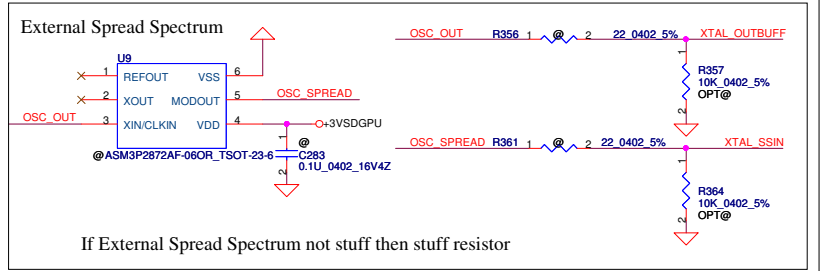
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				Document Number LA-7221P	
				Date: Wednesday, February 16, 2011	Sheet 20 of 59



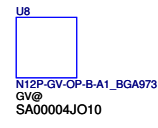
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				Date: Wednesday, February 16, 2011	Rev 0.2
				Sheet 21	of 59



GPIO	I/O	FUNCTION
GPIO1	IN	HPD_C
GPIO5	OUT	GPU_VID0
GPIO6	OUT	GPU_VID1
GPIO7	OUT	GPU_VID2
GPIO8	IN	OVERT
GPIO9	IN	ALERT
GPIO12	IN	AC/DC detection
GPIO18	IN	Reserve for VPS



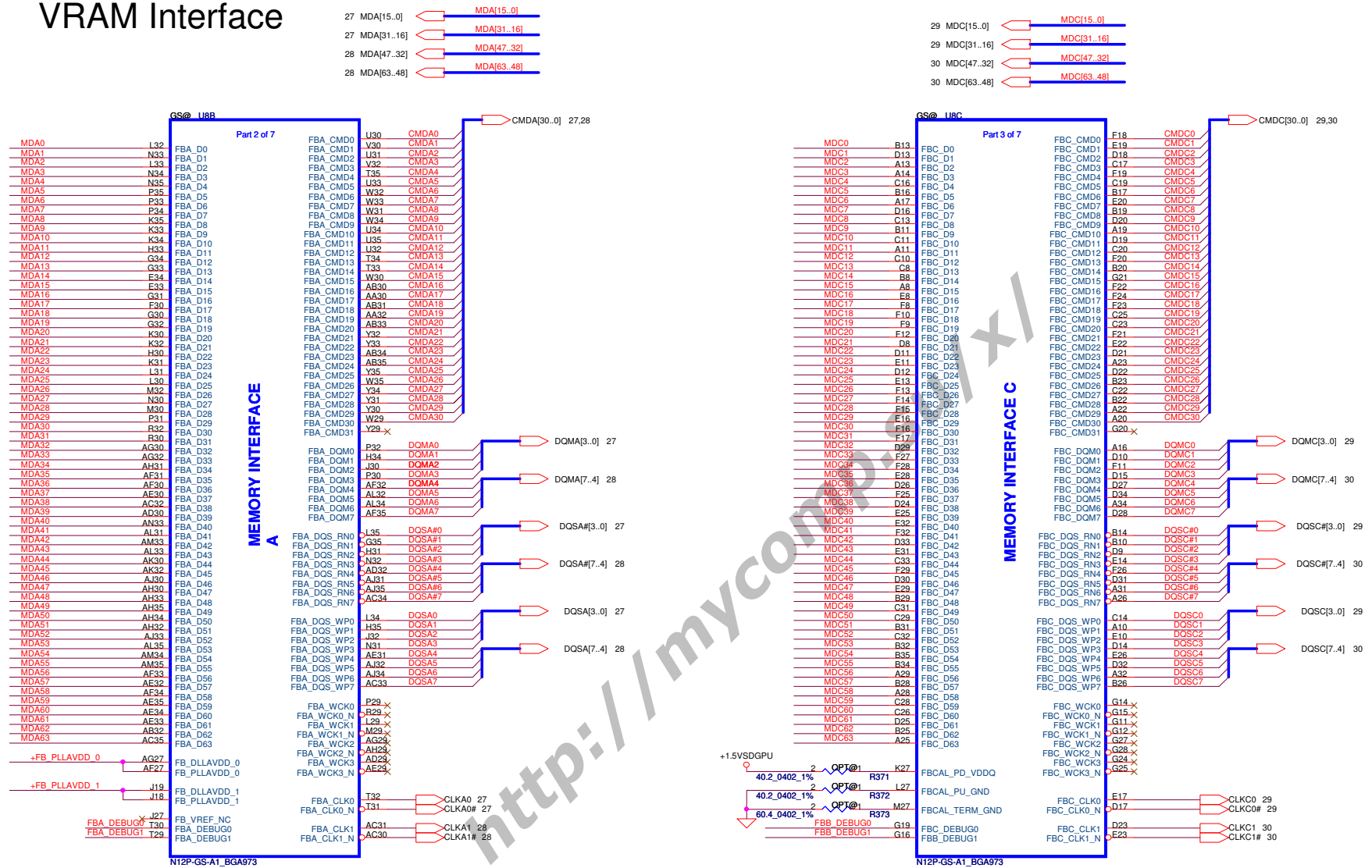
Option Component



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<p>Compal Electronics, Inc.</p> <p>N12P PEG 1/9</p> <p>Size: Custom, Document Number: LA-7221P, Rev: 0.2</p> <p>Date: Wednesday, February 16, 2011, Sheet: 22 of 59</p>			



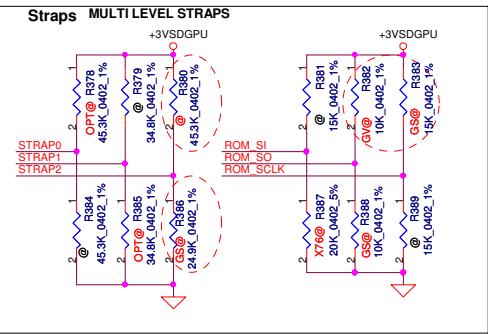
# VRAM Interface



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		2010/11/23		Title	
				N12P VRAM 2/9	
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				Document Number	
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				LA-7221P	
				0.2	
Date:				Wednesday, February 16, 2011	
Sheet				23 of 59	

N12P-GV QS DevID: 0xi050, detail  
additional strap setting, please refer  
to N12P-GV DG and PUN-05515-001\_v03

1. ROM\_SCLK: pull up 5K ohm.
2. STRAP2: pull down 5K ohm.
3. ROM\_SO: pull up 10K ohm.
4. STRAP3: pull down 5K ohm.
5. STRAP4: pull down 10K ohm.
6. STRAP\_REF2, need to stuff with 40K ohm 1%.
7. PGOOD (pin E7) stuff 10K ohm.



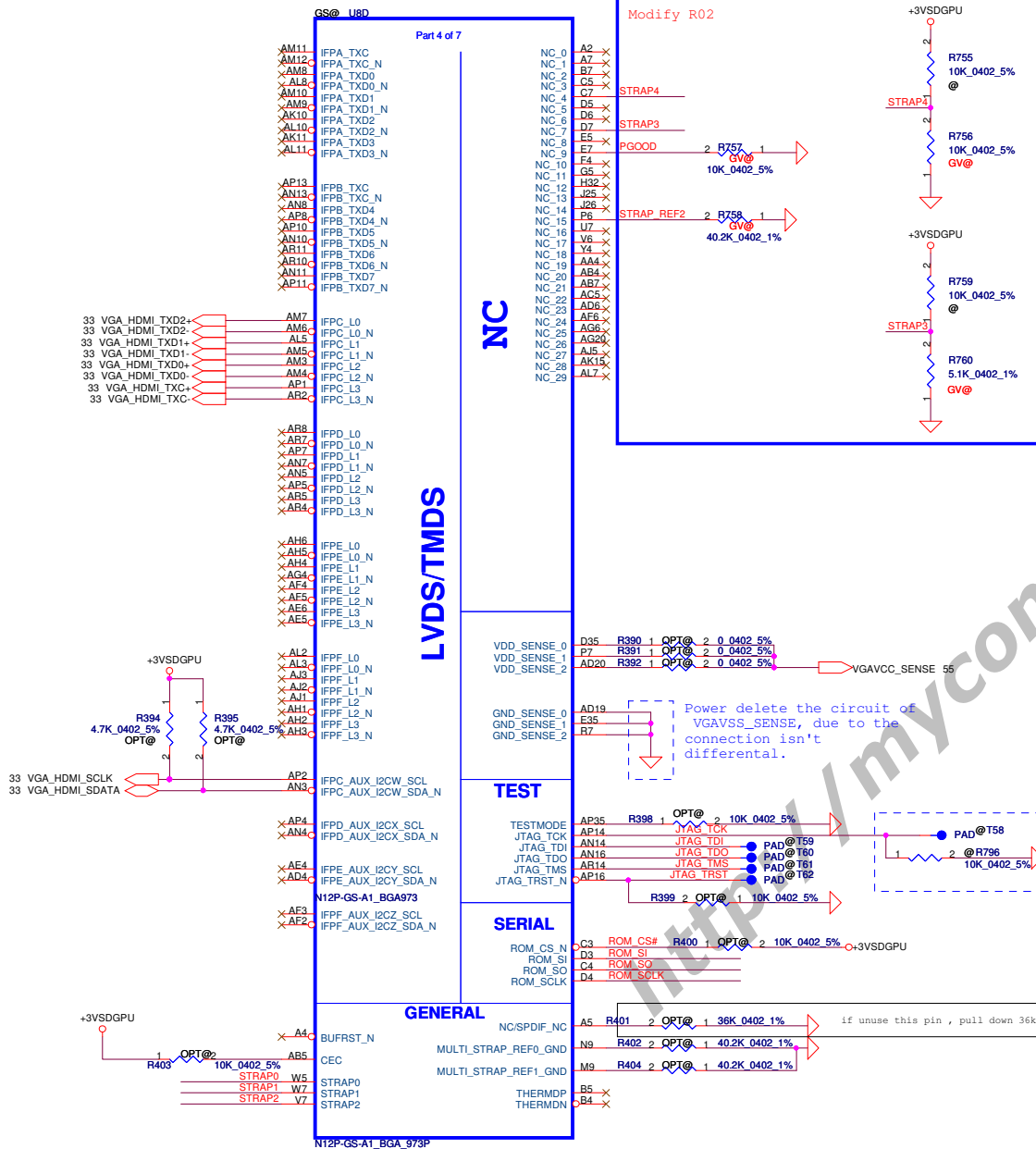
N11P-GS	strap0	strap1	strap2	ROM_Sl	ROM_SO	ROM_SCLK
64MX16 Samsung SA00004GS10	H 45K	L 35K	L 25k(GS@) L 5k (GV@)	L 20K	H (GV@) L (GS@)	H 15K(GS@) H 5K(GV@)
64MX16 Hynix SA000041S40	H 45K	L 35K	L 25k(GS@) L 5k (GV@)	L 15K	H (GV@) L (GS@)	H 15K(GS@) H 5K(GV@)
128MX16 Samsung SA00003MQ60	H 45K	L 35K	L 25k(GS@)	L 45K	H (GV@) L (GS@)	H 15K(GS@)
128MX16 Hynix SA00003VS10	H 45K	L 35K	L 25k(GS@)	L 35K	H (GV@) L (GS@)	H 15K(GS@)

Resistor Values	Pull-up to +3VS	Pull-down to Gnd
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

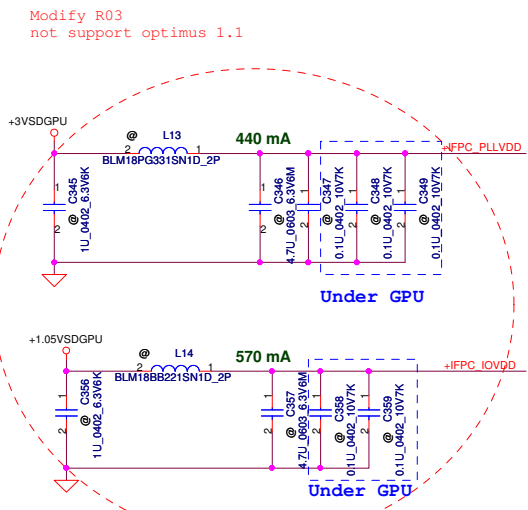
GPU	DeviceID	ROM_SCLK	STRAP2
N12P-GS	0x0DF4	Pull up 15K	Pull down 25K
N12P-GE	0x0DF5	Pull up 15K	Pull down 30K
N12P-GV	0x1050	Pull up 5K	Pull down 5K

Hynix (900MHZ) 64MX16 H5TQ1G63DFR-11C SA000041S40	512MB	0010	PD 15K (SD034150280)
	1GB	0010	PD 15K (SD034150280)
Hynix 2G 128MX16 H5TQ2G63BFR-12C SA00003VS10	2GB	0110	PD 34.8k (SD034348280)
Samsung (900MHZ) 64MX16 K4W1G1646G-BC11 SA00004GS10	512MB	0011	PD 20K (SD028200280)
	1GB	0011	PD 20K (SD028200280)
Samsung 2G 128M16 K4W2G1646C-HC12 SA00003MQ60	2GB	0111	PD 45.3K (SD034453280)

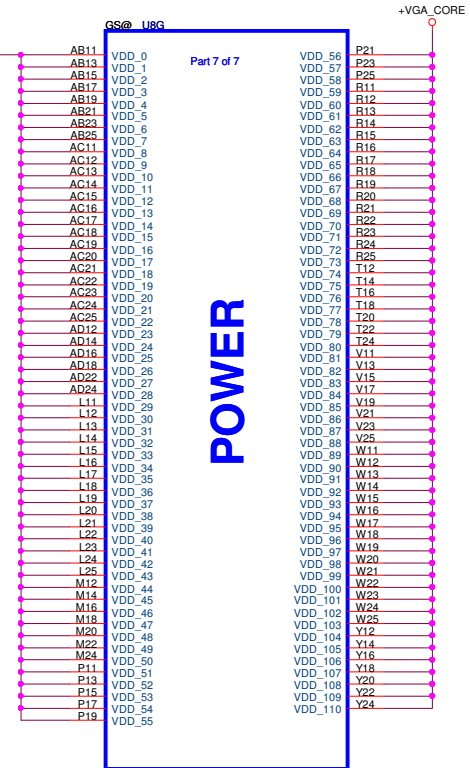
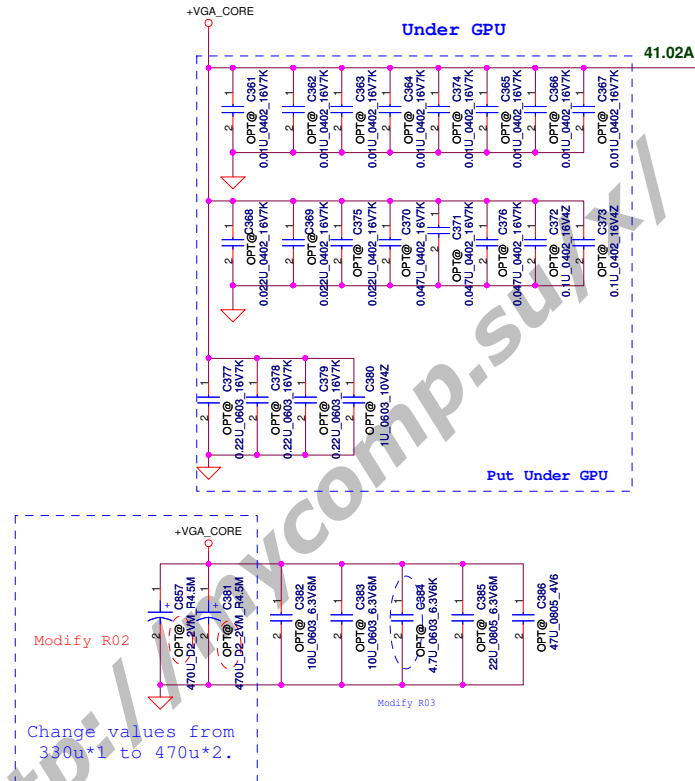
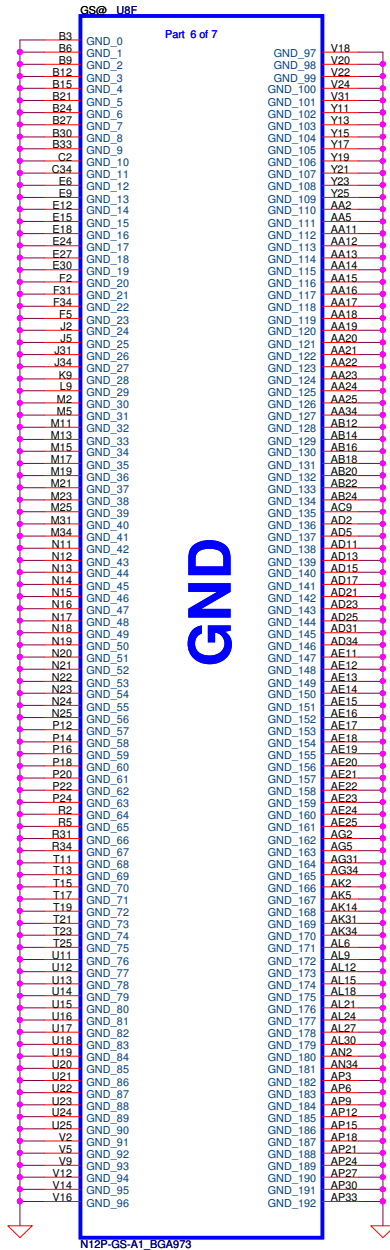
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Issued Date	2009/11/23	Deciphered Date	2010/11/23	Title	N12P LVDS 3/9	
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Issued Date	2009/11/23	Deciphered Date	2010/11/23	Title	N12P POWER & GND 4/9	
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					LA-721P	0.2
				Date:	Wednesday, February 16, 2011	Sheet 25 of 59



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Issued Date	2010/09/28	Deciphered Date	2011/09/28	N12P POWER & GND 5/9	
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				Date	Wednesday, February 16, 2011
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				Rev	0.2

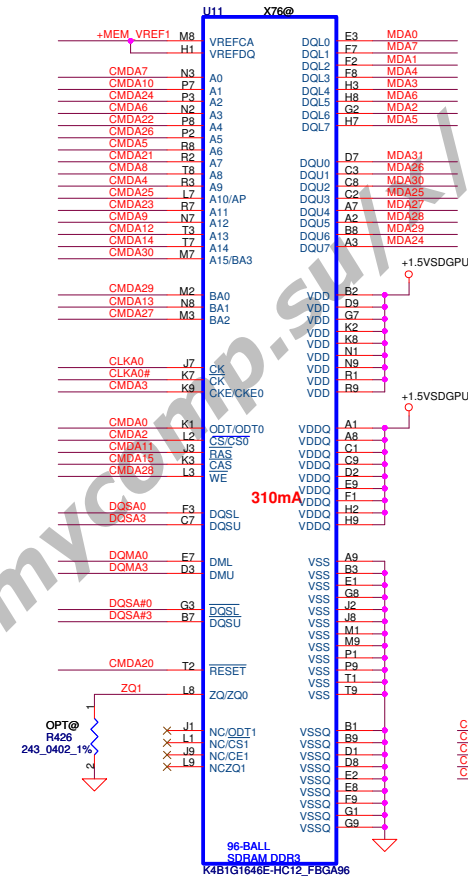
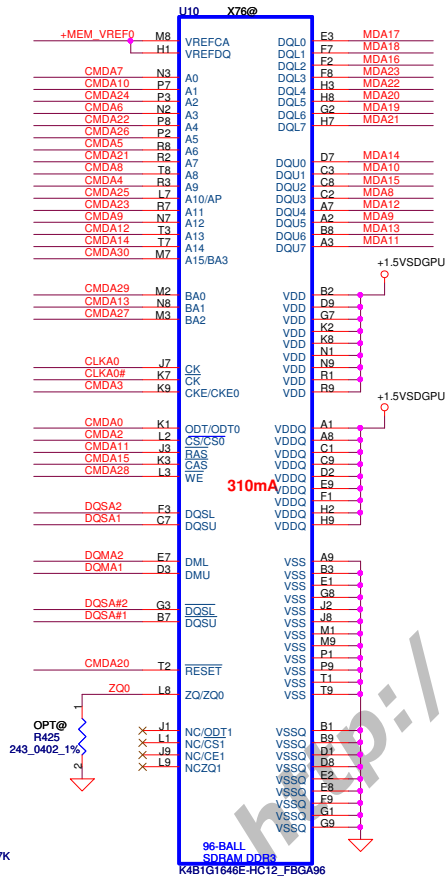
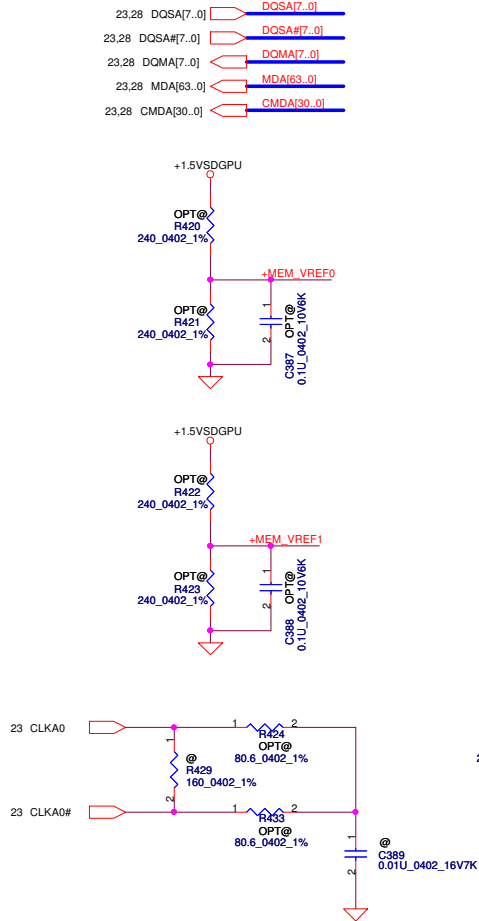
# VRAM DDR3 chips (GS=1GB, GV=512M)

128Mx16 DDR3\*8==>2GB (GS)

64Mx16 DDR3\*8==>1GB (GS)

64Mx8 DDR3\*4==>512M

(The 512M DDR3\*4 are used at MEMORY INTERFACE A for GV)



CMDA3 R427 1 OPT@ 2 10K 0402 5%  
CMDA0 R428 1 OPT@ 2 10K 0402 5%  
CMDA16 R430 1 OPT@ 2 10K 0402 5%  
CMDA20 R431 1 OPT@ 2 10K 0402 5%  
CMDA19 R432 1 OPT@ 2 10K 0402 5%

Command Bit	Default Pull-down
ODTx	10k
CREx	10k
RST	10k
CS*	No Termination

Samsung :  
SA00004GS10 (S IC D3 64M16 K4W1G1646G-BC11 FBGA ABO! )  
SA000047Q20 (S IC D3 128M16 K4W2G1646C-HC11 FBGA 96P ABO! )  
Hynix :  
SA000041S40 (S IC D3 64Mx16 H5TQ1G63DFR-11C FBGA ABO! )  
SA00003YO20 (S IC D3 128M16 H5TQ2G63BFR-11C FBGA ABO! )

**Mode E Address	Mode C Address	0..31	32..63
CMD3	CMD0	CKE_L	
CMD8	CMD1	A8	A8
CMD2	CMD2	CS0_L#	
CMD21	CMD3	A7	A6
CMD24	CMD4	A2	A1
CMD23	CMD5	A11	A9
CMD26	CMD6	A5	A4
CMD7	CMD7	A0	A12
CMD15	CMD8	CAS*	CAS*
CMD13	CMD9	BA1	A3
CMD4	CMD10	A9	A11
CMD18	CMD11	CS0_H#	
CMD29	CMD12	BA0	BA0
CMD27	CMD13	BA2	A15
CMD6	CMD14	A3	BA1
CMD17	CMD15	CS1_H#	
CMD19	CMD16	ODT_H	
CMD22	CMD17	A4	A5
CMD12	CMD18	A13	A14
CMD28	CMD19	WE*	A10
CMD10	CMD20	A1	A2
CMD25	CMD21	A10	WE*
CMD9	CMD22	A12	A0
CMD1	CMD23	CS1_L#	
CMD11	CMD24	RAS*	RAS*
CMD0	CMD25	ODT_L	
CMD5	CMD26	A6	A7
CMD16	CMD27	CKE_H	
CMD20	CMD28	RST	RST
CMD14	CMD29	A14	A13
CMD30	CMD30	A15	BA2
CMD31	Not Available		

LOW HIGH

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		Size	Document Number
		Custom	LA-7221P
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		Rev	0.2

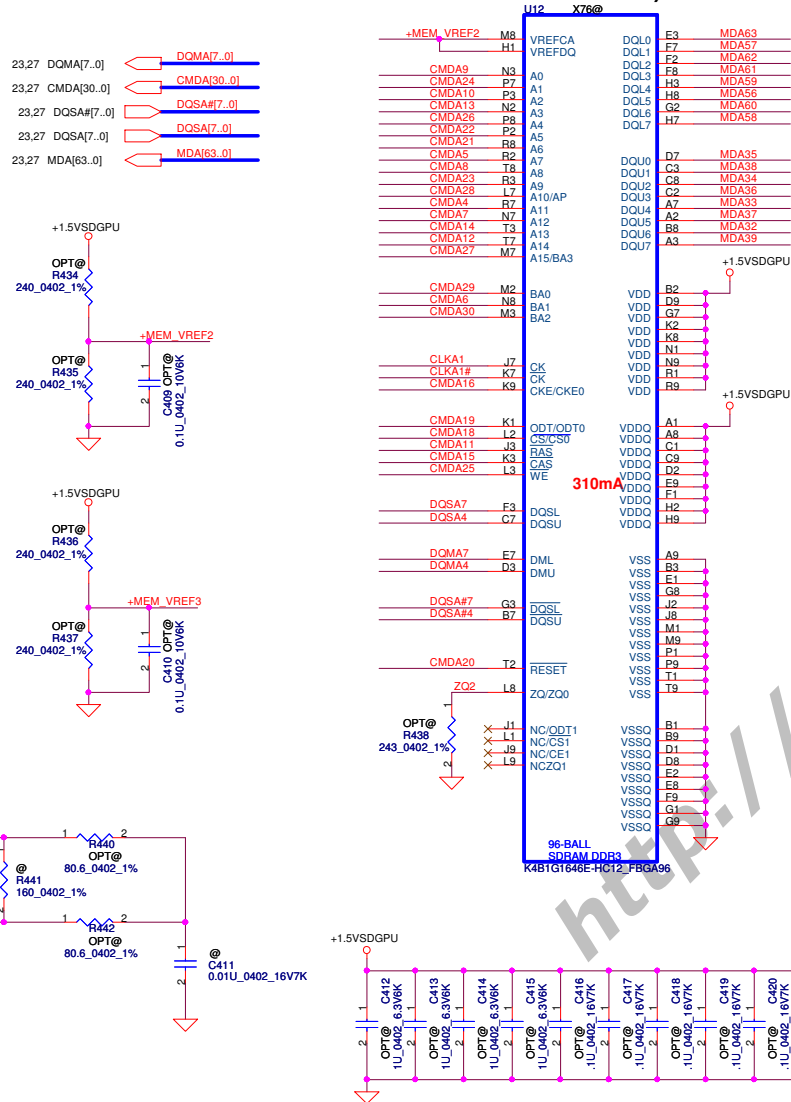
# VRAM DDR3 chips (GS=1GB, GV=512M)

128Mx16 DDR3\*8==>2GB (GS)

64Mx16 DDR3\*8==>1GB (GS)

64Mx8 DDR3\*4==>512M

(The 512M DDR3\*4 are used at MEMORY INTERFACE A for GV)



Mode B Address	Mode C Address	0..31	32..63
CMD3	CMD0	CKE_L	
CMD8	CMD1	A8	A8
CMD2	CMD2	CS0_L#	
CMD21	CMD3	A7	A6
CMD24	CMD4	A2	A1
CMD23	CMD5	A11	A9
CMD26	CMD6	A5	A4
CMD7	CMD7	A0	A12
CMD15	CMD8	CAS*	CAS*
CMD13	CMD9	BA1	A3
CMD4	CMD10	A9	A11
CMD18	CMD11		CS0_H#
CMD29	CMD12	BA0	BA0
CMD27	CMD13	BA2	A15
CMD6	CMD14	A3	BA1
CMD17	CMD15		CS1_H#
CMD19	CMD16		ODT_H
CMD22	CMD17	A4	A5
CMD12	CMD18	A13	A14
CMD28	CMD19	WE*	A10
CMD10	CMD20	A1	A2
CMD25	CMD21	A10	WE*
CMD9	CMD22	A12	A0
CMD1	CMD23	CS1_L#	
CMD11	CMD24	RAS*	RAS*
CMD0	CMD25	ODT_L	
CMD5	CMD26	A6	A7
CMD16	CMD27		CKE_H
CMD20	CMD28	RST	RST
CMD14	CMD29	A14	A13
CMD30	CMD30	A15	BA2
CMD31	Not Available		

LOW HIGH

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Issued Date	2009/11/23	Deciphered Date	2010/11/23	Title	
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				Size	Rev
				Customer	0.2
				Date	Wednesday, February 16, 2011
				Sheet	28 of 59

# VRAM DDR3 chips (GS=1GB, GV=512M)

128Mx16 DDR3\*8==>2GB (GS)

64Mx16 DDR3\*8==>1GB (GS)

Mode E Address	Mode C Address	0..31	32..63
CMD3	CMD0	CKE_L	
CMD8	CMD1	A8	A8
CMD2	CMD2	CS0_L#	
CMD21	CMD3	A7	A6
CMD24	CMD4	A2	A1
CMD23	CMD5	A11	A9
CMD26	CMD6	A5	A4
CMD7	CMD7	A0	A12
CMD15	CMD8	CAS*	CAS*
CMD13	CMD9	BA1	A3
CMD4	CMD10	A9	A11
CMD18	CMD11		CS0_H#
CMD29	CMD12	BA0	BA0
CMD27	CMD13	BA2	A15
CMD6	CMD14	A3	BA1
CMD17	CMD15		CS1_H#
CMD19	CMD16		ODT_H
CMD22	CMD17	A4	A5
CMD12	CMD18	A13	A14
CMD28	CMD19	WE*	A10
CMD10	CMD20	A1	A2
CMD25	CMD21	A10	WE*
CMD9	CMD22	A12	A0
CMD1	CMD23	CS1_L#	
CMD11	CMD24	RAS*	RAS*
CMD0	CMD25	ODT_L	
CMD5	CMD26	A6	A7
CMD16	CMD27		CKE_H
CMD20	CMD28	RST	RST
CMD14	CMD29	A14	A13
CMD30	CMD30	A15	BA2
CMD31	Not Available		
		LOW	HIGH

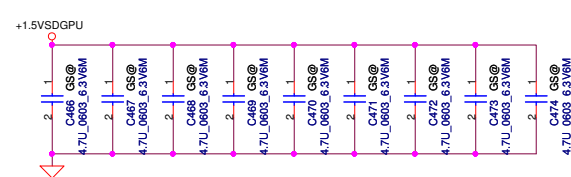
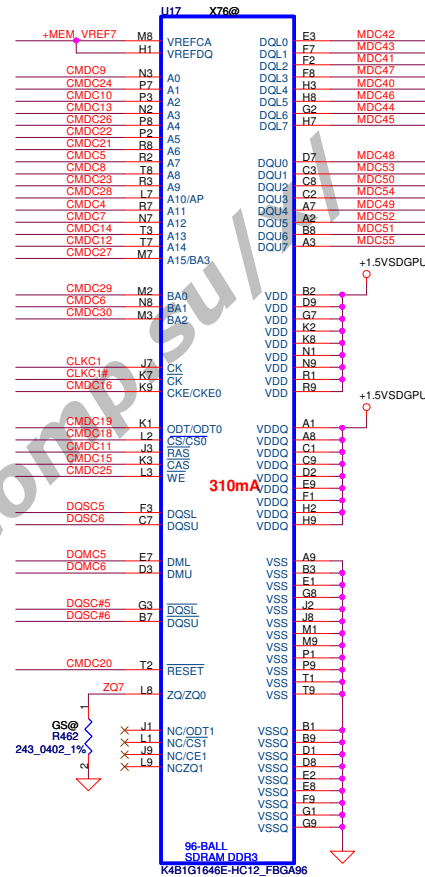
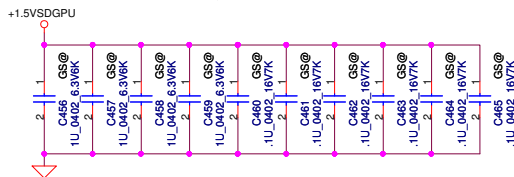
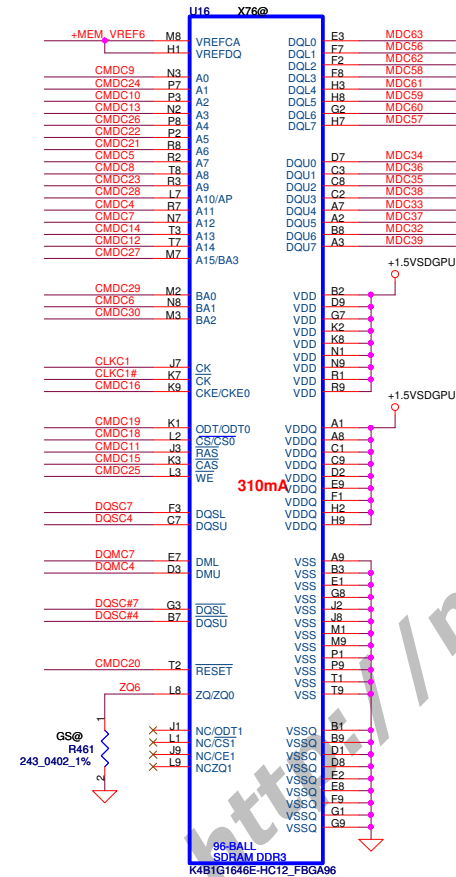
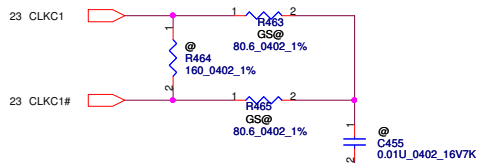
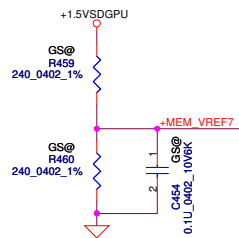
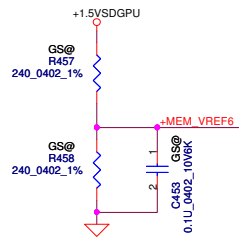
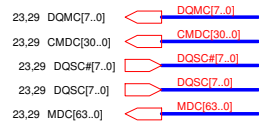
	Command Bit	Default Pull-downs
DDR3	ODTx	10k
	CKEx	10k
	RST	10k
	CS*	No Termination

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				Custom	LA-7221P	0.2
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# VRAM DDR3 chips (GS=1GB, GV=512M)

128Mx16 DDR3\*8==>2GB (GS)

64Mx16 DDR3\*8==>1GB (GS)



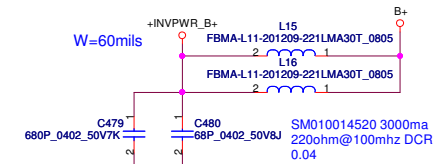
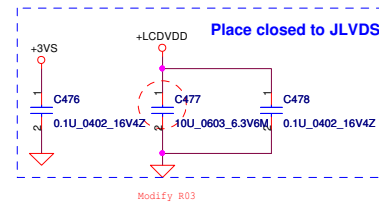
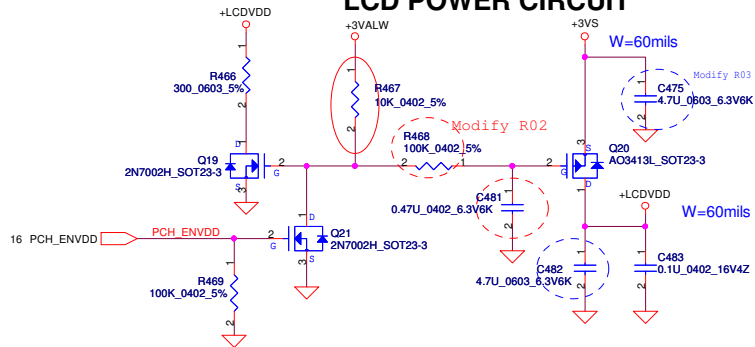
Mode E Address	Mode C Address	0..31	32..63
CMD3	CMD0	CKE_L	
CMD8	CMD1	A8	A8
CMD2	CMD2	CS0_L#	
CMD21	CMD3	A7	A6
CMD24	CMD4	A2	A1
CMD23	CMD5	A11	A9
CMD26	CMD6	A5	A4
CMD7	CMD7	A0	A12
CMD15	CMD8	CAS*	CAS*
CMD13	CMD9	BA1	A3
CMD4	CMD10	A9	A11
CMD18	CMD11		CS0_H#
CMD29	CMD12	BA0	BA0
CMD27	CMD13	BA2	A15
CMD6	CMD14	A3	BA1
CMD17	CMD15		CS1_H#
CMD19	CMD16		ODT_H
CMD22	CMD17	A4	A5
CMD12	CMD18	A13	A14
CMD28	CMD19	WE*	A10
CMD10	CMD20	A1	A2
CMD25	CMD21	A10	WE*
CMD9	CMD22	A12	A0
CMD1	CMD23	CS1_L#	
CMD11	CMD24	RAS*	RAS*
CMD0	CMD25	ODT_L	
CMD5	CMD26	A6	A7
CMD16	CMD27		CKE_H
CMD20	CMD28	RST	RST
CMD14	CMD29	A14	A13
CMD30	CMD30	A15	BA2
CMD31	Not Available		

LOW HIGH

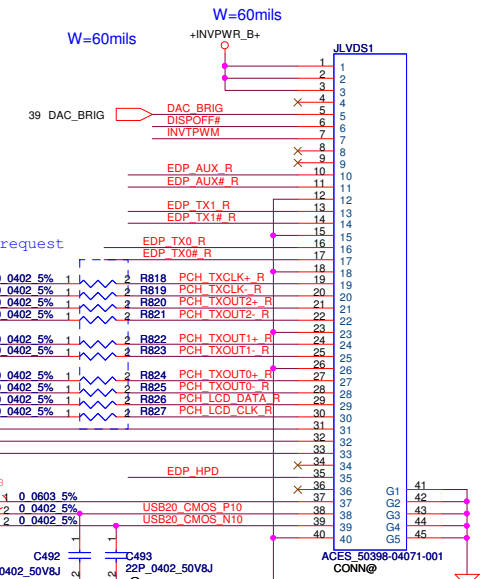
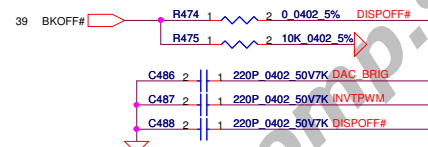
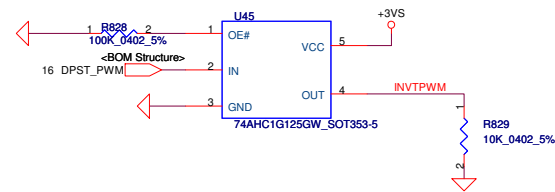
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				Size Document Number
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				Date: Wednesday, February 16, 2011
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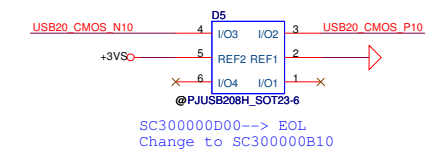
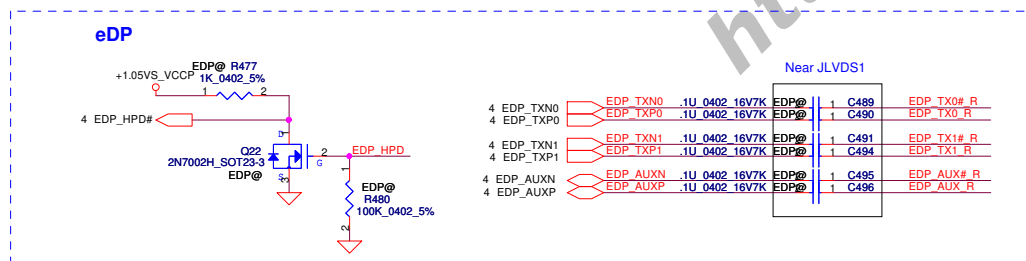
## LCD POWER CIRCUIT



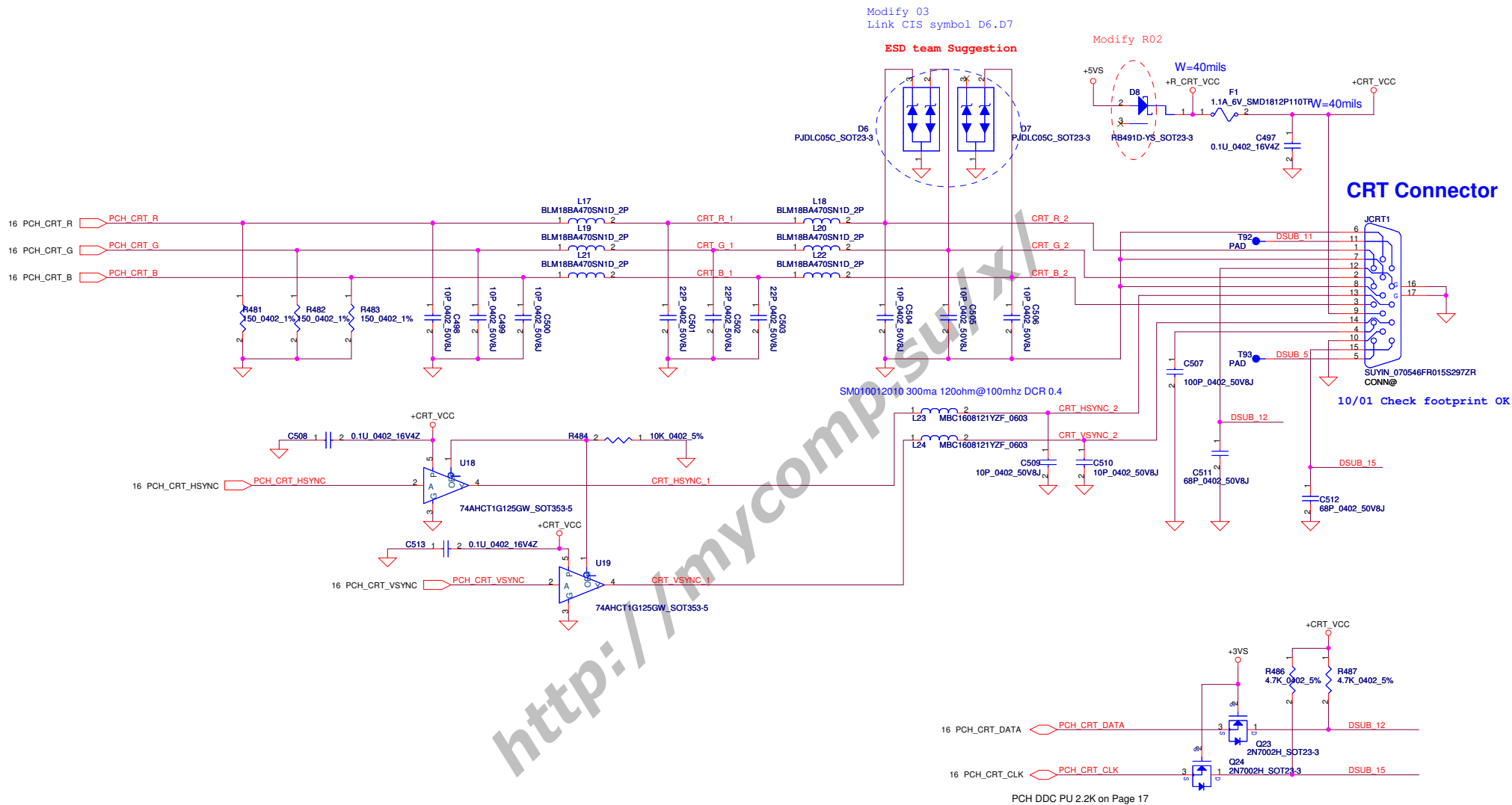
**LCD/LED PANEL Conn.**



10/01 Check footprint OK

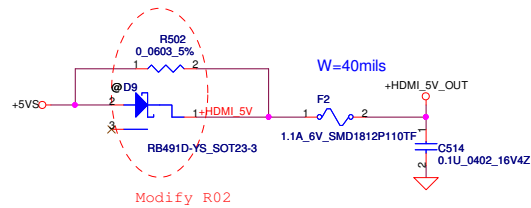


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				Size	Document Number	Rev
				Customer	LA-7221P	0.2
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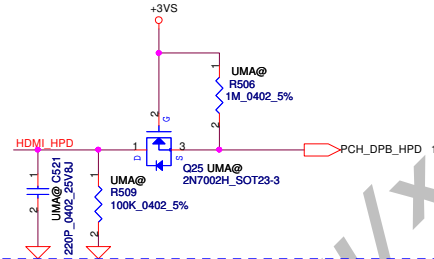
### UMA & Optimus 1.0

16 PCH_DPB_N0	C515	UMA@	2	1	1U 0402 16V7K	HDMI TX2-
16 PCH_DPB_P0	C516	UMA@	2	1	1U 0402 16V7K	HDMI TX2+
16 PCH_DPB_N1	C517	UMA@	2	1	1U 0402 16V7K	HDMI TX1-
16 PCH_DPB_P1	C518	UMA@	2	1	1U 0402 16V7K	HDMI TX1+
16 PCH_DPB_N2	C519	UMA@	2	1	1U 0402 16V7K	HDMI TX0-
16 PCH_DPB_P2	C520	UMA@	2	1	1U 0402 16V7K	HDMI TX0+
16 PCH_DPB_N3	C522	UMA@	2	1	1U 0402 16V7K	HDMI CLK-
16 PCH_DPB_P3	C523	UMA@	2	1	1U 0402 16V7K	HDMI CLK+

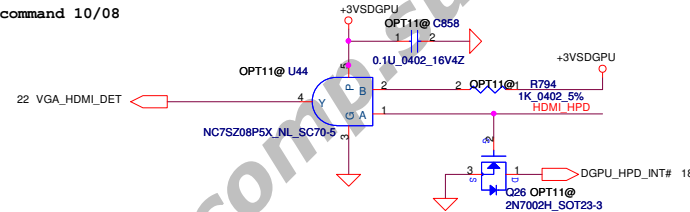
### Optimus 1.1

24 VGA_HDMI_TXD2-	C524	OPT11@	2	1	1U 0402 16V7K	HDMI TX2-
24 VGA_HDMI_TXD2+	C525	OPT11@	2	1	1U 0402 16V7K	HDMI TX2+
24 VGA_HDMI_TXD1-	C526	OPT11@	2	1	1U 0402 16V7K	HDMI TX1-
24 VGA_HDMI_TXD1+	C527	OPT11@	2	1	1U 0402 16V7K	HDMI TX1+
24 VGA_HDMI_TXD0-	C528	OPT11@	2	1	1U 0402 16V7K	HDMI TX0-
24 VGA_HDMI_TXD0+	C529	OPT11@	2	1	1U 0402 16V7K	HDMI TX0+
24 VGA_HDMI_TXC-	C530	OPT11@	2	1	1U 0402 16V7K	HDMI CLK-
24 VGA_HDMI_TXC+	C531	OPT11@	2	1	1U 0402 16V7K	HDMI CLK+

### UMA/OPT1.0

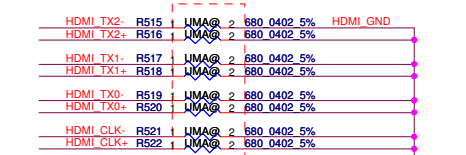
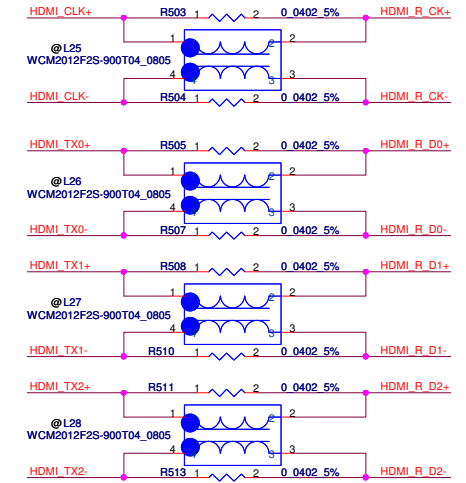


### NVIDIA Recommend 10/08 OPT1.1



Modify 03  
Link CIS symbol L25.L26.L27.L28

SM070001310 400ma 90ohm@100mhz DCR 0.3

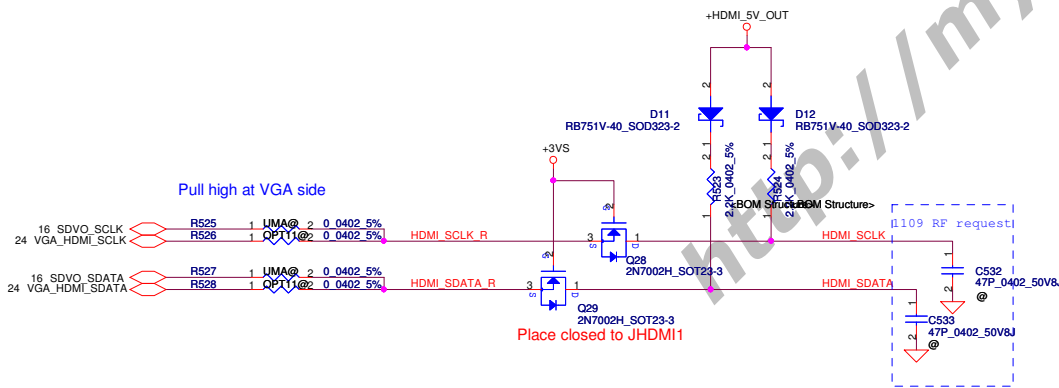


Optimus 1.0--> 680\_0402\_5%  
Optimus 1.1--> 499\_0402\_1%

### Optimus 1.1 Option Component

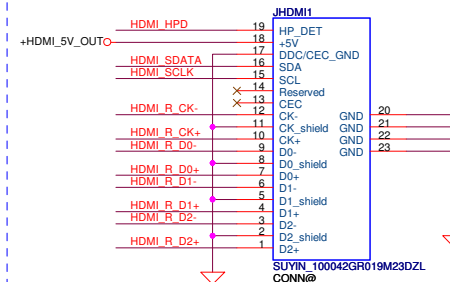
R515	2	OPT11@	499	0402	1%
R516	2	OPT11@	499	0402	1%
R517	2	OPT11@	499	0402	1%
R518	2	OPT11@	499	0402	1%
R519	2	OPT11@	499	0402	1%
R520	2	OPT11@	499	0402	1%
R521	2	OPT11@	499	0402	1%
R522	2	OPT11@	499	0402	1%

Pull high at VGA side



Place closed to JHDMI1

### HDMI connector



10/13 Link CIS symbol OK!

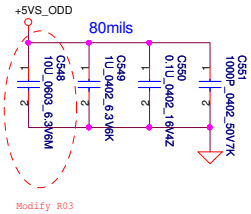
Modify R02  
SDVO\_CTRL.DATA strap pull high at PCH side

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Size	Custom	Document Number	LA-7221P	Rev
Date:	Wednesday, February 16, 2011	Sheet	33	of 59

## CL 4.0 mm



JODD1

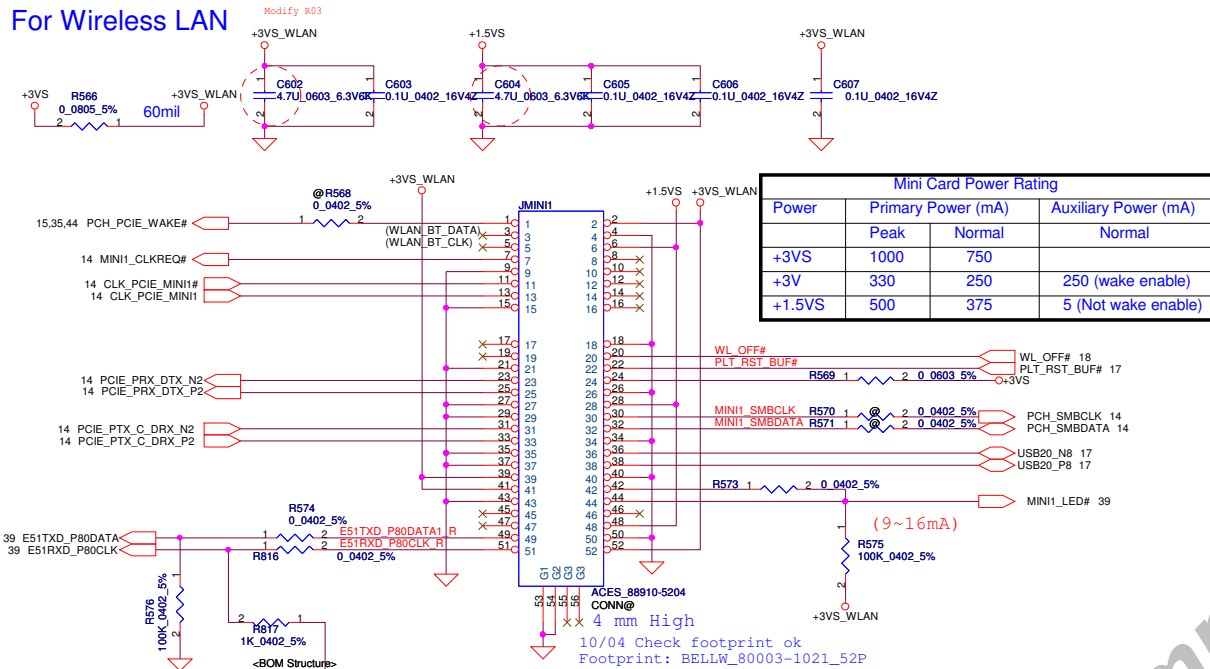


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Issued Date	2008/08/10	Deciphered Date	2010/08/01	Title HDD & ODD Connector		
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				Customer	LA-7221P	

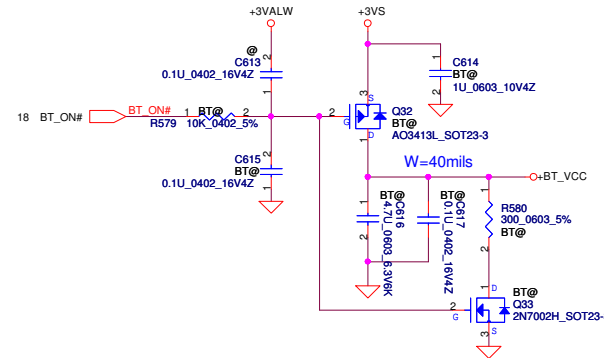
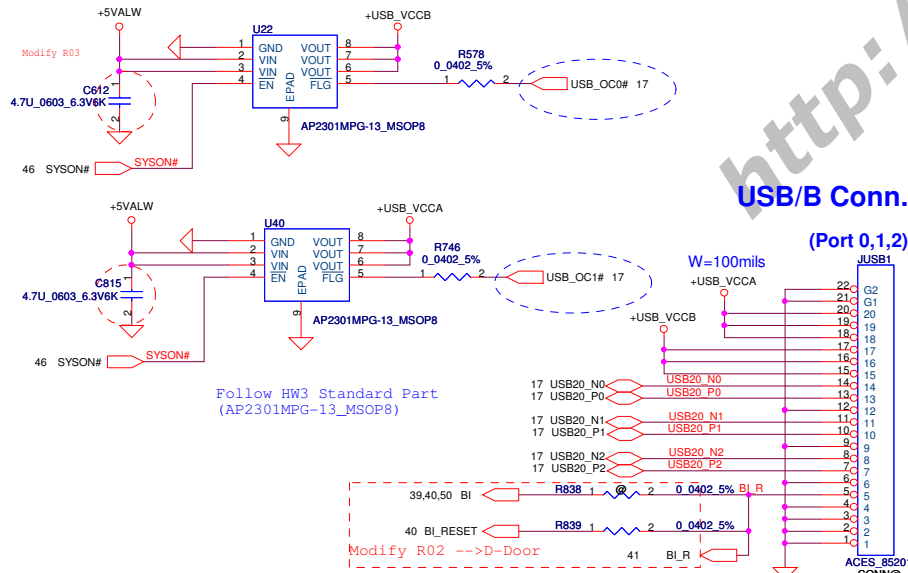
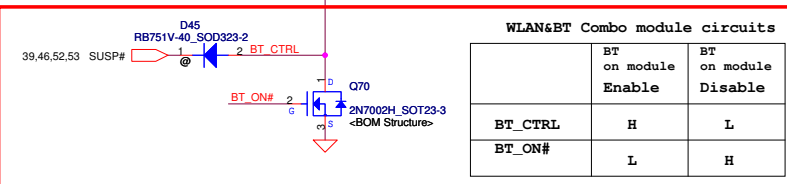
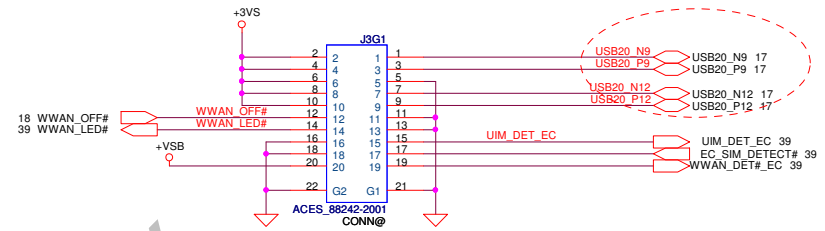
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/08/10	Deciphered Date	2010/08/01	Title	LAN Board AR8151 RevB
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				Customer	0.2
				LA-7221P	
Date:		Wednesday, February 16, 2011		Sheet	35 of 59



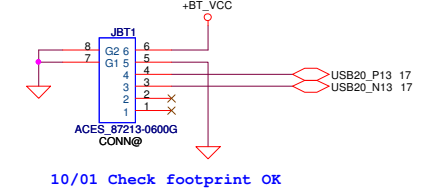
## For Wireless LAN



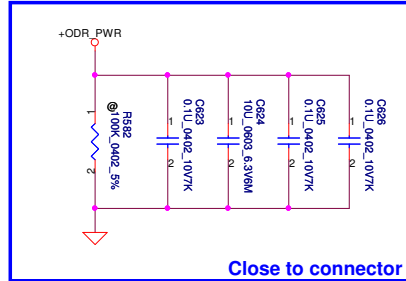
## For 3G / GPS To 3G Module Connect



## BT Conn. (Port 13)

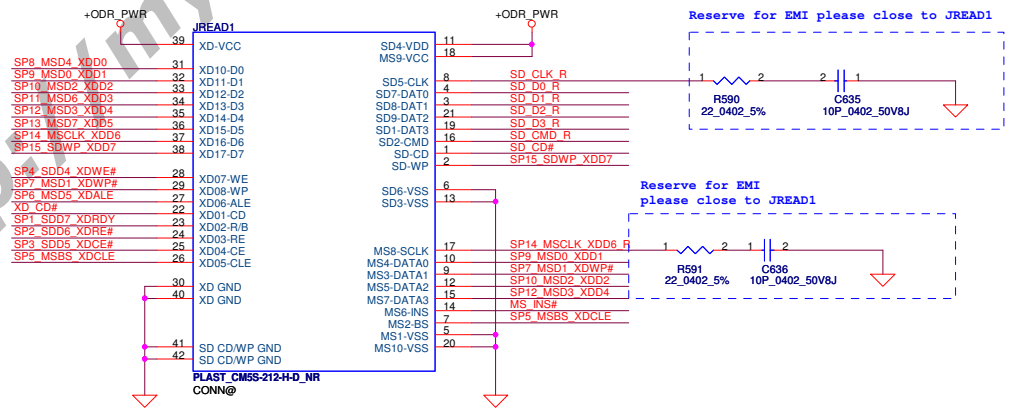
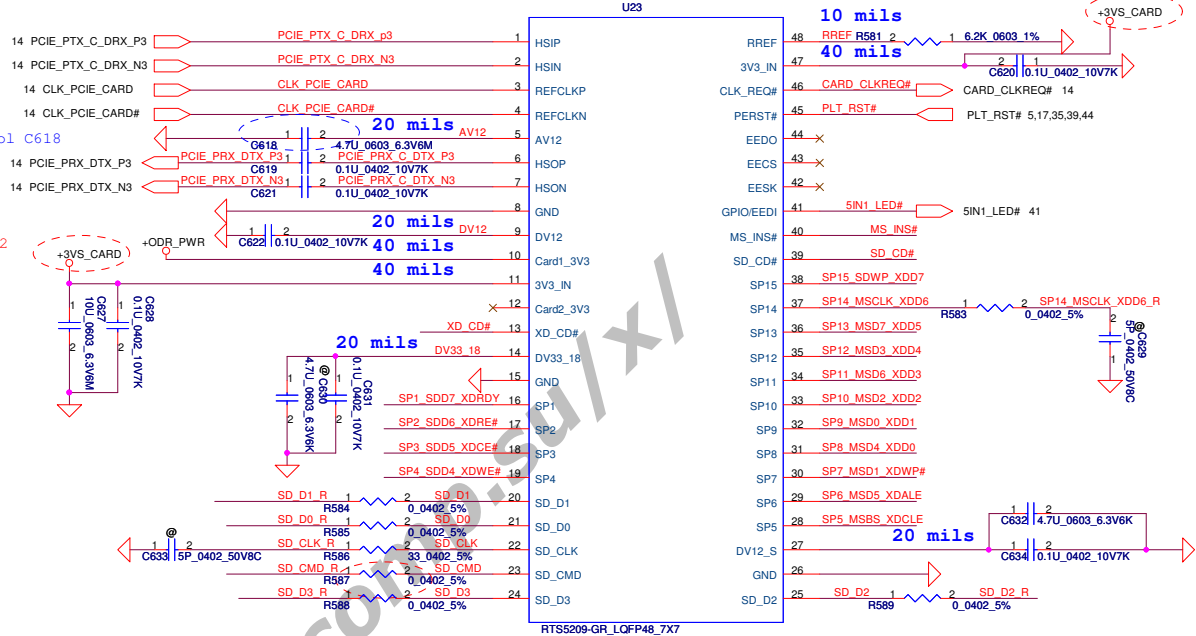


# Card Reader



Modify 03  
Link CIS symbol C618

Modify R02



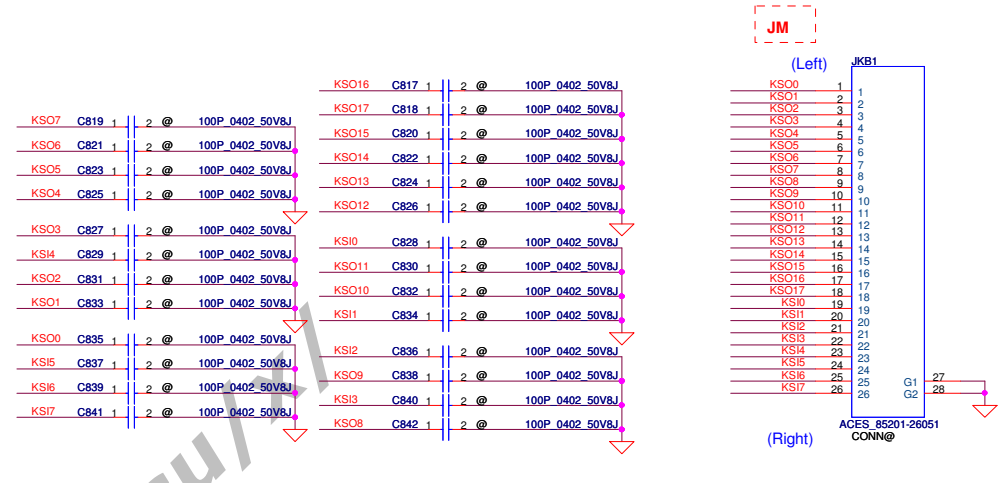
10/5 Update symbol

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Date: Wednesday, February 16, 2011		Sheet: 38 of 59		Size: 10.2	Rev: 0.2

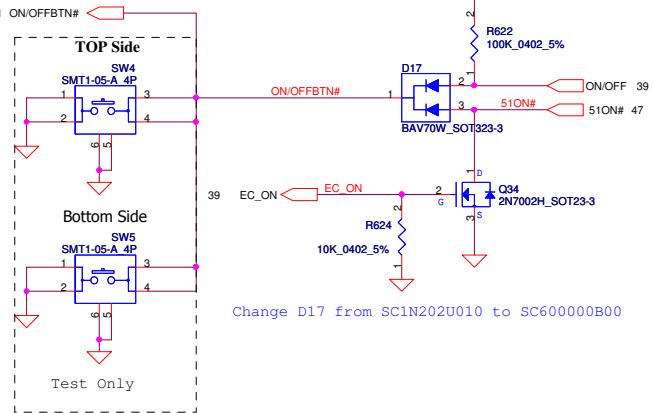




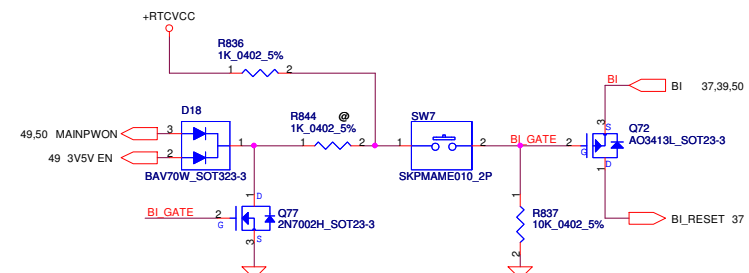
Modify R02  
KB connector use JKB2,JKB1 reserved.



10/04 Check footprint ok



Modify R02

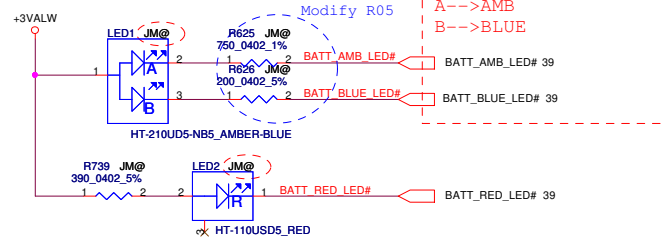


Security Classification		Compal Secret Data		Compal Electronics, Inc.			
Issued Date	2008/08/10	Deciphered Date	2010/08/01	I/O Port & K/B Connector/PWR OK			
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				Size	Document Number	Rev	
				LA-7221P			0.2
				Date: Wednesday, February 16, 2011			Sheet 40 of 59

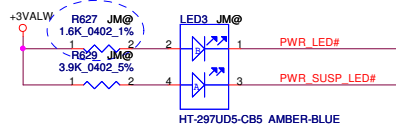


## Battery LED (JM)

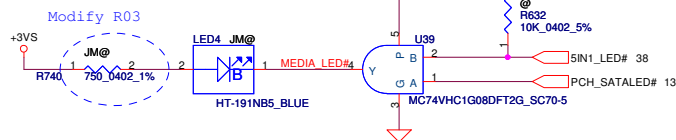
Side View LED with Blue/Amber/Red Color



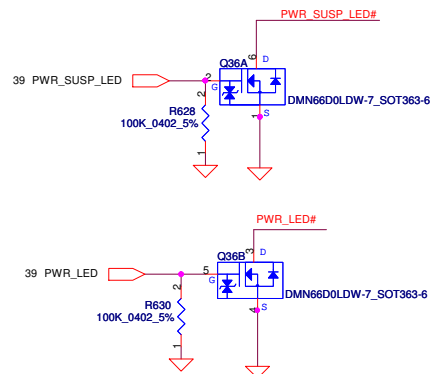
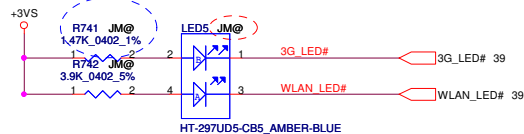
## Power LED (JM)



## HDD LED (JM)

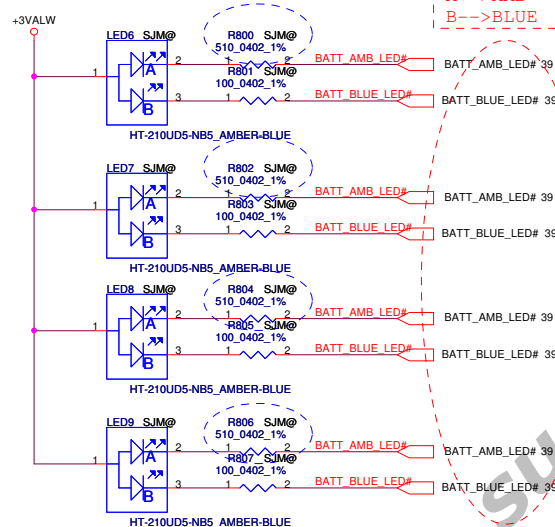


## 3G/Wireless LED (JM)

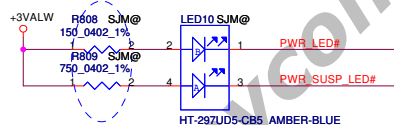


## Battery LED (SJM)

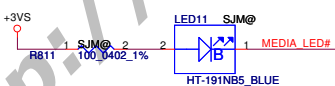
Modify R05



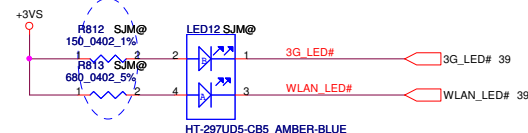
## Power LED (SJM)



## HDD LED (SJM)



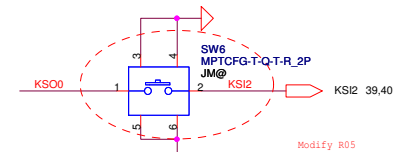
## 3G/Wireless LED (SJM)



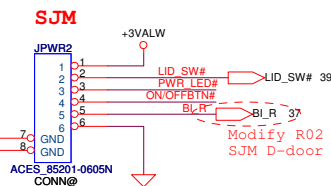
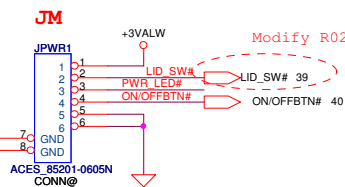
LED Status	Power/SUS		Battery		3G/WLAN		BlueTooth	ACIN
	ON	SUS	Full	Charge	3G	WLAN		
		Blue	Amber	Blue	Amber	Blue	Amber	

Modify R02  
LED\_HT-210UD5-NB5  
A-->AMB  
B-->BLUE

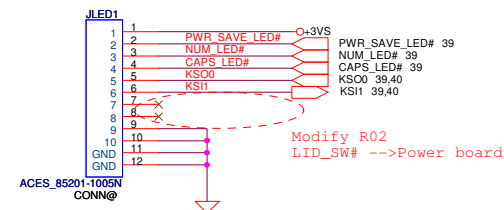
## Battery Indicator BTN (JM only)



## PWR/B



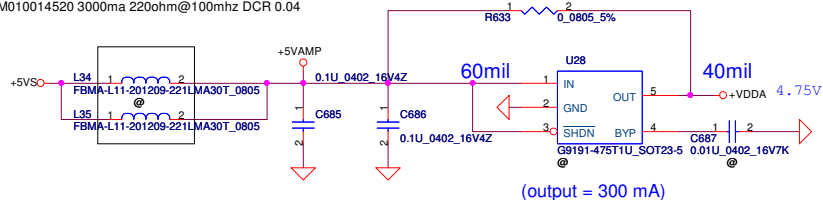
## LED Board (JM only)



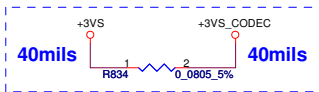
KSO0	
KSI0	Battery BTN#
KSI1	PWR SAVE BTN#

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Size	Document Number	Customer	Rev	Date: Wednesday, February 16, 2011	
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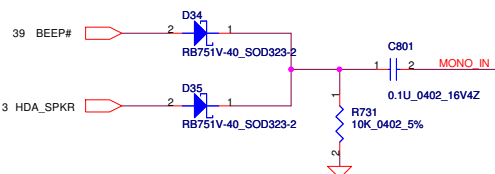
SM010014520 3000ma 220ohm@100mhz DCR 0.04



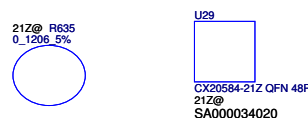
Modify R02  
Add R834 between +3VS and +3VS\_CODEC.  
change power from +3VS to +3VS\_CODEC.



Modify R02  
Delete R638.Q39.Q38  
Add R835 between EC\_MUTE# and PD#.

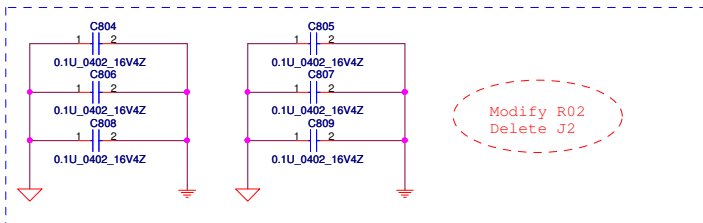


Modify R02  
CX20584-21Z Option Component

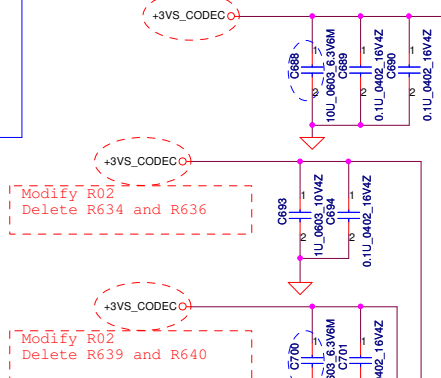


Modify R02  
10/14, Add pull up resistor for vendor suggestion.

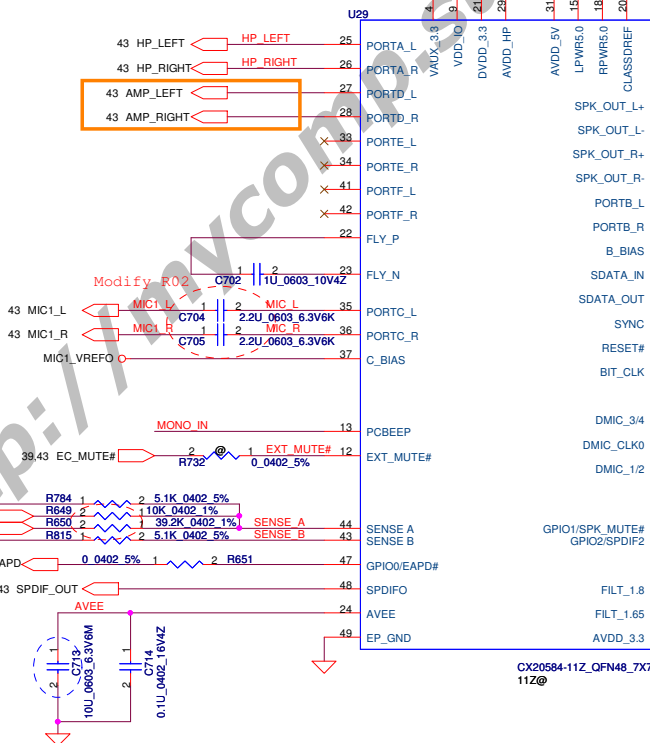
EAPD active low  
0=power down ex AMP  
1=power up ex AMP



Modify 03  
Link CIS symbol C688.C692.C698.C699.C700.C709

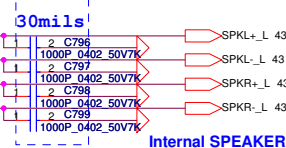


Modify R02  
Delete R639 and R640



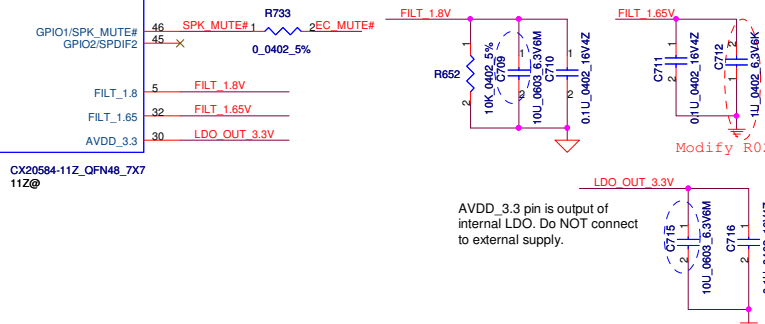
For version of 21Z, changing R635 from 0.1R to 0R.  
Layout Note: Path from +5VS to LPWR\_5.0 RPWR\_5.0 must be very low resistance (<0.01 ohms)

10/14, change values of cap to meet vendor ref circuit.



Internal SPEAKER

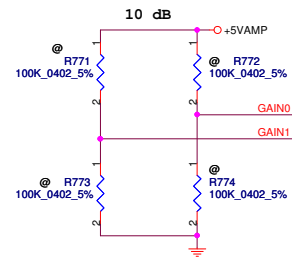
10/14, add the resistor for reserve ESD purpose.



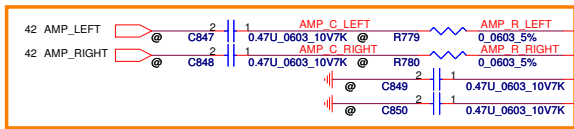
AVDD\_3.3 pin is output of internal LDO. Do NOT connect to external supply.

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Date: Wednesday, February 16, 2011				Sheet 42 of 59

# Audio AMP



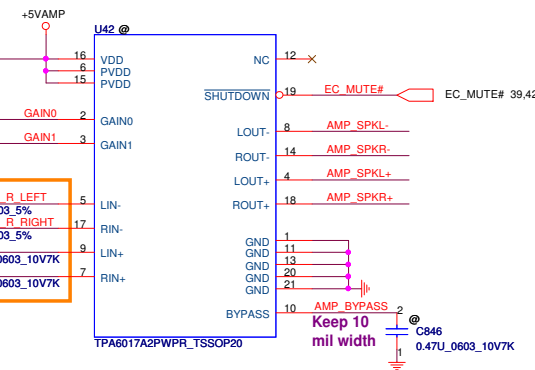
GAIN0	GAIN1	AV(inv)	Ri
0	0	6dB	90k
0	1	10dB	70k
1	0	15.6dB	45k
1	1	21.6dB	25k



Modify 05 SJM don't use Audio AMP

# Int. Speaker Conn.

SJM

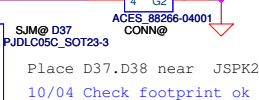


30mils

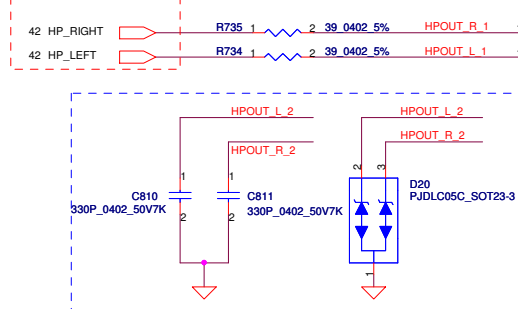
AMP\_SPKL+ @ R775 1 2 0.0603 5%  
AMP\_SPKL- @ R777 1 2 0.0603 5%  
AMP\_SPKR+ @ R776 1 2 0.0603 5%  
AMP\_SPKR- @ R778 1 2 0.0603 5%

30mils

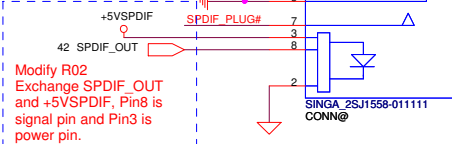
SPK L+ @ R775 1 2 0.0603 5%  
SPK L- @ R777 1 2 0.0603 5%  
SPK R+ @ R776 1 2 0.0603 5%  
SPK R- @ R778 1 2 0.0603 5%



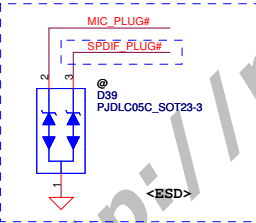
Modify R02  
Exchange HP right and left channel.



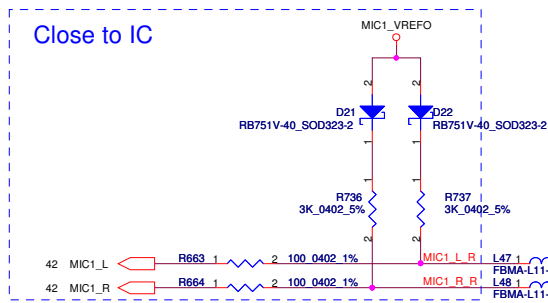
# Headphone Out/SPDIF



10/04 Update CIS symbol.

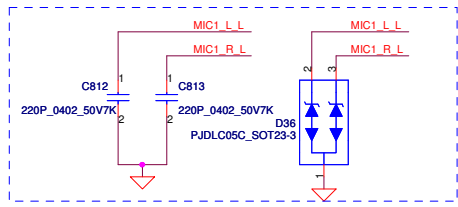


# Close to IC



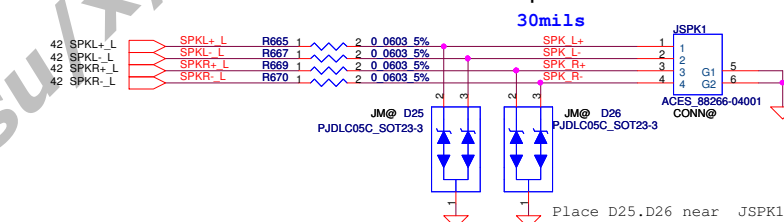
# MIC JACK

10/04 Check footprint ok  
Footprint: SINGA\_2SJ-A960-D06\_6P

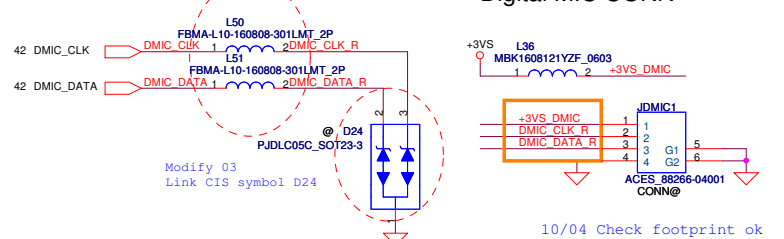


# Int. Speaker Conn.

JM

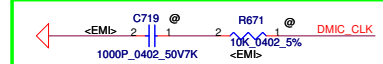
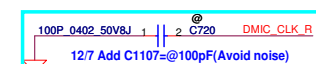


# Digital MIC CONN

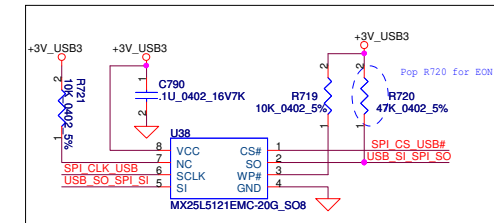
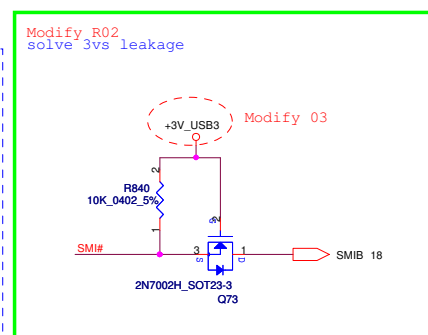
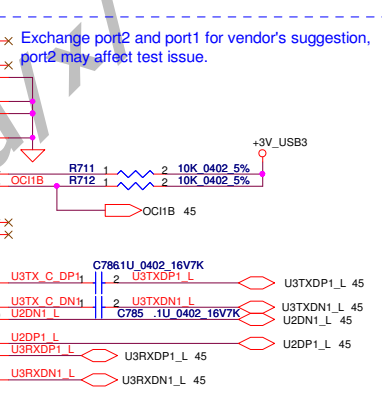
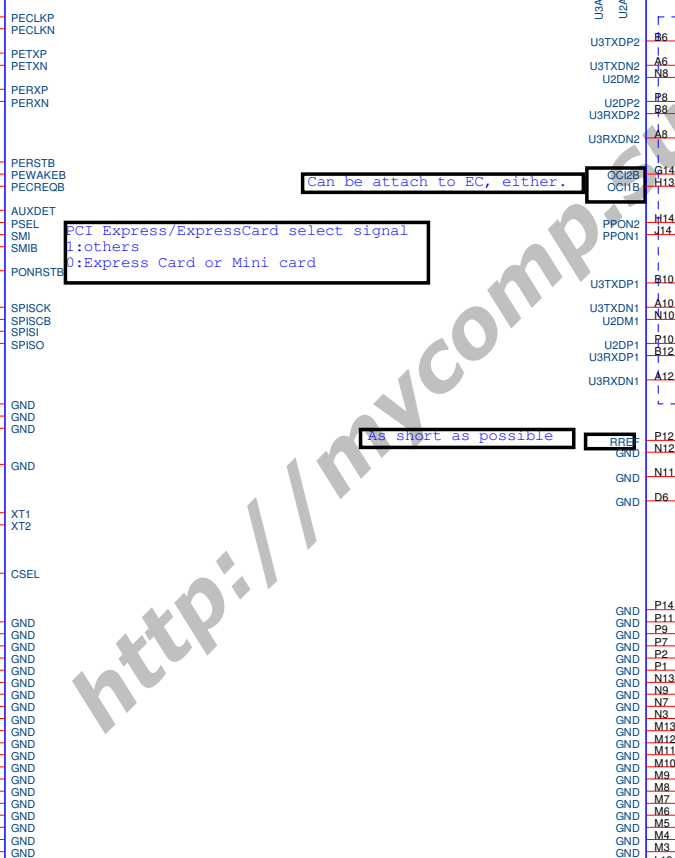
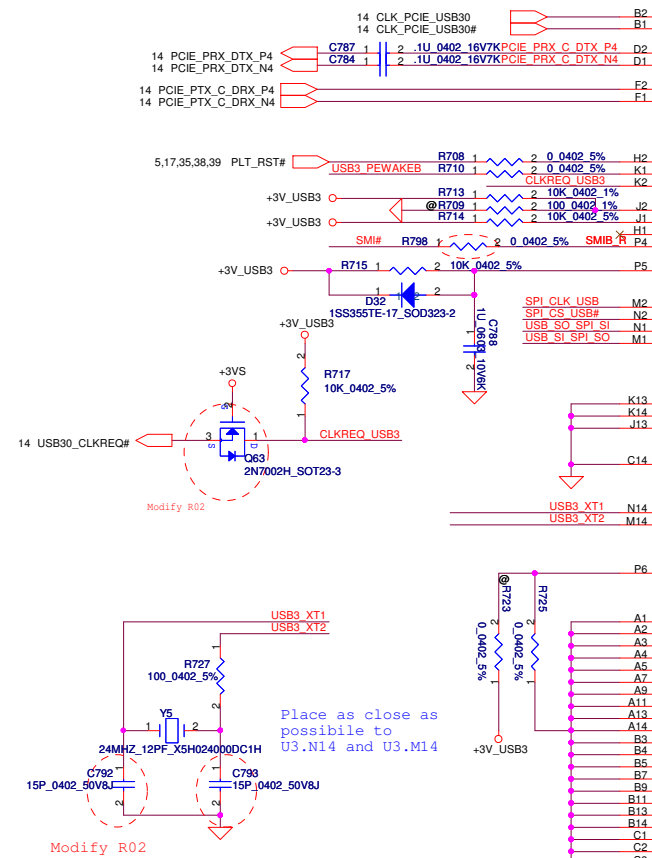
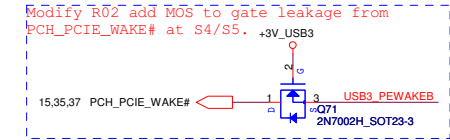
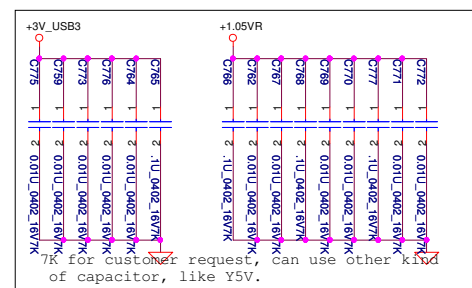
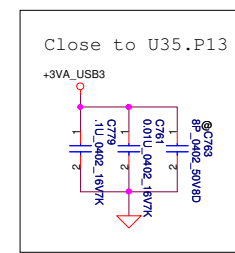
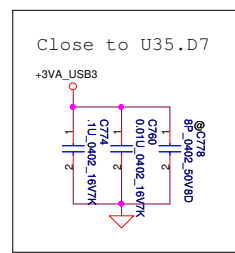
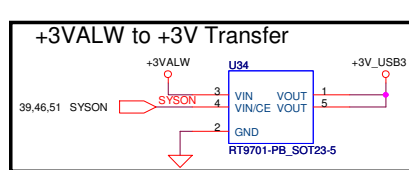
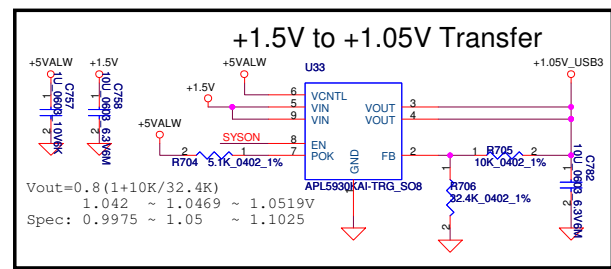


Modify R02

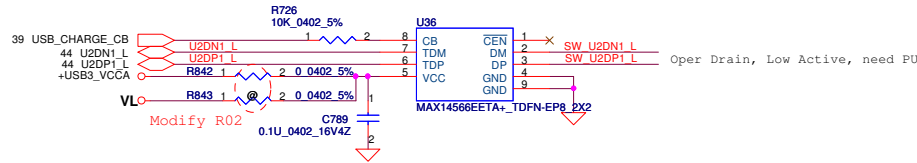
Modify 03  
Link CIS symbol D24



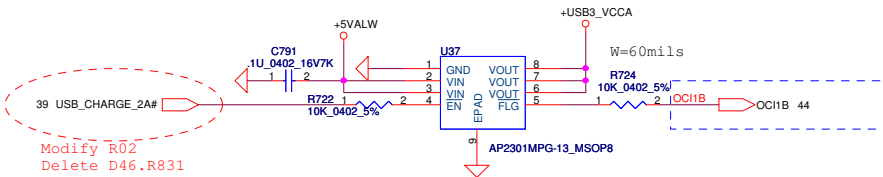
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Issued Date	2008/08/10	Deciphered Date
2010/08/01		
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Title	Amplifier & Audio Jack	
Size	Document Number	Rev
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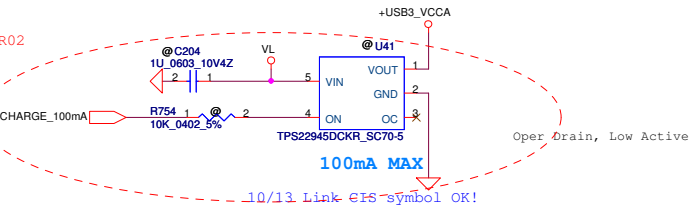
## USB Host Charger



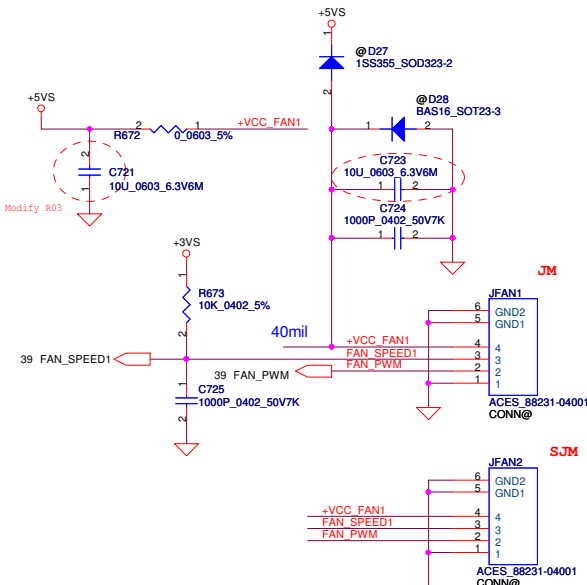
CB=0	Auto detection charger identification active
CB=1	Connect DP/DM to TDP/TDM



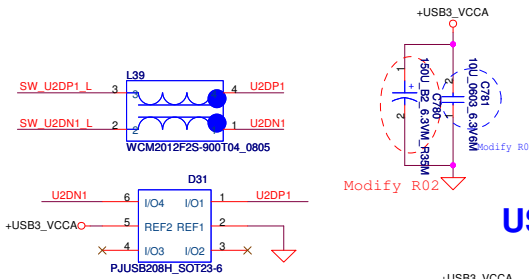
Modify R02



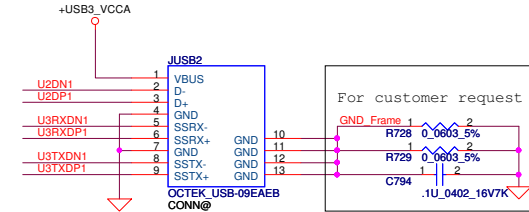
## FAN1 Conn



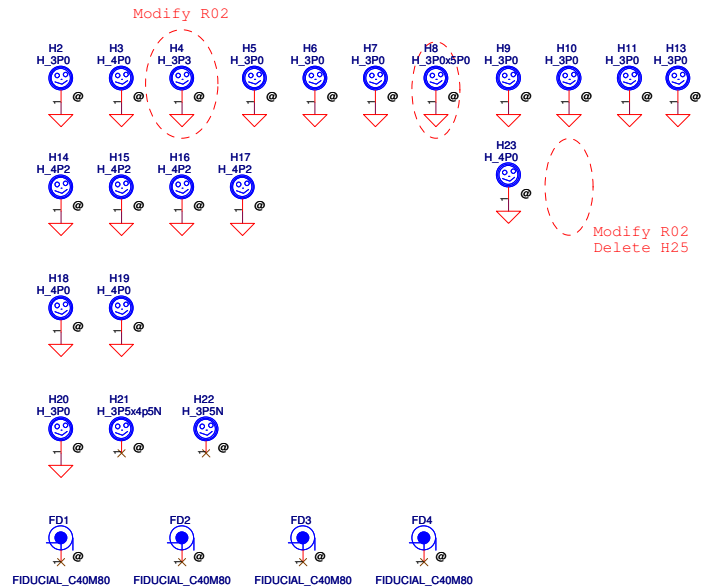
1012 footprint check Ok



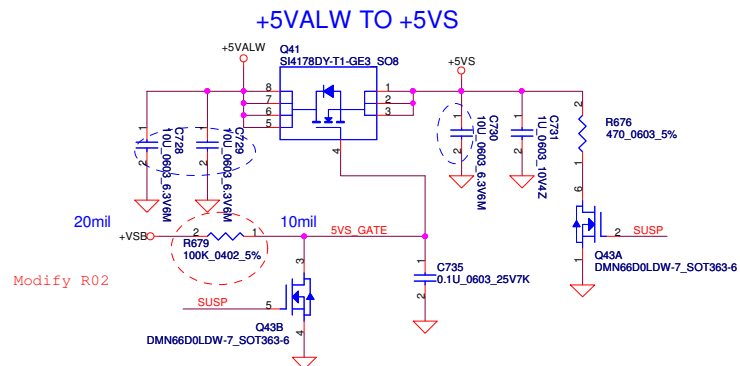
## USB3.0 Connector



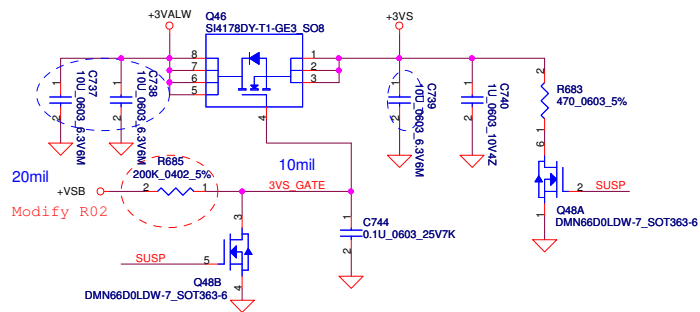
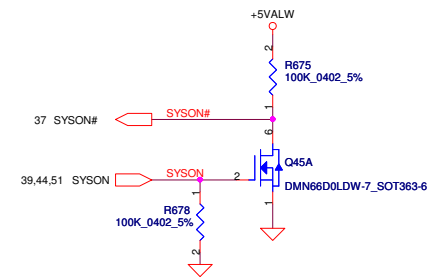
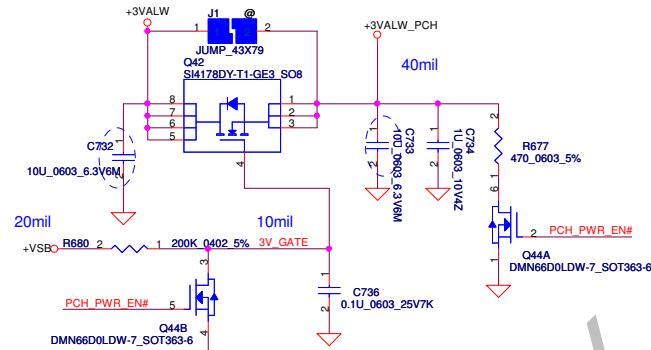
10/05 Update symbol .



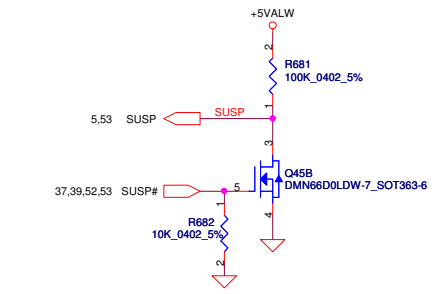
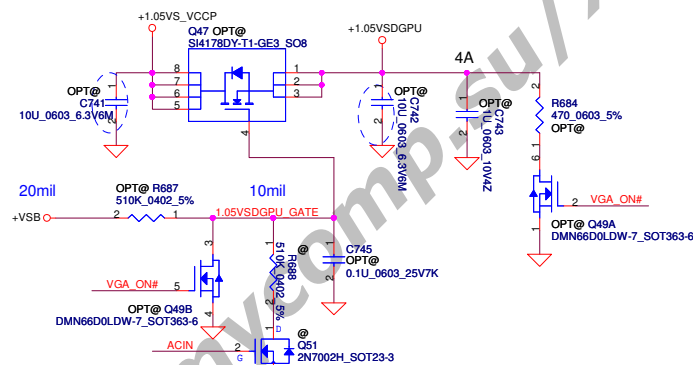
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Issued Date	2008/08/10	Deciphered Date	2010/08/01	Title	
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				Size	Rev
				Document Number	0.2
				LA-7221P	
				Date	Wednesday, February 16, 2011
				Sheet	45 of 59



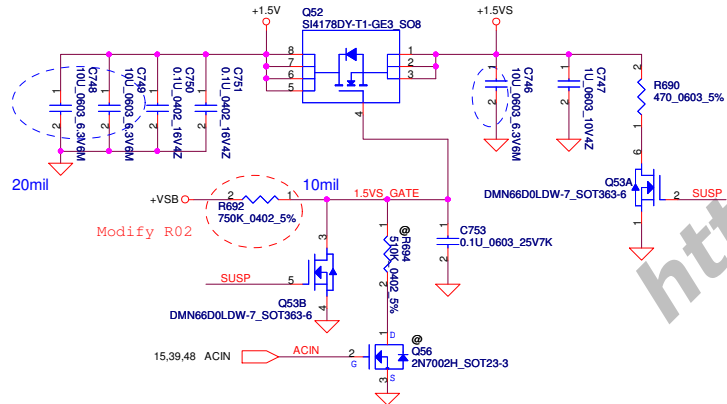
### +3VALW TO +3VALW(PCH AUX Power) Short J5 for PCH VCCSUS3.3



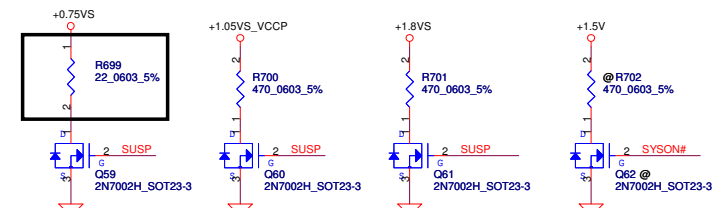
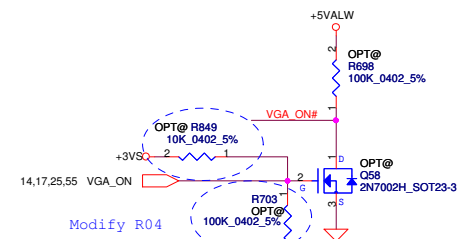
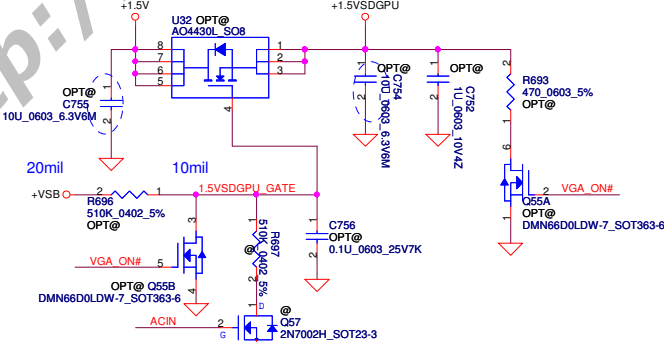
### +1.05VS\_VCCP to +1.05VSDGPU for GPU



### 1211 EMI ADD 0.1U close PJ5 +1.5V to +1.5VS

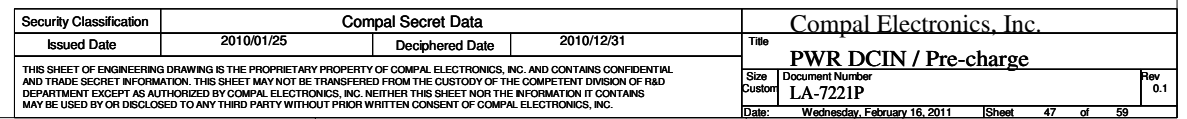
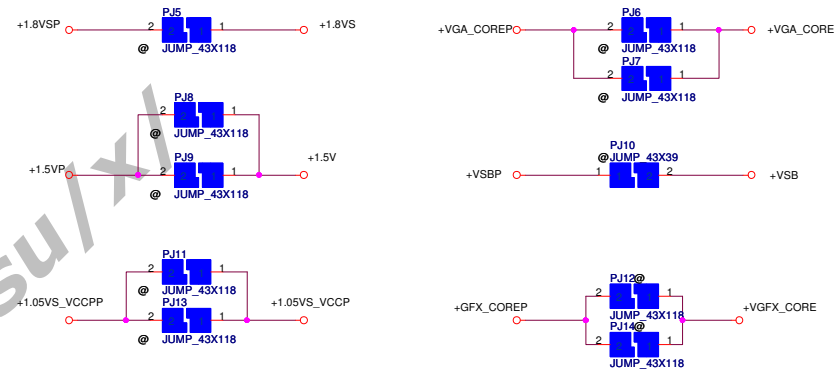


### +1.5V to +1.5VSDGPU for GPU

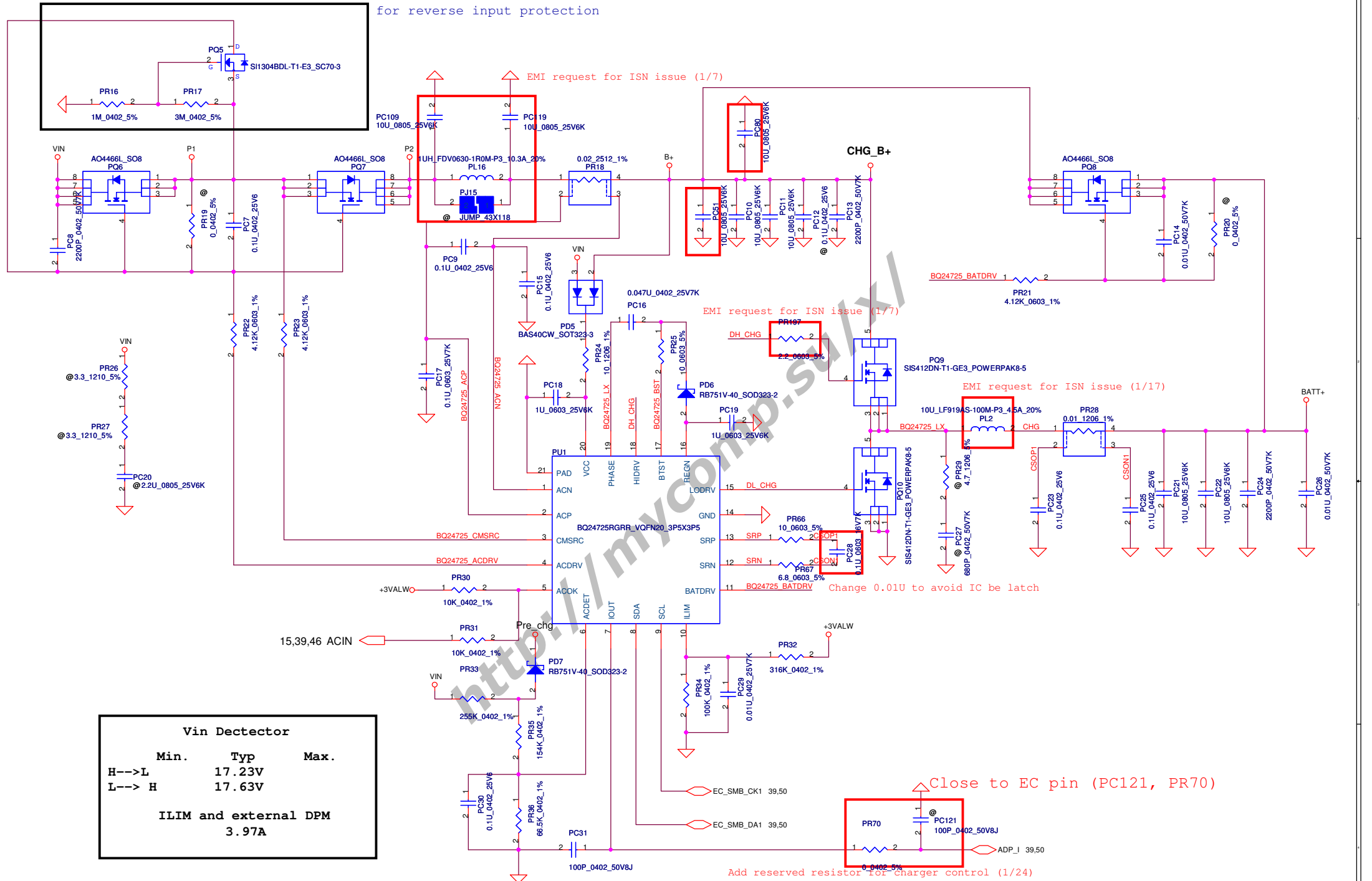


2009/08/14  
CP\_S3PowerReduction  
WhitePaper\_Rev0.9  
0.75VS speed up discharge

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						Size		Document Number		Rev	
						Customer		LA-7221P		0.2	
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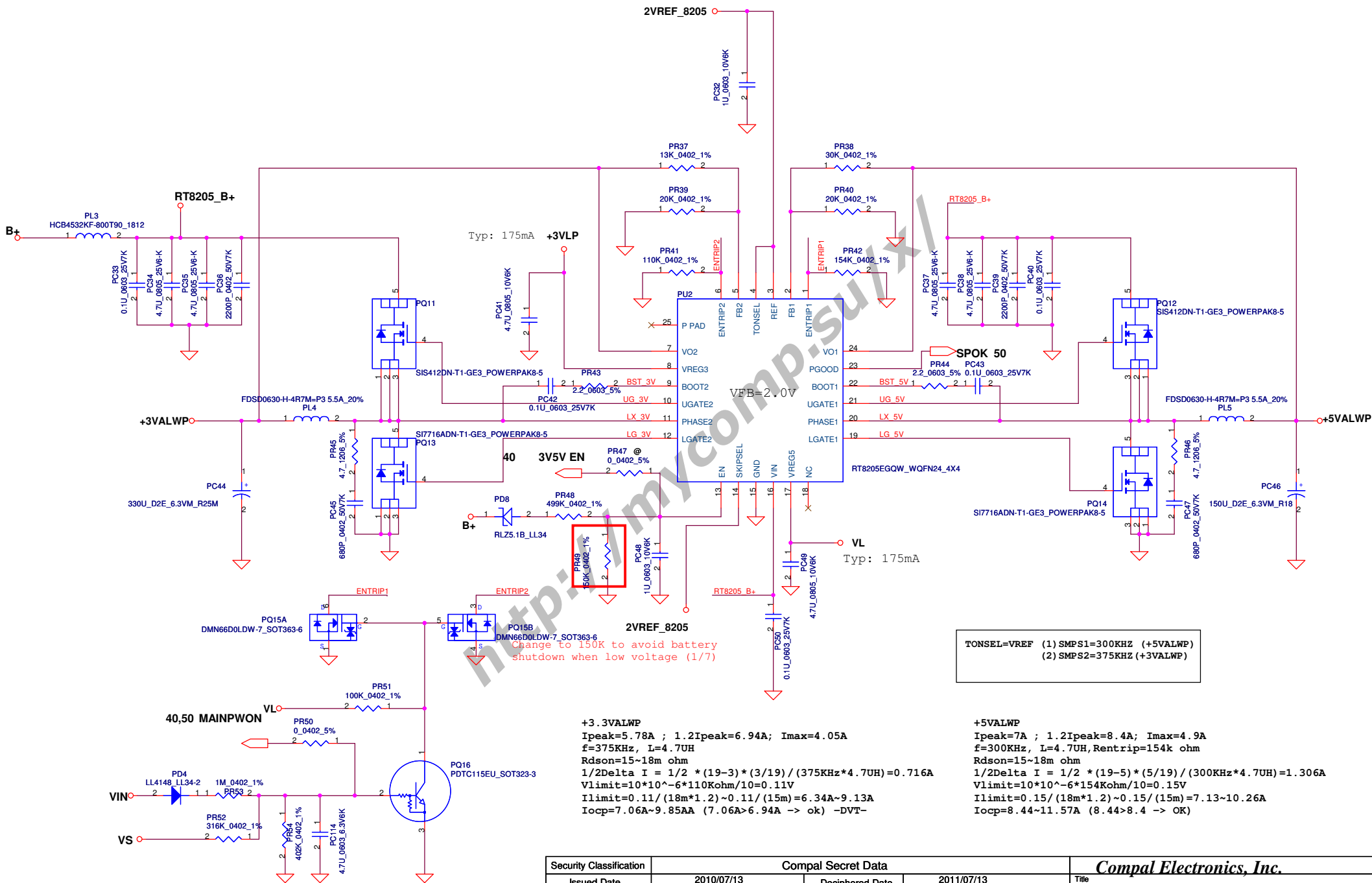






Vin Detector		
Min.	Typ	Max.
H-->L	17.23V	
L-->H	17.63V	
ILIM and external DPM		
3.97A		

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Typ: 175mA

+3VLP

V<sub>FB</sub>=2.0V

VL  
Typ: 175mA

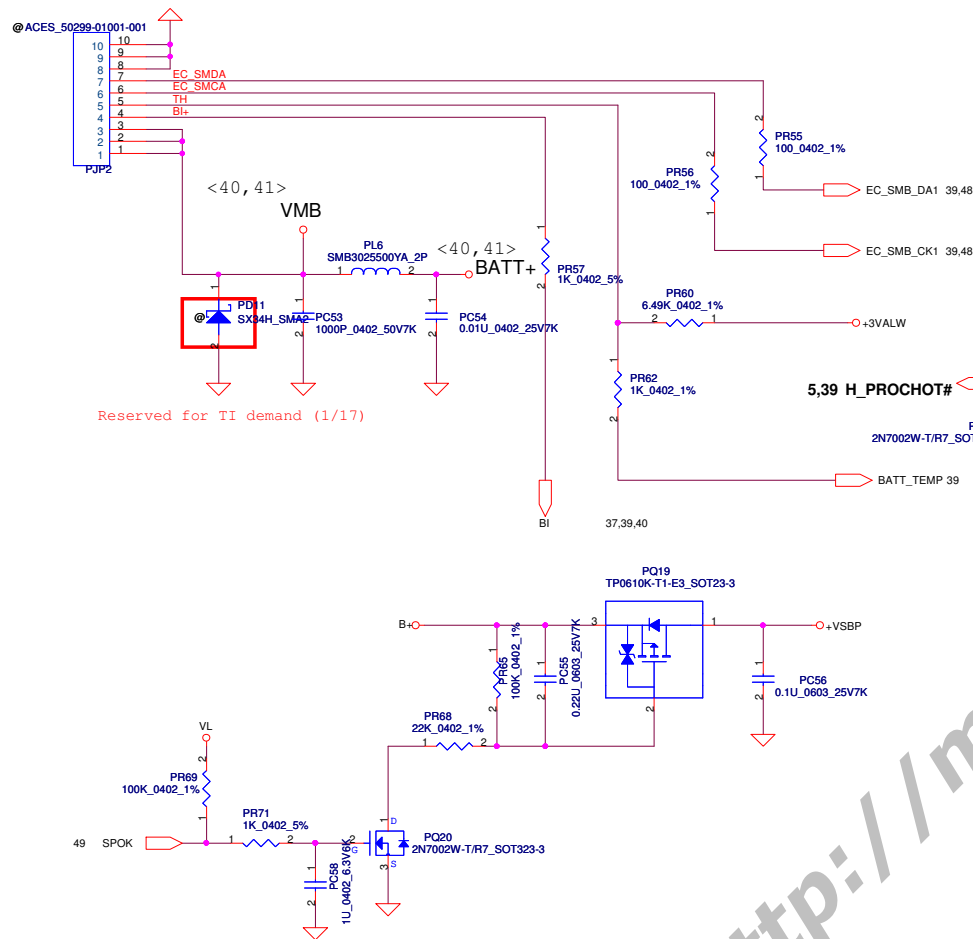
Change to 150K to avoid battery shutdown when low voltage (1/7)

TONSEL=VREF (1) SMPS1=300KHZ (+5VALWP)  
(2) SMPS2=375KHZ (+3VALWP)

+3.3VALWP  
I<sub>peak</sub>=5.78A ; 1.2I<sub>peak</sub>=6.94A; I<sub>max</sub>=4.05A  
f=375KHz, L=4.7UH  
R<sub>ds(on)</sub>=15~18m ohm  
1/2Delta I = 1/2 \* (19-3) \* (3/19) / (375KHz \* 4.7UH) = 0.716A  
V<sub>limit</sub>=10\*10<sup>-6</sup> \* 110Kohm / 10 = 0.11V  
I<sub>limit</sub>=0.11 / (18m \* 1.2) ~ 0.11 / (15m) = 6.34A ~ 9.13A  
I<sub>ocp</sub>=7.06A ~ 9.85AA (7.06A > 6.94A -> ok) -DVT-

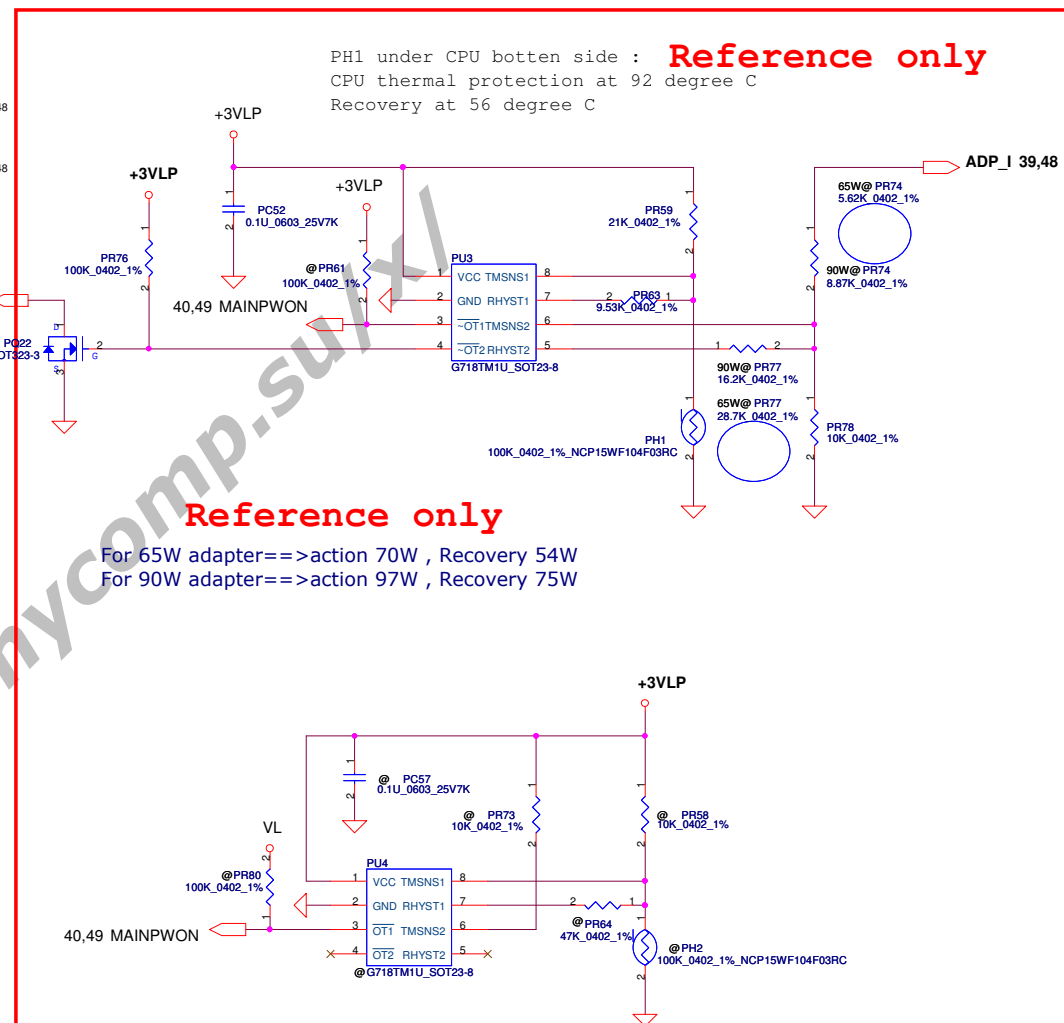
+5VALWP  
I<sub>peak</sub>=7A ; 1.2I<sub>peak</sub>=8.4A; I<sub>max</sub>=4.9A  
f=300KHz, L=4.7UH, R<sub>entrip</sub>=154K ohm  
R<sub>ds(on)</sub>=15~18m ohm  
1/2Delta I = 1/2 \* (19-5) \* (5/19) / (300KHz \* 4.7UH) = 1.306A  
V<sub>limit</sub>=10\*10<sup>-6</sup> \* 154Kohm / 10 = 0.15V  
I<sub>limit</sub>=0.15 / (18m \* 1.2) ~ 0.15 / (15m) = 7.13 ~ 10.26A  
I<sub>ocp</sub>=8.44 ~ 11.57A (8.44 > 8.4 -> OK)

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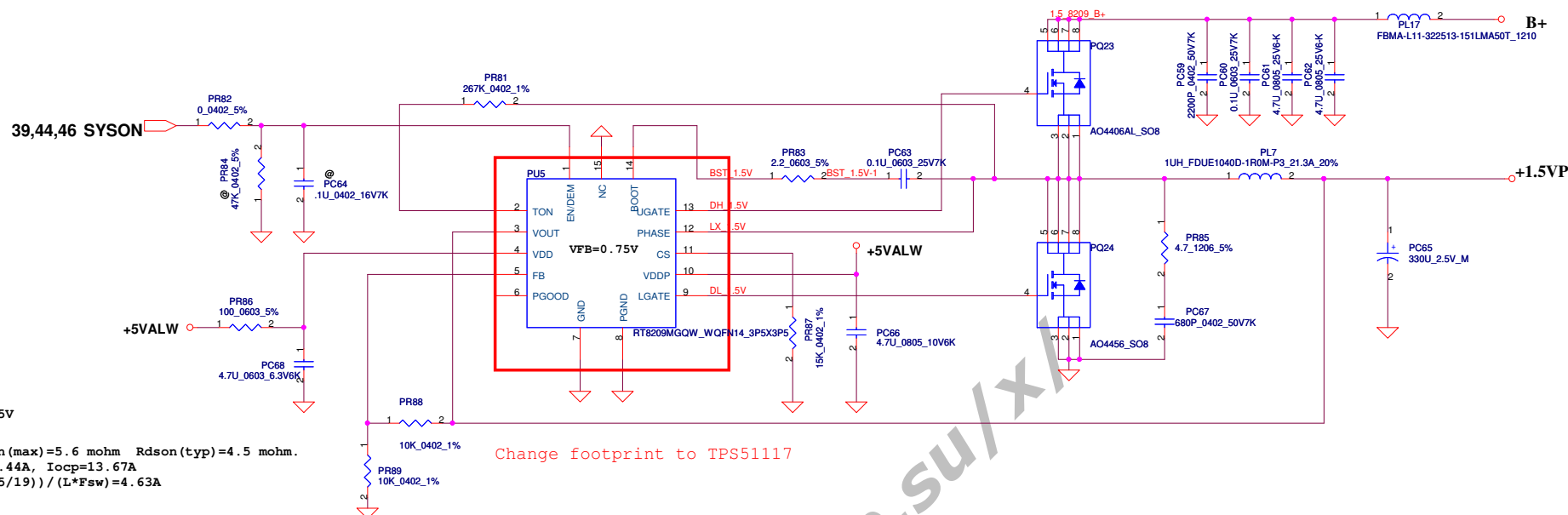


Combine protection circuit(1/7)

PH1 under CPU bottom side : **Reference only**  
CPU thermal protection at 92 degree C  
Recovery at 56 degree C



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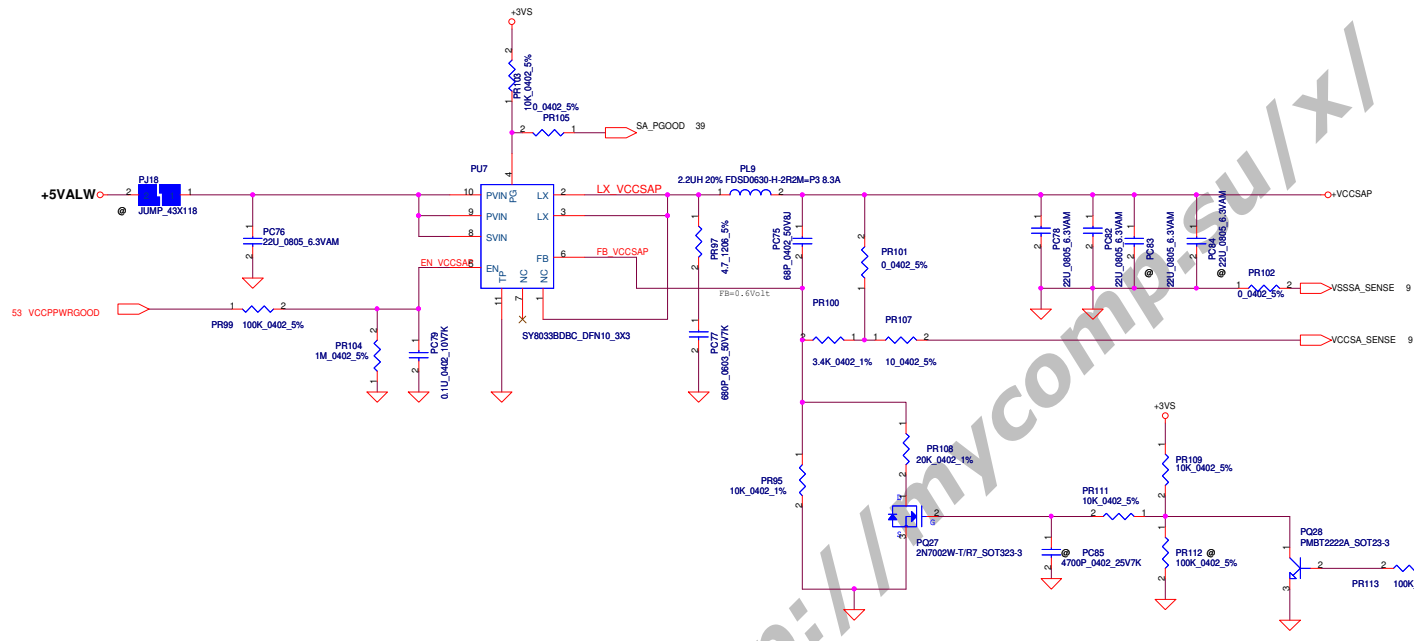
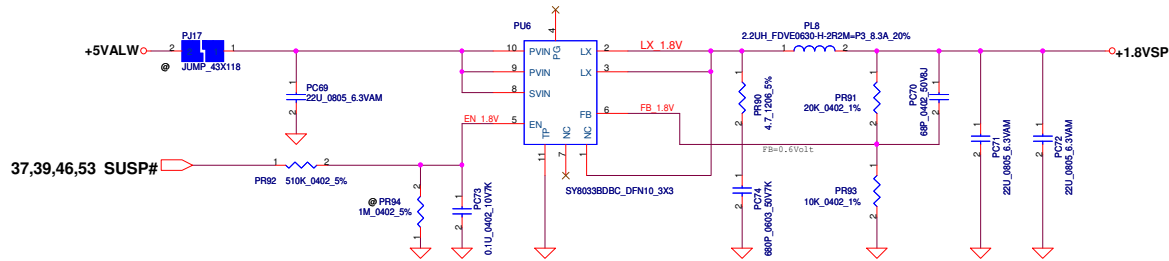


$V_o = 1.5V$      $V_{FB} = 0.75V$   
 $V = 0.75 * (1 + 10K/10K) = 1.5V$   
 $F_{sw} = 298KHz$   
 $C_{out} ESR = 15m \text{ ohm}$      $R_{dson(max)} = 5.6 \text{ mohm}$      $R_{dson(typ)} = 4.5 \text{ mohm}$   
 $I_{peak} = 19.53A$ ,     $I_{max} = 23.44A$ ,     $I_{ocp} = 13.67A$   
 $\Delta I = ((19 - 1.5) * (1.5/19)) / (L * F_{sw}) = 4.63A$   
 $\Rightarrow 1/2 \Delta I = 2.315A$   
choose  $R_{cs} = 15K$   
 $I_{ocpmax} = ((15K * 11uA) / 0.0045) + 2.315A = 35.65A$   
 $I_{ocpmin} = ((15K * 9uA) / (0.0056 * 1.3)) + 2.315A = 23.06A$   
 $I_{ocp} = 23.06A \sim 35.65A$

Change footprint to TPS51117

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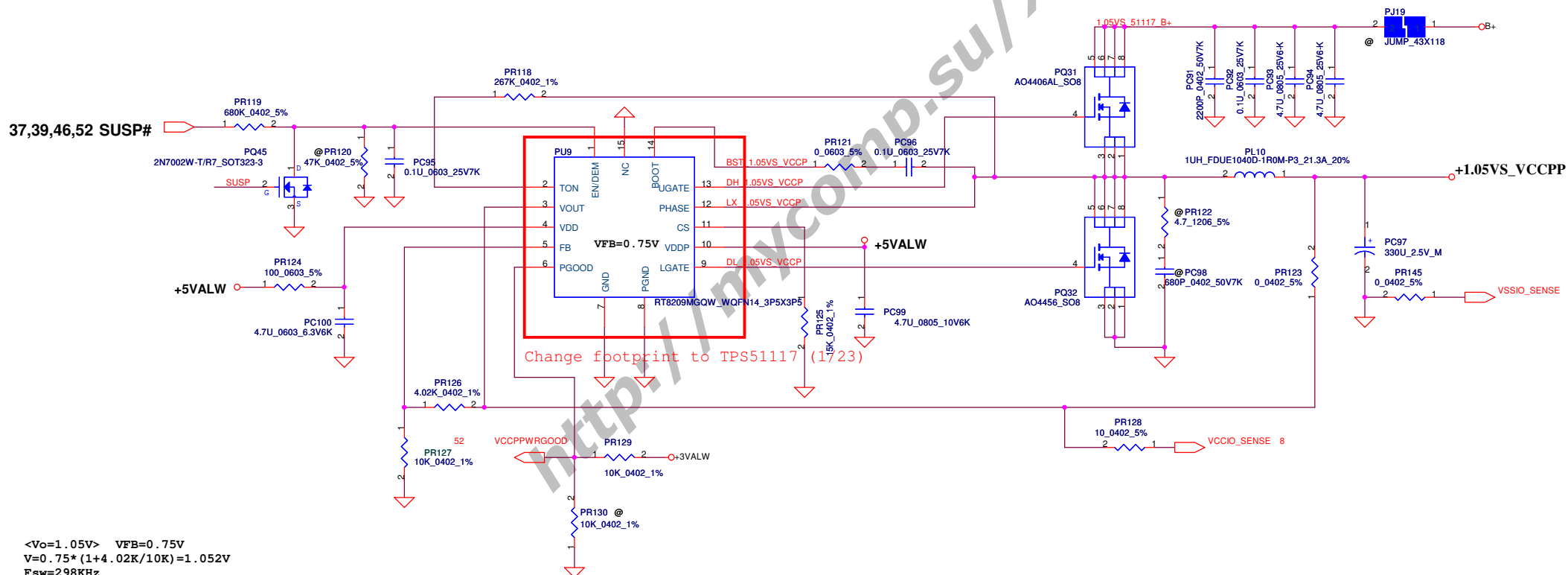
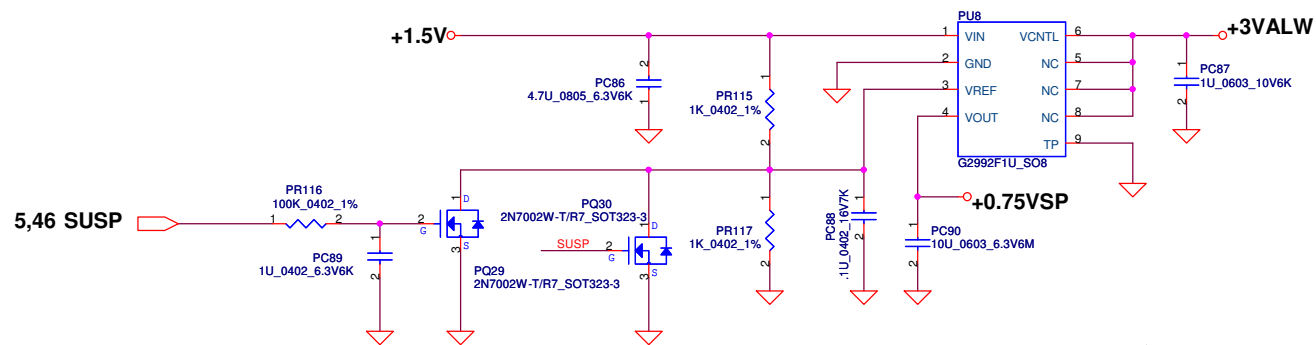
1.8VSP  
 $I_{peak}=3.35A$  ;  $1.2I_{peak}=4.02$  ;  $I_{max}=2.345A$   
 $V_{out}=0.6 \cdot (1 + (20K/10K)) = 1.8V$



VID[0]	VID[1]	VCCSA Vout	Require on 2011/ 2012 Required
0	0	0.9 V	Yes/Yes
0	1	0.8 V	Yes/Yes
1	1	0.75V	No/Yes
1	1	0.65V	No/Yes

Note: Use VCCSA\_SEL to switch High & Low Level for VID[1]  
 (ie. VCCSA\_SEL) due to the VID[0] is don't care for this setting.

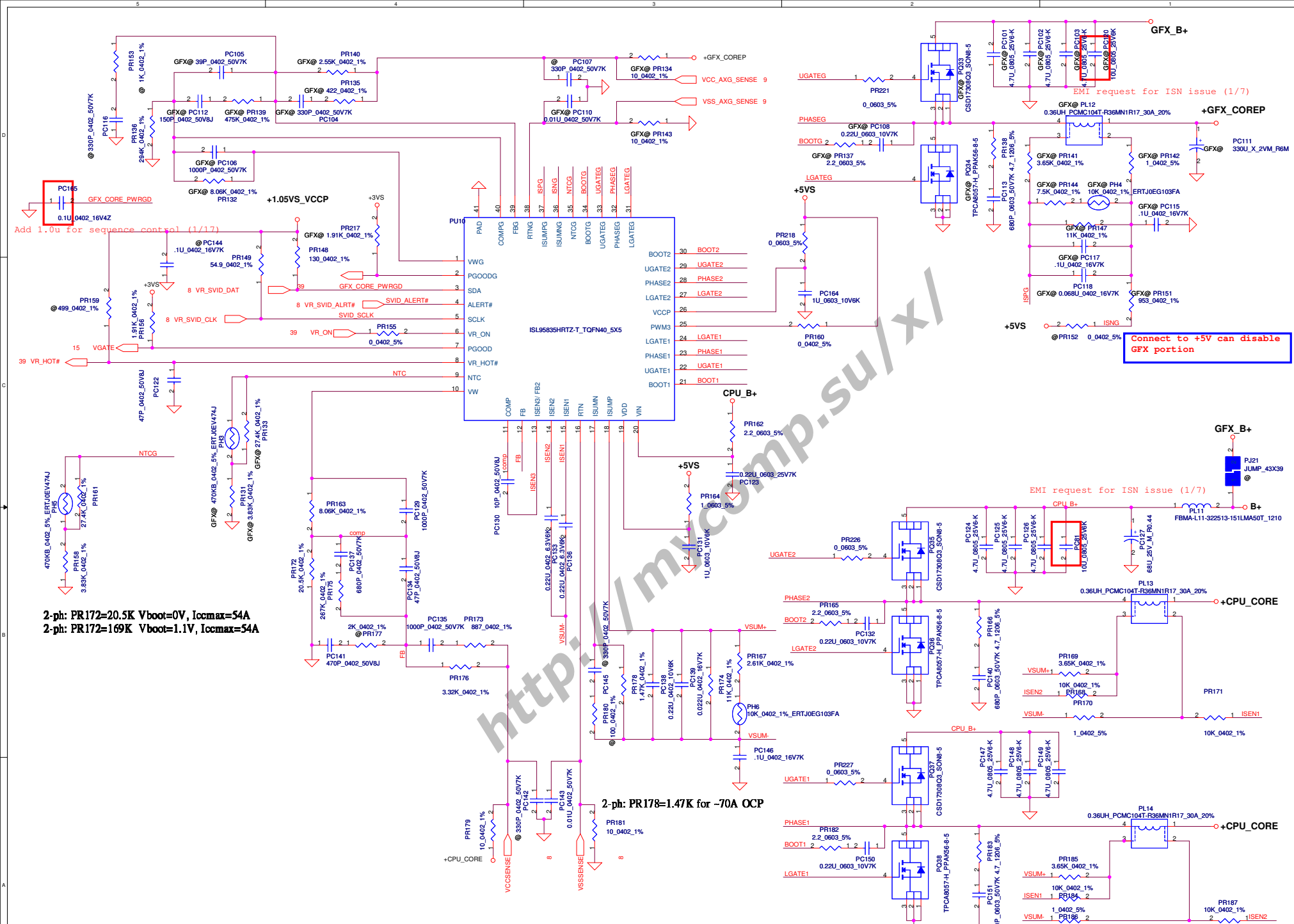
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Issued Date	2010/07/13	Deciphered Date	2011/07/13	Title
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<Vo=1.05V> VFB=0.75V  
 $V=0.75 \cdot (1 + 4.02K/10K) = 1.052V$   
 $F_{sw} = 298KHz$

$C_{out} ESR = 15m \text{ ohm}$   $R_{dson(max)} = 5.6 \text{ mohm}$   $R_{dson(typ)} = 4.5 \text{ mohm}$   
 $I_{peak} = 12.866A$ ,  $I_{max} = 9A$ ,  $I_{ocp} = 15.439A$   
 $\Delta I = ((19 - 1.05) \cdot (1.05/19)) / (L \cdot F_{sw}) = 3.33A$   
 $\Rightarrow 1/2 \Delta I = 1.665A$   
choose  $R_{cs} = 15K$   
 $I_{ocpmax} = ((15K \cdot 11uA) / 0.0045) + 1.665A = 37.62A$   
 $I_{ocpmin} = ((15K \cdot 9uA) / (0.0056 \cdot 1.3)) + 1.665A = 23.02A$   
 $I_{ocp} = 23.02A \sim 37.62A$

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2-ph: PR172=20.5K Vboot=0V, Iccmax=54A  
2-ph: PR172=169K Vboot=1.1V, Iccmax=54A

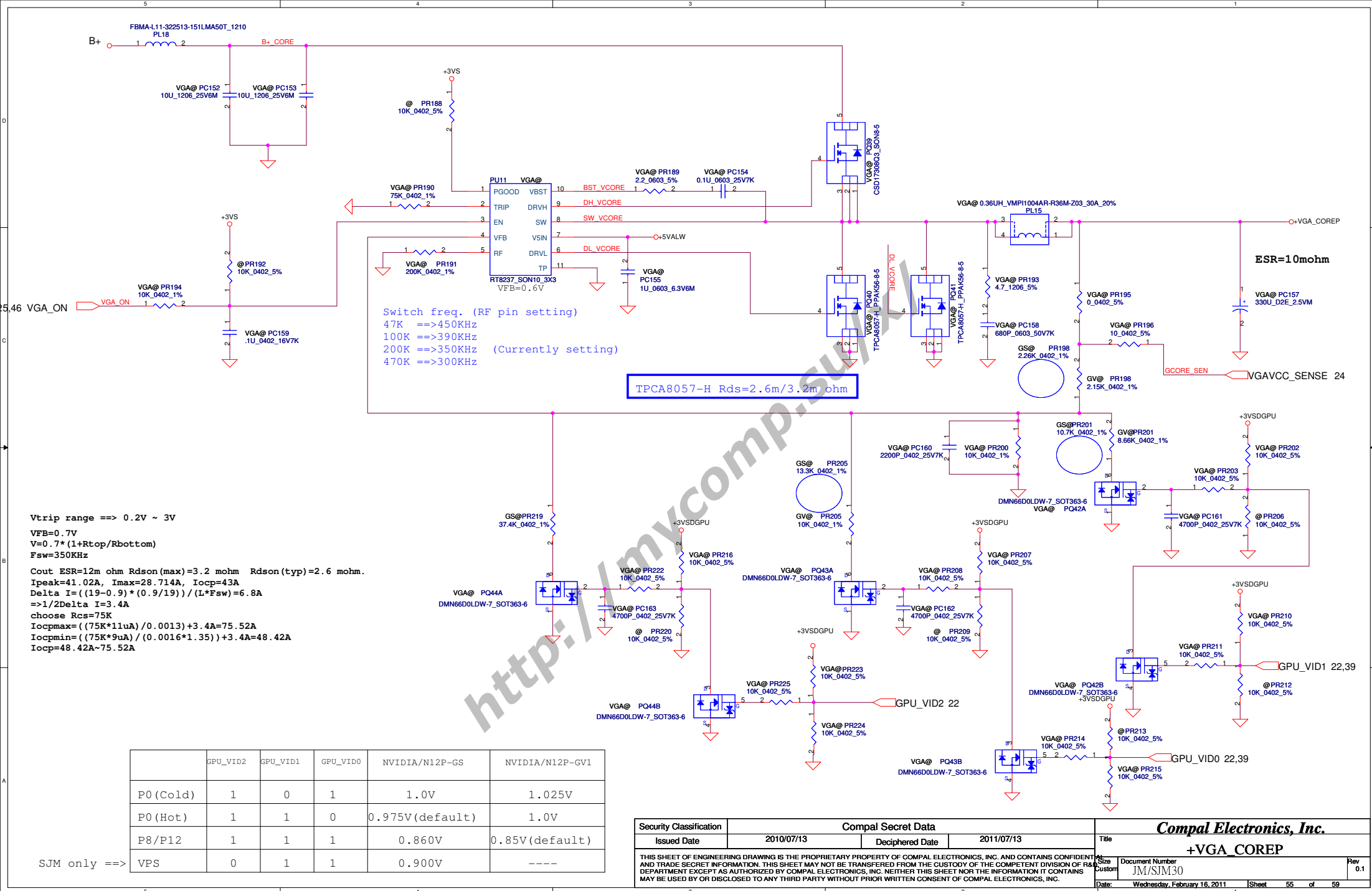
2-ph: PR178=1.47K for -70A OCP

+CPU\_CORE  
Iocp=70A, IccMAX=53A  
Load line=1.9mohm  
DCR=1.1mohm

+GFX\_CORE  
Iocp=40A, IccMAX=24A  
Load line=3.9mohm  
DCR=1.1mohm

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Date: Wednesday, February 16, 2011				Rev 0.1





	GPU_VID2	GPU_VID1	GPU_VID0	NVIDIA/N12P-GS	NVIDIA/N12P-GV1
P0(Cold)	1	0	1	1.0V	1.025V
P0(Hot)	1	1	0	0.975V(default)	1.0V
P8/P12	1	1	1	0.860V	0.85V(default)
VPS	0	1	1	0.900V	----

## Version change list (P.I.R. List)

Page 1 of 2  
for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	HW/Edward request	Meet Turn off sequence		53	Add PQ45	2010 11/24	DVT
2	HW/Edward request	Meet Turn on sequence		53	Change PR119 to 680KΩ, PC95 to 0.1uF	2010 11/27	DVT
3	HW/Edward request	Meet new VGA table		55	Change PR201, PR205, PR219	2010 12/03	DVT
4	Battery Turn on time too long	Change enable 3/5V path				2010 12/04	DVT
5	HW/Edward request	For USB 3.0 charger function		47	Add PJ26	2010 12/04	DVT
6	HW/Edward request	Don't need VGA_PW_OK net		55	Delete net	2010 12/04	DVT
7	NVedia request.	NVedia request.	0.2	55	change PR201 to SD034107280. change PR198 to SD034226180 chnage PR205 to SD034133280. Change PR219 to SD034374280	2010 12/10	DVT
8	HW request.	to adjust power sequence to modify.	0.2	52 53	Change PR92 to SD034510380, remove PR94 SD028100480 Change PR116 from SD034249280 to SD034100380.	2010 12/10	DVT
9	Sourcer request.	Change to a normal part.	0.2	54	Change PC138 from SE00000R700to SE095224K00	2010 12/10	DVT
10	EMI request	For ISN issue, add solution on charger and CORE power	0.3	48,54	Add PL16 PC19 PC109 PC80 PC51 PC120 PC81	2010 01/17	PVT
11	EMI request	For ISN issue, add solution on charger	0.3	48	Change PL2 to SH162100M10 (4.7U to 10U)	2010 01/17	PVT
12	TI concern charger IC will be lauch	Negative current reaches 110mV on low side Rdson Charger IC will be lauch	0.3	48	Change PC38 to SE026104K80 (2.2U to 0.1U)	2010 01/23	PVT
13	RT8209 footprint issue	The footprint pad is too short, It will happen SMT problem	0.3	51 53	Change PU5, PU9 footprint to TPS51117RGYR_QFN14_3P5X3P5	2010 01/23	PVT
14							
15							
16							
17							

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Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	41	Memo	2010/11/25	Compal	Bom structure error.	Correct LED1,LED2,LED5 bom structure to JM@	Rev02
2	27~30	Memo	2010/11/25	Compal		Change X76289BOL05(VRAM P/N) from SA00003MQ60 to SA000047Q20 Change X76289BOL06(VRAM P/N) from SA00003VS10 to SA00003YO20	Rev02
3	42	Memo	2010/11/25	Compal	New Audio Codec IC	Change U29 from SA000034010 to SA000034020 Change R635 from 0.1ohm to 0 ohm	Rev02
4	41	LED	2010/11/25	Compal	Battery LED Color mistake	SWAP LED1,LED6,LED7,LED8,LED9 Pin 2 and Pin3 (Pin2-->BATT_AMB_LED#,Pin3-->BATT_BLUE_LED#)	Rev02
5	07	EDP	2010/12/08	Compal	Bom structure error.	Correct R70 bom structure to EDP@	Rev02
6	24	Rework instruction	2010/12/08	Compal	N12P-GV Strap sets up the mistake	a. Pop R382, Depop R382 (ROM_SO: pull up 10K ohm) b. Pop R380, Change R380 from 15k to 45k. Depop R386.(STRAP2: pull up 45K ohm.) c. Pop R760, Change R760 from 10k to 5k.( STRAP3: pull down 5K ohm.) d. Pop R756. (STRAP4: pull down 10K ohm.) e. Pop R578. (STRAP_REF2, need to stuff with 40K ohm 1%.) f. Pop R757. (PGOOD (pin E7) stuff 10K ohm.)	Rev02
7	05	XDP	2010/12/08	Compal		Depop XDP component	Rev02
8	07	EDP	2010/12/08	Compal	Bom structure error.	Correct R70 bom structure to EDP@	Rev02
9	15	PCH	2010/12/08	Compal		Change R244.1 net name from PCH_RSMRST# to PCH_RSMRST#_R Pop R223,Depop U5 Delete R231(0 ohm) between SUSACK#_R and SUSWARN#_R Add T90 test point for SUSACK#	Rev02
10	17	PCH	2010/12/08	Compal		Delete VGA_ON for PD only. Change PR3.2 to PCH_GPIO53 Delete R257 Change U6,U7 to SA00000OH00	Rev02
11	18	PCH	2010/12/08	Compal	Power sequence for DGPU_PWROK after 1.5VSDGPU	Add Q75,Q74,R841	Rev02
12	22	GPU	2010/12/08	Compal		Change R342.1 from R762.2 to R762.1(NV_PERFORMANCE_R)	Rev02
13	26	GPU	2010/12/08	Compal	Bom structure error.	Correct C381 & C857 bom structure to OPT@	Rev02
14	31	LVDS	2010/12/08	Compal	For LCDVDD rise time sequence issue	Change R468 from 1k to 100k Change C481 from 0.047u to 0.47u PCH_LCD_CLK & PCH_LCD_DATA,Pull high at PCH side. Add R832 between +3VS and JLVDS1.31.	Rev02
15	32,33	CRT.HDMI	2010/12/08	Compal		D8, D9 change material to SCS00003600	Rev02
16	33	HDMI	2010/12/08	Compal		Pop R502,Depop D9 SDVO_CTRL_DATA strap pull high at PCH side	Rev02
17	34,44	ODD.USB3.0	2010/12/08	Compal		Change Q31.Q63.Q71 to SB000008J10	Rev02
18	35	LAN	2010/12/08	Compal	Auto power on issue	Change R541.2 net name from PCH_PCIE_WAKE# to LAN_WAKE#. Pop R541	Rev02
19	35	LAN	2010/12/08	Compal		Change C583 from 27 to 15P Change C582 from 27to 18P Change Y4 from CL(20P)to CL(12P) Add Q76 and Depop R555	Rev02
20	36	Transformer	2010/12/08	Compal		Change T63 from SP050003T10 to SP050003T20	Rev02

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21	36	LAN	2010/12/08	Compal		L31 update CIS Symbol and PCB footprint	Rev02
22	37	3G	2010/12/08	Compal	3G Power noise	Delete L49.L50.R764.R765.R766.R767.U43.C852.C853.CR781.Q69.C856.C854. C855.C851.R572.R782 Change J3G1 Pin 2.4.6.8.10 to +3VS Change R572.3 to +3VS Change J3G1.30 to +VSB Change J3G1.17 to EC_SIM_DETECT#	Rev02
23	37	D_Door switch	2010/12/08	Compal		Add R838,R839 Depop R838 Pop R839	Rev02
24	38	Card Reader	2010/12/08	Compal		Change R590,R591 to 22ohm Change C635,C636 to 10P Add R833 between +3VS and +3VS_CARD	Rev02
25	39	EC	2010/12/08	Compal		Change R621 from 0ohm to 8.2k(Board ID) Add C863	Rev02
26	40	TP	2010/12/08	Compal	TP Pin define issue	Change JTP1 Pin define (Pin-->GND,Pin2-->RIGHT_BTN#,Pin3-->LEFT_BTN#,Pin4-->TP_DATA, Pin5-->TP_CLK,Pin6-->+5VS) Change JTP2 Pin define (Pin-->NC,Pin2-->GND,Pin3-->TP_CLK,Pin4-->TP_DATA,Pin5-->PWM,Pin6-->+5VS) Add C864	Rev02
27	40	Power Button	2010/12/08	Compal		Change R622.2 from +3VALW to +3VALW_EC	Rev02
28	40	Reset Button	2010/12/08	Compal	Reset system by mainpower and BI	Add R844,R836.R837.Q72.Q77 Change R836 to 1K Change R837 to 10K	Rev02
29	41	Power board	2010/12/08	Compal		Change JPWR2.5 from NC pin to BL_R (SJM D_door) Change LID_SW# from LED board(JLED1.8) to Power board(JPWR1.2)	Rev02
30	42	HD Audio Codec	2010/12/08	Compal	Fix HP/MIC Detect issue	Change R649 from 39.2k to 10k Change R650 from 10k to 39.2k	Rev02
31	42	HD Audio Codec	2010/12/08	Compal		Change C704,C705 to SE107225K80 Delete R637.R638.Q39.Q38.R634. R636.R639.R640.J2 Change power from +3VS to +3VS_CODEC. Add R834	Rev02
32	43	Headphone Out/SPDIF	2010/12/08	Compal	HP right and left channel inverse issue	Change R735.1 to HP_RIGHT Change R734.1 to HP_LEFT SWAP JHP1.3 and JHP1.8 (Pin8-->SPDIF_OUT and Pin3-->+5VSPDIF)	Rev02
33	43	Digital MIC	2010/12/08	Compal		Delete R666.R668 Add L50,L51 300ohm bead(SM010017710)	Rev02
34	44	USB3.0	2010/12/08	Compal	Modify SMI circuit for leakage issue	Delete R797,R830 Add R840,Q73.Q71	Rev02
35	44	USB3.0	2010/12/08	Compal		Change c792.c793 from 12P to 15P	Rev02
36	45	USB3.0	2010/12/08	Compal		Delete D46 Change C780 from SGA19151410(D size) to SGA00002N80(B2 size) Depop U41,C204,R754 Add R842,R843	Rev02
37	45	Screw Hole	2010/12/08	Compal		Change H4 from H_3P0 to H_3P3 Change H8 from H_3P0 to H_3P0x5P0 Delete H25	Rev02

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38	46	DC Interface	2010/12/08	Compal		a.+5VS (Change R679 from 20K to 100K) b.+3VS (Change R685 from 47K to 200K) c. +1.5VS (Change R692 from 200K to 750K)	Rev02
39	13~21	PCH	2010/12/08	Compal		Change U3 from SA00004EE10 to SA00004EE40	Rev02
40	38	Caed Reader	2010/12/08	Compal		Change R587 from SD028330A00 to SD028330A80	Rev02
41	20.34. 35.36.42	Capacitor	2010/12/08	Compal		C226, C540, C549, C566, C573, C576, C580, C590, C712 change material to SE000000K80	Rev02
42	24	GPU	2010/12/10	Compal	Update N12P-GV QS DevID: 0x1050	1. ROM_SCLK: pull up 5K ohm. 2. STRAP2: pull down 5K ohm. 3. ROM_SO: pull up 10K ohm.	Rev02
43	44	USB3.0	2010/12/20	Compal	USB driver can't install issue	Change Q73.2 from +3V_USB3.0 to +3V_USB3 Pop R840	Rev03
44	31	CMOS Camera	2010/12/29	Compal		Add R845,Delete R832	Rev03
45	39	BI	2011/01/03	Compal	TI charger short protection prevent	Add R848	Rev03
46	40	TP	2011/01/03	Compal		Change SW2.SW3 from SN111002700 to SN100000K00	Rev03
47	41	LED	2011/01/12	Compal		Change R625 from 3.9K to 680 ohm Change R626 from 2.2K to 390 ohm Change R739 from 3.9K to 390 ohm Change R740 from 100 to 3.3K ohm	Rev03
48	46	VGA_ON	2011/01/13	Compal	Restart dGPU loss issue.	Change R703 from 22K to 100K Add R849 (10K)	Rev04
49	19	CRT	2011/01/22	Compal	water ripple issue	Change L1 from SM01000AX00 to SHI00003Y00	Rev04
50	39	EC	2011/01/25	Compal		Delete U27	Rev0.5
51	41	BTN	2011/01/25	Compal		Change SW6 from SN100001C00 to SN100001D10	Rev0.5
52	39	Board ID	2011/01/27	Compal	Board ID version	Change R621 to 33K	Rev0.5
53	5	CPU XDP	2011/01/27	Compal		Delete C34.C35.Q1.R21.R24.JXDP1.R3~R16.R18~R22.R39~R41.R43.R45~R47.R53~R60 Add T94~T98	Rev0.5
54	40	TP	2011/01/27	Compal		Delete net name TP_PWM	Rev0.5
55	18	DGPU_PWROK	2011/01/27	Compal		Pop C872	Rev0.5
56	44	USB3.0	2011/01/27	Compal	For EEPROM (EON).	Pop R720	Rev0.5

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