

Compal Confidential

Model Name :Q5WV1/Q5WS1

Compal Project Name :

File Name : LA-7912P

Compal Confidential

Q5WV1 M/B Schematics Document

Intel Sandy/Ivy Bridge Processor with DDRIII + Panther Point PCH

Nvidia N13P GS/GL

2012-02-03b

REV : 0 . 3

MB PCB

Part Number	Description
DA60000SV00	PCB 0N4 LA-7912P REV0 M/B

ZZZ2 1G@



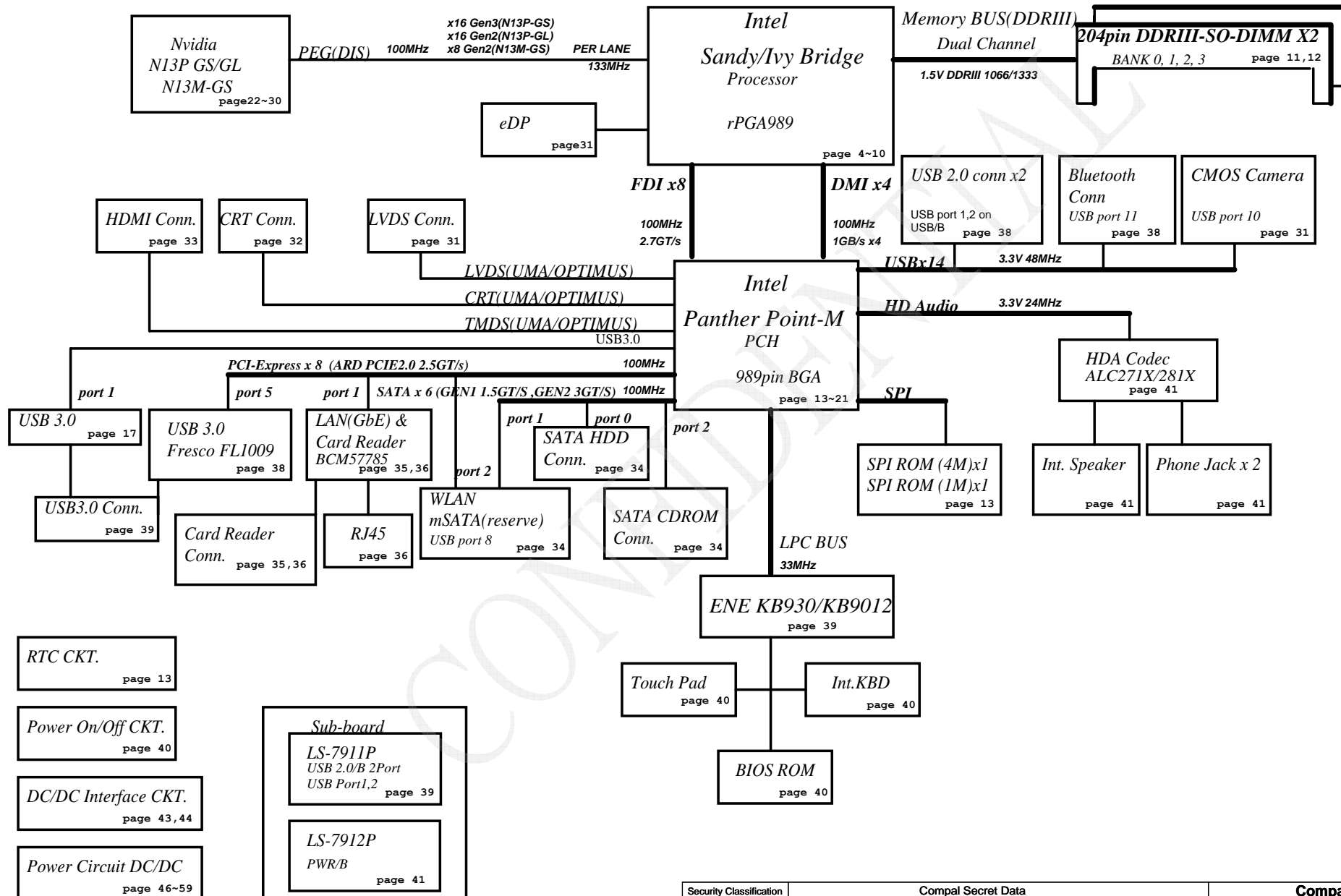
X76344BOL01

ZZZ3 2G@



X76344BOL02

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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
+1.05VSDGPU	+1.0VSPDGPU to +1.0VSDGPU switched power rail for GPU	ON	OFF	OFF
+1.05VS_VTT	+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 rail 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
+1.8VSDGPU	+1.8VS to +1.8VSDGPU switched power rail for 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

4319IDBOL01SMT MB A7912 Q5WV1 HM77 QC UMA 3
4319IDBOL02SMT MB A7912 Q5WV1 HM77 QC 13PGL1G 3
4319IDBOL03SMT MB A7912 Q5WV1 HM77 QC 13PGL2G 3
4319IDBOL04SMT MB A7912 Q5WV1 HM77 QC 13PGS1G 3
4319IDBOL05SMT MB A7912 Q5WV1 HM77 QC 13PGS2G 3
4319IDBOL06SMT MB A7912 Q5WV1 HM77 DC UMA 2
4319IDBOL07SMT MB A7912 Q5WV1 HM77 DC UMA 3
4319IDBOL08SMT MB A7912 Q5WV1 HM77 DC 13PGL1G 2
4319IDBOL09SMT MB A7912 Q5WV1 HM77 DC 13PGL1G 3
4319IDBOL10SMT MB A7912 Q5WV1 HM77 DC 13PGL2G 2
4319IDBOL11SMT MB A7912 Q5WV1 HM77 DC 13PGL2G 3
4319IDBOL12SMT MB A7912 Q5WV1 HM77 DC 13MGS1G 2
4319IDBOL13SMT MB A7912 Q5WV1 HM77 DC 13MGS1G 3
4319IDBOL14SMT MB A7912 Q5WV1 HM77 DC 13PGS2G 3

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	VAD_BID min	VAD_BID typ	VAD_BID 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	
1	
2	
3	0.1
4	0.2
5	0.3
6	0.4
7	

BTO Option Table

BTO Item	BOM Structure
UMA Only	UMAO@
Dis with OPTIMUS	DIS@
Blue Tooth	BT@
Internal USB 3.0	PUSB3@
Internal USB 2.0	PUSB@
USB 2.0 flag	PUSB2@
eDP	eDP@
VRAM	X76@
Connector	CONN@
Unpop	@
N13P-GS	GS@
N13P-GL	GL@
Win8	Win8@
Audio ALC271X	271X@
Audio ALC281X	281X@
PCH HM65	HM65@
PCH HM76	HM76@
N13P-GS & GL	GSGL@
N13M-GS	GM@
support AC function	AC@
no AC function	NOAC@

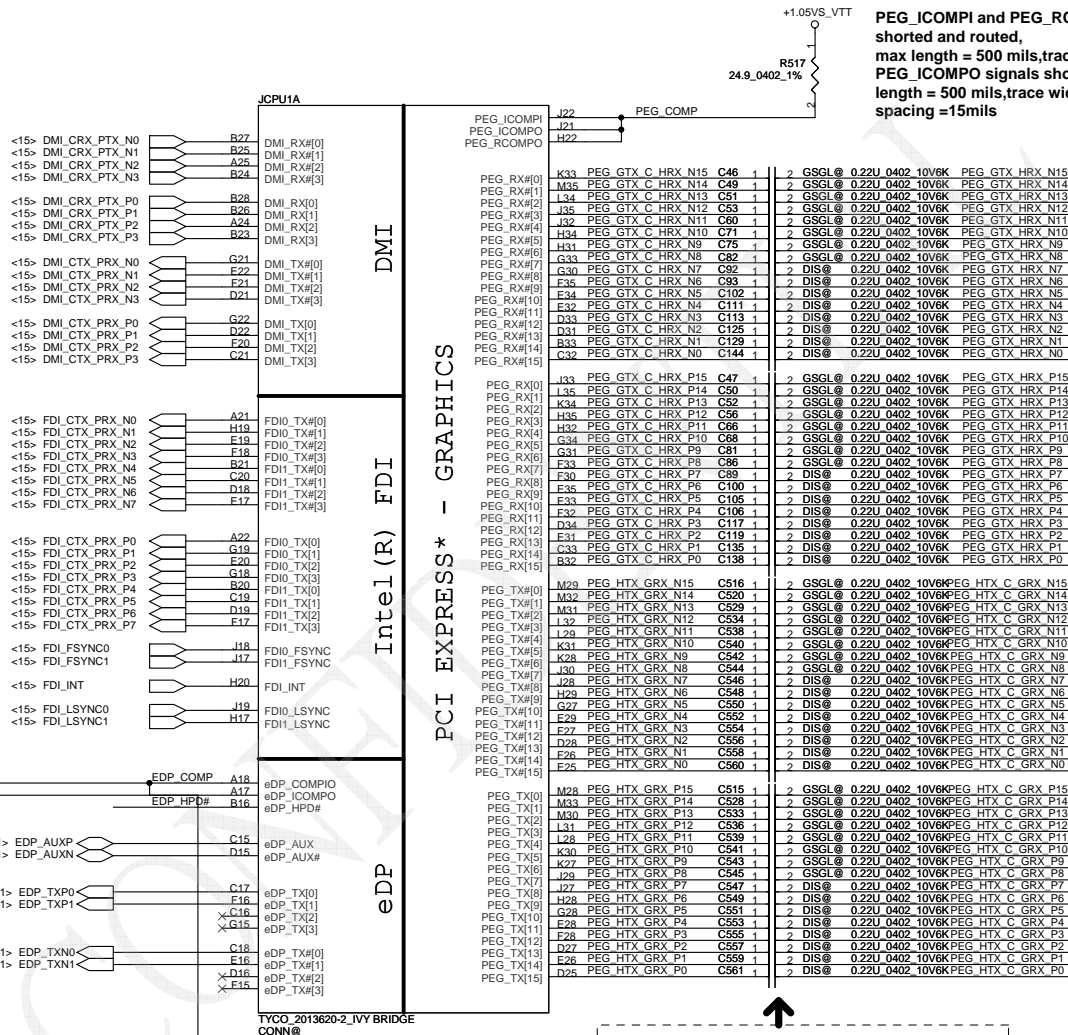
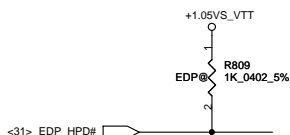
USB Port Table

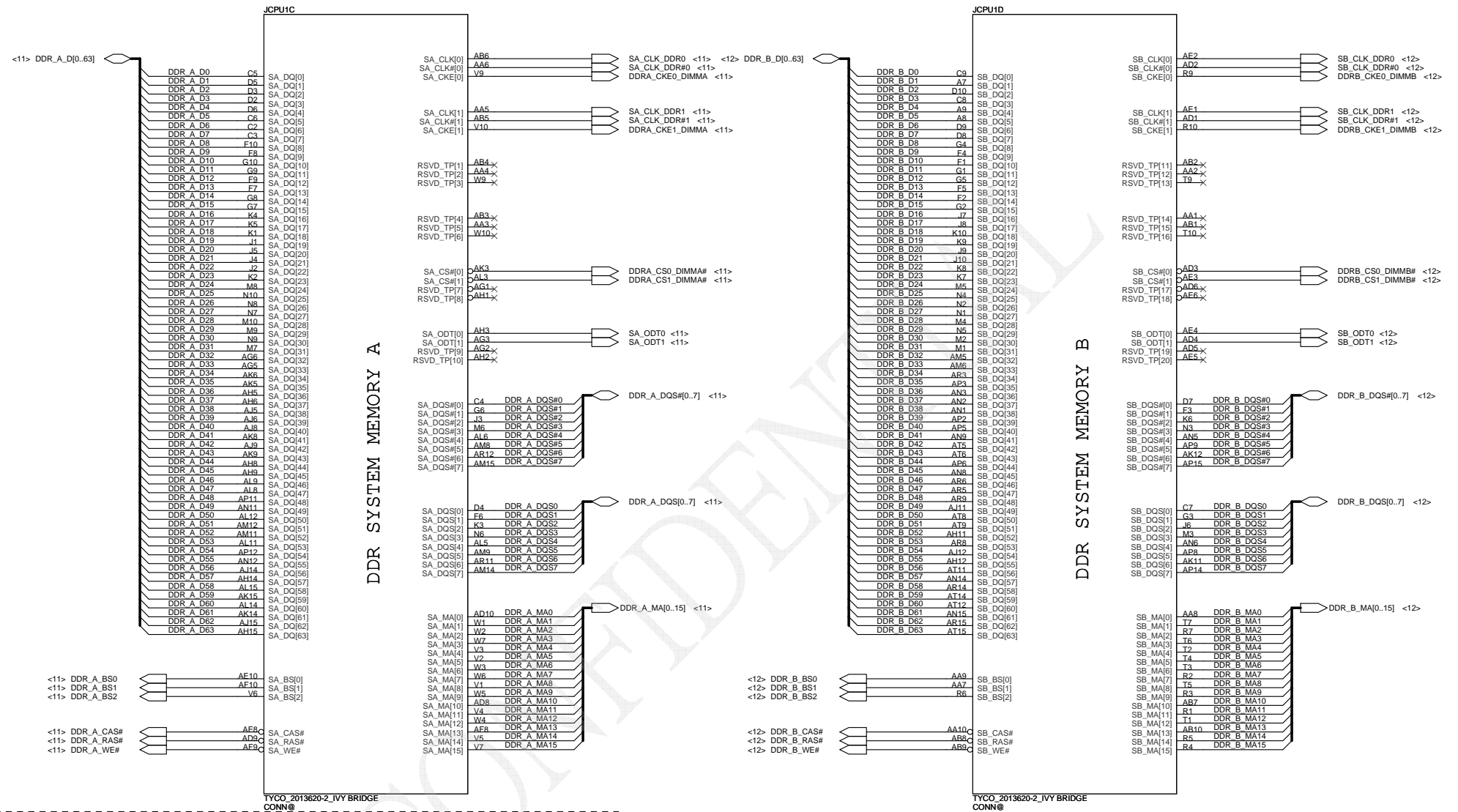
USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB3.0 colay USB2.0 Conn
		1	USB/B (Right Side)
		2	USB/B (Right Side)
	UHCI1	3	
		4	
	UHCI2	5	
		6	
EHCI2	UHCI3	7	
		8	Mini Card 1(WLAN)
	UHCI4	9	
		10	Camera
	UHCI5	11	BlueTooth
		12	
	UHCI6	13	

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eDP_COMPIO and ICOMPO signals should be shorted near balls, Trace Width for EDP_COMPIO=4mils, EDP_ICOMPO=12mils, and both length less than 500 mils... should not be left floating ,even if disable eDP function...

Add eDP circuit

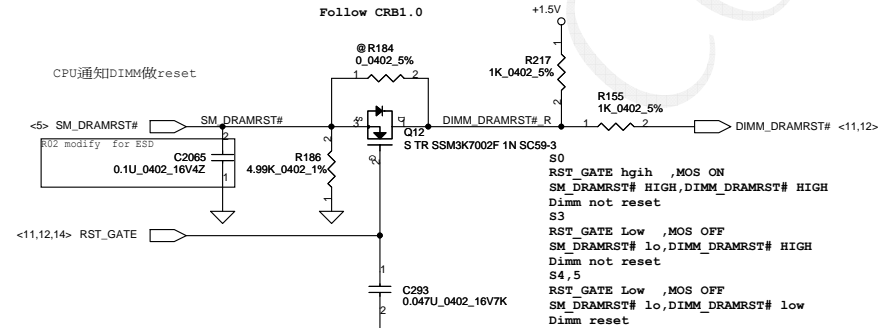




TYCO_2013620-2_IVY BRIDGE
CONN@

TYCO_2013620-2_IVY BRIDGE
CONN@

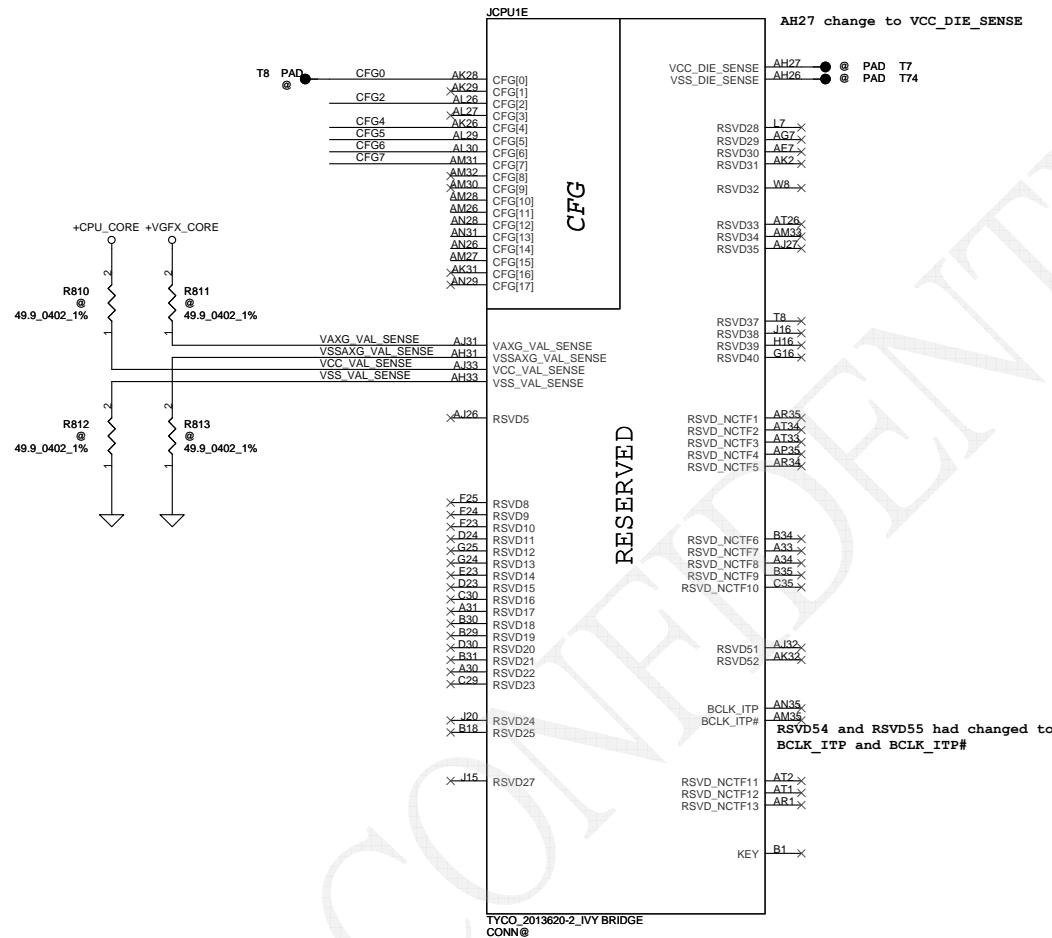
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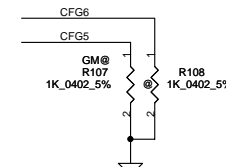
CFG Straps for Processor

AH26	Sandy	Ivy
	GND	VSS_DIE_SENSE

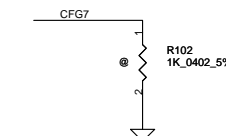


PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition * 0: Lane Reversed

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

SV type CPU

JCPU1F

POWER

+CPU_CORE

QC 53A
DC 53A

8.5A

+1.05VS_VTT

VCC1
VCC2
VCC3
VCC4
VCC5
VCC6
VCC7
VCC8
VCC9
VCC10
VCC11
VCC12
VCC13
VCC14
VCC15
VCC16
VCC17
VCC18
VCC19
VCC20
VCC21
VCC22
VCC23
VCC24
VCC25
VCC26
VCC27
VCC28
VCC29
VCC30
VCC31
VCC32
VCC33
VCC34
VCC35
VCC36
VCC37
VCC38
VCC39
VCC40
VCC41
VCC42
VCC43
VCC44
VCC45
VCC46
VCC47
VCC48
VCC49
VCC50
VCC51
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VCC58
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VCC62
VCC63
VCC64
VCC65
VCC66
VCC67
VCC68
VCC69
VCC70
VCC71
VCC72
VCC73
VCC74
VCC75
VCC76
VCC77
VCC78
VCC79
VCC80
VCC81
VCC82
VCC83
VCC84
VCC85
VCC86
VCC87
VCC88
VCC89
VCC90
VCC91
VCC92
VCC93
VCC94
VCC95
VCC96
VCC97
VCC98
VCC99
VCC100

VCCIO1
VCCIO2
VCCIO3
VCCIO4
VCCIO5
VCCIO6
VCCIO7
VCCIO8
VCCIO9
VCCIO10
VCCIO11
VCCIO12
VCCIO13
VCCIO14
VCCIO15
VCCIO16
VCCIO17
VCCIO18
VCCIO19
VCCIO20
VCCIO21
VCCIO22
VCCIO23
VCCIO24
VCCIO25
VCCIO26
VCCIO27
VCCIO28
VCCIO29
VCCIO30
VCCIO31
VCCIO32
VCCIO33
VCCIO34
VCCIO35
VCCIO36
VCCIO37
VCCIO38
VCCIO39
VCCIO40

PEG AND DDR

CORE SUPPLY

SVID

SENSE LINES

VIDALERT#
VIDSCLK
VIDSOUT

A128 H CPU SVIDALRT#
A130 H CPU SVIDCLK
A128 H CPU SVIDDAT

R450 130_0402_1%
R448 43_0402_1%
R446 1 2 0.0402 5%
R449 1 2 0.0402 5%

Place the PU
resistors close to CPU

VCC_SENSE
VSS_SENSE

A135 VCCSENSE R
A134 VSSSENSE R

R444 1 2 0.0402 5%
R443 1 2 0.0402 5%

VCCIO_SENSE
VSS_SENSE_VCCIO

R910 10_0402_5%
R10 VSSIO_SENSE
A10 VSSIO_SENSE

VCCIO_SENSE <50>
VSSIO_SENSE <50>

change to
VSS_SENSE_VCCIO

R163 10_0402_5%

Should change to connect form
power circuit & layout differential
with VCCIO_SENSE.

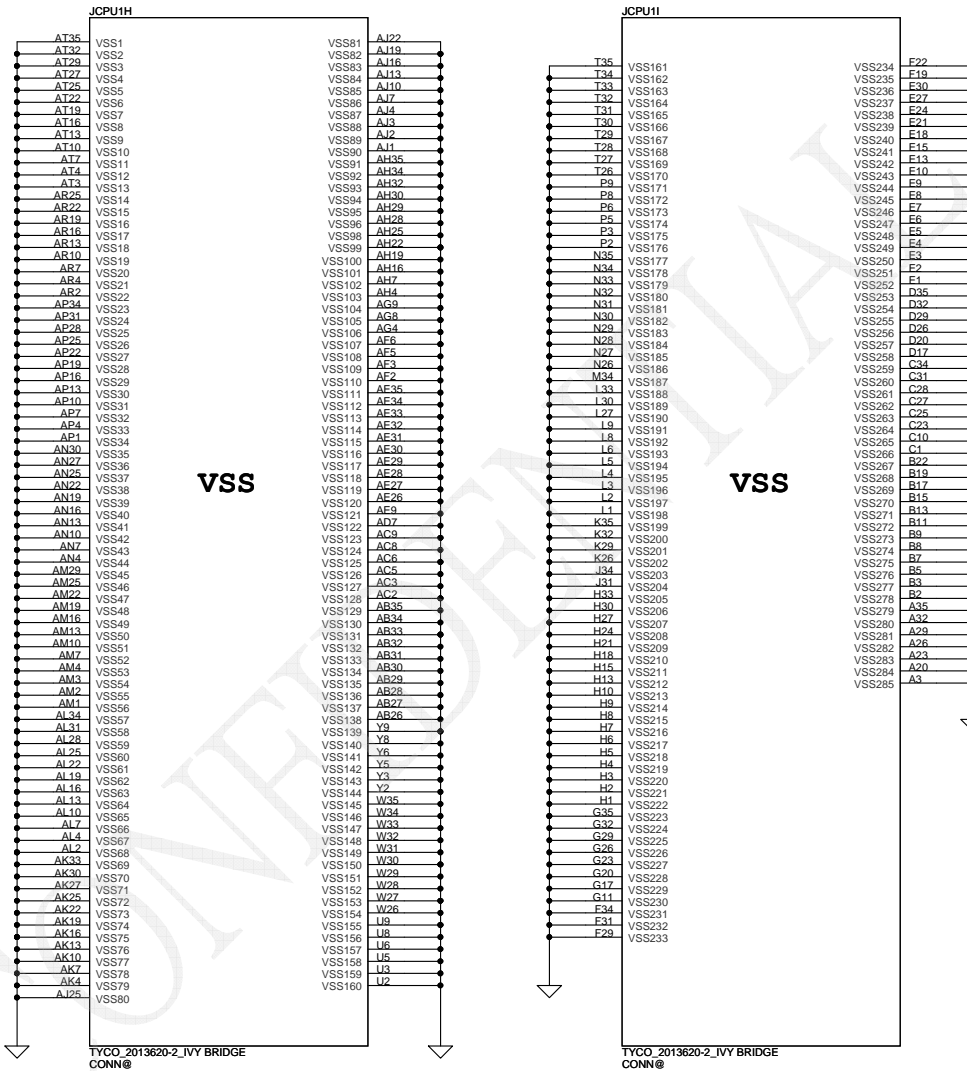
+CPU_CORE

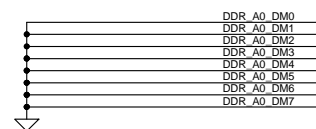
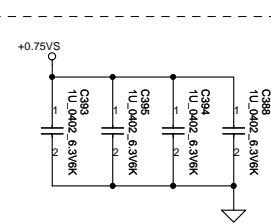
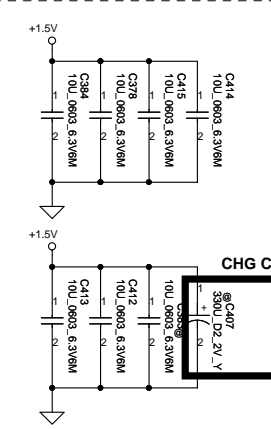
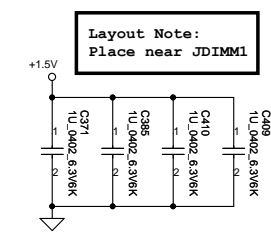
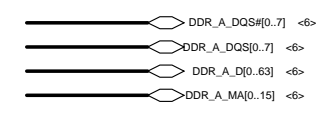
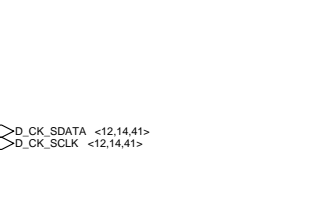
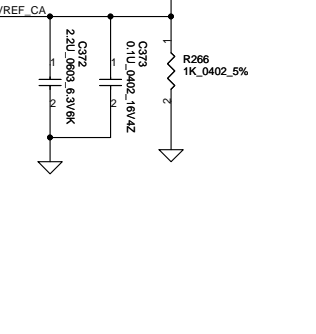
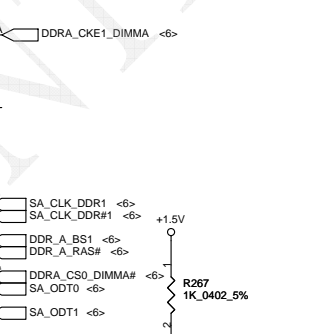
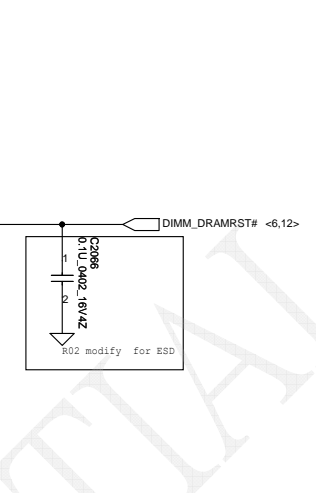
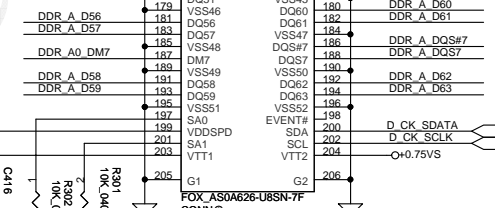
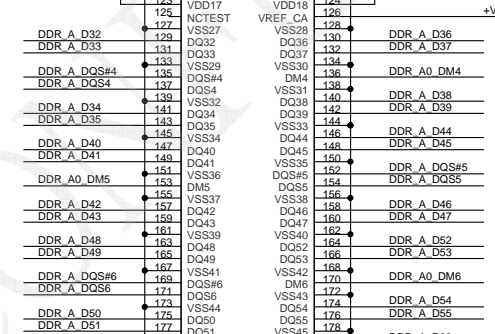
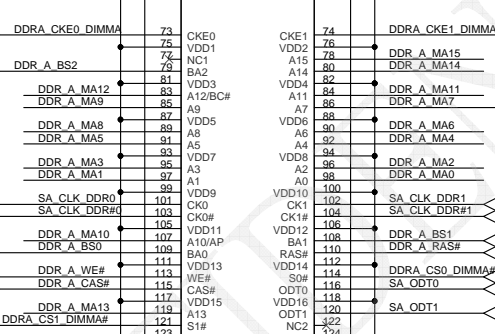
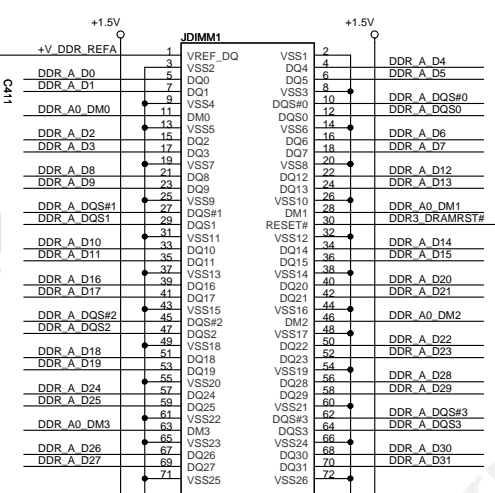
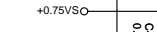
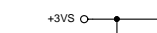
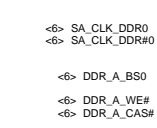
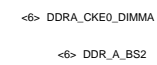
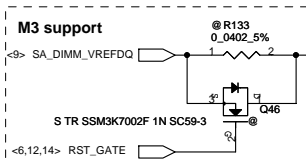
R445 100_0402_1%
R442 100_0402_1%

VCCSENSE <52>
VSSSENSE <52>

TYCO_2013620-2_IVY BRIDGE CONN@

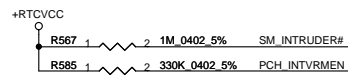
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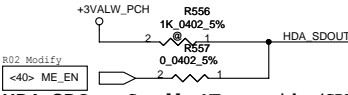
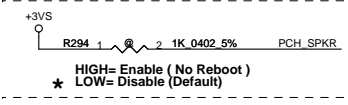


DIMM_1 Reserve H:8mm

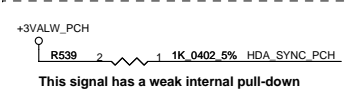
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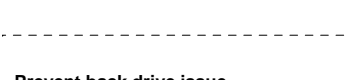
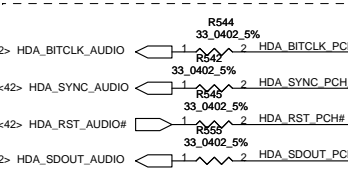
INTVRMEN
★ H : Integrated VRM enable
L : Integrated VRM disable
(INTVRMEN should always be pull high.)



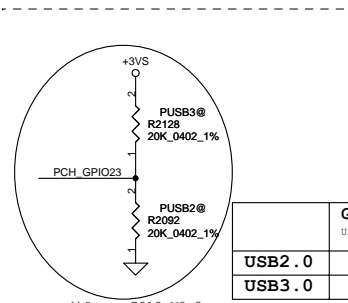
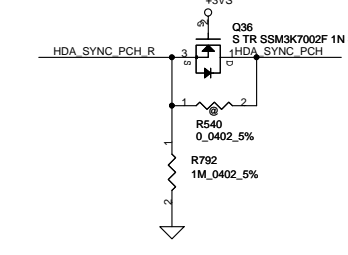
HDA_SDO as Capella ME override (GPIO33)
★ ME debug mode, this signal has a weak internal PD
Low = Disabled (Default)
High = Enabled [Flash Descriptor Security Override]



On Die PLL VR Select is supplied by 1.5V when smaped high
★ 1.8V when sampled low
Needs to be pulled High for Huron River platform

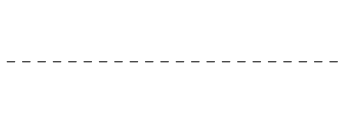
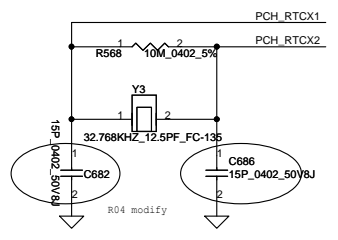


Prevent back drive issue.

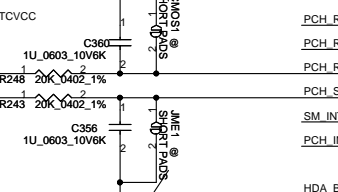


modify on 7912 V0.3

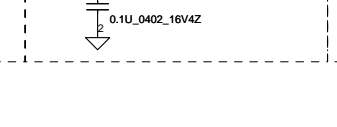
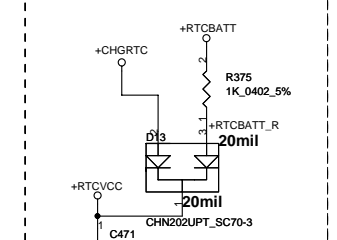
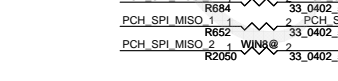
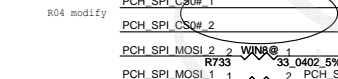
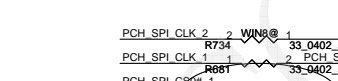
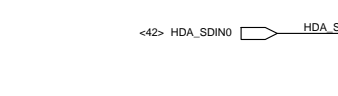
	GPIO23
USB2.0	0
USB3.0	1



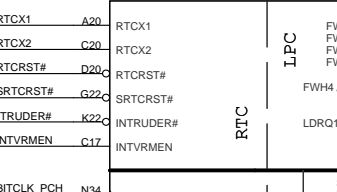
RTCRST close RAM door



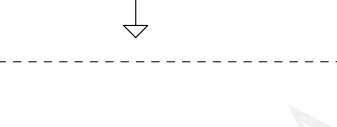
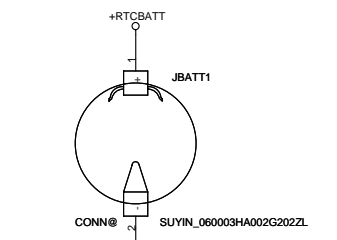
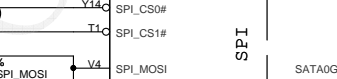
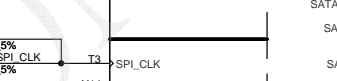
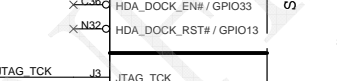
SRTCST close RAM door



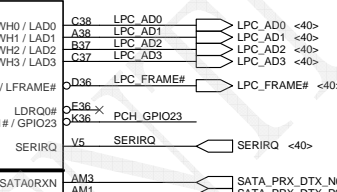
RTCRST close RAM door



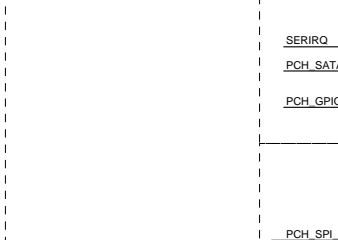
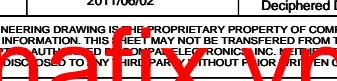
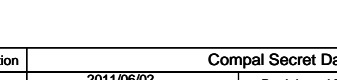
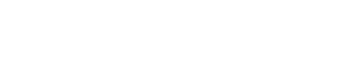
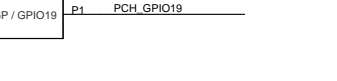
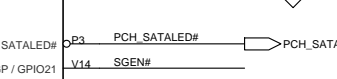
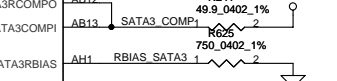
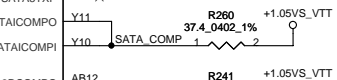
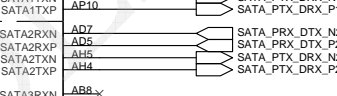
SRTCST close RAM door



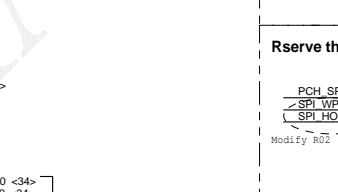
RTCRST close RAM door



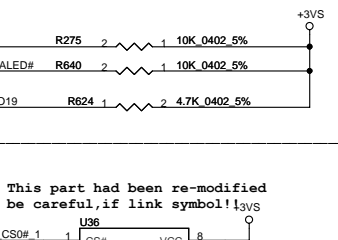
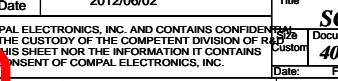
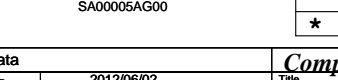
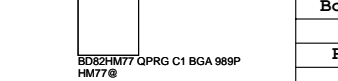
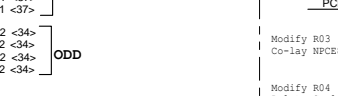
SRTCST close RAM door



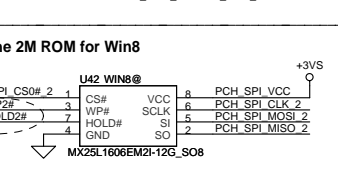
RTCRST close RAM door



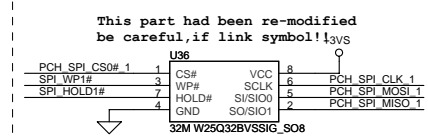
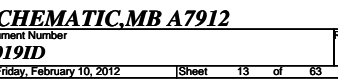
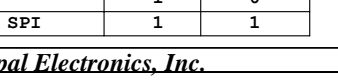
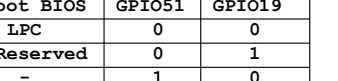
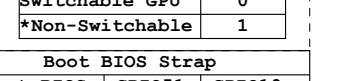
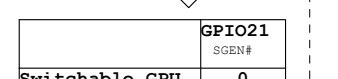
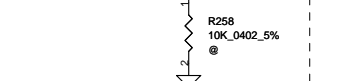
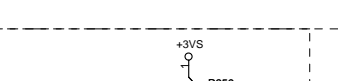
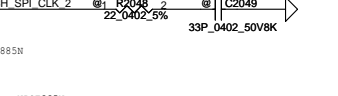
SRTCST close RAM door



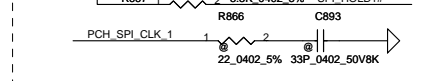
RTCRST close RAM door



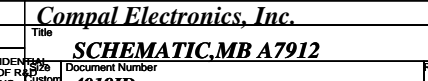
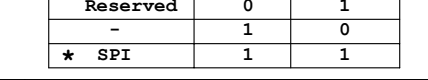
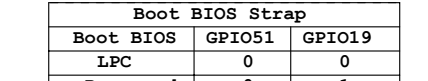
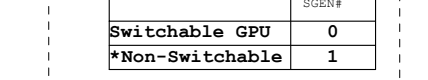
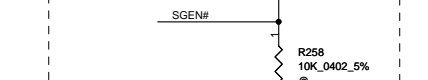
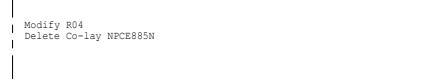
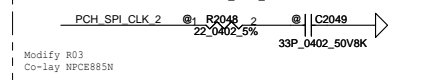
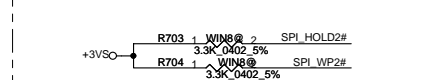
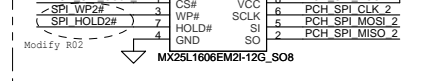
SRTCST close RAM door



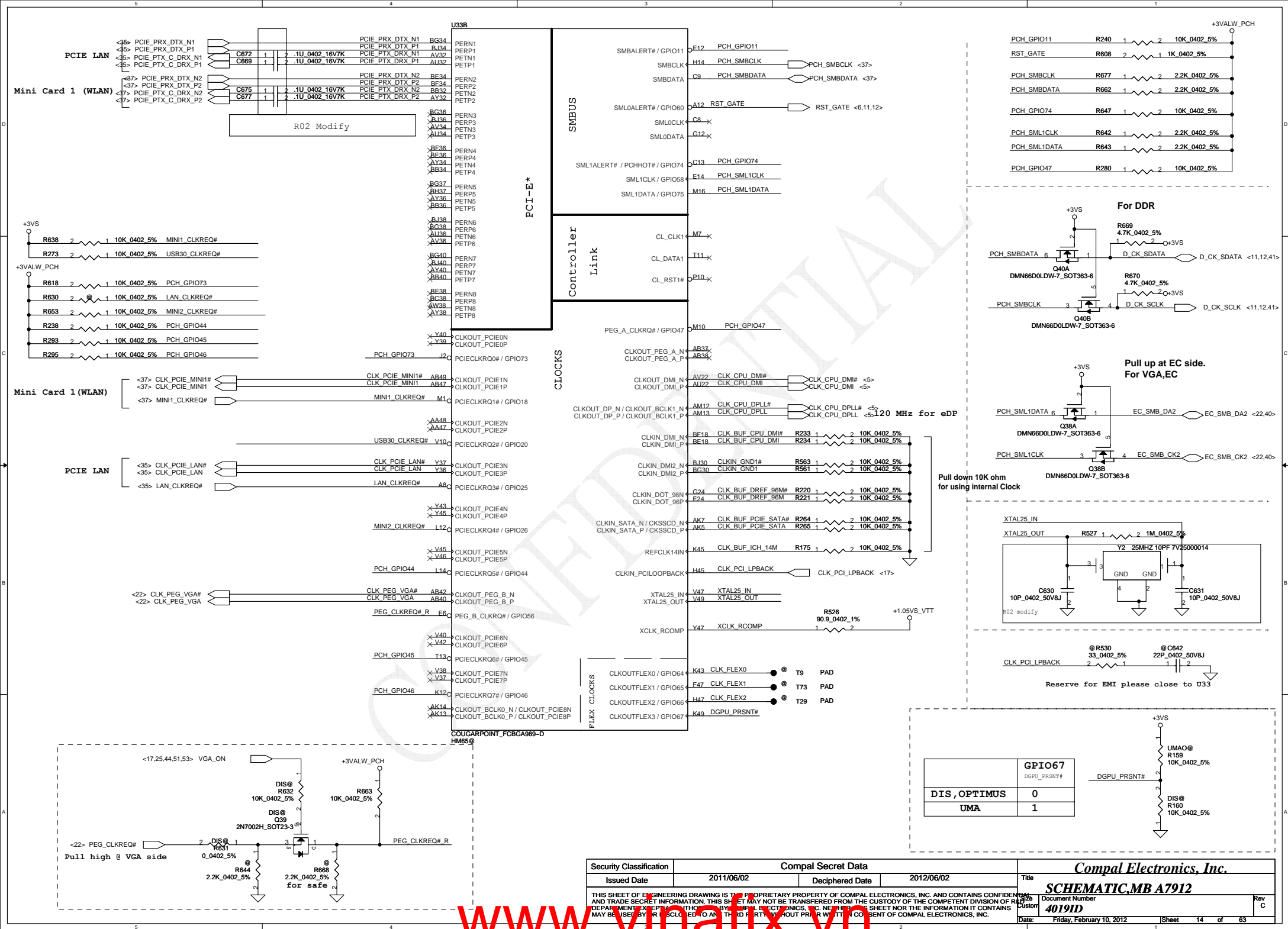
SPI ROM FOR ME (4MB)
Footprint 200mil

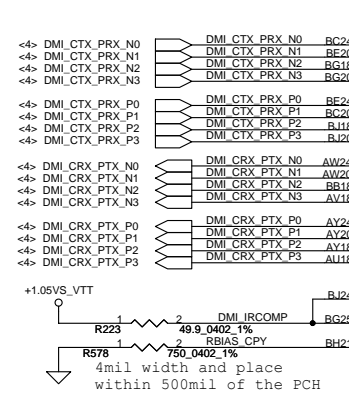
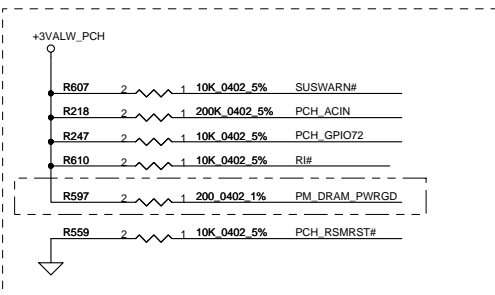


Rserve the 2M ROM for Win8

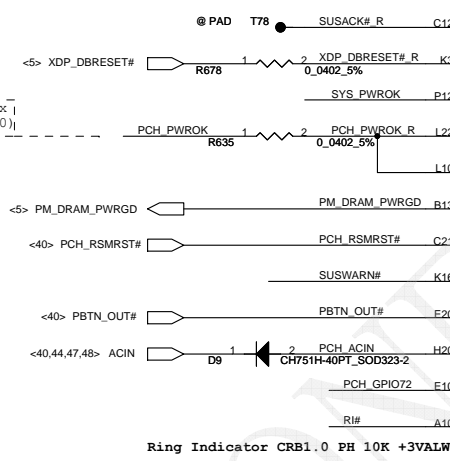


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Title		SCHEMATIC, MB A7912	
Date		Friday, February 10, 2012	
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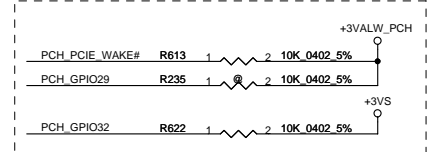
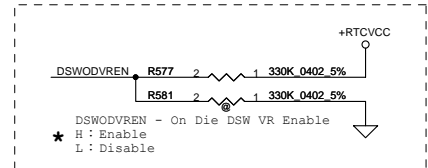
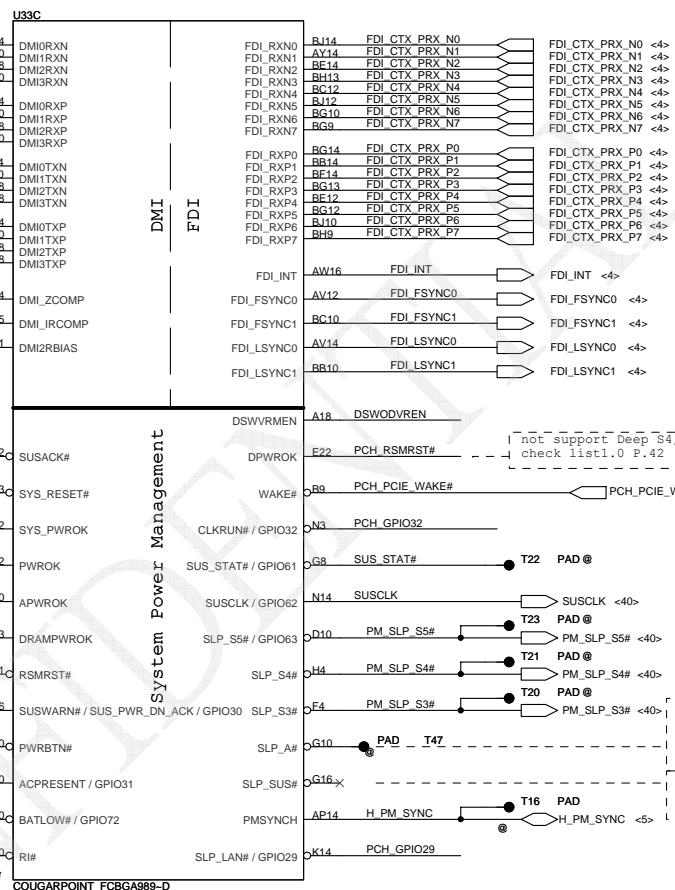




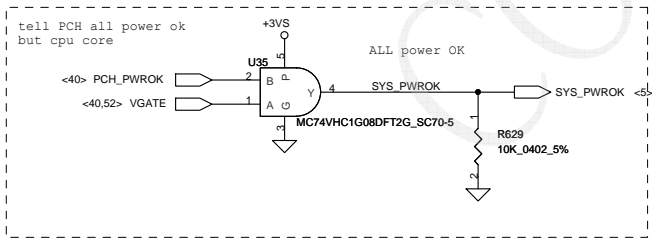
not support AMT APWROK can mux with PWROK (check list1.0 P.40)



Ring Indicator CRB1.0 PH 10K +3VALW



Can be left NC when IAMT is not support on the platform
not support Deep S4,S5 can NC PCH EDS1.2 P.74



<40> ENBKL ENBKL R532 2 0.0402_5% IGPU_BKLT_EN

+3VS
R174 1 2.2K_0402_5% CTRL_CLK
R158 1 2.2K_0402_5% CTRL_DATA
R156 1 2.2K_0402_5% PCH_LCD_CLK
R157 1 2.2K_0402_5% PCH_LCD_DATA

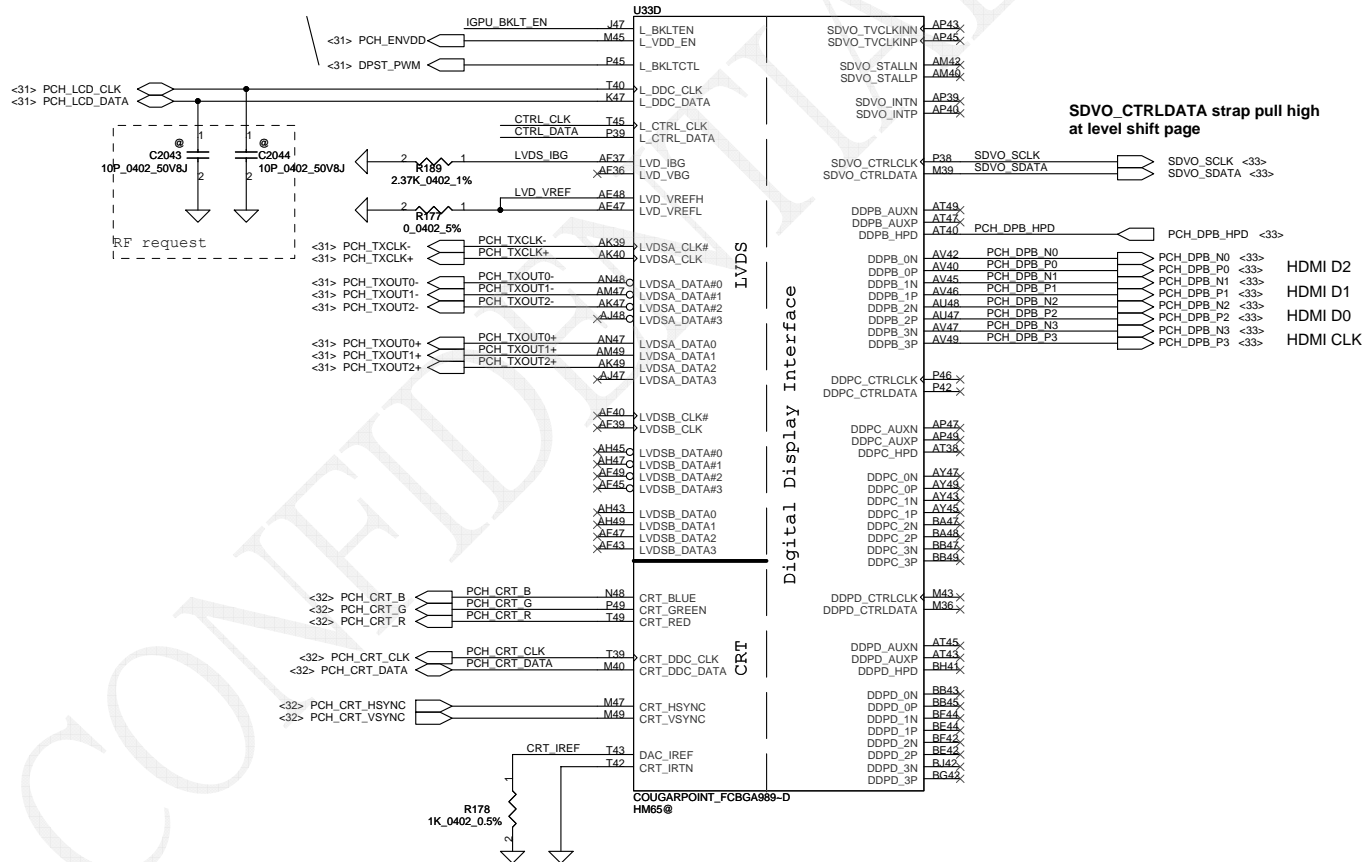
+3VS
R521 1 2.2K_0402_5% PCH_CRT_CLK
R522 1 2.2K_0402_5% PCH_CRT_DATA

R534 1 2.150_0402_1% PCH_CRT_B
R533 1 2.150_0402_1% PCH_CRT_G
R535 1 2.150_0402_1% PCH_CRT_R

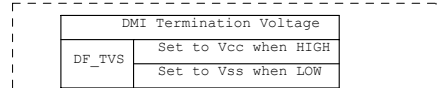
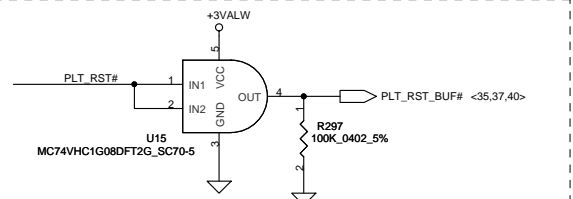
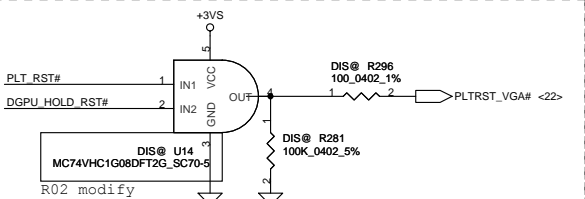
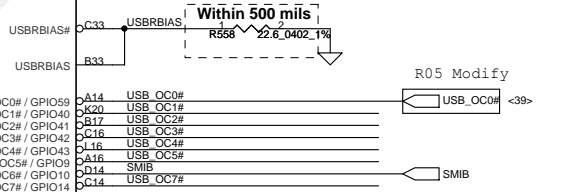
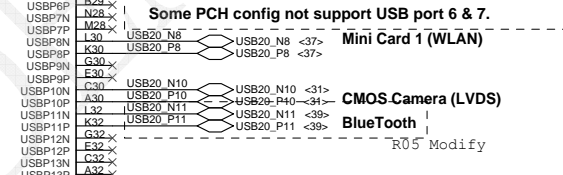
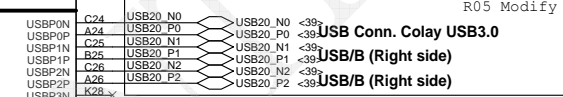
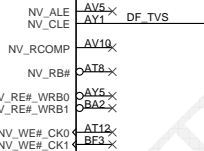
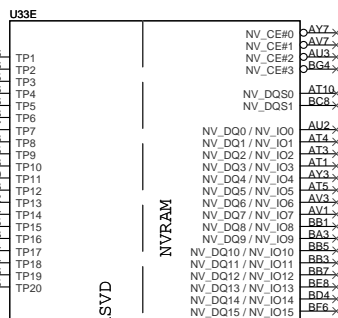
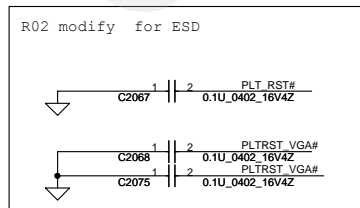
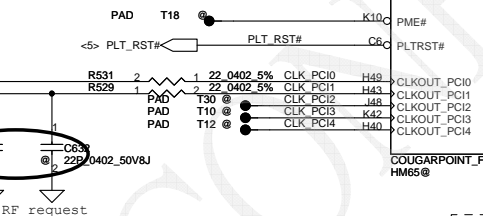
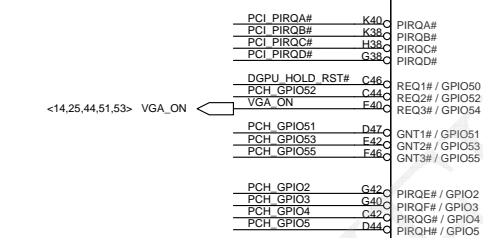
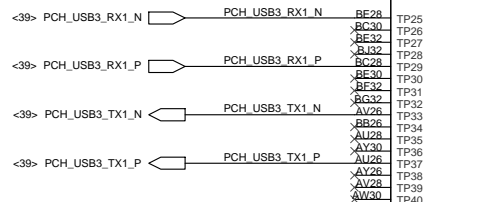
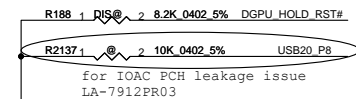
R02 Modify

C2076 1 1U_0402_6.3V6K PCH_DPB_HPD

Pull high at LVDS conn side.



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DG 1.2 CRB1.0 PH 2.2K series 1K

+1.8VS

R633
2.2K_0402_5%

2

H_SNB_IVB#

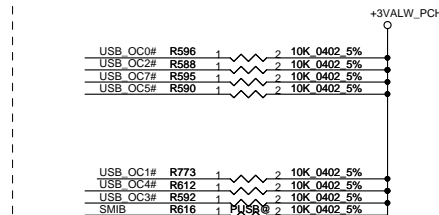
DF TVS

R626

2K_0402_5%

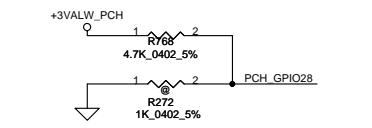
1K_0402_5%

CLOSE TO THE BRANCHING POINT

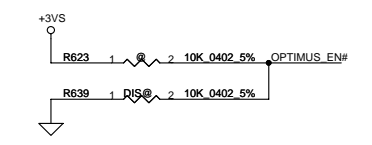
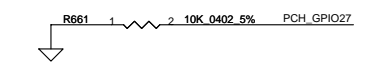


Boot BIOS Strap bit1 BBS1			
GNT1#/ GPIO51	Bit11	Bit10	Boot BIOS Destination
	0	1	Reserved
	1	0	PCI
	1	1	SPI
	0	0	LPC

HDA_SYNC PH(PLL =+1.5VS)
GPIO28
On-Die PLL Voltage Regulator
This signal has a weak internal pull up
★ H : On-Die 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
DIS Only	1

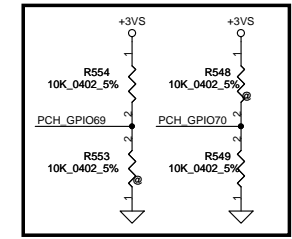
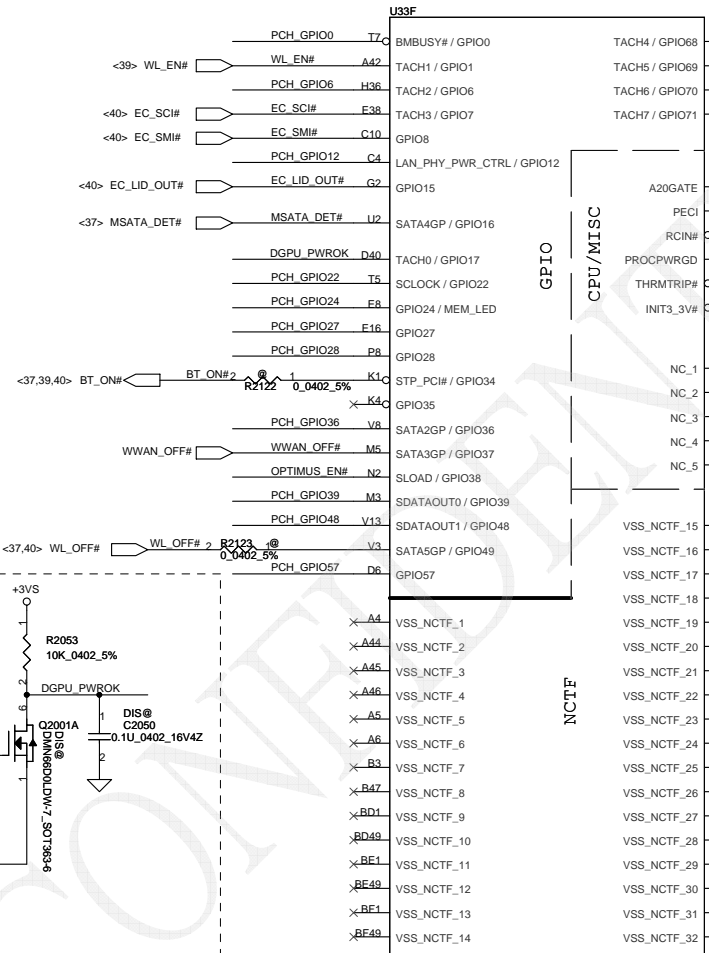
R277	200K 0.402 5%	WWAN_OFF#
R276	10K 0.402 5%	PCH_GPIO0
R546	10K 0.402 5%	WL_EN#
R191	10K 0.402 5%	PCH_GPIO6
R641	10K 0.402 5%	MSATA_DET#
R290	10K 0.402 5%	PCH_GPIO22
R649	10K 0.402 5%	PCH_GPIO39
R291	200K 0.402 5%	PCH_GPIO36
R619	10K 0.402 5%	BT_ON#
R292	10K 0.402 5%	PCH_GPIO48
R274	10K 0.402 5%	WL_OFF#

R262	10K 0.402 5%	PCH_GPIO24
R620	10K 0.402 5%	PCH_GPIO12
R672	1K 0.402 5%	EC_LID_OUT#
R263	10K 0.402 5%	PCH_GPIO57

R911	10K 0.402 5%	PCH_GPIO36
R912	10K 0.402 5%	WWAN_OFF#

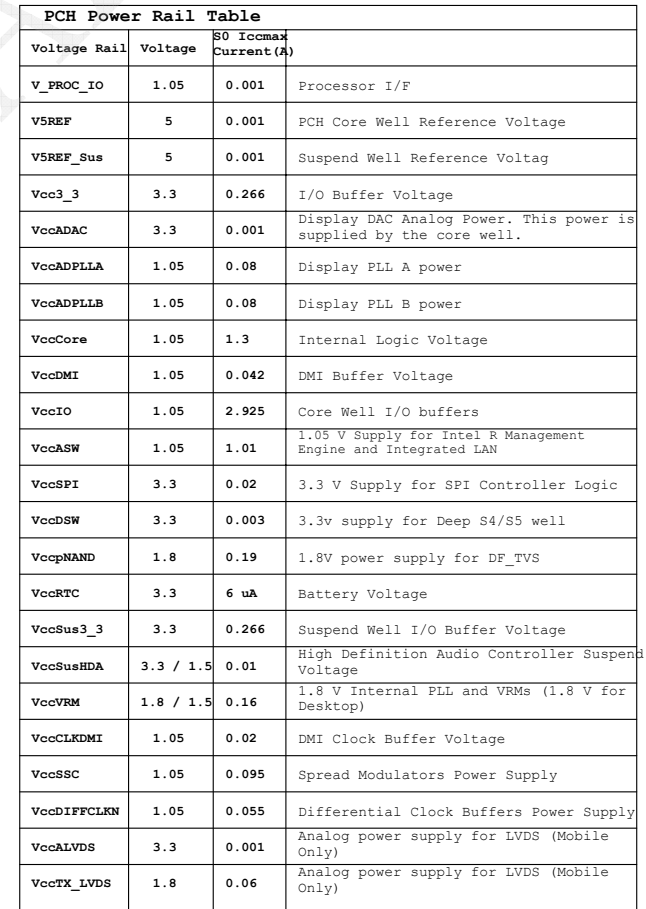
GPIO24 Unmultiplexed
NOTE: GPIO24 configuration register bits are not cleared by CF9h reset event.
CRB1.0 PH10K to +3VALW

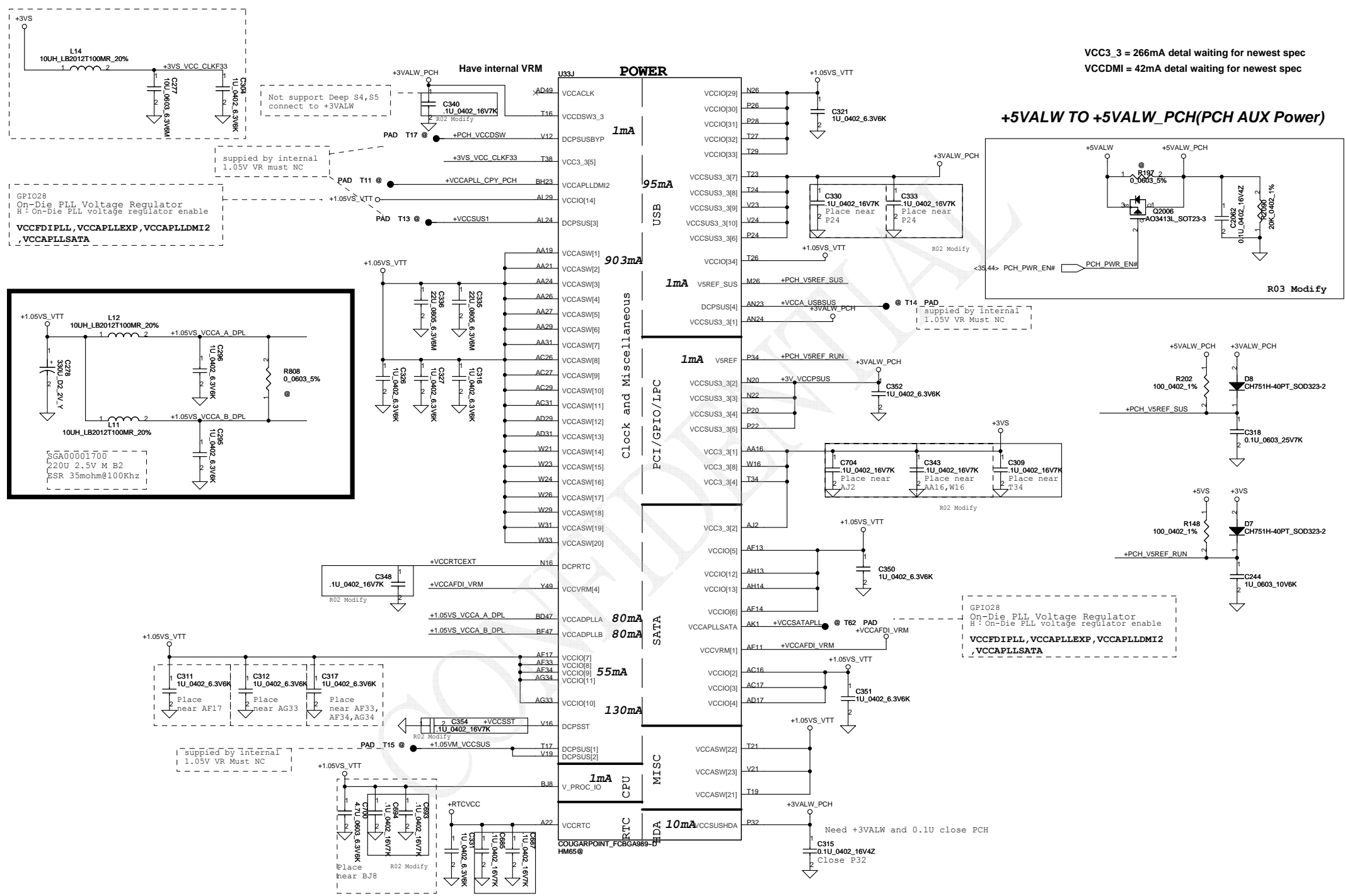
GPIO36/GPIO37 is Strap functionality that requires internal pull down to be sampled at rising PWR0K. When uses as SATA2GP/SATA3GP for mechanical presence detect - use a external pull up 150K-200K ohm to Vcc3_3
When used as GP input - ensure GPI is not driven high during strap sampling window
When Unused as GPIO or SATA*GP - use 8.2K-10K pull-down
check list page 47



Project ID	GPIO69	GPIO70
Q5WE0	0	0
Q7YE0	0	0
*Q5Wxx-QC	1	0
x	1	1

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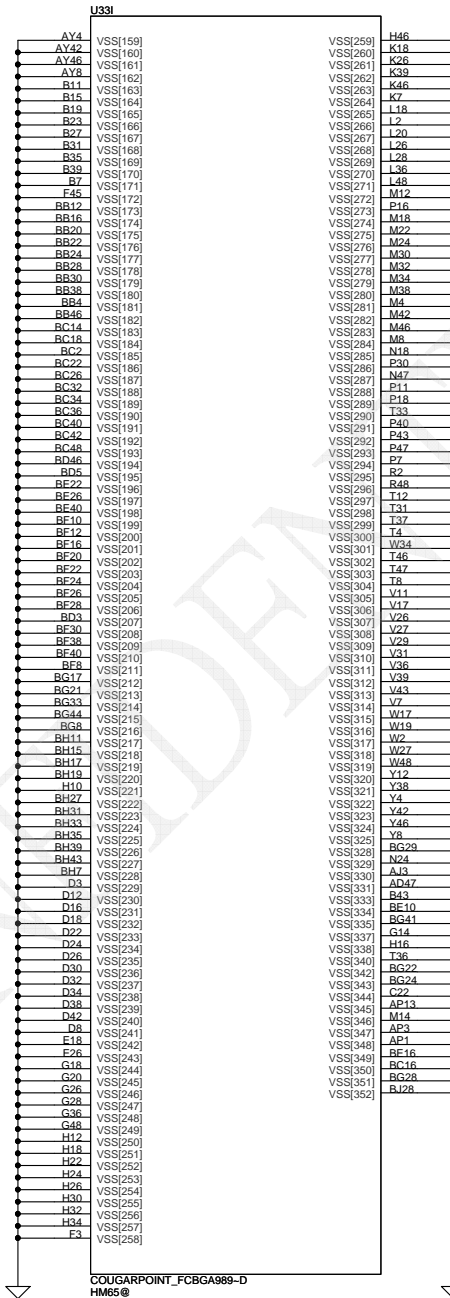
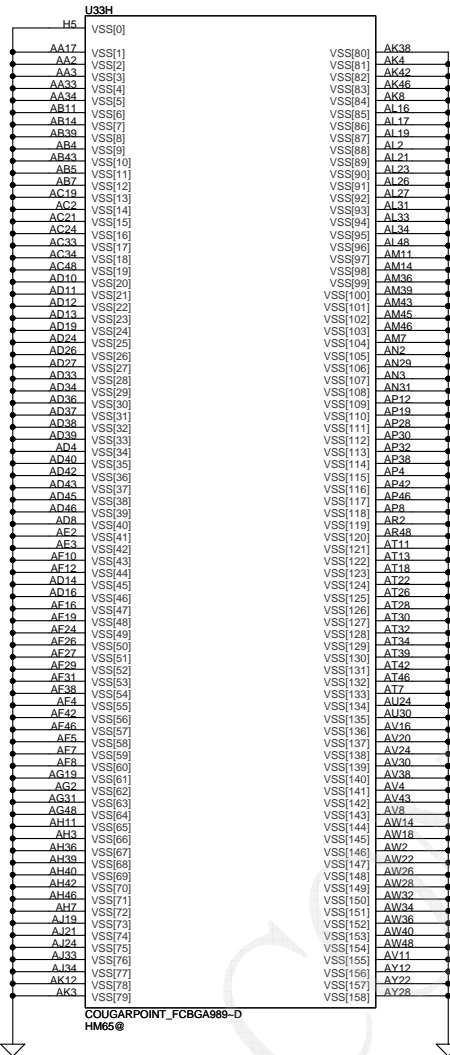




VCC3_3 = 266mA detal waiting for newest spec
VCCDMI = 42mA detal waiting for newest spec

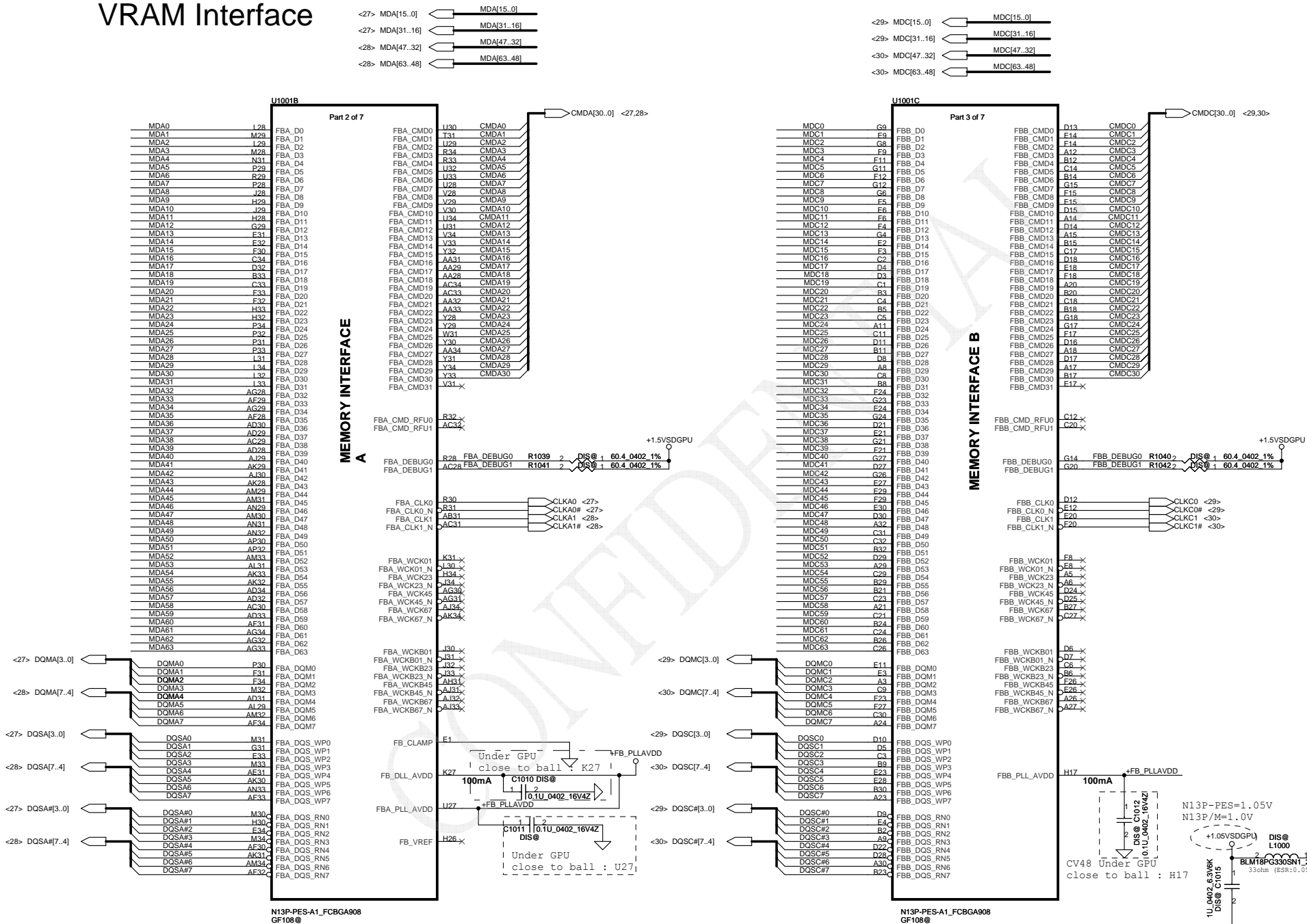
+5VALW TO +5VALW_PCH(PCH AUX Power)

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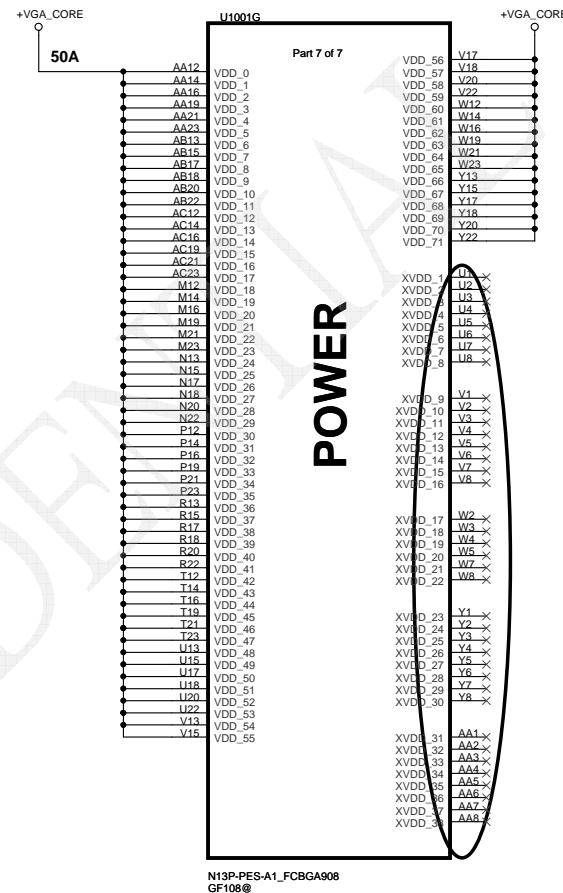
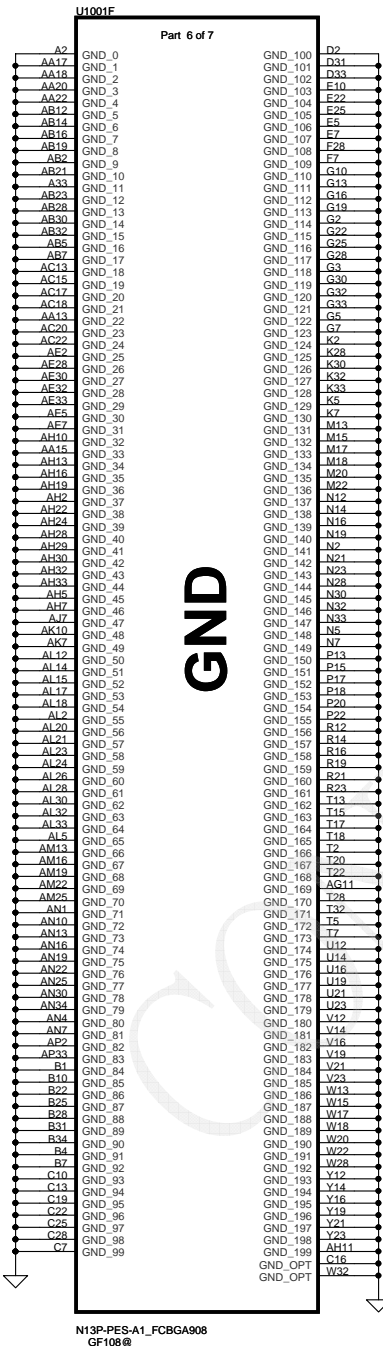
VRAM Interface



[illegible][illegible]

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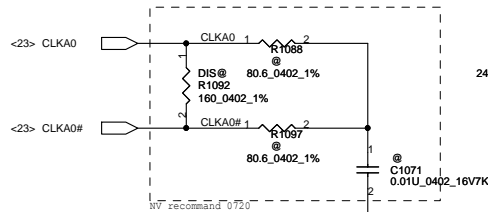
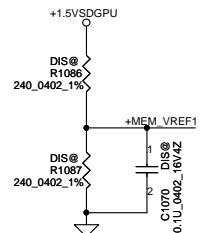
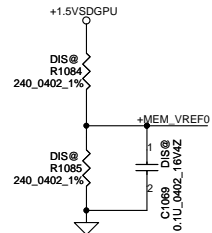


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VRAM DDR3 chips (1GB)

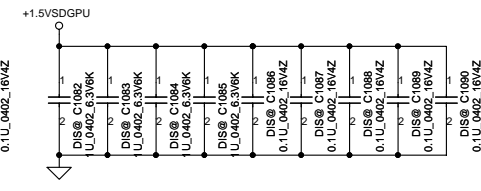
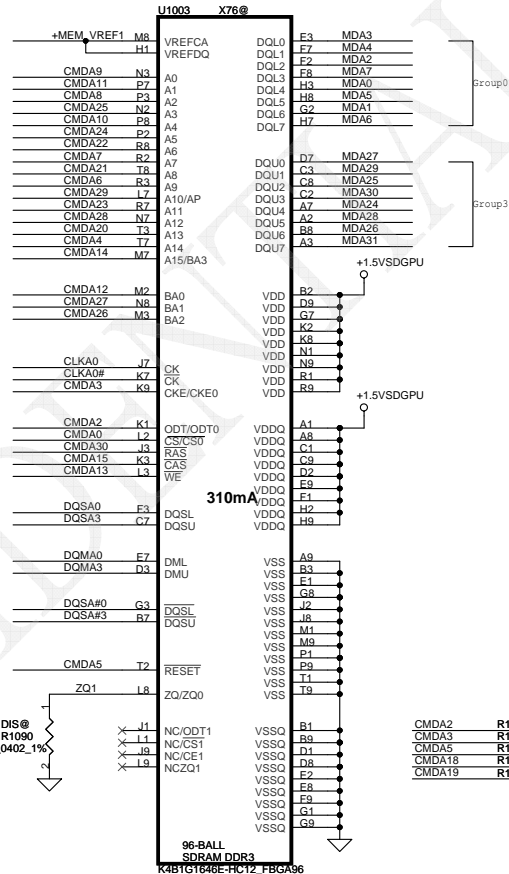
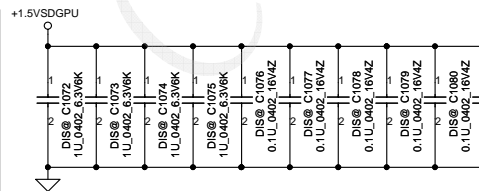
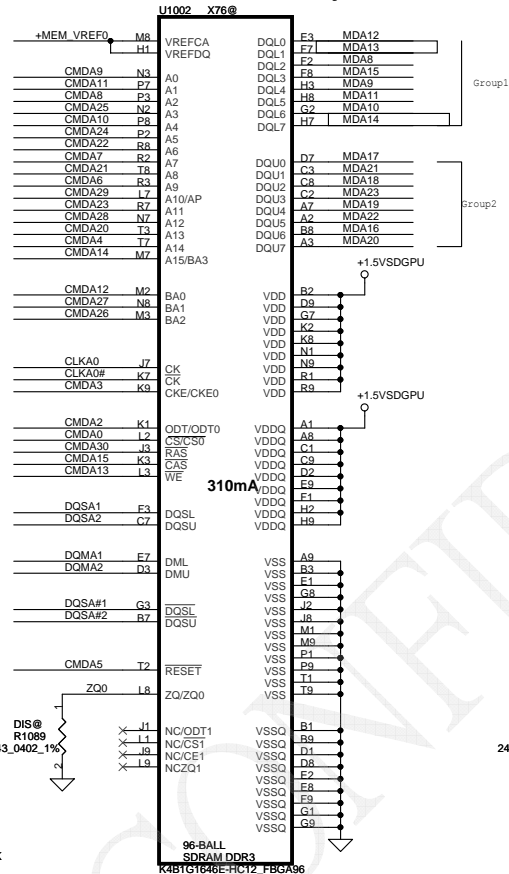
64Mx16 DDR3 *8==>1GB
128Mx16 DDR3 *8==>2GB

<23,28> DQSA[7..0] DQSA[7..0]
<23,28> DQSA#7..0 DQSA#7..0
<23,28> DQMA[7..0] DQMA[7..0]
<23,28> MDA[63..0] MDA[63..0]
<23,28> CMDA[30..0] CMDA[30..0]



R04 modify for EMI

R02 modify
Swap MDA13 and MDA14



CMDA2 R1091 DIS@ 2 10K 0402 5%
CMDA3 R1093 DIS@ 2 10K 0402 5%
CMDA5 R1094 DIS@ 2 10K 0402 5%
CMDA18 R1095 DIS@ 2 10K 0402 5%
CMDA19 R1096 DIS@ 2 10K 0402 5%

Command Bit	Default Pull-down
ODTx	10k
CKEx	10k
RST	10k
CAS*	No Termination

Hynix : SA00003YO20 (S IC D3 128M16 H5TQ2G63BFR-11C FBGA)
Hynix : SA000041S40 (S IC D3 64Mx16 H5TQ1G63DFR-11C FBGA)

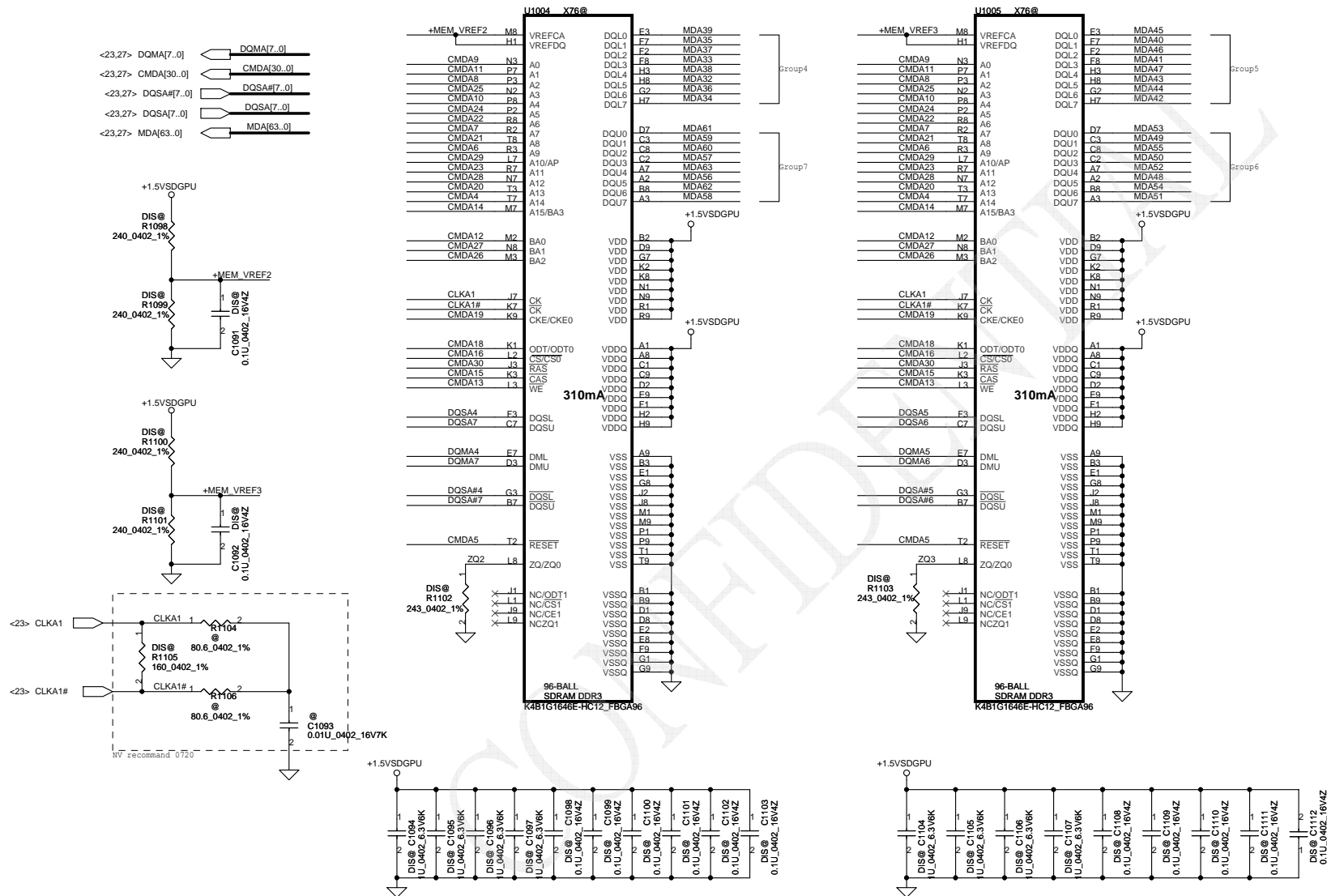
Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22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

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VRAM DDR3 chips (1GB)

64Mx16 DDR3 *8==>1GB

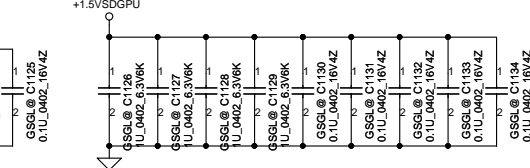
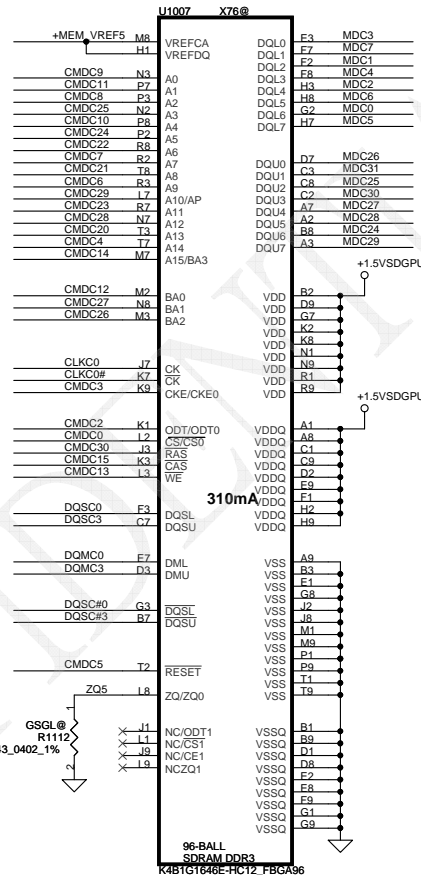
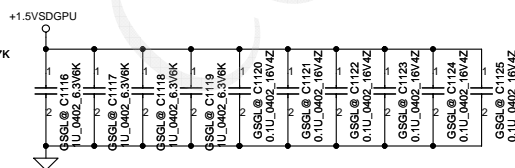
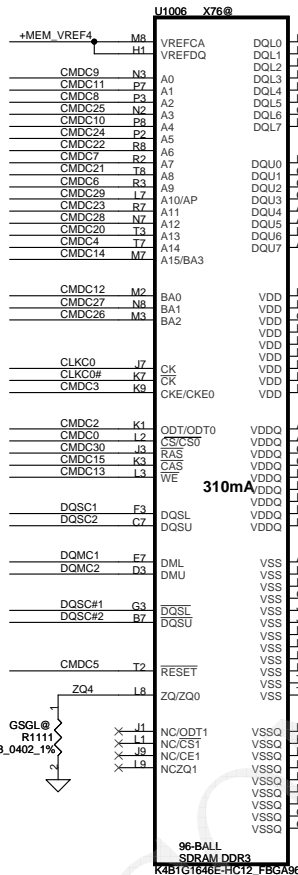
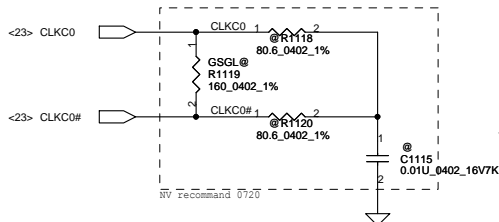
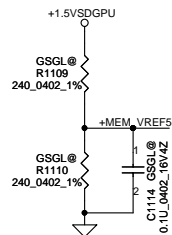
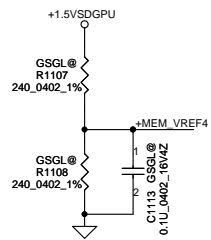
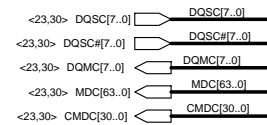
128Mx16 DDR3 *8==>2GB



VRAM DDR3 chips (1GB)

64Mx16 DDR3 *8==>1GB

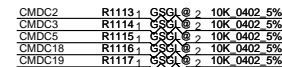
128Mx16 DDR3 *8==>2GB



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

LOW HIGH

Command Bit	Default Pull-down
ODT	10k
CKE	10k
RST	10k
CS*	No Termination



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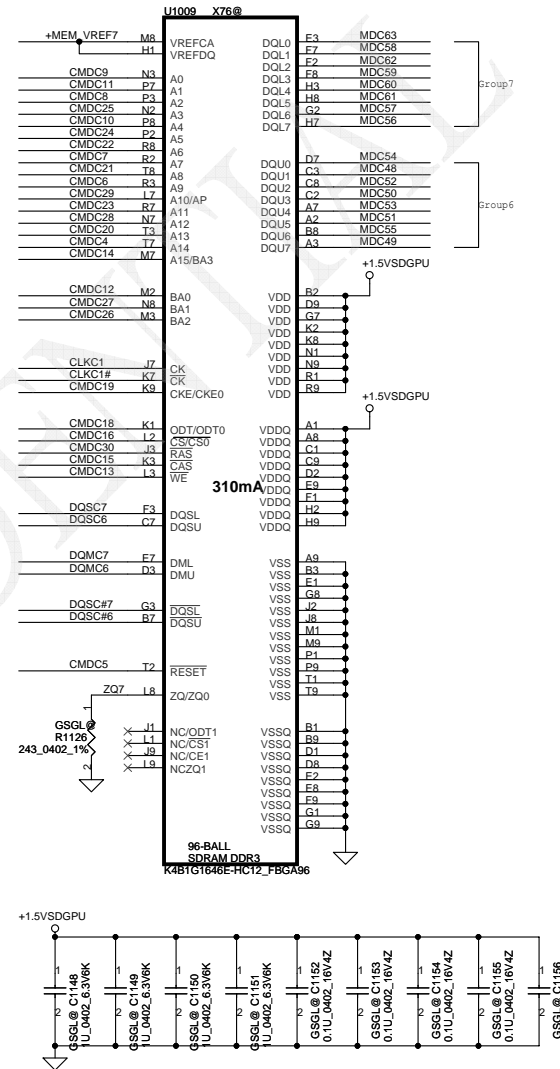
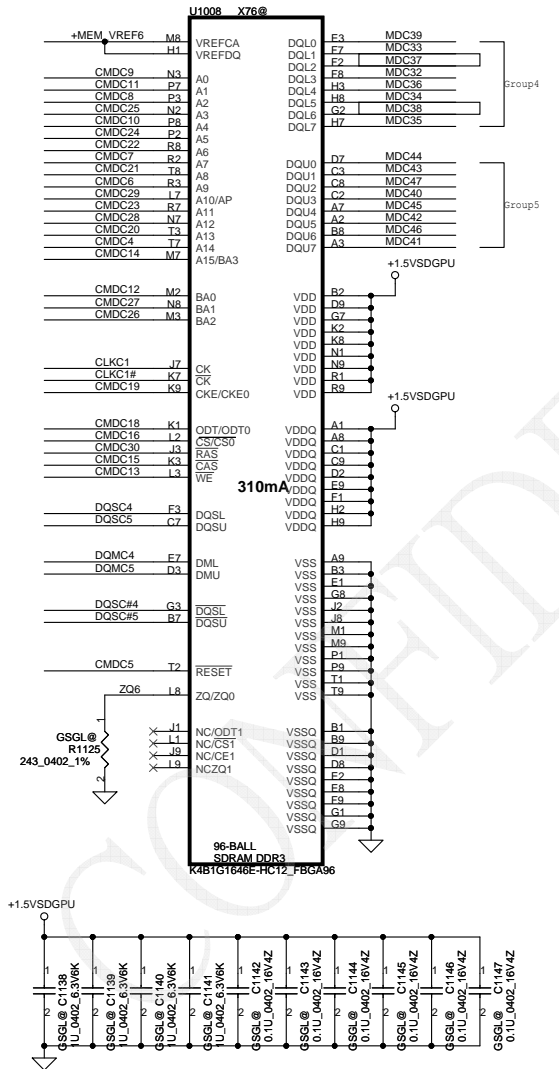
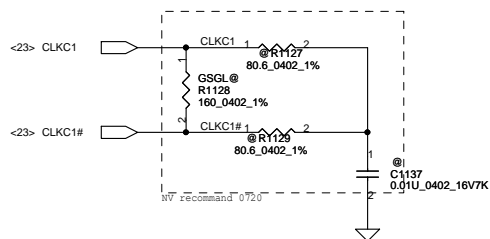
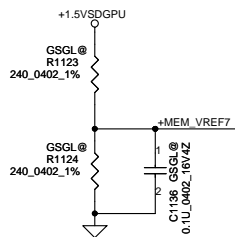
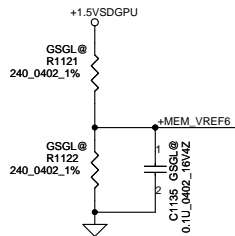
VRAM DDR3 chips (1GB)

64Mx16 DDR3 *8==>1GB

128Mx16 DDR3 *8==>2GB

<23,29> DQMC[7..0] ← DQMC[7..0]
<23,29> CMD[30..0] ← CMD[30..0]
<23,29> DQSC[7..0] ← DQSC[7..0]
<23,29> DQSC[7..0] ← DQSC[7..0]
<23,29> MDC[63..0] ← MDC[63..0]

R02 modify
Swap MDC37 and MDC38

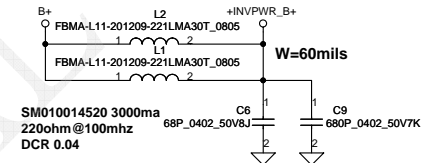
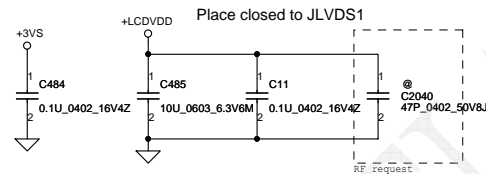
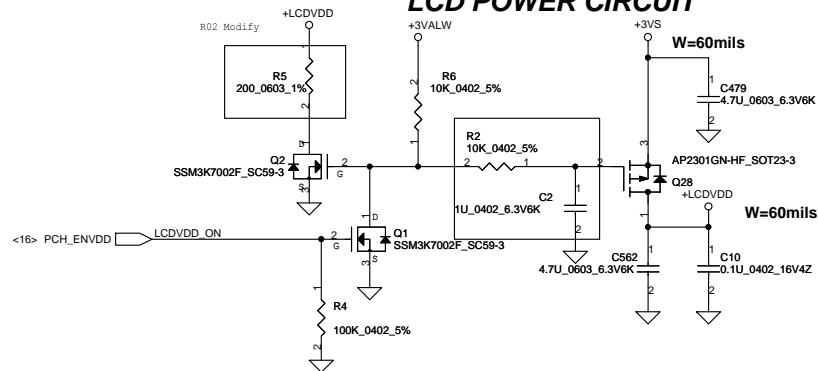


Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22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

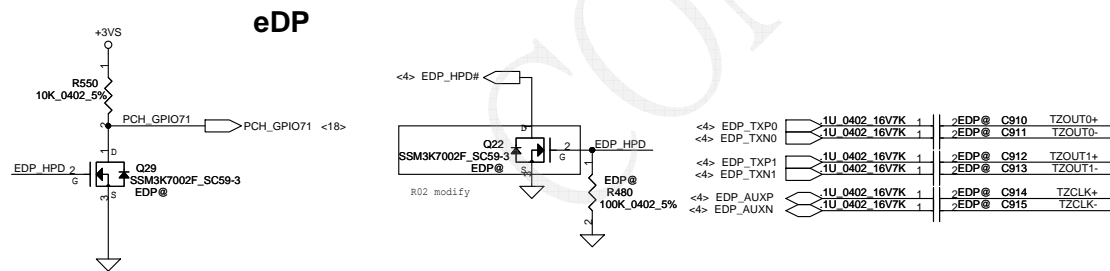
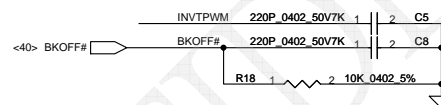
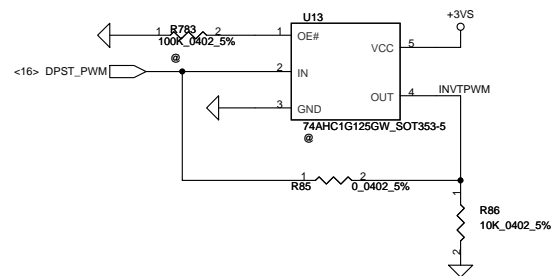
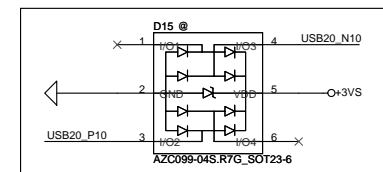
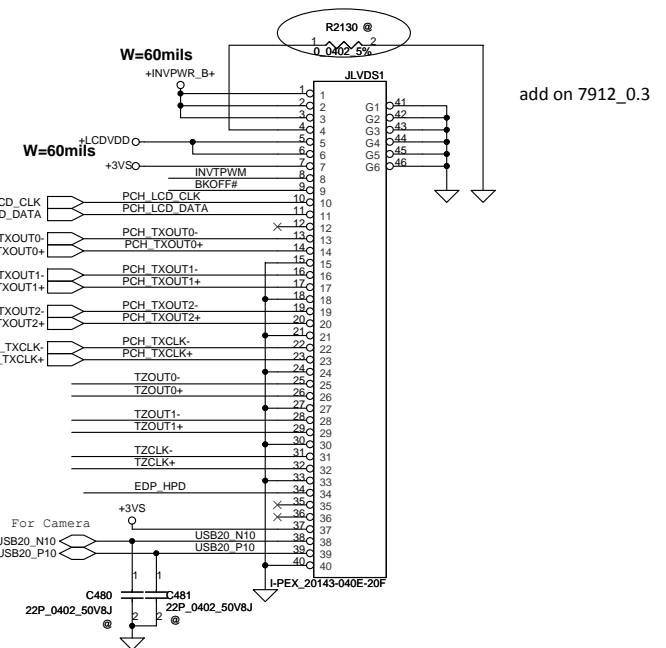
LOW HIGH

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LCD POWER CIRCUIT

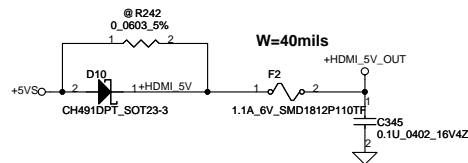


LCD/LED PANEL Conn.

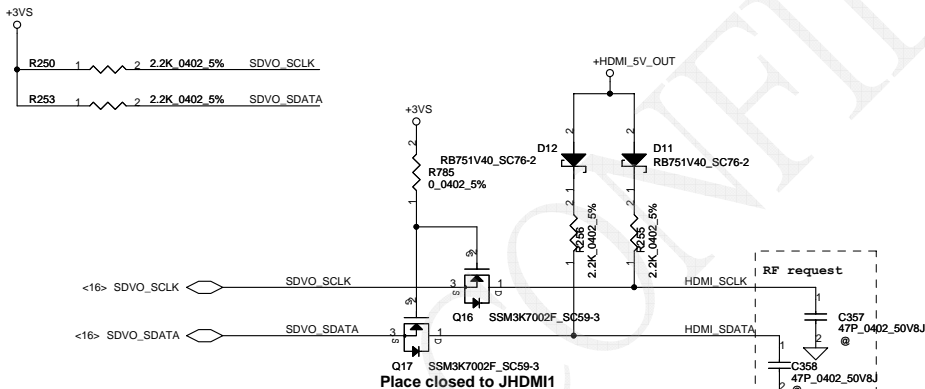
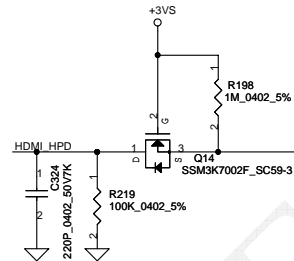


	GPIO71 PCH_GPIO71
eDP	0
LVDS	1

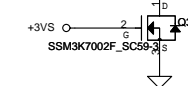
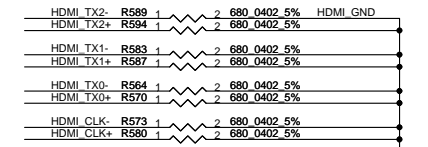
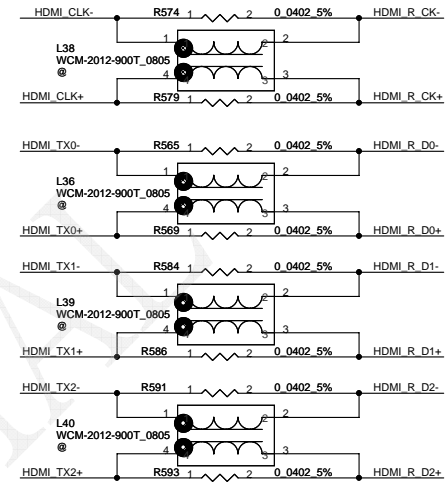
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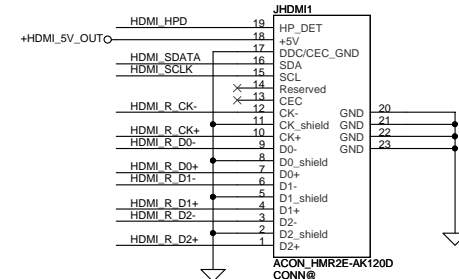
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<16> PCH_DPB_P0	C281	2	1	.1U 0402 16V7K	HDMI TX2+
<16> PCH_DPB_N1	C283	2	1	.1U 0402 16V7K	HDMI TX1-
<16> PCH_DPB_P1	C282	2	1	.1U 0402 16V7K	HDMI TX1+
<16> PCH_DPB_N2	C287	2	1	.1U 0402 16V7K	HDMI TX0-
<16> PCH_DPB_P2	C286	2	1	.1U 0402 16V7K	HDMI TX0+
<16> PCH_DPB_N3	C285	2	1	.1U 0402 16V7K	HDMI CLK-
<16> PCH_DPB_P3	C284	2	1	.1U 0402 16V7K	HDMI CLK+



SM070001310 400ma 90ohm@100mhz DCR 0.3



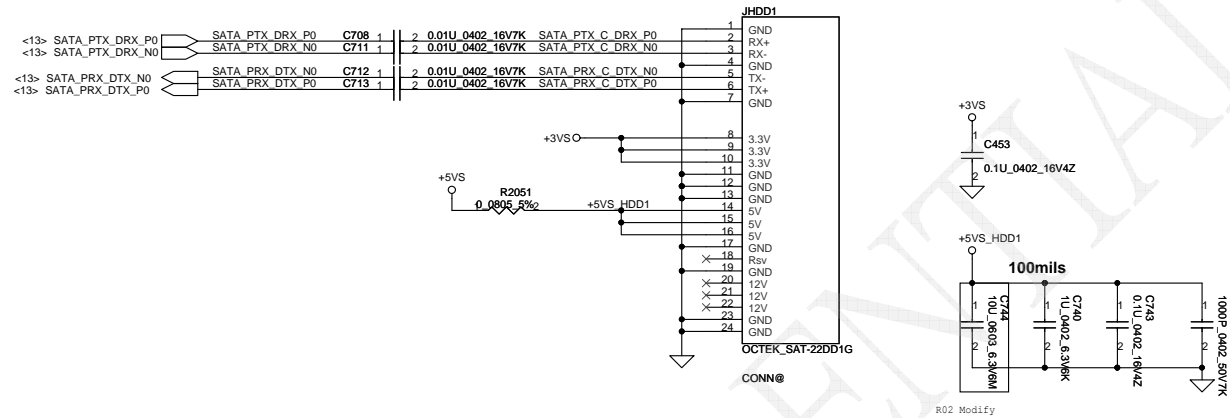
HDMI connector



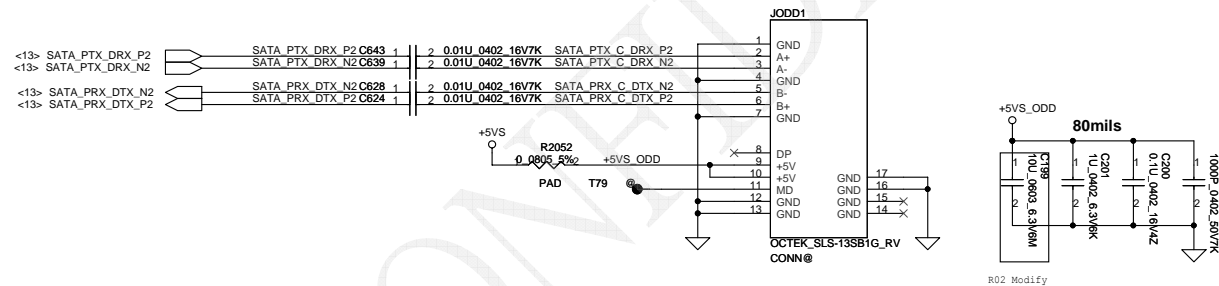
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				Sheet	33 of 63

SATA HDD1 Conn.

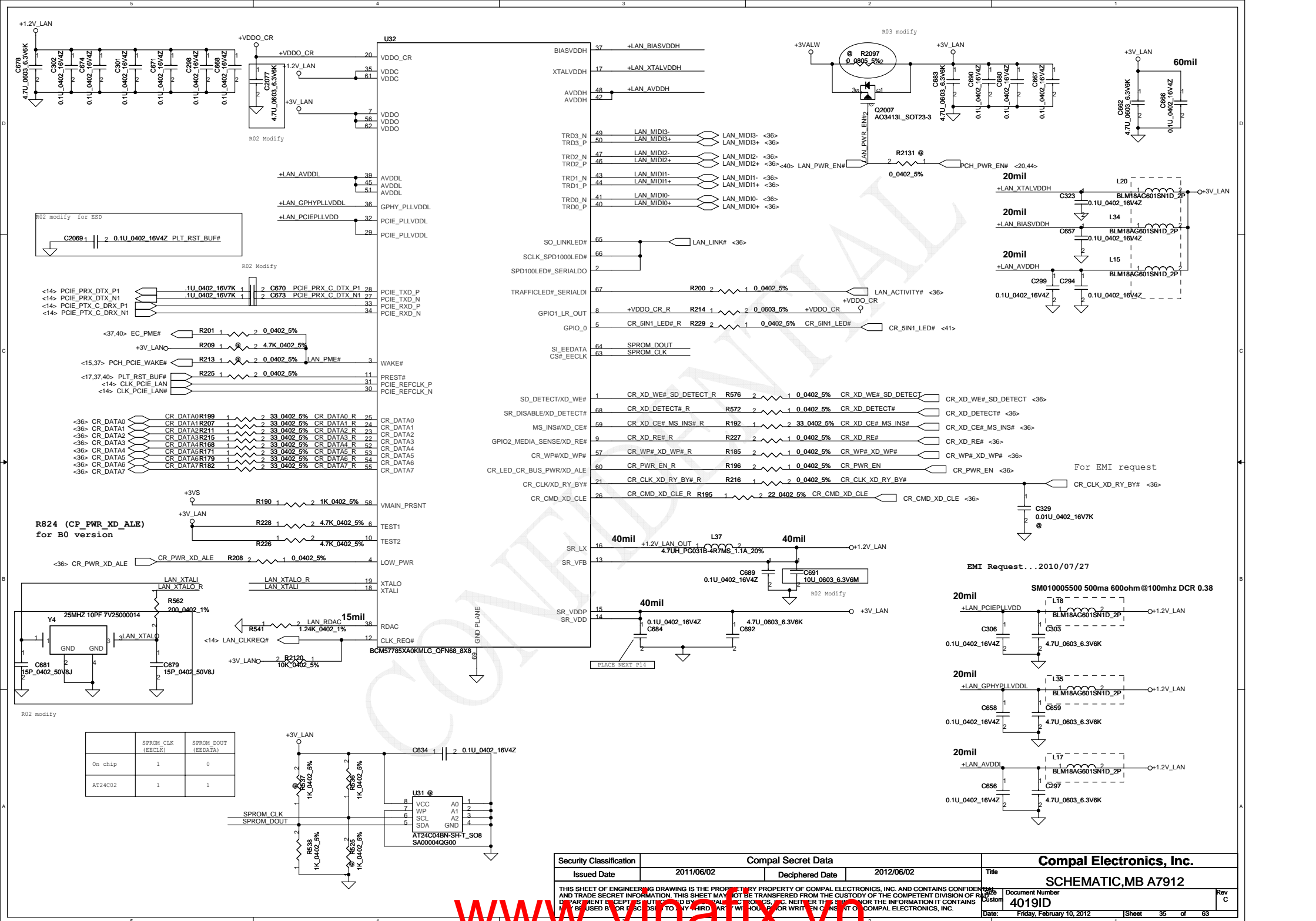
CL 4.0 mm



SATA ODD Conn.

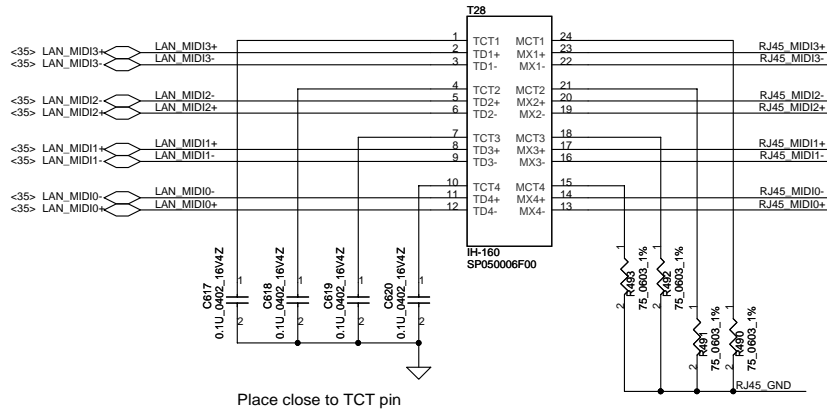


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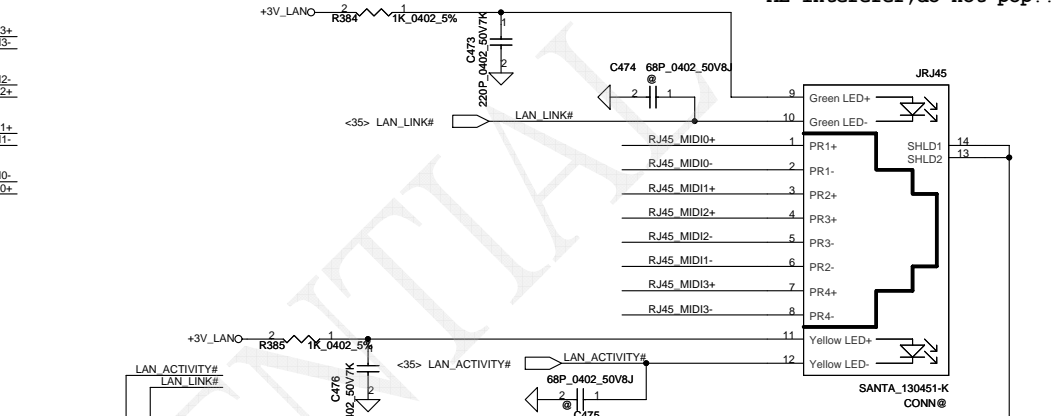


LAN Connector

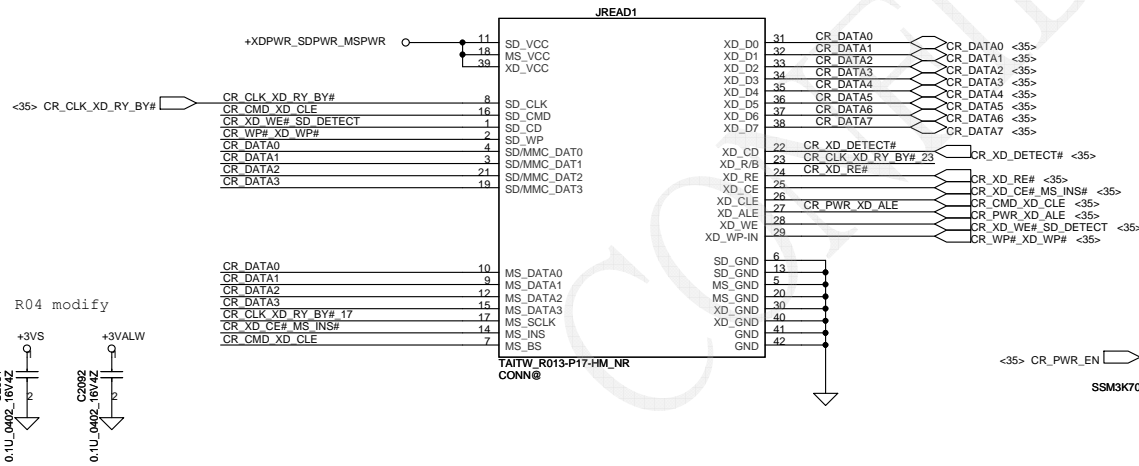
C474, C475 and D14
ME interfere, do not pop!!



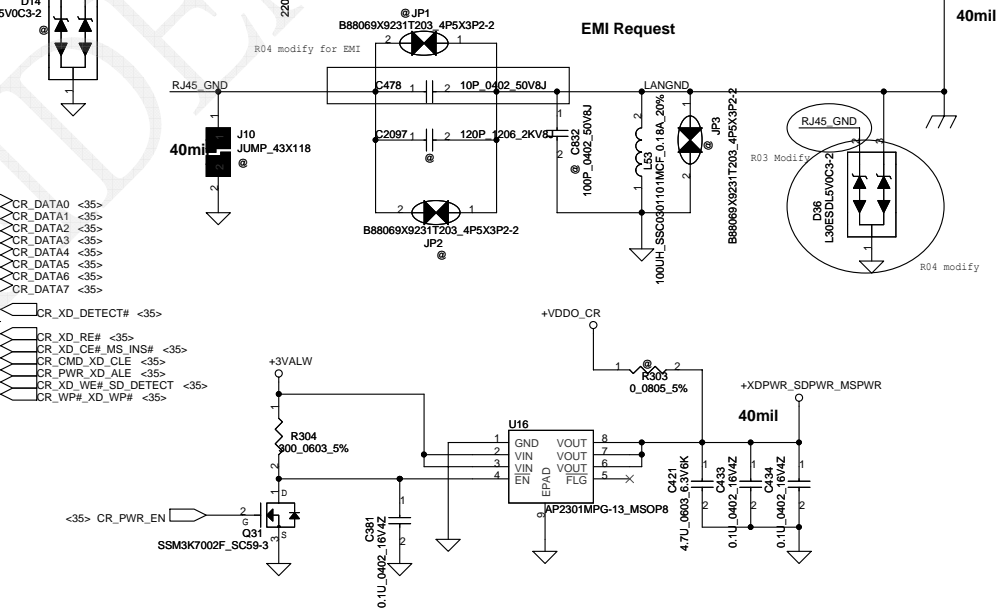
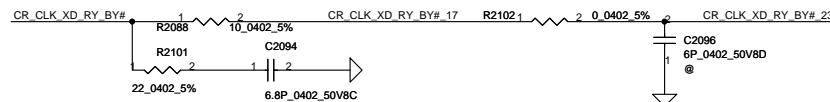
BOTH HAND: S X'FORM_ GST5009-D LF LAN, SP050006B00
TIMAG: S X'FORM_ IH-160 LAN, SP050006F00



Card Reader Connector



R02 modify for SD3.0 issue



A	B	C	D	E
---	---	---	---	---



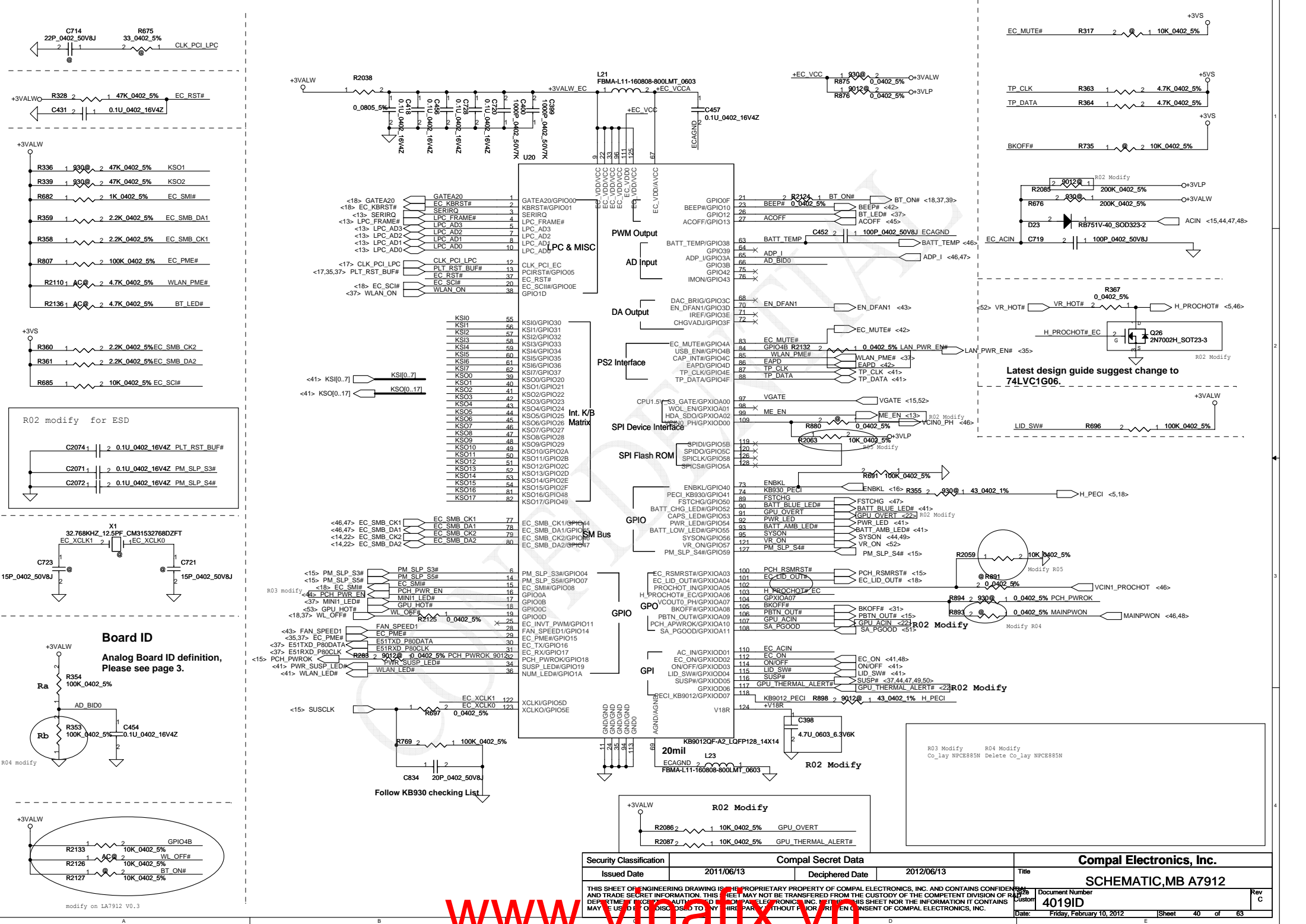
CONFIDENTIAL

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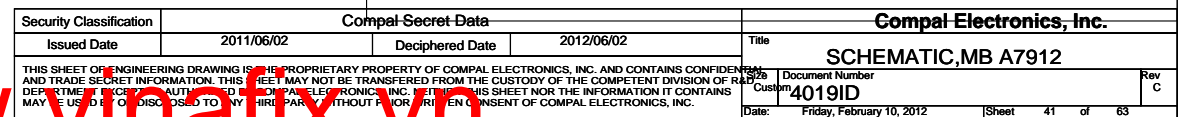
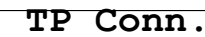
R04 modify



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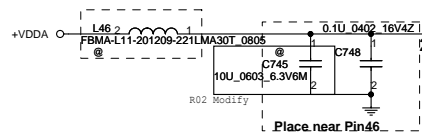


Test Only
Bottom Side

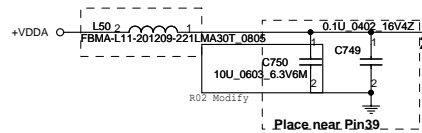


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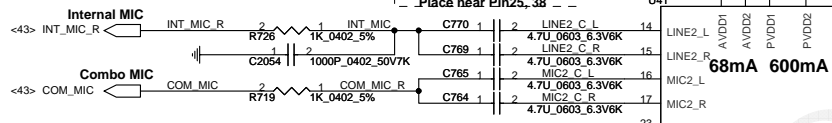
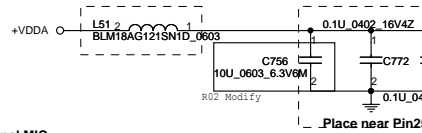
SM010014520 3000ma 220ohm@100mhz DCR 0.04



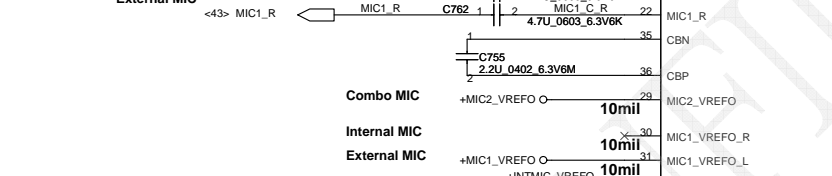
SM010014520 3000ma 220ohm@100mhz DCR 0.04



SM010030010 200ma 120ohm@100mhz DCR 0.2



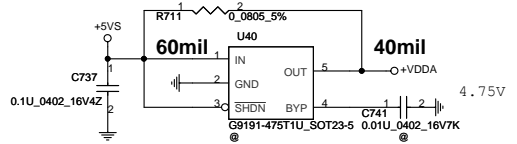
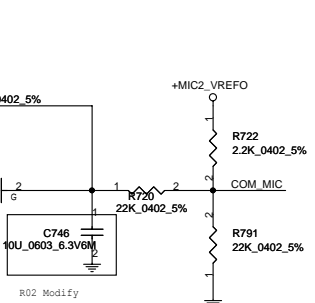
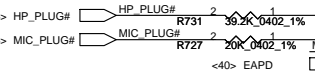
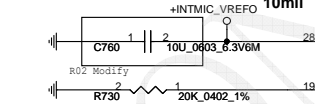
External MIC



Combo MIC

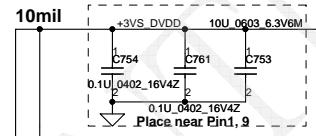
Internal MIC

External MIC

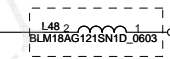


(output = 300 mA)

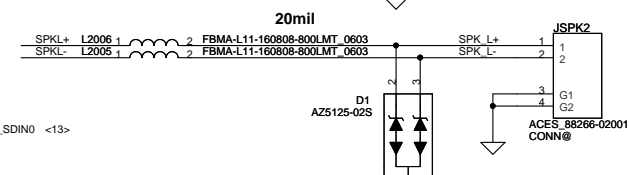
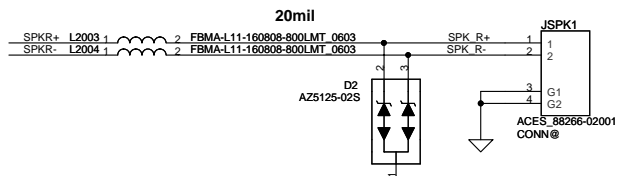
HD Audio Codec



SM010030010 200ma 120ohm@100mhz DCR 0.2



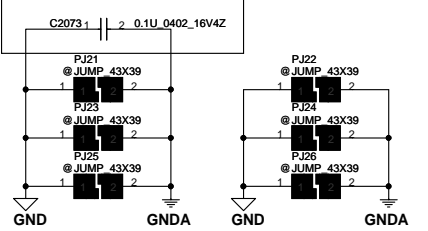
Int. Speaker Conn.



For EMI

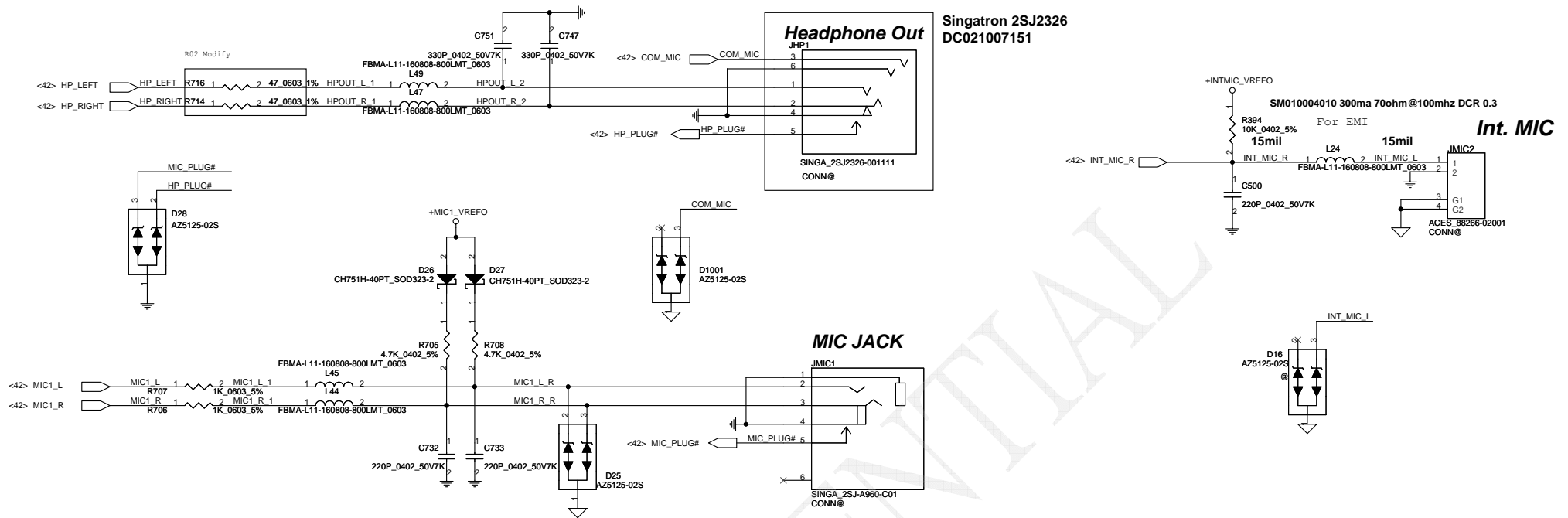


R02 modify for ESD



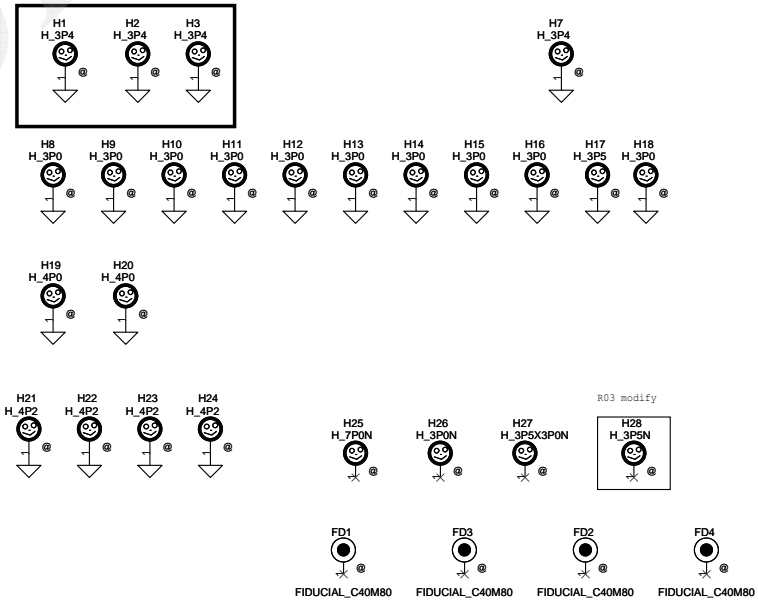
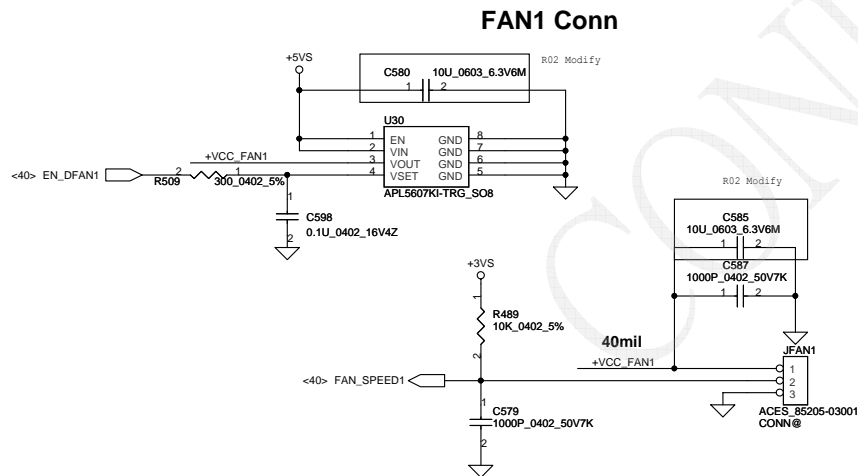
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Singatron 2SJ2326
DC021007151



FAN Stand-Off

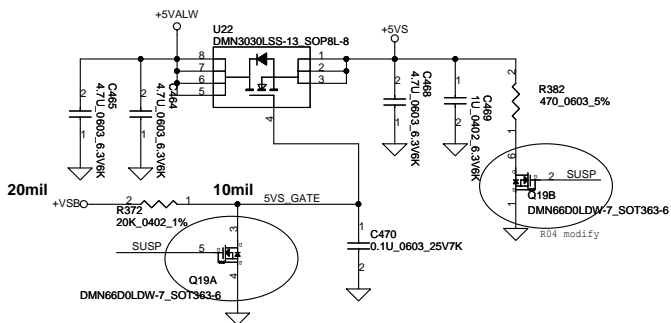
JUSB3 Stand-Off



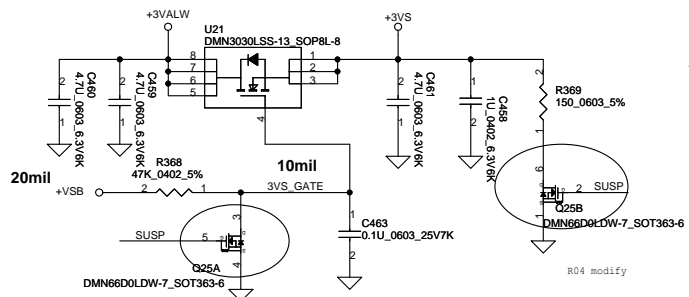
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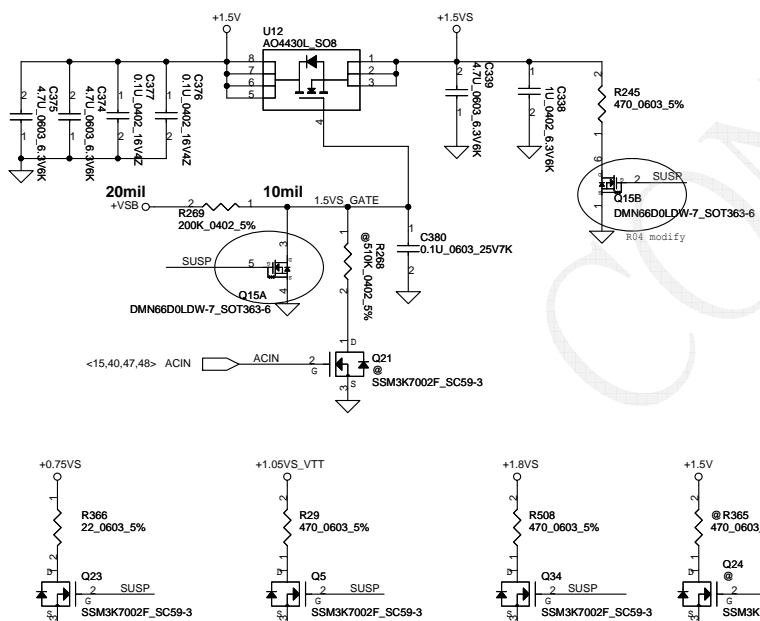
+5VALW TO +5VS



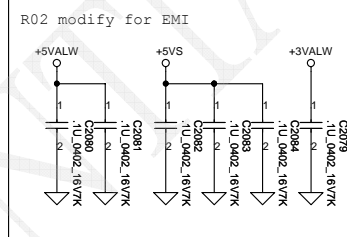
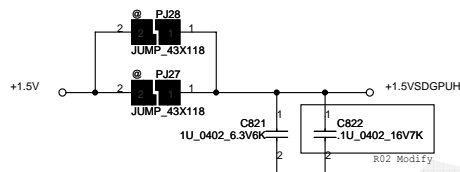
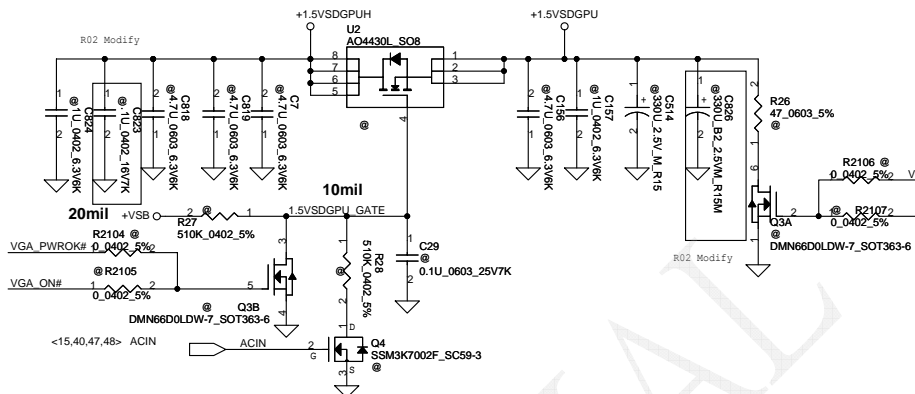
+3VALW TO +3VS



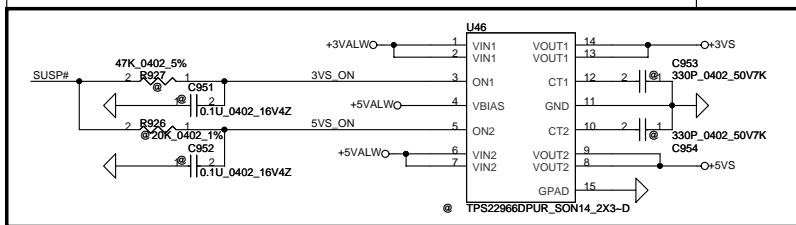
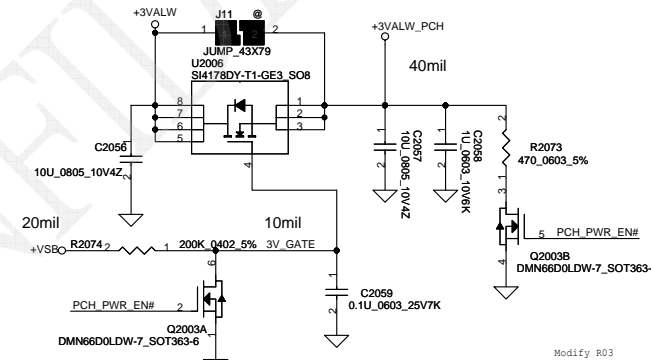
+1.5V to +1.5VS



+1.5VSDGPUH to +1.5VSDGPU for GPU



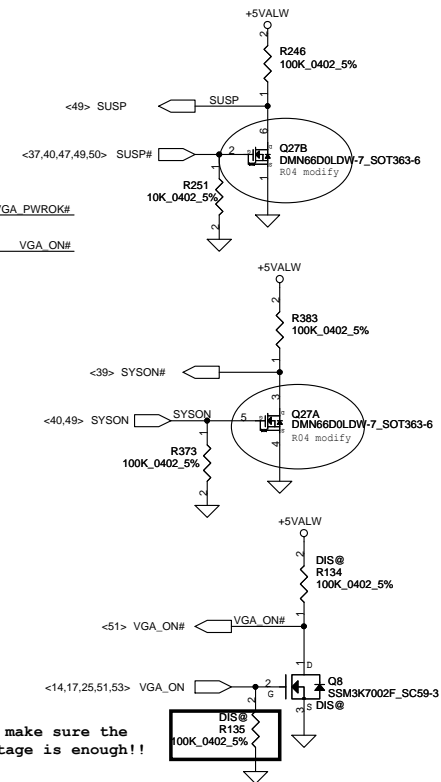
+3VALW TO +3VALW(PCH AUX Power)



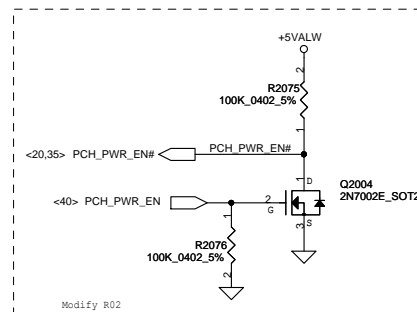
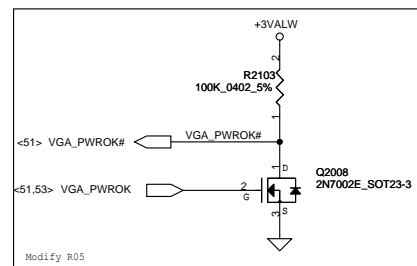
Reserved

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Use 100k to make sure the
divided voltage is enough!

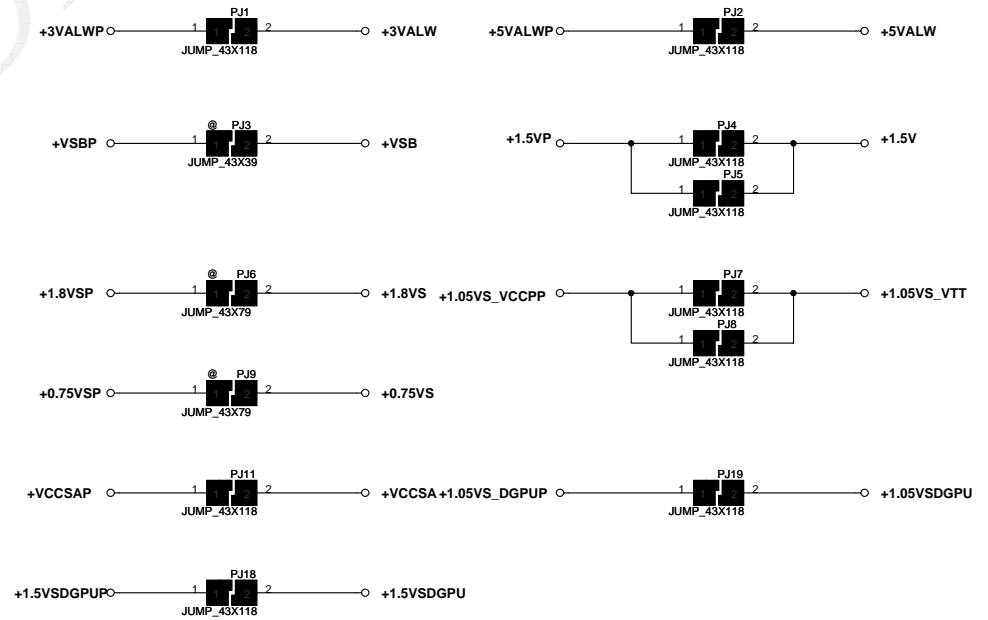
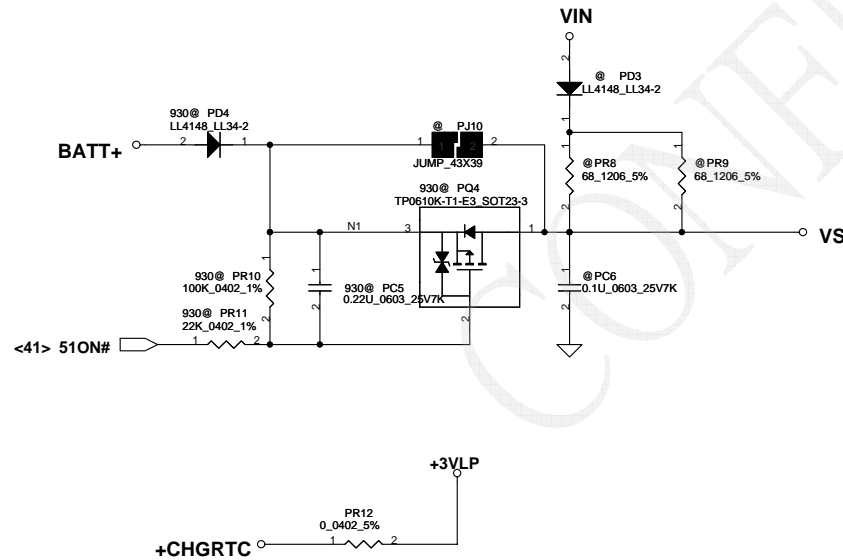
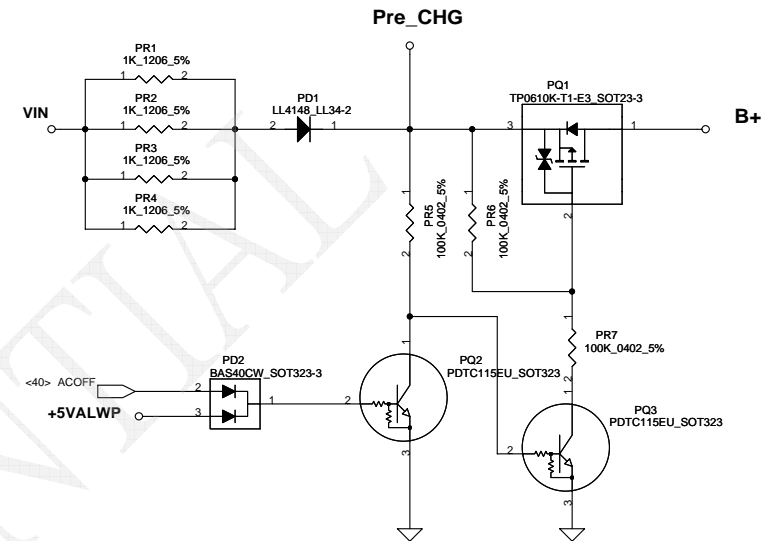
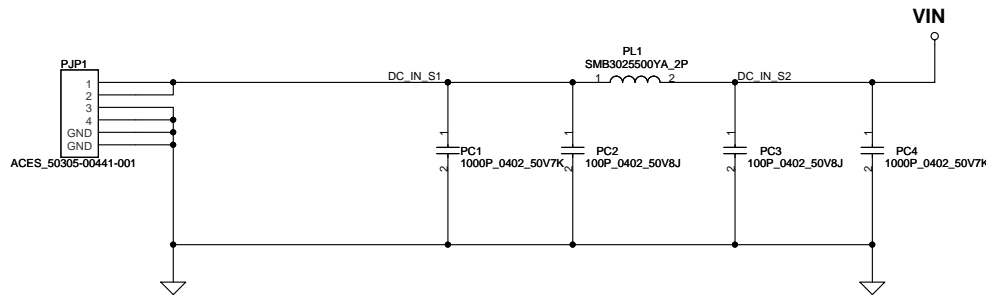


Modif:

Compal Electronics, Inc.

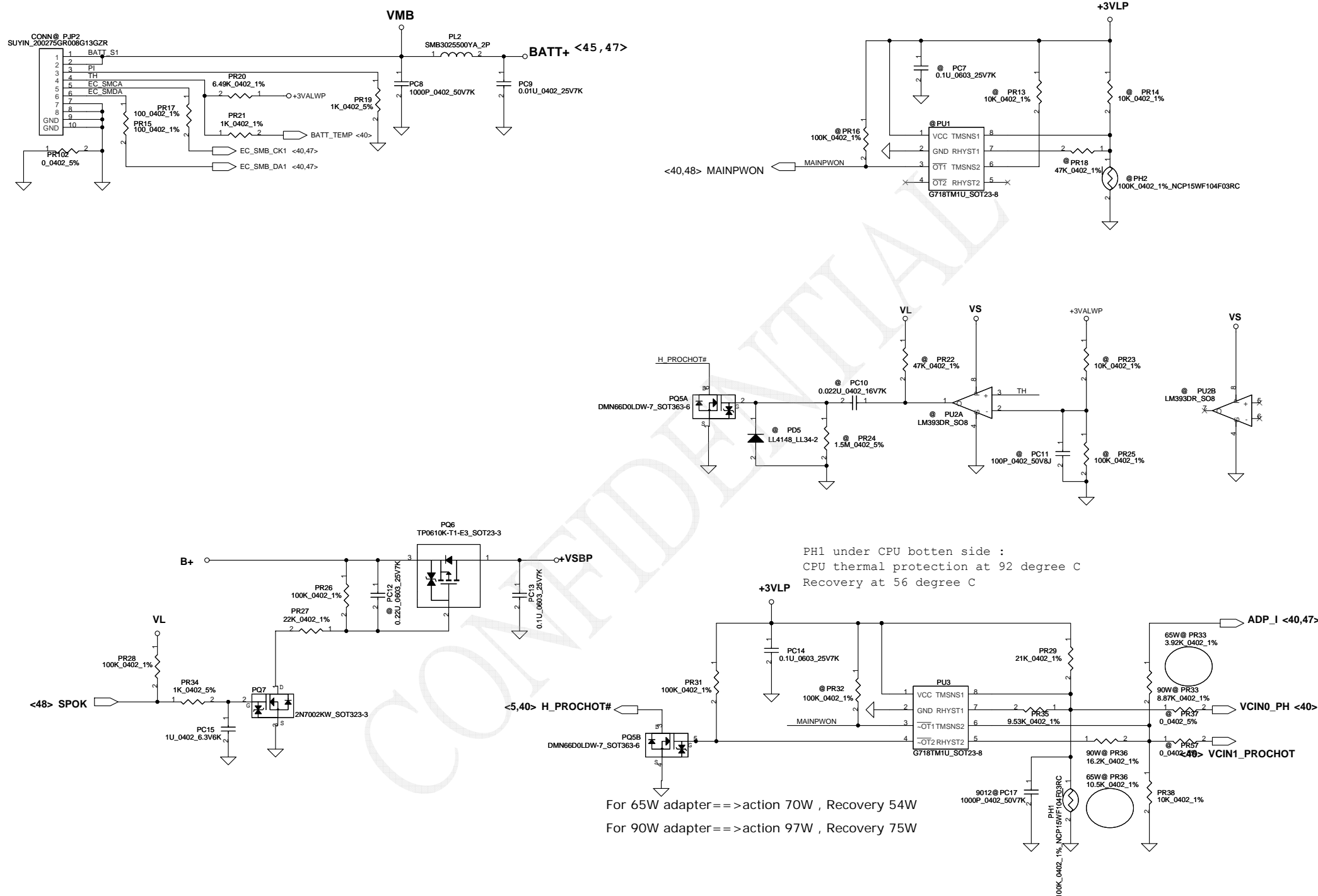
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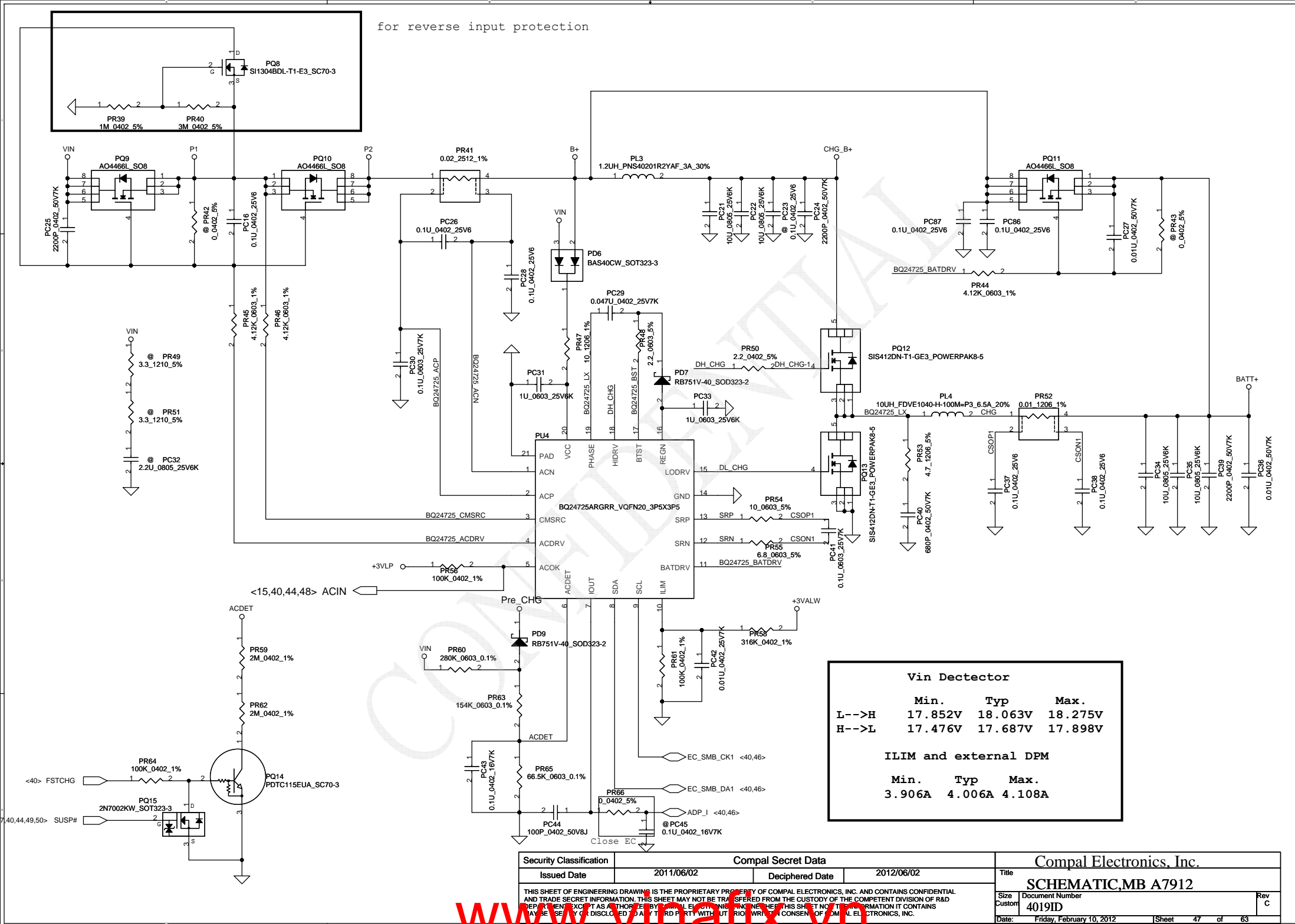
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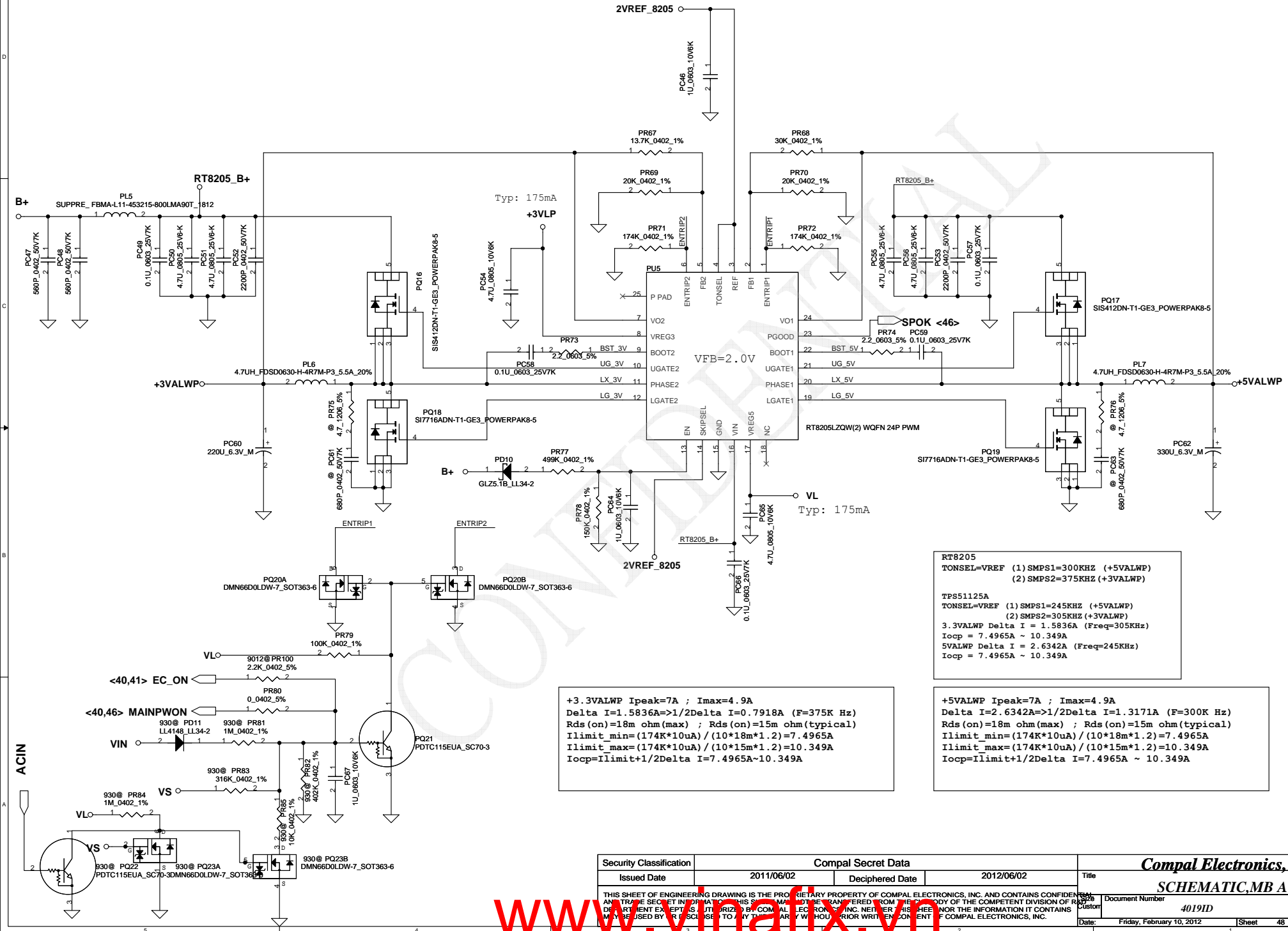


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for reverse input protection

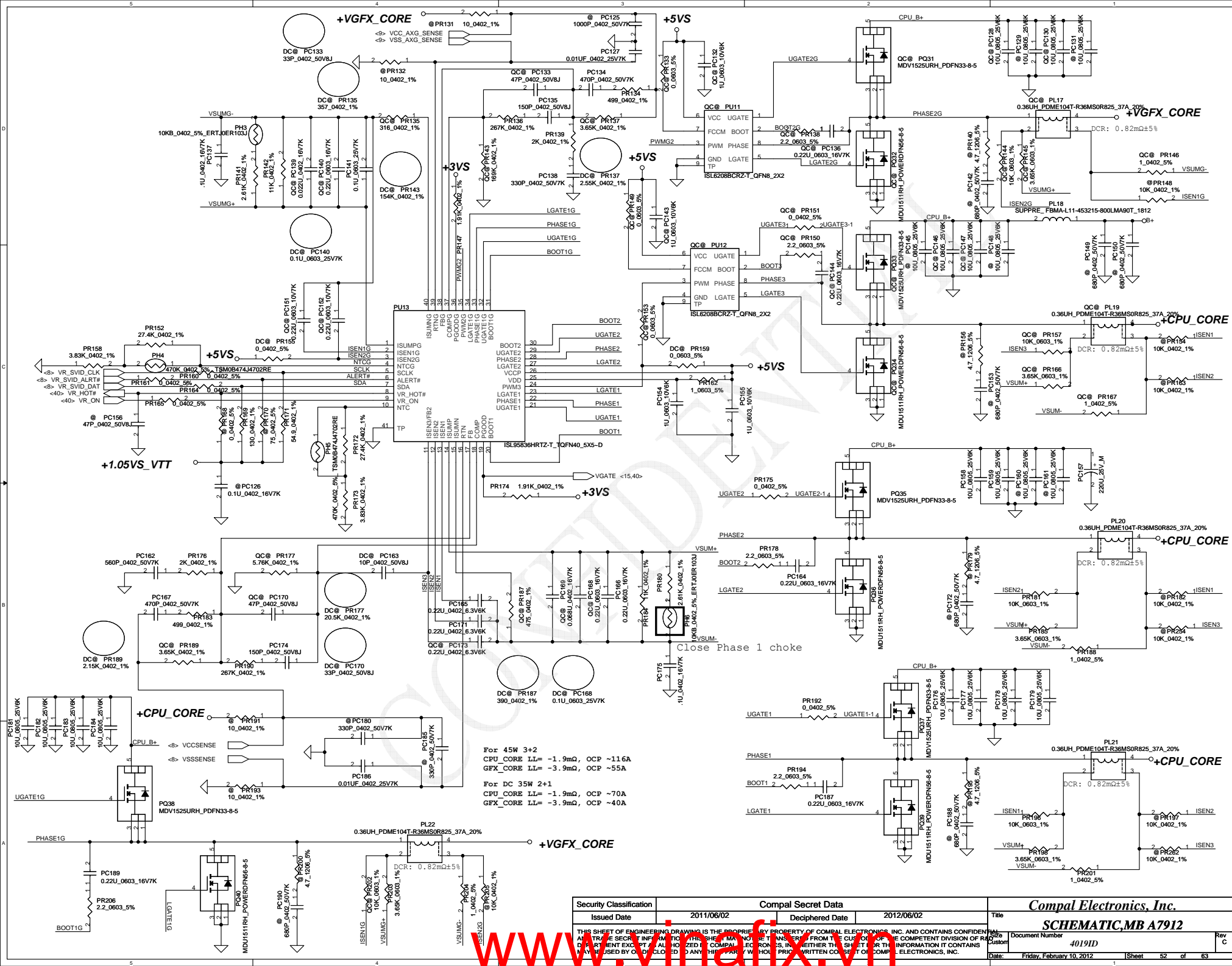


Note:
 Use TPS51125 IC can remove RTC refernece LDO
 Use TPS51427 IC must keep RTC refernece LDO



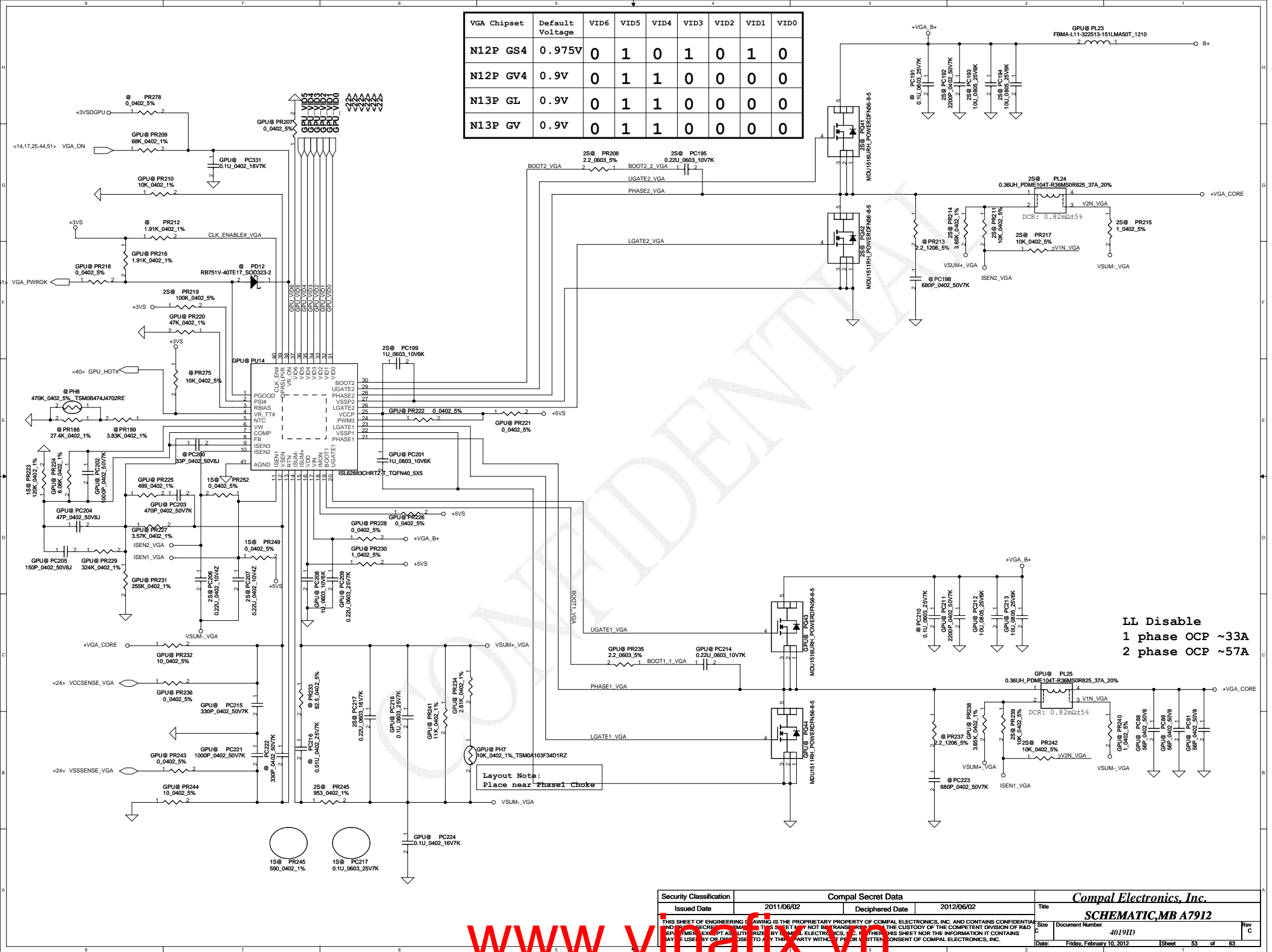
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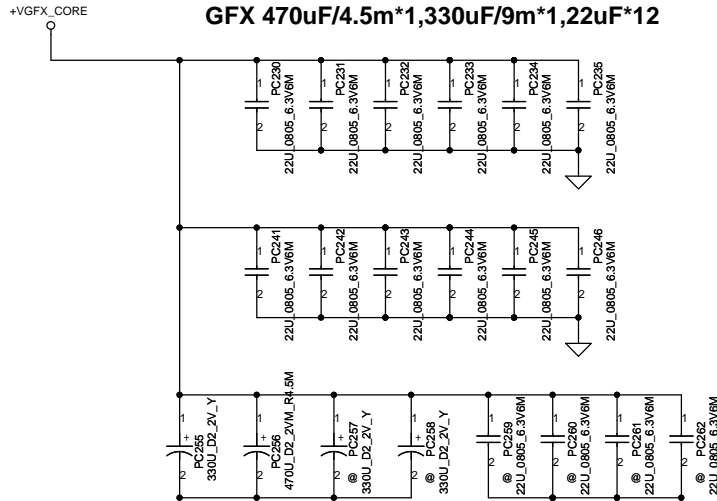


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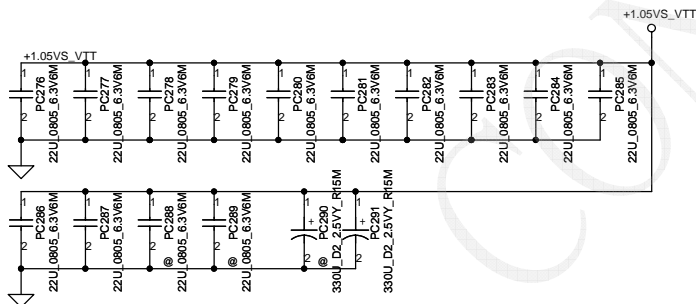
VGA Chipset	Default Voltage	VID6	VID5	VID4	VID3	VID2	VID1	VID0
N12P GS4	0.975V	0	1	0	1	0	1	0
N12P GV4	0.9V	0	1	1	0	0	0	0
N13P GL	0.9V	0	1	1	0	0	0	0
N13P GV	0.9V	0	1	1	0	0	0	0



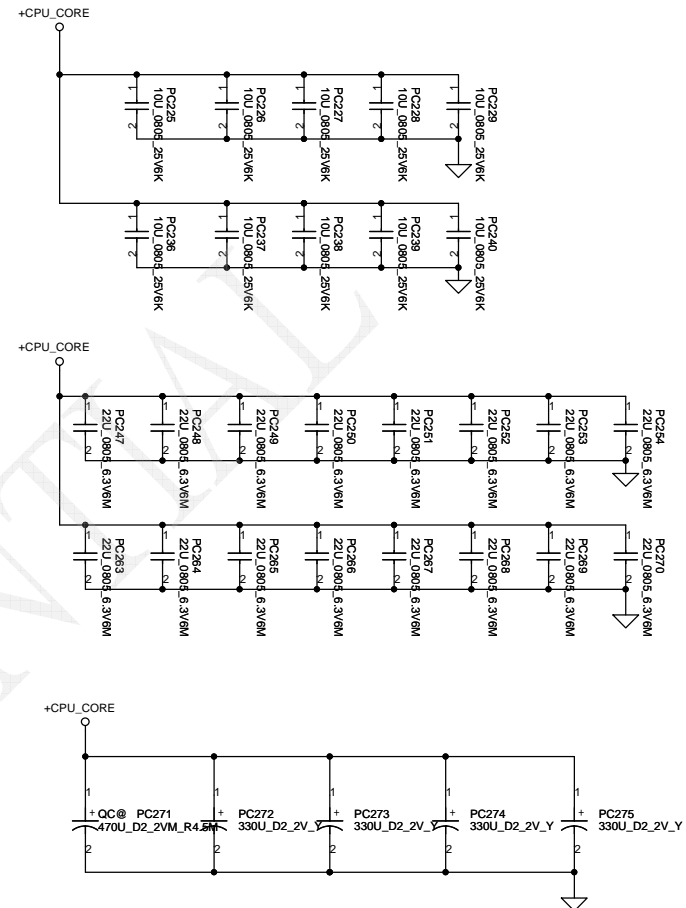
PWR Rule
CPU 330uF/9m *5,22uF *16,10uF*10
GFX 470uF/4.5m*1,330uF/9m*1,22uF*12



- Vaxg**
- Can connect to GND if motherboard only supports external graphics and if GFX VR is not stuffed in a common motherboard design,
 - VAXG can be left floating in a common motherboard design (Gfx VR keeps VAXG from floating) if the VR is stuffed

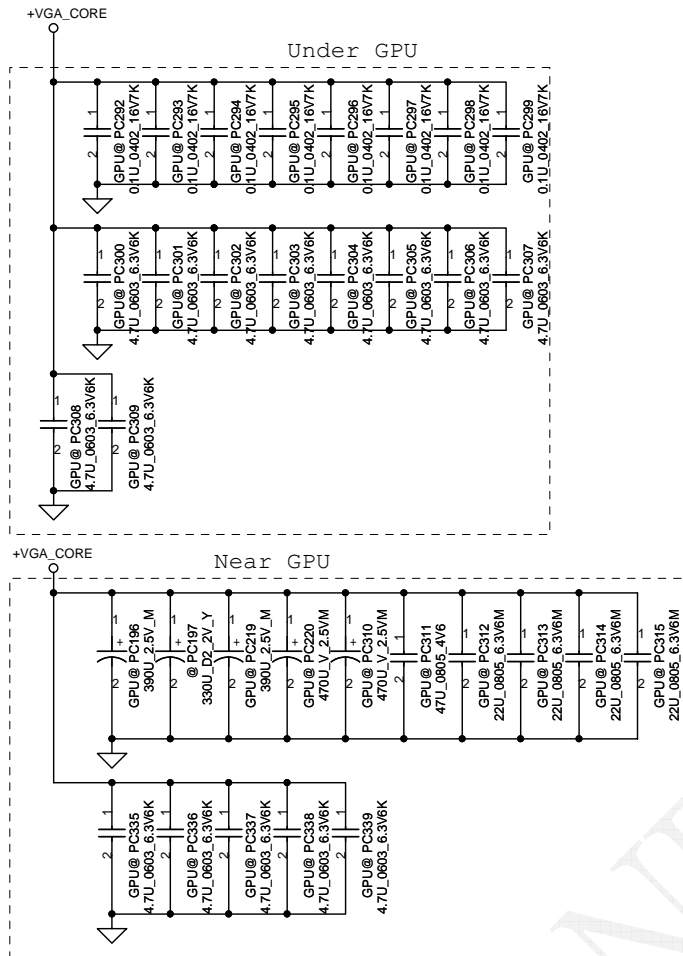


INTEL Recommend
3*330uF(1 in other page),12*22uF, 5 no stuff
from PDDG 1.0



DC@ PC271
 330U_D2_2V_Y

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	S3 sequence @ DC	Meet Intel sequence SPEC		49	Change RP91 to 267K	2011 1208	DVT
2	1.5VSDGPU lose	Improve FB pin anit-noise		51	Change RP248 to 2K, PR255 to 1.74K, PR253 to 137K	2011 1208	DVT
3	Cut-in SMT memo			52	Add PC182, PC184	2011 1208	DVT
4		Standard design			Change PR138, PR150, PR178, PR194, RP205 , PR235 to 2.2	2011 1208	DVT
5	Vth has risk			51	Change PU16 from G971 to APL5930	2011 1212	DVT
6		Enable select		51	Add PR266	2011 1217	PVT
7	Cut-in EMI solution			53	Add PC88, PC89, PC91	2011 1221	PVT
8		Consider part rating		51	Change PR277 from 0402 to 0603	2011 1222	PVT
9		Tune transient character		52	Add PC139, PC169 Swap PC271 & PC275	2011 1222	PVT
10		PH1 OTP and ADP_I throttling by H/W control		46	Delete PR37, PR57	2011 1222	PVT
11		Follow Power design		55	Add PC313, PC314, PC315	2011 1222	PVT
12	VGA sequence meet nVidia SPEC			51	Swap PR258 & PR263, PR266 & PR264, PR246 & PR265	2011 1223	PVT
13	Cut-in EMI solution			47	Add PR53, PC40	2012 0104	PVT2
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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
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1	P.40.13		9/7	EC	Change th HDA_SDO to ME_EN		0.2
2	P.40		9/7	HW	Add R2085 ,change the EC_ACIN pull high to +3VLP		0.2
3	P.37		9/7	HW	Add f11009 USB3.0 TX coupling capacitor (c2060,c2061)		0.2
4	P.38.39.40		9/7	HW	Add USB_chargaer_schematic(C2060.C2061.R2077~R2084,R2065~R2072)		0.2
5	P.22.40		9/7	HW	Follow ABO request,add ADPS function(Q2005),R2086.R2087)		0.2
6	P.20		9/7	HW	Add +5VALW TO +5VALW_PCH schematic(Q2006.C2062.R2088)		0.2
7	P.44		9/7	HW	Add +3VALW TO +3VALW_PCH schematic(U2006,R2073~R2076,C2056~C2059,Q2003,Q2004)		0.2
8	P.43		9/7	HW	For FSOV spec,Chang R714,R716 from 75ohm to 47ohm.		0.2
9	P.13		9/7	HW	For WIN8,Change R681.R651.R684.R652 to 33ohm		0.2
10	P.44		9/7	HW	Delete C817,Change C826 from D2 size to B2 size		0.2
11	P.17.37		9/7	HW	Follow chief river common design, please chang Mini-Card 2(port 11) to port 9		0.2
12	P.38		9/7	HW	Delete +1.5V to +1.05V_V128 Transfer(U2002.R2002.R2003.R2005.C2002.C2003.C2005.R2008)		0.2
13	P.38		9/7	HW	Delete USB3.0 EEPROM(U2004.R2035.R2034.C2039)		0.2
14	P.37		9/7	HW	Reserve Mini-Card 2		0.2
15	P.19		9/7	HW	F2 flick issue on projector P5202 D-sub Add C2063.C2064		0.2
16	P.22.40		9/8	HW	Change VGA GPIO12 of dGPU connection to EC controlled for the power limited usage Add EC pin 107-->GPU_ACIN		0.2
17	P41		9/14	HW	Add SW5.SW6 for EG project.		0.2
18	P27.30		9/14	HW	Swap MDC37 and MDC38 Swap MDA13 and MDA14		0.2
19	P06.11.17.35. P39.40.42		9/14	HW	For ESD request Add C2065~C2075		0.2
20	P16		9/16	HW	For HDMI PCH_DPB_HPD noise Add C2076		0.2
21	P31		9/16	HW	For LVDS power sequence Change R5 from 300 to 200 ohm Change R2 from 1k to 10k ohm change C2 from 0.047uF to 1uF		0.2
22	P18		9/16	HW	Delete PCH test ponit(T31~T46,T49~T61,T63~T65)		0.2
23	P21,40		9/19	HW	Change Q22,Q26 from SB000008J10 to SB000009080		0.2
24	P14,22,35,38		9/19	HW	For Crystal Change Y2 ,Y4 from SJ10000DJ00 to SJ10000E800 Change Y1000 from SJ10000DK00 to SJ100009700 Change C630,C631,C2019,C2028,C1008,C1009 to 10pF Change C681,C679 to 15pF		0.2

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25	P. 44		9/20	EMI	For EMI request (Add C2079~C2084)		0.2
26	P. 36		9/20	HW	For SD3.0 issue (Add R2088,R2089)		0.2
27	P. 20		10/17	HW	Add +5VALW TO +5VALW_PCH schematic(Q2006.C2062.R2090)		0.3
28	P. 44		10/17	HW	Add +3VALW TO +3VALW_PCH schematic(U2006,R2073~R2076,C2056~C2059,Q2003,Q2004)		0.3
29	P. 40		10/17	HW	Board ID error. Add R353.		0.3
30	P. 40		10/17	HW	Board ID 0.3. Change R353 to 18K		0.3
31	P. 17,39		10/17	HW	Follow Intel's suggestion; Change USB3.0 from port 2 to port 1 Change USB2.0 from port 0,1 to port 2,9		0.3
32	P. 18		10/18	HW	Support eDP GPIO71-->0 (eDP) GPIO71-->1 (LVDS)		0.3
33	P. 13.40		10/25	HW	Co lay NPCE885N Delete U38,C722,R690,R695,C727 Add C2085,R2091~R2096		0.3

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43	P. 41		11/16	ME		Delete SW5, SW6, Pop SW2, SW3	0.4
44	P. 05		11/16	HW	BUF_CPU_RST# noise	Add C2090	0.4
45	P. 35		11/17	HW	LAN SPROM on Chip	De-pop U31, R537 Pop R538	0.4
46	P. 36		11/17	EMI		Change C478 to 10P_50V	0.4
47	P. 13		11/17	HW	RTC issue	Change C682, C686 to 15P	0.4
48	P. 31, 32, 41		11/17	ESD		De-pop D3, D4, D17, D18, D15 Pop D24, D36	0.4
49	P. 40		11/17	HW		De-pop R891, R893	0.4
50	P. 24		11/21	HW		N13P_GS Change strap2 to PD 15k Change strap4 to PD 10k	0.4
51	P. 13		11/21	HW		Chip Select Change R651, R2049 to 0ohm	0.4
52	P. 13, 40		11/21	HW		Delete NPCE885N (R2091, R2092, R2094, R2095, R2096, R698, R699, R692, C2085)	0.4
53	P. 45		11/22	HW		Change +1.05VSDGPU JUMP size PJ19 change to 43x118	0.4
55	P. 35, 36		11/23	HW		Card Reader Change R216 to 22 ohm Change R2088 to 47ohm Change R2089 to 22 ohm Add C2091~C2093 Change R525, R536, R537, R538 to 1k	0.4
56	P. 13		11/23	HW		Delete R2093, R2049, R651 (0ohm)	0.4
57	P. 13		11/23	HW		Change N13P-GS to SA000051880 Change U33 to SA00005AG00	0.4
58	P. 35, P36		11/23	HW		Del C2093, R222, R2089, net(CR_CLK_XD_RY_BY#_23) Add R2101, C2094	0.4
59	P. 36		11/24	HW		ADD R2102, C2096 for EMI ISSUE	0.4

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58	P.24.25		12/02			Change R1057 from 35kohm to 45kohm Change R1077 from 40.2ohm to 42.2ohm Change R1080 from 60.4ohm to 51.1ohm	0.4
59	P.22		12/02			for N13P_GS, the boot voltage is 0.9V pop R1022,R1021,R1036,R1035,R1034,R1033 for N13P_GL, the boot voltage is 0.95V pop R1022,R1037,R1020,R1019,R1034,R1033 for N13M_GS, the boot voltage is 0.925V pop R1022,R1037,R1020,R1019,R1018,R1033	0.4
60	P.44		12/02			Change R369 from 470ohm to 150ohm Change R26 from 470ohm to 47ohm Pop Q3	0.4
61	P.13		12/02			BIOS ROM(4M) Change U36 to SA00003K800	0.4
62	P.35		12/06			EMI suggestion for Card Reader Change R195 from 33ohm to 22ohm Change R216 from 22ohm to 0ohm Change C2094 from 6pF to 6.8pF Change R2101 from 0ohm to 22ohm Change R2088 from 47ohm to 75ohm Change R2102 from 47ohm to 0ohm De-pop C2096	0.4
63	P.36		12/07			EMI request for 家電下鄉 Add C2097	0.5
64	P.39		12/07			For PCH HM70 Change USB port0 to co-lay USB3.0 Change USB port2 to USB2.0 Change USB port 11 to BT	0.5
65	P.44		12/07			Change 1.5VSDGPU_EN from VGA_ON# to VGA_PWROK# Add R2103,Q2008	0.5
66	P.18		12/09			For eDP Change Q2007 from SB501380020 to SB501110010	0.5

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67	P.31		12/16	EE		change Q2007 to 2N7002 for eDP_HPD circuit	LA-7912 0.2
68	P.40		12/16	EE		add WLAN_PME# on pin85. add wlan_on signal on EC pin38 add AC circuit	LA-7912 0.2
69	P.35		12/16	EE		reserve Q2007 for open +3V_LAN by PCH_PWREN#	LA-7912 0.2
70	P.40		12/16	EE		add R2063 for pull high VCIN0_PH to +3VL 10k add R2059 for pull low VCIN1 10k	LA-7912 0.2
71	P.41		12/20	EE		resever R2116 ~ R2119 for change LED power to 3VLA-7912 resever C2101~C2107 56pF on T/P for EMI	0.2
72	P.36, 14		12/22	EE		change R384 & R385 power to +3V_LAN unpop R630 & reserve R2120 to pull high +3V_LAN	LA-7912 0.2
73	P.42, 35		12/22	EE		change Q43 from 2n7002 to BSS138 unpop R209	LA-7912 0.2
74	P.40		12/23	PWR		change R353 to 56k for board ID 0.2 power request pop R2063, R2059 un-pop R880, R891, R893	LA-7912 0.2
75	P.39		12/23	EMI		change USB3 signal pass by chock (SM070001600)	LA-7912 0.2
76	P.41		12/23	ME		Change LED(Blue) SC591NB5A30 to SC591TBKA10 Change LED(AMBEL) SC500007700 to SC500005930 change (R2116=130ohm), (R377,2118,378=390ohm) (R2117,2119 = 51 ohm)	LA-7912 0.2
78	P.36		12/23	EMI		R2088 change to 10ohm	LA-7912 0.2
79	P.25		12/23	EMI		L1002 use SM010028800 (for N13P_GL) use 0ohm on N13P_GS,N13M_GS	LA-7912 0.2
80	P.44		12/24	EE		POP R2104, R2106 unpop R2105, R2107 for VGA sequence	LA-7912 0.2
81	P.41,24		12/24	EMI,EE		De-pop C217,C216 EMI request. add R1019, R1020, R1037 for GM@ (VGA_CORE)	LA-7912 0.2
82	P.40,27		12/27	EE		change R2059&R2063 to 10k ohm for EC request C2086~C2089 change bom sturte to DIS@	LA-7912 0.2
83	P.40		12/27	EE		add R2125, R2123 for option WL_OFF# to EC or PCH add R2122, R2124 for option BT_ON# to EC or PCH reserve R2126 to pull high 3VALW reserve R2127 to pull high 3VALW	LA-7912 0.3

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83	P. 41		01/02	EE		reserve R2121 for WLAN_LED connect +3VALW change C2101~2107 bomstucture to GM@	LA-7912 0.3
84	P. 13		01/09	EE		add GPIO23 for define USB config. (R2128 & R2092)	LA-7912 0.3
85	P. 45~56		01/09	PWR		update power circuit	LA-7912 0.3
86	P. 37		01/09	EE		change R2110 to pull high +3VS_FULL	LA-7912 0.3
87	P. 31		01/10	EE		add R2130 reserve for lvds short issue	LA-7912 0.3
88	P. 40		01/10	EE		change board ID to 0.3 (R353 100k)	LA-7912 0.3
89	P. 37		01/11	EE		change R2110 to pull high +3VALW	LA-7912 0.3
90	P. 37		01/11	EE		pop +3VS_FULL 開電線路	LA-7912 0.3
91	P. 13		01/11	EE		add new bom structer usb2@ for usb flag	LA-7912 0.3
92	P. 44		01/11	EE		UNPOP +1.5VSDGPUH to +1.5VSDGPU circuit	LA-7912 0.3
93	P. 35, 40		01/12	EE		add R2131,R2132 for option turn off 3VLAN power by PCH_PWR_EN# or LAN_PWR_EN# (from EC)	LA-7912 0.3
94	P. 37, 40		01/18	EE		add R2134~R2136 reserve for AOIC for ACER request	LA-7912 0.3
95	P. 17		01/18	EE		reserve R2137 pull low USB_P8 for PCH leakage	LA-7912 0.3
96	P. 32		02/02	EE		change R428 & R426 to 0 ohm for CRT issue	LA-7912 0.3

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