

Compal Confidential

Hasswell M/B Schematics Document

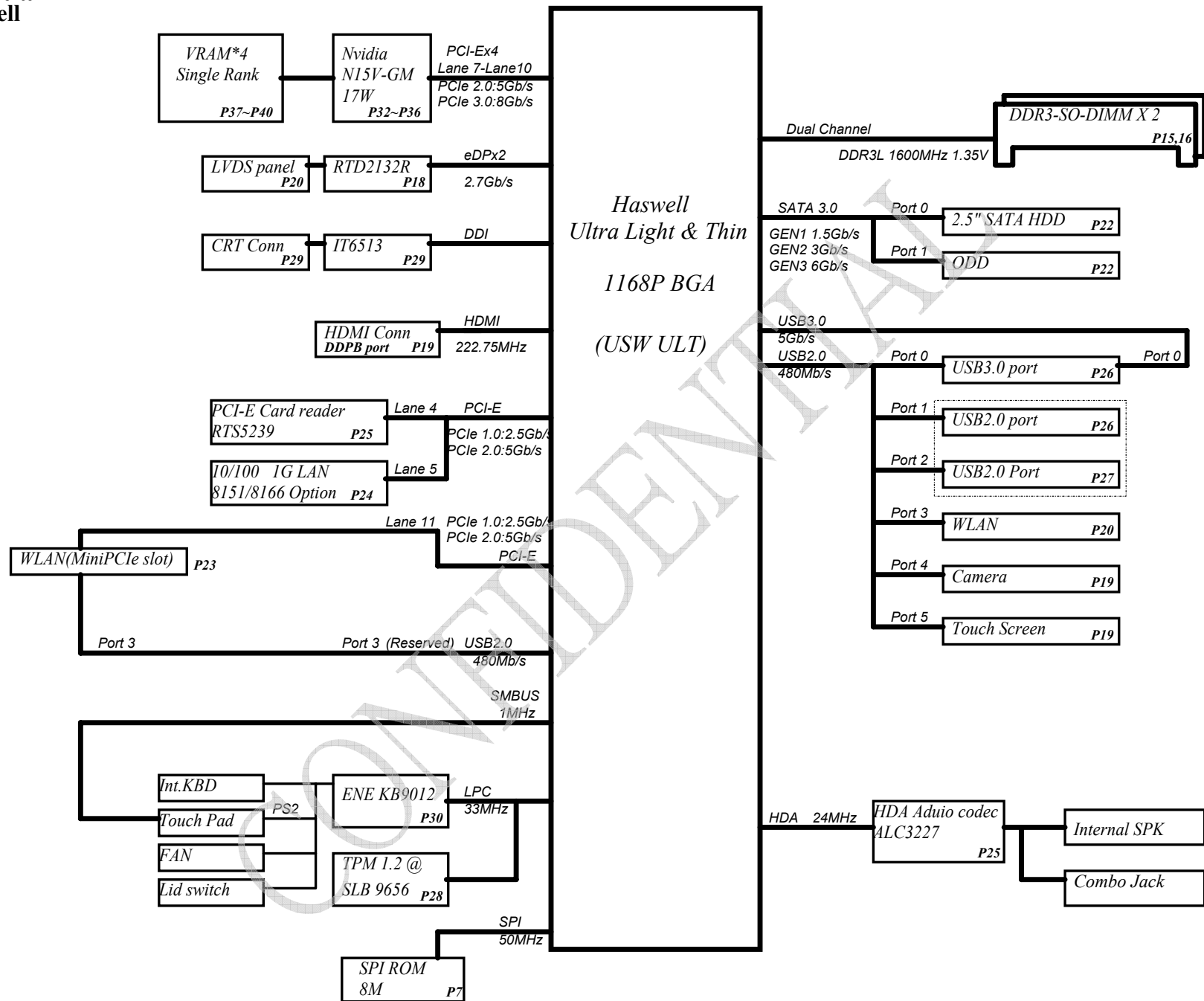
Intel ULV Processor with DDRIII L

Date : 2014/02/08

Version 1.0

Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2011/06/29	Deciphered Date	2011/06/29	Title	Cover Page
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				Date: Thursday, March 20, 2014	Sheet 1 of 54

File Name :
LA-A992PR10



Power rail	Control (EC)	Source (CPU)
+RTCVCC	X	X
VIN	X	X
BATT+	X	X
B+	X	X
+VL	X	X
+3VL	X	X
+5VALW	EC_ON	X
+3VALW	EC_ON	X
+3VALW_EC	EC_ON	X
+3V_PCH	PCH_PWR_EN	X
+1.35V_VDDQ	SYSON	PM_SLP_S5#/PM_SLP_S4#
+5VS	SUSP#	PM_SLP_S3#
+3VS	SUSP#	PM_SLP_S3#
+1.5VS	SUSP#	PM_SLP_S3#
+1.05VS	SUSP#	PM_SLP_S3#
+0.6V_0.675VS	SUSP#	
+VCC_CORE	X	VR12.5_VR_ON

@ is NO SMT part (empty)

short@ : short pad , don't pop.

@EMI@,@ESD@,@RF@ : Reserve , don't pop.

RF@ : RF team request, must add.

EMI@ : EMI team request, must add.

ESD@ : ESD team request, must add.

LVDS@ : Support LVDS panel.

GCLK@ : Support GCLK

CRT@,CRTEMI@ : Support CRT port

eDP@,eDPEMI@ : Support eTP panel

DAX
PCB «BOM Structure»
Part Number = DA214200100
PCB 14Z LA-A992P REV0 M/B 3

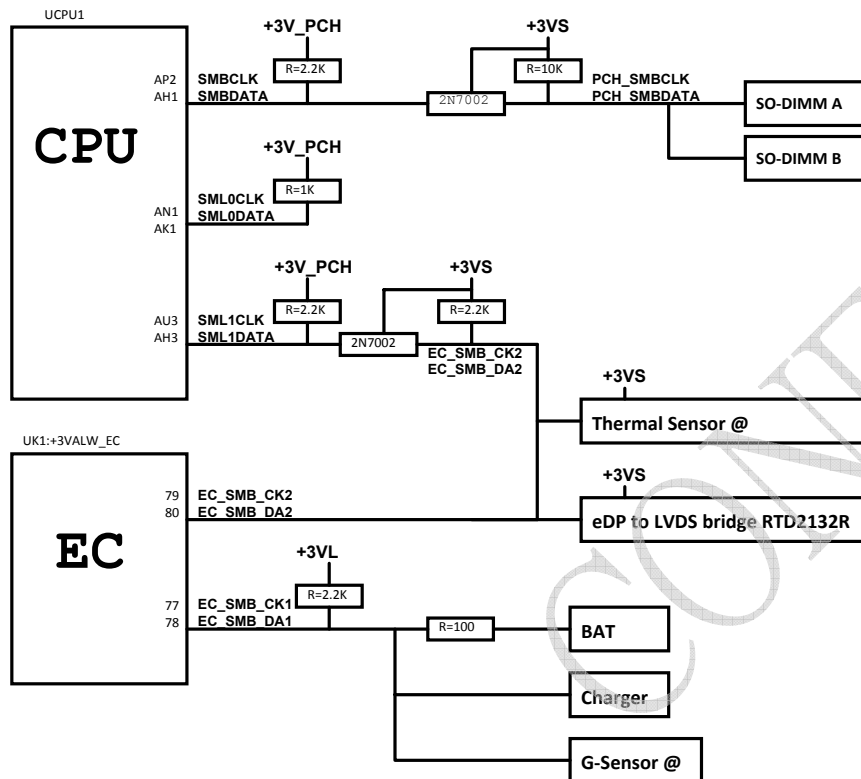
45@
ZZZ1
ROYALTY HDMI W/LOGO+HDCP
Part Number = RO0000003HM
ROYALTY HDMI W/LOGO+HDCP

<USB2.0 port>

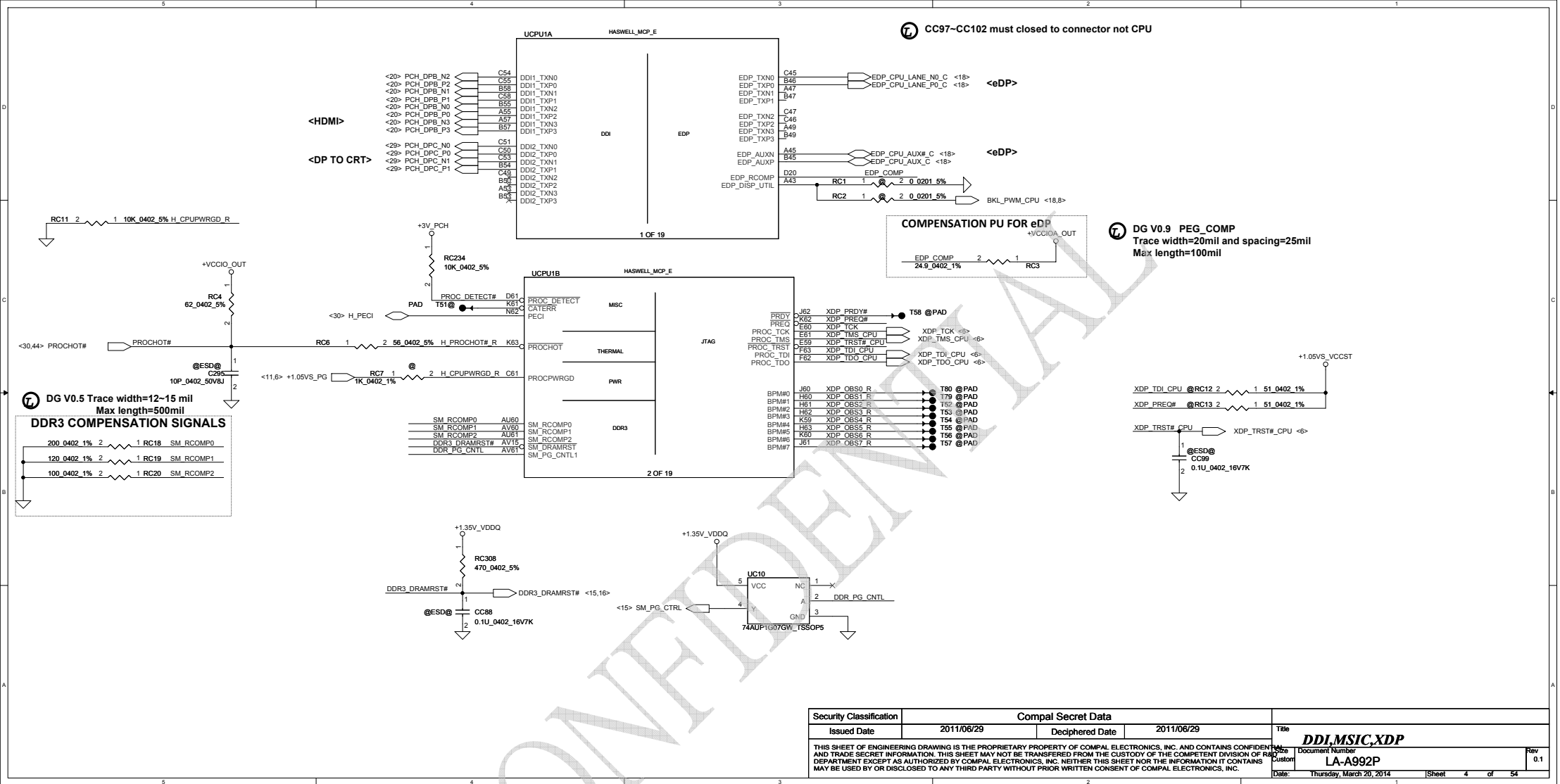
USB2.0 port	DESTINATION	
	UMA	Dis
0	USB 2.0/3.0(left side)	USB 2.0/3.0(left side)
1	USB 2.0(right side)	USB 2.0(right side)
2	USB 2.0(right side)	USB 2.0(right side)
3	WLAN/BT	WLAN/BT
4	Camera	Camera
5	Touch screen(Options)	Touch screen(Options)
6	X	X
7	X	X

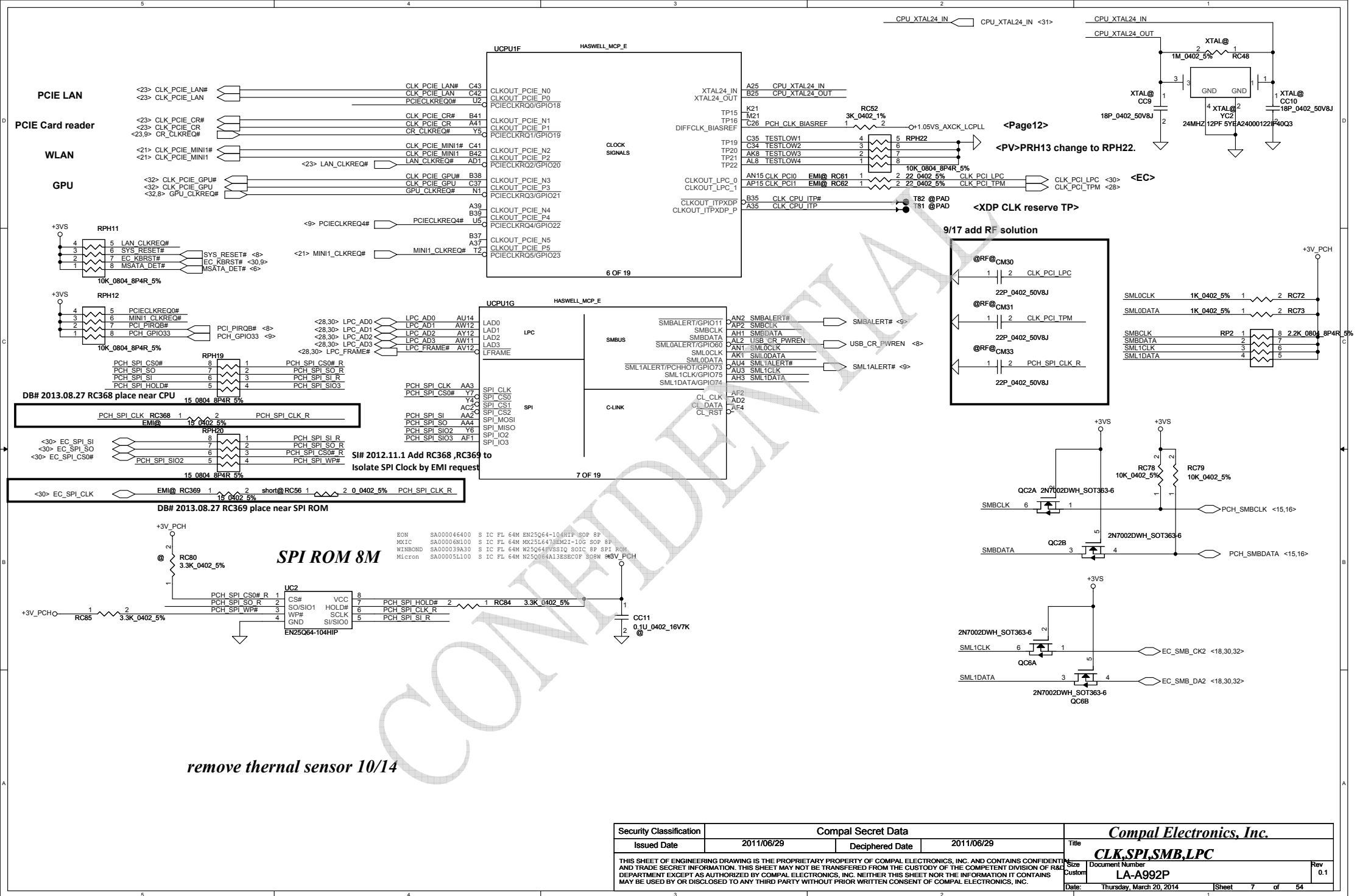
<PCI-E,SATA,USB3.0>

Lane#	PCI-E	SATA	USB3.0	DESTINATION	
				UMA	Dis
1			1	USB3.0	USB3.0
2			2	X	X
3	1		3	X	X
4	2		4	Card reader(PCI-E)	Card reader(PCI-E)
5	3			10/100/1000 LAN	10/100/1000 LAN
6	4				
7	5				GPU(DIS only)
8					GPU(DIS only)
9					GPU(DIS only)
10					GPU(DIS only)
11	L3	3		WLAN	WLAN
12	L2	2		X	X
13	L1	1		ODD	ODD
14	L0	0		2.5"HDD	2.5"HDD



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Non Deep S3 RC91-->SMT
Deep S3 RC93-->SMT

Deep S3

DSWODVREN - On Die DSW VR Enable

* H : Enable
L : Disable

DSWODVREN RC254 2 1 330K 0402 5%

DSWODVREN RC255 2 1 330K 0402 5%

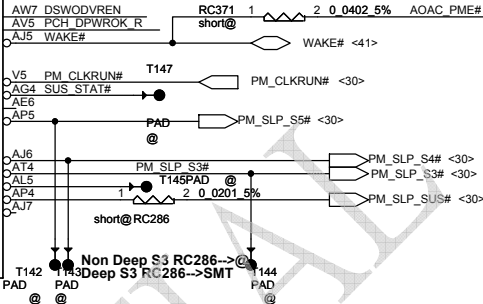
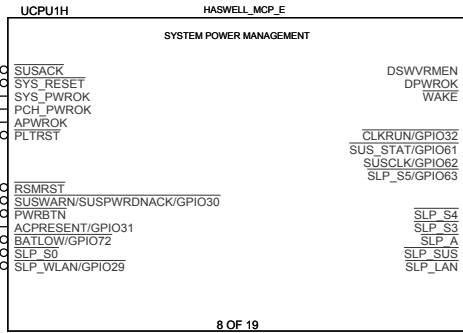
T83 short@RC268 1 2 0.0201 5% PM SLP_S0# R
RC269 1 2 0.0201 5% PM SLP_S3#

<9> SUSWARN# R RC91 1 2 0.0201 5%
<30> SUSACK# short@RC93 1 2 0.0201 5%
<7> SYS_RESET# short@RC93 1 2 0.0201 5%
<30> SYS_PWROK short@RC99 1 2 0.0402 5%
<30> PCH_PWROK short@RC1001 1 2 0.0402 5%

<30> PCH_RSMRST# short@RC1041 1 2 0.0402 5%
<30> PCH_SUSWARN# short@RC1031 1 2 0.0402 5%
<30> PBTN_OUT# short@RC1031 1 2 0.0402 5%
<30,44,45,46> ACIN# CH751H-40PT_SOD323-2 1 2 DC2

C70 ESD@
PCH_PWROK
0.047U_0402_16V7K

RC112 2 1 100K 0402 5% SYS_PWROK



WAKE# RC98 1 2 1K 0402 5%

PCH_RSMRST# RC106 2 1 10K 0402 5%

Deep S3:DSW power choose on page12

+3V_DSW_P

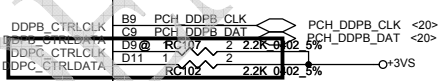
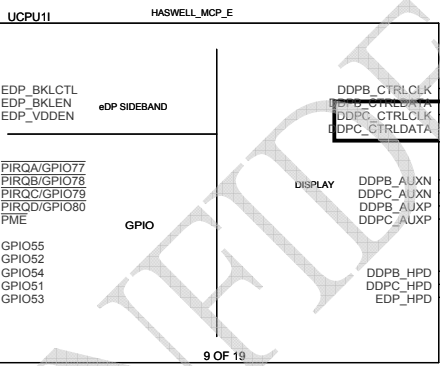
PANEL_BKEN_CPU PD 100K on Page20

<18,4> BKL_PWM_CPU short@RC114 1 2 0.0402 5% BKL_PWM_CPU R B8
<30> ENBKL short@RC115 1 2 0.0402 5% ENBKL_CPU A9
<19> ENVDD_CPU short@RC116 1 2 0.0402 5% ENVDD_CPU R C6

<9> EC_SMI# EC_SMI# U6C
<7> PCI_PIRQB# PCI_PIRQB# P4C
<9> PCI_PIRQC# PCI_PIRQC# N4C
<30> AOAC_PME# AOAC_PME# RC305 1 2 0.0402 5% AOAC_PME# R AD4C

PAD T146@ TS_RST# U7
PCH_MC_WAKE# L3
PCH_MIC_DET R5
PCH_HP_DET L4

RC120 1 2 100K 0402 5% ENVDD_CPU



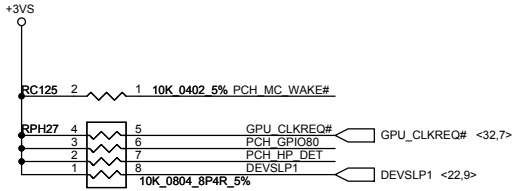
<HDMI>

<S> Displayport Port C Enable pin RC102 pull high +3VS

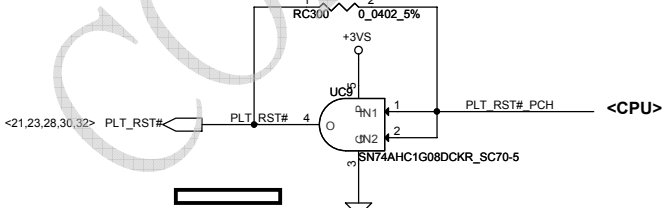
<DP TO CRT HPD>

PM_CLKRUN# RC110 2 1 8.2K 0402 5%

<HDMI>
<DP TO CRT HPD>
<eDP HPD>



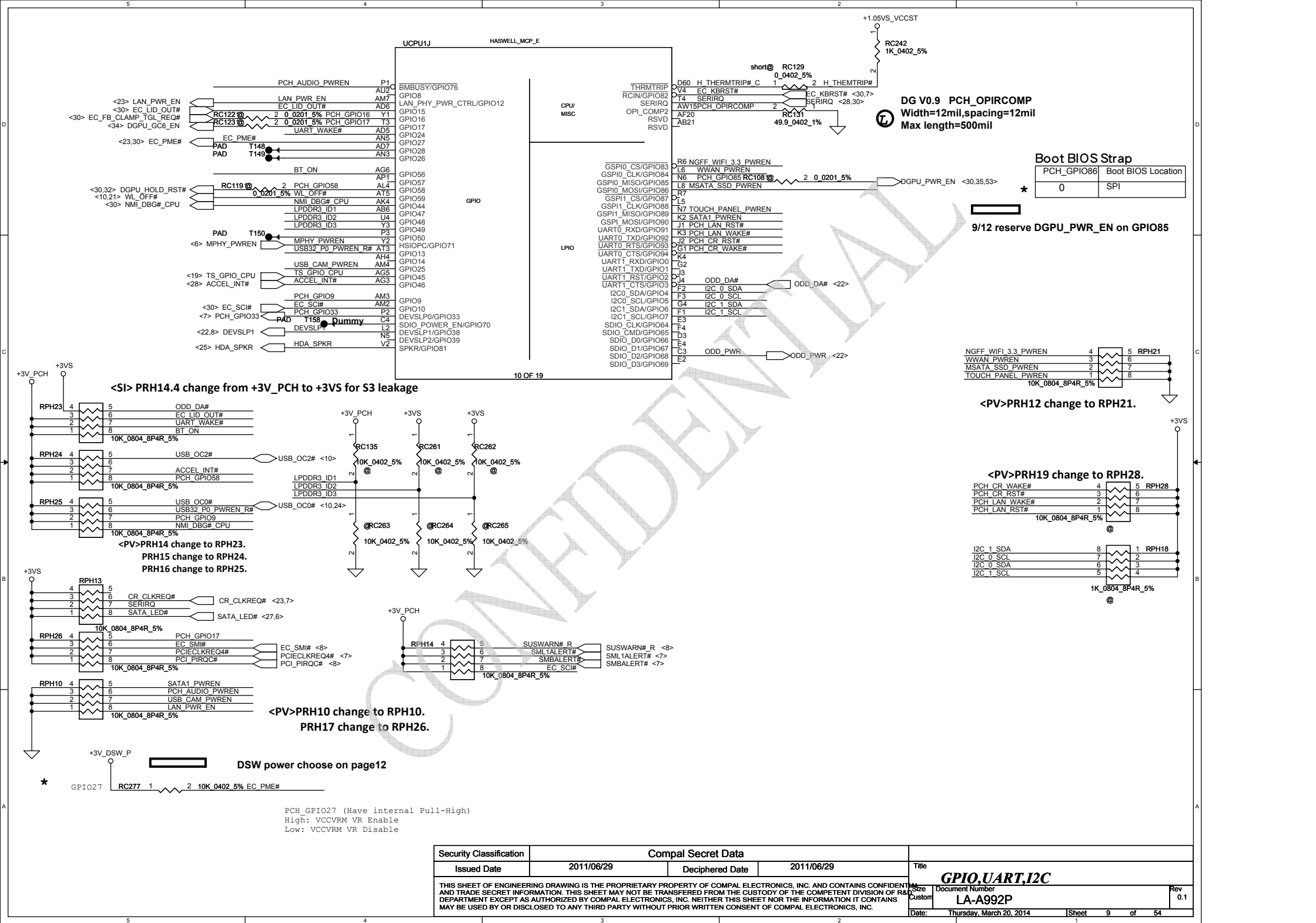
<PV>PRH18 change to RPH27.



PD on KBC page

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Issued Date	2011/06/29	Deciphered Date	2011/06/29	PM,GPIO,DDI	
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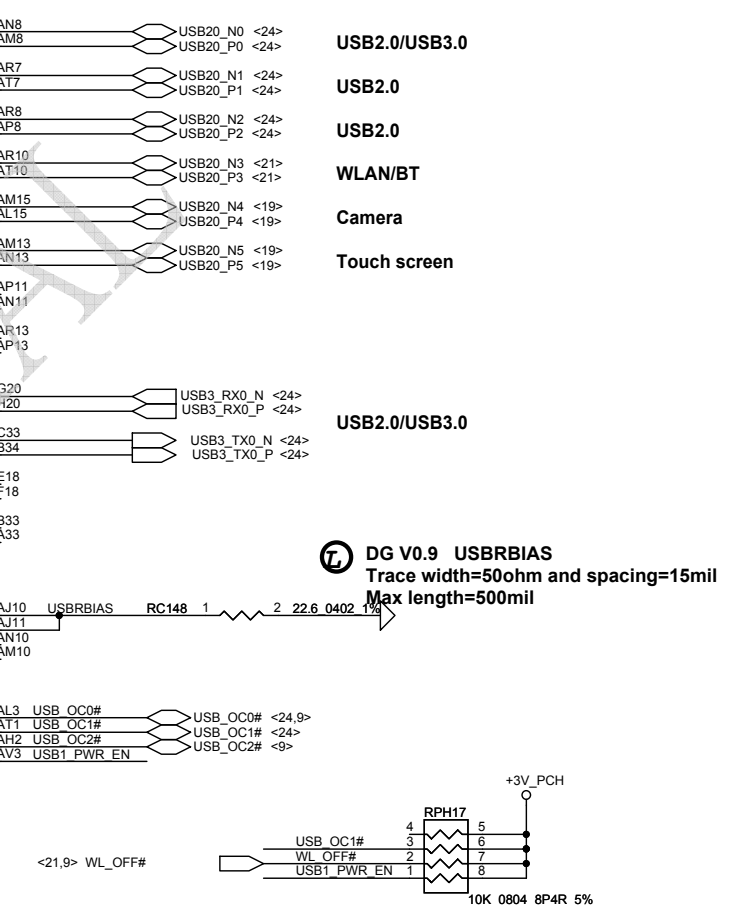
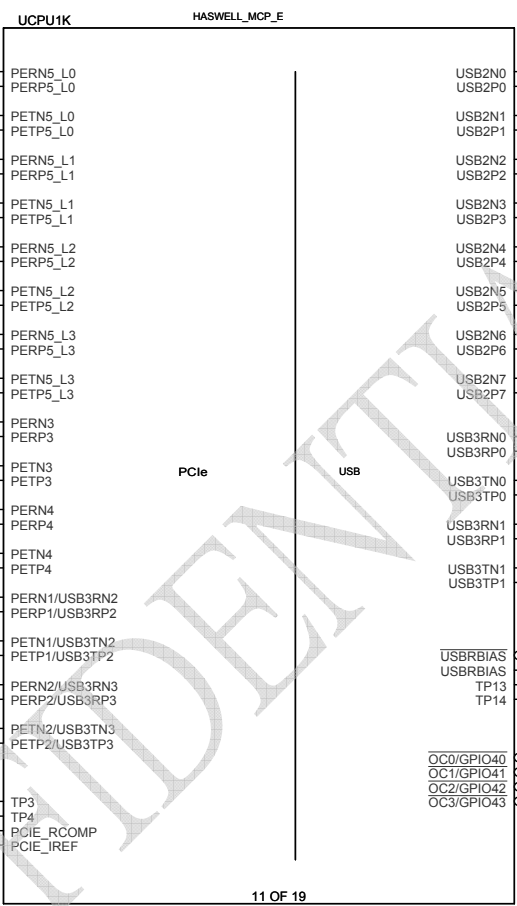
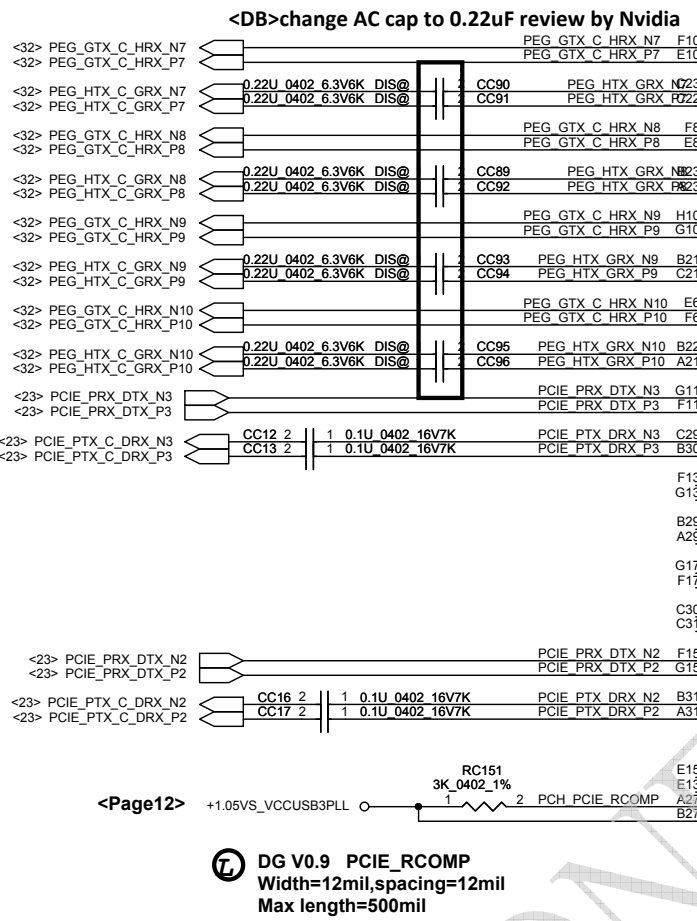


10/100/1G LAN

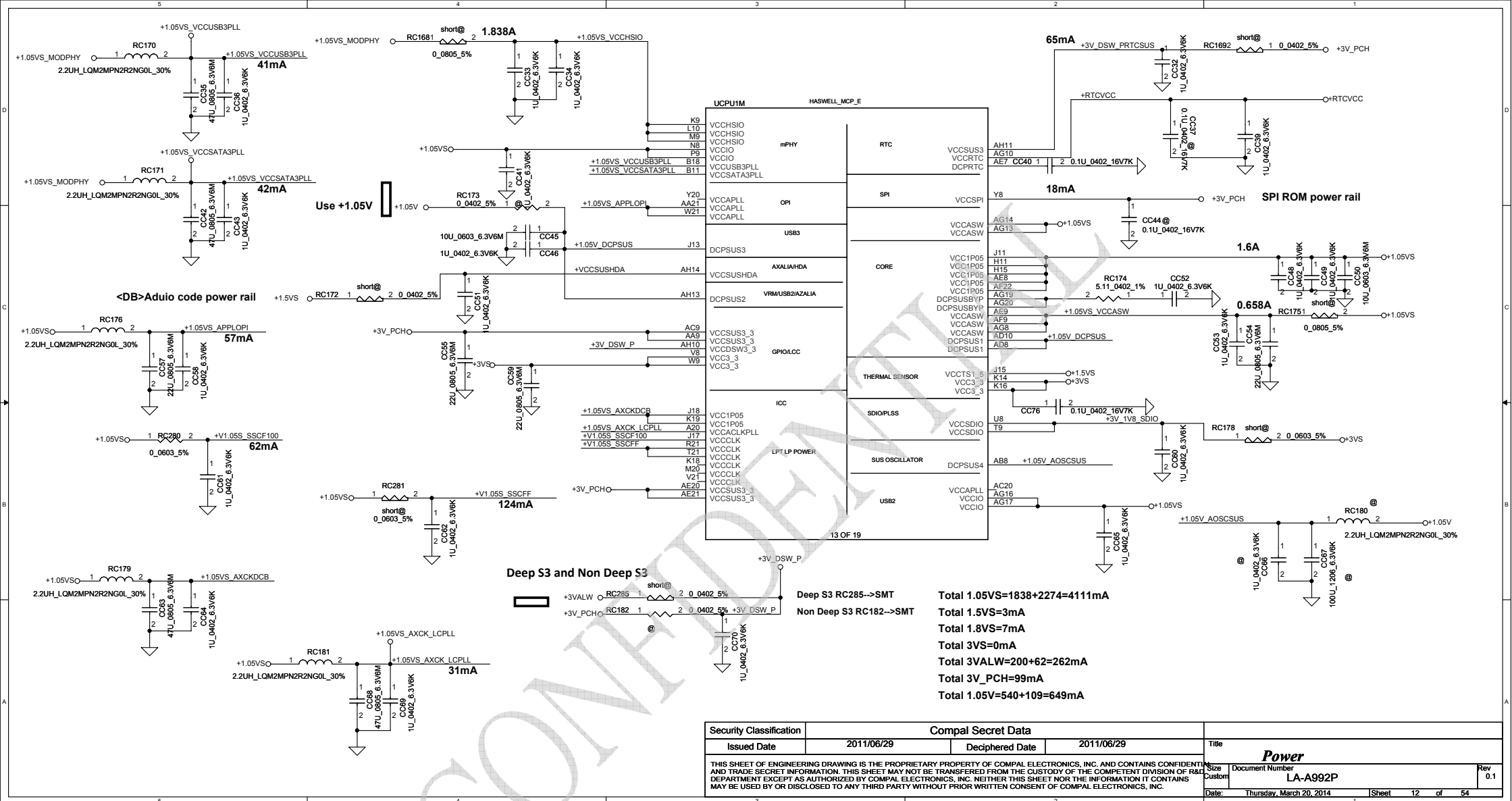
PCI-E Card reader

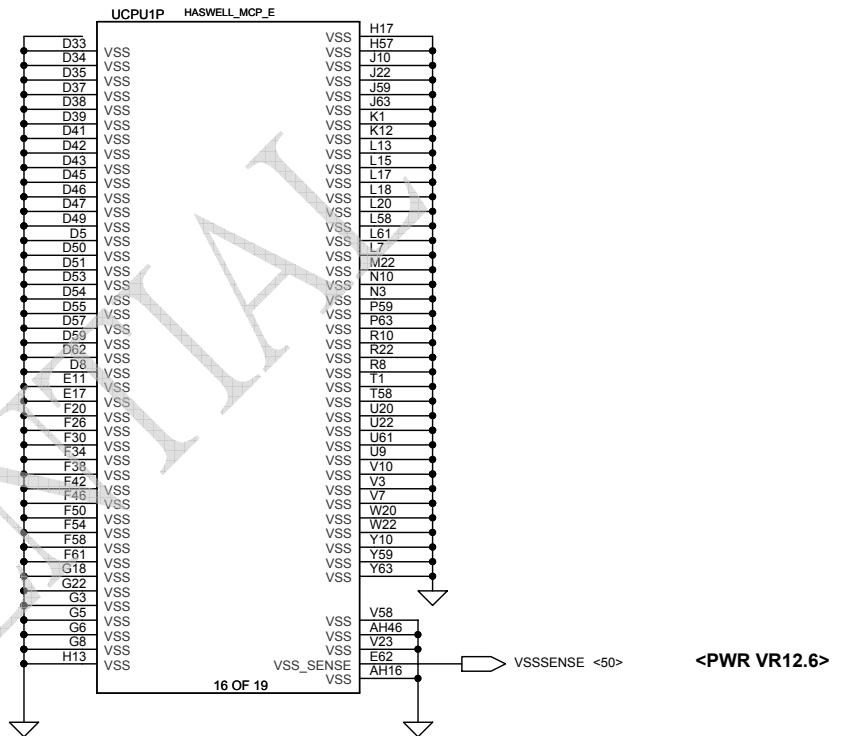
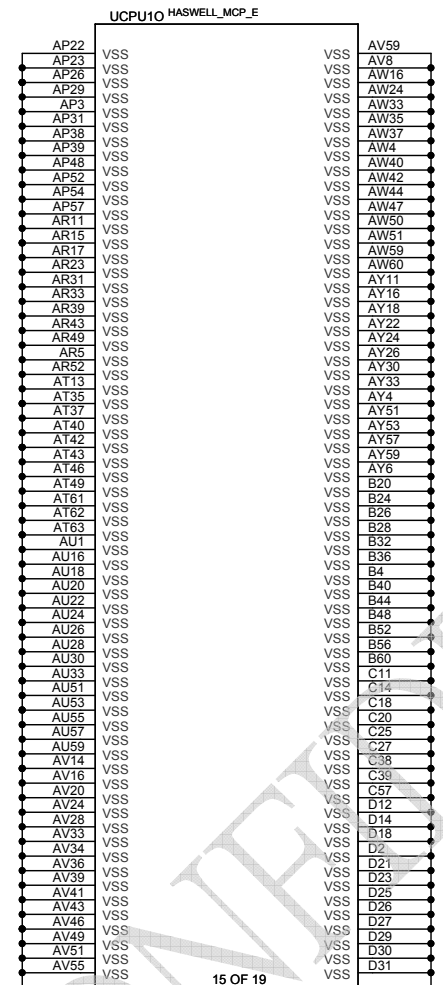
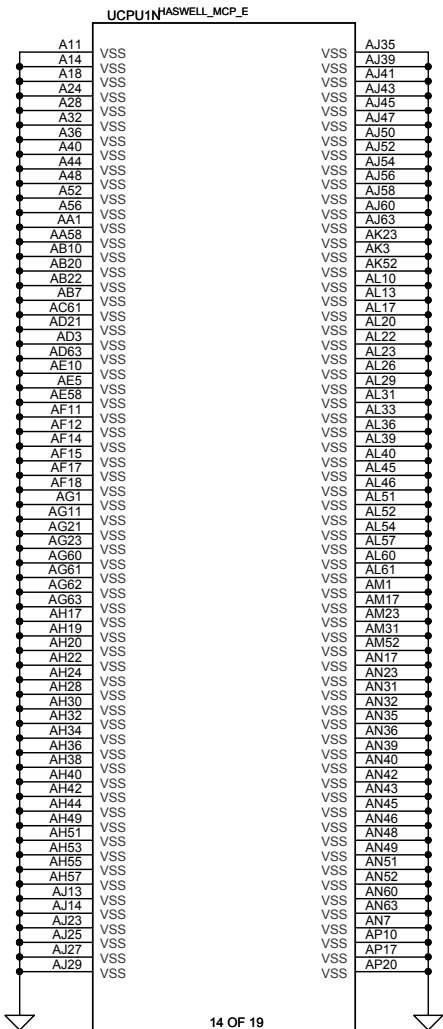
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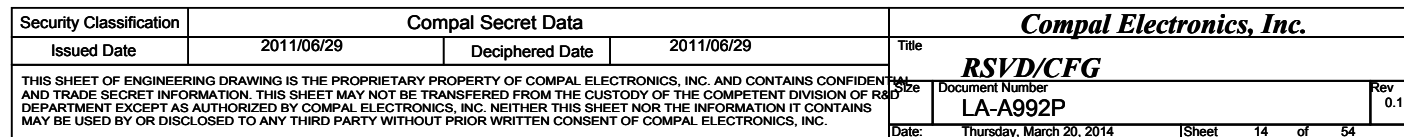
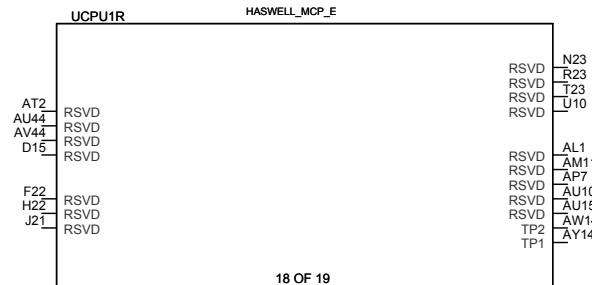
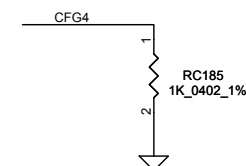


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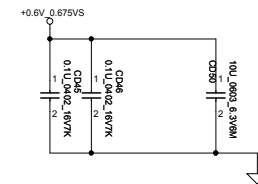
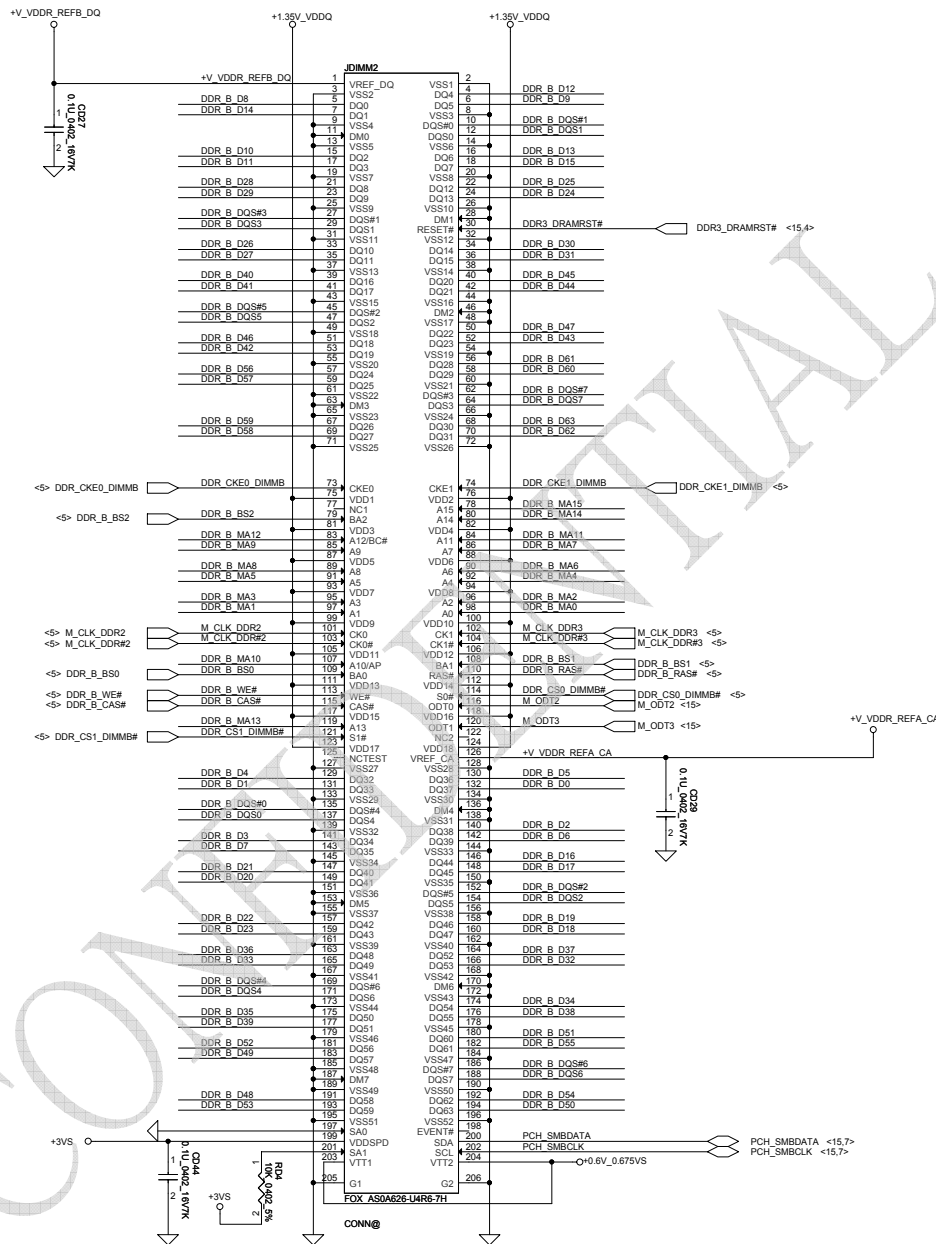




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								GND/VSSSEN			
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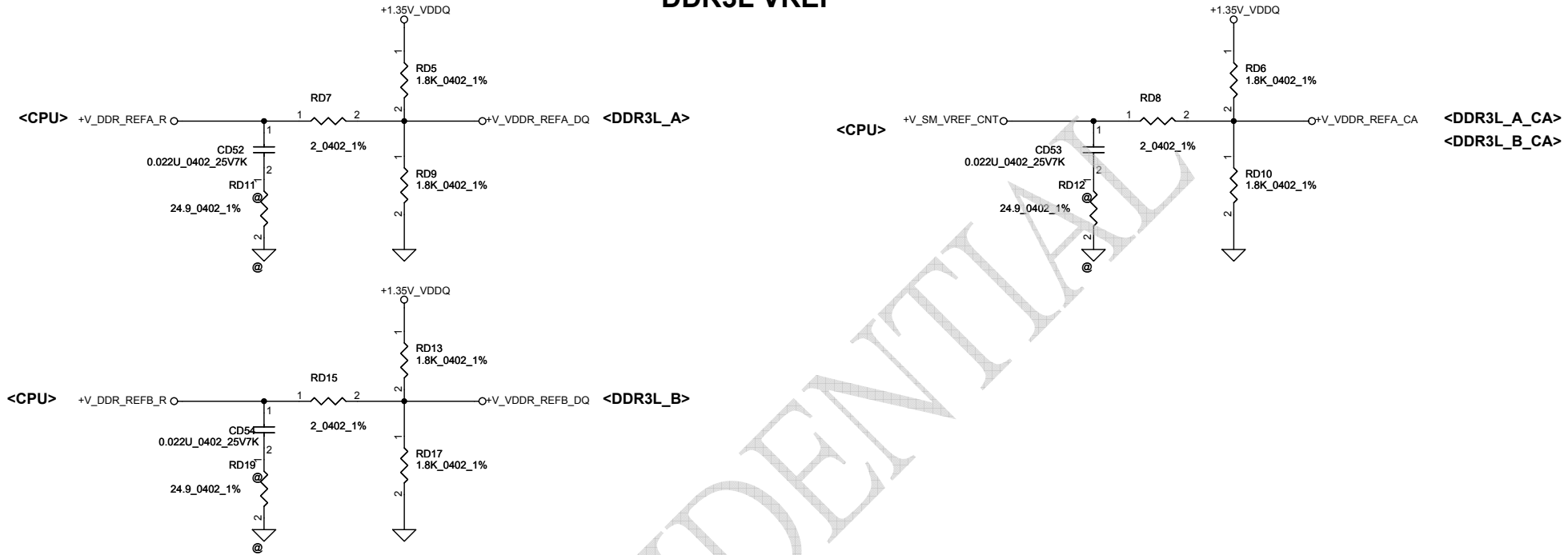


<S> DDR_B_D[0..63]
 <S> DDR_B_DQS[0..7]
 <S> DDR_B_DQS# [0..7]
 <S> DDR_B_MA[0..15]

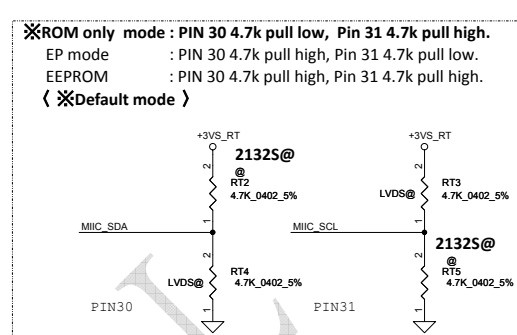
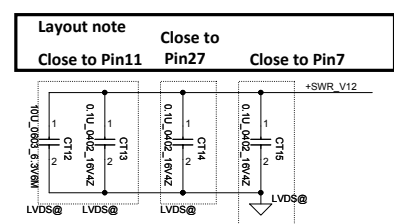
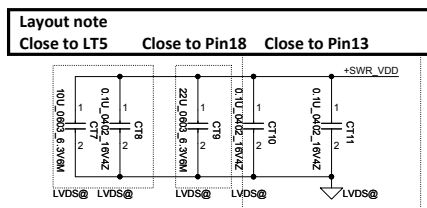
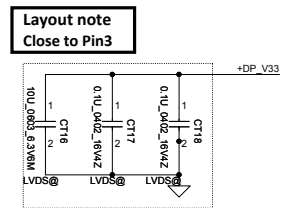
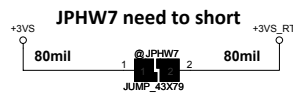


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DDR3L VREF



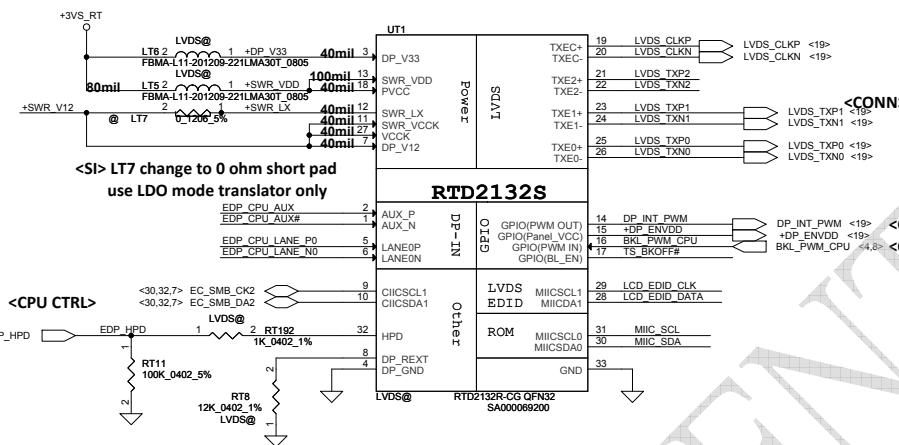
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SWR / LDO Mode select

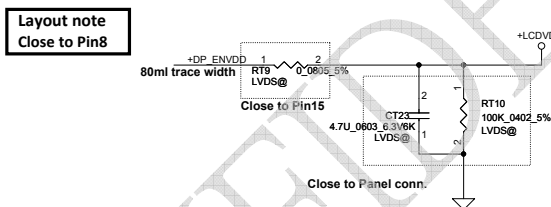
	LDO	SWR
2132S	Do not support	mount LT7
2132R	Use 0 ohm	mount LT7

✗ If use 2132R, please select LDO mode as default.



<CPU>

<4> EDP_CPU_AUX_C	CC102	1	2	.1U_0402_16V7K	EDP_CPU_AUX
<4> EDP_CPU_AUX#_C	CC101	1	2	.1U_0402_16V7K	EDP_CPU_AUX#
<4> EDP_CPU_LANE_P0_C	CC98	1	2	.1U_0402_16V7K	EDP_CPU_LANE_P0
<4> EDP_CPU_LANE_N0_C	CC97	1	2	.1U_0402_16V7K	EDP_CPU_LANE_N0

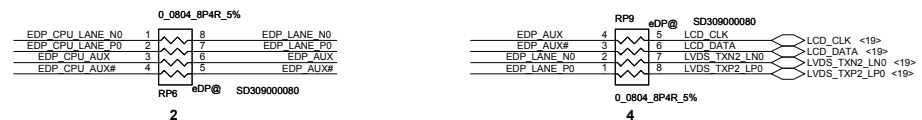


Different between 2132S and 2132R

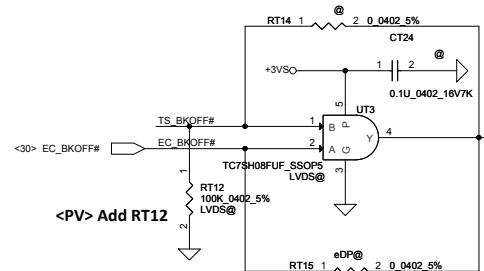
2132S	2132R
1. Support SWR mode	1. Support LDO mode and SWR mode 2. Internal ROM 3. Support LCD_VDD(internal Power switch) 4. Integrates Level shifter

<CPU by PASS eDP>

<eDP to connector>



<RTS2132>
<EC CTRL>



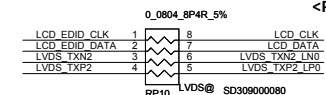
<Si> Update UT3 footprint (As UV11)

<LVDS Panel>

PD 100K on LVDS page

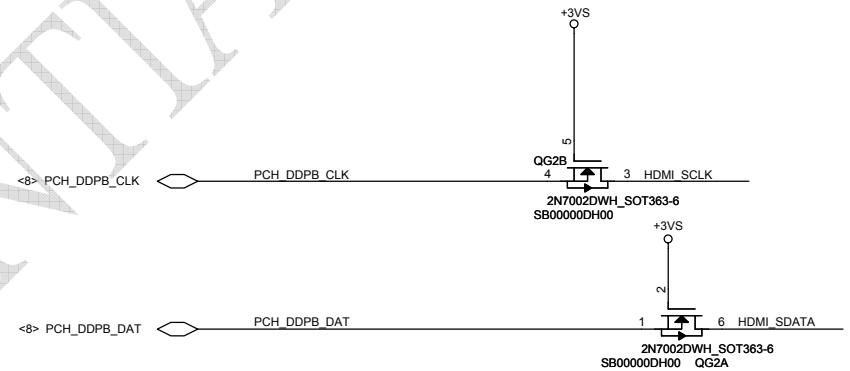
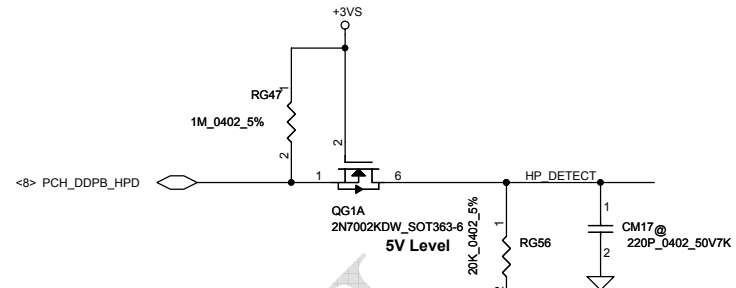
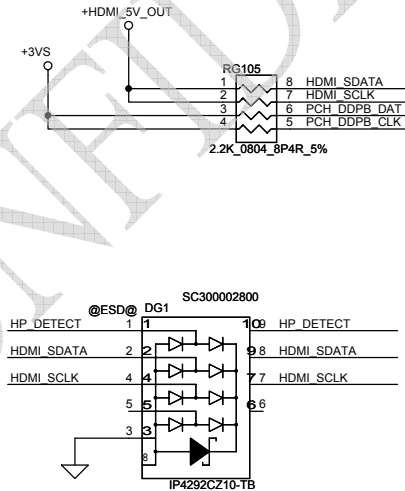
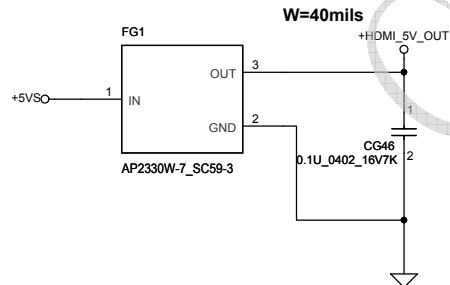
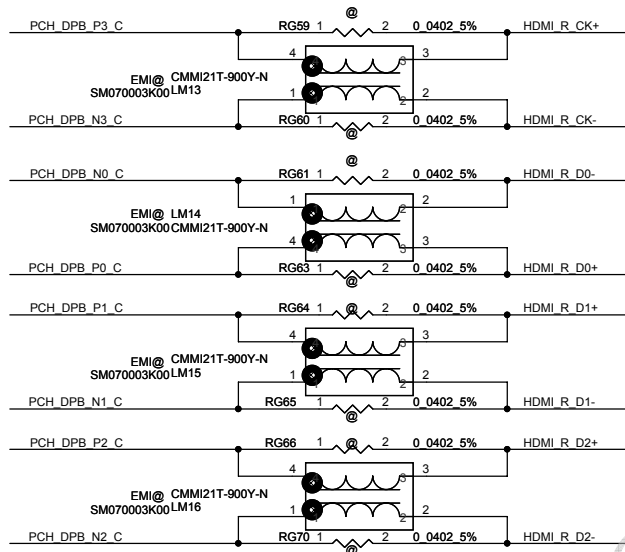
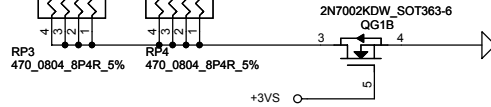
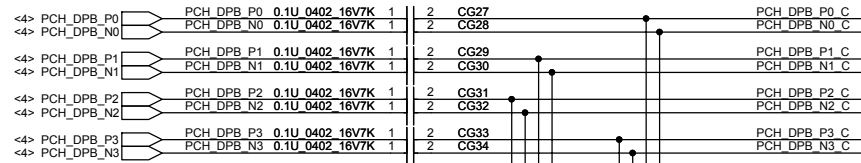
<LVDS to connector>

**<PV>Change PR37 pin define , Add PR38.
<PV>PR36 Change to RP6.
PR37 change to RP9.
PR38 change to RP10.**

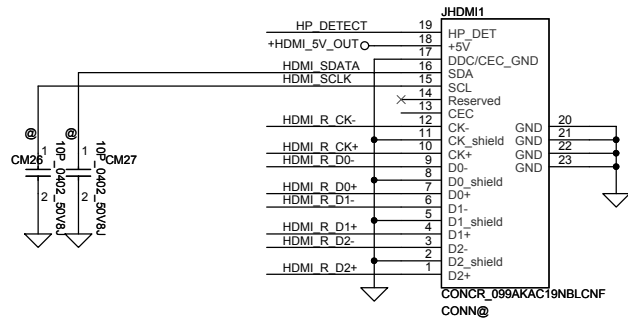


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				LVDS Translator-RTD2132R
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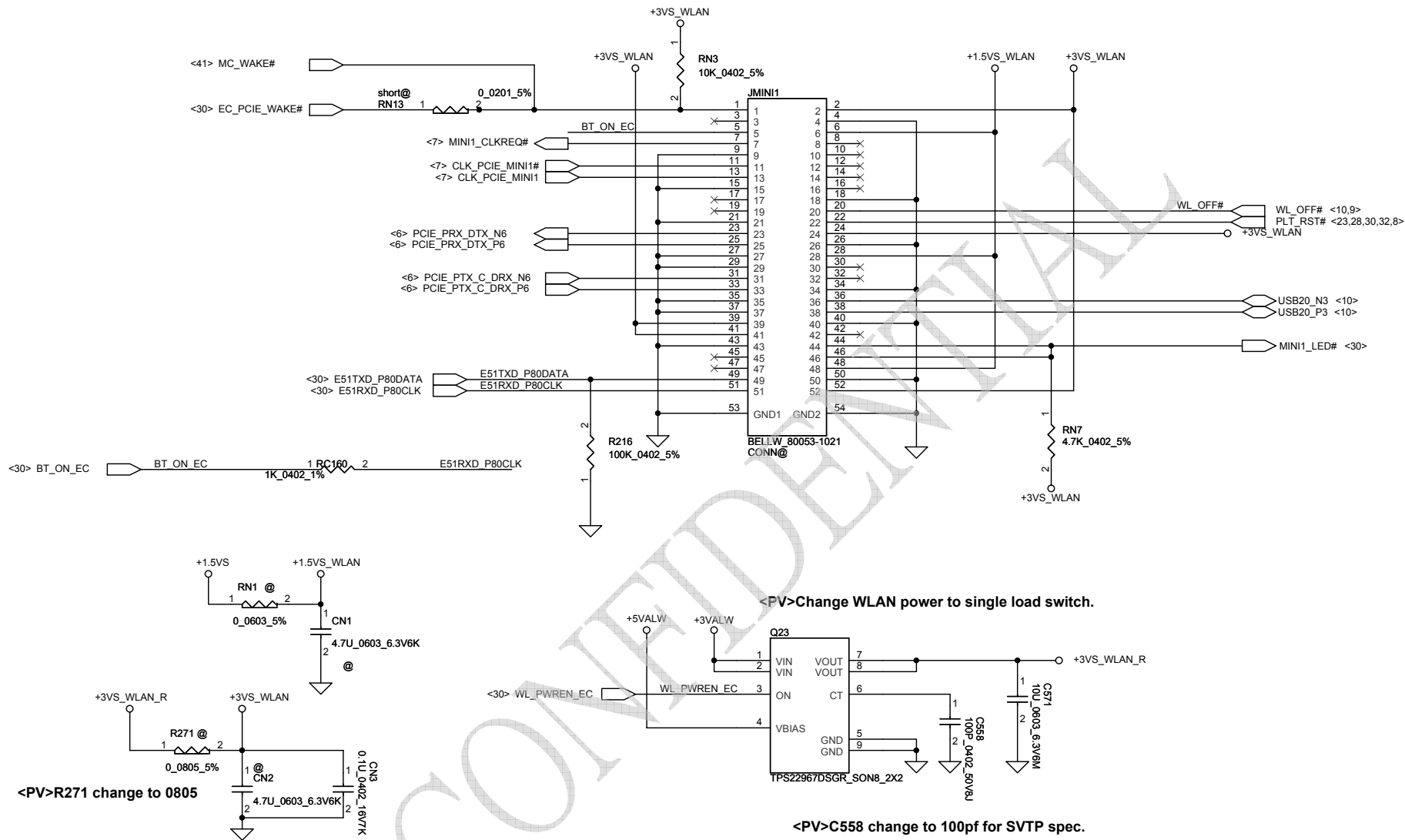
<CPU>



HDMI Conn.

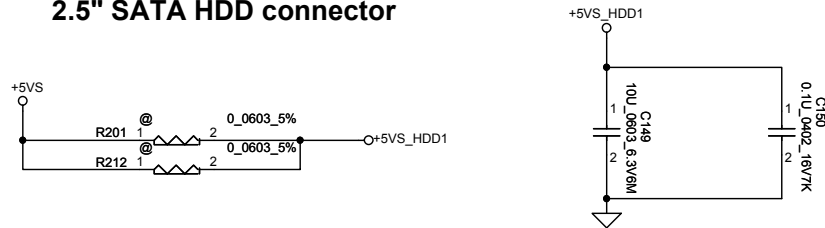


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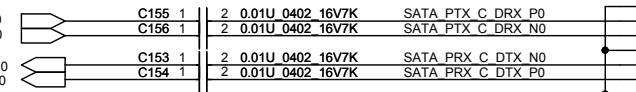


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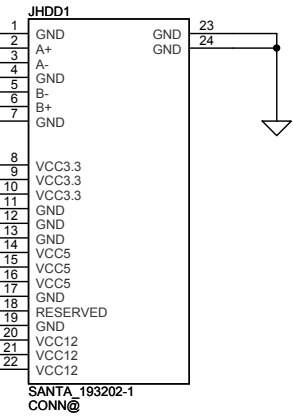
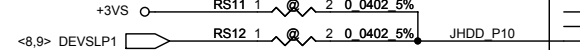
2.5" SATA HDD connector



<6> SATA_PTX_DRX_P0
<6> SATA_PTX_DRX_N0
<6> SATA_PRX_DTX_N0
<6> SATA_PRX_DTX_P0

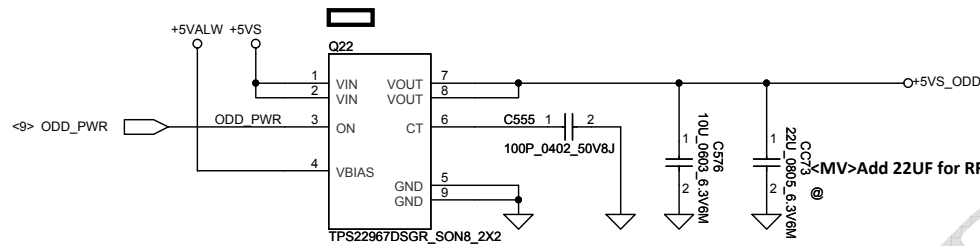


<SI>RS11 change to un pop



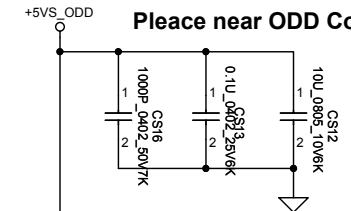
Change to dual load switch for ODD and WLAN

<PV>Q22 change to single load switch.

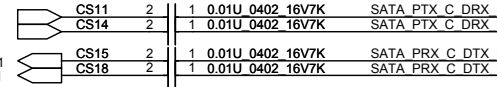


<MV>Add 22UF for RF suggestion ,4/10.

Place near ODD Connector



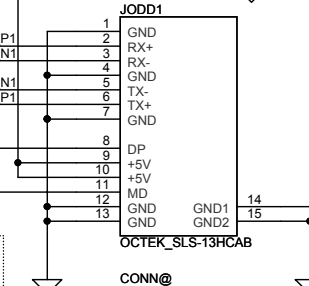
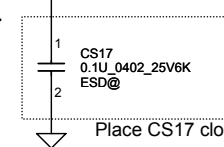
<6> SATA_PTX_DRX_P1
<6> SATA_PTX_DRX_N1
<6> SATA_PRX_DTX_N1
<6> SATA_PRX_DTX_P1



<6> ODD_PLUG#

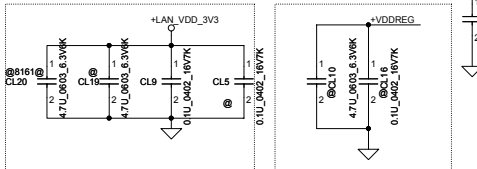
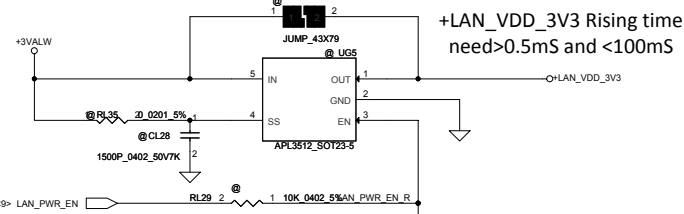
<9> ODD_DA#

<SI> Delete Q84, R954



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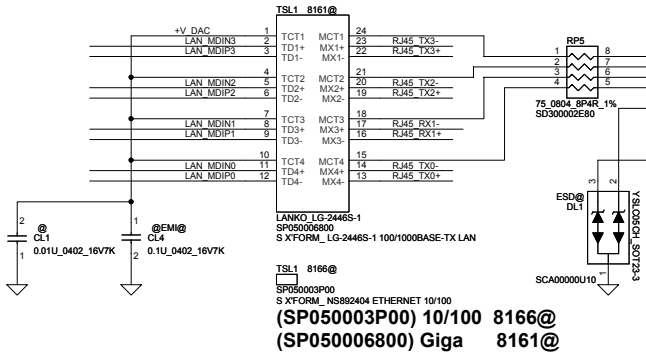
JHW1 need to short



CL19 close to UL1: Pin 32

CL20 close to UL1: Pin 11

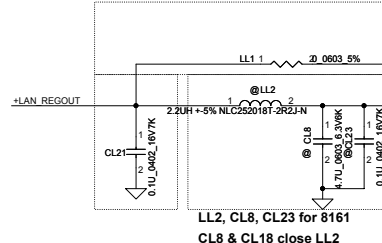
SP050005L00 Footprint



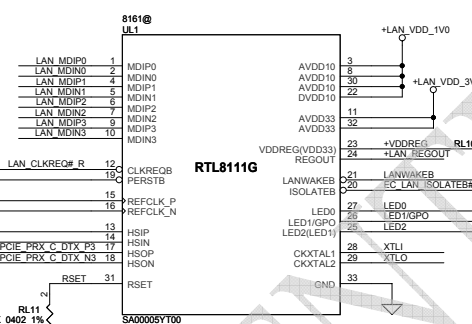
(SP050003P00) 10/100 8166@

(SP050006800) Giga 8161@

RTL8151G (LDO mode)



8151/8166 Co-Lay



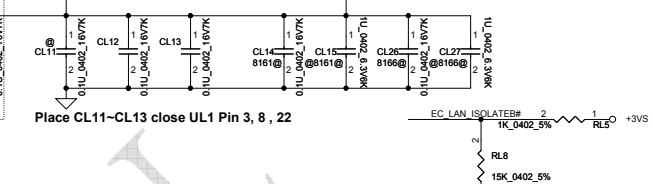
(SA000063500) 10/100 8166@

(SA00005YT00) Giga 8151@

	LDO mode	Switching mode
LL1	SMT	@
CL21	SMT	@
LL2	@	SMT
CL8	@	SMT

CL14 & CL15 close UL1 Pin22

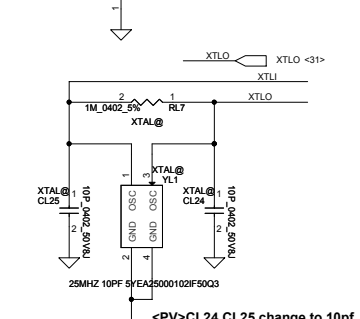
CL26 & CL27 close UL1 Pin30



+LAN_VDD_3V3=40mil

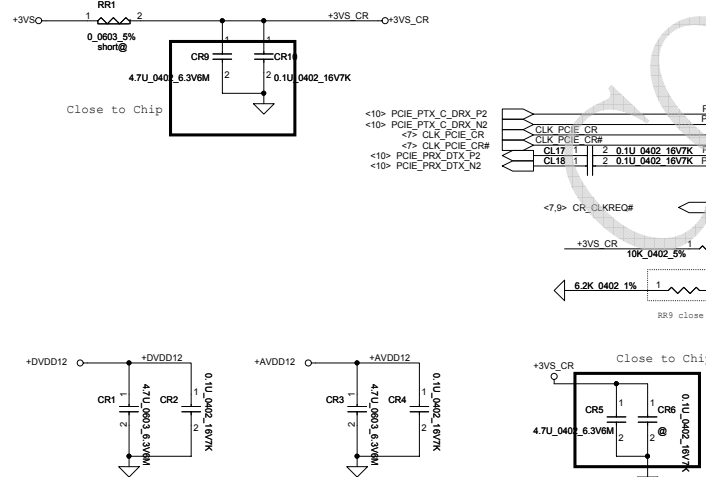
+VDDREG=40mil

+LAN_REGOUT=60mil

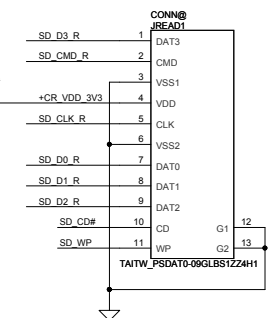
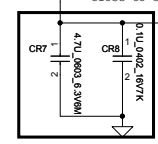
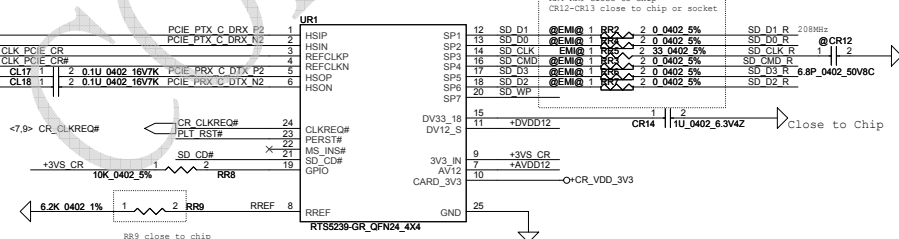


Pin	Component
1	4.7uF_0603_6.3V6K
2	0.1uF_0402_16V7K
3	10K_0402_5%
4	4.7uF_0603_6.3V6K
5	0.1uF_0402_16V7K
6	10K_0402_5%
7	4.7uF_0603_6.3V6K
8	0.1uF_0402_16V7K
9	10K_0402_5%
10	4.7uF_0603_6.3V6K
11	0.1uF_0402_16V7K
12	10K_0402_5%
13	4.7uF_0603_6.3V6K
14	0.1uF_0402_16V7K
15	10K_0402_5%
16	4.7uF_0603_6.3V6K
17	0.1uF_0402_16V7K
18	10K_0402_5%
19	4.7uF_0603_6.3V6K
20	0.1uF_0402_16V7K
21	10K_0402_5%
22	4.7uF_0603_6.3V6K
23	0.1uF_0402_16V7K
24	10K_0402_5%
25	4.7uF_0603_6.3V6K
26	0.1uF_0402_16V7K
27	10K_0402_5%
28	4.7uF_0603_6.3V6K
29	0.1uF_0402_16V7K
30	10K_0402_5%
31	4.7uF_0603_6.3V6K
32	0.1uF_0402_16V7K
33	10K_0402_5%

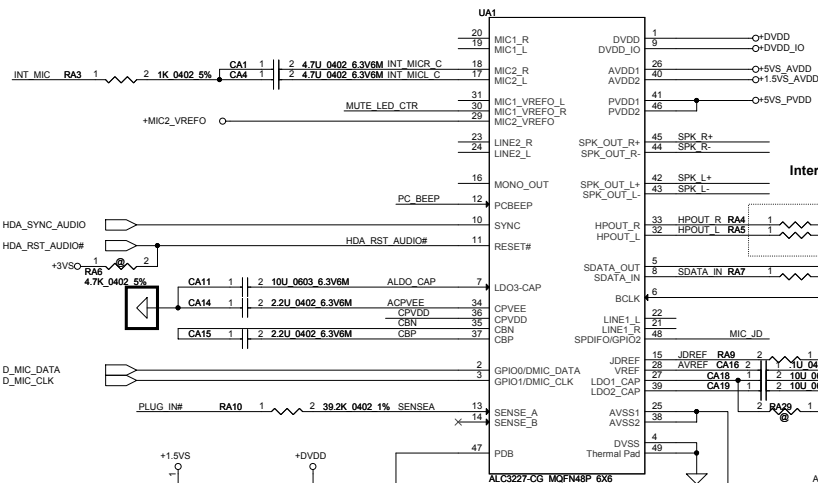
Card Reader Connector



RTS5239



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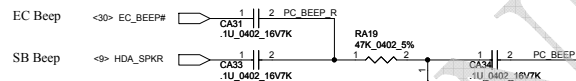
<SI> QA2 change from NMOS to BJT
<PV> QA2 change to QA1.

Part Number = SB000008E10

<30> EC_MUTE#

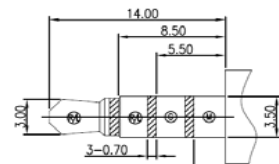
Power down (PD#) power stage for save power
0V: Power down power stage
3.3V: Power up power stage

PC Beep

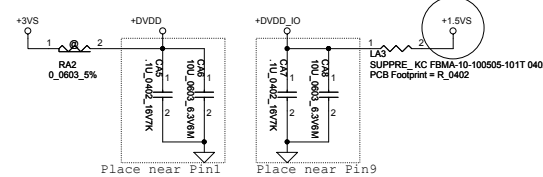


Close to Codec pin12

Delete ESD Diode

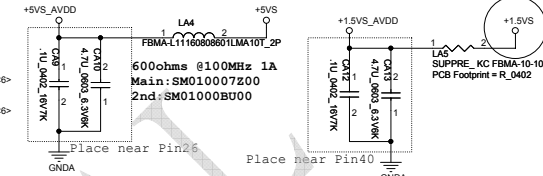


3.50 4POLE PLUG
TOLERANCE:±0.05



Place near Pin1

Place near Pin9



Place near Pin26

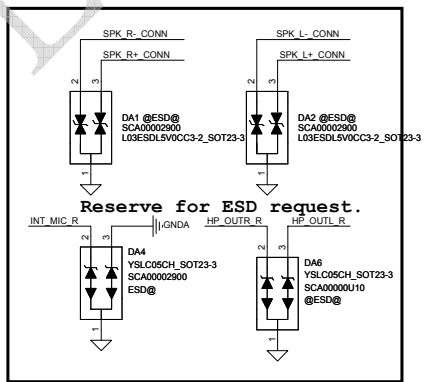
Place near Pin40

SPK R+ EMIS RA13 1 2 PY1608081-300Y-N 2P
SPK R+ EMIS RA14 1 2 PY1608081-300Y-N 2P
SPK L- EMIS RA15 1 2 PY1608081-300Y-N 2P
SPK L+ EMIS RA16 1 2 PY1608081-300Y-N 2P

Internal SPK

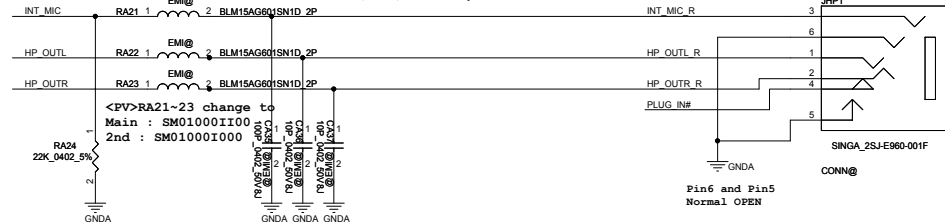
<BS>Relace RA13/RA14/RA15/RA16 close to UA1
<PV>RA13-RA16 change to SM010008A00, 30-ohm.

wide 40 MIL Delete ESD Diode

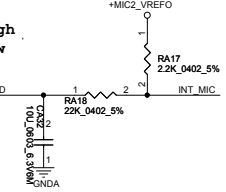


COMBO AUDIO JACK

HPR, HPL, 15mil Keep 30mil

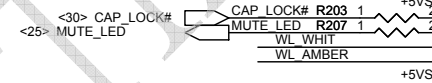
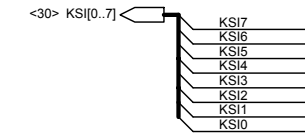
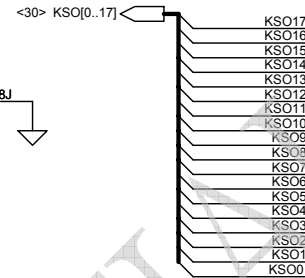
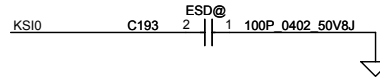
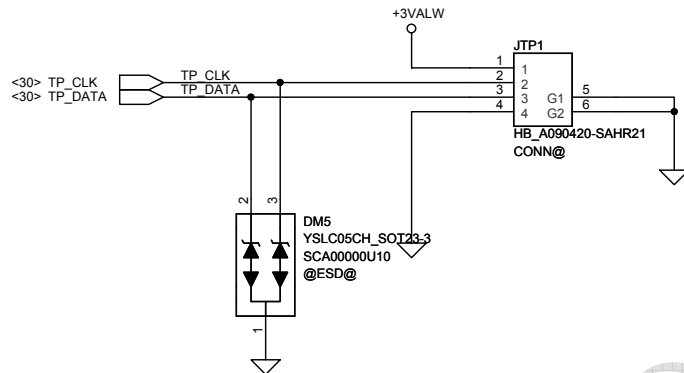


Jack detect
Combo Mic = High
Normal HP = Low

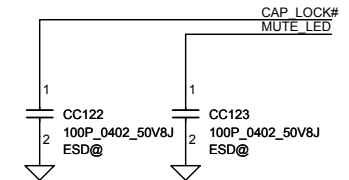
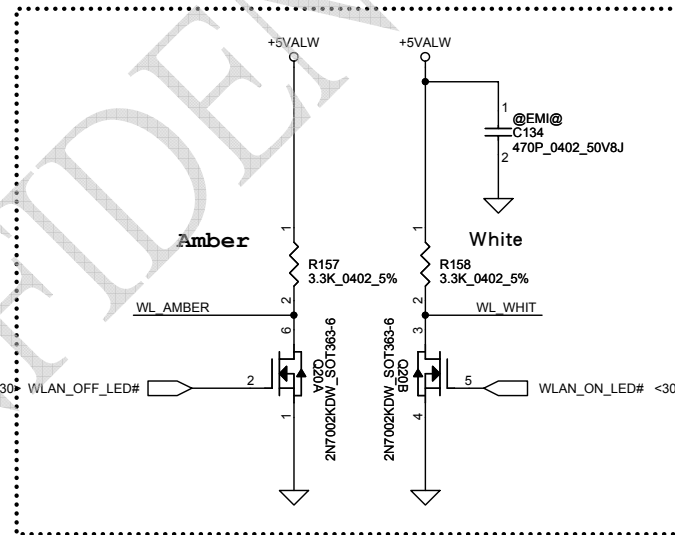
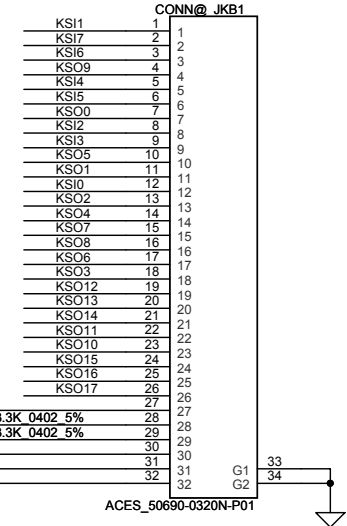


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Touch pad conn

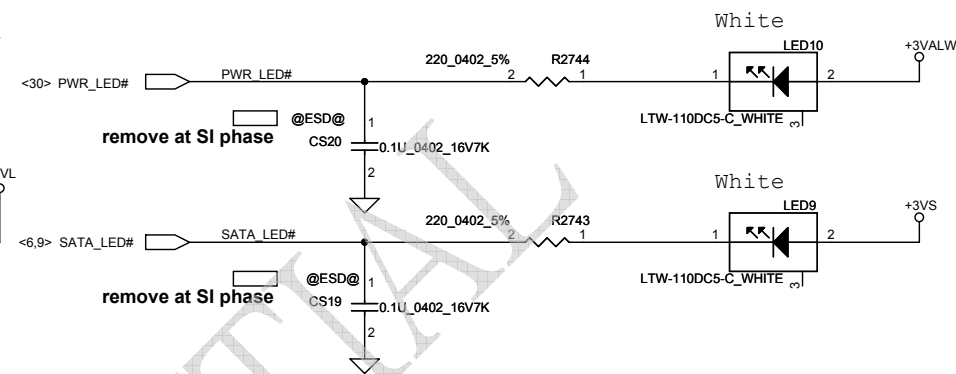
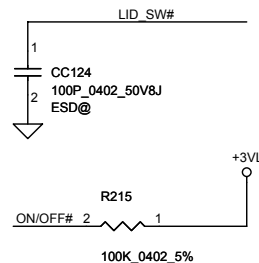
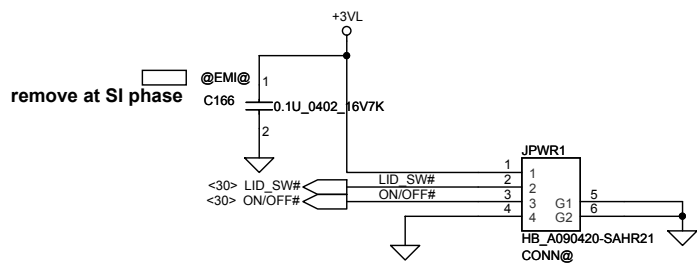


Keyboard conn

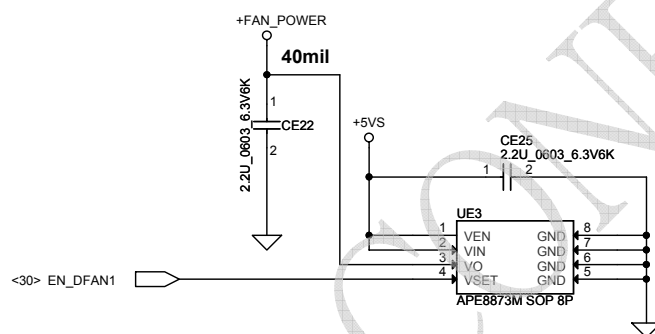


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Deciphered Date				2015/07/08				KB/TP			
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								Rev			
								0.1			

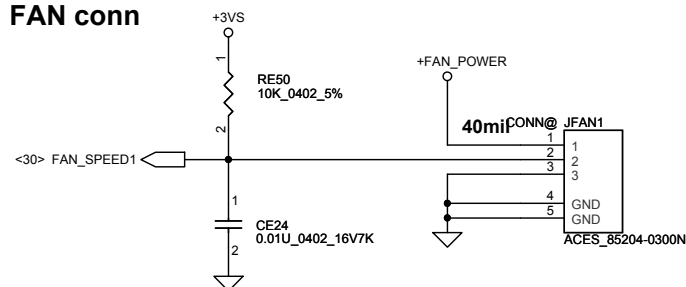
Power Button Connector



<SI> Del New Lid SW conn

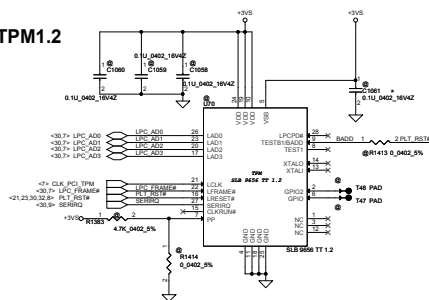


FAN conn

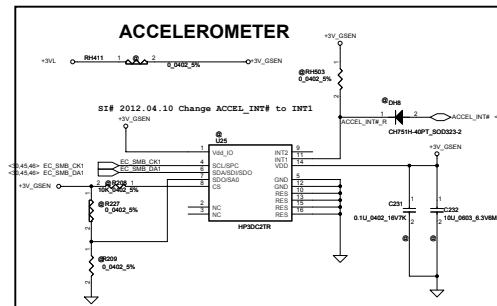


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								PWRBTN/FAN	
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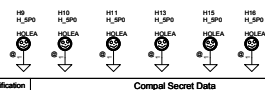
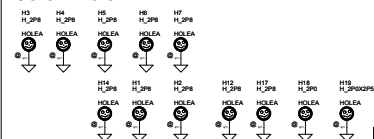
TPM1.2



ACCELEROMETER



Screw Hole



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H15
H₁₅P0
HOLEA

H16
H₁₆P0
HOLEA

F02
FEDUCAL_C48M80

F04
FEDUCAL_C48M80

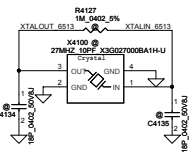
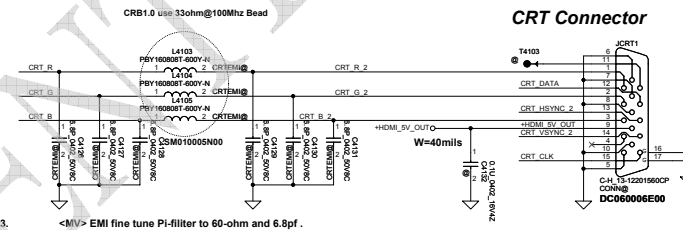
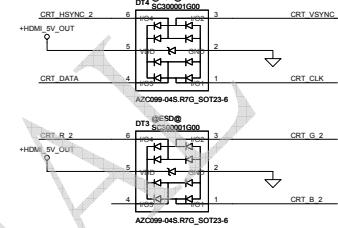
F06
FEDUCAL_C48M80

F08
FEDUCAL_C48M80

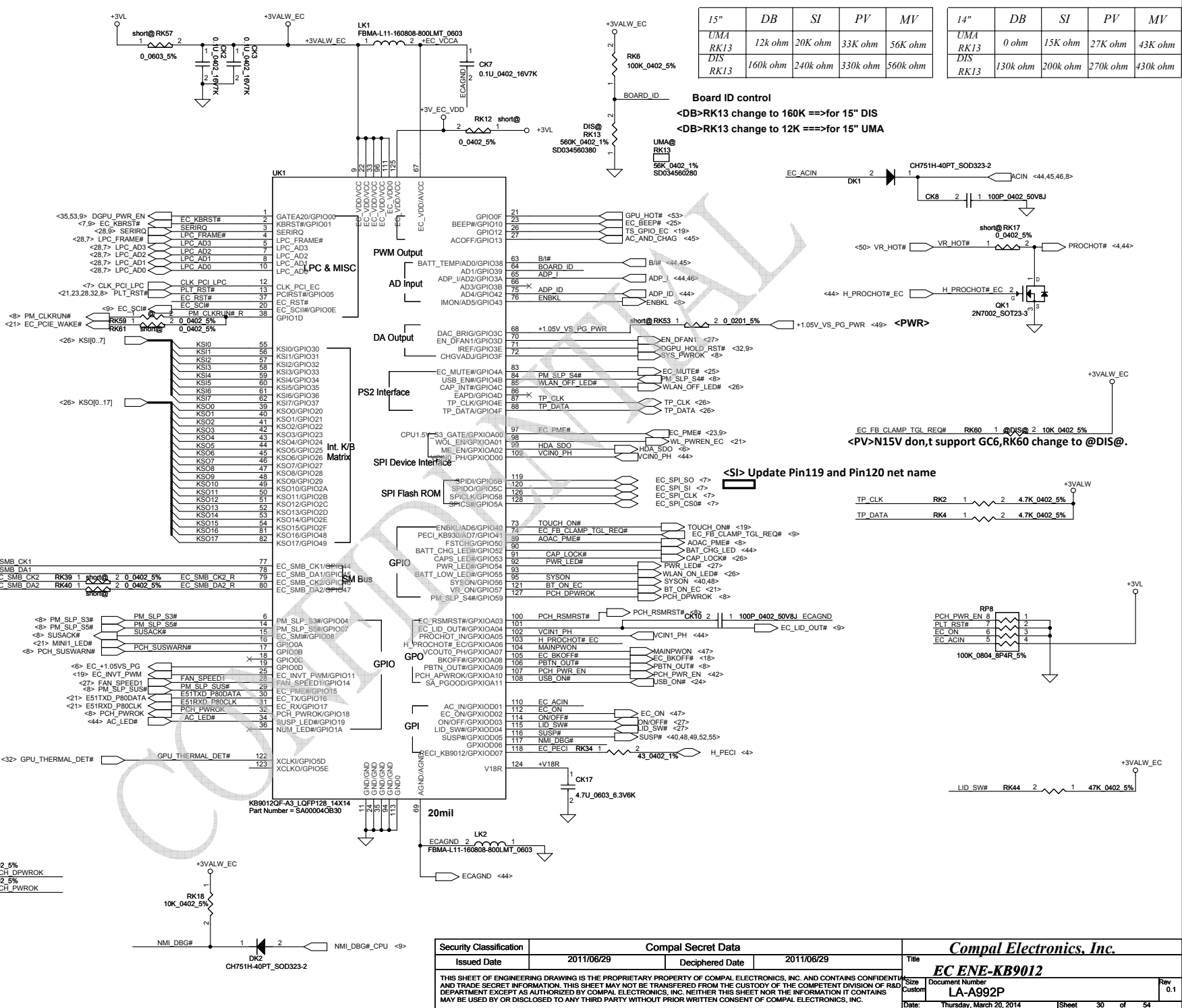
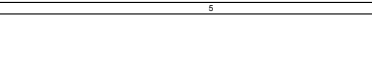
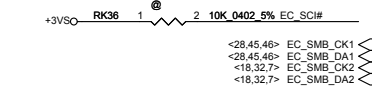
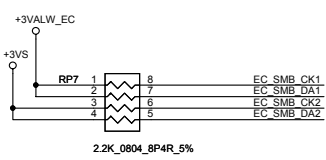
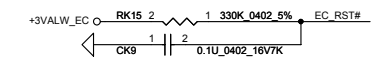
Secret Data	
Updated Date	2015/07/08
Title LED Screw hole	
Drawing Number LA-A992P	
Drawn	11/25/2015 15:25:25
Checked	28 02 04
Released	04

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CONFIDENTIAL



PV# 2013.01.29 Add CK4 for ESD protection



15"	DB	SI	PV	MV
UMA RK13	12k ohm	20K ohm	33K ohm	56K ohm
DIS RK13	160k ohm	240k ohm	330k ohm	560k ohm

14"	DB	SI	PV	MV
UMA RK13	0 ohm	15K ohm	27K ohm	43K ohm
DIS RK13	130k ohm	200k ohm	270k ohm	430k ohm

Board ID control
<DB>RK13 change to 160K ==>for 15" DIS
<DB>RK13 change to 12K ==>for 15" UMA

<SI> Update Pin119 and Pin120 net name

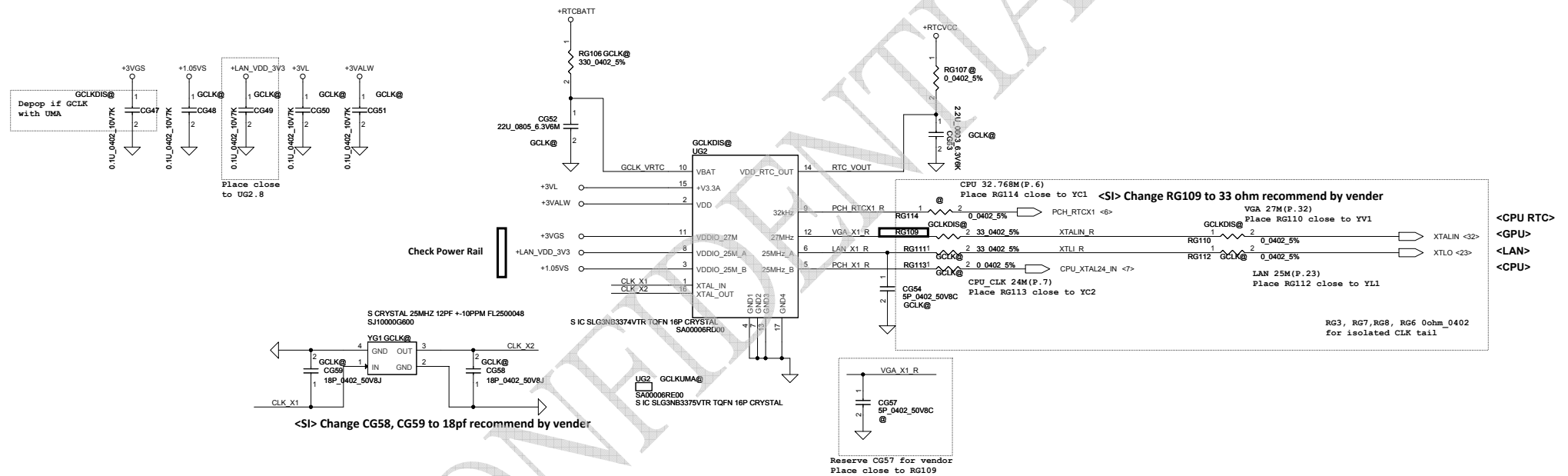
<PV>N15V don't support GC6,RK60 change to @DIS@.

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BOM control

Platform	Silego P/N	Compal PN	25MHz(A)	32.768KHz	24MHz(B)	27MHz	8MHz	Remark
Intel ULT UMA	SLG3NB3375V	SA00006RE00	1	1	1	X	X	GCLKUMA@
Intel ULT Dis	SLG3NB3374V	SA00006RD00	1	1	1	1	X	GCLKDIS@

Base on A32 32.768KHz use 10ppm, G-CLK 25MHz X'TAL use 10ppm.



<CPU>

<CPU>

<CPU>

Differential signal

EC or CPU control

Part 1 of 5

PCI EXPRESS

GPIO

DACA

TEST

I2C

CLK

#9/2 , Add RV191 between.
GPU_PWR_LEVEL# and GPU_THERMAL_DET#

#8/19 ,N15V-GM didn't support GC6,
unpop QV13 ,QV14.

CHECK!!

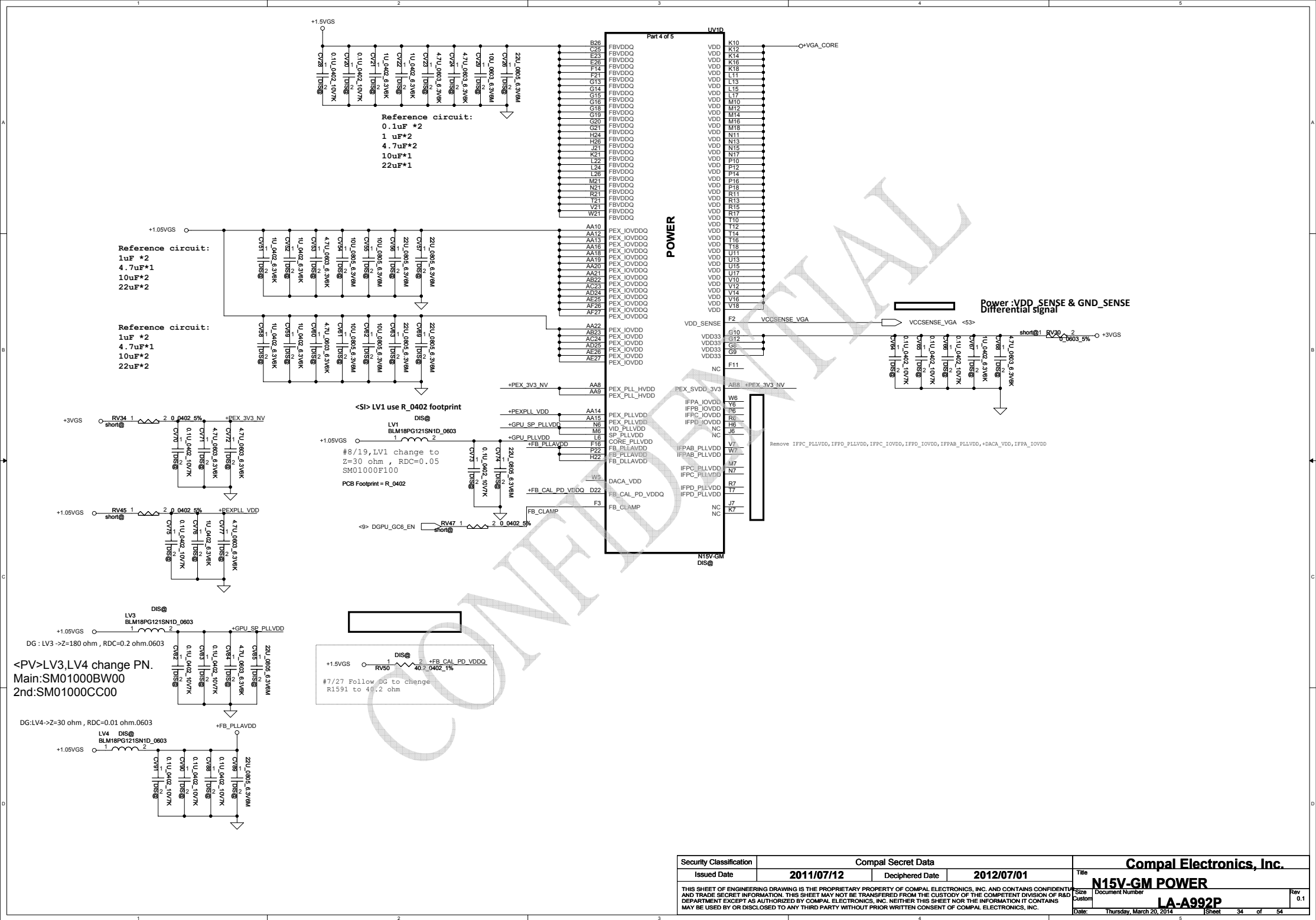
#08/22,unused I2C change to pull-down.

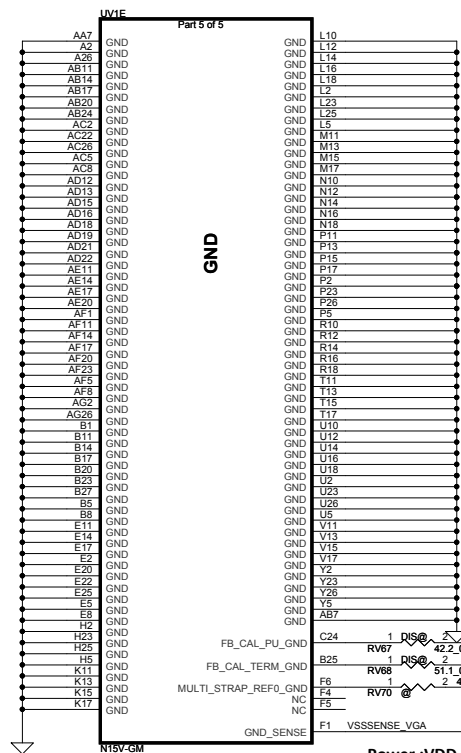
#08/22,unused I2C change to pull-down.

SI 11/05 change RV182.1
change to +3VGS from GPU_PWR_EN

<7,8> GPU_CLKREQ#

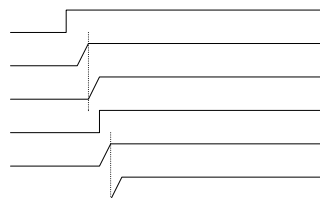
<PV>CV9,CV10 change to 10pf.



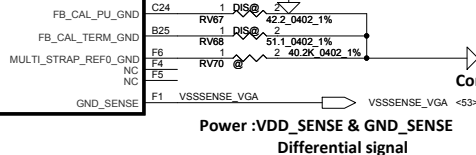


Power on

DGPU_PWR_EN
+3VGS
+VGA_CORE
DGPU_PWROK
+1.05VGS
+1.5VGS



40us < Rt < 2ms



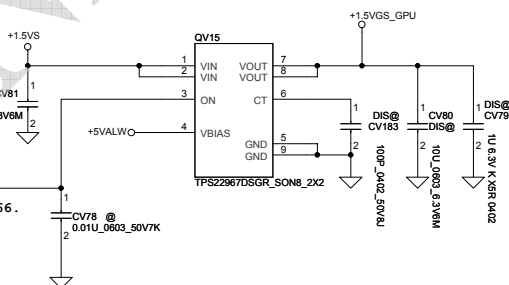
Contrl by power

#8/19.RV70 unpop, N15V-GM use binary mode.

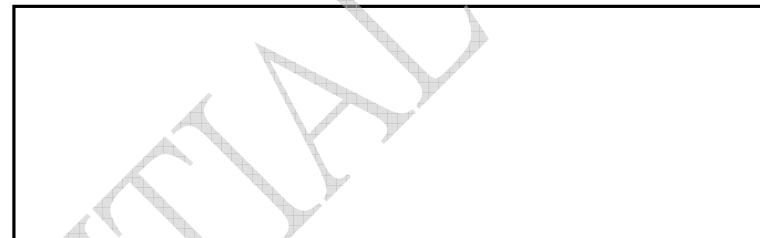
+1.5VGS=3.6A,8vias.

+1.5V to +1.5VGS

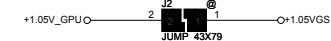
#08/20 Don't support GC6, Add RV66. Unpop QV16, RV41, RV42, CV78.



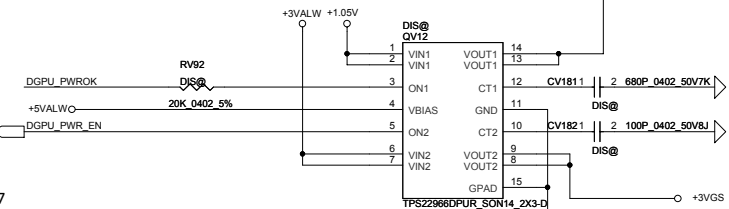
#8/20 : N15V-GM don't support GC6 function. UV20 unpop.



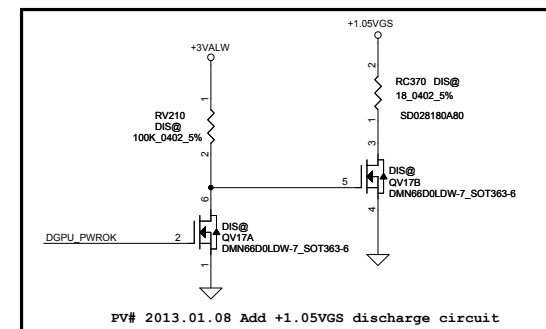
+1.05VGS=1.6A,4vias.



+3VALW to +3VGS
+1.05V to +1.05VGS

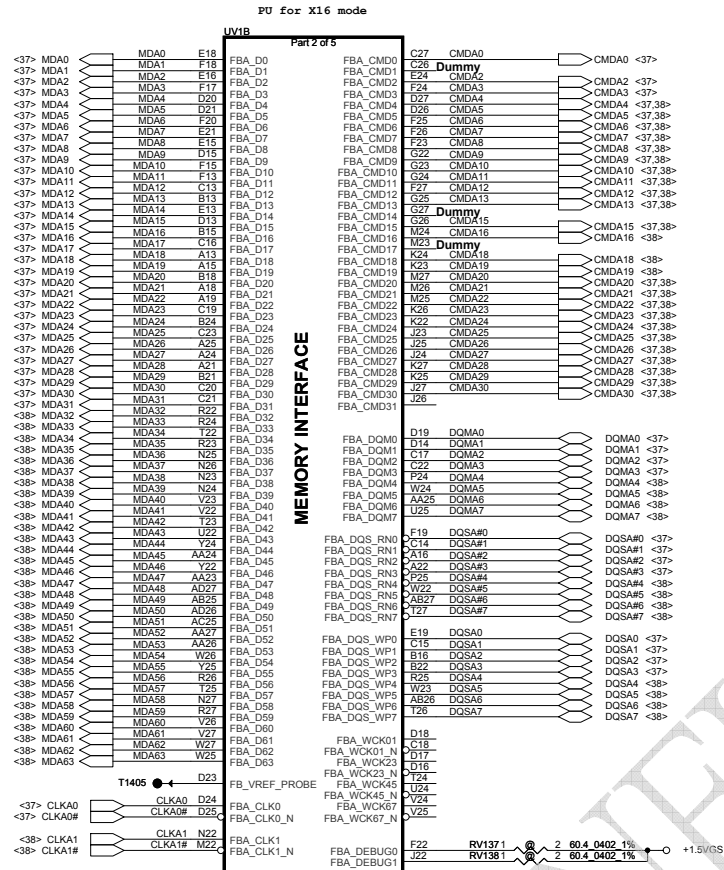


+3VGS=0.5A,2vias.

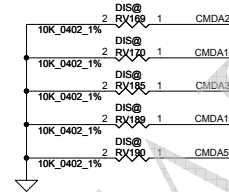


PV# 2013.01.08 Add +1.05VGS discharge circuit

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Note: DG use 1%



Mode D Command Mapping

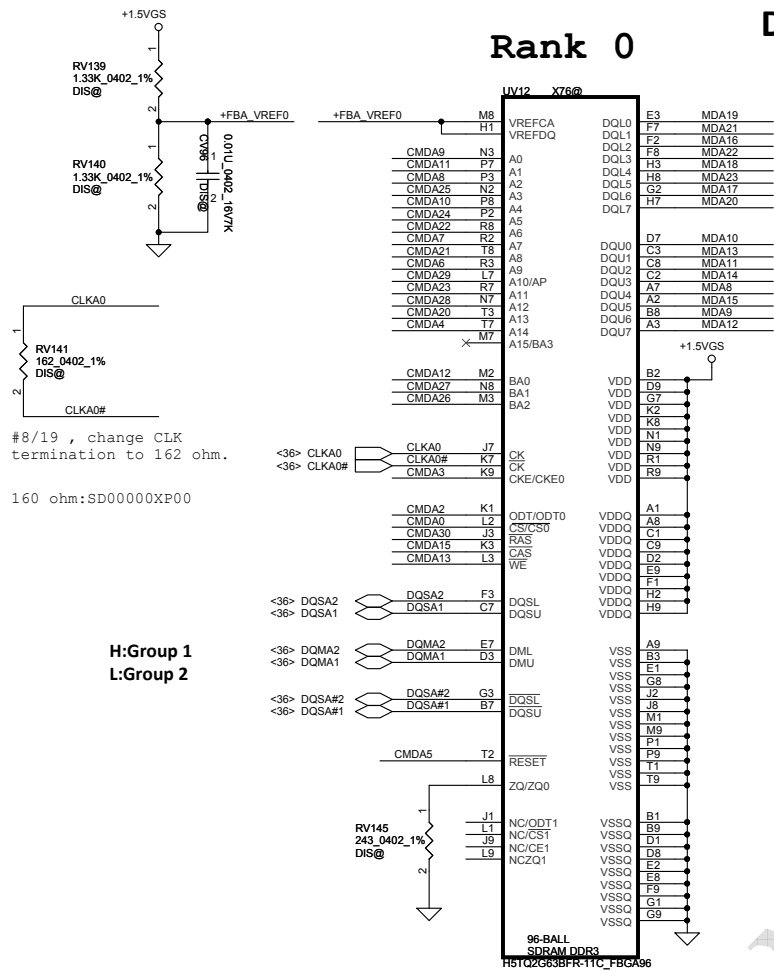
RANK 0		
Address	0..31	32..63
FBx_CMD0	CS0#	
FBx_CMD1		
FBx_CMD2	ODT	
FBx_CMD3	CKE	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14		
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#
FBx_CMD17		
FBx_CMD18		ODT
FBx_CMD19		CKE
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Memory Partition A RANK 0

Data0~Data31

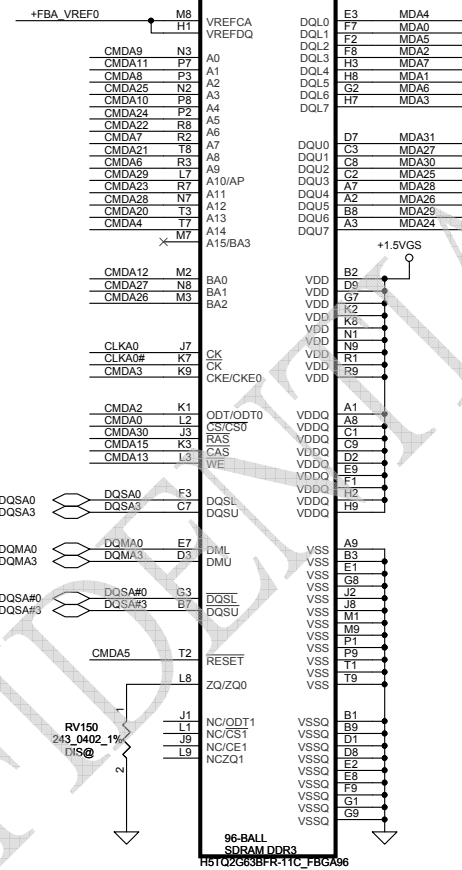
Rank 0

Rank 0



Group 2

Group 1

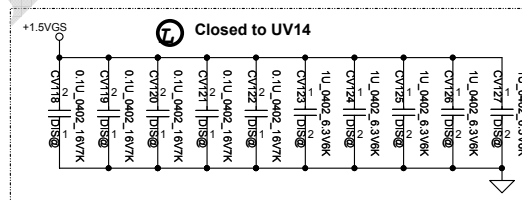
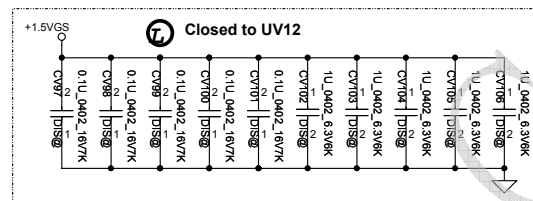
L:Group 0
H:Group 3

Group 0

Group 3

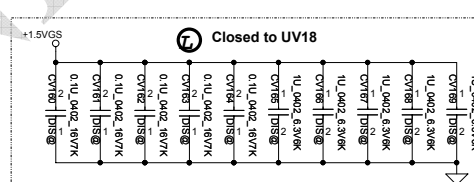
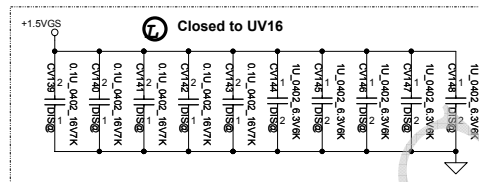
Mode D Command Mapping

RANK 0		
Address	0..31	32..63
FBx_CMD0	CS0#	
FBx_CMD1		
FBx_CMD2	ODT	
FBx_CMD3	CKE	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14		
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#
FBx_CMD17		
FBx_CMD18		ODT
FBx_CMD19		CKE
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
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FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#



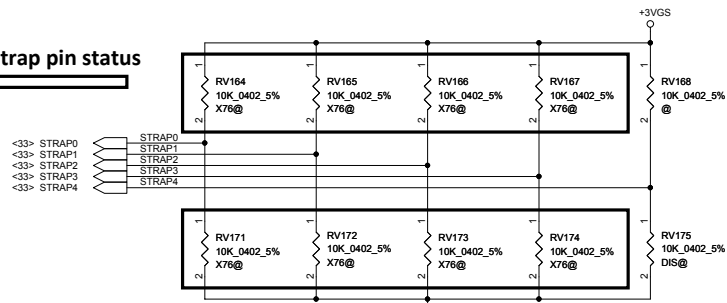
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Rank 0

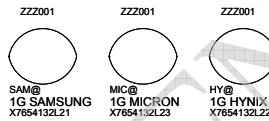
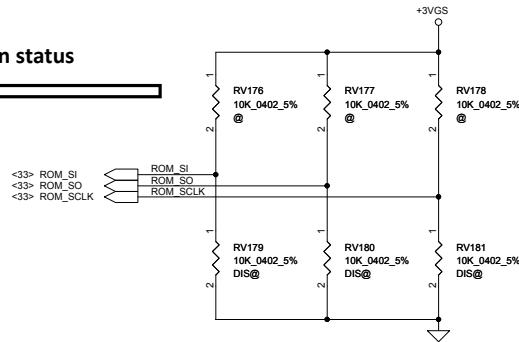


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Check Strap pin status



Check SPI pin status



GPU	Project	VRAM size	CH	Description	Compal VRAM P/N	VRAM description	ROM CFG setup [3...0]	RAM_CFG	R P/N
N15V-GM (23x23) 64bit (One CH single rank)	ZSO40	128M(X16)	CHA	DDR3 Hynix 128Mx16 1.5V	SA00006H400	H5TC2G63FFR-11C 1000MHz	1100	RV171+RV172+RV167+RV166	
	ZSO50	128M(X16)	CHA	DDR3 Micron 128Mx16 1.5V	SA000067500	MT41J128M16JT-093G:K 1000MHz	0001	RV164+RV172+RV173+RV174	
		128M(X16)	CHA	DDR3 Samsung 128Mx16 1.5V	SA000068U40	K4W2G1646Q-BC1A 1000MHz	1110	RV165+RV166+RV167+RV171	

#9/5 RAM_CFG follow RVL-06891-001 table 1.
Dule Rank layout with single Rank population.

Table 123

Strap pin Name	Strap Mapping	Resistance	Polarity	Logical Strapping Bit0
ROM_SCLK	SMB_ALT_ADDR	10K	Pull-down to GND.	
ROM_SI	SUB_VENDOR	10K	Pull-down to GND if no VBIOS ROM.	
ROM_SO	VGA_DEVICE	10K	Pull-down to GND(no diaplay).	
STRAP0	RAM_CFG[0]	10K		
STRAP1	RAM_CFG[1]	10K		
STRAP2	RAM_CFG[2]	10K		
STRAP3	RAM_CFG[3]	10K		
STRAP4	PCIE_MAX_SPEED	10K	Pull-down to GND(PCIE Gen1).	

SMBUS_ALT_ADDR

0	0x9E (Default)
1	0x9C (Multi-GPU usage)

SUB_VENDOR

0	Disable (Default)
1	

VGA_DEVICE

0	Non-Primary 3D Acceleration Device(Class Code 302h)(Default)
1	Primary Display or VGA Device .

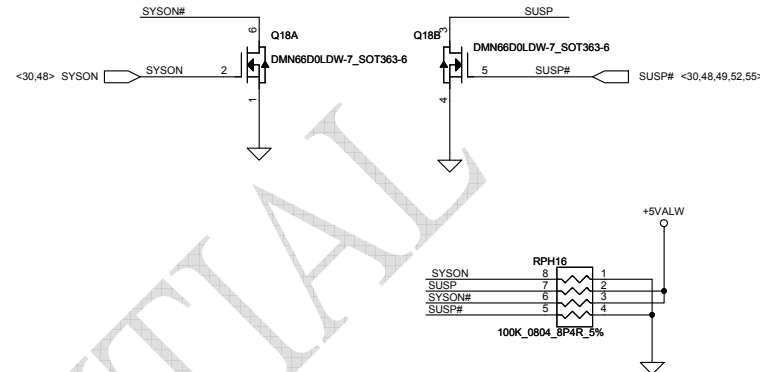
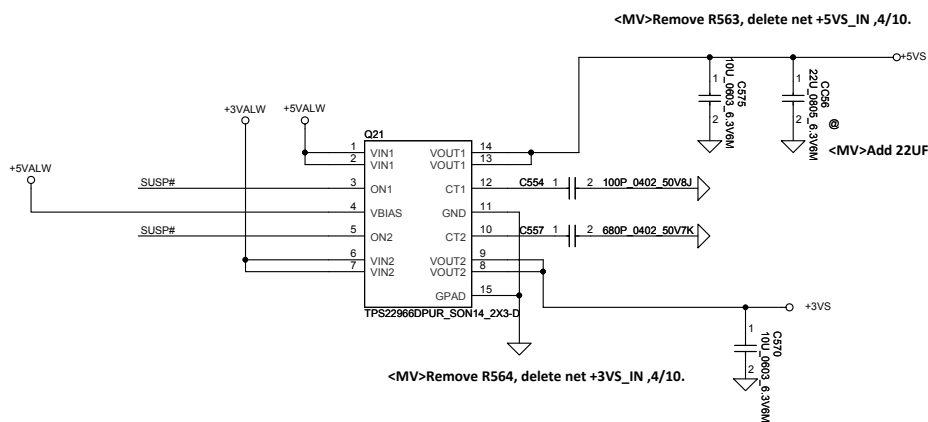
PCIE_MAX_SPEED

0	Limit to PCIE Gen1
1	PCIE Gen 2/3 Capable

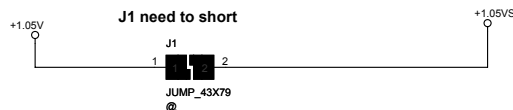
USER Straps

User[3:0]	
1000-1100	Customer defined

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				Rev	1.0

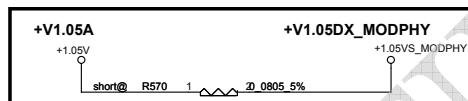


+1.05V TO +1.05VS



AO4430L
VGS Max=+/- 20V
VGS(Th) max=2.5V

Rds Max=5.5m @VGS=10V
Rds Max=7.5m @VGS=4.5V

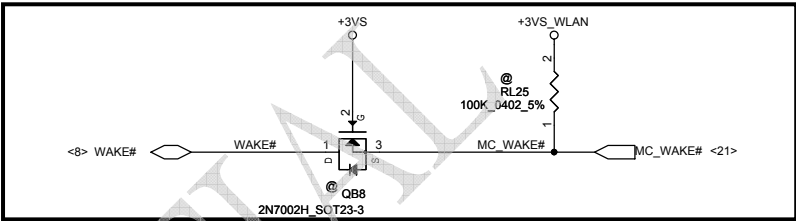


CPU +V1.05DX_MODPHY
Max Rdson <6m ohm
1840mA

AO4430L
VGS Max=+/- 20V
VGS(Th) max=2.5V
Rds Max=5.5m @VGS=10V
Rds Max=7.5m @VGS=4.5V

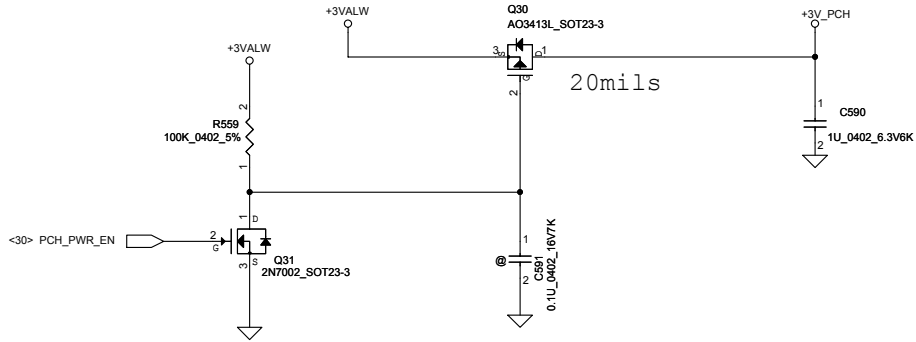
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						Size	Document Number			Rev	
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NGFF and WLAN



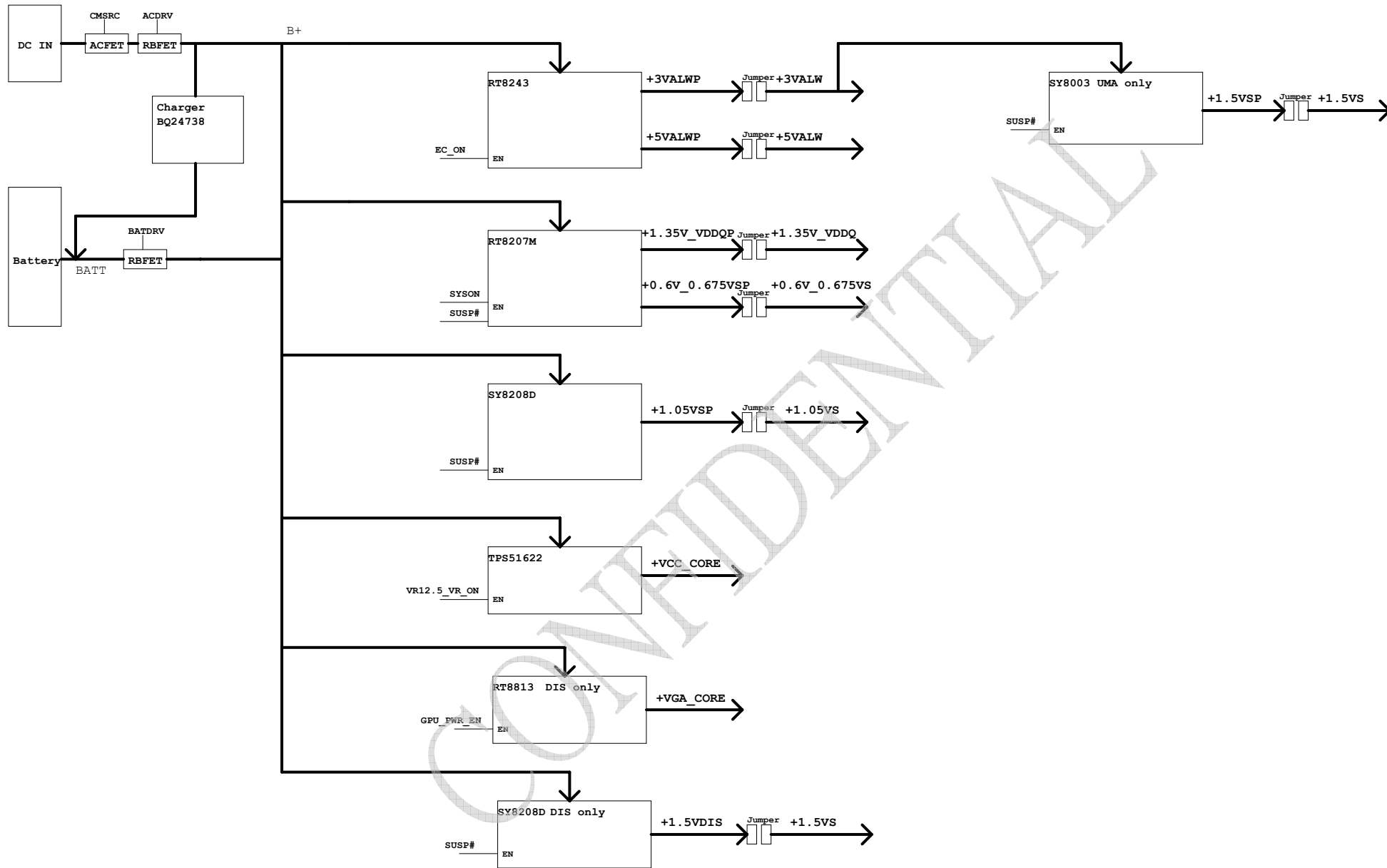
PV# 2013.01.23 Add QB8 abd RL25 to support OBFF
PV# 2013.02.22 Unpop QB4 and RL23 for not support OBFF

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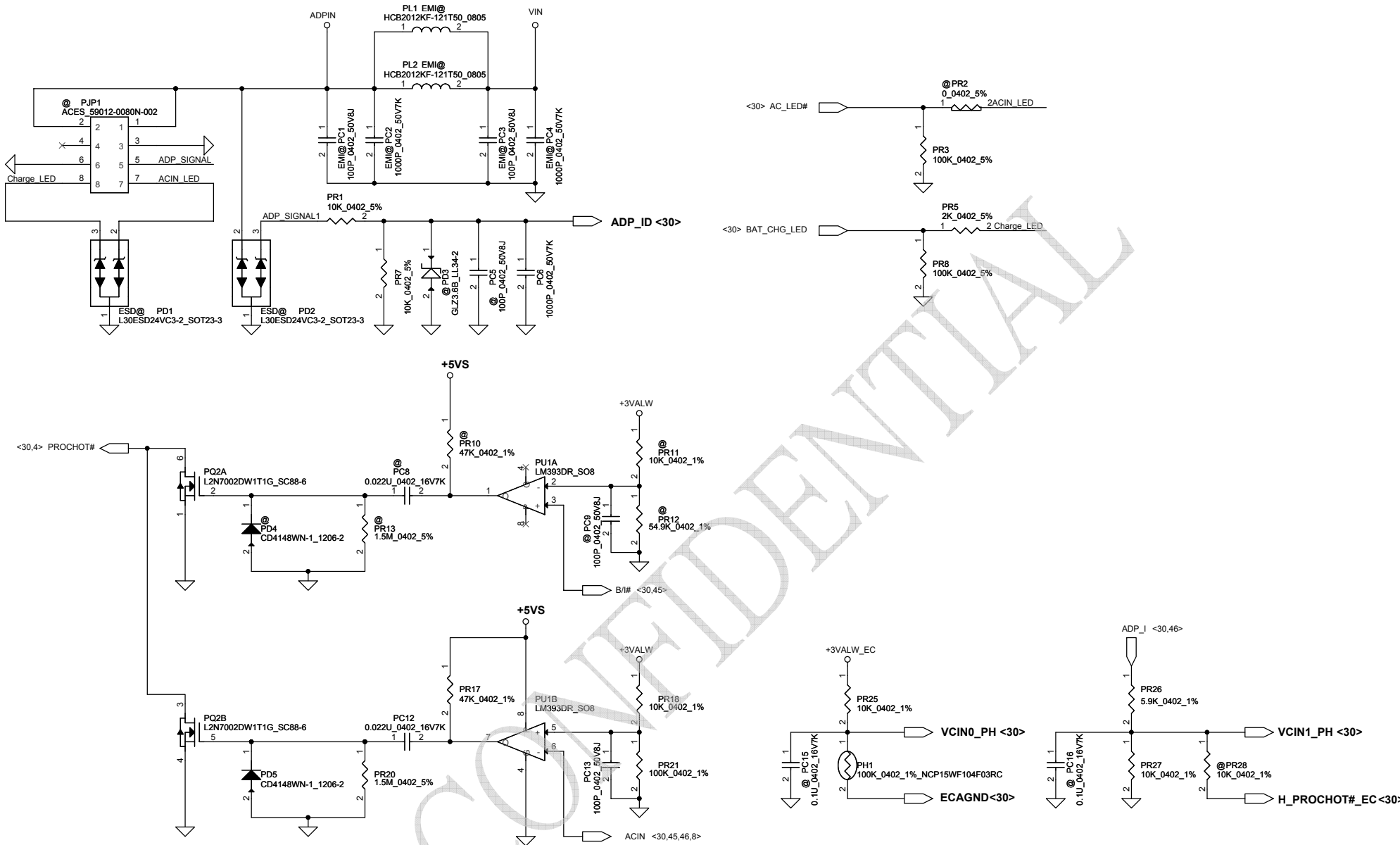


CONFIDENTIAL

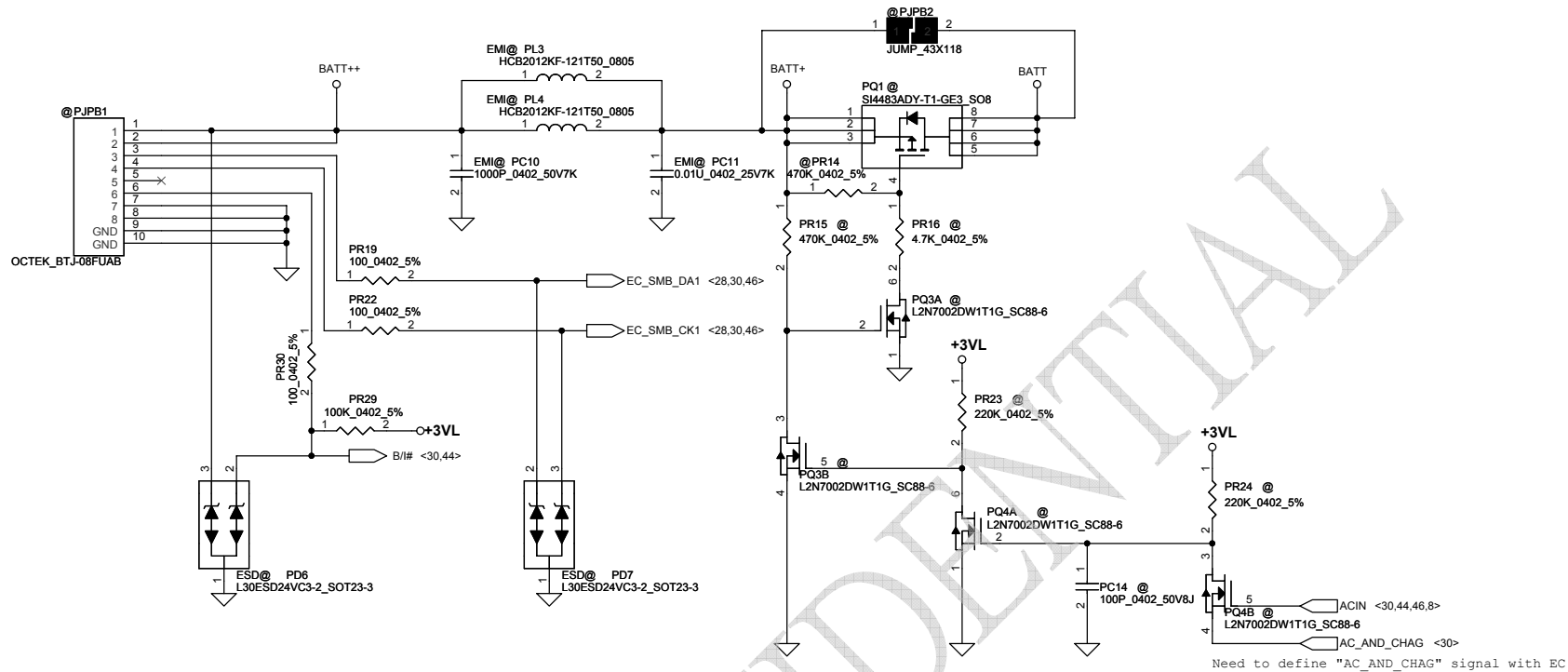
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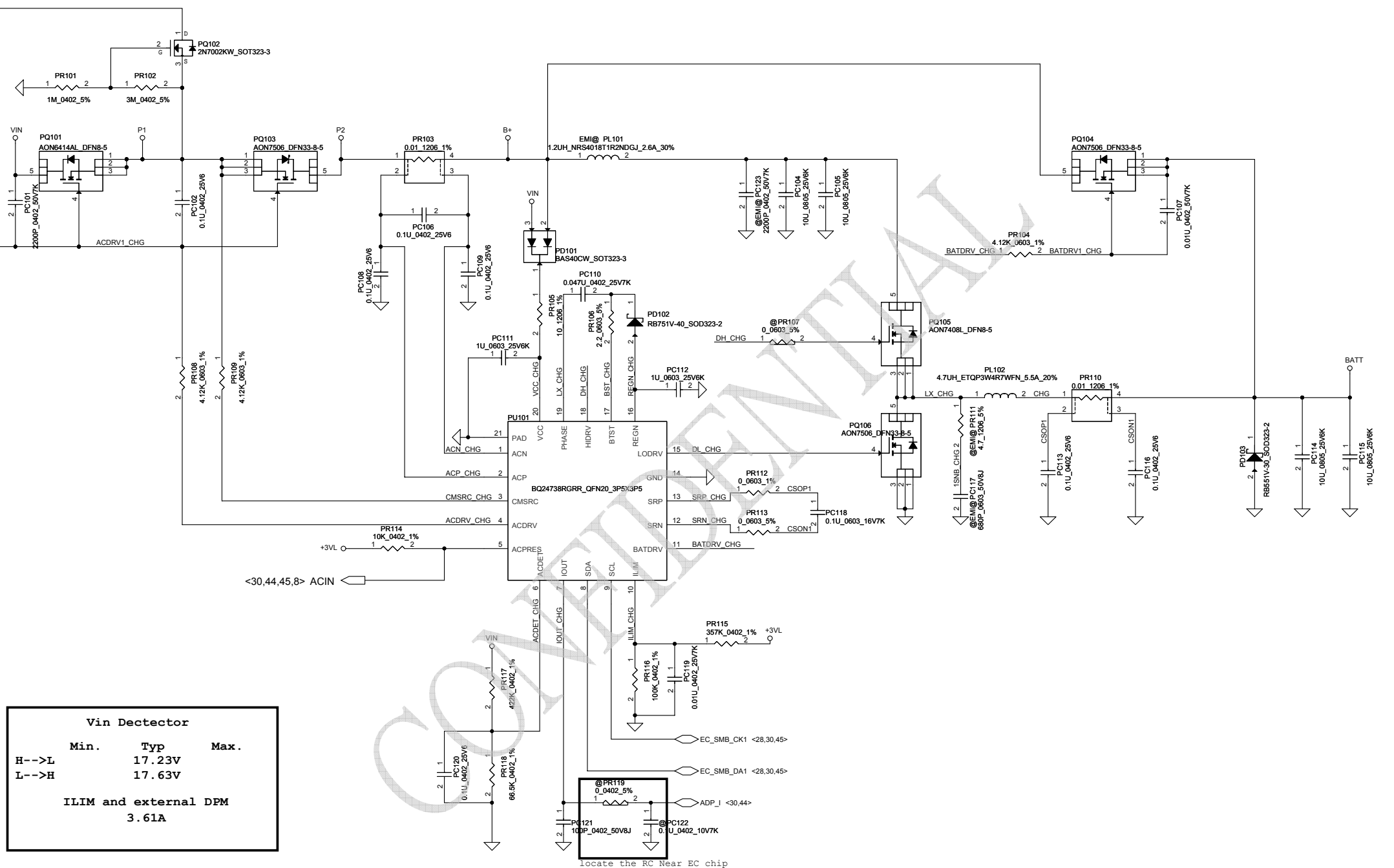
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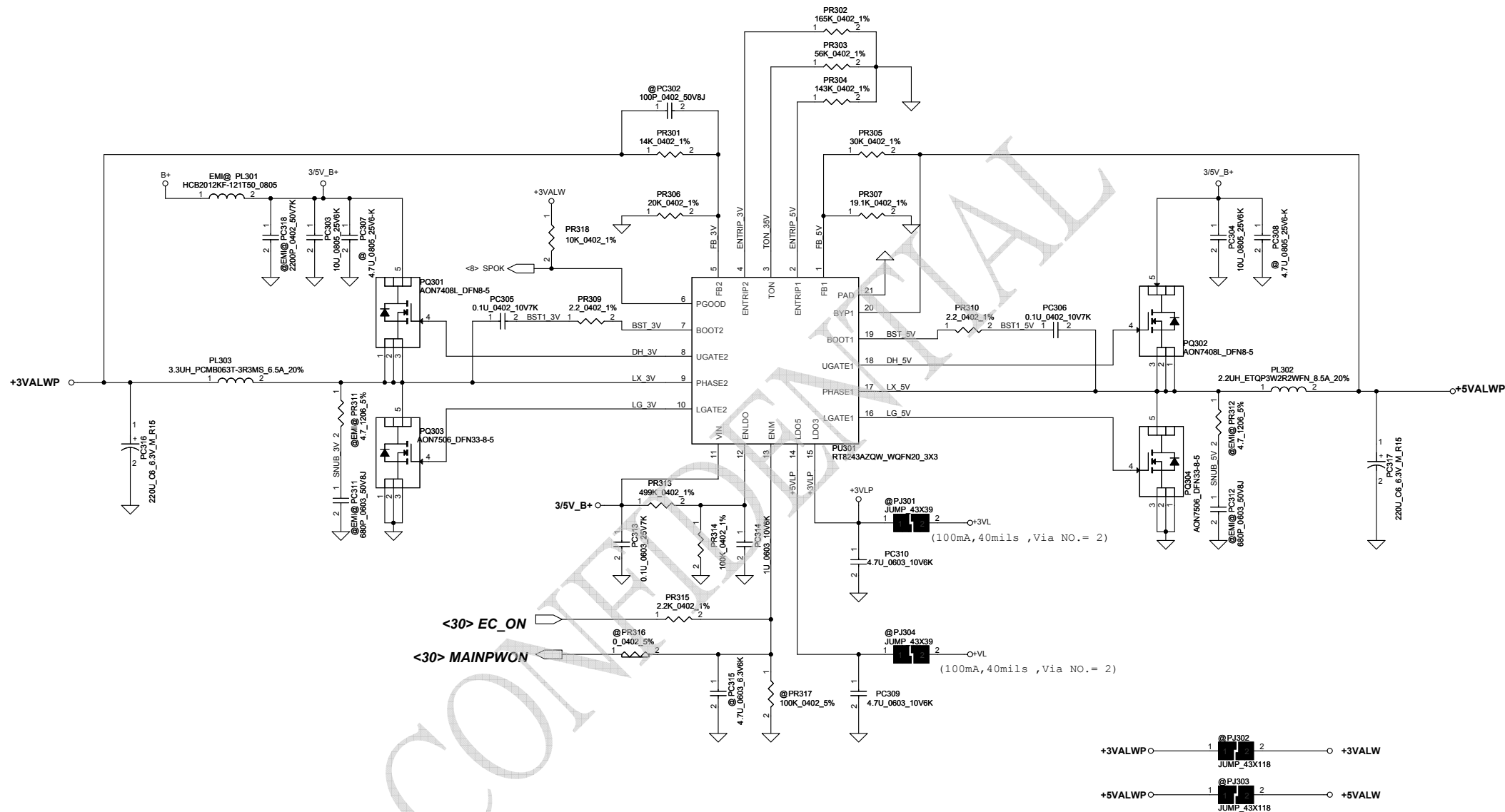
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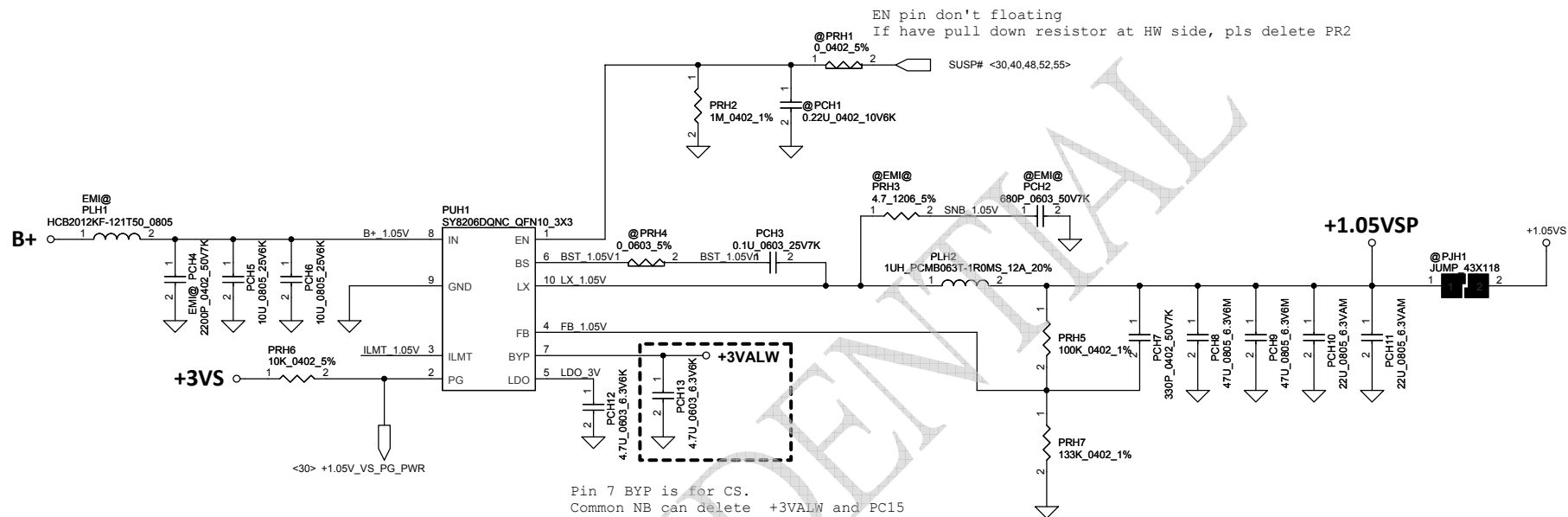
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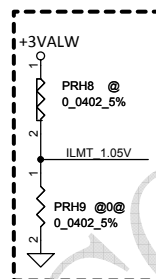
Vin Detector			
	Min.	Typ	Max.
H-->L		17.23V	
L-->H		17.63V	
ILIM and external DPM			
3.61A			



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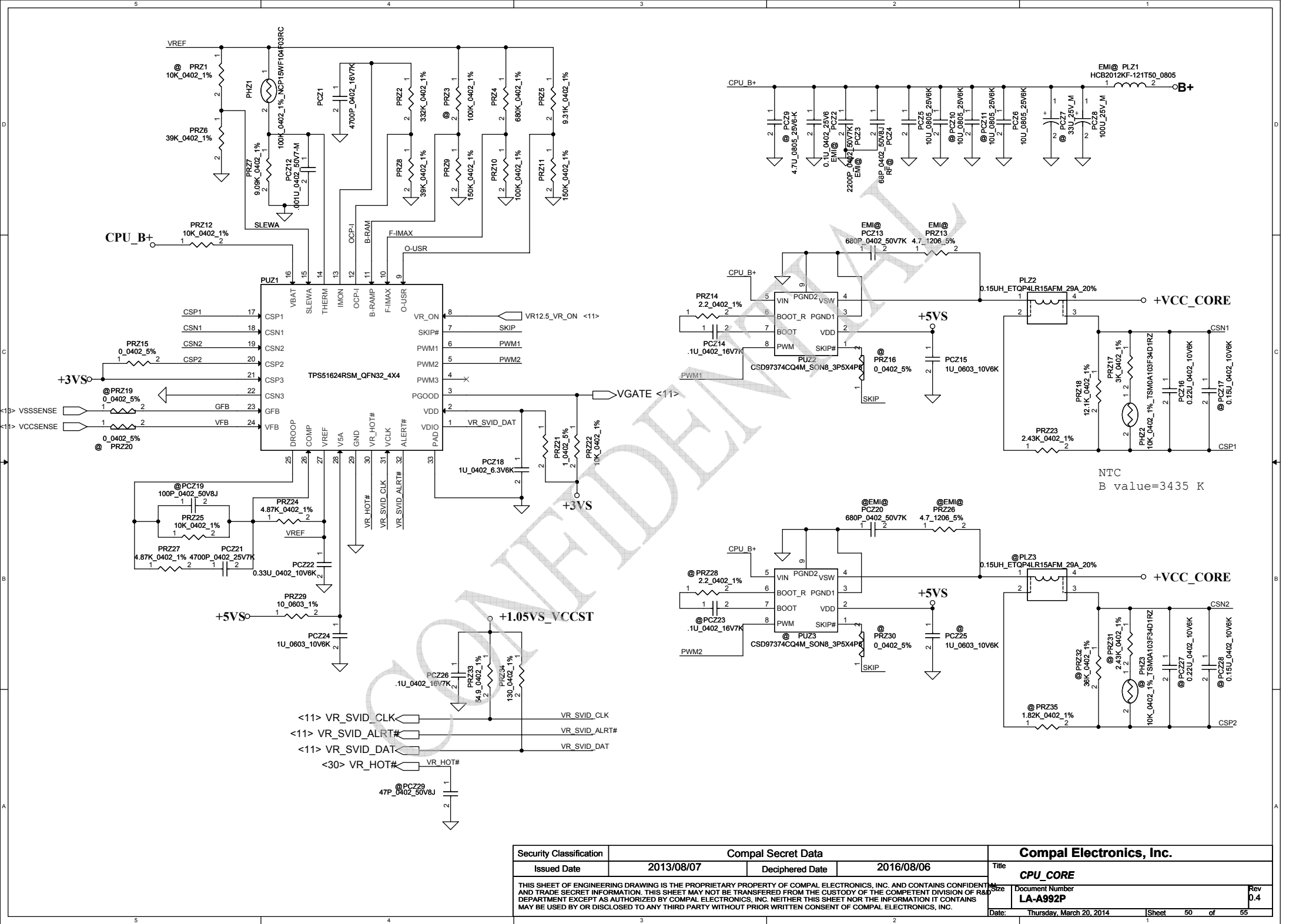
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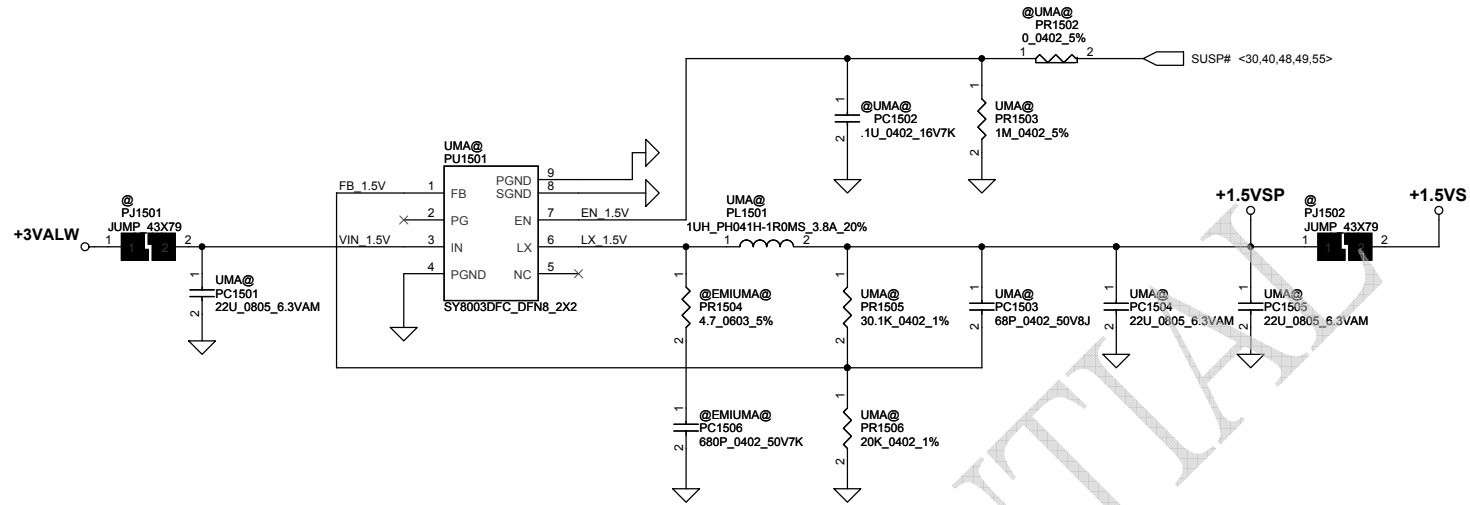


The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high

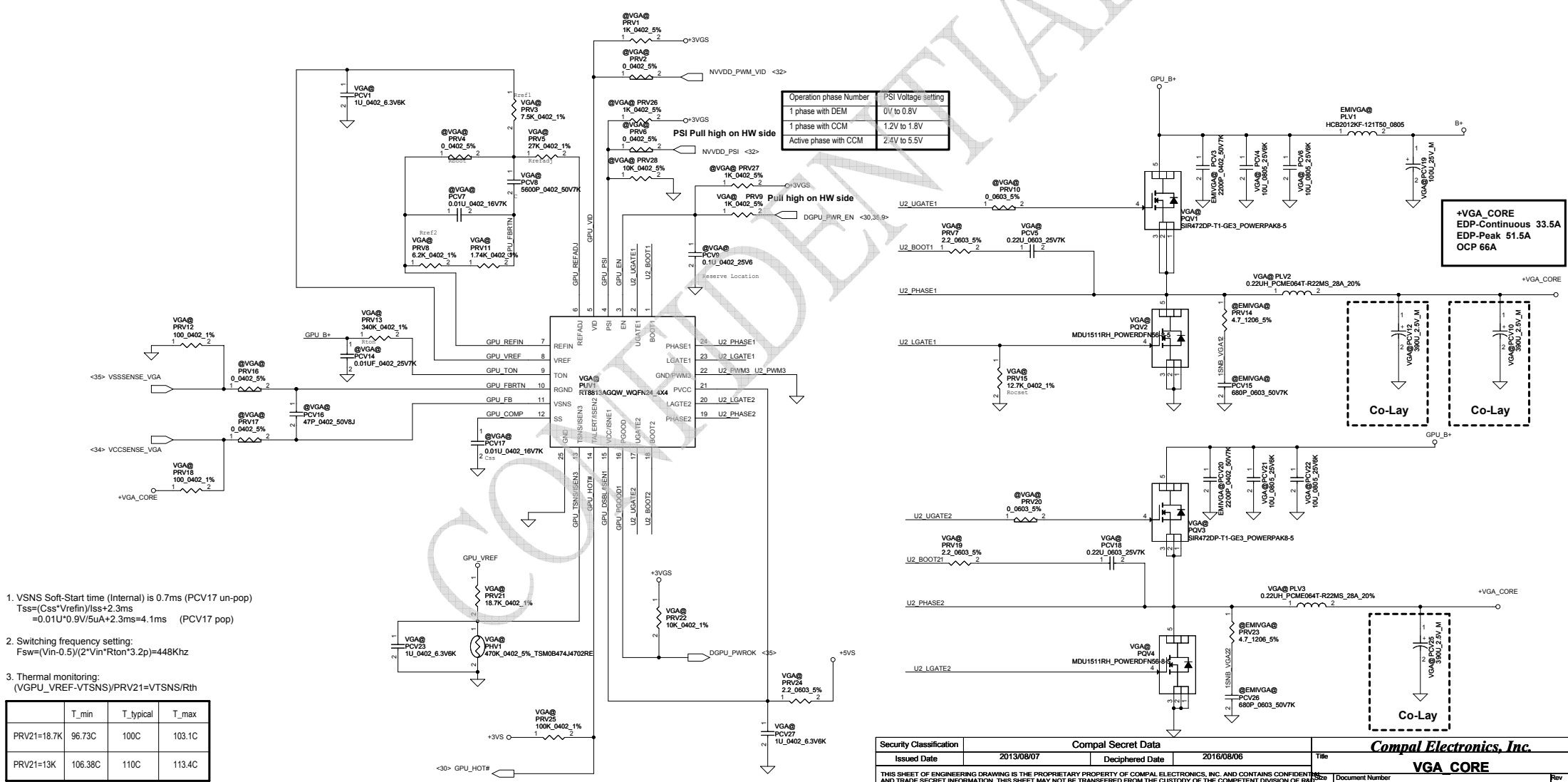
continuous 6A
peak 12A

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1. VSNS Soft-Start time (Internal) is 0.7ms (PCV17 un-pop)
 $T_{ss} = (C_{ss} \cdot V_{refin}) / I_{ss} + 2.3ms$
 $= 0.01u \cdot 0.9V / 5uA + 2.3ms = 4.1ms$ (PCV17 pop)

2. Switching frequency setting:
 $F_{sw} = (V_{in} - 0.5V) / (2 \cdot V_{in} \cdot R_{ton} \cdot 3.2p) = 448KHz$

3. Thermal monitoring:
 $(V_{GPU_VREF} - V_{TSNS}) / PRV21 = V_{TSNS} / R_{th}$

	T_min	T_typical	T_max
PRV21=18.7K	96.73C	100C	103.1C
PRV21=13K	106.38C	110C	113.4C

Operation phase Number	PSI Voltage setting
1 phase with DEM	0V to 0.8V
1 phase with CCM	1.2V to 1.8V
Active phase with CCM	2.4V to 5.5V

+VGA_CORE
 EDP-Continuous 33.5A
 EDP-Peak 51.5A
 OCP 66A

+VGA_CORE

PLACE UNDER GPU

VGA@
PCV51
4.7U_0603_6.3V6M

VGA@
PCV52
4.7U_0603_6.3V6M

VGA@
PCV53
4.7U_0603_6.3V6M

VGA@
PCV54
4.7U_0603_6.3V6M

VGA@
PCV55
4.7U_0603_6.3V6M

VGA@
PCV56
4.7U_0603_6.3V6M

VGA@
PCV57
4.7U_0603_6.3V6M

VGA@
PCV58
4.7U_0603_6.3V6M

VGA@
PCV59
4.7U_0603_6.3V6M

VGA@
PCV60
4.7U_0603_6.3V6M

VGA@
PCV61
1U_0402_6.3V6K

VGA@
PCV62
1U_0402_6.3V6K

VGA@
PCV63
1U_0402_6.3V6K

VGA@
PCV64
1U_0402_6.3V6K

PLACE NEAR GPU

VGA@
PCV65
4.7U_0603_6.3V6K

VGA@
PCV66
4.7U_0603_6.3V6K

VGA@
PCV67
4.7U_0603_6.3V6K

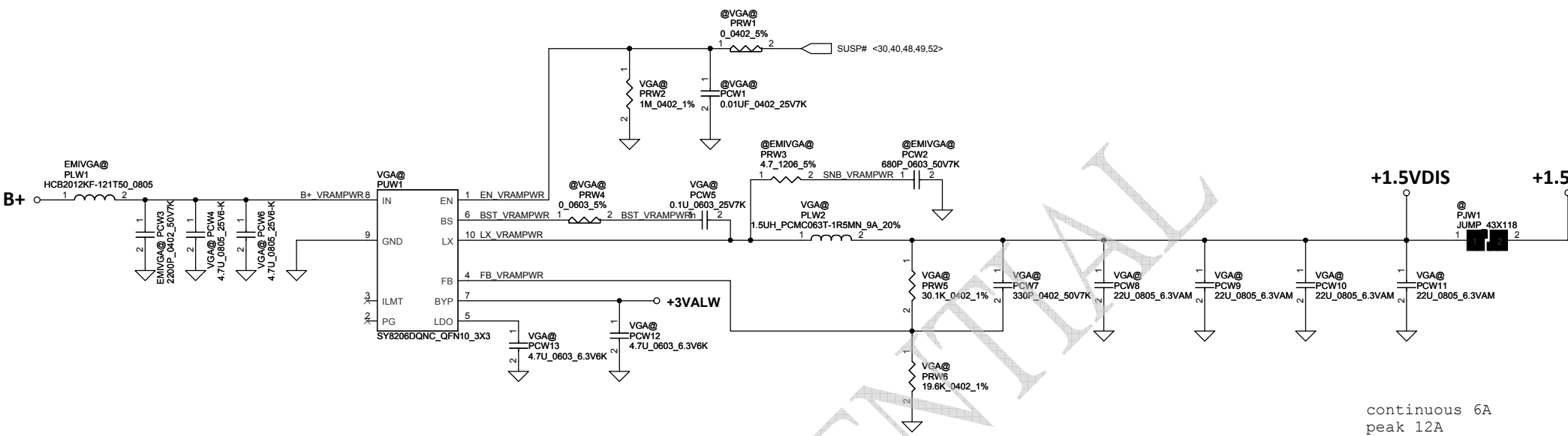
VGA@
PCV68
4.7U_0603_6.3V6K

VGA@
PCV69
4.7U_0603_6.3V6K

VGA@
PCV70
22U_0603_6.3V6M

VGA@
PCV71
47U_0805_6.3V6M

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continuous 6A
peak 12A

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