

Husk/Petra UMA/Muxless Schematics Document Ivy Bridge Intel PCH

DY :None Installed
DIS:DIS installed
DIS_Muxless :BOTH DIS or Muxless installed
DIS_PX:BOTH DIS or PX installed
DIS_PX_Muxless:DIS or PX or Muxless installed.
Muxless: Muxless installed.(PX4.0)
PX:MUX installed.(PX3.0)
PX_Muxless:BOTH PX or Muxless installed.
UMA:UMA installed
UMA_Muxless:BOTH UMA or Muxless installed
UMA_PX_Muxless:UMA or PX or Muxless installed

ANNIE: ONLY FOR ANNIE solution.
PSL: KBC795 PSL circuit for 10mW solution installed.
10mW: External circuit for 10mW solution installed.
65W: for 65W adaptor installed.
90W: for 90W adaptor installed.

DIS I/B Touch

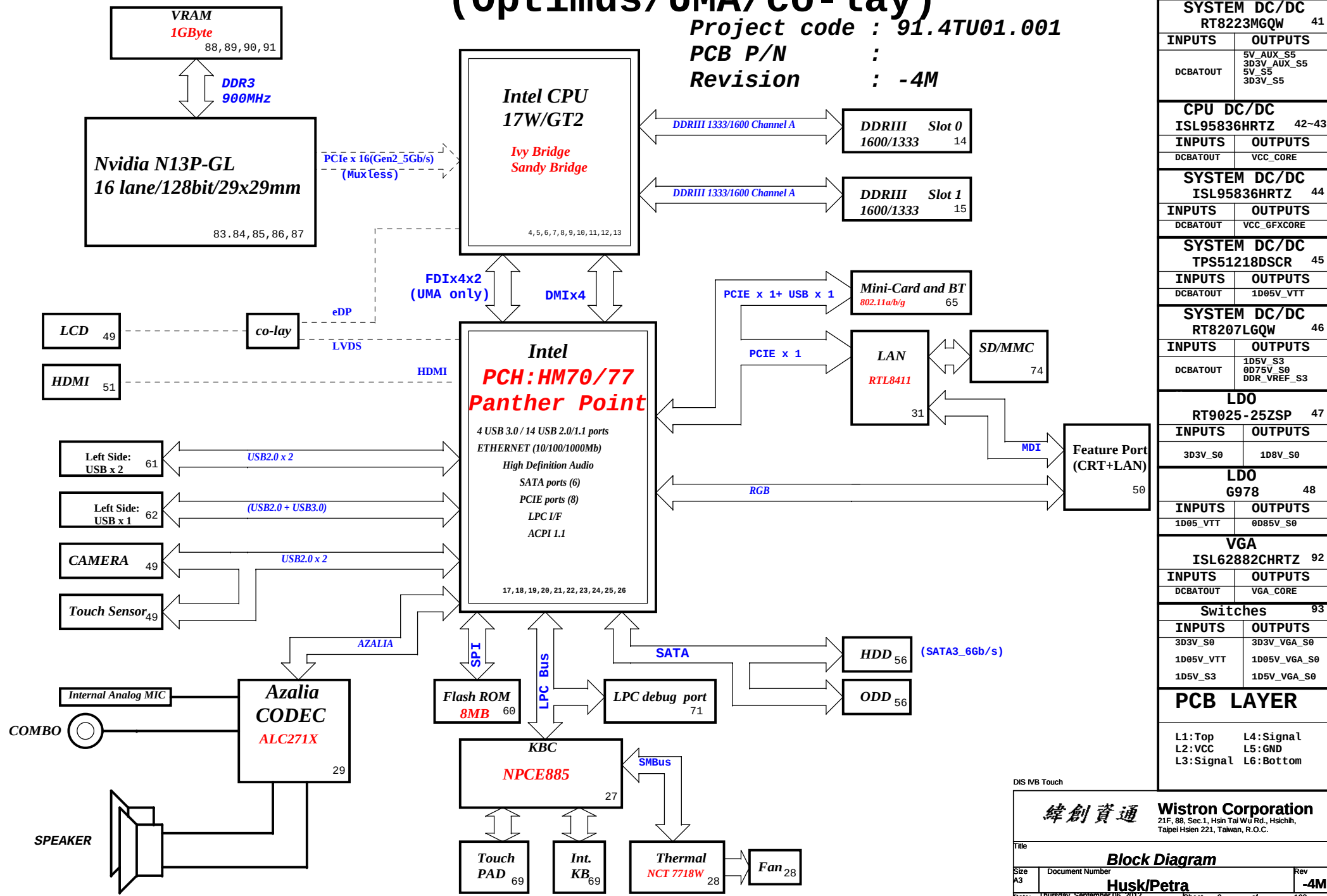
緯創資通		Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title			
Cover Page			
Size A3	Document Number	Rev	
Husk/Petra		-4M	
Date: Thursday, September 06, 2012	Sheet	1	of 103

(Optimus/UMA/co-lay)

Project code : 91.4TU01.001

PCB P/N

Revision : -4M



CHARGER BQ24727		40
INPUTS	OUTPUTS	
DCBATOUT	BT+	
SYSTEM DC/DC RT8223MGQW		41
INPUTS	OUTPUTS	
DCBATOUT	5V_AUX_S5 3D3V_AUX_S5 5V_S5 3D3V_S5	
CPU DC/DC ISL95836HRTZ		42-43
INPUTS	OUTPUTS	
DCBATOUT	VCC_CORE	
SYSTEM DC/DC ISL95836HRTZ		44
INPUTS	OUTPUTS	
DCBATOUT	VCC GFXCORE	
SYSTEM DC/DC TPS51218DSCR		45
INPUTS	OUTPUTS	
DCBATOUT	1D05V_VTT	
SYSTEM DC/DC RT8207L6QW		46
INPUTS	OUTPUTS	
DCBATOUT	1D5V_S3 0D75V_S0 DDR_VREF_S3	
LDO RT9025-25ZSP		47
INPUTS	OUTPUTS	
3D3V_S0	1D8V_S0	
LDO G978		48
INPUTS	OUTPUTS	
1D05_VTT	0D85V_S0	
VGA ISL62882CHRTZ		92
INPUTS	OUTPUTS	
DCBATOUT	VGA_CORE	
Switches		93
INPUTS	OUTPUTS	
3D3V_S0	3D3V_VGA_S0	
1D05V_VTT	1D05V_VGA_S0	
1D5V_S3	1D5V_VGA_S0	
PCB LAYER		
L1:Top	L4:Signal	
L2:VCC	L5:GND	
L3:Signal	L6:Bottom	

DIS MB Touch

緯創資通

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Title			Block Diagram		
Size A3	Document Number				Rev
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DIS IVB Touch

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Tick

CPU (PCIe/DMI/FDI)

Size

Document Number

Rev

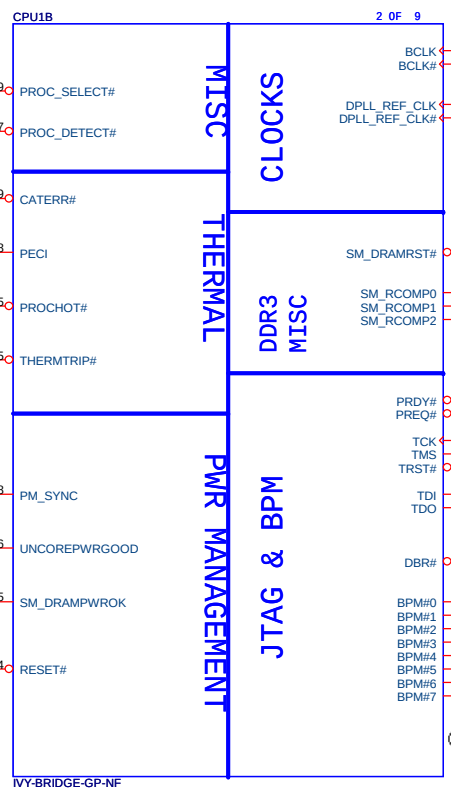
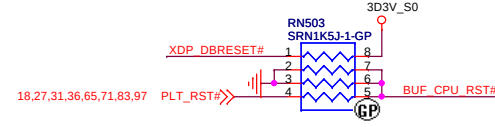
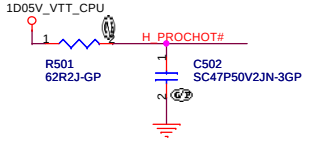
Husk/Petra

-4M

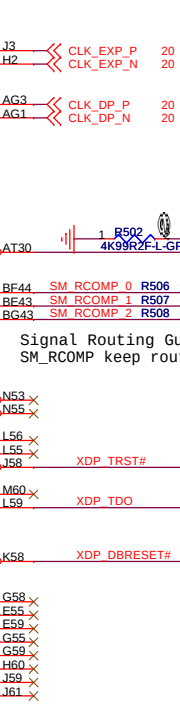
Date: Thursday, September 06, 2012

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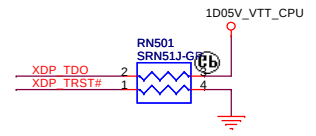
SSID = CPU



71.00IVY.A0U



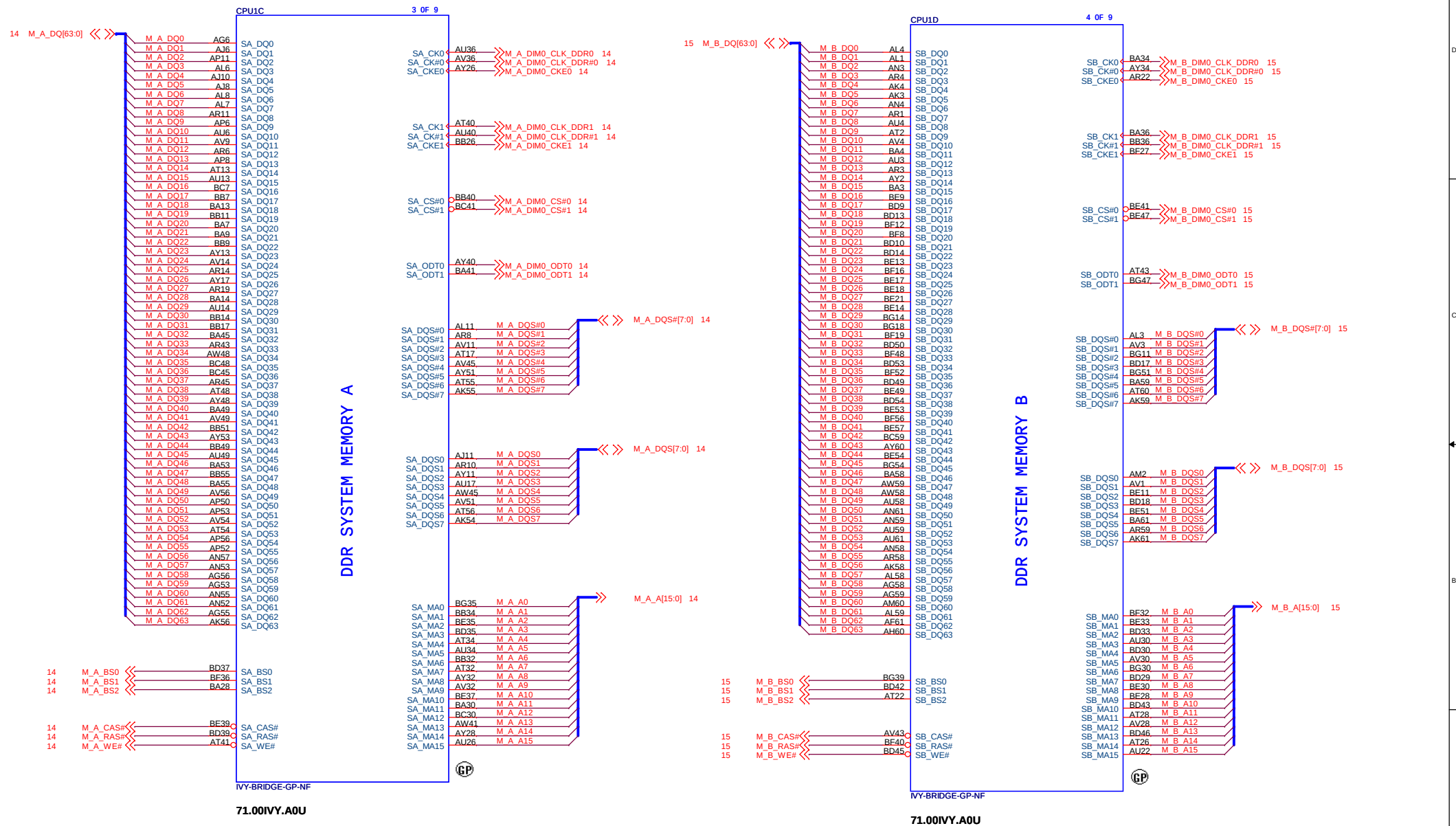
Signal Routing Guideline:
SM_RCOMP keep routing length less than 500 mils.



DIS IVB Touch

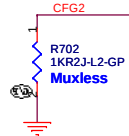
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsinchu, Taipei Hsien 221, Taiwan, R.O.C.		
Title CPU (THERMAL/CLOCK/PM)		
Size Custom	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012	Sheet 5 of 103	

SSID = CPU

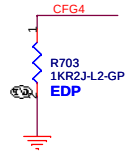


SSID = CPU

PEG Static Lane Reversal	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition 0: Lane Reversed



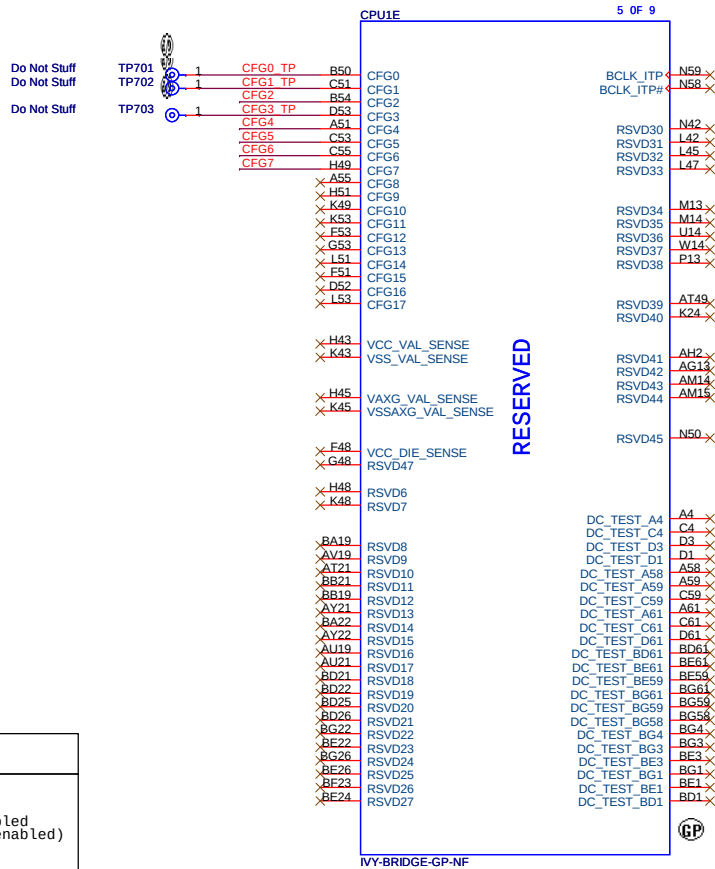
Enabl EDP function	
CFG4	1: Disable 0: Enable



PCIe Port Bifurcation Straps	
CFG[6:5]	11: 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: PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

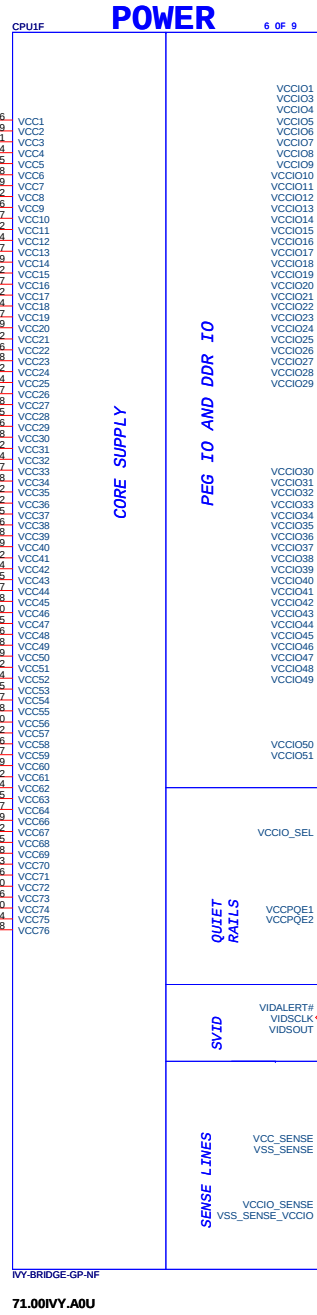
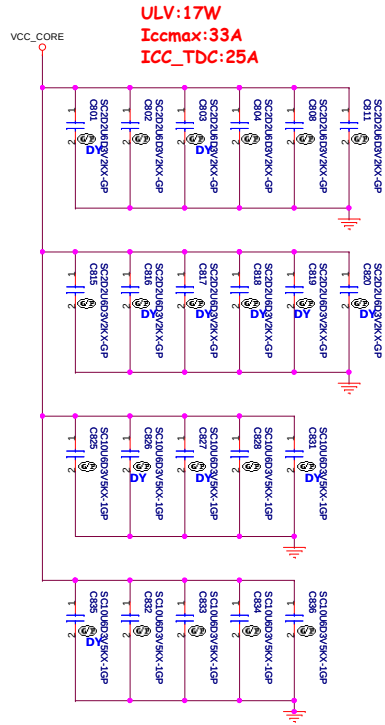


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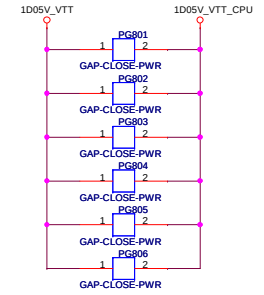
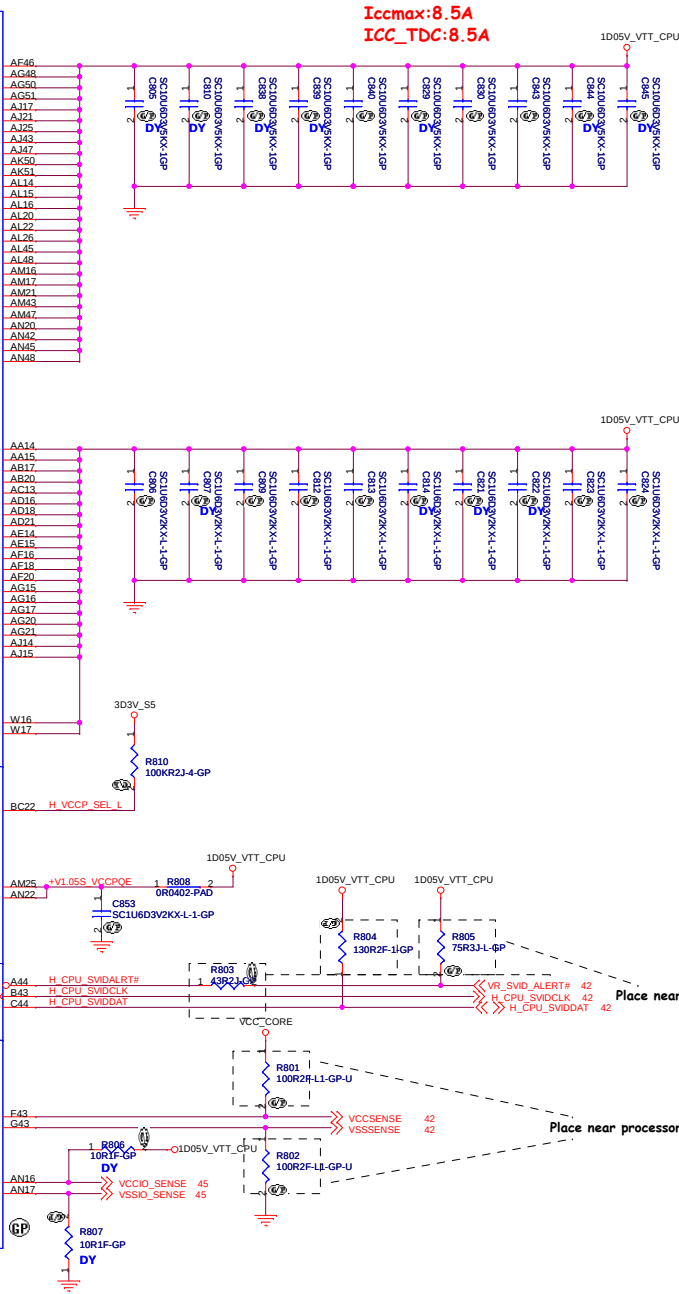
DIS IVB Touch

緯創資通 Wistron Corporation		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title		CPU (RESERVED)	
Size A3	Document Number	Husk/Petra	Rev -4M
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SSID = CPU



71.00VY.A0U

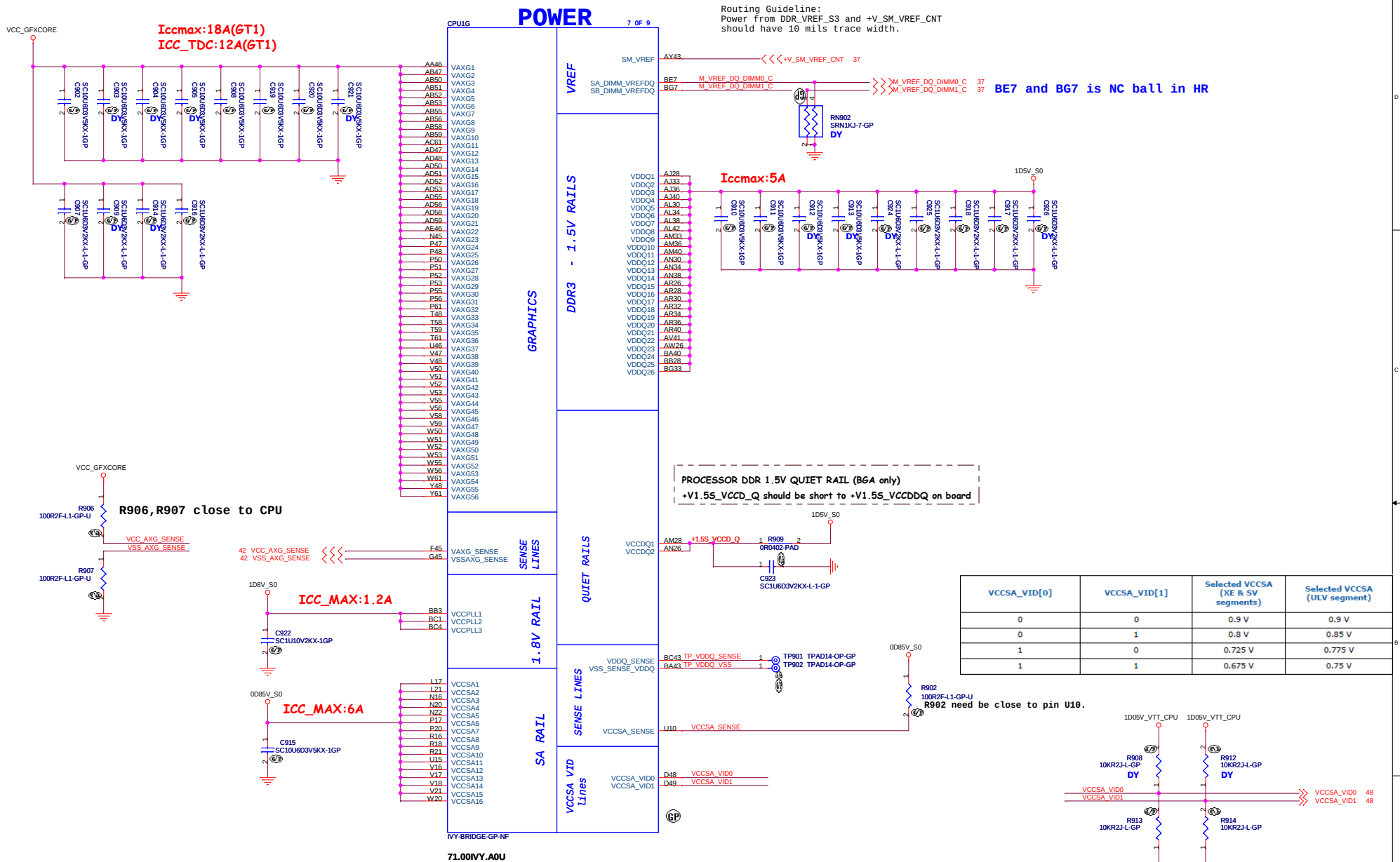


Place near processor

Place near processor

DIS IMB Touch

SSID = CPU



DIS /B Touch

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Taipei Hsien 221, Taiwan, R.O.C.

Title

CPU (VCC GFXCORE)

Size

Custom

Husk/Petra

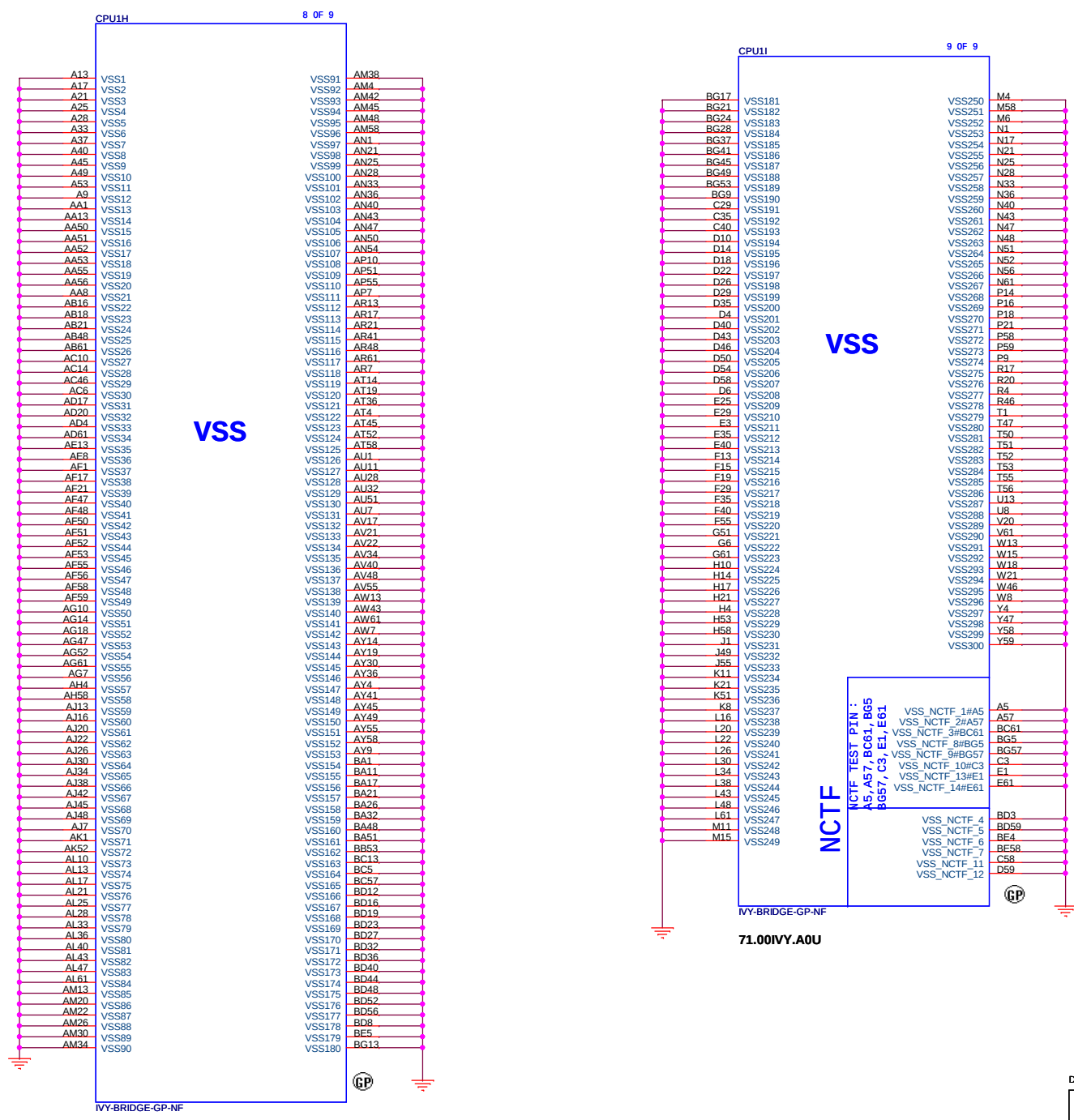
Rev

-4M

Date: Monday, September 17, 2012

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SSID = CPU



5	4	3	2	1
D				
C				
B				
A				

DIS IVB Touch

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Title			
XDP			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 11 of 103

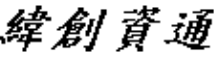
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DIS IVB Touch

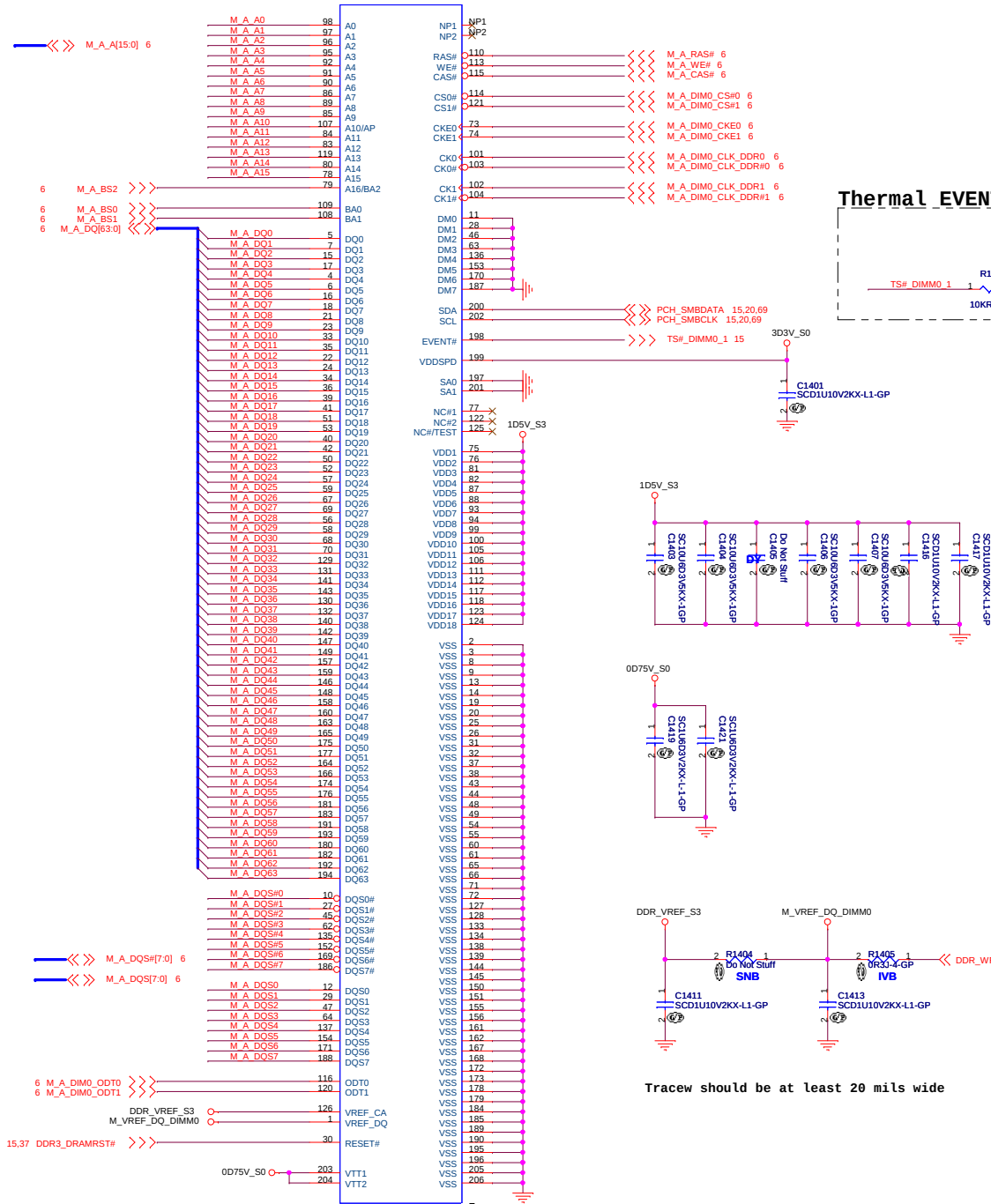
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 12 of 103

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DIS IVB Touch

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Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
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SSID = MEMORY



Tracew should be at least 20 mils wide

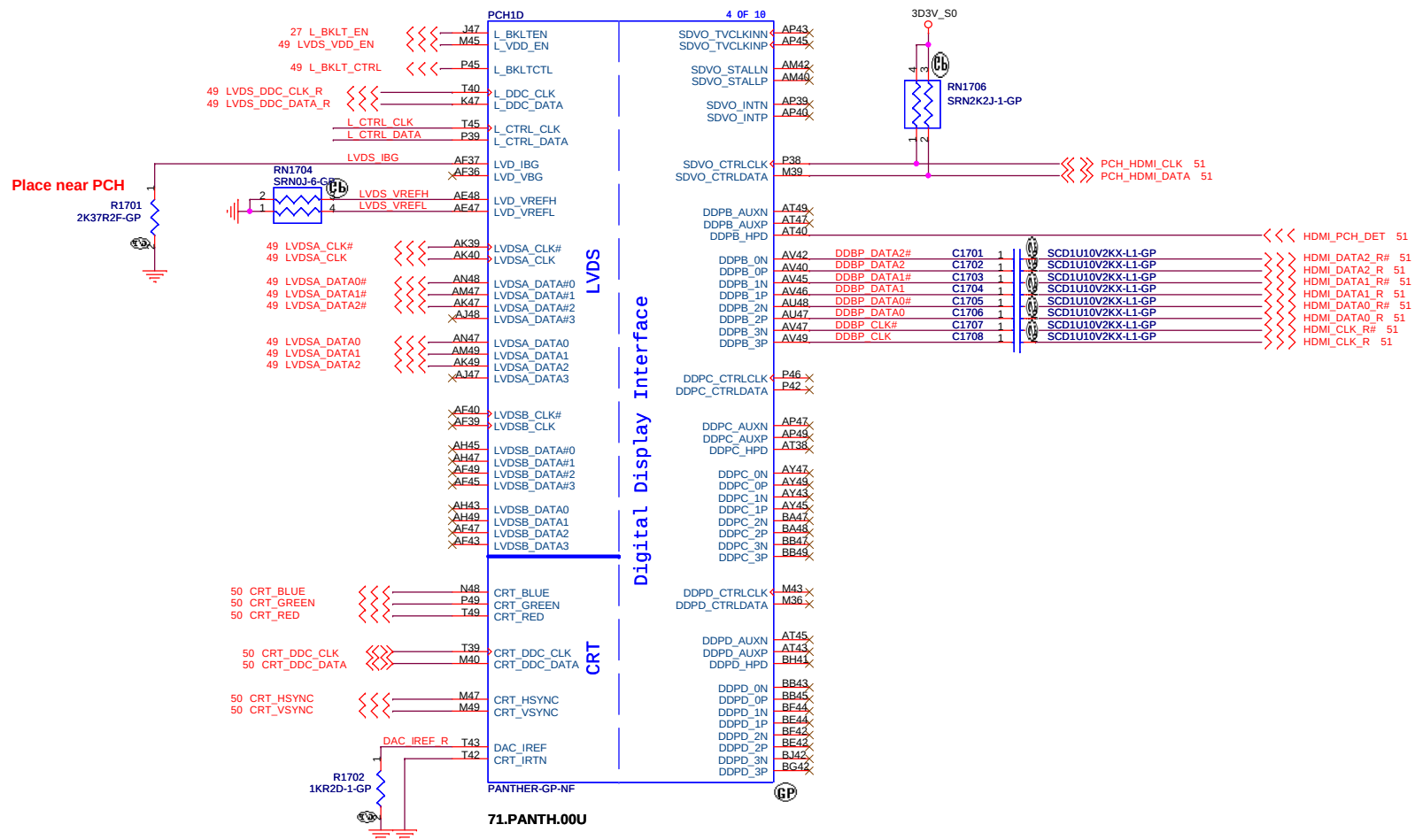
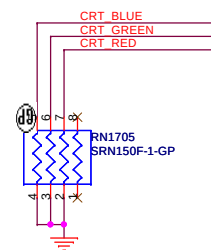
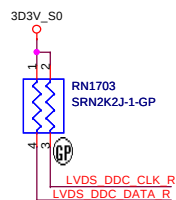
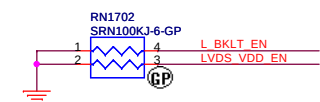
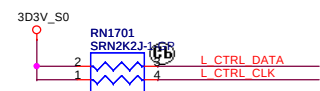
DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
DDR3-SODIMM1		
Size	Document Number	Rev
Custom	Husk/Petra	-4M
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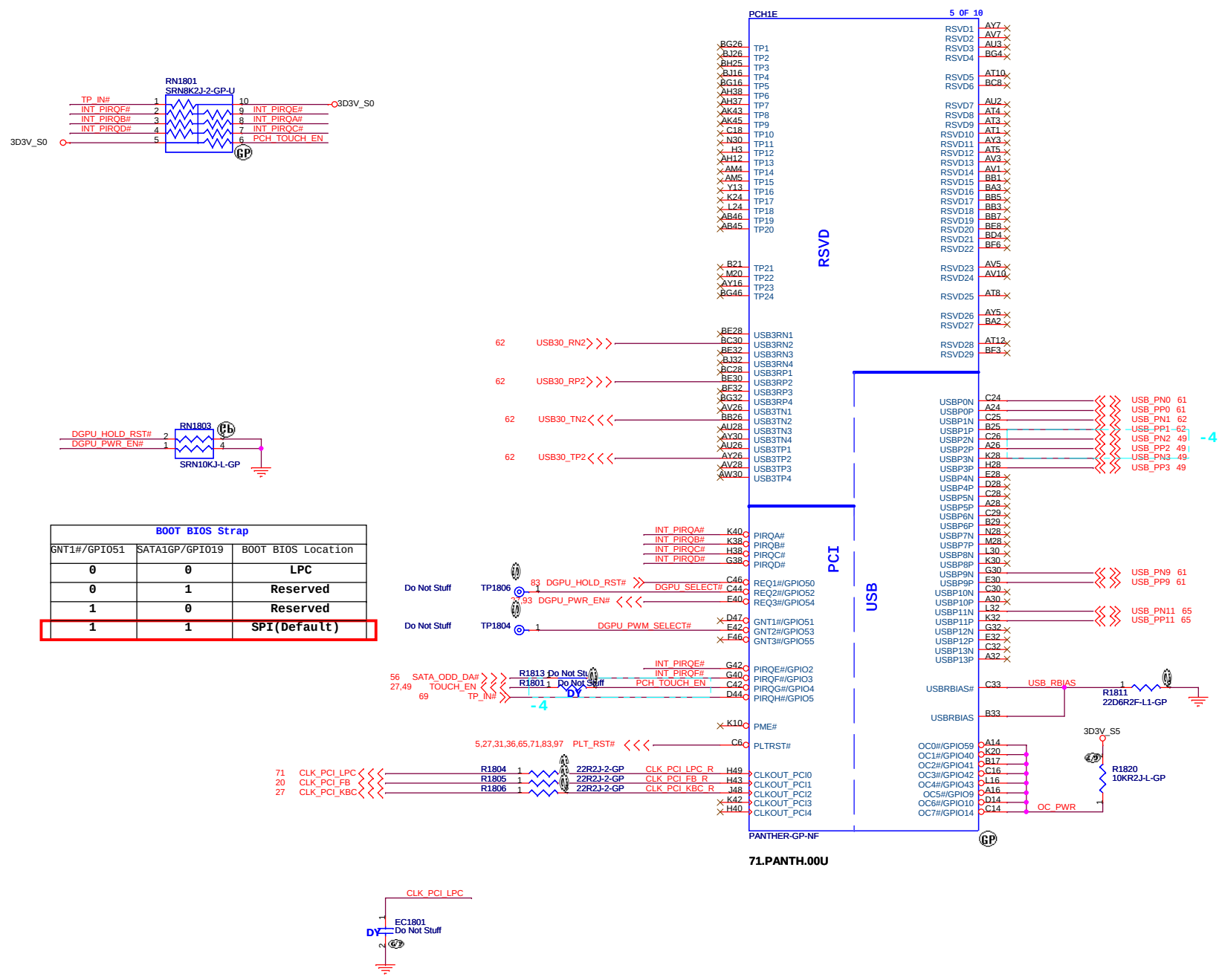
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DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title DDR3-SODIMM2		
Size A4	Document Number Husk/Petra	Rev -4M
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SSID = PCH



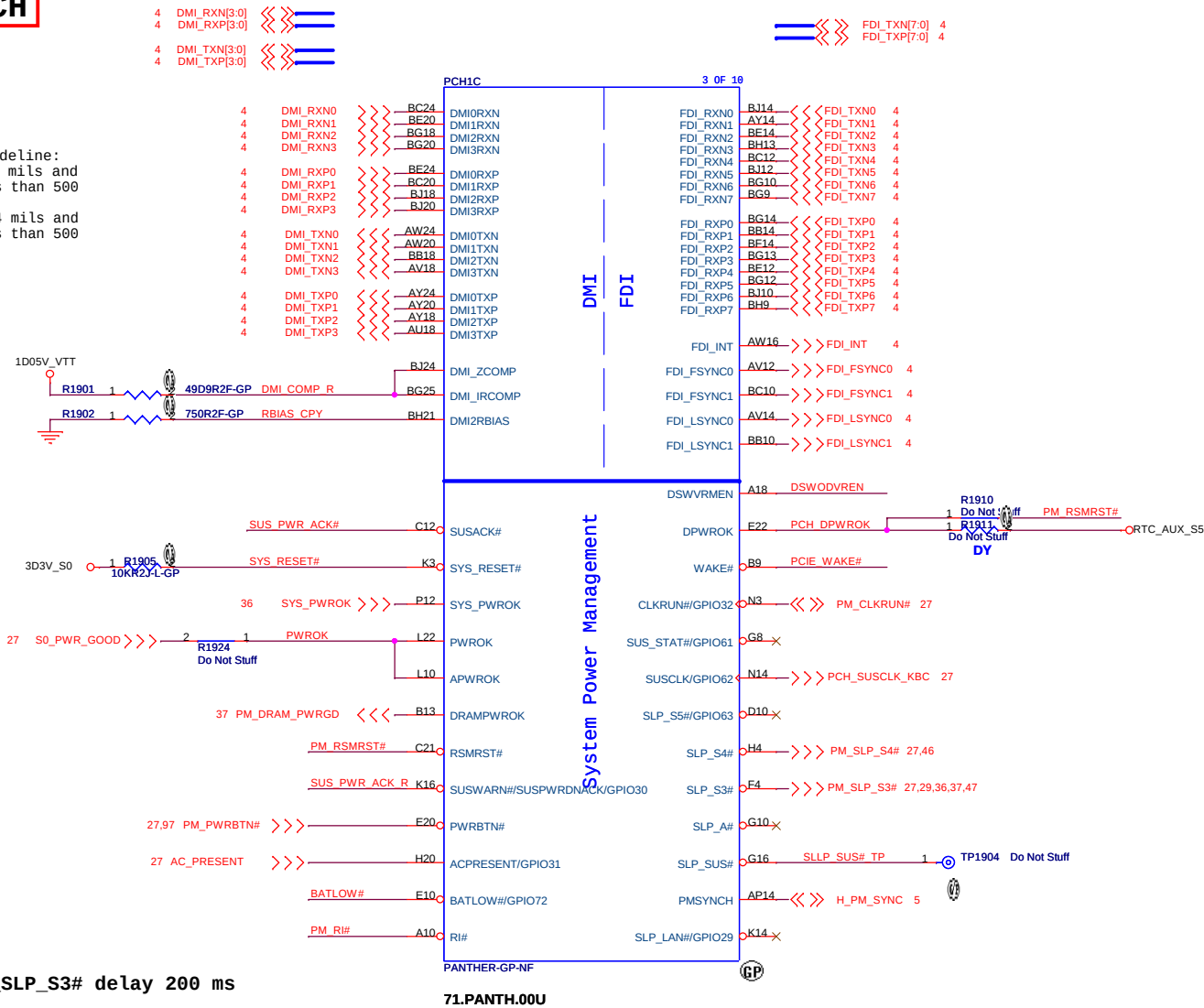
USB Table

Pair	Device
0	USB2.0 Ext. port 1
1	USB3.0/USB2.0 Ext. port 2
2	Touch panel
3	CCD
4	
5	
6	may not be available
7	may not be available
8	
9	USB2.0 Ext. port 3
10	
11	Mini Card1 (WLAN+BT)
12	
13	

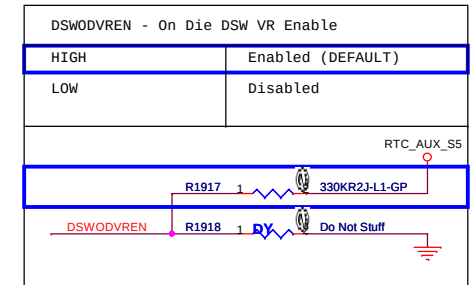
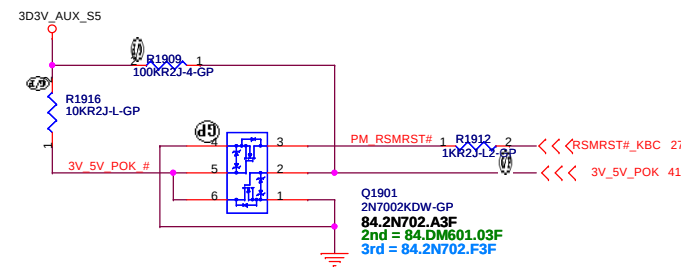
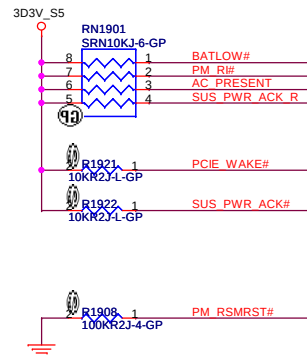
DIS I/B Touch

SSID = PCH

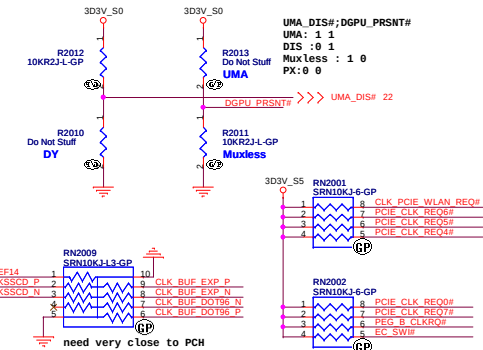
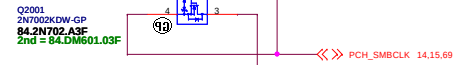
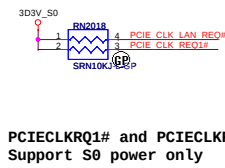
Signal Routing Guideline:
DMI_ZCOMP keep W=4 mils and
routing length less than 500
mils.
DMI_IRCOMP keep W=4 mils and
routing length less than 500
mils.



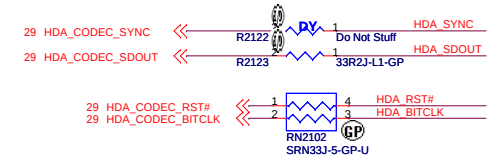
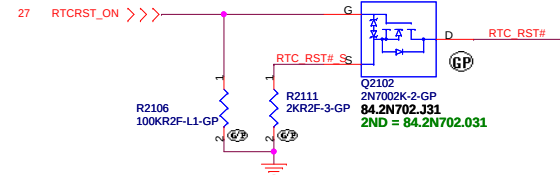
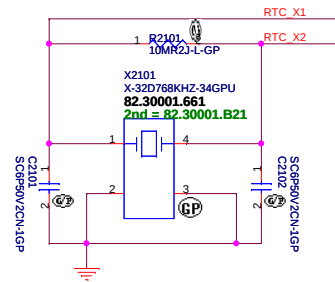
S0_PWR_GOOD after PM_SLP_S3# delay 200 ms



SSID = PCH



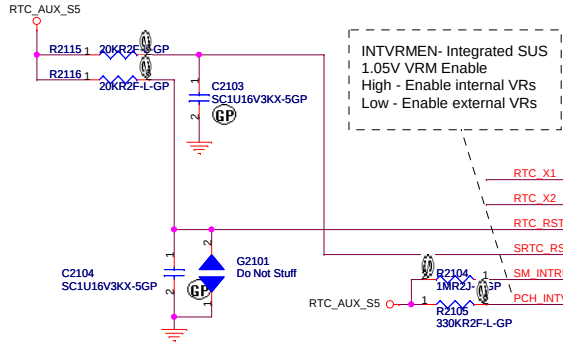
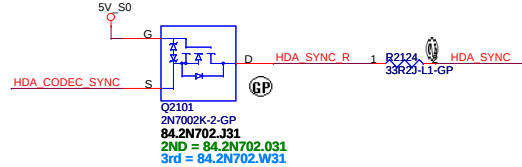
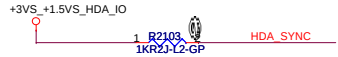
SSID = PCH



Flash Descriptor Security Override	
HDA_SDOUT	Low = Default High = Enable

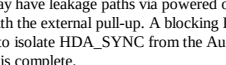
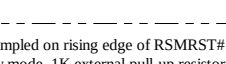
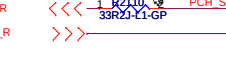
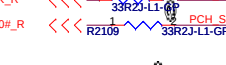
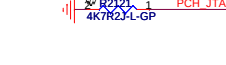
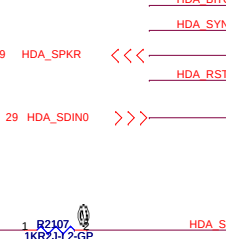
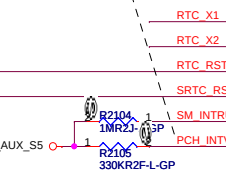


PLL ODVR VOLTAGE	
HDA_SYNC	Low = 1.8V (Default) High = 1.5V

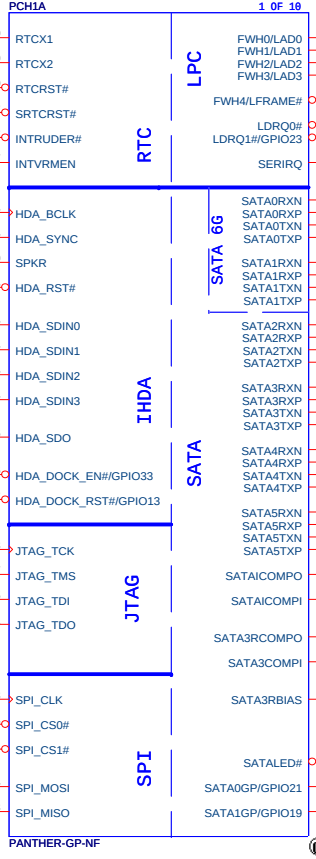


RTC Reset

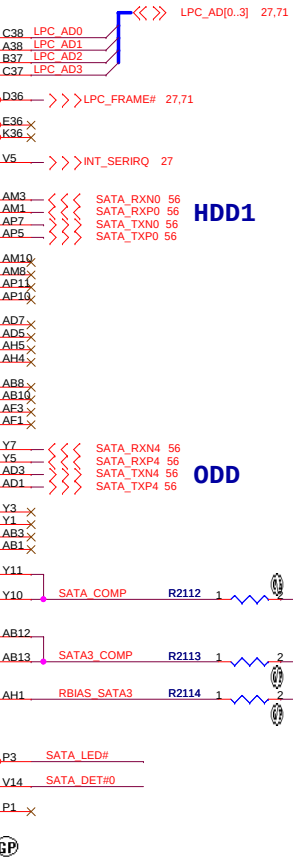
INTVRMEN-Integrated SUS
1.05V VRM Enable
High - Enable internal VRs
Low - Enable external VRs



HDA_SYNC: This strap is sampled on rising edge of RSMRST# and is used to sample 1.5V VccVRM supply mode. 1K external pull-up resistor is required on this signal on the board. Signal may have leakage paths via powered off devices (Audio Codec) and hence contend with the external pull-up. A blocking FET is recommended in such a case to isolate HDA_SYNC from the Audio Codec device until after the Strap sampling is complete.



71.PANTH.00U



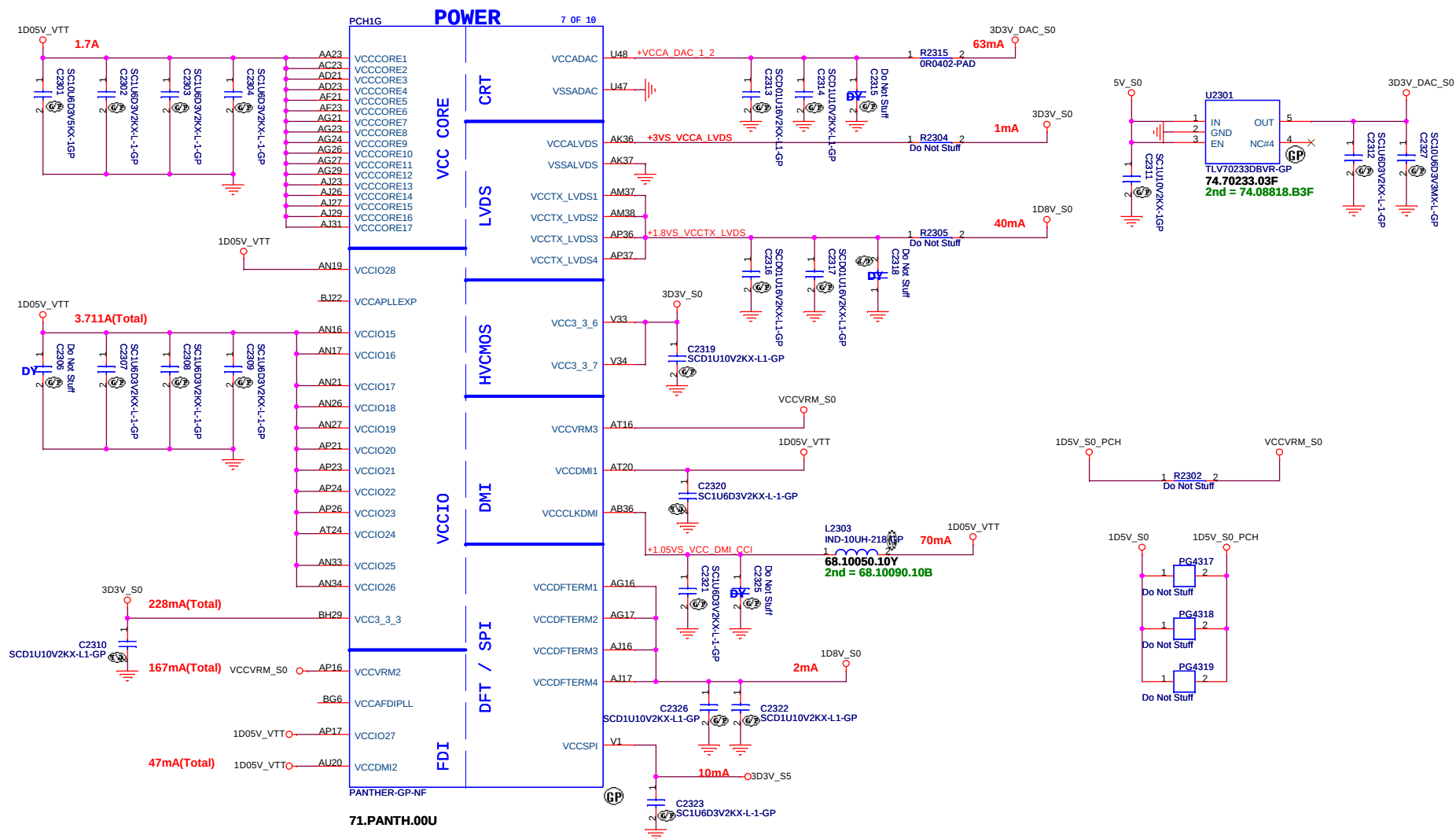
DIS IVB Touch

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
PCH (SPI/RTC/LPC/SATA/IHDA)			
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SSID = PCH



DIS IVB Touch



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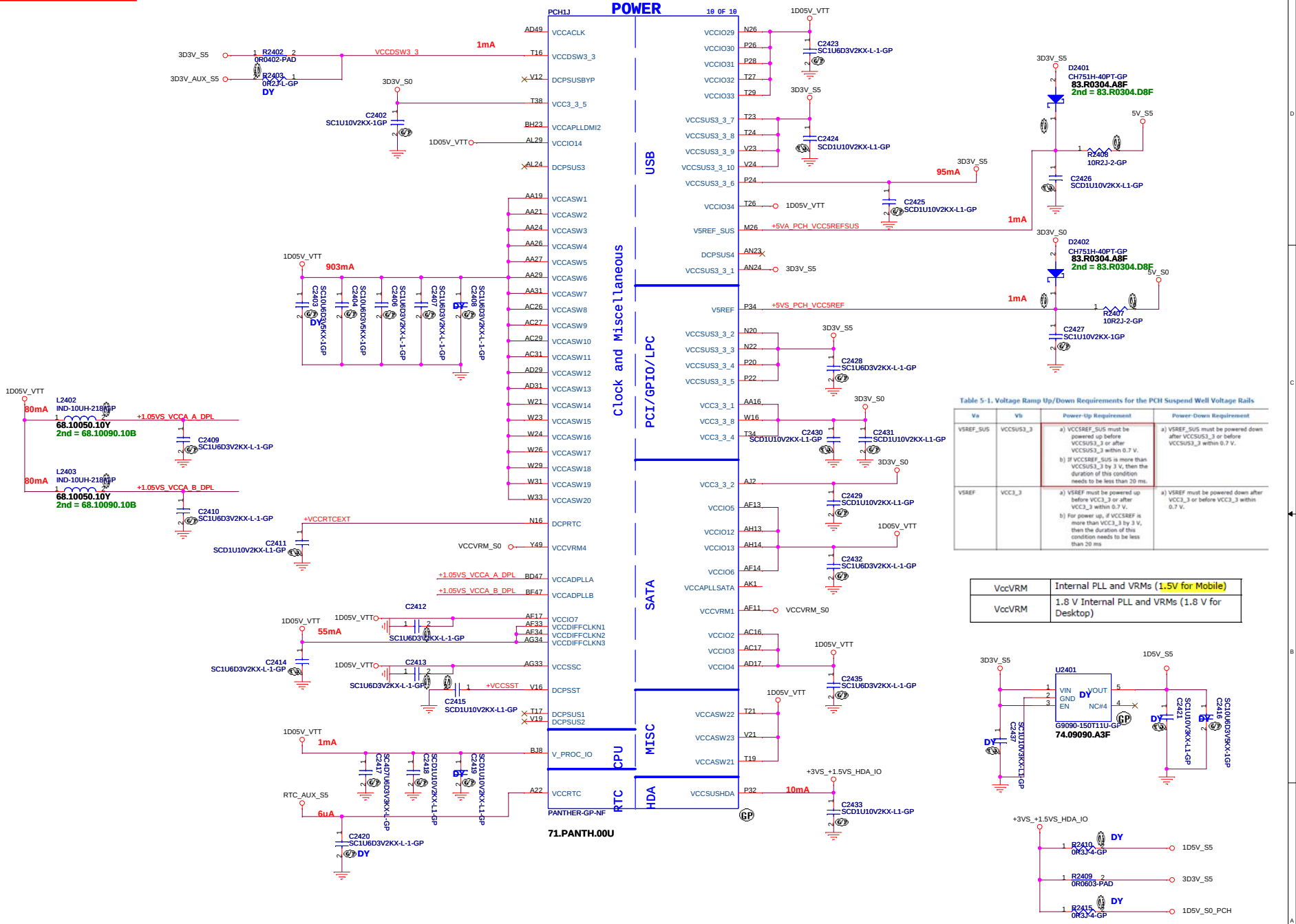
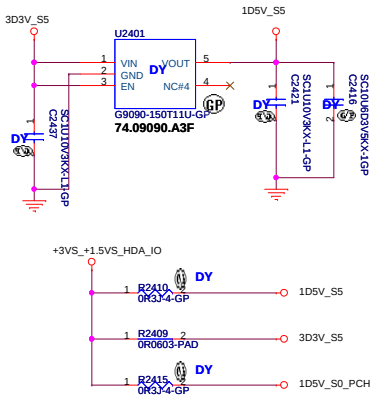


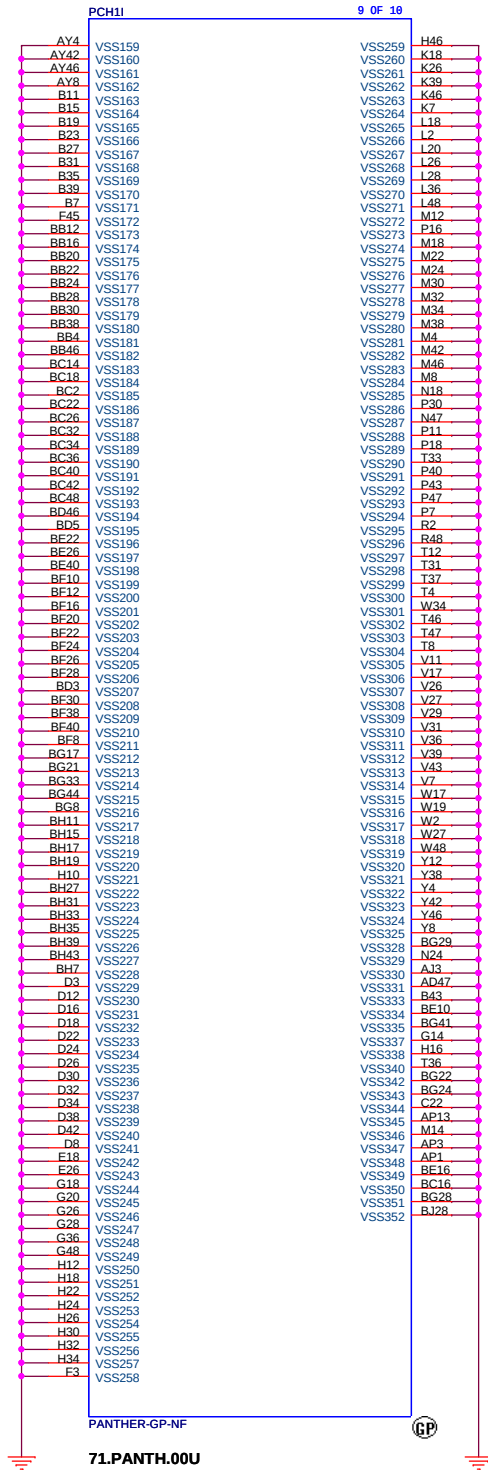
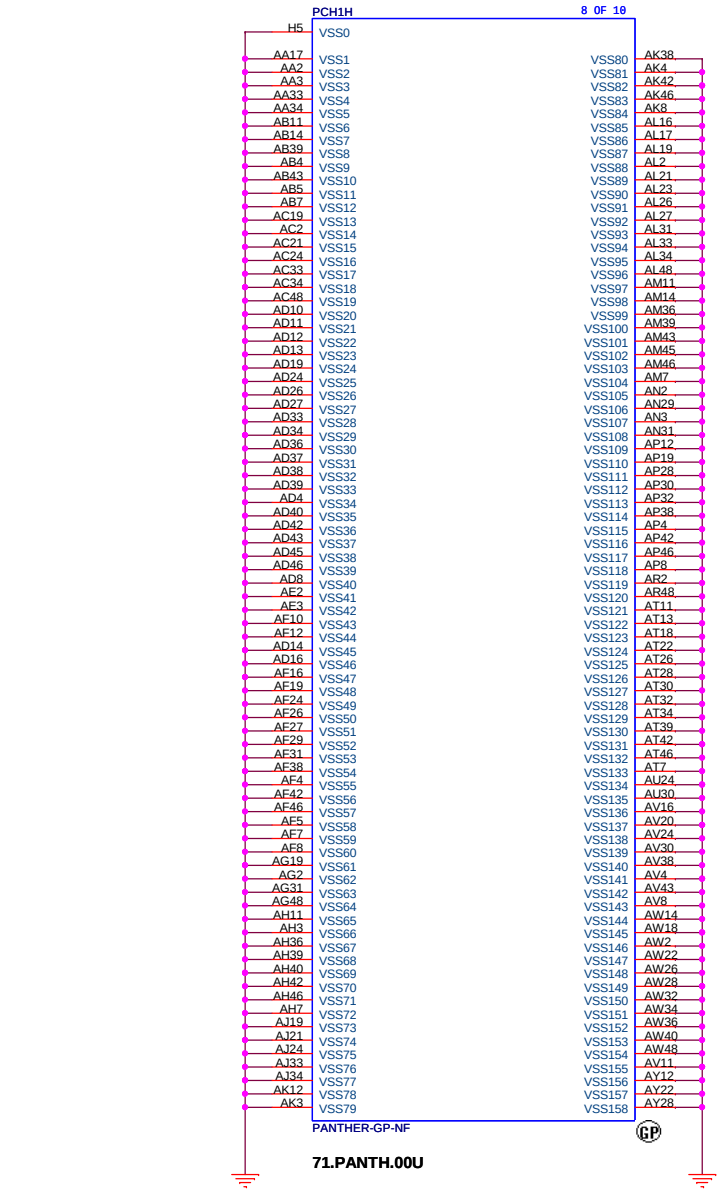
Table 5-1. Voltage Ramp Up/Down Requirements for the PCH Suspend Well Voltage Rails

Va	Vb	Power-Up Requirement	Power-Down Requirement
VSREF_SUS	VCCSUS3_3	a) VCCSREF_SUS must be powered up before VCCSUS3_3 or after VCCSUS3_3 within 0.7 V. b) If VCCSREF_SUS is more than VCCSUS3_3 by 3 V, then the duration of this condition needs to be less than 20 ms.	a) VSREF_SUS must be powered down after VCCSUS3_3 or before VCCSUS3_3 within 0.7 V.
VSREF	VCC3_3	a) VSREF must be powered up before VCC3_3 or after VCC3_3 within 0.7 V. b) For power up, if VCCSREF is more than VCC3_3 by 3 V, then the duration of this condition needs to be less than 20 ms.	a) VSREF must be powered down after VCC3_3 or before VCC3_3 within 0.7 V.

VccVRM	Internal PLL and VRMs (1.5V for Mobile)
VccVRM	1.8 V Internal PLL and VRMs (1.8 V for Desktop)



SSID = PCH



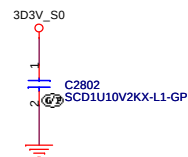
5	4	3	2	1
D				D
C				C
B				B
A				A

DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Clock(colay)		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 26 of 103

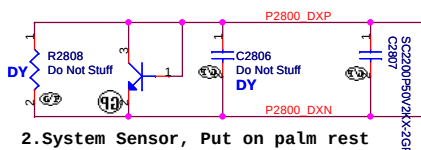
SSID = Thermal

Thermal sensor NCT 7718W

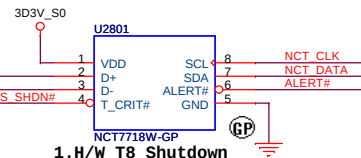


Layout notice :
Both DXN and DXP routing 10 mil
trace width and 10 mil spacing.

Q2801
PMBS3904-1-GP
84.03904.L06



2. System Sensor, Put on palm rest



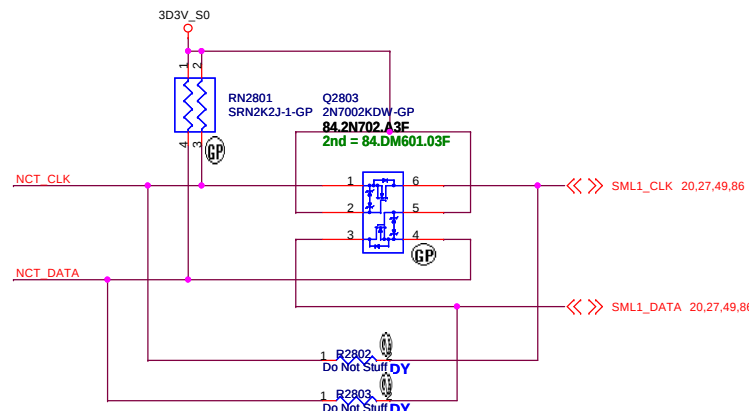
1.H/W T8 Shutdown

ALERT# /T CRIT#
Pull-up Resistor

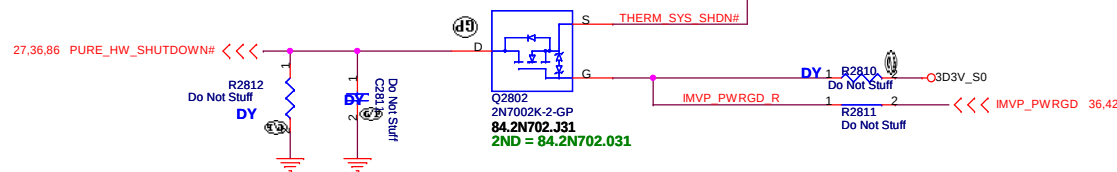
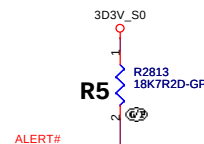
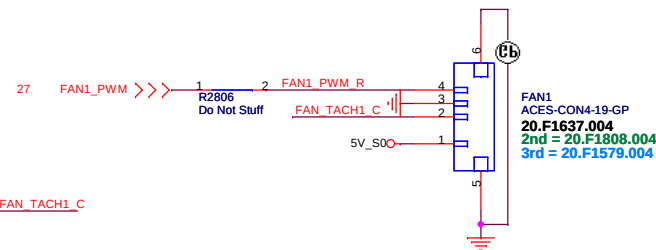
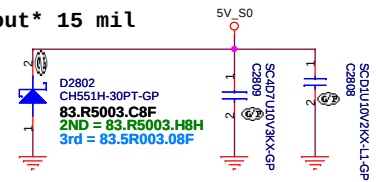
	2Kohm	7.5Kohm	10.5Kohm	14Kohm	18.7Kohm
R5	77°C	87°C	97°C	107°C	117°C
7.5Kohm	79°C	89°C	99°C	109°C	119°C
10.5Kohm	81°C	91°C	101°C	111°C	121°C
14Kohm	83°C	93°C	103°C	113°C	123°C
18.7Kohm	85°C	95°C	105°C	115°C	125°C

T_CRIT temperature strapping point

SB T8=85 degree



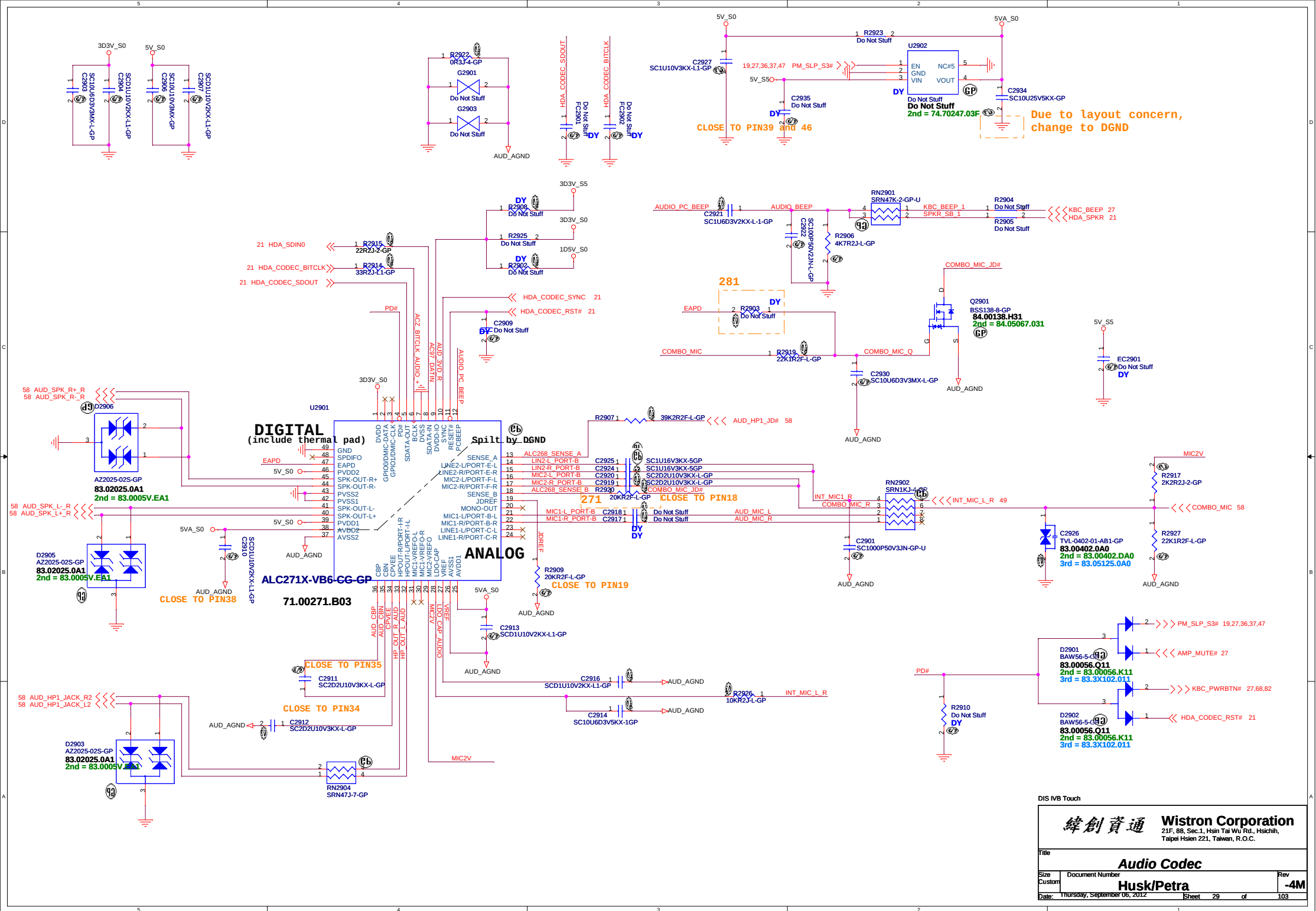
Layout 15 mil



DIS IVB Touch

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

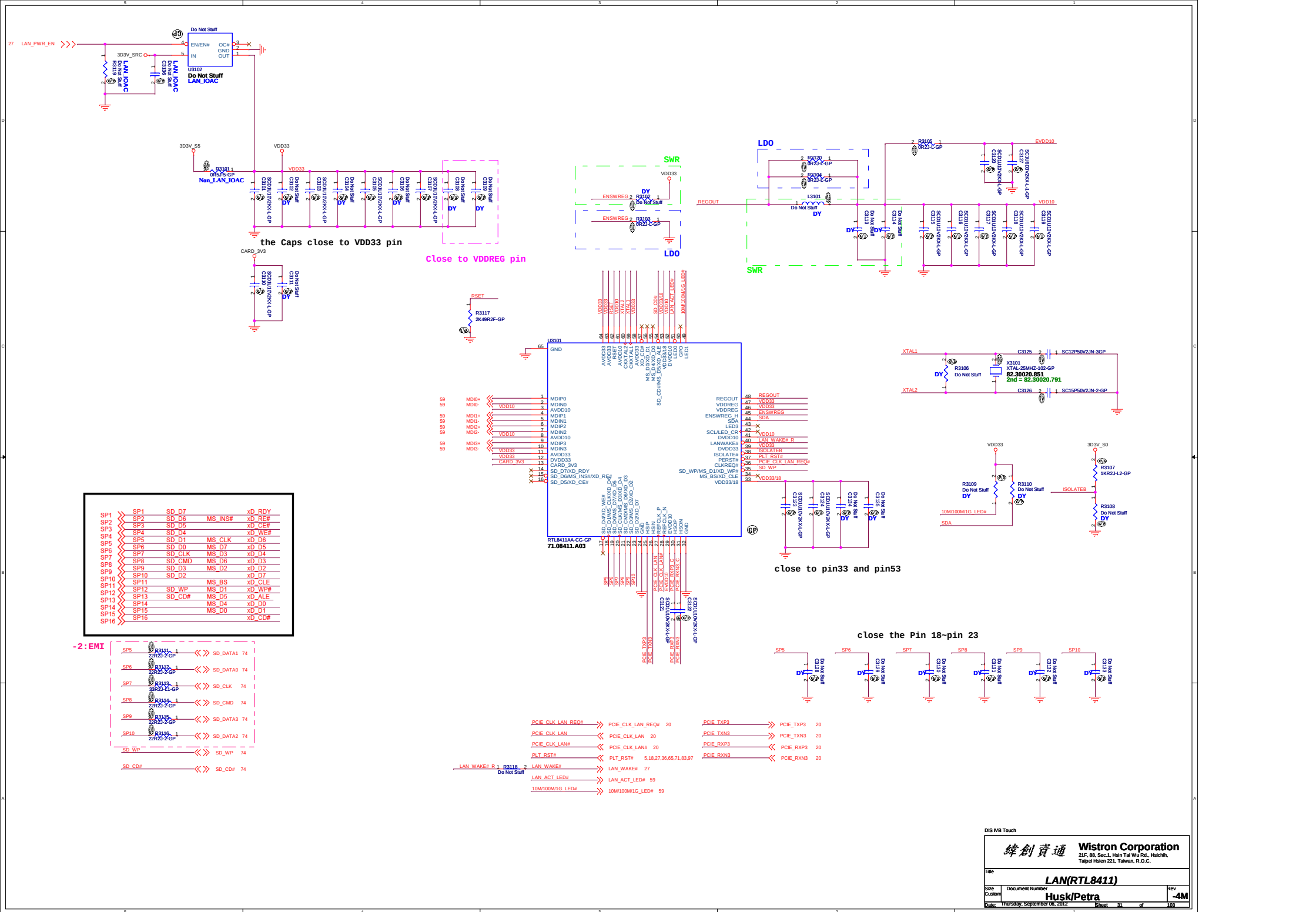
Title	Thermal NCT7718		
Size	Custom	Document Number	Rev
		Husk/Petra	-4M
Date:	Thursday, September 06, 2012	Sheet	28 of 103



5	4	3	2	1
D				
C				
B				
A				

DIS IVB Touch

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
Audio AMP			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 30 of 103



5	4	3	2	1
D				D
C				C
B				B
A				A
5	4	3	2	1

DIS IMB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
RTS5159 (CARD READER)	
Size	Document Number
Custom	Husk/Petra
Date	Thursday, September 06, 2012
1	Sheet 32 of 103
Rev	
-4M	

(Blanking)

DIS IVB Touch

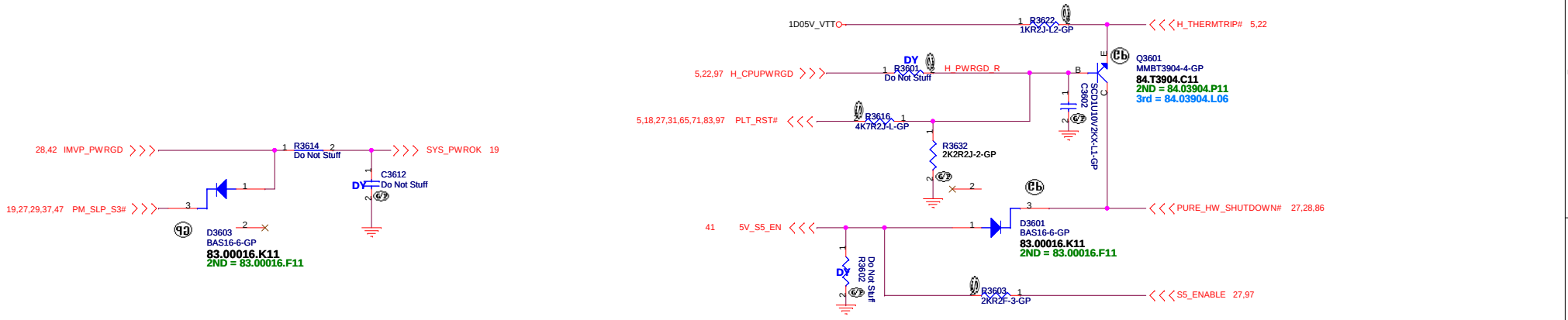
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 33 of 103

(Blanking)

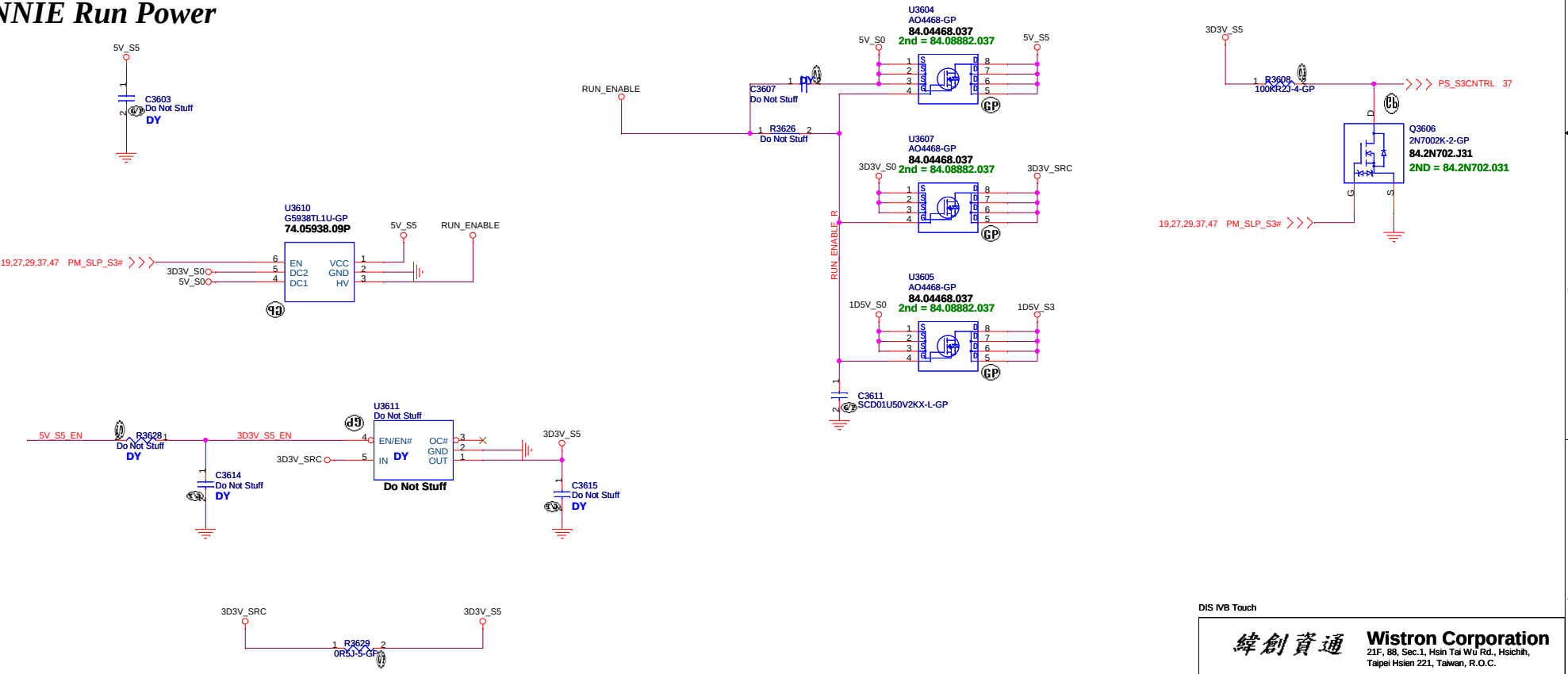
DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 34 of 103

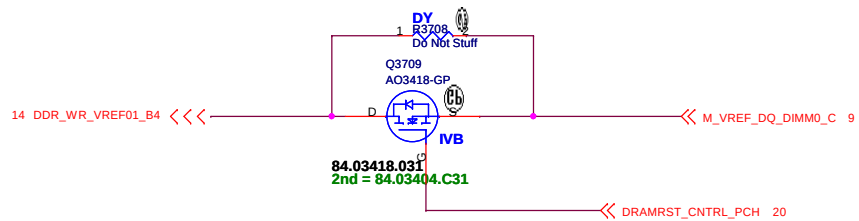
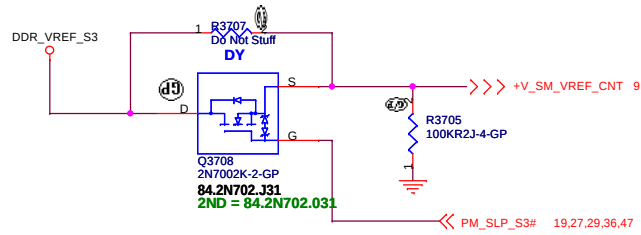
Power Sequence



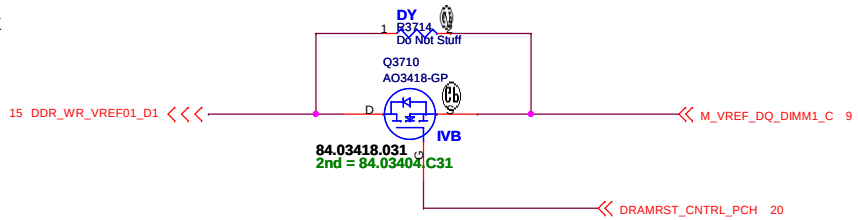
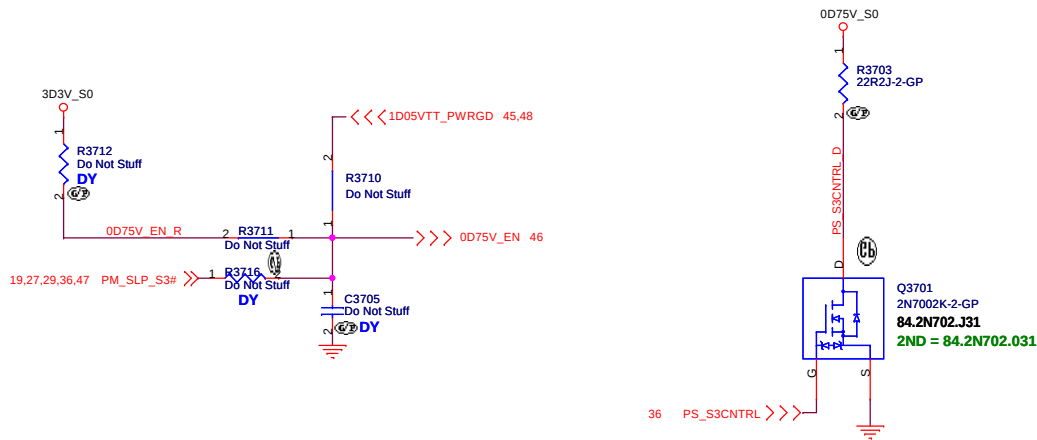
ANNIE Run Power



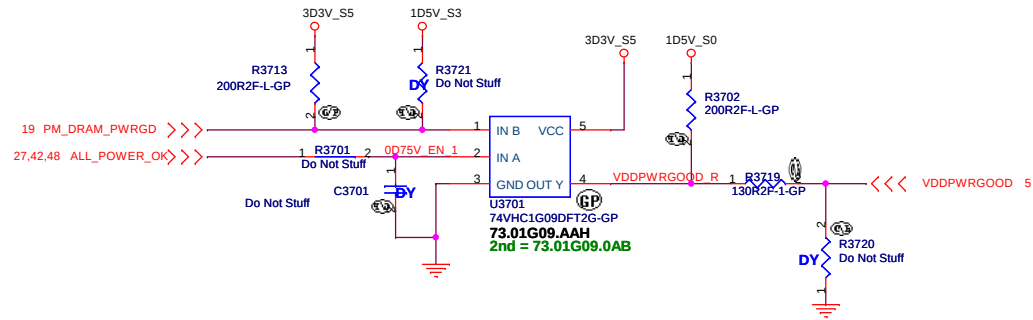
Close to CPU
S3 Power Reduction Circuit Processor VREF_DQ Implementation



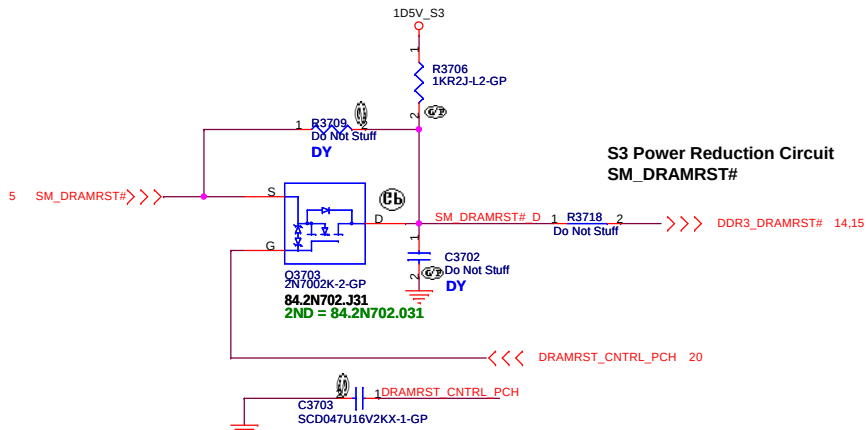
Close to DIMM
S3 Power Reduction Circuit SM_DRAMPWROK



Close to CPU
S3 Power Reduction Circuit SM_DRAMPWROK

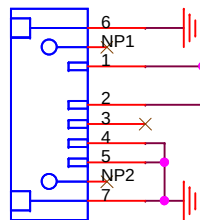


Close to CPU
S3 Power Reduction Circuit SM_DRAMPWROK



S3 Power Reduction Circuit
SM_DRAMRST#

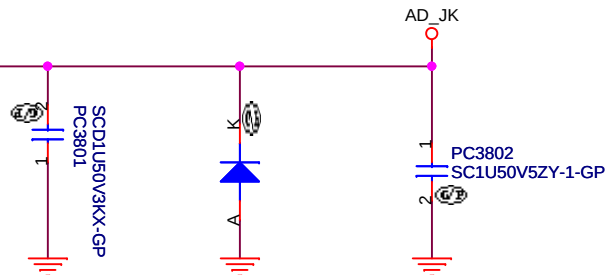
1Pin=3A



DCIN1
ACES-CON5-27-GP

20.F2182.005

2nd = 20.F2198.005



PC3801
SCD1U50V3KX-GP

D3801
P6SBMJ27APT-GP
83.P6SBM.DAG
2nd = 83.P6SMB.JAG
3rd = 83.P6SMB.CAG

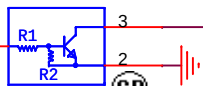
PC3802
SC1U50V5ZY-1-GP

AD_JK

AD+

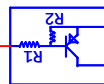
27

AD_OFF >>>



PQ3801
LTC024EUB-FS8-GP
84.00024.A1K
2ND = 84.00124.H1K
3rd = 84.05124.011

PWR_ADJK_EN



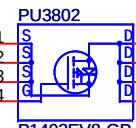
PQ3802
PDTA124EU-1-GP
84.00124.K1K
2nd = 84.00024.01K
3rd = 84.05124.A11

AD_JK

PR3807
200KR2F-L-GP

PC3805
SC1U50V5ZY-1-GP

PR3808
100KR2J-4-GP



PU3802
P1403EV8-GP
84.P1403.B37
2nd = 84.04407.F37
3rd = 84.03005.037

PWR_AD+ 2

DIS IVB Touch

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title

DCIN JACK

Size
A4

Document Number

Husk/Petra

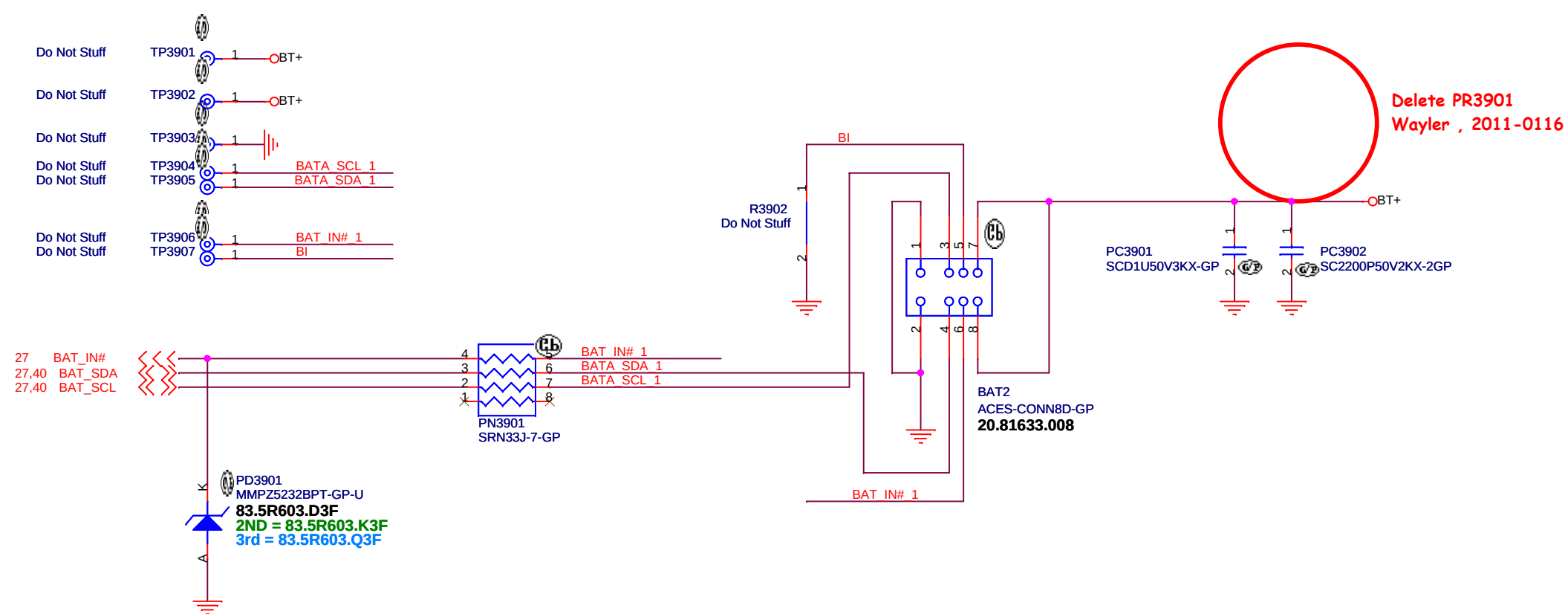
Rev

-4M

Date: Thursday, September 06, 2012

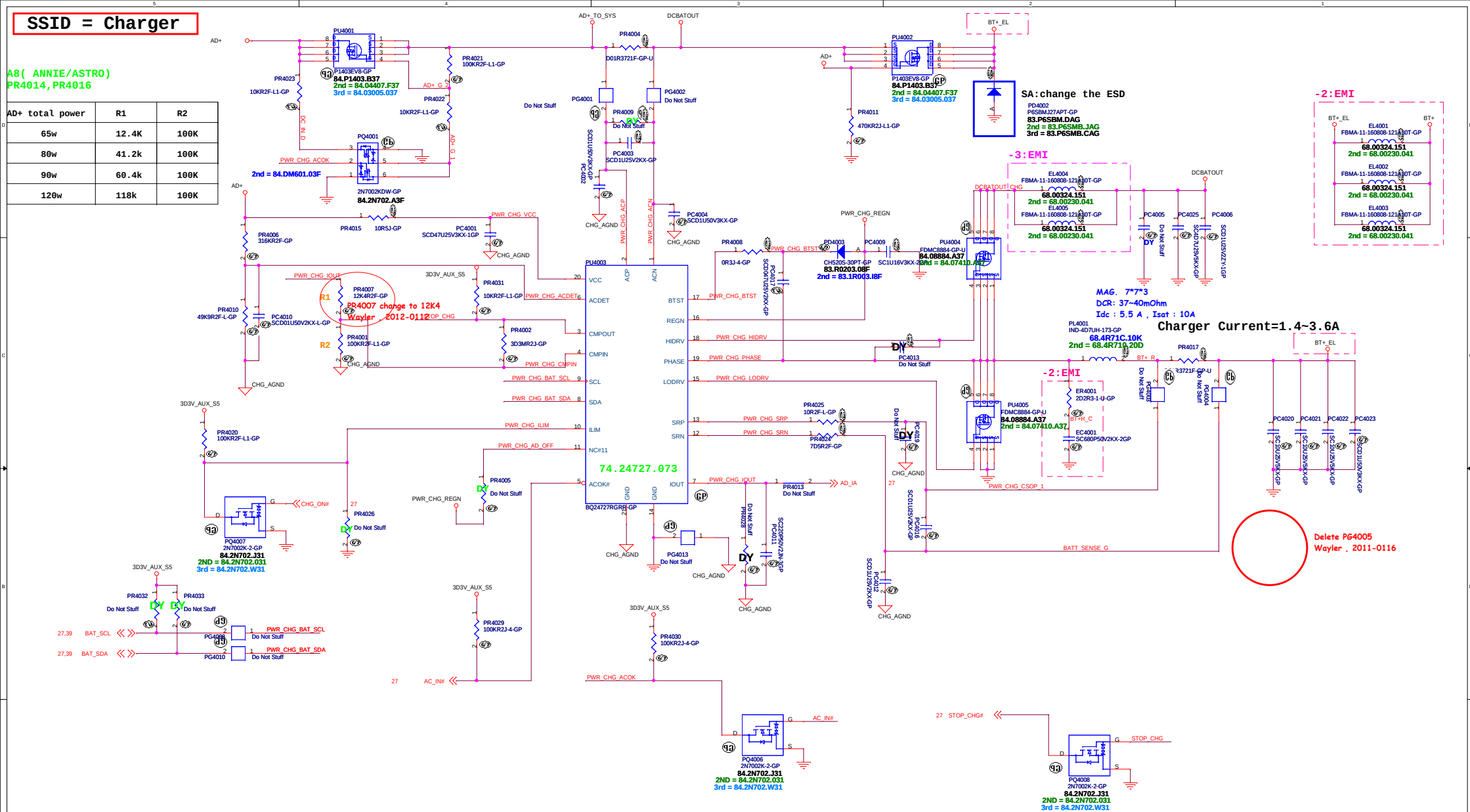
Sheet 38 of 103

BATTERY CONNECTOR

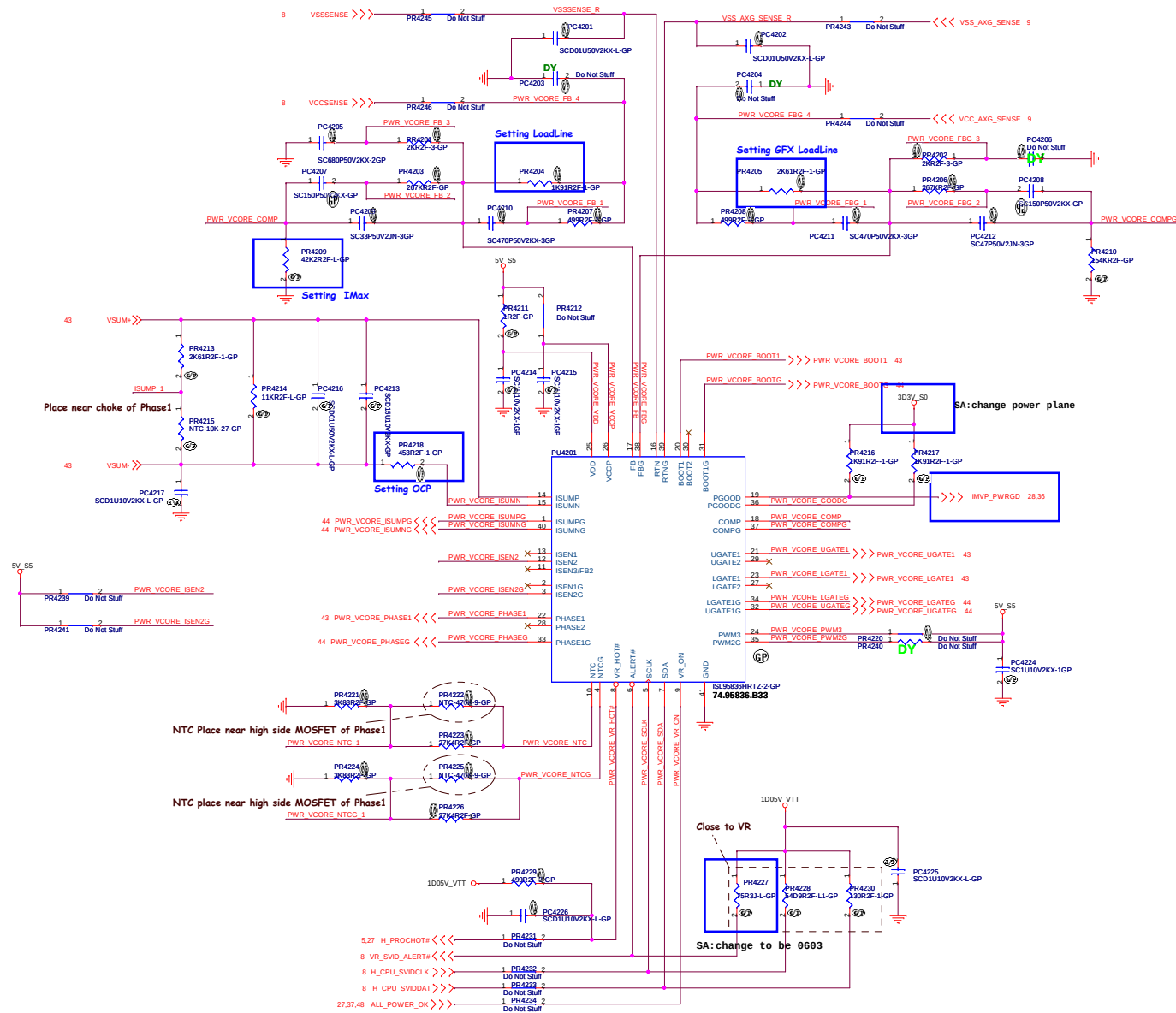


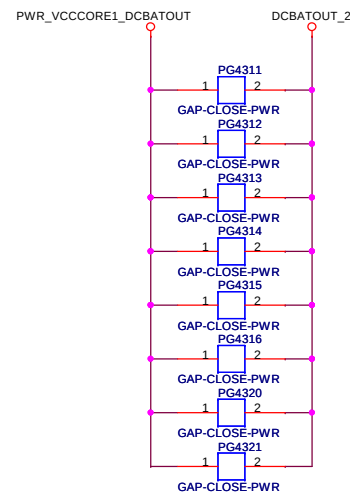
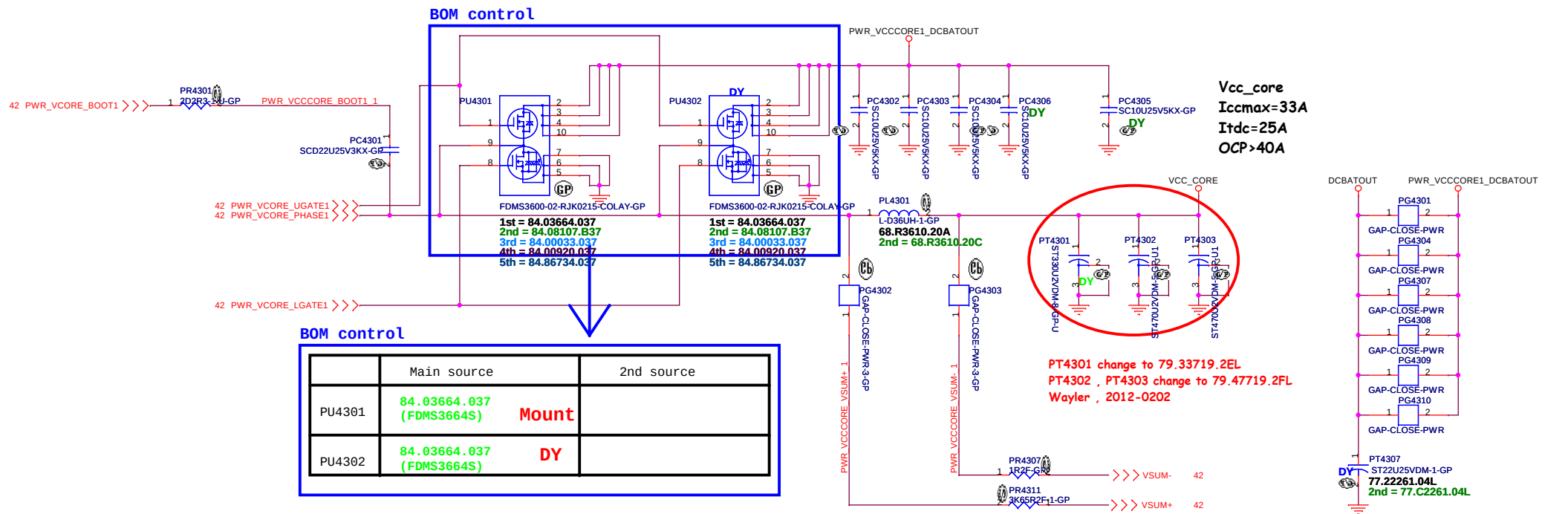
8(ANNIE/ASTRO)
R4014, PR4016

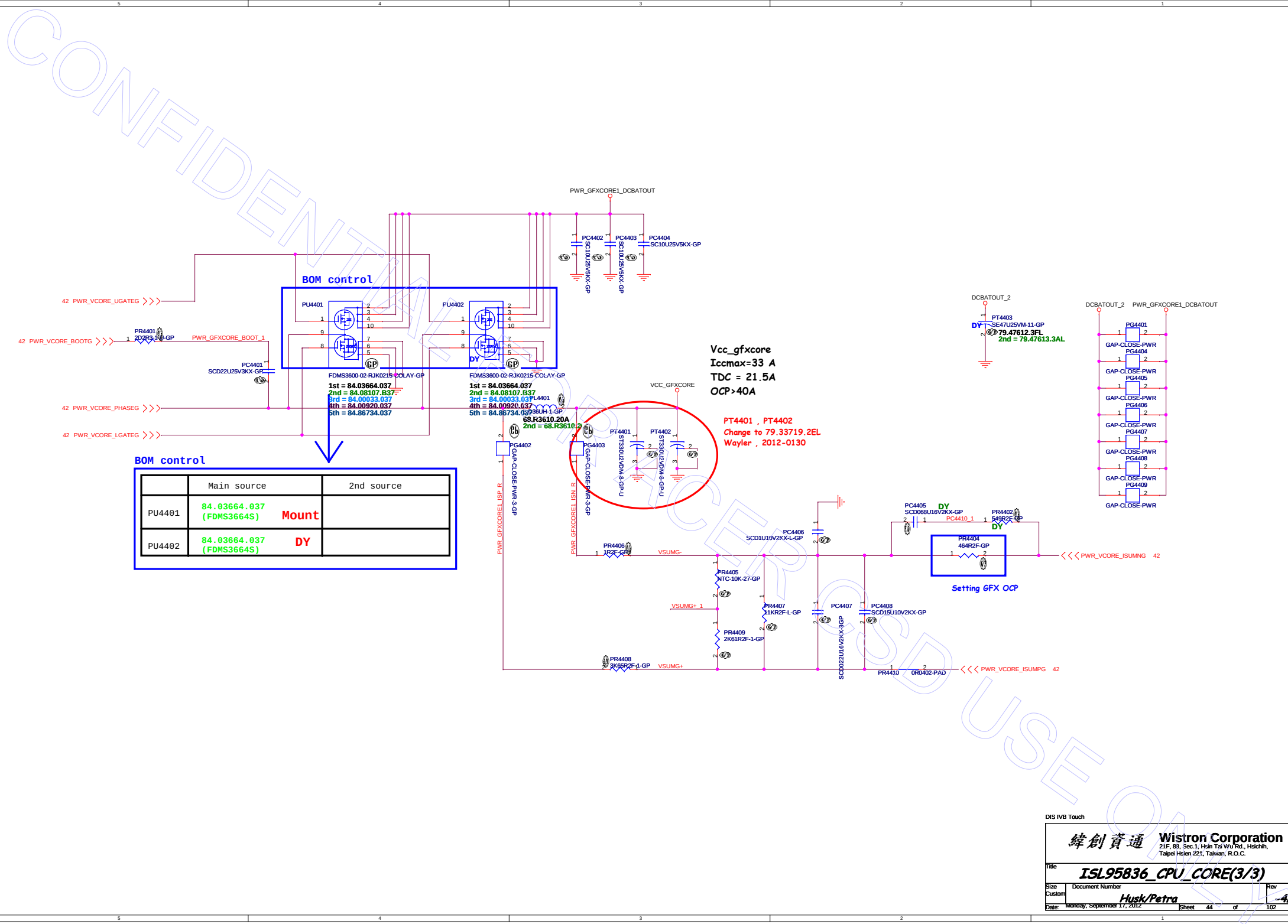
AD+ total power		R1	R2
D	65w	12.4K	100K
	80w	41.2k	100K
	90w	60.4k	100K
	120w	118k	100K



SSID = CPU.Regulator







42 PWR_VCORE_UGATEG >>>
42 PWR_VCORE_BOOTG >>>
42 PWR_VCORE_PHASEG >>>
42 PWR_VCORE_LGATEG >>>

BOM control

	Main source	2nd source
PU4401	84.03664.037 (FDMS3664S) Mount	
PU4402	84.03664.037 (FDMS3664S) DY	

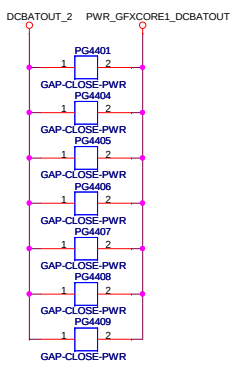
FDMS3600-02-RJK0215-COLAY-GP
1st = 84.03664.037
2nd = 84.08107.837
3rd = 84.00033.037
4th = 84.00920.037
5th = 84.86734.037

FDMS3600-02-RJK0215-COLAY-GP
1st = 84.03664.037
2nd = 84.08107.837
3rd = 84.00033.037
4th = 84.00920.037
5th = 84.86734.037

Vcc_gfxcore
Iccmax=33 A
TDC = 21.5A
OCP>40A

PT4401 , PT4402
Change to 79.33719.2EL
Wayler , 2012-0130

DCBATOUT_2
PT4403
SE47U25VM-11-GP
DY 79.47612.3FL
2nd = 79.47613.3AL

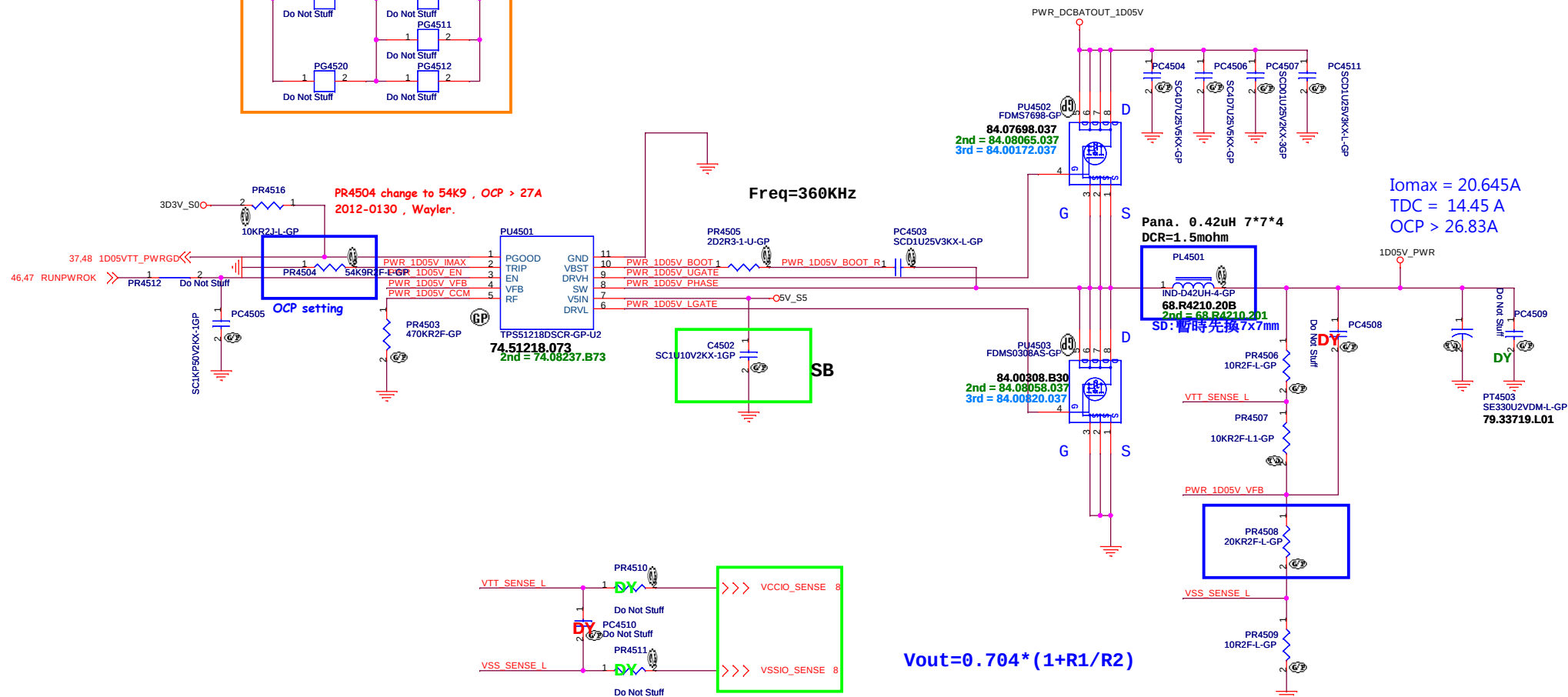
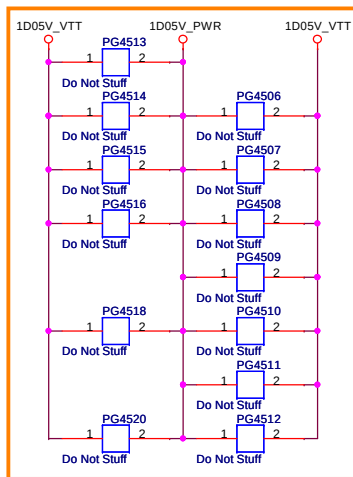
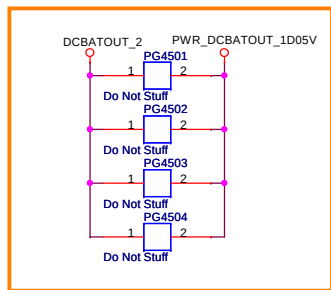


Setting GFX OCP
PR4404
464R2F-GP

SA_20111004

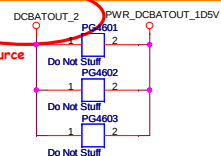
SA_20111013

TPS51218D for 1D05V



緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

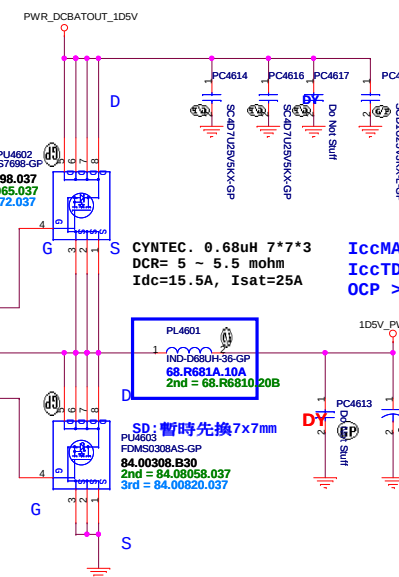
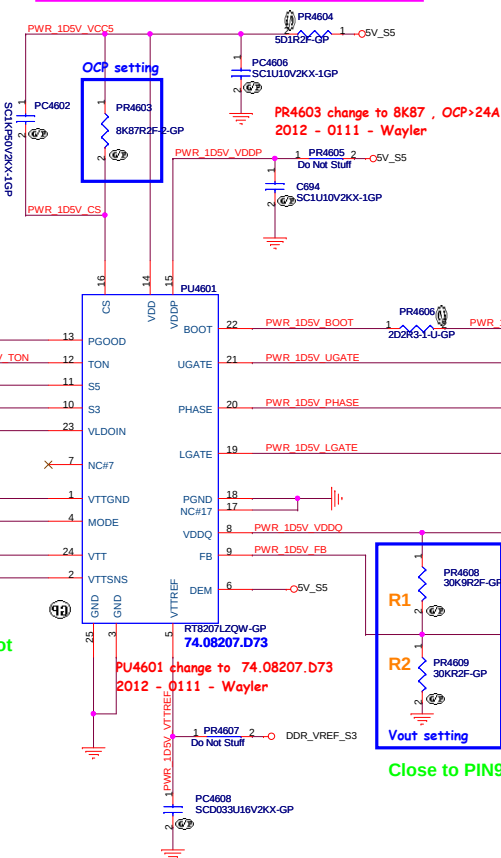
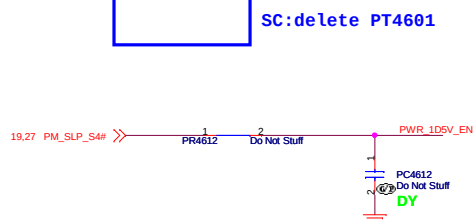
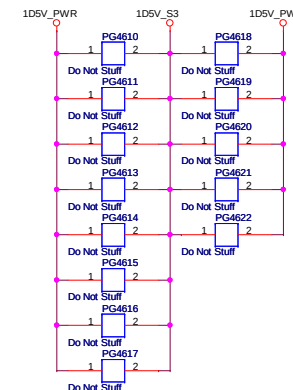
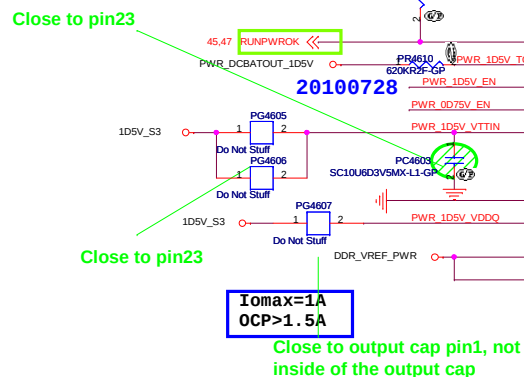
SSID = PWR.Plane.Regulator_1p5v0p75v



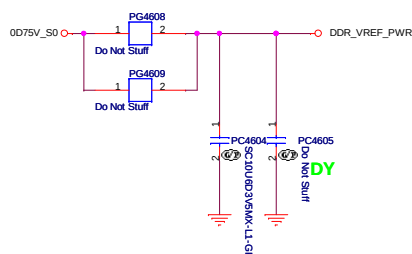
SA 20111004

SC:delete PT4601

RT8207L for 1D5V

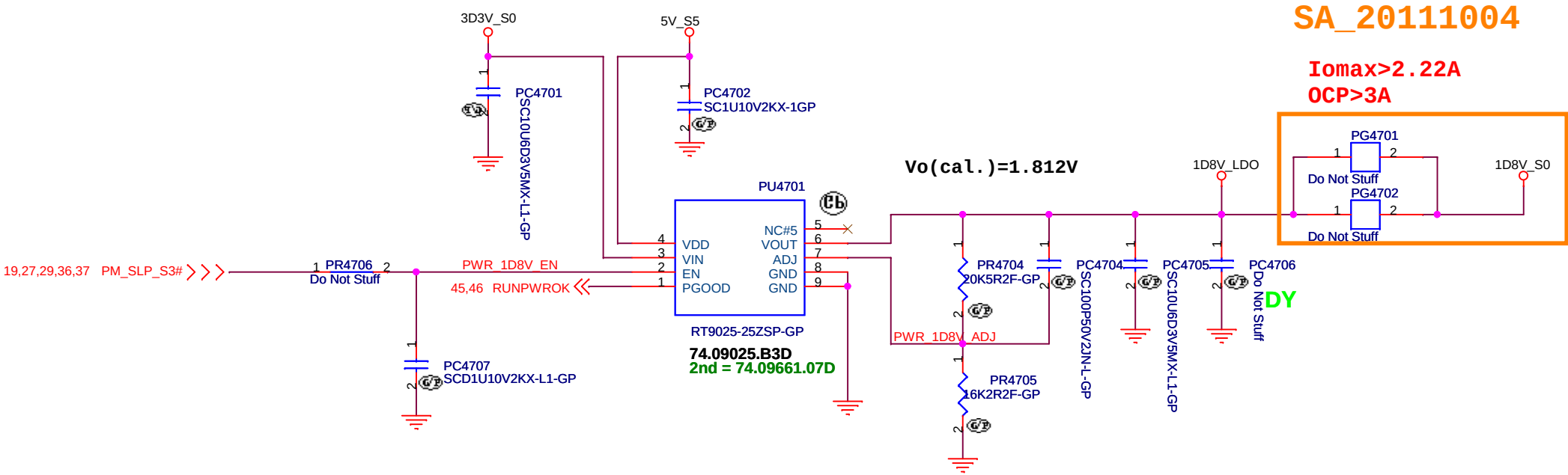

$$V_{out} = 0.75 * (1 + R1/R2)$$


+0.75VS
Iomax: 1.2A



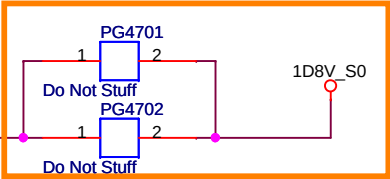
SSID = PWR.Plane.Regulator_1p8v

RT9025 for 1D8V_S0



SA_20111004

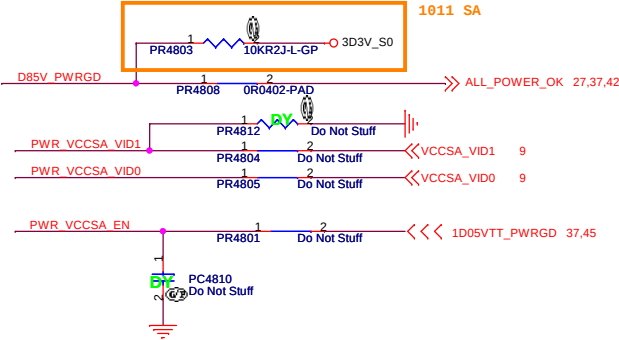
Iomax>2.22A
OCP>3A



DIS IVB Touch

緯創資通		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
LDO 1D8V(RT9025)			
Size A4	Document Number Husk/Petra		Rev -4M
Date:	Thursday, September 06, 2012	Sheet 47 of	103

LDO G978 for VCCSA



D0, D1 V₀ Selection Table

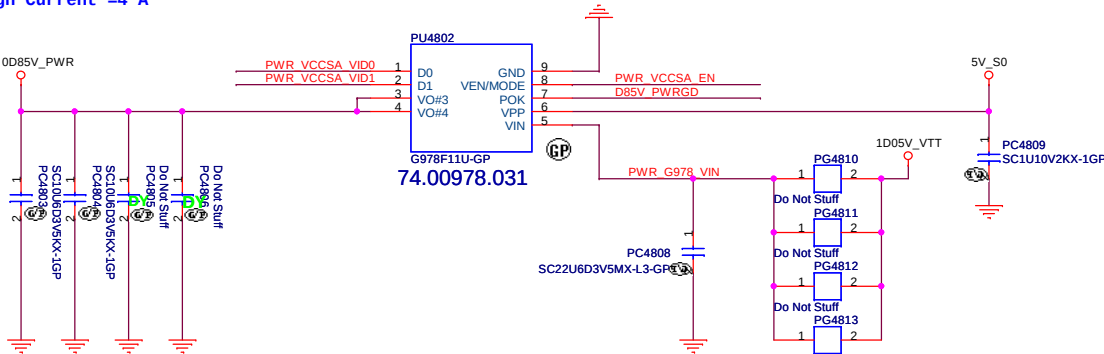
D0	D1	V ₀ MODE=0	V ₀ MODE=1
0	0	0.9V	0.9V
0	1	0.8V	0.85V
1	0	0.725V	0.775V
1	1	0.675V	0.75V

"x" means "don't care".

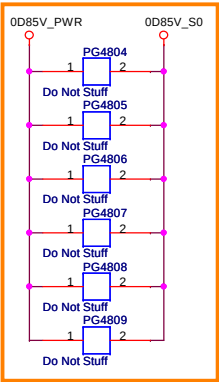
VEN/MODE Logic

VEN/MODE (VPP=5V)	EN logic	VEN/MODE (VPP=5V)	MODE logic
<0.6V	0	<2.0V	0
>1.0V	1	>2.6V	1

Design Current =4 A

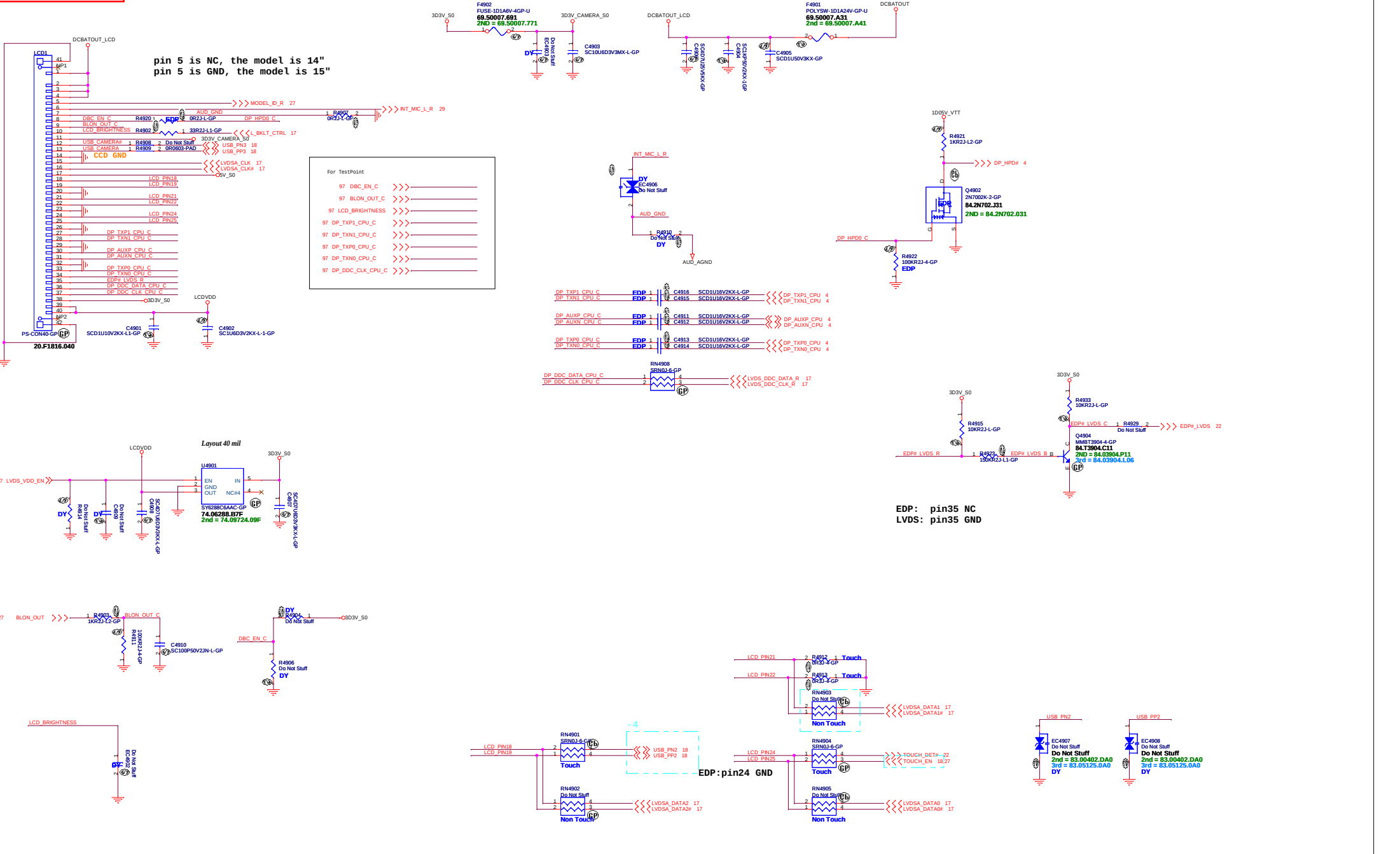


1011 SA

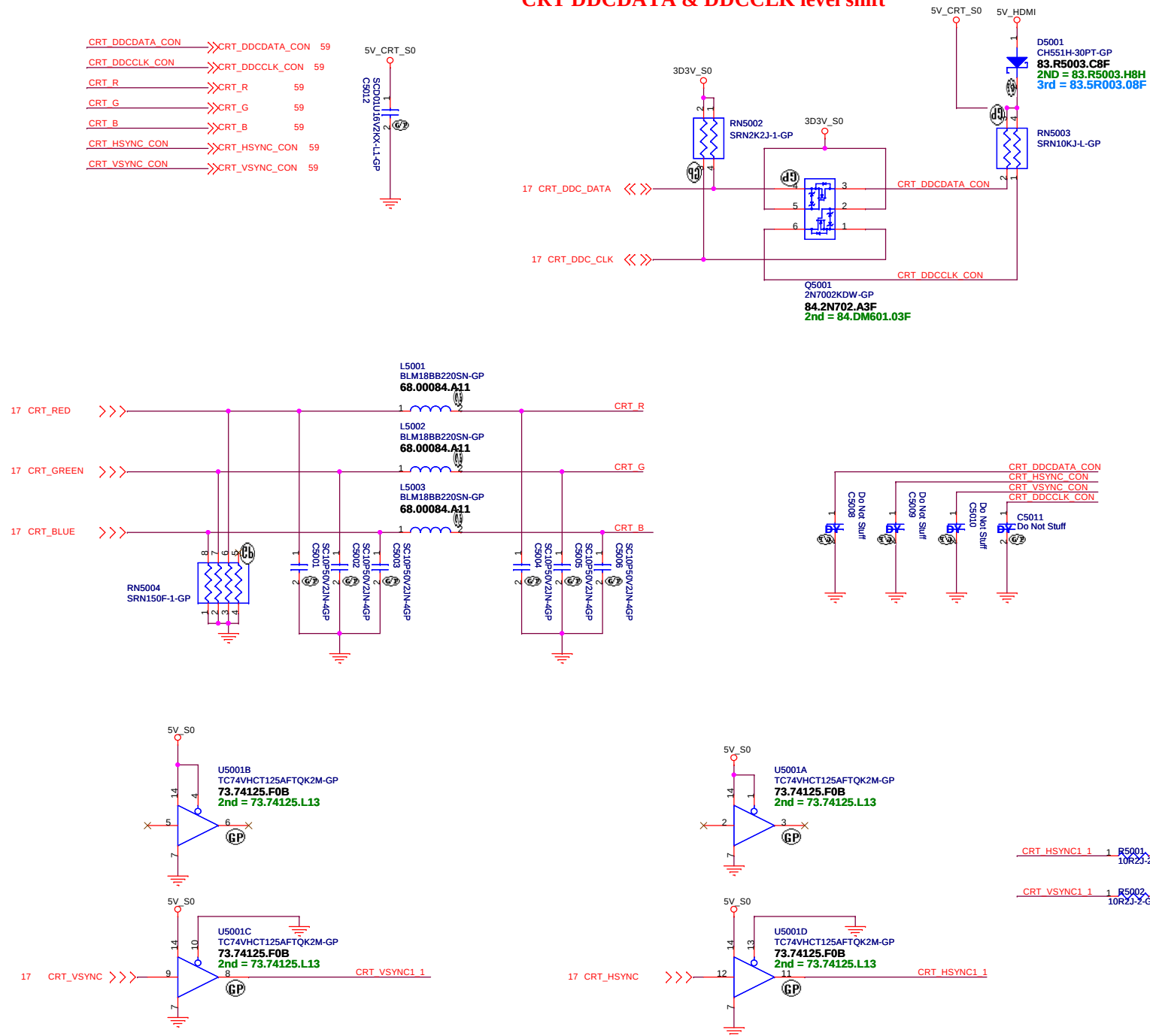


DIS I/B Touch

SSID = VIDEO



CRT DDCDATA & DDCCLK level shift



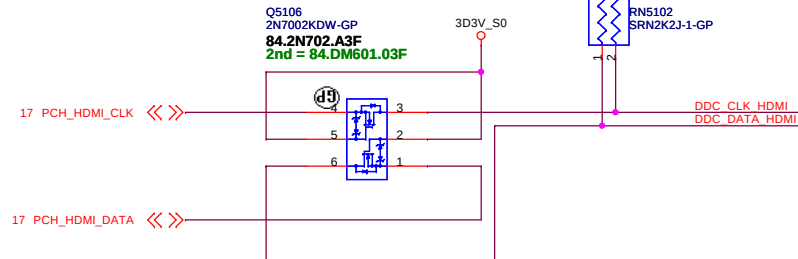
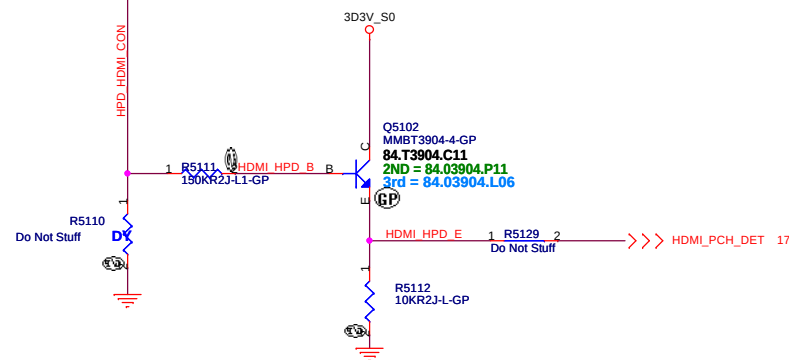
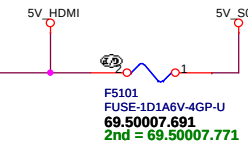
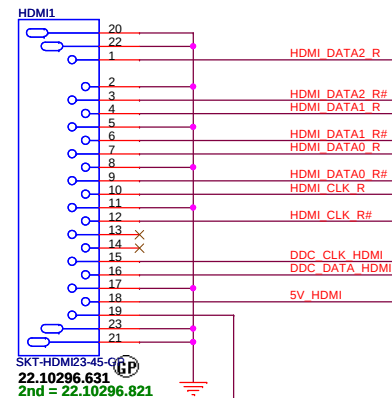
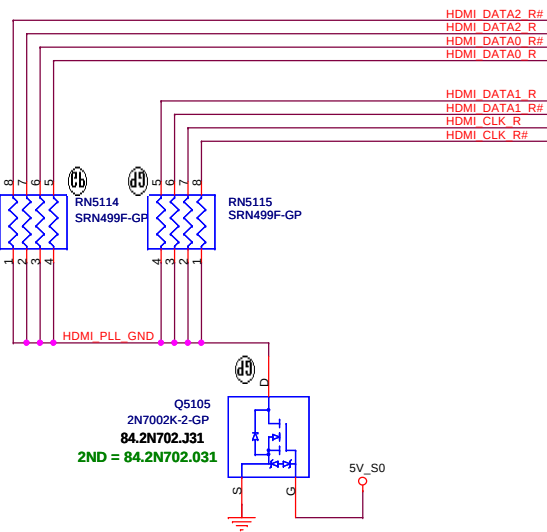
SSID = VIDEO HDMI Level Shifter & CONNECTOR

Close to HDMI Connector

change = DIS:499 ohm
Fist = UMA Muxless:680 ohm

17 HDMI_CLK_R# >>>
17 HDMI_CLK_R >>>
17 HDMI_DATA0_R# >>>
17 HDMI_DATA0_R >>>

17 HDMI_DATA1_R# >>>
17 HDMI_DATA1_R >>>
17 HDMI_DATA2_R# >>>
17 HDMI_DATA2_R >>>



LED BACKLIGHT CONVERTER POWER

DIS IVB Touch

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
eDP			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012	Sheet 52 of	103

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DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title S-VIDEO		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 53 of 103

(Blanking)

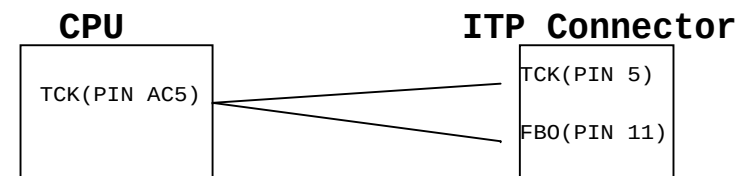
DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 54 of 103

SSID = User.Interface

ITP Connector

H_CPURST# use pull-up Resistor close
ITP connector 500 mil (max),
others place near CPU side.



DIS IVB Touch

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title

ITP

Size
A4

Document Number

Husk/Petra

Rev

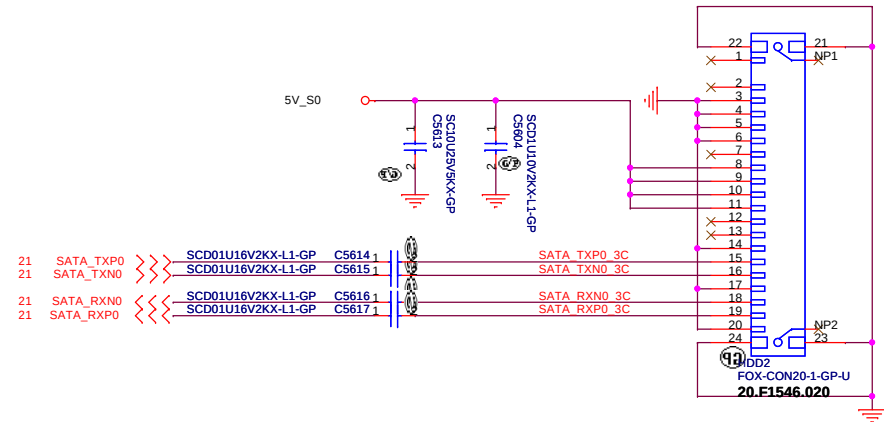
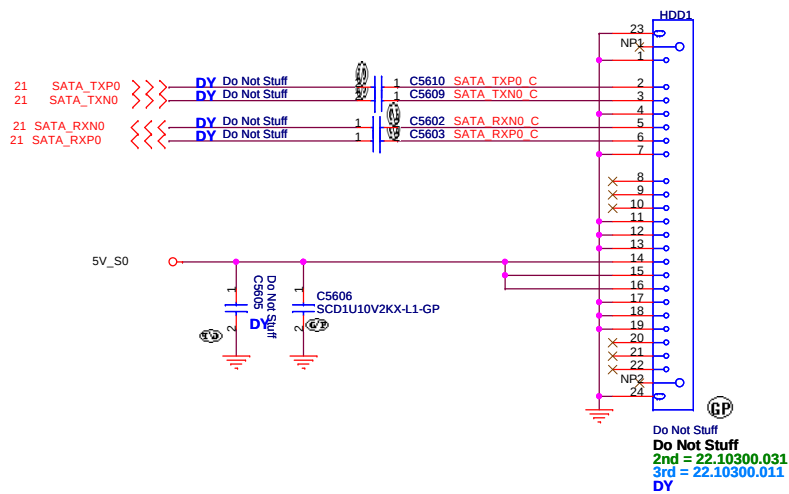
-4M

Date: Thursday, September 06, 2012

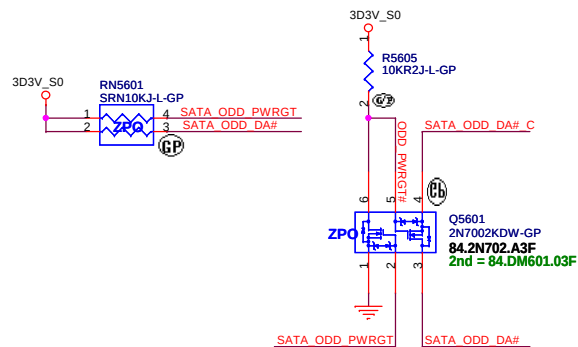
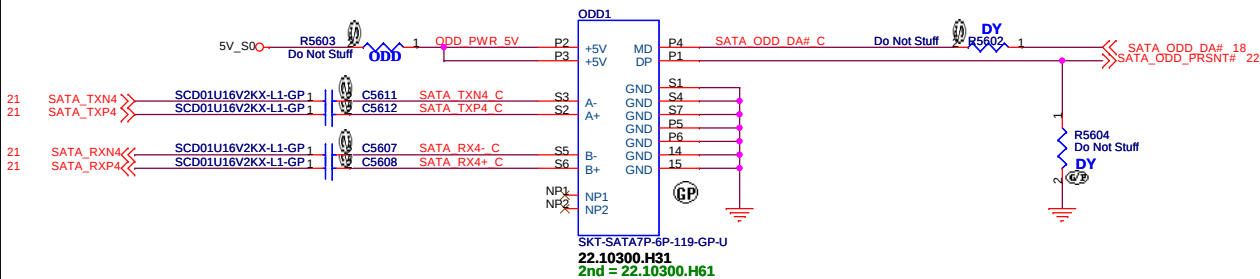
Sheet 55 of 103

SSID = SATA

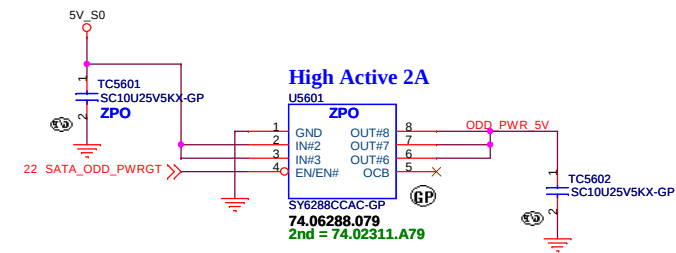
SATA HDD Connector



ODD Connector



SATA Zero Power ODD



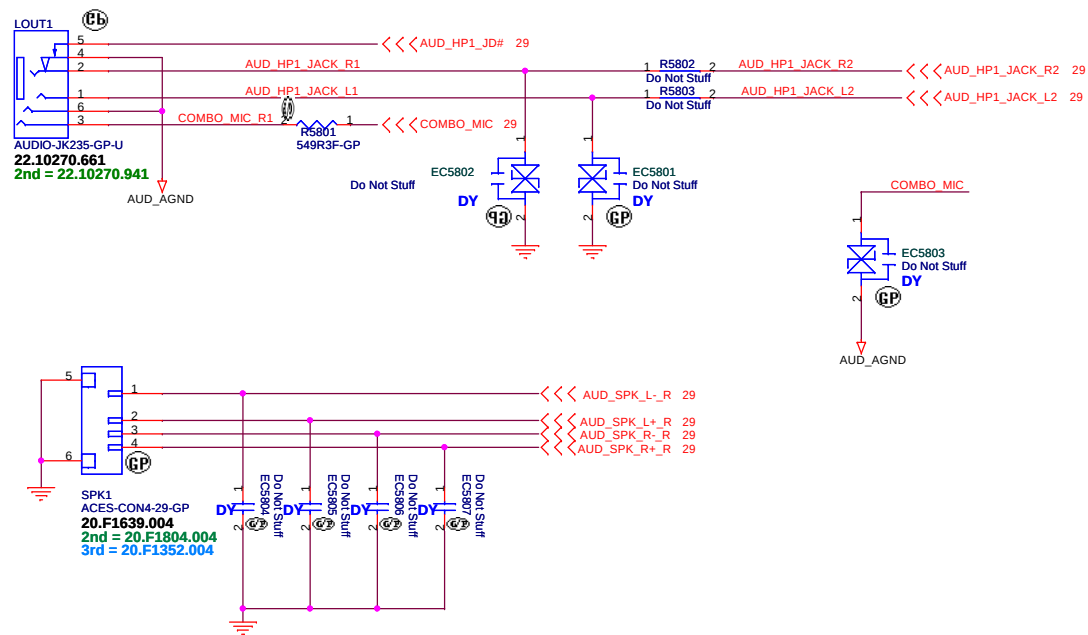
DIS I/B Touch

	5	4	3	2	1
D					
C					
B					
A					

DIS IVB Touch

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
E-SATA/USB CHARGER			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 57 of 103

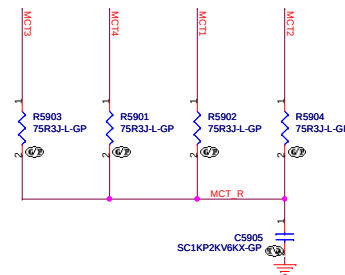
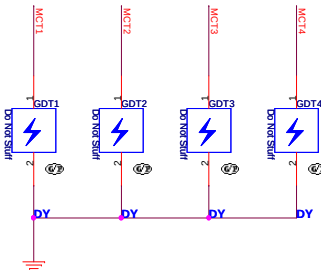
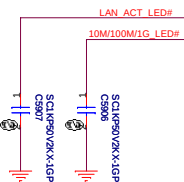
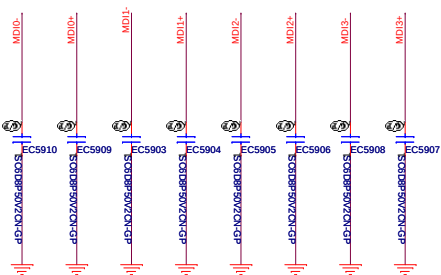
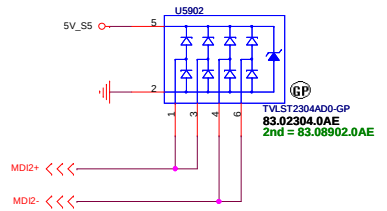
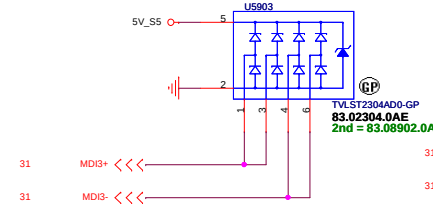
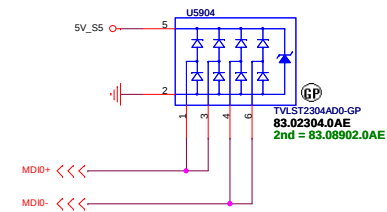
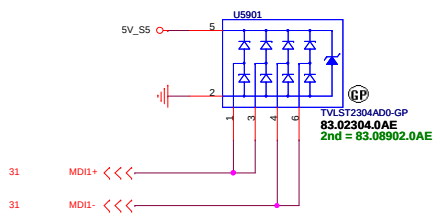
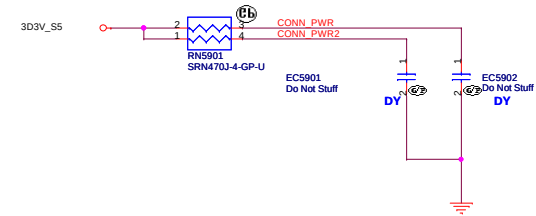
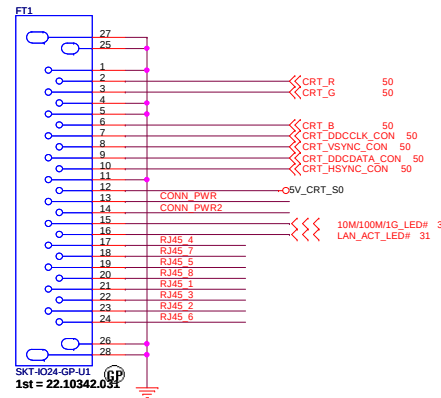
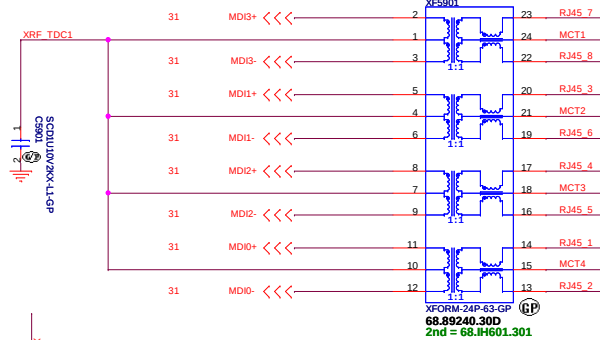
SSID = AUDIO



DIS IVB Touch

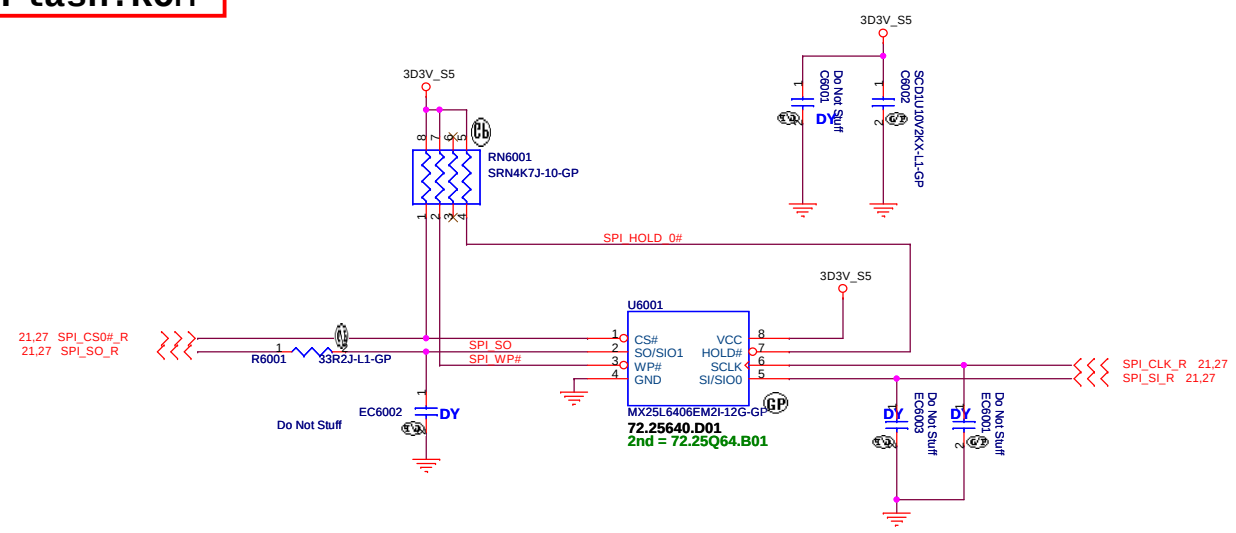
緯創資通		Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title			
Audio Jack			
Size	Document Number	Rev	
A3			-4M
Date:	Thursday, September 06, 2012	Sheet	58 of 103

SSID = LAN

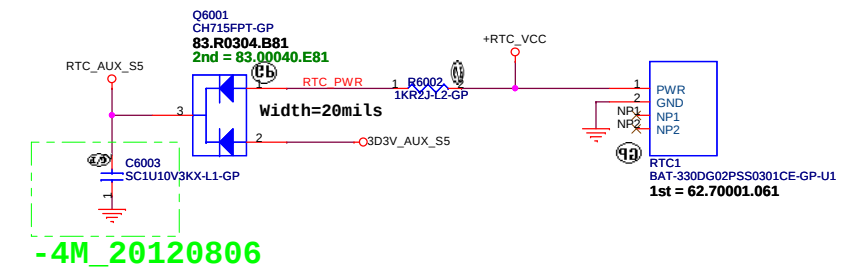


DIS I/B Touch

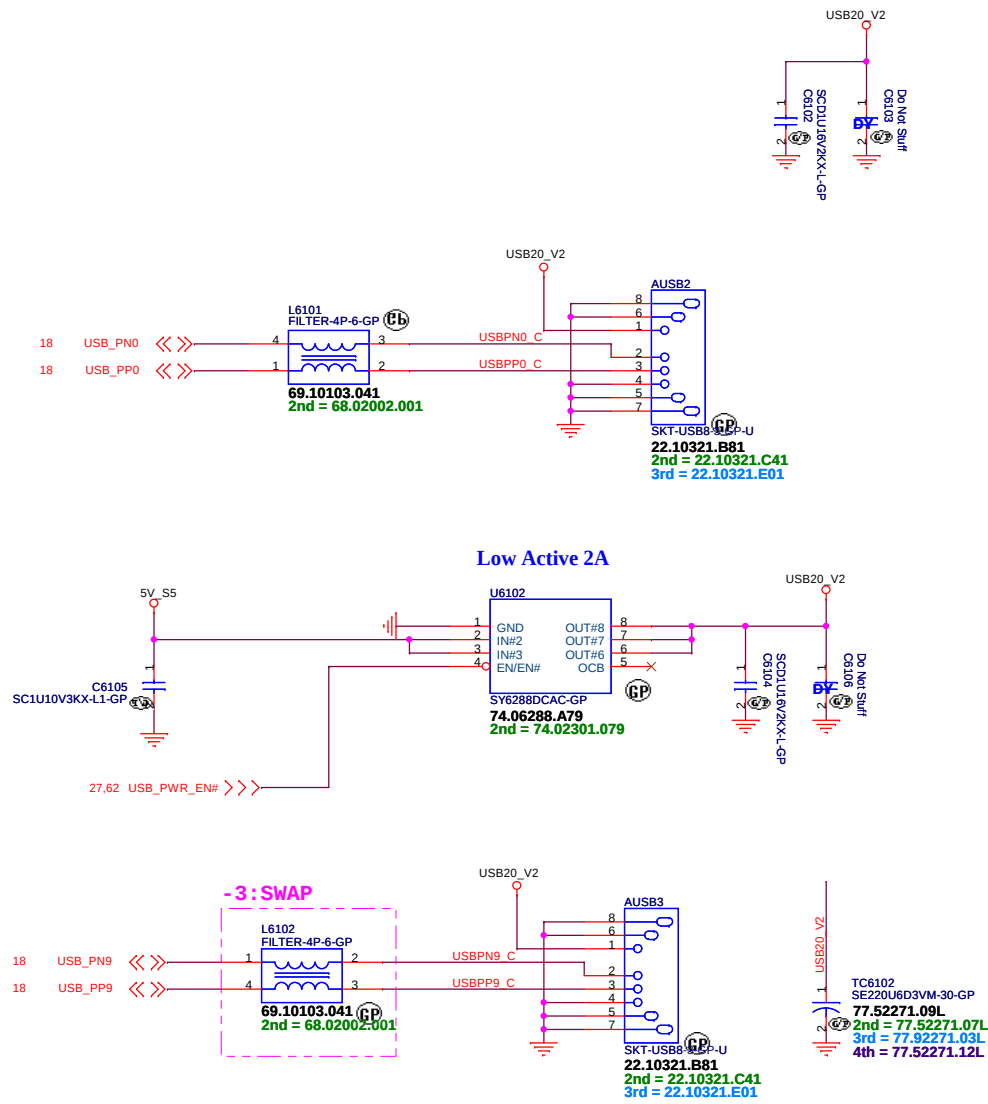
SSID = Flash.ROM

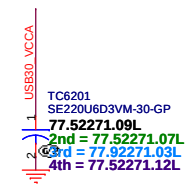
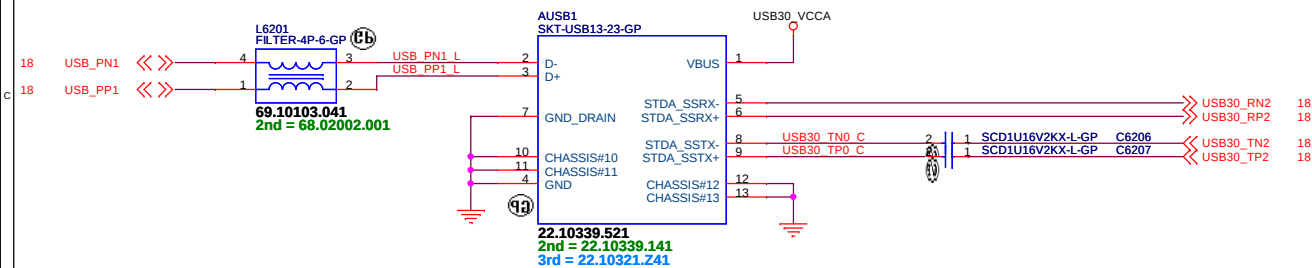
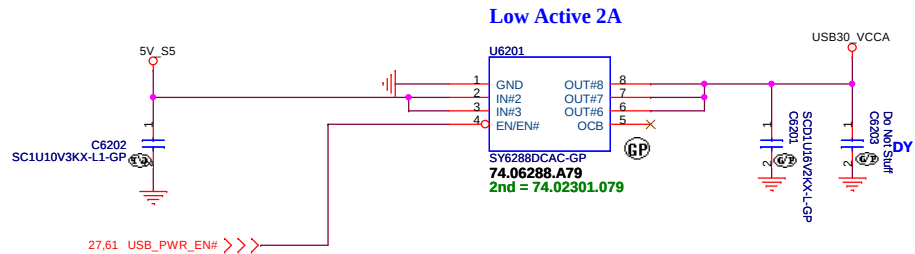


SSID = RTC



SSID = USB





USB 3.0 Connector Pin definition

1	POWER	
2	USB 2.0 D-	
3	USB 2.0 D+	
4	GND	
5	StdA_SSRX-	SuperSpeed RX
6	StdA_SSRX+	
7	GND	
8	StdA_SSTX-	SuperSpeed TX
9	StdA_SSTX+	

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Title		
USB 3.0 Port		
Size	Document Number	Rev
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SSID = User.Interface
Bluetooth Module conn.

ANNIE Bluetooth Module

DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Bluetooth		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 63 of 103

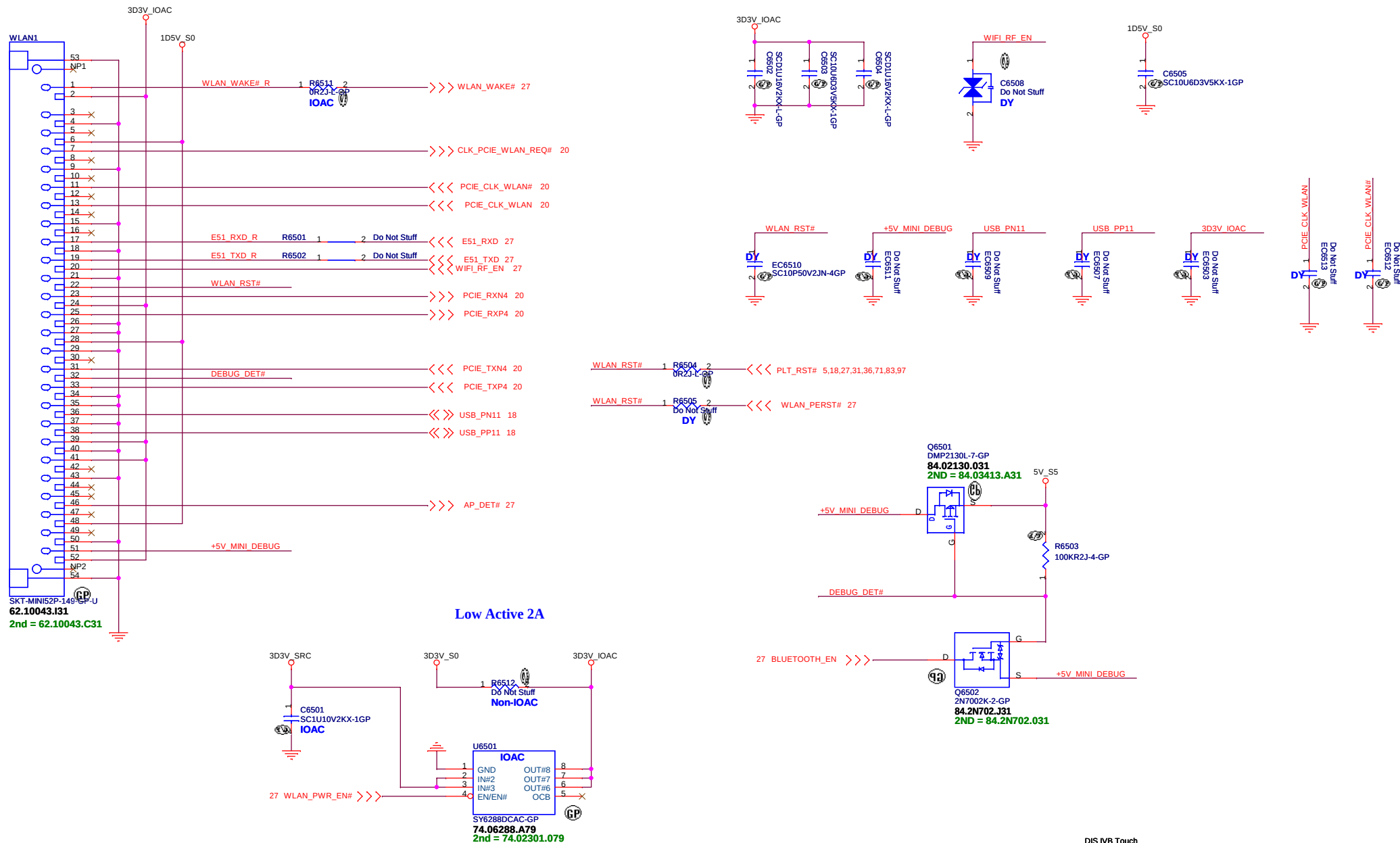
5	4	3	2	1
D				D
C				C
B				B
A				A

DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title RESERVED		
Size A4	Document Number Husk/Petra	Rev -4M
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SSID = Wireless

Mini Card Connector(802.11a/b/g/n)



SSID = Wireless

Mini Card Connector(WWAN)

DIS IVB Touch

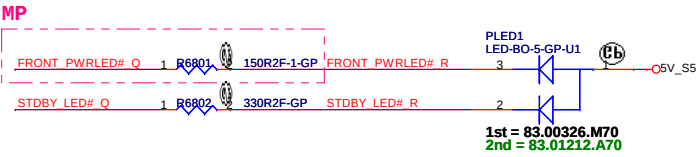
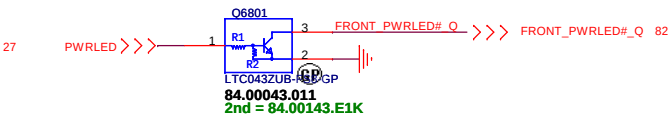
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title WWAN Connector		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 66 of 103

(Blanking)

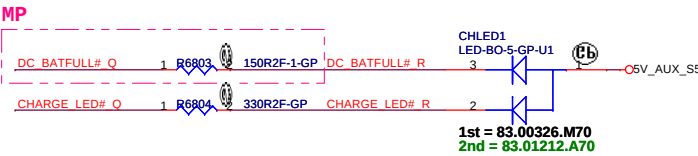
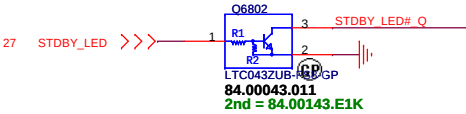
DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 67 of 103

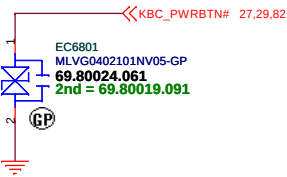
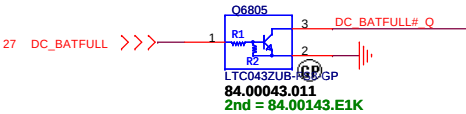
Power button LED



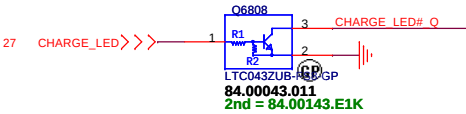
Power STDBY_LED



Battery LED2(DC_BATFULL)

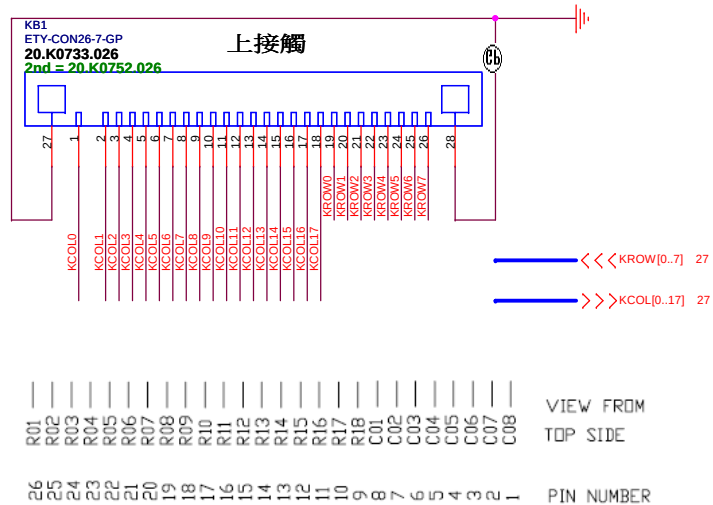


Battery LED1(CHARGE)

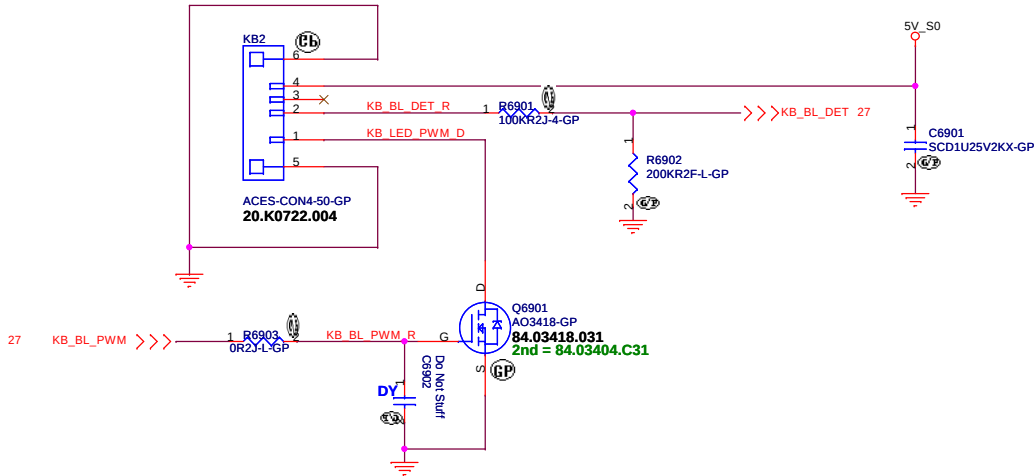
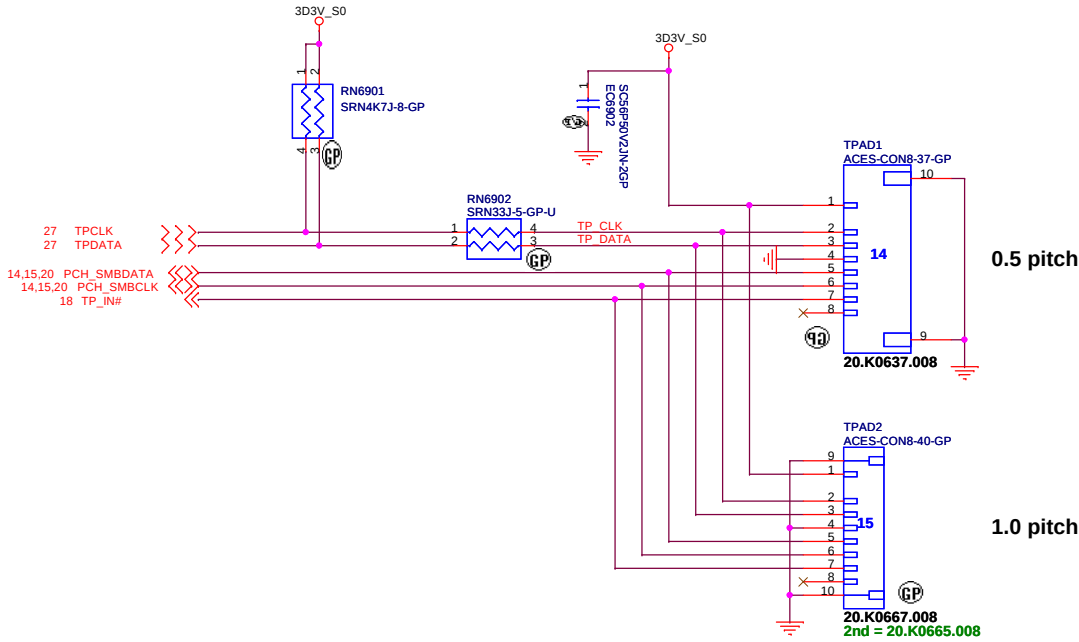


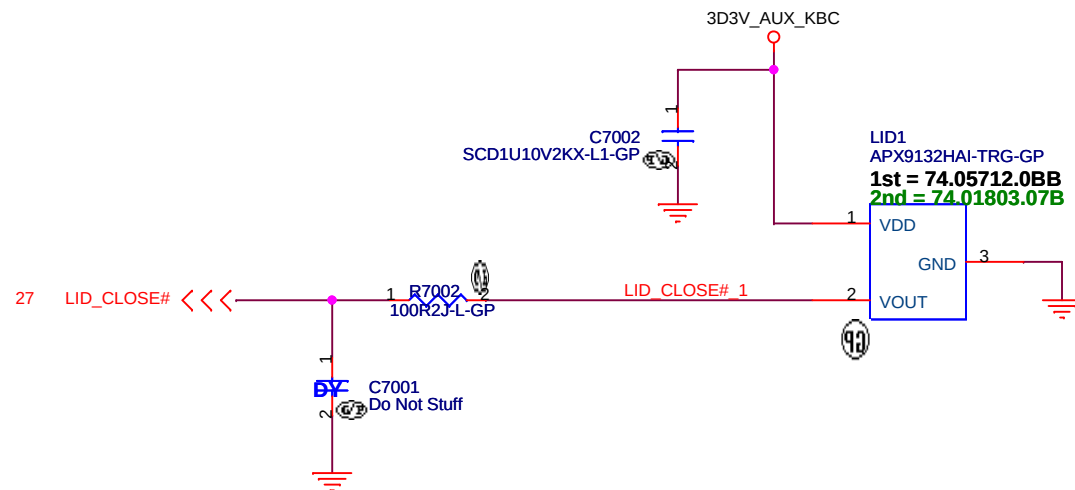
SSID = KBC

Internal KeyBoard
Connector



TOUCH PAD





DIS IVB Touch

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title

Hall Sensor

Size
A4

Document Number

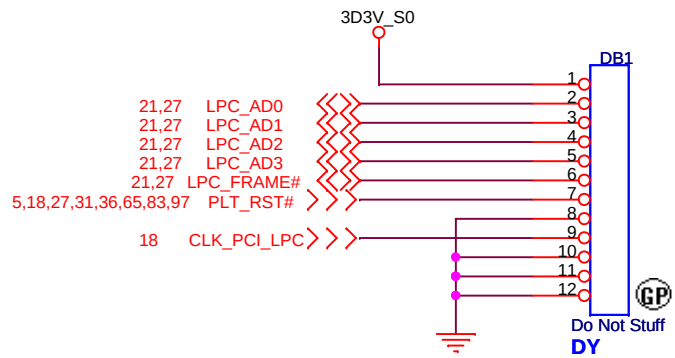
Husk/Petra

Rev

-4M

Date: Thursday, September 06, 2012

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DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Dubug connector		
Size A4	Document Number Husk/Petra	Rev -4M
Date Thursday, September 06, 2012		Sheet 71 of 103

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DIS IVB Touch

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
Reserved			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 72 of 103

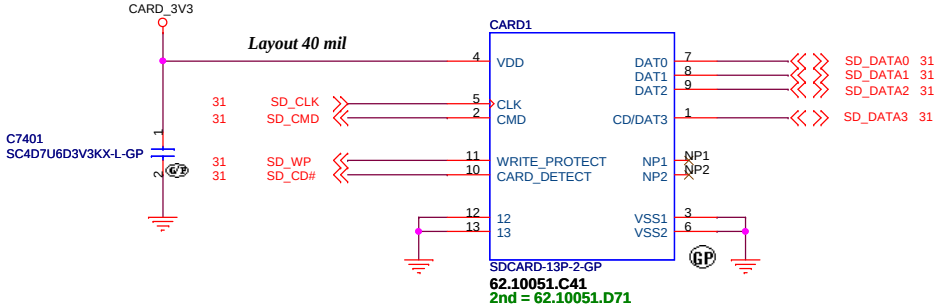
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DIS IVB Touch

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
Reserved			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 73 of 103

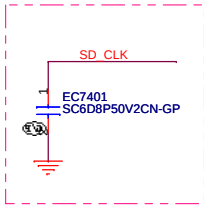
SSID = SDIO

SD/MMC Card Reader



SP1	SP1	SD_D7	MS_INS#	xD_RDY
SP2	SP2	SD_D6	MS_INS#	xD_RE#
SP3	SP3	SD_D5	MS_INS#	xD_CE#
SP4	SP4	SD_D4	MS_INS#	xD_WE#
SP5	SP5	SD_D1	MS_CLK	xD_D6
SP6	SP6	SD_D0	MS_D7	xD_D5
SP7	SP7	SD_CLK	MS_D3	xD_D4
SP8	SP8	SD_CMD	MS_D6	xD_D3
SP9	SP9	SD_D3	MS_D2	xD_D2
SP10	SP10	SD_D2	MS_BS	xD_D7
SP11	SP11	MS_BS	MS_BS	xD_CLE
SP12	SP12	SD_WP	MS_D1	xD_WP#
SP13	SP13	SD_CD#	MS_D5	xD_ALE
SP14	SP14	MS_D4	MS_D4	xD_D0
SP15	SP15	MS_D0	MS_D0	xD_D1
SP16	SP16			xD_CD#

-2: EMI



DIS IVB Touch

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title			
CARD Reader CONN			
Size	Document Number	Rev	
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SSID = ExpressCard

+1.5V_CARD Max. 650mA, Average 500mA.
+3.3V_CARD Max. 1300mA, Average 1000mA
+3.3V_CARDAUX Max. 275mA

DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
New Card		
Size	Document Number	Rev
A3	Husk/Petra	-4M
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DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date Thursday, September 06, 2012		Sheet 76 of 103

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DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date Thursday, September 06, 2012		Sheet 78 of 103

SSID = User.Interface

Free Fall Sensor

Note

- no via, trace, under the sensor (keep out area around 2mm)
- stay away from the screw hole or metal shield soldering joints
- design PCB pad based on our sensor LGA pad size (add 0.1mm)
- solder stencil opening to 90% of the PCB pad size
- mount the sensor near the center of mass of the NB as possible as you can

DIS IVB Touch

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title

G- Sensor

Size
A4

Document Number

Husk/Petra

Rev

-4M

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D

D

C

C

B

B

A

A

DIS IVB Touch

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title

Reserved

Size
A4

Document Number

Rev

Husk/Petra

-4M

Date: Thursday, September 06, 2012

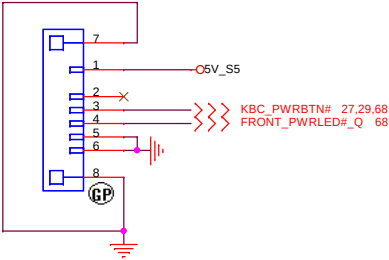
Sheet 80 of 103

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DIS IVB Touch

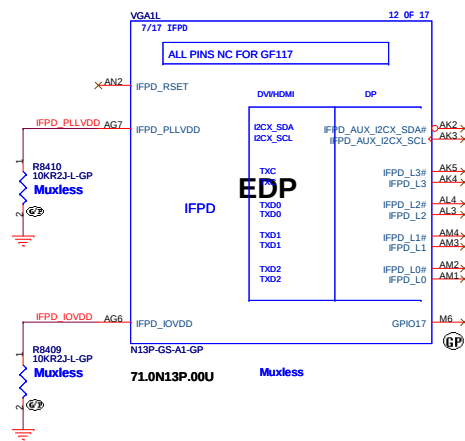
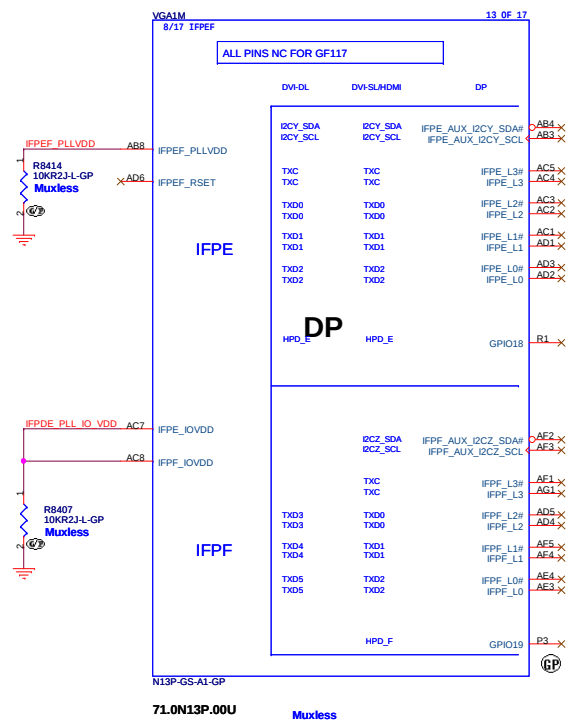
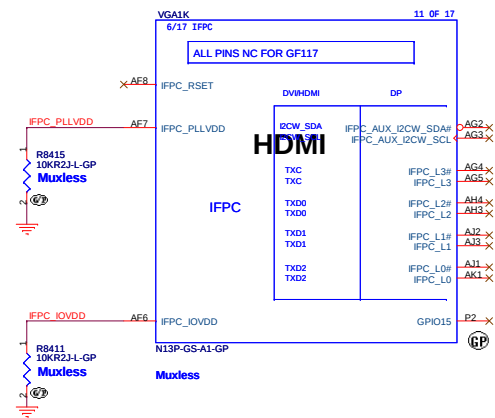
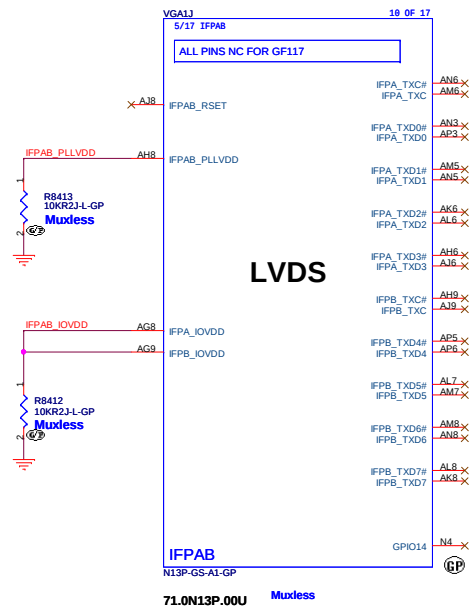
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title Reserved		
Size A4	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012		Sheet 81 of 103

PWRCN1
ACES-CON6-52-GP
20.K0721.006
2nd = 20.K0382.006



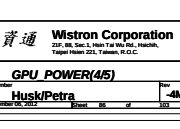
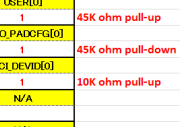
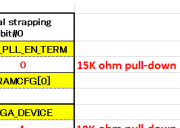
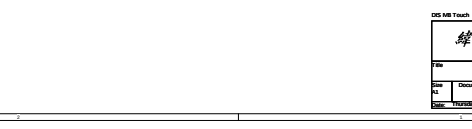
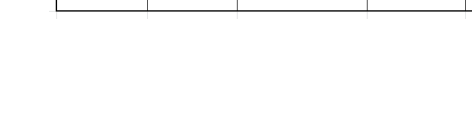
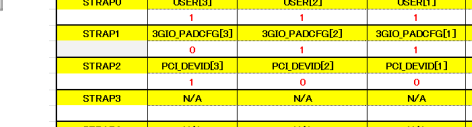
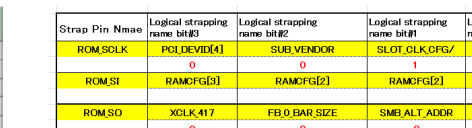
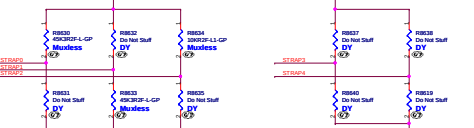
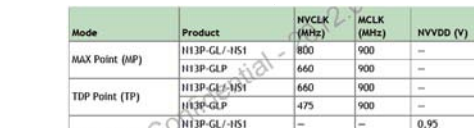
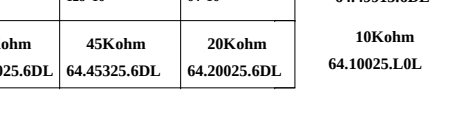
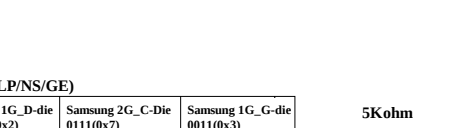
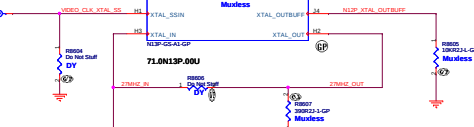
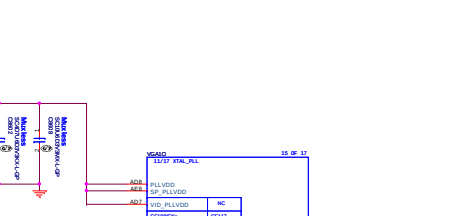
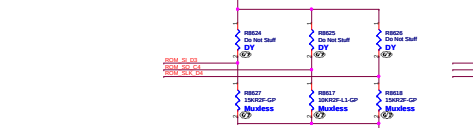
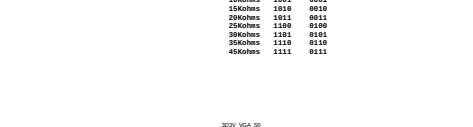
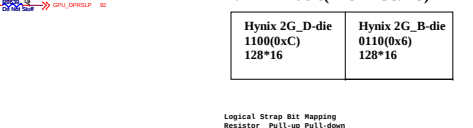
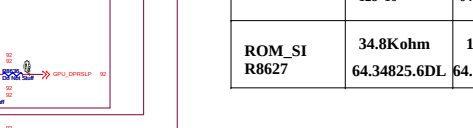
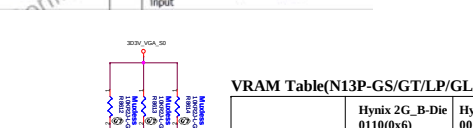
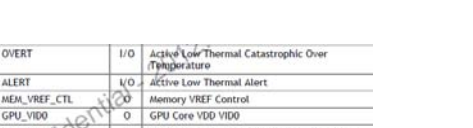
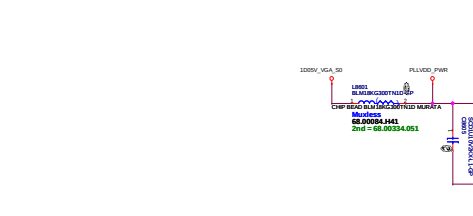
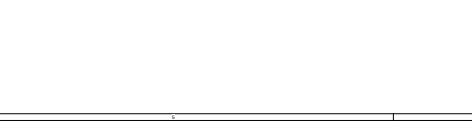
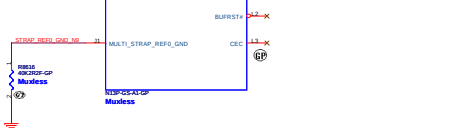
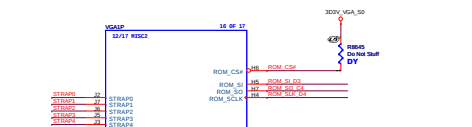
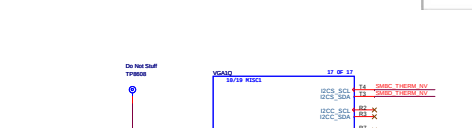
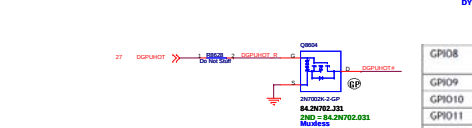
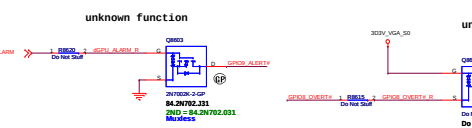
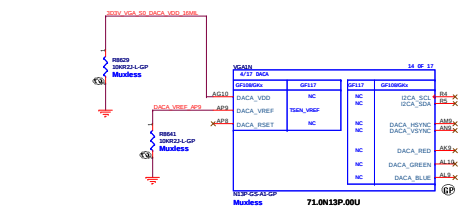
DIS IVB Touch

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title IO Board Connector		
Size A3	Document Number Husk/Petra	Rev -4M
Date: Thursday, September 06, 2012	Sheet 82 of 103	1



DIS MB Touch

緯創資通		Wistron Corporation	
21F, 8B, Sec.1, Hsin Tai Wu Rd., Hsinchu, Taipei Hsien 221, Taiwan, R.O.C.			
Title GPU Memory(2/5)			
Size Custom	Document Number Husk/Petra		Rev -4M
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GPIO	OVERT	I/O	Active Low Thermal Catastrophic Over Temperature
GPIO8	ALERT	I/O	Active Low Thermal Alert
GPIO9	MEM_VREF_CTL	I/O	Memory VREF Control
GPIO10	GPU_VDD	O	GPU Core VDD VDD
GPIO11	PWR_LEVEL	I	AC power detect or power supply overdraw Input

VRAM Table(N13P-GS/GT/LP/GL/GLP/NS/GE)

	Hynix 2G_B-Die 0110(0x6) 128*16	Hynix 1G_D-die 0010(0x2) 64*16	Samsung 2G_C-Die 0111(0x7) 128*16	Samsung 1G_G-die 0011(0x3) 64*16
ROM_SI R8627	34.8Kohm 64.34825.6DL	15Kohm 64.15025.6DL	45Kohm 64.45325.6DL	20Kohm 64.20025.6DL

5Kohm
64.49915.6DL

10Kohm
64.10025.1.0L

VRAM Table(N13M-GS/NS)

Hynix 2G_D-die 1100(0xC) 128*16	Hynix 1G_B-die 0110(0x6) 128*16
---------------------------------------	---------------------------------------

Logical Strap Bit Mapping
Resistor Pull-up Pull-down
5Kohms 1000 0000
10Kohms 1001 0001
15Kohms 1010 0010
20Kohms 1011 0011
25Kohms 1100 0100
30Kohms 1101 0101
35Kohms 1110 0110
40Kohms 1111 0111

Mode	Product	NVCLK (MHz)	MCLK (MHz)	NVDD (V)
MAX Point (MP)	H13P-GL/-HS1	800	900	—
TDP Point (TP)	H13P-GLP	660	900	—
	H13P-GL/-HS1	660	900	—
HW Boot Voltage	H13P-GLP	475	900	—
	H13P-GL/-HS1	—	—	0.95
	H13P-GLP	—	—	0.90

Strap Pin Nmae	Logical strapping name bit#3	Logical strapping name bit#2	Logical strapping name bit#1	Logical strapping name bit#0
ROM.SOLK	PCIDEVID[4]	SUB_VENDOR	SLOT_CLK_CFG/	PEX_PLLEN_TERM
ROM.SI	0	0	1	0
ROM.SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[2]	RAMCFG[0]
ROM.SI	0	0	0	0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP0	1	1	1	1
STRAP1	3GIO_PADCFG[5]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
STRAP1	0	1	1	1
STRAP2	PCIDEVID[5]	PCIDEVID[2]	PCIDEVID[1]	PCIDEVID[0]
STRAP2	1	0	0	1
STRAP3	N/A	N/A	N/A	N/A
STRAP4	N/A	N/A	N/A	N/A

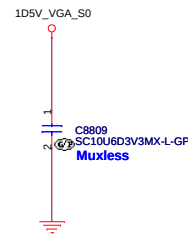
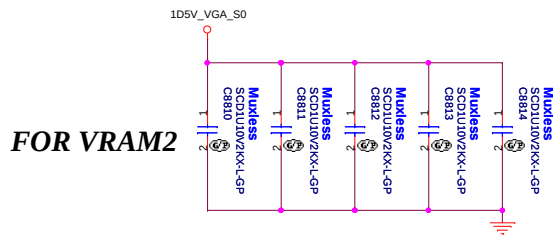
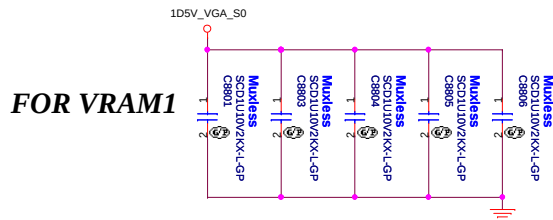
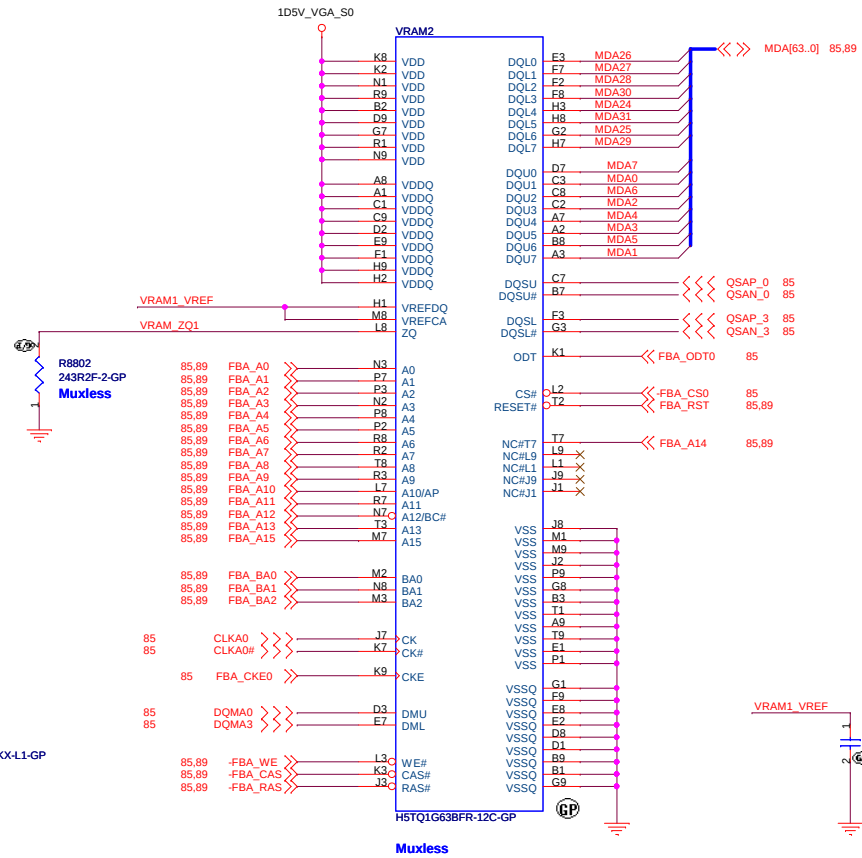
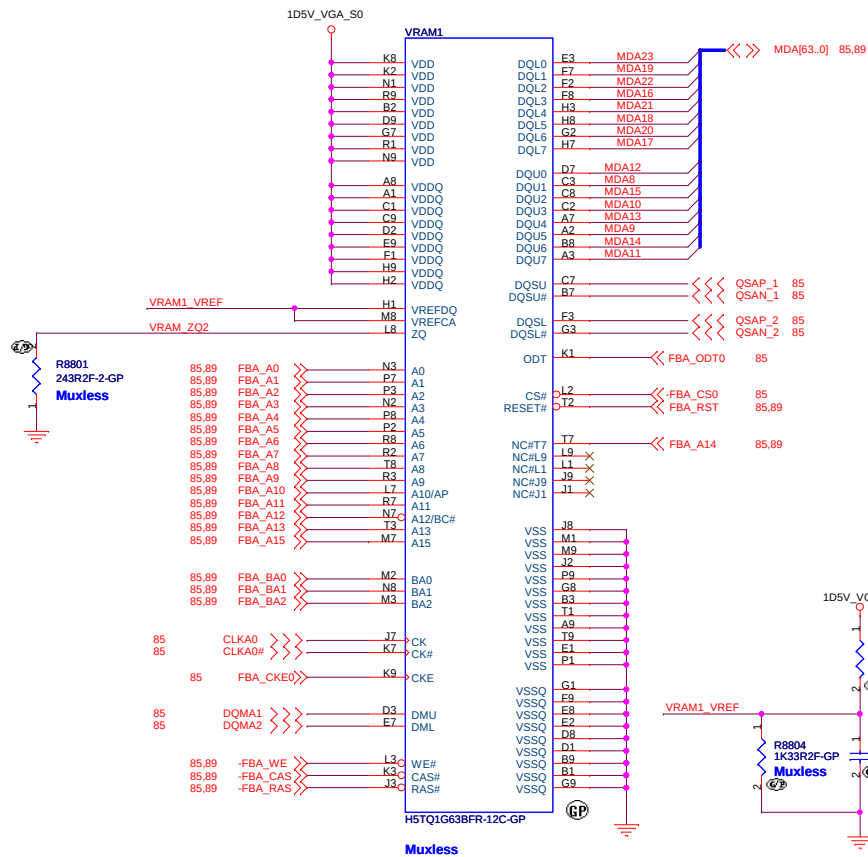
15K ohm pull-down

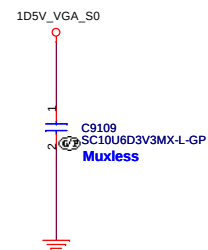
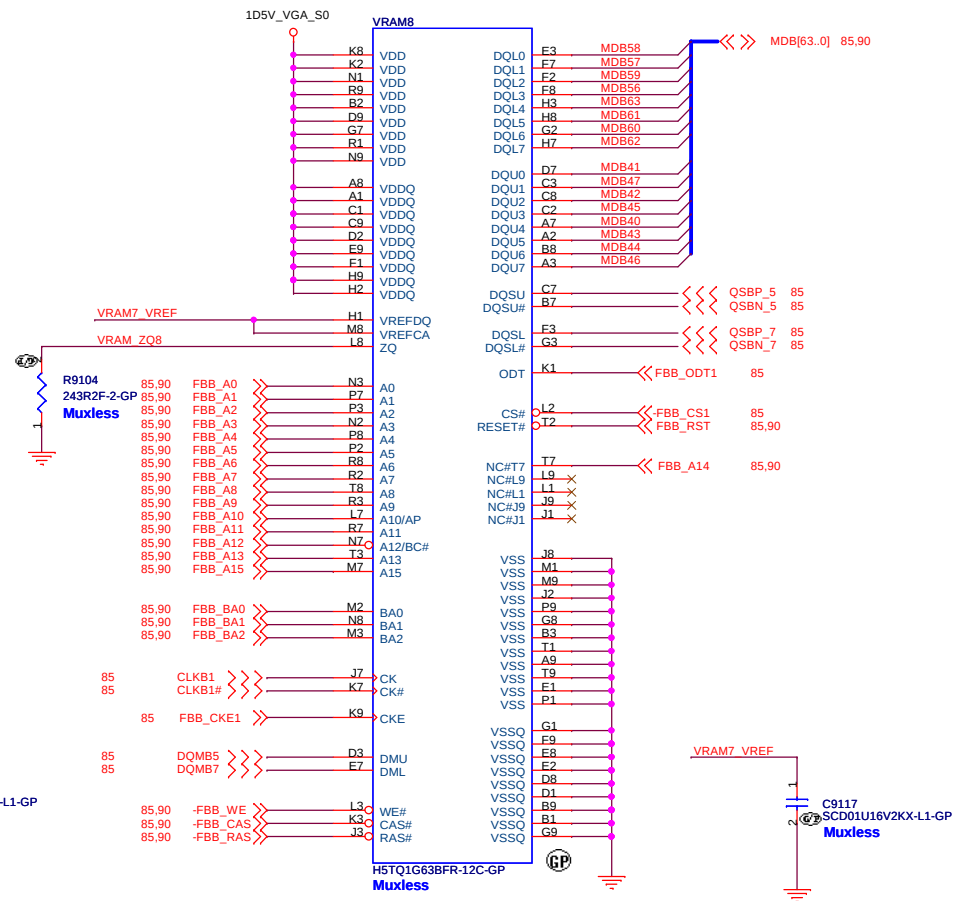
10K ohm pull-down

45K ohm pull-up

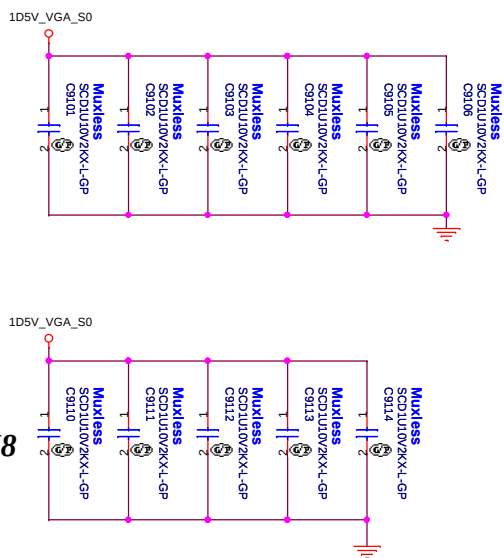
45K ohm pull-down

10K ohm pull-up

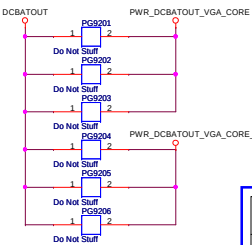




FOR VRAM8

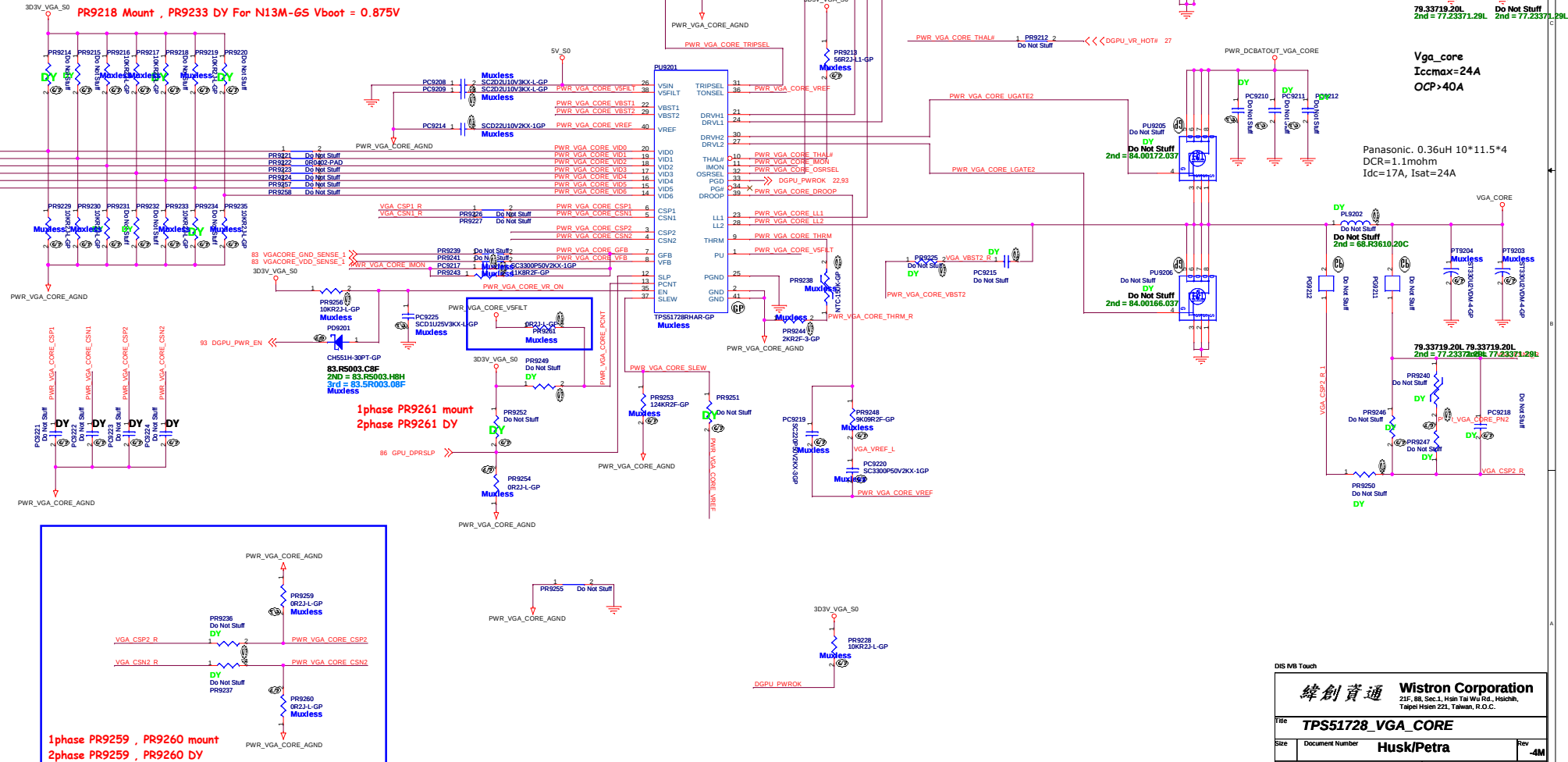


SSID = PWR.Plane.Regulator_GFX



		N13P-GS-LP 71.0H13P.00U	N13P-GL 71.0H13P.80U	N13M-GS 71.0H13M.E0U
NVVDD Boot Voltage		0.9V VID[6:0]=0110000	0.95V VID[6:0]=0110100	0.875V VID[6:0]0110010
NV_VID1	PR9215	DY	DY	63.10334.L0L
	PR9230	63.10334.L0L	63.10334.L0L	DY
NV_VID3	PR9217	DY	63.10334.L0L	DY
	PR9232	63.10334.L0L	DY	63.10334.L0L
NV_VID4	PR9218	63.10334.L0L	DY	63.10334.L0L
	PR9233	DY	63.10334.L0L	DY

PR9218 Mount , PR9233 DY For N13M-GS Vboot = 0.875V



D

D

C

C

B

B

A

A

DIS IVB Touch

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	Author	Year	Journal	Volume	Issue	Page
1. The Effect of Temperature on the Rate of Reaction	John Doe	2018	Journal of Chemical Education	95	3	456-462
2. Kinetics of the Reaction Between Hydrogen Peroxide and Potassium Iodide	Jane Smith	2017	Journal of Chemical Education	94	2	234-240
3. The Effect of Concentration on the Rate of Reaction	Michael Brown	2016	Journal of Chemical Education	93	1	123-129
4. The Effect of Surface Area on the Rate of Reaction	Sarah White	2015	Journal of Chemical Education	92	4	567-573
5. The Effect of Catalysts on the Rate of Reaction	David Green	2014	Journal of Chemical Education	91	5	678-684

LVDS Switch

Size
A4

Document Number

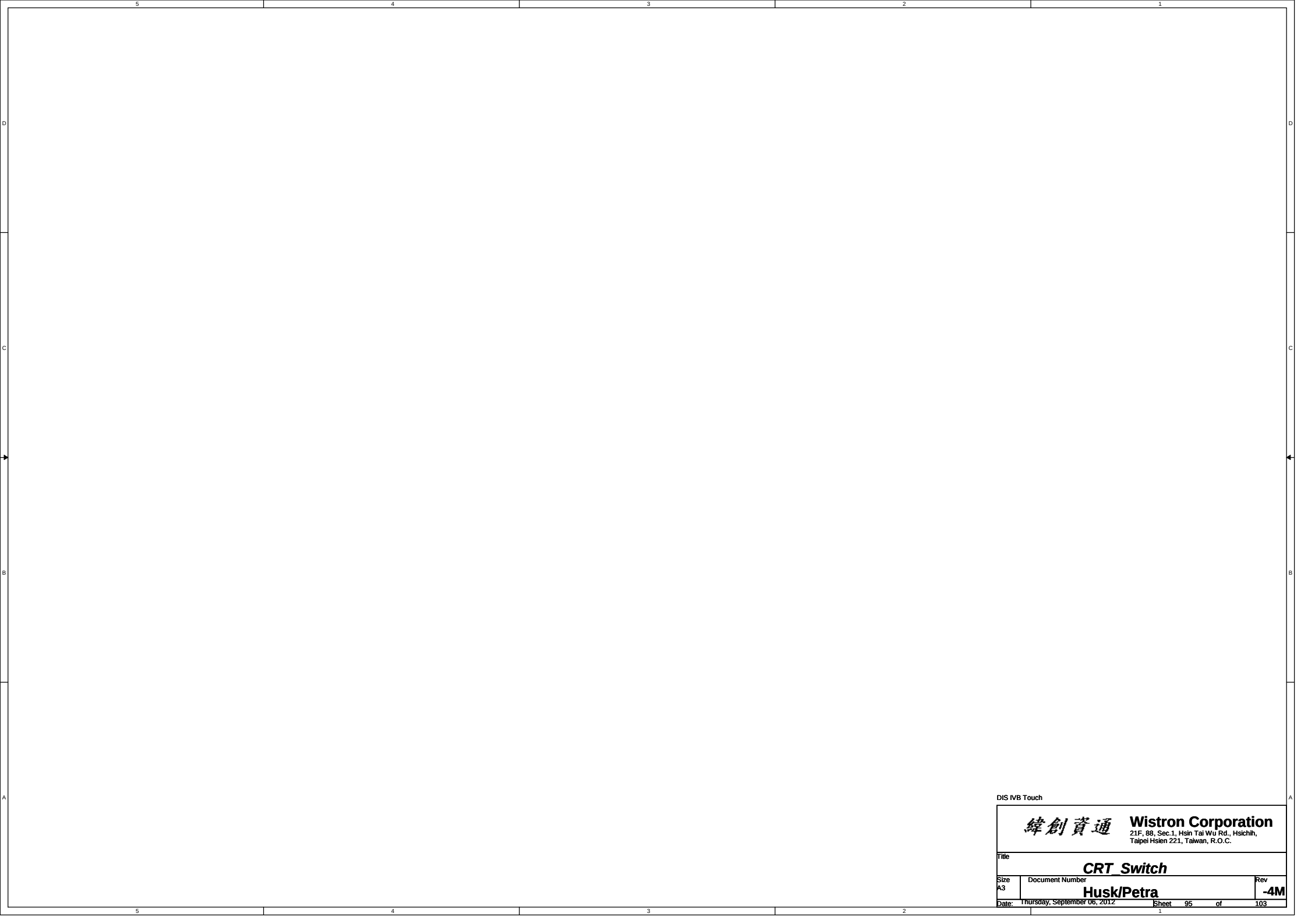
Rev

Husk/Petra

-4M

Date: Thursday, September 06, 2012

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DIS IVB Touch

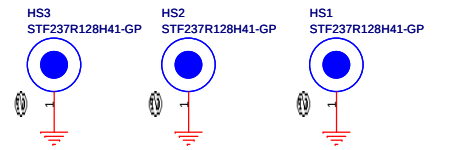
緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
CRT Switch			
Size	Document Number		Rev
A3	Husk/Petra		-4M
Date:	Thursday, September 06, 2012		Sheet 95 of 103

SSID = SDIO

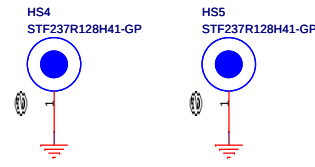
DIS I/B Touch

緯創資通		Wistron Corporation	
21F, 8B, Sec.1, Hsin Tai Wu Rd., Hsichin, Taipei Hsien 221, Taiwan, R.O.C.			
Title			
TOUCH PANEL			
Size	Document Number		Rev
A2	Husk/Petra		-4M
Date	Thursday, September 06, 2012		Sheet 96 of 103

CPU

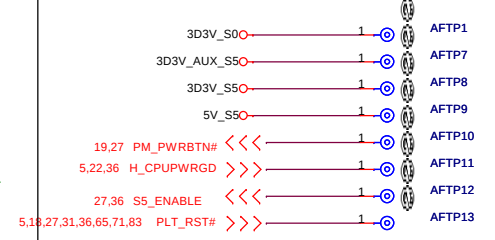


34.4TU18.001
2nd = 34.4TU18.101
34.4TU18.001
2nd = 34.4TU18.101
34.4TU18.001
2nd = 34.4TU18.101



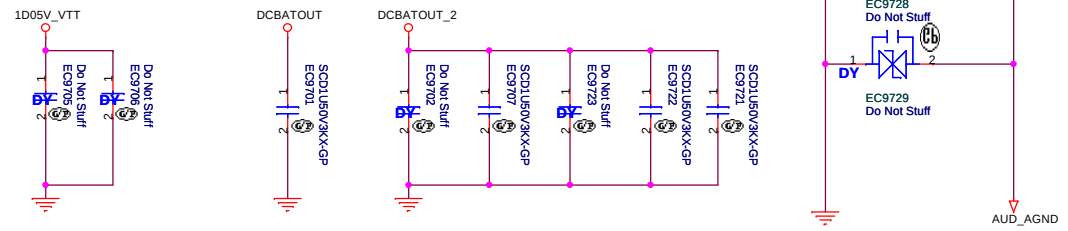
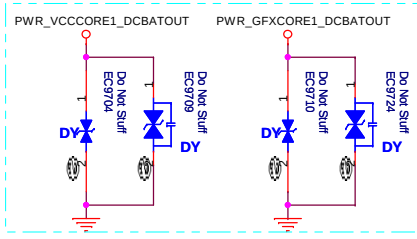
34.4TU18.001
2nd = 34.4TU18.101
Muxless
VGA
34.4TU18.001
2nd = 34.4TU18.101
Muxless

Check test point

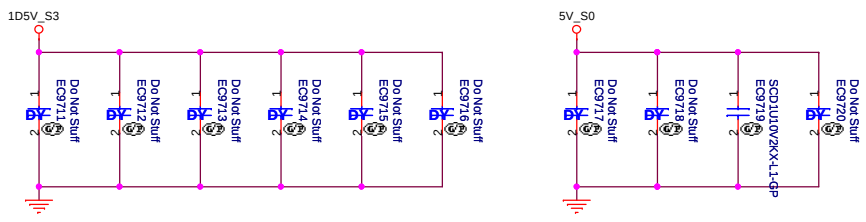


Test Point放在Dimm Door打開可量測處

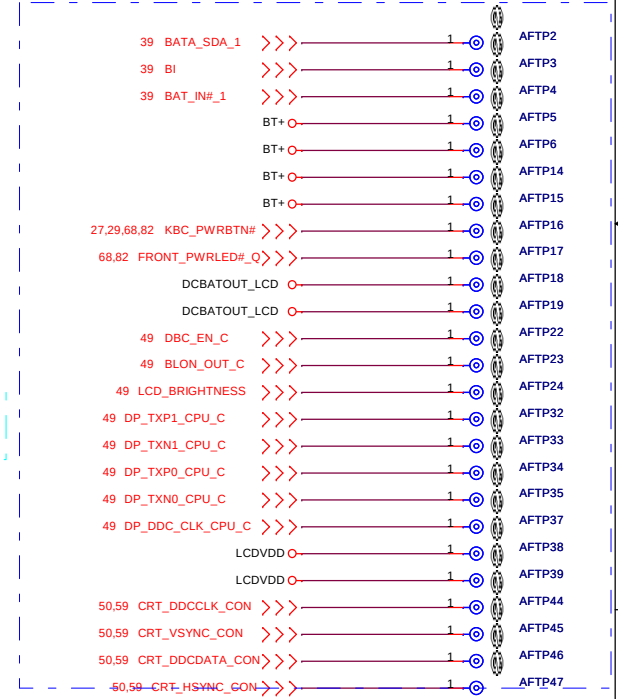
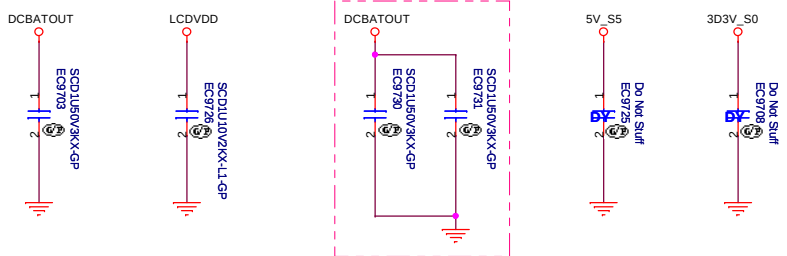
-4



-4M_201208070840

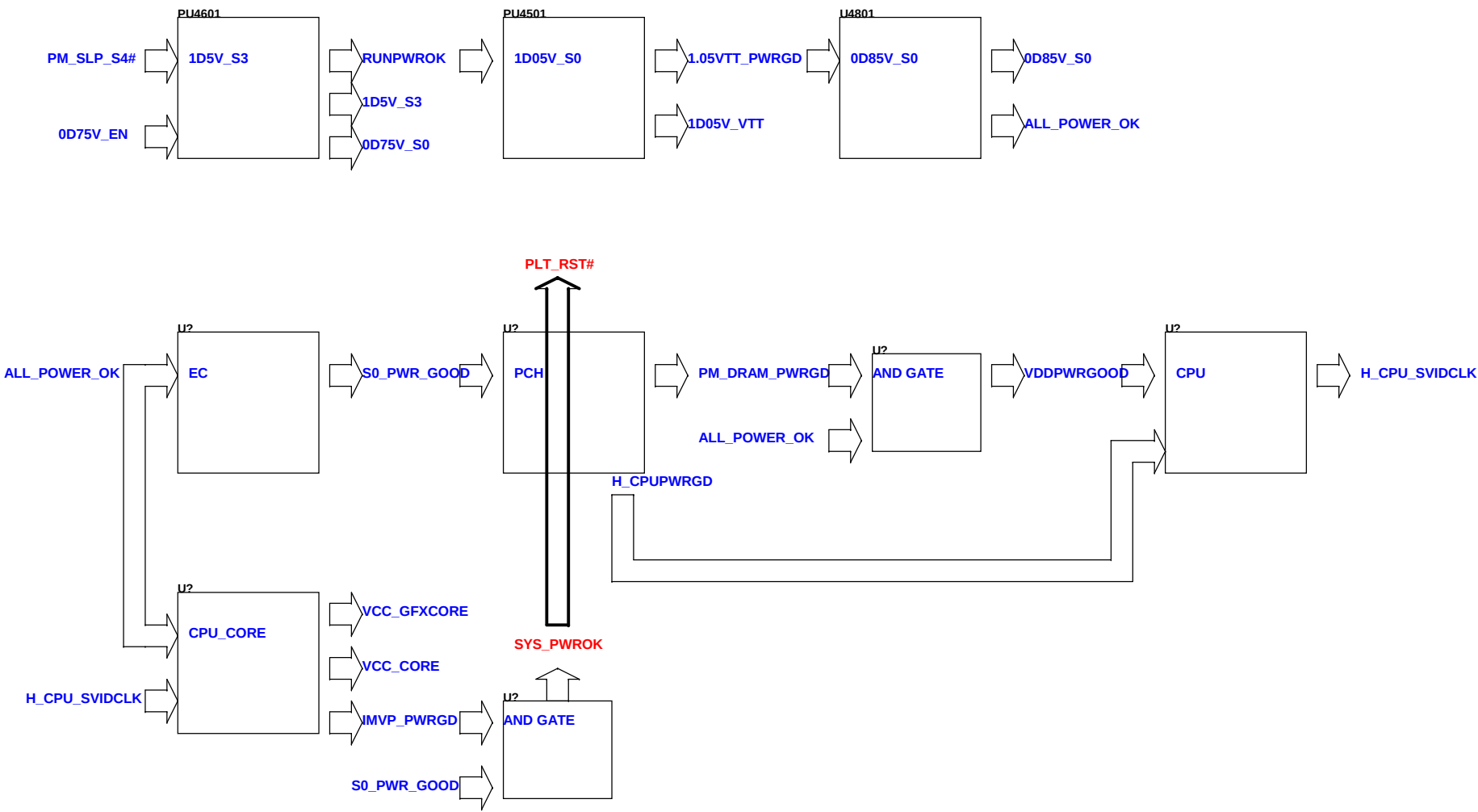


-2:EMI



-4M-201208031615

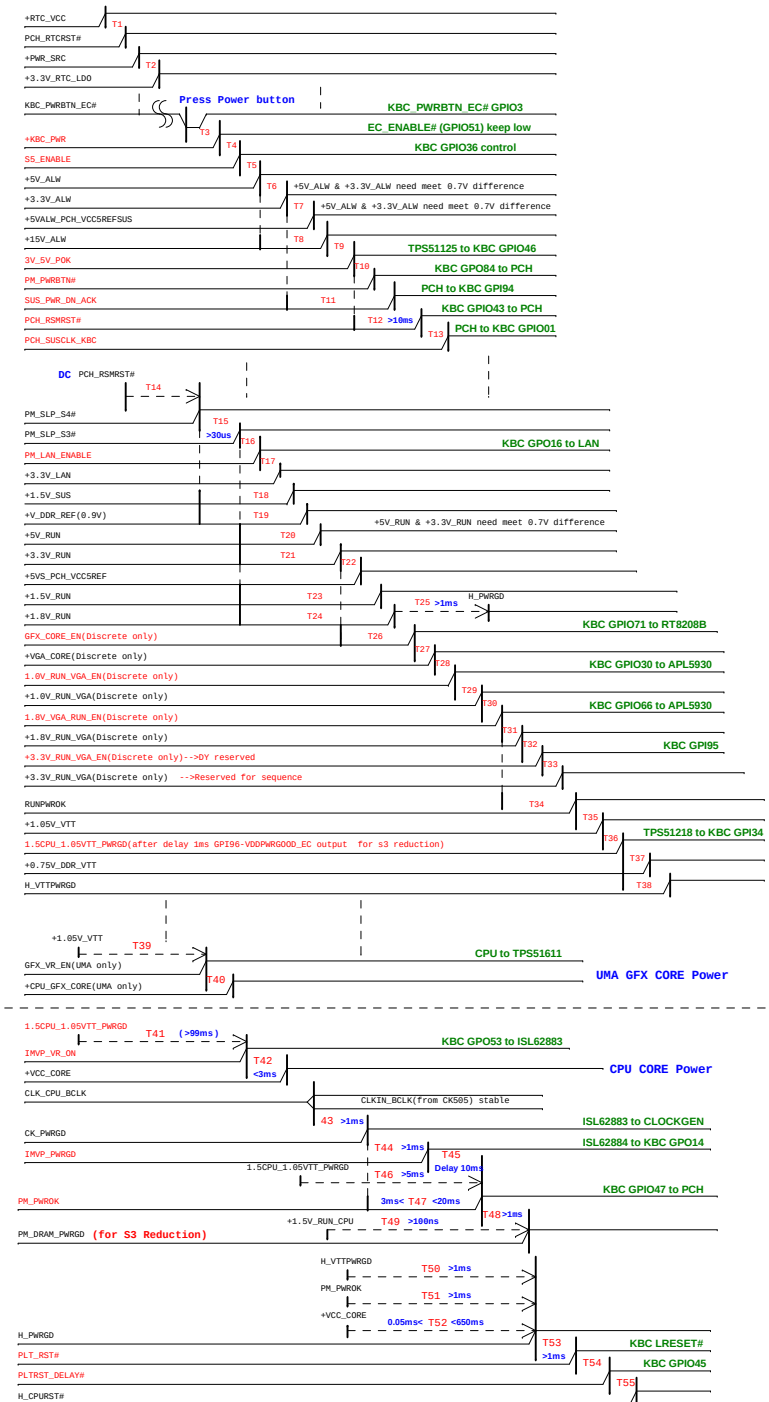
Power Sequence

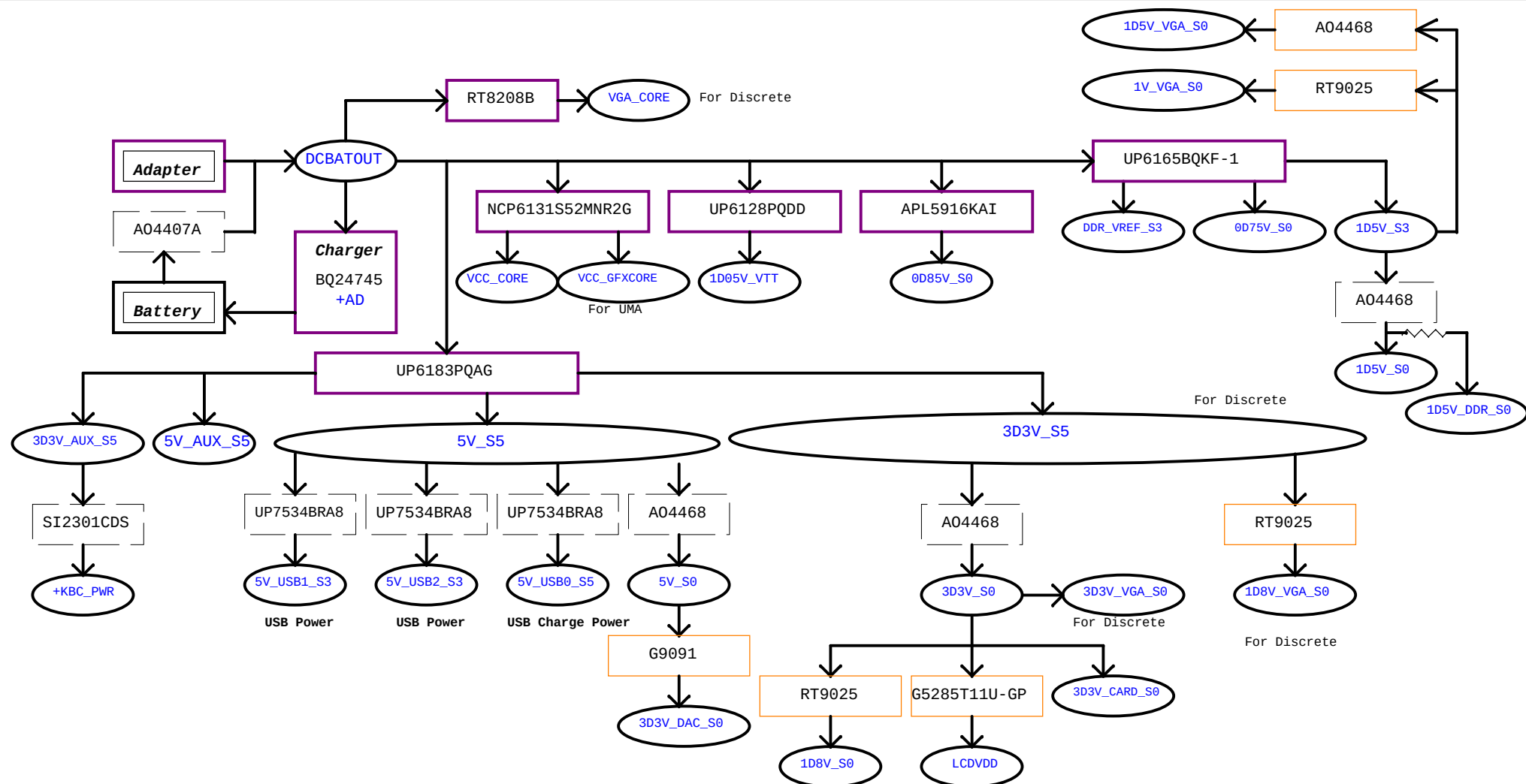


(AC mode)

[illegible]

red word: KBC GPIO

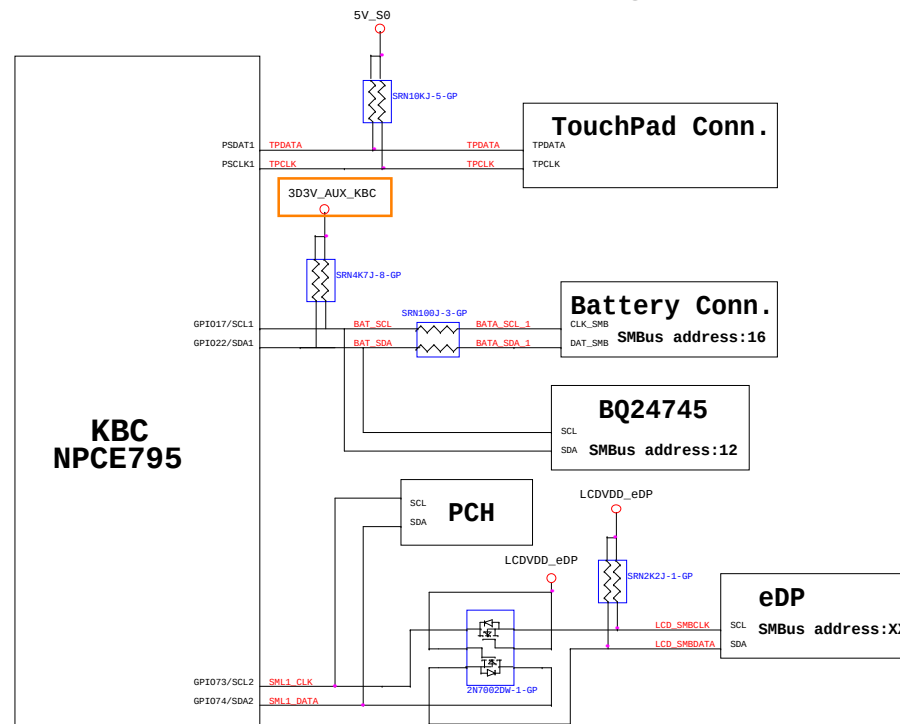




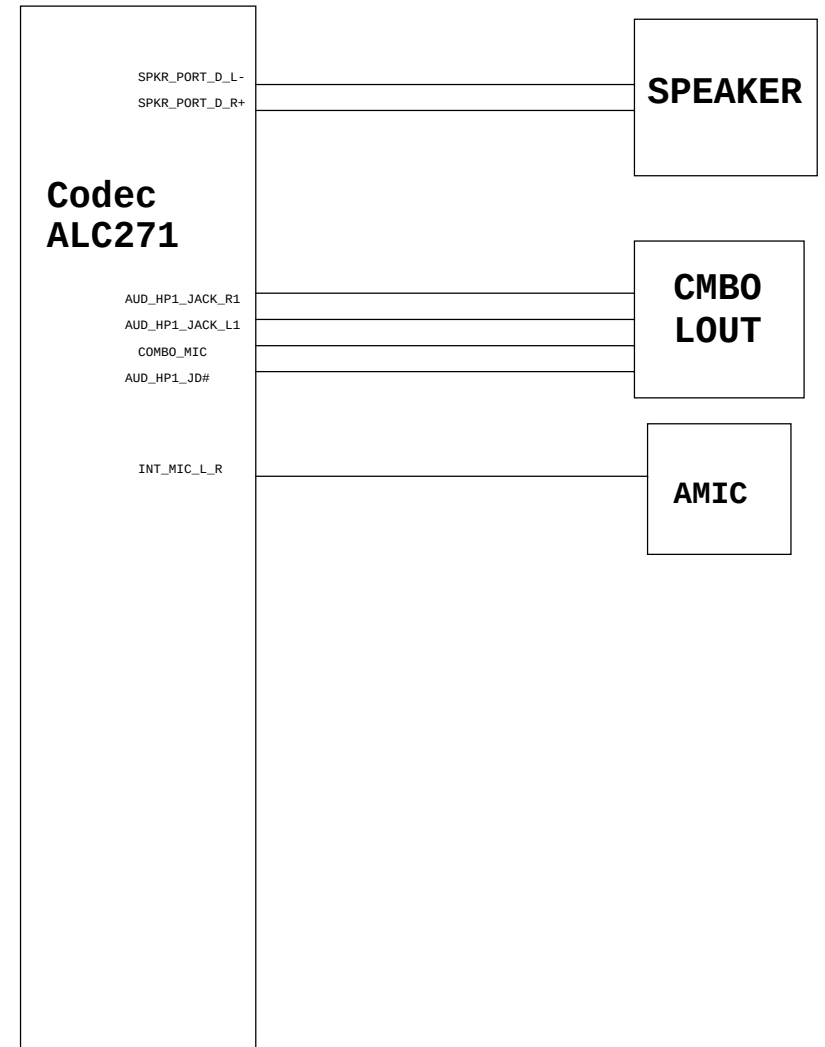
Power Shape

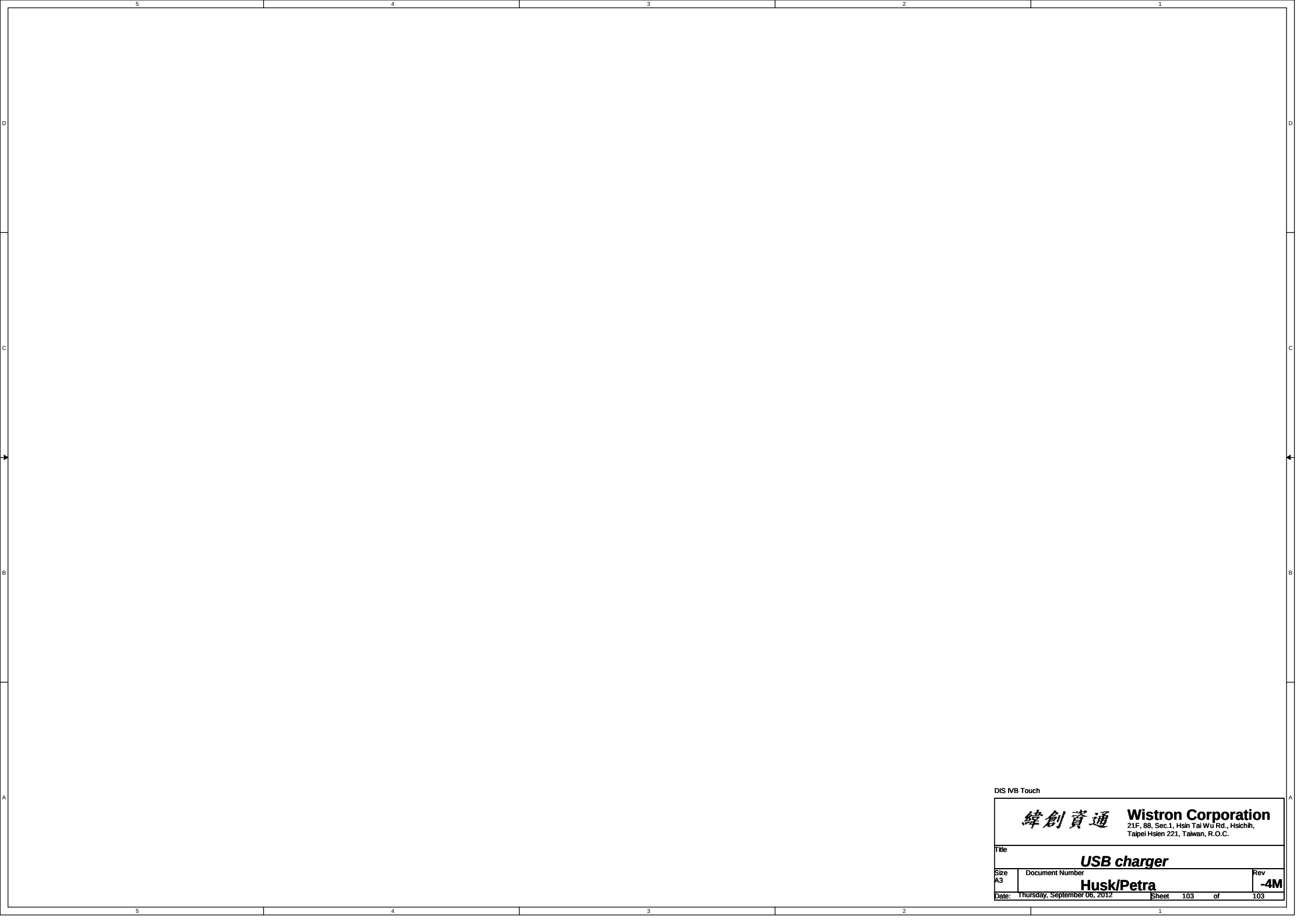


KBC SMBus Block Diagram



Audio Block Diagram





DIS IVB Touch

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
USB charger			
Size A3	Document Number		Rev
Husk/Petra		-4M	
Date: Thursday, September 06, 2012	Sheet	103	of 103