Storm
UMA Schematics Document
Chief River
Intel PCH

8G:FOR 8G DIMM

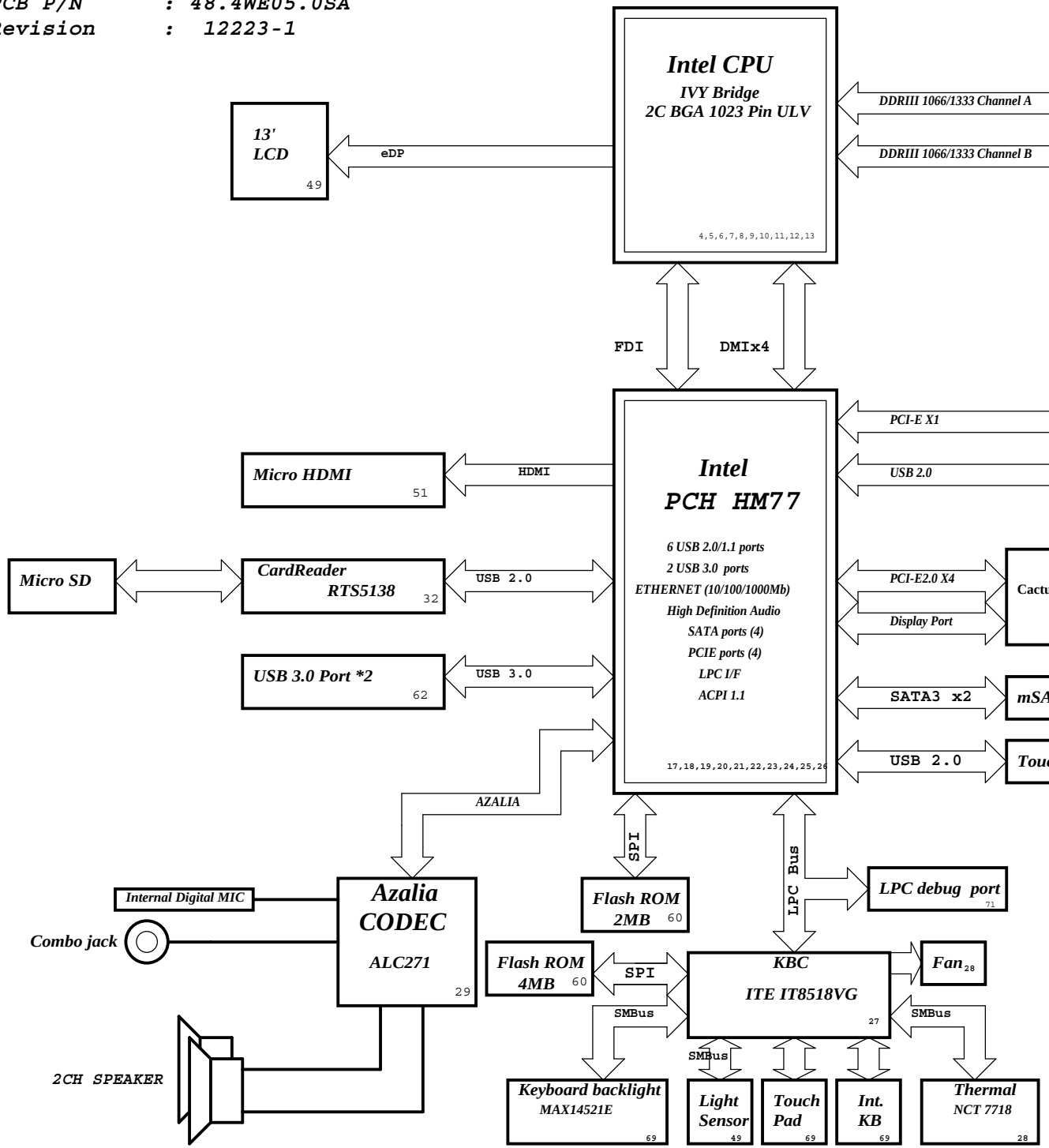
STORM

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: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 1 of 102	

Storm Block Diagram

Project code : 91.4WE01.001
PCB P/N : 48.4WE05.0SA
Revision : 12223-1



SYSTEM DC/DC APL5916KAI 48	
INPUTS	OUTPUTS
1D05V_PWR	0D85V_S0

CPU DC/DC NCP6131S52MNR 42~43	
INPUTS	OUTPUTS
DCBATOUT	VCC_CORE

SYSTEM DC/DC UP6128PQDD 45	
INPUTS	OUTPUTS
DCBATOUT	1D05V_VTT

SYSTEM DC/DC UP6183PQAG 41	
INPUTS	OUTPUTS
DCBATOUT	5V_AUX_S5 3D3V_AUX_S5 5V_S5 3D3V_S5

SYSTEM DC/DC UP6165BQKF 46	
INPUTS	OUTPUTS
DCBATOUT	1D5V_S3 0D75V_S0 DDR_VREF_S3

SYSTEM DC/DC NCP5911MNTBG 44	
INPUTS	OUTPUTS
DCBATOUT	VCC_GFXCORE_PWR

VGA RT8208BGQW 92	
INPUTS	OUTPUTS
DCBATOUT	VGA_CORE

TI CHARGER BQ24745RHDR 40	
INPUTS	OUTPUTS
DCBATOUT	BT+

SYSTEM DC/DC RT9025 47	
INPUTS	OUTPUTS
3D3V_S0	1D8V_S0

SYSTEM DC/DC RT9025-25PSP 93	
INPUTS	OUTPUTS
1D5V_S3	1V_VGA_S0
3D3V_S5	1D8V_VGA_S0

Switches	
INPUTS	OUTPUTS
1D5V_S3	1D5V_VGA_S0
3D3V_S0	3D3V_VGA_S0

PCB LAYER

L1:Top	L6:Signal
L2:VCC	L7:GND
L3:Signal	L8:Signal
L4:VCC	L9:GND
L5:Signal	L10:Bottom

STORM

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

Title: Block Diagram

Size: A3 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 2 of 102

PCH Strapping

Huron River Schematic Checklist Rev.0_7

Name	Schematics Notes
SPKR	**Reboot option at power-up** **Default Mode:** Internal weak Pull-down. **No Reboot Mode with TCO Disabled:** Connect to Vcc3_3 with 8.2-kΩ - 10-kΩ weak pull-up resistor.
INIT3_3V#	Weak internal pull-up. Leave as "No Connect".
GNT3#/GPIO55 GNT2#/GPIO53 GNT1#/GPIO51	GNT[3:0]# functionality is not available on Mobile. Mobile: Used as GPIO only Pull-up resistors are not required on these signals. If pull-ups are used, they should be tied to the Vcc3_3power rail.
SPI_MOSI	**Enable Danbury:** Connect to Vcc3_3 with 8.2-k? weak pull-up resistor. **Disable Danbury:** Left floating, no pull-down required.
NV_ALE	**Enable Danbury:** Connect to +NVRAM_VCCQ with 8.2-kohm weak pull-up resistor [CRB has it pulled up with 1-kohm no-stuff resistor] **Disable Danbury:** Leave floating (internal pull-down)
NC_CLE	DMI termination voltage. Weak internal pull-up. Do not pull low.
HAD_DOCK_EN#/GPIO[33]	Low (0) - Flash Descriptor Security will be overridden. Also, when this signals is sampled on the rising edge of PWROK then it will also disable Intel ME and its features. High (1) - Security measure defined in the Flash Descriptor will be enabled. Platform design should provide appropriate pull-up or pull-down depending on the desired settings. If a jumper option is used to tie this signal to GND as required by the functional strap, the signal should be pulled low through a weak pull-down in order to avoid asserting HDA_DOCK_EN# inadvertently. Note: CRB recommends 1-kohm pull-down for FD Override. There is an internal pull-up of 20 kohm for DA_DOCK_EN# which is only enabled at boot/reset for strapping functions.
HDA_SDO	Weak internal pull-down. Do not pull high. Sampled at rising edge of RSMRST#.
HDA_SYNC	Weak internal pull-down. Do not pull high. Sampled at rising edge of RSMRST#.
GPIO15	Low (1) - Intel ME Crypto Transport Layer Security (TLS) cipher suite with no confidentiality High (1) - Intel ME Crypto Transport Layer Security (TLS) cipher suite with confidentiality Note : This is an un-muxed signal. This signal has a weak internal pull-down of 20 kohm which is enabled when PWROK is low. Sampled at rising edge of RSMRST#. CRB has a 1-kohm pull-up on this signal to +3.3VA rail.
GPIO8	GPIO8 on PCH is the Integrated Clock Enable strap and is required to be pulled-down using a 1k +/- 5% resistor. When this signal is sampled high at the rising edge of RSMRST#, Integrated Clocking is enabled, When sampled low, Buffer Through Mode is enabled.
GPIO27	**Default = Do not connect (floating)** High(1) = Enables the internal VccVRM to have a clean supply for analog rails. No need to use on-board filter circuit. Low (0) = Disables the VccVRM. Need to use on-board filter circuits for analog rails.

Processor Strapping

Huron River Schematic Checklist Rev.0_7

Pin Name	Strap Description	Configuration (Default value for each bit is 1 unless specified otherwise)	Default Value
CFG[2]	**PCI-Express Static Lane Reversal**	**1:** Normal Operation. **0:** Lane Numbers Reversed 15 -> 0, 14 -> 1, ...	1
CFG[4]		**1:** Disabled - No Physical Display Port attached to Embedded DisplayPort. **0:** Enabled - An external Display Port device is connectd to the EMBEDDED display Port	0
CFG[6:5]	**PCI-Express Port Bifurcation Straps**	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	11
CFG[7]	**PEG DEFER TRAINING**	**1:** PEG Train immediately following xxRESETB de assertion **0:** PEG Wait for BIOS for training	1

POWER PLANE	VOLTAGE	Voltage Rails ACTIVE IN	DESCRIPTION
5V_S0 3D3V_S0 1D8V_S0 1D5V_S0 1D05V_VTT 0D85V_S0 0D75V_S0 VCC_CORE VCC_GFXCORE 1D8V_VGA_S0 3D3V_VGA_S0 1V_VGA_S0	5V 3.3V 1.8V 1.5V 1.05V 0.95 - 0.85V 0.75V 0.35V to 1.5V 0.4 to 1.25V 1.8V 3.3V 1V	S0	CPU Core Rail Graphics Core Rail
5V_USBX_S3 1D5V_S3 DDR_VREF_S3	5V 1.5V 0.75V	S3	
BT+ DCBATOUT 5V_S5 5V_AUX_S5 3D3V_S5 3D3V_AUX_S5	6V-14.1V 6V-14.1V 5V 5V 3.3V 3.3V	All S states	AC Brick Mode only
3D3V_LAN_S5	3.3V	WOL_EN	Legacy WOL
3D3V_AUX_KBC	3.3V	DSW, Sx	ON for supporting Deep Sleep states
3D3V_AUX_S5	3.3V	G3, Sx	Powered by Li Coin Cell in G3 and +V3ALW in Sx

USB Table

Pair	Device
0	USB3.0 Ext. port 1
1	USB3.0 Ext. port 2
2	NC
3	NC
4	Card Reader
5	WLAN+BT
6	CCD
7	X
8	X
9	NC
10	NC
11	NC
12	NC

PCIE Routing

LANE1	N/A
LANE2	N/A
LANE3	N/A
LANE4	WLAN
LANE5	Thunderbolt
LANE6	Thunderbolt
LANE7	Thunderbolt
LANE8	Thunderbolt

SATA Table

SATA	
Pair	Device
0	mSATA1
1	mSATA2
2	N/A
3	N/A
4	N/A
5	N/A

SMBus ADDRESSES

I² C / SMBus Addresses Device	Ref Des	HURON RIVER ORB Address	Hex	Bus
EC SMBus 1 Battery CHARGER				BAT_SCL/BAT_SDA BAT_SCL/BAT_SDA BAT_SCL/BAT_SDA
EC SMBus 2 PCH eDP				SML1_CLK/SML1_DATA SML1_CLK/SML1_DATA SML1_CLK/SML1_DATA
PCH SMBus SO-DIMMA (SPD) SO-DIMMB (SPD) Digital Pot G-Sensor MINI				PCH_SMBDATA/PCH_SMBCLK PCH_SMBDATA/PCH_SMBCLK PCH_SMBDATA/PCH_SMBCLK PCH_SMBDATA/PCH_SMBCLK PCH_SMBDATA/PCH_SMBCLK PCH_SMBDATA/PCH_SMBCLK

STORM

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

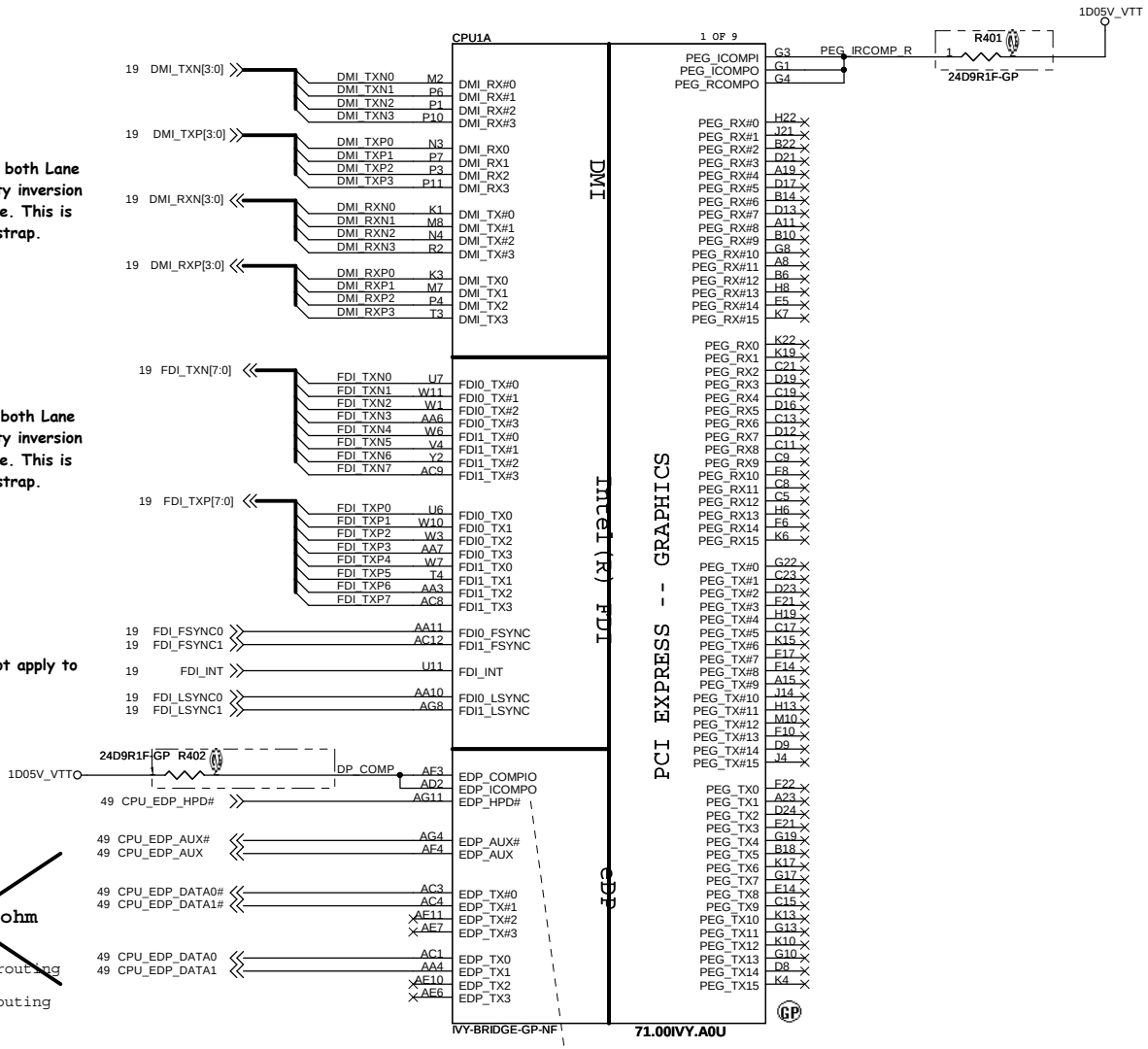
Title: Table of Content

Size: A3 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 3 of 102

SSID = CPU

Signal Routing Guideline:
PEG_ICOMPO keep W/S=12/15 mils and routing length less than 500 mils.
PEG_ICOMPI & PEG_RCOMPO keep W/S=4/15 mils and routing length less than 500 mils.



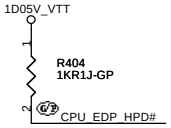
Note:
Intel DMI supports both Lane Reversal and polarity inversion but only at PCH side. This is enabled via a soft strap.

Note:
Intel FDI supports both Lane Reversal and polarity inversion but only at PCH side. This is enabled via a soft strap.

Note:
Lane reversal does not apply to FDI sideband signals.

Impedance:85 ohm

Signal Routing Guideline:
EDP_ICOMPO keep W/S=12/15 mils and routing length less than 500 mils.
EDP_COMPIO keep W/S=4/15 mils and routing length less than 500 mils.



NOTE:
Select a Fast FET similar to 2N7002E whose rise/ fall time is less than 6 ns. If HPD on eDP interface is disabled, connect it to CPU VCCIO via a 10-kΩ pull-Up resistor on the motherboard.

STORM

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

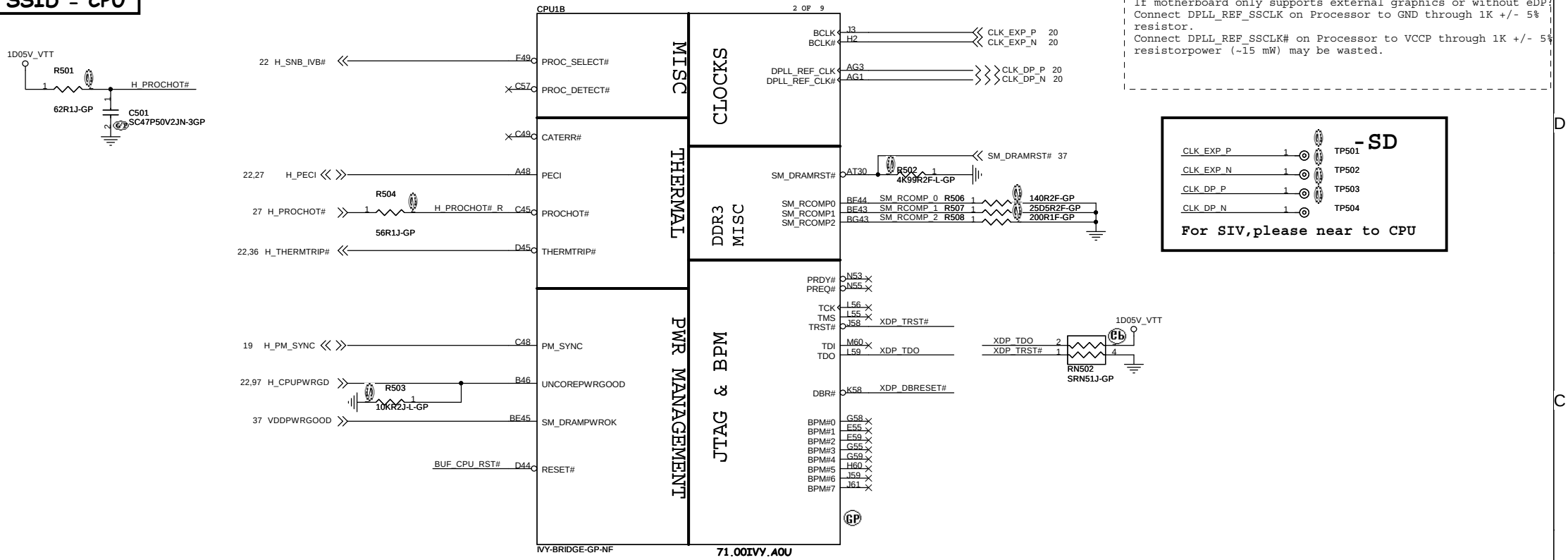
Title: **CPU (PCIE/DMI/FDI)**

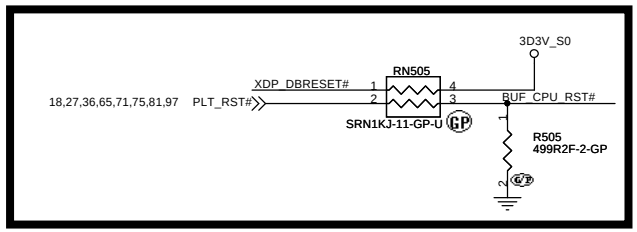
Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 4 of 102

SSID = CPU

Disabling Guidelines:
If motherboard only supports external graphics or without eDP:
Connect DPLL_REF_SSCLK on Processor to GND through 1K +/- 5% resistor.
Connect DPLL_REF_SSCLK# on Processor to VCCP through 1K +/- 5% resistorpower (~15 mW) may be wasted.





STORM

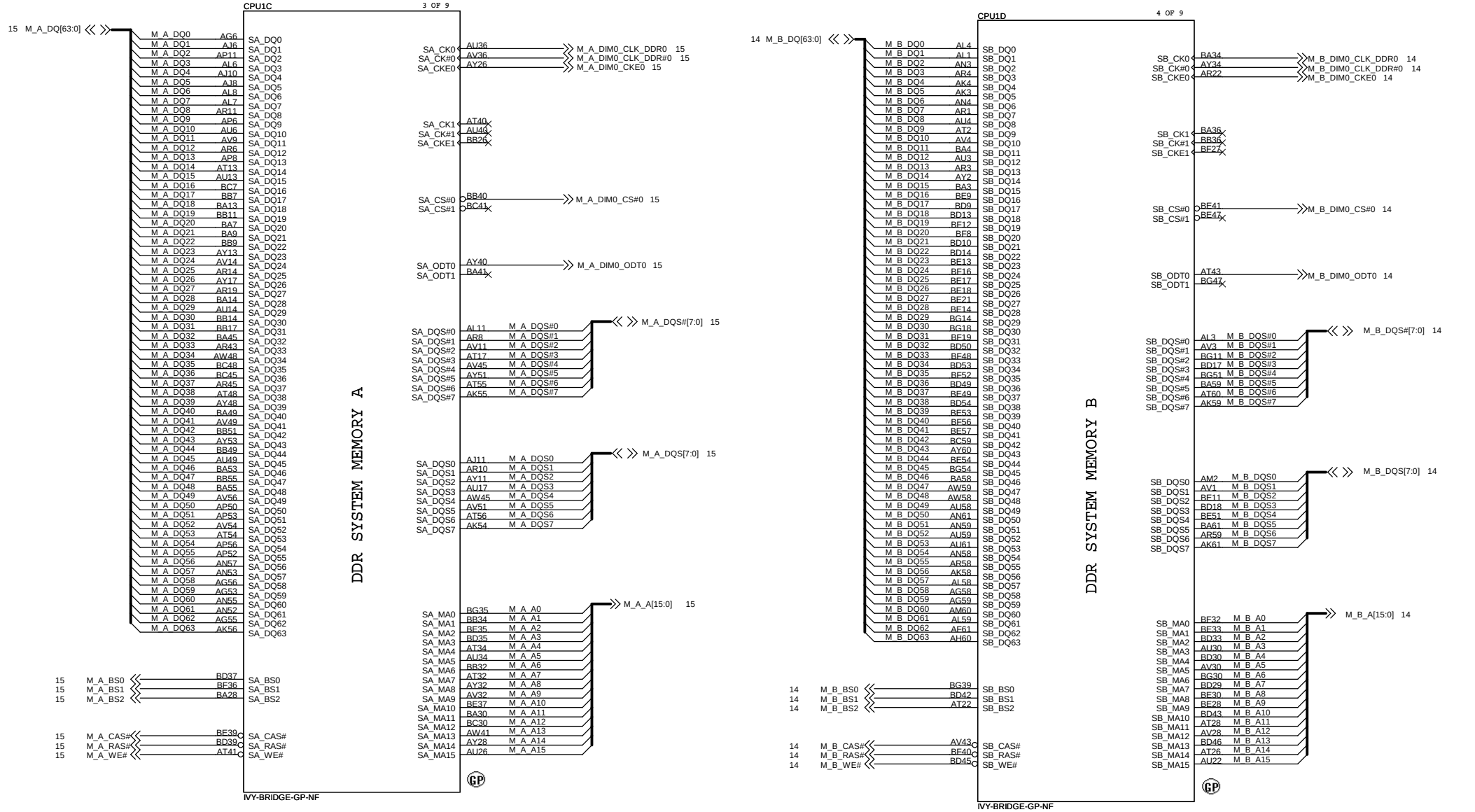
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (THERMAL/CLOCK/PM)

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 5 of 102

SSID = CPU



STORM

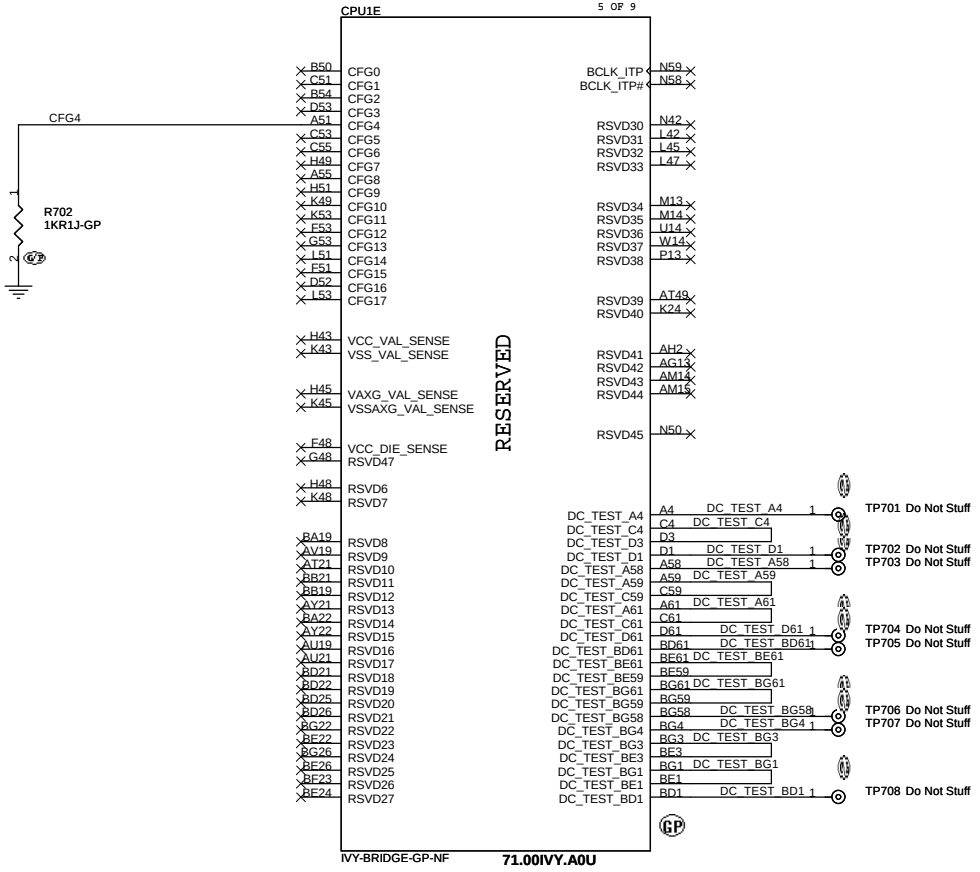
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **CPU (DDR)**

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 6 of 102

SSID = CPU



Pin Name	Strap Description	Configuration (Default value for each bit is 1 unless specified otherwise)	Default Value
CFG[0]		Connect a series 1 kOhms resistor on the critical CFG[0 trace in a manner which does not introduce any stubs to CFG[0] trace. Route as needed from the opposite side of this series isolation resistor to the debug port. ITP will drive the net to GND.	
CFG[2]	PCIe Static x16 Lane Numbering Reversal.	1: Normal Operation; Lane # definition matches socket pin map definition 0:Lane Reversed	0
CFG[4]	Display Port Presence strap	1:Disabled - No Physical Display Port attached to Embedded DisplayPort No connect for disable 0:Enabled - An external Display Port device is connected to the Embedded Display Port Pull-down to GND through a 1KΩ ± 5% resistor to enable port	0
CFG[6:5]	PCI-Express Port Bifurcation Straps	00 = 1 x 8, 2 x 4 PCI Express 01 = reserved 10 = 2 x 8 PCI Express 11 = 1 x 16 PCI Express	00
CFG[17:7]	Reserved configuration lands. A test point may be placed on the board for these lands.		

STORM

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	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 7 of 102

SSID = CPU

POWER

ULV:14W
Iccmax:33A
ICC_TDC:25A

Iccmax:8.5A
ICC_TDC:8.5A

CPU1F

6 OF 9

VCC_CORE

CORE SUPPLY

PEG IO AND DDR IO

QUIET RAILS

SVID

SENSE LINES

6 2D2U to 3 4D7U

change 0603 to 0402

Layout Note: 2.2u Cap place under CPU

	PIn BC22	CPU
1.05V	H	SNB
1V	L	IVB

1.05V_VTT Power rail

CPU EDS desing guide Rev change 1 V to 1.05V

PROCESSOR 1.05V Quiet rail for DDR block (BGA only)
+V1.05S_VCCPQE should be short to +V1.05S_VCCP_DDR_R on board

Place near processor

Place near processor

IVY-BRIDGE-GP-NF

71.00IVY.A0U

STORM

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

Title: CPU (VCC_CORE)

Size: A2 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 8 of 102

SSID = CPU

POWER

CPU1G

7 OF 9

Routing Guideline:
Power from DDR_VREF_S3 and +V_SM_VREF_CNT should have 10 mils trace width.

VREF

SM_VREF AY43 +V_SM_VREF_CNT → +V_SM_VREF_CNT 37

SA_DIMM_VREFDQ BE7 M_VREF_DQ_DIMM0_C → M_VREF_DQ_DIMM0_C 37
SB_DIMM_VREFDQ BG7 M_VREF_DQ_DIMM1_C → M_VREF_DQ_DIMM1_C 37

RN901 Do Not Stuff DY

DDR3 - 1.5V RAILS

VDDQ1 AJ28
VDDQ2 AJ33
VDDQ3 AJ36
VDDQ4 AJ40
VDDQ5 AL30
VDDQ6 AL34
VDDQ7 AL38
VDDQ8 AL42
VDDQ9 AM33
VDDQ10 AM36
VDDQ11 AM40
VDDQ12 AN30
VDDQ13 AN34
VDDQ14 AN38
VDDQ15 AR26
VDDQ16 AR28
VDDQ17 AR30
VDDQ18 AR32
VDDQ19 AR34
VDDQ20 AR36
VDDQ21 AR40
VDDQ22 AV41
VDDQ23 AW26
VDDQ24 BA40
VDDQ25 BB28
VDDQ26 BG33

1D35V_S0

Iccmax:5A

C912 SC10U06D3V2MX-GP-U
C911 SC10U06D3V2MX-GP-U
C910 SC10U06D3V2MX-GP-U
C909 SC10U06D3V2MX-GP-U
C928 SC10U06D3V2MX-GP-U
C927 SC10U06D3V2MX-GP-U
C929 SC10U06D3V2MX-GP-U

1D35V_S0

C931 C932 C933 C934 C935 C936 C937 C938 C939 C940 SC1U10V2KX-1GP

GRAPHICS

VCC_GFXCORE

Iccmax:18A(GT1)
ICC_TDC:12A(GT1)

C901 Do Not Stuff DY
C902 C903 Do Not Stuff DY
C904 C905 C906 C907 SC1U10V2KX-1GP

C908 C920 C921 C922 C926 SC1U10V2KX-1GP

C944 Do Not Stuff DY
C943 Do Not Stuff DY
C930 C945 SC10U06D3V2MX-GP-U

VAXG1 AA46
VAXG2 AB47
VAXG3 AB50
VAXG4 AB51
VAXG5 AB52
VAXG6 AB53
VAXG7 AB55
VAXG8 AB56
VAXG9 AB58
VAXG10 AB59
VAXG11 AC61
VAXG12 AD47
VAXG13 AD48
VAXG14 AD50
VAXG15 AD51
VAXG16 AD52
VAXG17 AD53
VAXG18 AD55
VAXG19 AD56
VAXG20 AD58
VAXG21 AD59
VAXG22 AE46
VAXG23 N45
VAXG24 P47
VAXG25 P48
VAXG26 P50
VAXG27 P51
VAXG28 P52
VAXG29 P53
VAXG30 P55
VAXG31 P56
VAXG32 P61
VAXG33 T48
VAXG34 T58
VAXG35 T59
VAXG36 T61
VAXG37 U46
VAXG38 V47
VAXG39 V48
VAXG40 V50
VAXG41 V51
VAXG42 V52
VAXG43 V53
VAXG44 V55
VAXG45 V56
VAXG46 V58
VAXG47 V59
VAXG48 W50
VAXG49 W51
VAXG50 W52
VAXG51 W53
VAXG52 W55
VAXG53 W56
VAXG54 W61
VAXG55 Y48
VAXG56 Y61

SENSE LINES

VAXG_SENSE
VSSAXG_SENSE

VCC_GFXCORE

R901 100R1F-GP
R902 100R1F-GP

42 VCC_AXG_SENSE → VCC_AXG_SENSE F45
42 VSS_AXG_SENSE → VSS_AXG_SENSE G45

1.8V RAIL

1D8V_S0

ICC_MAX:1.2A

C923 C924 SC10U06D3V2MX-GP-U SC1U1V2KX-1GP

VCCPLL1 BB3
VCCPLL2 BC1
VCCPLL3 BC4

SA RAIL

0D85V_S0

ICC_MAX:6A

C942 C941 C916 C915 C917 C918 SC1U1D2V2KX-1GP SC10U06D3V2MX-GP-U

VCCSA1 L17
VCCSA2 L21
VCCSA3 N16
VCCSA4 N20
VCCSA5 N22
VCCSA6 P17
VCCSA7 P20
VCCSA8 R16
VCCSA9 R18
VCCSA10 R21
VCCSA11 U15
VCCSA12 V16
VCCSA13 V17
VCCSA14 V18
VCCSA15 V21
VCCSA16 W20

QUIET RAILS

VCCDQ1 AM28
VCCDQ2 AN26

1D35V_S0

R907 Do Not Stuff

+1.5S_VCCD_Q

C919 SC1U6D3V2KX-L-1-GP

PROCESSOR DDR 1.5V QUIET RAIL (BGA only)
+V1.5S_VCCD_Q should be short to +V1.5S_VCCDDQ on board

SENSE LINES

VDDQ_SENSE BC43 TP_VDDQ_SENSE
VSS_SENSE_VDDQ BA43 TP_VDDQ_SENSE

TP901 Do Not Stuff
TP902 Do Not Stuff

Pull up page 48 R

VCCSA_SENSE U10 → VCCSA_SENSE 48

VCCSA VID lines

VCCSA_VID0 D48 VCCSA_VID0
VCCSA_VID1 D49 VCCSA_VID1

Here Del Pull up R

VCCSA_VID0 → VCCSA_VID0 48
VCCSA_VID1 → VCCSA_VID1 48

R904 1KR1F-GP
R906 1KR1F-GP

VID0	VID1	VCCSA ULV
L	L	0.9V
L	H	0.85V
H	L	0.775V
H	H	0.75V

IVY-BRIDGE-GP-NF

71.00IVY.A0U

STORM

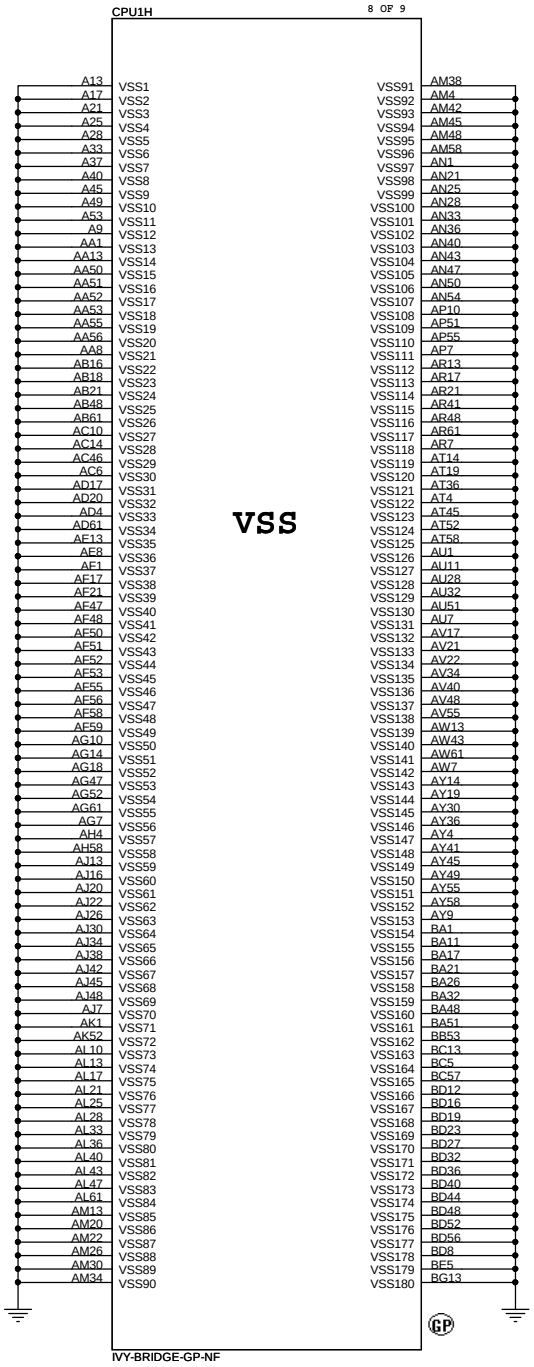
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

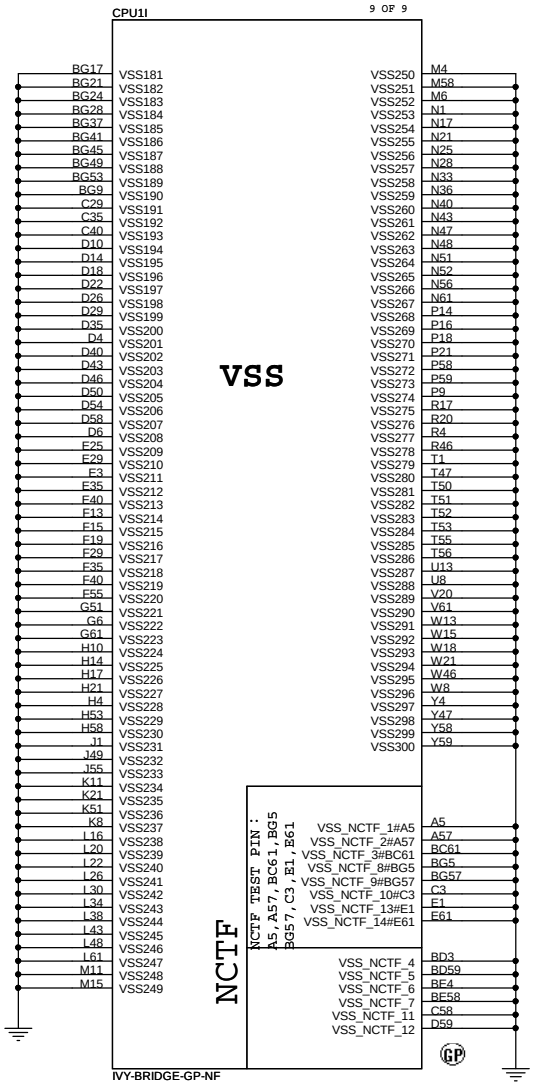
Title: CPU (VCC_GFXCORE)

Size: A3 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 9 of 102

SSID = CPU





STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***CPU (VSS)***	
Size A3	Document Number ***Storm***	Rev ***-1***
Date: Monday, June 25, 2012	Sheet 10 of 102	

reserve

JE40 delete XDP function

STORM

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

Title: ***XDP***		
Size: A4	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 11 of 102	

(Blanking)

STORM

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
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 12 of 102

(Blanking)

STORM

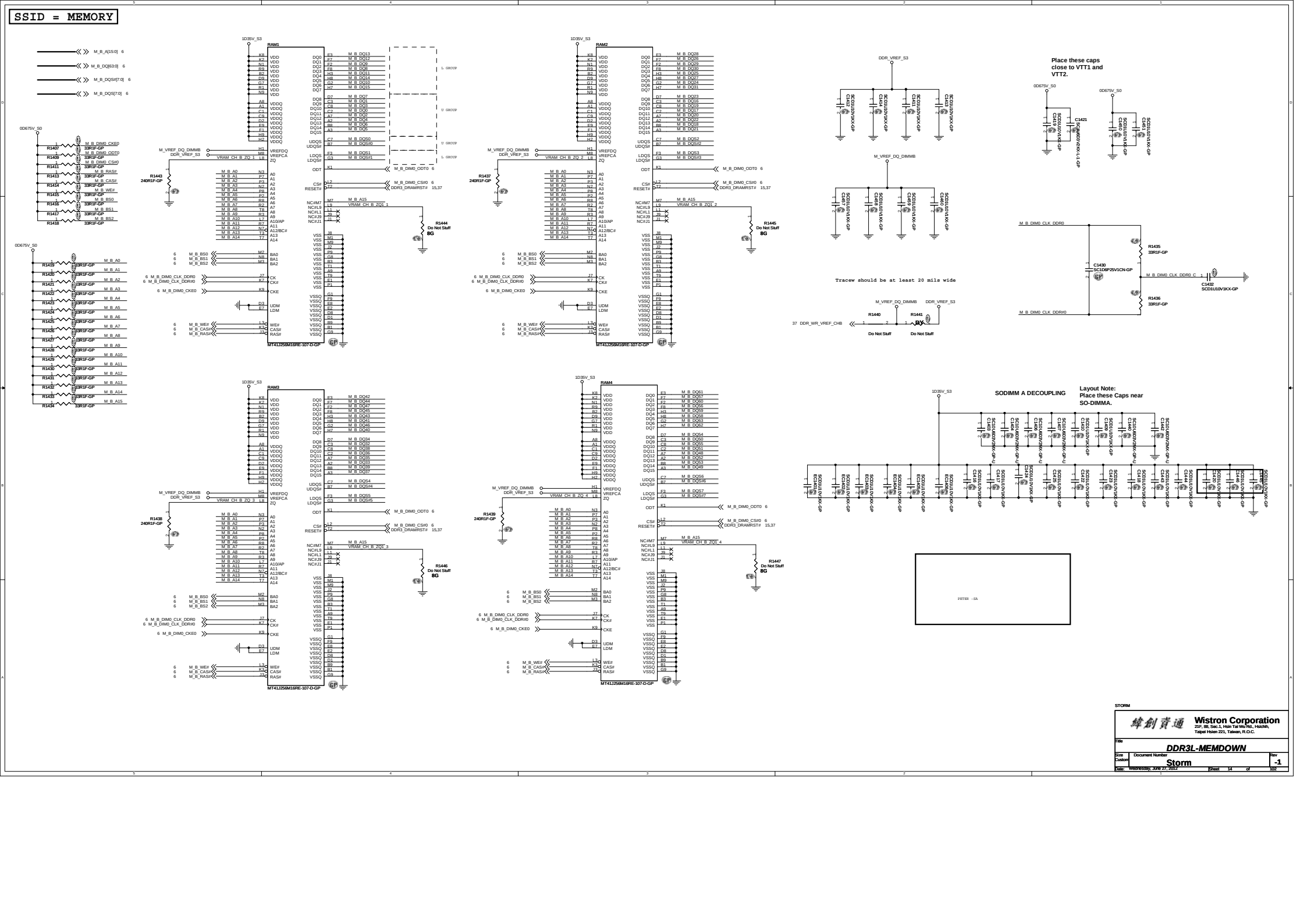
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title
Reserved

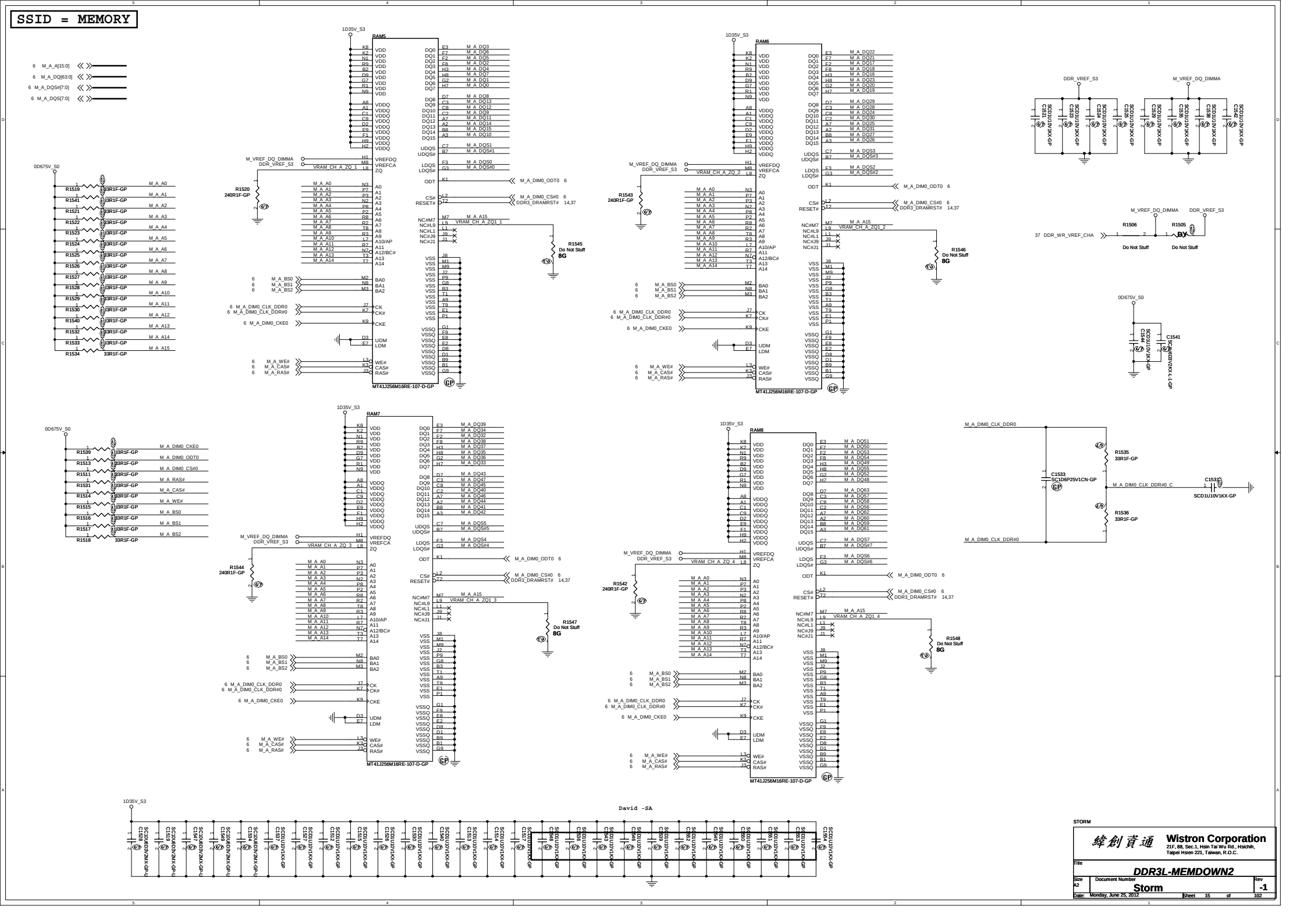
Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 13 of 102

SSID = MEMORY


M_B_A[15:0] 6
M_B_DQ[63:0] 6
M_B_DQS#[7:0] 6
M_B_DQS[7:0] 6
0D675V_S0
R1407 33R1F-GP M_B_DIM0_CKE0
R1409 33R1F-GP M_B_DIM0_ODT0
R1411 33R1F-GP M_B_DIM0_CS#0
R1413 33R1F-GP M_B_RAS#
R1414 33R1F-GP M_B_CAS#
R1415 33R1F-GP M_B_WE#
R1416 33R1F-GP M_B_BS0
R1417 33R1F-GP M_B_BS1
R1418 33R1F-GP M_B_BS2
0D675V_S0
R1419 33R1F-GP M_B_A0
R1420 33R1F-GP M_B_A1
R1421 33R1F-GP M_B_A2
R1422 33R1F-GP M_B_A3
R1423 33R1F-GP M_B_A4
R1424 33R1F-GP M_B_A5
R1425 33R1F-GP M_B_A6
R1426 33R1F-GP M_B_A7
R1427 33R1F-GP M_B_A8
R1428 33R1F-GP M_B_A9
R1429 33R1F-GP M_B_A10
R1430 33R1F-GP M_B_A11
R1431 33R1F-GP M_B_A12
R1432 33R1F-GP M_B_A13
R1433 33R1F-GP M_B_A14
R1434 33R1F-GP M_B_A15
1D35V_S3
RAM1
M_VREF_DQ_DIMMB
DDR_VREF_S3
VRAM_CH_B_ZQ_1
R1443 240R1F-GP
M_B_DIM0_CSI#0 6
DDR3_DRAMRST# 15,37
M_B_A15
VRAM_CH_B_ZQ1_1
R1444 Do Not Stuff 8G
M_B_BS0 6
M_B_BS1 6
M_B_BS2 6
M_B_DIM0_CLK_DDR0 6
M_B_DIM0_CLK_DDRI#0 6
M_B_DIM0_CKE0 6
M_B_WE# 6
M_B_CAS# 6
M_B_RAS# 6
MT41J256M16RE-107-D-GP
L GROUP
U GROUP
U GROUP
L GROUP
1D35V_S3
RAM2
M_VREF_DQ_DIMMB
DDR_VREF_S3
VRAM_CH_B_ZQ_2
R1437 240R1F-GP
M_B_DIM0_ODT0 6
M_B_DIM0_CS#0 6
DDR3_DRAMRST# 15,37
M_B_A15
VRAM_CH_B_ZQ1_2
R1445 Do Not Stuff 8G
M_B_BS0 6
M_B_BS1 6
M_B_BS2 6
M_B_DIM0_CLK_DDR0 6
M_B_DIM0_CLK_DDRI#0 6
M_B_DIM0_CKE0 6
M_B_WE# 6
M_B_CAS# 6
M_B_RAS# 6
MT41J256M16RE-107-D-GP
DDR_VREF_S3
M_VREF_DQ_DIMMB
37 DDR_WR_VREF_CHB
R1440 Do Not Stuff
R1441 0R1F-GP Do Not Stuff
Place these caps close to VTT1 and VTT2.
0D675V_S0
C1419 SCD1U10V2KX-GP
C1421 SCD10U06V3KX-L1-GP
0D675V_S0
C1450 SCD1U10V2KX-GP
C1451 SCD1U10V1K5X-GP
Tracew should be at least 20 mils wide
M_B_DIM0_CLK_DDR0
R1435 33R1F-GP
C1430 SC1D6P25V1CN-GP
M_B_DIM0_CLK_DDR0_C 1
C1432 SCD1U10V1KX-GP
R1436 33R1F-GP
M_B_DIM0_CLK_DDRI#0
1D35V_S3
RAM3
M_VREF_DQ_DIMMB
DDR_VREF_S3
VRAM_CH_B_ZQ_3
R1438 240R1F-GP
M_B_DIM0_CSI#0 6
DDR3_DRAMRST# 15,37
M_B_A15
VRAM_CH_B_ZQ1_3
R1446 Do Not Stuff 8G
M_B_BS0 6
M_B_BS1 6
M_B_BS2 6
M_B_DIM0_CLK_DDR0 6
M_B_DIM0_CLK_DDRI#0 6
M_B_DIM0_CKE0 6
M_B_WE# 6
M_B_CAS# 6
M_B_RAS# 6
MT41J256M16RE-107-D-GP
1D35V_S3
RAM4
M_VREF_DQ_DIMMB
DDR_VREF_S3
VRAM_CH_B_ZQ_4
R1439 240R1F-GP
M_B_DIM0_ODT0 6
M_B_DIM0_CS#0 6
DDR3_DRAMRST# 15,37
M_B_A15
VRAM_CH_B_ZQ1_4
R1447 Do Not Stuff 8G
M_B_BS0 6
M_B_BS1 6
M_B_BS2 6
M_B_DIM0_CLK_DDR0 6
M_B_DIM0_CLK_DDRI#0 6
M_B_DIM0_CKE0 6
M_B_WE# 6
M_B_CAS# 6
M_B_RAS# 6
MT41J256M16RE-107-D-GP
1D35V_S3
SODIMM A DECOUPLING
Layout Note:
Place these Caps near SO-DIMMA.
PETER -SA
STORM
Wistron Corporation
2lF, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
DDR3L-MEMDOWN
Size Custom
Document Number
Storm
Rev -1
Date: Wednesday, June 27, 2012
Sheet 14 of 102

SSID = MEMORY



STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**DDR3L-MEMDOWN2**	
Size A2	Document Number **Storm**	Rev -1
Date: Monday, June 25, 2012	Sheet 15 of 102	

(Blanking)

STORM

緯創資通

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

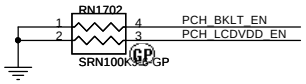
Title: ***DDR3-SODIMM3***

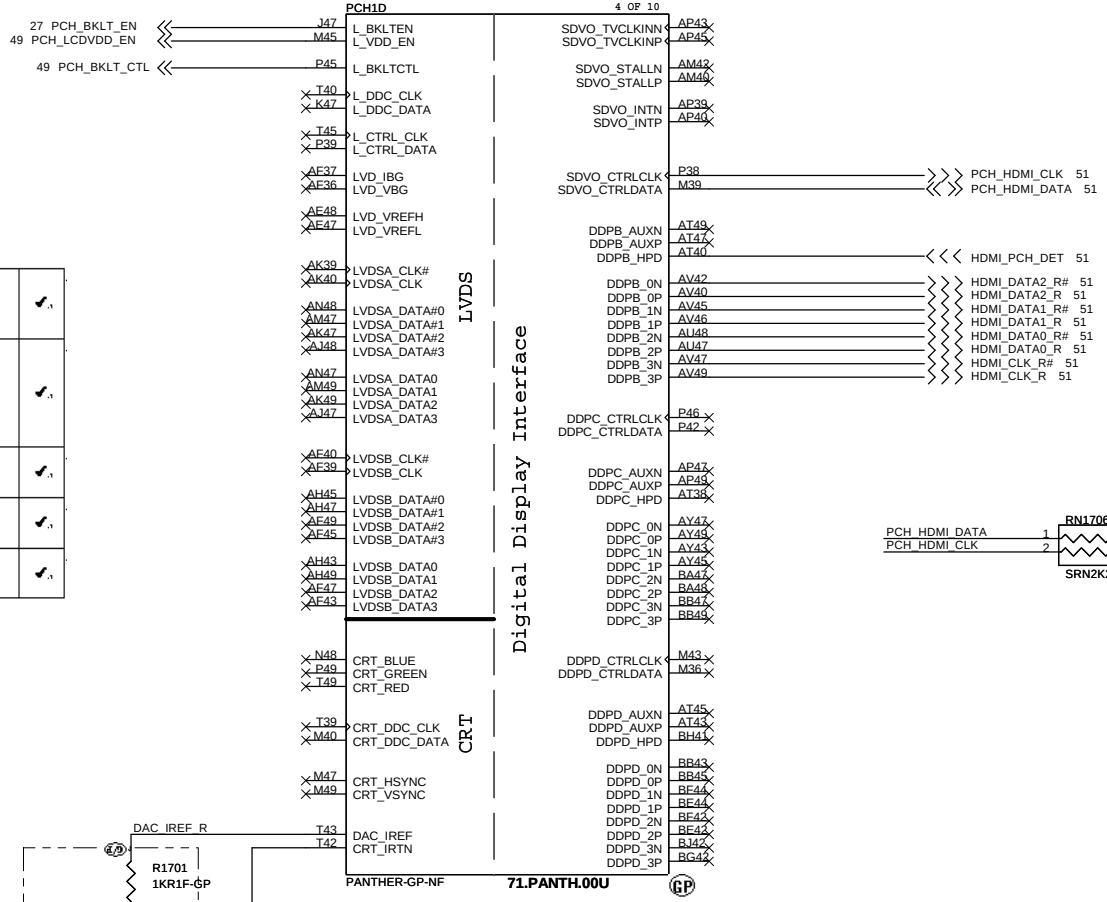
Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 16 of 102

3.24.2 LVDS Disable Guidelines

Pin Name	System ↓ Pull-up/↓ Pull-down	Schematic Notes	✔
Data/Clock/Control		All signals associated with the interface can be left as No Connect	✔
Power Supply		The supply pins VCC_TX_LVDS, and VCCA_LVDS can be connected to GND.	✔





3.24.4 CRT Disable

Name	System ↓ Pull-up/↓ Pull-down	Schematics Notes	✔
CRT_RED CRT_GREEN↓ CRT_BLUE↓ CRT_HSYCN↓ CRT_VSYNC		Leave as No Connect	✔
CRT_ITRN		Connect directly to GND plane on the motherboard	✔
DAC_IREF	1-kΩ± 5% pull-down to GND.		✔
VCCADAC	Connect to +V3.3 power-rail		✔

STORM

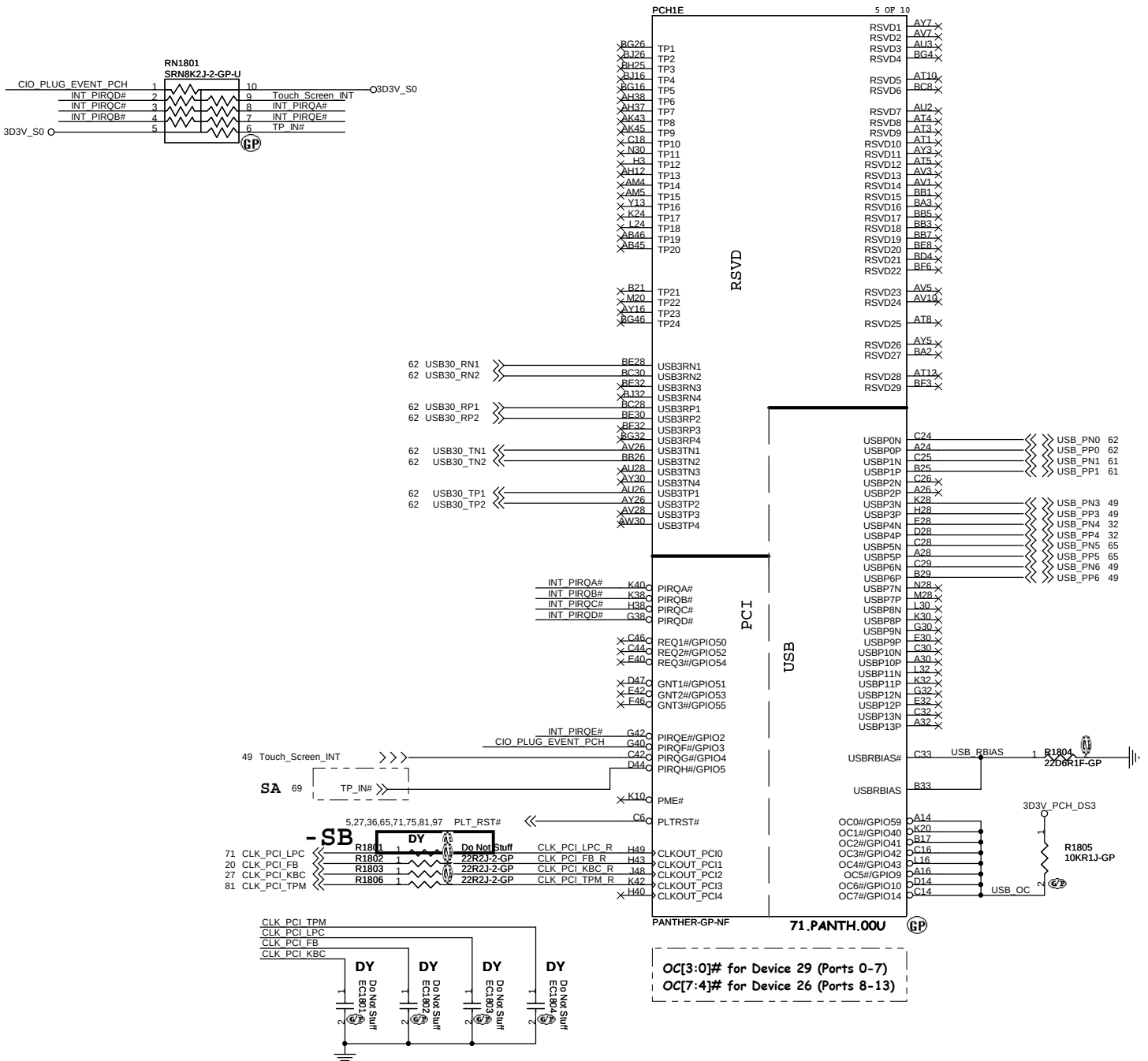
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: PCH (LVDS/CRT/DDI)

Size: A3 | Document Number: Storm | Rev: -1

Date: Tuesday, June 26, 2012 | Sheet 17 of 102

SSID = PCH



USB Table

Pair	Device
0	USB3.0 Ext. port 1
1	USB3.0 Ext. port 2
2	NC
3	NC
4	Card Reader
5	Mini Card1 (WLAN)
6	CCD
7	X
8	X
9	NC
10	NC
11	NC
12	NC

USB 2.0 Overcurrent Pin Default Usage

Pin	Default Port Mapping	Pin	Default Port Mapping
OC0#	Port 0, Port 1	OC4#	Port 8, Port 9
OC1#	Port 2, Port 3	OC5#	Port 10, Port 11
OC2#	Port 4, Port 5	OC6#	Port 12, Port 13
OC3#	Port 6, Port 7	OC7#	Not Used

STORM

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

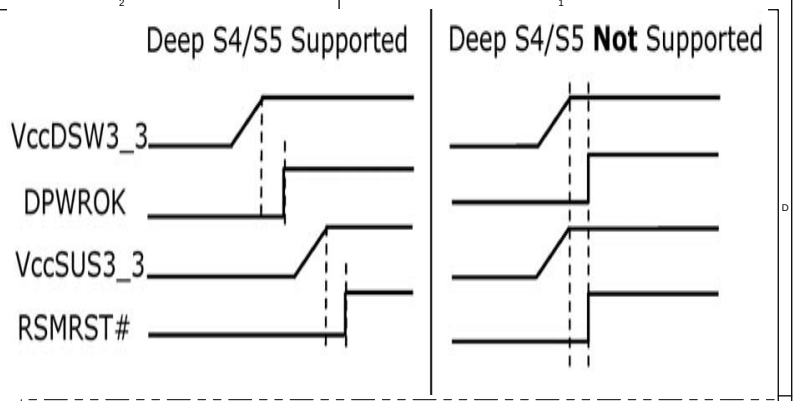
Title: **PCH (PCI/USB/NVRAM)**

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 18 of 102

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.



For platforms not supporting Deep S4/S5
1.VccSUS3_3 and VccDSW3_3 will rise at the same time (connected on board)
2.DPWROK and RSMRST# will rise at the same time (connected on board)
3.SLP_SUS# and SUSACK# are left as 'no connect'
4.SUSWARN# used as SUSPWRDNACK/GPIO30

PCH1C — 3 OF 10 — PANTHER-GP-NF — Z1 PANTH 00U

DMI: DMI_RXN[3:0] (DMI_RXN0 BC24, DMI_RXN1 BE20, DMI_RXN2 BG18, DMI_RXN3 BG20) → DMI0RXN/DMI1RXN/DMI2RXN/DMI3RXN
DMI: DMI_RXP[3:0] (DMI_RXP0 BE24, DMI_RXP1 BC20, DMI_RXP2 BJ18, DMI_RXP3 BJ20) → DMI0RXP/DMI1RXP/DMI2RXP/DMI3RXP
DMI: DMI_TXN[3:0] (DMI_TXN0 AW24, DMI_TXN1 AW20, DMI_TXN2 BB18, DMI_TXN3 AV18) → DMI0TXN/DMI1TXN/DMI2TXN/DMI3TXN
DMI: DMI_TXP[3:0] (DMI_TXP0 AY24, DMI_TXP1 AY20, DMI_TXP2 AY18, DMI_TXP3 AU18) → DMI0TXP/DMI1TXP/DMI2TXP/DMI3TXP

FDI: FDI_RXN[7:0] (FDI_RXN0 BJ14 … FDI_RXN7 BG9) → FDI_TXN[7:0] 4
FDI: FDI_RXP[7:0] (FDI_RXP0 BG14 … FDI_RXP7 BH9) → FDI_TXP[7:0] 4
FDI_INT AW16 → FDI_INT 4
FDI_FSYNC0 AV12 → FDI_FSYNC0 4
FDI_FSYNC1 BC10 → FDI_FSYNC1 4
FDI_LSYNC0 AV14 → FDI_LSYNC0 4
FDI_LSYNC1 BB10 → FDI_LSYNC1 4

1D05V_VTT
R1901 1 49D9R1F-GP DMI_COMP_R → DMI_ZCOMP BJ24, DMI_IRCOMP BG25
R1902 1 750R2F-GP RBIAS_CPY → DMI2RBIAS BH21

System Power Management

DSWVRMEN A18 ← DSWODVREN
DPWROK E22 ← PCH_DPWROK_R
WAKE# B9 ← PCH_PCIE_WAKE#
CLKRUN#/GPIO32 N3 ← PM_CLKRUN#
SUS_STAT#/GPIO61 G8 → PM_SUS_STAT# 81
SUSCLK/GPIO62 N14
SLP_S5#/GPIO63 D10
SLP_S4# H4 → PM_SLP_S4# 27,46
SLP_S3# F4 → PM_SLP_S3# 27
SLP_A# G10
SLP_SUS# G16 → PM_SLP_SUS# 27,80
PMSYNCH AP14 → H_PM_SYNC 5
SLP_LAN#/GPIO29 K14

27 PM_SUSACK# → SUSACK# C12
3D3V_S0 — R1905 1 10KR1J-GP SYS_RESET# → SYS_RESET# K3
36 SYS_PWROK → SYS_PWROK P12
27 S0_PWR_GOOD — R1903 2 1 PWROK (Do Not Stuff) → PWROK L22
APWROK L10
37 PM_DRAM_PWRGD ← DRAMPWROK B13
PM_RSMRST# → RSMRST# C21
27 PM_SUSWARN# → SUSWARN#/SUSPWRDNACK/GPIO30 K16
27,97 PM_PWRBTN# → PWRBTN# E20
27 AC_PRESENT → ACPRESENT/GPIO31 H20
BATLOW# → BATLOW#/GPIO72 E10
PM_RI# → RI# A10

DY
R1906 1 Do Not Stuff SYS_PWROK
R1904 1 100KR1J-GP PWROK

SA 20111202 DS3

DY
R1910 1 Do Not Stuff PM_RSMRST#
R1911 1 2 Do Not Stuff → PCH_DPWROK 27
R1929 100KR1J-GP DS3

-SD
H_PM_SYNC 1 TP1905

DSWODVREN - On Die DSW VR Enable	
HIGH	Enabled (DEFAULT)
LOW	Disabled

RTC_AUX_S5
DSWODVREN R1915 1 330KR2J-L1-GP

3D3V_PCH_DS3
R1925 1 10KR2J-L-GP BATLOW#
R1926 1 10KR2J-L-GP PM_RI#
R1907 1 10KR1J-GP PCH_PCIE_WAKE#
R1928 DY 1 Do Not Stuff PM_SUSACK#
R1923 DY 1 Do Not Stuff PM_SUSWARN#

3D3V_S5
R1932 DY 1 Do Not Stuff AC_PRESENT
R1924 DY 1 Do Not Stuff PM_SUSWARN#
R1927 DY 1 Do Not Stuff BATLOW#

R1908 1 100KR1J-GP PM_RSMRST#

3D3V_AUX_S5
R1916 10KR1J-GP
3V_5V_POK_#

R1917 1KR2J-L2-GP
PM_RSMRST# → RSMRST#_KBC 27
Q1901 FK3303010L-GP 84.33030.031
Q1902 84.33030.031 FK3303010L-GP
3D3V_PCH_DS3
R1909 10KR2J-L-GP
R1912
PM_SLP_SUS#_R
3V_5V_POK 41
Do Not Stuff
R1918 DY 1 Do Not Stuff PM_SLP_SUS#
C1901 SCD1U10V1KX-GP

3D3V_S0
PM_CLKRUN# — R1913 DY 1 2 Do Not Stuff
R1914 100KR1J-GP

STORM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: PCH (DM I/FDI/PM)		
Size: A3	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 19 of 102	

SSID = PCH

FOR SIV,PLS near PCH

Do Not Stuff TP2003 PCIE_RXN4
Do Not Stuff TP2004 PCIE_RXP4

PCH1B

2 OF 10

PCI-E*
NC
NC
WLAN
Thunderbolt

SMBUS
SMBALERT#/GPIO11 E12 EC_SW#
SMBCLK H14 SMB_CLK
SMBDATA C9 SMB_DATA
SML0ALERT#/GPIO60 A12 DRAMRST_CNTRL_PCH 37
SML0CLK C8 SML0_CLK
SML0DATA G12 SML0_DATA
SML1ALERT#/PCHHOT#/GPIO74 C13 PCH_GPIO74
SML1CLK/GPIO58 E14 SML1_CLK 27,28
SML1DATA/GPIO75 M16 SML1_DATA 27,28

Controller Link
CL_CLK1 M7
CL_DATA1 T11
CL_RST1# P10

CLOCKS
PEG_A_CLKRQ#/GPIO47 M10 PEG_CLKREQ#_R
CLKOUT_PEG_A_N AB37
CLKOUT_PEG_A_P AB36
CLKOUT_DMI_N AV22 CLK_EXP_N 5
CLKOUT_DMI_P AU22 CLK_EXP_P 5
CLKOUT_DP_N AM12 CLK_DP_N 5
CLKOUT_DP_P AM13 CLK_DP_P 5
CLKIN_DMI_N BF18 CLK_BUF_EXP_N
CLKIN_DMI_P BE18 CLK_BUF_EXP_P
CLKIN_GND1_N BJ30 CLK_BUF_CPYCLK_N
CLKIN_GND1_P BG30 CLK_BUF_CPYCLK_P
CLKIN_DOT_96N G24 CLK_BUF_DOT96_N
CLKIN_DOT_96P E24 CLK_BUF_DOT96_P
CLKIN_SATA_N AK7 CLK_BUF_CKSSCD_N
CLKIN_SATA_P AK5 CLK_BUF_CKSSCD_P
REFCLK14IN K45 CLK_BUF_REF14
CLKIN_PCILOOPBACK H45 CLK_PCI_FB 18
XTAL25_IN V47 XTAL25_IN
XTAL25_OUT V49 XTAL25_OUT
XCLK_RCOMP Y47 XCLK_RCOMP

CLKOUT_PCIE0N Y40
CLKOUT_PCIE0P Y39
PCIE_CLK_REQ0# J2 PCIECLKRQ0#/GPIO73
CLKOUT_PCIE1N AB49
CLKOUT_PCIE1P AB47
PCIE_CLK_REQ1# M1 PCIECLKRQ1#/GPIO18
CLKOUT_PCIE2N AA48
CLKOUT_PCIE2P AA47
PCIE_CLK_REQ2# V10 PCIECLKRQ2#/GPIO20
CLKOUT_PCIE3N Y37
CLKOUT_PCIE3P Y36
AB PCIECLKRQ3#/GPIO25
CLKOUT_PCIE4N Y43
CLKOUT_PCIE4P Y45
PCIE_CLK_REQ4# L12 PCIECLKRQ4#/GPIO26
CLKOUT_PCIE5N V45
CLKOUT_PCIE5P V46
PCIE_LAN_CLKREQ# L14 PCIECLKRQ5#/GPIO44
CLKOUT_PEG_B_N AB42
CLKOUT_PEG_B_P AB40
PEG_B_CLKRQ# E6 PEG_B_CLKRQ#/GPIO56
CLKOUT_PCIE6N V40
CLKOUT_PCIE6P V42
PCIE_CLK_REQ6# T13 PCIECLKRQ6#/GPIO45
CLKOUT_PCIE7N V38
CLKOUT_PCIE7P V37
PCIE_CLK_REQ7# K12 PCIECLKRQ7#/GPIO46
CLKOUT_ITPXDP_N AK14
CLKOUT_ITPXDP_P AK13

FLEX CLOCKS
CLKOUTFLEX0/GPIO64 K43 CLK48
CLKOUTFLEX1/GPIO65 F47 DRAM_TYPE2
CLKOUTFLEX2/GPIO66 H47 DRAM_TYPE3
CLKOUTFLEX3/GPIO67 K49 DGPU_PRSNT#

PANTHER-GP-NF
71.PANTH.00U

As Flex clocks, can be configured as 48 MHz/ 24 MHz, 33 MHz, 27 MHz (Spread or Nonspread), 14.318 MHz. Refer to the PCH External Design Specification (EDS) for configuration options of Flex Clocks.

3D3V_PCH_DS3
RN2008 SRN2K2J-1-GP
SMB_DATA
SMB_CLK
RN2004 SRN2K2J-1-GP
SML0_DATA
SML0_CLK
RN2005 SRN2K2J-1-GP
SML1_CLK
SML1_DATA
PCH_GPIO74
EC_SW#
R2010 10KR2J-L-GP
R2015 10KR2J-L-GP
DRAMRST_CNTRL_PCH
R2009 1KR1J-GP

3D3V_S0
RN2007 SRN2K2J-1-GP
Q2001 DTN702KDW-GP
84.2N702.A3F
2nd = 84.DM601.03F
SMB_DATA
SMB_CLK
PCH_SMBDATA 69
PCH_SMBCLK 69

3D3V_S0
R2004 10KR1J-GP
PEG_CLKREQ#_R

3D3V_S0
R2011 10KR1J-GP
3D3V_S0
R2012 10KR1J-GP
DGPU_PRSNT#
UMA_DISCRETE#
UMA: 1 1
DIS :0 1
SG(PX) : 0 0
Optimus(Muxless) : 1 0
UMA_DIS# 22

3D3V_PCH_DS3
RN2001 SRN10KJ-10-GP-U
PCIE_CLK_REQ4#
PCIE_LAN_CLKREQ#
PCIE_CLK_REQ6#
RN2002 SRN10KJ-10-GP-U
PCIE_CLK_REQ0#
PCIE_CLK_REQ7#
PEG_B_CLKRQ#
PCIE_WLAN_CLKREQ#
3D3V_S0
RN2011
PCIE_CLK_REQ1#
PCIE_CLK_REQ2#
SRN10KJ-11-GP-U
PCIECLKRQ1# and PCIECLKRQ2# Support S0 power only

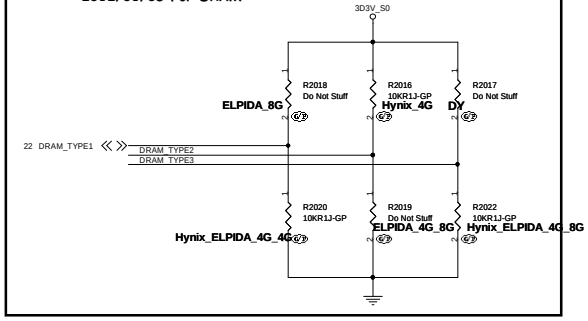
WLAN
65 PCIE_CLK_WLAN#
65 PCIE_CLK_WLAN
65 PCIE_WLAN_CLKREQ#

R2013 10KR1J-GP
R2007 90D9K2F-1-GP
1D05V_VTT

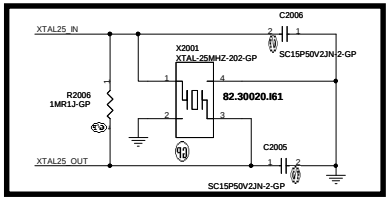
Check 48Mhz
Y2014 32.000J-L1-GP
48MHZ
CLK48_Cardreader 32
EC2001 DY
DO NOT INSTALL

CLK_BUF_CKSSCD_P
CLK_BUF_CKSSCD_N
RN2009 SRN10KJ-11-GP-U
CLK_BUF_CPYCLK_P
CLK_BUF_CPYCLK_N
RN2012 SRN10KJ-11-GP-U
CLK_BUF_EXP_P
CLK_BUF_EXP_N
RN2013 SRN10KJ-11-GP-U
CLK_BUF_DOT96_N
CLK_BUF_DOT96_P
RN2014 SRN10KJ-11-GP-U

2012/01/05 For DRAM



0	0	0	ELPIDA 2GB PER Channel(chip is 4Gbit RAM)
0	0	1	Hynix A 2GB PER Channel(chip is 4Gbit RAM)
0	1	0	
0	1	1	
1	0	0	ELPIDA 4GB PER Channel(chip is 8Gbit RAM)
1	0	1	
1	1	0	
1	1	1	



STORM

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

Title: PCH (PCI-E/SMBUS/CLOCK/CL)

Size: A2 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 20 of 102

SSID = PCH

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

-SB
height concern,do not change to 0603, so change C from 1uF to 0.1uF
change R from 20K to 200K for AFR

Layout Note: Place close together.

RTC Reset

Layout Note:
HDA_SDO and HDA_BCLK must be length matched to within 500 mils

Flash Descriptor Security Overide	
HDA_SDOUT	Low = Default High = Enable

No Reboot Strap	
HDA_SPKR	Low = Default High = No Reboot

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

New KBC check

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.

PCH1A — 1 OF 10 — PANTHER-GP-NF — 71.PANTH.00U

Strap pin ,Internal PU

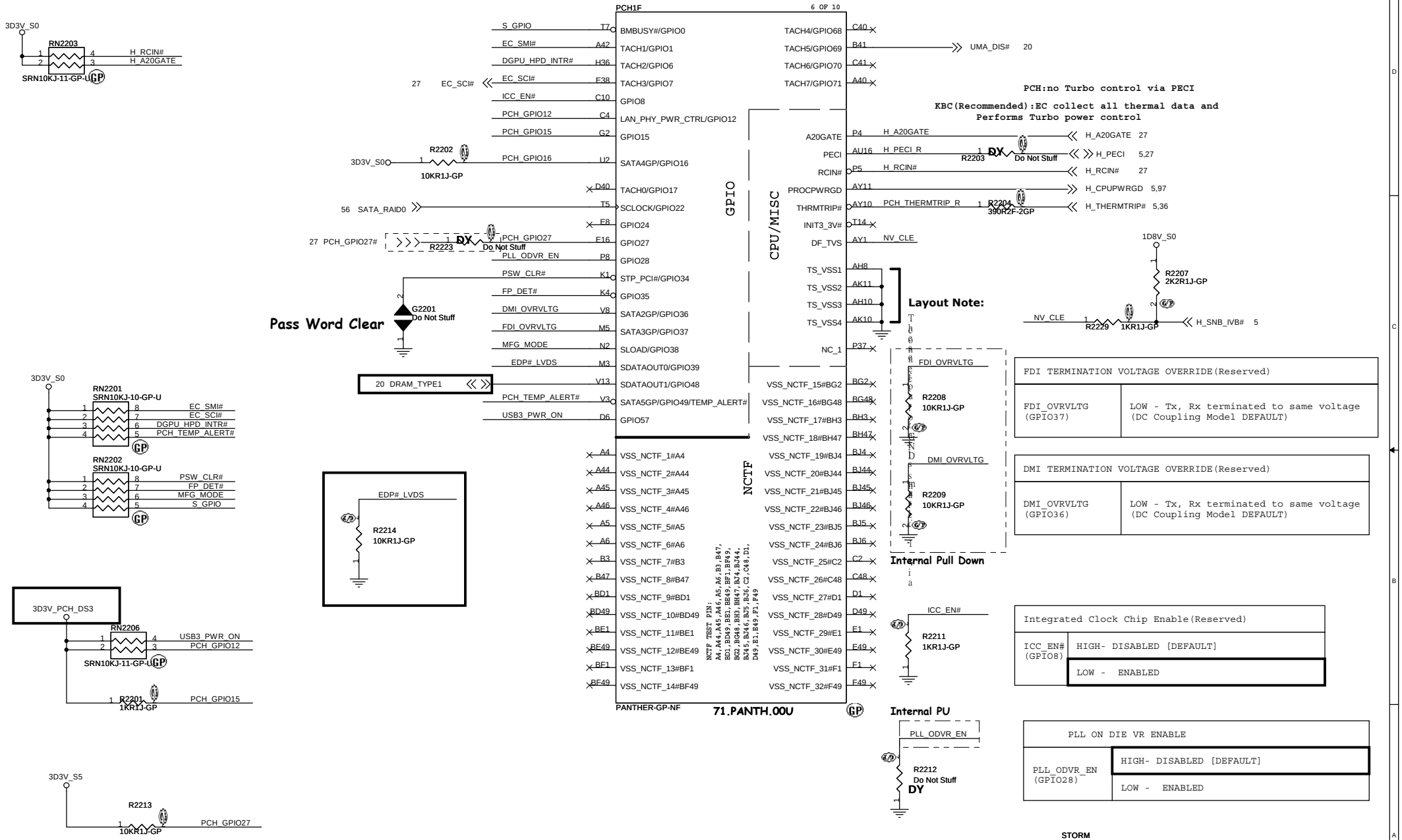
mSATA

mSATA

STORM

緯創資通 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)		
Size: A3	Document Number: Storm	Rev: -1
Date: Tuesday, June 26, 2012	Sheet 21 of 102	

SSID = PCH



FDI TERMINATION VOLTAGE OVERRIDE(Reserved)	
FDI_OVRVLTG (GPIO37)	LOW - Tx, Rx terminated to same voltage (DC Coupling Model DEFAULT)

DMI TERMINATION VOLTAGE OVERRIDE(Reserved)	
DMI_OVRVLTG (GPIO36)	LOW - Tx, Rx terminated to same voltage (DC Coupling Model DEFAULT)

Integrated Clock Chip Enable(Reserved)	
ICC_EN# (GPIO8)	HIGH- DISABLED [DEFAULT]
	LOW - ENABLED

PLL ON DIE VR ENABLE	
PLL_ODVR_EN (GPIO28)	HIGH- DISABLED [DEFAULT]
	LOW - ENABLED

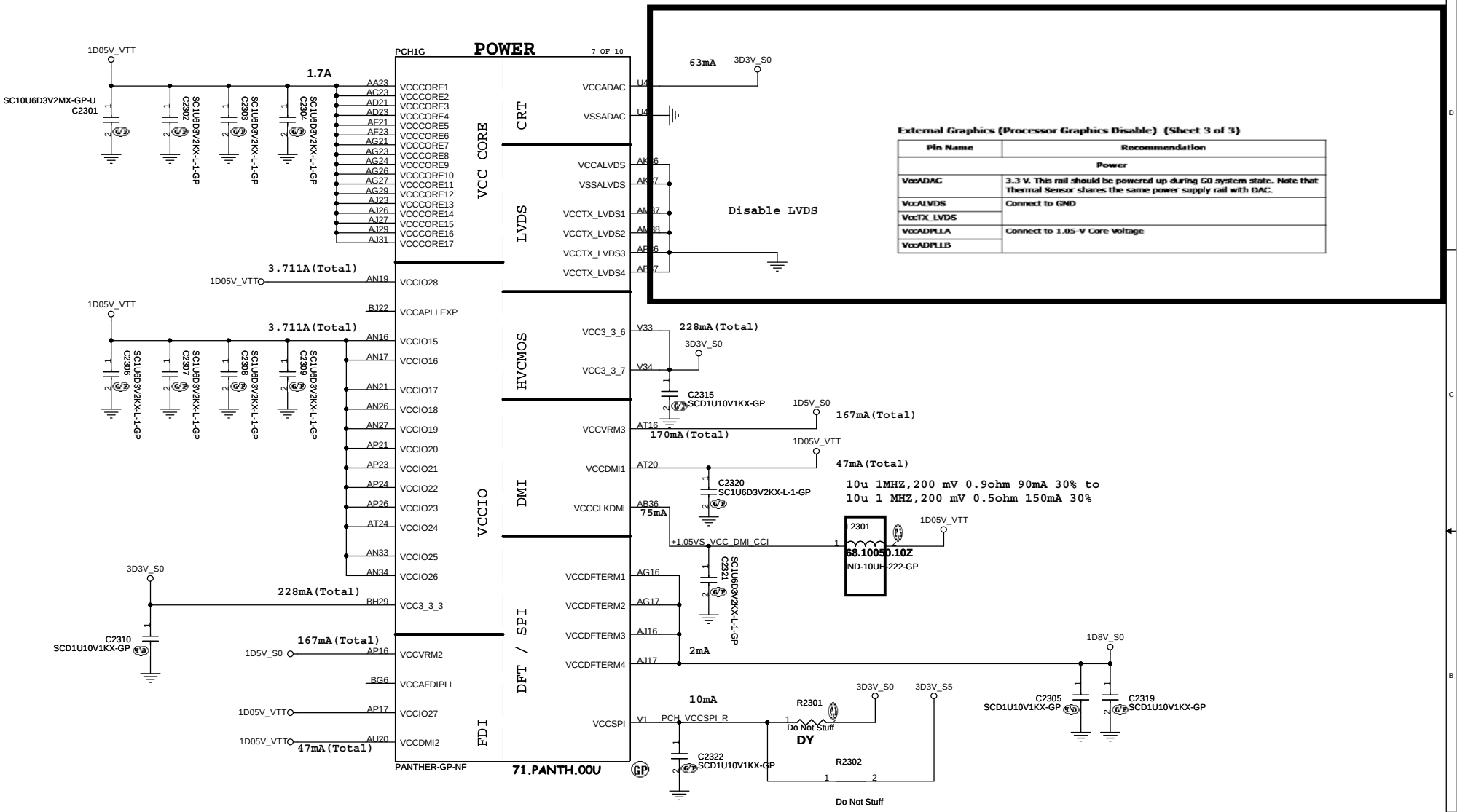
STORM

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

Title: **PCH (GPIO/CPU)**

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 22 of 102



External Graphics (Processor Graphics Disable) (Sheet 3 of 3)

Pin Name	Recommendation
Power	
VccADAC	3.3 V. This rail should be powered up during S0 system state. Note that Thermal Sensor shares the same power supply rail with DAC.
VccALVDS	Connect to GND
VccTX_LVDS	
VccADPLLA	Connect to 1.05 V Core Voltage
VccADPLLB	

STORM

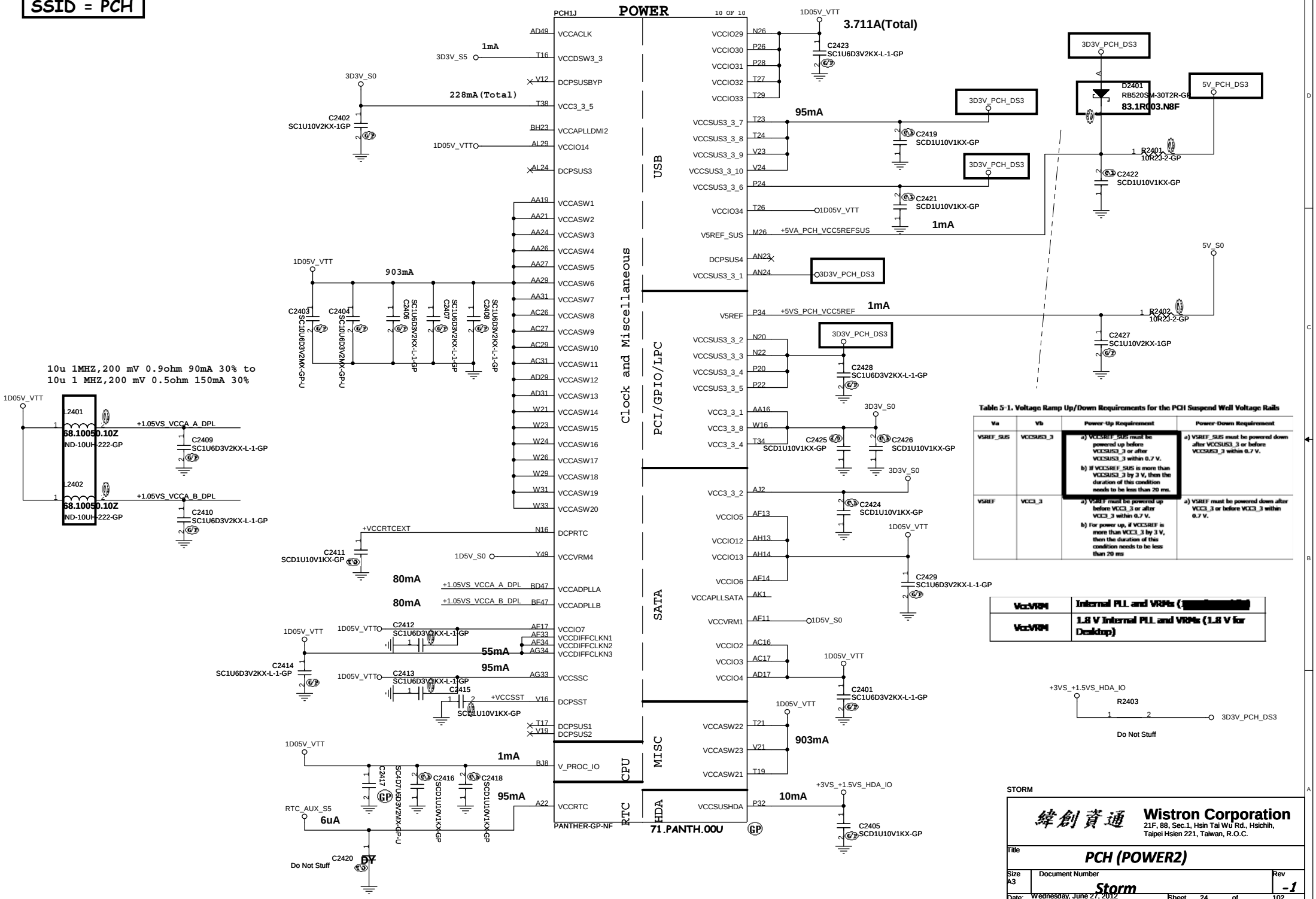
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **PCH (POWER1)**

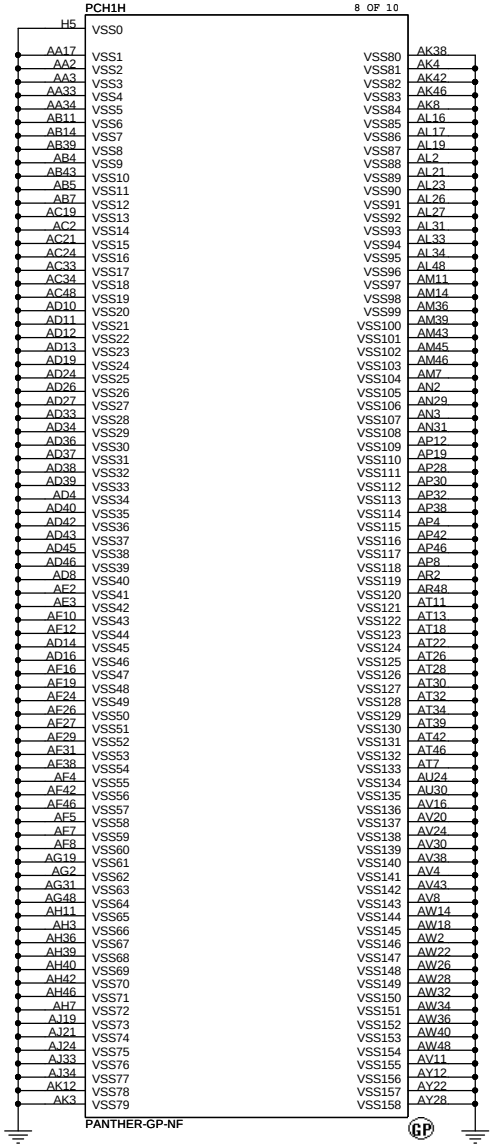
Size: A3 | Document Number: Storm | Rev: -1

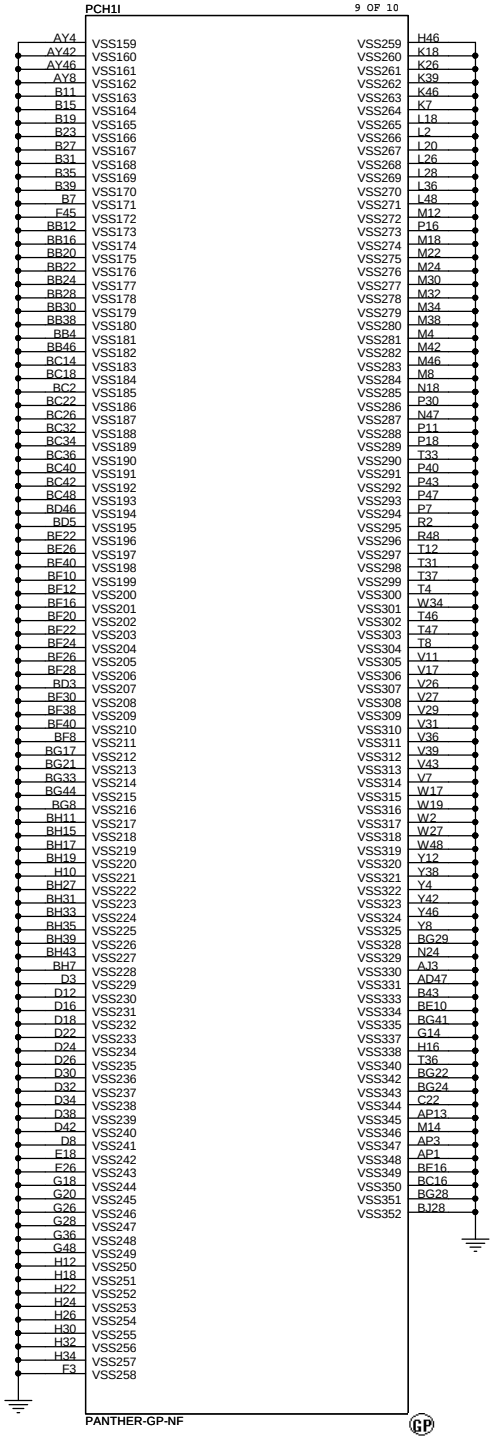
Date: Wednesday, June 27, 2012 | Sheet 23 of 102

SSID = PCH


PCH1J
POWER
10 OF 10
PANTHER-GP-NF
71.PANTH.00U
USB
Clock and Miscellaneous
PCI/GPIO/LPC
SATA
MISC
CPU
RTC
HDA
3.711A(Total)
228mA(Total)
903mA
95mA
80mA
55mA
1mA
6uA
10mA
10u 1MHZ,200 mV 0.9ohm 90mA 30% to
10u 1 MHZ,200 mV 0.5ohm 150mA 30%
68.10050.10Z
ND-10UH-222-GP
+1.05VS_VCCA_A_DPL
+1.05VS_VCCA_B_DPL
+5VA_PCH_VCC5REFSUS
+5VS_PCH_VCC5REF
+VCCRTCEXT
+VCCSST
+3VS_+1.5VS_HDA_IO
R2403
Do Not Stuff
D2401
RB520SM-30T2R-GP
83.1R003.N8F
R2401
R2402
10R2J-2-GP
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 VCC5REF 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 ([redacted])
VccVRM
1.8 V Internal PLL and VRMs (1.8 V for Desktop)
STORM
緯創資通
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
PCH (POWER2)
Size
A3
Document Number
Storm
Rev
-1
Date: Wednesday, June 27, 2012
Sheet 24 of 102

SSID = PCH





STORM

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

Title: **PCH (VSS)**

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 25 of 102

STORM

緯創資通 **Wistron Corporation**

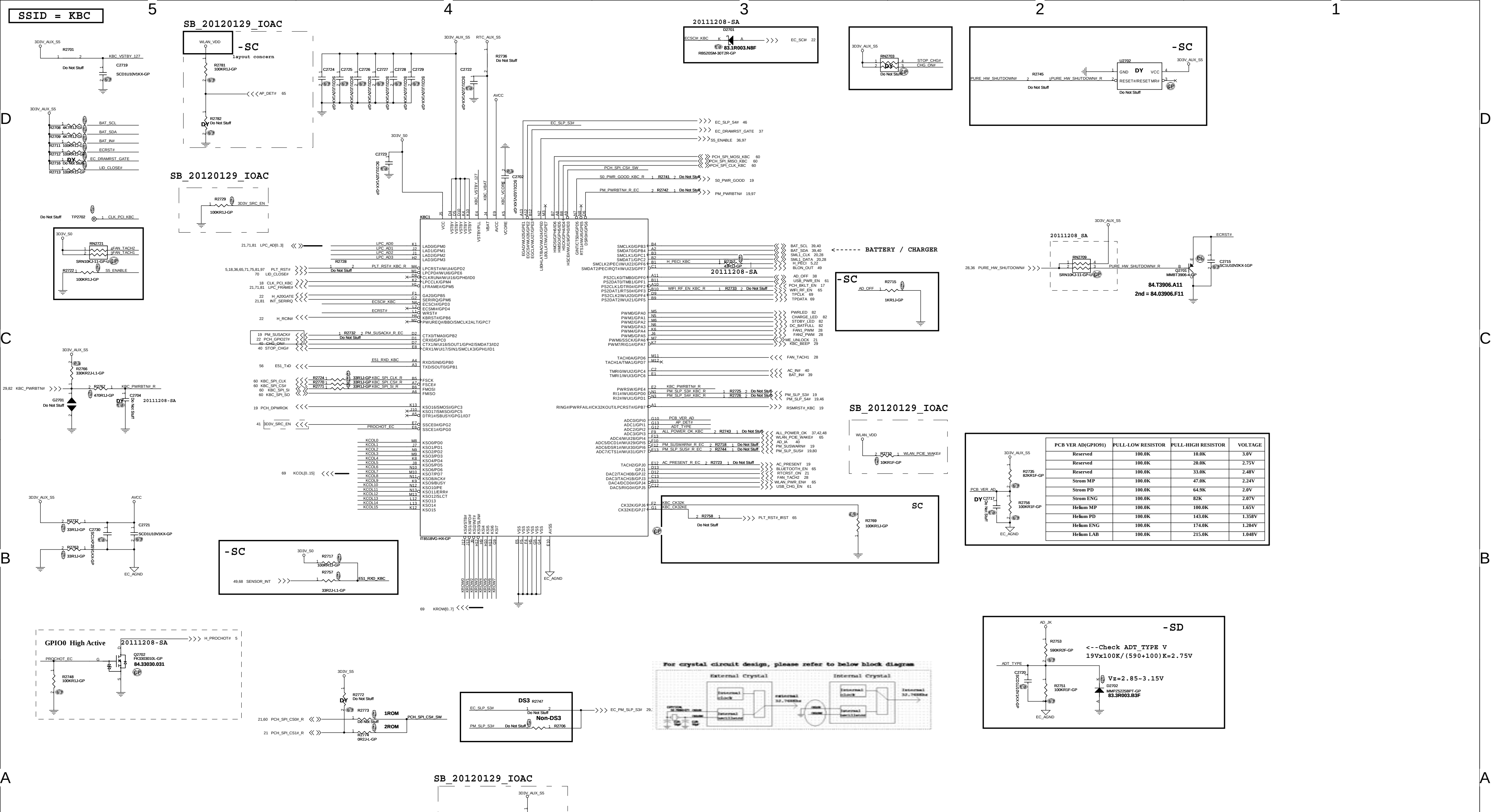
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Clock(colay)***

Size	Document Number	Rev
A3	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 26 of 102

SSID = KBC



PCB VER AD(GPIO91)	PULL-LOW RESISTOR	PULL-HIGH RESISTOR	VOLTAGE
Reserved	100.0K	10.0K	3.0V
Reserved	100.0K	20.0K	2.75V
Reserved	100.0K	33.0K	2.48V
Strom MP	100.0K	47.0K	2.24V
Strom PD	100.0K	64.9K	2.0V
Strom ENG	100.0K	82K	2.07V
Helium MP	100.0K	100.0K	1.65V
Helium PD	100.0K	143.0K	1.358V
Helium ENG	100.0K	174.0K	1.204V
Helium LAB	100.0K	215.0K	1.048V

STORM

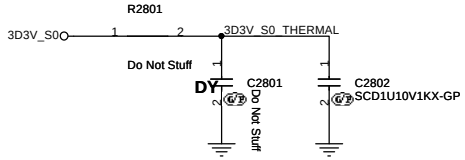
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

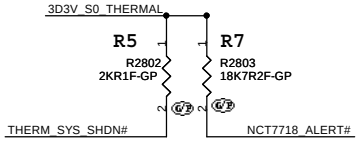
Title: **KBC ITE IT8518VG**

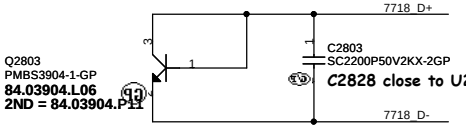
Size: Custom | Document Number: **Storm** | Rev: -1

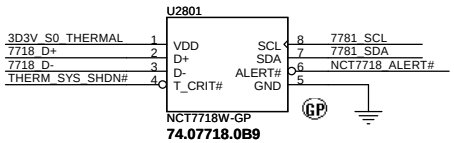
Date: Monday, June 25, 2012 | Sheet 27 of 102

SSID = Thermal

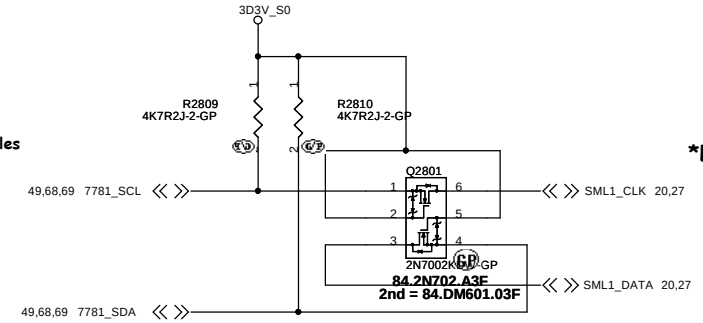




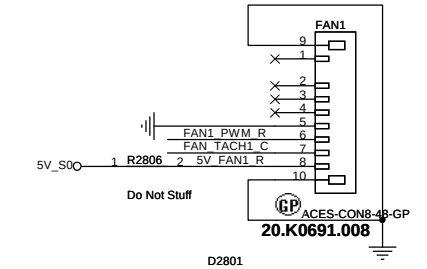


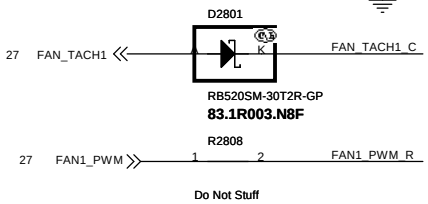


Layout notice :
* Put the C1 2200pF to close the nct7718W
* Add ground shielding for D+ and D- traces
* D+/D- route has to be away from the high noise area
* The recommended traces width and ground shielding spacing are 10miles

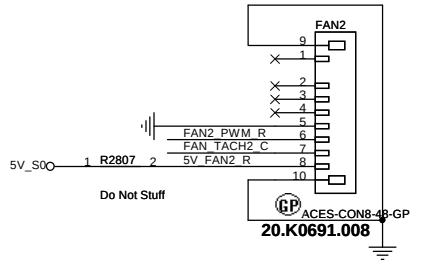


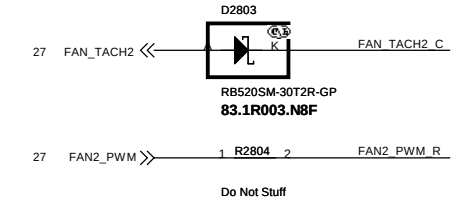
Layout 15 mil

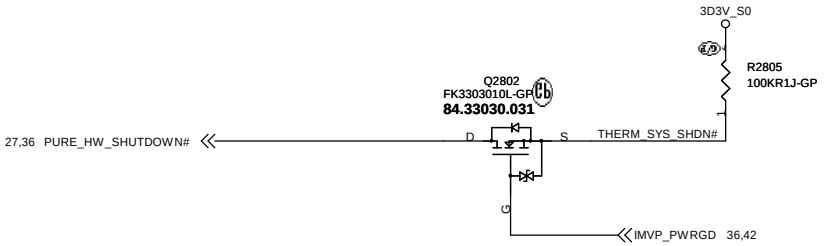




Layout 15 mil







Setting 85℃

ALERT# /T_CRIT#
Pull-up Resistor

R5 \ R7	2Kohm	7.5Kohm	10.5Kohm	14Kohm	18.7Kohm
2Kohm	77℃	87℃	97℃	107℃	117℃
7.5Kohm	79℃	89℃	99℃	109℃	119℃
10.5Kohm	81℃	91℃	101℃	111℃	121℃
14Kohm	83℃	93℃	103℃	113℃	123℃
18.7Kohm	85℃	95℃	105℃	115℃	125℃

T_CRIT temperature strapping point

The default value is trapping after power up 100ms by different pull-up resistors of T_CRIT# and ALERT# pin:

TEMPERATURE (℃)		T_CRIT#				
		2KΩ	7.5KΩ	10.5KΩ	14KΩ	18.7KΩ
ALERT#	2KΩ	77	87	97	107	117
	7.5KΩ	79	89	99	109	119
	10.5KΩ	81	91	101	111	121
	14KΩ	83	93	103	113	123
	18.7KΩ	85	95	105	115	125

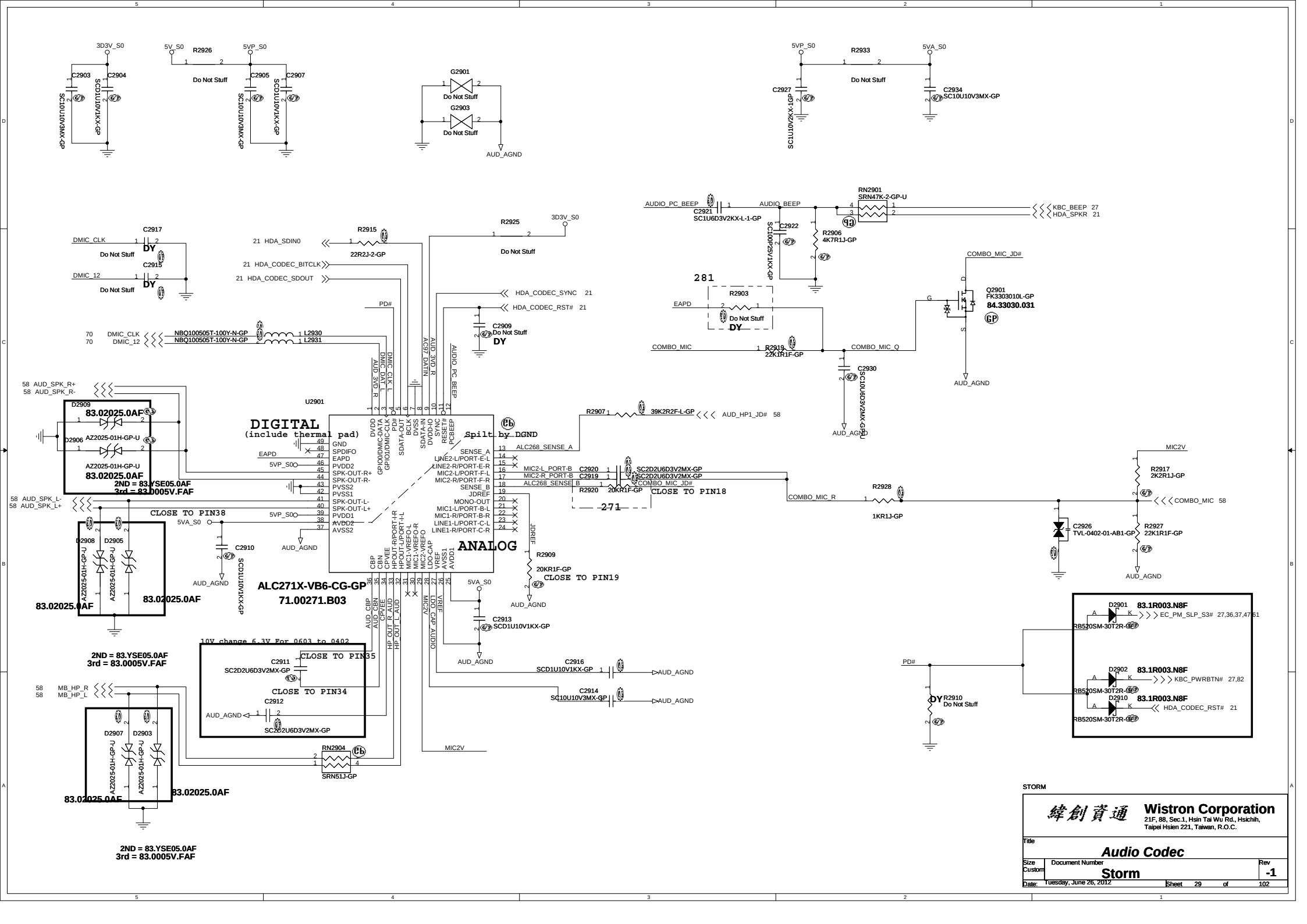
STORM

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

Title: **NUVOTON_NCT7718W**

Size: A3 | Document Number: Storm | Rev: -1

Date: Wednesday, June 27, 2012 | Sheet 28 of 102



STORM

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

Title: **Audio Codec**

Size	Document Number	Rev
Custom	Storm	-1

Date: Tuesday, June 26, 2012 Sheet 29 of 102

AUDIO OP AMPLIFIER

JE40 delete AMP function

STORM

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

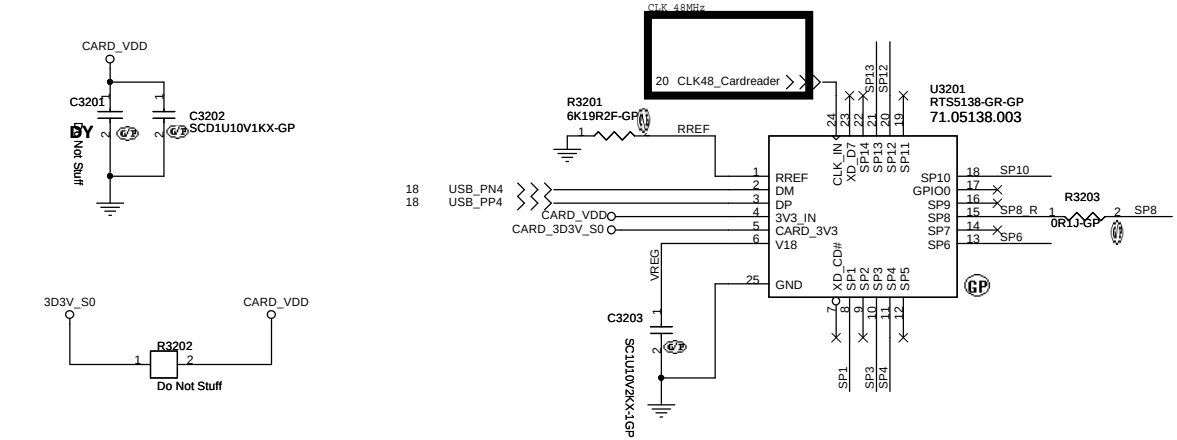
Title: ***Audio AMP***		
Size: A4	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 30 of 102	

Blanking

STORM

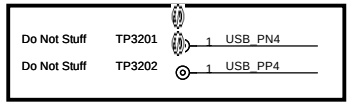
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

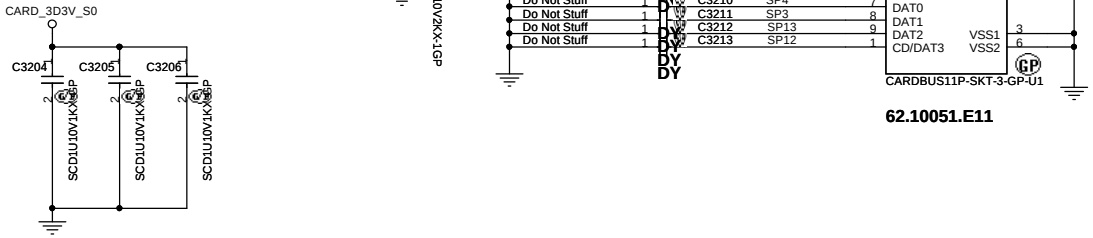
Title: ***AR8158***		
Size: A3	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 31 of 102	



1	RREF	I	Connect external resistor (6.2K ± 1%) to reference ground
2	DM	I/O	USB D- signal
3	DP	I/O	USB D+ signal
4	3V3_IN	I	3.3V power input
5	CARD_3V3	O	3.3V power for all cards
6	V18	O	Regulated supply voltage (1.8V ±10%) from internal 3.3V to 1.8V regulator; supplies internal digital circuits. An external capacitance should be connected
7	XD_CD#	I	xD Card Detect (xD_CD#)
8	SP1	I/O	xD Ready Signal (xD_RDY), SD Write Protect (SD_WP) and MS Clock (MS_CLK)
9	SP2	I/O	xD RE# and MS Card Detect (MS_INS#)
10	SP3	I/O	xD CE# and SD Data 1 (SD_DAT1)
11	SP4	I/O	xD_CLE, SD Data 0 (SD_DAT0) and MS Data 7 (MS_D7)
12	SP5	I/O	xD ALE, SD Data 7 (SD_DAT7) and MS Data 3 (MS_D3)
13	SP6	I/O	xD_WE# and SD Card Detect (SD_CD#)
14	SP7	I/O	xD Write Protect (xD_WP), SD_Data 6 (SD_DAT6) and MS Data 6 (MS_D6)
15	SP8	I/O	xD_Data 0 (xD_D0), SD_Clock (SD_CLK) and MS_Data 2 (MS_D2)
16	SP9	I/O	xD Data 1 (xD_D1), SD Data 5 (SD_D5) and MS Data 0 (MS_D0)
17	GPIO0	I/O	General purpose input/output with interrupt ability
18	SP10	I/O	xD Data 2 (xD_D2) and SD command signal (SD_CMD)
19	SP11	I/O	xD Data 3 (xD_D3), SD Data 4 (SD_DAT4) and MS Data 4 (MS_D4)
20	SP12	I/O	xD Data 4 (xD_D4), SD Data 3 (SD_DAT3) and MS Data 1 (MS_D1)
21	SP13	I/O	xD Data 5 (xD_D5), SD Data 2 (SD_DAT2) and MS Data 5 (MS_D5)
22	SP14	I/O	xD Data 6 (xD_D6) and MS BS
23	XD_D7	I/O	xD Data 7 (xD_D7)
24	CLK_IN	I	48MHz clock directly input

FOR SIV,PLS near U3201





Near CARD1 Pin11, Pin18, Pin22

STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***CARDREADER***	
Size A3	Document Number ***Storm***	Rev ***-1***
Date: Monday, June 25, 2012	Sheet 32 of 102	

Reserved

STORM

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	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 33 of 102

(Blanking)

STORM

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: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 34 of 102	

Blanking

STORM

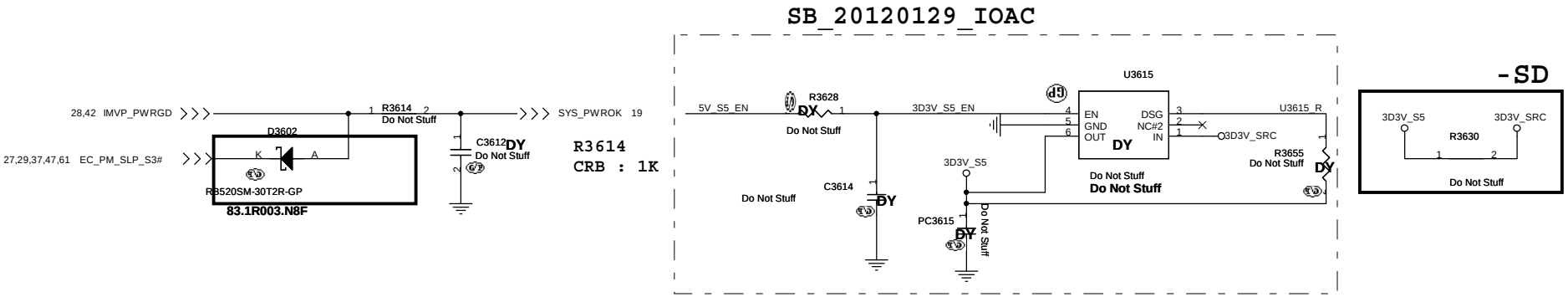
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***USB 3.0 Controller***

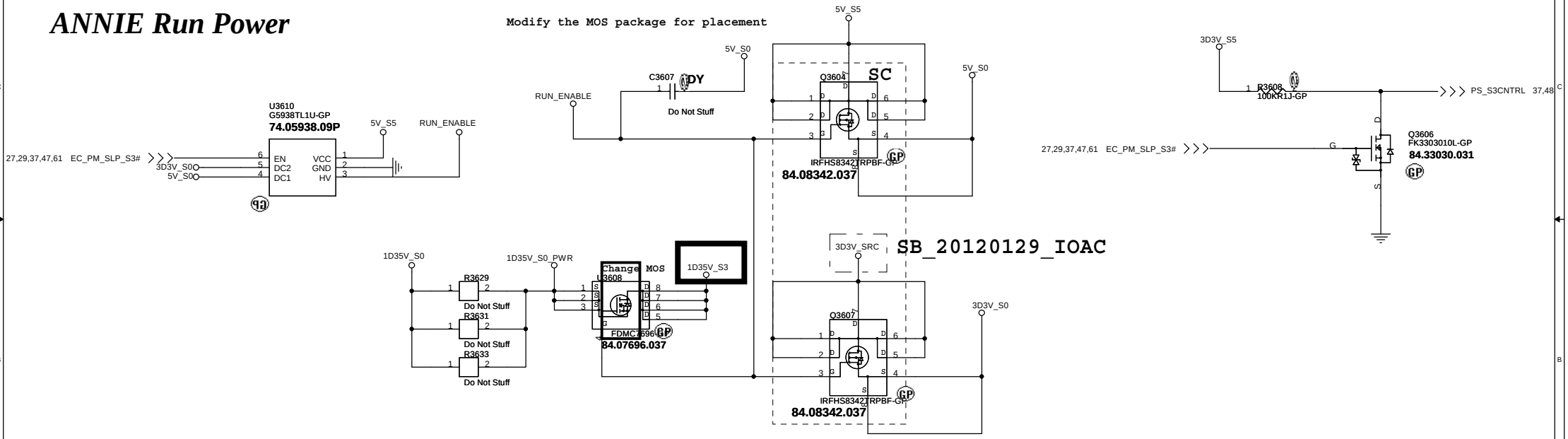
Size	Document Number	Rev
A3	Storm	-1

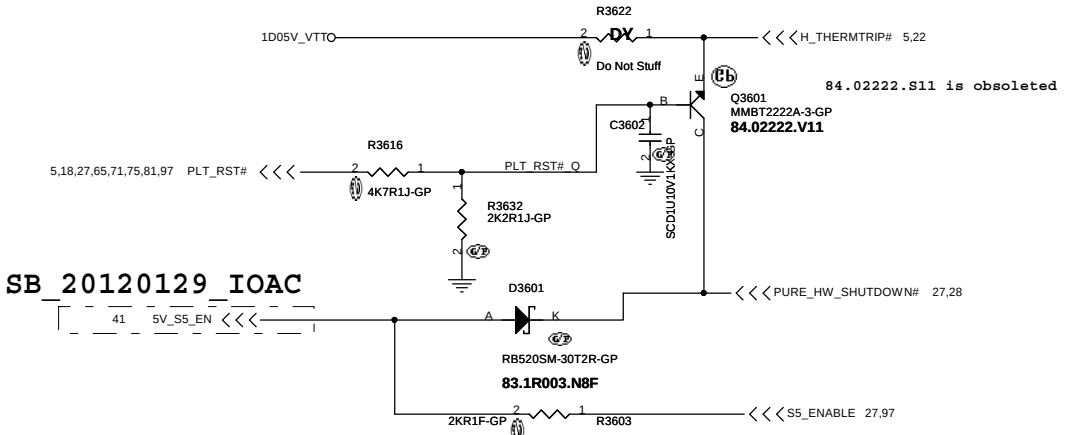
Date: Monday, June 25, 2012 Sheet 35 of 102

Power Sequence



ANNIE Run Power





STORM

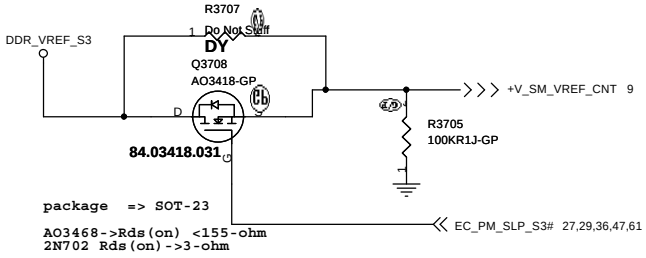
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

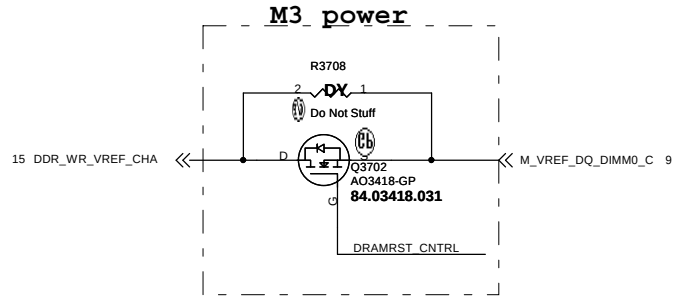
Title: ***Power Plane Enable***

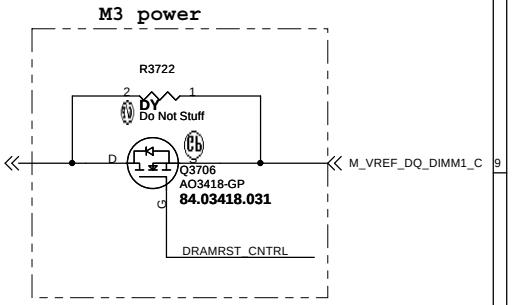
Size	Document Number	Rev
A3	Storm	-1

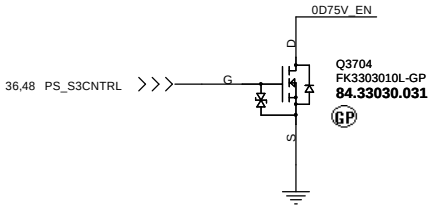
Date: Monday, June 25, 2012 Sheet 36 of 102

Close to CPU
S3 Power Reduction Circuit Processor VREF_DQ Implementation

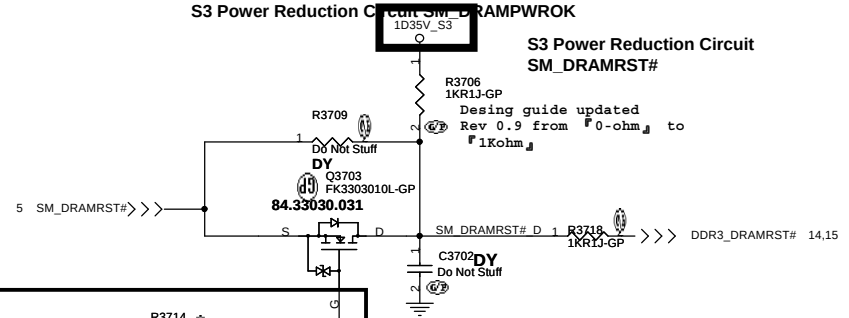


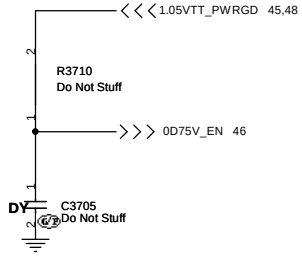


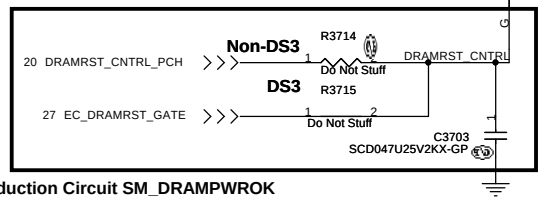




Close to CPU
S3 Power Reduction Circuit SM_DRAMPWROK

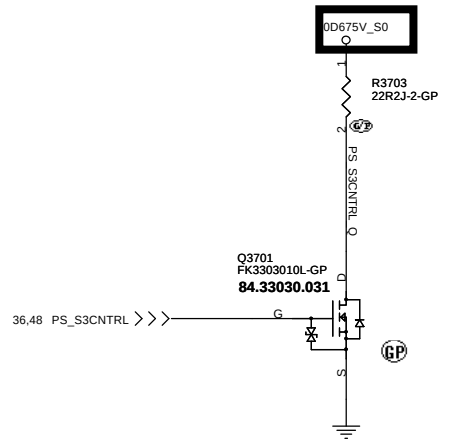


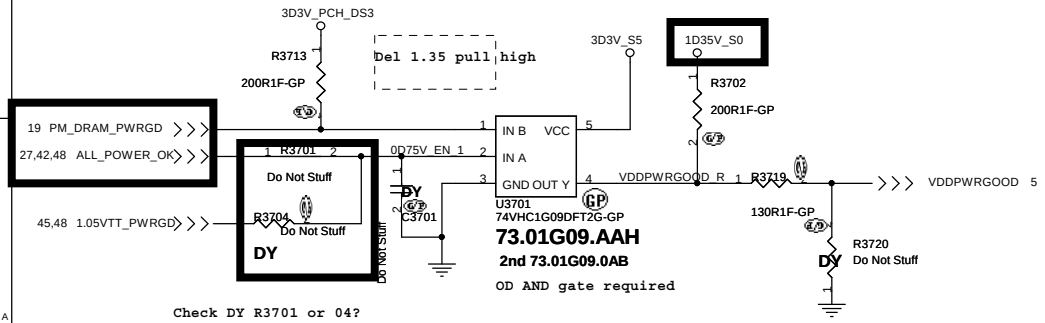




Close to CPU
S3 Power Reduction Circuit SM_DRAMPWROK

Close to DIMM
S3 Power Reduction Circuit SM_DRAMPWROK





For U3701 not OD AND gate
R3719 to 64.15015.6DL
R3720 to 64.75005.6DL
R3702 to DY

SM_DRAMPWROK must have a maximum of 15ns rise or fall time
over VDDQ * 0.55± 200mV and the edge must be monotonic

STORM

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

Title: **ADAPTER**

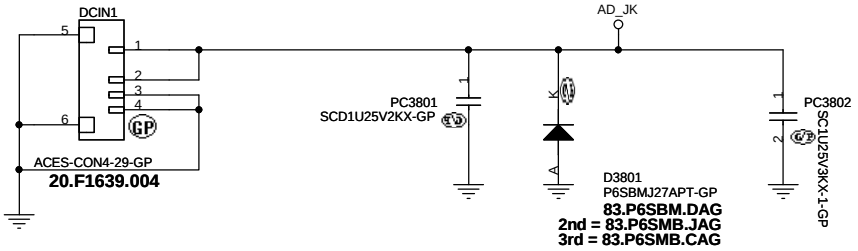
Size	Document Number	Rev
A3	Storm	-1

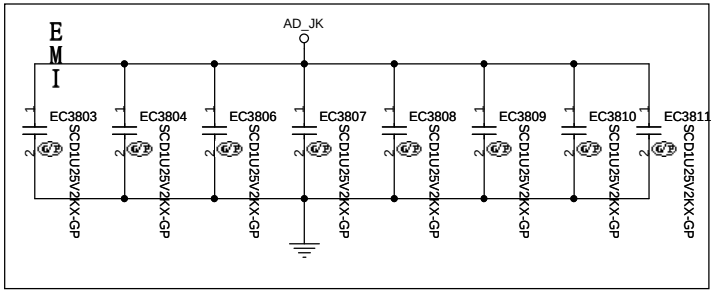
Date: Monday, June 25, 2012 Sheet 37 of 102

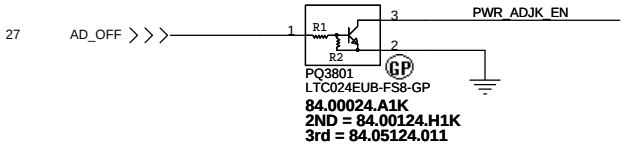
ANNIE solution

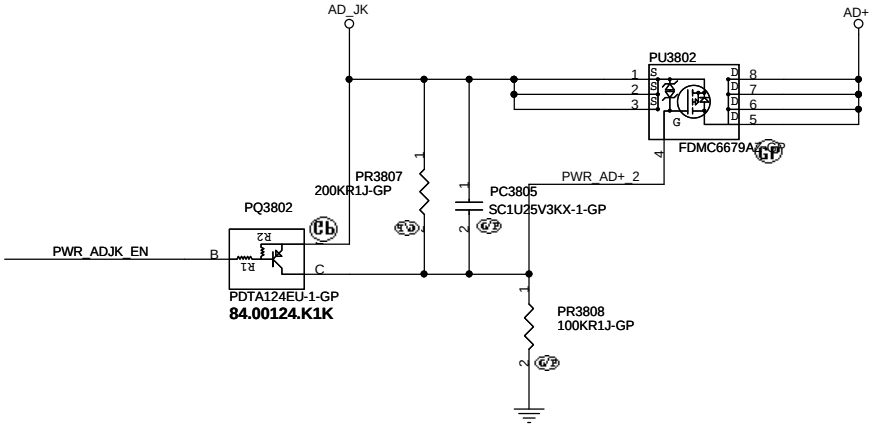
1Pin=3A

Adaptor in to generate DCBATOUT









STORM

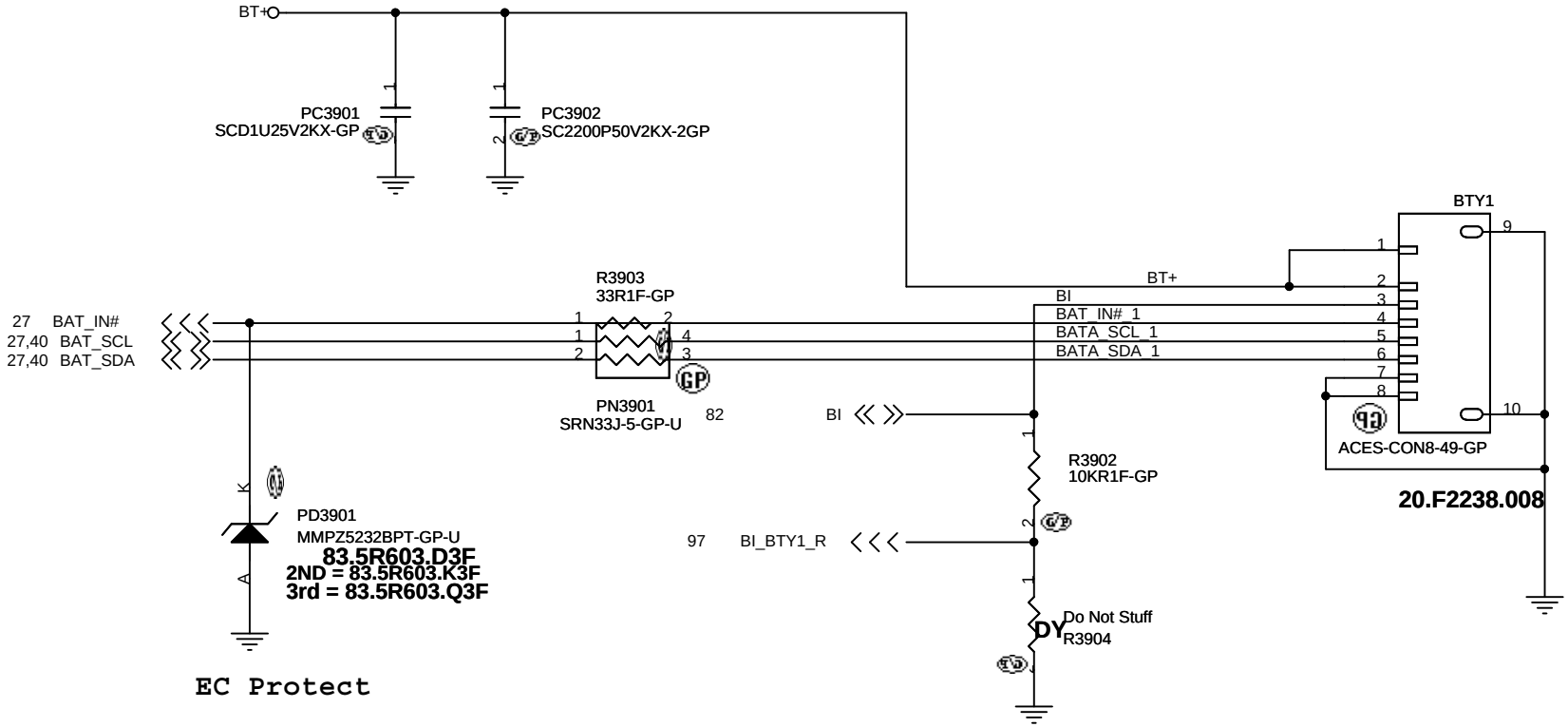
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

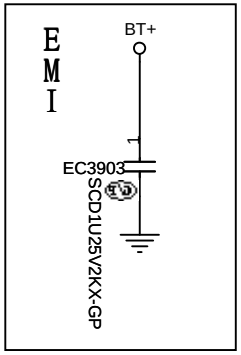
Title: ***DCIN JACK***

Size	Document Number	Rev
Custom	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 38 of 102

BATTERY CONNECTOR

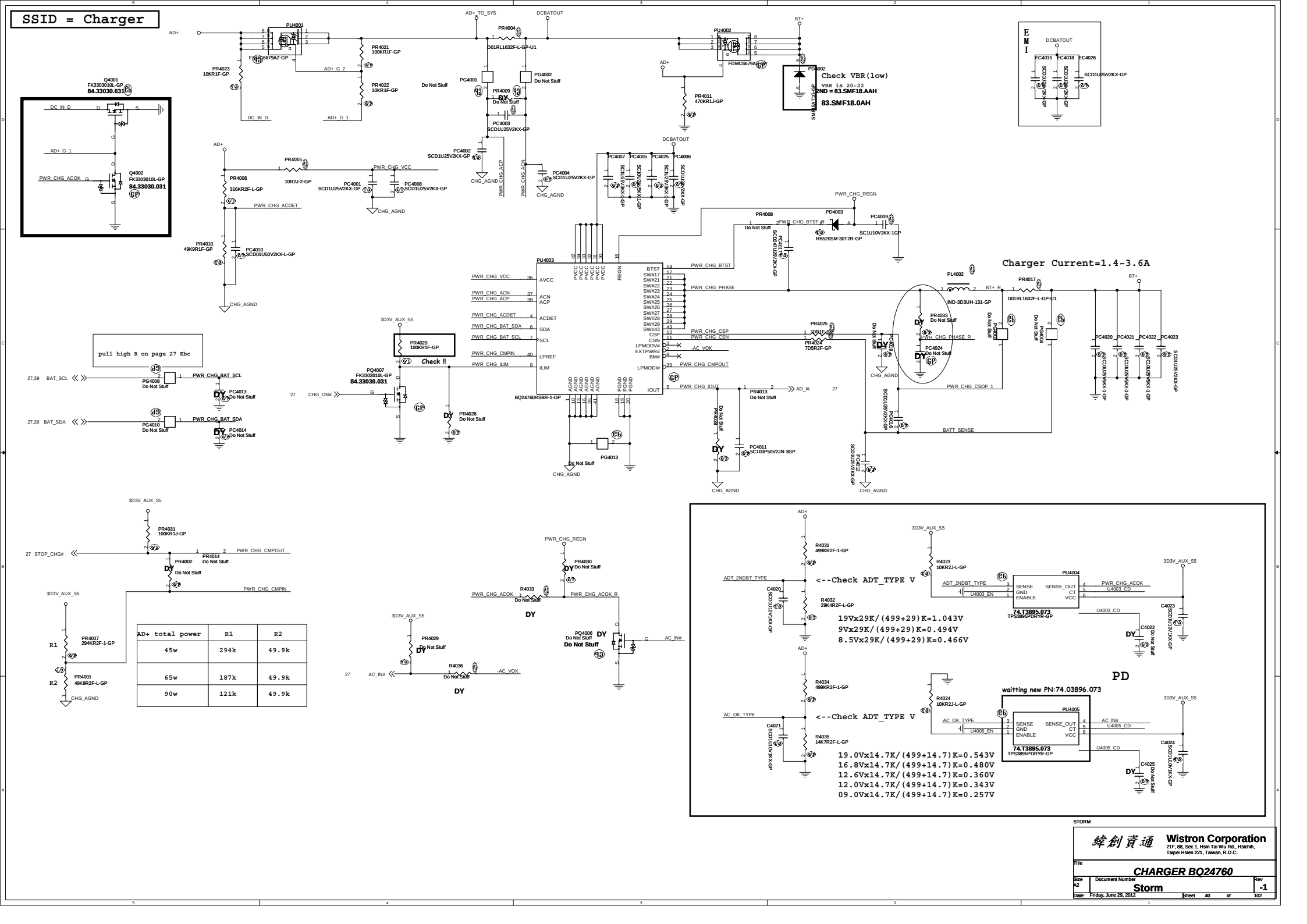




STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	***BATT CONN***
Size: A4	Document Number: **Storm** — Rev: **-1**
Date: Monday, June 25, 2012	Sheet 39 of 102

SSID = Charger



STORM

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

Title: ***CHARGER BQ24760***

Size	Document Number	Rev
A2	Storm	-1

Date: Friday, June 29, 2012 Sheet 40 of 102

SSID = PWR.Plane.Regulator_3p3v5v

BOM control

	Main source	2nd source
PU4101	84.03664.037 (FDMS3664S) Mount	84.00038.A37 (RJK03P8DPA) Mount

DEL OUTPUT GAP

PU4103 need change to TPS51275A
PN:74.51275.003
waiting for symbol

Design Current = 15A
25.1A<OCP< 29.3A

For Power concern

77.C2271.39L
2nd = 77.22271.33L
3nd= 77.52271.13L

77.22271.27L
2nd=79.22710.20L

Del TP4702 by placement

See Table 1

TPS51275RUKR-GP

74.51275.003

Iomax=5A
OCP>7.5A

Vout = 2 * (1 + R1/R2)
= 2 * (1 + 6.8K / 10K)
= 3.36V

Close to VFB Pin (pin5)

Vout = 2 * (1 + R1/R2)
= 2 * (1 +33K / 21K)
= 5.14V

Close to VFB Pin (pin2)

Table 1. SKIP mode operation (51275/A)

	SKIPSEL	Skip mode operation
51275	n/a	Auto-skip
51275A	Hi	OOA
	Lo	Auto-skip

Close Pu4106 Pin3

Vo=1.25*(1+(R1/R2))

SB_20120113_IOAC

3D3V OCP setting PR4107
5V OCP setting PR4103

STORM

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

Title: TPS51125A 5V/3D3V

Size: Custom | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 41 of 102

SSID = CPU.Regulator

Volterra's suggestion:
VCC 31x22uF(0603) for 1-PHASE VCC
VCCAXG 28x22uF(0603) for 1-PHASE VCCAXG

Boot Voltage	PR4265	PR4204
0V	825ohm	825ohm
1V	191ohm	191ohm

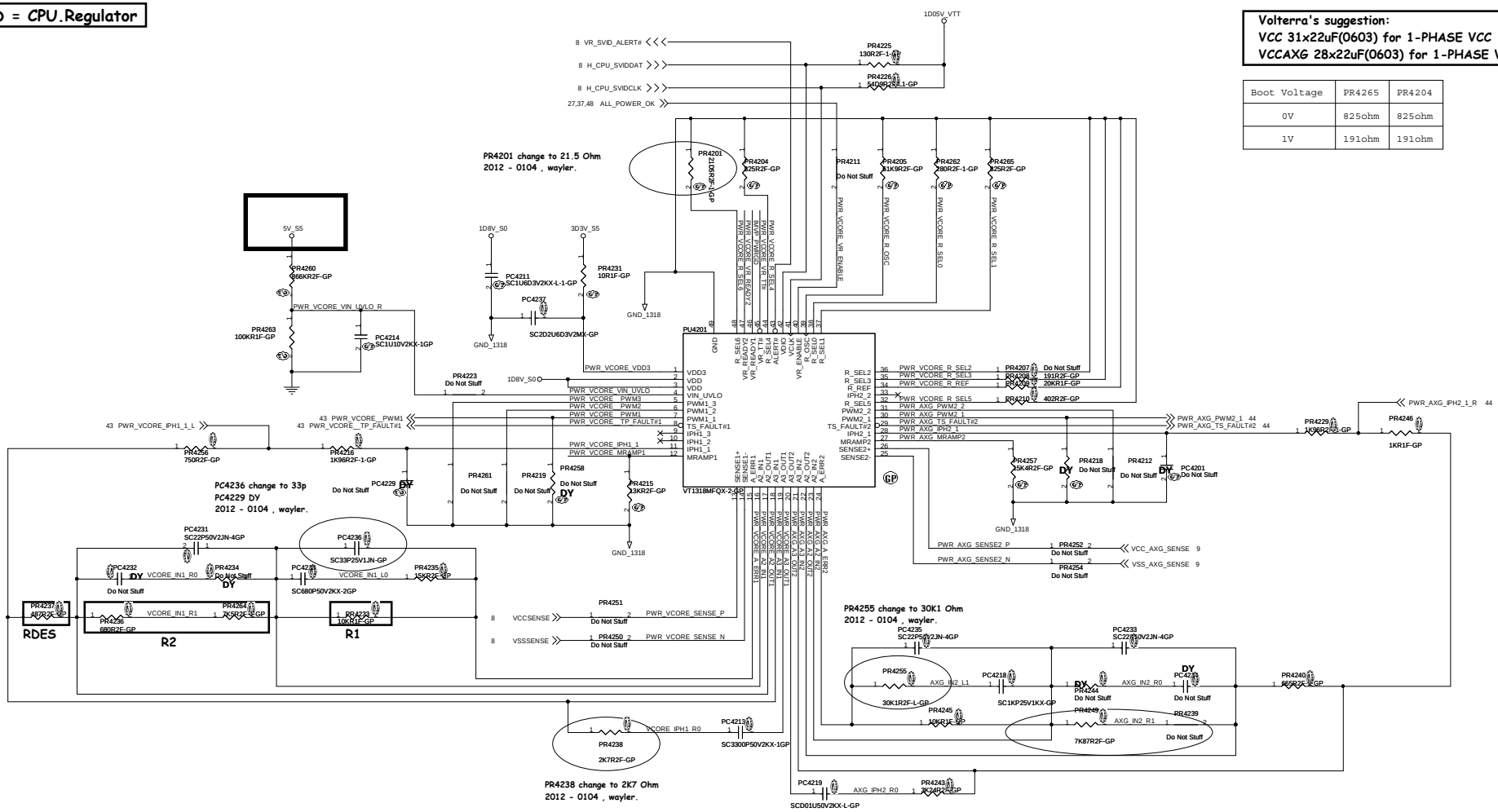


Table 1: R_{DES} Selection Table

1	20	20	1150
1	24	32	976
1	28	36	845
1	32	40	732
1	36	44	649
1	40	52	590
1	44	56	536
1	48	64	487
2	40	48	590
2	48	64	976
2	56	72	845
2	64	80	732
2	72	96	649
2	80	104	590
2	88	112	536
2	96	128	487
3	60	72	787
3	72	96	787
3	84	108	665
3	96	120	590
3	108	144	523
3	120	156	475
3	132	168	432
3	144	192	392

R_1 and R_2 Selection

Along with R_{DES}, The values of R_1 and R_2 determine the load line according to Equation 4.

Equation 4

$$R_{LL}[\Omega] = \frac{R_1}{R_2} * \frac{1}{22} * R_{DES} * \frac{1}{K_I}$$

→ RLL is inverse proportion to R2

KI=95000

With K_I being the slave current feedback gain and R_1 having a typical value of 10kΩ. Next, the required value of R_2 can be calculated to achieve the desired load line via Equation 4 and previously selected values for R_1 and R_{DES}.

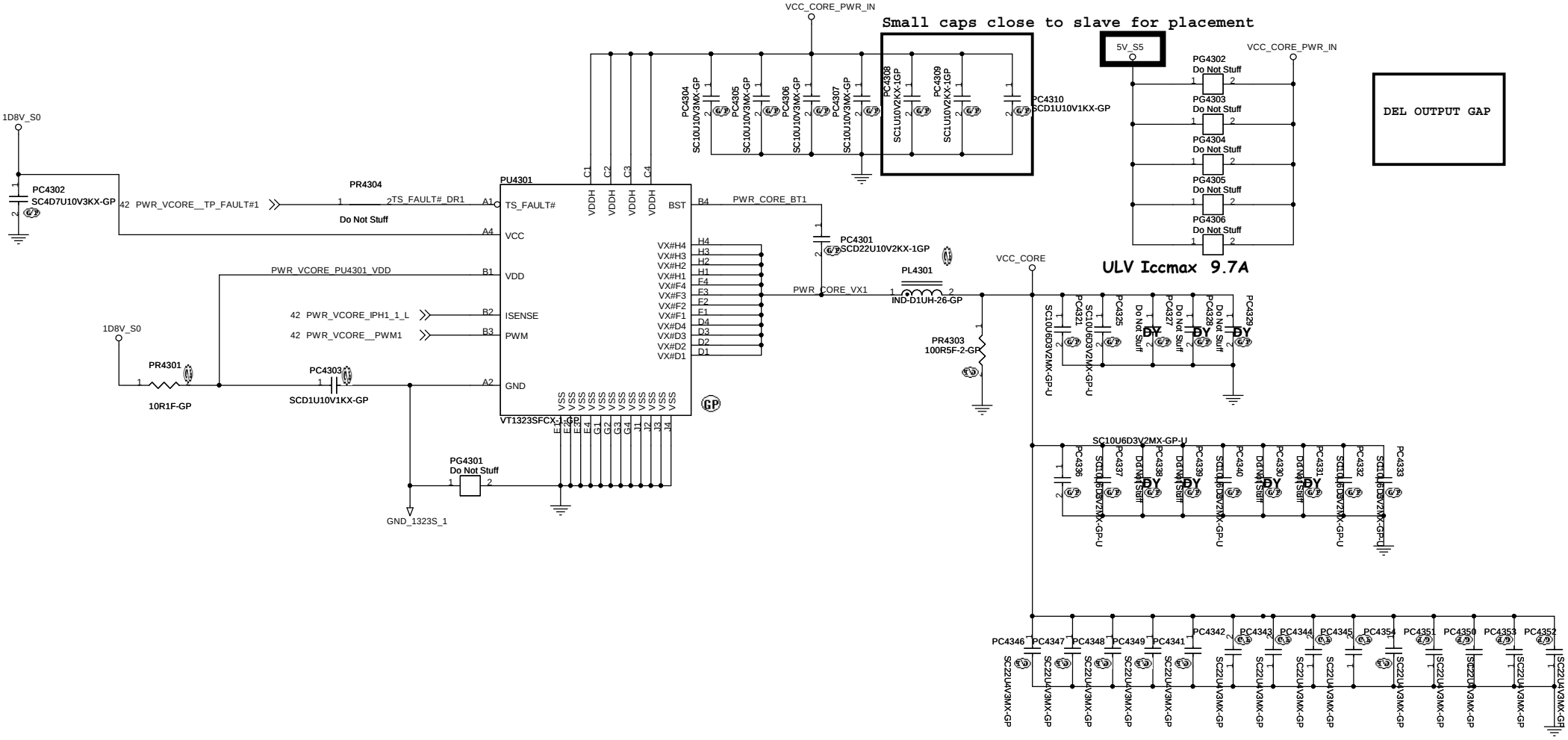
STORM

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

Title: *VT1318+1323_CPU_CORE2+1(1/3)*

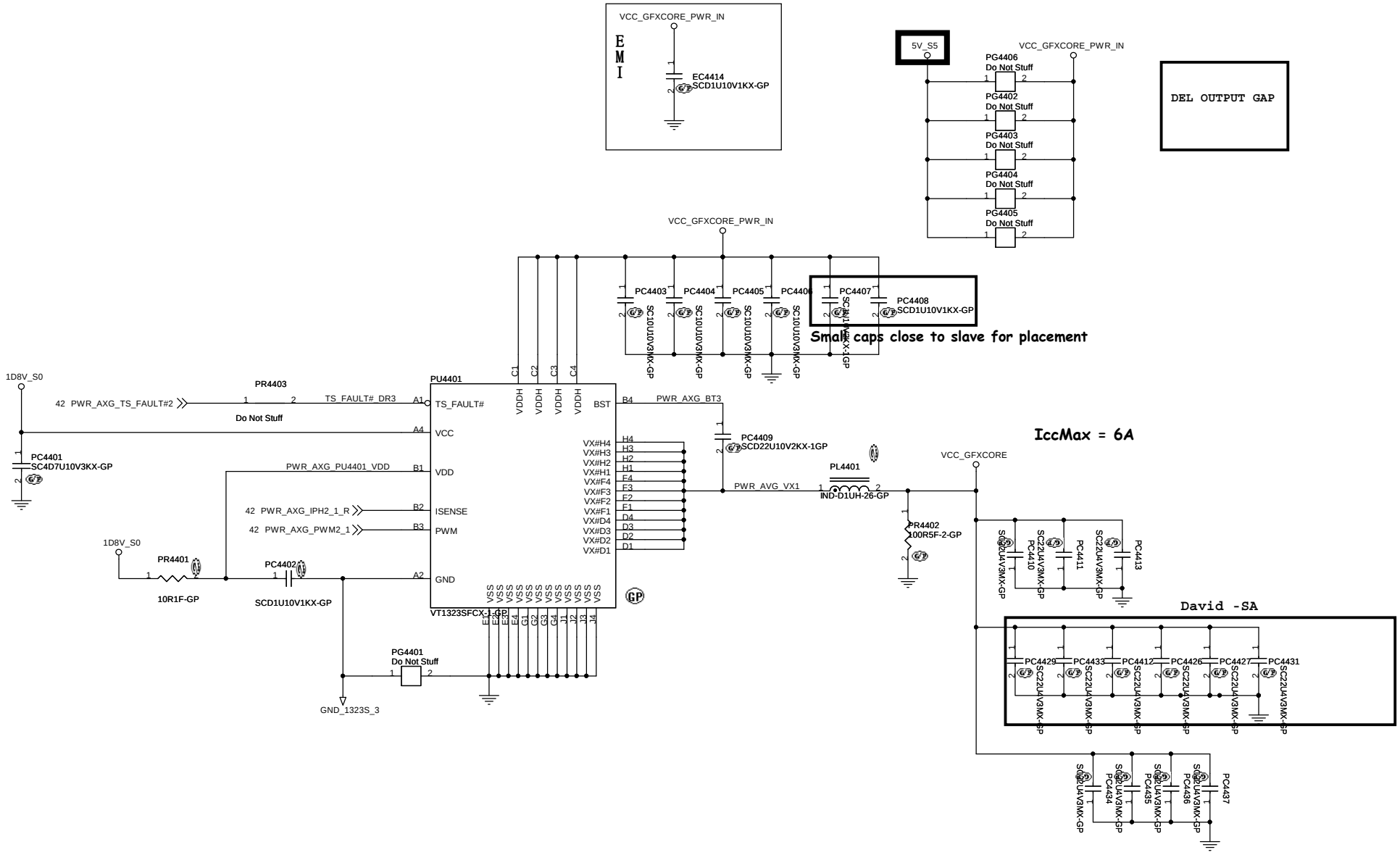
Size: | Document Number: Storm | Rev: -1

Date: Wednesday, June 27, 2012 | Sheet 42 of 102



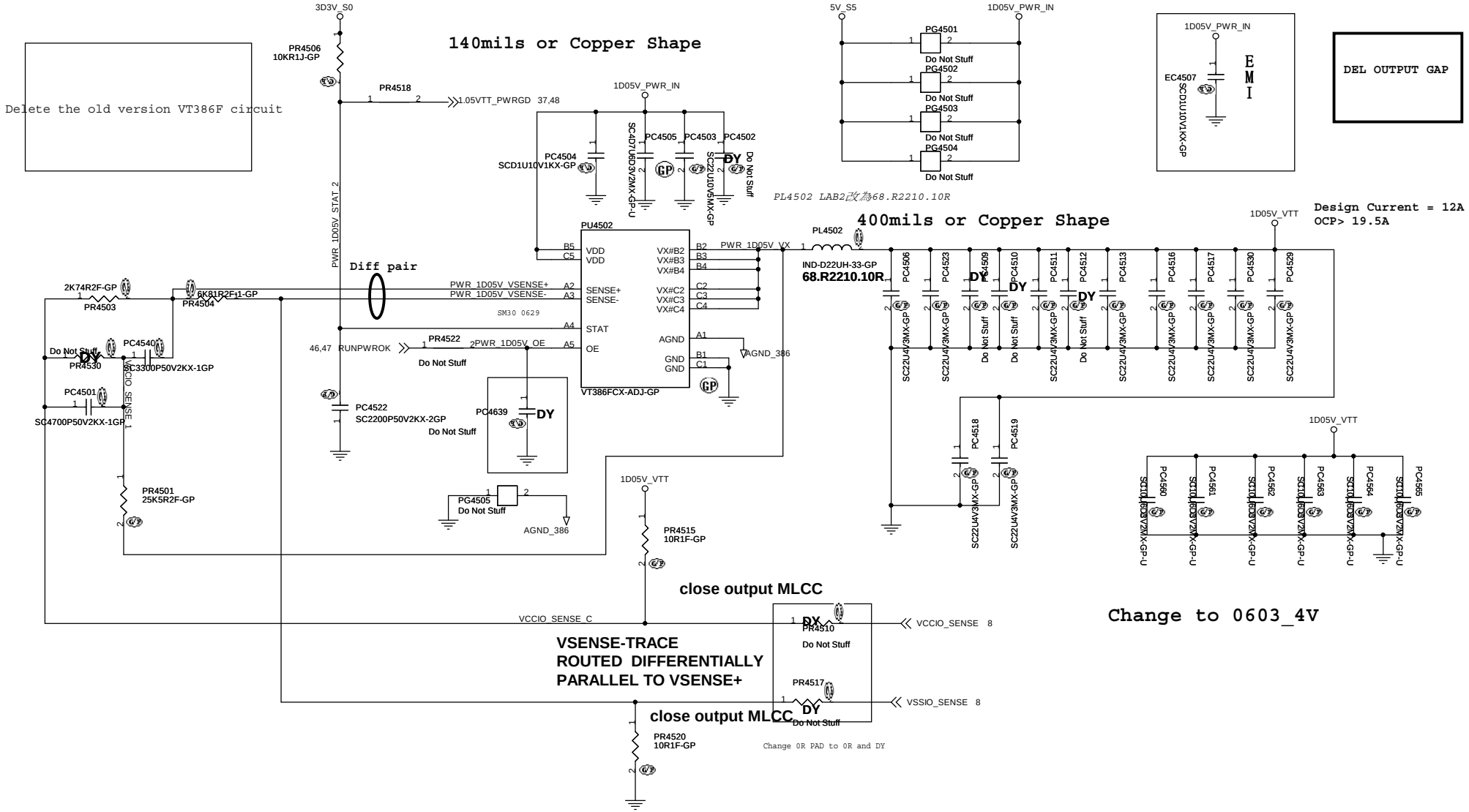
STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	***VT1318+1323 CPU CORE2+1(2/3)***
Size	Document Number: **Storm** — Rev: **-1**
Date: Monday, June 25, 2012	Sheet 43 of 102



STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***VT1318+1323_CPU_CORE2+1(3/3)***	
Size	Document Number **Storm**	Rev **-1**
Date: Monday, June 25, 2012	Sheet 44 of 102	



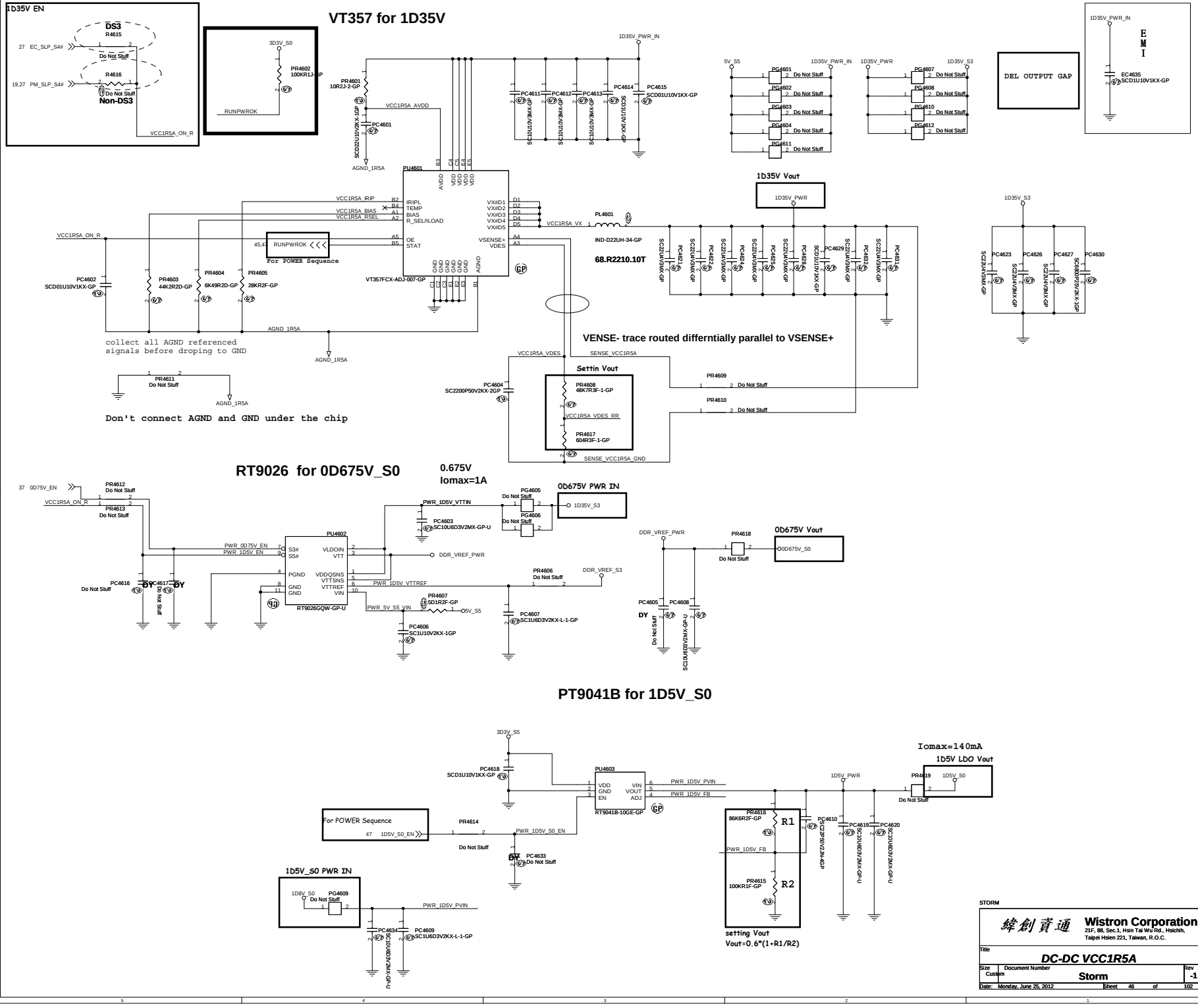
STORM

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

Title: VT386 +1.05V VTT

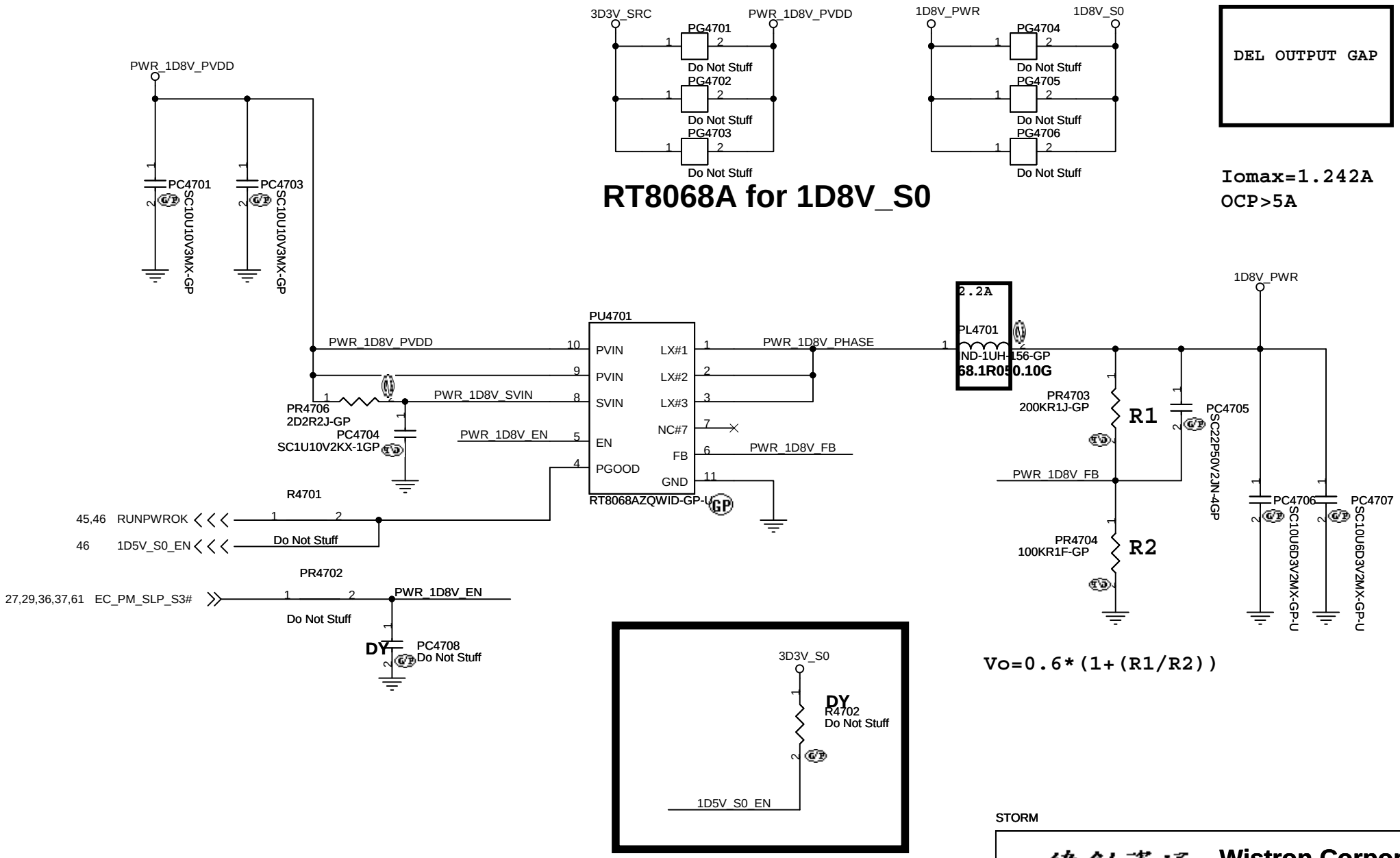
Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 45 of 102



STORM

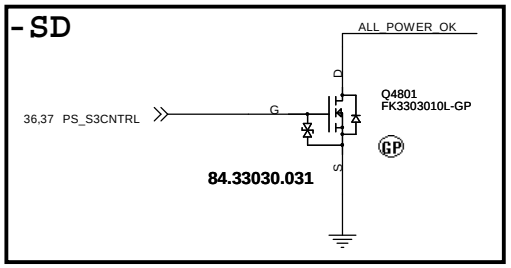
緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	***DC-DC VCC1R5A***
Size: Custom	Document Number: **Storm** Rev: **-1**
Date: Monday, June 25, 2012	Sheet 46 of 102



STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***1D8V_S0 SYW231***	
Size A4	Document Number **Storm**	Rev -1
Date: Monday, June 25, 2012	Sheet 47 of 102	

SY8037 for VCCSA



VID0	VID1	VCCSA ULV
L	L	0.9V
L	H	0.85V
H	L	0.775V
H	H	0.75V

PR4803 10KR1J-GP 3D3V_S0

Vccsa Power Good

ALL_POWER_OK → ALL_POWER_OK 27,37,42

PR4804

PWR_VCCSA_VID1 — Do Not Stuff — VCCSA_VID1 9

PR4805

PWR_VCCSA_VID0 — Do Not Stuff — VCCSA_VID0 9

1.05VTT_PWRGD → 1.05VTT_PWRGD 37,45

Vccsa EN

DY PC4810 Do Not Stuff

DEL OUTPUT GAP

5V_S5 — PR4806 10R2J-2-GP

PC4814 SC1U10V2KX-1GP

PC4816 SC1U10V2KX-1GP

1227 SA

Vccsa PWR IN

5V_S5

PG4801 Do Not Stuff

PG4802 Do Not Stuff

PG4803 Do Not Stuff

PG4804 Do Not Stuff

PWR_VCCSA_VIN

PC4807 SCD1U10V1KX-GP

PC4812 SC10U10V3MX-GP

PC4811 SC10U10V3MX-GP

PU4801

PWR_VCCSA_VID1	VID1		
VCCUSA_SENSE 8	VOUT	VID0 6	PWR_VCCSA_VID0
VCCUSA_FB 9	FB	EN 5	1.05VTT_PWRGD
PWR_VCCSA_SVIN 10	SVIN	PG 4	ALL_POWER_OK
11	PVIN	LX#3 3	
12	PVIN	LX#2 2	
13	GND	LX#1 1	PWR_VCCSA_SW

SY8037DDCC-GP

74.08037.B43

CYNTEC - PCMB042T-R47MS
package : 4.15 * 4 * 1.8
ID 7 A ~ 9.5A
DCR = 12.5 ~ 14mOhm

Design Current =4 A
6.6A<OCP< 7.8A

PL4801 COIL-D47UH-9-GP

0D85V_S0

PC4803 SC22U4V3MX-GP

PC4804 SC22U4V3MX-GP

PC4805 SC22U4V3MX-GP

DY PC4806 Do Not Stuff

0D85V_S0

VCCUSA_FB

PC4817 SC68P50V2JN-1GP

PR4811 100R1F-GP

VCCUSA_SENSE

PR4810 Do Not Stuff

VCCSA_SENSE 9

STORM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: SY8037_VCCSA		
Size: A3	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 48 of 102	

SSID = VIDEO

EDP CONNECTOR

EDP1

IPEX-CON30-4-GP-U

CPU_EDP_DATA1# C C4913 — SCD1U10V1KX-GP — CPU_EDP_DATA1# 4
CPU_EDP_DATA1 C C4912 — SCD1U10V1KX-GP — CPU_EDP_DATA1 4
CPU_EDP_DATA0# C C4908 — SCD1U10V1KX-GP — CPU_EDP_DATA0# 4
CPU_EDP_DATA0 C C4907 — SCD1U10V1KX-GP — CPU_EDP_DATA0 4
CPU_EDP_AUXP C C4901 — SCD1U10V1KX-GP — CPU_EDP_AUX 4
CPU_EDP_AUXN C C4906 — SCD1U10V1KX-GP — CPU_EDP_AUX# 4

LCD_Self_Test — TP4901 Do Not Stuff
DBC_EN_C — R4908 33R1J-GP — DP_HPD0_C
BLON_OUT_C
LCD_BRIGHTNESS — R4907 33R2J-L1-GP — PCH_BKLT_CTL 17
LCDDD — R4909 Do Not Stuff — LCDVDD
DCBATOUT_LCD

20.F1407.030

DCBATOUT_LCD — F4901 POLYSW-1D1A24V-GP-U — DCBATOUT
69.50007.A31
2nd = 69.50007.A41

C4914 SC10U25V5KX-1-GP
C4916 SC1KP25VJKX-GP
C4915 SCD1U25V2KX-GP

CPU_EDP_HPD# 4
DP_HPD0_C — R4922 100KR1J-GP — Q4901 FK3303010L-GP 84.33030.031

3D3V_S0
DY R4923 Do Not Stuff — DY R4924 Do Not Stuff
4 CPU_EDP_AUX#
4 CPU_EDP_AUX
DY R4926 Do Not Stuff — DY R4925 Do Not Stuff

27 BLON_OUT — R4904 1KR2J-L2-GP — BLON_OUT_C
R4911 100KR1J-GP
C4917 SC100P25V1KX-GP

Camera Power

3D3V_S0 — F4902 — 3D3V_CAMERA_S0
69.4R500.141
2nd = 69.4R500.151
6V 0.5A
C4903 SC10U10V3MX-GP

output turn-0n Rising TIme:1.3ms~2.7ms
current limit:2~3.3A
Previous parts(74.05285.07F)rise time:1.5ms ~5ms
current limit:1.5ms~ 3.5ms

3D3V_S0 — R4913 DY Do Not Stuff — 5V_TS_S0
5V_S0 — F4903 FUSE-D5A6V-2-GP
69.4R500.141
2nd = 69.4R500.151
C4904 SC10U10V3MX-GP

3D3V_S0 — U4901 G5244A31U-GP 74.05244.073 — LCDVDD
U4901_R
C4911 SC4D7U10V3KX-GP
R4905 100R1F-GP
DY C4909 Do Not Stuff
PCH_LCDVDD_EN 17
C4910 SC4D7U10V3KX-GP
Layout 40 mil

CCD1

7781_SDA 28,68,69
7781_SCL 28,68,69
SENSOR_INT 27,68
Light Sensor
TS_INT
USB_PP3 18
USB_PN3 18
TS_AGND
Touch
USB_PP6 18
USB_PN6 18
CCD
5V_TS_S0
3D3V_CAMERA_S0

IPEX-CON20-3-GP

20.F1407.020

R4912 33R2J-L1-GP — Touch_Screen_INT 18
TS_INT — Q4902 Do Not Stuff Do Not Stuff DY

R4914 Do Not Stuff — TS_AGND

STORM

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

Title: ***LCD/Inverter CONN***

Size	Document Number	Rev
A3	**Storm**	**-1**

Date: Friday, June 29, 2012 Sheet 49 of 102

Pull High 5V Design on CRT Board

CRT DDCDATA & DDCCLK level shift

STORM

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

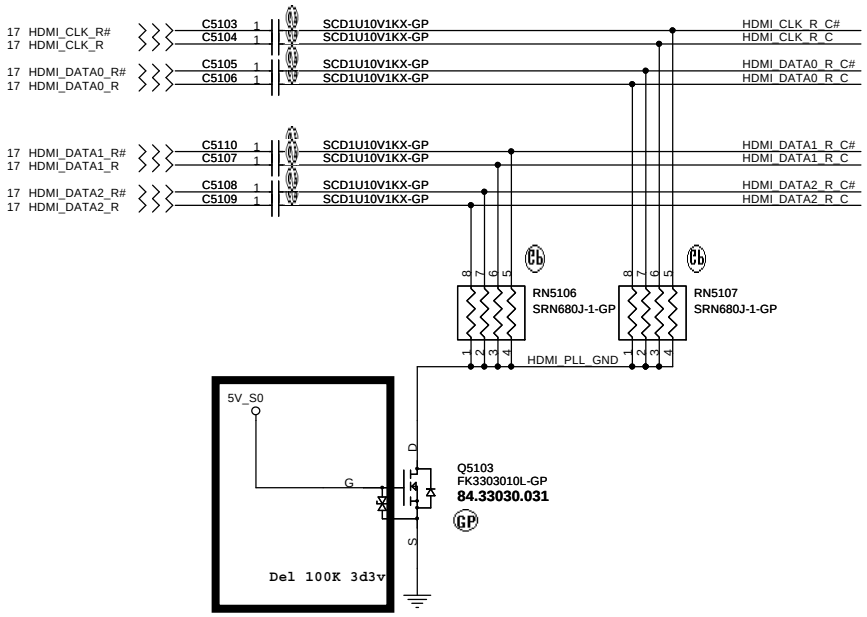
Title: CRT Connector

Size	Document Number	Rev
A3	Storm	-1

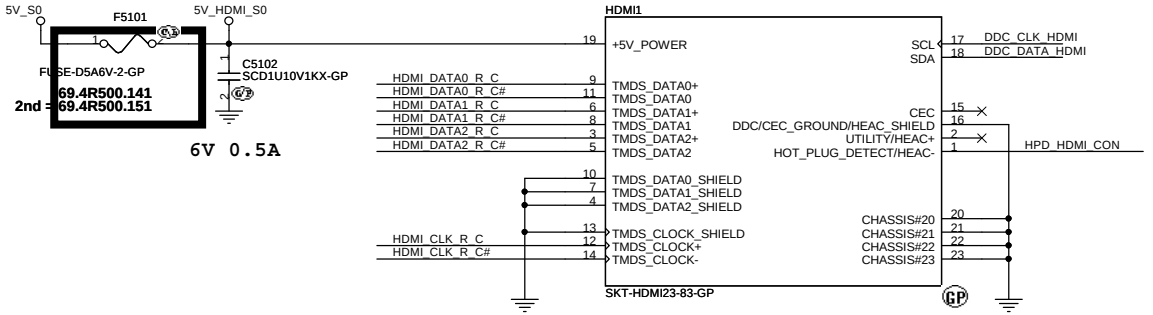
Date: Monday, June 25, 2012 Sheet 50 of 102

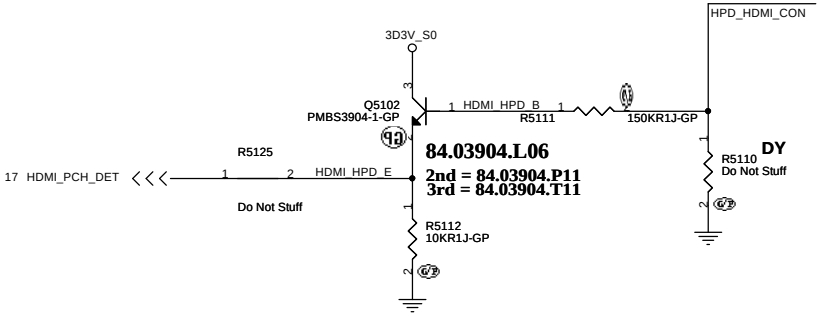
SSID = VIDEO

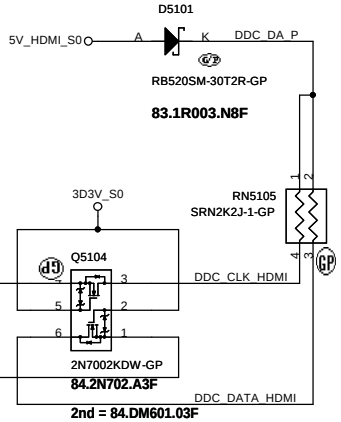
HDMI Level Shifter

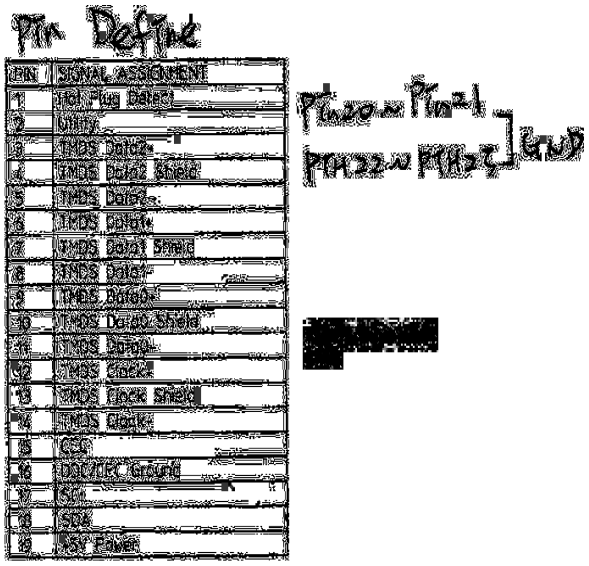


Micro HDMI CONN









STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***HDMI Level Shifter/Conn***	
Size A3	Document Number **Storm**	Rev **-1**
Date: Monday, June 25, 2012	Sheet 51 of 102	

LED BACKLIGHT CONVERTER POWER

STORM

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: A3 | Document Number: **Storm** | Rev: **-1**

Date: Monday, June 25, 2012 | Sheet 52 of 102

(Blanking)

STORM

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	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 53 of 102

(Blanking)

STORM

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: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 54 of 102	

SSID = User.Interface

ITP Connector

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

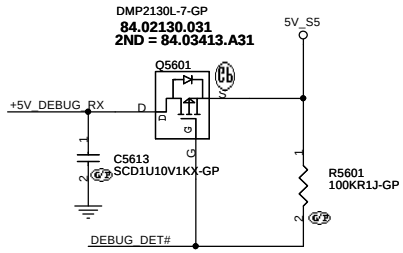
STORM

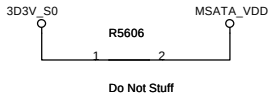
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ITP		
Size: A4	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 55 of 102	

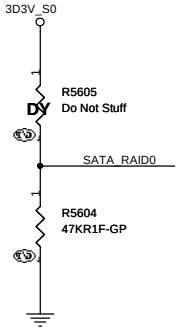
SSID = SATA

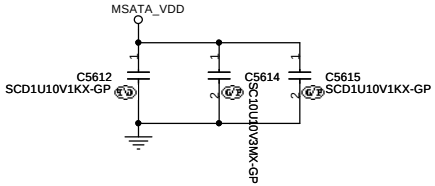
MSATA Connector



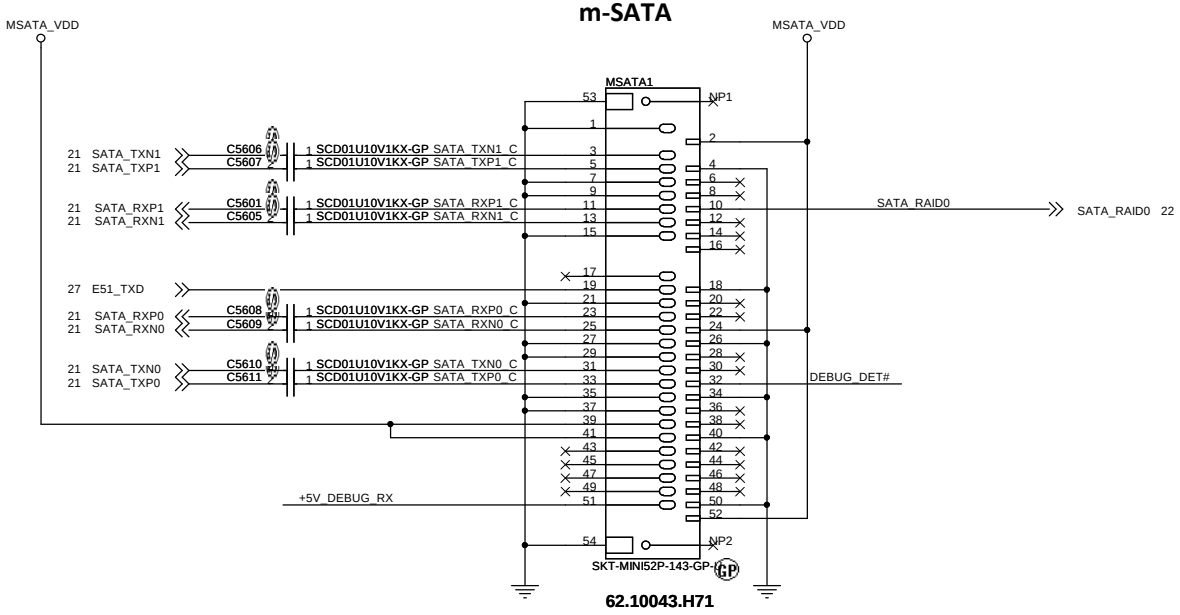


DEBUG CARD





m-SATA



STORM

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

Title: HDD/ODD

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 56 of 102

ESATA Power

USB CHARGER

STORM

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

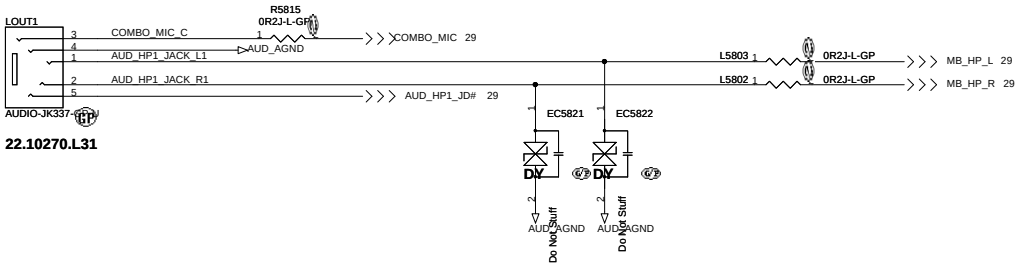
Title: ***E-SATA/USB CHARGER***

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 57 of 102

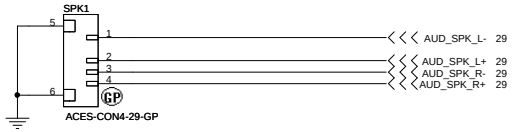
SSID = AUDIO

LINE OUT



22.10270.L31

Speaker Connector



20.F1639.004

STORM

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
Custom	Storm	-1

Date: Monday, June 25, 2012 Sheet 58 of 102

1.route on bottom as differential pairs.
2.Tx+/Tx- are pairs. Rx+/Rx- are pairs.
3.No vias, No 90 degree bends.
4.pairs must be equal lengths.
5.6mil trace width,12mil separation.
6.36mil between pairs and any other trace.
7.Must not cross ground moat,except RJ-45 moat.

Without LAN

STORM

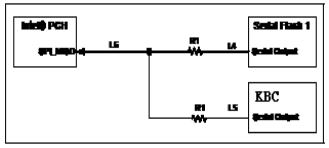
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

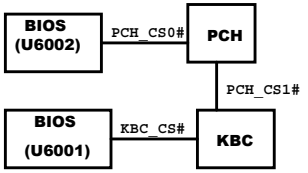
Title: ***LAN CONNECTOR***

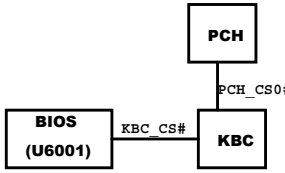
Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 59 of 102

SSID = Flash.ROM

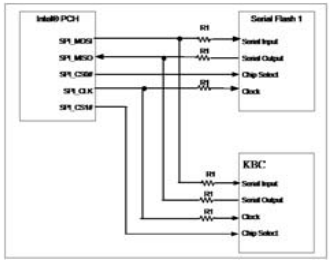


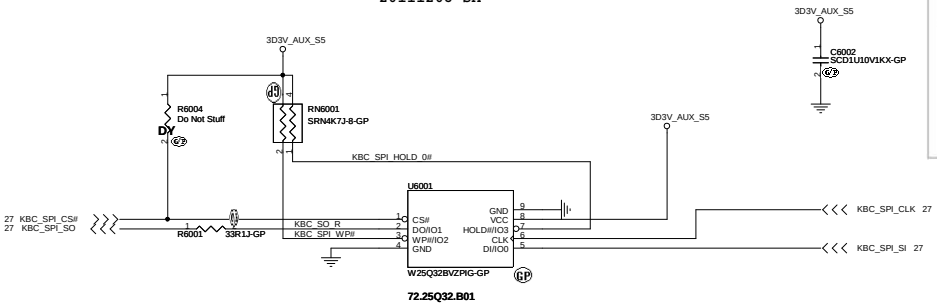




SPI Flash ROM(4M) for KBC

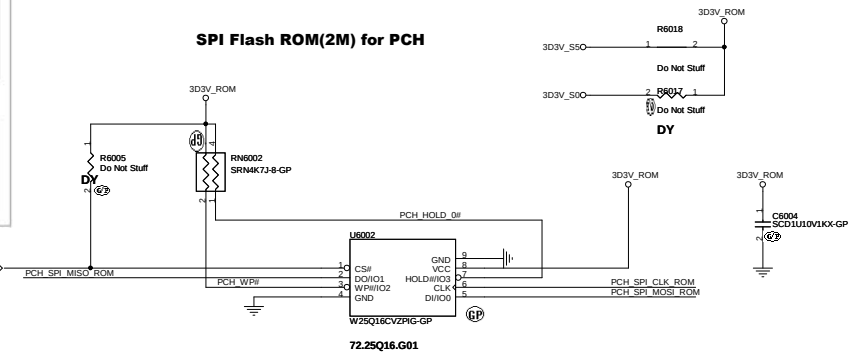
20111208-SA



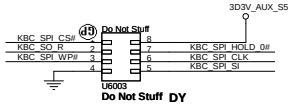


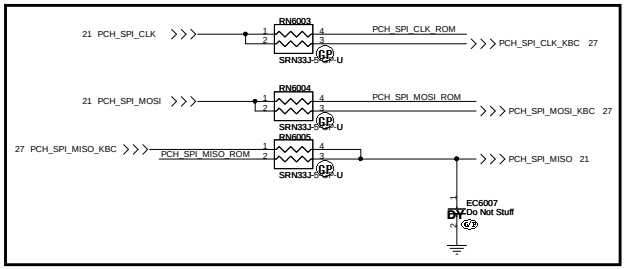
Flash ROM:72.25Q32.B01(4M)

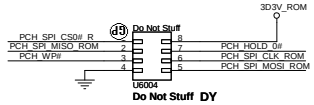
SPI Flash ROM(2M) for PCH



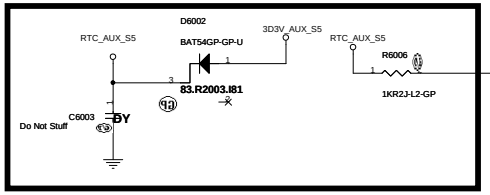
Flash ROM:72.25Q16.G01(2M)

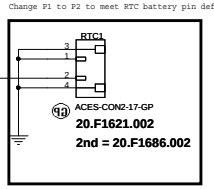






SSID = RBATT





RTC battery charger sircuit

STORM

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

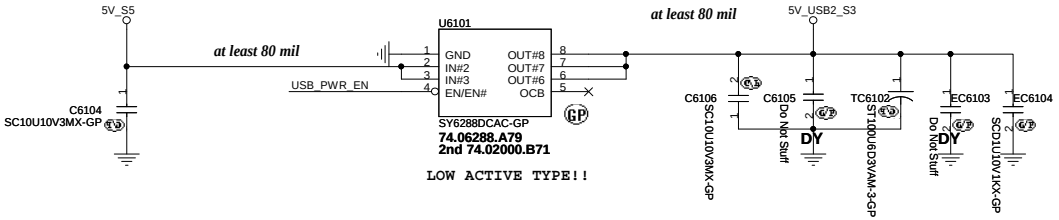
Title: *Flash(KBC+PCH)/RTC*

Size: Custom | Document Number: Storm | Rev: -1

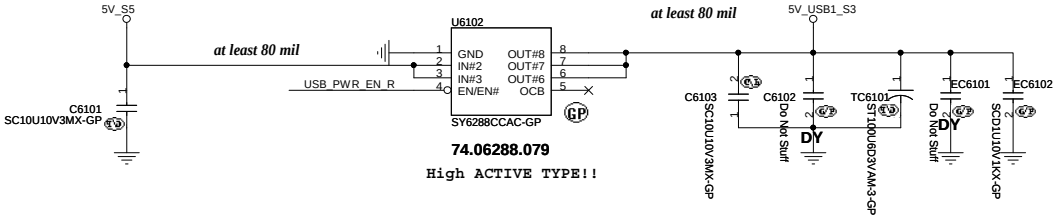
Date: Monday, June 25, 2012 | Sheet 60 of 102

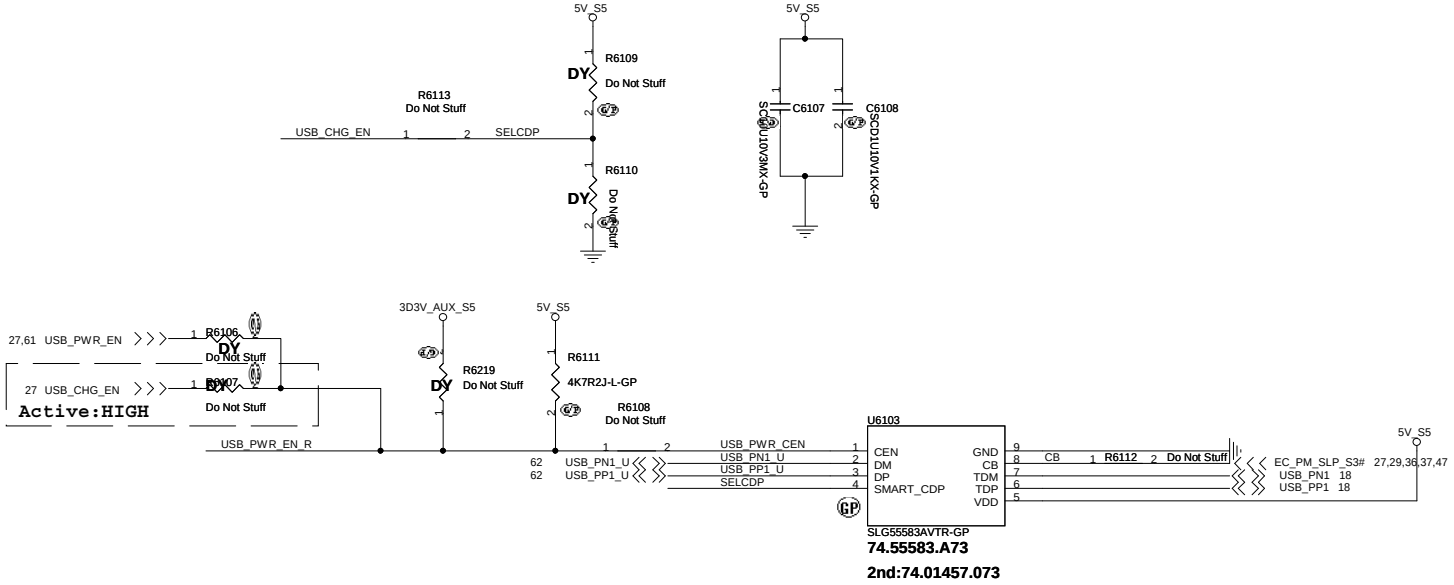
SSID = USB

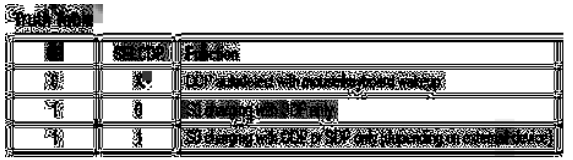
Change Main source
Support 2.45A



Change Main source
Support 2.45A







Pin #	Name	Type	Description
1	CEN#	Output	P-FET Open Drain Output. Current Limit Switch (CLS) Control Output. CB changes from 0 to 1 or 1 to 0. CEN# will be high for 2 seconds (typ)
4	SMART-CDP	Input	Input Control logic (see truth table)
8	CB	Input	Switch Control Bit 0 = autodetection charger identification active 1 = charging downstream port with active USB2.0 data communication mode with 1.5A support

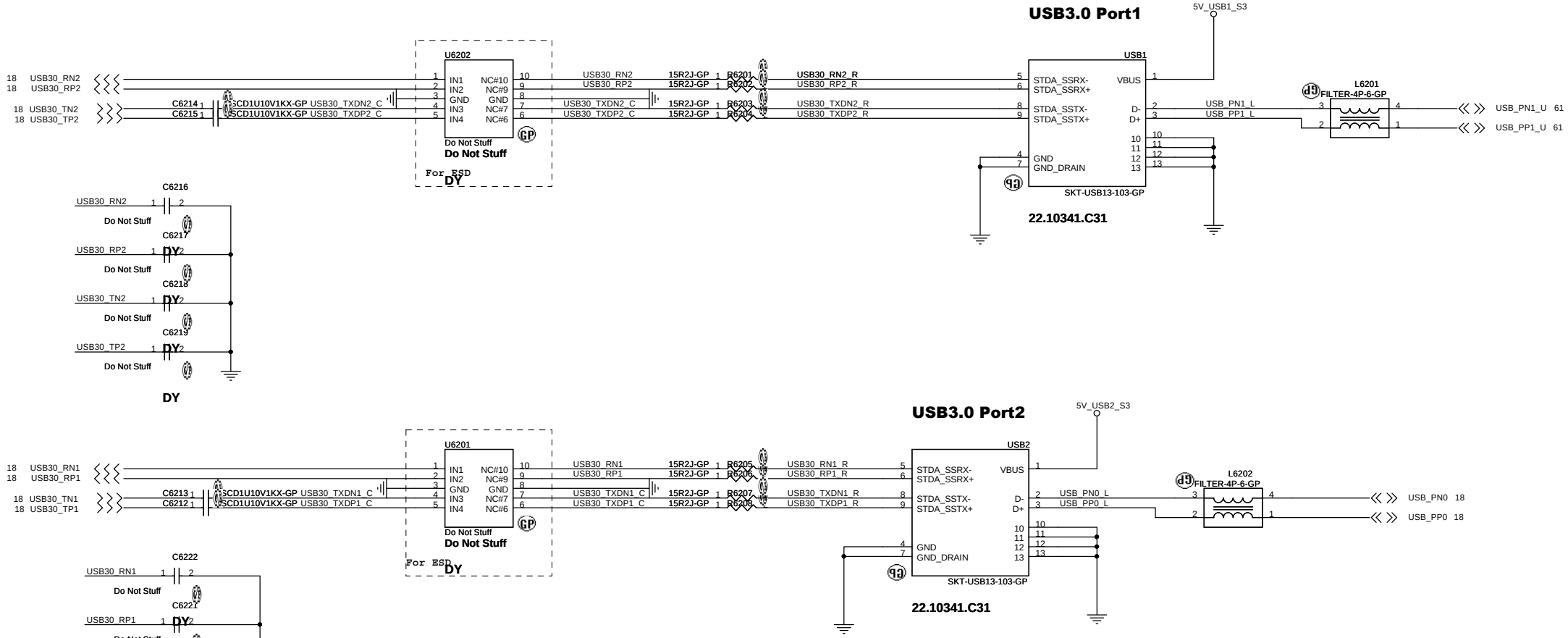
STORM

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

Title: **USB Power SW**

Size: Custom | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 61 of 102



JE40 modify

USB 3.0 Connector Pin definition	
1	POWER
2	USB 2.0 D-
3	USB 2.0 D+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND
8	StdA_SSTX-
9	StdA_SSTX+

STORM

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

Title: USB 3.0 Port

Size: A3 | Document Number: Storm | Rev: -1

Date: Tuesday, June 26, 2012 | Sheet 62 of 102

SSID = User.Interface

Bluetooth Module conn.

Without BT

STORM

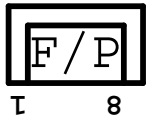
緯創資通 **Wistron Corporation**

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

Title: ***Bluetooth***		
Size: A4	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 63 of 102	

Finger printer

JE40 delete FP function



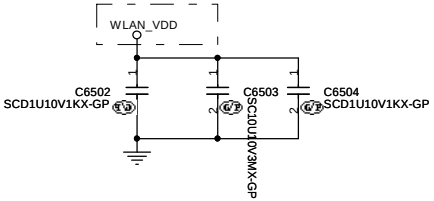
STORM

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: **Storm** — Rev: **-1**
Date: Monday, June 25, 2012	Sheet 64 of 102

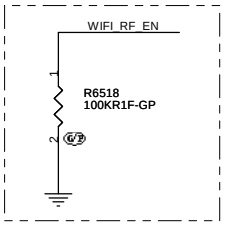
SSID = Wireless

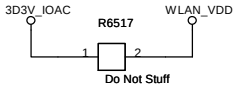
Mini Card Connector(802.11a/b/g/n)

SB_20120113_IOAC

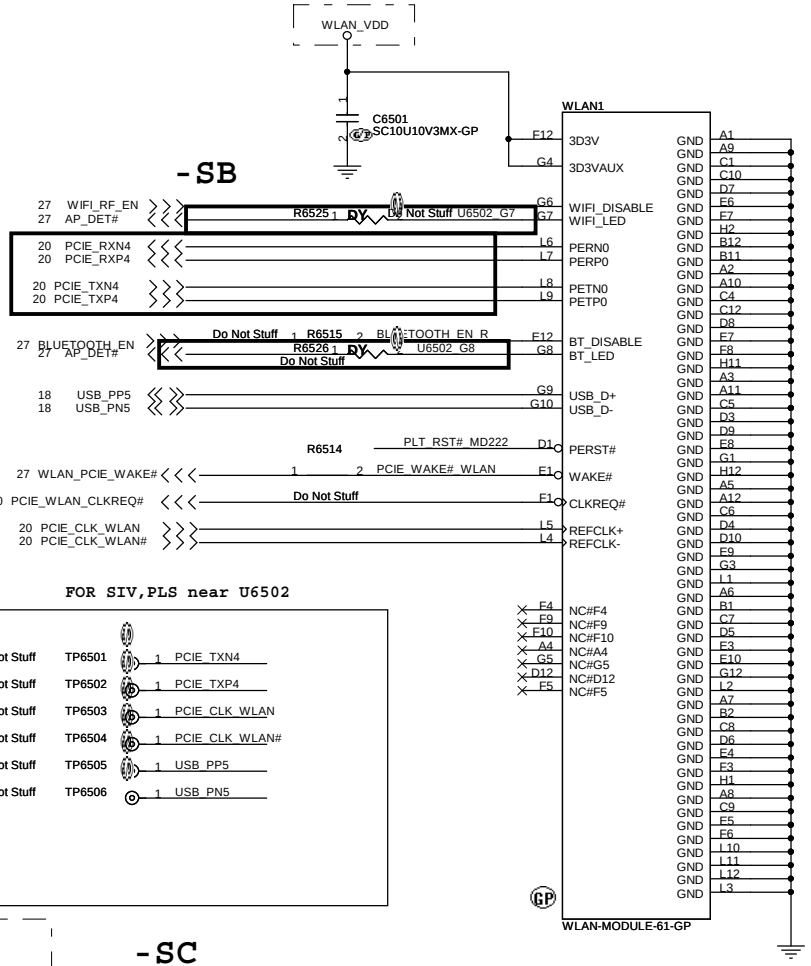


RF_SC





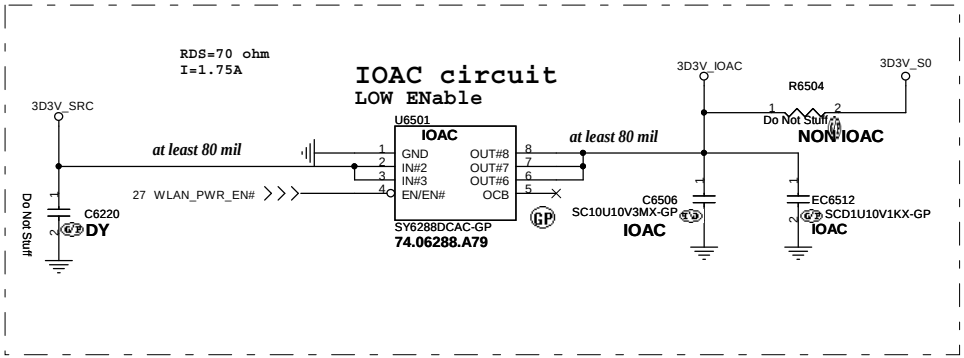
SB_20120113_IOAC



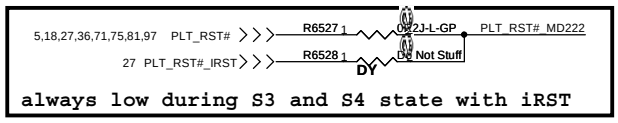
-SB

FOR SIV,PLS near U6502

SB_20120129_IOAC



-SC



always low during S3 and S4 state with iRST

STORM

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

Title: MINICARD(WLAN)/ITP CONN

Size	Document Number	Rev
A3	Storm	-1

Date: Monday, June 25, 2012 Sheet 65 of 102

STORM

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(mSATA)

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 66 of 102

Blanking

STORM

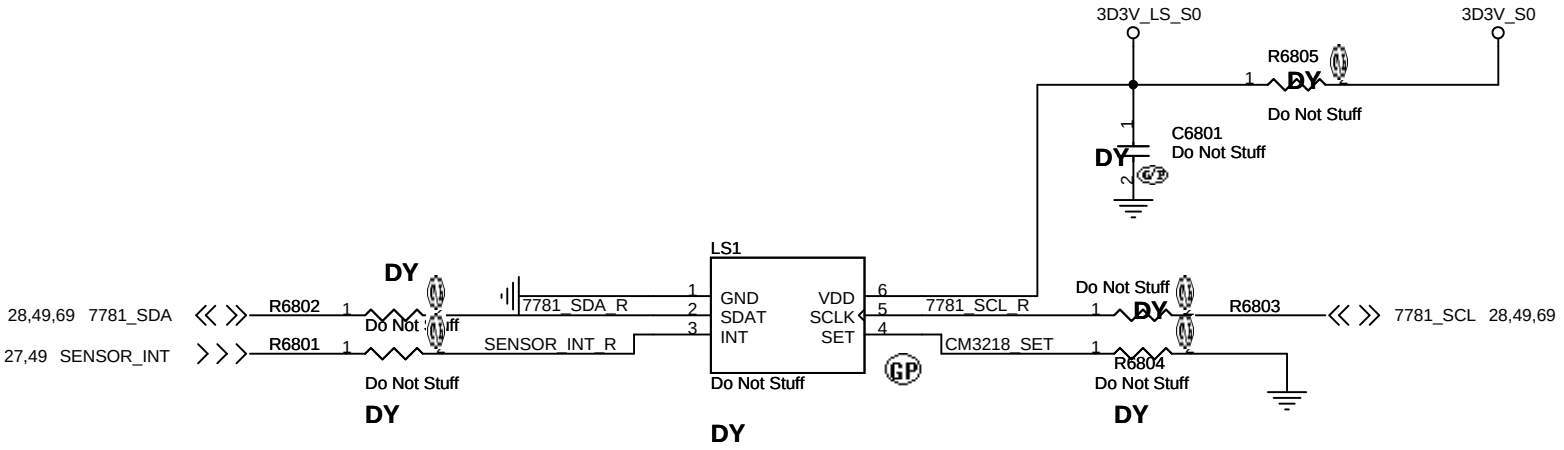
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***M-SATA***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 67 of 102

SSID = User.Interface



STORM

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

Title: *Light SENSOR*

Size	Document Number	Rev
A4	Storm	-1

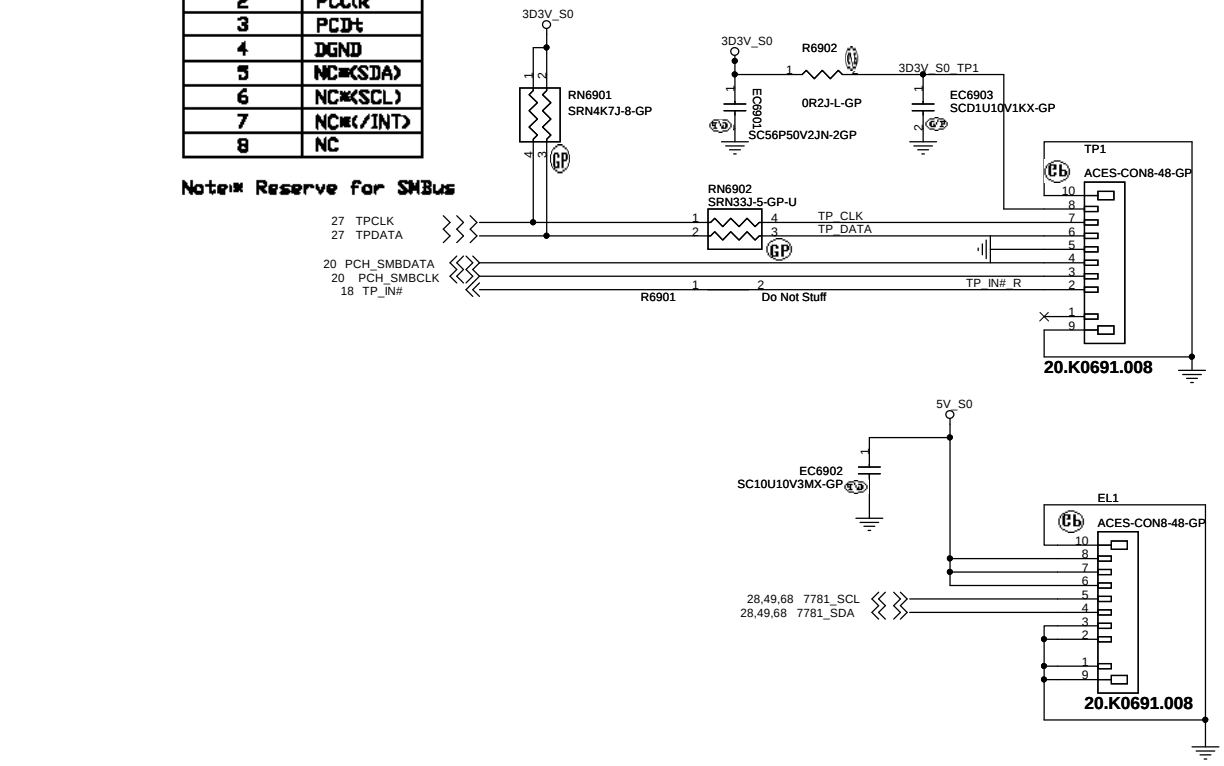
Date: Monday, June 25, 2012 Sheet 68 of 102

SSID = KBC

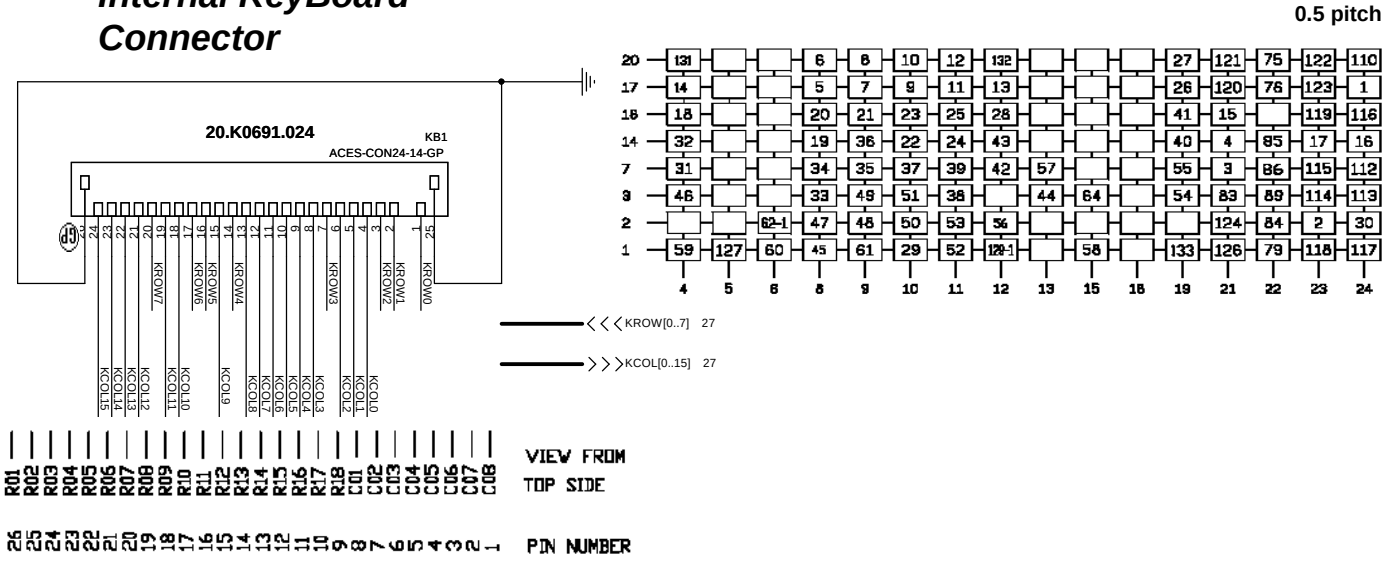
Pin number	Pin Define
1	VDD(3.3V)
2	PCClk
3	PCDt
4	DGND
5	NC#(SDA)
6	NC#(SCL)
7	NC#(/INT)
8	NC

Note# Reserve for SMBus

TOUCH PAD



Internal KeyBoard Connector



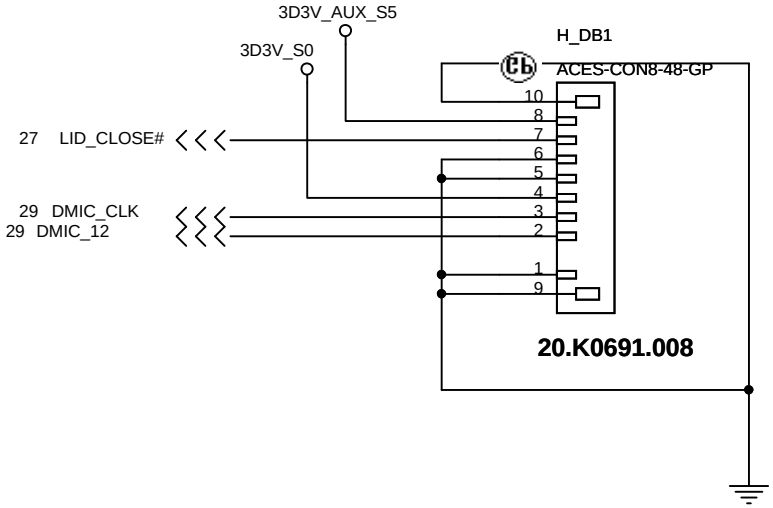
STORM

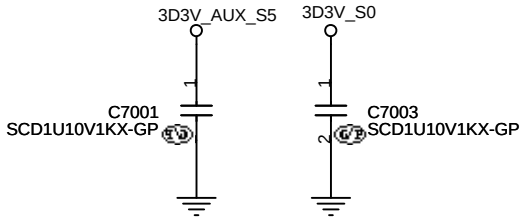
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Key Board/Touch Pad

Size: A3 | Document Number: Storm | Rev: -1

Date: Wednesday, June 27, 2012 | Sheet 69 of 102





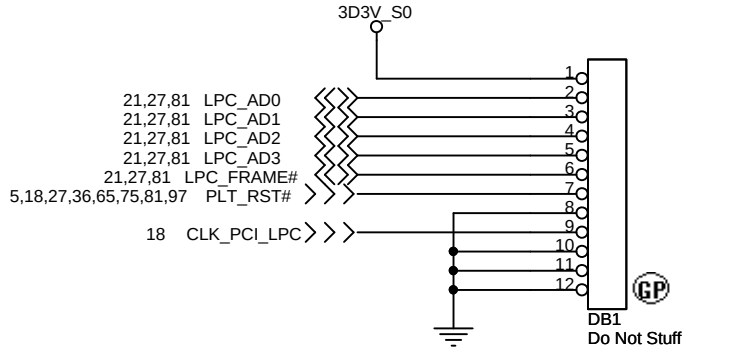
STORM

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/DMIC CONN***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 70 of 102



Do Not Stuff

DY

STORM

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	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 71 of 102

(Blanking)

STORM

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: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 72 of 102	

(Blanking)

STORM

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: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 73 of 102	

Micro SD Card Reader

STORM

緯創資通

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

Title: ***Micro SD Card Reader***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 74 of 102

(Blanking)

STORM

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

Title: ***Thunderbolt (1/4)***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 75 of 102

(Blanking)

STORM

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

Title: ***Thunderbolt (2/4)***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 76 of 102

(Blanking)

STORM

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

Title: ***Thunderbolt (3/4)***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 77 of 102

(Blanking)

STORM

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

Title: ***Thunderbolt (4/5)***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 78 of 102

(Blanking)

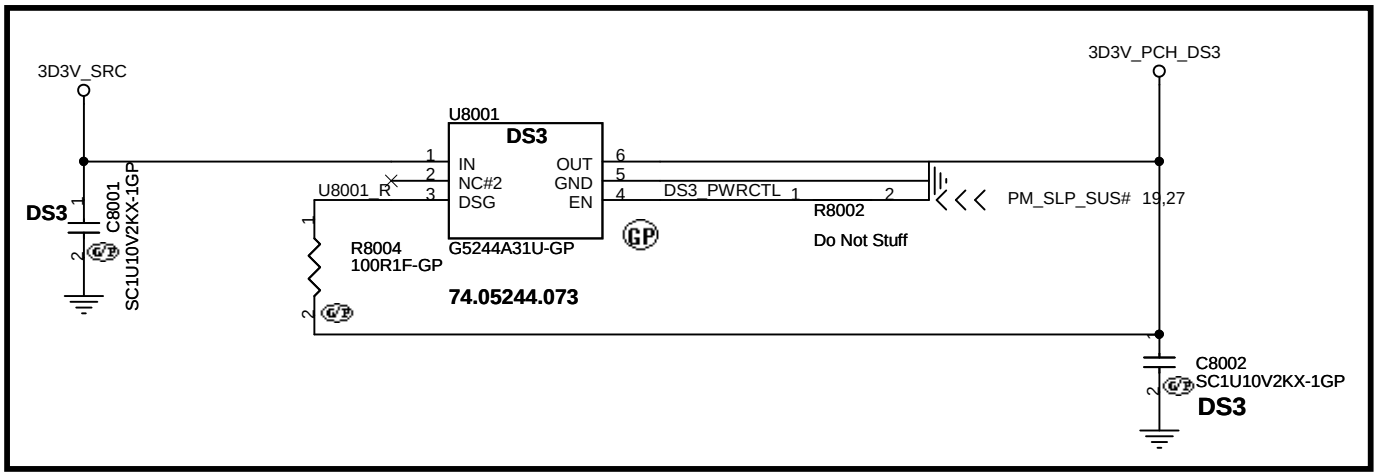
STORM

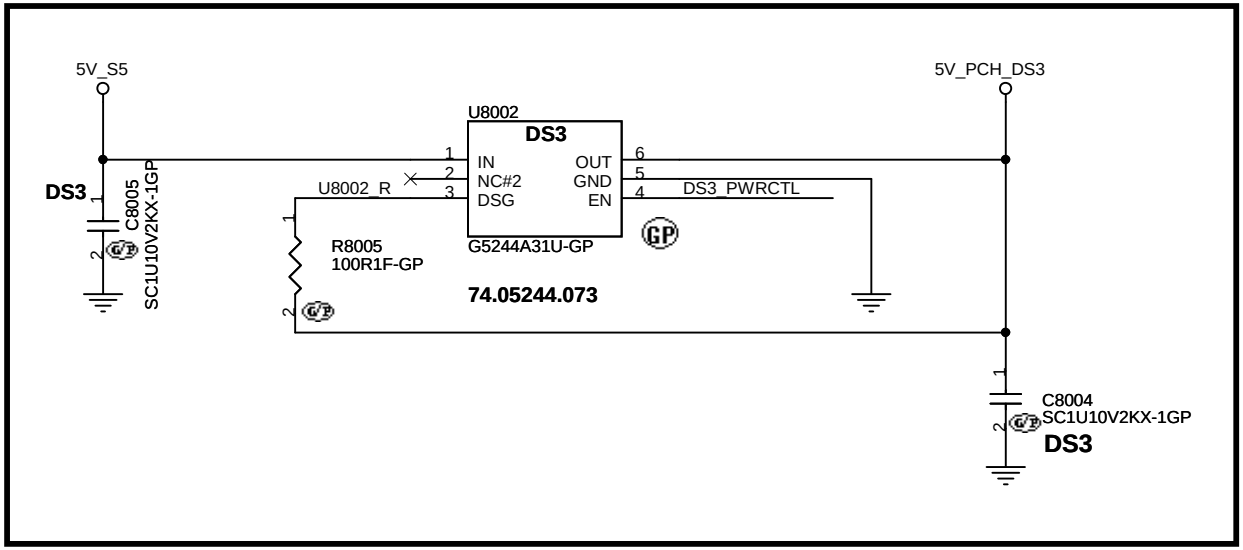
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Thunderbolt(5/5)***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 79 of 102





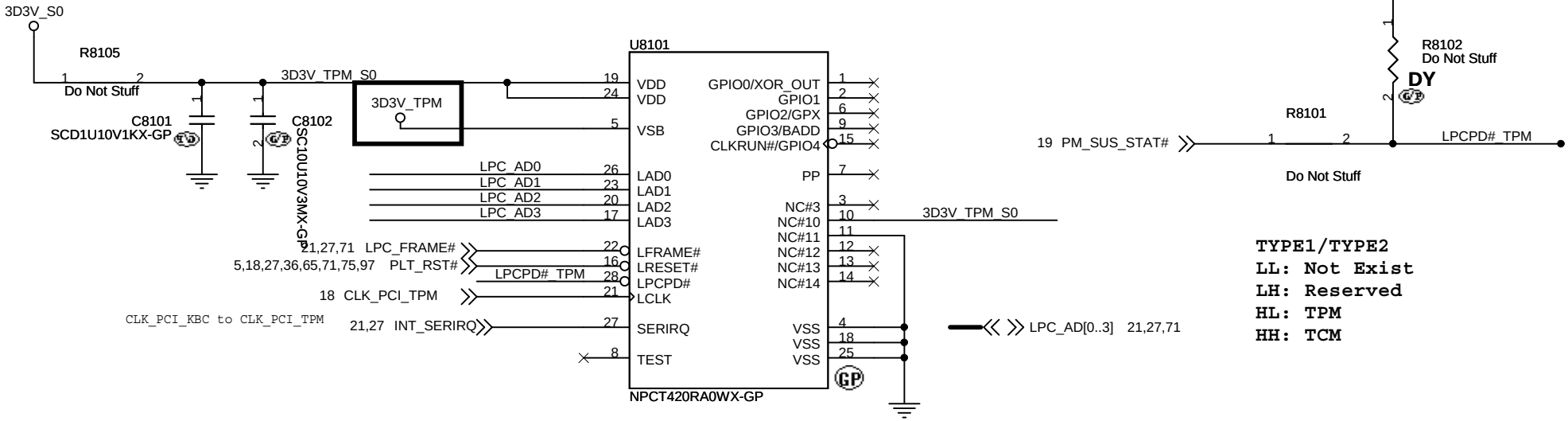
STORM

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

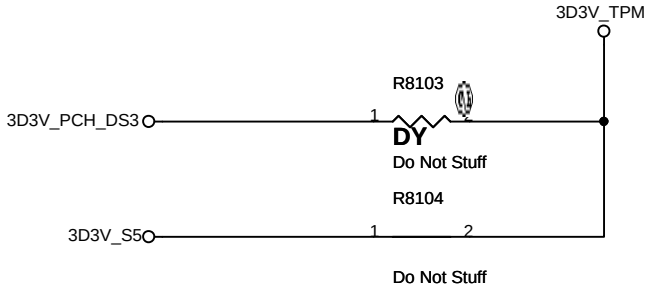
Title
Deep Standby

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 80 of 103



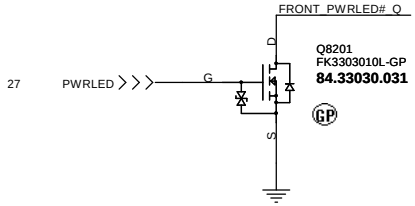
TYPE1/TYPE2
LL: Not Exist
LH: Reserved
HL: TPM
HH: TCM



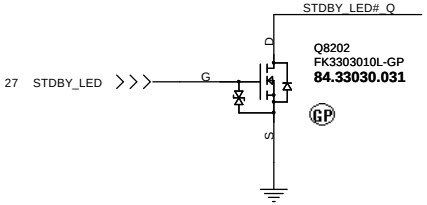
STORM

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: **Storm**	Rev: **-1**
Date: Thursday, June 28, 2012	Sheet 81 of 102	

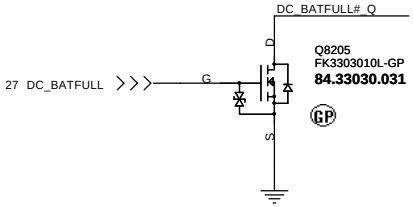
Power button LED



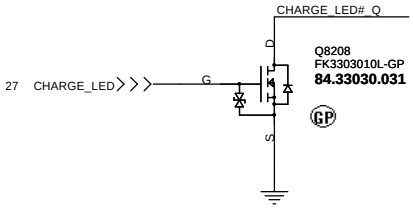
Power STDBY_LED

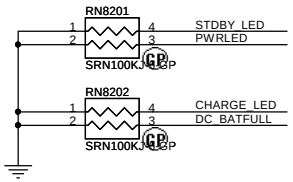


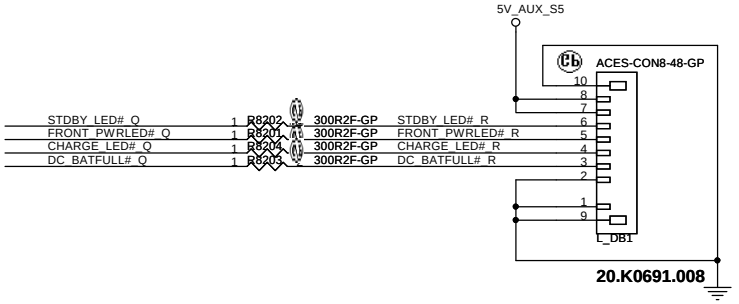
Battery LED2(DC_BATFULL)

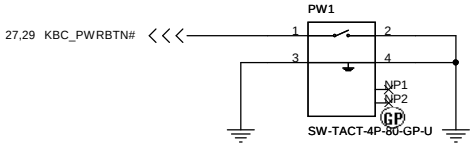


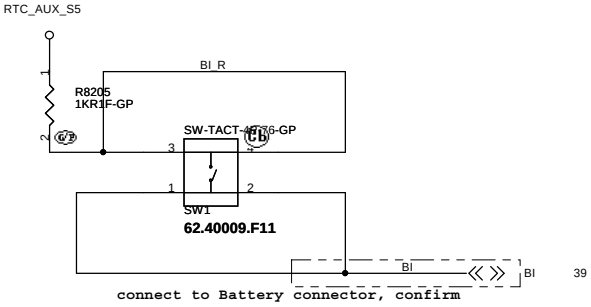
Battery LED1(CHARGE)











STORM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: *LED Bard/Power Button*		
Size: A3	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 82 of 102	

(Blanking)

STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***SYW231_1D8V(2)***	
Size A4	Document Number **Storm**	Rev **-1**
Date: Monday, June 25, 2012	Sheet 83 of 102	

STORM

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

Title: ***GPU Memory(2/5)***

Size	Document Number	Rev
Custom	**Storm**	-1
Date: Monday, June 25, 2012	Sheet 84 of 102	

STORM

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

Title: GPU_DP/LVDS/CRT/GPIO(3/5)

Size	Document Number	Rev
Custom	Storm	-1

Date: Monday, June 25, 2012 Sheet 85 of 102

STORM

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

Title

GPU_POWER(4/5)

Size	Document Number	Rev
A1	Storm	-1

Date: Monday, June 05, 2017 Sheet 88 of 102

STORM

緯創資通

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

Title: ***GPU_DPPWR/GND(5/5)***

Size	Document Number	Rev
A3	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 87 of 102

STORM

緯創資通

Wistron Corporation

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

Title

GPU-VRAM1,2 (1/4)

Size	Document Number	Rev
Custom	Storm	-1
Date: Monday, June 25, 2012	Sheet 88 of 102	

STORM

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

Title: ***GPU-VRAM3,4 (2/4)***

Size	Document Number	Rev
Custom	**Storm**	-1
Date: Monday, June 25, 2012	Sheet 89 of 102	

STORM

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

Title: ***GPU-VRAM5,6 (3/4)***

Size: Custom | Document Number: **Storm** | Rev: **-1**

Date: Monday, June 25, 2012 | Sheet 90 of 102

STORM

緯創資通

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

Title

GPU-VRAM7,8 (4/4)

Size	Document Number	Rev
Custom	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 91 of 102

STORM

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

Title: ***RT8208B_+VGA_CORE***

Size	Document Number	Rev
Custom	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 92 of 102

Blanking

STORM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	***DISCRETE VGA POWER***
Size: A4	Document Number: **Storm** — Rev: **-1**
Date: Monday, June 25, 2012	Sheet 93 of 102

Blanking

STORM

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

Title: ***LVDS_Switch***		
Size: A4	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 94 of 102	

Blanking

STORM

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: A4	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 95 of 102	

SSID = SDIO

STORM

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

Title: ***TOUCH PANEL***

Size	Document Number	Rev
A4	**Storm**	**-1**

Date: Monday, June 25, 2012 Sheet 96 of 102

H21
Do Not Stuff

H22
Do Not Stuff

34.4QP10.001
HS1
STF236R128H34-1-GP

34.4QP10.001
HS2
STF236R128H34-1-GP

34.4QP10.001
HS3
STF236R128H34-1-GP

Do Not Stuff
H10
Do Not Stuff

Do Not Stuff
H20
Do Not Stuff

Do Not Stuff H12
Do Not Stuff H13
Do Not Stuff H17
Do Not Stuff H18

BI_BTY1_R 39
H19
Do Not Stuff

Do Not Stuff S2
Do Not Stuff T5
Do Not Stuff T8

Check test point

3D3V_S0	1	AFTP1
3D3V_AUX_S5	1	AFTP2
3D3V_S5	1	AFTP3
5V_S5	1	AFTP4
19,27 PM_PWRBTN#	1	AFTP5
5,22 H_CPUPWRGD	1	AFTP6
27,36 S5_ENABLE	1	AFTP7
5,18,27,36,65,71,75,81 PLT_RST#	1	AFTP8

Test Point放在Dimm Door打開可量測處

STORM

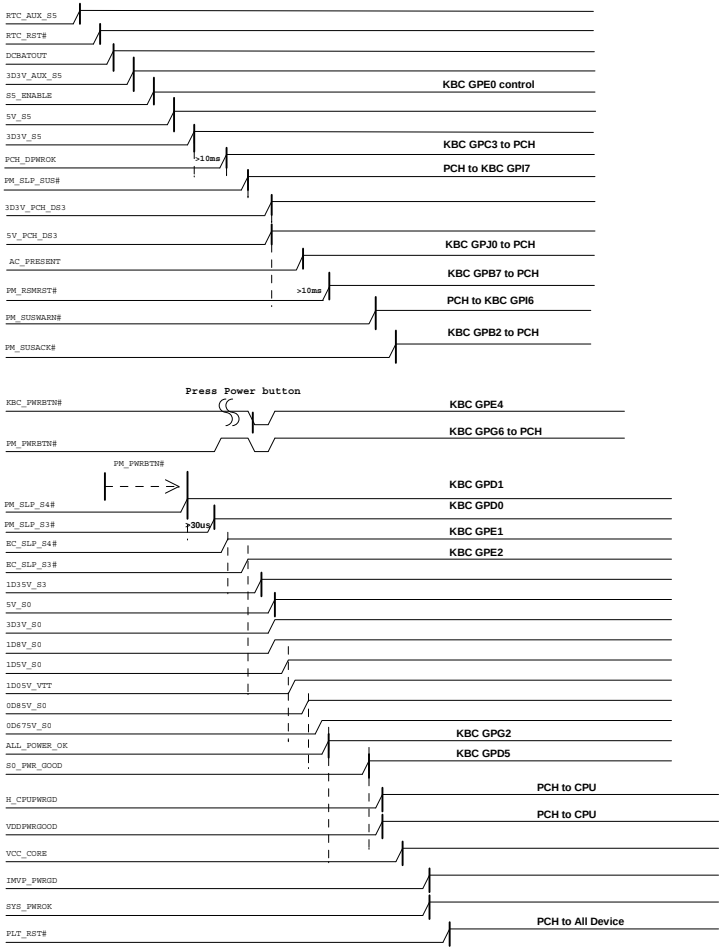
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title
UNUSED PARTS/EMI Capacitors

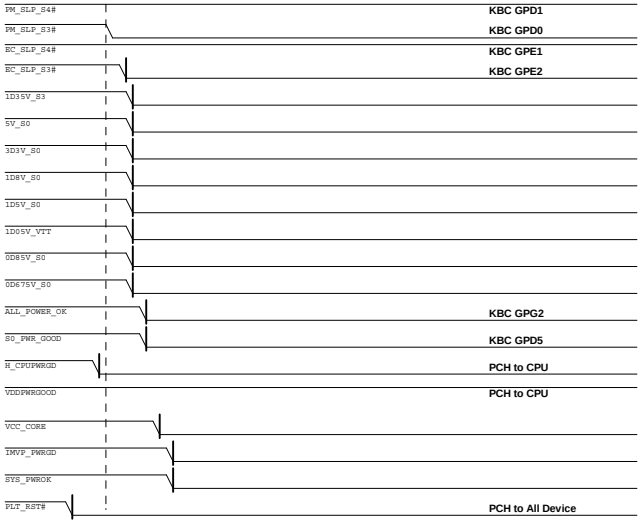
Size	Document Number	Rev
A3	Storm	-1

Date: Tuesday, June 26, 2012 Sheet 97 of 102

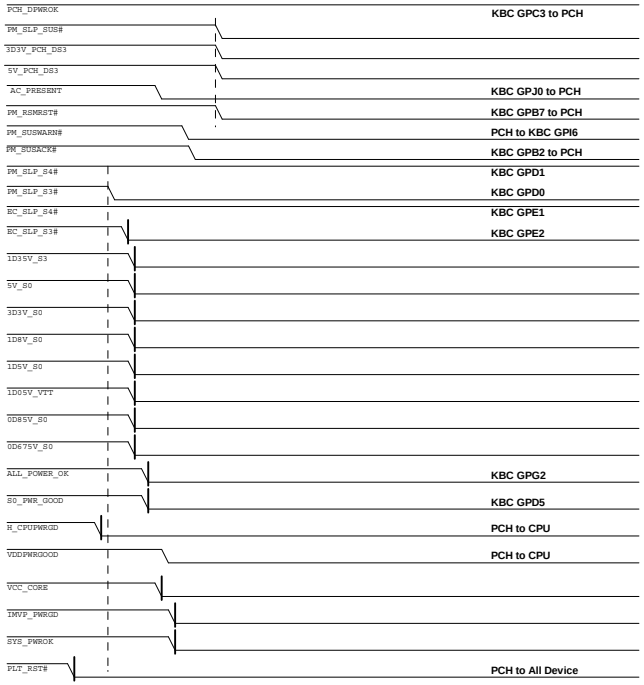
Intel Power Up Sequence



Intel S3 Sequence



Intel Deep S3 Sequence



STORM

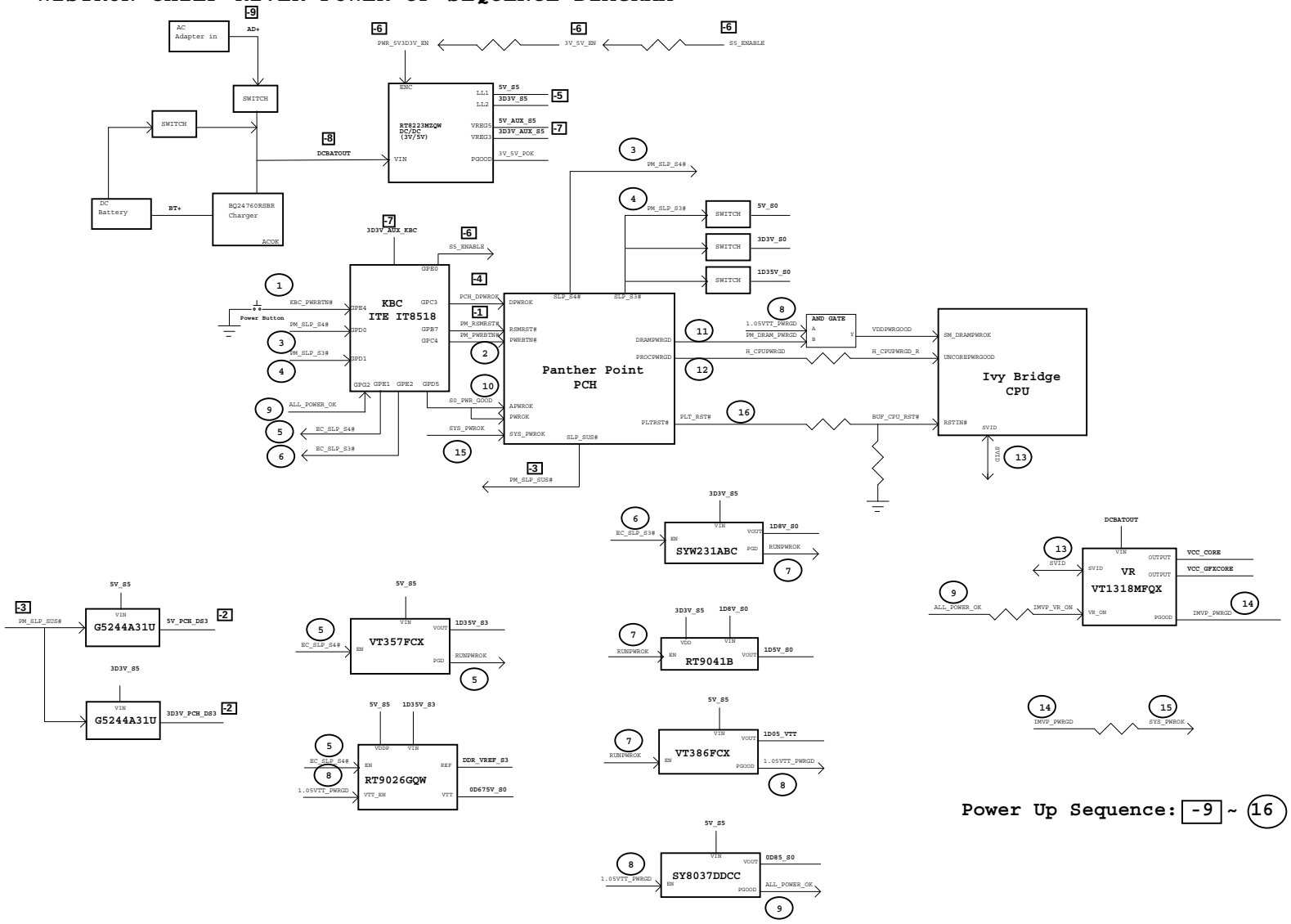
Wistron Corporation
2/F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: Power Sequence

Size: A3 | Document Number: Storm | Rev: -1

Date: Wednesday, June 20, 2007 | Sheet 58 of 102

WISTRON CHIEF RIVER POWER UP SEQUENCE DIAGRAM



Power Up Sequence: -9 ~ 16

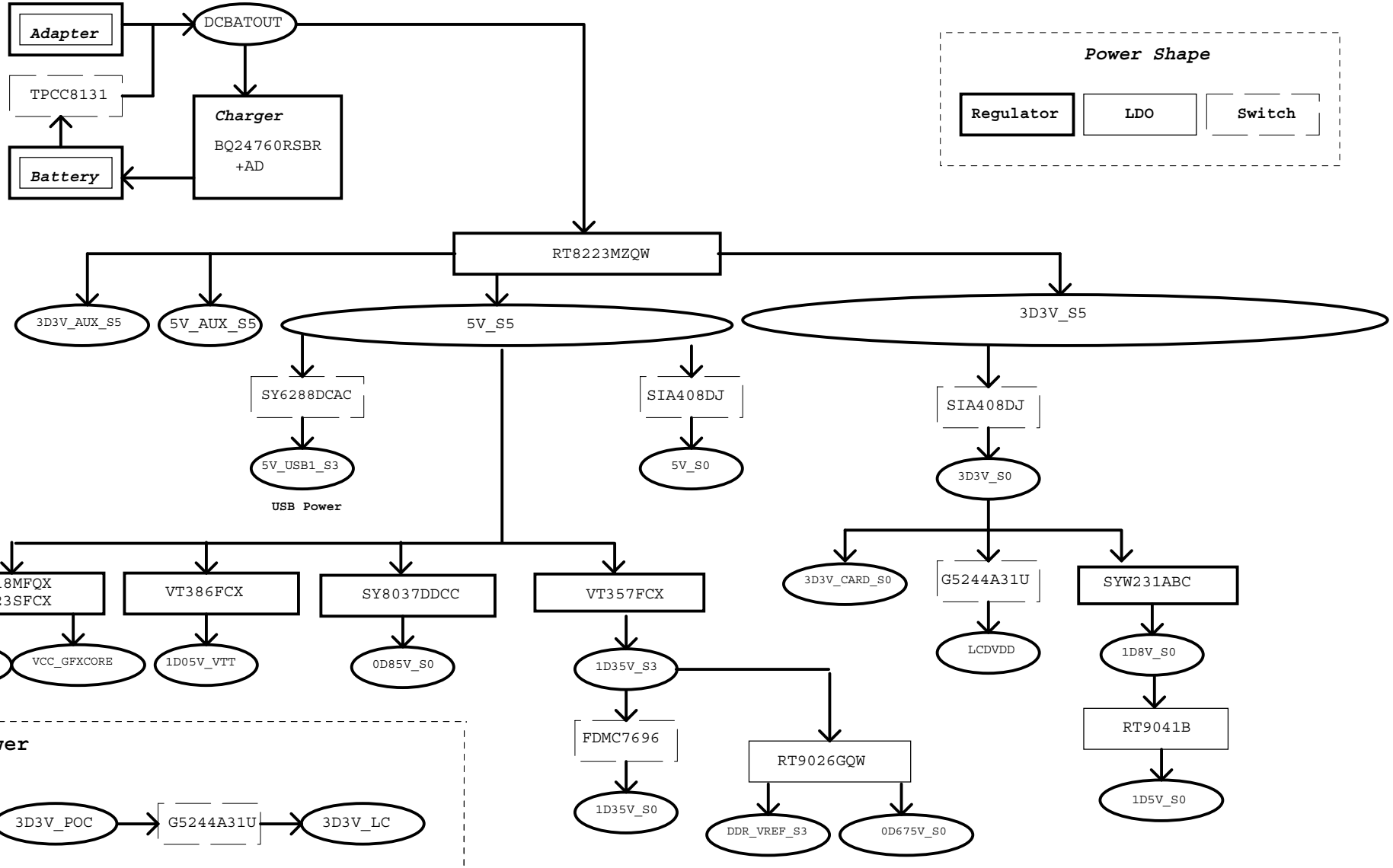
STORM

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

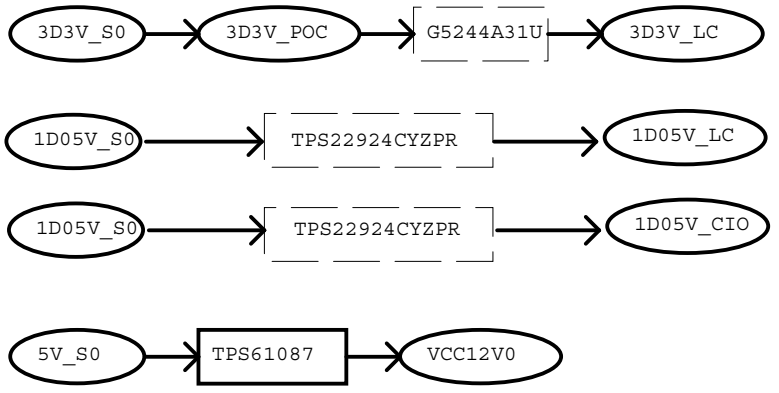
Title: Power Sequence Diagram

Size: A1 | Document Number: Storm | Rev: -1

Date: Monday, June 25, 2012 | Sheet 59 of 60



Thunderbolt Power

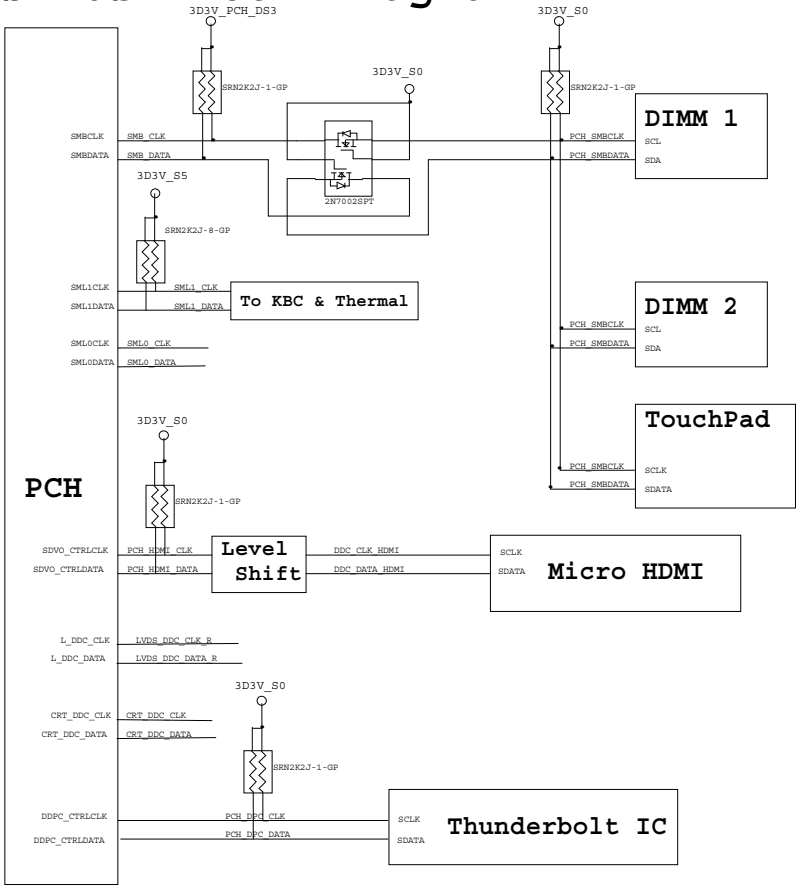


STORM

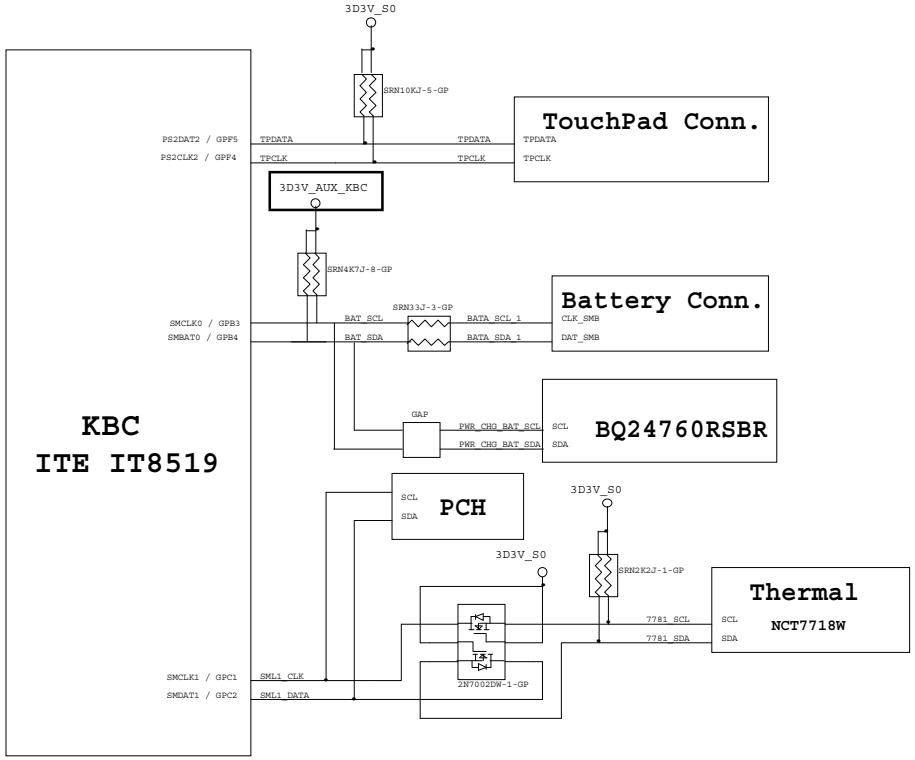
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Power Block Diagram***		
Size: A3	Document Number: **Storm**	Rev: **-1**
Date: Monday, June 25, 2012	Sheet 100 of 102	

PCH SMBus Block Diagram



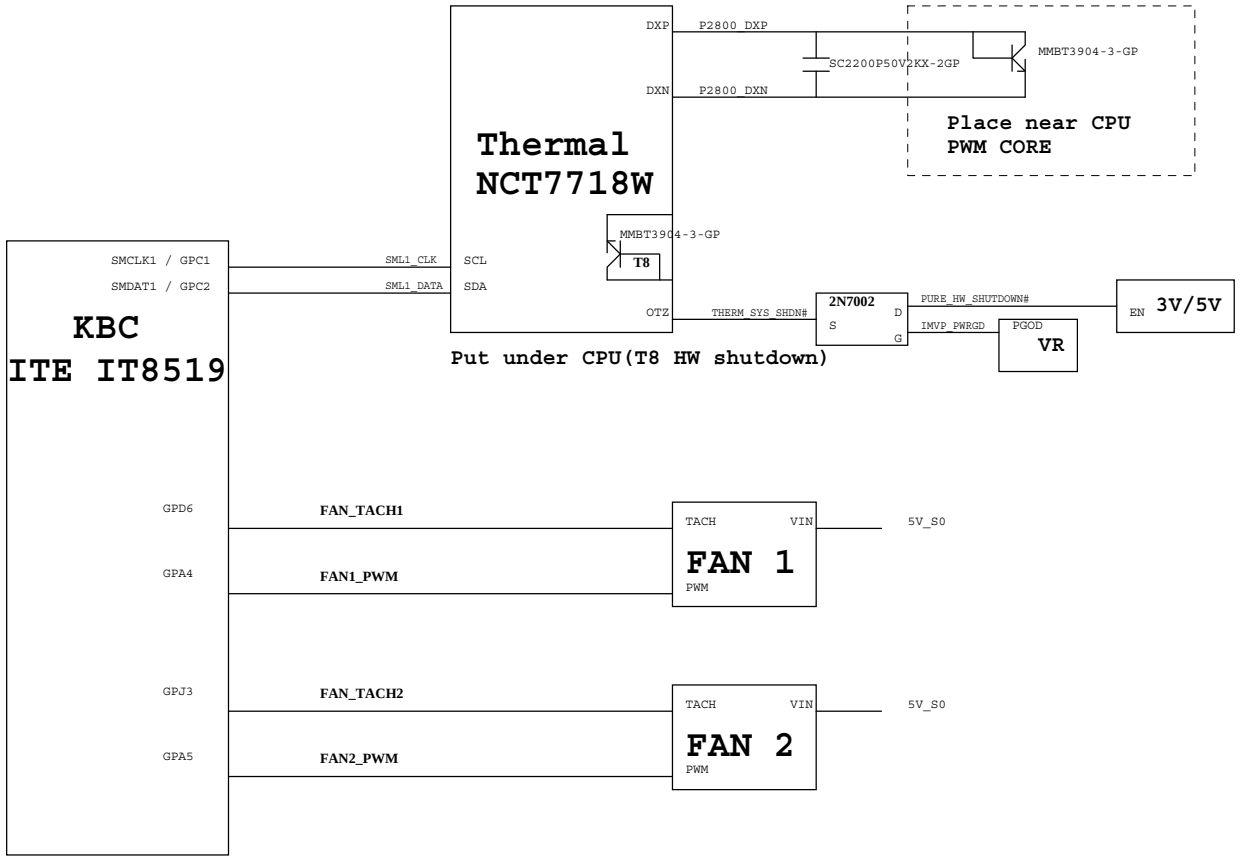
KBC SMBus Block Diagram



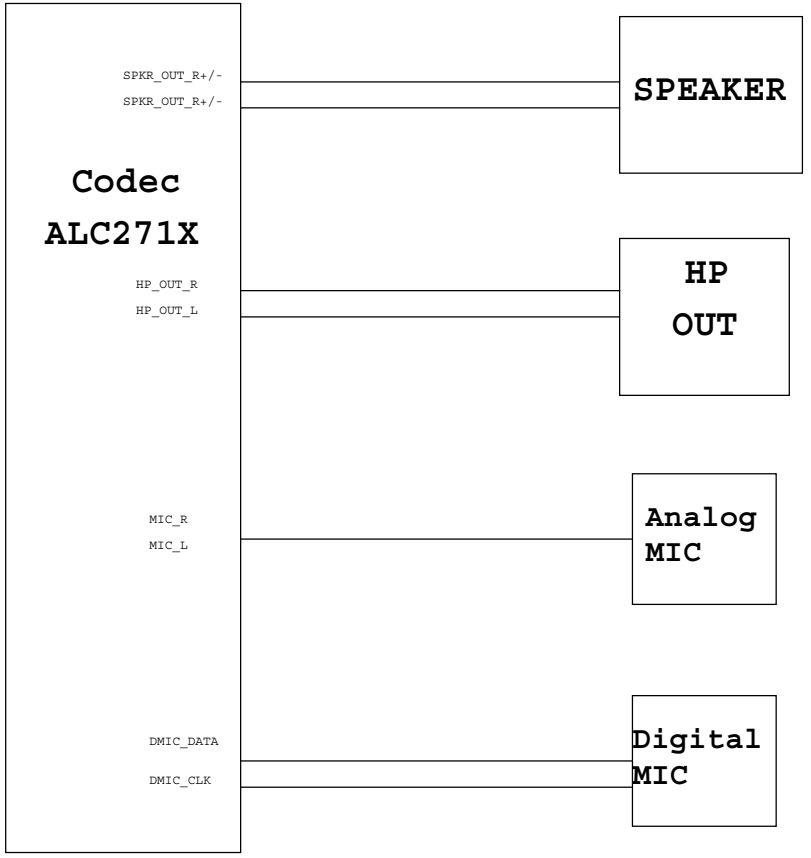
STORM

緯創資通	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	SMBUS Block Diagram	
Size: A2	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 101 of 102	

Thermal Block Diagram



Audio Block Diagram



STORM

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

Title	Thermal/Audio Block Diagram	
Size: Custom	Document Number: Storm	Rev: -1
Date: Monday, June 25, 2012	Sheet 102 of 102	