

Hummingbird1_HR

DIS/UMA/Muxless Schematics Document

Sandy 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.

<Variant Name>

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

Hummingbird1_HR

Rev
-2

Date: Tuesday, April 17, 2012

Sheet 1 of 102

Project code : 91.4QP01.001
PCB P/N :
Revision : 2 Hummingbird1_HR Block Diagram

SYSTEM DC/DC		CPU DC/DC	
APL5916KAI 48		NCP6131S52MNR 42~43	
INPUTS	OUTPUTS	INPUTS	OUTPUTS
1D05V_PWR	0D85V_S0	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

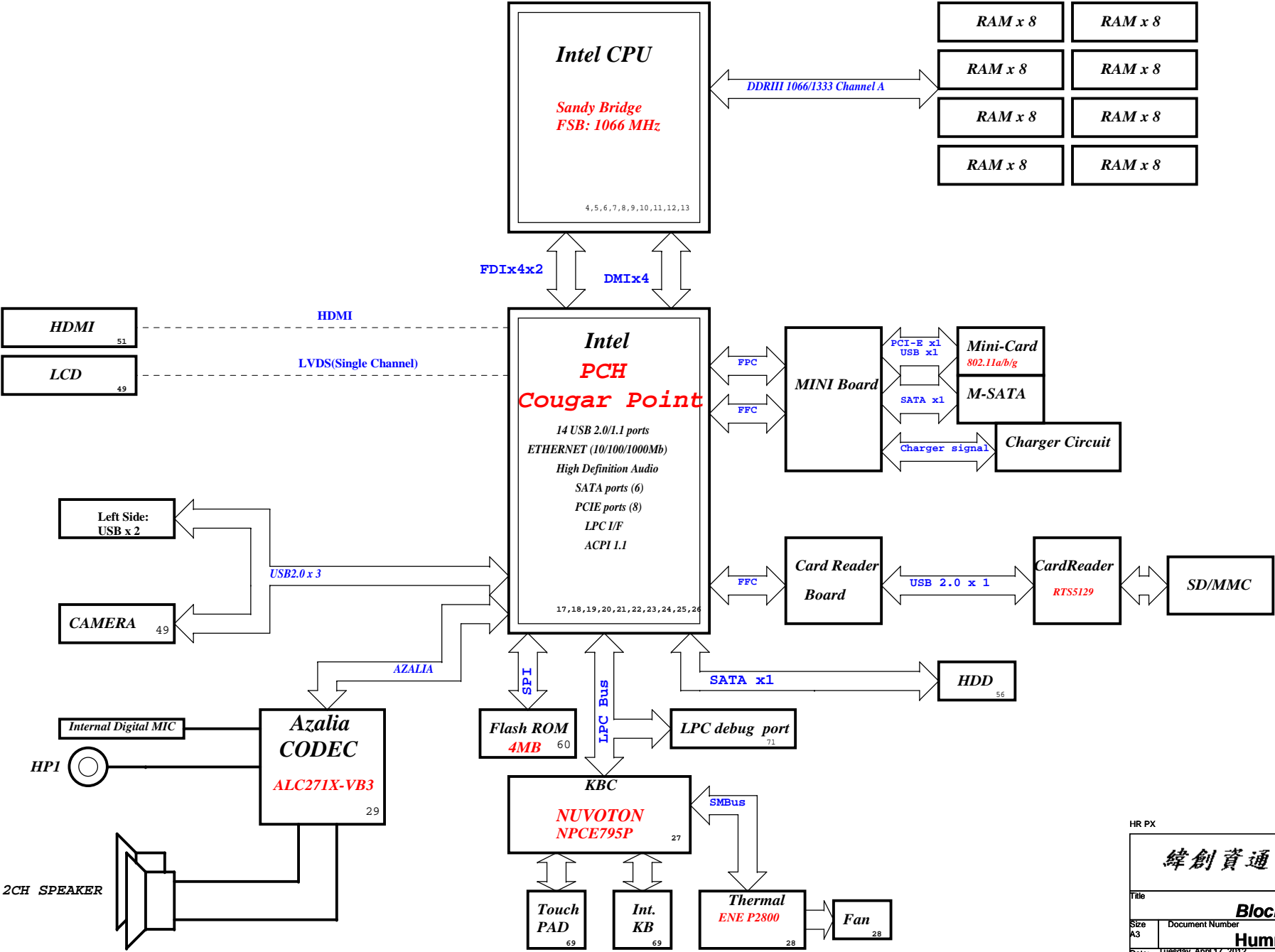
TI CHARGER	
BQ24745RHDR 40	
INPUTS	OUTPUTS
DCBATOUT	BT+

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

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

Switches	
INPUTS	OUTPUTS
1D5V_S3 3D3V_S0	1D5V_VGA_S0 3D3V_VGA_S0

PCB LAYER	
L1:Top L2:VCC L3:Signal	L4:Signal L5:GND L6:Bottom



1

2

3

4

A

B

PCB 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.

1

2

3

4

A

B

PCB Strapping

Huron River Schematic Checklist Rev.0_7

1

2

3

4

A

B

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]		Disabled - No Physical Display Port attached to Embedded DisplayPort. 1: 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

1

2

3

4

A

B

Processor Strapping

Huron River Schematic Checklist Rev.0_7

POWER PLANE	VOLTAGE	Voltage Rails	DESCRIPTION
		ACTIVE IN	
5V_S0 3D3V_S0 1D8V_S0 1D5V_S0 1D05V_VTT 0D85V_S0 0D75V_S0 VCC_CORE VCC_SFPCORE 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

PCIE Routing

LANE1	Mini Card2(WWAN)
LANE2	Mini Card1(WLAN)
LANE3	Card Reader
LANE4	Onboard LAN
LANE5	USB3.0
LANE6	Intel GBE LAN
LANE7	Dock
LANE8	New Card

SATA Table

SATA	
Pair	Device
0	HDD1
1	HDD2
2	N/A
3	N/A
4	ODD
5	ESATA

USB Table

Pair	Device
0	Touch Panel / 3G SIM
1	USB Ext. port 1 (HS)
2	Fingerprint
3	BLUETOOTH
4	Mini Card2 (WWAN)
5	CARD READER
6	X
7	X
8	USB Ext. port 4 / E-SATA / USB CHARGER
9	USB Ext. port 2
10	EDP CAMERA
11	Mini Card1 (WLAN)
12	CAMERA
13	New Card

SMBus ADDRESSES

I ² C / SMBus Addresses		Ref Des	HURON RIVER ORB	
Device			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				SMI1_CLK/SMI1_DATA SMI1_CLK/SMI1_DATA SMI1_CLK/SMI1_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

<Variant Name>

緯創資通

Wistron Corporation

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

Table of Content

Hummingbird1_HR

-2

Date: Tuesday, April 17, 2012

Sheet 3 of 102

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.

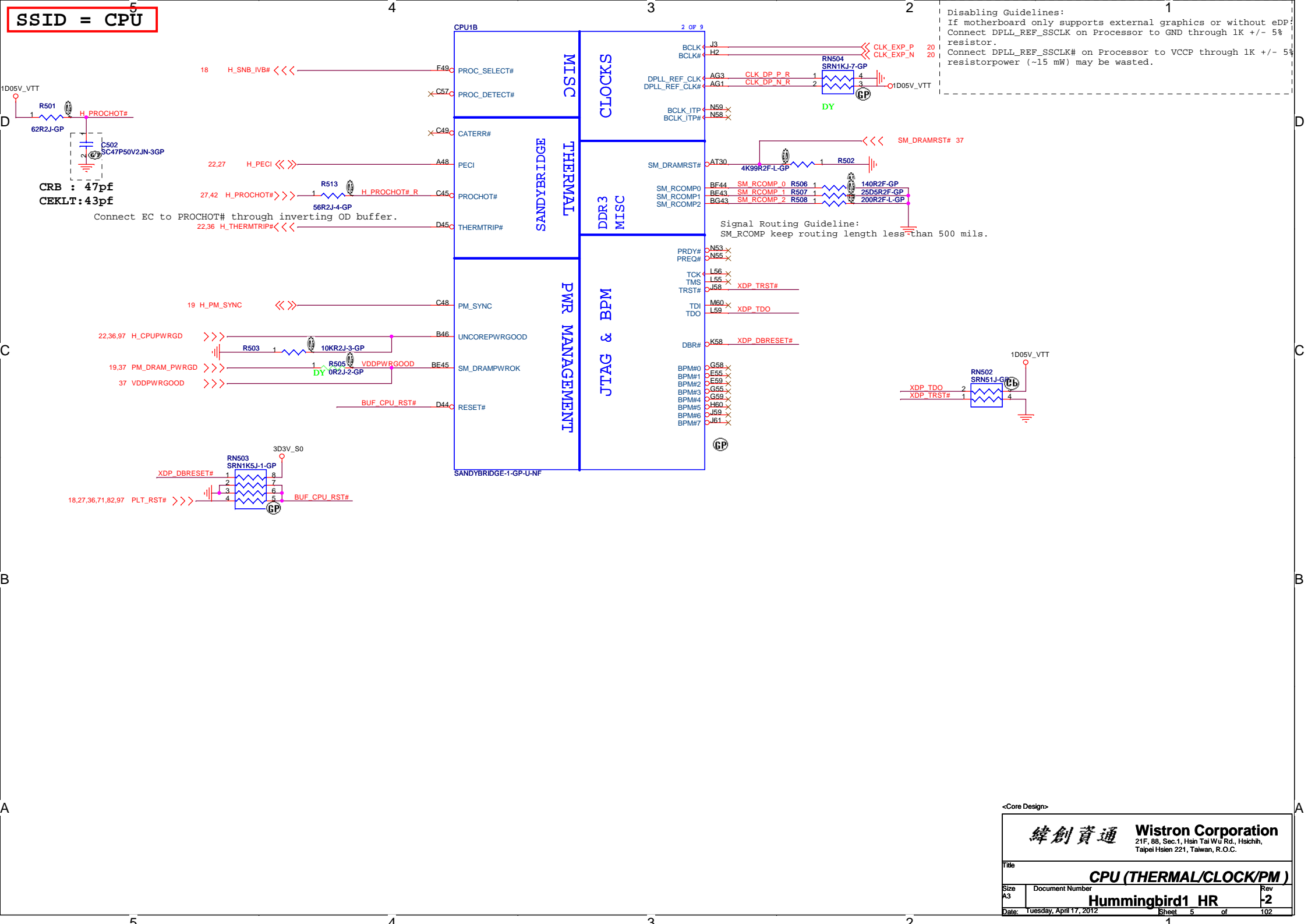
NOTE:
Select a Fast FET similar to 2N7002E whose rise/fall time is less than 6 ns. If HPD on eDP interface is disabled, connect it to CPU VCCIO via a 10-k Ω pull-Up resistor on the motherboard.

<Core Design>

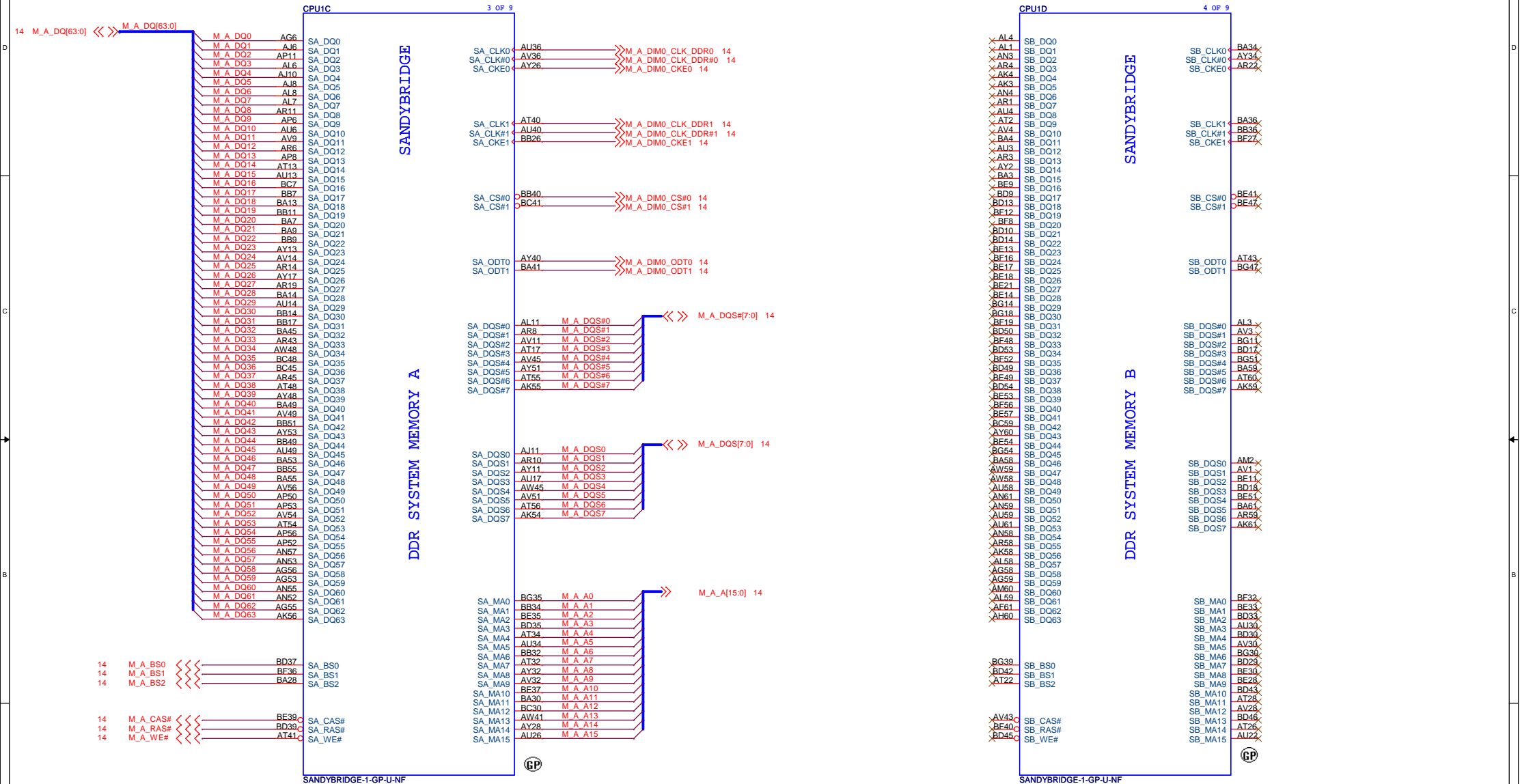
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title			
CPU (PCIE/DMI/FDI)			
Size	Document Number	Rev	
A3	Hummingbird1 HR	-2	
Date:	Tuesday, April 17, 2012	Sheet 4 of	102

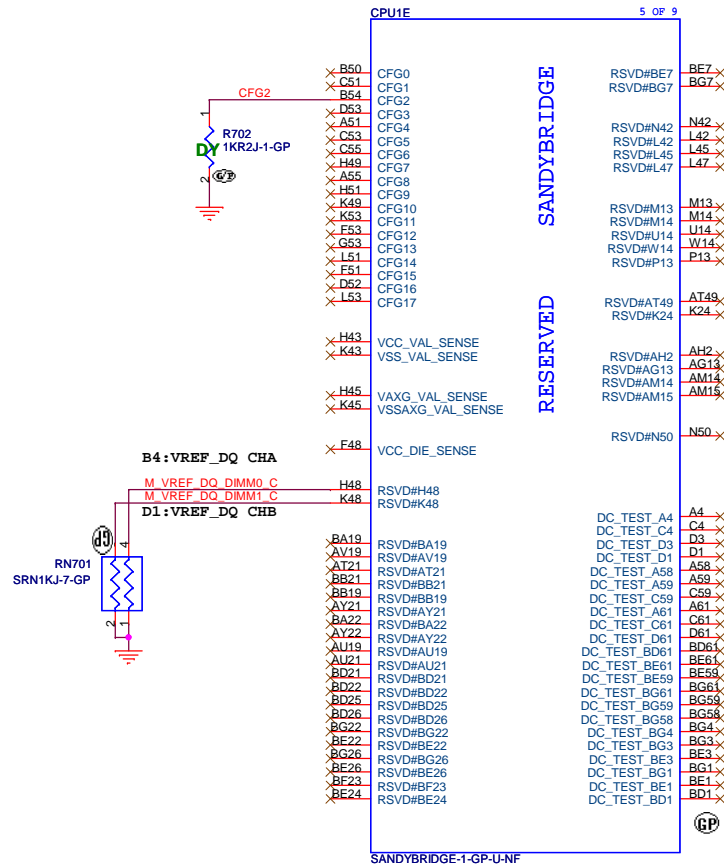
SSID = CPU



SSID = CPU



SSID = CPU



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

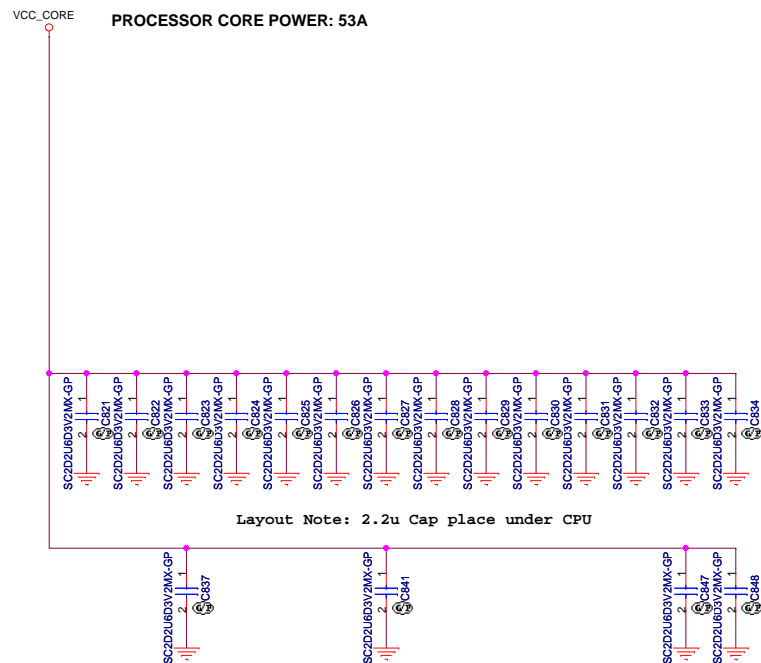
Display Port Presence Strap	
CFG4	1: Disabled; No Physical Display Port attached to Embedded Display Port 0: Enabled; An external Display Port device is connected to the Embedded Display Port

PCIe Port Bifurcation Straps	
CFG[6:5]	11: 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

SSID = CPU

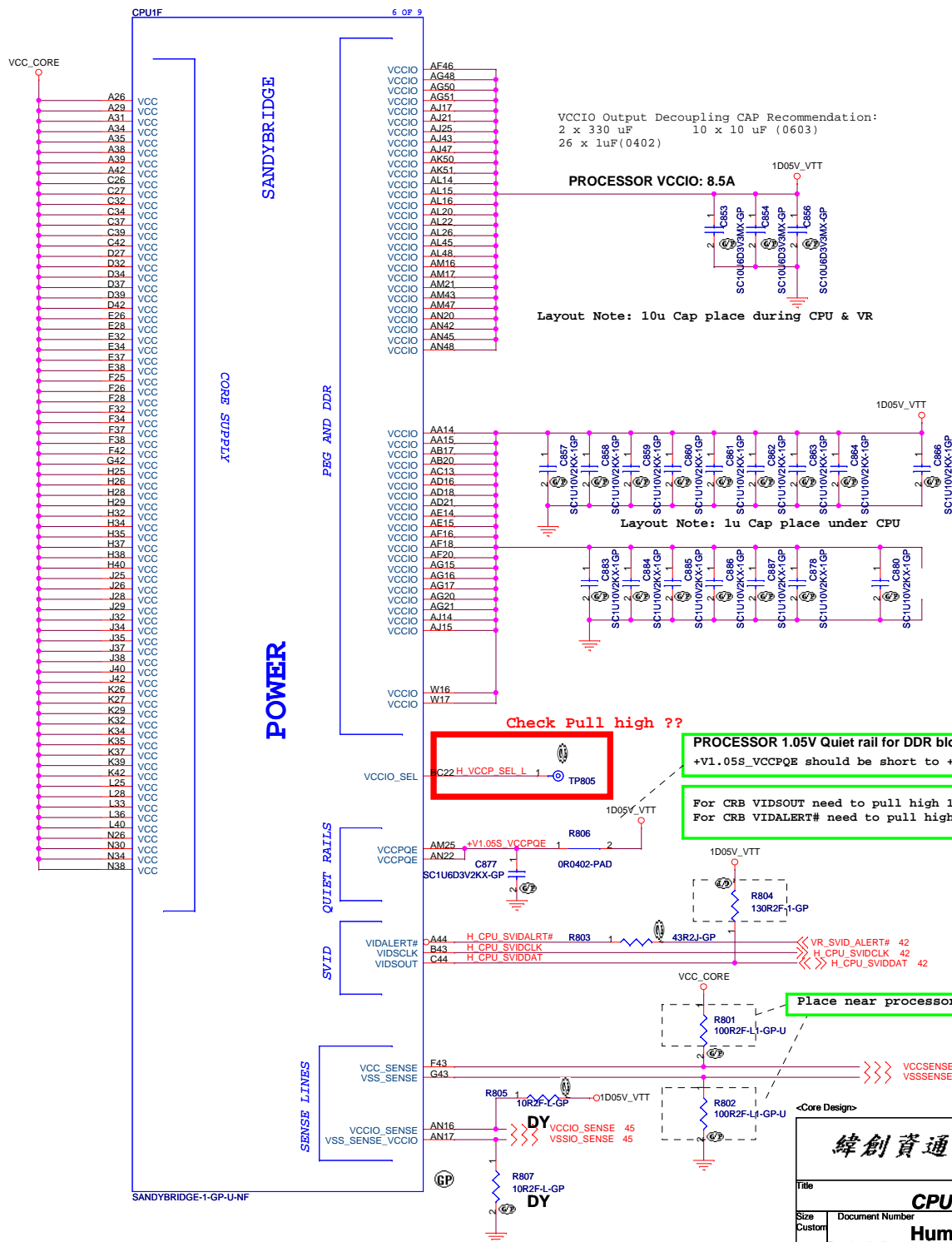
Voltage Rail	Voltage	Iccmax
VCC_CORE(QC)	0.8~1.35	94A
VCC_CORE(DC)	0.8~1.35	53A
VCCIO	1.05	8.5A
VDDQ	1.5	10A
VCCSA	0.75~0.9	6A
VCCPLL	1.8	1.2A
VAXG	0~1.52	33A



VCC Output Decoupling CAP Recommendation:

- ```
1. 1.9nm Ohm loadline design: (for SV)
4 x 470 uF
25 x 22 uF
35 x 2.2uF

2. 2.9nm Ohm loadline design: (for ULV/LV)
3 x 330uF
12 x 22uF
16 x 2.2uF
```



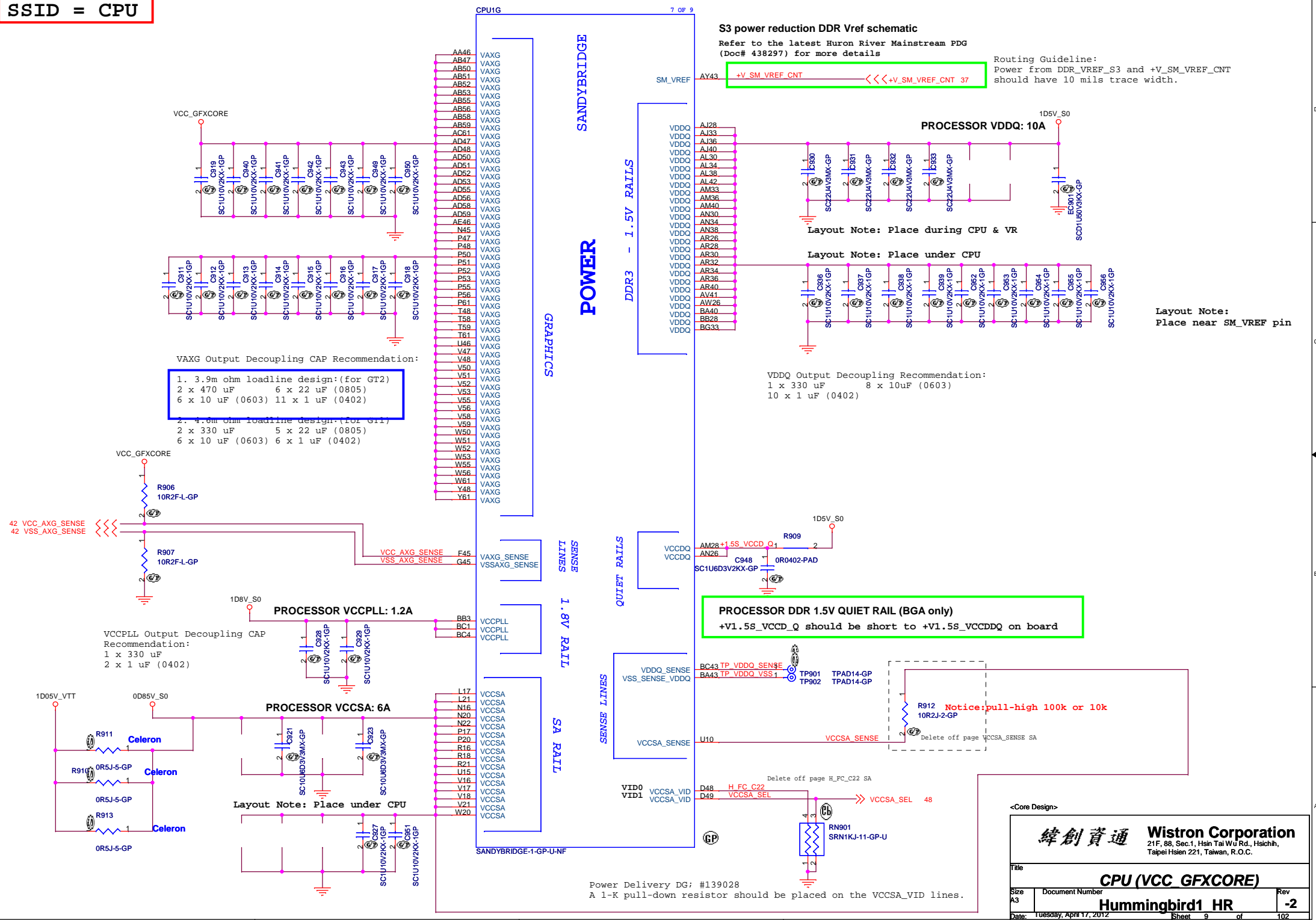
**PROCESSOR 1.05V Quiet rail for DDR block (BGA only)**  
+V1.05S VCCPOE should be short to +V1.05S VCCP DDR R on board

For CRB VIDSOUT need to pull high 130 ohm closr to CPU and IMVP7  
For CRB VIDALERT# need to pull high 75 ohm close to CPU

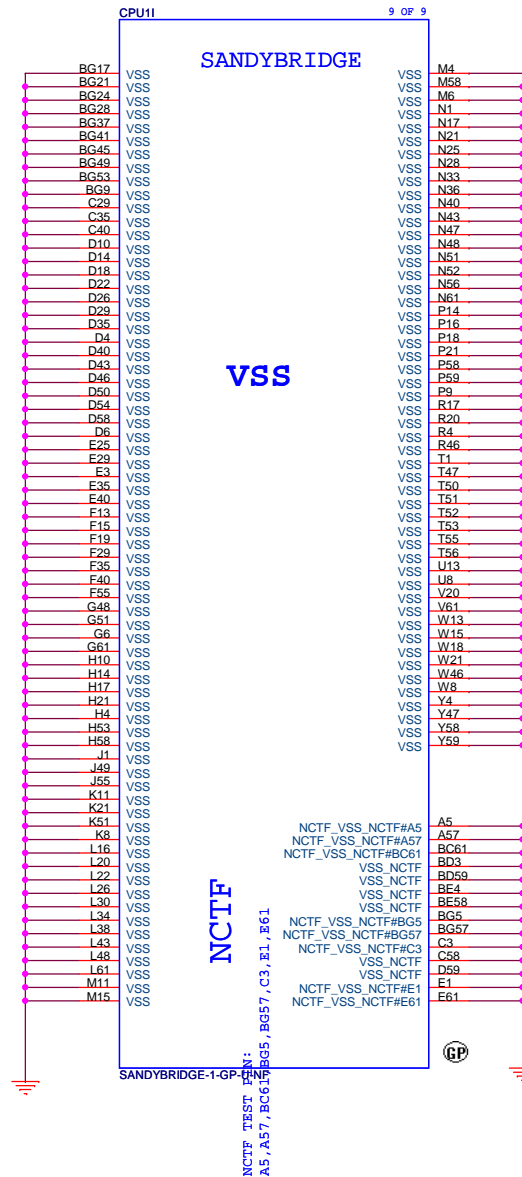
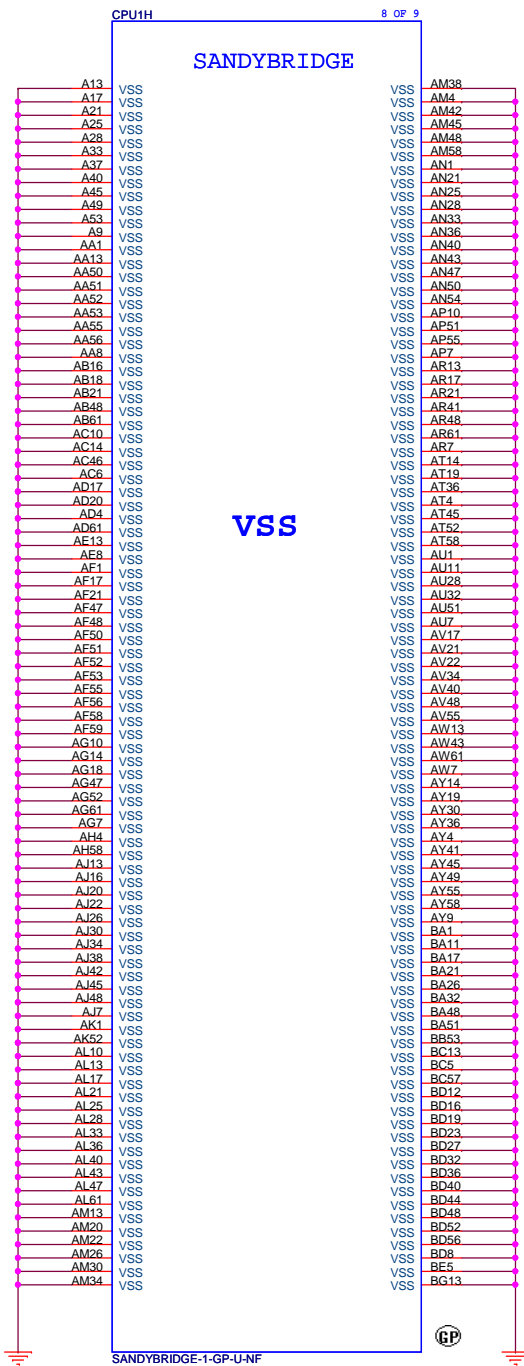
Place near processor



**SSID = CPU**



**SSID = CPU**



### <Core Design>

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

|                  |                         |             |           |
|------------------|-------------------------|-------------|-----------|
| Title            |                         |             |           |
| <b>CPU (VSS)</b> |                         |             |           |
| Size<br>A3       | Document Number         |             | Rev       |
|                  | <b>Hummingbird1 HR</b>  |             | <b>-2</b> |
| Date:            | Tuesday, April 17, 2012 | Sheet 10 of | 102       |

Blanking

HR PX

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>XDP</div>                                                                                                                     |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>11</div> of <div>102</div> |

(Blanking)

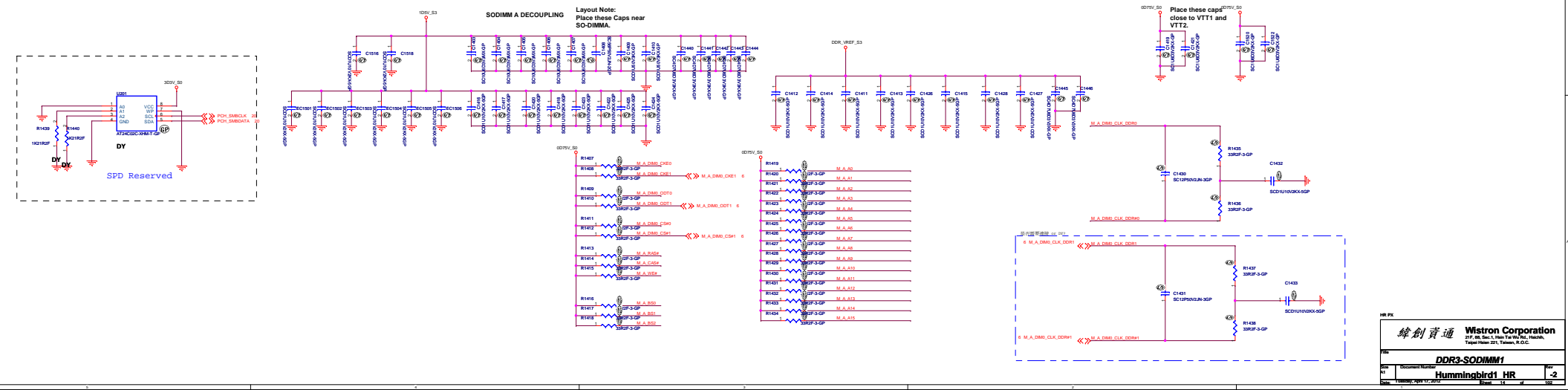
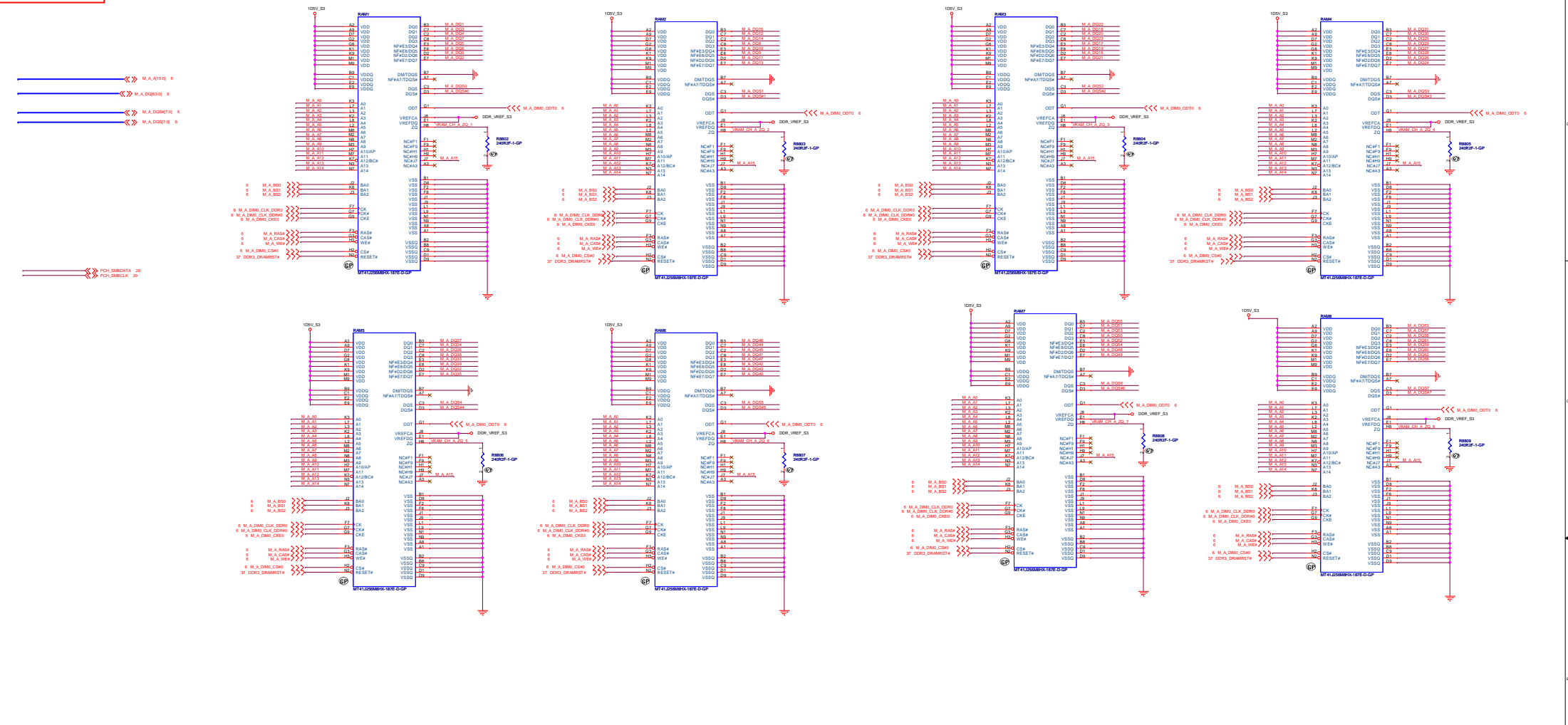
<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 12 of 102   |

(Blanking)

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 13 of 102   |



SSID = MEMORY

HR PX

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

Document Number

Rev

Hummingbird1 HR

-2

Date: Tuesday, April 17, 2012

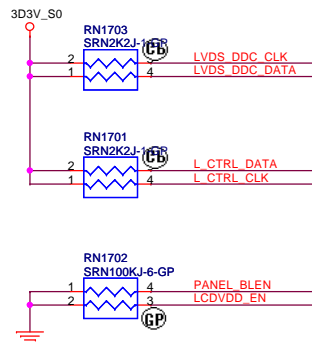
Sheet 15 of 102

( Blanking )

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>DDR3-SODIMM2</div>                                                                                                            |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 16 of 102   |





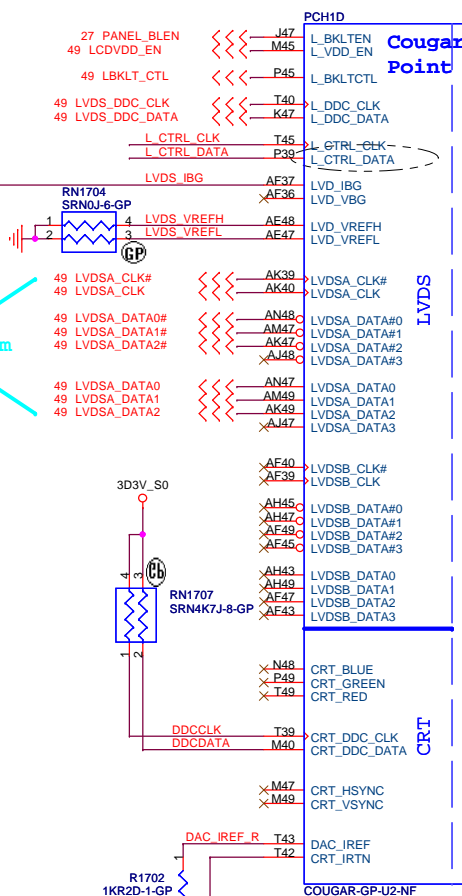
**L\_DDC\_DATA(PAGE17):**  
This signal is on the LVDS interface.  
This signal needs to be left NC if eDP is  
used for the local flat panel display

Place near PCH

Impedance:90 ohm

Close to PCH side

Delete CRT pull down resistor

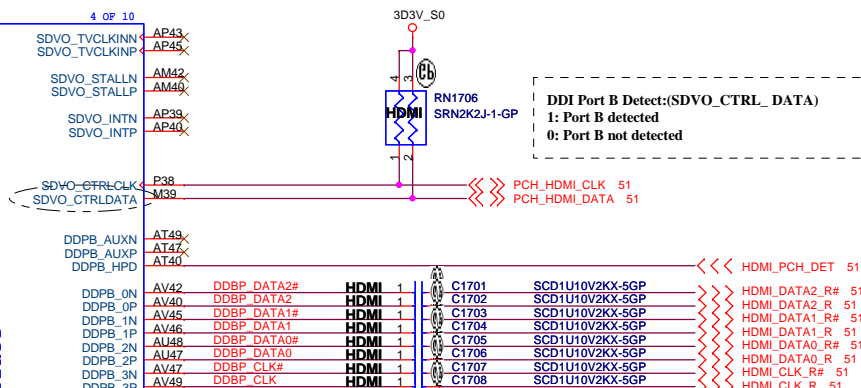


Digital Display Interface

Cougar  
Point

Configuration Pin Mapping for DDI Ports (Sheet 1 of 2)

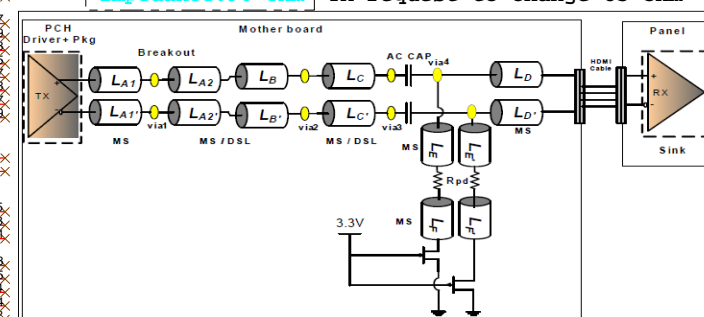
| PORT   | DDI PCH Pin Names | SDVO Mapping  | Display Port Mapping | HDMI/DVI Mapping |
|--------|-------------------|---------------|----------------------|------------------|
| PORT-B | DDPB_[0]P         | SDVO_RED      | DDPB_[0]P            | TMDSB_DATA2      |
|        | DDPB_[0]N         | SDVO_RED#     | DDPB_[0]N            | TMDSB_DATA2#     |
|        | DDPB_[1]P         | SDVO_GREEN    | DDPB_[1]P            | TMDSB_DATA1      |
|        | DDPB_[1]N         | SDVO_GREEN#   | DDPB_[1]N            | TMDSB_DATA1#     |
|        | DDPB_[2]P         | SDVO_BLUE     | DDPB_[2]P            | TMDSB_DATA0      |
|        | DDPB_[2]N         | SDVO_BLUE#    | DDPB_[2]N            | TMDSB_DATA0#     |
|        | DDPB_[3]P         | SDVO_CLK      | DDPB_[3]P            | TMDSB_CLK        |
|        | DDPB_[3]N         | SDVO_CLK#     | DDPB_[3]N            | TMDSB_CLK#       |
|        | DDPB_AUXP         | NA            | DDPB_AUXP            | NA               |
|        | DDPB_AUXN         | NA            | DDPB_AUXN            | NA               |
|        | DDPB_HPDP         | NA            | DDPB_HPDP            | HDMI_B_HPDP      |
|        | SDVO_CTRLCLK      | SDVO_CTRLCLK  | NA                   | HDMI_B_CTRLCLK   |
|        | SDVO_CTRLDATA     | SDVO_CTRLDATA | NA                   | HDMI_B_CTRLDATA  |



DDI Port B Detect:(SDVO\_CTRL\_DATA)  
1: Port B detected  
0: Port B not detected

Close to Connector side

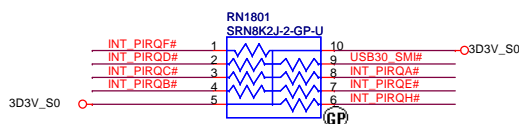
Impedance:90 ohm TM request to change 85-ohm



<Variant Name>

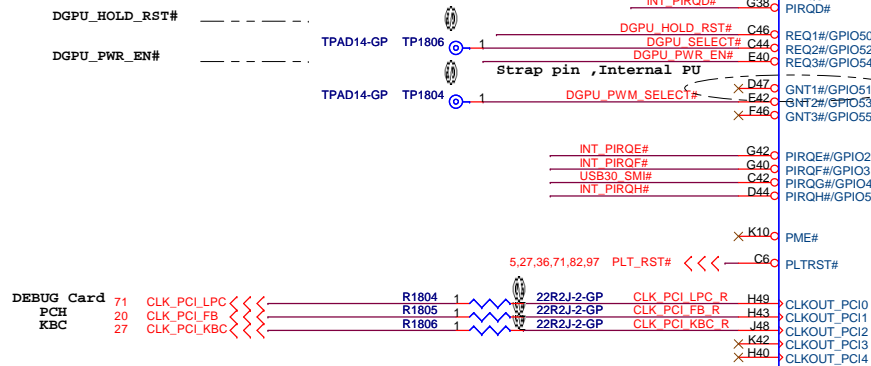
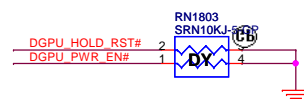
**緯創資通 Wistron Corporation**  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

**SSID = PCH**



|                                                        |                                                                           |
|--------------------------------------------------------|---------------------------------------------------------------------------|
| Al6 swap override Strap/Top-Block Swap Override jumper |                                                                           |
| PCI_GNT#3                                              | Low = Al6 swap override/Top-Block Swap Override enabled<br>High = Default |

| BOOT BIOS Strap |                |                    |
|-----------------|----------------|--------------------|
| GNT1#/GPIO51    | SATA1GP/GPIO19 | BOOT BIOS Location |
| 0               | 0              | LPC                |
| 0               | 1              | Reserved           |
| 1               | 0              | Reserved           |
| 1               | 1              | SPI(Default)       |



OC[3:0]# for Device 29 (Ports 0-7)  
OC[7:4]# for Device 26 (Ports 8-13)

| DMI & FDI Termination Voltage |                                             |
|-------------------------------|---------------------------------------------|
| NV_CLE                        | Set to Vss when LOW<br>Set to Vcc when HIGH |

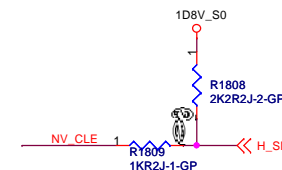
CRB : 2.2K

CEKT.T: 1K

Sandy Bridge /

Sandy Bridge / Ivy Bridge Processor

PROC\_SELECT# connected to DF\_TV<sub>S</sub> via 1k $\Omega$  (MB) , via 4.7k $\Omega$  (DT).  
DF\_TV<sub>S</sub> needs PU via 2.2k $\Omega$  to V<sub>cc</sub>DFTERM

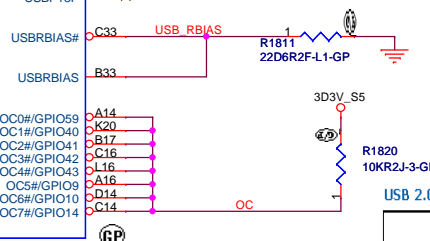


2x USB Ext. port 1 (HS)

```
* External debug port use on Huron river platform
```

## USB Table

| Pair | Device                                   |
|------|------------------------------------------|
| 0    | Touch Panel / 3G SIM(DY)                 |
| 1    | USB Ext. port 1 (HS)                     |
| 2    | Fingerprint(DY)                          |
| 3    | BLUETOOT                                 |
| 4    | Mini Card2 (WWAN) (DY)                   |
| 5    | CARD READER                              |
| 6    | X                                        |
| 7    | X                                        |
| 8    | USB Ext. port 4 / E-SATA<br>/USB CHARGER |
| 9    | USB Ext. port 2                          |
| 10   | EDP CAMERA(DY)                           |
| 11   | Mini Card1 (WLAN)                        |
| 12   | CAMERA                                   |
| 13   | New Card(DY)                             |



### 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             |

<Variant Names>

**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 |  |
|-----------------|--|

Hummingbird1 HR -2

Date \_\_\_\_\_

Tuesday, April 17, 2012

Sheet 18 of 102

4 DMI\_RXN[3:0] <<>>   
4 DMI\_RXP[3:0] <<>> 

4 DMI\_TXN[3:0] <<>>   
4 DMI\_TXP[3:0] <<>> 

PCH1C

## Cougar Point

3 OF 10

|                                                                                   |                                                                                   |              |   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------|---|
|  |  | FDI_TXN[7:0] | 4 |
|  |  | FDI_TXP[7:0] | 4 |

## Deep S4/S5 **Not** Supported

RSMRST#

- 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

|      |                   |
|------|-------------------|
| HIGH | Enabled (DEFAULT) |
| LOW  | Disabled          |

BTC AUX 9

R1917 1 330KR2J-L1-GP  
R1918 1 330KR2J-L1-GP

R1919  
8K2R2J-3-GP

3D3V\_S5

RN10KJ-6-3P

8 1

7 2

6 3

5 4

4 5

3 6

BATLOW#

AC\_PRESENT

SUS\_PWR\_ACK

PM\_R#

PCIE\_WAKE#

R1921 10KR2J-3-3P

```
PCIE_WAKE#
CRB : 1K
CEKLT: 10K
```

PWRBTN#  
This signal has an internal pull-up resistor

R1908  
100KR2J-1-GP



1 PM\_RSMRST#

```
PM_RSMRST#
CRB : PL 10K
ANNIE : PL 100K
```

3D3V\_AUX\_S5

R1909  
100KR2J-1-G

**R1912**  
**1KR2J-I-GP**  
 PM\_RSMRST# 1 2 << << RSMRST#\_KBC 27  
 << << 3V\_5V\_POK 41  
**Q1901**  
**2N7002KDW-GP**  
**84.2N702.A3F**  
**2nd = 84.DM601.03F**

<Variant Name>

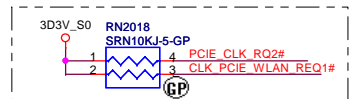
**緯創資通** **Wistron Corporation**  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

|       |                          |
|-------|--------------------------|
| Title | <b>PCH (DM I/FDI/PM)</b> |
|-------|--------------------------|

|                               |                                           |                  |
|-------------------------------|-------------------------------------------|------------------|
| Size<br>A3                    | Document Number<br><b>Hummingbird1_HR</b> | Rev<br><b>-2</b> |
| Date: Tuesday, April 17, 2012 | Sheet 19 of 102                           |                  |

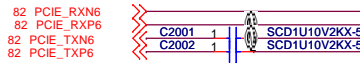
**SSID = PCH**

## USB3.0 CLK



```
PCIECLKRQ1# and PCIECLKRQ2#
Support S0 power only
```

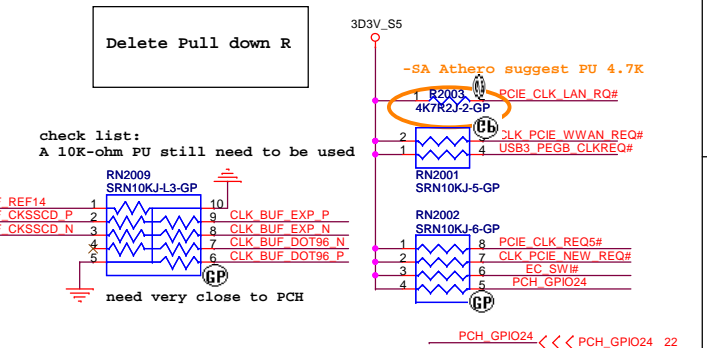
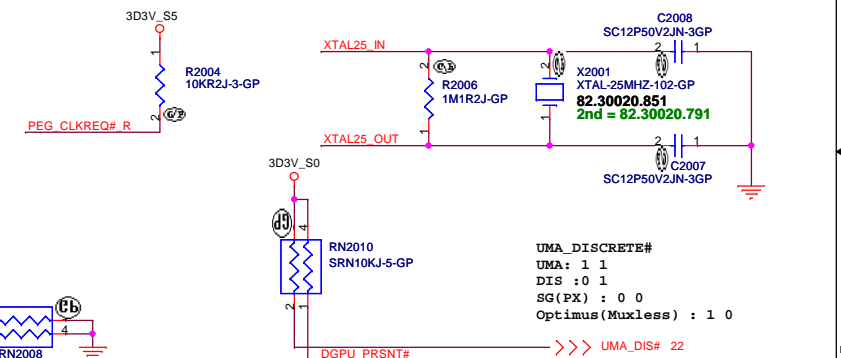
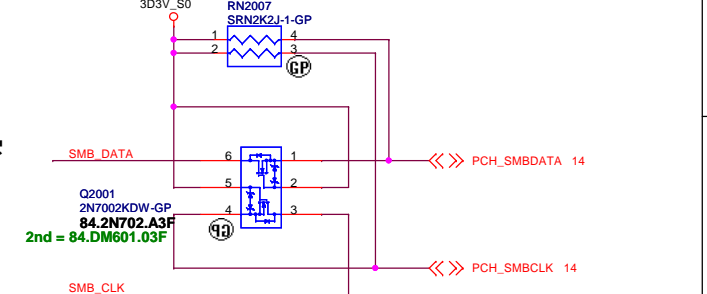
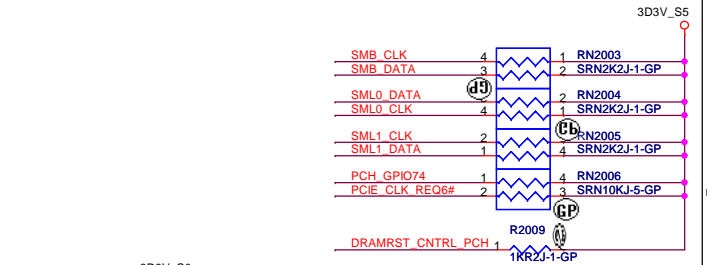
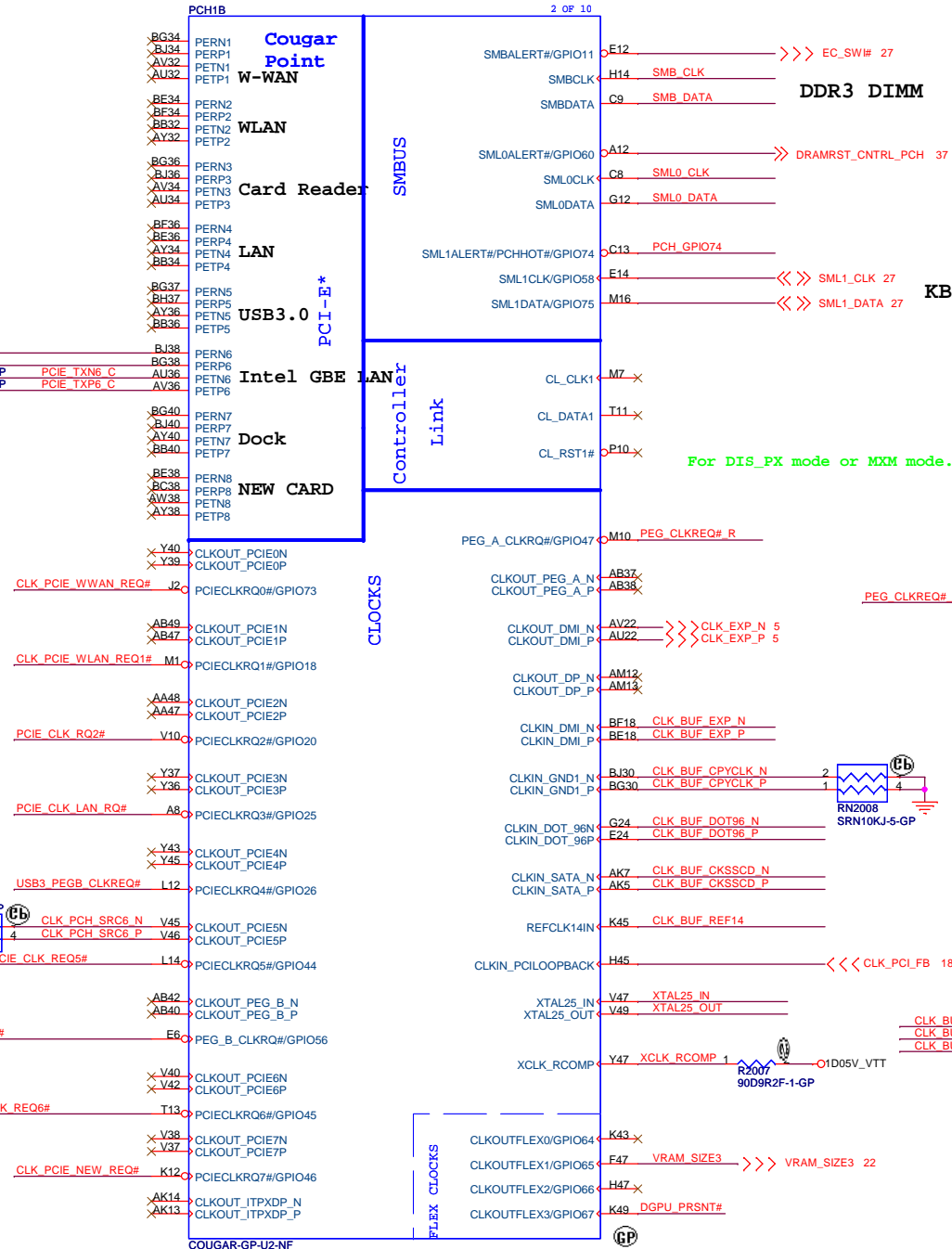
check list:  
A 10K-ohm PU still need to be used

**WWAN CLK**

## WLAN CLK

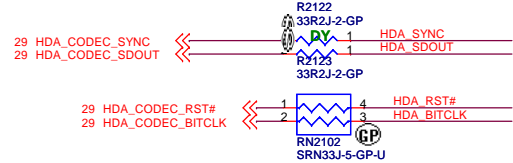
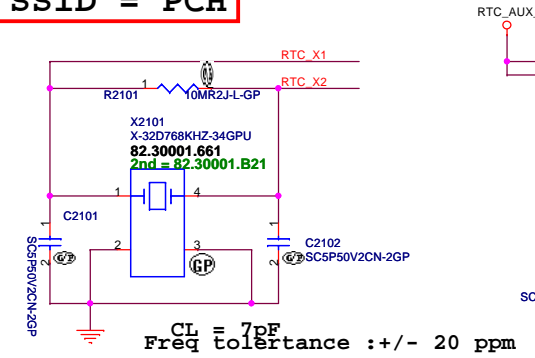


22 PEG\_B\_CLKRQ# <<< PEG\_B\_CLKRQ#

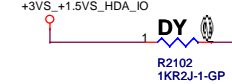


- Prioritize 27/14/24/48/25-MHz FLEX on FLEX1 and FLEX3
- Do not configure 27/14/24/48/25-MHz FLEX clock on FLEX0 and FLEX2 if more than 2 PCI clocks + PCI loopback are routed.

SSID = PCH



| Flash Descriptor Security Override |                                |
|------------------------------------|--------------------------------|
| HDA_SDOUT                          | Low = Default<br>High = Enable |

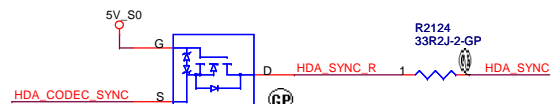


| No Reboot Strap |                                   |
|-----------------|-----------------------------------|
| HDA_SPKR        | Low = Default<br>High = No Reboot |

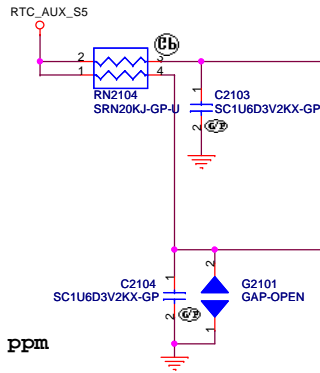
| PLL ODVR VOLTAGE |                                     |
|------------------|-------------------------------------|
| HDA_SYNC         | Low = 1.8V (Default)<br>High = 1.5V |



This signal has a weak internal pull down.  
On Die PLL VR is supplied by 1.5V when  
sampled high, 1.8 V when sampled low.  
Needs to be pulled High for Huron River platform.  
co-operate with R2310



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.



### RTC Reset

29 HDA\_SPKR <<<

29 HDA\_SDIN0 >>>

27 ME\_UNLOCK <<< R2107 1KR2J-1-GP

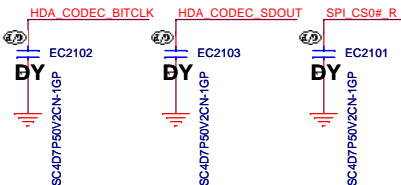
R2121 4K7R2J-2-GP

27,60 SPI\_CLK\_R <<< R2108 33R2J-2-GP

27,60 SPI\_CS0#\_R <<< R2109 33R2J-2-GP

27,60 SPI\_SI\_R <<< R2110 33R2J-2-GP

27,60 SPI\_SO\_R <<< R2110 33R2J-2-GP



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

RTC\_X1 A20

RTC\_X2 C20

RTC\_RST# D20

SRCT\_RST# G22

SM\_INTRUDER# K22

PCH\_INTVRMEN C17

HDA\_BITCLK N34

HDA\_SYNC L34

SPKR T10

HDA\_RST# K34

HDA\_SDIN0 E34

HDA\_SDIN1 G34

HDA\_SDIN2 C34

HDA\_SDIN3 A34

HDA\_SDO A36

HDA\_DOCK\_EN#/GPIO33 C36

HDA\_DOCK\_RST#/GPIO13 N32

PCH\_JTAG\_TCK BUF J3

PCH\_SPI\_CLK T3

PCH\_SPI\_CS0# Y14

PCH\_SPI\_SI V4

PCH\_SPI\_SO U3

PCH1A

Cougar Point

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

RTC

71.COUGA.00U

1 OF 10

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

LPC

C38 LPC\_AD0

A38 LPC\_AD1

B37 LPC\_AD2

C37 LPC\_AD3

D36 >>> LPC\_FRAME# 27.71

E36 >>> LPC\_SERIRQ 27

K36 >>> INT\_SERIRQ 27

V5 >>> INT\_SERIRQ 27

AM3 SATA\_RXN0 56

AM1 SATA\_RXP0 56

AP7 SATA\_TXN0 56

AP5 SATA\_TXP0 56

AM10 SATA\_RXN1 82

AM8 SATA\_RXP1 82

AP11 SATA\_TXN1 82

AP10 SATA\_TXP1 82

AD7 >>> SATA\_LED# 22

AD5 >>> SATA\_DET#0

AH5 >>> SATA\_DET#0

AH4 >>> SATA\_DET#0

Y7 >>> SATA\_LED# 22

Y5 >>> SATA\_DET#0

AD3 >>> SATA\_DET#0

AD1 >>> SATA\_DET#0

Y3 >>> SATA\_LED# 22

Y1 >>> SATA\_DET#0

AB3 >>> SATA\_DET#0

AB1 >>> SATA\_DET#0

Y11 >>> SATA\_LED# 22

Y10 >>> SATA\_DET#0

AB12 >>> SATA\_LED# 22

AB13 >>> SATA\_DET#0

AH1 >>> SATA\_LED# 22

AH1 >>> SATA\_DET#0

P3 >>> SATA\_LED# 22

V14 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

P1 >>> SATA\_DET#0

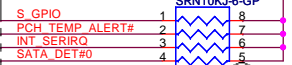
check list:8.2K PU  
CRB :10K PU

HDD1

M-SATA

SWAP pin from Page 22

22 S\_GPIO  
22,27 PCH\_TEMP\_ALERT#



<Variant Name>

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)

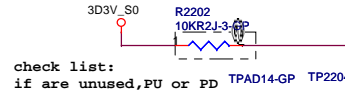
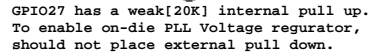
Size A3 Document Number

Hummingbird1 HR

Date: Tuesday, April 17, 2012 Sheet 21 of 102


Rev -2

Note:  
For PCH debug with XDP, need to NO STUFF R2218



**GFX CRB DET**

R2206  
100KR2J-1-GP

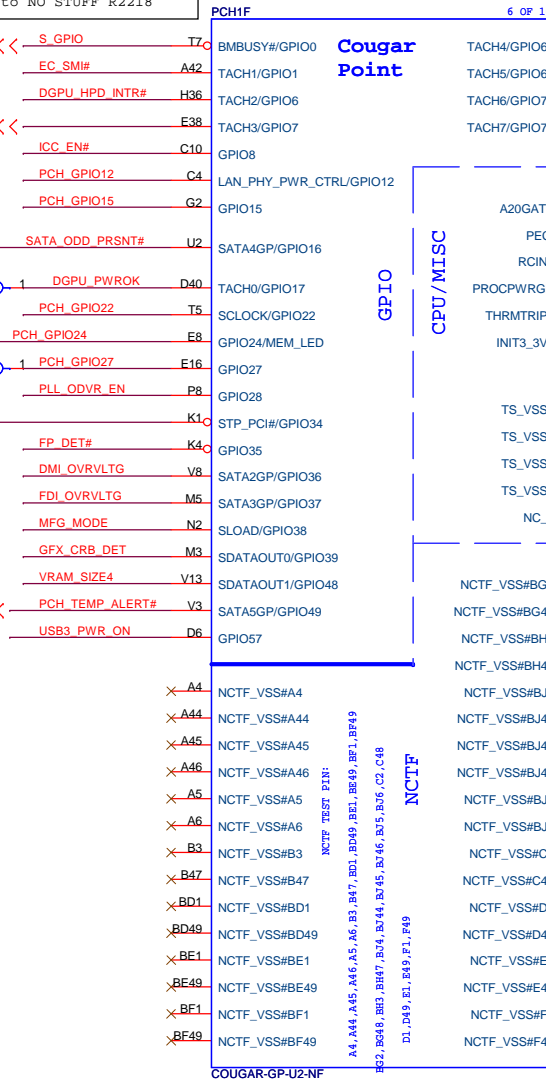
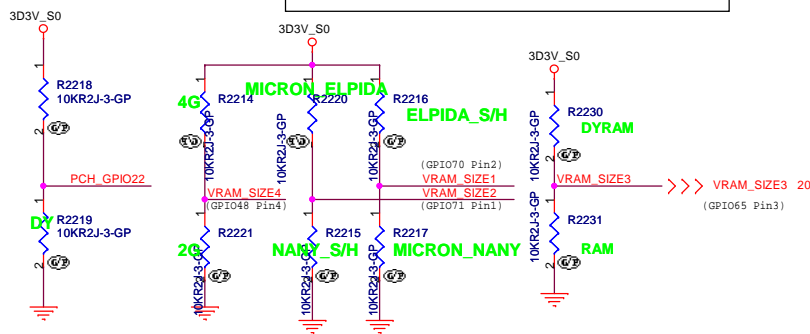


[illegible]

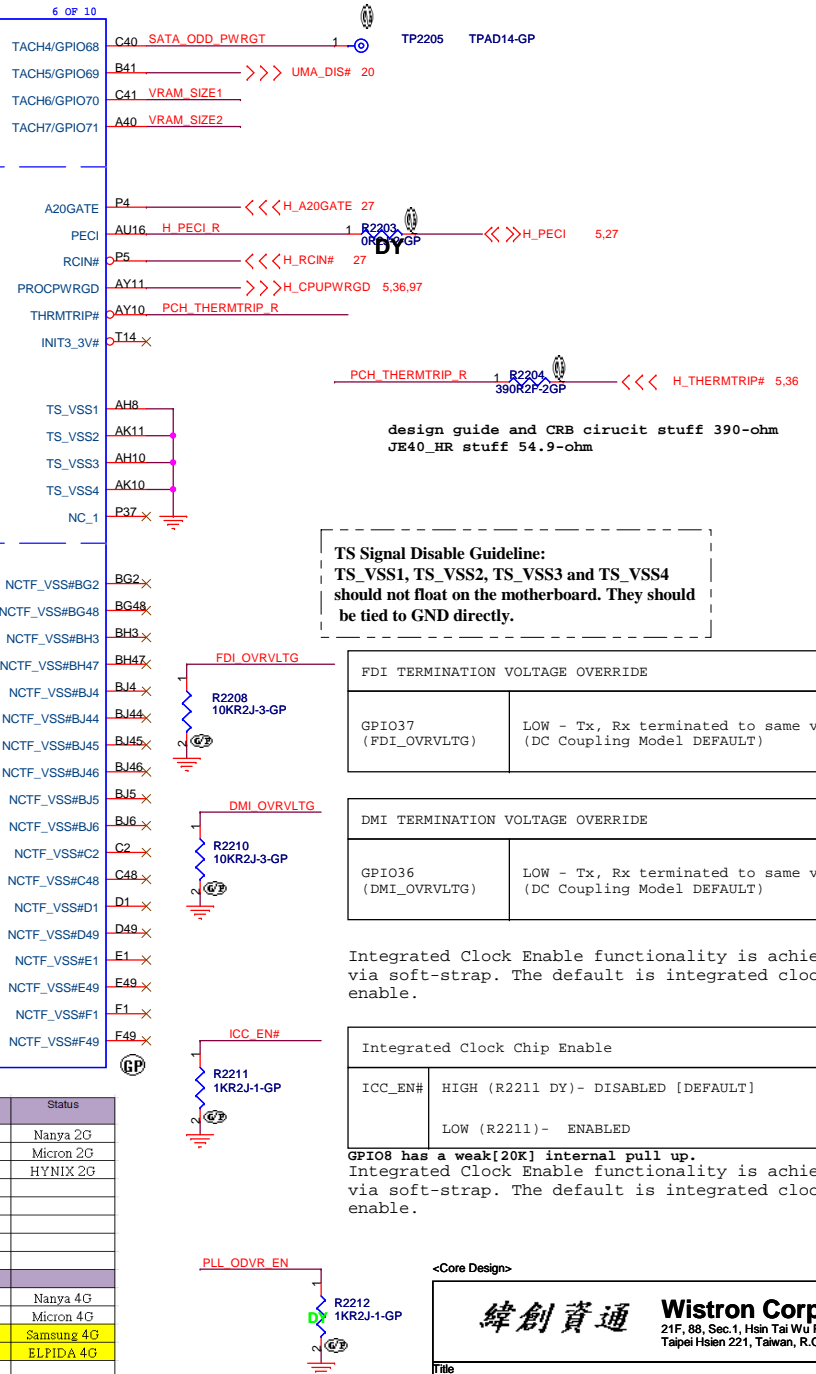
PLL ON DIE VR ENABLE

---

NOTE: This signal has a weak internal pull-up 20KΩ  
ENABLED -- HIGH (R2212 UNSTUFFED) DEFAULT  
DISABLED -- LOW (R2212 STUFFED)



| GPI048<br>DRAM_Type4 | GPI065<br>DRAM_Type3 | GPI070<br>DRAM_Type1 | GPI071<br>DRAM_Type2 | Status     |
|----------------------|----------------------|----------------------|----------------------|------------|
| 0                    | 0                    | 0                    | 0                    | Nanya 2G   |
| 0                    | 0                    | 0                    | 1                    | Micron 2G  |
| 0                    | 0                    | 1                    | 0                    | HYNIX 2G   |
| 0                    | 0                    | 1                    | 1                    |            |
| 0                    | 1                    | 0                    | 0                    |            |
| 0                    | 1                    | 0                    | 1                    |            |
| 0                    | 1                    | 1                    | 0                    |            |
| 0                    | 1                    | 1                    | 1                    |            |
| 1                    | 0                    | 0                    | 0                    | Nanya 4G   |
| 1                    | 0                    | 0                    | 1                    | Micron 4G  |
| 1                    | 0                    | 1                    | 0                    | Samsung 4G |
| 1                    | 0                    | 1                    | 1                    | ELPIDA 4G  |
| 1                    | 1                    | 0                    | 0                    |            |
| 1                    | 1                    | 0                    | 1                    |            |
| 1                    | 1                    | 1                    | 0                    |            |
| 1                    | 1                    | 1                    | 1                    |            |



**TS Signal Disable Guideline:**  
TS\_VSS1, TS\_VSS2, TS\_VSS3 and TS\_VSS4 should not float on the motherboard. They should be tied to GND directly.

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

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

Integrated Clock Enable functionality is achieved via soft-strap. The default is integrated clock enable.

| Integrated Clock Chip Enable |                                                                 |
|------------------------------|-----------------------------------------------------------------|
| ICC_EN#                      | HIGH (R2211 DY)- DISABLED [DEFAULT]<br><br>LOW (R2211)- ENABLED |

GPIO8 has a weak[20K] internal pull up.  
Integrated Clock Enable functionality is achieved  
via soft-strap. The default is integrated clock  
enable.

### <Core Design>

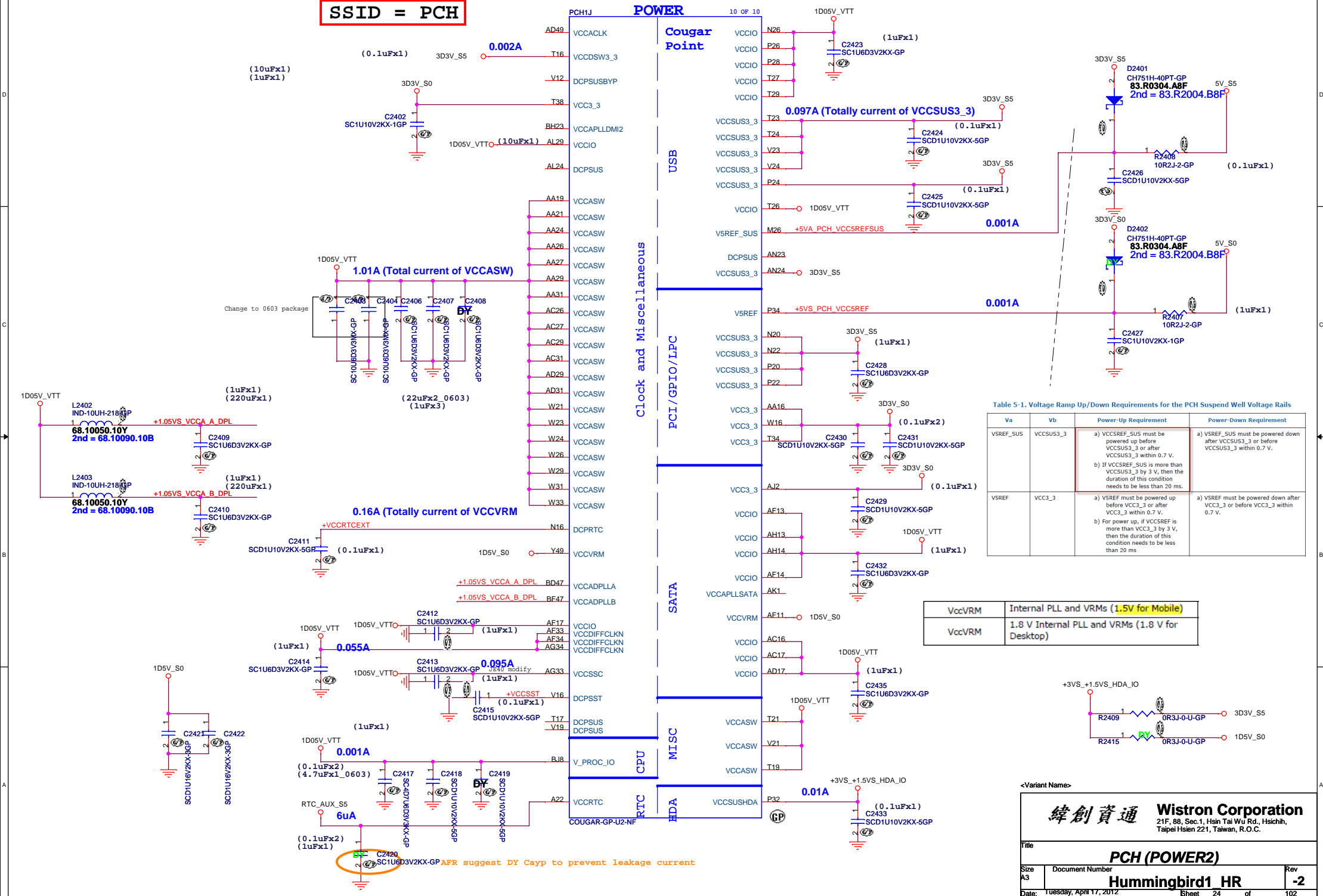
**緯創資通** **Wistron Corporation**  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

|                       |                         |             |           |
|-----------------------|-------------------------|-------------|-----------|
| Title                 |                         |             |           |
| <b>PCH (GPIO/CPU)</b> |                         |             |           |
| Size<br>A3            | Document Number         |             | Rev       |
|                       | <b>Hummingbird1 HR</b>  |             | <b>-2</b> |
| Date:                 | Tuesday, April 17, 2012 | Sheet 22 of | 102       |





**SSID = PCH**



**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 | <p>a) VCCSREF_SUS must be powered up before VCCSUS3_3 or after VCCSUS3_3 within 0.7 V.</p> <p>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.</p> | <p>a) VSREF_SUS must be powered down after VCCSUS3_3 or before VCCSUS3_3 within 0.7 V.</p> |
| VSREF     | VCC3_3    | <p>a) VSREF must be powered up before VCC3_3 or after VCC3_3 within 0.7 V.</p> <p>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</p>       | <p>a) VSREF must be powered down after VCC3_3 or before VCC3_3 within 0.7 V.</p>           |

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

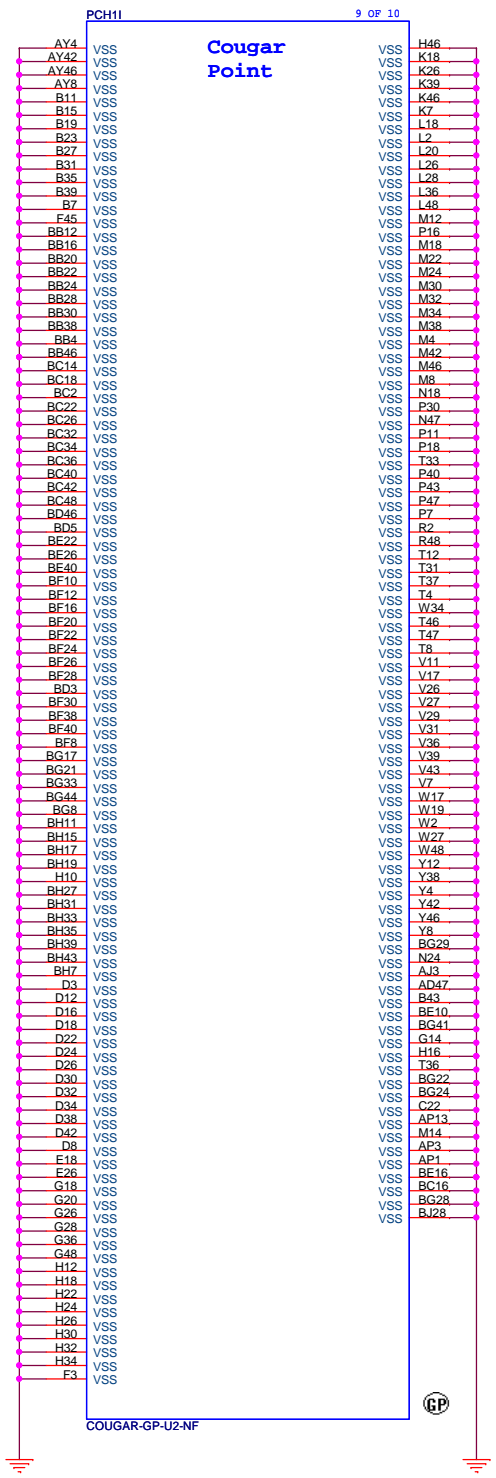
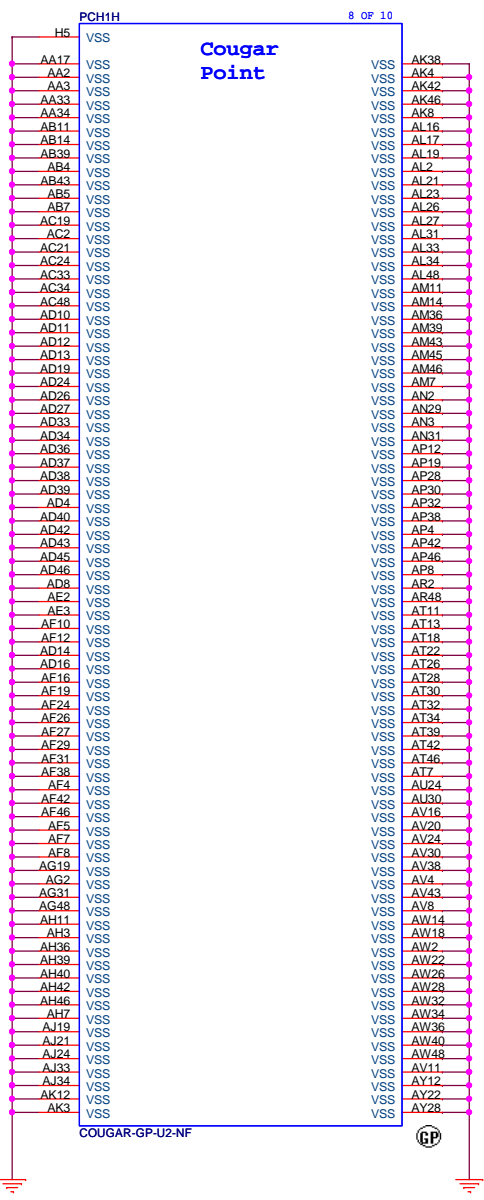
<Variant Name>

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

|                     |                         |             |           |
|---------------------|-------------------------|-------------|-----------|
| Title               |                         |             |           |
| <b>PCH (POWER2)</b> |                         |             |           |
| Size<br>A3          | Document Number         |             | Rev       |
|                     | <b>Hummingbird1 HR</b>  |             | <b>-2</b> |
| Date:               | Tuesday, April 17, 2012 | Sheet 24 of | 102       |



SSID = PCH



Blanking

<Variant Name>

|                                                                                                                                               |                                            |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div><div>緯創資通</div><div>Wistron Corporation</div><div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div></div> |                                            |                                       |
| Title <div>Clock(colay)</div>                                                                                                                 |                                            |                                       |
| Size <div>A4</div>                                                                                                                            | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                       |                                            | Sheet <div>26</div> of <div>102</div> |



### *Thermal sensor P2800*



3.0V to 3.6V

0.1µF

100kΩ

Thermal Shutdown

Thermal Reporting

Thermal Reporting

VCC

ADJ

OTZ

P2800EB0

DXP

DXN

GND

2N3904

2200pF

R<sub>up</sub>

R<sub>down</sub>

optional

optional

Option 1: OTZ=95°C → ADJ=3.3V

Option 2: OTZ=85°C → ADJ=Floating

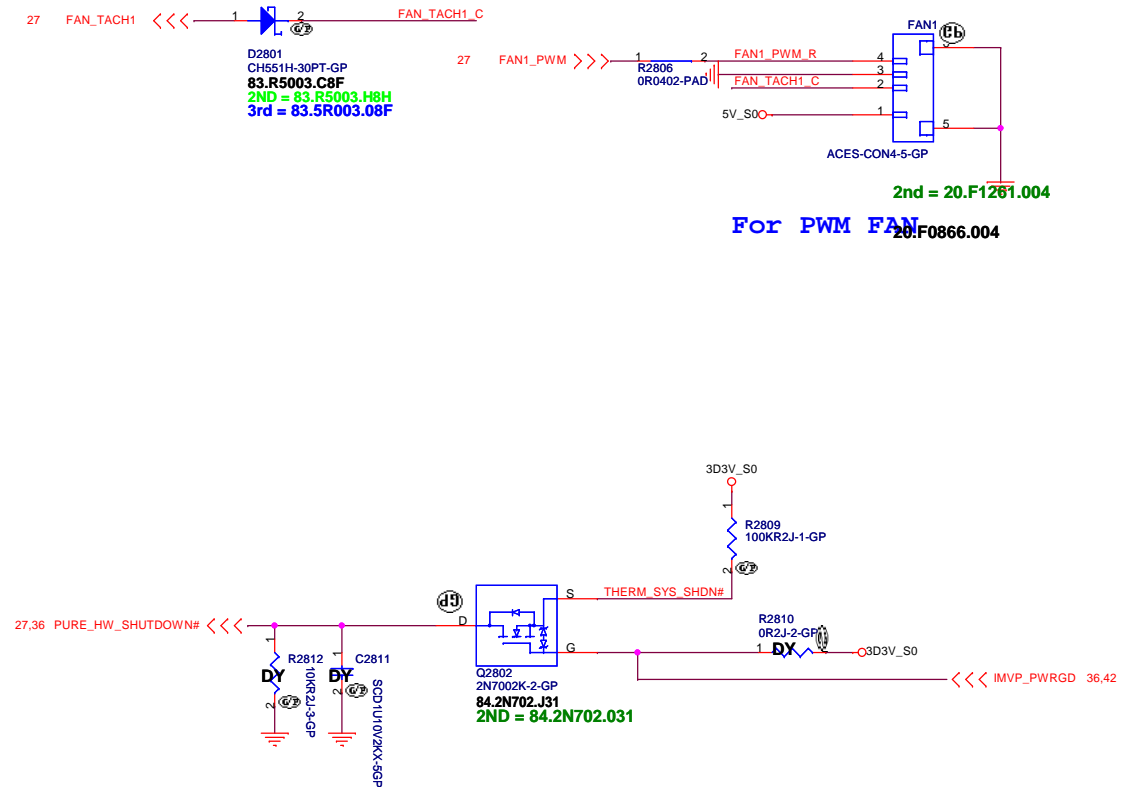
Option 3: OTZ=90°C → ADJ=GND

VCC

GND

KBC

Note that R<sub>up</sub> and R<sub>down</sub> are optional for the purpose of circuit backward compatible with P2800EA1 designs. For new designs the two resistors can be replaced by short circuit wherever applicable





AUDIO OP AMPLIFIER

Blanking

<Variant Name>

|                                                                                                                          |                                            |                   |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Audio AMP</div>                                                                                               |                                            |                   |
| Size <div>A4</div>                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                            |                                            | Sheet 30 of 102   |

# Blanking

|                                                                                                                                             |                 |     |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|
| <Variant Name>                                                                                                                              |                 |     |
| <div><div>緯創資通</div><div>Wistron Corporation<br/>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div></div> |                 |     |
| Title                                                                                                                                       |                 |     |
| AR8158                                                                                                                                      |                 |     |
| Size                                                                                                                                        | Document Number | Rev |
| A3                                                                                                                                          | Hummingbird1    | -2  |
| Date: Tuesday, April 17, 2012                                                                                                               |                 |     |
| Sheet 31 of 102                                                                                                                             |                 |     |

Card reader move to small board

<Variant Name>

|                                                                                                                                                   |                                            |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div><div>緯創資通</div><div>Wistron Corporation</div><div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div></div> |                                            |                   |
| Title <div>RTS5159 (CARD READER)</div>                                                                                                            |                                            |                   |
| Size <div>A4</div>                                                                                                                                | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                                     |                                            | Sheet 32 of 102   |



(Blanking)

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 33 of 102   |

( Blanking )

<Variant Name>

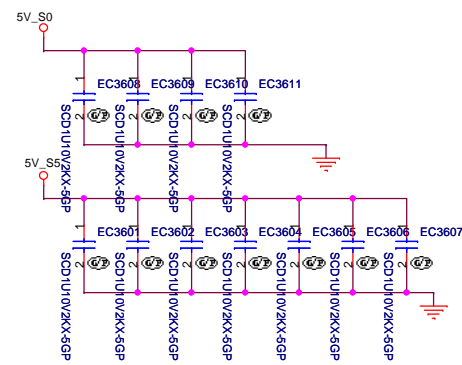
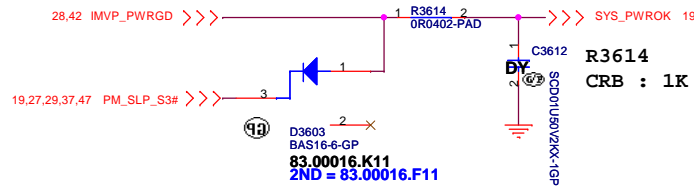
|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 34 of 102   |

# Blanking

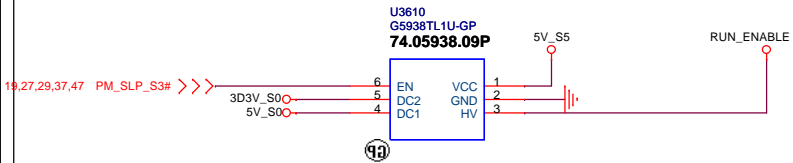
HR PX

|                                                                             |                         |                            |                 |
|-----------------------------------------------------------------------------|-------------------------|----------------------------|-----------------|
| <b>緯創資通</b>                                                                 |                         | <b>Wistron Corporation</b> |                 |
| 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. |                         |                            |                 |
| Title                                                                       |                         |                            |                 |
| <b>USB 3.0 Controller</b>                                                   |                         |                            |                 |
| Size                                                                        | Document Number         |                            | Rev             |
| A3                                                                          | <b>Hummingbird1_HR</b>  |                            | <b>-2</b>       |
| Date:                                                                       | Tuesday, April 17, 2012 |                            | Sheet 35 of 102 |

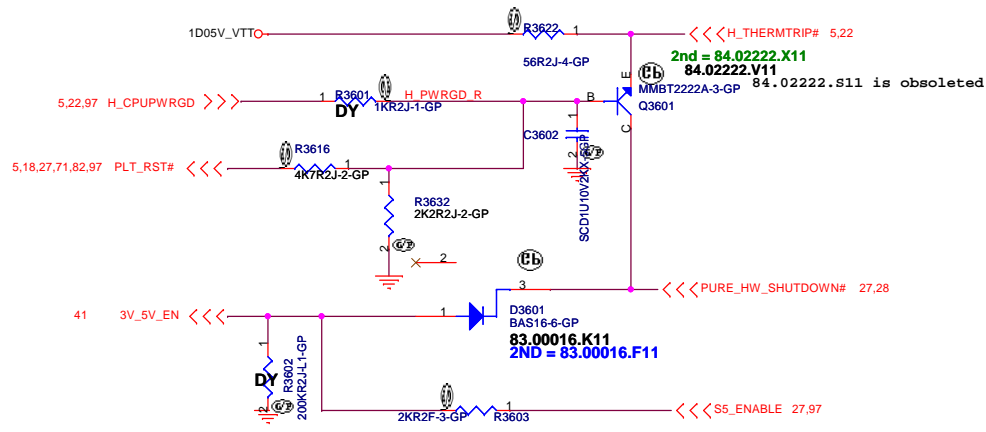
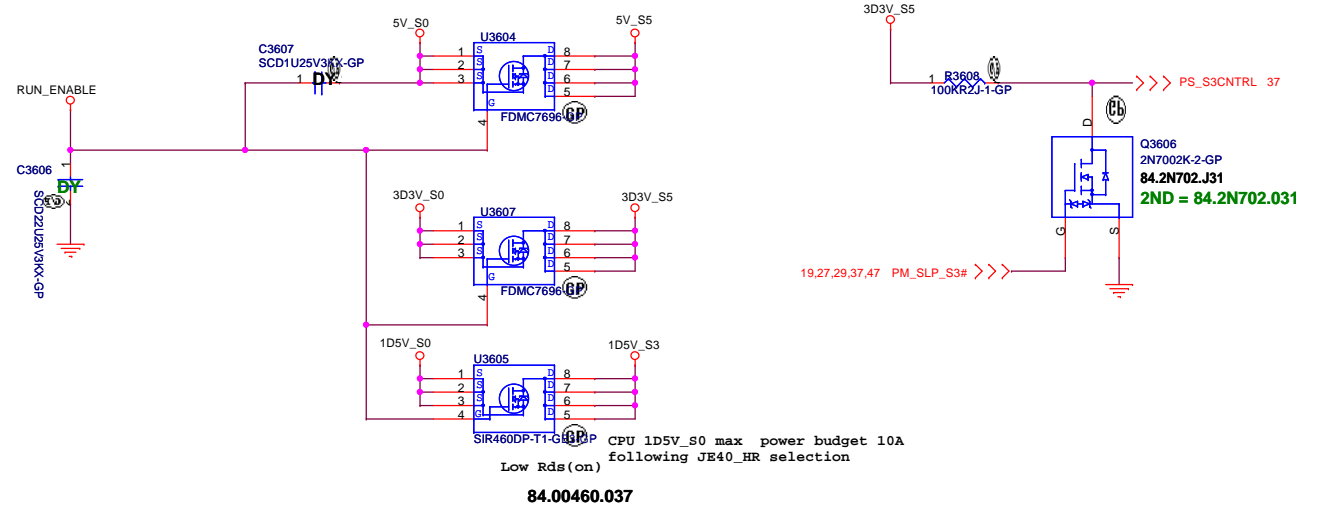
## Power Sequence



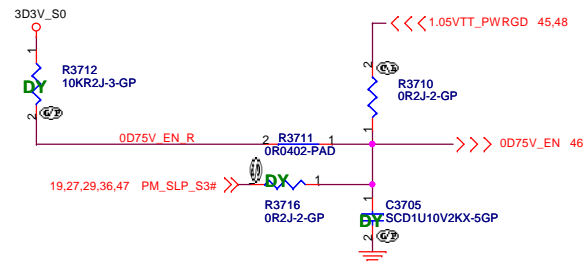
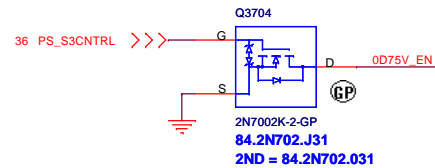
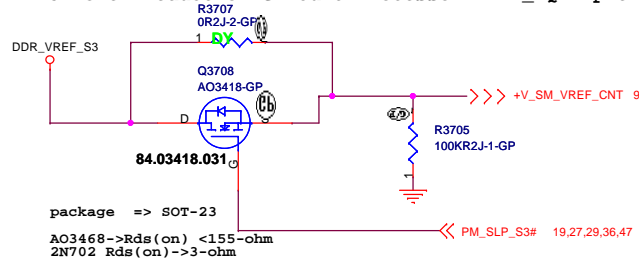
## ***ANNIE Run Power***



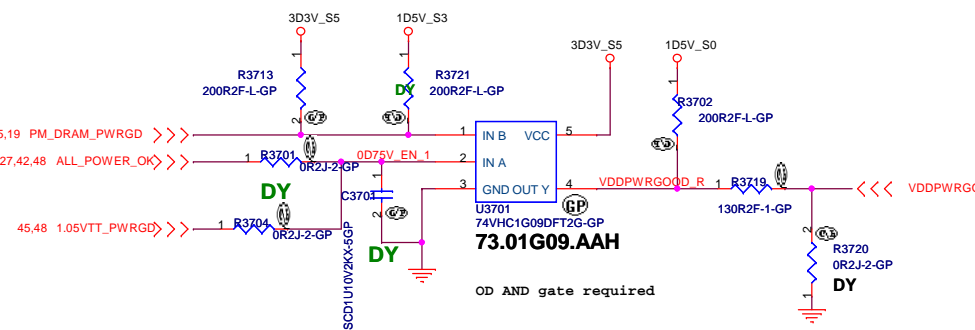
Modify the MOS package for placement



Close to CPU  
S3 Power Reduction Circuit Processor VREF\_DQ Implementation



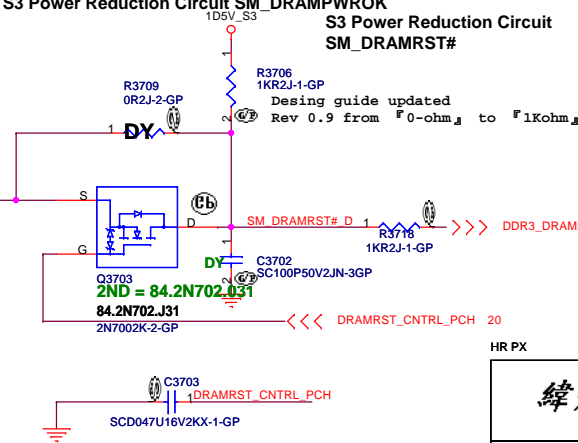
Close to CPU  
S3 Power Reduction Circuit SM\_DRAMPWROK



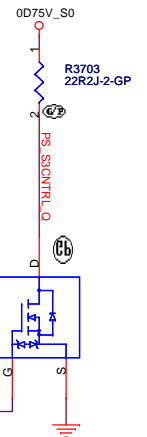
For U3701 not OD AND gate  
R3719 to 64.15015.6DL  
R3720 to 64.75005.6DL  
R3702 to DY

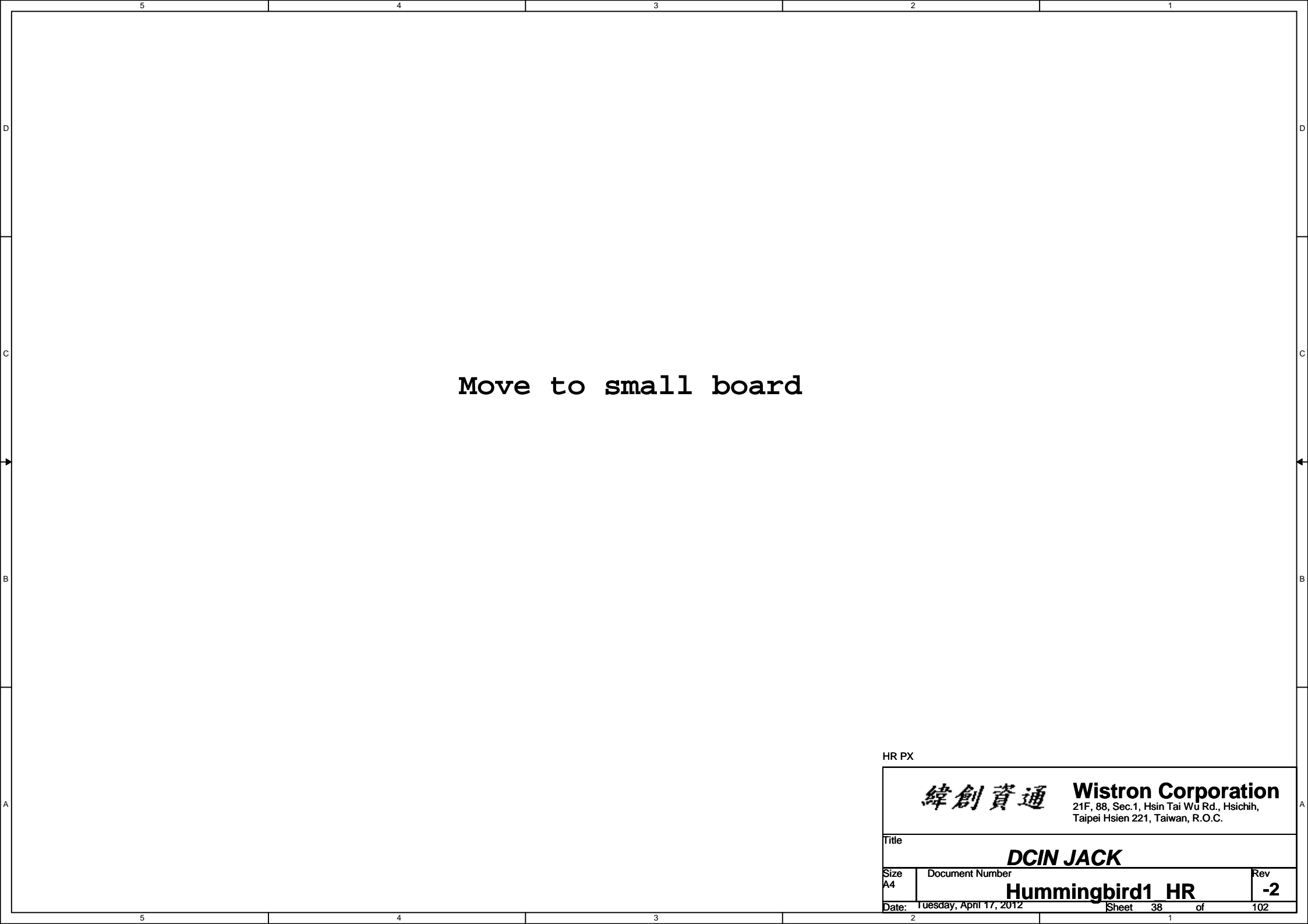
SM\_DRAMPWROK must have a maximum of 15ns rise or fall time over VDDQ \* 0.55± 200mV and the edge must be monotonic

Close to CPU  
S3 Power Reduction Circuit SM\_DRAMPWROK  
S3 Power Reduction Circuit SM\_DRAMRST#



Close to DIMM  
S3 Power Reduction Circuit SM\_DRAMPWROK

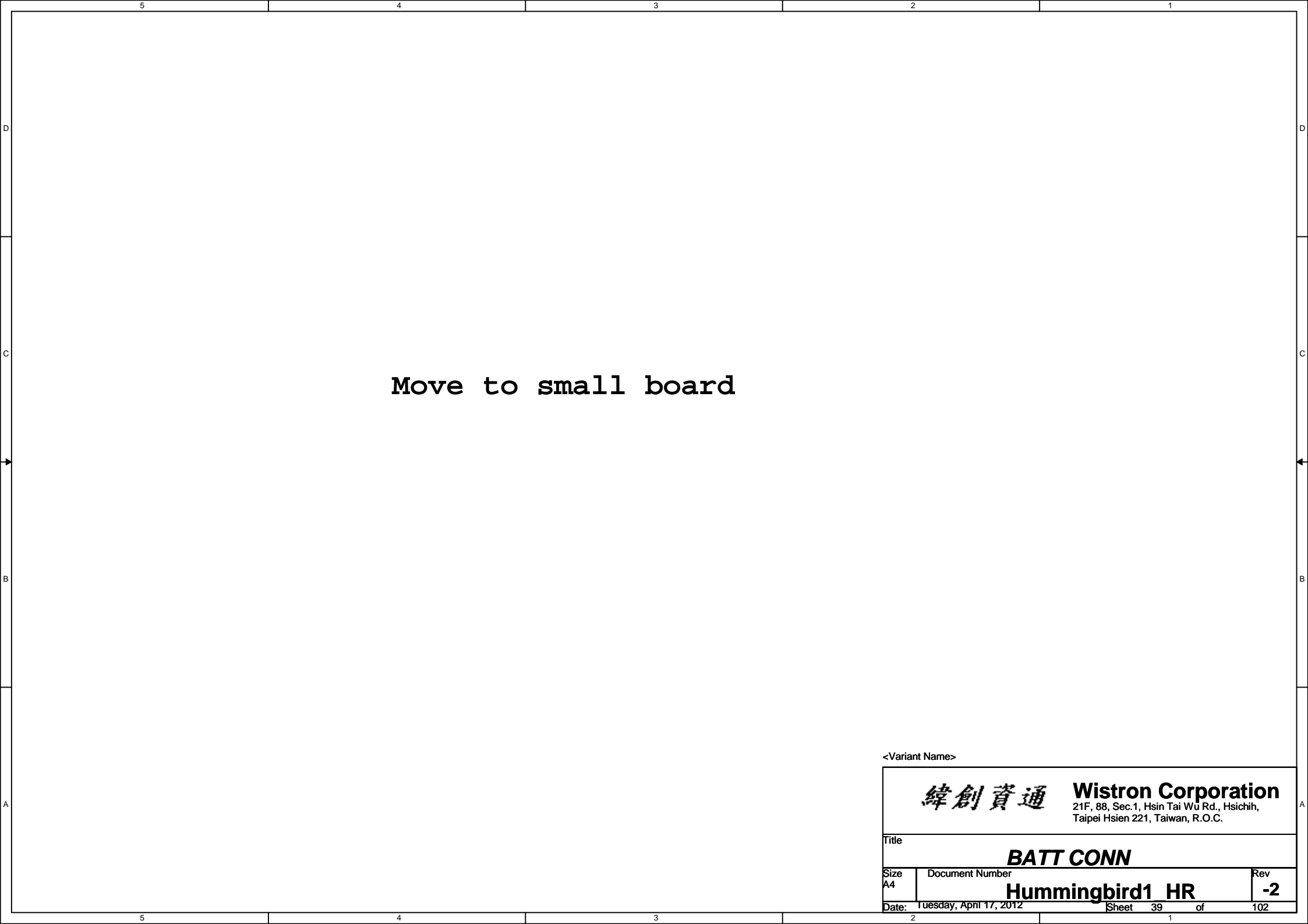




Move to small board

HR PX

|                                                                                                                                               |                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <div><div>緯創資通</div><div>Wistron Corporation</div><div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div></div> |                                                                 |
| <div>Title<div>DCIN JACK</div></div>                                                                                                          |                                                                 |
| <div>Size<div>A4</div></div>                                                                                                                  | <div><div>Document Number</div><div>Hummingbird1 HR</div></div> |
| <div>Date<div>Tuesday, April 17, 2012</div></div>                                                                                             | <div><div>Rev</div><div>-2</div></div>                          |
| <div><div>Date</div><div>Tuesday, April 17, 2012</div><div>Sheet 38 of 102</div></div>                                                        |                                                                 |



Move to small board

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>BATT CONN</div>                                                                                                               |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>39</div> of <div>102</div> |

Move to small board

<Variant Name>

緯創資通

Wistron Corporation

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

Title

CHARGER BQ24745

Size

A3

Document Number

Hummingbird1\_HR

Rev

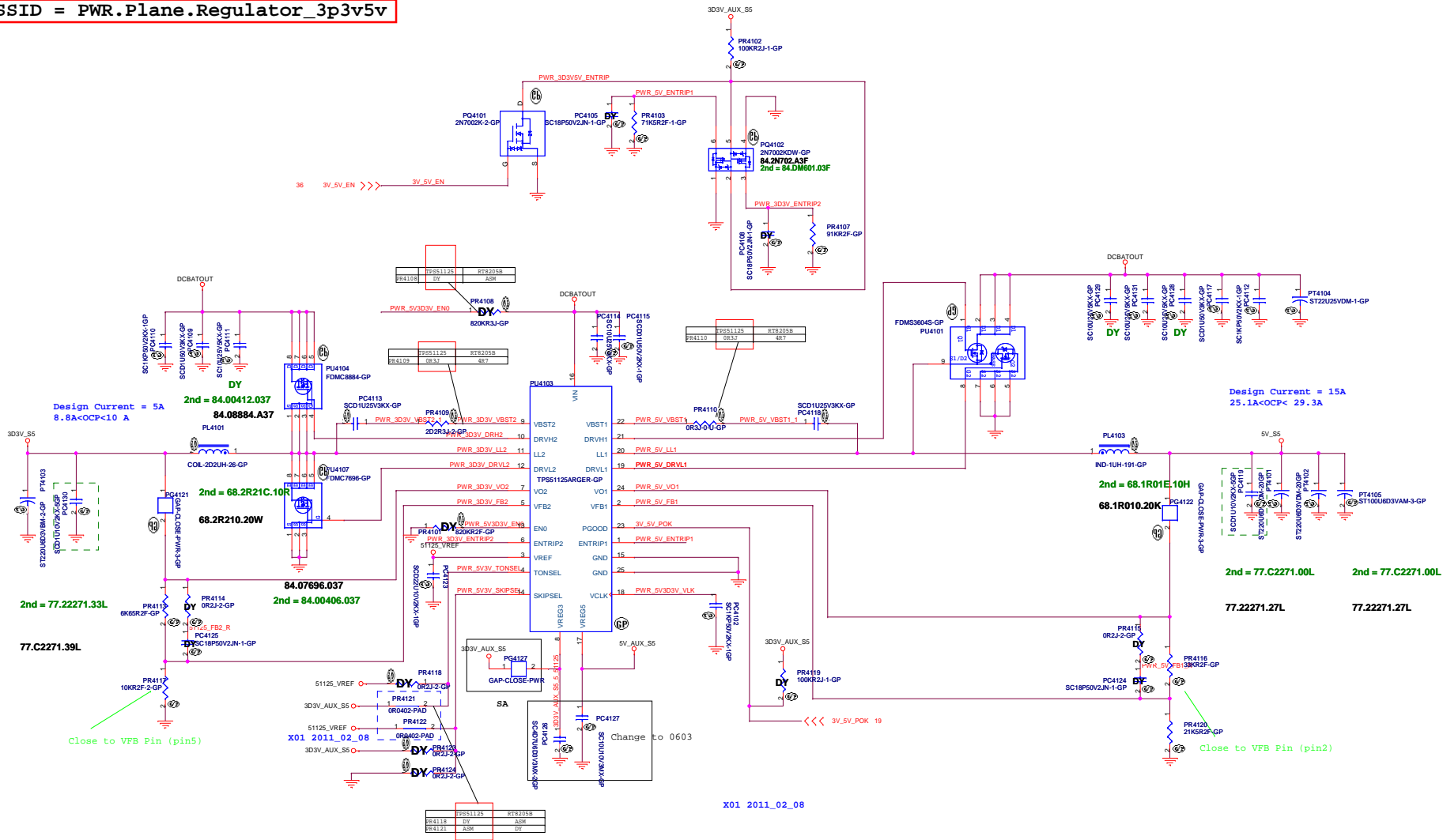
-2

Date: Tuesday, April 17, 2012

Sheet 40 of 102



# SSID = PWR.Plane.Regulator\_3p3v5v



I/P cap: 10U 25V K0805 X5R/ 78.10622.51L  
 Inductor: 2.2U PCMC063T-2R2MN Cynotec 18mohm/20mohm Isat =10Arms 68.2R10.20B  
 O/P cap: ST220U6D3VDM-20GP 25mohm / 77.22271.27L  
 H/S: FDMC884-GP / 22mohm/30mohm@4.5Vgs / 84.08884.A37  
 L/S: FDMC7692-GP / 9.5mohm/11.5mohm@4.5Vgs / 84.07692.A37

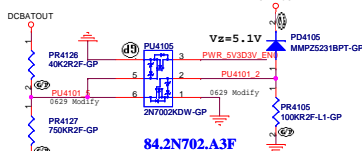
I/P cap:10U 25V K0805 X5R/ 78.10622.51L  
 Inductor: 1.50UH PCMC104T-1R5 Cynotec 3.8mohm/4.2mohm Isat =33Arms 68.1R510.10J  
 O/P cap: ST220U6D3VDM-20GP 25mohm / 77.22271.27L  
 H/S: SIR172DP-T1-GE3-GP / 10.3mohm/12.4mohm@4.5Vgs / 84.00172.037  
 L/S: SIR460DP-T1-GE3-GP / 4.9mohm/6.1mohm@4.5Vgs / 84.00460.037

| SKIPSEL        | VREG3 or VREG5 | VREF(2V)  | GND      |
|----------------|----------------|-----------|----------|
| Operating Mode | OOA Auto Skip  | Auto Skip | PWM only |

| EN0            | Open                                                             | 820kΩ to GND                                                      | GND                 |
|----------------|------------------------------------------------------------------|-------------------------------------------------------------------|---------------------|
| Operating Mode | enable both LDOs, VCLK on and ready to turn on switcher channels | enable both LDOs, VCLK off and ready to turn on switcher channels | disable all circuit |

| TNSSEL | CH1    | CH2    |
|--------|--------|--------|
| GND    | 200kHz | 265kHz |
| VREF   | 245kHz | 305kHz |
| VREG3  | 300kHz | 375kHz |
| VREG5  | 365kHz | 460kHz |

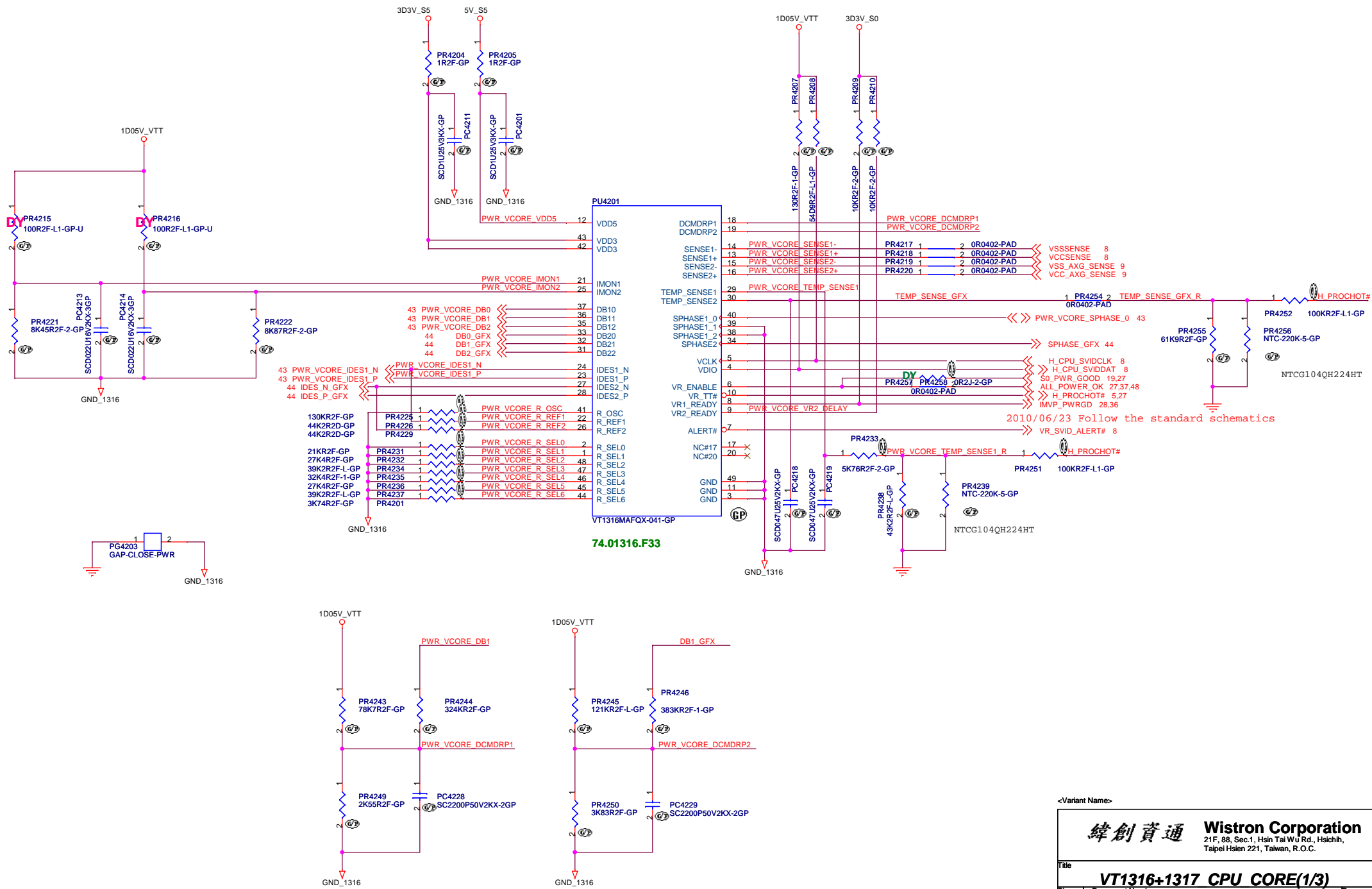
| TNSSEL | CH1    | CH2    |
|--------|--------|--------|
| GND    | 200kHz | 250kHz |
| VREF   | 300kHz | 375kHz |
| VREG3  | 365kHz | 460kHz |
| VREG5  | 365kHz | 460kHz |



<Variant Name>

| 緯創資通 Wistron Corporation                                                   |                         |
|----------------------------------------------------------------------------|-------------------------|
| 21F, 8B, Sec.1, Hsin Tai Wu Rd., Hsinchu, Taipei Hsein 221, Taiwan, R.O.C. |                         |
| File                                                                       | TPS51125A 5V/3D3V       |
| Rev                                                                        | Hummingbird1 HR -2      |
| Date                                                                       | 1998/07, April 17, 2012 |
| Sheet                                                                      | 41 of 102               |

```
SSID = CPU.Regulator
```



&lt;Variant Name&gt;

緯創資通

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

Title

**VT1316+1317 CPU CORE(1/3)**

Size

Document Number

Hummingbird1 HR

Rev

Date: Tuesday, April 17, 2012

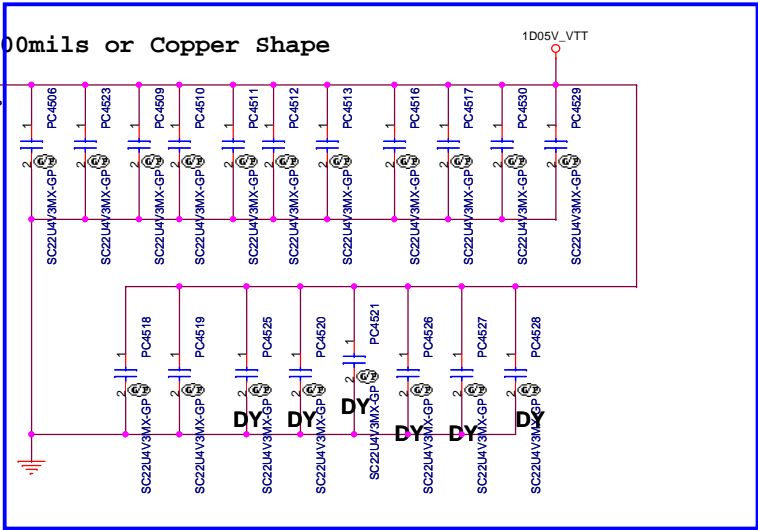
Sheet 42 of 102

102





Delete the old version VT386F circuit



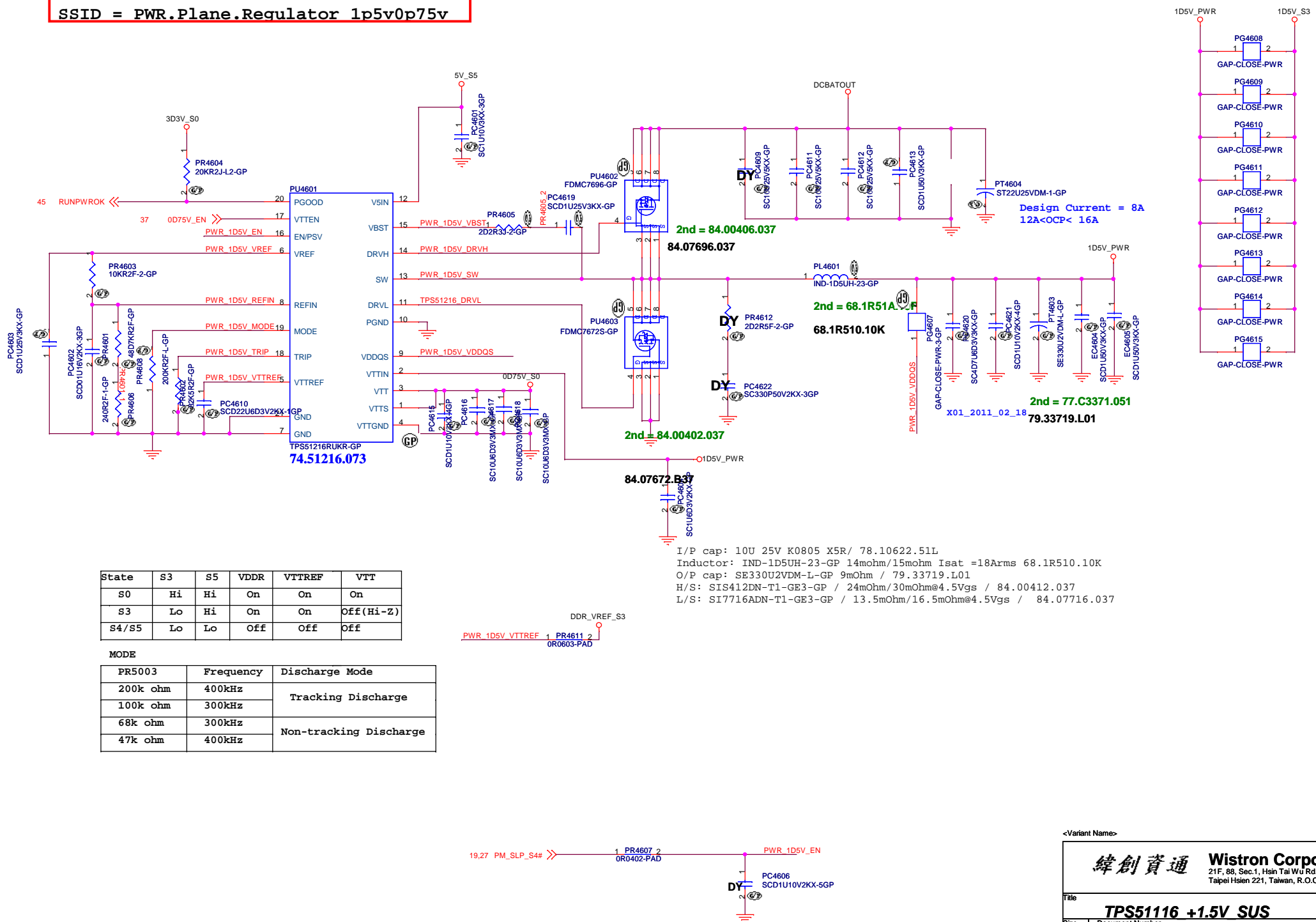
Change to 0603\_4v

close output MLCC

close output MLCC

Change OR PAD to OR and DY

```
SSID = PWR.Plane.Regulator 1p5v0p75v
```

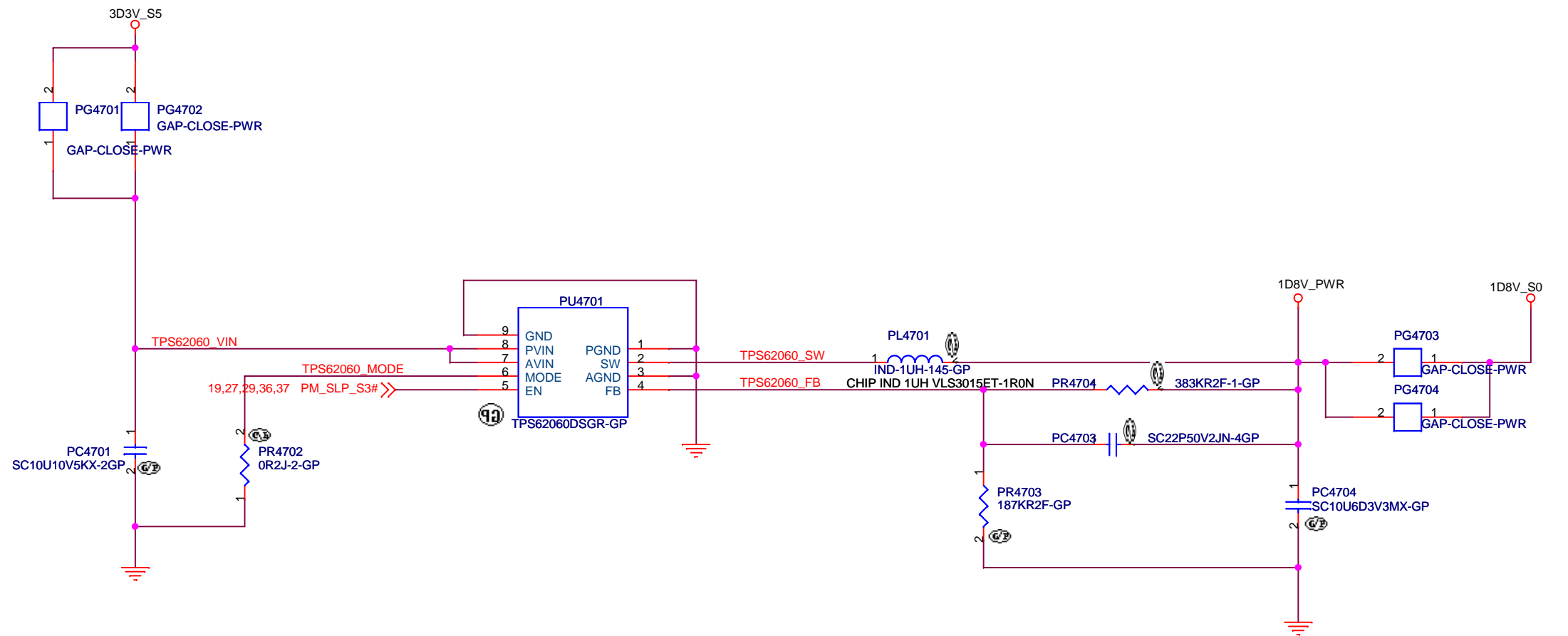


| State | S3 | S5 | VDDR | VTTREF | VTT        |
|-------|----|----|------|--------|------------|
| S0    | Hi | Hi | On   | On     | On         |
| S3    | Lo | Hi | On   | On     | Off (Hi-Z) |
| S4/S5 | Lo | Lo | Off  | Off    | Off        |


| MODE     |           |                        |
|----------|-----------|------------------------|
| PR5003   | Frequency | Discharge Mode         |
| 200k ohm | 400kHz    | Tracking Discharge     |
| 100k ohm | 300kHz    |                        |
| 68k ohm  | 300kHz    | Non-tracking Discharge |
| 47k ohm  | 400kHz    |                        |

|                                                                                                                                                             |                         |                |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------|--------|
| <div> <div> Variant Name&gt; </div> <div> 緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. </div> </div> |                         |                |        |
| Title                                                                                                                                                       |                         |                |        |
| TPS51116 +1.5V SUS                                                                                                                                          |                         |                |        |
| Size A3                                                                                                                                                     | Document Number         | Hummingbird HR | Rev -2 |
| Date                                                                                                                                                        | Tuesday, April 17, 2012 | Sheet 46 of    | 102    |

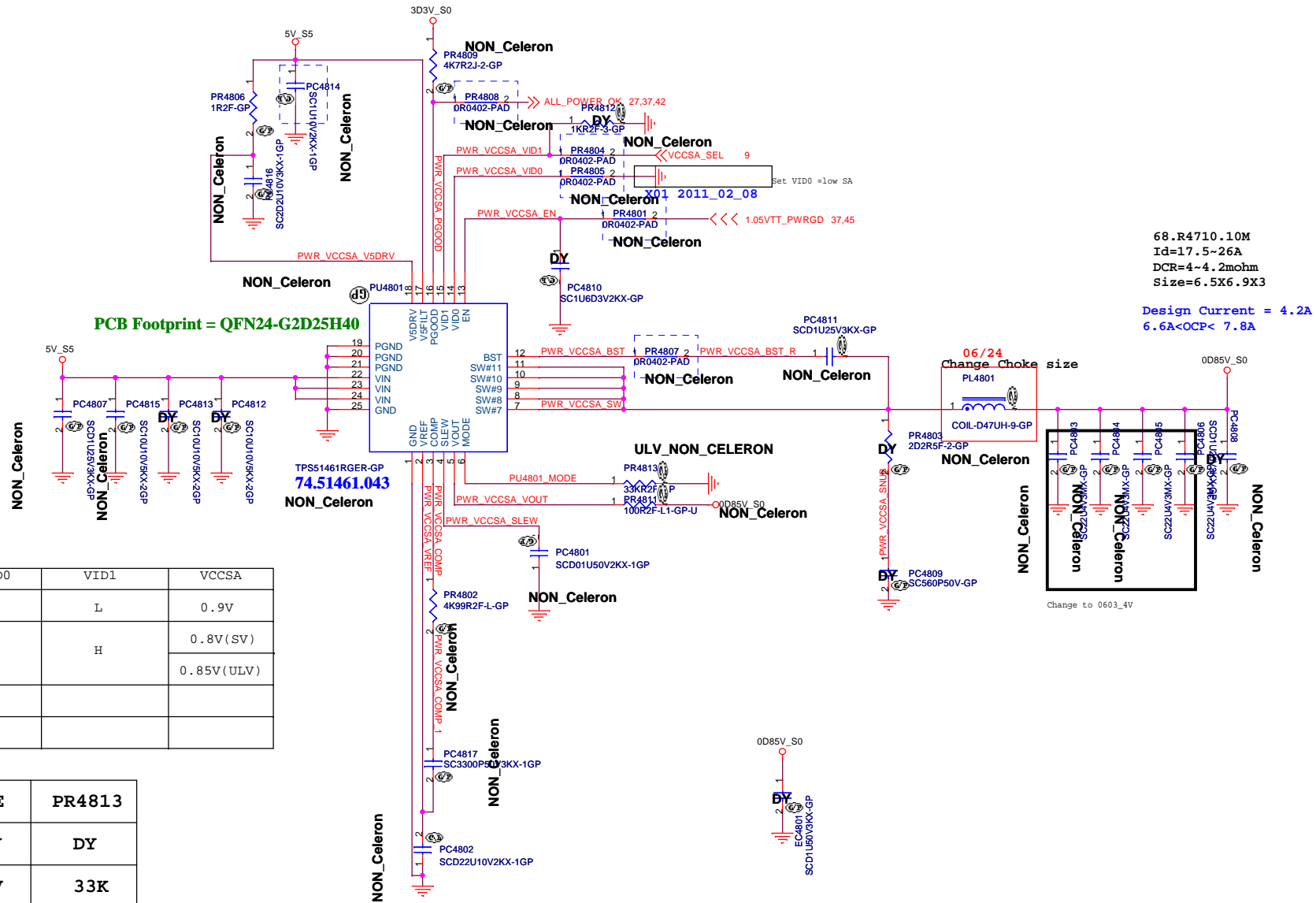
SSID = PWR.Plane.Regulator\_1p8v



<Variant Name>

|                                                                                       |                                           |                                                                                                             |                  |
|---------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------|
|  |                                           | <b>Wistron Corporation</b><br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. |                  |
| Title <b>DC CONVERTER_1D8V</b>                                                        |                                           |                                                                                                             |                  |
| Size<br>A4                                                                            | Document Number<br><b>Hummingbird1_HR</b> |                                                                                                             | Rev<br><b>-2</b> |
| Date:                                                                                 | tuesday, April 17, 2012                   | Sheet 47 of                                                                                                 | 102              |

## TPS51461 for VCCSA



| VID0 | VID1 | VCCSA      |
|------|------|------------|
| L    | L    | 0.9V       |
| L    | H    | 0.8V(SV)   |
|      |      | 0.85V(ULV) |
|      |      |            |
|      |      |            |

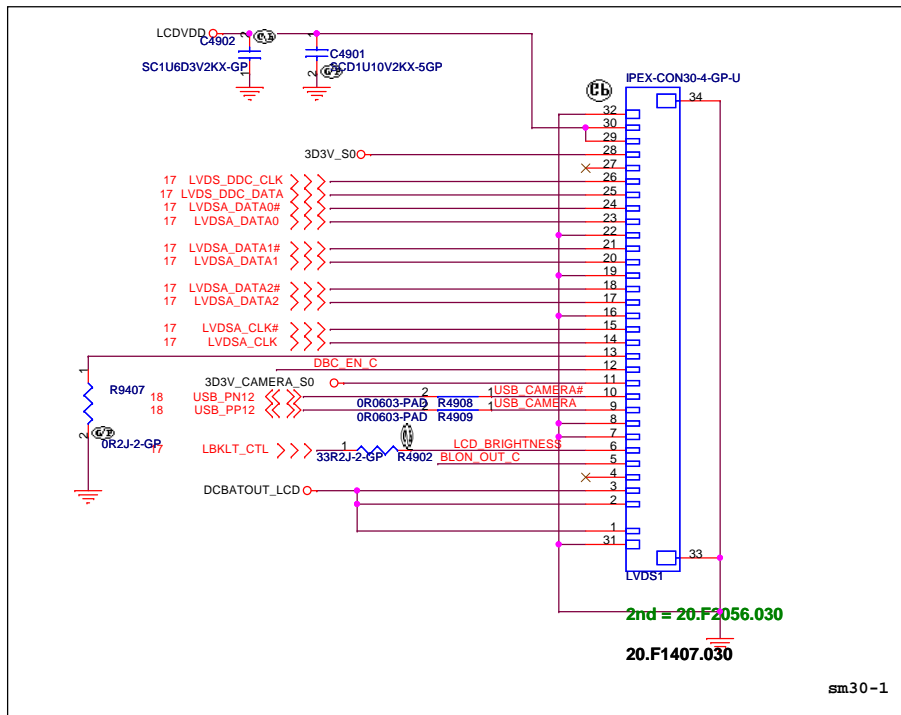
|      |        |
|------|--------|
| TYPE | PR4813 |
| SV   | DY     |
| ULV  | 33K    |



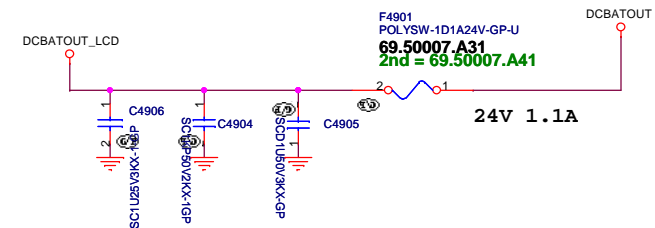
SSID = VIDEO

Reverse the pin define becасue of cable issue

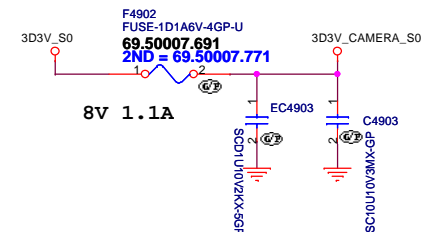
## LVDS CONNECTOR



## INVERTER POWER

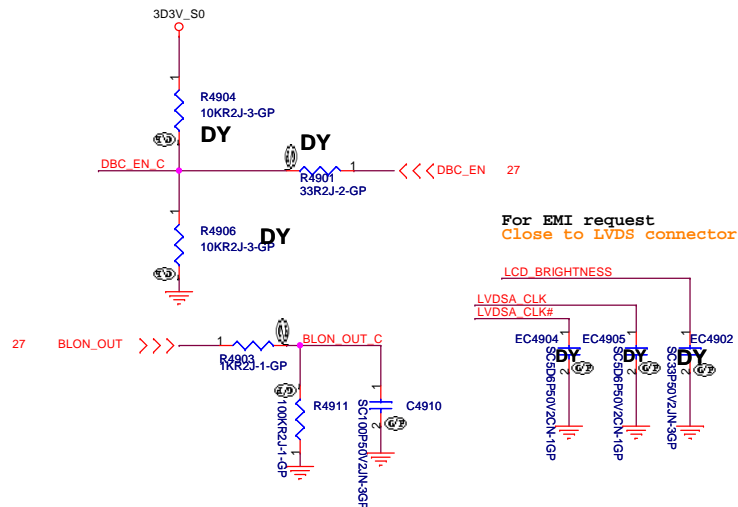
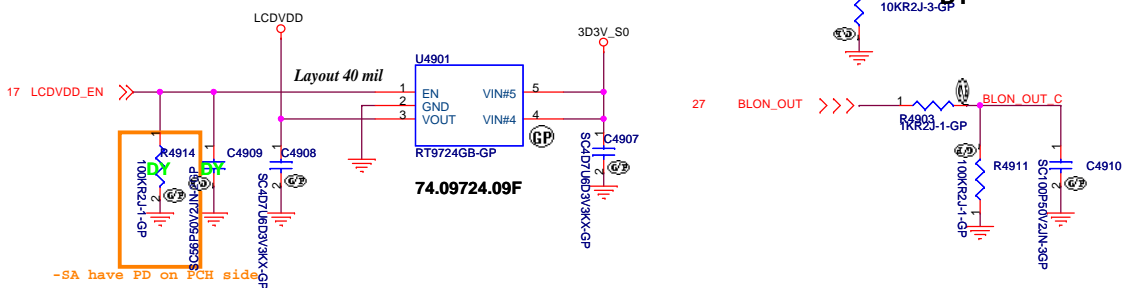


## Camera Power

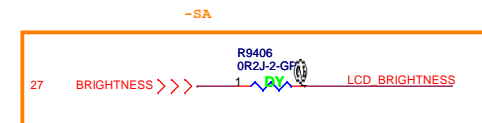


**SSID = VIDEO**

LCD POWER for ANNIE



For EMI request  
Close to LVDS connector



<Variant Name>

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

|                      |                         |             |           |
|----------------------|-------------------------|-------------|-----------|
| Title                |                         |             |           |
| <b>LCD Connector</b> |                         |             |           |
| Size<br>A3           | Document Number         |             | Rev       |
|                      | <b>Hummingbird1 HR</b>  |             | <b>-2</b> |
| Date:                | Tuesday, April 17, 2012 | Sheet 49 of | 102       |

Pull High 5V Design on CRT Board

CRT DDCDATA & DDCCLK level shift

<Variant Name>

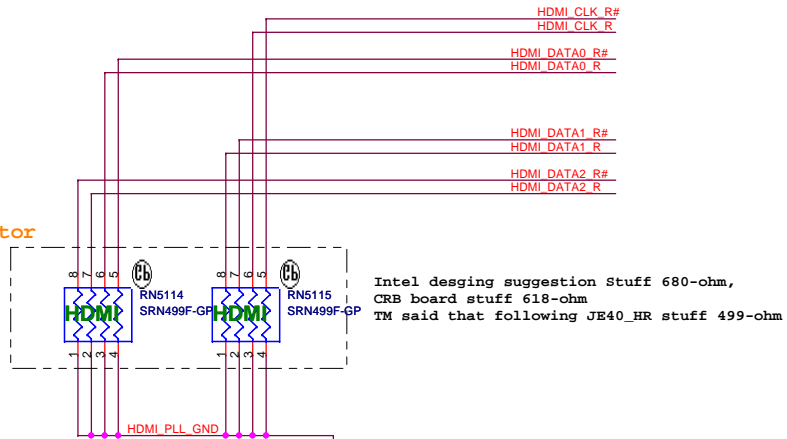
|                                                                                                                          |                         |                 |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|
| <div>緯創資通Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div> |                         |                 |
| Title                                                                                                                    |                         |                 |
| CRT Connector                                                                                                            |                         |                 |
| Size                                                                                                                     | Document Number         | Rev             |
| A3                                                                                                                       | Hummingbird1_HR         | -2              |
| Date:                                                                                                                    | Tuesday, April 17, 2012 | Sheet 50 of 102 |

SSID = VIDEO

# HDMI Level Shifter & CONNECTOR

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# >>>

Close to HDMI Connector

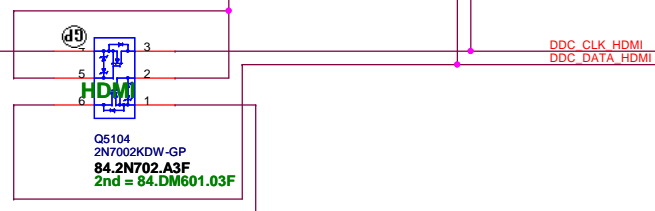


Intel desging suggestion Stuff 680-ohm,  
CRB board stuff 618-ohm  
TM said that following JE40\_HR stuff 499-ohm

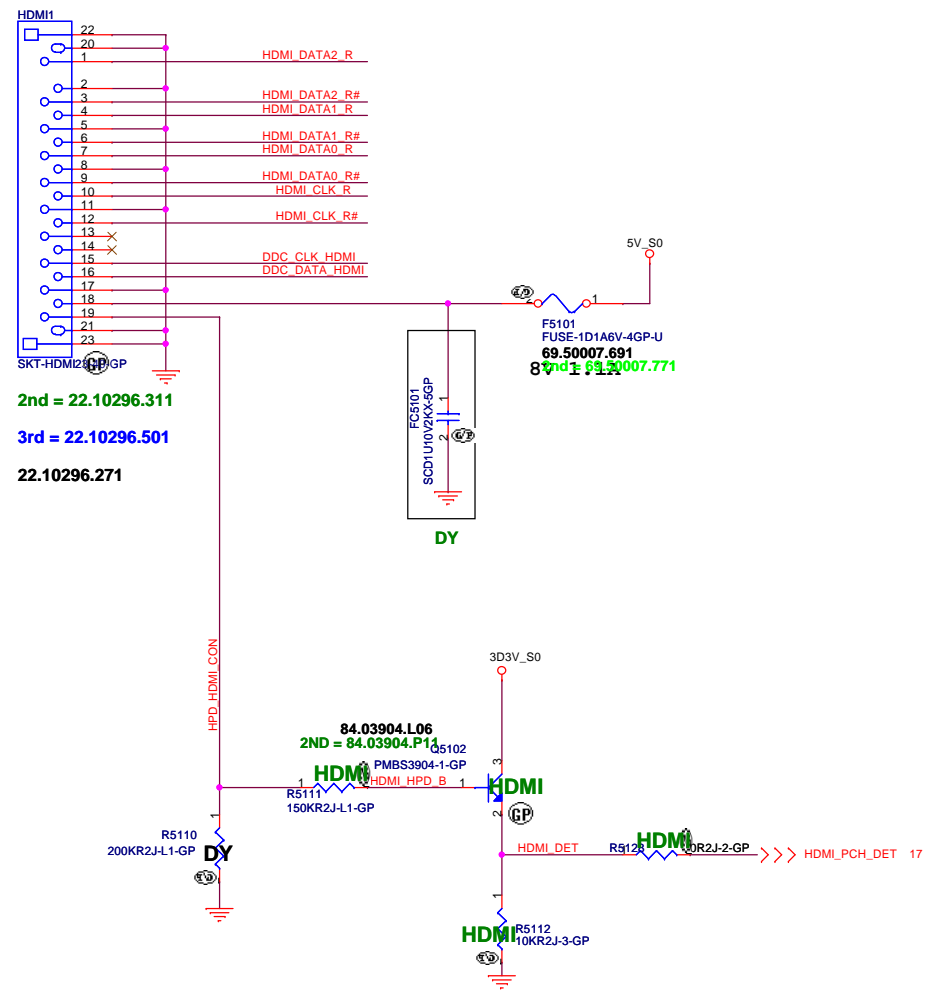
Q5105  
2N7002K-2-GP  
84.2N702.J31  
2ND = 84.2N702.031

Close to Level Shift

17 PCH\_HDMI\_CLK >>>  
17 PCH\_HDMI\_DATA >>>



Q5104  
2N7002KDW-GP  
84.2N702.A3F  
2nd = 84.DM601.03F



2nd = 22.10296.311

3rd = 22.10296.501

22.10296.271

84.03904.L06  
2ND = 84.03904.P11

84.03904.P11

Q5102  
PMBS3904-1-GP

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

84.03904.P11

<Core Design>

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/Connector

Size

Document Number

A3

Hummingbird1 HR

Date:

Tuesday, April 17, 2012

Sheet

51

of

102

Rev

-2

HR PX

|                                                                                       |                                    |                                |                            |
|---------------------------------------------------------------------------------------|------------------------------------|--------------------------------|----------------------------|
| <div>緯創資通</div>                                                                       |                                    | <div>Wistron Corporation</div> |                            |
| <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div> |                                    |                                |                            |
| <div>Title</div>                                                                      |                                    |                                |                            |
| <div>eDP</div>                                                                        |                                    |                                |                            |
| <div>Size</div>                                                                       | <div>Document Number</div>         |                                | <div>Rev</div>             |
| <div>A3</div>                                                                         | <div>Hummingbird1_HR</div>         |                                | <div>-2</div>              |
| <div>Date:</div>                                                                      | <div>Tuesday, April 17, 2012</div> |                                | <div>Sheet 52 of 102</div> |

(Blanking)

<Variant Name>

|                               |                                           |                                                                                                             |
|-------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>緯創資通</b>                   |                                           | <b>Wistron Corporation</b><br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. |
| Title<br><b>S-VIDEO</b>       |                                           |                                                                                                             |
| Size<br>A4                    | Document Number<br><b>Hummingbird1 HR</b> | Rev<br><b>-2</b>                                                                                            |
| Date: Tuesday, April 17, 2012 | Sheet 53 of                               | 102                                                                                                         |

(Blanking)

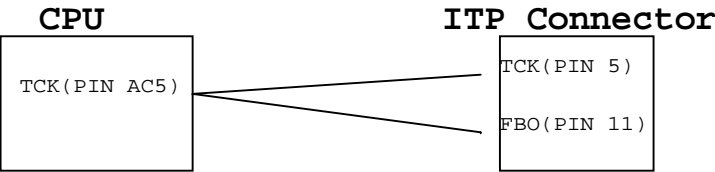
<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 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.

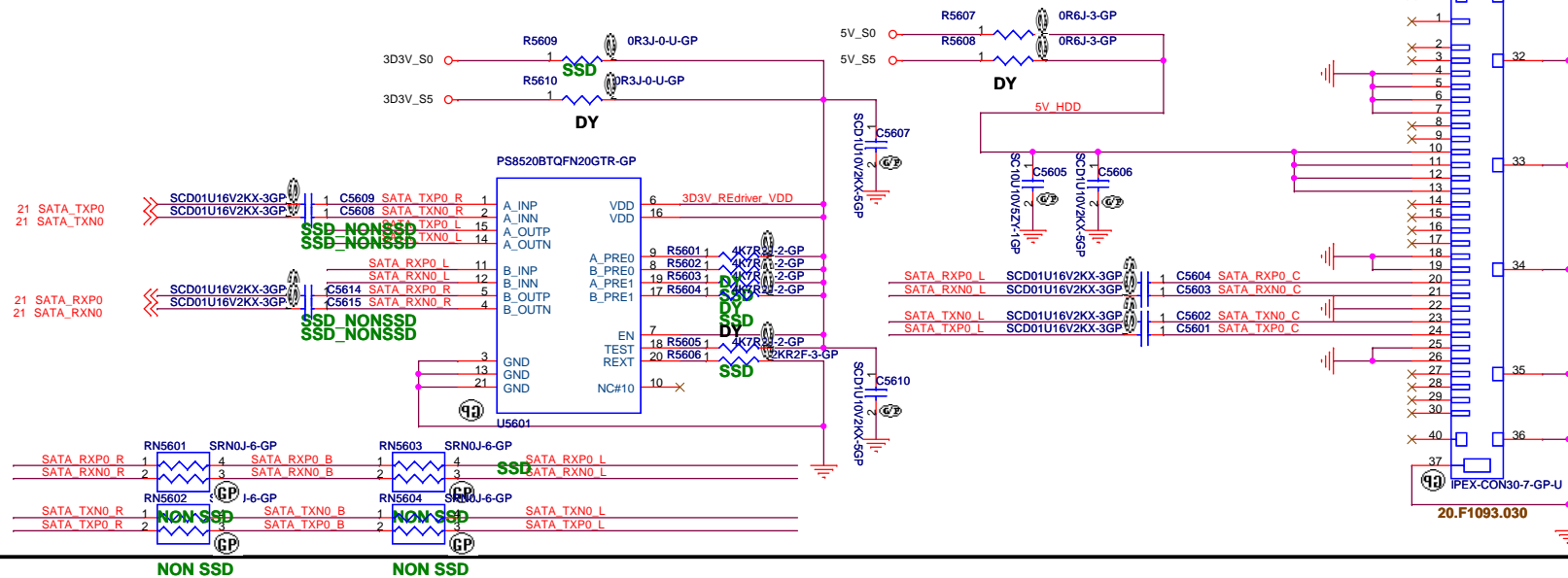


<Variant Name>

|                                                                                                                                          |                         |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                         |                 |
| Title                                                                                                                                    |                         |                 |
| ITP                                                                                                                                      |                         |                 |
| Size                                                                                                                                     | Document Number         | Rev             |
| A4                                                                                                                                       | Hummingbird1 HR         | -2              |
| Date:                                                                                                                                    | Tuesday, April 17, 2012 | Sheet 55 of 102 |

**SSID = SATA**

## SATA HDD Connector



## ODD Connector

## Without ODD



ESATA Power

USB CHARGER

<Variant Name>

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

Hummingbird1\_HR

Size  
A3

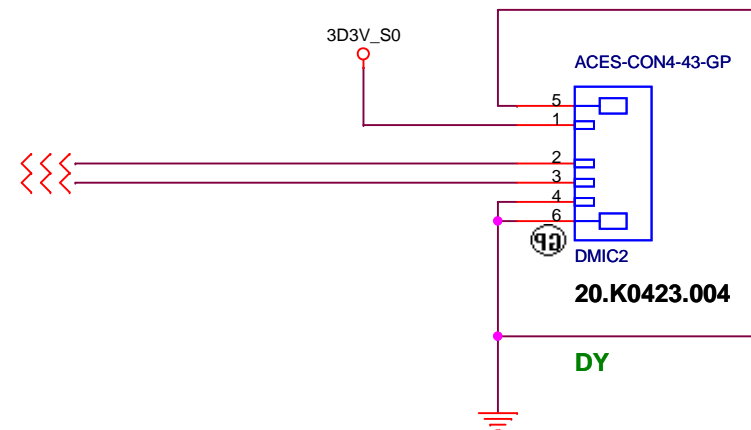
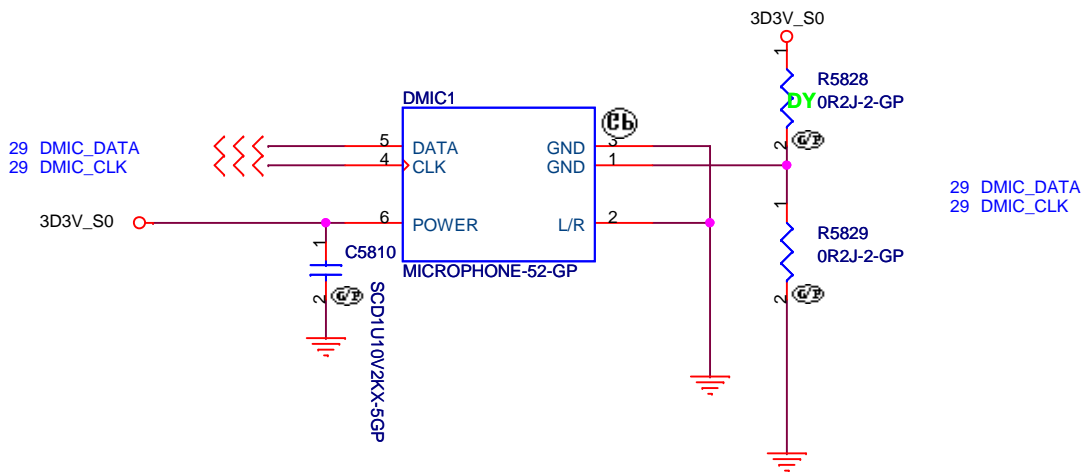
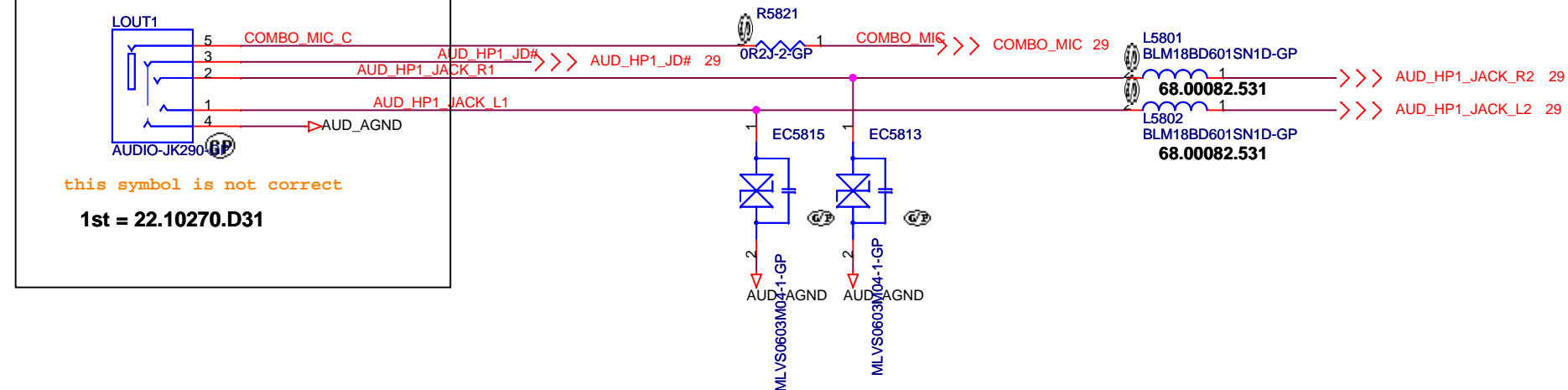
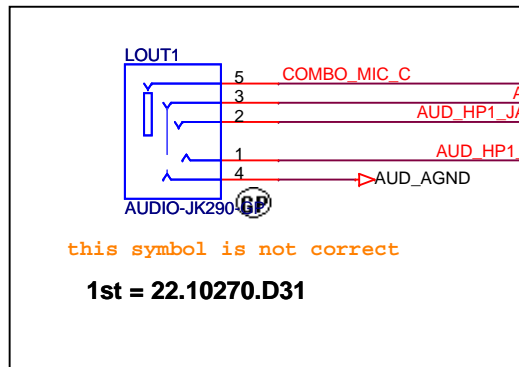
Document Number

Date: Tuesday, April 17, 2012

Rev  
-2

Sheet 57 of 102

SSID = AUDIO



<Variant Name>

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

**Hummingbird1 HR**

Rev

**-2**

Date: Tuesday, April 17, 2012

Sheet 58 of 102

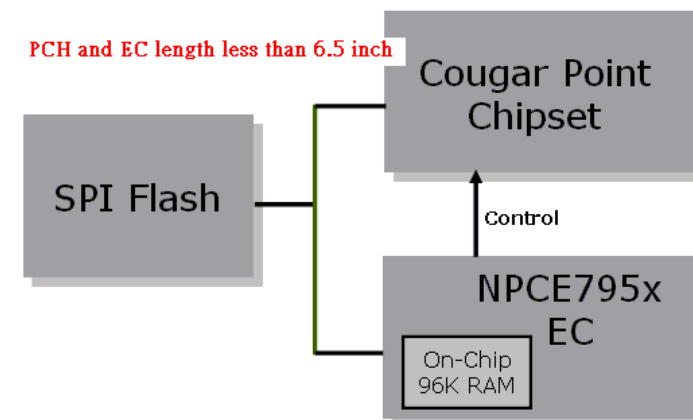
- 1.route on bottom as differential pairs.
- 2.Tx+/Tx- are pairs. Rx+/Rx- are pairs.
- 3.No vias, No 90 degree bends.
- 4.pairs must be equal lengths.
- 5.6mil trace width, 12mil separation.
- 6.36mil between pairs and any other trace.
- 7.Must not cross ground moat,except RJ-45 moat.

# Without LAN

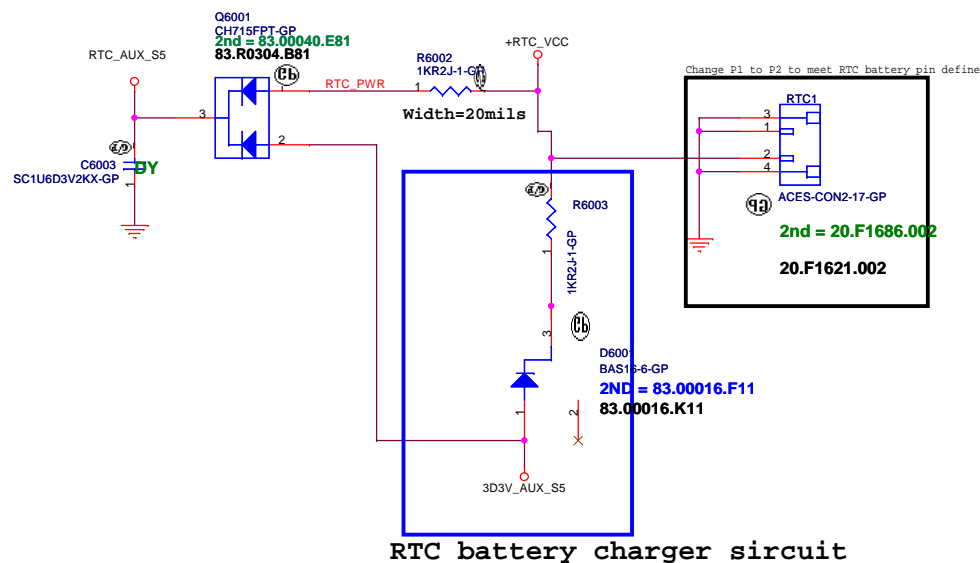
<Variant Name>

|                                                                                                                                      |                                            |                   |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>LAN CONNECTOR</div>                                                                                                       |                                            |                   |
| Size <div>A4</div>                                                                                                                   | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                        |                                            | Sheet 59 of 102   |

```
SSID = Flash.ROM
```

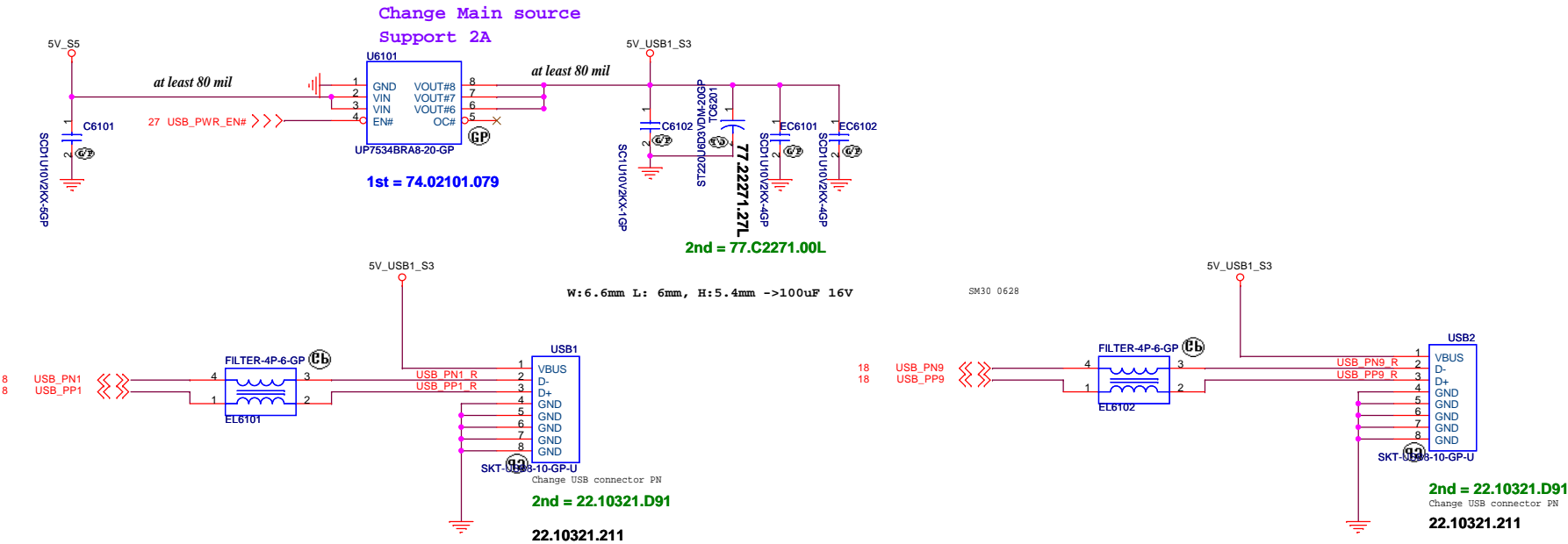


**SSID = RBATT**



SSID = USB

IO Board USB Power



# Blanking

|                                                                                                                       |                         |                 |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|
| <Variant Name>                                                                                                        |                         |                 |
| <div>緯創資通Wistron Corporation<br/>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                         |                 |
| Title                                                                                                                 |                         |                 |
| USB 3.0 Port                                                                                                          |                         |                 |
| Size                                                                                                                  | Document Number         | Rev             |
| A3                                                                                                                    | Hummingbird1_HR         | -2              |
| Date:                                                                                                                 | Tuesday, April 17, 2012 | Sheet 62 of 102 |

SSID = User.Interface  
Bluetooth Module conn.

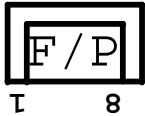
Without BT

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>Bluetooth</div>                                                                                                               |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>63</div> of <div>102</div> |

Finger printer

JE40 delete FP function



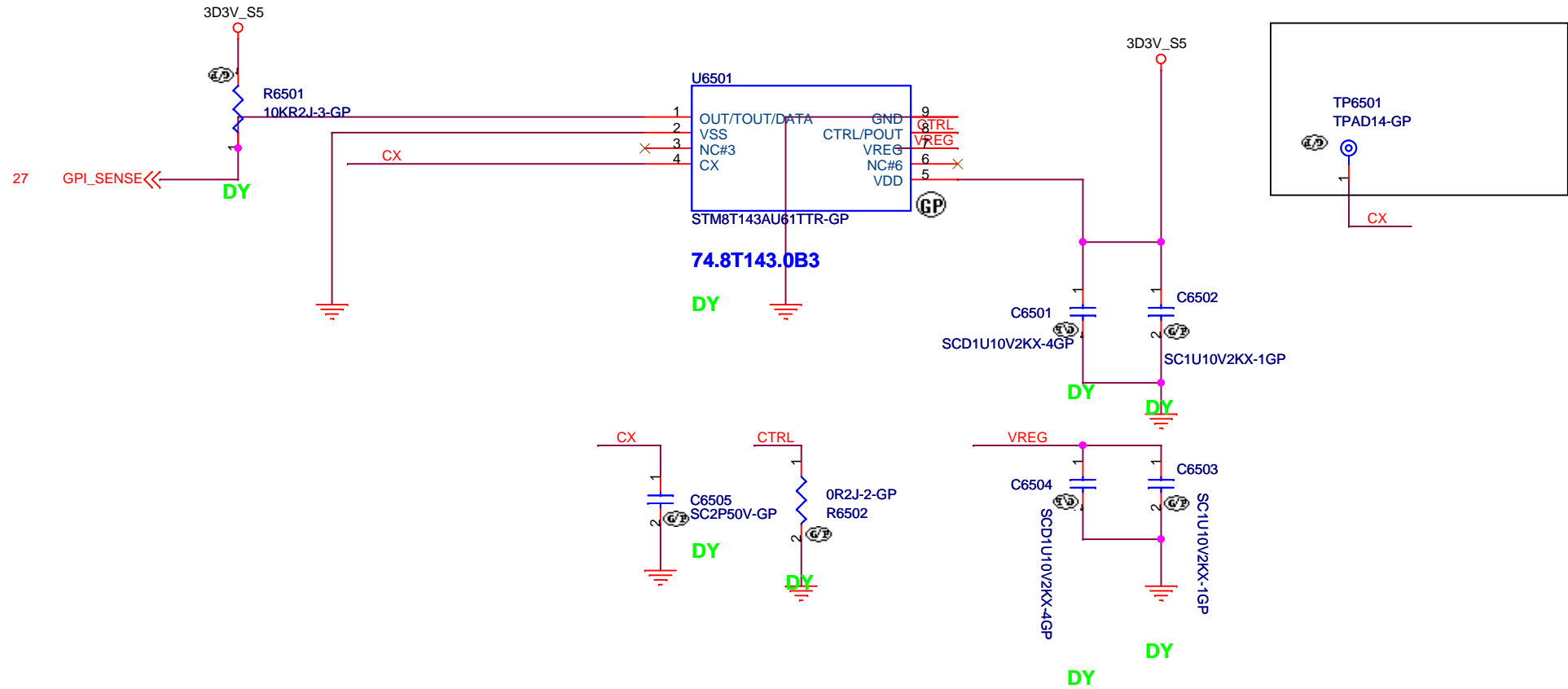
<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>RESERVED</div>                                                                                                                |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>64</div> of <div>102</div> |



# SSID = Wireless

## C Sensor



<Variant Name>

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  
A4

|                 |
|-----------------|
| Document Number |
|-----------------|

**Hummingbird1 HR**

Rev  
-2

Date: Tuesday, April 17, 2012

Sheet 65 of 102

SSID = Wireless

Blanking

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>WWAN Connector</div>                                                                                                          |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>66</div> of <div>102</div> |

# Blanking

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>M-SATA</div>                                                                                                                  |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 67 of 102   |

SSID = User.Interface

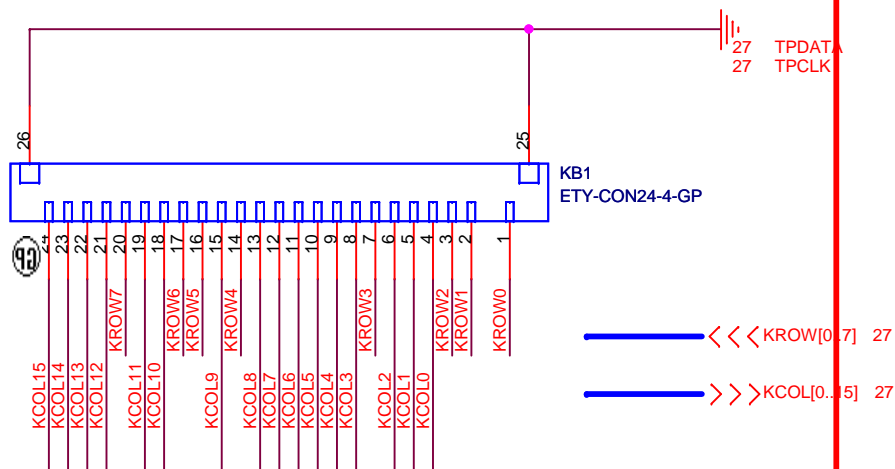
*Move to power board*

for factory test

|                                                                                                                                                   |                         |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|
| <Variant Name>                                                                                                                                    |                         |                 |
| <div><div>緯創資通</div><div>Wistron Corporation</div><div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div></div> |                         |                 |
| Title                                                                                                                                             |                         |                 |
| LED Bard/Power Button                                                                                                                             |                         |                 |
| Size                                                                                                                                              | Document Number         | Rev             |
| Custom                                                                                                                                            | Hummingbird1 HR         | -2              |
| Date:                                                                                                                                             | Tuesday, April 17, 2012 | Sheet 68 of 102 |

SSID = KBC

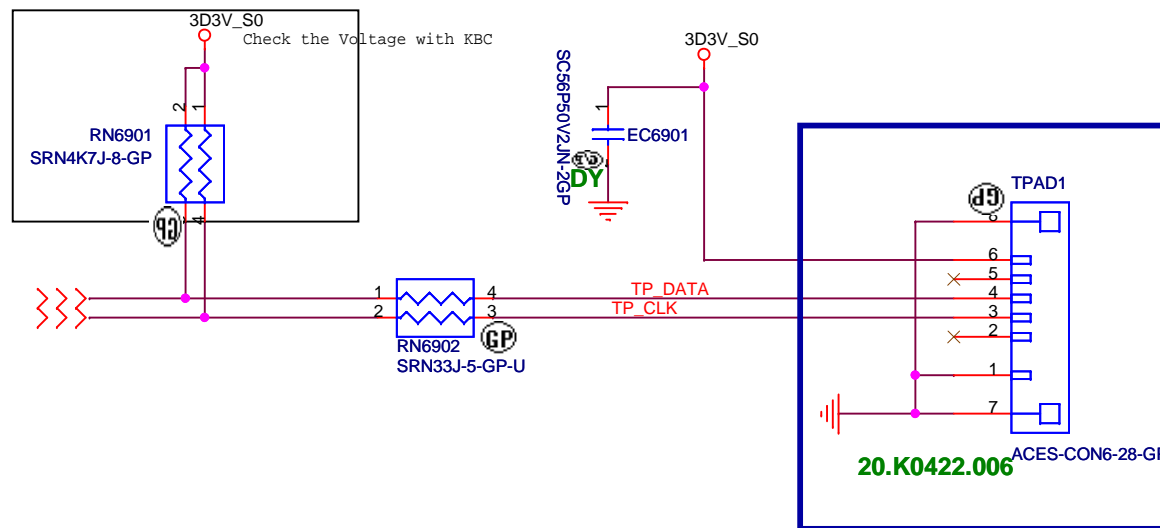
## Internal KeyBoard Connector



1 K/B 26

Change KB from 下接觸 to 上接觸  
KB Pin define need to check again

## TOUCH PAD



Change back to 1mm pin pitch connector  
Switch the pin order SA

<Variant Name>

緯創資通

Wistron Corporation

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

Title

Key Board/Touch Pad

Size

Document Number

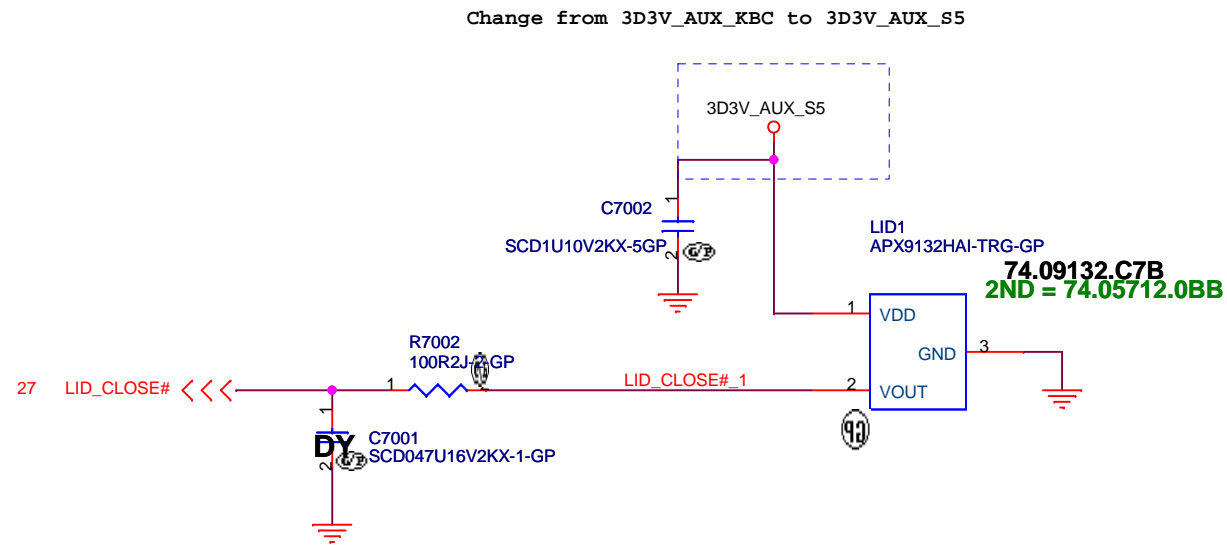
Hummingbird1 HR

Rev

-2

Date: Tuesday, April 17, 2012

Sheet 69 of 102



<Variant Name>

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

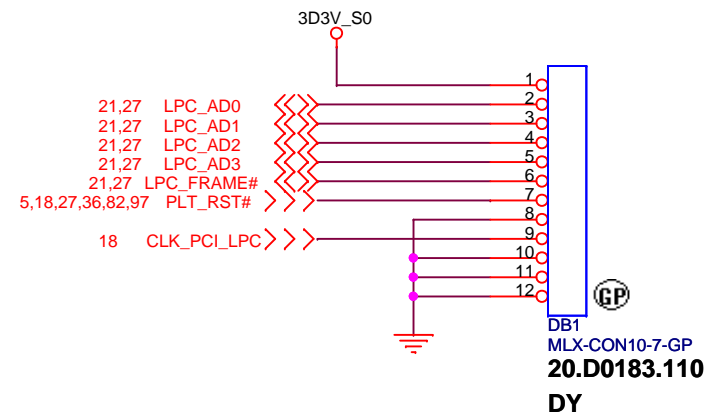
Document Number

**Hummingbird1 HR**

Rev  
**-2**

Date: Tuesday, April 17, 2012

Sheet 70 of 102



<Variant Name>

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

**Hummingbird1 HR**

Rev  
**-2**

Date: Tuesday, April 17, 2012

Sheet 71 of 102

( Blanking )

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 72 of 102   |



(Blanking)

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>Reserved</div>                                                                                                                |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>73</div> of <div>102</div> |

SD/XD/MS Card Reader

Card reader move to small board

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>CARD Reader CONN</div>                                                                                                        |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>74</div> of <div>102</div> |

SSID = ExpressCard

+1.5V\_CARD Max. 650mA, Average 500mA.  
+3.3V\_CARD Max. 1300mA, Average 1000mA  
+3.3V\_CARDAUX Max. 275mA

(Blanking)

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>Reserved</div>                                                                                                                |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>76</div> of <div>102</div> |



(Blanking)

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>Reserved</div>                                                                                                                |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>78</div> of <div>102</div> |

**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

**Delete G Sensor Function**

### Note

- (1) Keep all signals are the same trace width. (included VDD, GND).
- (2) No VIA under IC bottom.

<Variant Name>

緯創資通

**Wistron Corporation**

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

Title

**Free Fall Sensor**

Size  
A4

Document Number

**Hummingbird1 HR**

Rev  
**-2**

Date: Tuesday, April 17, 2012

Sheet 79 of 102

( Blanking )

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 80 of 102   |

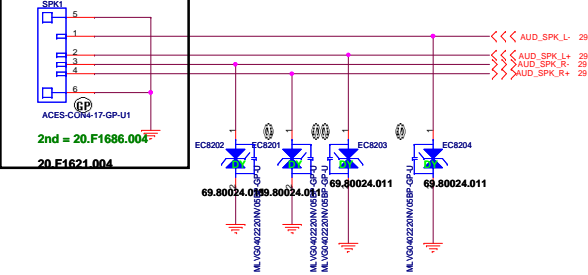


(Blanking)

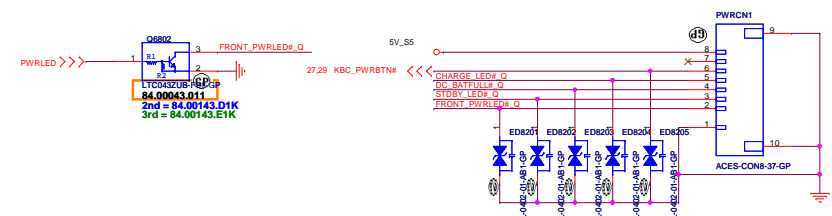
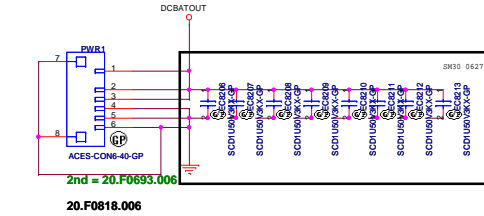
<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>Reserved</div>                                                                                                                |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 81 of 102   |

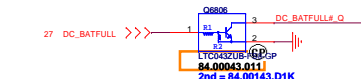
## Change to 4 pin connector



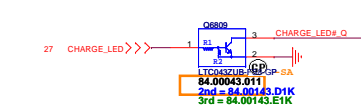
## Change the connection



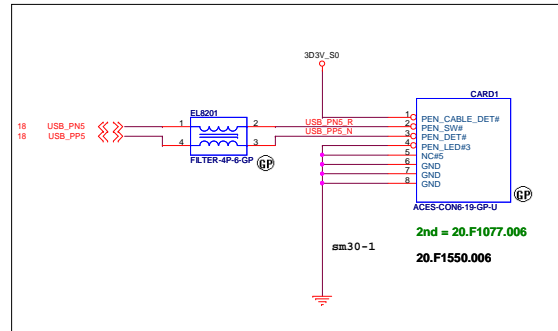
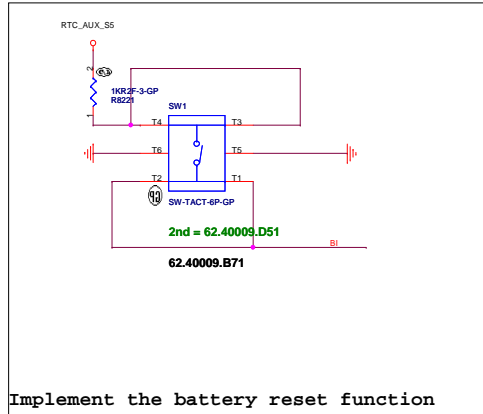
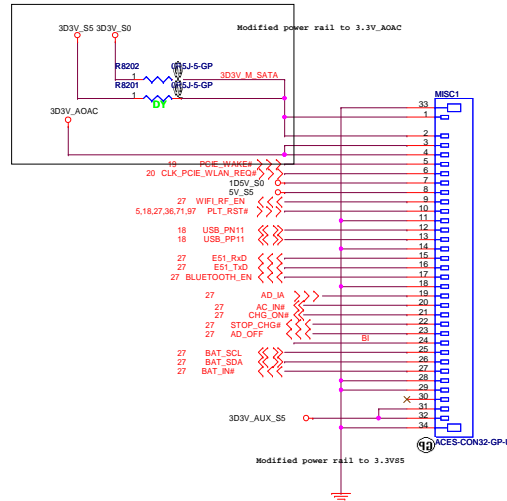
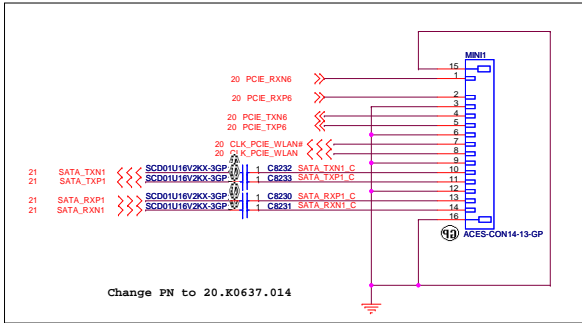
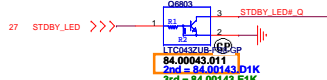
## Battery LED2(DC\_BATFULL)



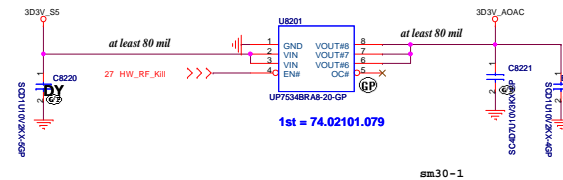
## Battery LED1(CHARGE)



## Power STDBY\_LED



## AOAC circuit



<Variant Name>



<Core Design>

緯創資通

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

Title

GPU PCIE/STRAPPING(1/5)

Size

Document Number

Rev

A2

Hummingbird1 HR

-2

Date: Tuesday, April 17, 2012

Sheet 83 of 102

D

D

C

C

3

69

A

A

### <Core Design>

緯創資通

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

| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page | Page |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page | Page | Page | Page |      |
| Title | Author | Date | Page | Page | Page | Page | Page |      |      |      |      |

## GPU Memory(2/5)

Size  
Custom

Document Number

umber  
**Hummingbird1 HP**

|     |
|-----|
| Rev |
|-----|

-2

Date: Tuesday, April 17, 2012

Sheet 84 of 102

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |



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

<Variant Name>

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  
A3

Document Number  
Hummingbird1 HR

Rev  
-2

Date: Tuesday, April 17, 2012

Sheet 87 of 102



|                   |                         |                                                                               |     |
|-------------------|-------------------------|-------------------------------------------------------------------------------|-----|
| <Core Design>     |                         |                                                                               |     |
| 緯創資通              |                         | Wistron Corporation                                                           |     |
|                   |                         | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. |     |
| Title             |                         |                                                                               |     |
| GPU-VRAM1,2 (1/4) |                         |                                                                               |     |
| Size              | Document Number         |                                                                               | Rev |
| Custom            | Hummingbird1 HR         |                                                                               | -2  |
| Date:             | Tuesday, April 17, 2012 | Sheet 88 of                                                                   | 102 |



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

<Core Design>

|                                                                                                                                          |                         |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                         |                 |
| Title                                                                                                                                    |                         |                 |
| GPU-VRAM3,4 (2/4)                                                                                                                        |                         |                 |
| Size                                                                                                                                     | Document Number         | Rev             |
| Custom                                                                                                                                   | Hummingbird1_HR         | -2              |
| Date:                                                                                                                                    | Tuesday, April 17, 2012 | Sheet 89 of 102 |



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

<Variant Name>

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

Custom

Document Number

**Hummingbird1 HR**

Rev

**-2**

Date: Tuesday, April 17, 2012

Sheet 91 of 102



# Blanking

<Variant Name>

|                                                                                                                                          |                                            |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                   |
| Title <div>DISCRETE VGA POWER</div>                                                                                                      |                                            |                   |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div> |
| Date: Tuesday, April 17, 2012                                                                                                            |                                            | Sheet 93 of 102   |

Blanking

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>LVDS Switch</div>                                                                                                             |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>94</div> of <div>102</div> |

# Blanking

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>CRT Switch</div>                                                                                                              |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>95</div> of <div>102</div> |

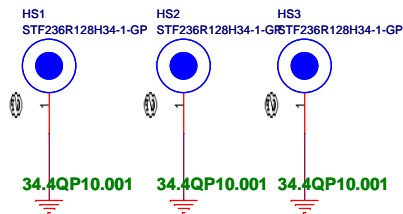
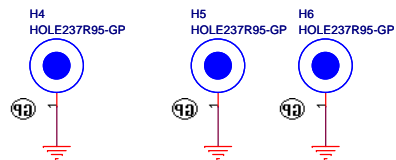
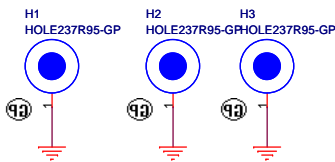
SSID = SDIO

# Blanking

<Variant Name>

|                                                                                                                                          |                                            |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| <div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br/>Taipei Hsien 221, Taiwan, R.O.C.</div> |                                            |                                       |
| Title <div>TOUCH PANEL</div>                                                                                                             |                                            |                                       |
| Size <div>A4</div>                                                                                                                       | Document Number <div>Hummingbird1 HR</div> | Rev <div>-2</div>                     |
| Date <div>Tuesday, April 17, 2012</div>                                                                                                  |                                            | Sheet <div>96</div> of <div>102</div> |

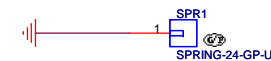




## Check test point



Test Point放在Dimm Door打開可量測處



<Variant Name>

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                          | Hummingbird1 HR         | -2              |
| Date:                       | Tuesday, April 17, 2012 | Sheet 97 of 102 |

- (1) change U6001 to socket 62.10089.001
- (2) change SW\_L1 and SW\_R1 PN to 『62.40089.221』
- (3) KI.G6501.001 / IC BD82HM65 SLH9D MM#908753 B2 FCBGA 989  
KI.G6501.004 / IC BD82HM65 SLJ4P MM#914377 B3 FCBGA989P
- (4)U3101 change PN to 71.08158.M02
- (5)DM2 1st -> change PN to 62.10024.G01
- (6) IMIC1 =>82.40012.001
- (7) RJ1 =>22.10177.J71
- (8) CPU1 =>1st change PN to 62.10055.321
- (9) USB2 =>1st change PN to22.10218.G01 -> only Lab stage

[Lab] S01G ==>1st  
S02G ==>2nd(NEC Cap)

Coin Battery:  
1st:23.20068.001  
2nd:23.22063.001

-SA

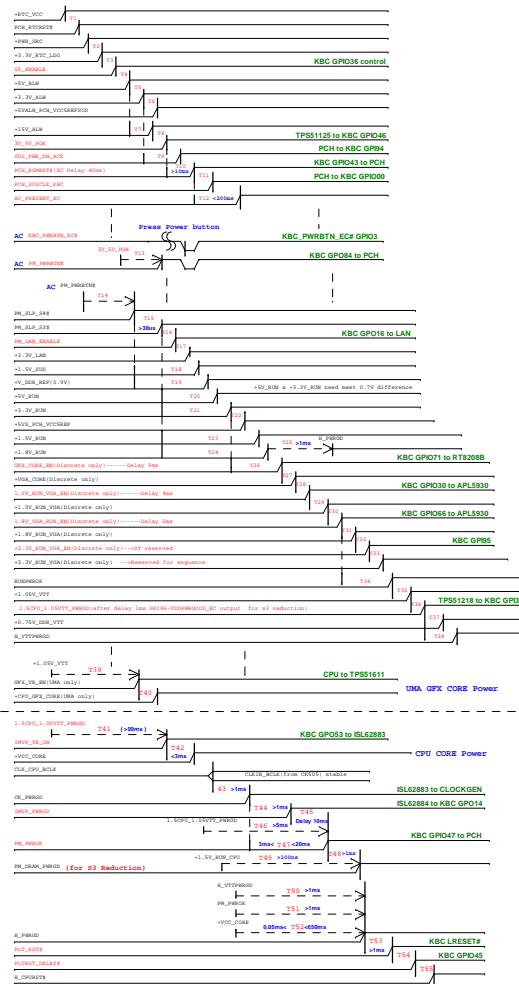
-SB

-1

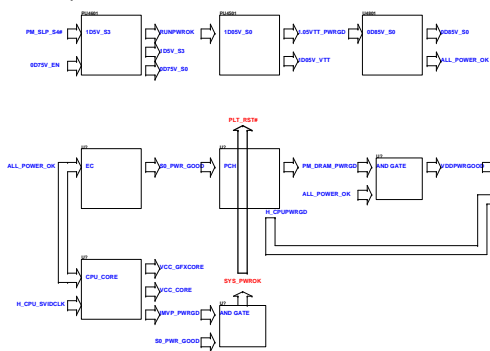
-2

(AC mode)

red word: XBC GPIO

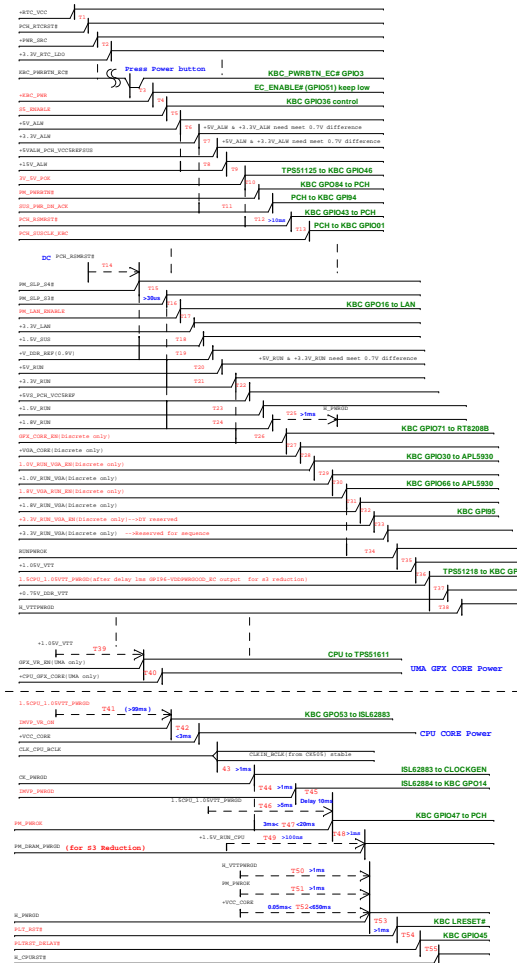


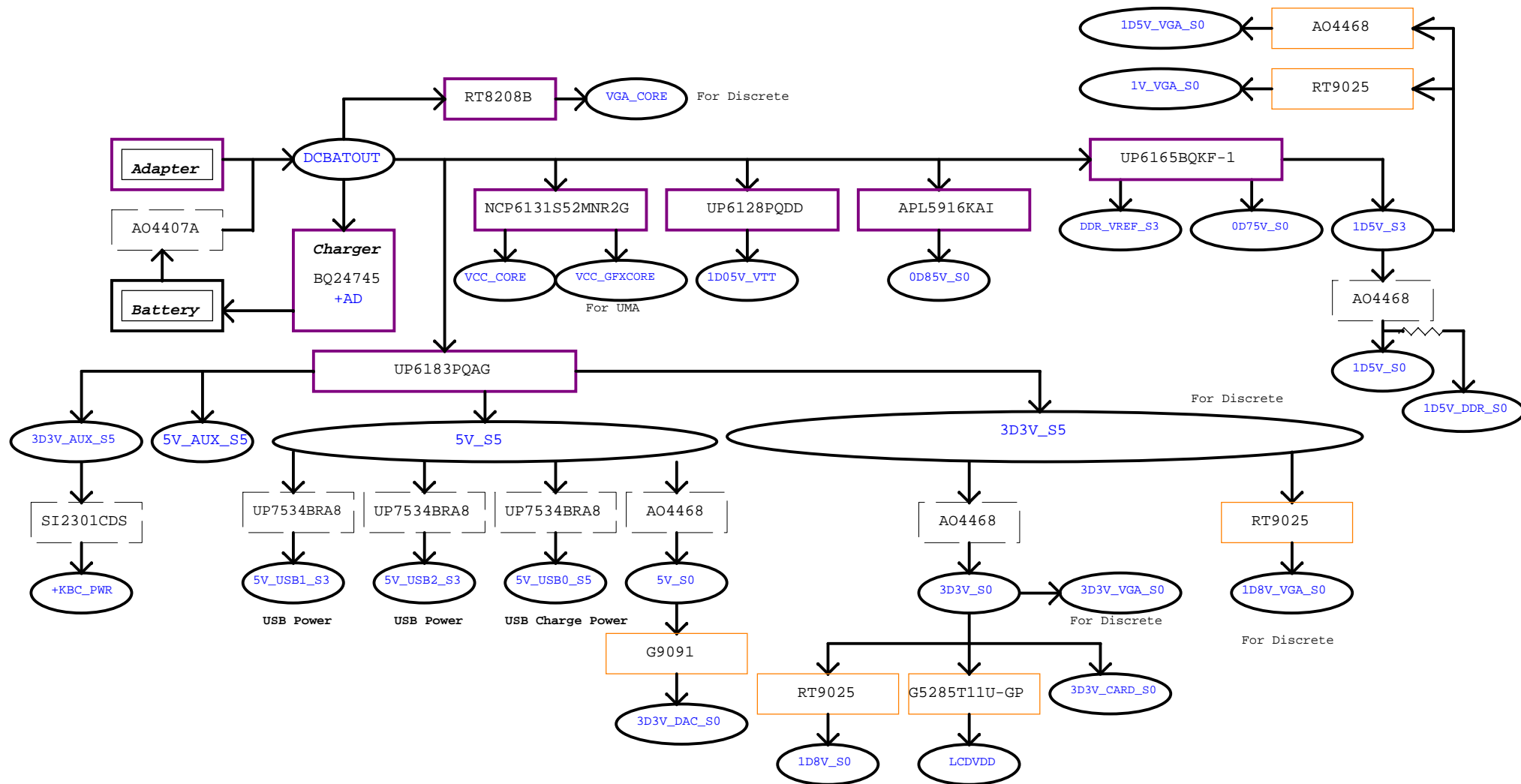
### Power Sequence



(DC mode)

red word: KBC GPIO





### Power Shape

Regulator

LDO

Switch

HR PX

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

**Hummingbird1 HR**

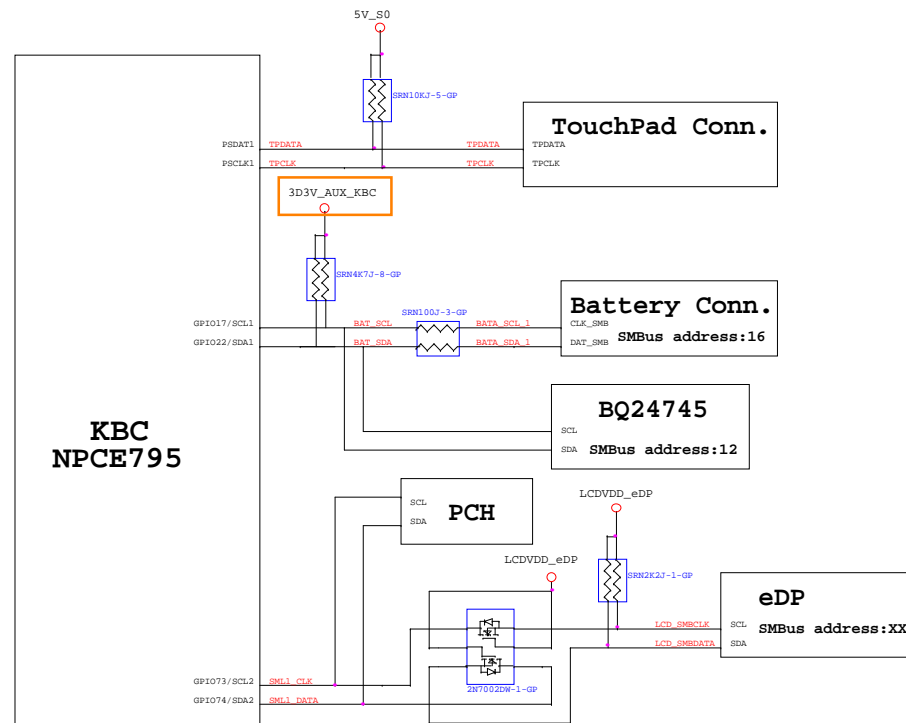
Rev

**-2**

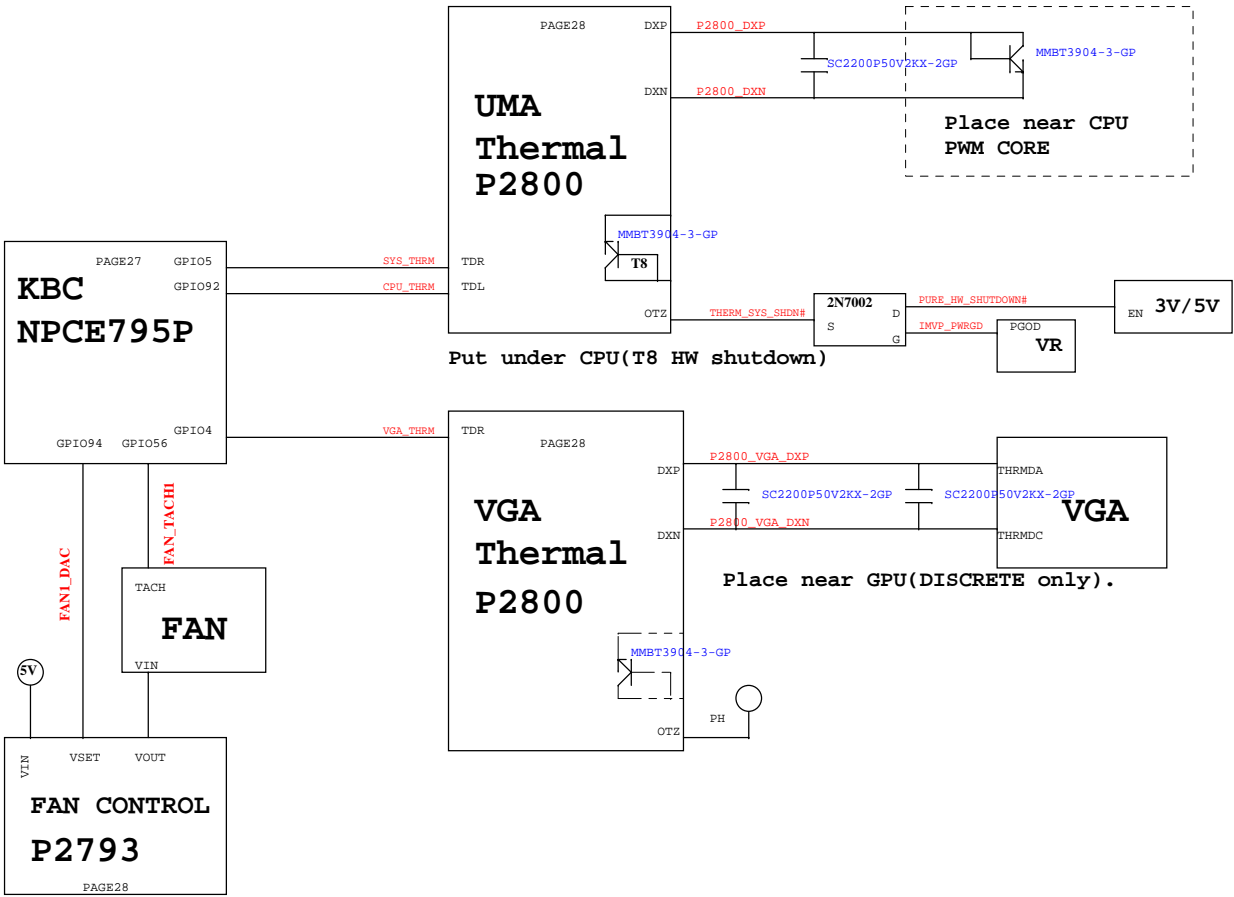
Date: Tuesday, April 17, 2012

Sheet 100 of 102

### KBC SMBus Block Diagram



# Thermal Block Diagram



# Audio Block Diagram

