# JE40 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.*

HR UMA

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: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 1 of 102 | |

# JE40 HR Block Diagram (Discrete/UMA/co-lay)

Project code : 91.4IQ01.001
PCB P/N : 48.4IQ01.0SA
Revision : 10267-1

##OnMainBoard

VRAM
2GB/1GB/512MB
88,89,90,91

DDR3
800MHz

Nvidia N12P
83.84,85,86,87

PCIe x 16
(Discrete only)

Intel CPU
Sandy Bridge
FSB: 1066 MHz
4,5,6,7,8,9,10,11,12,13

DDRIII 1066/1333 Channel A
DDRIII 1066/1333 Channel B

DDRIII Slot 0 1066/1333 14
DDRIII Slot 1 1066/1333 15

Discreet/UMA/PX Co-lay

FDIx4x2
(UMA only)

DMIx4

HDMI 51
LCD 49
CRT 50

HDMI
LVDS(Dual Channel)
RGB CRT
Level shifter 57

Intel
PCH
Cougar Point
14 USB 2.0/1.1 ports
ETHERNET (10/100/1000Mb)
High Definition Audio
SATA ports (6)
PCIE ports (8)
LPC I/F
ACPI 1.1
17,18,19,20,21,22,23,24,25,26

PCIE x 1
USB x 2
USB3.0
uPD720200
75

PCIE x 1
USB x 1
Mini-Card
802.11a/b/g
65

PCIE x 1
1000 NIC
BCM57780A1
31

RJ45 CONN 59

SD/MMC+/MS/
MS Pro/xD

PCIE x 1,USB x 1
Mini-Card
WWAN 66
SIM 66

USB 2.0 x 1
Right Side:
USB x 1

Left Side:
USB x 1
Bluetooth 63
CAMERA 49
64

USB2.0 x 4

AZALIA

Azalia
CODEC
ALC271X
29

Internal Analog MIC
HP1
MIC IN
2CH SPEAKER

SPI
Flash ROM
4MB 60

LPC Bus
LPC debug port 71

SATA x 2
HDD 56
ODD 56

KBC
NUVOTON
NPCE795P 27

SMBus

Touch PAD 69
Int. KB 69
Thermal
ENE P2800
ENE P2793 28
Fan 28

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

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

| SYSTEM DC/DC UP6128PQDD 45 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | 1D05V_VTT |

| SYSTEM DC/DC UP6183PQAG 41 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | 5V_AUX_S5<br>3D3V_AUX_S5<br>5V_S5<br>3D3V_S5 |

| SYSTEM DC/DC UP6165BQKF 46 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | 1D5V_S3<br>0D75V_S0<br>DDR_VREF_S3 |

| SYSTEM DC/DC NCP5911MNTBG 44 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | VCC_GFXCORE_PWR |

| VGA RT8208BGQW 92 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | VGA_CORE |

| TI CHARGER BQ24745RHDR 40 | |
|---|---|
| INPUTS | OUTPUTS |
| DCBATOUT | BT+ |

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

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

| Switches | |
|---|---|
| INPUTS | OUTPUTS |
| 1D5V_S3 | 1D5V_VGA_S0 |
| 3D3V_S0 | 3D3V_VGA_S0 |

## PCB LAYER

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

HR UMA

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

Title: Block Diagram
Size: A3 | Document Number: JE40-HR | Rev: -1
Date: Thursday, December 02, 2010 | Sheet 2 of 102

# PCH Strapping

Huron River Schematic Checklist Rev.0_7

| Name | Schematics Notes |
|---|---|
| SPKR | **Reboot option at power-up**<br>**Default Mode:** Internal weak Pull-down.<br>**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<br>GNT2#/GPIO53<br>GNT1#/GPIO51 | GNT[3:0]# functionality is not available on Mobile.<br>Mobile: Used as GPIO only<br>Pull-up resistors are not required on these signals.<br>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.<br>**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]<br>**Disable Danbury:** Leave floating (internal pull-down) |
| NC_CLE | DMI termination voltage. Weak internal pull-up. Do not pull low. |
| HAD_DOCK_EN#<br>/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.<br>High (1) - Security measure defined in the Flash Descriptor will be enabled.<br>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.<br>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<br>Note : This is an un-muxed signal.<br>This signal has a weak internal pull-down of 20 kohm which is enabled when PWROK is low. Sampled at rising edge of RSMRST#.<br>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)**<br>High(1) = Enables the internal VccVRM to have a clean supply for analog rails. No need to use on-board filter circuit.<br>Low (0) = Disables the VccVRM. Need to use on-board filter circuits for analog rails. |

# Processor Strapping

Huron River Schematic Checklist Rev.0_7

| Pin Name | Strap Description | Configuration (Default value for each bit is 1 unless specified otherwise) | Default Value |
|---|---|---|---|
| CFG[2] | **PCI-Express Static Lane Reversal** | **1:** Normal Operation.<br>**0:** Lane Numbers Reversed 15 -> 0, 14 -> 1, ... | 1 |
| CFG[4] | | **1:** Disabled - No Physical Display Port attached to Embedded DisplayPort.<br>**0:** Enabled - An external Display Port device is connectd to the EMBEDDED display Port | 0 |
| CFG[6:5] | **PCI-Express Port Bifurcation Straps** | 11 : x16 - Device 1 functions 1 and 2 disabled<br>10 : x8, x8 - Device 1 function 1 enabled ; function 2 disabled<br>01 : Reserved - (Device 1 function 1 disabled ; function 2 enabled)<br>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<br>**0:** PEG Wait for BIOS for training | 1 |

## Voltage Rails

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

# USB Table

| Pair | Device |
|---|---|
| 0 | 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 |

# 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 |

## SMBus ADDRESSES

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

HR UMA

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

Title: Table of Content

Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 3 of 102

**SSID = CPU**

CPU1A
SANDY
62.10055.421
Change:62.10053.611
2nd = 62.10055.321
3rd = 62.10040.821

1 0F 9

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

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

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

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

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

NOTE.
Processor strap CFG[4] should be pulled low to enable Embedded DisplayPort.

JE40 delete eDP function

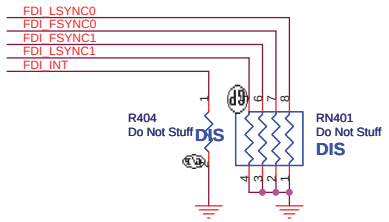
NOTE.
If PEG is not implemented, the RX&TX pairs can be left as No Connect

PEG Static Lane Reversal

20100614 V1.1

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

**Stuff to disable internal graphics function for power saving.**




HR UMA

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 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 4 of 102

**SSID = CPU**

CPU1B
SANDY

2 0F 9

SANDY

MISC
- SNB_IVB#
- SKTOCC#

THERMAL
- CATERR#
- PECI
- PROCHOT#
- THERMTRIP#

PWR MANAGEMENT
- PM_SYNC
- UNCOREPWRGOOD
- SM_DRAMPWROK
- RESET#

CLOCKS
- BCLK
- BCLK#
- DPLL_REF_SSCLK
- DPLL_REF_SSCLK#

DDR3 MISC
- SM_DRAMRST#
- SM_RCOMP0
- SM_RCOMP1
- SM_RCOMP2

JTAG & BPM
- PRDY#
- PREQ#
- TCK
- TMS
- TRST#
- TDI
- TDO
- DBR#
- BPM#0
- BPM#1
- BPM#2
- BPM#3
- BPM#4
- BPM#5
- BPM#6
- BPM#7

18 H_SNB_IVB# — C26 — SNB_IVB#

JE40 modify — AN34 — SKTOCC#

JE40 modify — AL33 — CATERR#

22,27 H_PECI — AN33 — PECI

27,42 H_PROCHOT# — R513 56R2J-4-GP — H_PROCHOT# R — AL32 — PROCHOT#

22,36 H_THERMTRIP# — AN32 — THERMTRIP#

19 H_PM_SYNC — AM34 — PM_SYNC

22,36,97 H_CPUPWRGD — R503 10KR2J-3-GP — AP33 — UNCOREPWRGOOD

19,37 PM_DRAM_PWRGD — R505 DX Do Not Stuff — V8 — SM_DRAMPWROK

37 VDDPWRGOOD

BUF_CPU_RST# — AR33 — RESET#

BCLK — A28 — CLK_EXP_P — 20
BCLK# — A27 — CLK_EXP_N — 20

DPLL_REF_SSCLK — A16 — CLK_DP_P_R — RN502 Do Not Stuff DIS — JE40 modify
DPLL_REF_SSCLK# — A15 — CLK_DP_N_R — 1D05V_VTT

SM_DRAMRST# — R8 — R502 4K99R2F-L-GP — SM_DRAMRST# 37

SM_RCOMP0 — AK1 — SM_RCOMP_0 R506 140R2F-GP
SM_RCOMP1 — A5 — SM_RCOMP_1 R507 25D5R2F-GP
SM_RCOMP2 — A4 — SM_RCOMP_2 R508 200R2F-L-GP

PRDY# — AP29
PREQ# — AP27
JE40 modify
TCK — AR26
TMS — AR27
TRST# — AP30 — XDP_TRST#
TDI — AR28
TDO — AP26 — XDP_TDO
DBR# — AL35 — XDP_DBRESET#

BPM#0 — AT28
BPM#1 — AR29
BPM#2 — AR30
BPM#3 — AT30
BPM#4 — AP32
BPM#5 — AR31
BPM#6 — AT31
BPM#7 — AR32
JE40 modify

XDP_TDO — RN501 SRN51J-GP — XDP_TRST#
1D05V_VTT

1D05V_VTT — R501 62R2J-GP — H_PROCHOT# — C502 SC47P50V2JN-3GP

**CRB : 47pf**
**CEKLT:43pf**

Connect EC to PROCHOT# through inverting OD buffer.

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

Disabling Guidelines:
If motherboard only supports external graphics:
Connect DPLL_REF_SSCLK on Processor to GND through 1K +/- 5% resistor.
Connect DPLL_REF_SSCLK# on Processor to VCCP through 1K +/- 5% resistorpower (~15 mW) may be wasted.

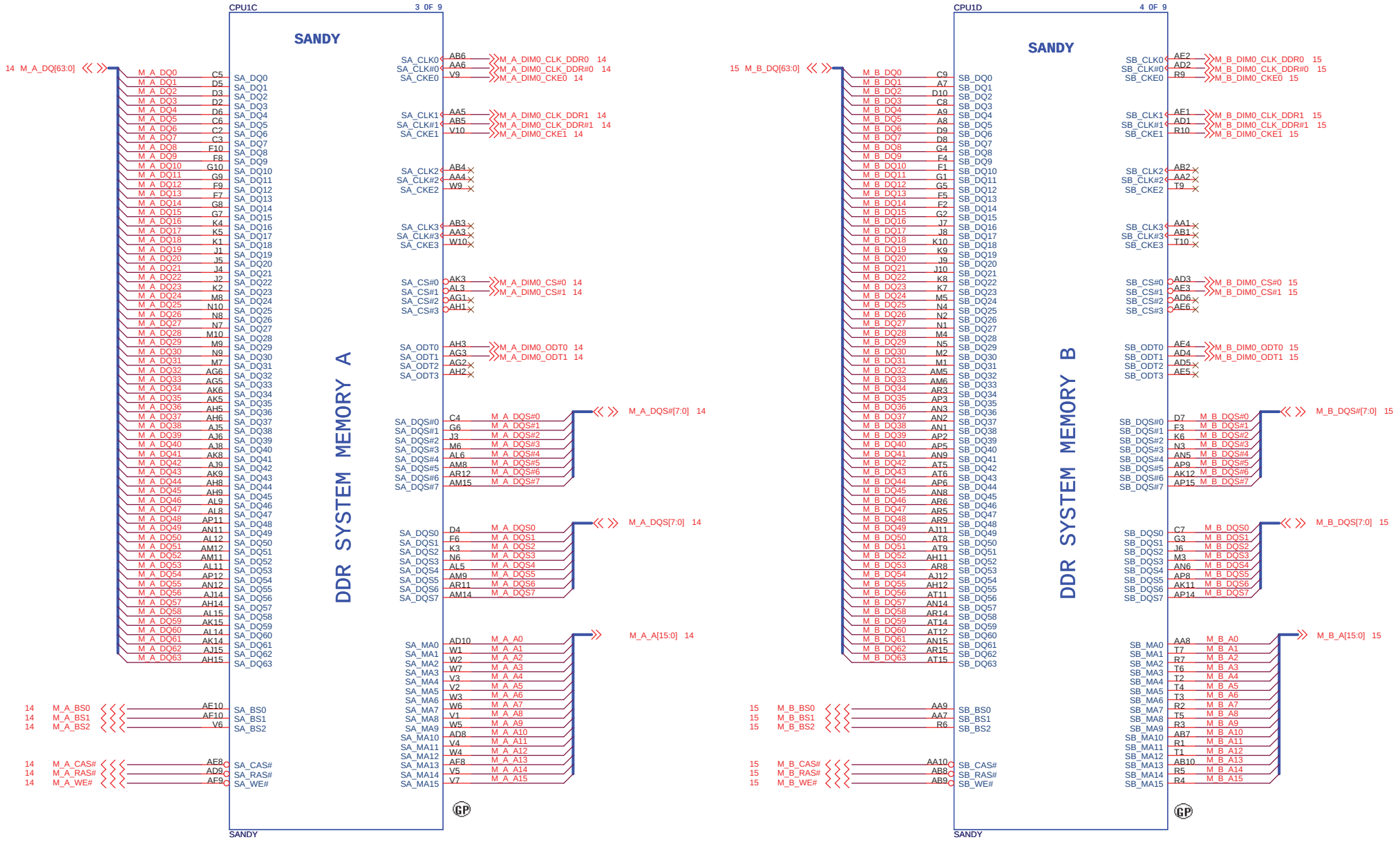
3D3V_S0
RN503 SRN1K5J-1-GP
XDP_DBRESET#
18,27,31,36,65,66,71,82,97 PLT_RST# — BUF_CPU_RST#

HR UMA

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

| | | |
|---|---|---|
| Title | CPU (THERMAL/CLOCK/PM ) | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 5 of 102 | |

SSID = CPU




HR UMA

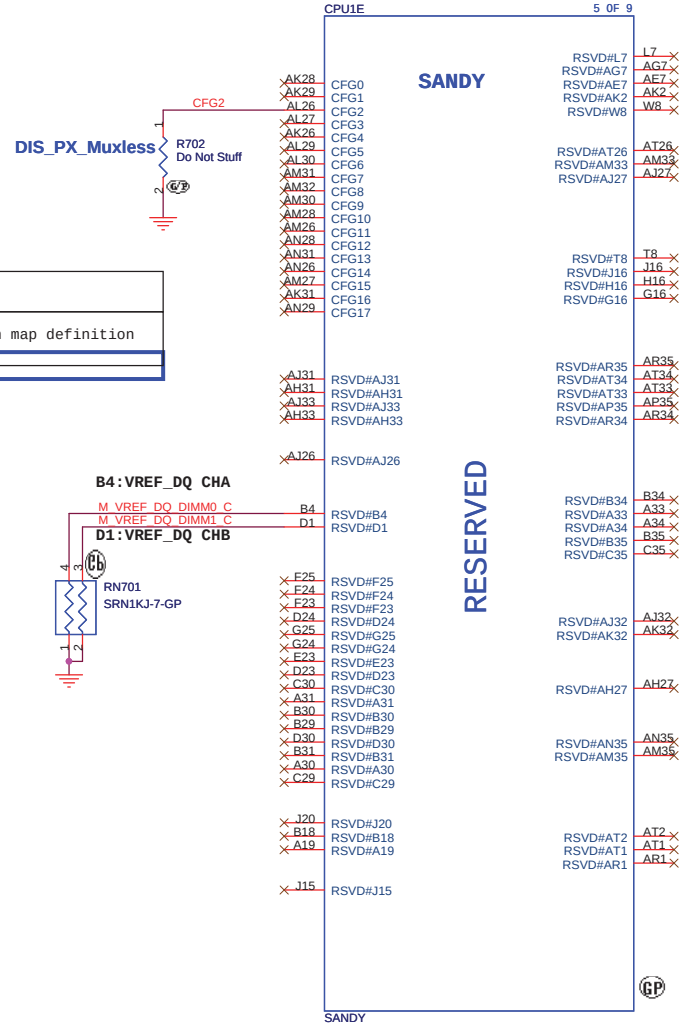
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (DDR)

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 6 of 102

**SSID = CPU**




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

HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: CPU (RESERVED) | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 7 of 102 | |

SSID = CPU

# POWER

CPU1F

SANDY

6 OF 9

PROCESSOR CORE POWER

53A

VCC_CORE

VCC Output Decoupling Recommendation:
4 x 470 uF at Bottom Socket Edge
8 x 22 uF at Top Socket Cavity
8 x 22 uF at Top Socket Edge
8 x 22 uF at Bottom Socket Cavity

VCCIO Output Decoupling Recommendation:
2 x 330 uF (3 x 330 uF for 2012 capable designs)
5 x 22 uF & 5 x 0805 no-stuff at Bottom
7 x 22 uF & 2 x 0805 no-stuff at Top

No-stuff sites outside the socket may be removed.
No-stuff sites inside the socket cavity need to remain.

1D05V_VTT

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

R801,R802 close to CPU

PEG AND DDR

SVID

CORE SUPPLY

SENSE LINES

| | |
|---|---|
| HR UMA | |
| Wistron Corporation | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. |
| Title | CPU (VCC_CORE) |
| Size: Custom | Document Number: JE40-HR |
| Rev | -1 |
| Date: Thursday, December 02, 2010 | Sheet 8 of 102 |

**SSID = CPU**

VAXG Output Decoupling Recommendation:
2 x 470 uF at Bottom Socket Edge
2 x 22 uF at Top Socket Cavity
4 x 22 uF at Top Socket Edge
2 x 22 uF at Bottom Socket Cavity
4 x 22 uF at Bottom Socket Edge

**R906,R907 close to CPU**

# POWER

CPU1G — 7 OF 9 — SANDY

VCC_GFXCORE

**PROCESSOR VAXG: 24A**

C901 Do Not Stuff, C902 SC10U6D3V5KX-1GP, C903 SC10U6D3V5KX-1GP, C904 SC10U6D3V5KX-1GP, C905 SC10U6D3V5KX-1GP, C906 Do Not Stuff
DY UMA_PX_Muxless

C907 Do Not Stuff, C908 SC10U6D3V5KX-1GP, C918 Do Not Stuff, C919 SC10U6D3V5KX-1GP, C920 SC10U6D3V5KX-1GP, C921 SC10U6D3V5KX-1GP
DY UMA_PX_Muxless

VAXG: AT24, AT23, AT21, AT20, AT18, AT17, AP24, AR23, AR21, AR20, AR18, AR17, AP24, AP23, AP21, AP20, AP18, AP17, AN24, AN23, AN21, AN20, AN18, AN17, AM24, AM23, AM21, AM20, AM18, AM17, AL24, AL23, AL21, AL20, AL18, AL17, AK24, AK23, AK21, AK20, AK18, AK17, AJ24, AJ23, AJ21, AJ20, AJ18, AJ17, AH24, AH23, AH21, AH20, AH18, AH17

VCC_GFXCORE

R903 Do Not Stuff DIS, R904 Do Not Stuff DIS, R905 Do Not Stuff DIS, R901 Do Not Stuff DIS

Disabling Guidelines for External Graphics Designs:
Can connect to GND if motherboard only supports external graphics and if GFX VR is not stuffed.
Can be left floating (Gfx VR keeps VAXG rail from floating) if the VR is stuffed

## SENSE LINES

VAXG_SENSE AK35
VSSAXG_SENSE AK34
→ VCC_AXG_SENSE 42
→ VSS_AXG_SENSE 42

VCC_GFXCORE
R906 100R2F-L1-GP-U
VCC_AXG_SENSE
VSS_AXG_SENSE
R907 100R2F-L1-GP-U

**Refer to the latest Huron River Mainstream PDG (Doc# 436735) for more details on S3 power reduction implementation.**

**+V_SM_VREF_CNT should have 10 mil trace width**

## VREF

SM_VREF AL1 → +V_SM_VREF_CNT 37

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

## DDR3 -1.5V RAILS

1D5V_S0

**PROCESSOR VDDQ: 10A**

VDDQ: AE7, AF4, AF1, AC7, AC4, AC1, Y7, Y4, Y1, U7, U4, U1, P7, P4, P1

C909 Do Not Stuff, C910 SC10U6D3V5KX-1GP, C911 SC10U6D3V5KX-1GP, C912 SC10U6D3V5KX-1GP, C913 SC10U6D3V5KX-1GP, C914 Do Not Stuff
DY DY

VDDQ Output Decoupling Recommendation:
1 x 330 uF
6 x 10 uF

## SA RAIL

0D85V_S0

**PROCESSOR VCCSA: 6A**

VCCSA: M27, M26, L26, J26, J25, J24, H26, H25

C916 Do Not Stuff DY, C915 SC10U6D3V5KX-1GP

VCCSA Output Decoupling Recommendation:
1 x 330 uF
2 x 10 uF at Bottom Socket Cavity
1 x 10 uF at Bottom Socket Edge

0D85V_S0
R902 10R2J-2-GP
**R902 need be close to pin H23.**

## MISC

VCCSA_SENSE H23 → VCCUSA_SENSE
TP901 Do Not Stuff

FC_C22 C22
VCCSA_VID1 C24
H_FC_C22 → VCCSA_SEL 48

RN901 SRN1KJ-7-GP

## 1.8V RAIL

1D8V_S0

**PROCESSOR VCCPLL: 1.2A**

VCCPLL: B6, A6, A2

C922 SC1U10V2KX-1GP

VCCPLL Output Decoupling Recommendation:
1 x 330 uF
2 x 1 uF
1 x 10 uF

SANDY

HR UMA

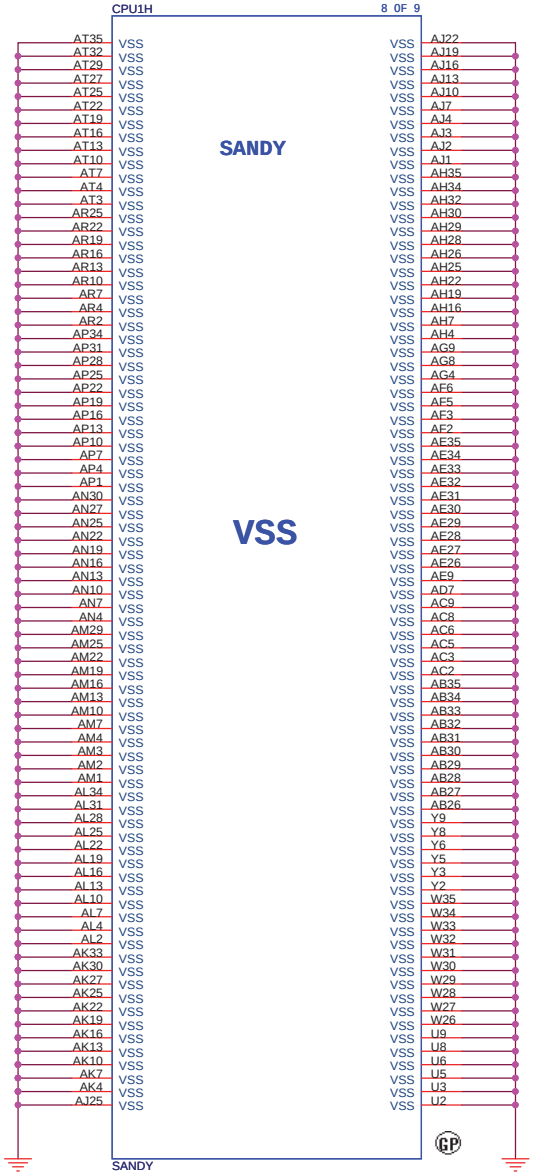
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

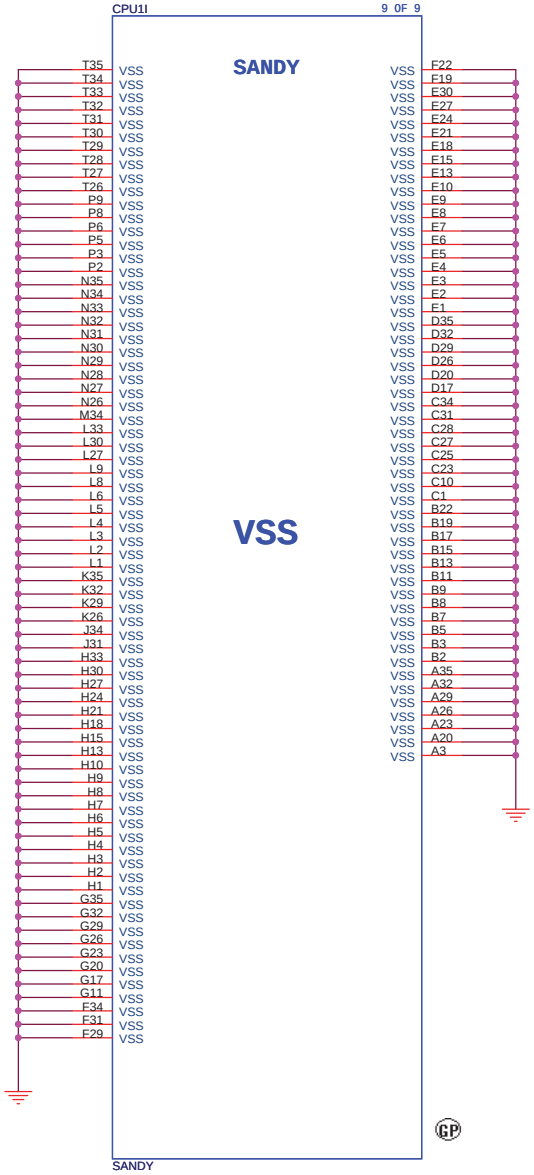
Title: **CPU (VCC_GFXCORE)**

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 9 of 102

SSID = CPU




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: CPU (VSS) | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 10 of 102 | |

**JE40 delete XDP function**

HR UMA

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

Title: ***XDP***

Size: A3 | Document Number: **JE40-HR** | Rev: **-1**

Date: Thursday, December 02, 2010 | Sheet 11 of 102

# (Blanking)

HR UMA

| | | |
|---|---|---|
| 緯創資通 **Wistron Corporation**<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: ***Reserved*** | | |
| Size: A4 | Document Number: **JE40-HR** | Rev: **-1** |
| Date: Thursday, December 02, 2010 | Sheet 12 of 102 | |

# (Blanking)

HR UMA

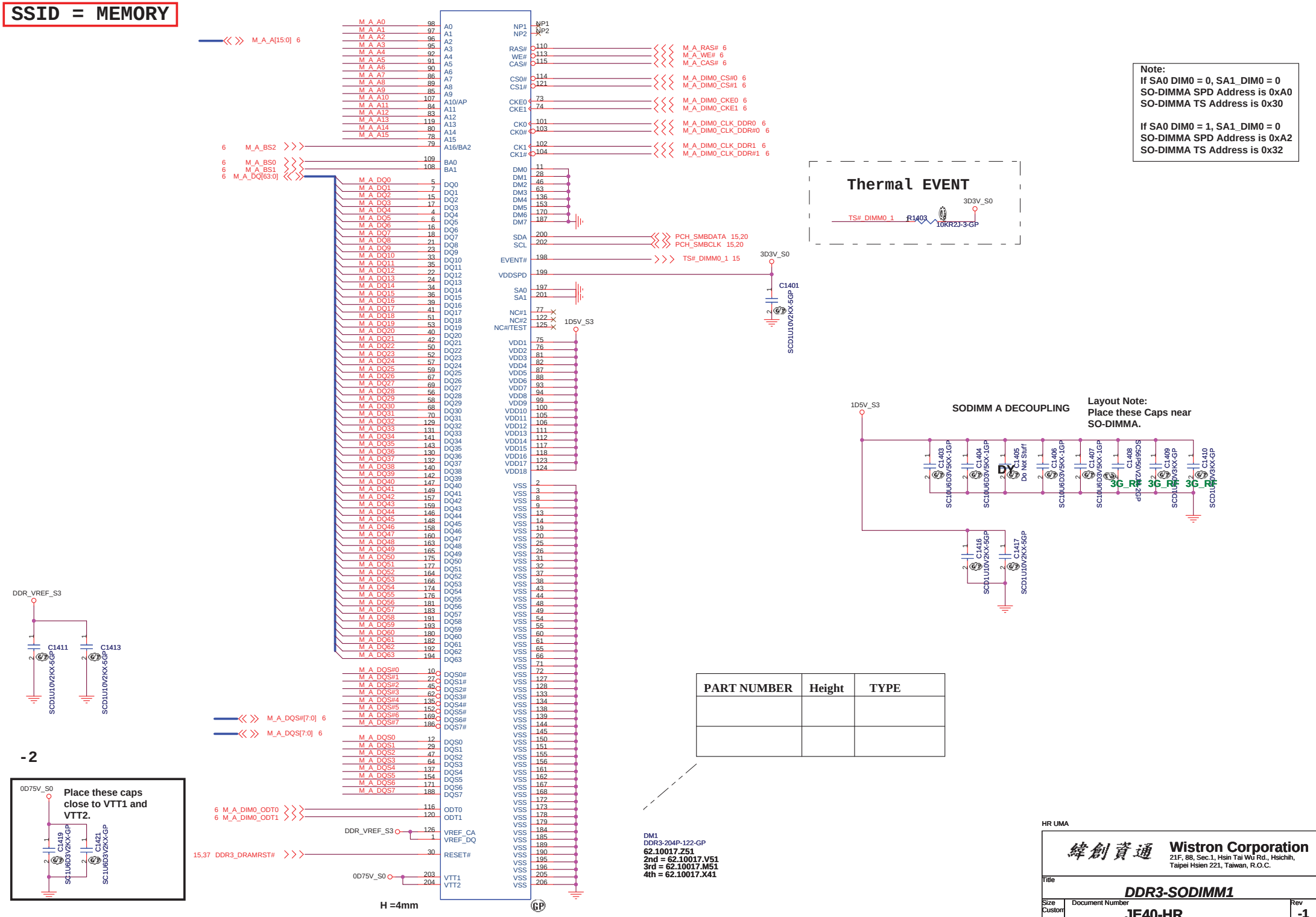
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 13 of 102

# SSID = MEMORY




Note:
If SA0 DIM0 = 0, SA1_DIM0 = 0
SO-DIMMA SPD Address is 0xA0
SO-DIMMA TS Address is 0x30

If SA0 DIM0 = 1, SA1_DIM0 = 0
SO-DIMMA SPD Address is 0xA2
SO-DIMMA TS Address is 0x32

## Thermal EVENT




## SODIMM A DECOUPLING

Layout Note:
Place these Caps near SO-DIMMA.







-2




Place these caps close to VTT1 and VTT2.

| PART NUMBER | Height | TYPE |
|---|---|---|
| | | |
| | | |

DM1
DDR3-204P-122-GP
62.10017.Z51
2nd = 62.10017.V51
3rd = 62.10017.M51
4th = 62.10017.X41

HR UMA

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

Title: DDR3-SODIMM1

| Size | Document Number | Rev |
|---|---|---|
| Custom | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 14 of 102

**SSID = MEMORY**

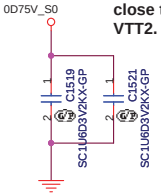

DM2
DDR3-204P-126-GP
**62.10024.D41**

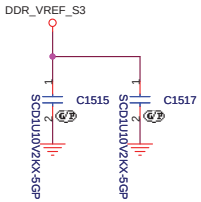
2nd = 62.10017.R91
3rd = 62.10017.V61
4th = 62.10017.X51

**H = 8mm**

**-2**

Place these caps close to VTT1 and VTT2.

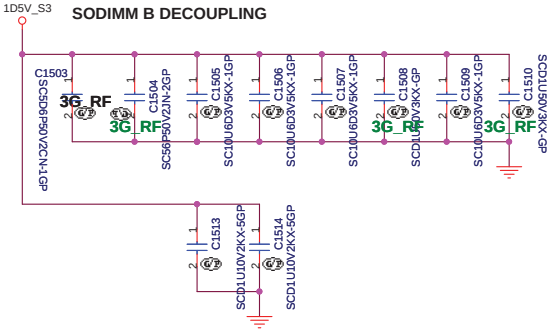



**Note:**
**SO-DIMMB SPD Address is 0xA4**
**SO-DIMMB TS Address is 0x34**

**SO-DIMMB is placed farther from the Processor than SO-DIMMA**

**SODIMM B DECOUPLING**




**Layout Note:**
**Place these Caps near SO-DIMMB.**

HR UMA

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 |
|---|---|---|
| Custom | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 15 of 102

# (Blanking)

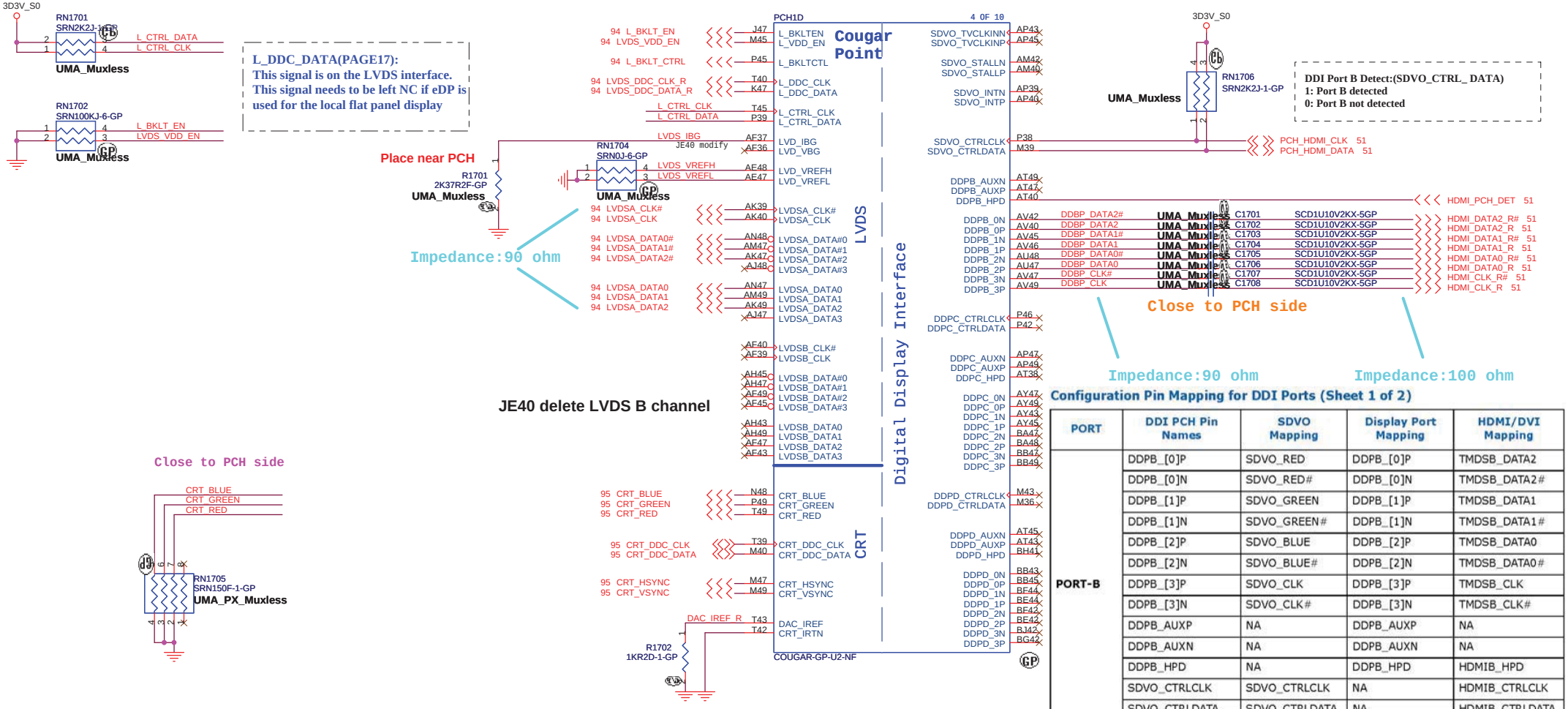
HR UMA

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 |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 16 of 102




**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_HPD | NA | DDPB_HPD | HDMIB_HPD |
| | SDVO_CTRLCLK | SDVO_CTRLCLK | NA | HDMIB_CTRLCLK |
| | SDVO_CTRLDATA | SDVO_CTRLDATA | NA | HDMIB_CTRLDATA |

HR UMA


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


Title: PCH (LVDS/CRT/DDI)

Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 17 of 102

# SSID = PCH

RN1801
SRN8K2J-2-GP-U

| | | | |
|---|---|---|---|
| INT_PIRQH# | 1 | 10 | 3D3V_S0 |
| INT_PIRQB# | 2 | 9 | INT_PIRQD# |
| INT_PIRQF# | 3 | 8 | INT_PIRQE# |
| INT_PIRQA# | 4 | 7 | INT_PIRQC# |
| 3D3V_S0 | 5 | 6 | USB30_SMI# |

| A16 swap override Strap/Top-Block Swap Override jumper | |
|---|---|
| PCI_GNT#3 | Low = A16 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) |

PCH1E — 5 OF 10

Cougar Point

RSVD | NVRAM | PCI | USB

TP1–TP20 (BG26, BJ26, BH25, BJ16, BG16, AH38, AH37, AK43, AK45, C18, N30, H3, AH12, AM4, AM5, Y13, K24, L24, AB46, AB45)

TP21–TP24 (B21, M20, AY16, BG46)

TP25–TP40 (BE28, BC30, BE32, BJ32, BC28, BE30, BF32, BG32, AV26, BB26, AU28, AY30, AU26, AY26, AV28, AW30)

RSVD (AY7, AV7, AU3, BG4, AT10, BC8, AU2, AT4, AT3, AT1, AY3, AT5, AV3, AV1, BB1, BA3, BB5, BB3, BB7, BE8, BD4, BF6, AV5, AY1, AV10, AT8, AY5, BA2, AT12, BF3)

DF_TVS — NV_CLE

USBP0N–USBP13P (C24, A24, C25, B25, C26, A26, K28, H28, E28, D28, C28, A28, C29, B29, N28, M28, L30, K30, G30, E30, C30, A30, L32, K32, G32, E32, C32, A32)

USBRBIAS# (C33), USBRBIAS (B33)

OC0#/GPIO59–OC7#/GPIO14 (A14, K20, B17, C16, L16, A16, D14, C14)

COUGAR-GP-U2-NF

DMI & FDI Termination Voltage

| | |
|---|---|
| NV_CLE | Set to Vss when LOW<br>Set to Vcc when HIGH |

check R1808 R1809 阻值

CRB : 2.2K
CEKLT: 1K

1D8V_S0 — R1808 2K2R2J-2-GP — NV_CLE — R1809 1KR2J-1-GP — H_SNB_IVB# 5

USB Ext. port 1 (HS)
External debug port use on Huron river platform

SB add USB port 5

JE40 co-lay USB2.0

JE40 delete FP function
JE40 delete eDP function
JE40 delete New Card function

USB_RBIAS — R1811 22D6R2F-L1-GP

3D3V_S5 — R1820 10KR2J-3-GP

RN1803 SRN10KJ-5-GP

DGPU_HOLD_RST# 2
DGPU_PWR_EN# 1

Do Not Stuff — TP1806 — 83 DGPU_HOLD_RST# — DGPU_SELECT# — C46, C44
93 DGPU_PWR_EN# — E40

Do Not Stuff — TP1804 — DGPU_PWM_SELECT# — D47, E42, F46

R1813 Do Not Stuff
56 SATA_ODD_DA#
82 USB30_SMI#

INT_PIRQA# K40 PIRQA#
INT_PIRQB# K38 PIRQB#
INT_PIRQC# H38 PIRQC#
INT_PIRQD# G38 PIRQD#
INT_PIRQE# G42 PIRQE#/GPIO2
INT_PIRQF# G40 PIRQF#/GPIO3
C42 PIRQG#/GPIO4
INT_PIRQH# D44 PIRQH#/GPIO5

REQ1#/GPIO50 C46
REQ2#/GPIO52 C44
REQ3#/GPIO54 E40
GNT1#/GPIO51 D47
GNT2#/GPIO53 E42
GNT3#/GPIO55 F46

JE40 modify 07/16

PME# K10
5,27,31,36,65,66,71,82,97 PLT_RST# — PLTRST# C6

71 CLK_PCI_LPC — R1804 22R2J-2-GP — CLK_PCI_LPC_R — H49
20 CLK_PCI_FB — R1805 22R2J-2-GP — CLK_PCI_FB_R — H43
27 CLK_PCI_KBC — R1806 22R2J-2-GP — CLK_PCI_KBC_R — J48

CLKOUT_PCI0 H49
CLKOUT_PCI1 H43
CLKOUT_PCI2 J48
CLKOUT_PCI3 K42
CLKOUT_PCI4 H40

EC1803 EC1802 EC1801 — DY Do Not Stuff

KBC CLK EMI

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

## 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(DY) |
| 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 |

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 |

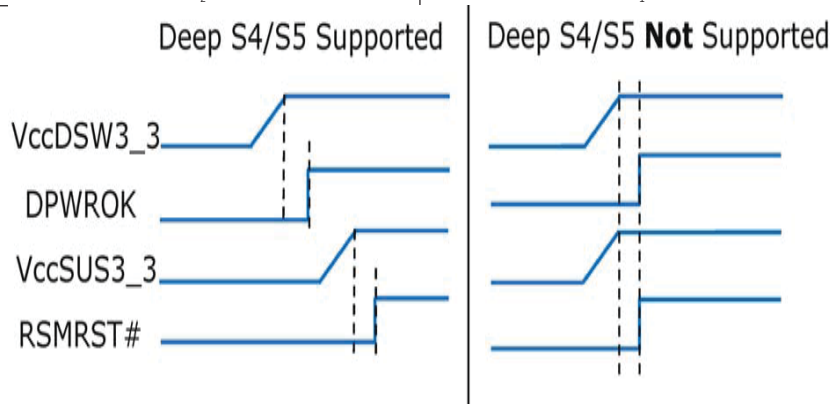
HR UMA

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: A3 | Document Number: JE40-HR | Rev: -1
Date: Thursday, December 02, 2010 | Sheet 18 of 102

# SSID = PCH

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




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



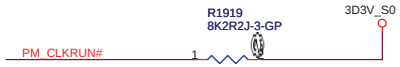

**S0_PWR_GOOD after PM_SLP_S3# delay 200 ms**

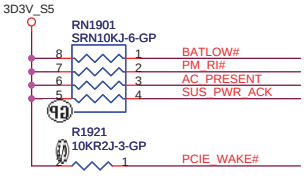
**JE40 modify 07/16**

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

**SB modify**

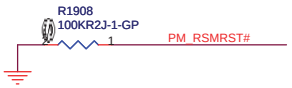


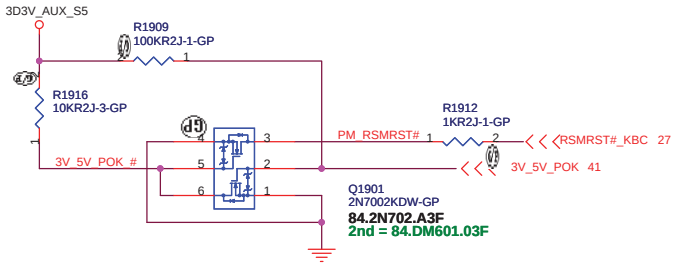




**PCIE_WAKE#**
**CRB : 1K**
**CEKLT: 10K**

**PWRBTN#**
**This signal has an internal pull-up resistor**




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




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: PCH (DM I/FDI/PM) | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 19 of 102 | |

**SSID = PCH**

PCH1B — Cougar Point — 2 OF 10

PCI-E*: W-WAN, WLAN, Card Reader, LAN, USB3.0, Intel GBE LAN, Dock, NEW CARD

SMBUS: SMBALERT#/GPIO11, SMBCLK, SMBDATA, SML0ALERT#/GPIO60, SML0CLK, SML0DATA, SML1ALERT#/PCHHOT#/GPIO74, SML1CLK/GPIO58, SML1DATA/GPIO75

Controller Link: CL_CLK1, CL_DATA1, CL_RST1#

CLOCKS: CLKOUT_PCIE0N/P, PCIECLKRQ0#/GPIO73, CLKOUT_PCIE1N/P, PCIECLKRQ1#/GPIO18, CLKOUT_PCIE2N/P, PCIECLKRQ2#/GPIO20, CLKOUT_PCIE3N/P, PCIECLKRQ3#/GPIO25, CLKOUT_PCIE4N/P, PCIECLKRQ4#/GPIO26, CLKOUT_PCIE5N/P, PCIECLKRQ5#/GPIO44, CLKOUT_PEG_B_N/P, PEG_B_CLKRQ#/GPIO56, CLKOUT_PCIE6N/P, PCIECLKRQ6#/GPIO45, CLKOUT_PCIE7N/P, PCIECLKRQ7#/GPIO46, CLKOUT_ITPXDP_N/P

FLEX CLOCKS: CLKOUTFLEX0/GPIO64, CLKOUTFLEX1/GPIO65, CLKOUTFLEX2/GPIO66, CLKOUTFLEX3/GPIO67

COUGAR-GP-U2-NF

JE40 delete New Card function

JE40 delete XDP function

JE40 modify

For DIS_PX mode or MXM mode.

SB

CRB : 1K
CEKLT: 10K

R2008 and C2008 CO-LAY

UMA_DISCRETE#
UMA: 1 1
DIS :0 1
SG(PX) : 0 0
Optimus(Muxless) : 1 0

need very close to PCH

RTS

WWAN CLK

WLAN CLK

LAN CLK

USB3.0 CLK

PCIECLKRQ1# and PCIECLKRQ2#
Support S0 power only

- 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.

HR UMA

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

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

Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 20 of 102

# SSID = PCH

RTC_X1
RTC_X2
R2101 1 10MR2J-L-GP
X2101
X-32D768KHZ-34GPU
82.30001.661
2nd = 82.30001.B21
C2101 SC5P50V2CN-2GP
C2102 SC5P50V2CN-2GP

SB SEIKO suggest modify to 5P
EPSON suggest modifyg to 6P

RTC_AUX_S5
RN2104 SRN20KJ-GP-U
C2103 SC1U6D3V2KX-GP
C2104 SC1U6D3V2KX-GP
G2101 Do Not Stuff

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

RTC Reset

R2104 1M1R2J-GP
R2105 330KR2F-L-GP

-1M
R2122 33R2J-2-GP DY
R2123 33R2J-2-GP
29 HDA_CODEC_SYNC
29 HDA_CODEC_SDOUT
HDA_SYNC
HDA_SDOUT
29 HDA_CODEC_RST#
29 HDA_CODEC_BITCLK
HDA_RST#
HDA_BITCLK
RN2102 SRN33J-5-GP-U

Flash Descriptor Security Overide

| | |
|---|---|
| HDA_SDOUT | Low = Default<br>High = Enable |

+3VS_+1.5VS_HDA_IO
R2102 DY Do Not Stuff
HDA_SDOUT

No Reboot Strap

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

PLL ODVR VOLTAGE

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

+3VS_+1.5VS_HDA_IO
R2103 1KR2J-1-GP
HDA_SYNC

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

5V_S0
-1M
Q2101 Do Not Stuff
Do Not Stuff
2ND = 84.2N702.031
HDA_CODEC_SYNC
HDA_SYNC_R
-1M
R2124 Do Not Stuff
HDA_SYNC

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

PCH1A 1 OF 10
Cougar Point
COUGAR-GP-U2-NF

RTC: RTCX1 A20, RTCX2 C20, RTCRST# D20, SRTCRST# G22, INTRUDER# K22, INTVRMEN C17
IHDA: HDA_BCLK 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
JTAG: JTAG_TCK J3, JTAG_TMS H7, JTAG_TDI K5, JTAG_TDO H1
SPI: SPI_CLK T3, SPI_CS0# Y14, SPI_CS1# T1, SPI_MOSI V4, SPI_MISO U3
LPC: FWH0/LAD0 C38, FWH1/LAD1 A38, FWH2/LAD2 B37, FWH3/LAD3 C37, FWH4/LFRAME# D36, LDRQ0# E36, LDRQ1#/GPIO23 K36, SERIRQ V5
SATA: SATA0RXN AM3, SATA0RXP AM1, SATA0TXN AP7, SATA0TXP AP5, SATA1RXN AM10, SATA1RXP AM8, SATA1TXN AP11, SATA1TXP AP10, SATA2RXN AD7, SATA2RXP AD5, SATA2TXN AH5, SATA2TXP AH4, SATA3RXN AB8, SATA3RXP AB10, SATA3TXN AF3, SATA3TXP AF1, SATA4RXN Y7, SATA4RXP Y5, SATA4TXN AD3, SATA4TXP AD1, SATA5RXN Y3, SATA5RXP Y1, SATA5TXN AB3, SATA5TXP AB1, SATAICOMPO Y11, SATAICOMPI Y10, SATA3RCOMPO AB12, SATA3COMPI AB13, SATA3RBIAS AH1, SATALED# P3, SATA0GP/GPIO21 V14, SATA1GP/GPIO19 P1

LPC_AD[0..3] 27,71
LPC_FRAME# 27,71
INT_SERIRQ 27
SATA_RXN0 56
SATA_RXP0 56
SATA_TXN0 56
SATA_TXP0 56
HDD1
HDD2
SATA_RXN4 56
SATA_RXP4 56
SATA_TXN4 56
SATA_TXP4 56
ODD
ESATA
SATA_COMP R2112 37D4R2F-GP 1D05V_VTT
SATA3_COMP R2113 49D9R2F-GP 1D05V_VTT
RBIAS_SATA3 R2114 750R2F-GP
SATA_LED# 68
SATA_DET#0

?????
27 ME_UNLOCK R2107 1KR2J-1-GP HDA_SDOUT
R2121 4K7R2J-2-GP PCH_JTAG_TCK_BUF
JE40 modify
R2108 33R2J-2-GP PCH_SPI_CLK
R2109 33R2J-2-GP PCH_SPI_CS0#
R2110 33R2J-2-GP PCH_SPI_SI
27,60 SPI_CLK_R
27,60 SPI_CS0#_R
27,60 SPI_SI_R
27,60 SPI_SO_R

HDA_CODEC_BITCLK
HDA_CODEC_SDOUT
SPI_CS0#_R
EC2102 DY Do Not Stuff
EC2103 DY Do Not Stuff
EC2101 DY Do Not Stuff

22 PSW_CLR#
RN2103 SRN10KJ-6-GP
3D3V_S0
SATA_LED#
INT_SERIRQ
SATA_DET#0

HR UMA


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: JE40-HR
Rev: -1
Date: Thursday, December 02, 2010
Sheet 21 of 102

# SSID = PCH

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

3D3V_S0 — RN2203 SRN10KJ-5-GP — H_RCIN# — H_A20GATE

**GPIO27 has a weak[20K] internal pull up.**
**To enable on-die PLL Voltage regurator, should not place external pull down.**

3D3V_S0 — R2220 10KR2J-3-GP — FFS_INT2_R

| | INTERNAL GFX | EXTERNAL GFX |
|---|---|---|
| R2205 | DY | 10K |
| R2206 | 100K | DY |

## Pass Word Clear

GFX_CRB_DET — R2206 100KR2J-1-GP

3D3V_S0 — RN2201 SRN10KJ-6-GP — EC_SMI# / DGPU_HPD_INTR# / EC_SCI#

RN2202 SRN10KJ-6-GP — MFG_MODE / FP_DET# / S_GPIO / PCH_TEMP_ALERT#

3D3V_S5 — RN2204 SRN10KJ-6-GP — USB3_PWR_ON / PCH_GPIO12 / PCH_GPIO24

PCH_GPIO15 — R2201 1KR2J-1-GP

3D3V_S0 — R2202 10KR2J-3-GP — SATA_ODD_PRSNT#

27 EC_SCI# — 56 SATA_ODD_PRSNT#

92,93 DGPU_PWROK

0806 delete TP2202, TP2203
Do Not Stuff TP2202 — PCH_GPIO22
Do Not Stuff TP2203 — PCH_GPIO24
PCH_GPIO27
PLL_ODVR_EN

21 PSW_CLR# — JE40 delete FP function — G2201 Do Not Stuff

## JE40 delete G Sensor

27 PCH_TEMP_ALERT# — Do Not Stuff TP2210 — USB3_PWR_ON

Do Not Stuff TP2206 — PCH_NCTF_1

Do Not Stuff TP2208 — PCH_NCTF_3

Do Not Stuff TP2207 — PCH_NCTF_2

Do Not Stuff TP2209 — PCH_NCTF_4

PCH1F — 6 OF 10 — **Cougar Point** — COUGAR-GP-U2-NF

GPIO: S_GPIO, EC_SMI#, DGPU_HPD_INTR#, EC_SCI#, ICC_EN#, PCH_GPIO12, PCH_GPIO15, SATA_ODD_PRSNT#, PCH_GPIO22, PCH_GPIO24, PCH_GPIO27, PLL_ODVR_EN, FP_DET#, DMI_OVRVLTG, FDI_OVRVLTG, MFG_MODE, GFX_CRB_DET, FFS_INT2_R, PCH_TEMP_ALERT#, USB3_PWR_ON

CPU/MISC: TACH4/GPIO68 (SATA_ODD_PWRGT 56), TACH5/GPIO69 (UMA_DIS# 20), TACH6/GPIO70 (VRAM_SIZE1), TACH7/GPIO71 (VRAM_SIZE2), A20GATE (H_A20GATE 27), PECI (H_PECI 5,27), RCIN# (H_RCIN# 27), PROCPWRGD (H_CPUPWRGD 5,36,97), THRMTRIP# (PCH_THERMTRIP_R), INIT3_3V#

NCTF: TS_VSS1–4, NC_1, NCTF_VSS#BG2 … NCTF_VSS#F49

NCTF TEST PIN: A4, A44, A45, A46, A5, A6, B3, B47, BD1, BD49, BE1, BE49, BF1, BF49, BG2, BG48, BH3, BH47, BJ4, BJ44, BJ45, BJ46, BJ5, BJ6, C2, C48, D1, D49, E1, E49, F1, F49

## SB add Zero ODD function

C40 SATA_ODD_PWRGT 56
B41 UMA_DIS# 20
C41 VRAM_SIZE1
A40 VRAM_SIZE2

P4 H_A20GATE 27
AU16 H_PECI_R — R2203 Do Not Stuff — DY — H_PECI 5,27
P5 H_RCIN# 27
AY11 H_CPUPWRGD 5,36,97
AY10 PCH_THERMTRIP_R
T14

PCH_THERMTRIP_R — R2204 54D9R2F-L1-GP — H_THERMTRIP# 5,36

RN2205 Do Not Stuff — DY — SB — 1D05V_VTT

AH8, AK11, AH10, AK10, P37

**SB 公板 check different , check need modify or not check intel , R2204**

**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_OVRVLTG — R2208 10KR2J-3-GP

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

DMI_OVRVLTG — R2210 10KR2J-3-GP

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

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

ICC_EN# — R2211 1KR2J-1-GP

| Integrated Clock Chip Enable | |
|---|---|
| ICC_EN# | HIGH (R2211 DY)- DISABLED [DEFAULT] |
| | 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.

## SB VRAM Frequency

**Pull high: 800MHZ**
**Pull low :900MHZ**

3D3V_S0 — R2218 10KR2J-3-GP — UMA_VRAM800MHZ — PCH_GPIO22 — R2219 10KR2J-3-GP — VRAM900MHZ

## VRAM Size

3D3V_S0 — 2G: R2214 Do Not Stuff — 1G: R2216 Do Not Stuff — VRAM_SIZE1 / VRAM_SIZE2 — 1G_512M: R2215 Do Not Stuff — 512M_2G: R2217 Do Not Stuff

| PLL ON DIE VR ENABLE |
|---|
| NOTE:This signal has a weak internal pull-up 20K<br>ENABLED -- HIGH (R2212 UNSTUFFED) DEFAULT<br>DISABLED -- LOW (R2212 STUFFED) |

PLL_ODVR_EN — R2212 DY Do Not Stuff

HR UMA

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

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

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 — Sheet 22 of 102

**SSID = PCH** 6A

# POWER

PCH1G — Cougar Point — 7 OF 10

## VCC CORE

1D05V_VTT — 1.3A

(1uFx3) (10uFx1_0603)

C2301 SC10U6D3V5KX-1GP; C2302 SC1U6D3V2KX-GP; C2303 SC1U6D3V2KX-GP; C2304 SC1U6D3V2KX-GP

AA23 AC23 AD21 AD23 AE21 AE23 AG21 AG23 AG24 AG26 AG27 AG29 AJ23 AJ26 AJ27 AJ29 AJ31 — VCCCORE

## CRT

VCCADAC — U48 +VCCA_DAC_1_2

VSSADAC — U47

(0.1uF/0.01uF x1) (10uF x1_0603)

C2313 SCD01U16V2KX-3GP; C2314 SCD01U16V2KX-5GP; C2315 Do Not Stuff

UMA_PX_Muxless UMA_PX_Muxless

R2301 Do Not Stuff — 3D3V_S0

R2315 Do Not Stuff — 3D3V_DAC_S0

## LVDS

VCCALVDS — AK36 +3VS_VCCA_LVDS

VSSALVDS — AK37

R2303 Do Not Stuff

0.001A

R2304 0R3J-0-U-GP — 3D3V_S0

UMA_PX_Muxless

VCCTX_LVDS — AM37 AM38 AP36 AP37

0.06A

R2309 Do Not Stuff

C2316 SCD01U16V2KX-3GP; C2317 SCD01U16V2KX-3GP; C2318 Do Not Stuff

UMA_PX_Muxless UMA_PX_Muxless

+1.8VS_VCCTX_LVDS

R2305 0R5J-5-GP — 1D8V_S0

UMA_PX_Muxless

(0.01uF x2) (22uF x1)

## HVCMOS

VCC3_3 — V33 V34

3D3V_S0

C2319 SCD1U10V2KX-5GP

-2 modify power net name

## DMI

VCCVRM — AT16 — VCCVRM_S0

VCCDMI — AT20 — JE40 modify — 1D05V_VTT — (1uF x1)

C2320 SC1U6D3V2KX-GP

VCCCLKDMI — AB36

0.02A

+1.05VS_VCC_DMI_CCI

L2303 IND-10UH-218-GP — 1D05V_VTT

68.10050.10Y

2nd = 68.10090.10B

(1uFx1) (10uFx1)

C2321 SC1U6D3V2KX-GP; C2325 Do Not Stuff

## NAND / SPI

VccDFTERM — AG16 AG17 AJ16 AJ17

1D8V_S0

0.19A

JE40 modify

C2326 SCD1U10V2KX-5GP; C2322 SCD1U10V2KX-5GP

VCCSPI — V1

0.02A — 3D3V_S5 — (1uFx1)

C2323 SC1U6D3V2KX-GP

## FDI

COUGAR-GP-U2-NF

## VCCIO

1D05V_VTT — 2.925A(Total current of VCCIO)

(1uF x4)

C2306 Do Not Stuff; C2307 SC1U6D3V2KX-GP; C2308 SC1U6D3V2KX-GP; C2309 SC1U6D3V2KX-GP

AN19 — VCCIO

JE40 modify 07/16

JE40 modify — BJ22 — VCCAPLLEXP

AN16 AN17 AN21 AN26 AN27 AP21 AP23 AP24 AP26 AT24 AN33 AN34 — VCCIO

0.266A (Totally VCC3_3 current)

(0.1uF x1)

3D3V_S0 — BH29 — VCC3_3

C2310 SCD1U10V2KX-5GP

0.159A(Totally current of VCCVRM)

-2 modify power net name

VCCVRM_S0 — AP16 — VCCVRM

0806 check VCCAFDIPLL — BG6 — VCCAFDIPLL

1D05V_VTT — AP17 — VCCIO

0.042A (Totally current of VCCDMI)

1D05V_VTT — AU20 — VCCDMI — JE40 modify

---

U2301 for ANNIE flicker issue
R2312 for don't flicker solution

3.3V CRT LDO

U2301 G9091-330T11U-GP
74.09091.J3F
2nd = 74.09198.G7F

5V_S0 — VIN GND EN — VOUT NC#4 — 3D3V_DAC_S0

C2311 SC1U6D3V2KX-1GP; C2312 SC1U6D3V2KX-GP; C2327 SC1U6D3V3MX-GP

UMA_PX_Muxless UMA_PX_Muxless UMA_PX_Muxless

SB add C2327

-1M add LDO for VCCVRM_S0

U2302 G913CF-GP
74.00913.A3F

3D3V_S0 — 1D5V_S0 — VCCVRM_S0

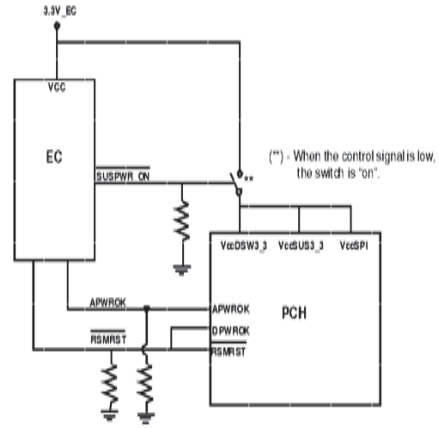
SHDN# GND IN — SET OUT

C2328 SC1U10V3KX-3GP; C2329 SC4D7U6D3V3KX-GP; C2330 SC22P50V2JN-4GP; C2331 SCD1U10V2KX-5GP

R2316 2K8R2F-GP; R2317 10KR2J-3-GP

Vout=1.25*(1+R1/R2)

Refer to NPCE795 shared SPI flash architecture




SB 公板suggest delete 3D3V_S0, R2313
SPI only support 3D3V_S5

The same BIOS SPI ROM power

HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: PCH (POWER1) | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 23 of 102 | |

JE40 modify 07/16

**SSID = PCH**

PCH1J

POWER

Cougar Point

10 OF 10

Clock and Miscellaneous

USB

PCI/GPIO/LPC

SATA

MISC

CPU

RTC

HDA

| | | | |
|---|---|---|---|
| JE40 modify | AD49 | VCCACLK | |
| 3D3V_S5 | T16 | VCCDSW3_3 | 0.002A |
| JE40 modify | V12 | DCPSUSBYP | |
| 3D3V_S0 | T38 | VCC3_3 | |
| JE40 modify | BH23 | VCCAPLLDMI2 | |
| 1D05V_VTT | AL29 | VCCIO | (10uFx1) |
| JE40 modify | AL24 | DCPSUS | |
| | AA19 | VCCASW | |
| | AA21 | VCCASW | |
| | AA24 | VCCASW | |
| | AA26 | VCCASW | |
| | AA27 | VCCASW | |
| | AA29 | VCCASW | |
| | AA31 | VCCASW | |
| | AC26 | VCCASW | |
| | AC27 | VCCASW | |
| | AC29 | VCCASW | |
| | AC31 | VCCASW | |
| | AD29 | VCCASW | |
| | AD31 | VCCASW | |
| | W21 | VCCASW | |
| | W23 | VCCASW | |
| | W24 | VCCASW | |
| | W26 | VCCASW | |
| | W29 | VCCASW | |
| | W31 | VCCASW | |
| | W33 | VCCASW | |
| | N16 | DCPRTC | |
| | Y49 | VCCVRM | -1M |
| +1.05VS_VCCA_A_DPL | BD47 | VCCADPLLA | |
| +1.05VS_VCCA_B_DPL | BF47 | VCCADPLLB | |
| | AF17 | VCCIO | |
| | AF33 | VCCDIFFCLKN | |
| | AF34 | VCCDIFFCLKN | |
| | AG34 | VCCDIFFCLKN | |
| | AG33 | VCCSSC | |
| | V16 | DCPSST | |
| | T17 | DCPSUS | |
| | V19 | DCPSUS | |
| | BJ8 | V_PROC_IO | |
| | A22 | VCCRTC | |
| | N26 | VCCIO | |
| | P26 | VCCIO | |
| | P28 | VCCIO | |
| | T27 | VCCIO | |
| | T29 | VCCIO | |
| | T23 | VCCSUS3_3 | 0.097A (Totally current of VCCSUS3_3) |
| | T24 | VCCSUS3_3 | |
| | V23 | VCCSUS3_3 | |
| | V24 | VCCSUS3_3 | |
| | P24 | VCCSUS3_3 | |
| | T26 | VCCIO | 1D05V_VTT |
| | M26 | V5REF_SUS | +5VA_PCH_VCC5REFSUS |
| | AN23 | DCPSUS | JE40 modify |
| | AN24 | VCCSUS3_3 | 3D3V_S5 JE40 modify |
| | P34 | V5REF | +5VS_PCH_VCC5REF |
| | N20 | VCCSUS3_3 | |
| | N22 | VCCSUS3_3 | |
| | P20 | VCCSUS3_3 | |
| | P22 | VCCSUS3_3 | |
| | AA16 | VCC3_3 | |
| | W16 | VCC3_3 | |
| | T34 | VCC3_3 | |
| | AJ2 | VCC3_3 | |
| | AF13 | VCCIO | |
| | AH13 | VCCIO | |
| | AH14 | VCCIO | |
| | AF14 | VCCIO | |
| | AK1 | VCCAPLLSATA | |
| | AF11 | VCCVRM | |
| | AC16 | VCCIO | |
| | AC17 | VCCIO | |
| | AD17 | VCCIO | |
| | T21 | VCCASW | |
| | V21 | VCCASW | |
| | T19 | VCCASW | |
| | P32 | VCCSUSHDA | |

COUGAR-GP-U2-NF

1D05V_VTT

(1uFx1)

C2423 SC1U6D3V2KX-GP

3D3V_S5

0.097A (Totally current of VCCSUS3_3)

(0.1uFx1)

C2424 SCD1U10V2KX-5GP

C2425 SCD1U10V2KX-5GP

0.001A

JE40 modify 07/16

D2401 Do Not Stuff

DY Do Not Stuff

2nd = 83.R2004.B8F

R2408 10R2J-2-GP

C2426 SCD1U10V2KX-5GP

5V_S5

(0.1uFx1)

3D3V_S0

D2402 Do Not Stuff

DY Do Not Stuff

2nd = 83.R2004.B8F

R2407 10R2J-2-GP

C2427 SC1U10V2KX-1GP

5V_S0

(1uFx1)

1D05V_VTT

1.01A (Total current of VCCASW)

C2403 C2404 C2406 C2407 C2408

SC1U6D3V5KX-1GP SC1U6D3V5KX-1GP SC1U6D3V2KX-GP SC1U6D3V2KX-GP

DY Do Not Stuff

(22uFx2_0603)

(1uFx3)

3D3V_S5

(1uFx1)

C2428 SC1U6D3V2KX-GP

JE40 modify 07/16

3D3V_S0

(0.1uFx2)

C2430 SCD1U10V2KX-5GP

C2431 SCD1U10V2KX-5GP

3D3V_S0

(0.1uFx1)

C2429 SCD1U10V2KX-5GP

1D05V_VTT

(1uFx1)

C2432 SC1U6D3V2KX-GP

JE40 modify

-1M modify power net name

VCCVRM_S0

1D05V_VTT

(1uFx1)

C2435 SC1U6D3V2KX-GP

JE40 modify 07/16

1D05V_VTT

0.01A

+3VS_+1.5VS_HDA_IO

(0.1uFx1)

C2433 SCD1U10V2KX-5GP

1D05V_VTT

0.08A

(1uFx1)

(220uFx1)

L2402 IND-10UH-218MP

68.10050.10Y

2nd = 68.10090.10B

+1.05VS_VCCA_A_DPL

C2409 SC1U6D3V2KX-GP

L2403 IND-10UH-218MP

68.10050.10Y

2nd = 68.10090.10B

+1.05VS_VCCA_B_DPL

C2410 SC1U6D3V2KX-GP

0.16A (Totally current of VCCVRM

+VCCRTCEXT

C2411 SCD1U10V2KX-5GP

(0.1uFx1)

-1M

VCCVRM_S0

JE40 modify 07/16

C2412 SC1U6D3V2KX-GP

JE40 modify

(1uFx1)

0.055A

C2414 SC1U6D3V2KX-GP

C2413 SC1U6D3V2KX-GP

0.095A

JE40 modify

(1uFx1)

+VCCSST

(0.1uFx1)

C2415 SCD1U10V2KX-5GP

JE40 modify

(1uFx1)

0.001A

(0.1uFx2)

(4.7uFx1_0603)

C2417 C2418 C2419

SC4D7U6D3V5KX-GP SCD1U10V2KX-5GP

DY Do Not Stuff

RTC_AUX_S5

6uA

(0.1uFx2)

(1uFx1)

C2420 SC1U6D3V2KX-GP

U2401 Do Not Stuff

Do Not Stuff

VIN GND EN VOUT NC#4

DY

C2436 C2416 C2405

Do Not Stuff

R2414 Do Not Stuff

R2402 Do Not Stuff

+3VS_+1.5VS_HDA_IO -1M

R2409 Do Not Stuff

R2415 Do Not Stuff

R2413 Do Not Stuff

3D3V_S5

1D05V_S0

1D05V_S5

HR UMA

緯創資通 Wistron Corporation

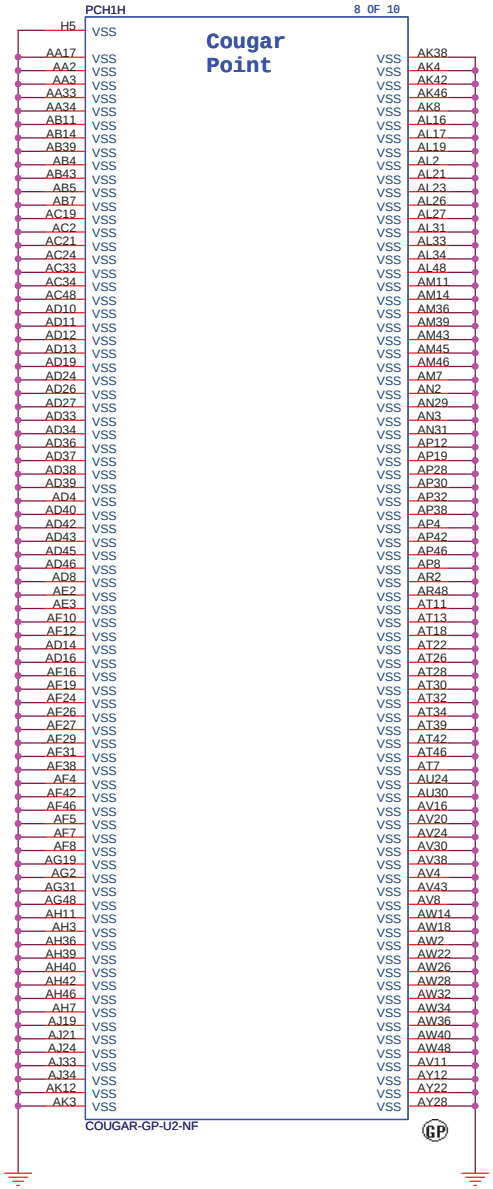
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

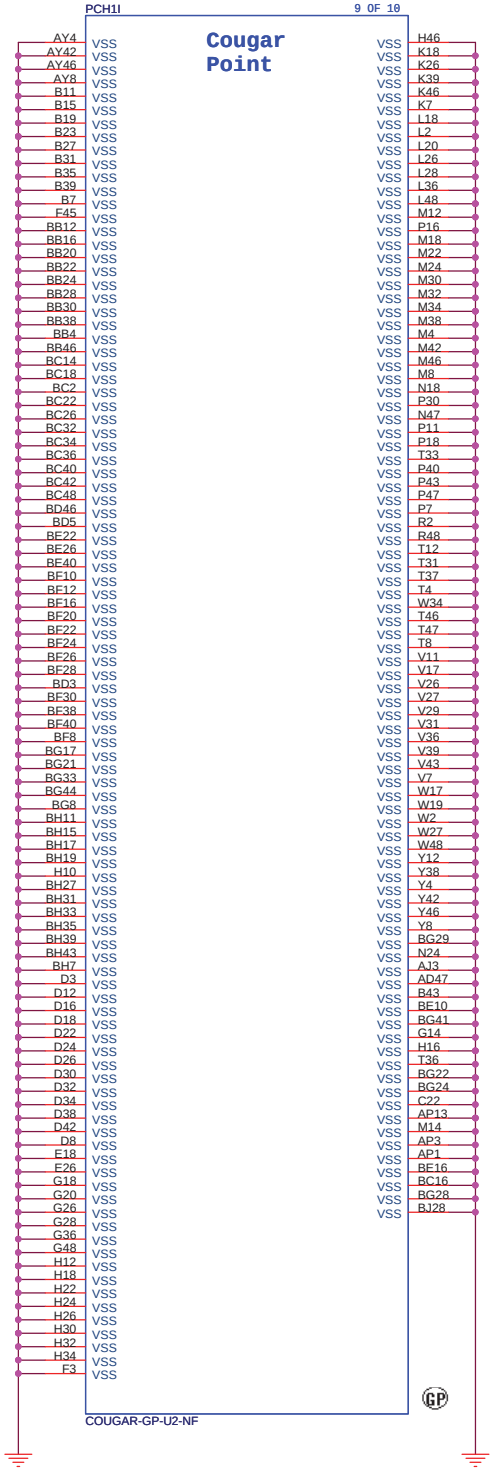
Title: PCH (POWER2)

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 24 of 102

**SSID = PCH**




HR UMA

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

Title: ***PCH (VSS)***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **JE40-HR** | -1 |

Date: Thursday, December 02, 2010 Sheet 25 of 102

HR UMA

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

Title
***Clock(colay)***

| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 26 of 102

SSID = KBC

| PCB VERSION A/D(PIN98) | PULL-LOW RESISTOR | PULL-HIGH RESISTOR | VOLTAGE |
|---|---|---|---|
| SA | 100.0K | 10.0K | 3.0V |
| SB | 100.0K | 20.0K | 2.75V |
| SC | 100.0K | 33.0K | 2.48V |
| -1 | 100.0K | 47.0K | 2.24V |
| -1M | 100.0K | 64.9K | 2.0V |
| Reserved | 100.0K | 76.8 | 1.87V |
| Reserved | 100.0K | 100.0K | 1.65V |

PSL SOLUTION
(Power Switch Control Logic)

NO PSL SOLUTION

SB modify R2756 stuff, R2760 change DY

SB to -1 default active Low

JE40 delete USB Charger function

JE40 VGA_THRM

0628 Modify:
Move R2771 to closed 3D3V_AUX_KBC power rail base on layout placement.

0604 Modify:
RN2704 pull-Low 10K Resistor to DY on BLUETOOTH_EN.

NOTE:
Locate resistors R2719 and R2722 close to the NPCE791L.

NOTE:
Connect GND and AGND planes via either 0R resistor or one point layout connection.

<------ TP

<------ BATTERY / CHARGER

<------PCH / EDP

SB to -1

JE40 delete AMP function

C2716 need very close to EC

如果移除PLS function 要改成pull high 3D3V_AUX_S5

EC GPIO standard PH/PL

SB LID_CLOSE# can not pull high, because push pull suggest RN2708 Pin5 change FAN_TACH1

0604 Modify:
Add Pull down 100k ohm at F_SDI for Power consumption concern.

Prevent BIOS data loss

SB to -1

0604 Modify:
RN2704 pull-Low 10K Resistor to DY on BLUETOOTH_EN.

EC_GPIO47 High Active

| ADT_TYPE A/D(PIN99) | PULL-LOW RESISTOR | PULL-HIGH RESISTOR | VOLTAGE |
|---|---|---|---|
| 65W | N/A | 100.0K | 3.3V |
| 90W | 100.0K | N/A | 0V |
| 30W | 10.0K | 100.0K | 0.3V |
| 40W | 20.0K | 100.0K | 0.55V |
| 120W | 33.0K | 100.0K | 0.82V |
| Reserved | 47.0K | 100.0K | 1.06V |
| Reserved | 64.9K | 100.0K | 1.3V |

JE40 modify

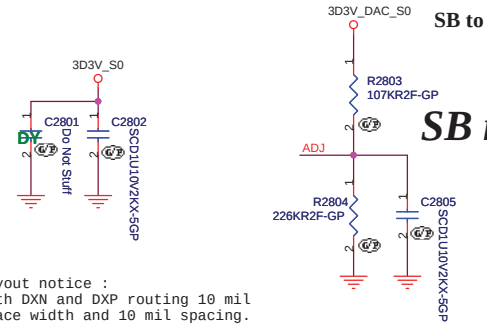
65W_90W#
High: 65W / Low 90W
DISCRETE#
High: UMA / Low: Discrete

SB EC_AGND , change GND

| | |
|---|---|
| Wistron Corporation | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. |
| Title | KBC Nuvoton NPCE795 |
| Size: Custom | Document Number: JE40-HR |
| Rev | -1 |
| Date: Thursday, December 02, 2010 | Sheet 27 of 102 |

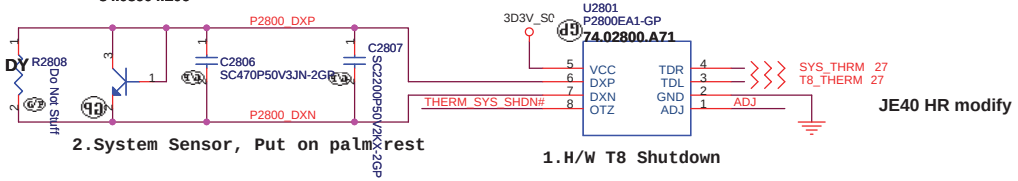
**SSID = Thermal**

# Thermal sensor P2800




## SB modify R2803,R2804 setting

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




2.System Sensor, Put on palm rest

1.H/W T8 Shutdown

JE40 HR modify

## ADJ Table (Reference to SYNTON-TECH Metal Film Resistor E-96 ±1% Series)

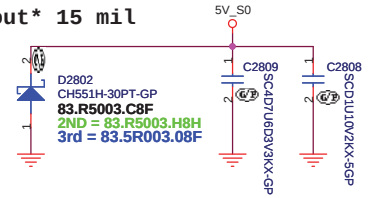
| RADJ1 (KΩ) | RADJ2 (KΩ) | VADJ (v) | OTZ Threshold Temperature (°C) |
|---|---|---|---|
| 124 | 226 | 2.13 | 101 |
| 118 | 226 | 2.17 | 96.3 |
| 113 | 226 | 2.20 | 92.1 |
| 110 | 226 | 2.22 | 89.6 |
| 107 | 226 | 2.24 | 87 |
| 105 | 226 | 2.25 | 85.3 |
| 100 | 226 | 2.29 | 80.9 |

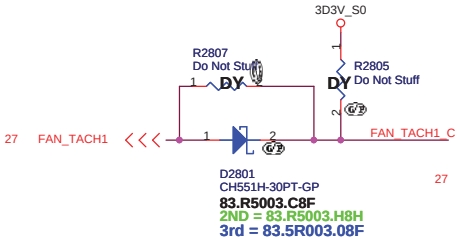
# VGA Thermal sensor P2800

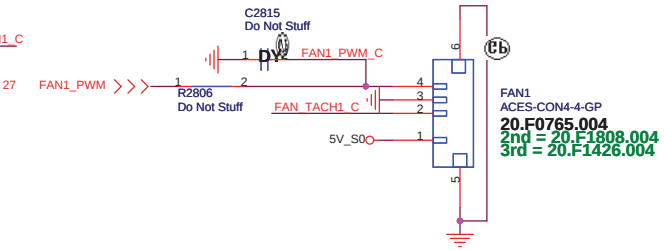
## SMBUS modify to Page 84

# Fan controller P2793

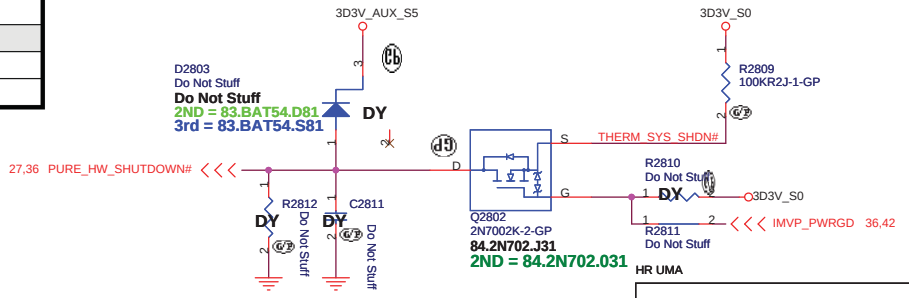
*Layout* 15 mil




For PWM FAN

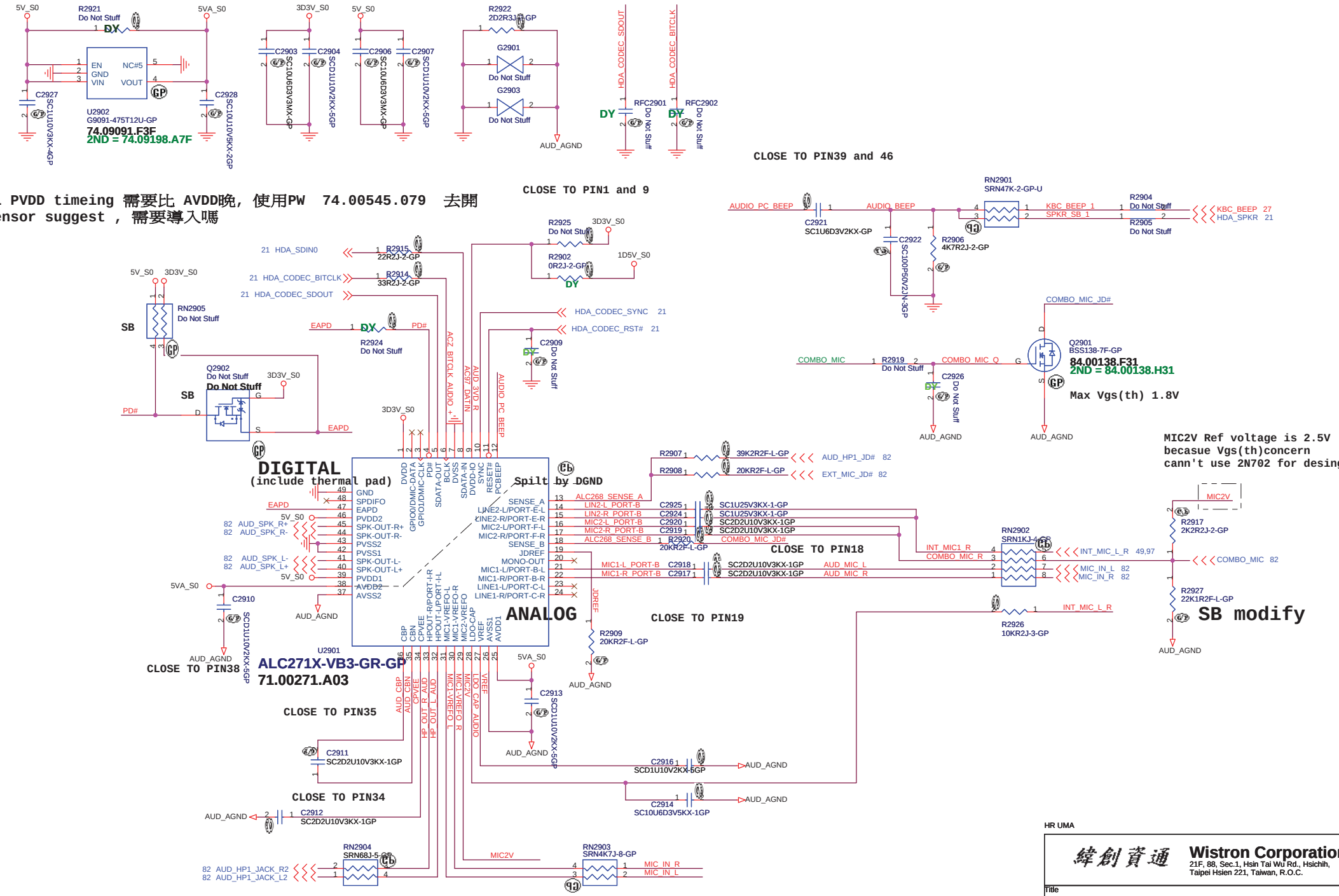



HR UMA



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

| | | |
|---|---|---|
| Title: Thermal P2800/Fan Controllor P2793 | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 28 of 102 | |


-1 PVDD timeing 需要比 AVDD晚, 使用PW 74.00545.079 去開
vensor suggest , 需要導入嗎
CLOSE TO PIN1 and 9
CLOSE TO PIN39 and 46
MIC2V Ref voltage is 2.5V
becasue Vgs(th)concern
cann't use 2N702 for desing
Max Vgs(th) 1.8V
DIGITAL
(include thermal pad)
Spilt by DGND
ANALOG
ALC271X-VB3-GR-GP
71.00271.A03
U2901
CLOSE TO PIN18
CLOSE TO PIN19
CLOSE TO PIN35
CLOSE TO PIN34
CLOSE TO PIN38
SB modify
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Audio Codec
JE40-HR
-1
Thursday, December 02, 2010

# AUDIO OP AMPLIFIER

## JE40 delete AMP function

HR UMA

| | | |
|---|---|---|
| 緯創資通 **Wistron Corporation**<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: ***Audio AMP*** | | |
| Size: A4 | Document Number: **JE40-HR** | Rev: **-1** |
| Date: Thursday, December 02, 2010 | Sheet 30 of 102 | |

SB modify L3101,2,4,5,6 to 0 ohm

SB modify R3102 DY, R3104 to pull low

SB mmodify vendor suggest

SB delete EEPROM

SB delete R3112

SB delete R3117

SB delete R3129 for LDO power

128K byte

Check VDDO_CR power plan

SB for B version

SB to -1 modify to short pad

SB C3134, C3135 change 15P

SB for B version can no use LDO delete LDO

Card-reader Off-Page

68.00248.011

2nd = 68.00217.241

82.30020.851

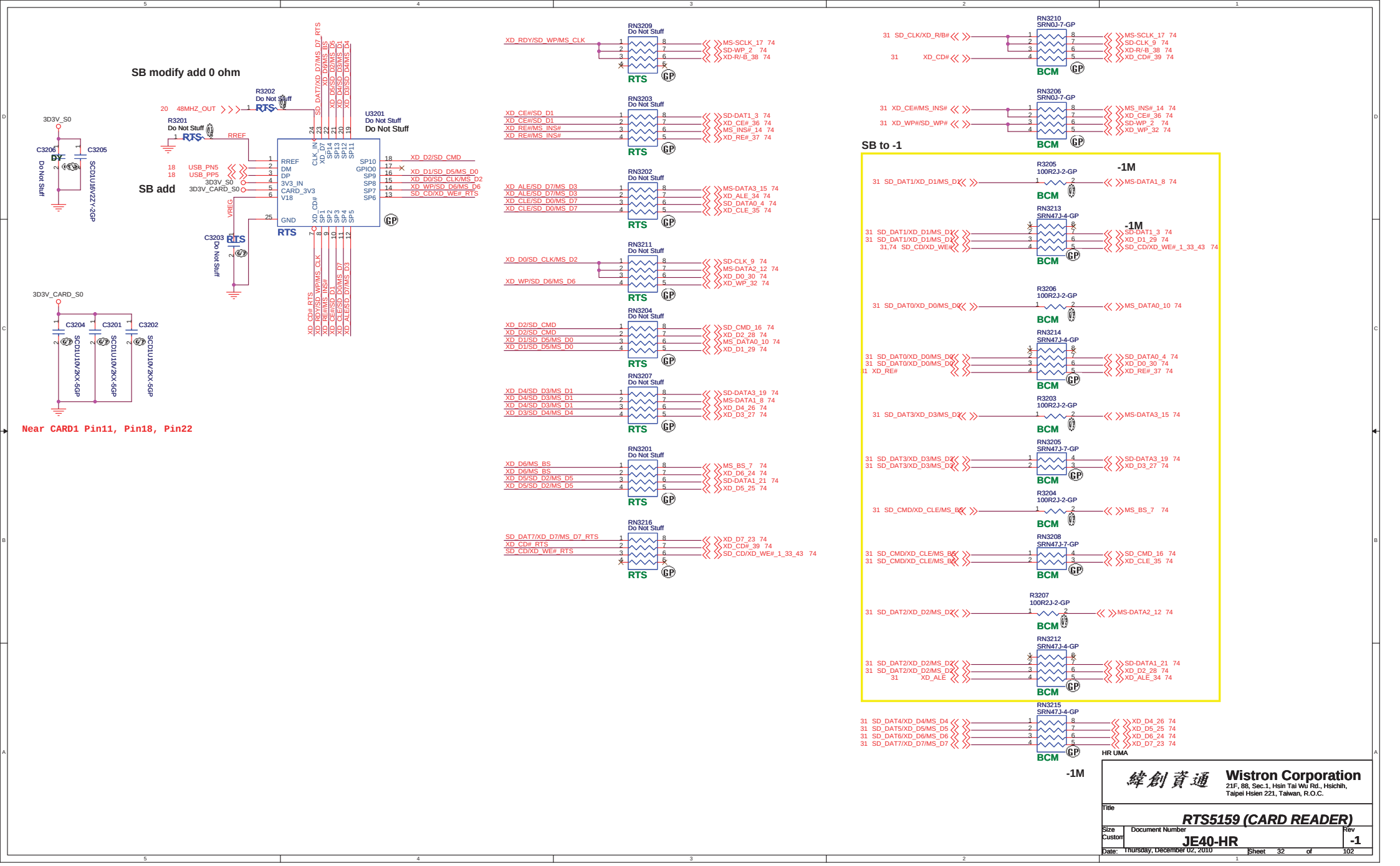
71.57785.M02

Change:71.57785.M03

10月底改打71.57785.M03

U3101 BCM57785XA0KMLG-GP

| | |
|---|---|
| HR UMA | |
| Wistron Corporation | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. |
| Title | BCM57780 |
| Size: Custom | Document Number: JE40-HR |
| Rev | -1 |
| Date: Thursday, December 02, 2010 | Sheet 31 of 102 |




| | | | |
|---|---|---|---|
| Wistron Corporation | Title: RTS5159 (CARD READER) | | |
| 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | Size: Custom | Document Number: JE40-HR | Rev: -1 |
| | Date: Thursday, December 02, 2010 | Sheet 32 of 102 | |

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 33 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 34 of 102

HR UMA

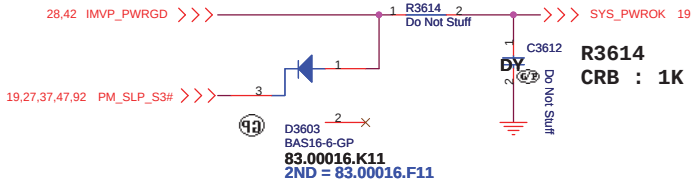
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***USB 3.0 Controller***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **JE40-HR** | **-1** |

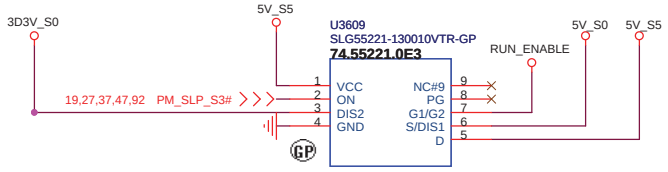
Date: Thursday, December 02, 2010 Sheet 35 of 102

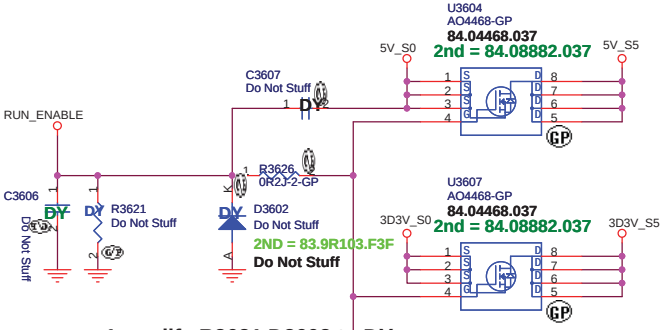
# Power Sequence



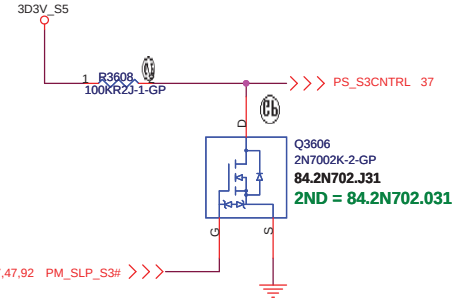

R3614
CRB : 1K

## ANNIE Run Power



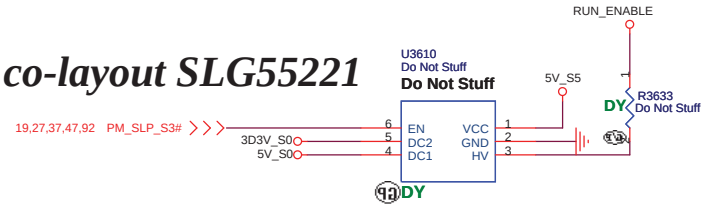



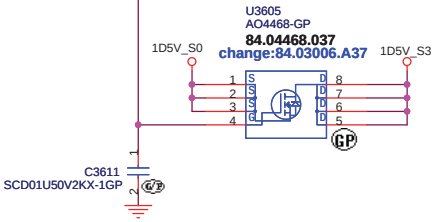

-1 modify R3621,D3602 to DY




SB modify part number

## -1 co-layout SLG55221

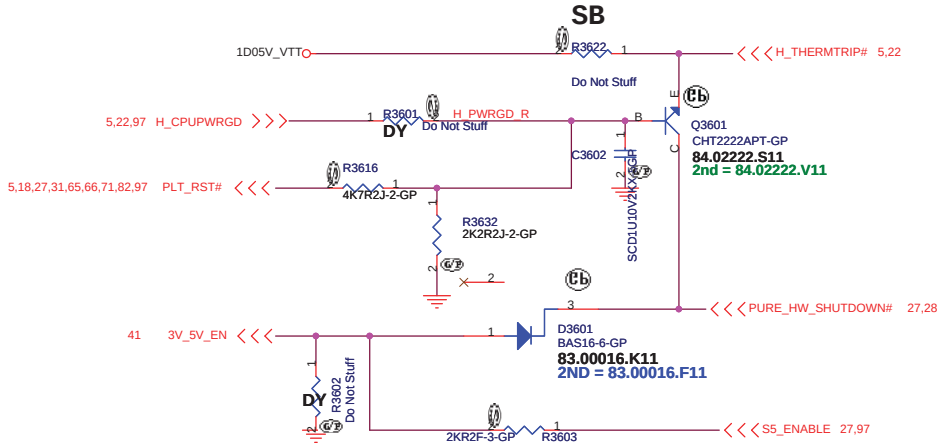



1D5V_S0

MAX Current 3000 mA
Design Current 2100 mA
Total= 11.39A

## SB




HR UMA

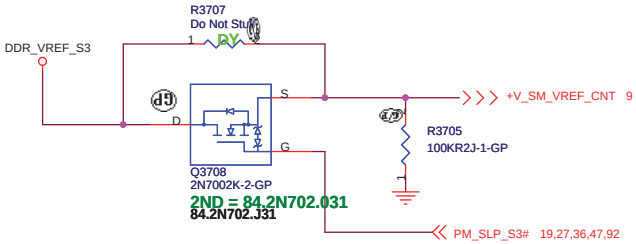
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Power Plane Enable

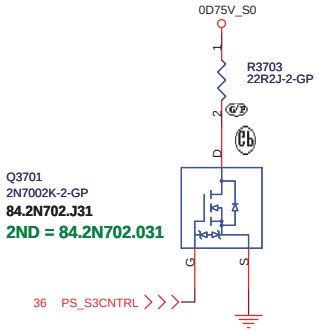
| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 36 of 102

Close to CPU
S3 Power Reduction Circuit Processor VREF_DQ Implementation

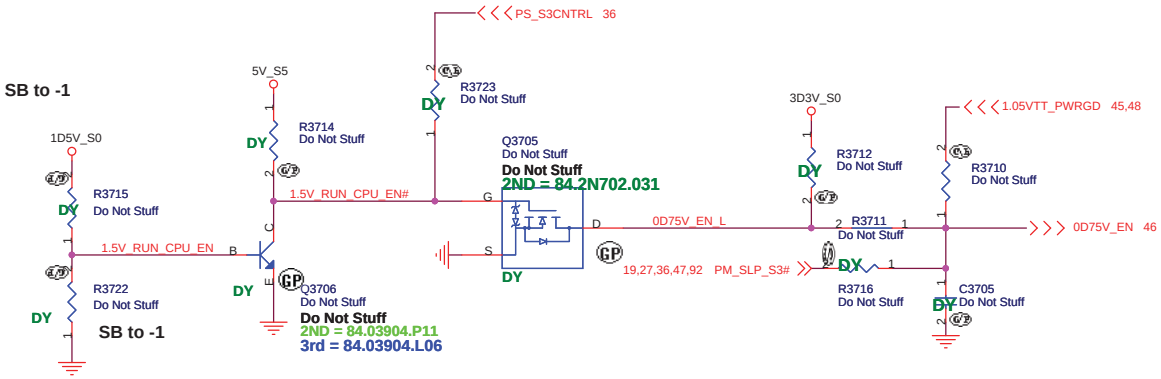



Close to DIMM
S3 Power Reduction Circuit SM_DRAMPWROK

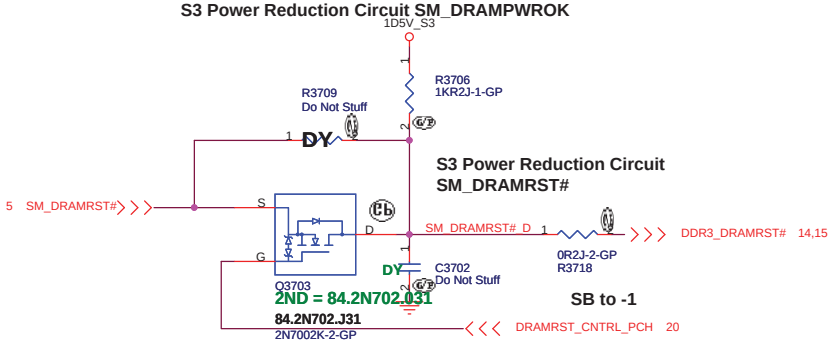



5 S3 Power Reduction X01 20091111 JE40 HR modify 驗證R3710上件

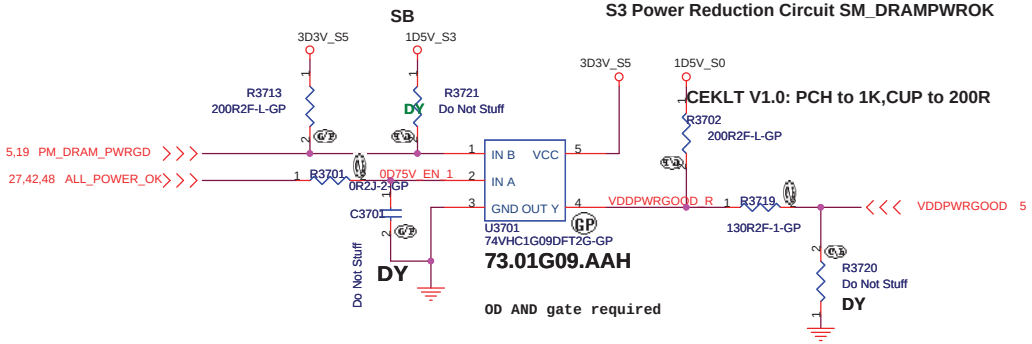
SB to -1 reserve R3723




Close to CPU
S3 Power Reduction Circuit SM_DRAMPWROK




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

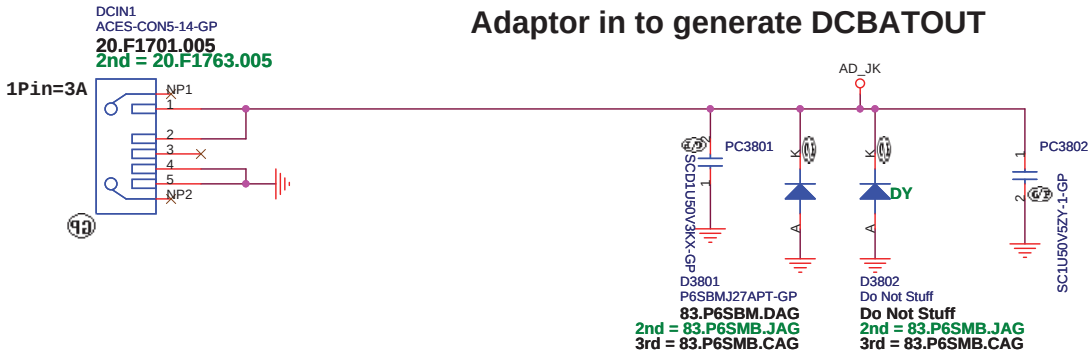
HR UMA

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

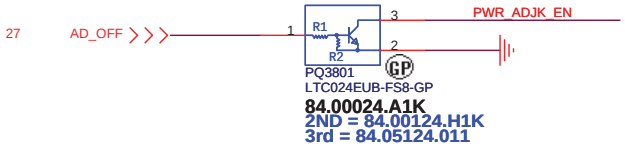
Title: ADAPTER
Size: A3 | Document Number: JE40-HR | Rev: -1
Date: Thursday, December 02, 2010 | Sheet 37 of 102

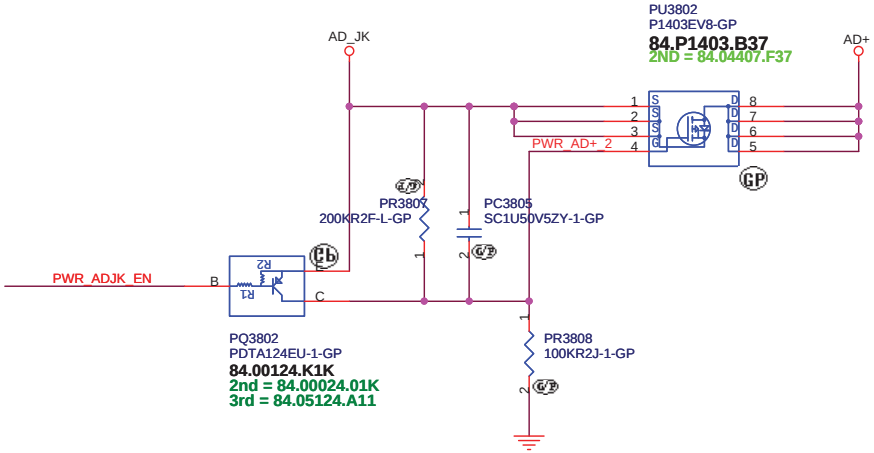
# *ANNIE solution*

## Adaptor in to generate DCBATOUT




**JE40 change DCIN1 part number**



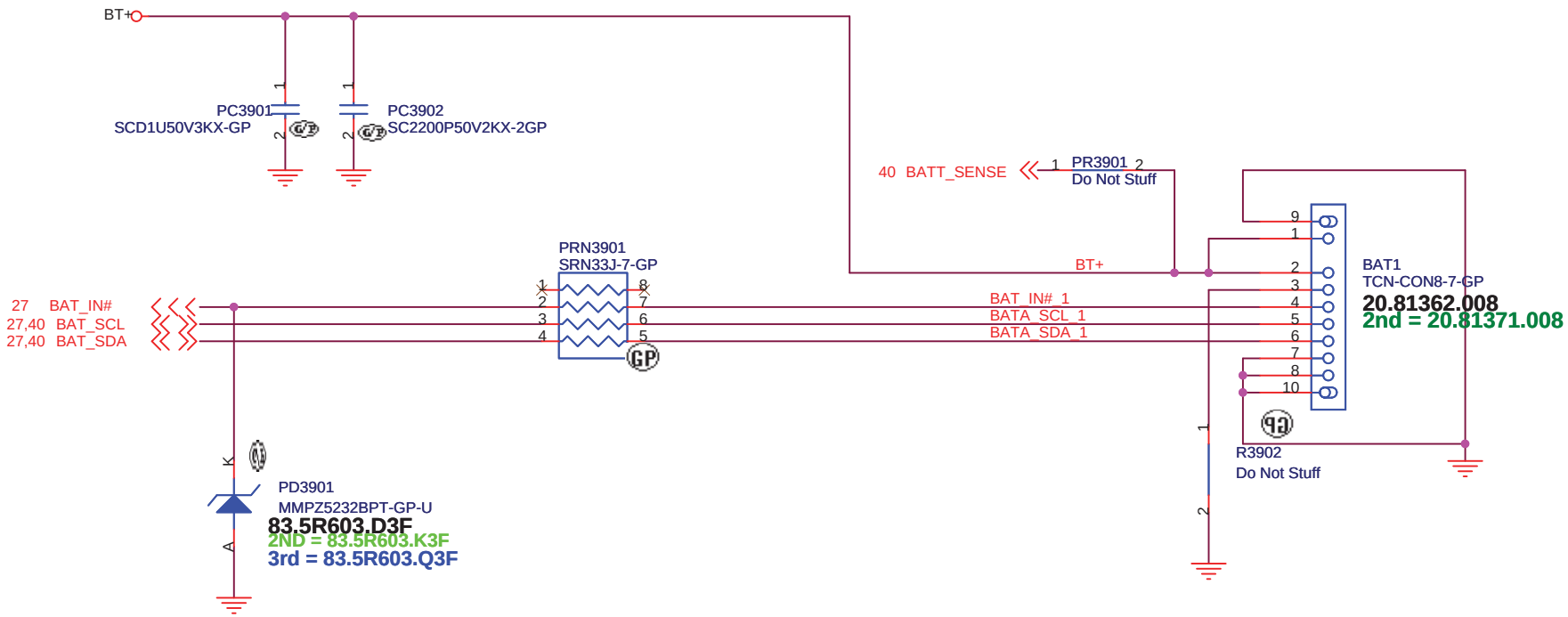




HR UMA

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

| | | |
|---|---|---|
| Title: ***DCIN JACK*** | | |
| Size: Custom | Document Number: **JE40-HR** | Rev: **-1** |
| Date: Thursday, December 02, 2010 | Sheet 38 of 102 | |

# BATTERY CONNECTOR




EC Protect

HR UMA


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


Title: **BATT CONN**

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 39 of 102

| AD+ total power | R1 | R2 | AD+ total power | R1 | R2 |
|---|---|---|---|---|---|
| 65w | 187k | 49.9k | 80w | 137k | 49.9k |
| 90w | 121k | 49.9k | | | |

NEAR

ADD A 24V ZENAR

20100706 Wayne

20100721

20101018

JE40 HR RF

-1M

-1M

AC_OK to KBC

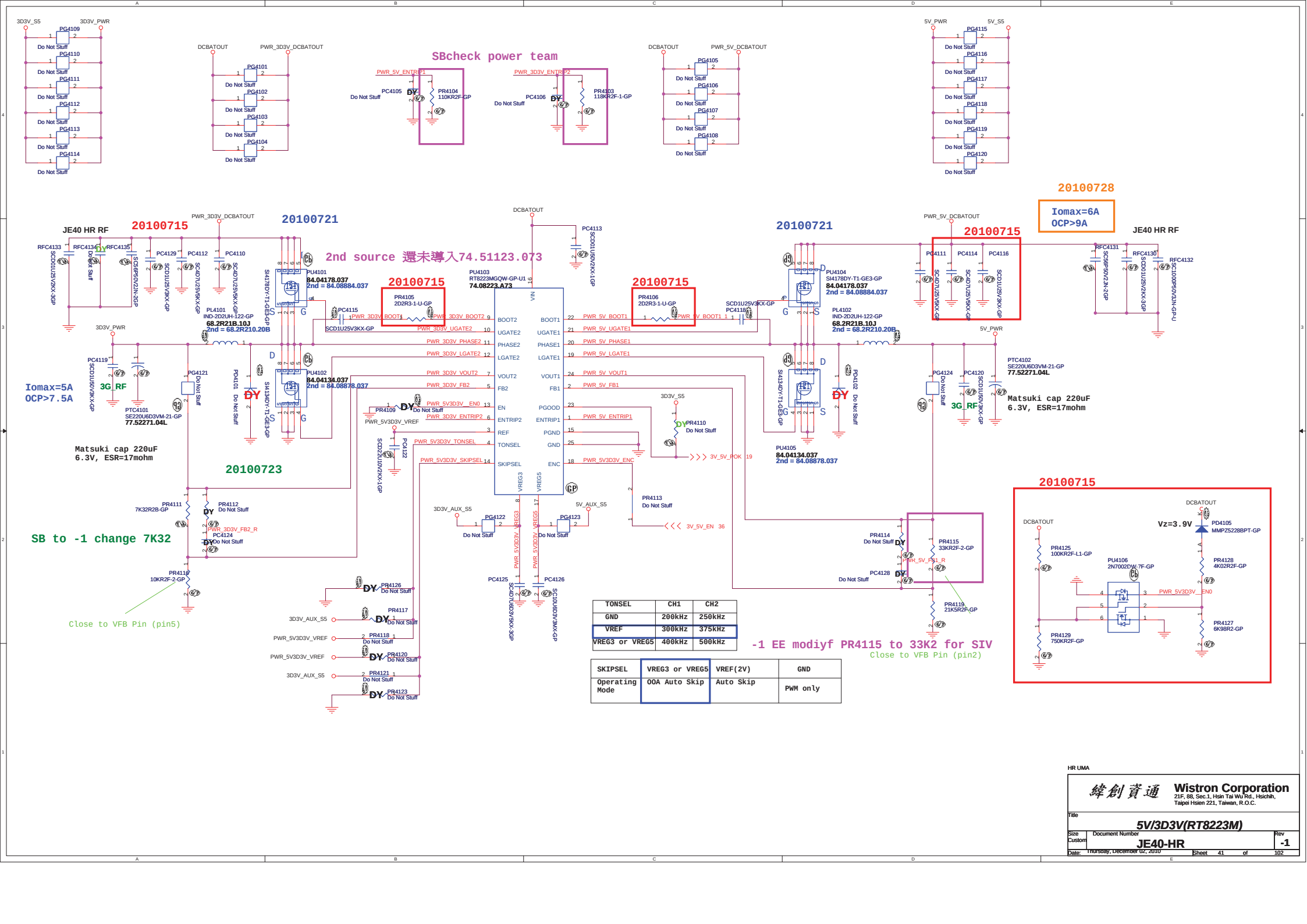
HR UMA

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

Title: CHARGER BQ24745

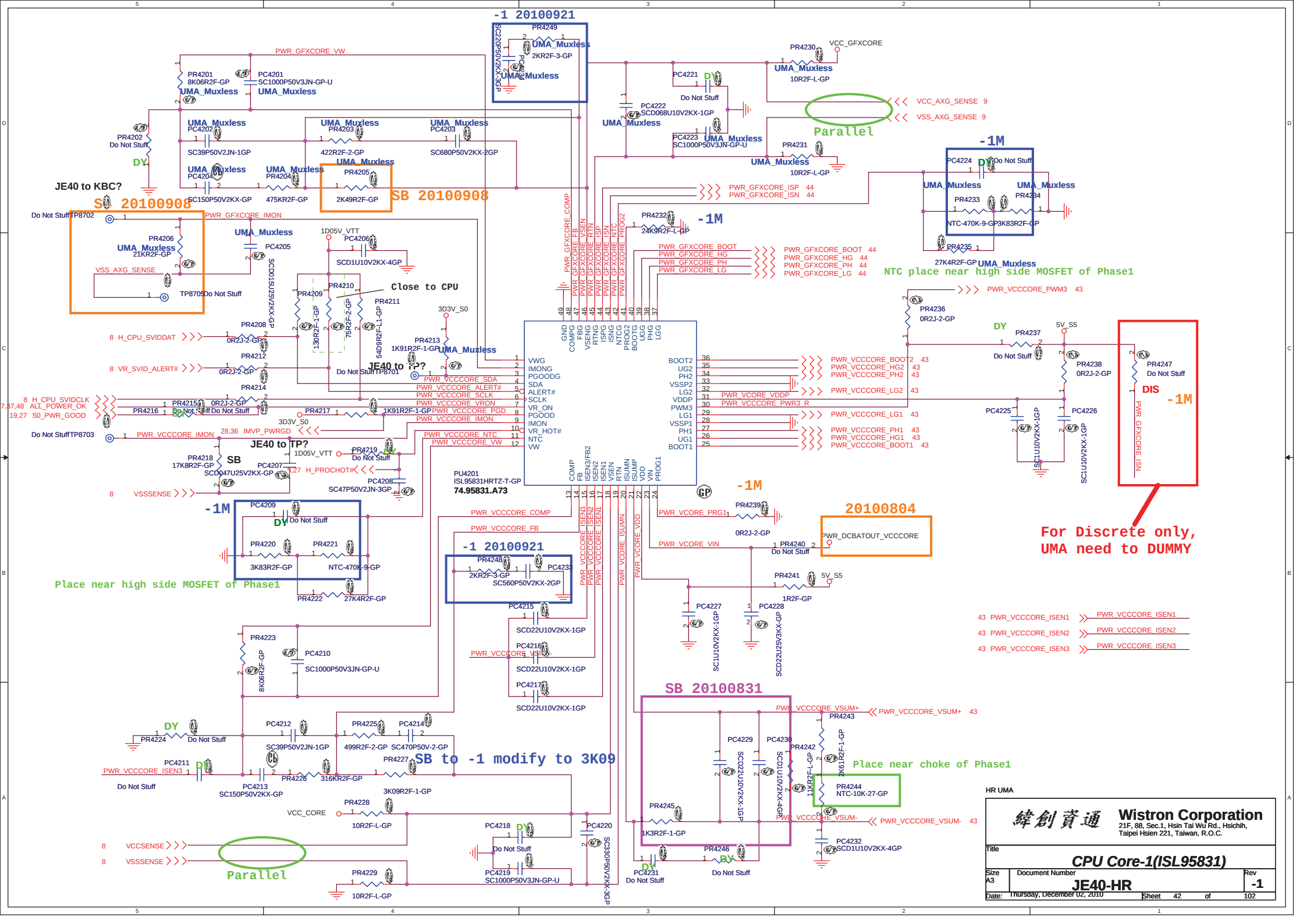
Size: A3 | Document Number: JE40-HR | Rev: -1

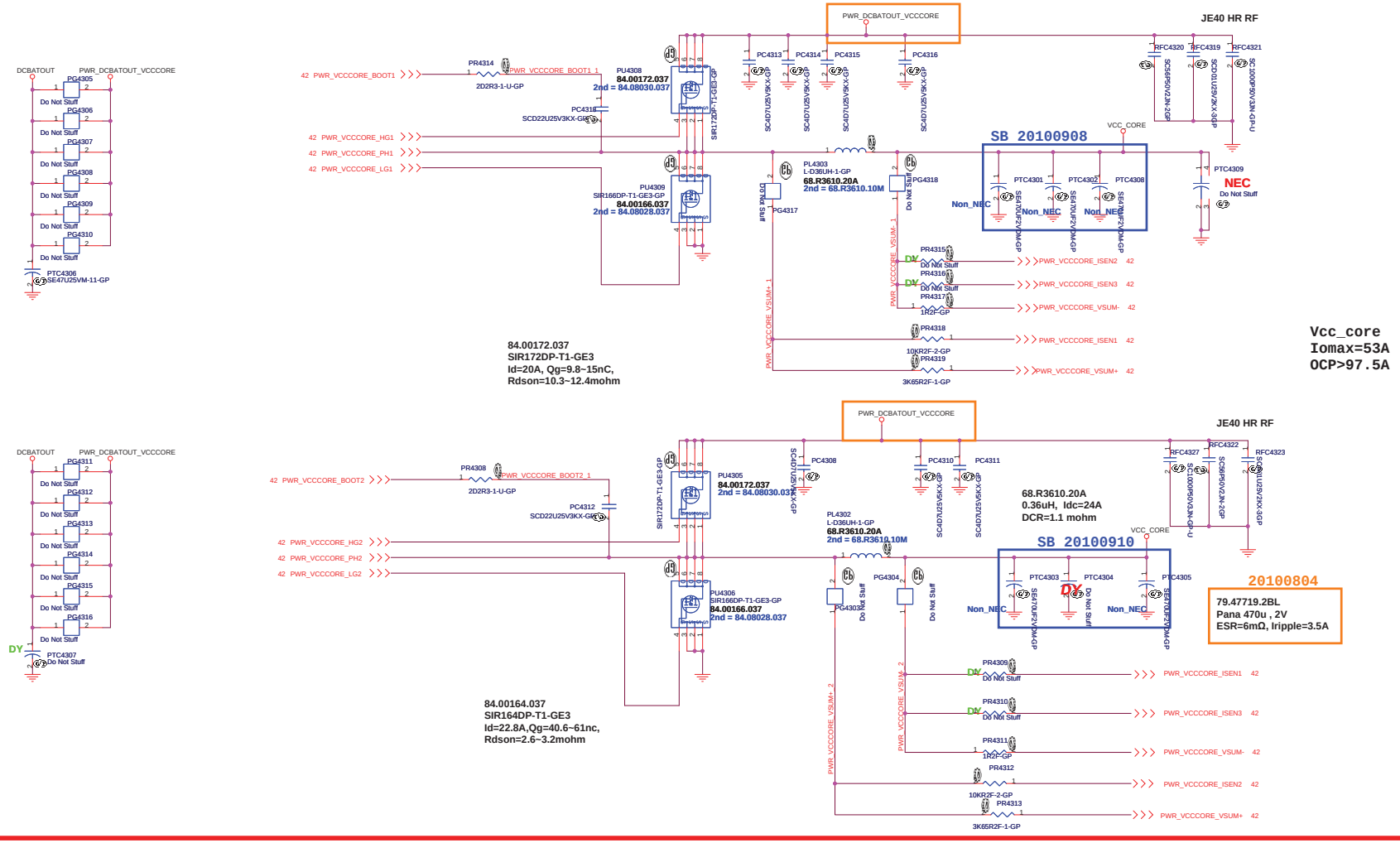
Date: Thursday, December 02, 2010 | Sheet 40 of 102

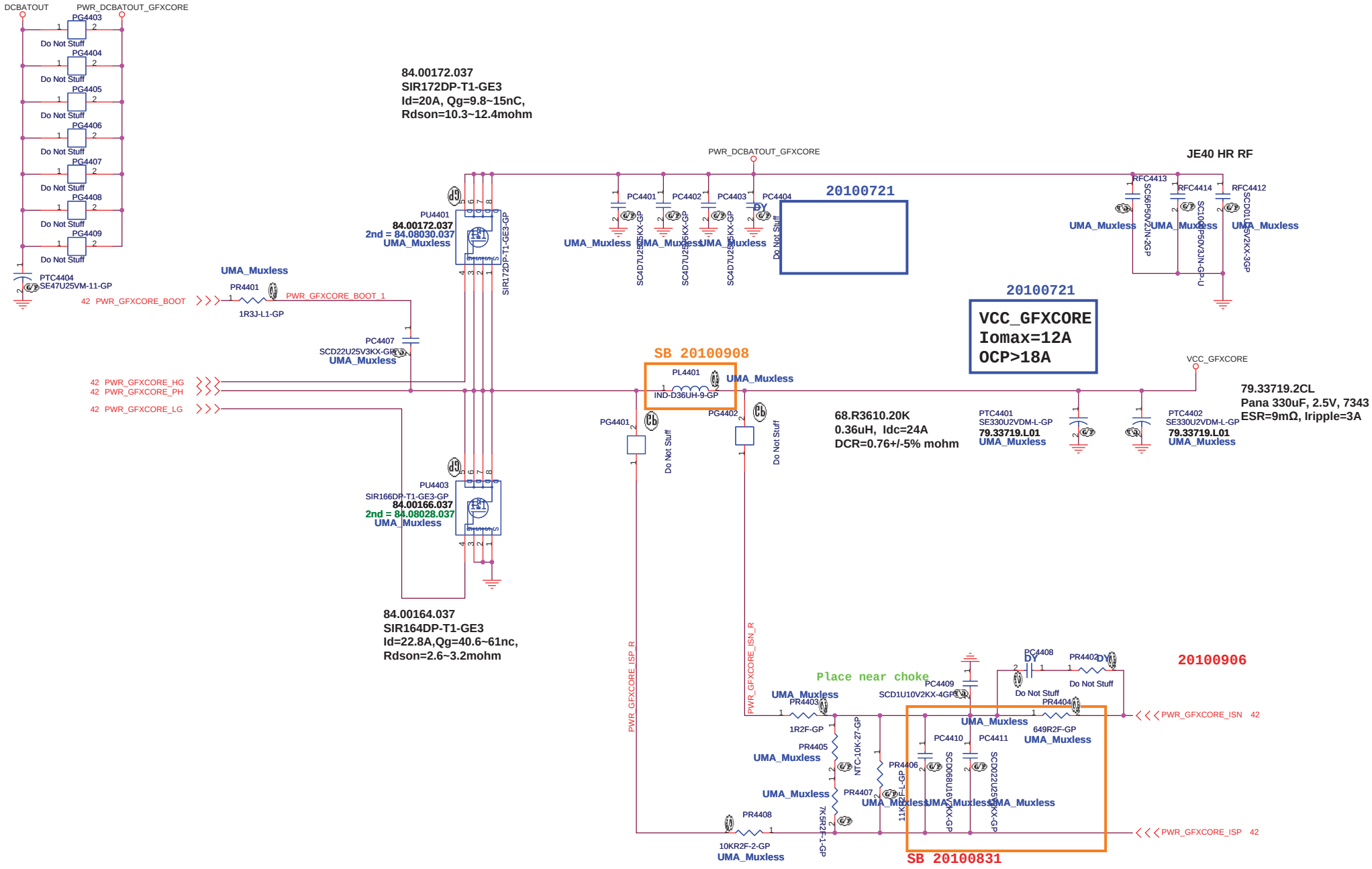



| TONSEL | CH1 | CH2 |
|---|---|---|
| GND | 200kHz | 250kHz |
| VREF | 300kHz | 375kHz |
| VREG3 or VREG5 | 400kHz | 500kHz |

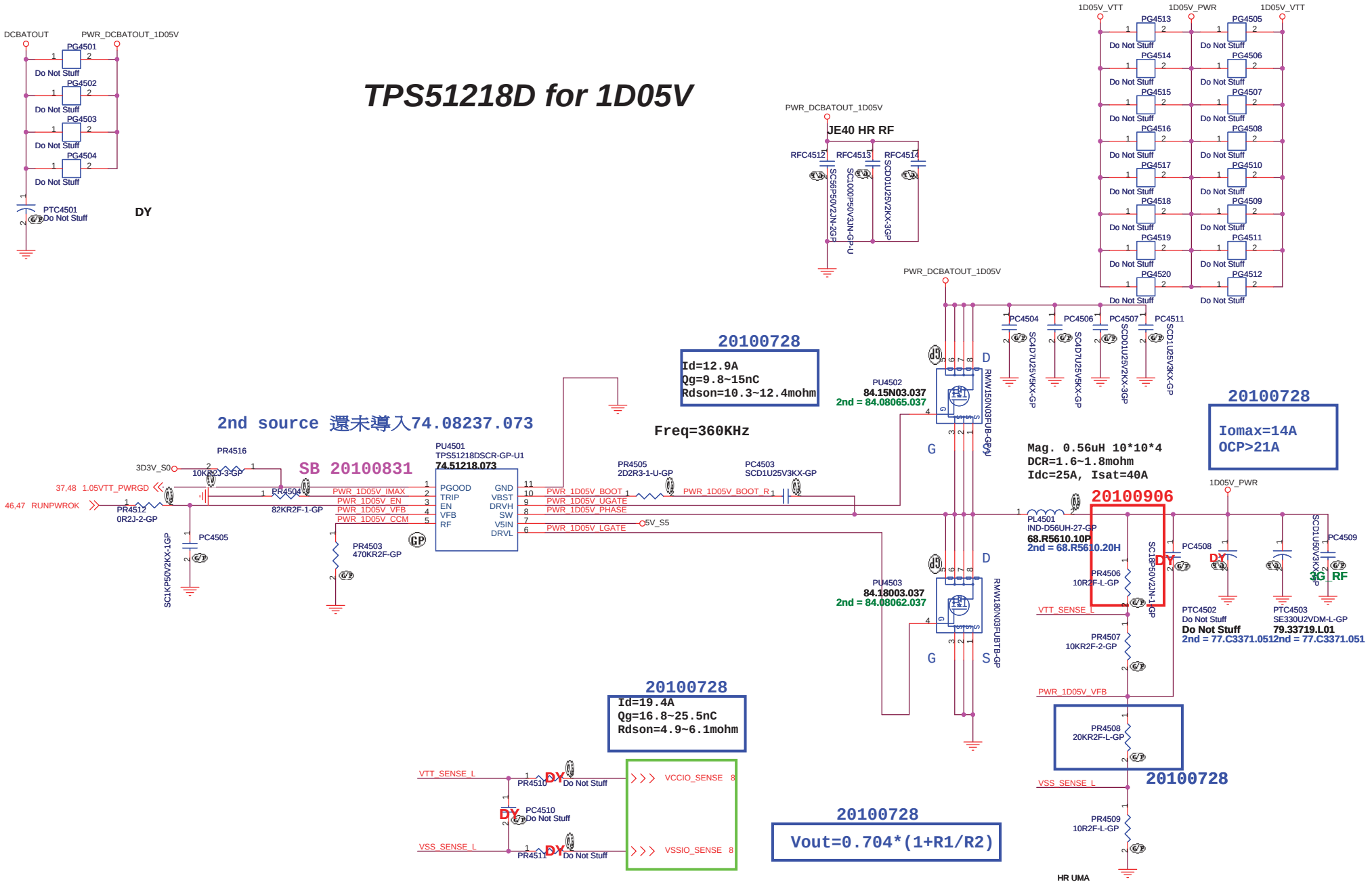
| SKIPSEL | VREG3 or VREG5 | VREF(2V) | GND |
|---|---|---|---|
| Operating Mode | OOA Auto Skip | Auto Skip | PWM only |


-1 20100921
SB 20100908
JE40 to KBC?
Close to CPU
-1M
NTC place near high side MOSFET of Phase1
Parallel
SB
JE40 to TP?
20100804
For Discrete only,
UMA need to DUMMY
Place near high side MOSFET of Phase1
SB 20100831
SB to -1 modify to 3K09
Place near choke of Phase1
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
CPU Core-1(ISL95831)
JE40-HR
-1
Thursday, December 02, 2010
42
102


JE40 HR RF
PWR_DCBATOUT_VCCCORE
DCBATOUT
VCC_CORE
SB 20100908
NEC
Non_NEC
84.00172.037
SIR172DP-T1-GE3
Id=20A, Qg=9.8~15nC,
Rdson=10.3~12.4mohm
Vcc_core
Iomax=53A
OCP>97.5A
68.R3610.20A
0.36uH, Idc=24A
DCR=1.1 mohm
SB 20100910
20100804
79.47719.2BL
Pana 470u , 2V
ESR=6mΩ, Iripple=3.5A
84.00164.037
SIR164DP-T1-GE3
Id=22.8A,Qg=40.6~61nc,
Rdson=2.6~3.2mohm
5V_S5
20100728
PWM
FCCM
PHASE
UGATE
LGATE
BOOT
VCC
GND
ISL6208CRZ-TGP-U
74.06208.073
84.00166.037
SIR166DP-T1-GE3-GP
HR UMA
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
CPU Core-2(ISL95831)
JE40-HR
-1
Thursday, December 02, 2010
43
102

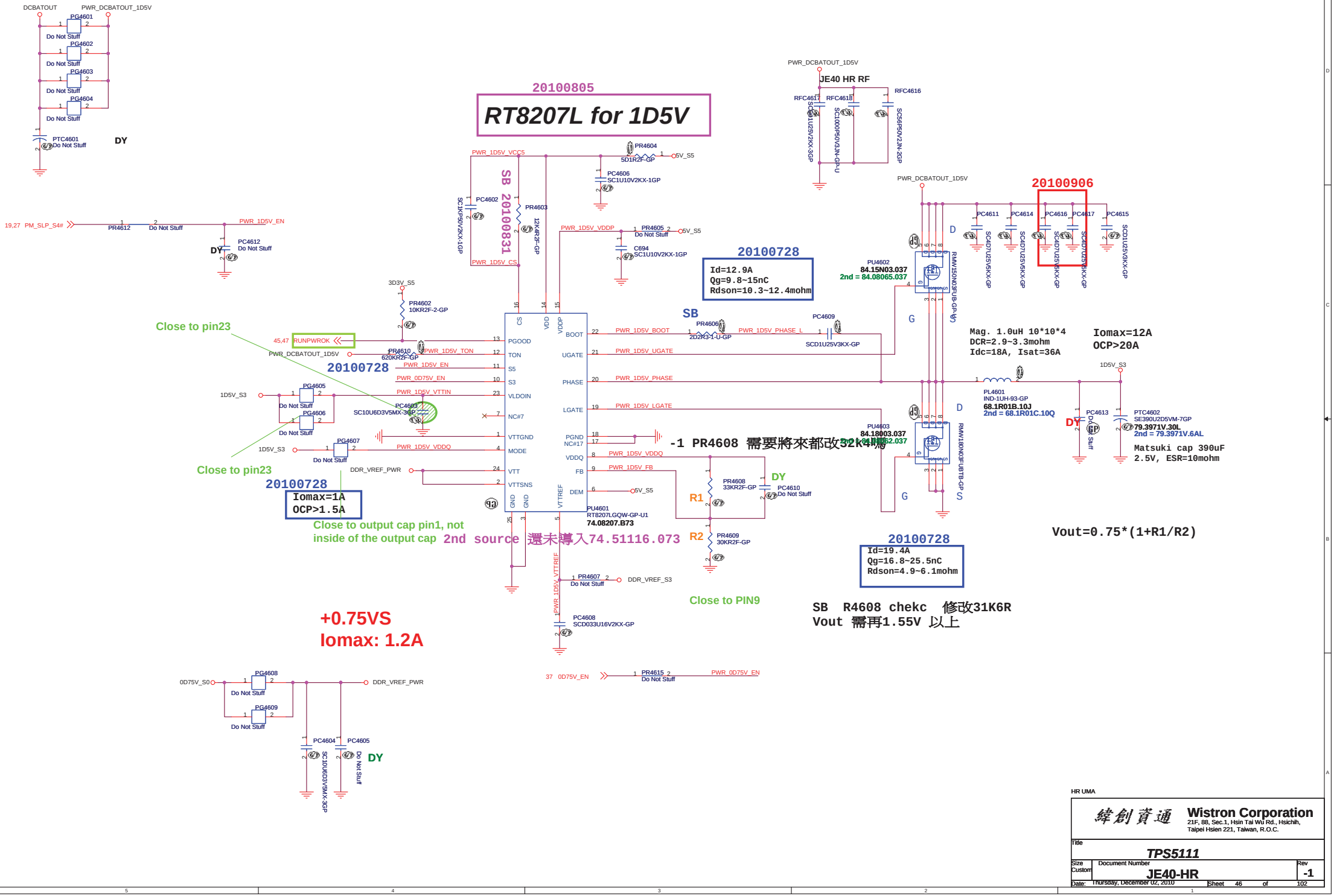

DCBATOUT
PWR_DCBATOUT_GFXCORE
PG4403
PG4404
PG4405
PG4406
PG4407
PG4408
PG4409
Do Not Stuff
PTC4404
SE47U25VM-11-GP
84.00172.037
SIR172DP-T1-GE3
Id=20A, Qg=9.8~15nC,
Rdson=10.3~12.4mohm
PU4401
84.00172.037
2nd = 84.08030.037
UMA_Muxless
SIR172DP-T1-GE3-GP
PC4401
PC4402
PC4403
PC4404
SC4D7U25V5KX-GP
20100721
RFC4413
RFC4414
RFC4412
SC56P50V2JN-2GP
SC100P50V3JN-GP-U
SCD01U50V2KX-3GP
JE40 HR RF
UMA_Muxless
PR4401
1R3J-L1-GP
42 PWR_GFXCORE_BOOT
PWR_GFXCORE_BOOT_1
PC4407
SCD22U25V3KX-GP
20100721
VCC_GFXCORE
Iomax=12A
OCP>18A
SB 20100908
PL4401
IND-D36UH-9-GP
68.R3610.20K
0.36uH, Idc=24A
DCR=0.76+/-5% mohm
PTC4401
SE330U2VDM-L-GP
79.33719.L01
PTC4402
79.33719.2CL
Pana 330uF, 2.5V, 7343
ESR=9mΩ, Iripple=3A
42 PWR_GFXCORE_HG
42 PWR_GFXCORE_PH
42 PWR_GFXCORE_LG
PG4401
PG4402
PU4403
SIR166DP-T1-GE3-GP
84.00166.037
2nd = 84.08028.037
84.00164.037
SIR164DP-T1-GE3
Id=22.8A,Qg=40.6~61nc,
Rdson=2.6~3.2mohm
PWR_GFXCORE_ISP_R
PWR_GFXCORE_ISN_R
Place near choke
20100906
PC4408
PR4402
PC4409
SCD1U10V2KX-4GP
PR4403
1R2F-GP
PR4404
649R2F-GP
PR4405
NTC-10K-27-GP
PC4410
PC4411
SCD068U6V3KX-GP
SCD022U25V3KX-GP
PR4406
11KR2F-L-GP
PR4407
7K5R2F-1-GP
PR4408
10KR2F-2-GP
PWR_GFXCORE_ISN 42
PWR_GFXCORE_ISP 42
SB 20100831
HR UMA
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
CPU Core-3(ISL95831)
Size A3
Document Number
JE40-HR
Rev -1
Date: Thursday, December 02, 2010
Sheet 44 of 102

# TPS51218D for 1D05V




| | | |
|---|---|---|
| 緯創資通 | Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | |
| Title | DC to DC 1D05V(TPS51218D) | |
| Size A3 | Document Number JE40-HR | Rev -1 |
| Date: Thursday, December 02, 2010 | Sheet 45 of 102 | |

SSID = PWR.Plane.Regulator_1p5v0p75v

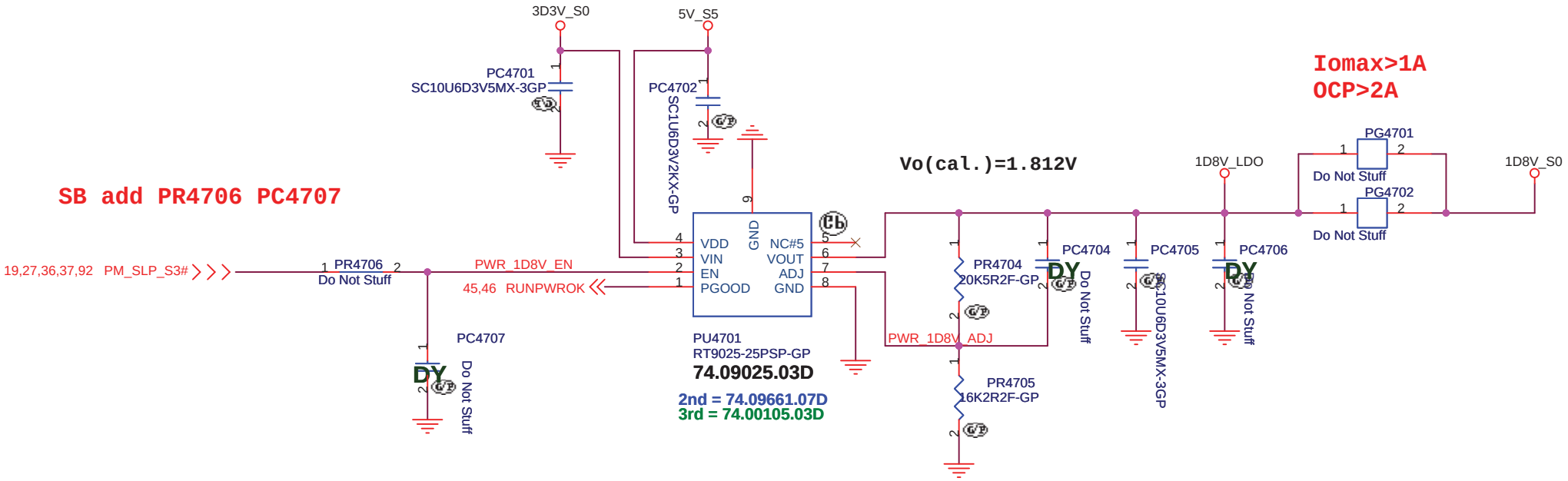



HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: TPS5111 | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 46 of 102 | |

# SSID = PWR.Plane.Regulator_1p8v

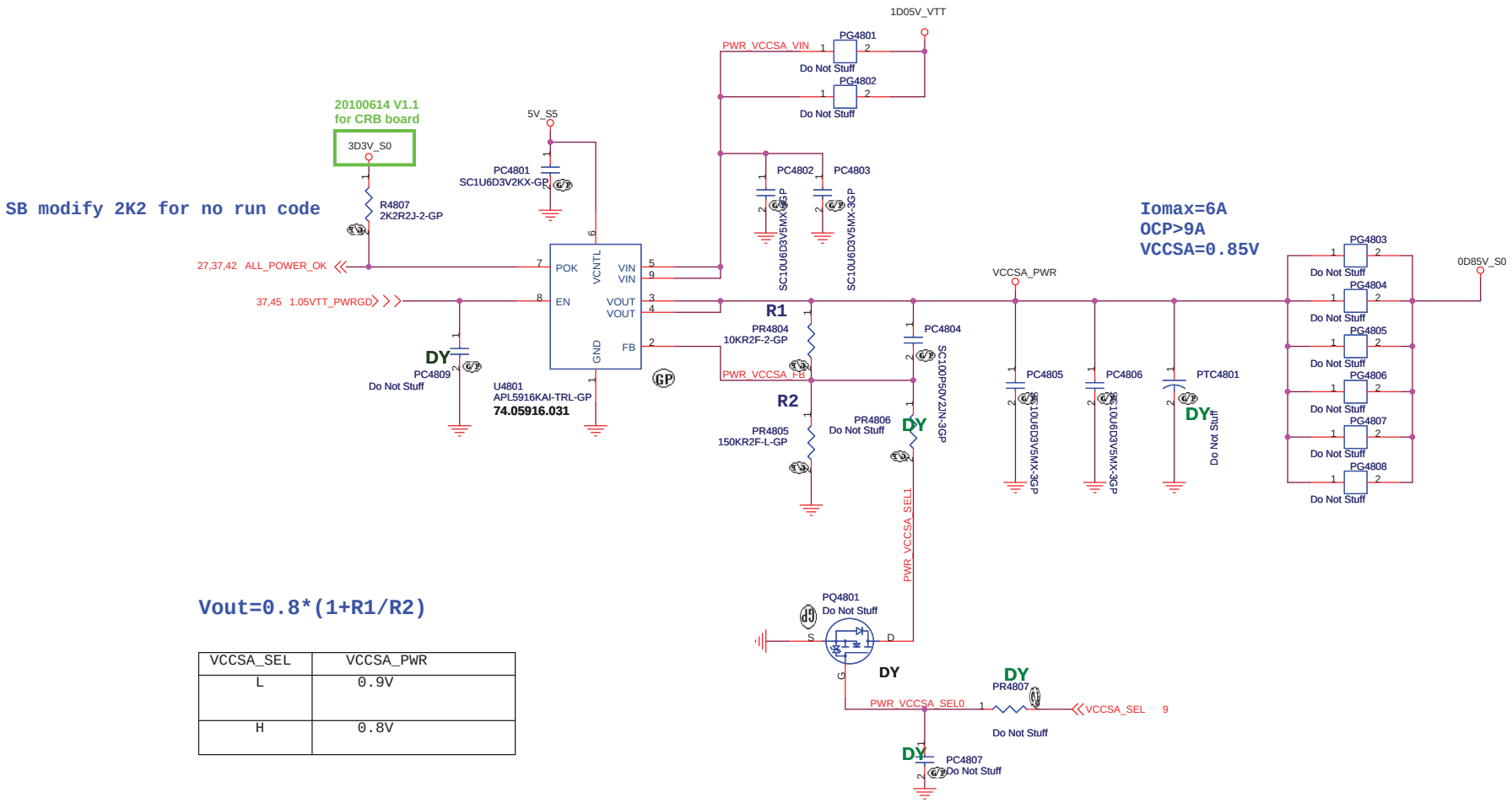
## RT9025 for 1D8V_S0




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: *LDO_1D8V(RT9025)* | | |
| Size: A4 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 47 of 102 | |

# APL5916 for VCCSA




| VCCSA_SEL | VCCSA_PWR |
|---|---|
| L | 0.9V |
| H | 0.8V |

HR UMA

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

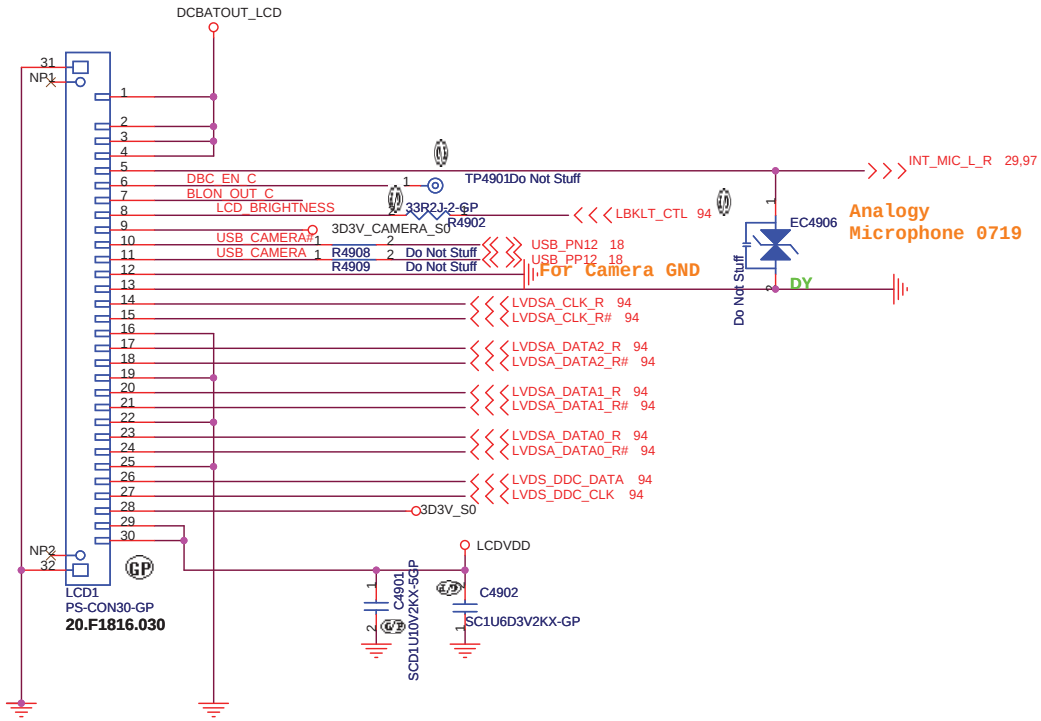
Title: ***LDO VCCSA(APL5916)***

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

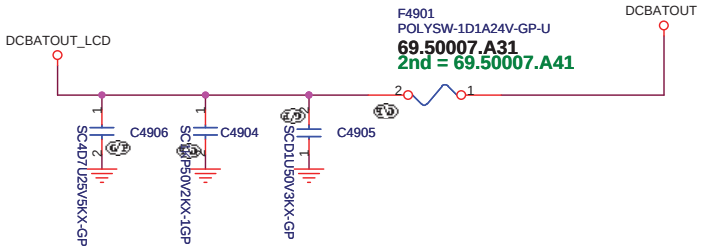
Date: Thursday, December 02, 2010 Sheet 48 of 102

**SSID = VIDEO**

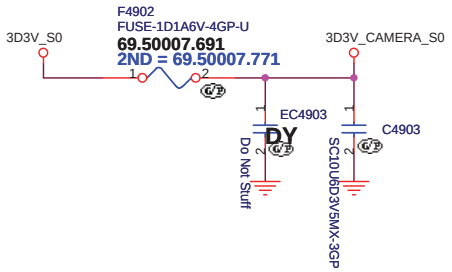
## LVDS CONNECTOR




## INVERTER POWER

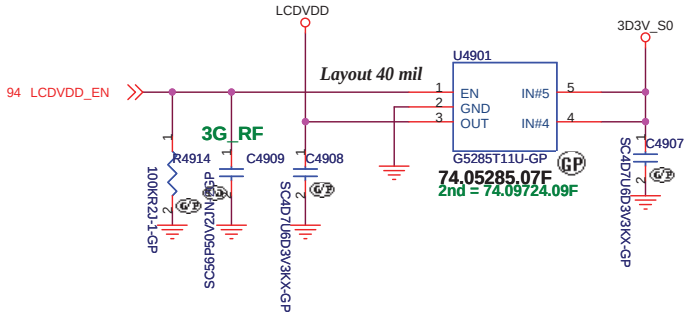


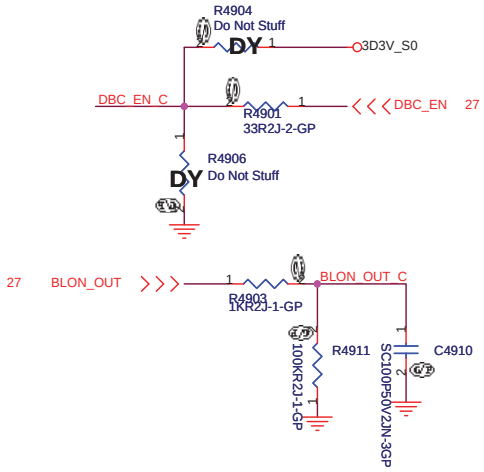

## Camera Power



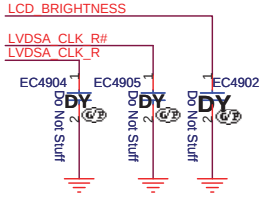

**SSID = VIDEO**

## LCD POWER for ANNIE



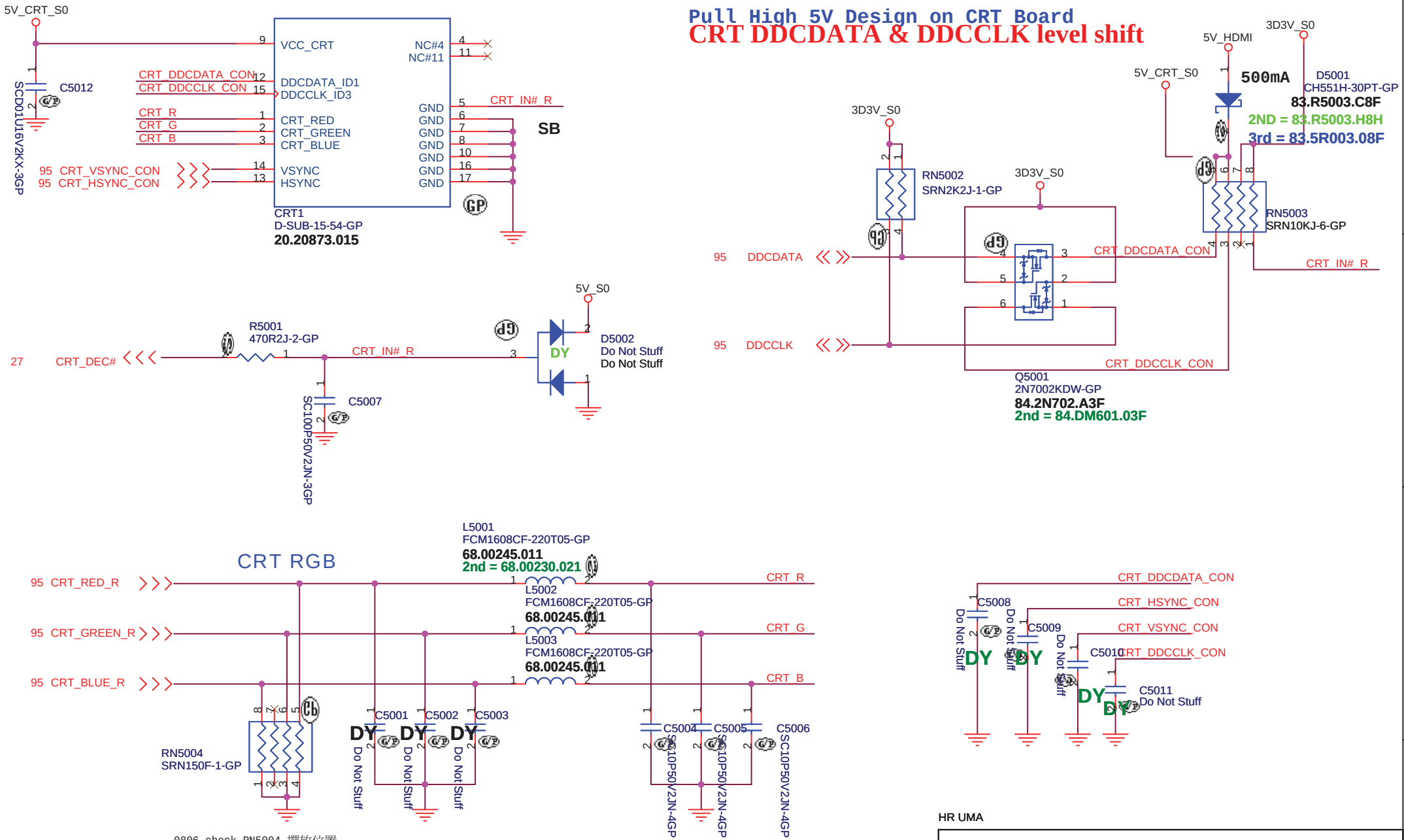




**For EMI request**
**Close to LVDS connector**




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: *LCD Connector* | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 49 of 102 | |




HR UMA

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

Title: ***CRT Connector***

| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

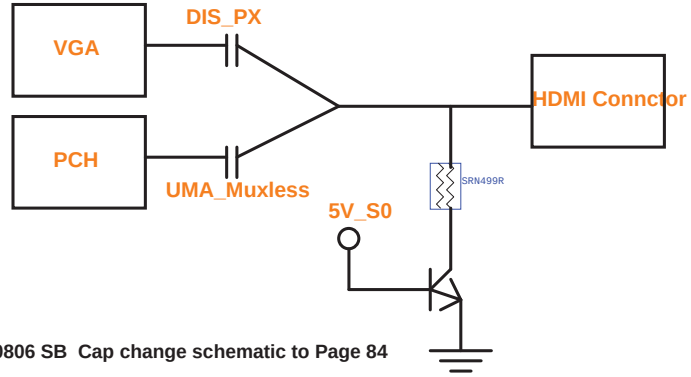
Date: Thursday, December 02, 2010 Sheet 50 of 102

SSID = VIDEO

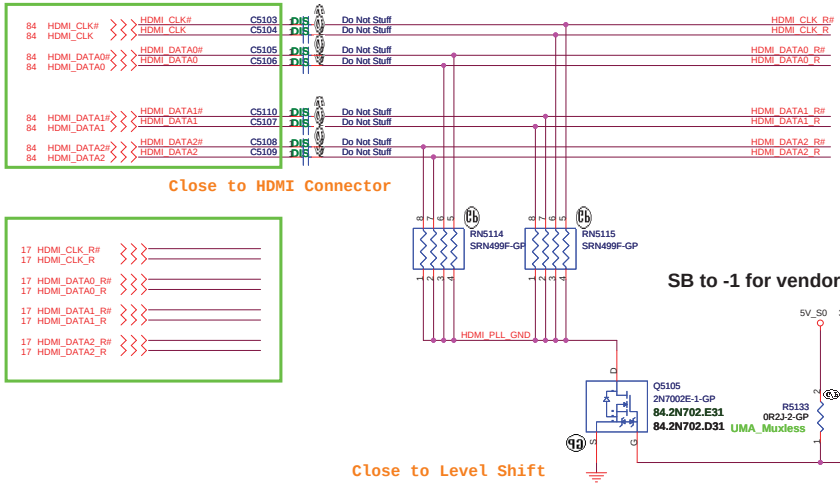
# HDMI Level Shifter & CONNECTOR

UMA_Muxless : default setting used PS8101. if don't used PS8101
please change C5103~C5110 to 0 ohm resister

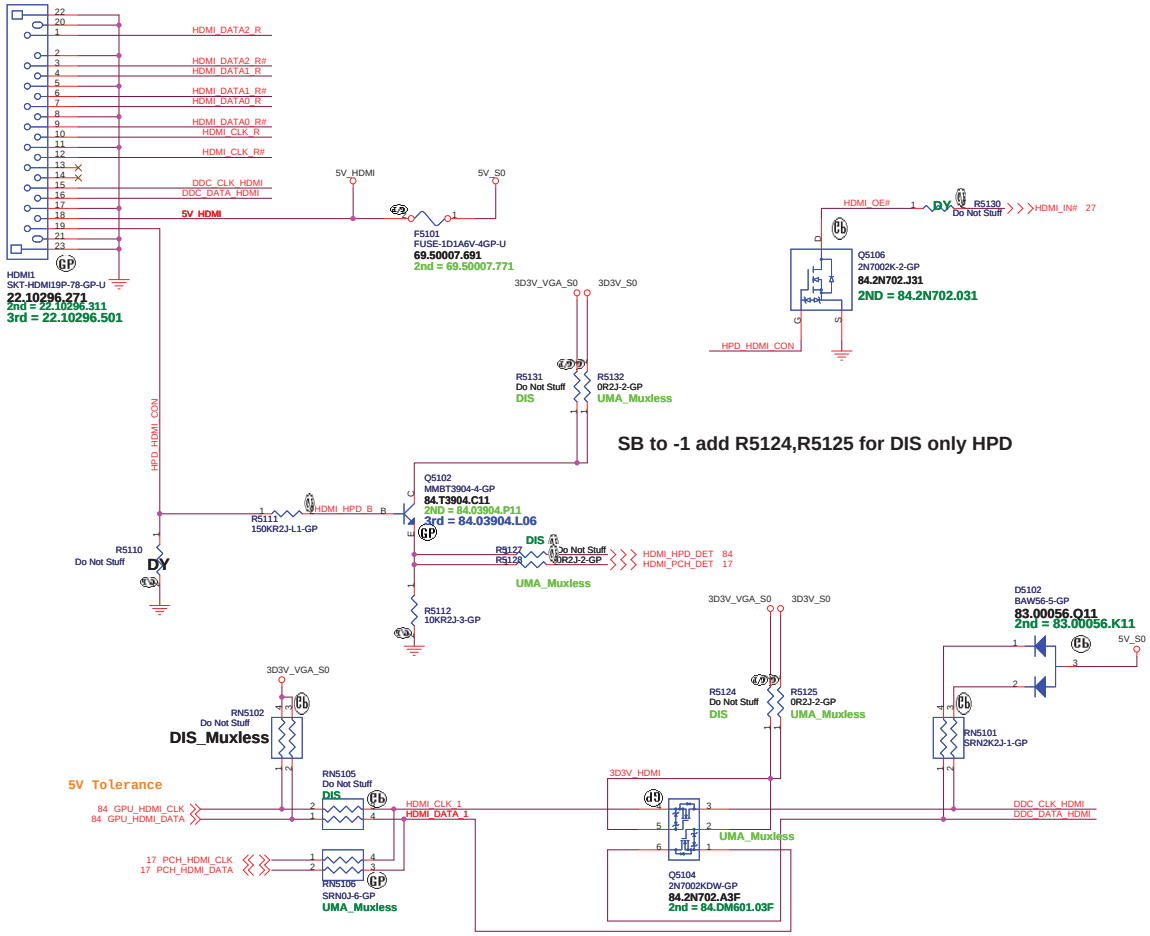
## HDMI DISCRETE/ UMA Co-lay




0806 SB Cap change schematic to Page 84




## HDMI CONN




HR UMA

| | |
|---|---|
| 緯創資通 | Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. |
| Title | HDMI Level Shifter/Connector |
| Size: Custom | Document Number: JE40-HR — Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 51 of 102 |

# LED BACKLIGHT CONVERTER POWER

HR UMA

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

Title: ***eDP***

Size: A3 | Document Number: **JE40-HR** | Rev: **-1**

Date: Thursday, December 02, 2010 | Sheet 52 of 102

# (Blanking)

HR UMA

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

Title: ***S-VIDEO***

| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 53 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

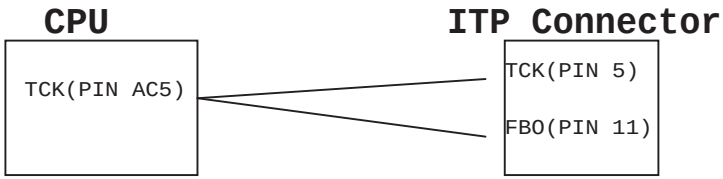
| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 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.

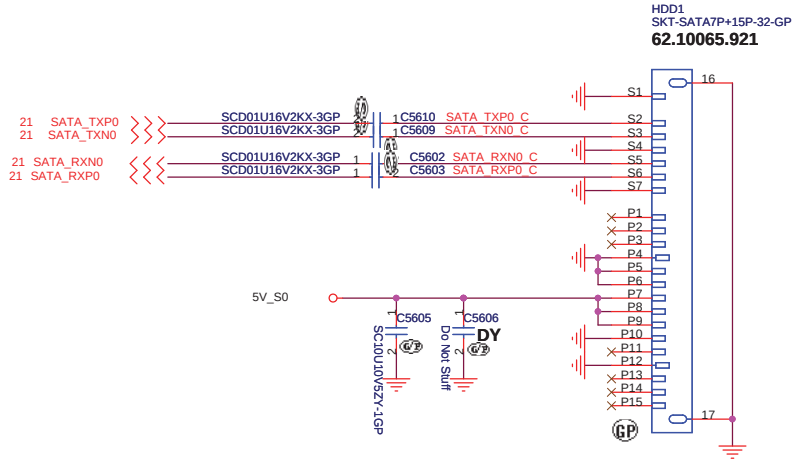



HR UMA

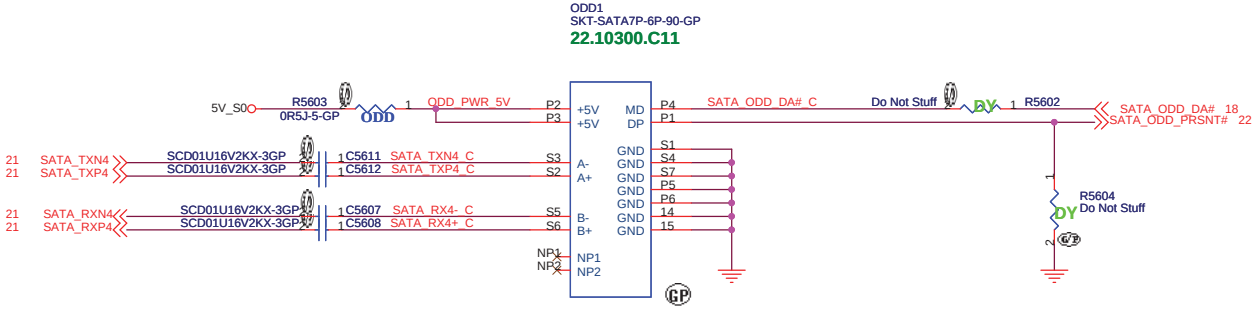
| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: ITP | | |
| Size: A4 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 55 of 102 | |

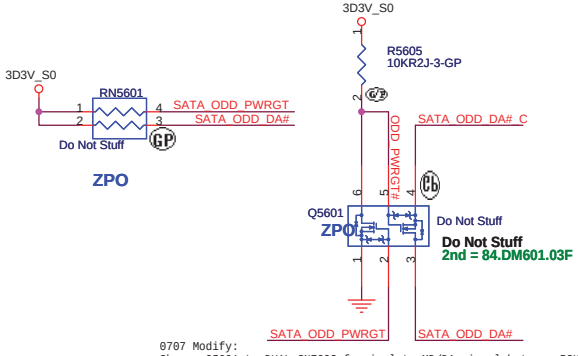
SSID = SATA

# SATA HDD Connector




# ODD Connector



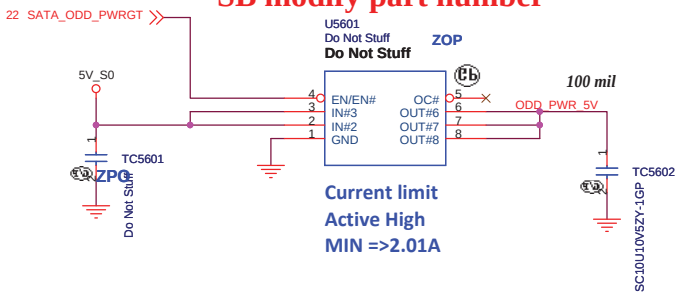




0707 Modify:
Change Q5601 to DUAL 2N7002 for isolate MD/DA signal between PCH and ODD.

SB

# SATA Zero Power ODD

## SB modify part number




HR UMA


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


Title: HDD/ODD

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 56 of 102

**ESATA Power**

# USB CHARGER

HR UMA

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

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

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 57 of 102

SSID = AUDIO

Speaker Connector

LINE1 OUT
SPDIF

JE40 Modify LINE OUT

Audio at small board

MIC IN

Internal
Microphone

JE40 delete Line in function

HR UMA

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

Title: Audio Jack

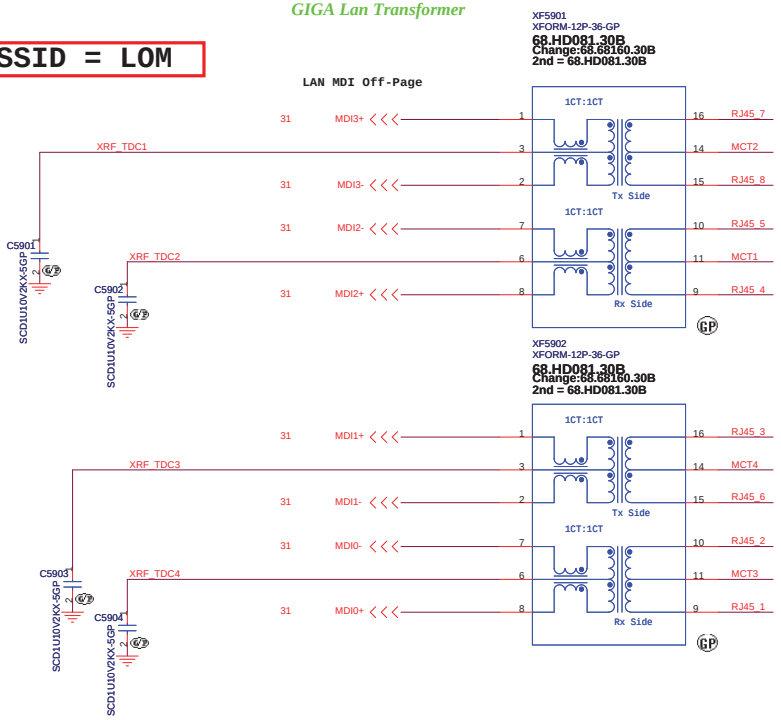
| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

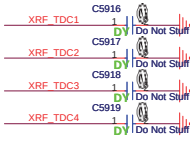
Date: Thursday, December 02, 2010 Sheet 58 of 102

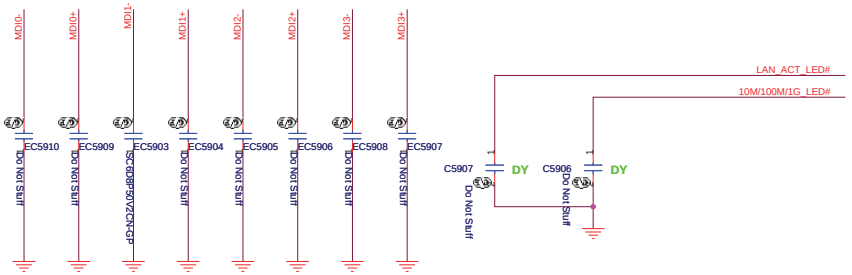
*GIGA Lan Transformer*

**SSID = LOM**

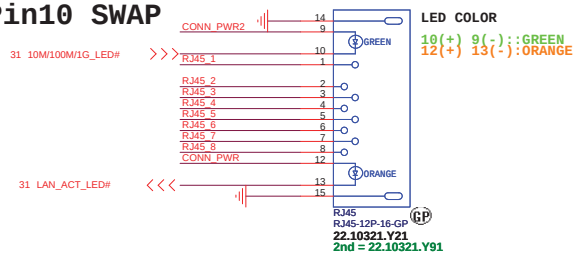
LAN MDI Off-Page

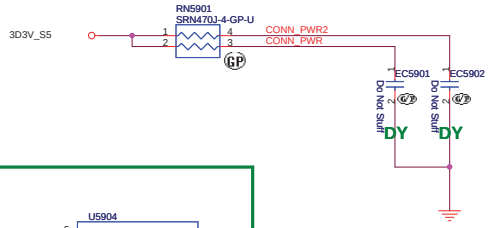


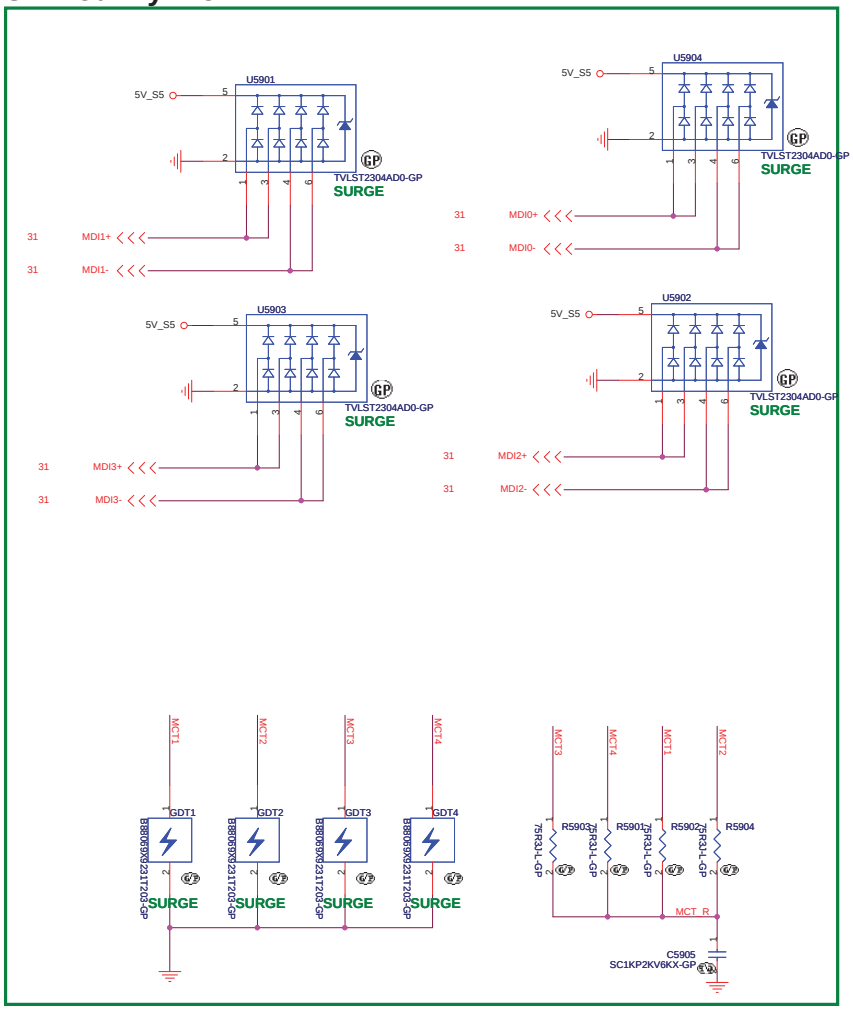




## SB modiyf Pin9 Pin10 SWAP




## SB modify For EMI




HR UMA


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

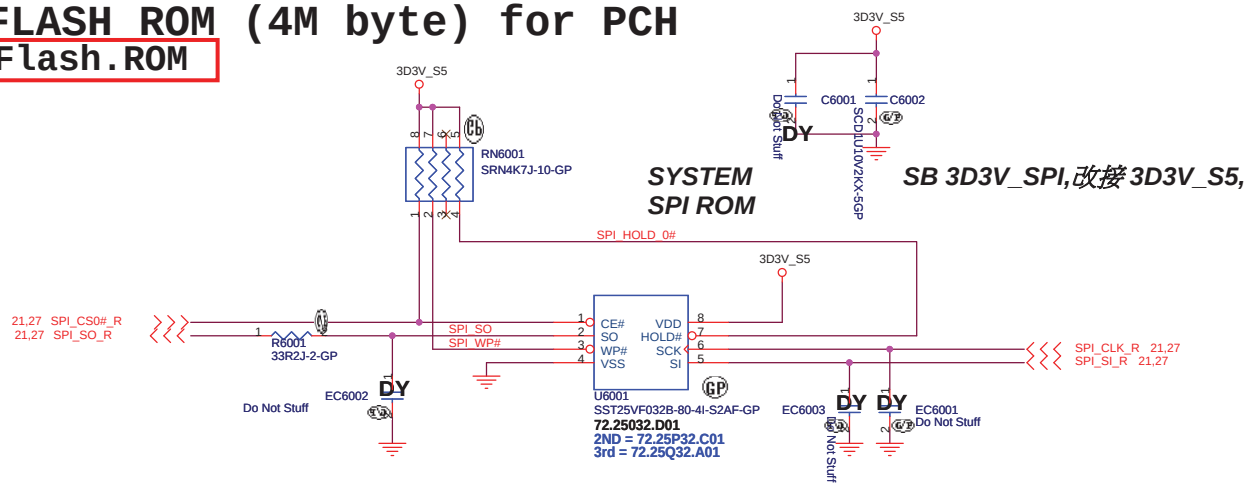

Title: **LAN CONNECTOR**

| Size | Document Number | Rev |
|---|---|---|
| Custom | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 59 of 102

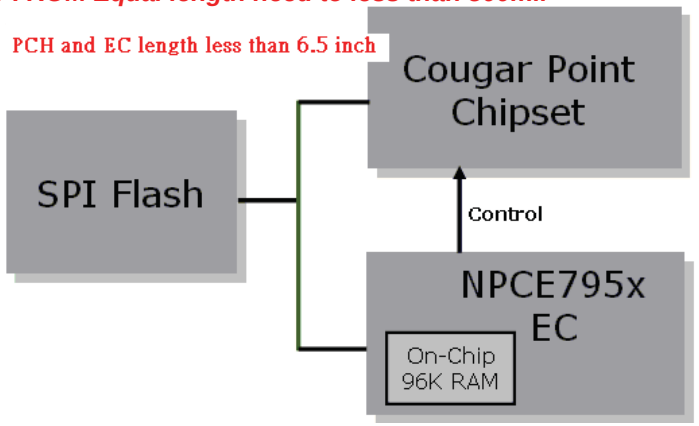
# SPI FLASH ROM (4M byte) for PCH

**SSID = Flash.ROM**

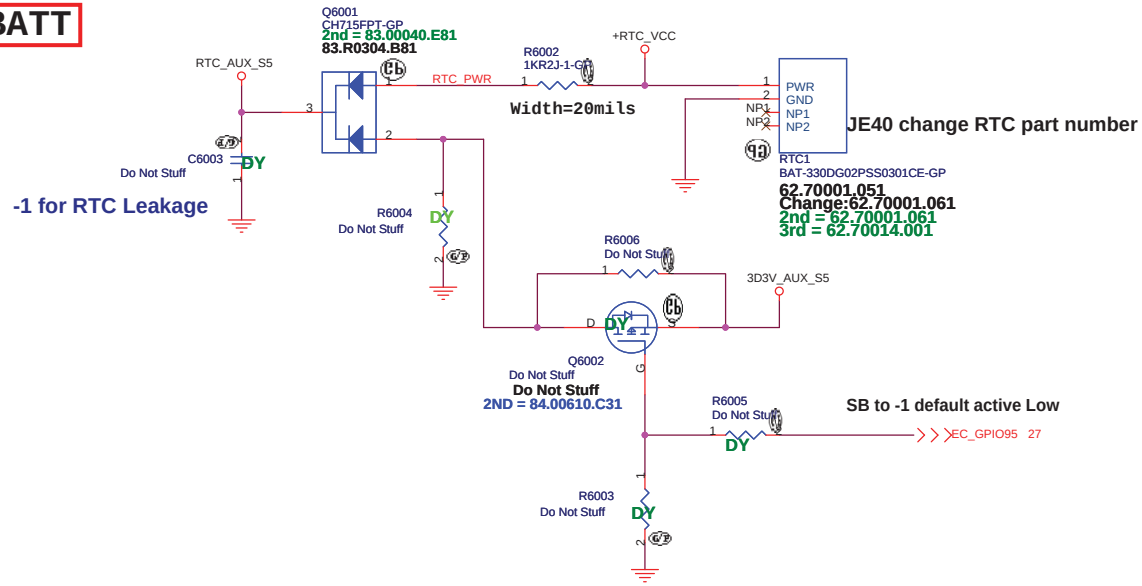



**SPI ROM Equal length need to less than 500mil**

PCH and EC length less than 6.5 inch




**SSID = RBATT**

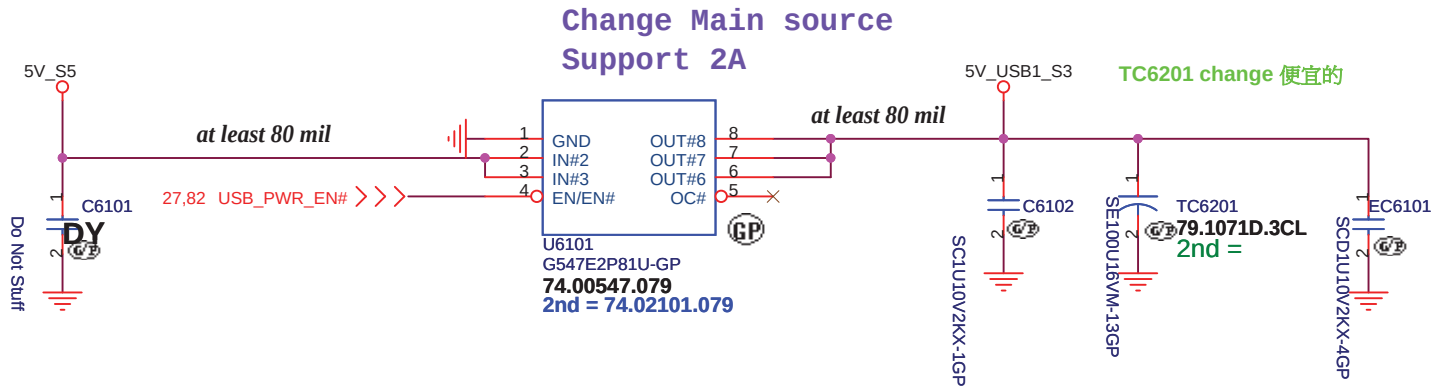


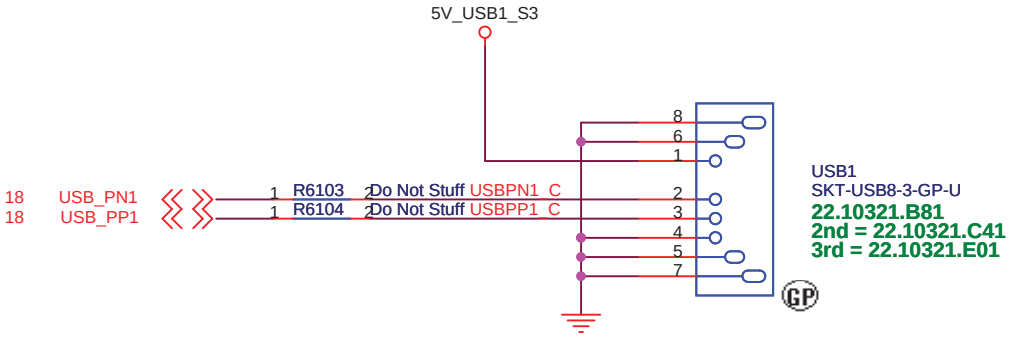

HR UMA

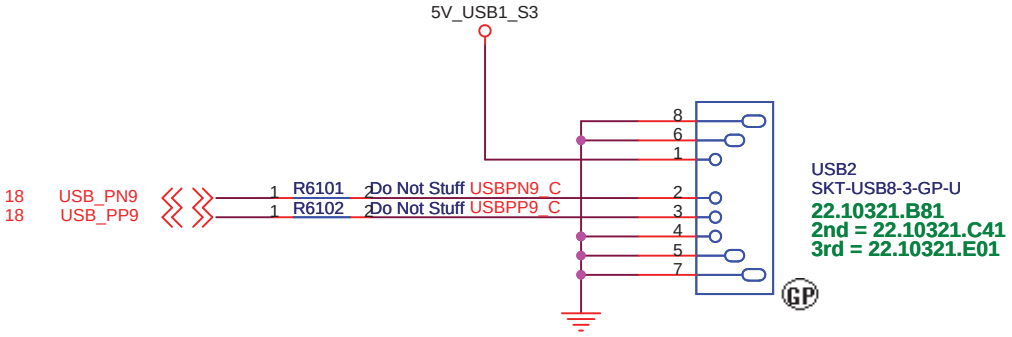
| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: *Flash/RTC* | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 60 of 102 | |

# SSID = USB

## IO Board USB Power




HR UMA

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

Title: ***USB Power SW***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 61 of 102

HR UMA

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

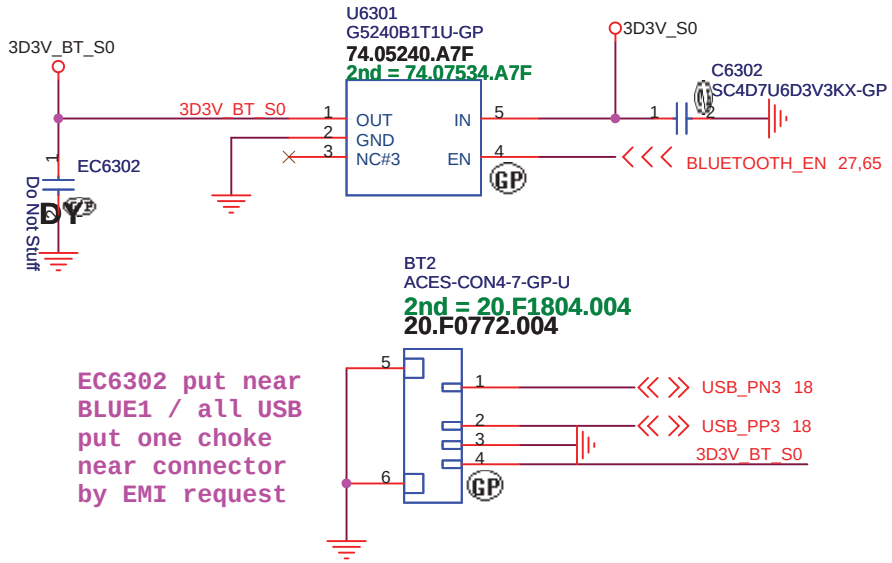
Title: ***USB 3.0 Port***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **JE40-HR** | -1 |

Date: Thursday, December 02, 2010 Sheet 62 of 102

SSID = User.Interface
Bluetooth Module conn.

# *ANNIE Bluetooth Module*




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: *Bluetooth* | | |
| Size: A4 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 63 of 102 | |

# Finger printer

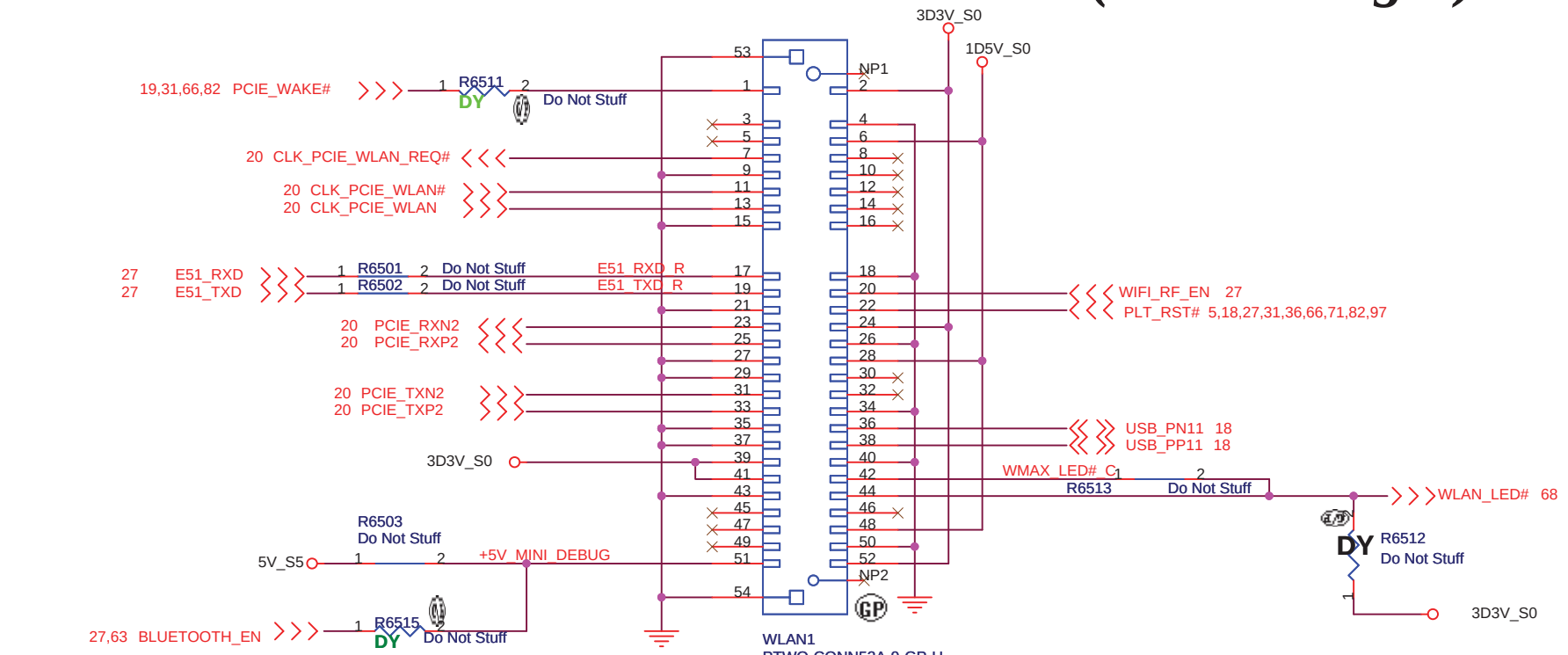
## JE40 delete FP function


HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: ***RESERVED*** | | |
| Size: A4 | Document Number: **JE40-HR** | Rev: **-1** |
| Date: Thursday, December 02, 2010 | Sheet 64 of 102 | |

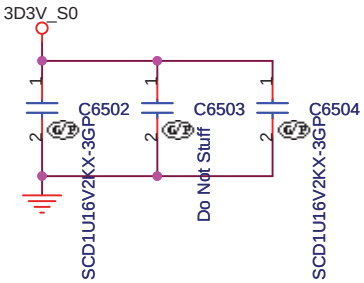
SSID = Wireless

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



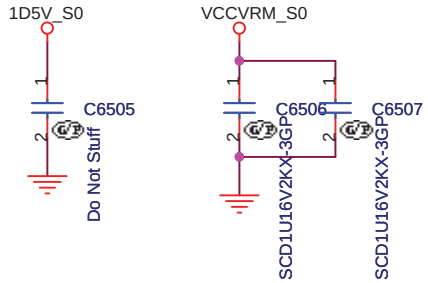

**20.F1519.052**

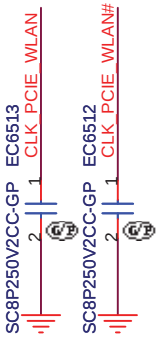
**2nd = 62.10043.A51**
**3rd = 20.F1693.052**
**4th = 20.F1743.052**



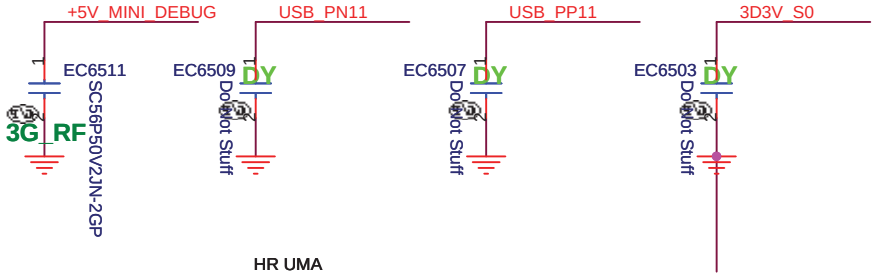

## SB modify for SIV

-2




## RF suggestion




HR UMA

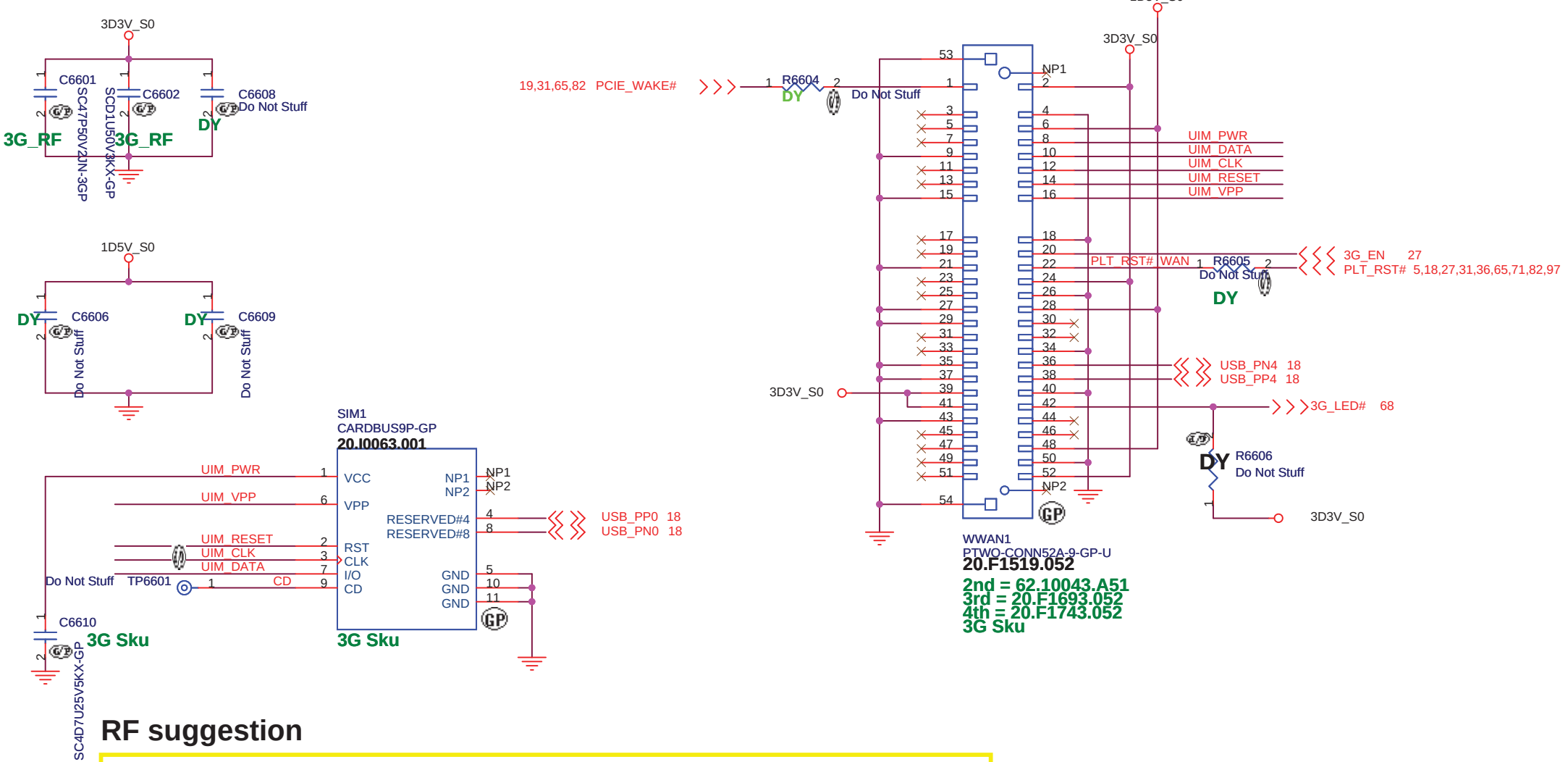
| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: MINICARD(WLAN)/ITP CONN | | |
| Size: A4 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 65 of 102 | |

**SSID = Wireless**

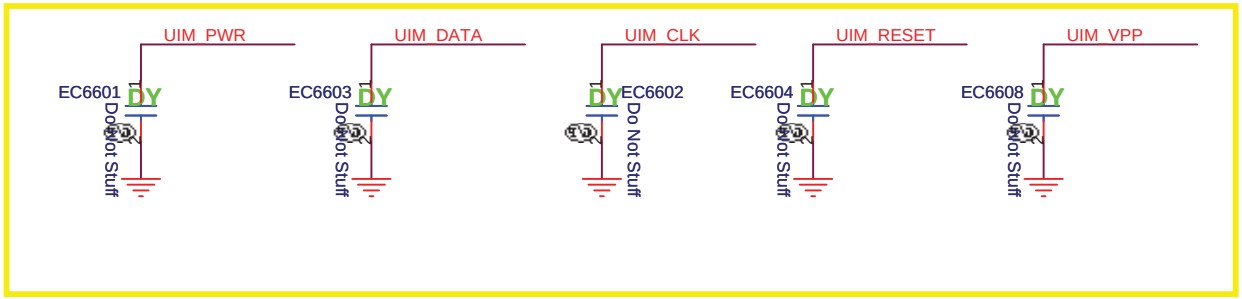
# Mini Card Connector(WWAN)

20100712 V1.5

**Place near MINI Card CONN**




## RF suggestion




HR UMA

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

Title: ***WWAN Connector***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 66 of 102

# (Blanking)

HR UMA

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

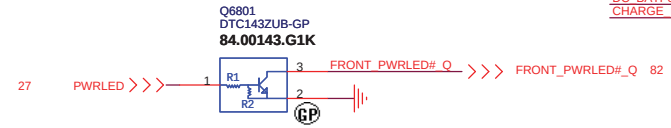
Title: ***Reserved***

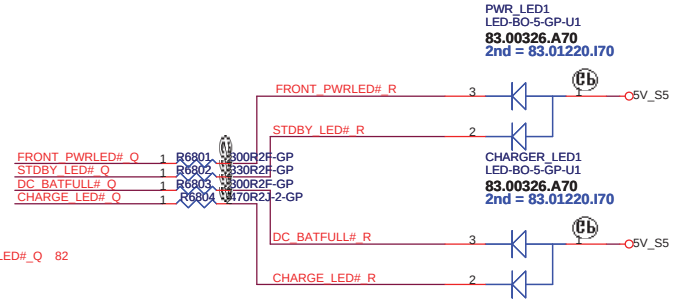
| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 67 of 102

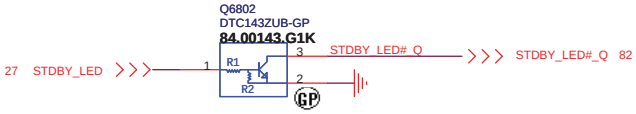
SSID = User.Interface

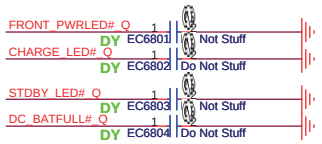
## Power button LED

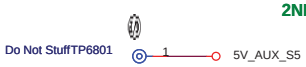



## Power STDBY_LED

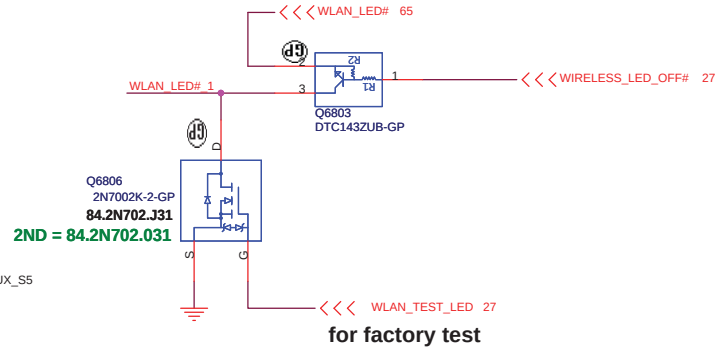


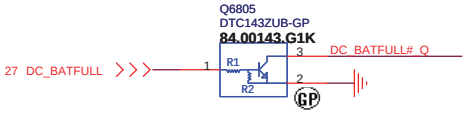

## WLAN_LED

From module

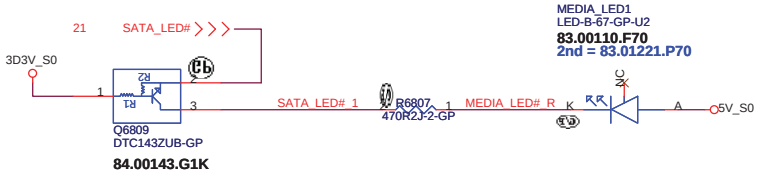



for factory test

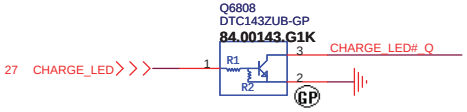
## Battery LED2(DC_BATFULL)

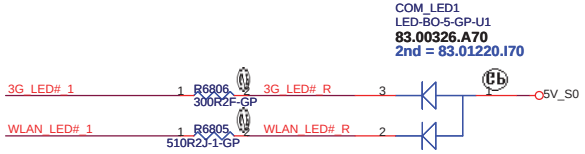



## SATA HDD LED



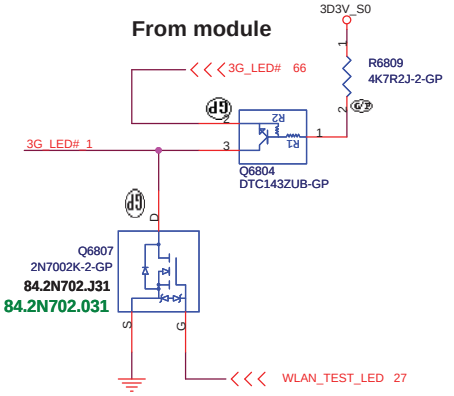

## Battery LED1(CHARGE)




## 3G LED

From module



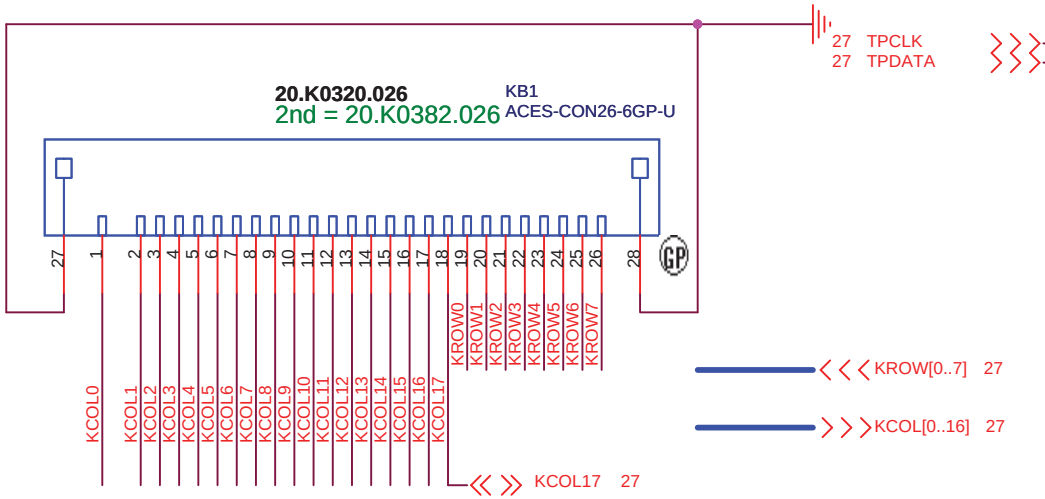

for factory test

HR UMA

| | | |
|---|---|---|
| 緯創資通 | Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | |
| Title: LED Bard/Power Button | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 68 of 102 | |

**SSID = KBC**

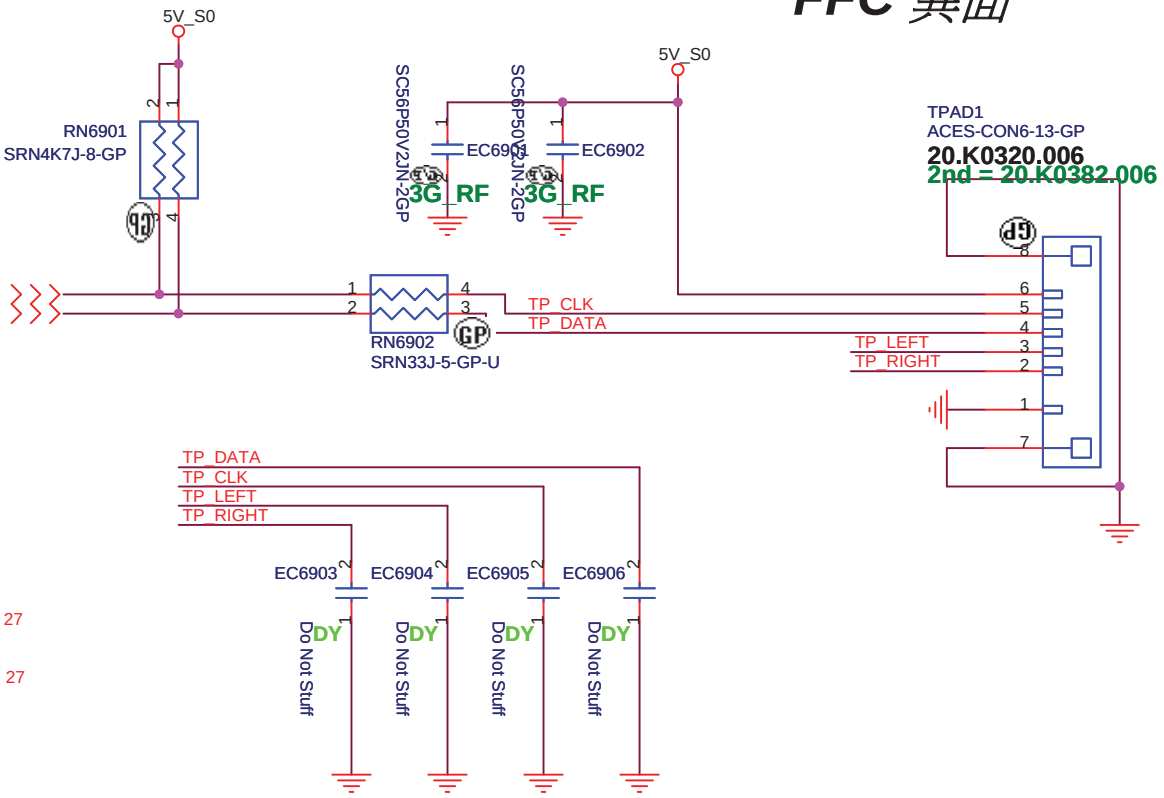
# Internal KeyBoard Connector



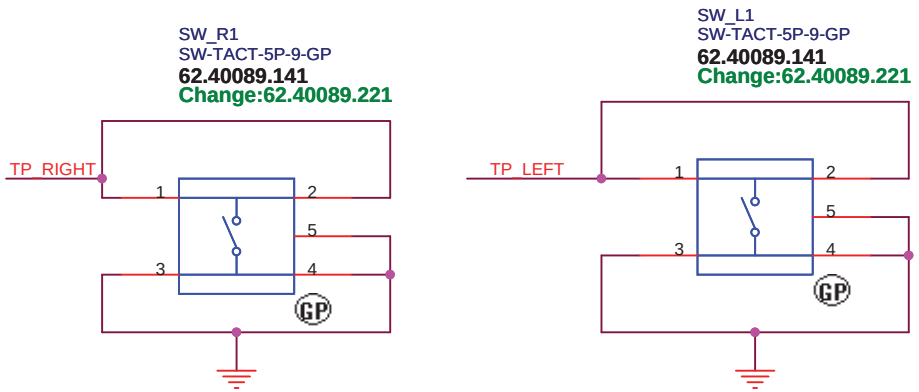

MB PIN DEFINE 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
KB PIN DEFINE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

26 K/B 1 **SB to -1 modify Part number**

# TOUCH PAD

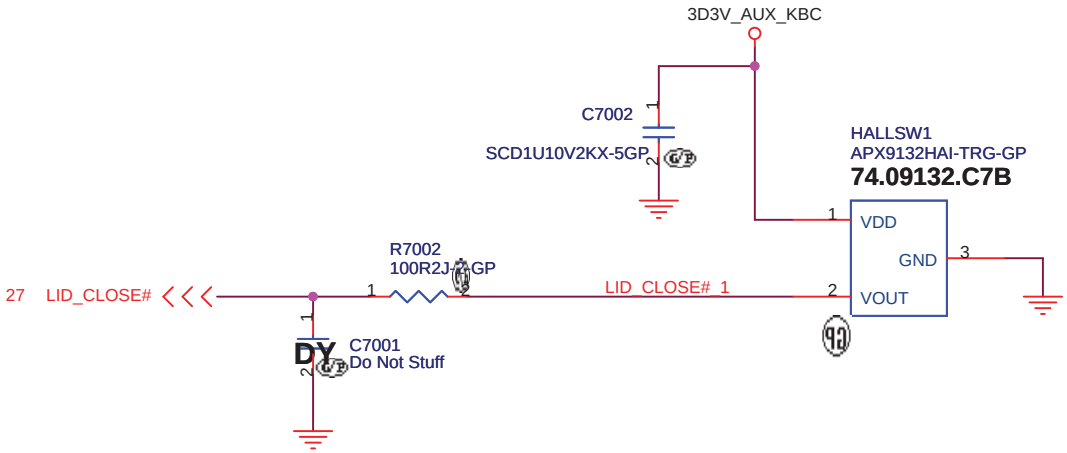



# FFC 異面




HR UMA

| | | |
|---|---|---|
| 緯創資通 | **Wistron Corporation**<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | |
| Title | ***Key Board/Touch Pad*** | |
| Size<br>A4 | Document Number<br>**JE40-HR** | Rev<br>**-1** |
| Date: Thursday, December 02, 2010 | Sheet 69 of 102 | |



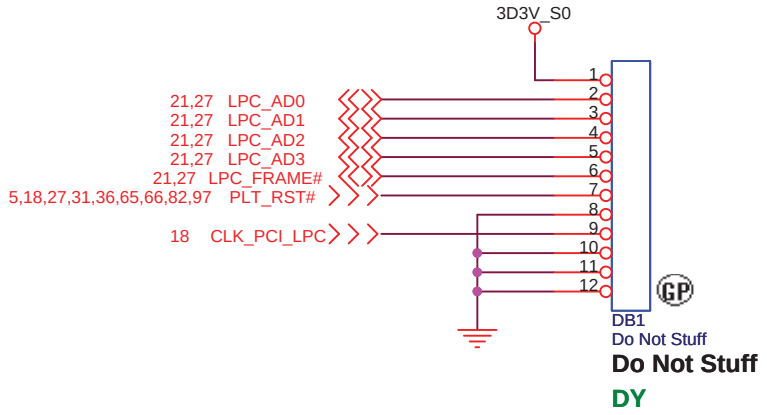

HR UMA

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 | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 70 of 102




HR UMA

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

Title: ***Dubug connector***

| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 71 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 72 of 102

# (Blanking)

HR UMA

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

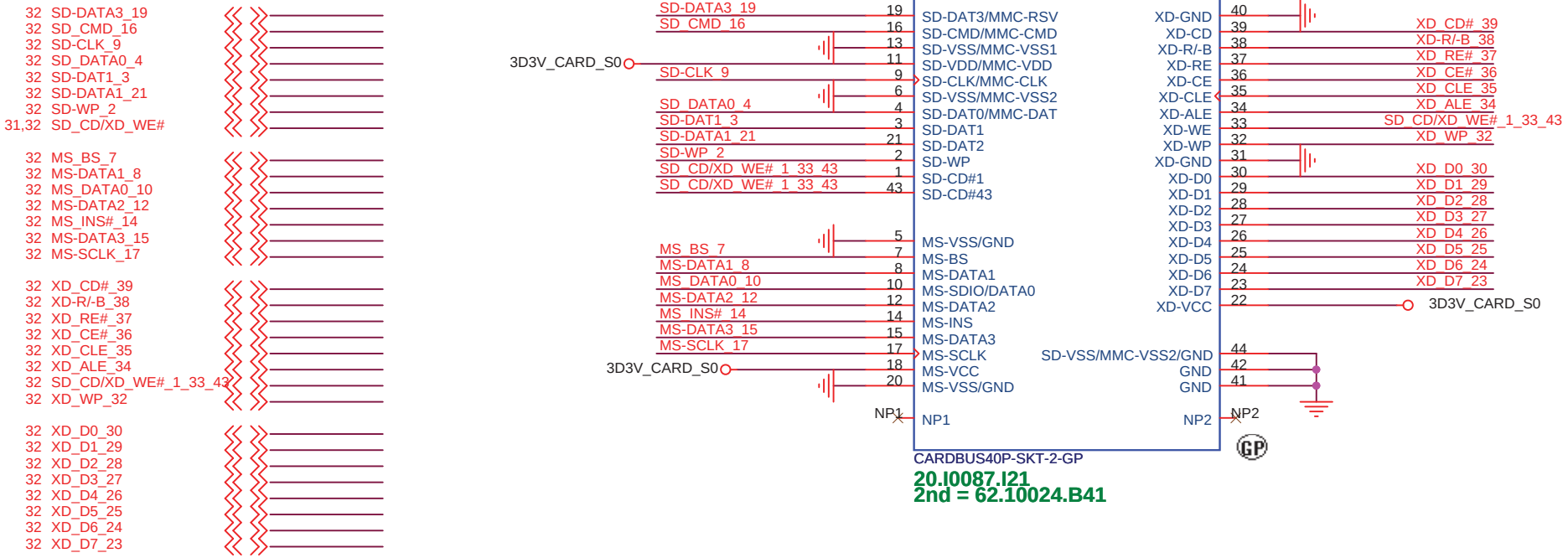
Title: *Reserved*

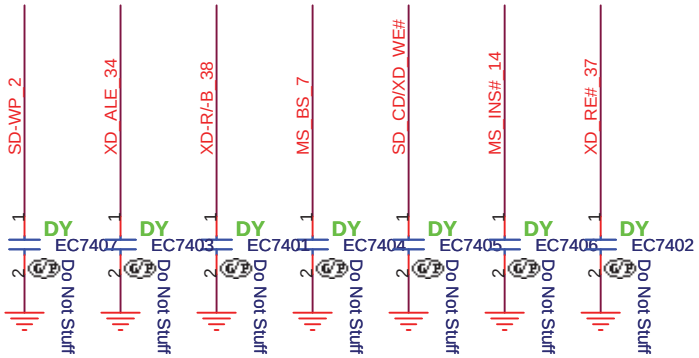
Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 73 of 102

# SD/XD/MS Card Reader

**SSID = SDIO**




HR UMA

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

Title: **CARD Reader CONN**

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 74 of 102

SSID = ExpressCard

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

HR UMA

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

Title: New Card

Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 75 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 76 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

Date: Thursday, December 02, 2010 Sheet 77 of 102

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 78 of 102

**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

**JE40 delete G Sensor Function**

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

HR UMA

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: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 79 of 102 | |

# (Blanking)

HR UMA

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

Title: ***Reserved***

| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

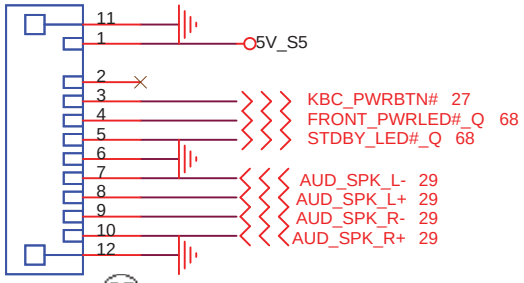
Date: Thursday, December 02, 2010 Sheet 80 of 102

# (Blanking)

HR UMA

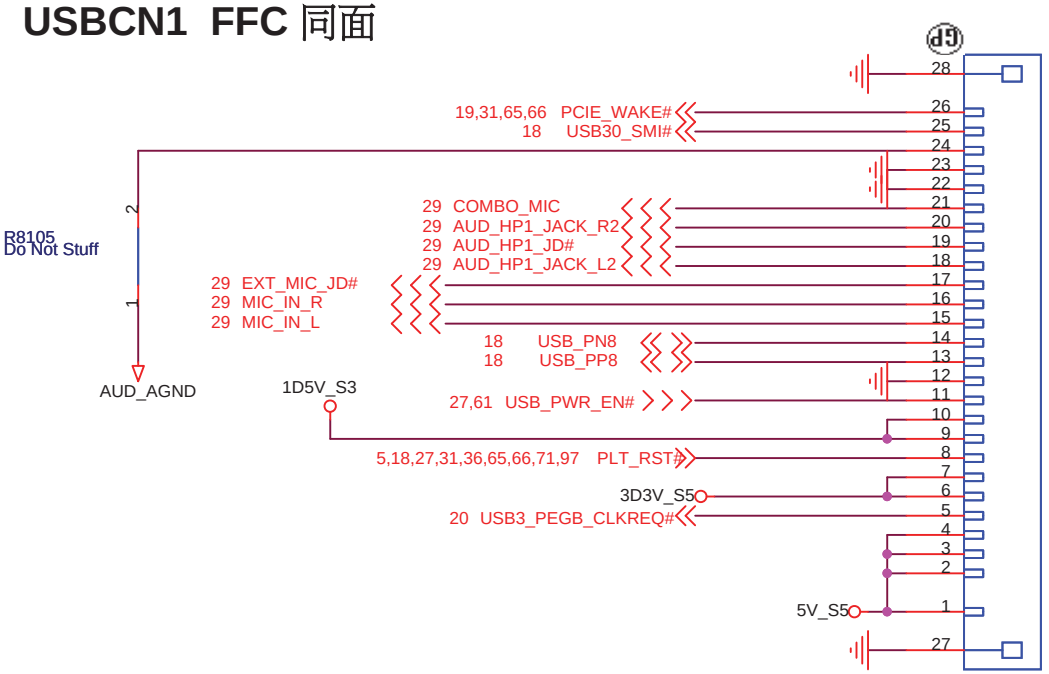
| | | |
|---|---|---|
| 緯創資通 **Wistron Corporation**<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: ***Reserved*** | | |
| Size: A4 | Document Number: **JE40-HR** | Rev: **-1** |
| Date: Thursday, December 02, 2010 | Sheet 81 of 102 | |

## PWRCN1 FFC 異面




PWRCN1
ACES-CON10-20-GP
**20.K0422.010**
**2nd = 20.K0382.010**

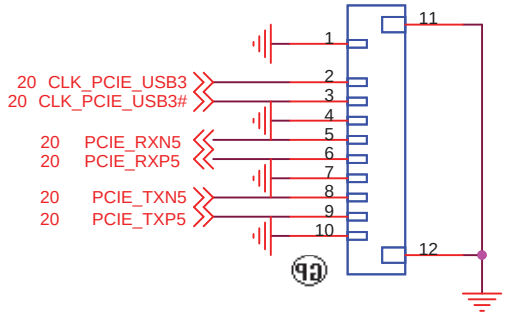
## USBCN1 FFC 同面




USBCN1
ACES-CON26-11-GP
**20.K0315.026**
**2nd = 20.K0370.026**

## 0806 change 10Pin

USBCN2
ACES-CON10-18-GP
**20.K0315.010**
**2nd = 20.K0392.010**

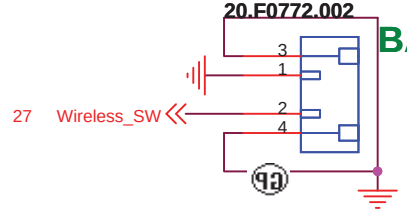



## USBCN2 FFC 同面

**-1 add RF connector**
**BAE40 Only**

RF_CN1
ACES-CON2-11-GP
**20.F0772.002**

**BAE40**




## Cabele Wire to BD

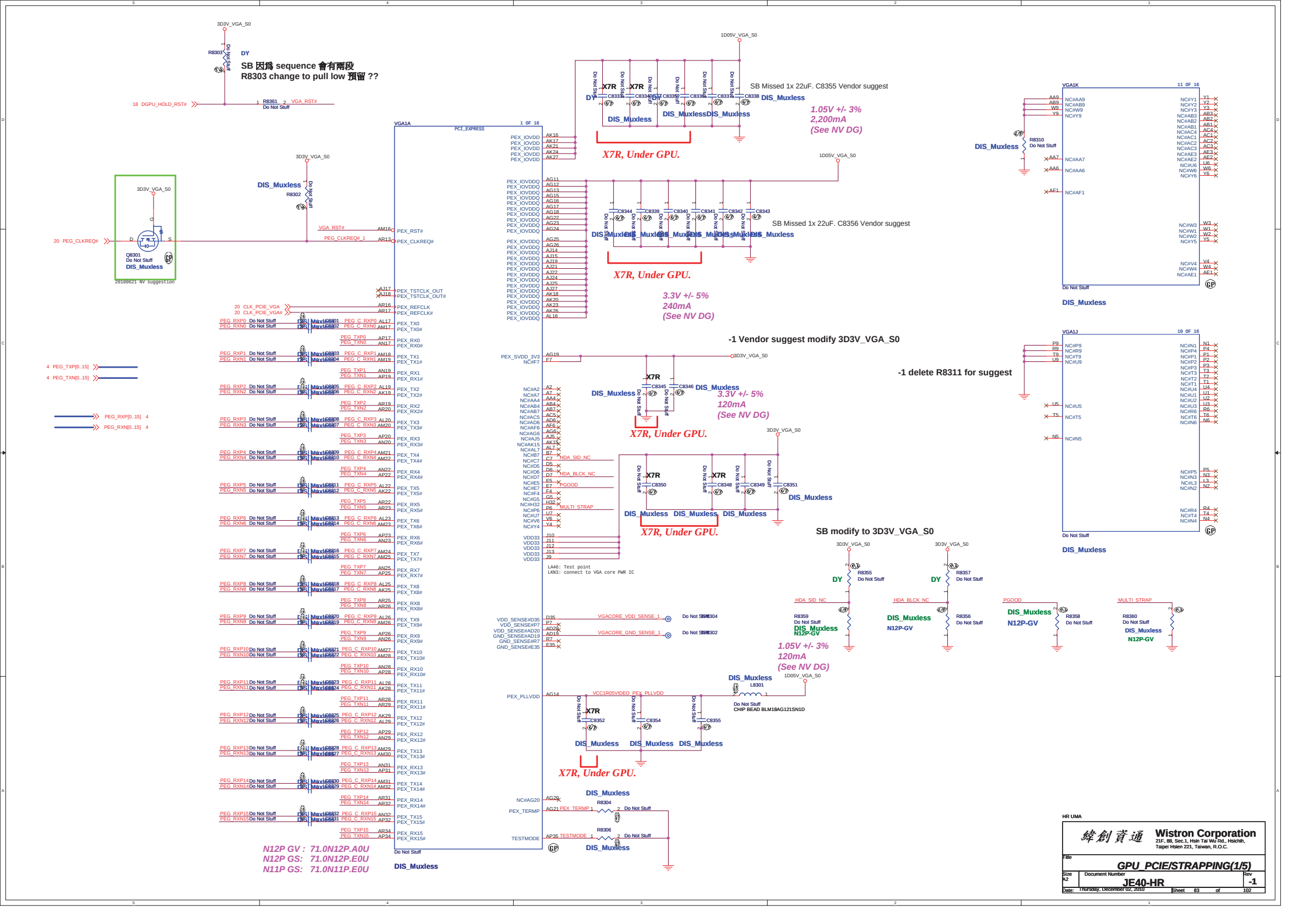
HR UMA

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

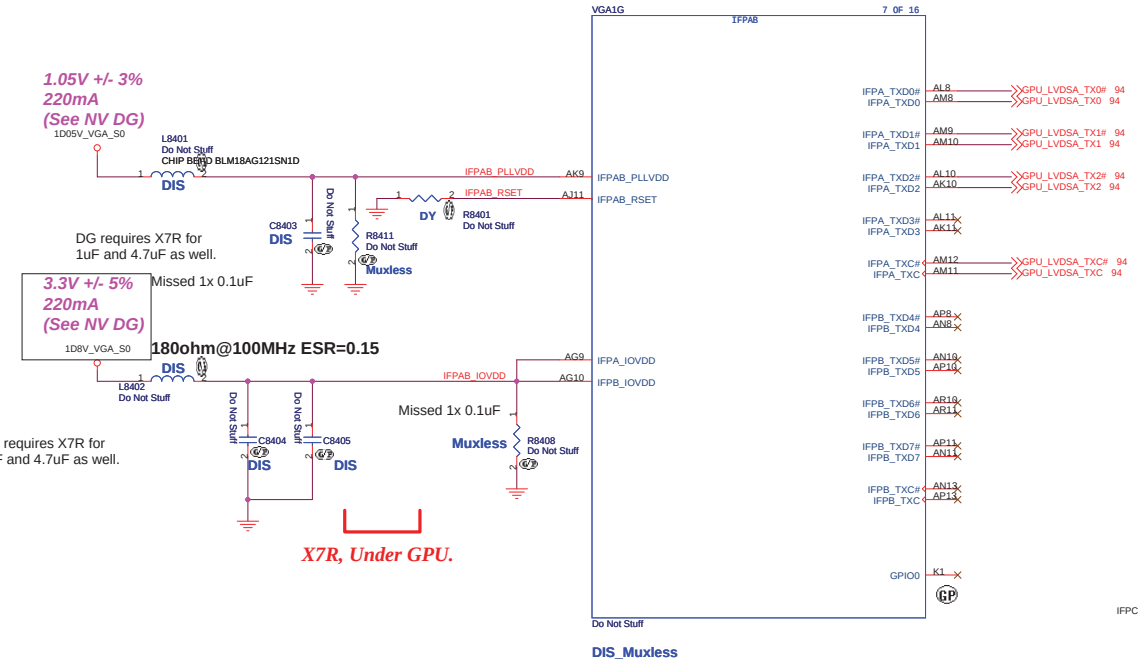
Title: ***IO Board Connector***

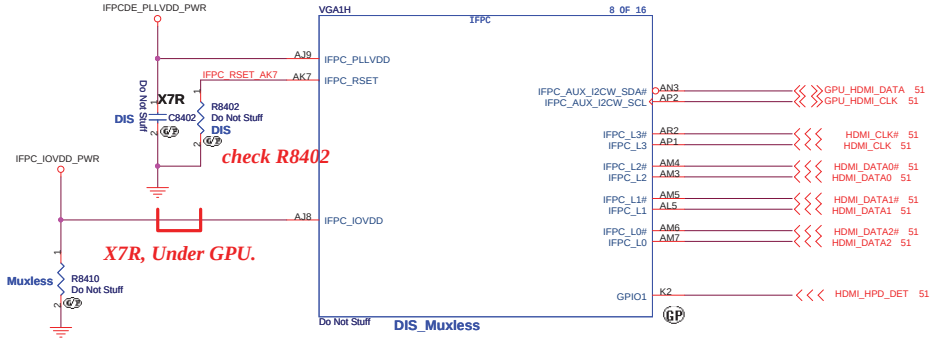
| Size | Document Number | Rev |
|---|---|---|
| A4 | **JE40-HR** | **-1** |

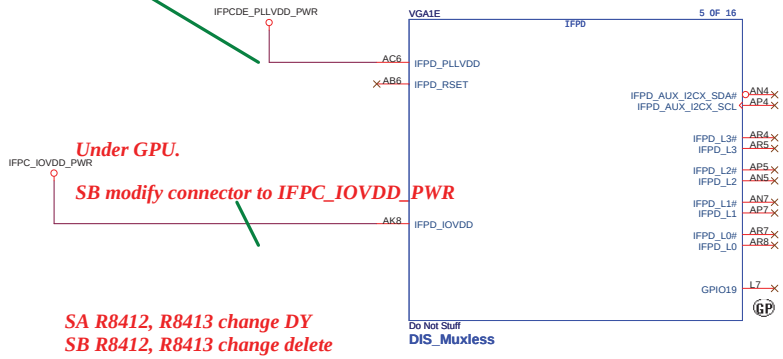
Date: Thursday, December 02, 2010 Sheet 82 of 102

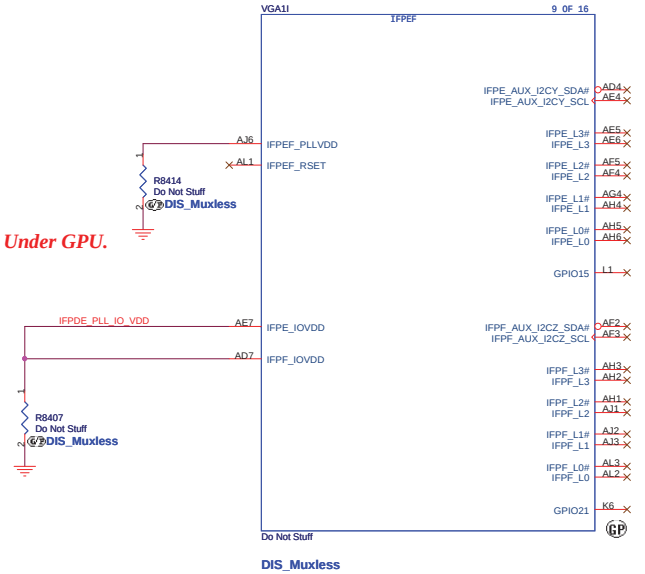

SB 因爲 sequence 會有兩段
R8303 change to pull low 預留 ??
SB Missed 1x 22uF. C8355 Vendor suggest
1.05V +/- 3%
2,200mA
(See NV DG)
X7R, Under GPU.
SB Missed 1x 22uF. C8356 Vendor suggest
3.3V +/- 5%
240mA
(See NV DG)
-1 Vendor suggest modify 3D3V_VGA_S0
3.3V +/- 5%
120mA
(See NV DG)
-1 delete R8311 for suggest
SB modify to 3D3V_VGA_S0
1.05V +/- 3%
120mA
(See NV DG)
N12P GV : 71.0N12P.A0U
N12P GS: 71.0N12P.E0U
N11P GS: 71.0N11P.E0U
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
GPU_PCIE/STRAPPING(1/5)
JE40-HR
-1
Thursday, December 02, 2010
Sheet 83 of 102

# LVDS Interface

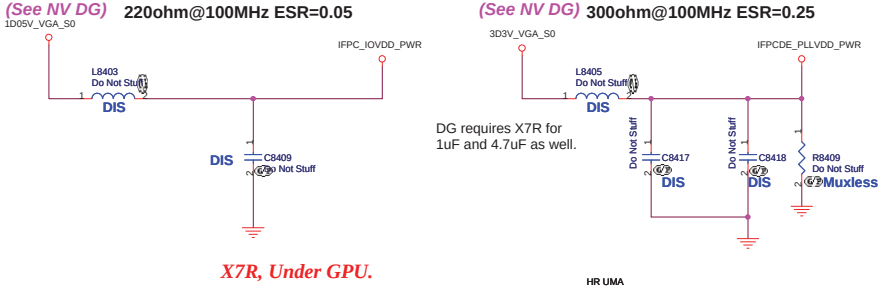



# HDMI Interface




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: GPU Memory(2/5) | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 84 of 102 | |

# EDP 10A

*DC tolerance +/- 75mV*
*AC tolerance +/- 50mV < 100MHz*

*X7R, Under GPU.*

*X7R, Near GPU.*

*1.05V +/- 3%*
*200mA*
*(See NV DG)*

*X7R, Under GPU.*

*FBCLK Termination place on VRAM side*

*FBCLK Termination place on VRAM side*

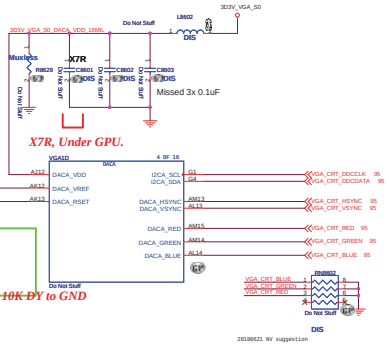
**Group A**

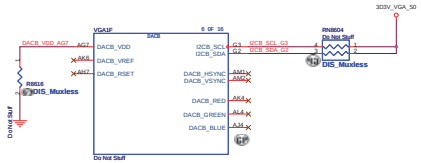
**Group B**

| | |
|---|---|
| HR UMA | |
| Wistron Corporation | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. |
| Title | GPU_DP/LVDS/CRT/GPIO(3/5) |
| Size: Custom | Document Number: JE40-HR |
| Rev | -1 |
| Date: Thursday, December 02, 2010 | Sheet 85 of 102 |

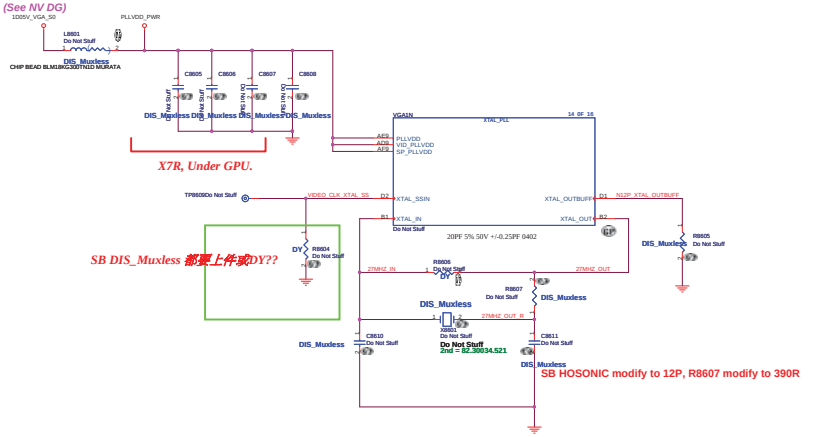
300ohm@100MHz ESR=0.25ohm

3.3V +/- 5%
120mA
(See NV DG)

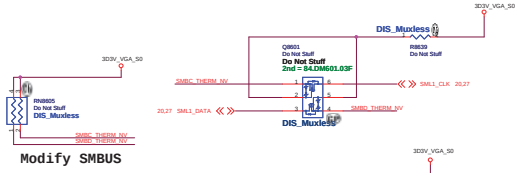


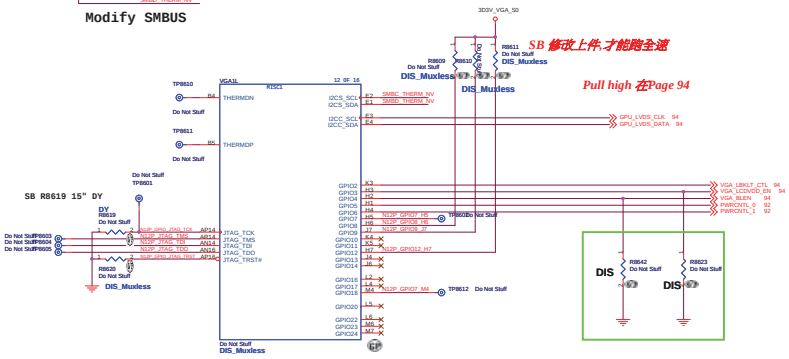




1.05V +/- 3%
150mA
(See NV DG)



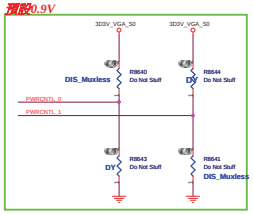

## VGA Thermal sensor P2800




| SJM50-CP SUPPORT | | | | | | | |
|---|---|---|---|---|---|---|---|
| P-STATE | NVVDD_ALTV1 | NVVDD_ALTV0 | N11M-GE1 | N11M-GE2 | N11M-OP1 | N11P-GE1 | N11P-GE Fermi |
| P12 | 0 | 0 | 0.85V | 0.85V | 0.85V | 0.80V | 0.85V |
| P8 | 0 | 1 | 0.85V | 0.85V | 0.85V | 0.85V | 0.9V |
| P0 | 1 | 0 | 1.00V | 1.00V | 1.00V | 0.95V | 0.95V |

預設0.9V



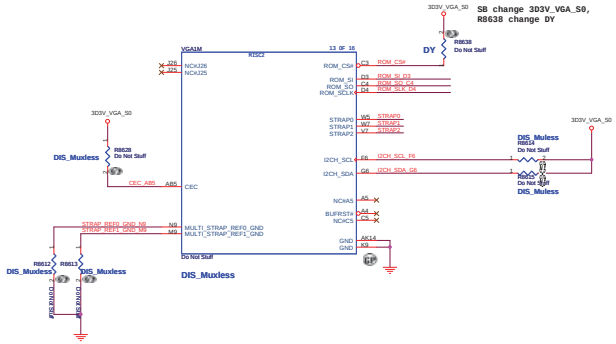

## NVIDIA TABLE

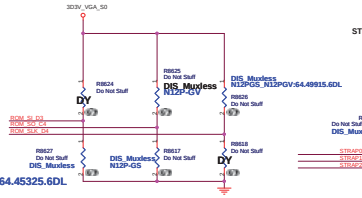
| | Hynix 2G<br>0110<br>128*16*8<br>800MHZ | Hynix 1G<br>0000<br>64*16*8<br>800MHZ | Samsung 1G<br>0011<br>64*16*8<br>800MHZ | Samsung 512<br>64*16*4<br>800MHZ | Samsung 2G<br>0111<br>128*16*8<br>800MHZ |
|---|---|---|---|---|---|
| RO M_SIPD R8627 | 34.8Kohm<br>64.34825.6DL | 5Kohm<br>64.49915.6DL | 20Kohm<br>64.20025.6DL | 20Kohm<br>64.20025.6DL | 45Kohm<br>64.45325.6DL |



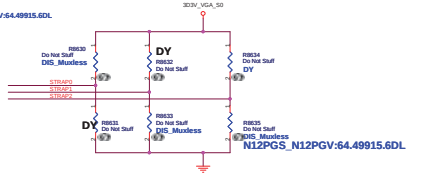

Logical Strap Bit Mapping

| Resistor | Pull-up | Pull-down |
|---|---|---|
| 5Kohms | 1000 | 0000 |
| 10Kohms | 1001 | 0001 |
| 15Kohms | 1010 | 0010 |
| 20Kohms | 1011 | 0011 |
| 25Kohms | 1100 | 0100 |
| 30Kohms | 1101 | 0101 |
| 35Kohms | 1110 | 0110 |
| 45Kohms | 1111 | 0111 |




Hy2G_64.34825.6DL,Hy1G_64.15025.6DL,Sam1G512M_64.20025.6DL,Sam2G_64.45325.6DL




## TABLE NVIDIA

71.0N12P.E0U

-1 modify N12P GV setting
71.0N12P.A0U

| | N12P-GS<br>DEV ID:<br>0x0DF4 | N12P-GV<br>DEV ID:<br>0x1050 | N11P-GE Fermi<br>DEV ID:<br>0x0DF1<br>(0001) | N11P-GS Fermi<br>DEV ID:<br>0x0DF0<br>(0000) | N12P-GE<br>DEV ID:<br>0x0DF5<br>(0101) |
|---|---|---|---|---|---|
| STRAP2 PU | 25Kohm<br>64.24925.6DL | 45Kohm<br>ES 45K QS 5K<br>64.49915.6DL | 10Kohm<br>63.10334.1DL | 5Kohm<br>64.49915.6DL | 30Kohm<br>64.30025.6DL |

STRAP0 USER[0]=1 USER[1]=1 USER[2]=1 USER[3]=1 — N12P-GS USE 1111 (45K) — N12P-GV — N11P-GE Pull Low — N11P-GS Pull Low — N12P-GE

STRAP1 3GIO_PADCFG[0]=0 3GIO_PADCFG[1]=1 3GIO_PADCFG[2]=1 3GIO_PADCFG[3]=1 — USE 0110 (35K)

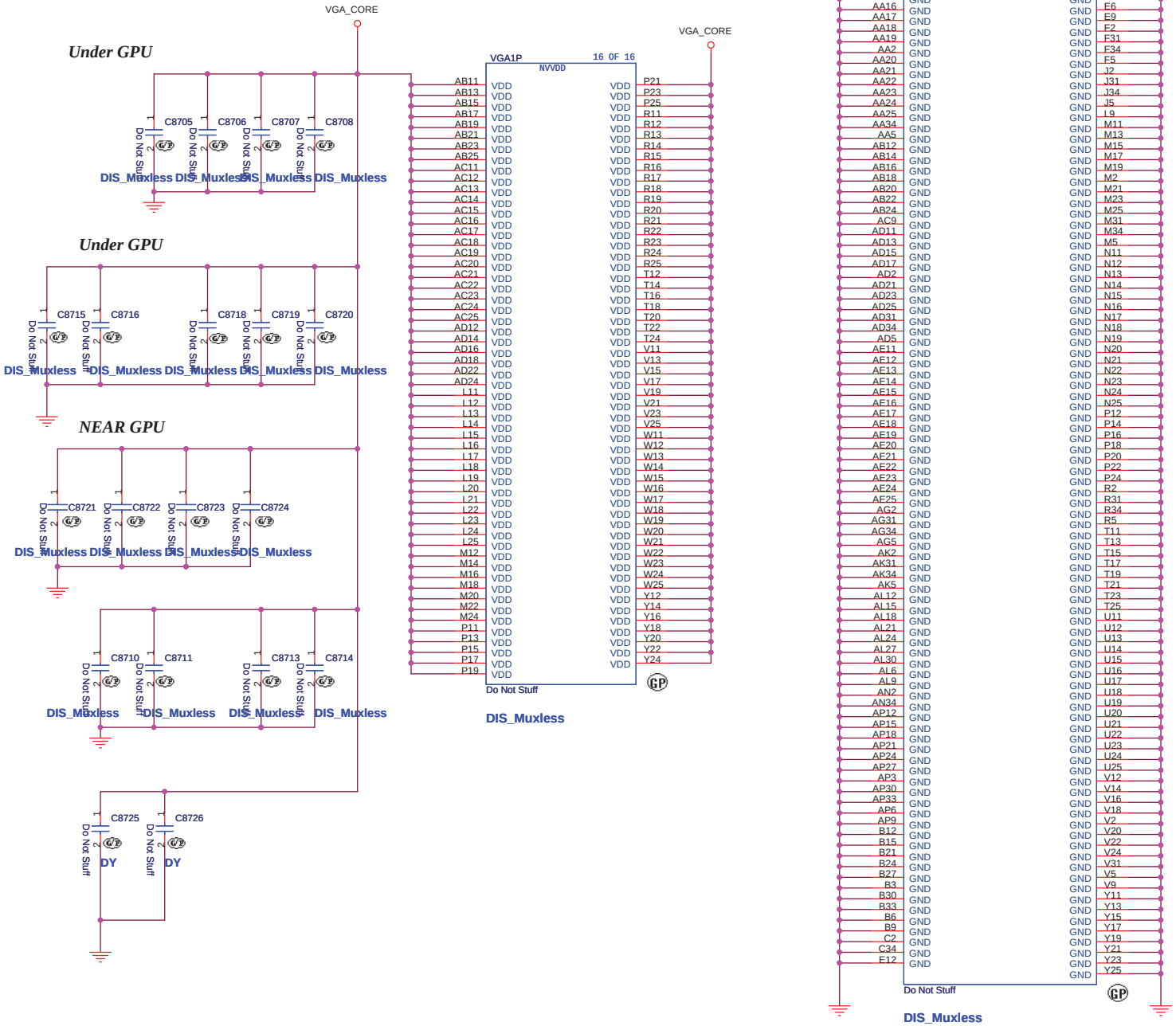
STRAP2 PCI_DEVID[0]=1 PCI_DEVID[1]=0 PCI_DEVID[2]=0 PCI_DEVID[3]=0
N12P-GS GF108-730-A1 0x0DF4 (0X4) (0100)
N12P-GV1 GF108-705-A1 0x0DF7 (0X7) (0111)
N11P-GS Fermi 0x0DF0 (0000)
N11P-GE Fermi 0x0DF1 (0001)

HR UMA

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

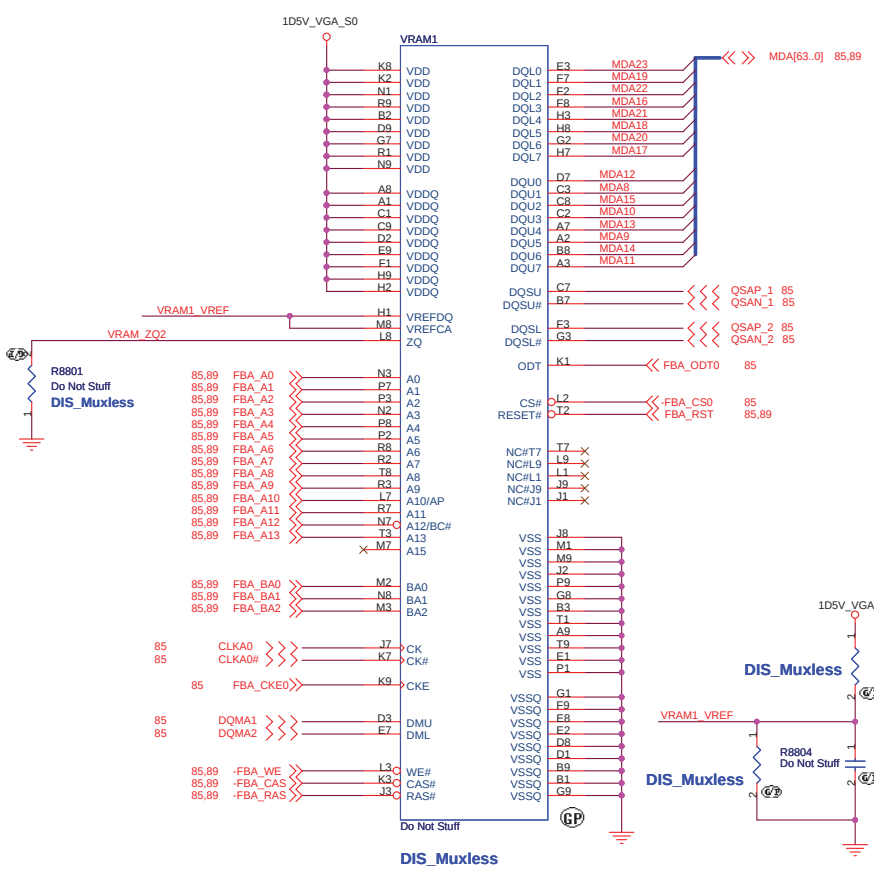
Title: GPU_POWER(4/5)
Size: A1 | Document Number: JE40-HR | Rev: -1
Date: Thursday, December 09, 2010 | Sheet 88 of 102

# EDP 50A
# (TDP 37W)



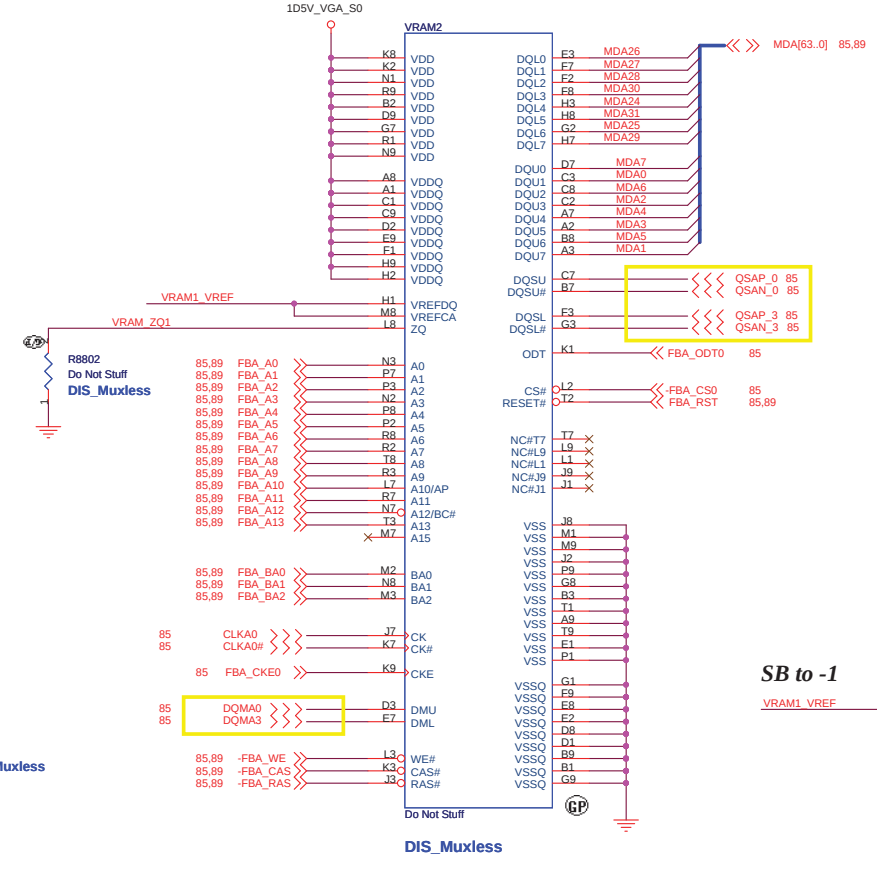

HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: GPU_DPPWR/GND(5/5) | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 87 of 102 | |




DIS_Muxless

VRAM = N12PGS_N12PGV

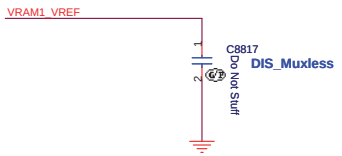



DIS_Muxless

VRAM = N12PGS_N12PGV

*FB CMD mapping Mode D-N12x*

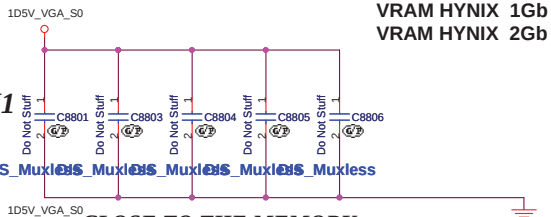
SB to -1




VRAM SAMSUNG 1Gb VR.1GB0B.006
VRAM HYNIX 1Gb 72.51G63.C0U/VR.1GB0G.005
VRAM HYNIX 2Gb VR.2GB0G.001

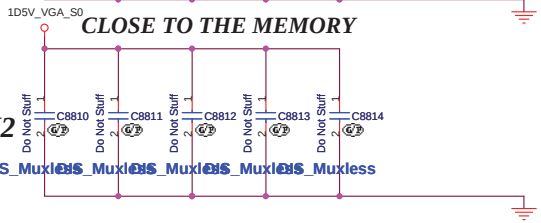
DG requires 4x0.1uF and 8x1.0uF per VRAM chip

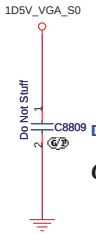
*FOR VRAM1*




*CLOSE TO THE MEMORY*

*FOR VRAM2*




*CLOSE TO THE MEMORY*

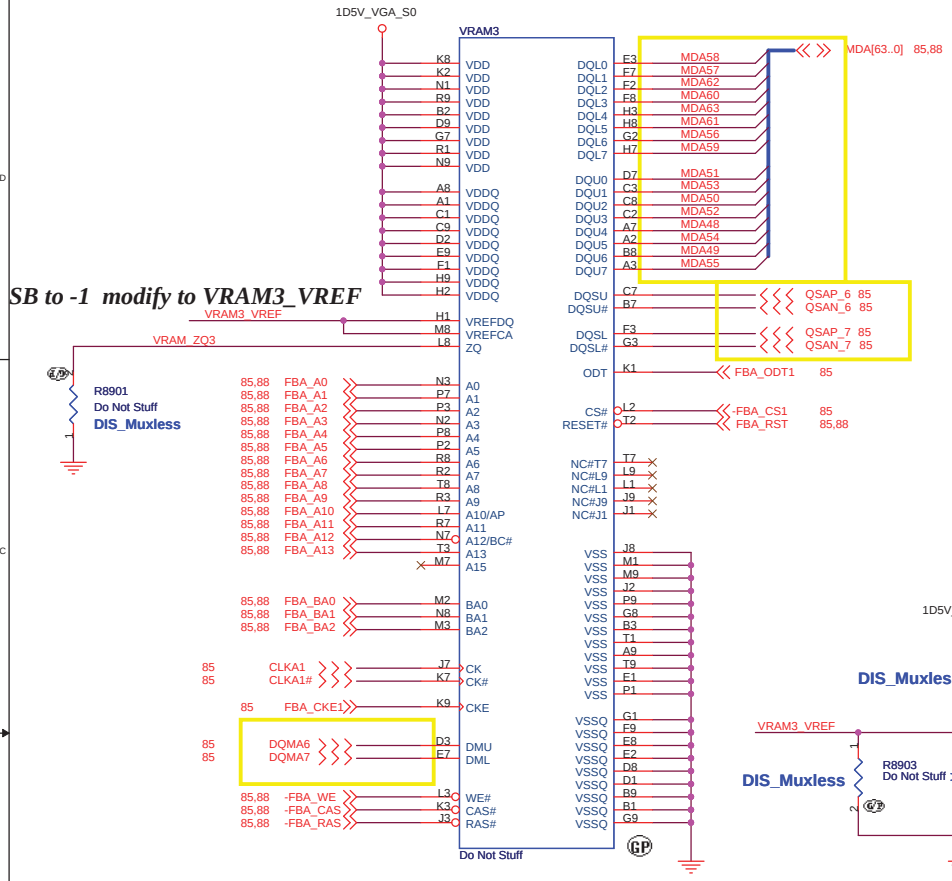
HR UMA

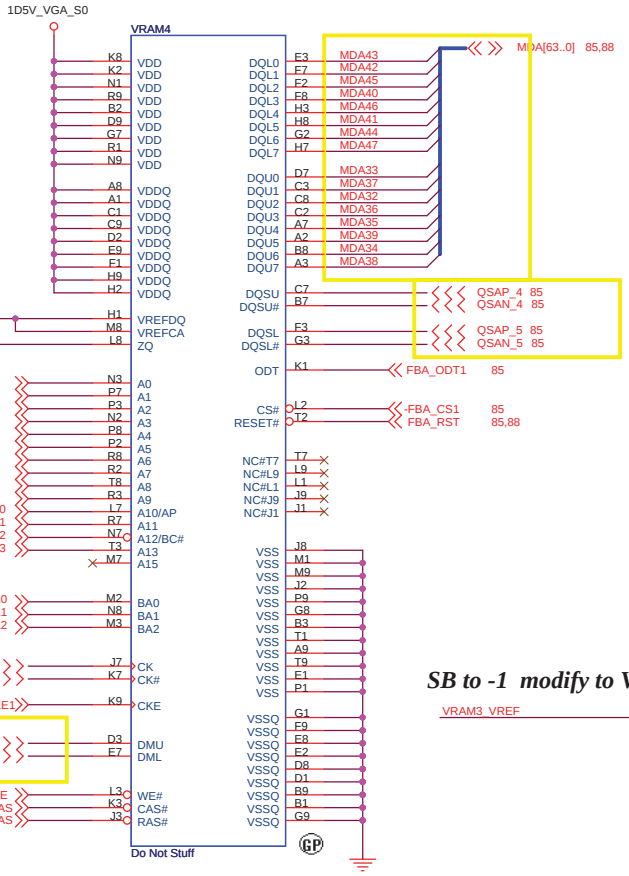
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***GPU-VRAM1,2 (1/4)***

| Size | Document Number | Rev |
|---|---|---|
| Custom | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 88 of 102



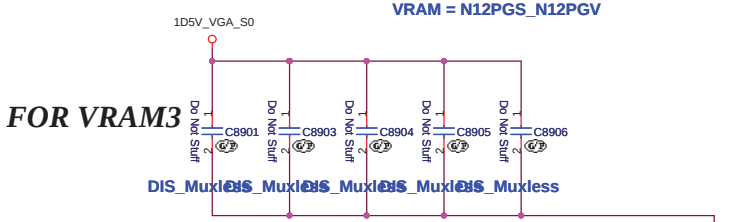


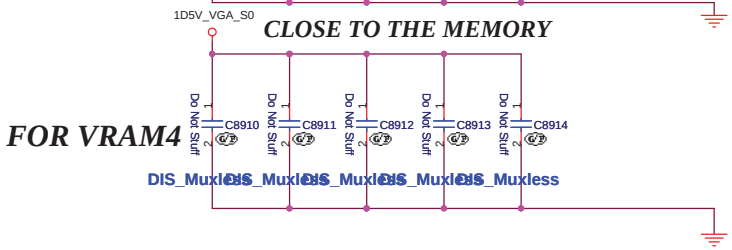


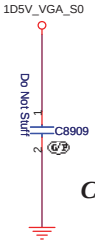



*FB CMD mapping Mode D-N12x*

VRAM SAMSUNG 1Gb VR.1GB0B.006
VRAM HYNIX 1Gb 72.51G63.C0U/VR.1GB0G.005
VRAM HYNIX 2Gb VR.2GB0G.001



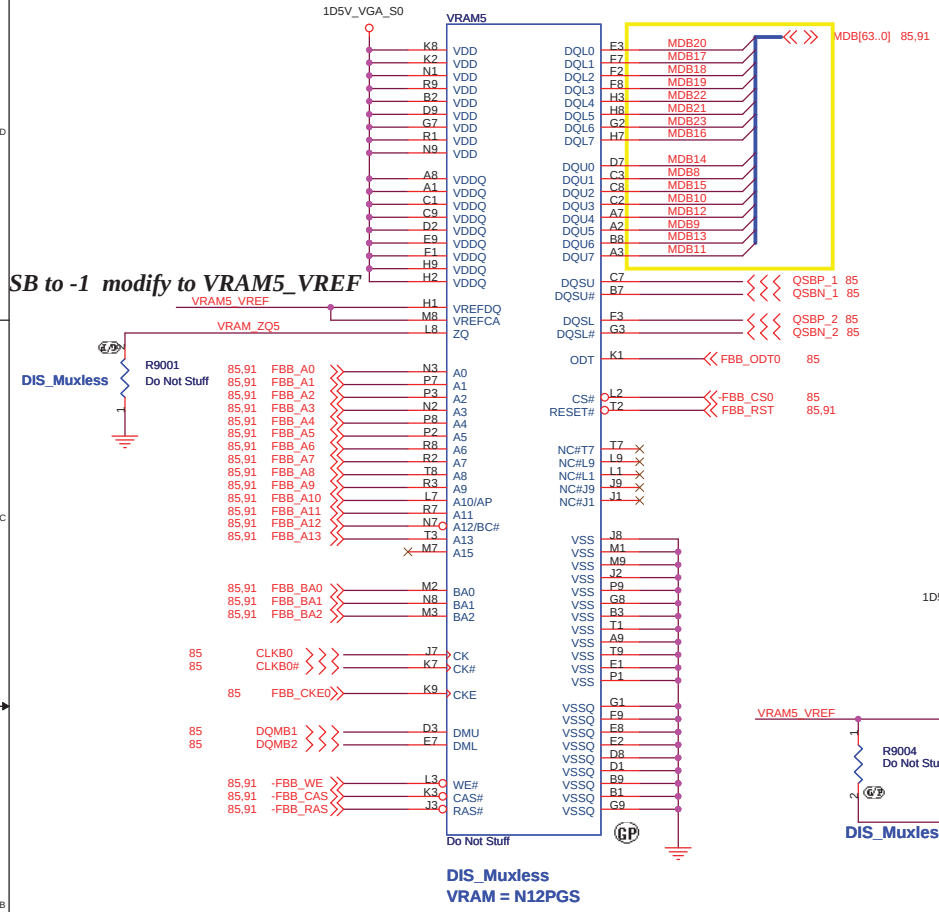

HR UMA

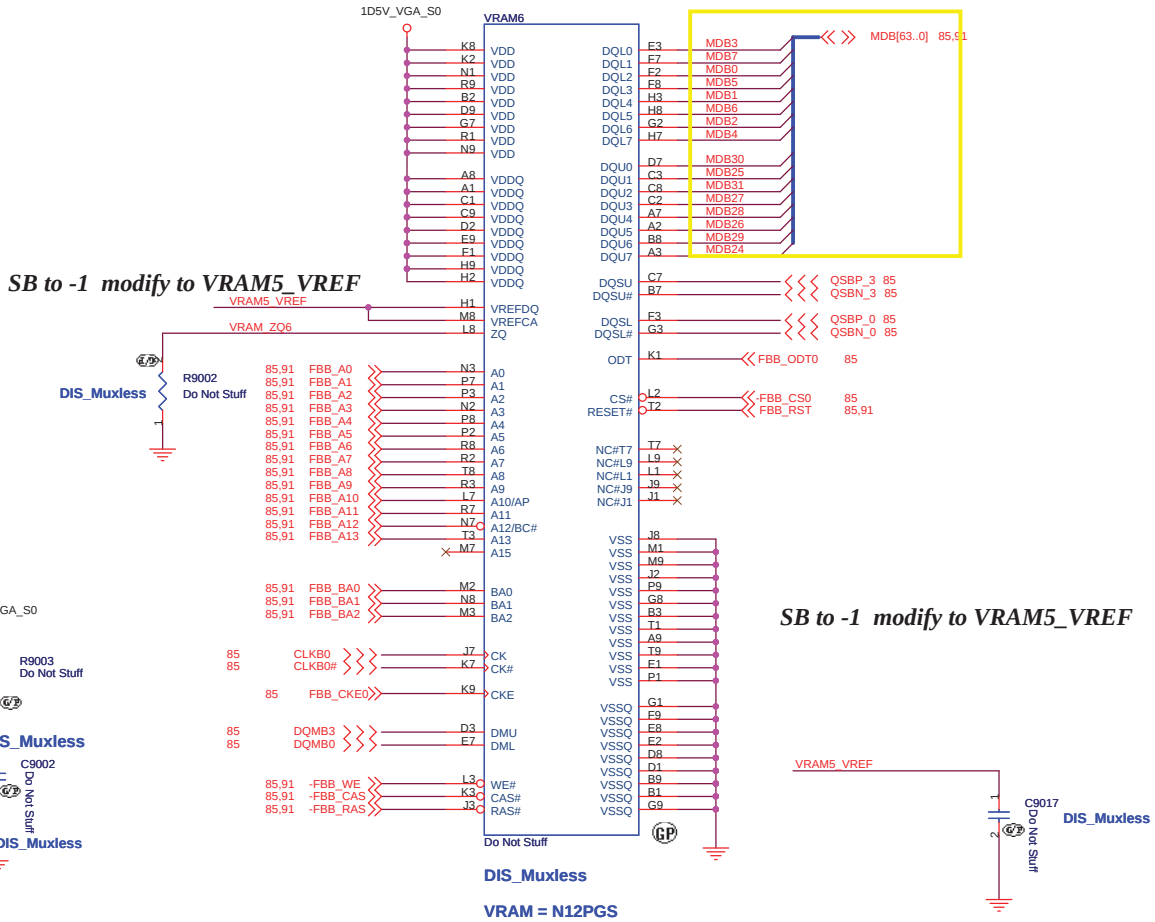
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

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

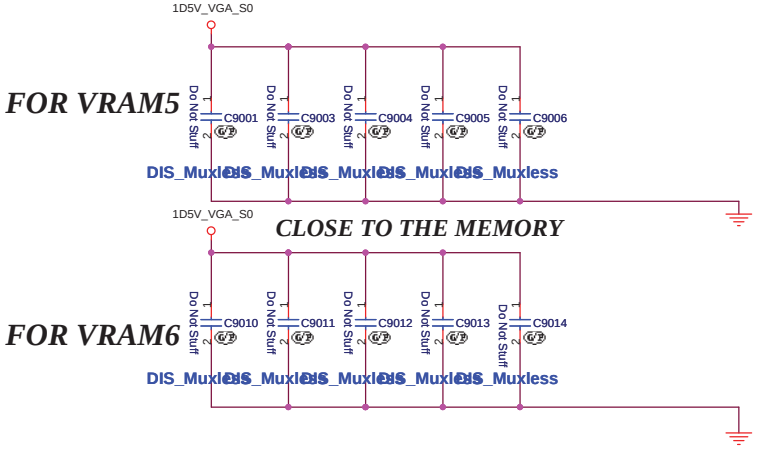
Size: Custom | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 89 of 102

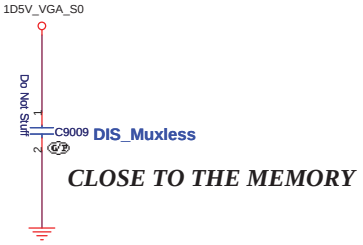



VRAM SAMSUNG 1Gb VR.1GB0B.006
VRAM HYNIX 1Gb 72.51G63.C0U/VR.1GB0G.005
VRAM HYNIX 2Gb VR.2GB0G.001



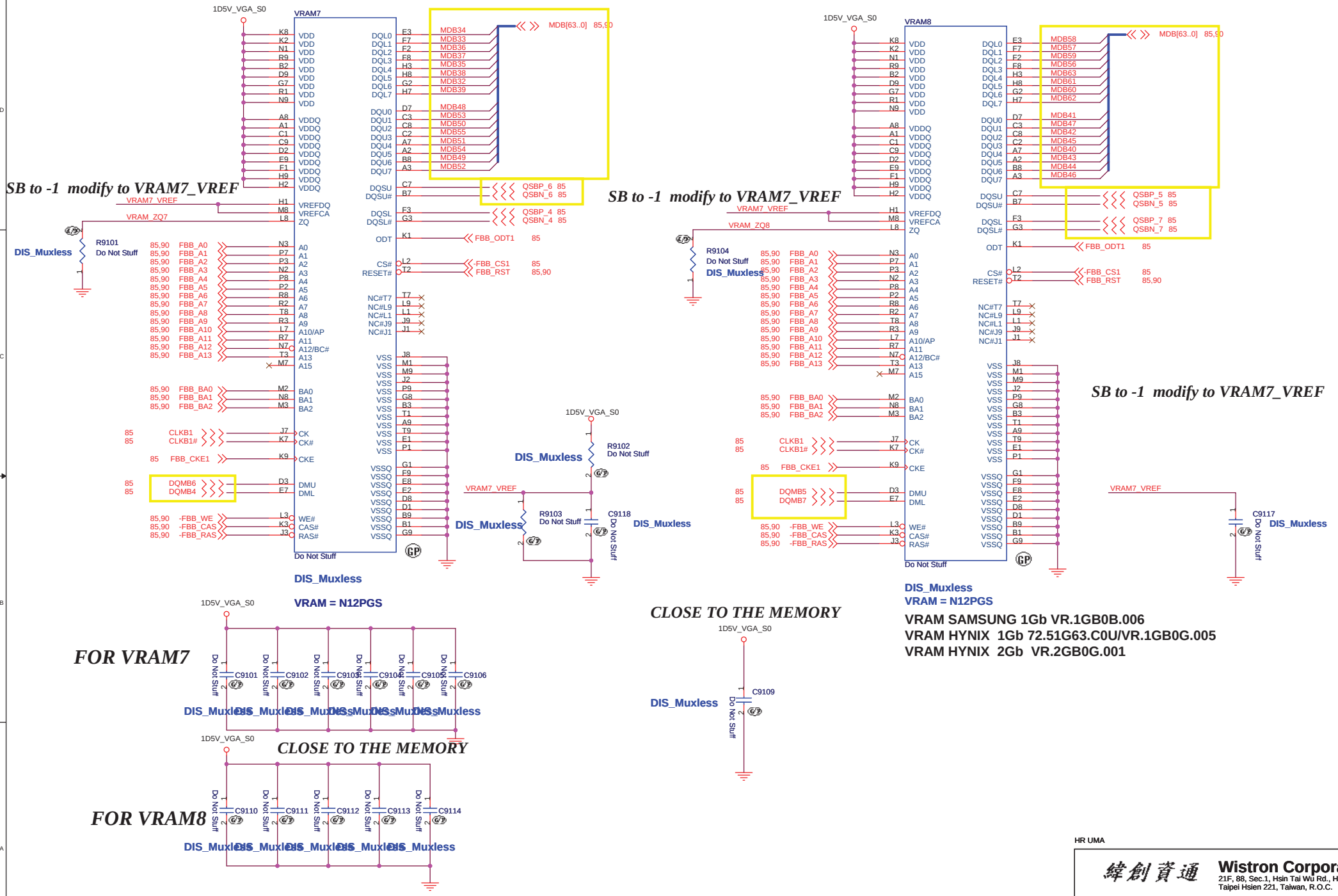

DG requires 4x0.1uF and 8x1.0uF per VRAM chip




HR UMA

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

Title: GPU-VRAM5,6 (3/4)
Size: Custom | Document Number: JE40-HR | Rev: -1
Date: Thursday, December 02, 2010 | Sheet 90 of 102




HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: GPU-VRAM7,8 (4/4) | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 91 of 102 | |

20100715

**SSID = PWR.Plane.Regulator_GFX**

20100719

SB 20100831

SB 20100831

## RT8208A

### N12P GS

| P-State | PWR_VGA_CORE_D1 | PWR_VGA_CORE_D0 | VGA_CORE_PWR |
|---|---|---|---|
| P8 , P12 | L | L | 0.825V |
| P0 - HOT | L | H | 0.975V |
| P0 - COLD | H | L | 1.00V |
| | H | H | |

I/P cap: 10U 25V K1206 X5R/ 78.10622.52L
Inductor: 1.5UH PCMC104T-1R5MN Cyntec DCR:4.2mohm Isat =33Arms 68.1R510.10J
O/P cap: 330U 2V EEFSX0D331ER 9mOhm 3Arms Panasonic/ 79.33719.L01
H/S: SI7686DP/ POWERPAK-8/11mOhm/14mOhm@4.5Vgs/ 84.07686.037
L/S: SiR460DP/ POWERPAK-8/ 4.9mOhm/6.1mohm@4.5Vgs/ 84.00460.037

Switching freq-->350KHz

**Frequency setting**
470K -->165KHz
200K -->323KHz
100K -->500KHz

Vout=0.75V*(R1+R2)/R2

Design Current = 21.94A
24.14A<OCP< 28.53A

SB to -1 modify PR9213 VGA_Core to 1.05V

Vout=0.75V*(R1+R2)/R2

### N12P GV

| P-State | PWR_VGA_CORE_D1 | PWR_VGA_CORE_D0 | VGA_CORE_PWR |
|---|---|---|---|
| P8 , P12 | L | L | 0.85V |
| P0 - HOT | L | H | 1.00V |
| P0 - COLD | H | L | 1.025V |
| | H | H | |

HR UMA

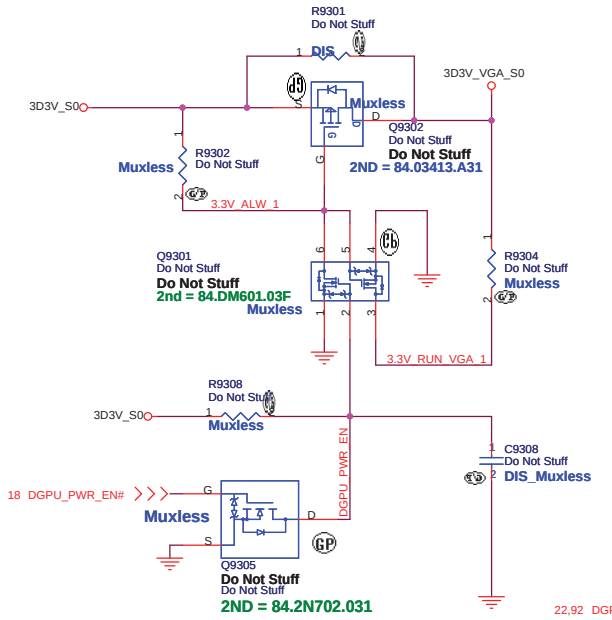
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: RT8208B_+VGA_CORE

Size: Custom | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 92 of 102

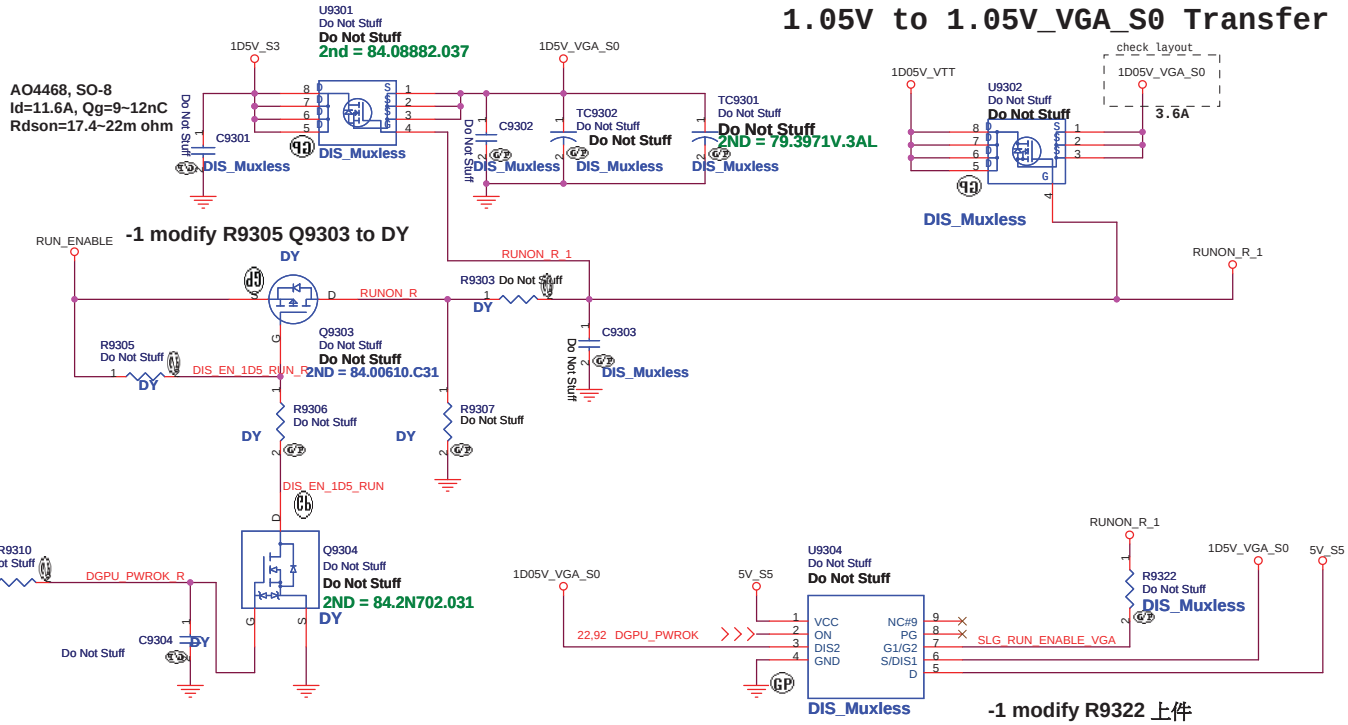
## +3VS to 3.3V_DELAY Transfer




## 1D5V_VGA_S0

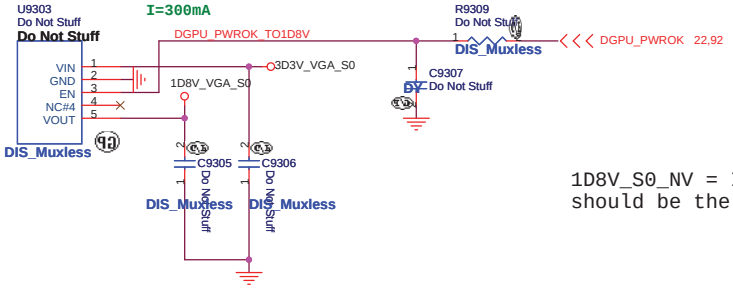
## SB modify to 84.03006.A37

## 1.05V to 1.05V_VGA_S0 Transfer



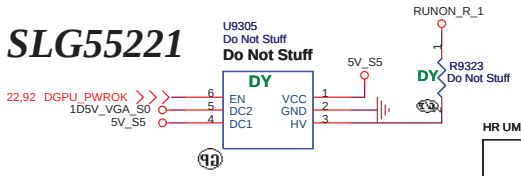

## RT9025 for 1D8V_VGA

## +3VS to 1.8V Transfer




1D8V_S0_NV = IFPA_IOVDD & IFPB_IOVDD, it should be the latest ramp up rail.

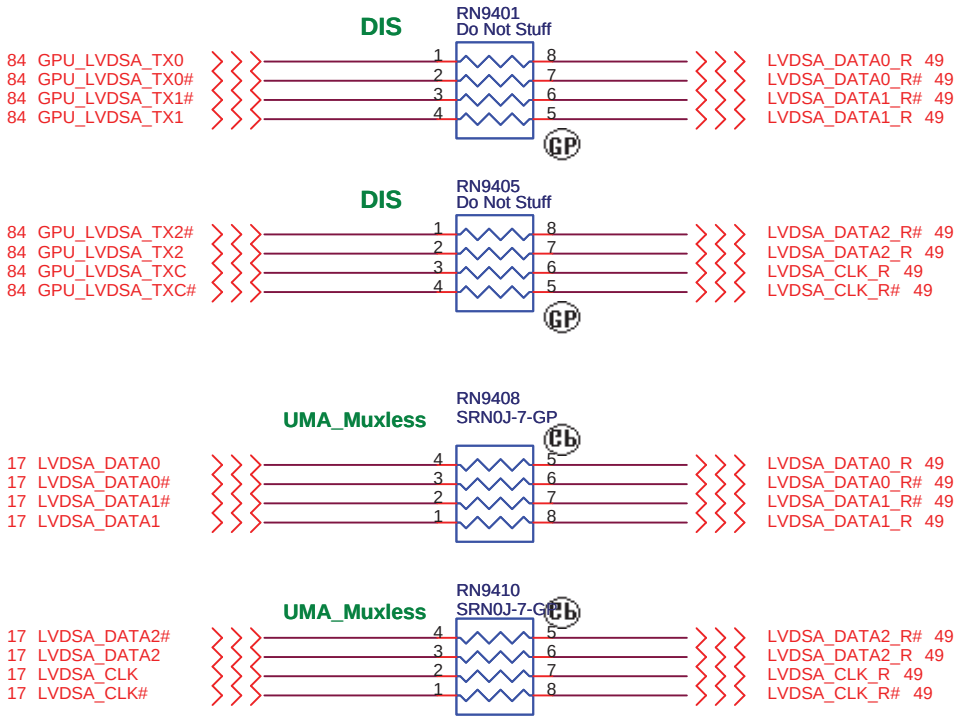
## -1 co-layout SLG55221

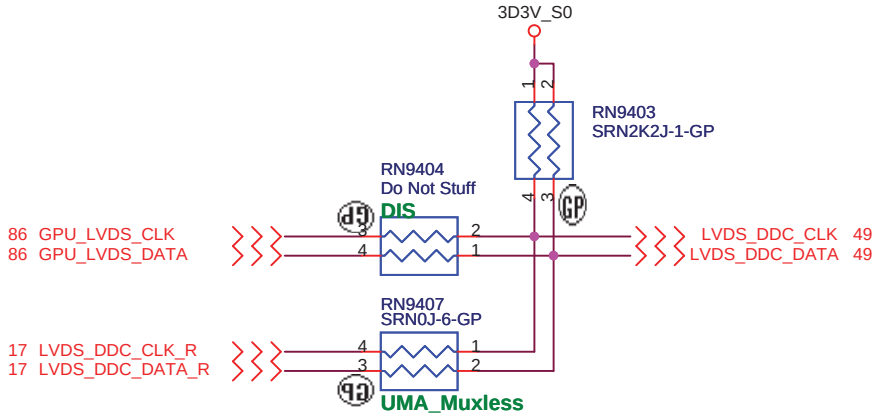



HR UMA

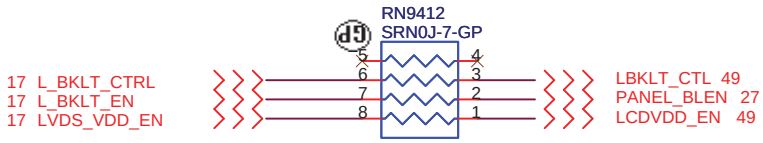
| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: DISCRETE VGA POWER | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 93 of 102 | |

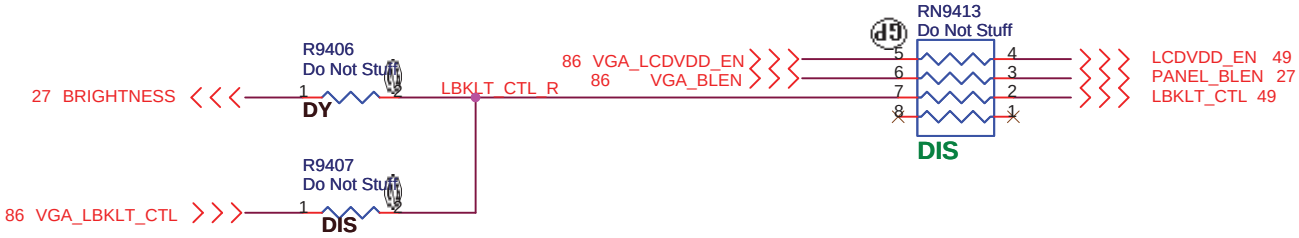
# LVDS Channel A




# Panel BL brightness/Power En/BL En




HR UMA

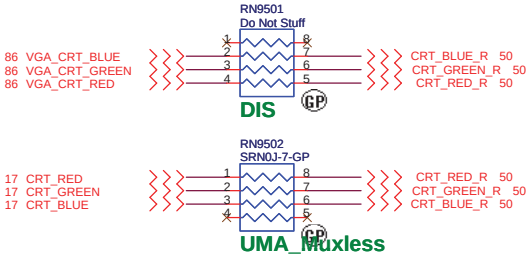

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.


Title: *LVDS_Switch*

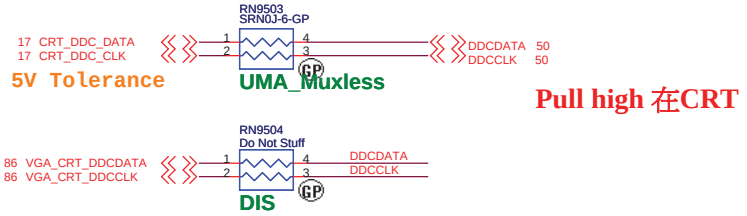
| Size | Document Number | Rev |
|---|---|---|
| A4 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 94 of 102

Close to CRT Board CONN

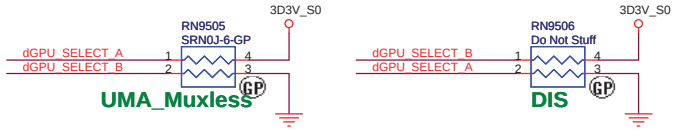



CRT DDCDATA & DDCCLK



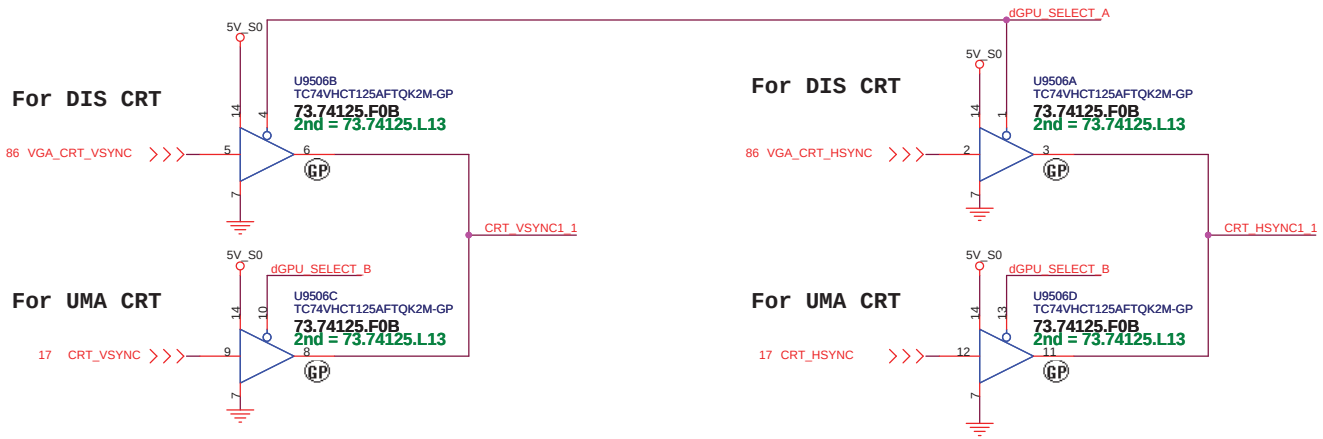

Pull high 在CRT

SB to -1 modify 4 port Logic




CRT Hsync & Vsync level shift

L=>B0 -DIS
H=>B1 -UMA




SB to -1 modify R9503,R9504 to 10 ohm


HR UMA

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

Title: CRT Switch

Size: A3 | Document Number: JE40-HR | Rev: -1

Date: Thursday, December 02, 2010 | Sheet 95 of 102

**SSID = SDIO**

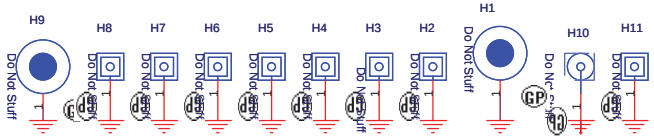
HR UMA

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

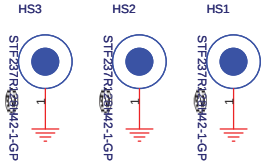
Title: ***TOUCH PANEL***

| Size | Document Number | Rev |
|---|---|---|
| A2 | JE40-HR | -1 |

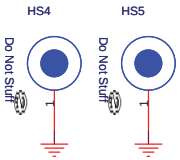
Date: Thursday, December 02, 2010 Sheet 96 of 102

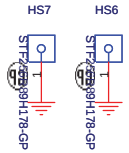



## CPU



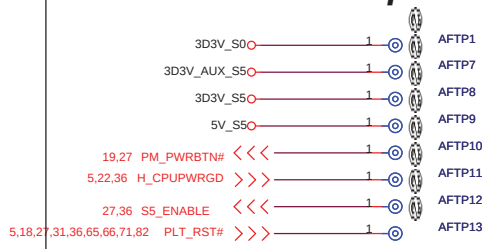

## VGA




3G Sku

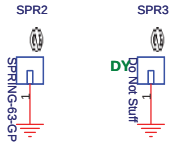
## Check test point



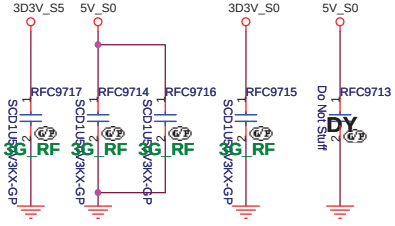

Test Point放在Dimm Door打開可量測處

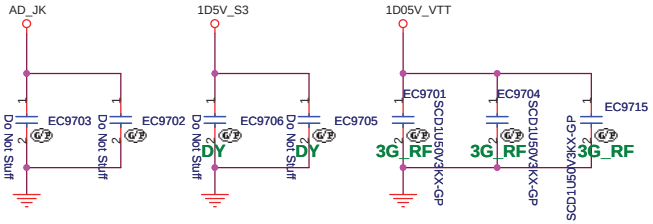
## SB to -1 BOM add SPR2

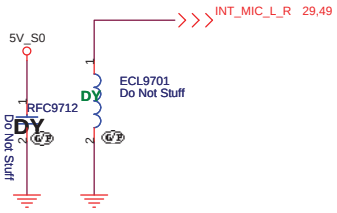
-2 delete SPR5

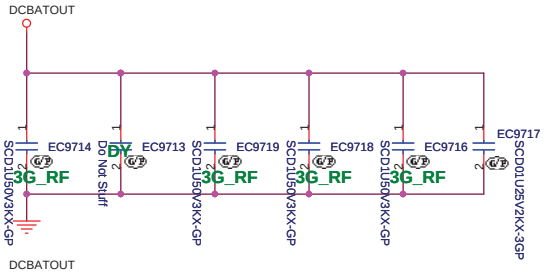


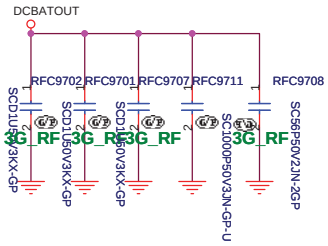

Change:34.40V16.001

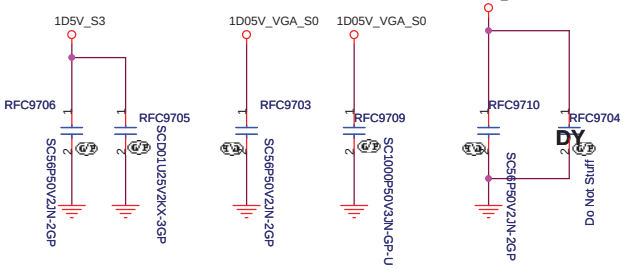


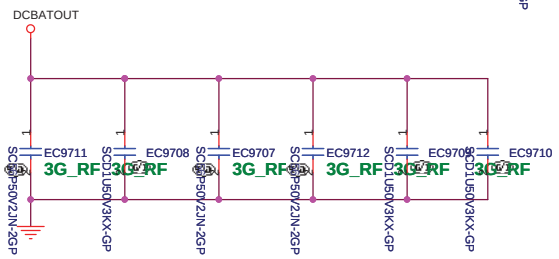




HR UMA

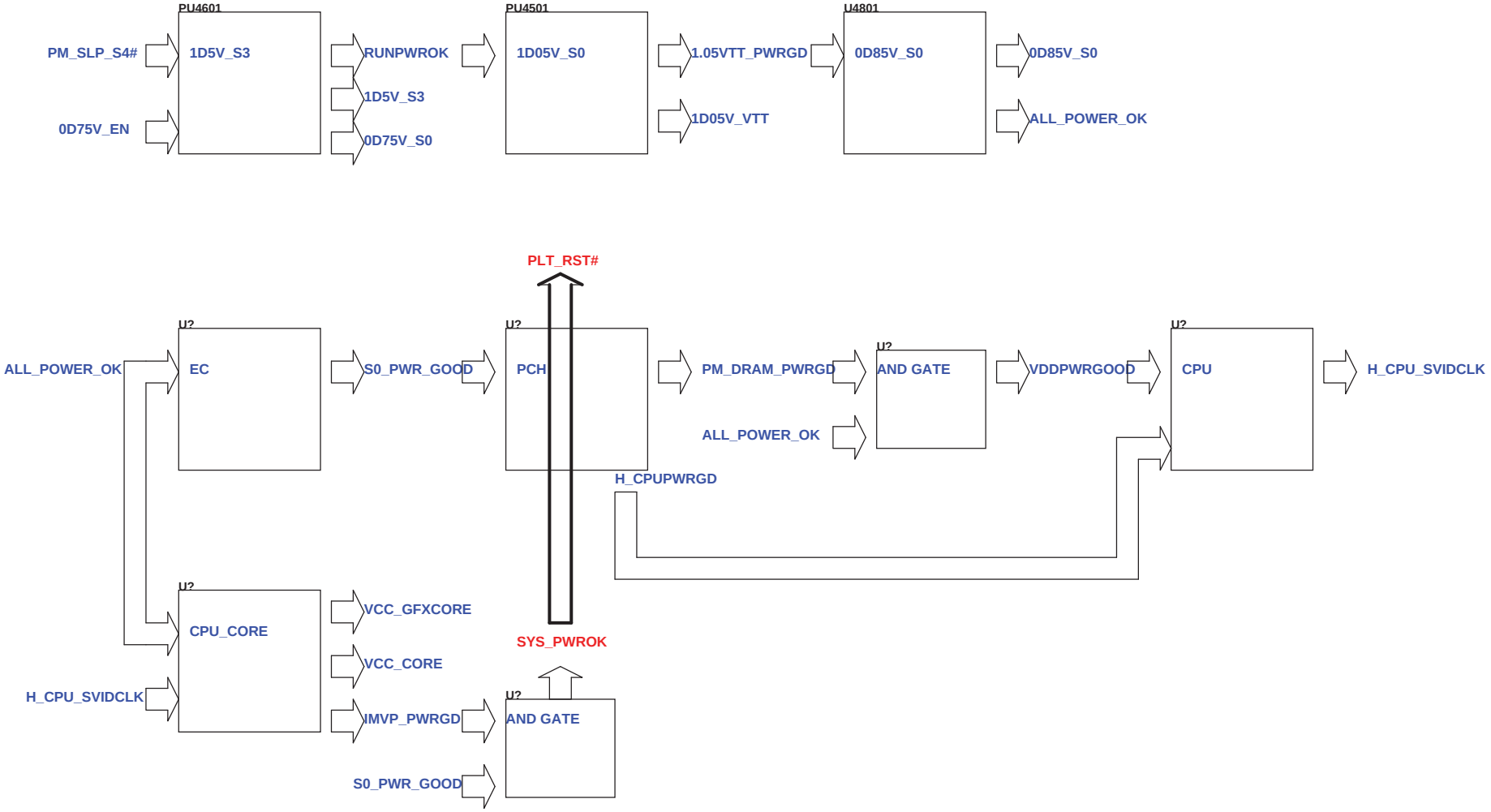

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.


Title: **UNUSED PARTS/EMI Capacitors**

| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 97 of 102

# Power Sequence




HR UMA

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

Title: *Change History*

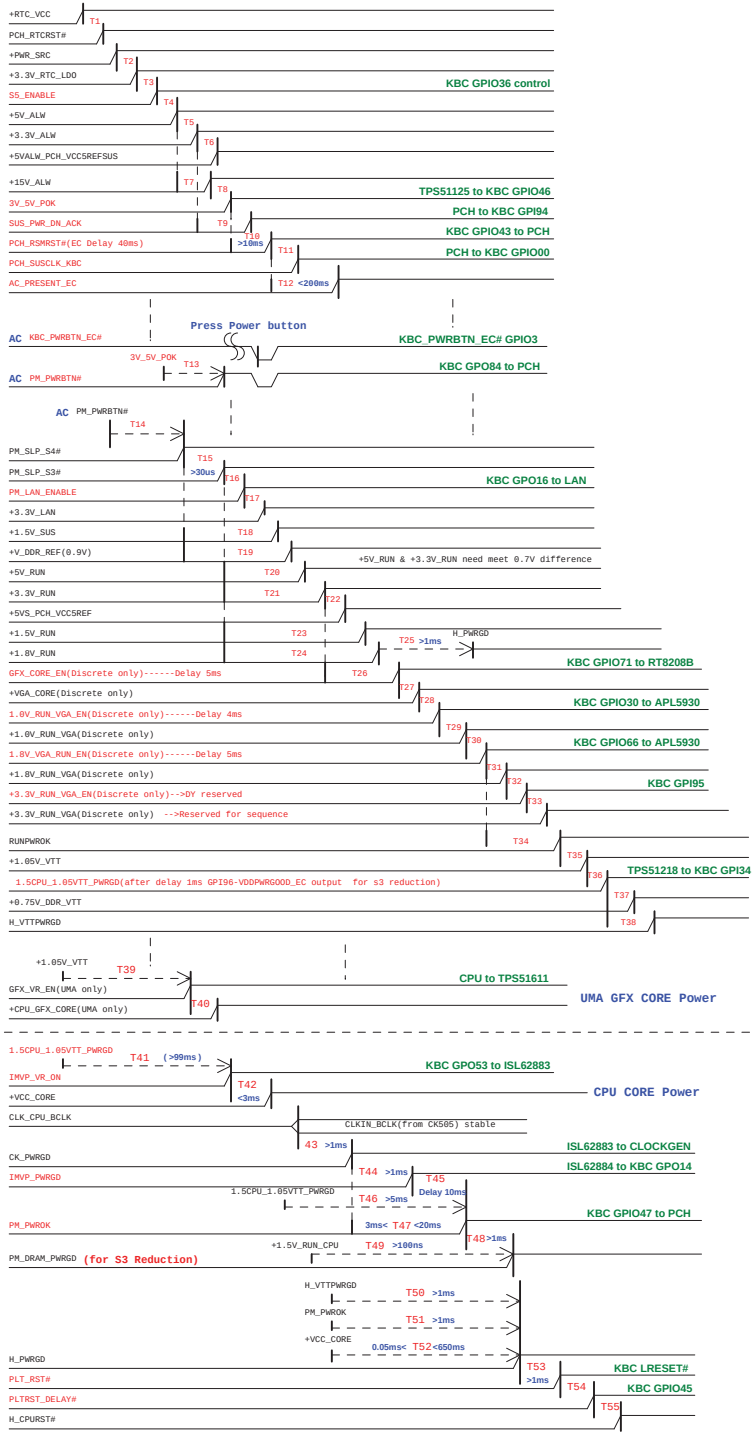
| Size | Document Number | Rev |
|---|---|---|
| A3 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 98 of 102

# Intel-Power Up Sequence

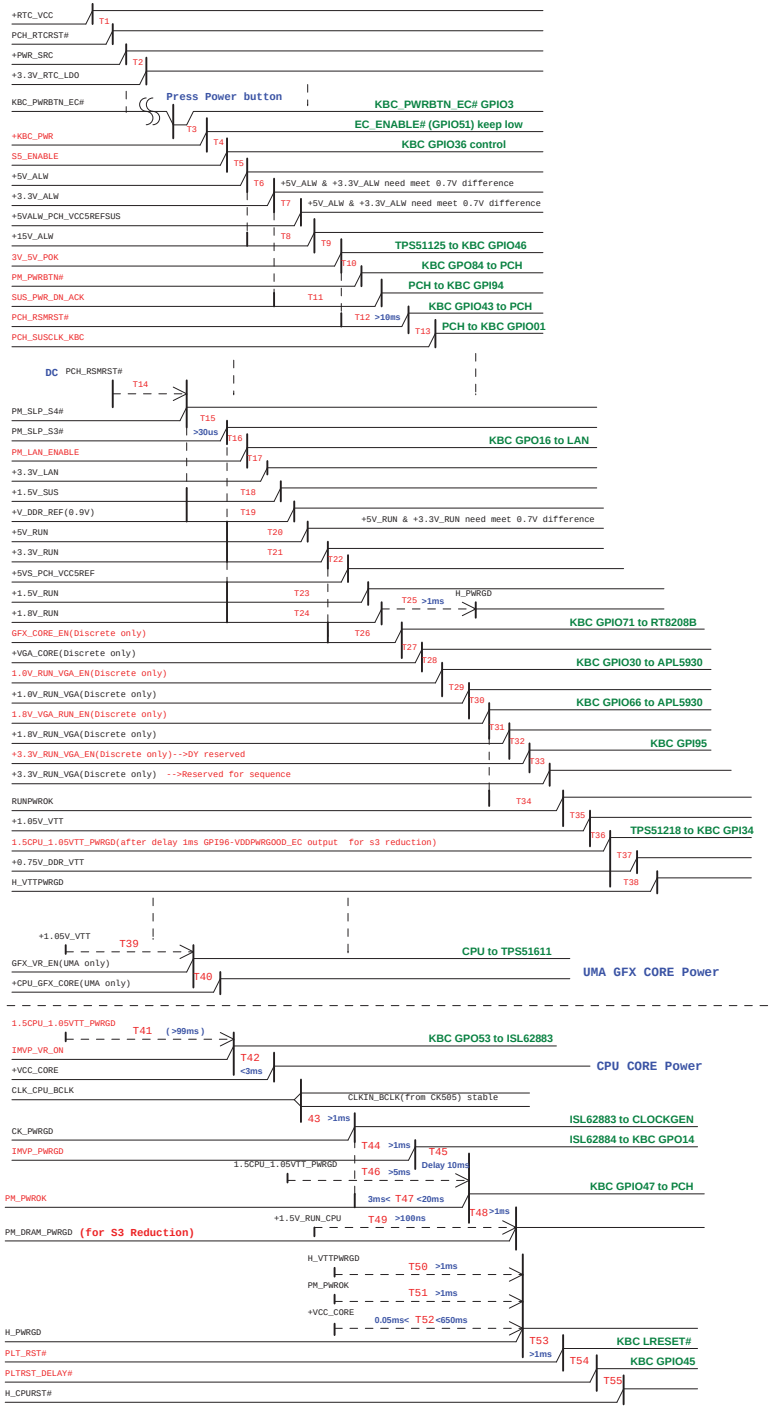
## (AC mode)

red word: KBC GPIO



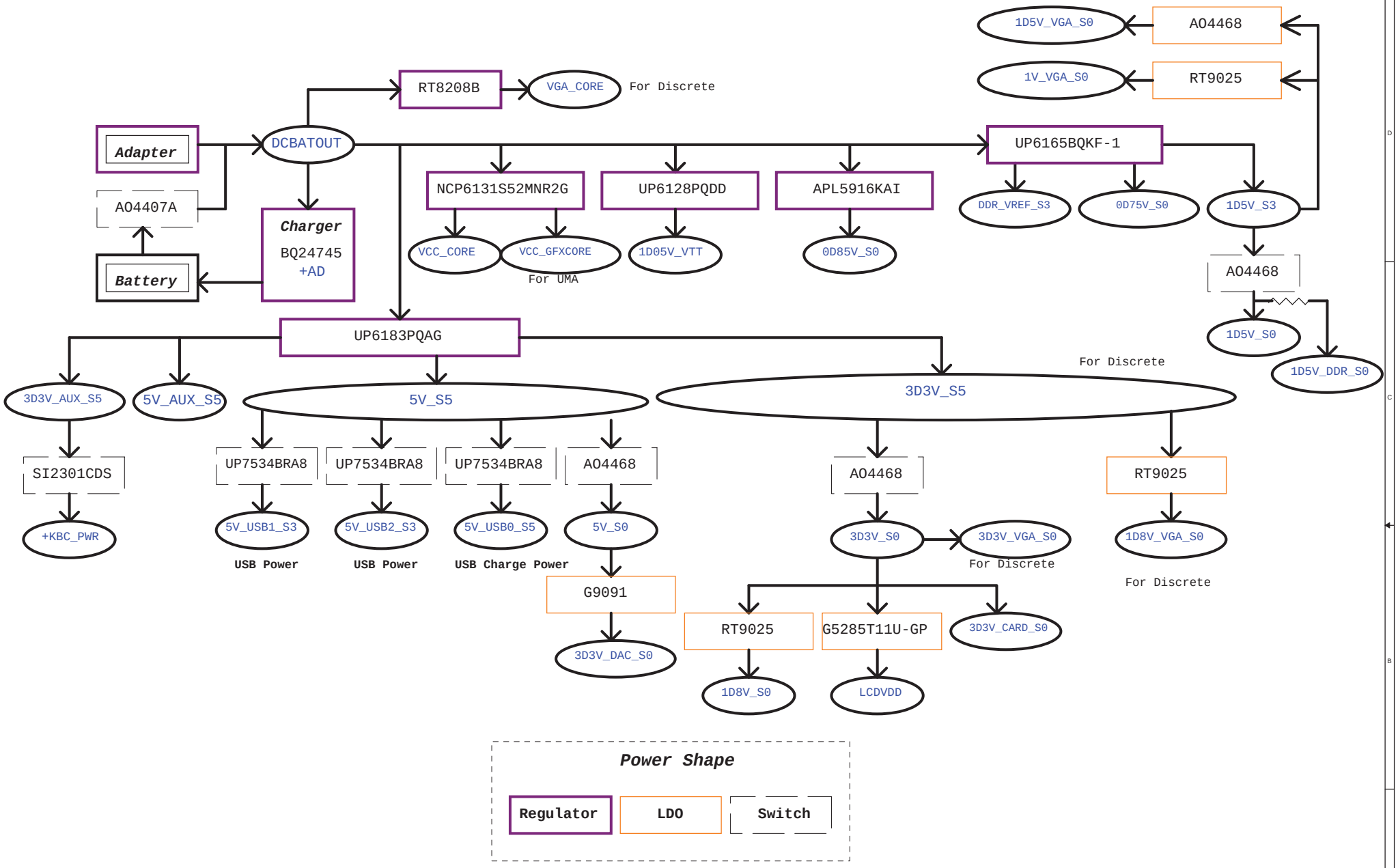

## (DC mode)

red word: KBC GPIO




HR UMA

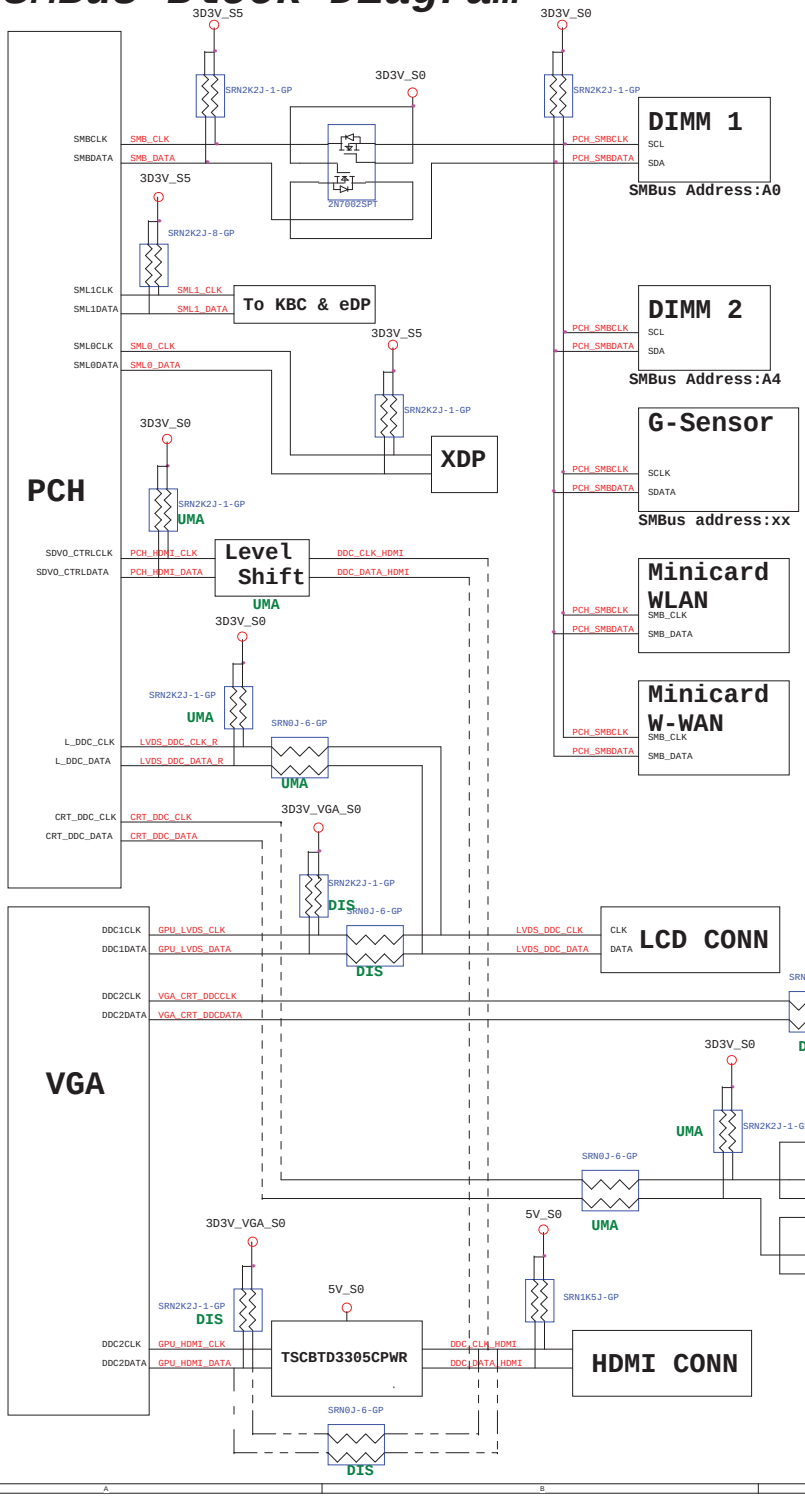
| | | |
|---|---|---|
| 蜂創資通 | Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | |
| Title: Power Sequence | | |
| Size: A1 | Document Number: JE40-HR | Rev: -1 |
| Date: Tuesday, December 04, 2007 | Sheet 38 of 39 | |



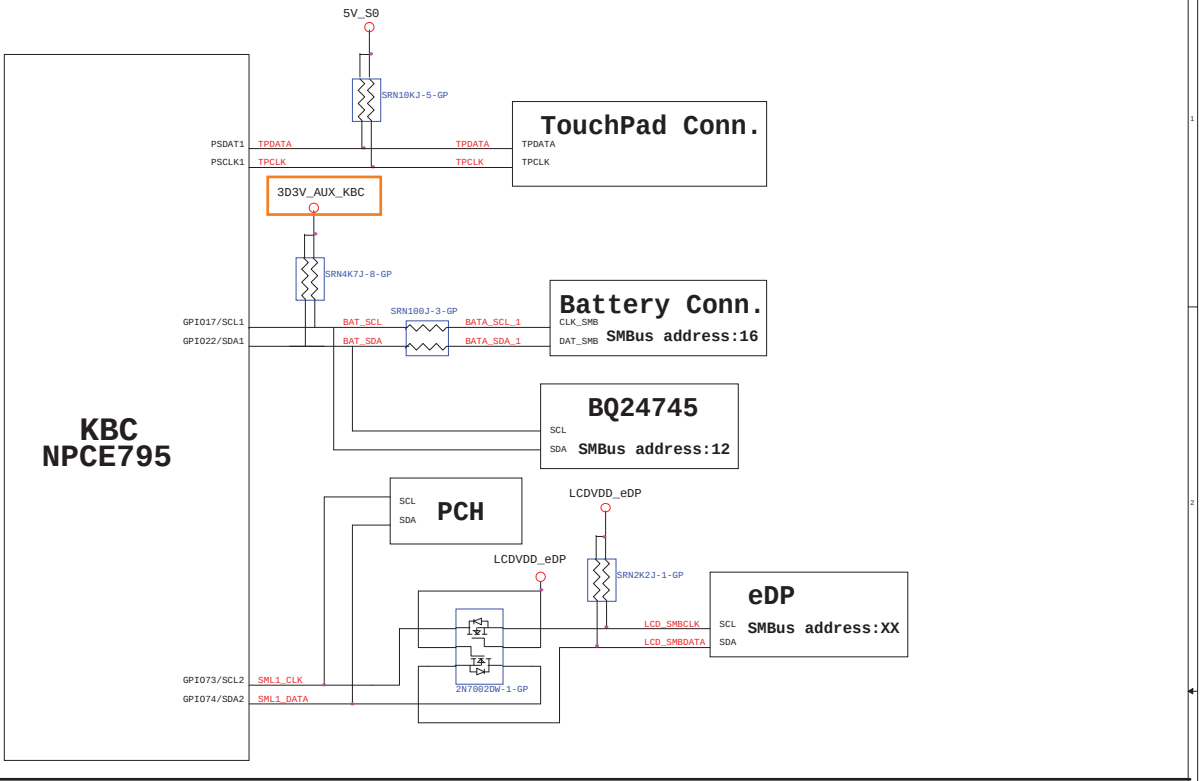

HR UMA

| | | |
|---|---|---|
| 緯創資通 Wistron Corporation<br>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,<br>Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title: Power Block Diagram | | |
| Size: A3 | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 100 of 102 | |

# PCH SMBus Block Diagram




# KBC SMBus Block Diagram







HR UMA

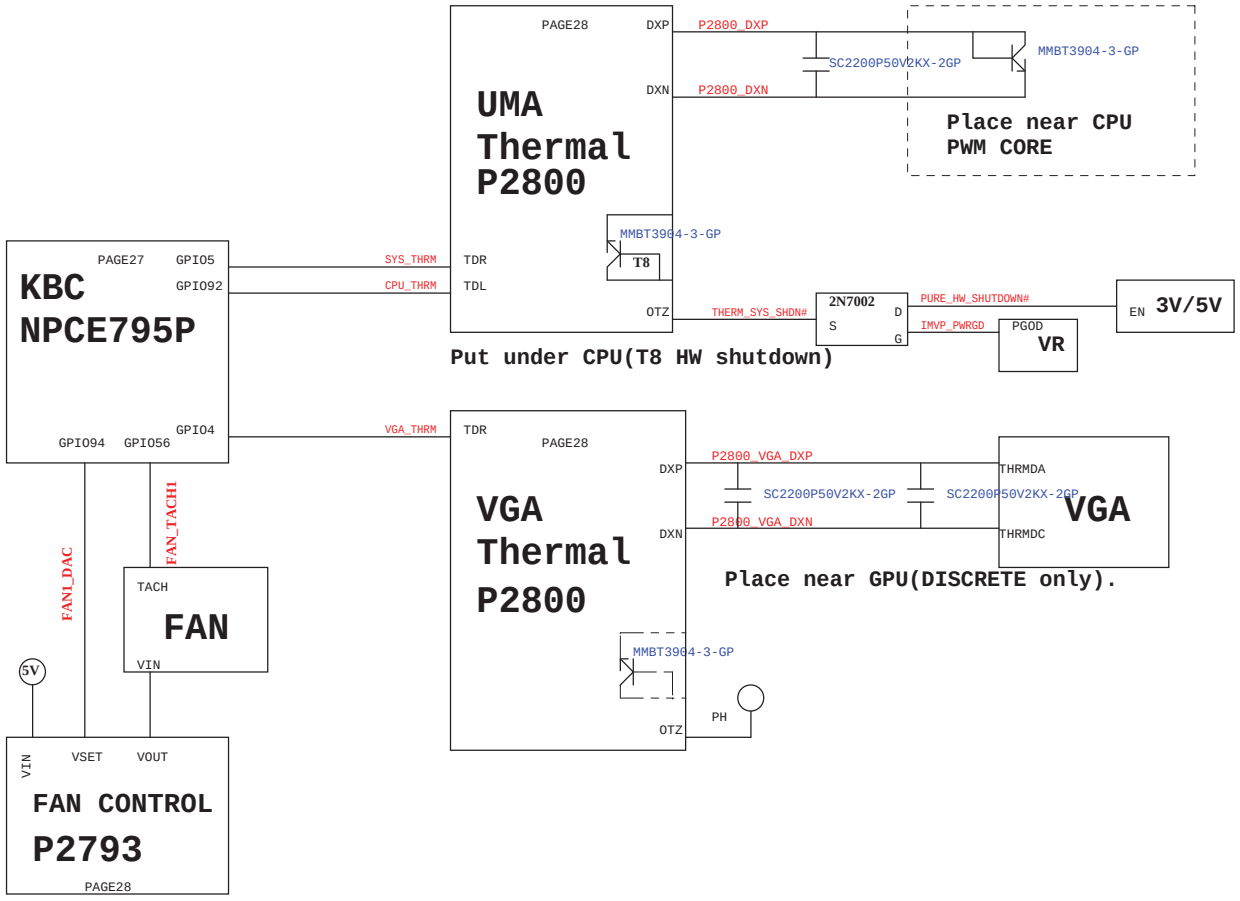

緯創資通 Wistron Corporation
21F, 88, Sec 1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.


Title: SMBUS Block Diagram

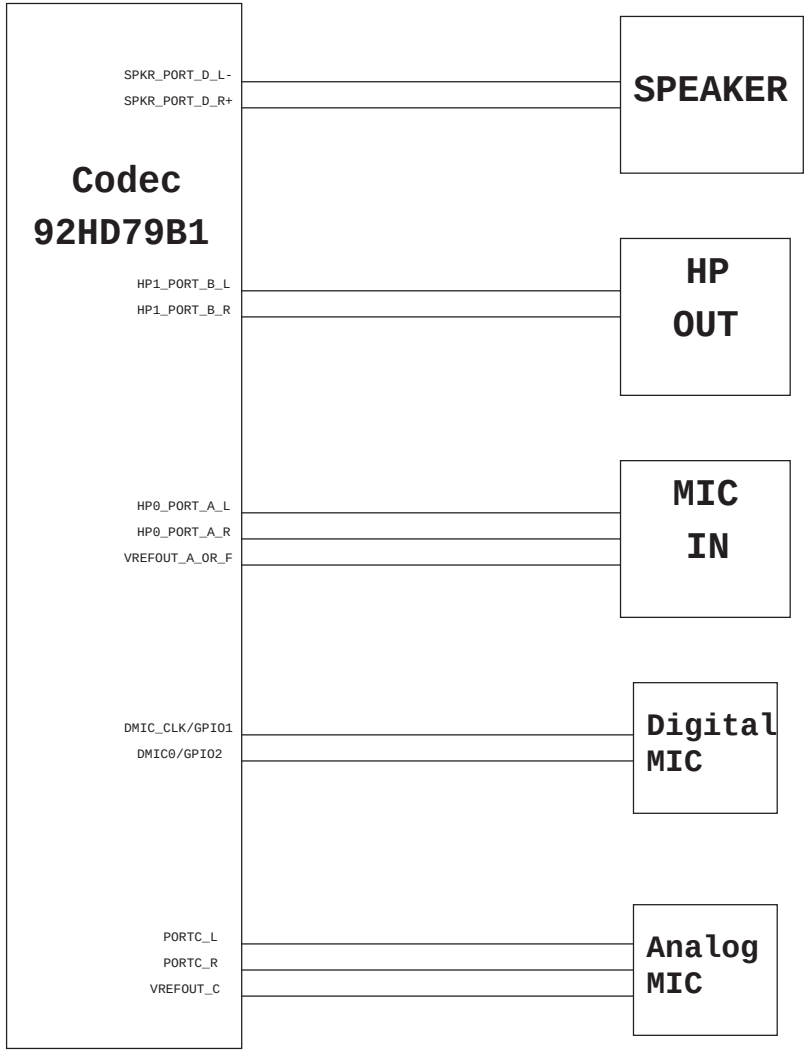
| Size | Document Number | Rev |
|---|---|---|
| A2 | JE40-HR | -1 |

Date: Thursday, December 02, 2010 Sheet 101 of 102

# Thermal Block Diagram




# Audio Block Diagram




HR UMA

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

| | | |
|---|---|---|
| Title: *Thermal/Audio Block Diagram* | | |
| Size: Custom | Document Number: JE40-HR | Rev: -1 |
| Date: Thursday, December 02, 2010 | Sheet 102 of 102 | |