

**Kendo-4 SWG Block Diagram**



<b>緯創資通</b> <b>Wistron Corporation</b> 21F, Bldg. Sec. 1, Hsin Tai Wu Rd., Hsichia, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
<b>Block Diagram</b> <b>Kendo-4 SWG</b>	
Size Custom	Rev SA
Date: Friday, February 24, 2012	Sheet 1 of 104

Symbol name	Value	Tolerance (J: 5%, F: 1%, D: 0.5%, B: 0.1 %)	Rating 0402=> 1/16W, 25V 0603 => 1/16W, 75V 0805 => 1/10W, 100V	Size 2=>0402, 3=>0603, 5=>0805, 6=>1206, 0=>1210
10KR3	10K Ohm	If no letter, it means J: 5%	1/16W, 75V	0603
33D3R5	33.3 Ohm	If no letter, it means J: 5%	1/10W, 100V	0805
1KR3F	1K Ohm	F: 1%	1/16W, 75V	0603

Symbol name	Value	Tolerance (M: +/-20, K: +/-10, Z: +80/-20)	Rating	Size 2=>0402, 3=>0603, 5=>0805, 6=>1206, Q=>1210
SCD1U10V2MX-1	0.1uF	M/X5R	10V	0402
SC10U6D3V5MX	10uF	M/X5R	6.3V	0805
SC2D2U16V5ZY	2.2uF	Z/Y5V	16V	0805

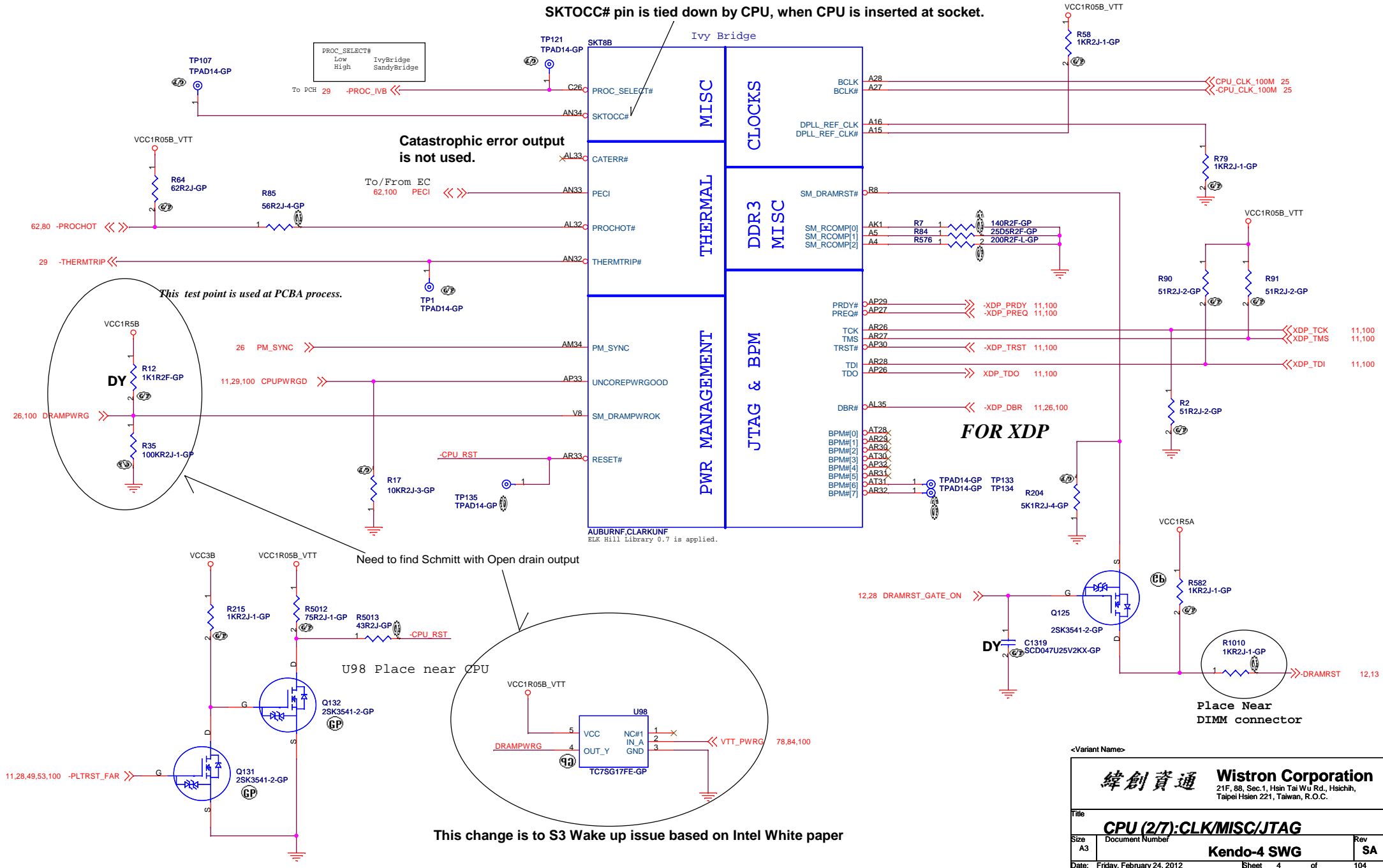
PCH GPIO <sub>n</sub>	39	38	49	48	Planar ID Version	Planar PCB Version
PLANAR_ID <sub>n</sub>	3	2	1	0		
	0	0	0	1	SDV	SA
	0	0	1	1	FVT	SC
	0	1	0	0	SIT	SD
	0	1	0	1	SIT-R	SE
	0	1	1	0	SVT	-1

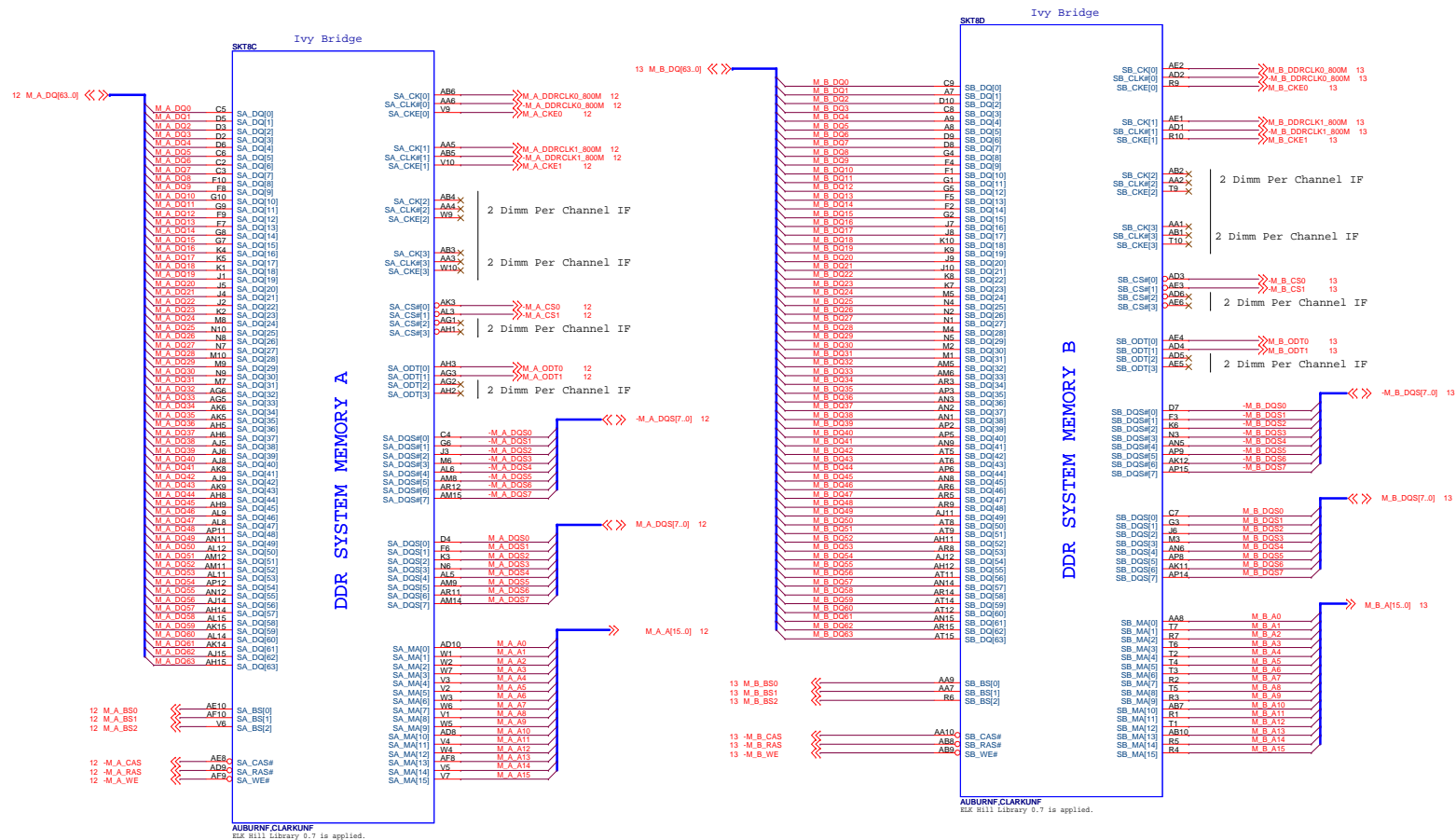
[illegible]

DEVICE	IDSEL	IRQ (Default)	REQ# / GNT#
MINIPCI SLOT	AD18	F, G	REQ# 3/ GNT#3
CARDBUS R5C811	AD16	SERIRQ	REQ#0 / GNT#0
USB UHCI	AD29	A, C, D	
USB 2.0 EHCI	AD29	H	
DMI-to-PCI/ AC97 Modem/ AC97 Audio	AD30	B B	
LPC Bridge IDE SATA SMBus	AD31	C C B	
PCI Express	AD28	A, B, C, D	

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Title			
		<b>EC HISTORY</b>	
Size A3	Document Number	<b>Kendo-4 SWG</b>	<b>Rev SA</b>
Date:	Friday, February 24, 2012	Sheet 2 of	104

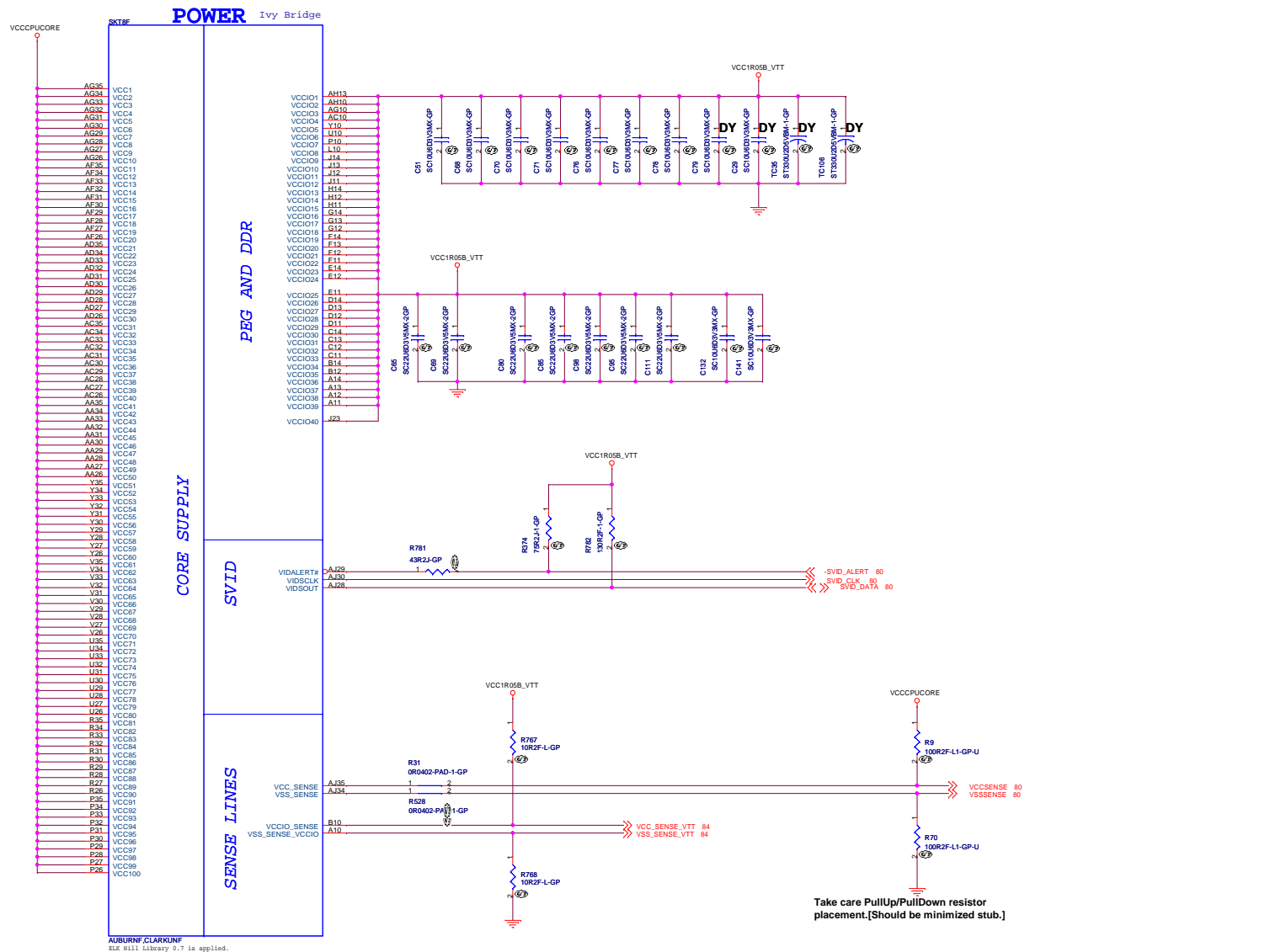






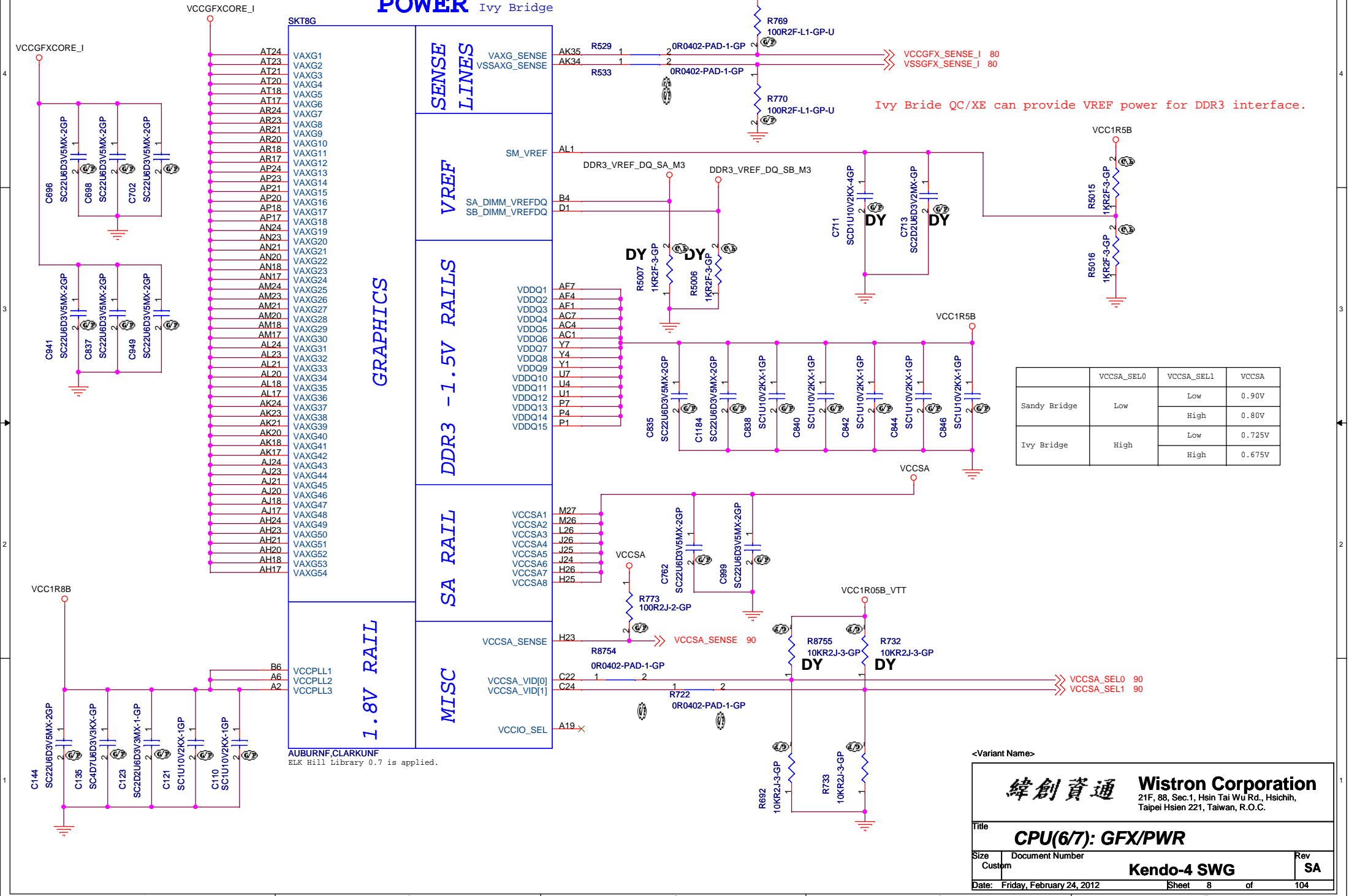
BLANK

<Variant Name>



# POWER

Ivy Bridge



Ivy Bride QC/XE can provide VREF power for DDR3 interface.

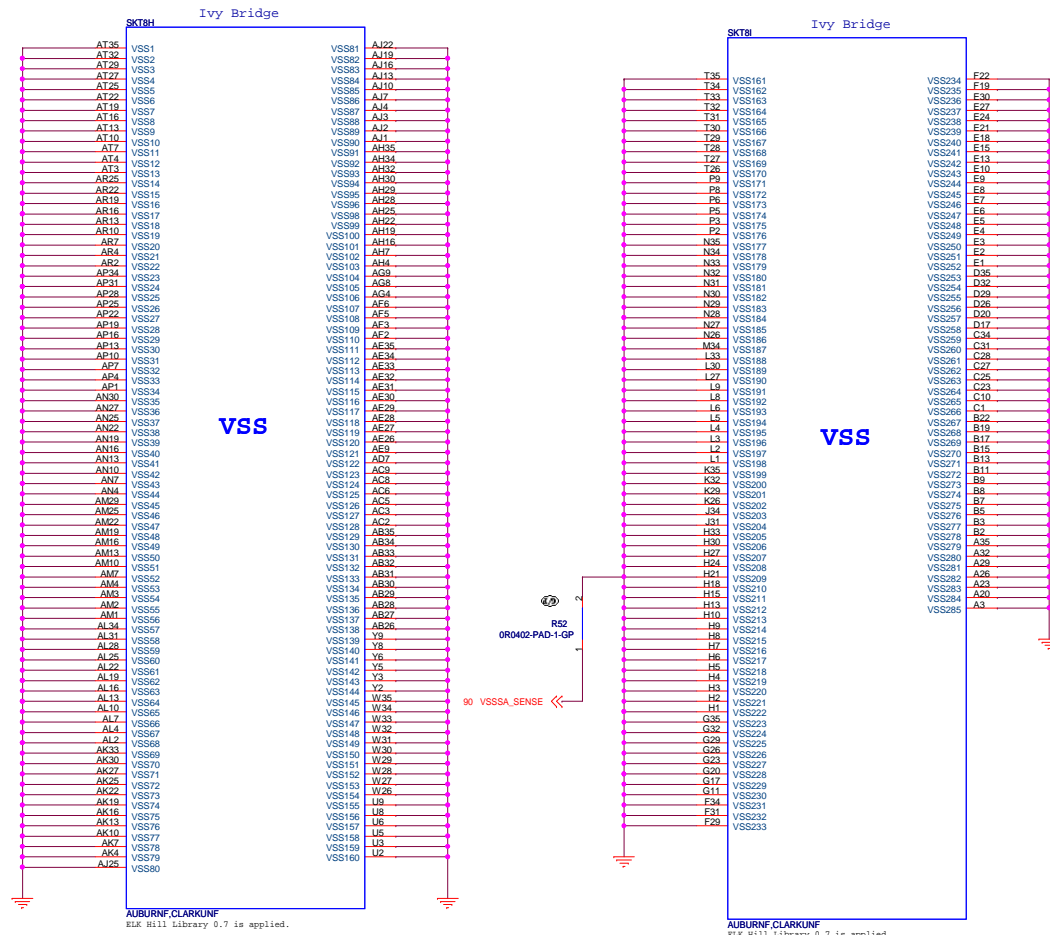
	VCCSA_SEL0	VCCSA_SEL1	VCCSA
Sandy Bridge	Low	Low	0.90V
		High	0.80V
Ivy Bridge	High	Low	0.725V
		High	0.675V

<Variant Name>

緯創資通

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

Title			<b>CPU(6/7): GFX/PWR</b>	
Size	Document Number	Rev		SA
Custom		<b>Kendo-4 SWG</b>		
Date:	Friday, February 24, 2012	Sheet	8	of 104



<Variant Name>

緯創資通

Wistron Corporation  
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Taippei Hsien 221, Taiwan, R.O.C.

Title

CPU(7/7): GND

Size

Document Number

Kendo-4 SWG

Rev

SA

Date: Friday, February 24, 2012

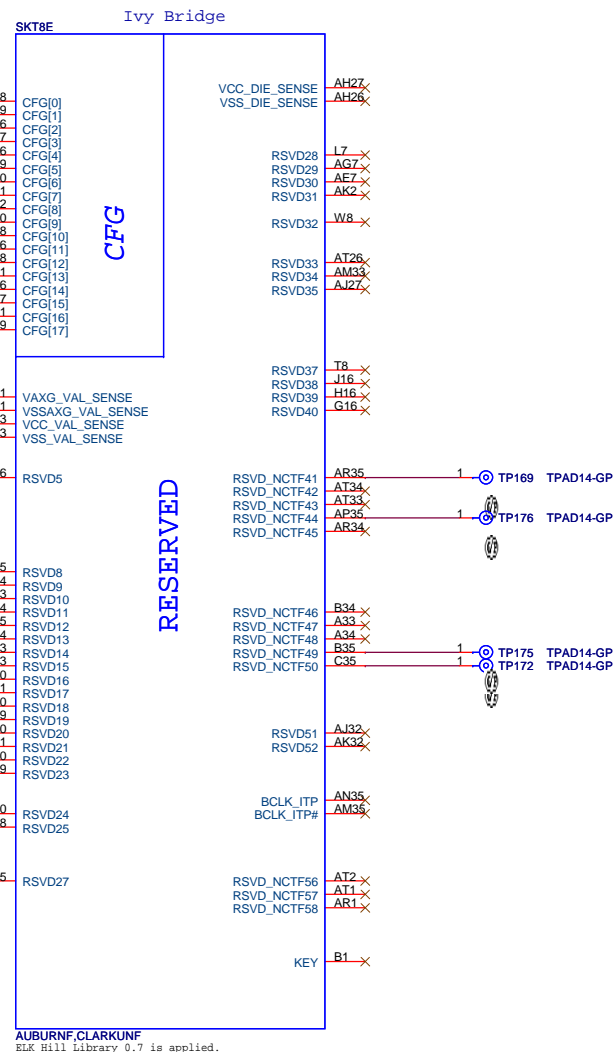
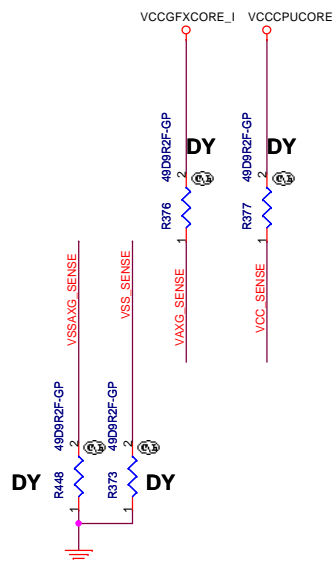
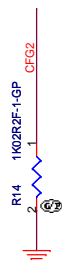
Sheet 9 of 104

Should be add pulldown 1K based on configuration specification.

When PEG Lane reversible function is used,  
CFG2 should have pull down.

When PCIe Port Bifurcation function is used,  
CFG5 & 6 should have pull down.  
Low/Low : x8 , x4 and x4  
Low/High : Reserved  
High/Low : x8 and x8  
High/High : x16

Test point on CFG1, CFG3-CGF7, CFG16  
are for Intel CPU debugging.



AUBURNF.CLARKUNF  
ELK Hill Library 0.7 is applied.

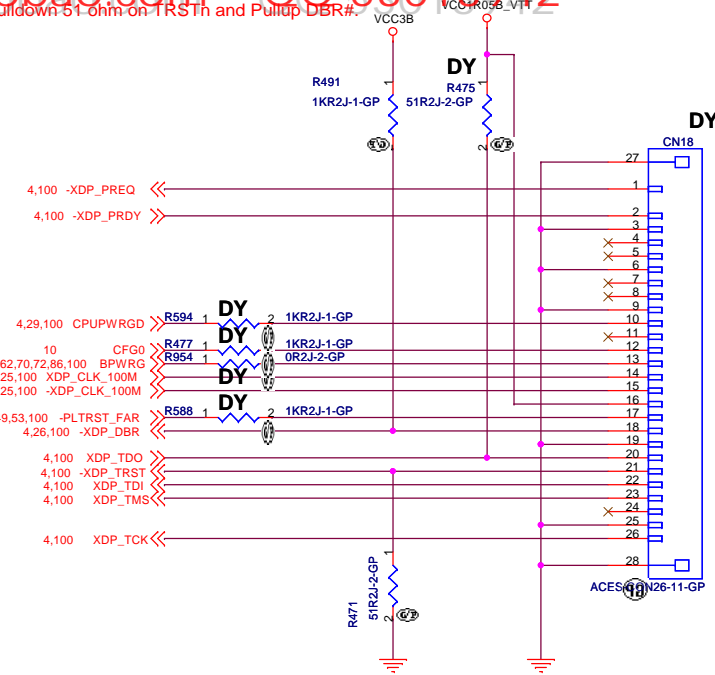
<Variant Name>

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Title			CPU(4/7): CFG/RSVD	
Size	Document Number	Kendo-4 SWG		Rev
A3				SA
Date:	Friday, February 24, 2012	Sheet	10	of 104

SIGNAL	REF DES	ENABLE	DISABLE
TDO	R475	ASM	NOASM
TRST#	R471	ASM	ASM
DBRST#	R491	ASM	ASM
RESET#	R588	ASM	NOASM
CFG0	R477	ASM	NOASM
PWRGD	R594	ASM	NOASM
BPWRG	R954	ASM	NOASM
	CN18	ASM	NOASM

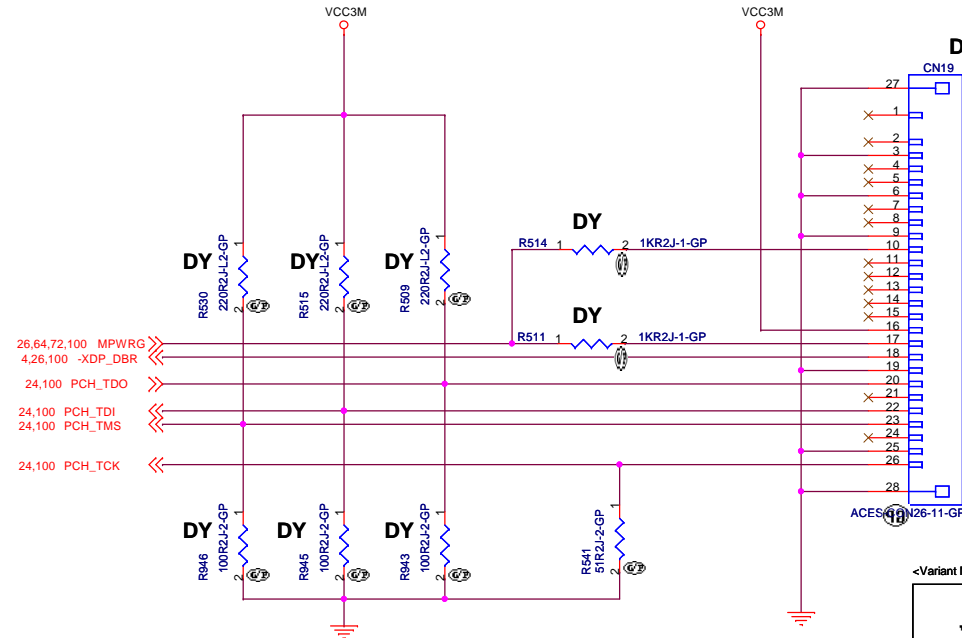
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LOGIC



CPU XDP SFF 26pin IF  
 Pin 1 OBSFN\_A0 (PREQ#, I/O)  
 Pin 2 OBSFN\_A1 (PRDY#, I/O)  
 Pin 3 GND  
 Pin 4 OBSDATA\_A0 (Open, I/O)  
 Pin 5 OBSDATA\_A1 (Open, I/O)  
 Pin 6 GND  
 Pin 7 OBSDATA\_A2 (Open, I/O)  
 Pin 8 OBSDATA\_A3 (Open, I/O)  
 Pin 9 GND  
 Pin 10 HOOK0 (PWRGD, In)  
 Pin 11 HOOK1 (BP\_PWRGD\_RST#, Out)  
 Pin 12 HOOK2 (CFG0, Out)  
 Pin 13 HOOK3 (vr\_READYSYS\_PWROK, Out)  
 Pin 14 HOOK4 (BCLK#, In)  
 Pin 15 HOOK5 (BCLK#, In)  
 Pin 16 VCCOBS\_AB (VCCP Voltage of CPU, In)  
 Pin 17 HOOK6 (RESET#, Out)  
 Pin 18 HOOK7 (DBR#, Out)  
 Pin 19 GND  
 Pin 20 TDO, In  
 Pin 21 TRST#, Out  
 Pin 22 TDI, Out  
 Pin 23 TMS, Out  
 Pin 24 TCK1 (Open)  
 Pin 25 GND  
 Pin 26 TCK0 ,Out

SIGNAL	REF DES	ENABLE	DISABLE
TDO	R509 R943	220 100	NOASM NOASM
TMS	R530 R946	220 100	NOASM NOASM
TDI	R515 R945	220 100	NOASM NOASM
TCK	R541	51	51
MPWRG	R511 R514	ASM ASM	NOASM NOASM
	CN19	ASM	NOASM

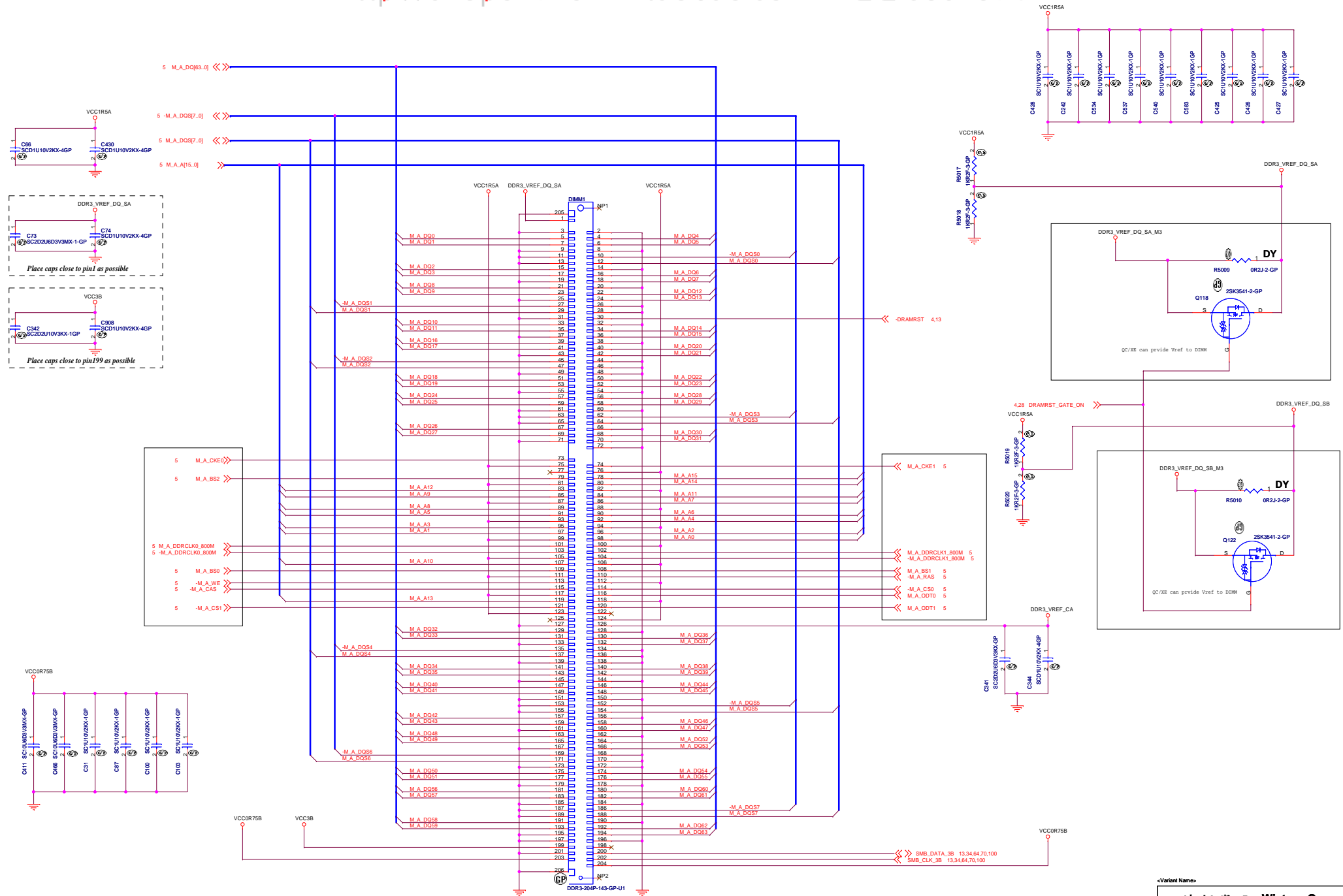
↑  
LOGIC

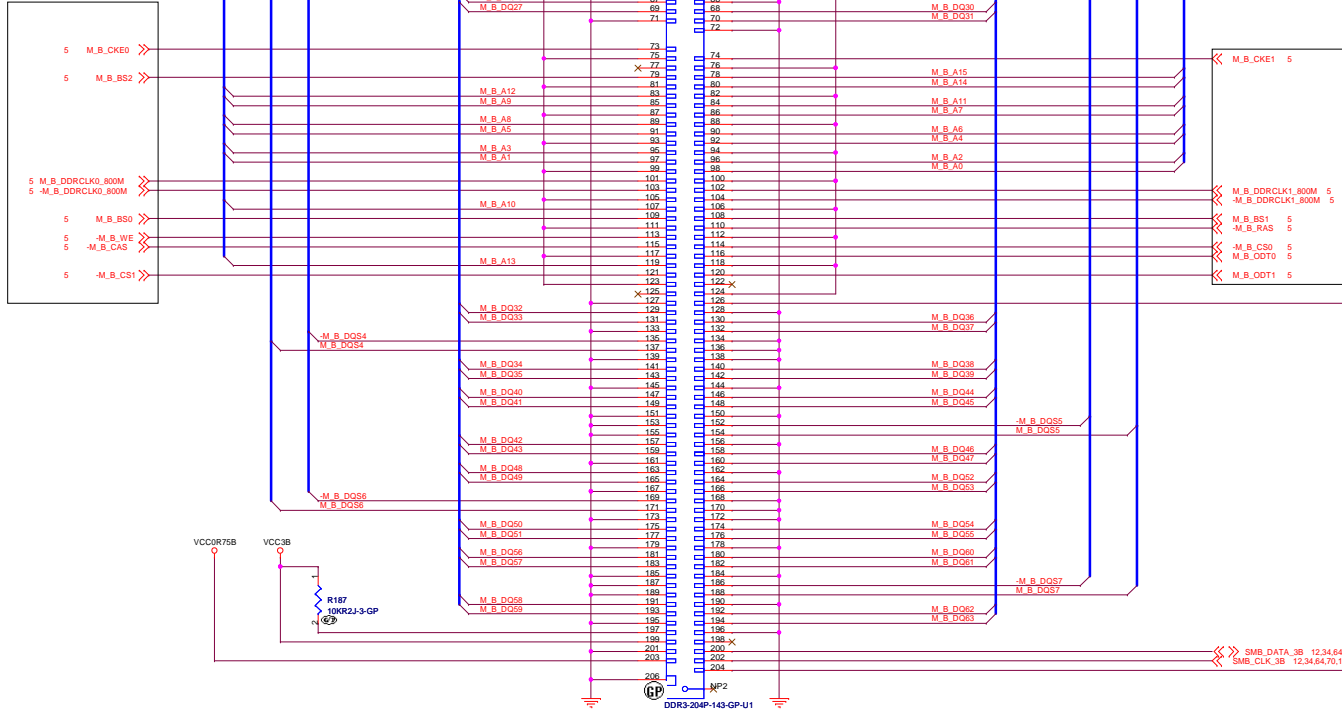


#### DEBUG Interface for PCH.

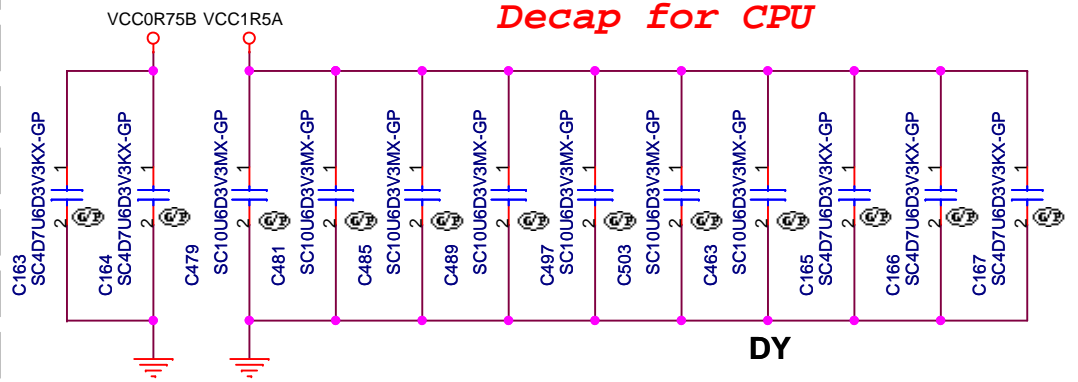
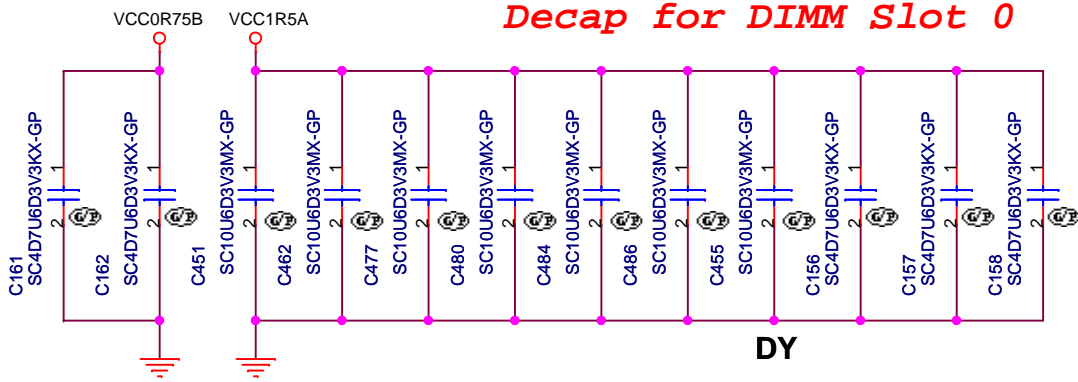
PCH XDP SFF 26pin IF  
 Pin 1 OBSFN\_A0 (Open, I/O)  
 Pin 2 OBSFN\_A1 (Open, I/O)  
 Pin 3 GND  
 Pin 4 OBSDATA\_A0 (Open, I/O)  
 Pin 5 OBSDATA\_A1 (Open, I/O)  
 Pin 6 GND  
 Pin 7 OBSDATA\_A2 (Open, I/O)  
 Pin 8 OBSDATA\_A3 (Open, I/O)  
 Pin 9 GND  
 Pin 10 HOOK0 (RSMRST#, In)  
 Pin 11 HOOK1 (BP\_PWRGD\_RST#, Out)  
 Pin 12 HOOK2 (Open)  
 Pin 13 HOOK3 (Open)  
 Pin 14 HOOK4 (Open)  
 Pin 15 HOOK5 (Open)  
 Pin 16 VCCOBS\_AB (3.3VSUS, In)  
 Pin 17 HOOK6 (RSMRST#, Out)  
 Pin 18 HOOK7 (DBR#, Out)  
 Pin 19 GND  
 Pin 20 TDO (JTAG, In)  
 Pin 21 TRST# (Open)  
 Pin 22 TDI (JTAG, Out)  
 Pin 23 TMS (JTAG, Out)  
 Pin 24 TCK1 (Open)  
 Pin 25 GND  
 Pin 26 TCK0 (JTAG, Out)

<Variant Name>





*This connector should be placed on far side from CPU.*



<Variant Name>

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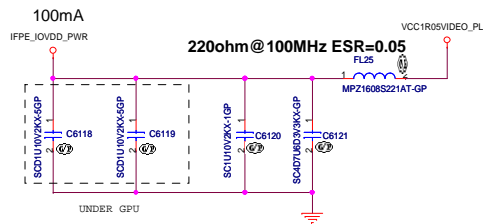
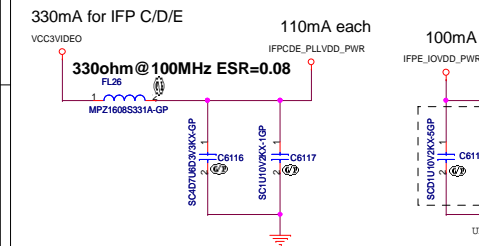
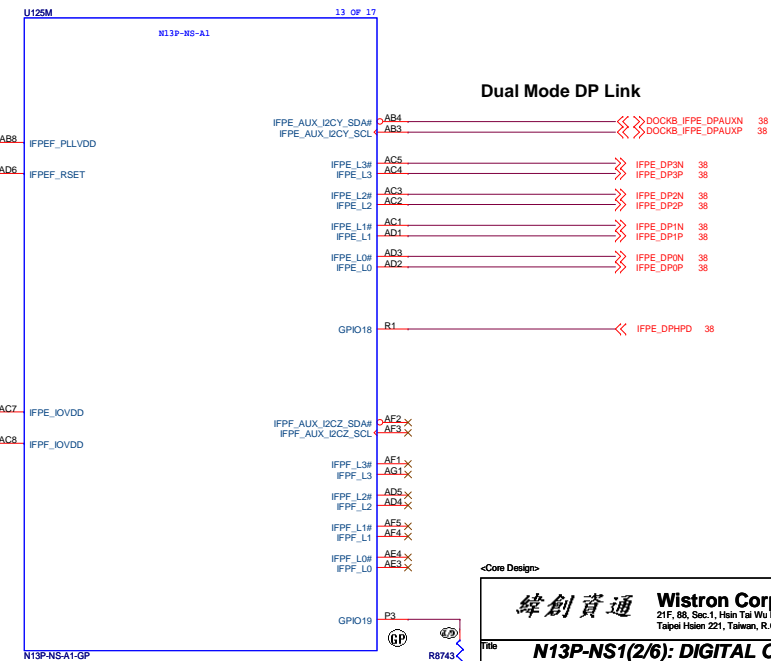
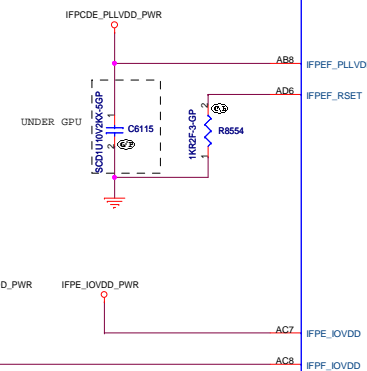
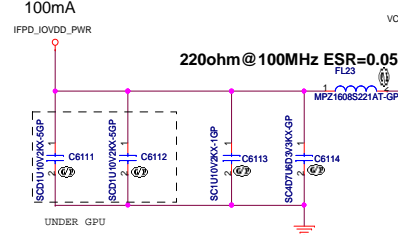
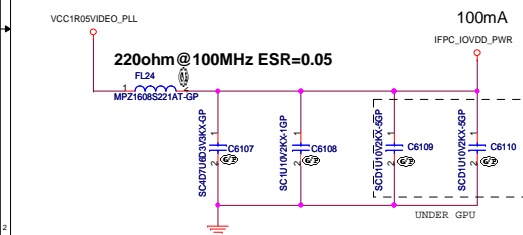
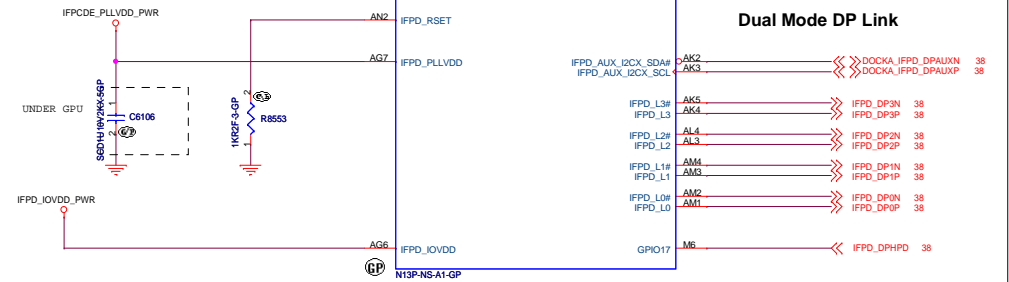
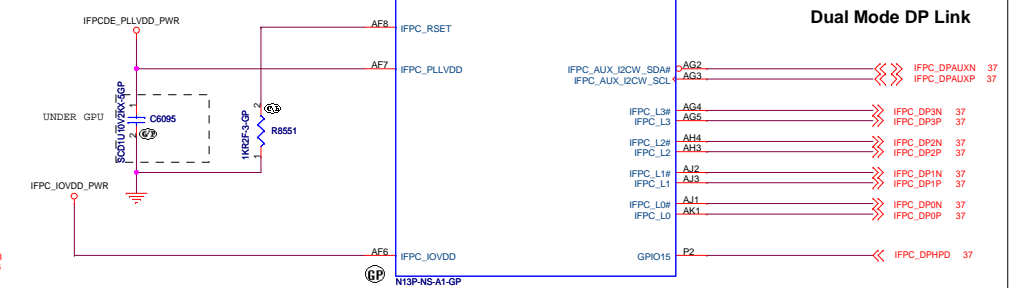
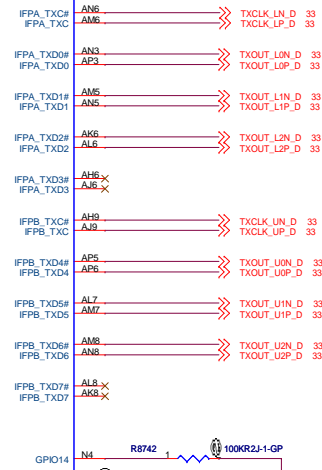
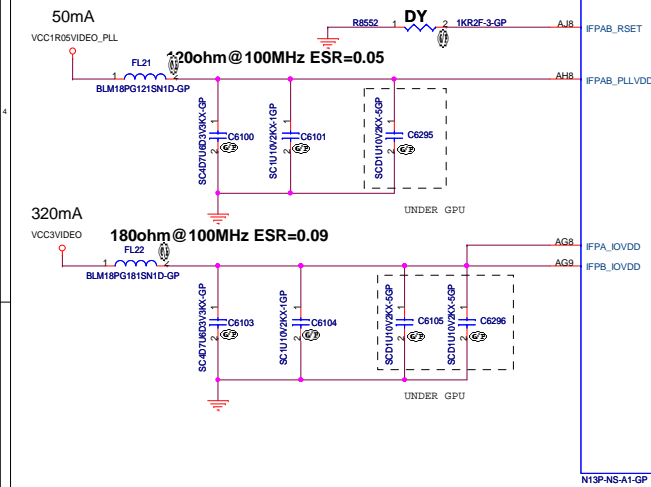
Title **DECAP For DIMMs**

Size A4	Document Number <b>Kendo-4 SWG</b>	Rev <b>SA</b>
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Date: Friday, February 24, 2012 Sheet 14 of 104



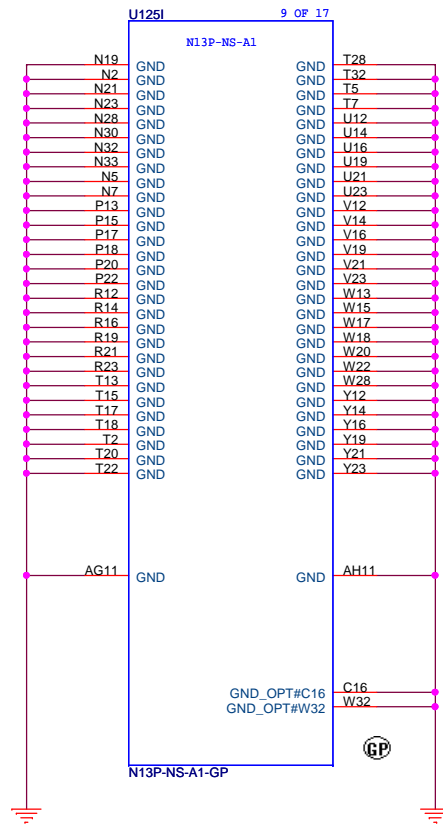
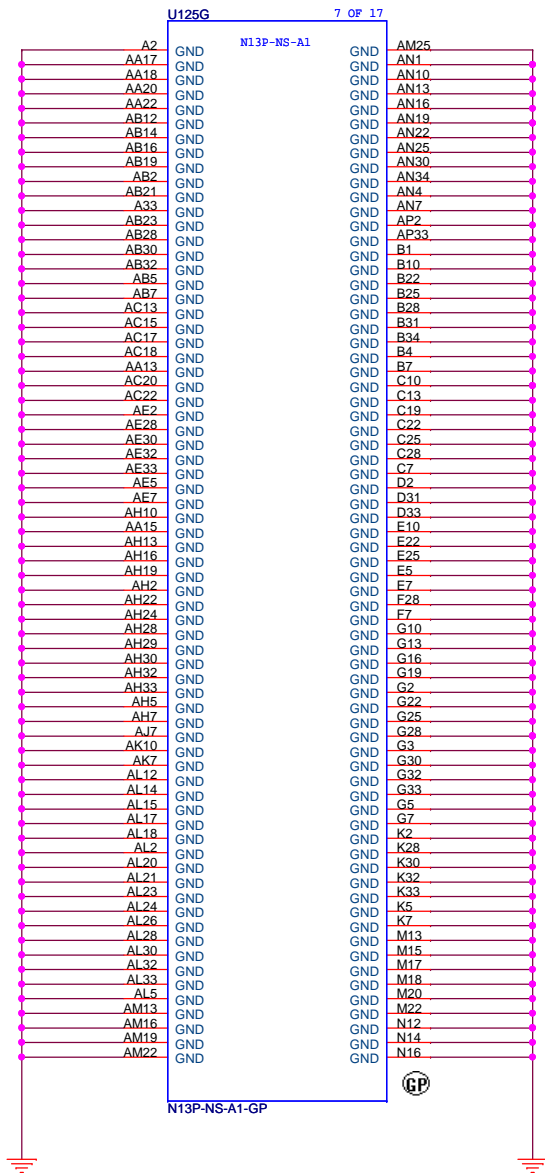
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<Core Design>

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Title N13P-NS1(6/6): GND

Size B Document Number Kendo-4 SWG Rev SA

Date: Friday, February 24, 2012 Sheet 20 of 104

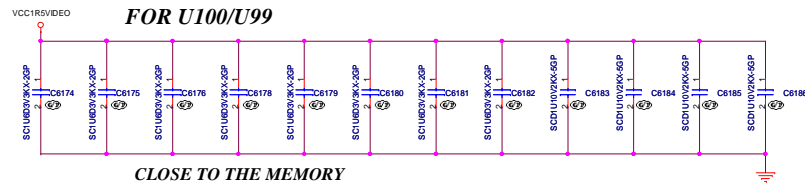
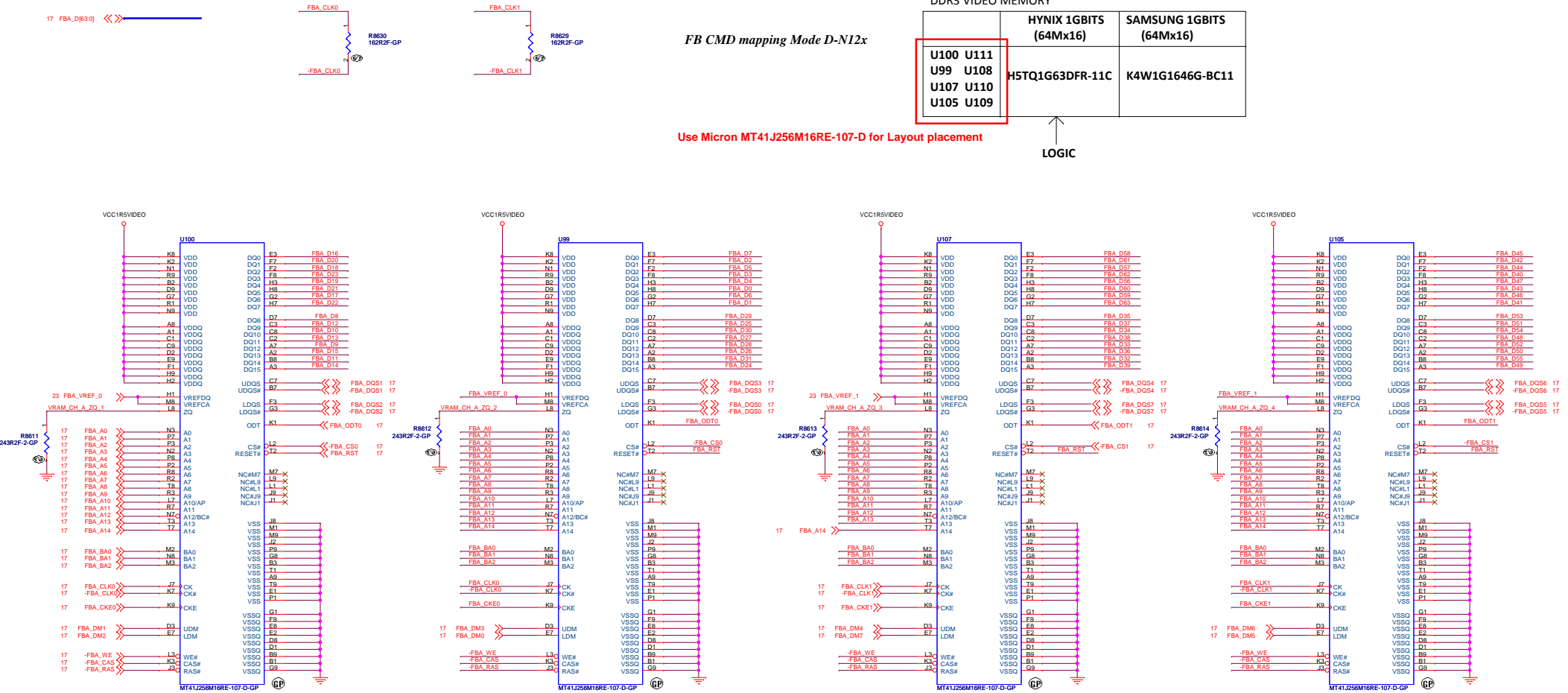
TABLE  
DDR3 VIDEO MEMORY

	HYNIX 1GBITS (64Mx16)	SAMSUNG 1GBITS (64Mx16)
U100 U111 U99 U108 U107 U110 U105 U109	H5TQ1G63DFR-11C	K4W1G1646G-BC11

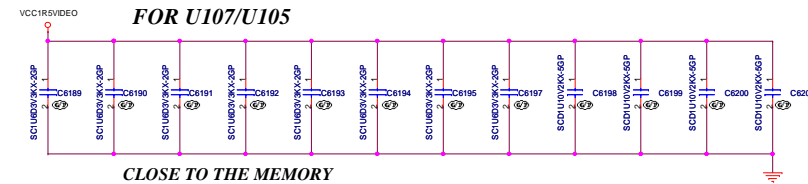
FB CMD mapping Mode D-N12x

Use Micron MT41J256M16RE-107-D for Layout placement

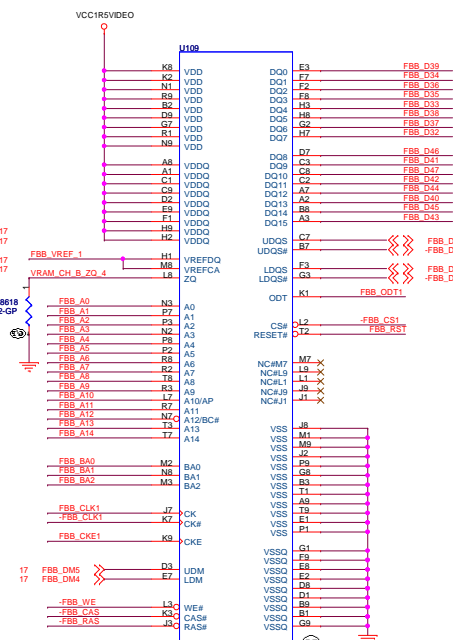
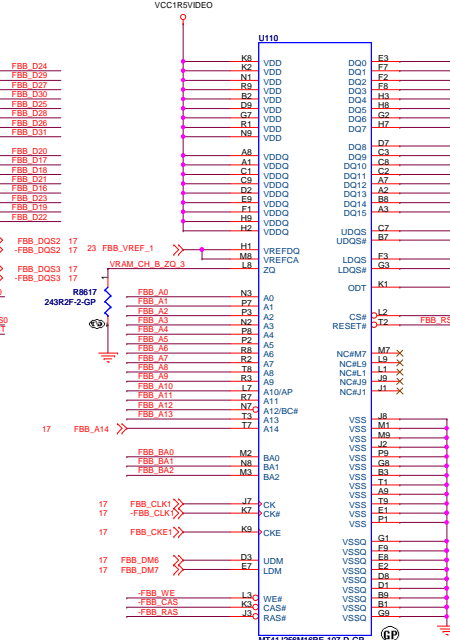
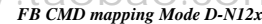
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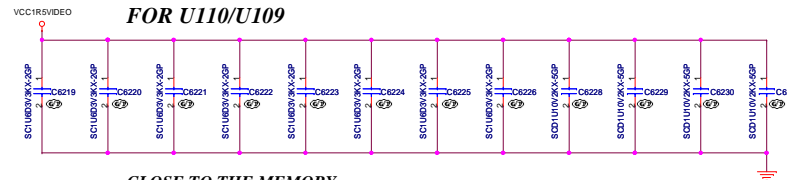
CLOSE TO THE MEMORY



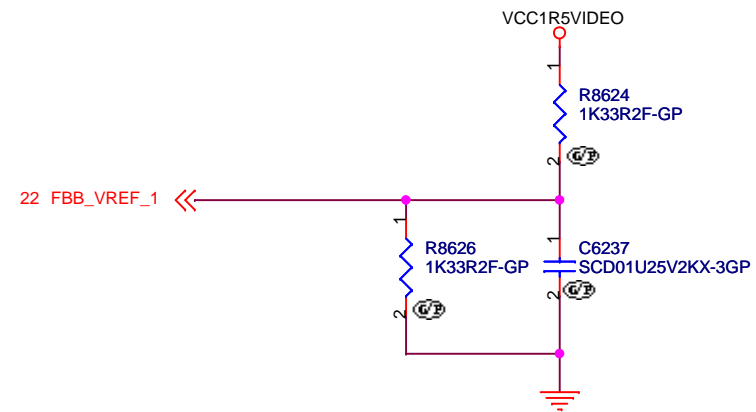
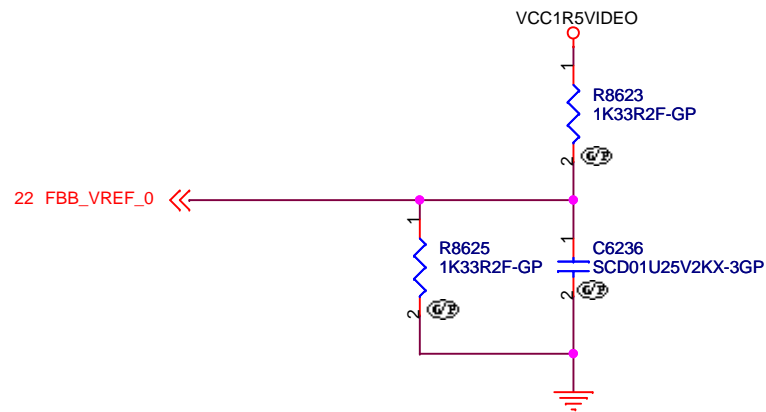
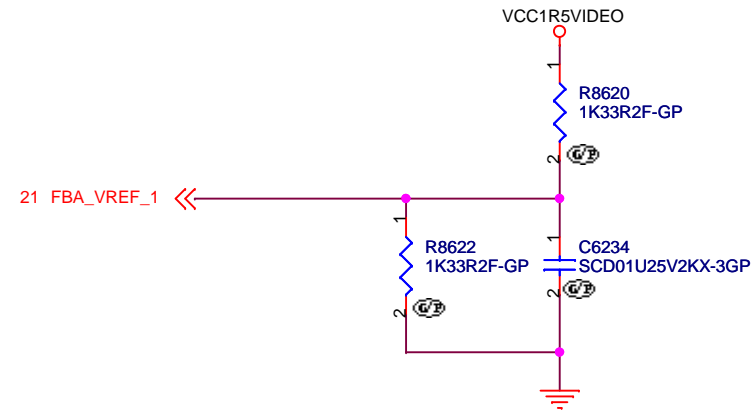
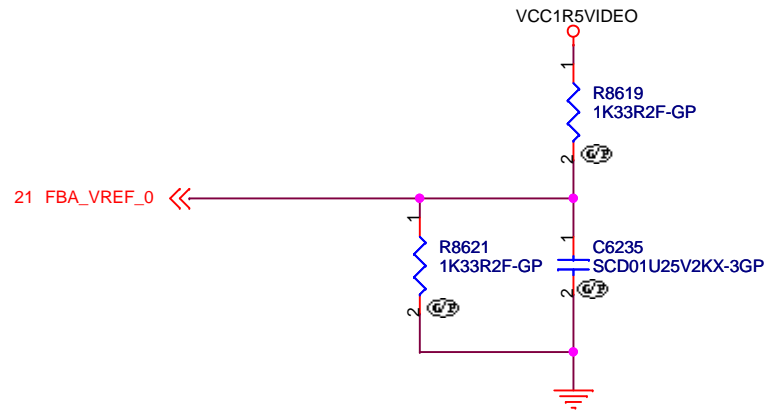
CLOSE TO THE MEMORY



**FOR U110/U109**



### CLOSE TO THE MEMORY



<Core Design>

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**Wistron Corporation**

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

Title **VIDEO MEMORY TERMINATION**

Size  
A4

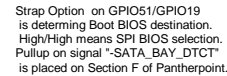
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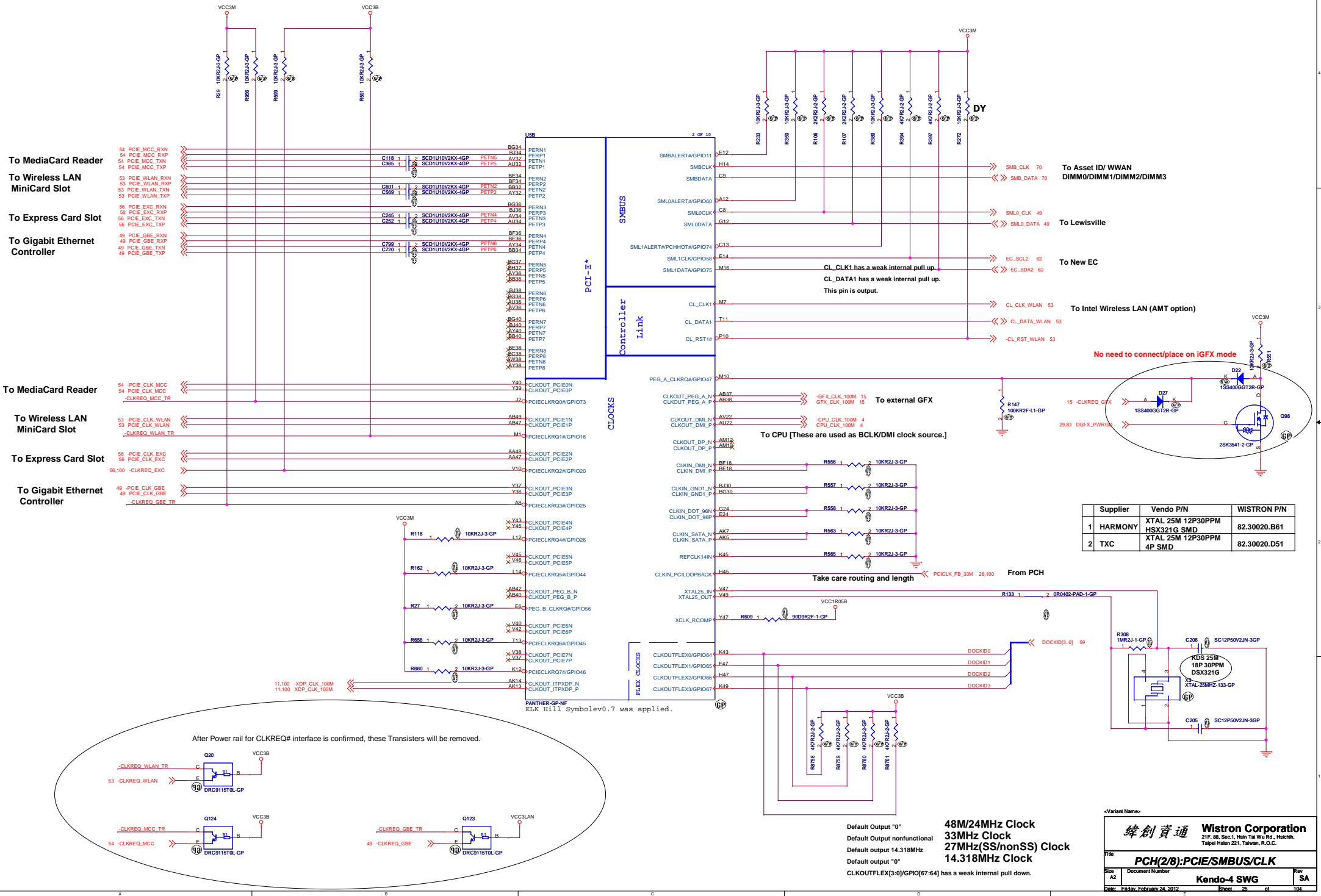
**Kendo-4 SWG**

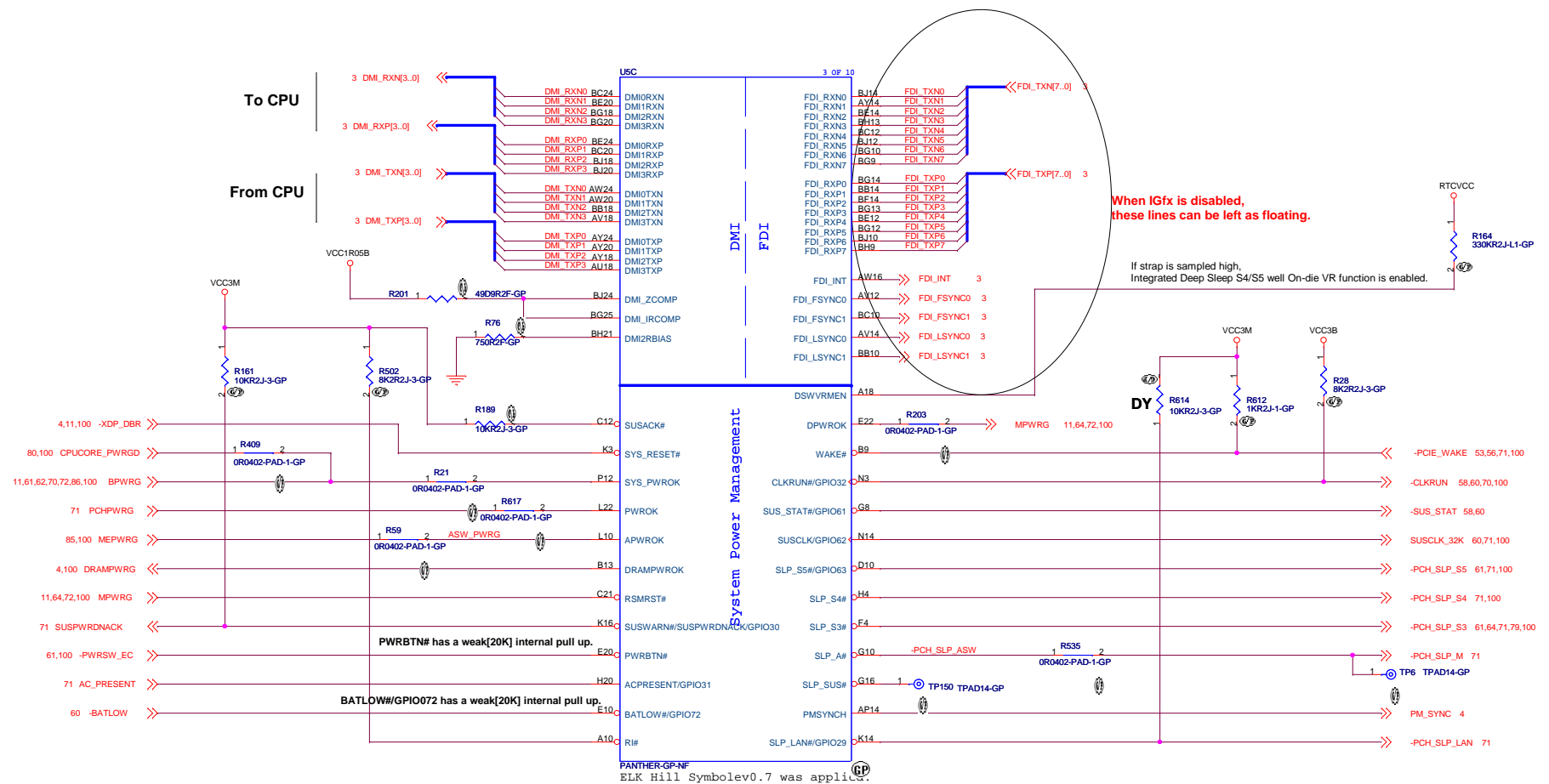
Rev  
**SA**

Date: Friday, February 24, 2012

Sheet 23 of 104

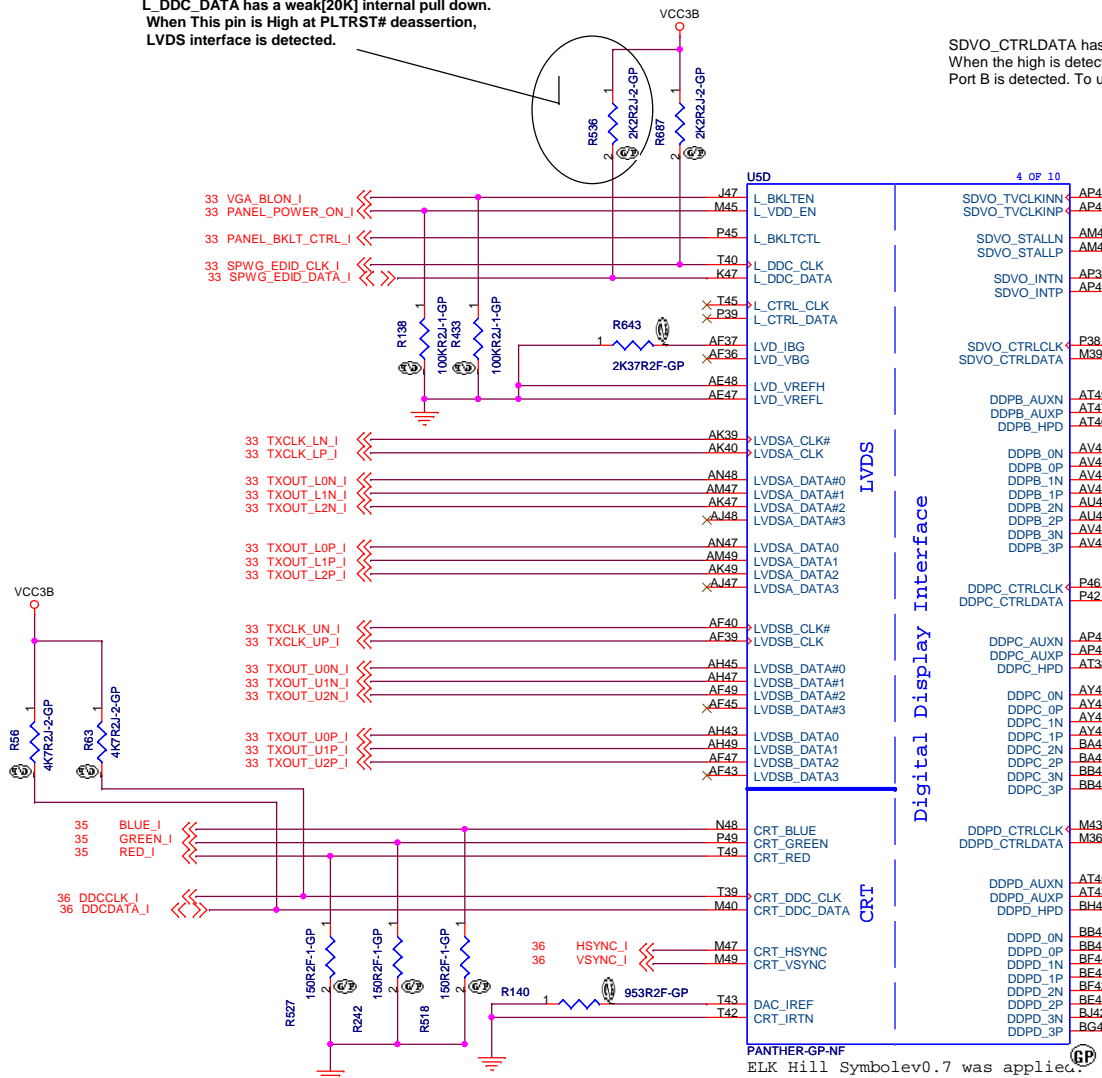






L\_DDC\_DATA has a weak[20K] internal pull down.  
When This pin is High at PLTRST# deassertion,  
LVDS interface is detected.

SDVO\_CTRLDATA has internal pull down.  
When the high is detected at PLTRST# deassertion,  
Port B is detected. To use Port B, need to add external pull up.



DDPD\_CTRLDATA has internal pull down.  
When the high is detected at PLTRST# deassertion,  
Port D is detected. To use Port D, need to add external pull up.

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Title <b>PCH (4/8):LVDS/CRT/DDI</b>		
Size A3	Document Number <b>Kendo-4 SWG</b>	Rev <b>SA</b>
Date: Friday, February 24, 2012	Sheet 27	of 104

Because PCI IF is not used, ADx.C/BEx and GNTx are left as NC.

GNT0# has a weak[20K] internal pull up.  
GNT1#/GPIO51 has a weak[20K] internal pull up.  
To use SPI IF flash BIOS, GNT1#/GPIO51  
and GNT0# should not place external pull down.

GNT2#/GPIO53 has a weak[20K] internal pull up.  
This pin should not have external pull down.

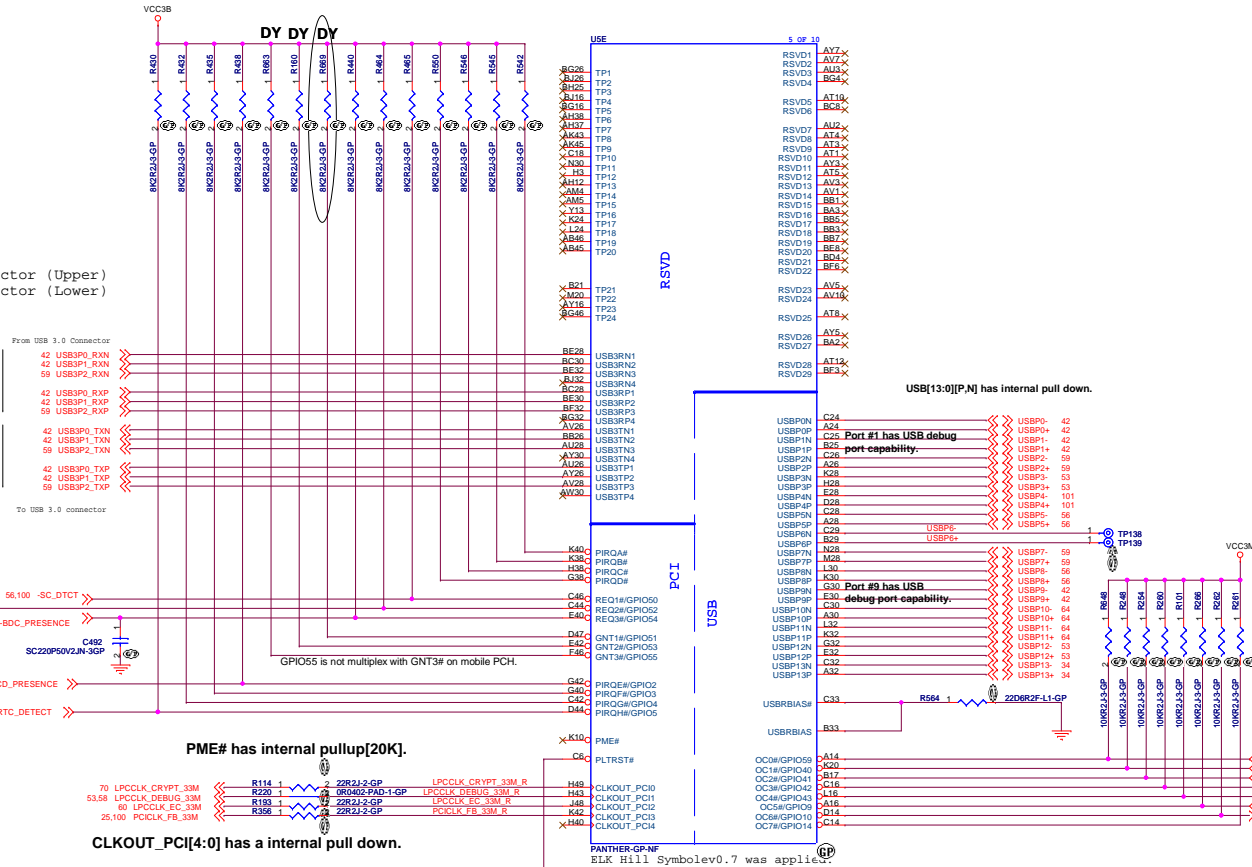
GNT3#/GPIO55 has a weak[20K] internal pull up.  
The internal pull up is disabled after PLTRST#.  
If external pull down is applied,  
PCH will be "topblock swap" mode.

USB 3.0 ports assignment :

Port 0: Left Side Double Deck Connector (Upper)  
Port 1: Left Side Double Deck Connector (Lower)  
Port 2: Docking Connector

TABLE

OPTIMUS_ENABLE	
LVDS/VGA	
HIGH	IGPU
LOW	DGPU



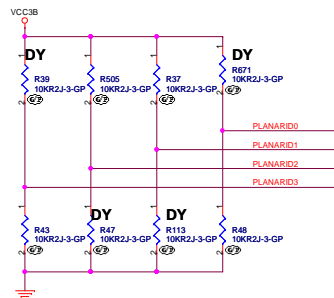
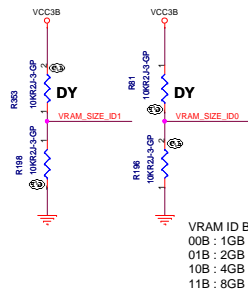
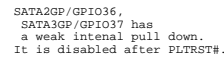
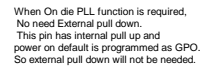
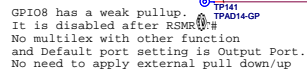
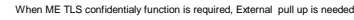
USB0 : To System USB Double Deck Port Upper (USB 3.0 capable)  
USB1 : To System USB Double Deck Port Lower (USB 3.0 capable)  
USB2 : To Docking USB Double Deck Port Lower (USB 3.0 capable)  
USB3 : To WWAN Mini Card Slot  
USB4 : To System USB Port (AOU Port on USB SubCard)  
USB5 : To Express Card Slot  
USB6 : Reserved (Color Sensor for WS)  
USB7 : To Docking  
USB8 : To SmartCard  
USB9 : To System USB Single Port  
USB10 : To FPR  
USB11 : To Bluetooth  
USB12 : To WiMAX/WLAN Mini Card Slot  
USB13 : To Camera

PLTRST# distribution List

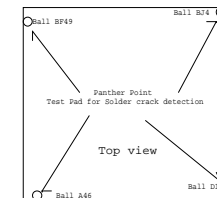
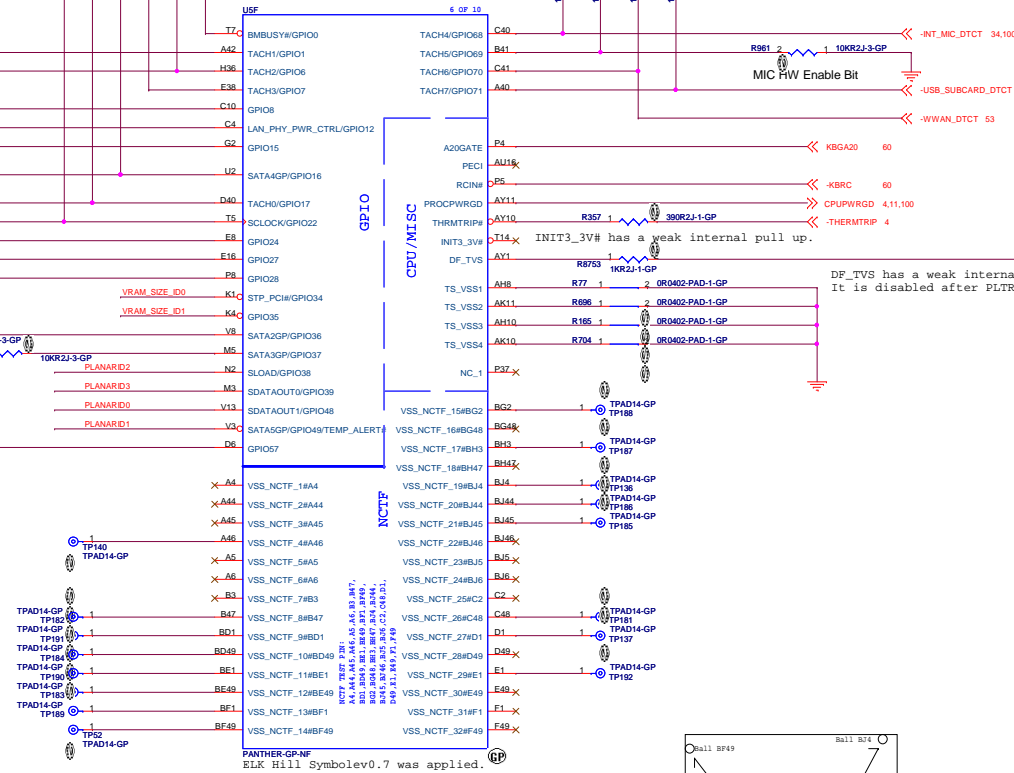
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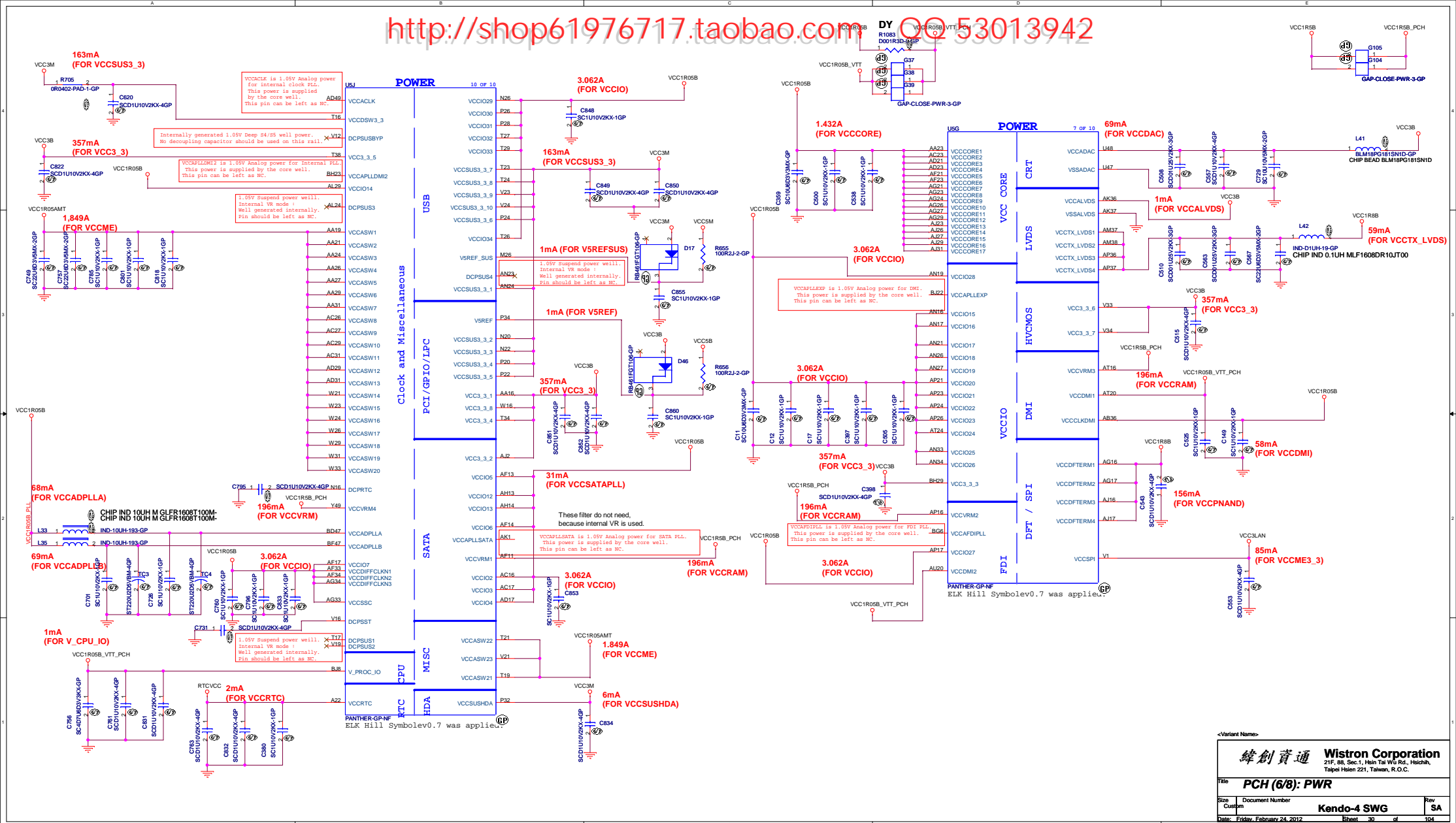
CPU Socket  
XDP [Connector]  
Multi Touch [LED Card IF]  
GBE [Chip]  
WWAN/MSATA Slot  
WLAN Slot  
NEAR ->  
MediaCard Reader [Chip]  
Express Slot Power [Chip]  
Golden Finger [Card edge]  
Lenovo Debug port [Connector]  
Embedded Controller [Chip]  
Think Engine [chip]  
TPM [Chip]

USBP 0	LEFT DUAL CONN	USB_ON1	-USB_PORT0_OC0
USBP 1	LEFT DUAL CONN	USB_ON1	-USB_PORT1_OC1
USBP 9	LEFT SINGLE CONN	USB_ON1	-USB_PORT9_OC5
USBP 4	RIGHT SUB CARD	USB_ON2	-USB_PORT4_OC2



**Planar ID table is placed on page 2**

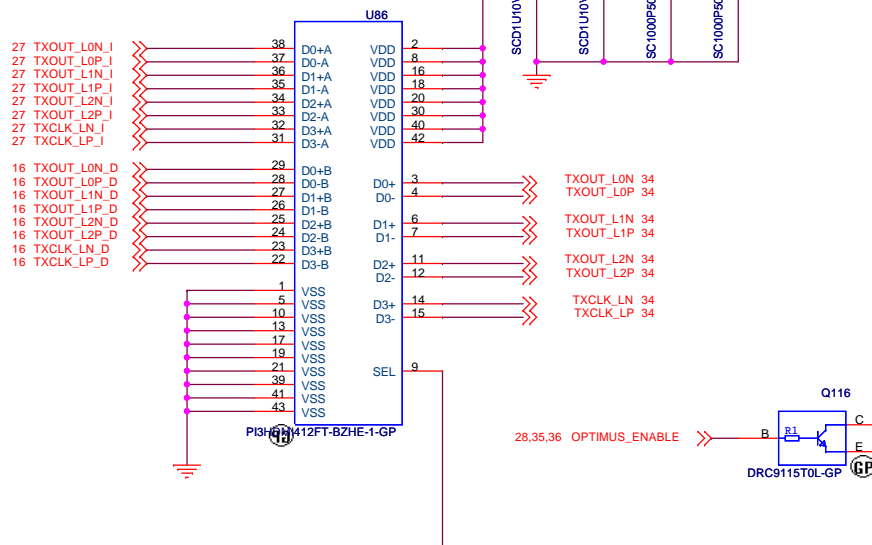




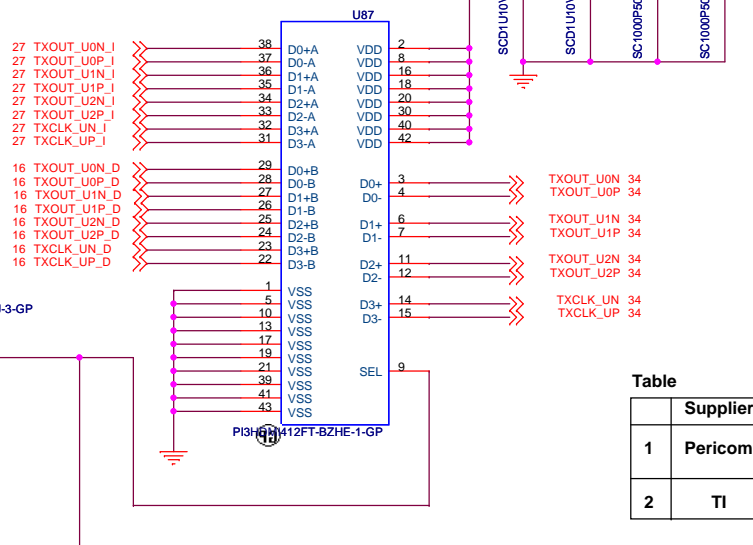
Blank



Signals can be arranged  
if there is wiring issue.



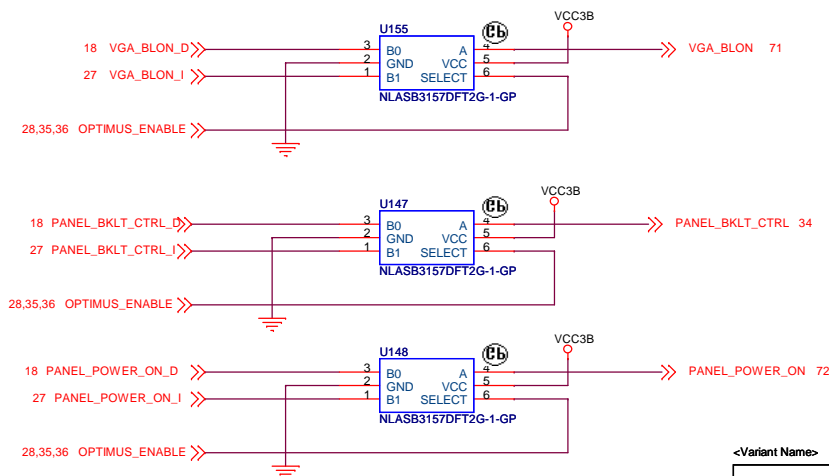
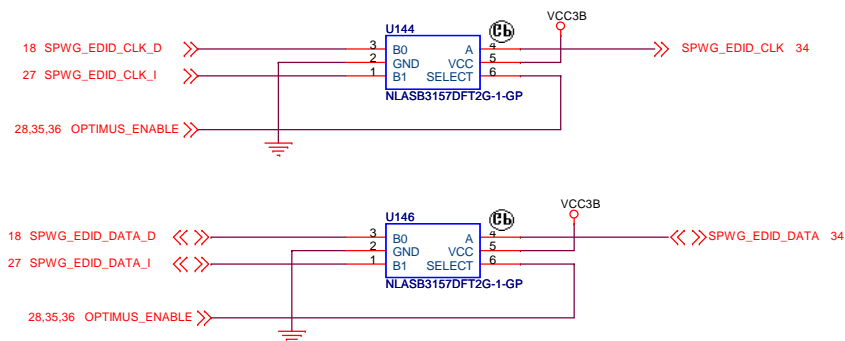
Signals can be arranged  
if there is wiring issue.



Table

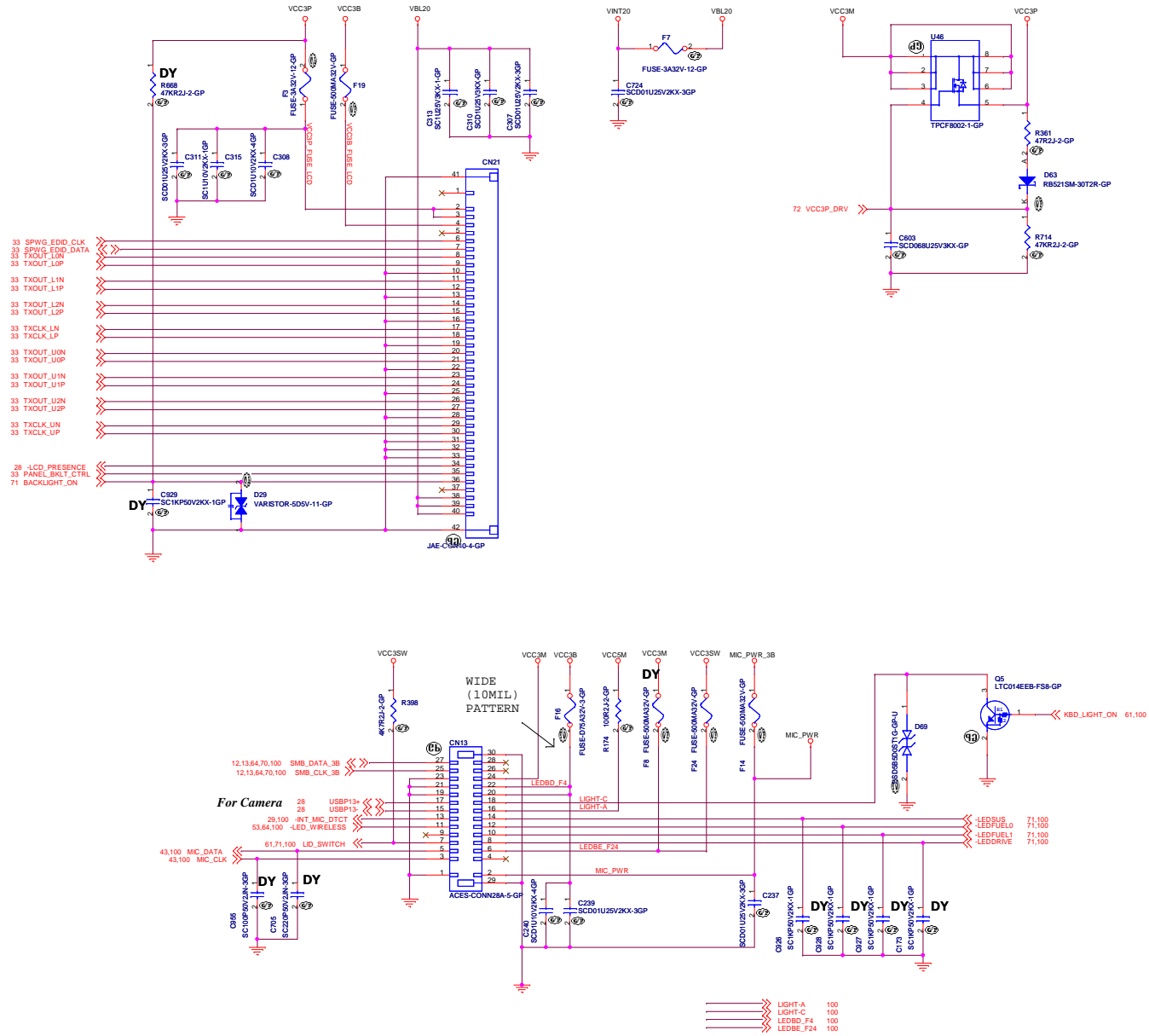
	Supplier	Vendo P/N	WISTRON P/N
1	Pericom	PI3HDMI412FT-BZHE	71.03412.B0G 54Y9032AA
2	TI	TS3DV421RUAR	71.03421.003

NZ-3 uses two of CBT3257ABQ due to space limitation.



<Variant Name>

### *LCD / Inverter Connector*



&lt;Variant Name&gt;

緯創資通

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

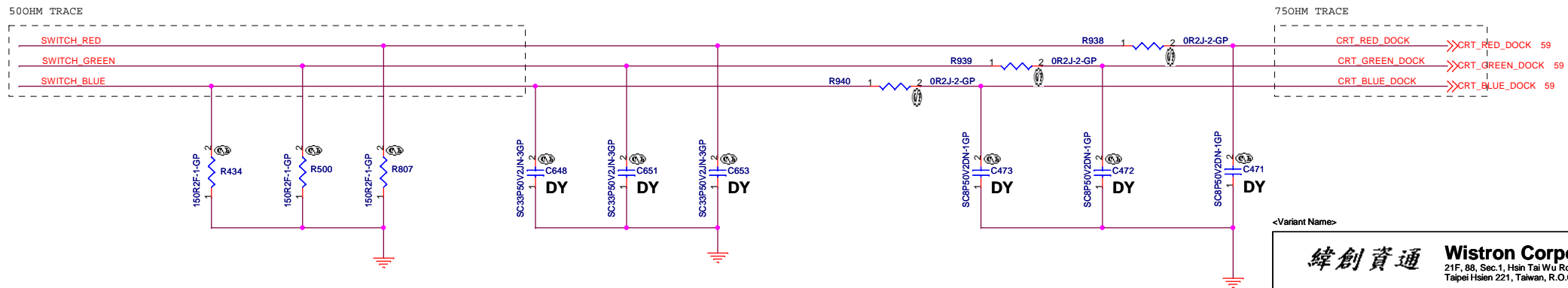
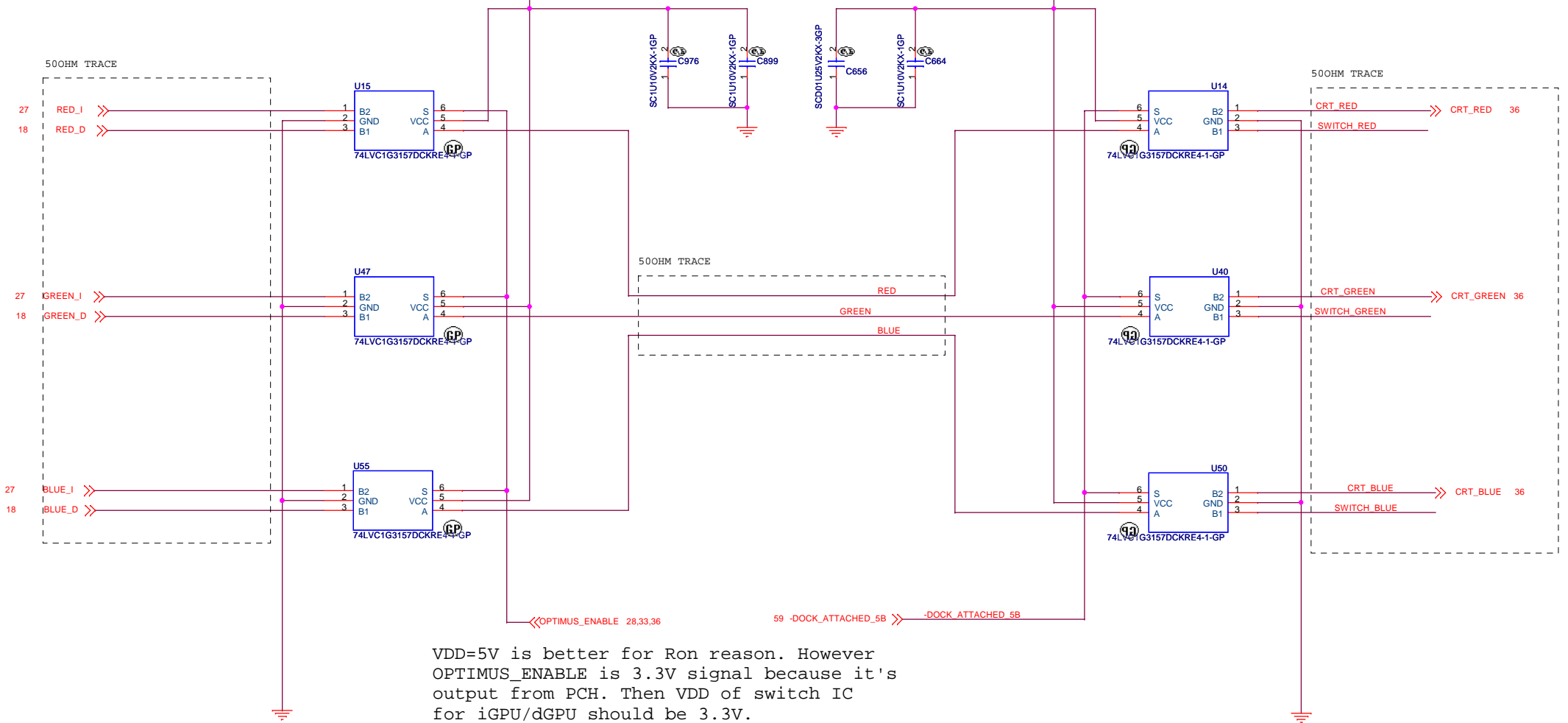
Title	<b>LCD CONNECTOR</b>
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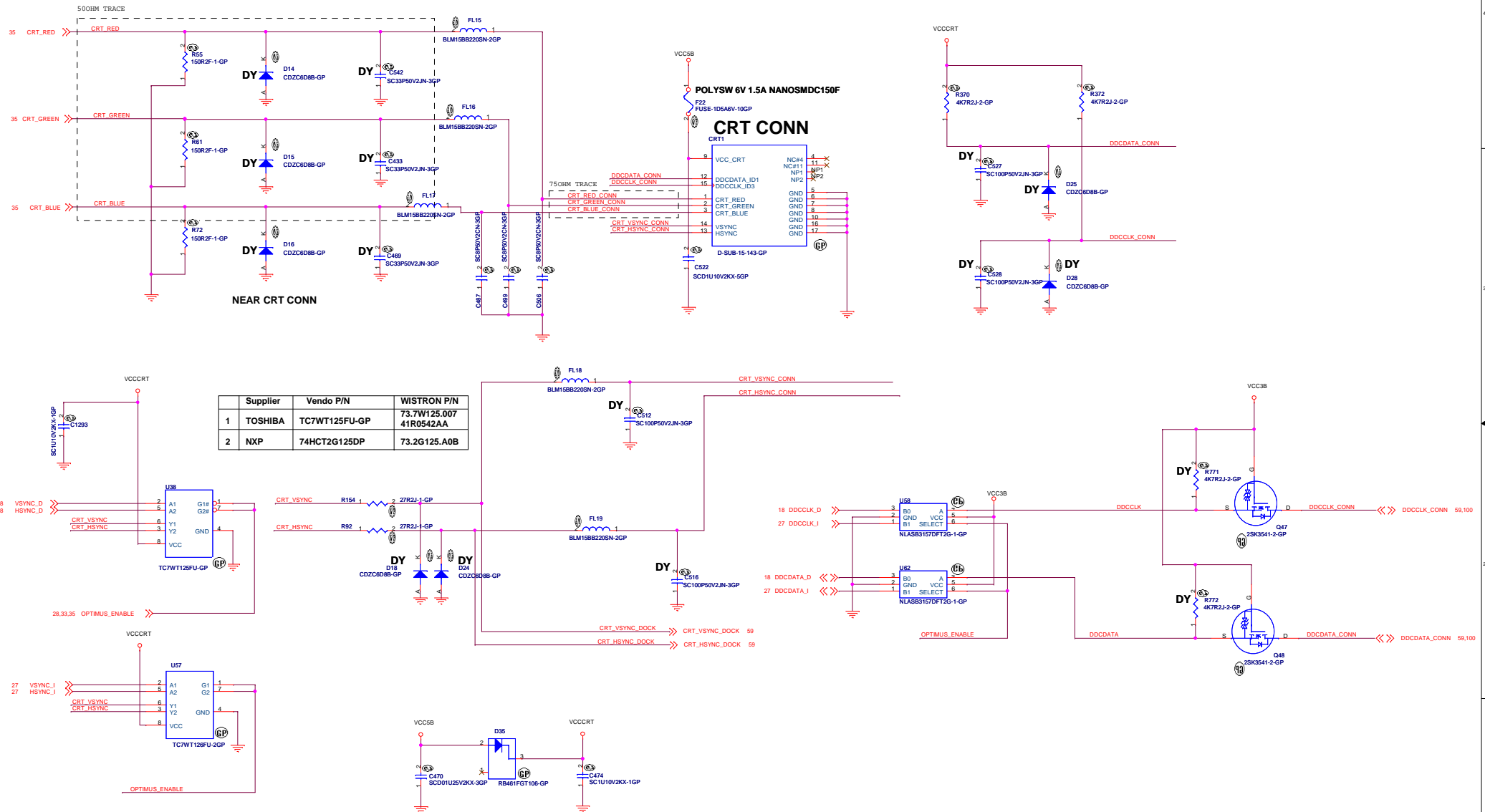
Size	Document Number
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<b>Kendo-4 SWG</b>	<b>SA</b>
--------------------	-----------

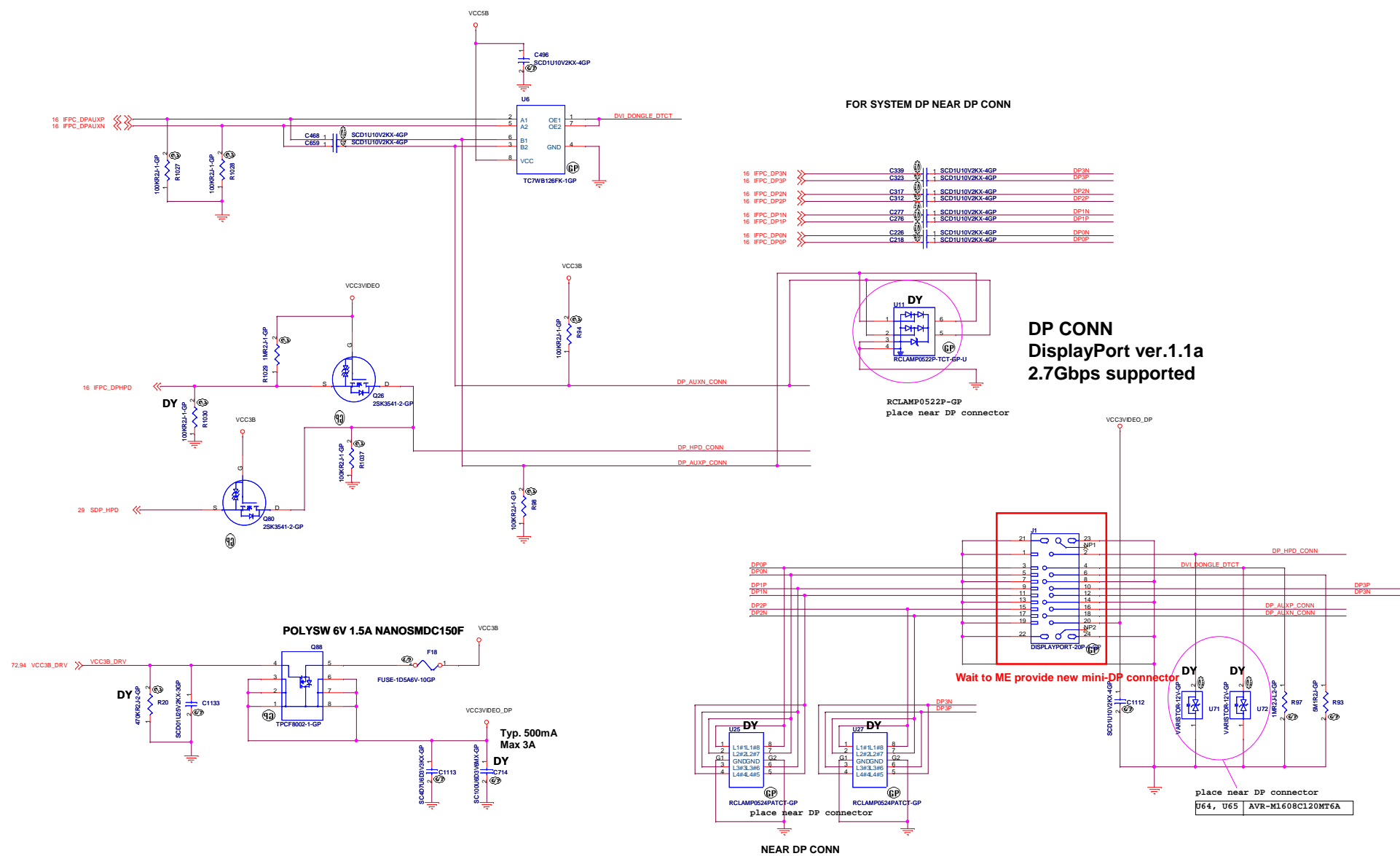
Date: Friday, February 24, 2012

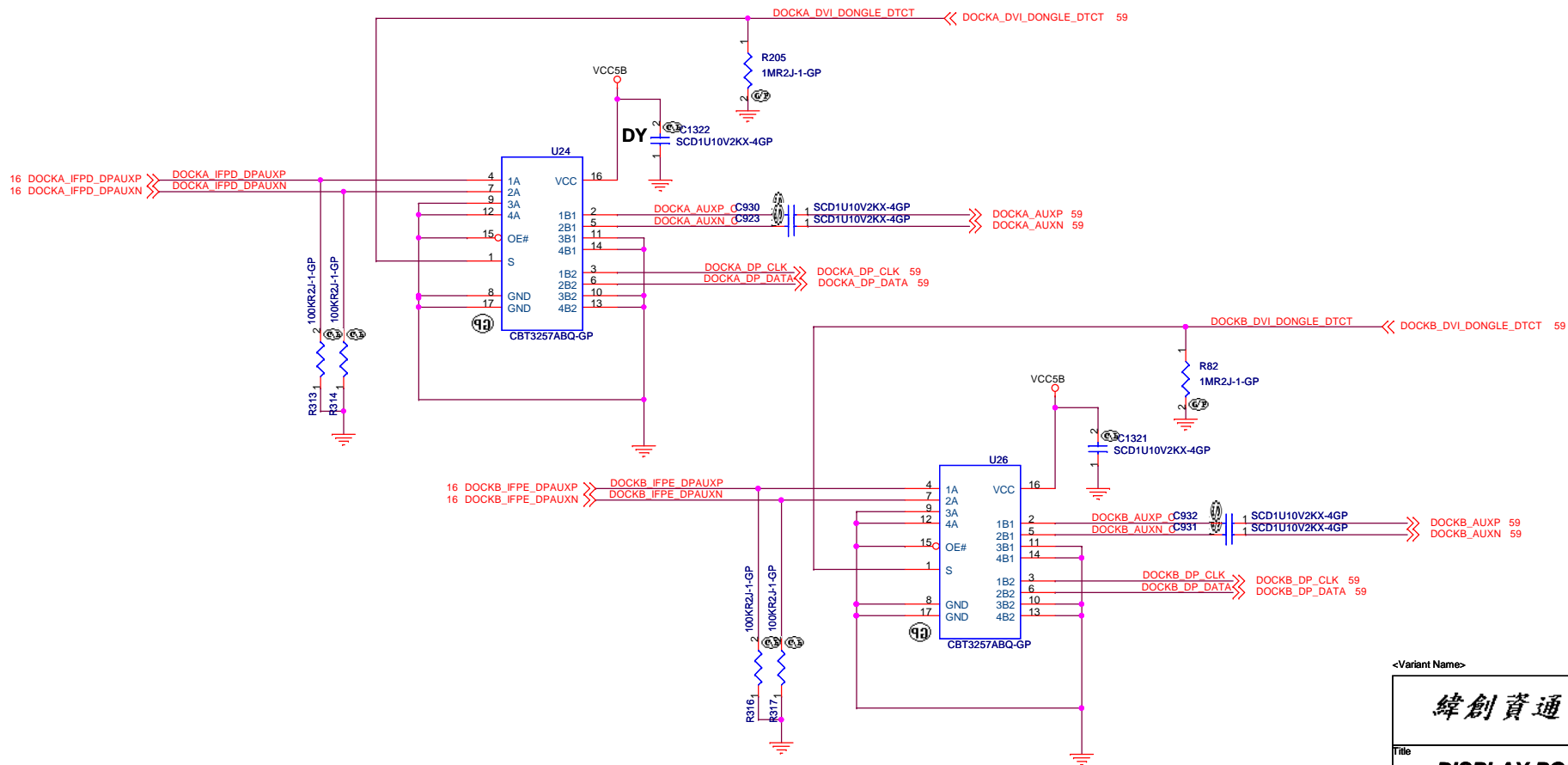
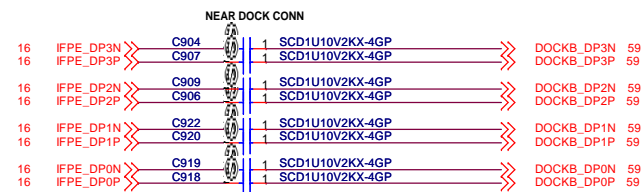
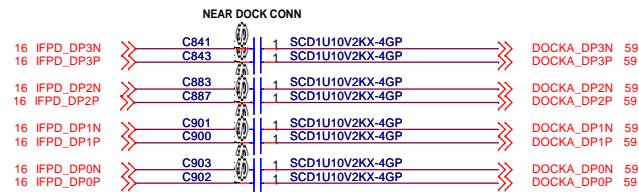
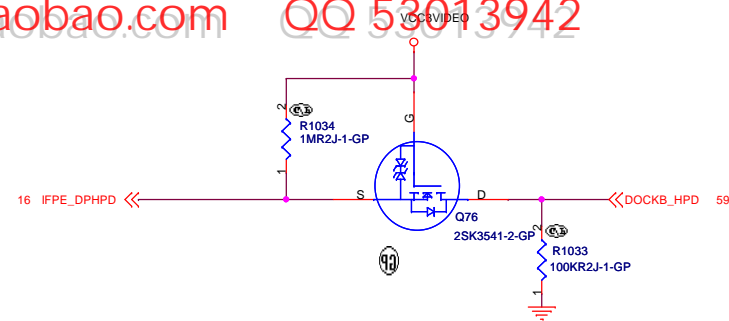
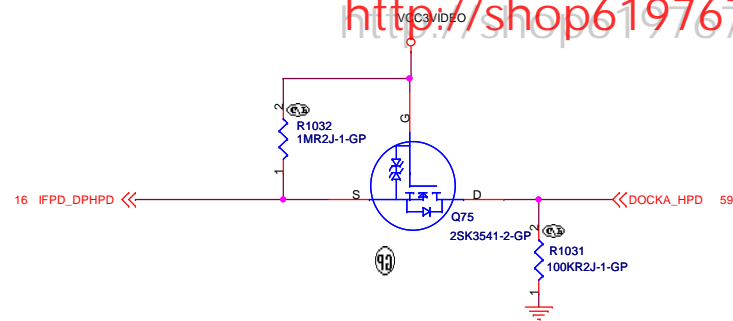
Sheet	34	of	104
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	Supplier	Vendo P/N	WISTRON P/N
1	TOSHIBA	TC7WT126FU	73.7W126.DA0
2	NXP	74HCT2G126DP	73.2G126.ABB

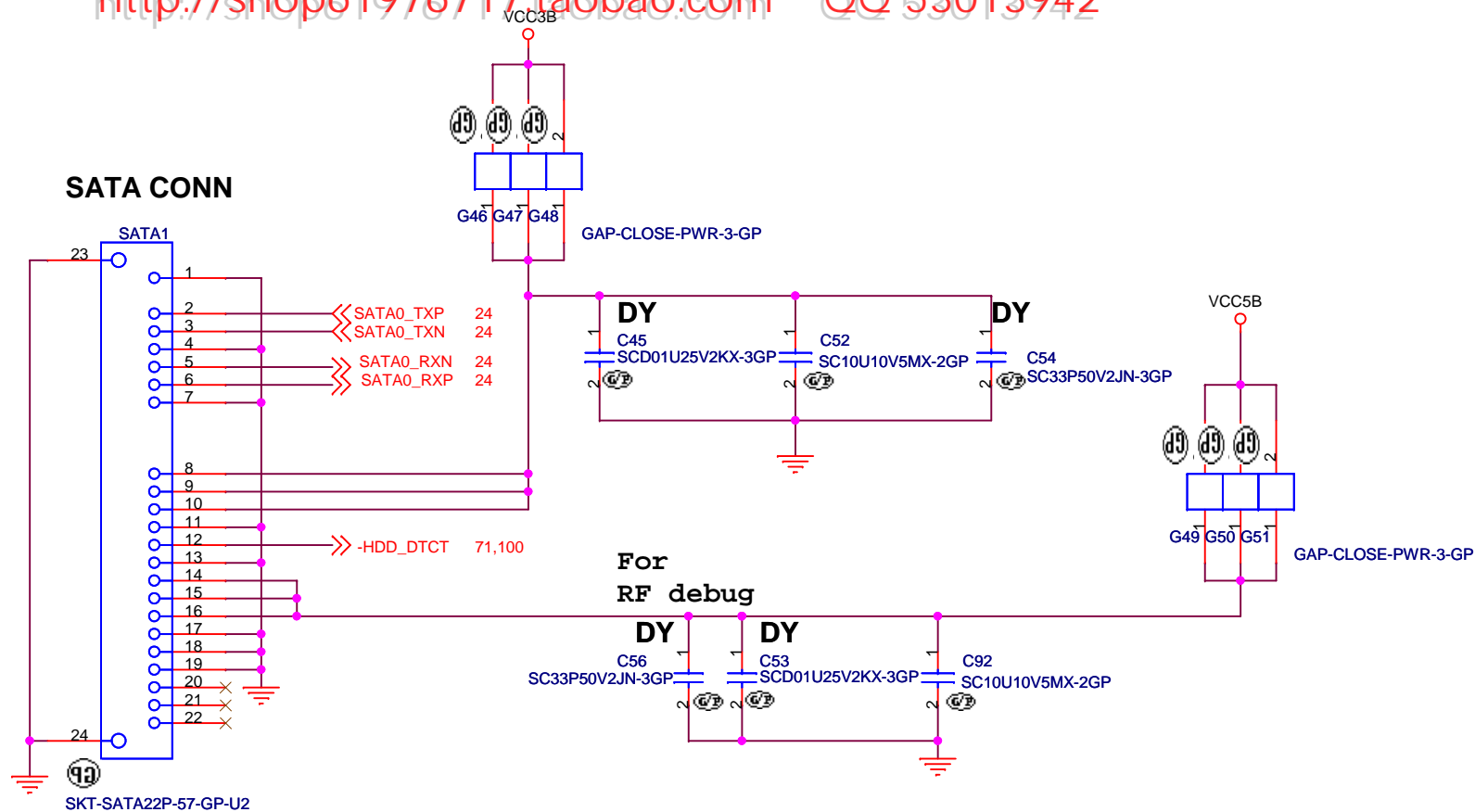




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<Variant Name>

		<b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title <b>BLANK</b>			
Size A4	Document Number <b>Kendo-4 SWG</b>		Rev <b>SA</b>
Date: Friday, February 24, 2012		Sheet 39 of	104



<Variant Name>

緯創資通

**Wistron Corporation**

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

Title

**SATA HDD CONN**

Size  
A4

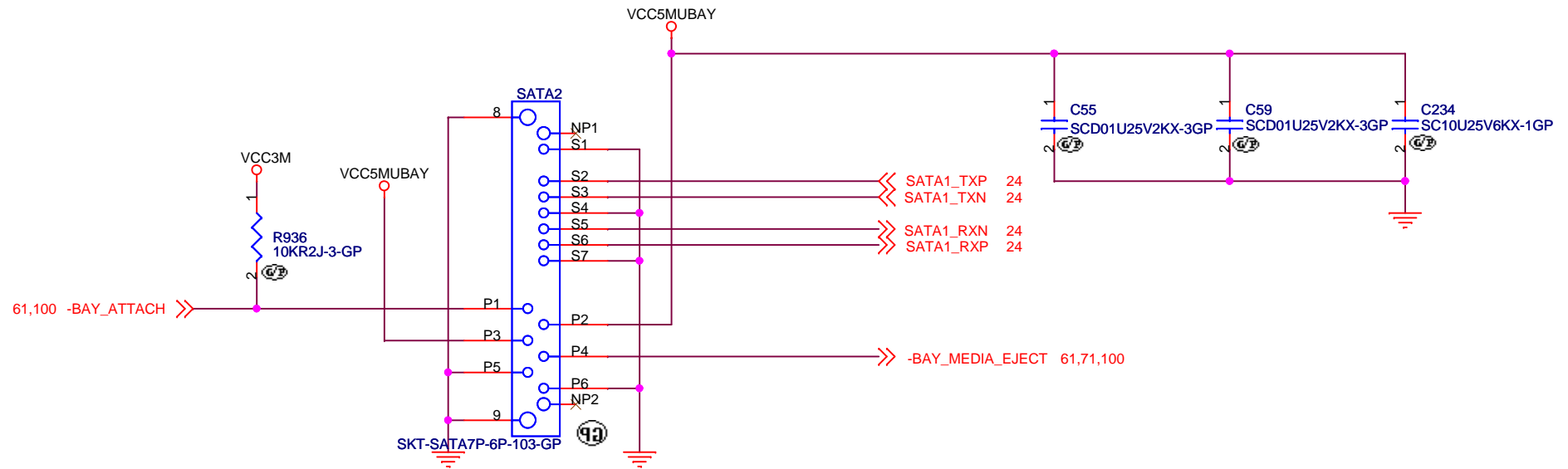
Document Number

**Kendo-4 SWG**

Rev  
**SA**

Date: Friday, February 24, 2012

Sheet 40 of 104



<Variant Name>

緯創資通

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

Title

**SATA BAY I/F CONN**

Size  
A4

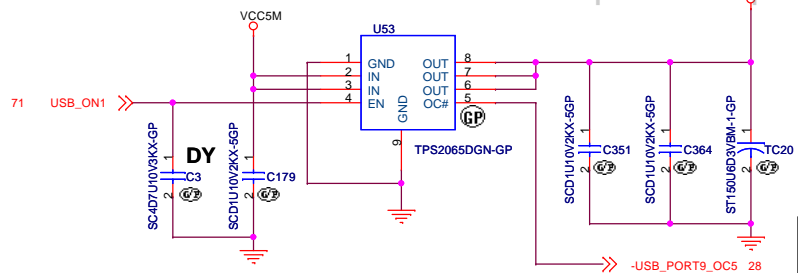
Document Number

**Kendo-4 SWG**

Rev  
**SA**

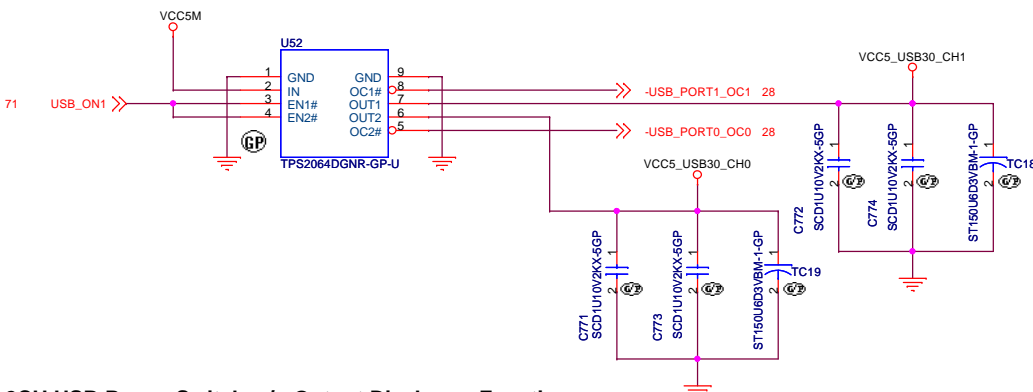
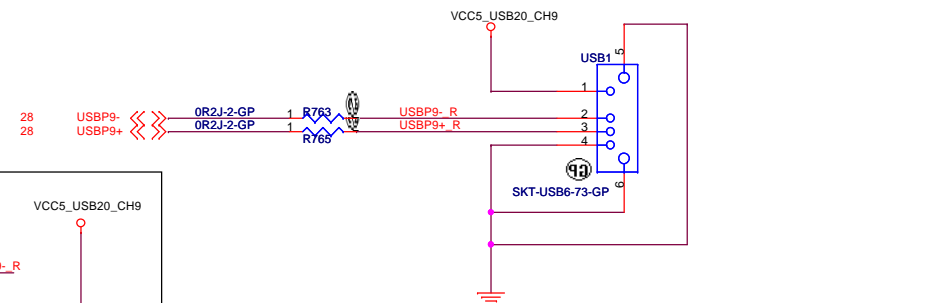
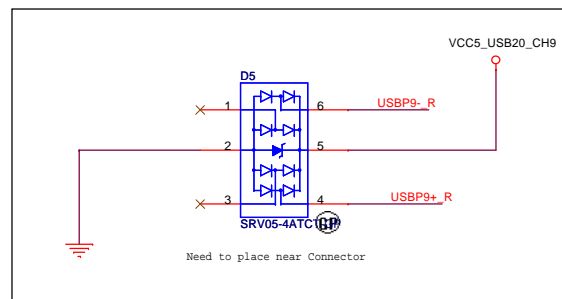
Date: Friday, February 24, 2012

Sheet 41 of 104



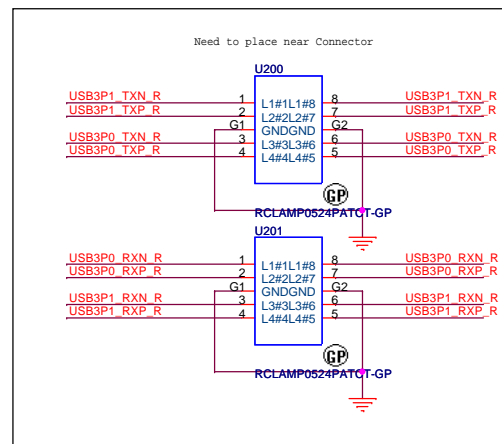
### 1CH USB Power Switch w/o Output Discharge Function

	Supplier	Vendo P/N	WISTRON P/N
U1	TI	TPS2065DGN-GP	74.02065.079 54Y9024BA



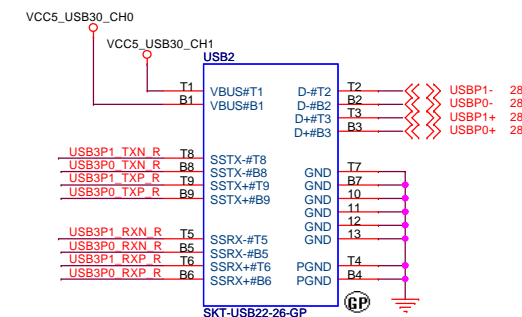
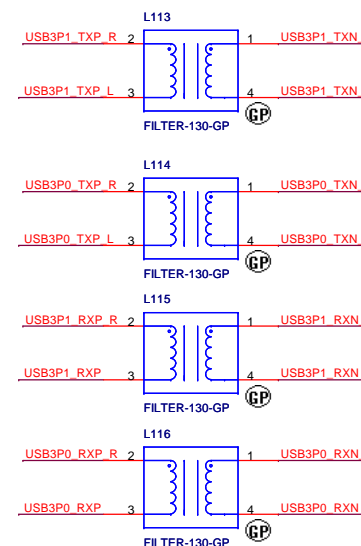
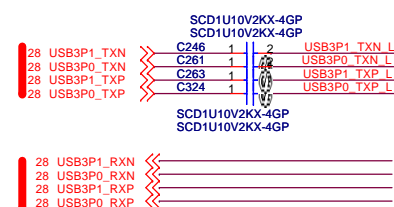
### 2CH USB Power Switch w/o Output Discharge Function

	Supplier	Vendo P/N	WISTRON P/N
U52	TI	TPS2064DGNR-GP	41R0511BA



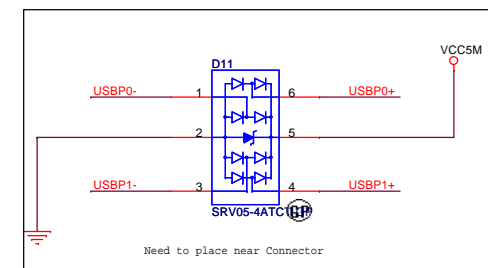
From Panther Point

To Panther Point



### USB3.0 CONNECTOR

Lower Slot is assigned to USB Port 0  
Upper Slot is assigned to USB Port 1



<Variant Name>

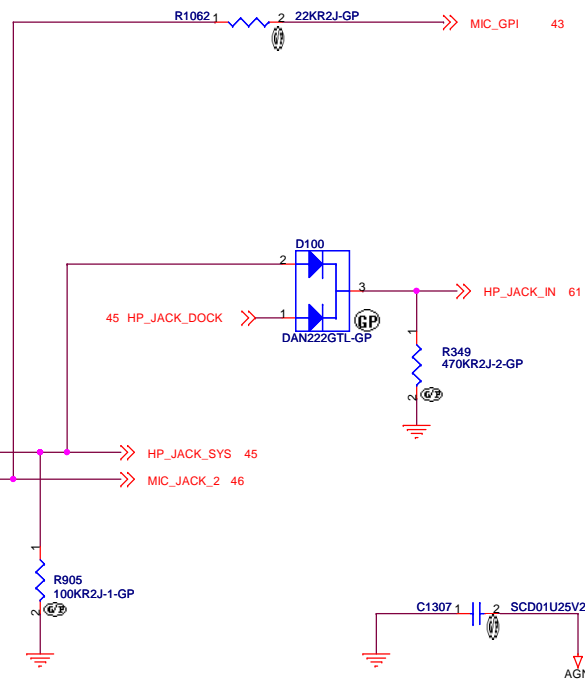
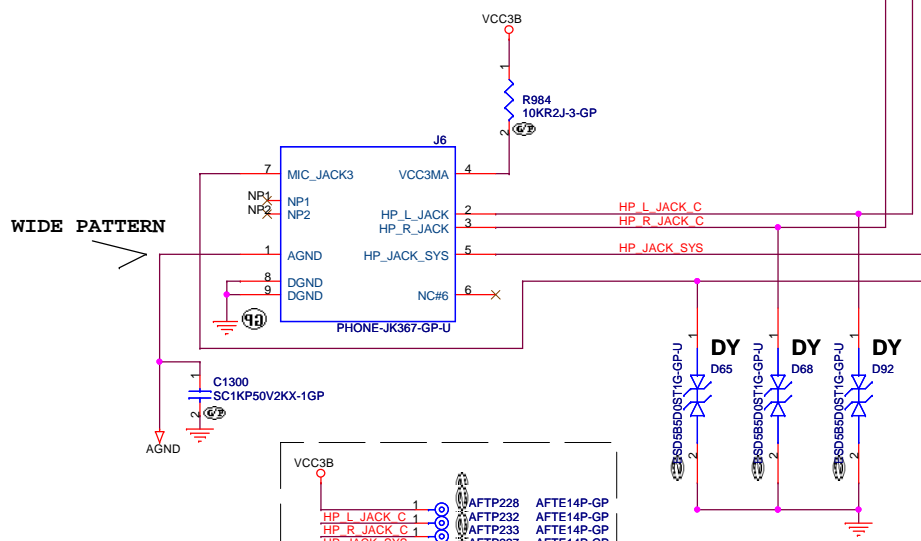
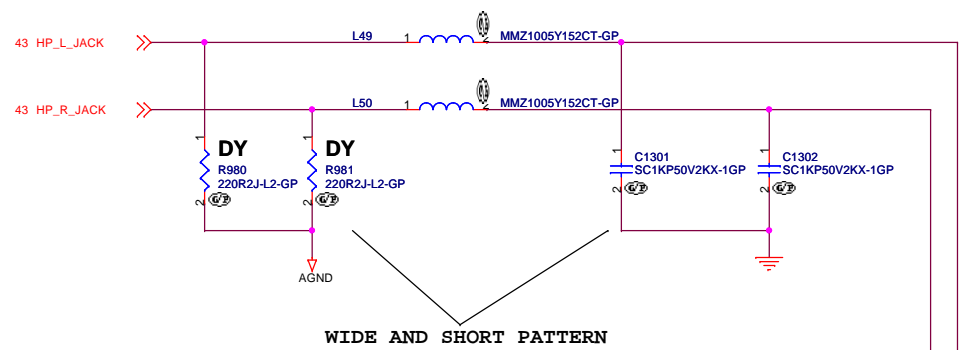
緯創資通 Wistron Corporation		
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title USB POWER/ CONN		
Size A3	Document Number Kendo-4 SWG	Rev SA
Date: Friday, February 24, 2012	Sheet 42 of 104	



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

269

<b>Kendo-4 SWG</b>		Rev <b>SA</b>
Sheet	43	of 104



	Supplier	Vendo P/N	PART NUMBER
1	OnSemi	ESD5B5D0ST1G-GP	83.ESD5B.0AF 48Y9647BA
2	ROHM	RSB5.6SMT2R	83.RSB56.BAF
3	NXP	PESD5V0S1BB	83.0005V.0AF

<Core Design>

緯創資通

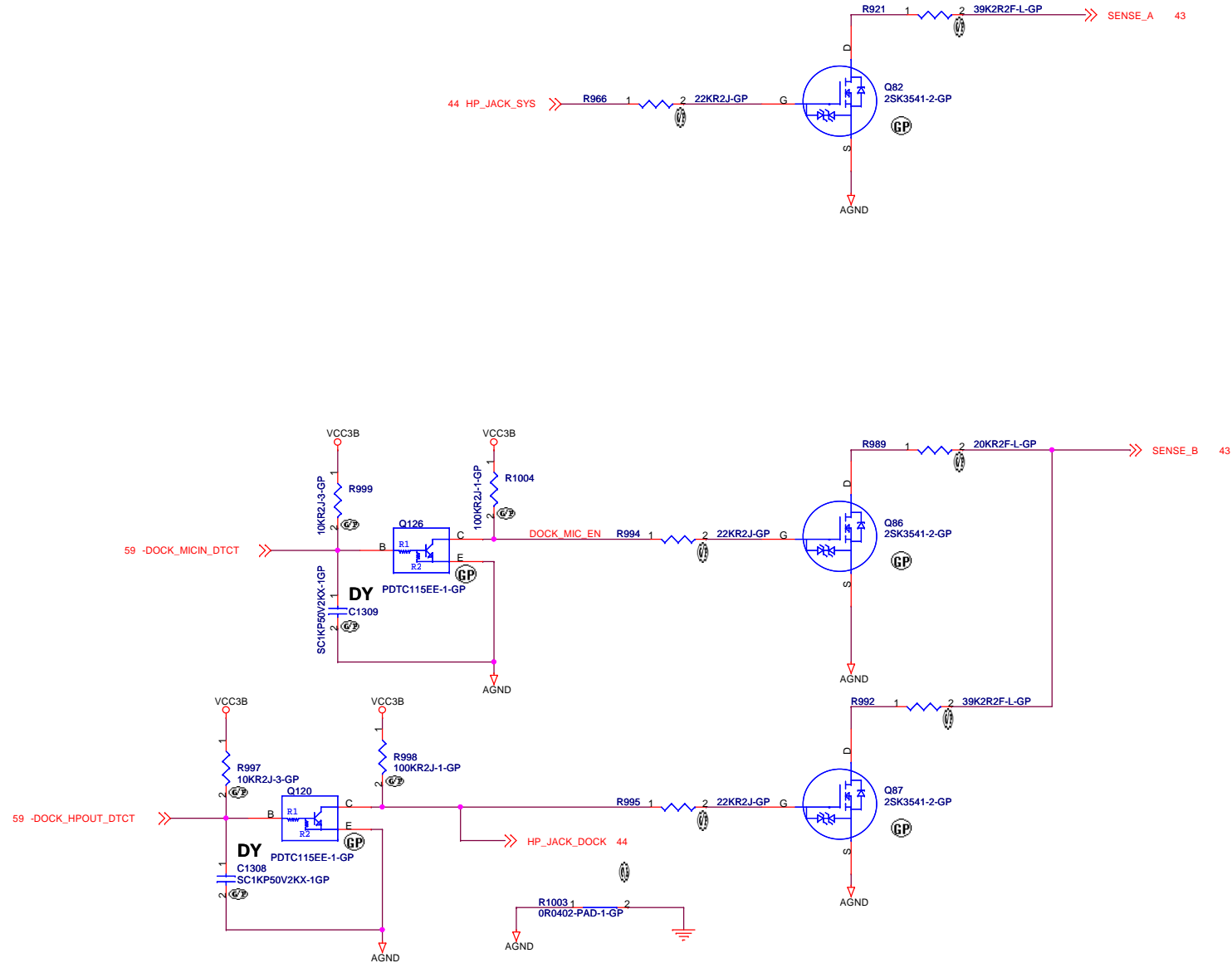
Wistron Corporation

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

Title **AUDIO CONNECTOR**

Size A3	Document Number	Rev SA
	<b>Kendo-4 SWG</b>	

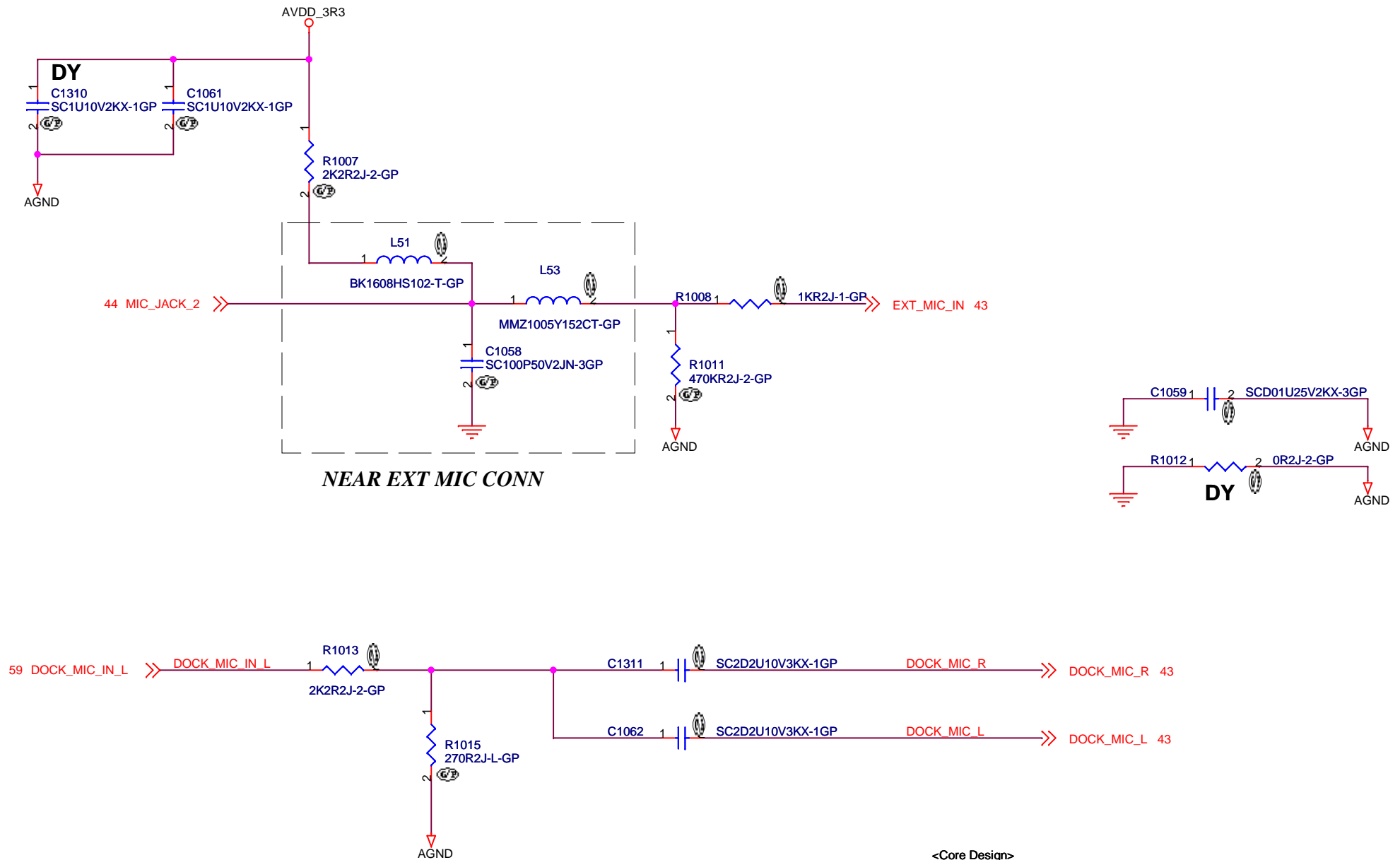
Date: Friday, February 24, 2012 Sheet 44 of 104



<Core Design>

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

Title		AUDIO JACK SENSE	
Size	Document Number	Kendo-4 SWG	
A3		Rev	SA
Date: Friday, February 24, 2012		Sheet	45 of 104



<Core Design>

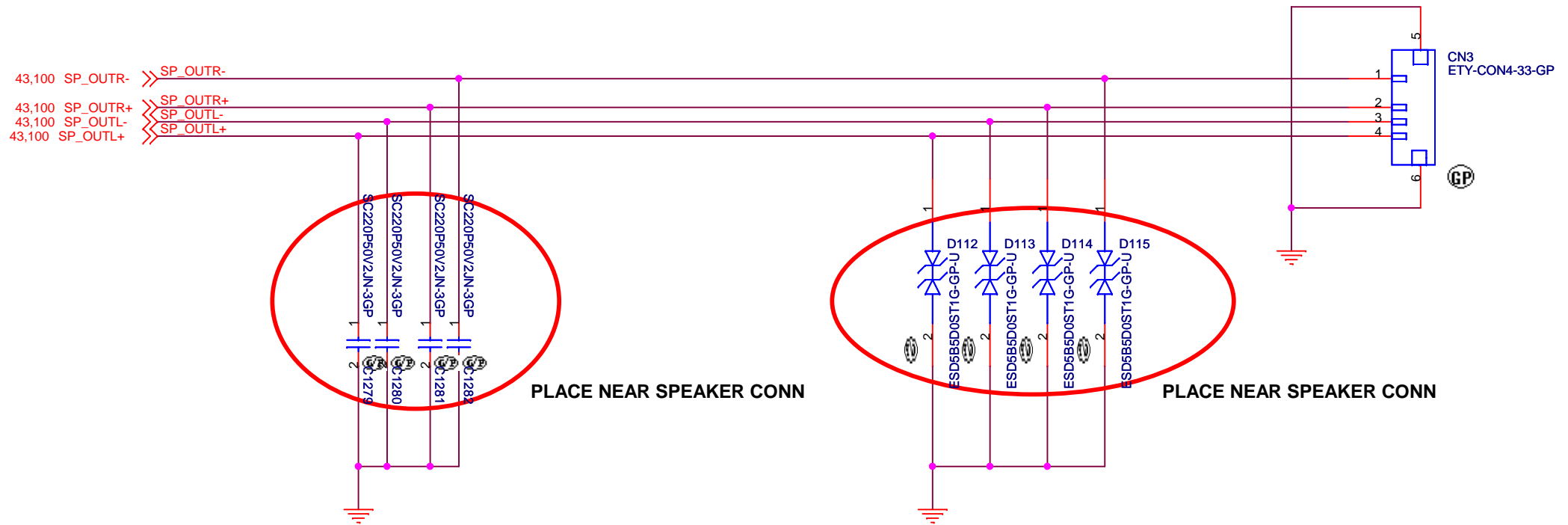
緯創資通

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

Title **AUDIO EXT MIC I/F**

Size A4	Document Number <b>Kendo-4 SWG</b>	Rev <b>SA</b>
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Date: Friday, February 24, 2012 Sheet 46 of 104



<Core Design>

緯創資通

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

Title

**AUDIO SPEAKER**

Size  
A4

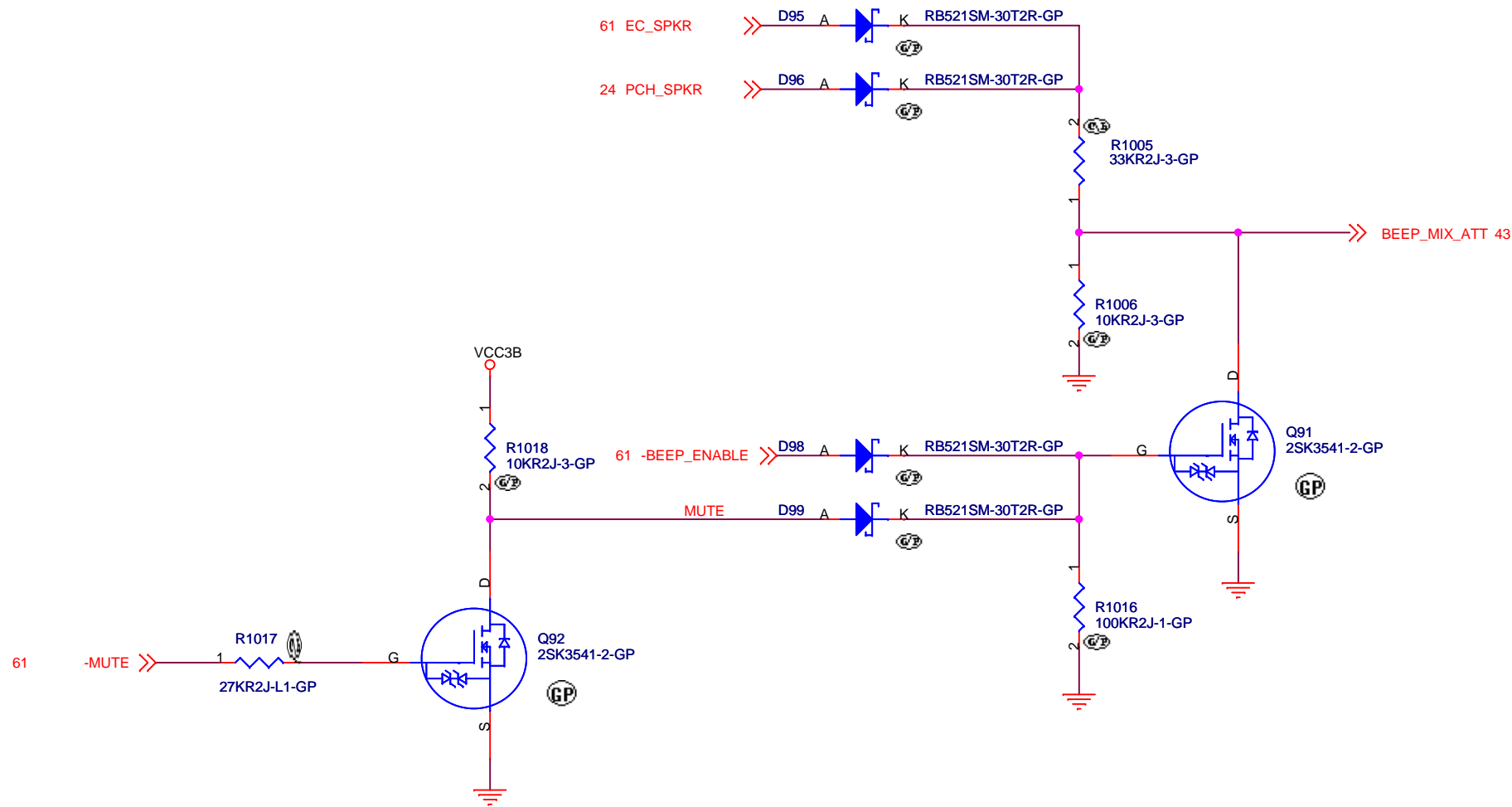
Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 47 of 104



<Core Design>

緯創資通

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

Title

**BEEP CONTROL**

Size  
A4

Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 48 of 104



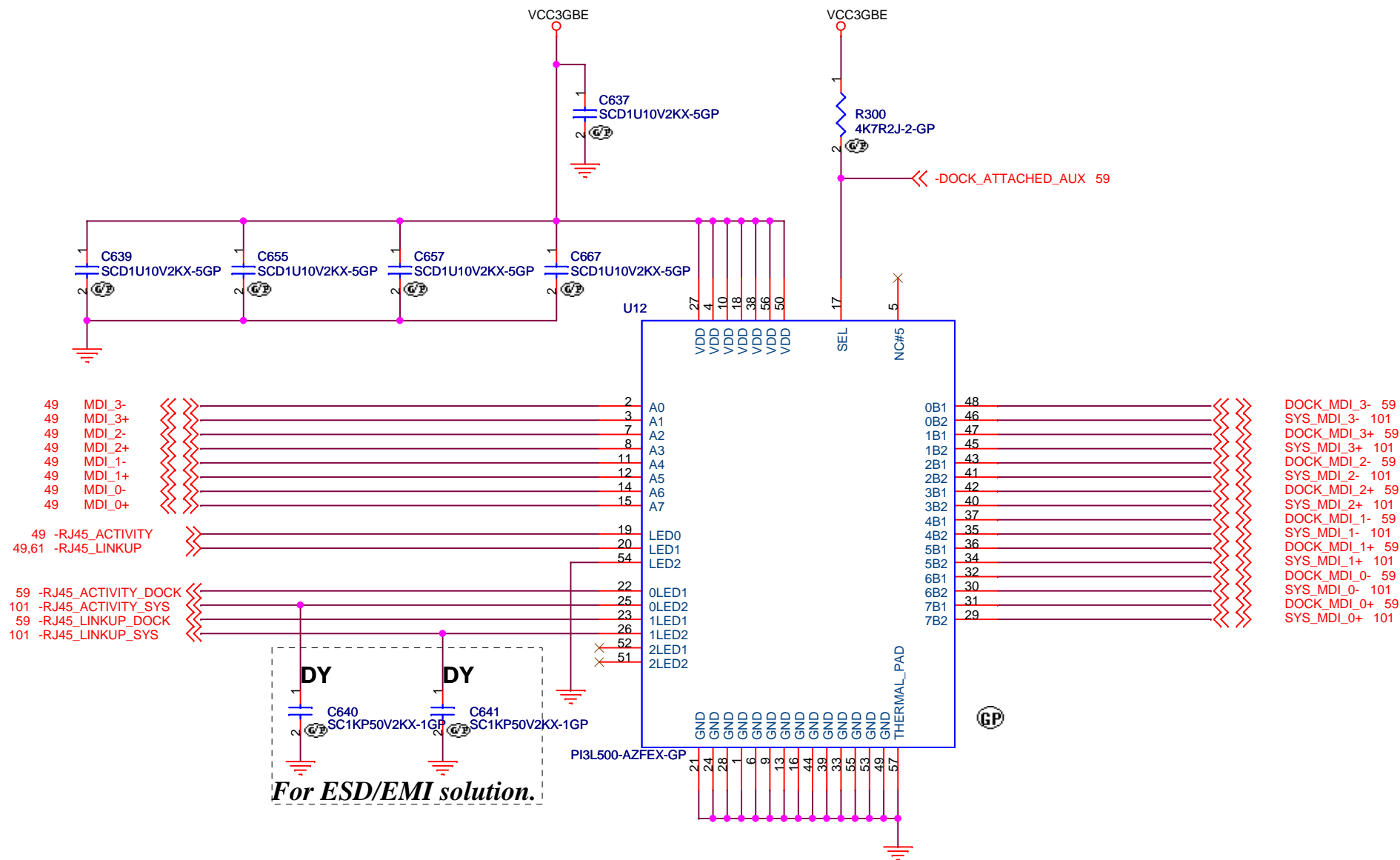
C278 Should be near  
L28,U25 pin7

C605 Should be under U25  
Top side VCC1R05LAN\_GBE

C255 Should be located  
U25 pin#46,47

C235 Should be near  
U25 pin#37

KDS Recommended Conditions:	HELE Recommended Conditions:	Intel Recommended Conditions:
Normal Frequency: 25MHz.	Normal Frequency: 25MHz.	Normal Frequency: 25MHz.
Frequency Tolerance: +/- 30ppm.	Frequency Tolerance: +/- 30ppm.	Frequency Tolerance: +/- 30ppm.
Load Frequency: 18pF.	Load Frequency: 18pF.	Load Frequency: 18pF.
Effective Series Resistance: 50-ohm.	Effective Series Resistance: 50-ohm.	Effective Series Resistance: 50-ohm.
Effective Shunt Capacitance: 2pF.	Effective Shunt Capacitance: 2pF.	Effective Shunt Capacitance: 6pF.



<Variant Name>

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

Title

**GBE LAN SW**

Size  
A4

Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

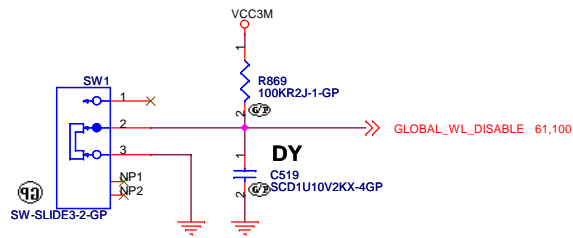
Sheet 50 of 104

<Variant Name>

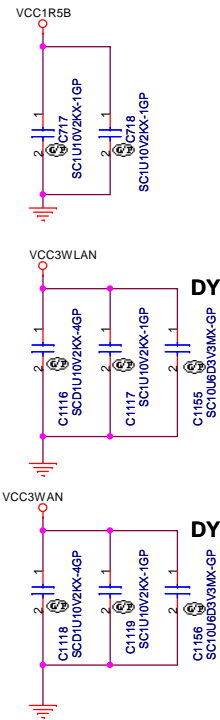
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Title <b>BLANK</b>			
Size A4	Document Number <b>Kendo-4 SWG</b>		Rev <b>SA</b>
Date: Friday, February 24, 2012		Sheet 51 of	104



# WIRELESS DISABLE SWITCH

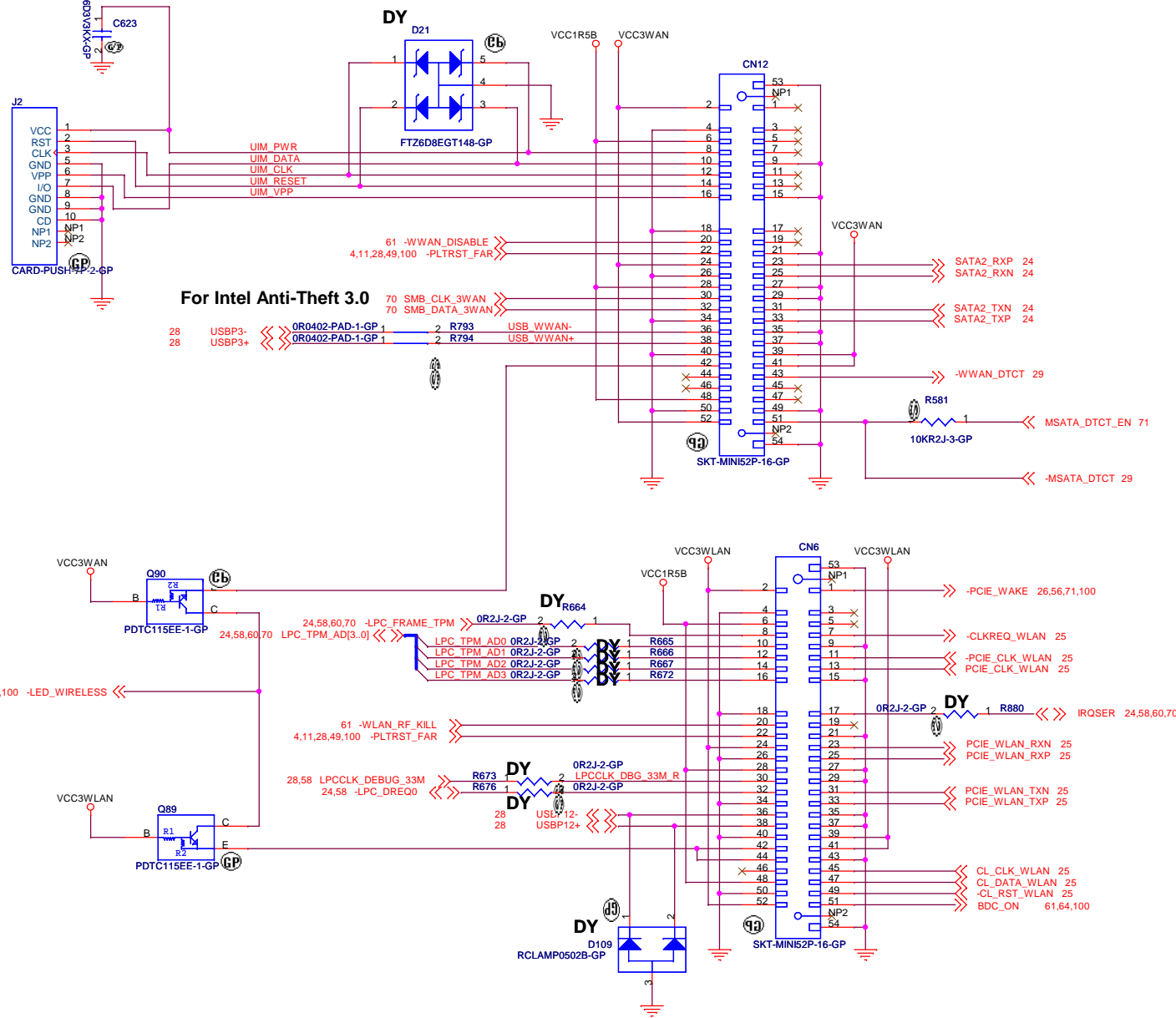


On WWAN Always on regular mode,  
This component have to be assembled,  
instead of above D+/D- jumper.



WWAN	YES	NO
CN12	ASM	No_ASM
J7	ASM	No_ASM
C567	ASM	No_ASM
C565	ASM	No_ASM
C568	ASM	No_ASM

LOGIC

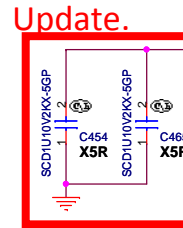
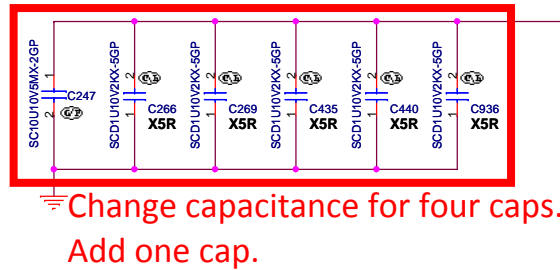


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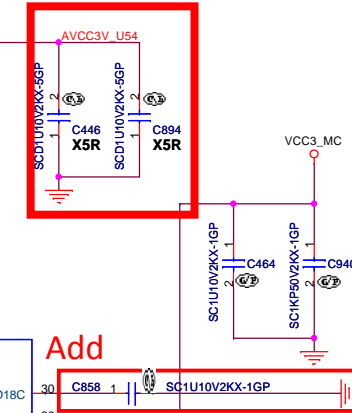
緯創資通 Wistron Corporation  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

Title		
PCIE MINI CARD SLOT		
Size	Document Number	Rev
A3	Kendo-4 SWG	SA
Date:	Friday, February 24, 2012	Sheet 53 of 104

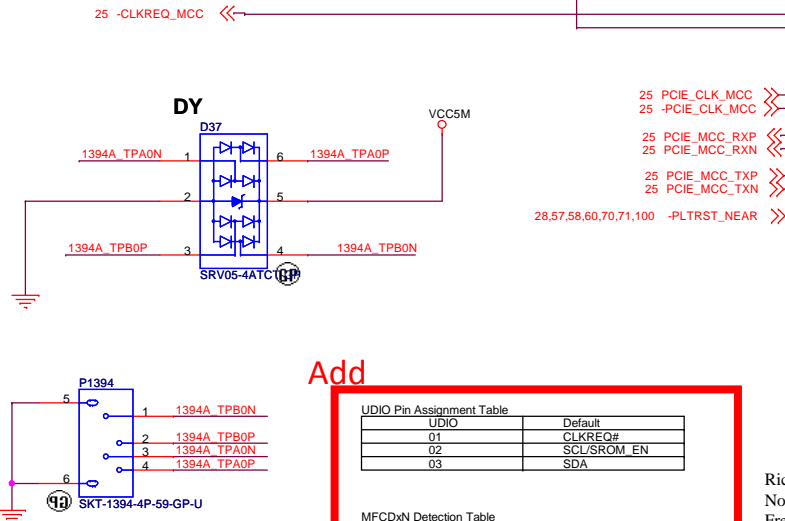
MEDIA I/F	SD/MMC	MEMORYSTICK	XD
MFIO00	SDWP#	MSBS	XD_D7
MFIO01	SD_D1		XD_D6
MFIO02	SD_D0	MS_D1	XD_D5
MFIO03	(SD_D7)		XD_D4
MFIO04	(SD_D6)	(MS_D5)	XD_D3
MFIO05	SD_CLK	MS_D0	XD_D2
MFIO06			XD_D1
MFIO07	(SD_D5)	(MS_D4)	XD_D0
MFIO08	SD_CMD	MS_D2	XD_WP#
MFIO09	(SD_D4)	(MS_D6)	XD_WE#
MFIO10	SD_D3	MS_D3	XD_ALE
MFIO11	SD_D2		XD_CLE
MFIO12		(MS_D7)	XD_CE#
MFIO13		MS_CLK	XD_RE#
MFIO14			XD_R/B
MFCD0#	SDCD#		XDCD0#
MFCD1#		MSINS#	XDCD1#



Update.



PU is Placed on PCH page.



Add

UDIO	Default
01	CLKREQ#
02	SCL/SROM_EN
03	SDA

MFCDxN	Card Type
1	(No Card)
2	SD Card/MMC
3	MemoryStick
4	XD Card

Richo Recommended Conditions:  
Normal Frequency: 24.576MHz  
Frequency Tolerance: +/- 50ppm.  
Load Capacitance: 10pF.  
Effective Series Resistance: 50-ohm.  
Effective Shunt Capacitance: 7pF.

KDS Recommended Conditions:  
Normal Frequency: 24.576MHz  
Frequency Tolerance: +/- 30ppm.  
Load Capacitance: 12pF+/-0.2.  
Effective Series Resistance: 50-ohm.  
Effective Shunt Capacitance: 7pF.

Supplier	Vendo P/N	WISTRON P/N
1 HARMONY	XTAL 24.576M 12P30PPM HSX530G SMD	82.30023.611
2 TXC	XTAL 24.576M 12P30PPM SMD	82.30023.651

KDS 24.576MHz  
12P 50PPM  
HCX-6F

Update.

Update.

<Variant Name>

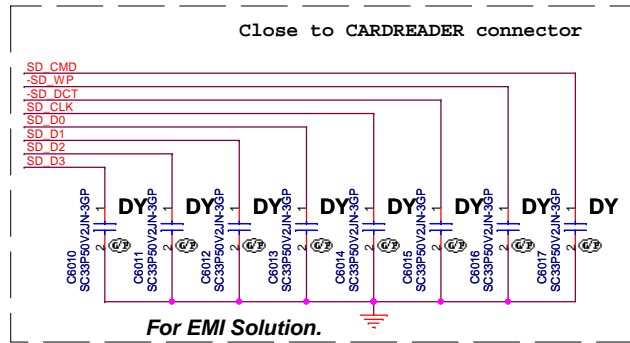
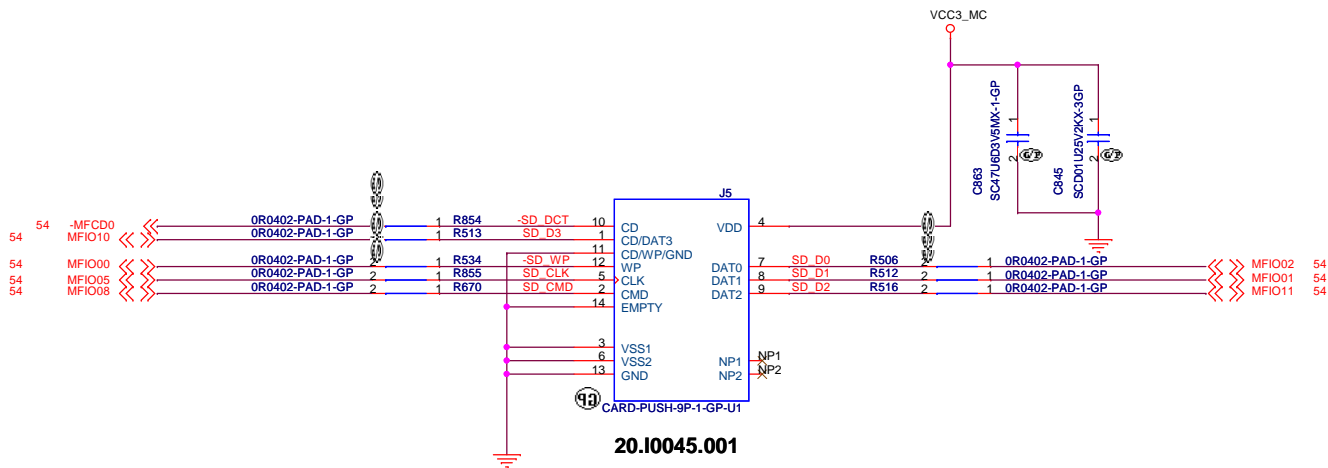
緯創資通 Wistron Corporation  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

1394/MEDIA CARD CONTROLLER

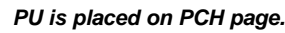
Kendo-4 SWG SA

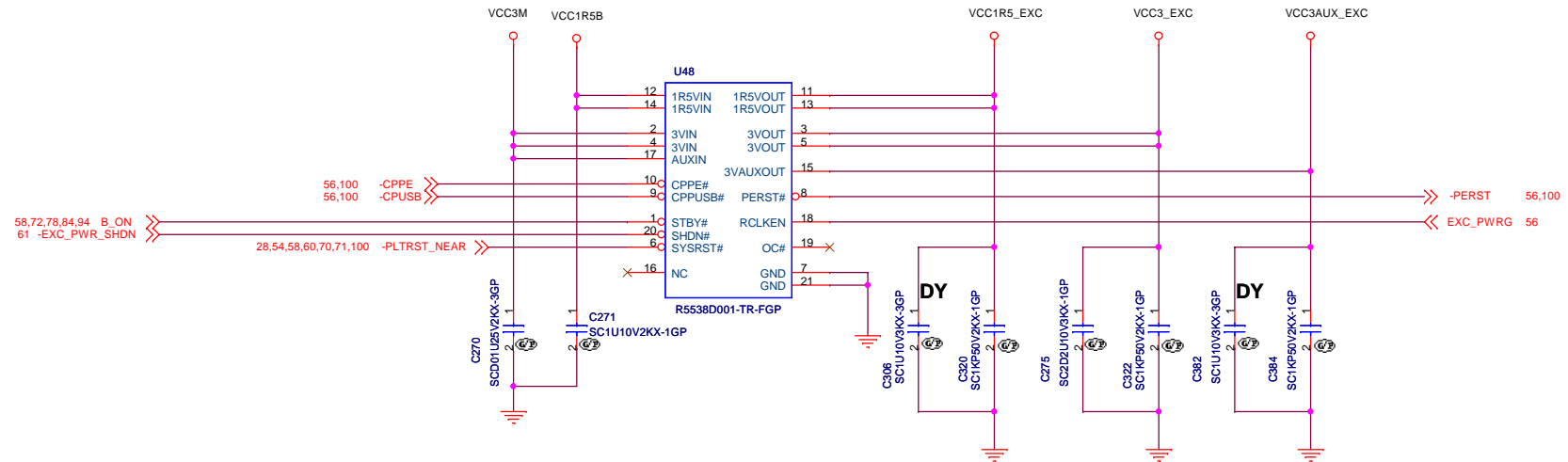
Date: Friday, February 24, 2012 Sheet 54 of 104

## *SD/MMC/MMC+ Card Reader*



**EXC POWER IC has internal PU for  
PIN#9(-CPUSB), PIN#10(-CPPE)**





EXPRESS POWER SW table

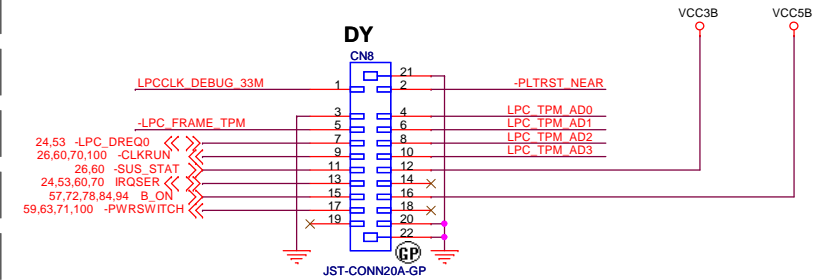
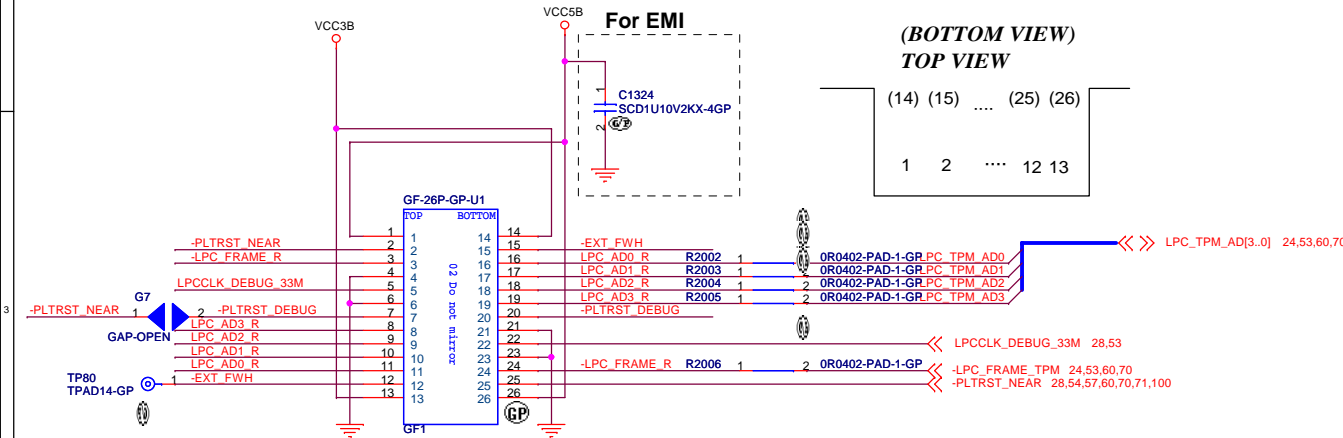
		U38	Wistron part number
1	TI	TPS2231MRGPR-3	74.02231.D73 45K0234BA
2	NUVOTON	W83L351YG V.ASA	74.83351.A73
3	ROHM	BD4157MUV-GE2	74.04157.A73 (HF)
4	ROHM	BD4156MUV-GTR	74.04156.073

<Variant Name>

緯創資通		Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title			
SLOT POWER CONTROL			
Size	Document Number	Rev	
A3		SA	
Date:	Friday, February 24, 2012	Sheet	57 of 104

# Golden Finger for Debug Board

## Lenovo Debug Tool IF.

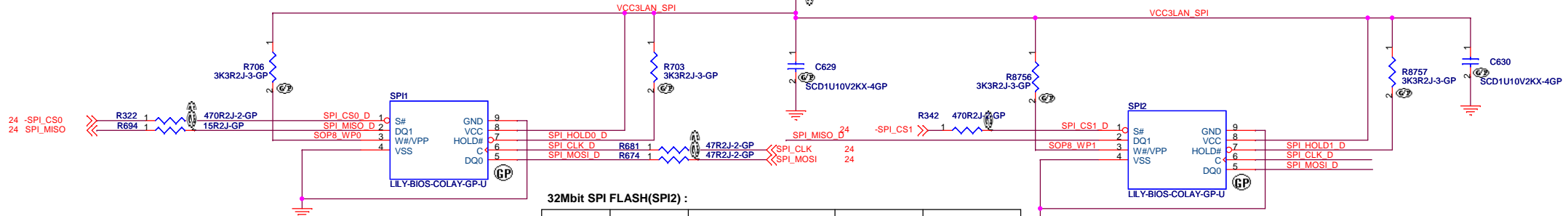
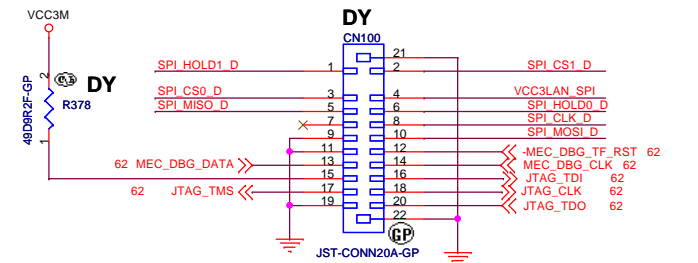


### 64Mbit SPI FLASH(SPI1) :

Package	Supplier	Vendor P/N	Lenovo P/N	Wistron P/N
SO8	Macronix	MX25L6406EM2I-12G		72.25640.D01
	Winbond	W25Q64CVSSIG		72.25Q64.B01
	Numonyx	N25Q064A13ESE40F		72.25Q64.D01

### trace FIFO debug port

	Enable	Disable
R378	ASM	No ASM



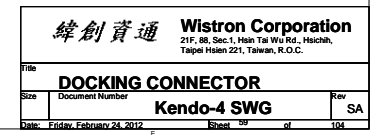
Dual foot print for WSON and SO8.

### 32Mbit SPI FLASH(SPI2) :

Package	Supplier	Vendor P/N	Lenovo P/N	Wistron P/N
SO8	Macronix	MX25L3206EM2I-12G		72.25320.C01
	Winbond	W25Q32BVSSIG		72.25Q32.A01
	Numonyx	N25Q032A13ESE40F		72.25032.H01

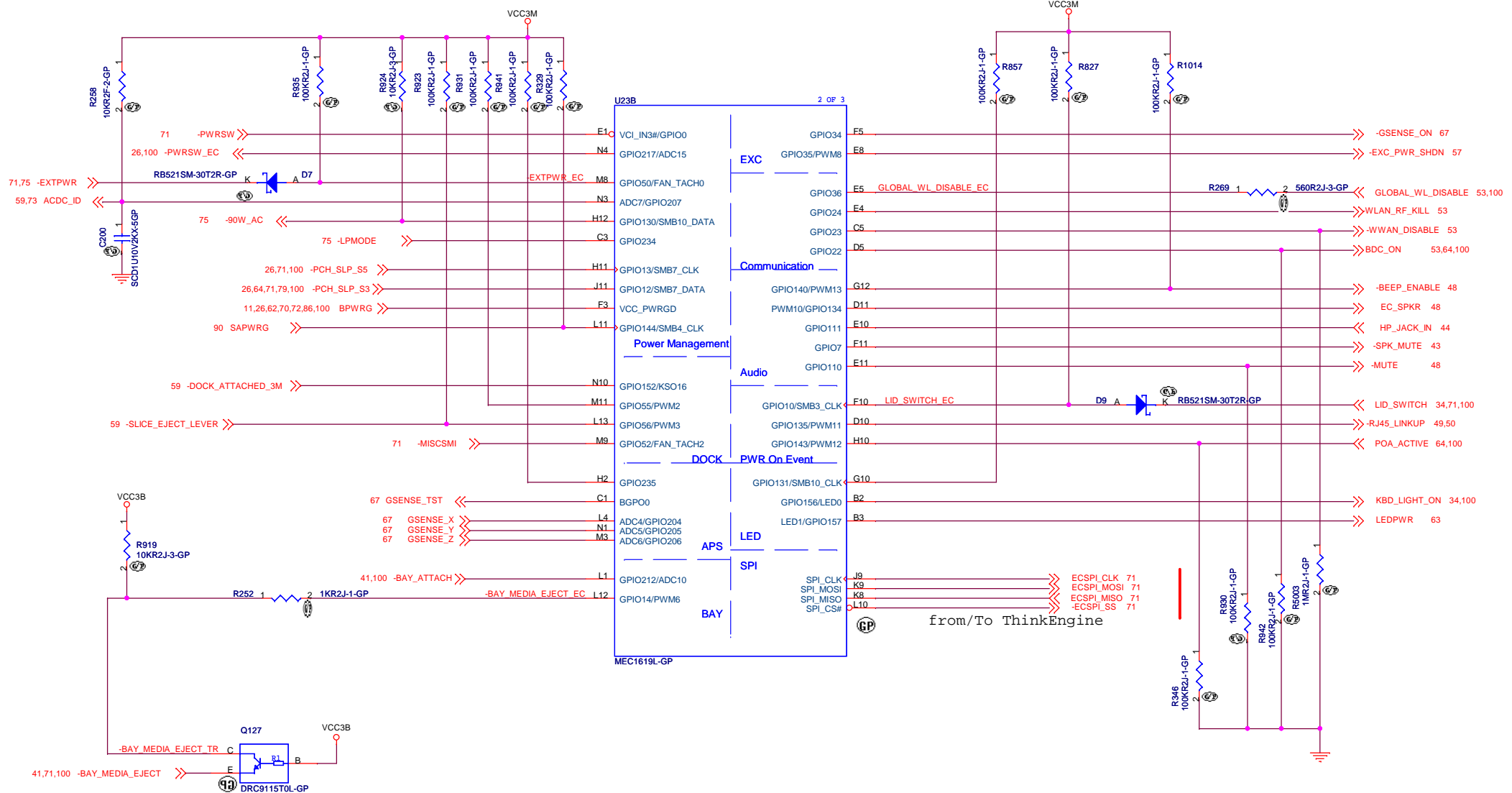
<Variant Name>

緯創資通		Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title		SPI FLASH	
Size	Document Number	Kendo-4 SWG	
A3		SA	
Date:	Friday, February 24, 2012	Sheet	58 of 104





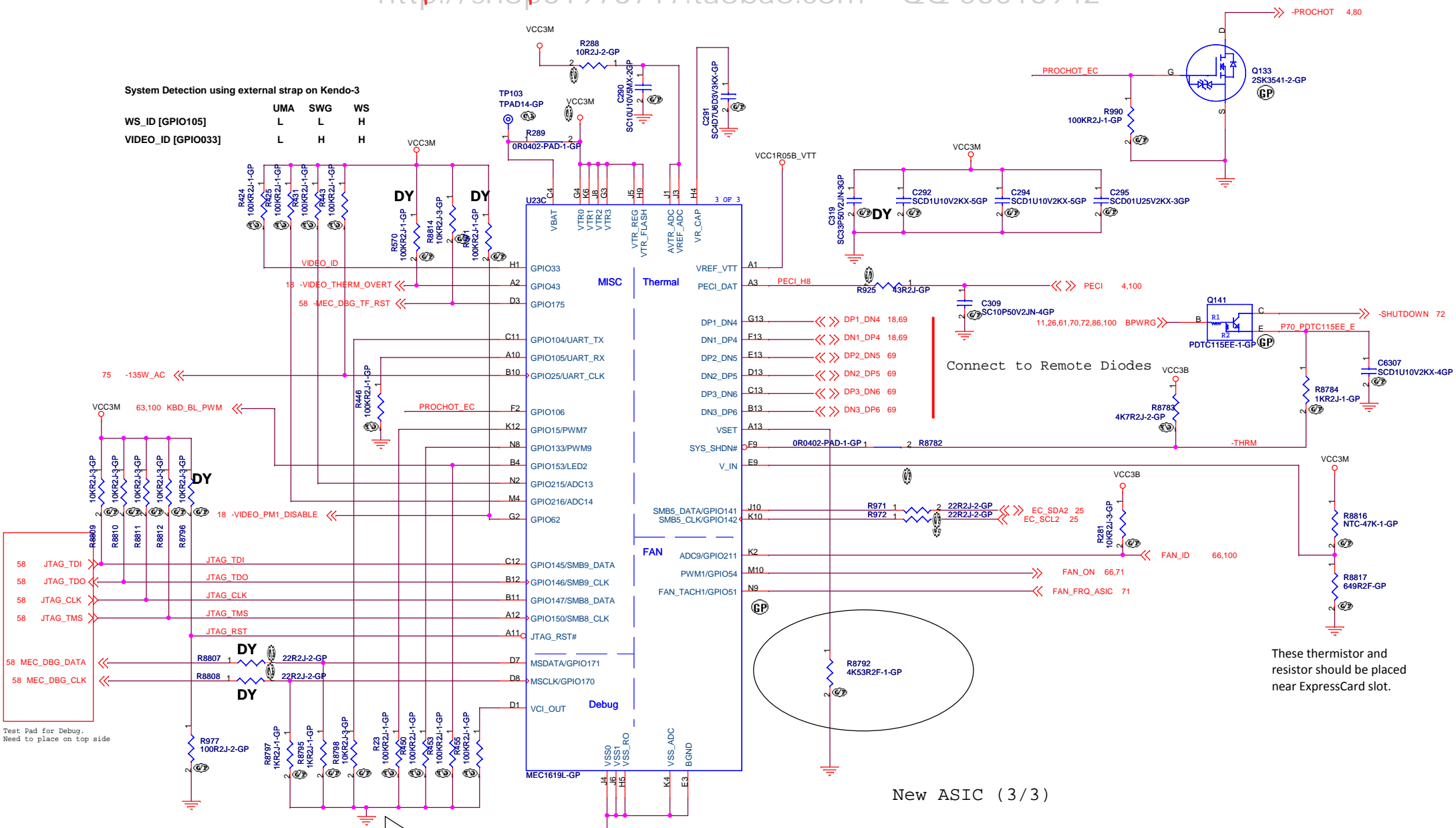
New EC (1/3)



System Detection using external strap on Kendo-3

WS\_ID [GPIO105]  
VIDEO\_ID [GPIO033]

UMA L SWG L WS H  
L H H



If these ports do not have internal PU/PD as default, need to apply external PU/PD

#### JTAG debug port

	Enable	Disable
R8796	ASM	NO ASM
C6330	0.1uF	100ohm(R977)

#### trace FIFO debug port

	Enable	Disable
R8807	ASM	NO ASM
R8808	ASM	NO ASM
R8797	NO ASM	ASM

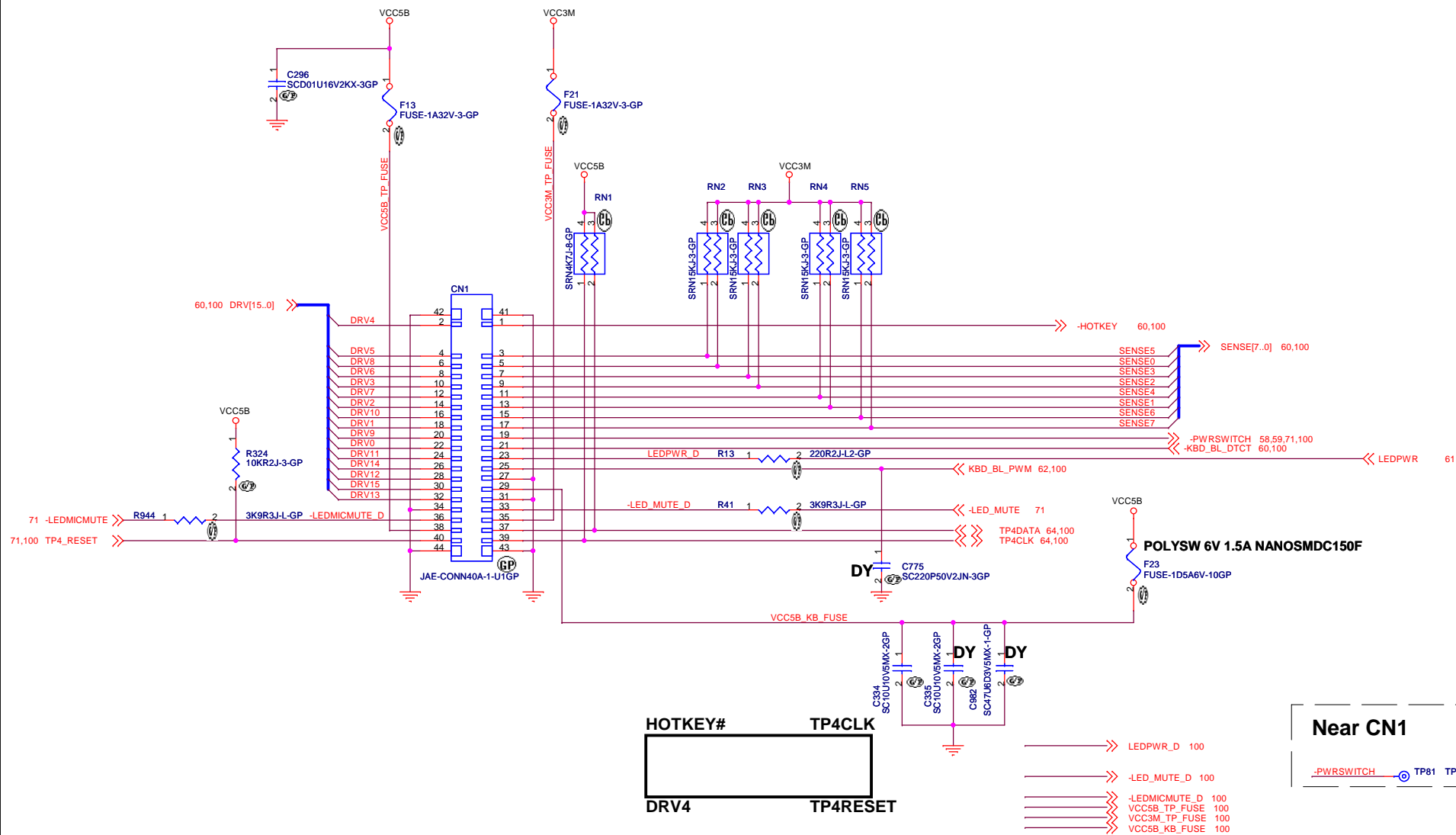
New ASIC (3/3)

These thermistor and resistor should be placed near ExpressCard slot.

<Variant Name>

<b>緯創資通 Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
Size A3	Document Number	Rev SA
Date: Friday, February 24, 2012	Kendo-4 SWG	104

## Keyboard Connector



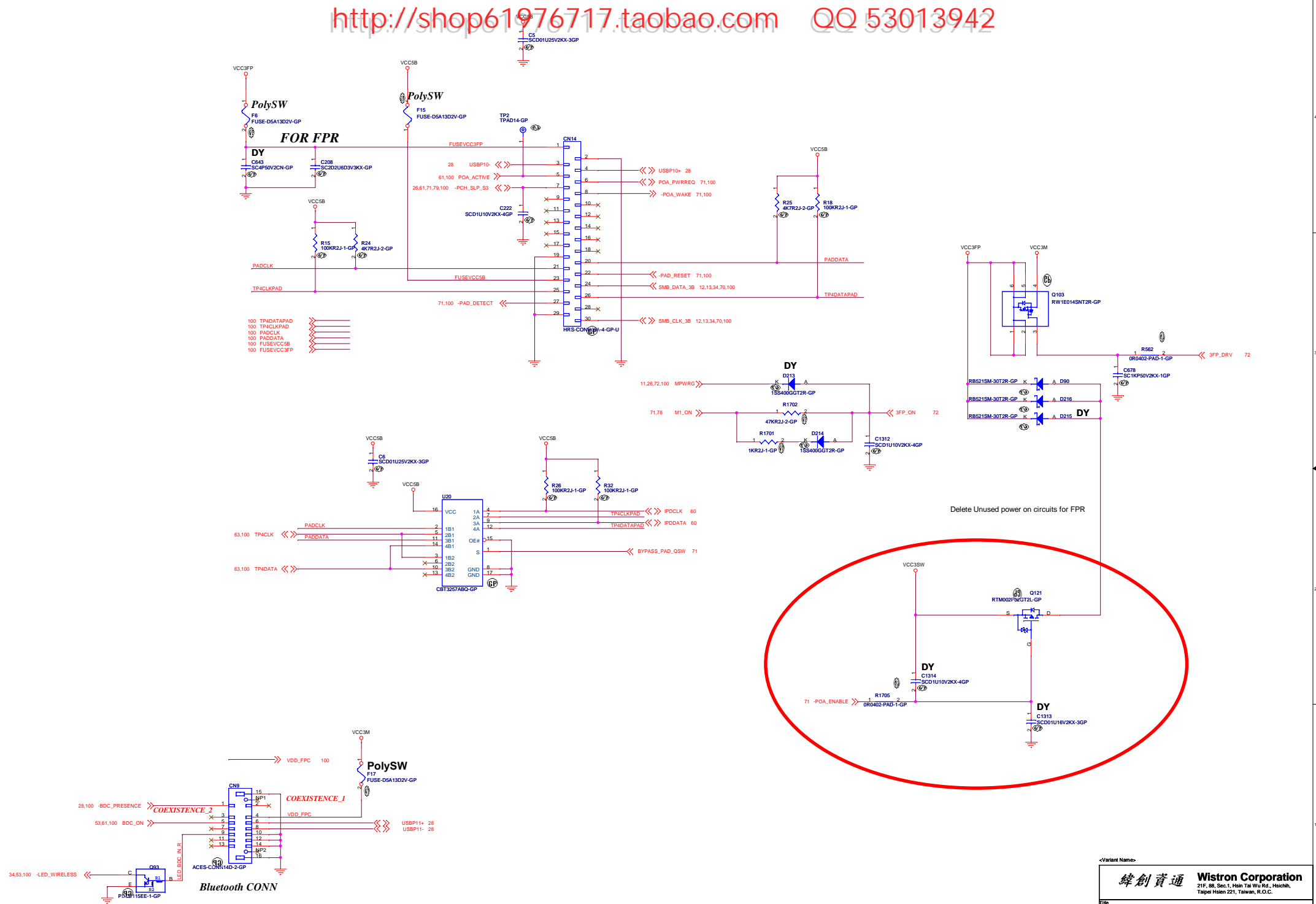
**Near CN1**

-PWRSWITCH TP81 TPAD60

Keyboard Connector Top View

<Variant Name>

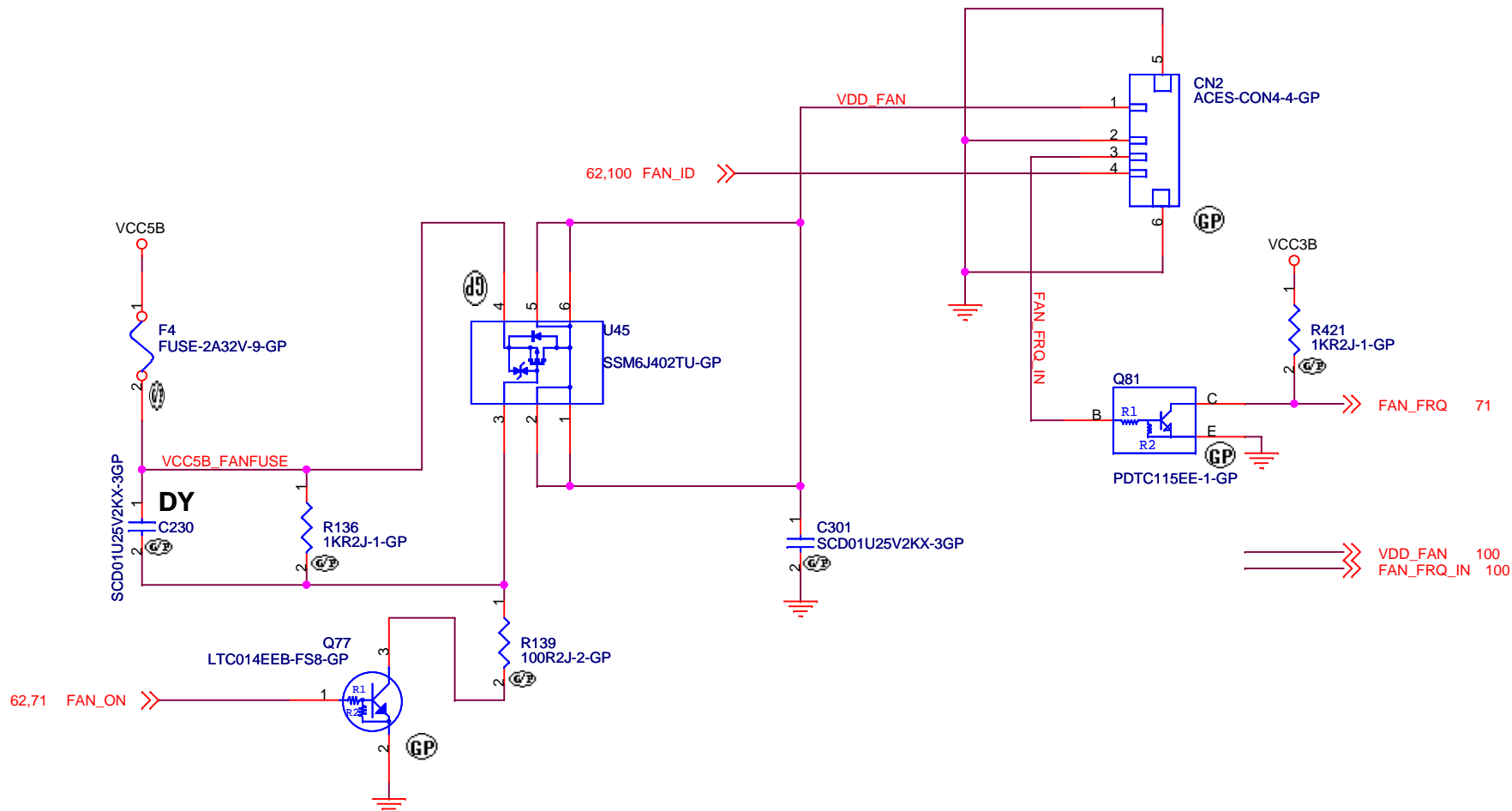
<b>緯創資通 Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
<b>KEYBOARD CONN</b>	
Title Size A3 Date: Friday, February 24, 2012	Document Number <b>Kendo-4 SWG</b> Sheet 63 of 104
Rev SA	



BLANK

<Variant Name>

<div><div>緯創資通</div><div>Wistron Corporation</div><div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div></div>		
Title <div>BLANK</div>		
Size <div>A4</div>	Document Number <div>Kendo-4 SWG</div>	Rev <div>SA</div>
Date: Friday, February 24, 2012		Sheet 65 of 104



If Direct PWM FAN Module will be pick uped on this project, VCC Pin is needed to FAN Interface connector.

1. VCC5
2. PWM
3. FAN\_FRQ
4. GND
5. ~ ID

<Core Design>

緯創資通

**Wistron Corporation**

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

Title

**FAN CONNECTOR**

Size  
A4

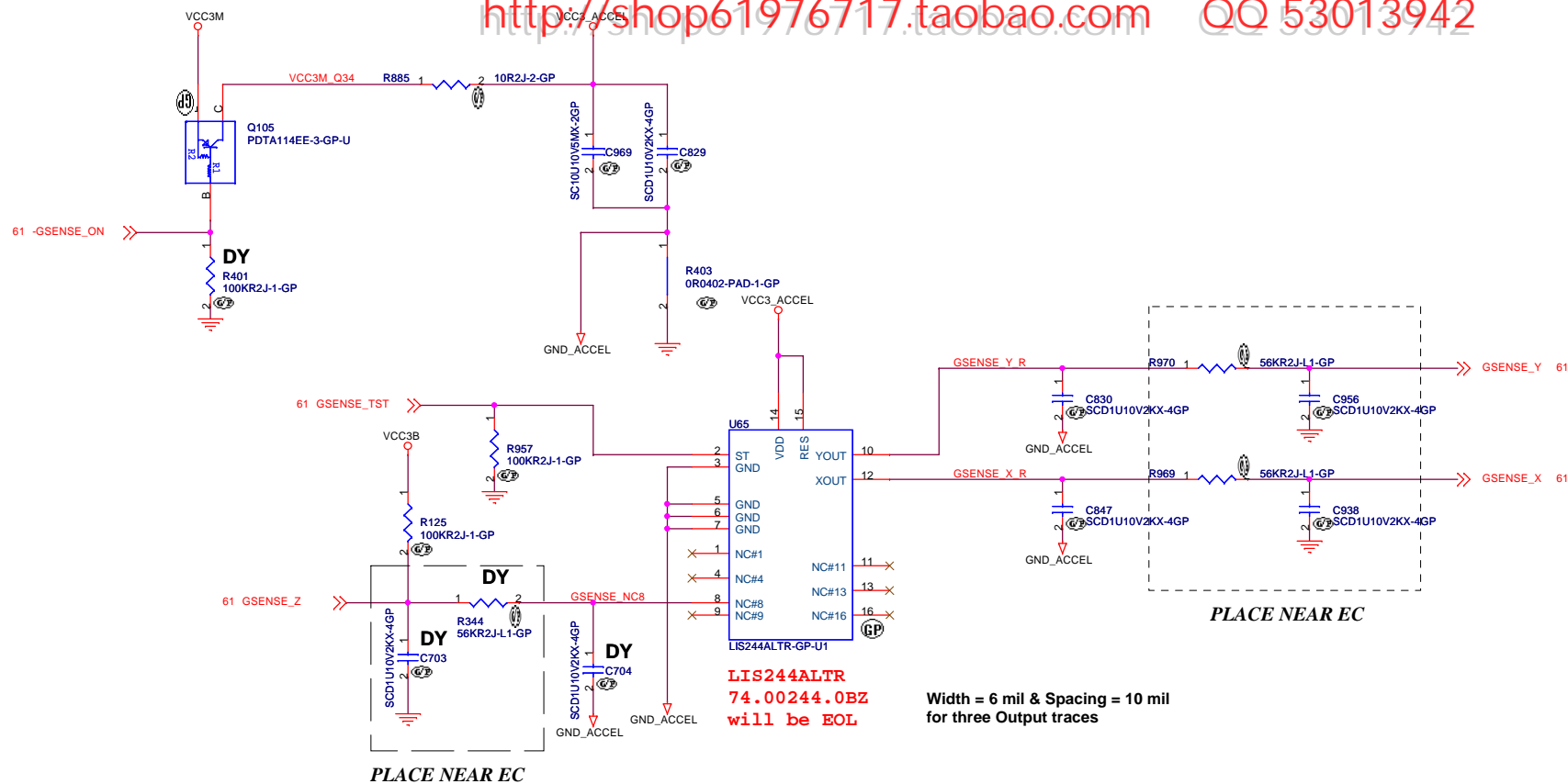
Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 66 of 104



PLACE NEAR EC

LIS244ALTR  
74.00244.0BZ  
will be EOL

Width = 6 mil & Spacing = 10 mil  
for three Output traces

LIS244AL	LIS34AL	NO ACC.
R401	NO-ASM	ASM
R957	ASM	ASM
U65	ASM	NO-ASM
Q105	ASM	NO-ASM
R885	10-OHM	NO-ASM
C829	ASM	NO-ASM
C969	ASM	NO-ASM
C830	ASM	NO-ASM
C847	ASM	NO-ASM
R970	56K	NO-ASM
C956	ASM	NO-ASM
R969	56K	NO-ASM
C938	ASM	NO-ASM
C704	NO-ASM	NO-ASM
R344	NO-ASM	NO-ASM
C703	NO-ASM	NO-ASM
R125	ASM	ASM

Table

	Supplier	Vendo P/N	WISTRON P/N
1	ST	LIS34ALTR	74.00034.0BZ 41R0828AA
2	Kionix	KXTC8-2850	74.KXTC8.0BZ

Layout Comment :

(1) Place C586, C588, Q17, R415, R417,  
C584, C585, R420 close to U34.

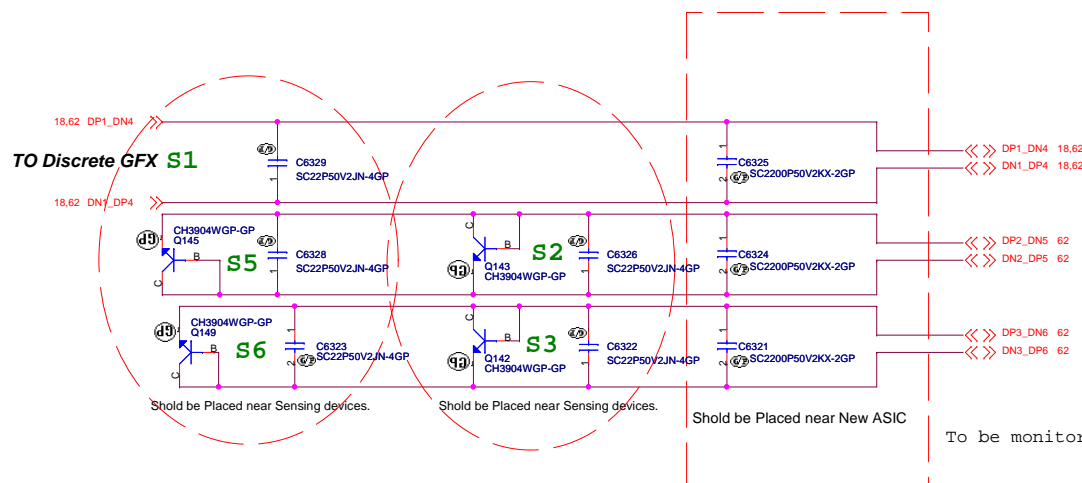
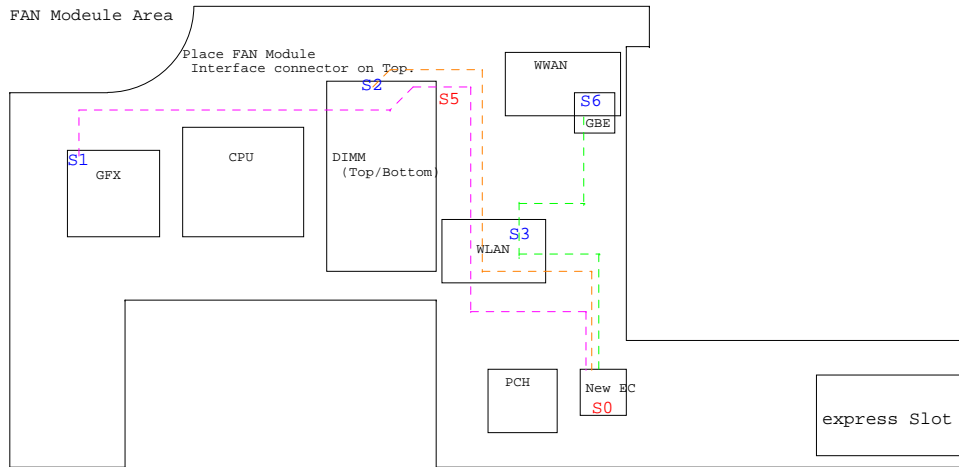
(2) Avoid routing under DCDC switching area.

<Core Design>

<b>緯創資通</b> Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
<b>G-SENSOR</b>	
Size	Document Number
A3	Kendo-4 SWG
Date: Friday, February 24, 2012	Rev SA
Sheet 67	of 104

<Core Design>

		<b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
<b>DC/DC RINKAN-2</b>			
Size	Document Number		Rev
Custom	<b>Kendo-4 SWG</b>		<b>SA</b>
Date: Friday, February 24, 2012		Sheet 68 of	104



Sensor	Device	Placed on
S0(Body)	PCH/BASE COVER	Bottom
S1	GFX_D	Connect to IC
S2	DIMM(TOP)	Top
S3	WLAN	Top
S4	N/A	N/A
S5	DIMM(BOT)	Bottom
S6	GBE WAN	Top

From/To New EC

To be monitor S4/5/6 line, EC should enable the function with register.

Sensor Location will be decided based on the placement.

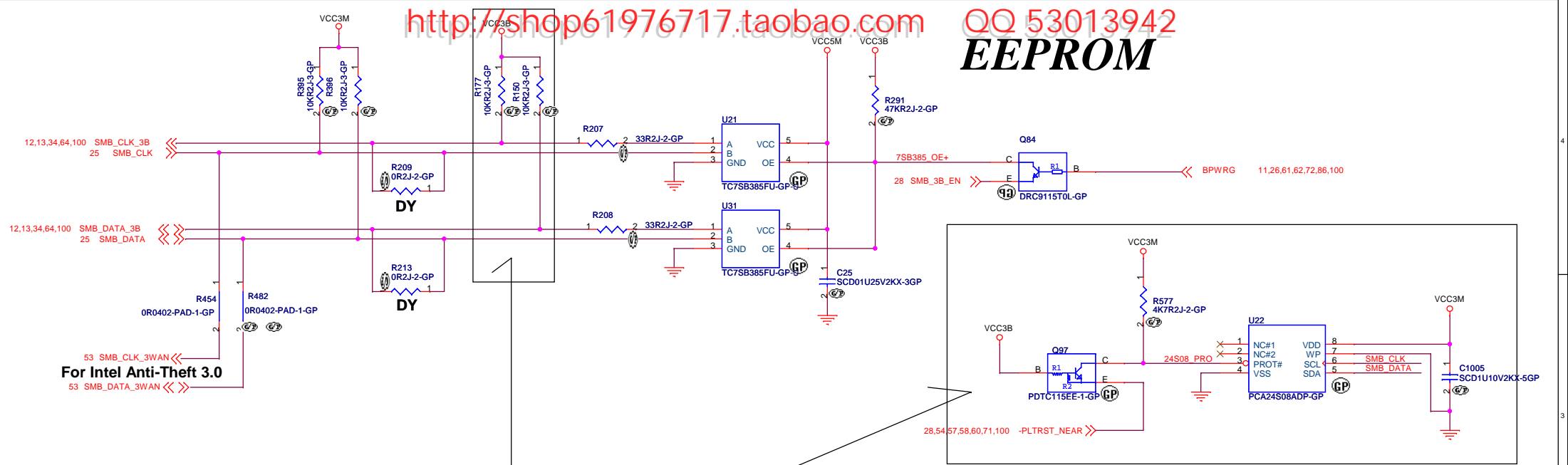
Layout Comment :

(1) Thermal sensor trace lines should not be overlapped with other high frequency trace lines in other layers.

(2) Also, it should not be overlapped with large amplitude trace lines either.

<Variant Name>

緯創資通 Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title THERMAL SENSOR	
Size Custom	Document Number Kendo-4 SWG
Date: Friday, February 24, 2012	Sheet 69 of 104
Rev SA	



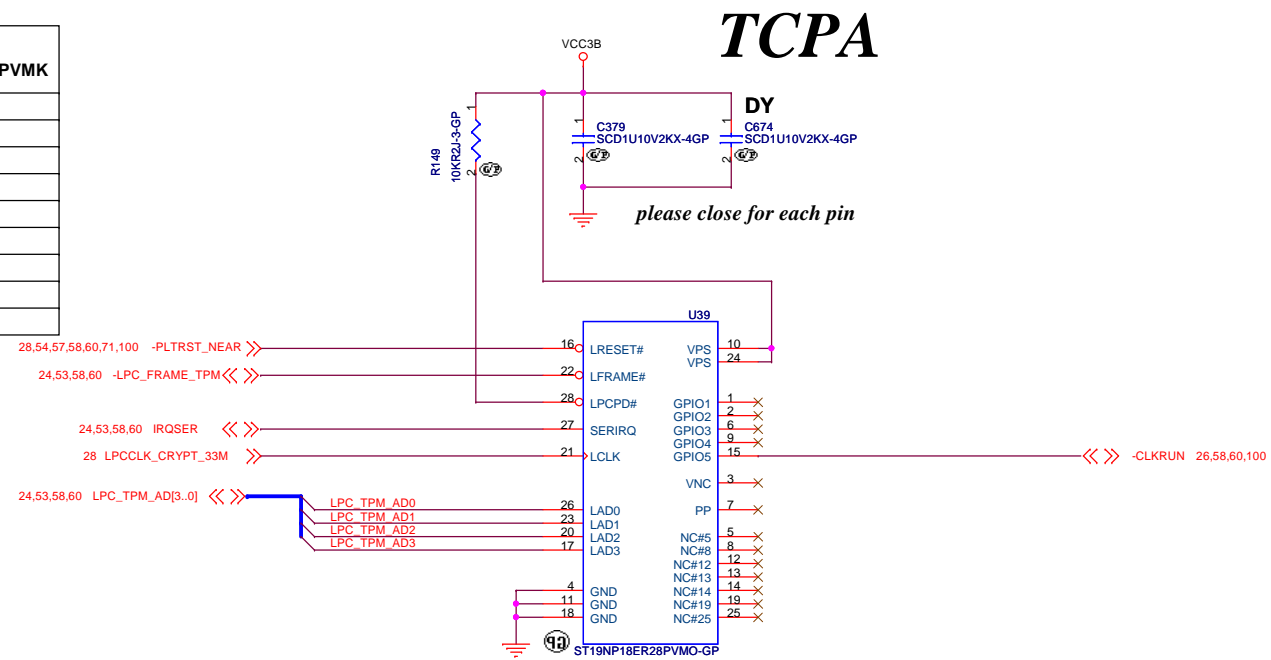
		U21, U31	Wistron part number
1	TOSHIBA	TC7SB385FU-GP	73.7S385.0AH 54Y9027AA
2	Pericom	PI5A121CEX	73.5A121.00H

When Asset ID function in new EC will be confirmed,  
 These Asset ID and external pull up will be removed.  
 As for Bus Sw, if the requirement is exsist, need to keep to prevent current leak.

		U22	Wistron part number
1	NXP	PCA24S08ADP	72.24S08.A0Q
2	ROHM	BUL08-1FVJ-W	54Y9016AA 72.BUL08.00Q

	NO TPM	ST Micro ST19NP18ER28PVMK
U39	NO_ASM	ASM
C379	NO_ASM	ASM
C674	NO_ASM	NO_ASM
R149	NO_ASM	ASM

↑  
**LOGIC**



Chnage to 71.19N18.T0W by ECR

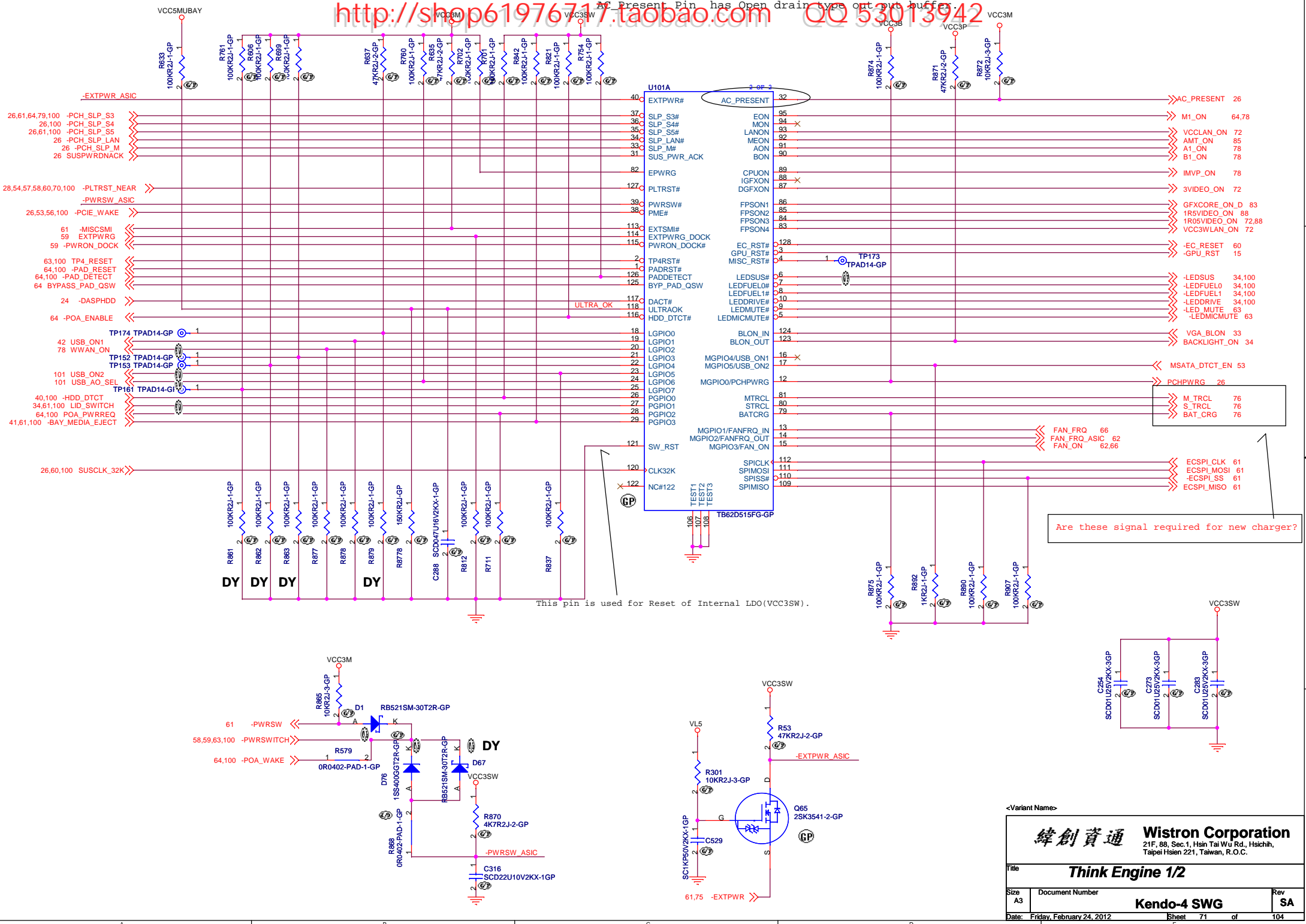
<Core Design>

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

Title: **EEPROM/TCPA**

Size A3 Document Number: **Kendo-4 SWG** Rev: **SA**

Date: Friday, February 24, 2012 Sheet 70 of 104

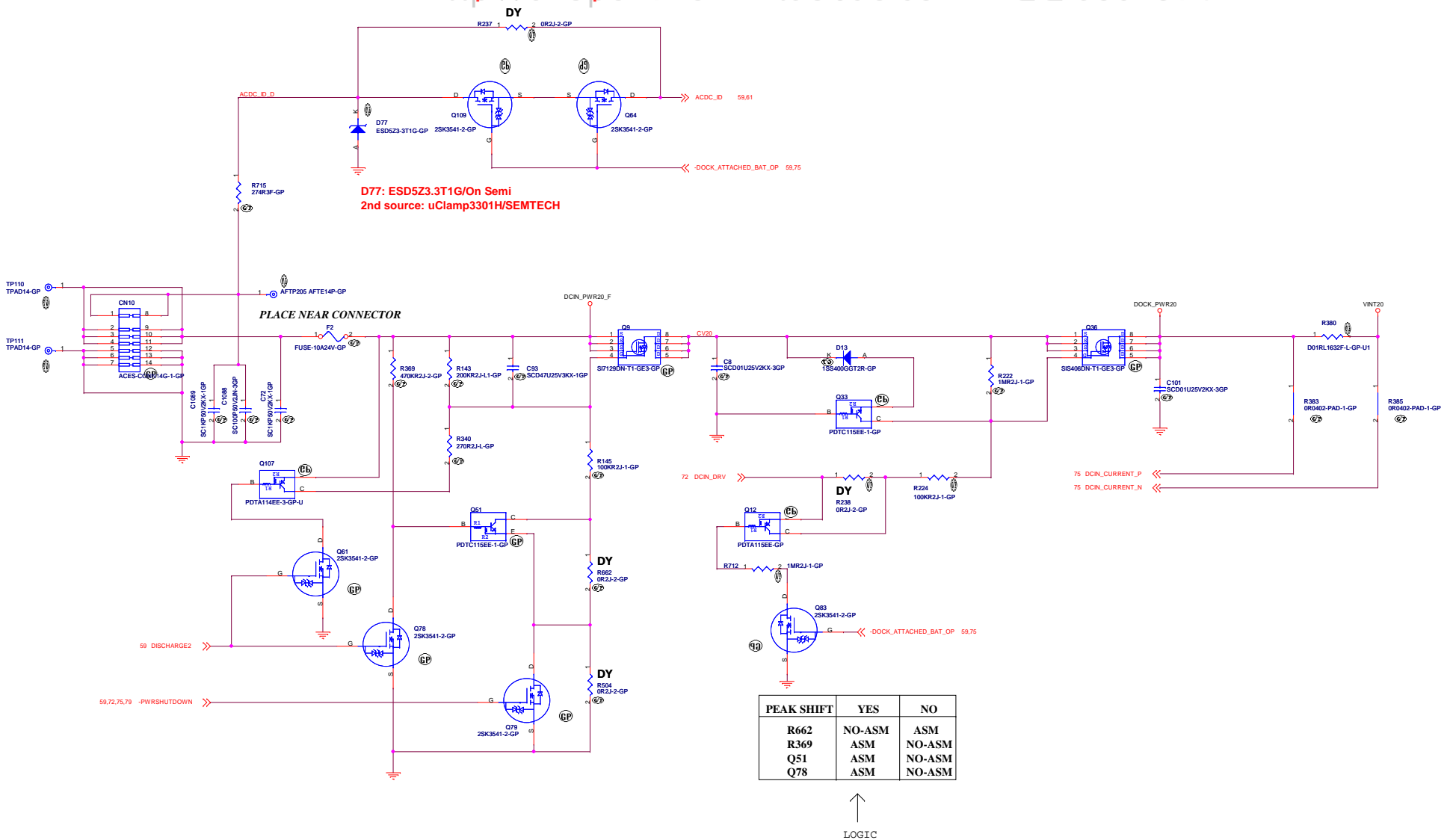


Are these signal required for new charger?

This pin is used for Reset of Internal LDO(VCC3SW).

QQ 53013942





<Core Design>

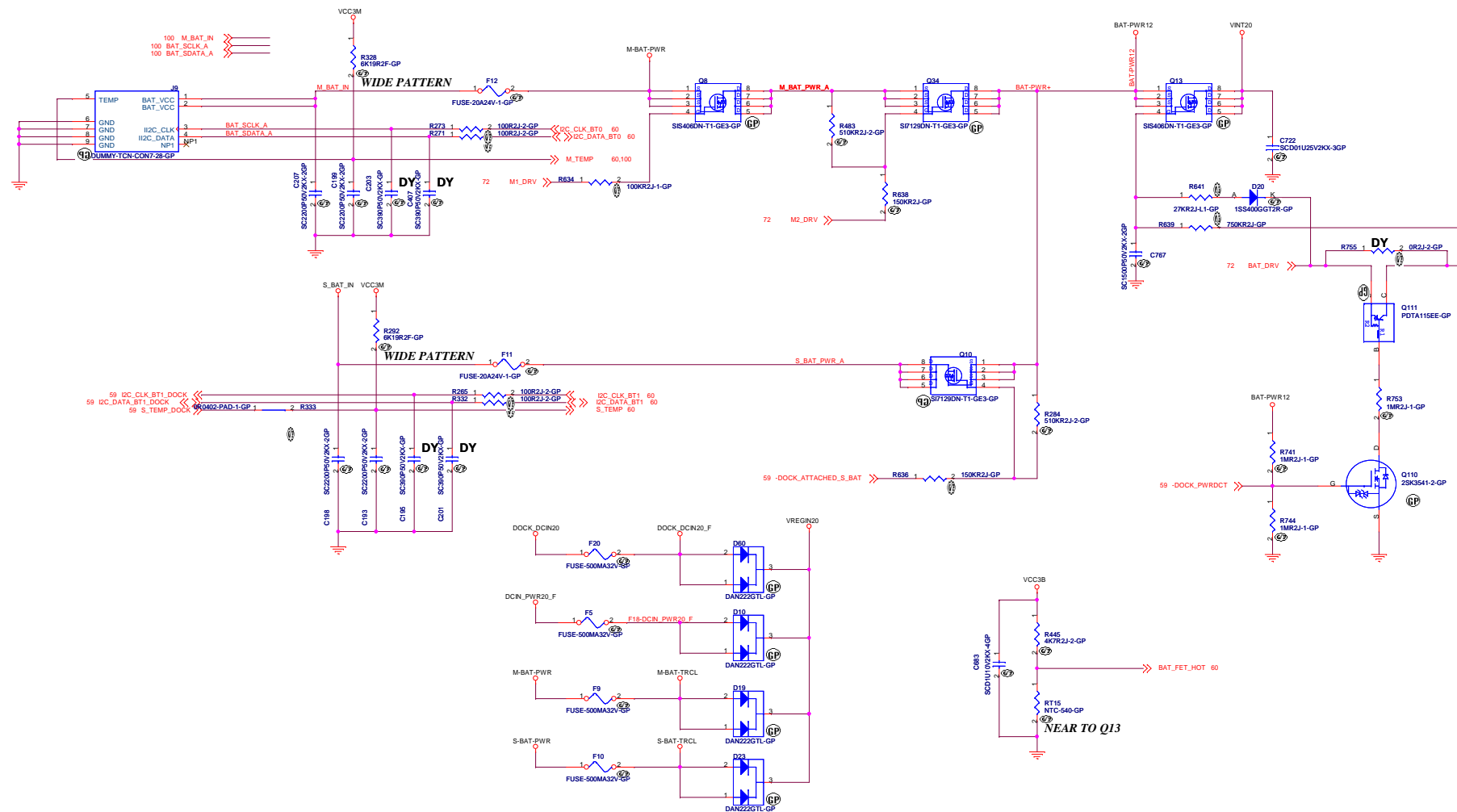
緯創資通 **Wistron Corporation**  
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
 Taipei Hsien 221, Taiwan, R.O.C.

File	<b>DC-IN</b>		Rev
Size	Document Number	<b>Kendo-4 SWG</b>	SA
Date: Friday, February 24, 2012	Sheet 73	of 104	

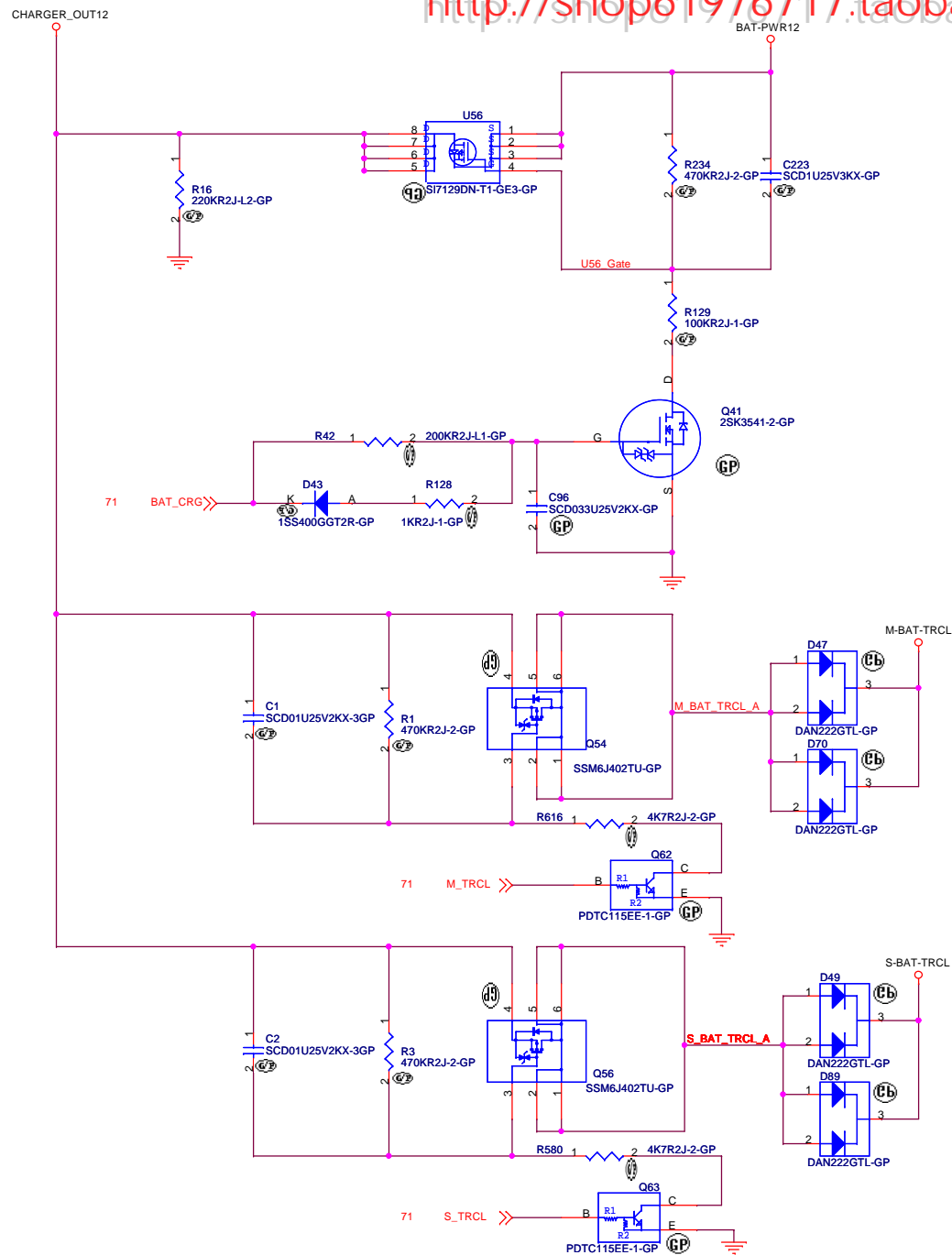
**<Core Design>**

**緯創資通** **Wistron Corporation**  
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Taipei Hsien 221, Taiwan, R.O.C.

Title			
<b>BATTERY INPUT</b>			
Size A2	Document Number <b>Kendo-4 SWG</b>		Rev <b>SA</b>
Date: Friday, February 24, 2012	Sheet	74 of	104





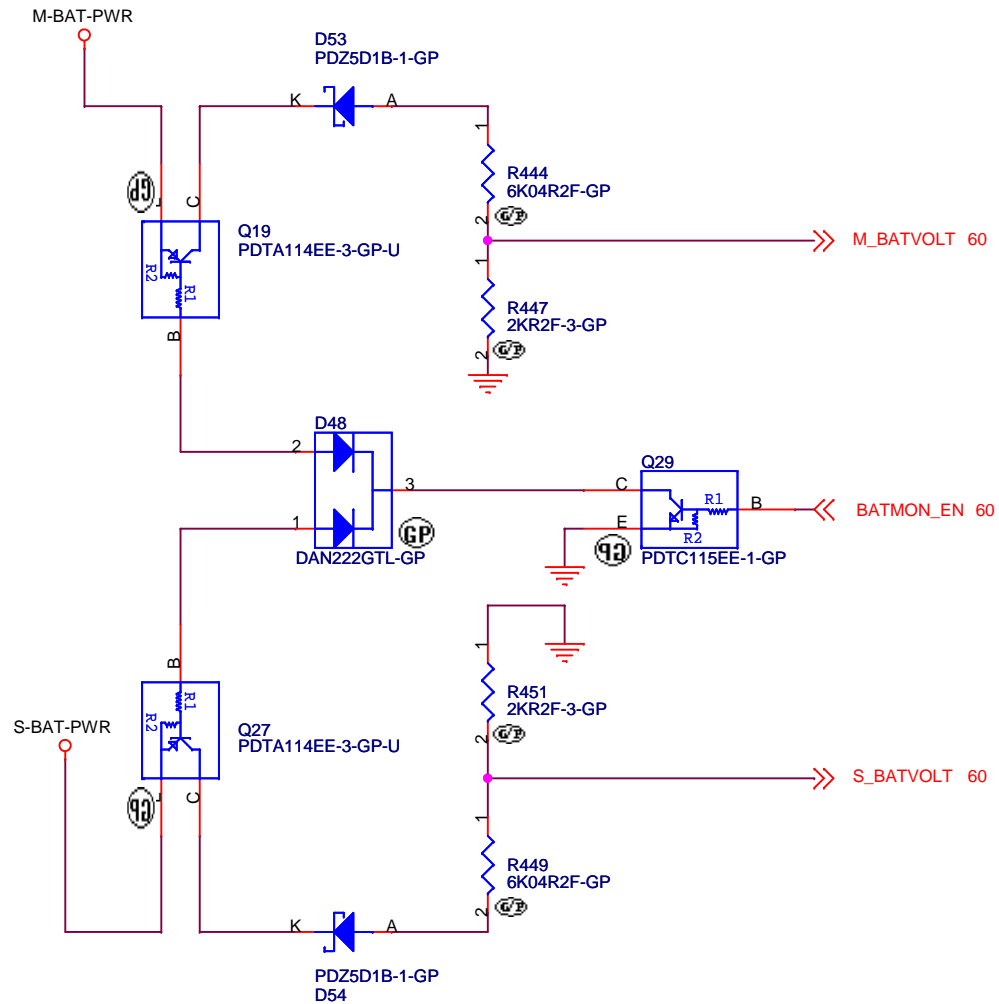


<Core Design>

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

Title		
CHARGER SELECT		
Size	Document Number	Rev
A3	Kendo-4 SWG	SA
Date:	Friday, February 24, 2012	Sheet 76 of 104

$$V_{OUT} = 0.249 (V_{BAT} - 5)$$



<Core Design>

緯創資通

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

Title

**BATTERY MONITOR**

Size  
A4

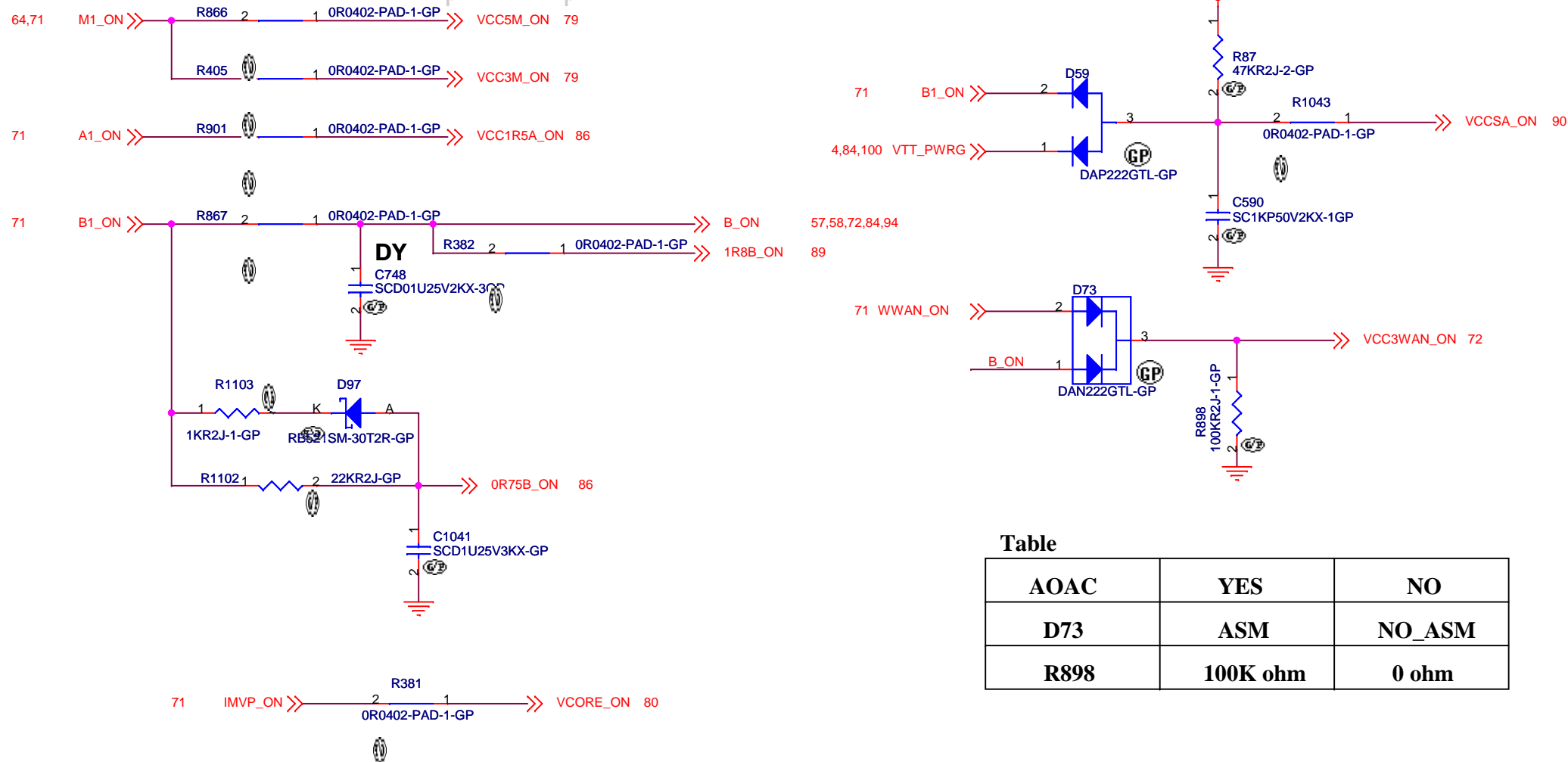
Document Number

**Kendo-4 SWG**

Rev  
**SA**

Date: Friday, February 24, 2012

Sheet 77 of 104



Table

AOAC	YES	NO
D73	ASM	NO_ASM
R898	100K ohm	0 ohm

<Core Design>

緯創資通

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Title

**POWER SEQUENCE**

Size  
A4

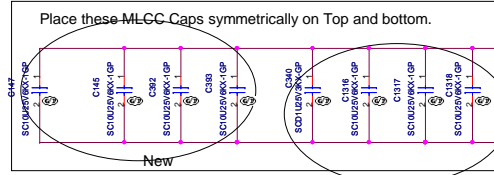
Document Number

**Kendo-4 SWG**

Rev  
**SA**

Date: Friday, February 24, 2012

Sheet 78 of 104

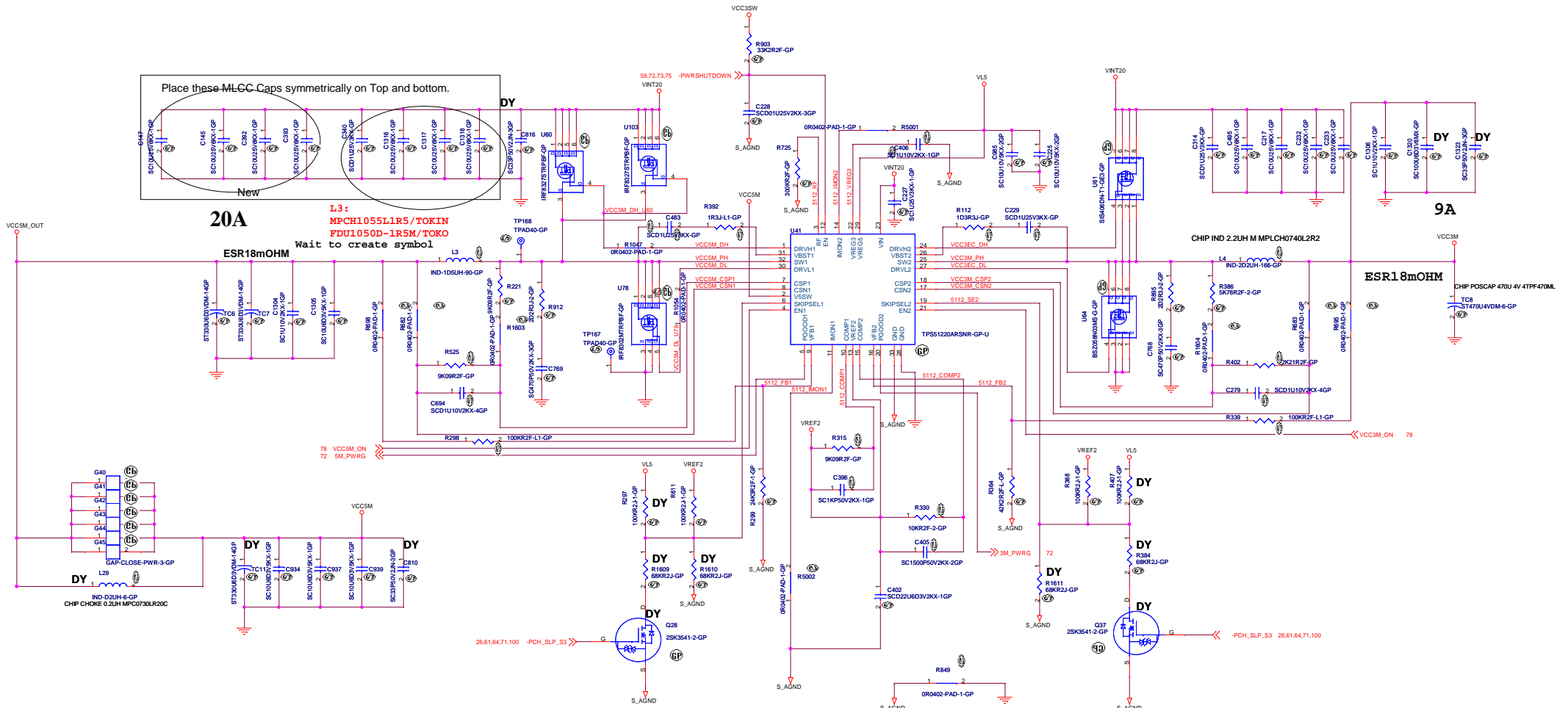


20A

ESR18mOHM

Wait to create symbol

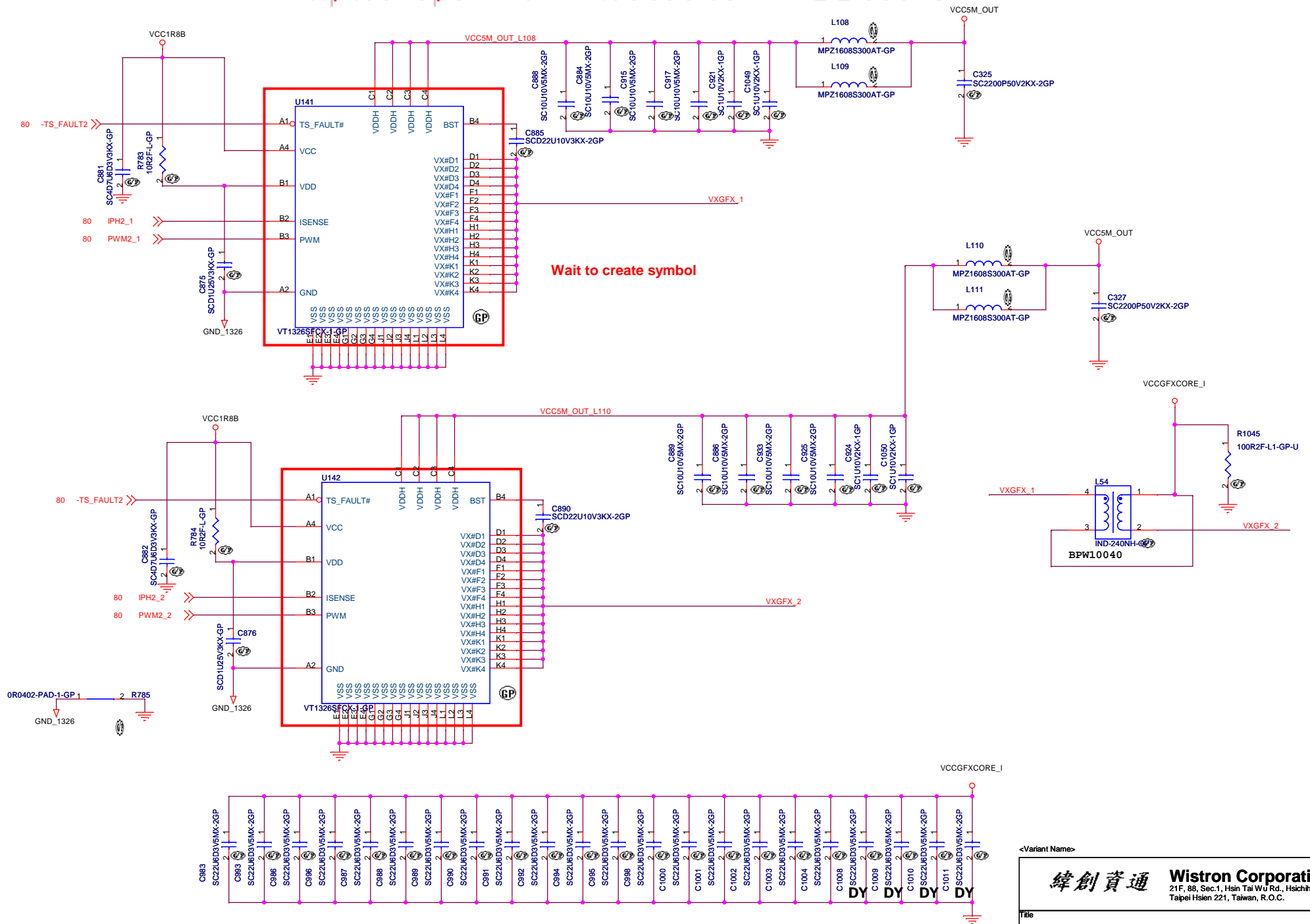
L3:  
MPCH1055L1R5/TOKIN  
FDU1050D-1R5M/TOKO



<Core Design>

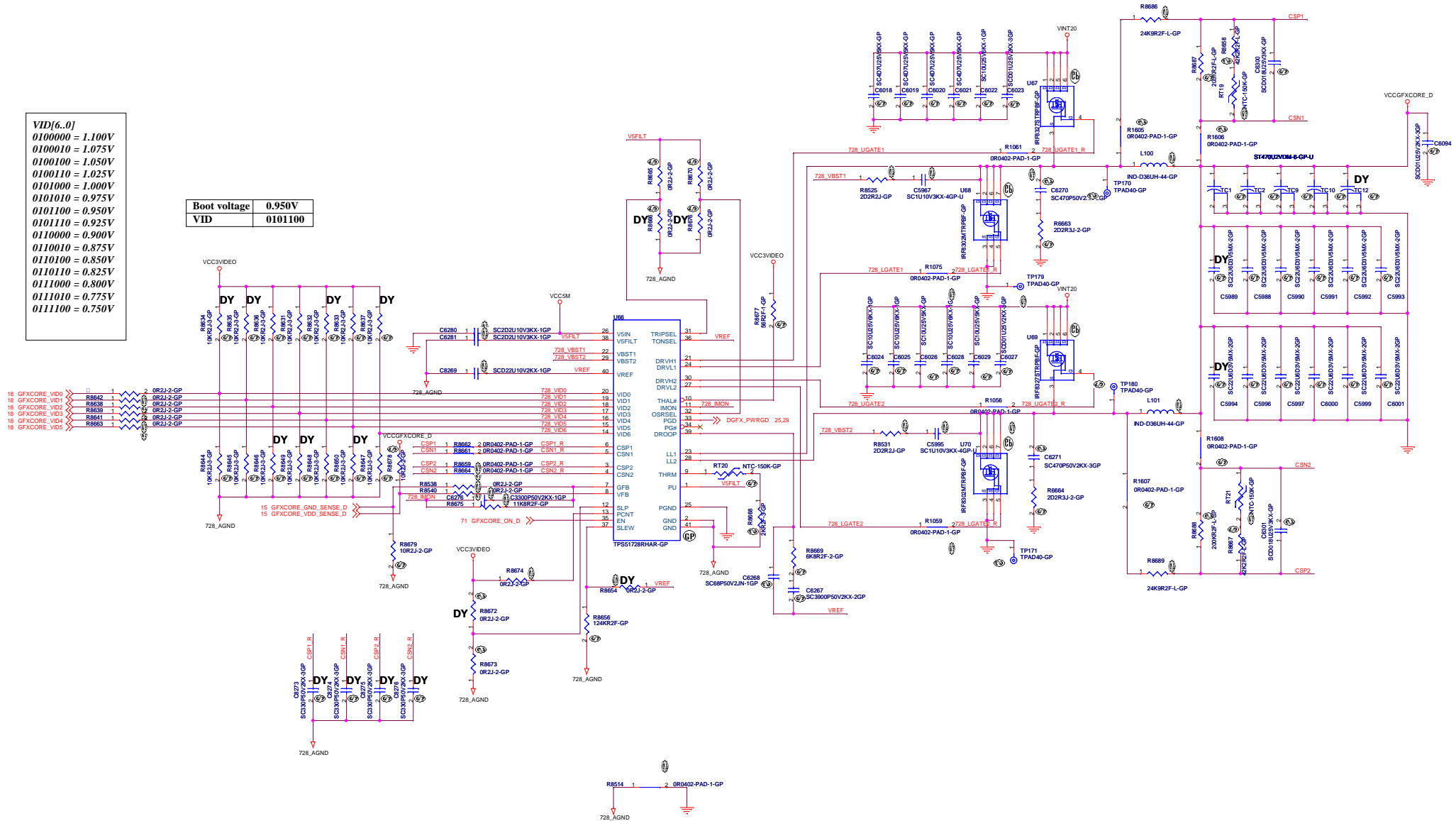






VID[6..0]  
 0100000 = 1.100V  
 0100010 = 1.075V  
 0100100 = 1.050V  
 0100110 = 1.025V  
 0101000 = 1.000V  
 0101010 = 0.975V  
 0101100 = 0.950V  
 0101110 = 0.925V  
 0110000 = 0.900V  
 0110010 = 0.875V  
 0110100 = 0.850V  
 0110110 = 0.825V  
 0111000 = 0.800V  
 0111010 = 0.775V  
 0111100 = 0.750V

Boot voltage	0.950V
VID	0101100



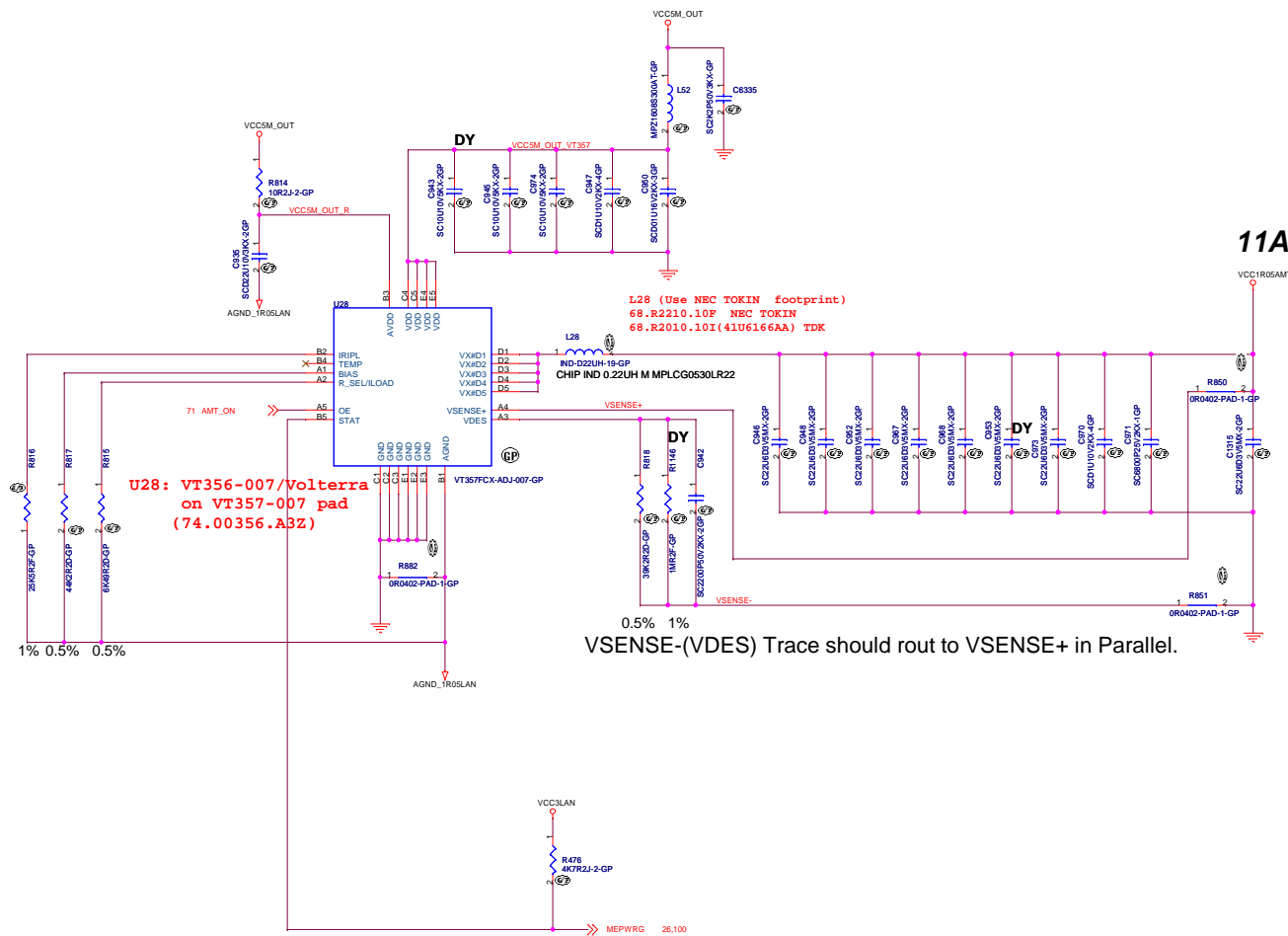
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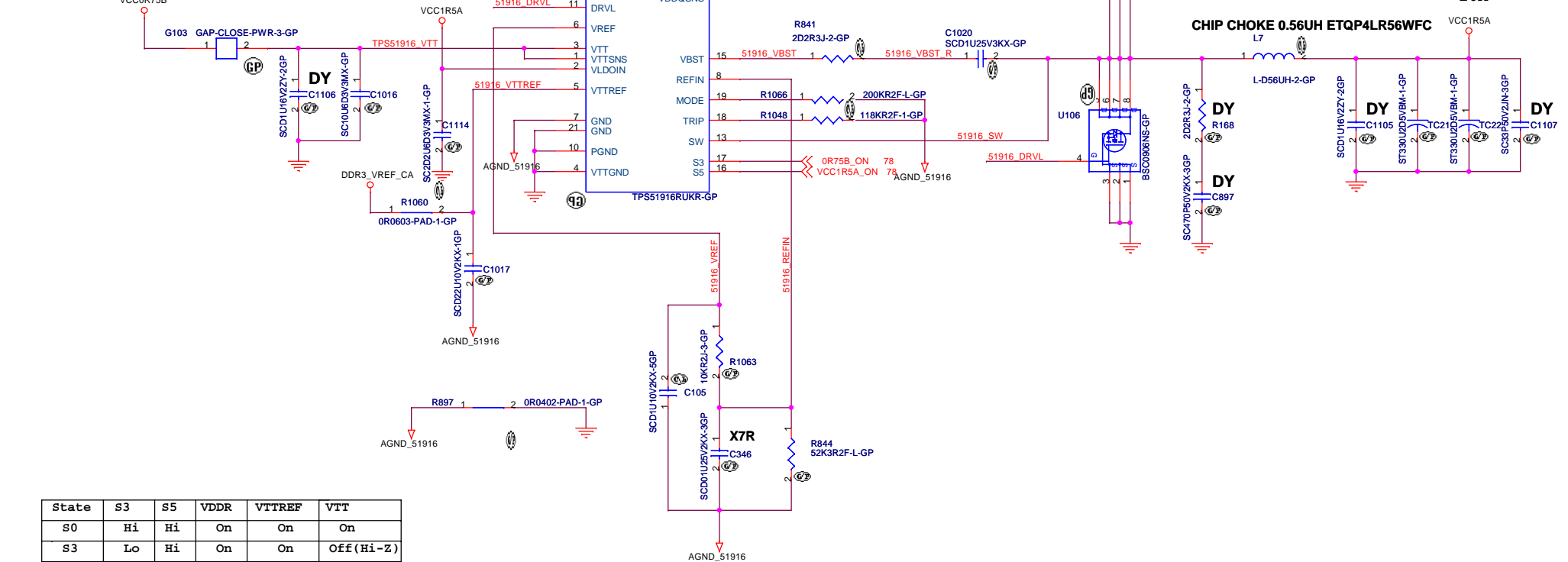
緯創資通 Wistron Corporation  
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
 Taipei Hsien 221, Taiwan, R.O.C.

File	DC-DC GFXCORE_D		
Size	Document Number	Kendo-4 SWG	Rev
A2			SA
Date:	Friday, February 24, 2012	Sheet	83 of 104

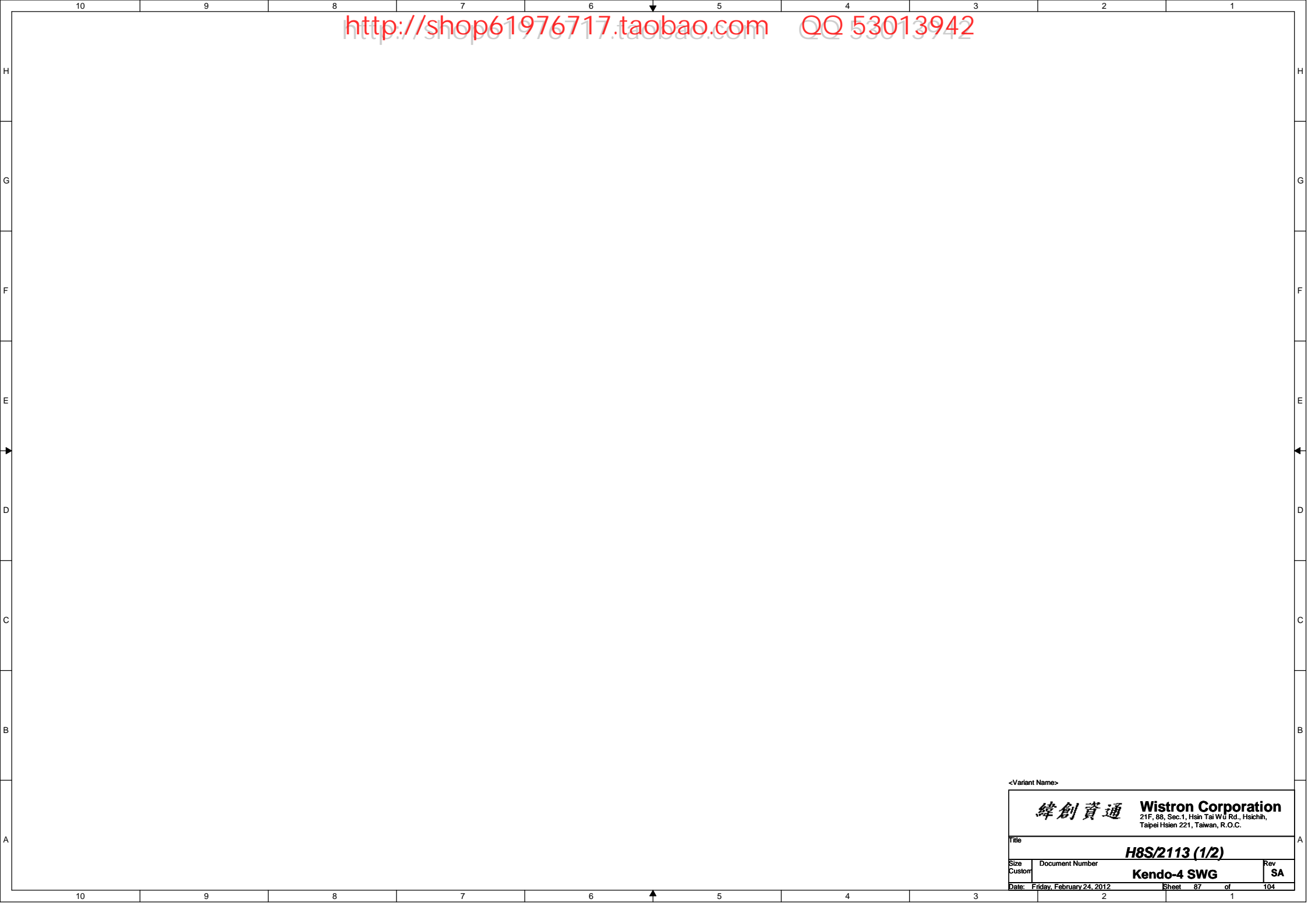


<b>VCC1R05B_VTT</b>	<b>R_VDES</b>
<b>1.00V (IVB ES1)</b>	<b>36.5K</b>
<b>1.05V (SNB, IVB ES2 later)</b>	<b>38.3K</b>





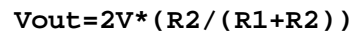
State	S3	S5	VDDR	VTTREF	VTT
S0	Hi	Hi	On	On	On
S3	Lo	Hi	On	On	Off(Hi-Z)
S4/S5	Lo	Lo	Off	Off	Off

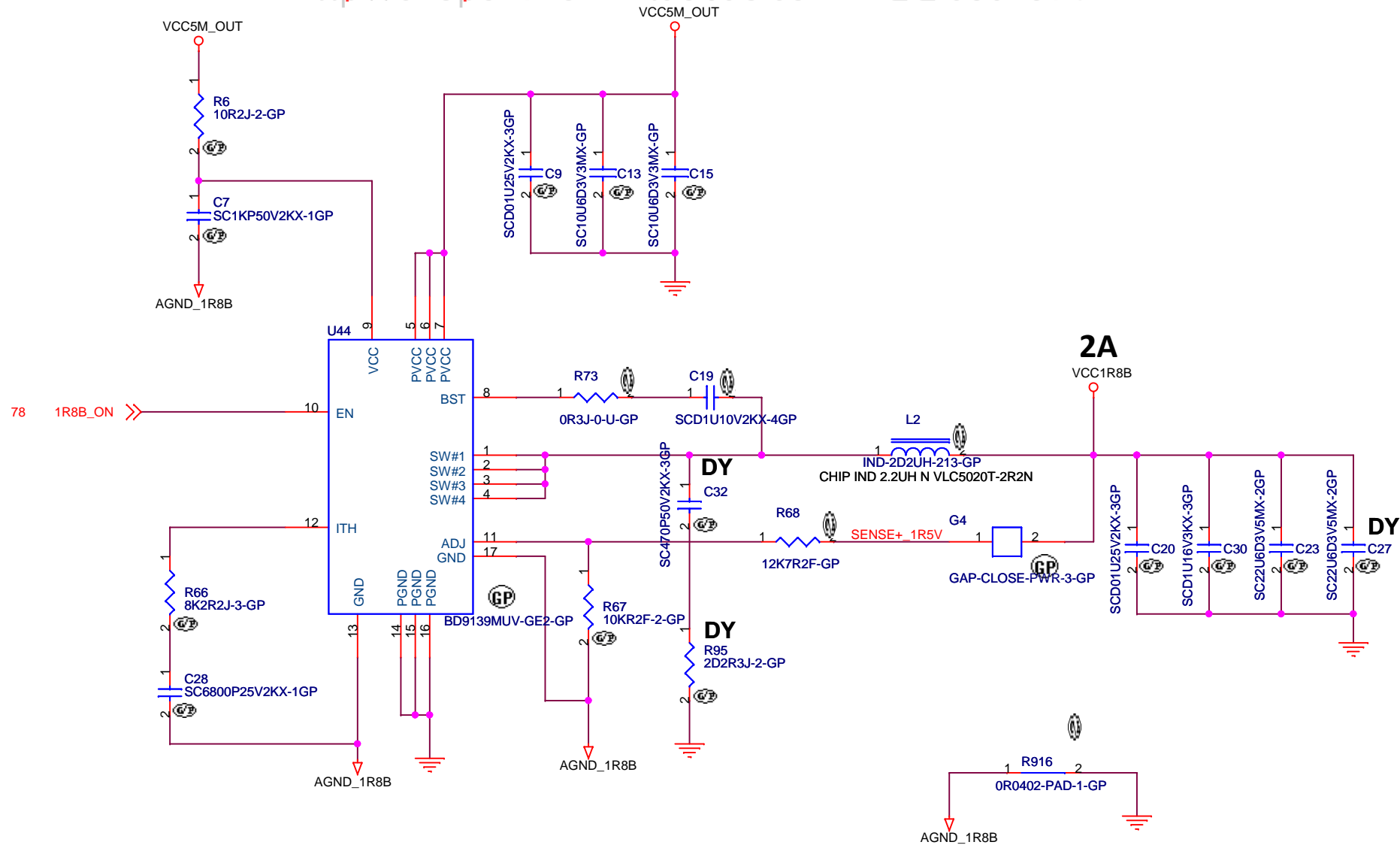


http://shop61976717.taobao.com QQ 53013942

<Variant Name>

<b>緯創資通</b>		<b>Wistron Corporation</b>	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title			
<b>H8S/2113 (1/2)</b>			
Size Custom	Document Number		Rev <b>SA</b>
<b>Kendo-4 SWG</b>			
Date: Friday, February 24, 2012	Sheet 87 of 104		
	2	1	





<Core Design>

緯創資通

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

Title

DC-DC VCC1R8B

Size  
A4

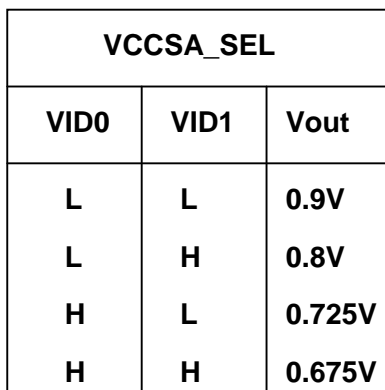
Document Number

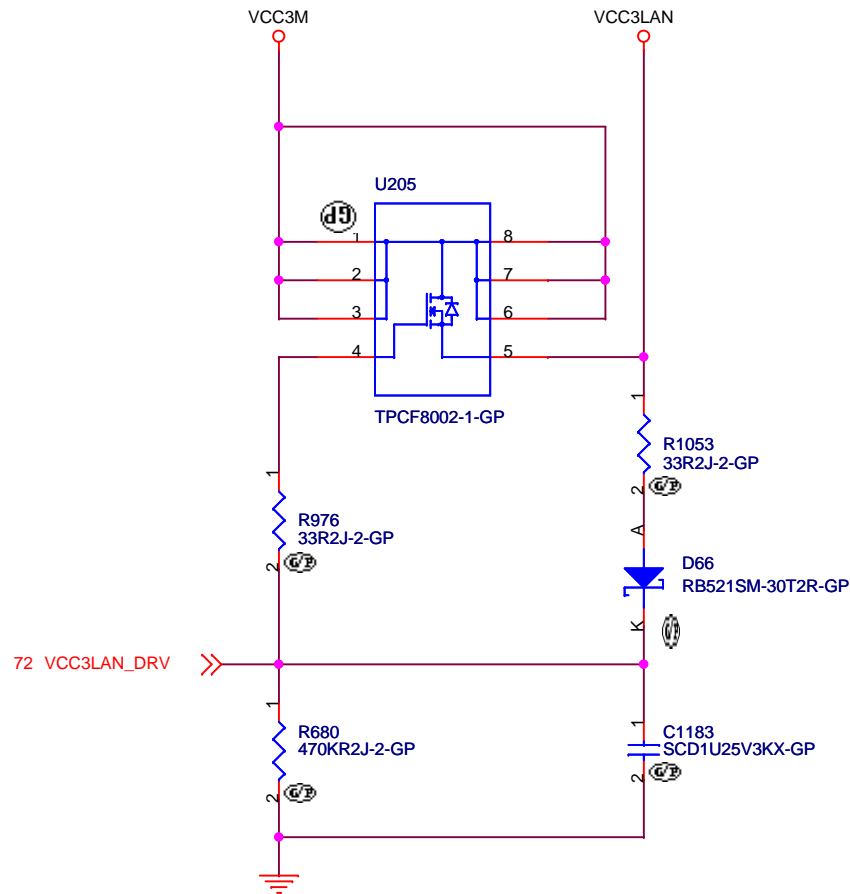
Kendo-4 SWG

Rev  
SA

Date: Friday, February 24, 2012

Sheet 89 of 104





<Core Design>

緯創資通

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

Title

**LOAD SW LAN & LANPWRG**

Size  
A4

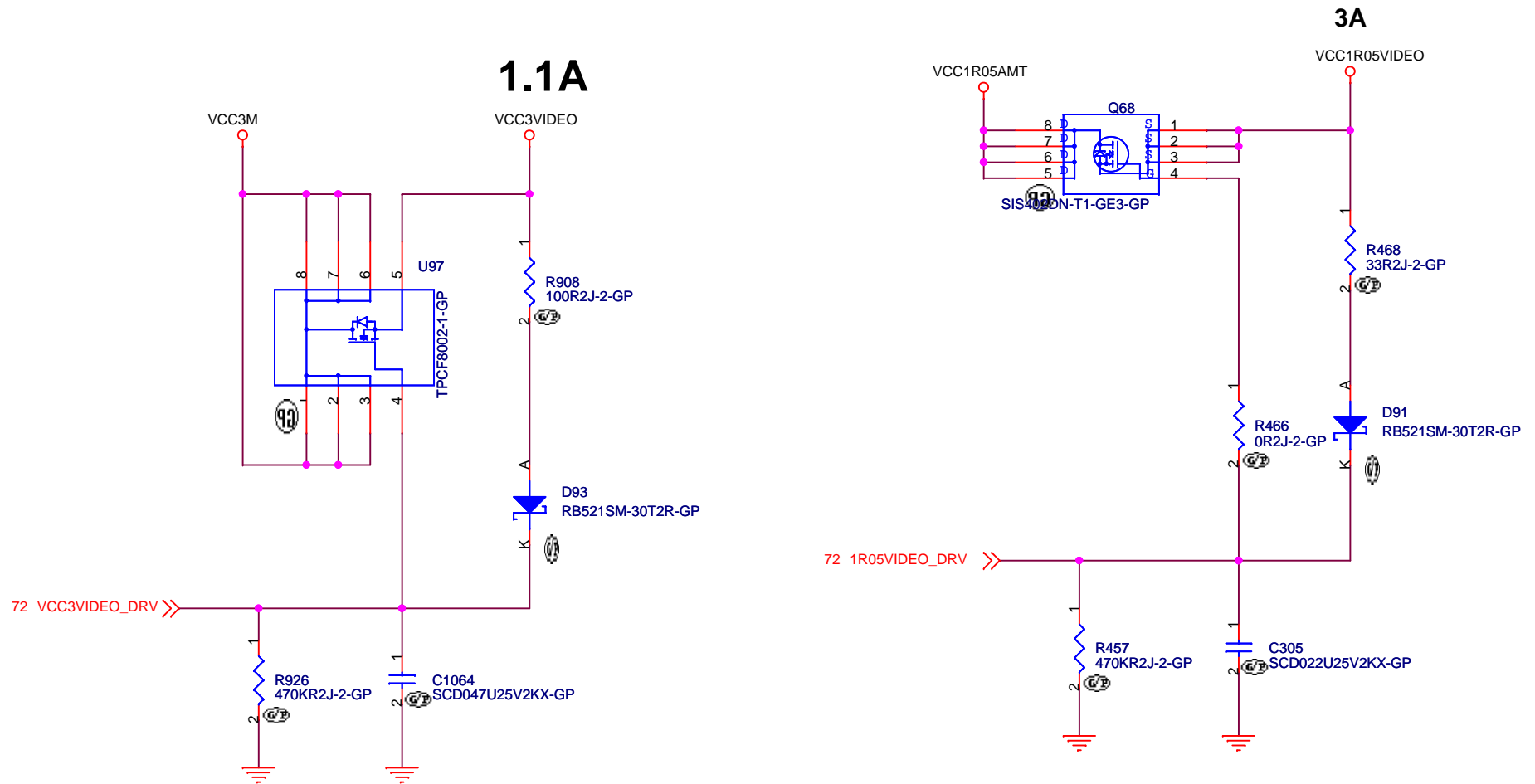
Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 91 of 104



<Core Design>

緯創資通

**Wistron Corporation**

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

Title

**LOAD SW VIDEO**

Size  
A4

Document Number


**Kendo-4 SWG**

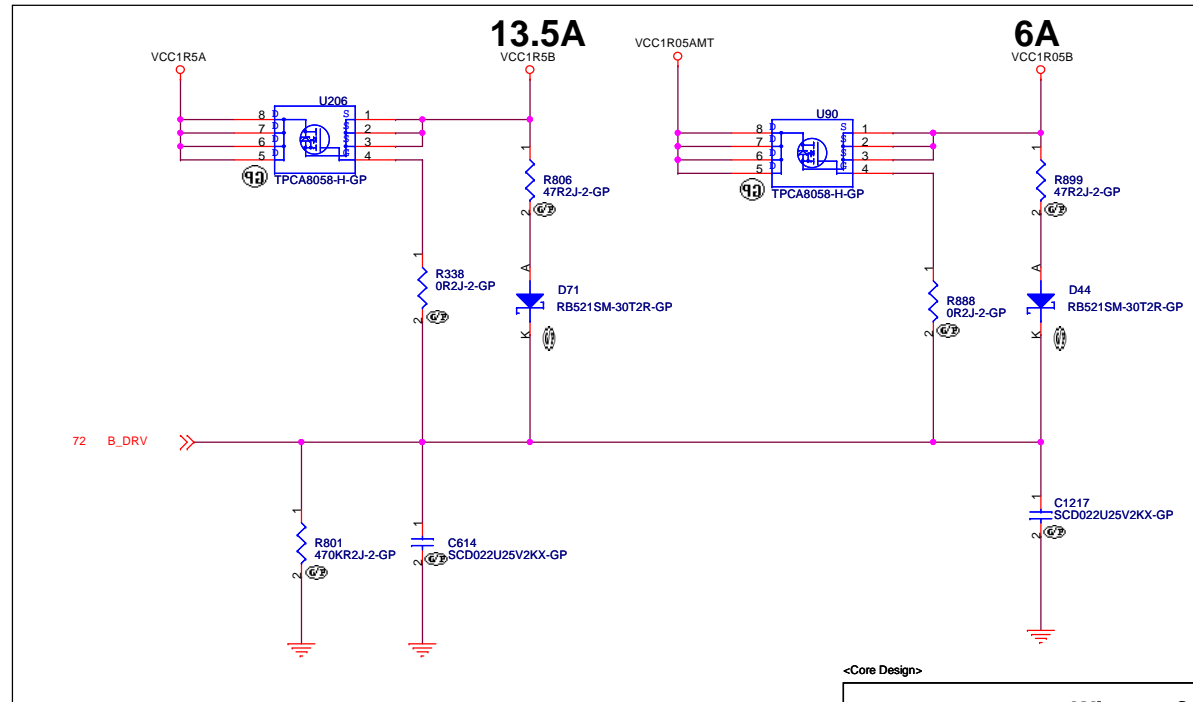
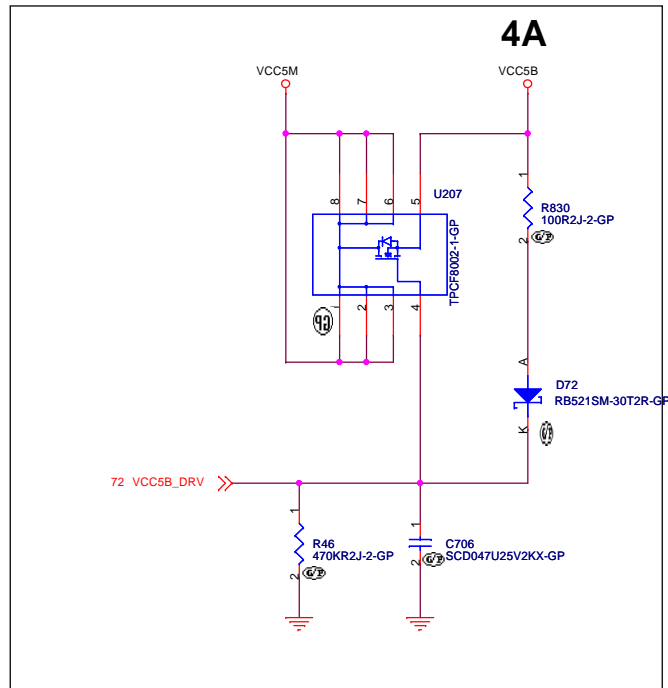
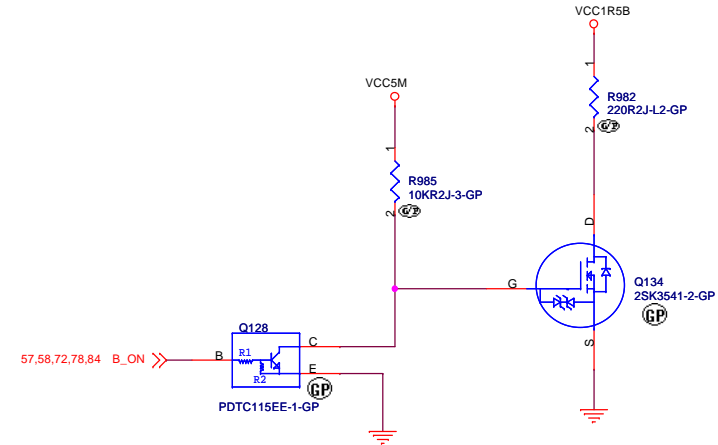
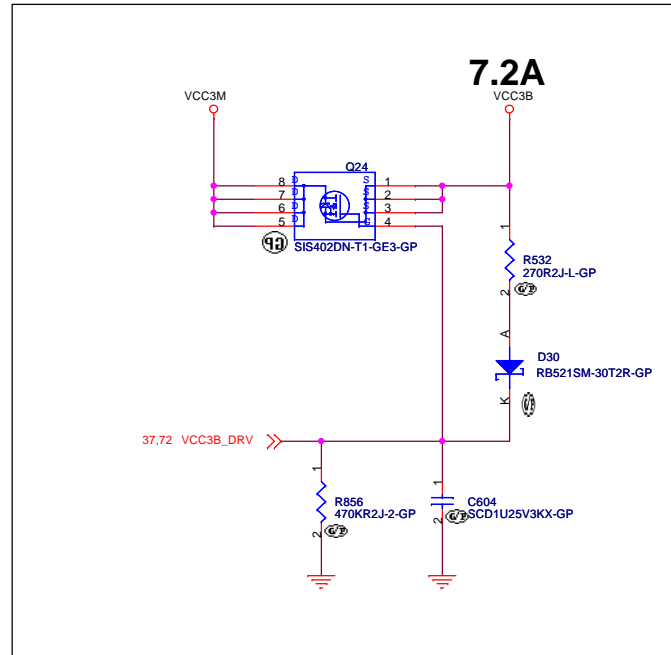
Rev  
**SA**

Date: Friday, February 24, 2012

Sheet 92 of 104

<Core Design>

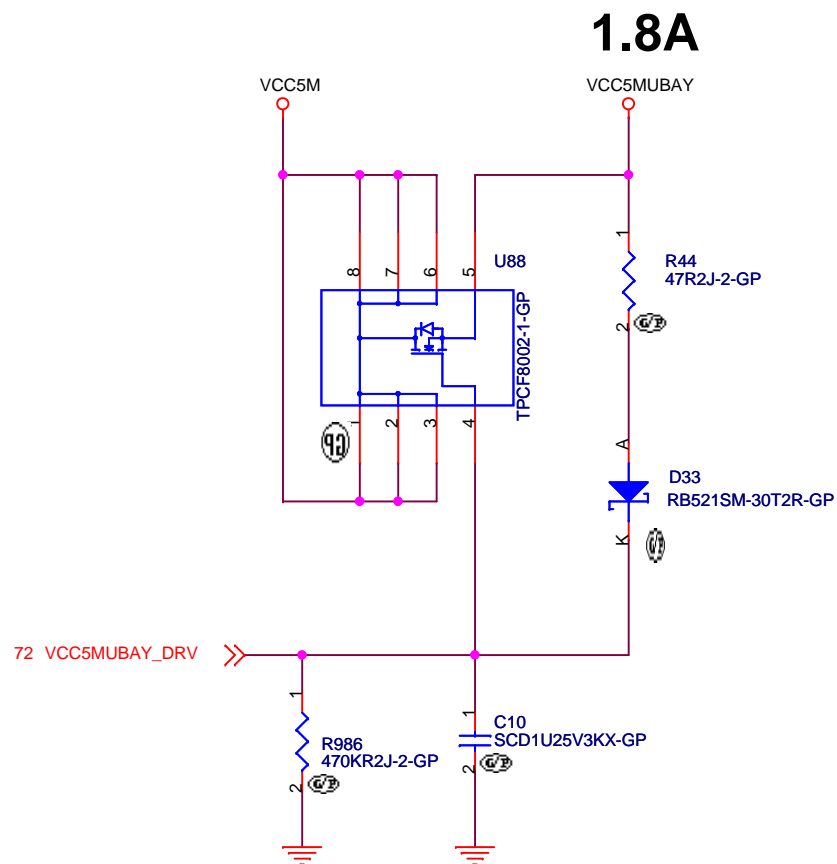
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Title			
<b>MEPWRG</b>			
Size A4	Document Number		Rev SA
Date: Friday, February 24, 2012		Sheet 93 of	104



<Core Design>

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

Title			
LOAD SW B			
Size A3	Document Number	Kendo-4 SWG	Rev SA
Date: Friday, February 24, 2012	Sheet	94	of 104



<Core Design>

緯創資通

**Wistron Corporation**

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

Title **LOAD SW VCC5MBAY**

Size  
A4

Document Number

**Kendo-4 SWG**

Rev  
**SA**

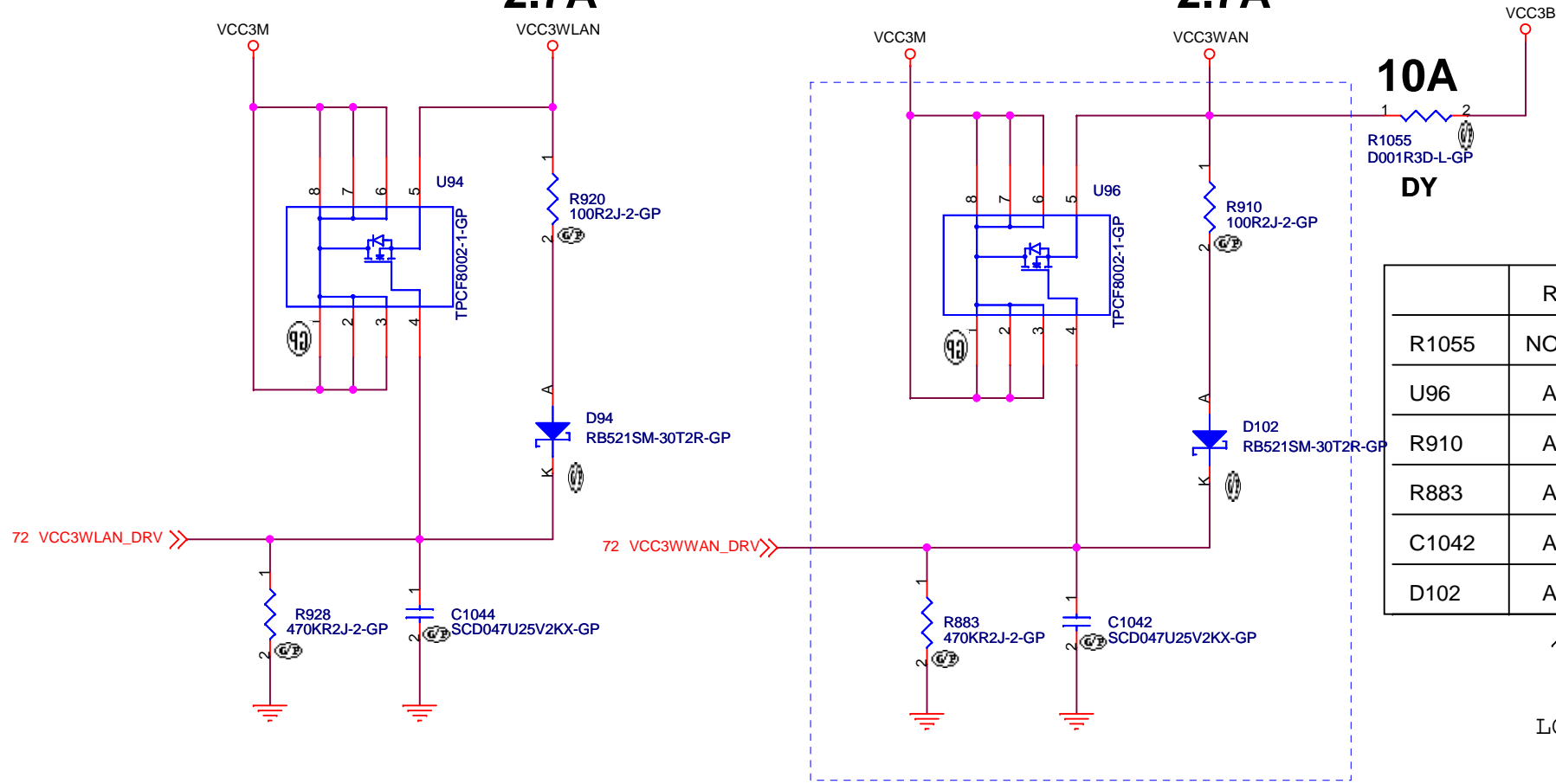
Date: Friday, February 24, 2012

Sheet 95 of 104

2.7A

2.7A

10A




	REG/LITE	BB/NO
R1055	NO-ASM	ASM
U96	ASM	NO-ASM
R910	ASM	NO-ASM
R883	ASM	NO-ASM
C1042	ASM	NO-ASM
D102	ASM	NO-ASM

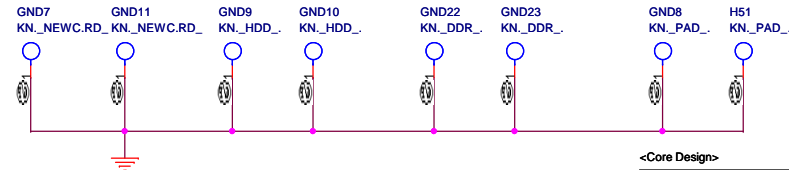
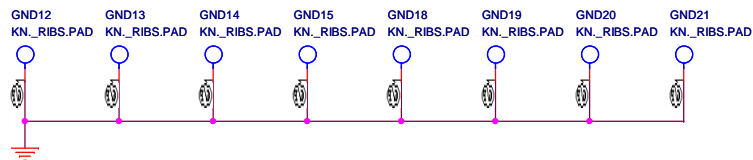
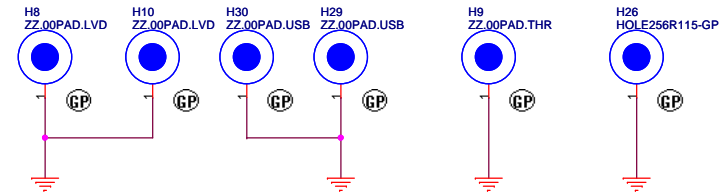
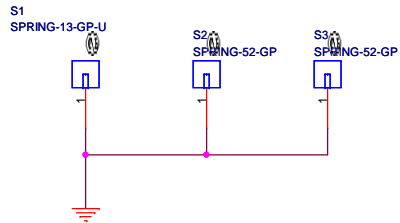
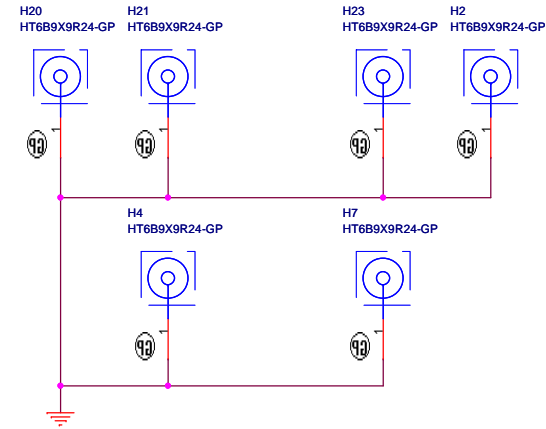
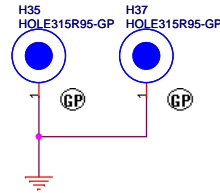
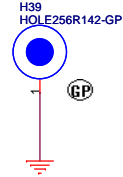
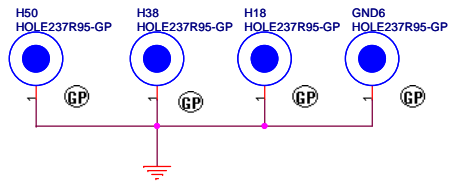
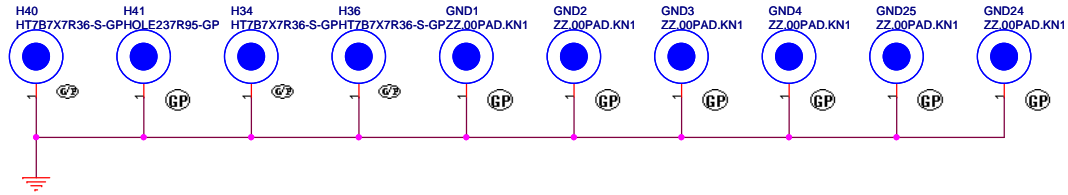
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LOGIC

<Variant Name>

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

<Variant Name>

		<b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title <b>GFX THERM ALERT</b>		
Size A4	Document Number <b>Kendo-4 SWG</b>	Rev <b>SA</b>
Date: Friday, February 24, 2012		Sheet 97 of 104

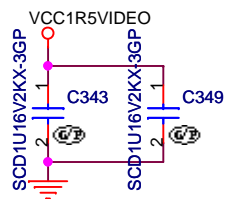
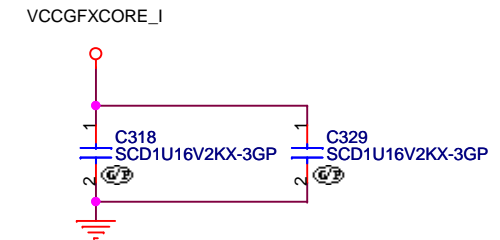
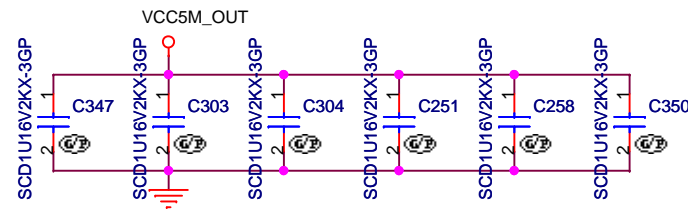
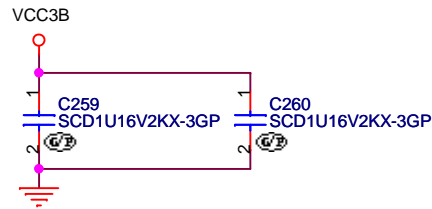
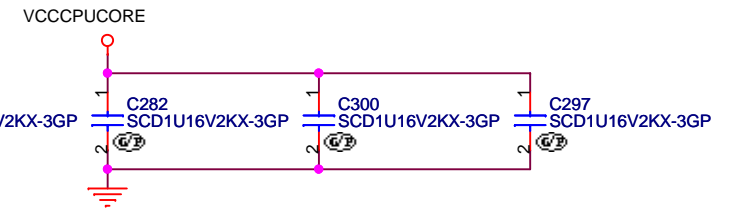
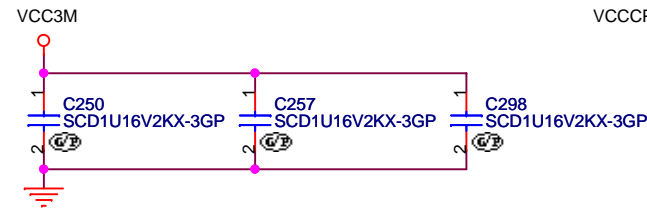
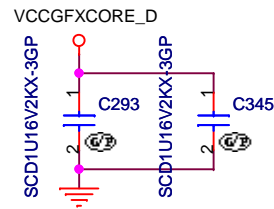
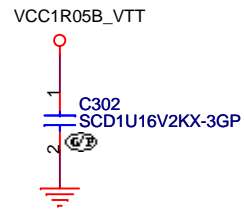
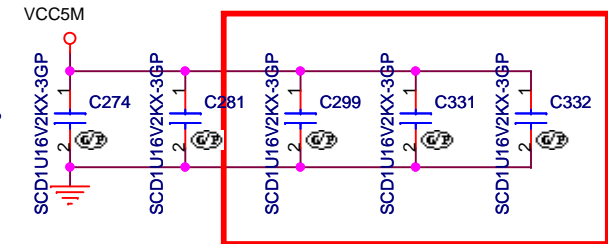
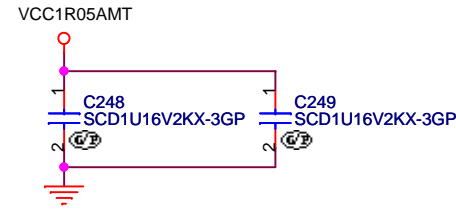
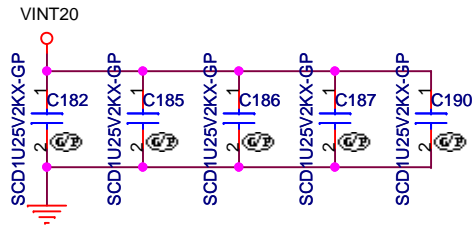
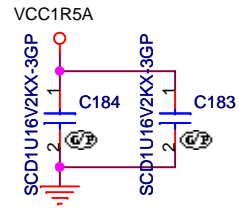


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緯創資通 Wistron Corporation  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

Title		
PTH FOR SCREW HOLES		
Size	Document Number	Rev
A3	Kendo-4 SWG	SA
Date:	Friday, February 24, 2012	Sheet 98 of 104

# Long power trace EMI decoupling caps



<Core Design>

緯創資通

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

Title

**EMI DECOUPLING**

Size  
A4

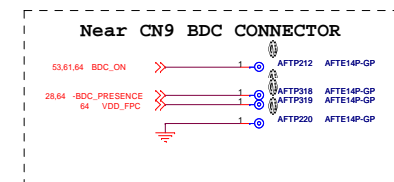
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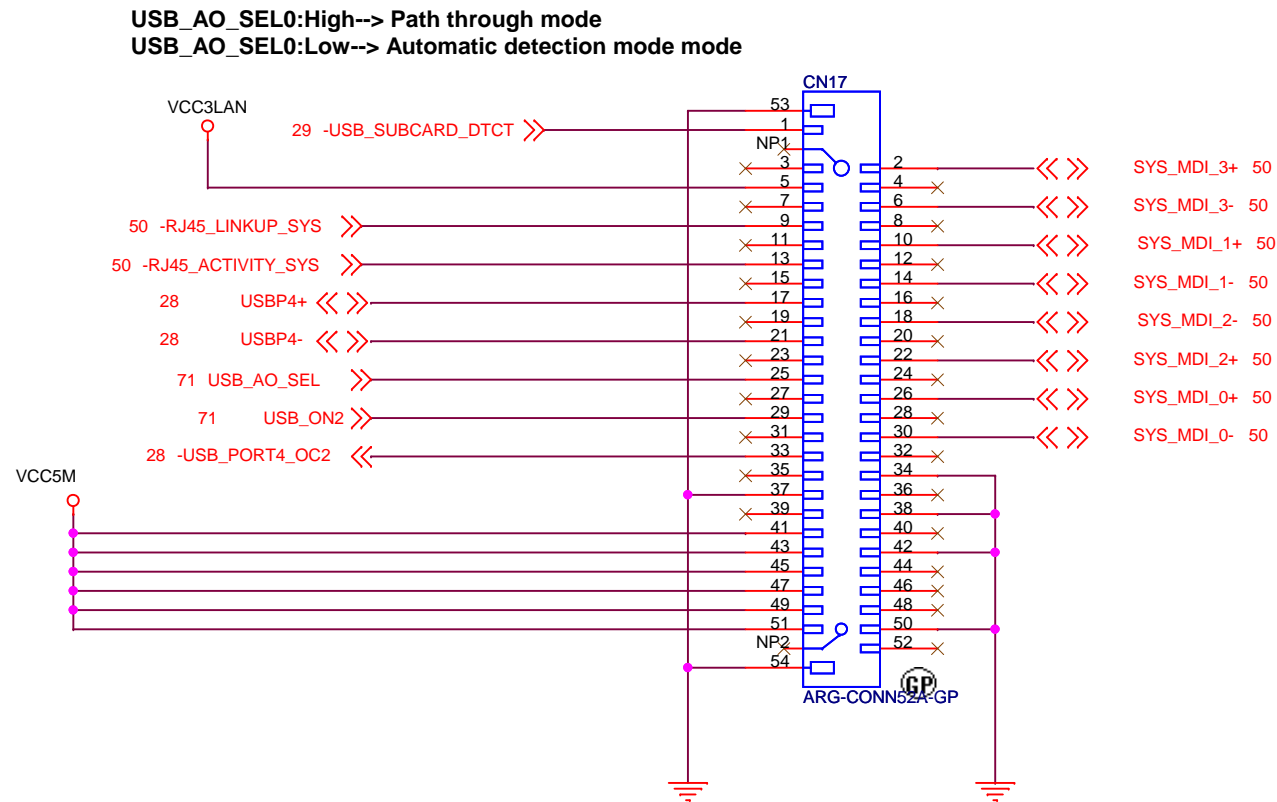
**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 99 of 104





<Variant Name>

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Title

**USB BOARD CONN**

Size  
A4

Document Number

**Kendo-4 SWG**

Rev  
SA

Date: Friday, February 24, 2012

Sheet 101 of 104

From IvyBridge/SandyBridge

SODIMM CH-A Secondary

SODIMM CH-A Primary

MA\_A\_DQ[63:0]  
~M\_A\_DQS[7:0]  
M\_A\_DQS[7:0]  
M\_A\_A[15:0]  
~DRAMRST  
~M\_A\_RAS  
~M\_A\_CAS  
~M\_A\_WE  
M\_A\_BS0  
M\_A\_BS1  
M\_A\_BS2  
M\_A\_DDRCLK0\_A\_666M  
~M\_A\_DDRCLK0\_A\_666M  
M\_A\_DDRCLK1\_A\_666M  
~M\_A\_DDRCLK1\_A\_666M

M\_A\_CKE0  
M\_A\_CKE1

~M\_A\_CS0  
~M\_A\_CS1

M\_A\_ODT0  
M\_A\_ODT1

SMB\_DATA\_3B  
SMB\_CLK\_3B

From IvyBridge/SandyBridge

SODIMM CH-B Secondary

SODIMM CH-B Primary

MA\_B\_DQ[63:0]  
~M\_B\_DQS[7:0]  
M\_B\_DQS[7:0]  
M\_B\_A[15:0]  
~DRAMRST  
~M\_B\_RAS  
~M\_B\_CAS  
~M\_B\_WE  
M\_B\_BS0  
M\_B\_BS1  
M\_B\_BS2  
M\_B\_DDRCLK0\_B\_666M  
~M\_B\_DDRCLK0\_B\_666M  
M\_B\_DDRCLK1\_B\_666M  
~M\_B\_DDRCLK1\_B\_666M

M\_B\_CKE0  
M\_B\_CKE1

~M\_B\_CS0  
~M\_B\_CS1

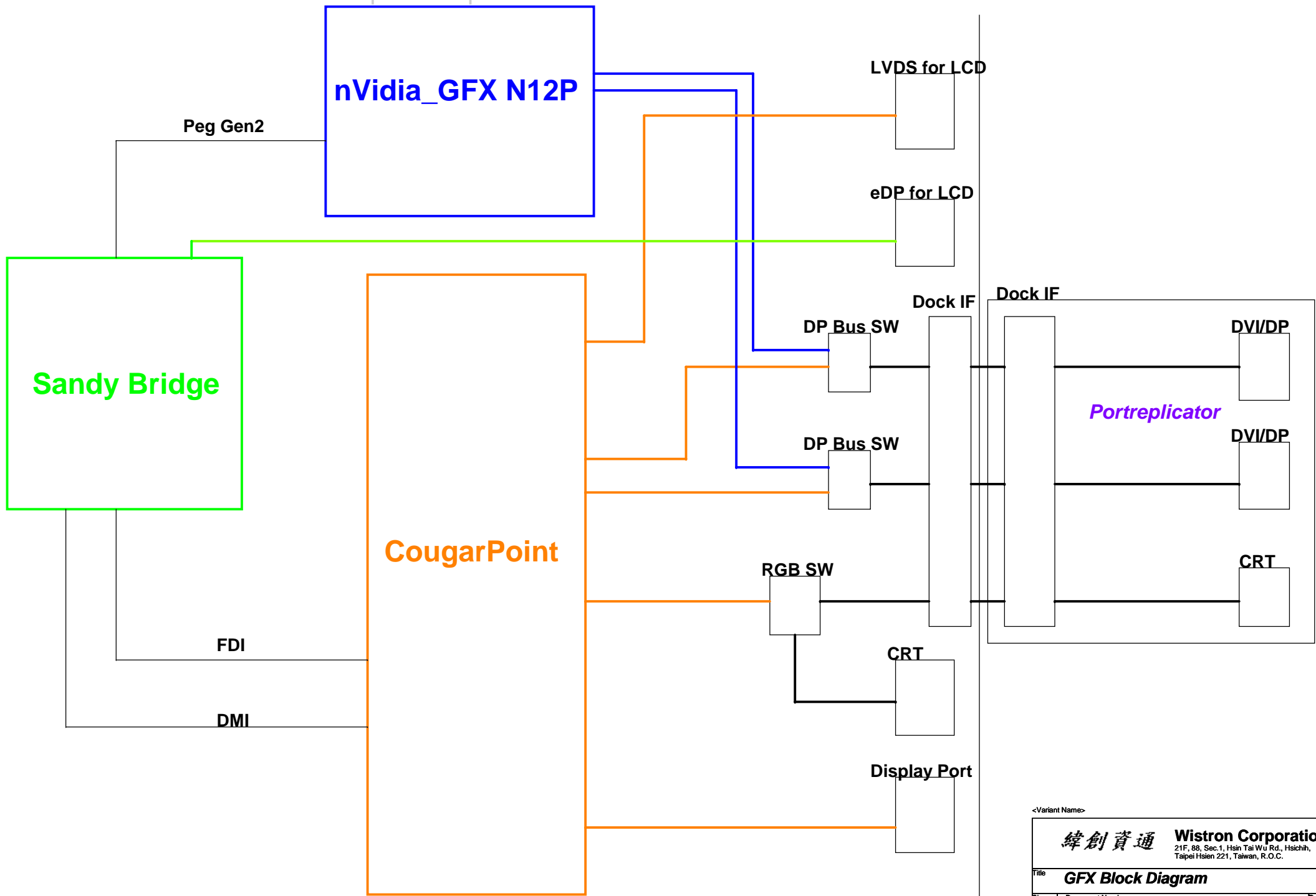
M\_A\_ODT0  
M\_A\_ODT1

SMB\_DATA\_3B  
SMB\_CLK\_3B

SODIMM IIC Address :  
CH-A Primary : 50h  
CH-B Primary : 51h

Pin1 on SODIM connector (VREF\_DQ) only connects to DDR Voltage divider.  
Clarksfield H17/J17 is left.

<Variant Name>



<Variant Name>

		<b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title <b>LID WAKE</b>		
Size A4	Document Number <b>Kendo-4 SWG</b>	Rev <b>SA</b>
Date: Friday, February 24, 2012		Sheet 104 of 104