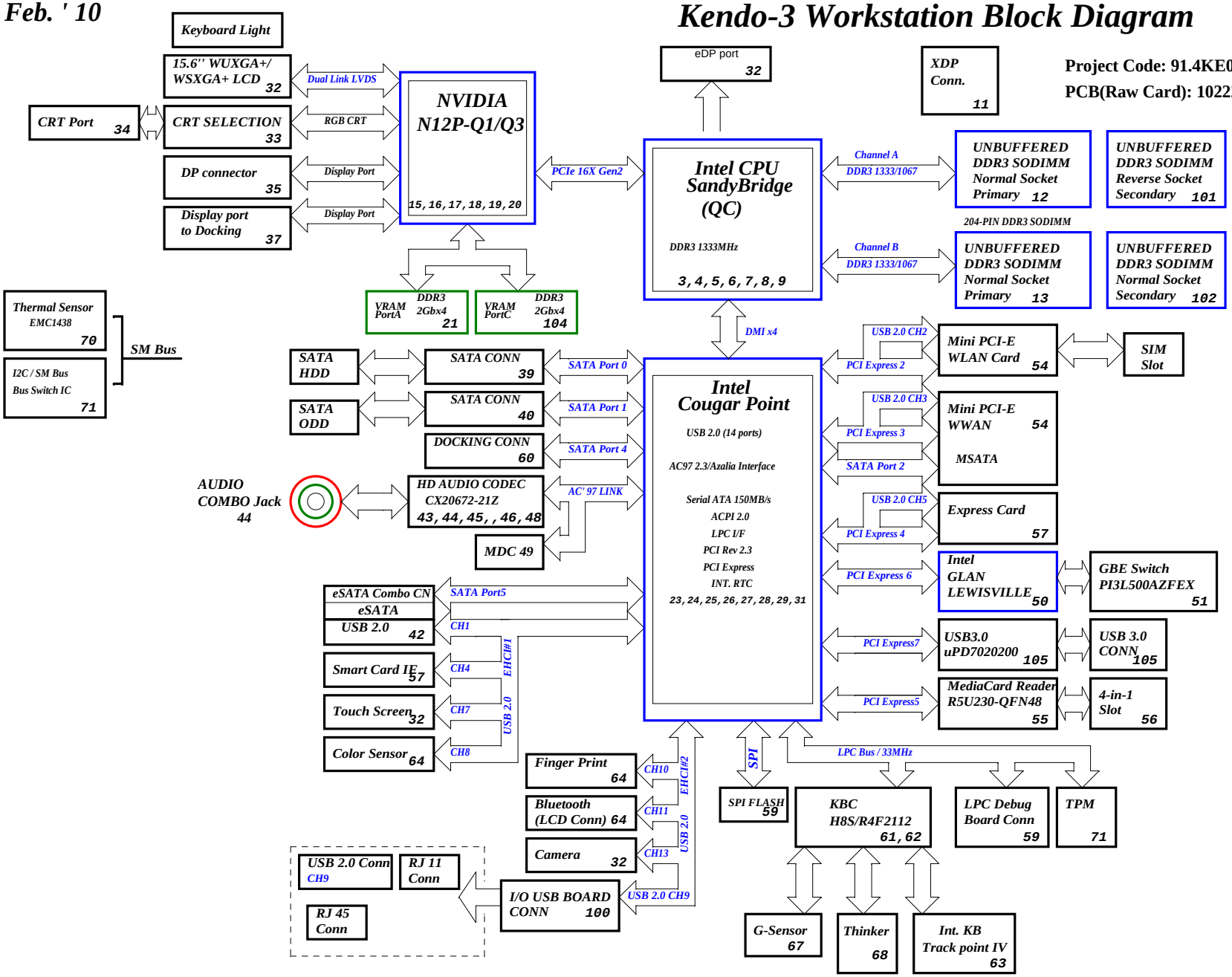
Feb. ' 10

Kendo-3 Workstation Block Diagram

Project Code: 91.4KE01.001
PCB(Raw Card): 10222-SA



PCB Layer Stackup

- L1:TOP
- L2:Signal 1
- L3:GND
- L4:Signal 2
- L5:VCC
- L6:GND
- L7:Signal 3
- L8:GND
- L9:Signal4
- L10:BOTTOM

Battery Charger/Selector BQ24742RHDR 78

INPUTS	OUTPUTS
DOCK_PWR20_F	M-BAT-PWR S-BAT-PWR

System DC/DC TPS51222RTV 82

VINT20	VCC5M VCC3M

CPU DC/DC VT1317MFQX/VT1317SFCX 79

VINT20	VCCCPUCORE

GFXCORE_D ISL62882HRTZ 83

VINT20	VCCGFXCORE

VCC1R5VIDEO MAX8792ETD 88

VCC5M	VCC1R5VIDEO

VCC1R5A/DDR3_REF VCC0R75B TPS51116RGER 86

VCC5M	DDR3_VREF VCC0R75B VCC1R5A

VCC1R8B TPS62290DRVR 89

VCC3M VCC5M	VCC1R8B

VCC1R1B_VTT VCC1R05LAN VT358/VT357 85

VINT20 VCC5M	VCC1R1B_VTT VCC1R05LAN

BOM

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

Title: Block Diagram

Size	Document Number	Rev
Custom	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 1 of 107

RESISTOR

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

The naming rule is value + R + size + tolerance
For the value, it can be read by the number before R. (R means resistor)
For the tolerance, it can be read from the last letter.
For the rating, we don't show on the symbol name.
For the size, R2=>0402, R3=>0603, R5=>0805,....

CAPACITOR

Symbol name	Value	Tolerance (M: +/-20, K: +/-10, Z: +80/-20)	Rating	Size 2=>0402, 3=>0603, 5=>0805, 6=>1206, 0=>1210
SCD1U10V2MX-1	0.1uF	M/X5R	10V	0402
SC10U6D3V5MX	10uF	M/X5R	6.3V	0805
SC2D2U16V5ZY	2.2uF	Z/Y5V	16V	0805

The naming rule is
Capacitor type + value + rating + size + tolerance + material
SCD1U10V2MX-1
SC=> SMT Ceremic, TC=> POS cap or SP cap
D1U => 0.1uF
10V => the voltage rating is 10V
2=> 0402, 3=>0603, 5=>0805
M=>tolerance M, K, Z
X=> X7R/X5R, Y=> Y5V
-1 => symbol version, nonsense to EE characteristic

PLANAR_ID[3..0]

PCH GPIOn	39	38	49	48	Planar ID Version	Planar PCB Version
PLANAR_IDn	3	2	1	0		
	0	0	0	0	SDV	SA
	0	0	0	1	SDV	SA
	0	0	1	0	SDV2	SB
	0	0	1	1	FVT	SC
	0	1	0	0		
	0	1	0	1	SIT	SE
	0	1	1	0	SVT	-1
	0	1	1	1		

EC HISTORY

Stage	Date	EC No.	Page	Note
SDV				

PCI TABLE

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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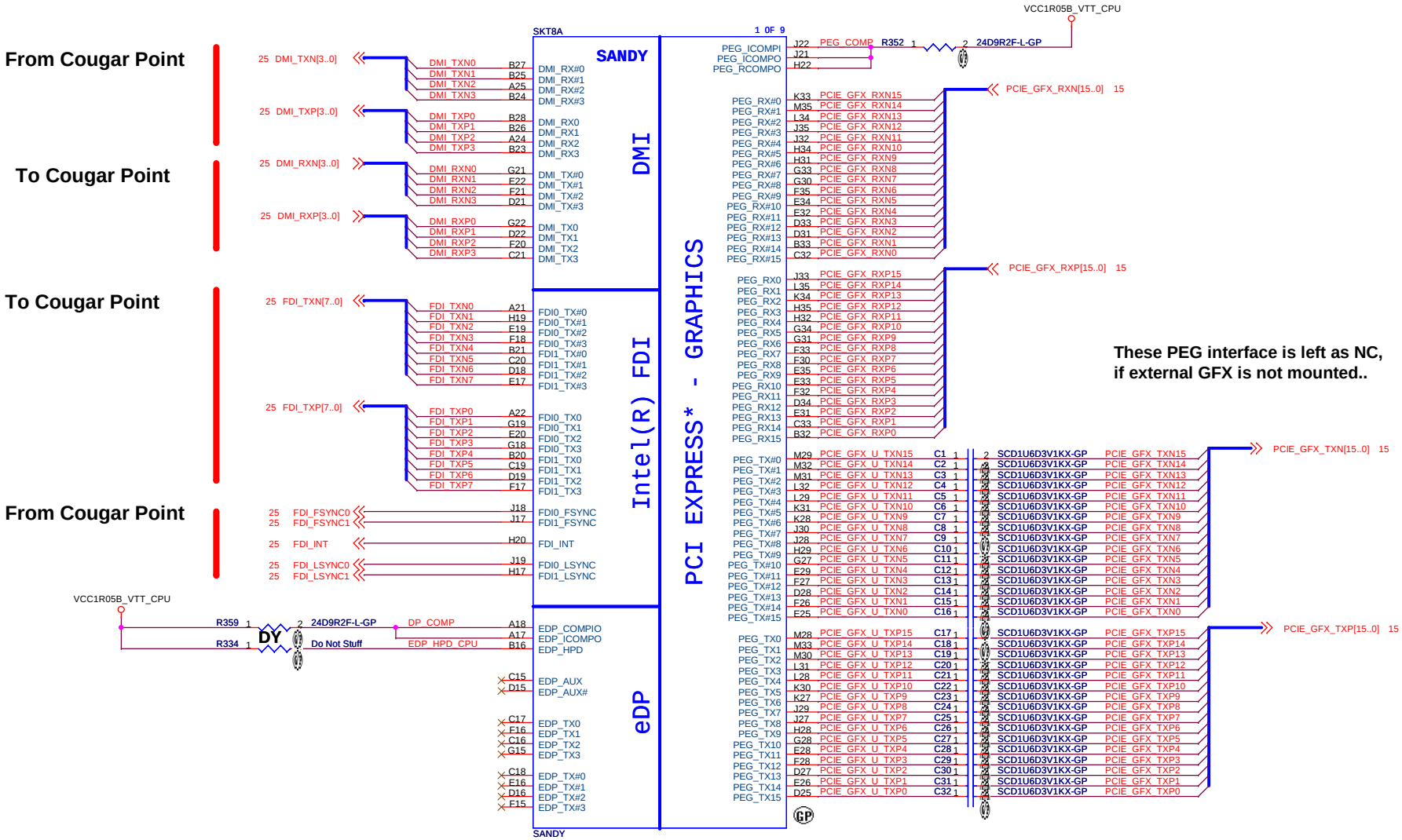
Title: ***EC HISTORY***

Size: A3 | Document Number: **Kendo-3 WS** | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 2 of 107



BOM

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Title: **CPU(1/7):DMI/PEG/FDI**

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 3 of 107

Need to refer Intel Design Guide to place CPU and route wire.

SNB_IVB# is used for contol of TacomaPass CLE.

SKTOCC# pin is tied down by CPU, when CPU is inserted at socket.

Catastrophic error output

Need to connect to EC

This test point is used at PCBA process.

To power shutdown circuits
Open Drain Output
0.9V~3.6V operation device

Place near CPU

Place near CPU

FOR XDP

Place near DIMM connector

This change is to S3 Wake up issue based on Intal White paper

Need to find Schmitt with Open drain output

SANDY

SKT8B

MISC

CLOCKS

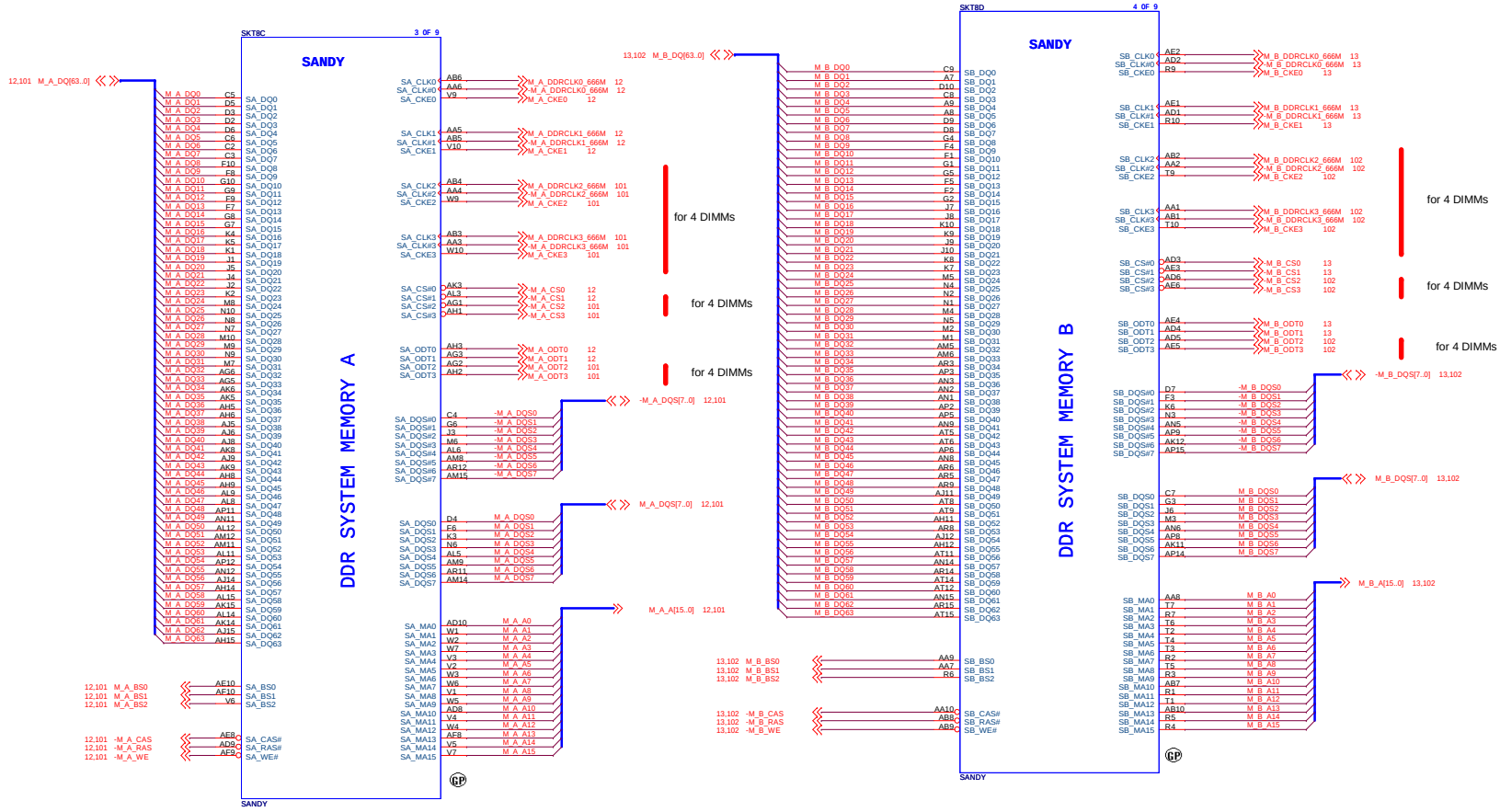
THERMAL

DDR3 MISC

PWR MANAGEMENT

JTAG & BPM

Company	Wistron Corporation
Address	21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	CPU (2/7):CLK/MISC/JTAG
Size	A2
Document Number	Kendo-3 WS
Rev	SA
Date	Tuesday, December 07, 2010
Sheet	4 of 107



BOM

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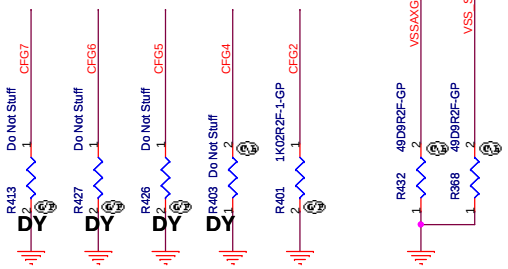
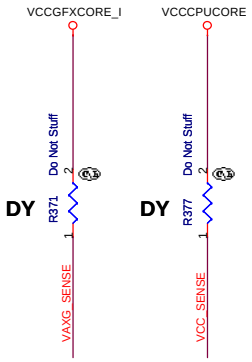
Title: CPU(3/7): DDR3 CH-A/CH-B		
Size: A2	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 5 of 107	

Should be add pulldown 1K based on configration specification.

When PEG Lane reversible function is used,
CFG2 should have pull down.
eDP Function is used, CFG4 port should be tie Down.
If not, this port can be left as floating.
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

When PEG Defer training function is used,
CFG7 should have pull down.





BOM

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Title: ***CPU(4/7): CFG/RSVD***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 6 of 107

POWER

SKT8F

6 OF 9

SANDY

PEG AND DDR

CORE SUPPLY

SVID

SENSE LINES

VCCCPUCORE

VCC1R05B_VTT_CPU

VCC1R05B_VTT

VCCCPUCORE

SCD1U16D3V3MX-GP

SCD22U6D3V5MX-2GP

75R2J-1-GP

130R2F-1-GP

R77 D003R2512F-2-GP

This jumper is placed to monitor current.

R29 43R2J-GP

VIDALERT#
VIDSCLK
VIDSOUT

-SVID_ALERT 79
SVID_CLK 79
SVID_DATA 79

R30 0R2J-2-GP

R430 0R2J-2-GP

R117 100R2F-L1-GP-U

R429 100R2F-L1-GP-U

R31 100R2F-L1-GP-U

R32 100R2F-L1-GP-U

VCC_SENSE
VSS_SENSE

VCCIO_SENSE
VSSIO_SENSE

VCCSENSE 79
VSSSENSE 79

VCC_SENSE_VTT 84
VSS_SENSE_VTT 84

Take care PullUp/PullDown resistor placement.[Should be minimized stub.]

BOM

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Title: **CPU(5/7): PWR**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 7 of 107

POWER

Caps on Page.8 are not required. It's enough on Page.81.

SKT8G — SANDY — 7 OF 9

GRAPHICS: VAXG (AT24, AT23, AT21, AT20, AT18, AT17, AR24, 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)

1.8V RAIL: VCCPLL (B6, A6, A2)

SENSE LINES: VAXG_SENSE (AK35), VSSAXG_SENSE (AK34)

VREF: SM_VREF (AL1)

DDR3 -1.5V RAILS: VDDQ (AF7, AF4, AF1, AC7, AC4, AC1, Y7, Y4, Y1, U7, U4, U1, P7, P4, P1)

SA RAIL: VCCSA (M27, M26, L26, J26, J25, J24, H26, H25)

MISC: VCCSA_SENSE (H23), FC_C22 (C22), VCCSA_VID1 (C24)

VCCGFXCORE_I
- R6824 100R2J-2-GP
- R480 0R2J-2-GP, R482 0R2J-2-GP → VCCGFX_SENSE_I 79, VSSGFX_SENSE_I 79
- R6825 100R2J-2-GP

When IGfx is disabled, these lines can be left floating.

DDR3_VREF_CPU
- C51 Do Not Stuff DY
- C58 Do Not Stuff DY

VCC1R5B_VDDQ
- C44 SC22U6D3V5MX-2GP
- C45 SC22U6D3V5MX-2GP
- C46 SC1U10V2KX-1GP
- C47 SC1U10V2KX-1GP
- C48 SC1U10V2KX-1GP
- C49 SC1U10V2KX-1GP
- C50 SC1U10V2KX-1GP

DDR3_VREF
- R713 Do Not Stuff DY

DDR3_VREF_CPU
- Q112 2SK3541-2-GP
- R6834 100KR2F-L1-GP

VCC5M
- R6835 1MR2J-1-GP
- Q92 PDTA115EE-GP

VCCSA
- R475 D01RL1220F-GP
- C52 SC22U6D3V5MX-2GP
- C53 SC10U6D3V3MX-GP
- C54 SC10U6D3V3MX-GP

58,59,77,84,91 B_ON → Q91 DTC115TE-GP

VCC1R8B
- R910 D01RL0816F-L-GP
- C55 SC22U6D3V5MX-2GP
- C56 SC22U6D3V5MX-2GP
- C57 SC22U6D3V5MX-2GP

VCCSA
- R5 100R2J-2-GP
- R4 0R2J-2-GP → VCCSA_SENSE 90

VCC1R05B_VTT_CPU
- R6840 Do Not Stuff DY
- R479 0R2J-2-GP → VCCSA_SEL 90
- R6832 10KR2J-3-GP
- R6833 10KR2J-3-GP

BOM

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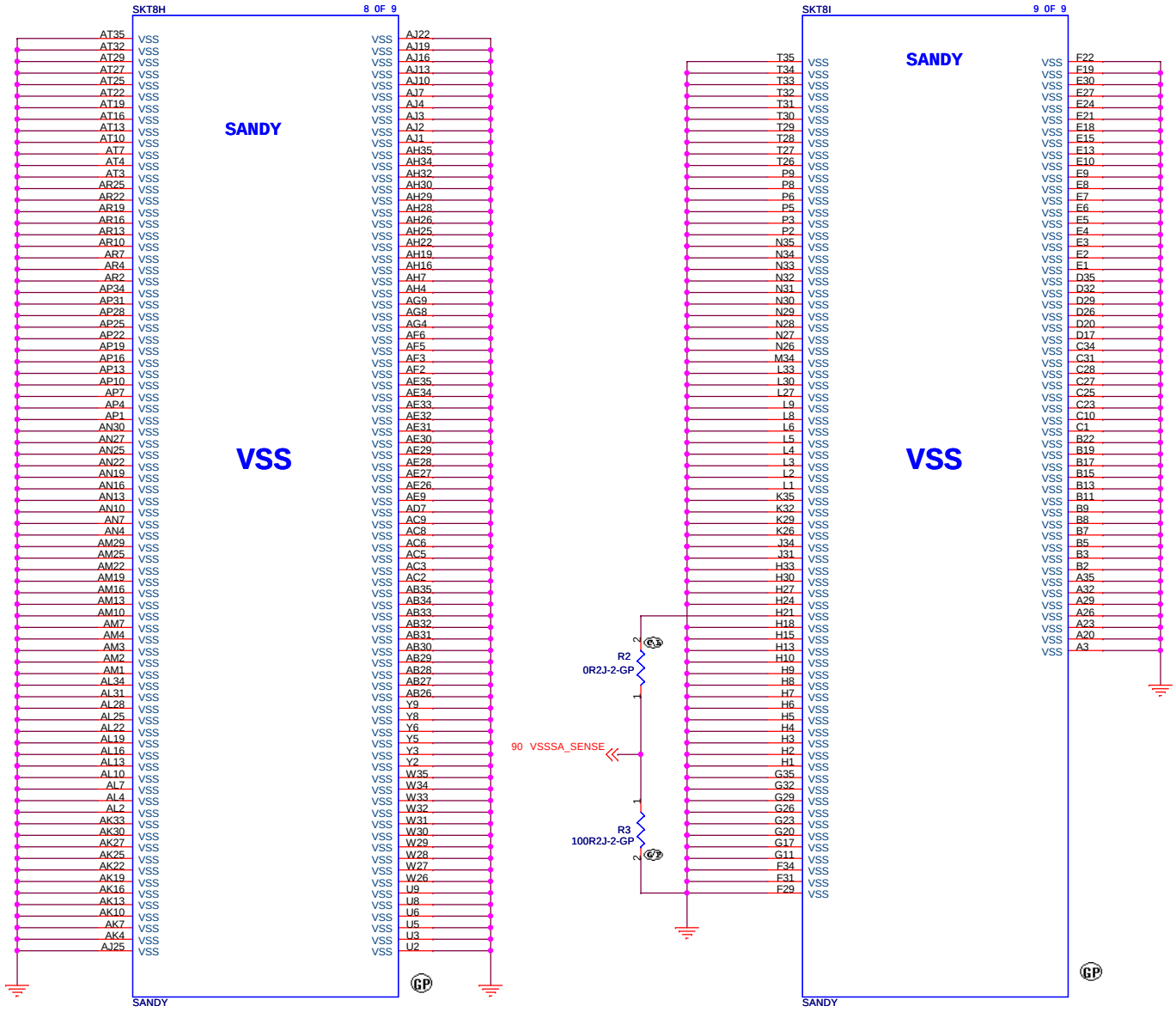
Title: CPU(6/7): GFX/PWR

Size: Custom | Document Number: Kendo-3 WS | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 8 of 107



BOM

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Title: ***CPU(7/7): GND***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 9 of 107

BLANK

BOM

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Title: ***BLANK***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

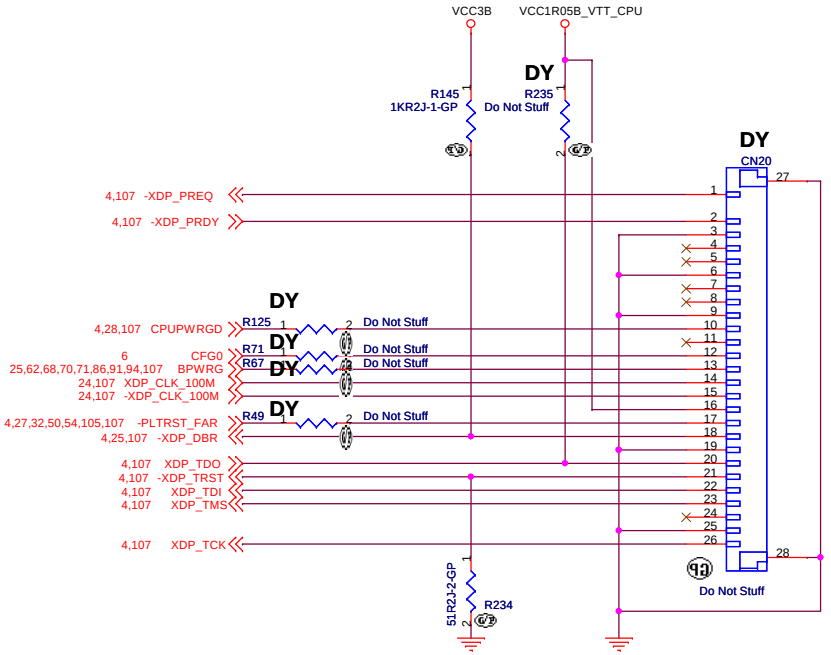
Date: Tuesday, December 07, 2010 Sheet 10 of 107

SIGNAL	REF DES	ENABLE	DISABLE
TDO	R235	ASM	NO_ASM
TRST#	R234	ASM	ASM
DBRST#	R145	ASM	ASM
RESET#	R49	ASM	NO_ASM
CFG0	R71	ASM	NO_ASM
PWRGD	R125	ASM	NO_ASM
BPWRG	R67	ASM	NO_ASM
	CN20	ASM	NO_ASM

LOGIC

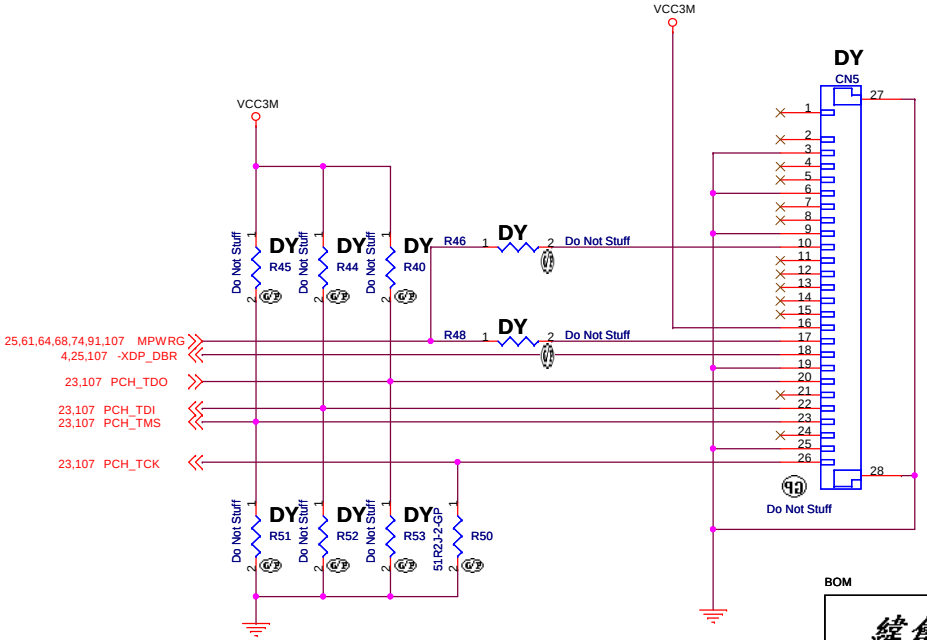
SIGNAL	REF DES	ENABLE	DISABLE
TDO	R40 R53	220 100	NO_ASM NO_ASM
TMS	R45 R51	220 100	NO_ASM NO_ASM
TDI	R44 R52	220 100	NO_ASM NO_ASM
TCK	R50	51	51
MPWRG	R46 R48	ASM ASM	NO_ASM NO_ASM
	CN5	ASM	NO_ASM

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

In production, All of parts should be not moounted except of pulldown 51 ohm on TCK.



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)

BOM

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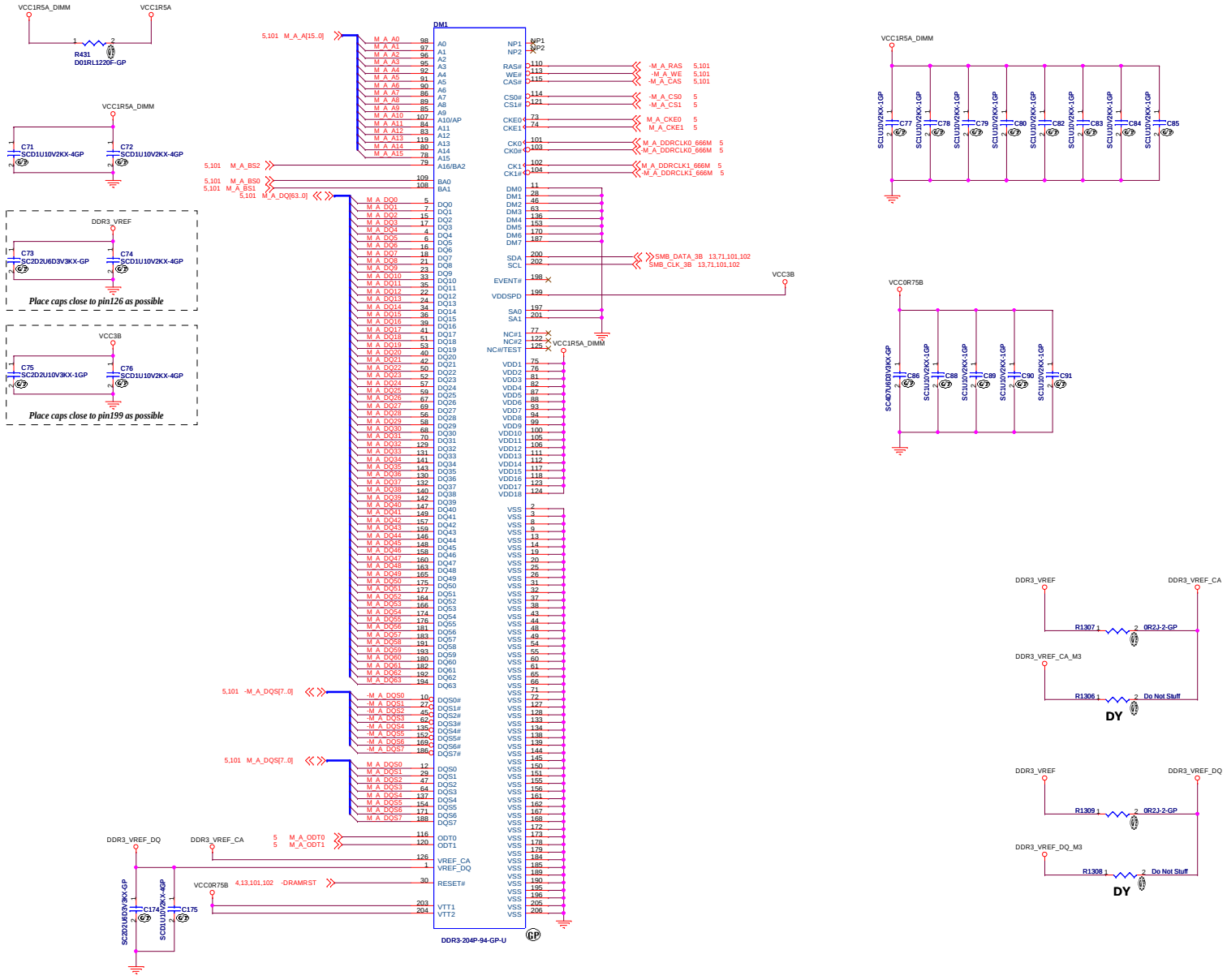
Title: XDP CONNECTOR

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 11 of 107



SPD Address : 50h

This connector should be placed on far side from CPU.

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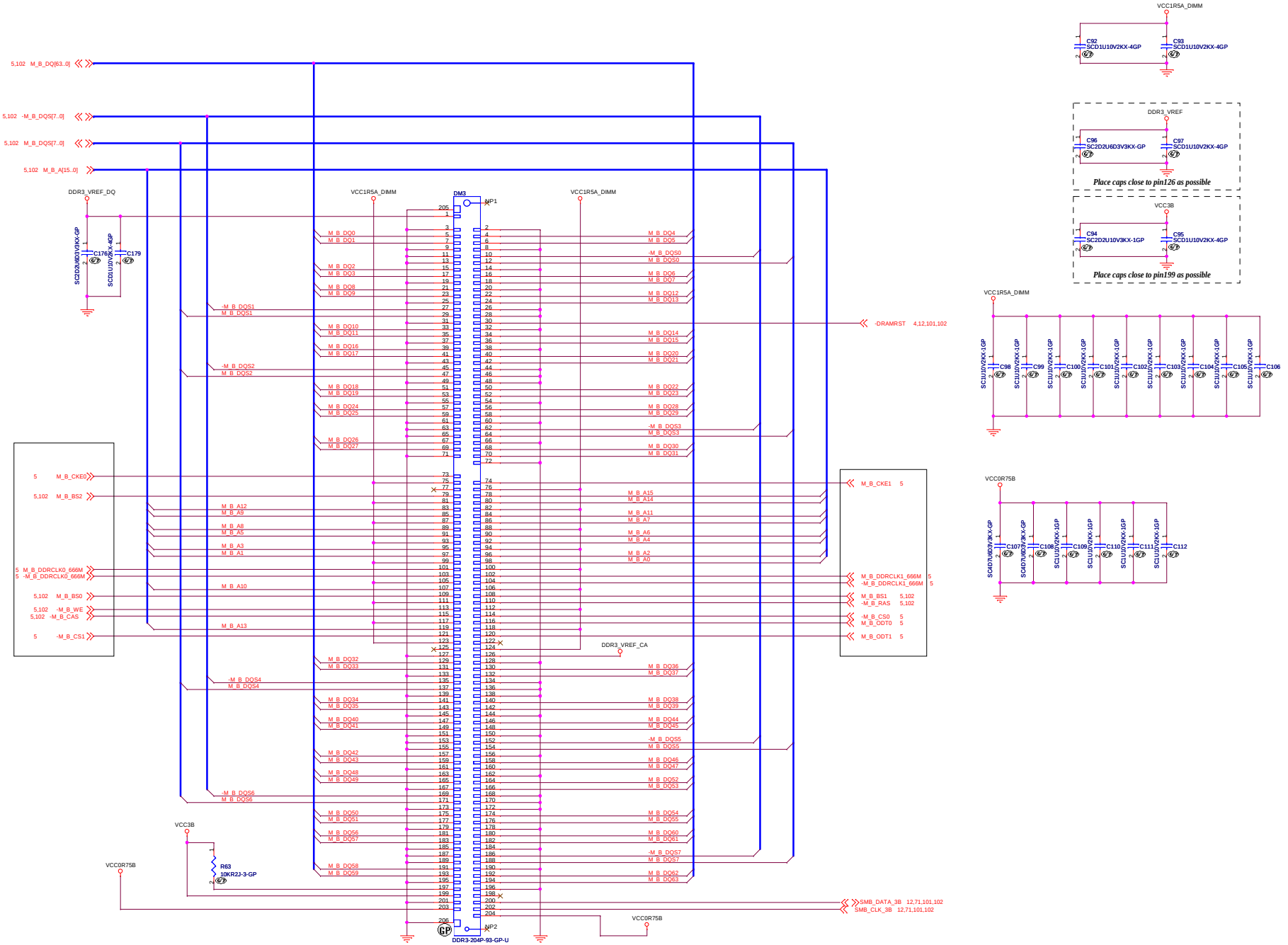
Title: ***DDR3 SODIMM CH-A Primary***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 12 of 107



SPD Address : 51h

This connector should be placed on far side from CPU.

BOM

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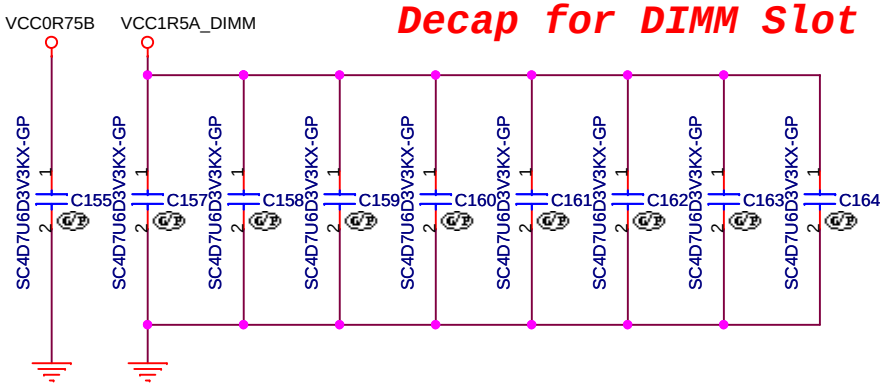
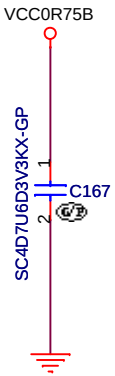
Title: DDR3 SODIMM CH-B Primary		
Size: A2	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 13 of 107	

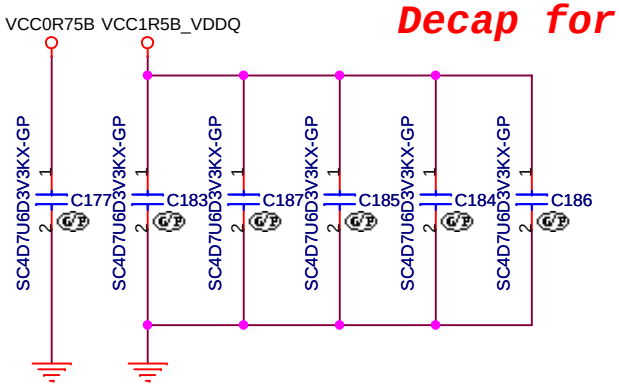
Decap for DIMM Slot 0



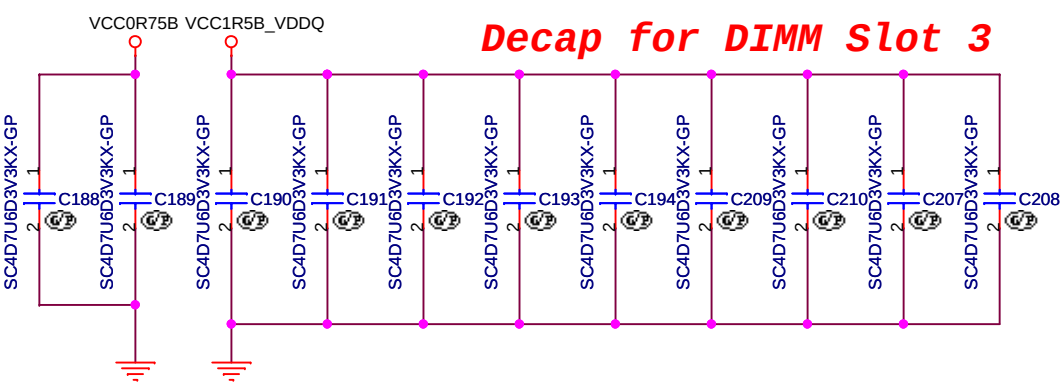
Decap for DIMM Slot 1



Decap for DIMM Slot 2



Decap for DIMM Slot 3



BOM

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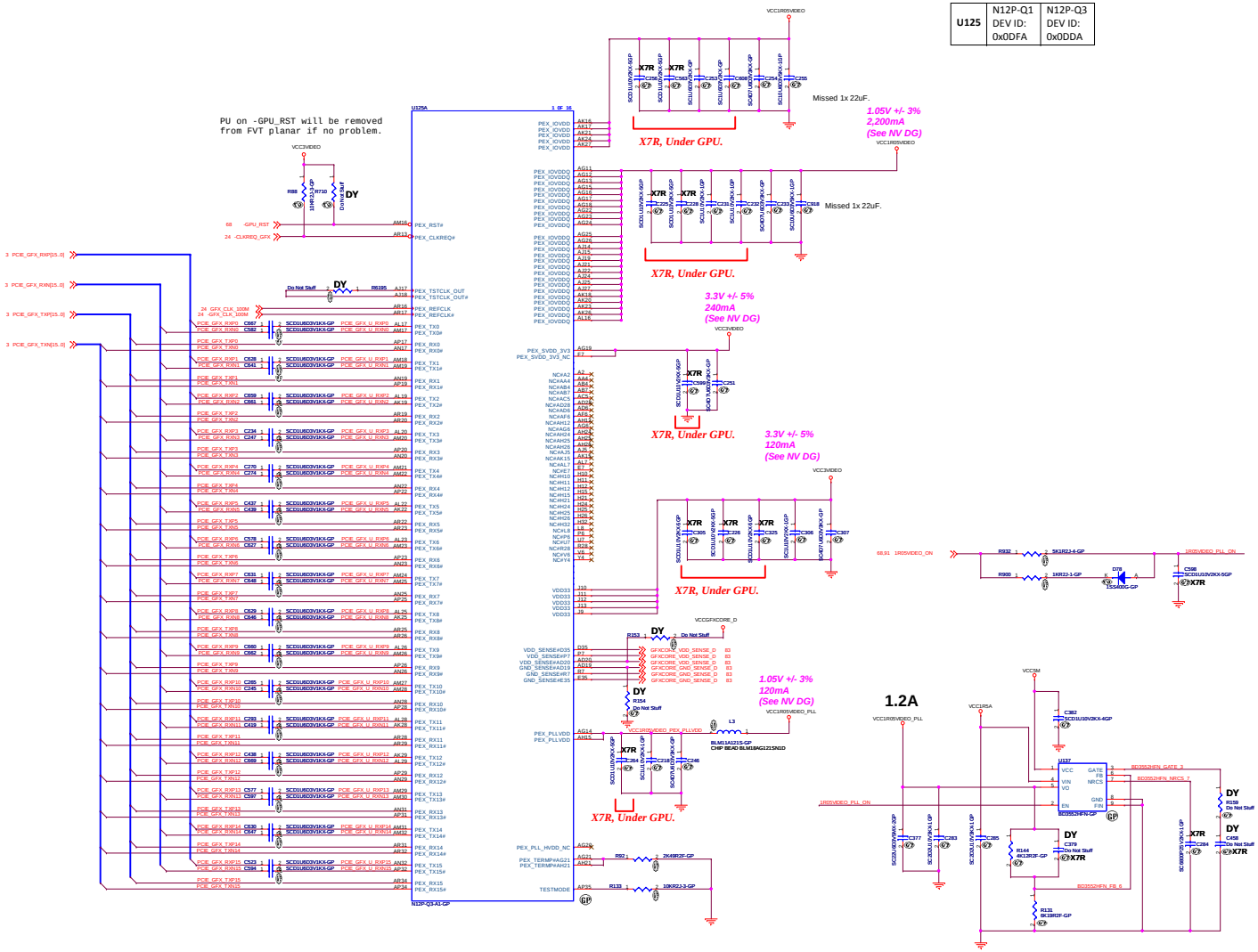
Title: DECAP For DIMMs		
Size: A4	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 14 of 107	

TABLE
KENDO NVIDIA

U125	N12P-Q1 DEV ID: 0x0DFA	N12P-Q3 DEV ID: 0x0DDA



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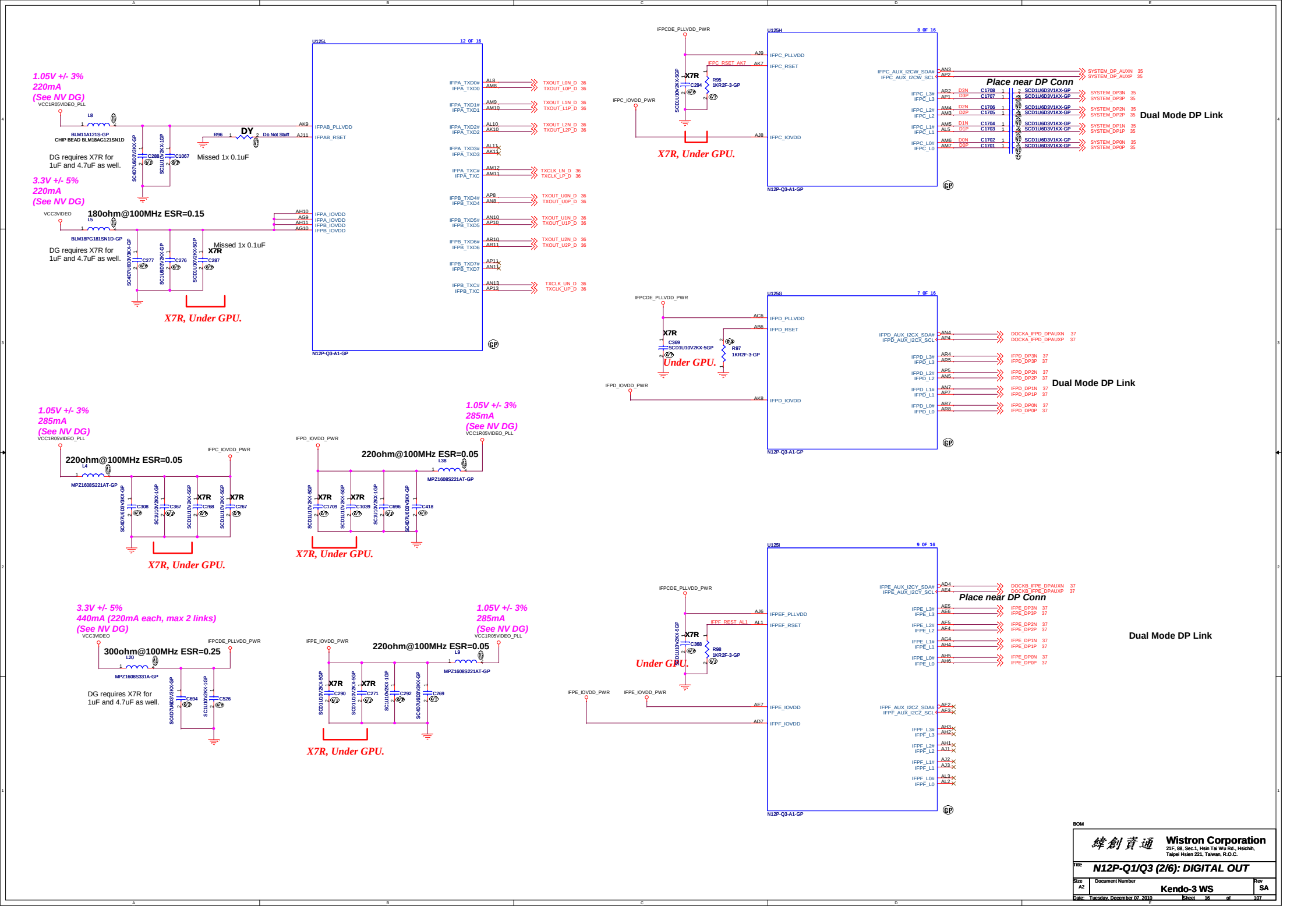
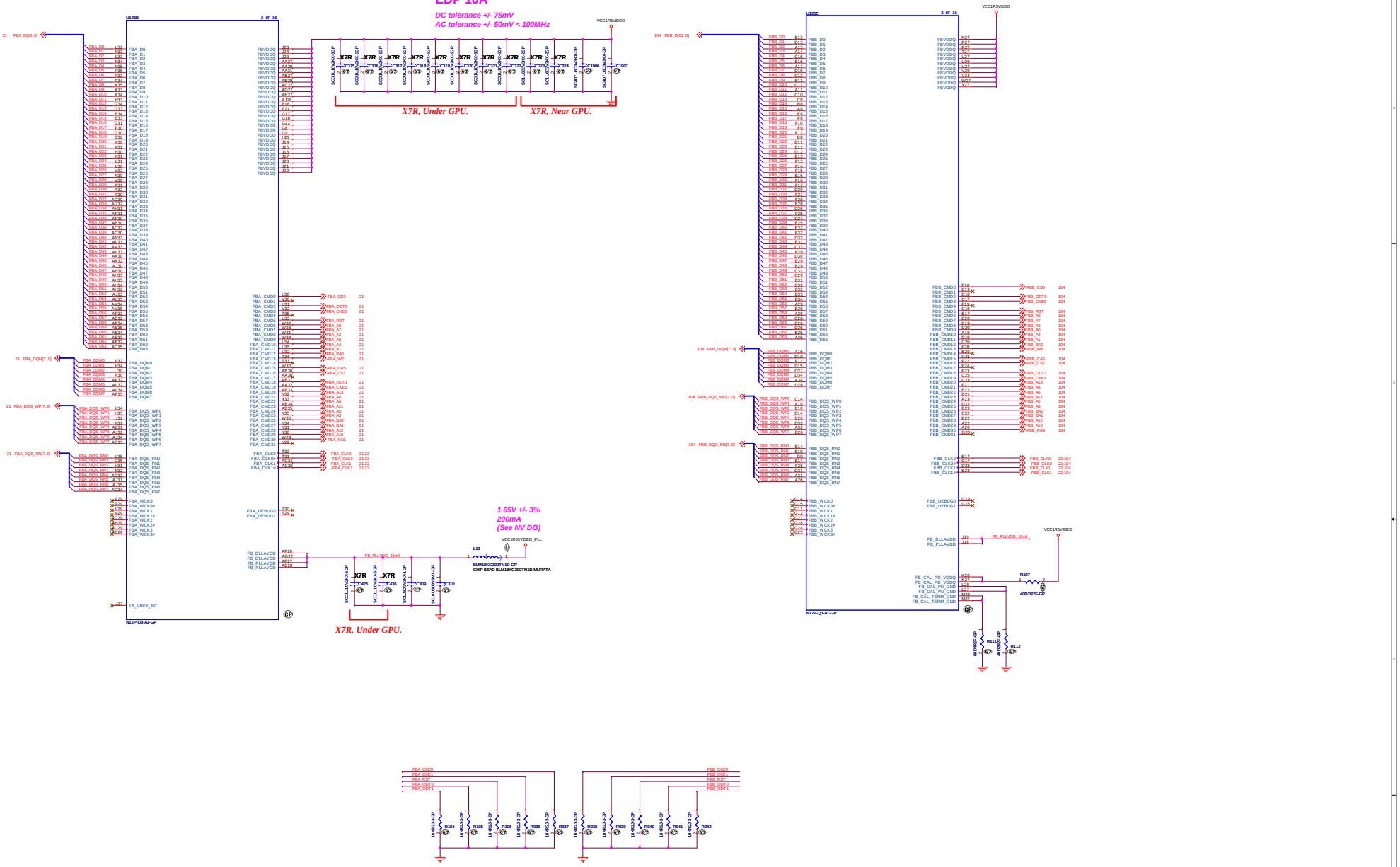
Taipei Hsien 221, Taiwan, R.O.C.

Title: *N12P-Q1/Q3 (1/6): PEG I/F*

Size: A1 | Document Number: Kendo-3 WS | Rev: SA

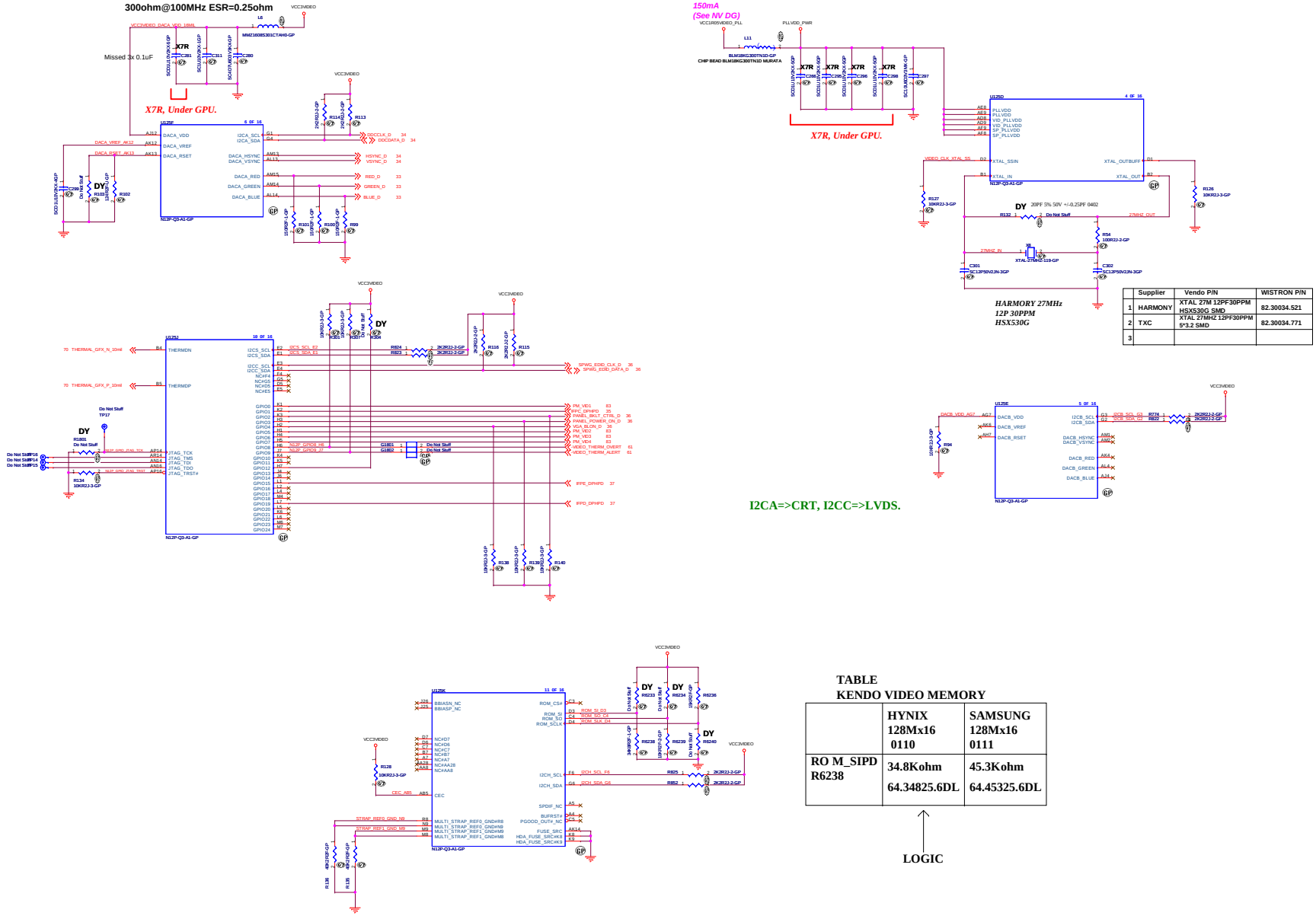
Date: Tuesday, December 07, 2010 | Sheet 15 of 107


1.05V +/- 3%
220mA
(See NV DG)
VCC1R05VIDEO_PLL
L8
BLM11A121S-GP
CHIP BEAD BLM18AG121SN1D
DG requires X7R for
1uF and 4.7uF as well.
C288
C1067
R96
DY
Do Not Stuff
Missed 1x 0.1uF
3.3V +/- 5%
220mA
(See NV DG)
VCC3VIDEO
180ohm@100MHz ESR=0.15
L5
BLM18PG181SN1D-GP
DG requires X7R for
1uF and 4.7uF as well.
C277
C276
C287
X7R
Missed 1x 0.1uF
X7R, Under GPU.
U125L
12 OF 16
IFPAB_PLLVDD
IFPAB_RSET
IFPA_IOVDD
IFPB_IOVDD
IFPA_TXD0#
IFPA_TXD0
IFPA_TXD1#
IFPA_TXD1
IFPA_TXD2#
IFPA_TXD2
IFPA_TXD3#
IFPA_TXD3
IFPA_TXC#
IFPA_TXC
IFPB_TXD4#
IFPB_TXD4
IFPB_TXD5#
IFPB_TXD5
IFPB_TXD6#
IFPB_TXD6
IFPB_TXD7#
IFPB_TXD7
IFPB_TXC#
IFPB_TXC
TXOUT_L0N_D
TXOUT_L0P_D
TXOUT_L1N_D
TXOUT_L1P_D
TXOUT_L2N_D
TXOUT_L2P_D
TXCLK_LN_D
TXCLK_LP_D
TXOUT_U0N_D
TXOUT_U0P_D
TXOUT_U1N_D
TXOUT_U1P_D
TXOUT_U2N_D
TXOUT_U2P_D
TXCLK_UN_D
TXCLK_UP_D
N12P-Q3-A1-GP
IFPCDE_PLLVDD_PWR
IFPC_IOVDD_PWR
X7R, Under GPU.
U125H
8 OF 16
IFPC_PLLVDD
IFPC_RSET
IFPC_IOVDD
IFPC_RSET_AK7
R95
1KR2F-3-GP
IFPC_AUX_I2CW_SDA#
IFPC_AUX_I2CW_SCL
Place near DP Conn
IFPC_L3#
IFPC_L3
IFPC_L2#
IFPC_L2
IFPC_L1#
IFPC_L1
IFPC_L0#
IFPC_L0
SYSTEM_DP_AUXN
SYSTEM_DP_AUXP
SYSTEM_DP3N
SYSTEM_DP3P
SYSTEM_DP2N
SYSTEM_DP2P
SYSTEM_DP1N
SYSTEM_DP1P
SYSTEM_DP0N
SYSTEM_DP0P
Dual Mode DP Link
N12P-Q3-A1-GP
1.05V +/- 3%
285mA
(See NV DG)
VCC1R05VIDEO_PLL
220ohm@100MHz ESR=0.05
L4
MPZ1608S221AT-GP
C308
C367
C268
C267
X7R, Under GPU.
IFPD_IOVDD_PWR
220ohm@100MHz ESR=0.05
L38
MPZ1608S221AT-GP
C1709
C1039
C696
C418
X7R, Under GPU.
IFPCDE_PLLVDD_PWR
IFPD_IOVDD_PWR
X7R
C369
R97
1KR2F-3-GP
Under GPU.
U125G
7 OF 16
IFPD_PLLVDD
IFPD_RSET
IFPD_IOVDD
IFPD_AUX_I2CX_SDA#
IFPD_AUX_I2CX_SCL
IFPD_L3#
IFPD_L3
IFPD_L2#
IFPD_L2
IFPD_L1#
IFPD_L1
IFPD_L0#
IFPD_L0
DOCKA_IFPD_DPAUXN
DOCKA_IFPD_DPAUXP
IFPD_DP3N
IFPD_DP3P
IFPD_DP2N
IFPD_DP2P
IFPD_DP1N
IFPD_DP1P
IFPD_DP0N
IFPD_DP0P
Dual Mode DP Link
N12P-Q3-A1-GP
3.3V +/- 5%
440mA (220mA each, max 2 links)
(See NV DG)
VCC3VIDEO
IFPCDE_PLLVDD_PWR
300ohm@100MHz ESR=0.25
L20
MPZ1608S331A-GP
DG requires X7R for
1uF and 4.7uF as well.
C694
C526
1.05V +/- 3%
285mA
(See NV DG)
VCC1R05VIDEO_PLL
IFPE_IOVDD_PWR
220ohm@100MHz ESR=0.05
L9
MPZ1608S221AT-GP
C290
C271
C292
C269
X7R, Under GPU.
IFPCDE_PLLVDD_PWR
IFPE_IOVDD_PWR
IFPE_IOVDD_PWR
X7R
C368
R98
1KR2F-3-GP
Under GPU.
U125I
9 OF 16
IFPEF_PLLVDD
IFPEF_RSET
IFPE_IOVDD
IFPF_IOVDD
IFPE_REST_AL1
IFPE_AUX_I2CY_SDA#
IFPE_AUX_I2CY_SCL
Place near DP Conn
IFPE_L3#
IFPE_L3
IFPE_L2#
IFPE_L2
IFPE_L1#
IFPE_L1
IFPE_L0#
IFPE_L0
IFPF_AUX_I2CZ_SDA#
IFPF_AUX_I2CZ_SCL
IFPF_L3#
IFPF_L3
IFPF_L2#
IFPF_L2
IFPF_L1#
IFPF_L1
IFPF_L0#
IFPF_L0
DOCKB_IFPE_DPAUXN
DOCKB_IFPE_DPAUXP
IFPE_DP3N
IFPE_DP3P
IFPE_DP2N
IFPE_DP2P
IFPE_DP1N
IFPE_DP1P
IFPE_DP0N
IFPE_DP0P
Dual Mode DP Link
N12P-Q3-A1-GP
BOM
緯創資通
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
N12P-Q1/Q3 (2/6): DIGITAL OUT
Size
A2
Document Number
Kendo-3 WS
Rev
SA
Date: Tuesday, December 07, 2010
Sheet 16 of 107



BOM

緯創資通	Wistron Corporation	
	21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	N12P-Q1/Q3 (3/6): VRAM I/F	
Size: A1	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 17 of 37	



	Supplier	Vendo P/N	WISTRON P/N
1	HARMONY	XTAL 27M 12PF30PPM HSX530G SMD	82.30034.521
2	TXC	XTAL 27MHZ 12PF30PPM 5*3.2 SMD	82.30034.771
3			

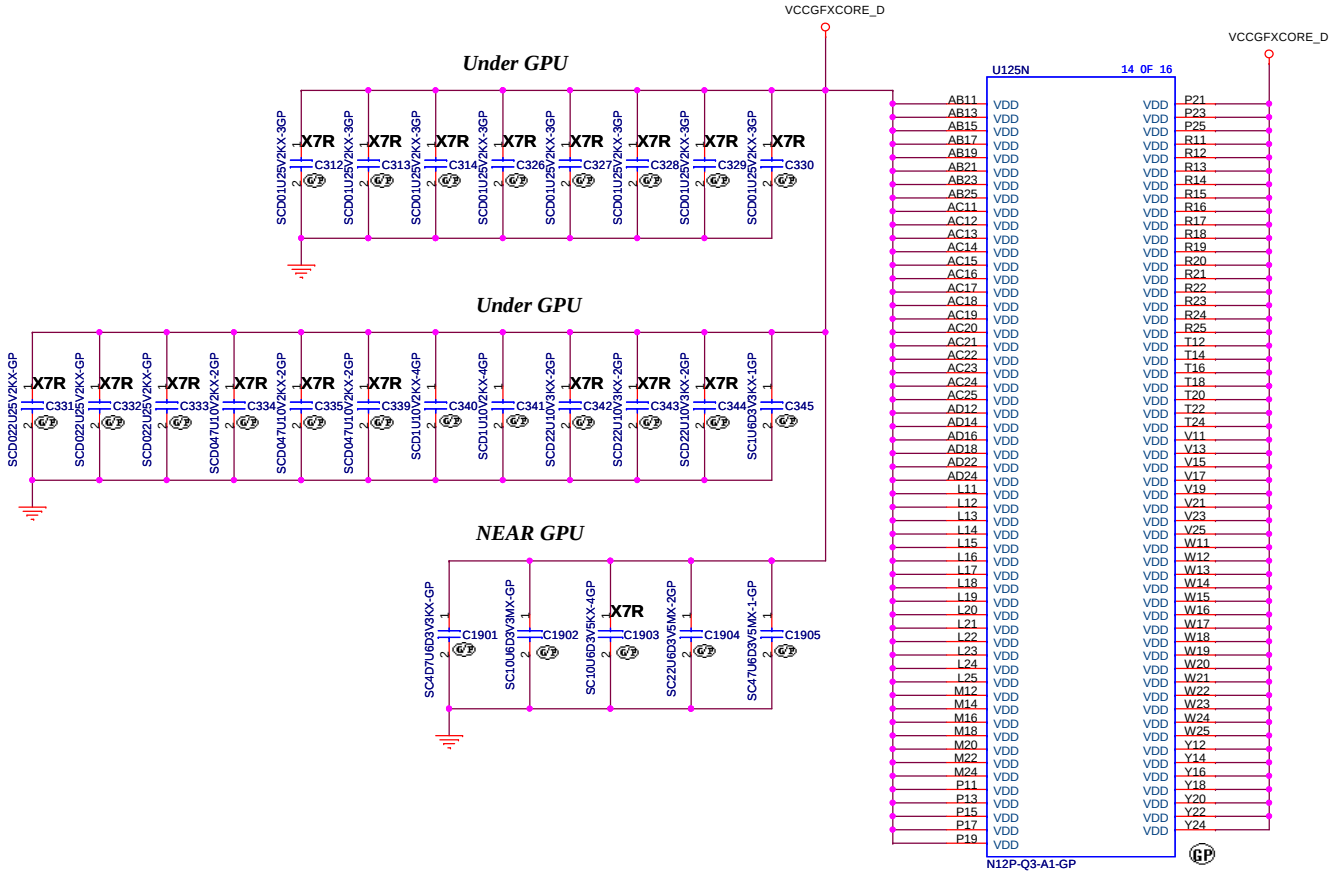
TABLE
KENDO VIDEO MEMORY

	HYNIX 128Mx16 0110	SAMSUNG 128Mx16 0111
RO M_SIPD R6238	34.8Kohm	45.3Kohm
	64.34825.6DL	64.45325.6DL

LOGIC

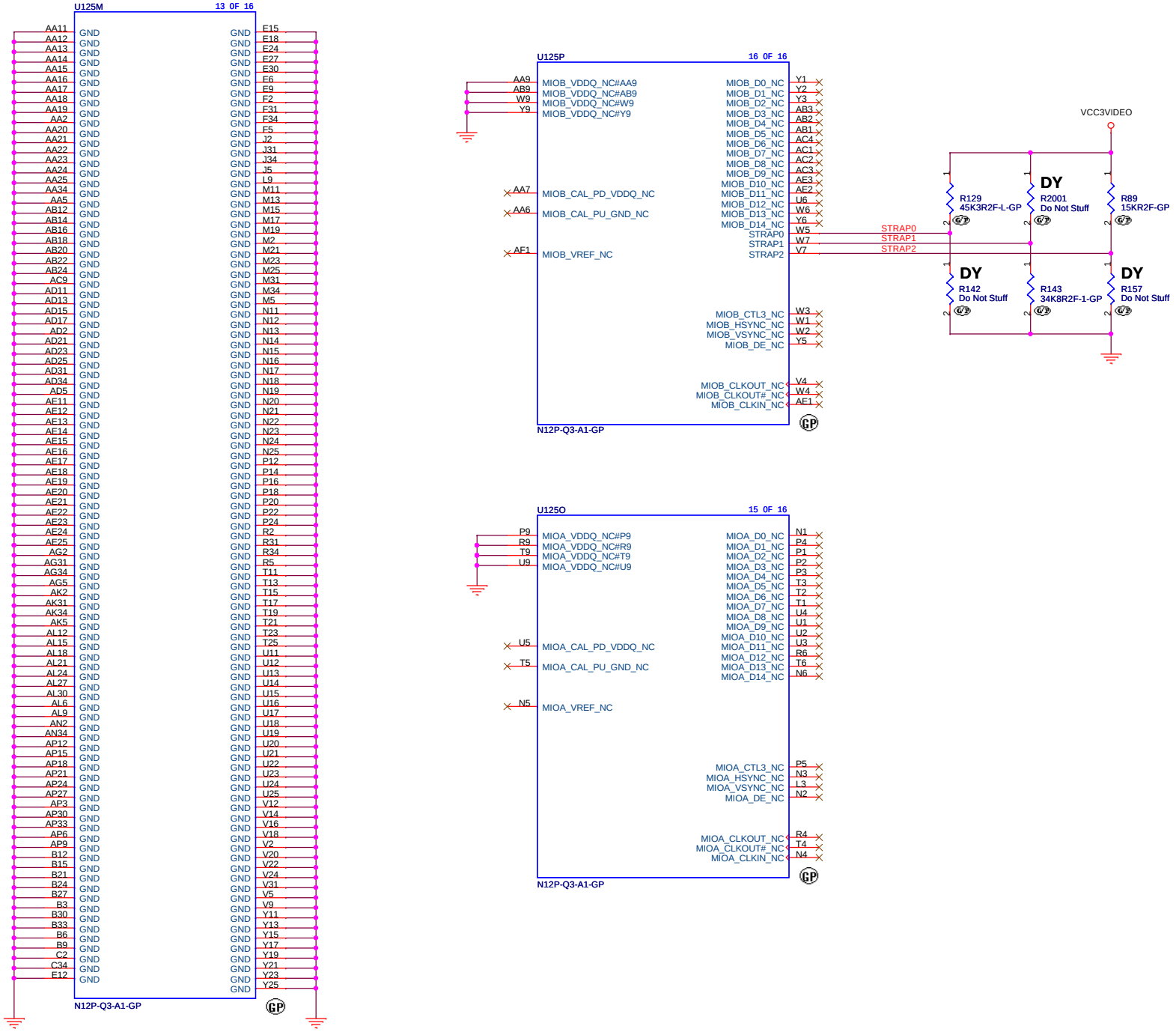
	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title	N12P-Q1/Q3 (4/6): GPIO		
Size: A1	Document Number: Kendo-3 WS		Rev: SA
Date: Tuesday, December 07, 2010	Sheet 18 of 39		

EDP 50A
(TDP 37W)



BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: *N12P-Q1/Q3 (5/6): POWER*		
Size: A3	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 19 of 107	



BOM

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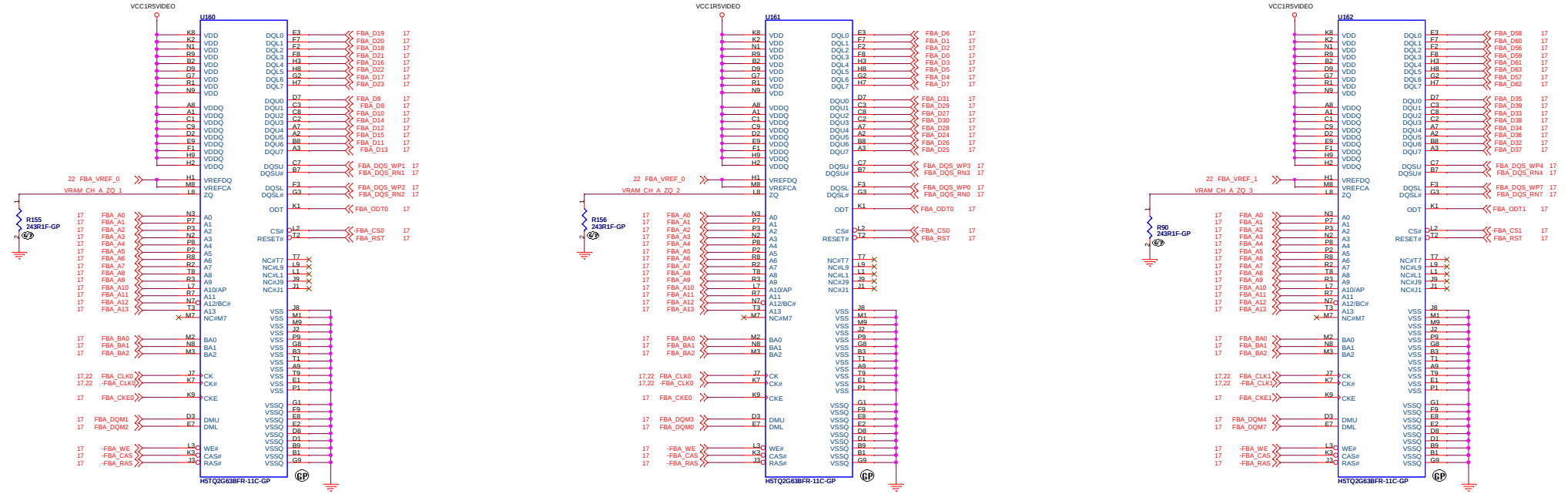
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***N12P-Q1/Q3 (6/6): GND***

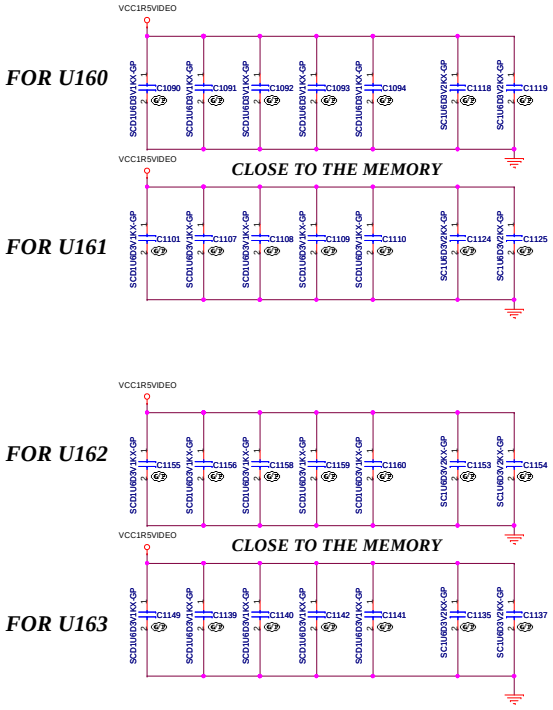
Size	Document Number	Rev
A3	**Kendo-3 WS**	SA

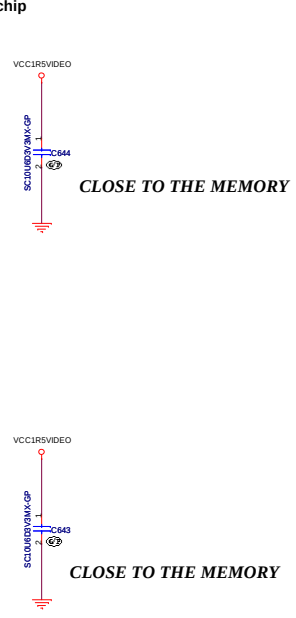
Date: Tuesday, December 07, 2010 Sheet 20 of 107

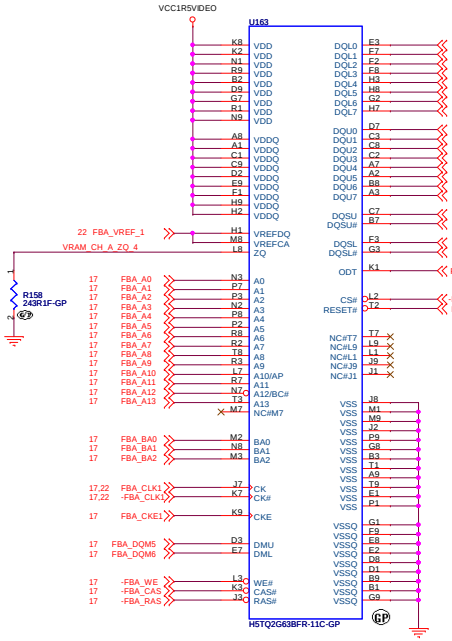


FB CMD mapping Mode D-N12x

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







TABLE

DDR3 VIDEO MEMORY FOR N12P-Q1 AND N12P-Q3

	HYNIX 2GBITS (128MX16)	SAMSUNG 2GBITS (128MX16)
U160 U12 U161 U13 U162 U14 U163 U15	H5TQ2G63BFR-11C	K4W2G1646C-HC11

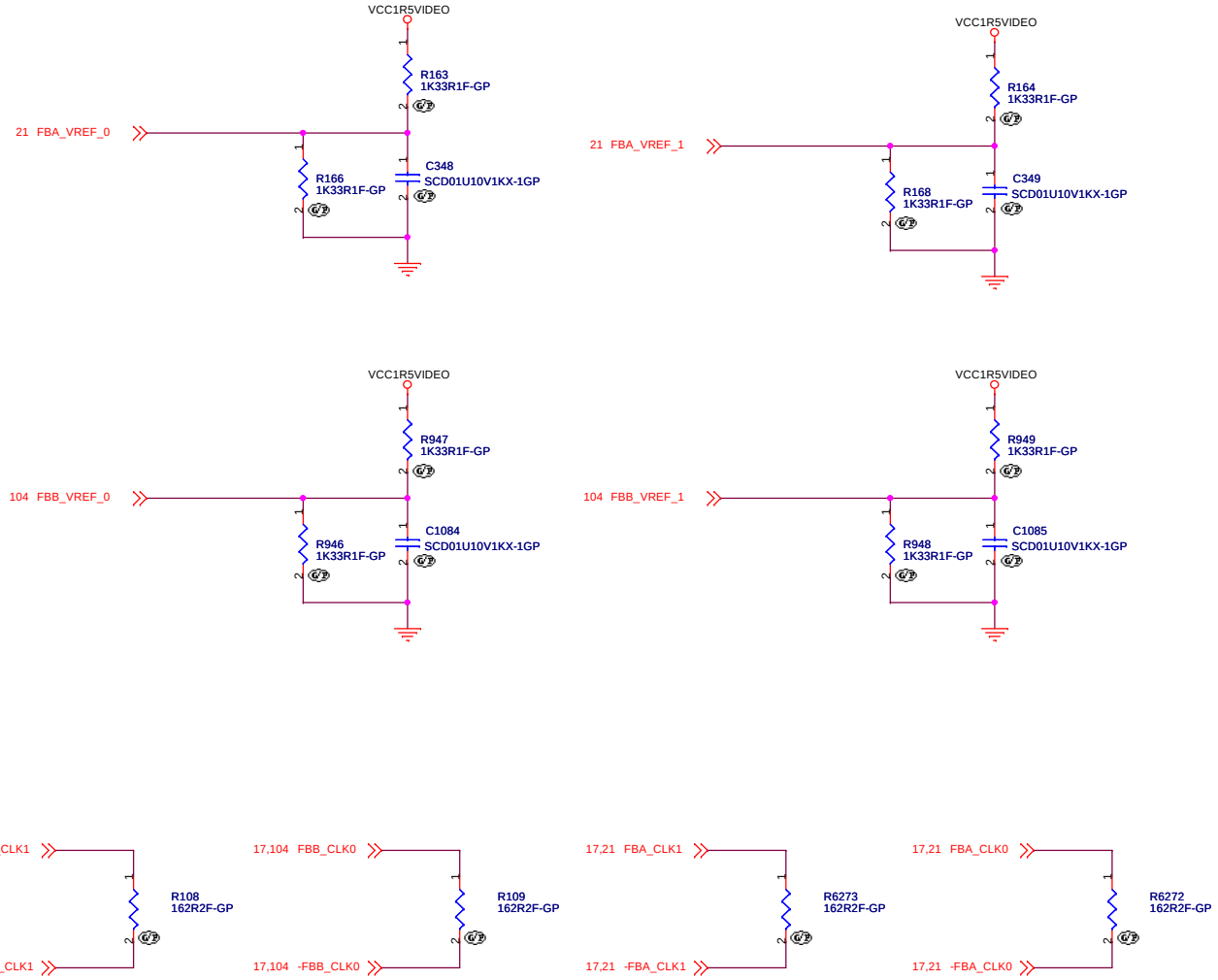
BOM

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

Title: VRAM CHANNEL-A

Size: A2 | Document Number: Kendo-3 WS | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 21 of 107



FBCLK Termination

BOM

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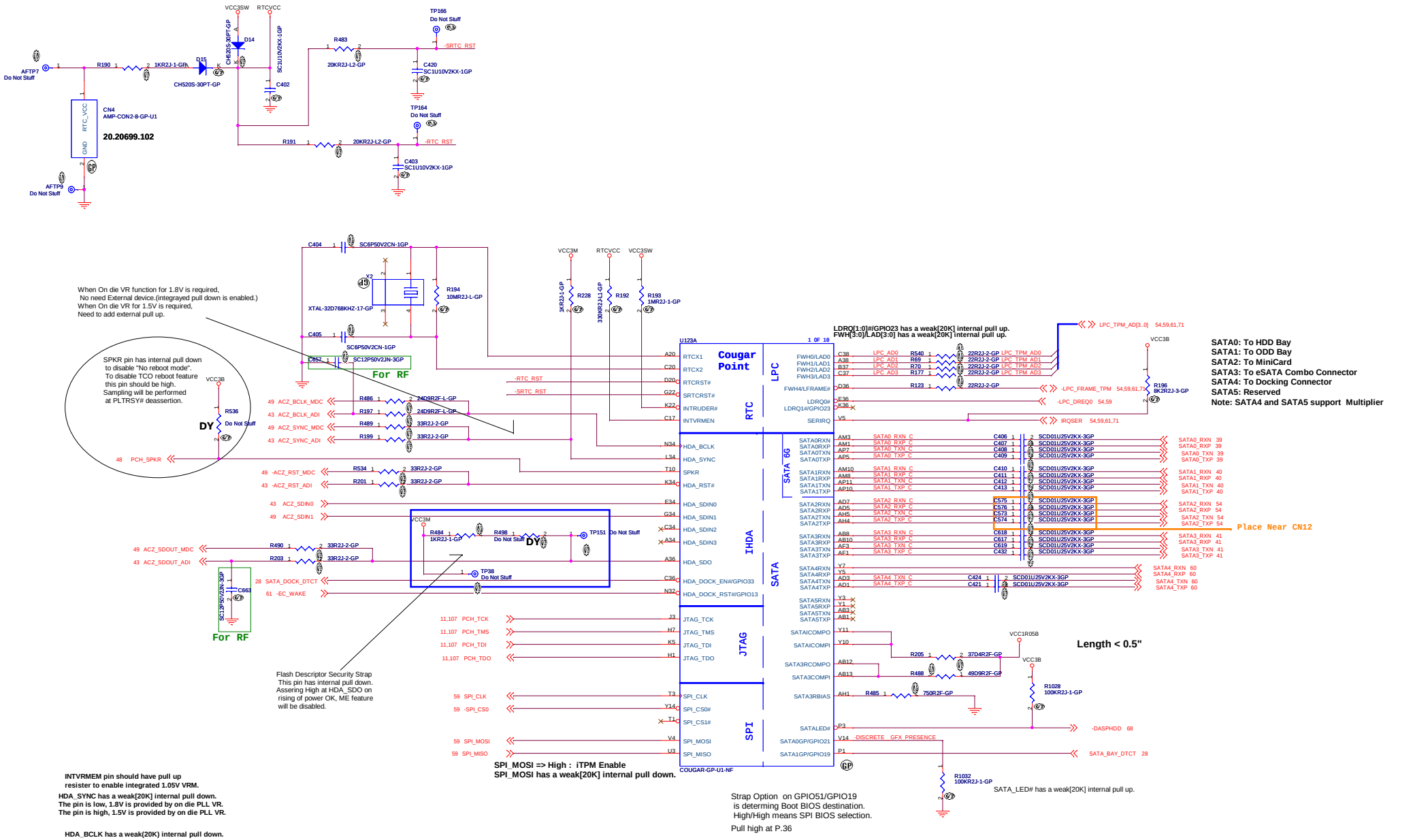
Taipei Hsien 221, Taiwan, R.O.C.

Title ***DYNAMIC MEMORY TERMINATION***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 22 of 107



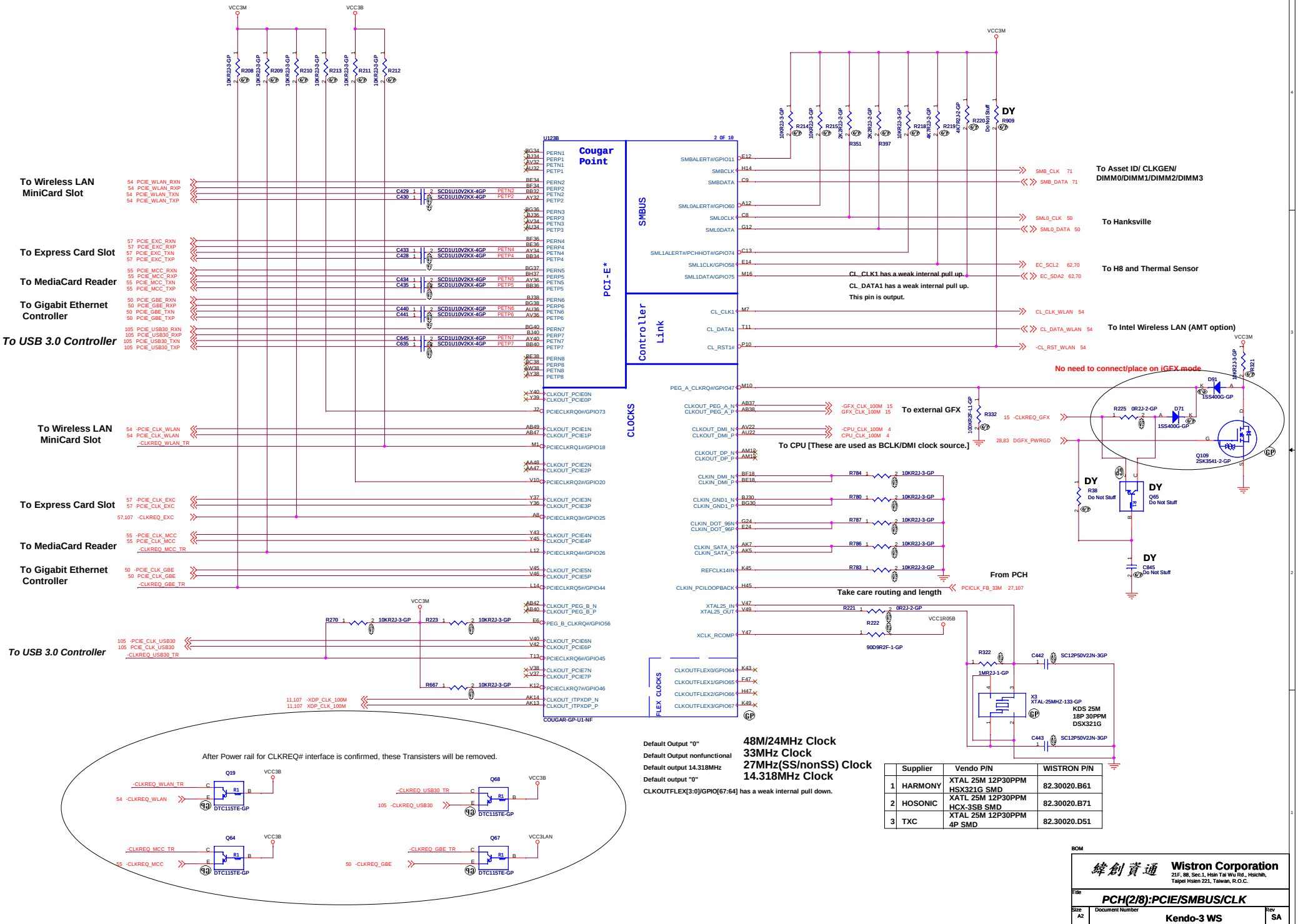
BOM

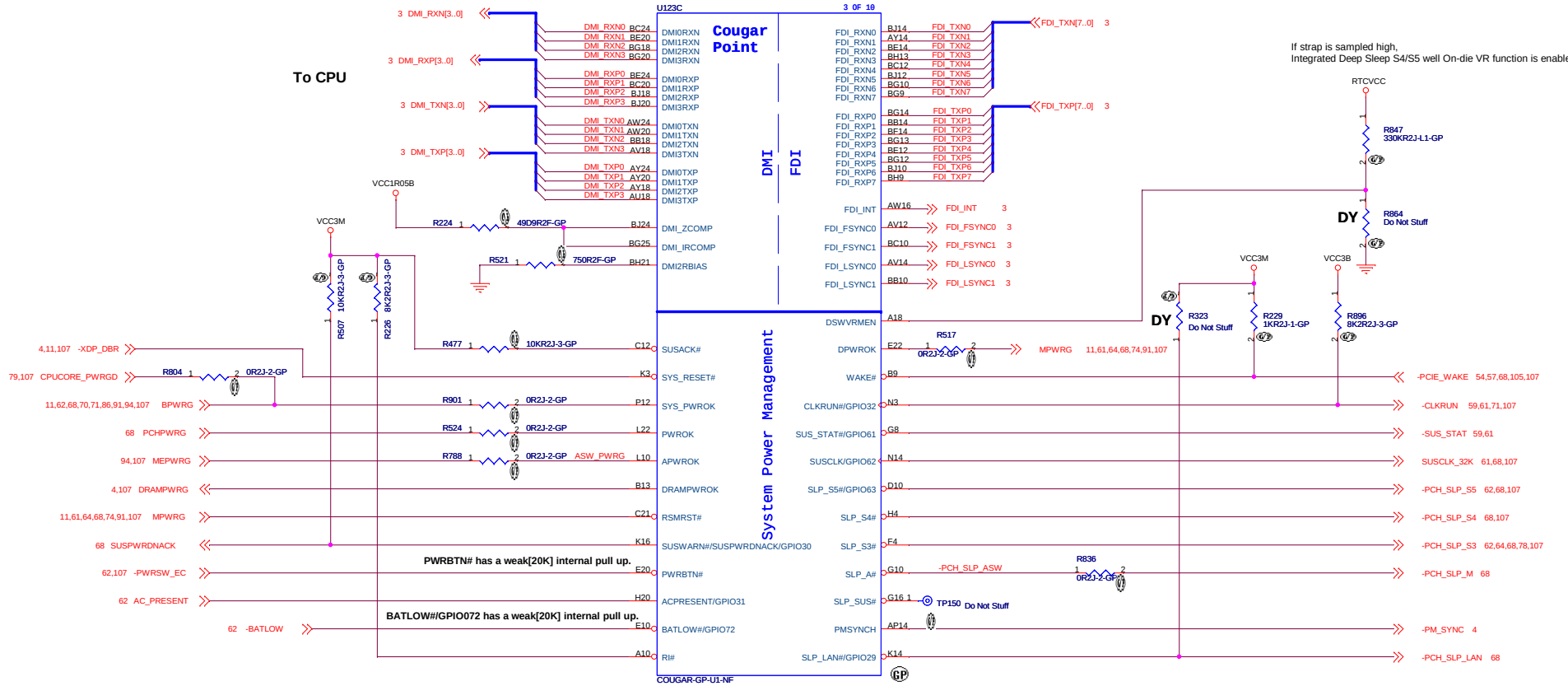
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: **PCH (1/8):HDA/JTAG/SATA**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 23 of 107


To Wireless LAN MiniCard Slot
To Express Card Slot
To MediaCard Reader
To Gigabit Ethernet Controller
To USB 3.0 Controller
To Wireless LAN MiniCard Slot
To Express Card Slot
To MediaCard Reader
To Gigabit Ethernet Controller
To USB 3.0 Controller
Cougar Point
PCI-E*
SMBUS
Controller Link
CLOCKS
FLEX CLOCKS
COUGAR-GP-U1-NF
To Asset ID/ CLKGEN/ DIMM0/DIMM1/DIMM2/DIMM3
To Hanksville
To H8 and Thermal Sensor
To Intel Wireless LAN (AMT option)
No need to connect/place on iGFX mode
To external GFX
To CPU [These are used as BCLK/DMI clock source.]
From PCH
Take care routing and length
After Power rail for CLKREQ# interface is confirmed, these Transisters will be removed.
Default Output "0"
Default Output nonfunctional
Default output 14.318MHz
Default output "0"
CLKOUTFLEX[3:0]/GPIO[67:64] has a weak internal pull down.
48M/24MHz Clock
33MHz Clock
27MHz(SS/nonSS) Clock
14.318MHz Clock
Supplier
Vendo P/N
WISTRON P/N
1 HARMONY XTAL 25M 12P30PPM HSX321G SMD 82.30020.B61
2 HOSONIC XATL 25M 12P30PPM HCX-3SB SMD 82.30020.B71
3 TXC XTAL 25M 12P30PPM 4P SMD 82.30020.D51
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
PCH(2/8):PCIE/SMBUS/CLK
Kendo-3 WS
Size A2
Rev SA
Tuesday, December 07, 2010
Sheet 24 of 107



BOM

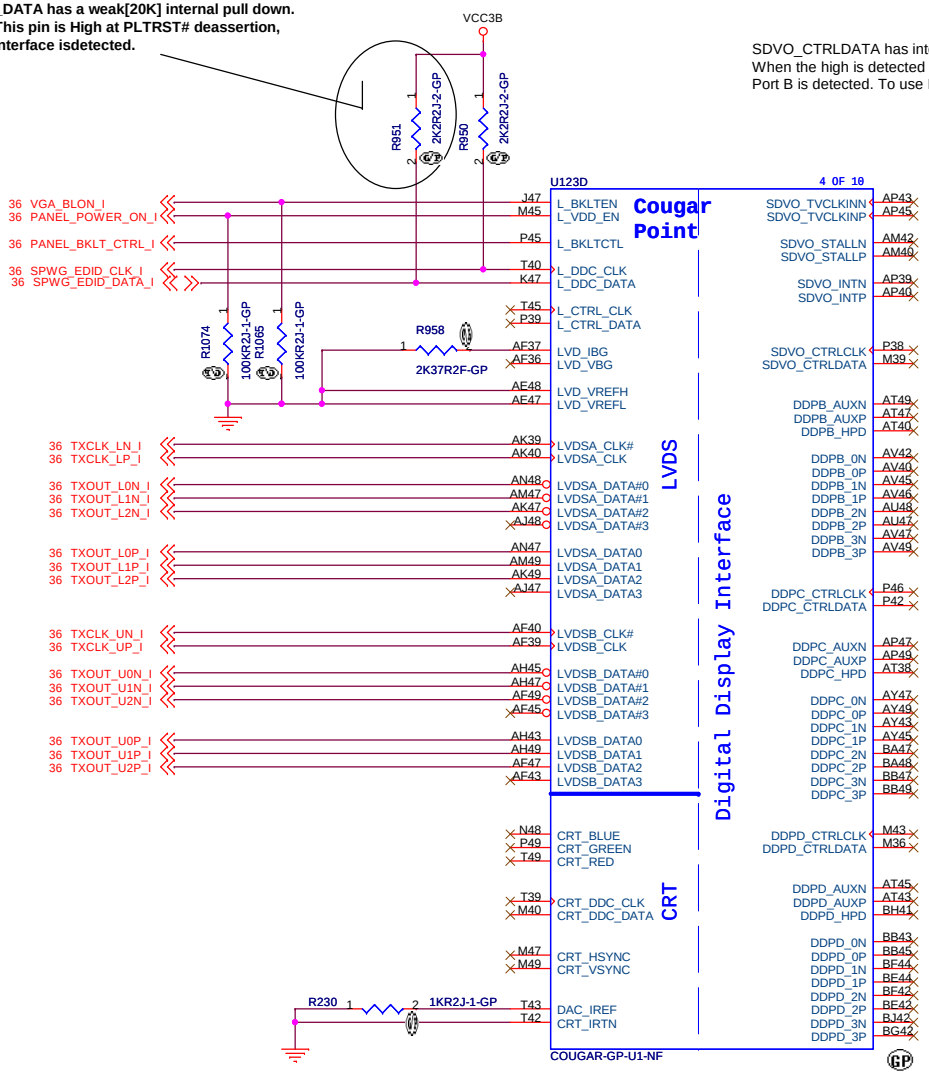
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **PCH (3/8):DMI/FDI/PM**

Size	Document Number	Rev
Custom	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 25 of 107

L_DDC_DATA has a weak[20K] internal pull down.
When This pin is High at PLTRST# deassertion,
LVDS interface isdetected.



SDVO_CTRLDATA has internal pull down.
When the high is detected at PLTRST# deasserton,
Port B is detected. To use Port B, need to add external pull up.

DDPC_CTRLDATA has internal pull down.
When the high is detected at PLTRST# deasserton,
Port C is detected. To use Port C, need to add external pull up.

DDPD_CTRLDATA has internal pull down.
When the high is detected at PLTRST# deasserton,
Port D is detected. To use Port D, need to add external pull up.

BOM

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Title	PCH (4/8):LVDS/CRT/DDI	
Size A3	Document Number Kendo-3 WS	Rev SA
Date: Tuesday, December 07, 2010	Sheet 26 of 107	

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.
If external pull down is applied,
PCH will be "topblock swap" mode.

Strap Option on GPIO51/GPIO19
is determing Boot BIOS destination.
High/High means SPI BIOS selection.

DY DY DY

TABLE

OPTIMUS_ENABLE	
LVDS/VGA	
HIGH	IGPU
LOW	DGPU

GPIO55 is not multiplex with GNT3# on mobile PCH.

PME# has internal pullup[20K].

CLKOUT_PCI[4:0] has a internal pull down.

For RF

DF_TVS has internal pull down with soft strap.
When the pin is high, VCCIO termination function is enabled.

USB[13:0][P,N] has internal pull down.

Port #1 has USB debug port capability.

Port #9 has USB debug port capability.

USB0 : To System USB Port (UMA/Dis model)
USB1 : To System onboard USB port(eSATA combo)
USB2 : To WiMAX/WLAN Mini Card Slot
USB3 : To WWAN Mini Card Slot
USB4 : To SmartCard
USB5 : To Express Card Slot
USB6 : Reserved
USB7 : To Touch Panel
USB8 : To Color Sensor
USB9 : To System Subcard USB port
USB10: To FPR
USB11:To Bluetooth
USB12:To Docking
USB13:To Camera

Page.27

USBP 0	LEFT DUAL CONN	USB_ON1	-USB_PORT0_OC0
USBP 1	LEFT COMBO CONN	USB_ON1	-USB_PORT1_OC1
USBP 8	LEFT DUAL CONN	USB_ON1	-USB_PORT8_OC4
USBP 9	RIGHT SUB CARD	USB_ON2	-USB_PORT9_OC5

BOM

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

Title: PCH (5/8):PCI/USB/NVM

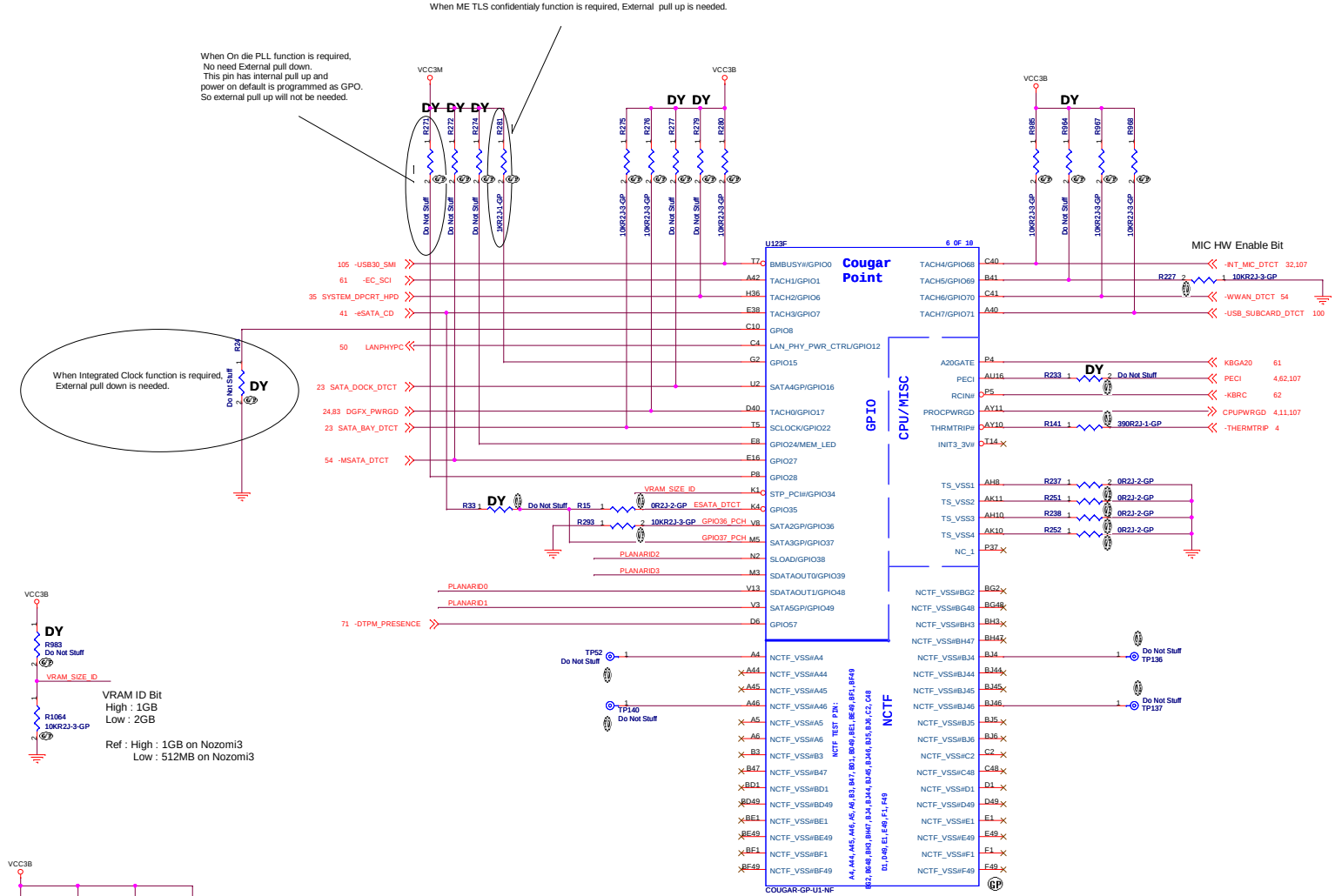
Size: A2 | Document Number: Kendo-3 WS | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 27 of 107

When ME TLS confidentialy function is required, External pull up is needed.

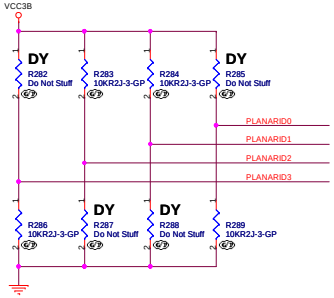
When On die PLL function is required,
No need External pull down.
This pin has internal pull up and
power on default is programmed as GPO.
So external pull up will not be needed.

When Integrated Clock function is required,
External pull down is needed.



VRAM ID Bit
High : 1GB
Low : 2GB

Ref : High : 1GB on Nozomi3
Low : 512MB on Nozomi3



Planar ID table is placed on page 2

BOM

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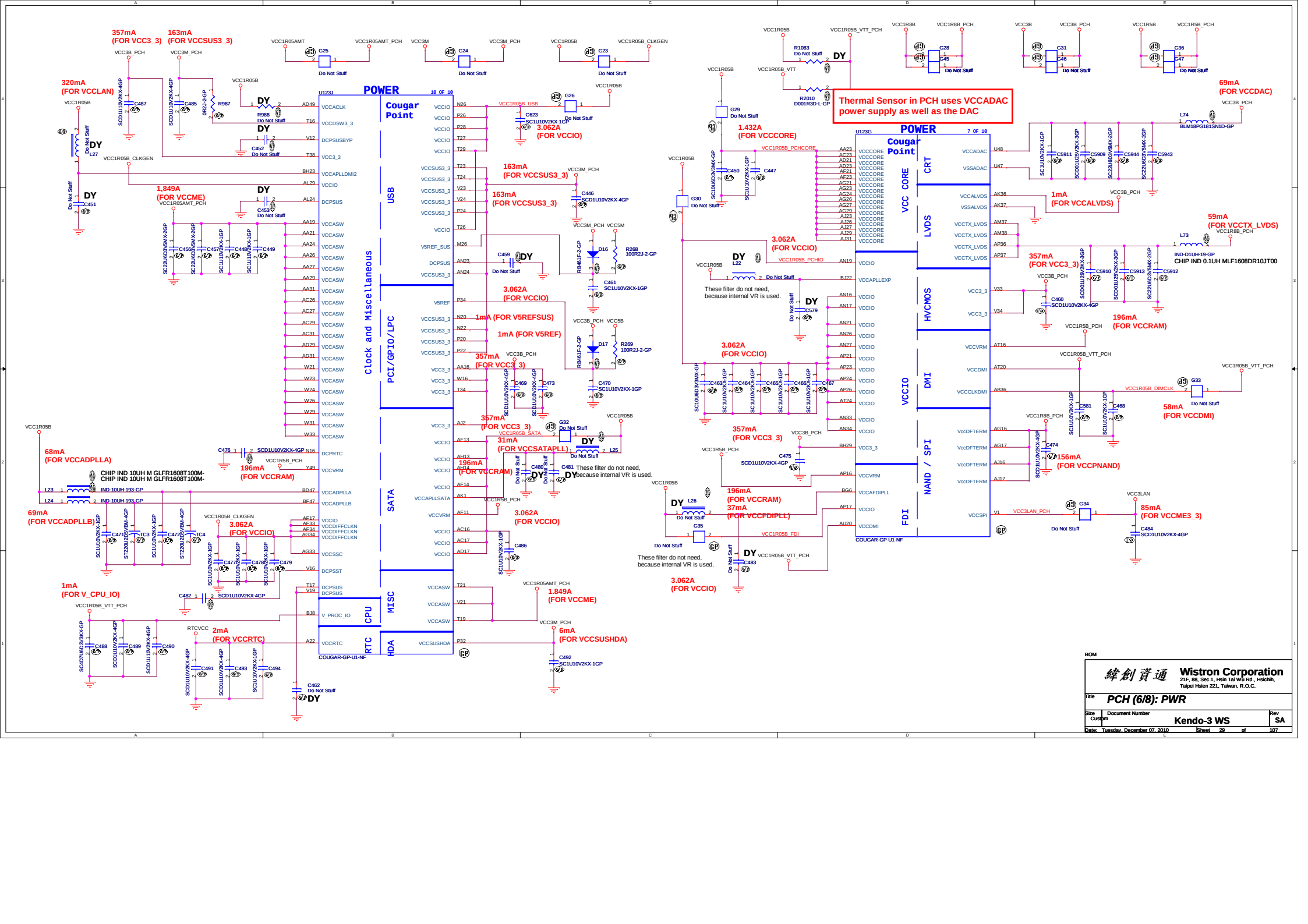
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***PCH (7/8):GPIO/NTCF/RSVD***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 28 of 107


357mA (FOR VCC3_3)
163mA (FOR VCCSUS3_3)
320mA (FOR VCCLAN)
1,849A (FOR VCCME)
POWER
Cougar Point
U123J
10 OF 10
Clock and Miscellaneous
USB
PCI/GPIO/LPC
SATA
CPU
MISC
RTC
HDA
COUGAR-GP-U1-NF
3.062A (FOR VCCIO)
163mA (FOR VCCSUS3_3)
1mA (FOR V5REFSUS)
1mA (FOR V5REF)
357mA (FOR VCC3_3)
31mA (FOR VCCSATAPLL)
196mA (FOR VCCRAM)
1.849A (FOR VCCME)
6mA (FOR VCCSUSHDA)
2mA (FOR VCCRTC)
1mA (FOR V_CPU_IO)
68mA (FOR VCCADPLLA)
69mA (FOR VCCADPLLB)
CHIP IND 10UH M GLFR1608T100M-
IND-10UH-193-GP
Thermal Sensor in PCH uses VCCADAC power supply as well as the DAC
1.432A (FOR VCCCORE)
VCC CORE
CRT
LVDS
HVCMOS
DMI
VCCIO
NAND / SPI
FDI
COUGAR-GP-U1-NF
69mA (FOR VCCDAC)
1mA (FOR VCCALVDS)
59mA (FOR VCCTX_LVDS)
IND-D1UH-19-GP
CHIP IND 0.1UH MLF1608DR10JT00
196mA (FOR VCCRAM)
58mA (FOR VCCDMI)
156mA (FOR VCCPNAND)
85mA (FOR VCCME3_3)
These filter do not need, because internal VR is used.
37mA (FOR VCCFDIPLL)
Do Not Stuff
DY
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
PCH (6/8): PWR
Kendo-3 WS
SA
Tuesday, December 07, 2010
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BLANK

BOM

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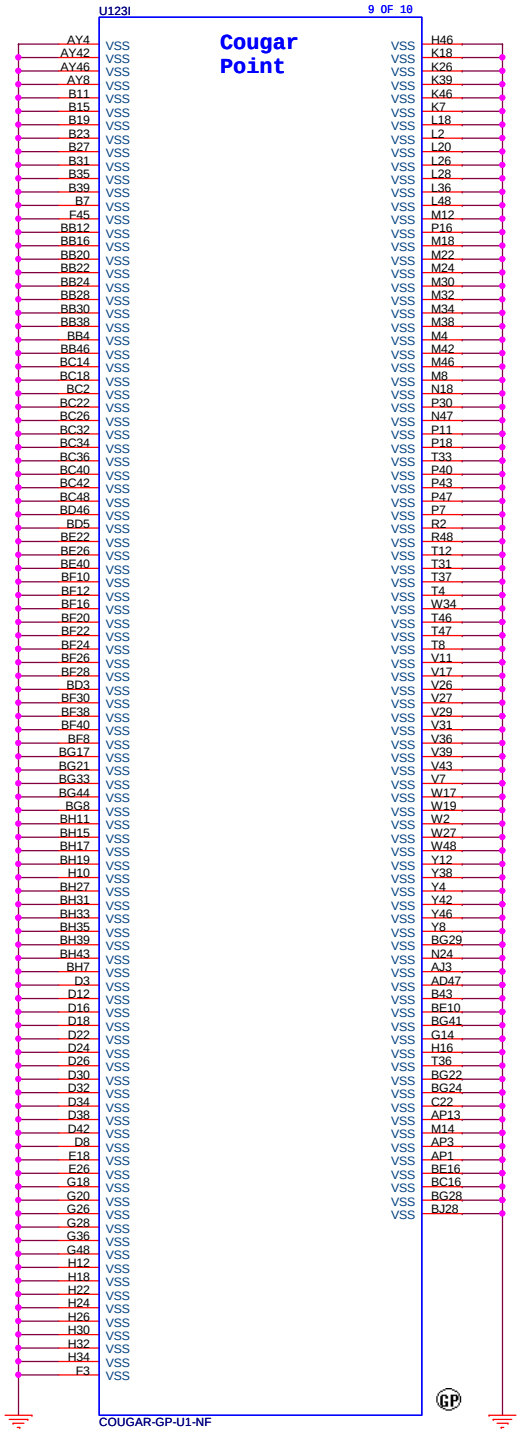
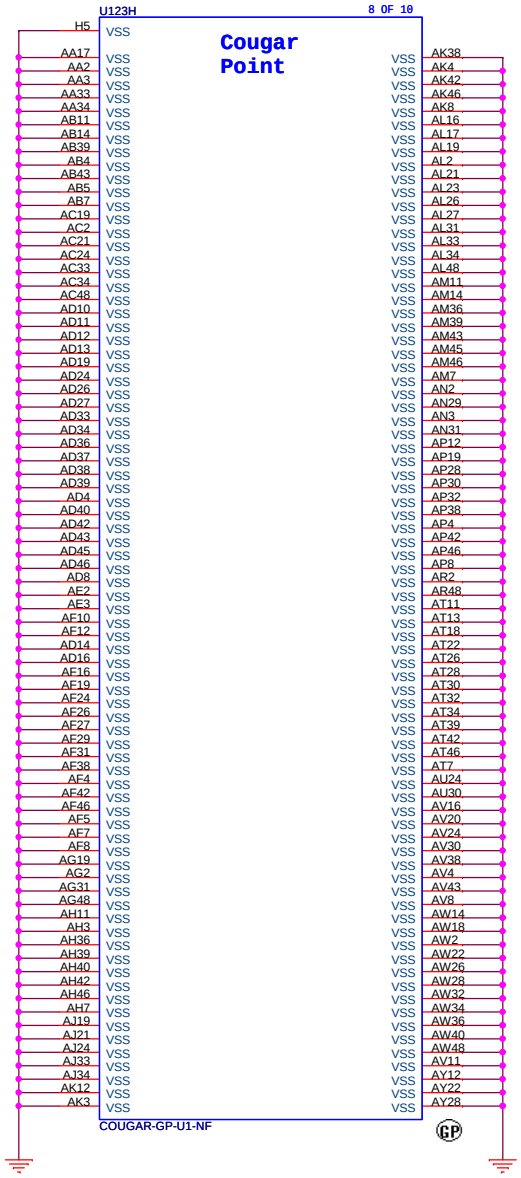
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***BLANK***		
Size: A3	Document Number: **Kendo-3 WS**	Rev: **SA**
Date: Tuesday, December 07, 2010	Sheet 30 of 107	



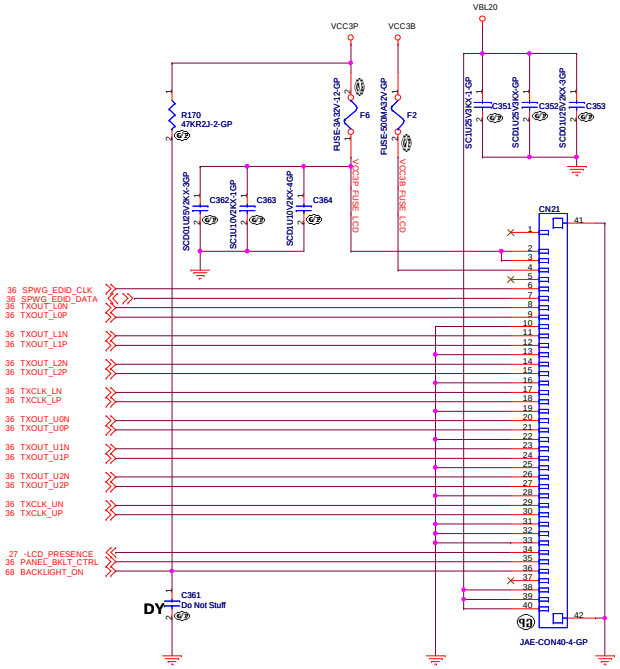


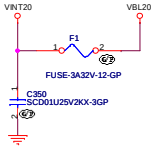
BOM

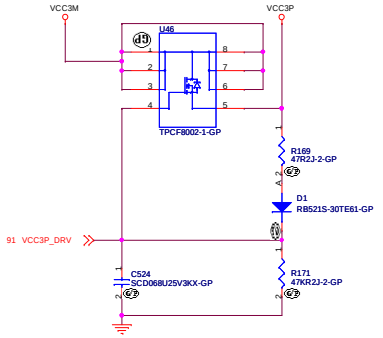
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

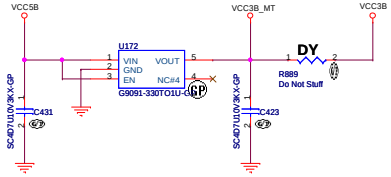
Title	***PCH (8/8):GND***	
Size: A3	Document Number: **Kendo-3 WS**	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 31 of 107	

LCD / Inverter Connector



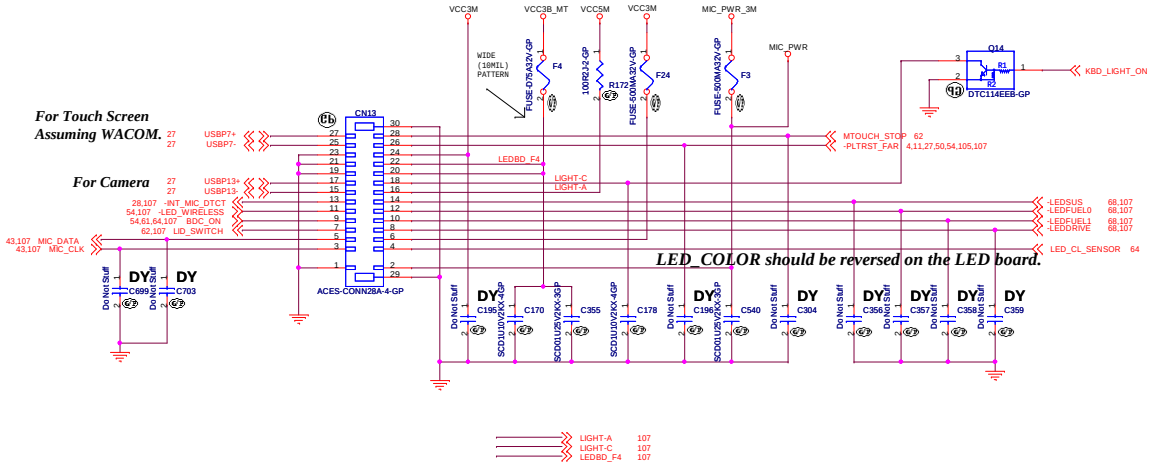






For Touch Screen Assuming WACOM.

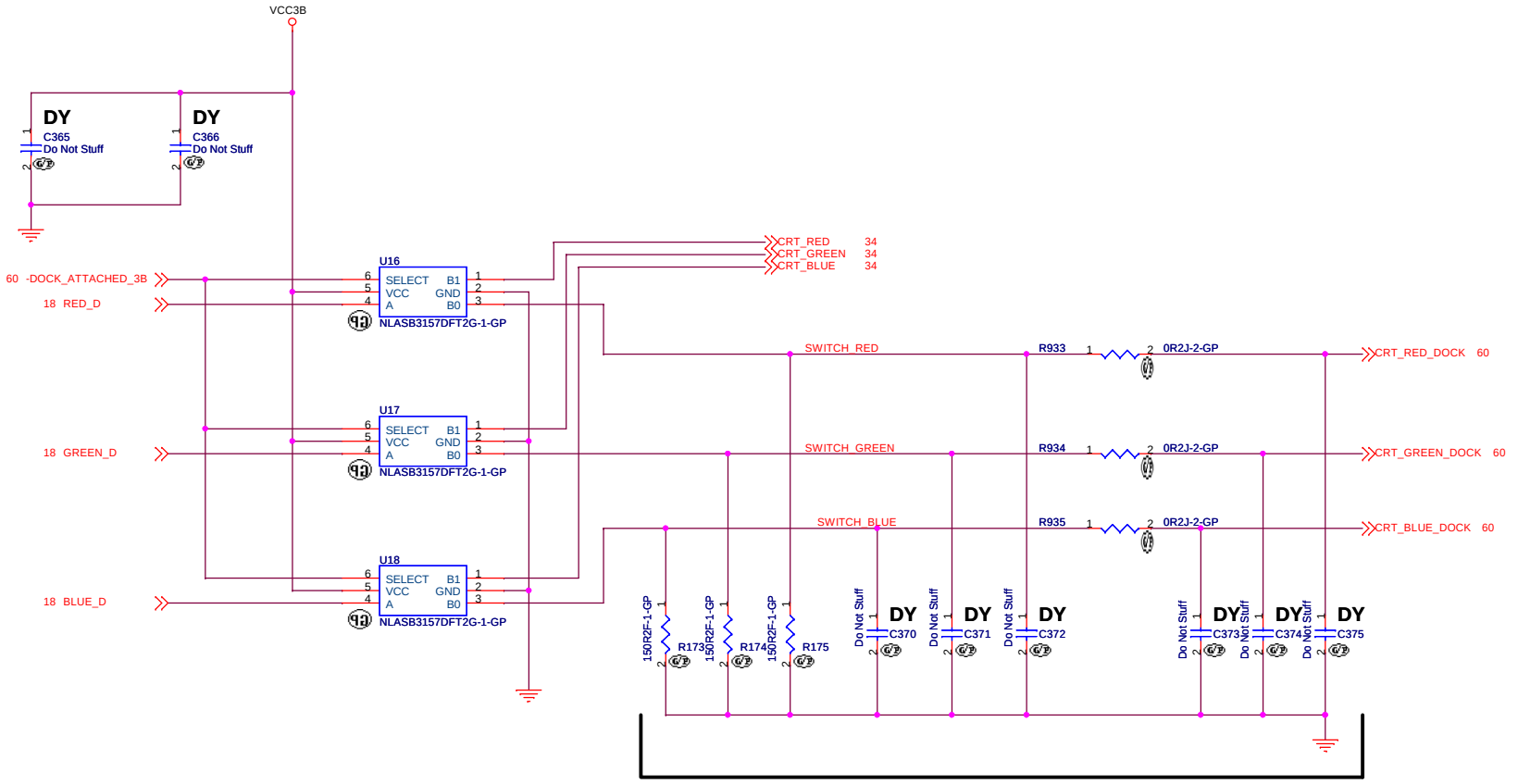
For Camera



LED_COLOR should be reversed on the LED board.

BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: LCD CONNECTOR		
Size: A2	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 32 of 107	



Place near docking connector

	Supplier	Vendo P/N	WISTRON P/N
1	ONSEMI	NLASB3157DFT2G	54Y9028CA
2	Toshiba	TC7SB3157CFU	73.03157.007
3	TI	74LVC1G3157DCKRE4	54Y9028BA

BOM

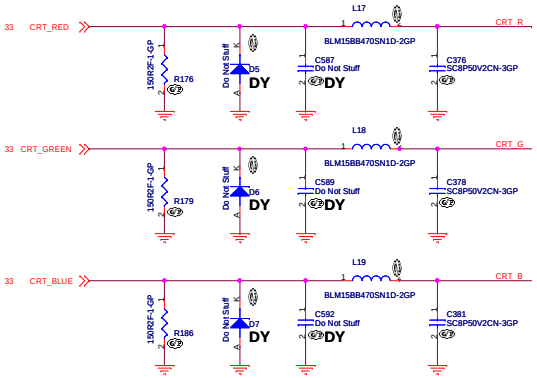
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***RGB SWITCH***

Size: A3 | Document Number: **Kendo-3 WS** | Rev: SA

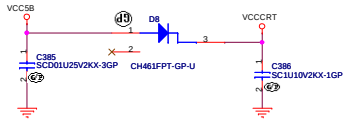
Date: Tuesday, December 07, 2010 | Sheet 33 of 107

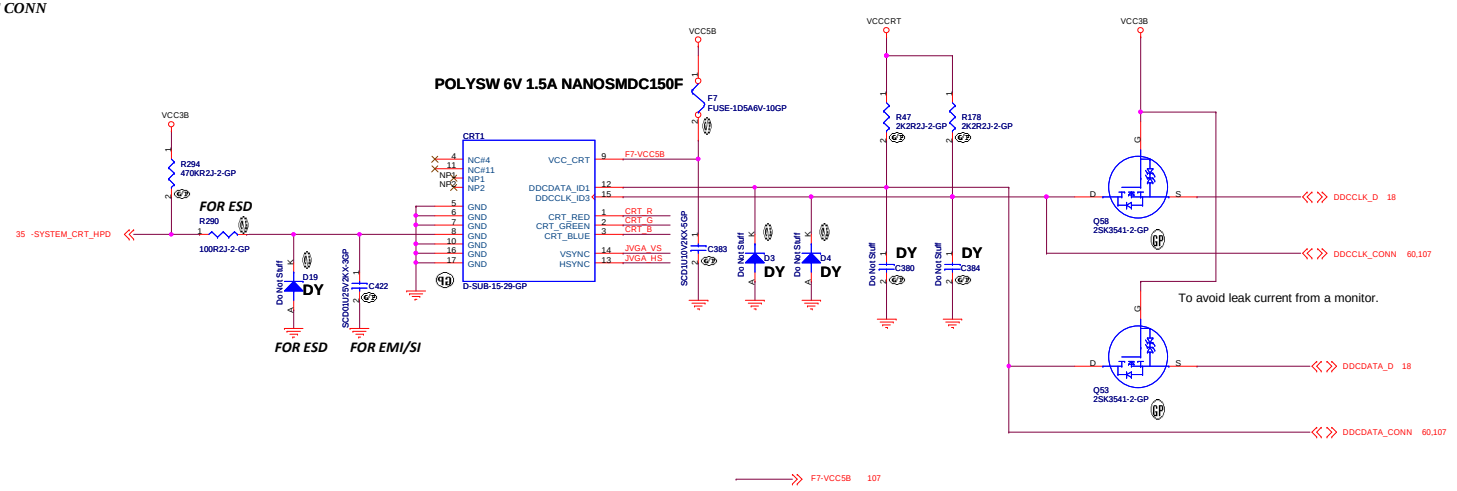
	Supplier	Vendo P/N	WISTRON P/N
1	ROHM	CDZC6.8B	83.00068.0AF
2	TOSHIBA	DF2S6.8UFS	83.00268.0AF

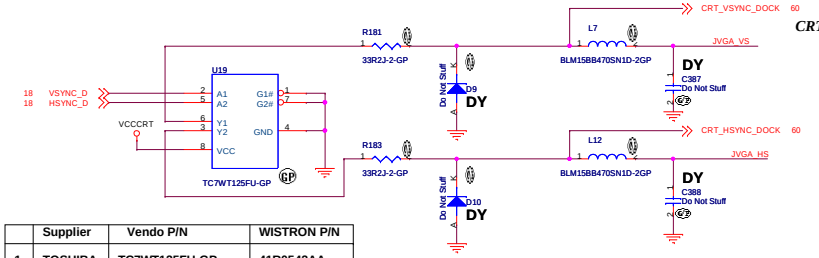


NEAR CRT CONN

Two pins ESD protection diodes are used for R, G, B, VS, HS, DDC_CLK and DDC_DATA lines. Because if three pins ESD protection diodes are used for them, ESD current will rush to VCCCRT and it breaks a VS/HS buffer.







CRT CONN

	Supplier	Vendo P/N	WISTRON P/N
1	TOSHIBA	TC7WT125FU-GP	41R0542AA
2	NXP	74HCT2G125DP	73.2G125.A0B

BOM

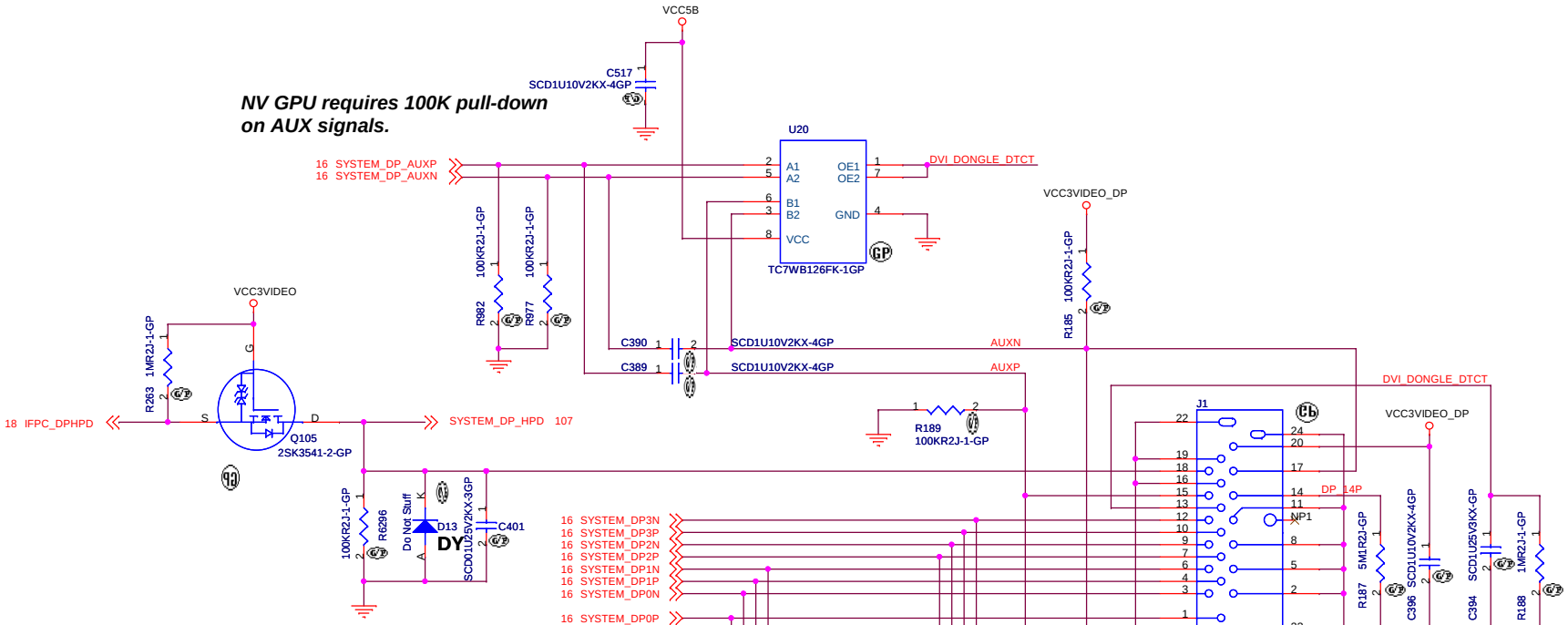
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***EXT CRT INTERFACE***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 34 of 107

NV GPU requires 100K pull-down on AUX signals.



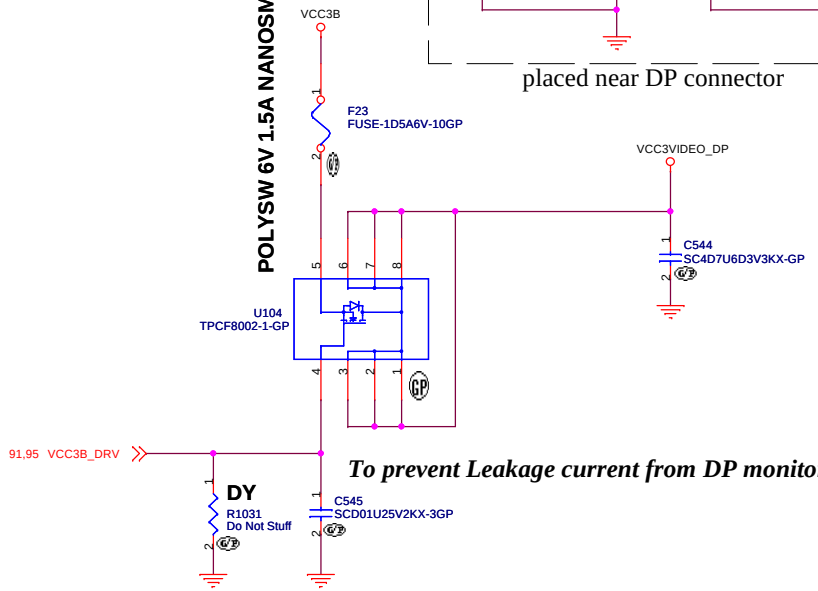
placed near DP connector

placed near DP connector

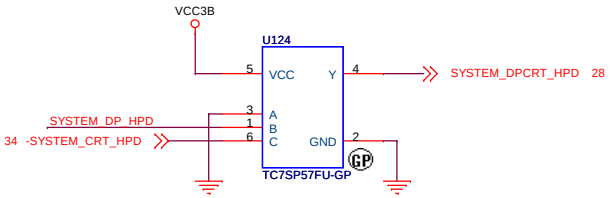
placed near DP connector

	Supplier	Vendo P/N	WISTRON P/N
1	ROHM	CDZC6.8B	83.00068.0AF
2	TOSHIBA	DF2S6.8UFS	83.00268.0AF

POLYSW 6V 1.5A NANOSMDC150F



To prevent Leakage current from DP monitor.



	Supplier	Vendo P/N	WISTRON P/N
1	TOSHIBA	TC7SP57FU	73.7SP57.0AJ
2	TI	SN74LVC1G57DCKR	73.01G57.AHJ

BOM

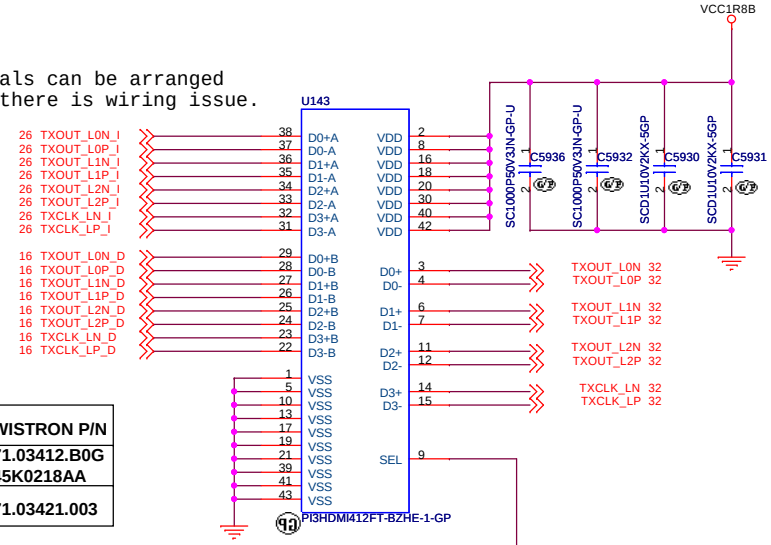
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***DISPLAY PORT CONNECTOR***

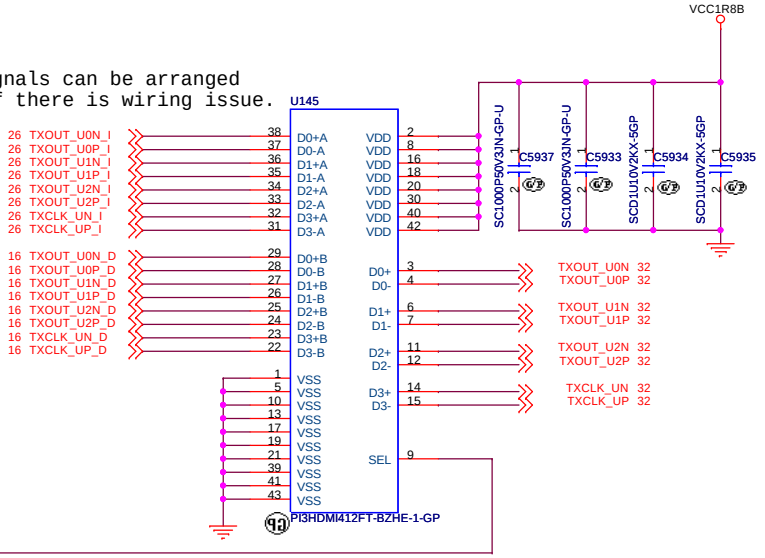
Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 35 of 107

Signals can be arranged if there is wiring issue.

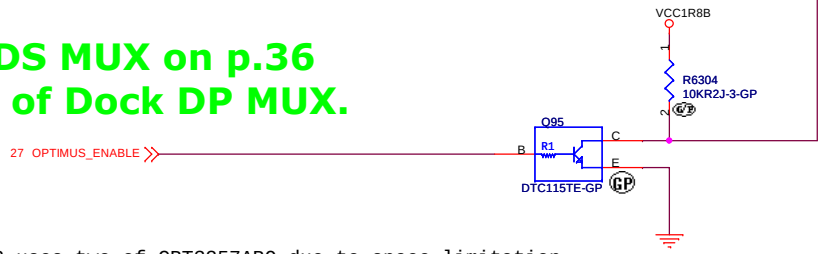


Signals can be arranged if there is wiring issue.

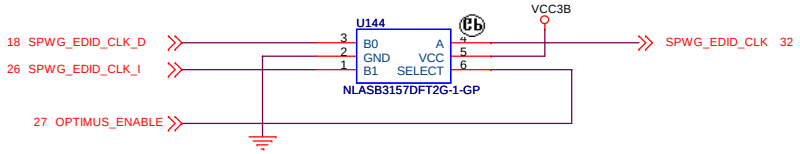


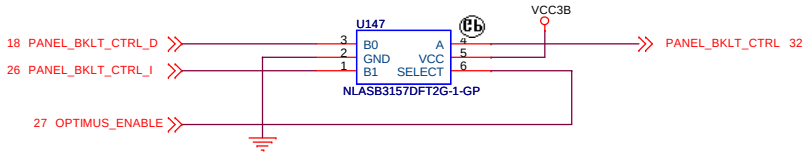
	Supplier	Vendor P/N	WISTRON P/N
1	Pericom	PI3HDMI412FT-BZHE	71.03412.B0G 45K0218AA
2	TI	TS3DV421RUAR	71.03421.003

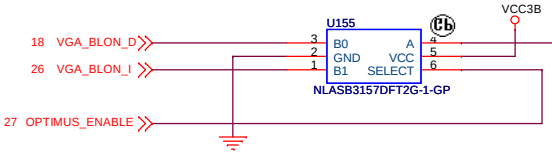
Add LVDS MUX on p.36 instead of Dock DP MUX.

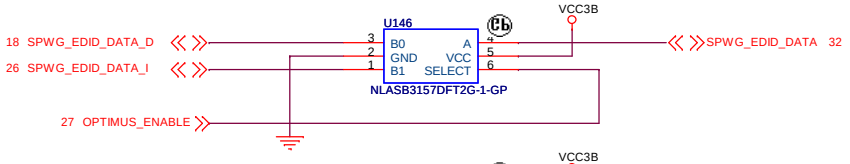


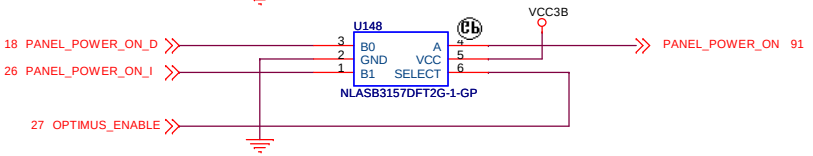
NZ-3 uses two of CBT3257ABQ due to space limitation.











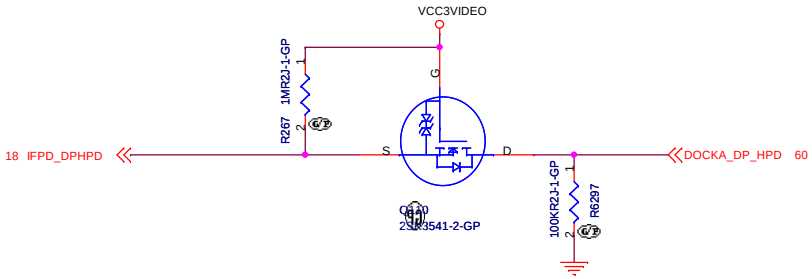
BOM

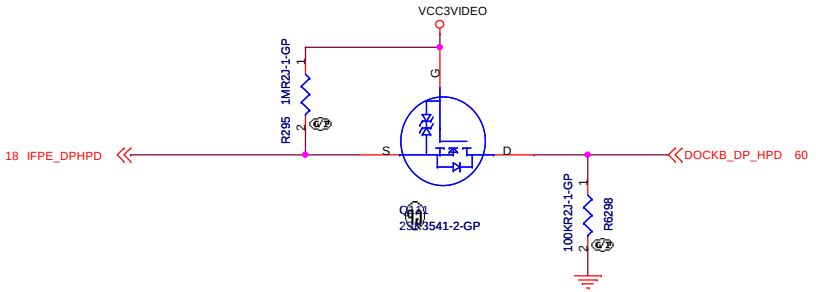
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***LVDS Switch***

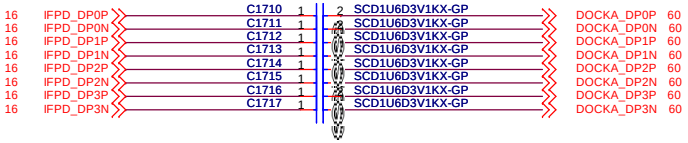
Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 36 of 107

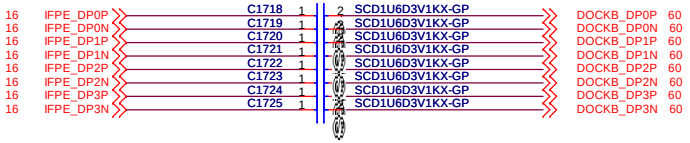


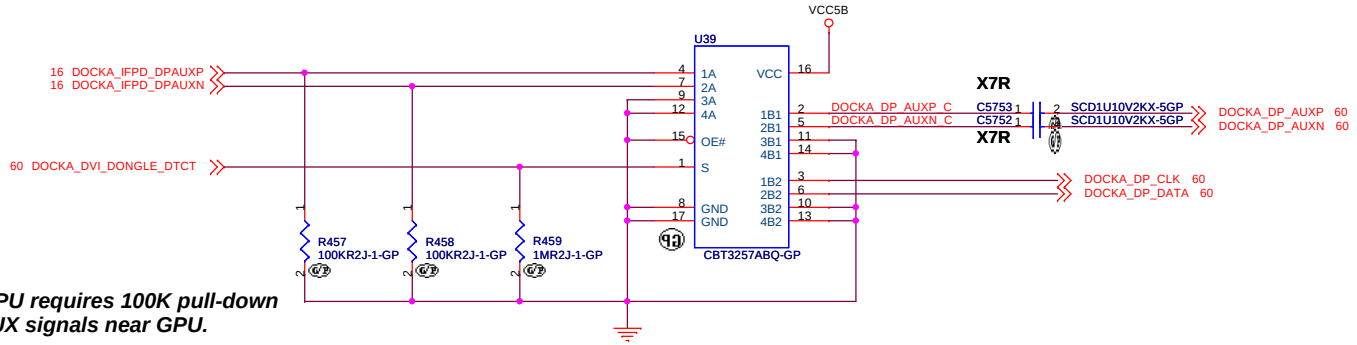


NEAR DOCK CONN

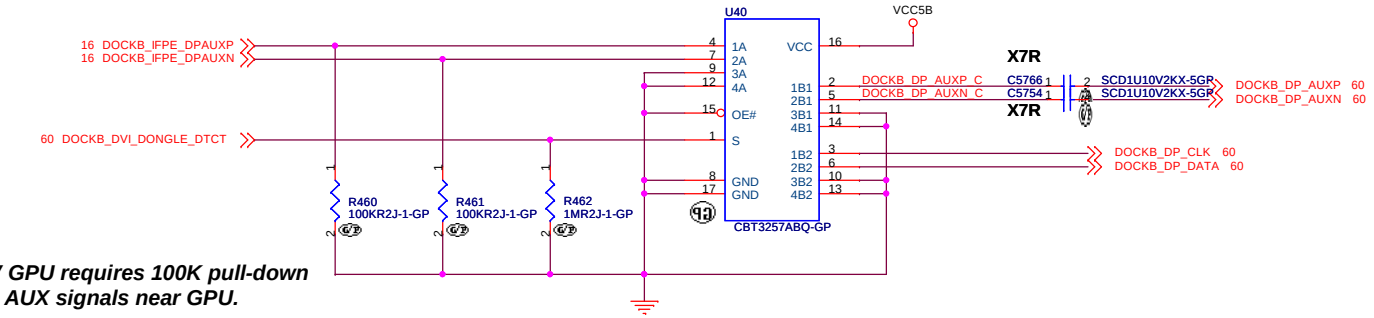


NEAR DOCK CONN





NV GPU requires 100K pull-down on AUX signals near GPU.



NV GPU requires 100K pull-down on AUX signals near GPU.

		U27, U39. U40	Wistron part number
1	NXP	CBT3257ABQ-GP	45K0213AA
2	OnSemi	74FST3257MNTWG-GP	45K0213BA

INPUTS		INPUT/OUTPUT	FUNCTION
OE#	S	A	
L	L	B1	A port = B1 port
L	H	B2	A port = B2 port
H	X	Z	Disconnect

BOM

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

Title: ***DISPLAY PORT MUX***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 37 of 107

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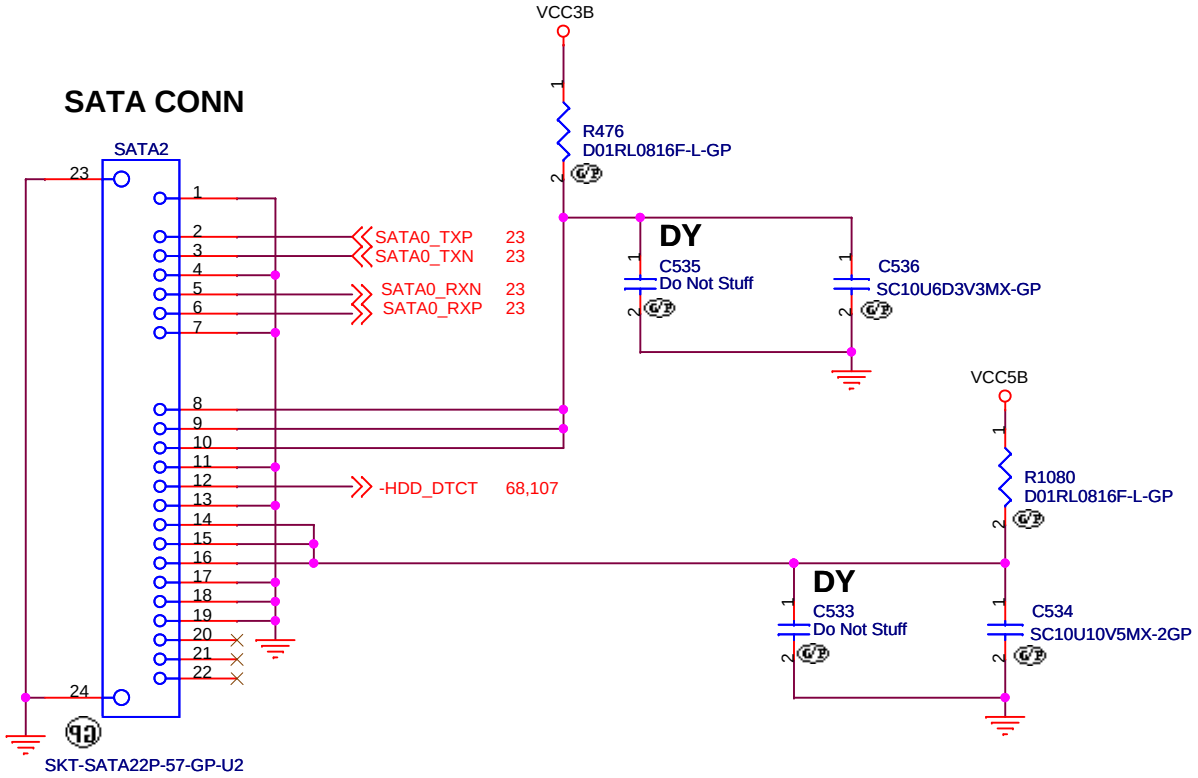
BOM

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

Title: ***BLANK***		
Size: A3	Document Number: **Kendo-3 WS**	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 38 of 107	



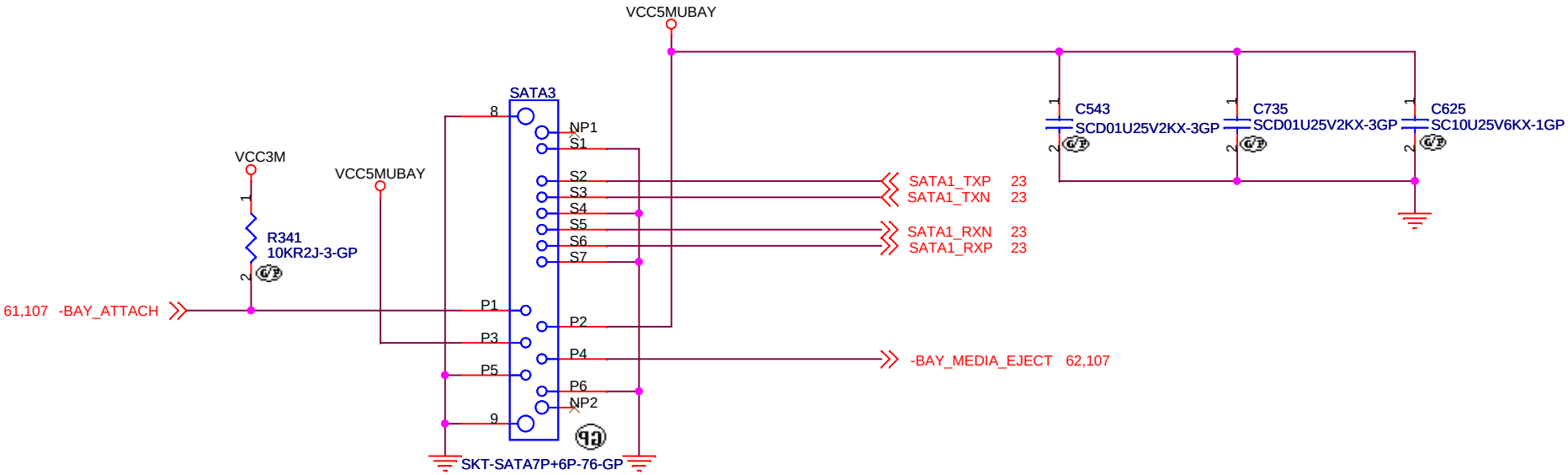
BOM

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	Document Number	Rev
A4	**Kendo-3 WS**	SA

Date: Tuesday, December 07, 2010 Sheet 39 of 107



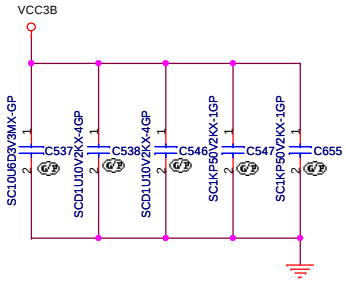
BOM

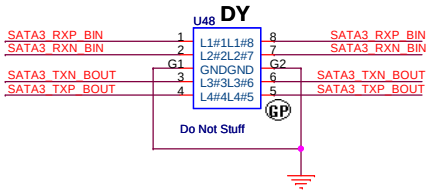
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

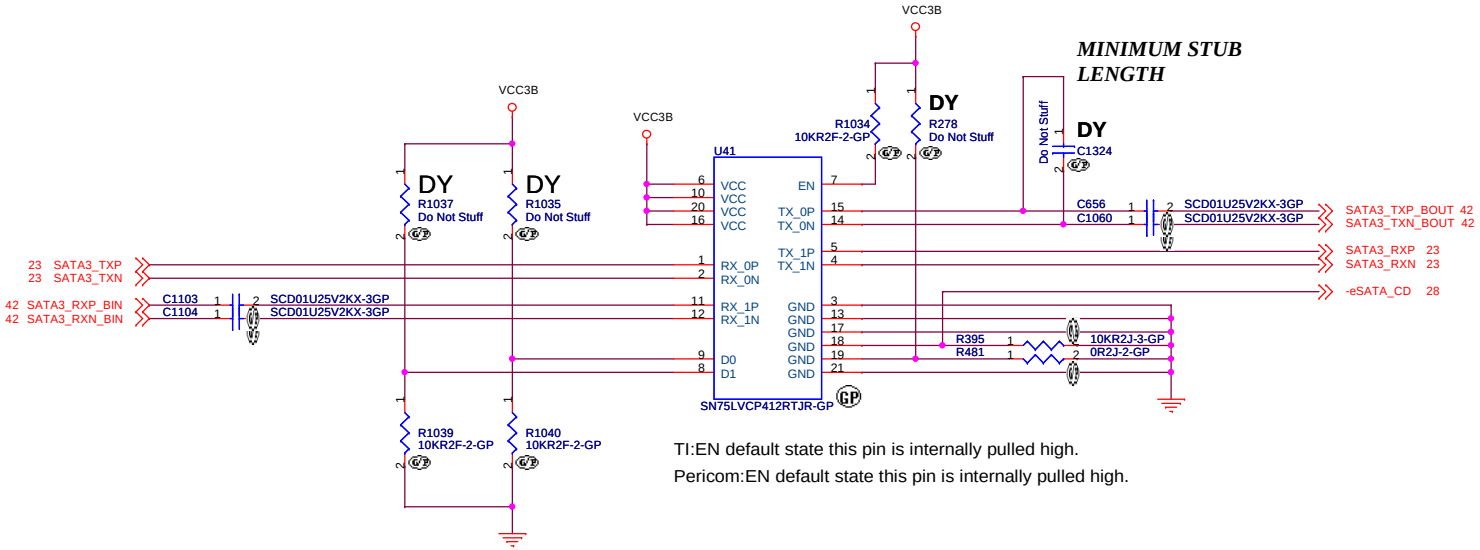
Title: ***SATA BAY I/F CONN***

Size	Document Number	Rev
A4	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 40 of 107







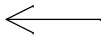
TI:EN default state this pin is internally pulled high.

Pericom:EN default state this pin is internally pulled high.

		U41	Part Number	R278	R395	R481
1	TI	SN75LVCP412ARTJR-GP	71.75412.A03	NO ASM	10K	0
2	Pericom	PI3EQX4951STZDEX-GT	71.34951.A03			
3	TI	SN75LVCP412CD	71.75412.B03	4.7K	NO ASM	
2	Pericom	PI3EQX6741STBZDE	71.36741.003			

TABLE

EN	D0	D1	CH - 0	CH - 1
0	X	X	STANDBY	STANDBY
1	0	0	STANDARD	STANDARD
1	1	0	BOOST	STANDARD
1	0	1	STANDARD	BOOST
1	1	1	BOOST	BOOST



LOGIC

BOM

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

Title: **ESATA CONNECTOR**

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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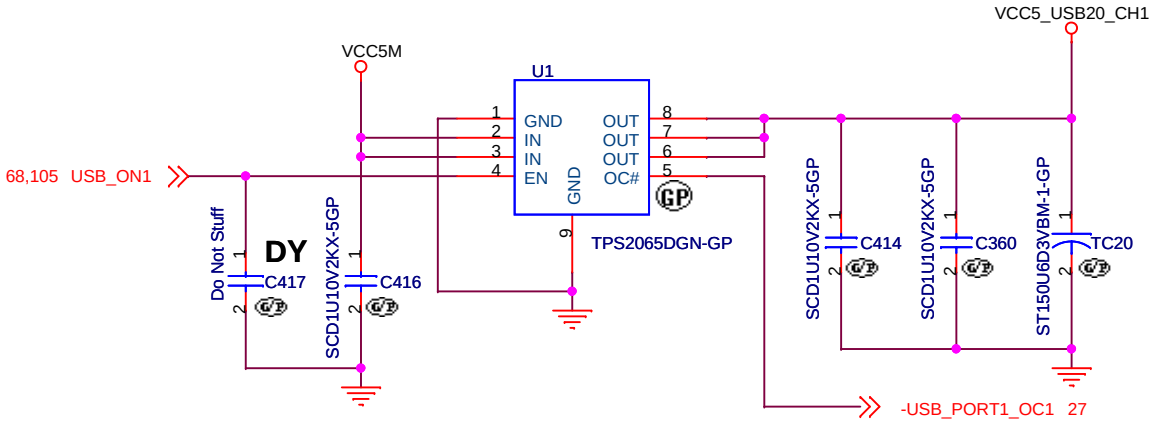
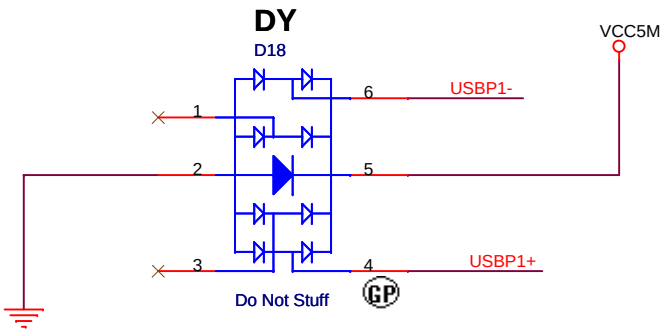
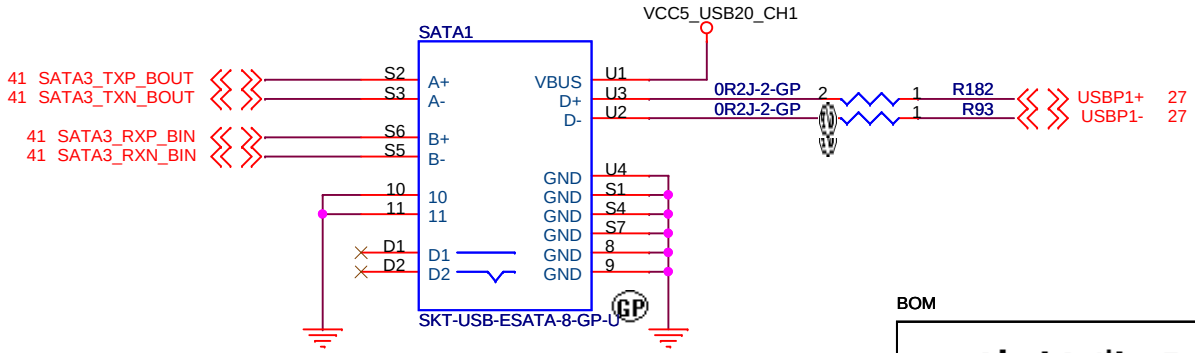


1CH USB Power Switch w/o Output Discharge Function

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

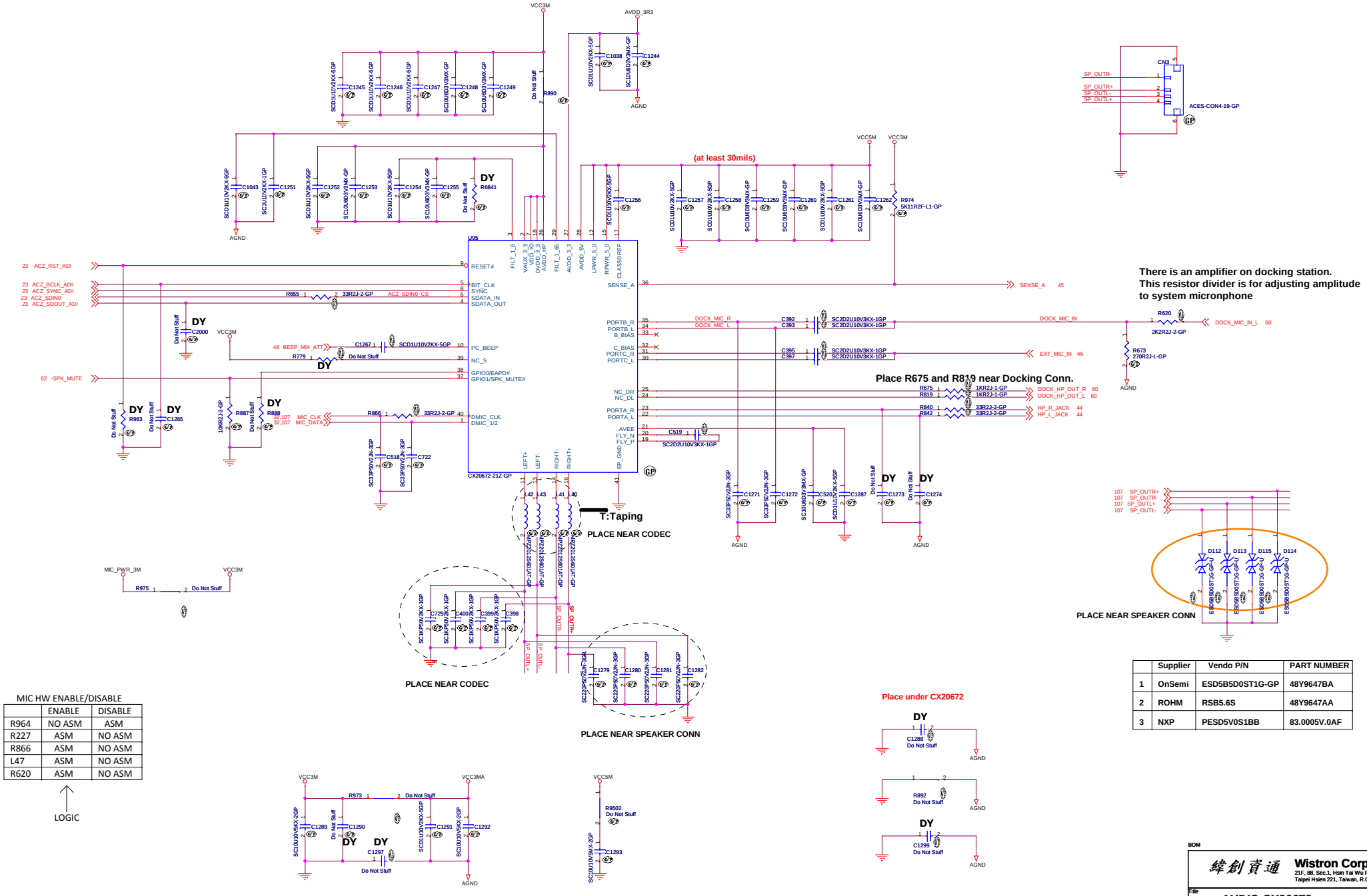




eSATA Combo

BOM

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: A4	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 42 of 107	



MIC HW ENABLE/DISABLE

	ENABLE	DISABLE
R964	NO ASM	ASM
R227	ASM	NO ASM
R866	ASM	NO ASM
L47	ASM	NO ASM
R620	ASM	NO ASM

LOGIC

	Supplier	Vendo P/N	PART NUMBER
1	OnSemi	ESD5B5D0ST1G-GP	48Y9647BA
2	ROHM	RSB5.6S	48Y9647AA
3	NXP	PESD5V0S1BB	83.0005V.0AF

BOM

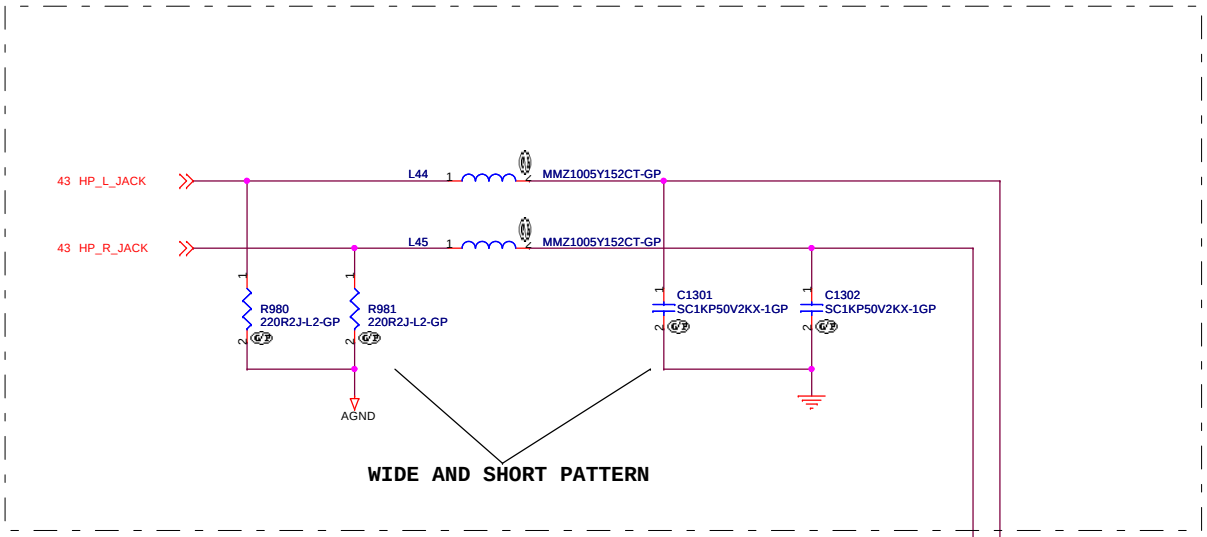
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **AUDIO CX20672**

Size: A2 | Document Number: **Kendo-3 WS** | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 43 of 107

NEAR HEADPHONE CONN



	Supplier	Vendo P/N	PART NUMBER
1	OnSemi	ESD5B5D0ST1G-GP	48Y9647BA
2	ROHM	RSB5.6S	48Y9647AA
3	NXP	PESD5V0S1BB	83.0005V.0AF

BOM

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	Document Number	Rev
A3	Kendo-3 WS	SA

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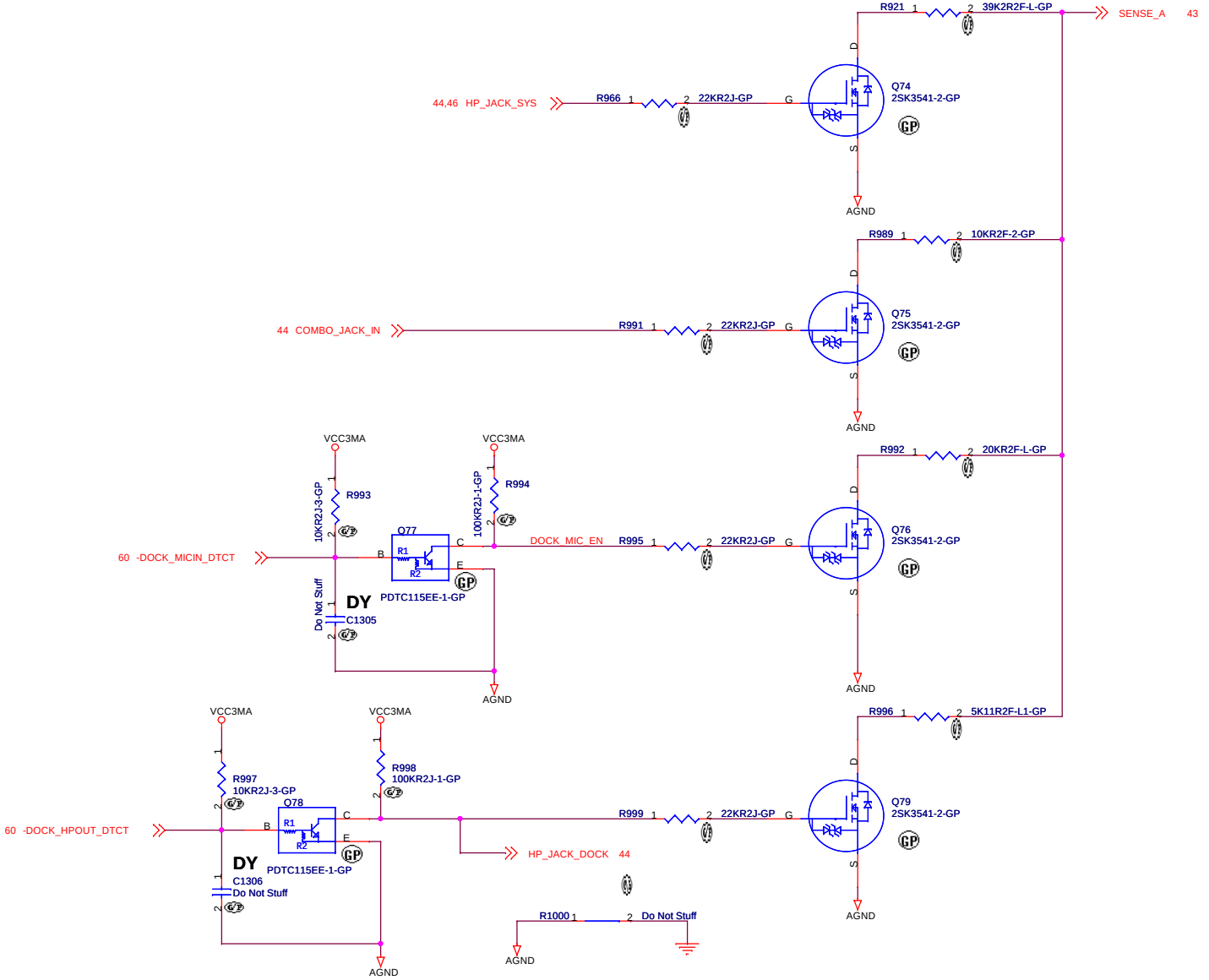


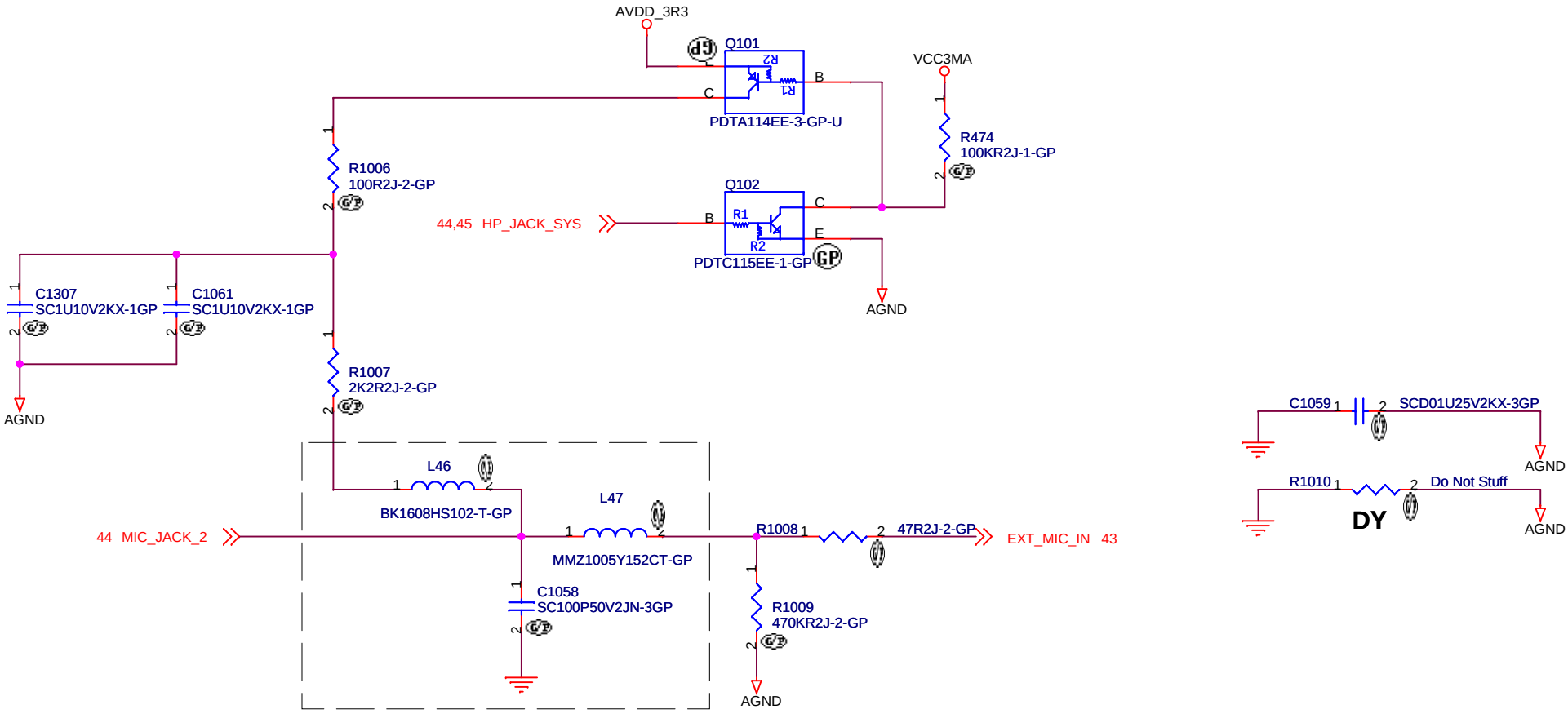
BOM

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	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 45 of 107



NEAR EXT MIC CONN

BOM

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: **Kendo-3 WS**	Rev: **SA**
Date: Tuesday, December 07, 2010	Sheet 46 of 107	

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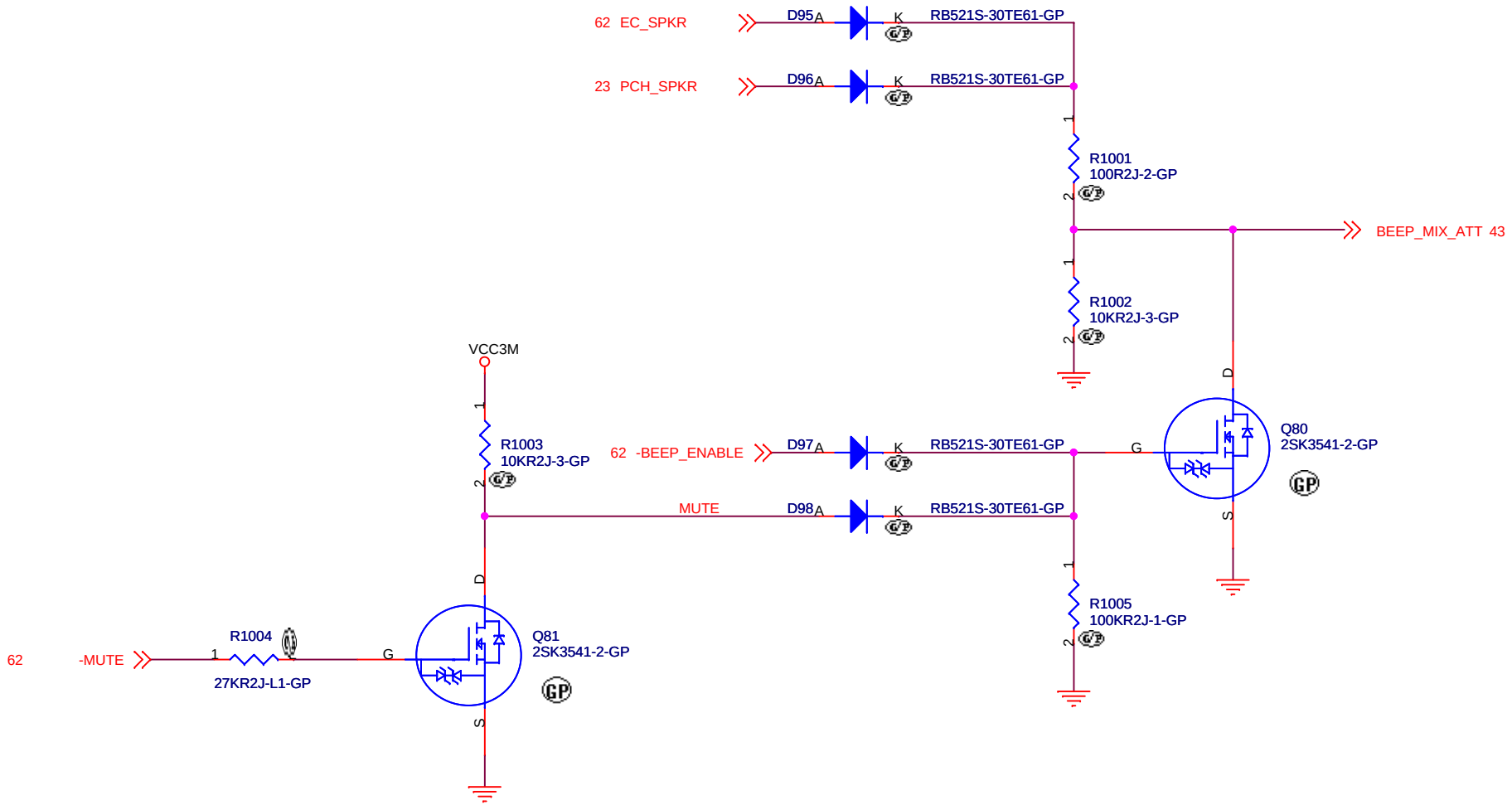
BOM

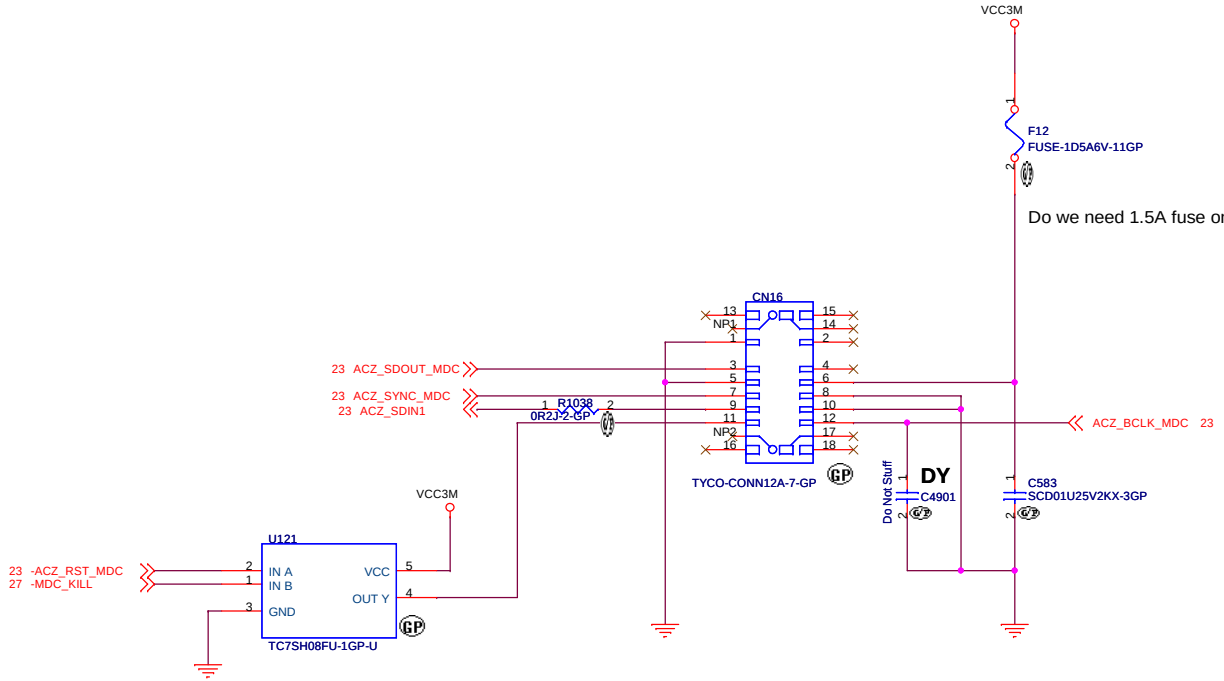
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***BLANK***		
Size: A3	Document Number: **Kendo-3 WS**	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 47 of 107	



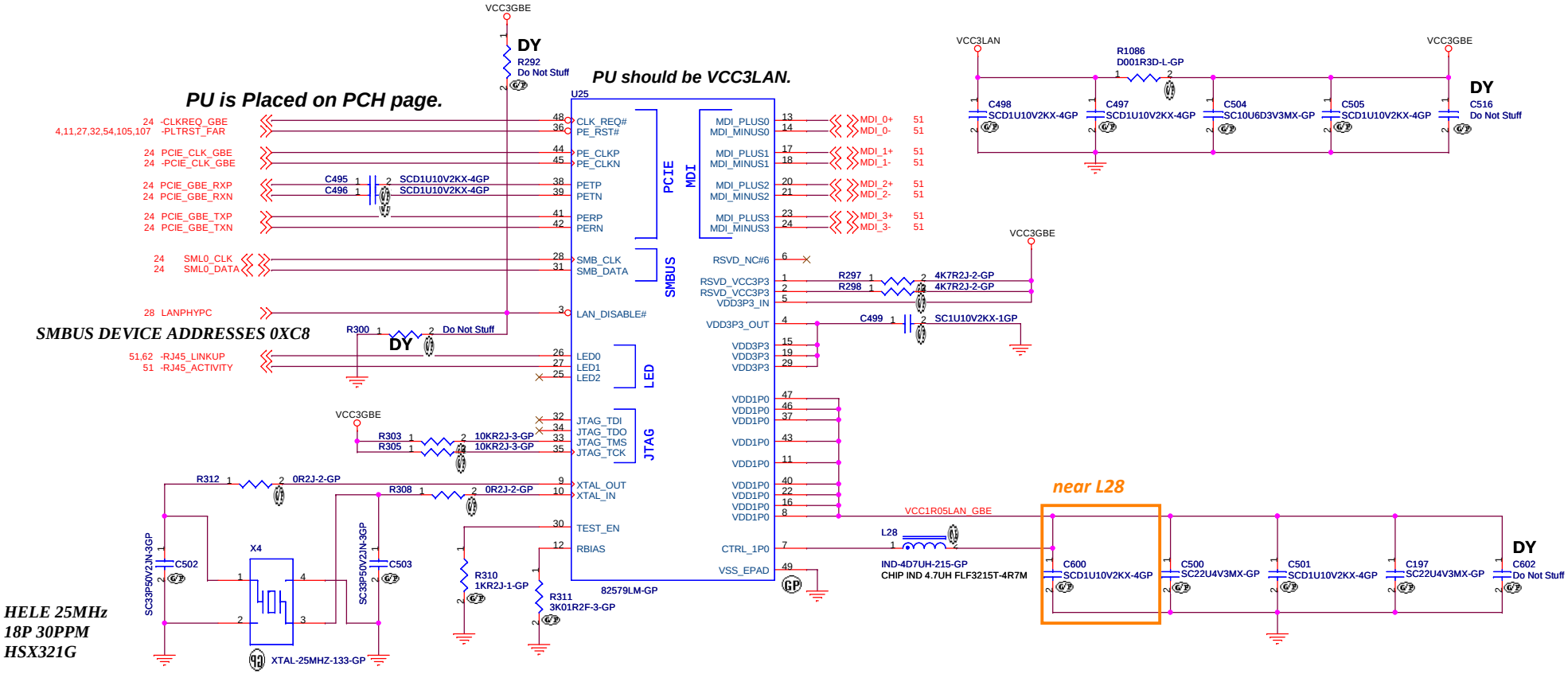
BOM

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-3 WS**	Rev: **SA**
Date: Tuesday, December 07, 2010	Sheet 48 of 107	



BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: MDC Interface		
Size: A3	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 49 of 107	



	Supplier	Vendo P/N	WISTRON P/N
1	HARMONY	XTAL 25M 18P30PPM HSX321G SMD	82.30020.B21
2	HOSONIC	XATL 25M 18P30PPM HCX-3SB SMD	82.30020.B41
3	TXC	XTAL 25M 18P30PPM 4P SMD	82.30020.D21

HARMONY, TXC : C502, C503=22pF

NOTE: VCC1R05LAN WILL WORK AT 0.95V TO 1.15V

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

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

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

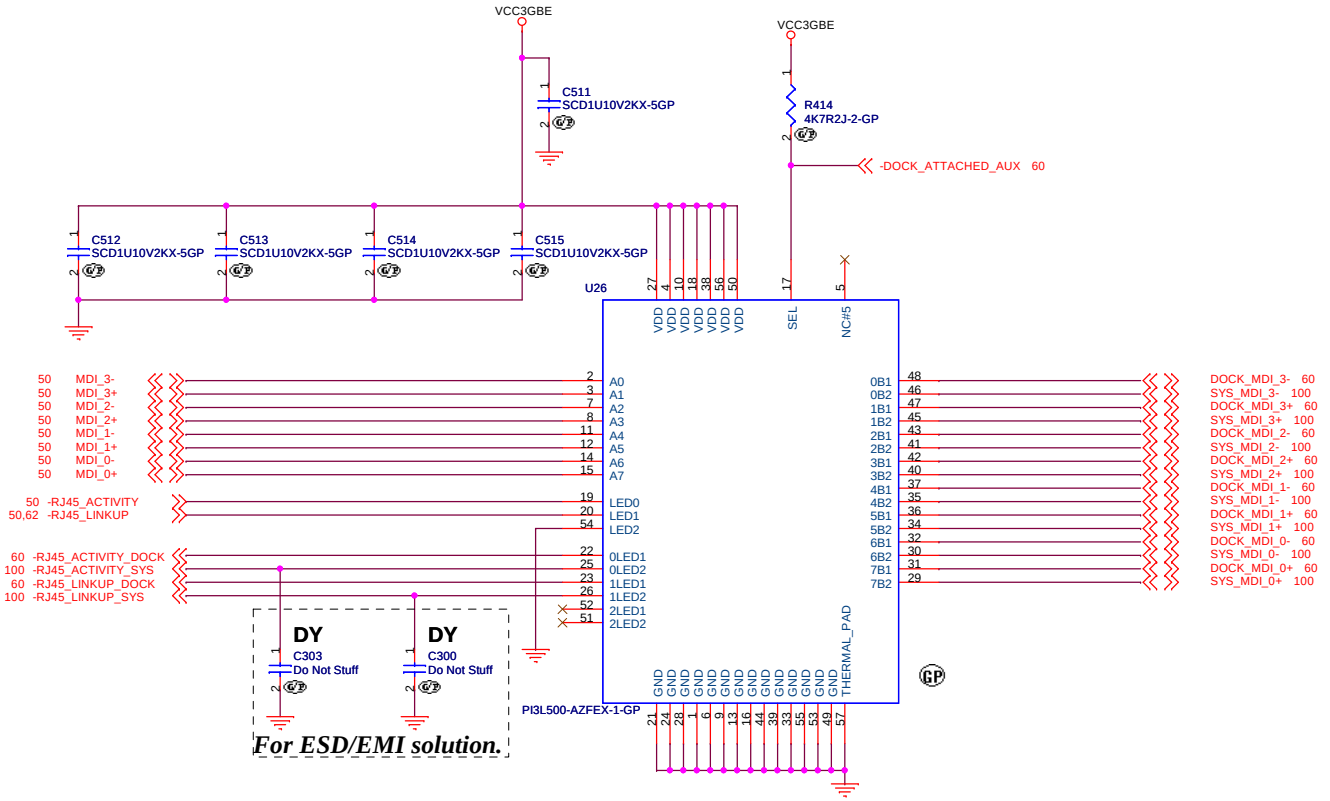
BOM

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

Title: **GBE HANKSVILLE**

Size: A3 | Document Number: **Kendo-3 WS** | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 50 of 107



[Source Cadidate]				
1st	Pericom	PI3L500AZFEX	73.3L500.003	41R0539AA
2nd	TI	TS3L500AERHUR	73.3L500.A0V	41R0539BA
3rd	ONSEMI	NS3L500MTTWG	73.03500.003	

BOM

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: **GBE LAN SW**

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A3	Kendo-3 WS	SA

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BOM

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

Title	***BLANK***	
Size A4	Document Number **Kendo-3 WS**	Rev **SA**
Date: Tuesday, December 07, 2010	Sheet 52 of 107	

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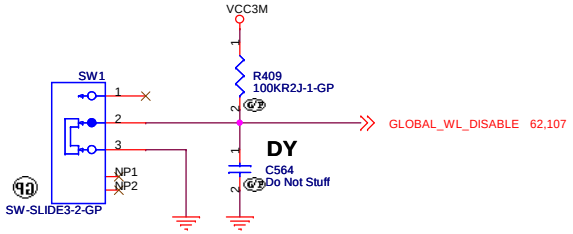
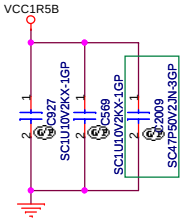
BOM

緯創資通 **Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: ***BLANK***		
Size: A4	Document Number: **Kendo-3 WS**	Rev: **SA**
Date: Tuesday, December 07, 2010	Sheet 53 of 107	

When PCIe IF device does not use, These signal will be removed.

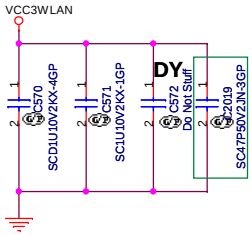
WIRELESS DISABLE SWITCH



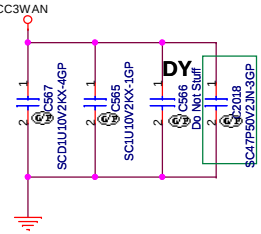


On WWAN Always on regular mode, This component have to be assembled, instead of above D+/D- jumper.

For RF



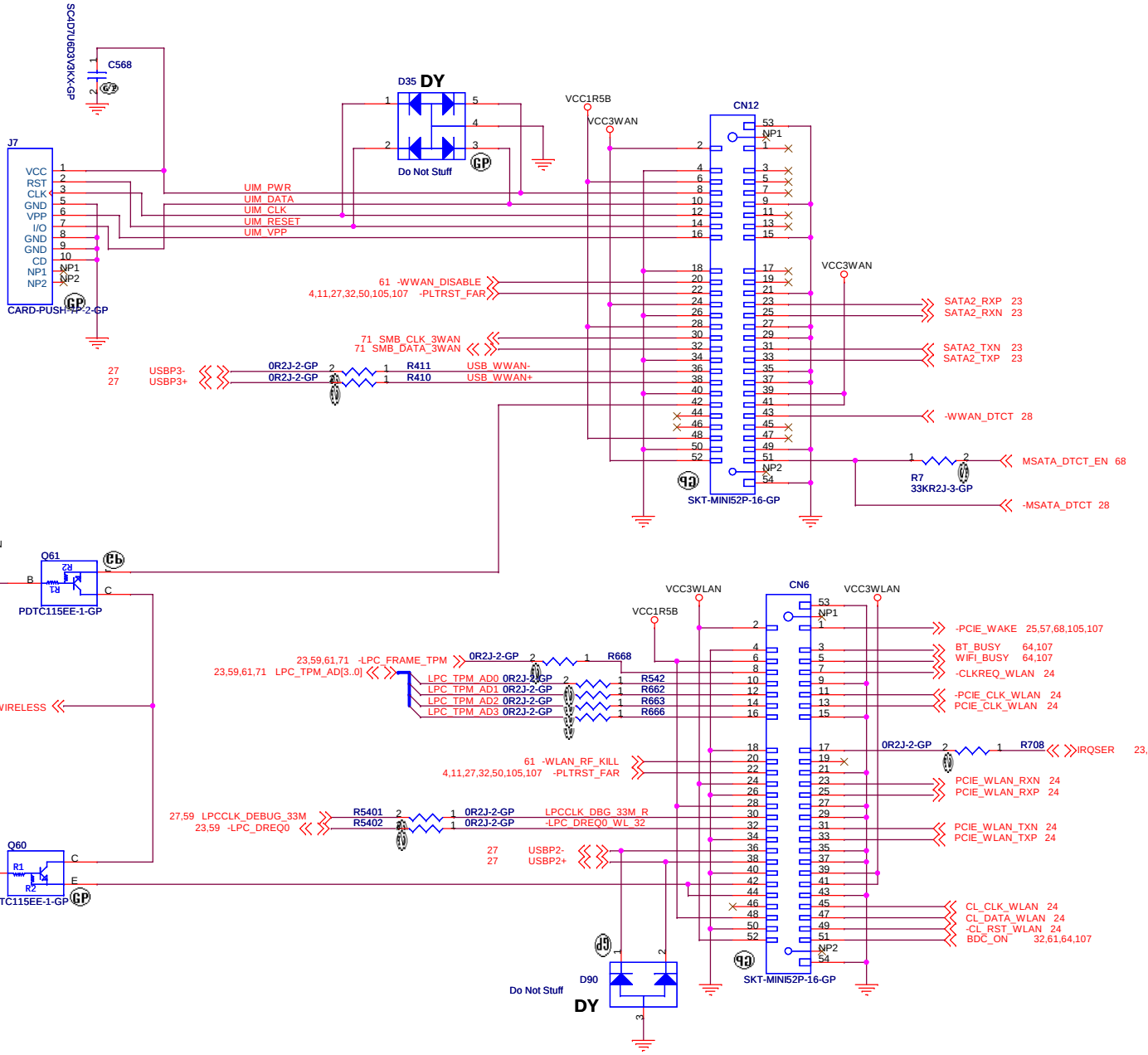
For RF, place near WLAN slot



For RF, place near WWAN slot

WWAN	YES	NO
CN12	ASM	No_ASM
J7	ASM	No_ASM
C567	ASM	No_ASM
C565	ASM	No_ASM
C568	ASM	No_ASM
C2018	ASM	No_ASM

Logic



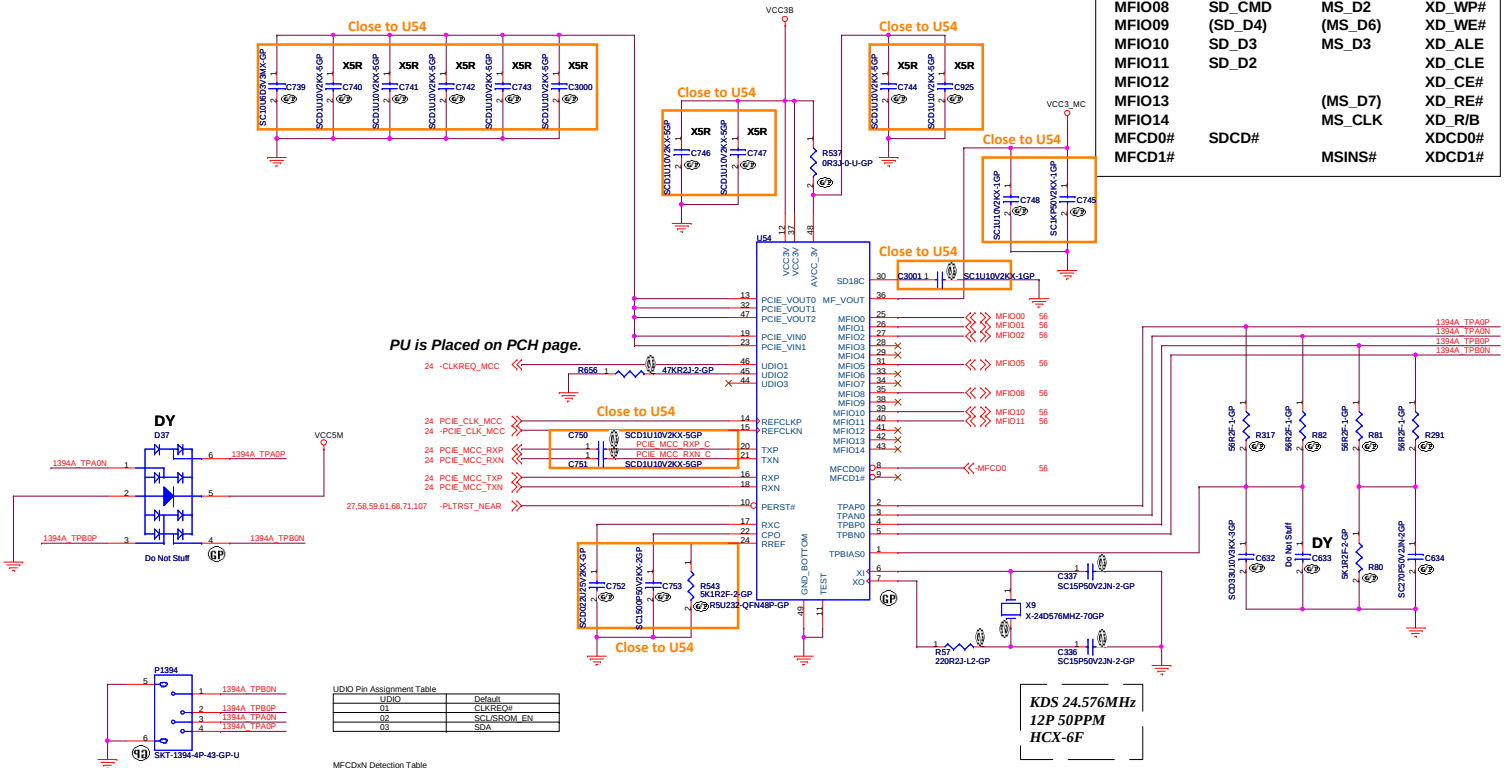
BOM

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-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 54 of 107



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			XD_CE#
MFIO13		(MS_D7)	XD_RE#
MFIO14		MS_CLK	XD_R/B
MFCD0#	SDCD#		XDCD0#
MFCD1#		MSINS#	XDCD1#

UDIO Pin Assignment Table

UDIO	Default
01	CLKREQ#
02	SCL/SROM_EN
03	SDA

MFCDxN Detection Table

MFCDxN		Card Type
1	0	
H	H	(No Card)
H	L	SD Card/MMC
L	H	MemoryStick
L	L	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 Capactiance: 7pF.

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

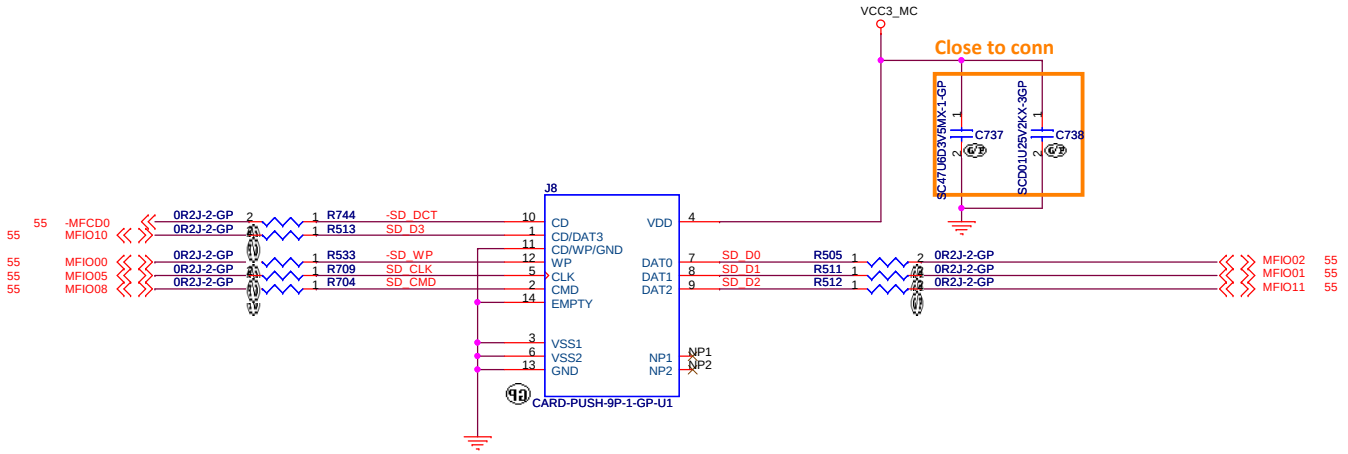
BOM

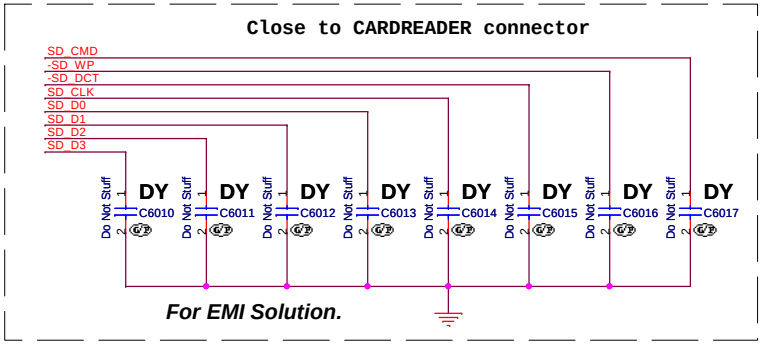
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: 1394/MEDIA CARD CONTROLLER

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 55 of 107





		U50, U51, U52, U53	Wistron part number
1	TOSHIBA	TC7SBL384AFU-GP	73.7S384.007
2	NXP	74LVC1G384GW	73.1G384.AHH
3	TI	TS5A3167DCKR	74.53167.A9F

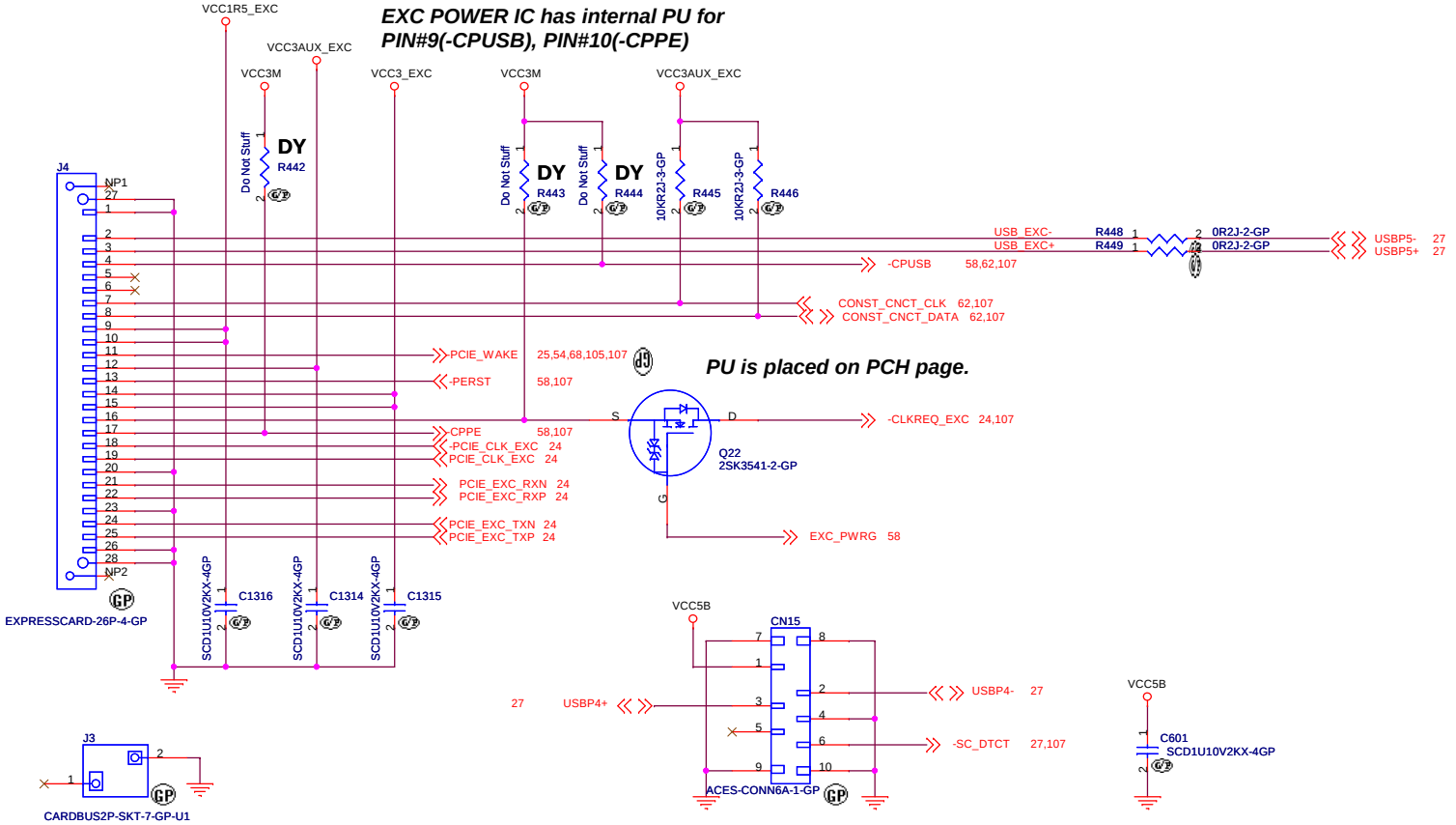
BOM

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

Title: ***MEDIA CARD INTERFACE***

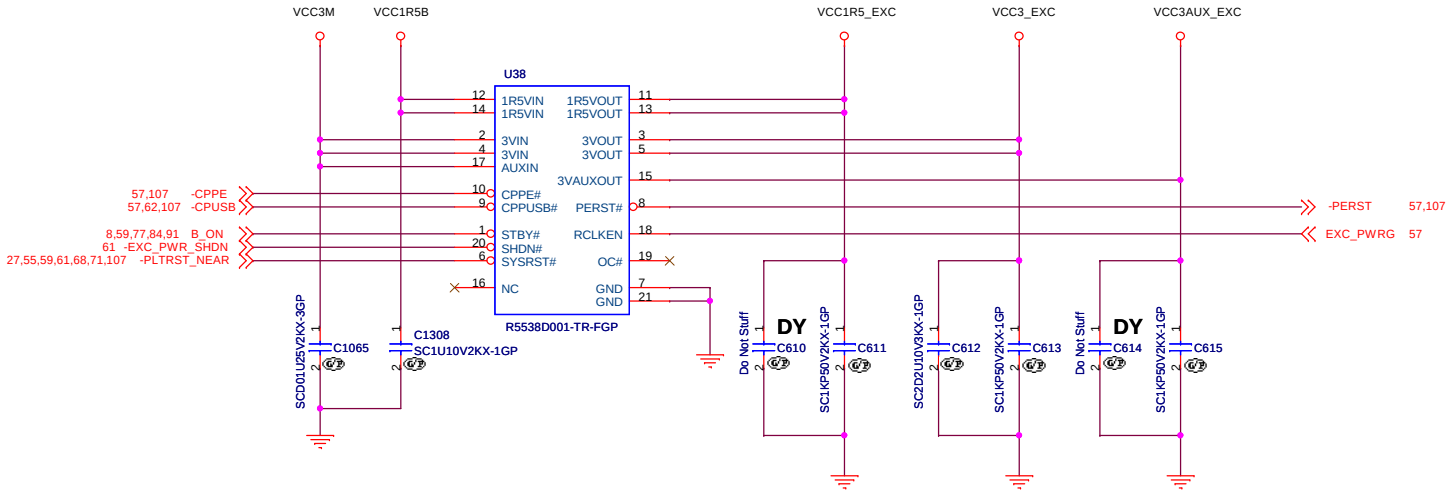
Size	Document Number	Rev
A3	**Kendo-3 WS**	**SA**

Date: Tuesday, December 07, 2010 Sheet 56 of 107



BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: Express Card/SMART CARD IF		
Size: A3	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 57 of 107	



EXPRESS POWER SW table

		U38	Wistron part number
1	ROHM	BD4157MUV	74.04157.073
2	TI	TPS2231MRGPR	45K0234BA
3	NUVOTON	W83L351YG	74.83351.A73

BOM

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

Title: ***SLOT POWER CONTROL***

Size	Document Number	Rev
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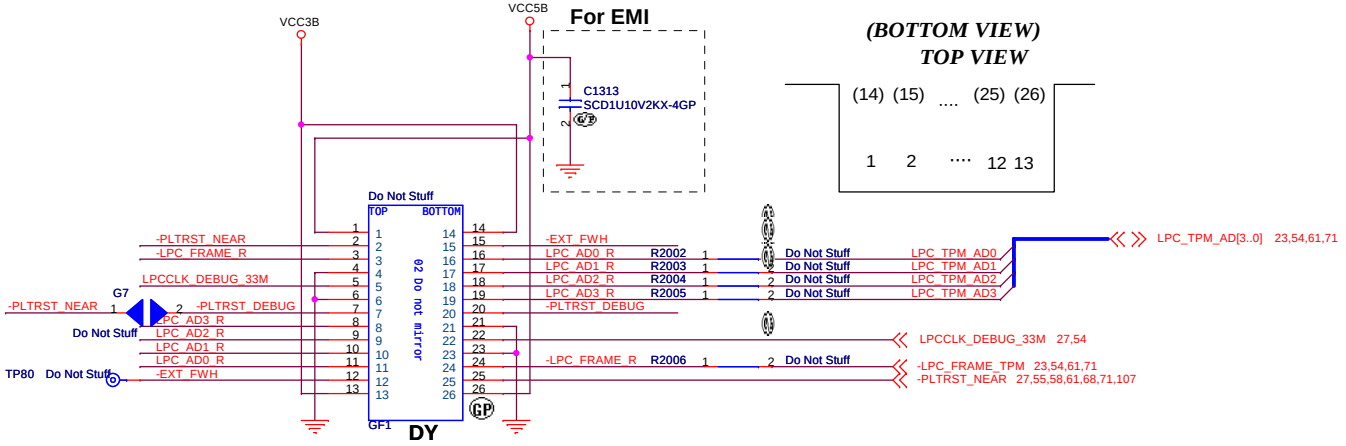
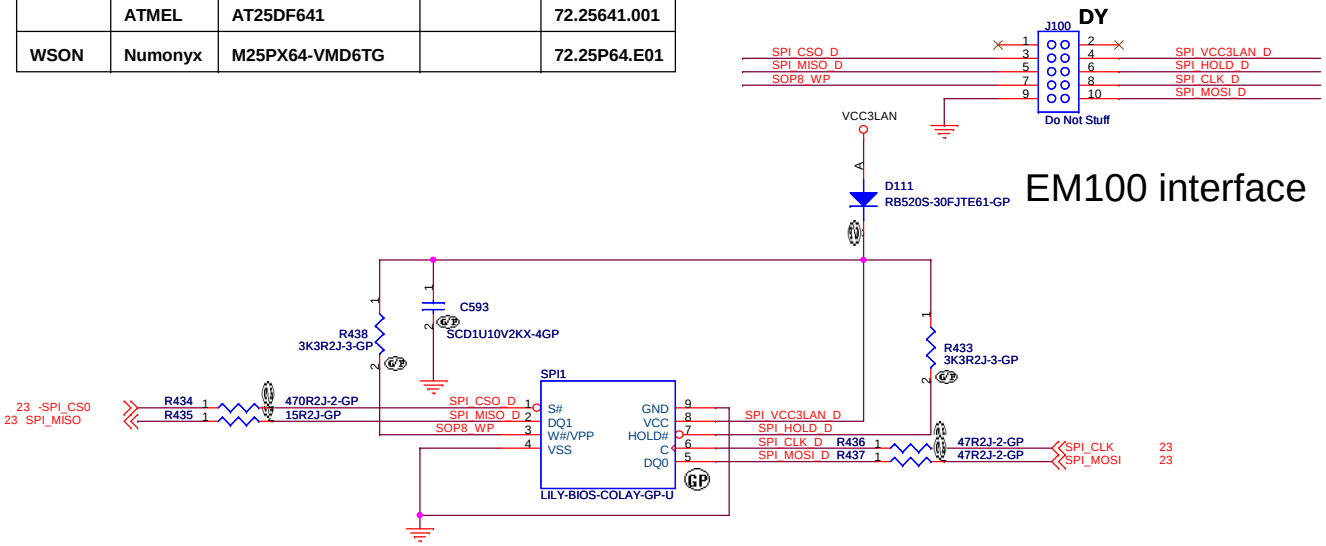
Golden Finger for Debug Board



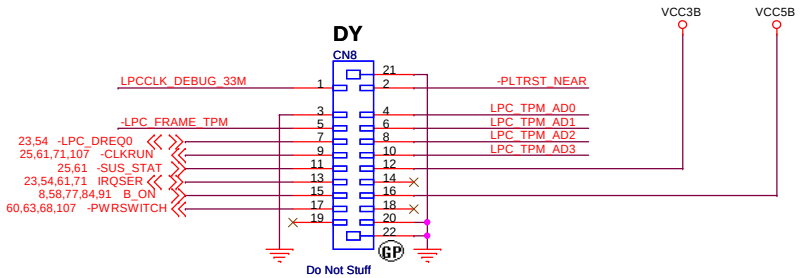
64Mbit SPI FLASH :

Package	Supplier	Vendor P/N	Lenovo P/N	Wistron P/N
SO8	Macronix	MX25L6436EM2I-10G		72.25643.001
	Winbond	W25Q64CVSSIG		72.25Q64.B01
	ATMEL	AT25DF641		72.25641.001
WSON	Numonyx	M25PX64-VMD6TG		72.25P64.E01



Dual foot print for WSON and SO8.

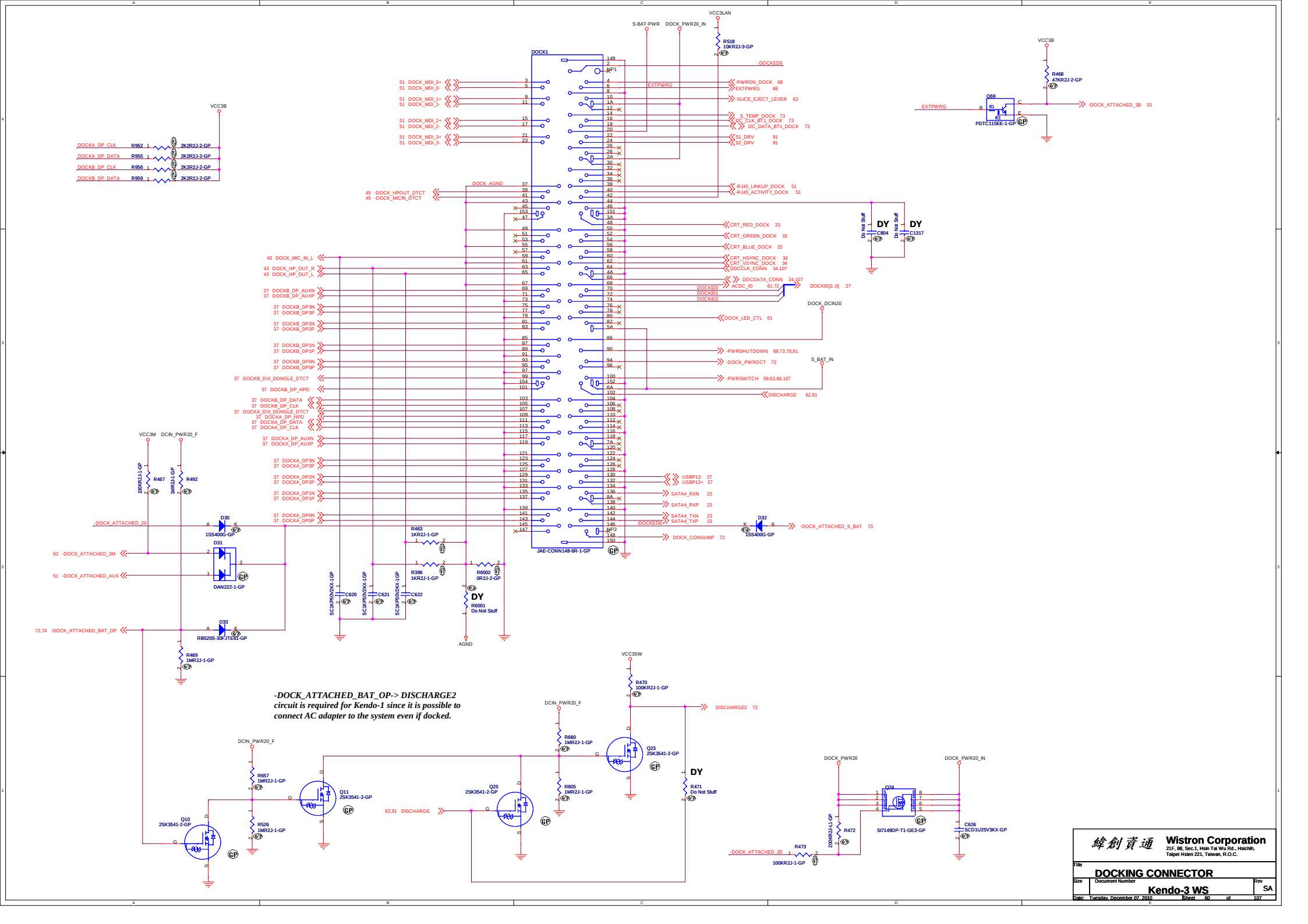
Lenovo Debug Tool IF.

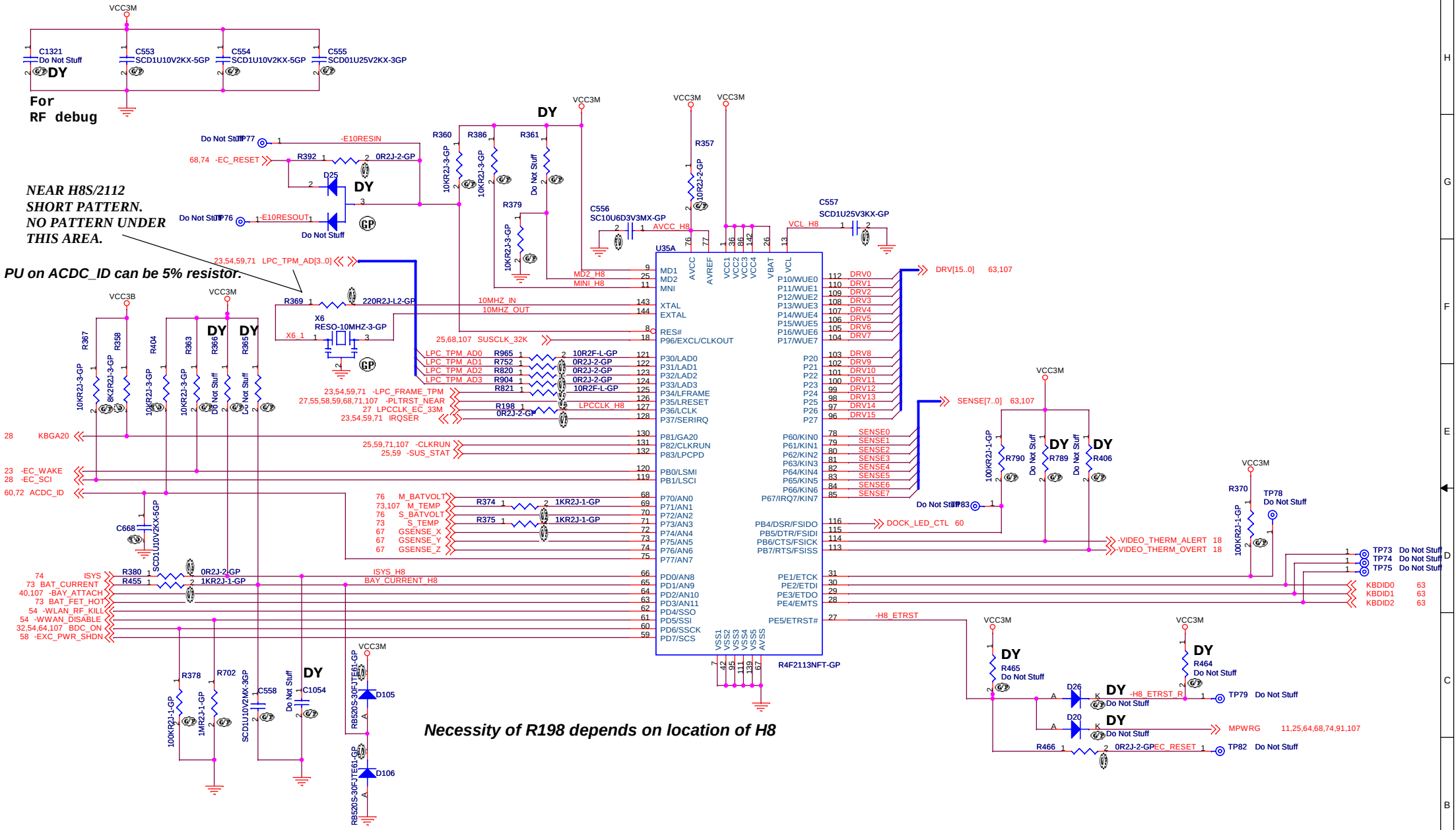


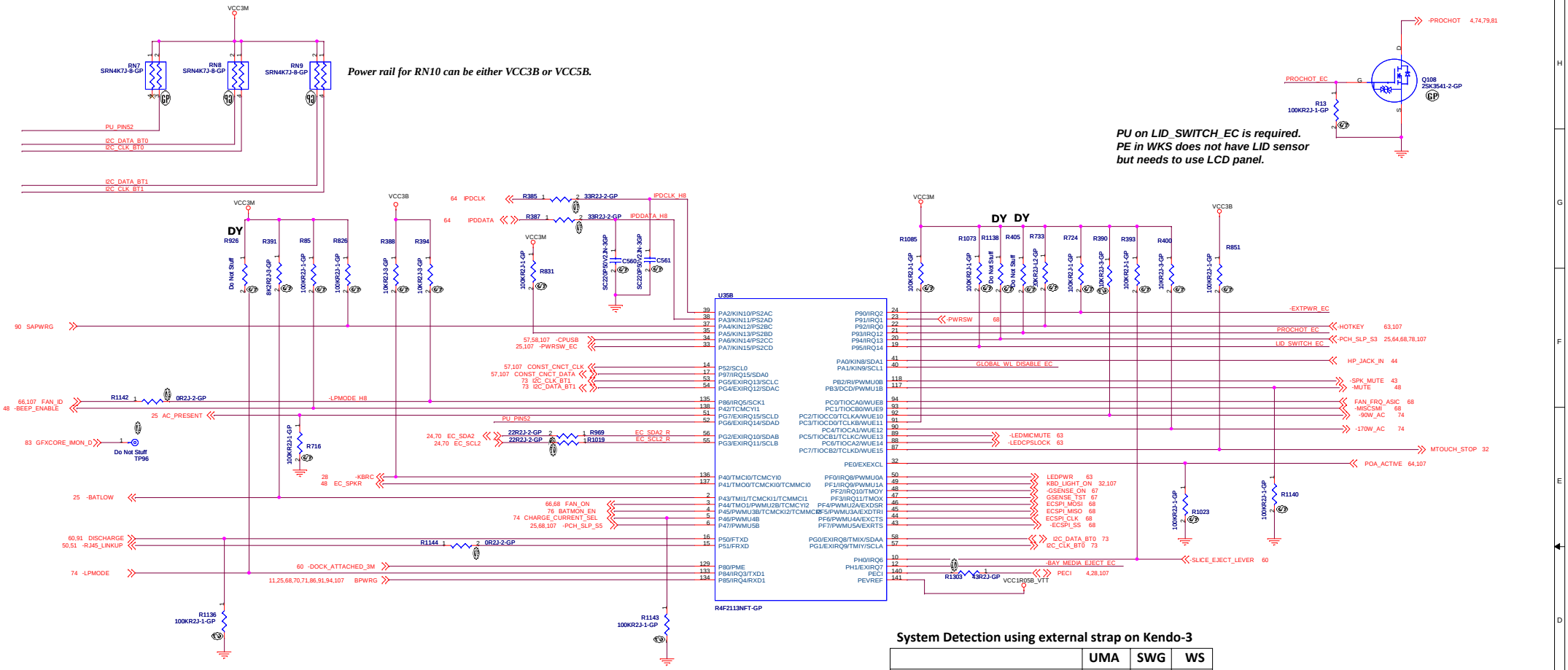
BOM

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 A3	Document Number **Kendo-3 WS**		Rev SA
Date: Tuesday, December 07, 2010	Sheet 59 of 107		


DOCK1
JAE-CONN148-6R-1-GP
VCC3LAN
S-BAT-PWR
DOCK_PWR20_IN
VCC3B
DOCKA_DP_CLK
DOCKA_DP_DATA
DOCKB_DP_CLK
DOCKB_DP_DATA
2K2R2J-2-GP
DOCK_AGND
-DOCKED0
EXTPWRG
-PWRON_DOCK
-SLICE_EJECT_LEVER
S_TEMP_DOCK
I2C_DATA_BT1_DOCK
S1_DRV
S2_DRV
-RJ45_LINKUP_DOCK
-RJ45_ACTIVITY_DOCK
CRT_RED_DOCK
CRT_GREEN_DOCK
CRT_BLUE_DOCK
CRT_HSYNC_DOCK
CRT_VSYNC_DOCK
DDCCLK_CONN
DDCDATA_CONN
DOCKID0
DOCKID1
DOCKID2
DOCK_LED_CTL
DOCK_DCIN20
-PWRSHUTDOWN
-DOCK_PWRDCT
-PWRSWITCH
S_BAT_IN
DISCHARGE
USBP12-
USBP12+
SATA4_RXN
SATA4_RXP
SATA4_TXN
SATA4_TXP
DOCK_CONSUMP
-DOCK_ATTACHED_S_BAT
-DOCK_ATTACHED_3B
Q69
PDTC115EE-1-GP
DY
Do Not Stuff
C804
C1317
VCC3M
DCIN_PWR20_F
R467
R492
D30
1SS400G-GP
D31
DAN222-1-GP
D33
RB520S-30F-JTE-61-GP
-DOCK_ATTACHED_20
-DOCK_ATTACHED_3M
-DOCK_ATTACHED_AUX
-DOCK_ATTACHED_BAT_OP
R463
R396
R6002
R6001
SC1KP50V2KX-1GP
C620
C621
C622
AGND
VCC3SW
R470
100KR2J-1-GP
R660
R805
Q23
2SK3541-2-GP
Q25
R471
Do Not Stuff
R657
R526
Q11
Q10
DISCHARGE2
62,91 DISCHARGE
DOCK_PWR20
R472
R473
Q24
SI7149DP-T1-GE3-GP
C626
SCD1U25V3KX-GP
-DOCK_ATTACHED_20
100KR2J-1-GP
R468
47KR2J-2-GP
-DOCK_ATTACHED_3B
-DOCKED0
-DOCK_HPOUT_DTCT
-DOCK_MICIN_DTCT
DOCK_MIC_IN_L
DOCK_HP_OUT_R
DOCK_HP_OUT_L
DOCKB_DP_AUXN
DOCKB_DP_AUXP
DOCKB_DP3N
DOCKB_DP3P
DOCKB_DP2N
DOCKB_DP2P
DOCKB_DP1N
DOCKB_DP1P
DOCKB_DP0N
DOCKB_DP0P
DOCKB_DVI_DONGLE_DTCT
DOCKB_DP_HPD
DOCKB_DP_DATA
DOCKB_DP_CLK
DOCKA_DVI_DONGLE_DTCT
DOCKA_DP_HPD
DOCKA_DP_DATA
DOCKA_DP_CLK
DOCKA_DP_AUXN
DOCKA_DP_AUXP
DOCKA_DP3N
DOCKA_DP3P
DOCKA_DP2N
DOCKA_DP2P
DOCKA_DP1N
DOCKA_DP1P
DOCKA_DP0N
DOCKA_DP0P
-DOCK_ATTACHED_BAT_OP-> DISCHARGE2 circuit is required for Kendo-1 since it is possible to connect AC adapter to the system even if docked.
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
DOCKING CONNECTOR
Size
Document Number
Kendo-3 WS
Rev
SA
Date: Tuesday, December 07, 2010
Sheet 60 of 107


For
RF debug
NEAR H8S/2112
SHORT PATTERN.
NO PATTERN UNDER
THIS AREA.
PU on ACDC_ID can be 5% resistor.
Necessity of R198 depends on location of H8
U35A
R4F2113NFT-GP
X6
RESO-10MHZ-3-GP
C556
SC10U6D3V3MX-GP
C557
SCD1U25V3KX-GP
C668
SCD1U10V2KX-5GP
C558
SCD1U10V2MX-3GP
C1054
D105
D106
RB520S-30FJTE61-GP
D25
D26
D20
TP77
TP76
TP83
TP78
TP73
TP74
TP75
TP79
TP82
R360
R386
R361
R357
R379
R392
R369
R965
R752
R820
R904
R821
R198
R374
R375
R380
R455
R378
R702
R367
R358
R404
R363
R366
R365
R790
R789
R406
R370
R465
R464
R466
C1321
C553
C554
C555
VCC3M
VCC3B
DY
Do Not Stuff
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
H8S/2112 (1/2)
Kendo-3 WS
Date: Tuesday, December 07, 2010
Sheet 61 of 107
Check H8 source to perform maxpower management



System Detection using external strap on Kendo-3

	UMA	SWG	WS
#13 PGPIO3 of Thinker-1(U59)	L	L	H
#35 VIDEO_ID of H8(U35B)	L	H	H

Table

GFX	EXT.	INT.
R831	ASM	NO_ASM
R674	NO_ASM	ASM

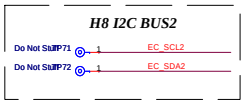
LOGIC

pls. modify this logic table

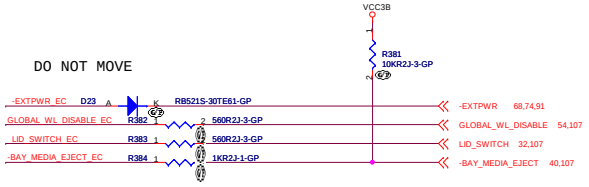
E10A Debug I/F	Enable	Disable
R392	NO ASM	ASM
R466	NO ASM	ASM
D25	ASM	NO ASM
D26	ASM	NO ASM
D20	ASM	NO ASM
R360	ASM	ASM
R361	ASM	NO ASM
R464	ASM	NO ASM
R465	ASM	NO ASM
R379	NO ASM	ASM

LOGIC

TEST PAD X2
BOTTOM SIDE
DO NOT MOVE AFTER FIX



DO NOT MOVE



BOM

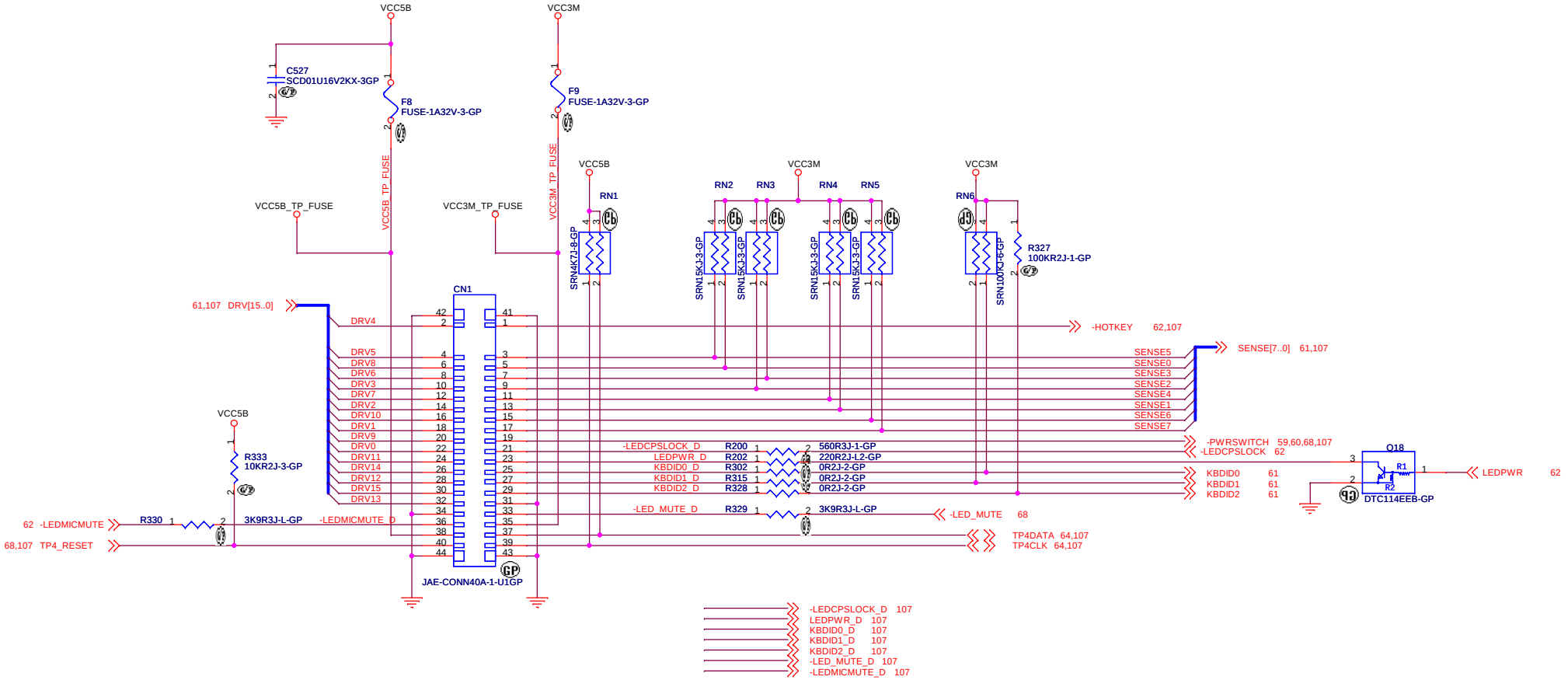
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **H8S/2112(2/2)**

Size: A2 | Document Number: **Kendo-3 WS** | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 62 of 107

Keyboard Connector



HOTKEY#	TP4CLK
DRV4	TP4RESET

Keyboard Connector Top View

Near CN1

-PWRSWITCH — TP81 Do Not Stuff

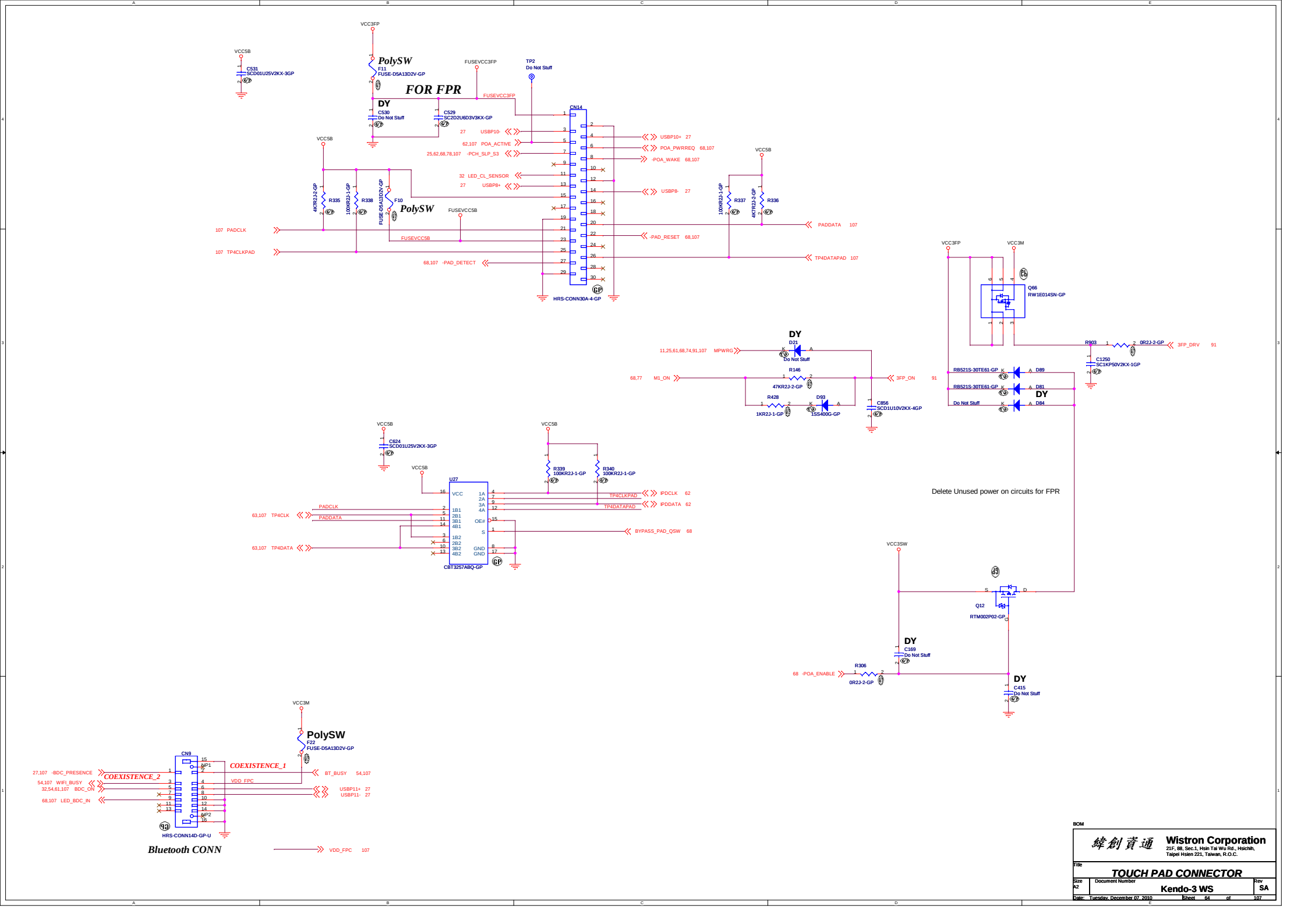
BOM

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

Title: ***KEYBOARD CONN***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 63 of 107



BOM

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

Title: **TOUCH PAD CONNECTOR**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

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BOM

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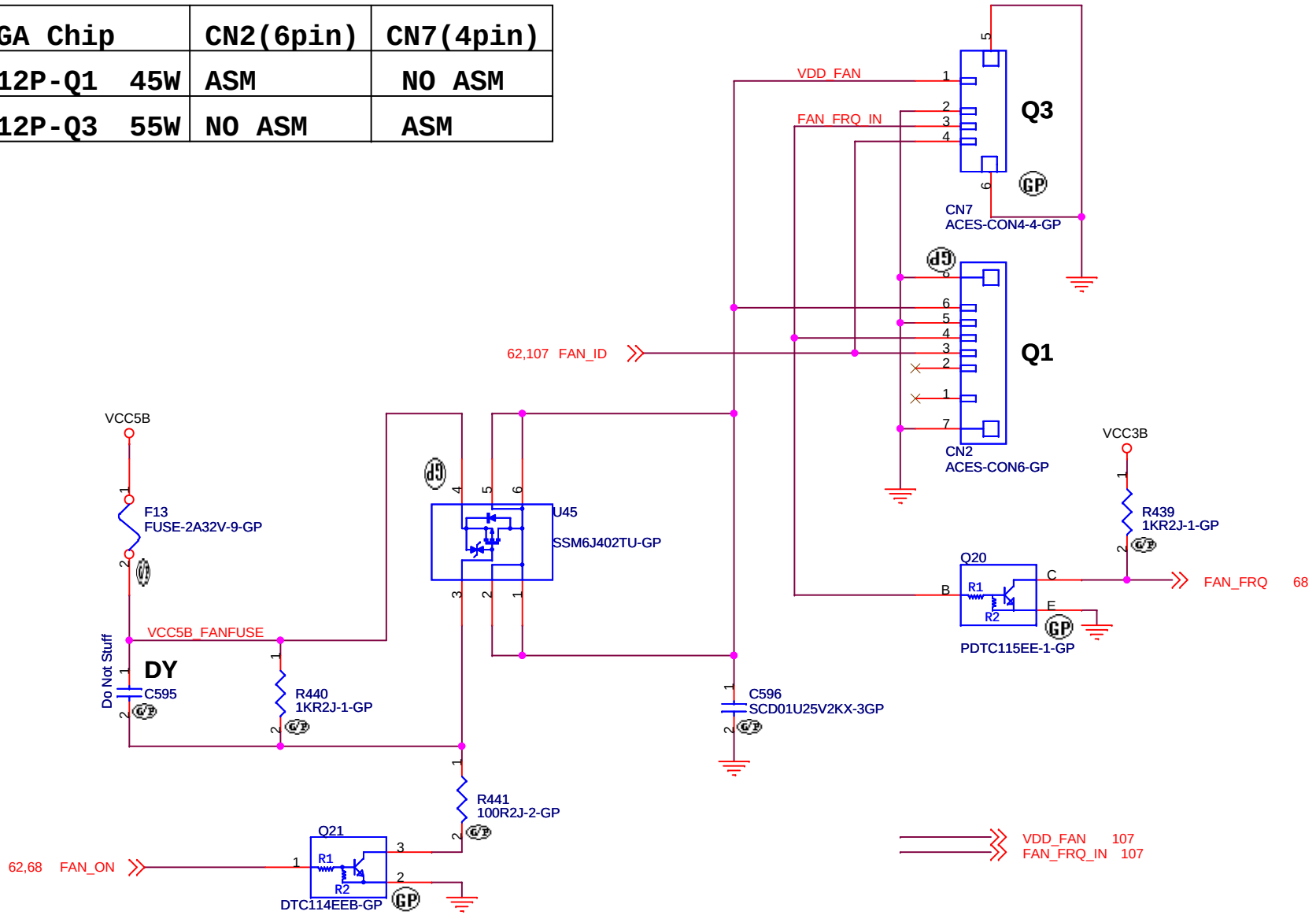
Title	***BLANK***	
Size A4	Document Number **Kendo-3 WS**	Rev **SA**
Date: Tuesday, December 07, 2010	Sheet 65 of 107	

VGA Chip	CN2(6pin)	CN7(4pin)
N12P-Q1 45W	ASM	NO ASM
N12P-Q3 55W	NO ASM	ASM



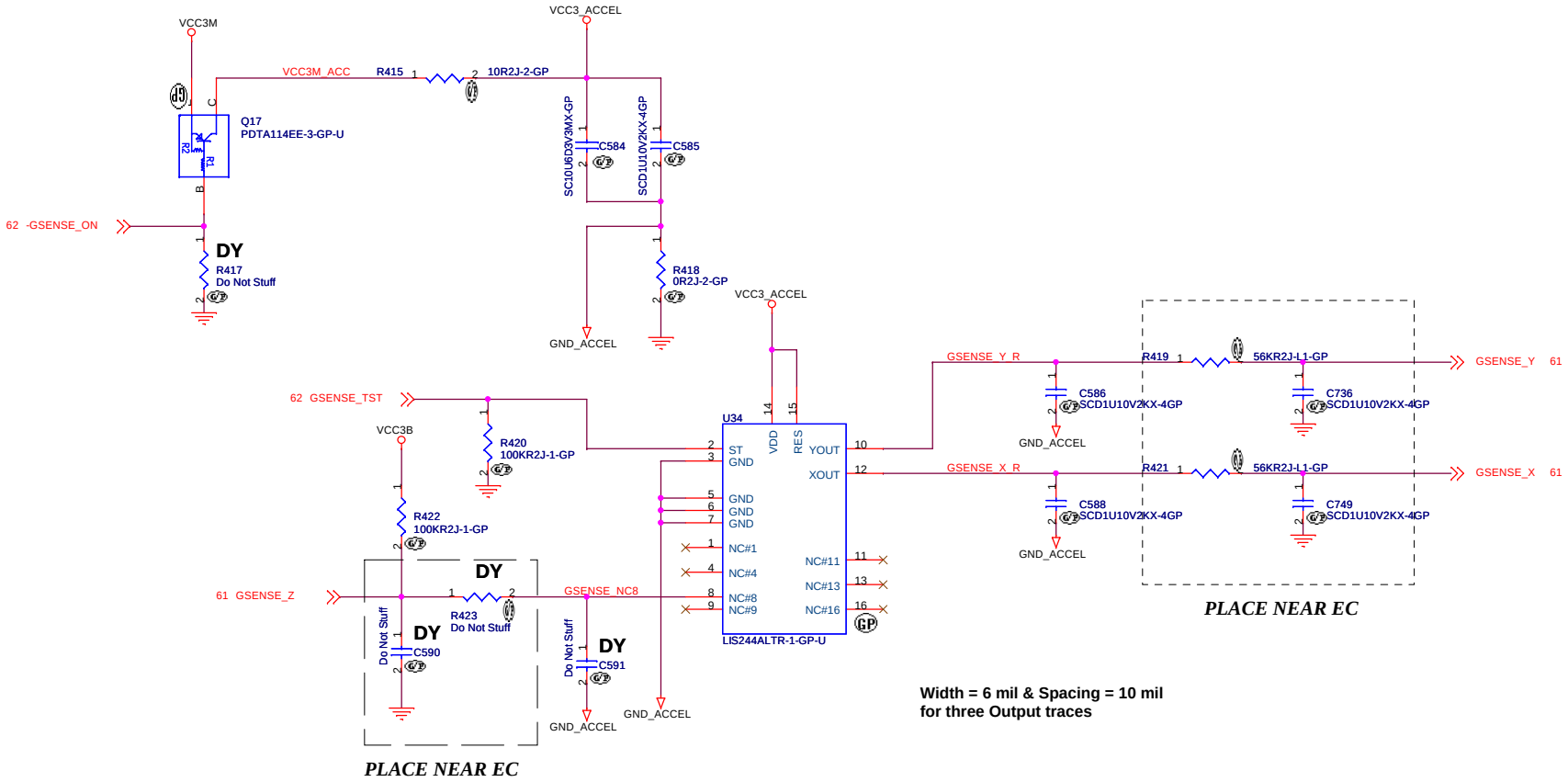
BOM

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

Title: ***FAN CONTROL***

Size	Document Number	Rev
A4	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 66 of 107



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

	LIS244AL LIS34AL	NO ACC.
R417	NO-ASM	ASM
R420	ASM	ASM
U34	ASM	NO-ASM
Q17	ASM	NO-ASM
R415	10-OHM	NO-ASM
C585	ASM	NO-ASM
C584	ASM	NO-ASM
C586	ASM	NO-ASM
C588	ASM	NO-ASM
R419	56K	NO-ASM
C736	ASM	NO-ASM
R421	56K	NO-ASM
C749	ASM	NO-ASM
C591	NO-ASM	NO-ASM
R423	NO-ASM	NO-ASM
C590	NO-ASM	NO-ASM
R422	ASM	ASM

Layout Comment :

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

(2) Avoid routing under DCDC switching area.

BOM

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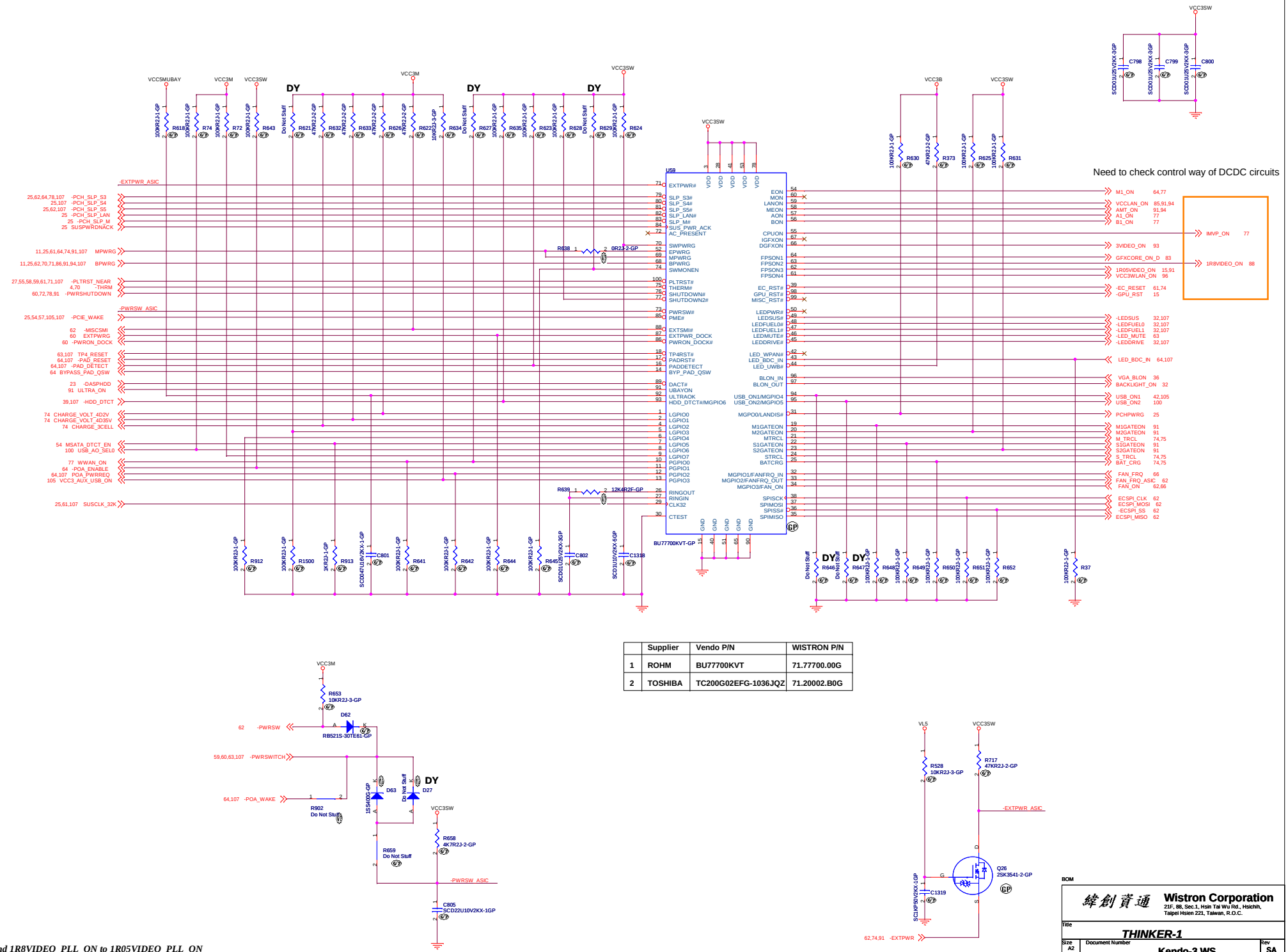
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **G-SENSOR**

Size	Document Number	Rev
A3	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 67 of 107



	Supplier	Vendo P/N	WISTRON P/N
1	ROHM	BU77700KVT	71.77700.00G
2	TOSHIBA	TC200G02EFG-1036JQZ	71.20002.B0G

1023 update -> chand 1R8VIDEO_PLL_ON to 1R05VIDEO_PLL_ON

BOM

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

Title: THINKER-1

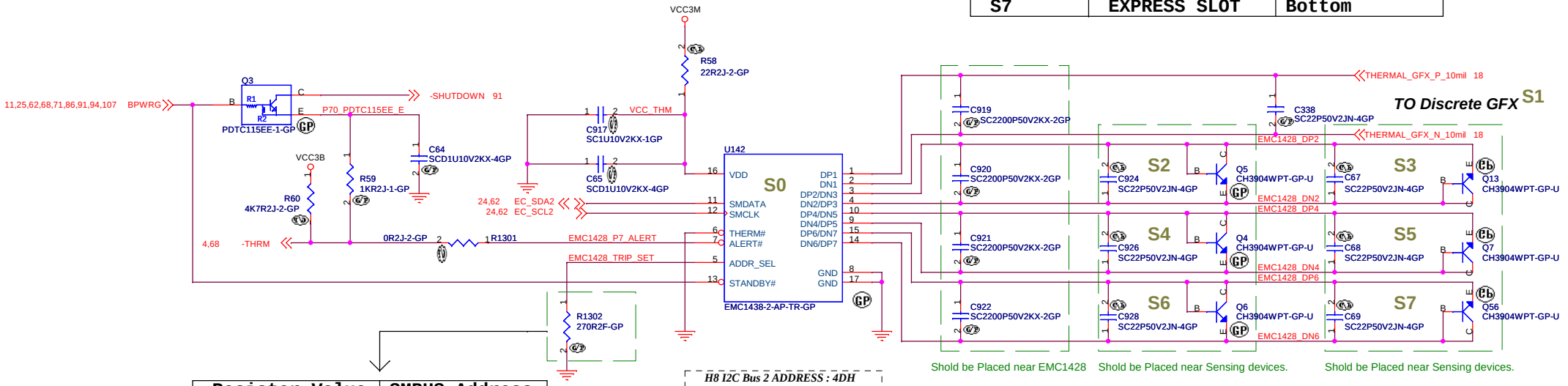
Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 68 of 107

BOM

Title	<Title>	
Size C	Document Number <Doc>	Rev <RevCode>
Date: Tuesday, December 07, 2010	Sheet 69 of 107	

Sensor	Device	Placed on
S0(Body)	PCH/BASE COVER	Bottom
S1	GFX_D	Top
S2	GBE	Bottom
S3	WWAN	Top
S4	DIMM(TOP)	Top
S5	DIMM(BOT)	Bottom
S6	WLAN	Top
S7	EXPRESS SLOT	Bottom



Logic →

Resister Value	SMBUS Address
GND	1001 100, 4Ch
270	1001 101, 4Dh
560	1001 110, 4Eh
1K	1001 111, 4Fh
1.5K	1001 001, 49h
2.7K	1001 010, 4Ah
5.6K	1001 011, 4Bh
>=18K	0011 000, 18h

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.

BOM

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

Title: ***THERMAL SENSOR***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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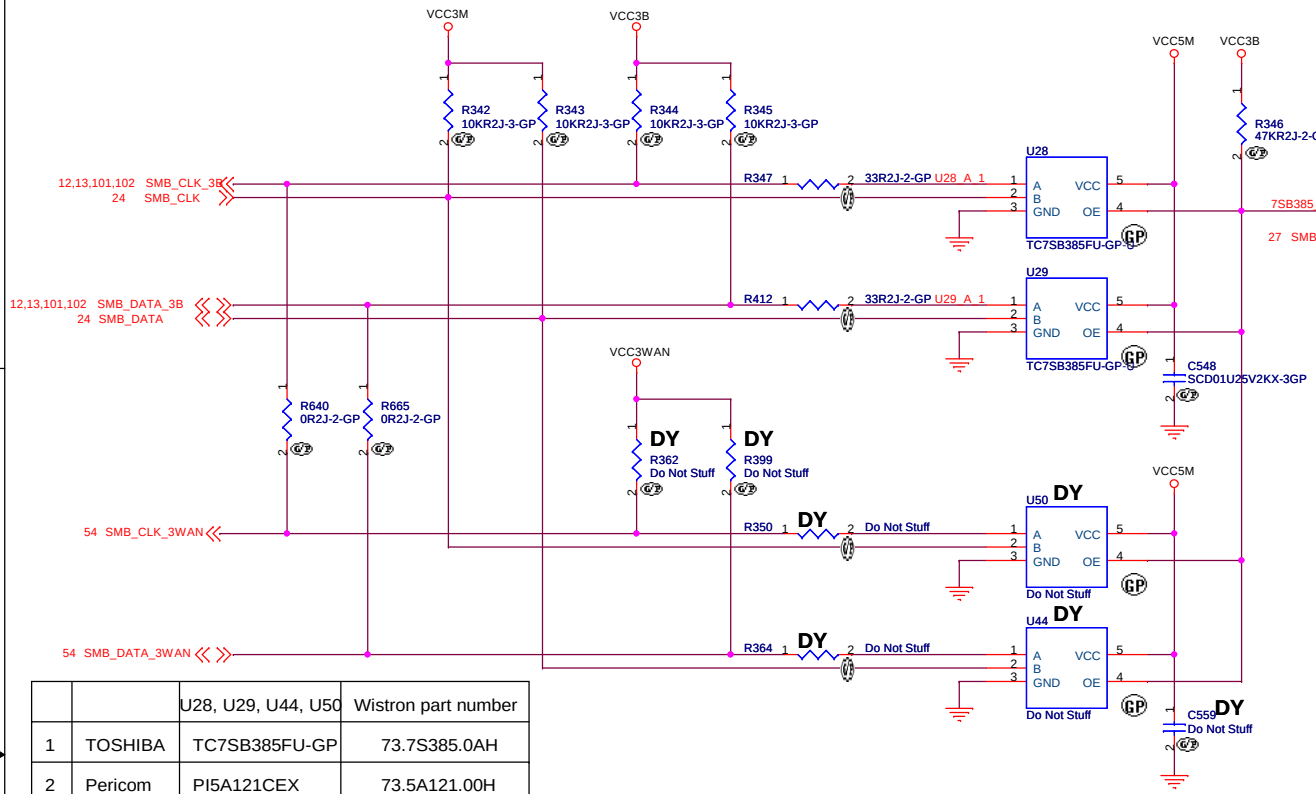
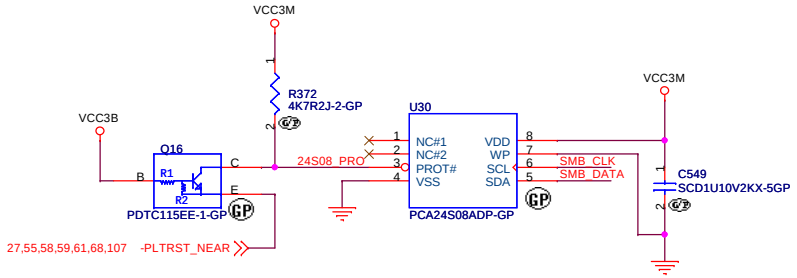
EEPROM





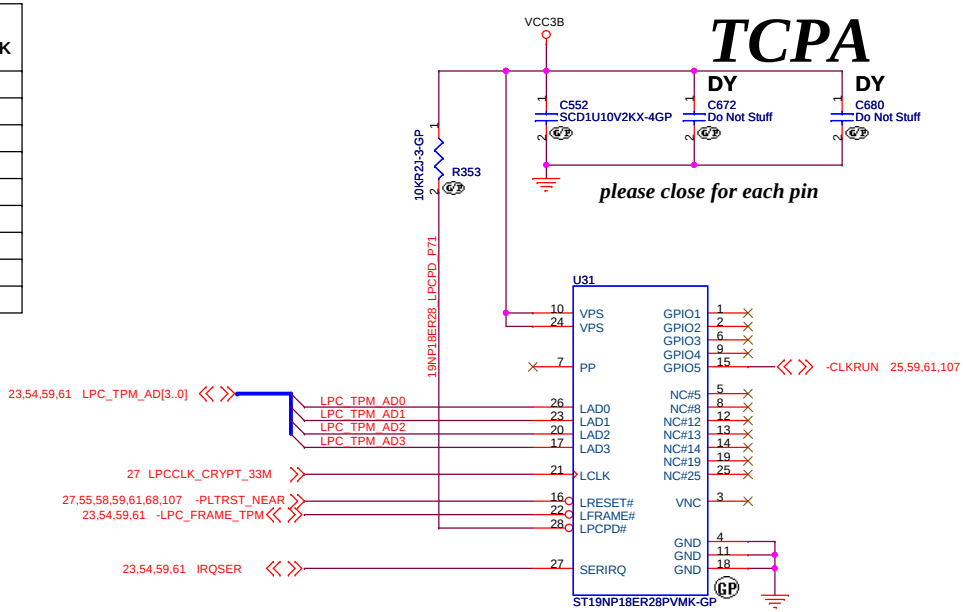
		U28, U29, U44, U50	Wistron part number
1	TOSHIBA	TC7SB385FU-GP	73.7S385.0AH
2	Pericom	PI5A121CEX	73.5A121.00H

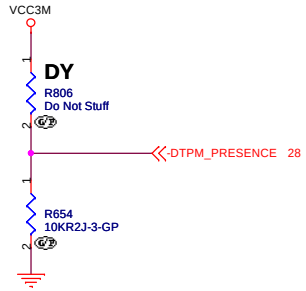
		U30	Wistron part number
1	NXP	PCA24S08ADP	72.24S08.A0Q
2	ROHM	BUL08-1FVJ-W	72.BUL08.00Q
3	Sanyo	LE26CAP08TT-TLM-H	72.26C08.00R

	NO TPM	ST Micro ST19NP18ER28PVMK
U31	NO_ASM	ASM
C552	NO_ASM	ASM
C672	NO_ASM	NO_ASM
R354	NO_ASM	ASM
R371	NO_ASM	NO_ASM
R953	NO_ASM	NO_ASM
R353	NO_ASM	NO_ASM
R806	ASM	NO_ASM
R654	NO_ASM	ASM

LOGIC

TCPA





BOM

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

Title: EEPROM/TCPA

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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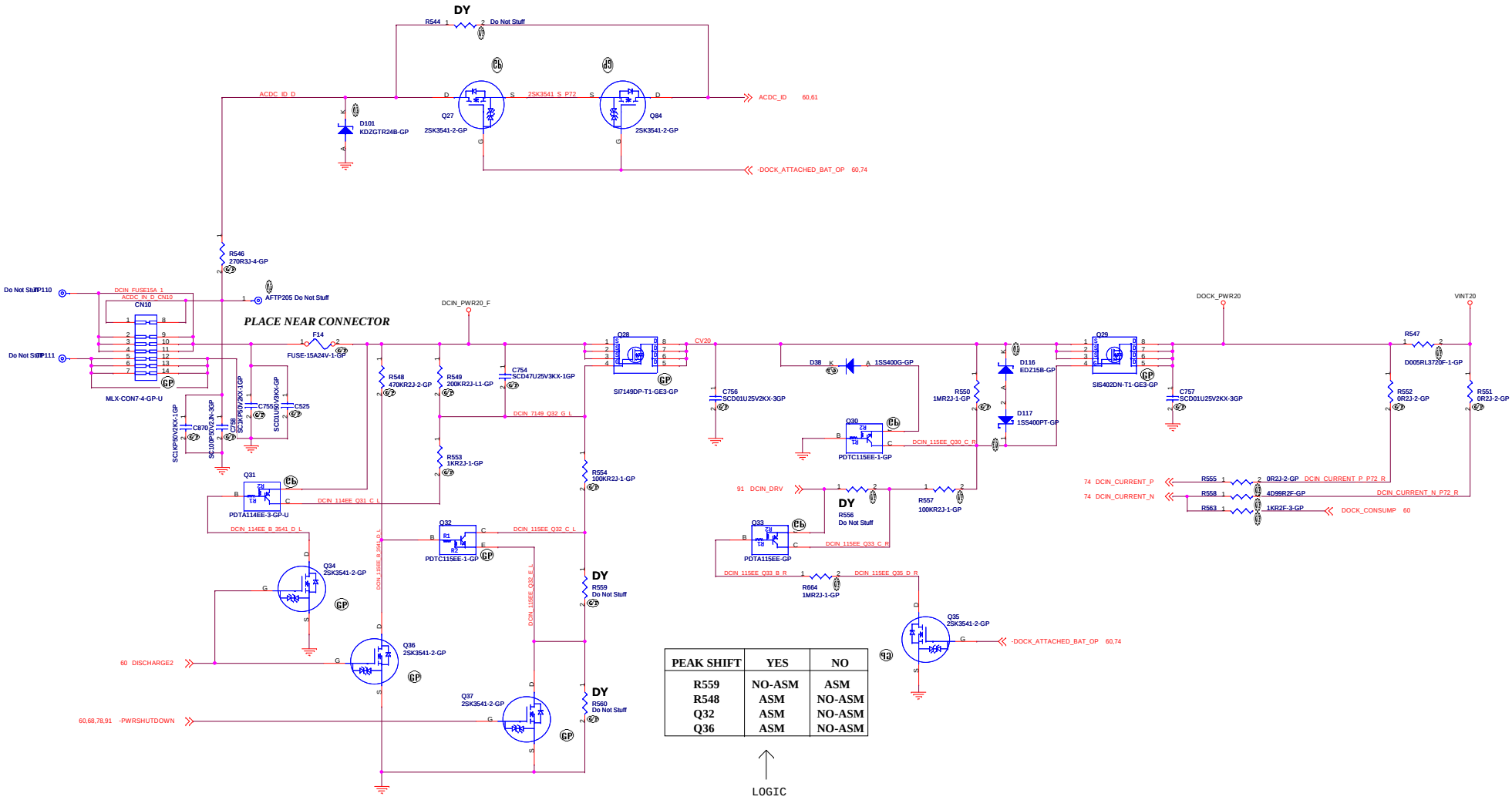

PEAK SHIFT	YES	NO
R559	NO-ASM	ASM
R548	ASM	NO-ASM
Q32	ASM	NO-ASM
Q36	ASM	NO-ASM

LOGIC

BOM

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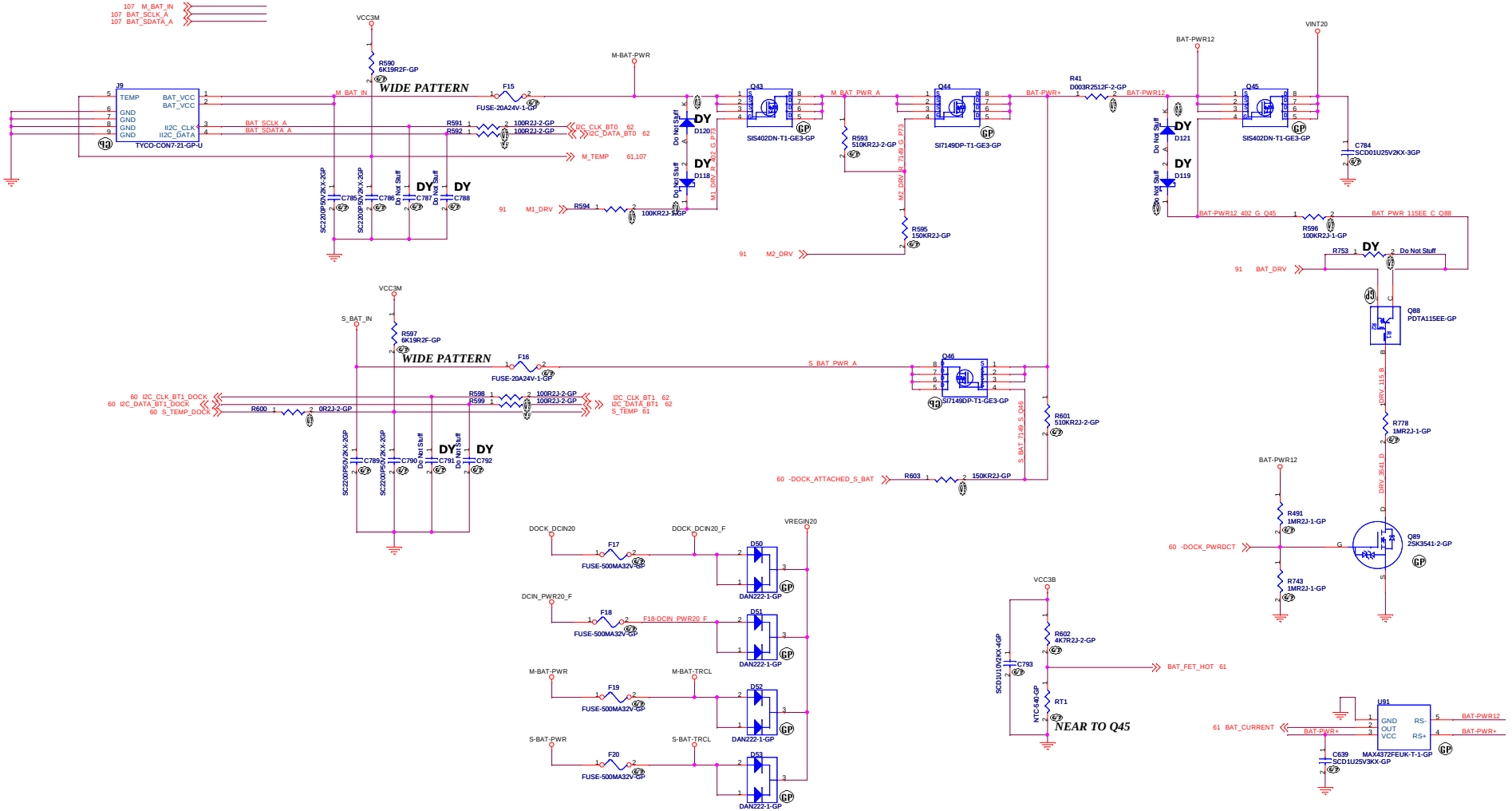
Taipei Hsien 221, Taiwan, R.O.C.

Title: **DC-IN**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 72 of 107



BOM

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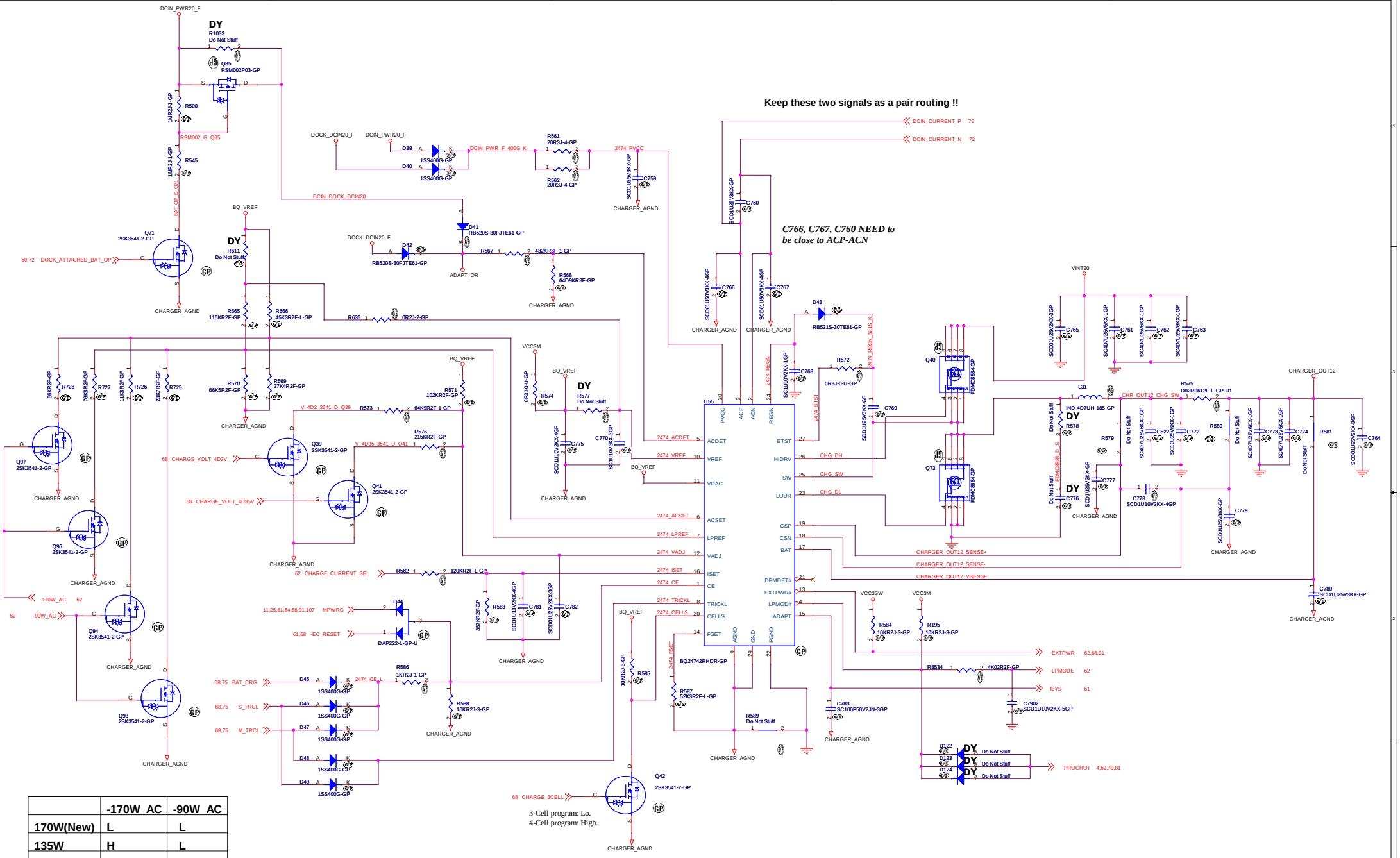
Title: **BATTERY INPUT**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 73 of 107



	-170W_AC	-90W_AC
170W(New)	L	L
135W	H	L
65W/90W	H	H

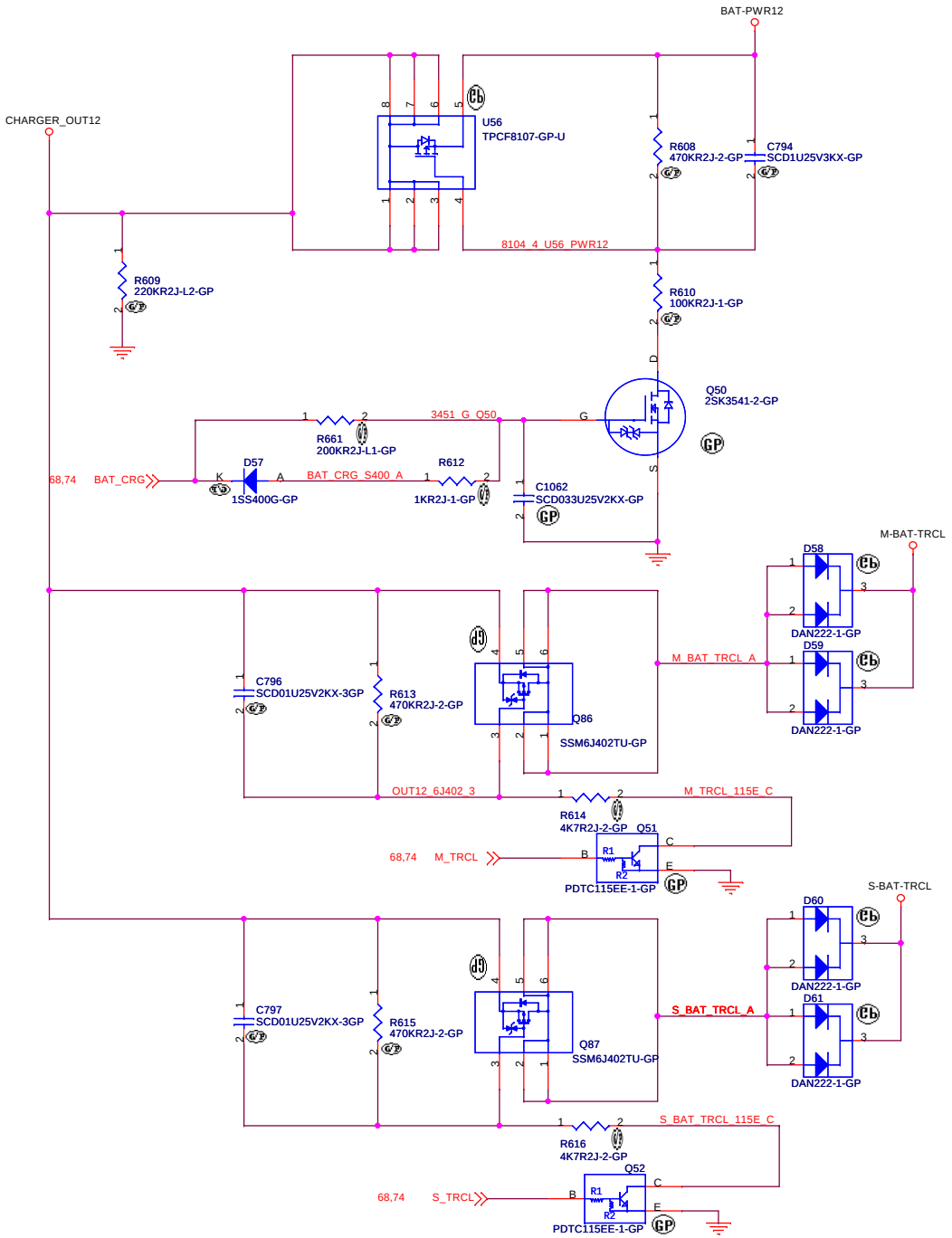
BOM

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

Title: **BATTERY CHARGER (BQ24742)**

Size	Document Number	Rev
A2	Kendo-3 WS	SA

Date: Tuesday, December 07, 2010 Sheet 74 of 107



BOM

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: ***CHARGER SELECT***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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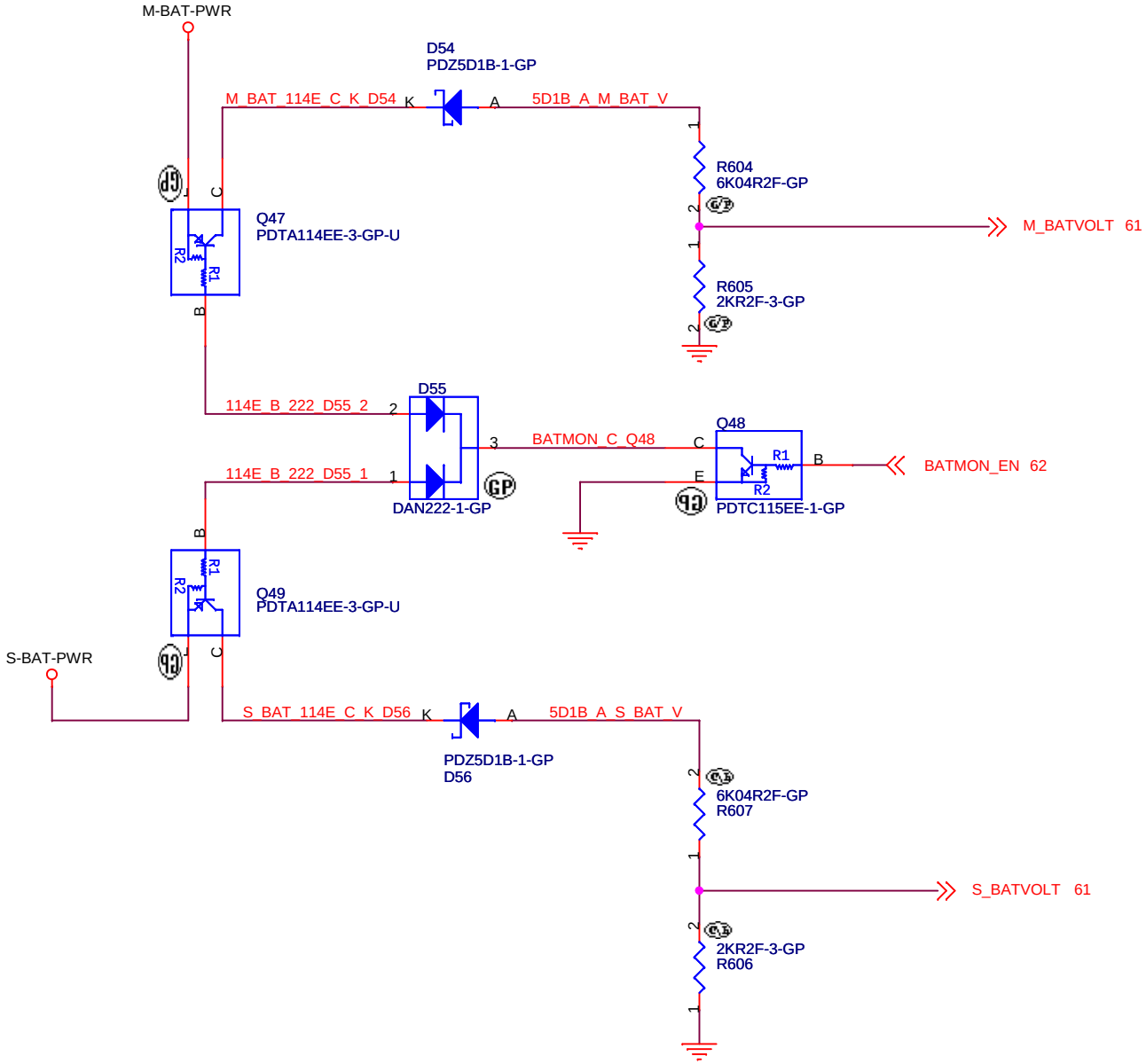
VOUT = 0.249 (VBAT - 5)



BOM

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: ***BATTERY MONITOR***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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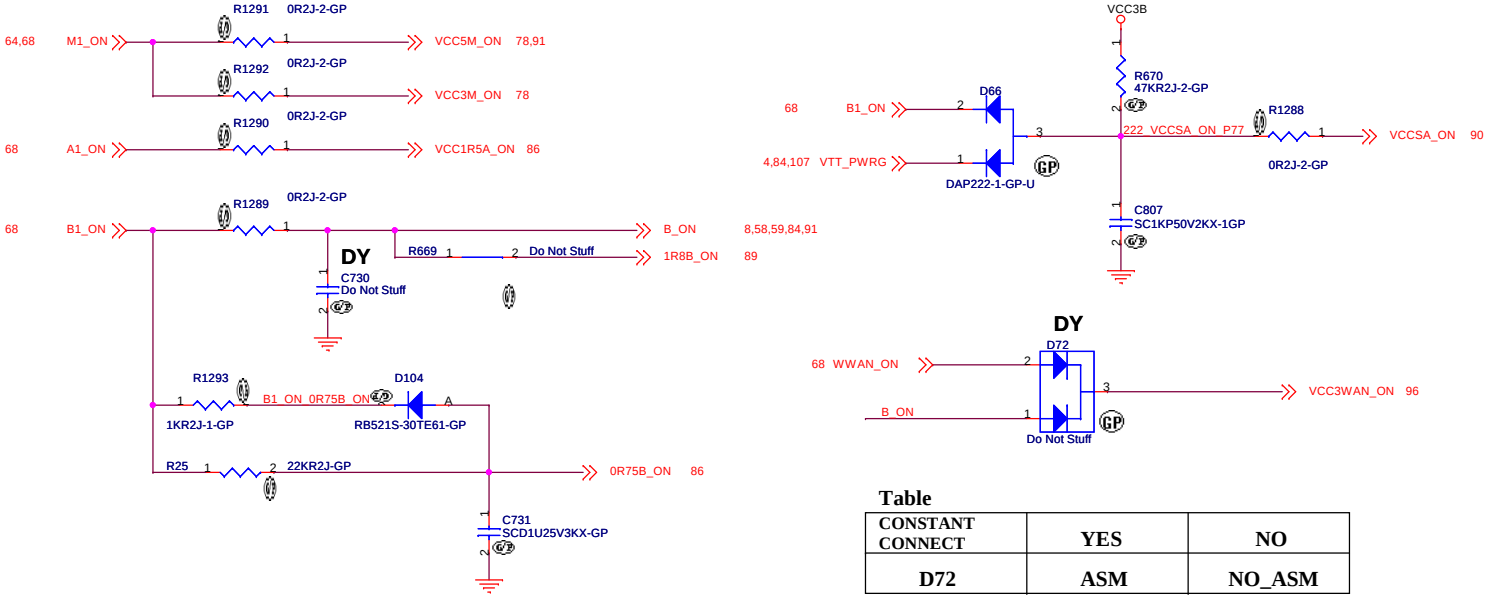
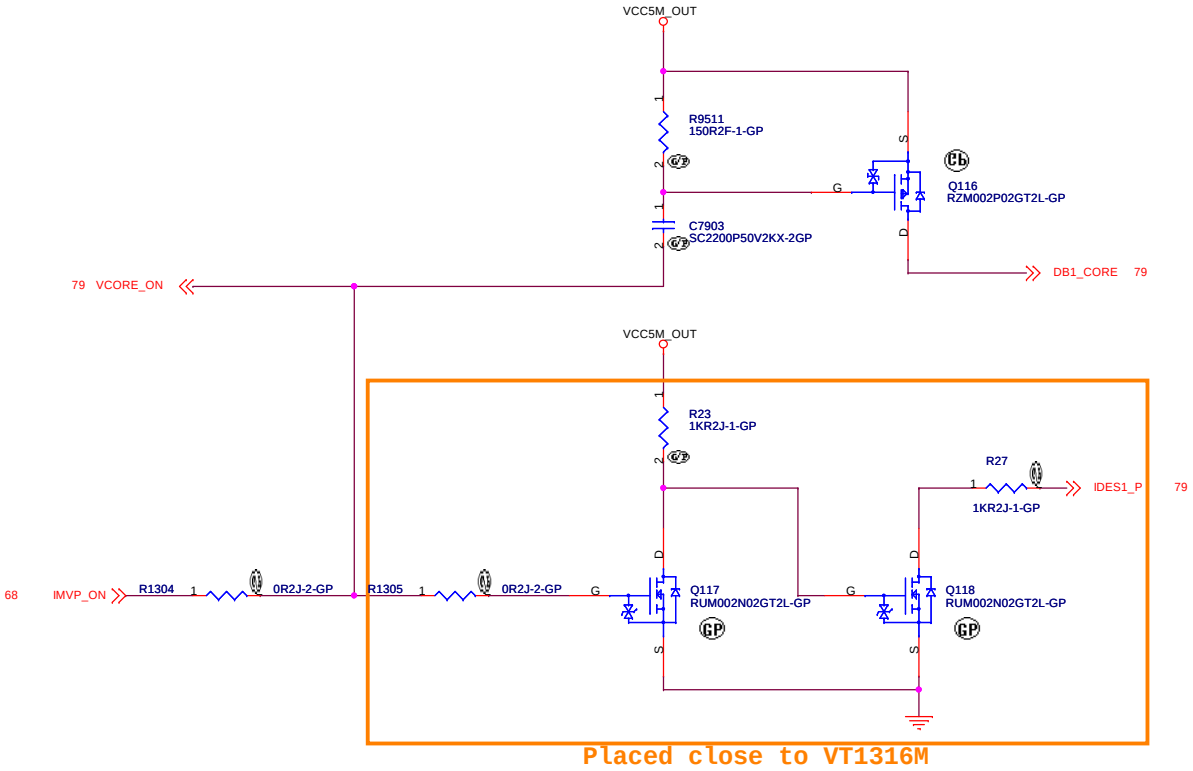


Table

CONSTANT CONNECT	YES	NO
D72	ASM	NO_ASM



BOM

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: **POWER SEQUENCE**

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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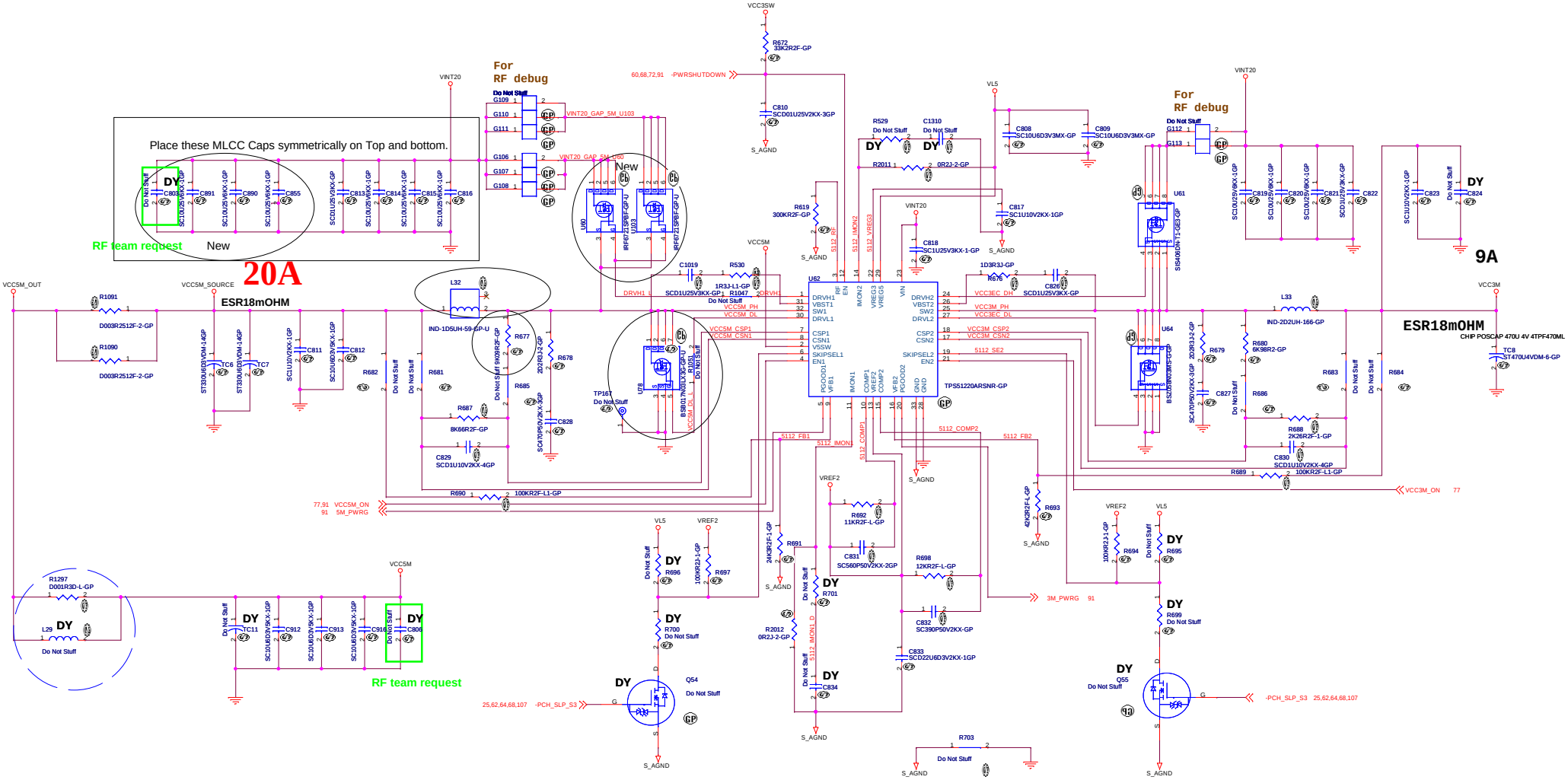
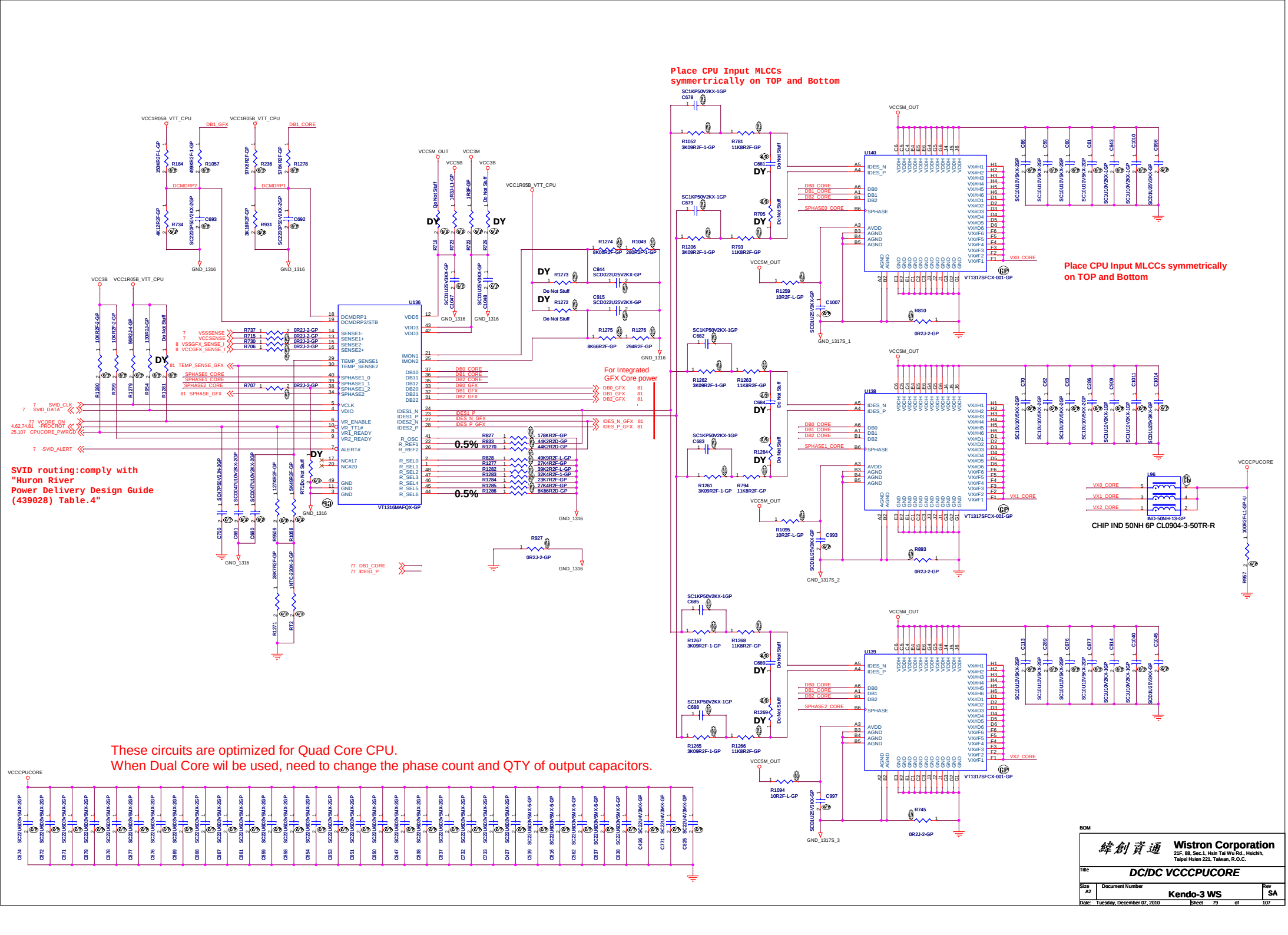


BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: DC/DC VCC5M/VCC3M		
Size: A2	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 78 of 107	


Place CPU Input MLCCs
symmertrically on TOP and Bottom
Place CPU Input MLCCs symmetrically
on TOP and Bottom
For Integrated
GFX Core power
SVID routing:comply with
"Huron River
Power Delivery Design Guide
(439028) Table.4"
These circuits are optimized for Quad Core CPU.
When Dual Core wil be used, need to change the phase count and QTY of output capacitors.
CHIP IND 50NH 6P CL0904-3-50TR-R
VCCCPUCORE
VCC1R05B_VTT_CPU
VCC5M_OUT
VCC3M
VCC3B
VCC5B
GND_1316
GND_1317S_1
GND_1317S_2
GND_1317S_3
U136
VT1316MAFQX-GP
U140
U138
U139
VT1317SFCX-001-GP
IND-50NH-13-GP
BOM
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Title
DC/DC VCCCPUCORE
Size
A2
Document Number
Kendo-3 WS
Rev
SA
Date: Tuesday, December 07, 2010
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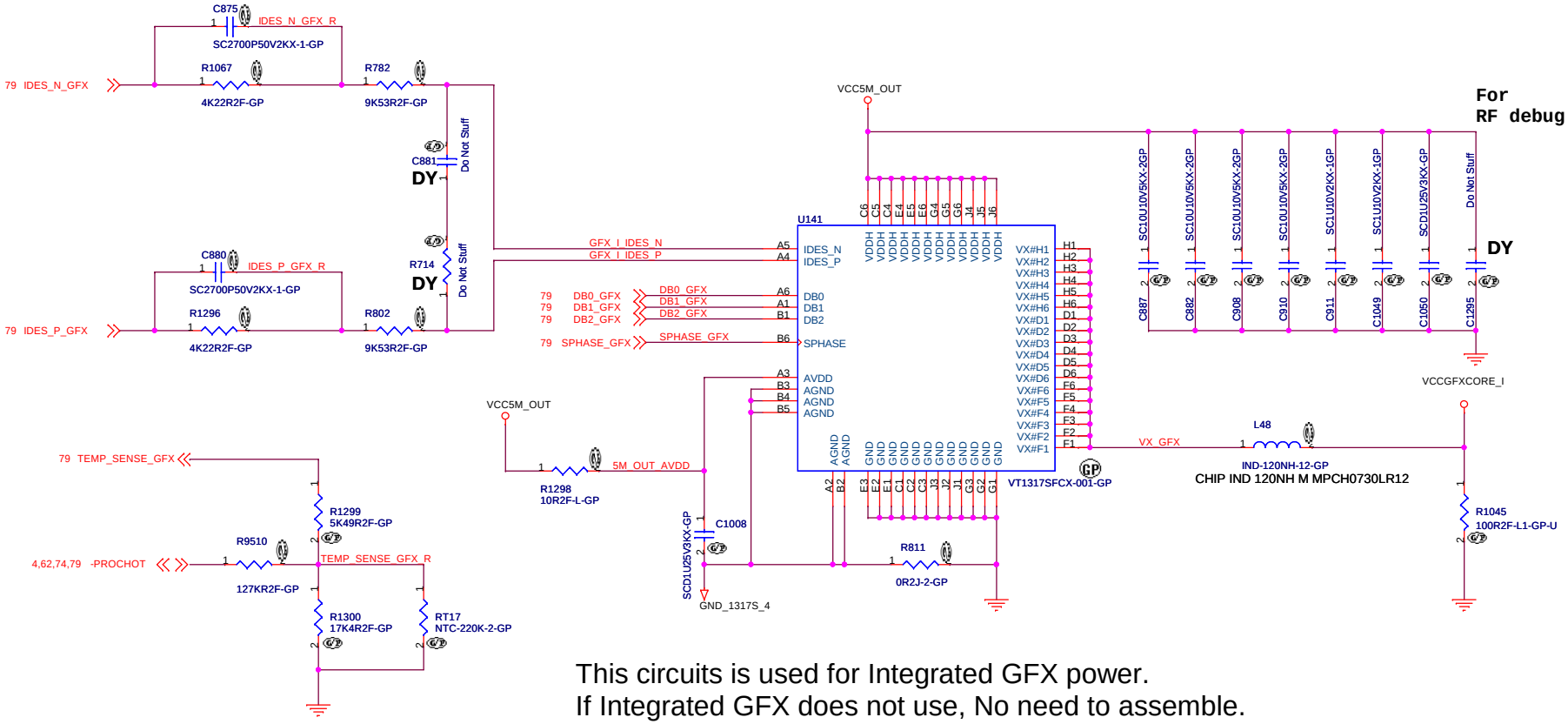
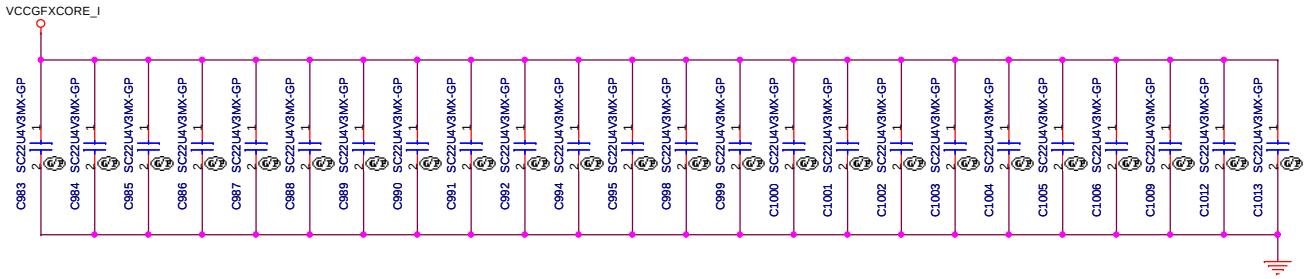
Title	***BLANK***	
Size A4	Document Number **Kendo-3 WS**	Rev **SA**
Date: Tuesday, December 07, 2010	Sheet 80 of 107	



This circuits is used for Integrated GFX power.
If Integrated GFX does not use, No need to assemble.



BOM

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Title: VCCGFXCRE_I

Size: A3 | Document Number: Kendo-3 WS | Rev: SA

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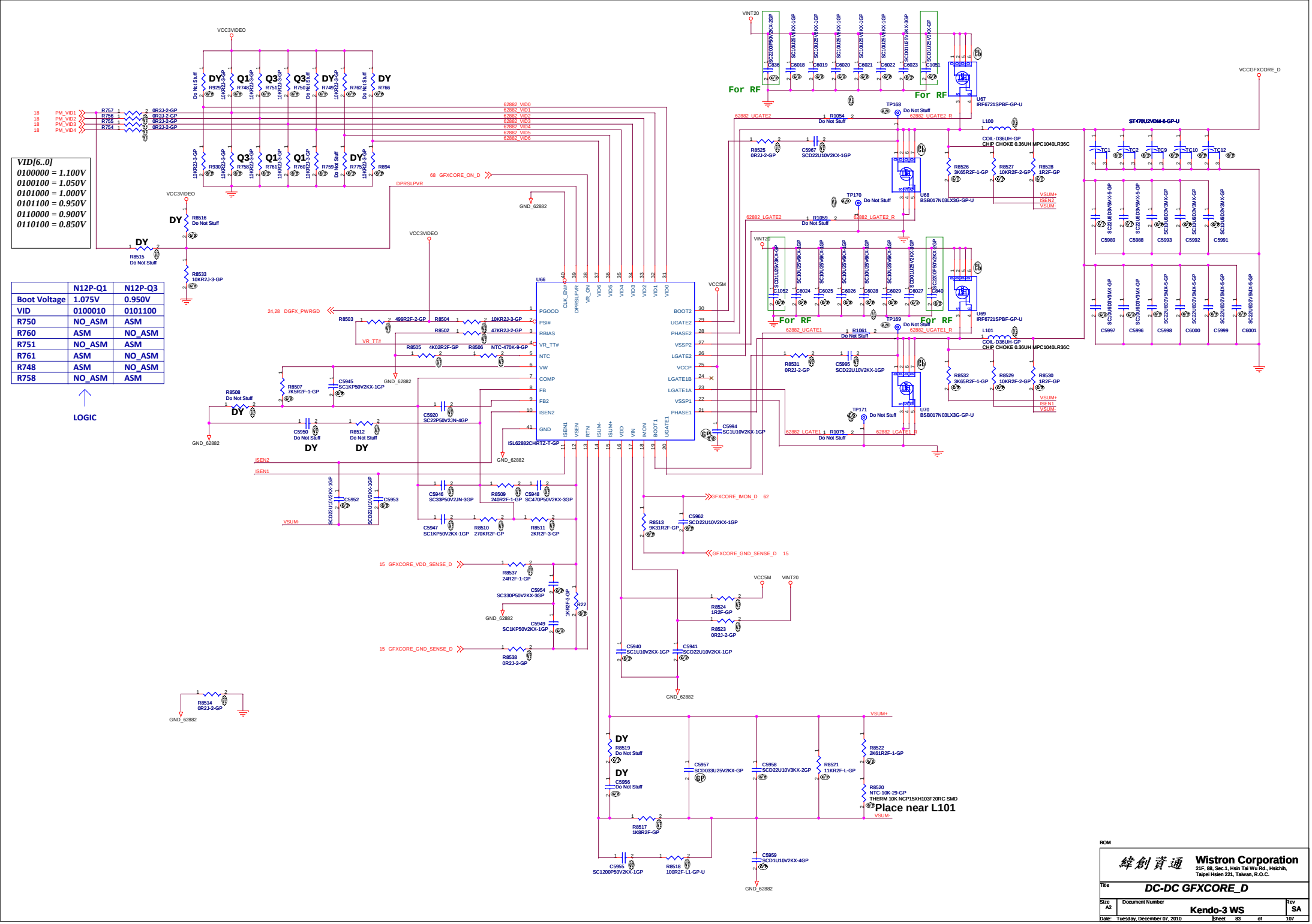
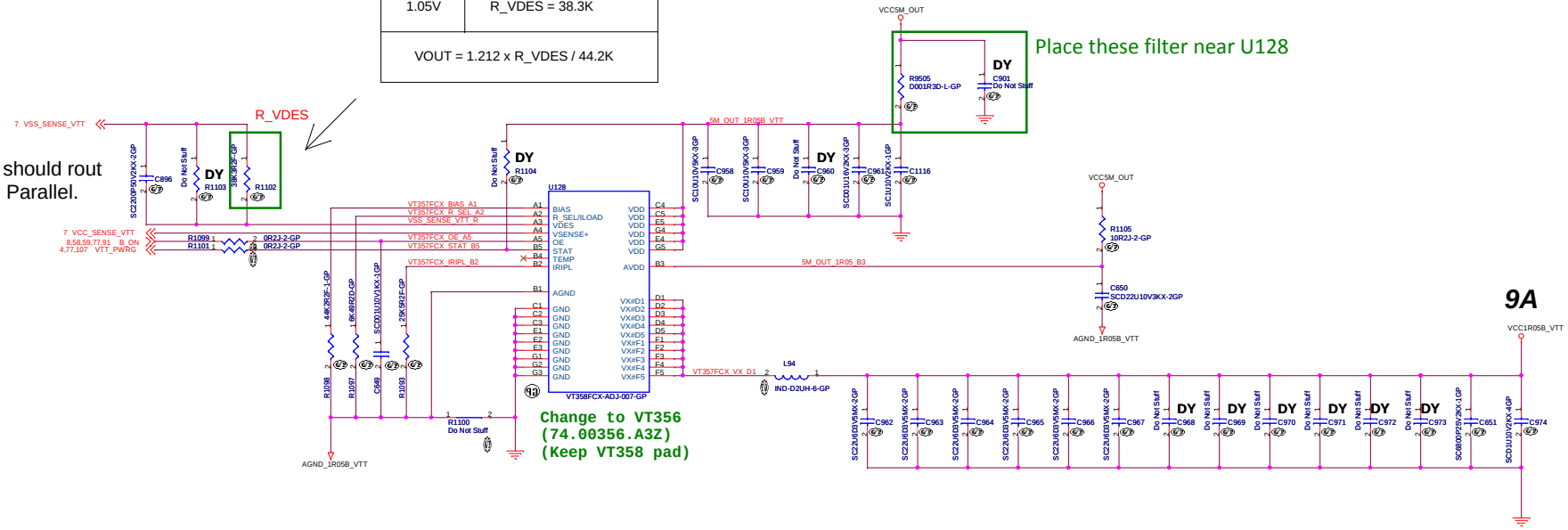
Title	***BLANK***	
Size A4	Document Number **Kendo-3 WS**	Rev **SA**
Date: Tuesday, December 07, 2010	Sheet 82 of 107	


VID[6..0]
0100000 = 1.100V
0100100 = 1.050V
0101000 = 1.000V
0101100 = 0.950V
0110000 = 0.900V
0110100 = 0.850V
N12P-Q1 N12P-Q3
Boot Voltage 1.075V 0.950V
VID 0100010 0101100
R750 NO_ASM ASM
R760 ASM NO_ASM
R751 NO_ASM ASM
R761 ASM NO_ASM
R748 ASM NO_ASM
R758 NO_ASM ASM
LOGIC
ISL62882CHRTZ-T-GP
Place near L101
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
DC-DC GFXCORE_D
Kendo-3 WS
Tuesday, December 07, 2010

VOUT	Parameter
1.10V	R_VDES = 40.2K
1.05V	R_VDES = 38.3K
VOUT = 1.212 x R_VDES / 44.2K	

VCC_SENSE Trace should rout to VSS_VSENSE in Parallel.



BOM

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

Title: ***VCC1R05B_VTT***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

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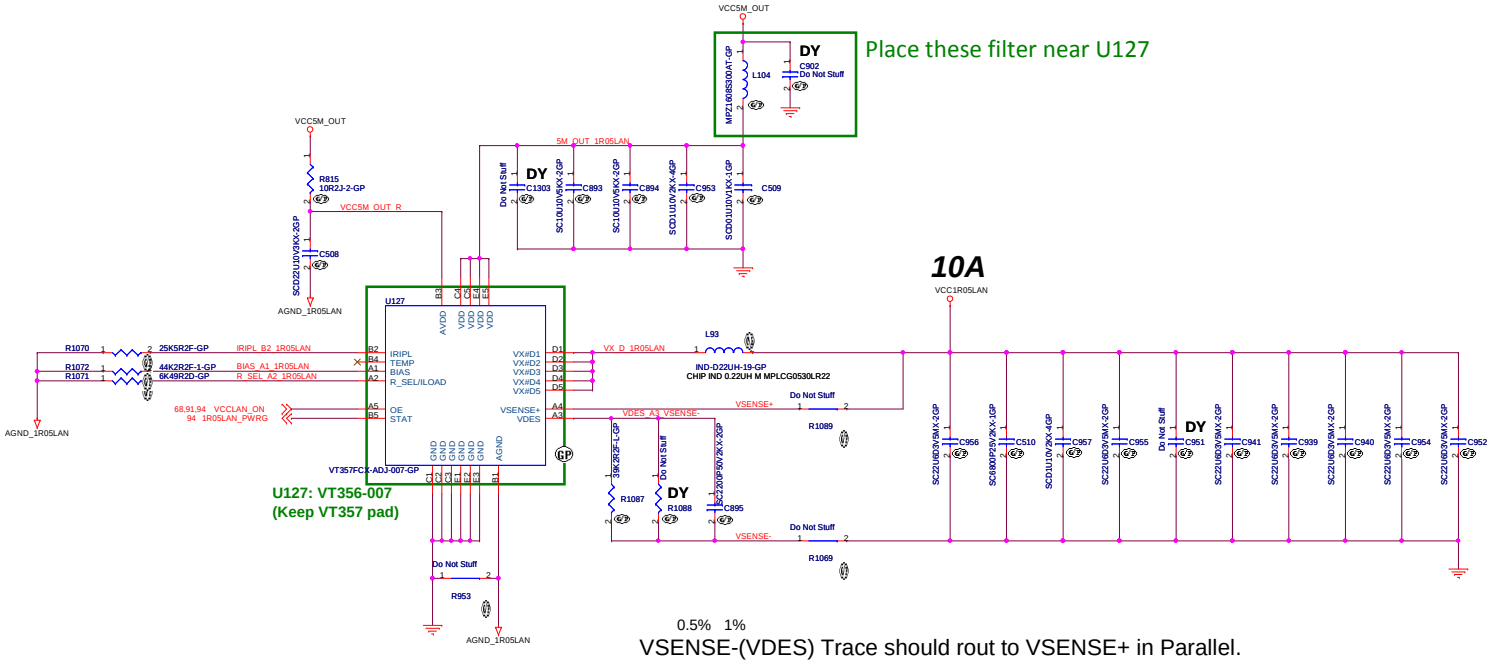


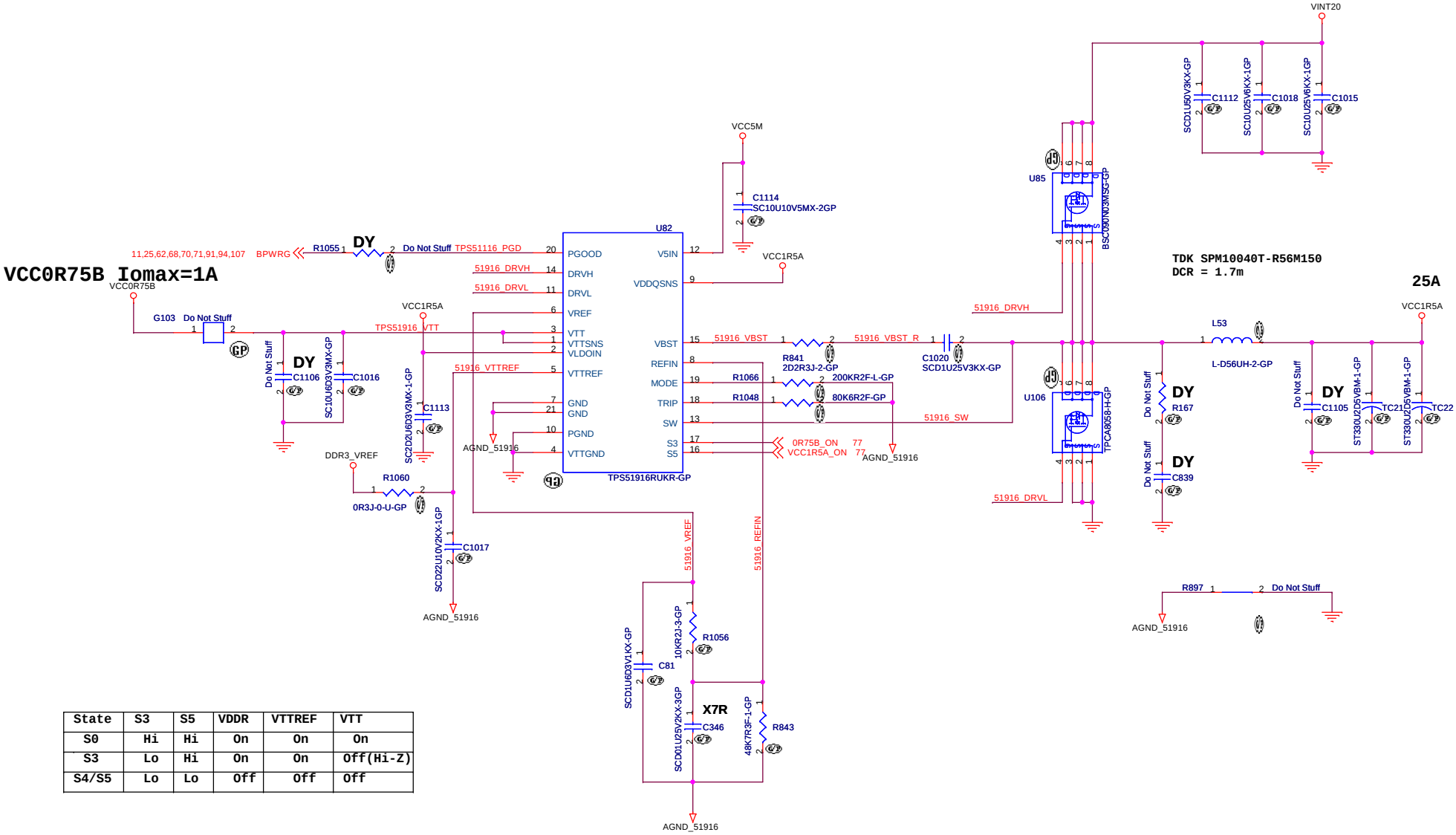
BOM

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

Title: ***VT357 VCC1R05LAN***

Size: A2 | Document Number: **Kendo-3 WS** | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 85 of 107



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

BOM

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

Title: DC-DC VCC0R75B

Size: A3 | Document Number: Kendo-3 WS | Rev: SA

Date: Tuesday, December 07, 2010 | Sheet 86 of 107

BOM

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

Title: ***BLANK***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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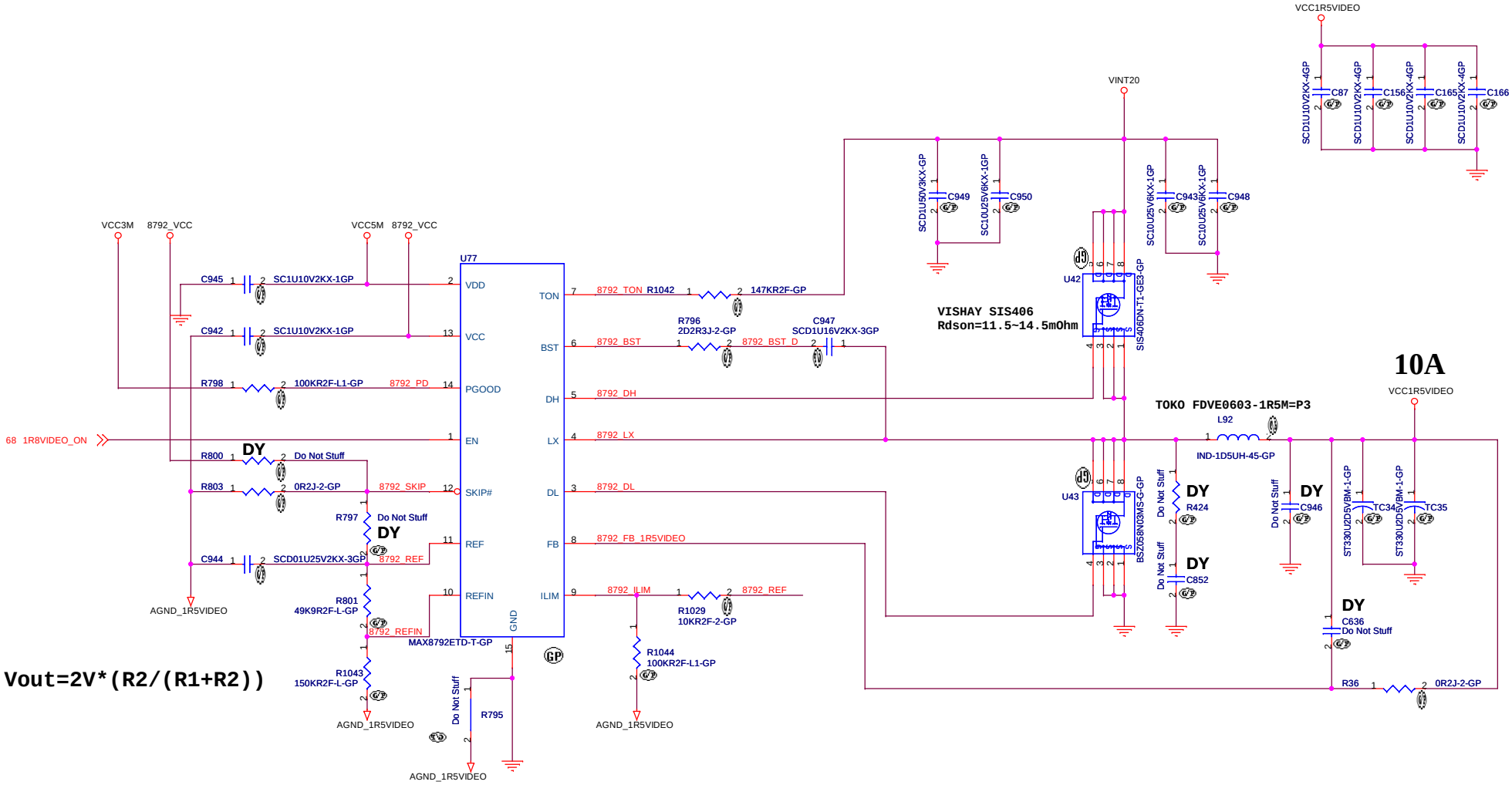

BOM

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

Title: ***DC-DC VCC1R5VIDEO***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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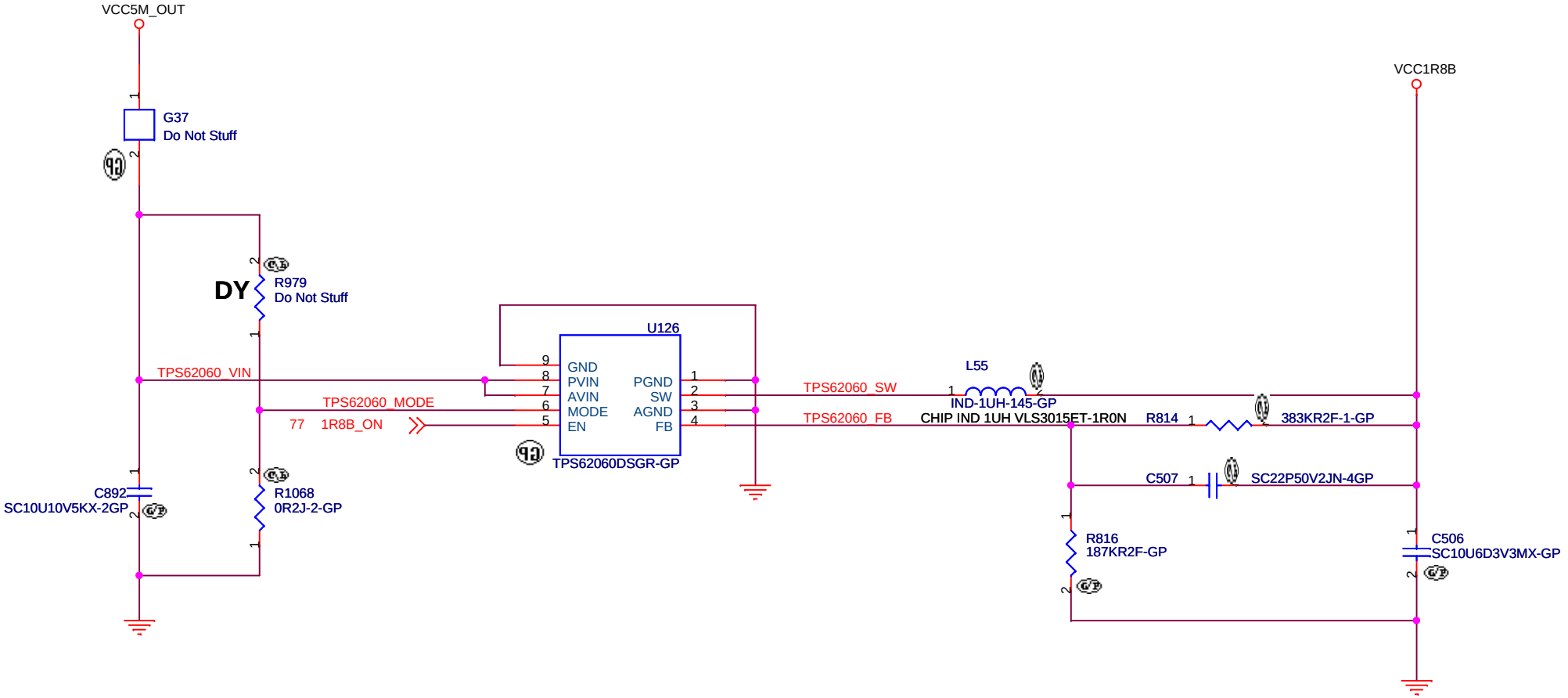

BOM

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

Title: ***DC-DC VCC1R8B***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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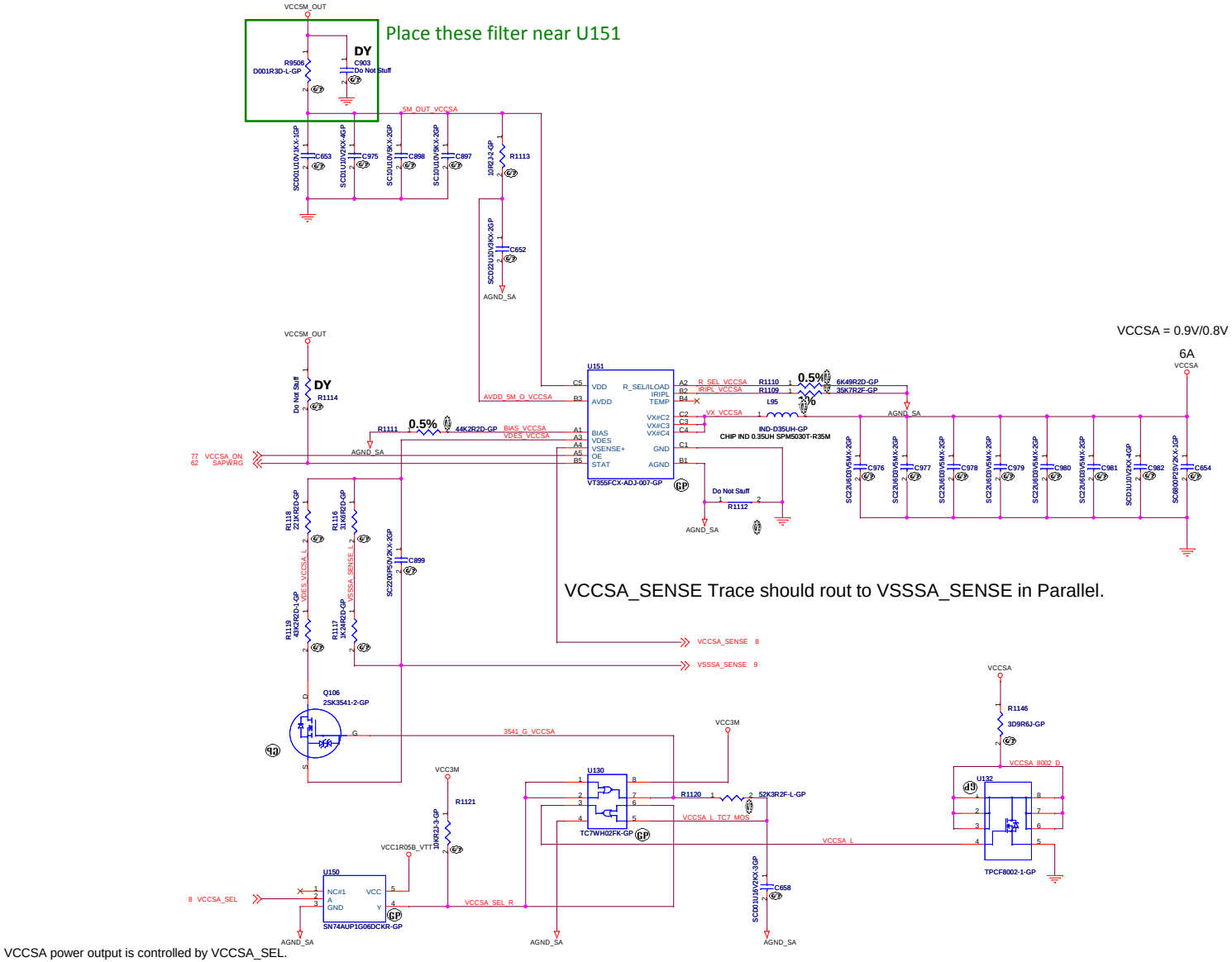

BOM

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

Title	VCC_SA	
Size: A2	Document Number: Kendo-3 WS	Rev: SA
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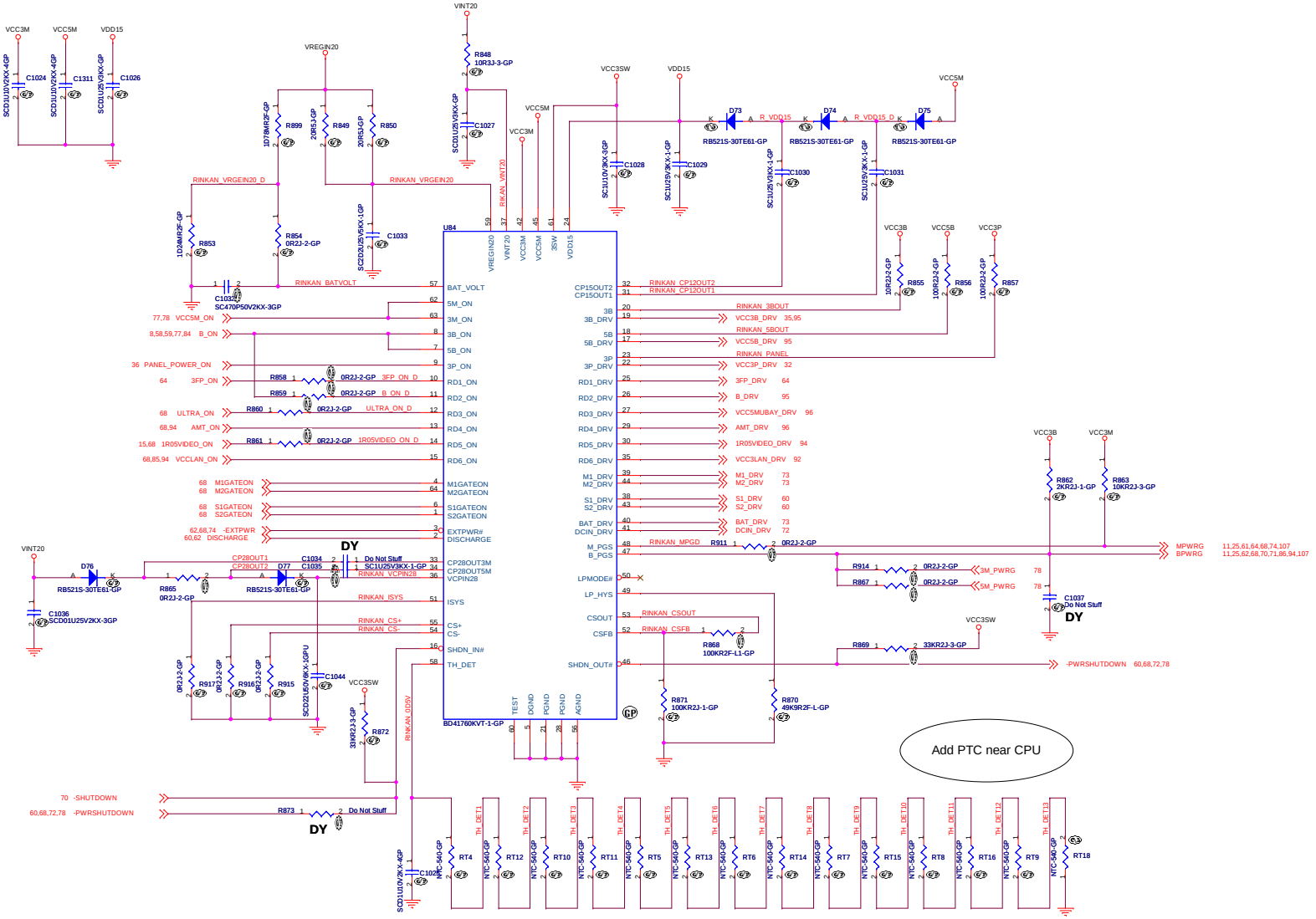

	Supplier P/N	WISTRON P/N
1	BD41760KVT-GP	74.41760.09T
2	TB62514FG-GP	74.62514.07T

RT4	VCC5M
RT12	VCC3M
RT10	VCC1R05LAN
RT11	VCC1R05VTT
RT5	VCC1R5A
RT13	Charger
RT6	BAT_IN
RT14	VCCGFXCRE_I
RT7	DC_IN
RT15	CPU_core
RT8	CPU_core
RT16	VCC1R5VIDEO
RT9	GFXCORE_D
RT18	CPU_core

BOM

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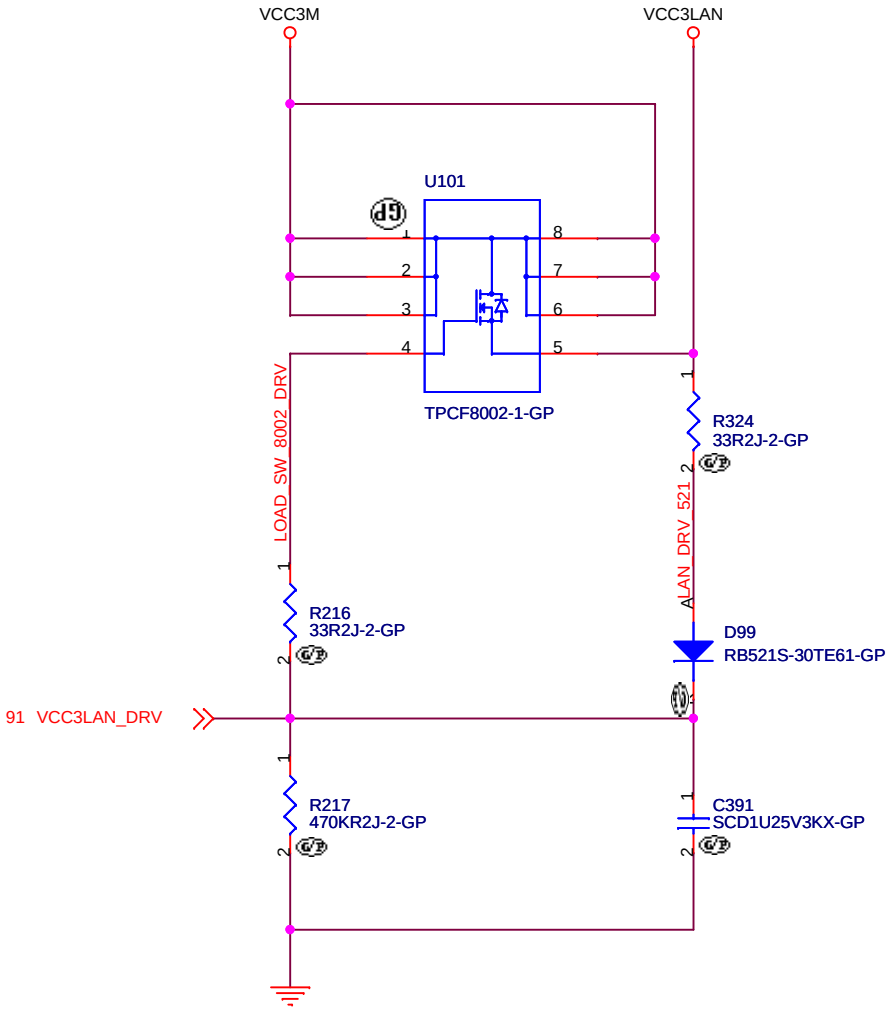
Taipei Hsien 221, Taiwan, R.O.C.

Title: DC/DC RINKAN-2

Size	Document Number	Rev
A2	Kendo-3 WS	SA

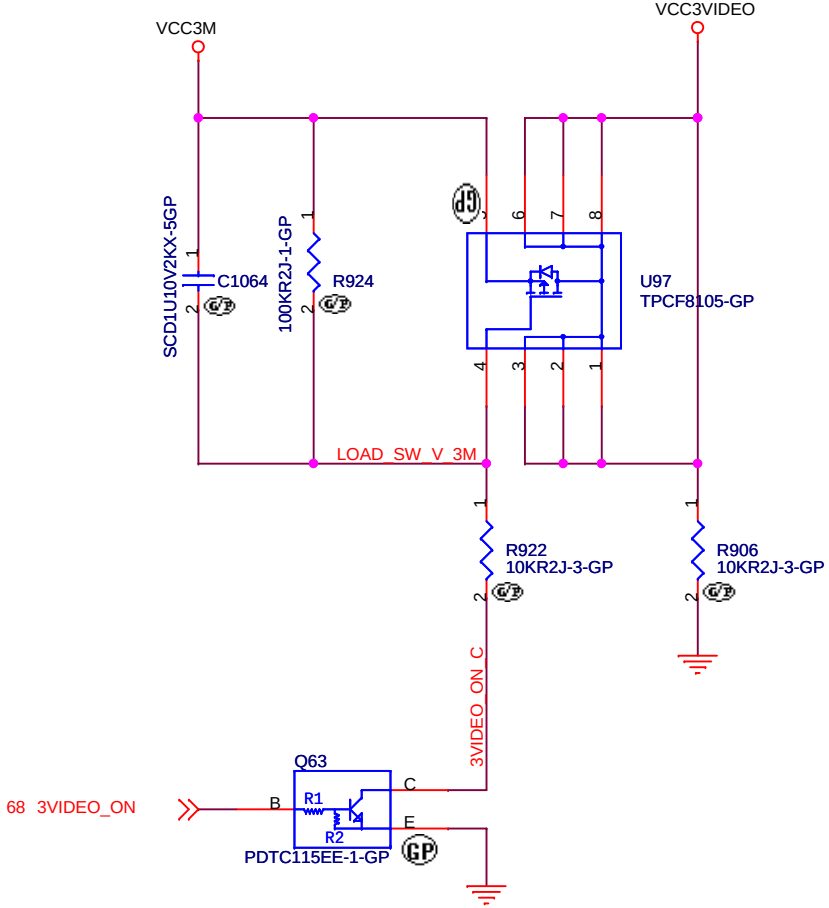
Date: Tuesday, December 07, 2010 Sheet 91 of 107



BOM

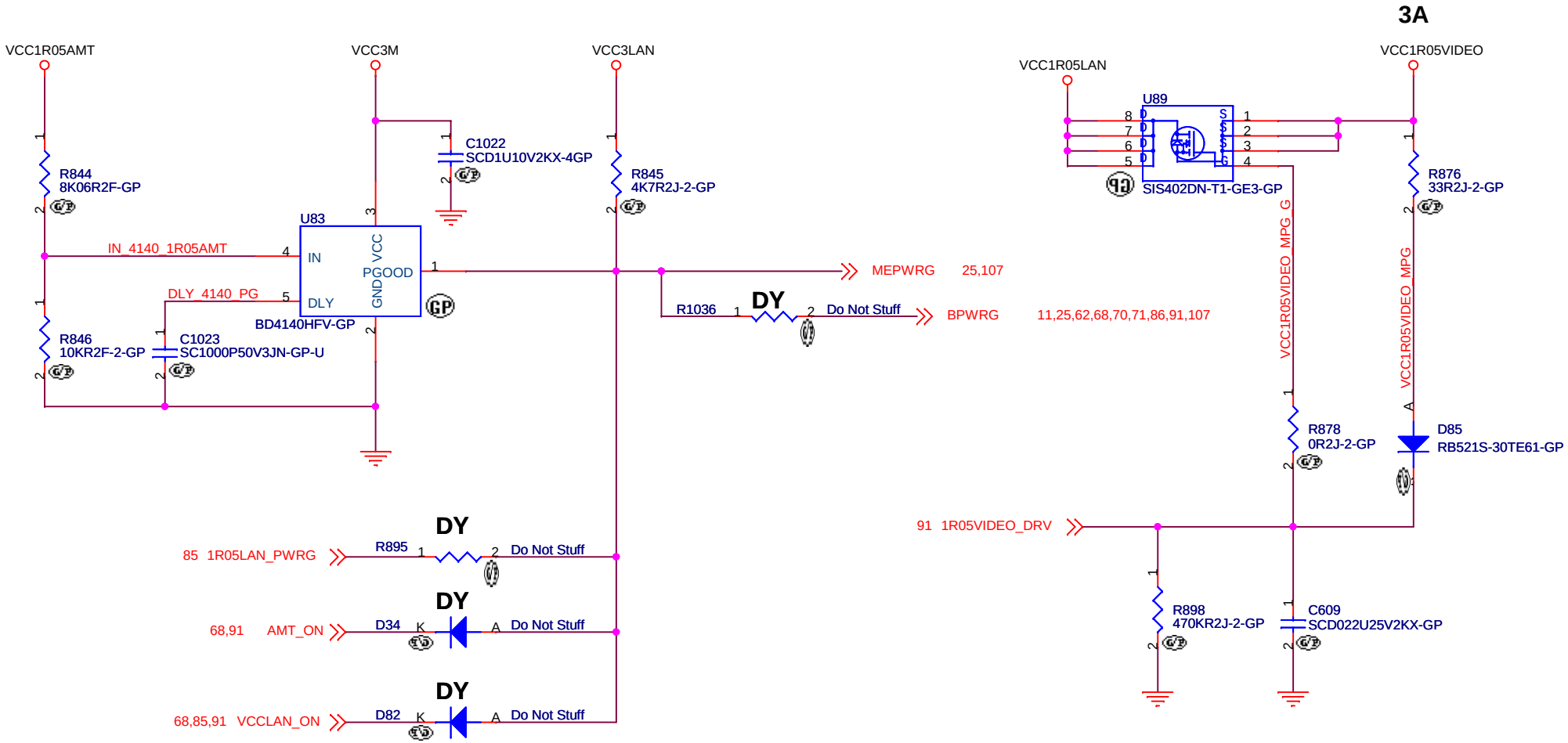
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: ***LOAD SW LAN & LANPWRG***		
Size: A4	Document Number: **Kendo-3 WS**	Rev: **SA**
Date: Tuesday, December 07, 2010	Sheet 92 of 107	

1.2A



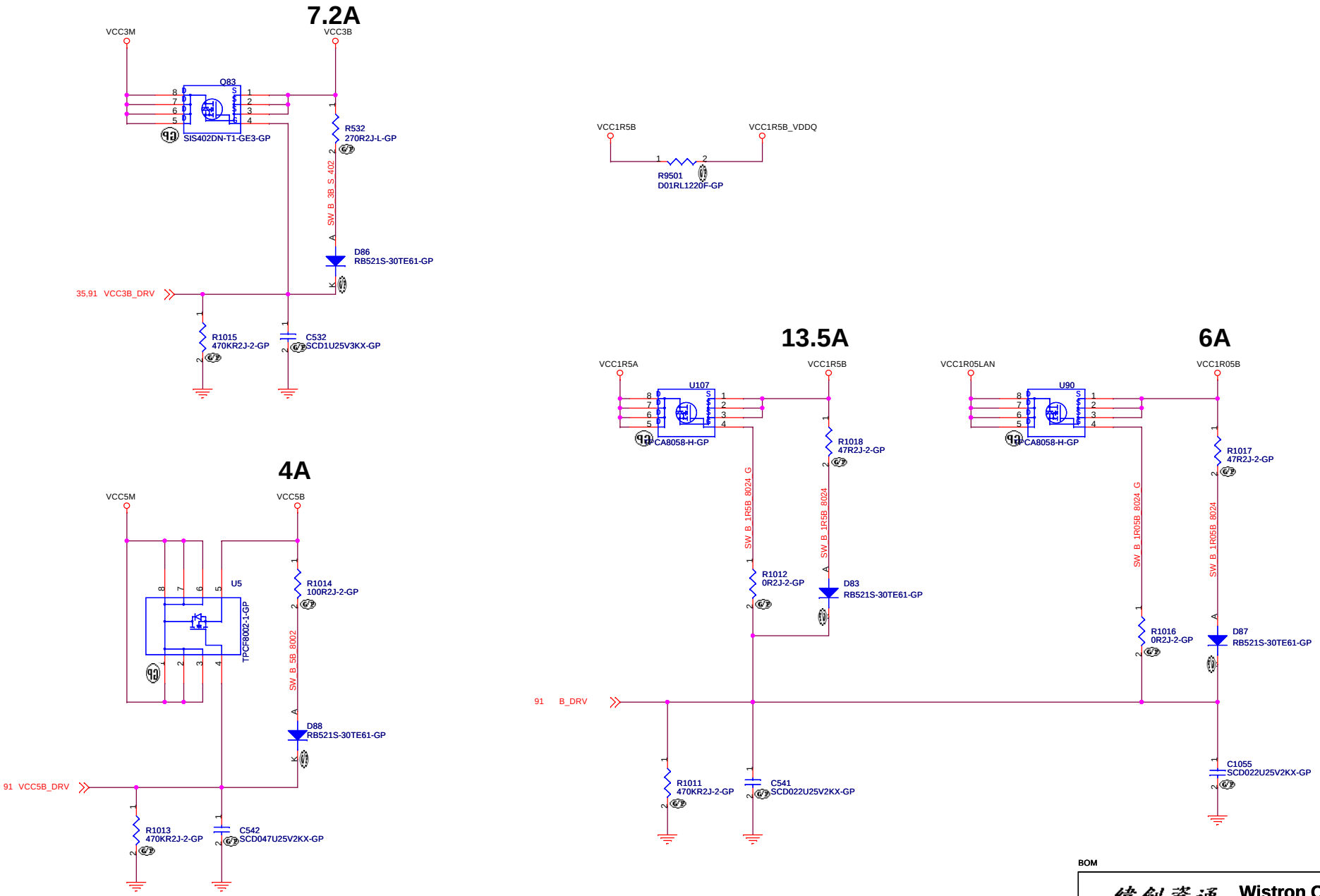
BOM

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-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 93 of 107	



BOM

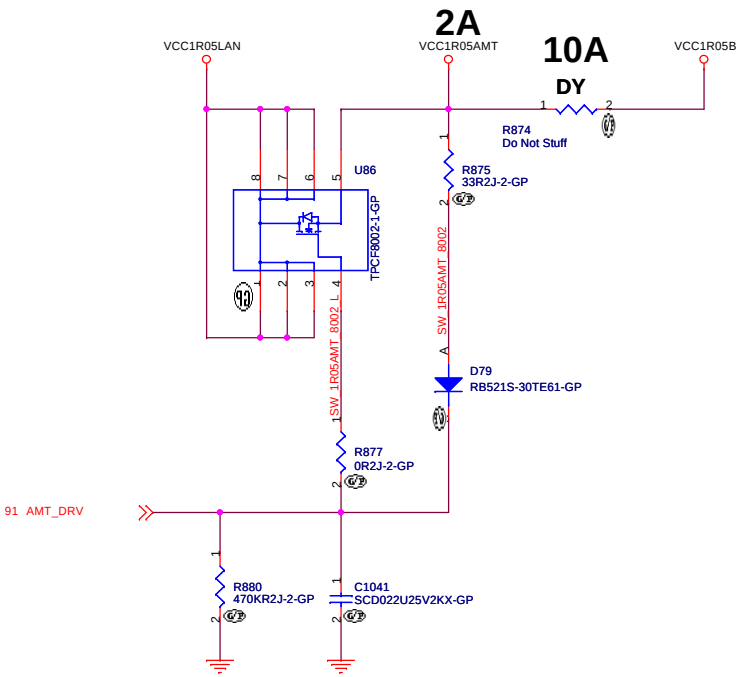
緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: ***SW AMT/MEPWRG***		
Size: A4	Document Number: **Kendo-3 WS**	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 94 of 107	

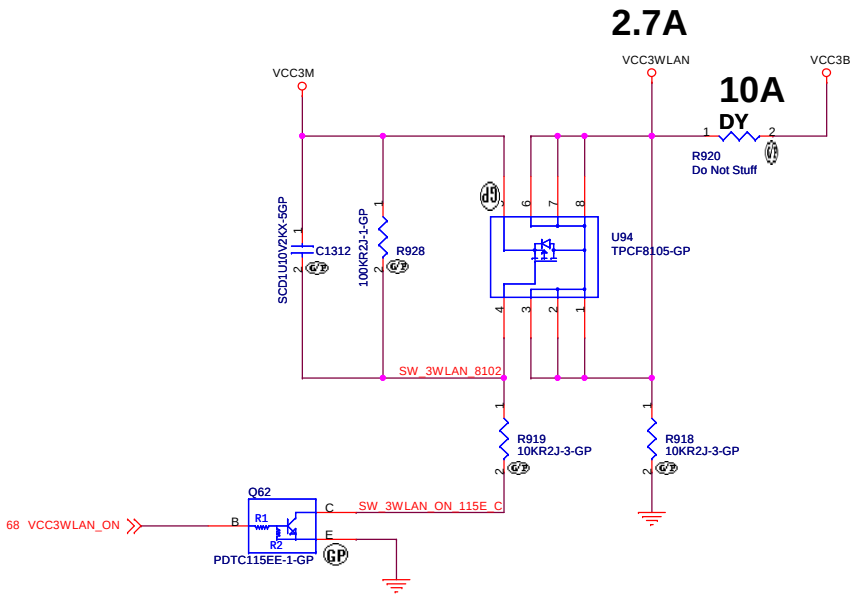


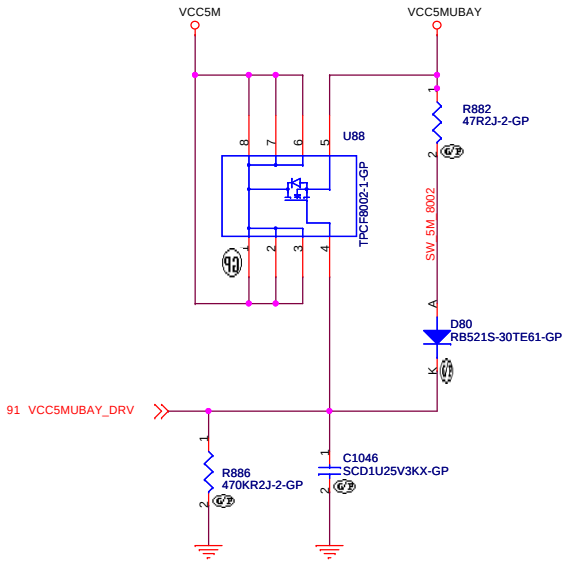
BOM

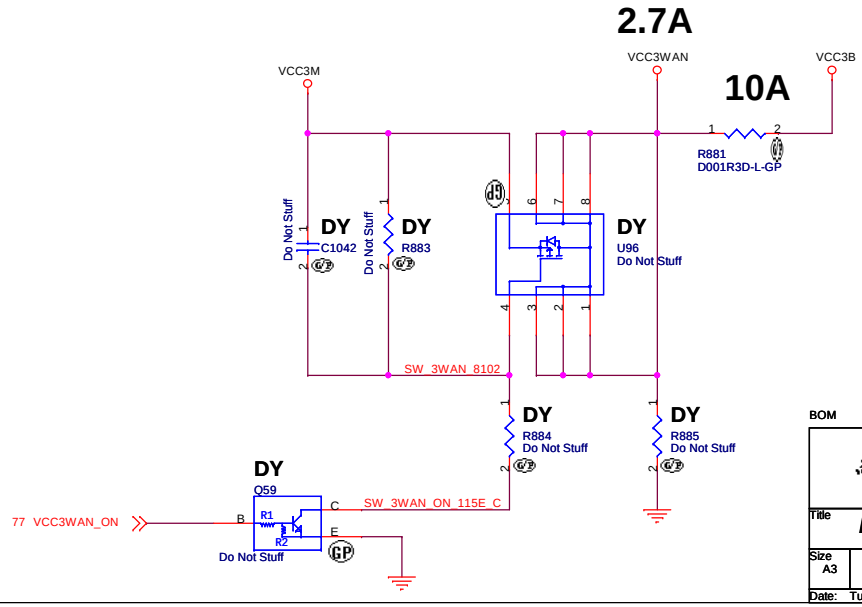
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title			
LOAD SW B			
Size A3	Document Number **Kendo-3 WS**		Rev SA
Date: Tuesday, December 07, 2010	Sheet 95 of 107		









	REG/LITE	BB/NO
R881	NO-ASM	ASM
U96	ASM	NO-ASM
R885	ASM	NO-ASM
R883	ASM	NO-ASM
C1042	ASM	NO-ASM
R884	ASM	NO-ASM
Q59	ASM	NO-ASM

BOM

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

Title: ***LOAD SW VCC5MBAY***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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BOM

緯創資通 **Wistron Corporation**
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Title: ***BLANK***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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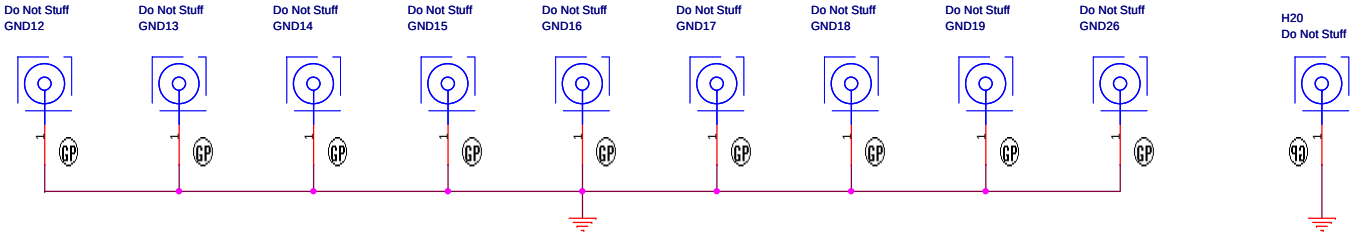

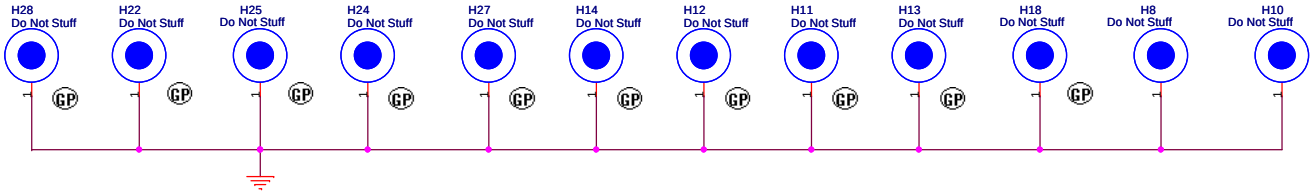

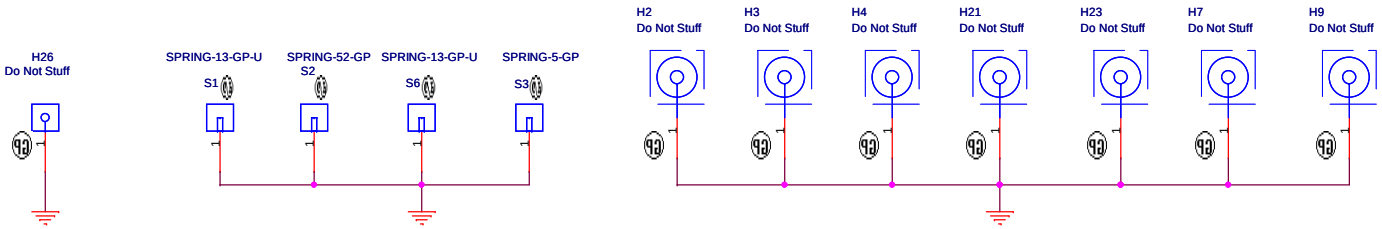

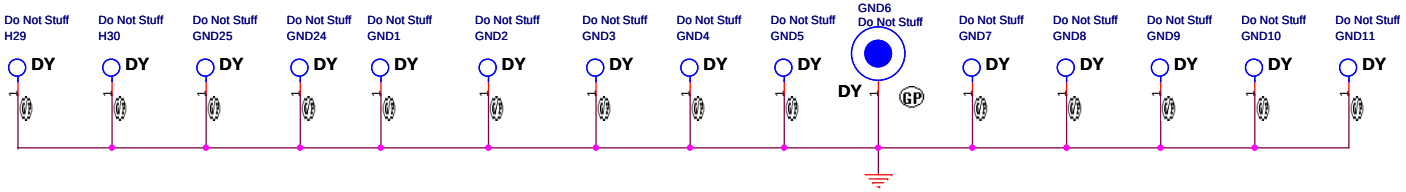

BOM

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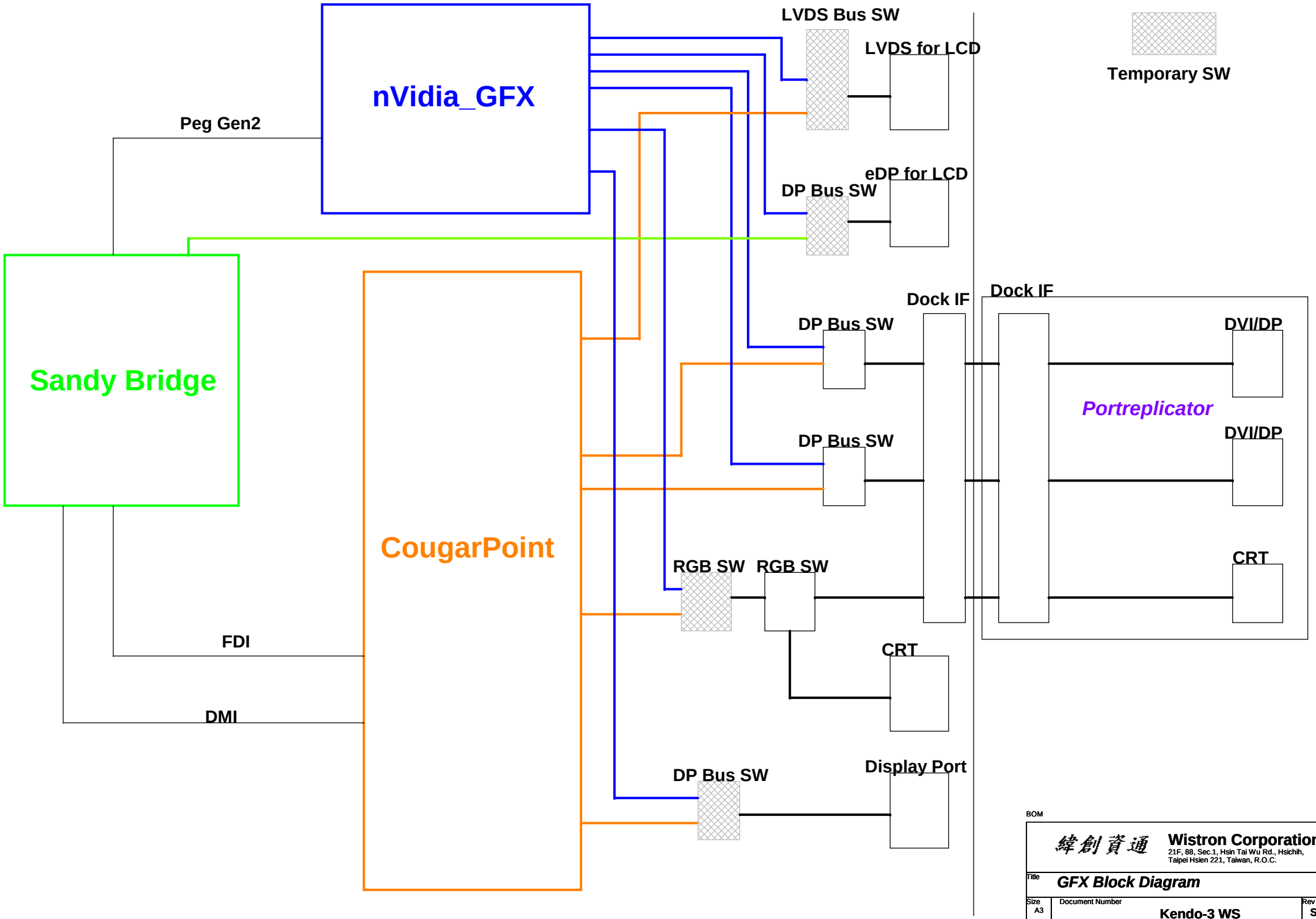
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***PTH FOR SCREW HOLES***		
Size: A3	Document Number: **Kendo-3 WS**	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 98 of 107	



BOM

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

Title: ***GFX Block Diagram***

Size	Document Number	Rev
A3	Kendo-3 WS	SA

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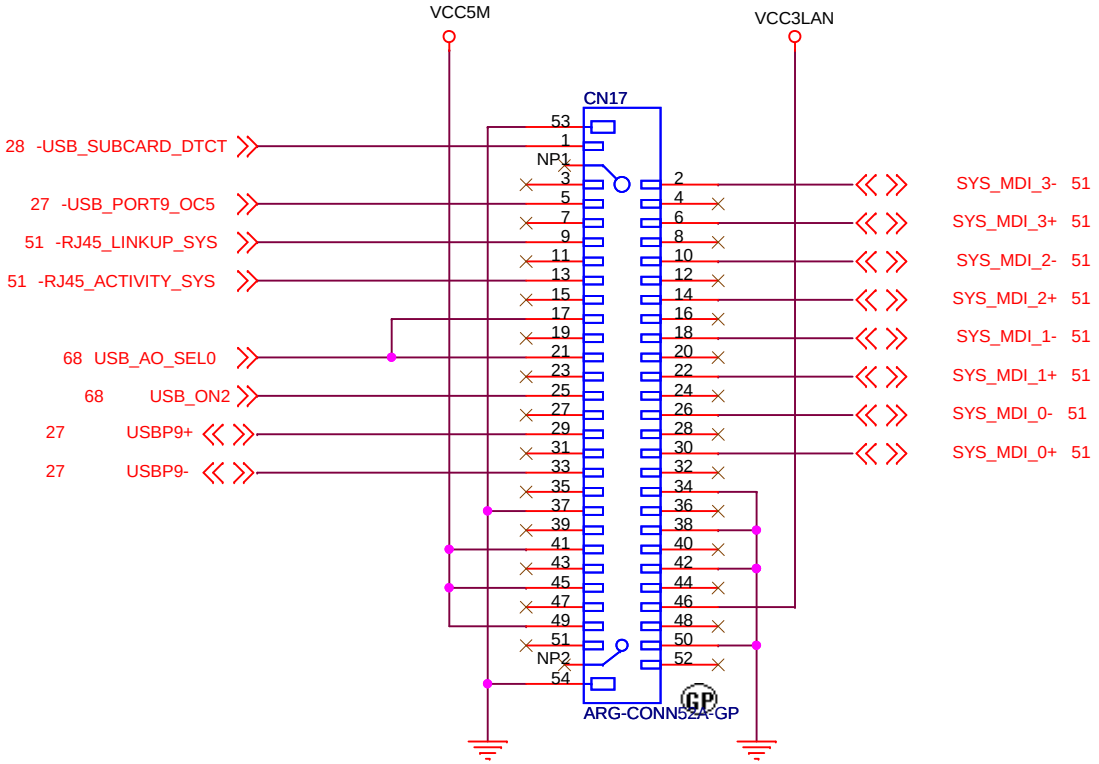

BOM

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

Title: ***USB BOARD CONN***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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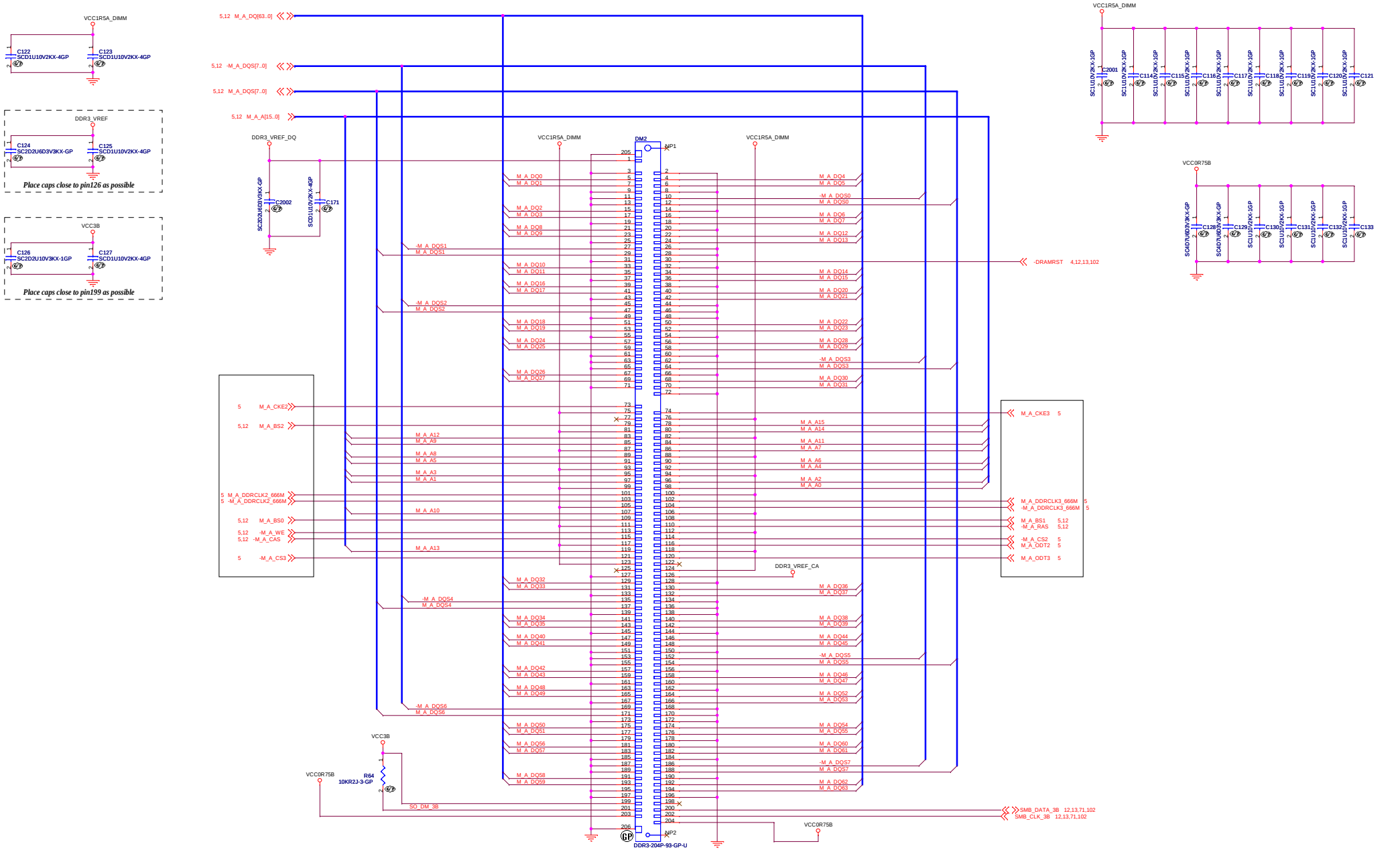
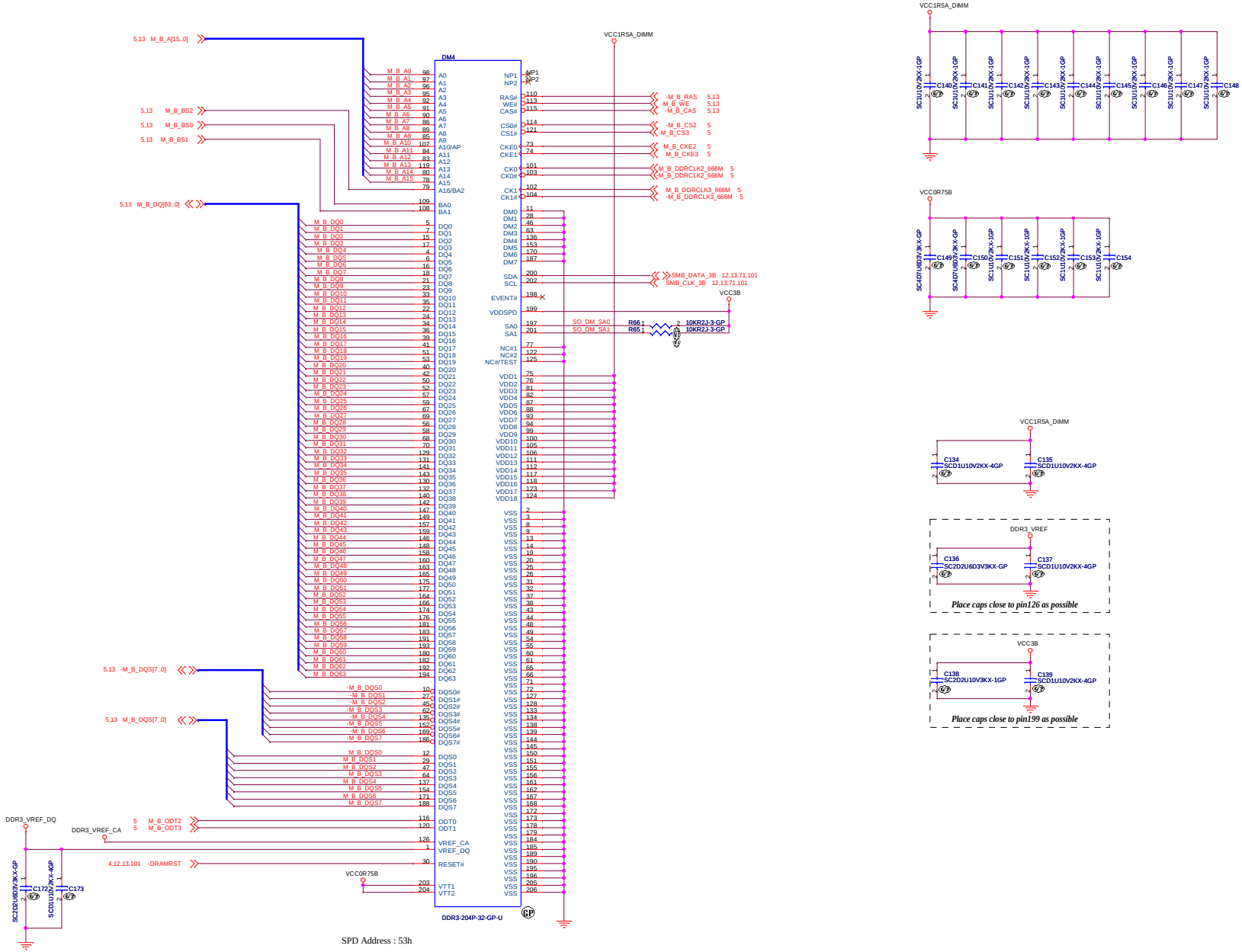


SPD Address : 52h

This connector should be placed on near side from CPU.

BOM

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: DDR3 SODIMM_CH-A_Secondary		
Size: A2	Document Number: Kendo-3 WS	Rev: SA
Date: Tuesday, December 07, 2010	Sheet 101 of 107	



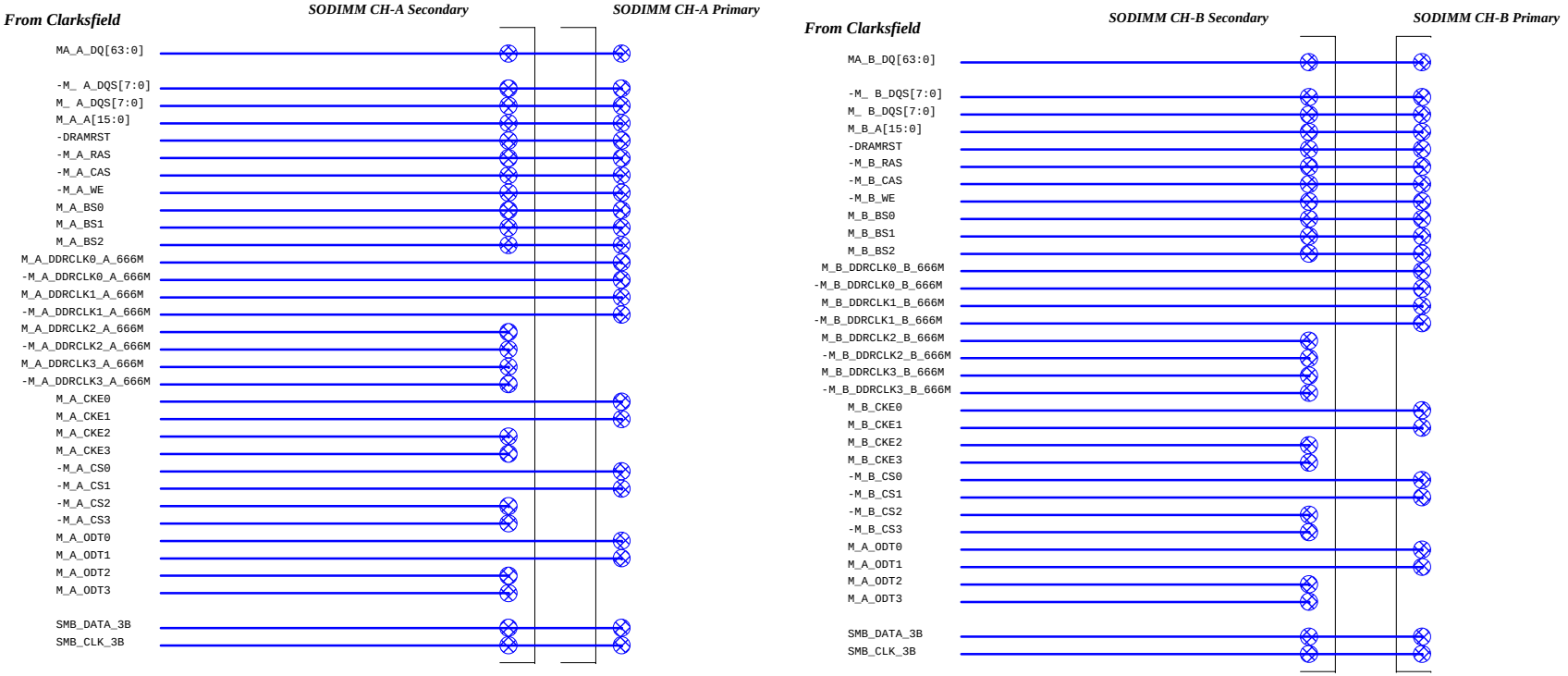
SPD Address : 53h

This connector should be placed on near side from CPU.

BOM

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***DDR3 SODIMM_CH-B_Secondary***	
Size A2	Document Number **Kendo-3 WS**	Rev SA
Date: Tuesday, December 07, 2010	Sheet 102 of 107	

SODIMM should be installed on CH0 Primary at first.



SODIMM IIC Address :
CH-A Primary : 50h
CH-B Primary : 51h
CH-A Secondary : 52h
CH-B Secondary : 53h

Pin1 on SODIM connector (VREF_DQ) only conects to DDR Voltage divider.
Clarksfield H17/J17 is left.

BOM

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Title: ***SODIMM CONFIGURATION***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

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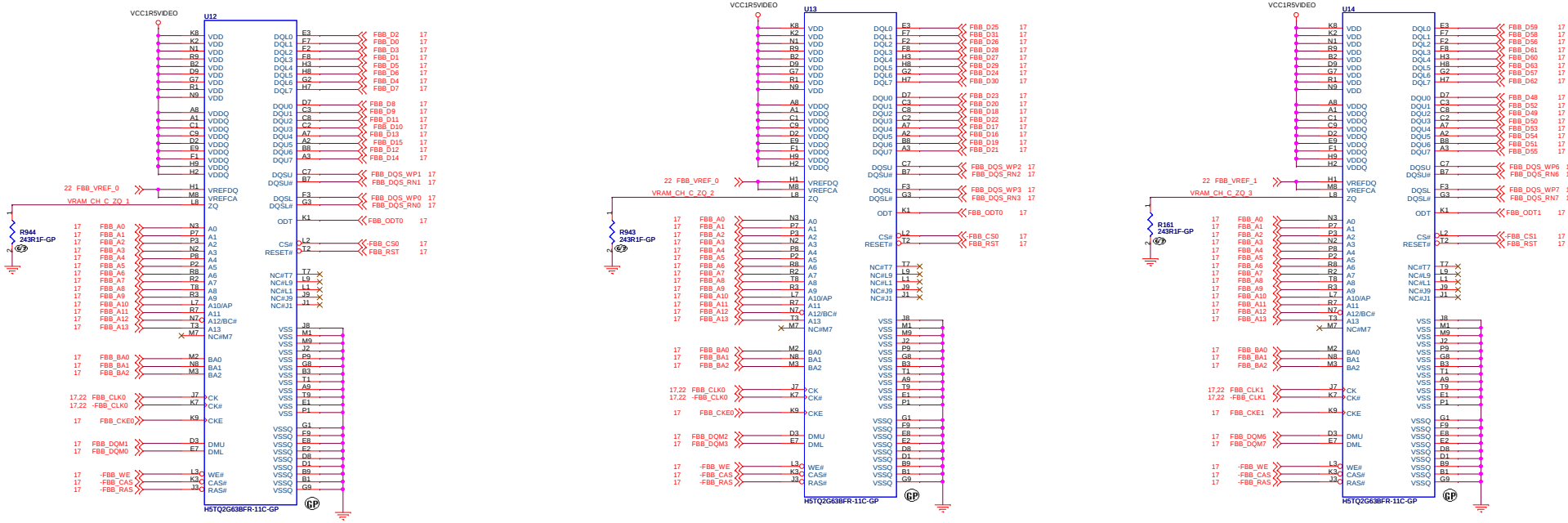
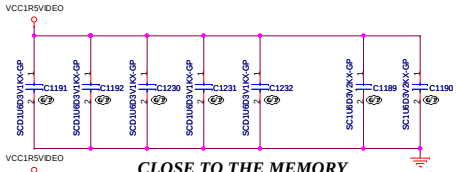


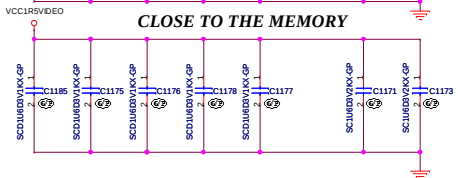
DG requires 4x0.1uF and 8x1.0uF per VRAM chip

FOR U12



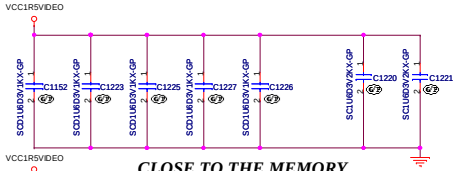
CLOSE TO THE MEMORY

FOR U13



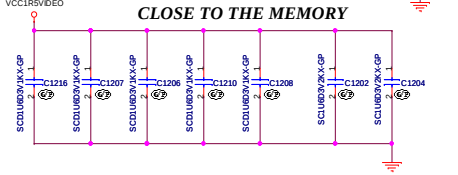
CLOSE TO THE MEMORY

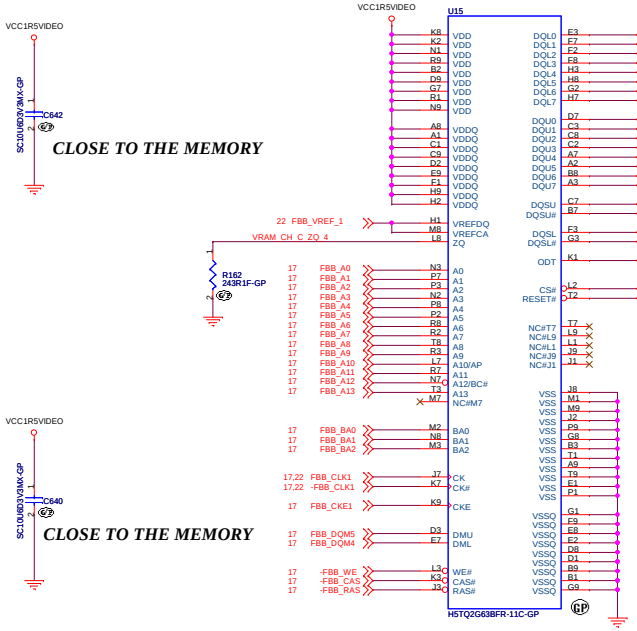
FOR U14



CLOSE TO THE MEMORY

FOR U15





CLOSE TO THE MEMORY

CLOSE TO THE MEMORY

VIDEO FRAME BUFFER PORT C

BOM

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Title: ***VRAM CHANNEL-C***

Size	Document Number	Rev
A2	Kendo-3 WS	SA

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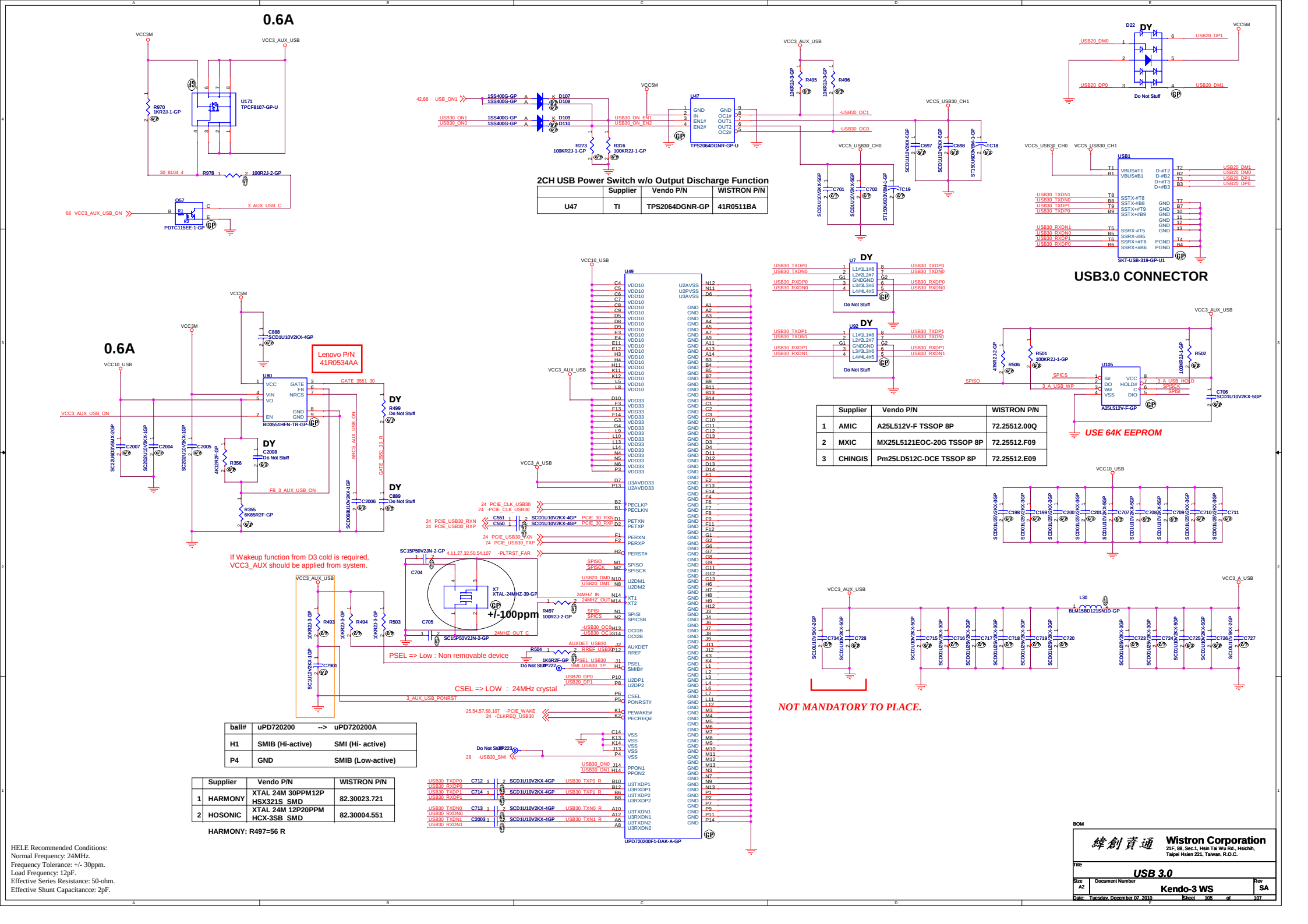

	Supplier	Vendo P/N	WISTRON P/N
U47	TI	TPS2064DGNR-GP	41R0511BA

	Supplier	Vendo P/N	WISTRON P/N
1	AMIC	A25L512V-F TSSOP 8P	72.25512.00Q
2	MXIC	MX25L5121EOC-20G TSSOP 8P	72.25512.F09
3	CHINGIS	Pm25LD512C-DCE TSSOP 8P	72.25512.E09

ball#	uPD720200 -->	uPD720200A
H1	SMIB (Hi-active)	SMI (Hi- active)
P4	GND	SMIB (Low-active)

	Supplier	Vendo P/N	WISTRON P/N
1	HARMONY	XTAL 24M 30PPM12P HSX321S SMD	82.30023.721
2	HOSONIC	XTAL 24M 12P20PPM HCX-3SB SMD	82.30004.551

HARMONY: R497=56 R

HELE Recommended Conditions:
Normal Frequency: 24MHz.
Frequency Tolerance: +/- 30ppm.
Load Frequency: 12pF.
Effective Series Resistance: 50-ohm.
Effective Shunt Capacitance: 2pF.

BOM

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Title: USB 3.0

Size	Document Number	Rev
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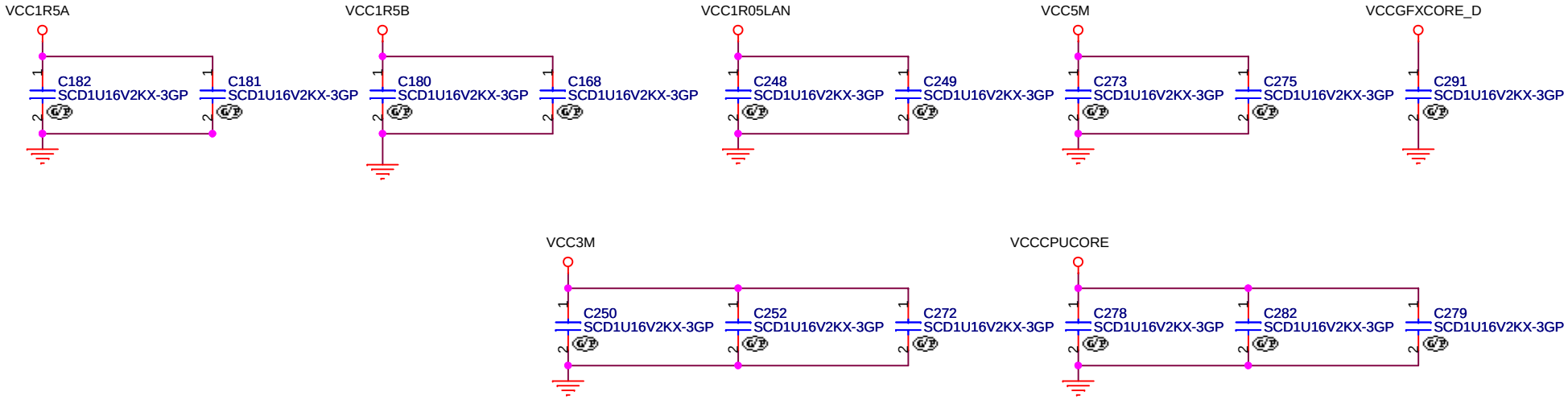
Long power trace EMI decoupling caps



BOM

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

Title: ***EMI DECOUPLING***

Size	Document Number	Rev
A4	**Kendo-3 WS**	SA

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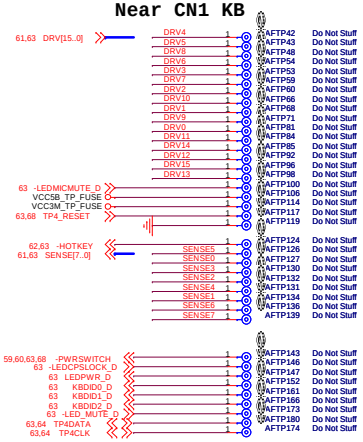
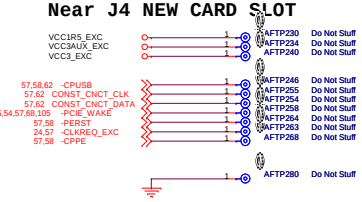
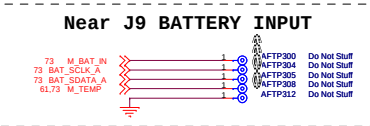
Near CN1 KB



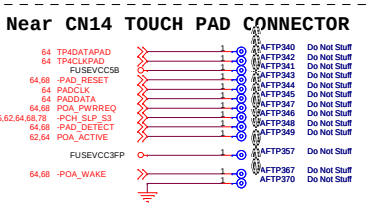
Near J4 NEW CARD SLOT



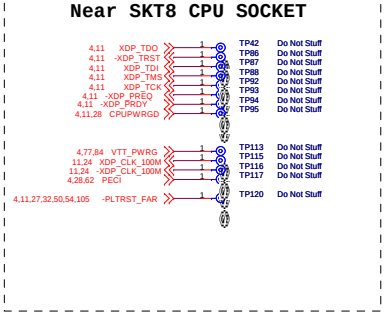
Near J9 BATTERY INPUT



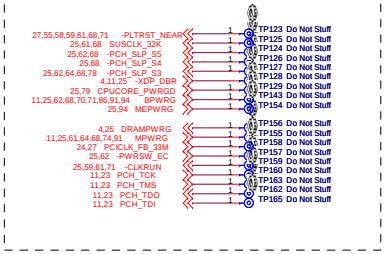
Near CN14 TOUCH PAD CONNECTOR



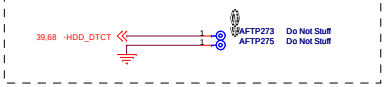
Near SKT8 CPU SOCKET



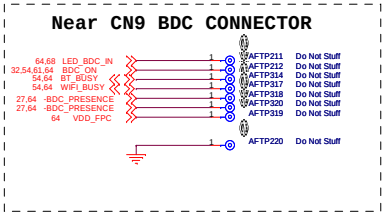
Near U123 PCH



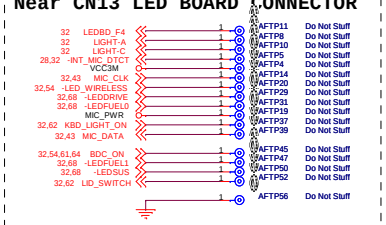
Near SATA2 SATA CONN



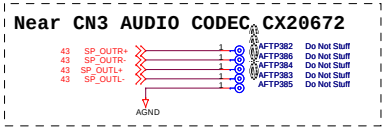
Near CN9 BDC CONNECTOR



Near CN13 LED BOARD CONNECTOR

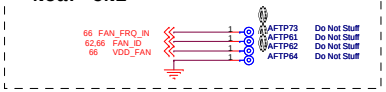


Near CN3 AUDIO CODEC CX20672

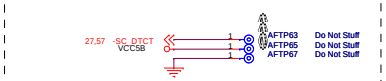


Near SW1

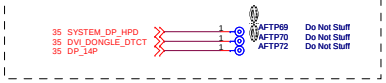
Near CN2



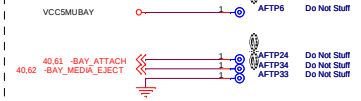
Near CN15



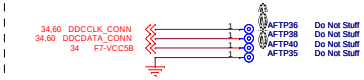
Near J1 DISPLAY PORT



Near SATA3 SATA ODD BAY



Near CRT1



BOM

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

Title: **TEST PAD**

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