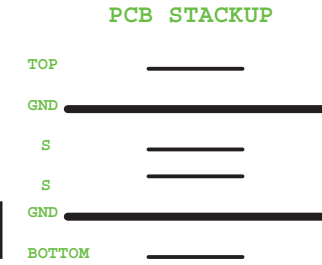
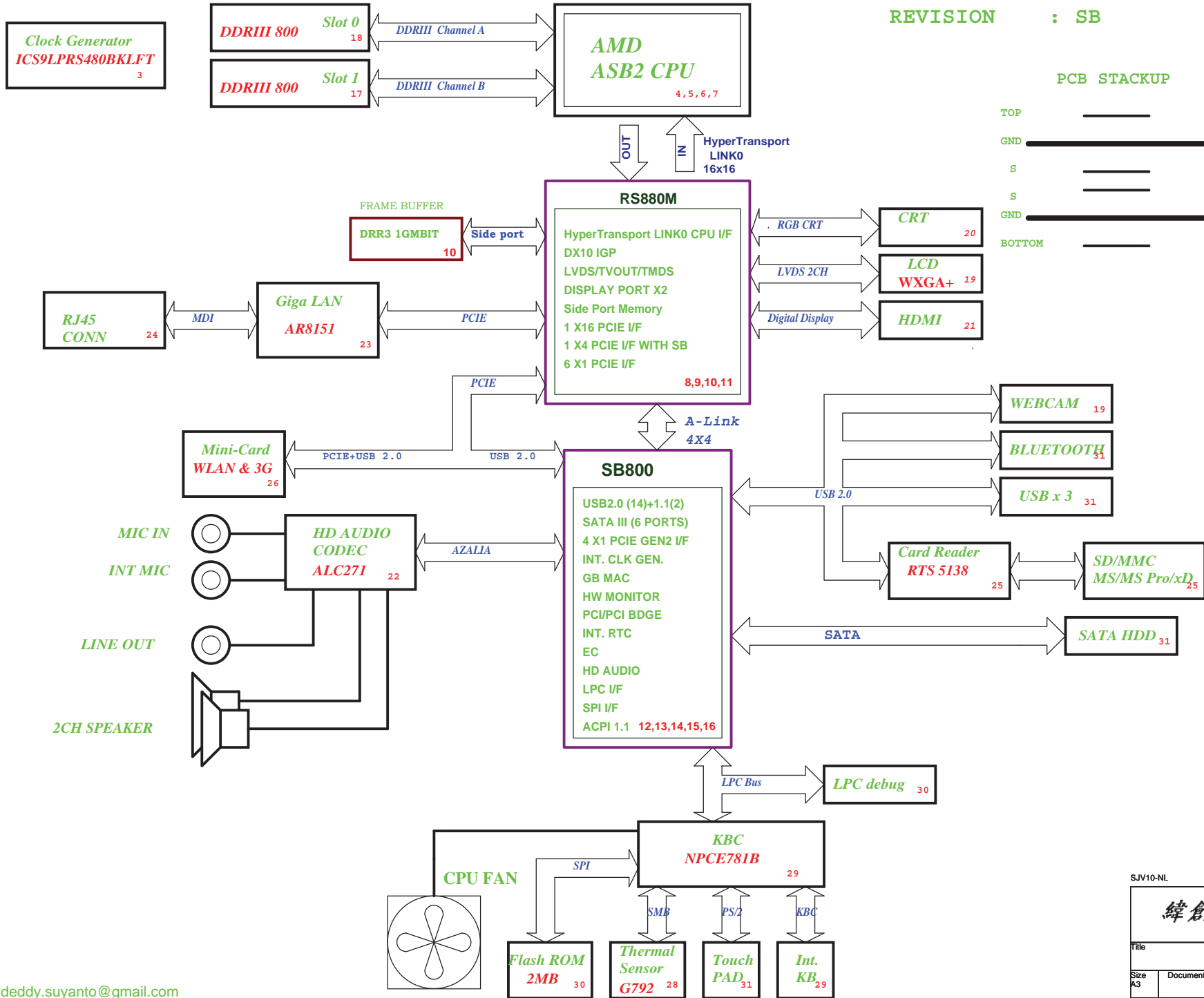


# JV10-NL Block Diagram

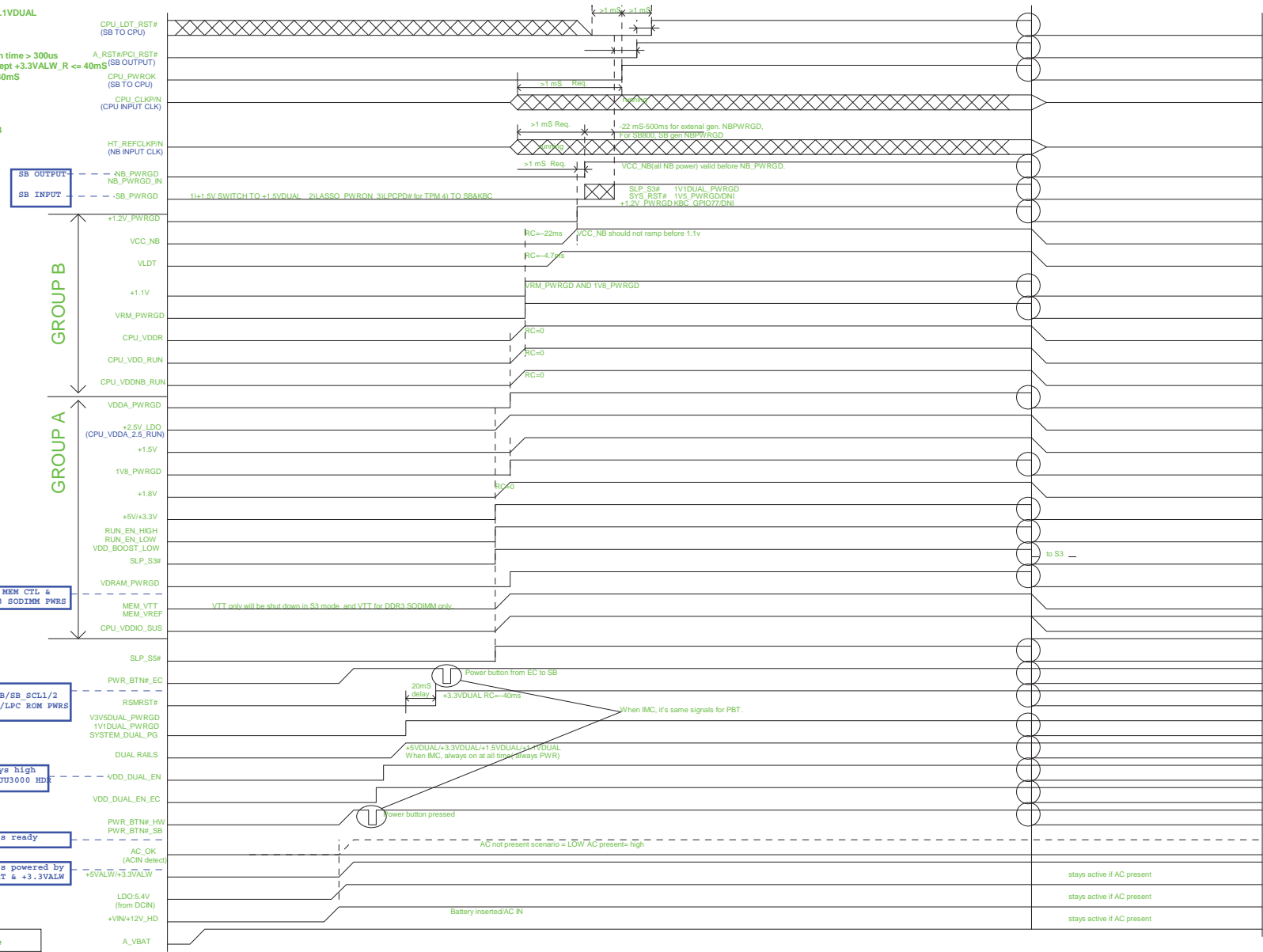
Project code: 91.4HX01.001  
 PCB P/N : 48.4HX01.0SB  
 REVISION : SB



<b>SYSTEM DC/DC RT8223 34</b>	
INPUTS	OUTPUTS
DCBATOUT	5V_S5 (6A) 3D3V_S5 (6A)
<b>SYSTEM DC/DC RT8209E 35</b>	
INPUTS	OUTPUTS
DCBATOUT	1D5V_S3 (7.5A)
<b>SYSTEM DC/DC RT8209E 36</b>	
INPUTS	OUTPUTS
DCBATOUT	1D1V_S0 (11A)
<b>RT9026 35</b>	
5V_S5	DDR_VREF_S3
<b>RT9025 37</b>	
3D3V_S5	1D1V_S5
<b>RT9025 37</b>	
3D3V_S5	CPU_VDDR
<b>CHARGER ISL88731A 38</b>	
INPUTS	OUTPUTS
DCBATOUT	CHG_PWR 18V 6.0A UP+5V 5V 100mA
<b>CPU DC/DC ISL6265AHR 33</b>	
INPUTS	OUTPUTS
DCBATOUT	VCC_CORE_S0_0 0~1.55V 18A VCC_CORE_S0_1 0~1.55V 18A VDDNB 0~1.55V 18A

Power on Sequence required:

- SB800:**  
 1, +3.3VDUAL ramp before +1.1VDUAL  
 2, +3.3V ramp before +1.8v  
 3, +1.8V ramp before +1.1v  
 4, +3.3v ramp before +1.1v  
 5, +3.3VALW\_R ramping down time > 300us  
 6, 50uS <= All power rails except +3.3VALW\_R <= 40ms  
 7, 100uS <= +3.3VALW\_R <= 40mS
- RS880:**  
 1, 0 < (+3.3V) - (+1.8v) < 2.1  
 2, +1.8V ramp before +1.1v  
 3, +1.1V ramp before VCC\_NB



USB

Pair	Device
0	USB1 (HS)
1	MINICARD1
2	NC
3	NC
4	Cardreader
5	USB2
6	USB3
7	Blue Tooth
8	NC
9	WECAM
10	NC
11	MINIC2 (3G sim)
12	MINIC2 (3G)
13	NC

PCIE Routing

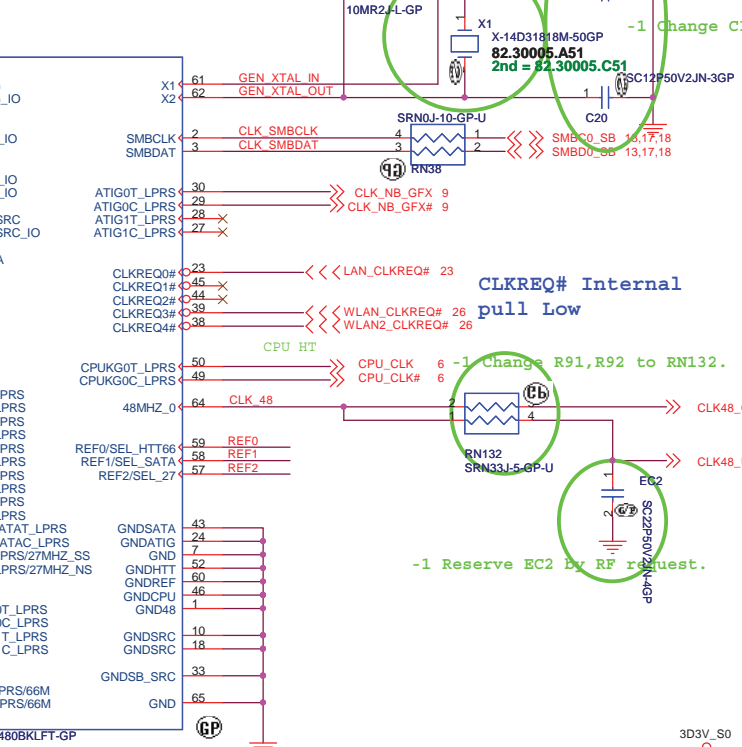
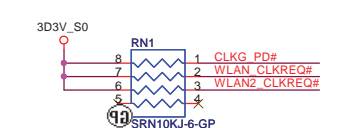
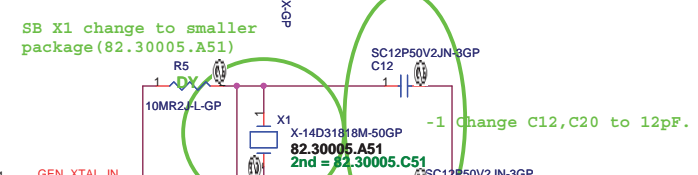
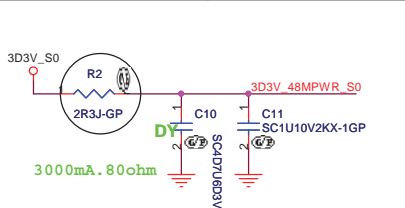
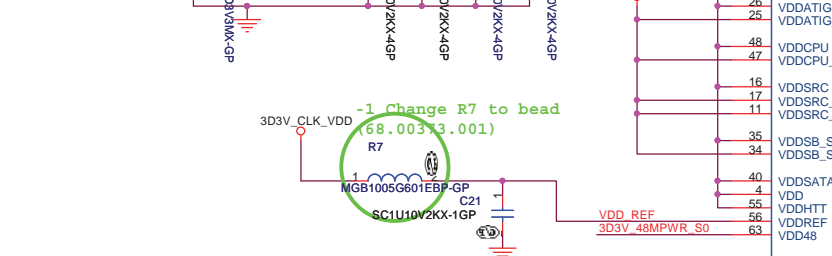
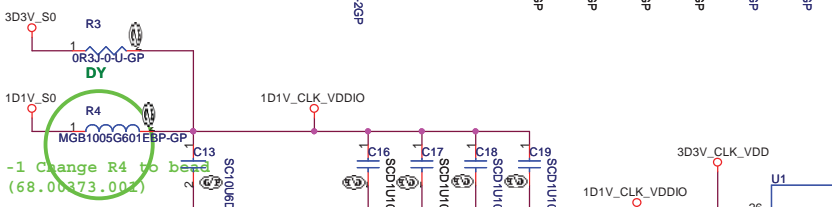
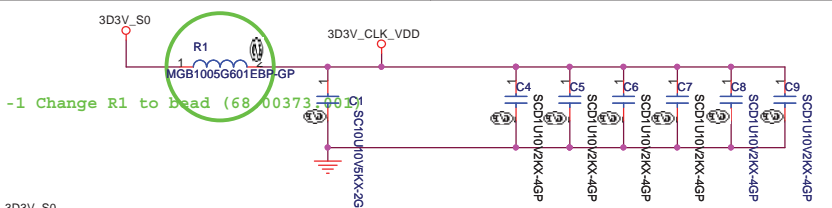
LANE1	LAN
LANE2	MiniCard1
LANE3	MiniCard2

deddy.suyanto@gmail.com

SVJ10-NL

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

Table of Content		
File		
Size	Document Number	Rev
42	SVJ10-NL	-1
Date:	Tuesday, January 05, 2010	Sheet 2 of 42

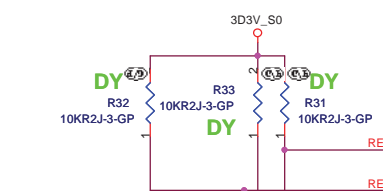
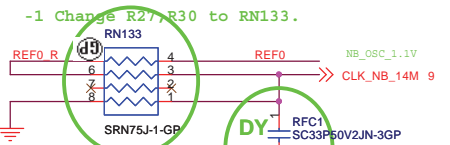
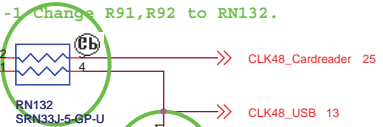


71.09480.A03  
2ND = 71.00880.A03  
9LRS480, Wistron P/N??? 48Mhz

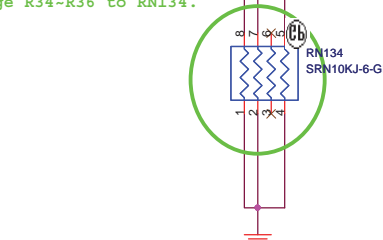
NB CLOCK INPUT TABLE

NB CLOCKS	RS880M
HT_REFCLKP	100M DIFF
HT_REFCLKN	100M DIFF
REFCLK_P	14M SE (1.1V)
REFCLK_N	vref
GFX_REFCLK	100M DIFF(IN/OUT)*
GPP_REFCLK	NC or 100M DIFF OUTPUT
GPPSB_REFCLK	100M DIFF

\* RS880M can be used as clock buffer to output two PCIe reference clocks  
By default, chip will be configured as input mode, BIOS can program it to output mode.



SEL_27 REF2	1	27MHz non-spreading singled clock on pin 5 and 27MHz spread clock on pin 6
SEL_SATA REF1	0*	100MHz differential spreading SRC clock
SEL_SATA REF1	1	100MHz non-spreading differential SATA clock
SEL_SATA REF0	0*	100MHz differential spreading SRC clock
SEL_HTT66 REF0	1	66MHz 3.3V single ended HTT clock
SEL_HTT66 REF0	0*	100MHz differential HTT clock



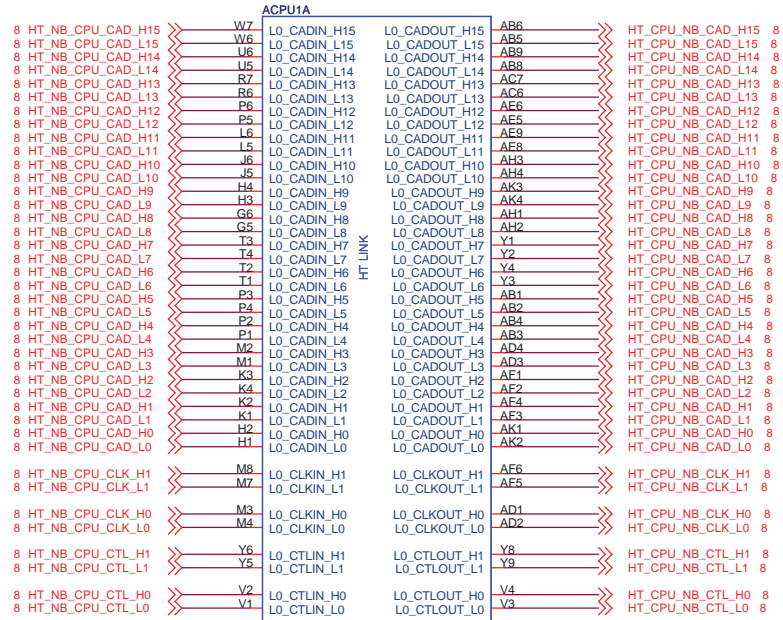
SJV10-NL

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Title: **CLKGEN ICS9LPRS480**

Size: **A3** Document Number: **SJV10-NL** Rev: **-1**

Date: Friday, January 29, 2010 Sheet 3 of 42



ASB2

**71.TURON.B0U**

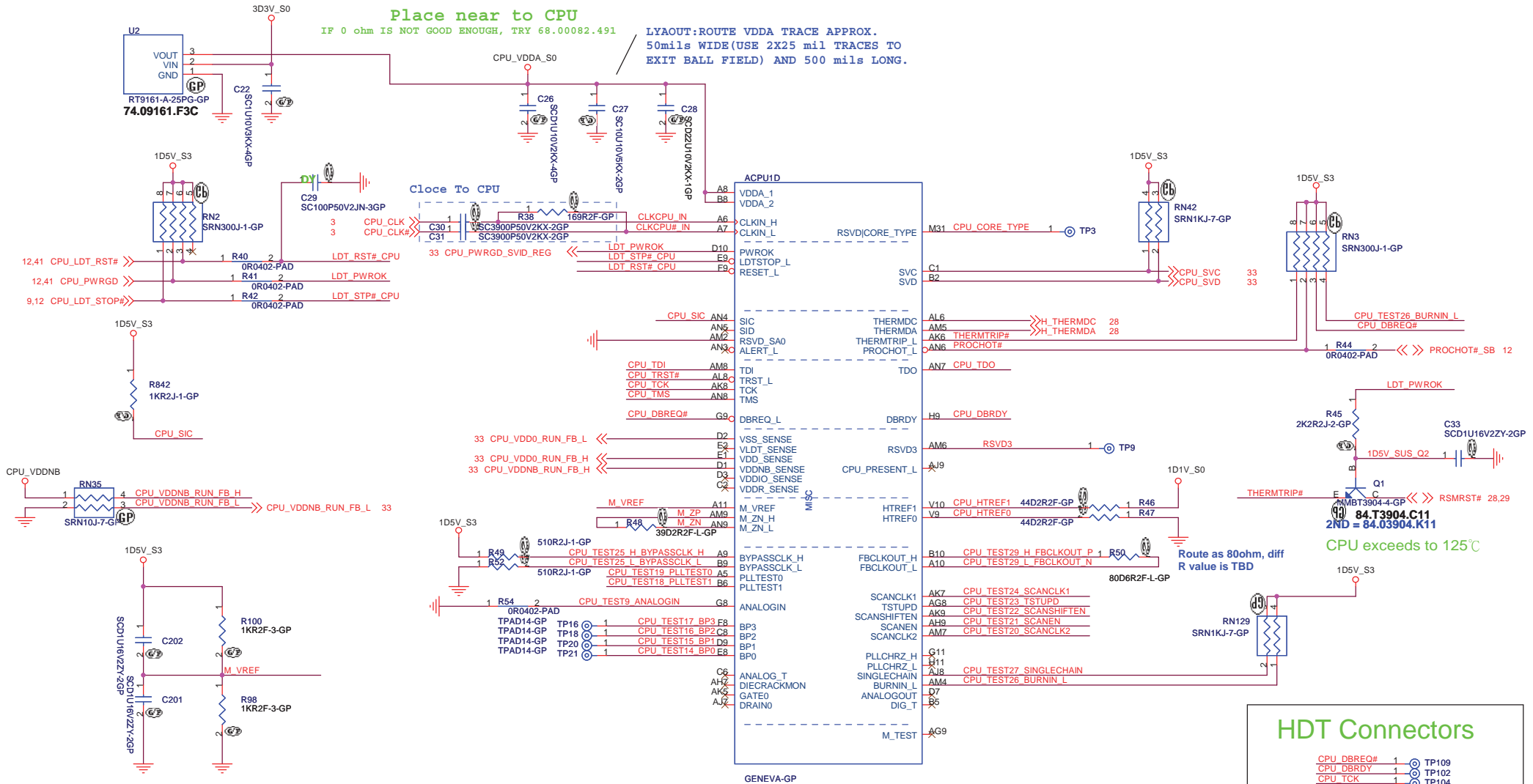


2D5V  
Iomax=0.2A

Place near to CPU

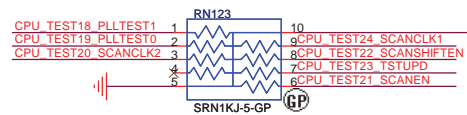
IF 0 ohm IS NOT GOOD ENOUGH, TRY 68.00082.491

LYAOUT:ROUTE VDDA TRACE APPROX.  
50mils WIDE(USE 2X25 mil TRACES TO  
EXIT BALL FIELD) AND 500 mils LONG.



### HDT Connectors

- CPU\_DBREQ# 1 TP109
- CPU\_DBRDY 1 TP102
- CPU\_TRST# 1 TP107
- CPU\_TCK 1 TP105
- CPU\_TMS 1 TP104
- CPU\_TDI 1 TP106
- CPU\_TEST20 1 TP108
- CPU\_TEST21 1 TP106
- CPU\_TEST22 1 TP105
- CPU\_TEST23 1 TP104
- CPU\_TEST24 1 TP103
- CPU\_TEST25 1 TP102
- CPU\_TEST26 1 TP101
- CPU\_TEST27 1 TP100
- CPU\_TEST28 1 TP99
- CPU\_TEST29 1 TP98
- CPU\_TEST30 1 TP97
- CPU\_TEST31 1 TP96
- CPU\_TEST32 1 TP95
- CPU\_TEST33 1 TP94
- CPU\_TEST34 1 TP93
- CPU\_TEST35 1 TP92
- CPU\_TEST36 1 TP91
- CPU\_TEST37 1 TP90
- CPU\_TEST38 1 TP89
- CPU\_TEST39 1 TP88
- CPU\_TEST40 1 TP87
- CPU\_TEST41 1 TP86
- CPU\_TEST42 1 TP85
- CPU\_TEST43 1 TP84
- CPU\_TEST44 1 TP83
- CPU\_TEST45 1 TP82
- CPU\_TEST46 1 TP81
- CPU\_TEST47 1 TP80
- CPU\_TEST48 1 TP79
- CPU\_TEST49 1 TP78
- CPU\_TEST50 1 TP77
- CPU\_TEST51 1 TP76
- CPU\_TEST52 1 TP75
- CPU\_TEST53 1 TP74
- CPU\_TEST54 1 TP73
- CPU\_TEST55 1 TP72
- CPU\_TEST56 1 TP71
- CPU\_TEST57 1 TP70
- CPU\_TEST58 1 TP69
- CPU\_TEST59 1 TP68
- CPU\_TEST60 1 TP67
- CPU\_TEST61 1 TP66
- CPU\_TEST62 1 TP65
- CPU\_TEST63 1 TP64
- CPU\_TEST64 1 TP63
- CPU\_TEST65 1 TP62
- CPU\_TEST66 1 TP61
- CPU\_TEST67 1 TP60
- CPU\_TEST68 1 TP59
- CPU\_TEST69 1 TP58
- CPU\_TEST70 1 TP57
- CPU\_TEST71 1 TP56
- CPU\_TEST72 1 TP55
- CPU\_TEST73 1 TP54
- CPU\_TEST74 1 TP53
- CPU\_TEST75 1 TP52
- CPU\_TEST76 1 TP51
- CPU\_TEST77 1 TP50
- CPU\_TEST78 1 TP49
- CPU\_TEST79 1 TP48
- CPU\_TEST80 1 TP47
- CPU\_TEST81 1 TP46
- CPU\_TEST82 1 TP45
- CPU\_TEST83 1 TP44
- CPU\_TEST84 1 TP43
- CPU\_TEST85 1 TP42
- CPU\_TEST86 1 TP41
- CPU\_TEST87 1 TP40
- CPU\_TEST88 1 TP39
- CPU\_TEST89 1 TP38
- CPU\_TEST90 1 TP37
- CPU\_TEST91 1 TP36
- CPU\_TEST92 1 TP35
- CPU\_TEST93 1 TP34
- CPU\_TEST94 1 TP33
- CPU\_TEST95 1 TP32
- CPU\_TEST96 1 TP31
- CPU\_TEST97 1 TP30
- CPU\_TEST98 1 TP29
- CPU\_TEST99 1 TP28
- CPU\_TEST100 1 TP27
- CPU\_TEST101 1 TP26
- CPU\_TEST102 1 TP25
- CPU\_TEST103 1 TP24
- CPU\_TEST104 1 TP23
- CPU\_TEST105 1 TP22
- CPU\_TEST106 1 TP21
- CPU\_TEST107 1 TP20
- CPU\_TEST108 1 TP19
- CPU\_TEST109 1 TP18
- CPU\_TEST110 1 TP17
- CPU\_TEST111 1 TP16
- CPU\_TEST112 1 TP15
- CPU\_TEST113 1 TP14
- CPU\_TEST114 1 TP13
- CPU\_TEST115 1 TP12
- CPU\_TEST116 1 TP11
- CPU\_TEST117 1 TP10
- CPU\_TEST118 1 TP9
- CPU\_TEST119 1 TP8
- CPU\_TEST120 1 TP7
- CPU\_TEST121 1 TP6
- CPU\_TEST122 1 TP5
- CPU\_TEST123 1 TP4
- CPU\_TEST124 1 TP3
- CPU\_TEST125 1 TP2
- CPU\_TEST126 1 TP1



SJV10-NL

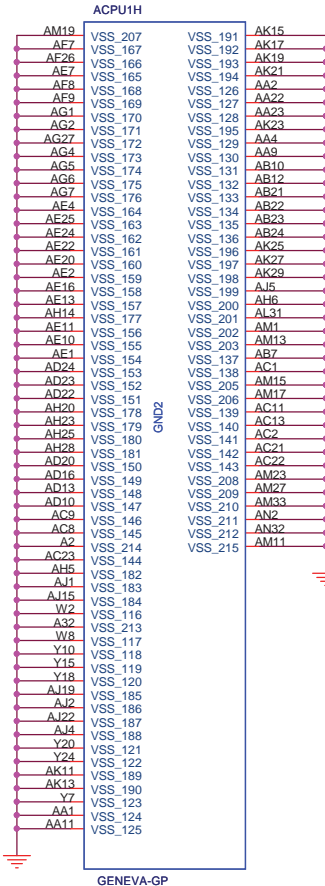
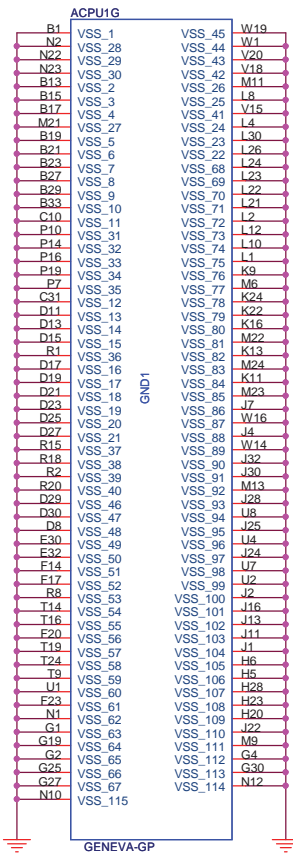
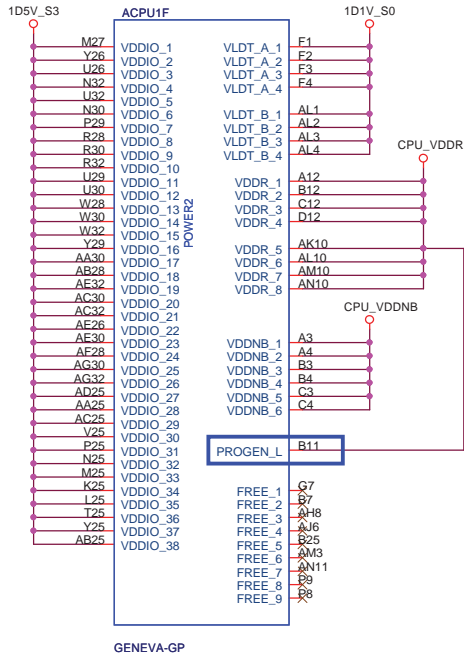
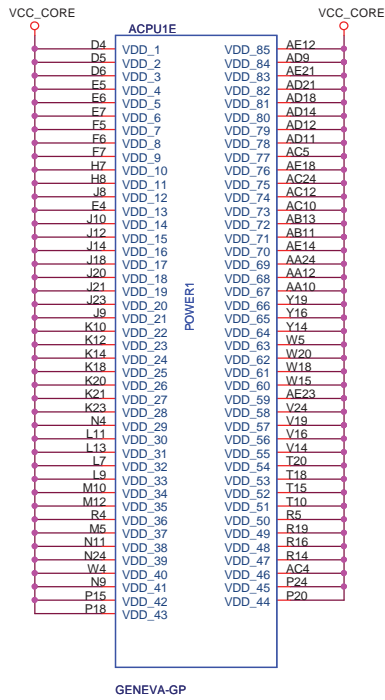
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Taipei Hsien 221, Taiwan, R.O.C.

Title CPU\_Control&Debug\_(3/4)

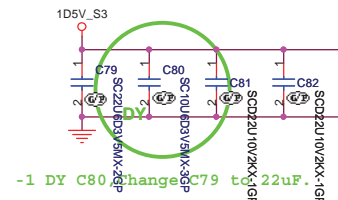
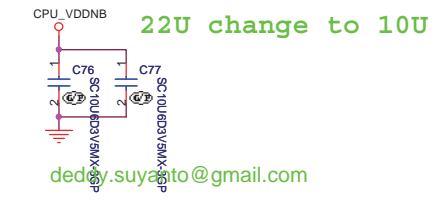
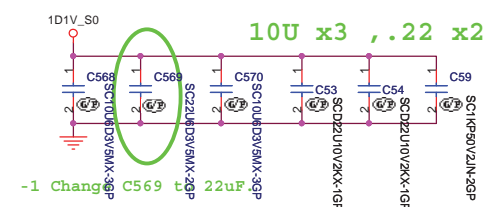
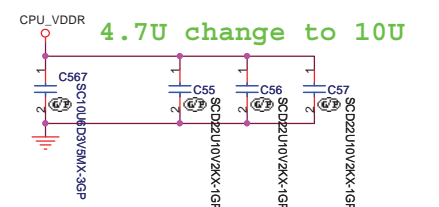
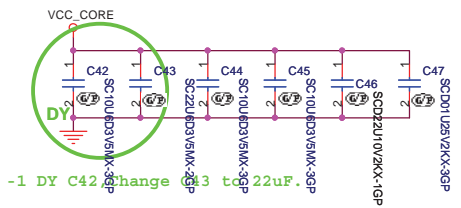
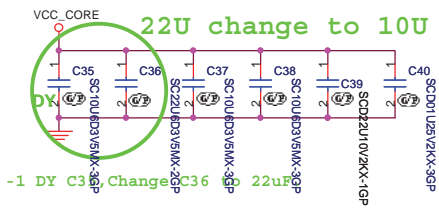
Size A3 Document Number SJV10-NL Rev -1

Date: Tuesday, January 26, 2010 Sheet 6 of 42

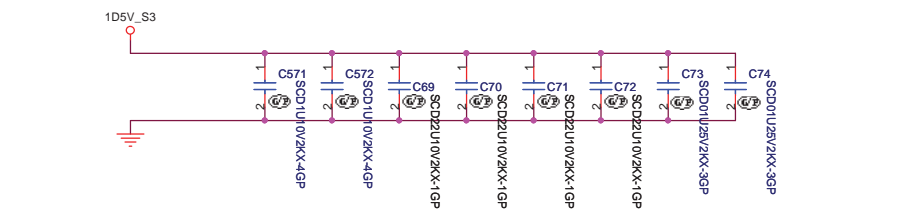




## BOTTOM SIDE DECOUPLING

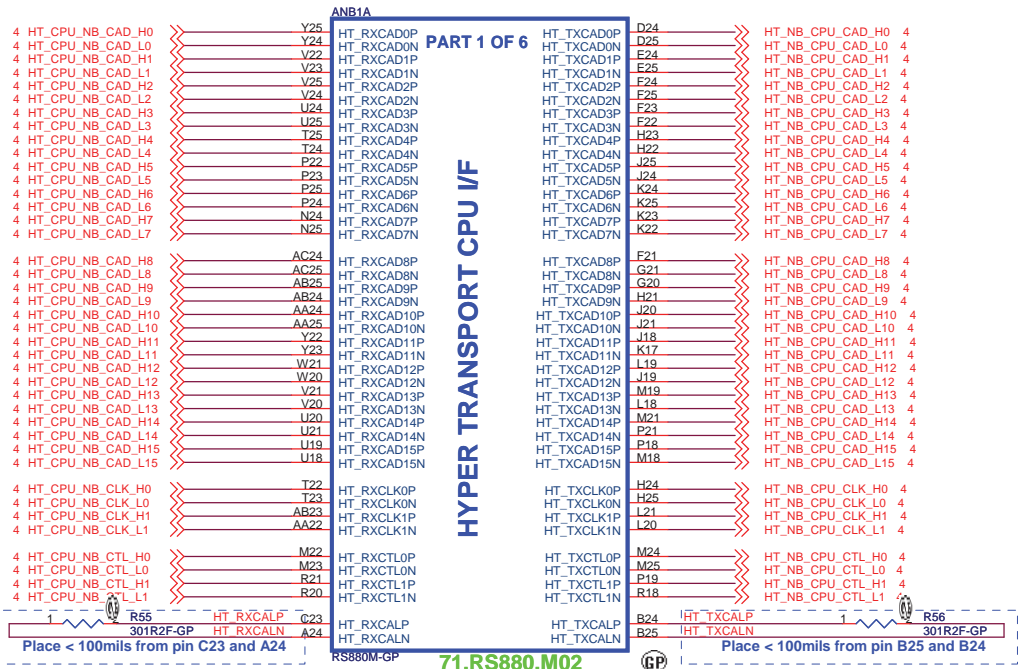


DECOUPLING between CPU and DIMMs  
PLACE CLOSE TO CPU AS POSSIBLE



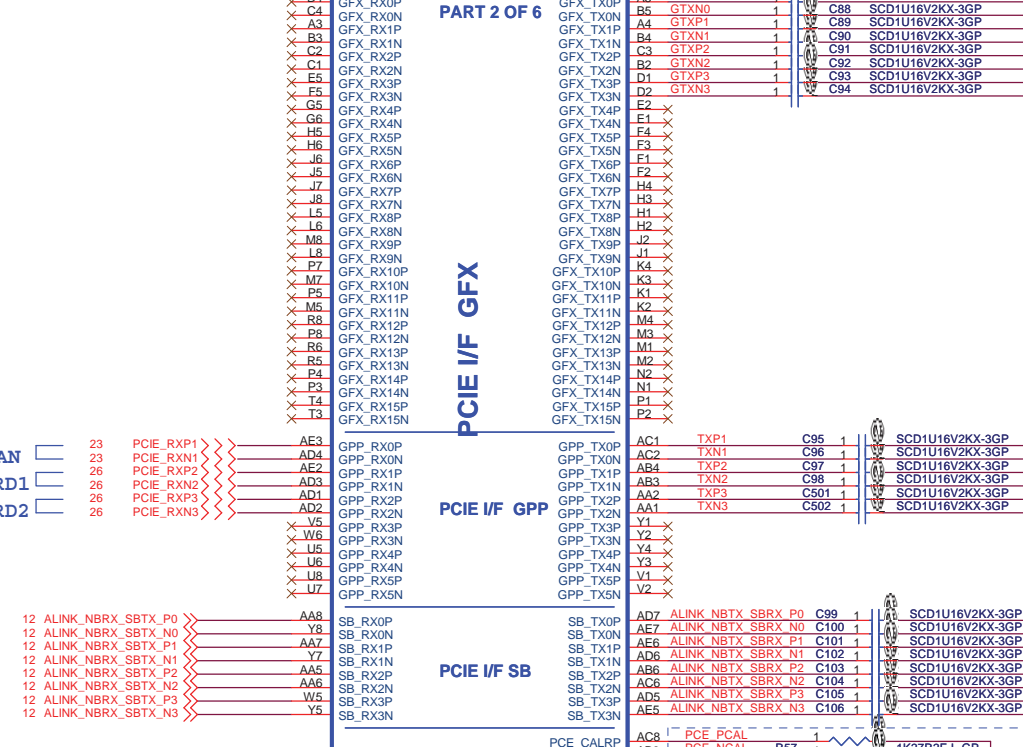
It's required to add two 10uF/0603 size for CPU VDDIO\_SUS, move 2x180pf from under CPU ballout by Beker, Ben.

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<b>File CPU_Power_(4/4)</b>		
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Place < 100mils from pin C23 and A24

Place < 100mils from pin B25 and B24

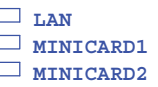


Place < 100mils from pin AC8 and AB8



**RS880M Display Port Support (muxed on GFX)**

DP0	GFX_TX0, TX1, TX2 and TX3 AUX0 and HPD0
DP1	GFX_TX4, TX5, TX6 and TX7 AUX1 and HPD1



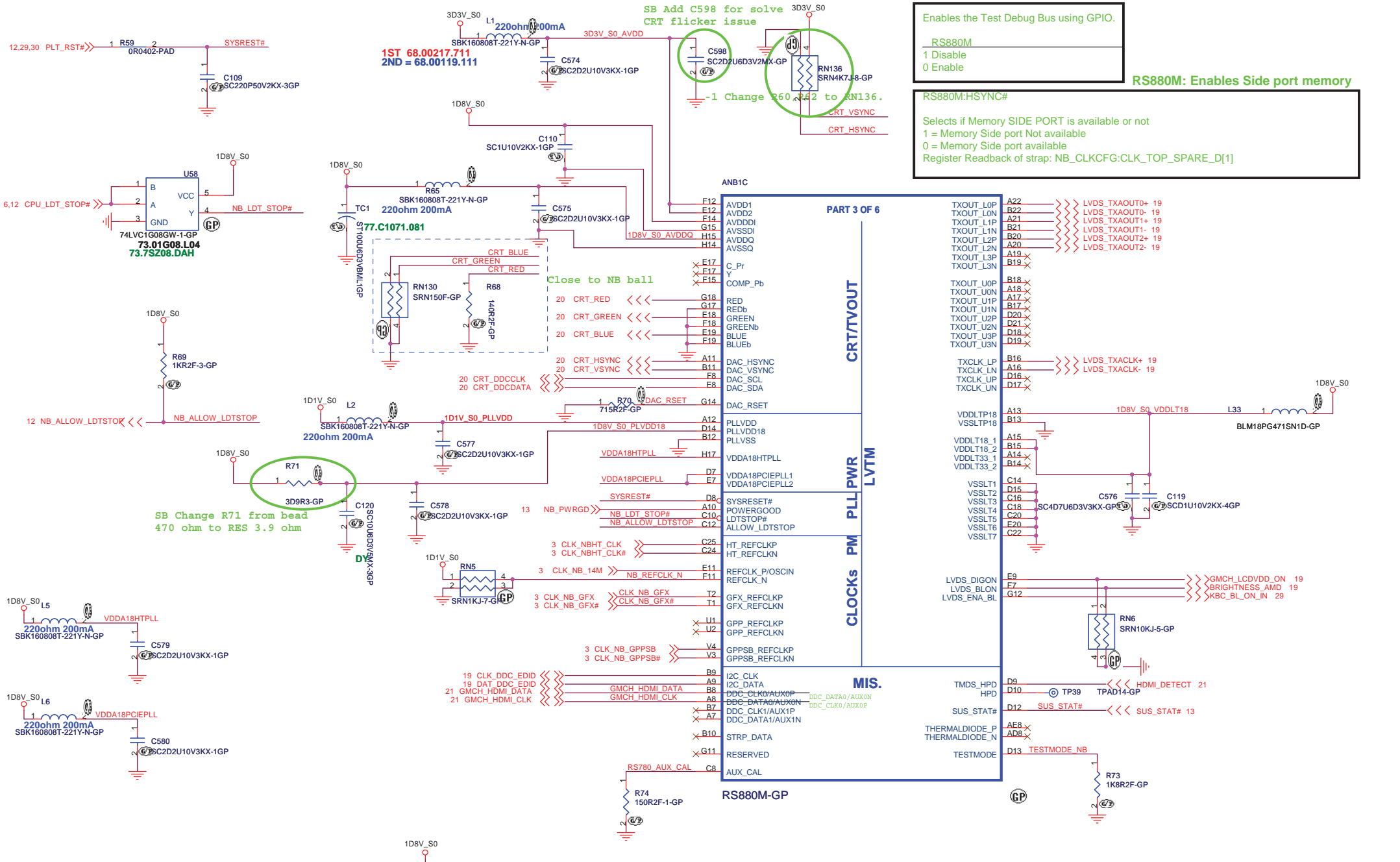
**SJV10-NL**



**ATI-RS880M\_HT LINK&PCIe(1/4)**

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Date: Tuesday, January 26, 2010	<b>SJV10-NL</b>	Sheet 8 of 42





Enables the Test Debug Bus using GPIO.

**RS880M**  
 1 Disable  
 0 Enable

**RS880M: Enables Side port memory**

RS880M:HSYNC#

Selects if Memory SIDE PORT is available or not  
 1 = Memory Side port Not available  
 0 = Memory Side port available  
 Register Readback of strap: NB\_CLKCFG:CLK\_TOP\_SPARE\_D[1]

12.29.30 PLT\_RST# >>> 1 R59 0R0402-PAD  
 SYSREST#

6.12 CPU\_LDT\_STOP# >>> 1 U58 74LVC1G08GW-1-GP  
 73.01G08.L04  
 73.7S208.DAH

12 NB\_ALLOW\_LDTSTOP <<< 1 R69 1KR2F-3-GP  
 NB\_ALLOW\_LDTSTOP

1D8V\_S0 L5 220ohm 200mA SBK160808T-221Y-N-GP  
 VDDA18HTPLL

1D8V\_S0 L6 220ohm 200mA SBK160808T-221Y-N-GP  
 VDDA18PCIEPLL

3D3V\_S0 L1 220ohm 200mA SBK160808T-221Y-N-GP  
 3D3V\_S0\_AVDD

1D8V\_S0 C574 35C2D2U10V3KX-1-GP  
 1D8V\_S0\_AVDDQ

1D8V\_S0 C110 SC1U10V2KX-1-GP  
 1D8V\_S0\_AVDDQ

1D8V\_S0 C575 35C2D2U10V3KX-1-GP  
 1D8V\_S0\_AVDDQ

1D1V\_S0 L2 220ohm 200mA SBK160808T-221Y-N-GP  
 1D1V\_S0\_PLLVDD

1D8V\_S0 R71 3D9R3-GP  
 1D8V\_S0\_PLLVDD

1D1V\_S0 C577 35C2D2U10V3KX-1-GP  
 1D1V\_S0\_PLLVDD

1D1V\_S0 C12 SC10UB3V3MX-3-GP  
 1D1V\_S0\_PLLVDD

1D1V\_S0 C578 35C2D2U10V3KX-1-GP  
 1D1V\_S0\_PLLVDD

1D1V\_S0 R74 150R2F-1-GP  
 1D1V\_S0\_PLLVDD

1D8V\_S0 L5 220ohm 200mA SBK160808T-221Y-N-GP  
 VDDA18HTPLL

1D8V\_S0 L6 220ohm 200mA SBK160808T-221Y-N-GP  
 VDDA18PCIEPLL

1D8V\_S0 C579 35C2D2U10V3KX-1-GP  
 VDDA18HTPLL

1D8V\_S0 C580 35C2D2U10V3KX-1-GP  
 VDDA18PCIEPLL

1D8V\_S0 R101 301R2F-GP  
 NB\_PWRGD

SB Add C598 for solve CRT flicker issue  
 C598 SC2D1U6D3V2MX-GP  
 -1 Change R60, R62 to RN136.

CRT\_VSYNC  
 CRT\_HSYNC

Close to NB ball

20 CRT\_RED <<< G18  
 20 CRT\_GREEN <<< G17  
 20 CRT\_BLUE <<< G15

20 CRT\_DDCCLK <<< A11  
 20 CRT\_VSYNC <<< B11  
 20 CRT\_DDCDATA <<< E8

3 CLK\_NBHT\_CLK >>> C25  
 3 CLK\_NBHT\_CLK# >>> C24  
 3 CLK\_NB\_14M >>> E11

3 CLK\_NB\_GFX >>> T2  
 3 CLK\_NB\_GFX# >>> T1

3 CLK\_NB\_GPPSB >>> V4  
 3 CLK\_NB\_GPPSB# >>> V3

19 CLK\_DDC\_EDID >>> B9  
 19 DAT\_DDC\_EDID >>> A9  
 21 GMCH\_HDMI\_DATA >>> B8  
 21 GMCH\_HDMI\_CLK >>> A8

RESERVED >>> G11  
 AUX\_CAL >>> C8

HT\_REFCLKP >>> C24  
 HT\_REFCLKN >>> E11

GFX\_REFCLKP >>> T2  
 GFX\_REFCLKN >>> T1

GPPSB\_REFCLKP >>> V4  
 GPPSB\_REFCLKN >>> V3

I2C\_CLK >>> B9  
 I2C\_DATA >>> A9  
 DDC\_CLK0/AUX0P >>> B8  
 DDC\_DATA0/AUX0N >>> A8  
 DDC\_CLK1/AUX1P >>> B7  
 DDC\_DATA1/AUX1N >>> A7

AUX\_CAL >>> C8

PART 3 OF 6

CRT/VOUT

LVTTM

PLL/PWR

CLOCKS

PM

MIS.

RS880M-GP

TXOUT\_L0P A22 >>> LVDS\_TXAOUT0+ 19  
 TXOUT\_L0N B22 >>> LVDS\_TXAOUT0- 19  
 TXOUT\_L1P A21 >>> LVDS\_TXAOUT1+ 19  
 TXOUT\_L1N B21 >>> LVDS\_TXAOUT1- 19  
 TXOUT\_L2P B20 >>> LVDS\_TXAOUT2+ 19  
 TXOUT\_L2N A20 >>> LVDS\_TXAOUT2- 19  
 TXOUT\_L3P A19 >>> LVDS\_TXAOUT3+ 19  
 TXOUT\_L3N B19 >>> LVDS\_TXAOUT3- 19

TXCLK\_LP B16 >>> LVDS\_TXACLK+ 19  
 TXCLK\_LN A16 >>> LVDS\_TXACLK- 19  
 TXCLK\_UP D17 >>> LVDS\_TXACLK+ 19  
 TXCLK\_UN B17 >>> LVDS\_TXACLK- 19

VDDLTP18 A13 >>> 1D8V\_S0\_VDDLTP18  
 VSSLTP18 B13 >>> 1D8V\_S0\_VSSLTP18

VDDL18\_1 A15 >>> 1D8V\_S0\_VDDL18\_1  
 VDDL18\_2 B15 >>> 1D8V\_S0\_VDDL18\_2  
 VDDL33\_1 A14 >>> 1D8V\_S0\_VDDL33\_1  
 VDDL33\_2 B14 >>> 1D8V\_S0\_VDDL33\_2

VSSLT1 C14 >>> 1D8V\_S0\_VSSLT1  
 VSSLT2 D15 >>> 1D8V\_S0\_VSSLT2  
 VSSLT3 C16 >>> 1D8V\_S0\_VSSLT3  
 VSSLT4 C18 >>> 1D8V\_S0\_VSSLT4  
 VSSLT5 C20 >>> 1D8V\_S0\_VSSLT5  
 VSSLT6 E20 >>> 1D8V\_S0\_VSSLT6  
 VSSLT7 C22 >>> 1D8V\_S0\_VSSLT7

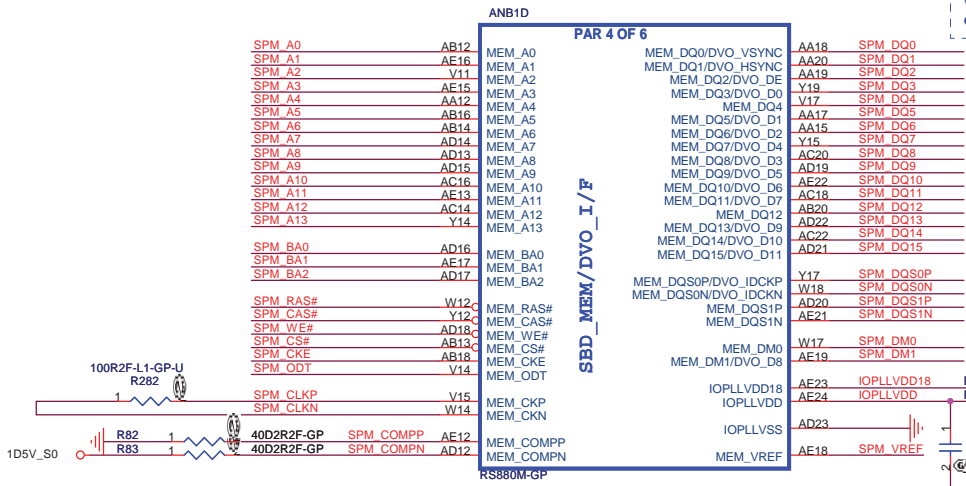
LVDS\_DIGON E9 >>> GMCH\_LCDDVDD\_ON 19  
 LVDS\_BLON F7 >>> BRIGHTNESS\_AMD 19  
 LVDS\_ENA\_BL G12 >>> KBC\_BL\_ON\_IN 29

TMDS\_HPD D9 >>> HDMI\_DETECT 21  
 HPD D10 >>> TPAD14-GP

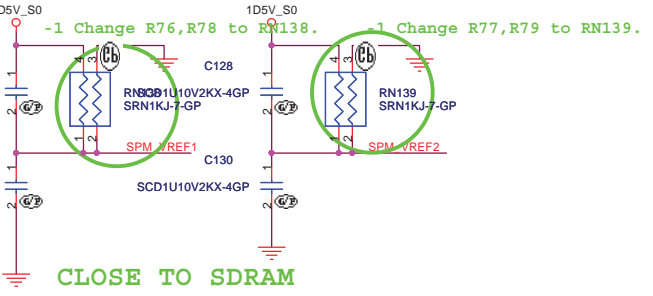
SUS\_STAT# D12 >>> SUS\_STAT# 13

THERMALDIODE\_P AE8 >>> THERMALDIODE\_P  
 THERMALDIODE\_N AD8 >>> THERMALDIODE\_N

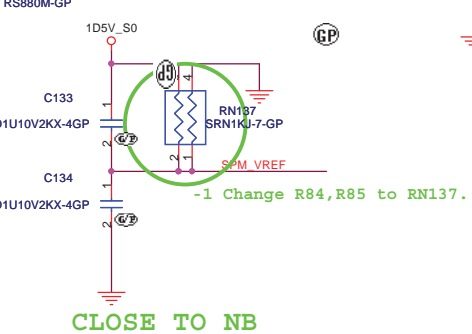
TESTMODE D13 >>> TESTMODE\_NB



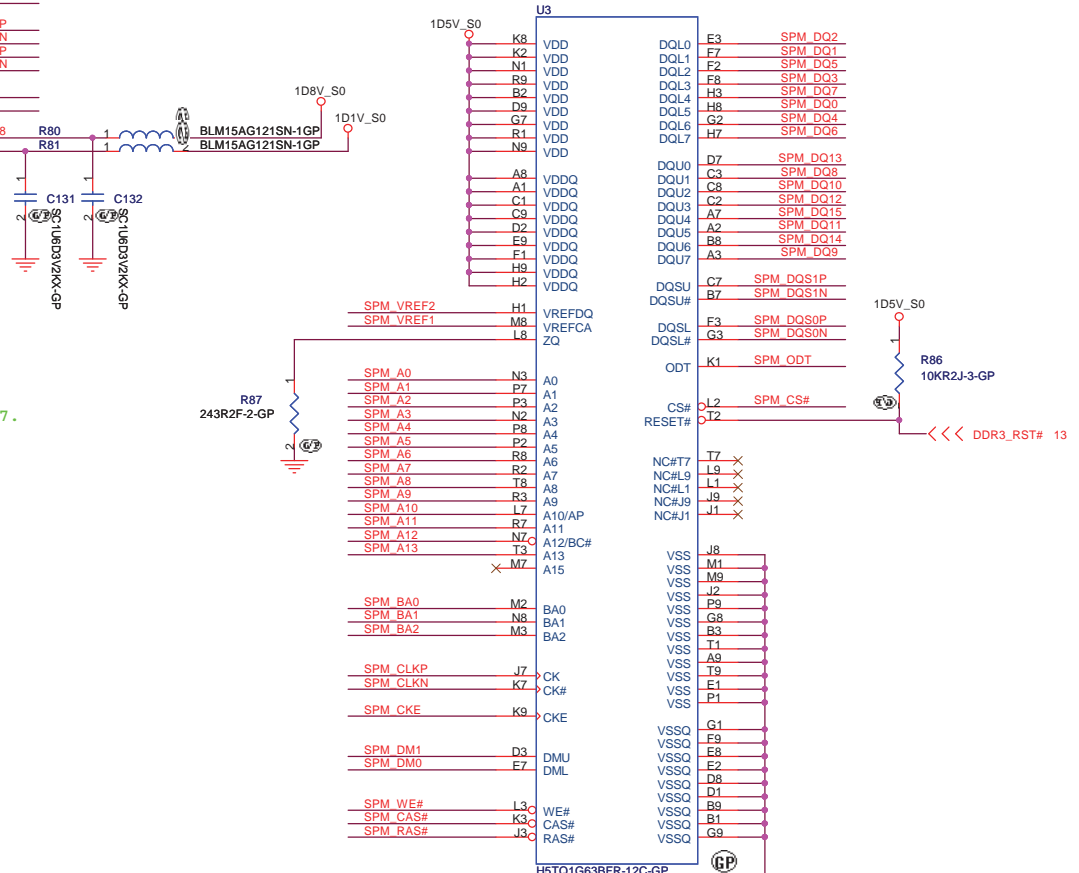
MEM\_COMP\_P and MEM\_COMP\_N trace width >=10mils and 10mils spacing from other signals in X,Y,Z directions



CLOSE TO SDRAM



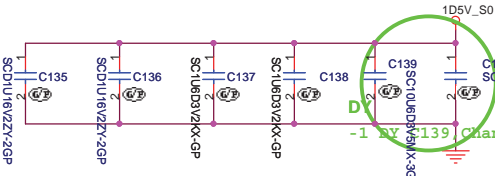
CLOSE TO NB



VR.1GB0G.004

2nd = VR.1GB0B.006

3rd = VR.1GB0T.002

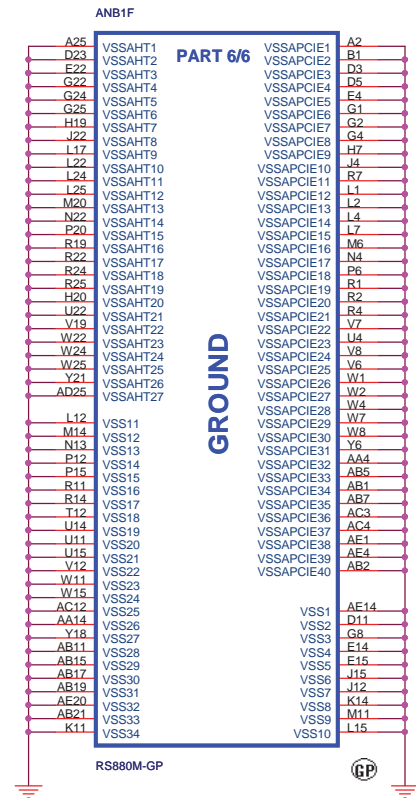
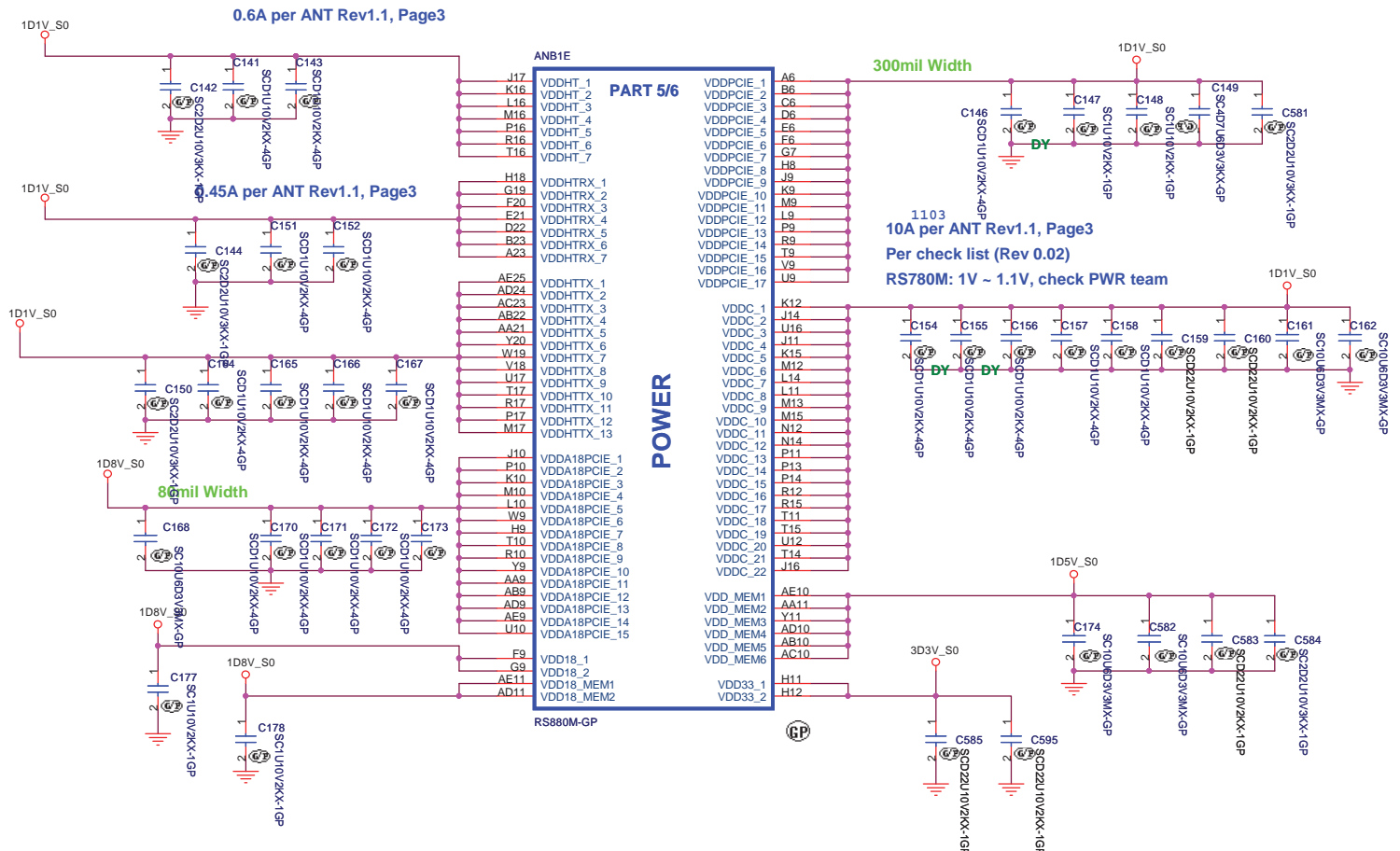


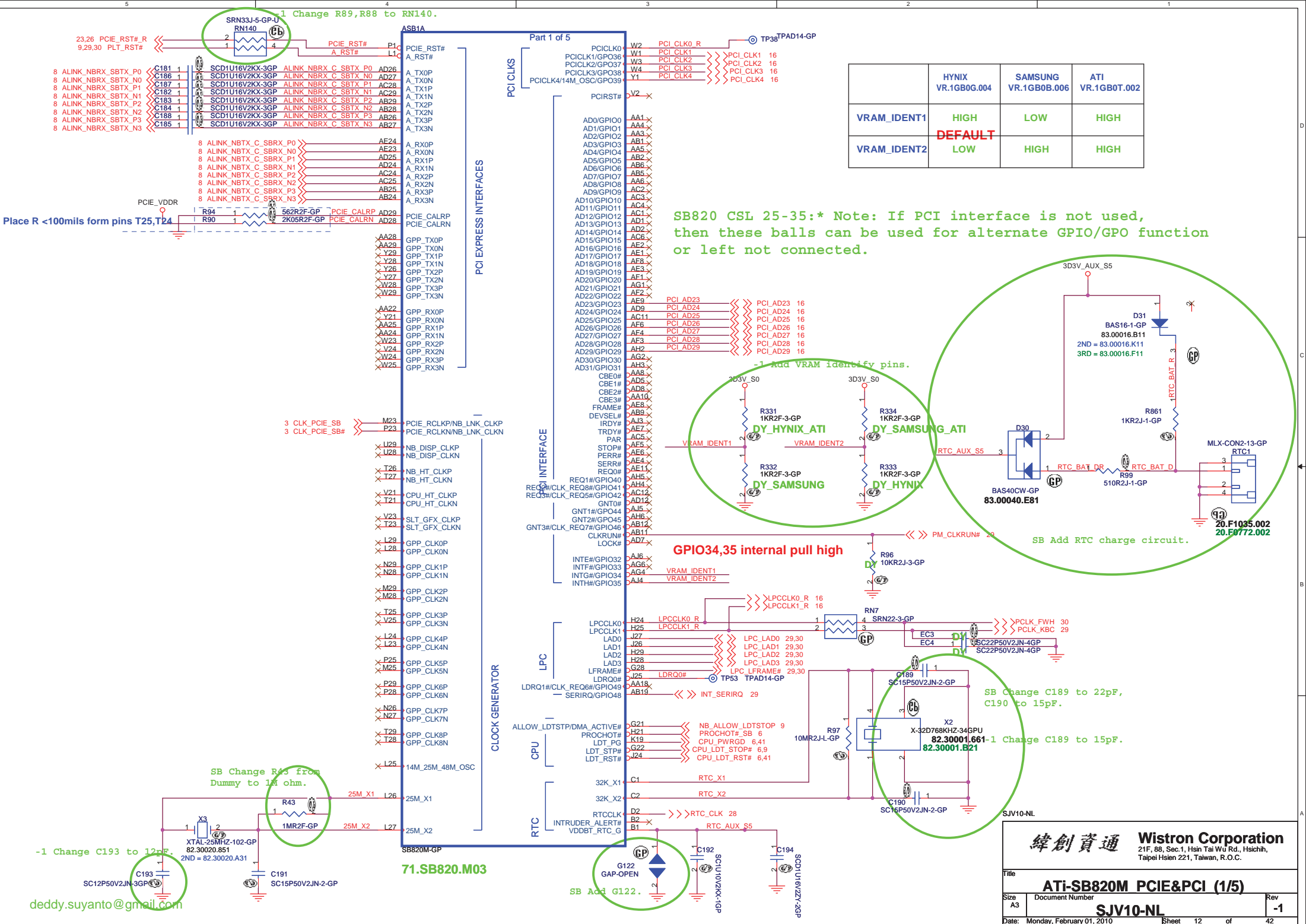
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Title: **ATI-RS880M SIDE PORT(3/4)**

Size: A3 Document Number: **SJV10-NL** Rev: -1

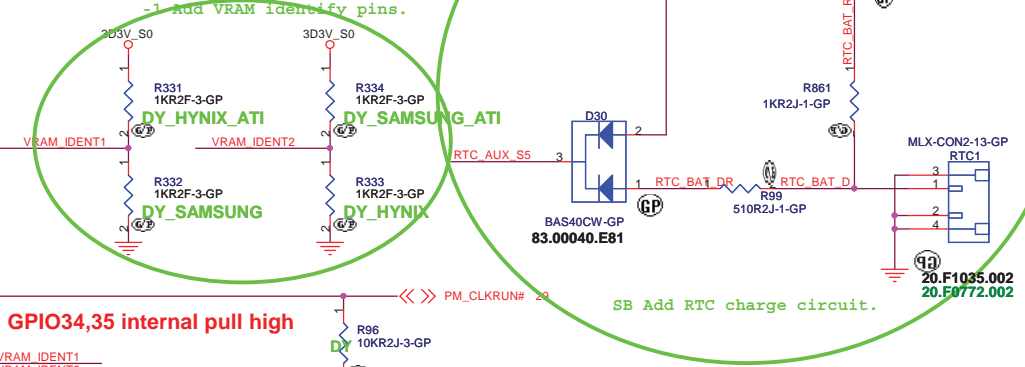
Date: Wednesday, January 27, 2010 Sheet 10 of 42



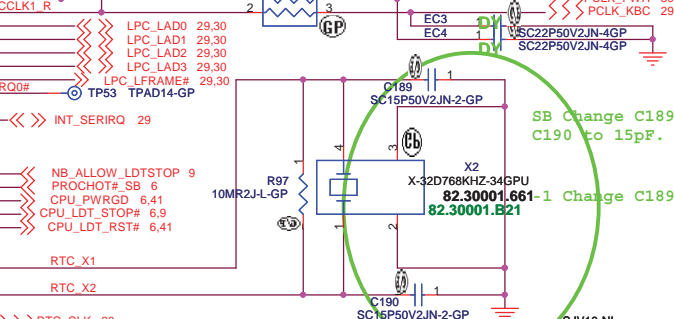


	HYNIX VR.1GB0G.004	SAMSUNG VR.1GB0B.006	ATI VR.1GB0T.002
VRAM_IDENT1	HIGH	LOW	HIGH
VRAM_IDENT2	LOW	HIGH	HIGH

**SB820 CSL 25-35:\* Note: If PCI interface is not used, then these balls can be used for alternate GPIO/GPO function or left not connected.**



**GPIO34,35 internal pull high**



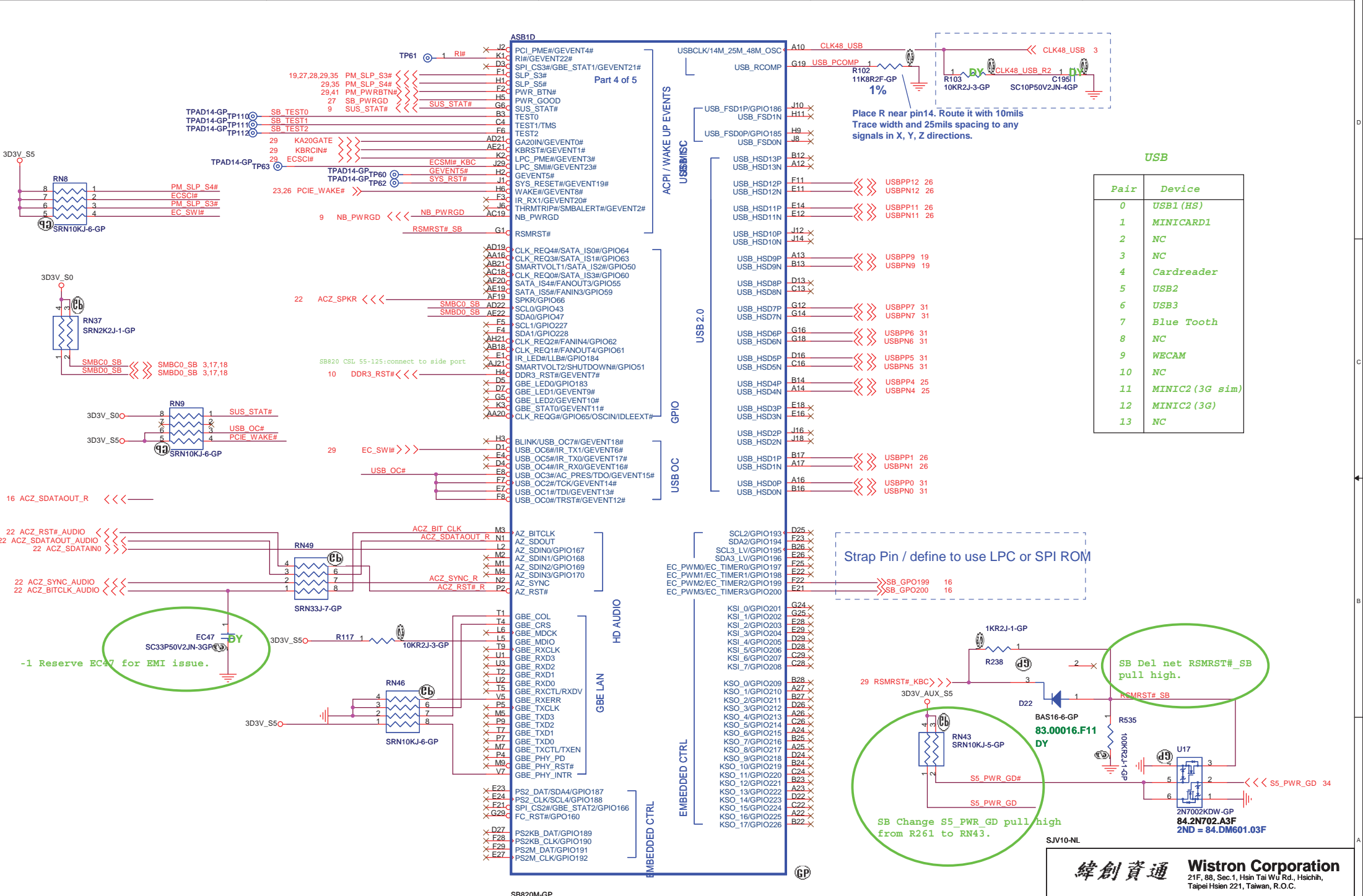
Place R <100mils form pins T25,T24



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File	<b>Ati-SB820M PCIe&amp;PCI (1/5)</b>	
Size	Document Number	Rev
A3	<b>SJV10-NL</b>	<b>-1</b>
Date:	Monday, February 01, 2010	Sheet 12 of 42



ASB1D

Part 4 of 5

J2	PCI_PME#/GEVENT4#
K1	Ri#/GEVENT22#
D3	SPI_CS3#/GBE_STAT1#/GEVENT21#
F1	SLP_S3#
L1	SLP_S5#
F2	PWR_BTN#
H5	PWR_GOOD
G6	SUS_STAT#
B3	TEST0
C4	TEST1/TMS
F8	TEST2
AE2	GA20IN#/GEVENT0#
K2	KBRST#/GEVENT1#
J29	LPC_PME#/GEVENT3#
H2	LPC_SMi#/GEVENT23#
J1	GEVENT5#
H6	SYS_RESET#/GEVENT19#
F3	WAKE#/GEVENT8#
J6	IR_RX1#/GEVENT20#
AC19	THRMTrip#/SMBALERT#/GEVENT2#
AC19	NB_PWRGD
G1	RSMRST#_SB
AD19	CLK_REQ4#/SATA_IS0#/GPIO64
AA16	CLK_REQ3#/SATA_IS1#/GPIO63
AB2	SMARTVOLT1#/SATA_IS2#/GPIO50
AC18	CLK_REQ0#/SATA_IS3#/GPIO60
AE20	SATA_IS4#/FANOUT3#/GPIO55
AE19	SATA_IS5#/FANIN3#/GPIO59
AE19	SPKR#/GPIO66
F5	SCL0#/GPIO43
F4	SDA0#/GPIO47
AH2	SCL1#/GPIO227
AH2	SDA1#/GPIO228
AB18	CLK_REQ2#/FANIN4#/GPIO62
AE19	CLK_REQ1#/FANOUT4#/GPIO61
AJ2	IR_LED#/Lb#/GPIO184
H4	SMARTVOLT2#/SHUTDOWN#/GPIO51
D5	DDR3_RST#
D7	GBE_LED0#/GPIO183
G5	GBE_LED1#/GEVENT9#
K3	GBE_LED2#/GEVENT11#
AA20	CLK_REQQ#/GPIO65#/OSCIN/IDLEEXT#
H3	BLINK/USB_OC7#/GEVENT18#
D1	USB_OC6#/IR_TX1#/GEVENT6#
E4	USB_OC5#/IR_TX0#/GEVENT17#
D4	USB_OC4#/IR_RX0#/GEVENT16#
E8	USB_OC3#/AC_PRESENT#/GEVENT15#
F7	USB_OC2#/TCK#/GEVENT14#
E7	USB_OC1#/TDI#/GEVENT13#
F8	USB_OC0#/TRST#/GEVENT12#
M3	AZ_BITCLK
N1	AZ_SDOUT
L2	AZ_SDNIN#/GPIO167
M2	AZ_SDN1#/GPIO168
M1	AZ_SDN2#/GPIO169
M4	AZ_SDN3#/GPIO170
N2	AZ_SYNC
P2	AZ_RST#
T1	GBE_COL
T4	GBE_CRS
L6	GBE_MDCK
L5	GBE_MDIO
T9	GBE_RXCLK
U1	GBE_RXD3
U3	GBE_RXD2
T2	GBE_RXD1
U2	GBE_RXD0
V5	GBE_RXCTL/RXDV
P5	GBE_RXERR
M5	GBE_TXCLK
P8	GBE_TXD3
T7	GBE_TXD2
P7	GBE_TXD1
M7	GBE_TXD0
P4	GBE_TXCTL/TXEN
M8	GBE_PHY_PD
V7	GBE_PHY_RST#
V7	GBE_PHY_INTR
E23	PS2_DAT#/SDA4#/GPIO187
E24	PS2_CLK#/SCL4#/GPIO188
E21	SPI_CS2#/GBE_STAT2#/GPIO166
G29	FC_RST#/GPIO160
D27	PS2KB_DAT#/GPIO189
E28	PS2KB_CLK#/GPIO190
E28	PS2M_DAT#/GPIO191
E27	PS2M_CLK#/GPIO192

USB

Pair	Device
0	USB1 (HS)
1	MINICARD1
2	NC
3	NC
4	Cardreader
5	USB2
6	USB3
7	Blue Tooth
8	NC
9	WECAM
10	NC
11	MINIC2 (3G sim)
12	MINIC2 (3G)
13	NC

Strap Pin / define to use LPC or SPI ROM

EC\_PWM0/EC\_TIMER0#/GPIO197

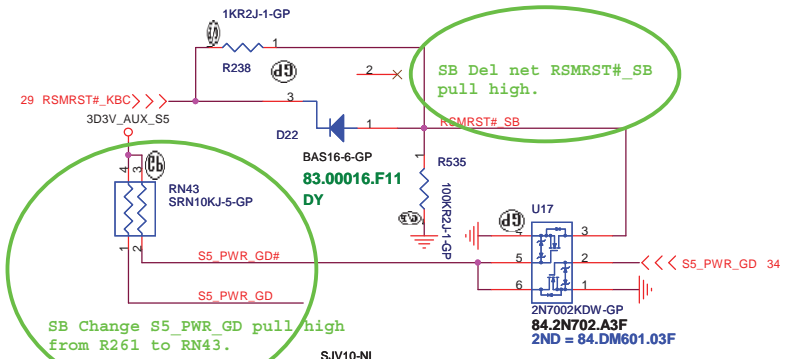
EC\_PWM1/EC\_TIMER1#/GPIO198

EC\_PWM2/EC\_TIMER2#/GPIO199

EC\_PWM3/EC\_TIMER3#/GPIO200

SB\_GPIO199 16

SB\_GPIO200 16



SB820M-GP

71.SB820.M03

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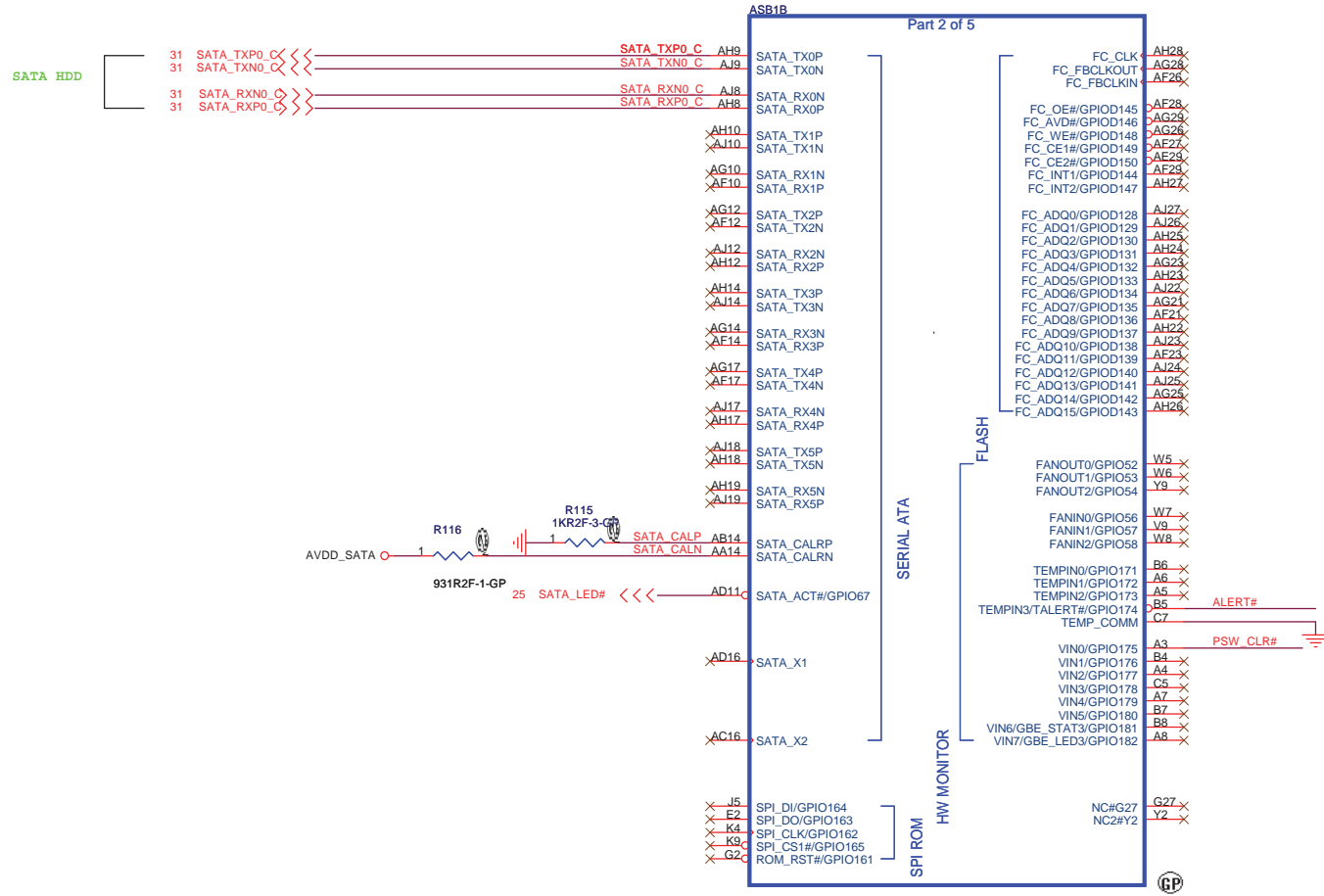
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21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

Title: **ATI-SB820M USB&GPIO (2/5)**

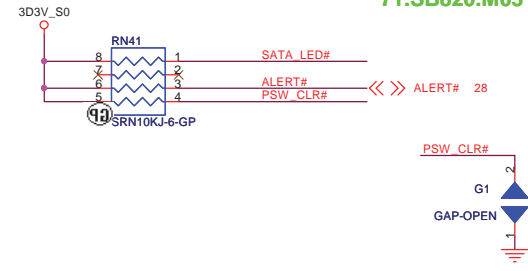
Size: A3 Document Number: **SJV10-NL** Rev: -1

Date: Tuesday, January 26, 2010 Sheet 13 of 42

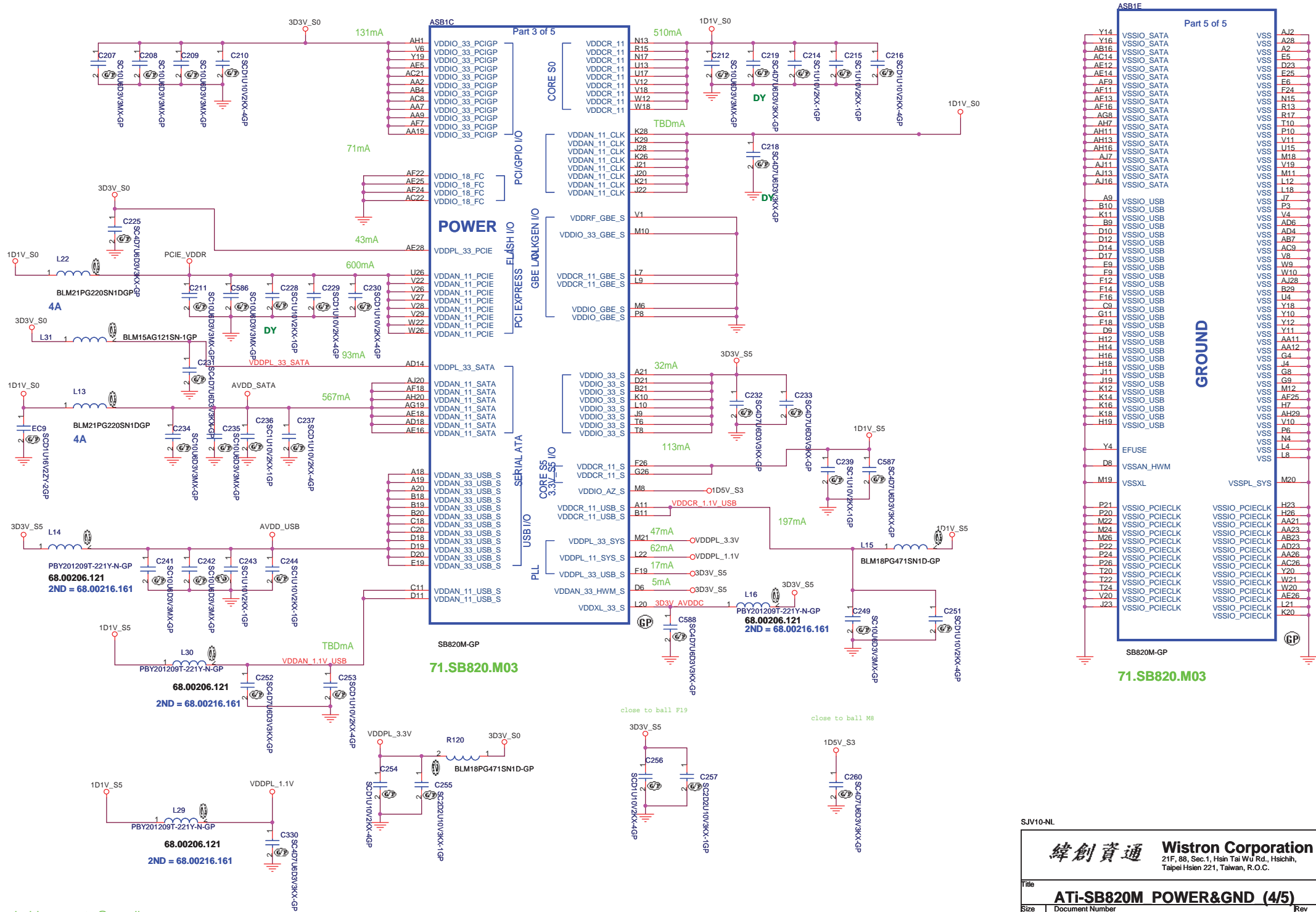
PLACE SATA AC DECOUPLING  
CAPS CLOSE TO SB710



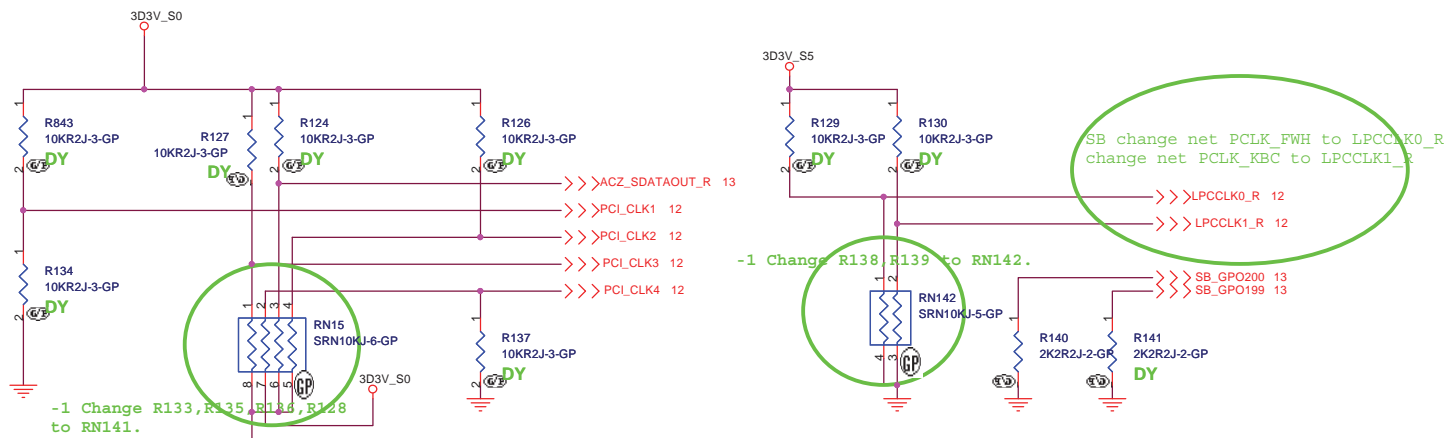
SB820M-GP  
**71.SB820.M03**







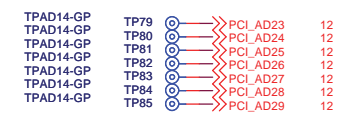
deddy.suyanto@gmail.com



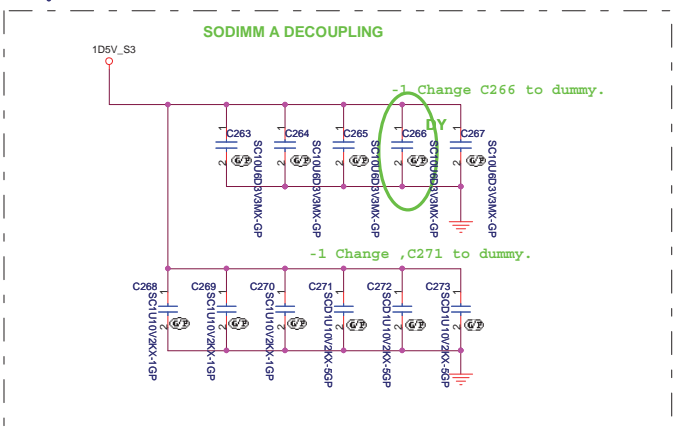
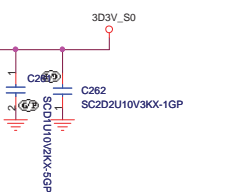
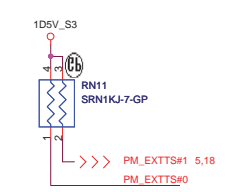
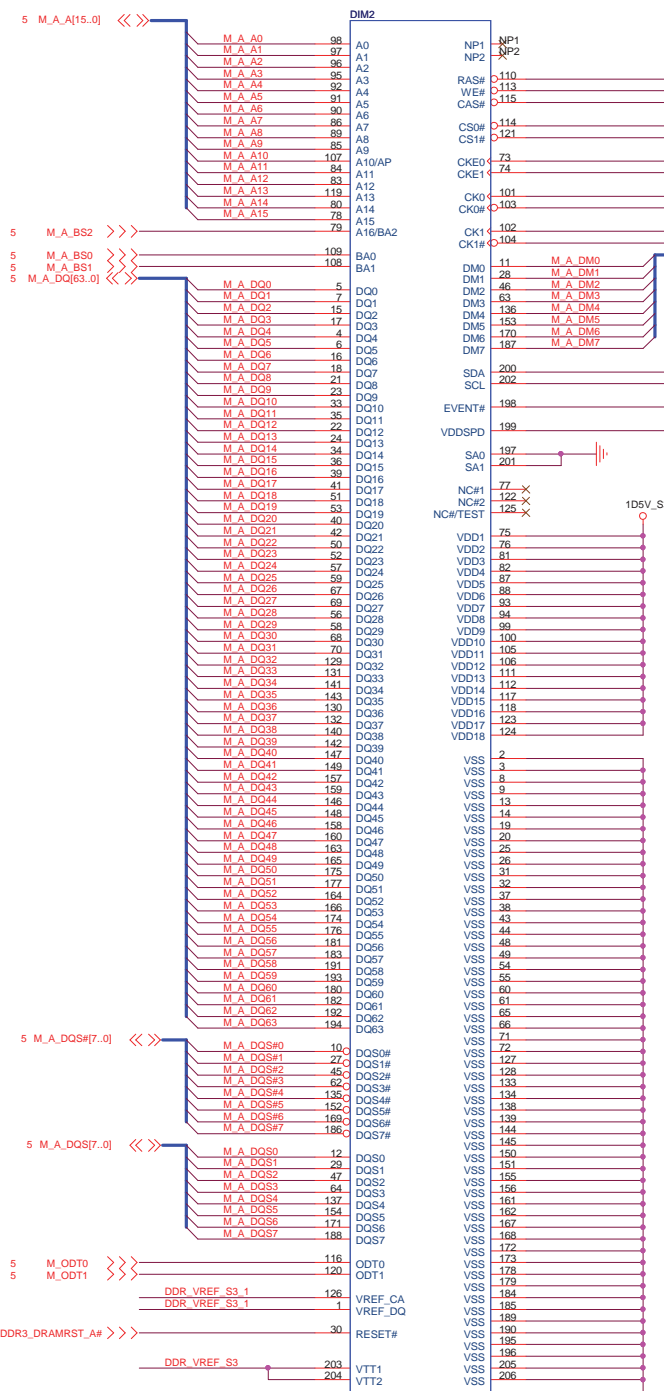
**REQUIRED STRAPS**

	AZ_SDOUT	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	GPIO200	GPIO199
<b>PULL HIGH</b>	LOW POWER MODE	ALLOW PCIE Gen2 DEFAULT	Watchdog Timer Enabled	USE DEBUG STRAP	non_Fusion CLOCK MODE DEFAULT	EC ENABLED	CLKGEN ENABLED	H,H = Reserved H,L = SPI ROM	
<b>PULL LOW</b>	PERFORMANCE MODE DEFAULT	FORCE PCIE Gen1	Watchdog Timer Disabled DEFAULT	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE	EC DISABLED DEFAULT	CLKGEN DISABLED DEFAULT	L,H = LPC ROM (Default) L,L = FWH ROM	

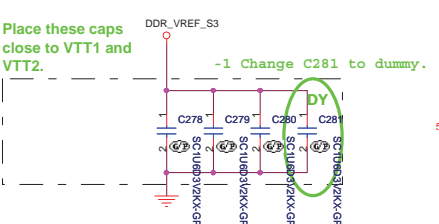
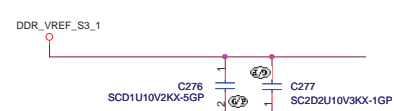
**DEBUG STRAPS**



	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
<b>PULL HIGH</b>	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
<b>PULL LOW</b>	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT

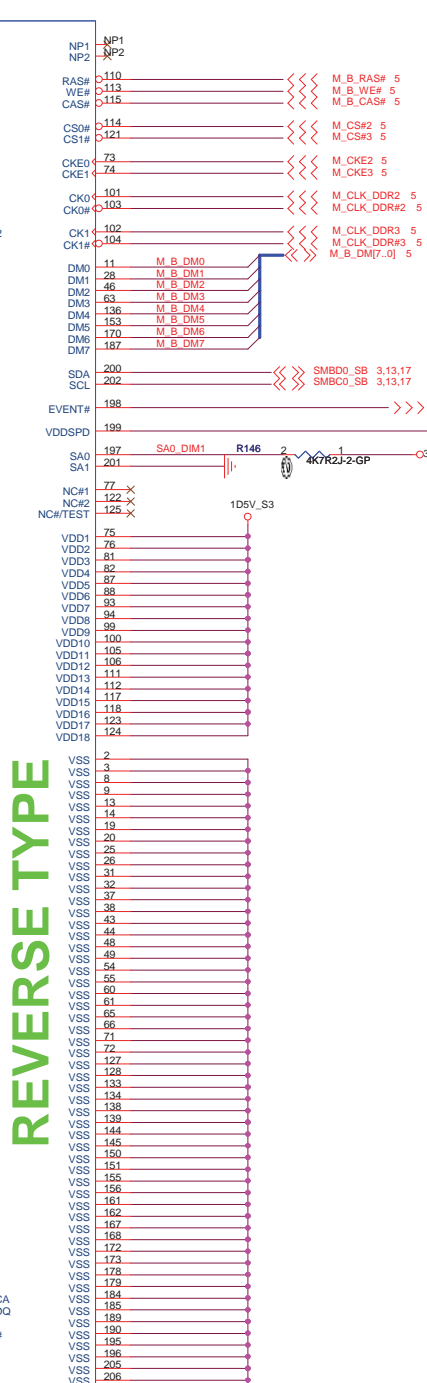
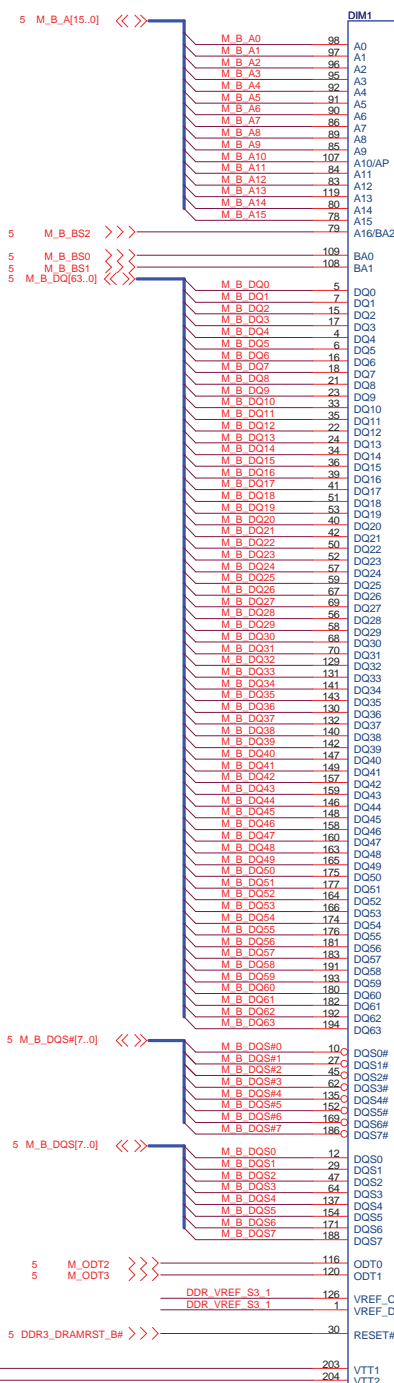


Layout Note:  
Place these Caps near SO-DIMM.

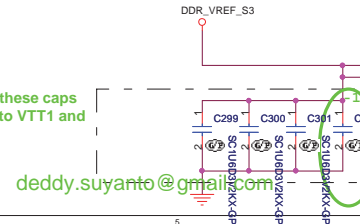
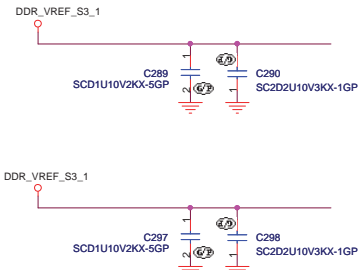


DDR3-204P-41-GP-U  
62.10017.N41  
2nd = 62.10017.P41

deddy.suyanto@gmail.com

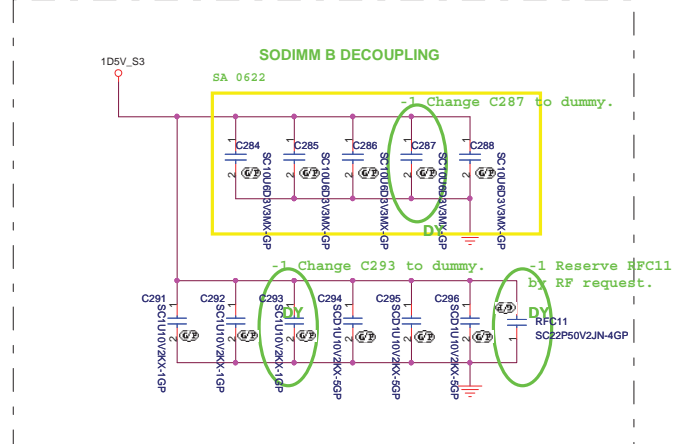


REVERSE TYPE



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

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



SJV10-NL

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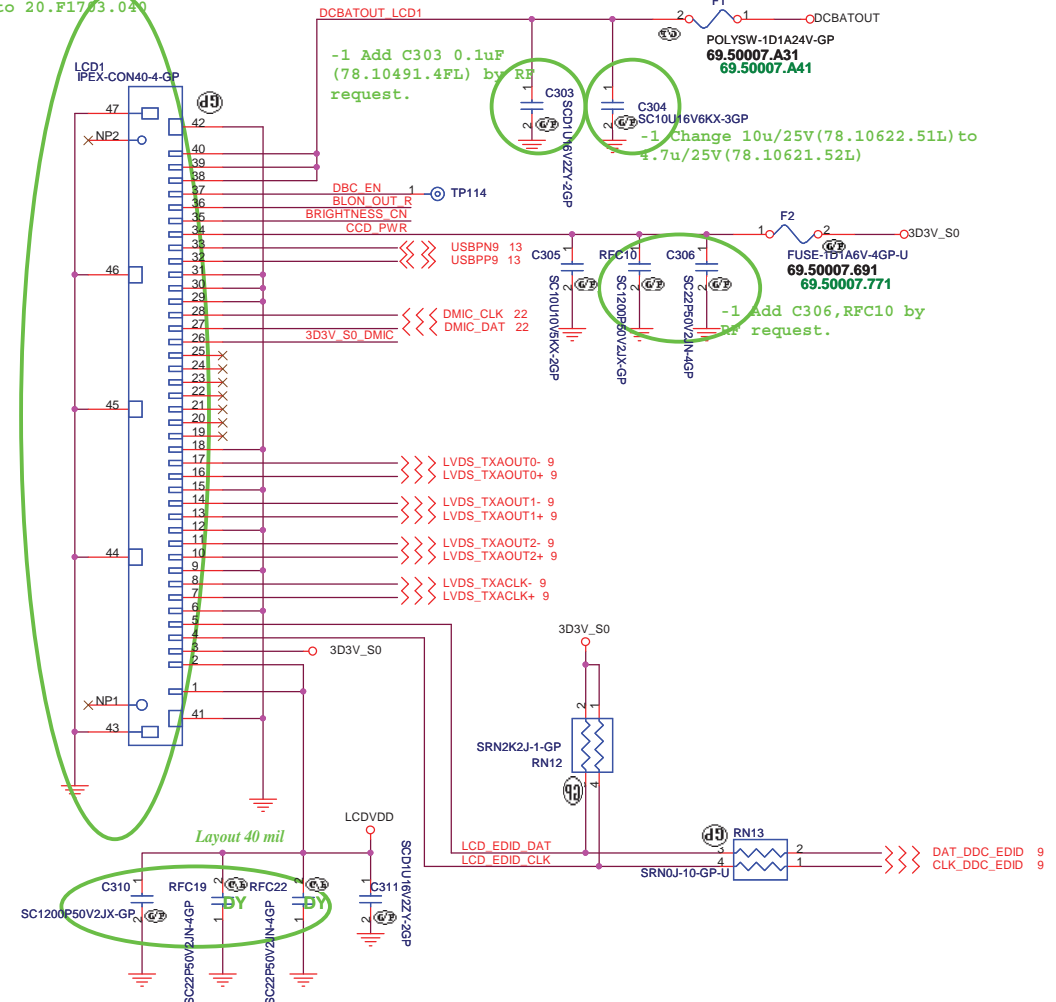
Title: **DDR3 SODIMM1**

Size: Document Number: **SJV10-NL** Rev: **-1**

Custom: Date: Friday, January 29, 2010 Sheet 18 of 42

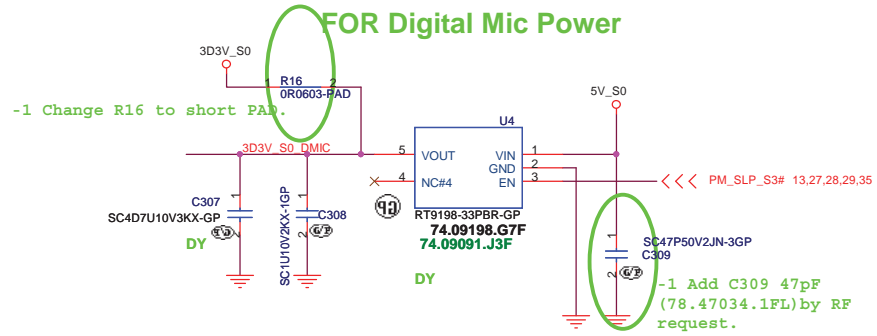
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SB Change P/N from 20.F1093.040 to 20.F1703.040

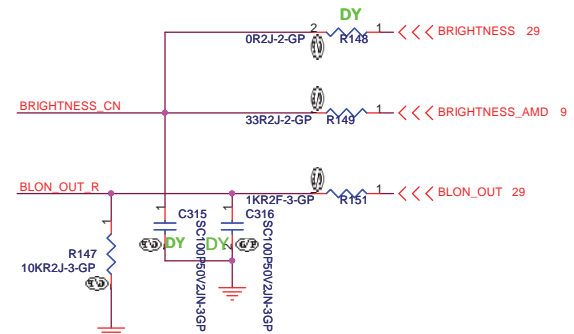
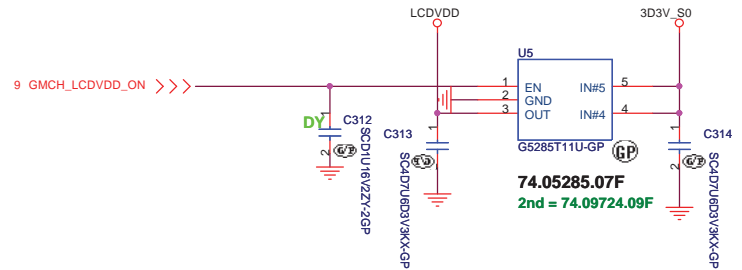


CCD Pin	
Pin	Symbol
1	CCD_PWR
2	USB-
3	USB+
4	GND
5	NC

D MIC Pin	
Pin	Symbol
1	DMIC_DAT
2	3D3V_S0_DMIC
3	DMIC_CLK
4	GND



-1 Add C310, Reserve RFC19,RFC22 by RF request.



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SJV10-NL

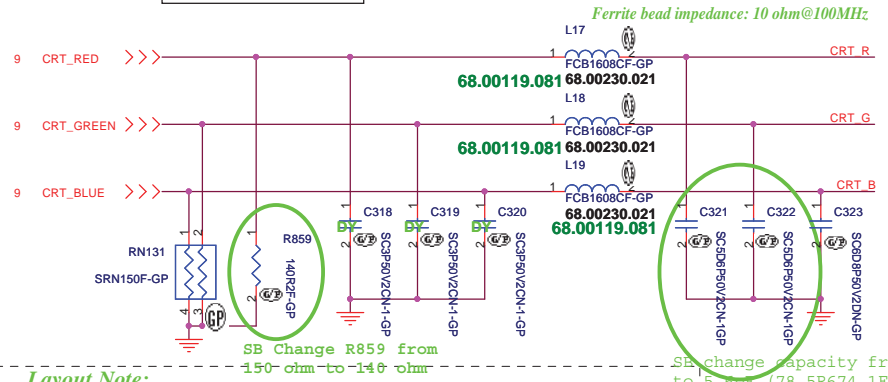
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Title: **LCD Conn**

Size A3	Document Number <b>SJV10-NL</b>	Rev <b>-1</b>
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Date: Sunday, January 31, 2010 Sheet 19 of 42

Layout Note:  
Place these resistors  
close to the CRT-out  
connector

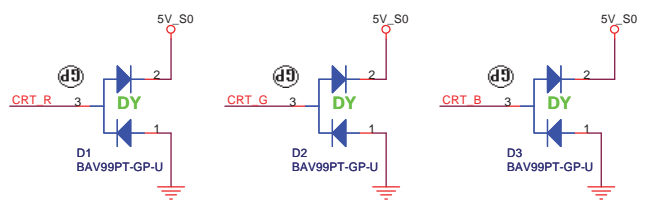


Ferrite bead impedance: 10 ohm@100MHz

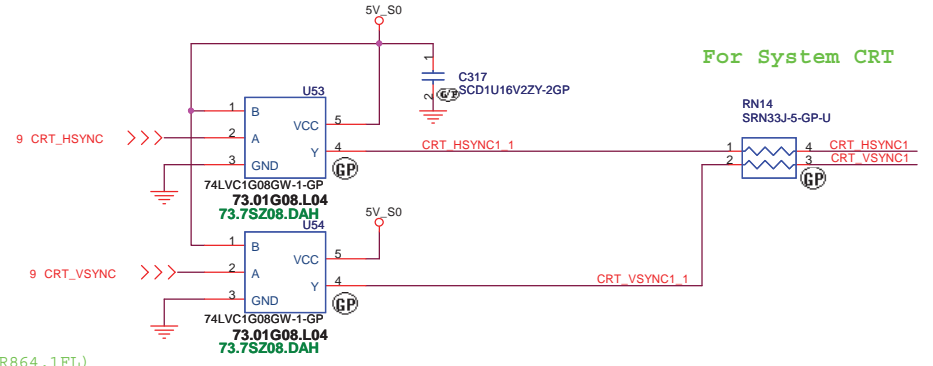
SB Change R859 from 150 ohm to 140 ohm

SB change capacity from 6.8pF (78.6R864.1FL) to 5.6pF (78.5R674.1FL)

Layout Note:  
\* Must be a ground return path between this ground and the ground on the VGA connector.  
Pi-filter & 150 Ohm pull-down resistors should be as close as to CRT CONN. RGB will hit 75 Ohm first, pi-filter, then CRT CONN.

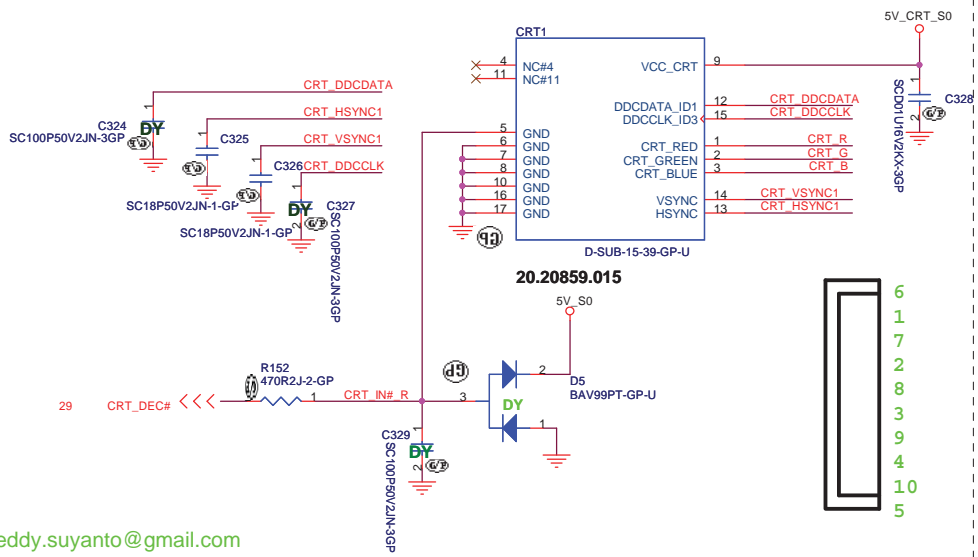


### Hsync & Vsync level shift

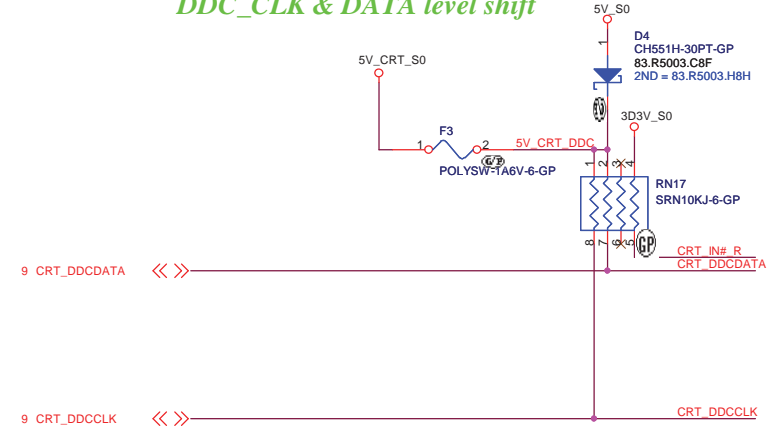


For System CRT

### CRT I/F & CONNECTOR



### DDC\_CLK & DATA level shift



SJV10-NL

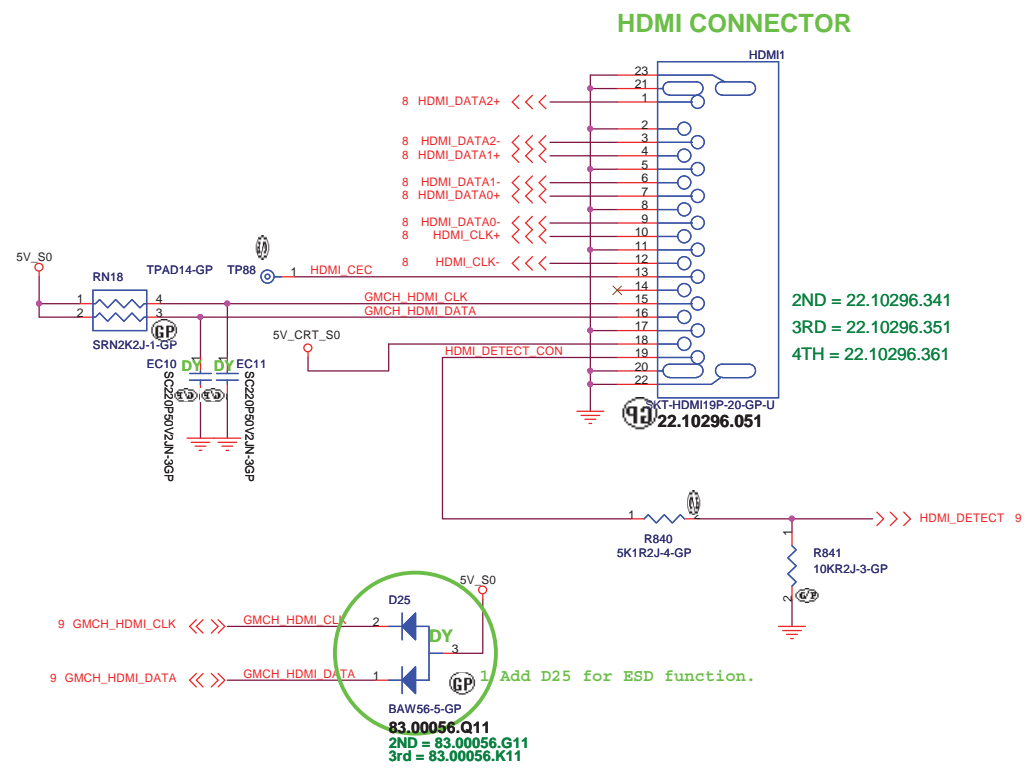
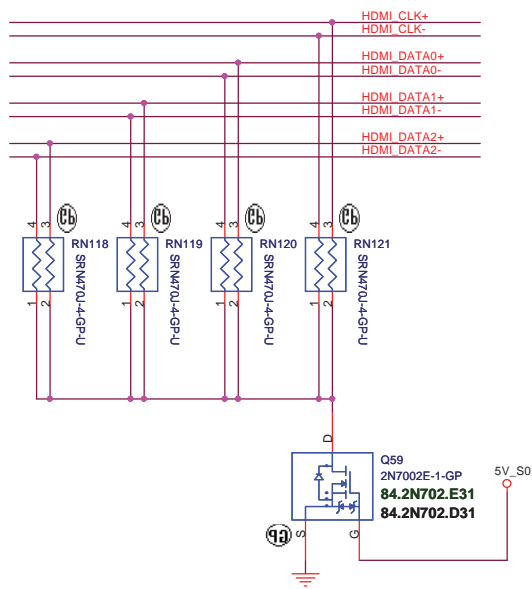
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Title: **CRT conn**

Size A3 Document Number: **SJV10-NL** Rev: **-1**

Date: Tuesday, January 26, 2010 Sheet 20 of 42

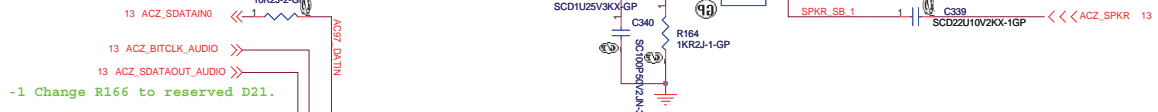
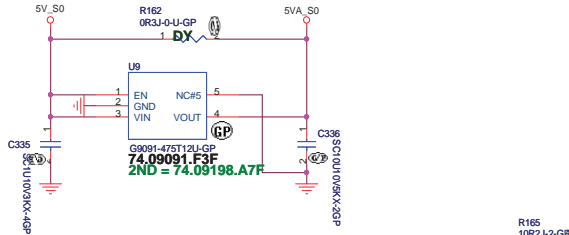




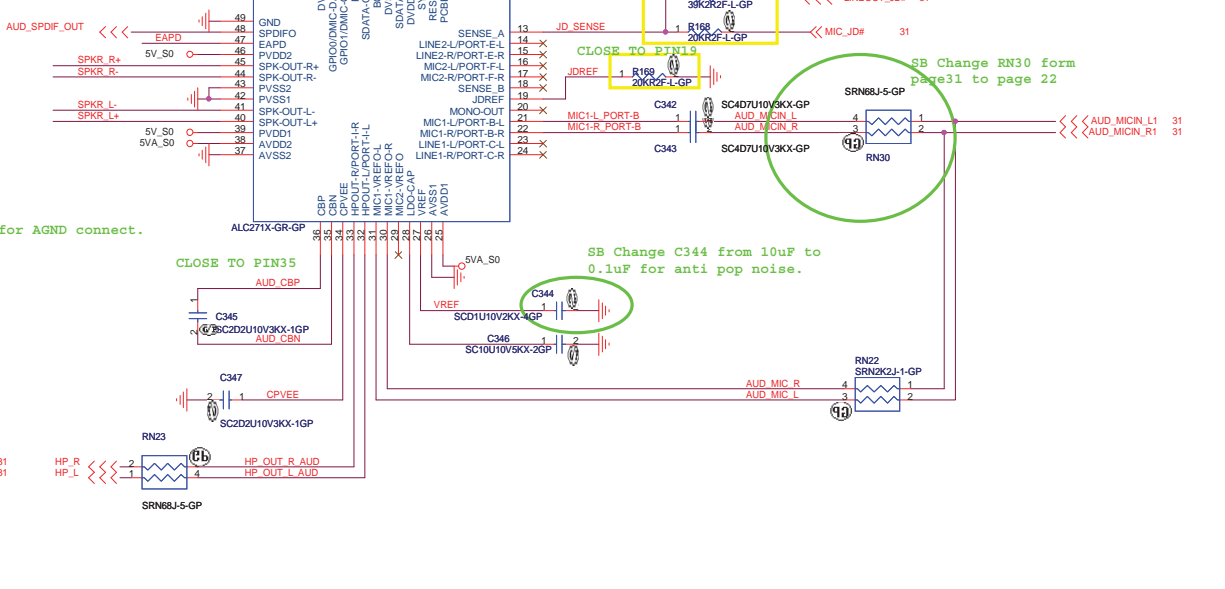
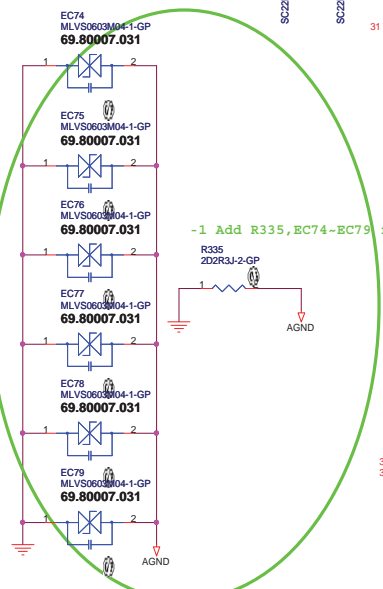
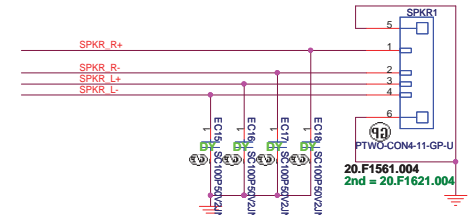
**HDMI CONNECTOR**

2ND = 22.10296.341  
 3RD = 22.10296.351  
 4TH = 22.10296.361

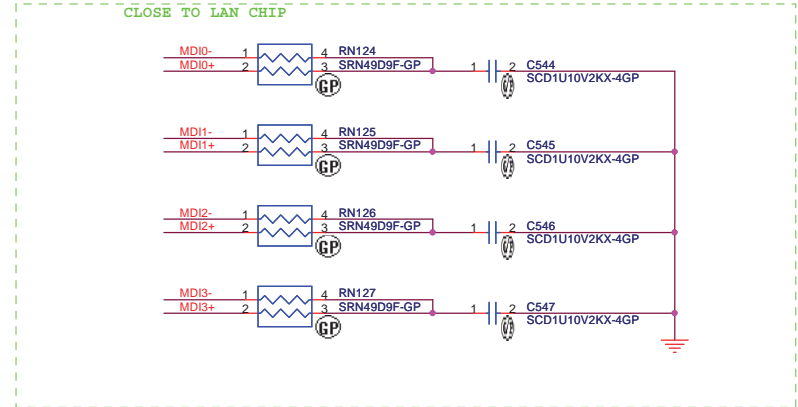
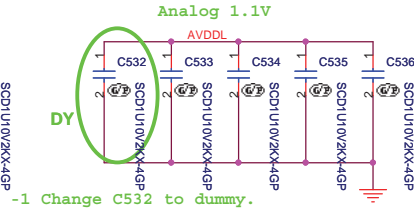
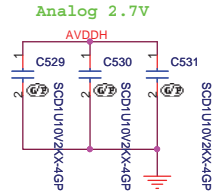
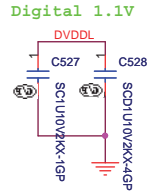
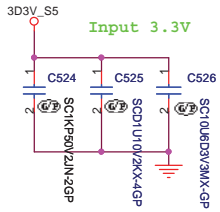
83.00056.Q11  
 2ND = 83.00056.G11  
 3rd = 83.00056.K11



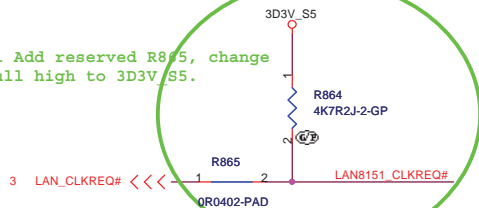
### Internal Speaker



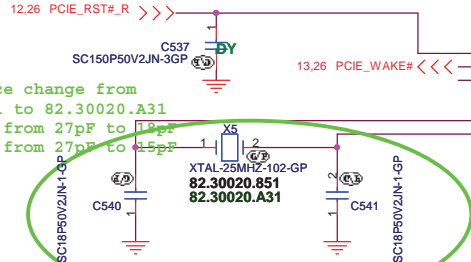
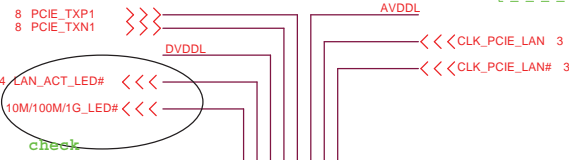
deddy.suyanto@gmail.com



-1 Add reserved R875, change pull high to 3D3V\_S5.

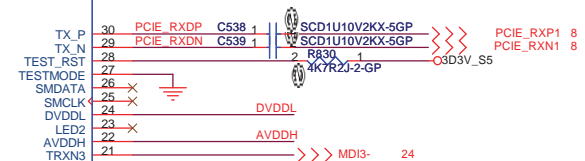
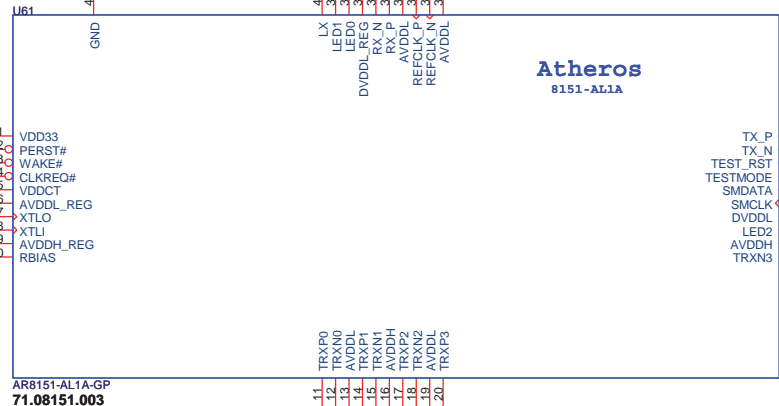
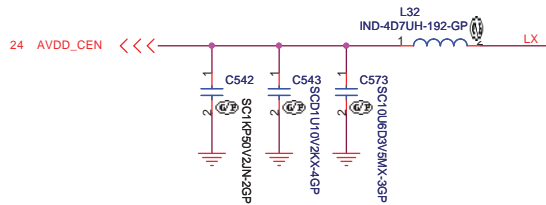


公板LED1 Link  
LED0 Active



-1 Change C541 to 18pF.

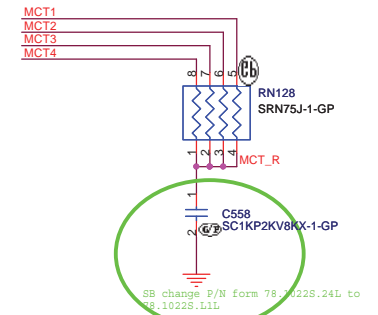
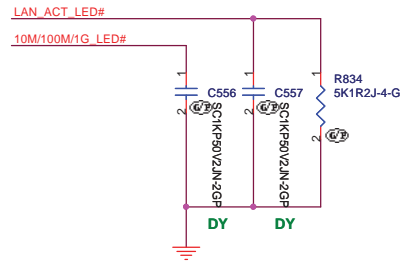
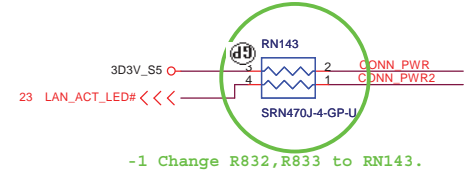
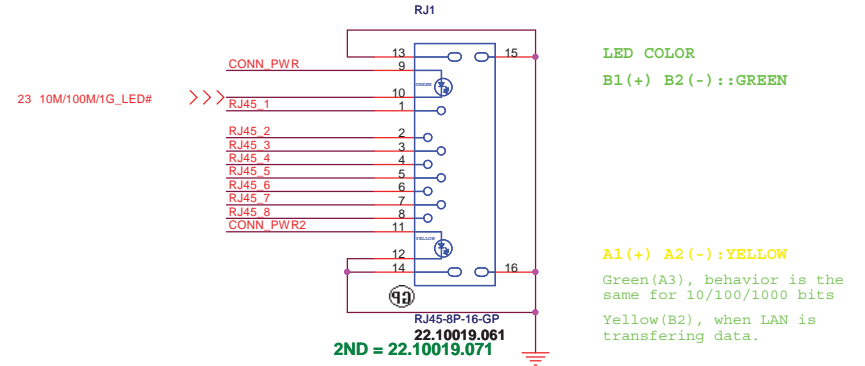
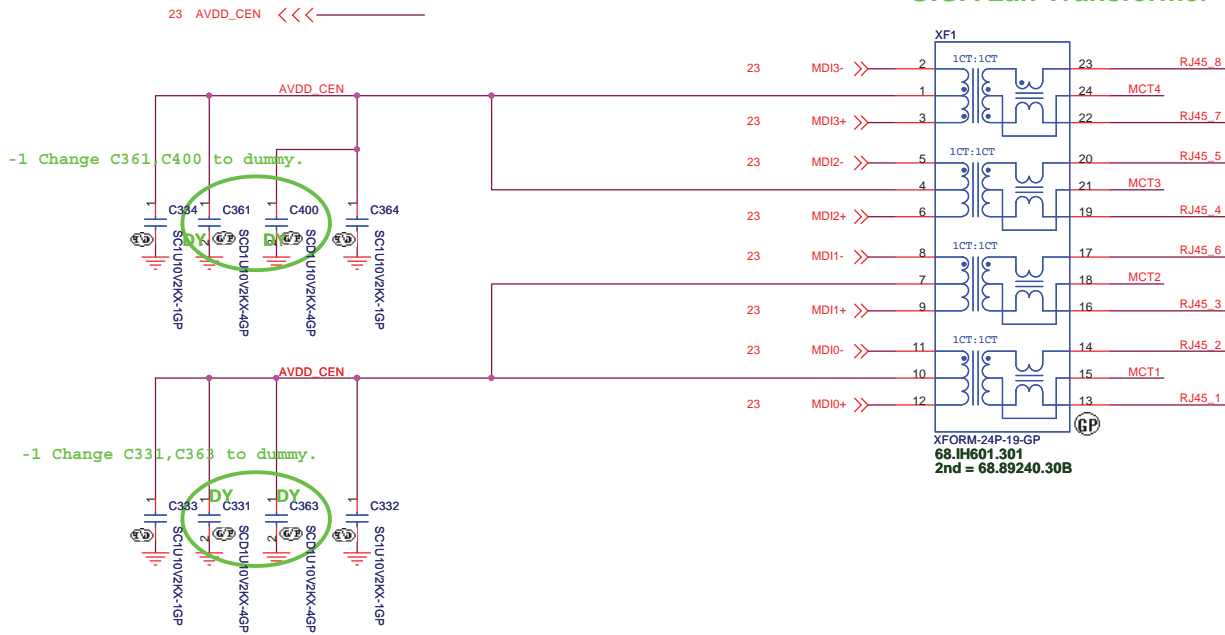
**Analog 1.7V**



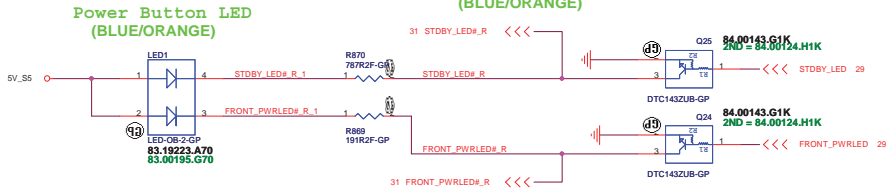
1. route on bottom as differential pairs.
2. Tx+/Tx- are pairs. Rx+/Rx- are pairs.
3. No vias, No 90 degree bends.
4. pairs must be equal lengths.
5. 6mil trace width, 12mil separation.
6. 36mil between pairs and any other trace.
7. Must not cross ground moat, except RJ-45 moat.

# LAN Connector

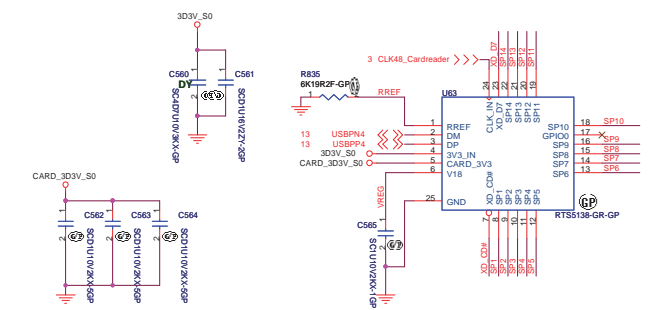
## Change 單顆 GIGA Lan Transformer



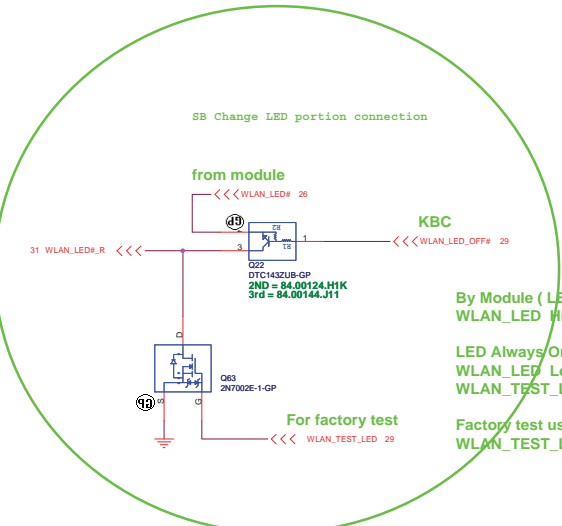
Conn<-----KBC  
SYSTEM LED  
(BLUE/ORANGE)



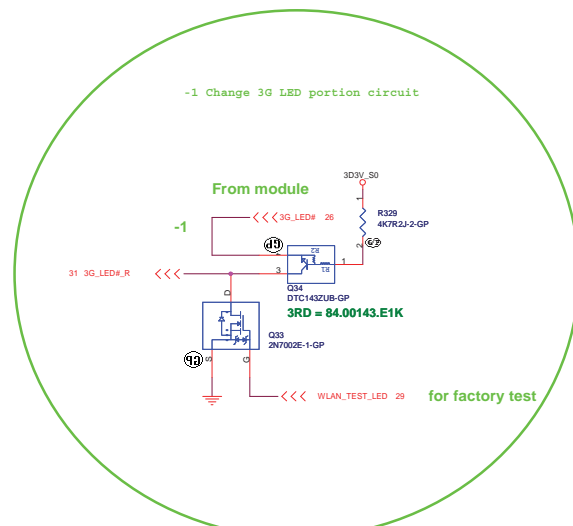
5 IN1 CARD-READER



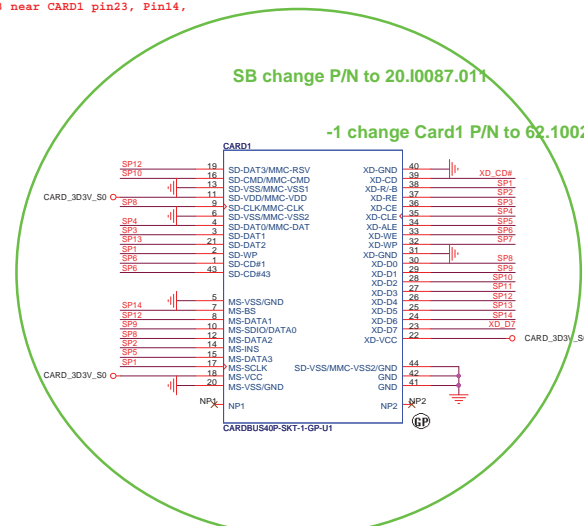
C51,C52,C53 near CARD1 pin23, Pin14, Pin33



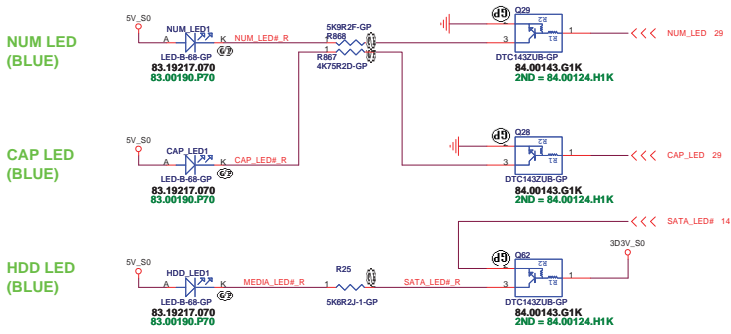
By Module ( LED Flash )  
WLAN\_LED High  
LED Always On  
WLAN\_LED Low  
WLAN\_TEST\_LED High  
Factory test use  
WLAN\_TEST\_LED High



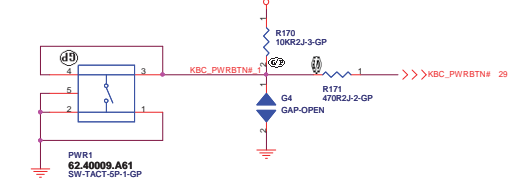
for factory test



LED Function

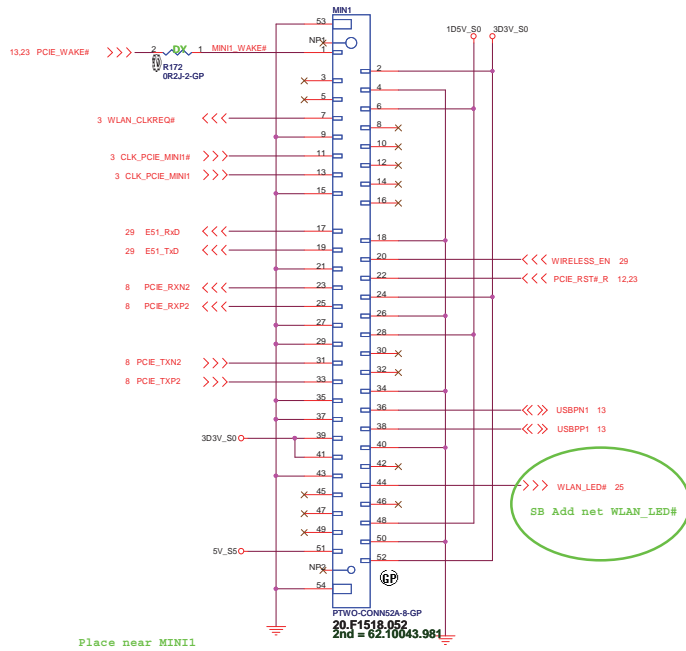


Power Button

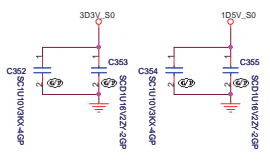


# Mini Card Connector(WLAN)

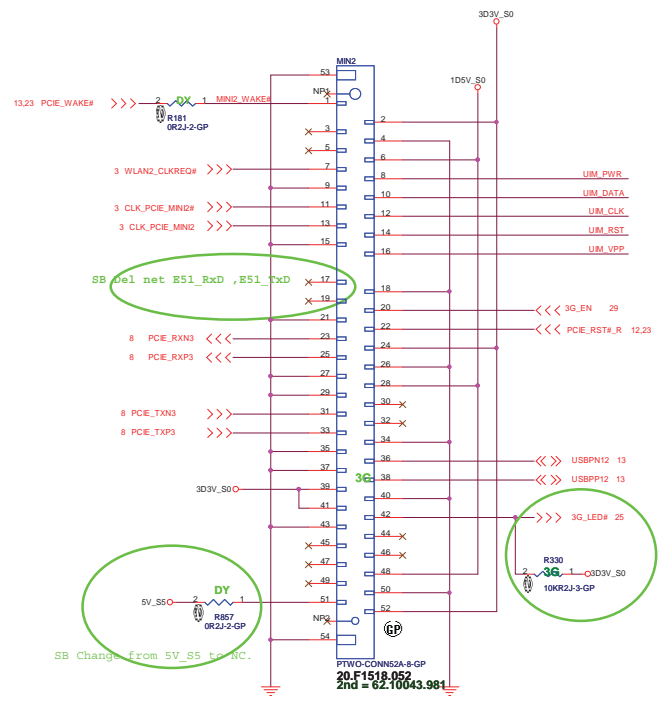
Support debug-card



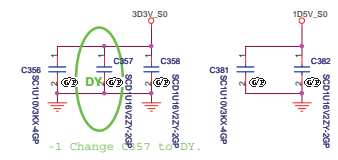
Place near MIN1



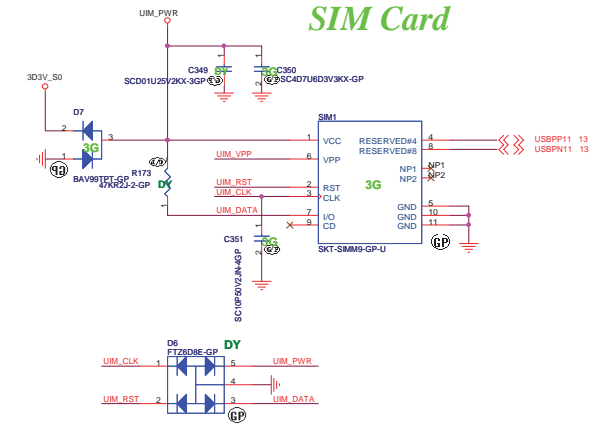
# Mini Card Connector(3G)



Place near MINIC2



# SIM Card



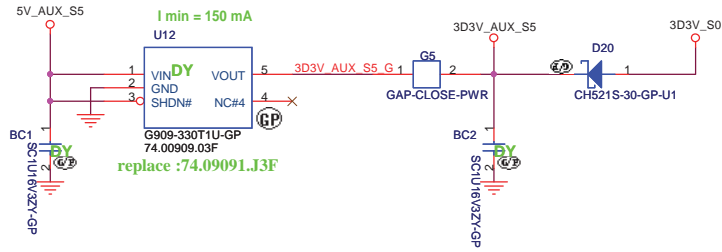
SJV10-NL

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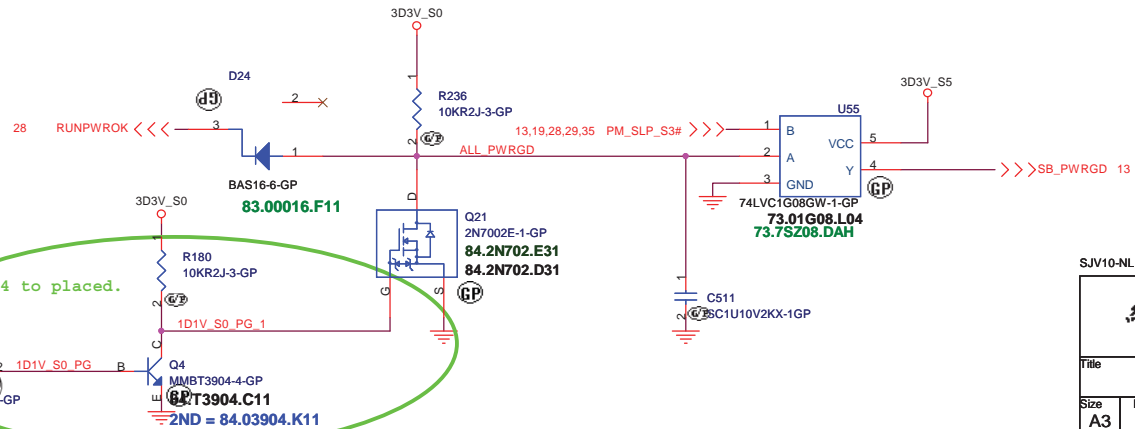
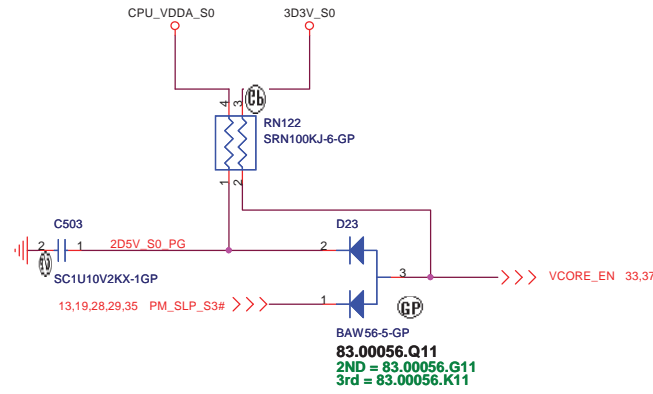
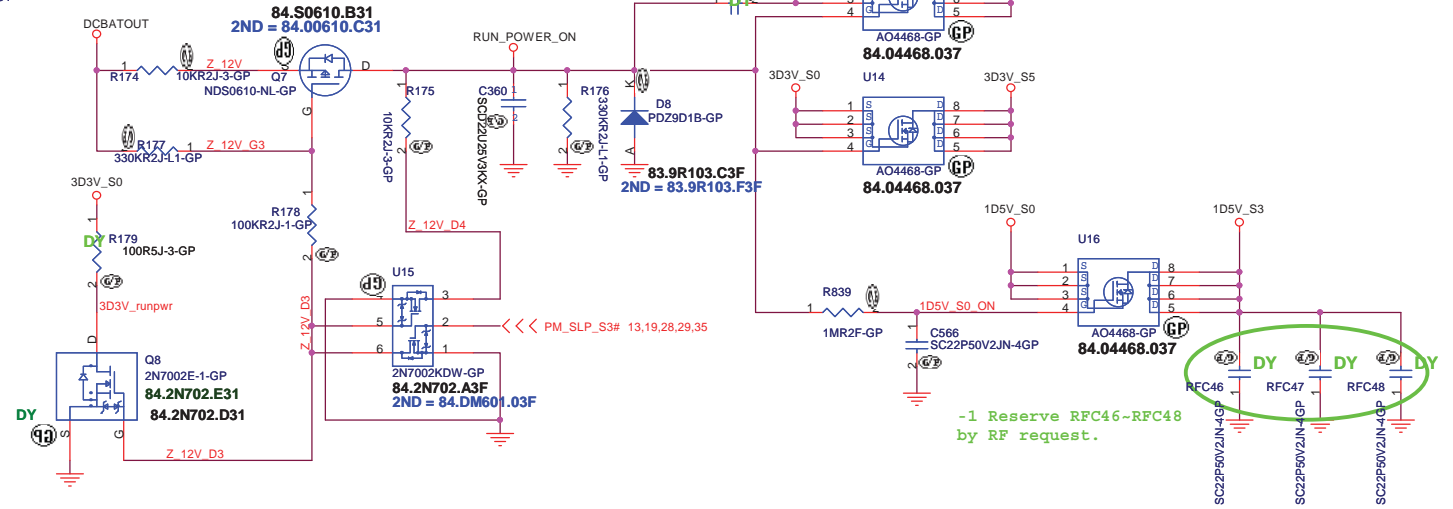
File	<b>MINI Conn</b>	
Size	Document Number	Rev
Custom	<b>SJV10-NL</b>	<b>-1</b>
Date:	Tuesday, January 26, 2010	Sheet 26 of 42



# Aux Power 3D3V\_AUX\_S5



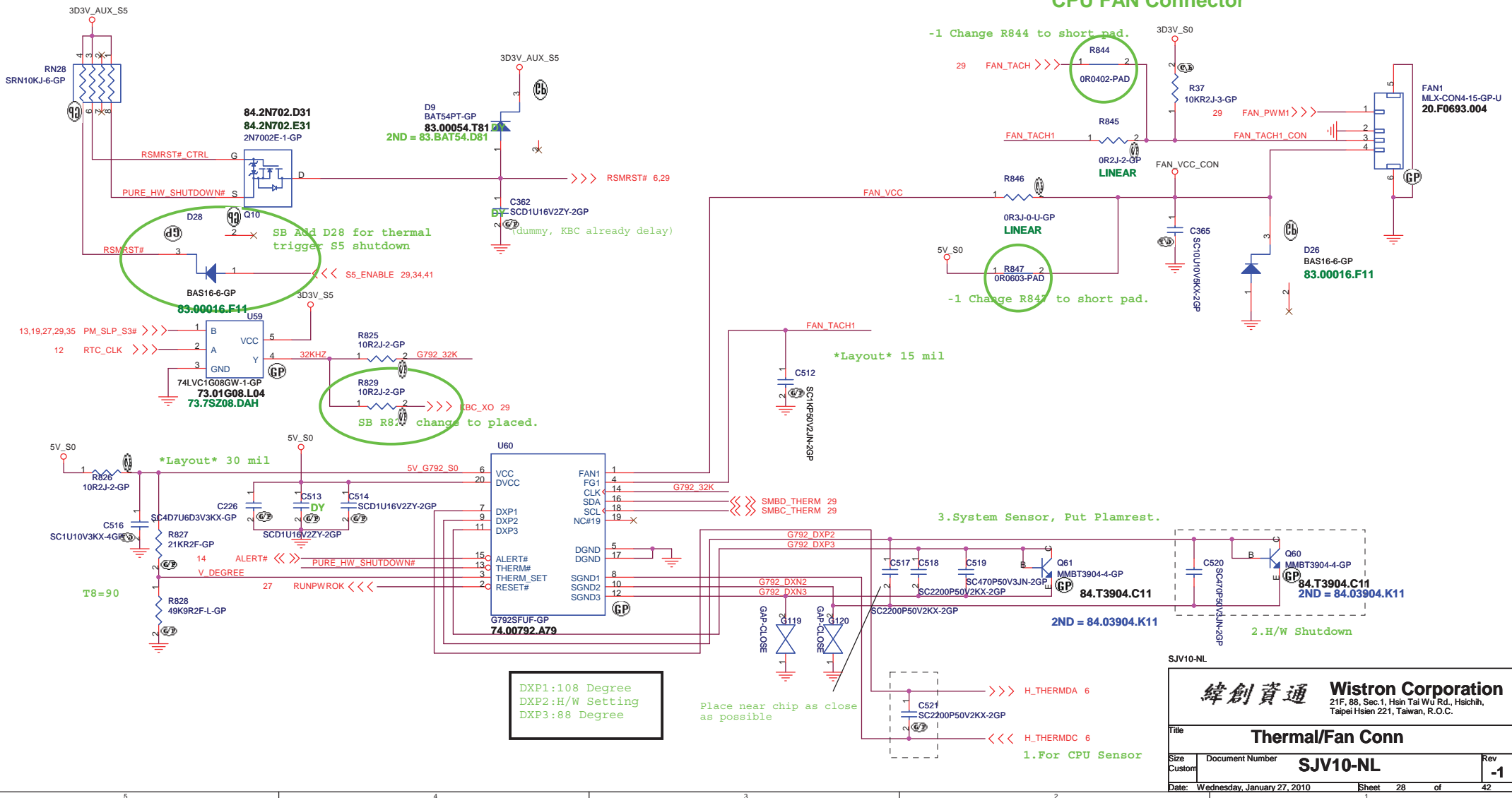
# Run Power

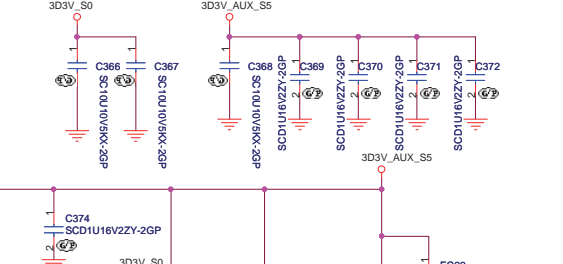
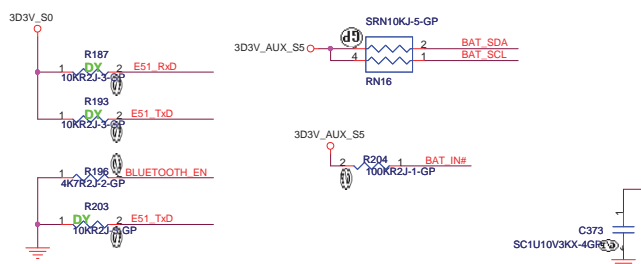


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Title		
<b>RUN AND AUX POWER</b>		
Size	Document Number	Rev
A3	<b>SJV10-NL</b>	-1
Date:	Sunday, January 31, 2010	Sheet 27 of 42

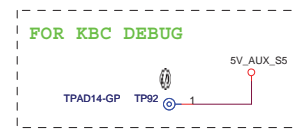
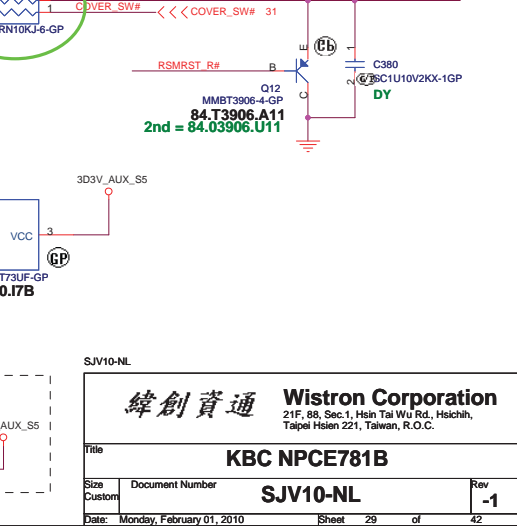
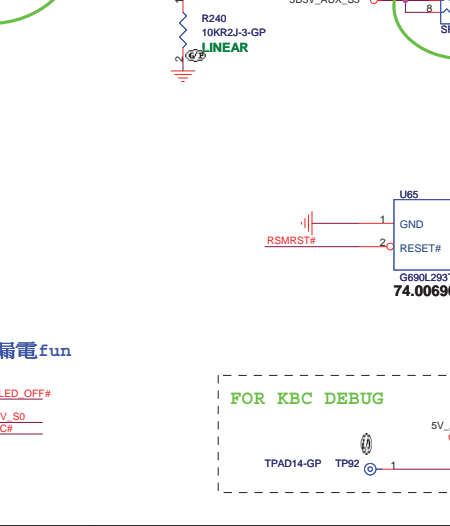
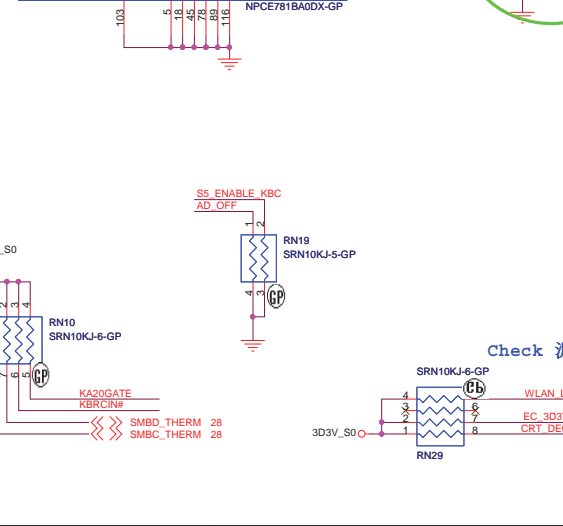
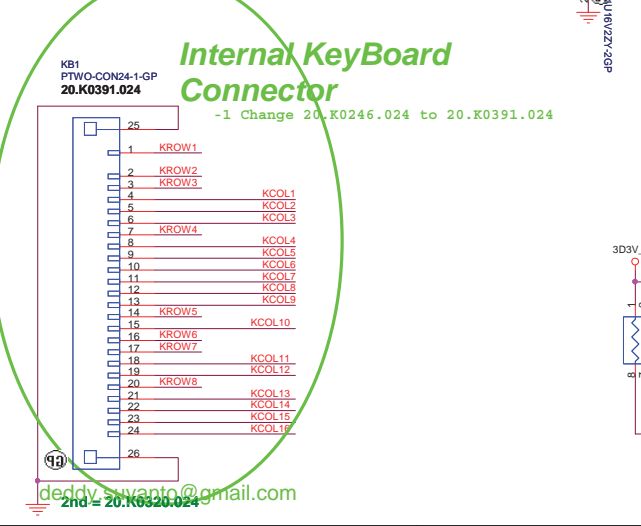
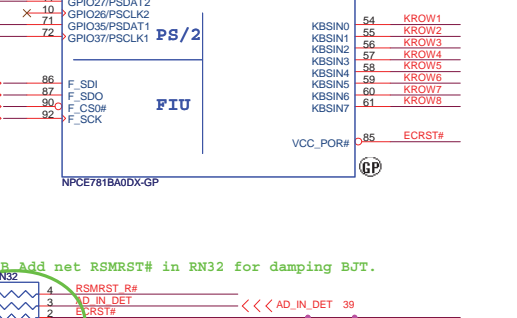
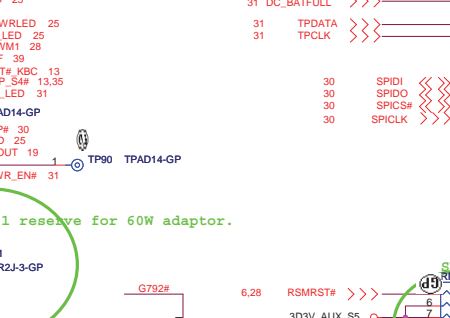
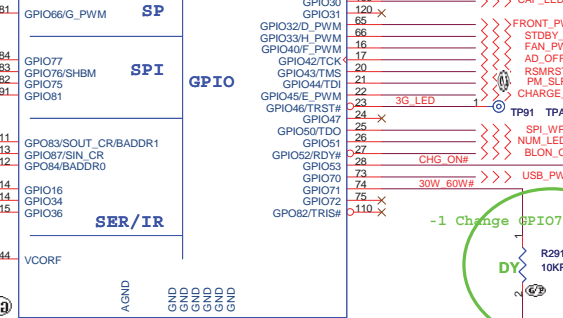
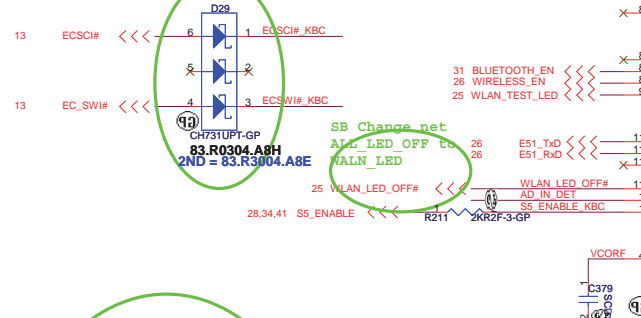
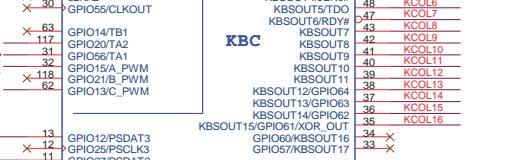
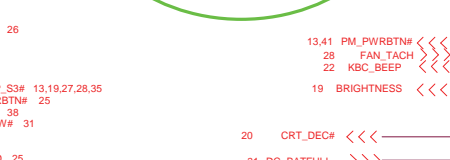
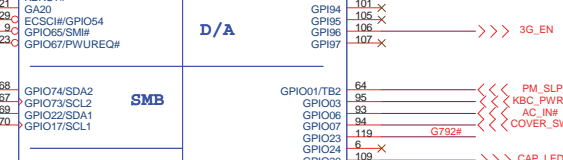
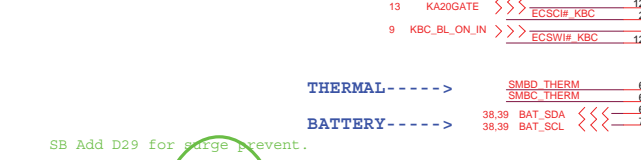
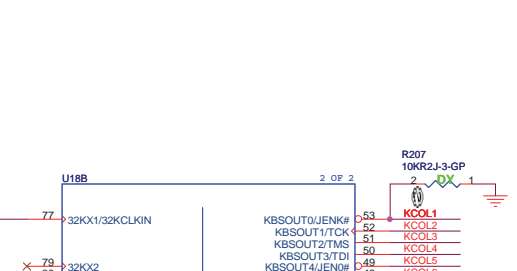
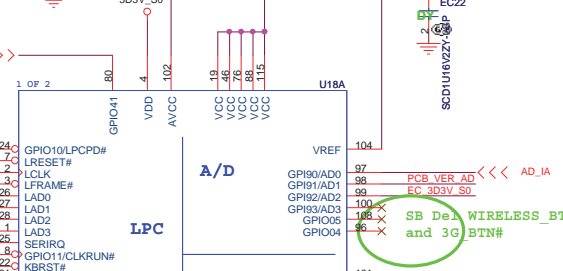
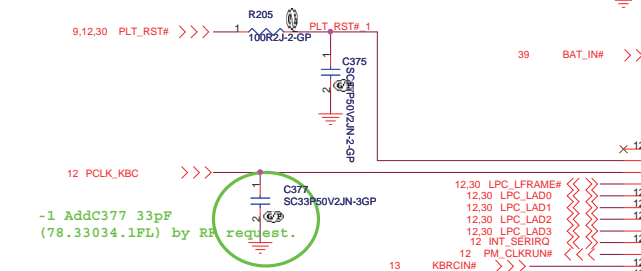
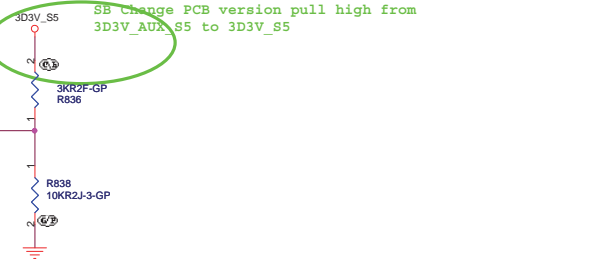
# CPU FAN Connector





**PCB Version**

Pull-Low	Pull-High
SA 10K	1K
SB 10K	2K
-1 10K	3K



SJV10-NL

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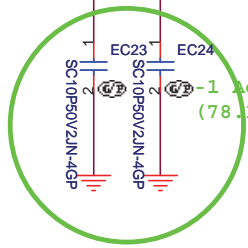
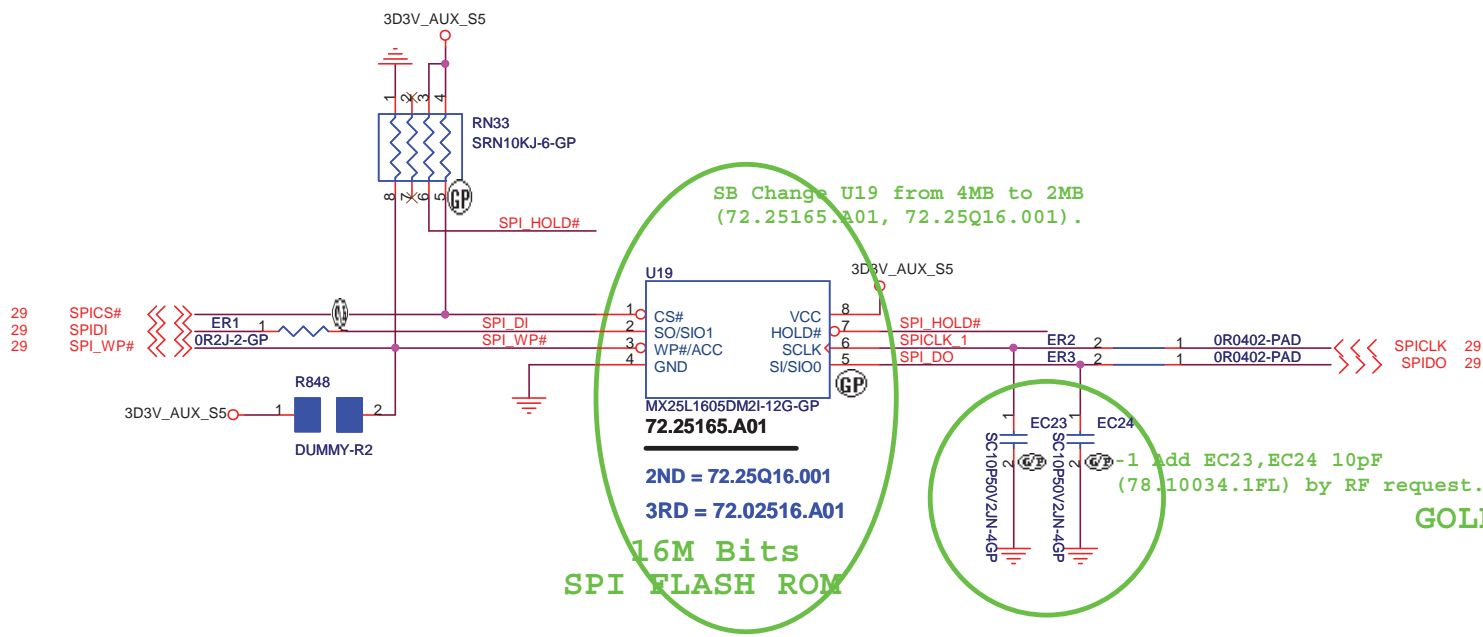
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: **KBC NPCE781B**

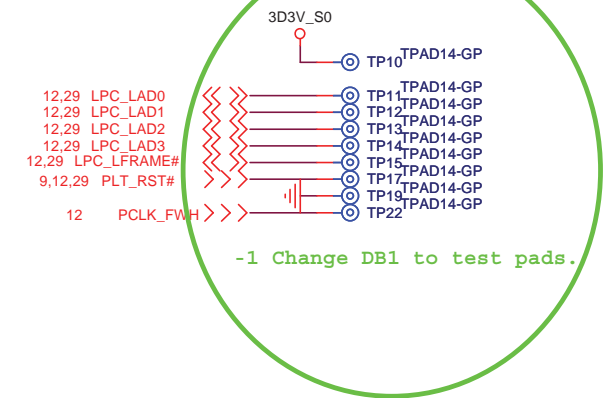
Size	Document Number	Rev
Custom	<b>SJV10-NL</b>	<b>-1</b>

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2nd = 20.K0320.024



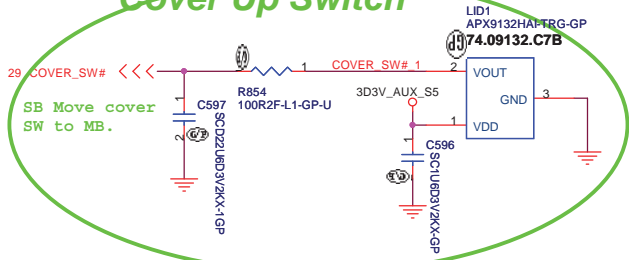
**GOLDEN FINGER FOR DEBUG BOARD**



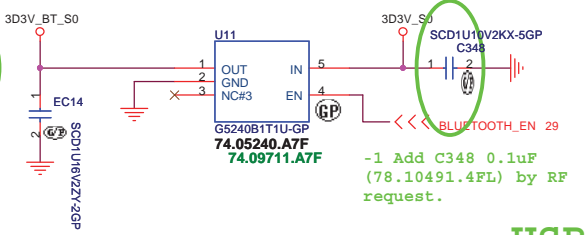
SJV10-NL

<b>緯創資通</b>		<b>Wistron Corporation</b>	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title		<b>BIOS</b>	
Size Custom	Document Number	<b>SJV10-NL</b>	Rev <b>-1</b>
Date: Friday, January 29, 2010	Sheet 30	of	42

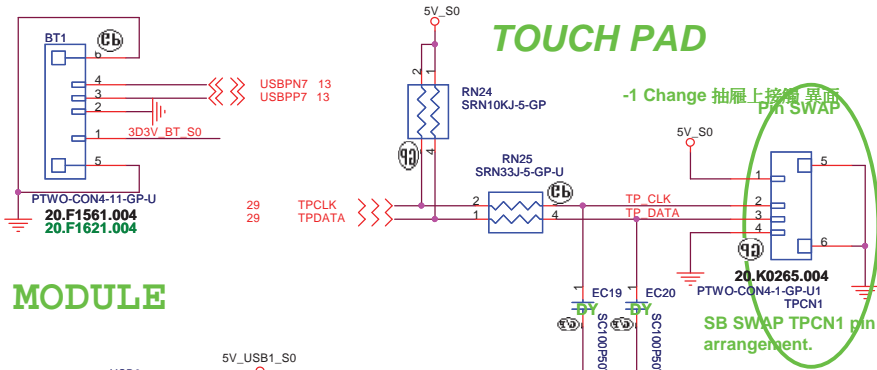
# Cover Up Switch



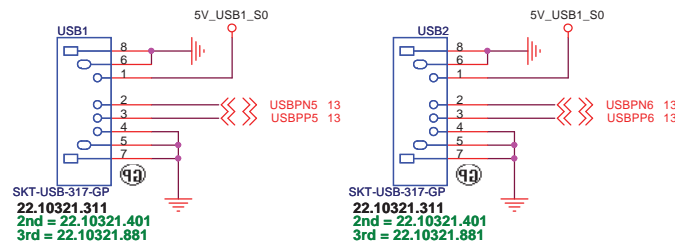
# BLUETOOTH MODULE



# TOUCH PAD



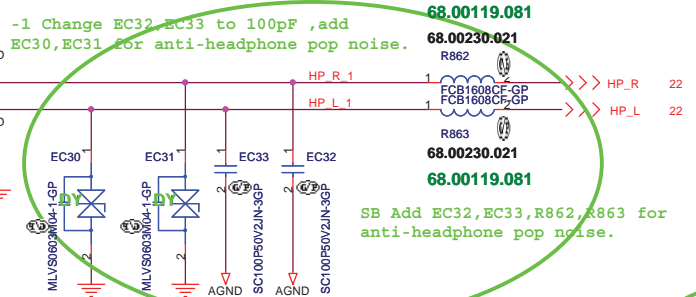
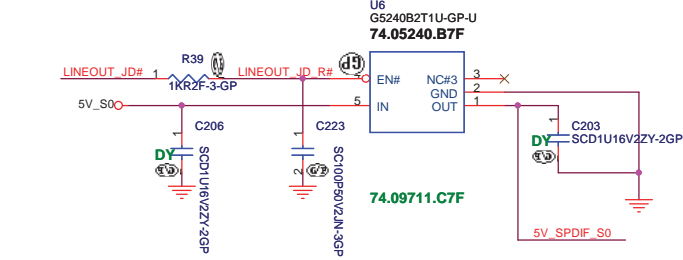
# USB MODULE



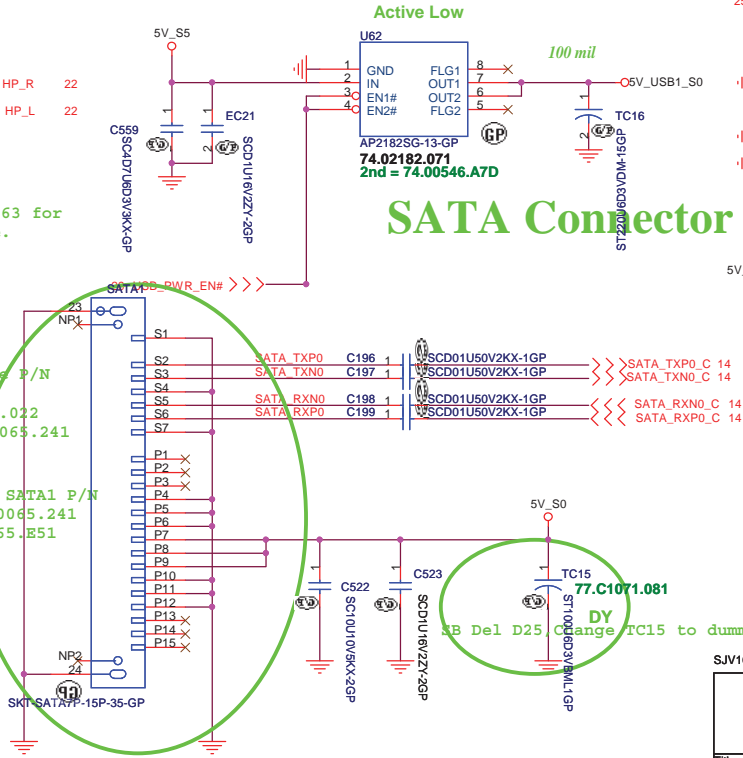
# USB Connector



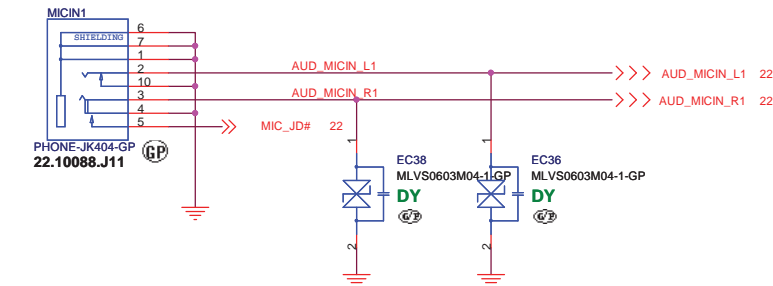
# LINE OUT 不要選用有鐵殼的



# SATA Connector



# MIC IN change 22.10088.I71



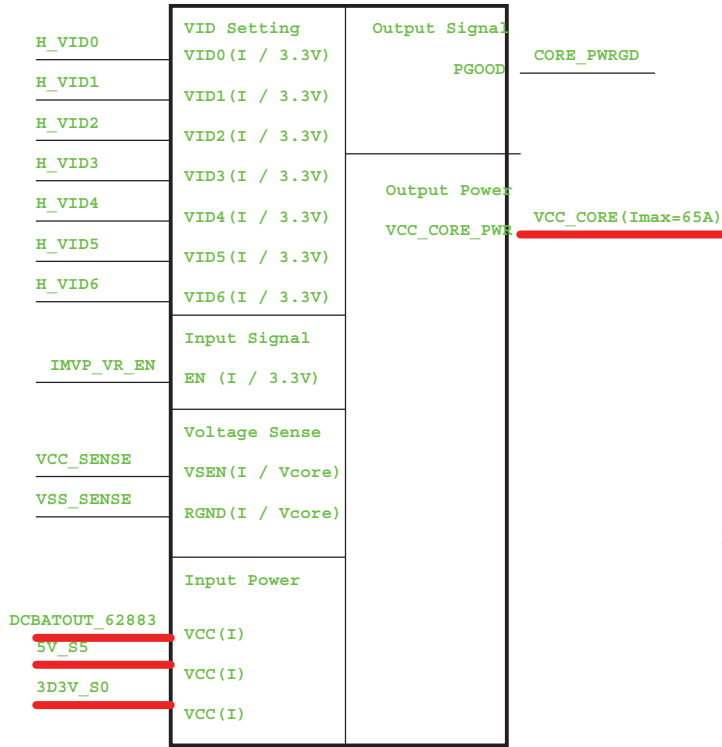
緯創資通 Wistron Corporation  
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: CONNECTOR\_audio jack

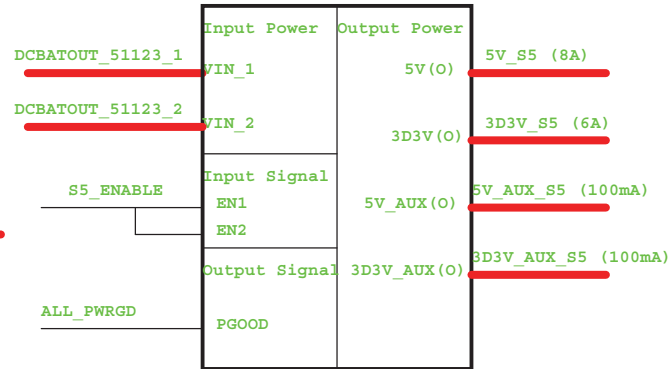
Size A3 Document Number: SJV10-NL Rev: -1

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**ISL62883 VCC\_CORE**



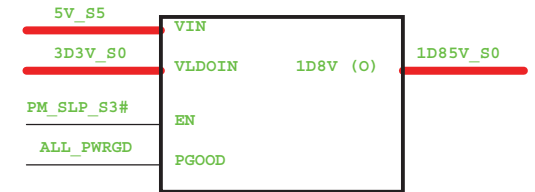
**TPS51123 5V/3D3V**



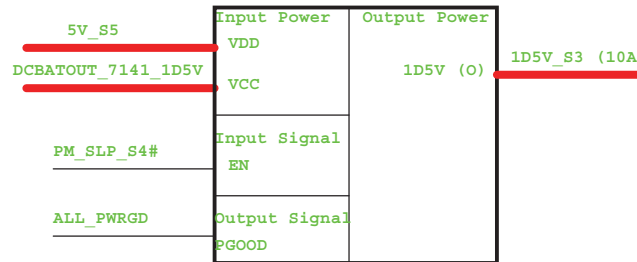
**RT9026 0D75V\_S0**



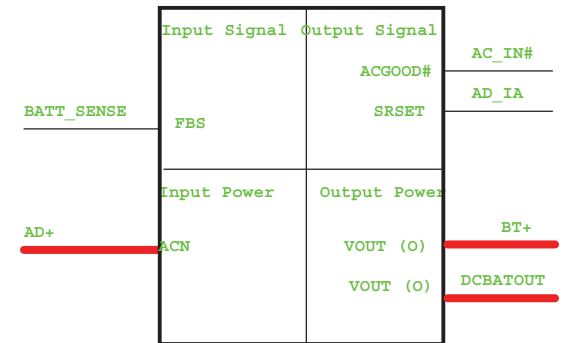
**RT9025 1D8V**



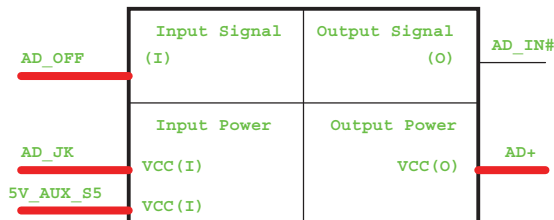
**RT9025 1D5V**



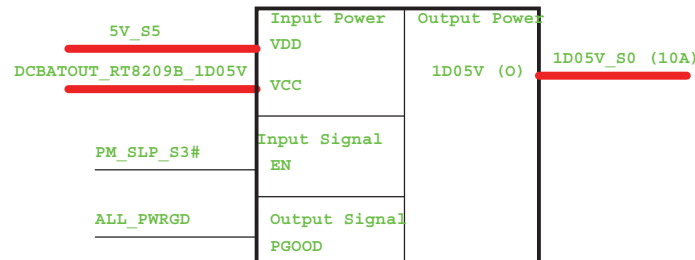
**Charger BQ24745**



**Adapter**



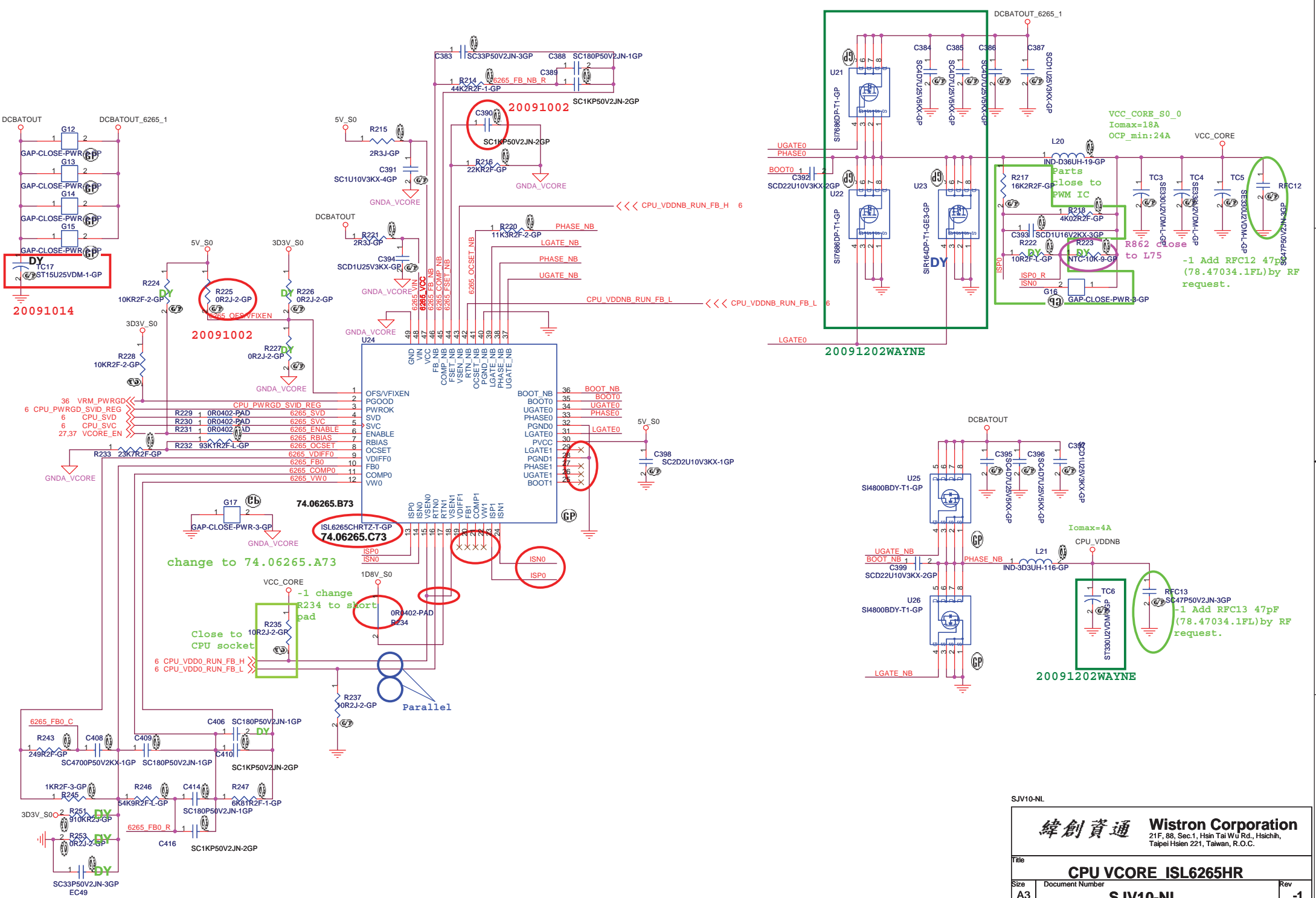
**RT8209B 1D05V**



SJV10-NL

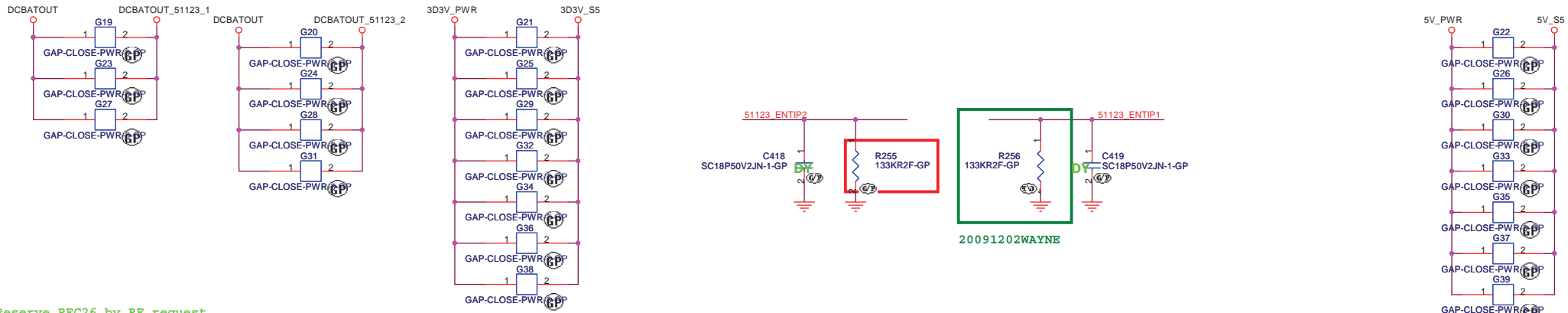
**緯創資通 Wistron Corporation**  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title <b>Power Block Diagram</b>		
Size	Document Number <b>SJV10-NL</b>	Rev <b>-1</b>
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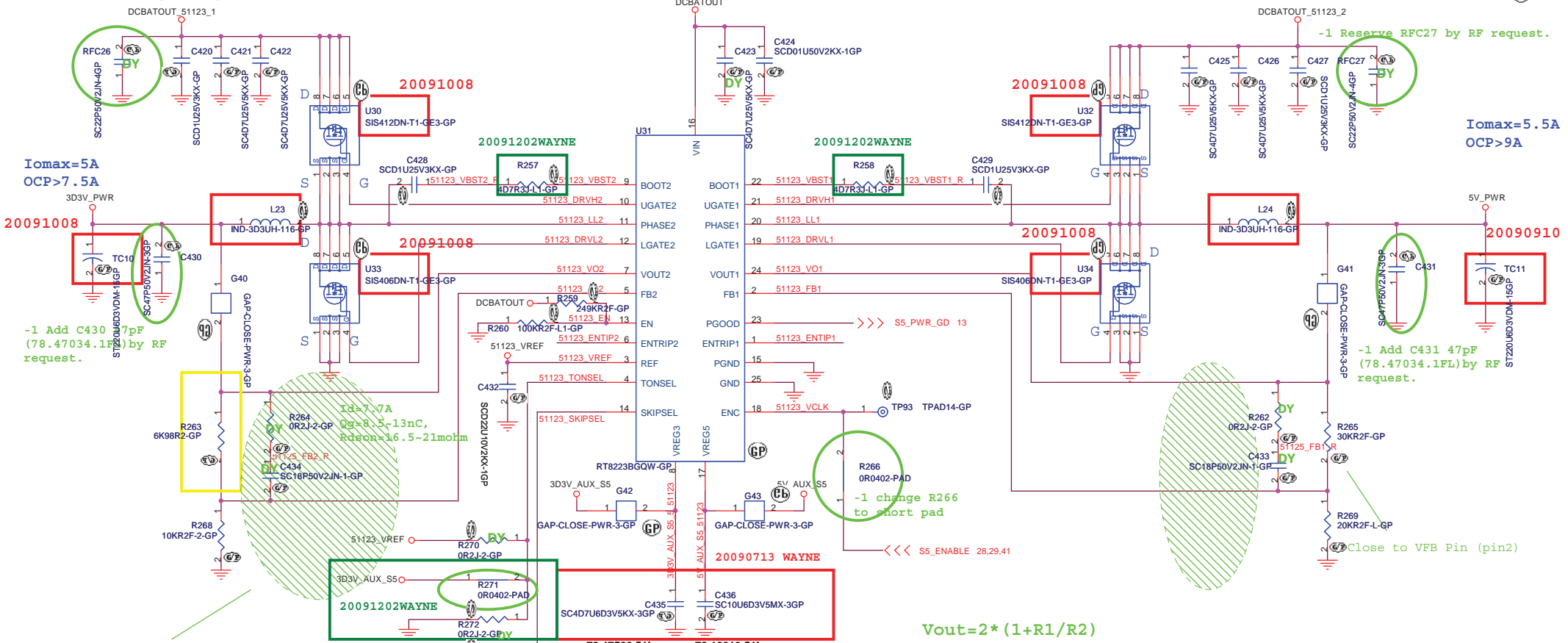
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-1 Reserve RFC26 by RF request.

-1 Reserve RFC27 by RF request.



$$V_{out} = 2 * (1 + R1/R2)$$

	GND	VREF	VREG3	VREG5
SKIPSEL	AUTOSKIP	PWM	00A AUTOSKIP	00A AUTOSKIP
TONSEL	200k/CH1 250k/CH2	245k/CH1 305k/CH2	300k/CH1 375k/CH2	365k/CH1 460k/CH2

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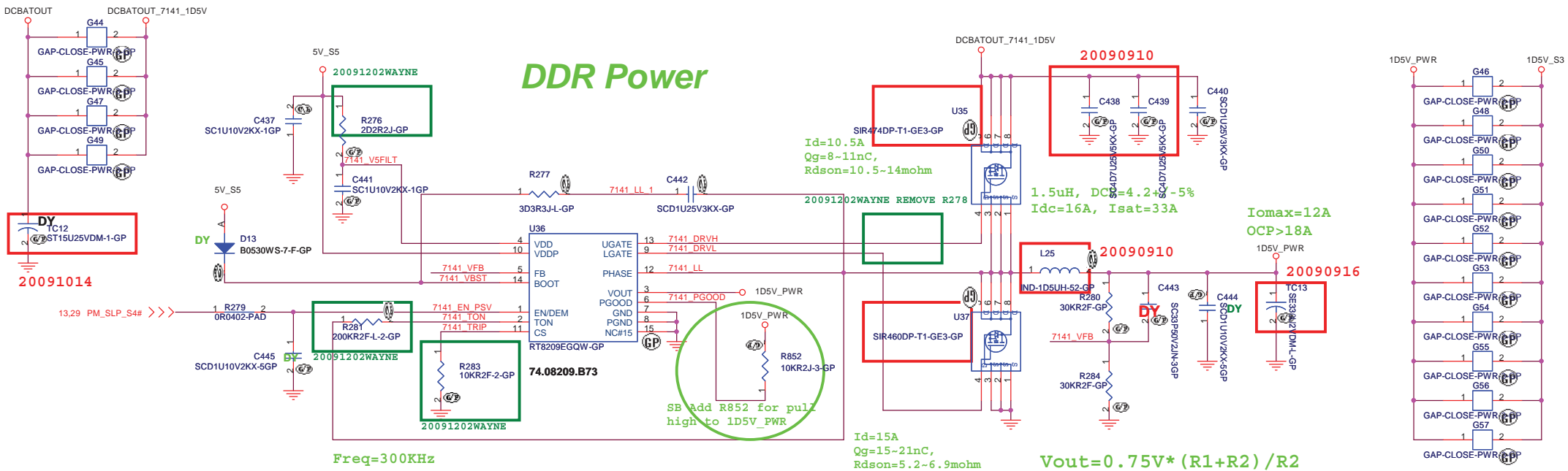
Title: **RT8223 5V/3D3V**

Size: Document Number

Date: Sunday, January 31, 2010

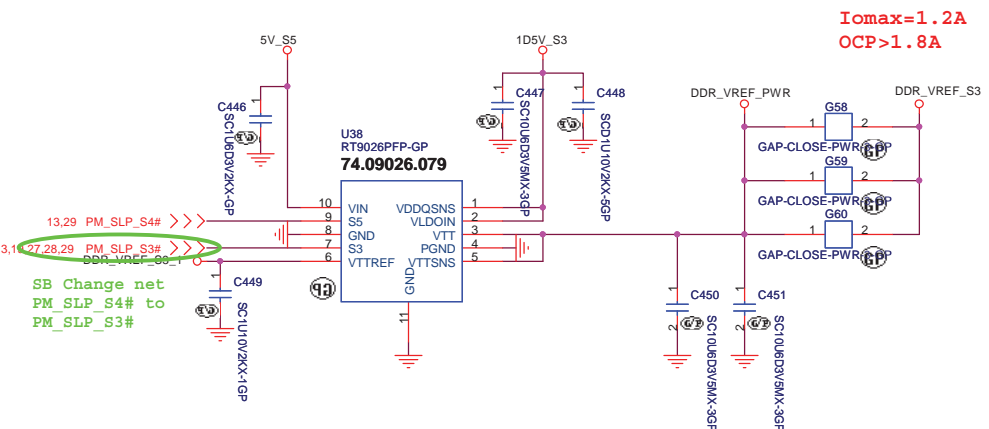
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### RT9026 for DDR\_VREF\_S3\_1

### DDR\_VREF\_S3



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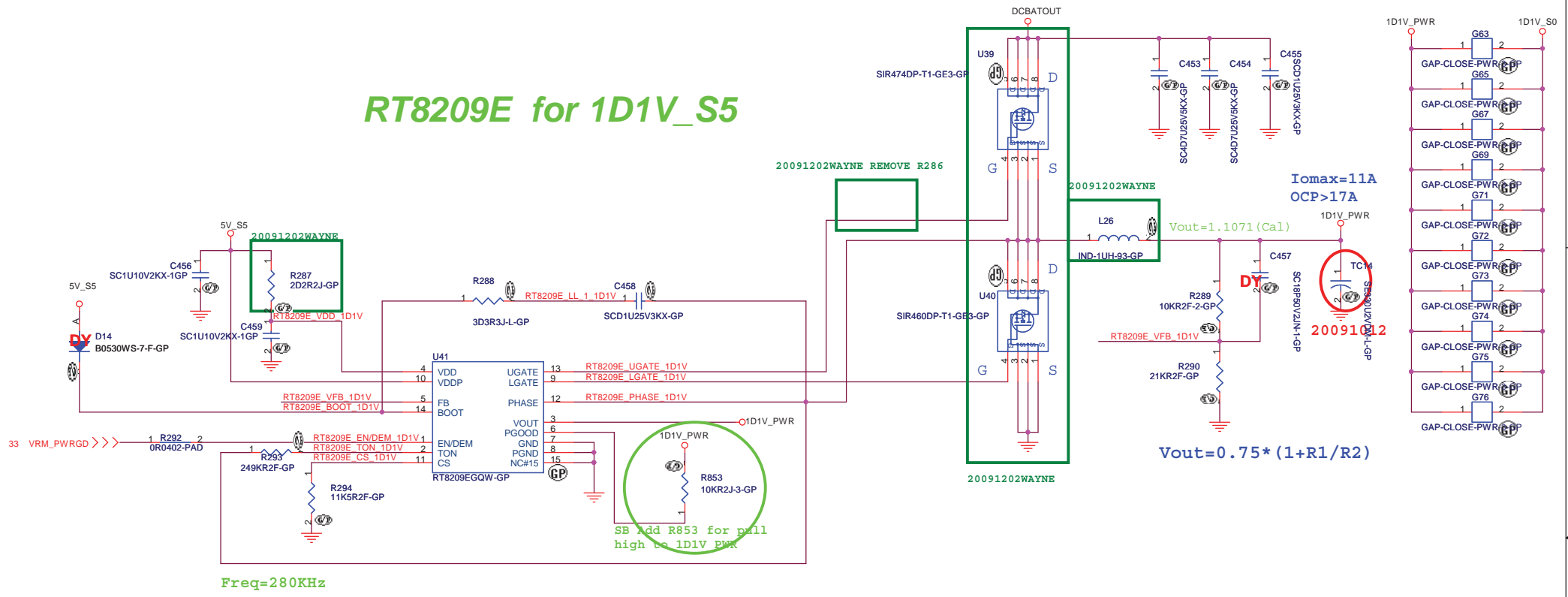
**緯創資通 Wistron Corporation**  
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Title: **RT8209E\_1D5V/RT9026\_0D75V**

Size	Document Number	Rev
	<b>SJV10-NL</b>	<b>-1</b>

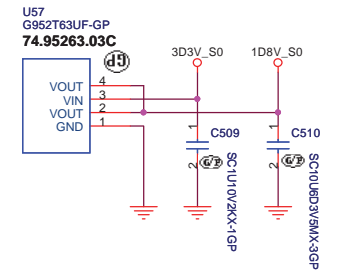
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# RT8209E for 1D1V\_S5

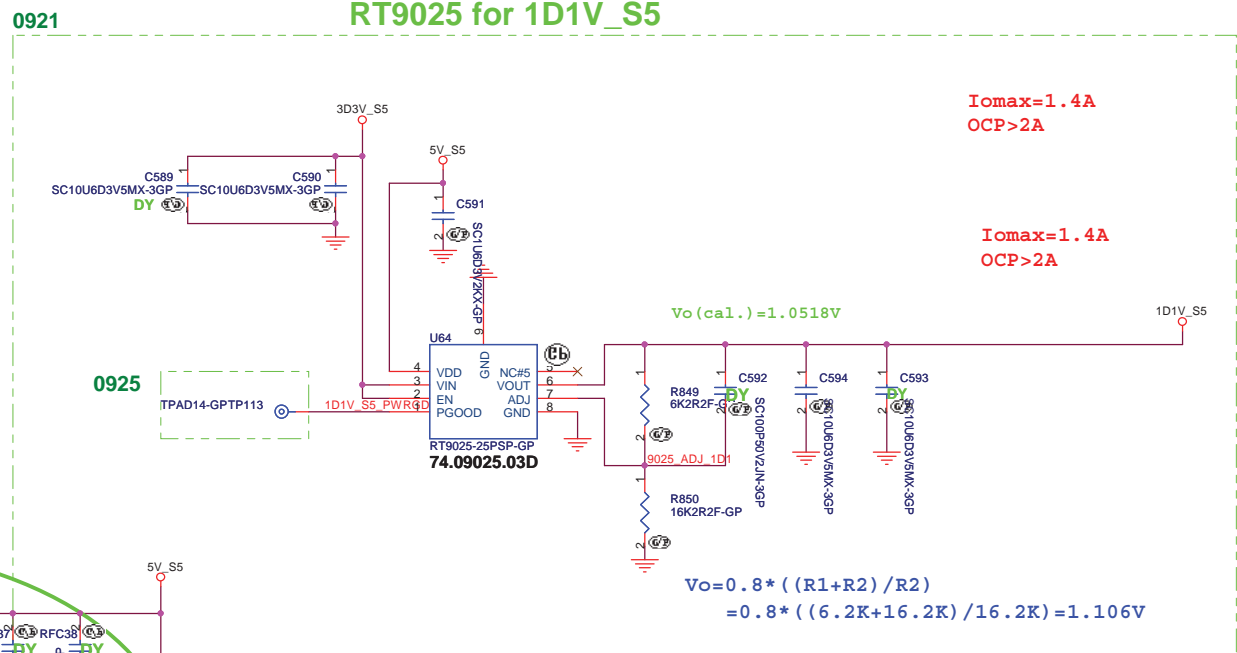


# 1.8V\_S0

# 1.8V 1A Regulator

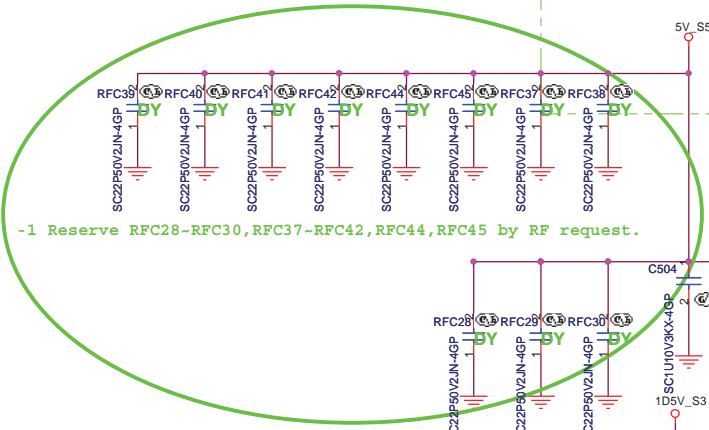


# RT9025 for 1D1V\_S5



$$V_o = 0.8 * ((R1+R2) / R2)$$

$$= 0.8 * ((6.2K+16.2K) / 16.2K) = 1.106V$$



$$V_o = 0.8 * (1 + (R1/R2))$$

-1 Reserve RFC28~RFC30, RFC37~RFC42, RFC44, RFC45 by RF request.

20090713 WAYNE

20090713 WAYNE

-1 Reserve RFC14, RFC16-RFC18 by RF request.

20091202WAYNE

20091008

SA 0622

SA 0622

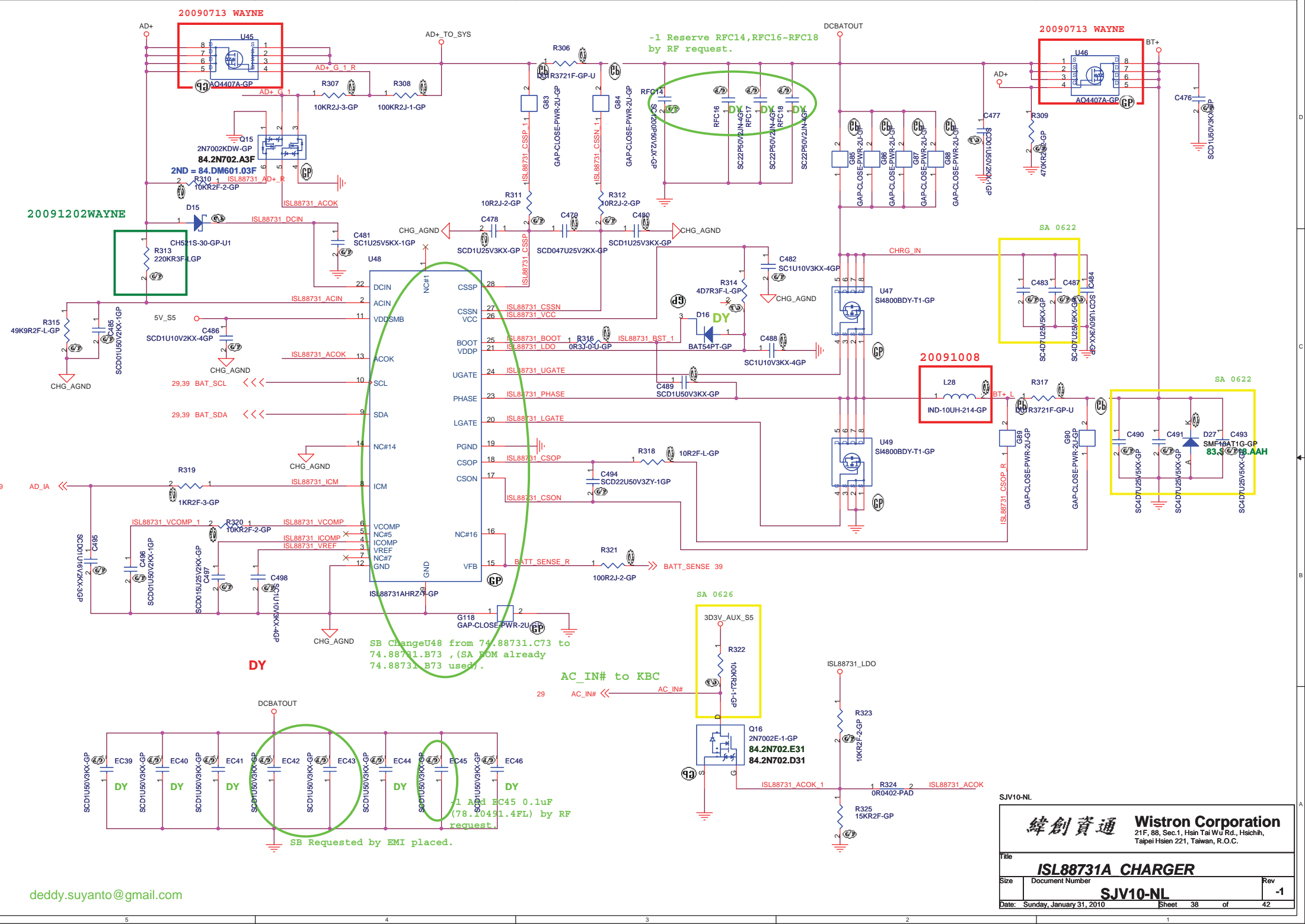
SA 0626

SB Change U48 from 74.88731.C73 to 74.88731.B73, (SA POM already 74.88731.B73 use).

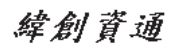
AC\_IN# to KBC

-1 Add EC45 0.1uF (78.10491.4FL) by RF request.

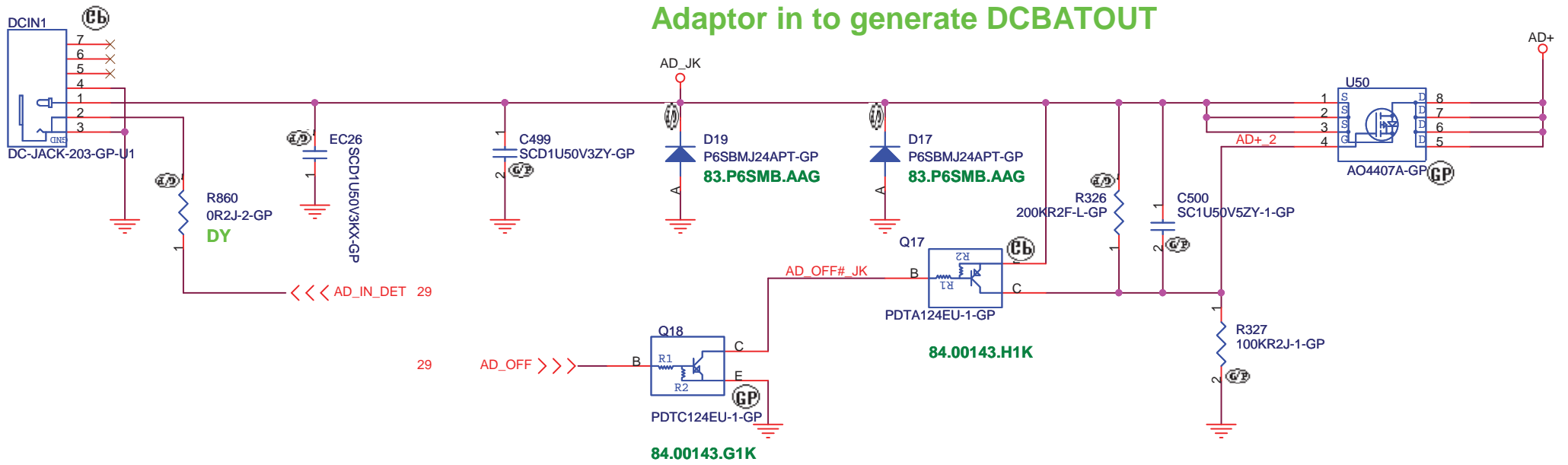
SB Requested by EMI placed.



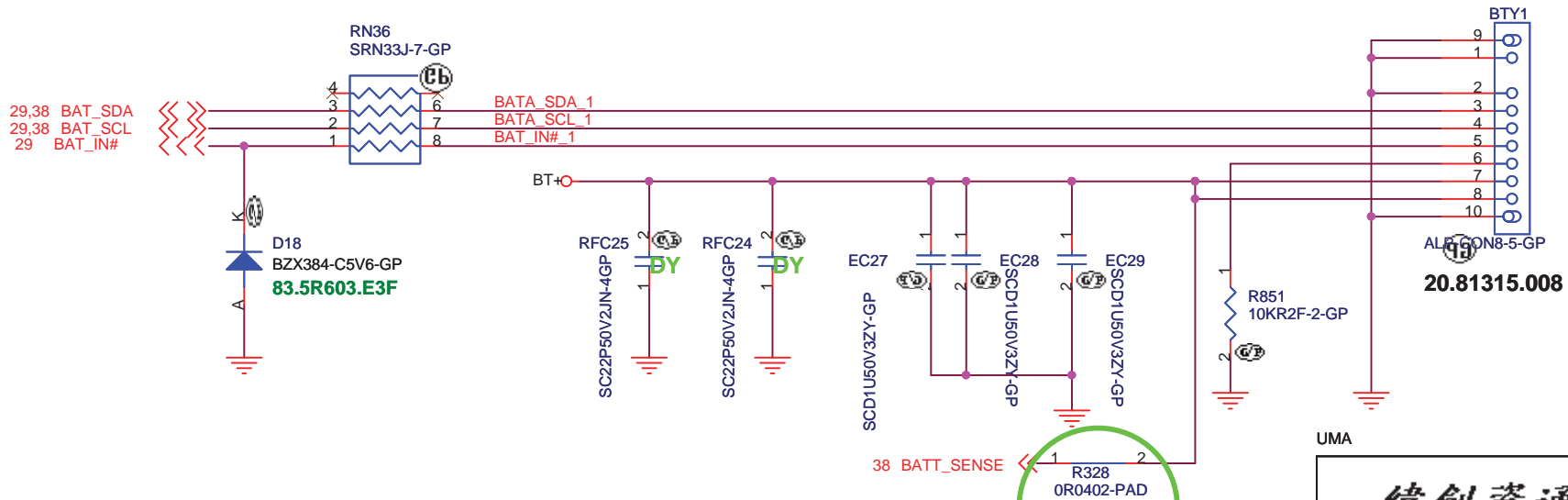
deddy.suyanto@gmail.com

 <b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichin, Taipei Hsien 221, Taiwan, R.O.C.	
<b>ISL88731A CHARGER</b>	
Title	Document Number
<b>SJV10-NL</b>	
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Rev	-1

## Adaptor in to generate DCBATOUT



## BATTERY CONNECTOR



-1 change R328 to short pad

UMA

緯創資通

Wistron Corporation

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Title

AD / BATT CONN

Size

Document Number

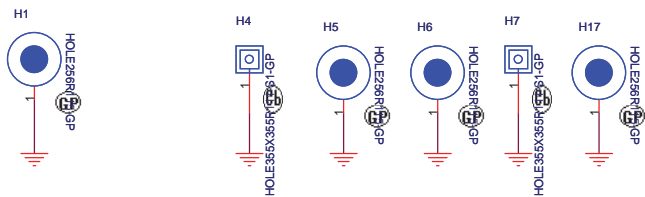
SJV10-NL

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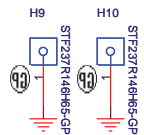
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Date: Saturday, January 30, 2010

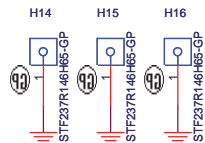
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**MB HOLE**



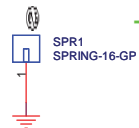
**MINI CARD BOSS**



**CPU NB BOSS**

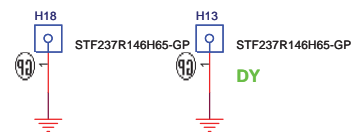
**SPRING**

-1 Add SPR1 for RTC battery.

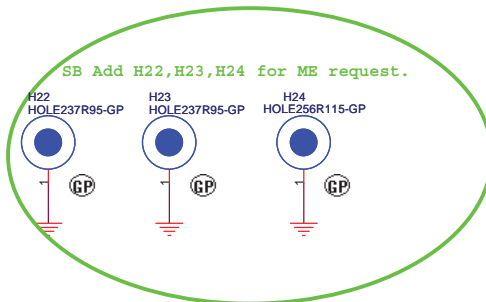
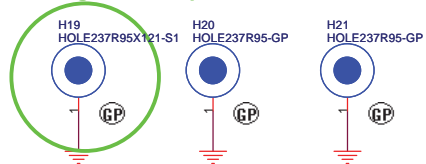


-1 Change H19 shape

SB Add H22, H23, H24 for ME request.

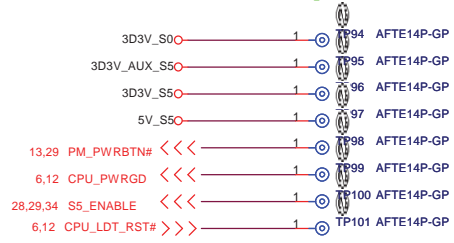


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## Check test point



**Test Point**放在Dimm Door打開可量測處

- SB Change notice:
- Change C344 from 10uF to 0.1uF for anti pop noise.(Page 22)
  - Change U48 circuit from 74.88731.C73 to 74.88731.B73 ,(SA BOM already 74.88731.B73 used.).(Page 38)
  - SWAP TPCN1pin arrangement.(Page 31)
  - Change U19 to 2MB(72.25165.A01, 72.25016.A01).(Page 30)
  - X1 need to change to the same as JV10-CS (82.30005.A51).(Page 3)
  - Del X4,C376,C378,R208,R206 ,R829 change to placed.(Page 28,29)
  - Add G122 (Page 12).
  - Add net RSMRST# in RN32 for damping BJT.(Page 29)
  - X5 2nd source change from 82.30005.C51 to 82.30020.A31,Change C540 from 27pF to 18pF,Change C541 from 27pF to 15pF (page 29)
  - R272 change to dummy.(Page 34)
  - Change R43 from Dummy to 1M ohm.(Page 12)
  - Del R285, Add R852,R853 for pull high to 1D1V\_PWR and 1D5V\_PWR.(Page 35,36)
  - Change RN30 form page31 to page 22.
  - Add D28 for thermal trigger S5 shutdown.(Page 28)
  - Del net RSMRST# SB pull high , Change S5\_PWR\_GD pull high from R261 to RN43.(Page 13)
  - Change pin arrangement to same as -CS, move cover SW to MB,Del WIRELESS\_BTN# and 3G\_BTN#.(Page 29,31)
  - Change PCB version pull high from 3D3V\_AUX\_S5 to 3D3V\_S5,R836 1K change to 2K (page29).
  - Change GPIO16 net name from ALL\_LED\_OFF to WLAN\_LED .(page29)
  - Change C558 1000pF P/N form 78.1022S.24L to 78.1022S.L1L.(page24)
  - Change capacity from 6.8pF (78.6R864.1FL) to 5.6pF (78.5R674.1FL)(page20).
  - Change net PCLK\_FWH to LPPCLK0\_R change net PCLK\_KBC to LPPCLK1\_R(page16).
  - Change R180,R104,Q4 to placed(page27).
  - Change P/N from 20.F1416.022 to 62.10065.241(page31).
  - Add D29 for surge prevent.(page29)
  - Change Mini card 3G pin41 from 5V\_S5 to NC.(page26).
  - Add C598 for solve CRT flicker issue (page9).
  - Change R859 from 150 ohm to 140 ohm (page20).
  - Add H22,H23,H24 for ME request. (page40).
  - Del net E51 RxD ,E51 TxD (page26).
  - Change R71 from bead 470 ohm to RES 3.9 ohm(page9).
  - Del D25.(page31).
  - Add RTC charge circuit.(page12).
  - EC42,EC43 requested by EMI placed.(page38).
  - Change LCD1 P/N from 20.F1093.040 to 20.F1703.040(page19).
  - Change net PM\_SLP\_S4# to PM\_SLP\_S3#.(page35).
  - Add EC32,EC33,R862,R863 for anti-headphone pop noise.(page31)
  - Change C189 to 22pF, C190 to 15pF.(page12)
  - Change TC15 to dummy.(page31)

- 1 change notices:
- Change R91,R92 to RN132,R27,R30 to RN133,R34-R36 to RN134.(Page 3)
  - DY C35,C42,C80,Change C36,C43,C569,C79 to 22uF.(Page 7)
  - Change R60,R62 to RN136.(Page 9)
  - Change R84,R85 to RN137,R76,R78 to RN138,R22,R79 to RN139.DY C139,Change C140 to 22uF.(Page 10)
  - Change R89,R88 to RN140.(Page 12)
  - Change R133,R135,R136,R128 to RN141,R138,R139 to RN142.(Page 16)
  - Change C266,C281 to dummy.(Page 17)
  - Change C287,C293,C302 to dummy.(Page 18)
  - Change R16 to short PAD.(Page 19)
  - Change C532 to dummy.(Page 23)
  - Change C331,C400,C361,C363 to dummy,change R832,R833 to RN143.(Page 24)
  - Change C357 to dummy.(Page 26)
  - Change R844,R847 to short pad.(Page 28)
  - Add reserved R865, change pull high to 3D3V\_S5.(Page 23)
  - Change 10u/25V(78.10622.51L)to 4.7u/25V(78.47522.51L)(Page 19)
  - Change C483,C423,C487,C490,C493. 10u/25V(78.10622.51L)to 4.7u/25V(78.47522.51L)(Page 34,38)
  - Change USBCN1 20.K0234.020 to 20.K0359.020 (Page 31)
  - Change KB1 20.K0246.024 to 20.K0391.024(Page 29)
  - Change R234 to short pad.(Page 33)
  - Change R266,R271,R274 to short pads.(Page 34)
  - Change R328 to short pad.(Page 39)
  - Change 3G\_LED\_portion circuit.(Page 26)
  - Change R166 to reserved D21.(Page 22)
  - Change 抽屜上接觸異面.(Page 31)
  - Add SPR1 for RTC battery.(Page 40)
  - Add VRAM identify pins.(Page 12)
  - Change EC32,EC33 to 100pF,add EC30,EC31 for anti-headphone pop noise(Page 31)
  - Change GPIO71 reserve for 60W adaptor.(Page 29)
  - Reserve EC47 for EMI issue.(Page 13)
  - Change DB1 to test pads.(Page 30)
  - Change C12,C20,C193 to 12pF,C541 to 18pF.(Page 3,12,23)
  - Add R335,EC74-EC79 for AGND connect.(Page 22)
  - Change Card1 P/N to 62.10024.B41(Page 25)
  - Change 10u/25V(78.10622.51L)to 10u/16V(78.10621.52L)(Page 19)
  - Change SATA1 P/N from 62.10065.241 to 62.10065.E51.(Page 31)
  - Add F4,D25 for ESD function.(Page 21)
  - Reserve C310,RFC1,RFC11,RFC14,RFC16-RFC19,RFC22,RFC24-RFC30,RFC37-RFC42,RFC44-RFC48 by RF request.(Page 3,18,19)
  - Add EC4,EC12,EC13,C306 (22pF)by RF request.(Page 3,19,22)
  - Change R1,R4,R7 to bead (68.00373.001).(Page 3)
  - Add C309,C430,C431,RFC12,RFC13,EC48 47pF (78.47034.1FL)by RF request.(Page 19,33,34)
  - Add C303,C348,EC45 0.1uF (78.10491.4FL) by RF request.(Page 19,31,38)
  - Add RFC10,C310 1200pF (78.12234.2FL)by RF request.(Page 19)
  - Add EC23,EC24 10pF (78.10034.1FL) by RF request.(Page 30)
  - Add C377 33pF (78.33034.1FL) by RF request.(Page 29)
  - Change C189 to 15pF.(Page 12)

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<b>緯創資通</b>		<b>Wistron Corporation</b>	
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A3			<b>-1</b>
<b>Date:</b> Sunday, January 31, 2010		<b>Sheet</b> 42	<b>of</b> 42