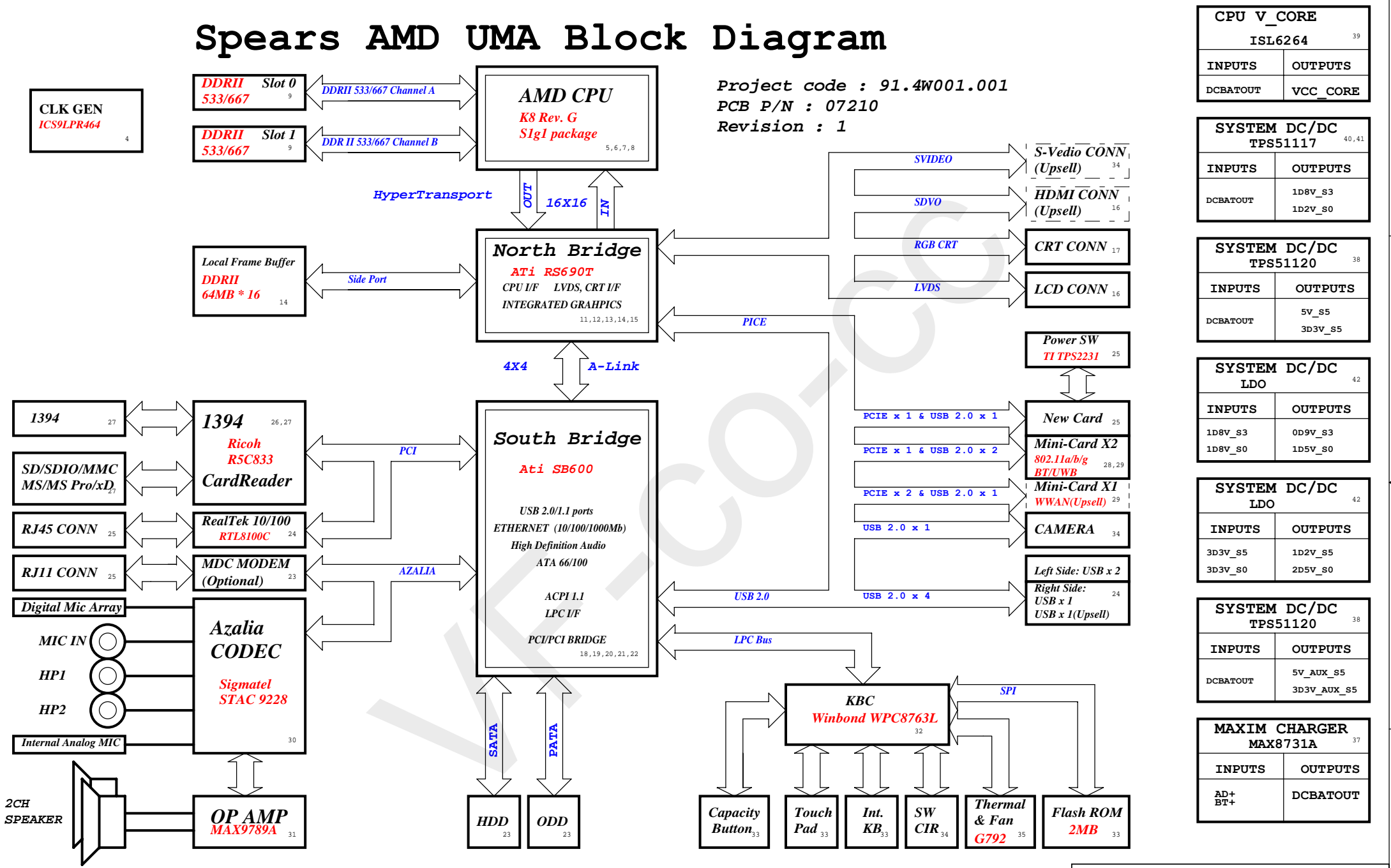


Spears AMD UMA Block Diagram

Project code : 91.4W001.001
 PCB P/N : 07210
 Revision : 1



| CPU V_CORE | |
|------------|----------|
| ISL6264 39 | |
| INPUTS | OUTPUTS |
| DCBATOUT | VCC_CORE |

| SYSTEM DC/DC | |
|----------------|---------|
| TPS51117 40,41 | |
| INPUTS | OUTPUTS |
| DCBATOUT | 1D8V_S3 |
| | 1D2V_S0 |

| SYSTEM DC/DC | |
|--------------|---------|
| TPS51120 38 | |
| INPUTS | OUTPUTS |
| DCBATOUT | 5V_S5 |
| | 3D3V_S5 |

| SYSTEM DC/DC | |
|--------------|---------|
| LDO 42 | |
| INPUTS | OUTPUTS |
| 1D8V_S3 | 0D9V_S3 |
| 1D8V_S0 | 1D5V_S0 |

| SYSTEM DC/DC | |
|--------------|---------|
| LDO 42 | |
| INPUTS | OUTPUTS |
| 3D3V_S5 | 1D2V_S5 |
| 3D3V_S0 | 2D5V_S0 |

| SYSTEM DC/DC | |
|--------------|-------------|
| TPS51120 38 | |
| INPUTS | OUTPUTS |
| DCBATOUT | 5V_AUX_S5 |
| | 3D3V_AUX_S5 |

| MAXIM CHARGER | |
|---------------|----------|
| MAX8731A 37 | |
| INPUTS | OUTPUTS |
| AD+ BT+ | DCBATOUT |

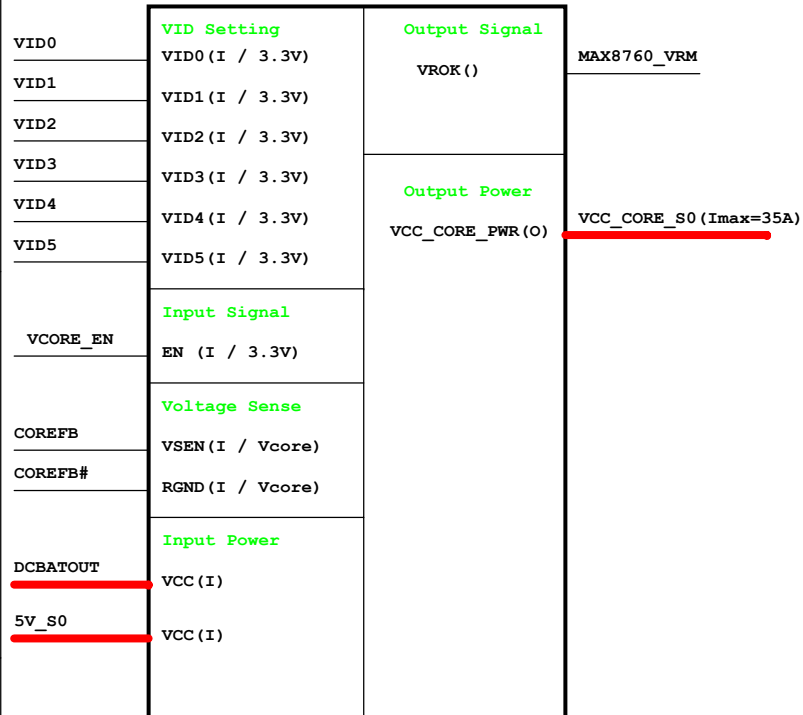
緯創資通 Wistron Corporation
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

Title: **System Block Diagram**

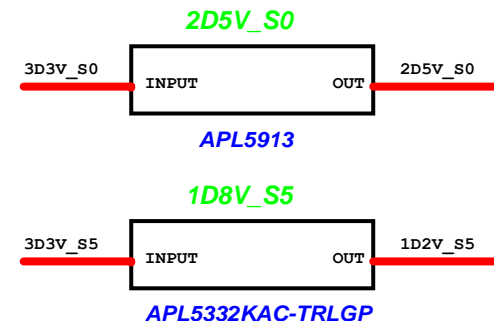
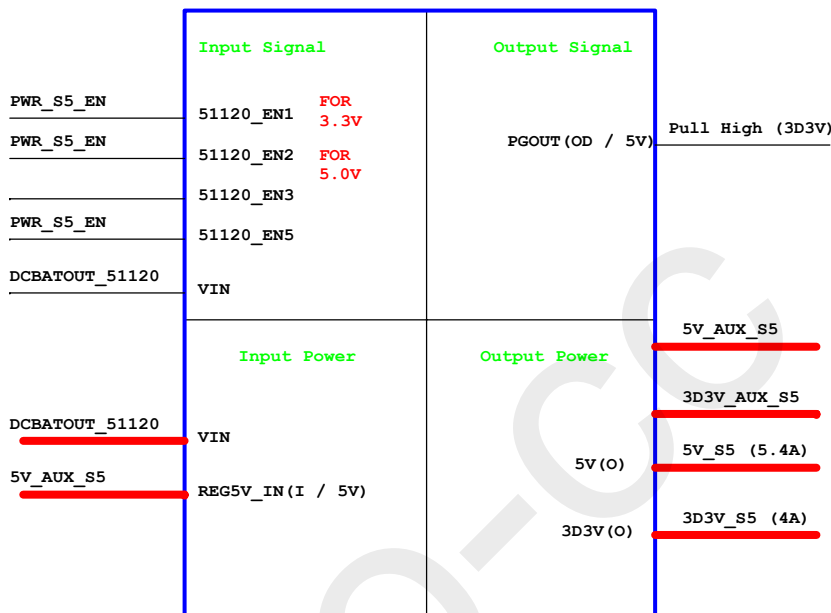
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|---------|-----------------|----------|
| Size A3 | Document Number | Rev |
| | DS2-AMD | 1 |

Date: Monday, September 24, 2007 Sheet 1 of 44

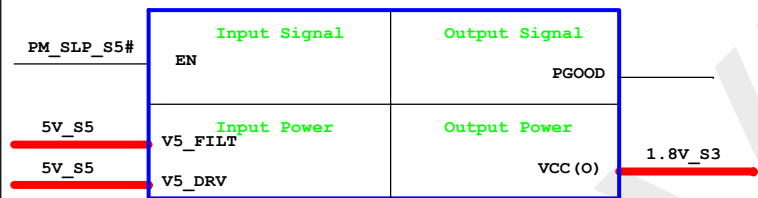
CPU_CORE
ISL6264CRZ



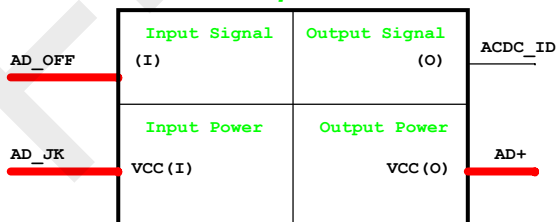
3D3V/5V
TI TPS51120



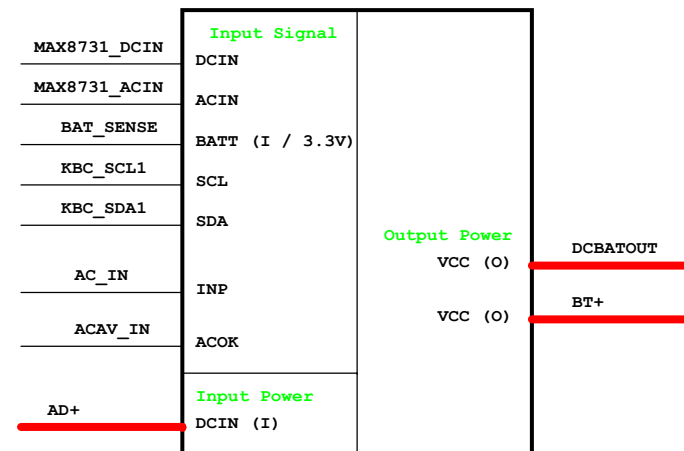
TI TPS51117
1.8V



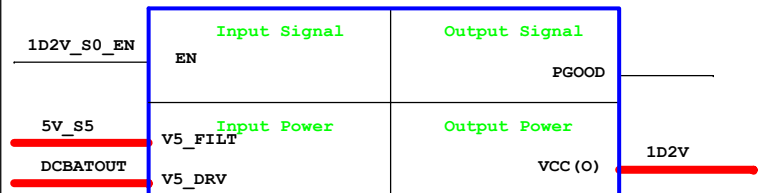
Adapter



Charger_MAX8731AETI

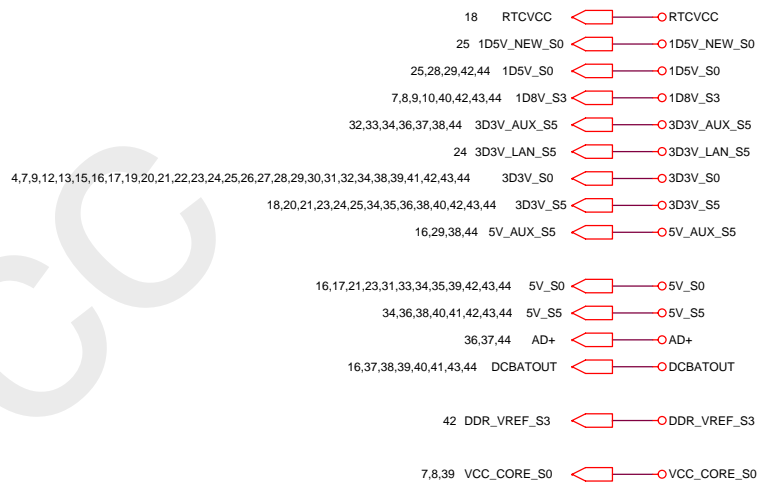


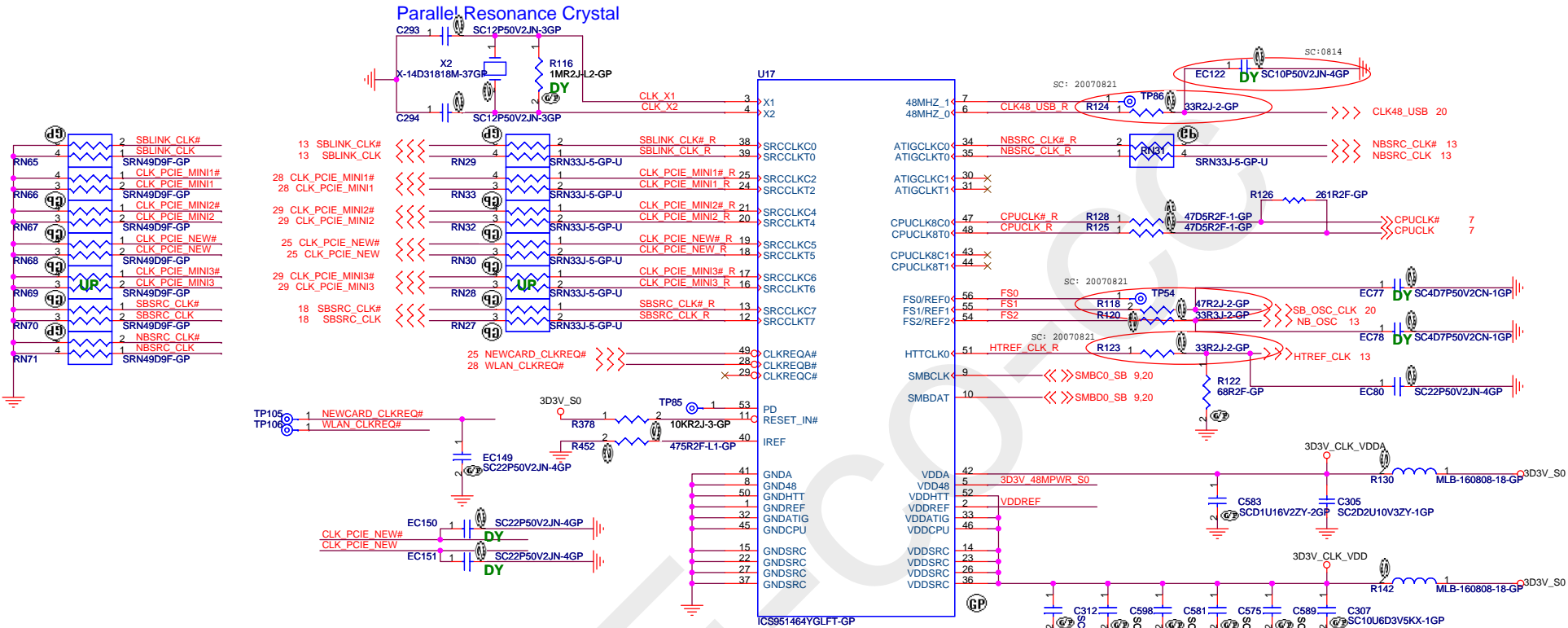
TI TPS51117
1.2V



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VF-CO-CC





| | RN27 ~RN33 | R452 | RN65 ~RN71 | R125 R128 | R126 |
|-------------------------------|---------------|--------|---------------|--------------|--------|
| SILEGO xSLG84607 | 330ohm | 475Ohm | 49.90ohm | 00hm | DY |
| REALTEK RTM870T-691 | 00hm | DY | DY | 47.50hm | 2610hm |
| ICS 9LPR464 | 330hm | DY | DY | 330hm | DY |
| SpectralLinear SL28RS680-3 | 00hm | DY | DY | 00hm | DY |

EXT CLK FREQUENCY SELECT TABLE(MHZ)

| FS2 | FS1 | FS0 | CPU | SRCCLK [2:1] | HTT | USB | REF0 REF1 REF2 |
|-----|-----|-----|--------|-----------------|-------|-------|----------------------|
| 0 | 0 | 0 | Hi-Z | 100.00 | Hi-Z | 48.00 | 14.318 |
| 0 | 0 | 1 | X/2 | 100.00 | X/3 | 48.00 | 14.318 |
| 0 | 1 | 0 | 230.00 | 100.00 | 76.67 | 48.00 | 14.318 |
| 0 | 1 | 1 | 240.00 | 100.00 | 80.00 | 48.00 | 14.318 |
| 1 | 0 | 0 | 100.00 | 100.00 | 66.66 | 48.00 | 14.318 |
| 1 | 0 | 1 | 133.33 | 100.00 | 66.66 | 48.00 | 14.318 |
| 1 | 1 | 0 | 166.67 | 100.00 | 66.66 | 48.00 | 14.318 |
| 1 | 1 | 1 | 200.00 | 100.00 | 66.67 | 48.00 | 14.318 |

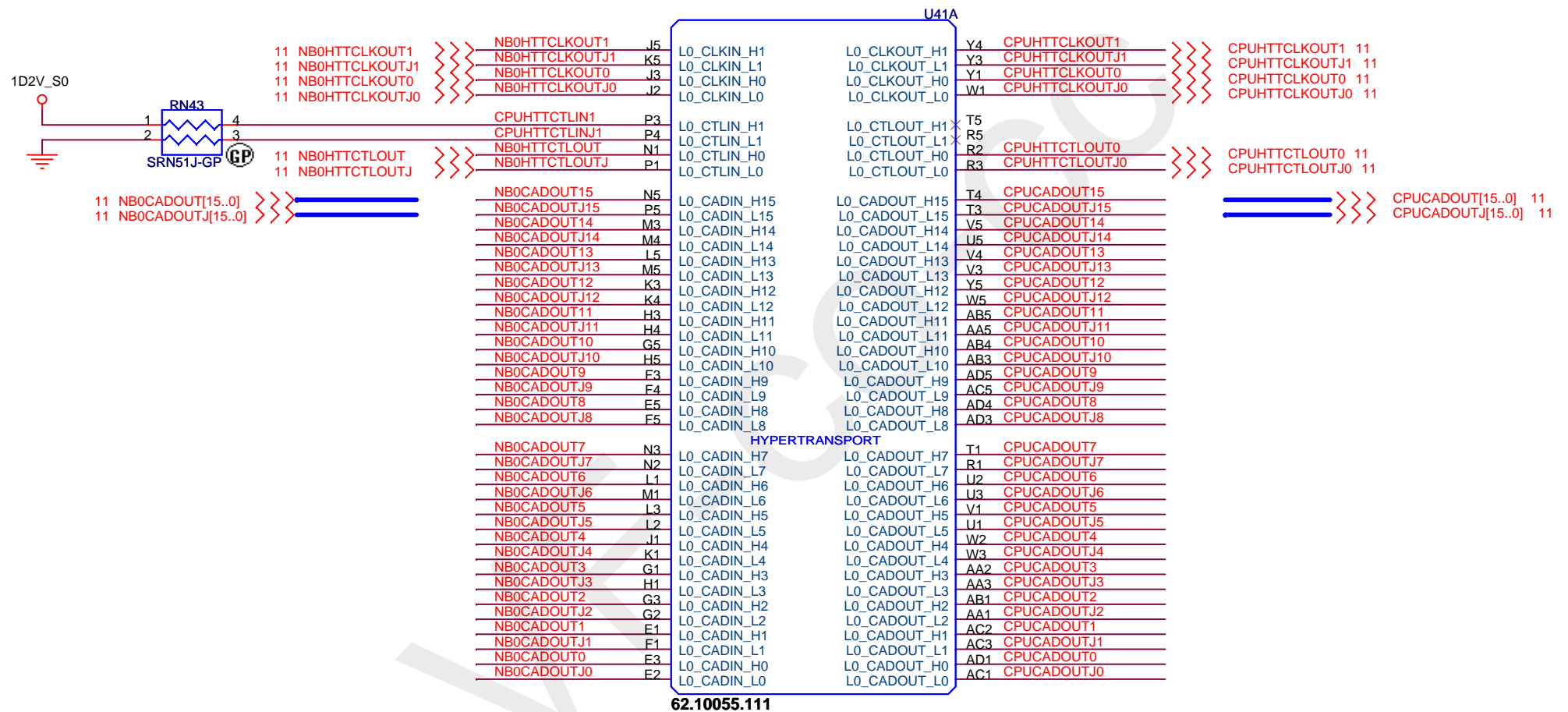
<Variant Name>

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

Title
Clock generator ICS9LPR464

Size A3 Document Number **DS2-AMD** Rev **1**

Date: Monday, September 24, 2007 Sheet 4 of 44

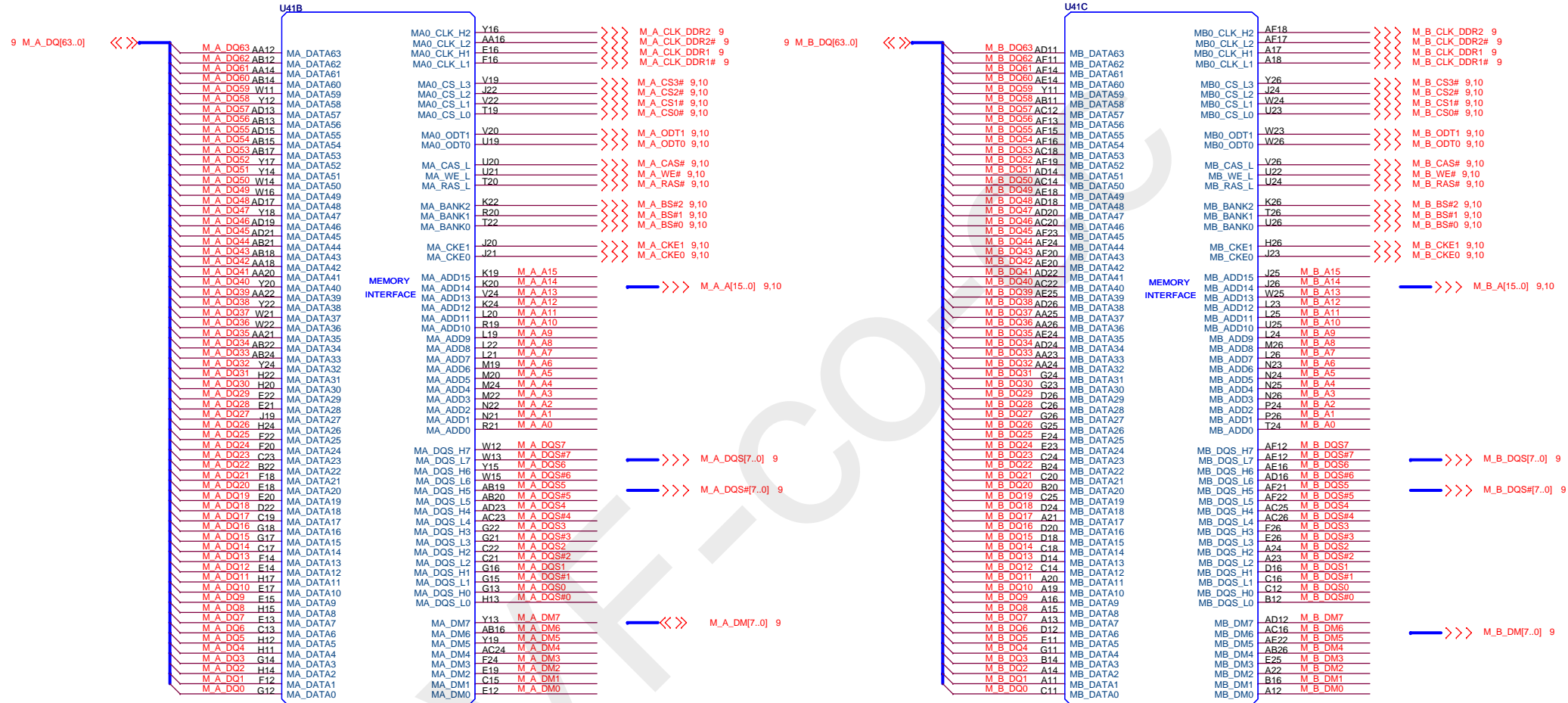


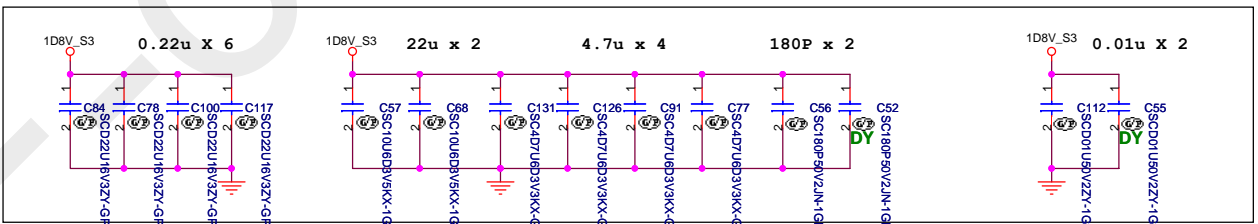
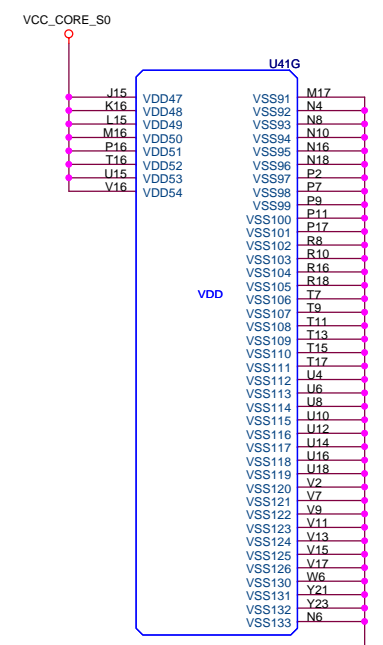
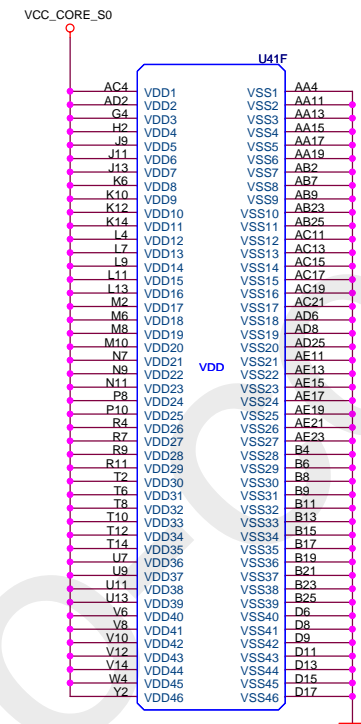
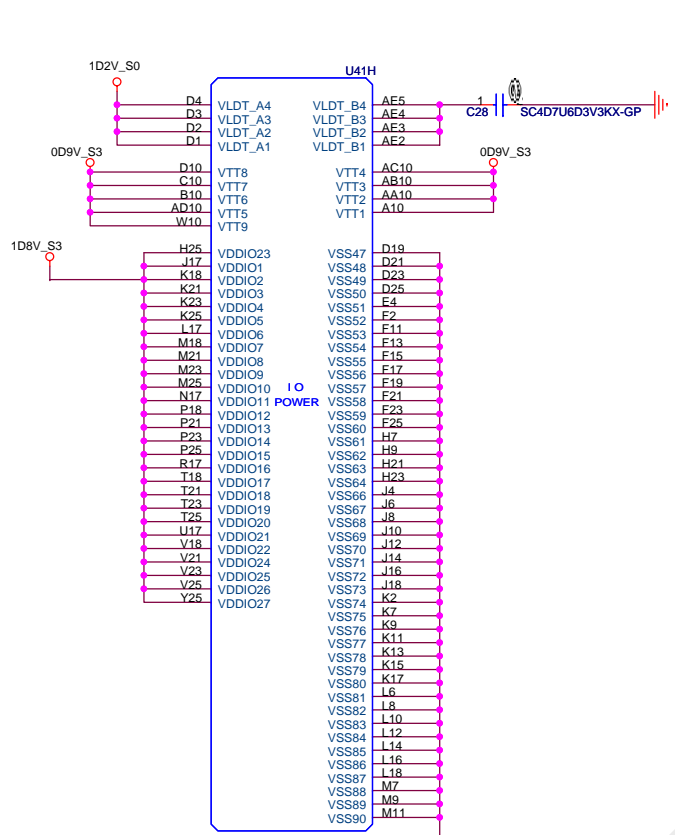
緯創資通 **Wistron Corporation**
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

Title **AMD K8 CPU Rev.G**

Size A4 Document Number **DS2-AMD** Rev **1**

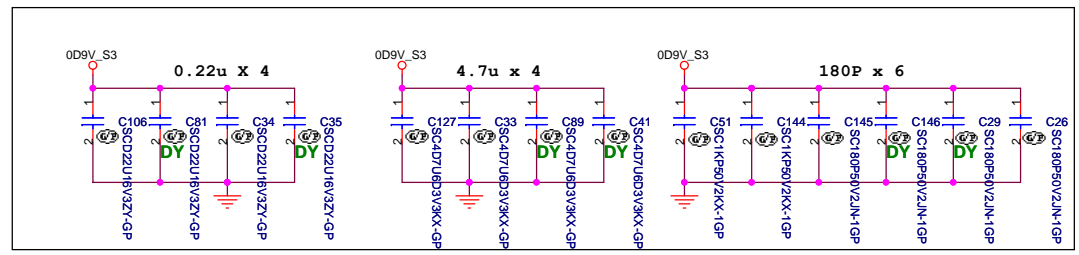
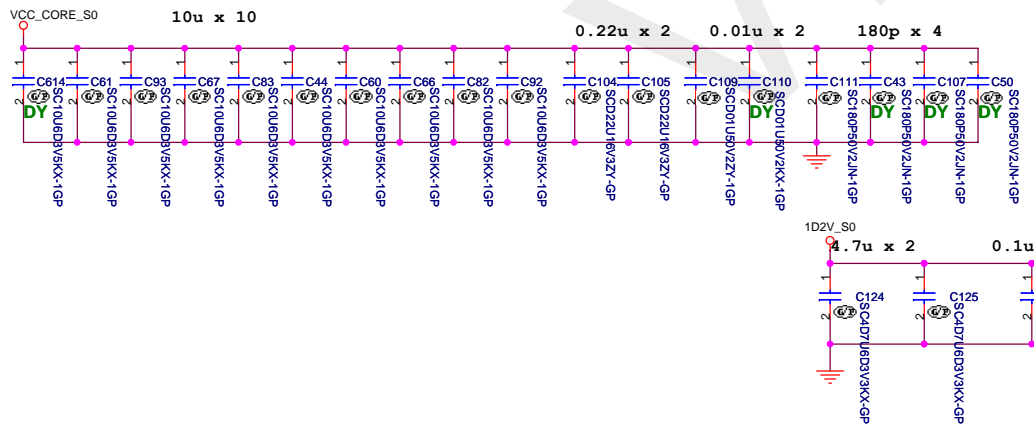
Date: Monday, September 24, 2007 Sheet 5 of 44

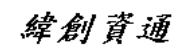




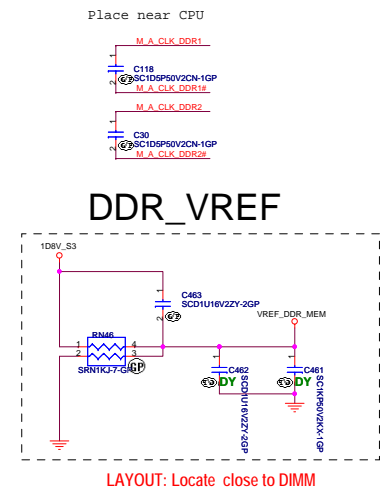
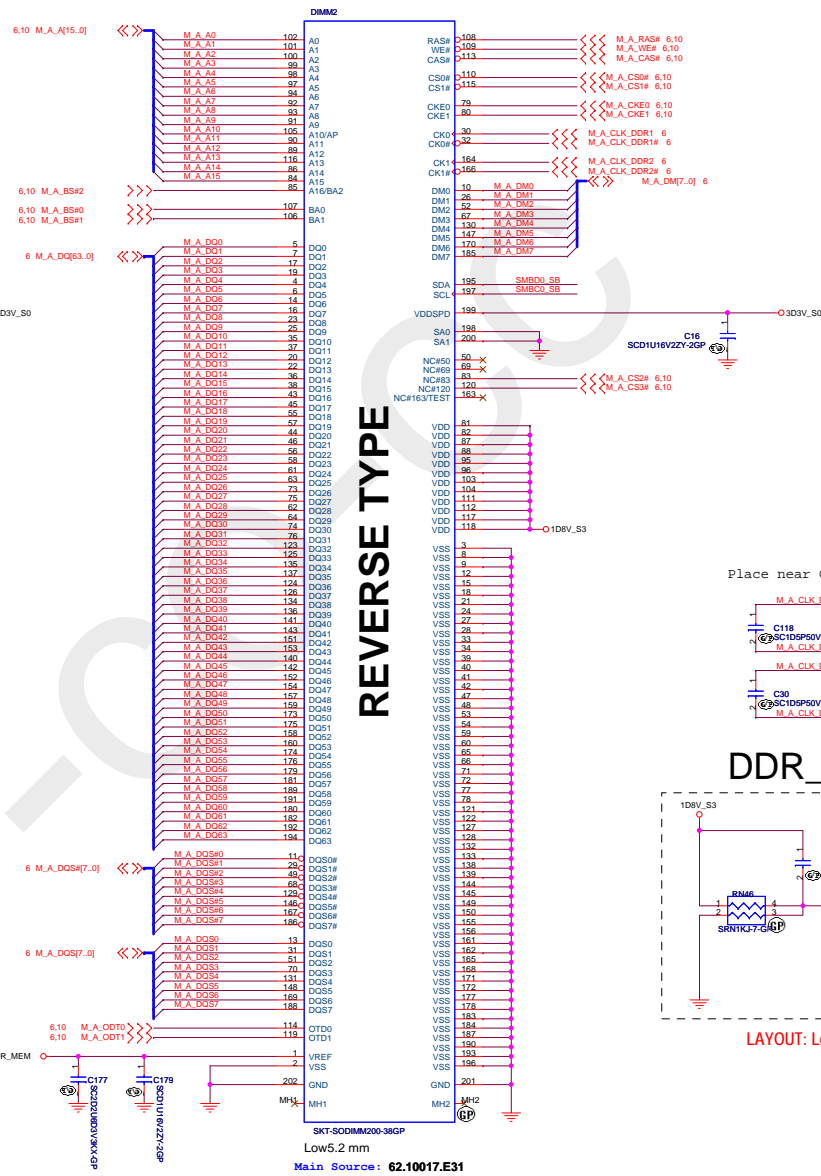
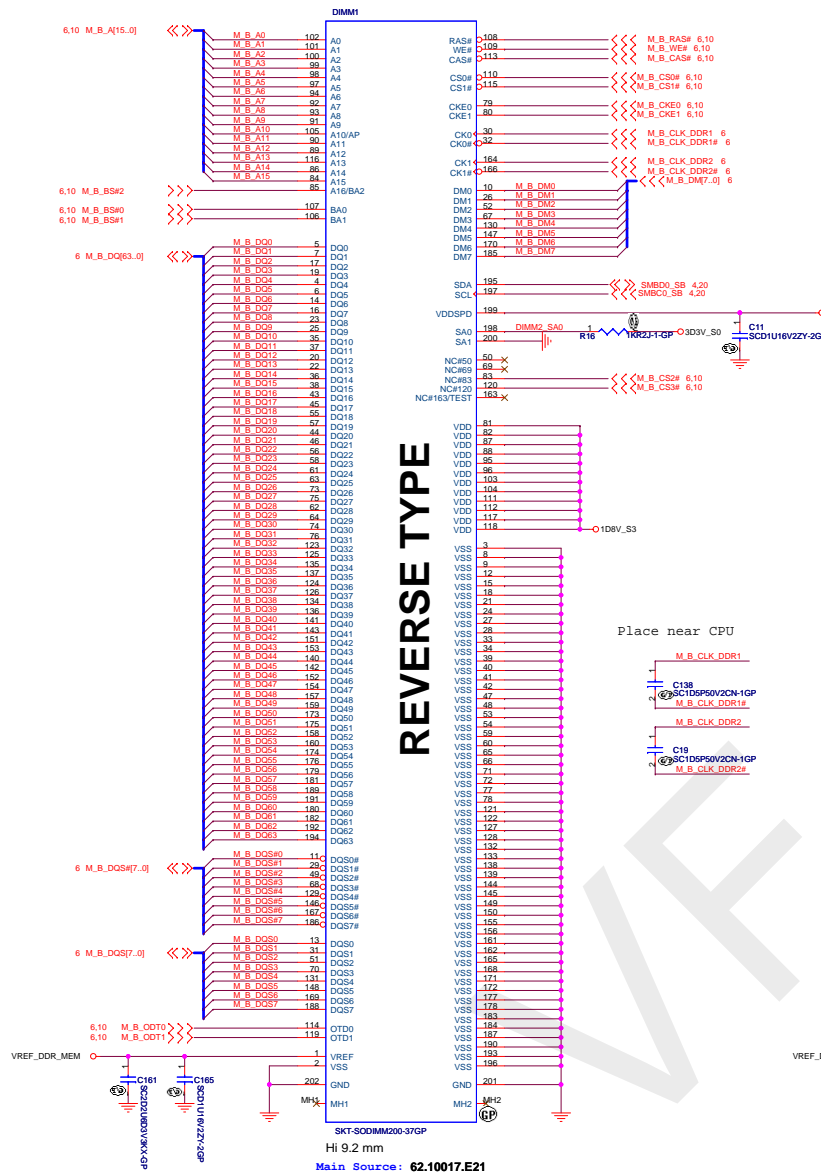
Place near to CPU

LAYOUT: Place on backside of processor.



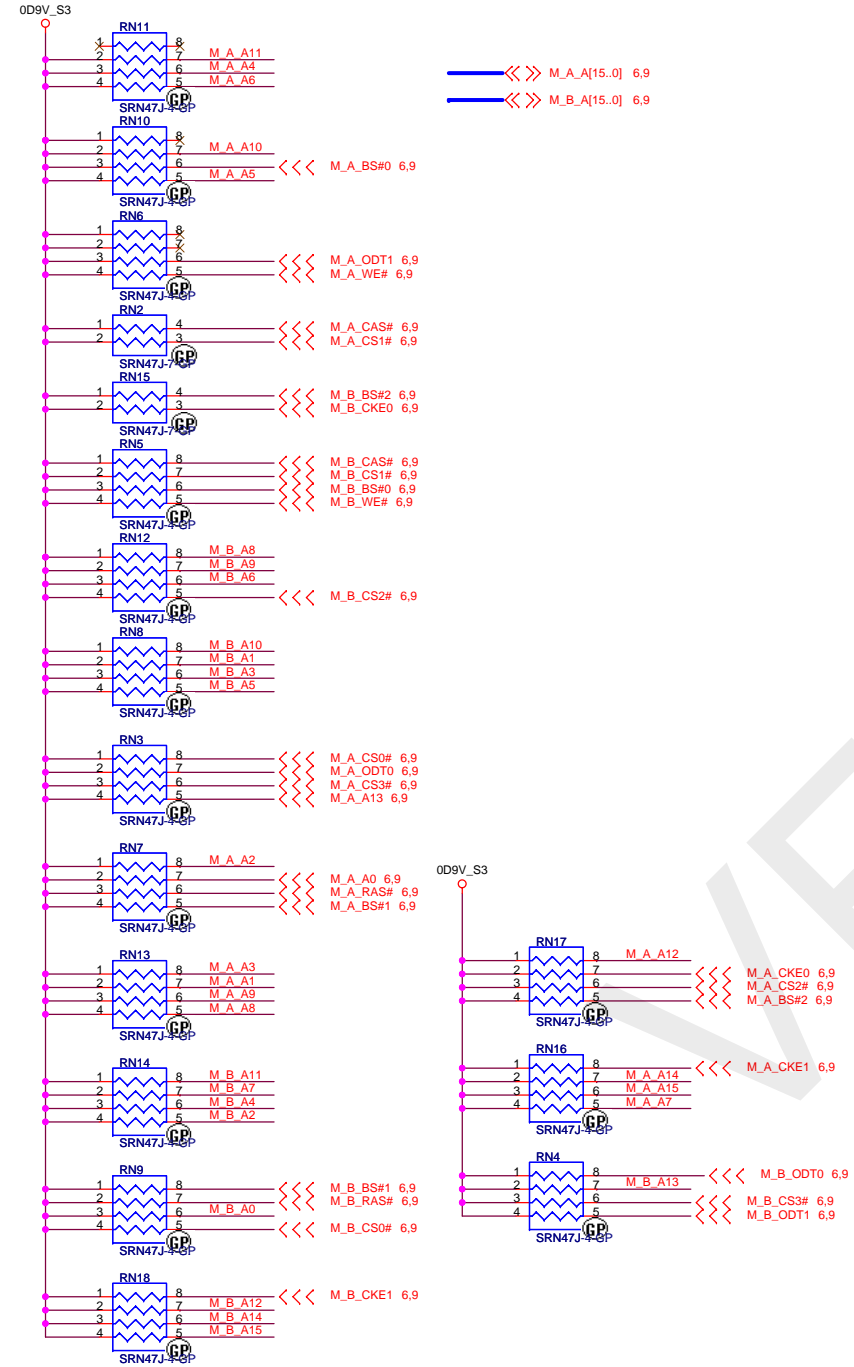

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| | | |
|----------------------------------|-----------------|----------|
| Title | | |
| AMD K8 CPU Rev.G | | |
| Size | Document Number | Rev |
| A3 | DS2-AMD | 1 |
| Date: Monday, September 24, 2007 | | |
| Sheet 8 of 44 | | |



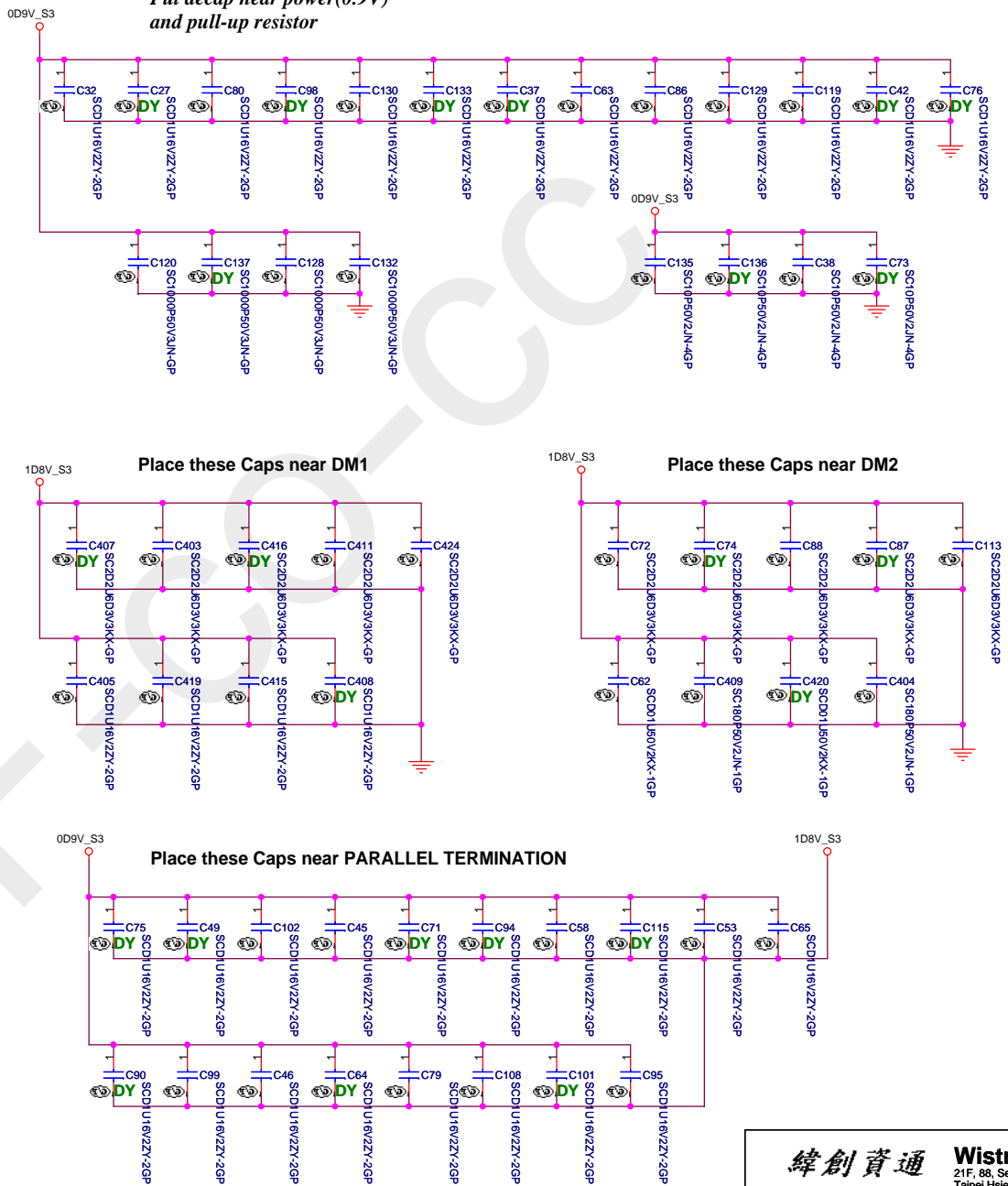
PARALLEL TERMINATION

Put decap near power(0.9V) and pull-up resistor



Decoupling Capacitor

Put decap near power(0.9V) and pull-up resistor



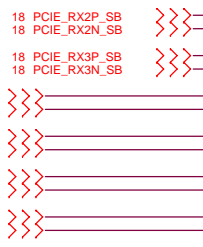
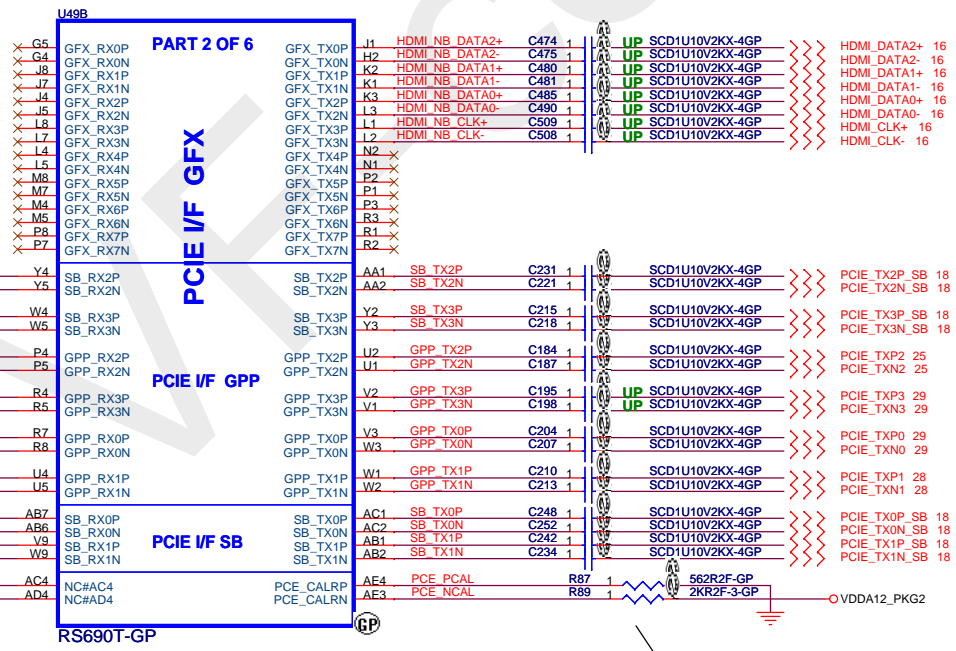
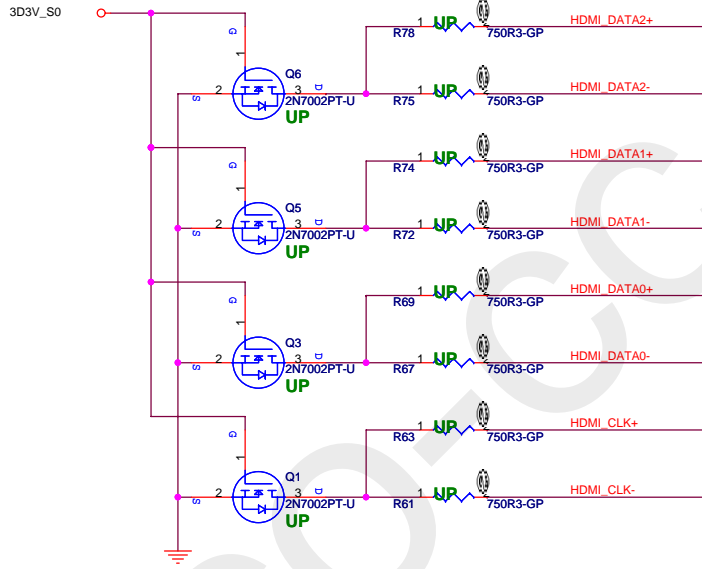
緯創資通 Wistron Corporation
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Title: **DDR DAMPING & TERMINATION**

Size: A3 Document Number: **DS2-AMD** Rev: 1

Date: Monday, September 24, 2007 Sheet 10 of 44





A-LINK

EXPRESS CARD
 MINICARD 3
 MINICARD 2
 MINICARD 1

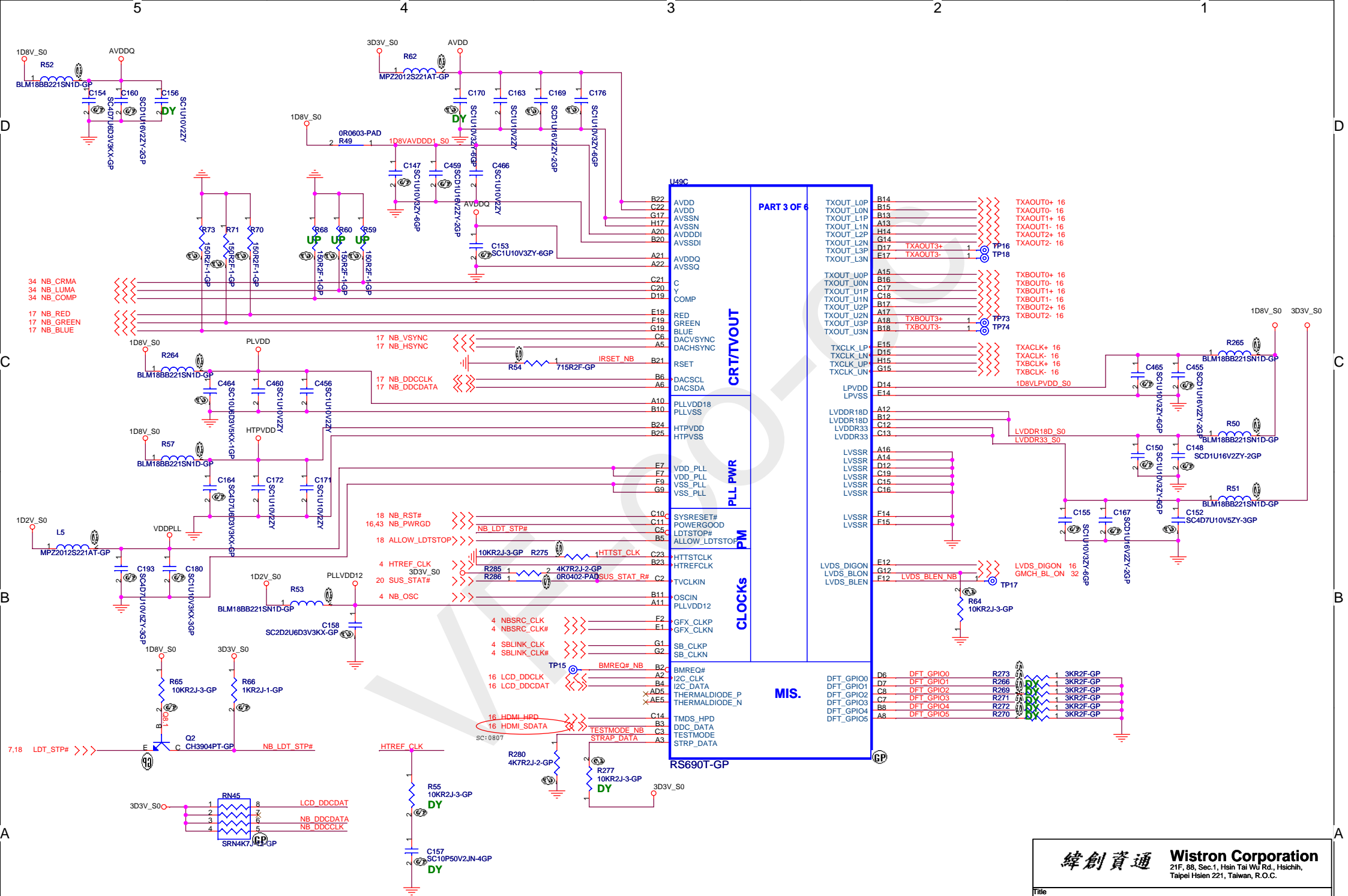
close to NB ball

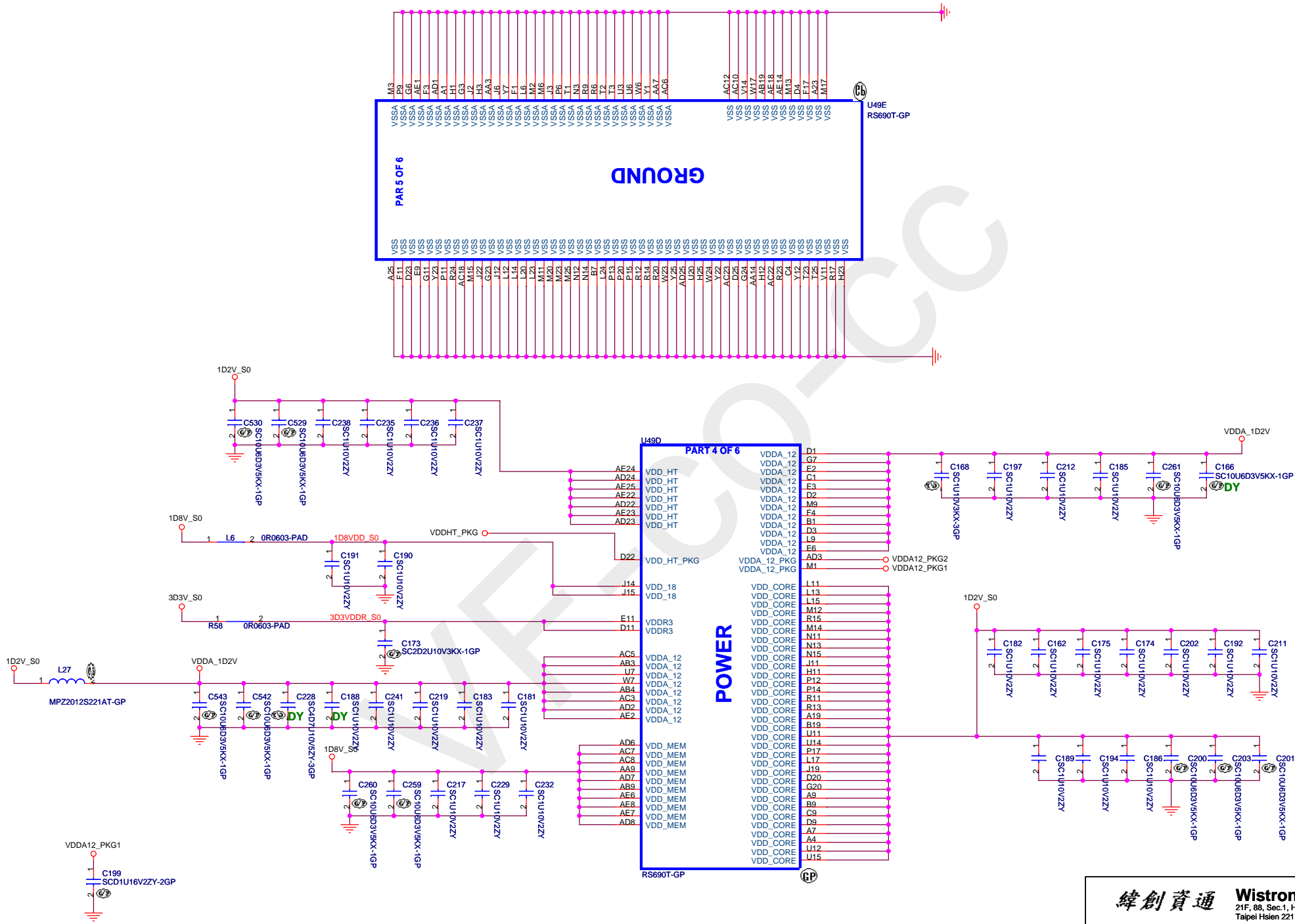
緯創資通 Wistron Corporation
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: **North Bridge - AtI RS690T**

Size A3 Document Number **DS2-AMD** Rev **1**

Date: Monday, September 24, 2007 Sheet 12 of 44





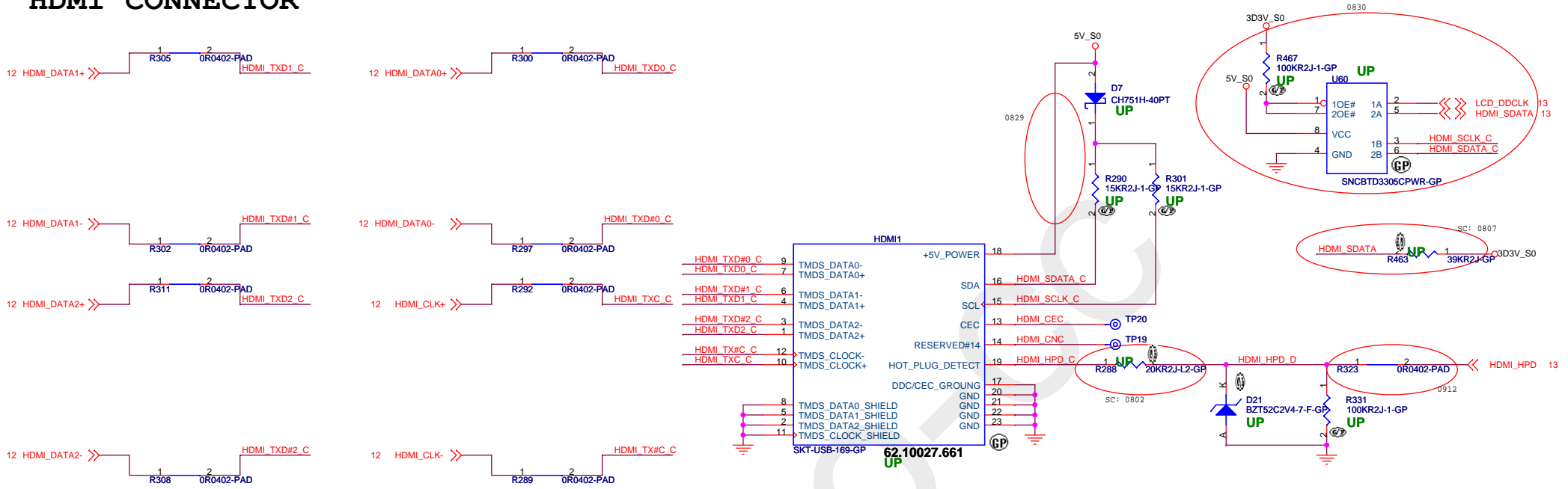
緯創資通 **Wistron Corporation**
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

Title: **North Bridge - ATi RS690T**

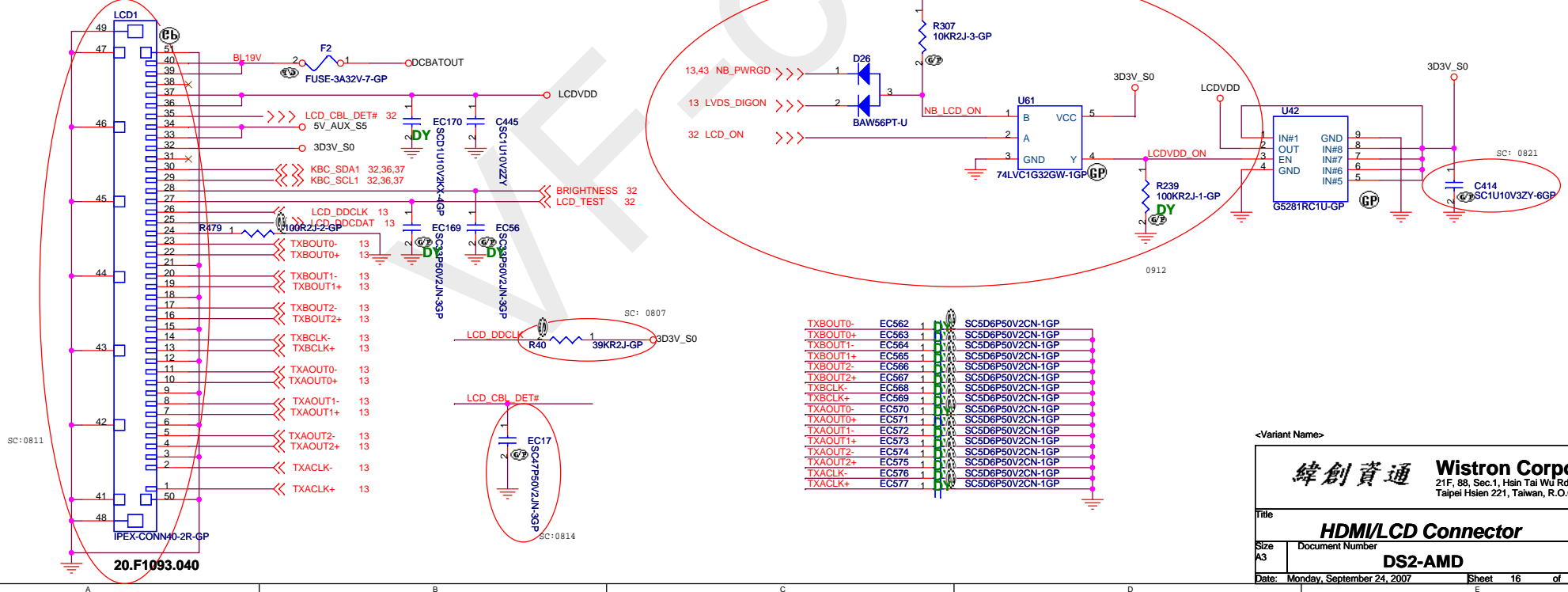
Size A3 Document Number **DS2-AMD** Rev **1**

Date: Monday, September 24, 2007 Sheet 15 of 44

HDMI CONNECTOR



LCD CONNECTOR



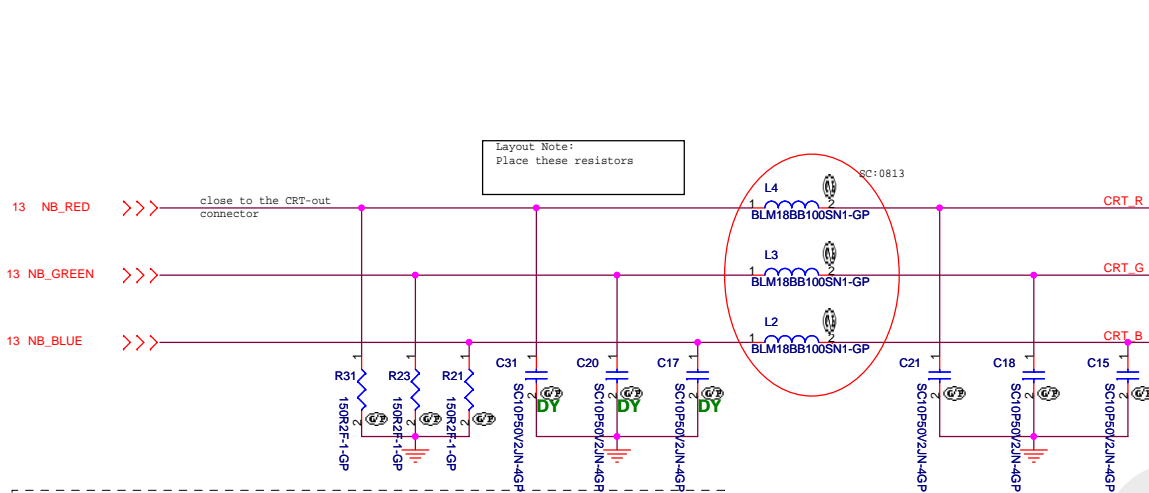
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Document Number: **DS2-AMD**

Rev: **1**

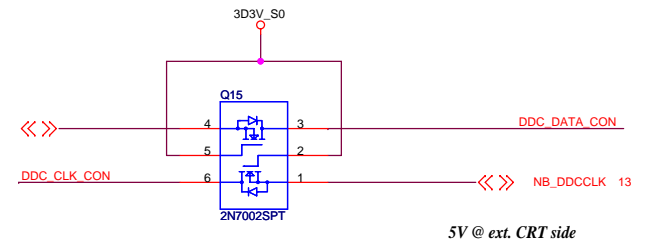
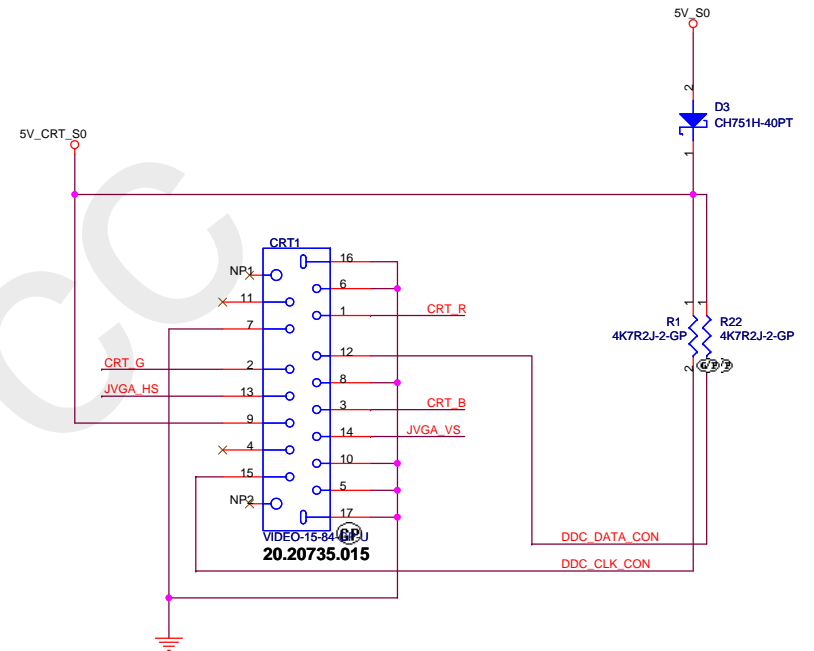
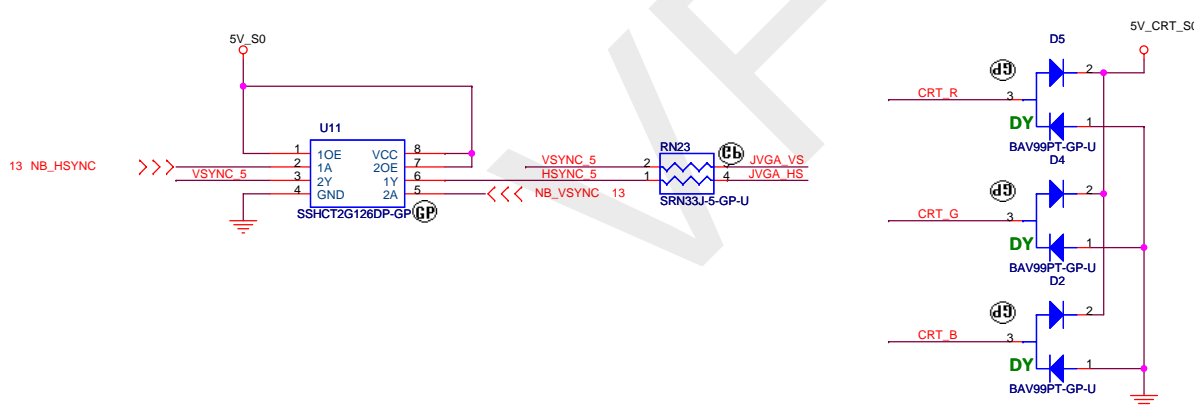
Date: Monday, September 24, 2007

CRT I/F & CONNECTOR



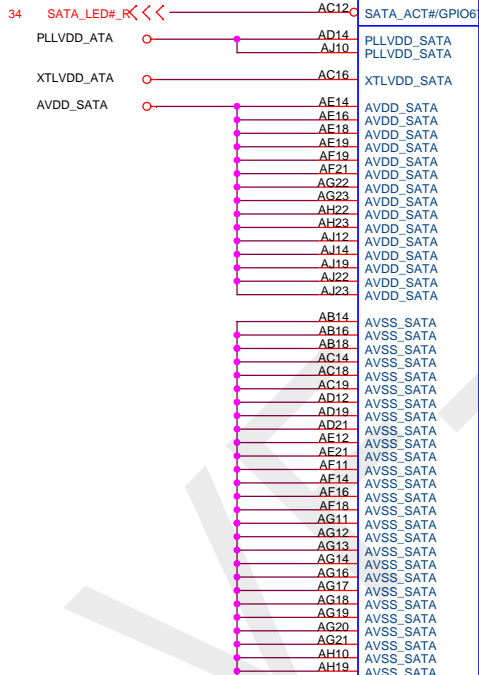
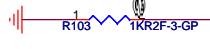
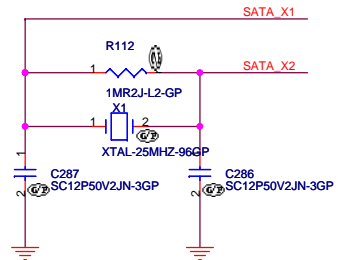
Layout Note:
 * Must be a ground return path between this ground and the ground on the VGA connector.
 Pi-filter & 150 Ohm pull-down resistors should be as close as to CRT CONN. RGB will hit 75 Ohm first, pi-filter, then CRT CONN.

Hsync & Vsync level shift



PLACE SATA AC DECOUPLING CAPS CLOSE TO SB600

23 SATA_TXP
23 SATA_TXN
23 SATA_RXN_SB
23 SATA_RXP_SB



SB600-GP 71.SB600.00U

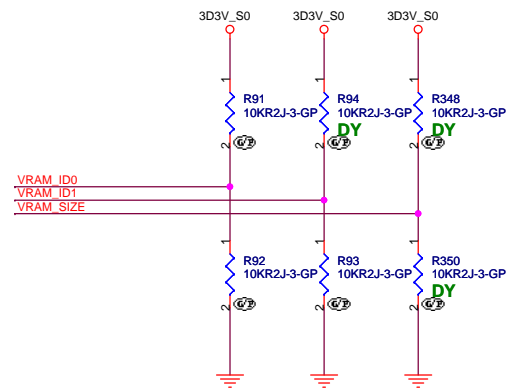
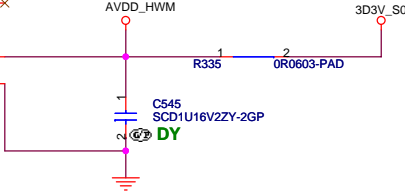
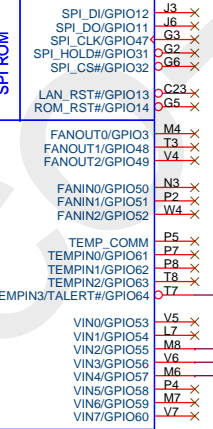
U3B 2 of 4

SERIAL ATA

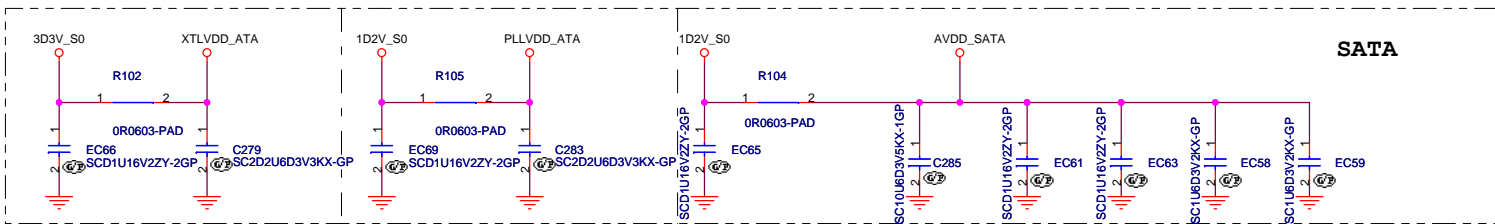
SERIAL ATA POWER

SPI ROM

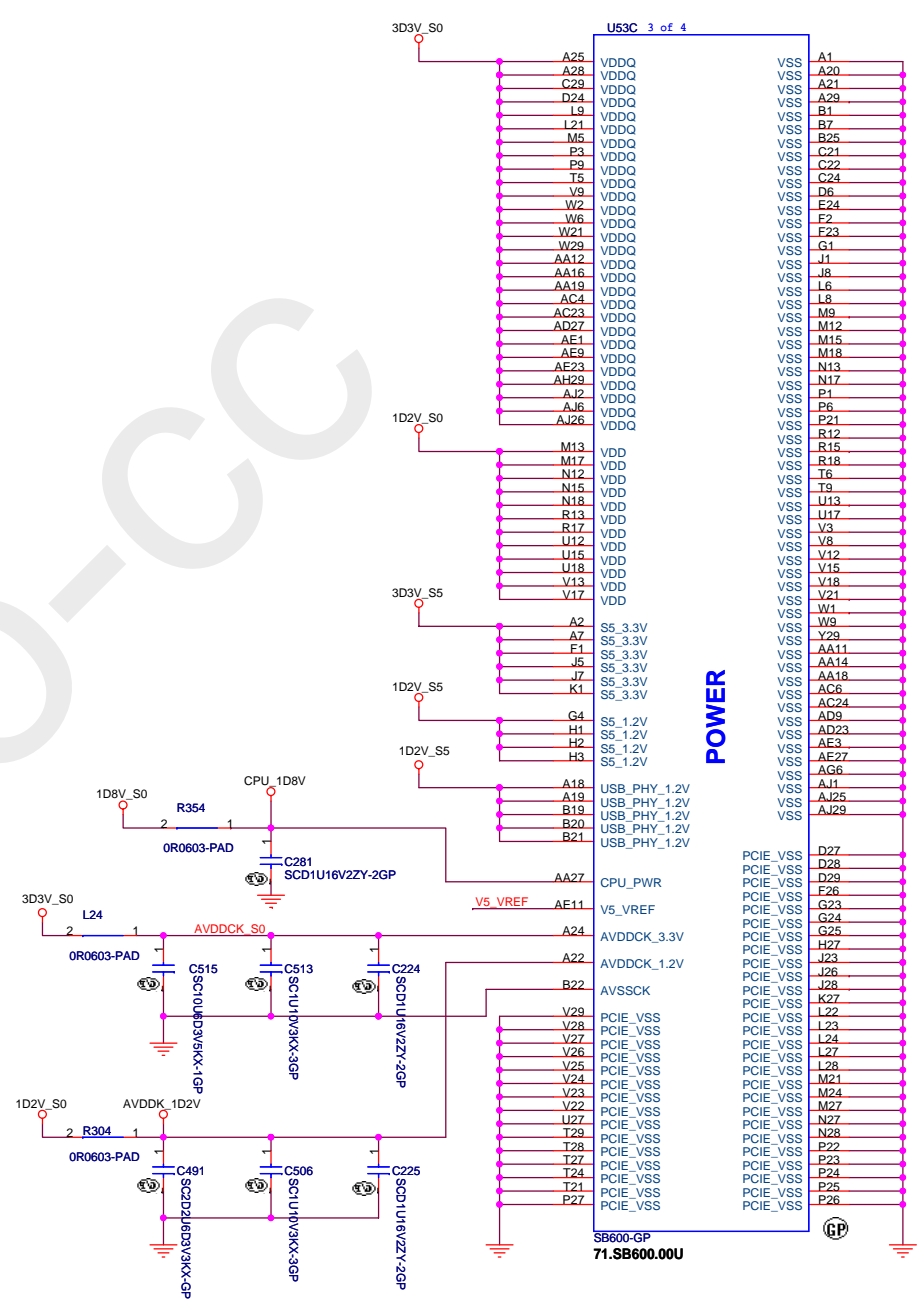
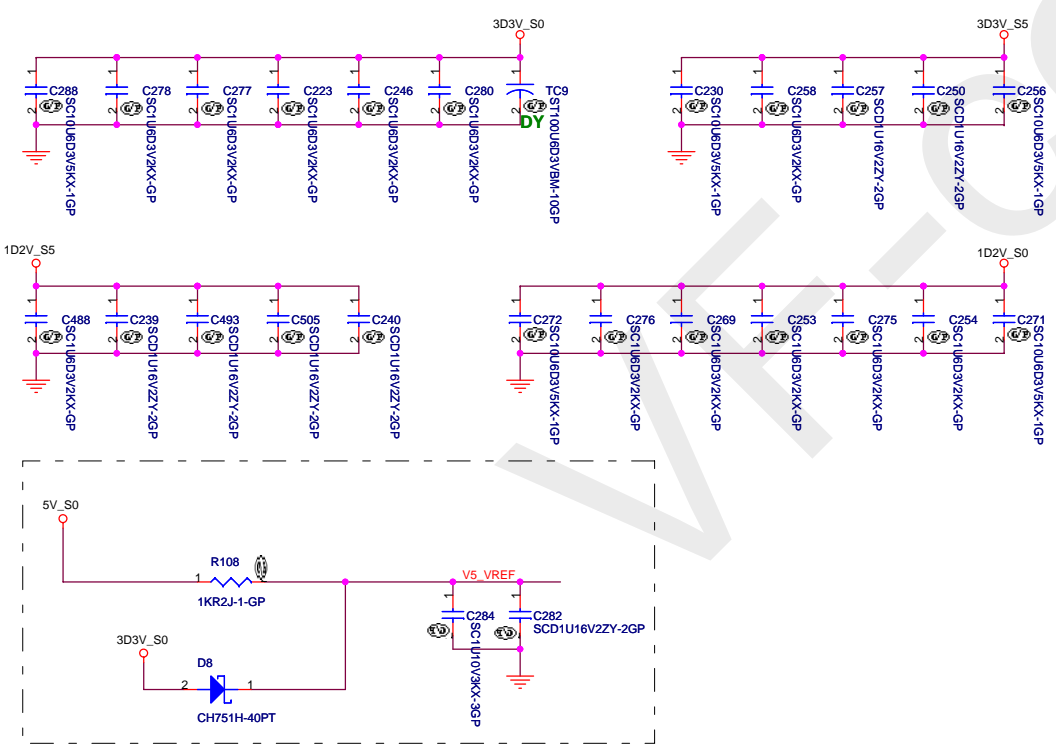
HW MONITOR



| | GPIO56 | GPIO55 |
|---------|--------|--------|
| | ID1 | ID0 |
| HYNIX | 0 | 0 |
| QIMONDA | 0 | 1 |



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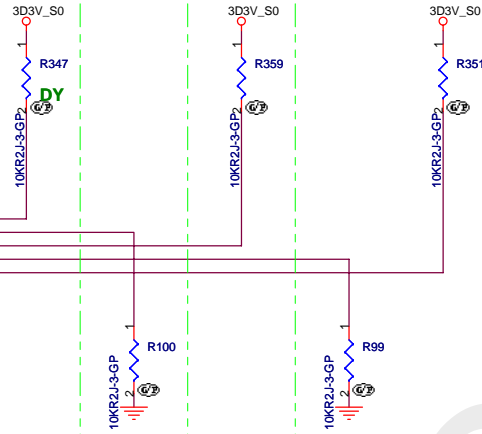
Title: **South Bridge - ATi SB600**

| | | |
|---------|--------------------------------|--------------|
| Size A3 | Document Number DS2-AMD | Rev 1 |
|---------|--------------------------------|--------------|

Date: Monday, September 24, 2007 Sheet 21 of 44

PCI_CLK4
 PCI_CLK6
 PCI_CLK0
 PCI_CLK1

20 AC_SDATAOUT
 18,32 PCLK_KBC
 18 PCI_CLK6
 18,24 PCLK_LAN
 18,26 PCLK_PCM



REQUIRED SYSTEM STRAPS

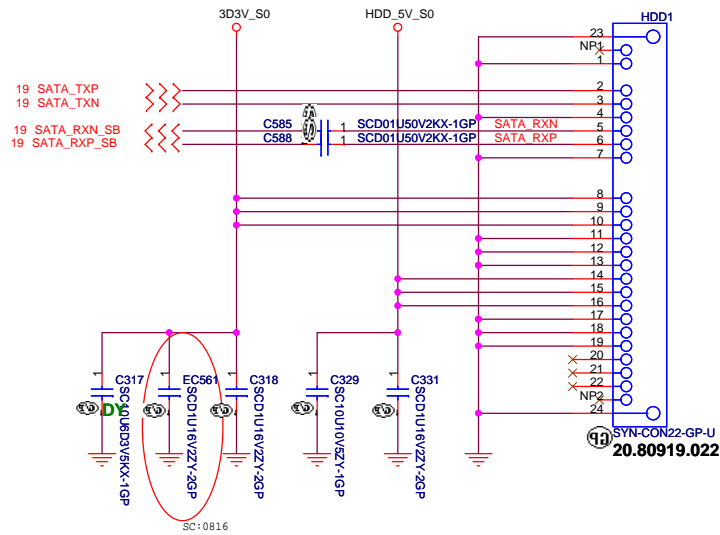
| SB600 | | | | | |
|-----------|--------------------------------|---------------------------|----------------------|---|----------|
| | AC_SDOUT | PCI_CLK4 | PCI_CLK6 | PCI_CLK0 | PCI_CLK1 |
| PULL HIGH | USE DEBUG STRAPS | USE INT. PLL48 | CPU IF=K8 DEFAULT | ROM TYPE: H, H = PCI ROM H, L = SPI ROM L, H = LPC ROM | DEFAULT |
| PULL LOW | IGNORE DEBUG STRAPS DEFAULT | USE EXT. 48MHZ DEFAULT | CPU IF=P4 | L, L = FWH ROM | |

SB600 HAS 15K INTERNAL PU FOR PCI_AD[23..28]

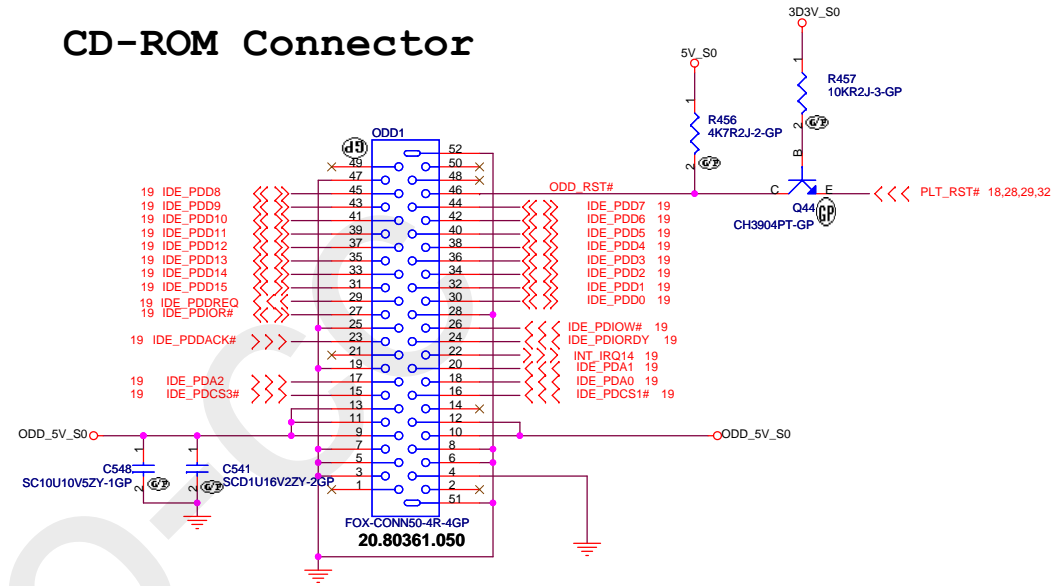
DEBUG STRAPS

| | PCI_AD31 | PCI_AD30 | PCI_AD29 | PCI_AD28 | PCI_AD27 | PCI_AD26 | PCI_AD25 | PCI_AD24 | PCI_AD23 |
|------------|----------|----------|----------|---------------------------|------------------------|--------------------------|------------------------|------------------------------------|------------------------------------|
| STRAP HIGH | RESERVED | RESERVED | RESERVED | USE LONG RESET DEFAULT | USE PCI PLL DEFAULT | USE ACPI BCLK DEFAULT | USE IDE PLL DEFAULT | USE DEFAULT PCIE STRAPS DEFAULT | BOOT FAIL TIMER DISABLE DEFAULT |
| STRAP LOW | | | | USE SHORT RESET | BYPASS PCI PLL | BYPASS ACPI BCLK | BYPASS IDE PLL | USE EEPROM PCIE STRAPS | BOOT FAIL TIMER ENABLE |

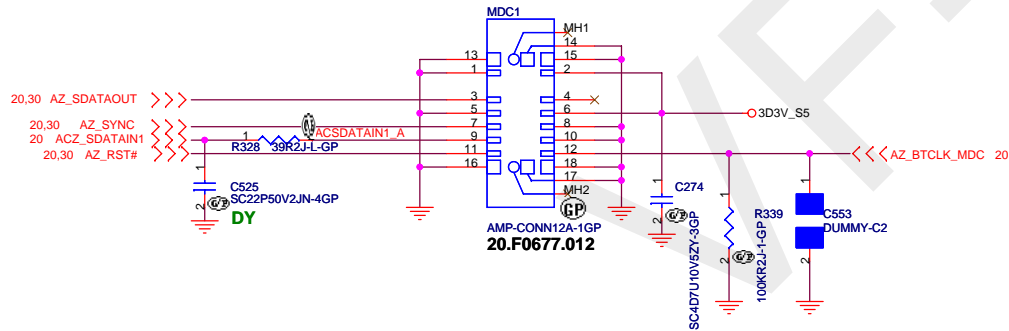
SATA HD Connector



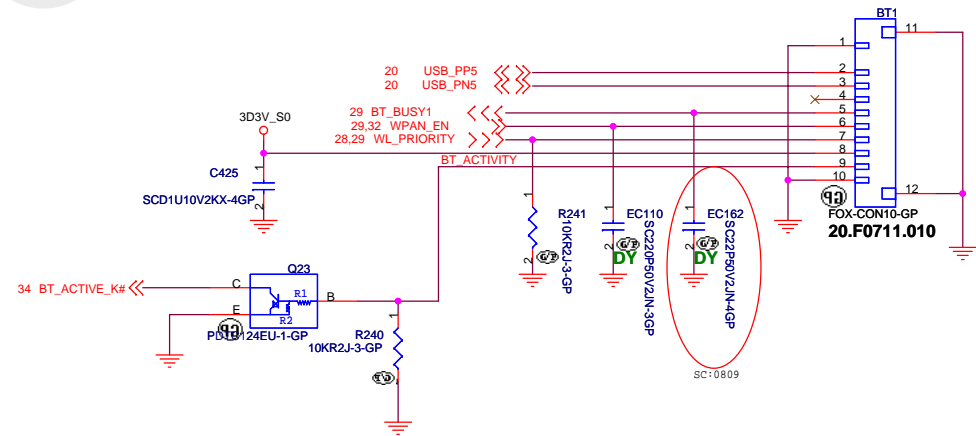
CD-ROM Connector



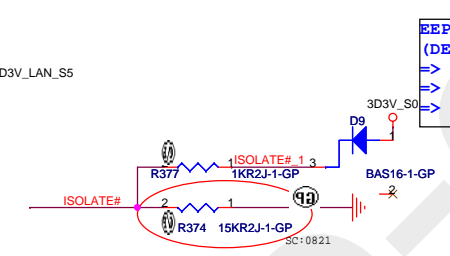
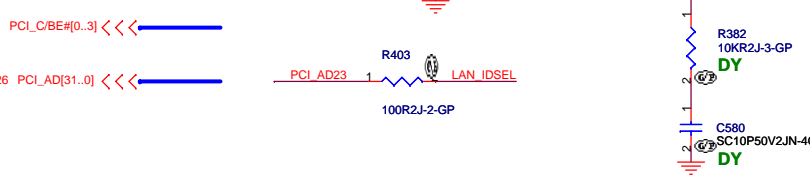
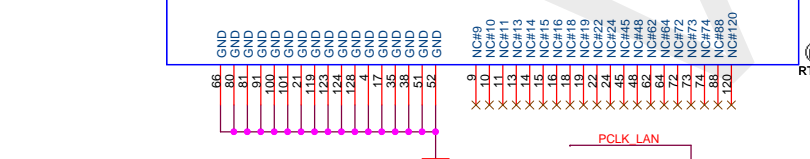
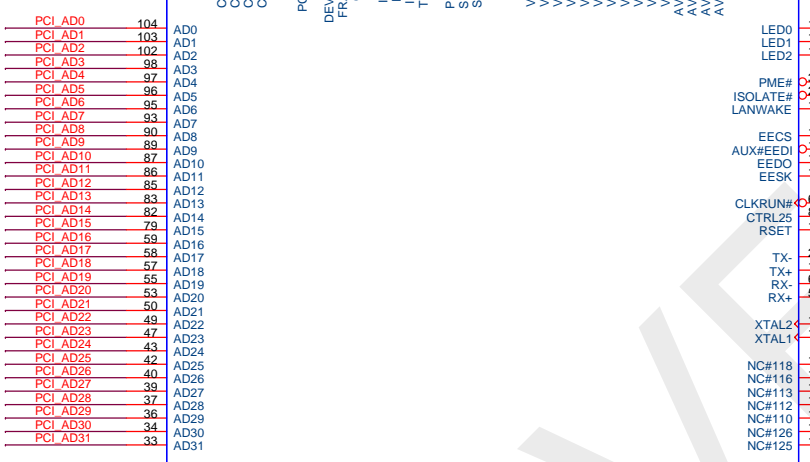
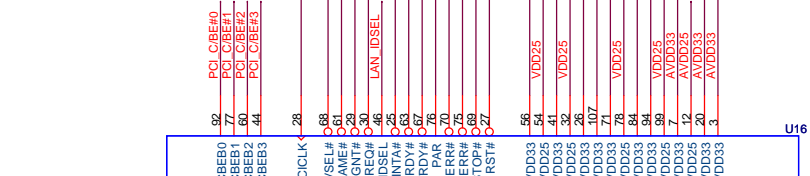
MDC 1.5 Connector



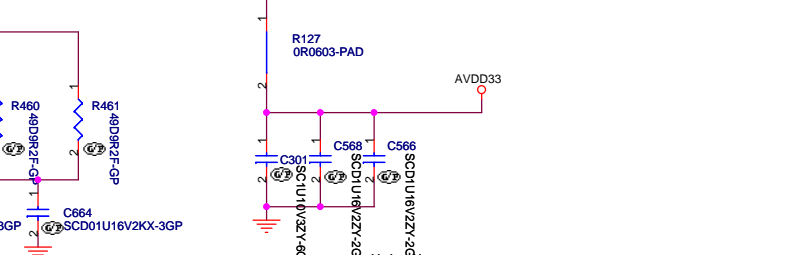
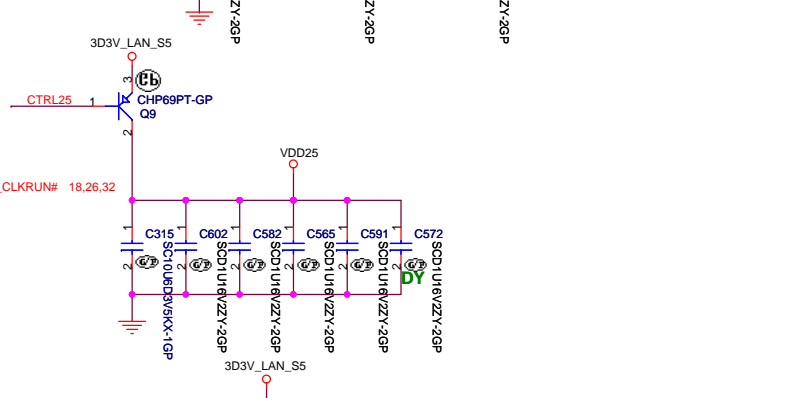
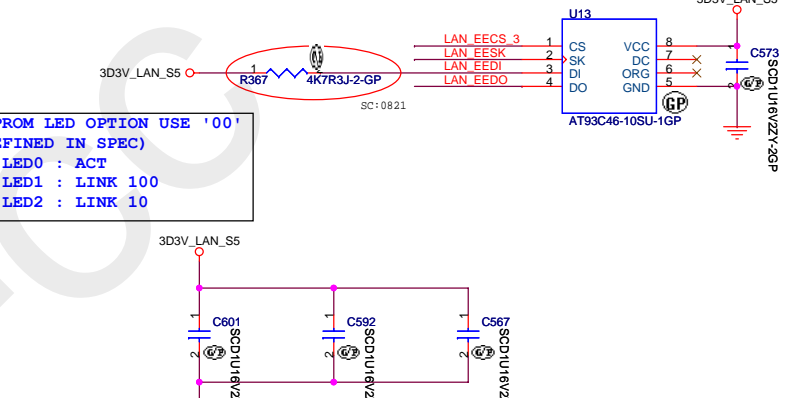
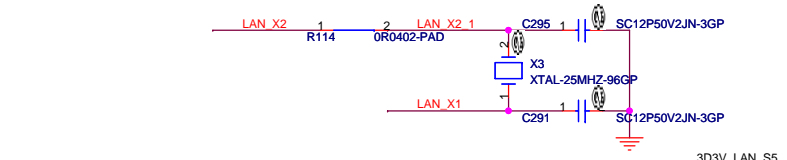
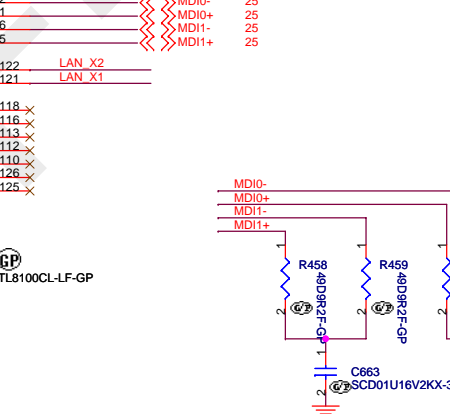
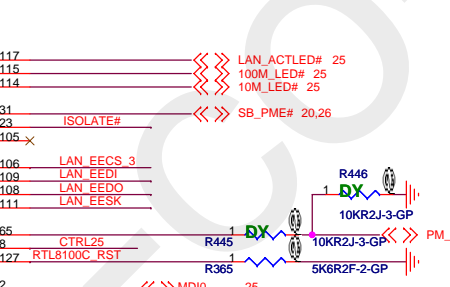
BT Module Connector



18,26 PCI_PAR
 18,26 PCI_TRDY#
 18,26 PCI_IRDY#
 18 INT_PIRQE#
 18 PCI_REQ1#
 18 PCI_GNT1#
 18,26 PCI_FRAME#
 18,26 PCI_DEVSEL#
 18,22 PCLK_LAN

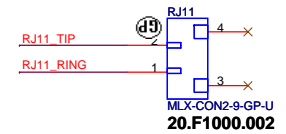
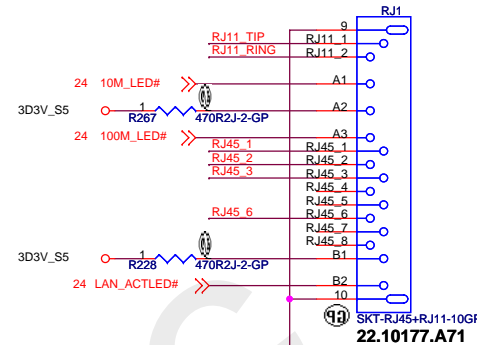
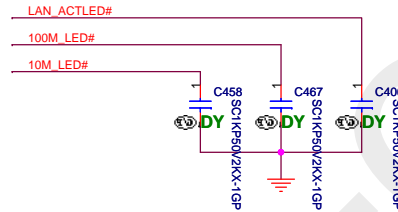
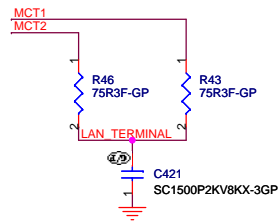
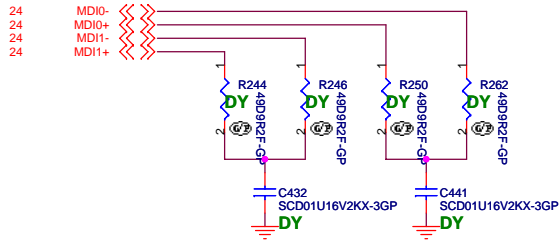
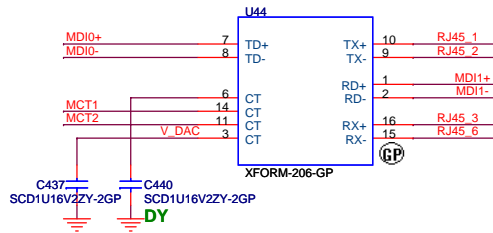


EEPROM LED OPTION USE '00'
 (DEFINED IN SPEC)
 => LED0 : ACT
 => LED1 : LINK 100
 => LED2 : LINK 10

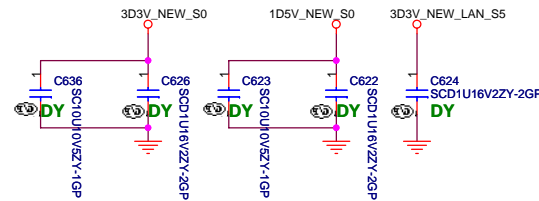
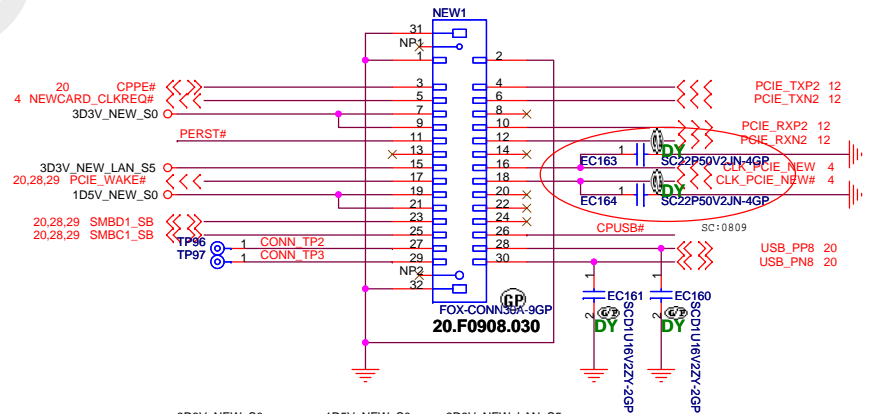
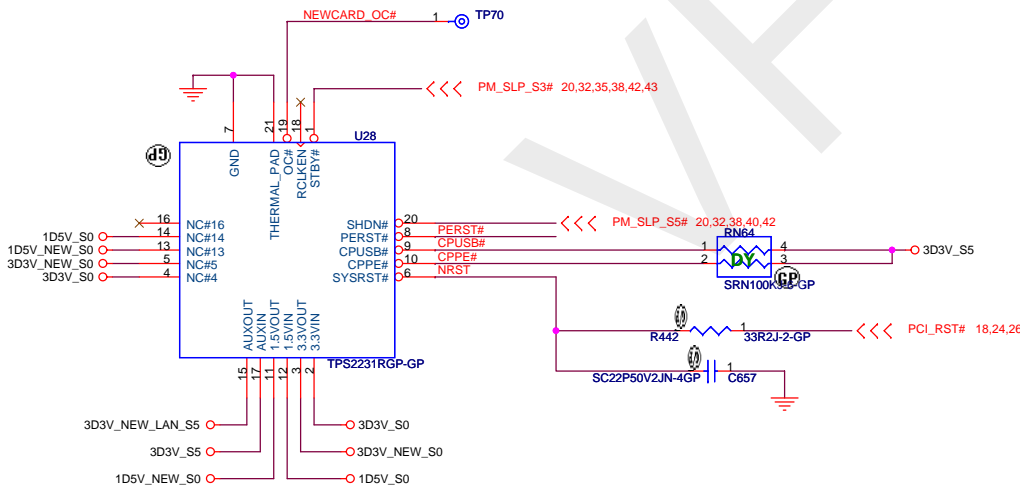
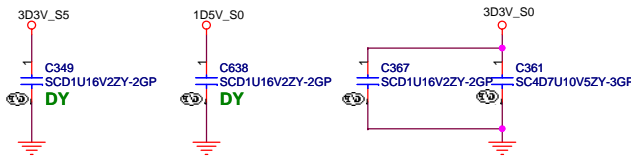


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 Taipei Hsien 221, Taiwan, R.O.C.

| | | |
|------------------------|----------------------------|----------------|
| Title | | |
| LAN RealTec - RLT8100C | | |
| Size | Document Number | Rev |
| A3 | DS2-AMD | 1 |
| Date: | Monday, September 24, 2007 | Sheet 24 of 44 |

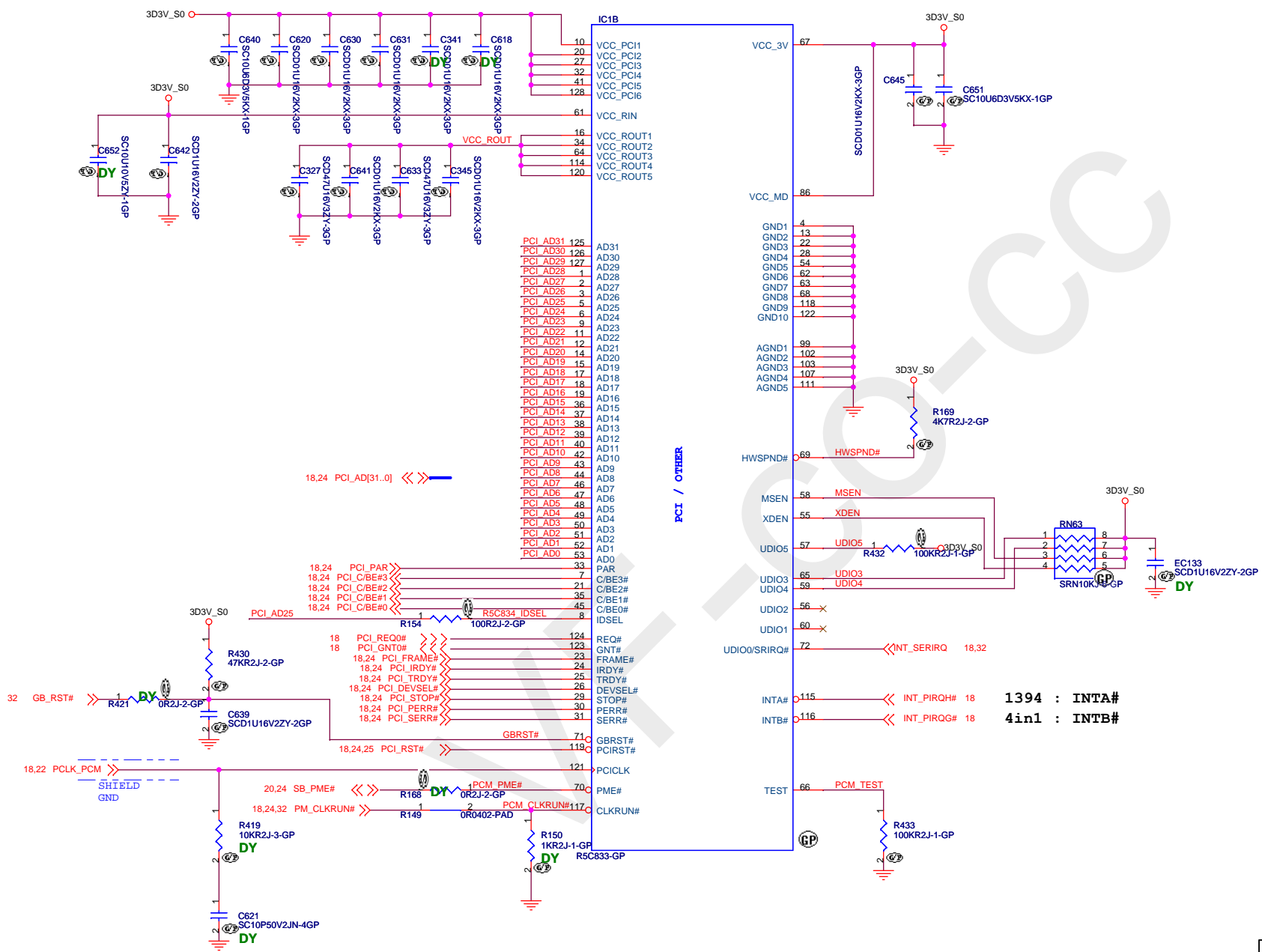


New card connector



<Variant Name>

| | | |
|--|-----------------|----------|
| 緯創資通 Wistron Corporation 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | | |
| LAN connector/NEW CARD/SIM | | |
| Title | | |
| Size A3 | Document Number | Rev |
| | DS2-AMD | 1 |
| Date: Monday, September 24, 2007 | Sheet 25 | of 44 |

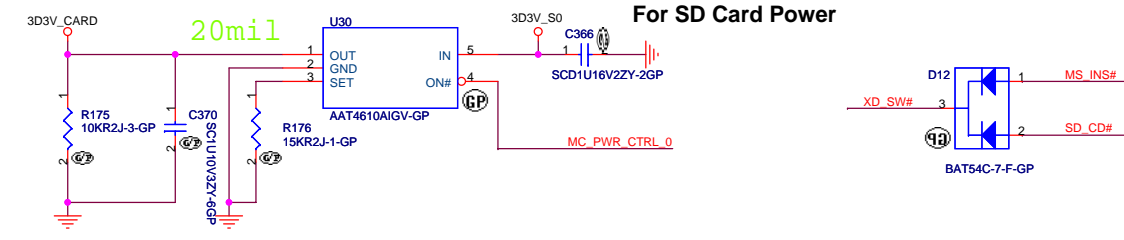
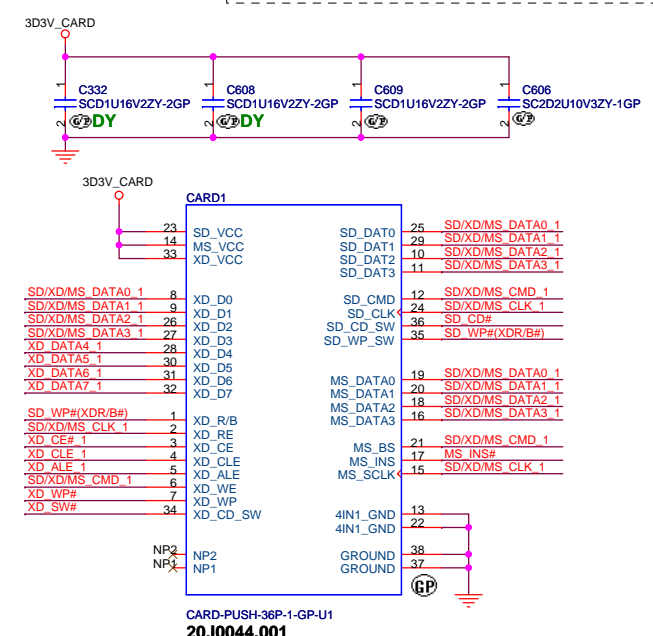
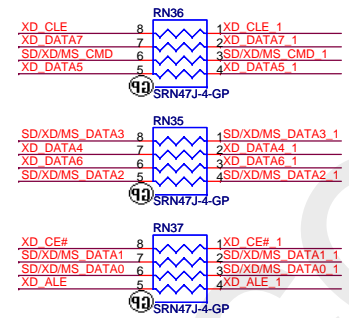
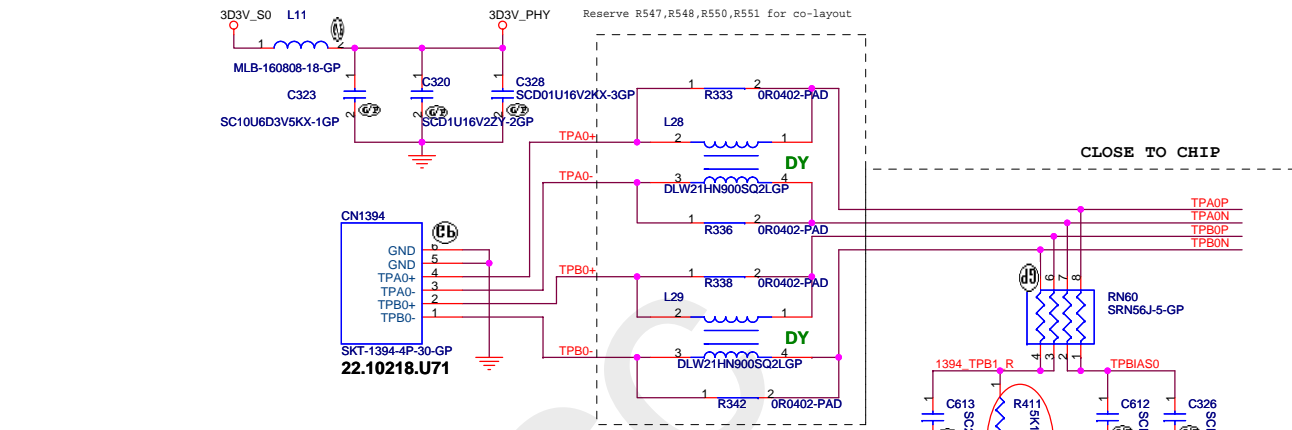
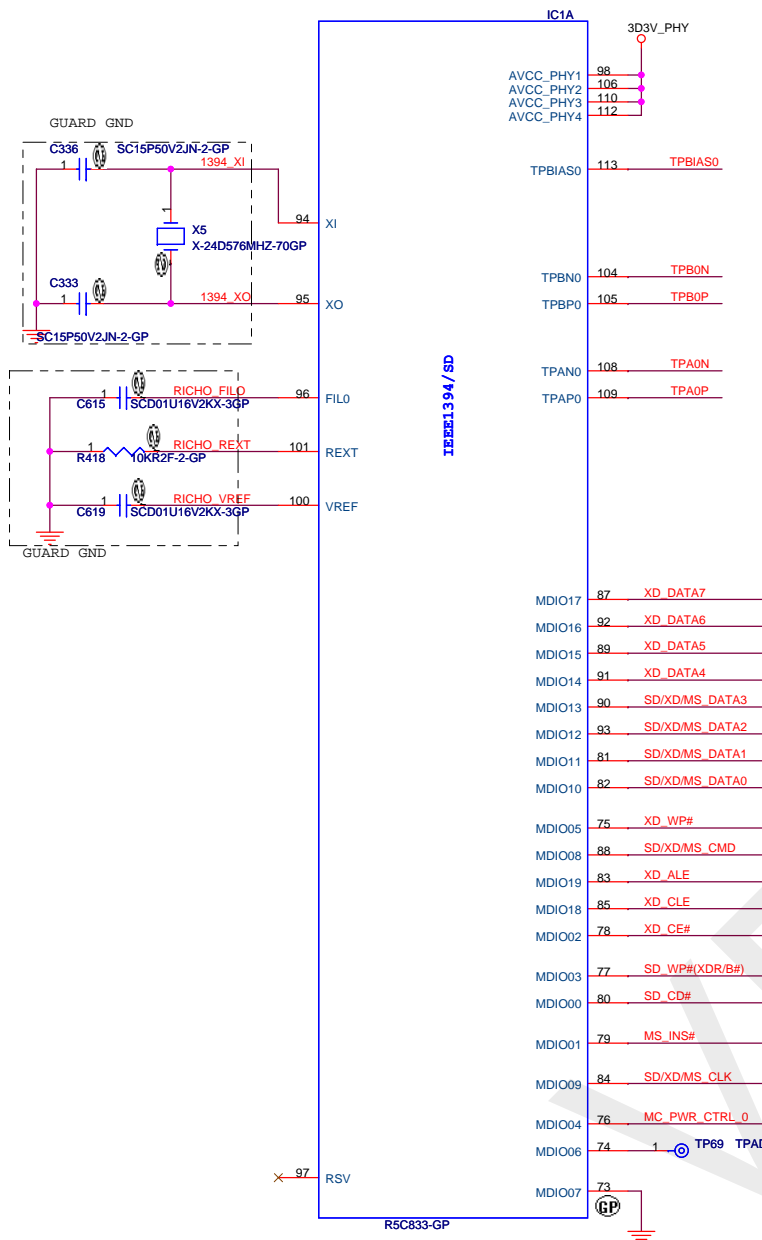


IC1B

| | |
|-----|-----------|
| 10 | VCC_PC1 |
| 20 | VCC_PC2 |
| 27 | VCC_PC3 |
| 32 | VCC_PC4 |
| 41 | VCC_PC5 |
| 128 | VCC_PC15 |
| 61 | VCC_RIN |
| 16 | VCC_ROUT1 |
| 34 | VCC_ROUT2 |
| 64 | VCC_ROUT3 |
| 114 | VCC_ROUT4 |
| 120 | VCC_ROUT5 |

| | |
|-----|---------|
| 125 | AD31 |
| 126 | AD30 |
| 127 | AD29 |
| 1 | AD28 |
| 2 | AD27 |
| 3 | AD26 |
| 5 | AD25 |
| 6 | AD24 |
| 9 | AD23 |
| 11 | AD22 |
| 12 | AD21 |
| 14 | AD20 |
| 15 | AD19 |
| 17 | AD18 |
| 18 | AD17 |
| 19 | AD16 |
| 36 | AD15 |
| 37 | AD14 |
| 38 | AD13 |
| 39 | AD12 |
| 40 | AD11 |
| 42 | AD10 |
| 43 | AD9 |
| 44 | AD8 |
| 46 | AD7 |
| 47 | AD6 |
| 48 | AD5 |
| 49 | AD4 |
| 50 | AD3 |
| 51 | AD2 |
| 52 | AD1 |
| 53 | AD0 |
| 33 | PAR |
| 7 | C/BE3# |
| 21 | C/BE2# |
| 35 | C/BE1# |
| 45 | C/BE0# |
| 8 | IDSEL |
| 124 | REQ# |
| 123 | GNT# |
| 23 | FRAME# |
| 24 | IRDY# |
| 25 | TRDY# |
| 26 | DEVSEL# |
| 29 | STOP# |
| 30 | PERR# |
| 31 | SERR# |
| 71 | GBRST# |
| 119 | PCIRST# |
| 121 | PCICLK |
| 70 | PME# |
| 117 | CLKRUN# |

PCI / OTHER



<Variant Name>

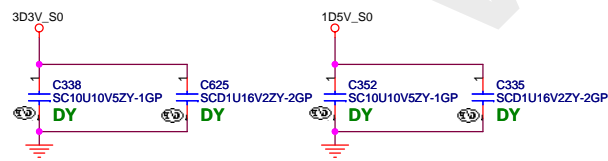
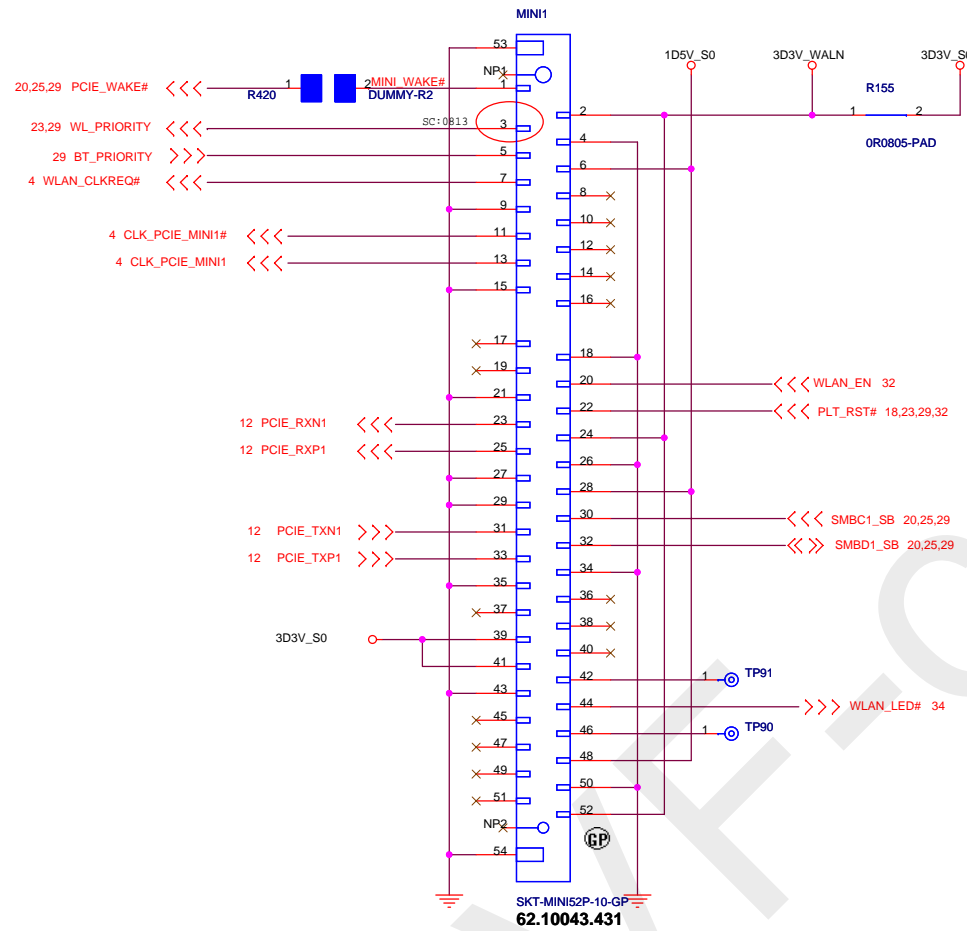
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Title: **R5C832/IEEE1394/SD**

| | | |
|---------|--------------------------------|--------------|
| Size A3 | Document Number DS2-AMD | Rev 1 |
|---------|--------------------------------|--------------|

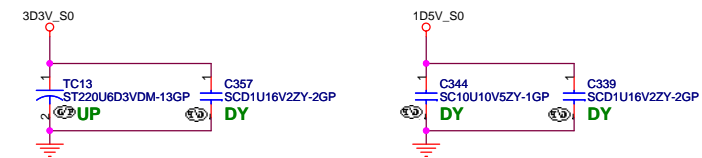
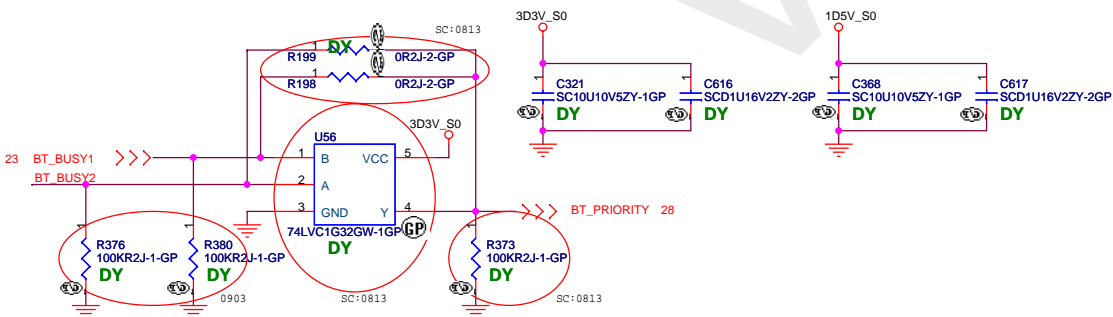
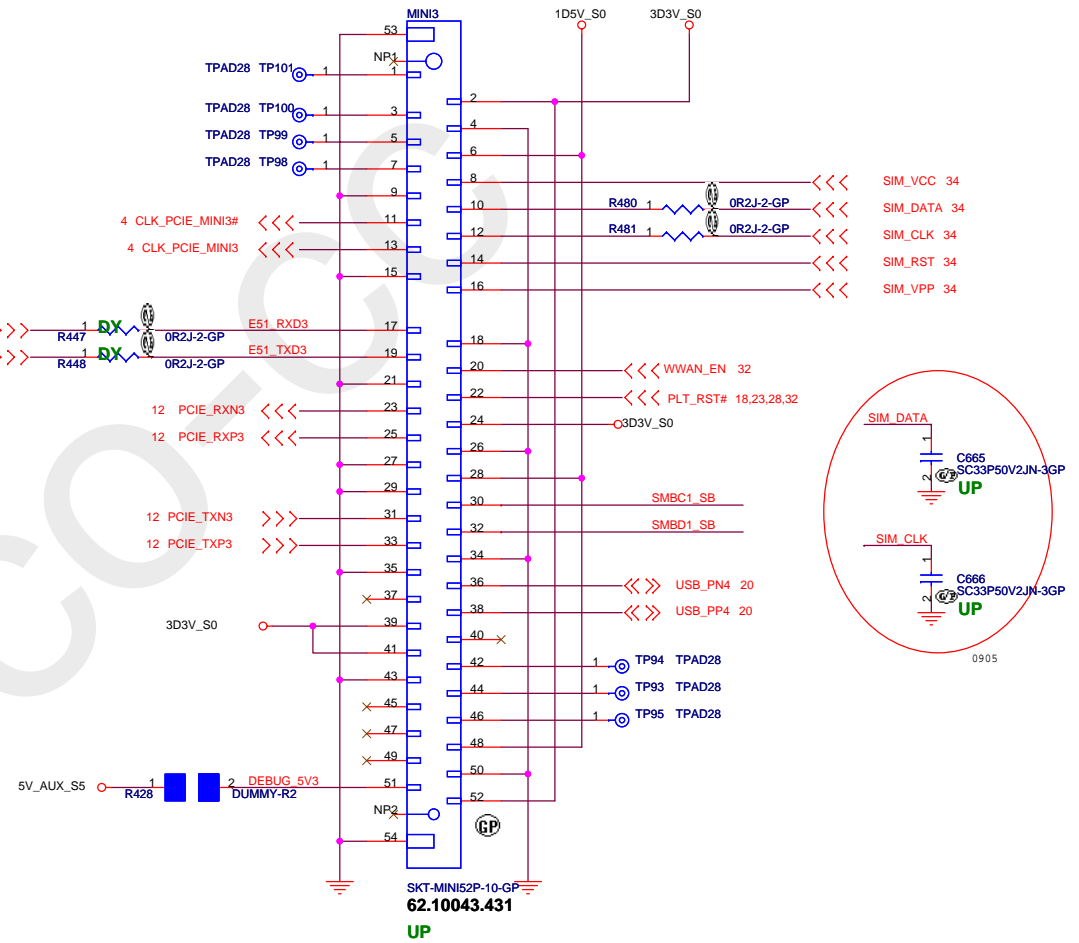
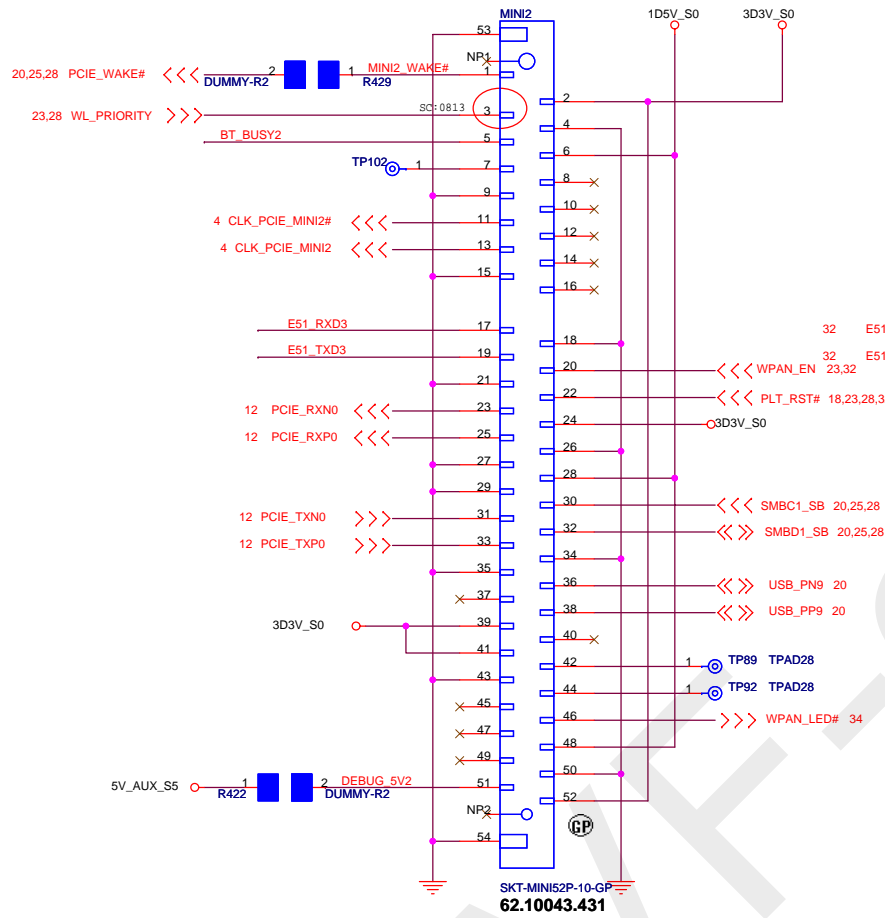
Date: Monday, September 24, 2007 Sheet 27 of 44

Mini Card Connector 1(802.11a/b/g)



Mini Card Connector 2(UWB)

Mini Card Connector 3(WWAN)



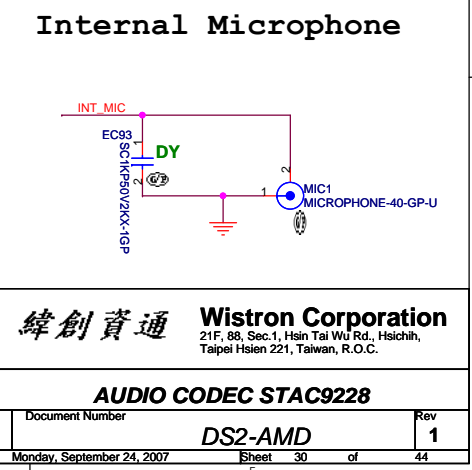
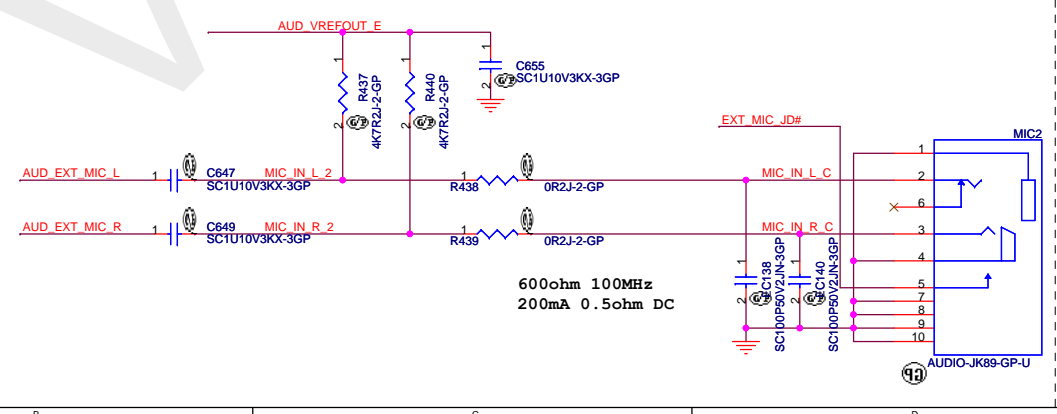
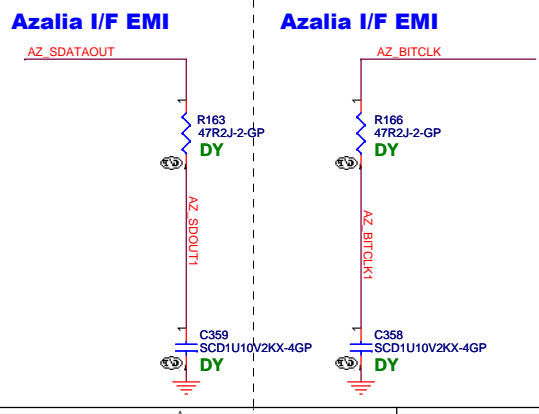
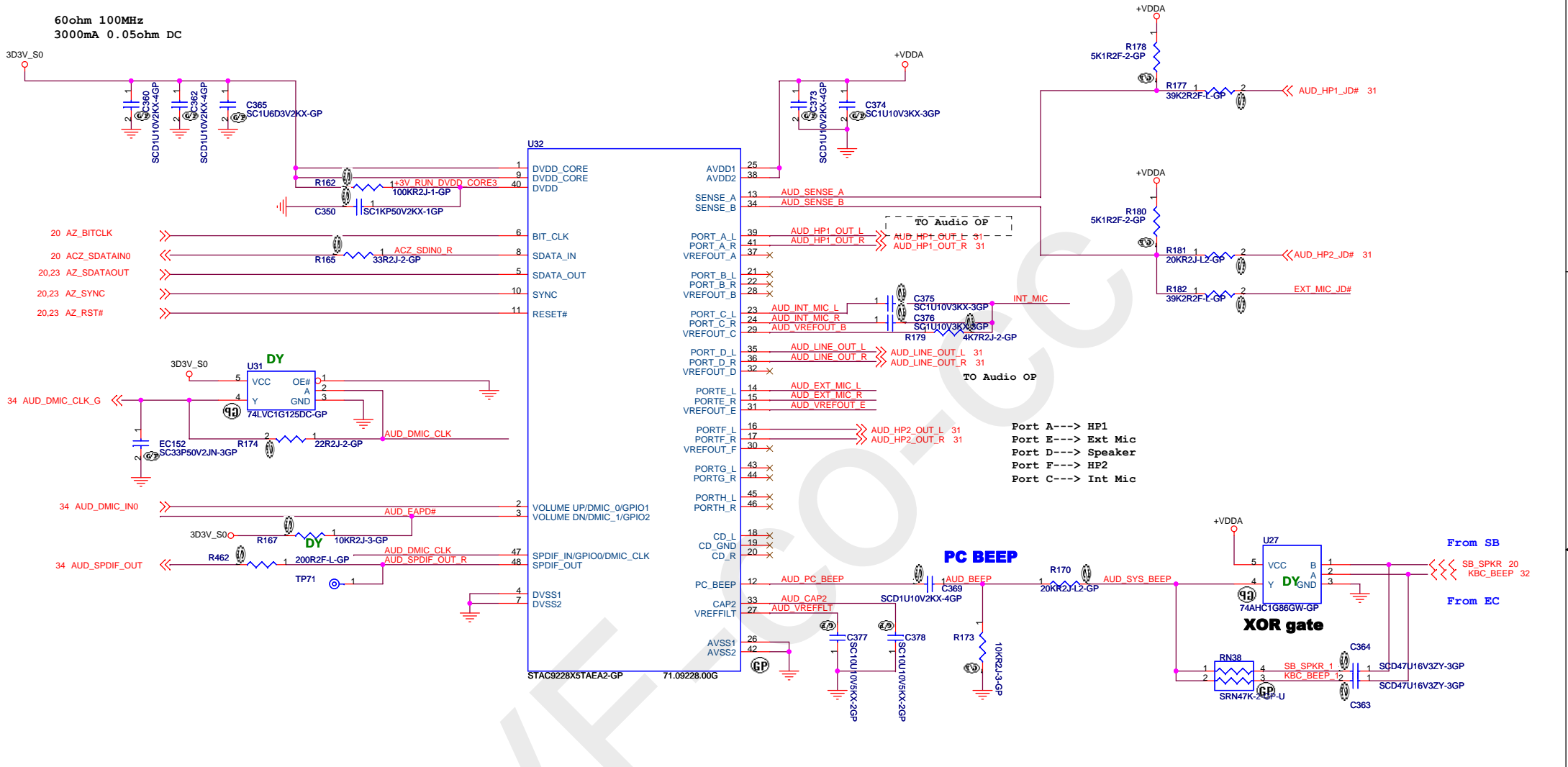
<Variant Name>

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

Title: **MINI CARD CONN.**

Size: A3 Document Number: **DS2-AMD** Rev: **1**

Date: Monday, September 24, 2007 Sheet 29 of 44

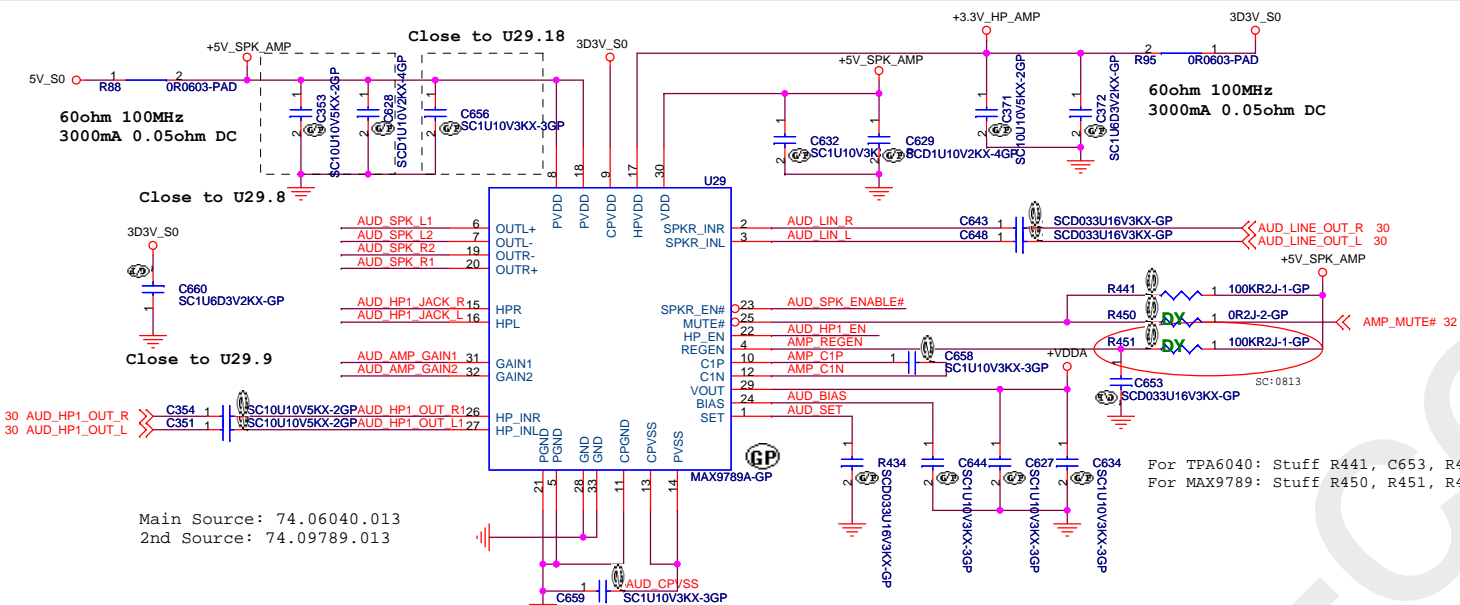


緯創資通 Wistron Corporation
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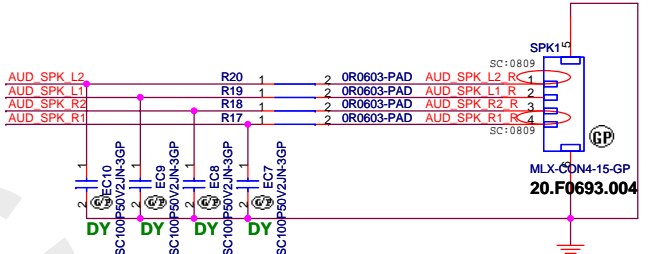
Title: **AUDIO CODEC STAC9228**

| | | |
|---------|-----------------|----------|
| Size A3 | Document Number | Rev |
| | DS2-AMD | 1 |

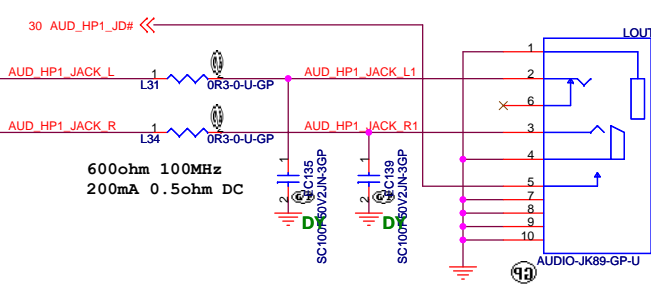
Date: Monday, September 24, 2007 Sheet 30 of 44



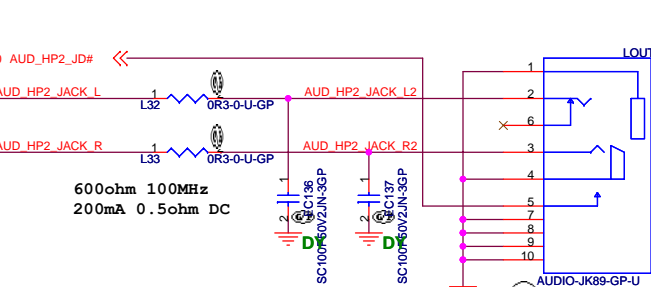
Speaker



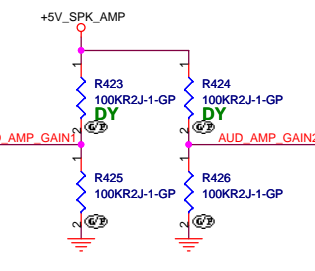
LINE1 OUT



LINE2 OUT

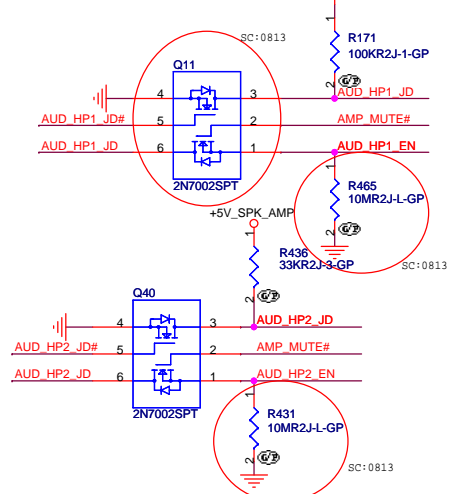
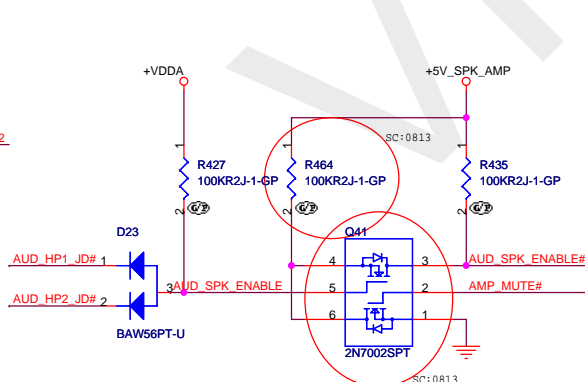


GAIN SETTING



| GAIN1 | GAIN2 | GAIN |
|-------|-------|--------|
| 0 | 0 | 6dB |
| 0 | 1 | 10dB |
| 1 | 0 | 15.6dB |
| 1 | 1 | 21.6dB |

Signal inverter for speaker shutdown



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File: **AUDIO AMP/SPEAKER**

Size A3 Document Number **DS2-AMD** Rev **1**

Date: Monday, September 24, 2007 Sheet 31 of 44

WPC8763L STRAP PIN

| JEN0 (Pin 24) | JENK (Pin 53) | Functionality of Pins 17, 20, 21, 23 25, 27 | Functionality of Pins 47, 48, 50, 51, 52 |
|---------------|---------------|---|--|
| NO PD RES | GPIO Port | Keyboard Scan | Keyboard Scan |
| 10K PD | NO PD | | JTAG signals |
| NO PD | 10K PD | | GPIO Port |

TRIS#(Pin 110) TRI-STATE

Forces the device to float all its output and I/O pins, if an external 10 KΩ pull-down resistor is connected.

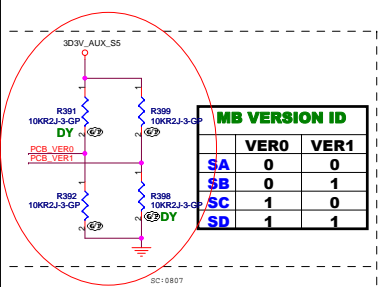
BADDR1-0 (PIN 114, 112) I/O Base Address.

10KΩ external pull-down resistor on BADDR1: Core defined

SHBM PIPN83 Shared Host BIOS Memory.

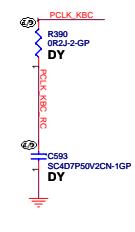
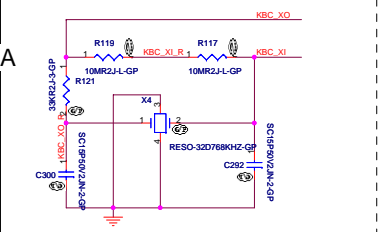
HIGH:NO SHARED(internal resistor)
LOW:SHARED BIOS memory.

B

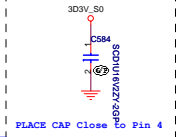


| MB VERSION ID | | |
|---------------|------|------|
| | VER0 | VER1 |
| SA | 0 | 0 |
| SB | 0 | 1 |
| SC | 1 | 0 |
| SD | 1 | 1 |

A



5



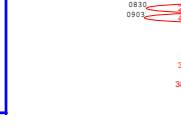
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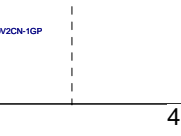
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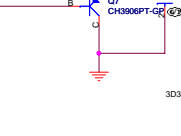


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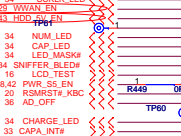
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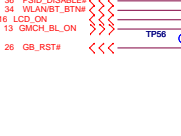
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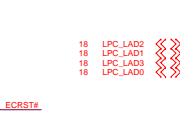


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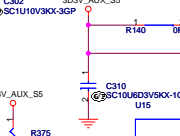


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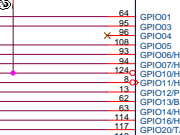
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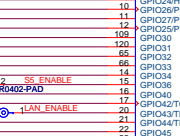
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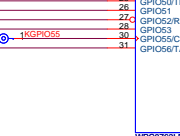
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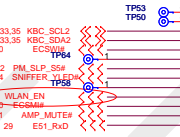
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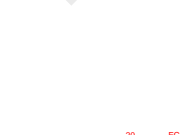
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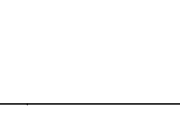
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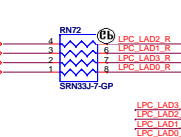


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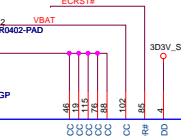


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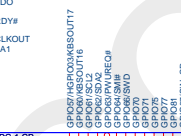
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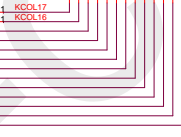
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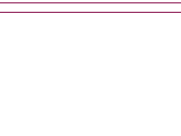
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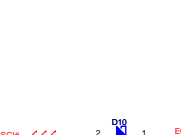
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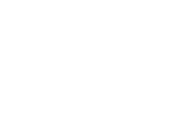
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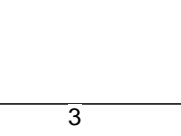
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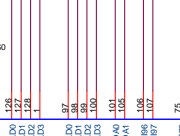


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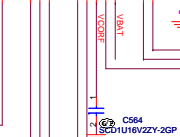
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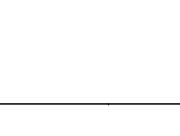
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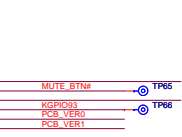


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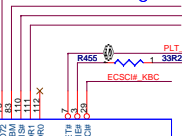


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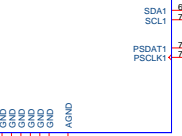
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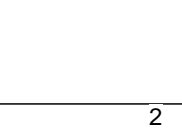
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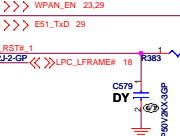


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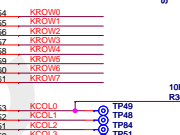
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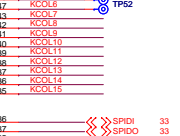
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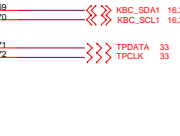
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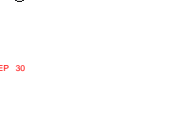
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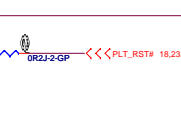


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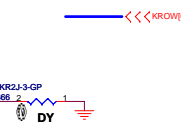
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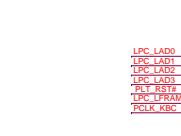
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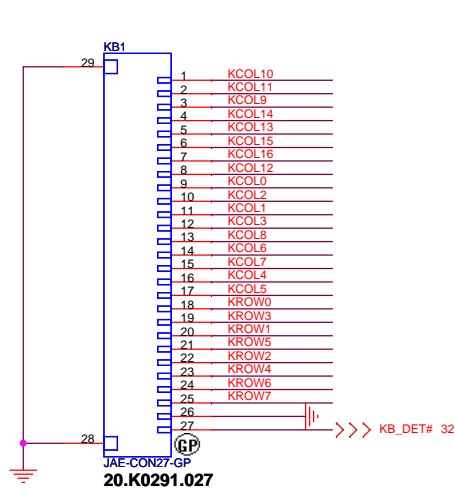
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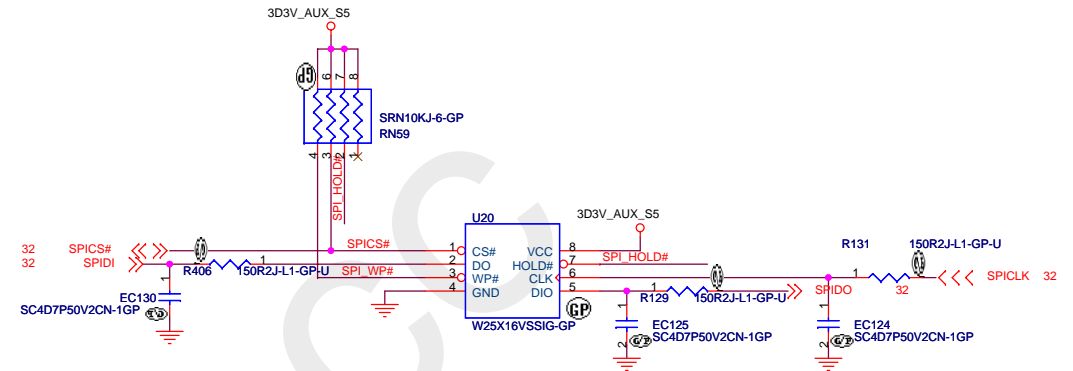
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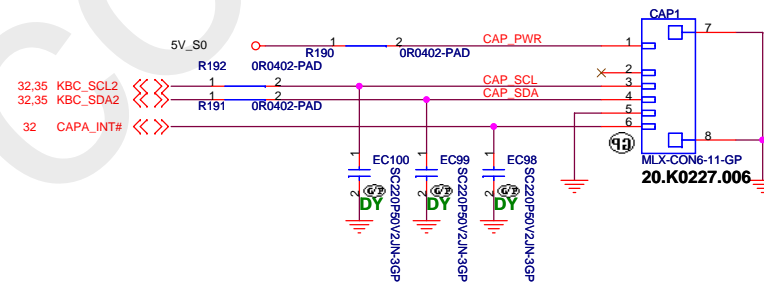
Internal KeyBoard Connector



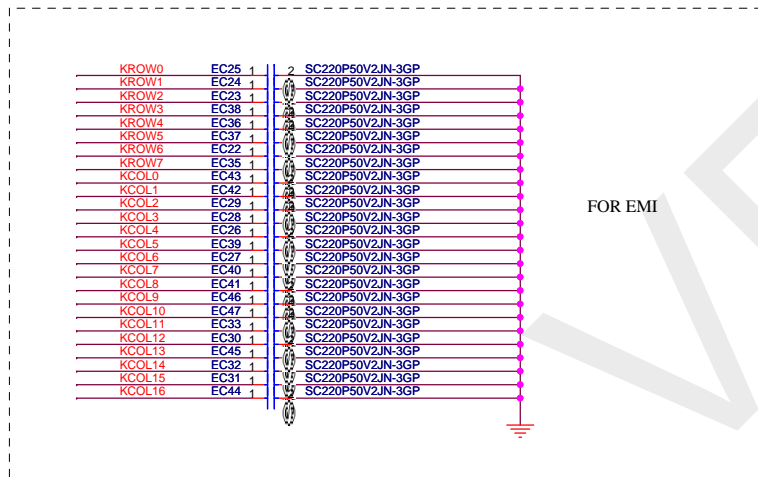
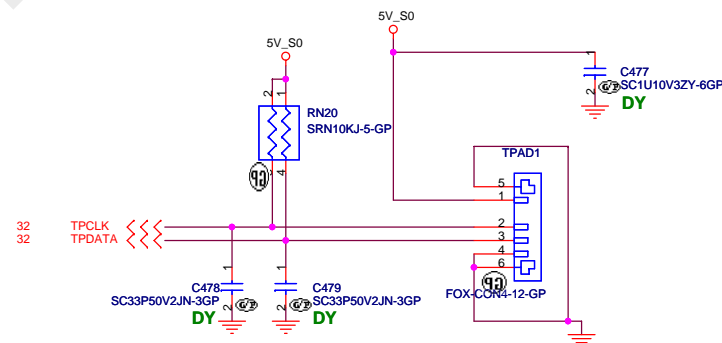
SPI ROM



CAPACITY BUTTON



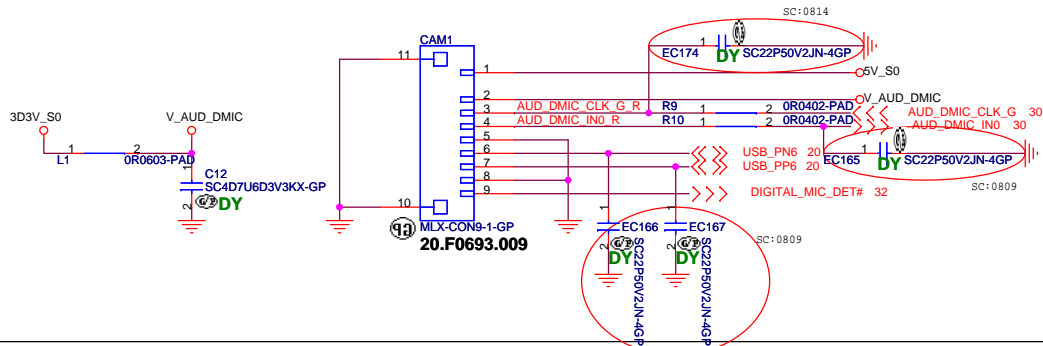
TouchPad Connector



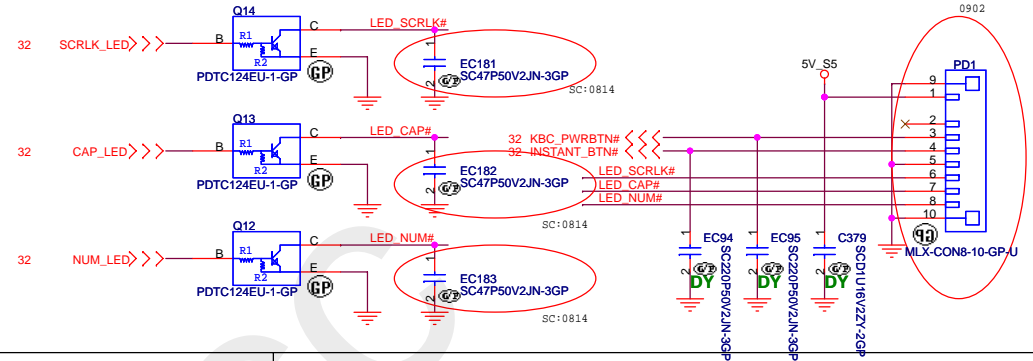
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| | | |
|---------------|-------------------------------|----------------|
| Title | | |
| KeyBoard-CONN | | |
| Size | Document Number | Rev |
| A3 | DS2-AMD | 1 |
| Date: | Wednesday, September 26, 2007 | Sheet 33 of 44 |

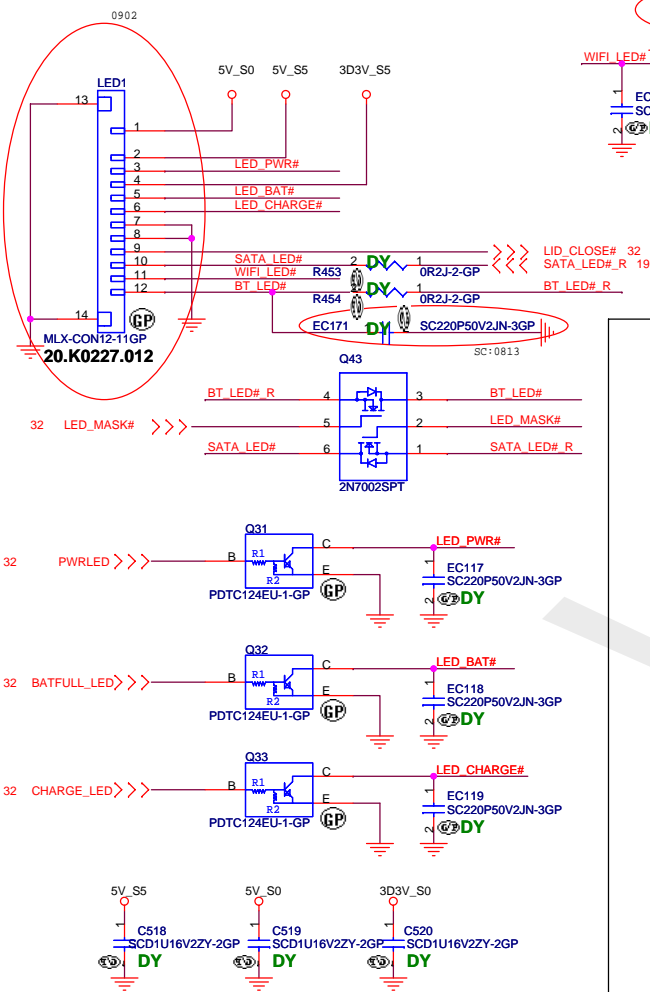
CAMERA/D.MIC Connector



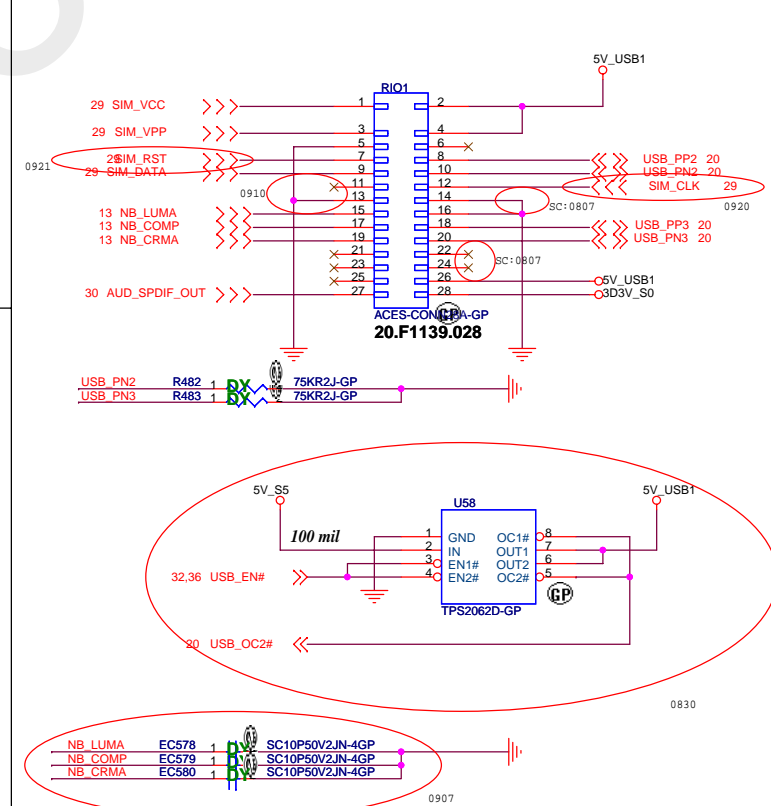
Power Dash Board Connector



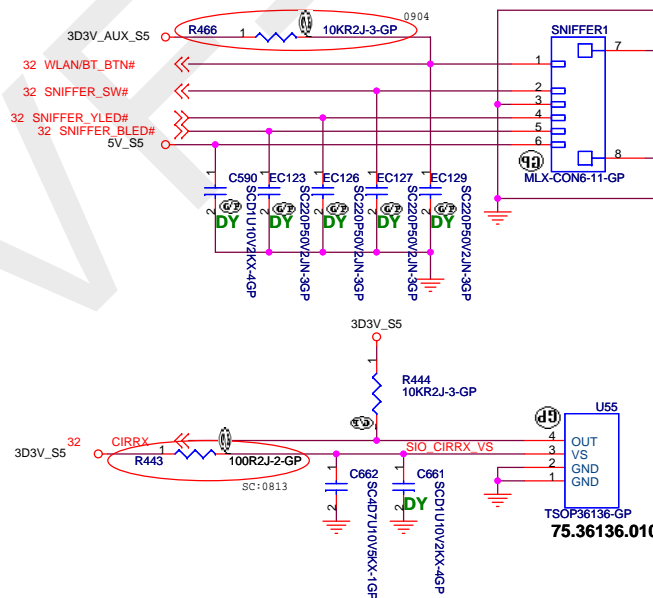
LED Board Connector



RIGHT I/O Board Connector

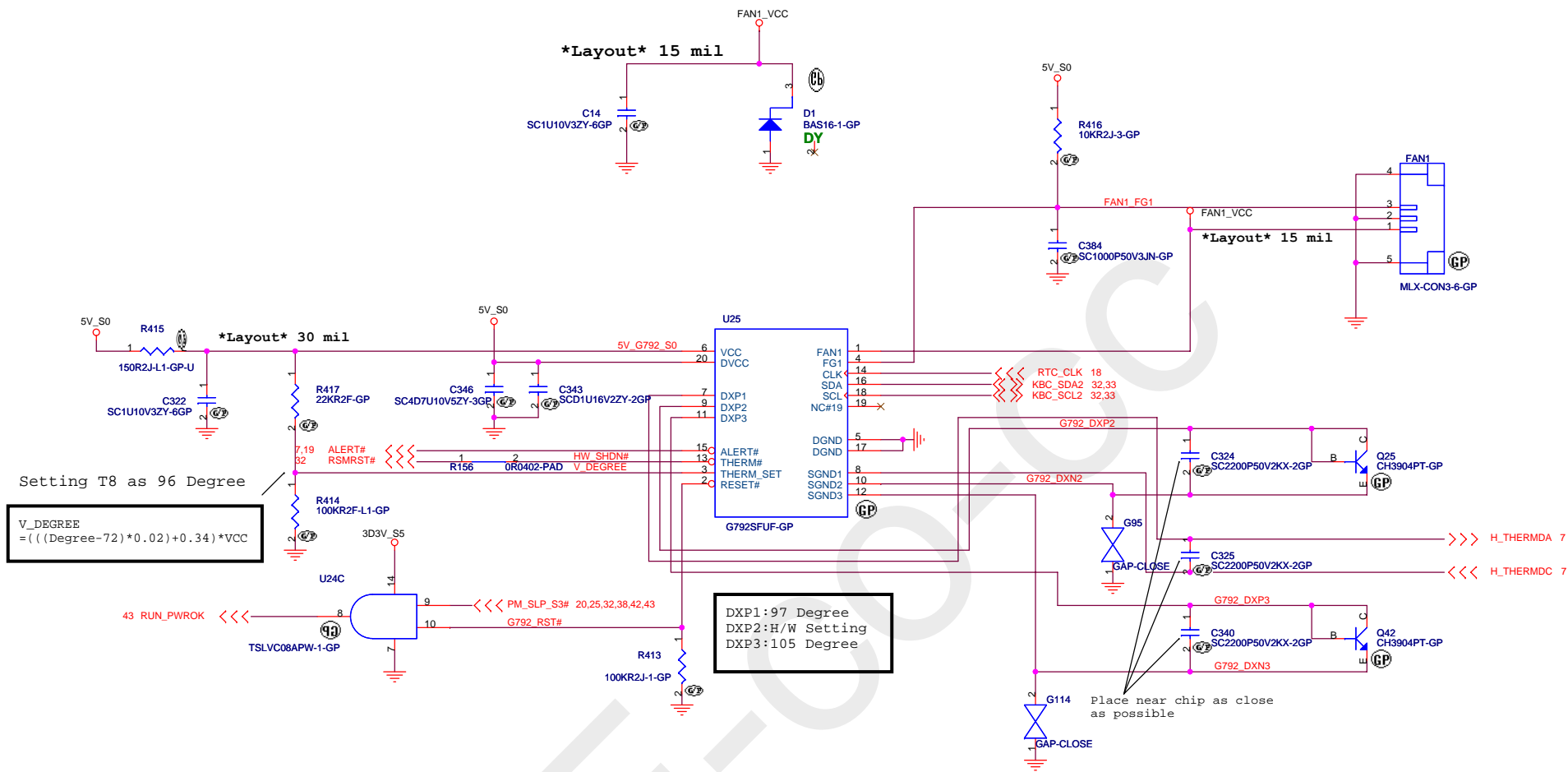


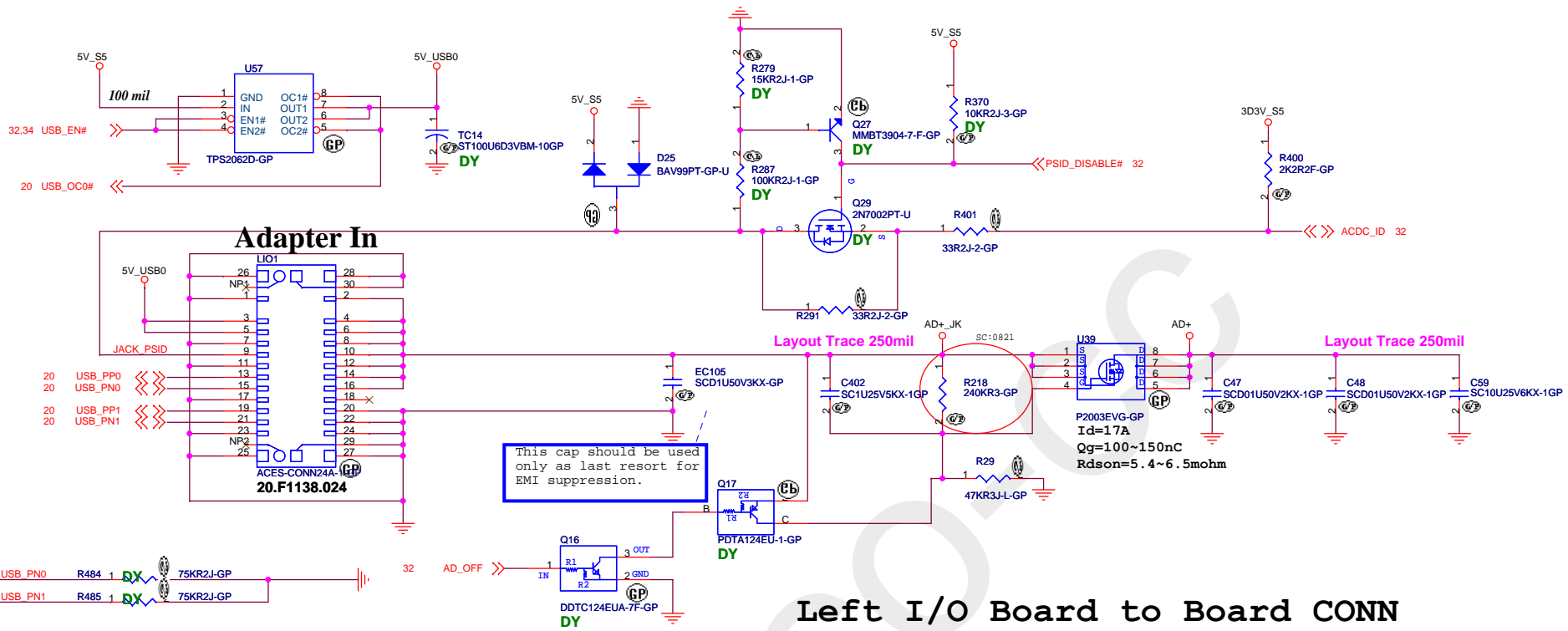
SNIFFER Board Connector



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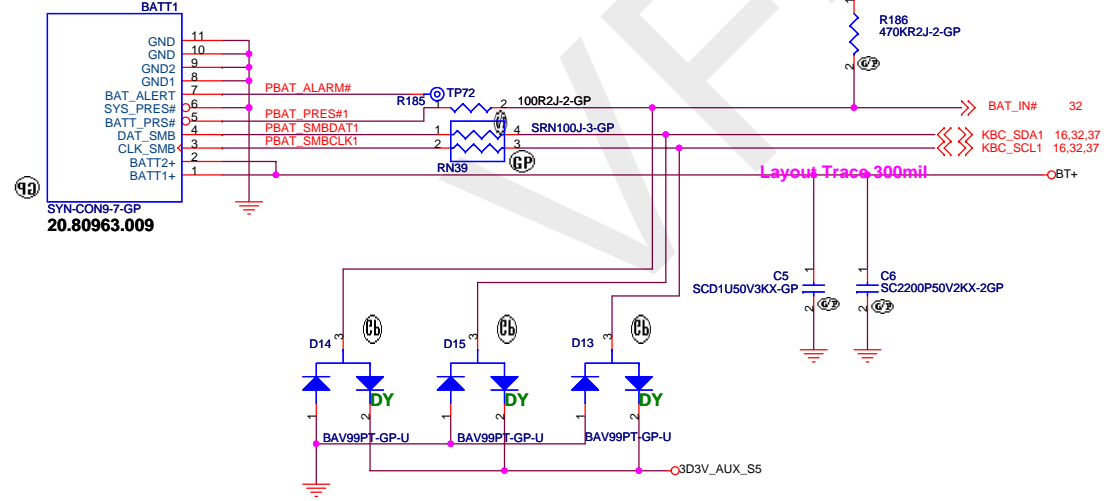
| | | | | | |
|-------|----------------------------|-------|-----------------------|----|----|
| Title | | | BOARD to BOARD | | |
| Size | Document Number | | Rev | | 1 |
| A3 | DS2-AMD | | | | |
| Date: | Monday, September 24, 2007 | Sheet | 34 | of | 44 |





Left I/O Board to Board CONN

Batt CONN



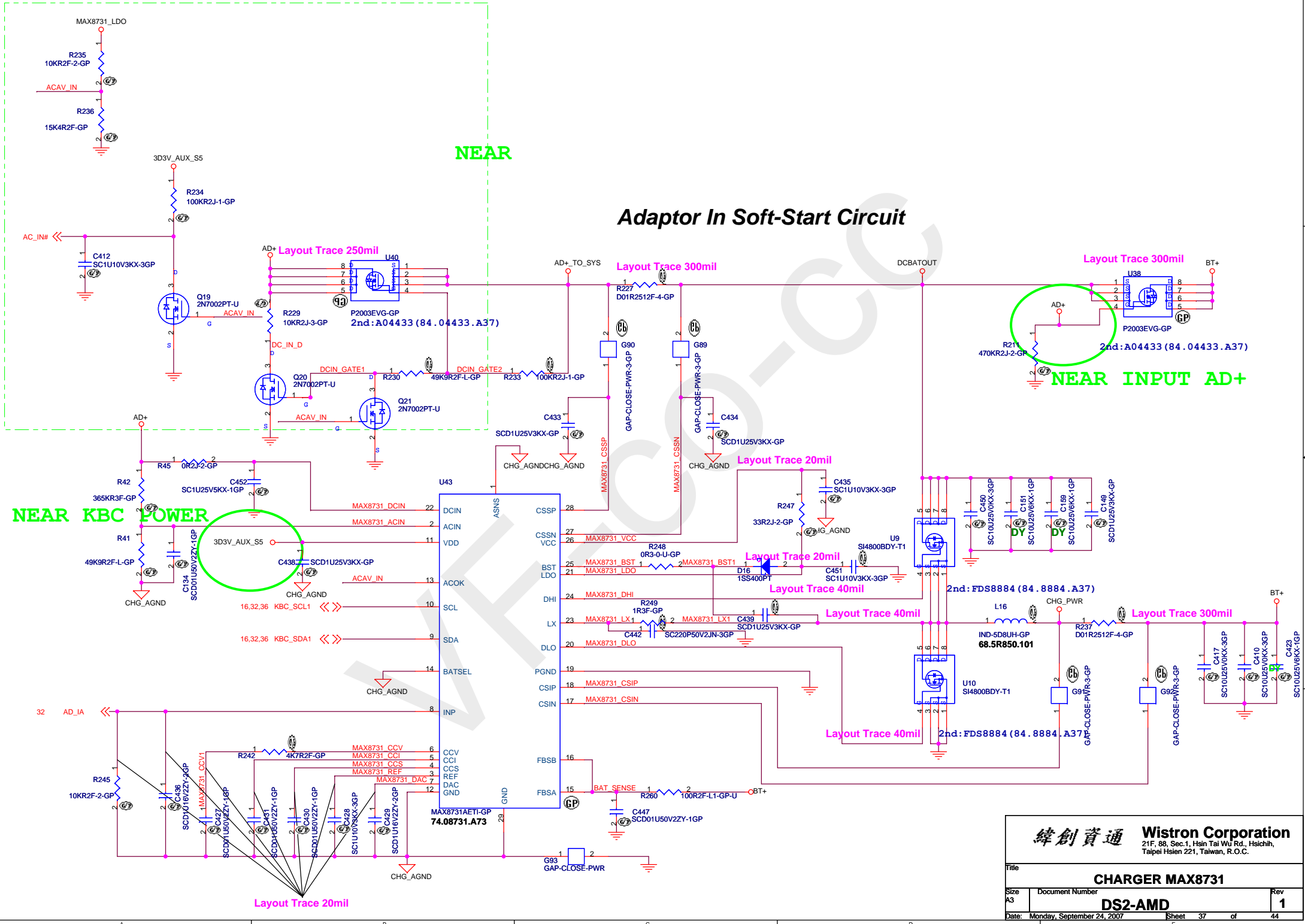
<Variant Name>

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Title
AD/BATT CONN

| | | |
|------------|----------------------------|----------|
| Size A3 | Document Number DS2-AMD | Rev 1 |
|------------|----------------------------|----------|

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Adaptor In Soft-Start Circuit

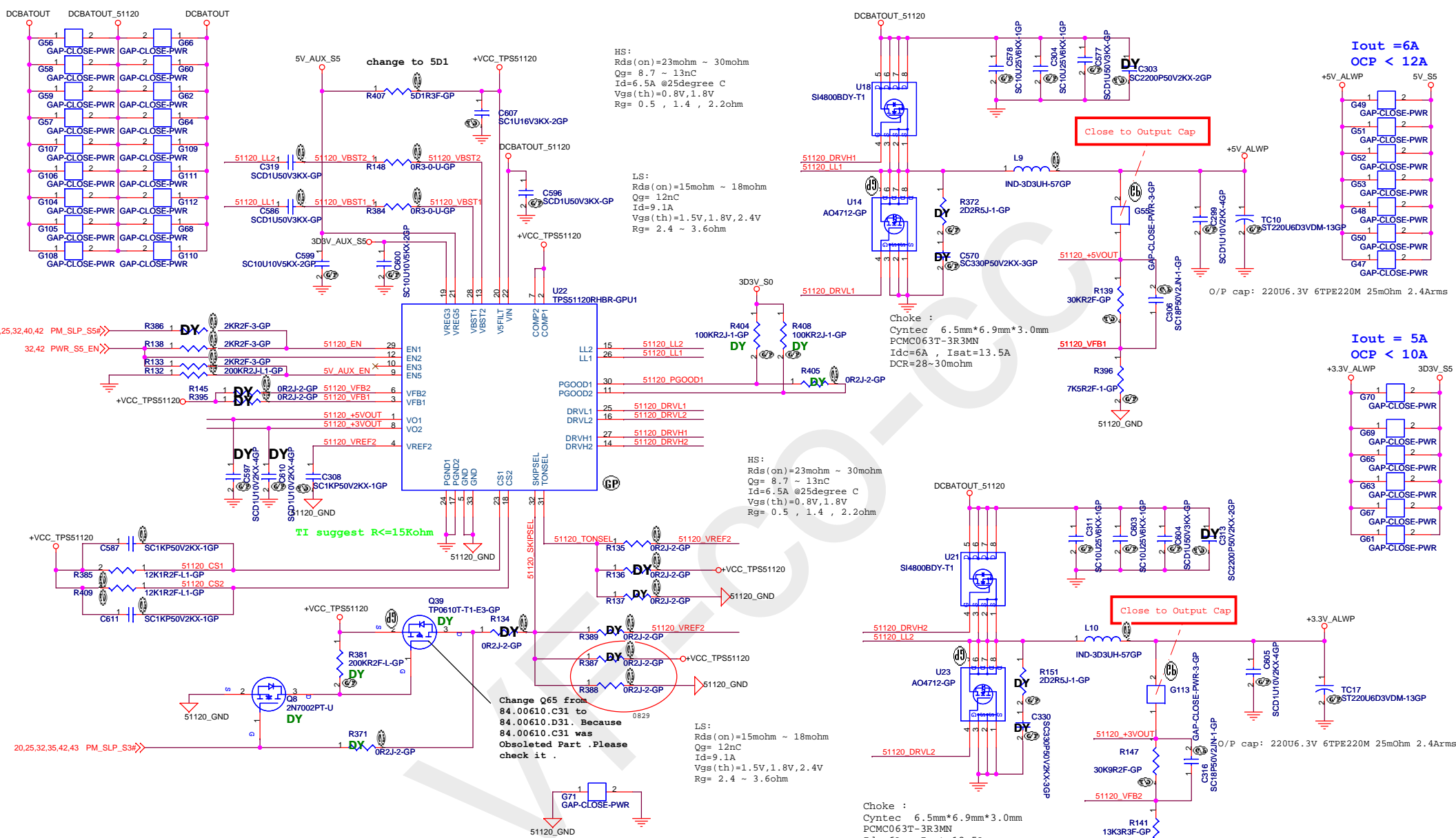
NEAR INPUT AD+

NEAR KBC POWER

NEAR

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

| | | | | | |
|-------|----------------------------|-------|------------------------|----|----|
| Title | | | CHARGER MAX8731 | | |
| Size | Document Number | | Rev | | |
| A3 | DS2-AMD | | 1 | | |
| Date: | Monday, September 24, 2007 | Sheet | 37 | of | 44 |



HS:
 $R_{ds(on)} = 23\text{m}\Omega \sim 30\text{m}\Omega$
 $Q_g = 8.7 \sim 13\text{nC}$
 $I_d = 6.5\text{A} @ 25^\circ\text{C}$
 $V_{gs(th)} = 0.8\text{V}, 1.8\text{V}$
 $R_g = 0.5, 1.4, 2.2\text{ohm}$

LS:
 $R_{ds(on)} = 15\text{m}\Omega \sim 18\text{m}\Omega$
 $Q_g = 12\text{nC}$
 $I_d = 9.1\text{A}$
 $V_{gs(th)} = 1.5\text{V}, 1.8\text{V}, 2.4\text{V}$
 $R_g = 2.4 \sim 3.6\text{ohm}$

HS:
 $R_{ds(on)} = 23\text{m}\Omega \sim 30\text{m}\Omega$
 $Q_g = 8.7 \sim 13\text{nC}$
 $I_d = 6.5\text{A} @ 25^\circ\text{C}$
 $V_{gs(th)} = 0.8\text{V}, 1.8\text{V}$
 $R_g = 0.5, 1.4, 2.2\text{ohm}$

LS:
 $R_{ds(on)} = 15\text{m}\Omega \sim 18\text{m}\Omega$
 $Q_g = 12\text{nC}$
 $I_d = 9.1\text{A}$
 $V_{gs(th)} = 1.5\text{V}, 1.8\text{V}, 2.4\text{V}$
 $R_g = 2.4 \sim 3.6\text{ohm}$

Choke :
 Cyntec 6.5mm*6.9mm*3.0mm
 PCMC063T-3R3MN
 $I_{dc} = 6\text{A}$, $I_{sat} = 13.5\text{A}$
 $DCR = 28 \sim 30\text{m}\Omega$

$I_{out} = 6\text{A}$
 $OCV < 12\text{A}$

$I_{out} = 5\text{A}$
 $OCV < 10\text{A}$

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

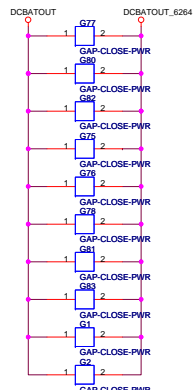
| | GND | VREF2 | FLOK1 | VSFILT |
|----------|----------------------|-----------------------|----------------------|-----------------------|
| SKIPSEL | AUTOSKIP | AUTOSKIP / FAULTS OFF | PWM | PWM |
| COMP | N/A | N/A | CURRENT MODE | D-Cap MODE |
| TONSEL | 380k/CH1 580k/CH2 | 280k/CH1 430k/CH2 | 220k/CH1 330k/CH2 | 180k/CH1 2870k/CH2 |
| VFB1 | N/A | not use | ADJ. | Fixed Output |
| VFB2 | N/A | not use | ADJ. | 3.3V Fixed Output |
| EN1, EN2 | Switcher OFF | not use | Switcher ON | Switcher ON |
| EN3, EN5 | LDO OFF | not use | LDO ON | VREG3 on |

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Title: **3V/5V TPS51120**

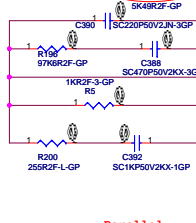
Size Custom: Document Number **DS2-AMD** Rev **1**

Date: Monday, September 24, 2007 Sheet 38 of 44



SET "H"---Audio filter
 RBIAS=1.55V
 Inner 3K ohm
 Positive offset:
 (1.2V/R7)*R11

OCP: 40A*1.25=50A
 50A*2mV/A=10uA*Roreset
 Roreset=10K

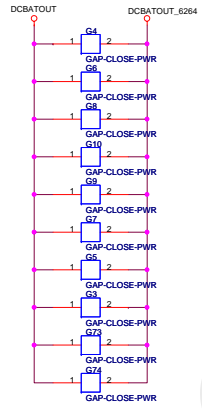
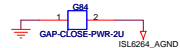


7 COREFB <<<< Parallel
 7 COREFB# <<<< Parallel

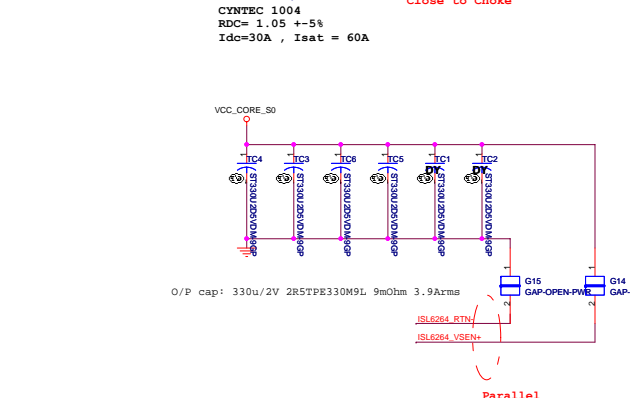
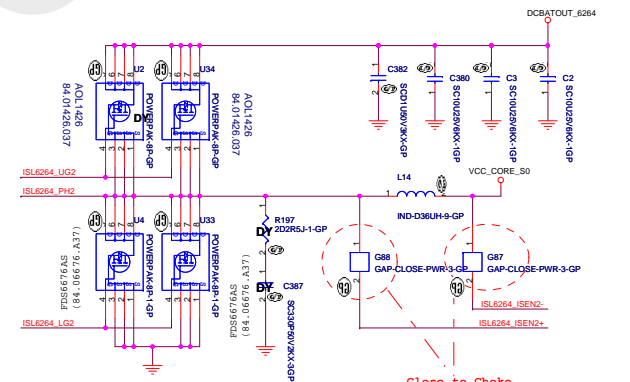
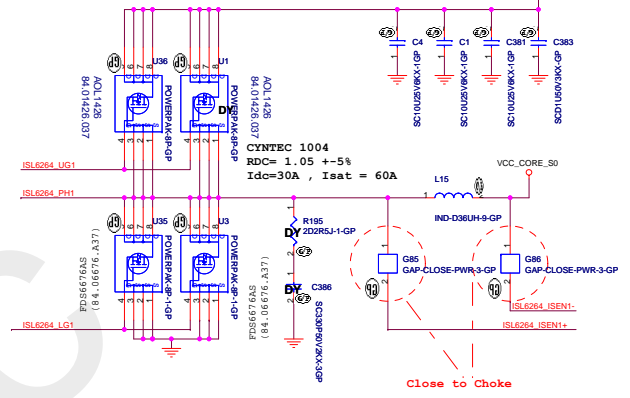
| TABLE 1. VOLTAGE IDENTIFICATION CODES | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|-------|--|--|--|
| VID5 | VID4 | VID3 | VID2 | VID1 | VID0 | DAC | | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1.550 | | | |
| 0 | 0 | 0 | 0 | 0 | 1 | 1.525 | | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1.500 | | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1.475 | | | |
| 0 | 0 | 0 | 1 | 0 | 0 | 1.450 | | | |
| 0 | 0 | 0 | 1 | 1 | 0 | 1.425 | | | |
| 0 | 0 | 0 | 1 | 1 | 1 | 1.400 | | | |
| 0 | 0 | 1 | 0 | 0 | 0 | 1.375 | | | |
| 0 | 0 | 1 | 0 | 0 | 1 | 1.350 | | | |
| 0 | 0 | 1 | 0 | 1 | 0 | 1.325 | | | |
| 0 | 0 | 1 | 0 | 1 | 1 | 1.300 | | | |
| 0 | 0 | 1 | 1 | 0 | 0 | 1.275 | | | |
| 0 | 0 | 1 | 1 | 0 | 1 | 1.250 | | | |
| 0 | 0 | 1 | 1 | 1 | 0 | 1.225 | | | |
| 0 | 0 | 1 | 1 | 1 | 1 | 1.200 | | | |
| 0 | 1 | 0 | 0 | 0 | 0 | 1.175 | | | |
| 0 | 1 | 0 | 0 | 0 | 1 | 1.150 | | | |
| 0 | 1 | 0 | 0 | 1 | 0 | 1.125 | | | |
| 0 | 1 | 0 | 0 | 1 | 1 | 1.100 | | | |
| 0 | 1 | 0 | 1 | 0 | 0 | 1.075 | | | |
| 0 | 1 | 0 | 1 | 0 | 1 | 1.050 | | | |
| 0 | 1 | 0 | 1 | 1 | 0 | 1.025 | | | |
| 0 | 1 | 1 | 0 | 0 | 0 | 1.000 | | | |
| 0 | 1 | 1 | 0 | 0 | 1 | 0.975 | | | |
| 0 | 1 | 1 | 0 | 1 | 0 | 0.950 | | | |
| 0 | 1 | 1 | 0 | 1 | 1 | 0.925 | | | |
| 0 | 1 | 1 | 1 | 0 | 0 | 0.900 | | | |
| 0 | 1 | 1 | 1 | 0 | 1 | 0.875 | | | |
| 0 | 1 | 1 | 1 | 1 | 0 | 0.850 | | | |
| 0 | 1 | 1 | 1 | 1 | 1 | 0.825 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0.800 | | | |
| 1 | 0 | 0 | 0 | 0 | 1 | 0.775 | | | |
| 1 | 0 | 0 | 0 | 1 | 0 | 0.750 | | | |
| 1 | 0 | 0 | 0 | 1 | 1 | 0.725 | | | |
| 1 | 0 | 0 | 1 | 0 | 0 | 0.700 | | | |
| 1 | 0 | 0 | 1 | 0 | 1 | 0.675 | | | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0.650 | | | |
| 1 | 0 | 1 | 0 | 0 | 1 | 0.625 | | | |
| 1 | 0 | 1 | 0 | 1 | 0 | 0.600 | | | |
| 1 | 0 | 1 | 0 | 1 | 1 | 0.575 | | | |
| 1 | 1 | 0 | 0 | 0 | 0 | 0.550 | | | |
| 1 | 1 | 0 | 0 | 0 | 1 | 0.525 | | | |
| 1 | 1 | 0 | 0 | 1 | 0 | 0.500 | | | |
| 1 | 1 | 0 | 0 | 1 | 1 | 0.475 | | | |
| 1 | 1 | 0 | 1 | 0 | 0 | 0.450 | | | |
| 1 | 1 | 0 | 1 | 0 | 1 | 0.425 | | | |
| 1 | 1 | 0 | 1 | 1 | 0 | 0.400 | | | |
| 1 | 1 | 0 | 1 | 1 | 1 | 0.375 | | | |

CPU_VCORE
 VID=1.20V (25W) / 1.15V (35W)
 Iomax=21A (25W) / 35A (35W)
 OCP=40A~45A

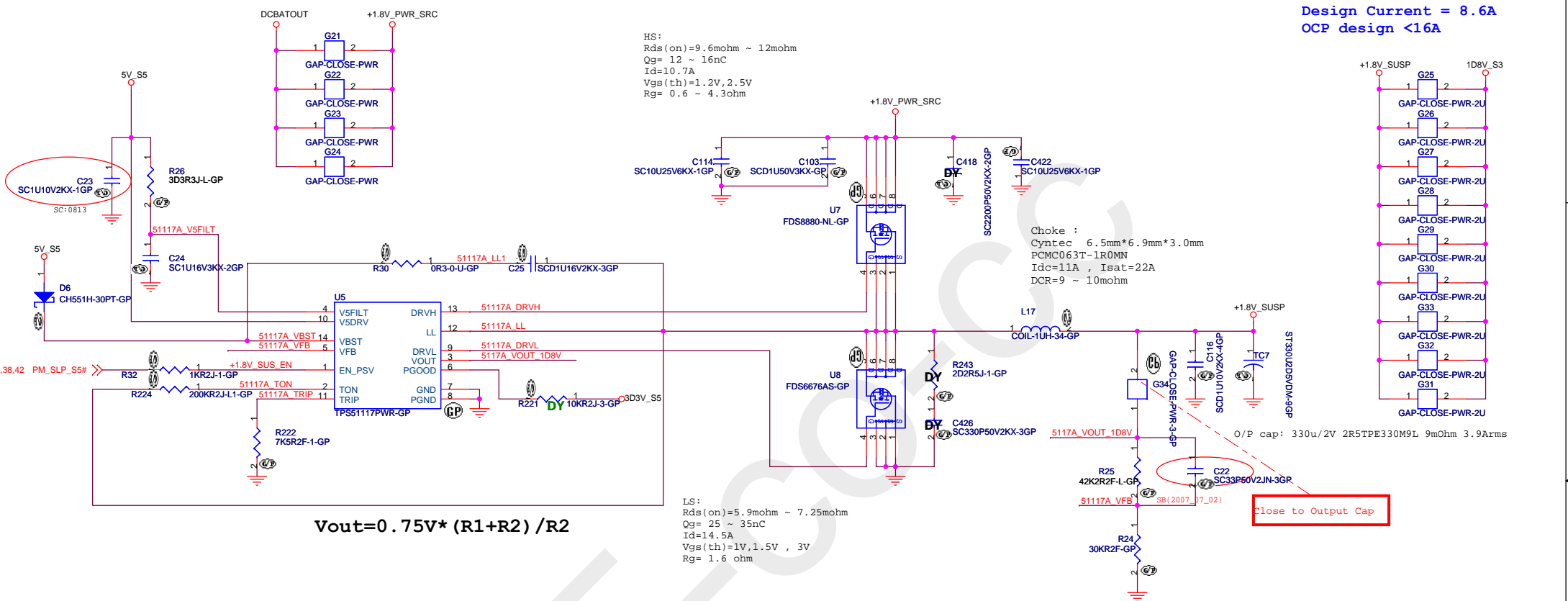
Place close to L30



VCC_CORE_S0



O/P cap: 330u/2V 2R5TPB330M9L 9mOhm 3.9Arms



Design Current = 8.6A
 OCP design <16A

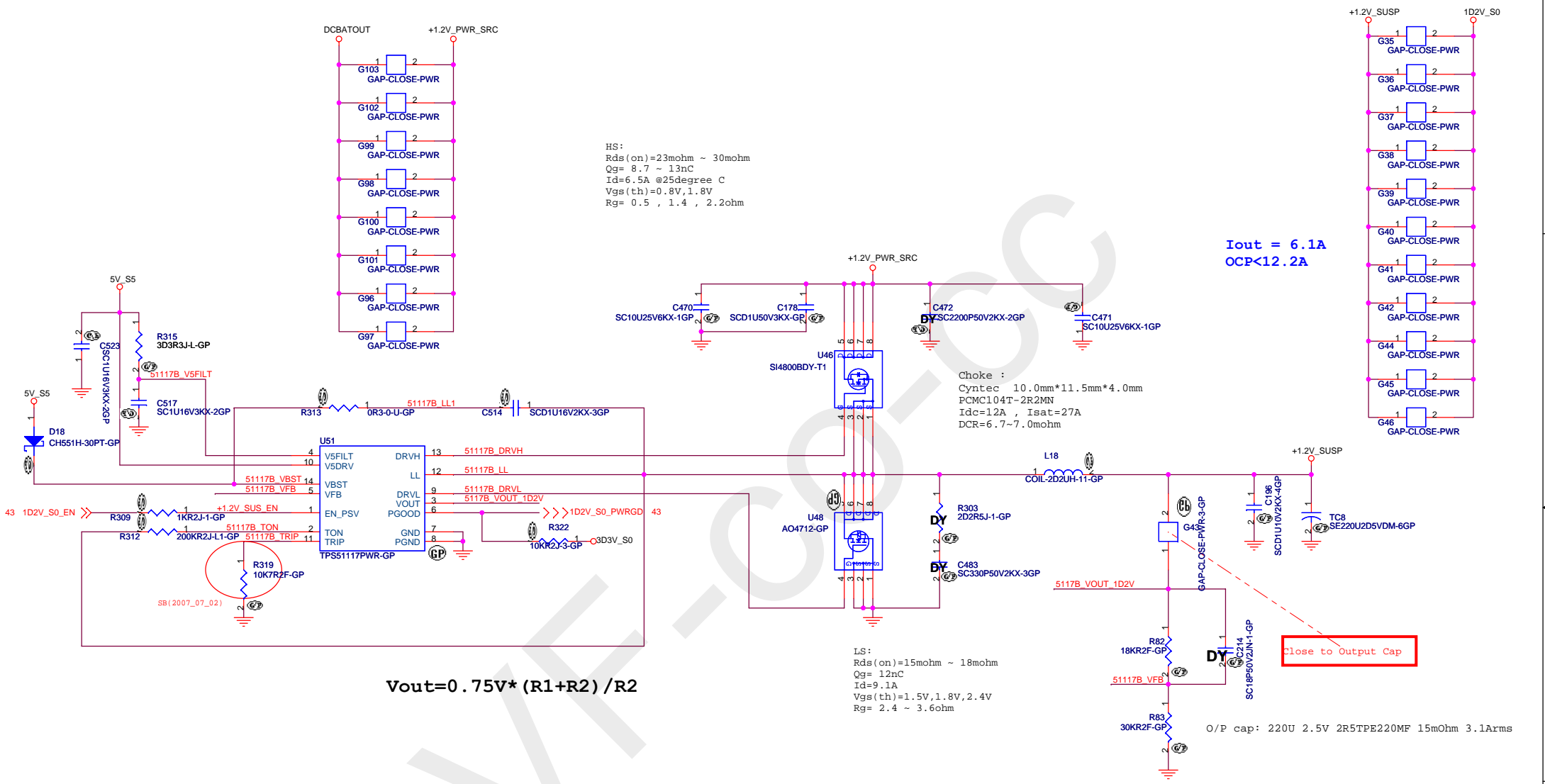
HS:
 Rds(on)=9.6mohm ~ 12mohm
 Qg= 12 ~ 16nC
 Id=10.7A
 Vgs(th)=1.2V, 2.5V
 Rg= 0.6 ~ 4.3ohm

Choke :
 Cyntec 6.5mm*6.9mm*3.0mm
 PCMC063T-1ROMN
 Idc=11A , Isat=22A
 DCR=9 ~ 10mohm

LS:
 Rds(on)=5.9mohm ~ 7.25mohm
 Qg= 25 ~ 35nC
 Id=14.5A
 Vgs(th)=1V, 1.5V , 3V
 Rg= 1.6 ohm

$$V_{out} = 0.75V * (R1 + R2) / R2$$

O/P cap: 330u/2V 2R5TPE330M9L 9mOhm 3.9Arms
 Close to Output Cap



HS:
 Rds(on)=23mohm ~ 30mohm
 Qg= 8.7 ~ 13nC
 Id=6.5A @25degree C
 Vgs(th)=0.8V, 1.8V
 Rg= 0.5 , 1.4 , 2.2ohm

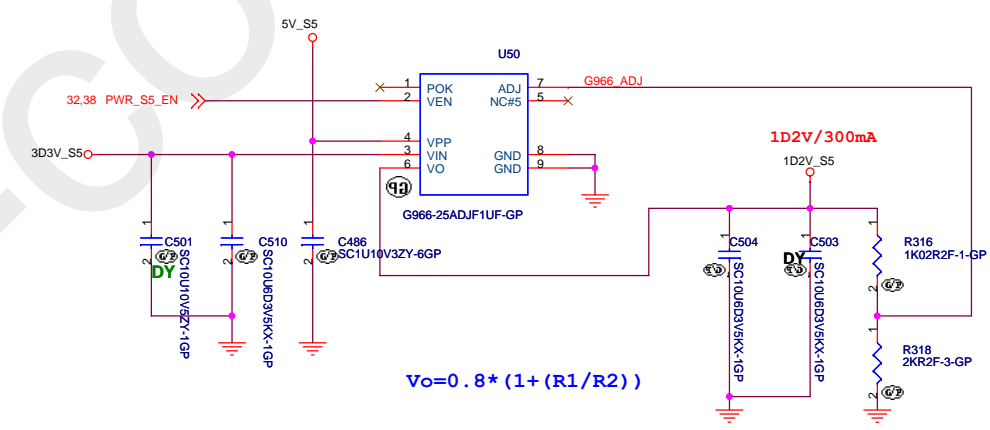
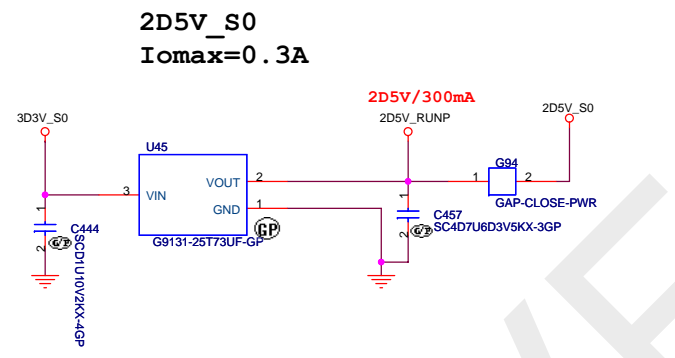
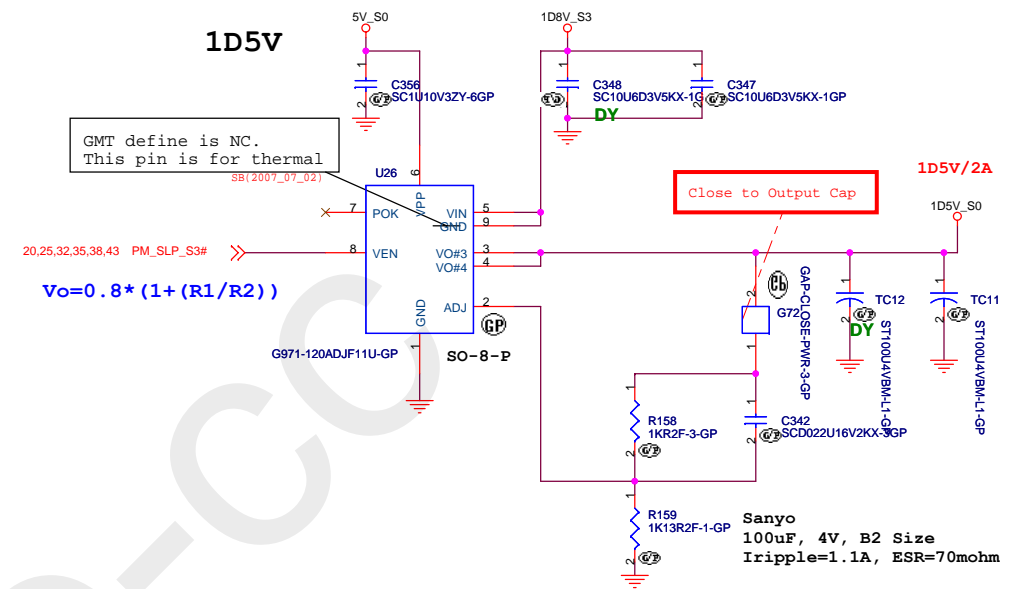
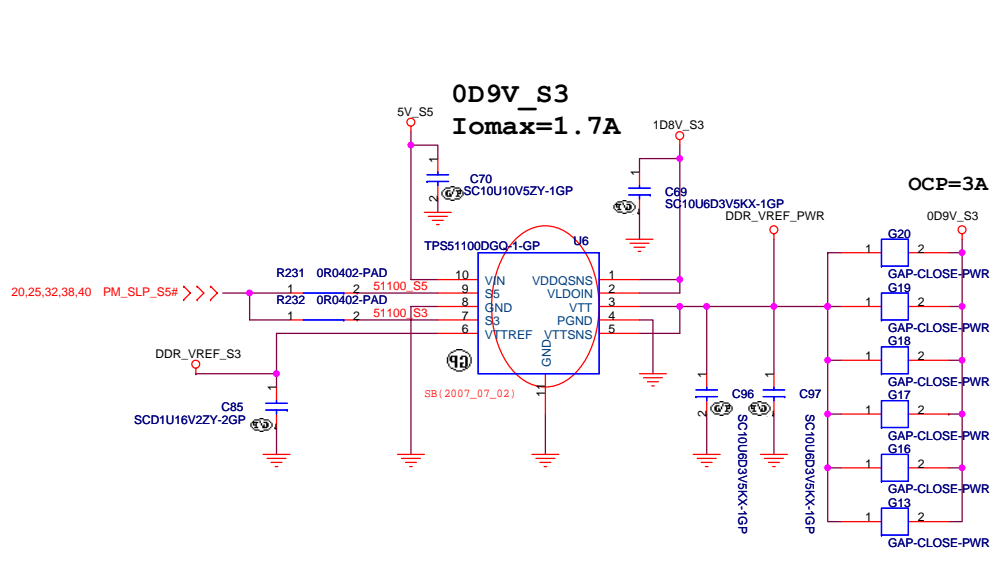
Iout = 6.1A
 OCP<12.2A

Choke :
 Cyntec 10.0mm*11.5mm*4.0mm
 PCMC104T-2R2MN
 Idc=12A , Isat=27A
 DCR=6.7~7.0mohm

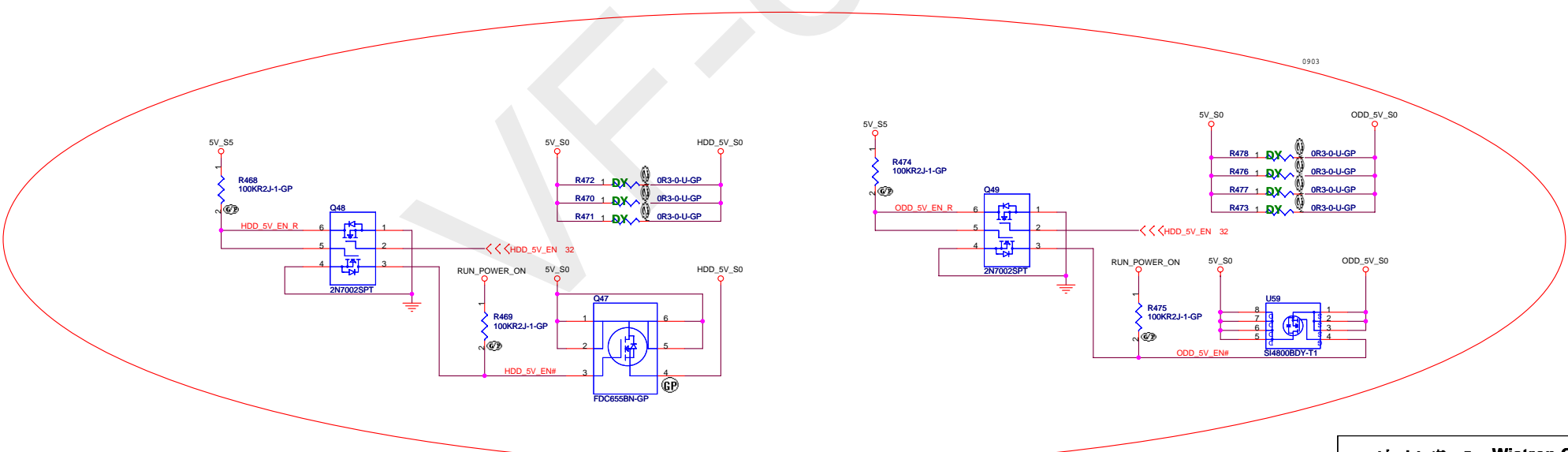
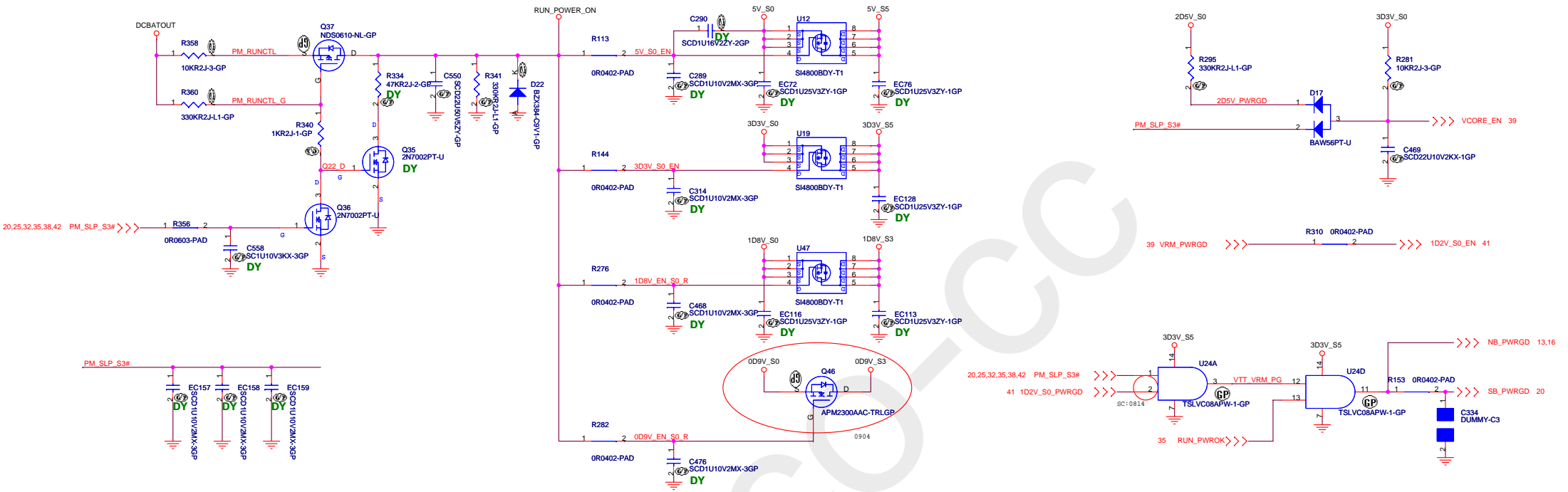
LS:
 Rds(on)=15mohm ~ 18mohm
 Qg= 12nC
 Id=9.1A
 Vgs(th)=1.5V, 1.8V, 2.4V
 Rg= 2.4 ~ 3.6ohm

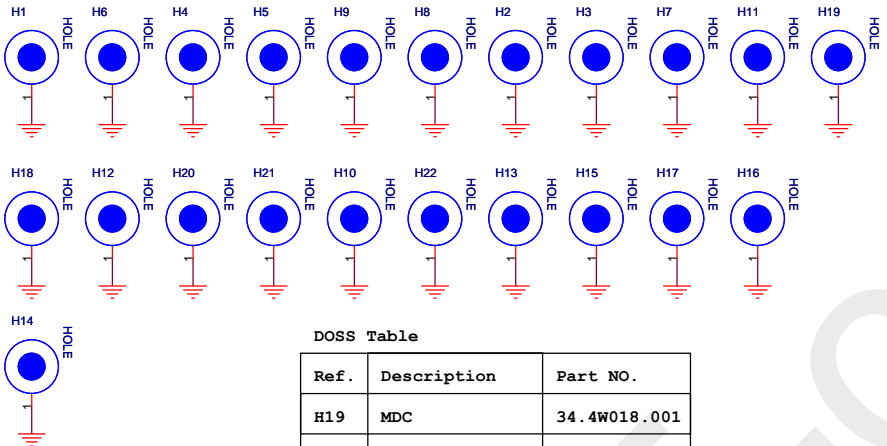
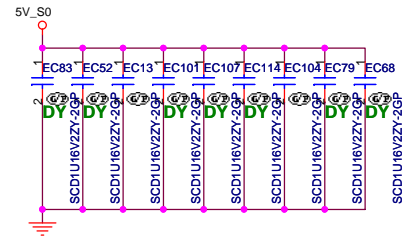
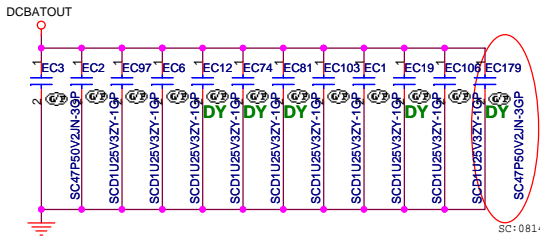
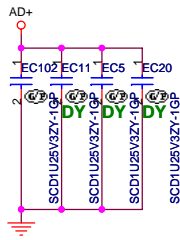
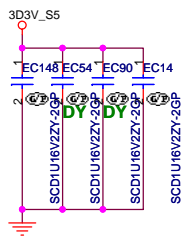
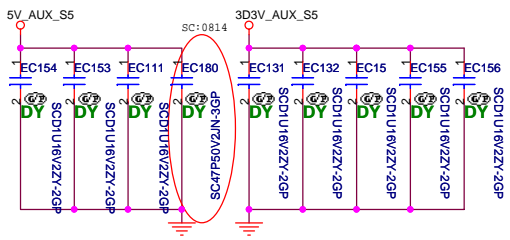
$$V_{out} = 0.75V * (R1 + R2) / R2$$

O/P cap: 220U 2.5V 2R5TPE220MF 15mOhm 3.1Arms



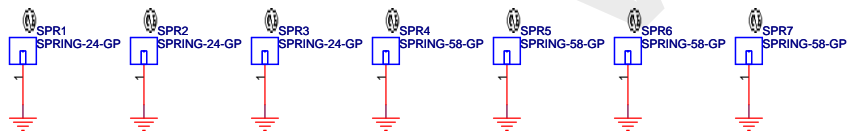
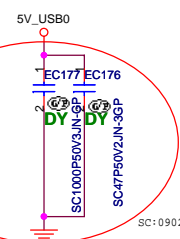
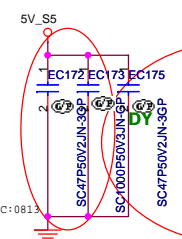
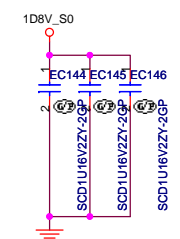
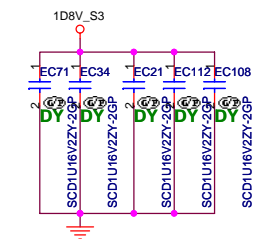
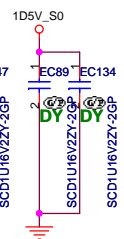
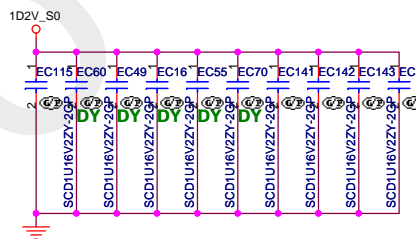
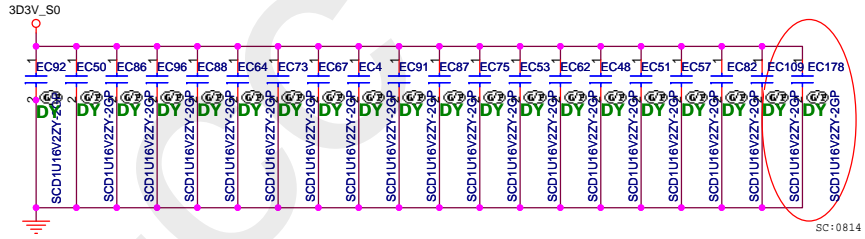
Run Power





DOSS Table

| Ref. | Description | Part NO. |
|------|-------------|--------------|
| H19 | MDC | 34.4W018.001 |
| H20 | Mini Card | 34.4W005.001 |
| H21 | Mini Card | 34.4W005.001 |
| H22 | Mini Card | 34.4W005.001 |
| H18 | Heat sink | 34.4A908.001 |
| H15 | New Card | 34.4W004.001 |



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Title: **MISC**

Size A3 Document Number: **DS2-AMD** Rev: **1**

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