

# Compal Confidential

*HM51\_TR/HM70\_TR Discrete*

**NDWG2/NDWH1 LA5992 Schematic Document**

**Mobile AMD S1G3/RS880M/SB710**

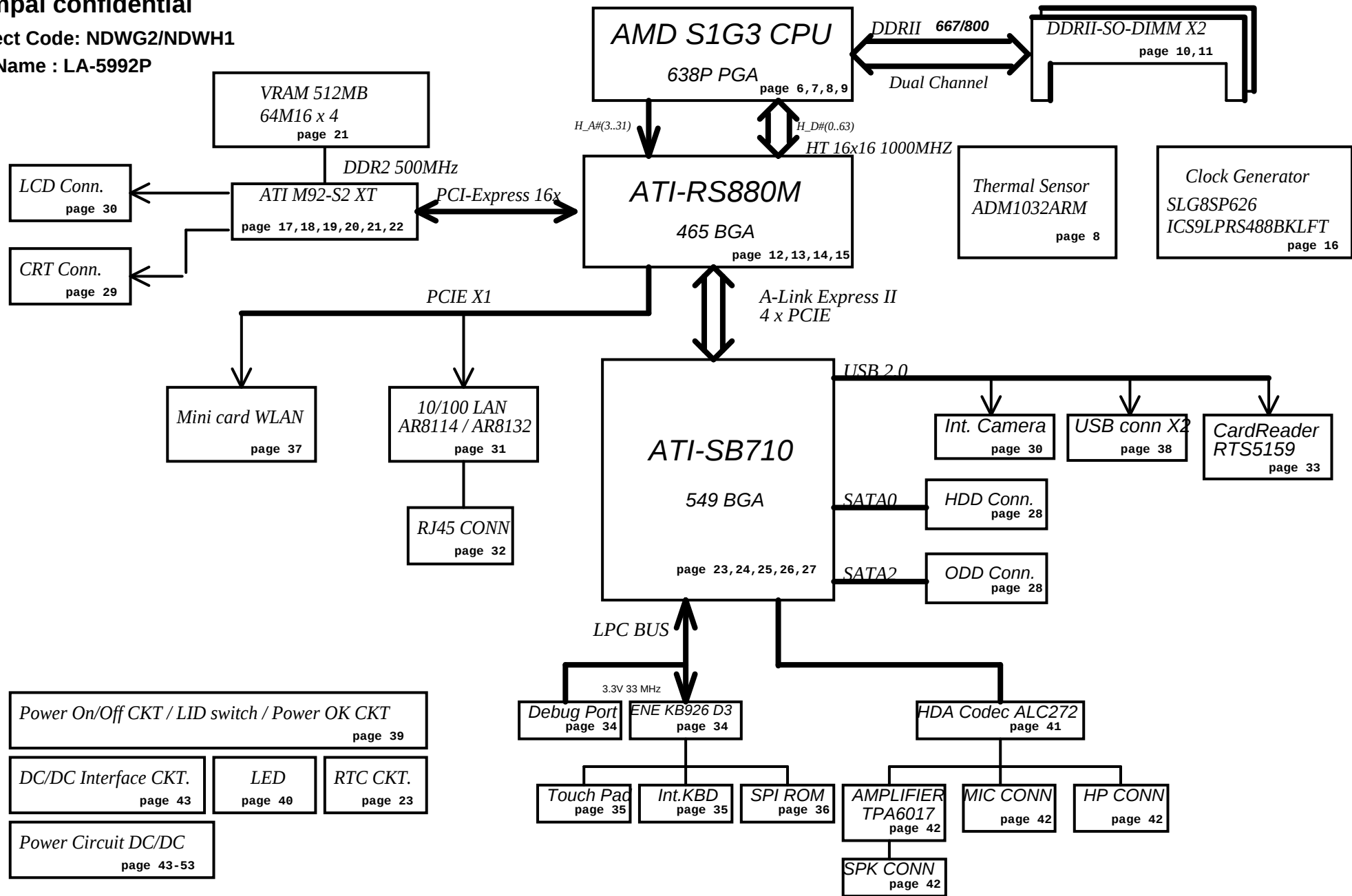
**2009/12/02 Rev 1.0**

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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 1 of 55                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                         |

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Project Code: NDWG2/NDWH1

File Name : LA-5992P



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 2 of 55                  |

## Voltage Rails

| Power Plane | Description                                 | S1  | S3  | S5  |
|-------------|---------------------------------------------|-----|-----|-----|
| VIN         | Adapter power supply (19V)                  | N/A | N/A | N/A |
| B+          | AC or battery power rail for power circuit. | N/A | N/A | N/A |
| +CPU_CORE   | Core voltage for CPU                        | ON  | OFF | OFF |
| +0.9V       | 0.9V switched power rail for DDR terminator | ON  | ON  | OFF |
| +1.1VS      | 1.05V switched power rail                   | ON  | OFF | OFF |
| +1.2V_HT    | 1.25V switched power rail                   | ON  | OFF | OFF |
| +1.5VS      | 1.5V power rail for PCIE Card               | ON  | OFF | OFF |
| +1.8V       | 1.8V power rail for CPU VDDIO and DDR       | ON  | ON  | OFF |
| +1.8VS      | 1.8V switched power rail                    | ON  | OFF | OFF |
| +2.5VS      | 2.5V for CPU_VDDA and MXM/B                 | ON  | OFF | OFF |
| +3VALW      | 3.3V always on power rail                   | ON  | ON  | ON* |
| +3V_LAN     | 3.3V power rail for LAN                     | ON  | ON  | ON  |
| +3VS        | 3.3V switched power rail                    | ON  | OFF | OFF |
| +5VALW      | 5V always on power rail                     | ON  | ON  | ON* |
| +5VS        | 5V switched power rail                      | ON  | OFF | OFF |
| +VSB        | VSB always on power rail                    | ON  | ON  | ON* |
| +RTCVCC     | RTC power                                   | ON  | ON  | ON  |

**Note : ON\* means that this power plane is ON only with AC power available, otherwise it is OFF.**

## External PCI Devices

| Device | IDSEL# | REQ#/GNT# | Interrupts |
|--------|--------|-----------|------------|
|--------|--------|-----------|------------|

### EC SM Bus1 address

| Device        | Address     |
|---------------|-------------|
| Smart Battery | 0001 011X b |

### EC SM Bus2 address

| Device           | Address     |
|------------------|-------------|
| ADM1032          | 1001 100X b |
| GMT G781-1 (GPU) | 1001 100X b |

## SB710 SM Bus 1 address

| Device          | Address    |
|-----------------|------------|
| Clock Generator | 1101 001Xb |
| DDR DIMM0       | 1001 000Xb |
| DDR DIMM2       | 1001 010Xb |
| Wireless Lan    |            |

## SB710 SM Bus 2 address

| Device   | Address |
|----------|---------|
| New Card |         |

| STATE \ SIGNAL        | SLP_S1# | SLP_S3# | SLP_S4# | SLP_S5# | +VALW | +V  | +VS | Clock |
|-----------------------|---------|---------|---------|---------|-------|-----|-----|-------|
| Full ON               | HIGH    | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | ON    |
| S1 (Power On Suspend) | LOW     | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | LOW   |
| S3 (Suspend to RAM)   | LOW     | LOW     | HIGH    | HIGH    | ON    | ON  | OFF | OFF   |
| S4 (Suspend to Disk)  | LOW     | LOW     | LOW     | HIGH    | ON    | OFF | OFF | OFF   |
| S5 (Soft OFF)         | LOW     | LOW     | LOW     | LOW     | ON    | OFF | OFF | OFF   |

### Board ID / SKU ID Table for AD channel

|          |              |             |             |             |
|----------|--------------|-------------|-------------|-------------|
| Vcc      | 3.3V +/- 5%  |             |             |             |
| Ra/Rc/Re | 100K +/- 5%  |             |             |             |
| Board ID | Rb / Rd / Rf | VAD_BID min | VAD_BID typ | VAD_BID max |
| 0        | 0            | 0 V         | 0 V         | 0 V         |
| 1        | 8.2K +/- 5%  | 0.216 V     | 0.250 V     | 0.289 V     |
| 2        | 18K +/- 5%   | 0.436 V     | 0.503 V     | 0.538 V     |
| 3        | 33K +/- 5%   | 0.712 V     | 0.819 V     | 0.875 V     |
| 4        | 56K +/- 5%   | 1.036 V     | 1.185 V     | 1.264 V     |
| 5        | 100K +/- 5%  | 1.453 V     | 1.650 V     | 1.759 V     |
| 6        | 200K +/- 5%  | 1.935 V     | 2.200 V     | 2.341 V     |
| 7        | NC           | 2.500 V     | 3.300 V     | 3.300 V     |

### BTO Option Table

[illegible]

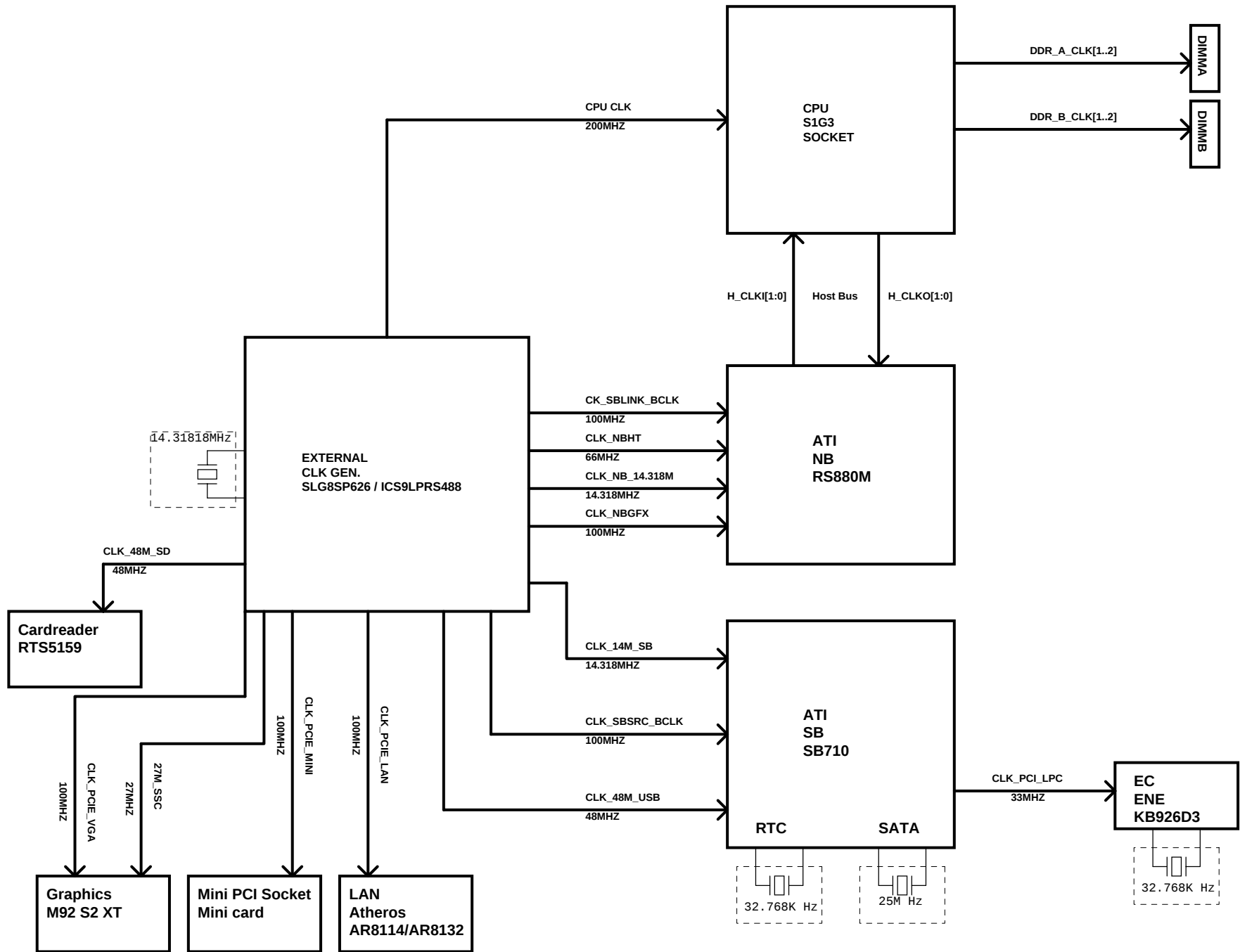
### BOARD ID Table

| Board ID | PCB Revision          |
|----------|-----------------------|
| 0        | No Support VaryBright |
| 1        |                       |
| 2        |                       |
| 3        | Support VaryBright    |
| 4        |                       |
| 5        |                       |
| 6        |                       |
| 7        |                       |

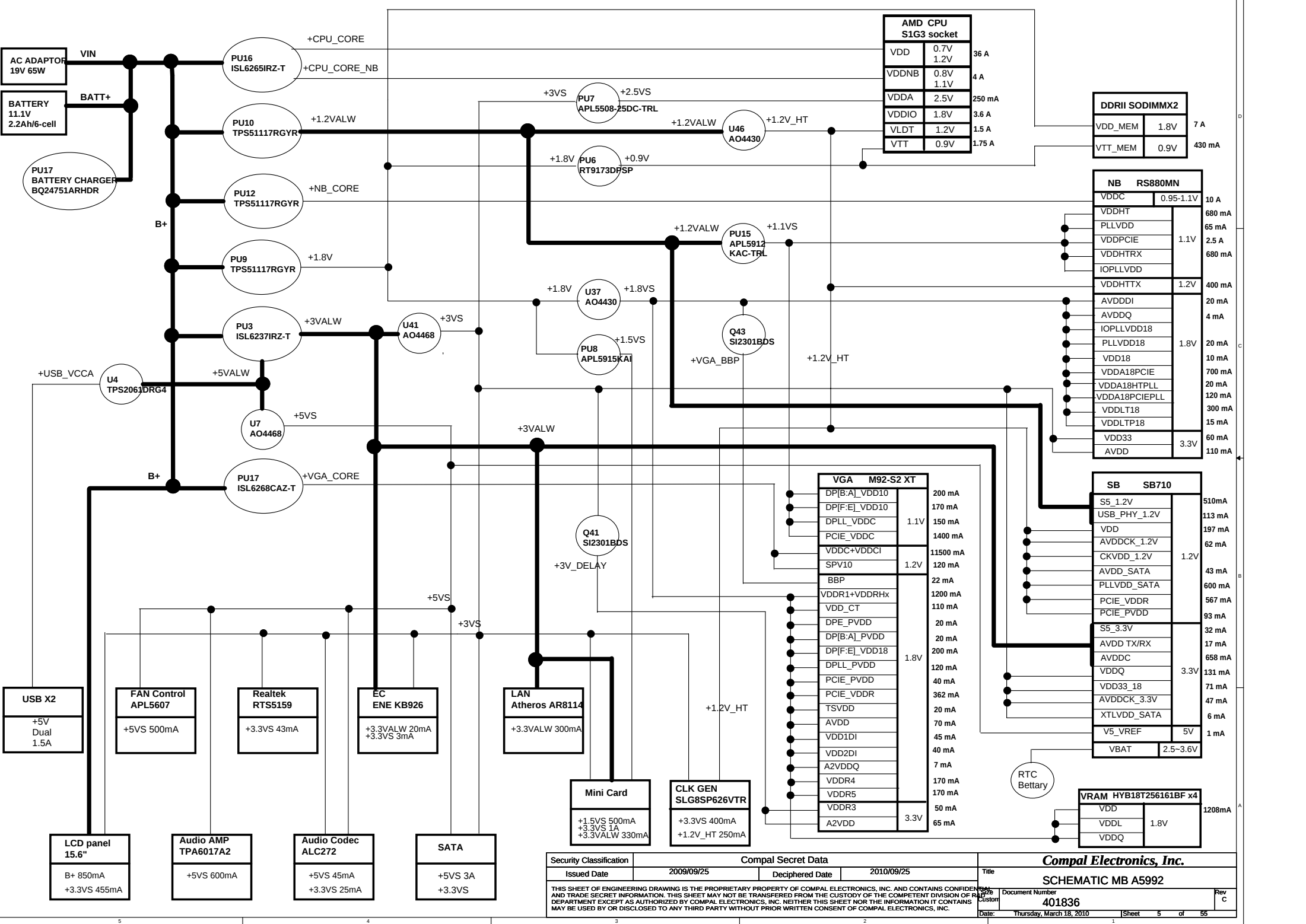
### PROJECT ID Table

| SKU ID | SKU   |
|--------|-------|
| 0      | NDWG2 |
| 1      |       |
| 2      |       |
| 3      |       |
| 4      |       |
| 5      | NDWH1 |
| 6      |       |
| 7      |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                 |         |
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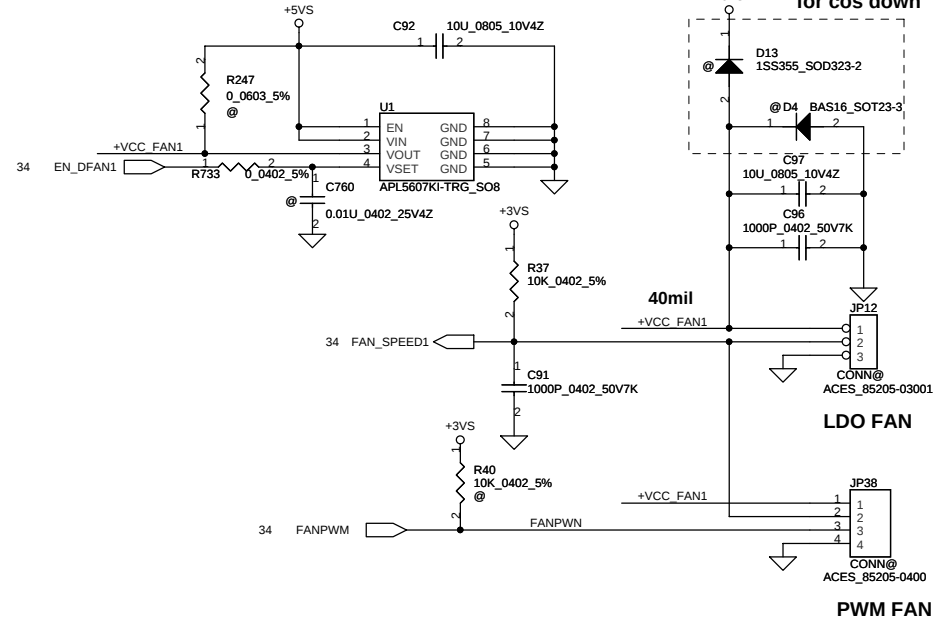
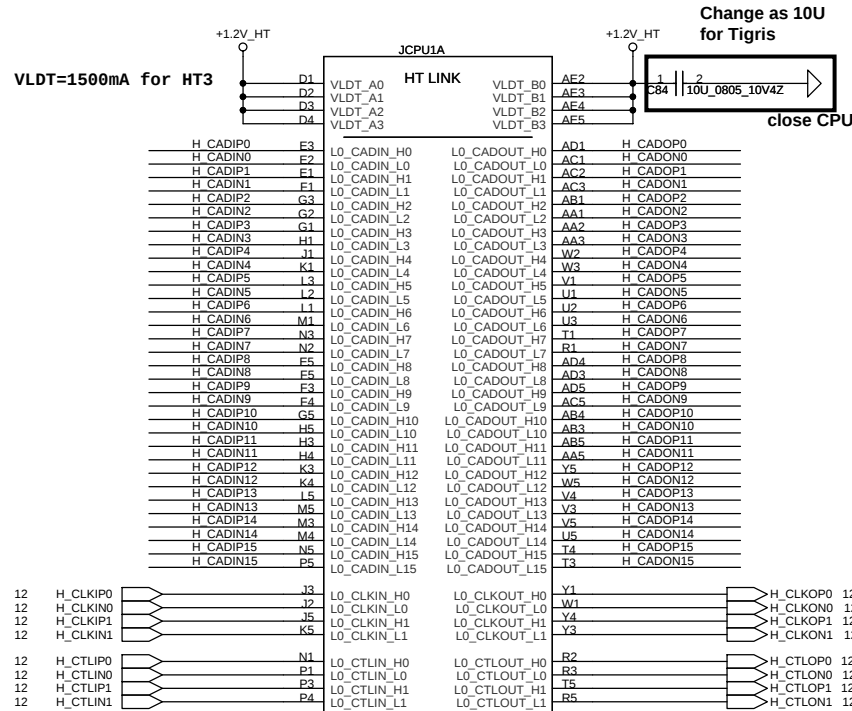


12 H\_CADIP[0..15] H\_CADIP[0..15]  
12 H\_CADIN[0..15] H\_CADIN[0..15]

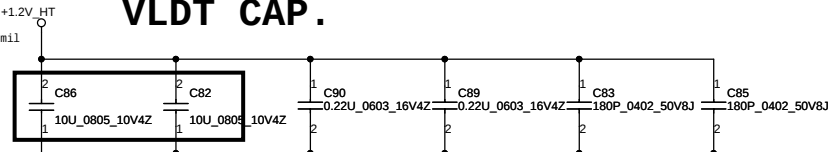
H\_CADOP[0..15] H\_CADOP[0..15] 12  
H\_CADON[0..15] H\_CADON[0..15] 12

## FAN Control Circuit

Reserve when PVT  
for cos down



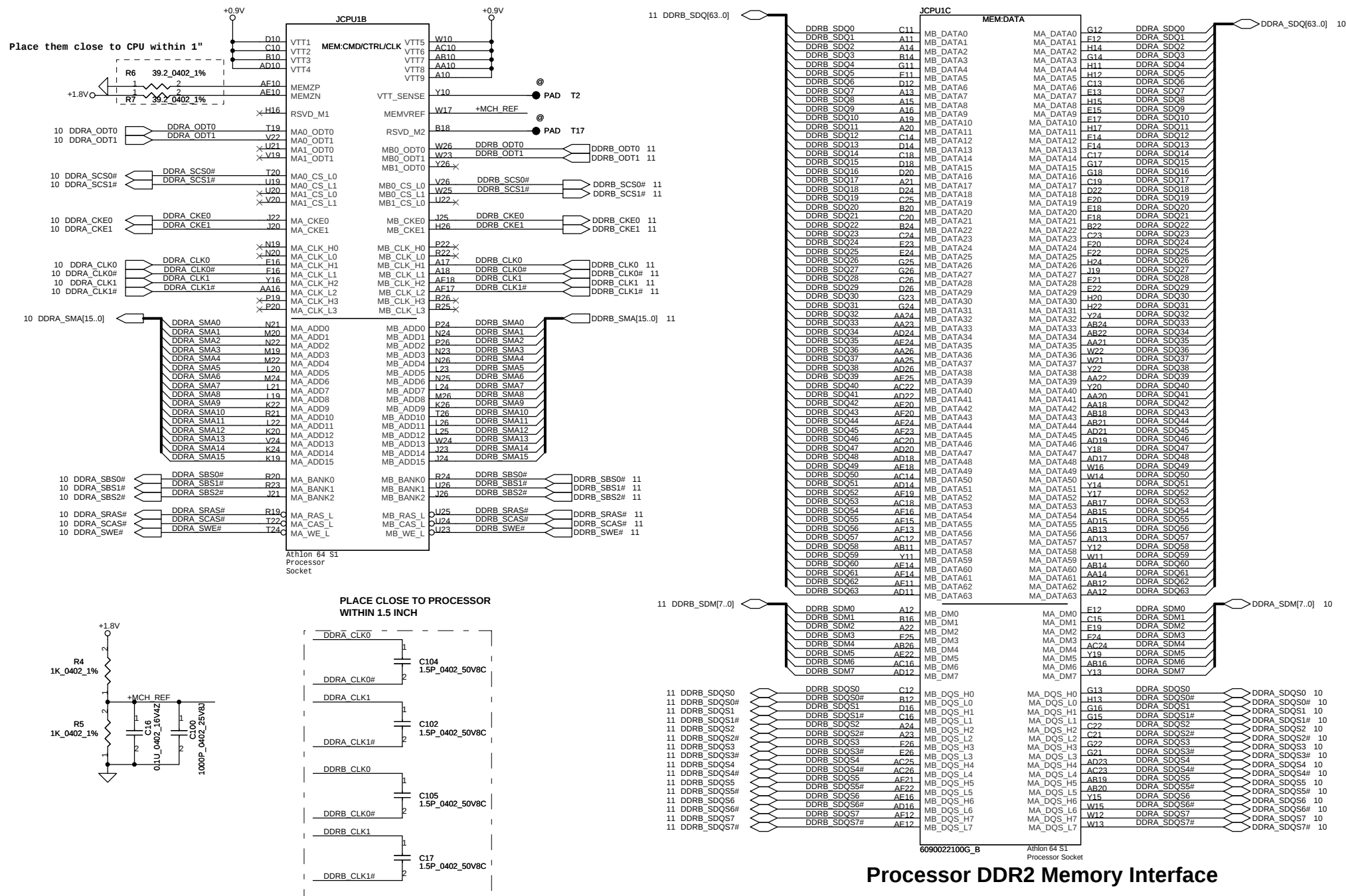
## VLDT CAP.



Change as 10U  
for Tigris

Near CPU Socket

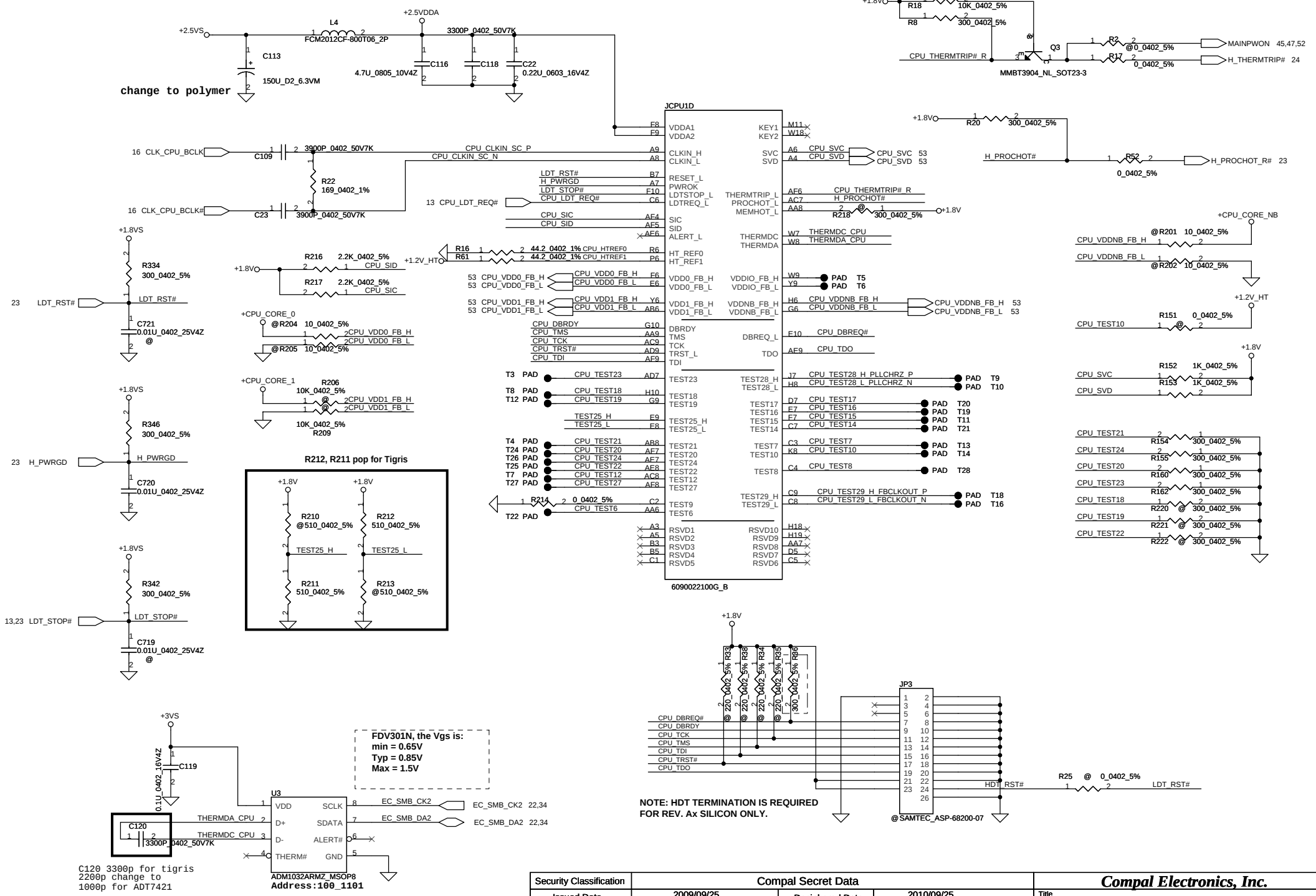
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## Processor DDR2 Memory Interface

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                 |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                           | 7 of 55                  |

change to polymer

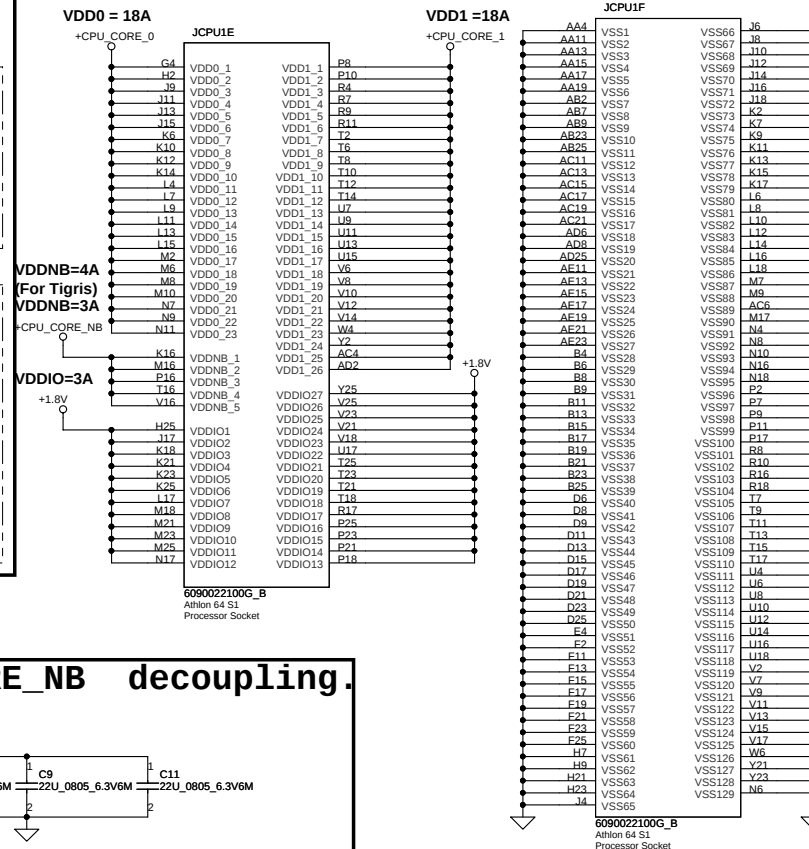
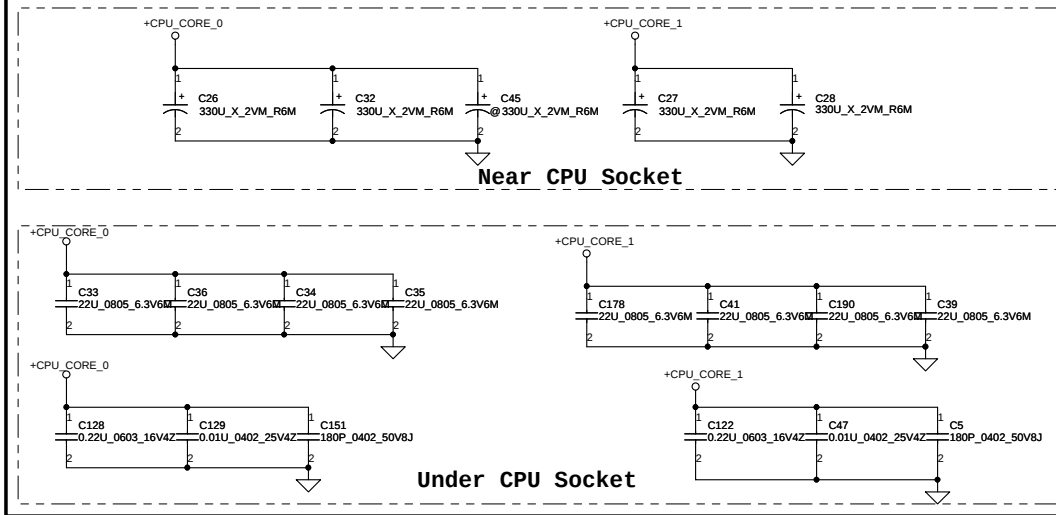


C120 3300p for tigris  
2200p change to  
1000p for ADT7421

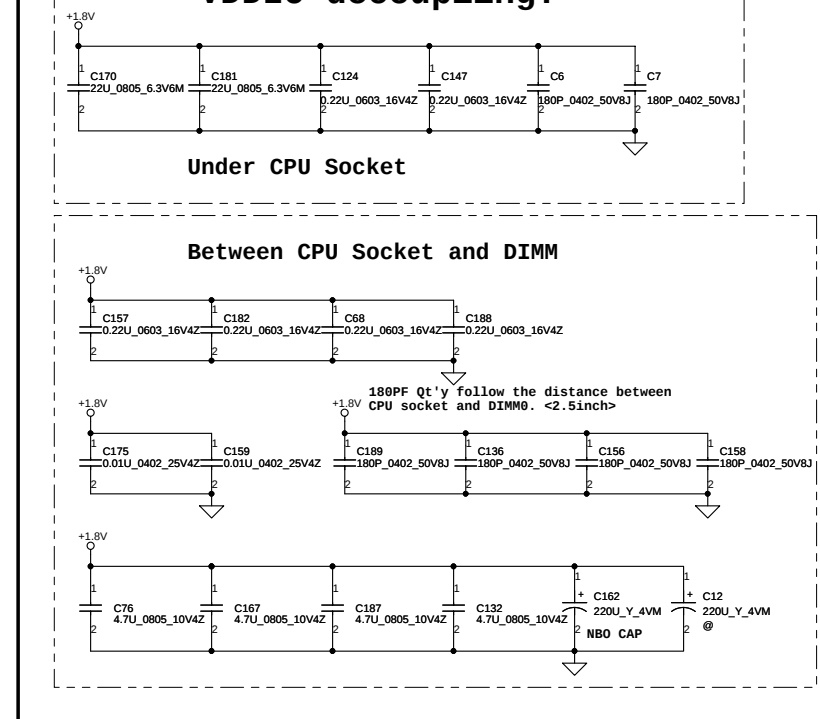
FDV301N, the Vgs is:  
min = 0.65V  
Typ = 0.85V  
Max = 1.5V

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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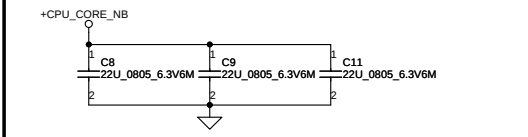
## VDD(+CPU\_CORE) decoupling.



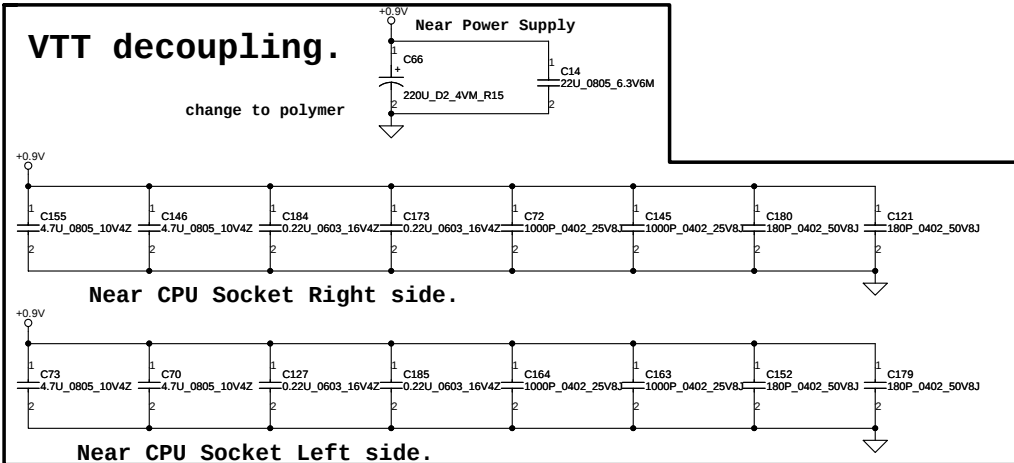
## VDDIO decoupling.



## +CPU\_CORE\_NB decoupling.

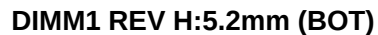
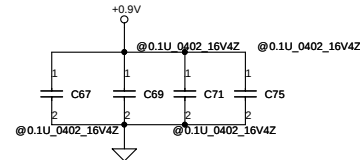
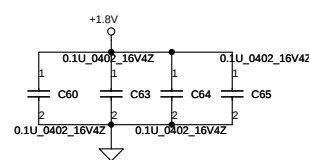
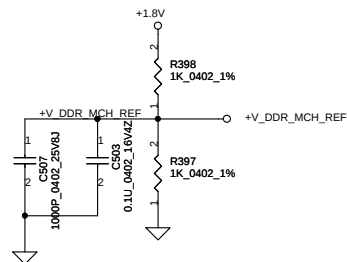


## VTT decoupling.

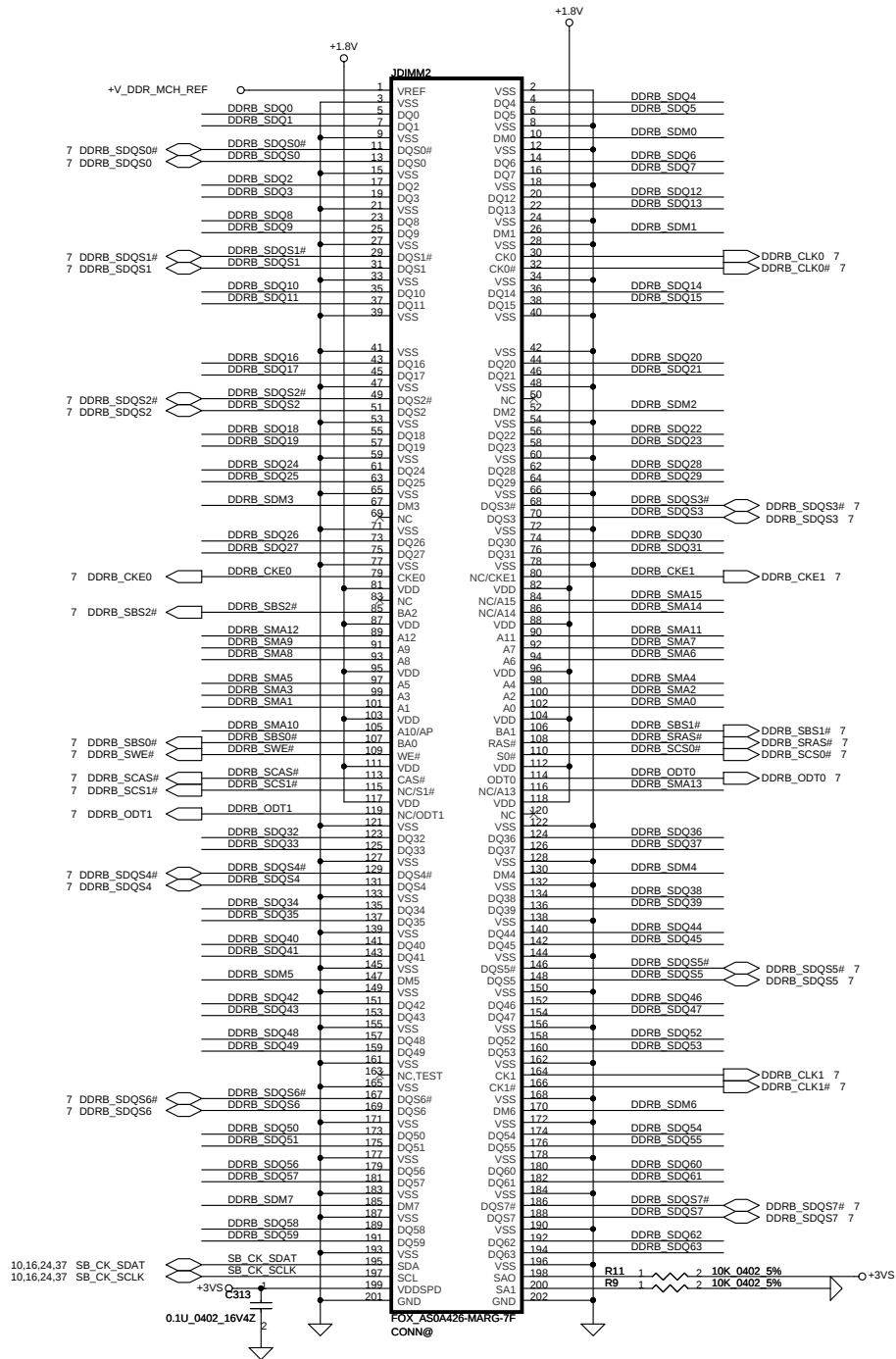


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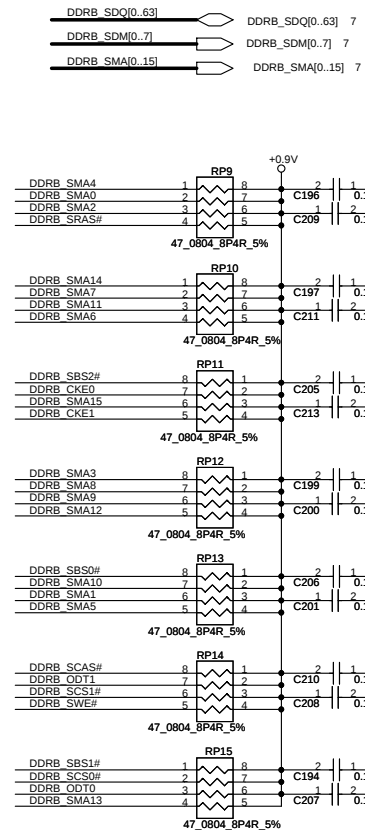
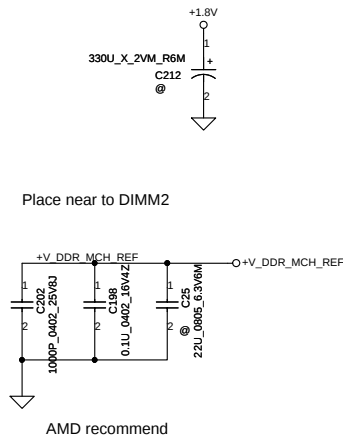
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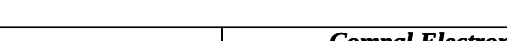
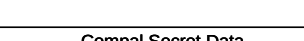
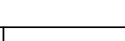
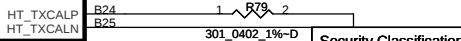
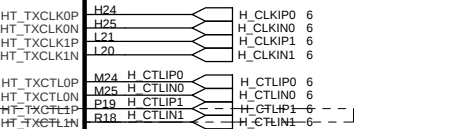
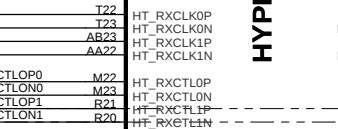
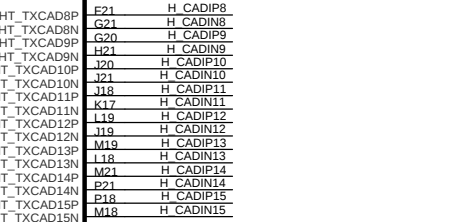
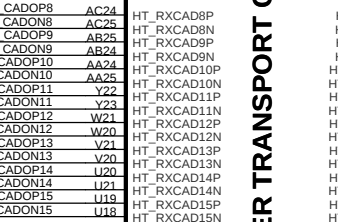
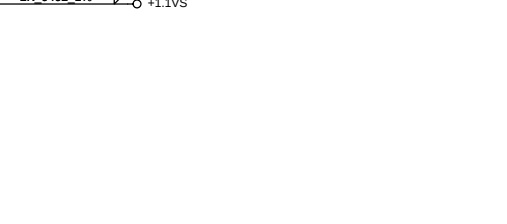
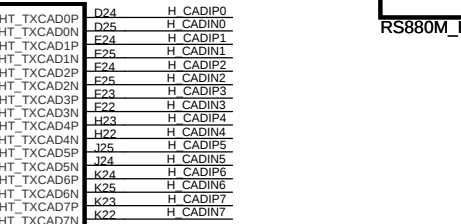
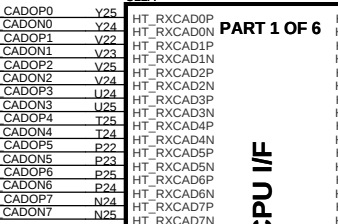
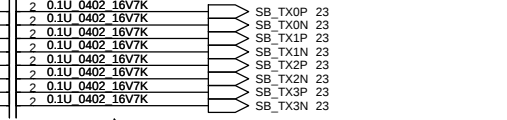
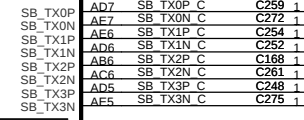
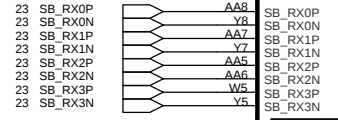
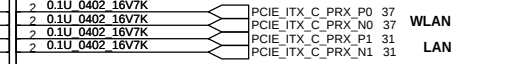
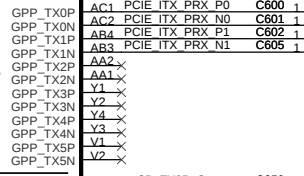
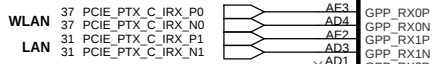
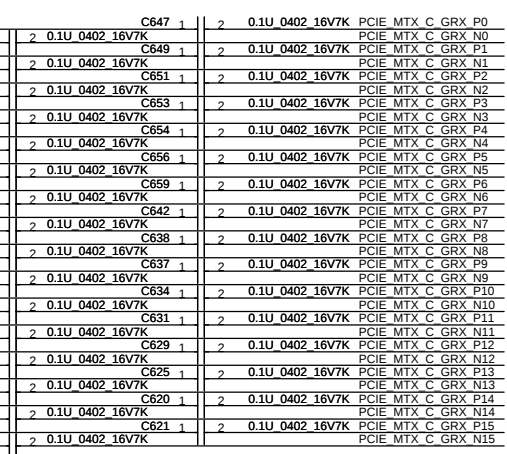
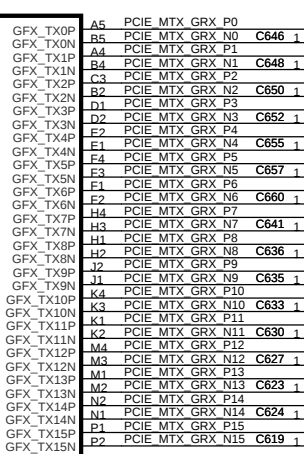
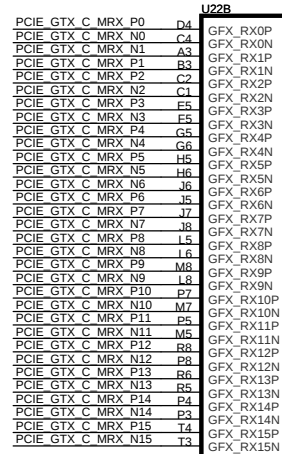
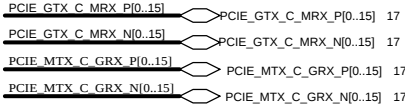
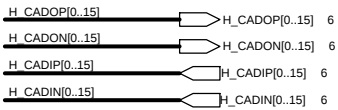
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | 401836                          |                    |          |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                 |            | Thursday, March 18, 2010        | Sheet              | 10 of 55 |



**DIMM1 REV H:9.2mm (BOT)**



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                    |  |                          |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|--|--------------------|--|--------------------------|--|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  | 401836             |  | C                        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  | Date:              |  | Thursday, March 18, 2010 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  | Sheet              |  | 11 of 55                 |  |



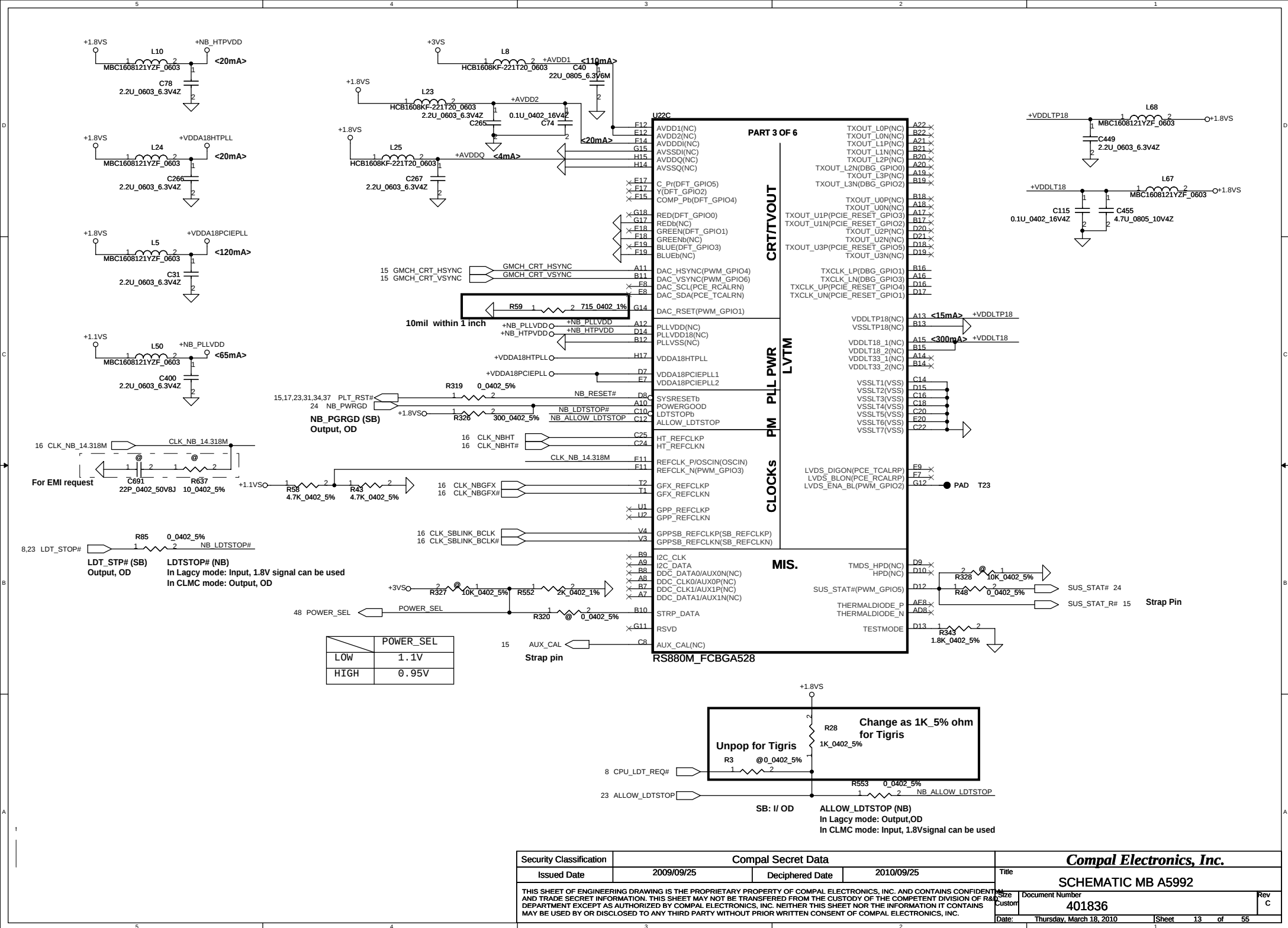
Place within 1" layout 4/8

Place within 1" layout 4/8

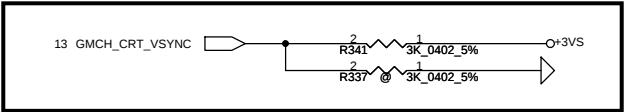
Place within 1" layout 4/8

Place within 1" layout 4/8

Place within 1" layout 4/8

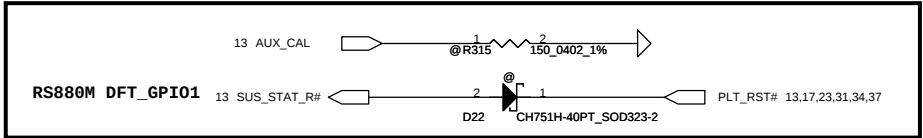






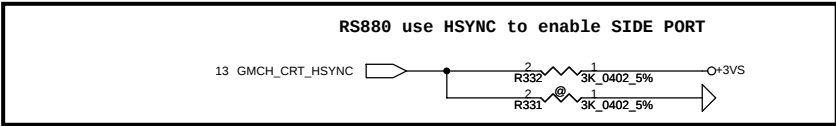
**DFT\_GPIO5:STRAP\_DEBUG\_BUS\_GPIO\_ENABLED**

Enables the Test Debug Bus using GPIO. (VSYNC)  
1 : Disable (RS880)  
0 : Enable (Rs880)



**DFT\_GPIO1: LOAD\_EEPROM\_STRAPS**

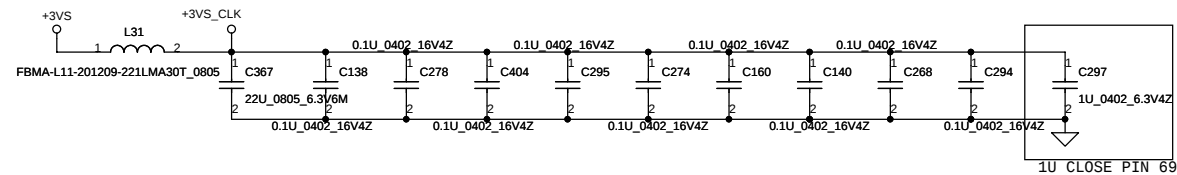
Selects Loading of STRAPS from EPROM  
1 : Bypass the loading of EEPROM straps and use Hardware Default Values  
0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected  
RS740/RX780/RS880M: DFT\_GPIO1 RS880M:SUS\_STAT



**RS880 use HSYNC to enable SIDE PORT**

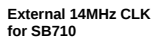
RS740/RS780/RS880M: Enables Side port memory ( RS880M use HSYNC#)  
0. Enable (RS880M)  
1 : Disable(RS880M)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------------|------------------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Sheet 15 of 55         |



|          |    |                          |
|----------|----|--------------------------|
| SEL_SATA | 1* | SS 100M SATA SRC6 output |
|          | 0  | SS 100M SATA SRC6 output |

\* default

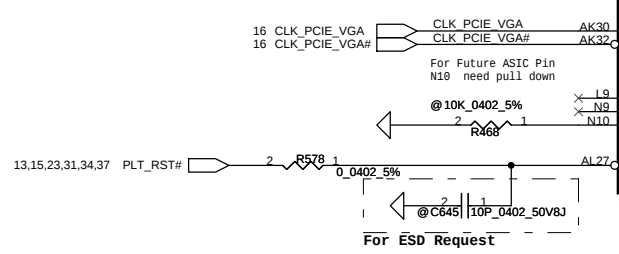
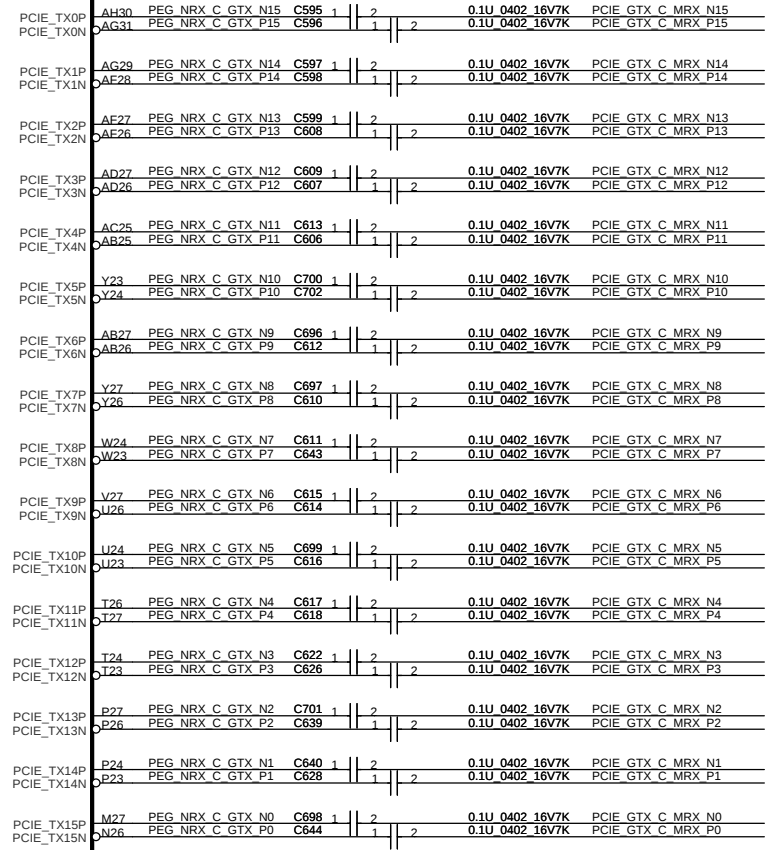


| NB CLOCKS    | RST740             | RX780         | RS780              |
|--------------|--------------------|---------------|--------------------|
| HT_REFCLKP   | 66M SE(SINGLE END) | 100M DIFF     | 100M DIFF          |
| HT_REFCLKN   | NC                 | 100M DIFF     | 100M DIFF          |
| REFCLK_P     | 14M SE (3.3V)      | 14M SE (1.8V) | 14M SE (1.1V)      |
| REFCLK_N     | NC                 | NC            | vref               |
| GFX_REFCLK   | 100M DIFF          | 100M DIFF     | 100M DIFF(IN/OUT)* |
| GPP_REFCLK   | NC                 | 100M DIFF     | NC                 |
| GPSPB_REFCLK | 100M DIFF          | 100M DIFF     | 100M DIFF          |

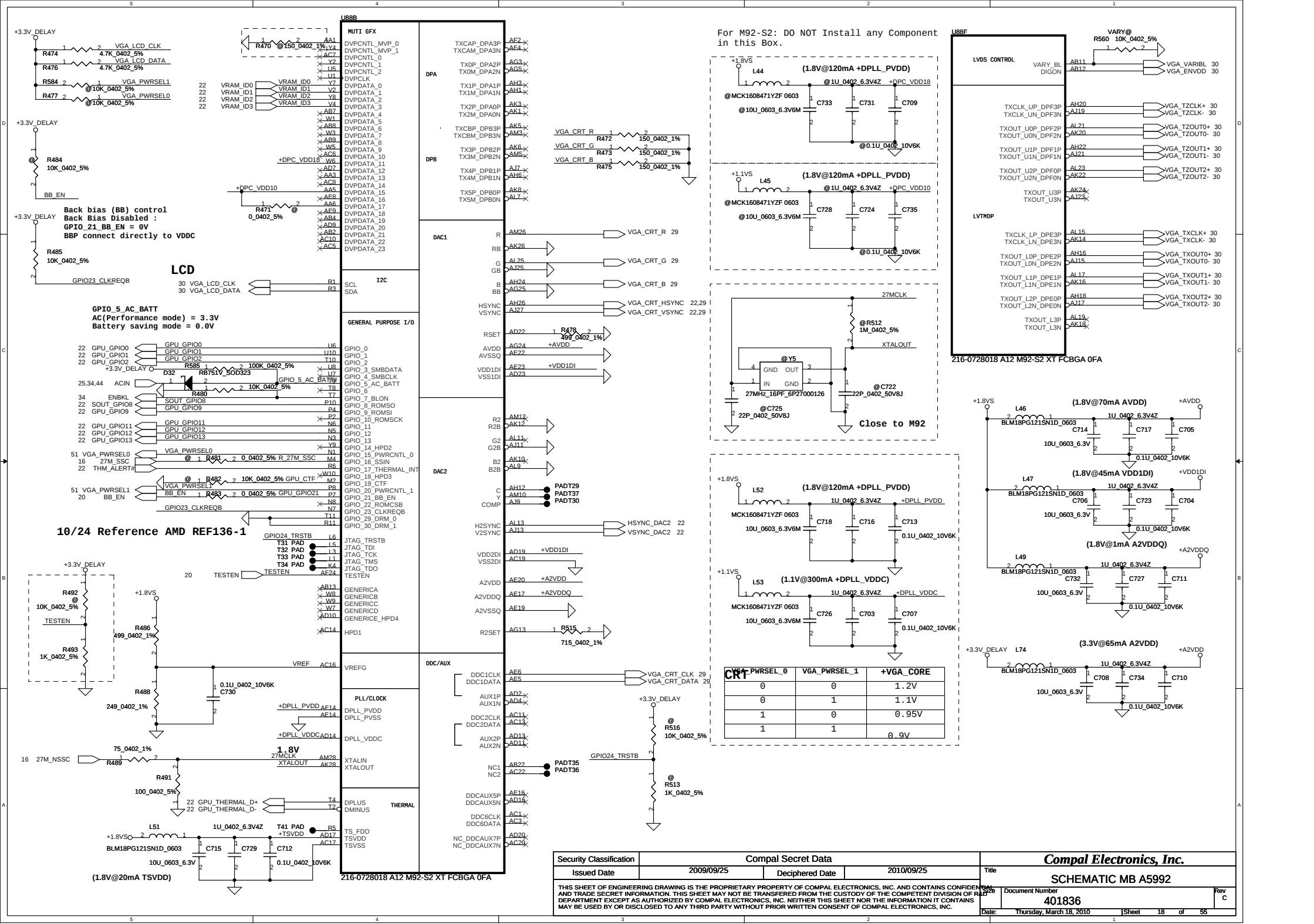


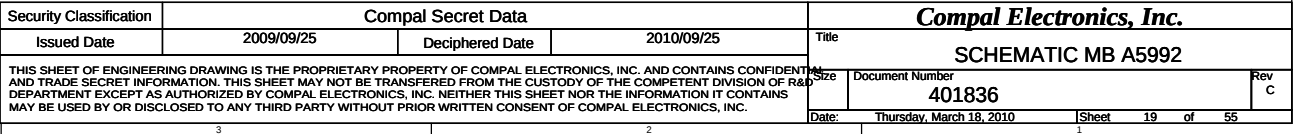
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------------------------------------------|----------|
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| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Sheet 16 of 55                                              |          |

## PCIE LANE REVERSAL



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |                 |            |  |                             |                           |  |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|-----------------|------------|--|-----------------------------|---------------------------|--|----------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |                 |            |  | Date:                       | Thursday, March 18, 2010  |  | Sheet    |

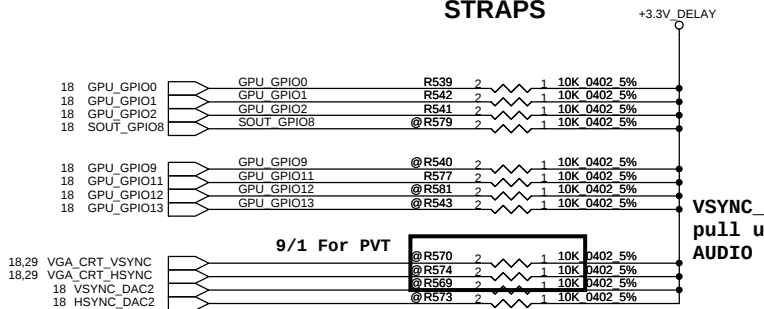




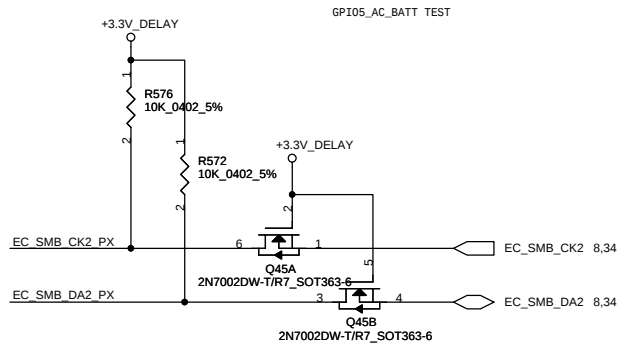




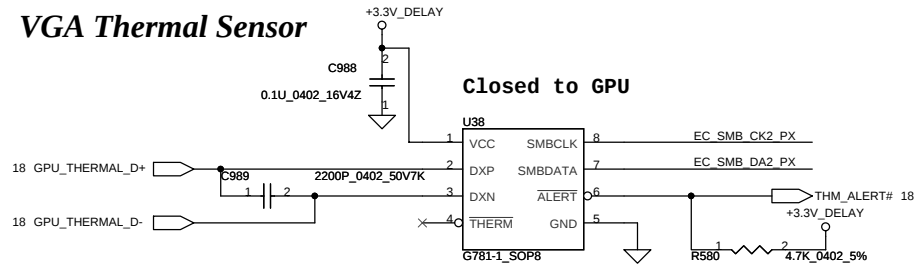
## STRAPS



VSYSN\_DAC1 and HSYN/DAC1  
pull up to HDMI & DISPLAYPORT  
AUDIO funciton

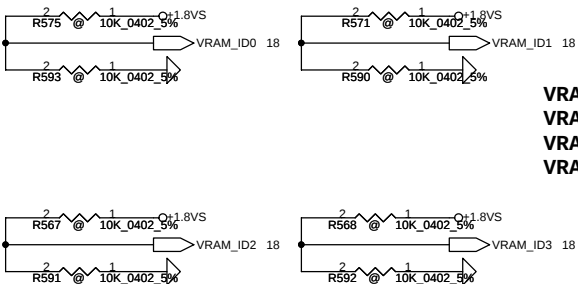


## VGA Thermal Sensor



[change to 'SA007810210']

Address 1001 101X b



VRAM\_ID0=VRAM\_ID0\_0  
VRAM\_ID1=VRAM\_ID1\_1  
VRAM\_ID2=VRAM\_ID2\_2  
VRAM\_ID3=VRAM\_ID3\_3

## CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED,  
THEY MUST NOT CONFLICT DURING RESET

| STRAPS               | PIN            | DESCRIPTION OF DEFAULT SETTINGS                                                                                                                                                 | RECOMMENDED SETTINGS |
|----------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| TX_PWRS_ENB          | GPIO0          | PCIE FULL TX OUTPUT SWING                                                                                                                                                       | 1                    |
| TX_DEEMPH_EN         | GPIO1          | PCIE TRANSMITTER DE-EMPHASIS ENABLED                                                                                                                                            | 1                    |
| BIF_GEN2_EN_A        | GPIO2          | PCIE GNE2 ENABLED                                                                                                                                                               | 1                    |
| BIF_CLK_PM_EN        | GPIO8          | BIF_CLK_PM_EN                                                                                                                                                                   | 0                    |
| BIF_VGA DIS          | GPIO9          | VGA ENABLED                                                                                                                                                                     | 0                    |
| BIF_RX_PLL_CALIB_BP  | GPIO21         |                                                                                                                                                                                 | 0                    |
| BIOS_ROM_EN          | GPIO_22_ROMCSB |                                                                                                                                                                                 | 1                    |
| ROMIDCFG(2.0)        | GPIO[13:11]    | BIF_RX_PLL_CALIB_BP                                                                                                                                                             | 0 0 1                |
| VIP_DEVICE_STRAP_ENA | V2SYNC         | ENABLE EXTERNAL BIOS ROM                                                                                                                                                        | 0                    |
| SMS_EN_HARD          | H2SYNC         | SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT                                                                                                                                  | 0                    |
| CCBYPASS             | GENERICC       | IGNORE VIP DEVICE STRAPS                                                                                                                                                        | 0                    |
| AUD[1]<br>AUD[0]     | HSYNC<br>VSYNC | AUD[1] AUD[0]<br>0 0 No audio function<br>0 1 Audio for DisplayPort and HDMI if dongle is detected<br>1 0 Audio for DisplayPort only<br>1 1 Audio for both DisplayPort and HDMI | X X                  |

## AMD RESERVED CONFIGURATION STRAPS

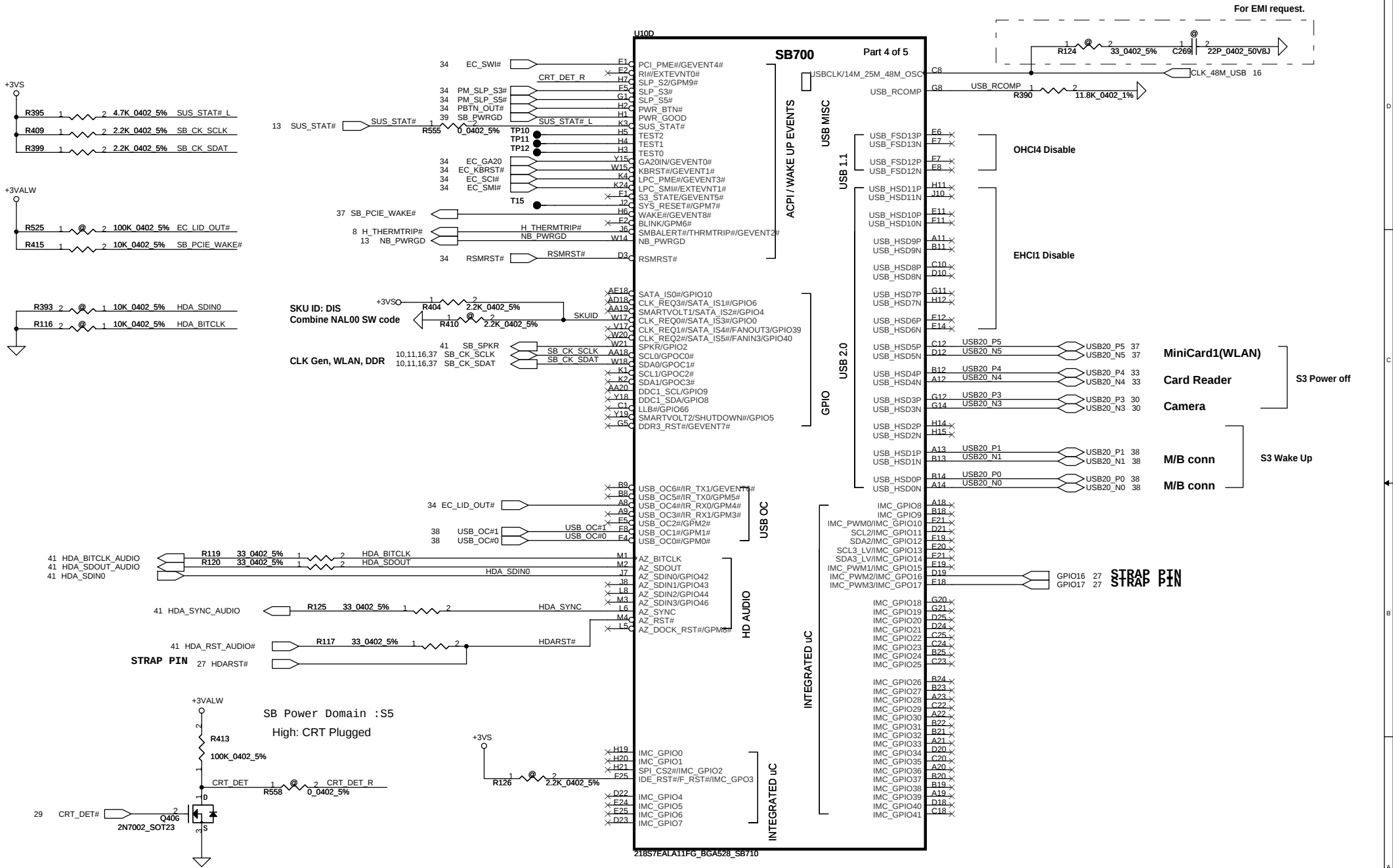
ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED,  
THEY MUST NOT CONFLICT DURING RESET

|                                                                                                                   |              |
|-------------------------------------------------------------------------------------------------------------------|--------------|
| H2SYNC                                                                                                            | GENERICC     |
| PULLUP PADS ARE NOT REQUIRED FOR THESE STRAPS BUT IF THESE GPIOs ARE USED,<br>THEY MUST NOT CONFLICT DURING RESET |              |
| GPIO_28_TDO                                                                                                       | GPIO21_BB_EN |

| STRAPS       | PIN                  | GPU       | Project | VRAM size | Vendor Part Number#         | Compal Part Number# | VRAM_ID 3,2,1,0 |
|--------------|----------------------|-----------|---------|-----------|-----------------------------|---------------------|-----------------|
| VRAM_ID[3:0] | DVPDATA<br>(3,2,1,0) | M92 S2-XT |         | 512MB(x4) | Hynix 64Mx16 1.8V           | SA00002UH20         | 0 0 0 1         |
|              |                      |           |         | 512MB(x4) | ATI 64Mx16 1.8V             | SA00003LT10         | 0 0 1 0         |
|              |                      |           |         | 512MB(x4) | Samsung 64Mx16 1.8V (E-die) | SA000031O10         | 0 1 0 0         |
|              |                      |           |         |           |                             |                     |                 |
|              |                      |           |         |           |                             |                     |                 |
|              |                      |           |         |           |                             |                     |                 |
|              |                      |           |         |           |                             |                     |                 |
|              |                      |           |         |           |                             |                     |                 |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Thursday, March 18, 2010 | Sheet           | 22         | of                       | 55                 |



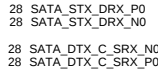


SB710 Ver:A14 <SA000030740>

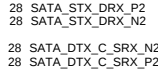
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 401836                         |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Sheet 24 of 55 |

| Port Number | Pri/SEC,Mas/Slave assignment | SATA drive controlled by |
|-------------|------------------------------|--------------------------|
| Port 0      | Primary master               | SATA controller          |
| Port 2      | Primary slave                | SATA controller          |
| Port 3      | Secondary slave              | SATA controller          |

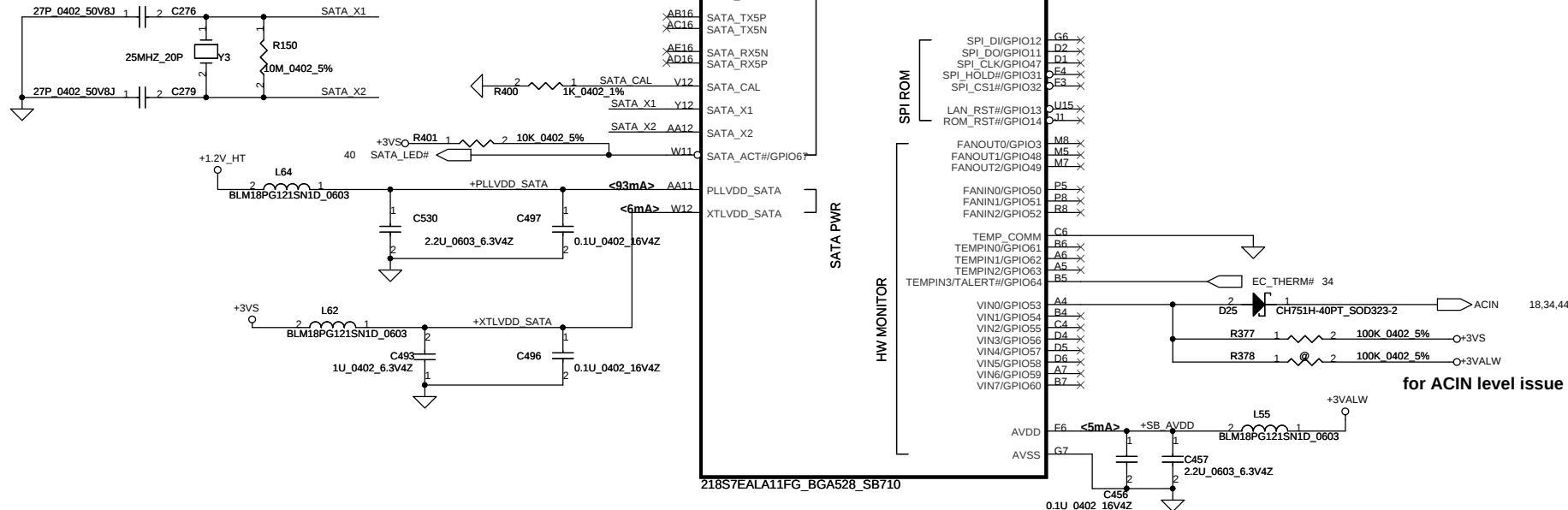
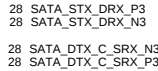
Main  
HDD



Main  
ODD



2nd  
ODD



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                          |            |                          |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|--------------------------|----------|
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| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | Thursday, March 18, 2010 |            | Sheet                    | 25 of 55 |

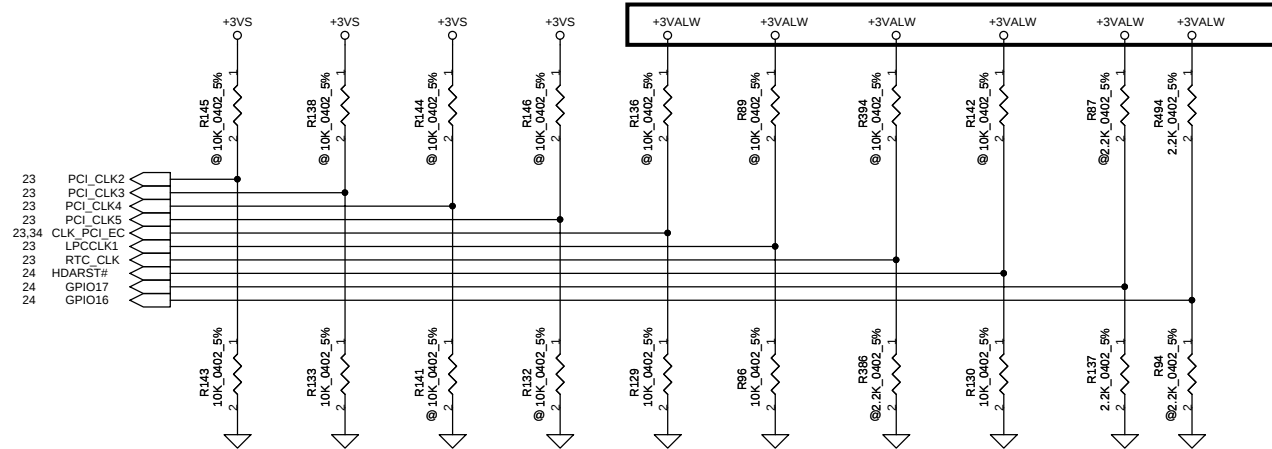


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                 |                          |                |  |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics, Inc.</b> |                          |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Custom                          | 401836                   | C              |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                           | Thursday, March 18, 2010 | Sheet 26 of 55 |  |

## REQUIRED STRAPS

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC\_CLK

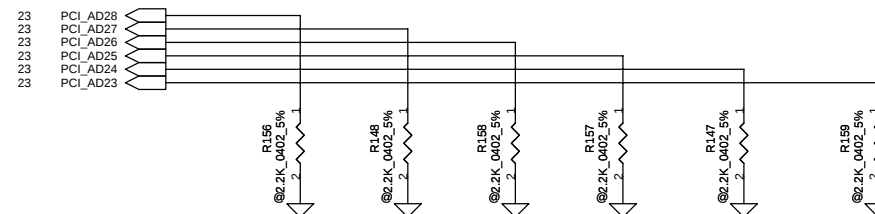
| PULL     | PCI_CLK2                                 | PCI_CLK3                             | PCI_CLK4 | PCI_CLK5 | LPC_CLK0<br>CLK_PCI_EC                 | LPC_CLK1                          | RTC_CLK                                                 | AZ_RST_CD#                | GP17                                                    | GP16                                          |
|----------|------------------------------------------|--------------------------------------|----------|----------|----------------------------------------|-----------------------------------|---------------------------------------------------------|---------------------------|---------------------------------------------------------|-----------------------------------------------|
|          | BOOTFAIL<br>TIMER<br>ENABLED             | USE<br>DEBUG<br>STRAPS               | RESERVED | RESERVED | ENABLE PCI<br>MEM BOOT                 | CLKGEN<br>ENABLED                 | INTERNAL<br>RTC<br><br>DEFAULT                          | EC<br>ENABLED             | Internal pull up<br>H,H = Reserved<br><br>H,L = SPI ROM | L,H = LPC ROM (Default L,NC)<br>L,L = FWH ROM |
| PULL LOW | BOOTFAIL<br>TIMER<br>DISABLED<br>DEFAULT | IGNORE<br>DEBUG<br>STRAPS<br>DEFAULT |          |          | DISABLE PCI<br>MEM BOOT<br><br>DEFAULT | CLKGEN<br>DISABLED<br><br>DEFAULT | EXT. RTC<br>(PD on X1,<br>apply<br>32KHz to<br>RTC_CLK) | EC<br>DISABLED<br>DEFAULT |                                                         |                                               |



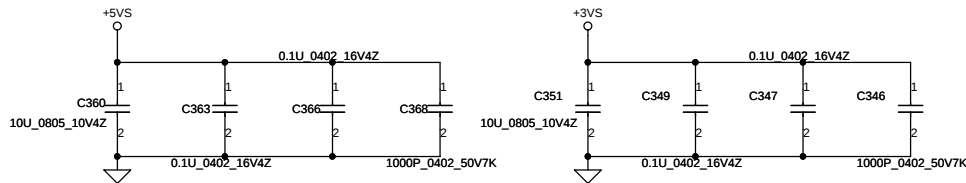
## DEBUG STRAPS

SB700 HAS 15K INTERNAL PU FOR PCI\_AD[28:23]

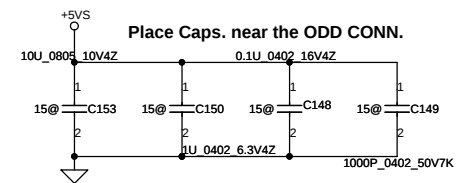
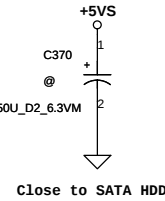
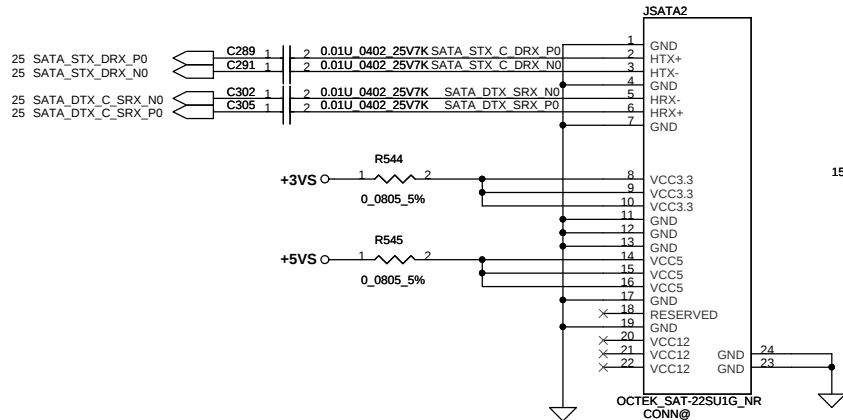
|           | PCI_AD28                     | PCI_AD27                  | PCI_AD26                    | PCI_AD25                  | PCI_AD24                              | PCI_AD23 |
|-----------|------------------------------|---------------------------|-----------------------------|---------------------------|---------------------------------------|----------|
| PULL HIGH | USE LONG<br>RESET<br>DEFAULT | USE PCI<br>PLL<br>DEFAULT | USE ACPI<br>BCLK<br>DEFAULT | USE IDE<br>PLL<br>DEFAULT | USE DEFAULT<br>PCIE STRAPS<br>DEFAULT | RESERVED |
| PULL LOW  | USE<br>SHORT<br>RESET        | BYPASS<br>PCI PLL         | BYPASS<br>ACPI<br>BCLK      | BYPASS IDE<br>PLL         | USE EEPROM<br>PCIE STRAPS             |          |



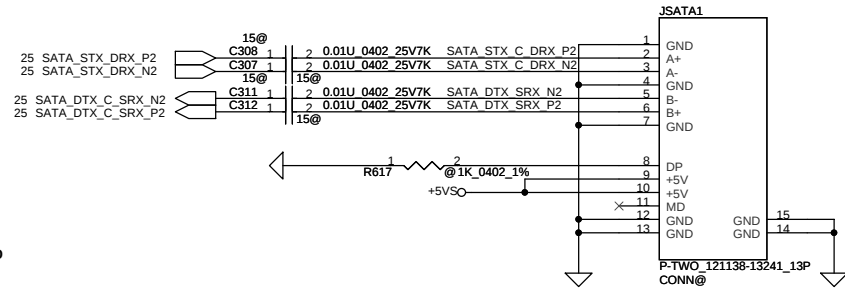
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 27 of 55                 |



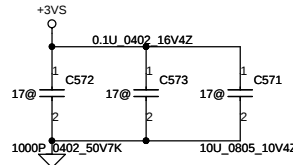
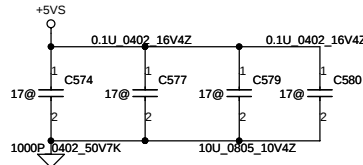
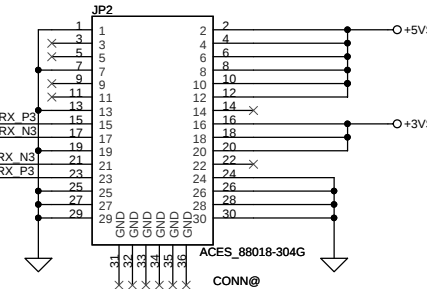
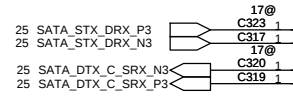
## SATA HDD CONN



## SATA ODD CONN

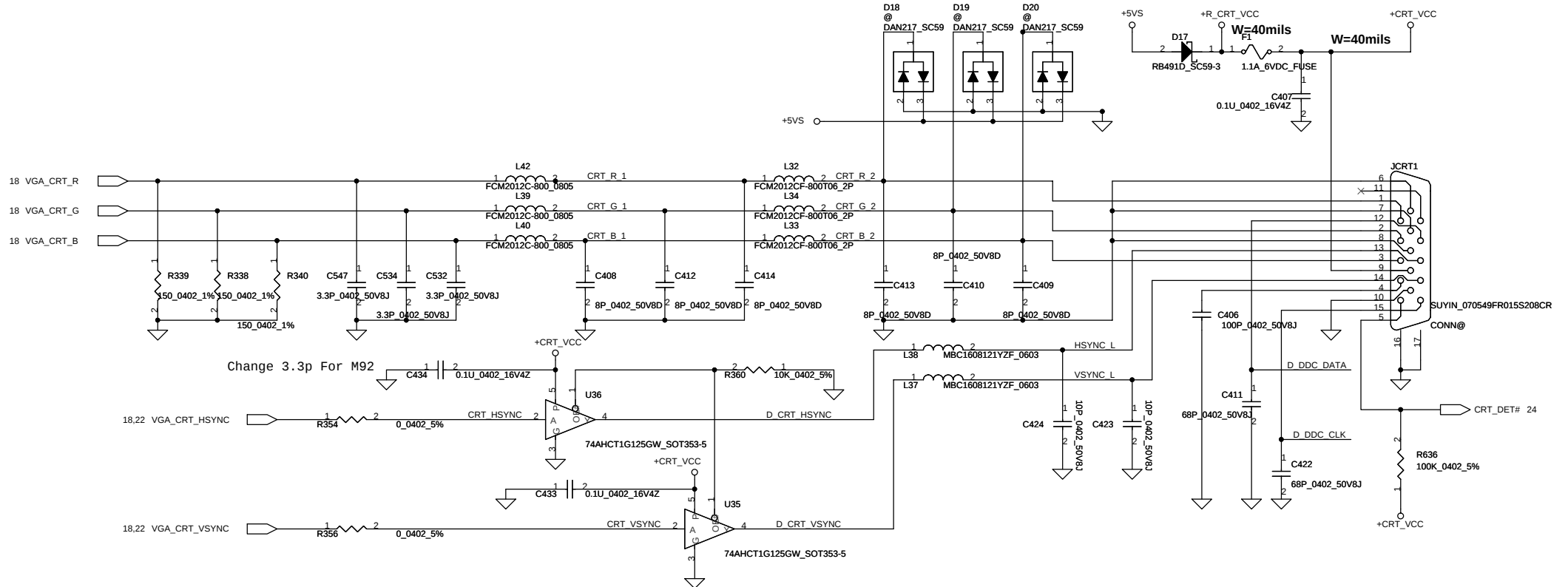


## Second ODD

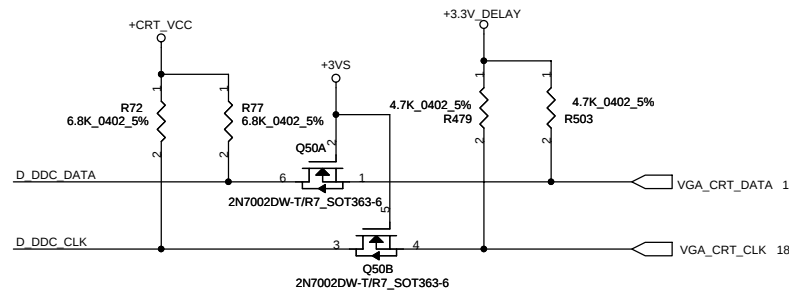


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 28 of 55                 |

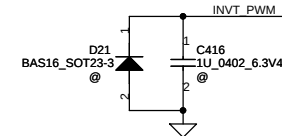
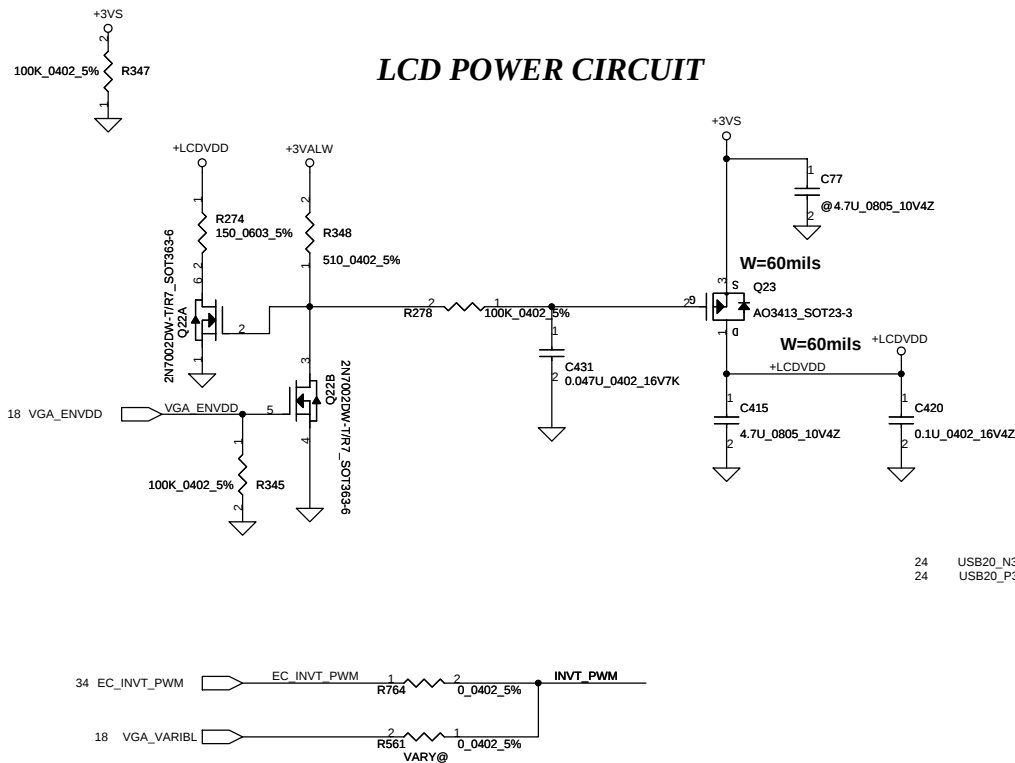
# CRT Connector



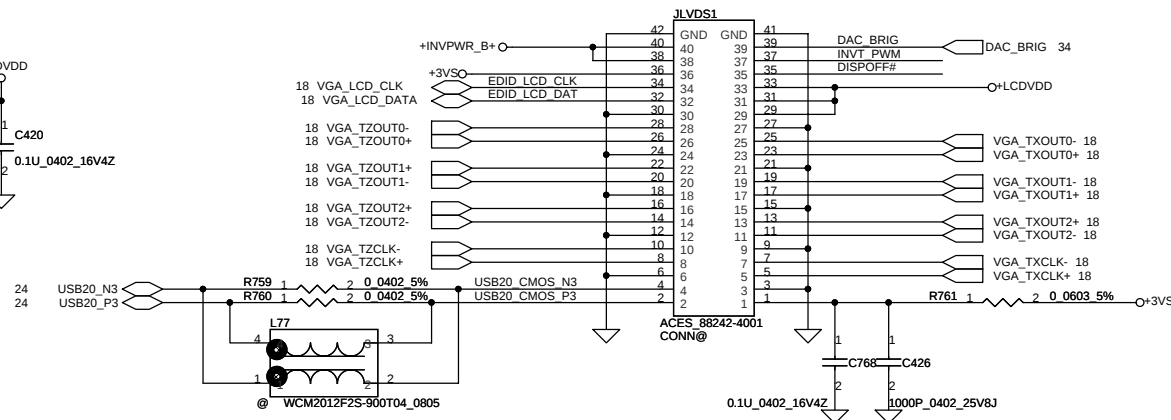
## Close to Conn side



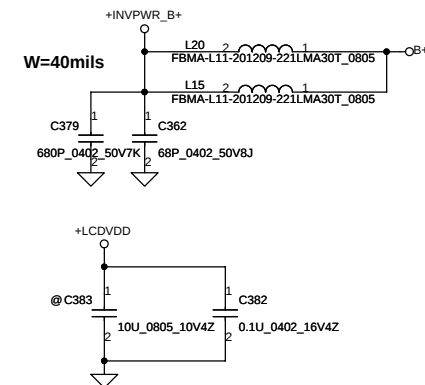
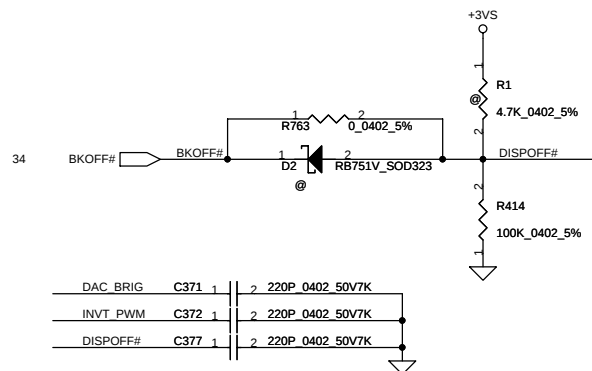
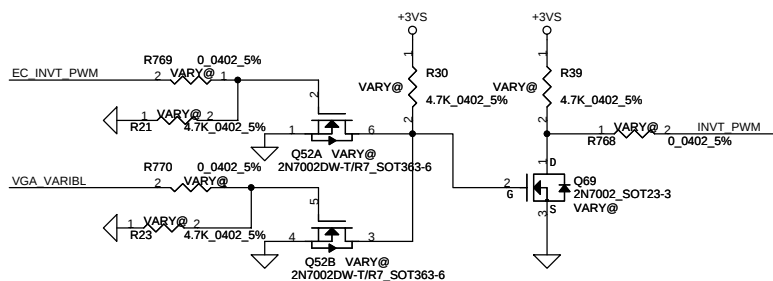
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 29 of 55                 |



### LCD/PANEL CONN.

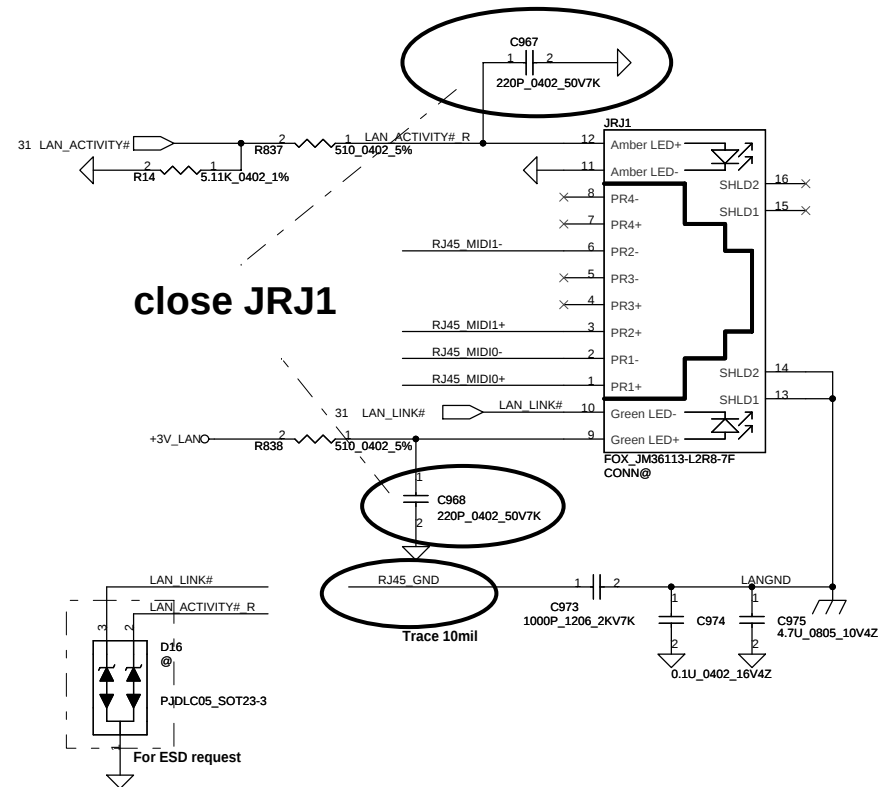
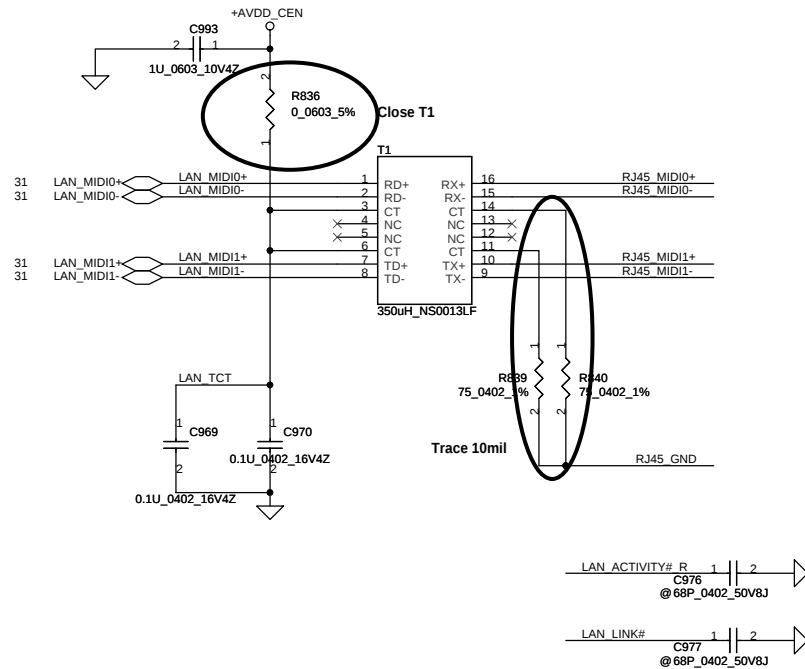


### VARYBRIGHT FUNCTION

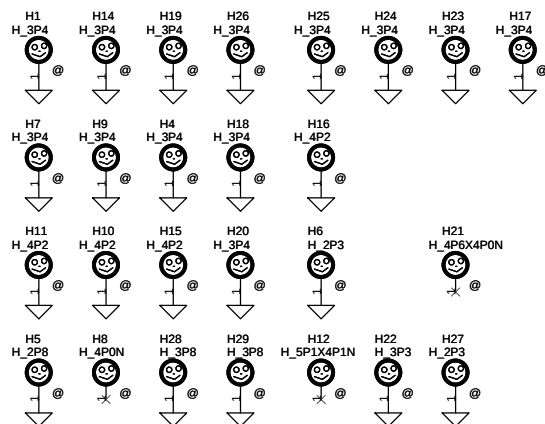


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                          |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2009/09/25 | Compal Electronics, Inc.       |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 401836                         | C              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Sheet 30 of 55 |





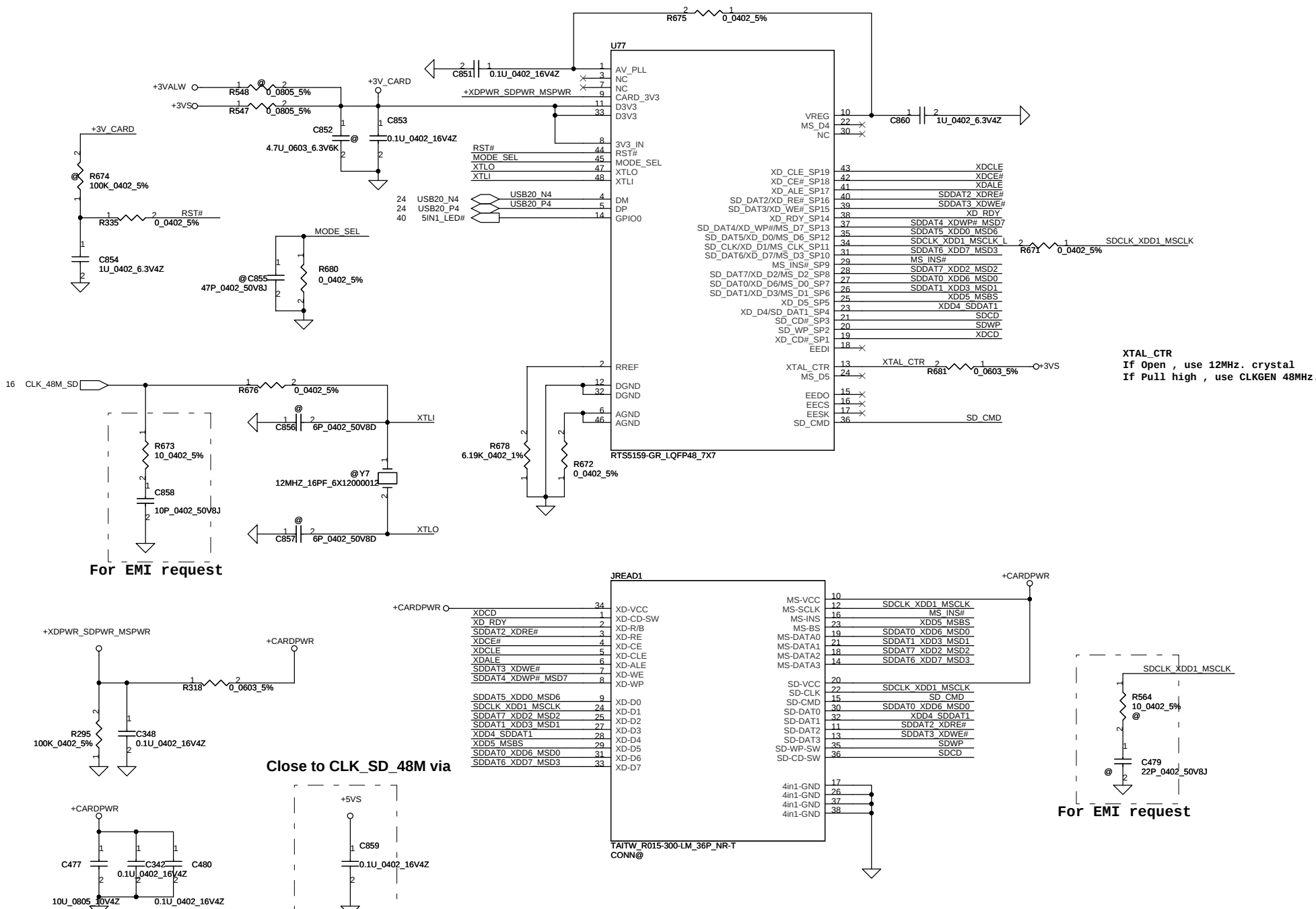
## Screw Hole



## PCB Federal Mark PAD



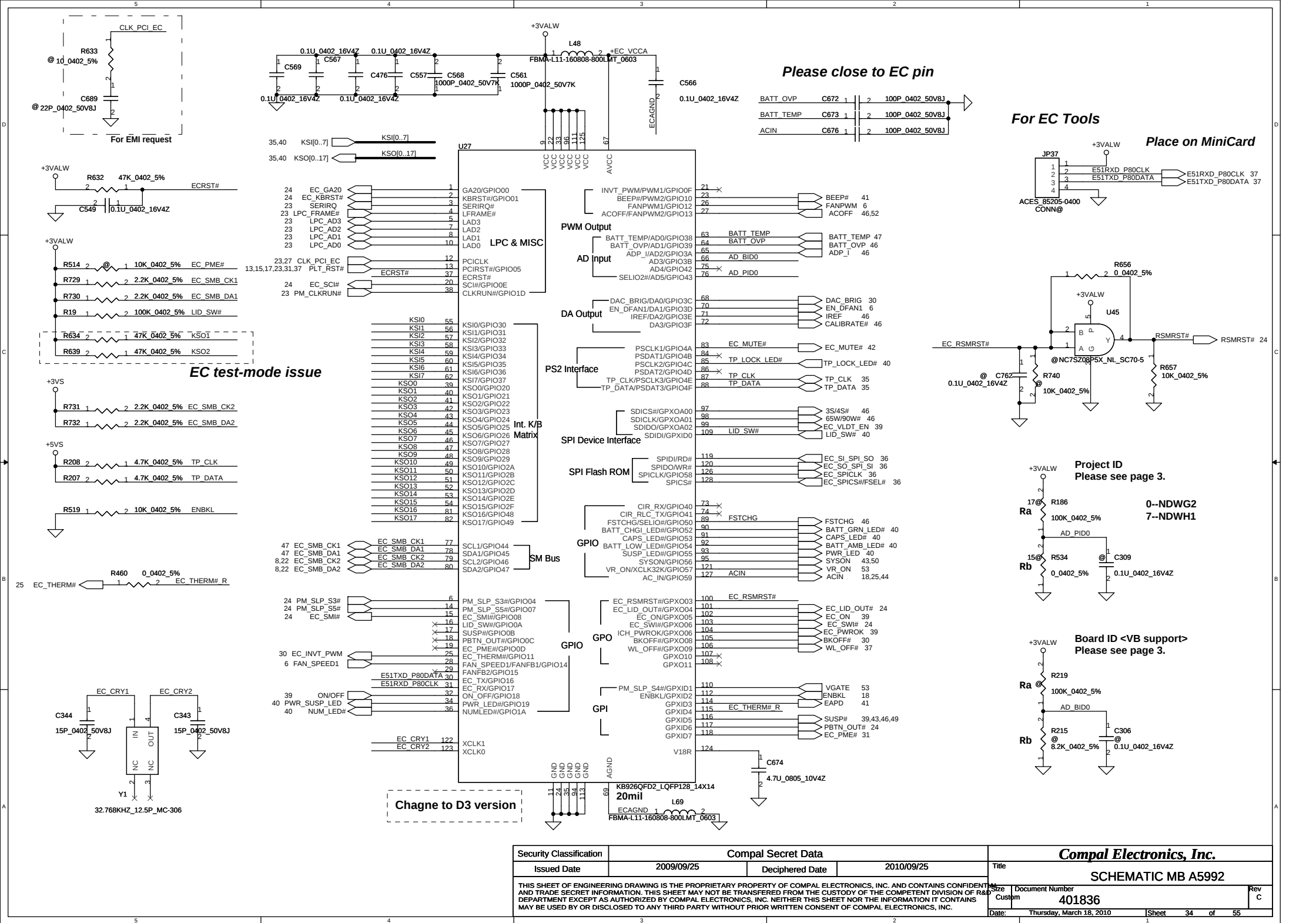
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 32 of 55                 |



XTAL\_CTR  
If Open , use 12MHz. crystal  
If Pull high , use CLKGEN 48MHZ.

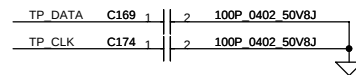
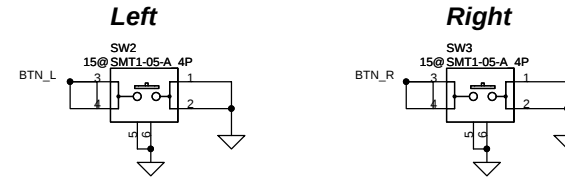
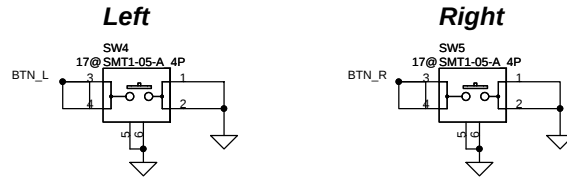
For EMI request

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 33 of 55                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |

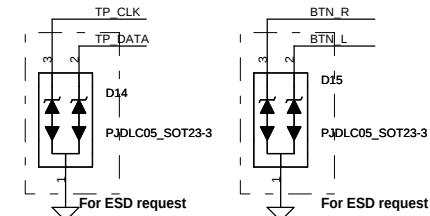
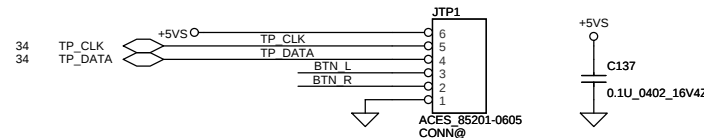


For 17"

For 15"



TP/B Conn.

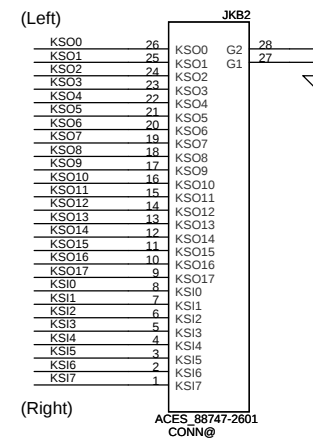
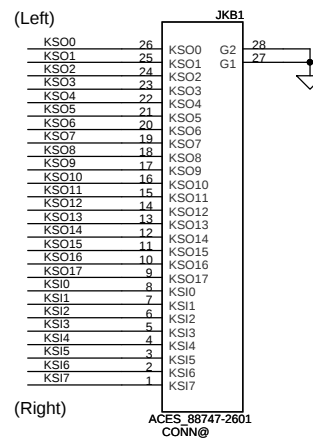
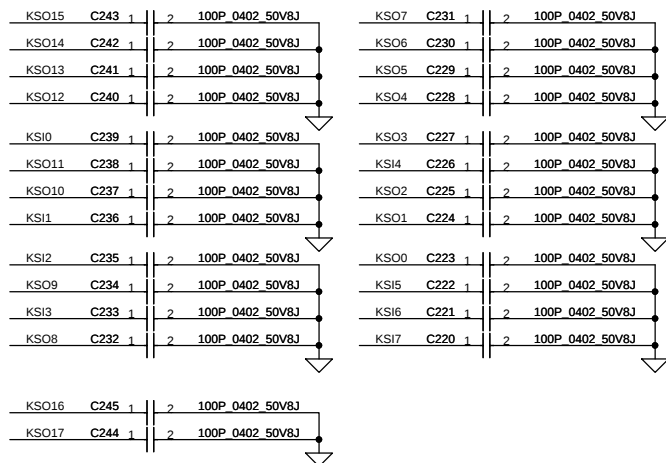


Change to SCA00000200



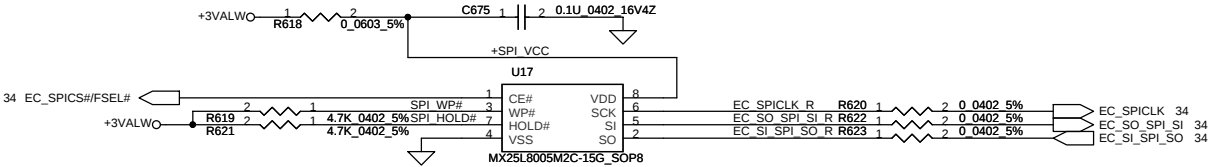
INT\_KBD Conn.

KB1 for 15"  
KB2 for 17"



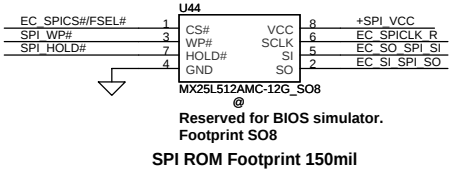
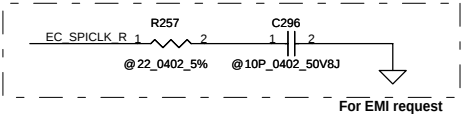
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                        |                          |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|--------------------------|--------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                        | Compal Electronics, Inc. |                    |
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| Size Custom                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    | Document Number 401836 |                          | Rev C              |
| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Sheet 35 of 55         |                          |                    |

SPI Flash ROM 16M\*1



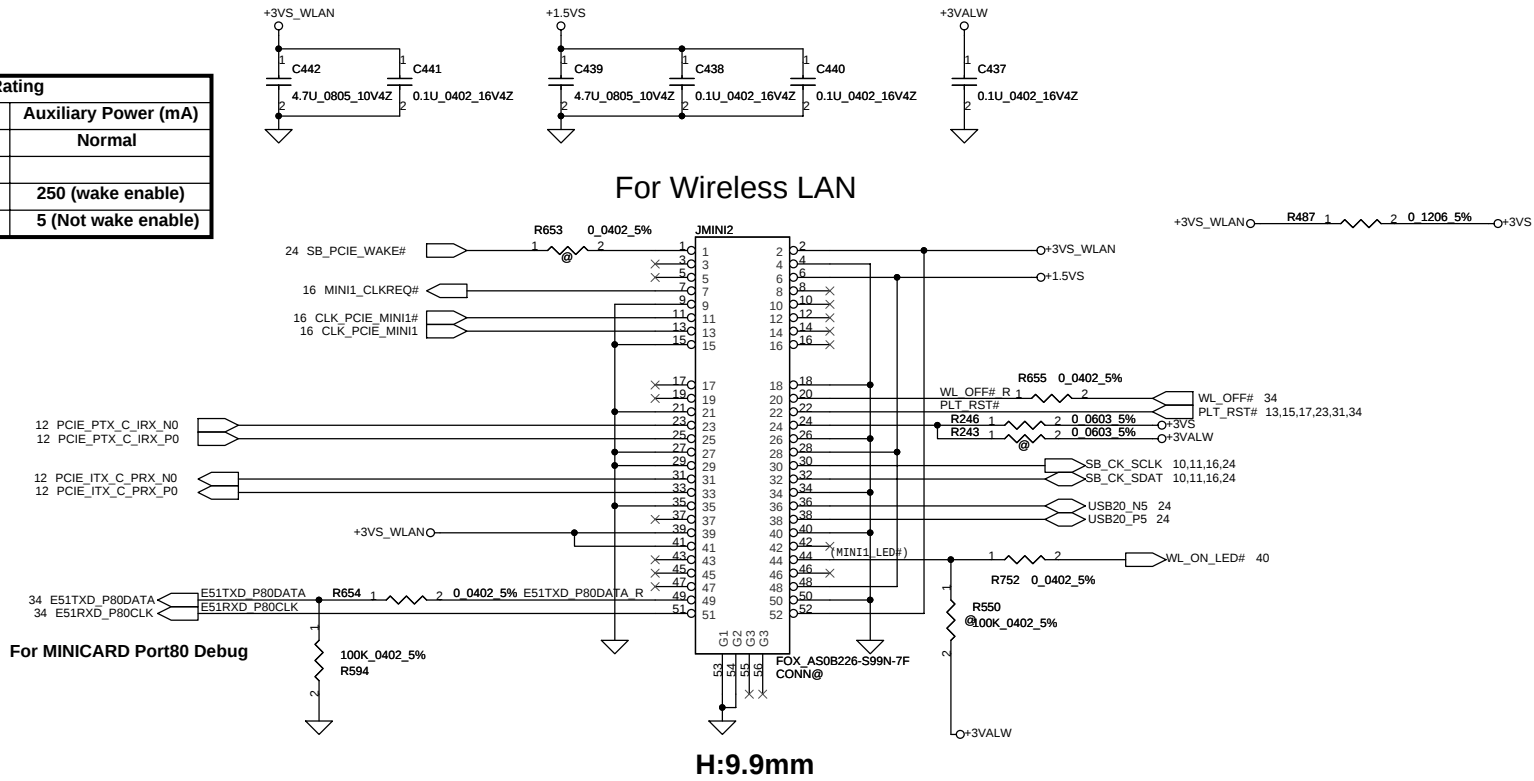
SA00000XT00 : S IC FL 8M MX25L8005M2C-15G SOP 8P  
ENE suggestion SPI Frequency over 66MHz  
SST: 50MHz  
MXIC: 70MHz  
ST: 40MHz

ONLY MXIC used in this project (66MHz)



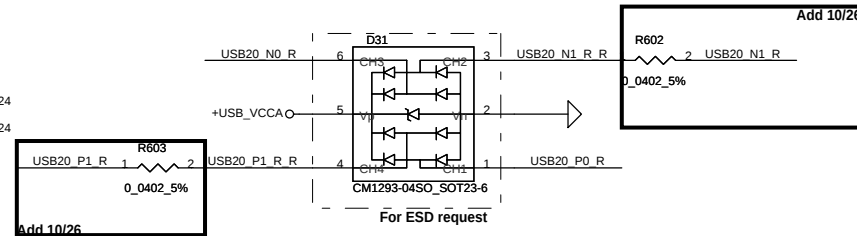
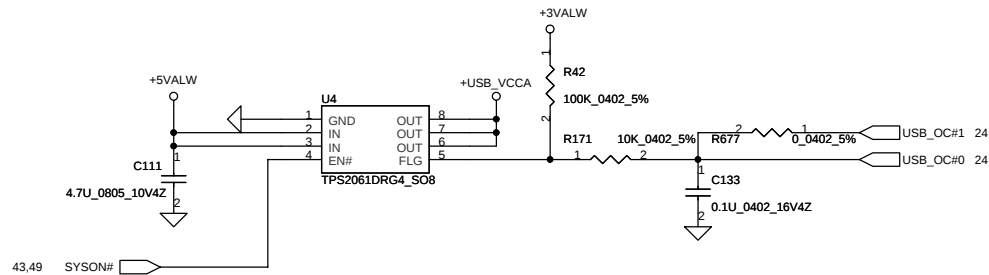
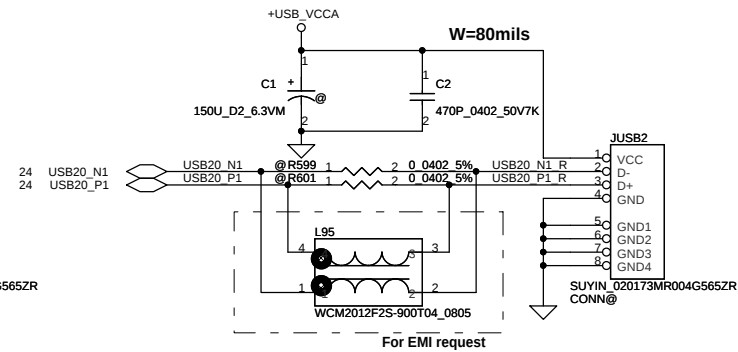
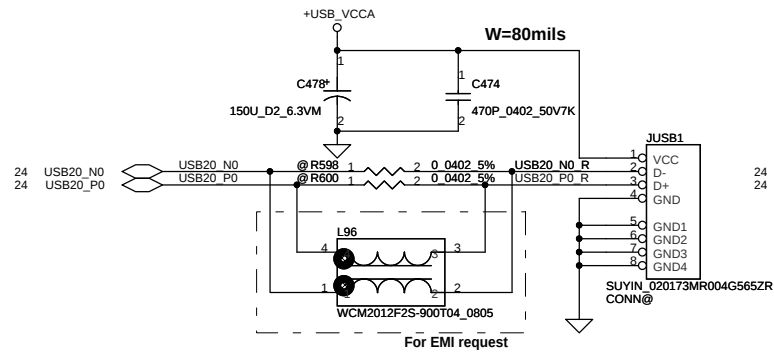
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |

| Mini Card Power Rating |                    |        |                      |
|------------------------|--------------------|--------|----------------------|
| Power                  | Primary Power (mA) |        | Auxiliary Power (mA) |
|                        | Peak               | Normal | Normal               |
| +3VS                   | 1000               | 750    |                      |
| +3VALW                 | 330                | 250    | 250 (wake enable)    |
| +1.5VS                 | 500                | 375    | 5 (Not wake enable)  |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------------|------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.       |                        |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                          | SCHEMATIC MB A5992     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Rev C                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 37 of 55                 |                        |

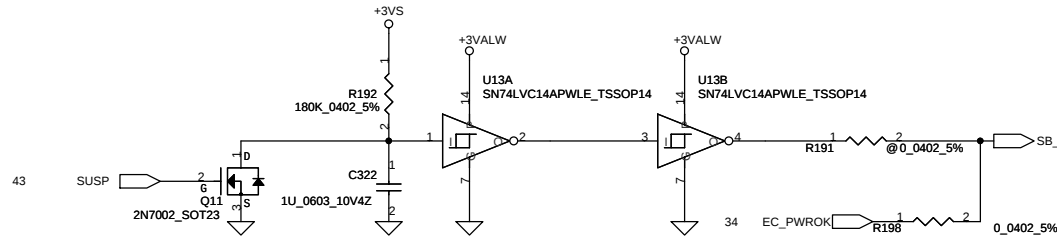
# USB CONN. 1 & 2



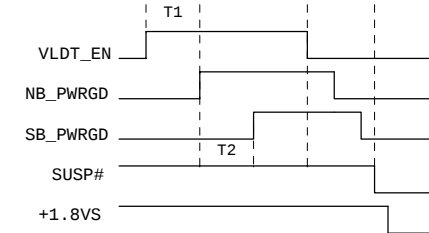
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                    | SCHMATIC MB A5992        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 38 of 55                 |

## Power ON Circuit

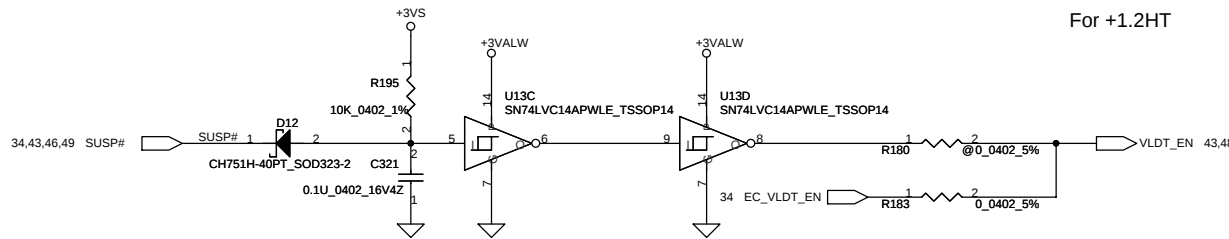
For South Bridge



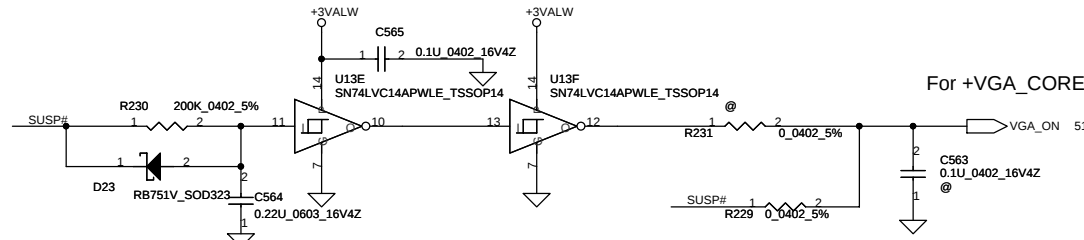
note: T1 minimum 15ms, T2 minimum 33ms/maximum 500ms, SUSP# goes to low after SB\_PWRGD goes to low for power down.



For +1.2HT

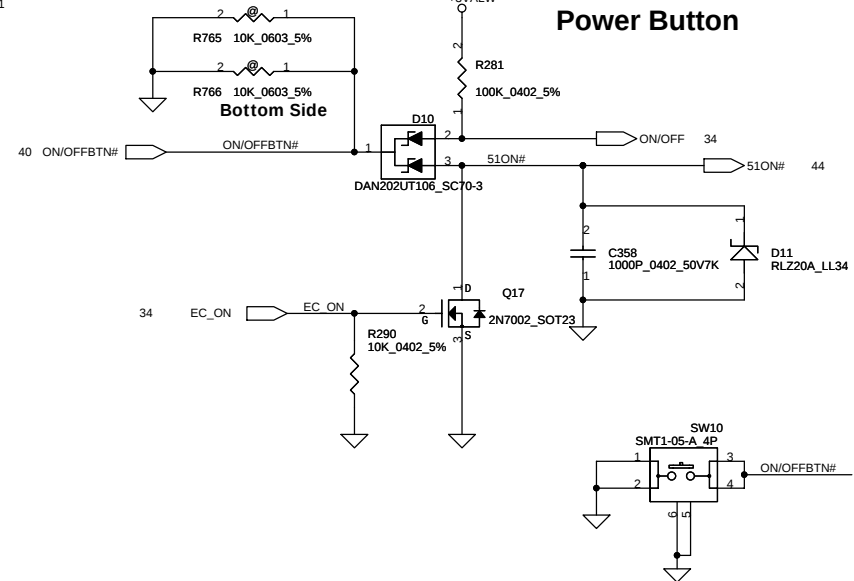


For +VGA\_CORE



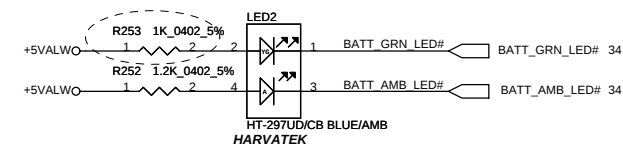
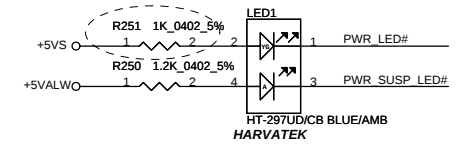
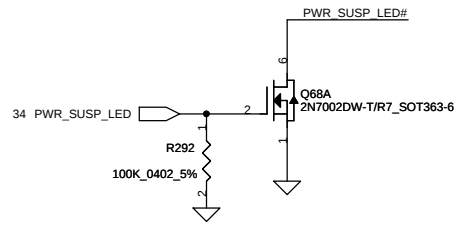
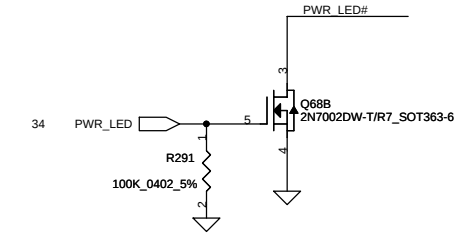
TOP Side

## Power Button

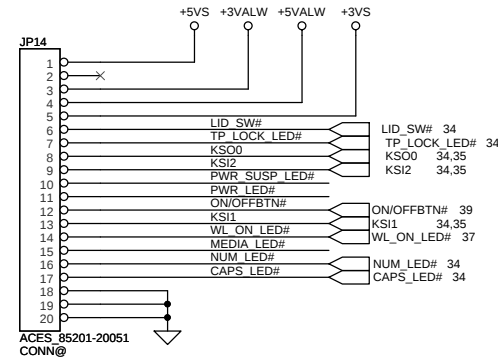


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 39 of 55                 |

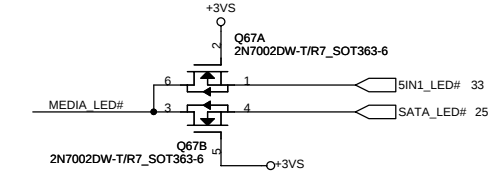
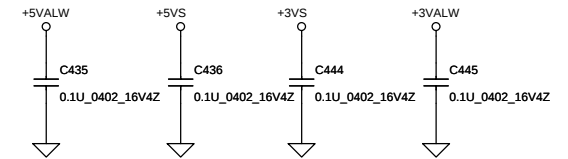
## To PWR LED/B



## BLUE/AMB LED

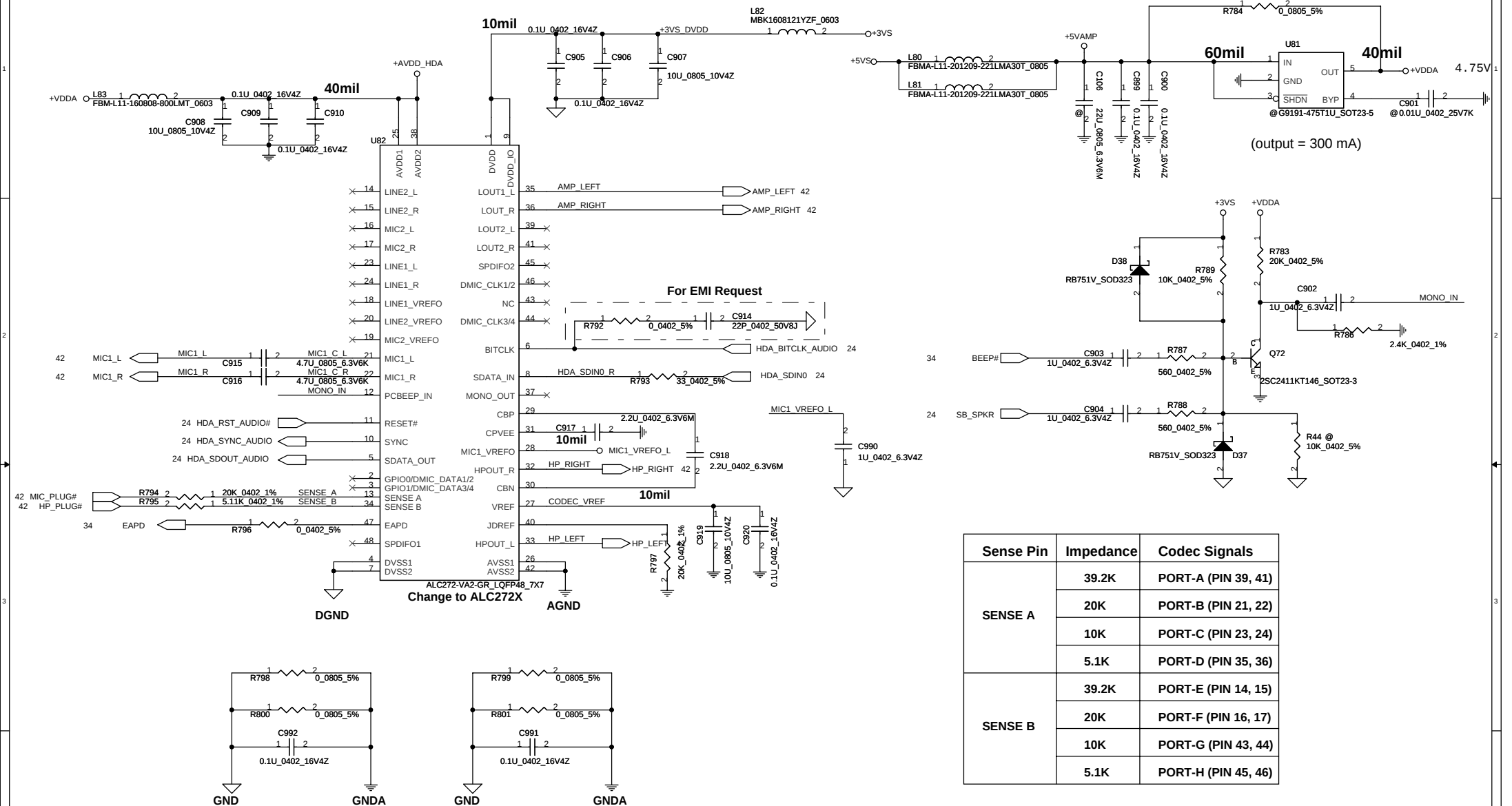


|      | KSO0         |
|------|--------------|
| KSI1 | WL_BTN#      |
| KSI2 | TP_LOCK_BTN# |
| KSI3 |              |
| KSI4 |              |
| KSI5 |              |
| KSI6 |              |



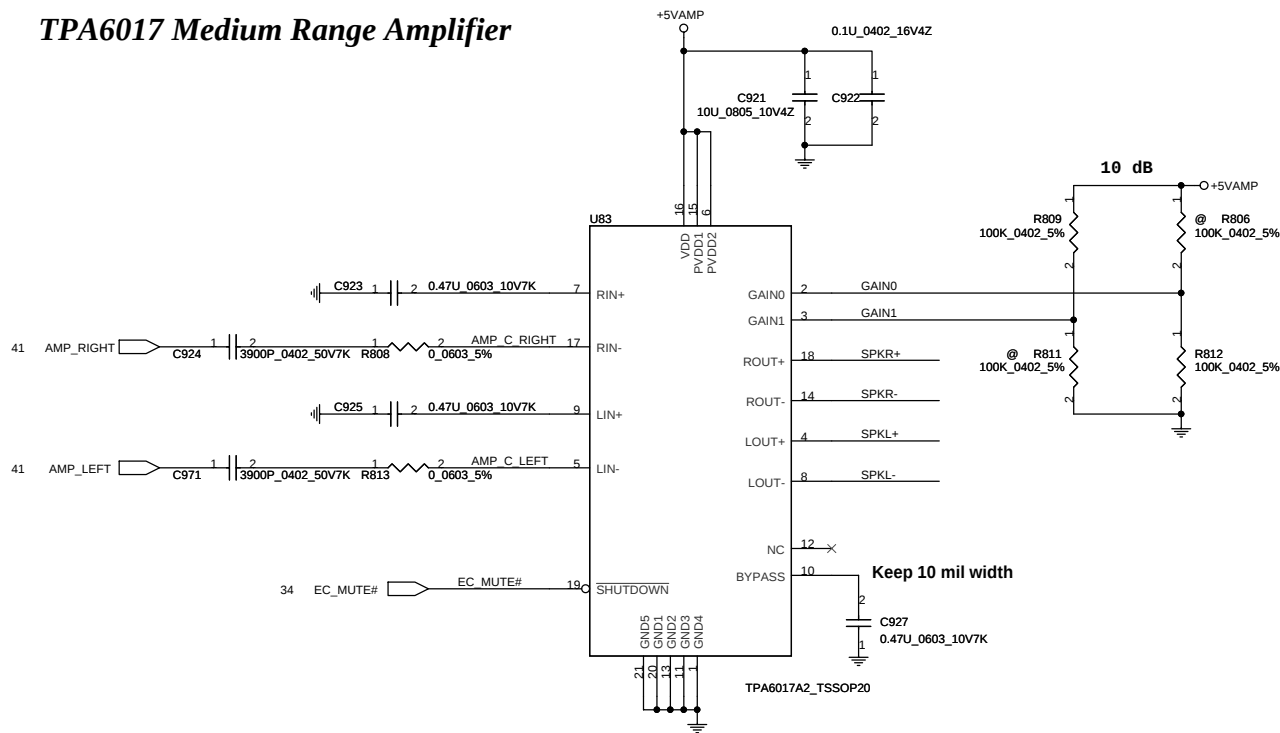
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|--------------------------|--------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                    |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25         | Deciphered Date | 2010/09/25               | Title              |
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| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Sheet 40 of 55  |                          | Rev C              |

### ***HD Audio Codec***

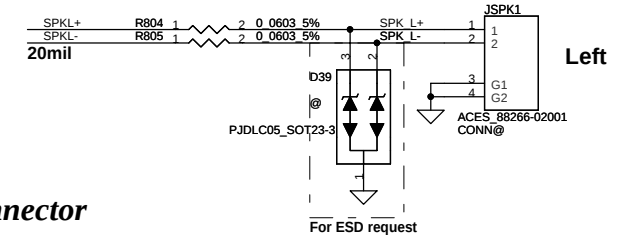


| Sense Pin | Impedance | Codec Signals       |
|-----------|-----------|---------------------|
| SENSE A   | 39.2K     | PORT-A (PIN 39, 41) |
|           | 20K       | PORT-B (PIN 21, 22) |
|           | 10K       | PORT-C (PIN 23, 24) |
|           | 5.1K      | PORT-D (PIN 35, 36) |
| SENSE B   | 39.2K     | PORT-E (PIN 14, 15) |
|           | 20K       | PORT-F (PIN 16, 17) |
|           | 10K       | PORT-G (PIN 43, 44) |
|           | 5.1K      | PORT-H (PIN 45, 46) |

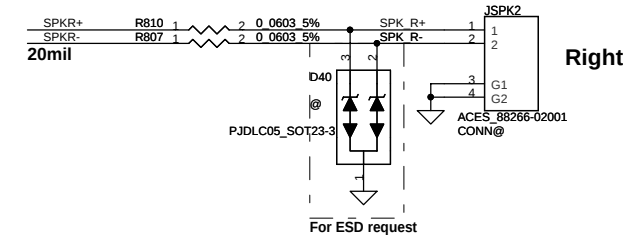
# TPA6017 Medium Range Amplifier



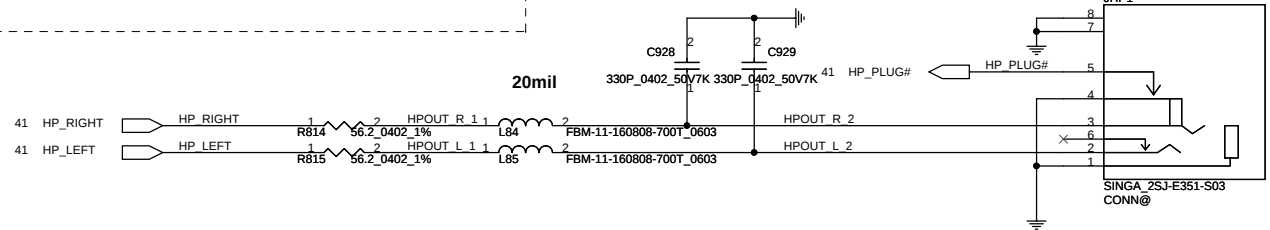
## Left Connector



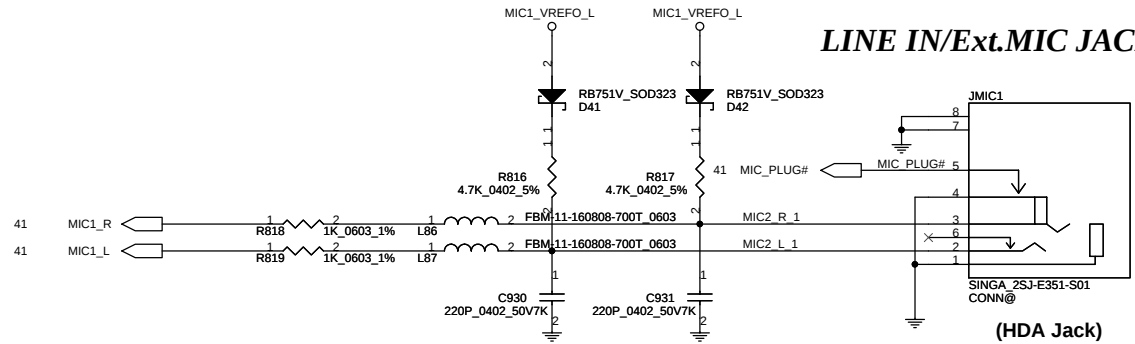
## Right Connector



## LINE Out/Headphone Out

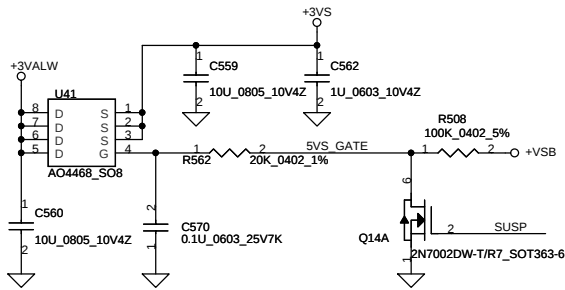


## LINE IN/Ext.MIC JACK

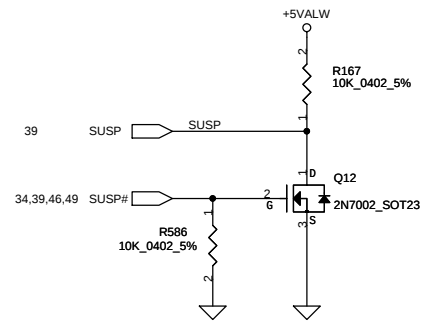
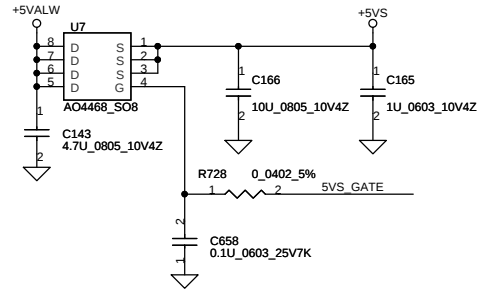


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                    |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------|----------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title              |          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | SCHEMATIC MB A5992 |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 401836             |          |
| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Sheet              | 42 of 55 |

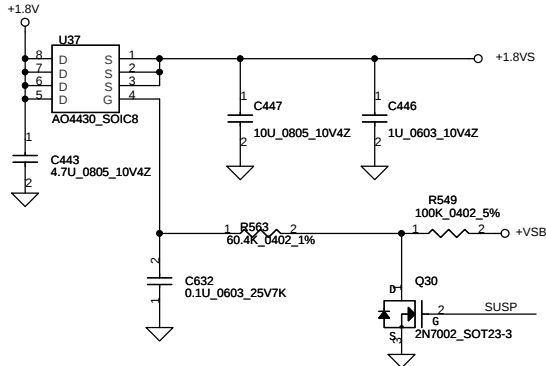
### +3VALW TO +3VS



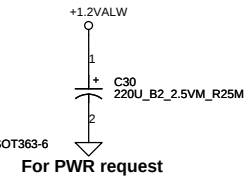
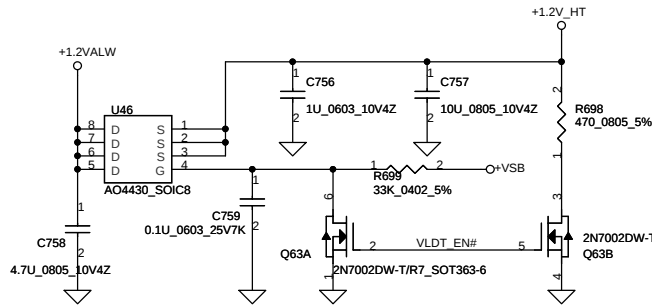
### +5VALW TO +5VS



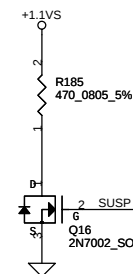
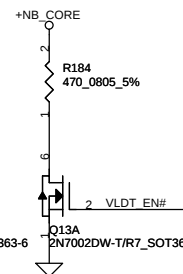
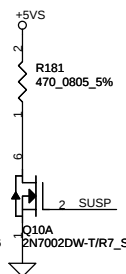
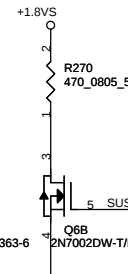
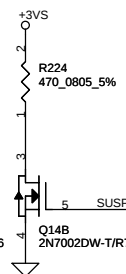
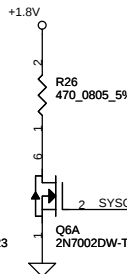
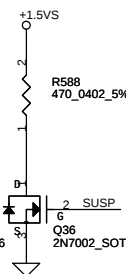
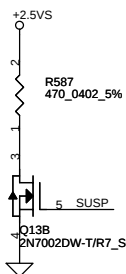
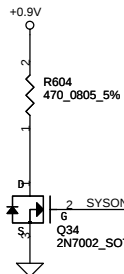
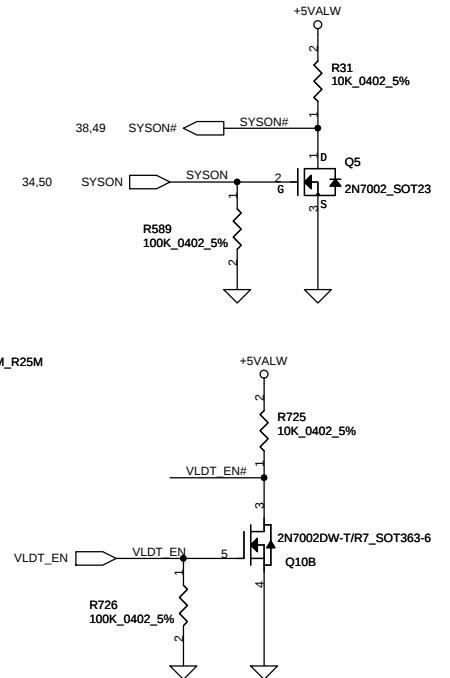
### +1.8V TO +1.8VS



### +1.2VALW TO +1.2V\_HT



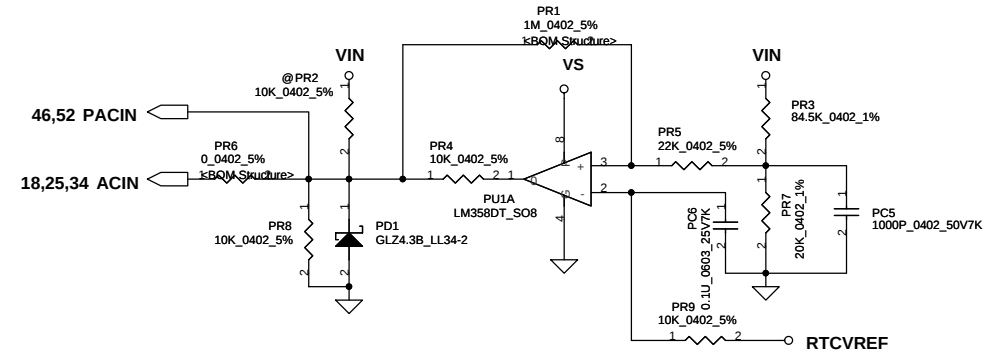
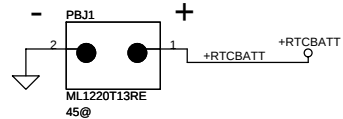
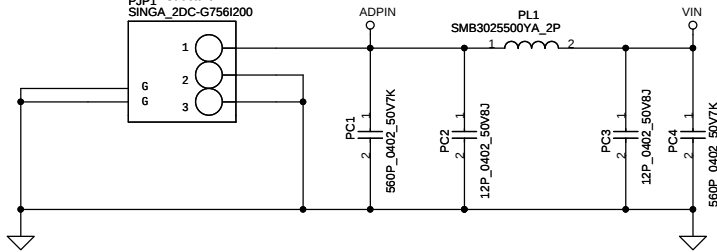
For PWR request



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 43 of 55                 |

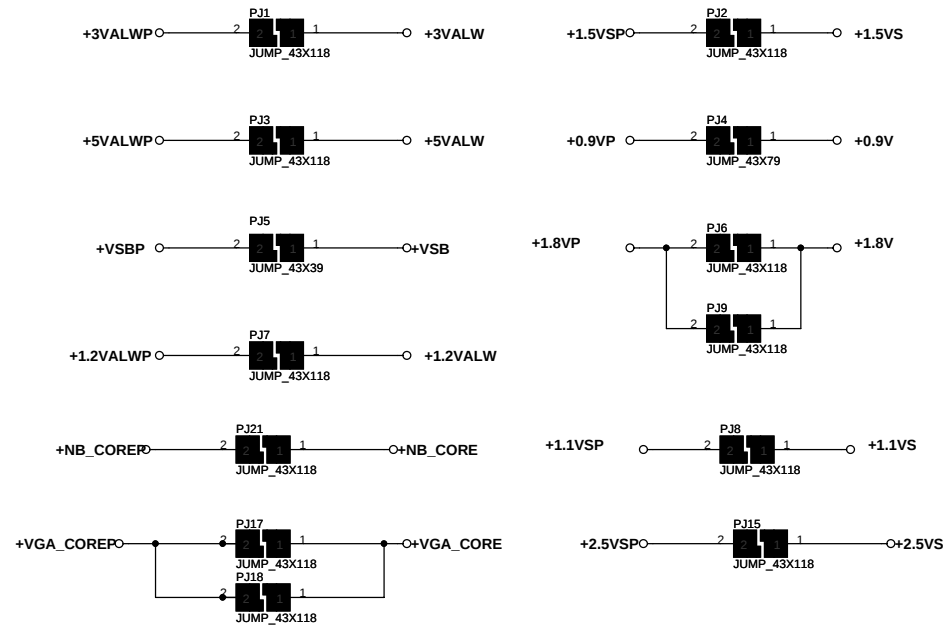
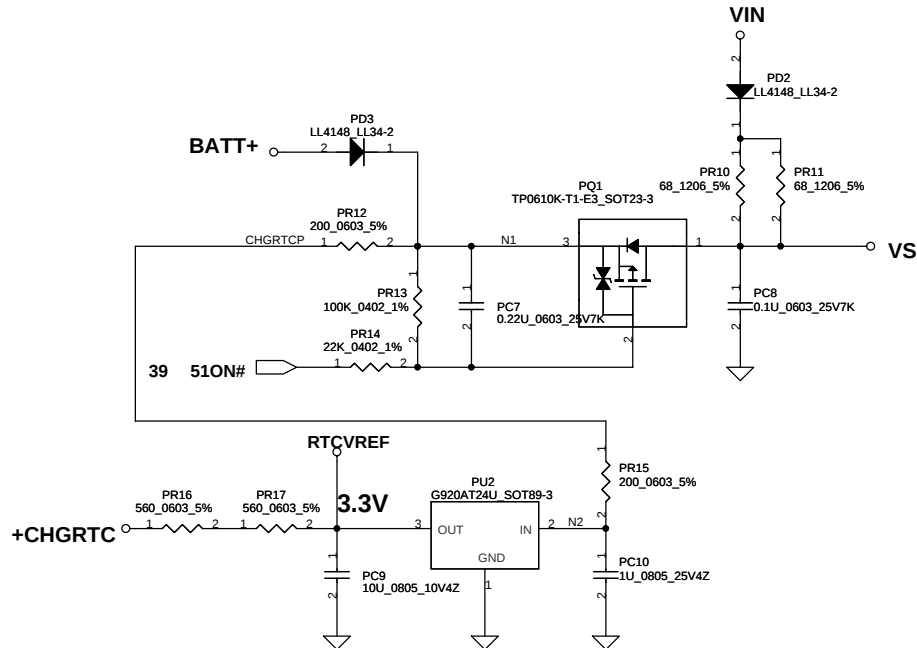
# DC231000500

FROM Structure>  
SINGA\_2DC-G7561200

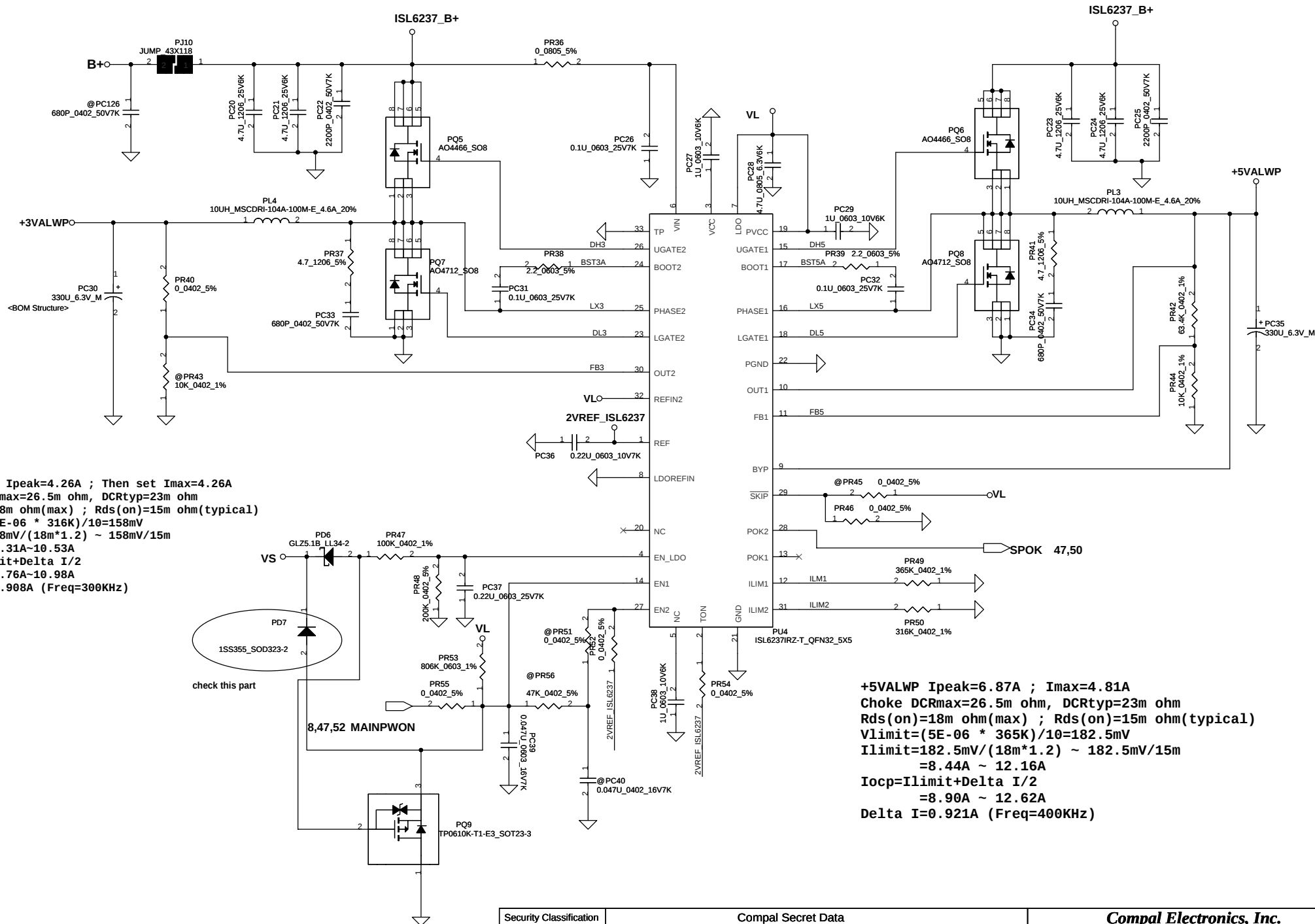


## Vin Dectector

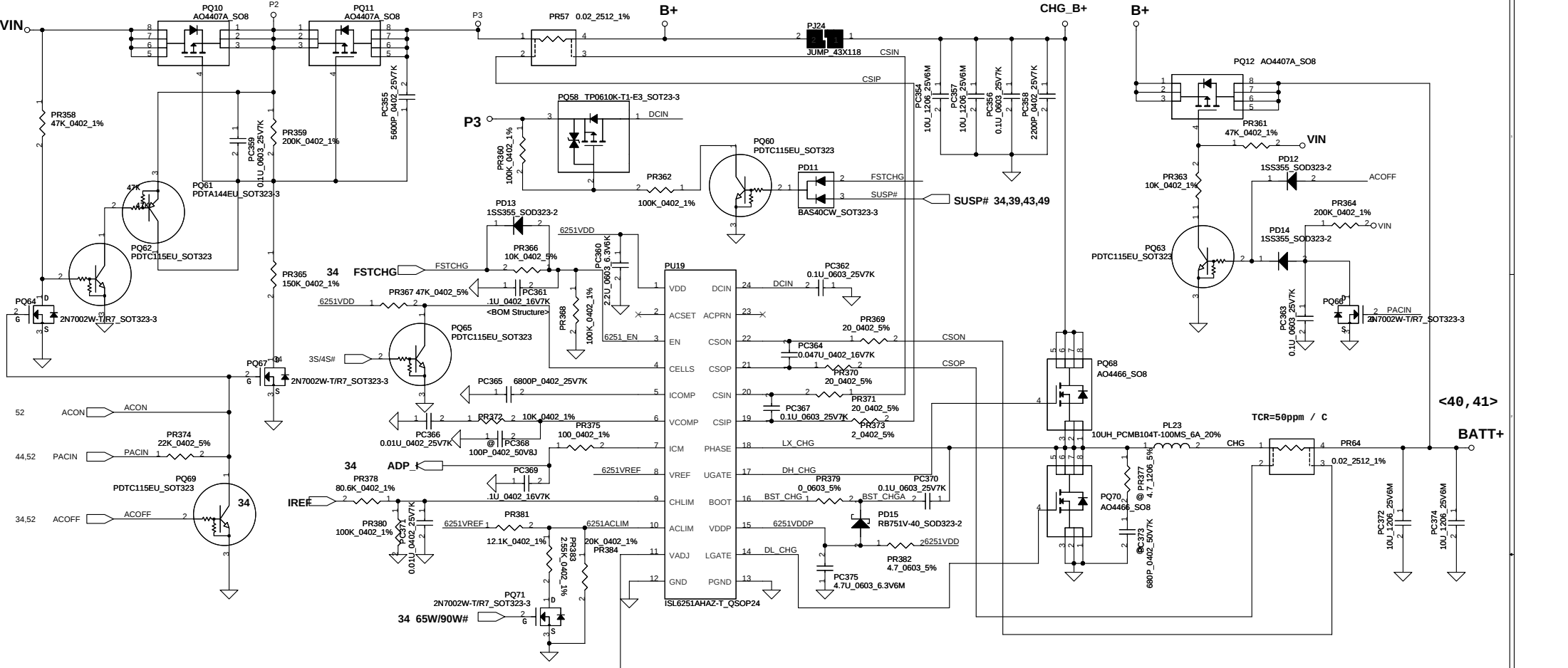
|       | Min.    | Typ     | Max.    |
|-------|---------|---------|---------|
| H-->L | 16.976V | 17.525V | 17.728V |
| L-->H | 17.430V | 17.901V | 18.384V |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                 |            |                          |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|------------|--------------------------|--------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data       |                 |            | Compal Electronics, Inc. |                    |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Thursday, March 18, 2010 | Sheet           | 44         | of                       | 55                 |



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 45 of 55                 |



CP mode  
 $I_{input} = (1/0.02) (0.05 \cdot V_{ac1m} / 2.39 + 0.05)$   
where  $V_{ac1m} = 1.502V$ ,  $I_{input} = 4.07A$

CC=0.6~4.48A  
 $I_{ref} = 0.7224 \cdot I_{charge}$   
 $\Rightarrow Ki = 0.7224$   
 $I_{REF} = 0.43V \sim 3.24V$

$K_i$   
 $V_{ch1m} = I_{ref} \cdot (PR374 / (PR372 + PR374))$   
 $= I_{ref} \cdot (100K / (80.6K + 100K))$   
 $= I_{ref} \cdot 0.5537$   
 $I_{charge} = (165mV / PR369) \cdot (V_{ch1m} / 3.3V)$   
 $= (165m / 20m) \cdot (1/3.3V) \cdot I_{ref} \cdot 0.5537$   
 $= 1.3842 \cdot I_{ref}$   
 $I_{ref} = 0.7224 \cdot I_{charge} \Rightarrow Ki = 0.7224$

$K_v$   
 $R_{internal} = 514K$   $R_{ec} = 3K$   $R_1 = PR379 = 15.4K$   $R_2 = PR381 = 31.6K$   
 $R = 514K // 31.6K // (15.4K + 3K) = 11.372K$   
 $r = 514K // 514K // 31.6K = 28.14K$   
 $V_{cell} = 0.175 \cdot V_{adj} + 3.99V$   
 $4.2V = 0.175 \cdot V_{adj} + 3.99V \Rightarrow V_{adj} = 1.2V$   
 $V_{adj} = V_{ref} \cdot (R / (R + 514K)) + CALIBRATE \cdot (r / (r + 514K))$   
 $1.1483 = CALIBRATE \cdot 0.6046 \Rightarrow CALIBRATE = 1.899$   
 $1.899 = (4.2 - (V_{cell} \cdot A \cdot 0.175)) \cdot Kv = (4.2 - (4.2 \cdot A \cdot 0.175)) \cdot Kv$   
 $A = V_{ref} \cdot (R / (R + 514K)) = 0.052$   
 $K_v = 9.451$

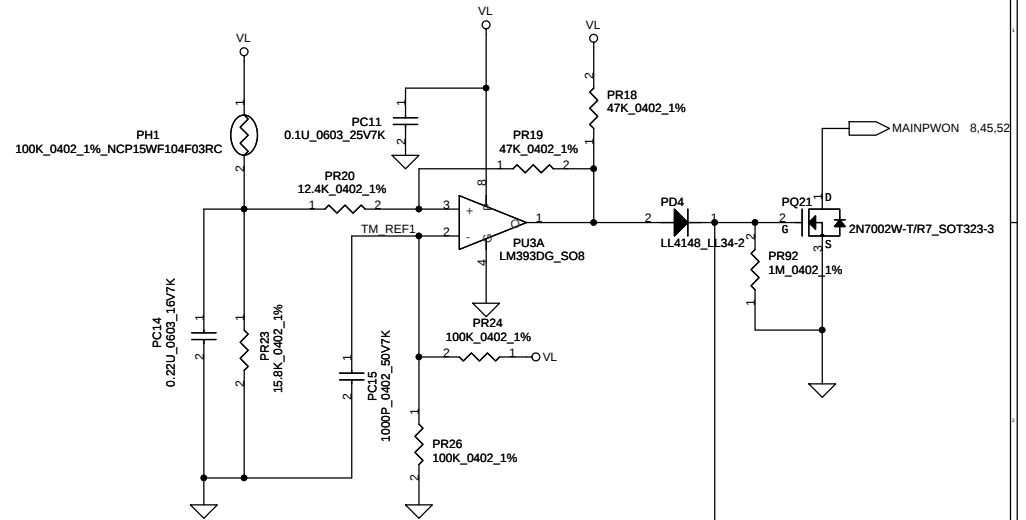
LI-3S :13.5V---BATT-OVP=2.007V  
BATT-OVP=0.1487\*VMB  
Per cell=3.5V

Input OVP : 22.3V  
Input UVP : 17.26V  
Fsw : 300KHz

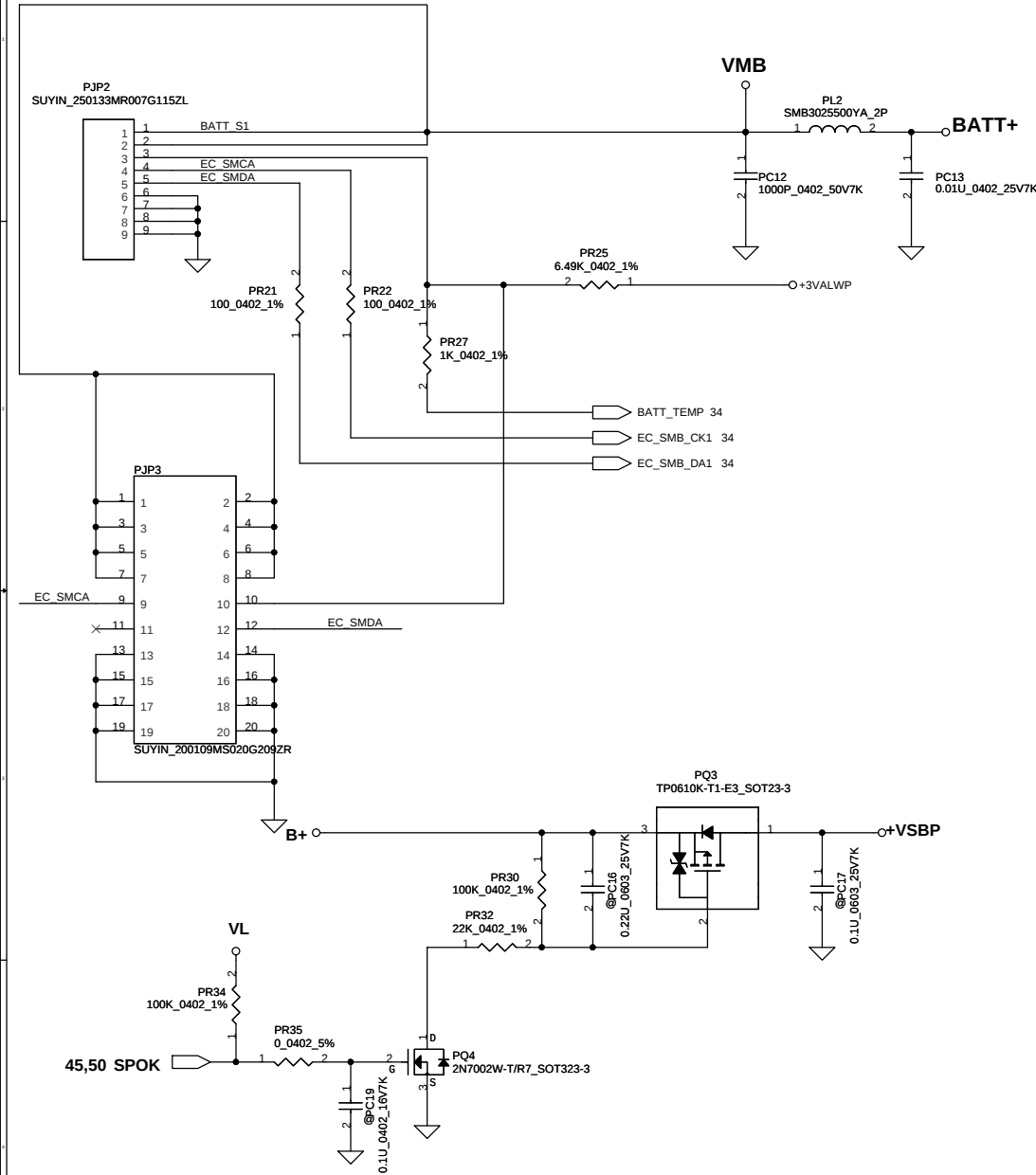
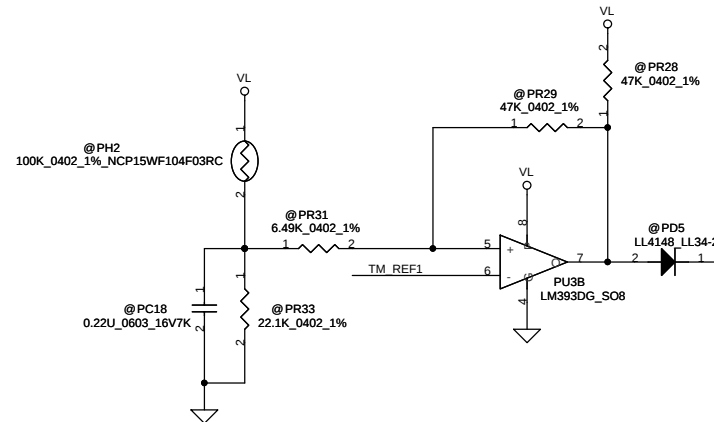
34 BATT\_OVP

| BATT Type             | Charging Voltage (0x15) | CV mode |
|-----------------------|-------------------------|---------|
| Normal 3S LI-ON Cells | 12600mV                 | 12.60V  |

PH1 under CPU botten side :  
CPU thermal protection at 92 degree C

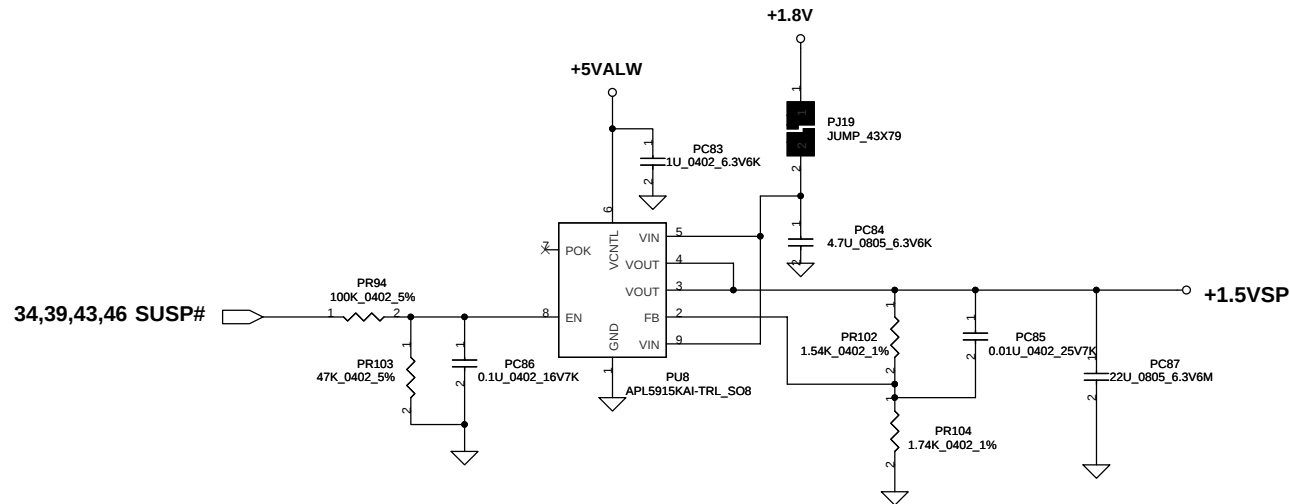
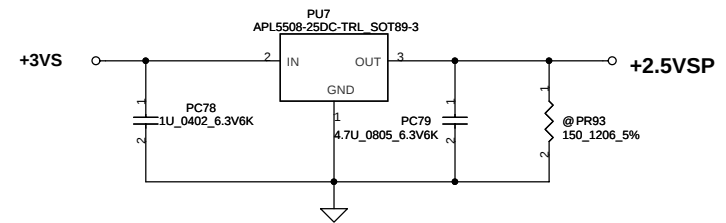
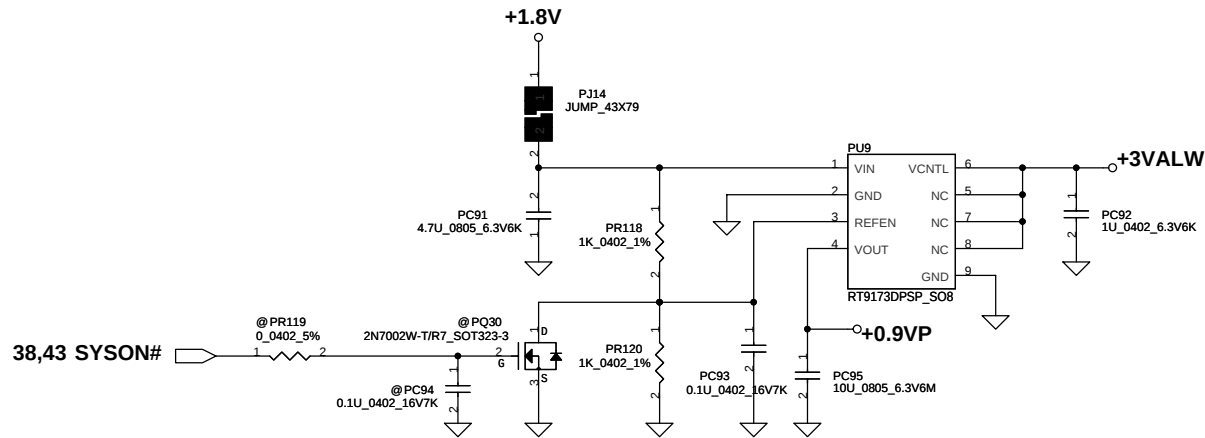


PH2 near main Battery CONN :  
BAT. thermal protection at 75 degree C



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|---------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                    | SCHEMATIC MB A5992        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Thursday, March 18, 2010  |
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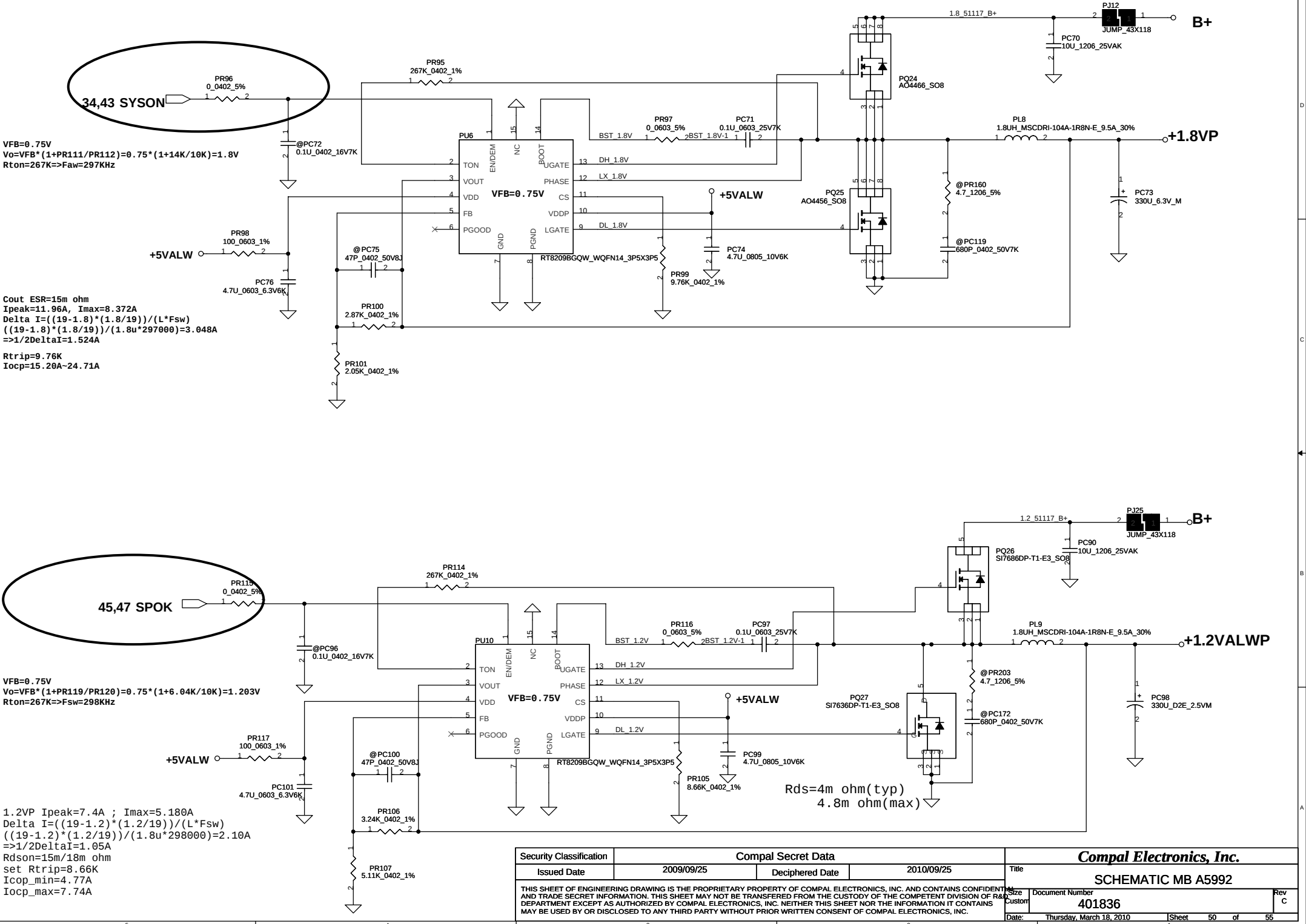
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          | 401836                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 49 of 55                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |

VFB=0.75V  
 $V_o = VFB * (1 + PR111 / PR112) = 0.75 * (1 + 14K / 10K) = 1.8V$   
 $R_{ton} = 267K \Rightarrow F_{aw} = 297KHz$

Cout ESR=15m ohm  
 $I_{peak} = 11.96A$ ,  $I_{max} = 8.372A$   
 $\Delta I = ((19 - 1.8) * (1.8 / 19)) / (L * F_{sw})$   
 $((19 - 1.8) * (1.8 / 19)) / (1.8u * 297000) = 3.048A$   
 $\Rightarrow 1/2 \Delta I = 1.524A$   
 $R_{trip} = 9.76K$   
 $I_{ocp} = 15.20A - 24.71A$

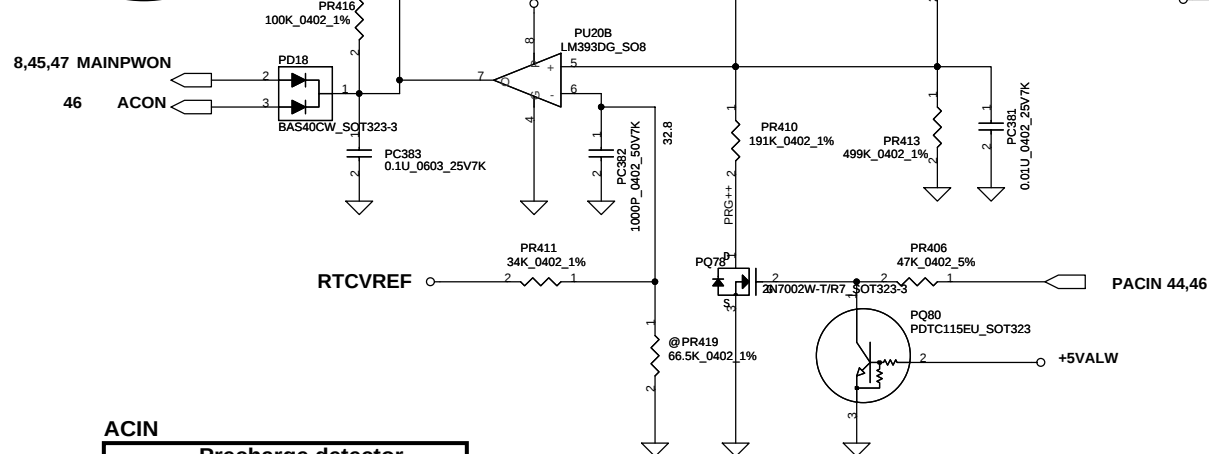
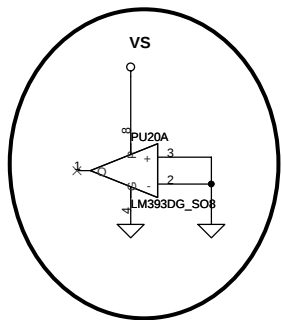
VFB=0.75V  
 $V_o = VFB * (1 + PR119 / PR120) = 0.75 * (1 + 6.04K / 10K) = 1.203V$   
 $R_{ton} = 267K \Rightarrow F_{sw} = 298KHz$

1.2VP  $I_{peak} = 7.4A$  ;  $I_{max} = 5.180A$   
 $\Delta I = ((19 - 1.2) * (1.2 / 19)) / (L * F_{sw})$   
 $((19 - 1.2) * (1.2 / 19)) / (1.8u * 298000) = 2.10A$   
 $\Rightarrow 1/2 \Delta I = 1.05A$   
 $R_{dson} = 15m / 18m \text{ ohm}$   
 $R_{trip} = 8.66K$   
 $I_{ocp\_min} = 4.77A$   
 $I_{ocp\_max} = 7.74A$



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 50 of 55                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |



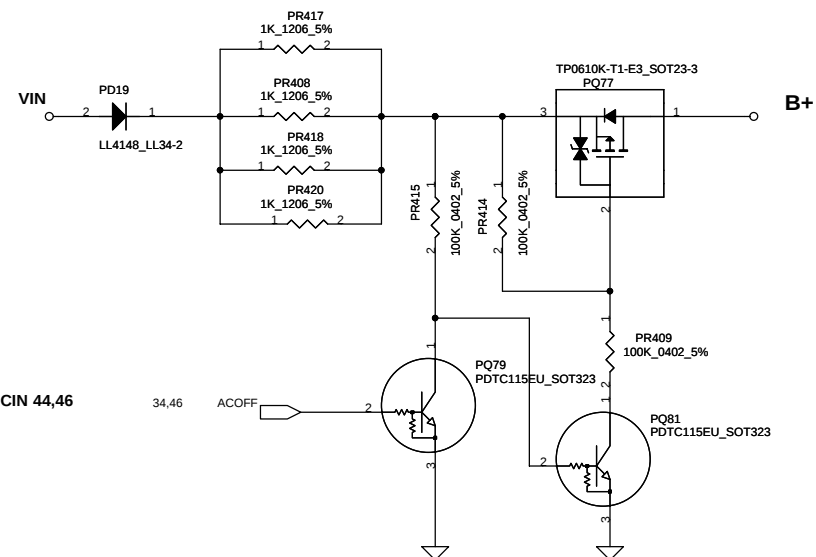


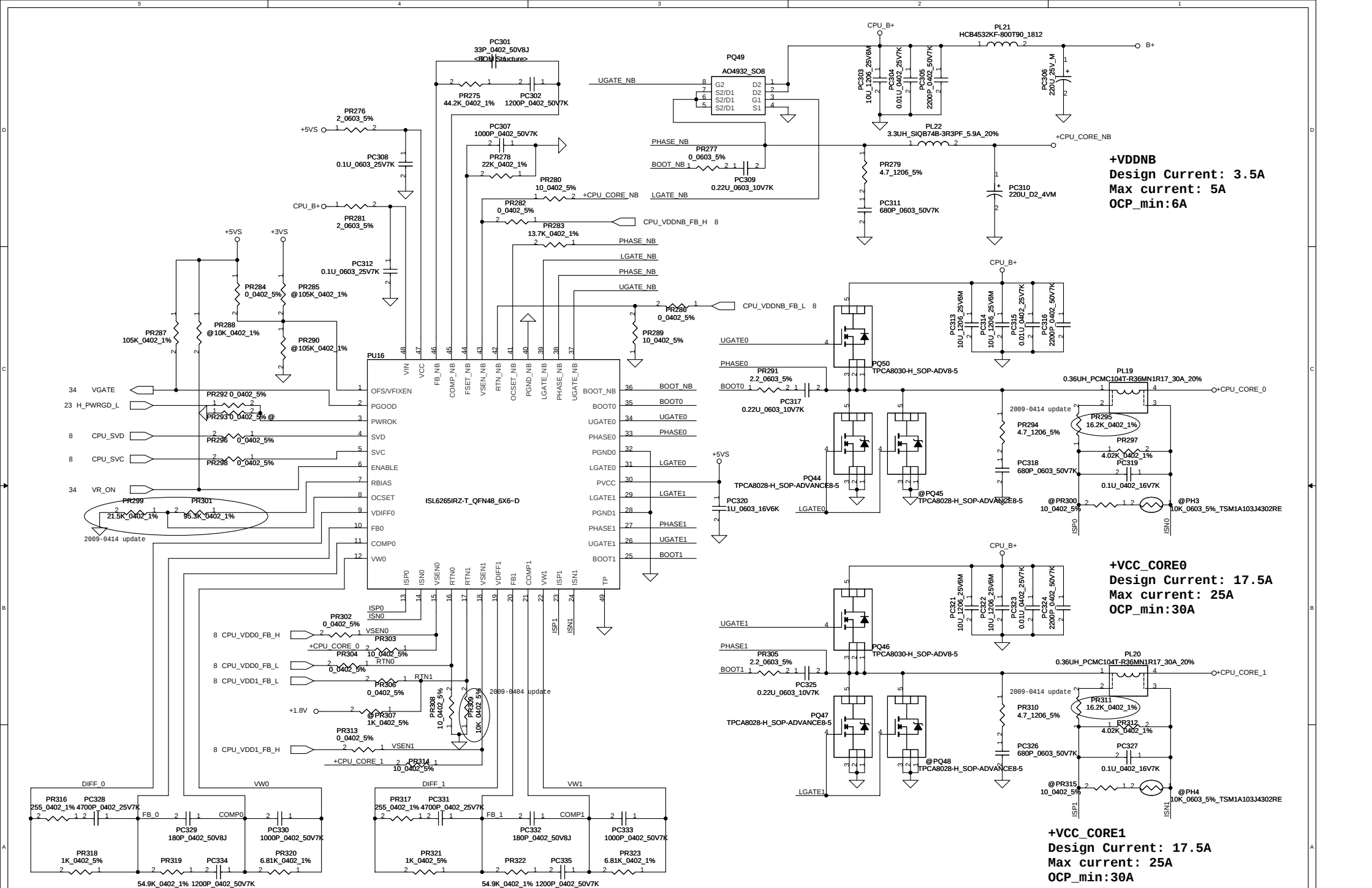
**ACIN**

| Precharge detector |         |        |         |
|--------------------|---------|--------|---------|
|                    | Min.    | typ.   | Max     |
| H-->L              | 14.589V | 14.84V | 15.243V |
| L-->H              | 15.562V | 15.97V | 16.388V |

**BATT ONLY**

| Precharge detector |        |        |        |
|--------------------|--------|--------|--------|
|                    | Min.   | typ.   | Max    |
| H-->L              | 6.138V | 6.214V | 6.359V |
| L-->H              | 7.196V | 7.349V | 7.505V |





Version change list (P.I.R. List)

| Item | Fixed Issue                               | Reason for change                                                                                                        | Rev. | PG # | Modify List                                                                                                                        | Date      | Phase  |
|------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------|------|------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|
| 1    | HW required to adjust from 1.14V to 1.12V | HW required to adjust from 1.14V to 1.12V                                                                                | 0.1  | 42   | Change PR271 from SD034300180 (S RES 1/16W 3K +-1% 0402) to SD034324180 (S RES 1/16W 3.24K 0402 1%)                                | 09, 05/07 | to PVT |
| 2    | Power sequense adjust.                    | HW required to adjust power sequense.                                                                                    | 0.1  | 42   | Add PC208 SE076104K80 (S CER CAP .1U 16V K X7R 0402)                                                                               | 09, 05/07 | to PVT |
| 3    | Power sequense adjust.                    | HW required to adjust power sequense.                                                                                    | 0.1  | 42   | Change PR247 from SD028000080 (S RES 1/16W 0 +-5% 0402) to SD028130180 (S RES 1/16W 1.3K 0402 5%)                                  | 09, 05/07 | to PVT |
| 4    | NB_COREP working frequency has issue.     | Because NB_COREP working frequency will be gltfer while system at heavy loading. Change to larger ESR Cap will be solve. | 0.1  | 42   | Change PC210 from SGA19331D00 (S POLY C 330U 2.5V M D2 TPE LESR15M H1.8) to SGA00002B00 (S POLY C 330U 6.3V M D2E ESR25M TPE H1.8) | 09, 05/07 | to PVT |
| 5    | BOM error                                 | BOM error                                                                                                                | 0.1  | 42   | Add PR270 SD28100280(S RES 1/16W 10K 0402 5%)                                                                                      | 09, 05/07 | to PVT |
| 6    | BOM error                                 | BOM error                                                                                                                | 0.1  | 42   | Change PR103 from SD028470280(S RES 1/16W 47K 0402 5%) to SD028100280(S RES 1/16W 10K 0402 5%)                                     | 09, 05/07 | to PVT |
| 7    |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 8    | Change Power Source                       | For WLAN wakeup                                                                                                          | 1.0  | 37   | Change R550 to +3VALW                                                                                                              | 09, 05/07 | Pre-MP |
| 9    |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 10   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 11   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 12   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 13   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 14   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 15   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 16   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 17   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |
| 18   |                                           |                                                                                                                          |      |      |                                                                                                                                    |           |        |

| Version change list (P.I.R. List) for HW |                       |                                   |      |      |      |                   |             |      |      |
|------------------------------------------|-----------------------|-----------------------------------|------|------|------|-------------------|-------------|------|------|
| Item                                     | Reason for change     | Modify List                       | PG # | Date | Item | Reason for change | Modify List | Rev. | PG # |
| 1                                        | PWR update circuit    |                                   |      | 4/9  | 26   |                   |             |      |      |
| 2                                        | BOM change            | R118 reserve                      | P.18 | 4/9  | 27   |                   |             |      |      |
| 3                                        | BOM change            | Change R178, R179 to 90.9/158 ohm | P.16 | 4/9  | 28   |                   |             |      |      |
| 4                                        | BOM change            | R30, R39 reserve                  | P.24 | 4/9  | 29   |                   |             |      |      |
| 5                                        | BOM change            | Add C30                           | P.38 | 4/9  | 30   |                   |             |      |      |
| 6                                        | BOM change            | Add R634, R639                    | P.28 | 4/9  | 31   |                   |             |      |      |
| 7                                        | BOM change            | C383 Reserve                      | P.24 | 4/9  | 32   |                   |             |      |      |
| 8                                        |                       | Pop R419                          | P.20 | 4/10 | 33   |                   |             |      |      |
| 9                                        | PWR update circuit    |                                   |      | 5/15 |      |                   |             |      |      |
| 10                                       | For Panel flash issue | R1,D2 Reserve, pop R763           | P.24 | 5/18 |      |                   |             |      |      |
| 11                                       | For Panel flash issue | Add R414 and non-pop              | P.24 | 5/18 |      |                   |             |      |      |
| 12                                       | Lid_SW intial issue   | Add R19                           | P.28 | 5/18 |      |                   |             |      |      |
| 13                                       | HPET timer issue      | Change C288,C290 to 33P           | P.16 | 5/18 |      |                   |             |      |      |
| 14                                       | BOM change            | change C276,C279 10P to 27P       | P.19 | 5/19 |      |                   |             |      |      |
| 15                                       |                       |                                   |      |      |      |                   |             |      |      |
| 16                                       |                       |                                   |      |      |      |                   |             |      |      |
| 17                                       |                       |                                   |      |      |      |                   |             |      |      |
| 18                                       |                       |                                   |      |      |      |                   |             |      |      |
| 19                                       |                       |                                   |      |      |      |                   |             |      |      |
| 20                                       |                       |                                   |      |      |      |                   |             |      |      |
| 21                                       |                       |                                   |      |      |      |                   |             |      |      |
| 22                                       |                       |                                   |      |      |      |                   |             |      |      |
| 23                                       |                       |                                   |      |      |      |                   |             |      |      |
| 24                                       |                       |                                   |      |      |      |                   |             |      |      |
| 25                                       |                       |                                   |      |      |      |                   |             |      |      |

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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                          | SCHEMATIC MB A5992     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 55 of 55                 |                        |

| Version change list (P.I.R. List) for HW |                       |                                   |      |      |      |                   |             |      |      |
|------------------------------------------|-----------------------|-----------------------------------|------|------|------|-------------------|-------------|------|------|
| Item                                     | Reason for change     | Modify List                       | PG # | Date | Item | Reason for change | Modify List | Rev. | PG # |
| 1                                        | PWR update circuit    |                                   |      | 4/9  | 26   |                   |             |      |      |
| 2                                        | BOM change            | R118 reserve                      | P.18 | 4/9  | 27   |                   |             |      |      |
| 3                                        | BOM change            | Change R178, R179 to 90.9/158 ohm | P.16 | 4/9  | 28   |                   |             |      |      |
| 4                                        | BOM change            | R30, R39 reserve                  | P.24 | 4/9  | 29   |                   |             |      |      |
| 5                                        | BOM change            | Add C30                           | P.38 | 4/9  | 30   |                   |             |      |      |
| 6                                        | BOM change            | Add R634, R639                    | P.28 | 4/9  | 31   |                   |             |      |      |
| 7                                        | BOM change            | C383 Reserve                      | P.24 | 4/9  | 32   |                   |             |      |      |
| 8                                        |                       | Pop R419                          | P.20 | 4/10 | 33   |                   |             |      |      |
| 9                                        | PWR update circuit    |                                   |      | 5/15 |      |                   |             |      |      |
| 10                                       | For Panel flash issue | R1,D2 Reserve, pop R763           | P.24 | 5/18 |      |                   |             |      |      |
| 11                                       | For Panel flash issue | Add R414 and non-pop              | P.24 | 5/18 |      |                   |             |      |      |
| 12                                       | Lid_SW intial issue   | Add R19                           | P.28 | 5/18 |      |                   |             |      |      |
| 13                                       | HPET timer issue      | Change C288,C290 to 33P           | P.16 | 5/18 |      |                   |             |      |      |
| 14                                       | BOM change            | change C276,C279 10P to 27P       | P.19 | 5/19 |      |                   |             |      |      |
| 15                                       |                       |                                   |      |      |      |                   |             |      |      |
| 16                                       |                       |                                   |      |      |      |                   |             |      |      |
| 17                                       |                       |                                   |      |      |      |                   |             |      |      |
| 18                                       |                       |                                   |      |      |      |                   |             |      |      |
| 19                                       |                       |                                   |      |      |      |                   |             |      |      |
| 20                                       |                       |                                   |      |      |      |                   |             |      |      |
| 21                                       |                       |                                   |      |      |      |                   |             |      |      |
| 22                                       |                       |                                   |      |      |      |                   |             |      |      |
| 23                                       |                       |                                   |      |      |      |                   |             |      |      |
| 24                                       |                       |                                   |      |      |      |                   |             |      |      |
| 25                                       |                       |                                   |      |      |      |                   |             |      |      |

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| Version change list (P.I.R. List) for HW |                       |                                   |      |      |      |                   |             |      |      |
|------------------------------------------|-----------------------|-----------------------------------|------|------|------|-------------------|-------------|------|------|
| Item                                     | Reason for change     | Modify List                       | PG # | Date | Item | Reason for change | Modify List | Rev. | PG # |
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| 2                                        | BOM change            | R118 reserve                      | P.18 | 4/9  | 27   |                   |             |      |      |
| 3                                        | BOM change            | Change R178, R179 to 90.9/158 ohm | P.16 | 4/9  | 28   |                   |             |      |      |
| 4                                        | BOM change            | R30, R39 reserve                  | P.24 | 4/9  | 29   |                   |             |      |      |
| 5                                        | BOM change            | Add C30                           | P.38 | 4/9  | 30   |                   |             |      |      |
| 6                                        | BOM change            | Add R634, R639                    | P.28 | 4/9  | 31   |                   |             |      |      |
| 7                                        | BOM change            | C383 Reserve                      | P.24 | 4/9  | 32   |                   |             |      |      |
| 8                                        |                       | Pop R419                          | P.20 | 4/10 | 33   |                   |             |      |      |
| 9                                        | PWR update circuit    |                                   |      | 5/15 |      |                   |             |      |      |
| 10                                       | For Panel flash issue | R1,D2 Reserve, pop R763           | P.24 | 5/18 |      |                   |             |      |      |
| 11                                       | For Panel flash issue | Add R414 and non-pop              | P.24 | 5/18 |      |                   |             |      |      |
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| 13                                       | HPET timer issue      | Change C288,C290 to 33P           | P.16 | 5/18 |      |                   |             |      |      |
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| 15                                       |                       |                                   |      |      |      |                   |             |      |      |
| 16                                       |                       |                                   |      |      |      |                   |             |      |      |
| 17                                       |                       |                                   |      |      |      |                   |             |      |      |
| 18                                       |                       |                                   |      |      |      |                   |             |      |      |
| 19                                       |                       |                                   |      |      |      |                   |             |      |      |
| 20                                       |                       |                                   |      |      |      |                   |             |      |      |
| 21                                       |                       |                                   |      |      |      |                   |             |      |      |
| 22                                       |                       |                                   |      |      |      |                   |             |      |      |
| 23                                       |                       |                                   |      |      |      |                   |             |      |      |
| 24                                       |                       |                                   |      |      |      |                   |             |      |      |
| 25                                       |                       |                                   |      |      |      |                   |             |      |      |

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