

# Compal confidential

## *Bradford 10AT*

### NSKAE LA-5381P REV 0.2 Schematics Document

Mobile AMD SIG3/RS880M&RS880MC/SB710

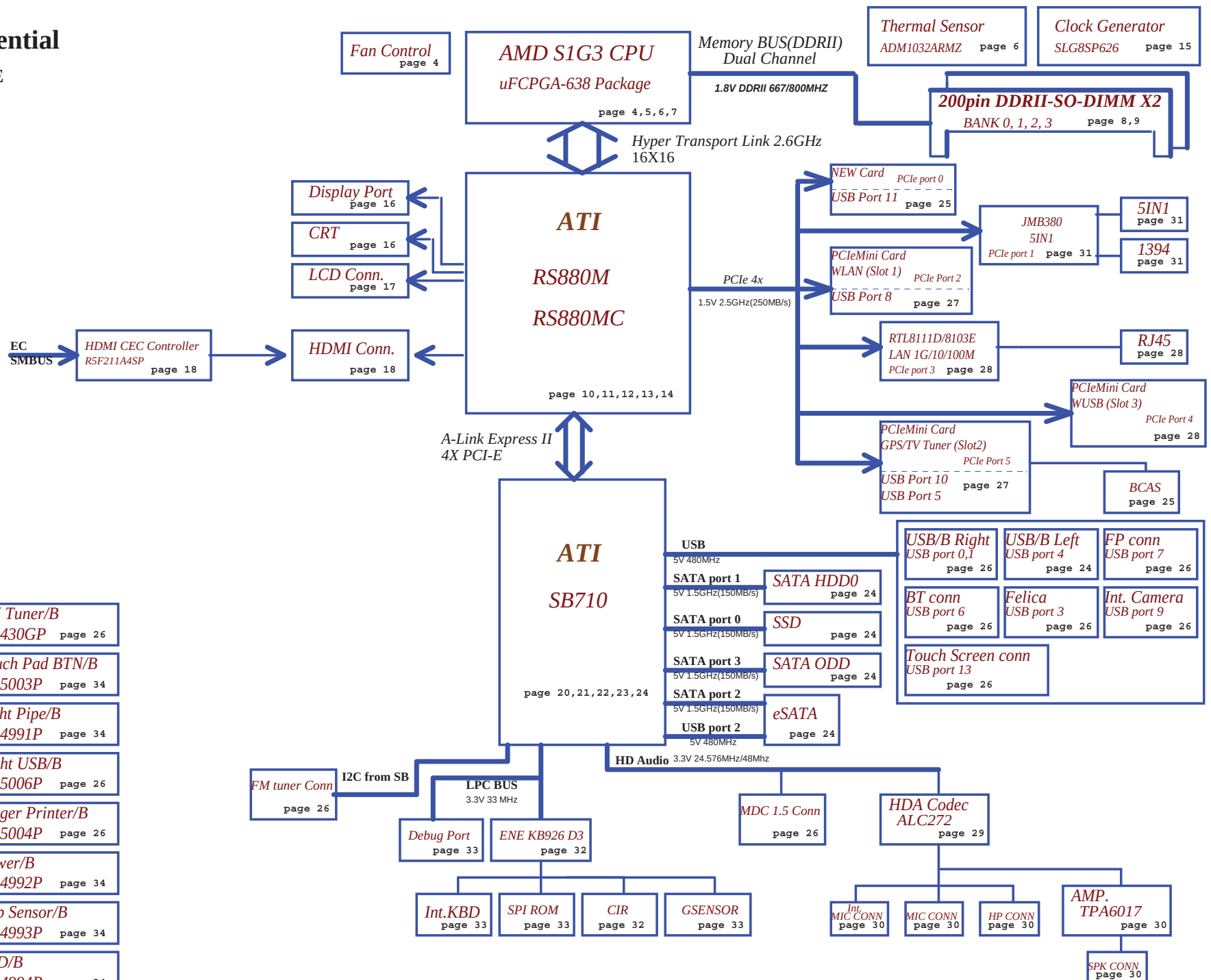
2009-04-10 Rev. 0.2

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                              |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|------------------------------|---------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc.     |               |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14         | Deciphered Date | 2009/04/14 | Cover Sheet                  |               |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: Friday, April 10, 2009 | Sheet 1 of 46 |

# Compal Confidential

Model Name : NSKAE

File Name : LA-5381P



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                           |            | Compal Secret Data |            | Compal Electronics, Inc.     |               |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                    |            | Date: Friday, April 10, 2009 | Sheet 2 of 46 |

## Voltage Rails

O MEANS ON X MEANS OFF

| power plane<br>State           | B+<br>+3VL<br>+5VL<br>+RTCVCC | +5VALW<br>+3VALW<br>+1.2VALW<br>+3V_LAN | +1.8V<br>+0.9V | +5VS<br>+3VS<br>+2.5VS<br>+1.8VS<br>+1.5VS<br>+1.1VS<br>+VGA_CORE<br>+1.2V_HT<br>+VDDNB<br>+CPU_CORE_0<br>+CPU_CORE_1 |
|--------------------------------|-------------------------------|-----------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------|
| S0                             | O                             | O                                       | O              | O                                                                                                                     |
| S1                             | O                             | O                                       | O              | O                                                                                                                     |
| S3                             | O                             | O                                       | O              | X                                                                                                                     |
| S5 S4/AC                       | O                             | O                                       | X              | X                                                                                                                     |
| S5 S4/ Battery only            | O                             | X                                       | X              | X                                                                                                                     |
| S5 S4/AC & Battery don't exist | X                             | X                                       | X              | X                                                                                                                     |

## Symbol Note :



: means Digital Ground



: means Analog Ground

@ : means just reserve , no build

| Item | CPU  | NB      | VGA | SB    |
|------|------|---------|-----|-------|
|      | S1G3 | RS880MC | NA  | SB710 |
|      | S1G3 | RS880M  | NA  | SB710 |

## BTO Option Table

| Function    | HDMI  |     | DIPLAY PORT | Side Port |          |          |              |
|-------------|-------|-----|-------------|-----------|----------|----------|--------------|
| description |       |     |             | Memory    |          |          |              |
| explain     | HDMI  | CEC | DIPLAY PORT | Side Port | Samsung  | Hynix    | No Side Port |
| BTO         | HDMI@ | H@  | DP@         | SIDE@     | SAMSIDE@ | HYNSIDE@ | NOSIDE@      |

| Function    | MINI PCI-E SLOT |       |        | LAN     | Felica  | BLUETOOTH | CRT        |
|-------------|-----------------|-------|--------|---------|---------|-----------|------------|
| description |                 |       |        |         |         |           |            |
| explain     | 3G              | B-CAS | WIMAX  | 10/100M | Giga    | FELICA    | BLUE TOOTH |
| BTO         | 3G@             | TV@   | WIMAX@ | 8103EL@ | 8111DL@ | FEL@      | BT@        |

| Function    | G-SENSOR    | Modem | FM TUNER | Fingerprint | SSD  | CIR  |
|-------------|-------------|-------|----------|-------------|------|------|
| description |             |       |          |             |      |      |
| explain     | HDD PROTECT | Modem | FM TUNER | Fingerprint |      |      |
| BTO         | GSENSOR@    | RJ11@ | FM@      | FP@         | SSD@ | CIR@ |

## SB SM Bus1 Address

## SB SM Bus2 Address

| Power | Device          | HEX  | Address     | Power  | Device     | HEX | Address     |
|-------|-----------------|------|-------------|--------|------------|-----|-------------|
| +3VS  | DDR SO-DIMM 0   | A0 H | 1010 0000 b | +3VALW | WLAN/WIMAX |     |             |
| +3VS  | DDR SO-DIMM 1   | A4 H | 1010 0100 b |        |            |     |             |
| +3VS  | Clock Generator | D2 H | 1101 0010 b |        |            |     |             |
| +3VS  | New Card        |      |             | Power  | Device     | HEX | Address     |
|       |                 |      |             | +3VS   | FM Tuner   |     | Virtual I2C |

## EC SM Bus1 Address

## EC SM Bus2 Address

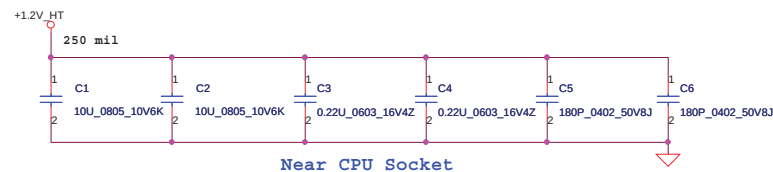
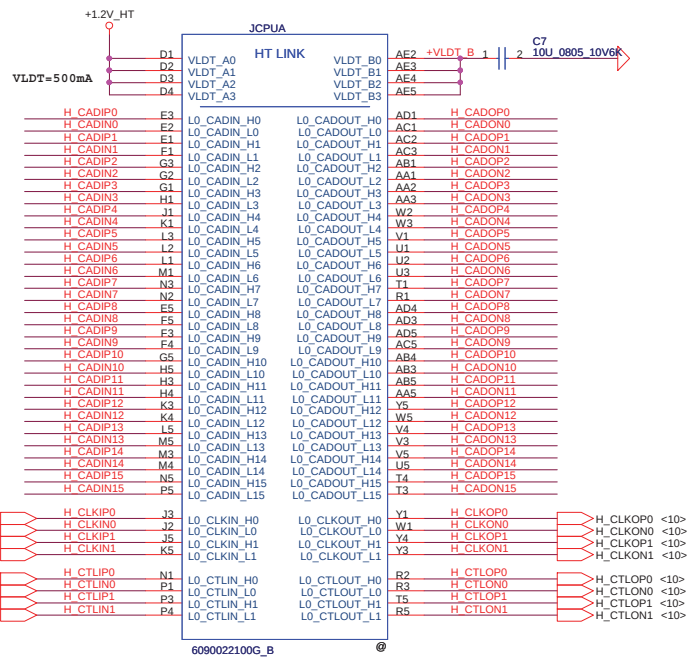
| Power | Device        | HEX  | Address     | Power | Device        | HEX  | Address     |
|-------|---------------|------|-------------|-------|---------------|------|-------------|
| +5VL  | Smart Battery | 16 H | 0001 011X b | +3VS  | CPU_ADM1032-1 | 98 H | 1001 100X b |
| +5VL  | HDMI-CEC      | 34 H | 0011 010X b | +3VS  | VGA_ADM1032-2 | 9A H | 1001 101X b |
|       |               |      |             | +3VS  | G-Sensor      |      |             |
|       |               |      |             | +3VS  | Light Sensor  |      |             |
| Power | Device        | HEX  | Address     |       |               |      |             |
| +3VL  | Cap. Sensor   |      | Virtual I2C |       |               |      |             |

SMBUS Control Table

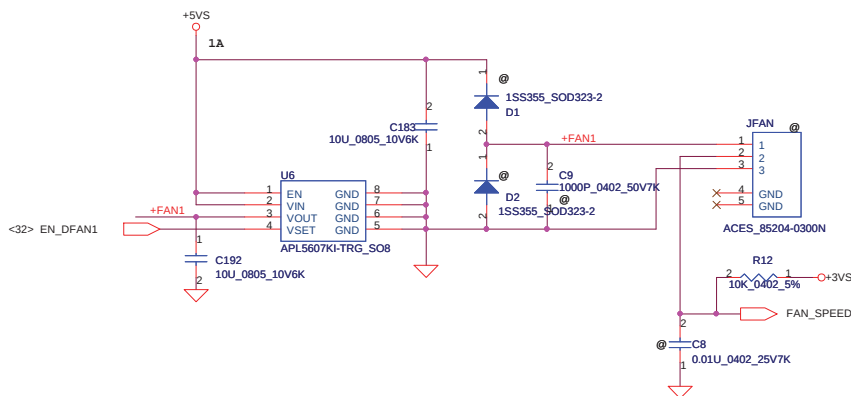
|                          | SOURCE | New Card | BATT | CEC | THERMAL<br>SENSOR<br>CPU &<br>ADM1032 | SODIMM<br>I / II | CLK | 3G/TV | LCD | HDMI | Display<br>Port | G-Sensor |
|--------------------------|--------|----------|------|-----|---------------------------------------|------------------|-----|-------|-----|------|-----------------|----------|
| SMB_EC_CK1<br>SMB_EC_DA1 | KB926  | X        | V    | V   | X                                     | X                | X   | X     | X   | X    | X               | X        |
| SMB_EC_CK2<br>SMB_EC_DA2 | KB926  | X        | X    | X   | V                                     | X                | X   | X     | X   | X    | X               | V        |
| I2C_CLK<br>I2C_DATA      | RS780M | X        | X    | X   | X                                     | X                | X   | X     | V   | X    | X               | X        |
| DDC_CLK0<br>DDC_DATA0    | RS780M | X        | X    | X   | X                                     | X                | X   | X     | X   | V    | X               | X        |
| DDC_CLK1<br>DDC_DATA1    | RS780M | X        | X    | X   | X                                     | X                | X   | X     | X   | X    | V               | X        |
| SCL0<br>SDA0             | SB700  | V        | X    | X   | X                                     | V                | V   | X     | X   | X    | X               | X        |
| SCL1<br>SDA1             | SB700  | X        | X    | X   | X                                     | X                | X   | V     | X   | X    | X               | X        |
| SCL2<br>SDA2             | SB700  | X        | X    | X   | X                                     | X                | X   | X     | X   | X    | X               | X        |
| SCL3<br>SDA3             | SB700  | X        | X    | X   | X                                     | X                | X   | X     | X   | X    | X               | X        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                    |  |                 |  |                          |  |                 |  |                        |  |               |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                    |  |                 |  |                          |  | Document Number |  | LA-5381P               |  | Rev           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                    |  |                 |  |                          |  | Date:           |  | Friday, April 10, 2009 |  | Sheet 3 of 46 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                    |  |                 |  |                          |  | Custom          |  |                        |  | 0.2           |  |

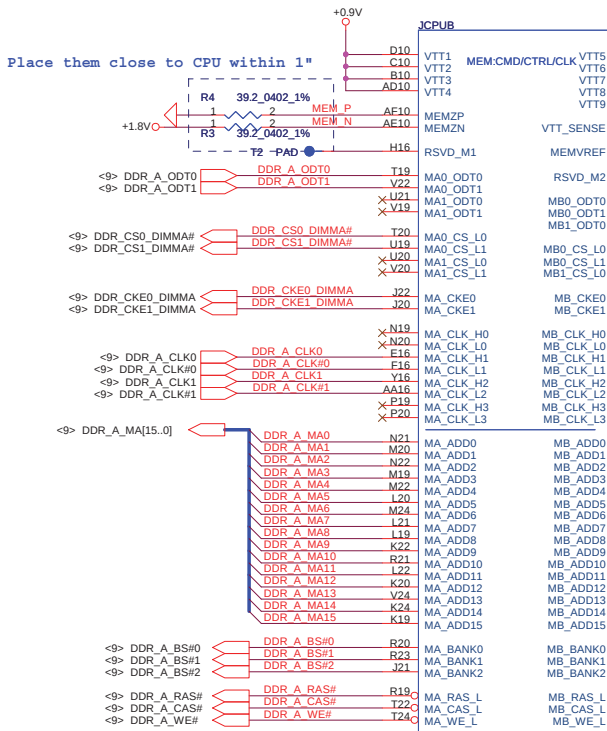
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 <10> H\_CADOP[0..15] H\_CADOP[0..15]  
 <10> H\_CADON[0..15] H\_CADON[0..15]



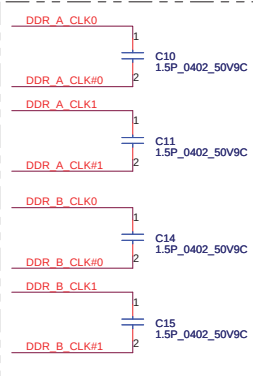
## FAN Control Circuit



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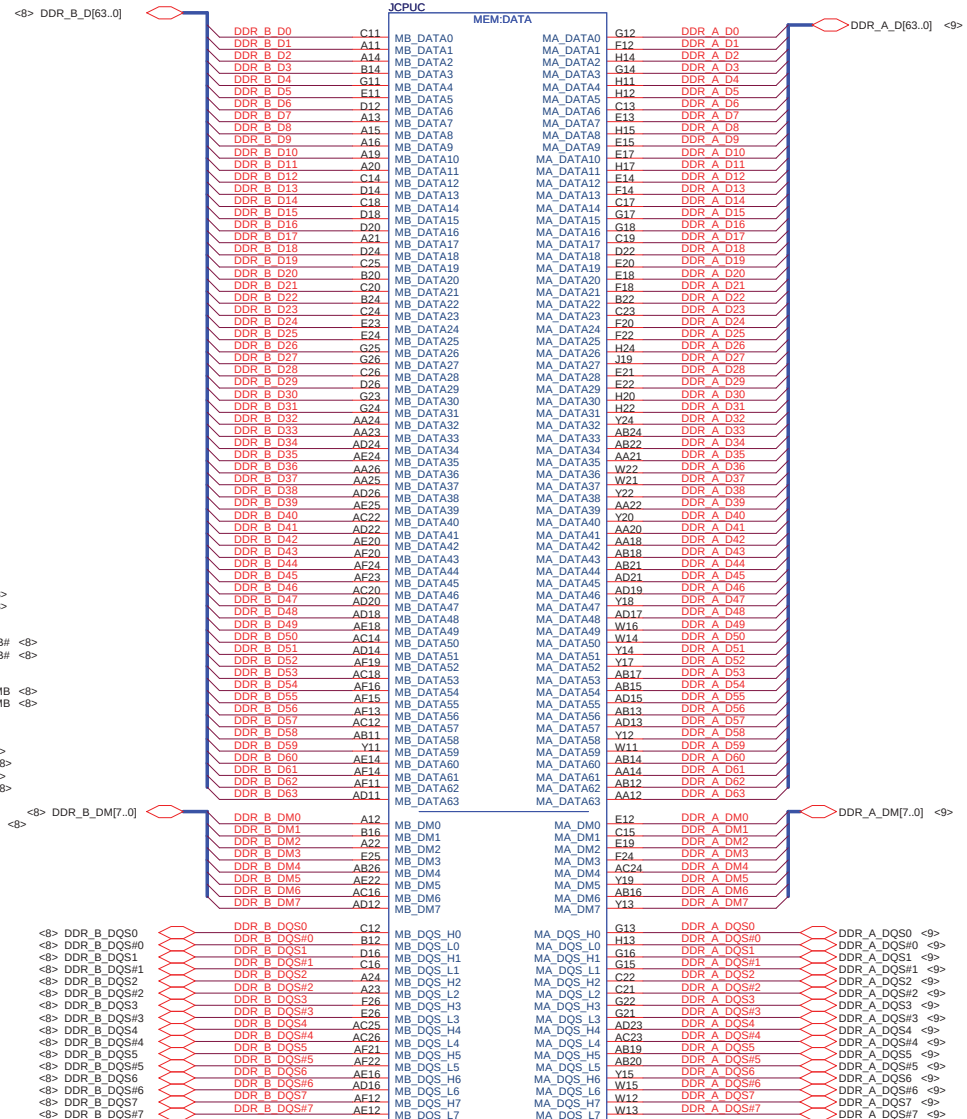
PLACE CLOSE TO PROCESSOR  
WITHIN 1.5 INCH



Place them close to CPU within 1"



## Processor DDR2 Memory Interface

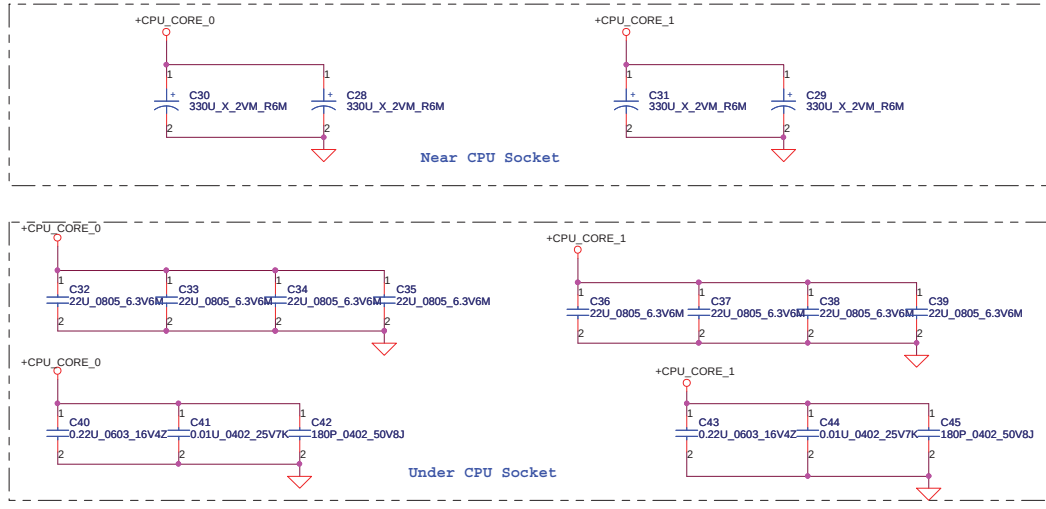


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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b><br><b>AMD CPU S1G2 DDRII I/F</b> |                        |               |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                 |            | Date                                                             | Friday, April 10, 2009 | Sheet 5 of 46 |

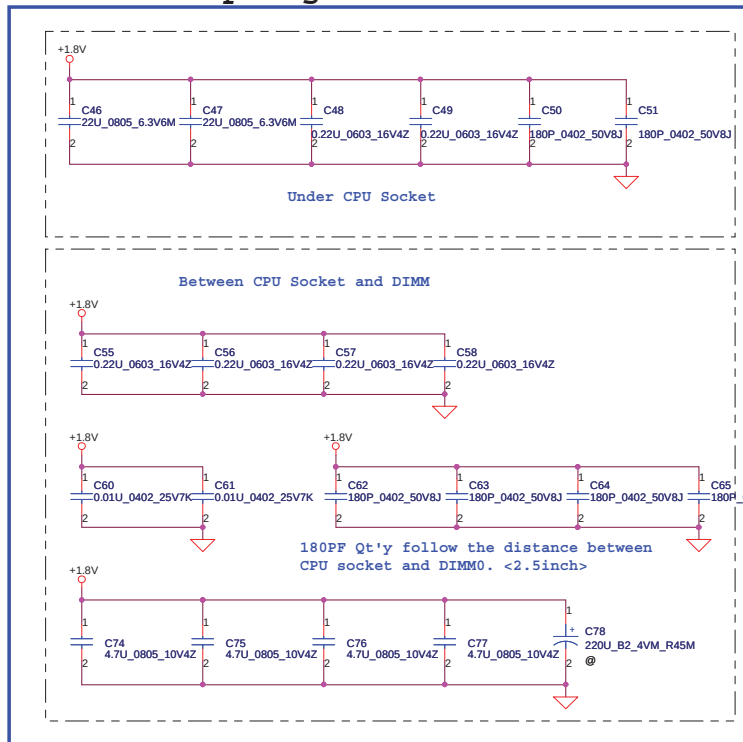


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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b><br><b>AMD CPU S1G2 CTRL</b> |               |         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                 |            | Date: Friday, April 10, 2009                                | Sheet 6 of 46 |         |

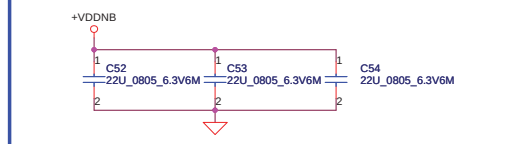
## VDD(+CPU\_CORE) decoupling.



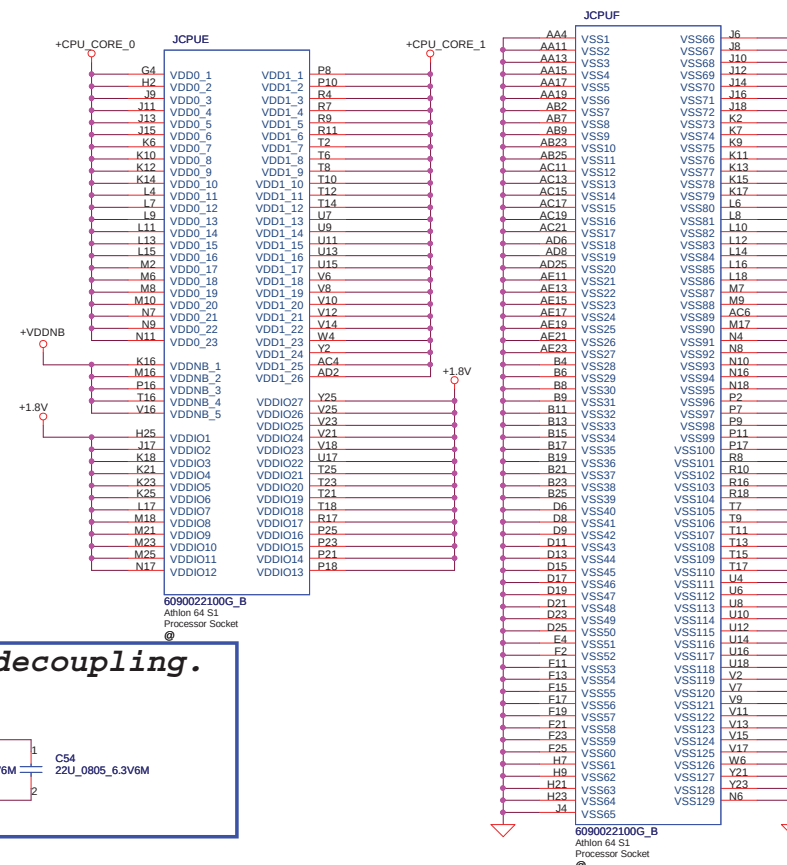
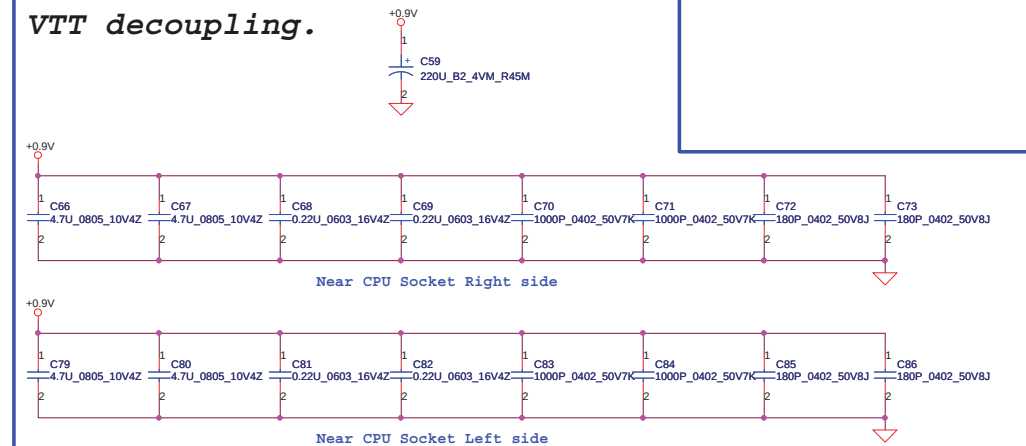
## VDDIO decoupling.



## +CPU\_CORE\_NB decoupling.

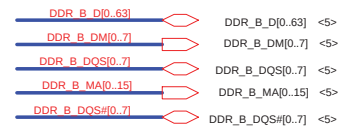


## VTT decoupling.



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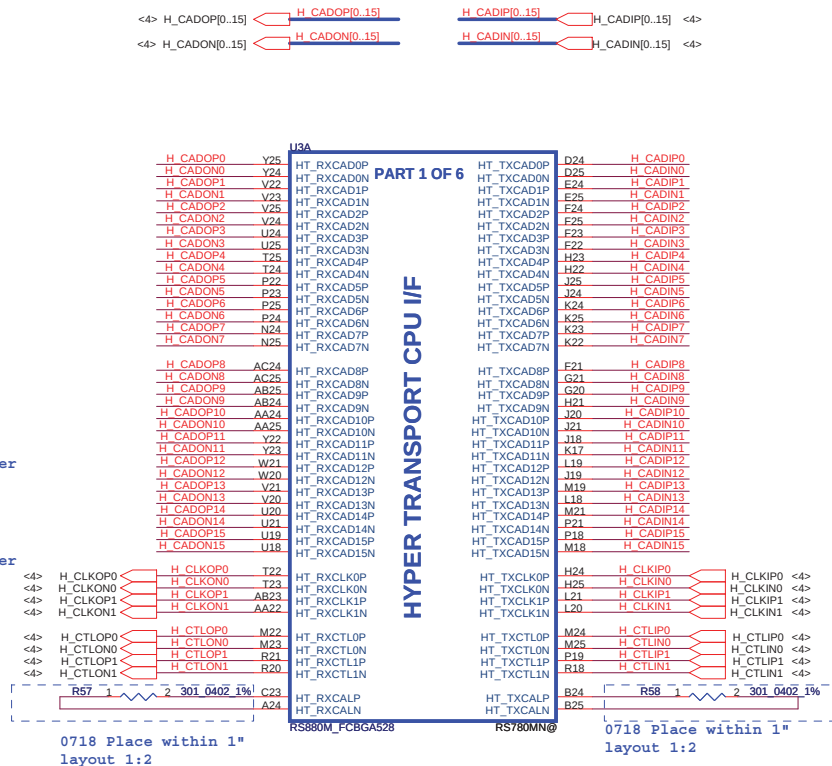


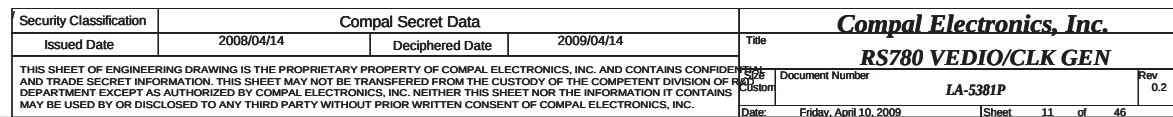
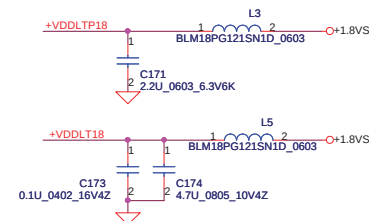
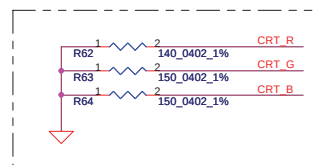


<http://hobi-elektronika.net>

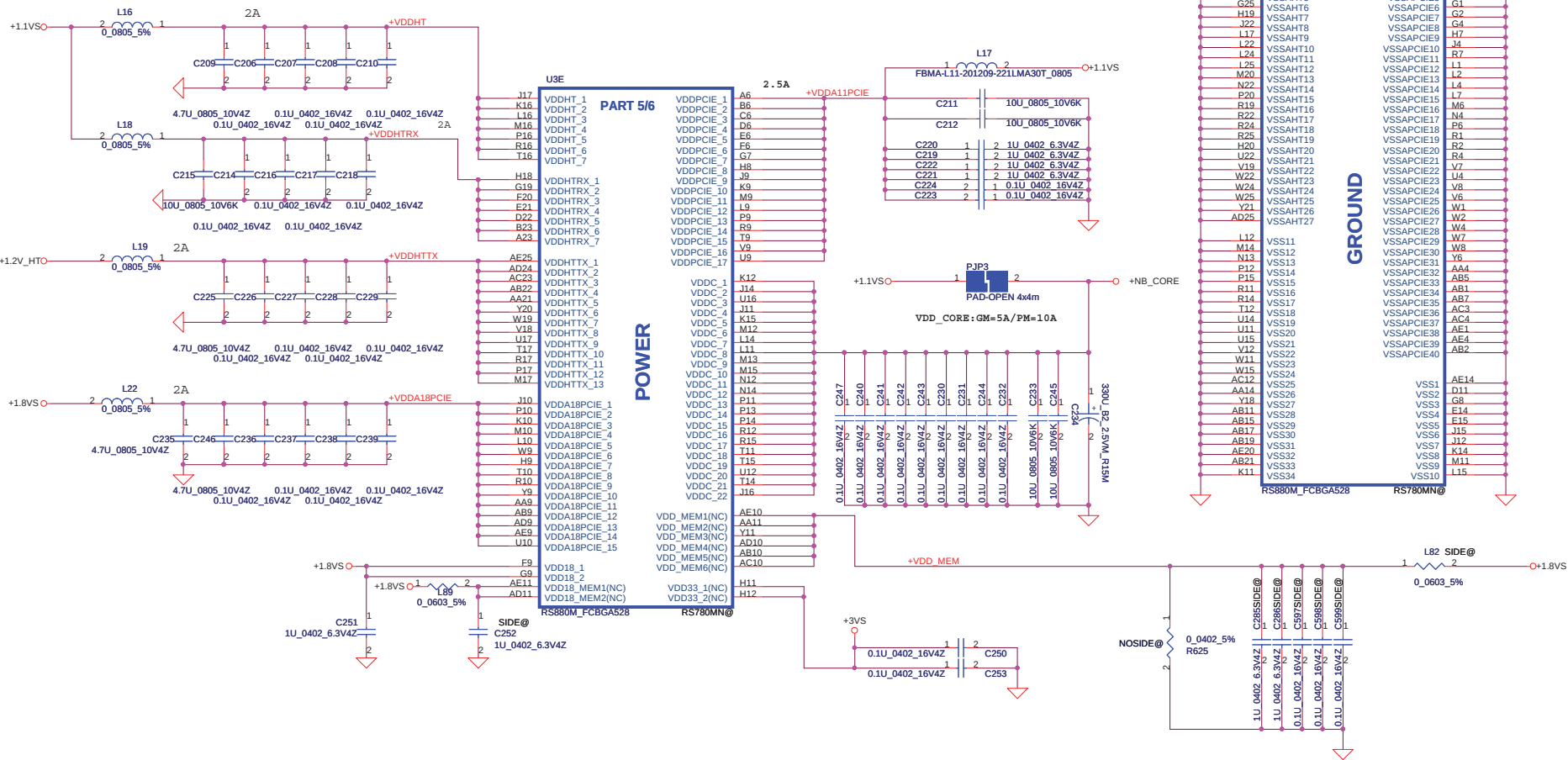




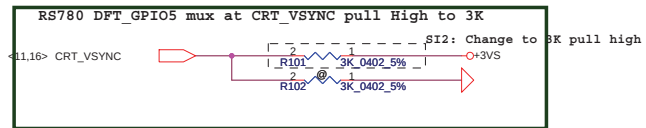








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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                 |            | Friday, April 10, 2009 | Sheet 13 of 46 |



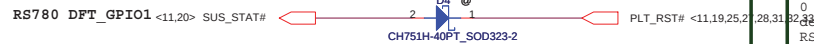
#### DFT\_GPIO5:STRAP\_DEBUG\_BUS\_GPIO\_ENABLEb

Enables the Test Debug Bus using GPIO.  
1 : Enable (RX780, RS780)  
0 : Disable (RX780, RS780)  
PIN: RS740-->RS780\_AUX\_CAL; RX780-->NB\_TV\_C; RS780--> VSYNC#

RS780 use register to control PCI-E configure

#### DFT\_GPIO[4:2]: STRAP\_PCIE\_GPP\_CFG[2:0]

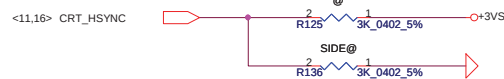
These pin straps are used to configure PCI-E GPP mode.  
000 : 00001  
001 : 00010  
010 : 01011  
011 : 00100  
100 : 01010  
101 : 01100  
111 : 01011



#### 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: DFT\_GPIO1 RS780:SUS\_STAT

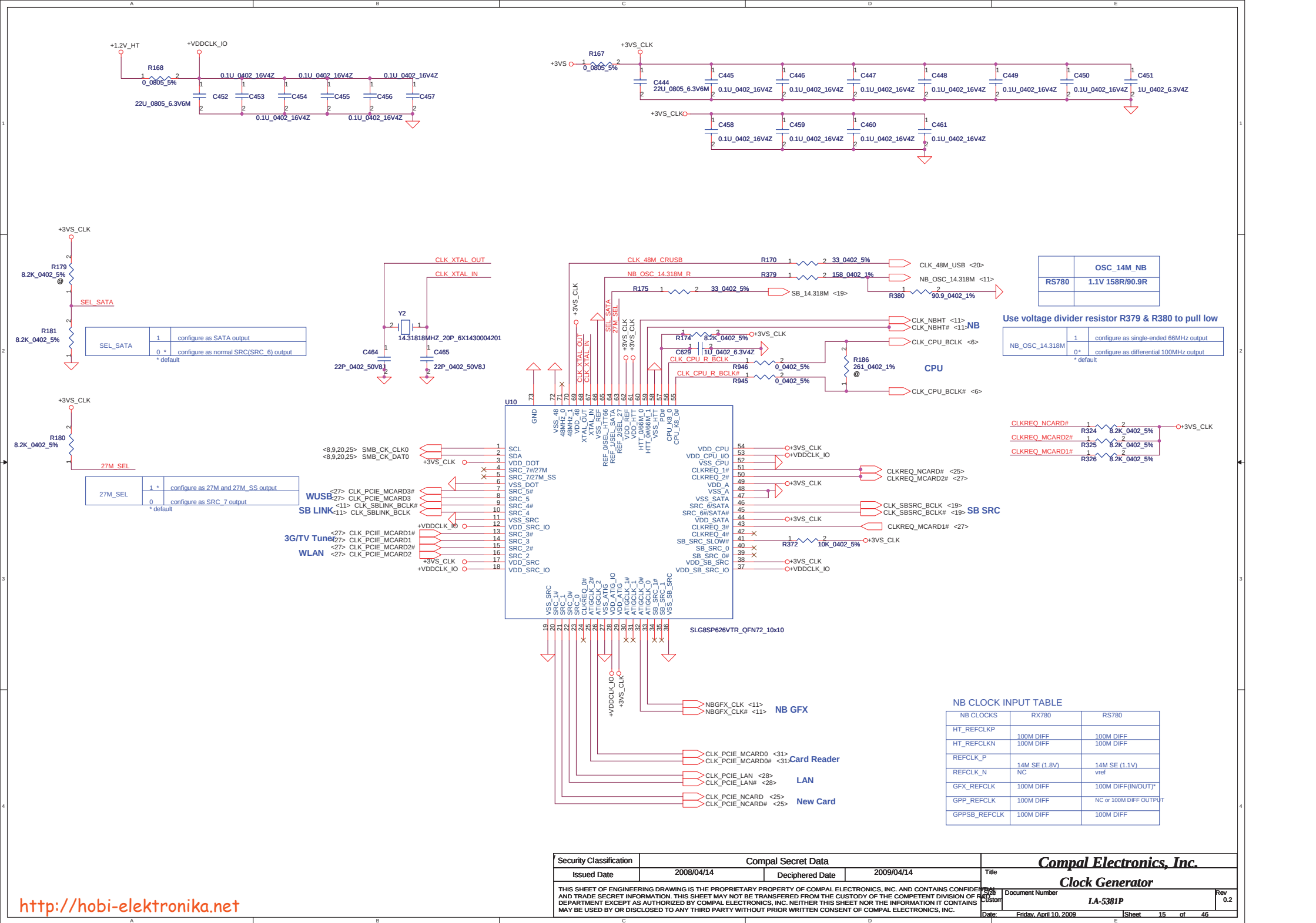
RS780 use HSYNC to enable SIDE PORT (internal pull high)



#### DFT\_GPIO0: STRAP\_DEBUG\_BUS\_PCIE\_ENABLEb

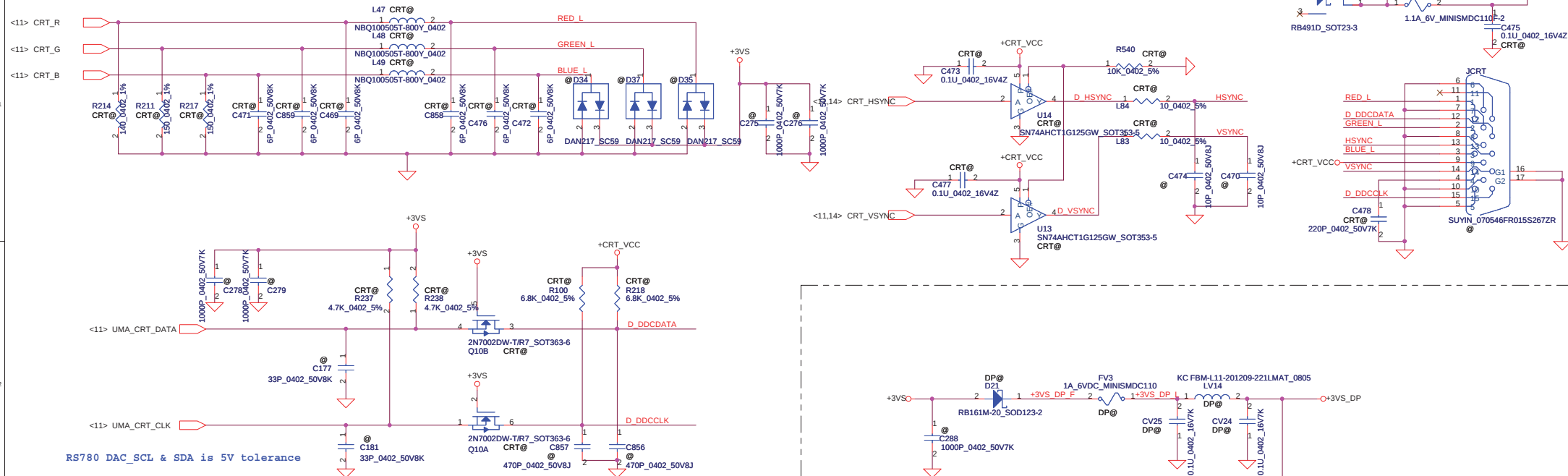
RX780: Enables the Test Debug Bus using PCIE bus  
1 : Disable ( Can still be enabled using nbcfg register access )  
0 : Enable

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

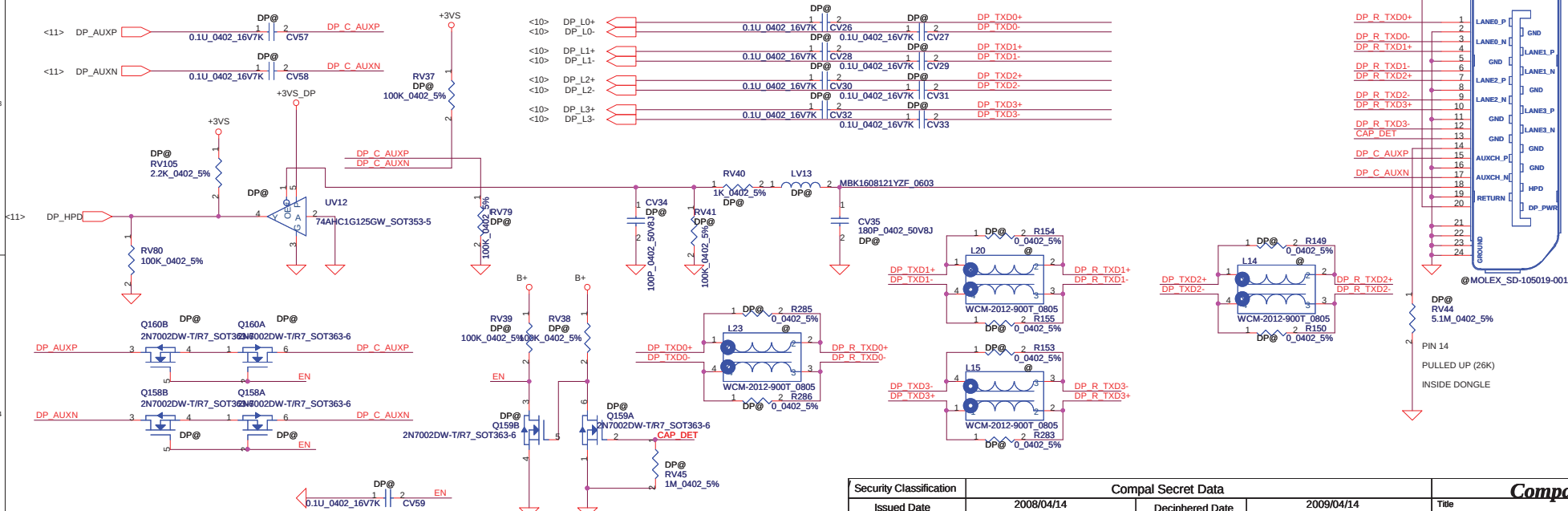




**CRT CONNECTOR**

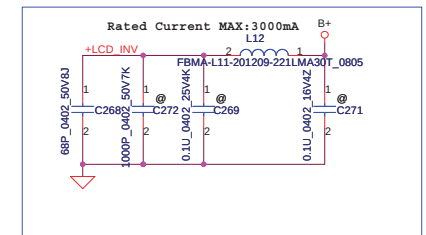
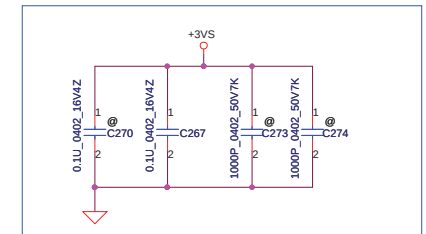
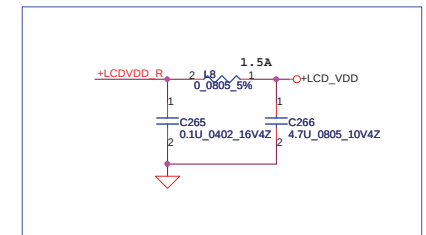
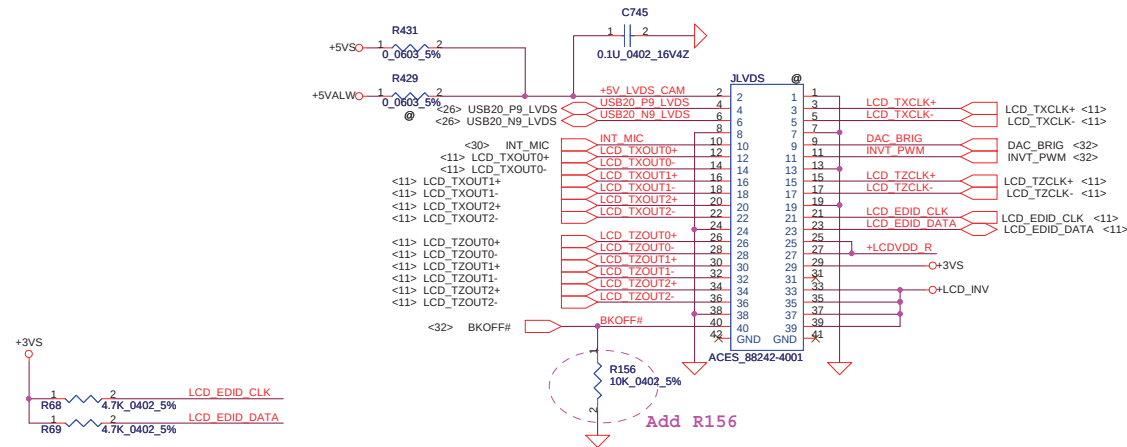
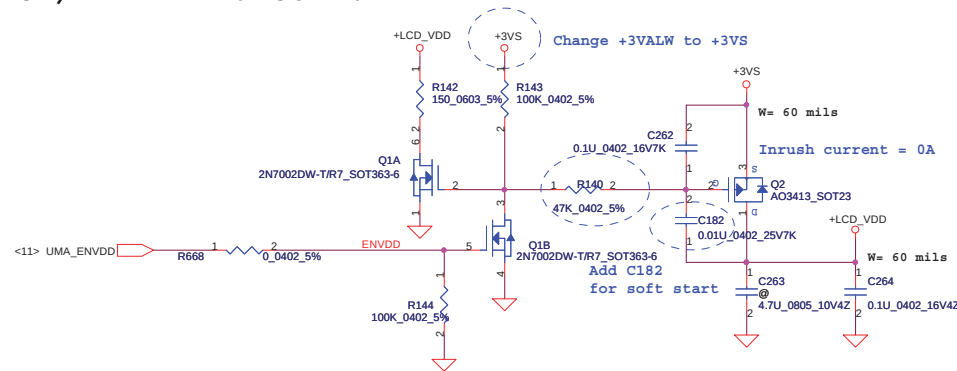


## Display Port



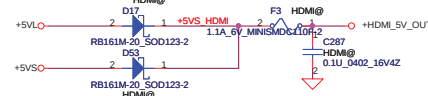
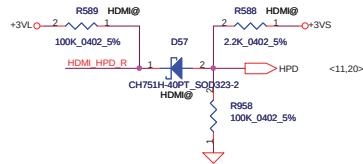
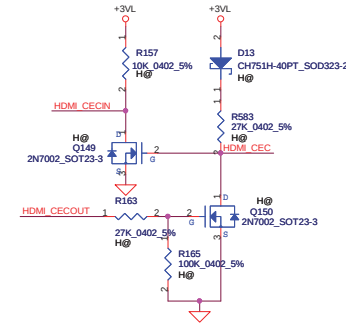
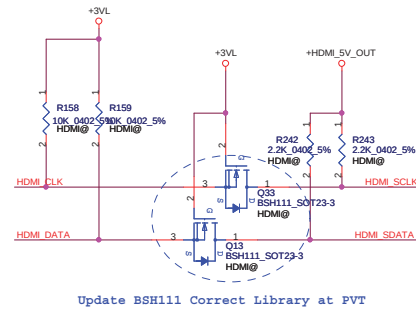
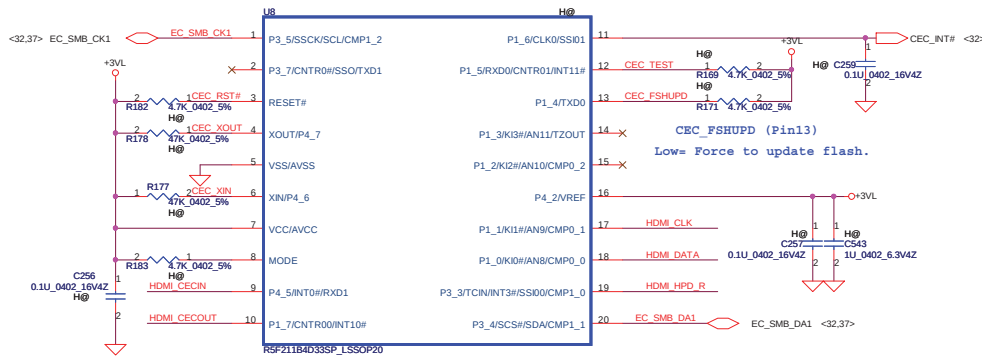
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                                                |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|----------------------------------------------------------------|------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics, Inc.</b><br><b>CRT/TV-OUT Connector</b> |                              |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14 | Deciphered Date    | 2009/04/14 | Title                                                          |                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Document Number                                                | 0.2                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: <u>Friday, April 10, 2009</u>                            | Sheet <u>16</u> of <u>46</u> |

# LCD/PANEL BD. Conn.

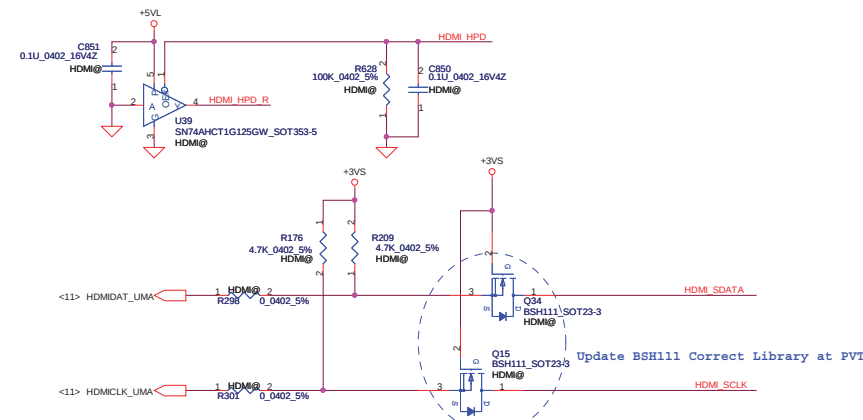
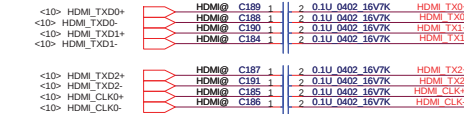
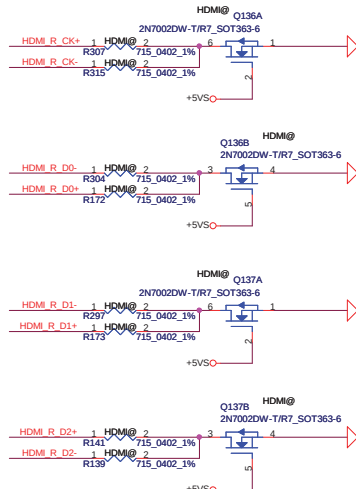
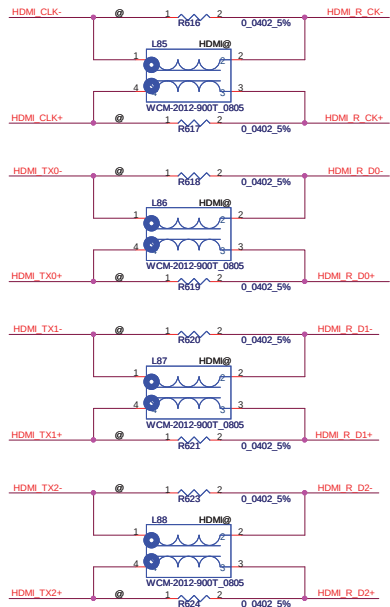
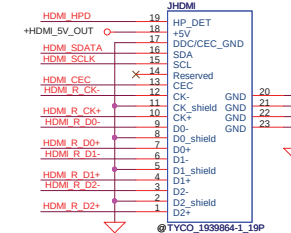


| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                        |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------------|----------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14 | Deciphered Date    | 2009/04/14 | Compal Electronics, Inc.     |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | LA-5381P                     | 0.2            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Friday, April 10, 2009 | Sheet 17 of 46 |

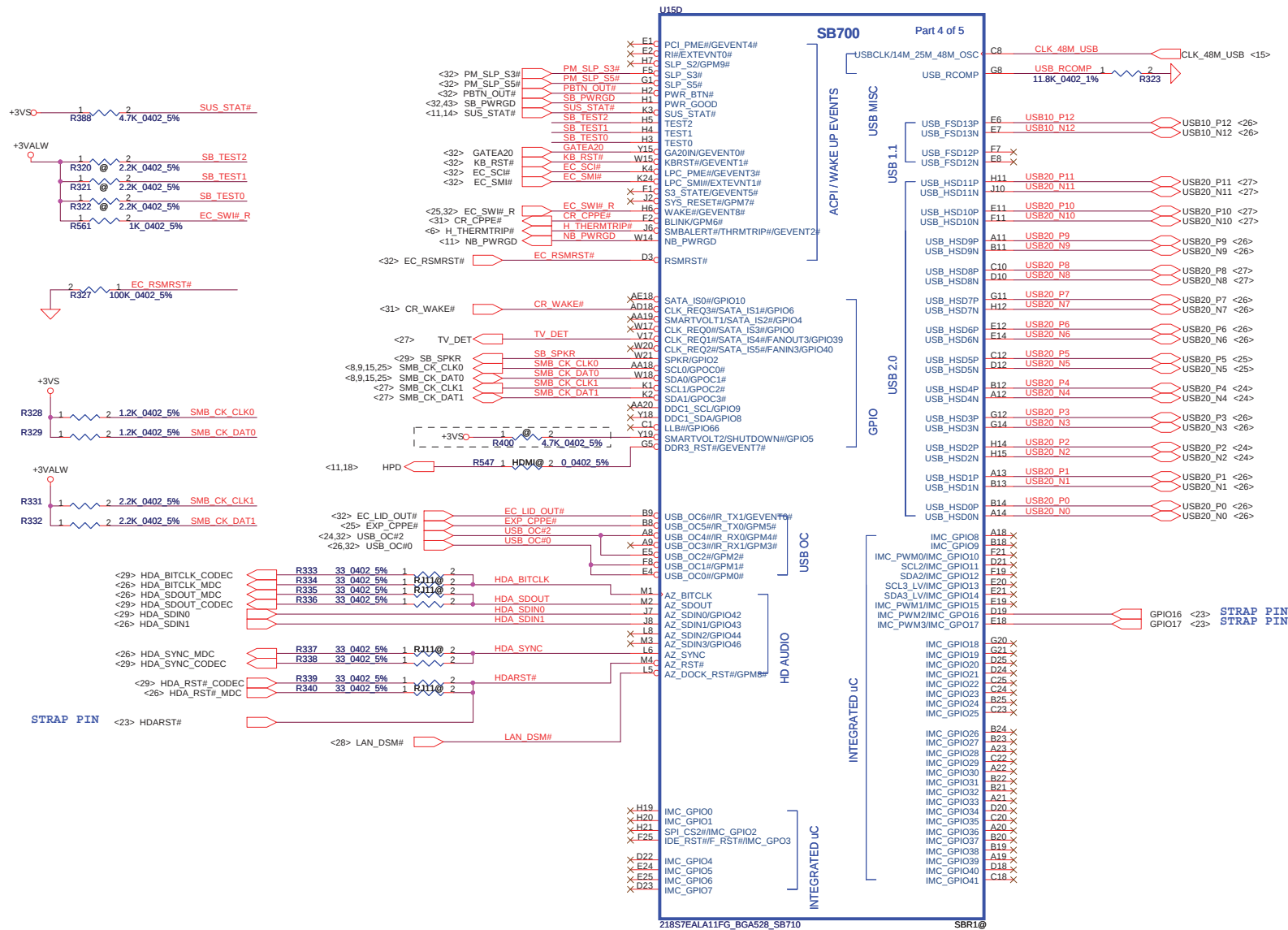
# HDMI CEC Controller

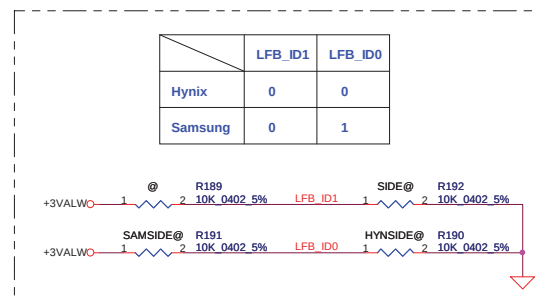
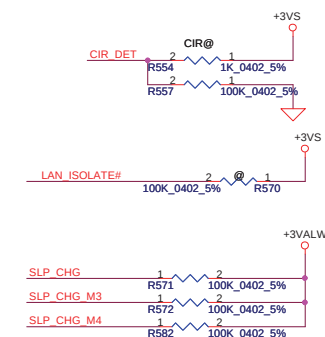
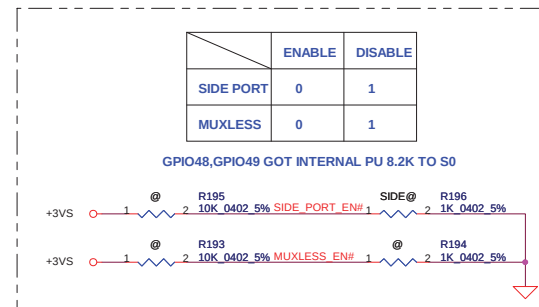


## HDMI Connector









<http://hobi-elektronika.net>

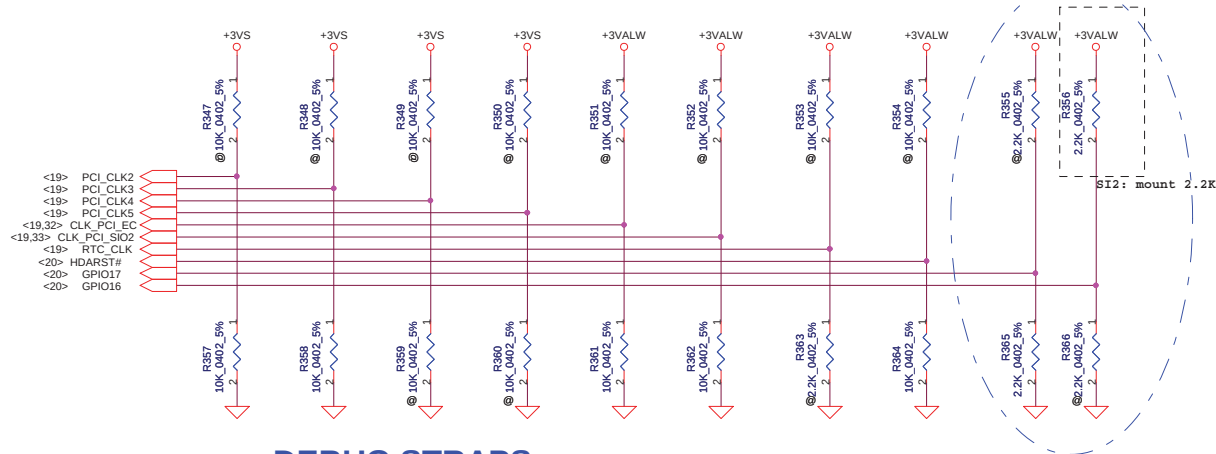




## REQUIRED STRAPS

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

|           | PCI_CLK2                                 | PCI_CLK3                             | PCI_CLK4 | PCI_CLK5 | LPC_CLK0                               | LPC_CLK1                          | RTC_CLK                                                 | AZ_RST_CD#                    | GP17                                                                                                | GP16 |
|-----------|------------------------------------------|--------------------------------------|----------|----------|----------------------------------------|-----------------------------------|---------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------|------|
| PULL HIGH | 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>H,L = SPI ROM<br><br>L,H = LPC ROM (Default)<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><br>DEFAULT |                                                                                                     |      |

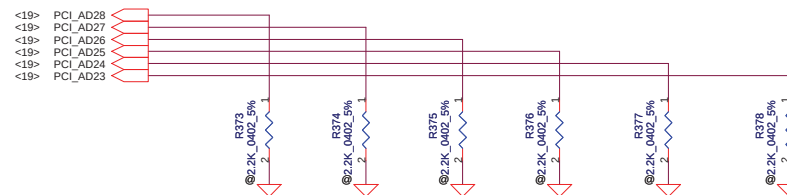


## DEBUG STRAPS

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

Need to confirm if SB SPI ROM will mount

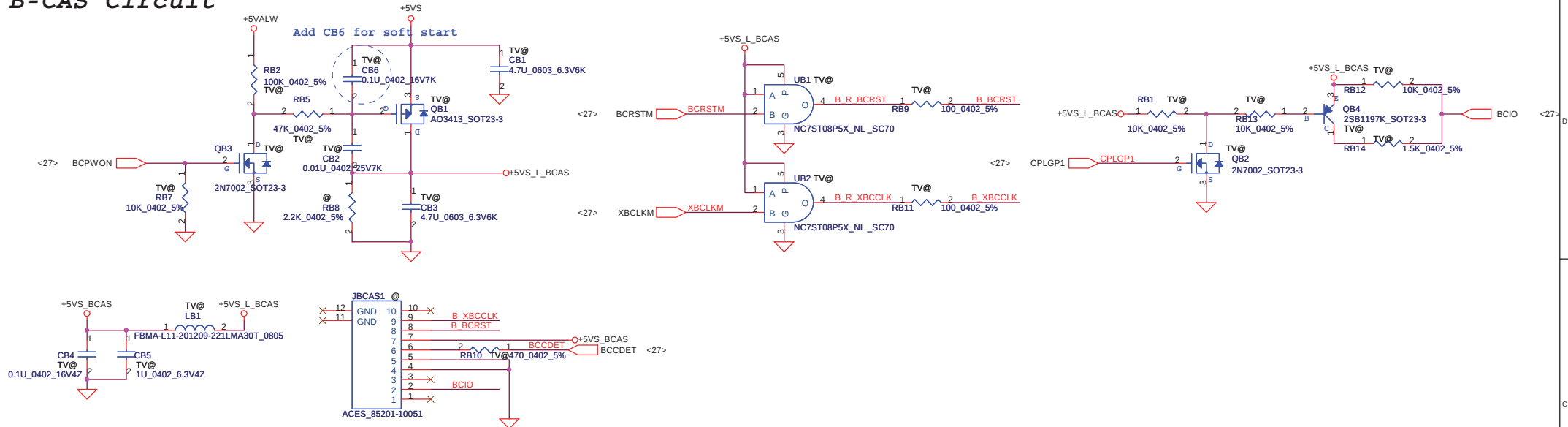
|                  | PCI_AD28                        | PCI_AD27                  | PCI_AD26                    | PCI_AD25                  | PCI_AD24                              | PCI_AD23 |
|------------------|---------------------------------|---------------------------|-----------------------------|---------------------------|--------------------------------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



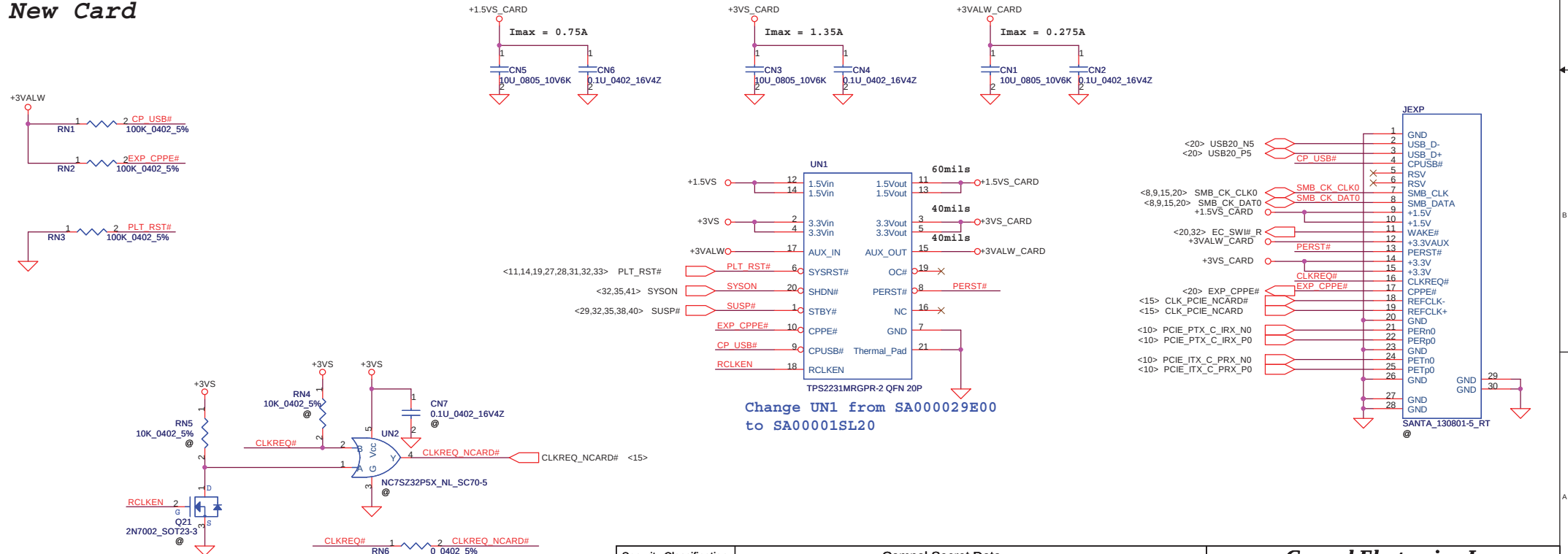
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|----------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Title                    |          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14         | Deciphered Date | 2009/04/14 | Compal Electronics, Inc. |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | LA-5381P                 | 0.2      |
| Date: Friday, April 10, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 |            | Sheet                    | 23 of 46 |



# B-CAS Circuit

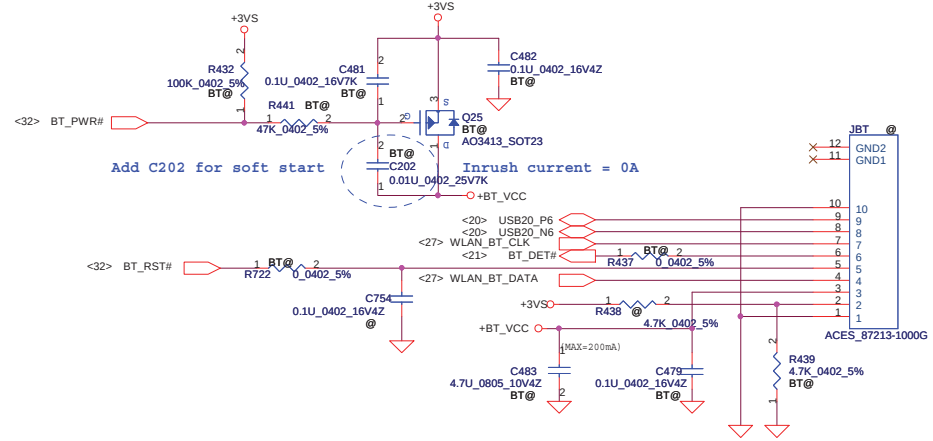


# New Card

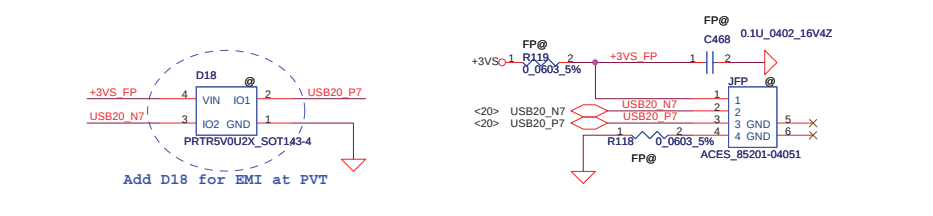


| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  | Compal Secret Data           |  |  |  | Compal Electronics, Inc. |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|------------------------------|--|--|--|--------------------------|--|--|--|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  | 2008/10/06                   |  |  |  | eSATA/NEW CARD           |  |  |  |
| Deciphered Date                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  | 2009/10/06                   |  |  |  | LA-5381P                 |  |  |  |
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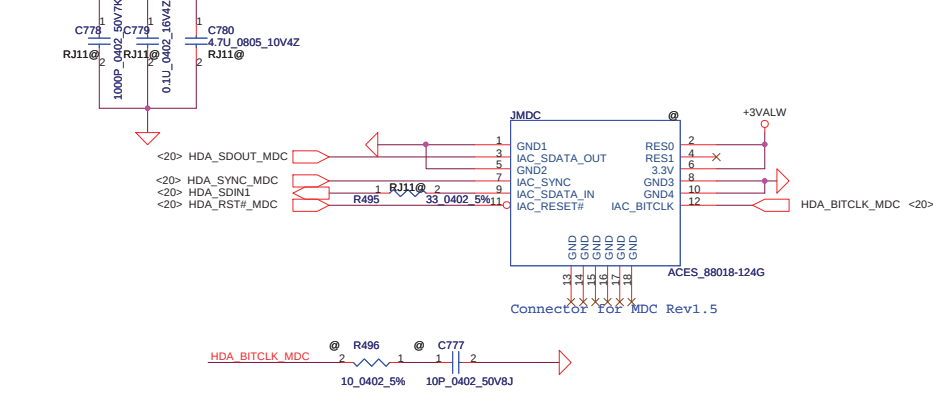
BlueTooth Interface



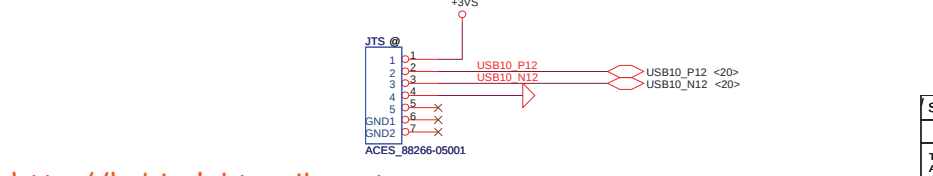
Finger printer



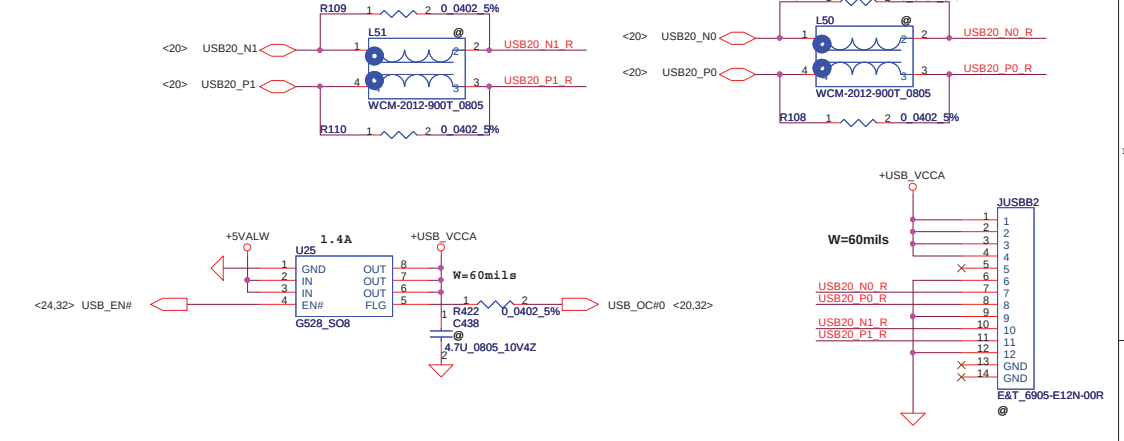
MDC 1.5 Conn.



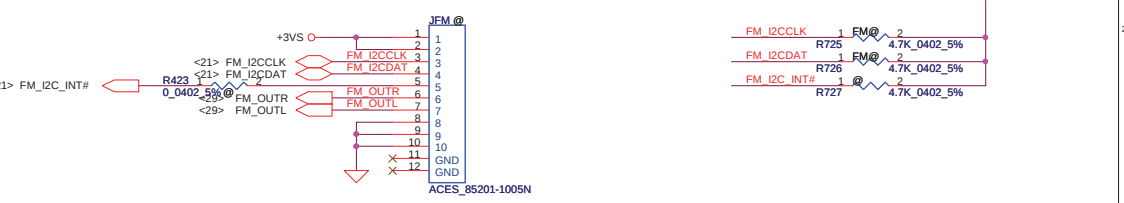
Touch Screen



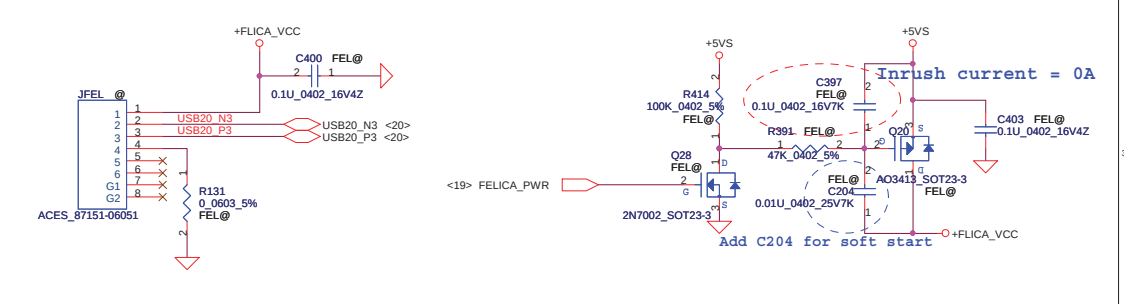
Right USB Board



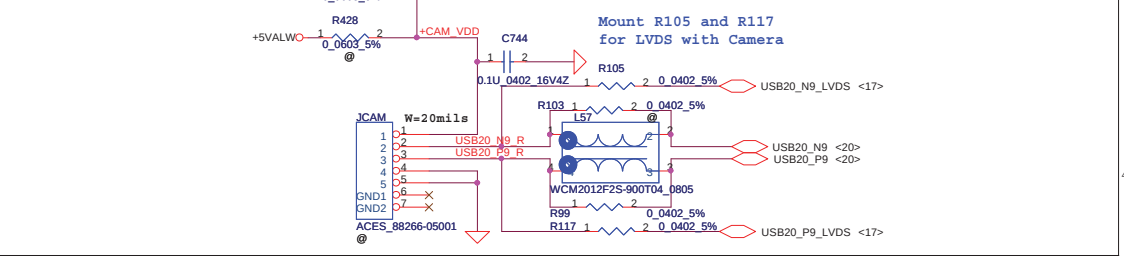
FM Tuner



Felica

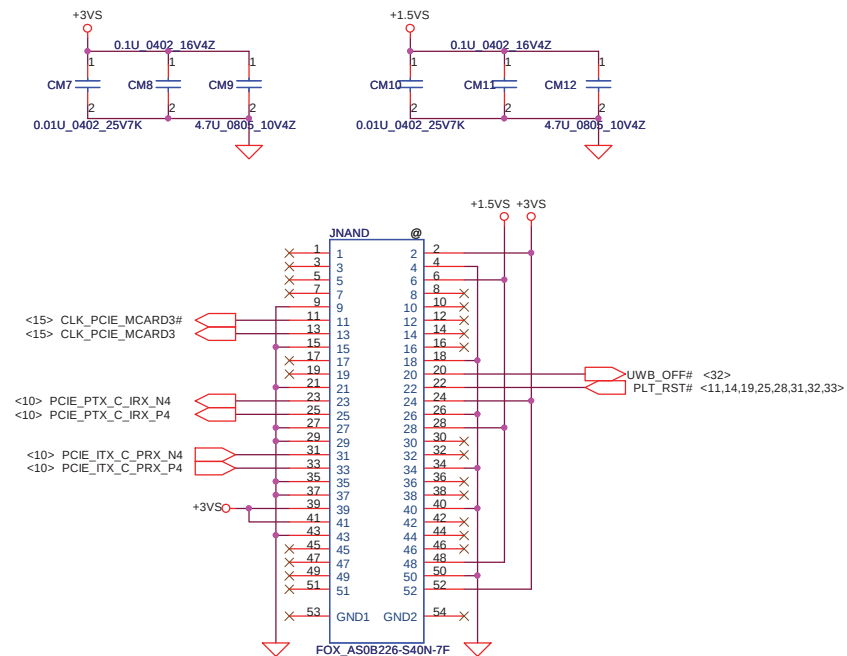
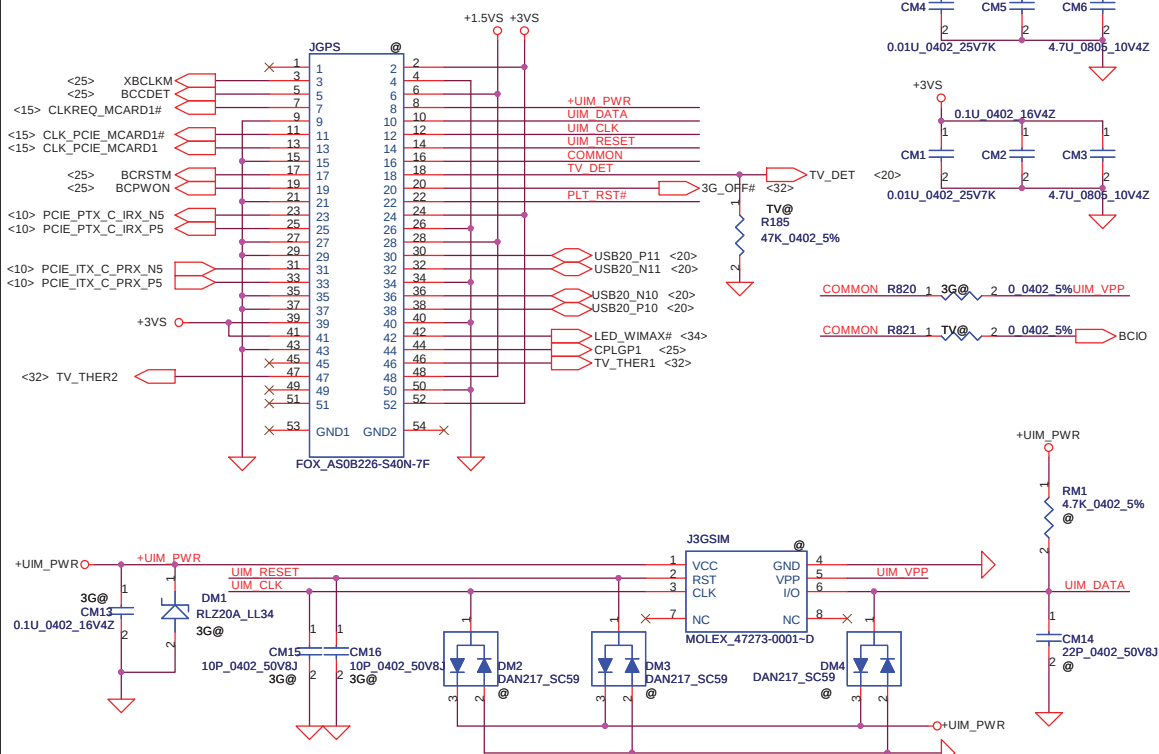


Int. Camera

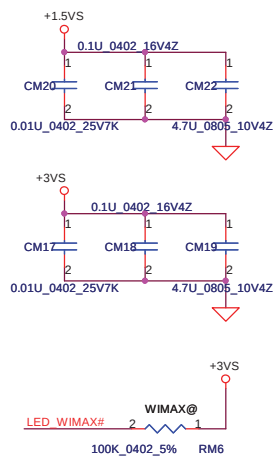
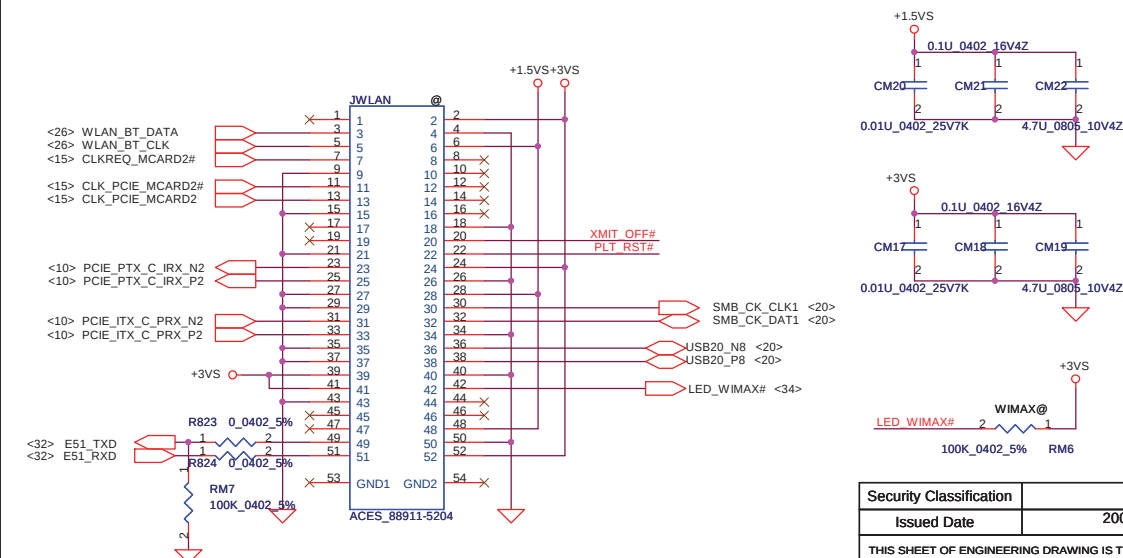


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                 |            |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compal Secret Data |                 | Title      |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2008/04/14         | Deciphered Date | 2009/04/14 | Compal Electronics, Inc. |
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| Date: Friday, April 10, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                 |            | Rev 0.2                  |

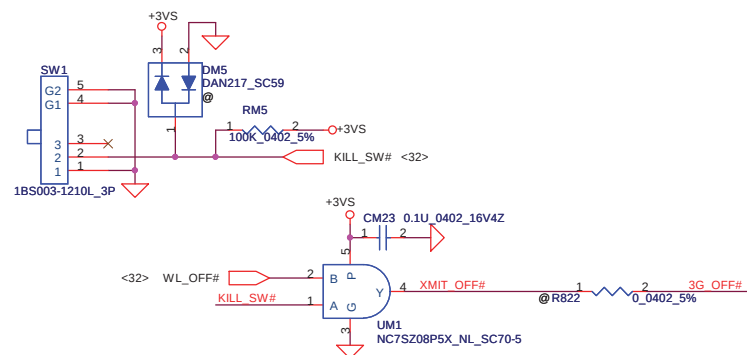
*WUSB or Upconvert (Slot 3)*



*PCIe Mini Card-WLAN/WiMax (Slot 1)*

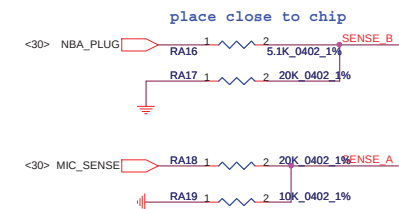
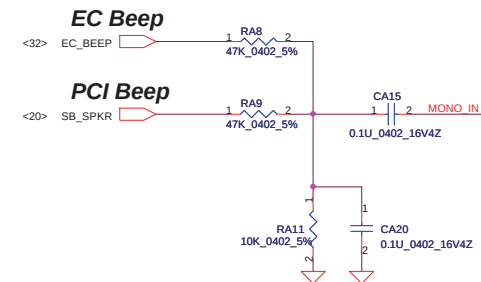
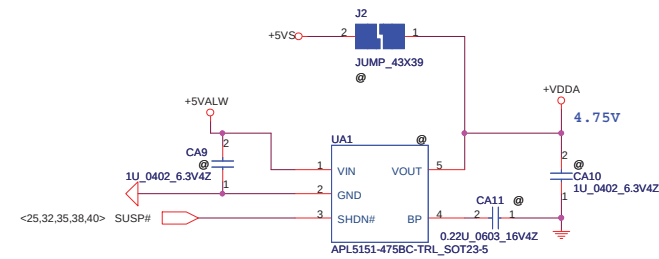
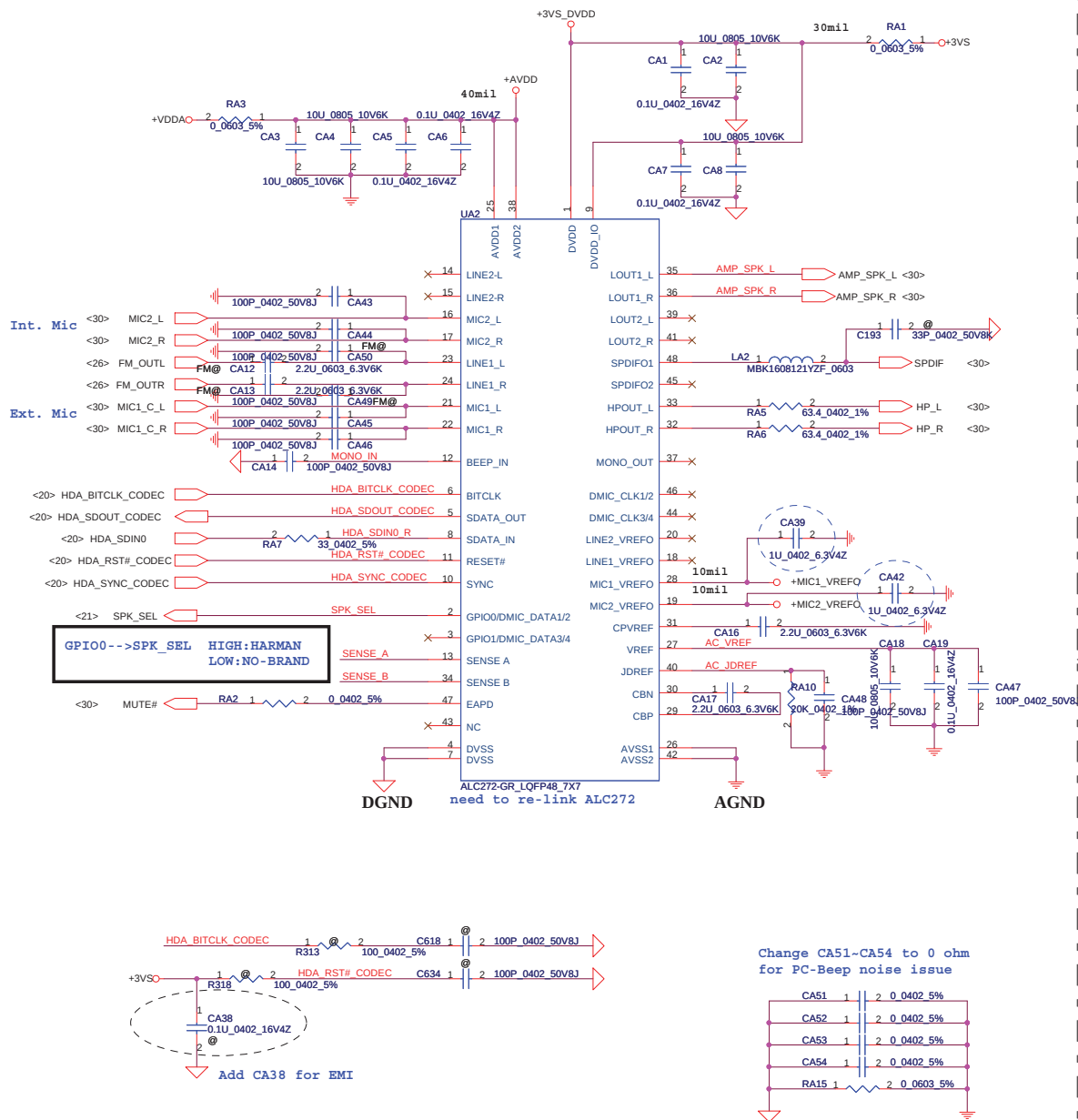


## Kill SWITCH



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                   |                             |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-----------------------------------|-----------------------------|-------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.          |                             |                   |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/09/05 | Deciphered Date    | 2009/09/05 | Title<br>PCie-WLAN/HDDVD/NAND/NEW |                             |                   |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                              | Friday, April 10, 2009      | Sheet<br>27 of 46 |



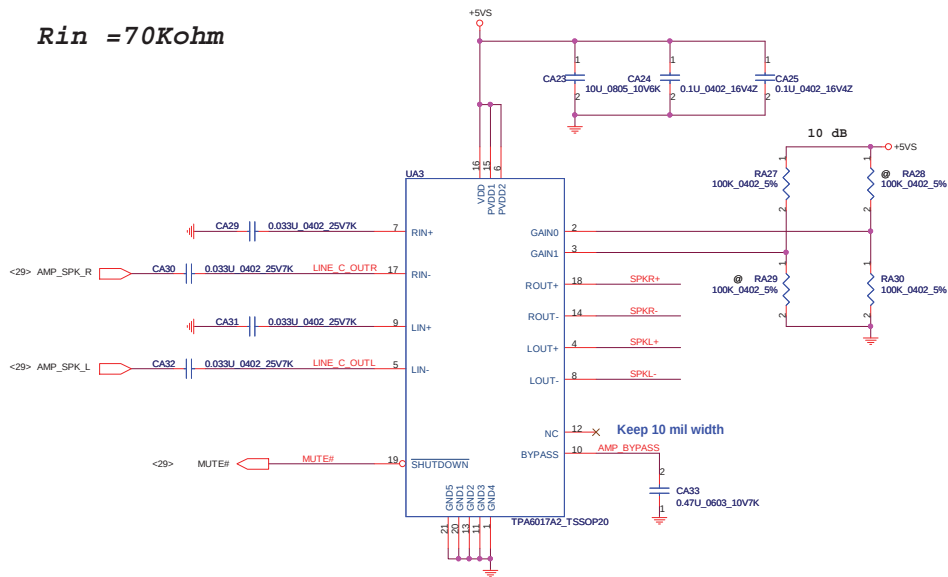


| Sense Pin | Impedance | Codec Signals       | Function      |
|-----------|-----------|---------------------|---------------|
| SENSE A   | 39.2K     | PORT-A (PIN 39, 41) | Ext. MIC      |
|           | 20K       | PORT-B (PIN 21, 22) |               |
|           | 10K       | PORT-C (PIN 23, 24) |               |
|           | 5.1K      | PORT-D (PIN 35, 36) |               |
| SENSE B   | 39.2K     | PORT-E (PIN 14, 15) | Int. MIC      |
|           | 20K       | PORT-F (PIN 16, 17) |               |
|           | 10K       | PORT-H (PIN 37)     |               |
|           | 5.1K      | PORT-I (PIN 32, 33) | Headphone out |



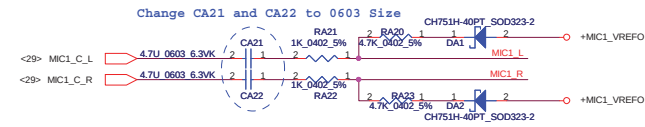
# TPA6017 Medium Range Amplifier

$R_{in} = 70Kohm$

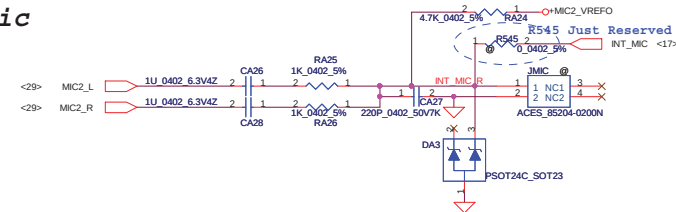


| GAIN0 | GAIN1 | Av (db) | Rin (ohm) |
|-------|-------|---------|-----------|
| 0     | 0     | 6       | 90K       |
| 0     | 1     | 10      | 70K       |
| 1     | 0     | 15.6    | 45K       |
| 1     | 1     | 21.6    | 25K       |

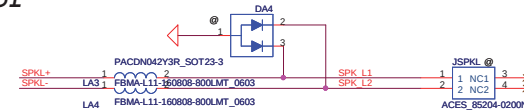
## Ext. Mic



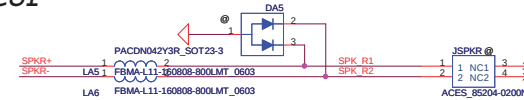
## Int. Mic



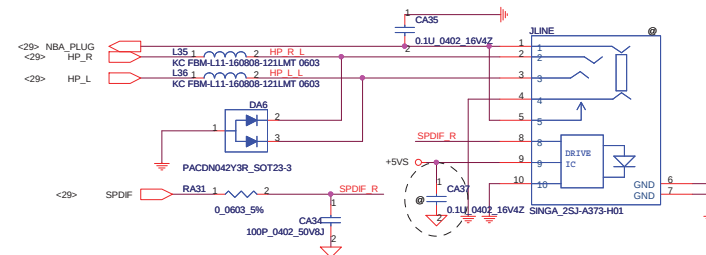
## Left Connector



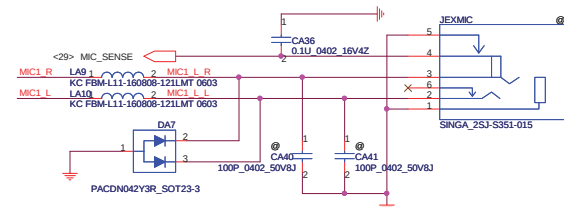
## Right Connector



## HeadPhone/LINE Out JACK

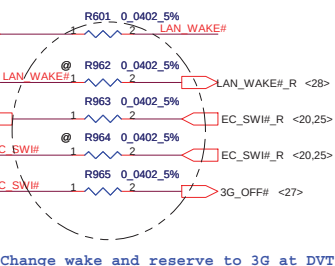
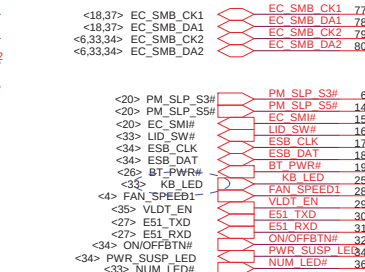
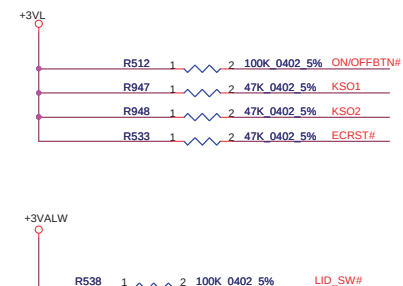
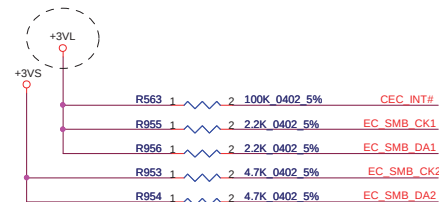
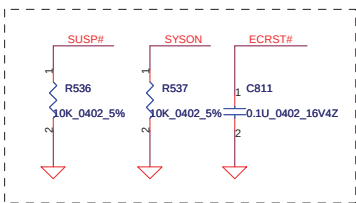


## Ext.MIC/LINE IN JACK

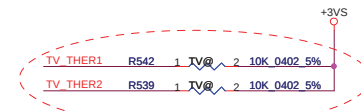
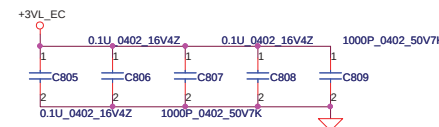
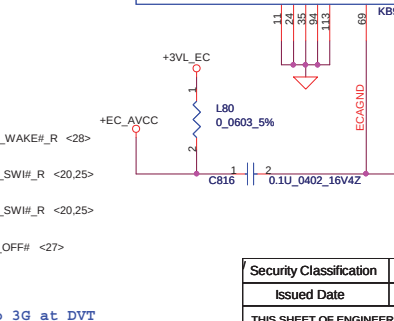
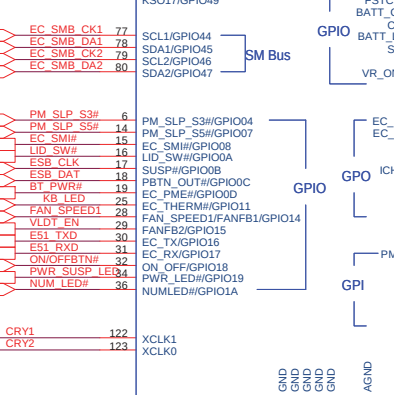
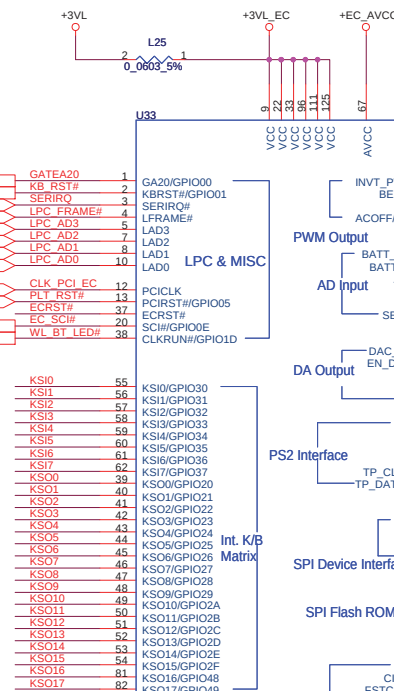




<33,34> KSI[0..7] KSI[0..7]  
<33,34> KSO[0..17] KSO[0..17]



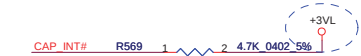
Change wake and reserve to 3G at DVT



Change R539 and R542 to 10K



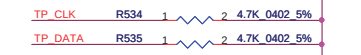
Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



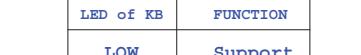
Change CAP\_INT# pull high to +3V



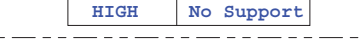
Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



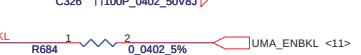
Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



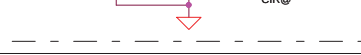
Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V



Change CAP\_INT# pull high to +3V

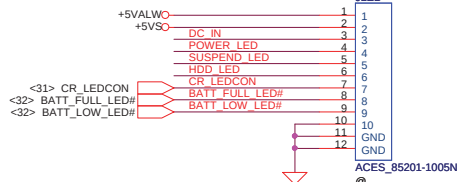
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                  |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------|----------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14 | Deciphered Date    | 2009/04/14 | ENE KB926C             |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | LA-538IP               |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Friday, April 10, 2009 | Sheet 32 of 46 |



## Power Button & PWR/B



## LED/B Connector

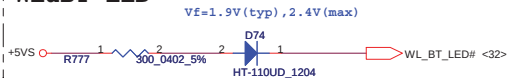


## Touch/B Connector

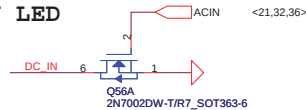


Add ESD Diode for ESD 20090201

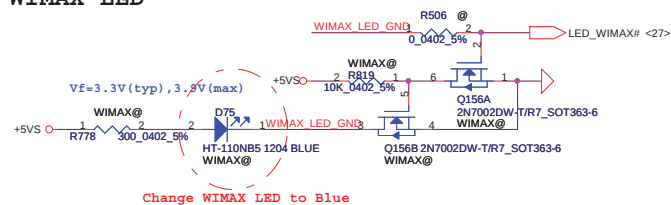
## WL&amp;BT LED



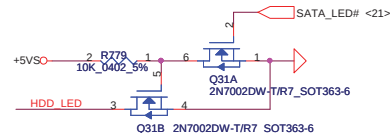
DC-IN LED



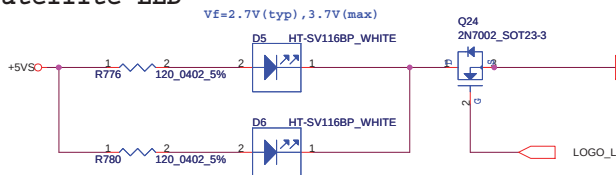
## WiMAX LED



## HDD LED



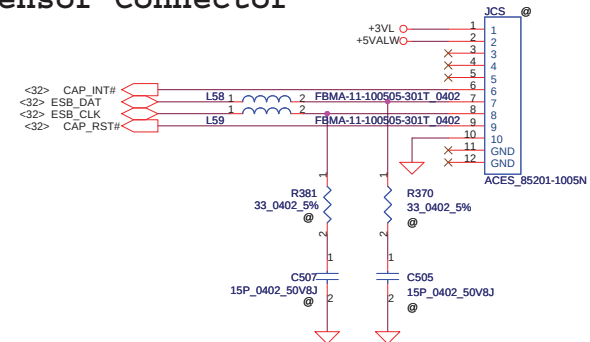
## Satellite LED



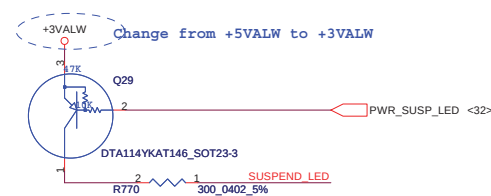
## Light Pipe Connector



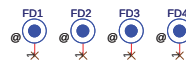
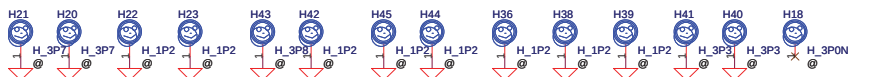
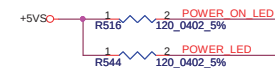
## Caps Sensor Connector



SUSPEND LED

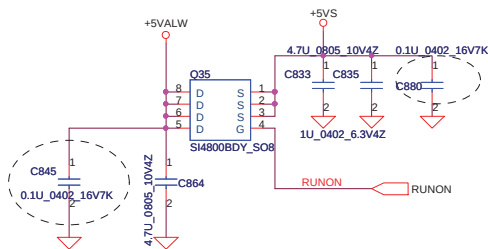


## POWER LED

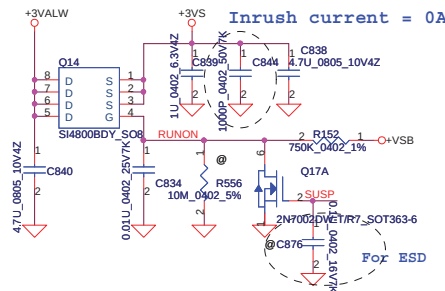


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                                                    |                |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------------------------------------------------|----------------|---------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b><br><b>LED/LID/PB/FB/SCREW HOLE</b> |                |         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14         | Deciphered Date | 2009/04/14 | Title                                                              |                |         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: Friday, April 10, 2009                                       | Sheet 34 of 46 |         |

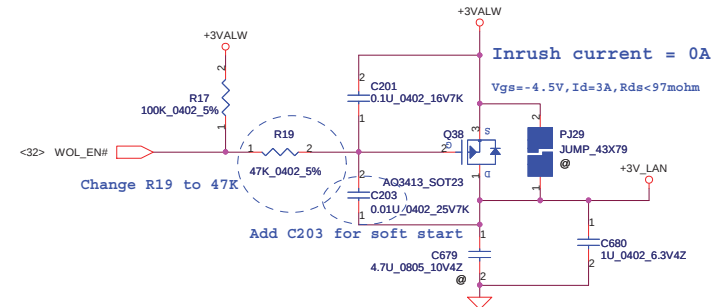
### +5VALW TO +5VS



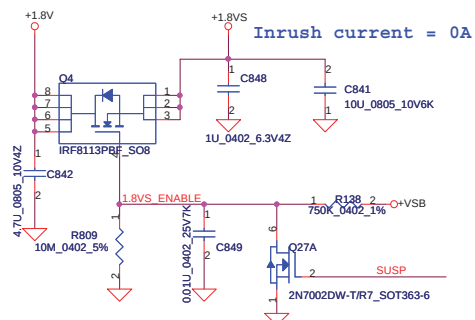
### +3VALW TO +3VS



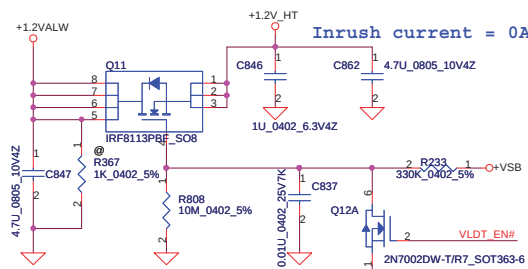
### +3VALW TO +3V\_LAN



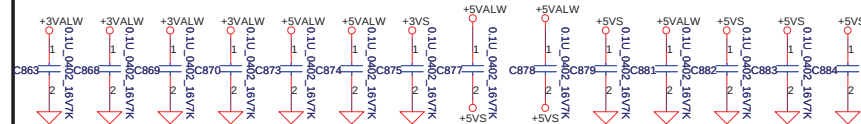
### +1.8V TO +1.8VS



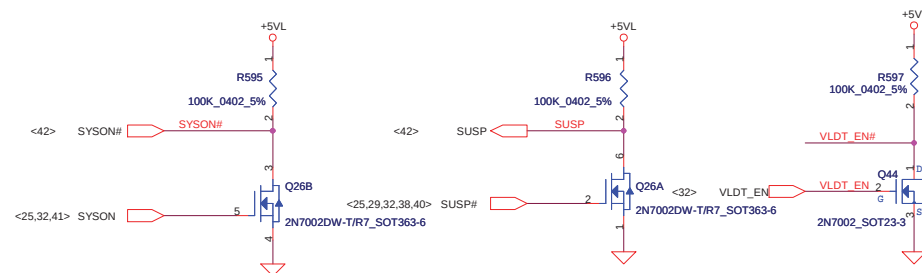
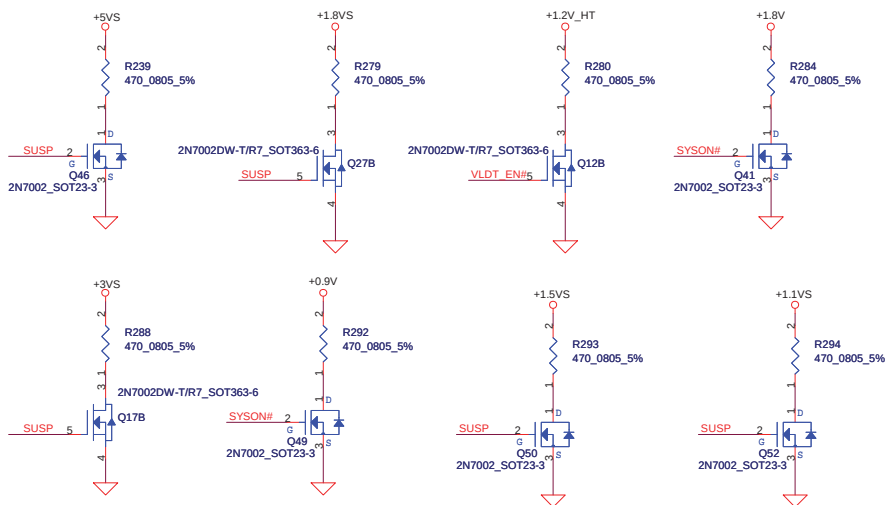
### +1.2VALW TO +1.2V\_HT



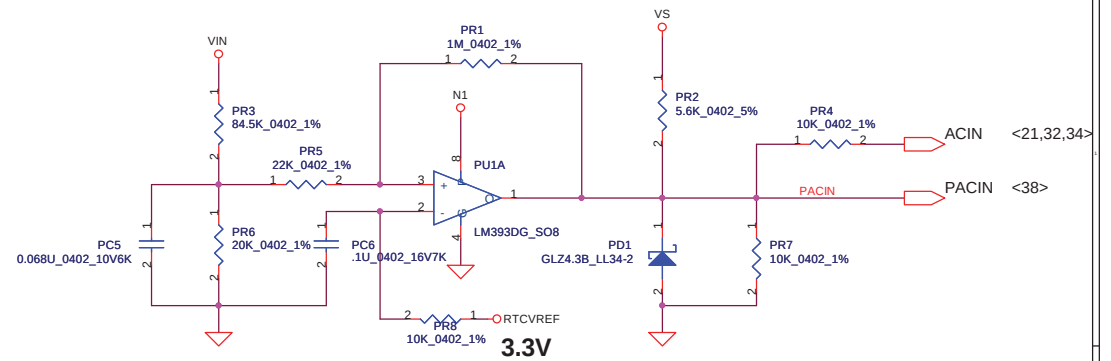
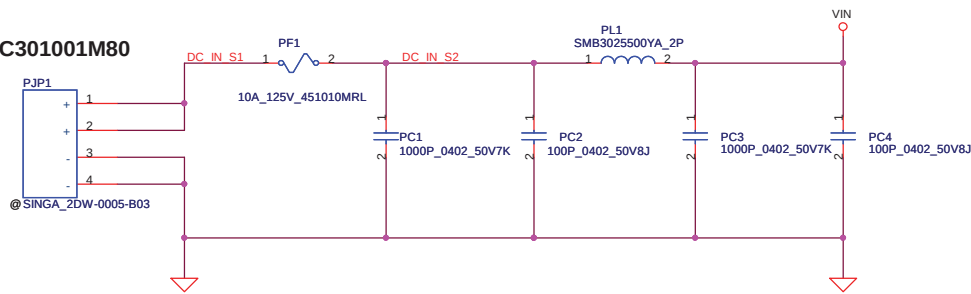
### Reserve for ESD



### Discharge circuit

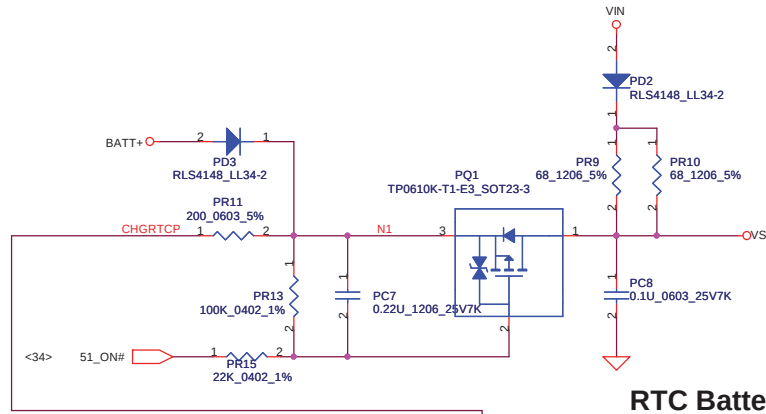


# DC301001M80

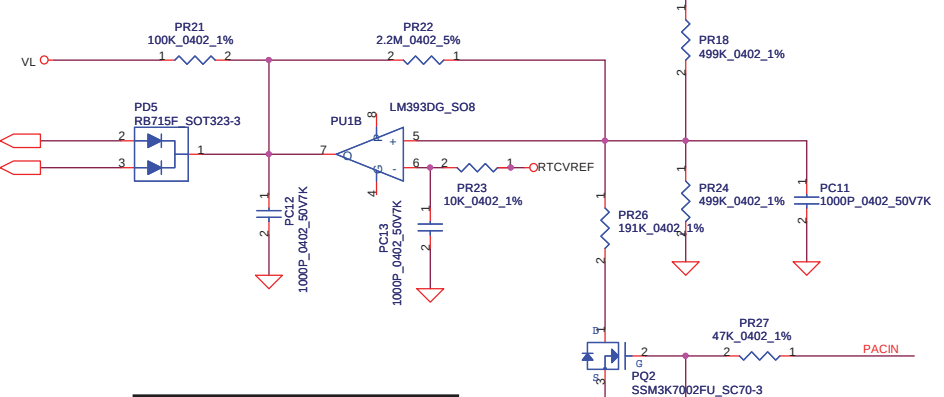
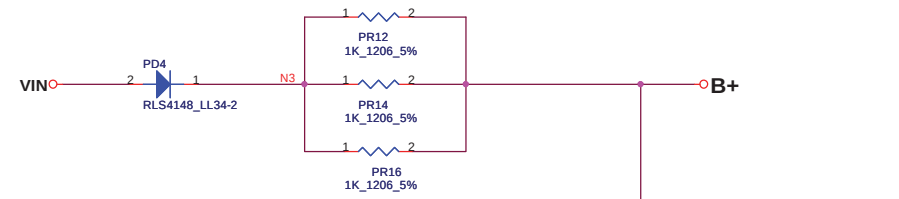
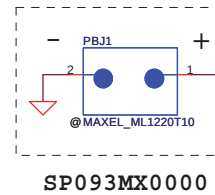


## Vin Detector

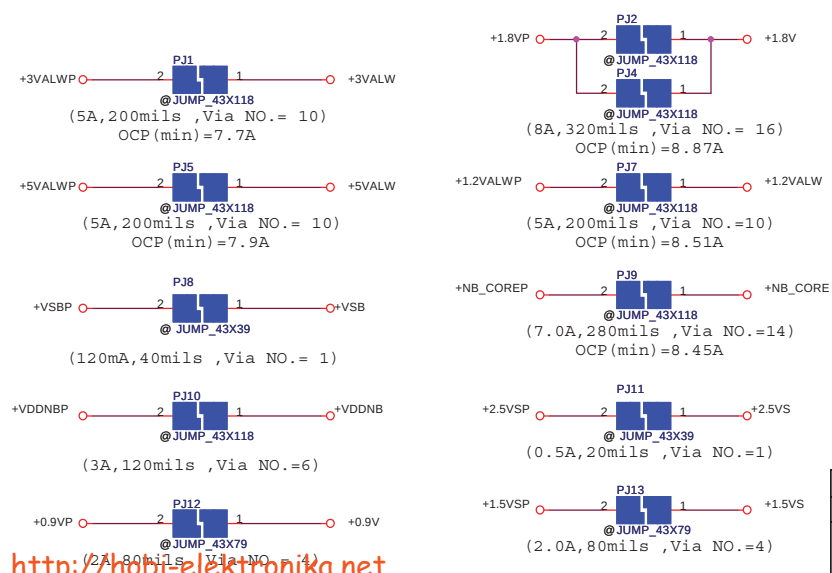
High 18.384 17.901 17.430  
Low 17.728 17.257 16.976



## RTC Battery

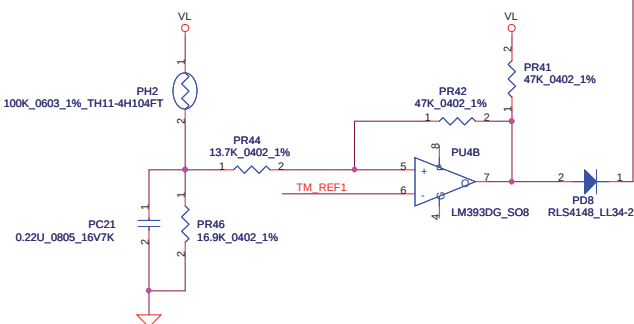
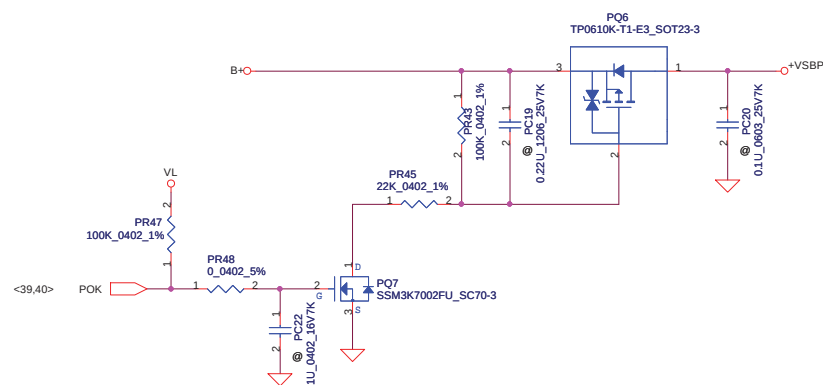
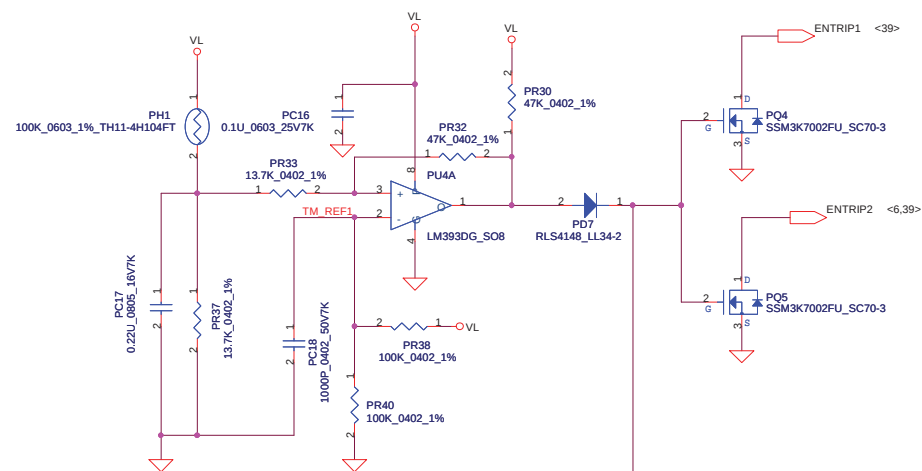
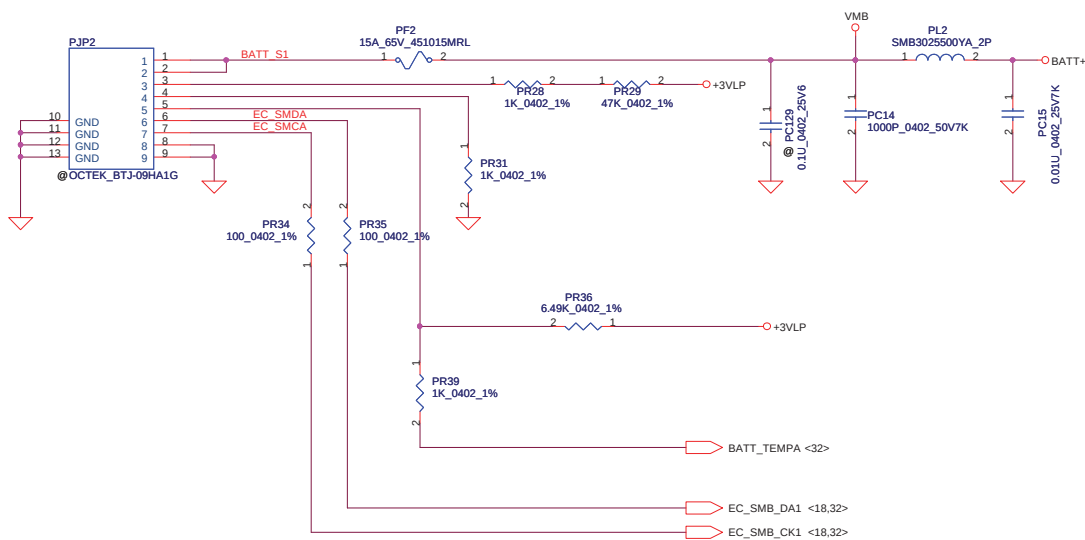


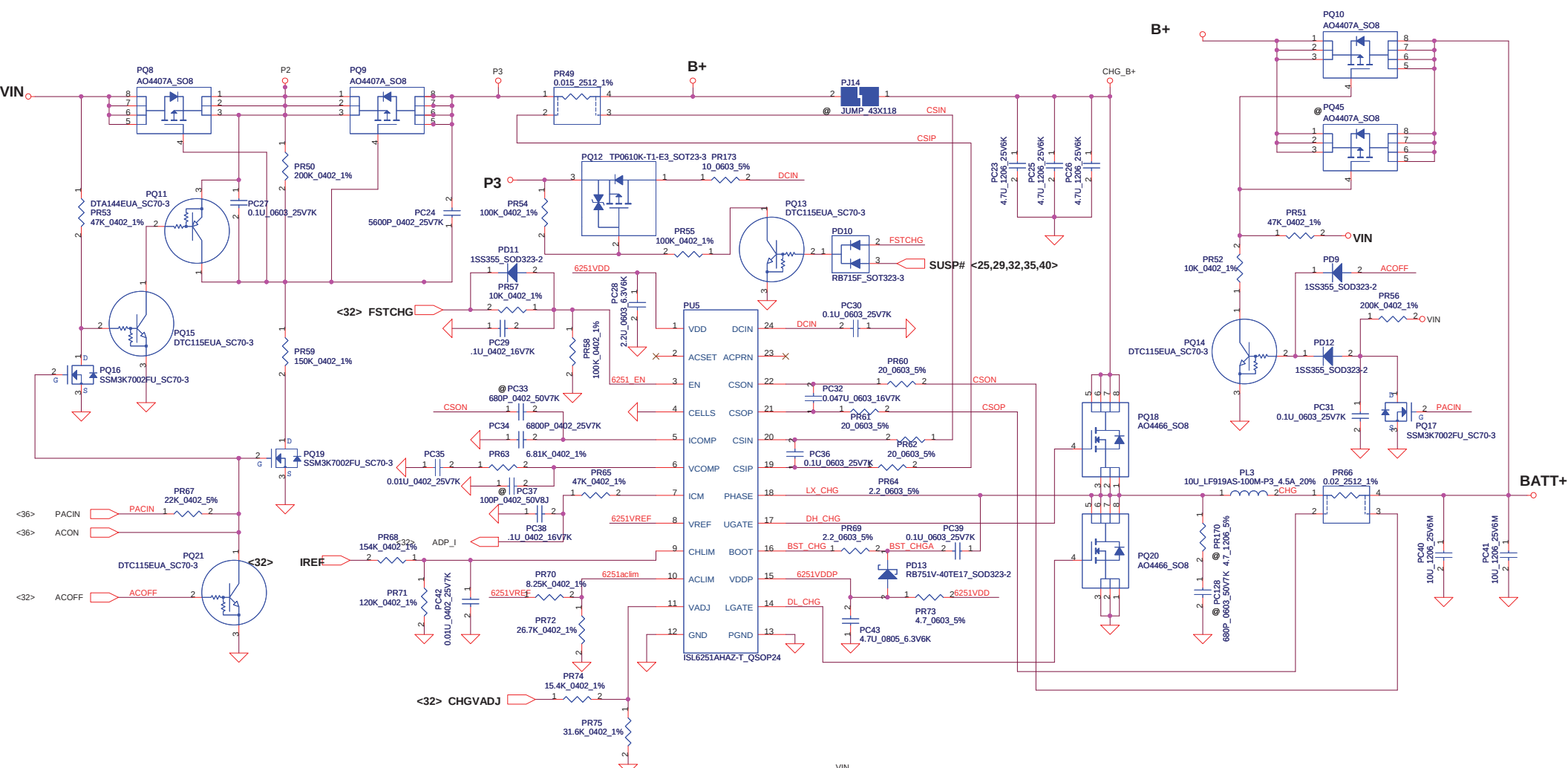
## Precharge detector 15.97V/14.84V FOR ADAPTOR



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                        |            |                          |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------|------------|--------------------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data     |            | Compal Electronics, Inc. |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/10/13 | Deciphered Date        | 2009/10/13 | Title                    |  |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | Document Number        |            | Rev                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            | LA-5381P               |            | 0.2                      |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            | Friday, April 10, 2009 |            | Sheet 36 of 46           |  |







CC=0.25A~3A  
IREF=1.016\*Icharge  
IREF=0.254V~3.048V  
VCHLIM need over 95mV

CHGVADJ=(Vcell-4)/0.10627

| Vcell | CHGVADJ |
|-------|---------|
| 4V    | 0V      |
| 4.2V  | 1.882V  |
| 4.35V | 3.2935V |

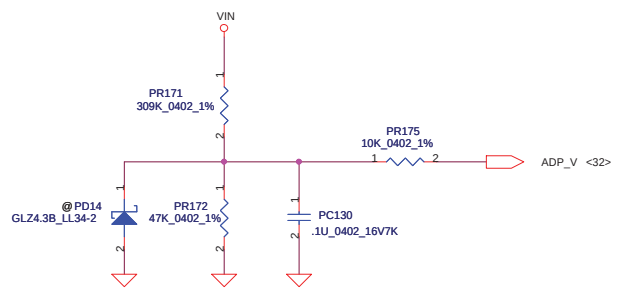
Iada=0~3.947A(75W) CP= 92%\*Iada; CP=3.65A

CP mode  
Vaclm=2.39\*(20K/(152K/(20K/(152K+24K/(152K)))=1.09986V  
Iinput=(1/0.02)\*((0.05\*Vaclm)/2.39+0.05)  
where Vaclm=1.09986V, Iinput=3.65A

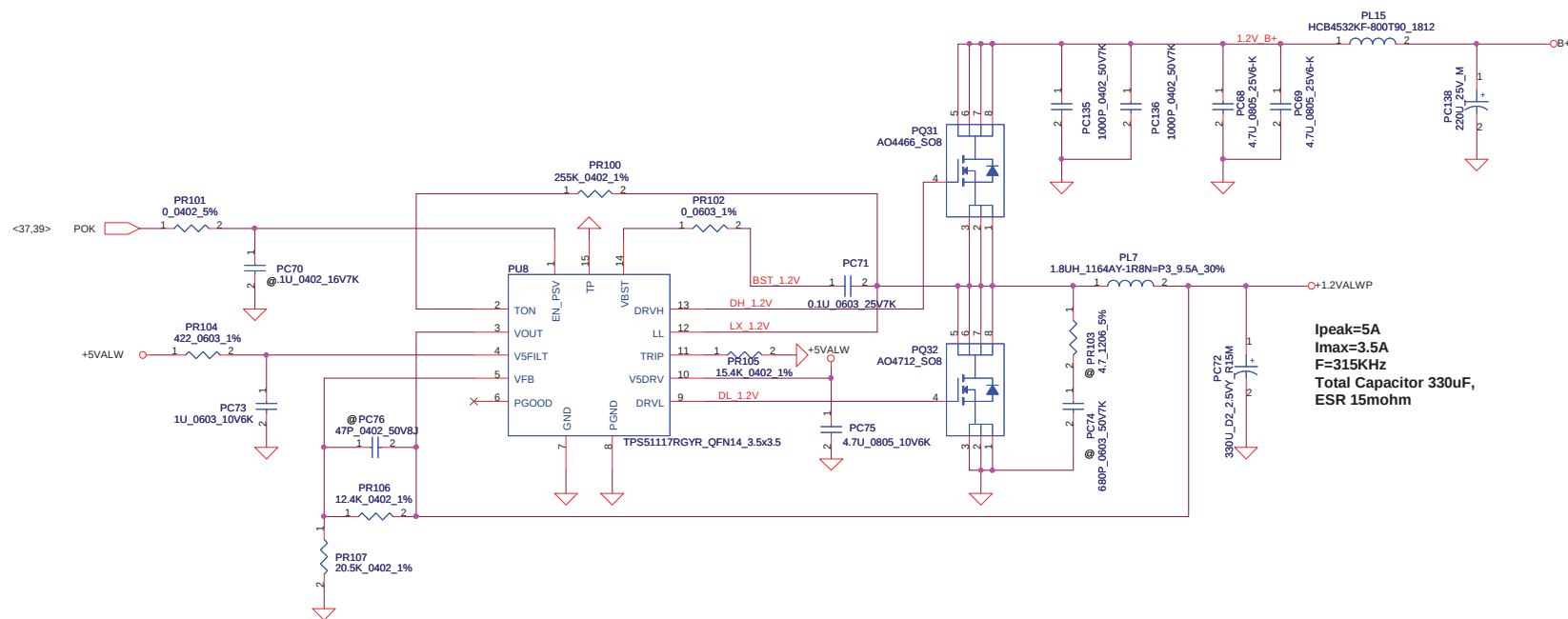
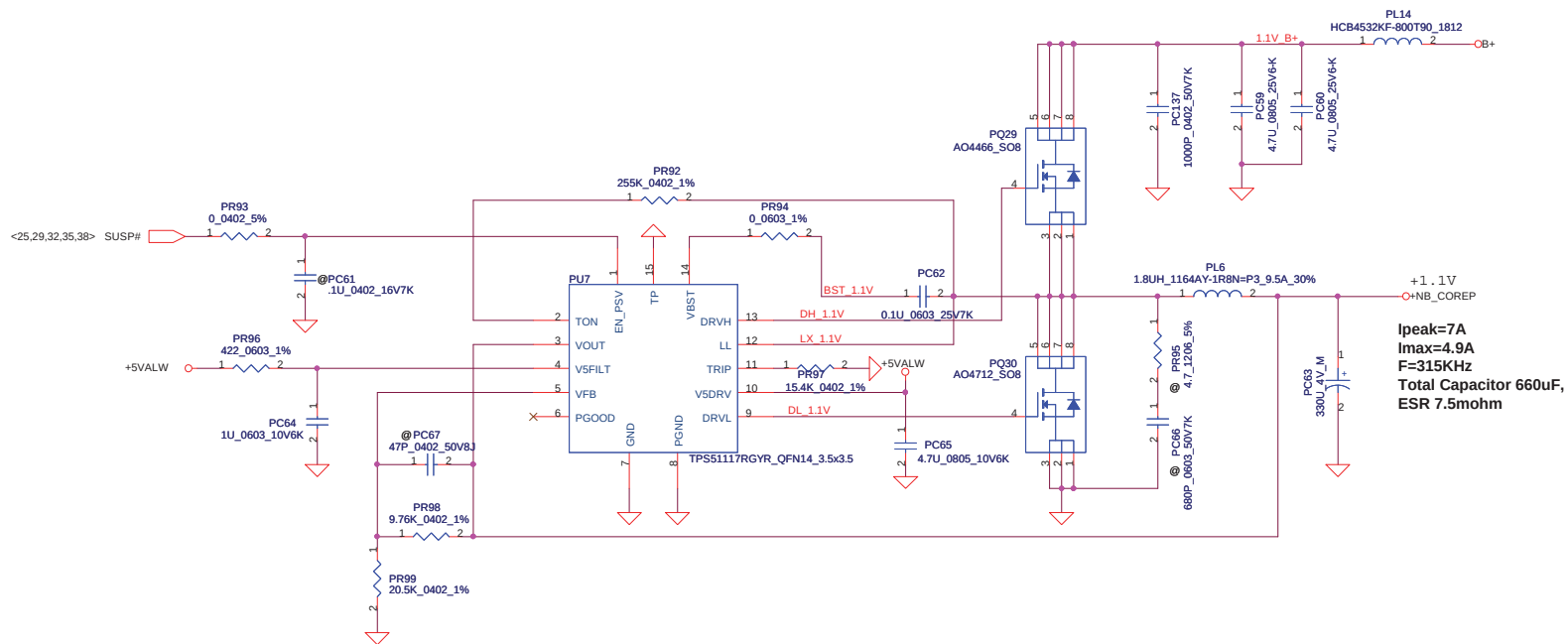
| CELLS       | VDD | GND | Float |
|-------------|-----|-----|-------|
| CELL number | 4   | 3   | 2     |

90W Iadapter=0~4.74A PR49=0.015 ohm CP=4.357A PR70=53.6K PR72=20K  
120W Iadapter=0~6.32A PR49=0.015 ohm CP=5.81A PR70=8.25K PR72=26.7K

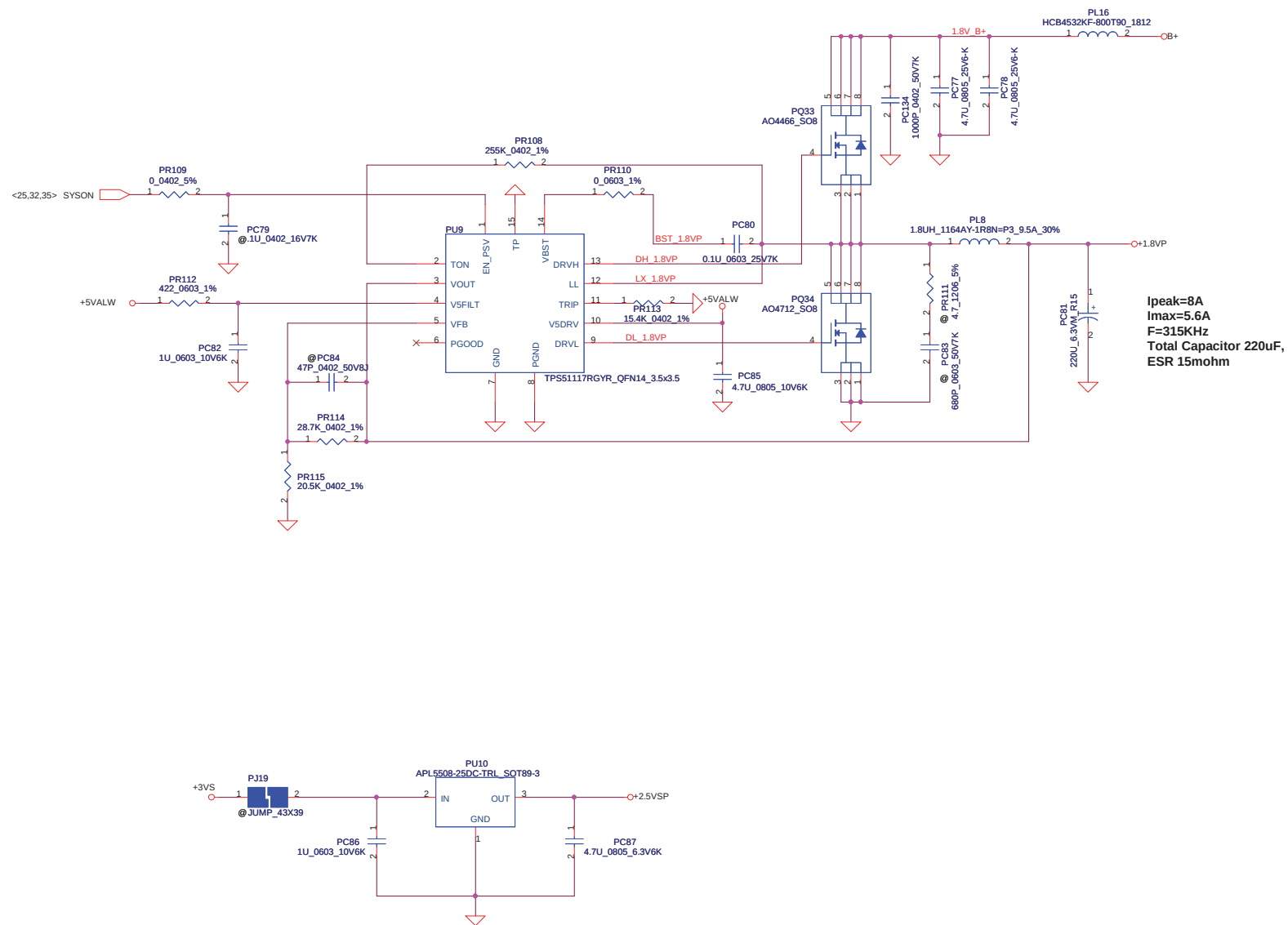
<http://hobi-elektronika.net>



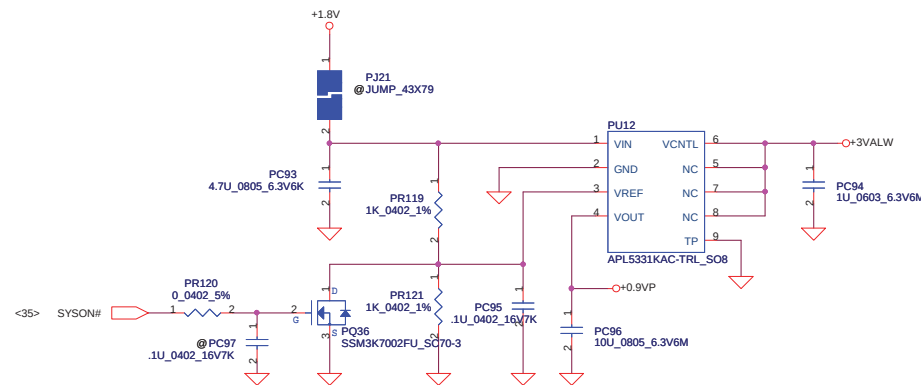
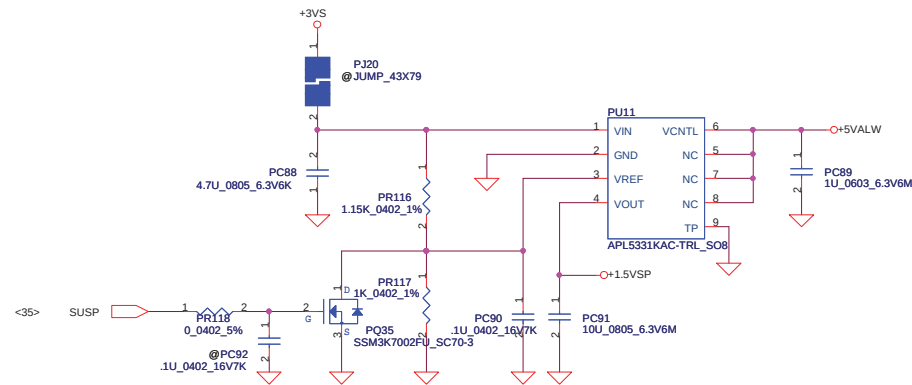




| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                        |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------------|----------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/10/13 | Deciphered Date    | 2009/10/13 | Compal Electronics, Inc.     |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | LA-5381P                     | 0.2            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Friday, April 10, 2009 | Sheet 40 of 46 |



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|------------------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/10/13 | Deciphered Date    | 2009/10/13 | Title                    | 1.8VP/2.5VS            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Friday, April 10, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 41 of 46               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | 0.2                    |

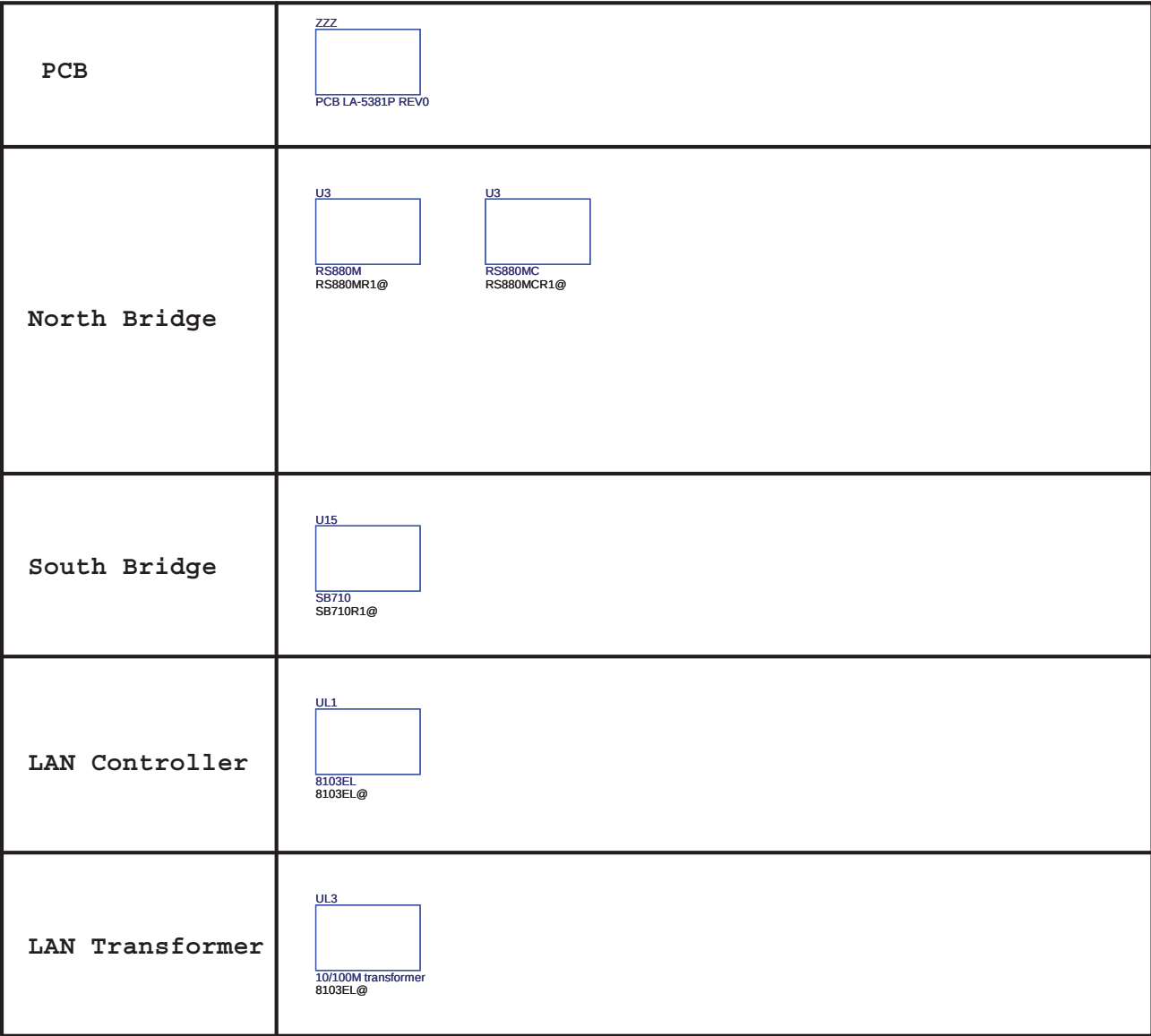


| Security Classification |  |  |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                              |  |
|-------------------------|--|--|--|--------------------|--|-----------------|--|--------------------------|--|------------------------------|--|
| Issued Date             |  |  |  | 2008/10/13         |  | Deciphered Date |  | 2009/10/13               |  | Title                        |  |
|                         |  |  |  |                    |  |                 |  |                          |  | 0.9VP/1.5VSP                 |  |
|                         |  |  |  |                    |  |                 |  |                          |  | LA-5381P                     |  |
|                         |  |  |  |                    |  |                 |  |                          |  | Rev 0.2                      |  |
|                         |  |  |  |                    |  |                 |  |                          |  | Date: Friday, April 10, 2009 |  |
|                         |  |  |  |                    |  |                 |  |                          |  | Sheet 42 of 46               |  |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                                     |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-----------------------------------------------------|-------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics, Inc.</b><br><b>+CPU CORE</b> |                   |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/10/13 | Deciphered Date    | 2009/10/13 |                                                     |                   |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Document Number<br><b>LA-5381P</b>                  |                   |
| Date: Friday, April 10, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                  |            | Sheet 43 of 46     |            |                                                     |                   |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                              |                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------------|-----------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.     |                             |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/04/14 | Deciphered Date    | 2009/04/14 | Title                        | ISPD                        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Friday, April 10, 2009 | Rev<br>1.0                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 44 of 46               |                             |

# HW4 Product Improvement Record (P.I.R.)

NSKAR LA-5381P SCHEMATIC CHANGE LIST  
REVISION CHANGE: 0.1 TO 0.2  
GERBER-OUT DATE: 2009/04/06

| NO | DATE | PAGE | MODIFICATION LIST                | PURPOSE              |
|----|------|------|----------------------------------|----------------------|
| 1  | 3/10 | 17   | Change R156 to 10K pull down     | Special LCD issue    |
| 2  | 3/10 | 30   | Change RA16 to 1% tolerance      | Codec requirement    |
| 3  | 3/10 | 33   | Add R962-R965                    | Reserve GPIO to EC   |
| 4  | 3/13 | 22   | Add R193-R196                    | Strap pin for SW     |
| 5  | 3/23 | 16   | Add R540                         | Common Design        |
| 6  | 3/24 | 30   | Add CA49,CA50                    | GPS issue            |
| 7  | 3/24 | 30   | Add CA51-CA54                    | Common design        |
| 8  | 3/24 | 27   | Add R722 and C754                | Common design        |
| 9  | 3/25 | 27   | Add R423                         | Common design        |
| 10 | 3/25 | 28   | Add RM7 for Wimax module         | Wimax issue          |
| 11 | 3/25 | 28   | Add R822                         | Customer Request     |
| 12 | 4/9  | 31   | Change UC1 from JMB385 to JMB380 | For ME height limit  |
| 13 | 4/9  | 35   | Add C863 to C884                 | For EMI request      |
| 14 | 4/9  | 18   | Delete Q161 and add D53          | For customer request |
| 15 | 4/9  | 16   | Delete Q162 and add D21          | For customer request |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                    |  |                          |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|--------------------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Compal Secret Data |  | Compal Electronics, Inc. |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | Deciphered Date    |  | Title                    |  |
| 2007/5/18                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 2008/5/18          |  | PIR                      |  |
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| Date: Friday, April 10, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                    |  | Rev 0.2                  |  |
| Sheet 45 of 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                    |  |                          |  |

*Version Change List ( P. I. R. List ) for Power Circuit*

| <i>Page#</i> | <i>Title</i> | <i>Date</i>                                                          | <i>Request Owner</i> | <i>Issue Description</i> | <i>Solution Description</i>        |
|--------------|--------------|----------------------------------------------------------------------|----------------------|--------------------------|------------------------------------|
| 44           | EVT          | 2009/02/25                                                           | POWER                |                          | NSKAE for Tigirs(UMA)              |
| 39           | EVT          | Change PR74                                                          | 2009/03/16           | POWER                    | For CHGVADJ (memo)                 |
| 41           | EVT          | Change PR93,PC61                                                     | 2008/12/30           | HW                       | meet AMD RS780 SPEC (memo)         |
| 41           | EVT          | Add PC138                                                            | 2009/02/10           | POWER                    | Noise (memo)                       |
| 41-42        | DVT          | Change PL6,PL7,PL8 to TOKO                                           | 2009/03/31           | POWER                    | Noise                              |
| 40           | DVT          | Change PR79 to 19.1K                                                 | 2009/03/31           | HW                       | For HDMI                           |
| 41           | DVT          | Change PC63,PC72 to 330uF                                            | 2009/03/31           | POWER                    | Noise                              |
| 41-42        | DVT          | Change PC138,PC77,PC78                                               | 2009/03/31           | POWER                    | Noise                              |
| 41-42        | DVT          | mount PR95,PC66,PR103,<br>PC74,PR111,PC83<br>Add PL13,PL14,PL15,PL16 | 2009/03/31           | POWER                    | For EMI                            |
| 39           | DVT          | Change PR65 to 47K                                                   | 2009/03/31           | POWER                    | For ADP_I                          |
| 40           | DVT          | Change PL5=4.7u                                                      | 2009/03/31           | POWER                    | For common circuit                 |
| 39           | DVT          | Change PR71,PL3                                                      | 2009/03/31           | POWER                    | For 12 Cell charge 3.6A            |
| 41           | DVT          | Change PR106,PR107                                                   | 2009/03/31           | HW                       | Change to 12.1K and 19.6K          |
| 44           | PVT          | Change PQ39 and PQ42                                                 | 2009/03/31           | POWER                    | No issue<br>Change to common parts |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                                          |                    |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|----------------------------------------------------------|--------------------|----------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <div>Compal Electronics, Inc.</div> <div>Power PIR</div> |                    |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Order                                                    | Fri, 10 April 2009 | LA-5381P |