

# Compal Confidential

## PEW76/86/96 M/B Schematics Document

AMD Danube Only UMA

AMD Champlain Processor with RS880M/SB820M

2010-07-20

LA6552P REV: 1.0

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|---------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Document Number          |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | PEW/76/86/96 LA-6552P    |         |
| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            | Sheet                    | 1 of 45 |

# Compal Confidential

Model Name : PEW96

File Name : LA-6552P

P/N : DA60000IM10

PCB

ZZZ

LA-6552P RE1 M/B

LA-6552P MB Rev0: DA60000IM00

LA-6552P MB Rev1: DA60000IM10

LA-6552P MB Rev1: DAZ0FQ00200

Danube

AMD S1G4 Processor

uPGA-638 Package

Champlain page 6,7,8,9

Memory BUS(DDR3)

Dual Channel

1.5V DDRIII 1066~1333MHz

204pin DDRIII-SO-DIMM X2

BANK 0, 1, 2, 3

page 10,11

Hyper Transport Link

16 x 16

ATI RS880M

uFCBGA-528

page 12,13,14

A link Express2

Gen1

ATI SB820M

uFCBGA-605

page 18,19,20,21,22

Thermal Sensor

ADM1032

page 8

LVDS

page 15

CRT

page 17

HDMI Conn.

page 16

MINI Card 1

WLAN

page 26

GPP1

LAN(GbE)

Broadcom

BCM57780

page 24

GPP0

RJ45

page 25

LED

page 29

Fan Control

page 32

RTC CKT.

page 18

LID SW / MEDIA/B

page 28

Power On/Off CKT.

page 32

DC/DC Interface CKT.

page 33

Power Circuit

page 34,35,36,37,38  
39,40,41,42

LPC BUS

ENE KB926

page 28

Touch Pad

page 29

Int.KBD

page 29

EC I/O Buffer

page 29

BIOS

page 29

SATA HDD

Conn. page 23

port 0

SATA ODD

FFC Conn. page 23

port 1

3.3V 48MHz

3.3V 24.576MHz/48MHz

HD Audio

S-ATA

Gen2

SATA HDD

Conn. page 23

port 0

SATA ODD

FFC Conn. page 23

port 1

HDA Codec

ALC272X

page 30

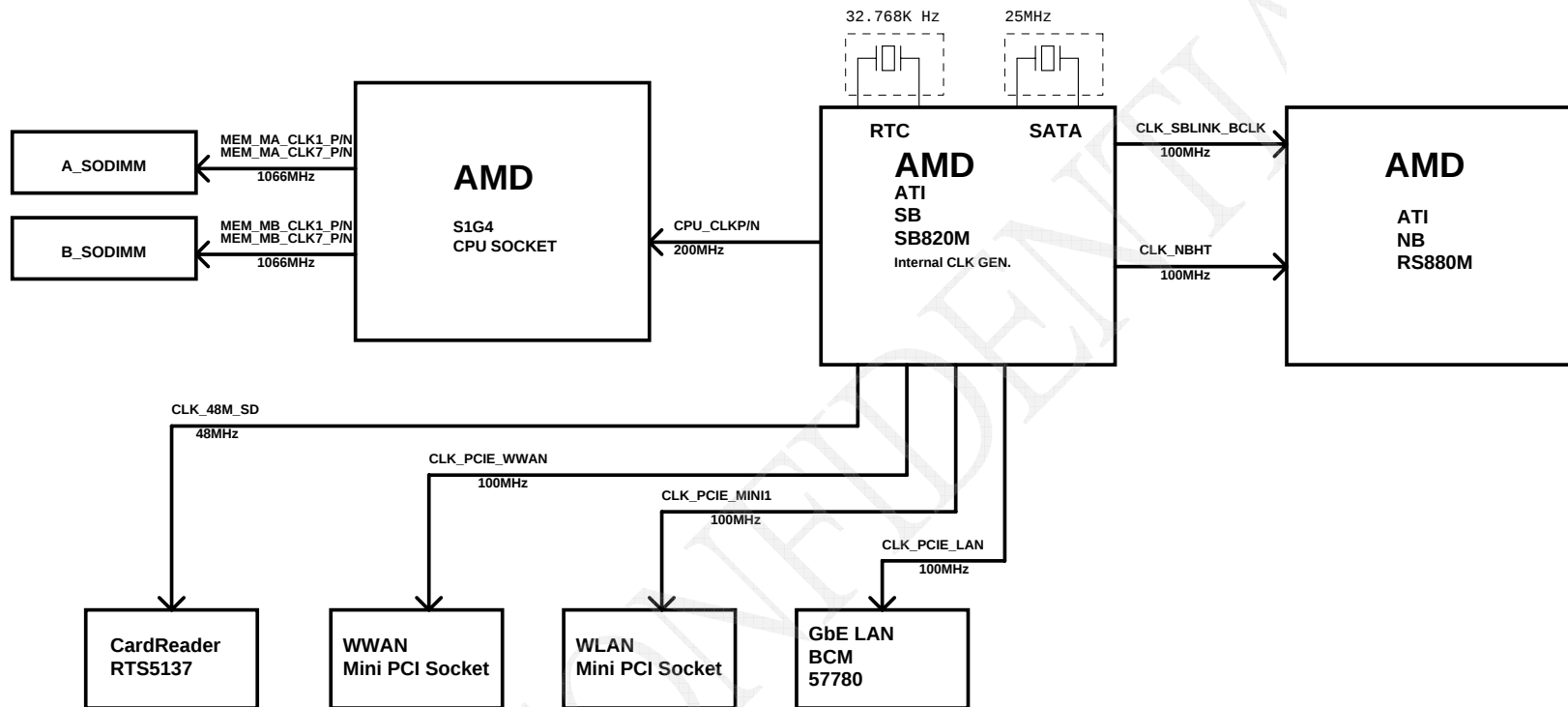
Audio AMP

page 31

Phone Jack x2

page 31

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                               |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|-------------------------------|---------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | PEW/76/86/96 LA-6552P         |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: Thursday, July 22, 2010 | Sheet 2 of 45 |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                    |                                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:              | Thursday, July 22, 2010                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet              | 3 of 45                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                | B                                        |

| Power Plane  | Description                                     | S1  | S3  | S5  |
|--------------|-------------------------------------------------|-----|-----|-----|
| VIN          | Adapter power supply (19V)                      | N/A | N/A | N/A |
| B+           | AC or battery power rail for power circuit.     | N/A | N/A | N/A |
| +CPU_CORE    | Core voltage for CPU (1.375-1.5V)               | ON  | OFF | OFF |
| +CPU_CORE_NB | Voltage for On-die Northbridge of CPU(0.8-1.1V) | ON  | OFF | OFF |
| +CPU_VDDR    | 1.05V switched power rail                       | ON  | OFF | OFF |
| +0.75V       | 0.75V switched power rail for DDR terminator    | ON  | ON  | OFF |
| +1.1VS       | 1.1V switched power rail for NB VDDC & VGA      | ON  | OFF | OFF |
| +1.5V        | 1.5V power rail for CPU VDDIO and DDR           | ON  | ON  | OFF |
| +1.5VS       | 1.5V power rail for MINI Card                   | ON  | OFF | OFF |
| +1.8VS       | 1.8V switched power rail                        | ON  | OFF | OFF |
| +2.5VS       | 2.5V for CPU_VDDA                               | ON  | OFF | OFF |
| +3VALW       | 3.3V always on power rail                       | ON  | ON  | ON* |
| +3VS         | 3.3V switched power rail                        | ON  | OFF | OFF |
| +3V_LAN      | 3.3V power rail for LAN                         | ON  | ON  | ON  |
| +5VALW       | 5V always on power rail                         | ON  | ON  | ON* |
| +5VS         | 5V switched power rail                          | ON  | OFF | OFF |
| +VSB         | VSB always on power rail                        | ON  | ON  | ON* |
| +RTCVCC      | RTC power                                       | ON  | ON  | ON  |
|              |                                                 |     |     |     |
|              |                                                 |     |     |     |

## External PCI Devices

### EC SM Bus1 address

EC SM Bus2 address

**SB820**  
**SM Bus 0 address**

**SB820**  
**SM Bus 1 address**

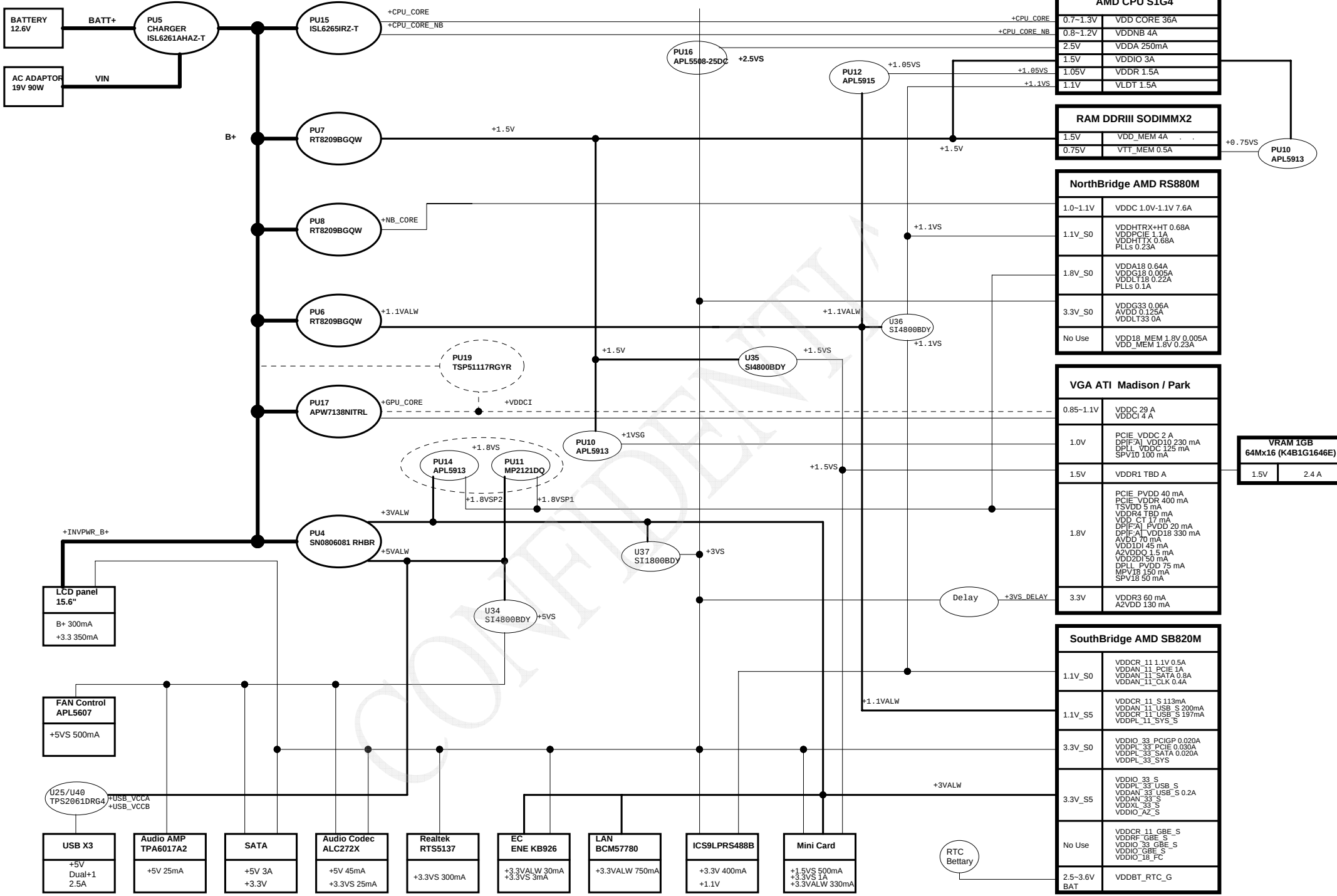
| STATE \ SIGNAL       | SLP_S1# | SLP_S3# | SLP_S4# | SLP_S5# | +VALW | +V  | +VS | Clock |
|----------------------|---------|---------|---------|---------|-------|-----|-----|-------|
| FuII ON              | HIGH    | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | ON    |
| S1(Power On Suspend)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

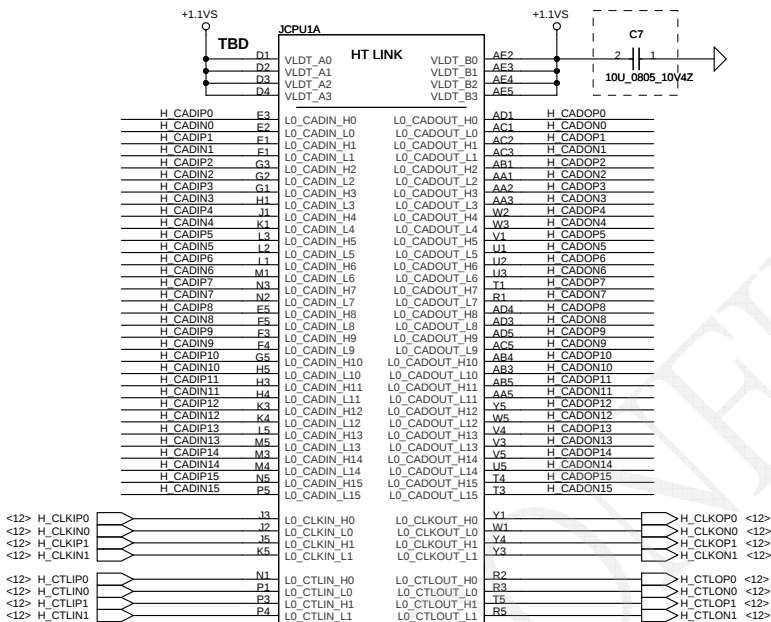
|                 |                     |                               |                               |                               |
|-----------------|---------------------|-------------------------------|-------------------------------|-------------------------------|
| <b>Vcc</b>      | <b>3.3V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

| Board ID | PCB Revision                          |
|----------|---------------------------------------|
| 0        | <i>EVT / PVT stage (w/ pach code)</i> |
| 1        |                                       |
| 2        |                                       |
| 3        |                                       |
| 4        |                                       |
| 5        |                                       |
| 6        |                                       |
| 7        |                                       |

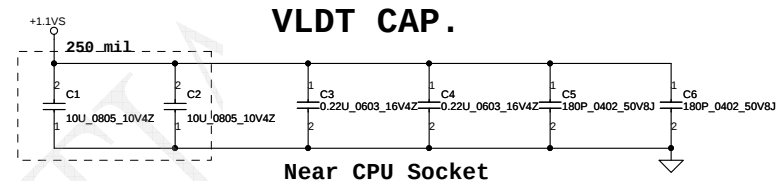
| Board ID | PCB Revision |
|----------|--------------|
| 0        |              |
| 1        | PEW76/86/96  |
| 2        |              |
| 3        |              |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |

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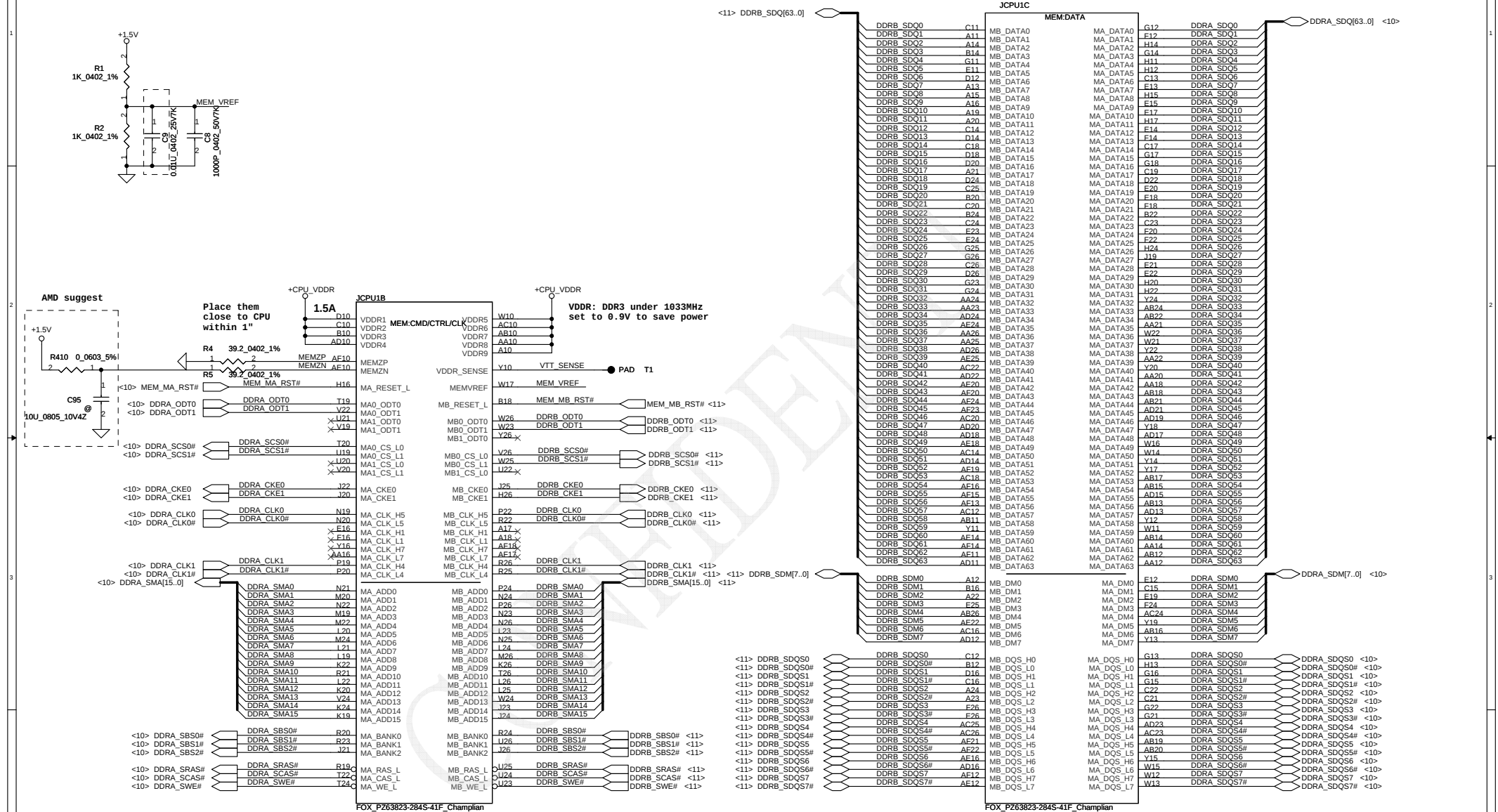


FOX\_P263823-284S-41F\_Champian



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                          |                     |
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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                                    | AMD CPU S1G4 HT I/F |
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| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Sheet                                    | 6 of 45             |

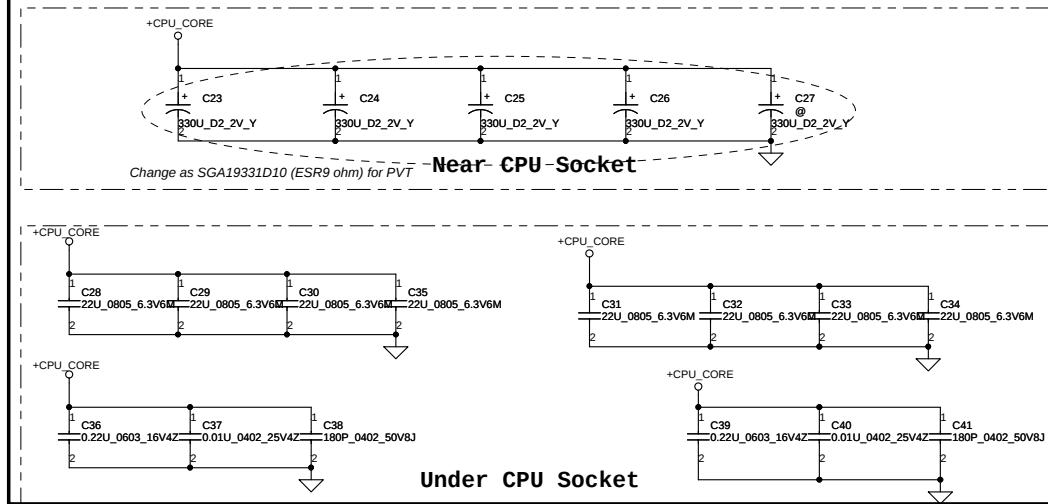
## Processor DDR3 Memory Interface



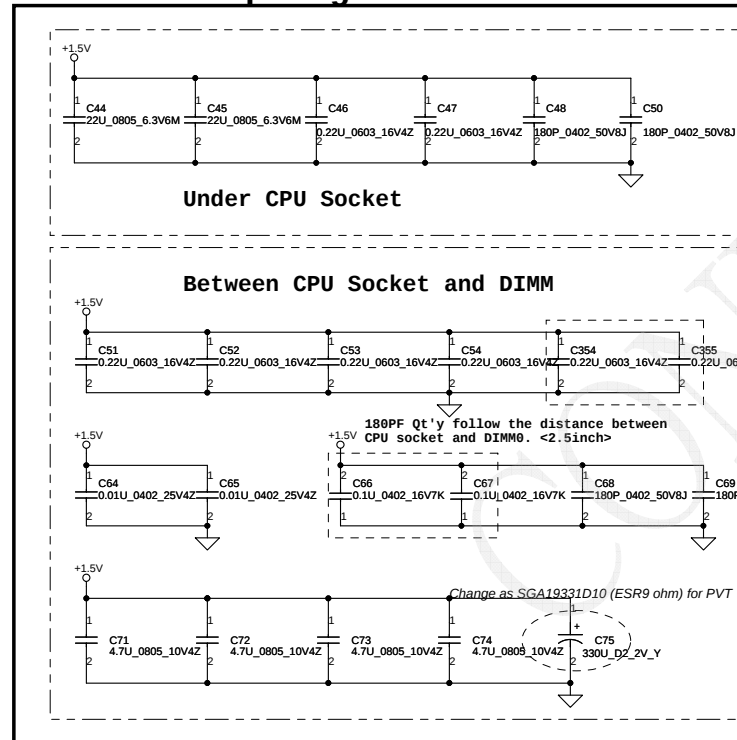
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                         |                 |       |                          |         |       |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Page               | Document Number         |                 |       |                          |         |       | Rev |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Custom             | PEW/76/86/96 LA-6552P   |                 |       |                          |         |       | B   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Date:              | Thursday, July 22, 2010 |                 | Sheet |                          | 7 of 45 |       |     |



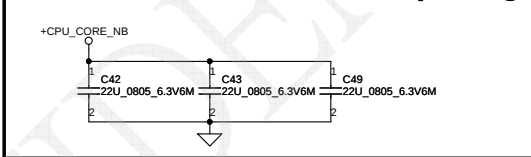
## VDD(+CPU\_CORE) decoupling.



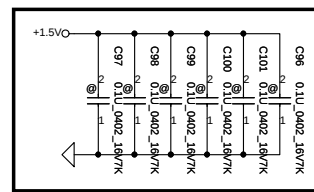
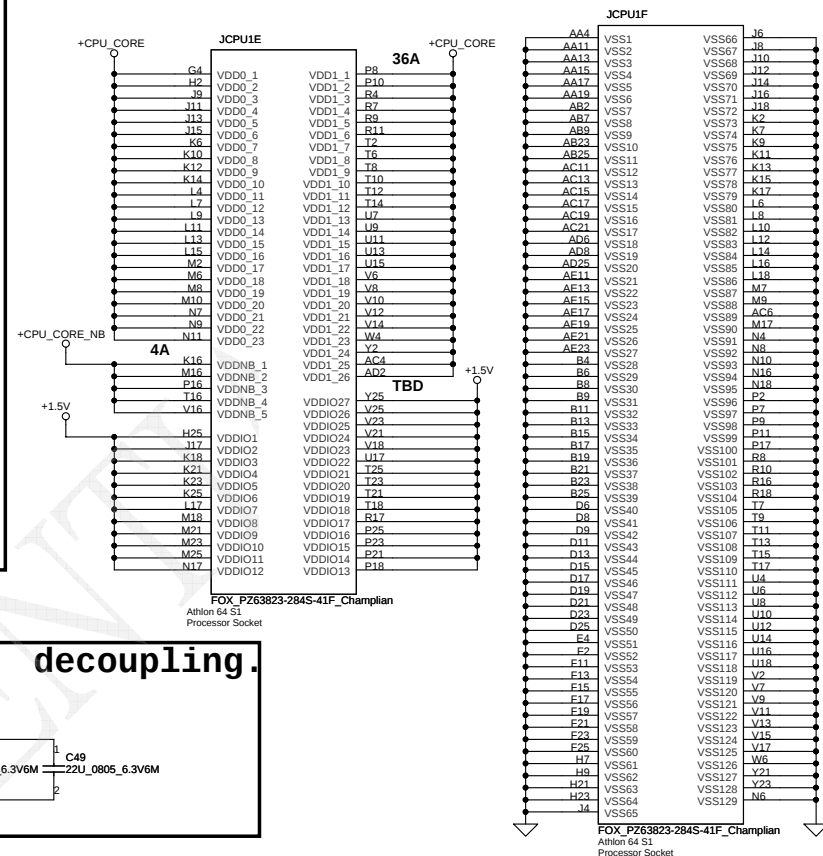
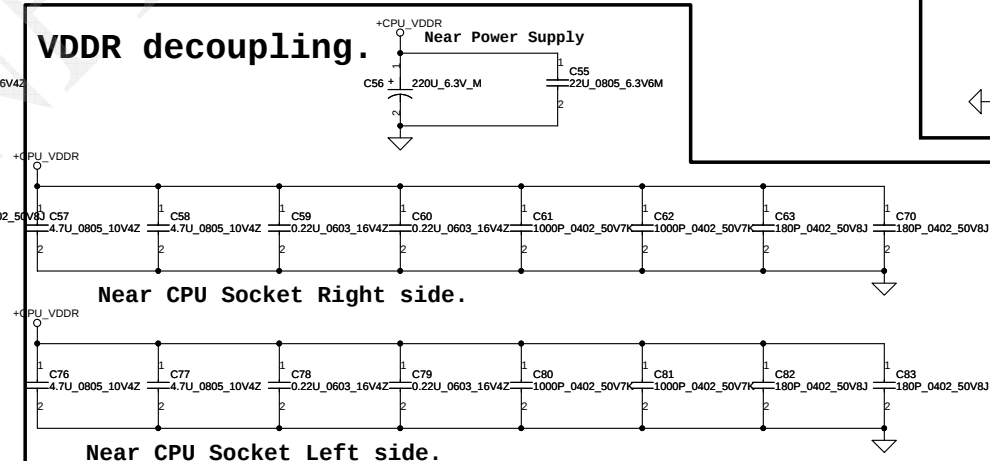
## VDDIO decoupling.



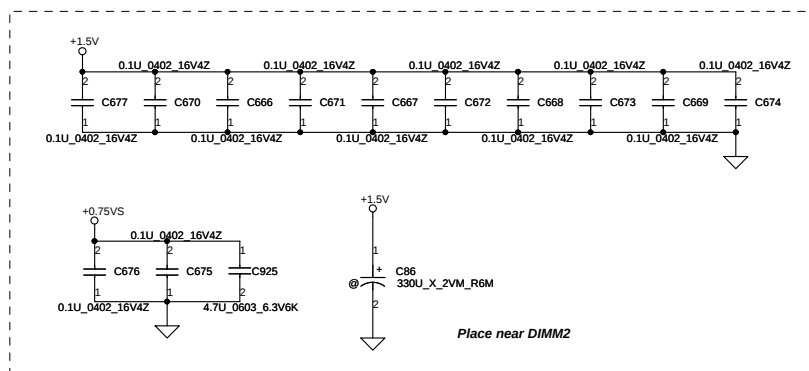
## +CPU\_CORE\_NB decoupling.

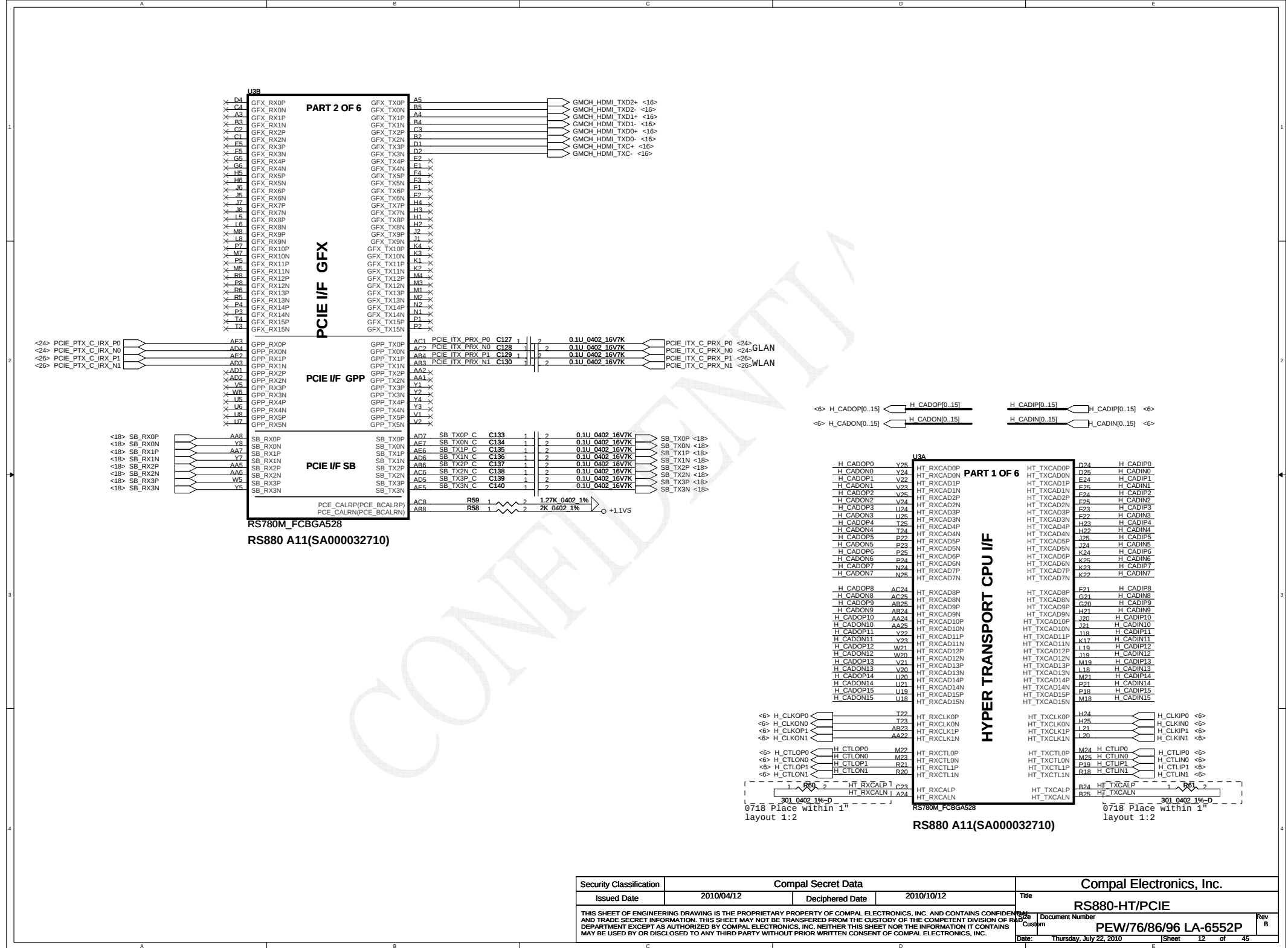


## VDDR decoupling.

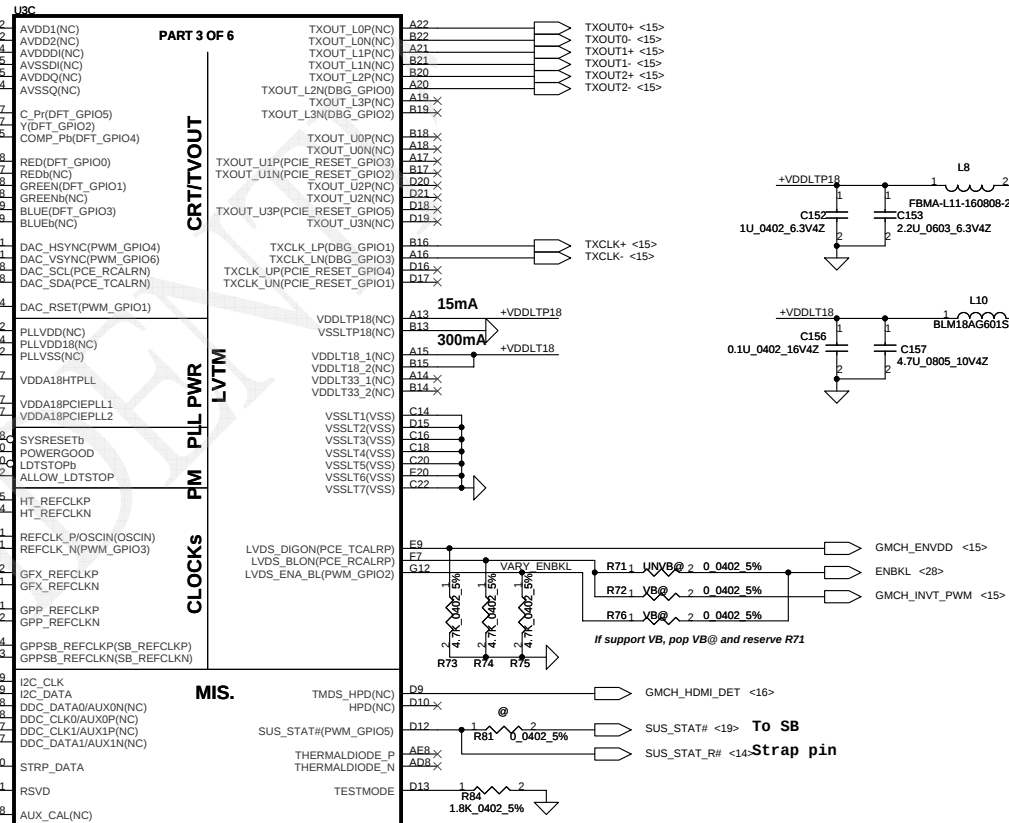
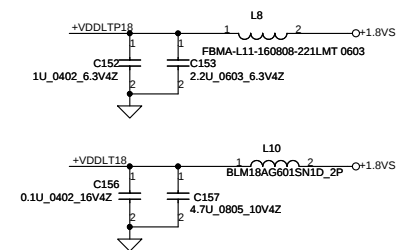
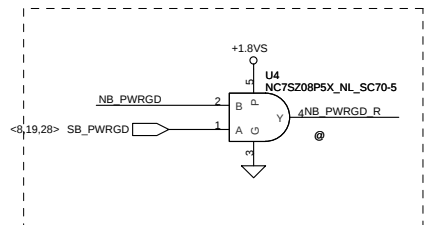
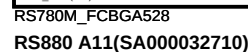
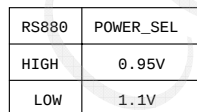
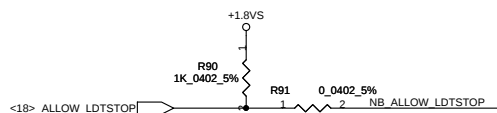
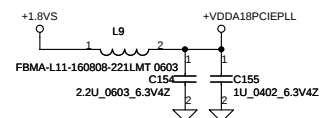




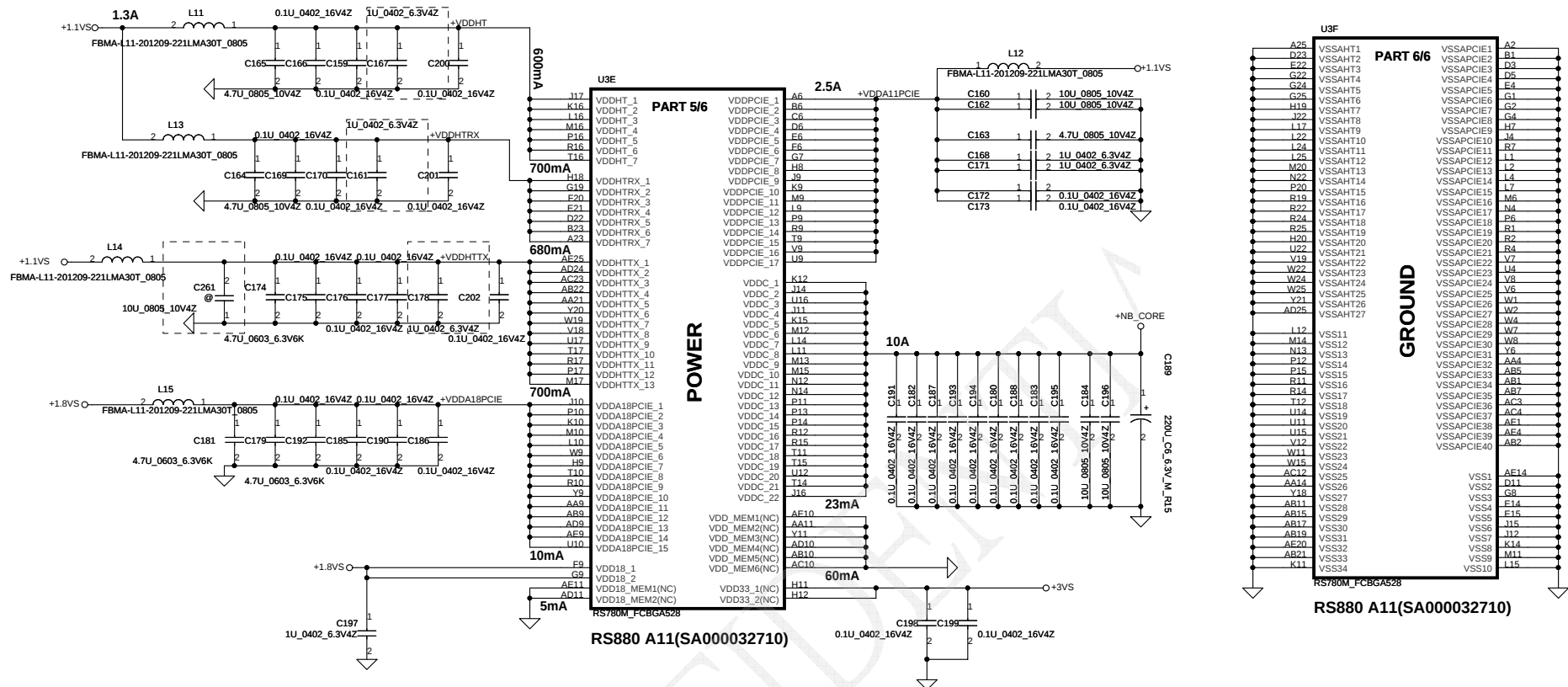




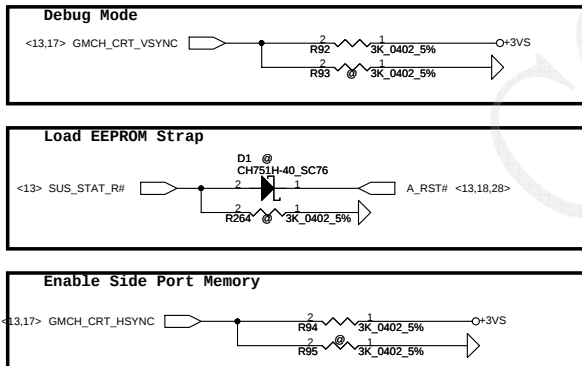
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| Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | RS880-HT/PCIE      |  | Doc Number               |  | PEW/76/86/96 LA-6552P |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                         |       |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                    | Thursday, July 22, 2010 | Sheet | 13 of 45 |



## Side port and Strap setting



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

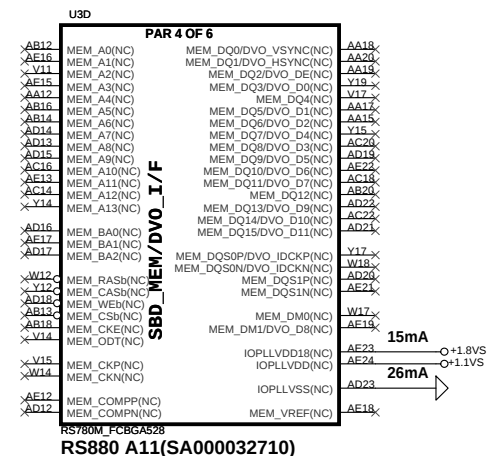
Enables the Test Debug Bus using GPIO. (VSYNC)  
1 : Disable  
0 : Enable

### 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

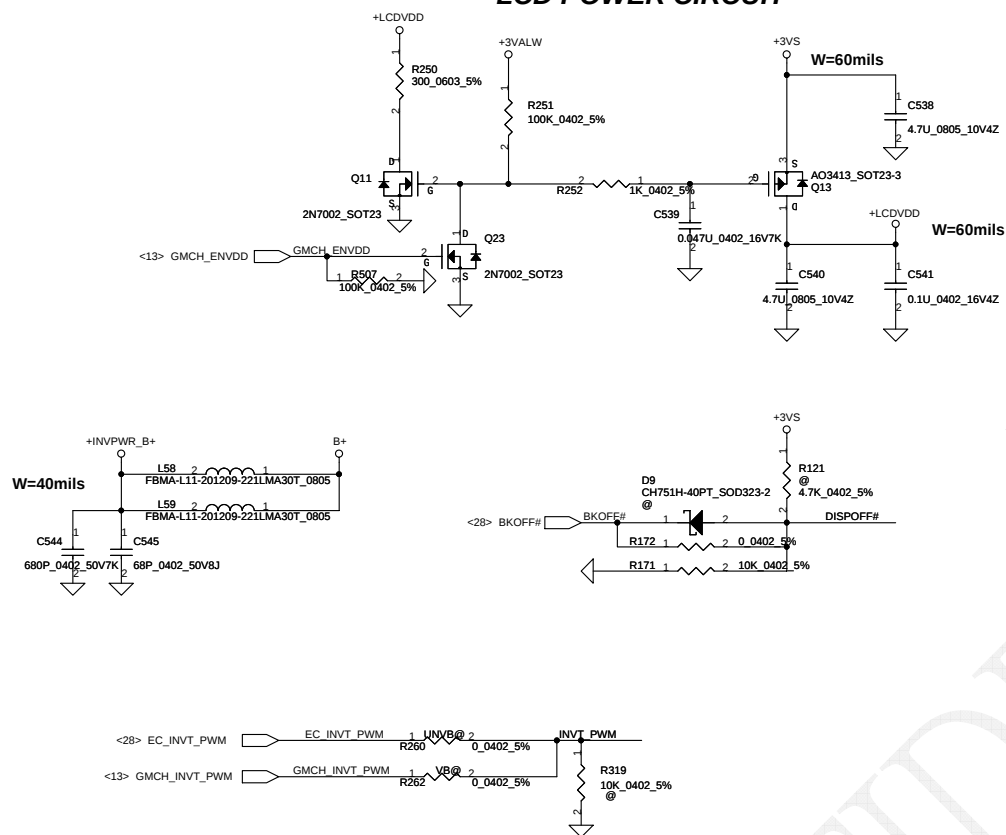
### Enable Side Port Memory

RS880: HSYNC#  
0: Enable  
1: Disable  
Register Readback of strap:  
NB\_CLKCFG:CLK\_TOP\_SPARE\_D[1]

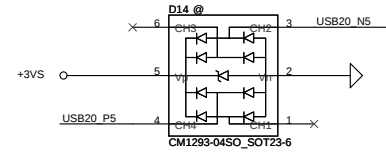
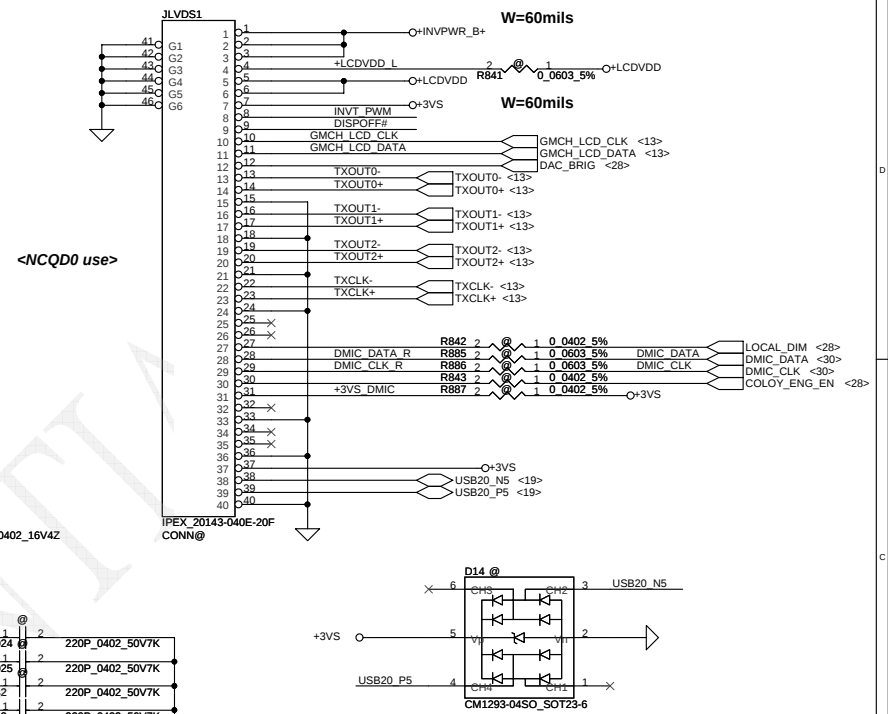


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| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                    |            | PEW/76/86/96 LA-6552P    |  |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Thursday, July 22, 2010  |  |
| Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                    |            | 14 of 45                 |  |

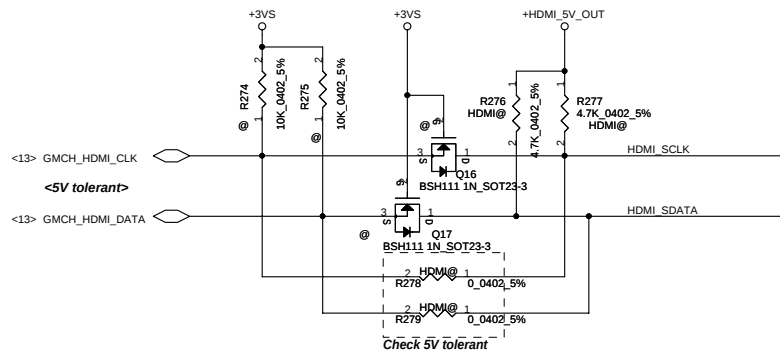
## LCD POWER CIRCUIT



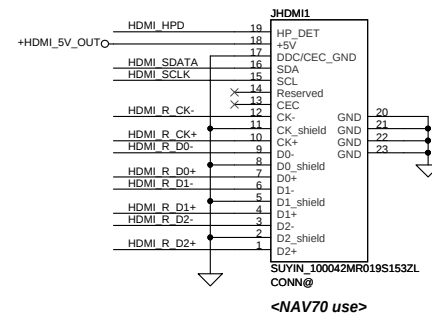
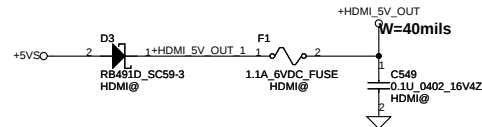
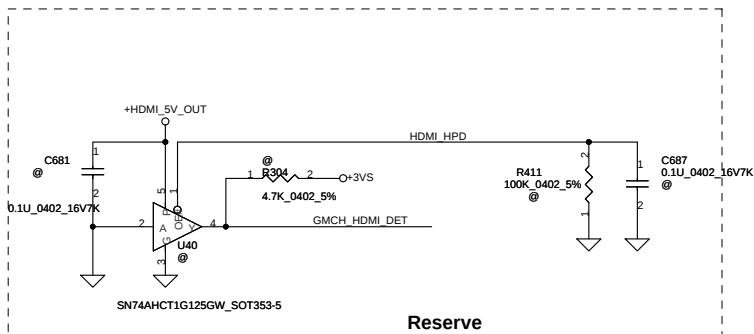
## LCD/LED PANEL Conn.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                               |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                         |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Document Number               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | PEW/76/86/96 LA-6552P         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, July 22, 2010 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 15 of 45                |  |

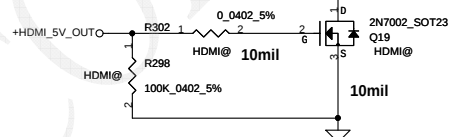


Place closed to JHDMI1

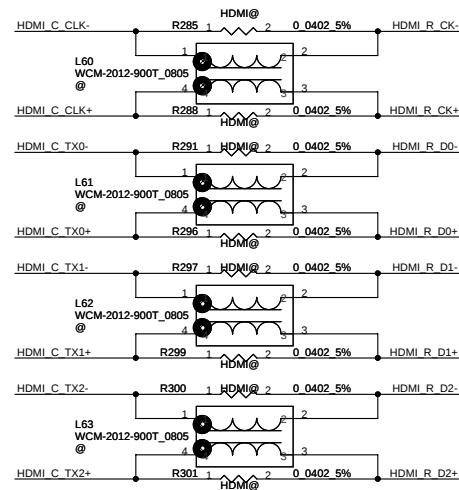


|                      |      |       |   |                 |             |      |   |       |   |             |
|----------------------|------|-------|---|-----------------|-------------|------|---|-------|---|-------------|
| <12> GMCH_HDMI_TXD2- | C550 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX2- | R286 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXD2+ | C551 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX2+ | R287 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXD1- | C552 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX1- | R289 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXD1+ | C553 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX1+ | R290 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXD0- | C554 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX0- | R292 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXD0+ | C555 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C TX0+ | R293 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXC-  | C556 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C CLK- | R294 | 1 | HDMI@ | 2 | 715_0402_1% |
| <12> GMCH_HDMI_TXC+  | C557 | HDMI@ | 1 | 0.1U_0402_16V7K | HDMI C CLK+ | R295 | 1 | HDMI@ | 2 | 715_0402_1% |

UMA 715 ohm

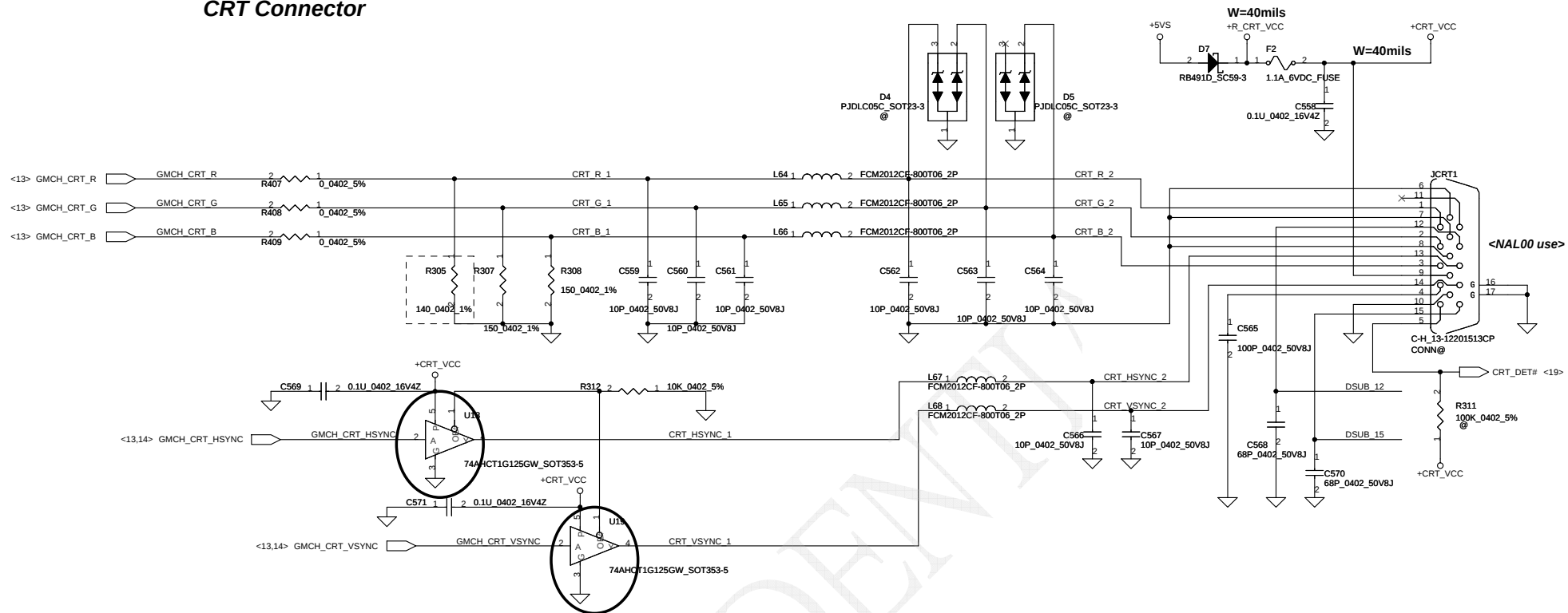


Place closed to JHDMI1



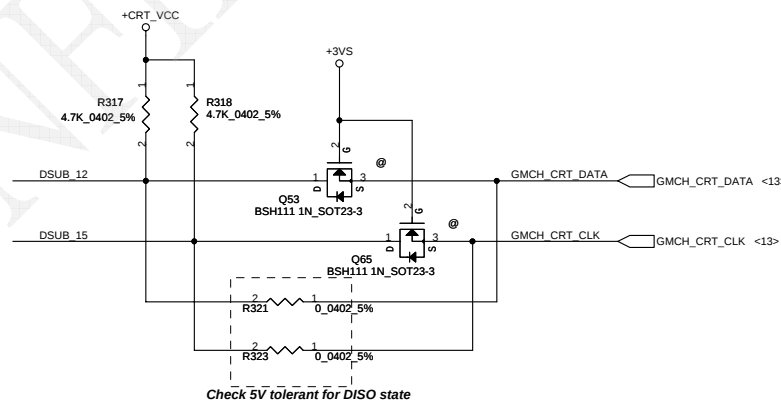
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|-------------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc.      |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12         | Deciphered Date | 2010/10/12 | Title                         |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: Thursday, July 22, 2010 | Sheet 16 of 45 |

# CRT Connector



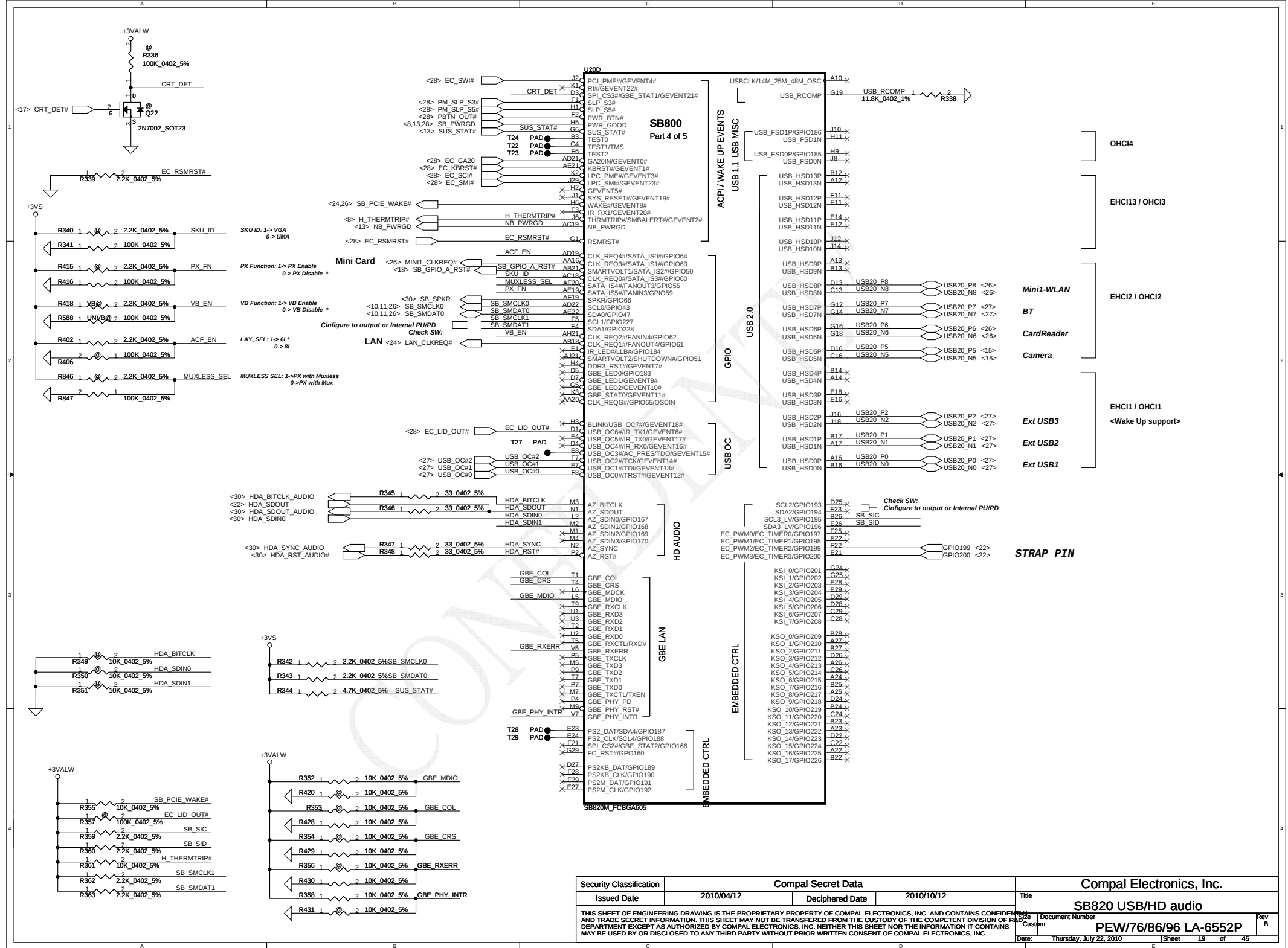
Change as SA411250110

Close to Conn side



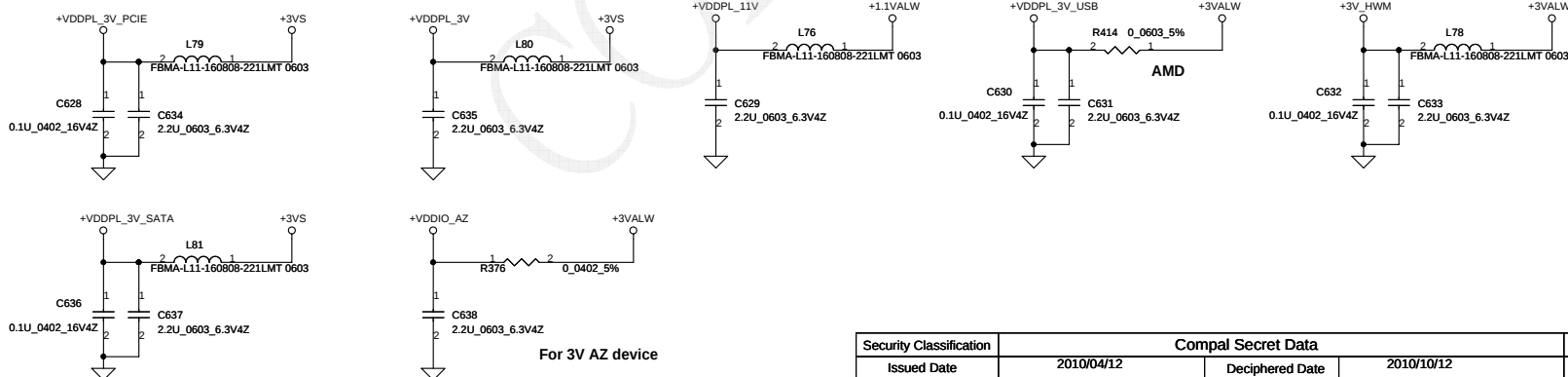
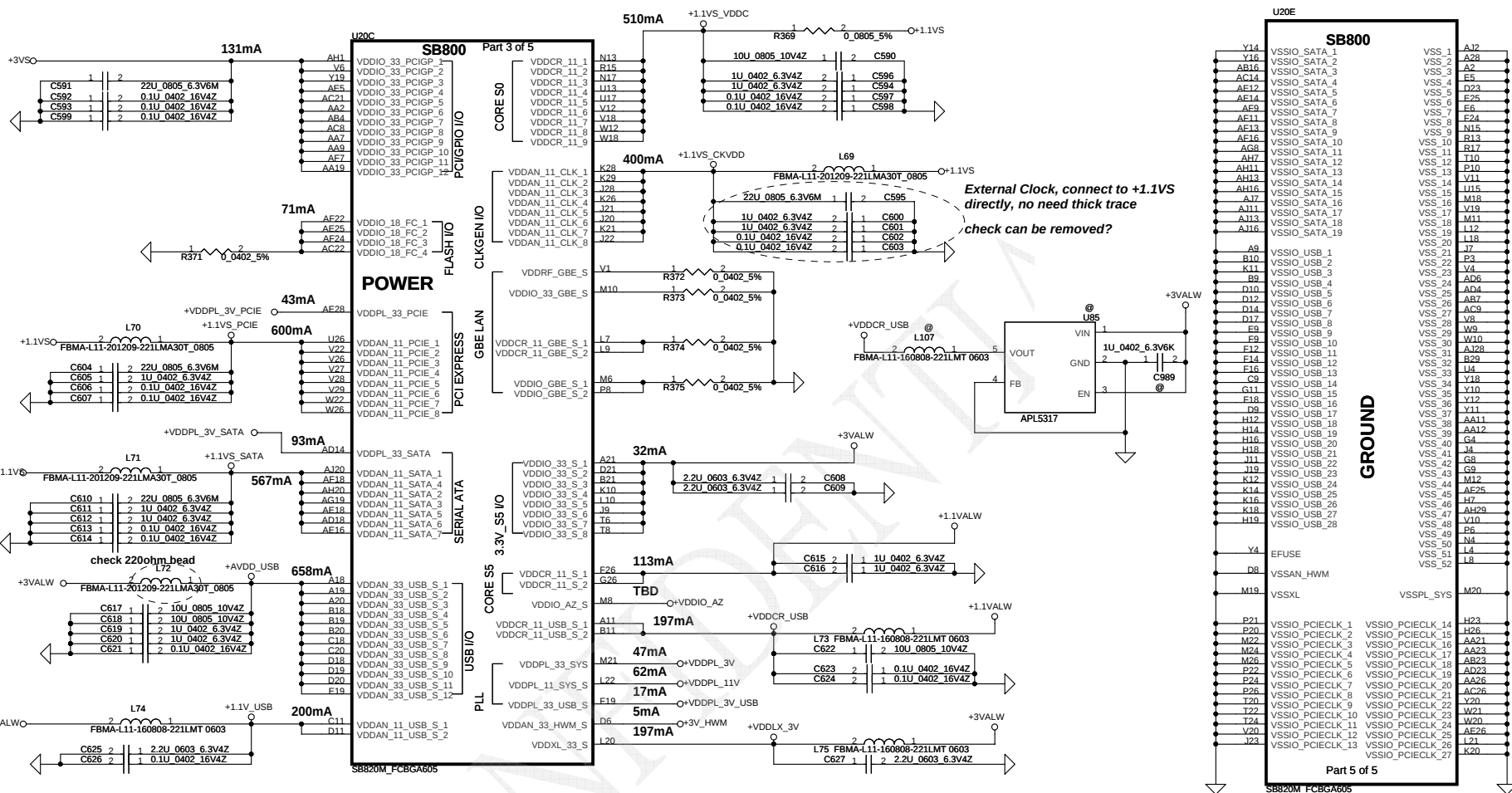
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Title                 |          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12         | Deciphered Date | 2010/10/12 | PEW/76/86/96 LA-6552P |          |
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| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            | Sheet                 | 17 of 45 |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |            |                          |                         |  |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|-------------------------|--|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                      | Compal Secret Data |                 |            | Compal Electronics, Inc. |                         |  |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2010/04/12         | Deciphered Date | 2010/10/12 | Title                    | SB820 USB/HD audio      |  |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |            | Date:                    | Thursday, July 22, 2010 |  | Sheet 19 of 45 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |            |                          |                         |  |                |



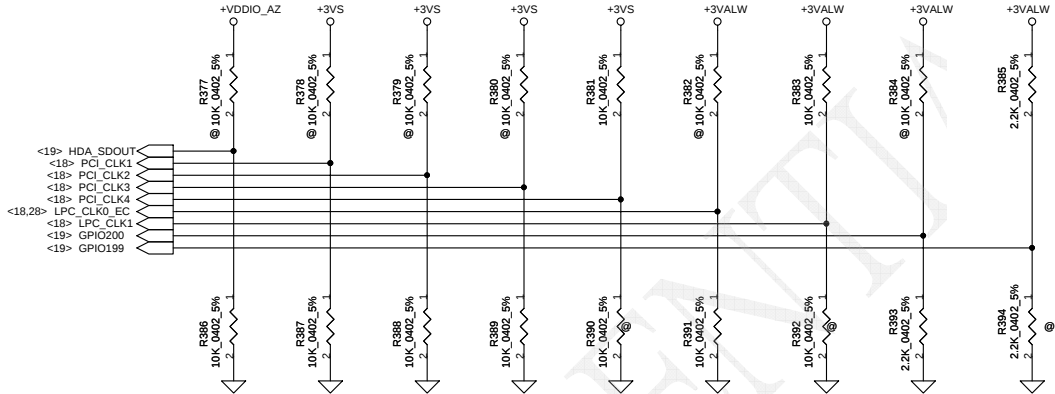


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  |       |  |                               |  |                       |  |       |  |  |  |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |       |  |                               |  |                       |  |       |  |  |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 2010/04/12         |  | Deciphered Date |  | 2010/10/12               |  | Title |  | SB820 power/GND               |  |                       |  |       |  |  |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  |       |  | Date: Thursday, July 22, 2010 |  | Sheet 21 of 45        |  |       |  |  |  |

# REQUIRED STRAPS

Check Internal PU/PD

|           | AZ_SDOUT         | PCI_CLK1        | PCI_CLK2               | PCI_CLK3           | PCI_CLK4                   | LPC_CLK0   | LPC_CLK1         |  | GPIO200        | GPIO199                      |
|-----------|------------------|-----------------|------------------------|--------------------|----------------------------|------------|------------------|--|----------------|------------------------------|
| PULL HIGH | LOW POWER MODE   | ALLOW PCIE GEN2 | WATCHDOG TIMER ENABLE  | USE DEBUG STRAP    | Inter CLK Gen Mode Enable  | EC ENABLE  | CLOCKGEN ENABLE  |  | H,H = Reserved |                              |
| PULL LOW  | Performance MODE | FORCE PCIE GEN1 | WATCHDOG TIMER DISABLE | IGNORE DEBUG STRAP | Inter CLK Gen Mode Disable | EC DISABLE | CLOCKGEN DISABLE |  | H,L = SPI ROM  | L,H = LPC ROM (Default L,NC) |
|           | DEFAULT          | DEFAULT         | DEFAULT                | DEFAULT            | DEFAULT                    | DEFAULT    | DEFAULT          |  | L,L = FWH ROM  |                              |



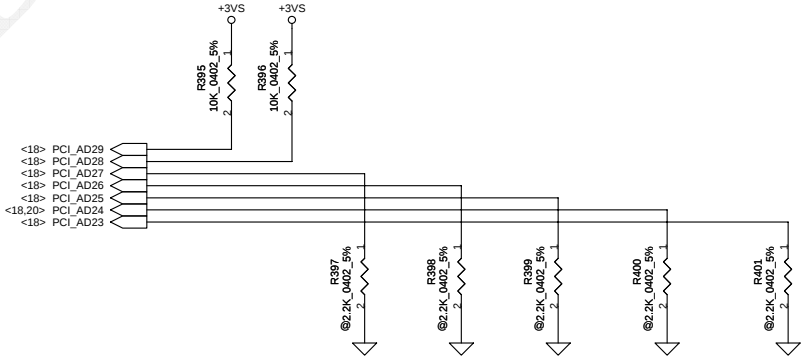
# DEBUG STRAPS

SB800 HAS 15K INTERNAL PU FOR PCI\_AD[27:23]

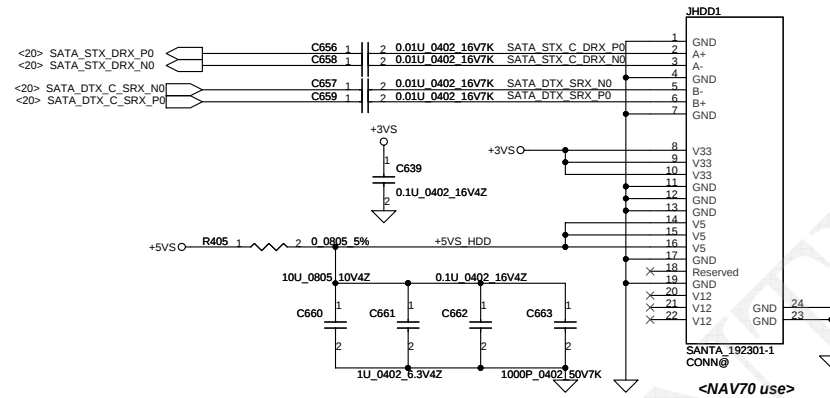
|           |  | PCI_AD27               | PCI_AD26                       | PCI_AD25              | PCI_AD24                           | PCI_AD23                        |
|-----------|--|------------------------|--------------------------------|-----------------------|------------------------------------|---------------------------------|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

Check AD29,AD28 strap function

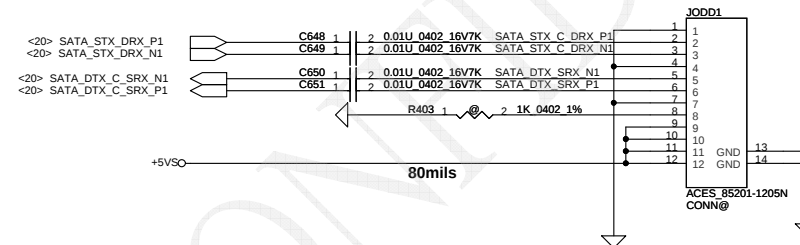
check default



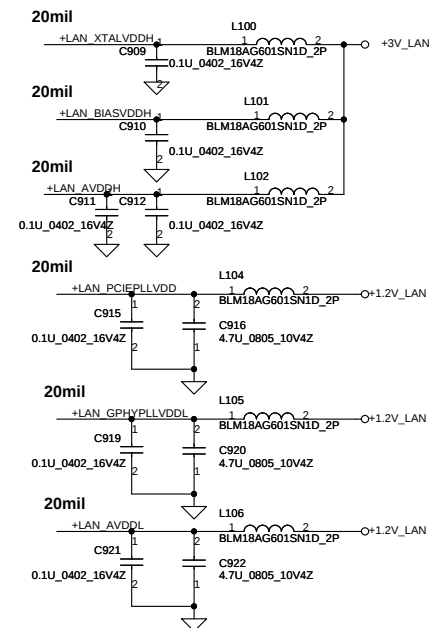
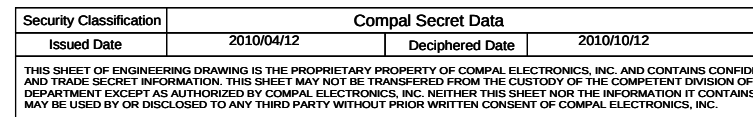
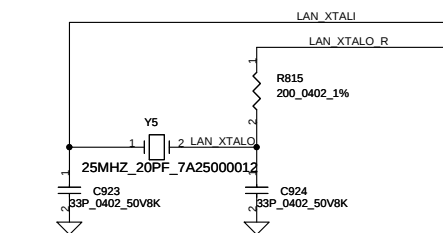
## SATA HDD Conn.



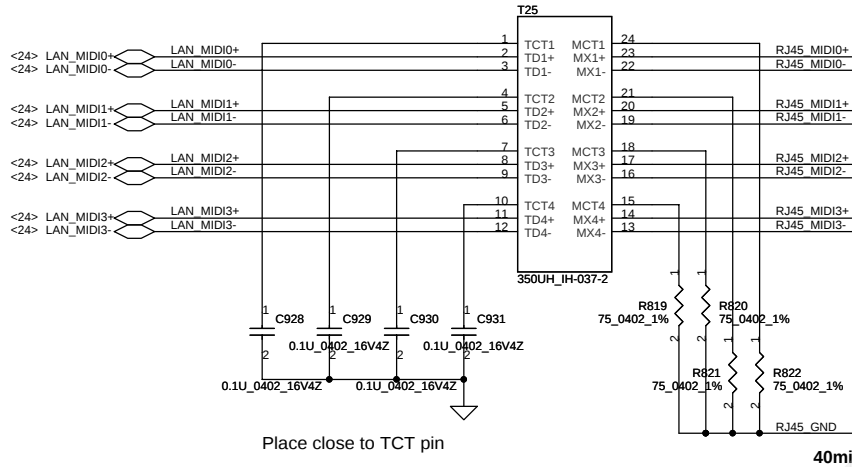
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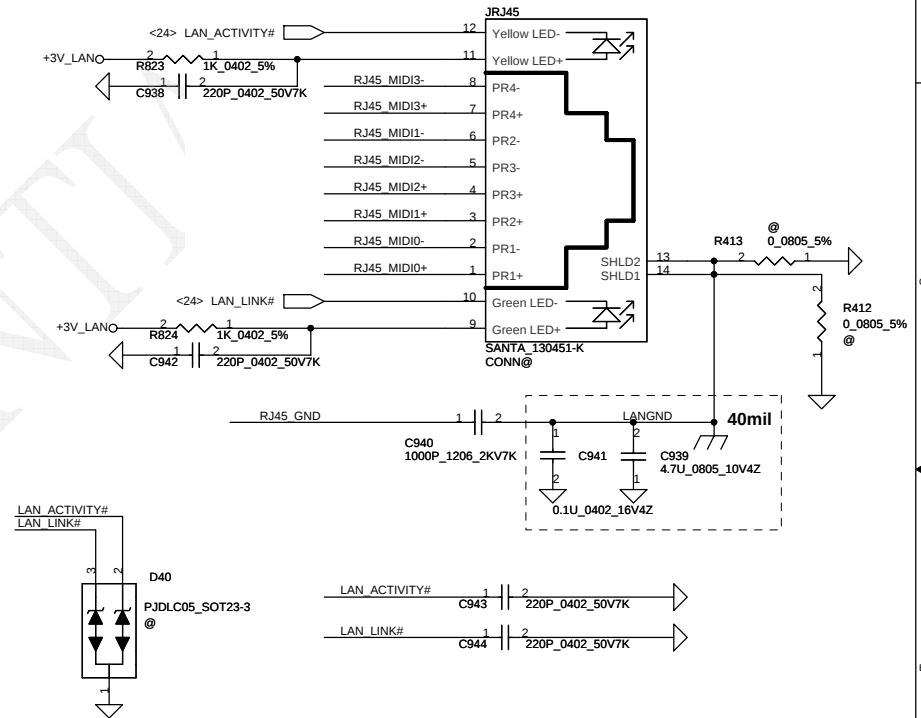
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                         |  |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Document Number          |  | PEW/76/86/96 LA-6552P   |  | Rev B          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date                     |  | Thursday, July 22, 2010 |  | Sheet 23 of 45 |  |



BH GS5009-D <SP050006B00>

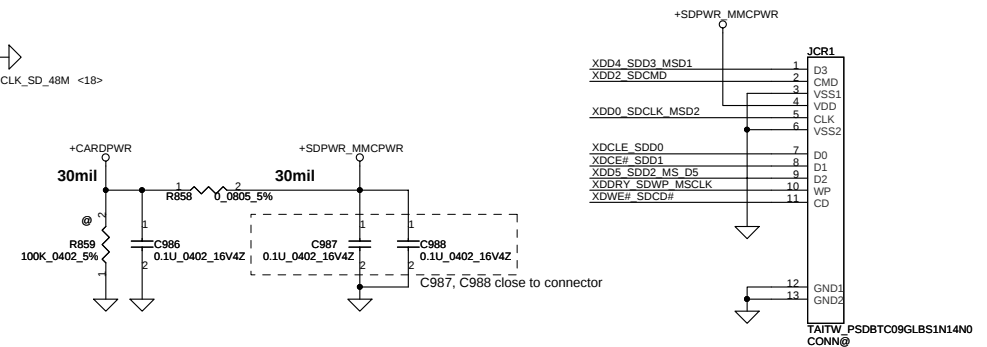
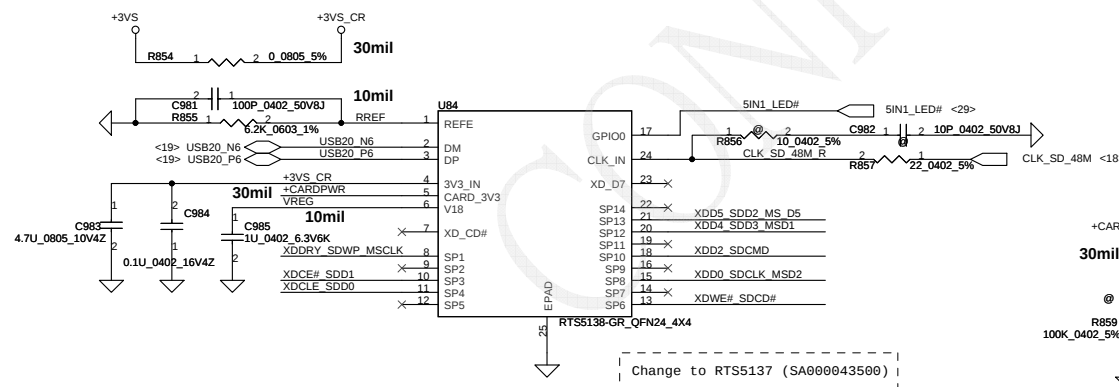
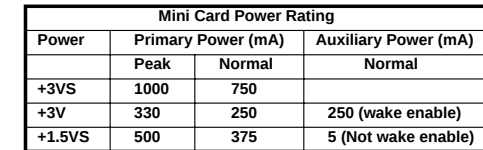


## LAN Connector

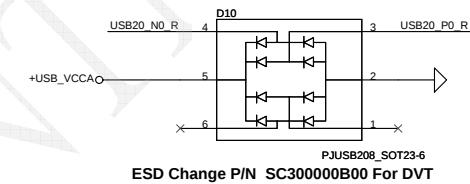
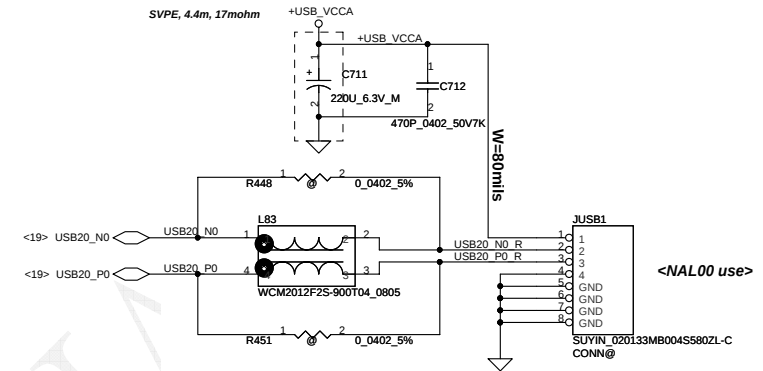
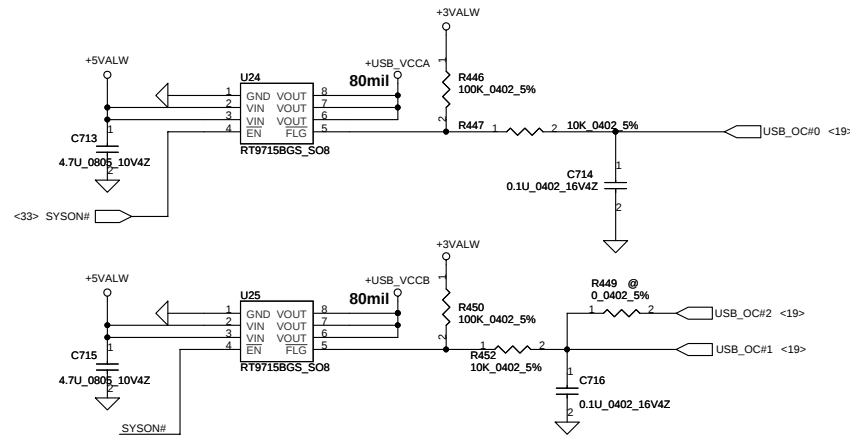


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                               |                |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, July 22, 2010 | Sheet 25 of 45 |

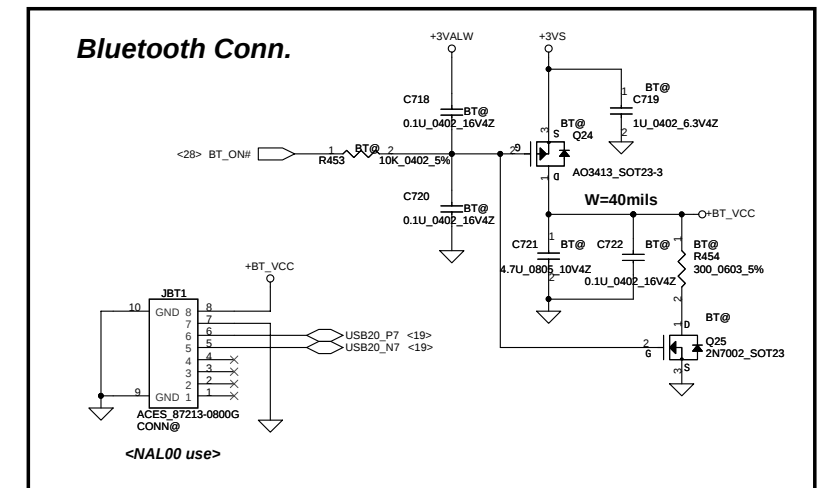
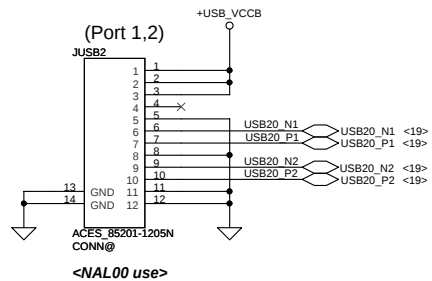
### Card Reader Connector



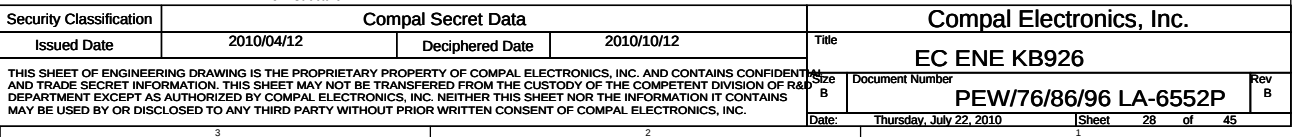
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                    | MINI CARD / CardReader RTS5137 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, July 22, 2010        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 26 of 45                       |

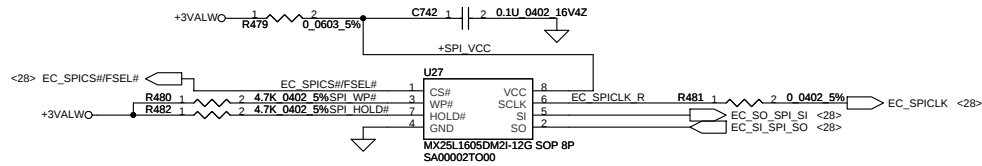


To USB/B Connector

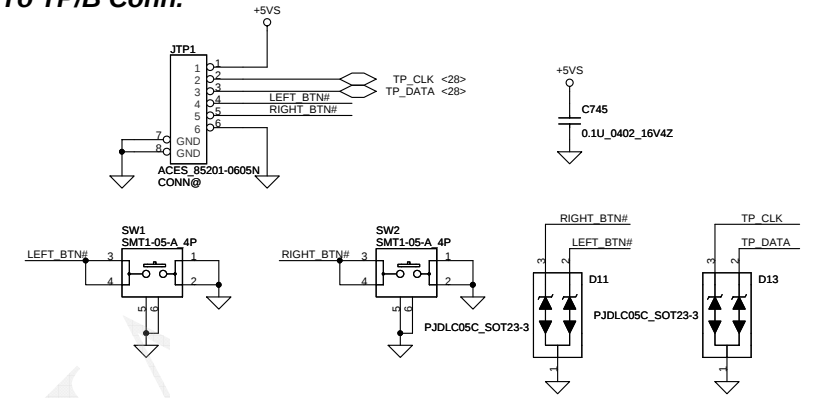


|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            |                               |                |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                |            | Compal Secret Data |            | Compal Electronics, Inc.      |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                            | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                         |                |
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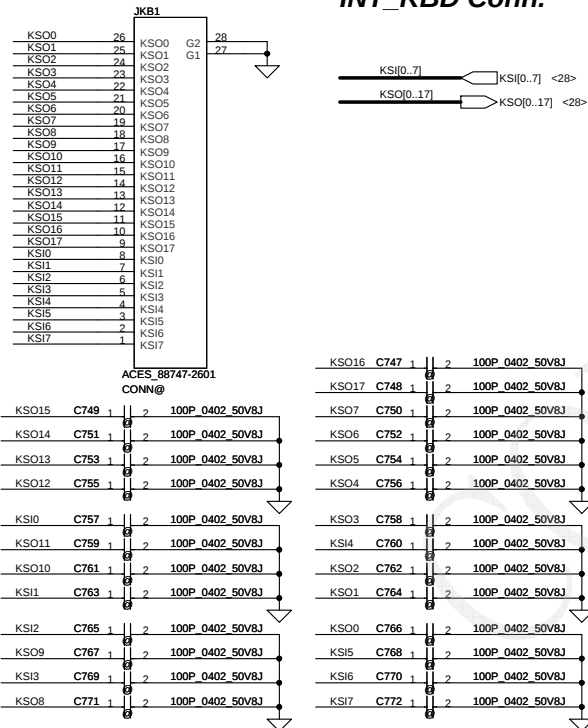




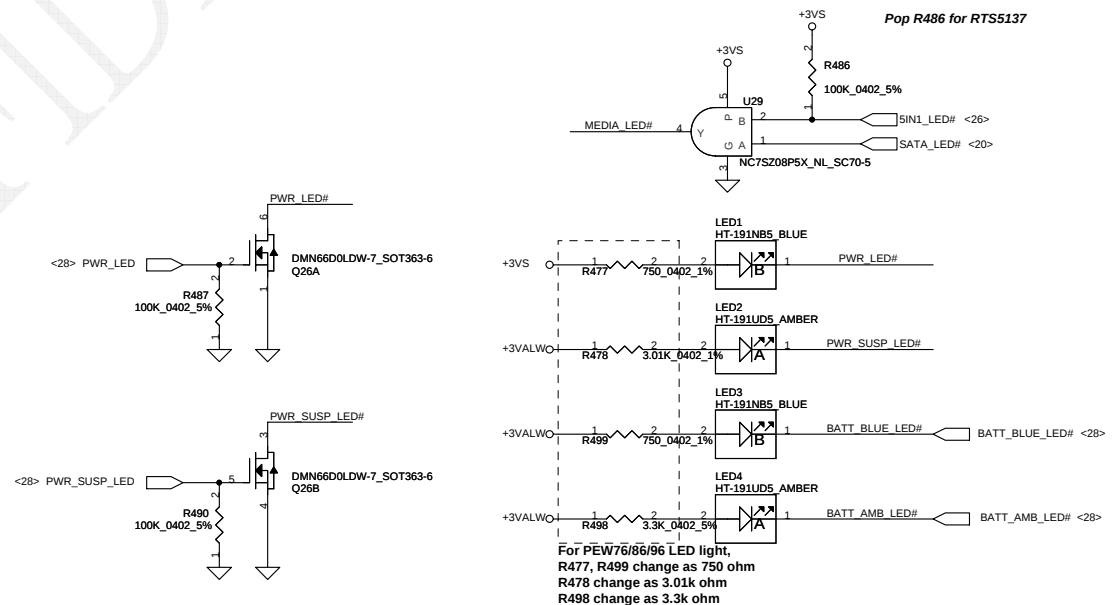
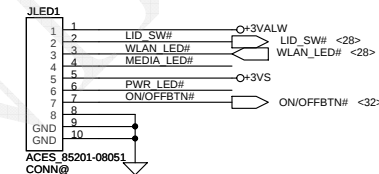
## To TP/B Conn.



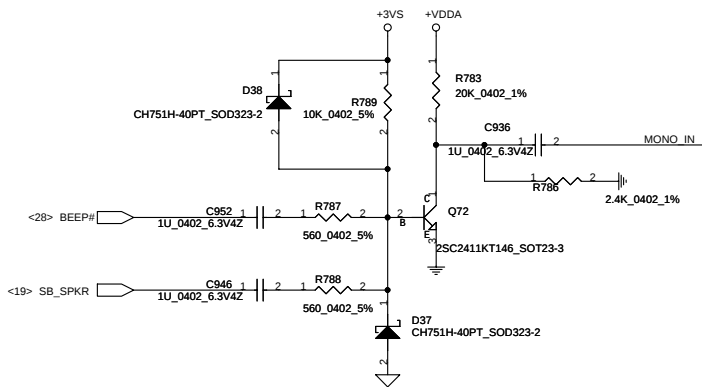
## INT\_KBD Conn.



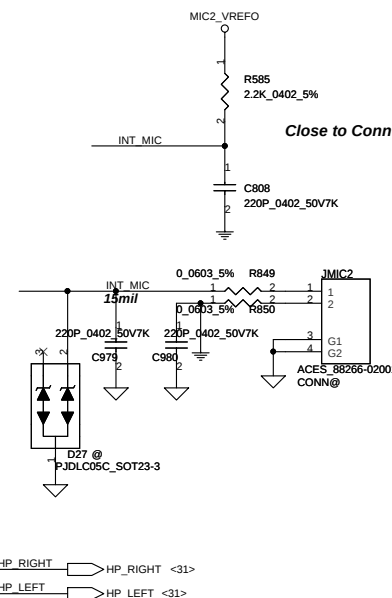
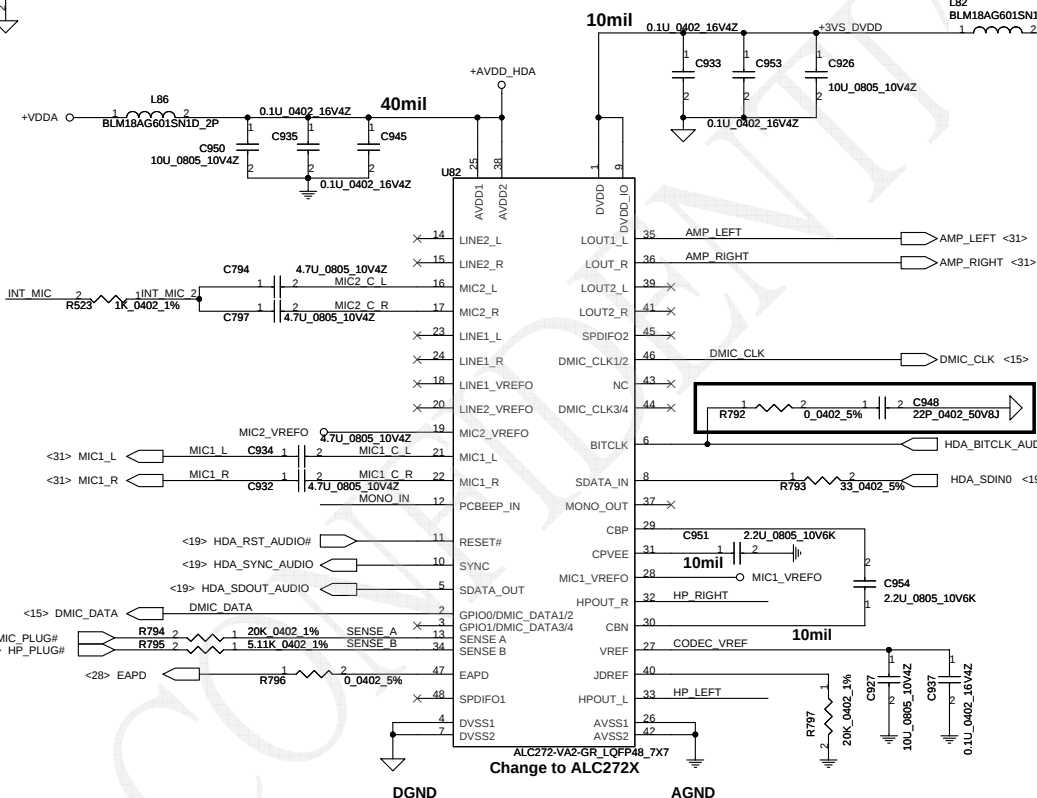
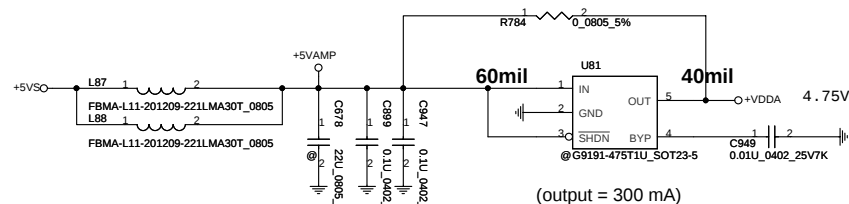
For PVT 0608 Unpop Cap.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            |                          |                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | Compal Secret Data |            | Compal Electronics, Inc. |                                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                    | BIOS, I/O Port & K/B Connector |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Date:                    | Thursday, July 22, 2010        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Sheet                    | 29 of 45                       |

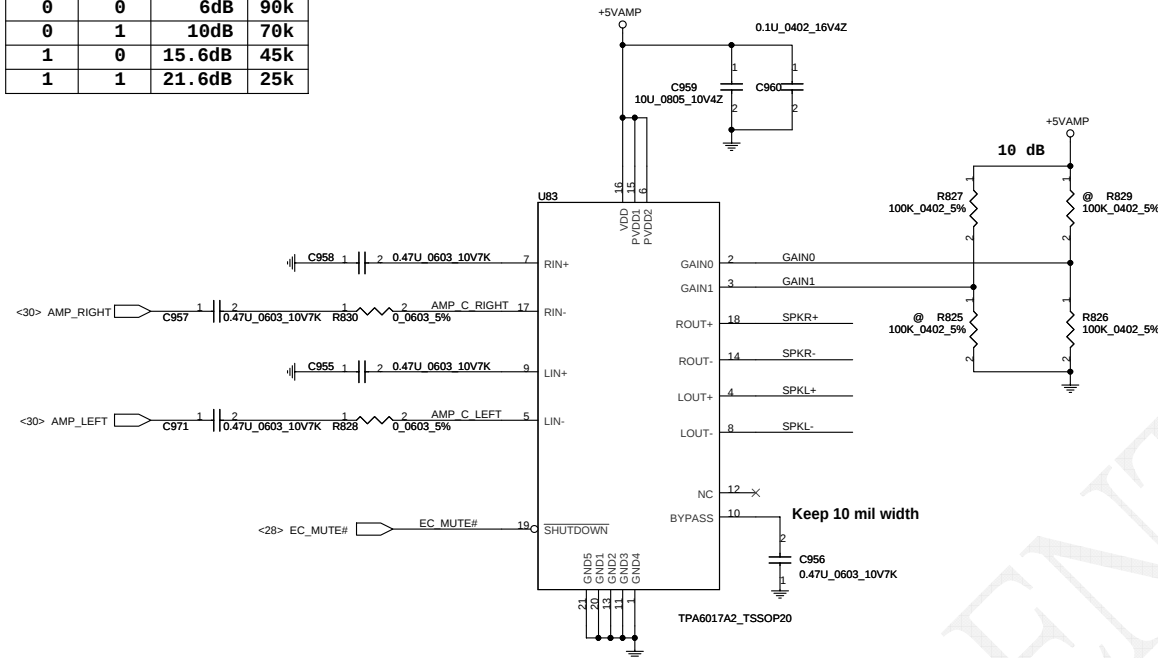


## HD Audio Codec

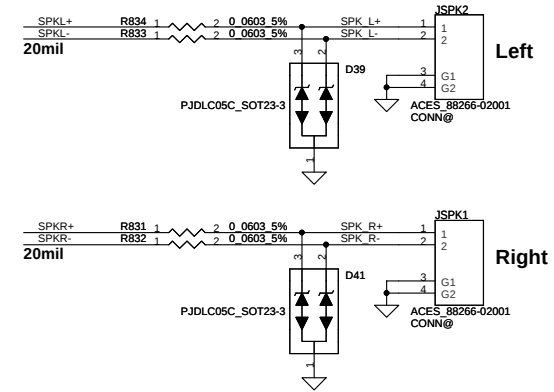


| ALC272X   |           |                     |          |
|-----------|-----------|---------------------|----------|
| Sense Pin | Impedance | Codec Signals       | Function |
| SENSE A   | 39.2K     | PORT-A (PIN 39, 41) | LOUT2    |
|           | 20K       | PORT-B (PIN 21, 22) | MIC1     |
|           | 10K       | PORT-C (PIN 23, 24) | LINE1    |
|           | 5.1K      | PORT-D (PIN 35, 36) | LOUT1    |
| SENSE B   | 39.2K     | PORT-E (PIN 14, 15) | LINE2    |
|           | 20K       | PORT-F (PIN 16, 17) | MIC2     |
|           | 10K       |                     |          |
|           | 5.1K      | PORT-J (PIN 32, 33) | HP       |

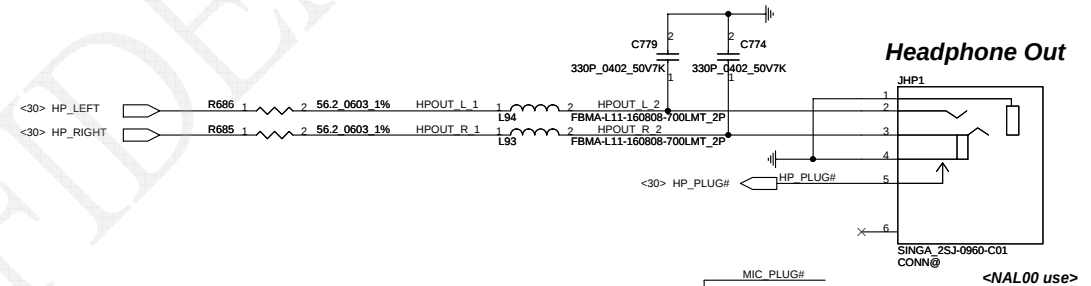
| GAIN0 | GAIN1 | AV(inv) | Ri  |
|-------|-------|---------|-----|
| 0     | 0     | 6dB     | 90k |
| 0     | 1     | 10dB    | 70k |
| 1     | 0     | 15.6dB  | 45k |
| 1     | 1     | 21.6dB  | 25k |



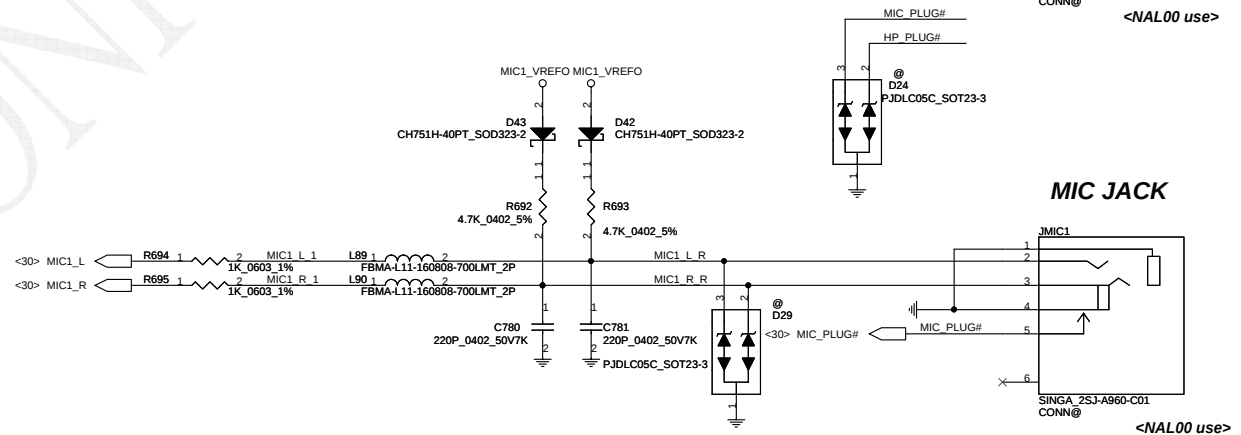
### Int. Speaker Conn.



### Headphone Out

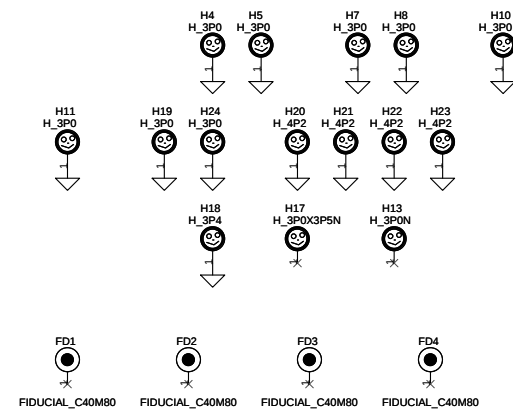
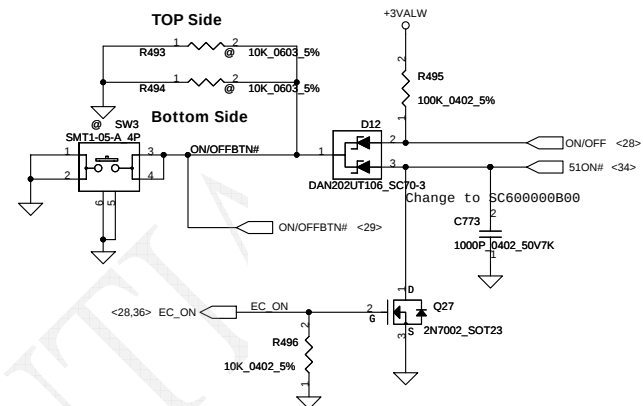
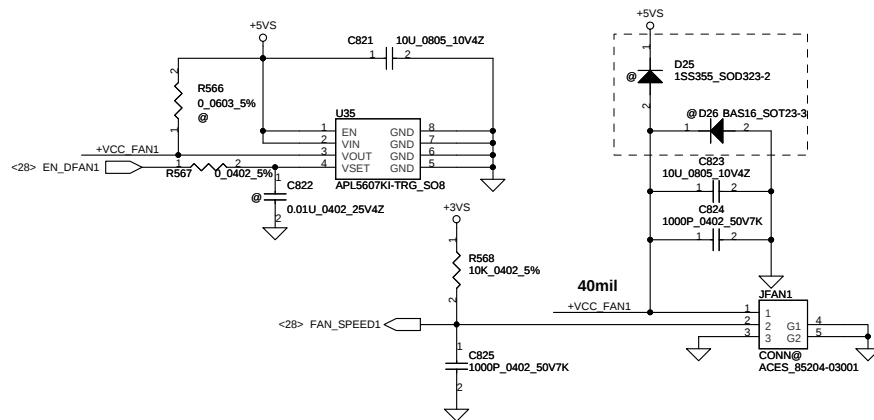


### MIC JACK

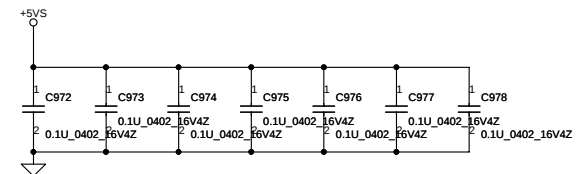
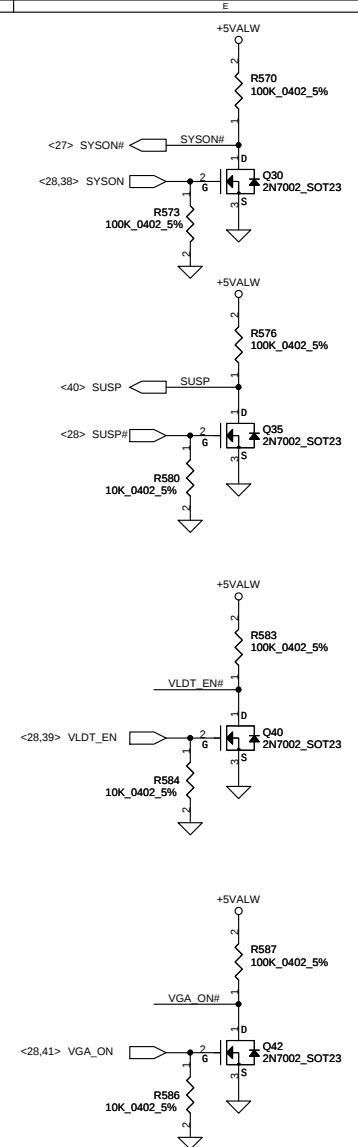
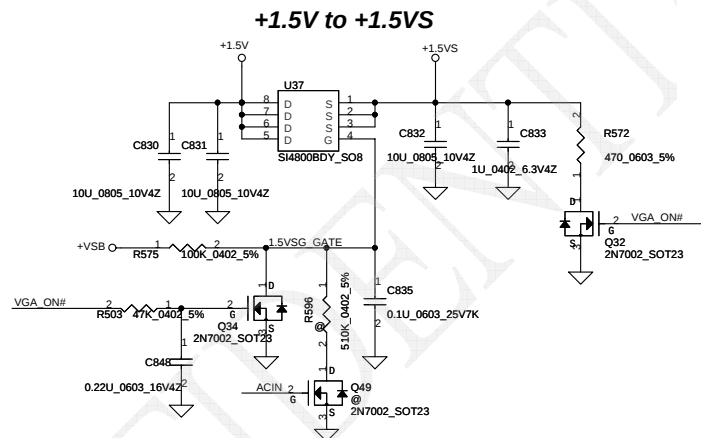
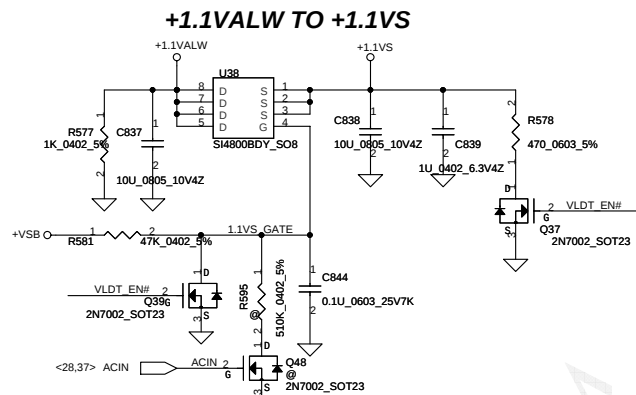
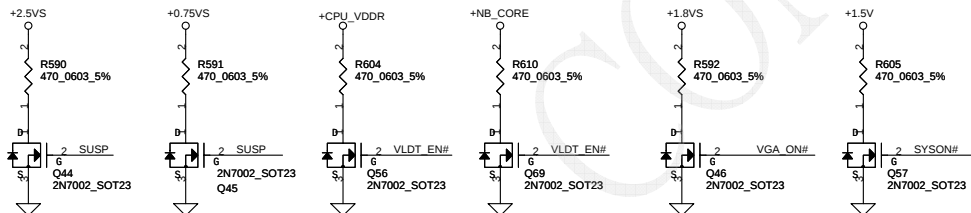
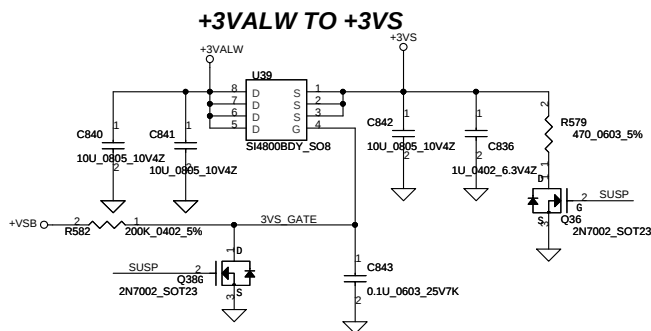
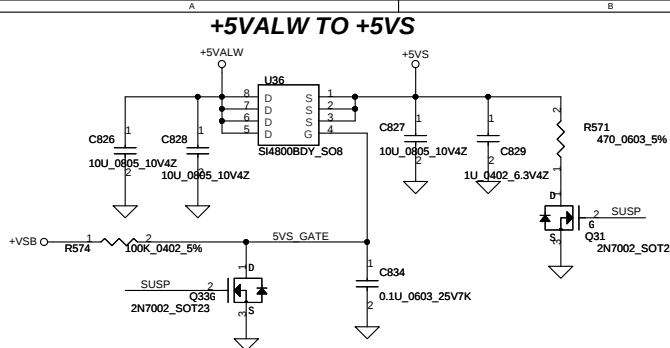


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                 |            |                               |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|-------------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Compal Secret Data |                 |            | Title                         |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2010/04/12         | Deciphered Date | 2010/10/12 | Compal Electronics, Inc.      |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                 |            | PEW/76/86/96 LA-6552P         |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                 |            | Date: Thursday, July 22, 2010 | Sheet 31 of 45 |

ON/OFF switch **Power Button**

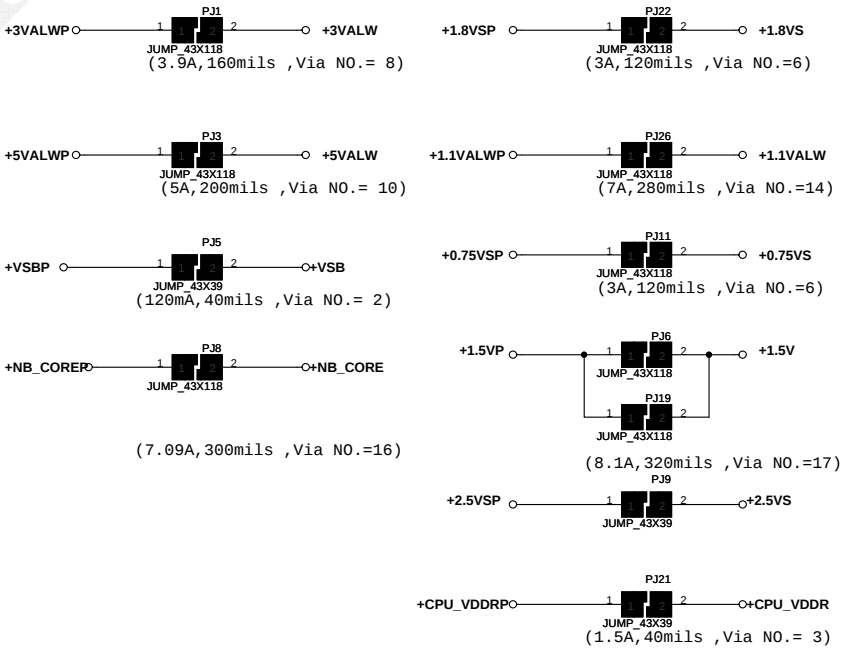
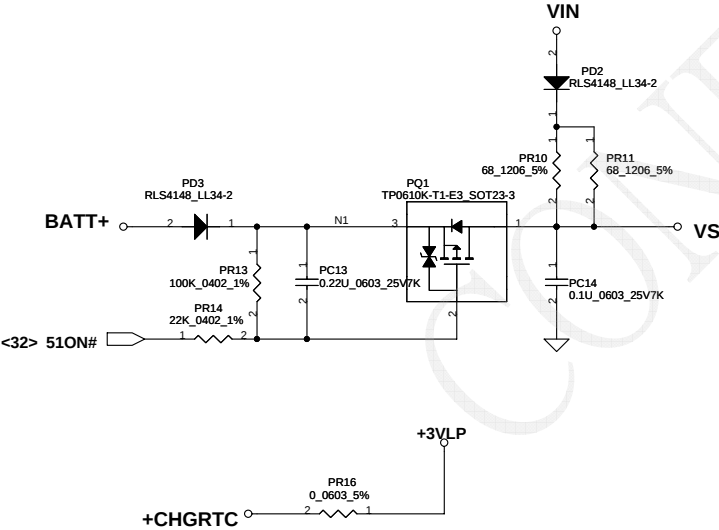
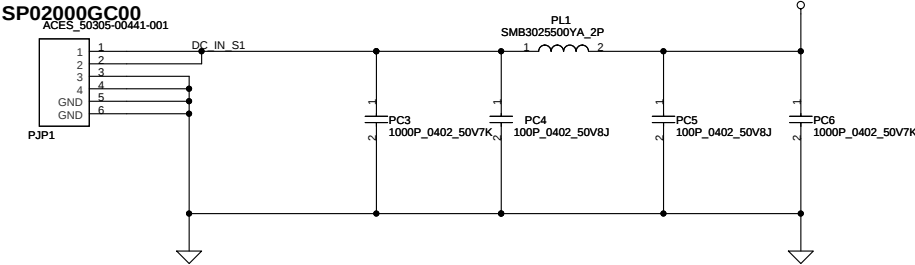


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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data      |                 |            | Compal Electronics, Inc. |       |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |                 |            | Document Number          |       | Rev B |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Thursday, July 22, 2010 |                 | Sheet      | 32                       | of 45 |       |



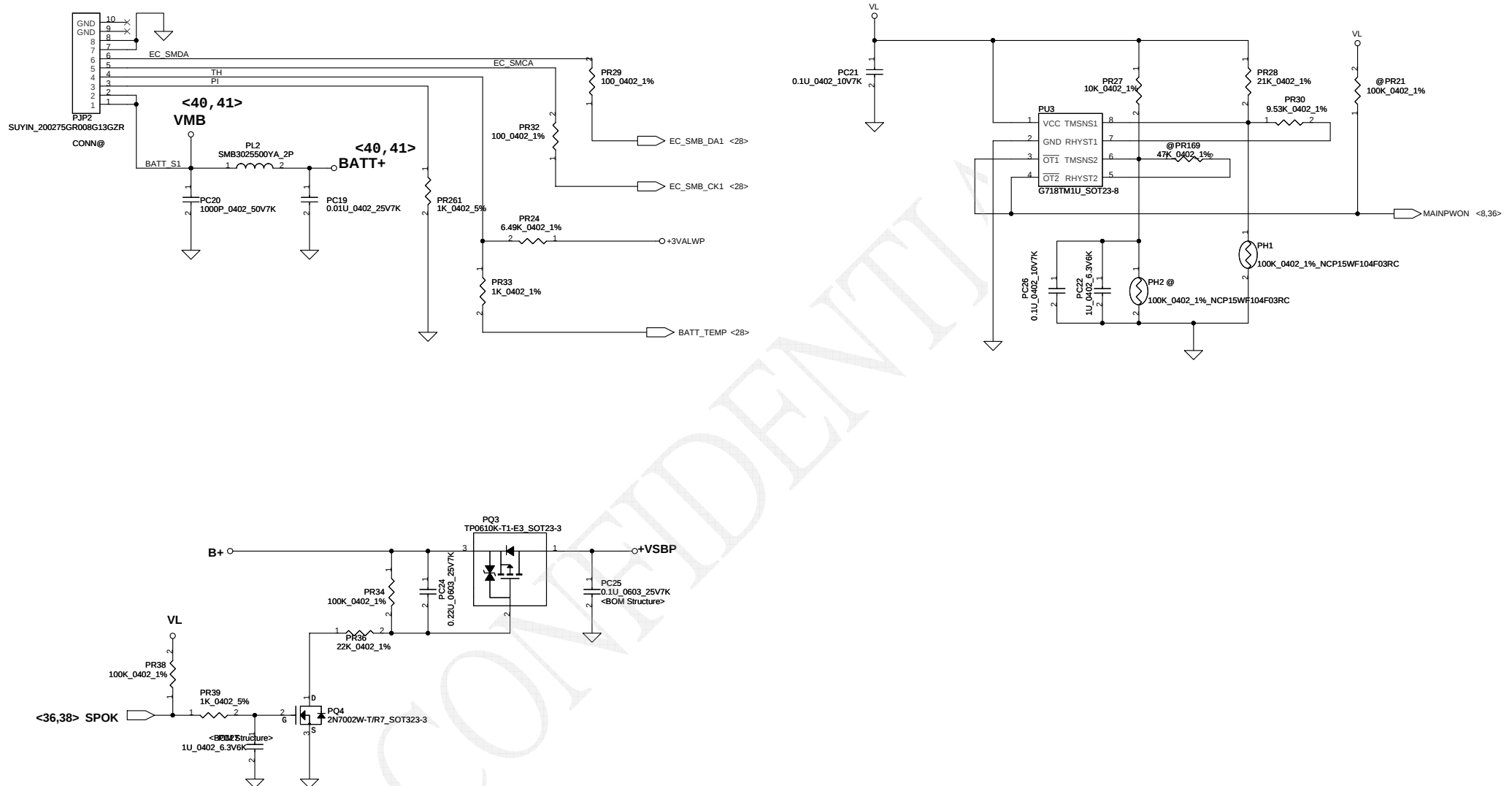
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |       |
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| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Document Number          | Rev B |
| Sheet 33 of 45                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | PEW/76/86/96 LA-6552P    |       |

DC-IN cable: DC301009W00 (Yellow)



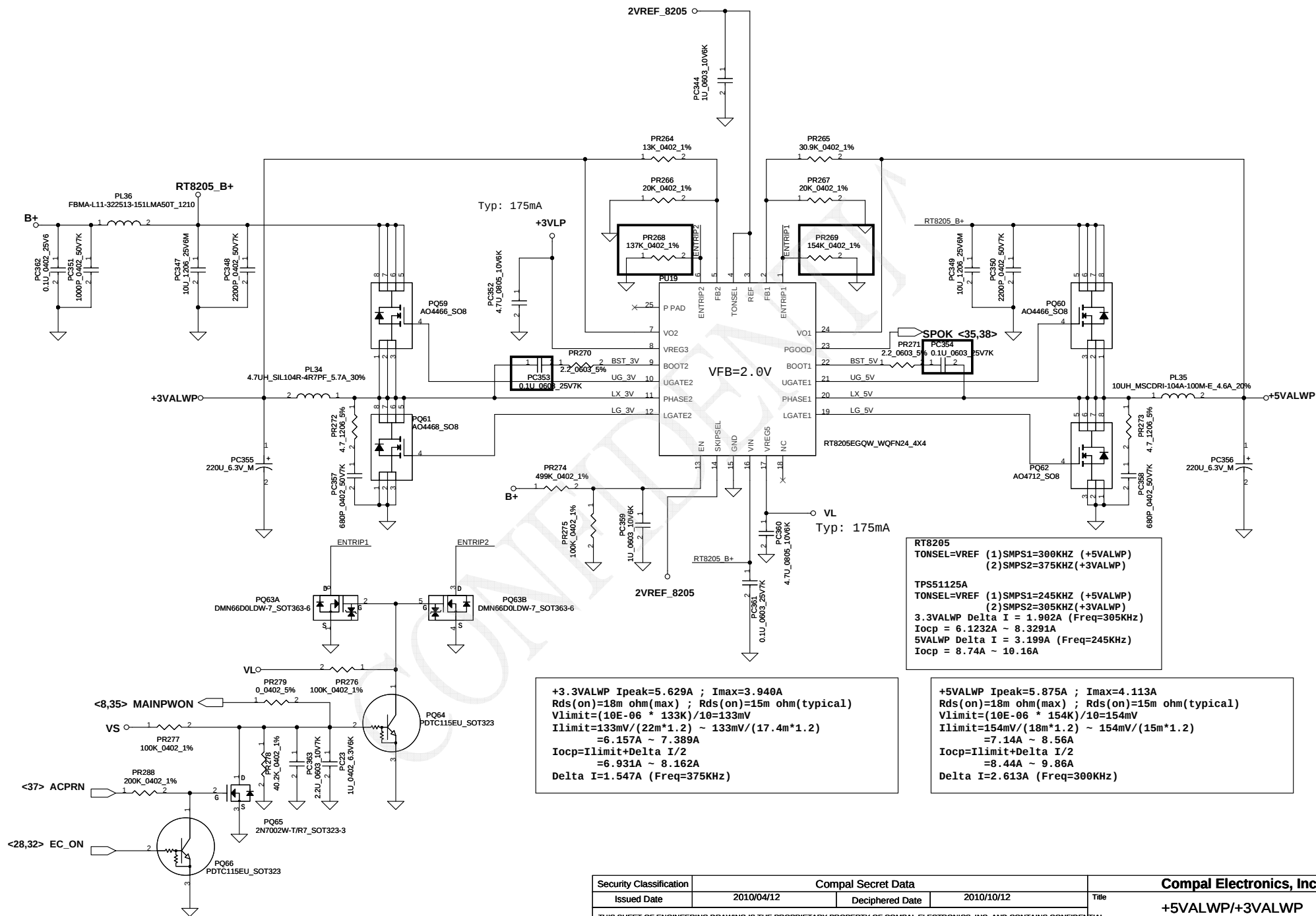
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, July 22, 2010 | Sheet 34 of 45 |

PH1 under CPU bottom side : Not SPEC, reference only!  
 CPU thermal protection at 92 degree C  
 Recovery at 56 degree C



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |     |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | PEW96 LA-6552P           | B   |
| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Sheet                    | 45  |

Note:  
Use TPS51125 IC can remove RTC refernece LDO  
Use TPS51427 IC must keep RTC refernece LDO

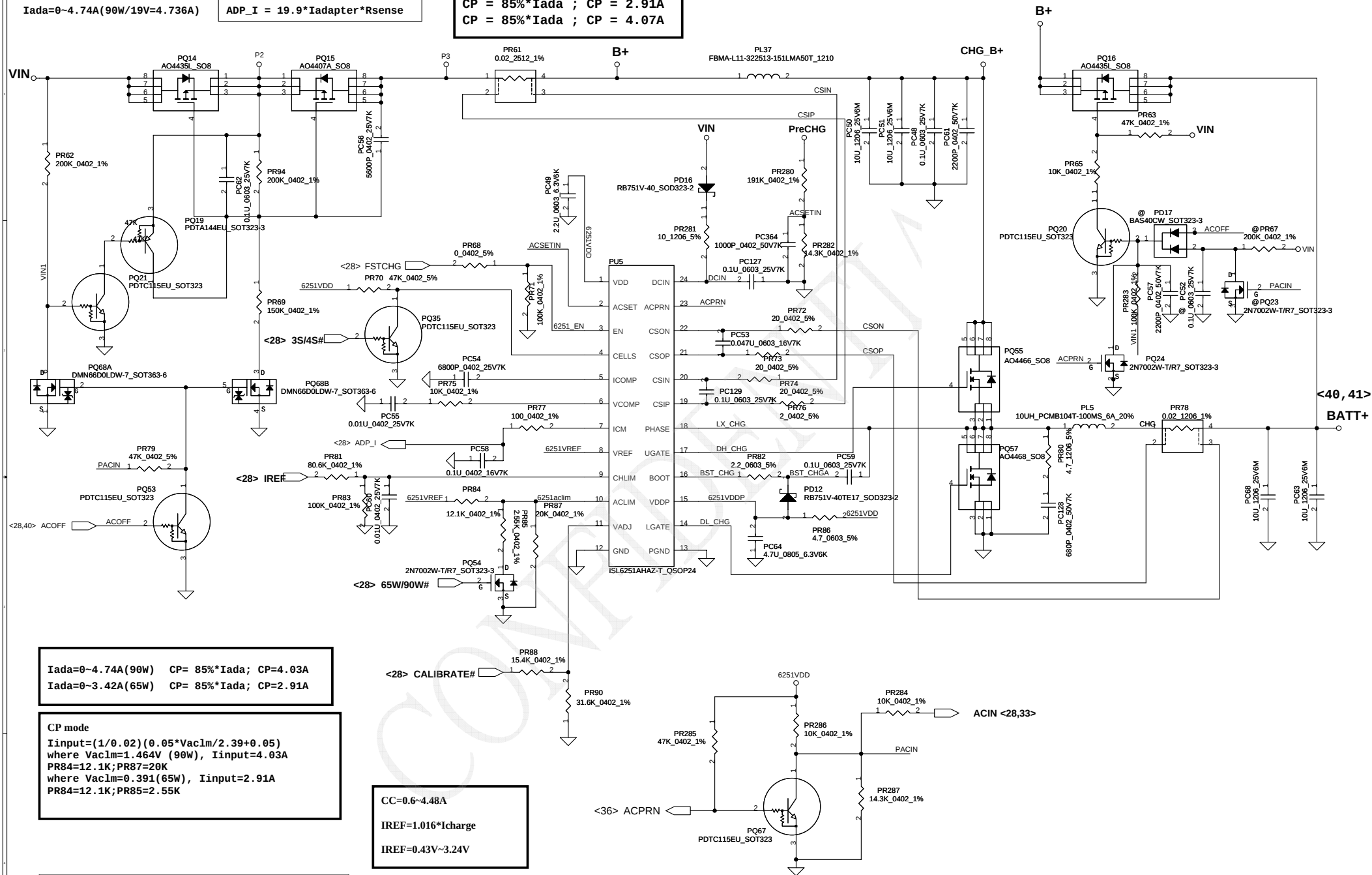


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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2010/04/12 | Deciphered Date    | 2010/10/12 | Title                    | +5VALWP/+3VALWP         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Customer                 | PEW96 LA-6552P          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Thursday, July 22, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 36 of 45                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | B                       |

Iada=0~3.42A(65W/19V=3.421A)  
Iada=0~4.74A(90W/19V=4.736A)

ADP\_I = 19.9\*Iadapter\*Rsense

CP = 85\*Iada ; CP = 2.91A  
CP = 85\*Iada ; CP = 4.07A



Iada=0~4.74A(90W) CP= 85\*Iada; CP=4.03A  
Iada=0~3.42A(65W) CP= 85\*Iada; CP=2.91A

CP mode  
Iinput=(1/0.02)(0.05\*Vacim/2.39+0.05)  
where Vacim=1.464V (90W), Iinput=4.03A  
PR84=12.1K;PR87=20K  
where Vacim=0.391(65W), Iinput=2.91A  
PR84=12.1K;PR85=2.55K

CC=0.6~4.48A

IREF=1.016\*Icharge

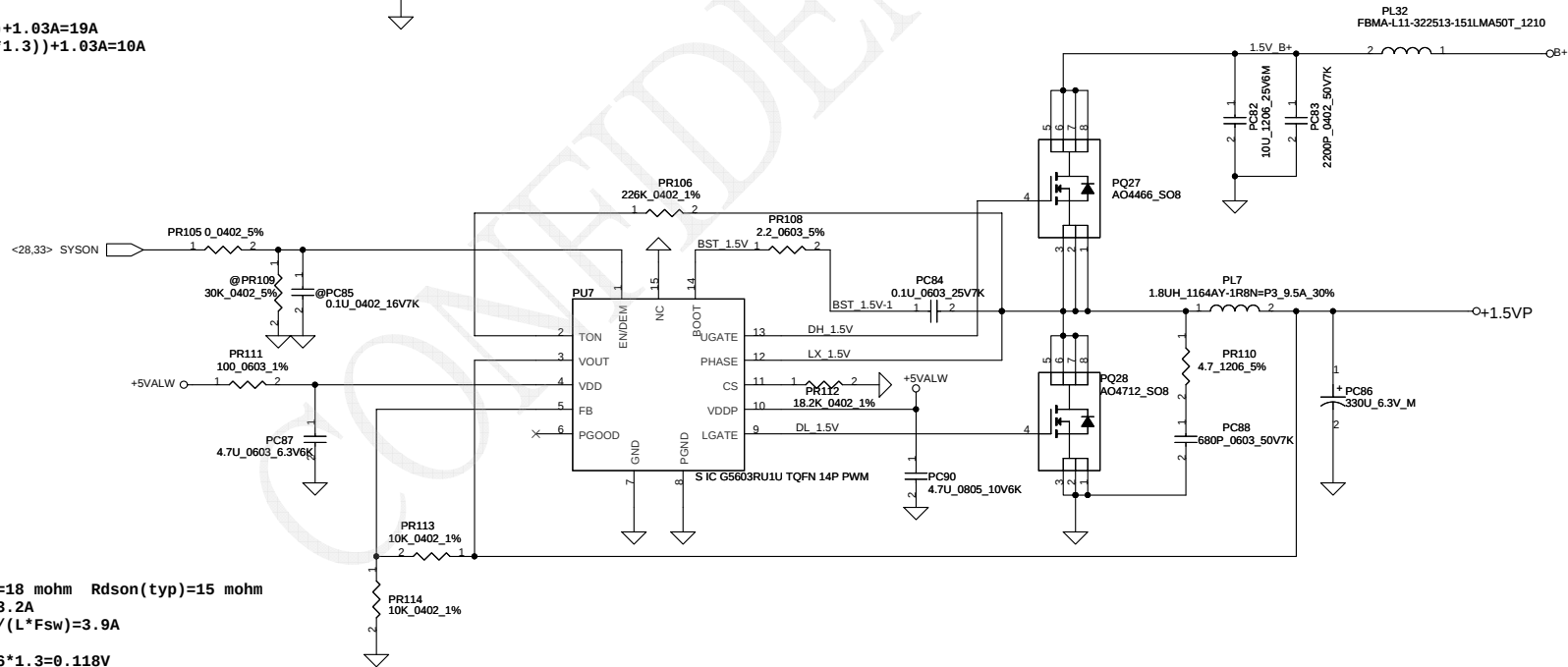
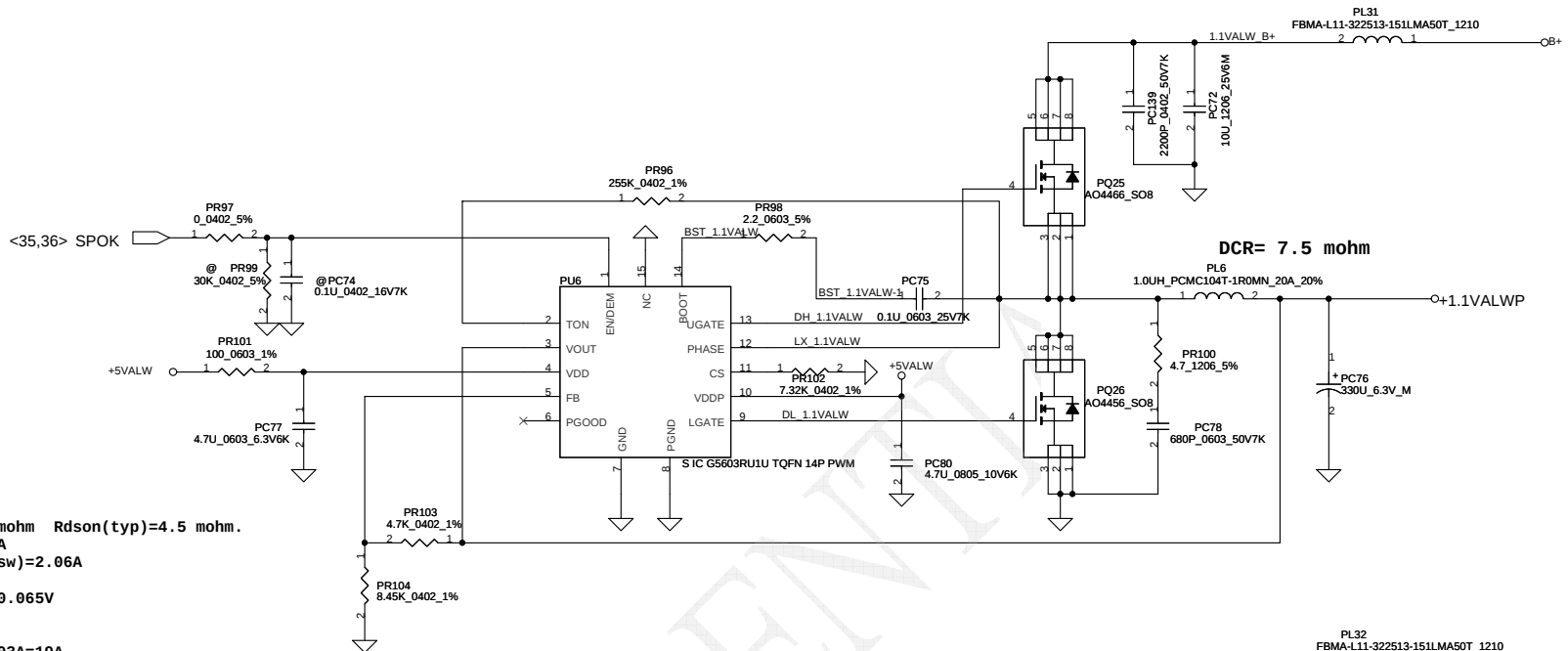
IREF=0.43V~3.24V

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

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|----------|
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| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Sheet                    | 37 of 45 |

<Vo=1.1V> VFB=0.75V  
 $V=0.75*(1+4.7K/10K)=1.1V$   
 $F_{sw}=280KHz$

$C_{out} ESR=15m\ ohm$   $R_{dson(max)}=5.6\ m\ ohm$   $R_{dson(typ)}=4.5\ m\ ohm$   
 $I_{peak}=7.42A$ ,  $I_{max}=5.2A$ ,  $I_{ocp}=8.9A$   
 $\Delta I=((19-1.1)*(1.1/19))/(L*F_{sw})=2.06A$   
 $\Rightarrow 1/2\Delta I=1.03A$   
 $V_{tripmax}=I_{ocp}*R_{dson}=8.9*5.6*1.3=0.065V$   
 $R_{cs}=V_{trip}/9uA=0.065V/9uA=7.2K$   
 choose  $R_{cs}=7.32K$   
 $I_{ocpmax}=(7.32K*11uA)/0.0045+1.03A=19A$   
 $I_{ocpmin}=(7.32K*9uA)/(0.0056*1.3)+1.03A=10A$   
 $I_{ocp}=10A-19A$



<Vo=1.5V> VFB=0.75V  
 $V=0.75*(1+10K/10K)=1.5V$   
 $F_{sw}=335KHz$

$C_{out} ESR=17\ m\ ohm$   $R_{dson(max)}=18\ m\ ohm$   $R_{dson(typ)}=15\ m\ ohm$   
 $I_{peak}=7A$ ,  $I_{max}=8.4A$ ,  $I_{ocp}=13.2A$   
 $\Delta I=((19-1.5)*(1.5/19))/(L*F_{sw})=3.9A$   
 $\Rightarrow 1/2\Delta I=1.95A$   
 $V_{tripmax}=I_{ocp}*R_{dson}=16.2*5.6*1.3=0.118V$   
 $R_{cs}=V_{trip}/9uA=0.118V/9uA=13.1K$   
 choose  $R_{cs}=13K$   
 $I_{ocpmax}=(13K*11uA)/0.0045+1.95A=32A$   
 $I_{ocpmin}=(13K*9uA)/(0.0056*1.3)+1.95A=18A$   
 $I_{ocp}=9.94A-13.2A$

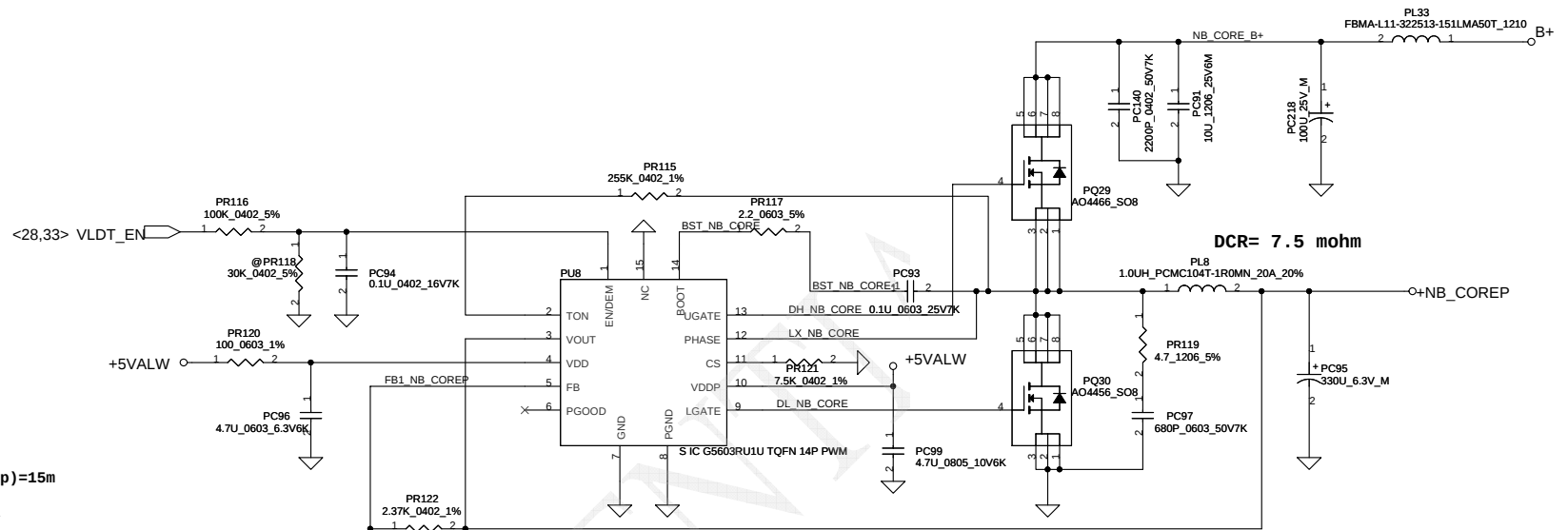
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|-------------------------------|--|----------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc.      |  |                |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2010/04/12         |  | Deciphered Date |  | 2010/10/12                    |  | Title          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                               |  | 1.1VALWP/1.5VP |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | PEW96 LA-6552P                |  |                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date: Thursday, July 22, 2010 |  | Sheet 38 of 45 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                               |  |                |  |

Compal Electronics, Inc.

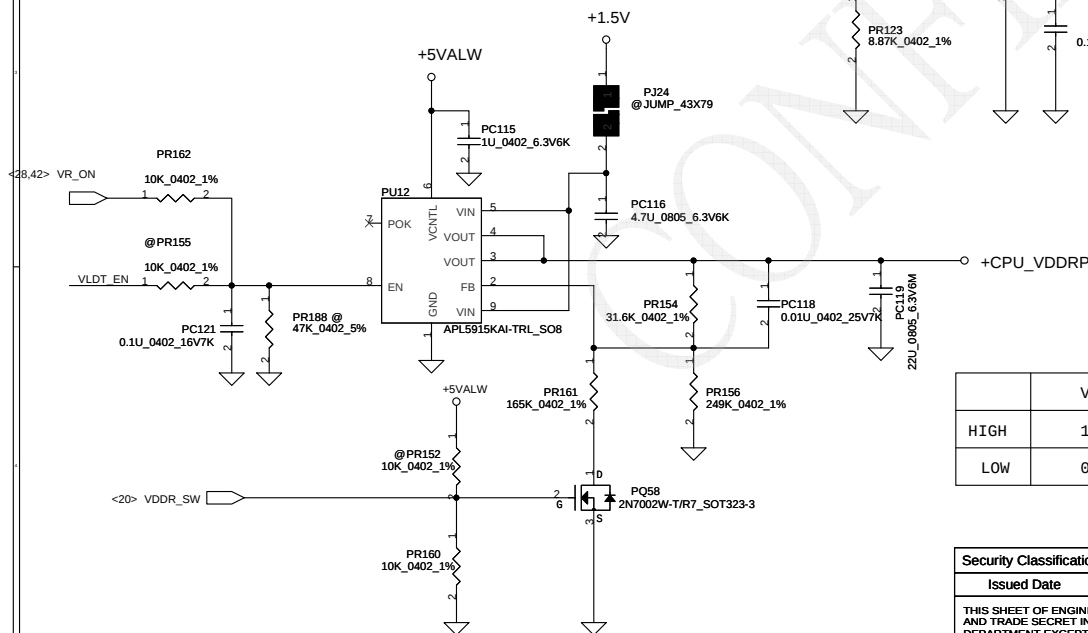
1.1VALWP/1.5VP

PEW96 LA-6552P

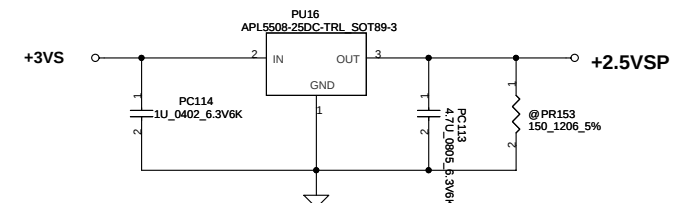
$<V_o=1.1V>$   $V_{FB}=0.75V$   
 $V=0.75*(1+4.7K/10K)=1.1V$   
 $F_{sw}=280KHz$   
 $C_{out} ESR=15m\ ohm$   $R_{dson(max)}=18m$   $R_{dson(typ)}=15m$   
 $I_{peak}=7.6A$ ,  $I_{max}=5.4A$ ,  $I_{ocp}=9.2A$   
 $\Delta I=((19-1.1)*(1.1/19))/(L*F_{sw})=2.06A$   
 $\Rightarrow 1/2\Delta I=1.03A$   
 $V_{tripmax}=I_{ocp}*R_{dson}=9.2*5.6*1.3=0.067V$   
 $R_{cs}=V_{trip}/9\mu A=0.067V/9\mu A=7.44K$   
 choose  $R_{cs}=7.5K$   
 $I_{ocpmax}=(7.5K*11\mu A)/0.0045+1.03A=19.36A$   
 $I_{ocpmin}=(7.5K*9\mu A)/(0.018*1.3)+1.03A=10.3A$   
 $I_{ocp}=10.3A\sim 19.36A$

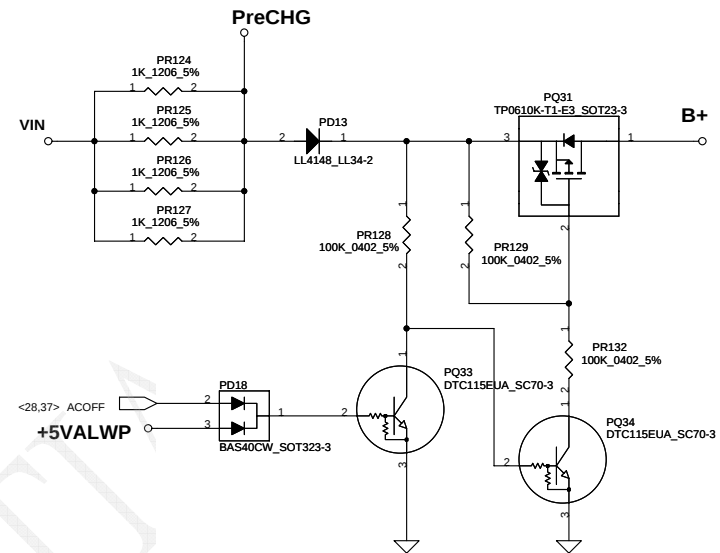
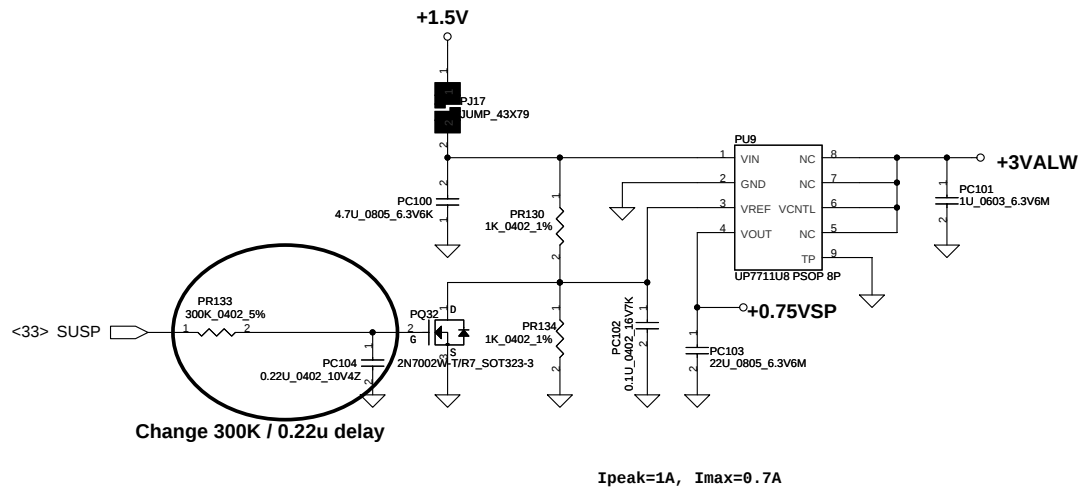


|      | POWER_SEL |
|------|-----------|
| HIGH | 0.95V     |
| LOW  | 1.1V      |

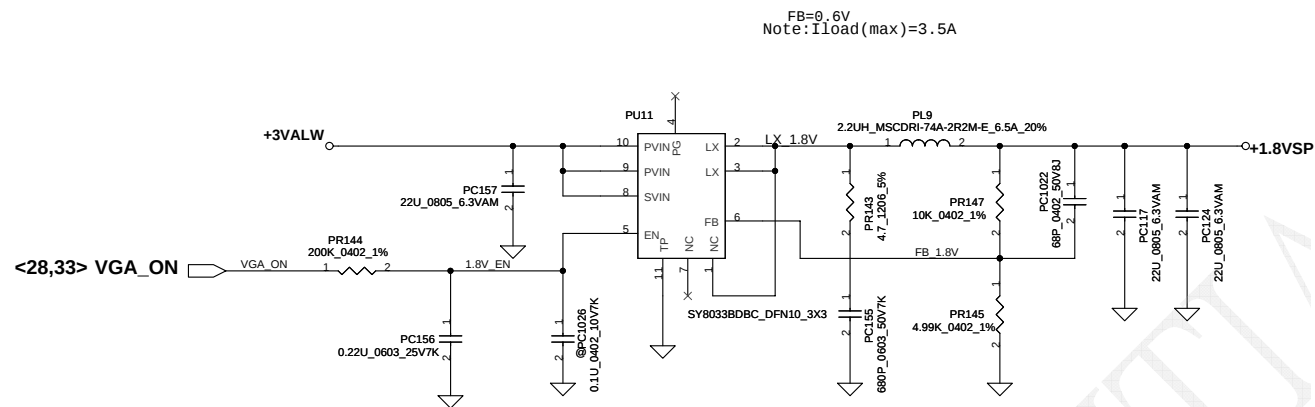


|      | VDDR_SW |
|------|---------|
| HIGH | 1.05V   |
| LOW  | 0.9V    |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 40 of 45                |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                |
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| PEW96 LA-6552P                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |                          | B              |
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## Version change list (P.I.R. List)

Page 1 of 2  
for PWR

| Item | Fixed Issue                    | Reason for change                                                            | Rev. | PG # | Modify List                                                                                                                                                                                    | Date         | Phase  |
|------|--------------------------------|------------------------------------------------------------------------------|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|
| 1    | Modify Pre-charger             |                                                                              |      |      | Add PR279,PR288,PC57<br>Change PR285 100K to 47K<br>Change PR287 20K to 14.3K<br>Change PQ67 2N7002 to PDTTC115<br>Change PR62 47K to 200K<br>Change PR79 22K to 47K<br>Change PR283 0 to 100K | 2010<br>0528 | PVT    |
| 2    | Meet common rule               |                                                                              |      |      | Change PJ30 to PL36, PJ23 to PL37<br>Add PC361,PC362                                                                                                                                           | 2010<br>0602 | PVT    |
| 3    | HDMI test fail                 | 5V voltage too low at test termial                                           |      | 36   | Change PR265 from 30K to 30.9K                                                                                                                                                                 | 2010<br>0604 | PVT    |
| 4    | ESD test fail                  | ESD solution                                                                 |      |      | Add PC22, PC23                                                                                                                                                                                 | 2010<br>0608 | PVT    |
| 5    | EMI test fail                  | EMI solution                                                                 |      |      | Enable 3V,5V,1.1V,1.5V,NB_CORE,CPU snubber                                                                                                                                                     | 2010<br>0608 | PVT    |
| 6    | Power sequence tune            |                                                                              |      | 41   | Change PR144 from 22K to 200K<br>Change PC156 from 0.47u to 0.22u                                                                                                                              | 2010<br>0609 | PVT    |
| 7    | Costdown                       | Costdown                                                                     |      | 38   | Change PQ28 from AO4456 to AO4712<br>Change PR112 from 13K to 18.2K<br>Change PL7 from 1.0uH to 1.8uH<br>Change PQ61 from AO4712 to AO4468                                                     | 2010<br>0617 | PVT    |
| 8    |                                |                                                                              |      |      | PR268 from 133K to 137K<br>PQ57 from AO4466 to AO4468                                                                                                                                          |              |        |
| 9    | For DDR voltage default/HW YC  | DDR 2 need 0.9V, DDR 3 need 1.05V<br>But DDR2 voltage is critical then DDR 3 |      | 39   | Disable PR152<br>Enable PR160                                                                                                                                                                  | 2010<br>0705 | Pre MP |
| 10   | Aprove 200MHz~220MHz/EMI Chris | EMI solution                                                                 |      | 37   | Enable PR80, PC128<br>Change PR82 from 0 to 2.2                                                                                                                                                | 2010<br>0705 | Pre MP |
| 11   | Add a bypass path/ESD Chris    | ESD solution                                                                 |      | 35   | Add PC26 near PC22                                                                                                                                                                             | 2010<br>0705 | Pre MP |
| 12   |                                |                                                                              |      |      |                                                                                                                                                                                                |              |        |
| 13   |                                |                                                                              |      |      |                                                                                                                                                                                                |              |        |
| 14   |                                |                                                                              |      |      |                                                                                                                                                                                                |              |        |
| 15   |                                |                                                                              |      |      |                                                                                                                                                                                                |              |        |
| 16   |                                |                                                                              |      |      |                                                                                                                                                                                                |              |        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | PEW96 LA-6552P  |
| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |                          | Rev B           |
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| Item | Fixed Issue | Reason for change | Rev. | PG # | Modify List | Date | Phase |
|------|-------------|-------------------|------|------|-------------|------|-------|
| 1    |             |                   |      |      |             |      |       |
| 2    |             |                   |      |      |             |      |       |
| 3    |             |                   |      |      |             |      |       |
| 4    |             |                   |      |      |             |      |       |
| 5    |             |                   |      |      |             |      |       |
| 6    |             |                   |      |      |             |      |       |
| 7    |             |                   |      |      |             |      |       |
| 8    |             |                   |      |      |             |      |       |
| 9    |             |                   |      |      |             |      |       |
| 10   |             |                   |      |      |             |      |       |
| 11   |             |                   |      |      |             |      |       |
| 12   |             |                   |      |      |             |      |       |
| 13   |             |                   |      |      |             |      |       |
| 14   |             |                   |      |      |             |      |       |
| 15   |             |                   |      |      |             |      |       |
| 16   |             |                   |      |      |             |      |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                |
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| Date: Thursday, July 22, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |                          | Sheet 44 of 45 |

05/10 First release

- 1. Change Cardreader chip (RTS5137/RTS5138)
- 2. ODD used to ODD sub/b
- 3. RTC Battery change (w/o charge)

06/11 PVT

- 1. P.28 Reserve R889 For EC\_CLK, pop R851, unpop R852 For EC\_SMBus leakage
- 2. P.26 Remove R853
- 3. P.28 project ID-->1 Board ID -->1, unstuff KSI, KSO Cap.
- 4. P.8 Change R41 as 31.6k ohm and R42 as 30k ohm for TSI

07/05 Pre-MP

- 1. P.19 Reserve R890 For MEM\_1V5
- 2. P.28 Change R419 as 10 ohm For EMI

07/20

- 1. P.29 Change R477, R499 as 750 ohm; change R478 as 3.01k ohm; change R498 as 3.3k ohm for LED light

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |            | Date:                    | Thursday, July 22, 2010 | Sheet 45 of 45 |

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