

# Compal Confidential

## KALG1 M/B Schematics Document

Intel Penryn Processor with Cantiga + DDRIII + ICH9M

2009-03-02

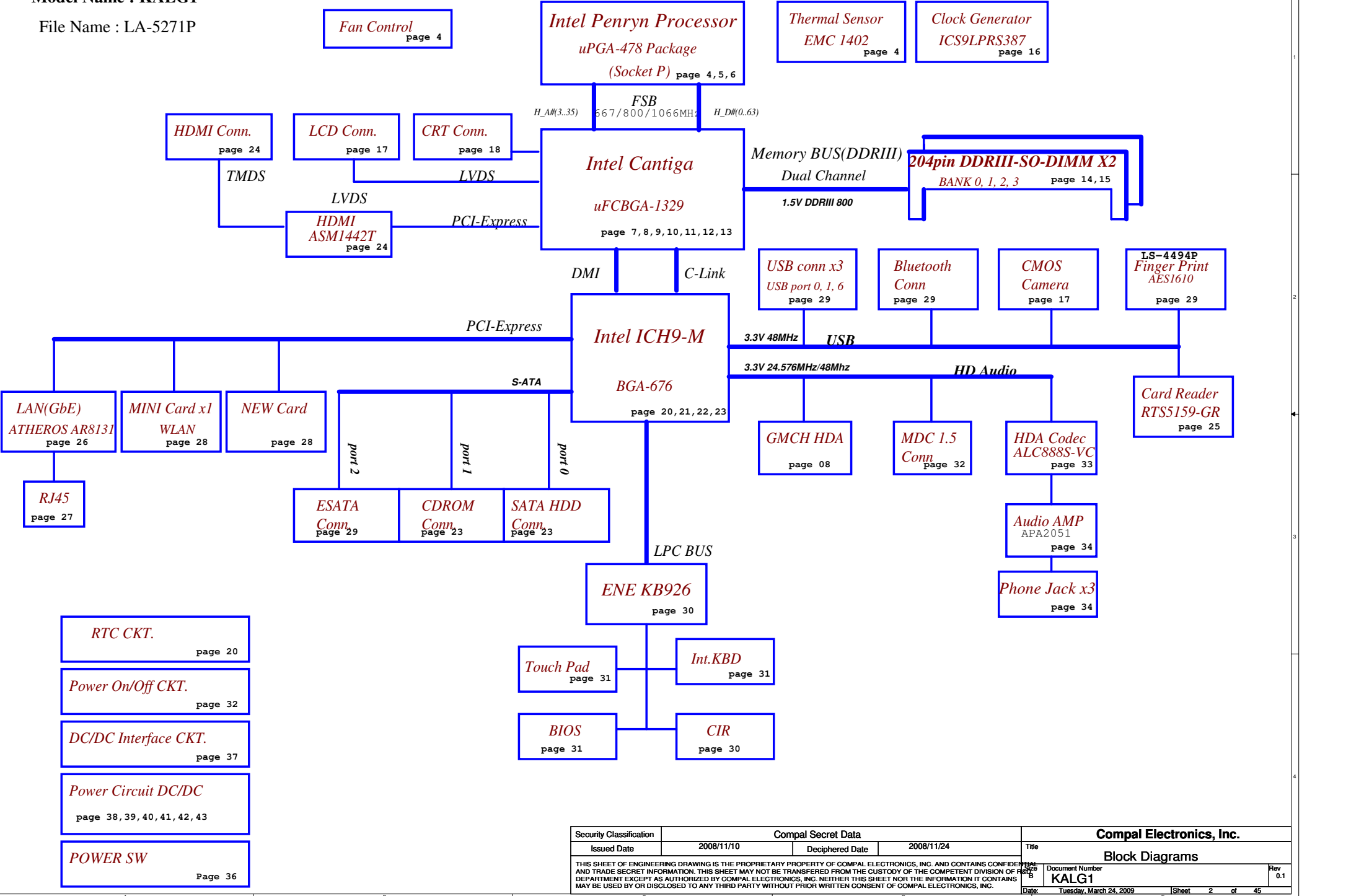
REV 02

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            |                               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|-------------------------------|---------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                         | Compal Secret Data |                 |            | Compal Electronics, Inc.      |               |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            | Date: Tuesday, March 24, 2009 | Sheet 1 of 45 |

Compal Confidential

Model Name : KALG1

File Name : LA-5271P



|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            |                          |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|---------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                |            | Compal Secret Data |            | Compal Electronics, Inc. |         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | KALG1                    | 0.1     |
|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Date                     | Rev     |
|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Tuesday, March 24, 2009  | 0.1     |
|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Sheet                    | 2 of 45 |

Voltage Rails

| Power Plane | Description                                 | S1  | S3  | S5  |
|-------------|---------------------------------------------|-----|-----|-----|
| VIN         | Adapter power supply (19V)                  | N/A | N/A | N/A |
| B+          | AC or battery power rail for power circuit. | N/A | N/A | N/A |
| +CPU_CORE   | Core voltage for CPU                        | ON  | OFF | OFF |
| +0.75VS     | 0.75VS power rail for DDR3 terminator       | ON  | OFF | OFF |
| +1.05VS     | 1.05V switched power rail                   | ON  | OFF | OFF |
| +1.5V       | 1.5V power rail for HDA                     | ON  | ON  | OFF |
| +1.5VS      | 1.5V switched power rail                    | ON  | OFF | OFF |
| +1.8V       | 1.8V power rail for NB(LVDS)                | ON  | ON  | OFF |
| +3VALW      | 3.3V always on power rail                   | ON  | ON  | ON* |
| +3V_LAN     | 3.3V power rail for LAN                     | ON  | ON  | ON  |
| +3V         | 3.3V power rail for SB                      | ON  | ON  | OFF |
| +3VS        | 3.3V switched power rail                    | ON  | OFF | OFF |
| +5VALW      | 5V always on power rail                     | ON  | ON  | ON* |
| +5V         | 5V power rail for SB                        | ON  | ON  | OFF |
| +5VS        | 5V switched power rail                      | ON  | OFF | OFF |
| +VSB        | VSB always on power rail                    | ON  | ON  | ON* |
| +RTCVCC     | RTC power                                   | ON  | ON  | ON  |

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

External PCI Devices

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

EC SM Bus1 address

| Device        | Address     | Device  | Address     |
|---------------|-------------|---------|-------------|
| Smart Battery | 0001 011X b | EMC1402 | 1001 100X b |

EC SM Bus2 address

ICH9M SM Bus address

| Device                                       | Address    |
|----------------------------------------------|------------|
| Clock Generator<br>(ICS9LPRS367, SLG8SP556V) | 1101 001Xb |
| DDR3 DIMMA                                   | 1001 000Xb |
| DDR3 DIMMB                                   | 1001 010Xb |

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

Board ID / SKU ID Table for AD channel

|          |              |             |             |             |
|----------|--------------|-------------|-------------|-------------|
| Vcc      | 3.3V +/- 5%  |             |             |             |
| Ra/Rc/Re | 100K +/- 5%  |             |             |             |
| Board ID | Rb / Rd / Rf | VAD_BID min | VAD_BID typ | VAD_BID max |
| 0        | 0            | 0 V         | 0 V         | 0 V         |
| 1        |              |             |             |             |
| 2        |              |             |             |             |
| 3        |              |             |             |             |
| 4        |              |             |             |             |
| 5        |              |             |             |             |
| 6        |              |             |             |             |
| 7        |              |             |             |             |

BOARD ID Table

| Board ID | PCB Revision              |
|----------|---------------------------|
| 0        | PCB 08Y LA-5271P REV0 M/B |
| 1        |                           |
| 2        |                           |
| 3        |                           |
| 4        |                           |
| 5        |                           |
| 6        |                           |
| 7        |                           |

BTO Option Table

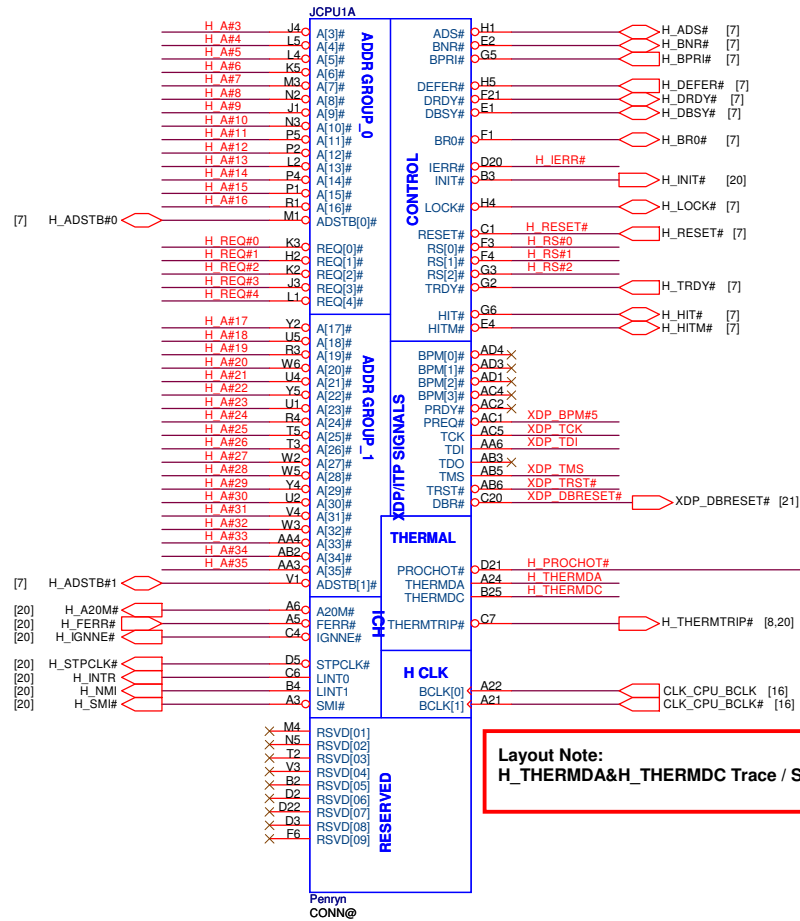
| BTO Item | BOM Structure |
|----------|---------------|
| GL40     | GL40@         |
| GM45     | GM45@         |

BOM Configuration Table

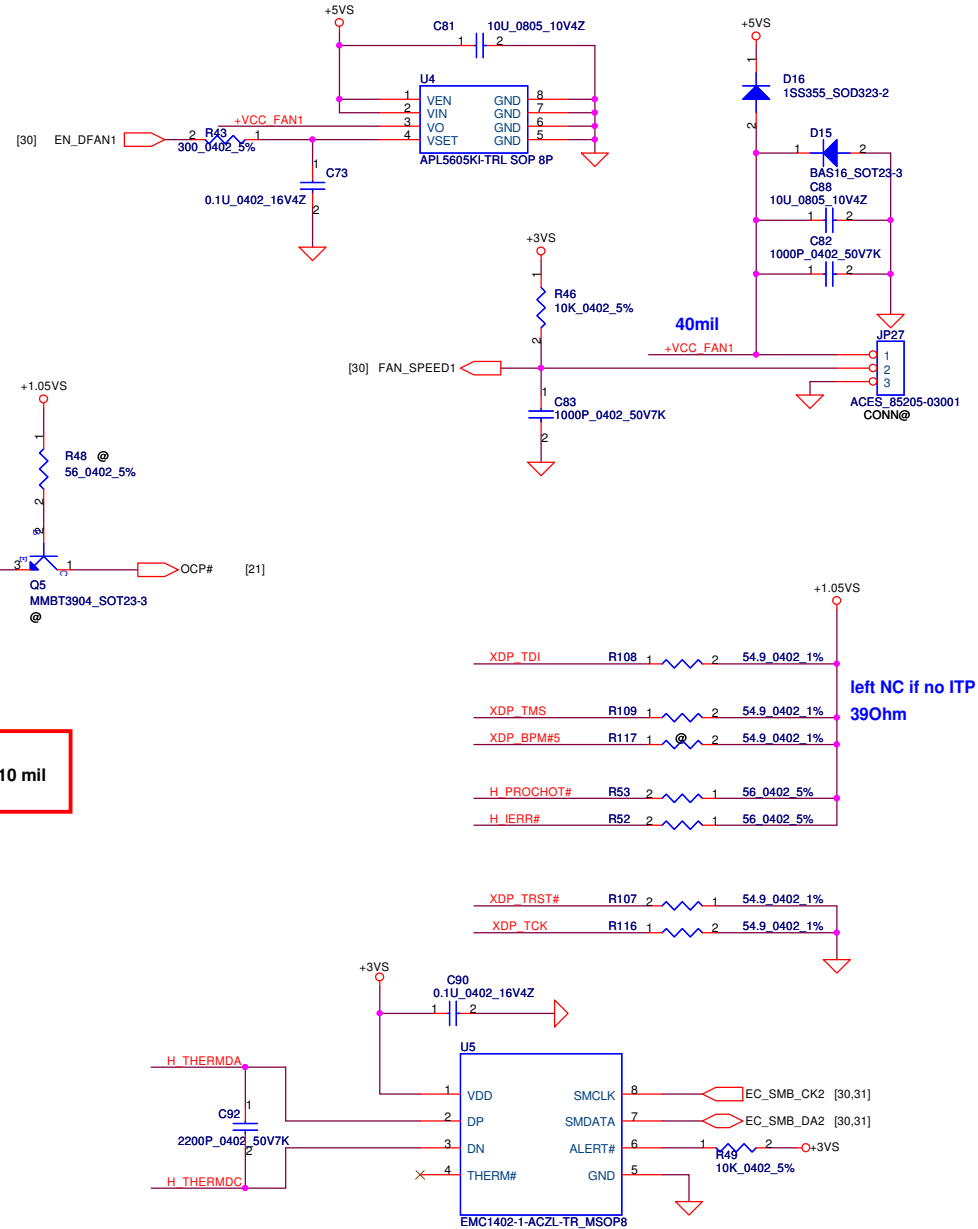
| Project    | BOM Configuration          |
|------------|----------------------------|
| KALG1-GM45 | GM45@/KALG1@/KAL90_G0_90+@ |
| KALG1-GL40 | GL40@/KALG1@/KAL90_G0_90+@ |

[7] H\_A# [3..35]  H\_A# [3..35]  
 [7] H\_REQ# [0..4]  H\_REQ# [0..4]  
 [7] H\_RS# [0..2]  H\_RS# [0..2]

## FAN1 Conn



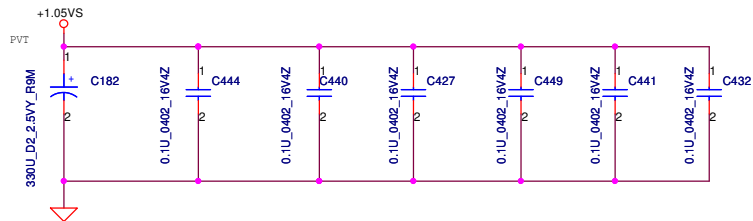
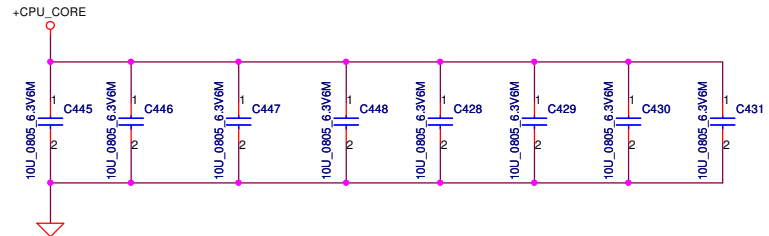
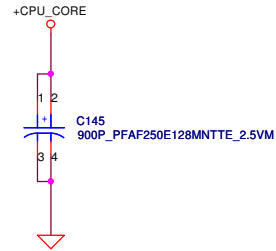
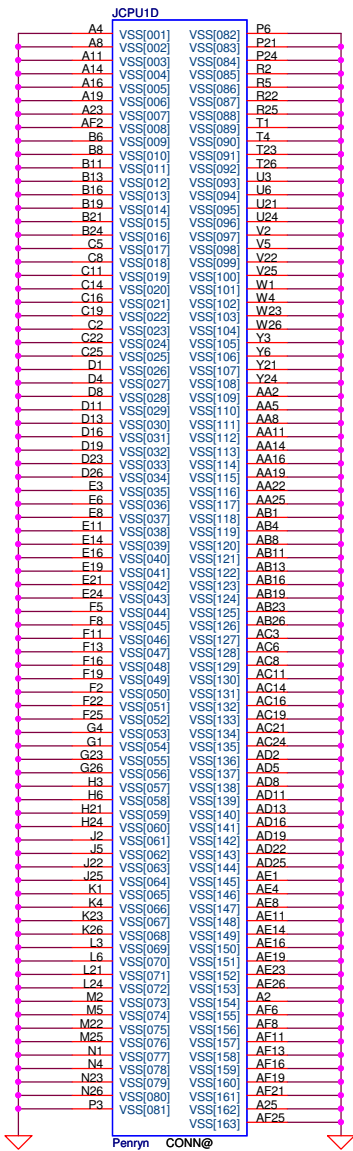
**Layout Note:**  
 H\_THERMDA&H\_THERMDC Trace / Space = 10 / 10 mil



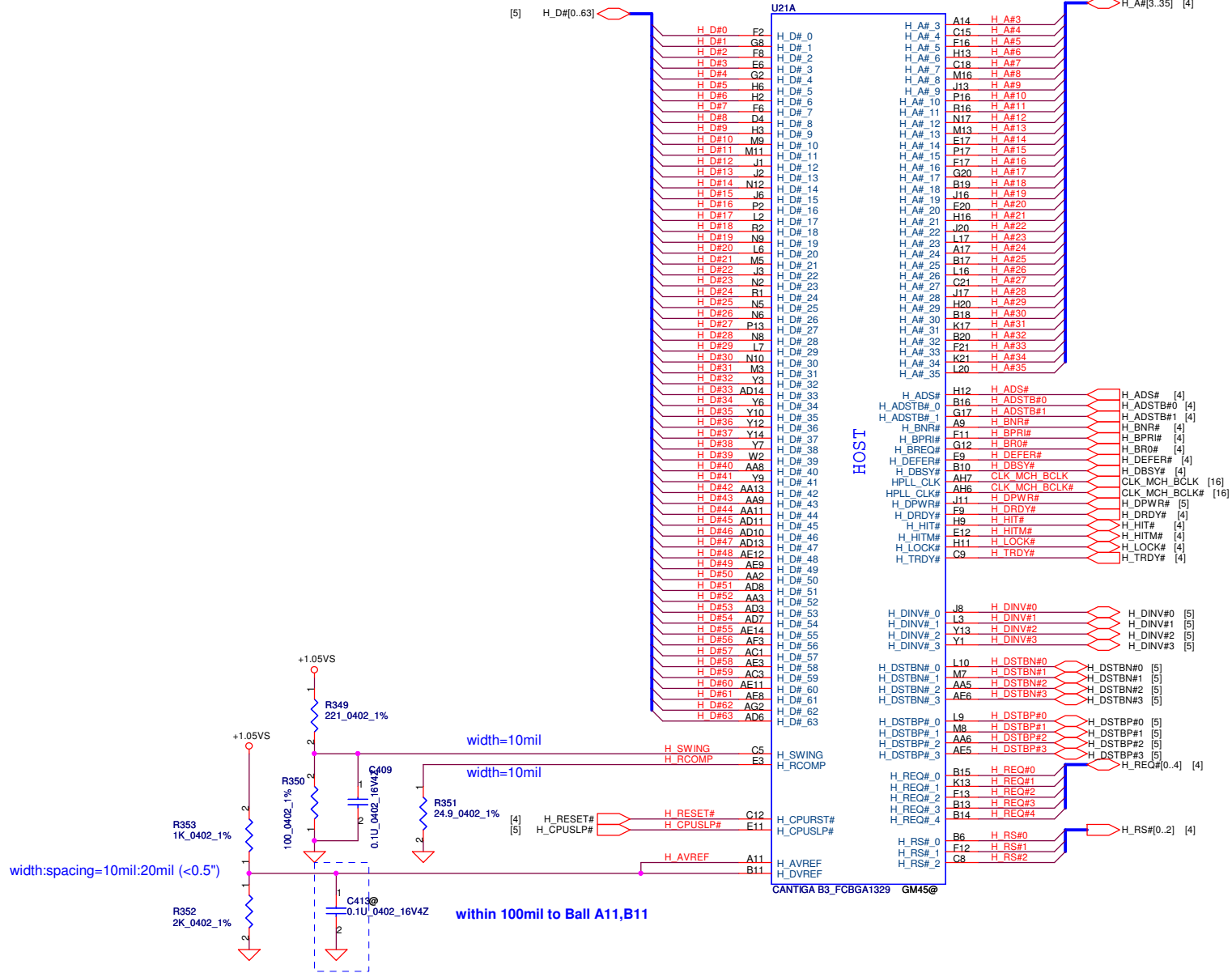
| BSEL2 | BSEL1 | BSEL0 | BCLK |
|-------|-------|-------|------|
| 0     | 0     | 0     | 266  |
| 0     | 1     | 0     | 200  |
| 0     | 1     | 1     | 166  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                 |  |                          |                 |       |  |     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------|--|-----------------|--|--------------------------|-----------------|-------|--|-----|--|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                 |  | Size B                   | Document Number |       |  | Rev |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                 |  | KALG1                    | 0.1             |       |  |     |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Tuesday, March 24, 2009 |  | Sheet           |  | 4                        |                 | of 45 |  |     |  |

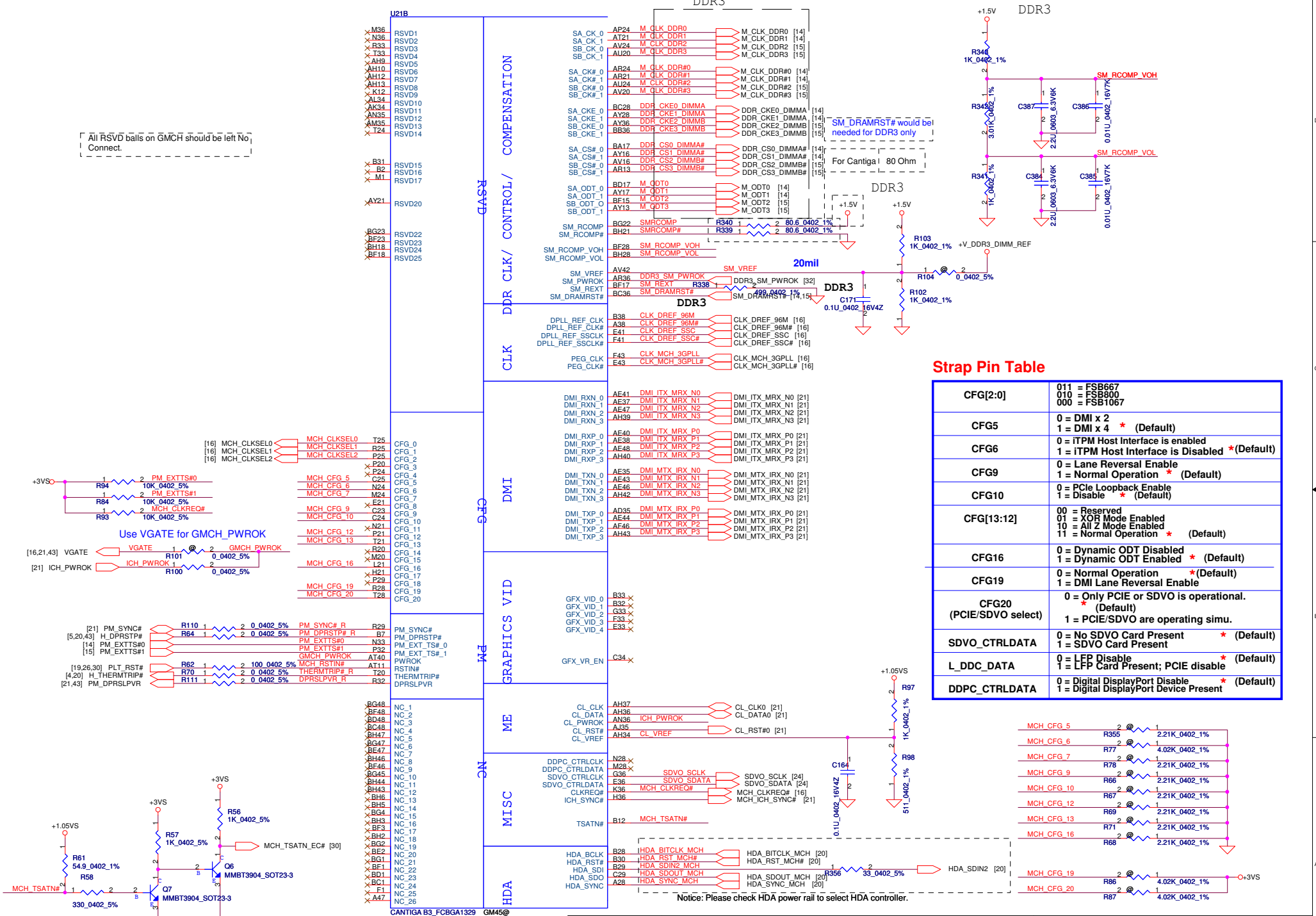




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| Date: Tuesday, March 24, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 | Sheet 6            |            | of 45                    |  |

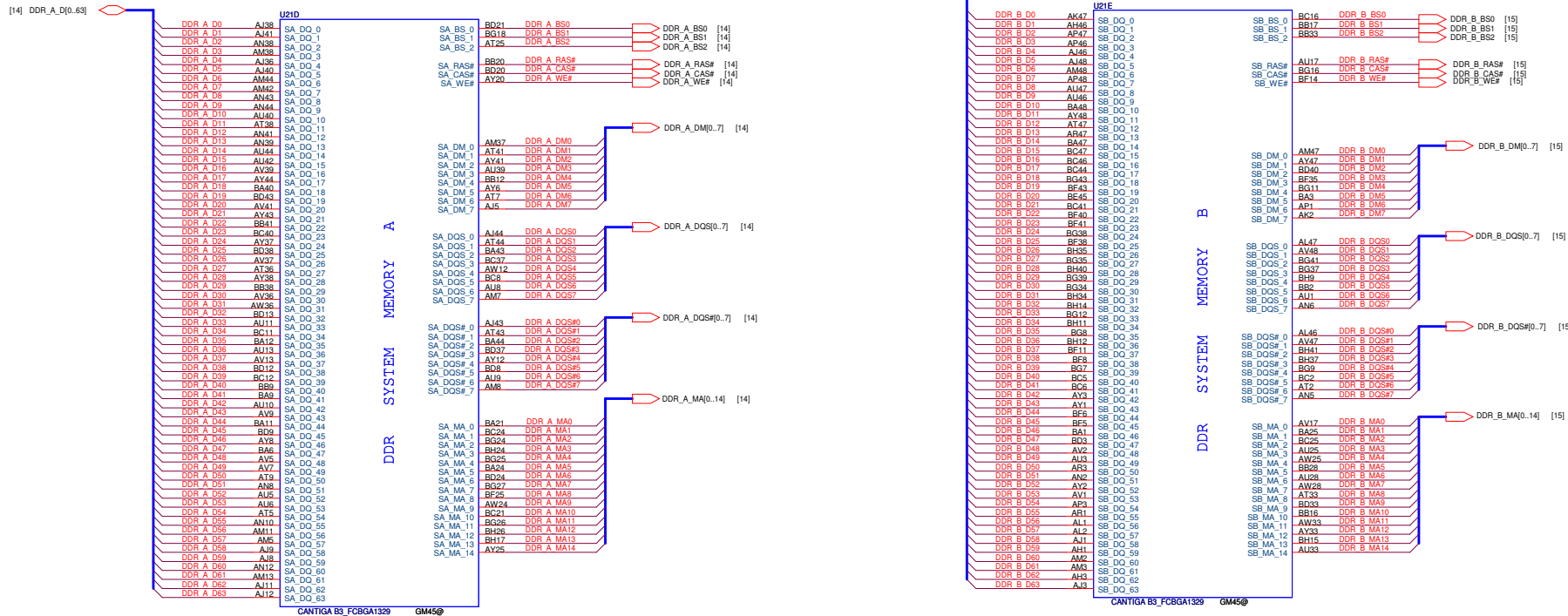


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                    |            |                          |  |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 | Compal Secret Data |            | Compal Electronics, Inc. |  |
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| Size B                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Document Number | Rev                |            | 0.1                      |  |
| Date: Tuesday, March 24, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 | Sheet 7            |            | of 45                    |  |



Strap Pin Table

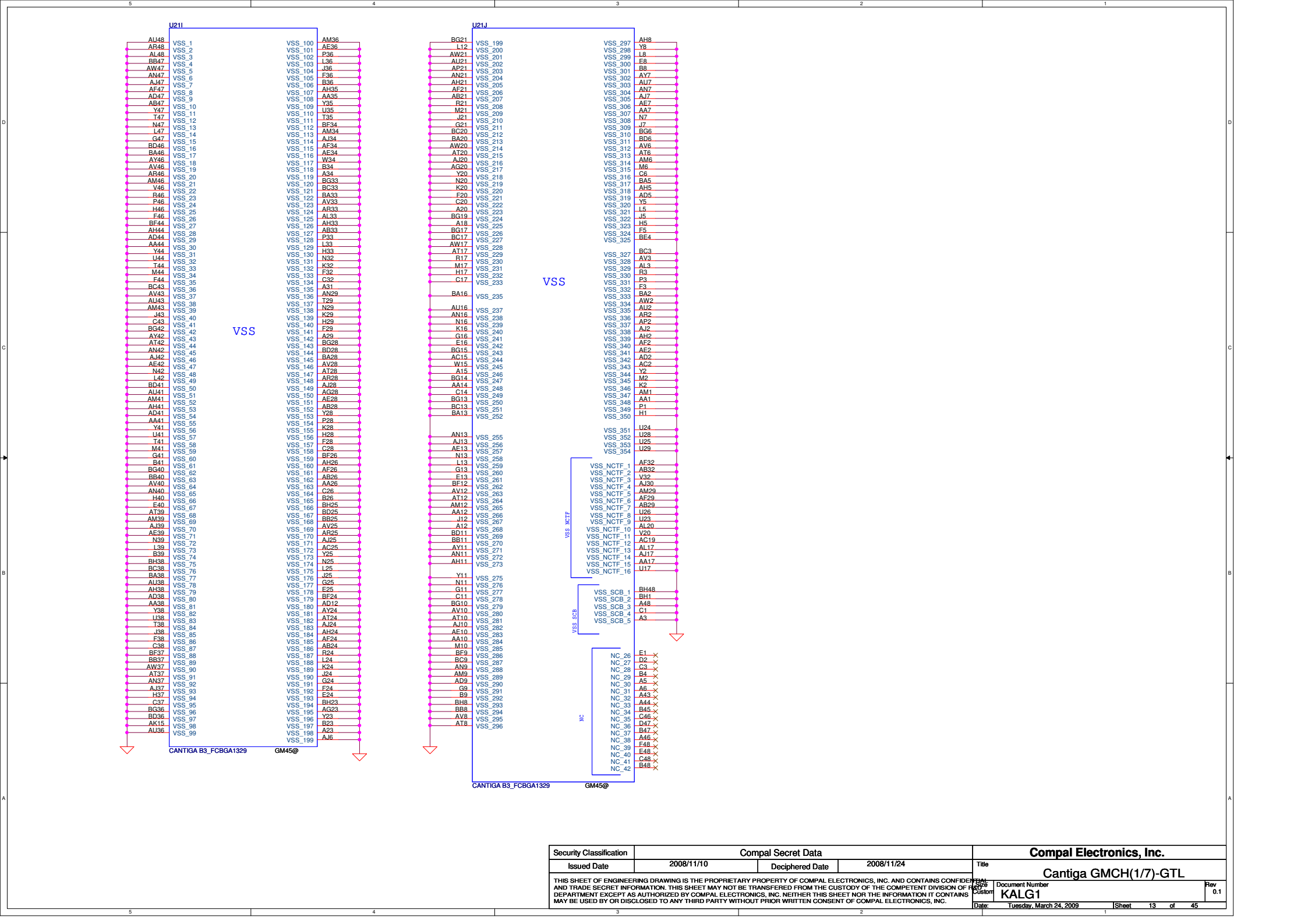
|                          |                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------|
| CFG[2:0]                 | 011 = FSB667<br>010 = FSB800<br>000 = FSB1067                                                          |
| CFG5                     | 0 = DMI x 2<br>1 = DMI x 4 * (Default)                                                                 |
| CFG6                     | 0 = iTPM Host Interface is enabled<br>1 = iTPM Host Interface is Disabled * (Default)                  |
| CFG9                     | 0 = Lane Reversal Enable<br>1 = Normal Operation * (Default)                                           |
| CFG10                    | 0 = PCIe Loopback Enable<br>1 = Disable * (Default)                                                    |
| CFG[13:12]               | 00 = Reserved<br>01 = XOR Mode Enabled<br>10 = All Z Mode Enabled<br>11 = Normal Operation * (Default) |
| CFG16                    | 0 = Dynamic ODT Disabled<br>1 = Dynamic ODT Enabled * (Default)                                        |
| CFG19                    | 0 = Normal Operation<br>1 = DMI Lane Reversal Enable                                                   |
| CFG20 (PCIe/SDVO select) | 0 = Only PCIe or SDVO is operational.<br>(Default)<br>1 = PCIe/SDVO are operating simu.                |
| SDVO_CTRLDATA            | 0 = No SDVO Card Present<br>1 = SDVO Card Present * (Default)                                          |
| L_DDC_DATA               | 0 = LFP Disable<br>1 = All Card Present; PCIe disable * (Default)                                      |
| DDPC_CTRLDATA            | 0 = Digital DisplayPort Disable<br>1 = Digital DisplayPort Device Present * (Default)                  |

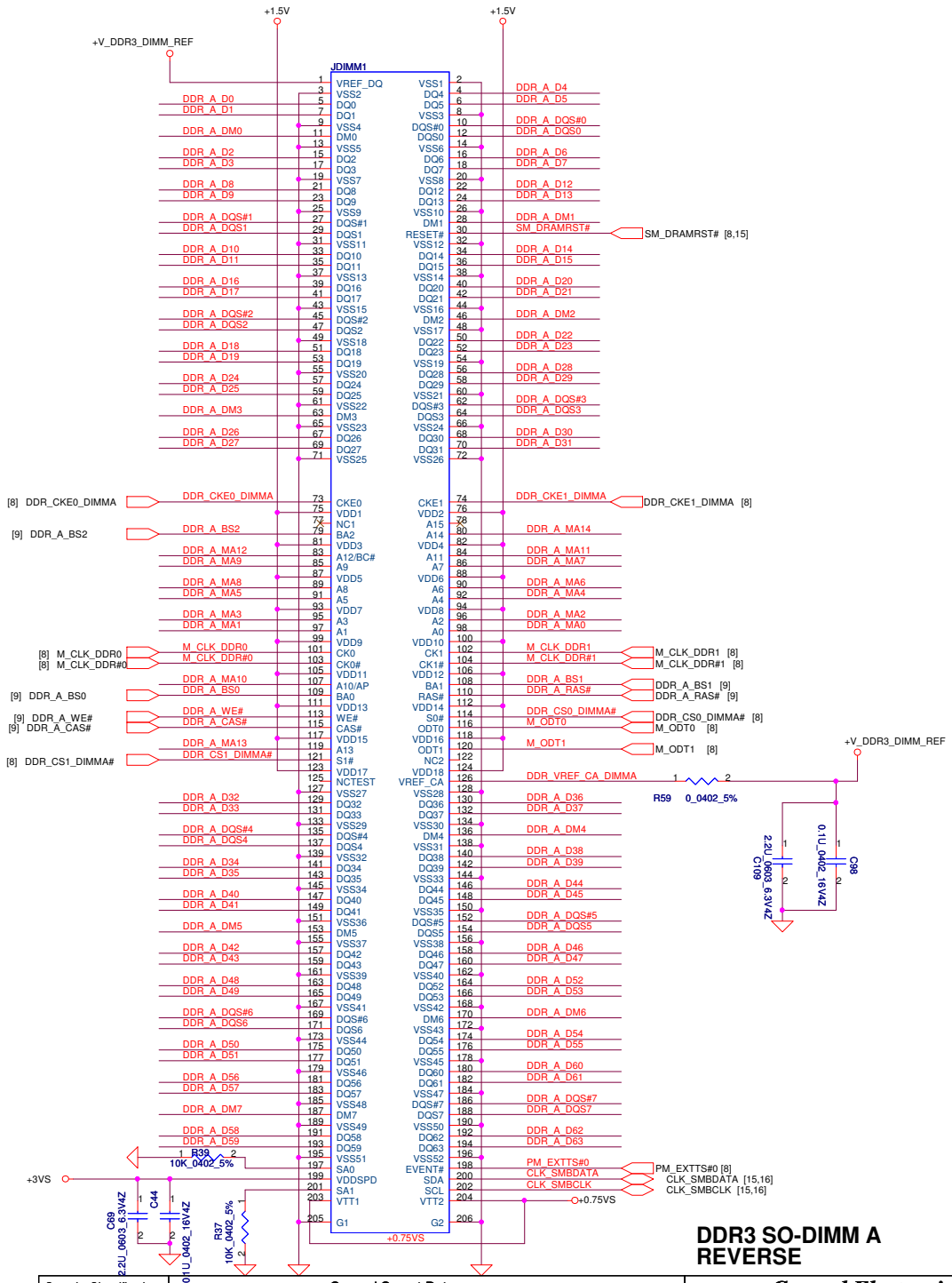
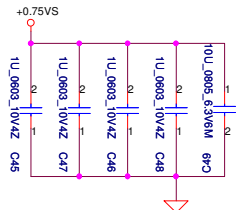
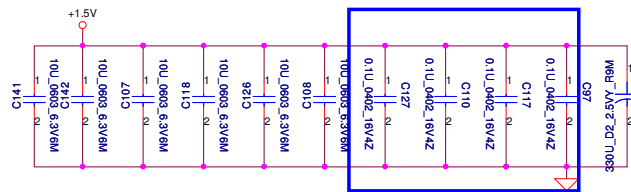
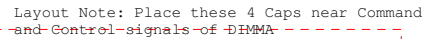
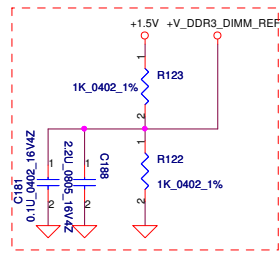












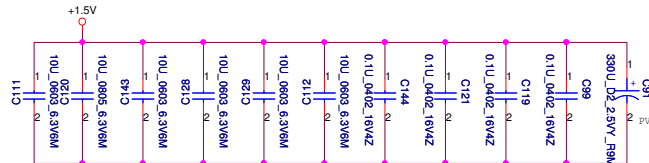
***Compal Electronics, Inc.***  
***DDRIII-SODIMM SLOT1***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                         |            |                                                               |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|------------|---------------------------------------------------------------|----------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                            |            | Compal Secret Data      |            | <b>Compal Electronics, Inc.</b><br><b>DDRIII-SODIMM SLOT!</b> |          |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            | Tuesday, March 24, 2009 |            | Sheet                                                         | 14 of 45 |

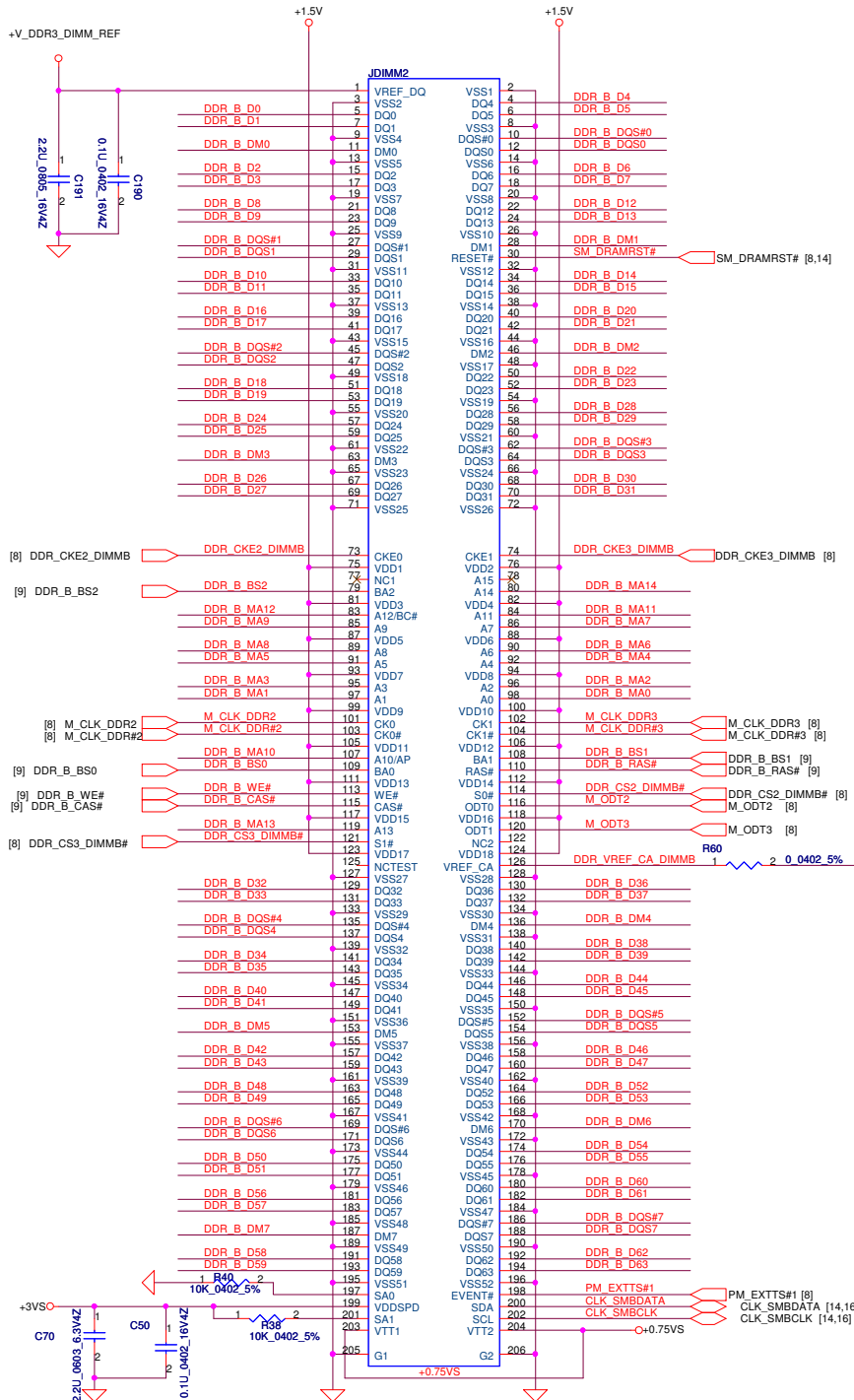
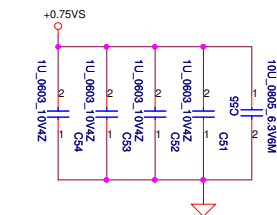


Layout Note:  
Place near JP5

Layout Note: Place these 4 Caps near Command  
and Control signals of DIMMB



Layout Note:  
Place near JP5.203 & JP5.204

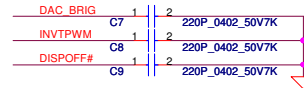
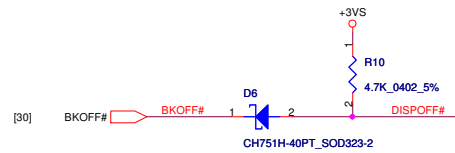
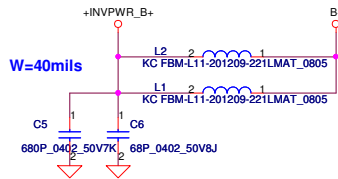
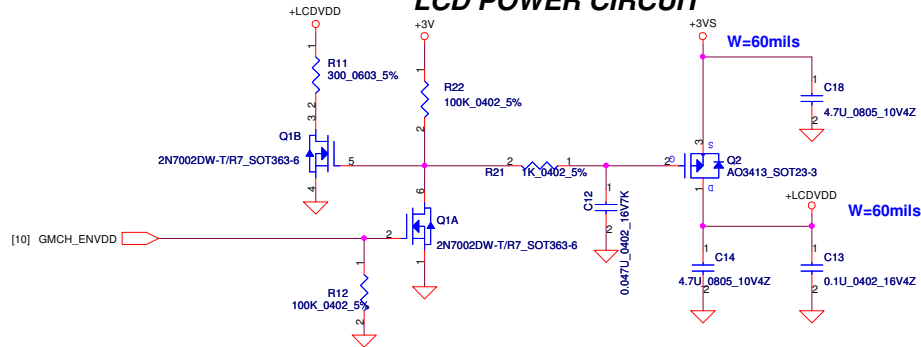


DDR3 SO-DIMM B  
REVERSE

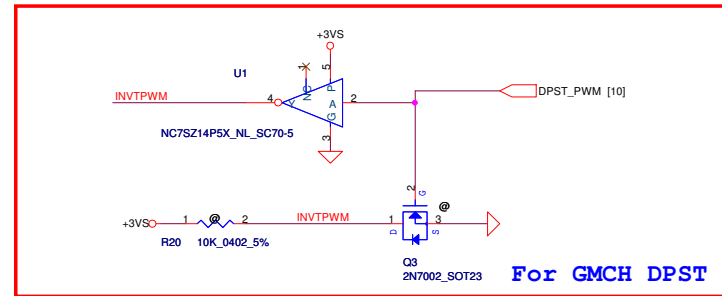
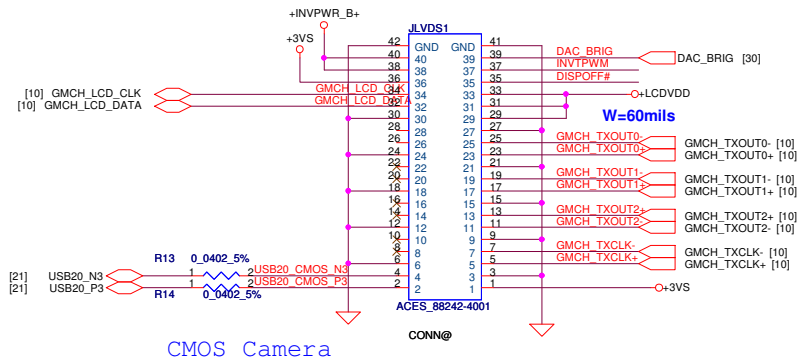
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Date: Tuesday, March 24, 2009 | Sheet 15 of 45 |



## LCD POWER CIRCUIT

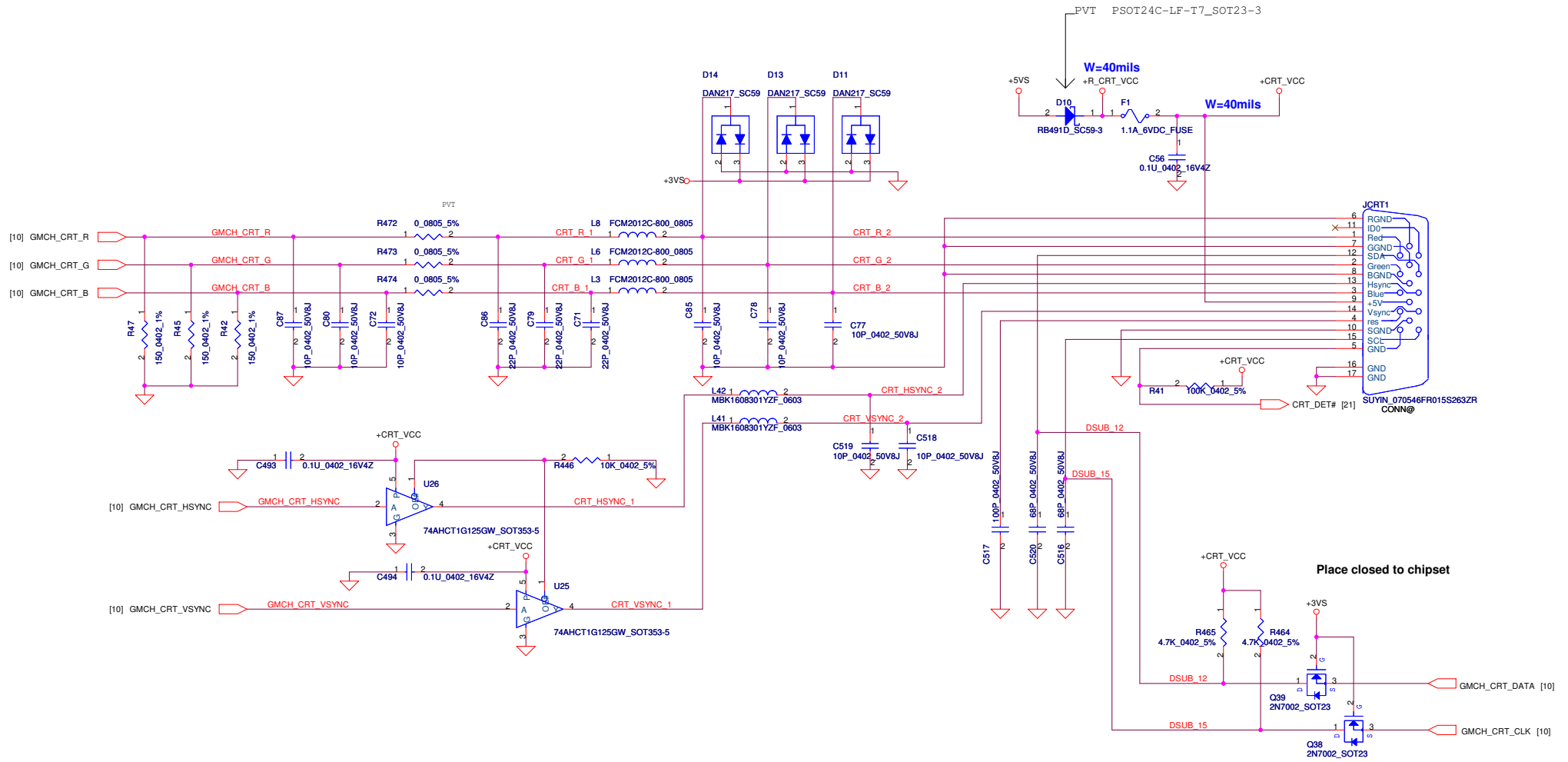


## LCD/PANEL BD. Conn.

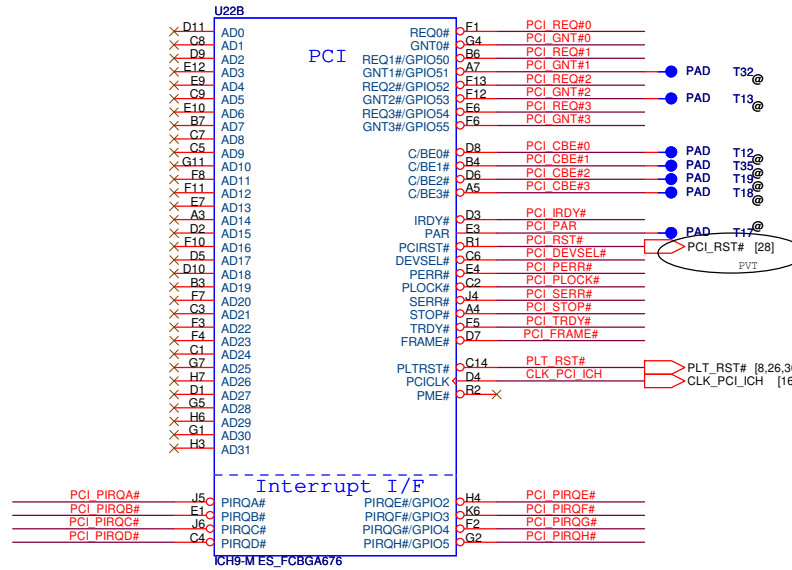
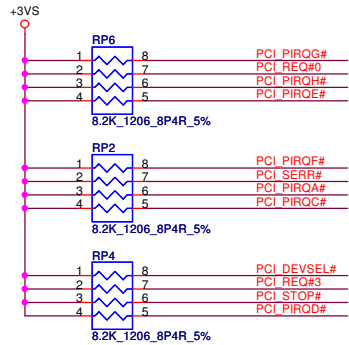
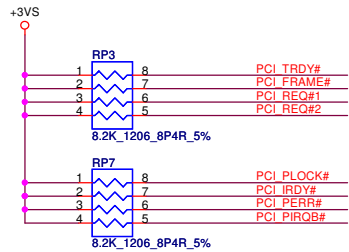


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|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Date: Tuesday, March 24, 2009 | Sheet 17 of 45          |

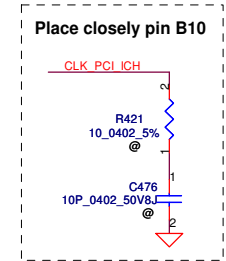
# CRT Connector



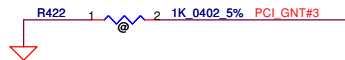
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                         |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Document Number          |  | Rev                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | KALG1                    |  | 0.1                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date                     |  | Tuesday, March 24, 2009 |  |



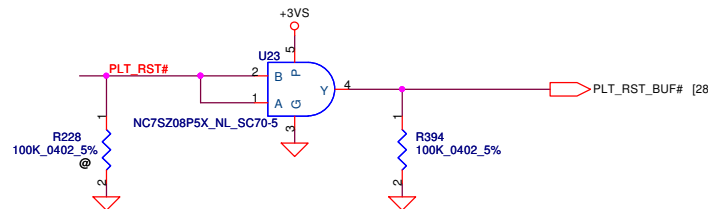
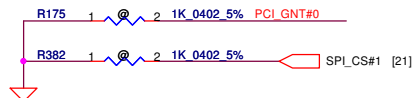
**DMI for ESI-compatible operation**  
**PCI\_GNT#1** Low= DMI for ESI-compatible operation  
 High= Default\* (Internal pull-up)



**A16 Swap Override Strap**  
**PCI\_GNT#3** Low= A16 swap override Enable  
 High= Default\*



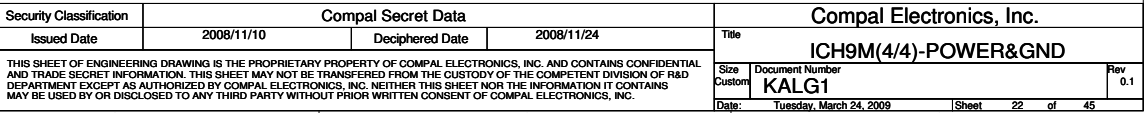
| Boot BIOS Strap |          |                    |
|-----------------|----------|--------------------|
| PCI_GNT#0       | SPI_CS#1 | Boot BIOS Location |
| 0               | 1        | SPI                |
| 1               | 0        | PCI                |
| 1               | 1        | LPC*               |



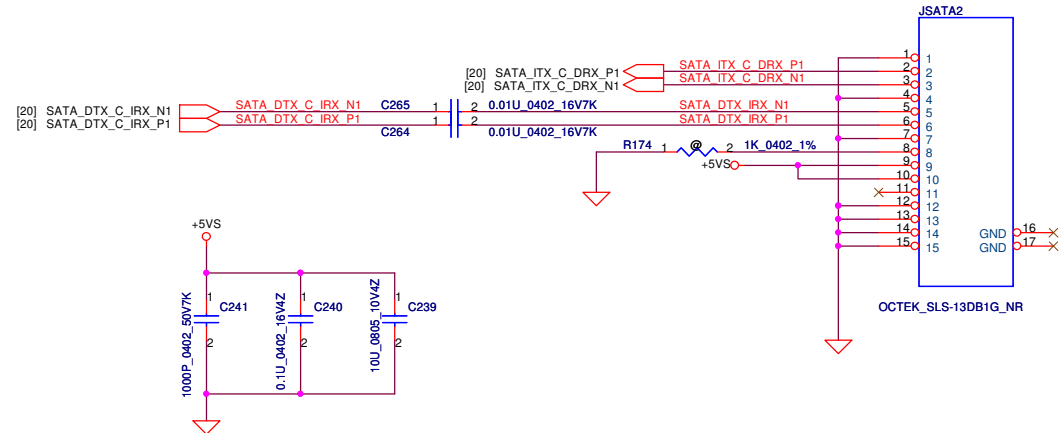
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                         |            |                          |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|------------|--------------------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data      |            | Compal Electronics, Inc. |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/11/10 | Deciphered Date         | 2008/11/24 | Title                    |  |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | Document Number         |            | Rev                      |  |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | Tuesday, March 24, 2009 |            | Sheet 19 of 45           |  |
| R228                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | R394                    |            | KALG1                    |  |
| R175                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | R382                    |            | 0.1                      |  |





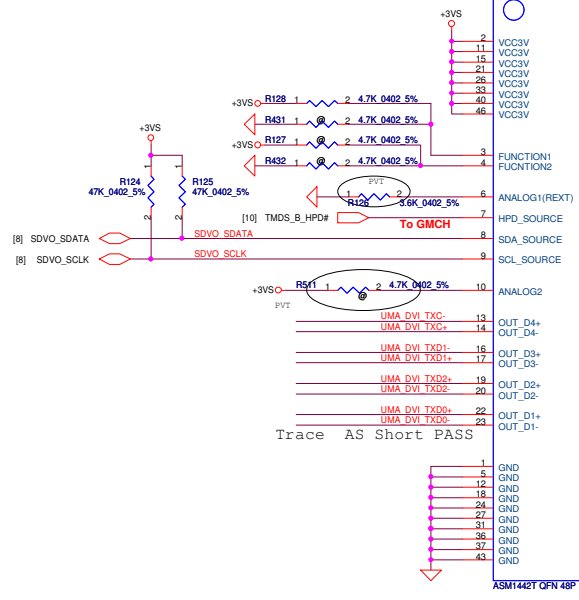
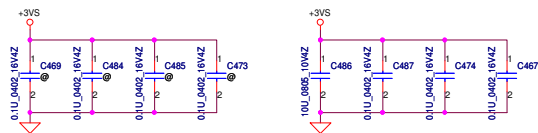


**SATA ODD Conn.**

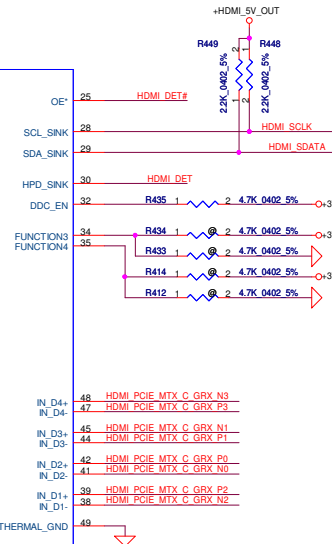
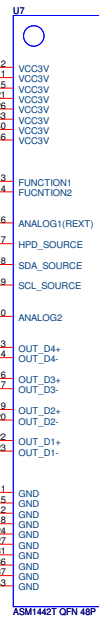


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |                 |                |  |     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|-----------------|----------------|--|-----|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |                 |                |  |     |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2008/11/10         |  | Deciphered Date |  | 2008/11/24               |                 | Title          |  |     |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Size                     | Document Number |                |  | Rev |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Custom                   | KALG1           |                |  | 0.1 |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                    |  |                 |  | Tuesday, March 24, 2009  |                 | Sheet 23 of 45 |  |     |  |

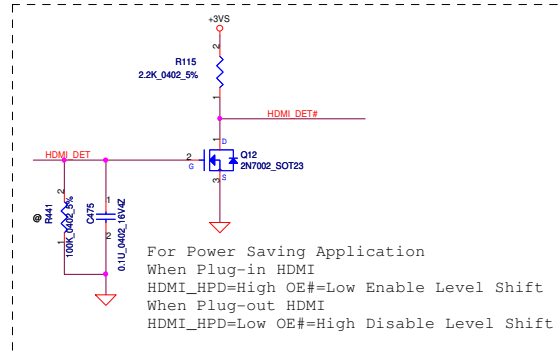
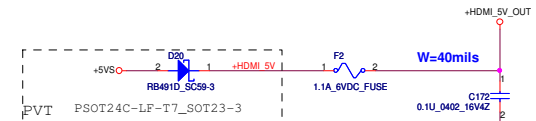
close to U1 VCC (+3VS) pins (one Pin one Capacitor)



Trace AS Short PASS

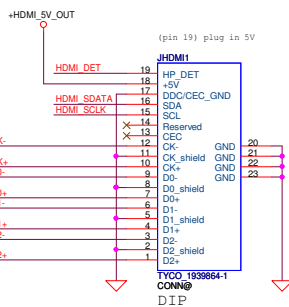
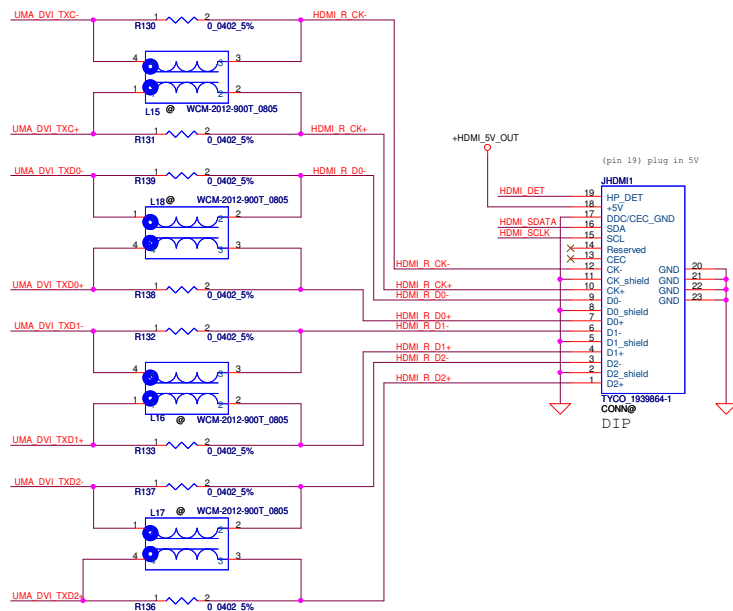


20071031:  
Add U1. 49 (THERMAL\_GND) to GND Plane



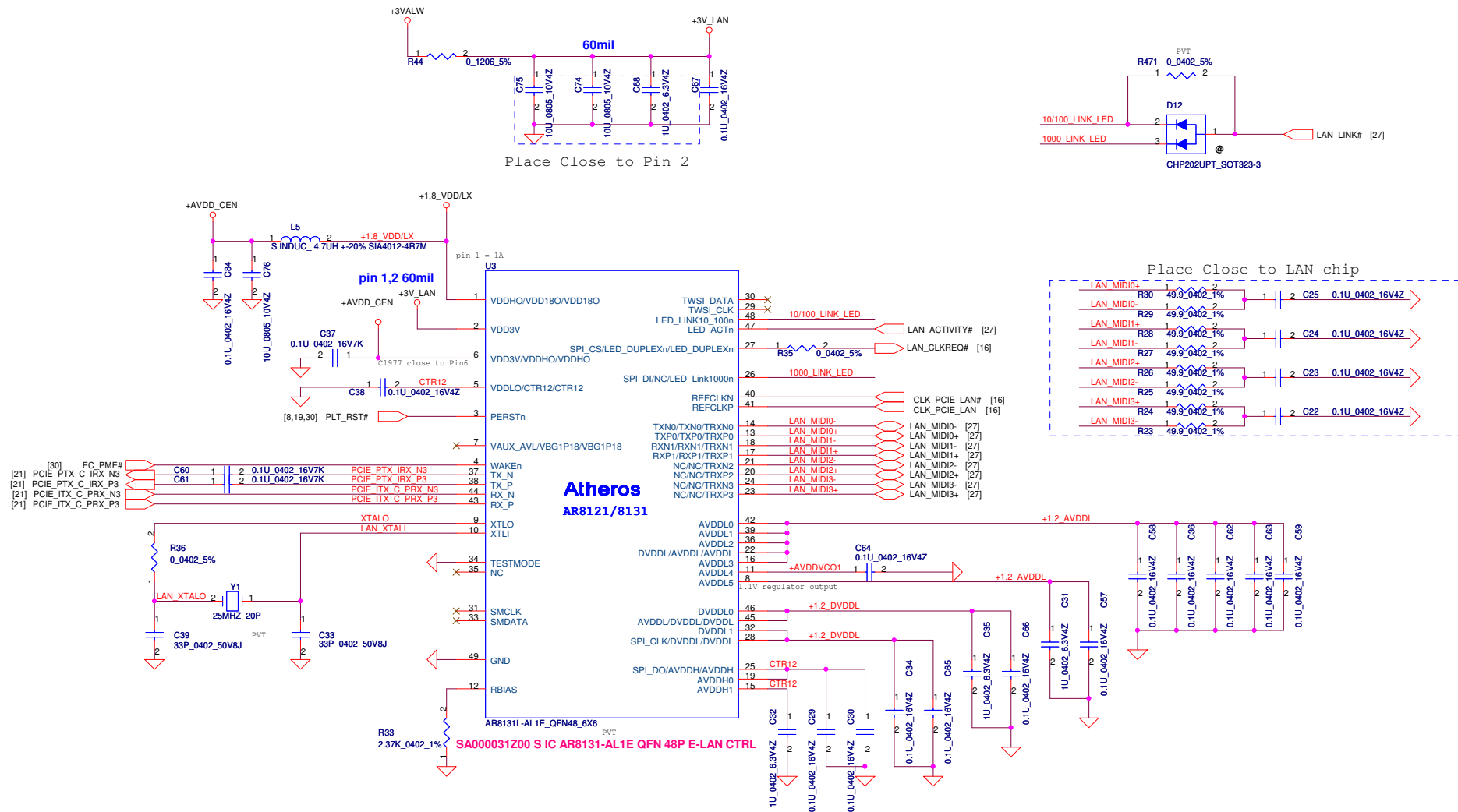
For Power Saving Application  
When Plug-in HDMI  
HDMI\_HPD=High OE#=Low Enable Level Shift  
When Plug-out HDMI  
HDMI\_HPD=Low OE#=High Disable Level Shift

HDMI\_PCIE\_MTX\_C\_GRX\_N0\_3] HDMI\_PCIE\_MTX\_C\_GRX\_N0\_3] [10]  
HDMI\_PCIE\_MTX\_C\_GRX\_P0\_3] HDMI\_PCIE\_MTX\_C\_GRX\_P0\_3] [10]



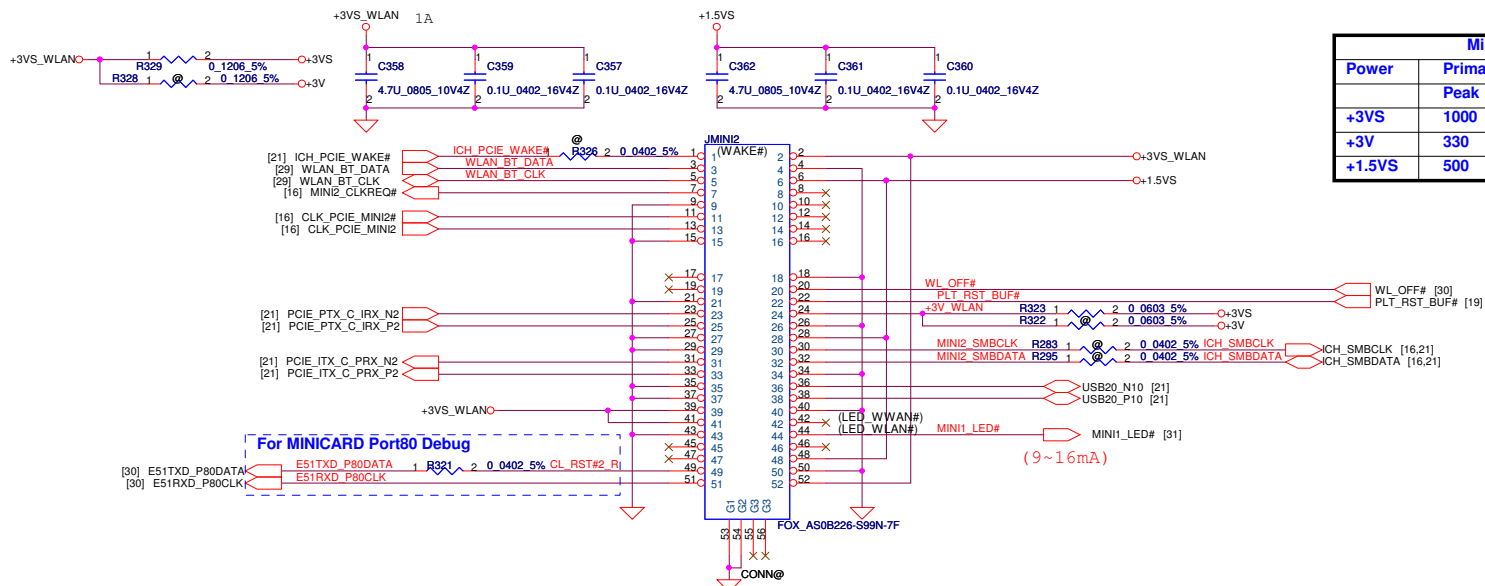
| Intel Cantiga TMDs Pin Definition |           |
|-----------------------------------|-----------|
| TMDS_B_CLK                        | PEG_TXP_3 |
| TMDS_B_CLK#                       | PEG_TXN_3 |
| TMDS_B_DATA0                      | PEG_TXP_2 |
| TMDS_B_DATA0#                     | PEG_TXN_2 |
| TMDS_B_DATA1                      | PEG_TXP_1 |
| TMDS_B_DATA1#                     | PEG_TXN_1 |
| TMDS_B_DATA2                      | PEG_TXP_0 |
| TMDS_B_DATA2#                     | PEG_TXN_0 |
| TMDS_B_HPD#                       | PEG_RXP_3 |





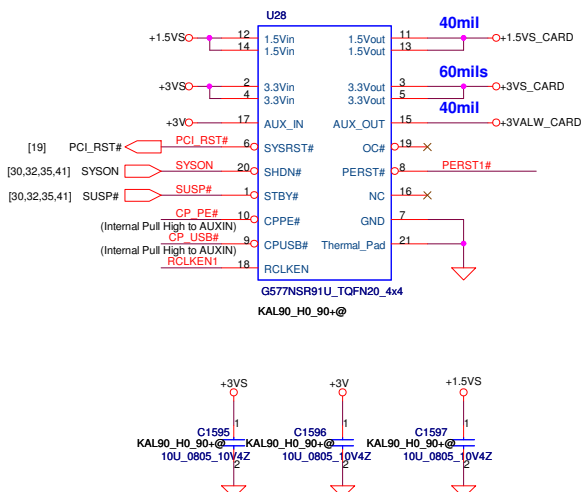


## For Wireless LAN

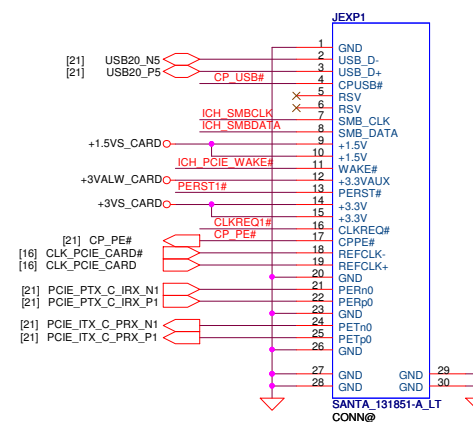
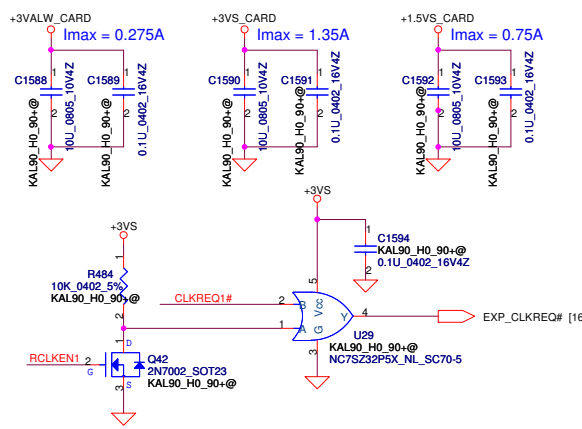


| Mini Card Power Rating |                    |        |                      |
|------------------------|--------------------|--------|----------------------|
| Power                  | Primary Power (mA) |        | Auxiliary Power (mA) |
|                        | Peak               | Normal | Normal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

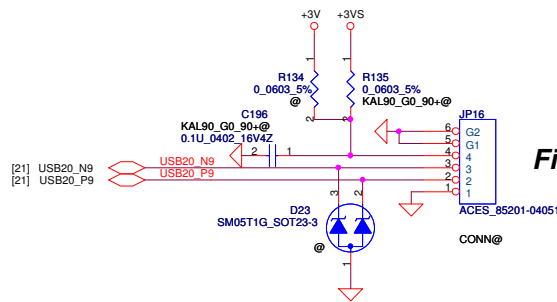
## New Card Power Switch



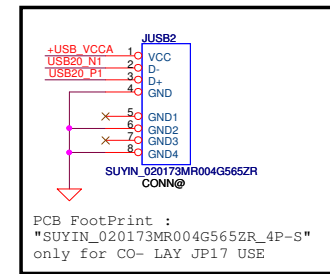
## New Card Socket (Left/TOP)



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------------|----------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | KALG1                         | 0.1            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Tuesday, March 24, 2009 | Sheet 28 of 45 |

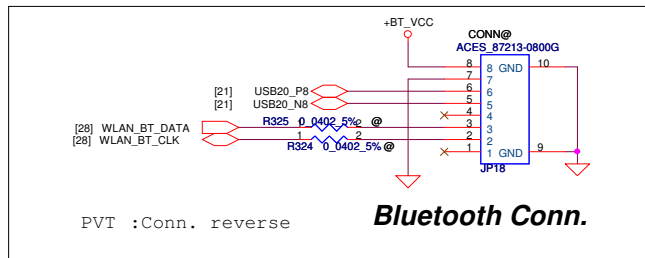
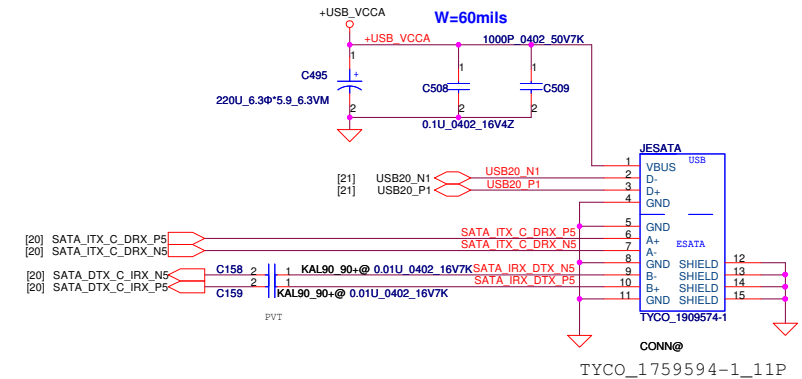
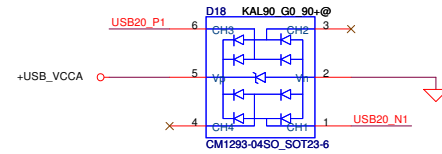
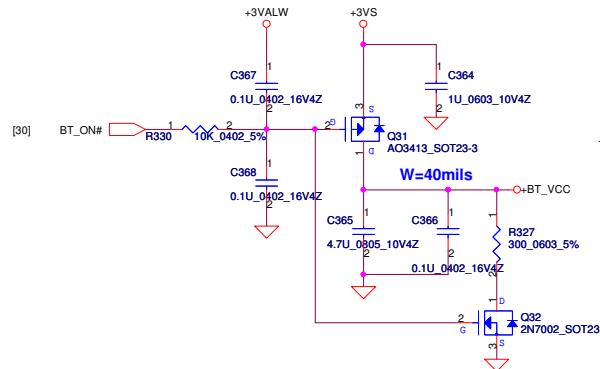


**Finger Print Conn.**

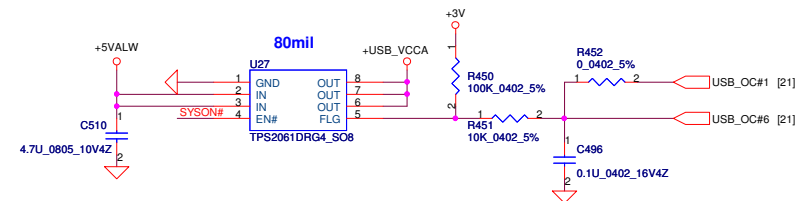


PCB FootPrint :  
"SUYIN\_020173MR004G565ZR\_4P-S"  
only for CO- LAY JP17 USE

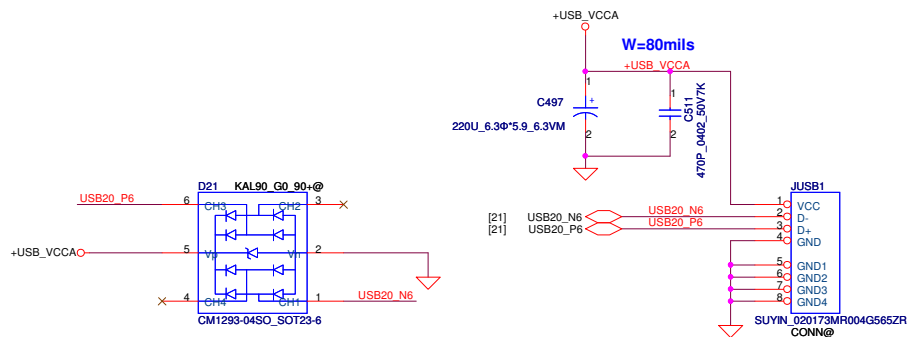
**ESATA CONN**



**Bluetooth Conn.**

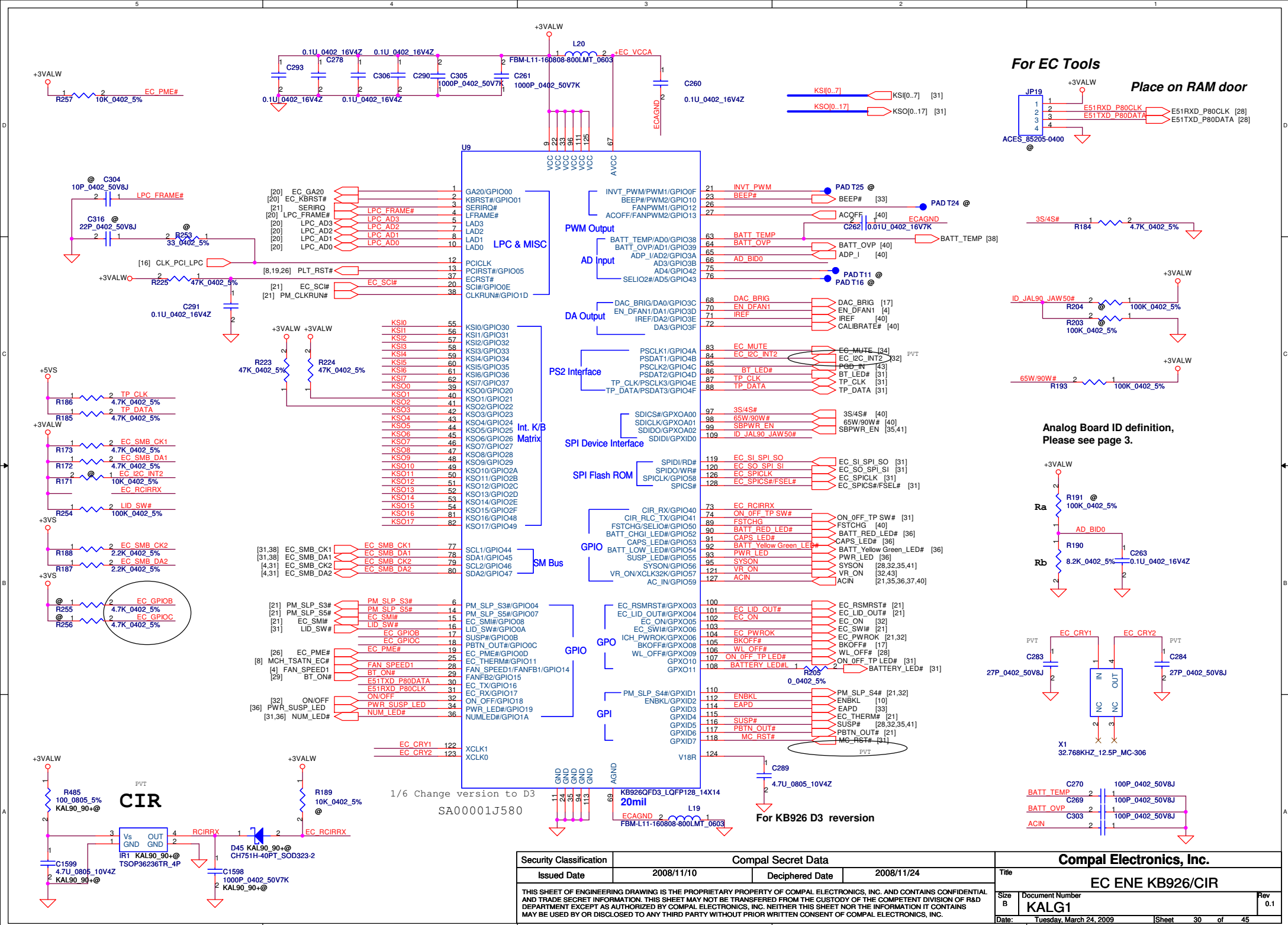


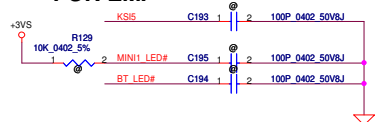
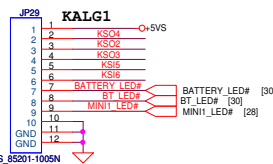
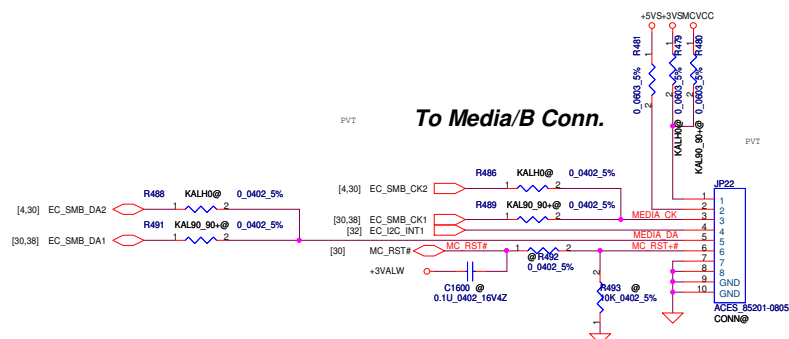
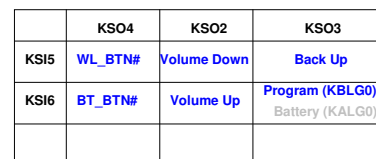
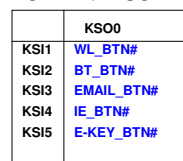
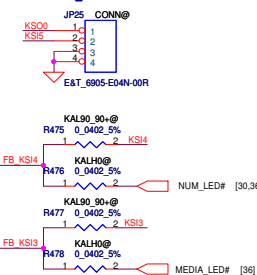
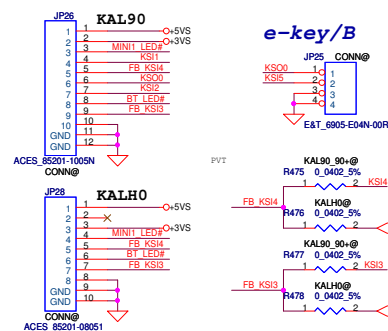
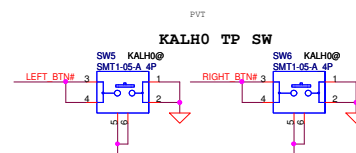
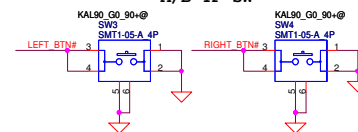
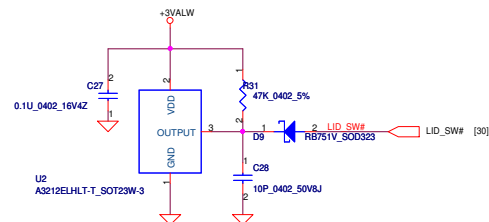
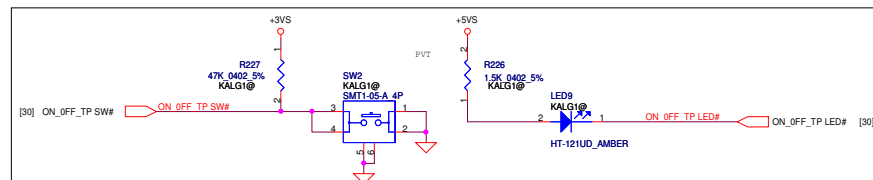
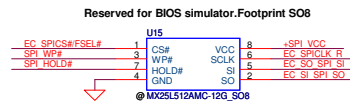
**To USB/B Connector**



**USB CONN.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  |                                      |  |                         |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|--|--------------------------------------|--|-------------------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                                      |  |                         |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 2008/11/10         |  | Deciphered Date |  | 2008/11/24               |  | Title                                |  |                         |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  | Document Number                      |  | Rev                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  | KALG1                                |  | 0.1                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                    |  |                 |  |                          |  | Date                                 |  | Tuesday, March 24, 2009 |  |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                           |            |                                                         |                        |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------|------------|---------------------------------------------------------|------------------------|------------|
| <b>Security Classification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |            | <b>Compal Secret Data</b> |            | <b>Compal Electronics, Inc.</b>                         |                        |            |
| <b>Issued Date</b>                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2008/11/10 | <b>Deciphered Date</b>    | 2008/11/24 | <b>Title</b>                                            |                        |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                           |            | <b>BIOS, I/O Port &amp; K/B Connector</b>               |                        |            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                           |            | C                                                       | KALG1                  | 0          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                           |            | Project: Treadwell, March 24, 2006<br>Issued: 91 and 95 |                        |            |

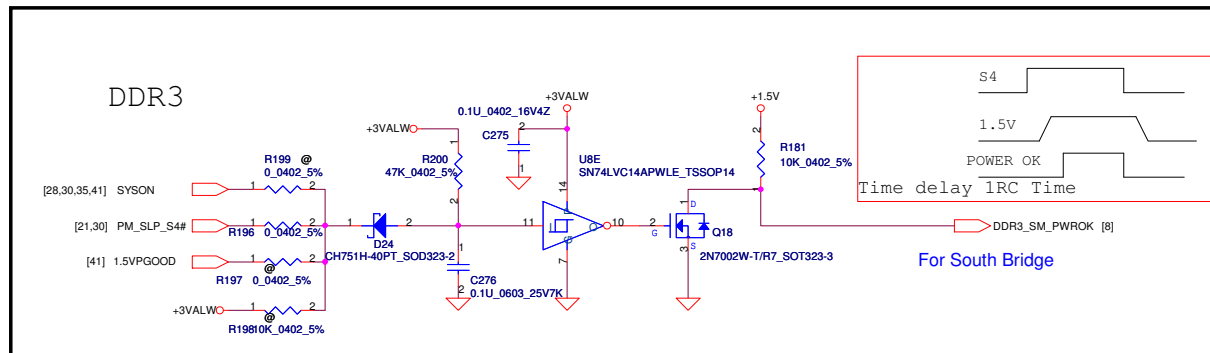
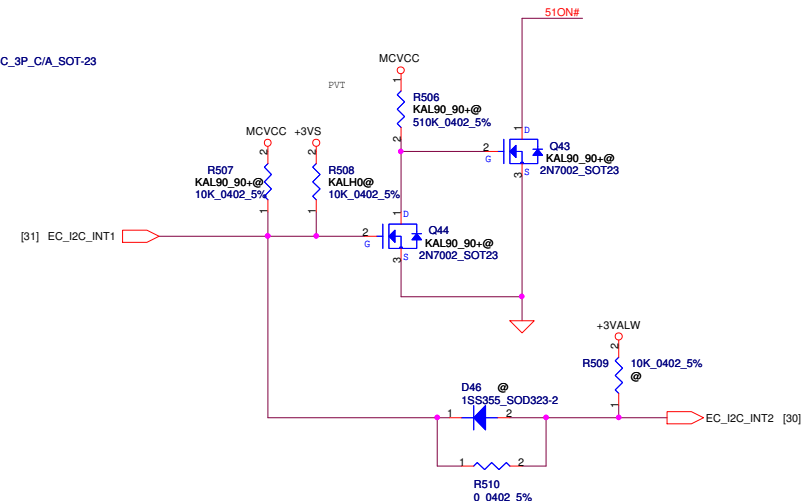
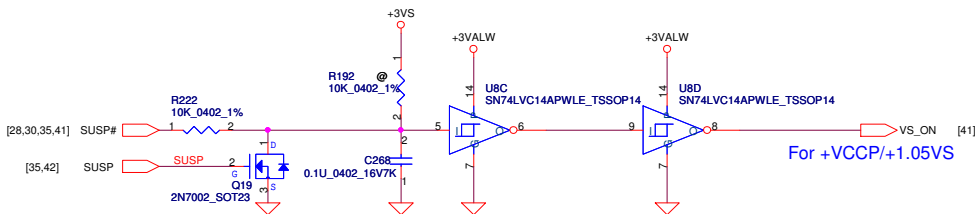
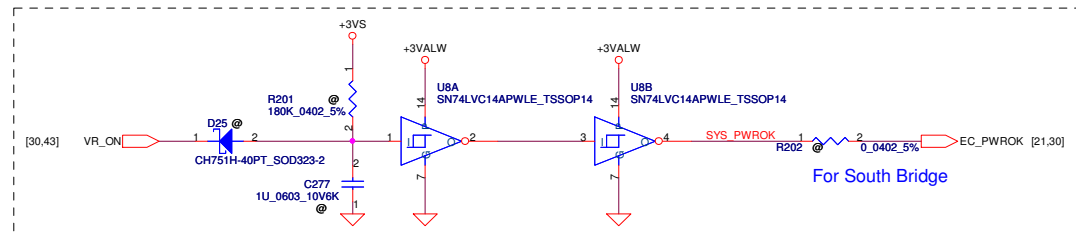
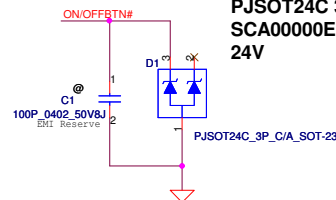
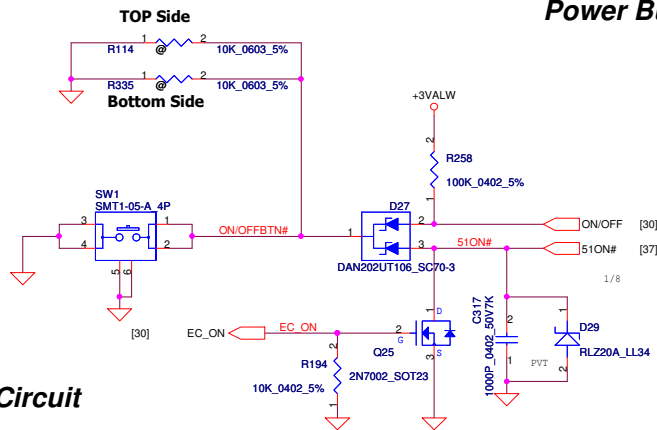
# Power Button

D58 USE  
PJSOT24C 3P C/A SOT-23  
SCA00000E00  
24V

## Power ON Circuit

## HDA MDC Conn.

## DDR3



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Title      |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|-----------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/11/10         | Deciphered Date | 2008/11/24 | Document Number |
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| Date: Tuesday, March 24, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            | Sheet 32 of 45  |



Gain= 10dB

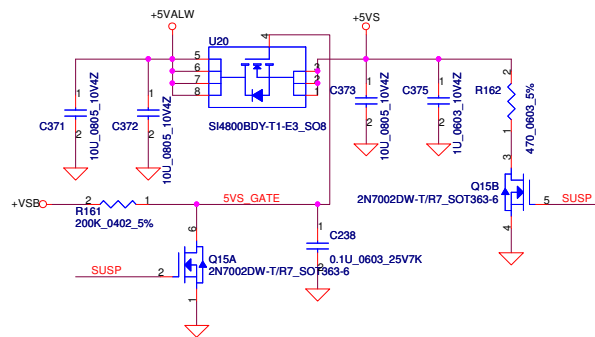
Int. Speaker Conn.

(HDA Jack)  
MIC JACK

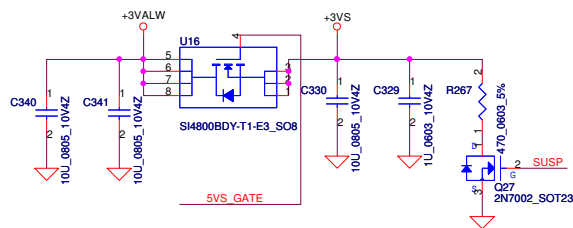
(HDA Jack)  
LINE-IN JACK

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                               |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/11/10 | Deciphered Date    | 2008/11/24 | Title                         |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | KALG1                         | 0.1            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Tuesday, March 24, 2009 | Sheet 34 of 45 |

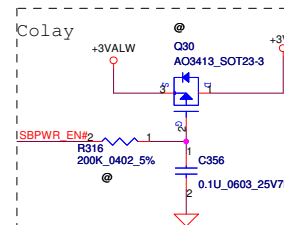
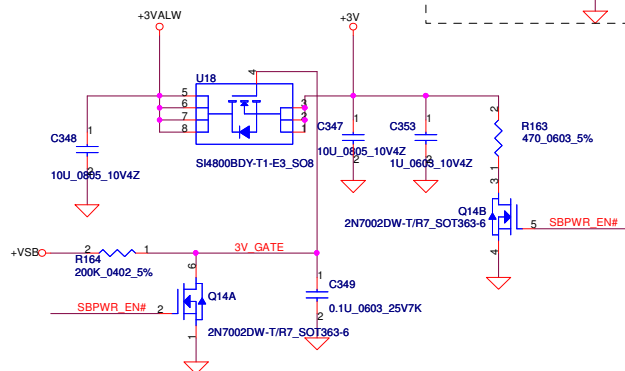
### +5VALW TO +5VS



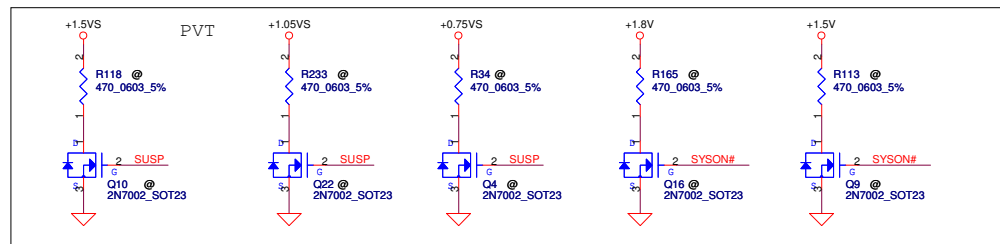
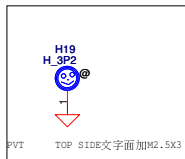
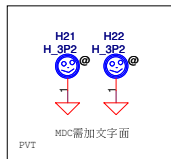
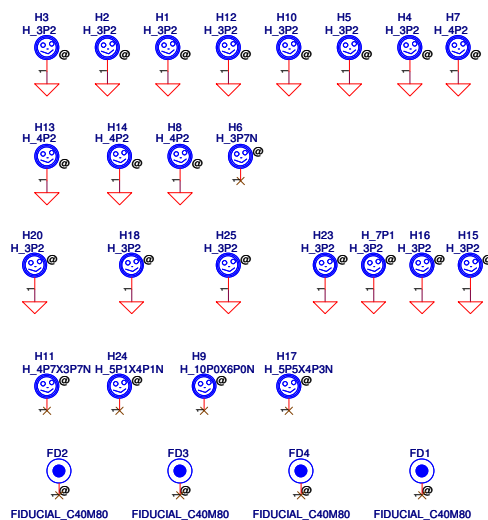
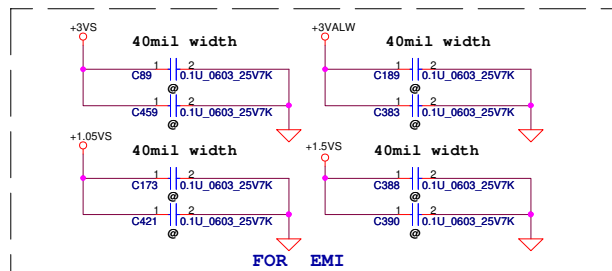
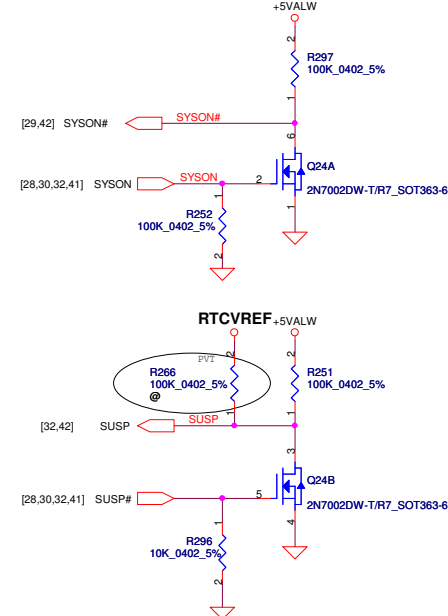
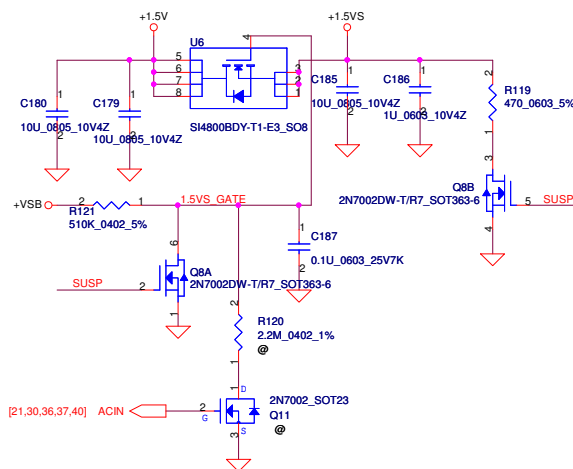
### +3VALW TO +3VS



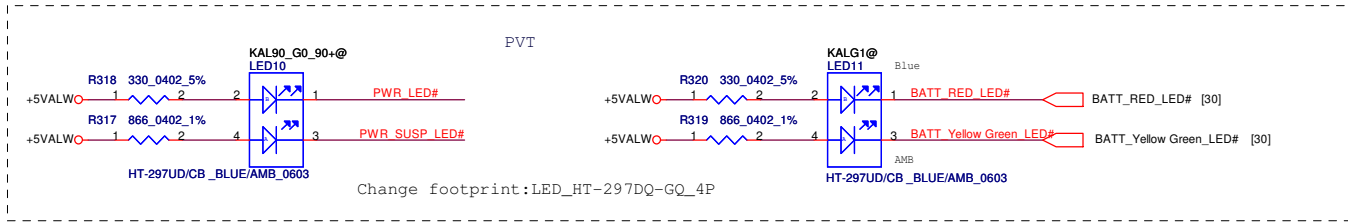
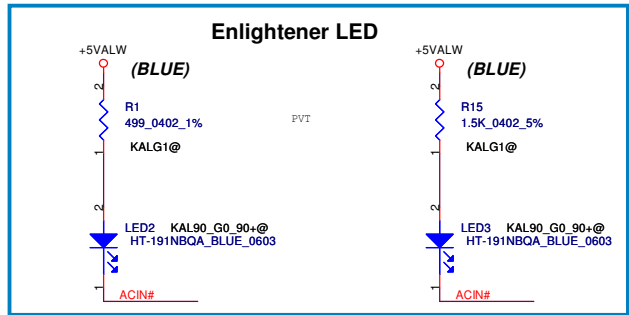
### +3VALW TO +3V\_SB(ICH8M AUX Power)



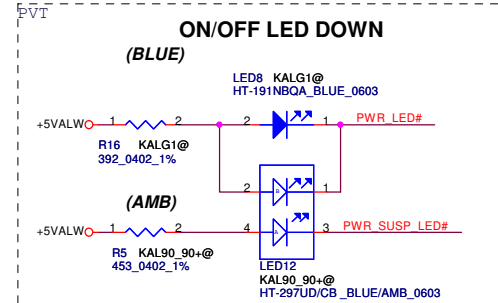
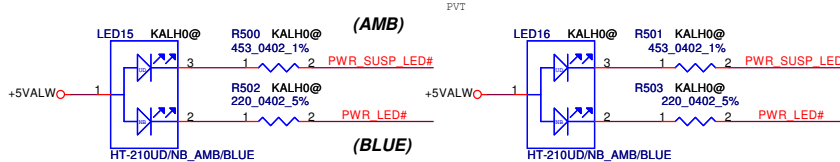
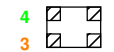
### +1.5V to +1.5VS



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                     |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|---------------------------|----------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2008/11/10 | Deciphered Date    | 2008/11/24 | Compal Electronics, Inc.  |          |
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| KALG1                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                    |            | Document Number           | Rev 0.1  |
| Date: Tuesday, March 24, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Sheet                     | 35 of 45 |



Compal Footprint



MEDIA\_LED

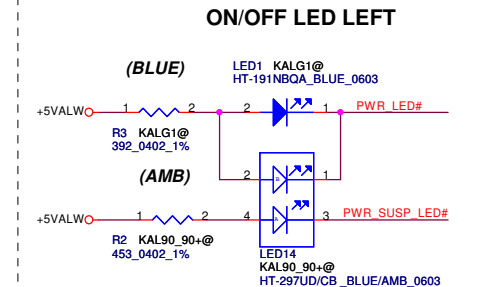
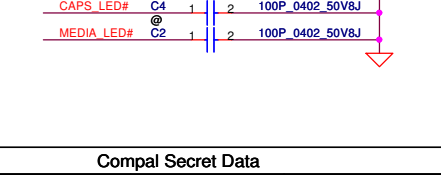
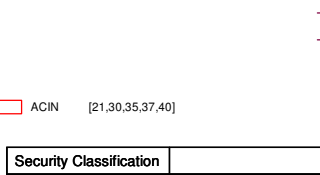
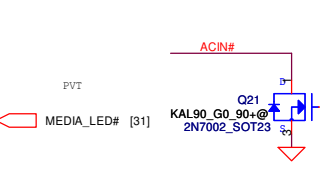
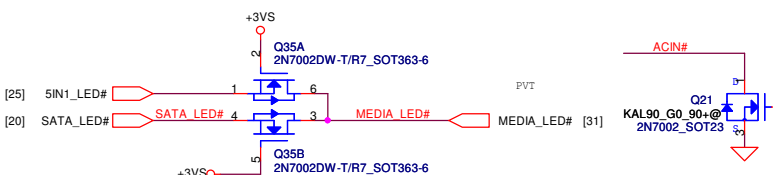
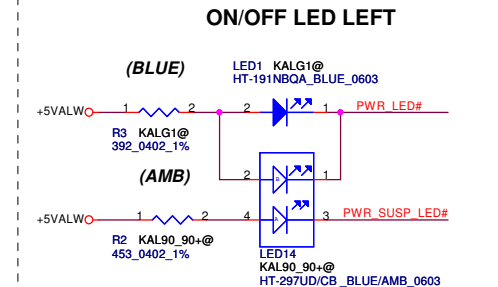
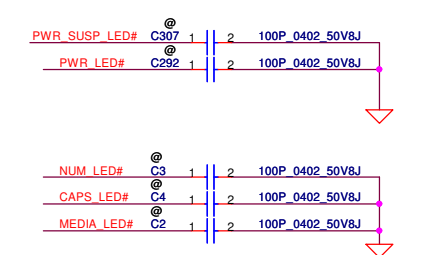
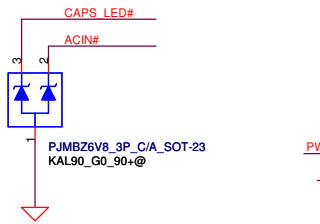
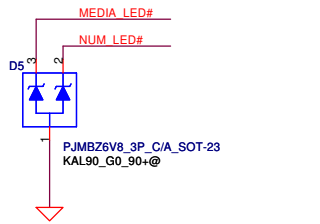
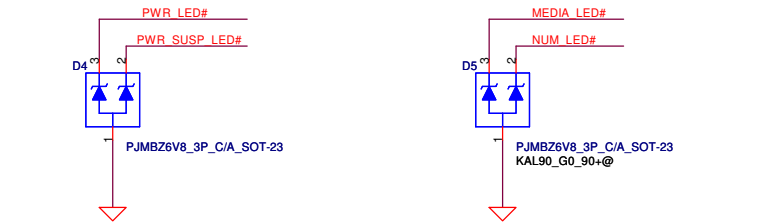
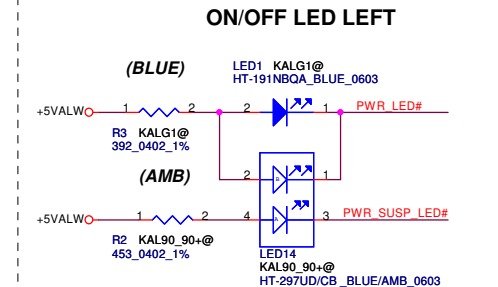
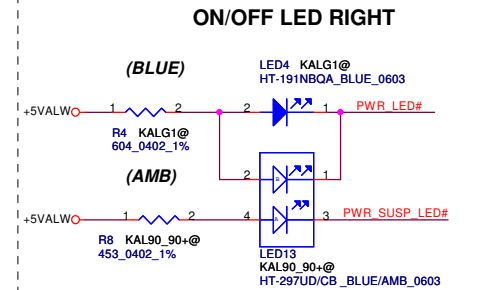
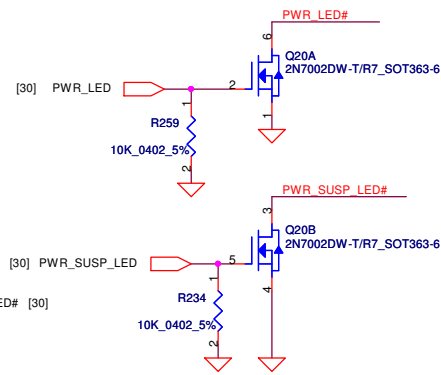
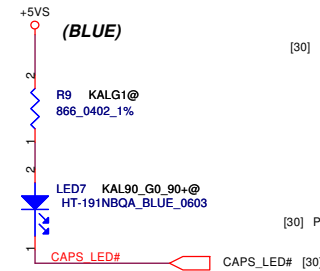
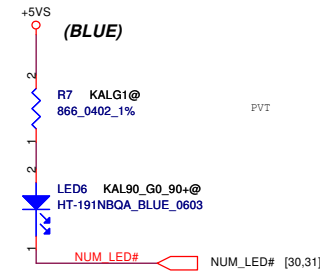
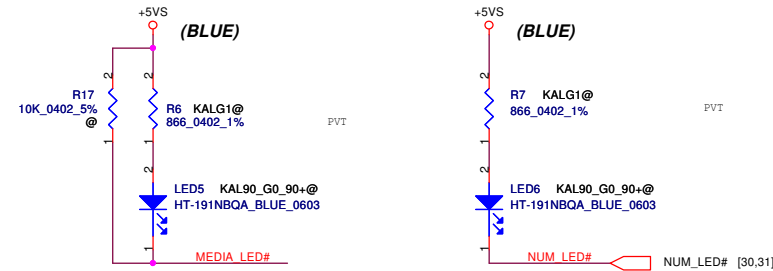
NUM\_LED

CAPS\_LED

FOR EMI

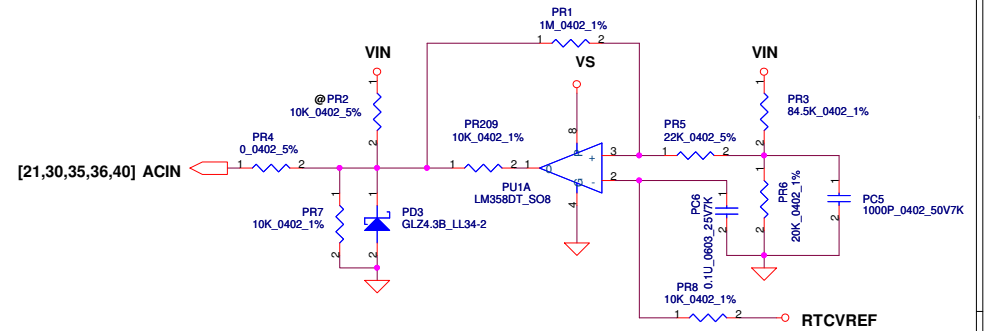
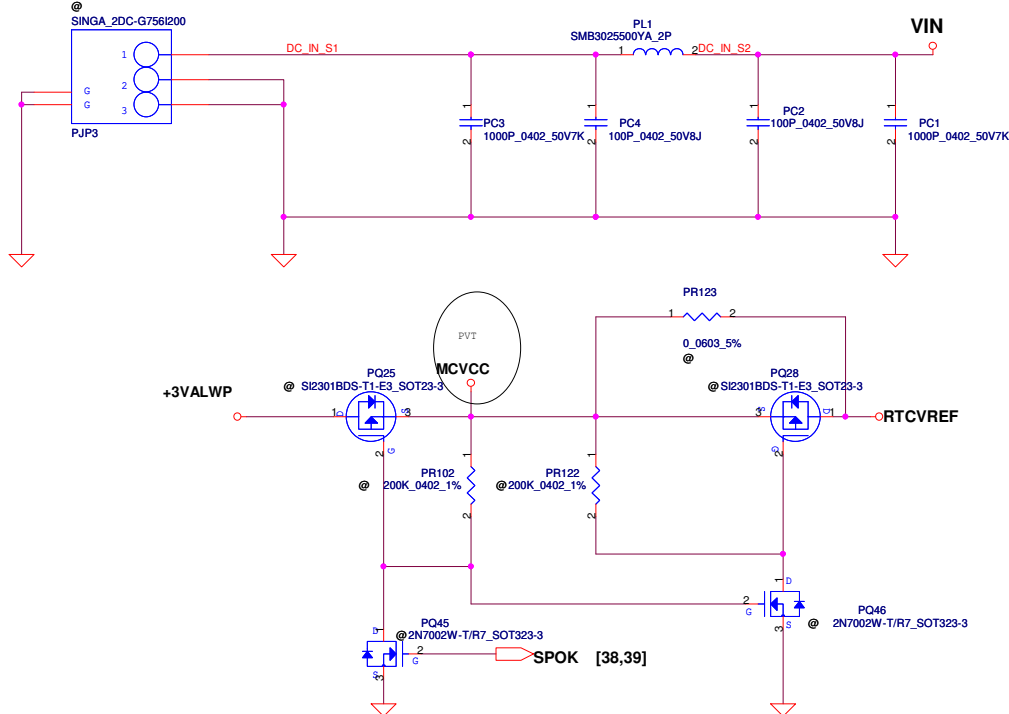
ON/OFF LED RIGHT

ON/OFF LED LEFT



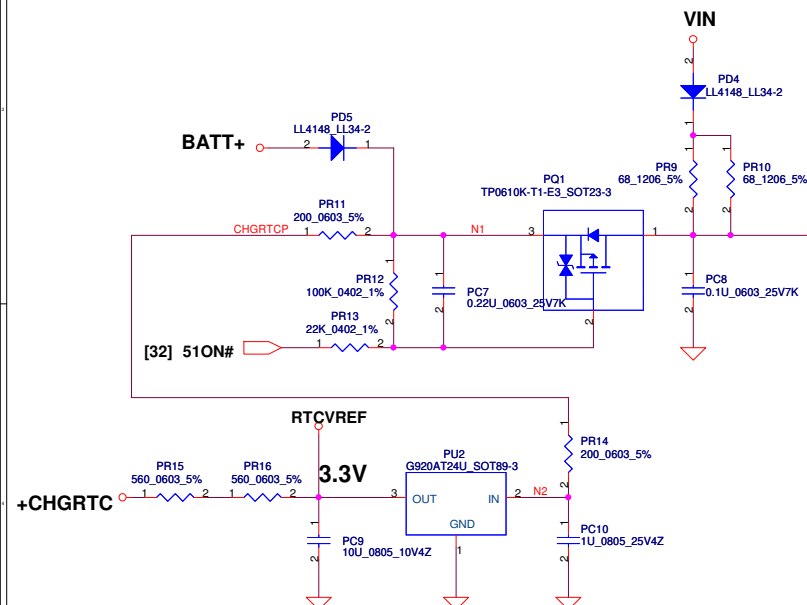
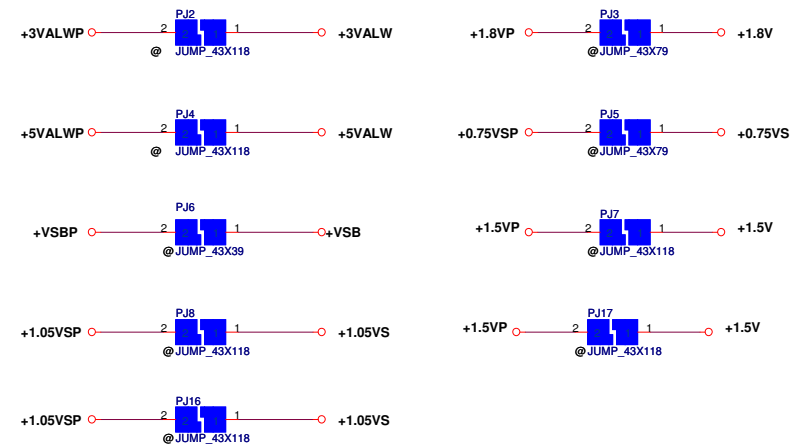
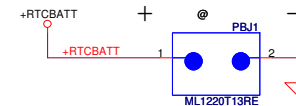
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  | Compal Secret Data |  |  |  | Compal Electronics, Inc. |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--------------------|--|--|--|--------------------------|--|--|--|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  | 2008/11/10         |  |  |  | Deciphered Date          |  |  |  |
| 2008/11/10                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  | 2008/11/24         |  |  |  | Title                    |  |  |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | Document Number          |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | KALG1                    |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | Date                     |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | Tuesday, March 24, 2009  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | Sheet                    |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                    |  |  |  | 36 of 45                 |  |  |  |

# DC231000500



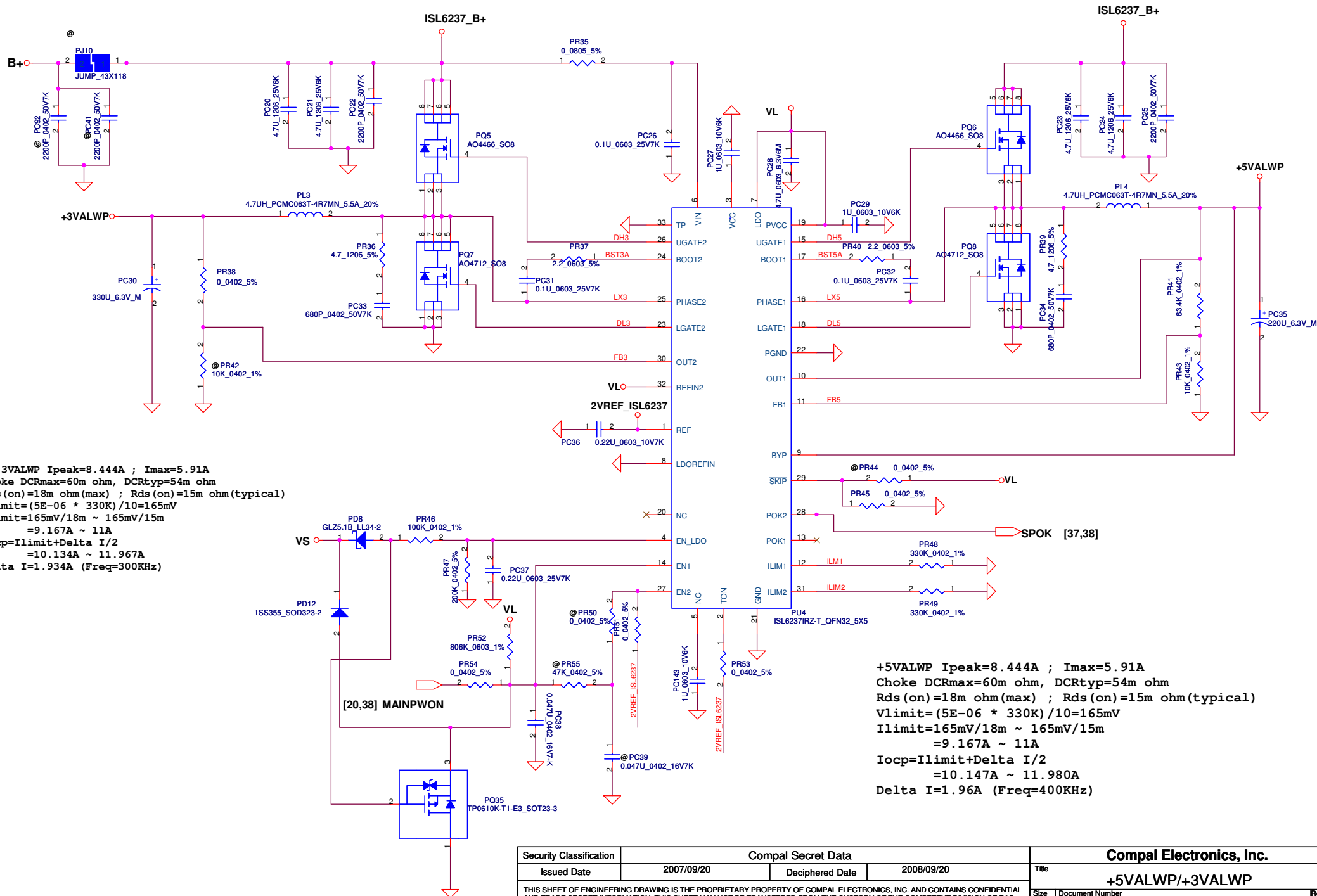
| Vin Detector |         |         |         |
|--------------|---------|---------|---------|
|              | Min.    | Typ     | Max.    |
| H-->L        | 16.976V | 17.525V | 17.728V |
| L-->H        | 17.430V | 17.901V | 18.384V |

## RTC Conn



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                    |            |                          |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------|------------|--------------------------|-----|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         | Compal Secret Data |            | Compal Electronics, Inc. |     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2007/09/20              | Deciphered Date    | 2008/09/20 | Title                    |     |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Custom                  | Document Number    | KALG1      | Rev                      | 0.1 |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Tuesday, March 24, 2009 | Sheet              | 37         | of                       | 45  |

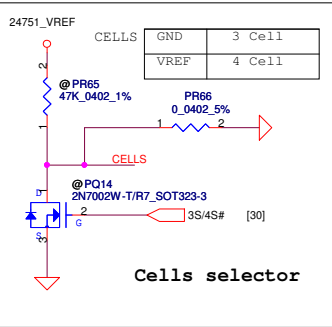
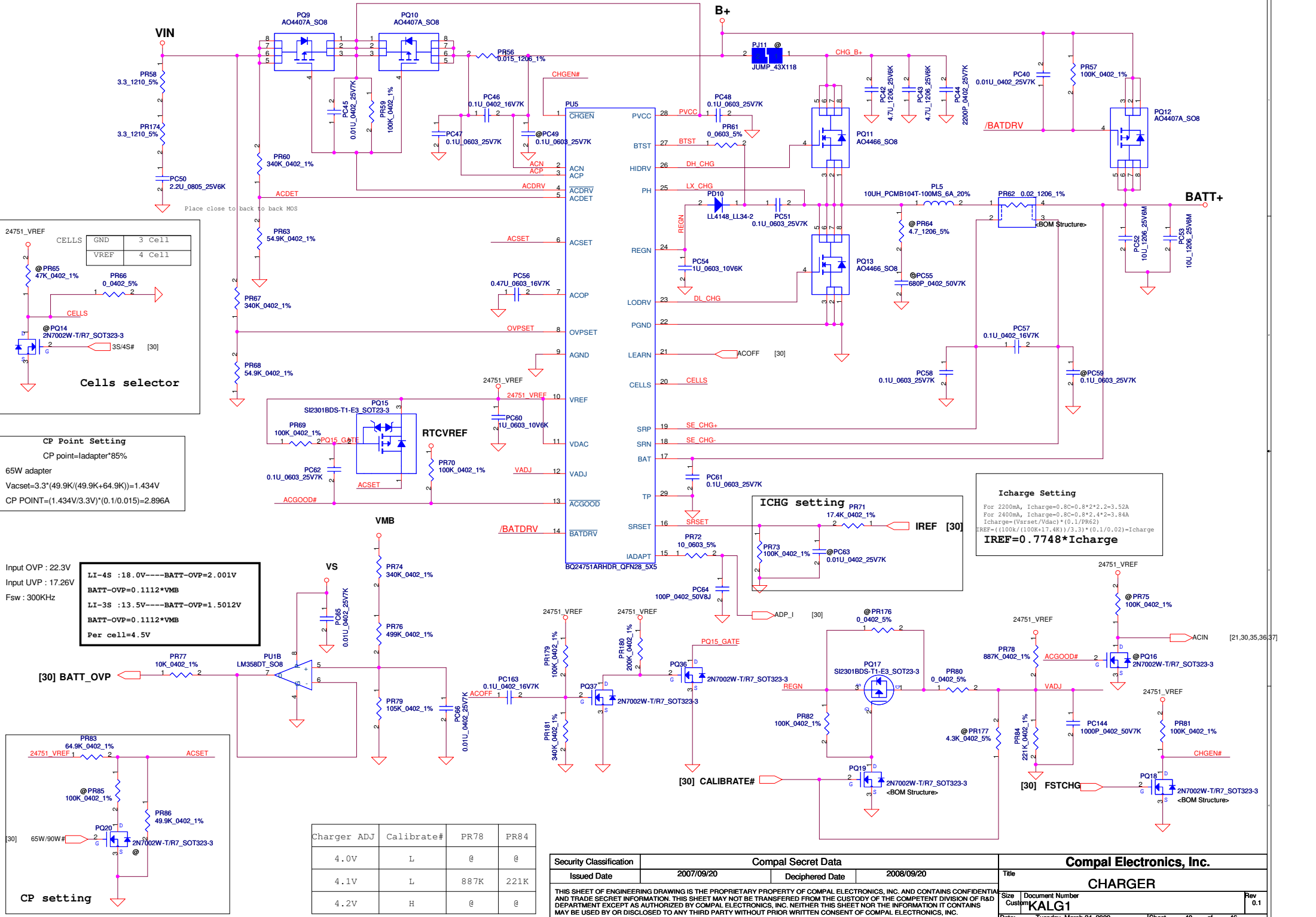




+3.3VALWP Ipeak=8.444A ; Imax=5.91A  
Choke DCRmax=60m ohm, DCRtyp=54m ohm  
Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
Vlimit=(5E-06 \* 330K)/10=165mV  
Ilimit=165mV/18m ~ 165mV/15m  
=9.167A ~ 11A  
Iocp=Ilimit+Delta I/2  
=10.134A ~ 11.967A  
Delta I=1.934A (Freq=300KHz)

+5VALWP Ipeak=8.444A ; Imax=5.91A  
Choke DCRmax=60m ohm, DCRtyp=54m ohm  
Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
Vlimit=(5E-06 \* 330K)/10=165mV  
Ilimit=165mV/18m ~ 165mV/15m  
=9.167A ~ 11A  
Iocp=Ilimit+Delta I/2  
=10.147A ~ 11.980A  
Delta I=1.96A (Freq=400KHz)

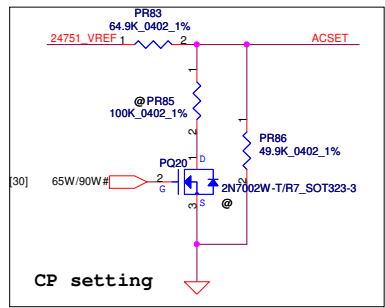
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2007/09/20 | Deciphered Date    | 2008/09/20 | Title                    |                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Custom                   | KALG1                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Tuesday, March 24, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 39 of 46                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | 0.1                     |



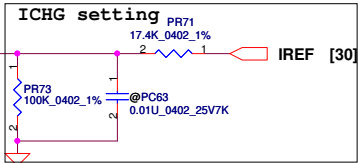
**CP Point Setting**  
CP point=ladapter\*85%  
65W adapter  
Vacset=3.3\*(49.9K/(49.9K+64.9K))=1.434V  
CP POINT=(1.434V/3.3V)\*(0.1/0.015)=2.896A

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

LI-4S : 18.0V----BATT-OVP=2.001V  
BATT-OVP=0.1112\*VMB  
LI-3S : 13.5V----BATT-OVP=1.5012V  
BATT-OVP=0.1112\*VMB  
Per cell=4.5V



| Charger ADJ | Calibrate# | PR78 | PR84 |
|-------------|------------|------|------|
| 4.0V        | L          | @    | @    |
| 4.1V        | L          | 887K | 221K |
| 4.2V        | H          | @    | @    |



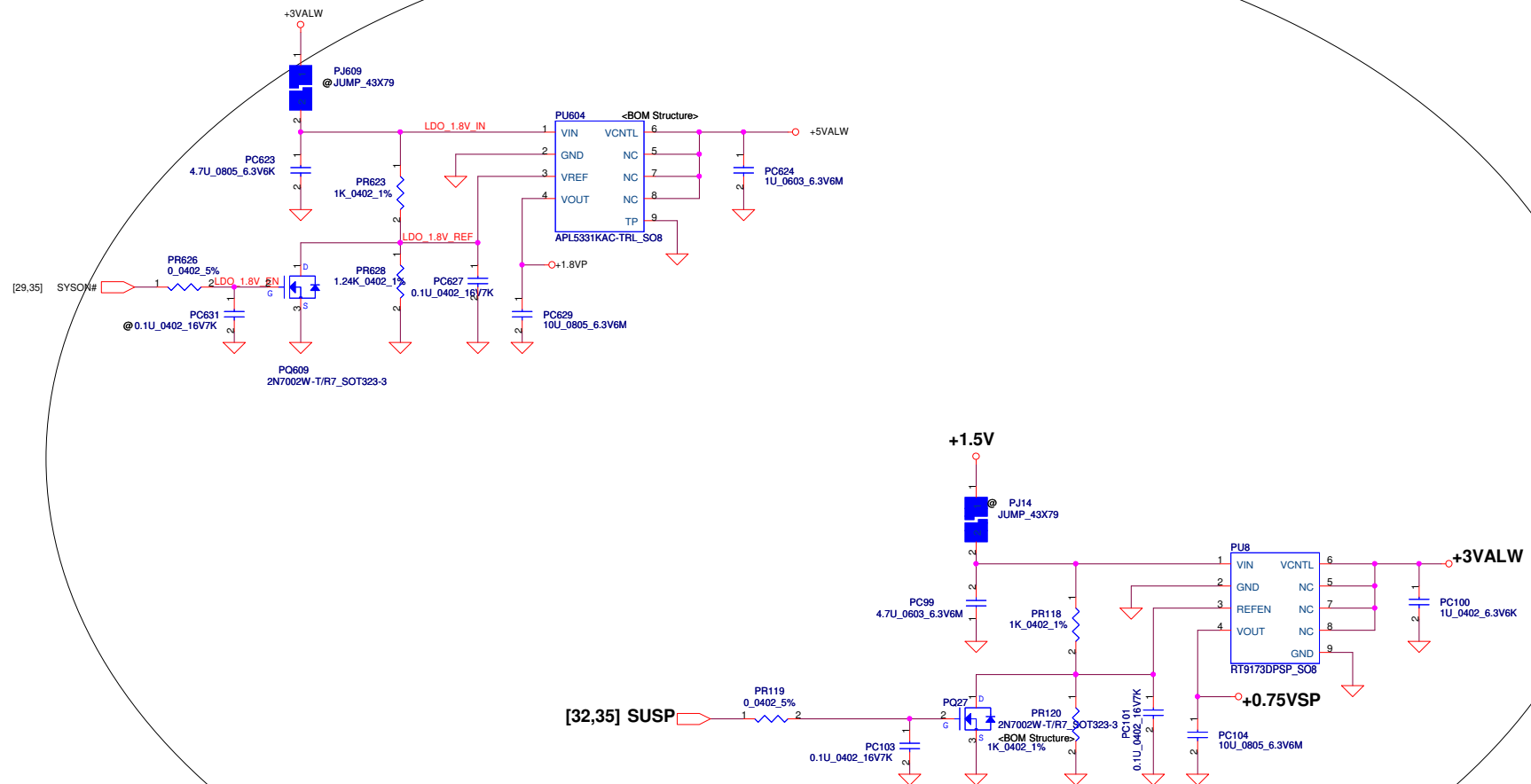
**Icharge Setting**  
For 2200mA, Icharge=0.8\*2\*2.2=3.52A  
For 2400mA, Icharge=0.8\*2.4\*2=3.84A  
Icharge=(Varset/Vdac)\*(0.1/PR62)  
IREF=(100k/(100k+17.4K))/3.3\*(0.1/0.02)=Icharge  
**IREF=0.7748\*Icharge**

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2007/09/20 | Deciphered Date    | 2008/09/20 |
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| Compal Electronics, Inc. |                         |       |          |
|--------------------------|-------------------------|-------|----------|
| CHARGER                  |                         |       |          |
| Size                     | Document Number         | Rev   |          |
| Custom                   | KALG1                   | 0.1   |          |
| Date:                    | Tuesday, March 24, 2009 | Sheet | 40 of 46 |

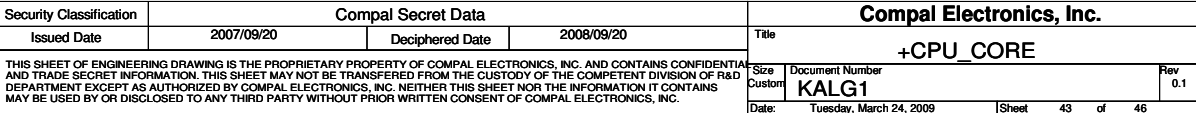


|        |                         |                |
|--------|-------------------------|----------------|
| Size   | Document Number         | Rev            |
| Custom | KALG1                   | 0.             |
| Date:  | Tuesday, March 24, 2009 | Sheet 41 of 46 |



12/25

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|--------------------------|-------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                               |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2007/09/20         | Deciphered Date | 2008/09/20               | Title                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Document Number               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | KALG1                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Rev 0.1                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Date: Tuesday, March 24, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Sheet 42 of 46                |



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

| Item | Fixed Issue | Reason for change                                         | Rev. | PG# | Modify List                                 | Date | Phase |
|------|-------------|-----------------------------------------------------------|------|-----|---------------------------------------------|------|-------|
| 1    |             | Add 3/5V boost resister for EMI request                   |      |     | Change PR37 and PR40 to 2.2 OHM             |      |       |
| 2    |             | Modify 1.5V and 1.05V choke to cyntec for eff.            |      |     | PL501 & PL502                               |      |       |
| 3    |             | Modify 1.5V and 1.05V frequnce from 336K to 264K for eff. |      |     | Change PR525 & PR501 from 240K to 300K      |      |       |
| 4    |             | Modify 1.5V and 1.05V low side mos for eff.               |      |     | Change PQ506 & PQ508 from FDS6670 to A04456 |      |       |
| 5    |             | Add CPU_core boost resister for EMI request               |      |     | Change PR138 and PR158 to 2.2 OHM           |      |       |
| 6    |             | Modify 1.5V & 1.05V OCP to 14A                            |      |     | Change PR530 & PR522 to 5.9K                |      |       |
| 7    |             | Modify 3V & 5V choke to 4.7UH for eff.                    |      |     | Change PL3 & PL4 from 8.2UH to 4.7UH        |      |       |
| 8    |             | Modify 5V output cap to OS-CON for costdown               |      |     | Change PC35                                 |      |       |
| 9    |             | Modify 3V output cap to OS-CON for costdown               |      |     | Change PC30                                 |      |       |
| 10   |             | Modify dischager mos to A04407A for rating risk           |      |     | Change PQ12                                 |      |       |
| 11   |             | Add 30K OHM to TPS51117 EN pin , Disable SMPS mode        |      |     | ADD PR910 & PR911                           |      |       |
| 12   |             |                                                           |      |     |                                             |      |       |
| 13   |             |                                                           |      |     |                                             |      |       |
| 14   |             |                                                           |      |     |                                             |      |       |
| 15   |             |                                                           |      |     |                                             |      |       |
| 16   |             |                                                           |      |     |                                             |      |       |
| 17   |             |                                                           |      |     |                                             |      |       |
| 18   |             |                                                           |      |     |                                             |      |       |
| 19   |             |                                                           |      |     |                                             |      |       |
| 20   |             |                                                           |      |     |                                             |      |       |
| 21   |             |                                                           |      |     |                                             |      |       |
| 22   |             |                                                           |      |     |                                             |      |       |
| 23   |             |                                                           |      |     |                                             |      |       |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                               |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------------|-----------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.      |                       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 45 of 45                |                       |

PCB

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LA-5271P MB Rev0: DA60000C500

PCB 08Y LA-5271P REV0 M/B

North Bridge

U21

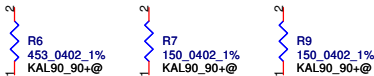


PVT

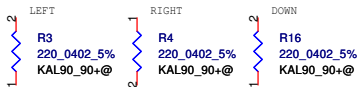
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GL40@

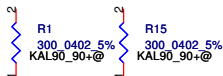
MEDIA\_LED NUM\_LED CAPS\_LED



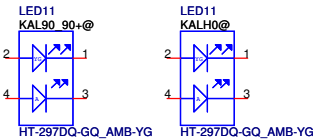
ON/OFF LED Risiter



Enlightener LED



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|-----------------|--------------------------|-------|
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