

# Compal Confidential

## NCQD0 M/B Schematics Document

Intel Arrandale/Clarkfield Processor with DDRIII + Ibex Peak-M

2009-08-10

REV:1.0

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                           |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10 | Deciphered Date    | 2010/08/10 | Title                    | SCHEMATICS,MB A5511       |
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| Date: Tuesday, August 18, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Sheet 1 of 60            |                           |

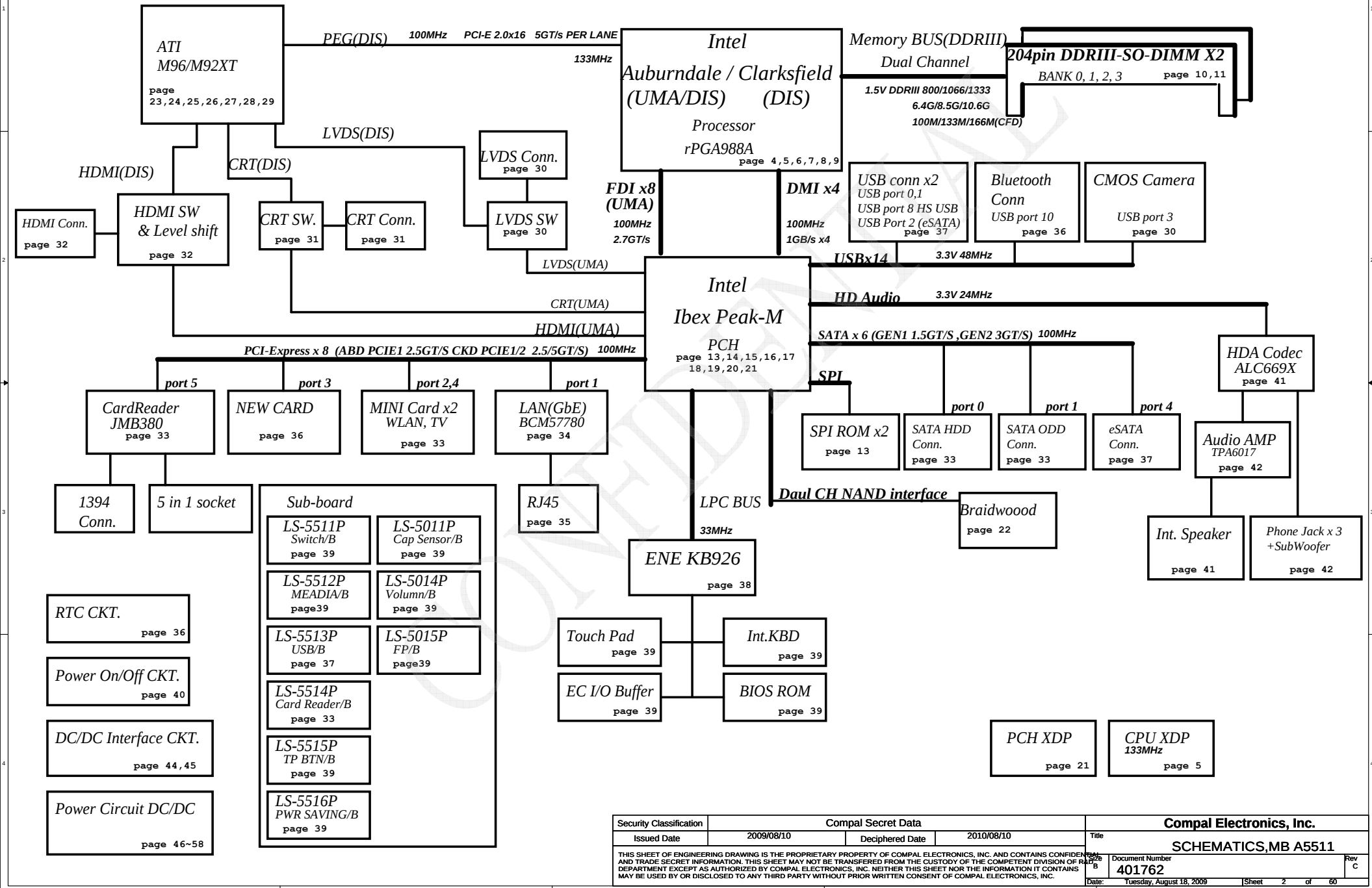
# Compal Confidential

Model Name : NCQD0

File Name : LA5511P

Fan Control  
page 43

Clock Generator  
IDT: 9LRS3199AKLFT  
SILEGO: SLG8SP587  
133/120/100/96/14.318MHZ to PCH  
48MHZ to CardReader  
page 12



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                          |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|--------------------------|---------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                    | Tuesday, August 18, 2009 | Sheet 2 of 60 |

Voltage Rails

| Power Plane | Description                                  | S1  | S3  | S5  | DGPU (UMA) | DGPU (DIS) |
|-------------|----------------------------------------------|-----|-----|-----|------------|------------|
| 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  | ON  | OFF |            |            |
| +0.75VS     | 0.75V switched power rail for DDR terminator | ON  | OFF | OFF |            |            |
| +1.05VS     | 1.05V switched power rail for PCH            | ON  | OFF | OFF |            |            |
| +1.1VS_VTT  | 1.1V switched power rail (1.05 for AUB CPU)  | ON  | OFF | OFF |            |            |
| +1.5V       | 1.5V power rail for DDRIII                   | ON  | ON  | OFF |            |            |
| +1.5VS      | 1.5V switched power rail                     | ON  | OFF | OFF |            |            |
| +1.8VS      | 1.8V switched power rail                     | ON  | OFF | OFF |            |            |
| +3VALW      | 3.3V always on power rail                    | ON  | ON  | ON* |            |            |
| +3V         | 3.3V power rail for PCH                      | ON  | ON  | ON  |            |            |
| +3V_LAN     | 3.3V power rail for LAN                      | ON  | ON  | ON* |            |            |
| +3VS        | 3.3V switched power rail                     | ON  | OFF | OFF |            |            |
| +5VALW      | 5V always on power rail                      | ON  | ON  | ON* |            |            |
| +5VS        | 5V switched power rail                       | ON  | OFF | OFF |            |            |
| +5V         | 5V power rail for PCH                        | ON  | ON  | ON  |            |            |
| +VSB        | VSb always on power rail                     | ON  | ON  | ON* |            |            |
| +RTCVCC     | RTC power                                    | ON  | ON  | ON  |            |            |
| +5VSDGPU    | 5V power rail for GPU                        |     |     |     | OFF        | ON         |
| +1.5VSDGPU  | 1.5V power rail for VRAM                     |     |     |     | OFF        | ON         |
| +1.8VSDGPU  | 1.8V switched power rail for GPU             |     |     |     | OFF        | 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 |        |         |

EC SM Bus2 address

Ibex SM Bus address

| Device                                     | Address    |
|--------------------------------------------|------------|
| Clock Generator (9LRS3199AKLFT, SLG8SP587) | 1101 0010b |
| DDR DIMM0                                  | 1001 000Xb |
| DDR DIMM2                                  | 1001 010Xb |
| ISL90727                                   | 0101 1100b |
| ISL90728                                   | 0111 1100b |

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

Board ID / SKU ID Table for AD channel

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

BOARD ID Table

| Board ID | PCB Revision |
|----------|--------------|
| * 0      | 0.1          |
| 1        |              |
| 2        |              |
| 3        |              |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |

BTO Option Table

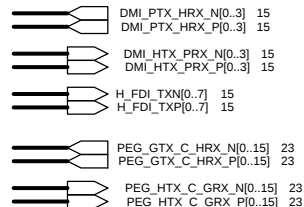
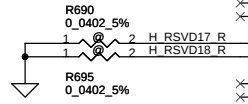
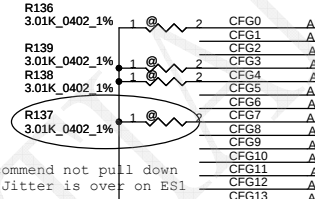
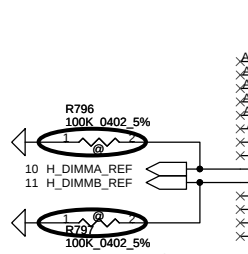
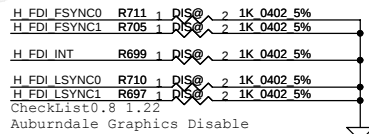
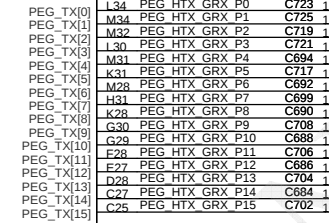
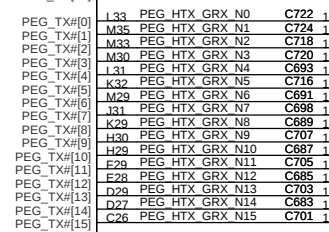
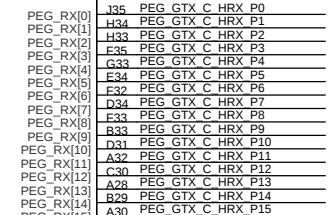
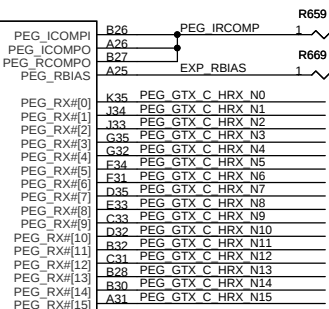
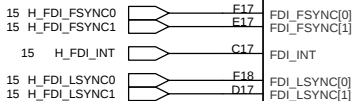
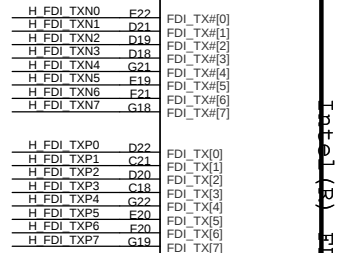
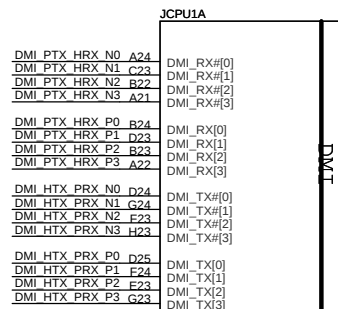
| BTO Item            | BOM Structure |
|---------------------|---------------|
| UMA                 | UMA@          |
| UMA Only            | UMAO@         |
| DIS Only            | DIS@          |
| DGPU                | VGA@          |
| Braidwood           | NV@           |
| M96                 | M96@          |
| Broadway            | MAD@          |
|                     |               |
|                     |               |
|                     |               |
|                     |               |
|                     |               |
|                     |               |
|                     |               |
| Switchable Graphics | SG@           |
|                     |               |
|                     |               |
|                     |               |
|                     |               |

USB Port Table

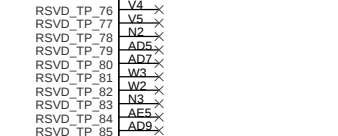
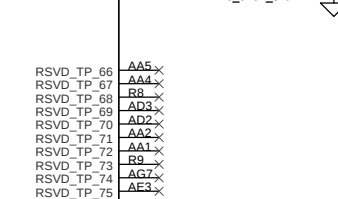
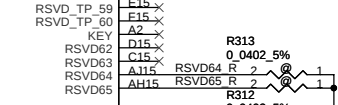
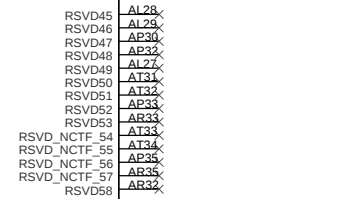
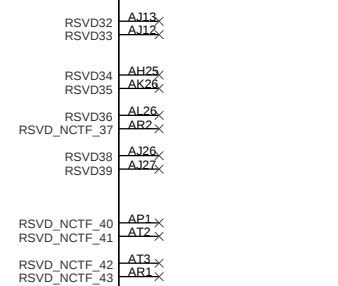
| USB 2.0 | USB 1.1 | Port | 4 External USB Port |
|---------|---------|------|---------------------|
| EHCI1   | UHCI0   | 0    | USB Conn.           |
|         |         | 1    | USB/B               |
|         | UHCI1   | 2    | eSATA USB           |
|         |         | 3    | CMOS Camera         |
|         | UHCI2   | 4    | Mini Card 1         |
|         |         | 5    | Mini Card 2         |
|         |         | 6    |                     |
| EHCI2   | UHCI3   | 7    |                     |
|         |         |      |                     |
|         | UHCI4   | 8    | USB Conn.           |
|         |         | 9    |                     |
|         | UHCI5   | 10   | Blue Tooth          |
|         |         | 11   | Finger Print        |
|         | UHCI6   | 12   | NewCard             |
|         |         | 13   |                     |

BOM Config  
Switchable Graphics (M96)SKU: UMA@/SG@/VGA@  
UMA only SKU: UMA@/UMAO@  
DIS ONLY (M96): DIS@/VGA@

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|--------------------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Sheet                    | 3 of 60                  |



RESERVED



VSS AP34

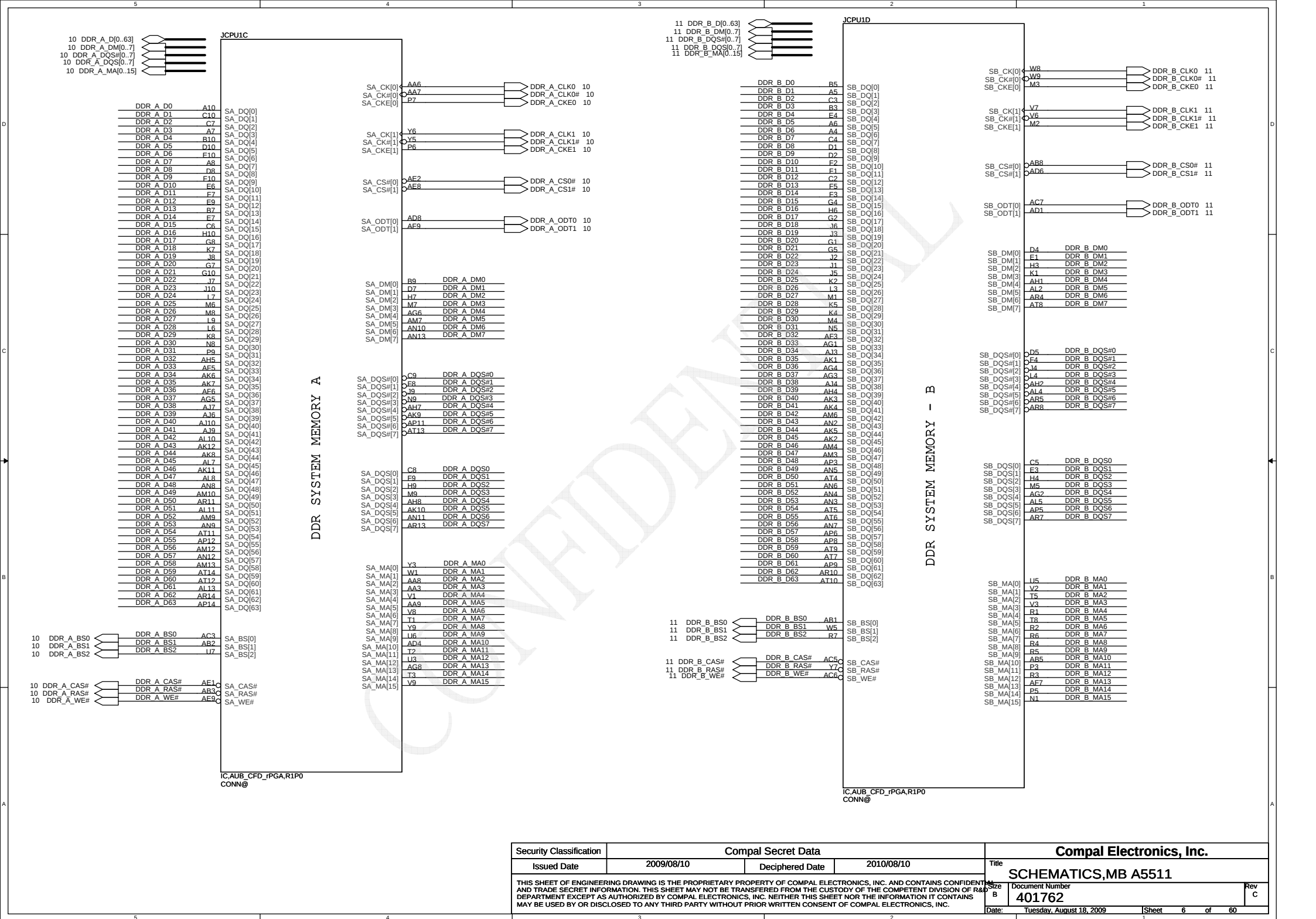
IC\_AUB\_CFD\_rPGA\_R1P0 CONN@

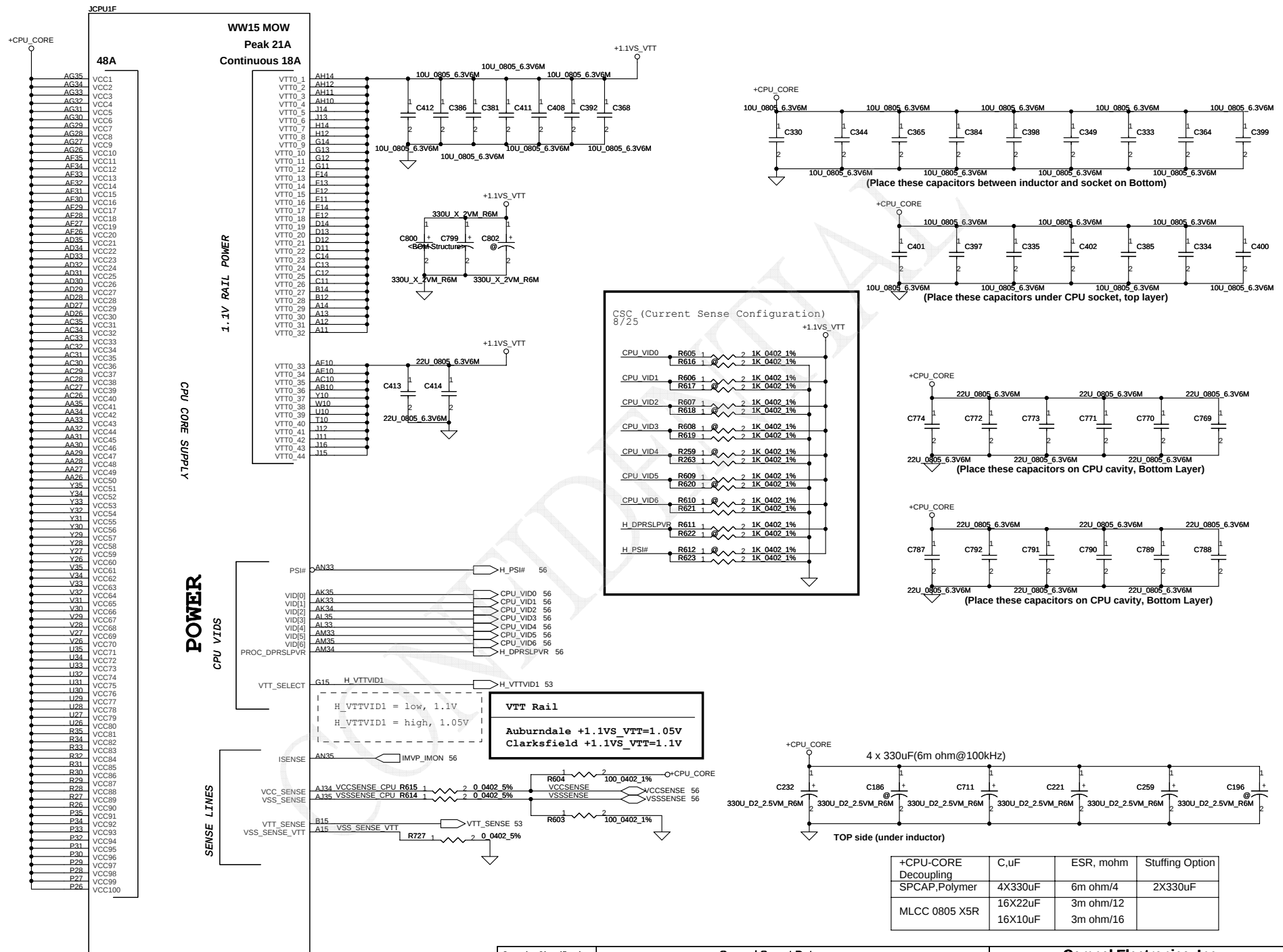
eDP Signals Mapping

| eDP Signal | PEG Singals       | Lane Reversal    |
|------------|-------------------|------------------|
| eDP_TX0    | PEG_HTX_C_GRX_P15 | PEG_HTX_C_GRX_P0 |
| eDP_TX#0   | PEG_HTX_C_GRX_N15 | PEG_HTX_C_GRX_N0 |
| eDP_TX1    | PEG_HTX_C_GRX_P14 | PEG_HTX_C_GRX_P1 |
| eDP_TX#1   | PEG_HTX_C_GRX_N14 | PEG_HTX_C_GRX_N1 |
| eDP_TX2    | PEG_HTX_C_GRX_P13 | PEG_HTX_C_GRX_P2 |
| eDP_TX#2   | PEG_HTX_C_GRX_N13 | PEG_HTX_C_GRX_N2 |
| eDP_TX3    | PEG_HTX_C_GRX_P12 | PEG_HTX_C_GRX_P3 |
| eDP_TX#3   | PEG_HTX_C_GRX_N12 | PEG_HTX_C_GRX_N3 |
| eDP_AUX    | PEG_GTX_C_HRX_P13 | PEG_GTX_C_HRX_P2 |
| eDP_AUX#   | PEG_GTX_C_HRX_N13 | PEG_GTX_C_HRX_N2 |
| eDP_HPD#   | PEG_GTX_C_HRX_P12 | PEG_GTX_C_HRX_P3 |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                        |
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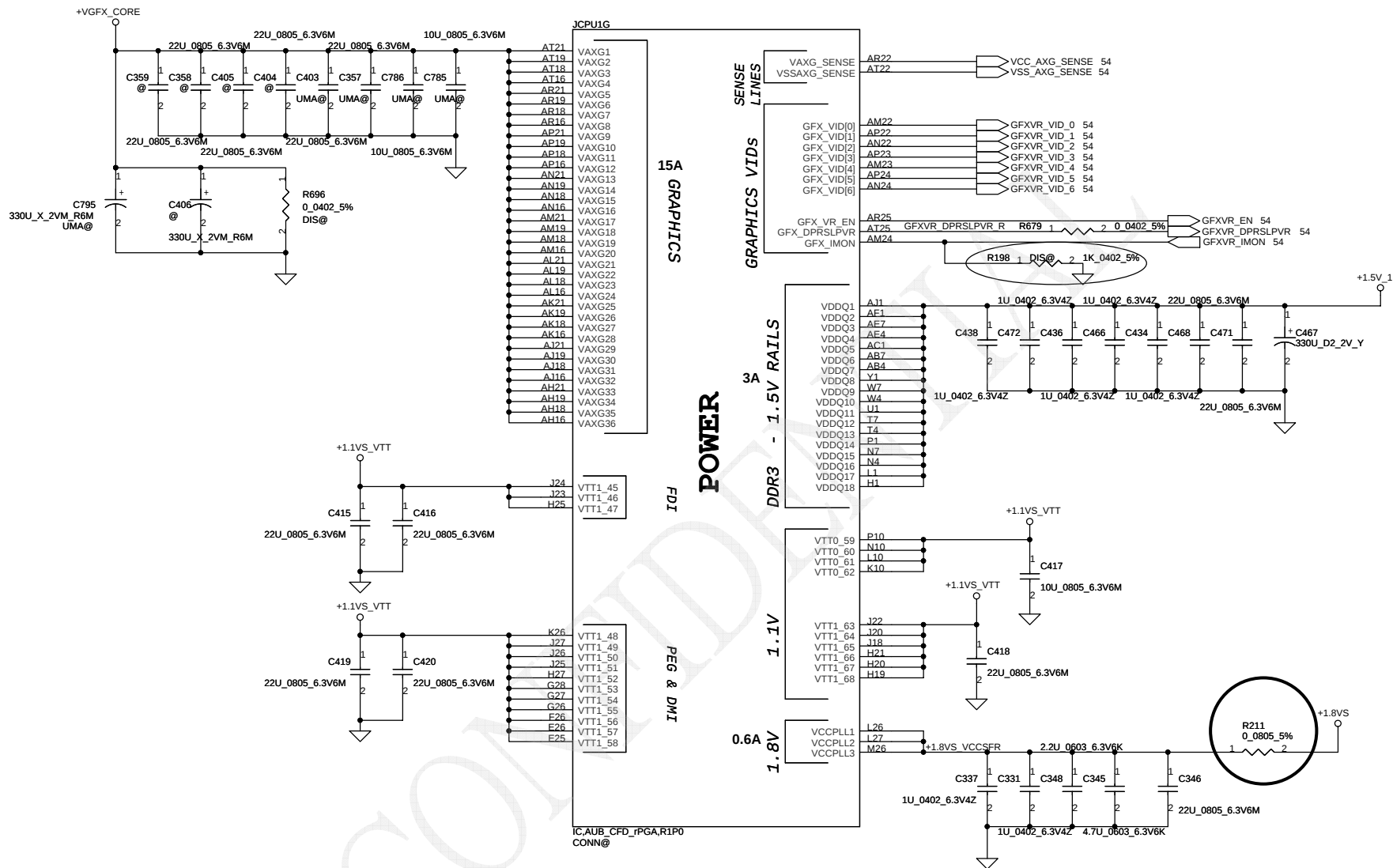




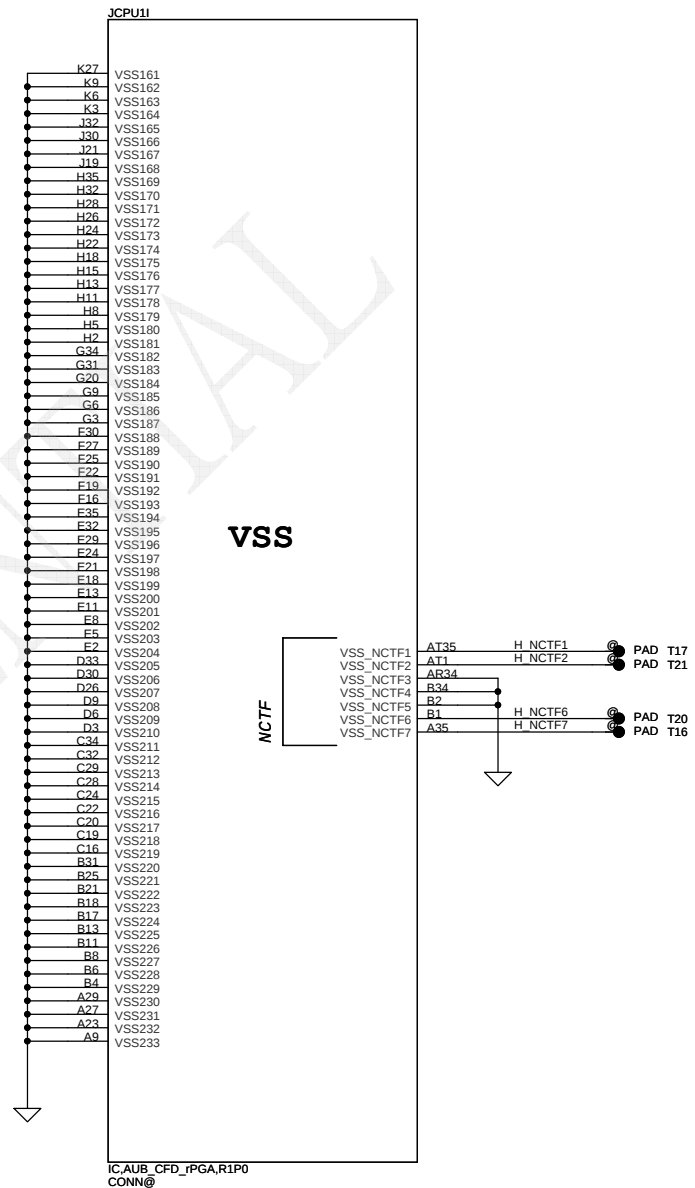
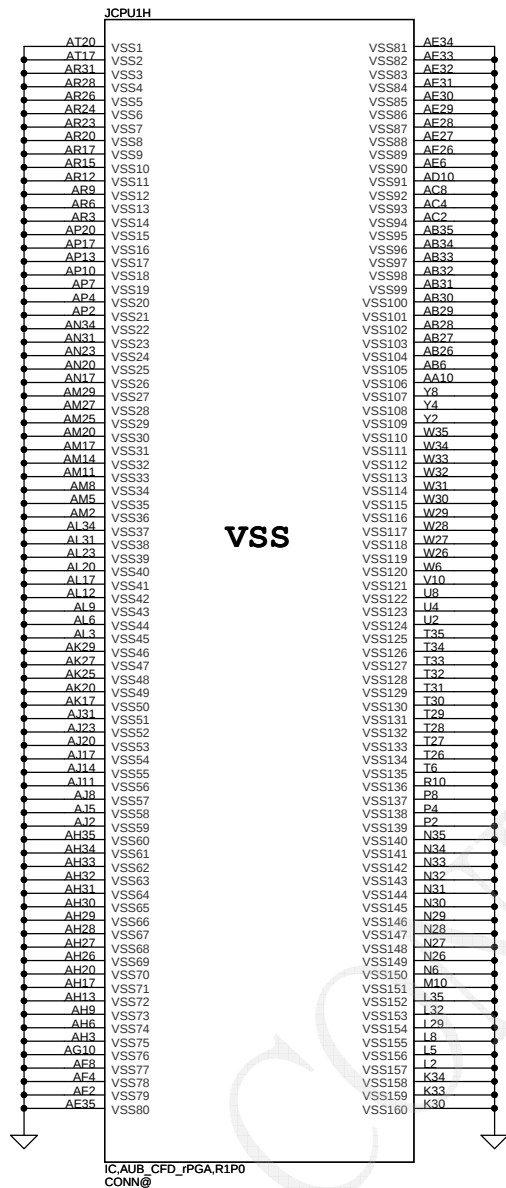


I,AUB\_CFD\_PGA,R1P0  
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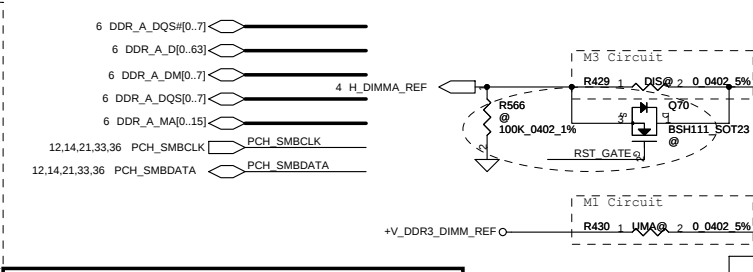
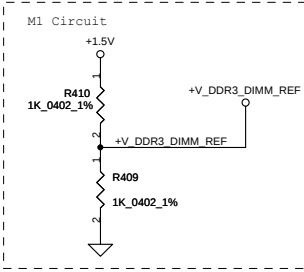
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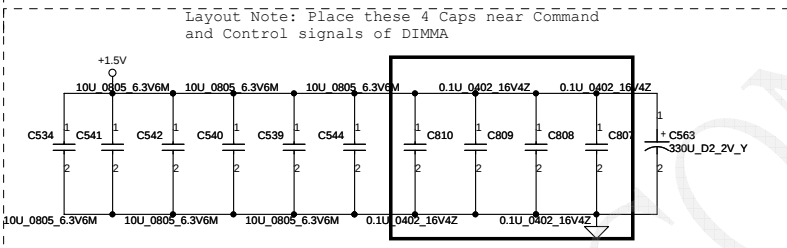


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date: Tuesday, August 18, 2009 |                 |                     | Sheet | 9 | of | 60 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                                |                 |                     |       |   |    |    |

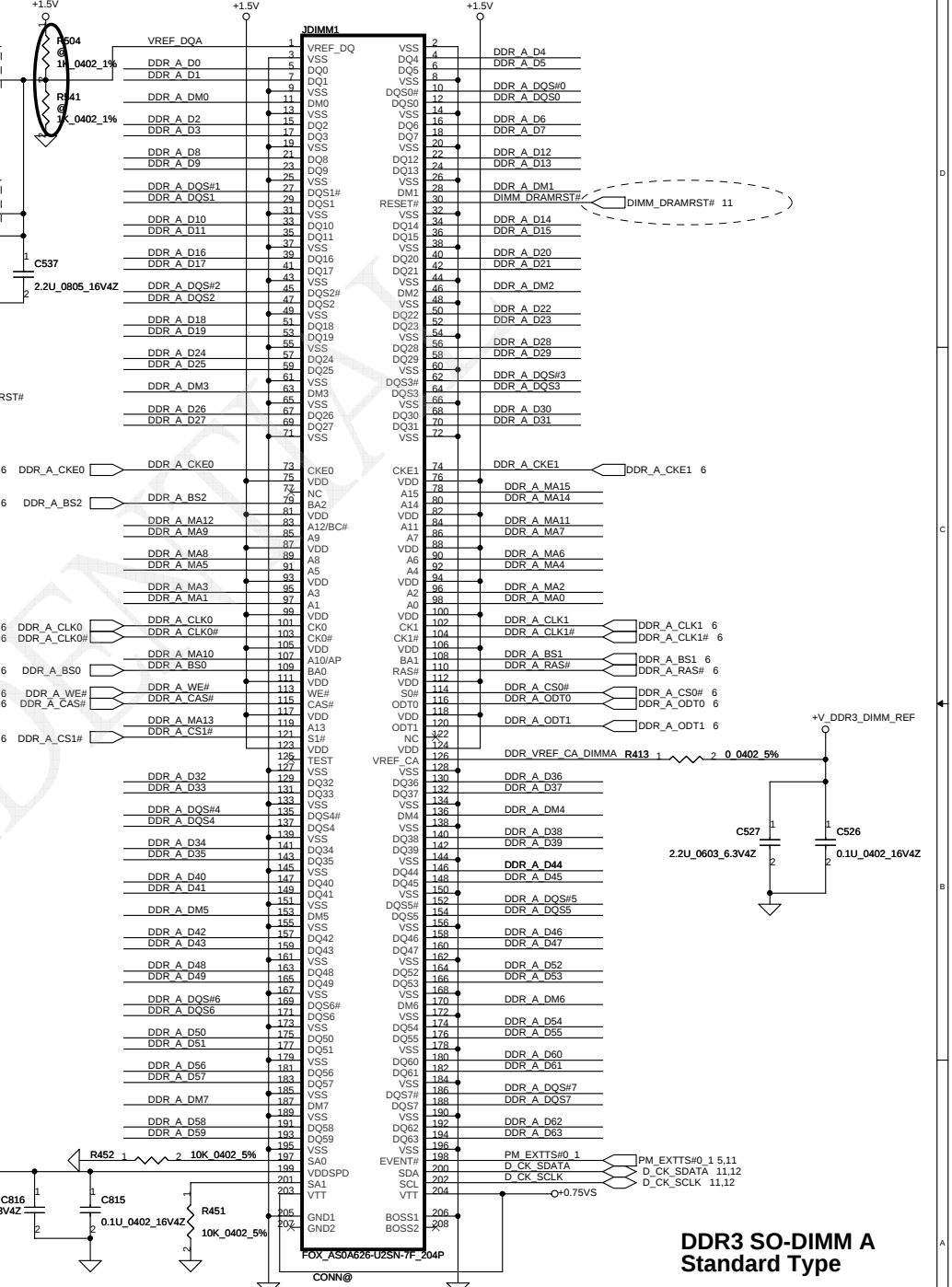
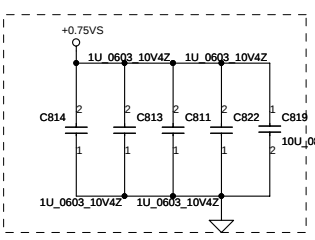


2009/04/13  
For Arrandale, it should be use M1 Circuit  
For Clarkfield, it should be use M3 Circuit  
DG V1.52

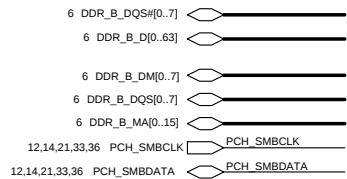
Layout Note:  
Place near JDIMM1



Layout Note:  
Place near JDIMM1.203 & JDIMM1.204



| Security Classification                                                                                                                                                                                                                                                                                                      |            | Compal Secret Data |            | Title                    |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
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|                                                                                                                                                                                                                                                                                                                              |            |                    |            | Date:                    | Tuesday, August 18, 2009 |
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2008/9/8 #400755  
Calpella Clarksfield  
DDR3 SO-DIMM  
VREFDQ Platform  
Design Guide Change Details

2009/04/13  
For Arrandale, it should be use M1 Circuit  
For Clarksfield, it should be use M3 Circuit  
DG V1.52

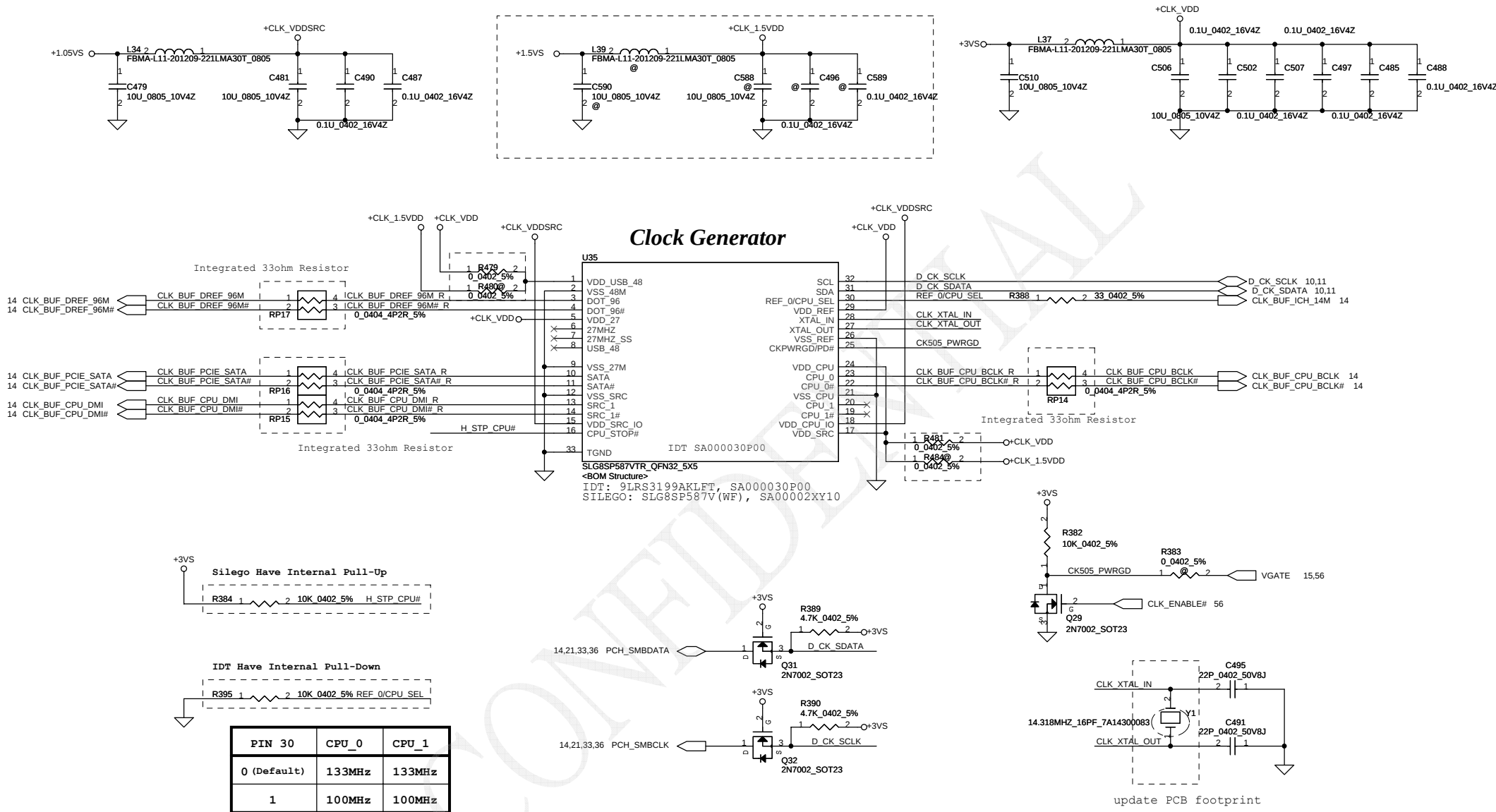
Layout Note:  
Place near JDIMM2

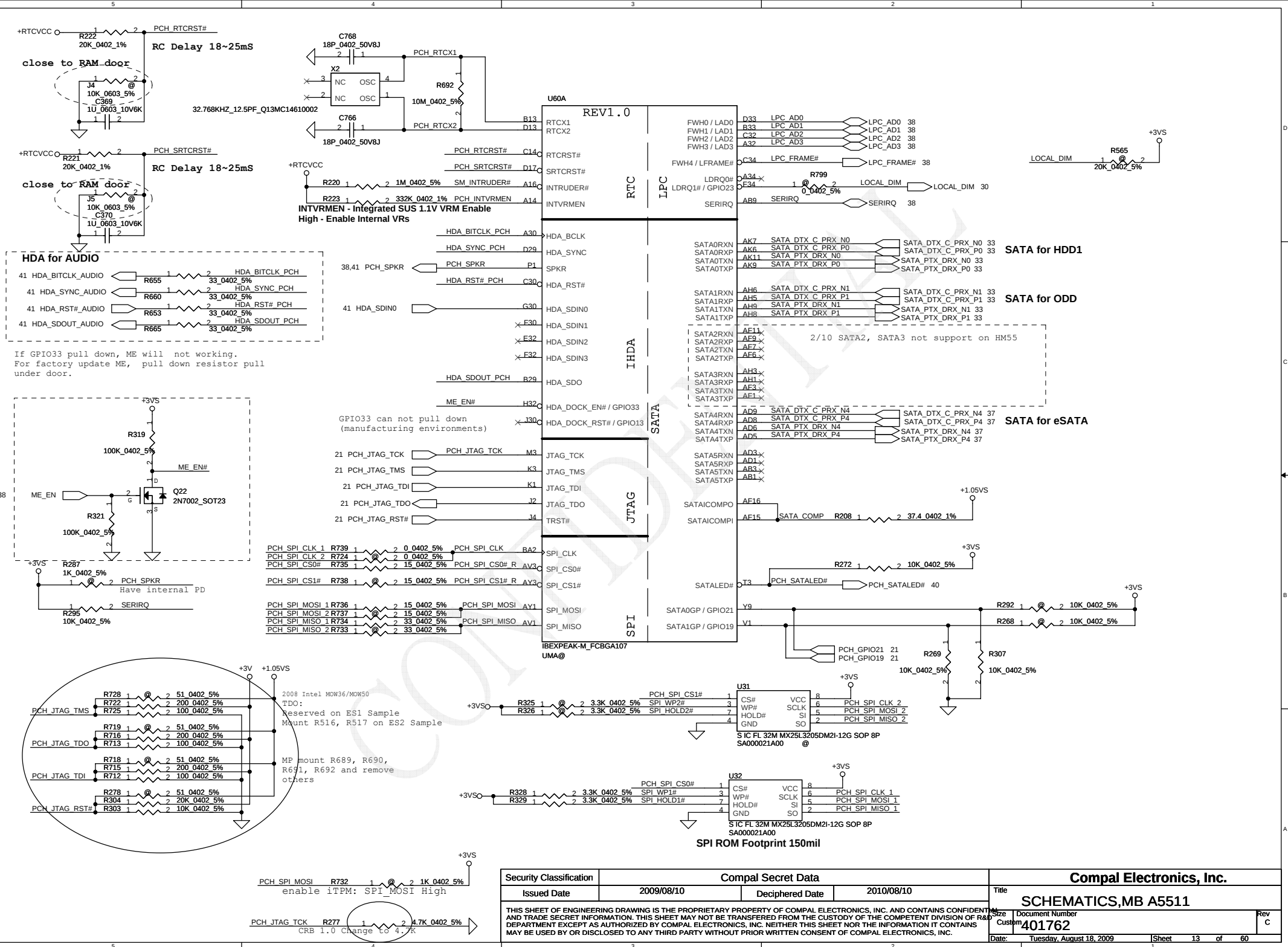
Layout Note: Place these 4 Caps near Command  
and Control signals of DIMM

Layout Note:  
Place near JDIMM2.203 & JDIMM2.204

DDR3 SO-DIMM B  
Standard Type

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                    |            |                 | Compal Secret Data |  |  | Title  |                          |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|--------------------|--|--|--------|--------------------------|----------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                            |            |                 |                    |  |  | Date:  | Tuesday, August 18, 2009 | Sheet 11 of 60 |





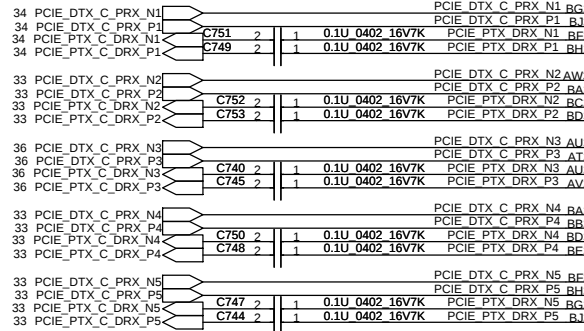
For PCIE LAN

For Wireless LAN

For NEWCRAD

For Mini2

For CardReader



2/10 PCIE7, PCIE8 not support on HM55

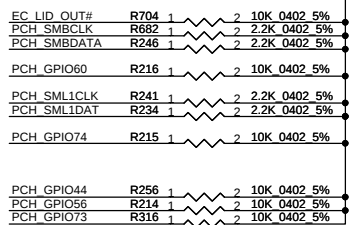
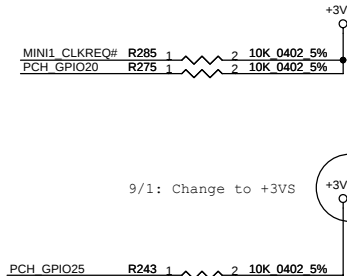
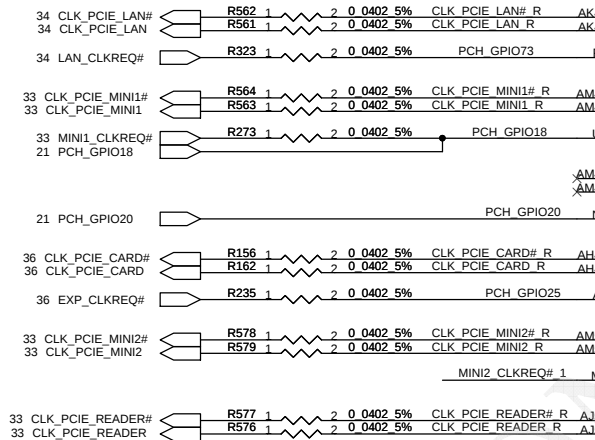
For PCIE LAN

For Wireless LAN

For NEWCRAD

For Mini2

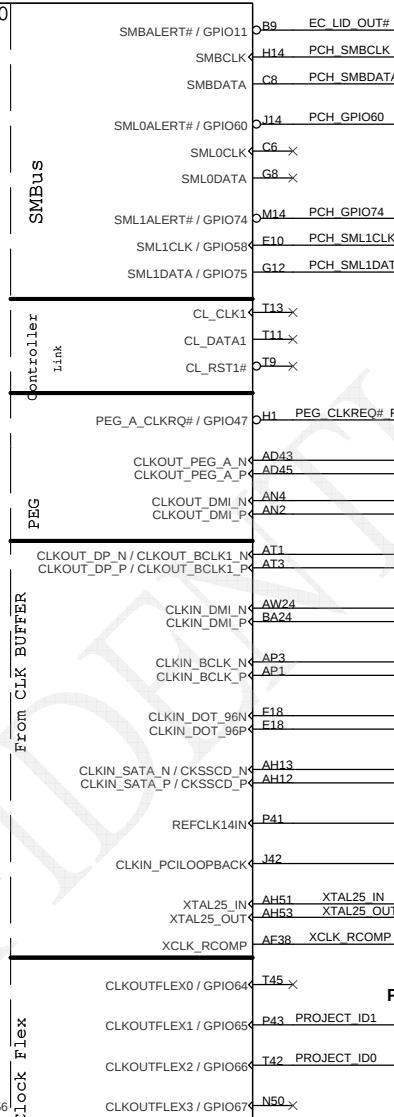
For CardReader



U60B

REV1.0

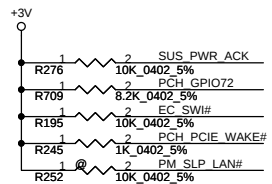
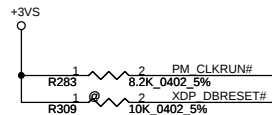
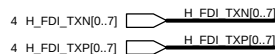
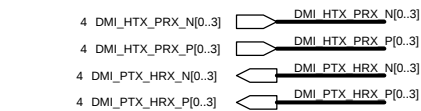
PCI-E



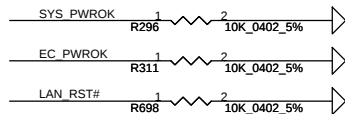
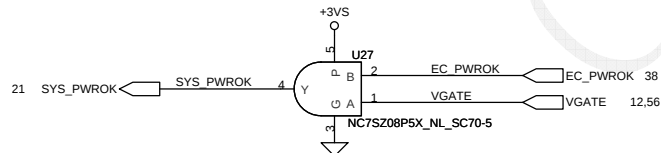
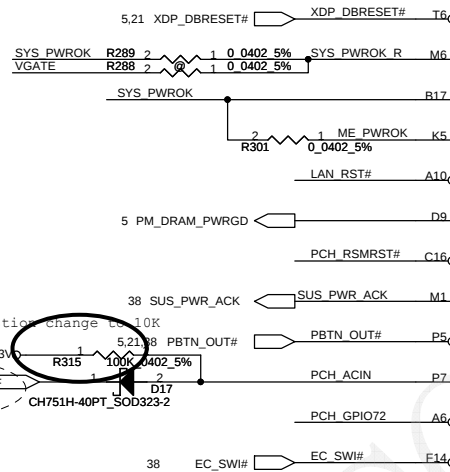
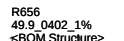
Project Port ID

| Project ID |     |         |
|------------|-----|---------|
| ID1        | ID0 | Project |
| 0          | 0   | JV      |
| 0          | 1   | Future  |

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 14 of 60                 |



+1.05VS



No used Integrated LAN,  
connecting LAN\_RST# to GND

U60C  
REV1.0  
DMI HTX PRX N0 BC24  
DMI HTX PRX N1 B122  
DMI HTX PRX N2 AW20  
DMI HTX PRX N3 B120  
DMI HTX PRX P0 BD24  
DMI HTX PRX P1 BC22  
DMI HTX PRX P2 BA20  
DMI HTX PRX P3 BG20  
DMI PTX HRX N0 BE22  
DMI PTX HRX N1 BE21  
DMI PTX HRX N2 BD20  
DMI PTX HRX N3 BE18  
DMI PTX HRX P0 BD22  
DMI PTX HRX P1 BH21  
DMI PTX HRX P2 BC20  
DMI PTX HRX P3 BD18

DMIORXN  
DMI1RXN  
DMI2RXN  
DMI3RXN  
DMIORXP  
DMI1RXP  
DMI2RXP  
DMI3RXP  
DMIOTXN  
DMI1TXN  
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DMI2TXP  
DMI3TXP  
DMI\_ZCOMP  
DMI\_IRCOMP

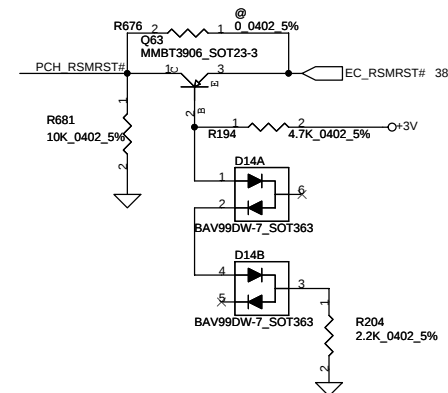
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FDI\_RXN3 B116  
FDI\_RXN4 BA16  
FDI\_RXN5 BE14  
FDI\_RXN6 BA14  
FDI\_RXN7 BC12  
FDI\_RXP0 BB18  
FDI\_RXP1 BE17  
FDI\_RXP2 BC16  
FDI\_RXP3 BG16  
FDI\_RXP4 AW16  
FDI\_RXP5 BD14  
FDI\_RXP6 BB14  
FDI\_RXP7 BD12

FDI\_INT B114 H\_FDI\_INT 4  
FDI\_FSYNC0 BE13 H\_FDI\_FSYNC0 4  
FDI\_FSYNC1 BH13 H\_FDI\_FSYNC1 4  
FDI\_LSYNC0 B112 H\_FDI\_LSYNC0 4  
FDI\_LSYNC1 BG14 H\_FDI\_LSYNC1 4

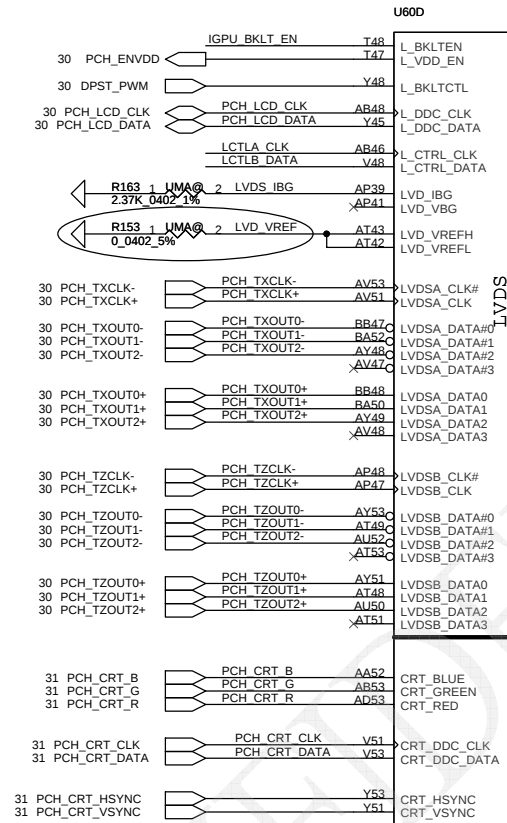
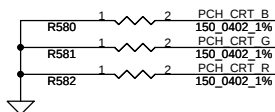
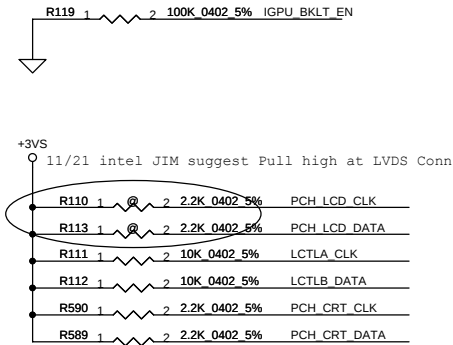
System Power Management

WAKE# J12 PCH\_PCIE\_WAKE# PCH\_PCIE\_WAKE# 33,34,36  
CLKRUN# / GPIO32 Y1 PM\_CLKRUN# PM\_CLKRUN# 38  
SUS\_STAT# / GPIO61 P8 PCH\_GPIO61 @ PAD T8  
SUSCLK / GPIO62 F3 PCH\_GPIO62 @ PAD T10  
SLP\_S5# / GPIO63 F4 PM\_SLP\_S5# 38  
SLP\_S4# H7 PM\_SLP\_S4# 38  
SLP\_S3# P12 PM\_SLP\_S3# 38  
SLP\_M# K8 PM\_SLP\_M# @ PAD T9  
TP23 N2 PM\_SLP\_DSW# @ PAD T19  
PMSYNCH B110 H\_PM\_SYNC 5  
SLP\_LAN# / GPIO29 F6 PM\_SLP\_LAN#

IBEXPEAK-M\_FCBGA107  
UMA@

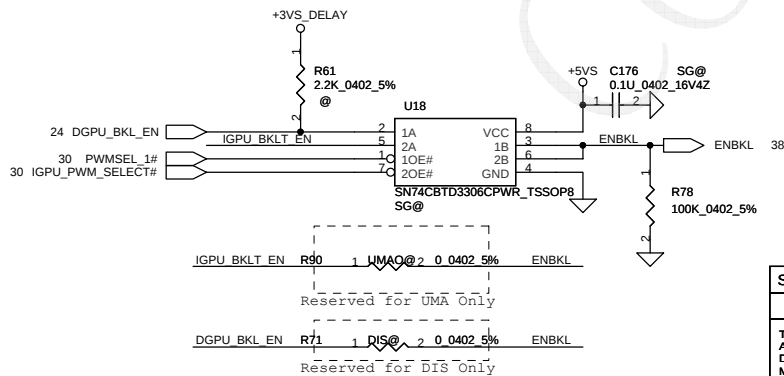
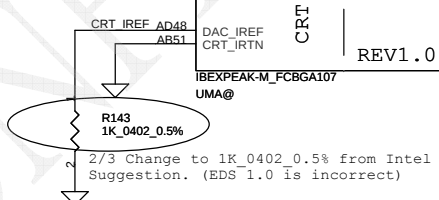


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                           |
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# Digital Display Interface

REV1.0

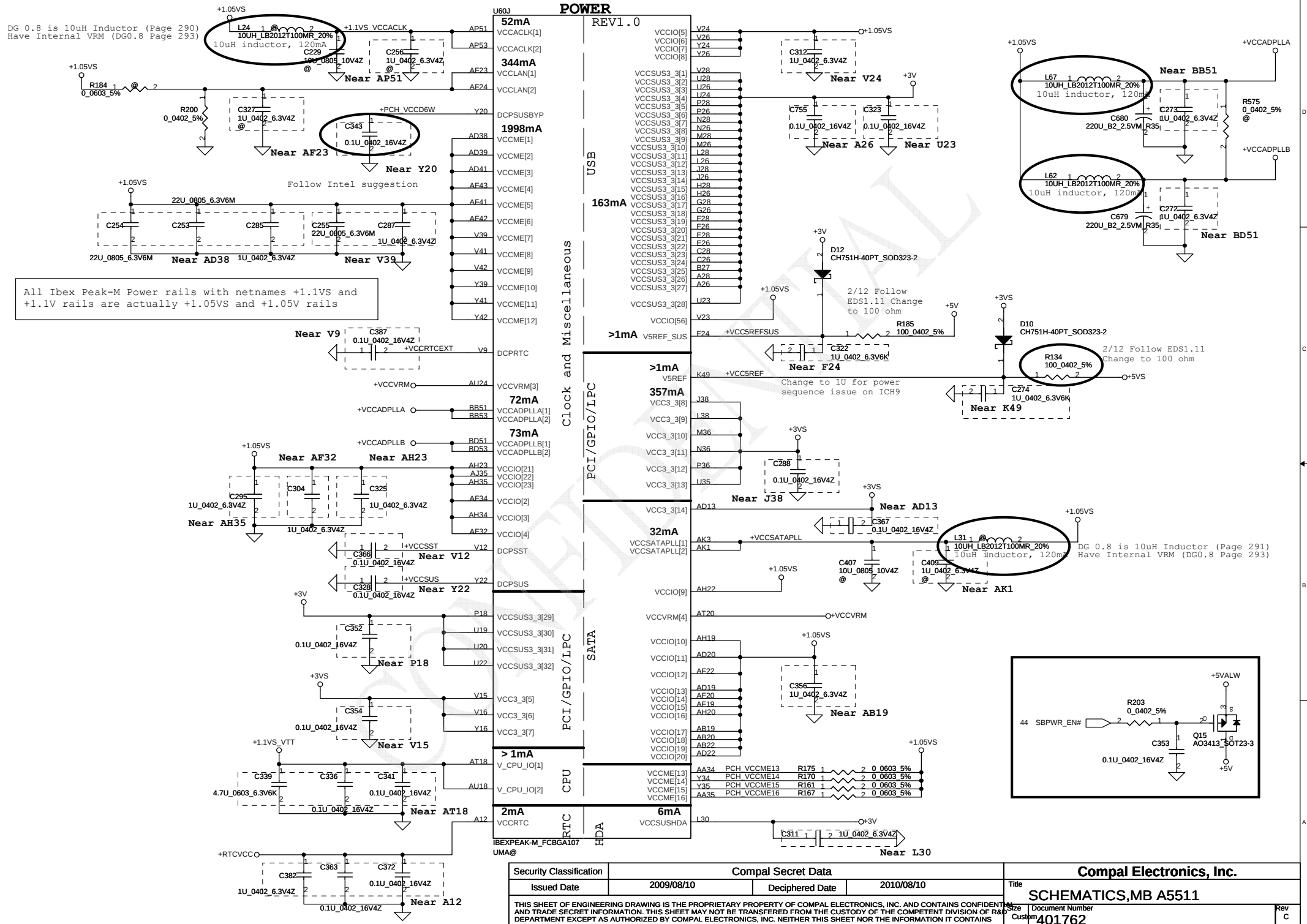


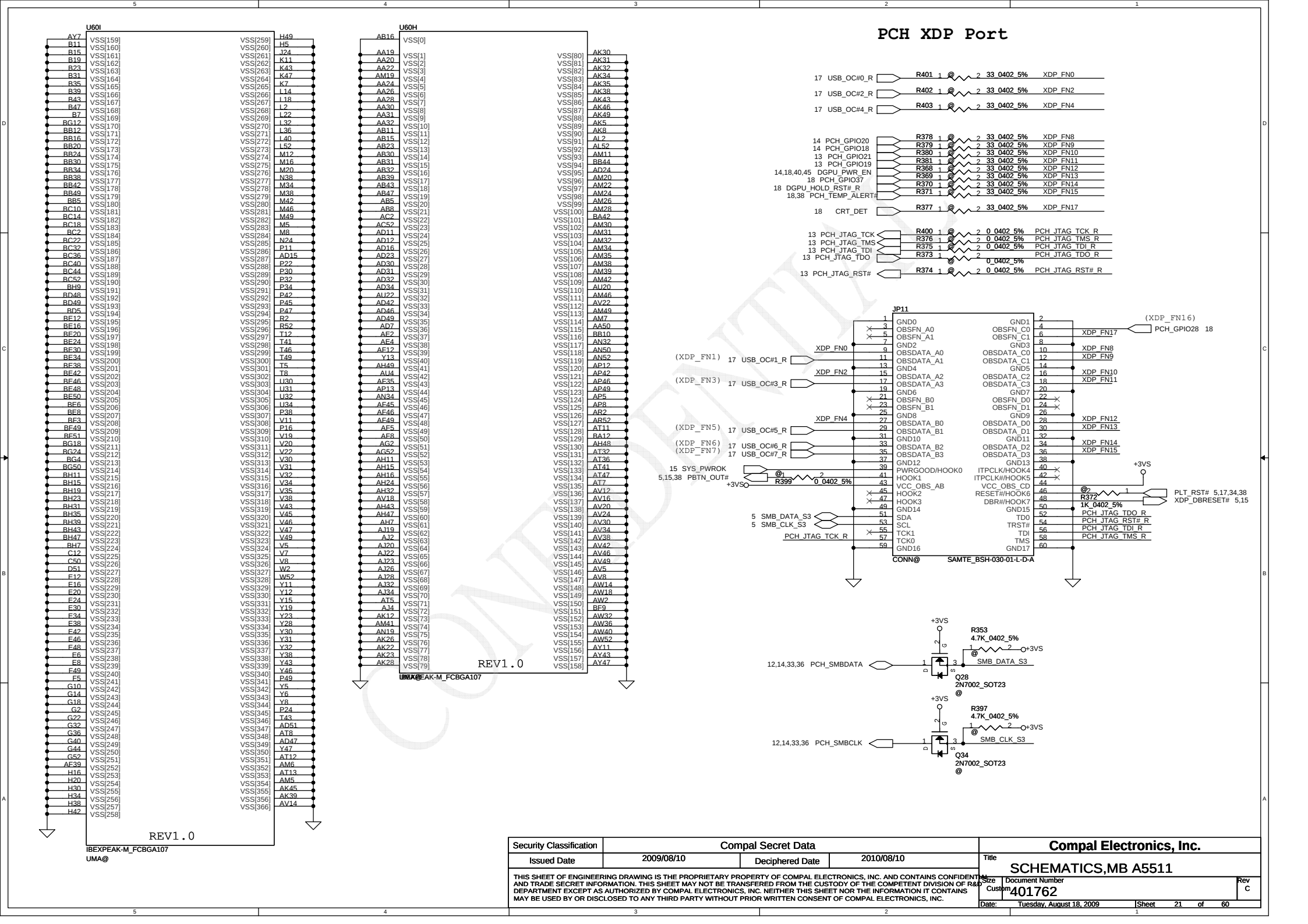
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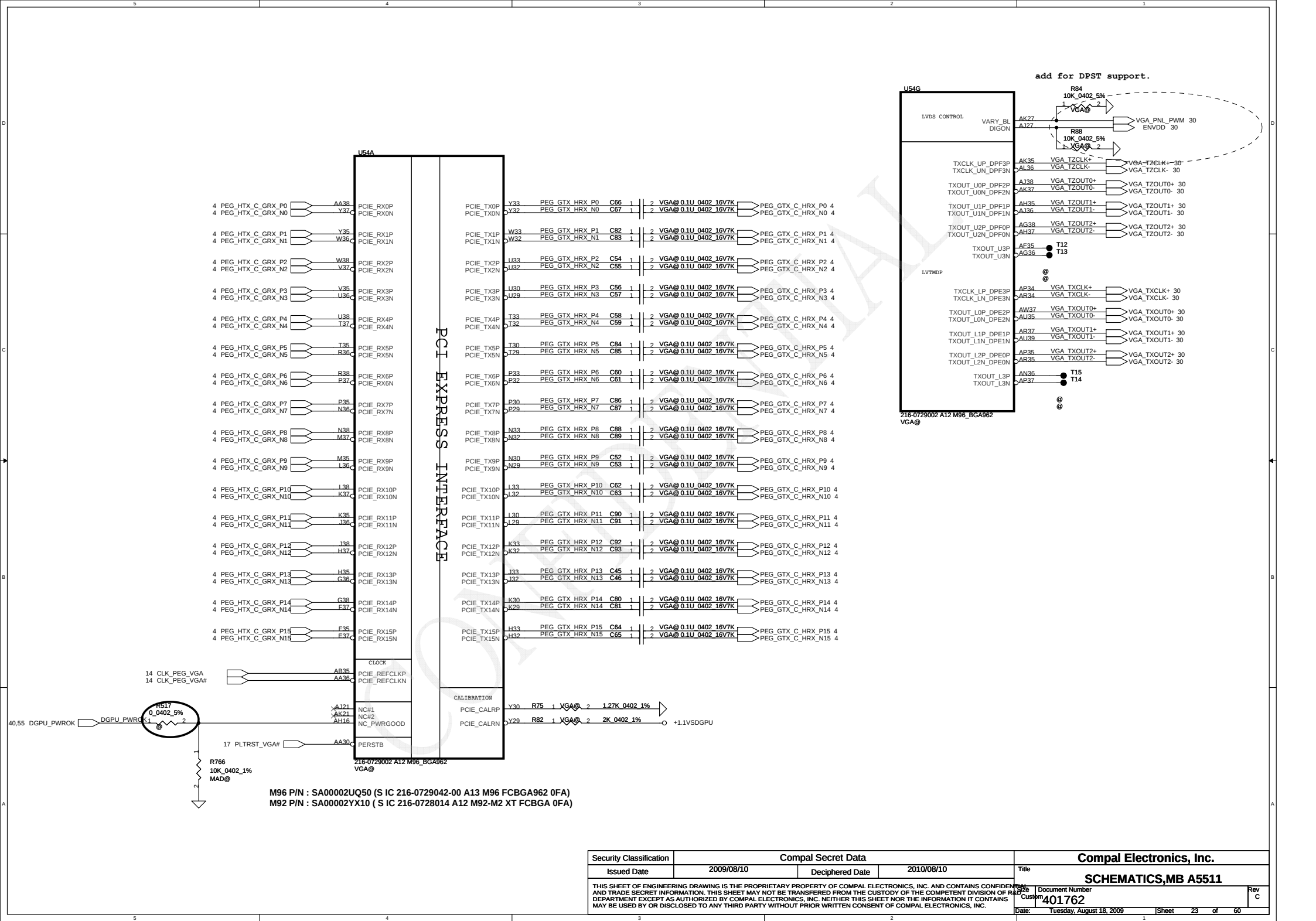






|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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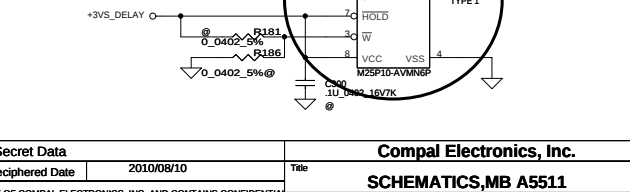
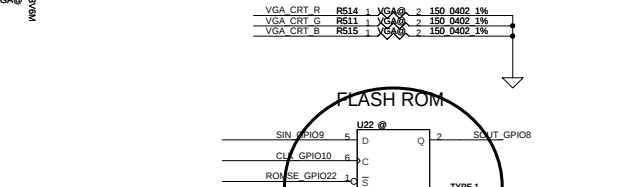
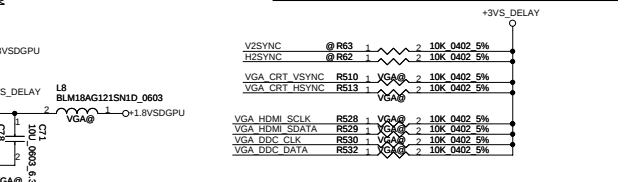
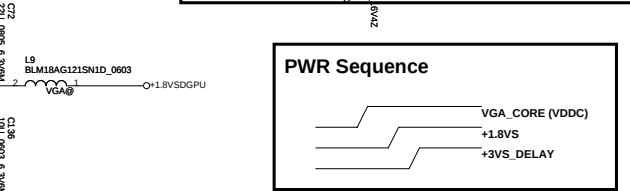
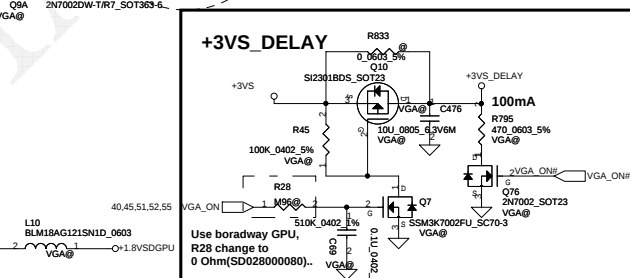
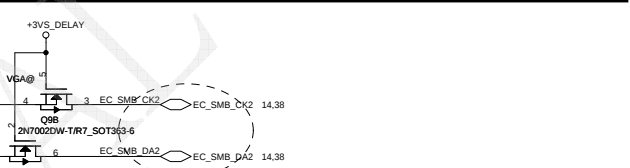
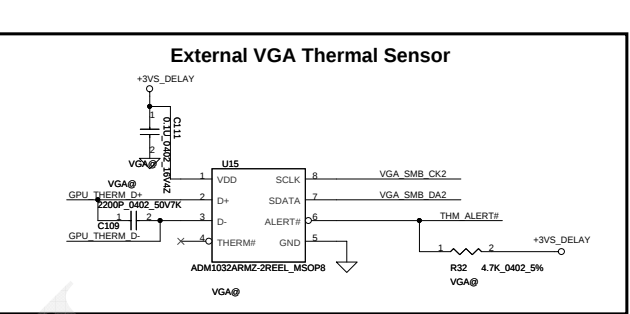
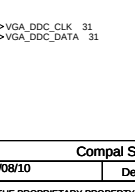
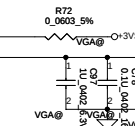
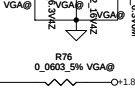
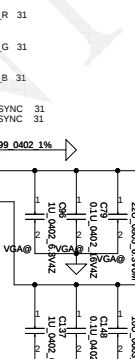
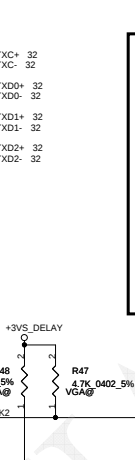
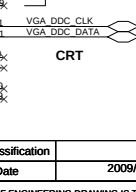
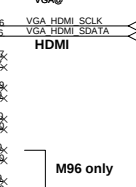
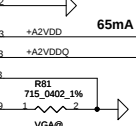
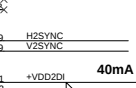
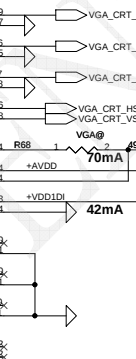
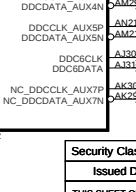
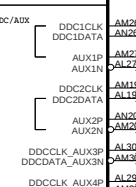
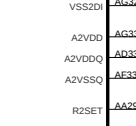
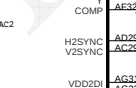
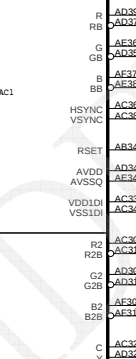
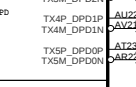
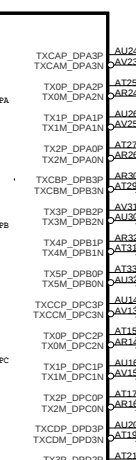
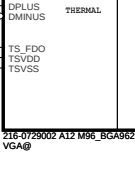
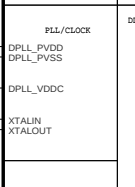
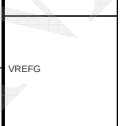
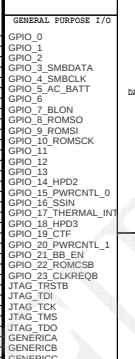
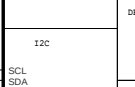
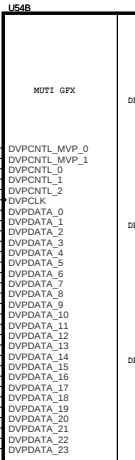
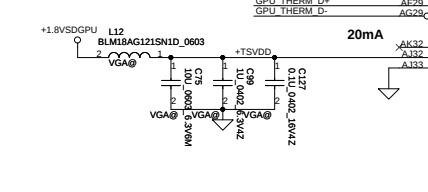
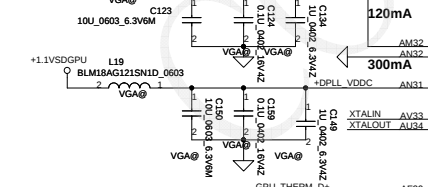
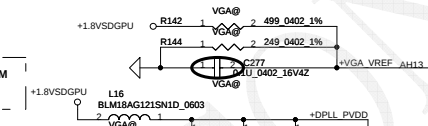
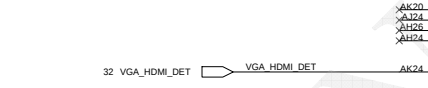
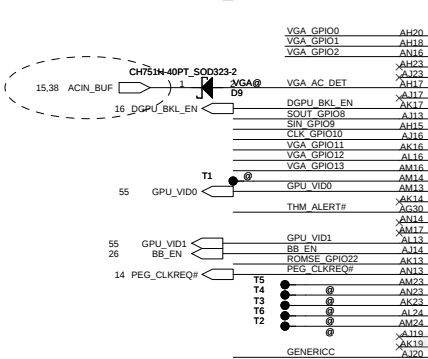
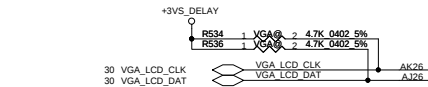
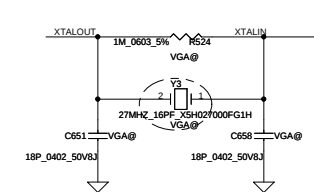
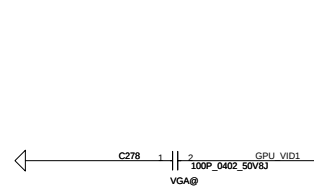
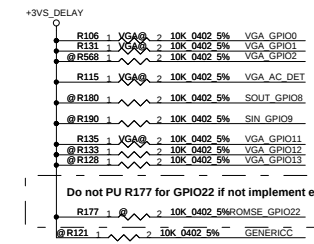
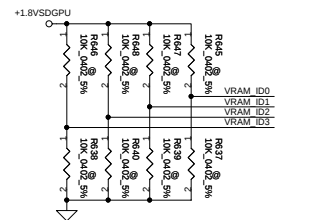




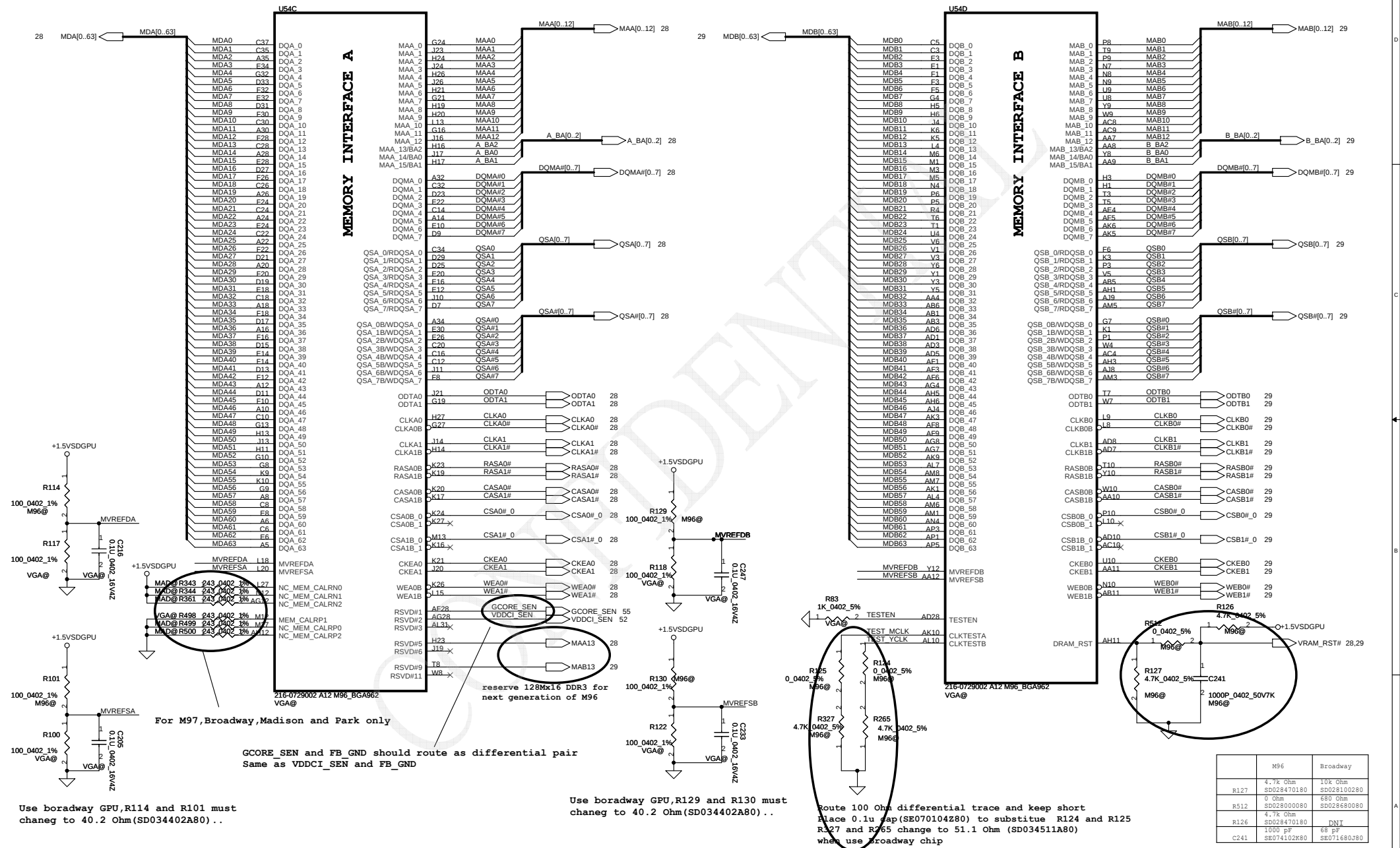
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10         | Deciphered Date | 2010/08/10 | Title                    |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Document Number          | 401762                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date                     | Tuesday, August 18, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Sheet                    | 23 of 60                 |

| Strap Name                          |                            | Pin Straps Description                                                                                                                                                                                                                                                                                      | Default |
|-------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| TX_PWRS_ENB                         | GPIO0                      | Transmitter Power Saving Enable<br>0: 50% Tx output swing for mobile mode<br>1: full Tx output swing (Default setting for Desktop)                                                                                                                                                                          | 0       |
| TX_DEEMPH_EN                        | GPIO1                      | PCI Express Transmitter De-emphasis Enable<br>0: Tx de-emphasis disabled for mobile mode<br>1: Tx de-emphasis enabled (Default setting for desktop)                                                                                                                                                         | 0       |
| BIF_GEN2_EN                         | GPIO2                      | 0= Advertises the PCI-E device as 2.5 GT/s capable at power-on<br>1= Advertises the PCI-E device as 5.0 GT/s capable at power-on<br>5.0 GT/s capability will be controlled by software                                                                                                                      | 0       |
| STRAP_BIF                           | GPIO22                     | Enable CLKREQ# Power Management<br>0: CLKREQ# power management capability is disabled<br>1: CLKREQ# power management capability is enabled                                                                                                                                                                  | 0       |
| CONFIG[2]<br>CONFIG[1]<br>CONFIG[0] | GPIO13<br>GPIO12<br>GPIO11 | GPIO13,12,11 (config 2.1.0) :<br>a) If BIOS_ROM_EN = 1, then Config[2:0] defines the ROM type.<br>128 MB 001<br>256 MB 001<br>b) If BIOS_ROM_EN = 0, then Config[2:0] defines the primary memory aperture size.<br>64 MB 010                                                                                | 001     |
| BIOS_ROM_EN                         | GPIO22                     | Enable external BIOS ROM device<br>0: Disable, 1: Enable                                                                                                                                                                                                                                                    | 0       |
| AUD[1]<br>AUD[0]                    | HSYNC<br>VSYNC             | 00: No audio function; 10: Audio for DisplayPort only;<br>01: Audio for DisplayPort and HDMI if adapter is detected;<br>11: Audio for both DisplayPort and HDMI                                                                                                                                             | 11      |
| CCBPASS                             | GENERICC                   |                                                                                                                                                                                                                                                                                                             | 0       |
| SMS_EN_HARD                         | H2SYNC                     |                                                                                                                                                                                                                                                                                                             | 0       |
| VIP_DEVICE_STRAP_DIS                | V2SYNC                     | If VIP_DEVICE_STRAP_EN is set to ?? then this pin is used to sense whether a VIP slave device is connected to the VIP Host interface.<br>If VIP_DEVICE_STRAP_EN is set to ?? then this pin is not used as a strap at all (i.e. its value during reset is unimportant), and it can be used as a regular GPIO | 0       |

| Location | VRAM_ID3 | VRAM_ID2 | VRAM_ID1 | VRAM_ID0 |
|----------|----------|----------|----------|----------|
| VRAM     |          |          |          |          |
| Samsung  | 0        | 0        | 0        | 0        |
| HYNIX    | 1        | 0        | 0        | 0        |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                          |
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| Deciphered Date                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2010/08/10               | Rev C                    |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Document Number          | Sheet 24 of 60           |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Tuesday, August 18, 2009 |                          |

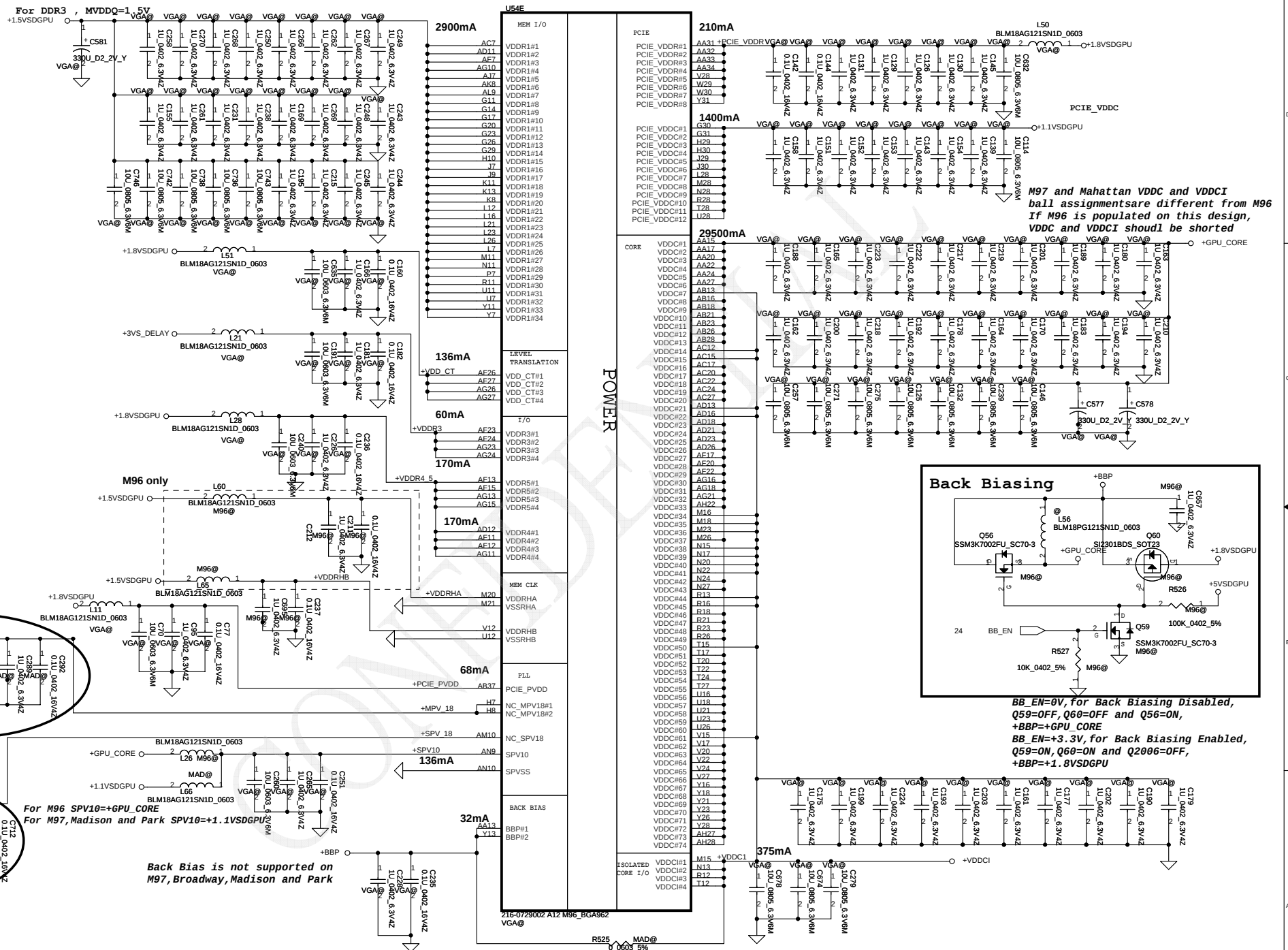


Use boardway GPU, R114 and R101 must change to 40.2 Ohm (SD034402A80) ..

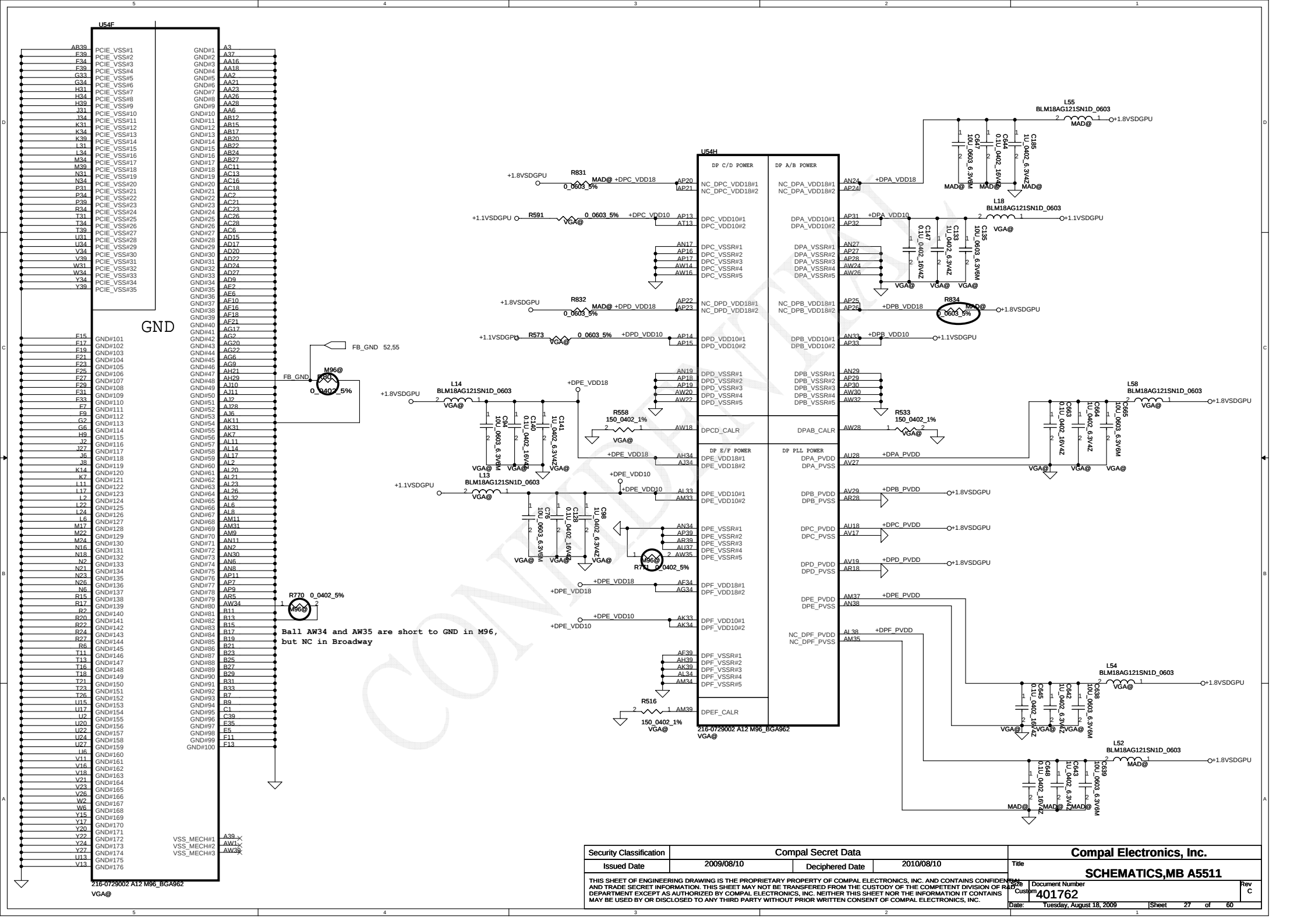
Use boardway GPU, R129 and R130 must change to 40.2 Ohm (SD034402A80) ..

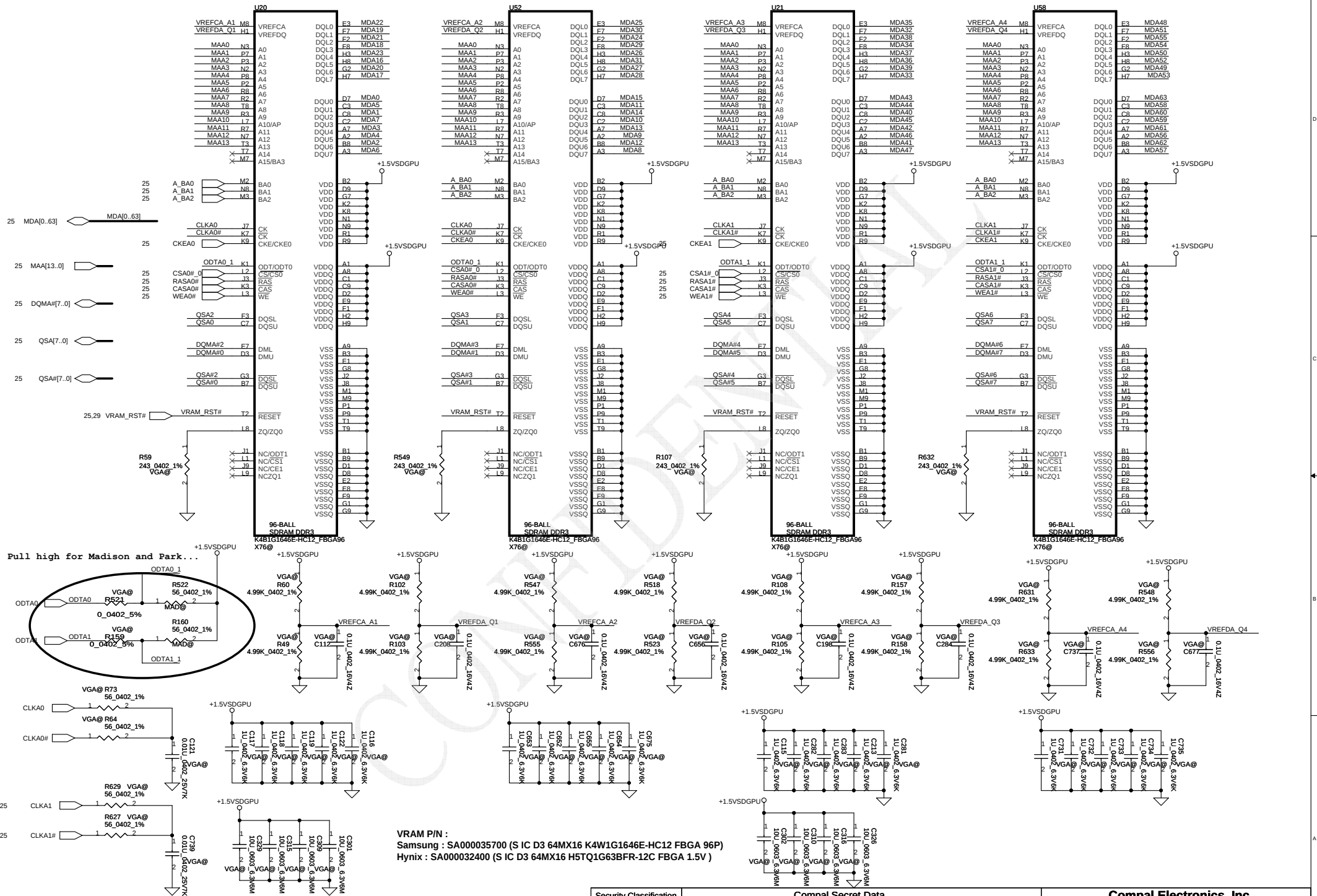
Route 100 Ohm differential trace and keep short. Place 0.1u gap (SE070104280) to substitute R124 and R125. R327 and R265 change to 51.1 Ohm (SD034511A80) when use Broadway chip

|      | M96                     | Broadway               |
|------|-------------------------|------------------------|
| R127 | 4.7k Ohm<br>SD028470180 | 10k Ohm<br>SD028100280 |
| R512 | 0 Ohm<br>SD028000080    | 680 Ohm<br>SD028680080 |
| R126 | 4.7k Ohm<br>SD028470180 | DNI                    |
| C241 | 1000 pF<br>SE074102K80  | 68 pF<br>SE071680J80   |

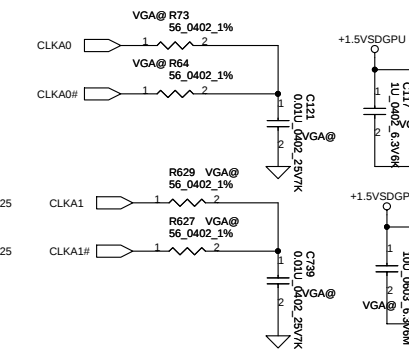
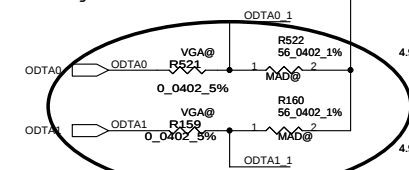


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                    |            | Date: Tuesday, August 18, 2009 | Sheet 26 of 60 |



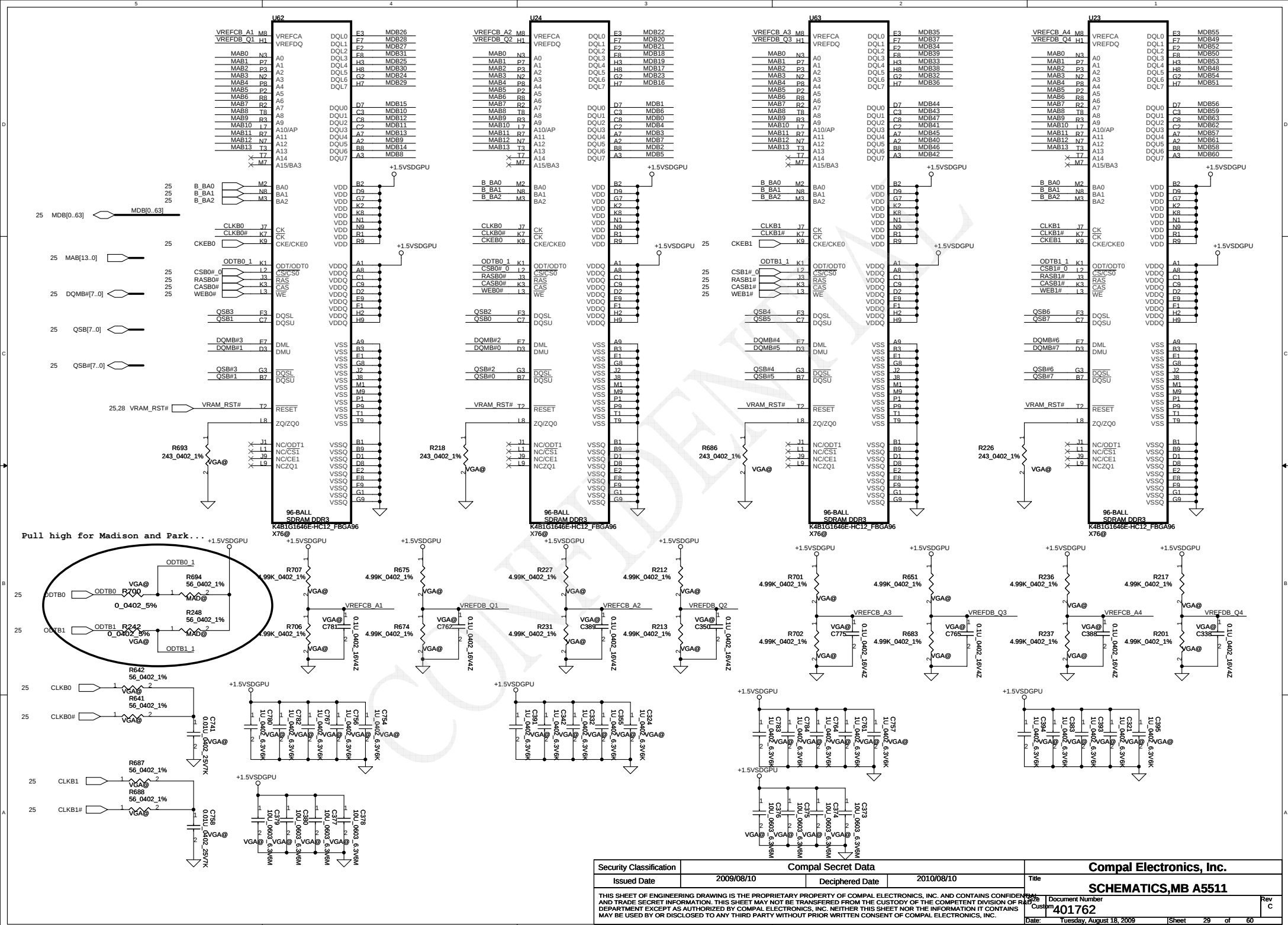


Pull high for Madison and Park...

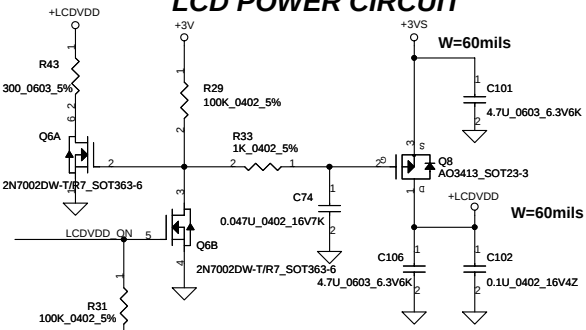


VRAM PIN :  
Samsung : SA000035700 (S IC D3 64MX16 K4W1G1646E-HC12 FBGA 96P)  
Hynix : SA000032400 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA 1.5V)

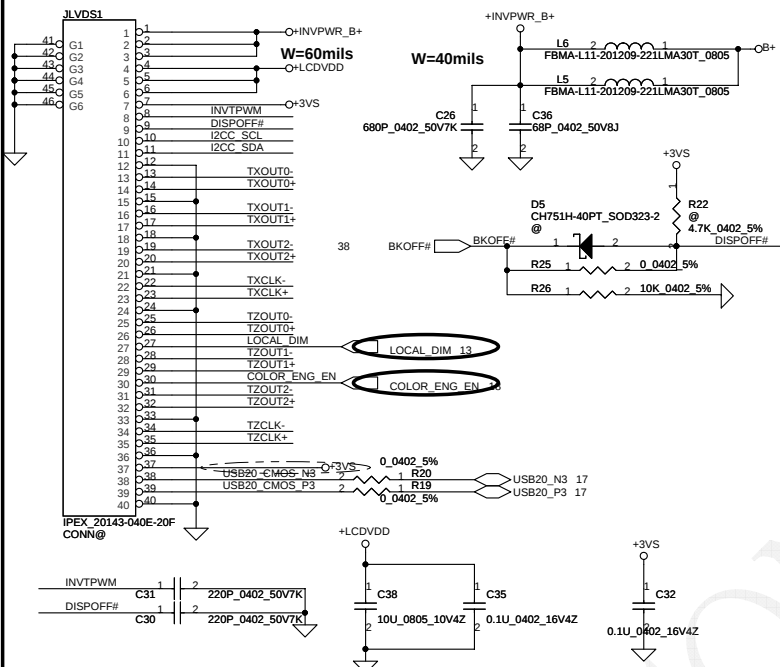
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  | Customer                 |  |                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  | Document Number          |  | Rev                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  | 401762                   |  | C                        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  | Date:                    |  | Tuesday, August 18, 2009 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  | Sheet                    |  | 28 of 60                 |  |



## LCD POWER CIRCUIT

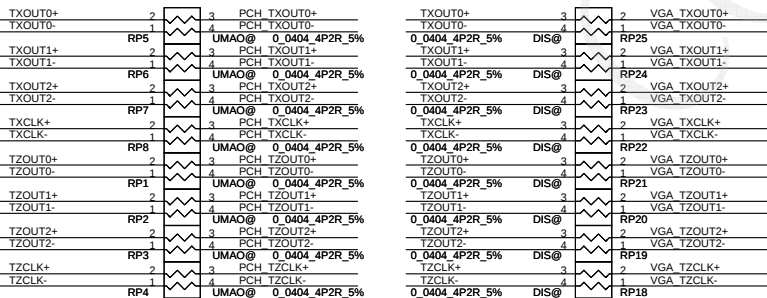


## LED PANEL Conn.



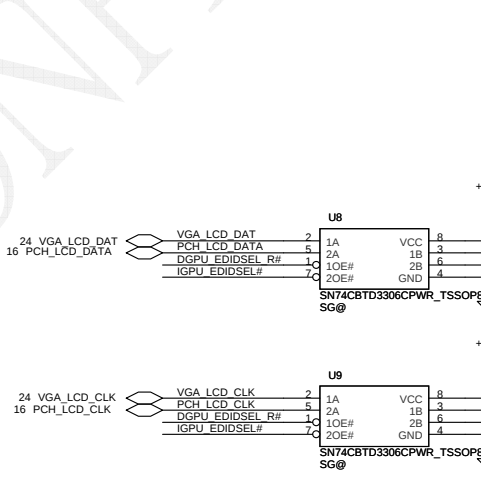
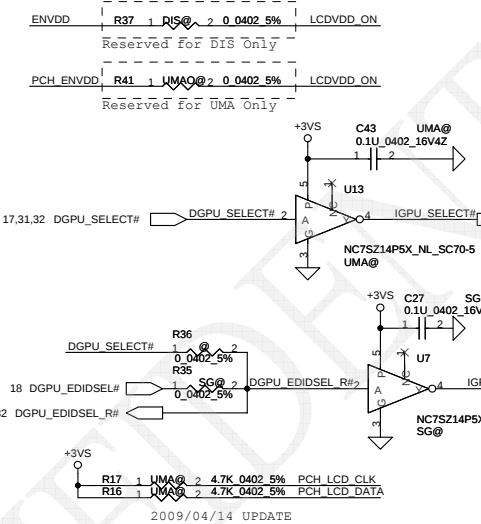
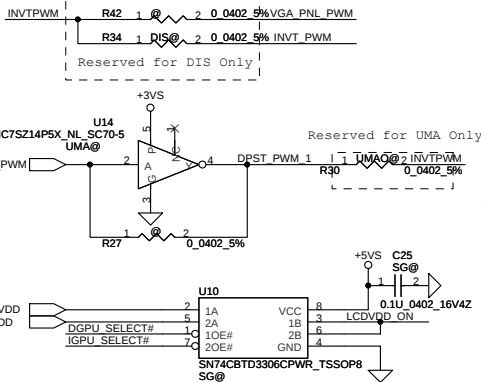
## UMA ONLY

## DIS ONLY

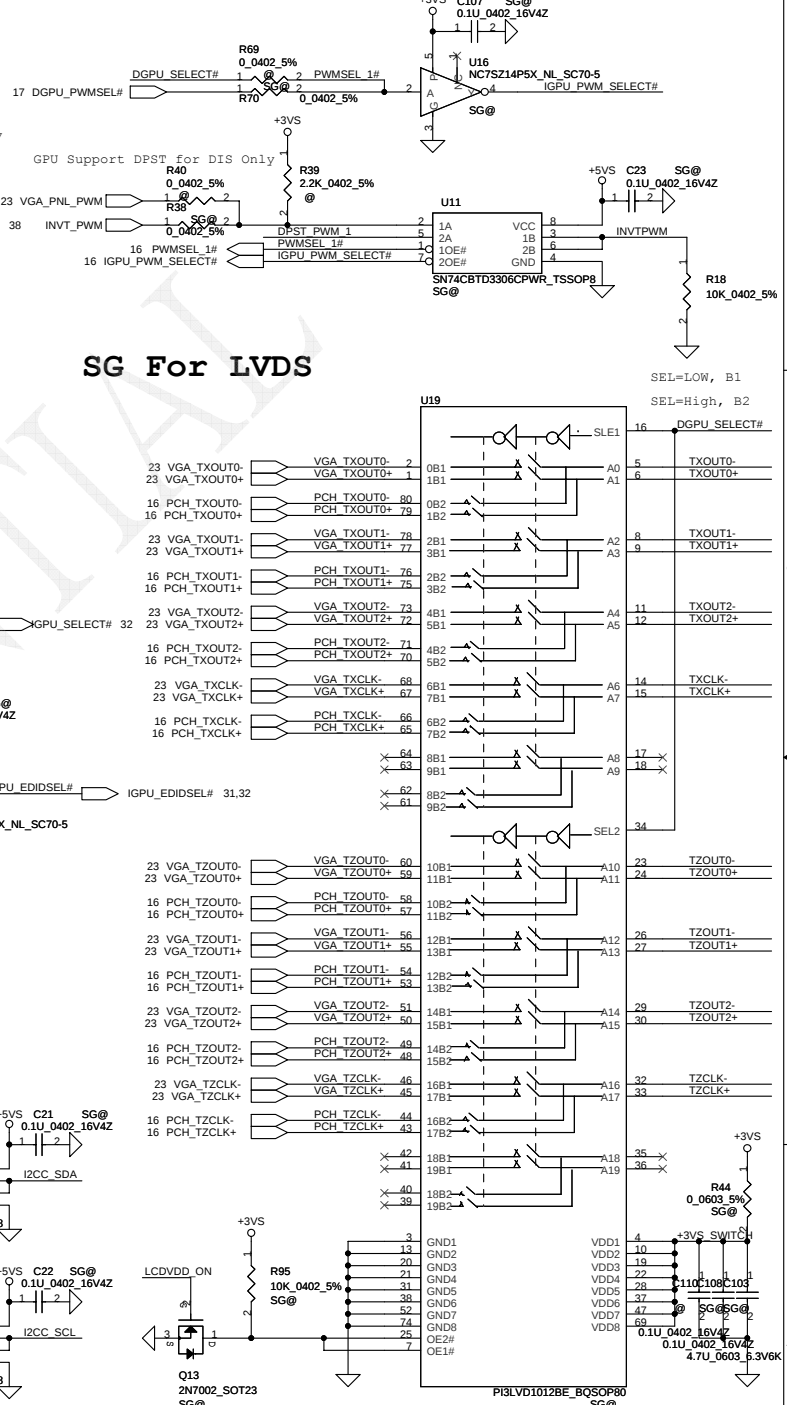


PCH\_LCD\_CLK R109 1 UMA@ 0.0404 4P2R 5% I2CC\_SCL  
PCH\_LCD\_DATA R98 1 UMA@ 0.0404 4P2R 5% I2CC\_SDA

VGA\_LCD\_CLK R97 1 DIS@ 0.0404 4P2R 5% I2CC\_SCL  
VGA\_LCD\_DATA R99 1 DIS@ 0.0404 4P2R 5% I2CC\_SDA

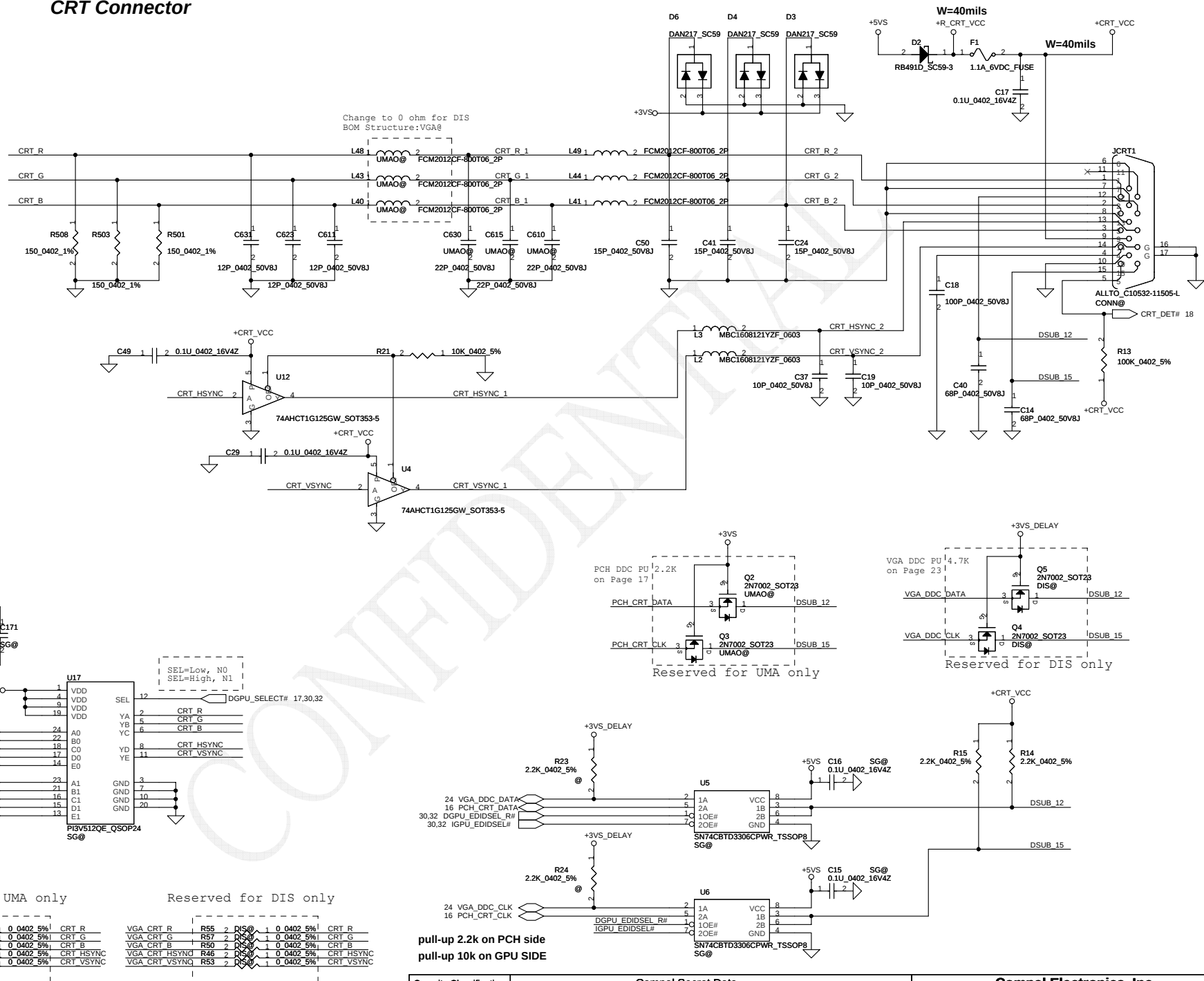


## SG For LVDS

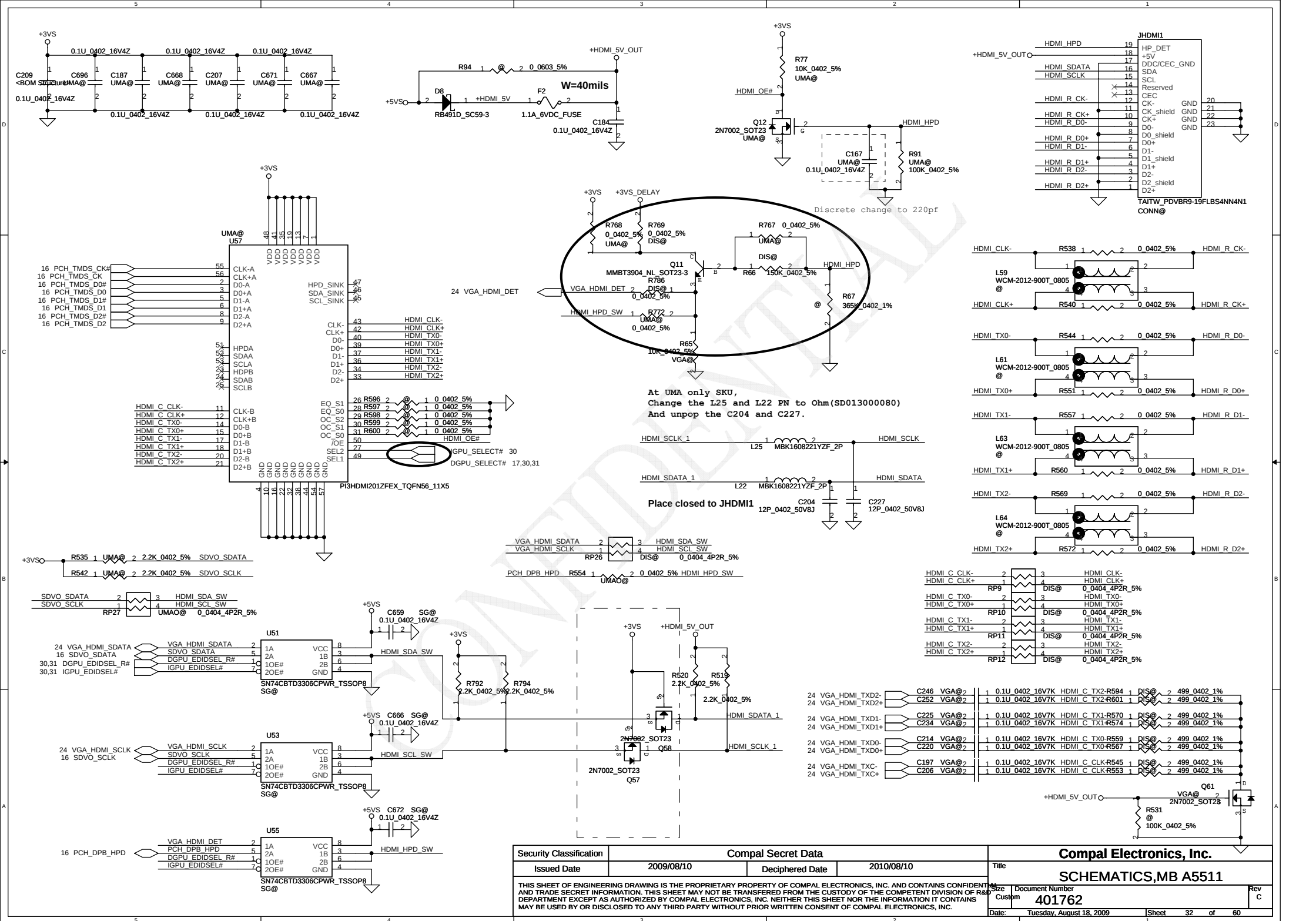


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Tuesday, August 18, 2009 | Sheet 30 of 60 |

### ***CRT Connector***

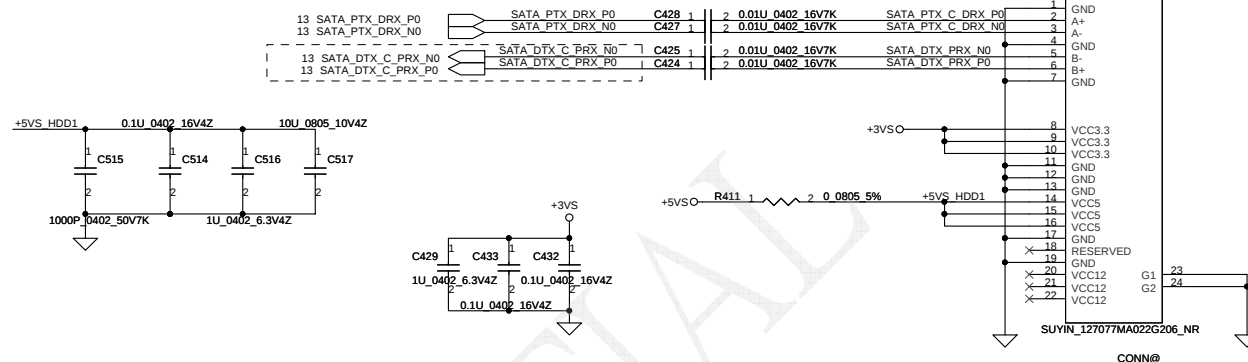


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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            | Tuesday, August 18, 2009 |            | Sheet                    | 31 of 60           |



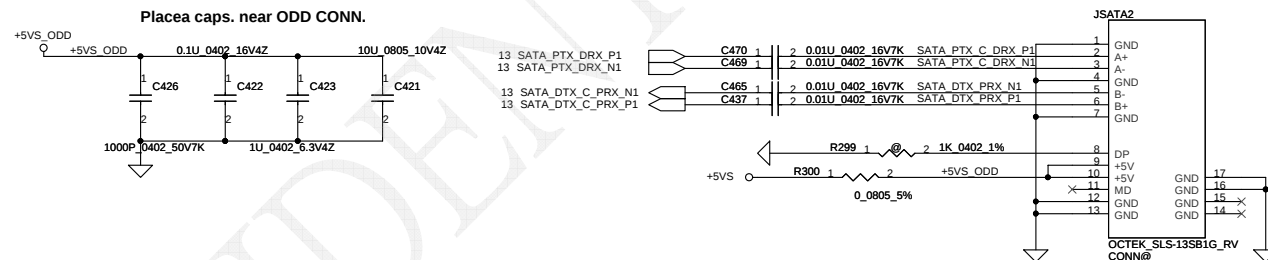
# SATA HDD1 Conn.

CL 4.0 mm



# SATA ODD Conn.

CL 6.0 mm



# Card Reader & MINI CARD x2 (WLAN & TV)

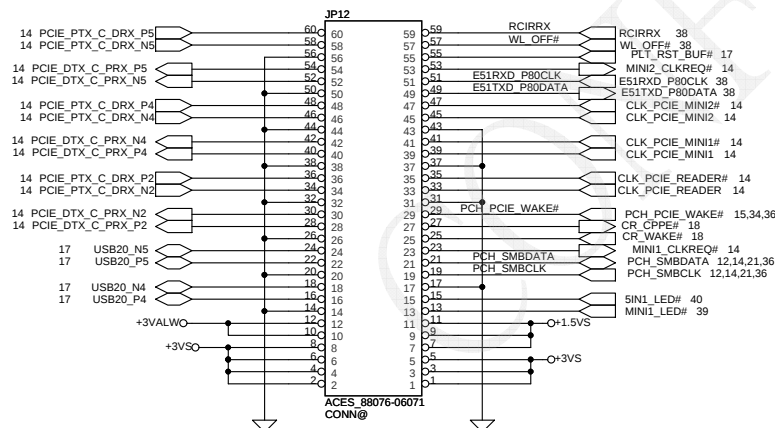
## Card Reader

## TV

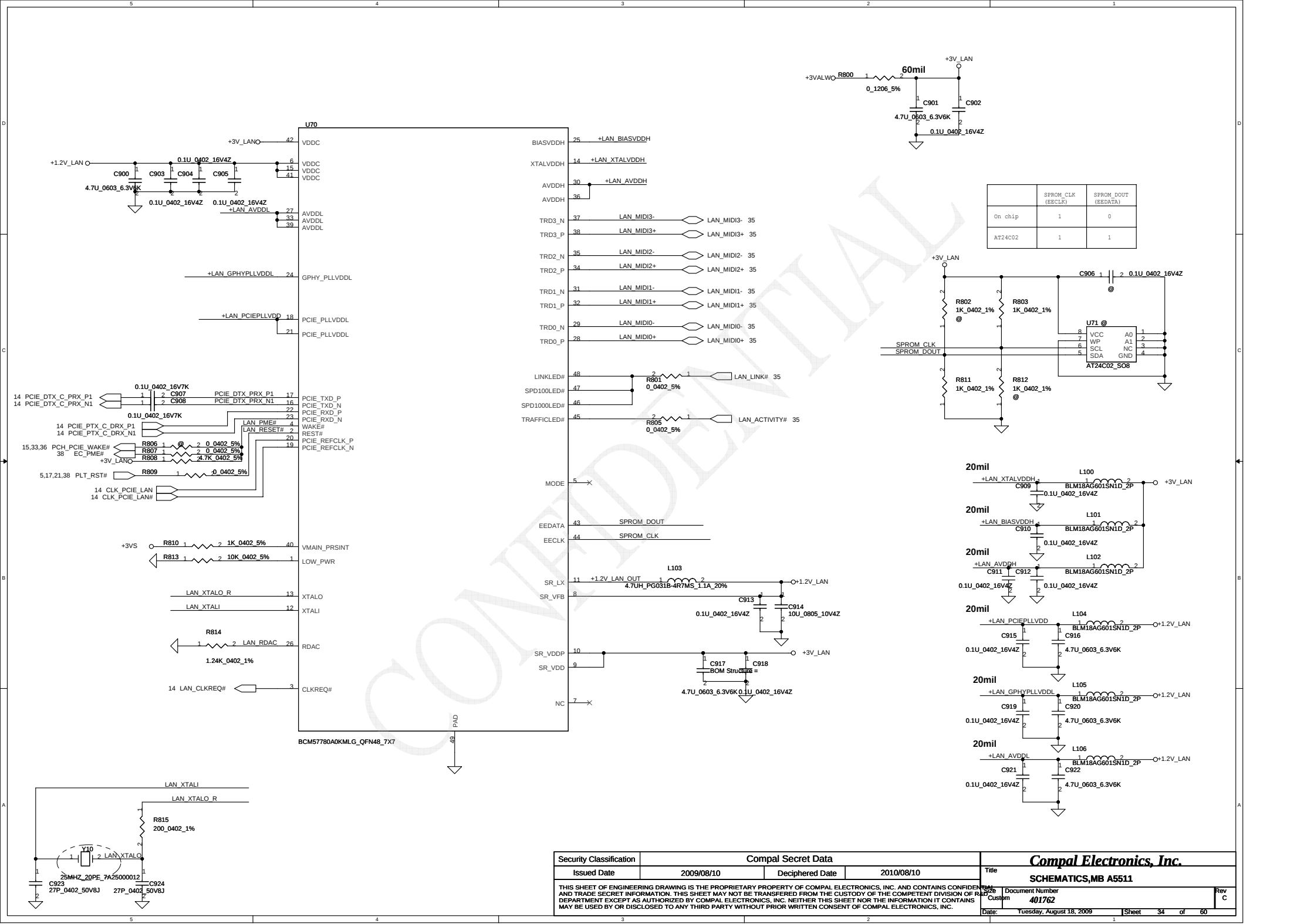
## WLAN

## TV

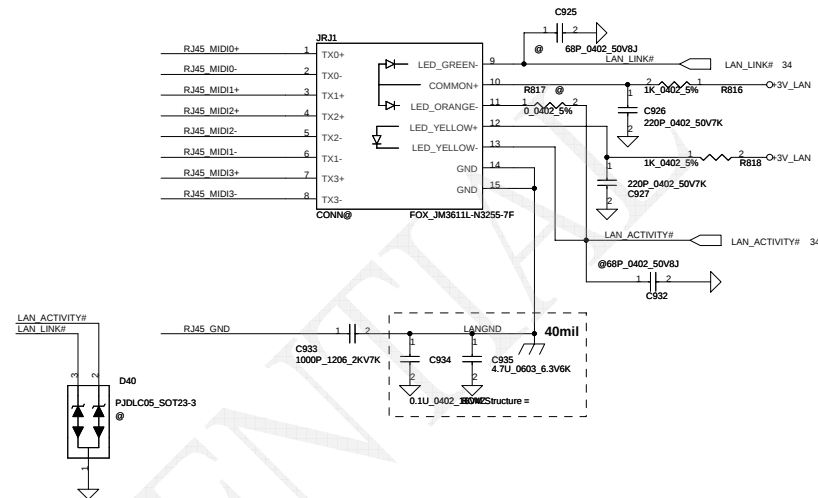
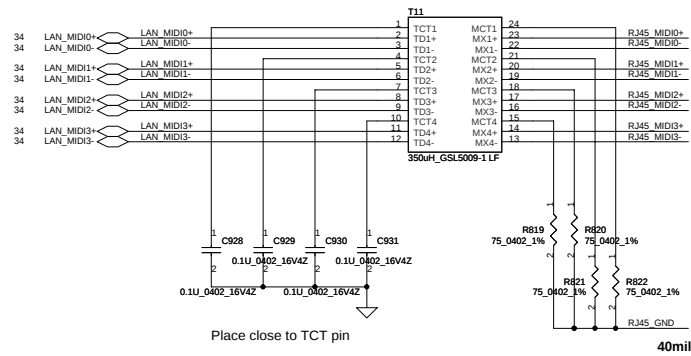
## WLAN



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                 |  |                          |  |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                 |  |                          |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  | Sheet           |  | 33 of 60                 |  |

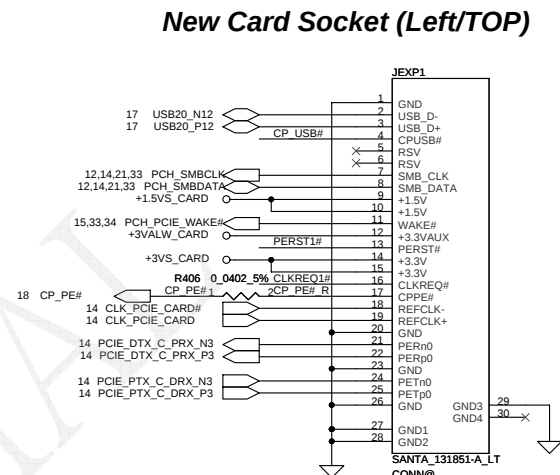
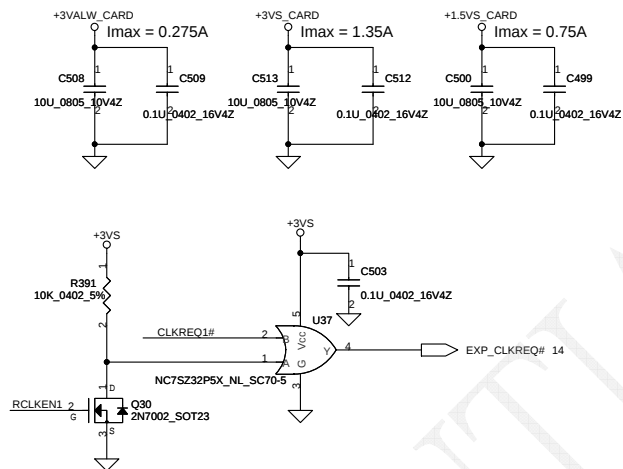
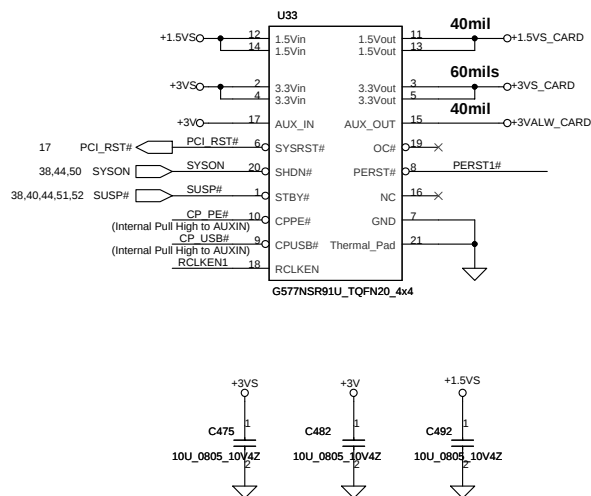


### LAN Connector

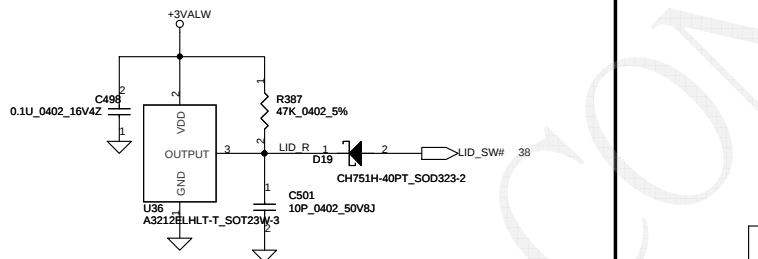


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                                                |                          |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|----------------------------------------------------------------|--------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b><br><b>SCHEMATICS, MB A5511</b> |                          |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10         | Deciphered Date | 2010/08/10 | Title                                                          |                          |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                                                | 401762                   | C              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                                                          | Tuesday, August 18, 2009 | Sheet 35 of 60 |

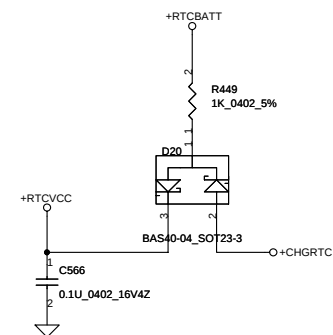
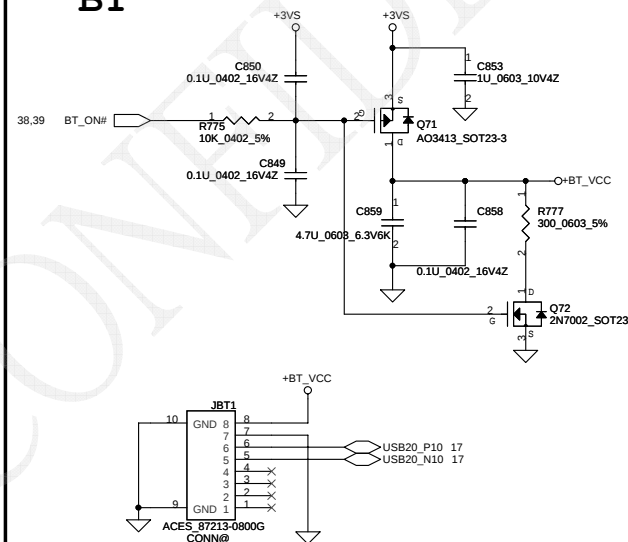
## New Card Power Switch



### Lid Switch (Hall Effect Switch)

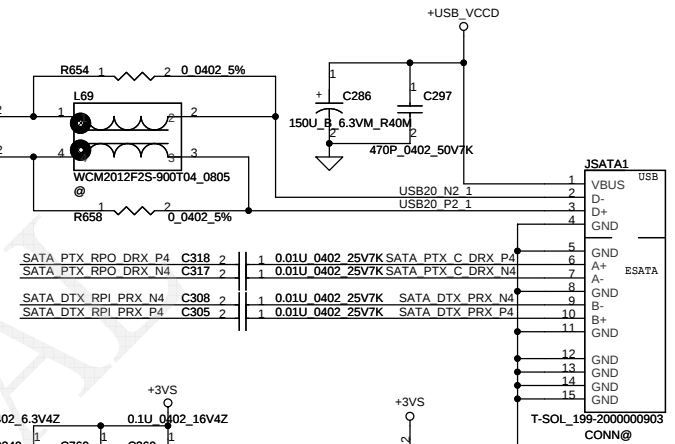
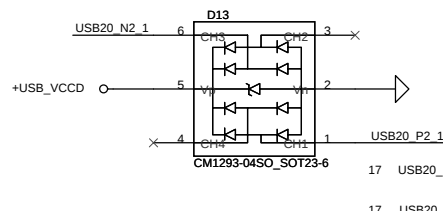
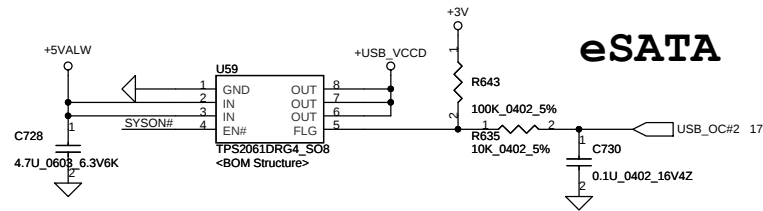


## BT

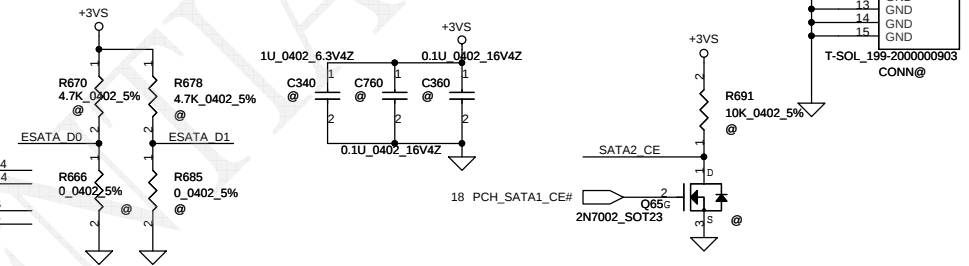
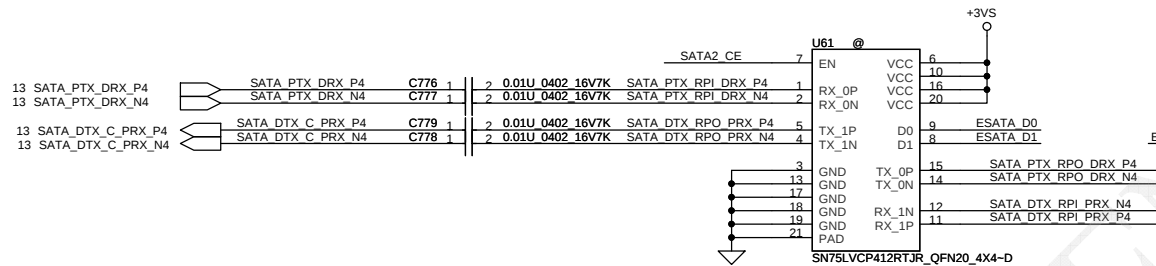
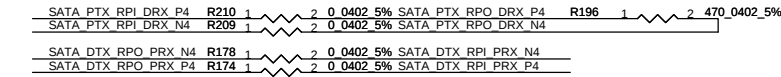


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                                                |                 |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|----------------------------------------------------------------|-----------------|-----|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b><br><b>SCHEMATICS, MB A5511</b> |                 |     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10         | Deciphered Date | 2010/08/10 | Title                                                          |                 |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                                                | 401762          | C   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: Tuesday, August 18, 2009                                 | Sheet 36 of 60  |     |

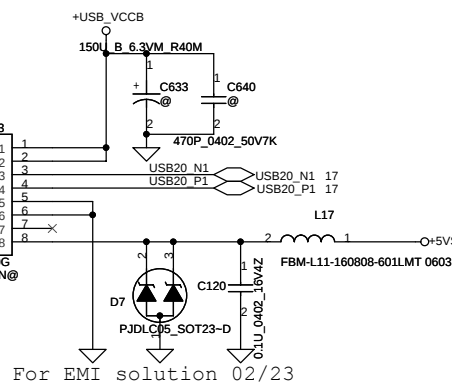
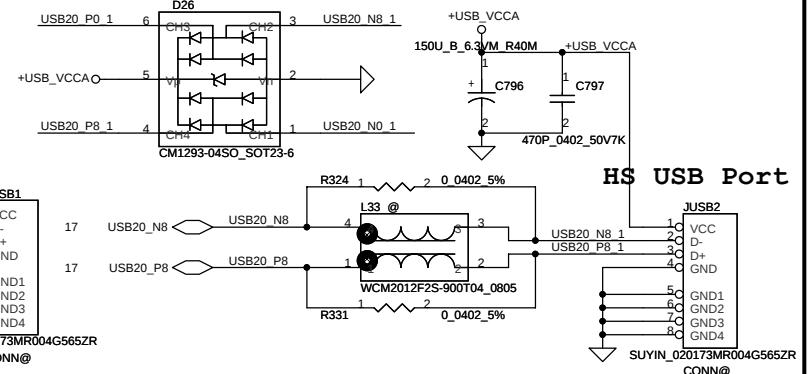
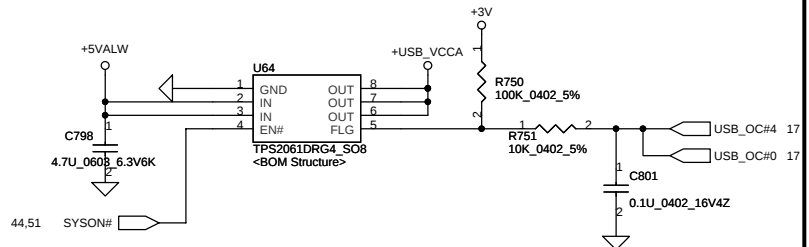
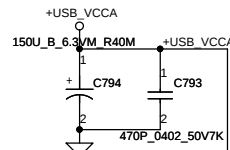
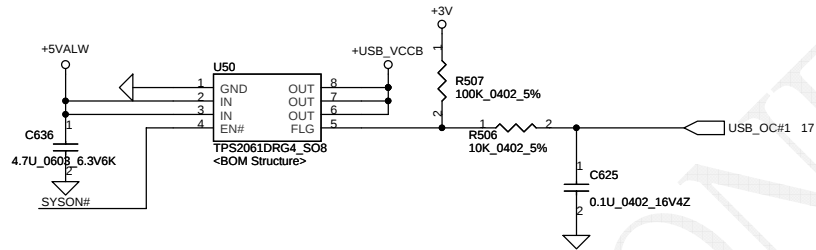
# eSATA



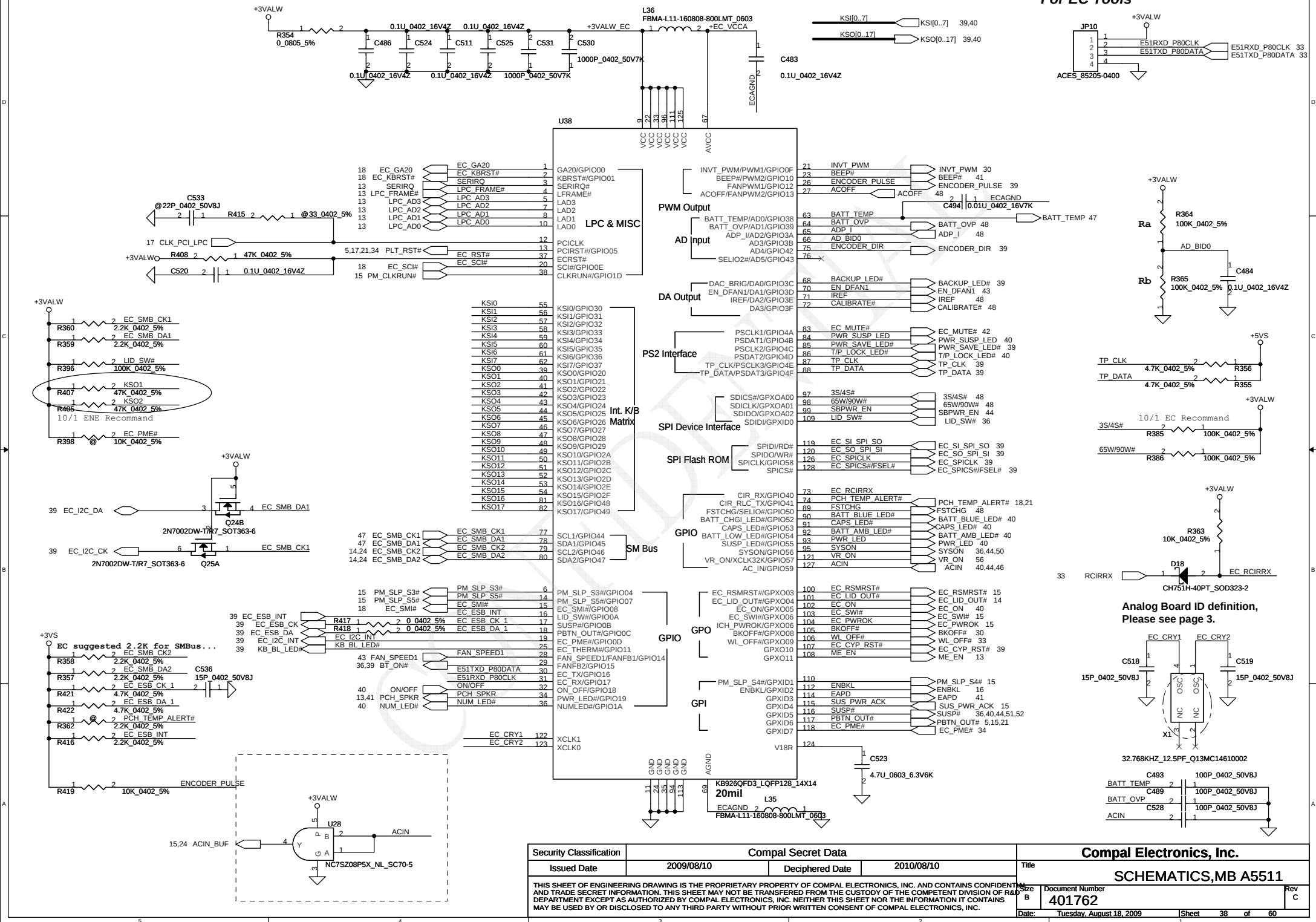
| D0 | D1 | Function                         |
|----|----|----------------------------------|
| 0  | 0  | default; CH0/CH1 ->0dB           |
| 0  | 1  | CH0->2.5dB pre-emphasis;CH1->0dB |
| 1  | 0  | CH1->2.5dB pre-emphasis;CH0->0dB |
| 1  | 1  | CH0/CH1->2.5dB pre-emphasis      |

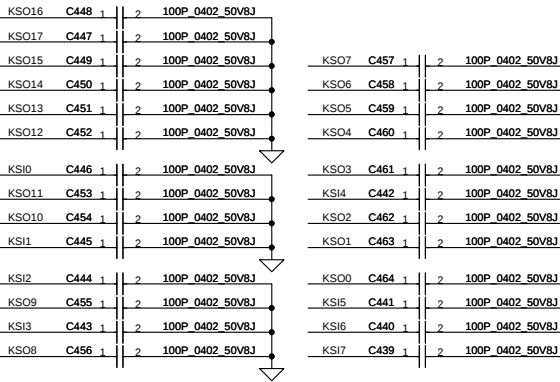
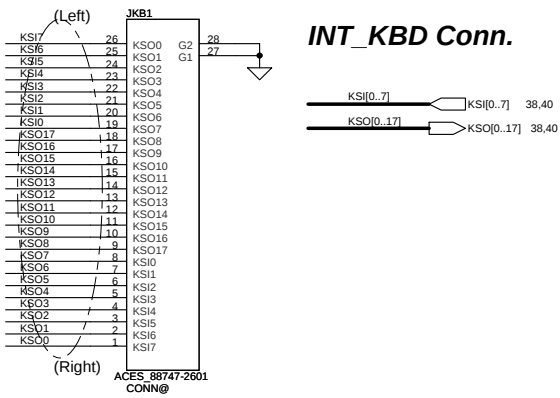


# USB/B & ACER LOGO Backlight Conn

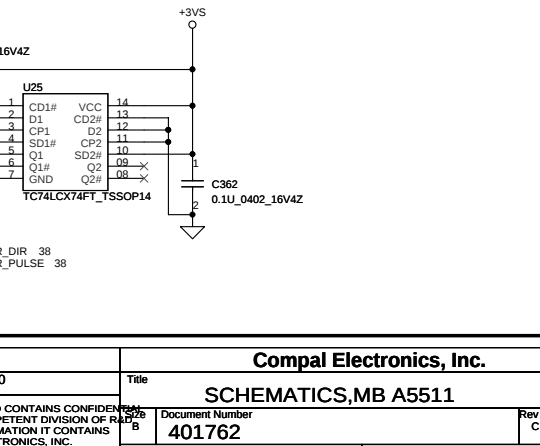
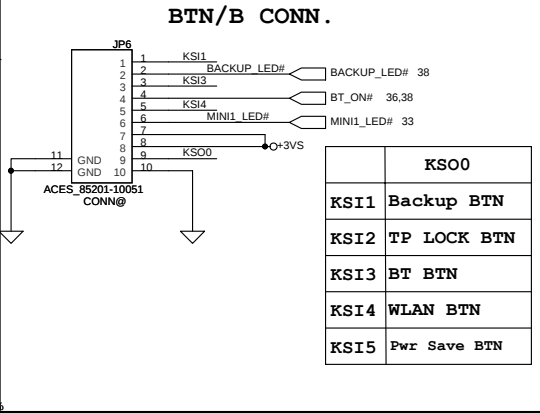
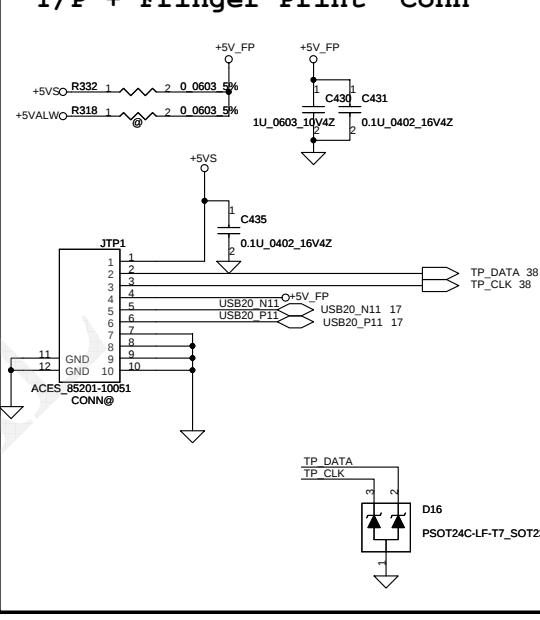
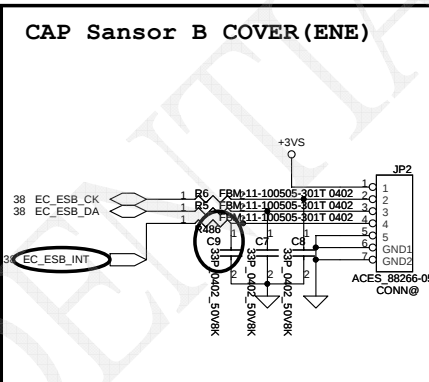
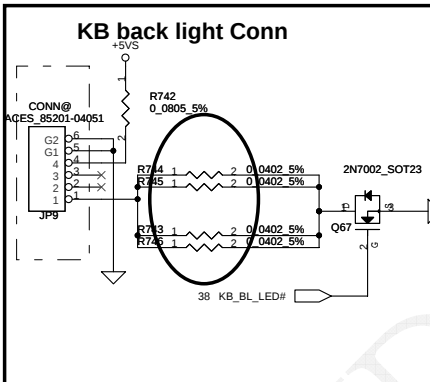
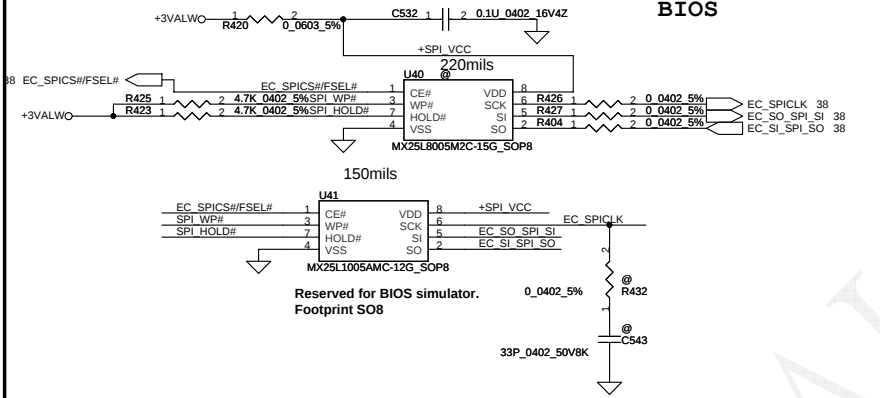
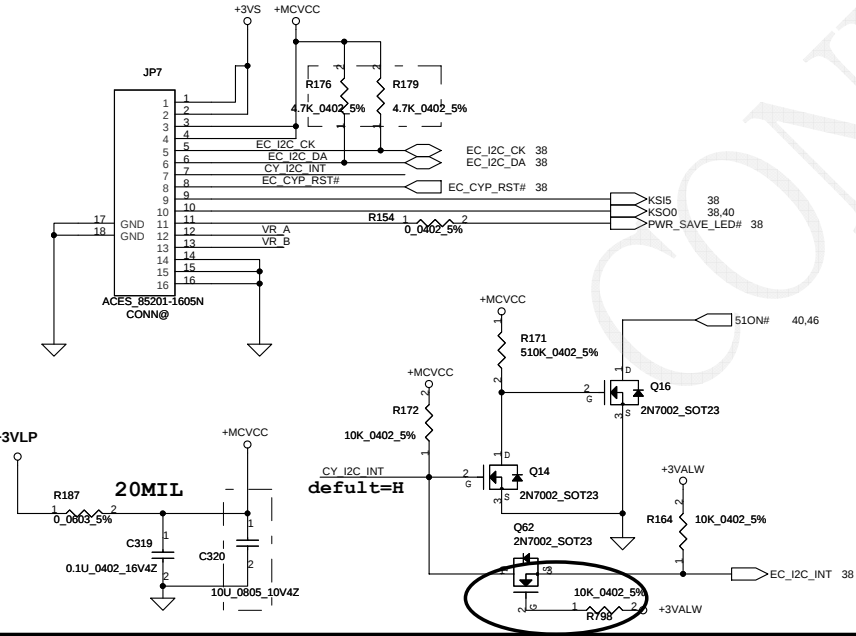


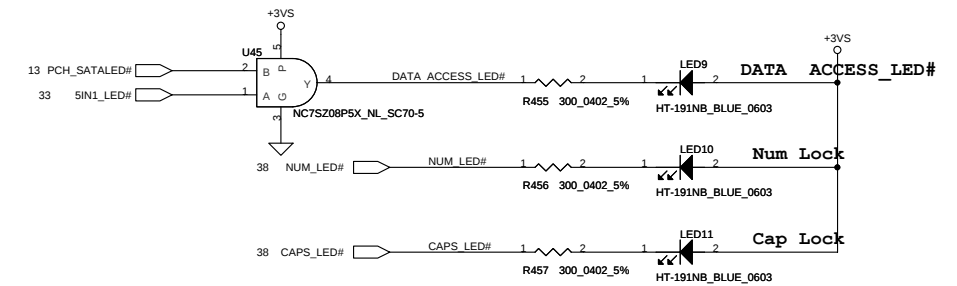
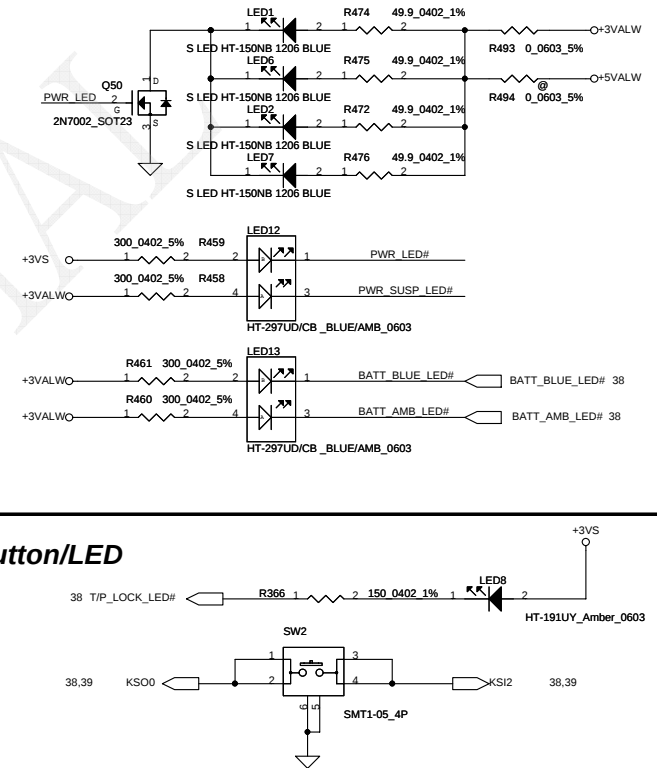
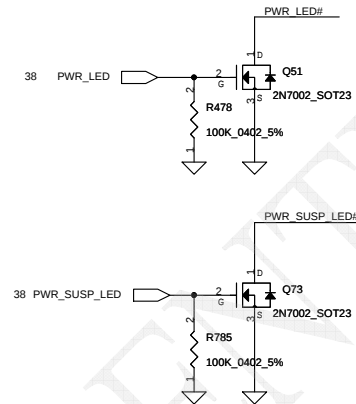
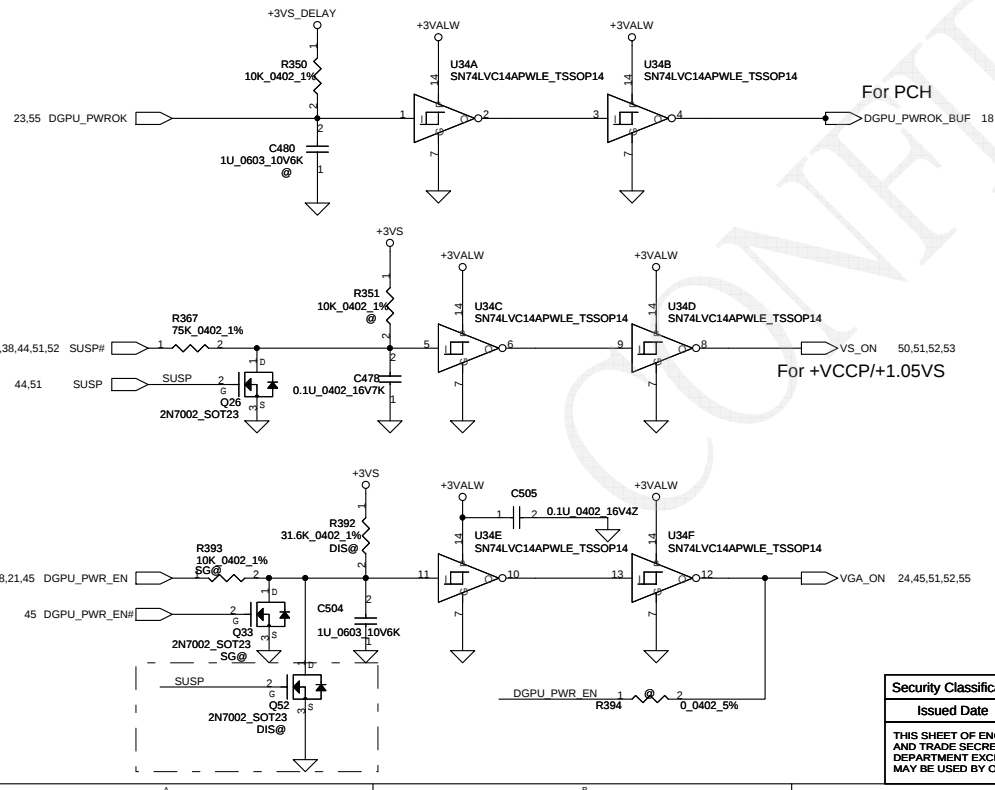
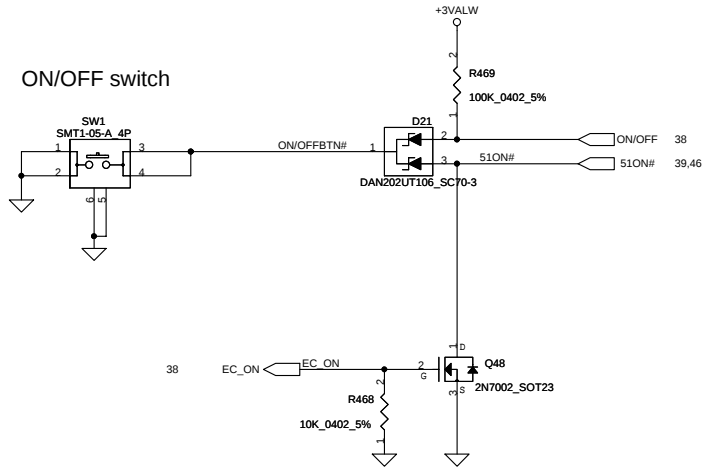
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10 | Deciphered Date    | 2010/08/10 | Title                    | SCHEMATICS,MB A5511      |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Tuesday, August 18, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 37 of 60                 |

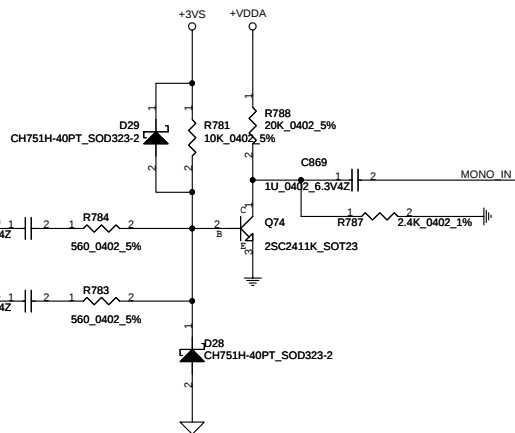




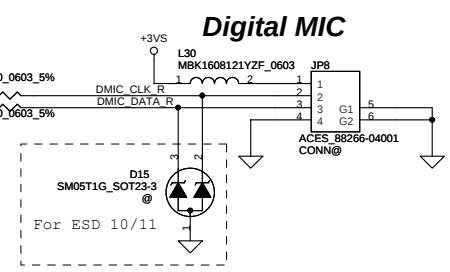
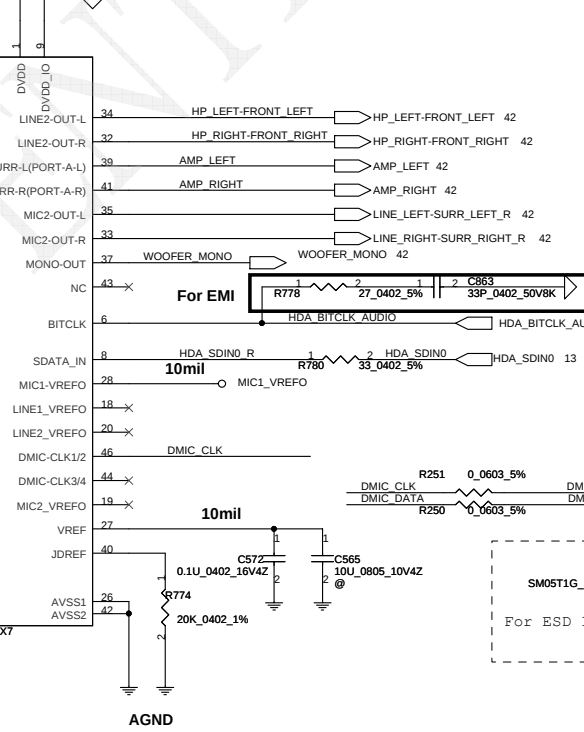
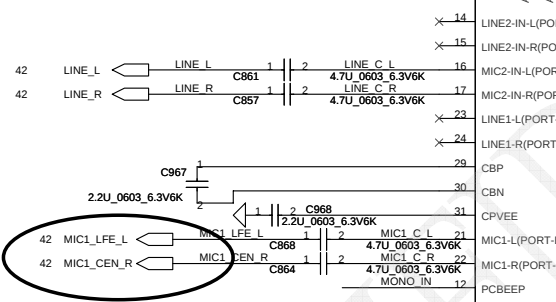
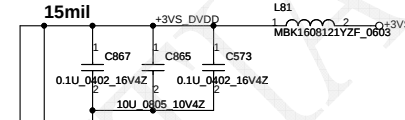
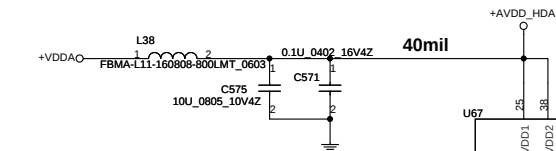
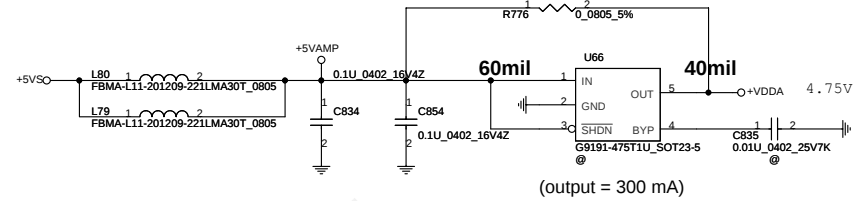
**CAP Sانسor right(Cypress) & Power Saving & Volume Control Conn.**



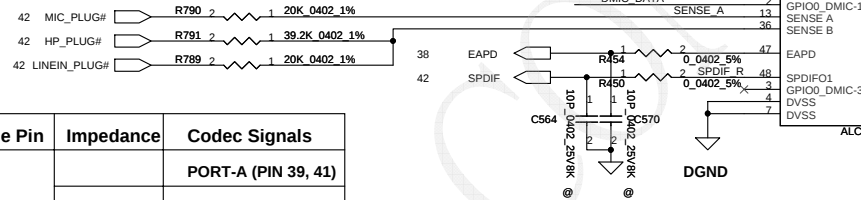




## HD Audio Codec

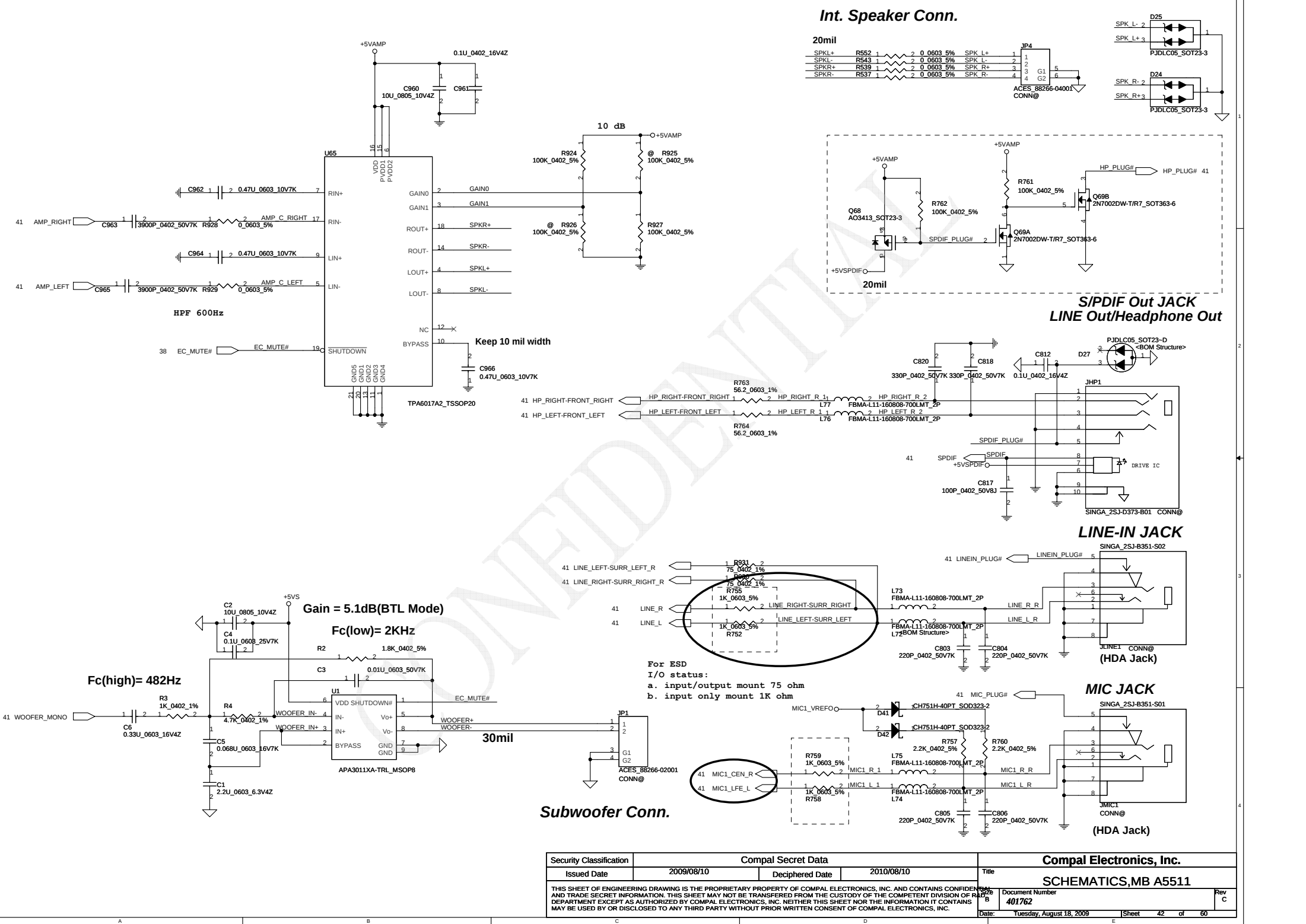


Place close to Codec



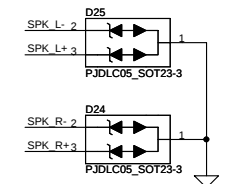
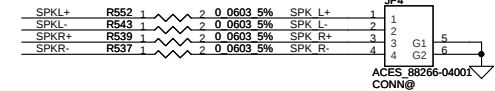
| Sense Pin | Impedance | Codec Signals       |
|-----------|-----------|---------------------|
| SENSE A   | 20K       | PORT-A (PIN 39, 41) |
|           |           | PORT-B (PIN 21, 22) |
|           |           | PORT-C (PIN 23, 24) |
| SENSE B   | 39.2K     | PORT-E (PIN 32, 34) |
|           | 20K       | PORT-F (PIN 33, 35) |
|           |           | PORT-H (PIN 37)     |

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  | Compal Secret Data |  |  |  | Compal Electronics, Inc. |  |  |  |
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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  | 2009/08/10         |  |  |  | Deciphered Date          |  |  |  |
| 2009/08/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  | 2010/08/10         |  |  |  | Title                    |  |  |  |
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| Date: Tuesday, August 18, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  | Sheet 41 of 60     |  |  |  | Rev C                    |  |  |  |

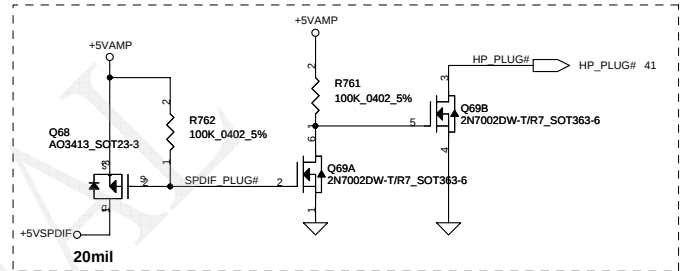


Int. Speaker Conn.

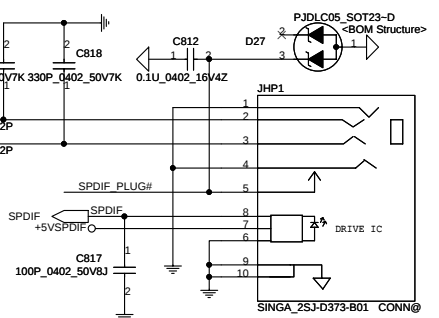
20mil



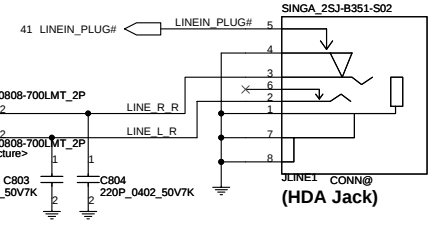
SPDIF Out JACK  
LINE Out/Headphone Out



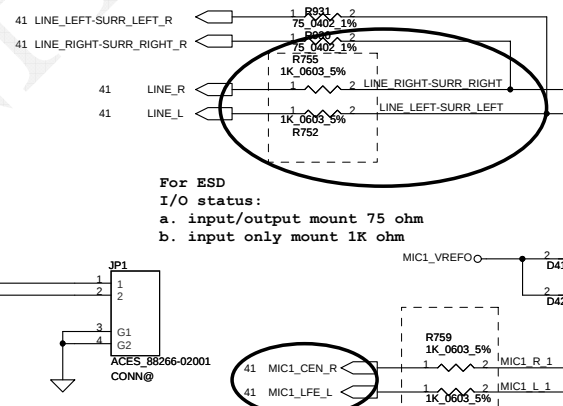
LINE-IN JACK



MIC JACK

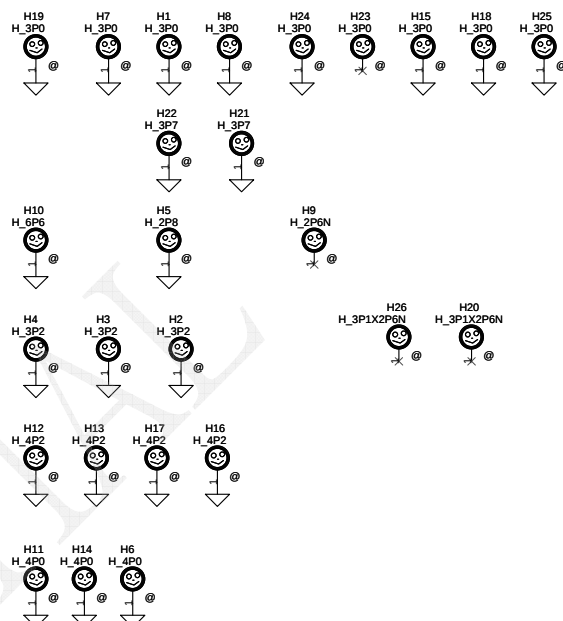
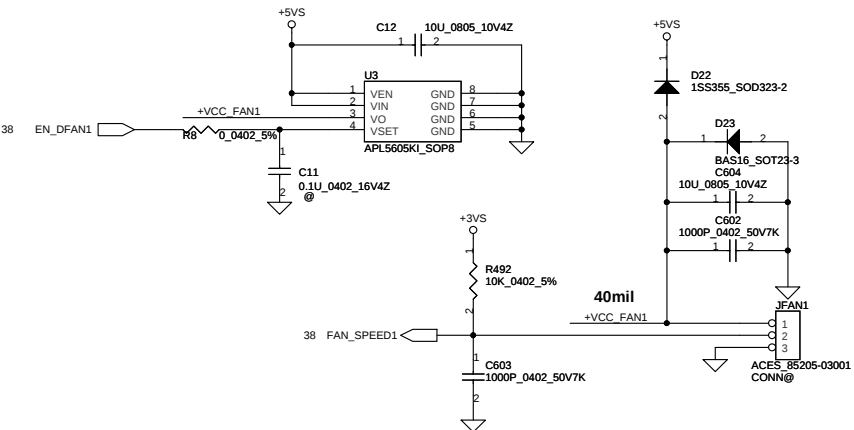


Subwoofer Conn.



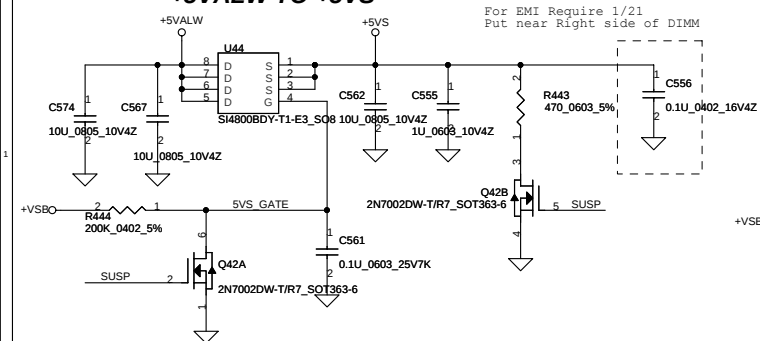
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.  |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|---------------------------|----------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/08/10 | Deciphered Date    | 2010/08/10 | SCHEMATICS, MB A5511      |          |
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| Date: Tuesday, August 18, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                    |            | Sheet 42 of 60            |          |

FAN1 Conn

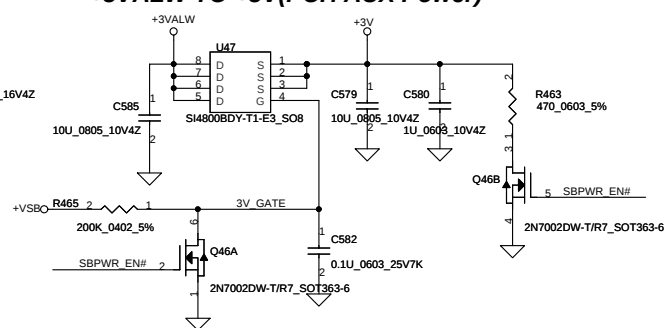


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                          |  |          |  |
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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2009/08/10         |  | Deciphered Date |  | 2010/08/10               |  | Title                    |  |          |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Docu                     |  | Document Number          |  | Rev      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | B                        |  | 401762                   |  | C        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date:                    |  | Tuesday, August 18, 2009 |  | Sheet    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                          |  | 43 of 60 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                          |  |          |  |

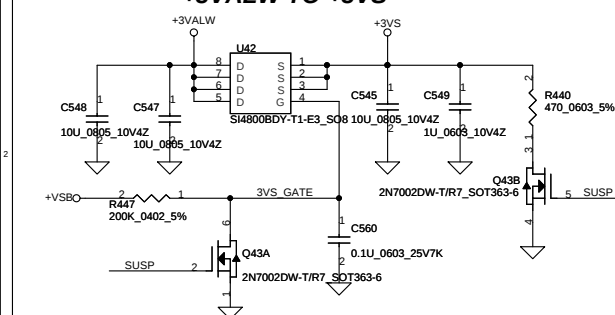
# +5VALW TO +5VS



# +3VALW TO +3V(PCH AUX Power)

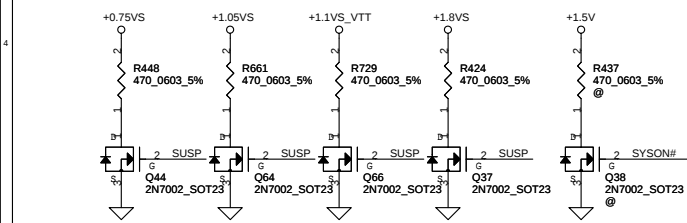
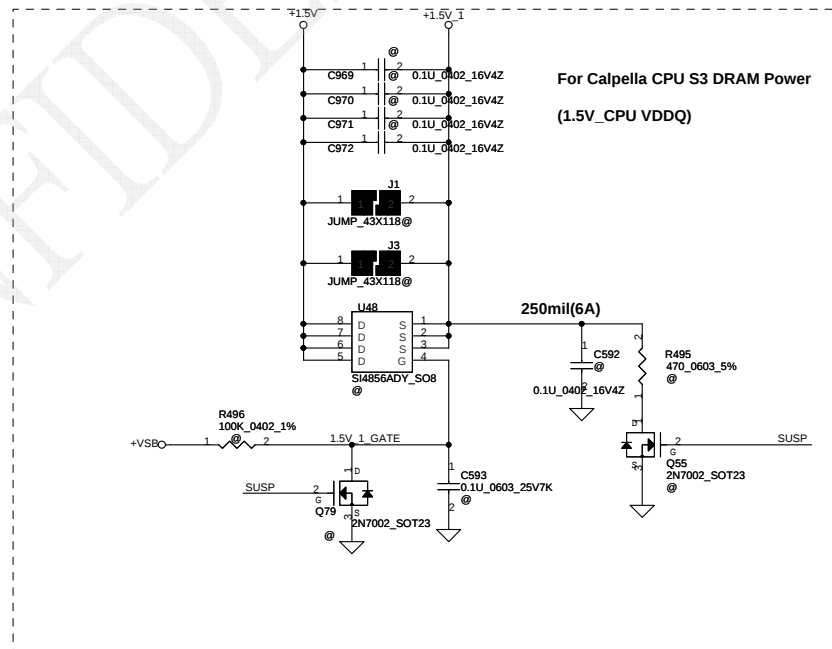
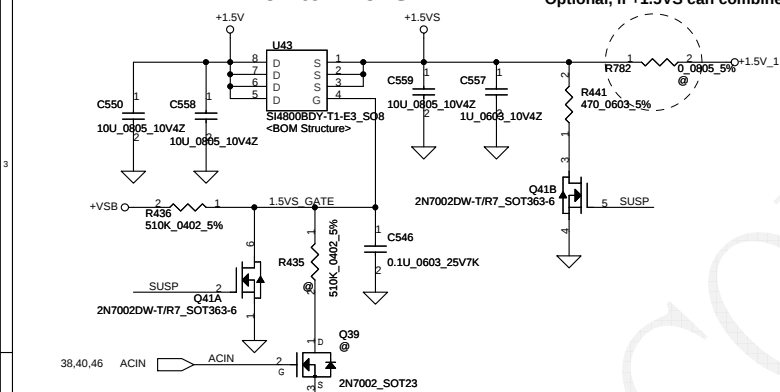


# +3VALW TO +3VS



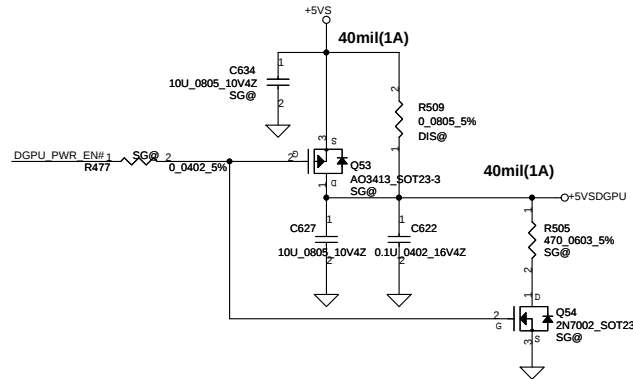
# +1.5V to +1.5VS

Optional, if +1.5VS can combine with +1.5V\_1

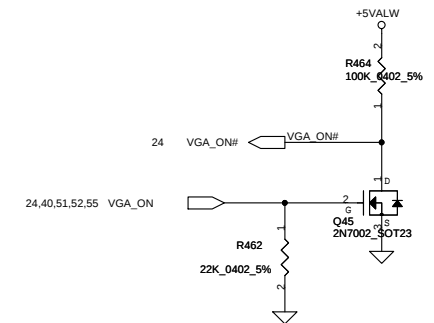
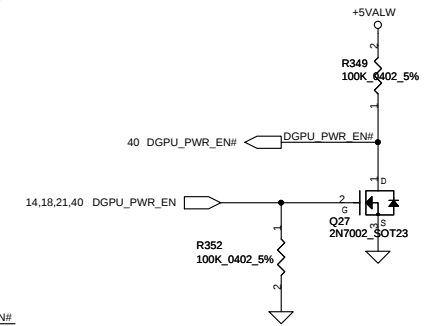
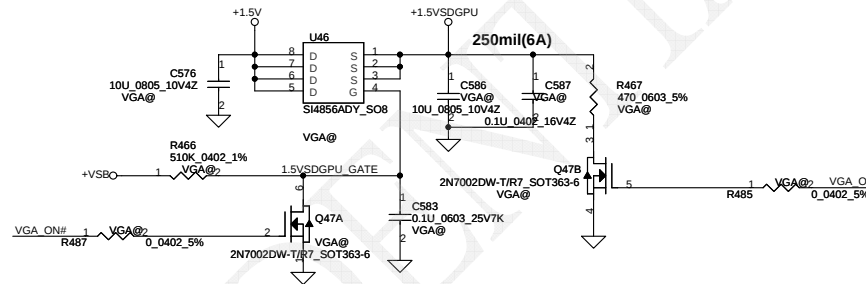


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                                |  |       |  |                |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------------|--|-------|--|----------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc.       |  |       |  |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Document Number                |  |       |  | Rev            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | 401762                         |  |       |  | C              |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date: Tuesday, August 18, 2009 |  |       |  | Sheet 44 of 60 |  |

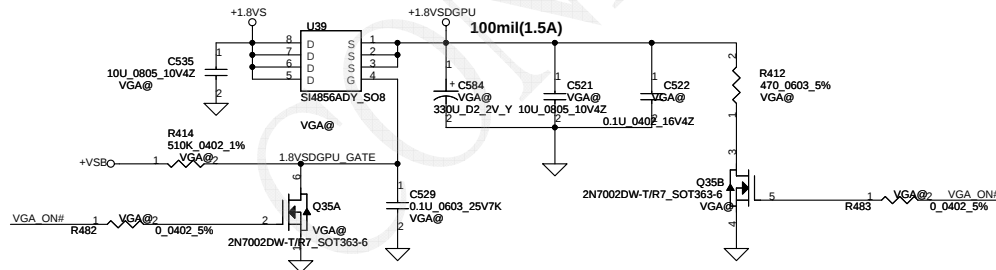
# **+5VS to +5VSDGPU**



# **+1.5V to +1.5VSDGPU Transfer**

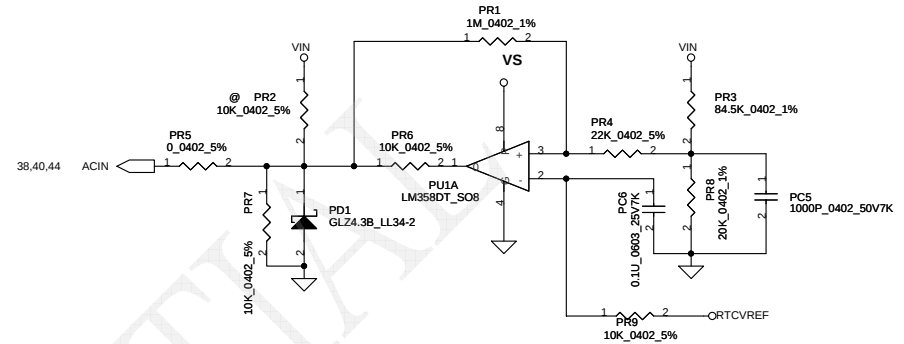
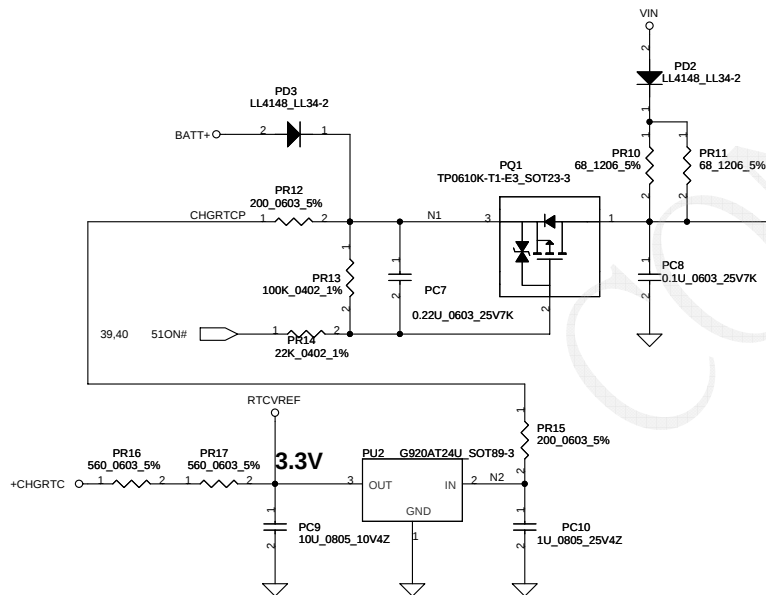
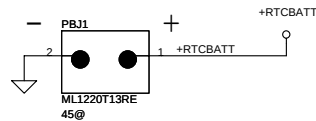
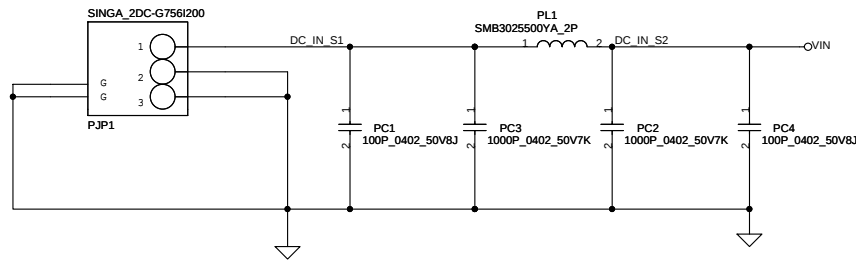


# **+1.8VS to +1.8VSDGPU Transfer**

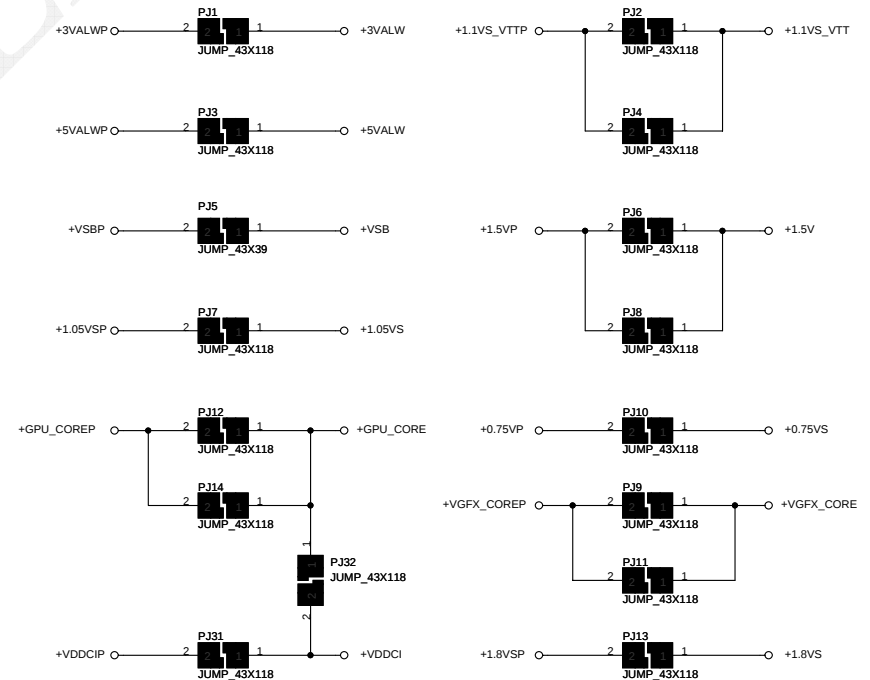


| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                          |                |
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DC231000N00 藍色 For DIS  
DC231000P00 黃色 For UMA  
Footprint  
SINGA\_2DC-S756B200\_3P

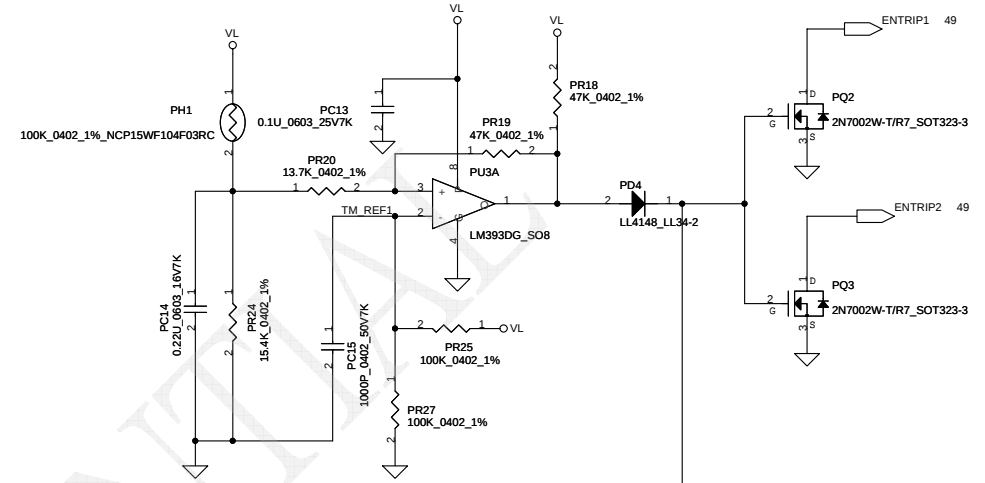
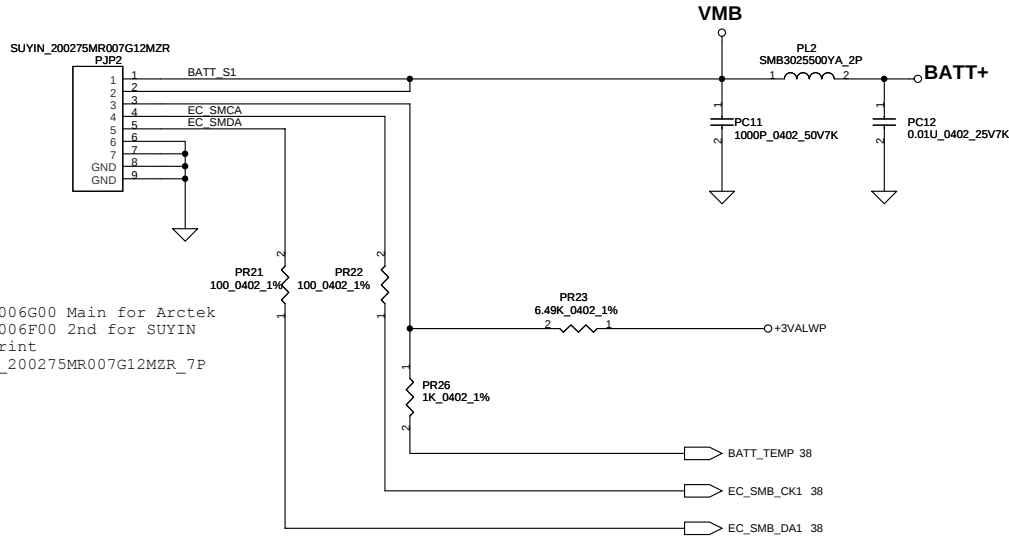


| Vin Detector |         |         |         |
|--------------|---------|---------|---------|
|              | Min.    | Typ     | Max.    |
| H-->L        | 17.208V | 17.212V | 17.217V |
| L-->H        | 17.879V | 17.894V | 17.909V |

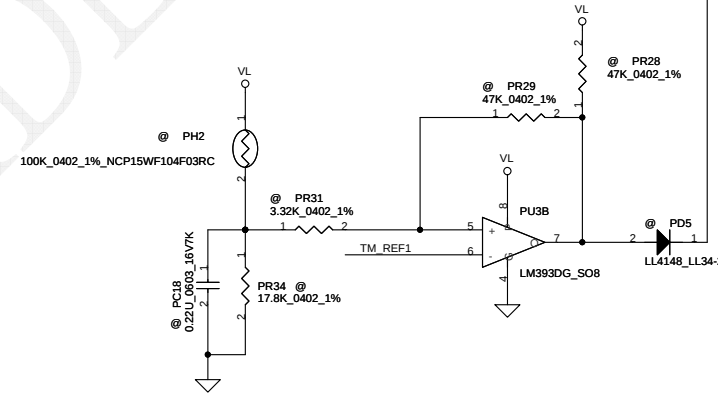
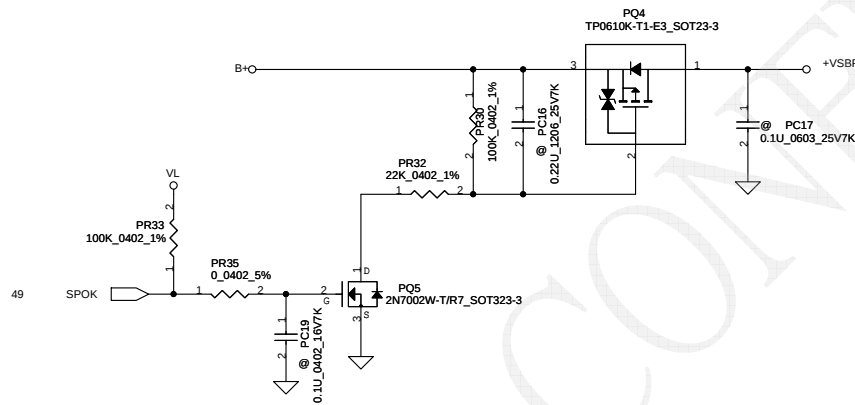


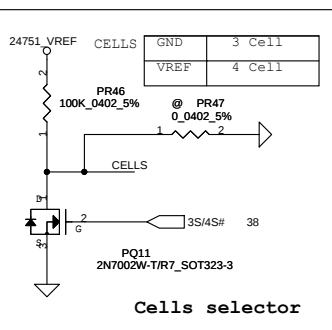
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Tuesday, August 18, 2009 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 46 of 60                 |

PH1 under CPU botten side :  
CPU thermal protection at 92 degree C  
Recovery at 56 degree C



PH2 near main Battery CONN :  
BAT. thermal protection at 76 degree C  
Recovery at 56 degree C



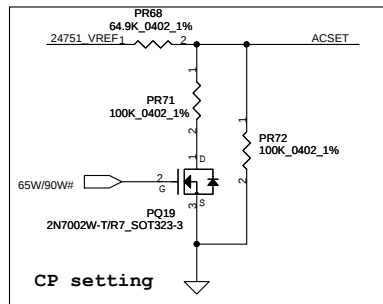


**CP Point Setting**  
 CP point=ladapter\*85%

90W adapter  
 $V_{acset}=3.3 \cdot (100K / (64.9K + 100K)) = 2.001V$   
 $CP \text{ Point} = (V_{acset} / V_{dadj}) \cdot (0.1 / PR56) = 4.04A$

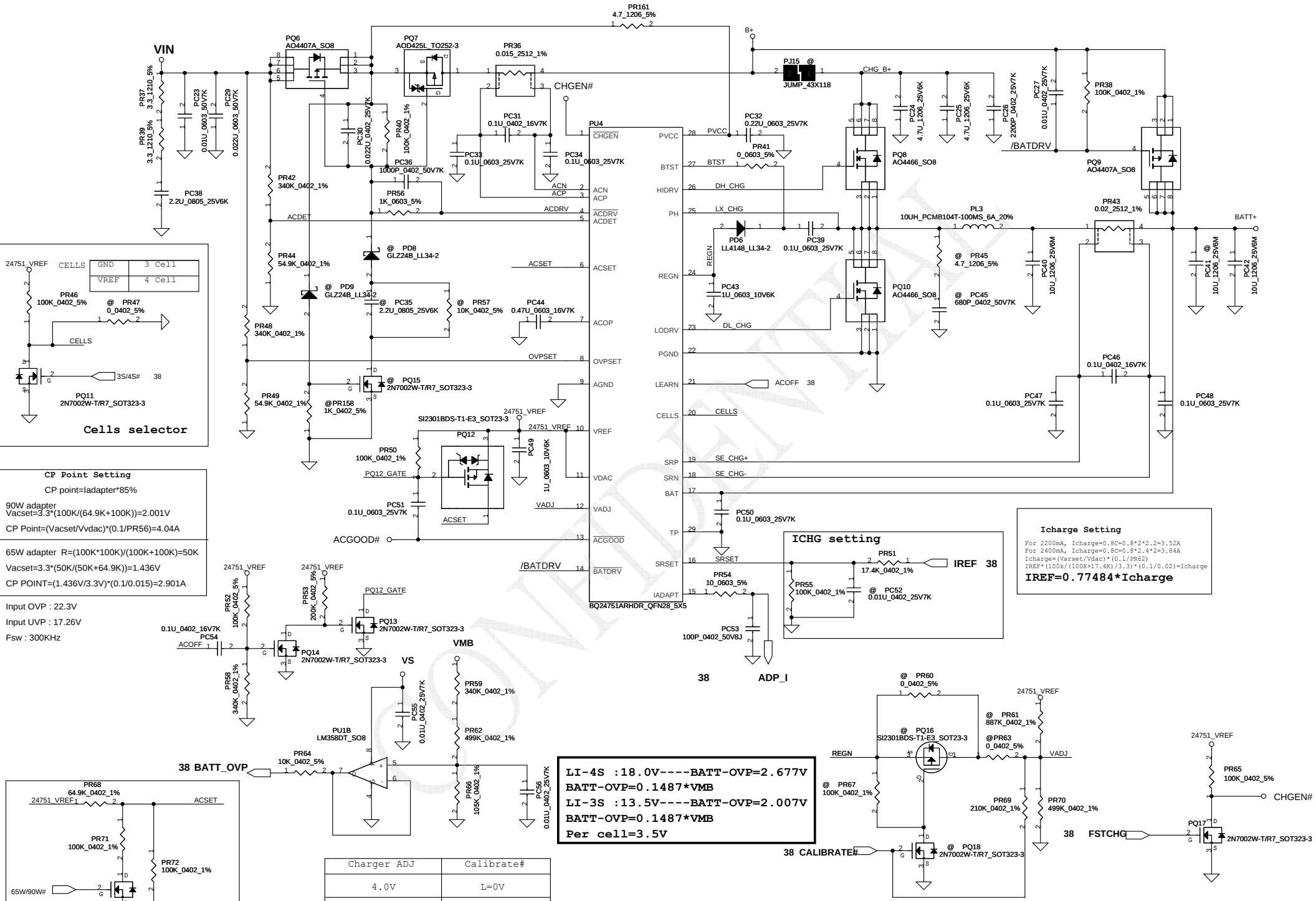
65W adapter  $R = (100K \cdot 100K) / (100K + 100K) = 50K$   
 $V_{acset} = 3.3 \cdot (50K / (50K + 64.9K)) = 1.436V$   
 $CP \text{ POINT} = (1.436V / 3.3V) \cdot (0.1 / 0.015) = 2.901A$

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



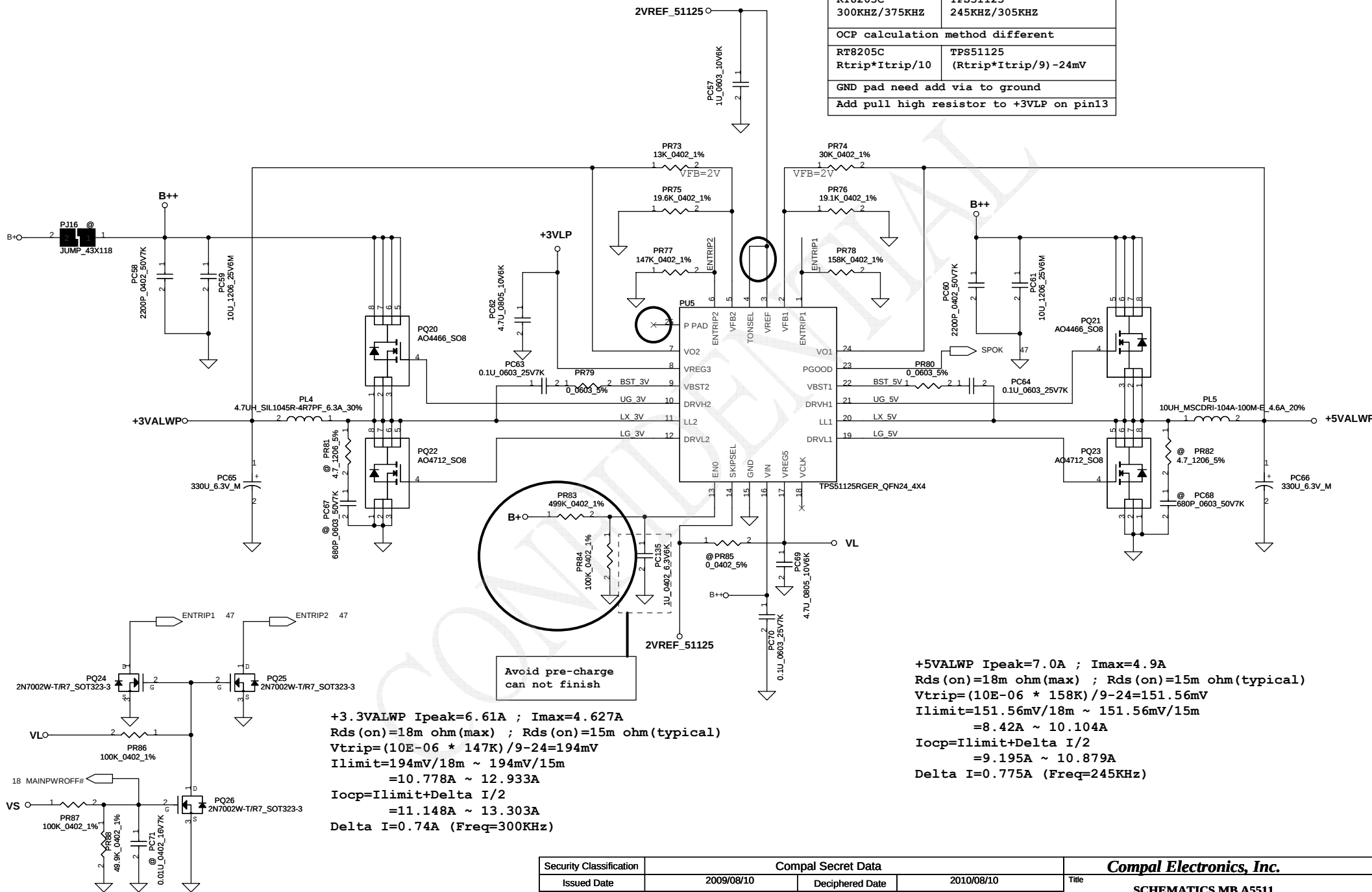
| Charger ADJ | Calibrate# |
|-------------|------------|
| 4.0V        | L=0V       |
| 4.2V        | 1.8755V    |
| 4.3V        | 2.8132V    |
| 4.35V       | H=3.3V     |

**LI-4S : 18.0V---BATT-OVP=2.677V**  
**BATT-OVP=0.1487\*VMB**  
**LI-3S : 13.5V---BATT-OVP=2.007V**  
**BATT-OVP=0.1487\*VMB**  
**Per cell=3.5V**



**Icharge Setting**  
 For 2200mA,  $I_{charge} = 0.8C \cdot 0.8 \cdot 2 \cdot 2 = 3.52A$   
 For 2400mA,  $I_{charge} = 0.8C \cdot 0.8 \cdot 2 \cdot 4 = 3.84A$   
 $I_{charge} = (V_{set} / V_{dadj}) \cdot (0.1 / PR62)$   
 $IREF = (100K / (100K + 17.4K)) / (3.3) \cdot (0.1 / 0.02) = I_{charge}$   
**IREF=0.77484\*Icharge**

**ICHG setting**  
 PR51 17.4K\_0402\_1%  
 PR52 0.01U\_0402\_25V7K



| Frequency different                      |                                  |
|------------------------------------------|----------------------------------|
| RT8205C<br>300KHZ/375KHZ                 | TPS51125<br>245KHZ/305KHZ        |
| OCP calculation method different         |                                  |
| RT8205C<br>Rtrip*Itrip/10                | TPS51125<br>(Rtrip*Itrip/9)-24mV |
| GND pad need add via to ground           |                                  |
| Add pull high resistor to +3VLP on pin13 |                                  |

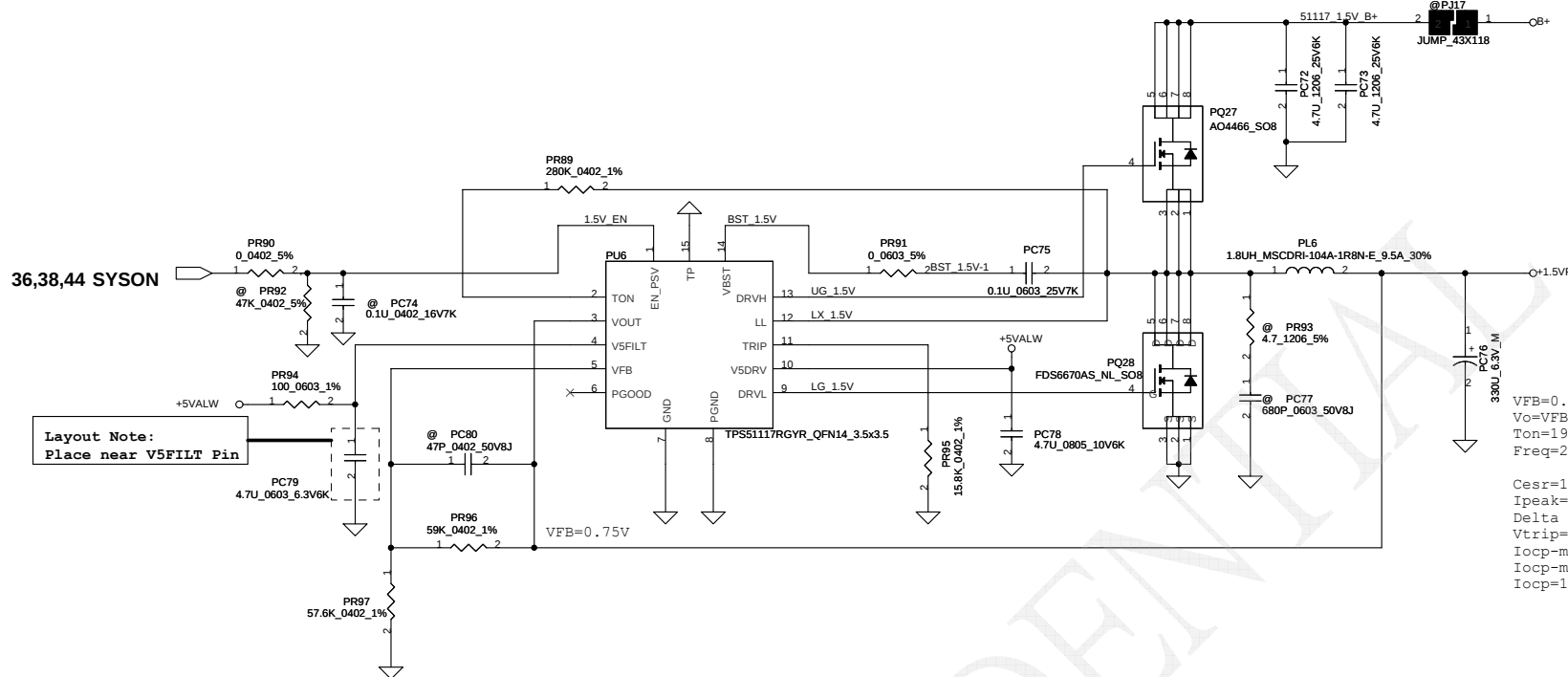
+3.3VALWP Ipeak=6.61A ; Imax=4.627A  
 Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
 $V_{trip} = (10E-06 * 147K) / 9-24 = 194mV$   
 $I_{limit} = 194mV / 18m \sim 194mV / 15m$   
 $= 10.778A \sim 12.933A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 11.148A \sim 13.303A$   
 $\Delta I = 0.74A$  (Freq=300KHz)

+5VALWP Ipeak=7.0A ; Imax=4.9A  
 Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
 $V_{trip} = (10E-06 * 158K) / 9-24 = 151.56mV$   
 $I_{limit} = 151.56mV / 18m \sim 151.56mV / 15m$   
 $= 8.42A \sim 10.104A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 9.195A \sim 10.879A$   
 $\Delta I = 0.775A$  (Freq=245KHz)

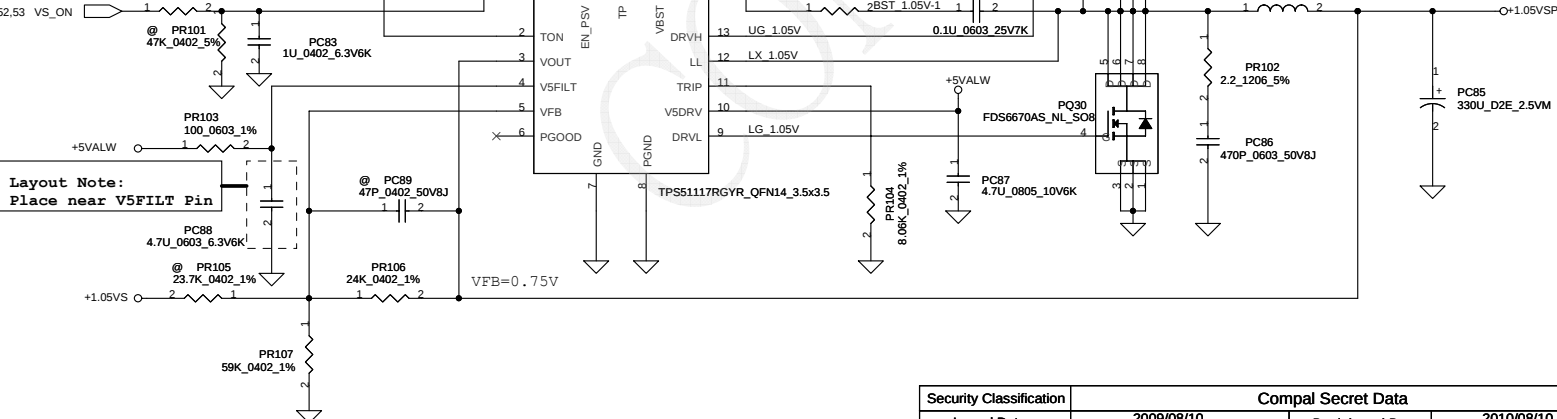
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 49 of 60                 |

36,38,44 SYSON

Layout Note:  
Place near V5FILT Pin



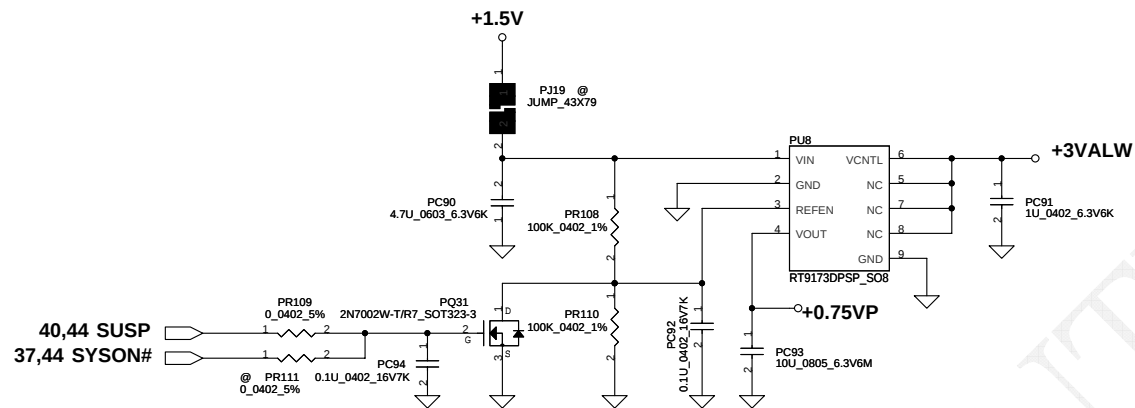
VFB=0.75V  
 $V_o = VFB * (1 + PR101 / PR102) = 1.52V$   
 $Ton = 19E-12 * Ron * ((2/3) * V_o + 150mV) / V_{in} + 50ns = 2.4E-7$   
 $Freq = 282KHz$   
 $Cesr = 15m\ ohm$   
 $I_{peak} = 13.00A$   $I_{max} = 9.10A$   
 $\Delta I = ((19.5 - 1.5) * (1.5 / 19.5)) / (L * Freq) = 2.728A$   
 $V_{trip} = R_{trip} * I_{0uA} = 0.137V$   
 $I_{ocp-min} = 16.47A$   
 $I_{ocp-max} = 16.60A$   
 $I_{ocp} = 16.47 \sim 16.60A$



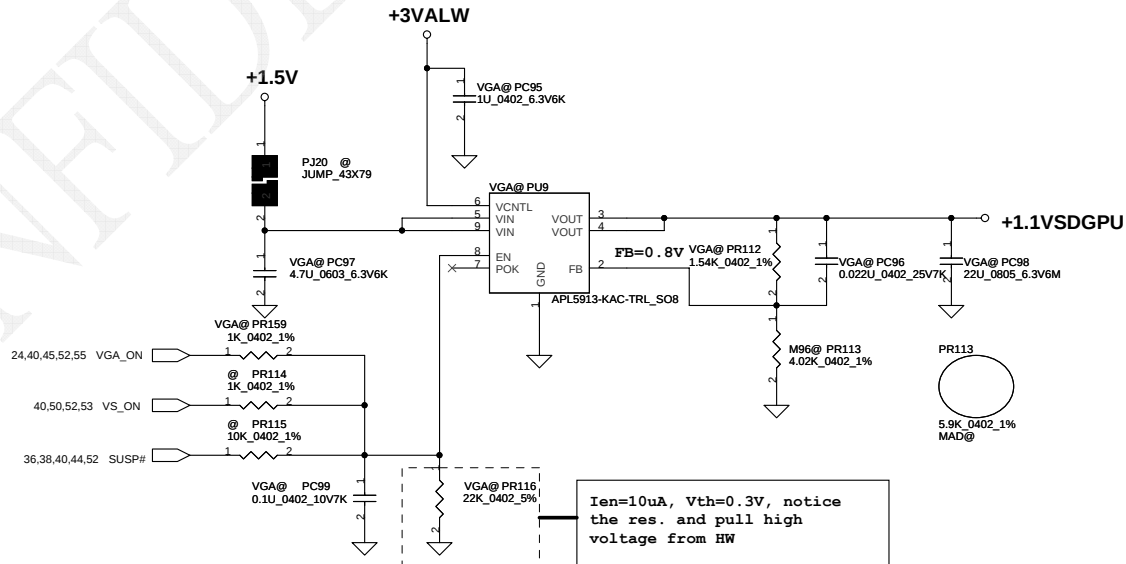
Layout Note:  
Place near V5FILT Pin

VFB=0.75V  
 $V_o = VFB * (1 + PR111 / PR112) = 1.05V$   
 $Ton = 19E-12 * Ron * ((2/3) * V_o + 150mV) / V_{in} + 50ns = 1.8E-07$   
 $Freq = 282KHz$   
 $Cesr = 15m\ ohm$   
 $I_{peak} = 6.858A$   $I_{max} = 4.8006A$   
 $\Delta I = ((19.5 - 1.05) * (1.05 / 19.5)) / (L * Freq) = 2.728A$   
 $V_{trip} = R_{trip} * I_{0uA} = 0.0806V$   
 $I_{ocp-min} = 9.87A$   
 $I_{ocp-max} = 9.94A$   
 $I_{ocp} = 9.87 \sim 9.94A$

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                          |  |                          |  |                     |  |
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| C                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | 401762             |  | Tuesday, August 18, 2009 |  | 50 of 60                 |  |                     |  |



For AMD NEW VGA (Braidway)  
Output= 1.0V (PR113= 5.9K SD034590180)



Ien=10uA, Vth=0.3V, notice  
the res. and pull high  
voltage from HW

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|---------------------|
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| Date: Tuesday, August 18, 2009                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |            |                     |



Layout Note:  
Place near high-side MOS Drain  
and low-side MOS Source

Layout Note:  
Close IC

Layout Note:  
Close IC  
單獨拉回不搭Pin15

Layout Note:  
Close IC

Material Note:  
330uF/6 mΩ, number  
are 3, Power 1, HW 2

Ipeak=18.062A    Imax=12.6434A  
Freq.=230KHz  
Iocp=20.01~27.39A

| Voltage Select |        |
|----------------|--------|
| VID            | Vout   |
| High           | 1.05 V |
| Low            | 1.1 V  |

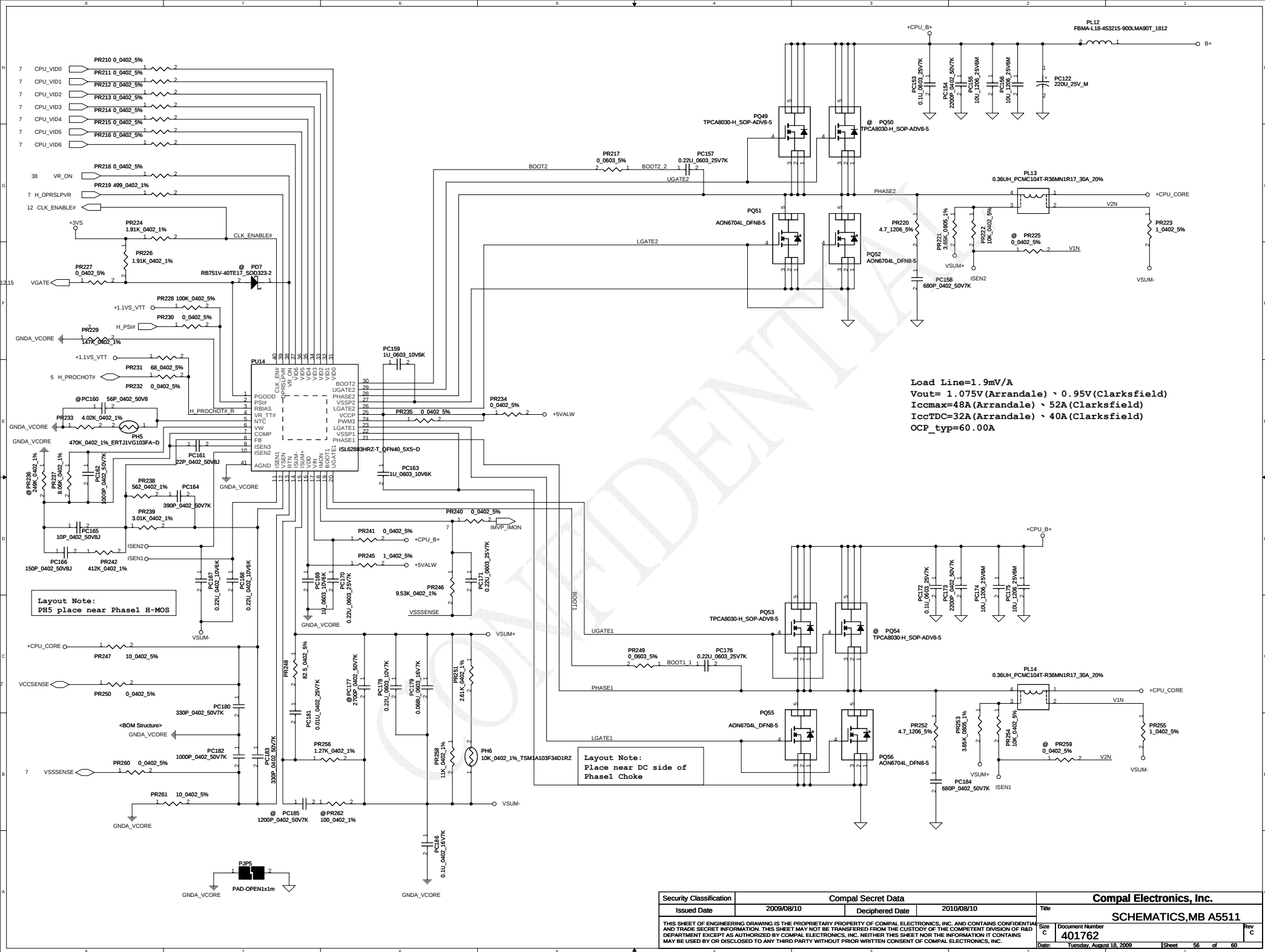
VTT Rail

Arrandale +1.1VS\_VTT=1.05V  
Clarksfield +1.1VS\_VTT=1.1V

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |







Load Line=1.9mV/A  
Vout= 1.075V(Arrandale) 、 0.95V(Clarksfield)  
Iccmax=48A(Arrandale) 、 52A(Clarksfield)  
IccTDC=32A(Arrandale) 、 40A(Clarksfield)  
OCP\_typ=60.00A

Layout Note:  
PH5 place near Phasel H-MOS

Layout Note:  
Place near DC side of  
Phasel Choke

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          |                     |  |                          |                 |        |     |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|-----------------|--------------------------|---------------------|--|--------------------------|-----------------|--------|-----|----|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          | Size                |  | C                        | Document Number | 401762 | Rev | C  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          | Date:               |  | Tuesday, August 18, 2009 | Sheet           | 56     | of  | 60 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          |                     |  |                          |                 |        |     |    |

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

Page 1 of 2

for PWR

| Item | Fixed Issue                                                                                 | Reason for change                                                                           | Rev. | PG# | Modify List                                                                                                             | Date          | Phase |
|------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------|-----|-------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| 1    | BQ24751A has very low rate crack                                                            | Add BQ24751A voltage clamp protection but disable first                                     | 0.1  | 47  | Change PR56 from 150 to 0(SD013000080)<br>Disable PD8、PD9、PR57、PR158、PC35、PQ15                                          | 2009<br>05/07 | EVT   |
| 2    | Optimize by control IC vendor suggestion                                                    | Optimize by control IC vendor suggestion                                                    | 0.1  | 56  | Change PQ7 to power pack<br>Disable PR236、PC177、PC185、PR262                                                             | 2009<br>05/11 | EVT   |
| 3    |                                                                                             |                                                                                             |      |     | Change PR239 from 2.26K to 2.61K(SD000009M80)<br>Change PC179 from 0.47U to 0.047U(SE026473K80)                         |               |       |
| 4    | Optimize by control IC vendor suggestion                                                    | Optimize by control IC vendor suggestion                                                    | 0.1  | 54  | Change PR256 from 1K to 1.21K(SD000004C00)<br>Delete PR243、PR244、PR257                                                  | 2009<br>05/11 | EVT   |
| 5    |                                                                                             |                                                                                             |      |     | Change PR271 from 10.2K to 8.66K(SD034866180)<br>Change PC203 from 0.068U to 0.1U(SE076104KM8)                          |               |       |
| 6    | Tune OCP from 15.81A to 18.62A(min) & optimize compensation by control IC vendor suggestion | Tune OCP from 15.81A to 18.62A(min) & optimize compensation by control IC vendor suggestion | 0.1  | 53  | Change PR283 from 3.01K to 1.69K(SD00000JB80)<br>Disable PR284、PC205                                                    | 2009<br>05/11 | EVT   |
| 7    | Tune VDDCI output voltage to 1.1V by HW request                                             | Tune VDDCI output voltage to 1.1V by HW request                                             | 0.1  | 52  | Change PR135 from 1.96K to 2.37K(SD034237180)<br>Change PR137 from 49.9K to 90.9K(SD034909280)                          | 2009<br>05/13 | EVT   |
| 8    | SH16118AM00 is non lead-free part, SH16118AM10 is                                           | SH16118AM00 is non lead-free part, SH16118AM10 is                                           | 0.1  | 50  | Change PR156 from 27.4K to 124K(SD034590280)                                                                            | 2009<br>05/13 | EVT   |
| 9    | Co-lay will cause DRC, but reserve the space                                                | Co-lay will cause DRC, but reserve the space                                                | 0.1  | 56  | Change PL7 from SH16118AM00 to SH16118AM10<br>Delete PL15、PL16                                                          | 2009<br>05/14 | EVT   |
| 10   | There is not enough space                                                                   | Choke change size from 10x10 to 7x7                                                         | 0.2  | 52  | Change PL17 from SH000007E80 to SH000006I80                                                                             | 2009<br>05/27 | EVT2  |
| 11   | Tune sequence by HW request and prevent enable abnormally                                   | Tune sequence by HW request and prevent enable abnormally                                   | 0.2  | 51  | Change EN net from DGPU_PWR_EN# to VGA_ON<br>Change PR116 from 47K to 22K(SD028220280)                                  | 2009<br>05/27 | EVT2  |
| 12   | Power ON while no CPU will burn out                                                         | Power ON while no CPU will burn out                                                         | 0.2  | 53  | Change Feedback from +1.1VS_VTT to +1.1VS_VTTP                                                                          | 2009<br>05/27 | EVT2  |
| 13   | PQ7 has very low rate crack                                                                 | Change PQ7 package to TO-253 DPAK                                                           | 0.2  | 48  | Change PQ7 from AO4407 to AOD425(SB00000K800)                                                                           | 2009<br>05/27 | EVT2  |
| 14   | HW request                                                                                  | Don't need this signal                                                                      | 0.2  | 54  | Change PR226 from 10K to 1.91K(SD000009O80)<br>Delete net GFX_CORE_PWRGD                                                | 2009<br>06/01 | EVT2  |
| 15   | Optimize by control IC vendor suggestion                                                    | Optimize by control IC vendor suggestion                                                    | 0.2  | 56  | Change PR256 from 1.21K to 1.1K(SD034110180)                                                                            | 2009<br>06/01 | EVT2  |
| 16   | To avoid pre-charge can not finish                                                          | To avoid pre-charge can not finish                                                          | 0.2  | 49  | Add PC135 as 1U                                                                                                         | 2009<br>06/02 | EVT2  |
| 17   | To avoid 2nd source RT8209B can no power on                                                 | To avoid 2nd source RT8209B can no power on                                                 | 0.2  |     | Change PR94、PR103、PR122、PR151 from 300 to 100(SD013000080)<br>Change PC79、PC88、PC107、PC123 from 1U to 4.7U(SE107475K80) | 2009<br>06/02 | EVT2  |
| 18   | Switch delay time can't over 1mS and OCP has risk                                           | Tune switch delay time to 1mS and OCP to 32.93A(min)                                        | 0.2  | 55  | Change PR190 from 3.9K to 6.81K(SD034681180)<br>Change PC151、PC152 from 0.1U to 0.22U(SE095224K80)                      | 2009<br>06/02 | EVT2  |
| 19   | Tune OCP from 18.62A to 20.01A(min)                                                         | Tune OCP from 18.62A to 20.01A(min)                                                         | 0.2  | 53  | Change PR197 from 68.1K to 60.4K(SD034604280)<br>Change PR135 from 2.37K to 4.02K(SD034402180)                          | 2009<br>06/02 | EVT2  |
| 20   | Sense from VTTP and CPU both                                                                | Sense from VTTP and CPU both                                                                | 0.2  | 53  | Change PR139 to +1.1VS_VTTP<br>Add PR160 to VTT_SENSE                                                                   | 2009<br>06/03 | EVT2  |
| 21   | Tune OCP to 16.47A(min) & ripple noise                                                      | Tune OCP to 16.47A(min) & ripple noise                                                      | 0.2  | 50  | Change PR95 from 13.7K to 15.8K(SD034158280)<br>Add PC136                                                               | 2009<br>06/08 | EVT2  |
| 22   | Tune Output Voltage to 1.15V(max) for batter performance by HW request                      | Tune Output Voltage to 1.15V(max) for batter performance by HW request                      | 0.3  | 55  | Change PR196 from 9.76K to 7.32K(SD034732180)<br>Change PR297 from 0 to 10(SD028100A80)                                 | 2009<br>06/17 | EVT3  |
| 23   | Tune CPU transient                                                                          | Tune CPU transient                                                                          | 0.3  | 56  | Change PC179 from 47nF to 68nF(SE026683K80)                                                                             | 2009<br>06/17 | EVT3  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          |                    |            |                          |                    |
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*for PWR*

[illegible]

A1--> A2 Change List

2009/05/26  
Page 33 SWAP HDD SATA\_DTX\_C\_PRX\_N1/P1  
Page 38 Del DPIO42 (GFX\_CORE\_PWRGD) and ADD ME\_EN in GPIO42 to PCH GPIO33 (For enable ME to entry manufactruing mode )  
Page 12/37 Del PCH\_SATA2\_CE# and change PCH\_SATA1\_CE# for Esata redriver IC enable singal

2009/06/02  
Page 30 Reverse JLVDs1 pin 36 and pin 37  
Page 39 Reverse JKBl pin defined  
Page 12 colay Relatek CLK Gen  
Page 39 Follow EMI request,add R486 and C9...  
Page 24 switch the net name EC\_SMB\_DA2 and EC\_SMB\_CK2

2009/06/03  
Page 40 add R490,R491,R493 and R494 for LED brightness  
Page 38 change EC pin 75 from GFX\_CORE\_PWRGD to ME\_EN

2009/06/04  
change Y1,Y3,Y4,Y10,X1 crystal PCB footprint  
Page 45 change R462 to 22k  
Page 15 change R315 to 100k

A2--> A3 Change List

2009/06/25  
Page 14 R305 pull high to +3VS\_Delay  
Page 15,24,38 Add ACIN\_BUF for PCH/VGA  
Page 24 Un-pop R177 (No use external Vbios ROM)  
change R28 to 510K (for VGA Power on sequence )  
Page5,6,7,44 Reserve INTEL Capella new design schematic  
Page 24 SWAP Q57,Q58,Q62 Pin1 and PIN3,  
change Q62 to UMA0  
Page 38 change PWR\_SUSP\_LED to U38.84  
Page 36,38,39 combine LED fuction to BT\_ON#  
Page 39 SWAP JP9  
Page 40 Add discharge schematic for VGA\_ON

A3-->C Change List

2009/07/06  
Page 32 Switch the U57 Pin 27 and Pin 49 (IGPU\_SELECT# and DGPU\_SELECT#)

2009/07/08  
Page 24 Add R833,for short +3VS to +3VS\_DELAY  
Page 25 Add R116 and R225 for Boradway MVREFDA/B and MVREFSA/B  
Page 25 Add C473,C474,R265 and R327 for Boradway CLKTESTA/B  
Page 27 Add R770 and R771  
Page 32 Add R768,R769,R767,R786,R772 and Delete Q62,R793 to verify HDMI HPD  
Page 18 Add R333 to pull down GPIO37 and change R293 to UMA00

2009/07/10  
change 4.7u 0805 to 4.7u 0603  
Page 14 Add R104,R793,R342 and R341 for PEG CLKREQ#  
Page 38 update Board ID to 0.4 R364=100K,R365=56K

2009/07/13  
Page 25 add R343,R344,R361,R498,R499 and R500 for broadway  
Page 7 update 470uF to 330uF(C232, C186, C711, C221, C259 and C196 )  
Page 39 Update R5 and R6 package from 0402 to 0603...  
Page 24 add Q76,C476 and R795 for +3VS\_DELAY  
Page 24 Switch Q9 and change the +3VS to +3VS\_DELAY

C-->Pre-MP Change List

2009/07/17  
Page 42 switch MIC1\_LFE\_L and MIC1\_CEN\_R

2009/07/28  
Page 39 Add Q62 to replace D11  
Page 25 Add R502 and R504

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 59 of 60                  |

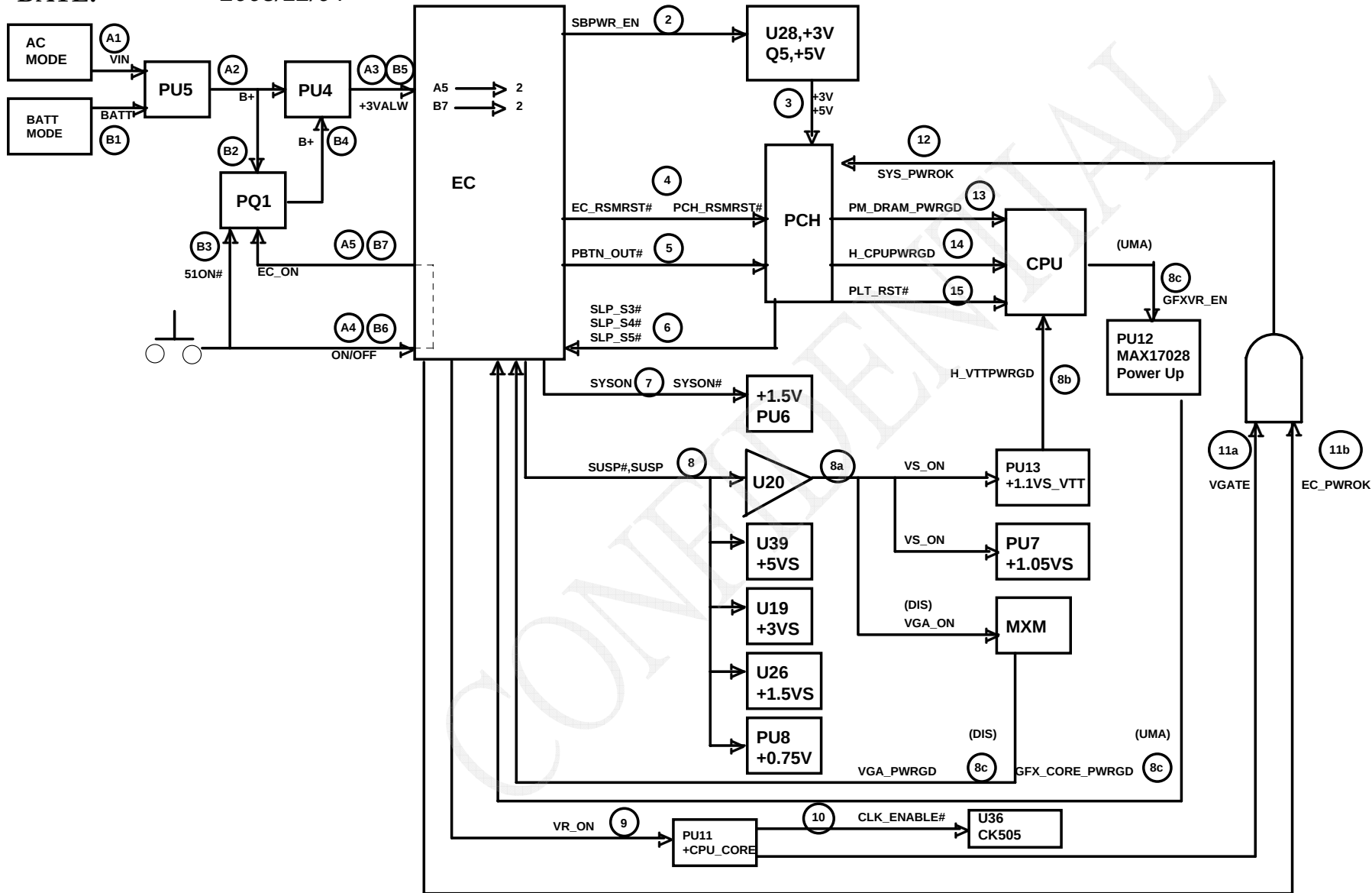
# COMPAL CONFIDENTIAL

MODEL NAME: KBLA0 Power Sequence Block Diagram

PCB NAME: LA4811P

REVISION:

DATE: 2008/12/04



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