

# Compal Confidential

*HM51\_TR/HM70\_TR Discrete*

**NDWG2/NDWH1 LA5992 Schematic Document**

**Mobile AMD S1G3/RS880M/SB710**

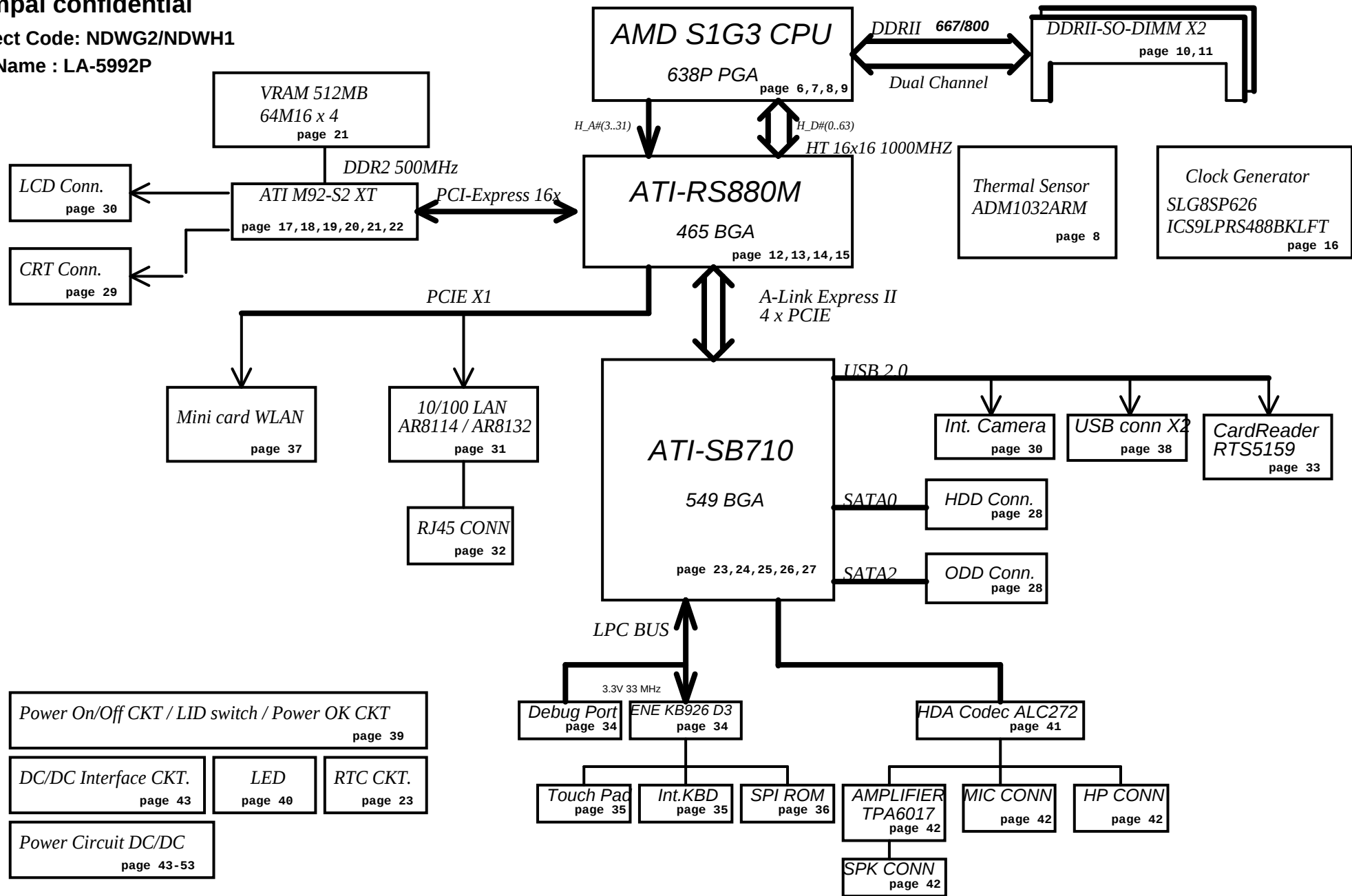
**2009/12/02 Rev 1.0**

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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                    | SCHEMATIC MB A5992        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 1 of 55                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                         |

Compal confidential

Project Code: NDWG2/NDWH1

File Name : LA-5992P



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

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

## External PCI Devices

### EC SM Bus1 address

## EC SM Bus2 address

## SB710 SM Bus 2 address

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

## SB710 SM Bus 2 address

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

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

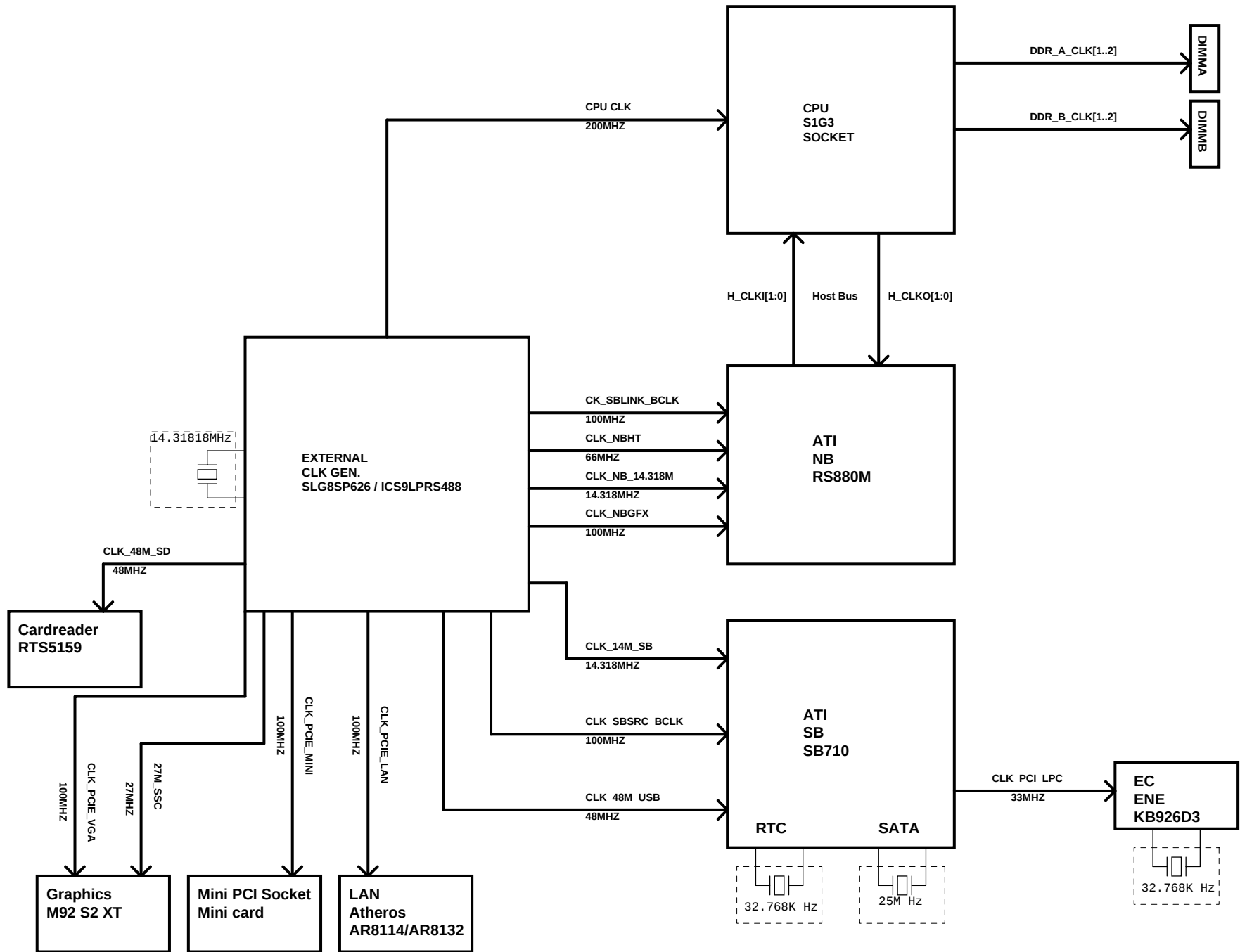
## BOARD ID Table

### BTO Option Table

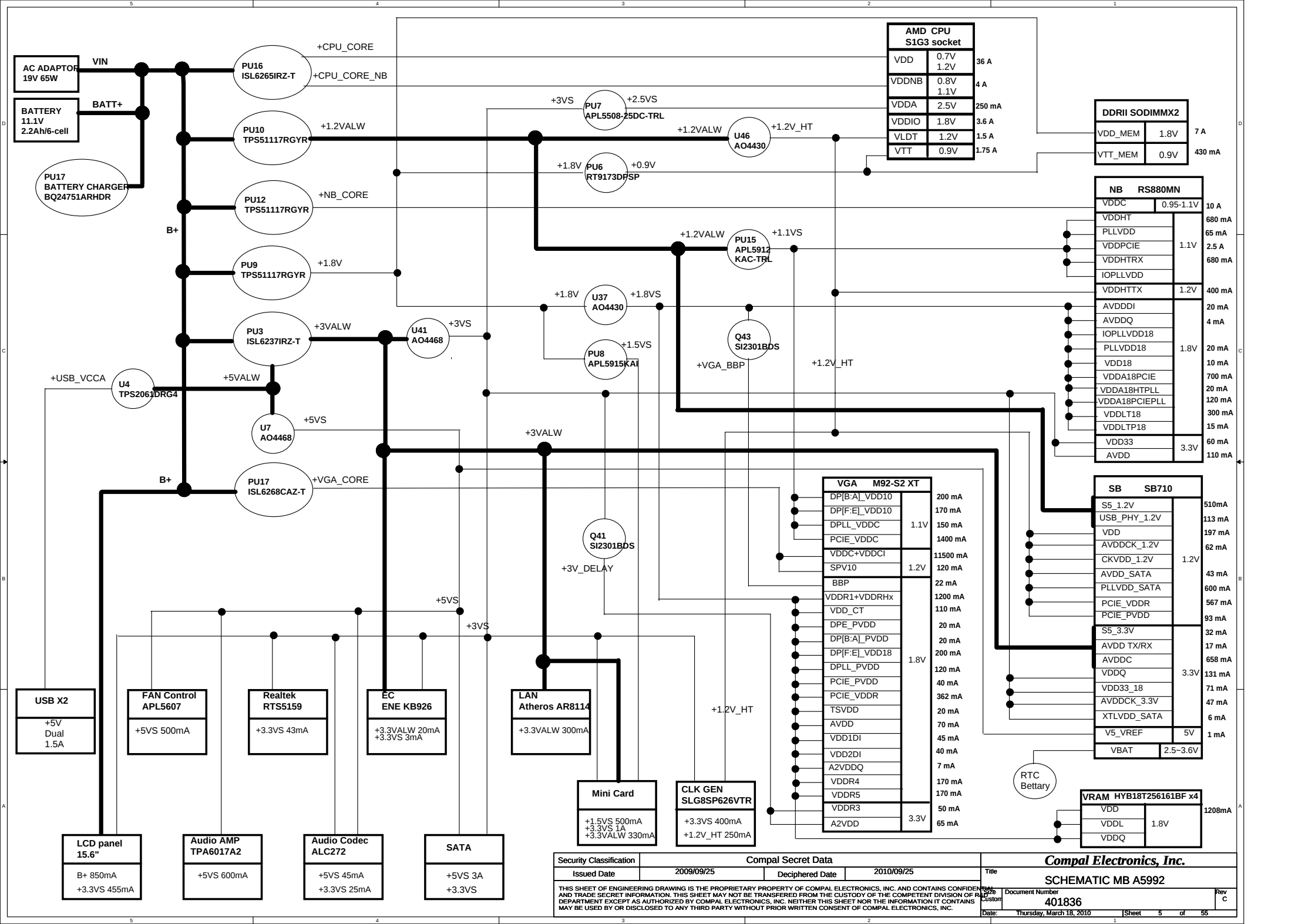
### PROJECT ID Table

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                 |                          |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|---------------------------------|--------------------------|---------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Custom                          | 401836                   |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                           | Thursday, March 18, 2010 | Sheet 3 of 55 |



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 4 of 55                  |

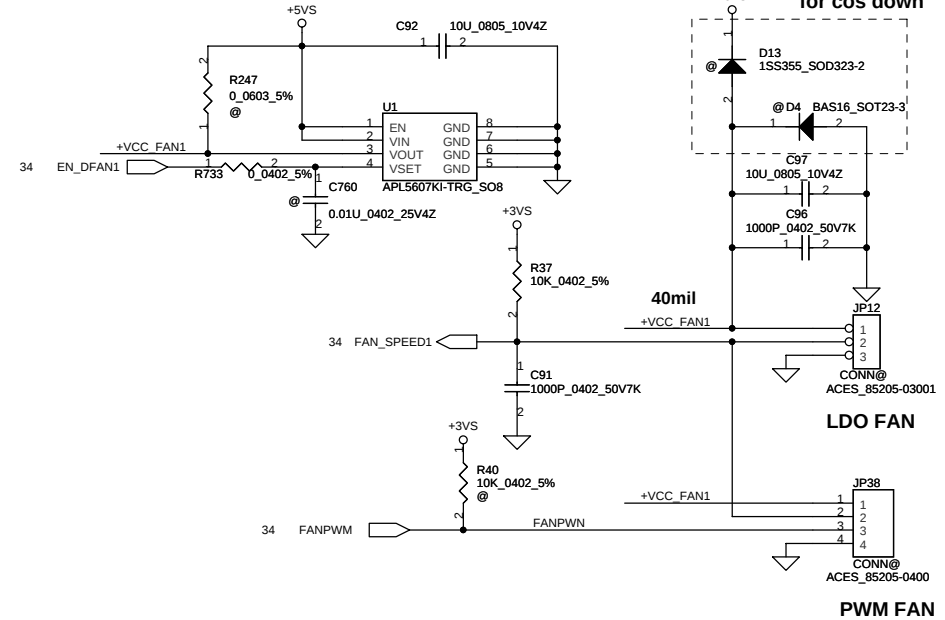
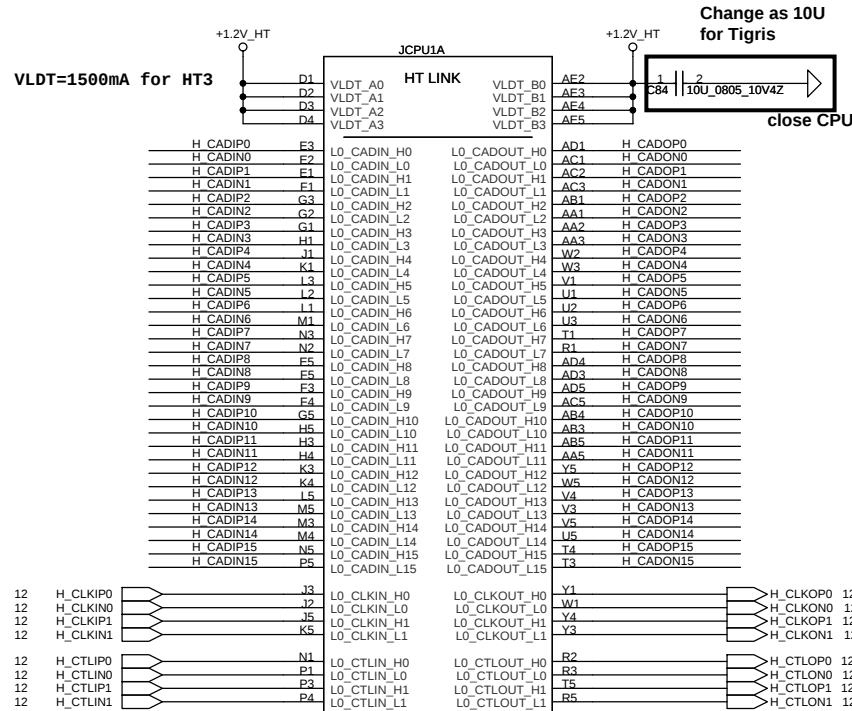


12 H\_CADIP[0..15] H\_CADIP[0..15]  
12 H\_CADIN[0..15] H\_CADIN[0..15]

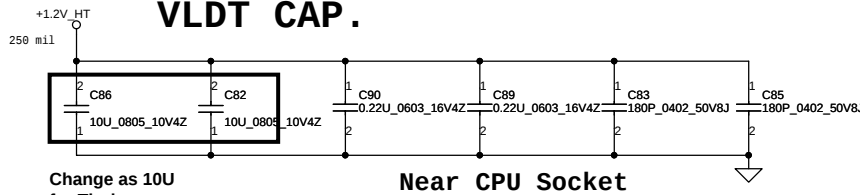
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H\_CADON[0..15] H\_CADON[0..15] 12

## FAN Control Circuit

Reserve when PVT  
for cos down



## VLDT CAP.

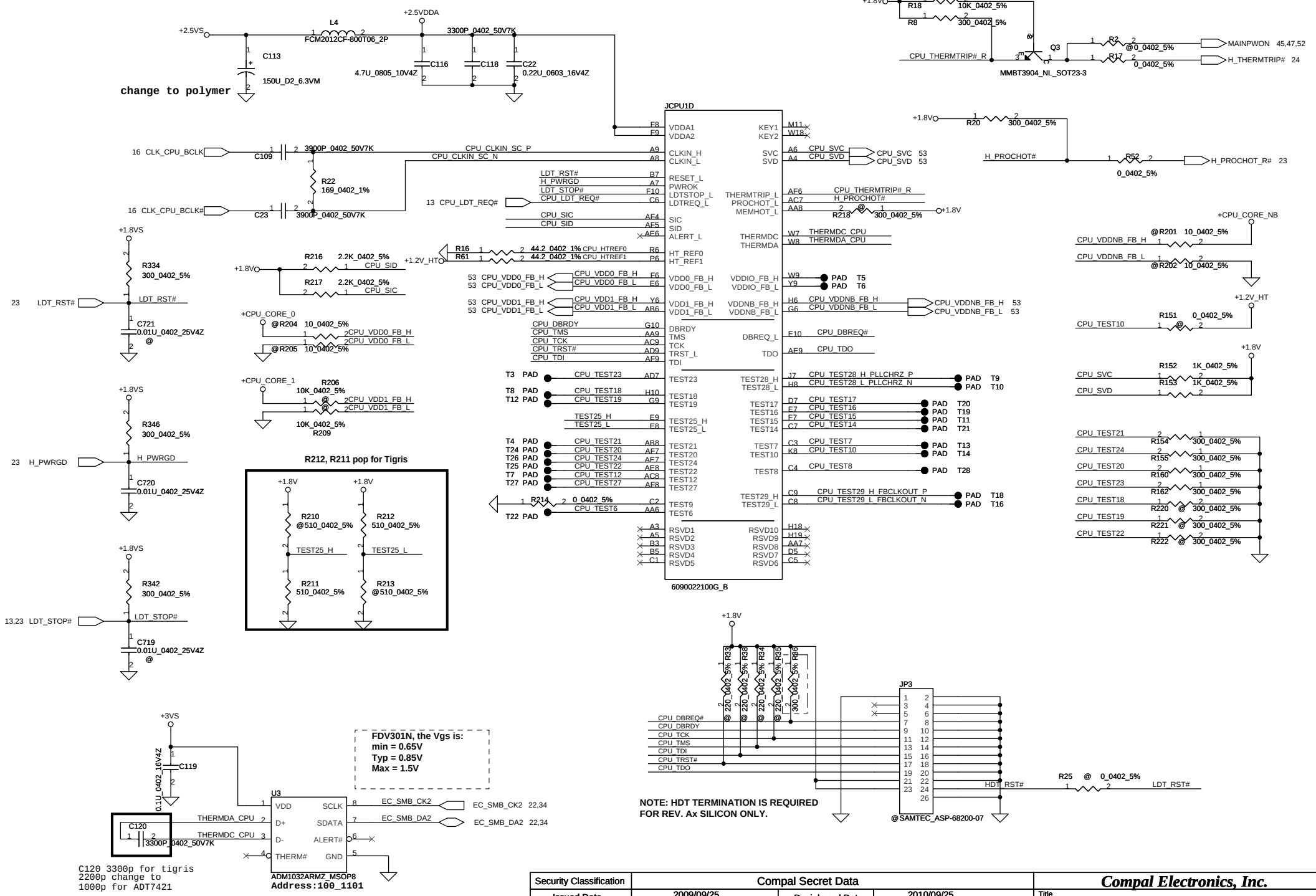


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| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |                          | Sheet 6 of 55      |



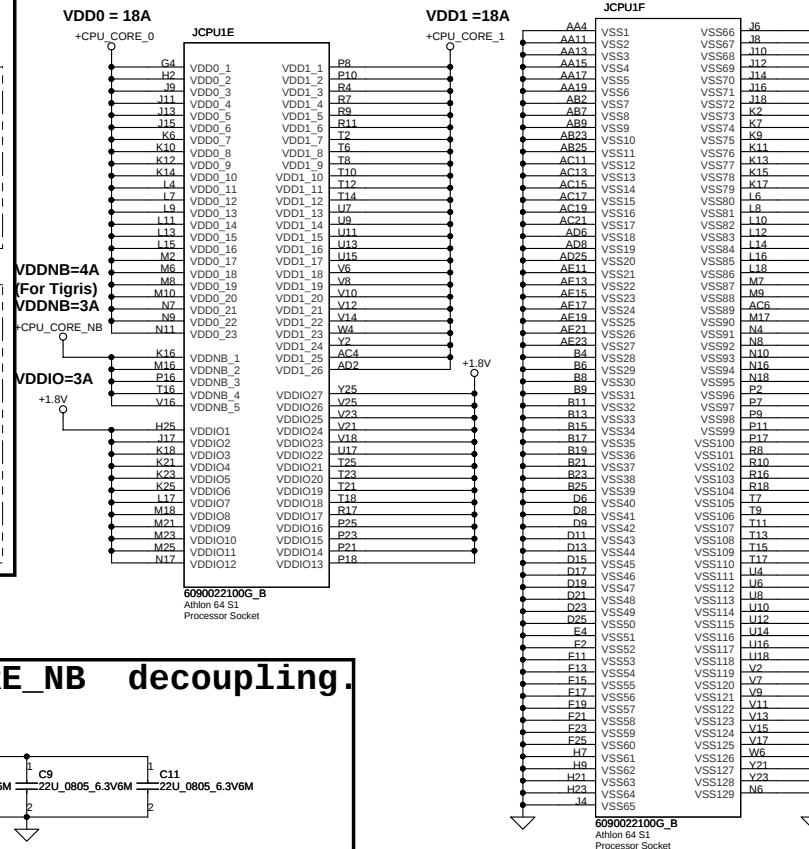
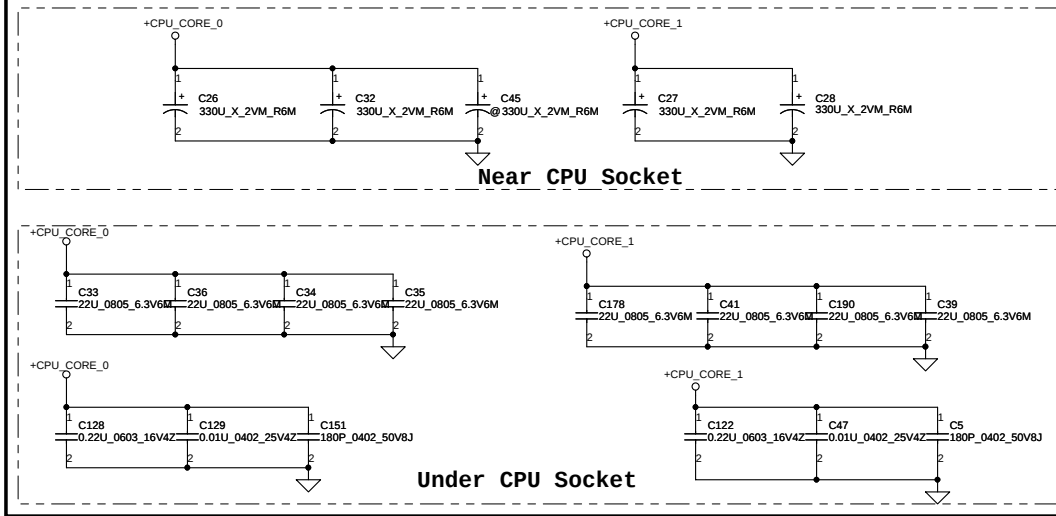
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change to polymer

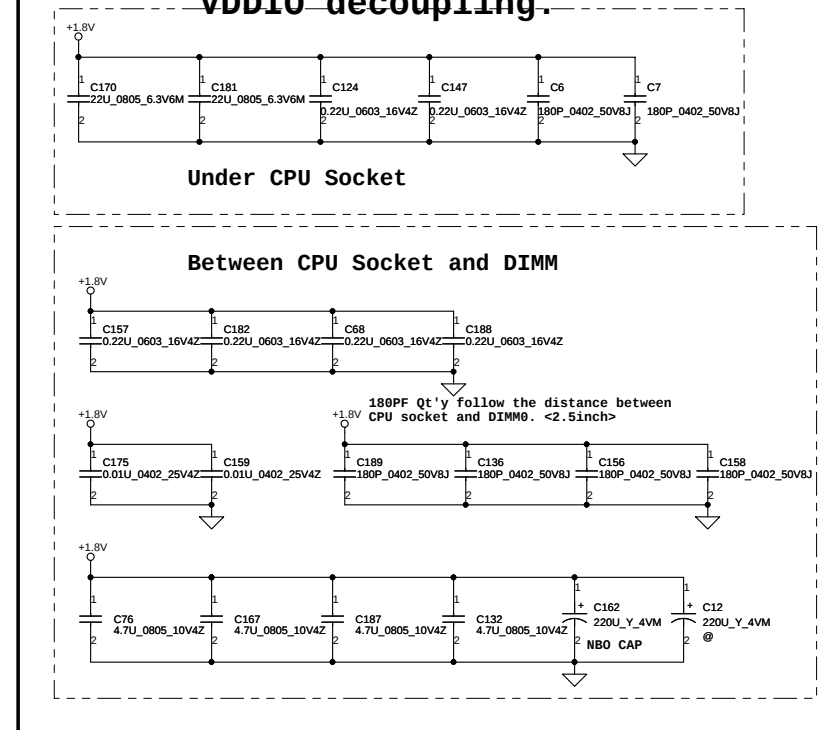


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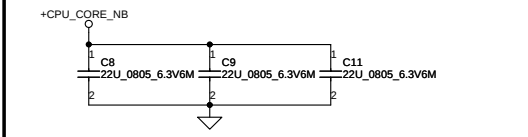
## VDD(+CPU\_CORE) decoupling.



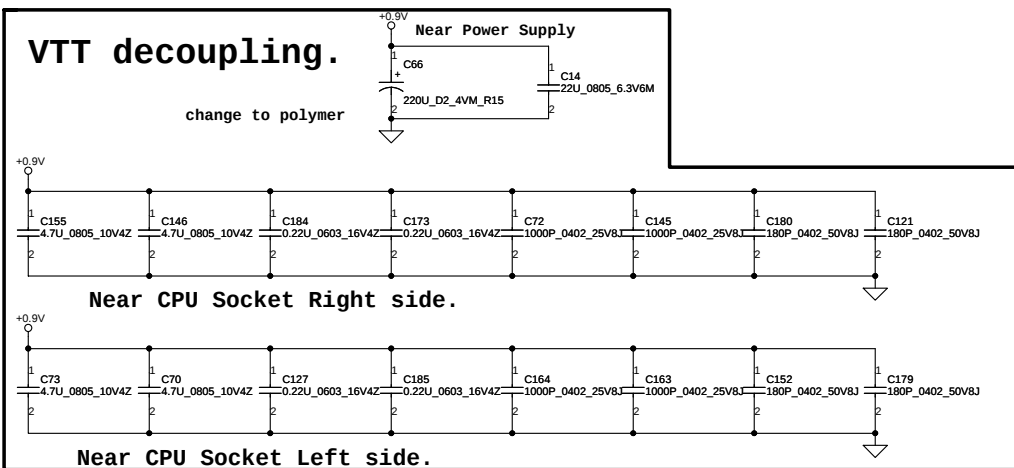
## VDDIO decoupling.



## +CPU\_CORE\_NB decoupling.

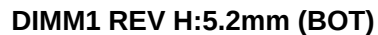
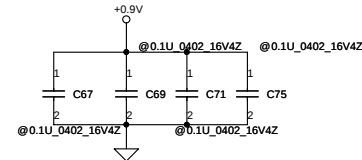
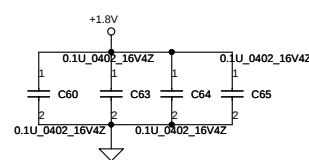
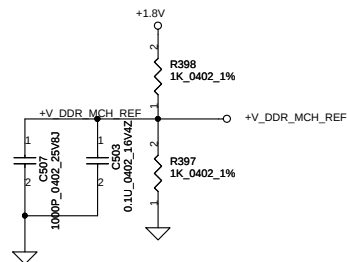


## VTT decoupling.

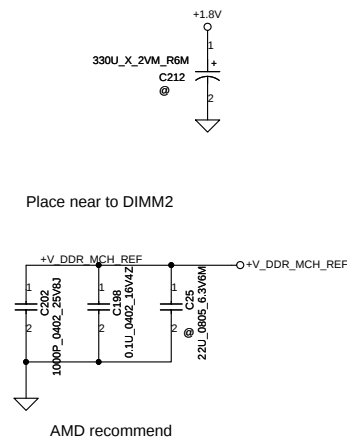


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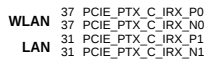
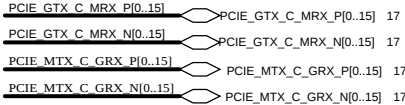
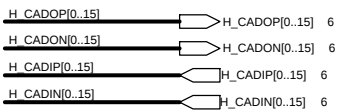
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| Date:                                                                                                                                                                                                                                                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



|                    |    |           |
|--------------------|----|-----------|
| PCIE GTX C MRX P0  | D4 | GFX_RX0P  |
| PCIE GTX C MRX N0  | C4 | GFX_RX0N  |
| PCIE GTX C MRX P1  | A3 | GFX_RX1P  |
| PCIE GTX C MRX N1  | B3 | GFX_RX1N  |
| PCIE GTX C MRX P2  | C2 | GFX_RX2P  |
| PCIE GTX C MRX N2  | F1 | GFX_RX2N  |
| PCIE GTX C MRX P3  | E1 | GFX_RX3P  |
| PCIE GTX C MRX N3  | F5 | GFX_RX3N  |
| PCIE GTX C MRX P4  | G5 | GFX_RX4P  |
| PCIE GTX C MRX N4  | G6 | GFX_RX4N  |
| PCIE GTX C MRX P5  | H5 | GFX_RX5P  |
| PCIE GTX C MRX N5  | H6 | GFX_RX5N  |
| PCIE GTX C MRX P6  | J5 | GFX_RX6P  |
| PCIE GTX C MRX N6  | J6 | GFX_RX6N  |
| PCIE GTX C MRX P7  | J7 | GFX_RX7P  |
| PCIE GTX C MRX N7  | J8 | GFX_RX7N  |
| PCIE GTX C MRX P8  | L5 | GFX_RX8P  |
| PCIE GTX C MRX N8  | L6 | GFX_RX8N  |
| PCIE GTX C MRX P9  | M8 | GFX_RX9P  |
| PCIE GTX C MRX N9  | L8 | GFX_RX9N  |
| PCIE GTX C MRX P10 | P7 | GFX_RX10P |
| PCIE GTX C MRX N10 | M7 | GFX_RX10N |
| PCIE GTX C MRX P11 | P5 | GFX_RX11P |
| PCIE GTX C MRX N11 | M5 | GFX_RX11N |
| PCIE GTX C MRX P12 | R8 | GFX_RX12P |
| PCIE GTX C MRX N12 | P8 | GFX_RX12N |
| PCIE GTX C MRX P13 | R5 | GFX_RX13P |
| PCIE GTX C MRX N13 | R6 | GFX_RX13N |
| PCIE GTX C MRX P14 | P4 | GFX_RX14P |
| PCIE GTX C MRX N14 | P3 | GFX_RX14N |
| PCIE GTX C MRX P15 | T4 | GFX_RX15P |
| PCIE GTX C MRX N15 | T3 | GFX_RX15N |

PART 2 OF 6

PCIE I/F GFX

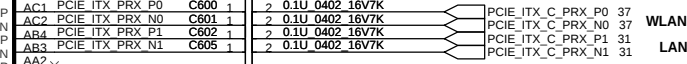
PCIE I/F GPP

PCIE I/F SB

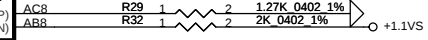
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PCE\_CALRN(PCE\_BCALRN)

RS880M\_FCBGA528

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|----|------------------|------|---|---|-----------------|--------------------|
| A5 | PCIE MTX GRX P0  | C647 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P0  |
| B5 | PCIE MTX GRX N0  | C646 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N0  |
| A4 | PCIE MTX GRX P1  | C649 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P1  |
| R4 | PCIE MTX GRX N1  | C648 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N1  |
| C3 | PCIE MTX GRX P2  | C651 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P2  |
| B2 | PCIE MTX GRX N2  | C650 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N2  |
| D1 | PCIE MTX GRX P3  | C653 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P3  |
| D2 | PCIE MTX GRX N3  | C652 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N3  |
| E2 | PCIE MTX GRX P4  | C654 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P4  |
| F1 | PCIE MTX GRX N4  | C655 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N4  |
| F4 | PCIE MTX GRX P5  | C656 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P5  |
| F3 | PCIE MTX GRX N5  | C657 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N5  |
| G1 | PCIE MTX GRX P6  | C659 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P6  |
| G2 | PCIE MTX GRX N6  | C660 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N6  |
| H4 | PCIE MTX GRX P7  | C642 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P7  |
| H3 | PCIE MTX GRX N7  | C641 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N7  |
| H1 | PCIE MTX GRX P8  | C638 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P8  |
| J2 | PCIE MTX GRX N8  | C636 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N8  |
| J1 | PCIE MTX GRX P9  | C637 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P9  |
| K1 | PCIE MTX GRX N9  | C635 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N9  |
| K4 | PCIE MTX GRX P10 | C634 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P10 |
| K3 | PCIE MTX GRX N10 | C633 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N10 |
| K1 | PCIE MTX GRX P11 | C631 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P11 |
| K2 | PCIE MTX GRX N11 | C630 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N11 |
| M4 | PCIE MTX GRX P12 | C629 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P12 |
| M3 | PCIE MTX GRX N12 | C627 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N12 |
| M1 | PCIE MTX GRX P13 | C625 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P13 |
| M2 | PCIE MTX GRX N13 | C623 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N13 |
| N2 | PCIE MTX GRX P14 | C620 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P14 |
| N1 | PCIE MTX GRX N14 | C624 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N14 |
| P1 | PCIE MTX GRX P15 | C621 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX P15 |
| P2 | PCIE MTX GRX N15 | C619 | 1 | 2 | 0.1U 0402 16V7K | PCIE MTX C GRX N15 |



|     |           |      |   |   |                 |            |
|-----|-----------|------|---|---|-----------------|------------|
| AD7 | SB TX0P C | C259 | 1 | 2 | 0.1U 0402 16V7K | SB TX0P 23 |
| AE7 | SB TX0N C | C272 | 1 | 2 | 0.1U 0402 16V7K | SB TX0N 23 |
| AE6 | SB TX1P C | C254 | 1 | 2 | 0.1U 0402 16V7K | SB TX1P 23 |
| AD6 | SB TX1N C | C252 | 1 | 2 | 0.1U 0402 16V7K | SB TX1N 23 |
| AC6 | SB TX2P C | C168 | 1 | 2 | 0.1U 0402 16V7K | SB TX2P 23 |
| AC5 | SB TX2N C | C261 | 1 | 2 | 0.1U 0402 16V7K | SB TX2N 23 |
| AD5 | SB TX3P C | C248 | 1 | 2 | 0.1U 0402 16V7K | SB TX3P 23 |
| AE5 | SB TX3N C | C275 | 1 | 2 | 0.1U 0402 16V7K | SB TX3N 23 |

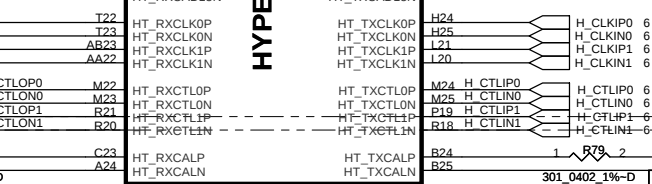


|          |     |            |
|----------|-----|------------|
| H_CADOP0 | Y25 | HT_RXCAD0P |
| H_CADON0 | Y24 | HT_RXCAD0N |
| H_CADOP1 | Y22 | HT_RXCAD1P |
| H_CADON1 | Y23 | HT_RXCAD1N |
| H_CADOP2 | Y25 | HT_RXCAD2P |
| H_CADON2 | Y24 | HT_RXCAD2N |
| H_CADOP3 | U24 | HT_RXCAD3P |
| H_CADON3 | Y25 | HT_RXCAD3N |
| H_CADOP4 | T24 | HT_RXCAD4P |
| H_CADON4 | T24 | HT_RXCAD4N |
| H_CADOP5 | P22 | HT_RXCAD5P |
| H_CADON5 | P23 | HT_RXCAD5N |
| H_CADOP6 | P25 | HT_RXCAD6P |
| H_CADON6 | P24 | HT_RXCAD6N |
| H_CADOP7 | N24 | HT_RXCAD7P |
| H_CADON7 | N25 | HT_RXCAD7N |

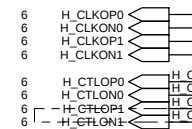
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|-----------|------|-------------|
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| H_CADON8  | AC25 | HT_RXCAD8N  |
| H_CADOP9  | AB25 | HT_RXCAD9P  |
| H_CADON9  | AB24 | HT_RXCAD9N  |
| H_CADOP10 | AA24 | HT_RXCAD10P |
| H_CADON10 | AA25 | HT_RXCAD10N |
| H_CADOP11 | Y22  | HT_RXCAD11P |
| H_CADON11 | Y23  | HT_RXCAD11N |
| H_CADOP12 | W21  | HT_RXCAD12P |
| H_CADON12 | W20  | HT_RXCAD12N |
| H_CADOP13 | V21  | HT_RXCAD13P |
| H_CADON13 | V21  | HT_RXCAD13N |
| H_CADOP14 | U20  | HT_RXCAD14P |
| H_CADON14 | U21  | HT_RXCAD14N |
| H_CADOP15 | U19  | HT_RXCAD15P |
| H_CADON15 | U18  | HT_RXCAD15N |

|          |     |            |
|----------|-----|------------|
| H_CADIP0 | D24 | HT_TXCAD0P |
| H_CADIN0 | D25 | HT_TXCAD0N |
| H_CADIP1 | E24 | HT_TXCAD1P |
| H_CADIN1 | E25 | HT_TXCAD1N |
| H_CADIP2 | F24 | HT_TXCAD2P |
| H_CADIN2 | F25 | HT_TXCAD2N |
| H_CADIP3 | E23 | HT_TXCAD3P |
| H_CADIN3 | E22 | HT_TXCAD3N |
| H_CADIP4 | H22 | HT_TXCAD4P |
| H_CADIN4 | J25 | HT_TXCAD4N |
| H_CADIP5 | J24 | HT_TXCAD5P |
| H_CADIN5 | K24 | HT_TXCAD5N |
| H_CADIP6 | K25 | HT_TXCAD6P |
| H_CADIN6 | K23 | HT_TXCAD6N |
| H_CADIP7 | K23 | HT_TXCAD7P |
| H_CADIN7 | K22 | HT_TXCAD7N |

|           |     |             |
|-----------|-----|-------------|
| H_CADIP8  | E21 | HT_TXCAD8P  |
| H_CADIN8  | G21 | HT_TXCAD8N  |
| H_CADIP9  | G20 | HT_TXCAD9P  |
| H_CADIN9  | H21 | HT_TXCAD9N  |
| H_CADIP10 | J20 | HT_TXCAD10P |
| H_CADIN10 | J21 | HT_TXCAD10N |
| H_CADIP11 | J18 | HT_TXCAD11P |
| H_CADIN11 | K17 | HT_TXCAD11N |
| H_CADIP12 | L19 | HT_TXCAD12P |
| H_CADIN12 | L19 | HT_TXCAD12N |
| H_CADIP13 | M19 | HT_TXCAD13P |
| H_CADIN13 | L18 | HT_TXCAD13N |
| H_CADIP14 | M21 | HT_TXCAD14P |
| H_CADIN14 | P21 | HT_TXCAD14N |
| H_CADIP15 | P18 | HT_TXCAD15P |
| H_CADIN15 | M18 | HT_TXCAD15N |



Check AMD



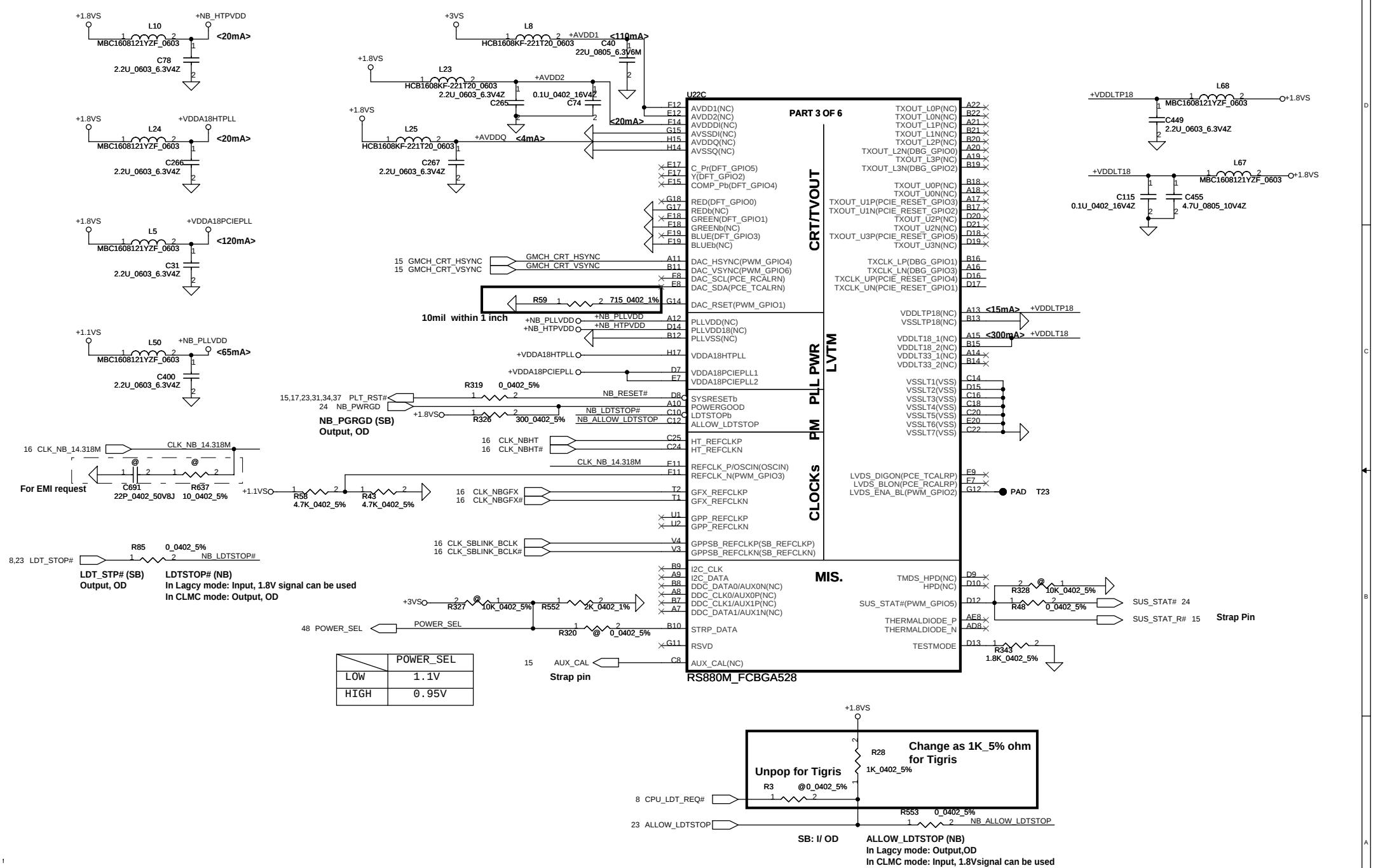
Place within 1" layout 4/8

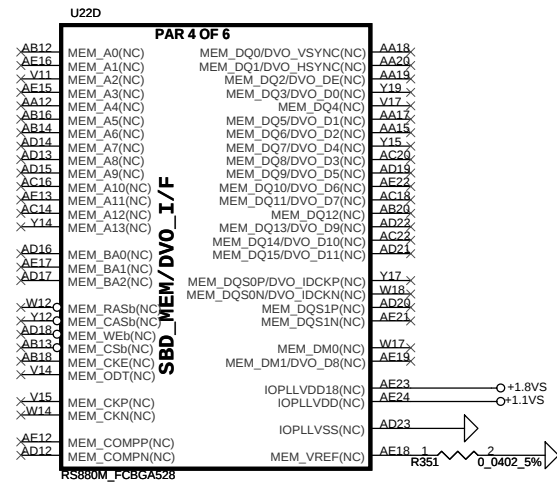
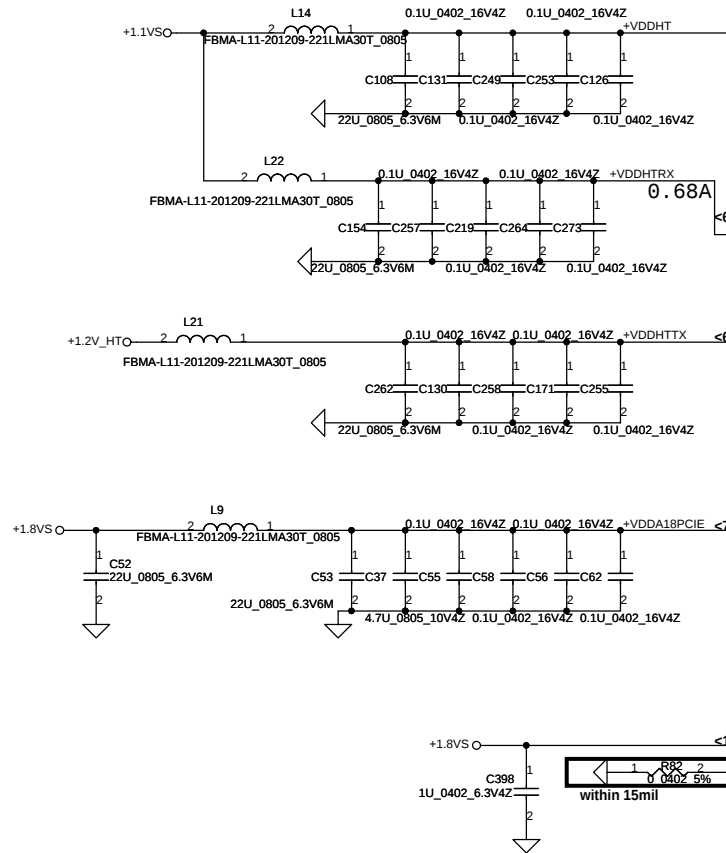
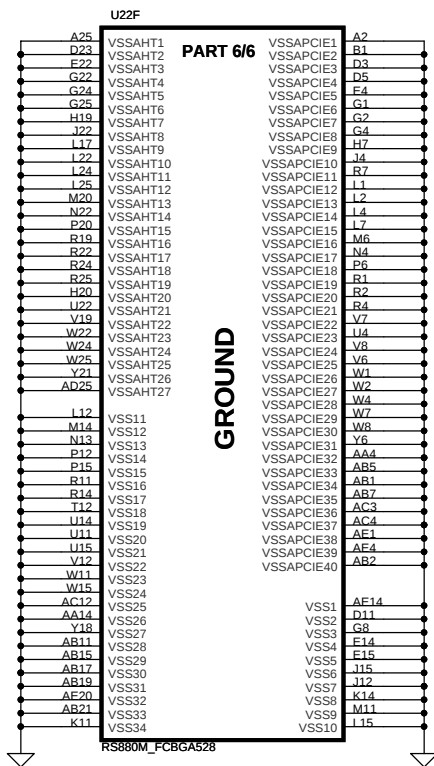
RS880M\_FCBGA528

HT Link  
When tune trace length, must keep 1:4 on self-trace

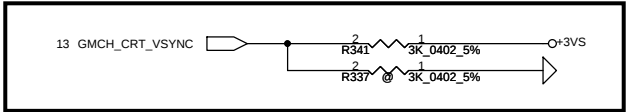
Place within 1" layout 4/8

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  | Title           |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2009/09/25         |  | Deciphered Date |  |
| 2010/09/25                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 2010/09/25         |  | 2010/09/25      |  |
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| 401836                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 401836             |  | 401836          |  |
| Thursdays, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | Sheet              |  | 12 of 55        |  |



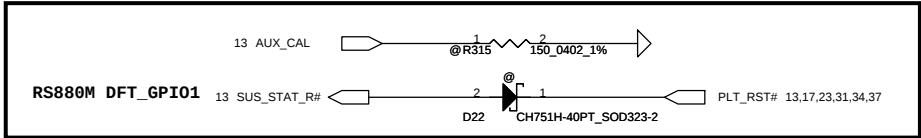


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                          |  |                    |  |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data       |  | Title              |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Deciphered Date          |  | SCHEMATIC MB A5992 |  |
| 2009/09/25                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 2010/09/25               |  | Document Number    |  |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Thursday, March 18, 2010 |  | Sheet 14 of 55     |  |



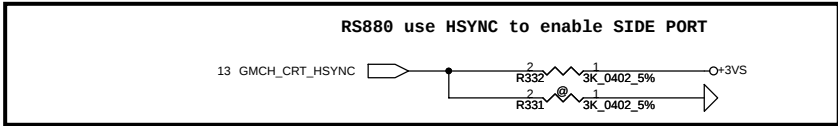
**DFT\_GPIO5:STRAP\_DEBUG\_BUS\_GPIO\_ENABLED**

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



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

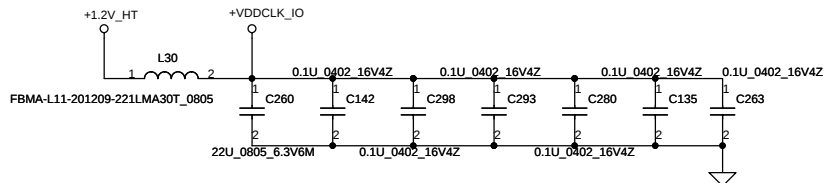
Selects Loading of STRAPS from EPROM  
1 : Bypass the loading of EEPROM straps and use Hardware Default Values  
0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected  
RS740/RX780/RS880M: DFT\_GPIO1 RS880M:SUS\_STAT



**RS880 use HSYNC to enable SIDE PORT**

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------------|------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.       |                        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Sheet 15 of 55         |



|         |   |                                    |
|---------|---|------------------------------------|
| SEL_27M | 1 | configure as 27M and 27M_SS output |
|         | 0 | configure as SRC 7 output          |

|         |           |                                    |
|---------|-----------|------------------------------------|
| 27M_SEL | 1 *       | configure as 27M and 27M_SS output |
|         | 0         | configure as SRC 7 output          |
|         | * default |                                    |

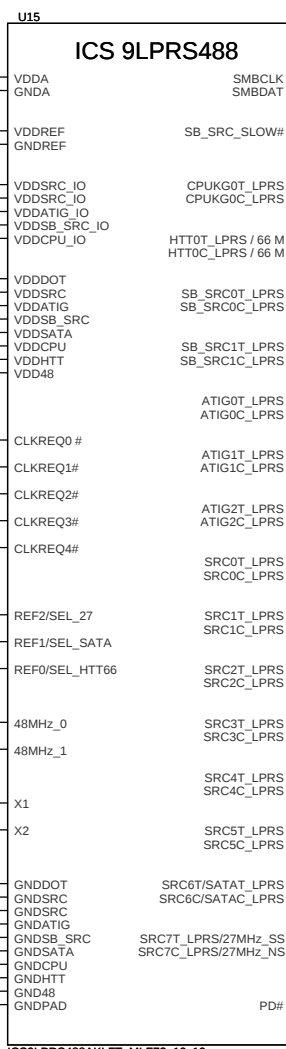
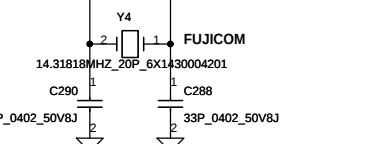
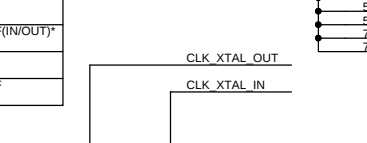
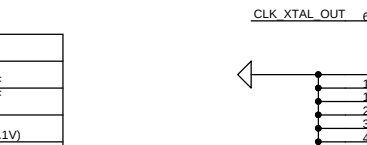
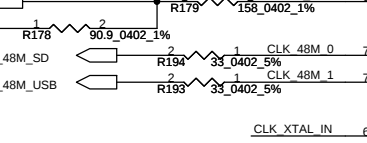
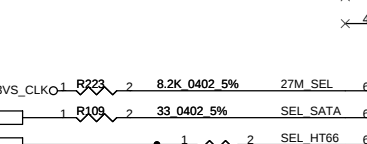
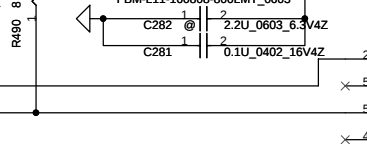
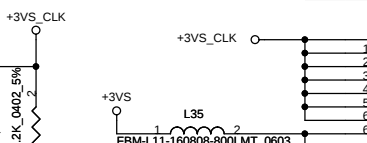
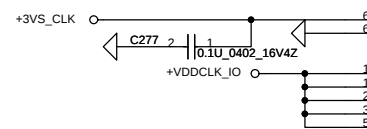
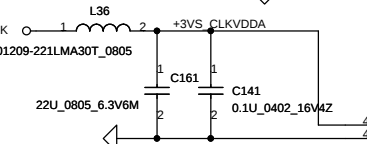
|           |           |                                         |
|-----------|-----------|-----------------------------------------|
| SEL_HTT66 | 1         | configure as single-ended 66MHz output  |
|           | 0 *       | configure as differential 100MHz output |
| SEL_SATA  | 1 *       | SS 100M SATA SRC6 output                |
|           | 0         | SS 100M SATA SRC6 output                |
|           | * default |                                         |

LAN request  
MiniCard1 request

External 14MHz CLK  
for SB710

NB CLOCK INPUT TABLE

| NB CLOCKS    | RS740              | RX780         | RS780              |
|--------------|--------------------|---------------|--------------------|
| HT_REFCLKP   | 66M SE(SINGLE END) | 100M DIFF     | 100M DIFF          |
| HT_REFCLKN   | NC                 | 100M DIFF     | 100M DIFF          |
| REFCLK_P     | 14M SE (3.3V)      | 14M SE (1.8V) | 14M SE (1.1V)      |
| REFCLK_N     | NC                 | NC            | vref               |
| GFX_REFCLK   | 100M DIFF          | 100M DIFF     | 100M DIFF(IN/OUT)* |
| GPP_REFCLK   | NC                 | 100M DIFF     | NC                 |
| GPSPB_REFCLK | 100M DIFF          | 100M DIFF     | 100M DIFF          |

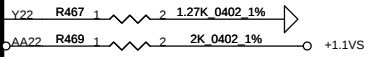
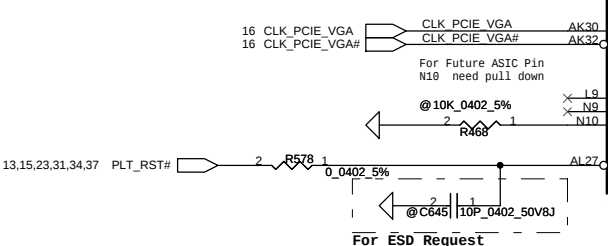
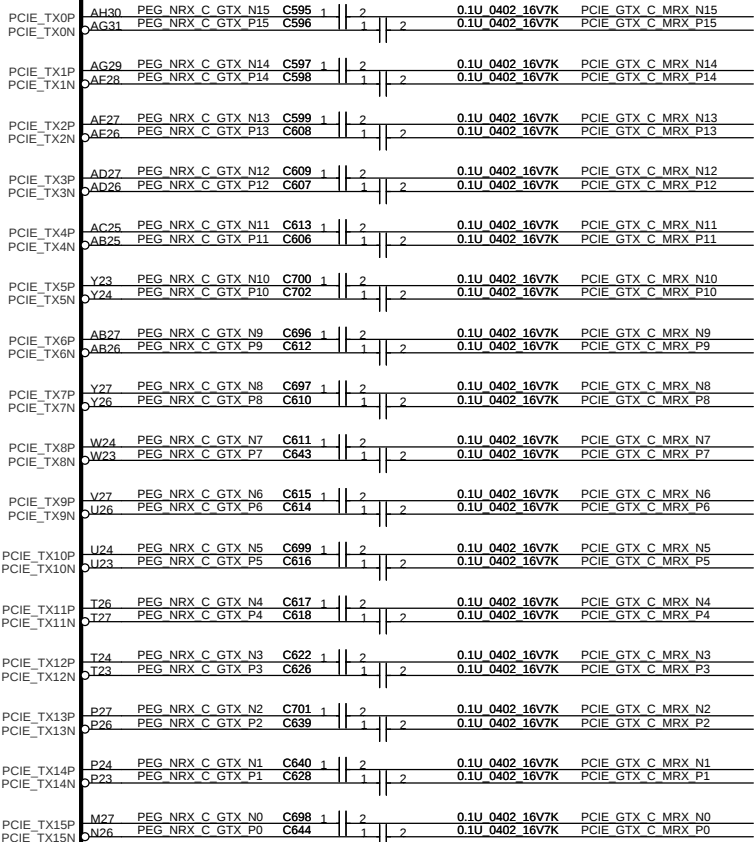
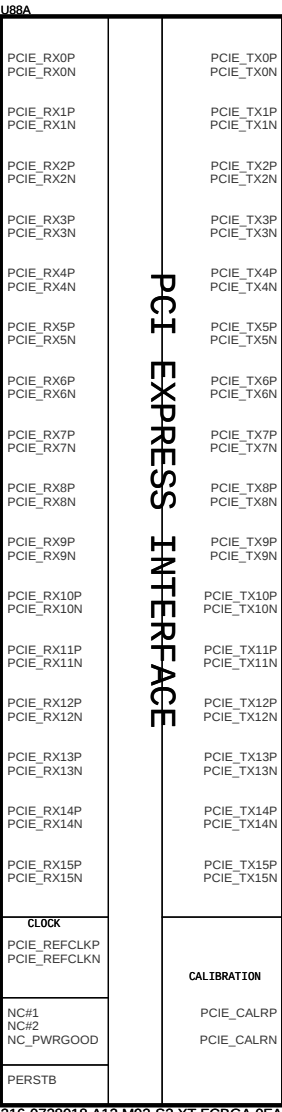
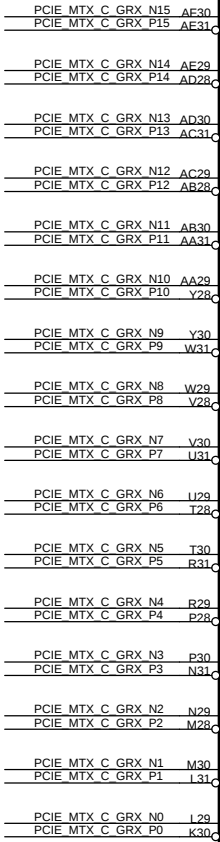
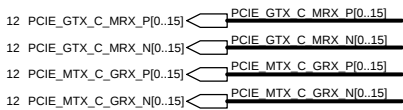


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Second--ICS9LPRS488CKLFT-SA000023H10

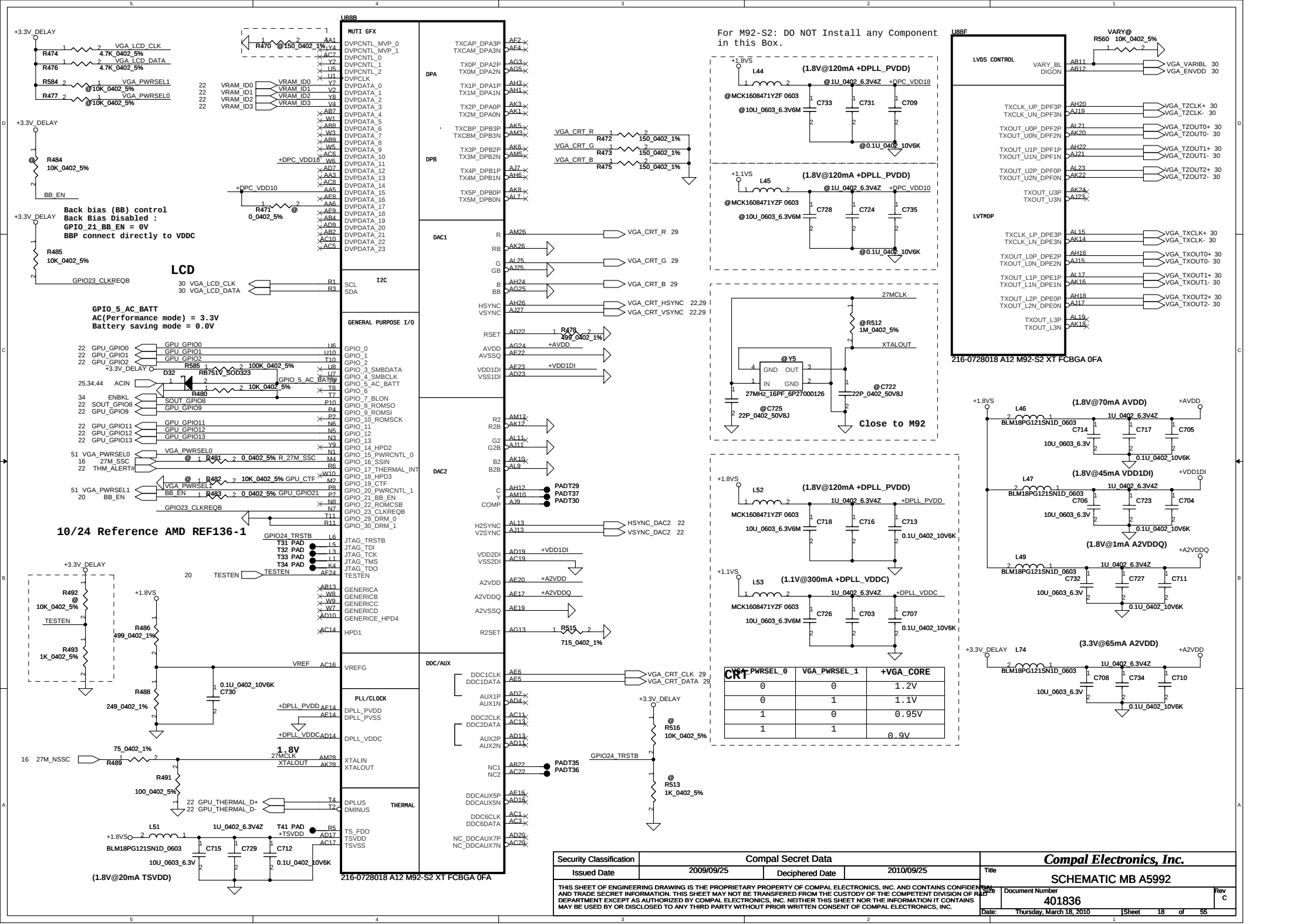
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|--|--------------------------|--|----------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                          |  |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | C                        |  | 401836                   |  | C              |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Date:                    |  | Thursday, March 18, 2010 |  | Sheet 16 of 55 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | 3                        |  | 2                        |  |                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                          |  |                |  |

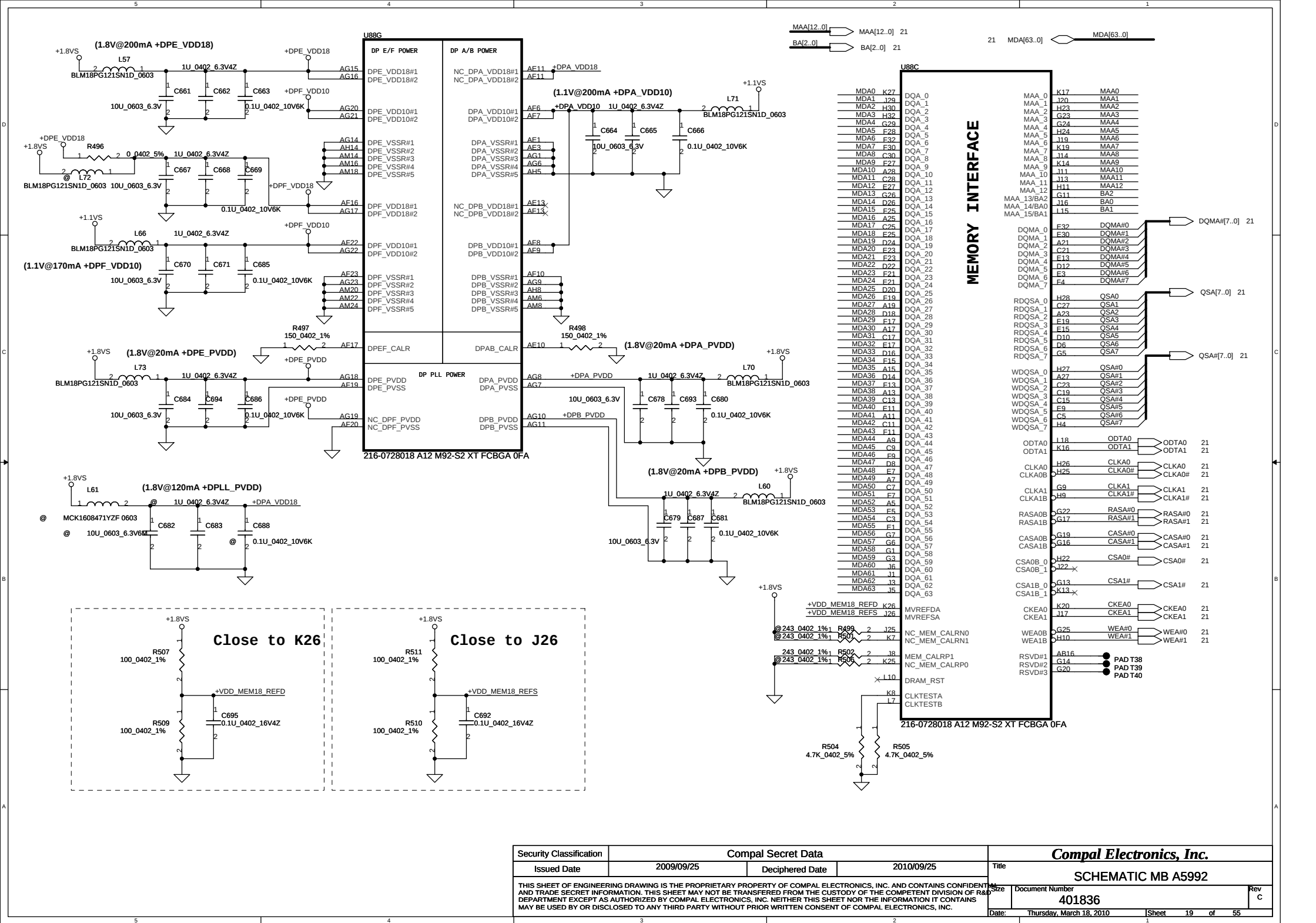
PCIE LANE REVERSAL

PCIE LANE REVERSAL



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 17 of 55                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |

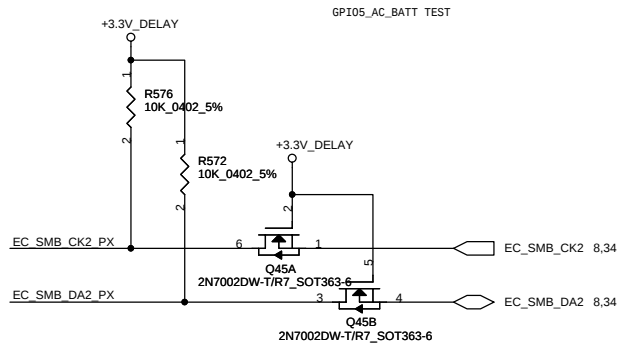
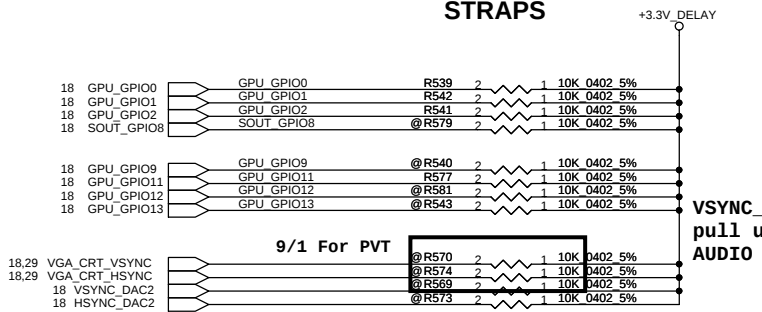




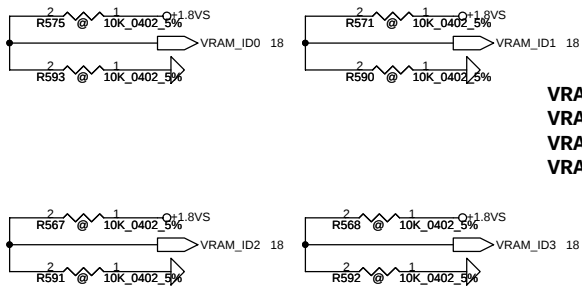
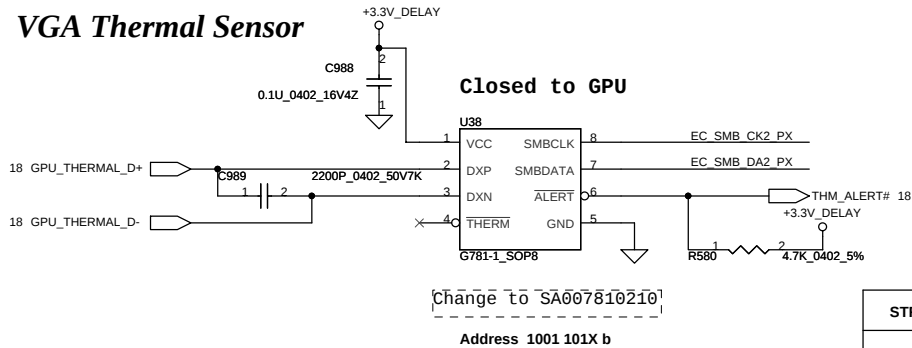




## STRAPS



## VGA Thermal Sensor



## CONFIGURATION STRAPS

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

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

## AMD RESERVED CONFIGURATION STRAPS

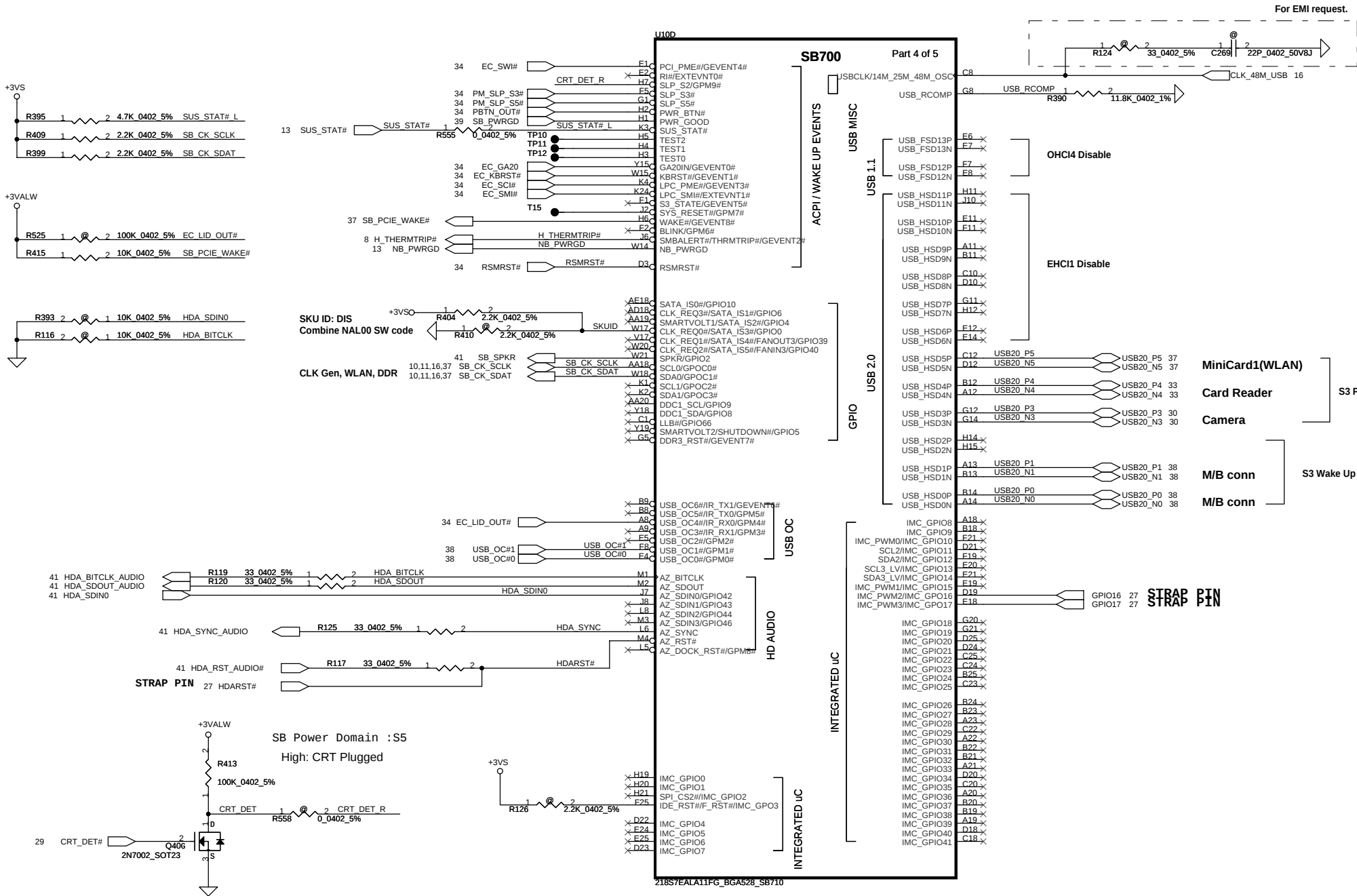
ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED,  
THEY MUST NOT CONFLICT DURING RESET

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

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25         | Deciphered Date | 2010/09/25 | Title                    | SCHEMATIC MB A5992       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                    | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Sheet                    | 22 of 55                 |





SB710 Ver:A14 <SA000030740>

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

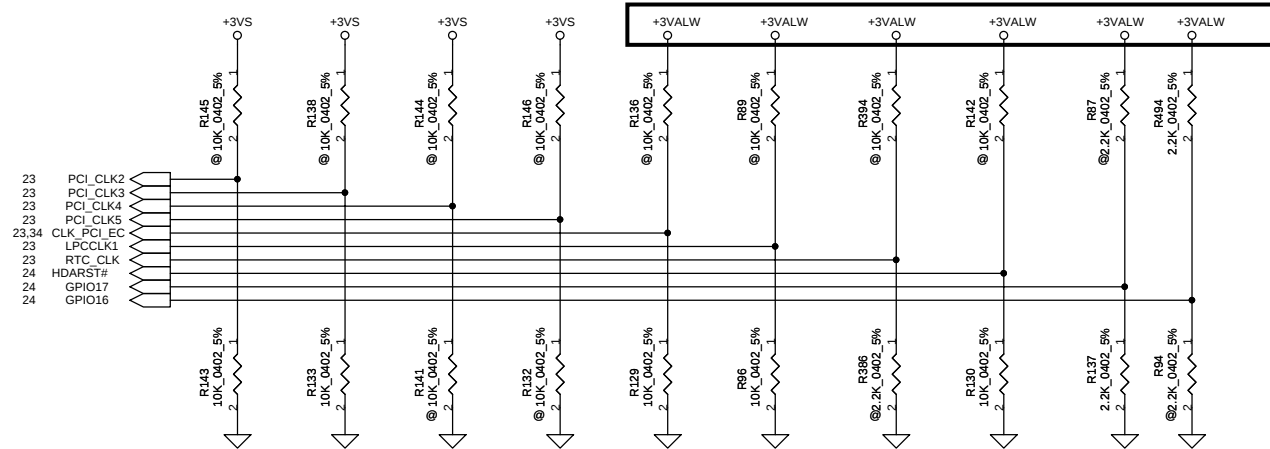




# REQUIRED STRAPS

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

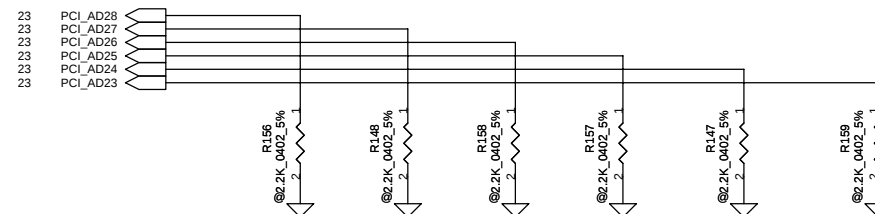
|                  | PCI_CLK2                                 | PCI_CLK3                             | PCI_CLK4 | PCI_CLK5 | LPC_CLK0<br>CLK_PCI_EC                 | LPC_CLK1                          | RTC_CLK                                                        | AZ_RST_CD#                       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



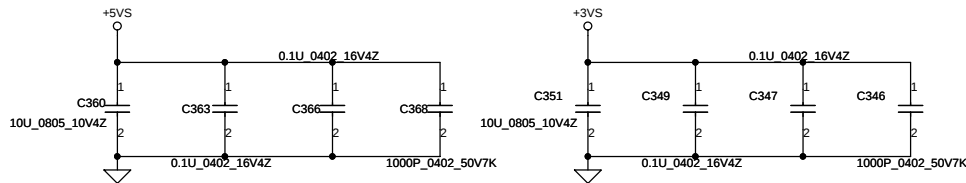
# DEBUG STRAPS

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

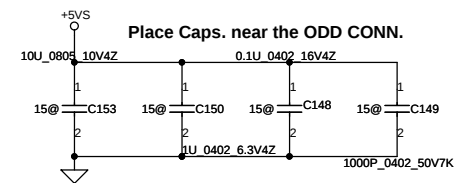
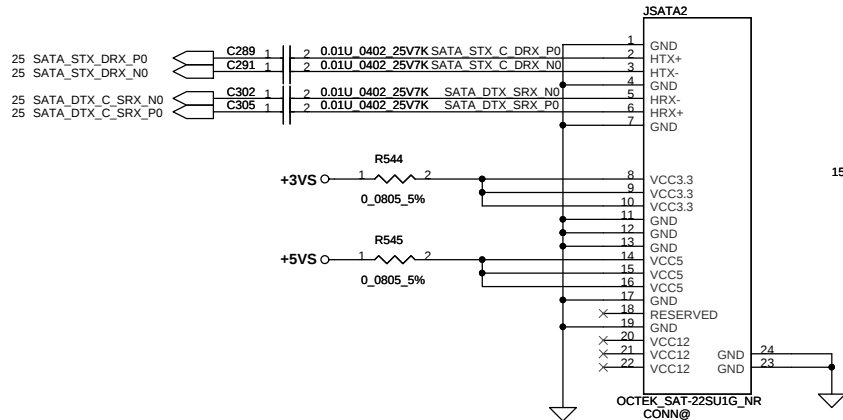
|                  | PCI_AD28                        | PCI_AD27                      | PCI_AD26                        | PCI_AD25                      | PCI_AD24                                  | PCI_AD23 |
|------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|----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



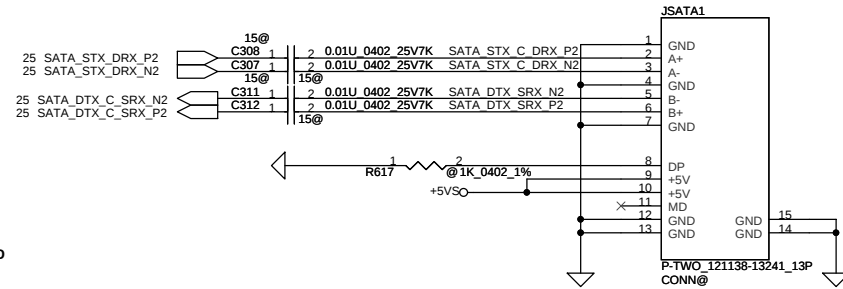
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 27 of 55                 |



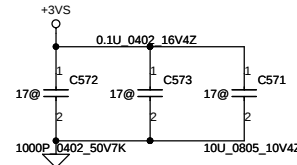
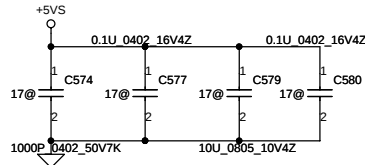
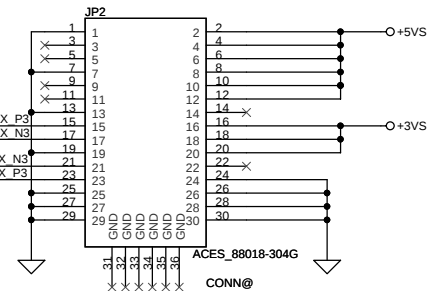
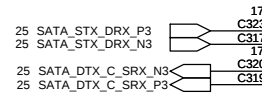
## SATA HDD CONN



## SATA ODD CONN

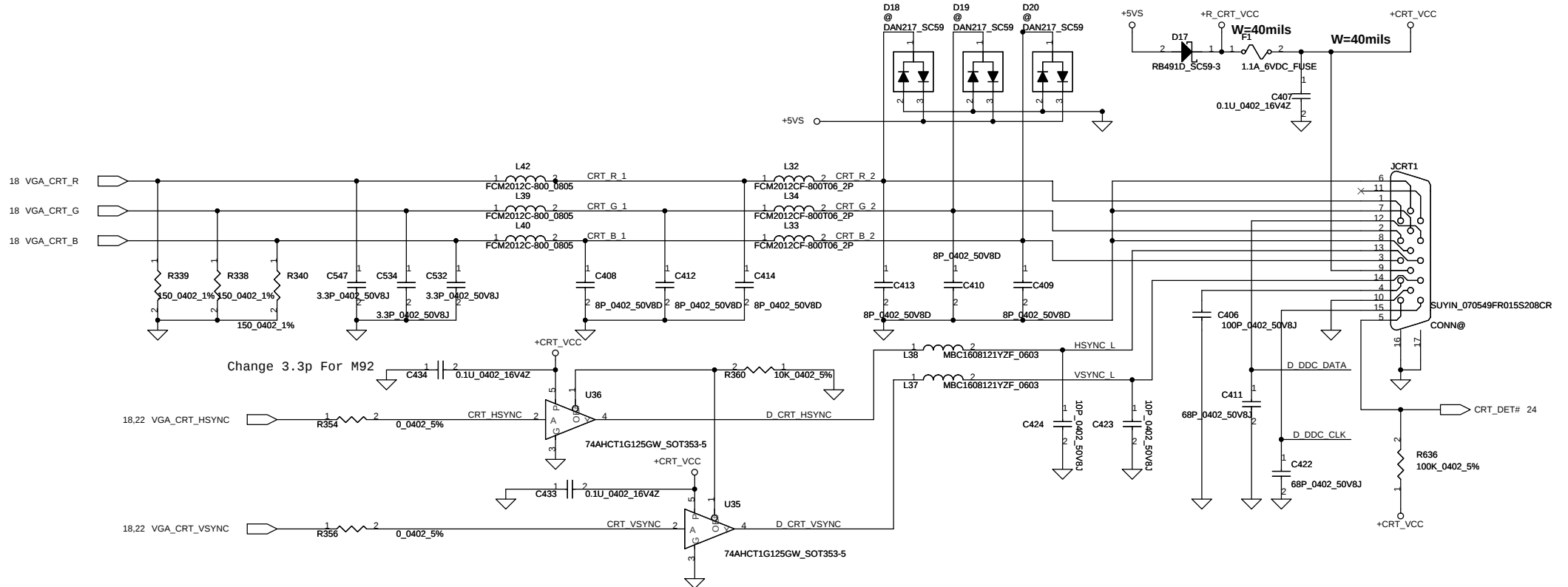


## Second ODD

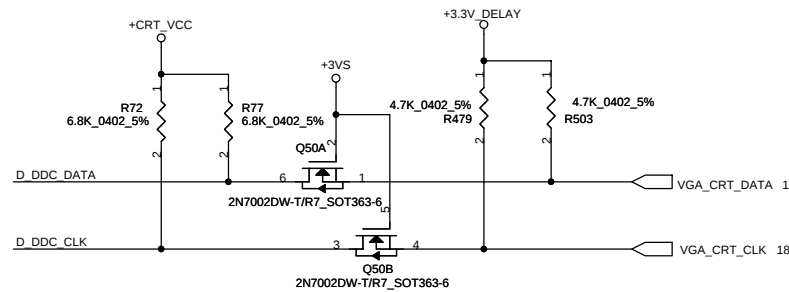


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 28 of 55                 |

# CRT Connector

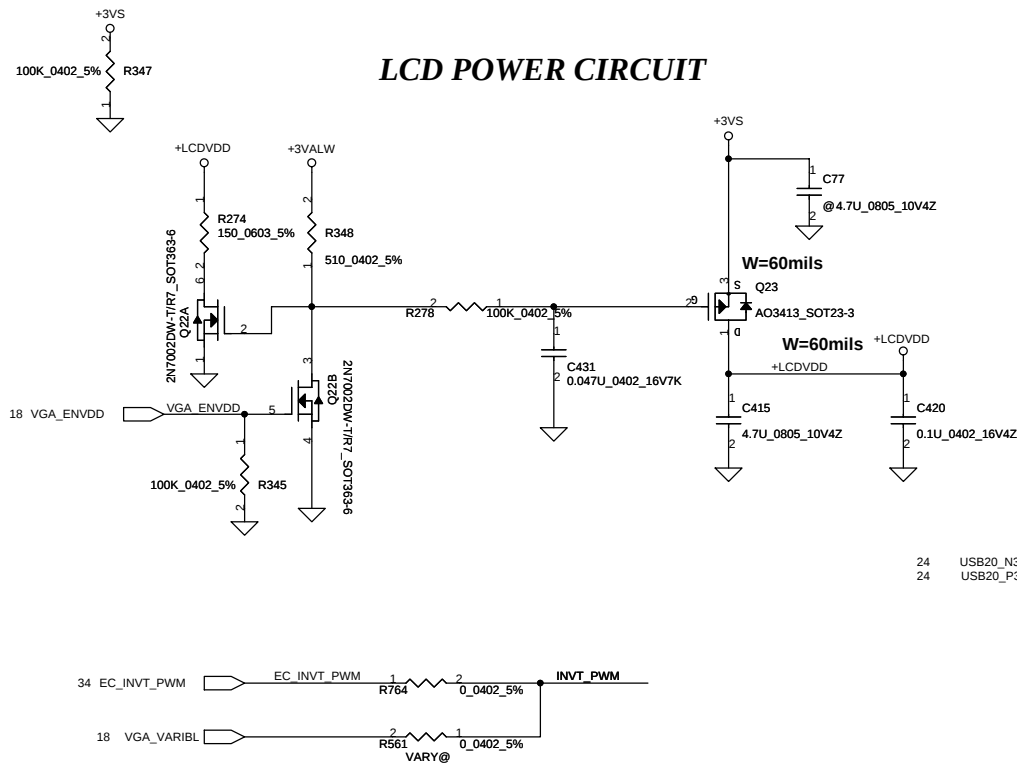


## Close to Conn side

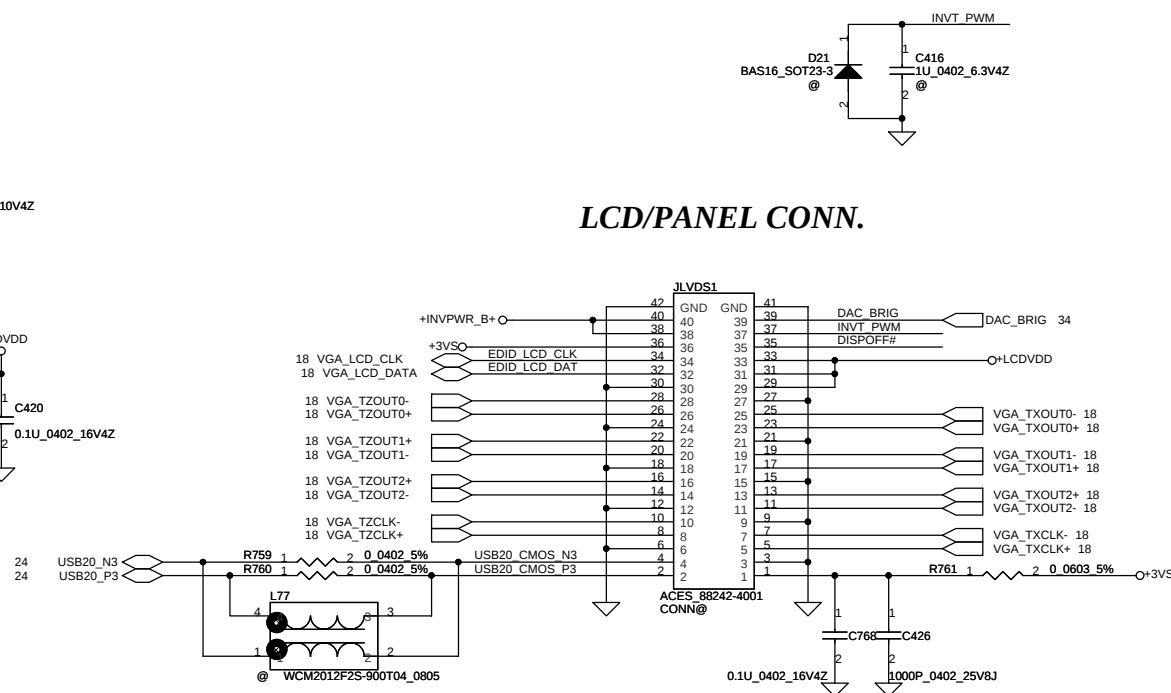


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 29 of 55                 |

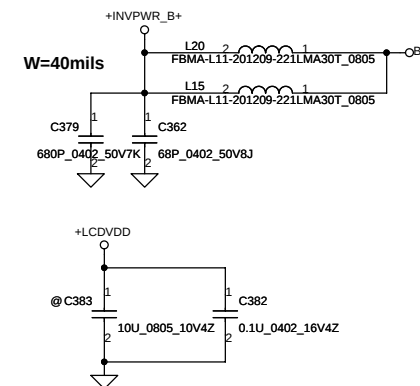
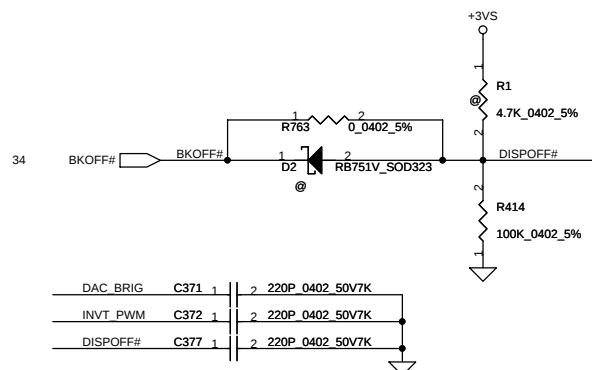
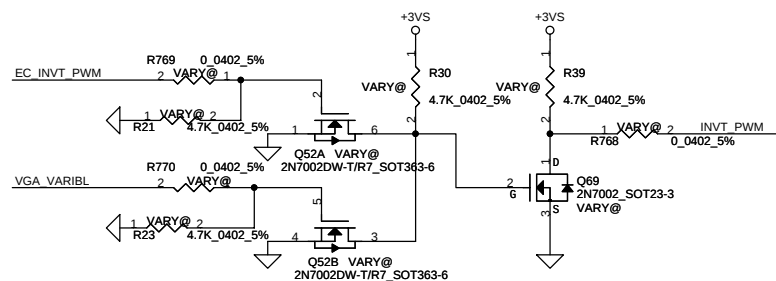
## LCD POWER CIRCUIT



## LCD/PANEL CONN.



## VARYBRIGHT FUNCTION

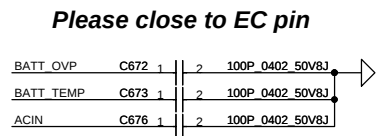
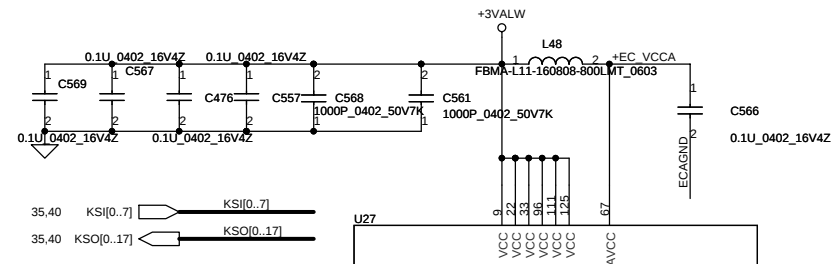
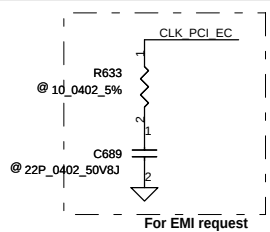


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Thursday, March 18, 2010 | Sheet 30 of 55 |



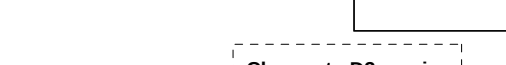
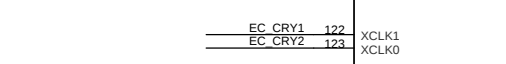
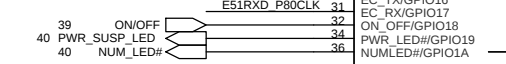
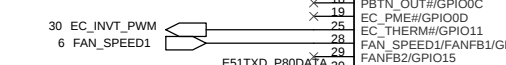
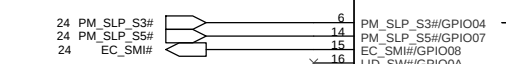
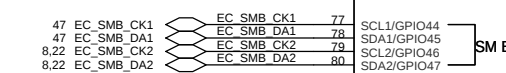
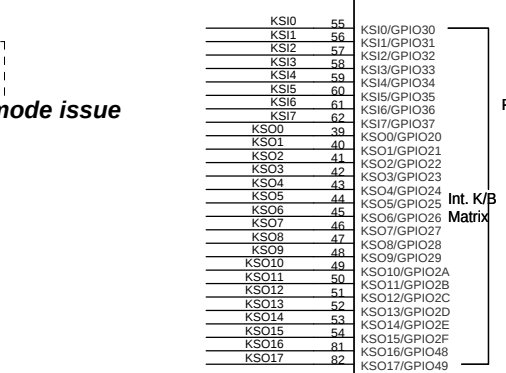
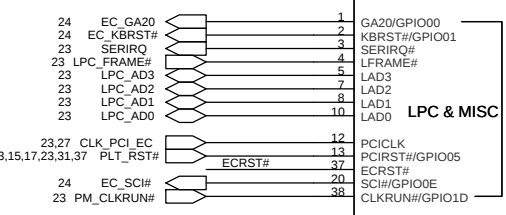
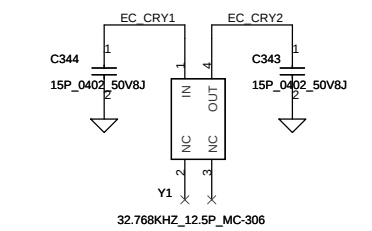
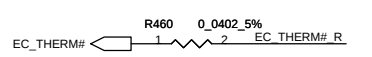
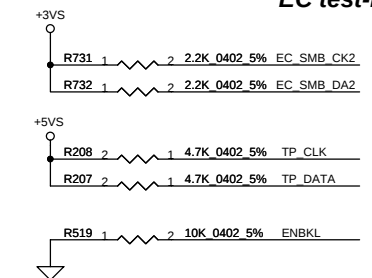
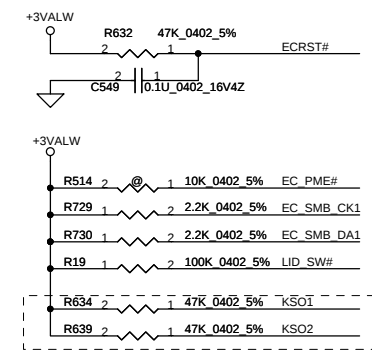
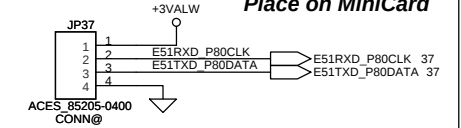




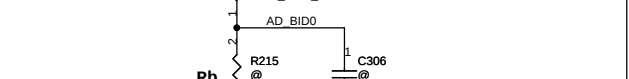
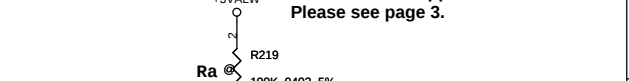
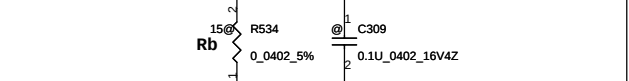
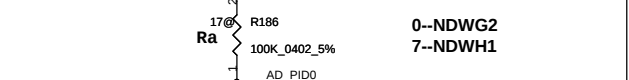
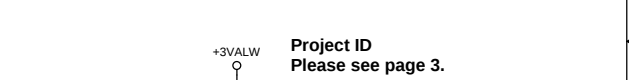
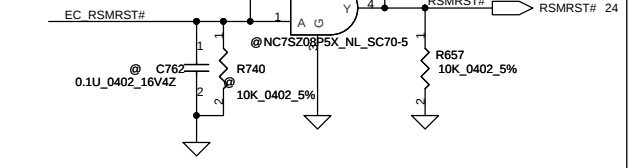
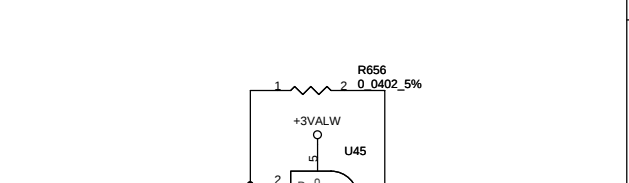
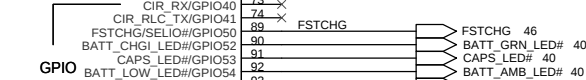
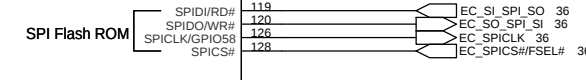
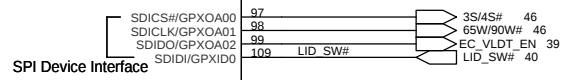
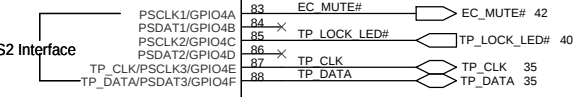
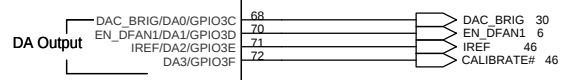
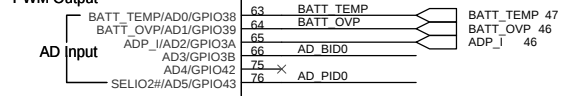
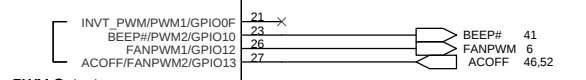


For EC Tools

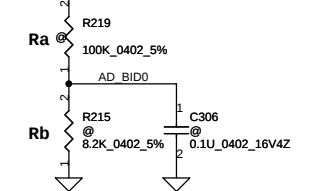
Place on MiniCard



Chagne to D3 version

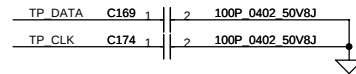
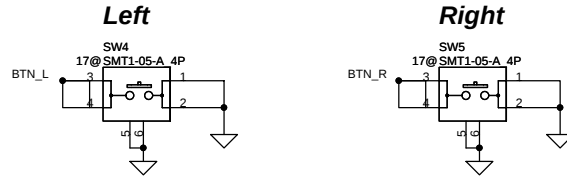


Board ID <VB support> Please see page 3.

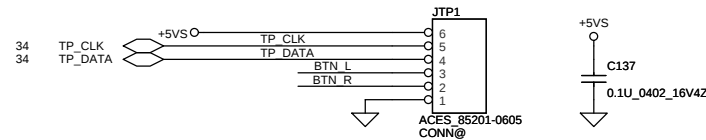


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 34 of 55                 |

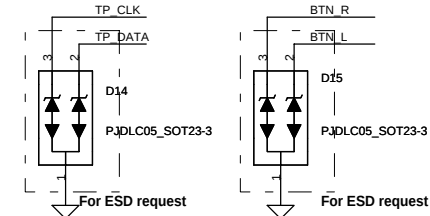
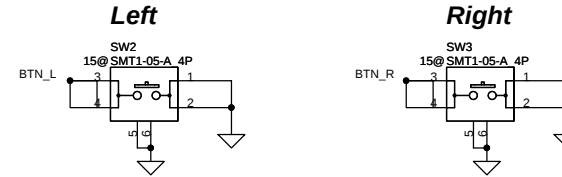
For 17"



TP/B Conn.



For 15"

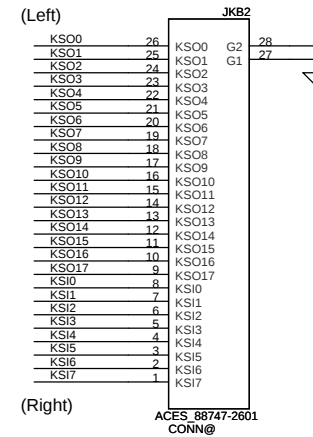
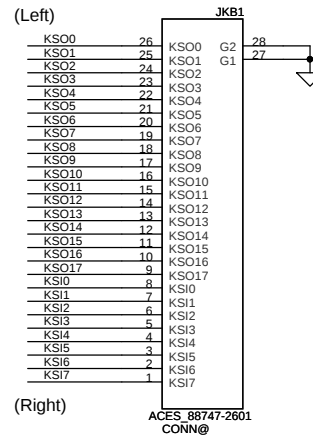
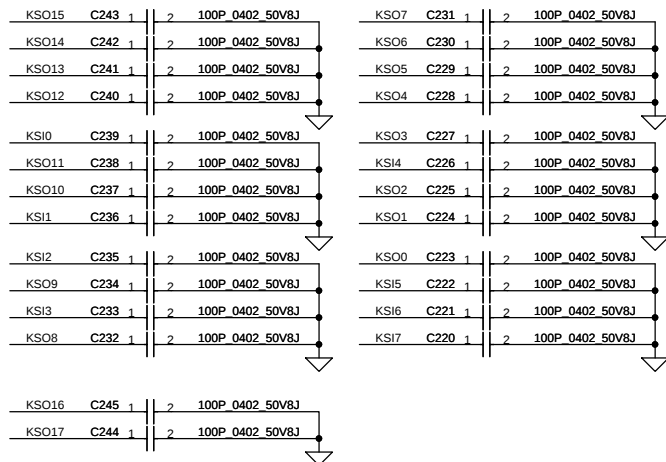


Change to SCA00000200

INT\_KBD Conn.

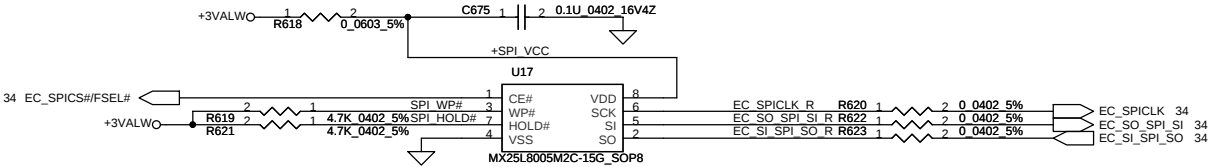
KB1 for 15"

KB2 for 17"



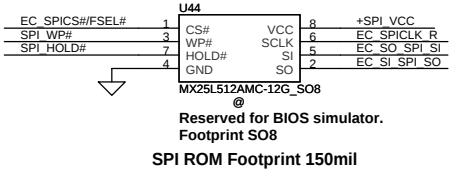
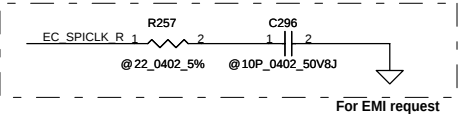
| Security Classification                                                                                                                                                                                                                                                                                   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

SPI Flash ROM 16M\*1



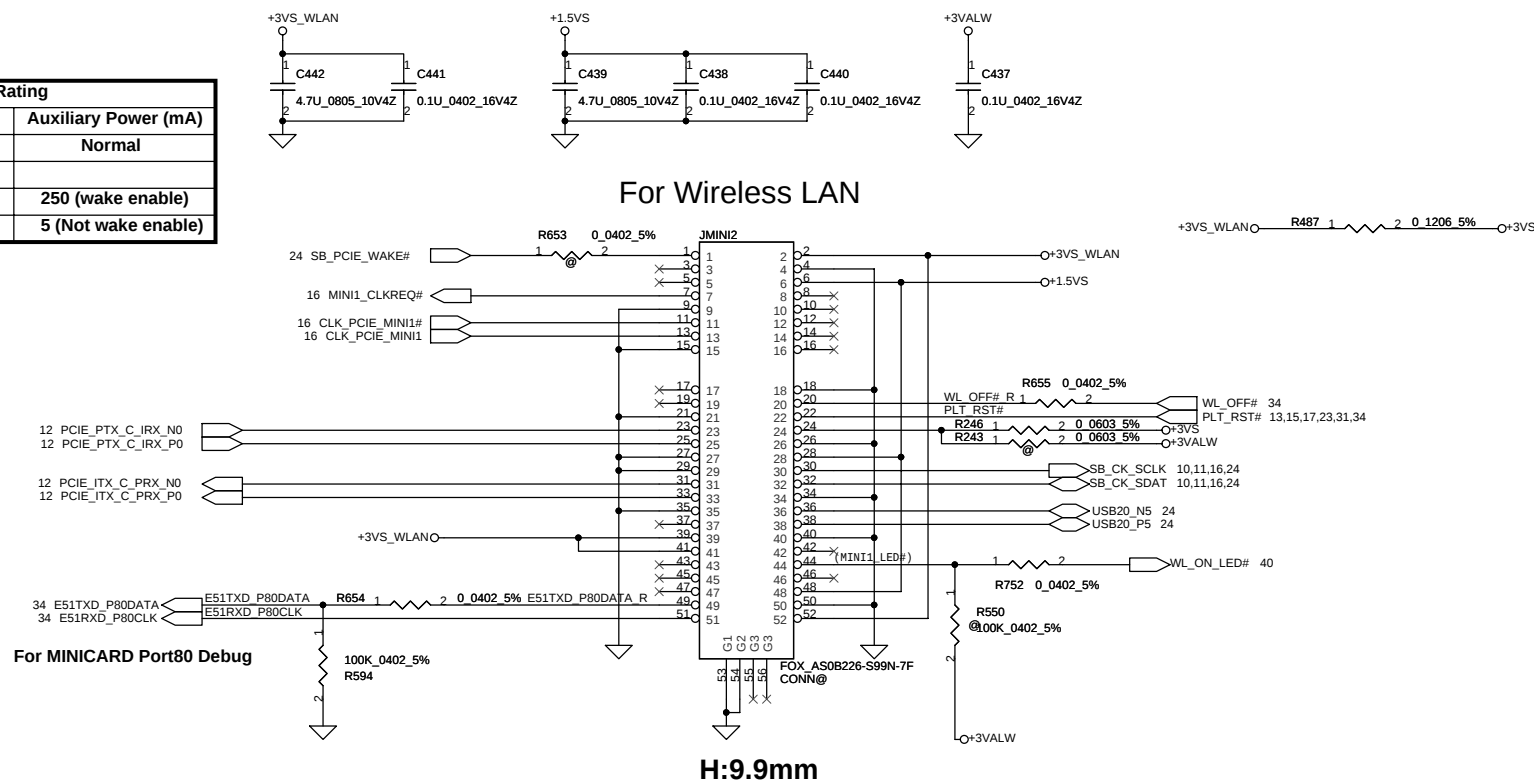
SA00000XT00 : S IC FL 8M MX25L8005M2C-15G SOP 8P  
ENE suggestion SPI Frequency over 66MHz  
SST: 50MHz  
MXIC: 70MHz  
ST: 40MHz

ONLY MXIC used in this project (66MHz)

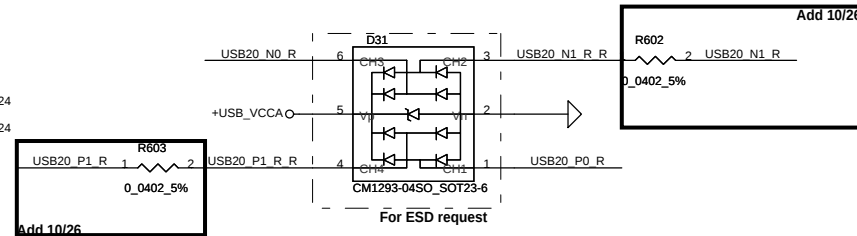
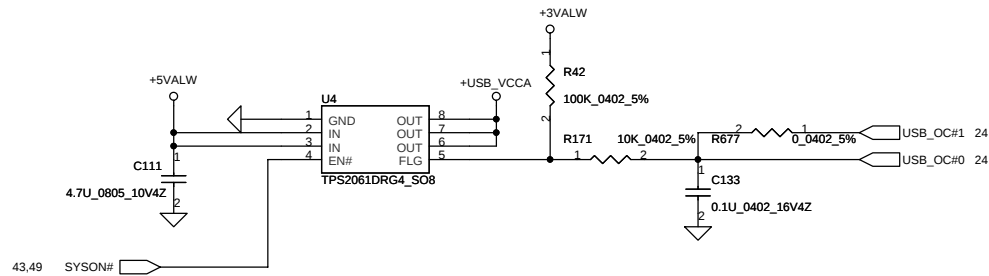
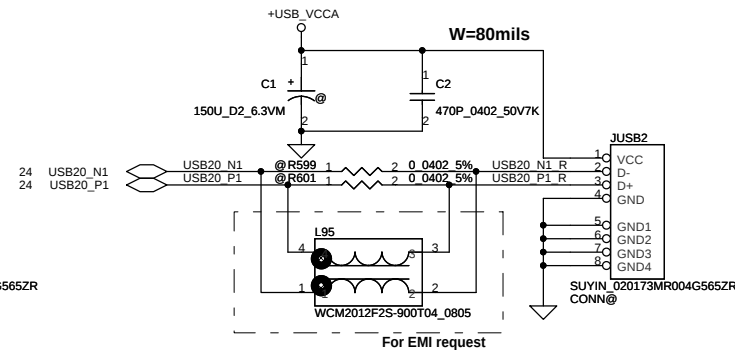
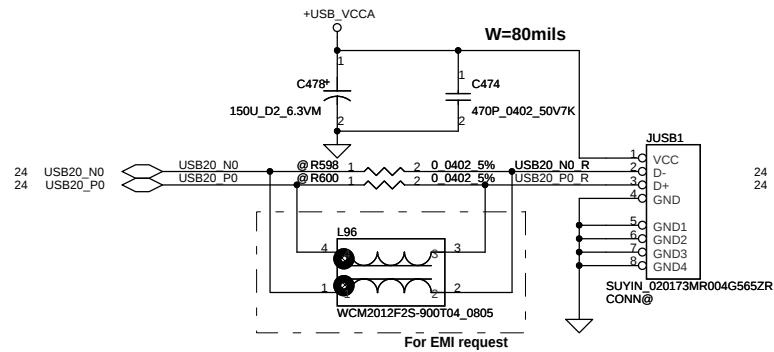


|                                                                                                                                                                                                                                                                                                           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

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



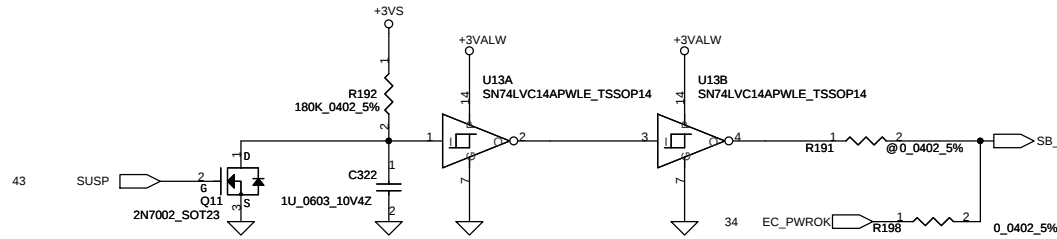
# USB CONN. 1 & 2



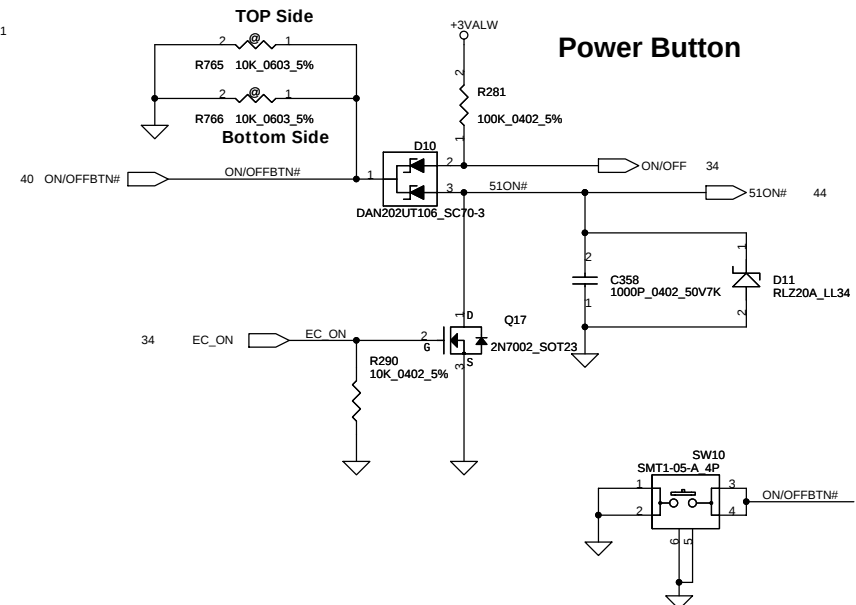
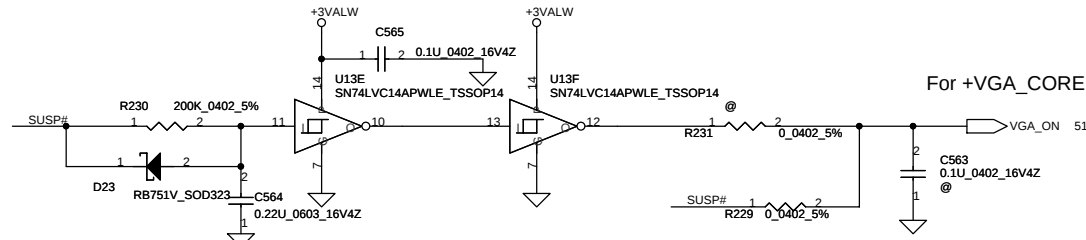
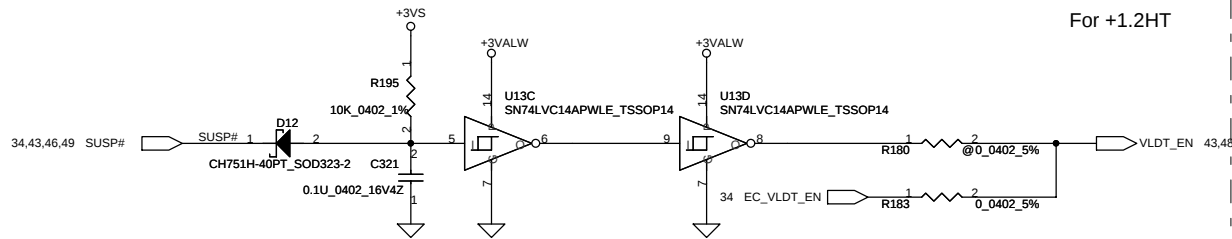
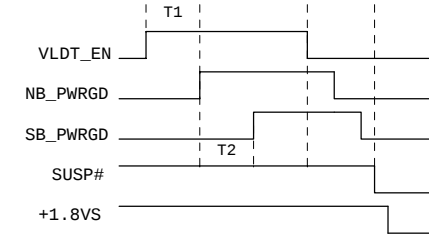
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 38 of 55                 |

## Power ON Circuit

For South Bridge

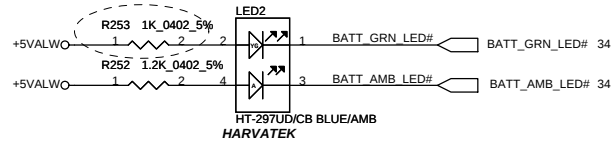
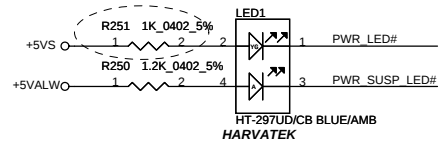
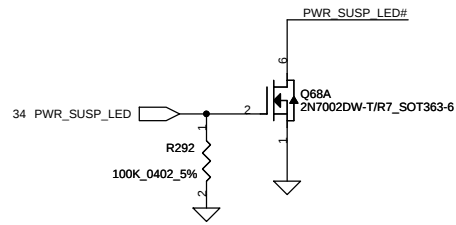
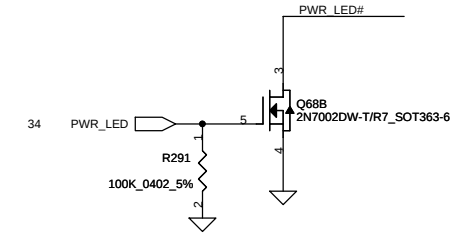


note: T1 minimum 15ms, T2 minimum 33ms/maximum 500ms, SUSP# goes to low after SB\_PWRGD goes to low for power down.

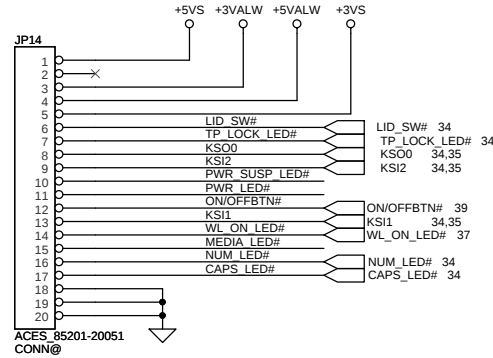


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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  | Compal Electronics, Inc. |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2009/09/25         |  | Deciphered Date          |  |
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| 401836                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Date               |  | Thursday, March 18, 2010 |  |
| Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 39                 |  | of 55                    |  |

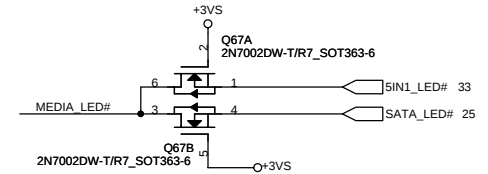
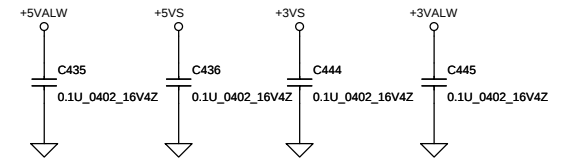
## To PWR LED/B



## BLUE/AMB LED

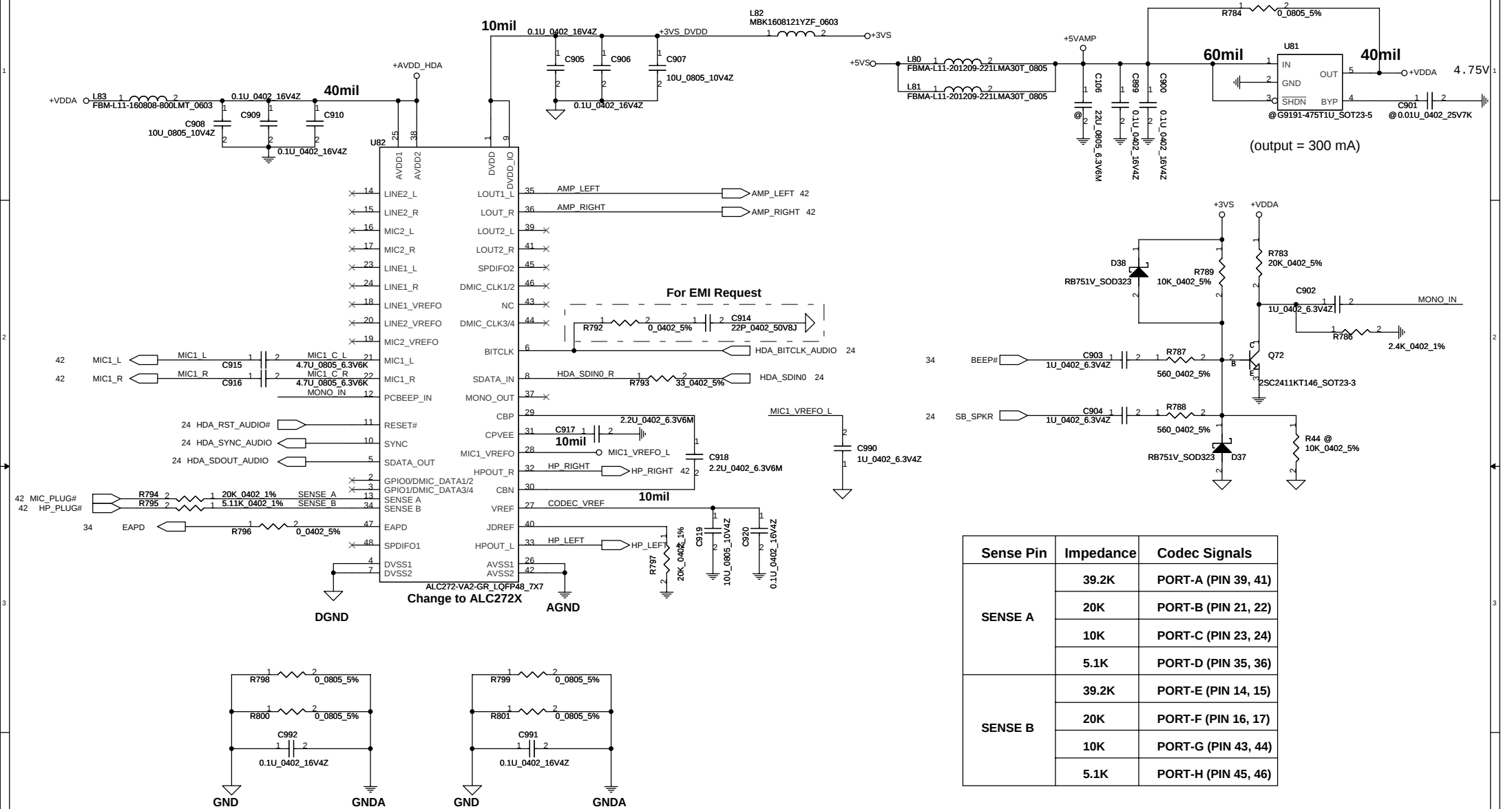


|      | KSO0         |
|------|--------------|
| KSI1 | WL_BTN#      |
| KSI2 | TP_LOCK_BTN# |
| KSI3 |              |
| KSI4 |              |
| KSI5 |              |
| KSI6 |              |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                    |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                    |
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| Date: Thursday, March 18, 2010                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Sheet 40 of 55  |                          | Rev C              |

# HD Audio Codec



**TPA6017 Medium Range Amplifier**

The schematic shows the TPA6017A2-TSSOP20 amplifier (U83) configured as a medium range amplifier. Key components and connections include:

- Power Supply:** +5VAMP supply with decoupling capacitors C921 (10U\_0805\_10V4Z) and C922 (0.1U\_0402\_16V4Z).
- Input/Output:**
  - Inputs: AMP\_RIGHT (C924, 3900P\_0402\_50V7K, R808, 0.0603\_5%), AMP\_LEFT (C971, 3900P\_0402\_50V7K, R813, 0.0603\_5%).
  - Outputs: SPKR+, SPKR-, SPKL+, SPKL- (R809, R806, R811, R812, 100K\_0402\_5%).
  - Headphone Output: HP\_RIGHT (R814, 56.2\_0402\_1%), HP\_LEFT (R815, 56.2\_0402\_1%).
  - Mic Input: MIC1\_R (R818, 1K\_0603\_1%), MIC1\_L (R819, 1K\_0603\_1%).
- Control:** EC\_MUTE# (C927, 0.47U\_0603\_10V7K) connected to the SHUTDOWN pin.
- Connectors:**
  - Left Connector:** SPKL+, SPKL-, SPKR+, SPKR- (R804, R805, R810, R807, 0.0603\_5%).
  - Right Connector:** SPKL+, SPKL-, SPKR+, SPKR- (R810, R807, 0.0603\_5%).
  - LINE Out/Headphone Out:** HP\_RIGHT, HP\_LEFT (R814, R815, 56.2\_0402\_1%).
  - LINE IN/Ext.MIC JACK:** MIC1\_R, MIC1\_L (R818, R819, 1K\_0603\_1%).

**Component Values:**

- Capacitors: C921 (10U\_0805\_10V4Z), C922 (0.1U\_0402\_16V4Z), C923 (0.47U\_0603\_10V7K), C924 (3900P\_0402\_50V7K), C925 (0.47U\_0603\_10V7K), C927 (0.47U\_0603\_10V7K), C928 (330P\_0402\_50V7K), C929 (330P\_0402\_50V7K), C930 (220P\_0402\_50V7K), C931 (220P\_0402\_50V7K).
- Resistors: R804, R805, R806, R807, R808, R809, R810, R811, R812, R813, R814, R815, R816, R817, R818, R819 (various values from 0.0603\_5% to 100K\_0402\_5%).

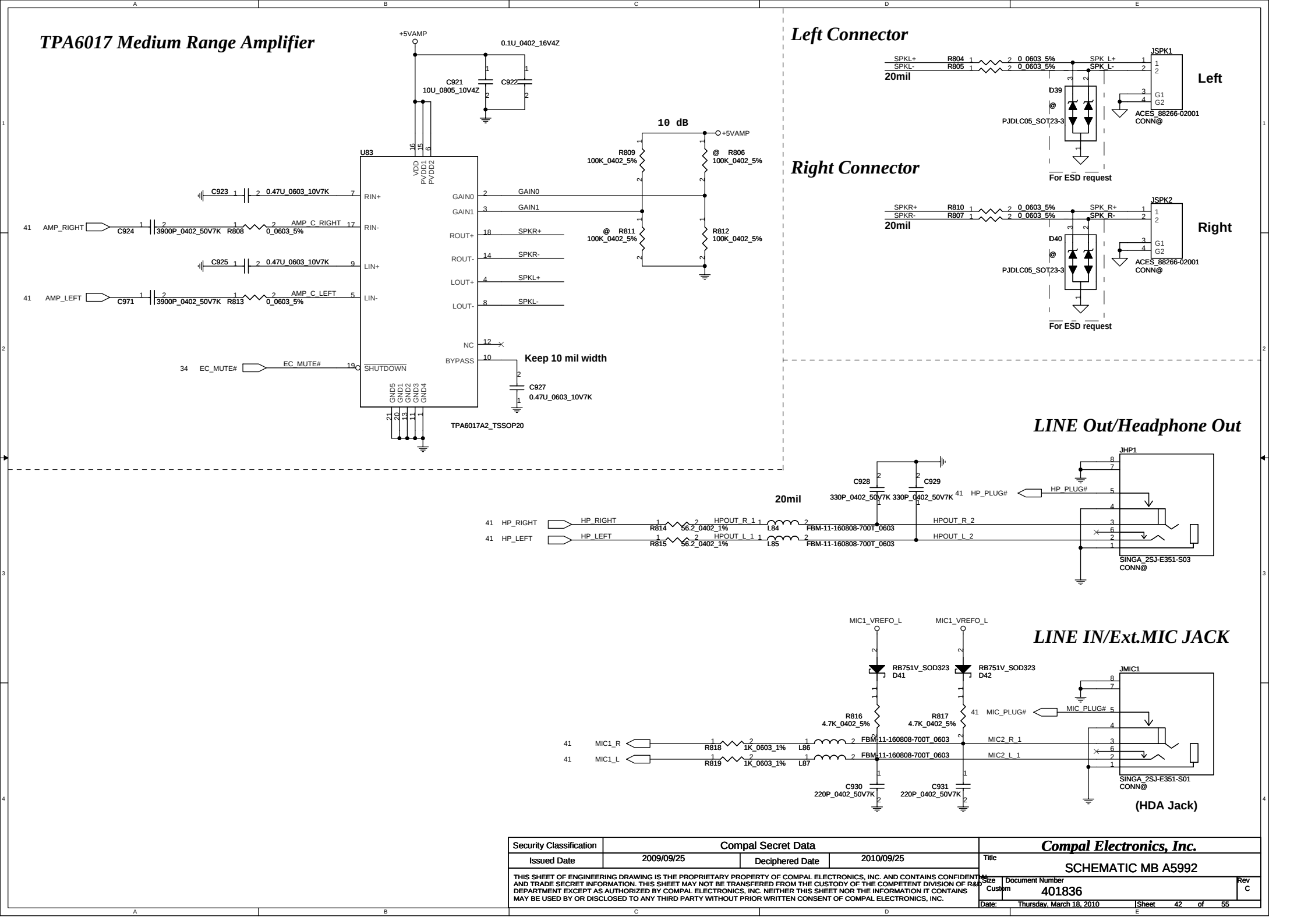
**Connectors:**

- Left Connector:** JSPK1, JSPK2 (ACES\_88266-02001 CONN@).
- Right Connector:** JSPK1, JSPK2 (ACES\_88266-02001 CONN@).
- LINE Out/Headphone Out:** JHP1 (SINGA\_2SJ-E351-S03 CONN@).
- LINE IN/Ext.MIC JACK:** JMIC1 (SINGA\_2SJ-E351-S01 CONN@).

**Notes:**

- Keep 10 mil width for the SHUTDOWN pin connection.
- For ESD request, refer to the connector details.

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |            |  | Compal Secret Data |  |            |  | Compal Electronics, Inc. |  |  |  |
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| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |            |  |                    |  |            |  | Thursday, March 18, 2010 |  |  |  |
| Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |            |  |                    |  |            |  | 42 of 55                 |  |  |  |



**TPA6017 Medium Range Amplifier**

The schematic shows the TPA6017A2-TSSOP20 amplifier (U83) configured as a medium range amplifier. Key components and connections include:

- Power Supply:** +5VAMP supply with decoupling capacitors C921 (10U\_0805\_10V4Z) and C922 (0.1U\_0402\_16V4Z).
- Input/Output:**
  - Inputs: AMP\_RIGHT (C924, 3900P\_0402\_50V7K, R808, 0.0603\_5%), AMP\_LEFT (C971, 3900P\_0402\_50V7K, R813, 0.0603\_5%).
  - Outputs: SPKR+, SPKR-, SPKL+, SPKL-.
- Gain Setting:** A 10 dB gain is set using resistors R809, R806, R811, and R812 (all 100K\_0402\_5%).
- Mute Control:** EC\_MUTE# (pin 19) is connected to the SHUTDOWN pin (pin 10) via a 0.47U\_0603\_10V7K capacitor (C927).
- Connectors:**
  - Left Connector:** SPKL+, SPKL-, SPKR+, SPKR-.
  - Right Connector:** SPKL+, SPKL-, SPKR+, SPKR-.
  - Headphone Out:** HP\_RIGHT, HP\_LEFT.
  - MIC IN/Ext. MIC JACK:** MIC1\_R, MIC1\_L.

**Left Connector**

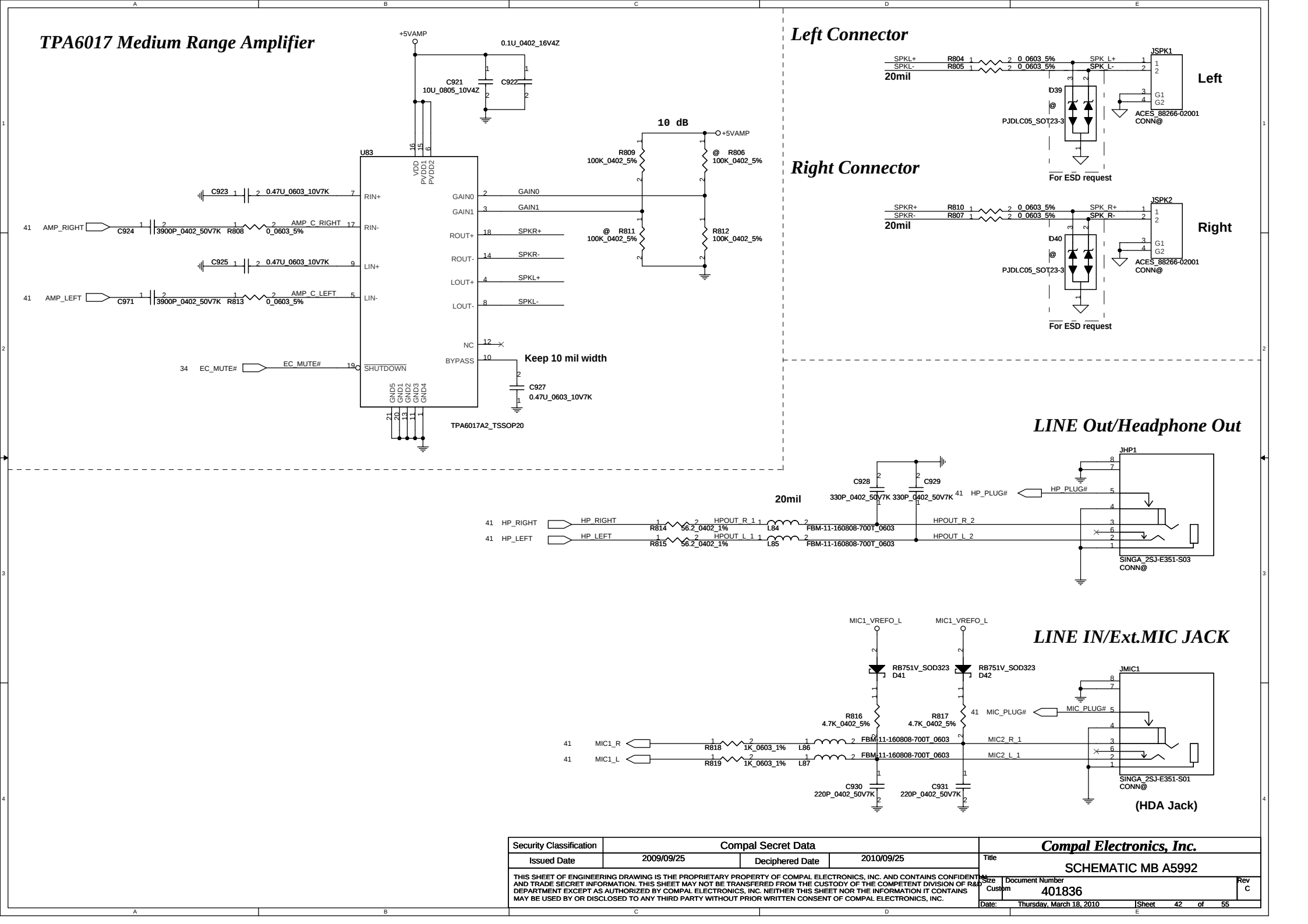
**Right Connector**

**LINE Out/Headphone Out**

**LINE IN/Ext. MIC JACK**

**(HDA Jack)**

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |            |  | Compal Secret Data |  |            |  | Compal Electronics, Inc.       |  |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |  |                    |  |            |  | Date: Thursday, March 18, 2010 |  | Sheet 42 of 55 |  |



**TPA6017 Medium Range Amplifier**

The schematic shows the TPA6017A2-TSSOP20 amplifier (U83) configured as a medium range amplifier. Key components and connections include:

- Power Supply:** +5VAMP supply with decoupling capacitors C921 (10U\_0805\_10V4Z) and C922 (0.1U\_0402\_16V4Z).
- Input/Output:**
  - Inputs: AMP\_RIGHT (C924, 3900P\_0402\_50V7K, R808, 0.0603\_5%), AMP\_LEFT (C971, 3900P\_0402\_50V7K, R813, 0.0603\_5%).
  - Outputs: SPKR+, SPKR-, SPKL+, SPKL-.
- Gain Setting:** A 10 dB gain is set using resistors R809, R806, R811, and R812 (all 100K\_0402\_5%).
- Mute Control:** EC\_MUTE# (pin 19) is connected to the SHUTDOWN pin (pin 10) via a 0.47U\_0603\_10V7K capacitor (C927).
- Connectors:**
  - Left Connector:** SPKL+, SPKL-, SPKR+, SPKR-.
  - Right Connector:** SPKL+, SPKL-, SPKR+, SPKR-.
  - Headphone Out:** HP\_RIGHT, HP\_LEFT.
  - MIC IN/Ext. MIC JACK:** MIC1\_R, MIC1\_L.

**Left Connector**

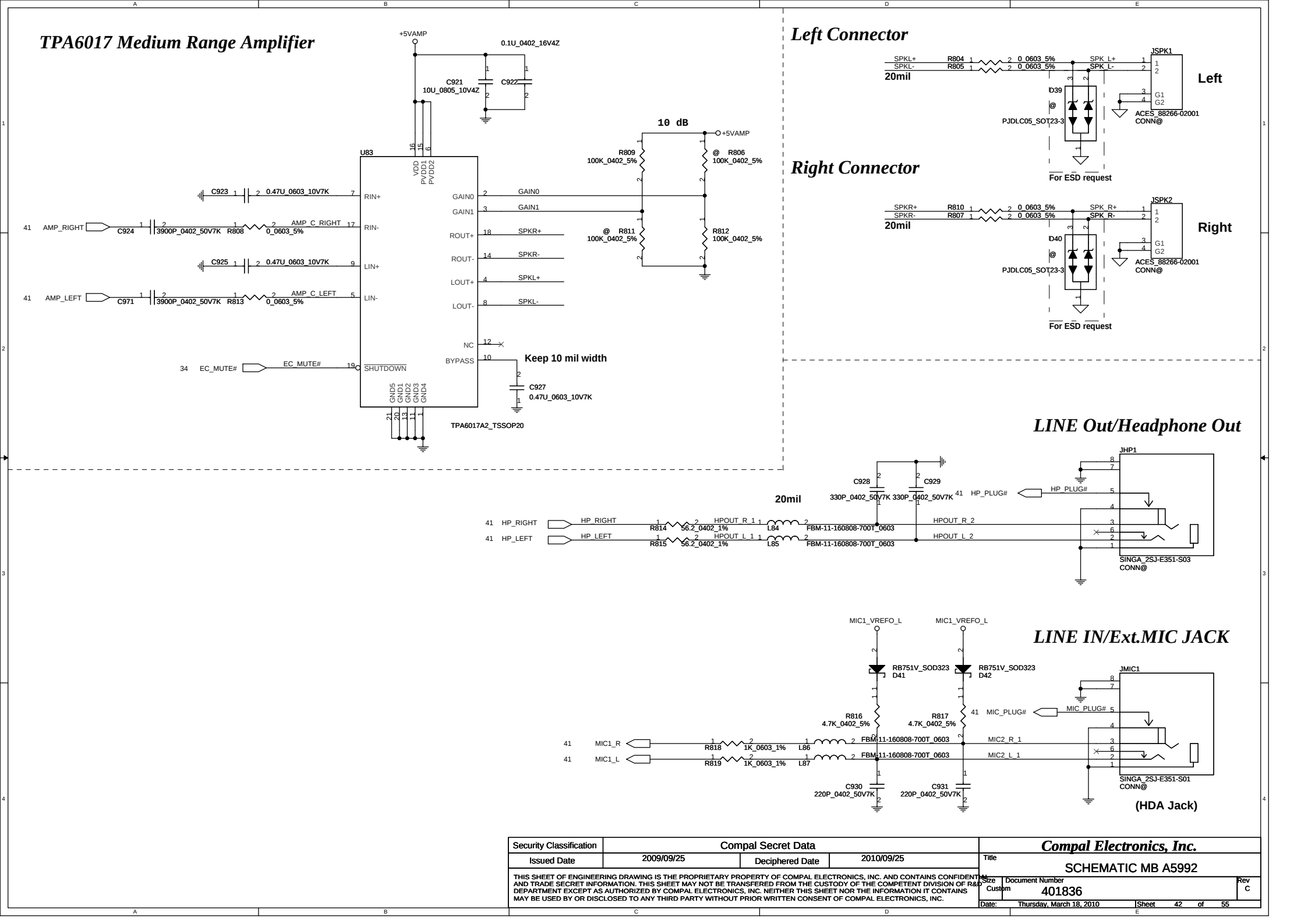
**Right Connector**

**LINE Out/Headphone Out**

**LINE IN/Ext. MIC JACK**

**(HDA Jack)**

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |            |  | Compal Secret Data |  |            |  | Compal Electronics, Inc.       |  |                |  |
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**TPA6017 Medium Range Amplifier**

The schematic shows the TPA6017A2-TSSOP20 amplifier (U83) configured as a medium range amplifier. Key components and connections include:

- Power Supply:** +5VAMP supply with decoupling capacitors C921 (10U\_0805\_10V4Z) and C922 (0.1U\_0402\_16V4Z).
- Input Stage:**
  - Right Input: AMP\_RIGHT (41) through C924 (3900P\_0402\_50V7K) and R808 (0.0603\_5%) to RIN+ (7).
  - Left Input: AMP\_LEFT (41) through C971 (3900P\_0402\_50V7K) and R813 (0.0603\_5%) to LIN+ (9).
- Gain Stage:**
  - GAIN0 (2) and GAIN1 (3) connected to a 10 dB gain network (R809, R806, R811, R812).
- Output Stage:**
  - ROUT+ (18) to SPKR+ (4), ROUT- (14) to SPKR- (4).
  - LOUT+ (4) to SPKL+ (4), LOUT- (8) to SPKL- (4).
- Control:** EC\_MUTE# (34) connected to EC\_MUTE# (19) and SHUTDOWN (10).
- Grounding:** GND1 (20), GND2 (13), GND3 (11), GND4 (1), GND5 (2).

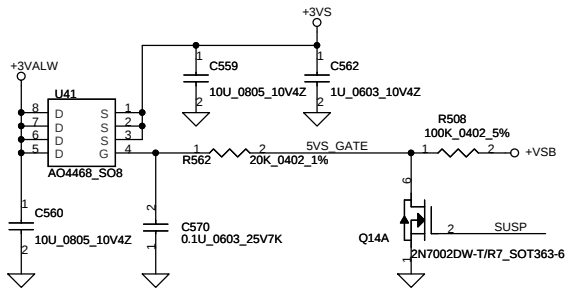
**Connectors and Details:**

- Left Connector:** SPKL+ (1), SPKL- (2) to JSPK1 (1, 2). Includes ESD protection diodes D39 and D40.
- Right Connector:** SPKR+ (1), SPKR- (2) to JSPK2 (1, 2). Includes ESD protection diodes D39 and D40.
- LINE Out/Headphone Out:** HP\_RIGHT (41) and HP\_LEFT (41) through R814 (56.2\_0402\_1%) and R815 (56.2\_0402\_1%) to HPOUT R 1 (1) and HPOUT L 1 (1). Includes FBM-11-160808-700T\_0603 and L84, L85.
- LINE IN/Ext.MIC JACK:** MIC1\_R (41) and MIC1\_L (41) through R818 (1K\_0603\_1%) and R819 (1K\_0603\_1%) to MIC2 R 1 (1) and MIC2 L 1 (1). Includes FBM-11-160808-700T\_0603 and L86, L87.

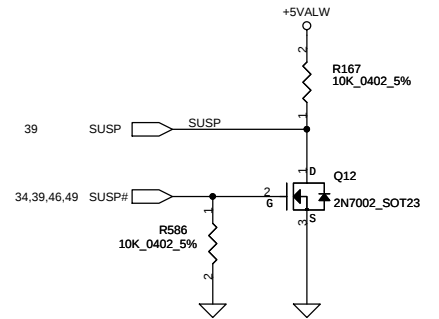
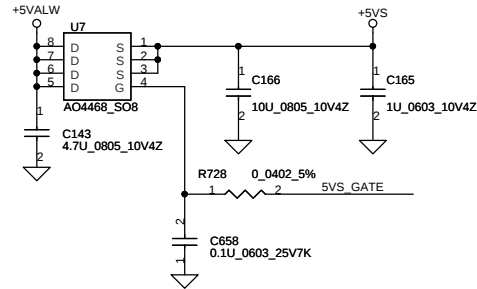
**Table:**

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title              |          |
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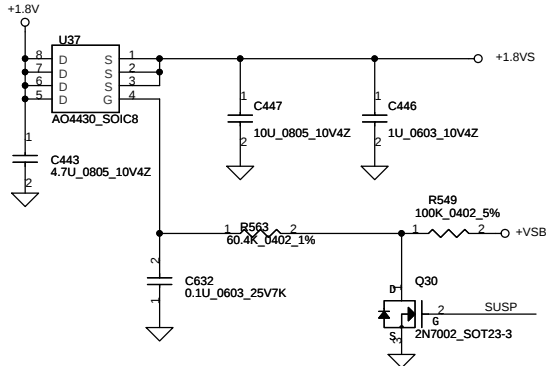
### +3VALW TO +3VS



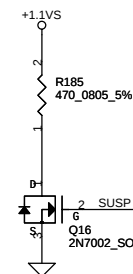
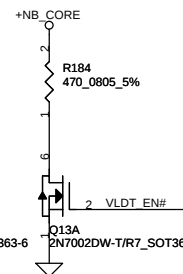
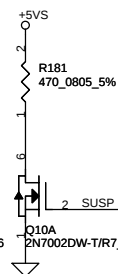
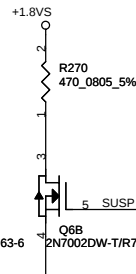
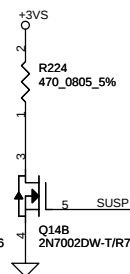
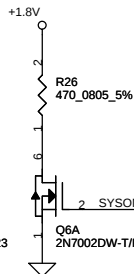
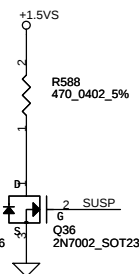
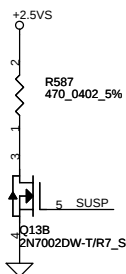
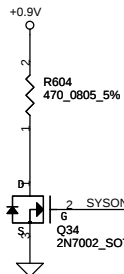
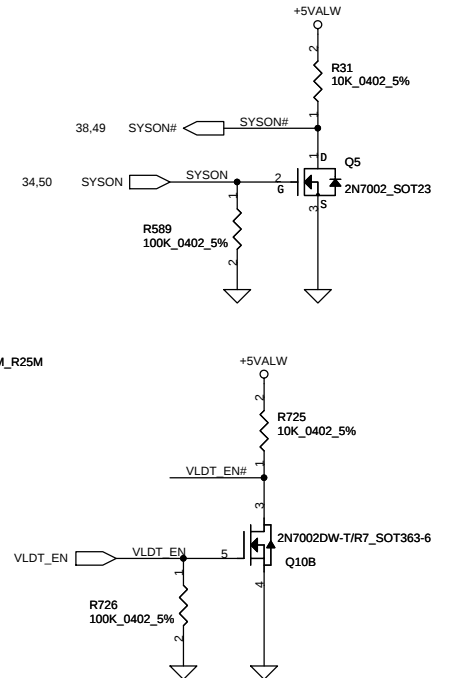
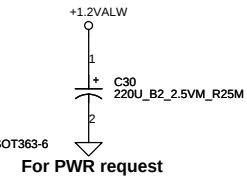
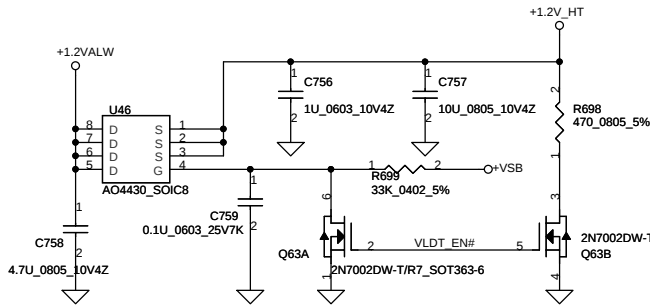
### +5VALW TO +5VS



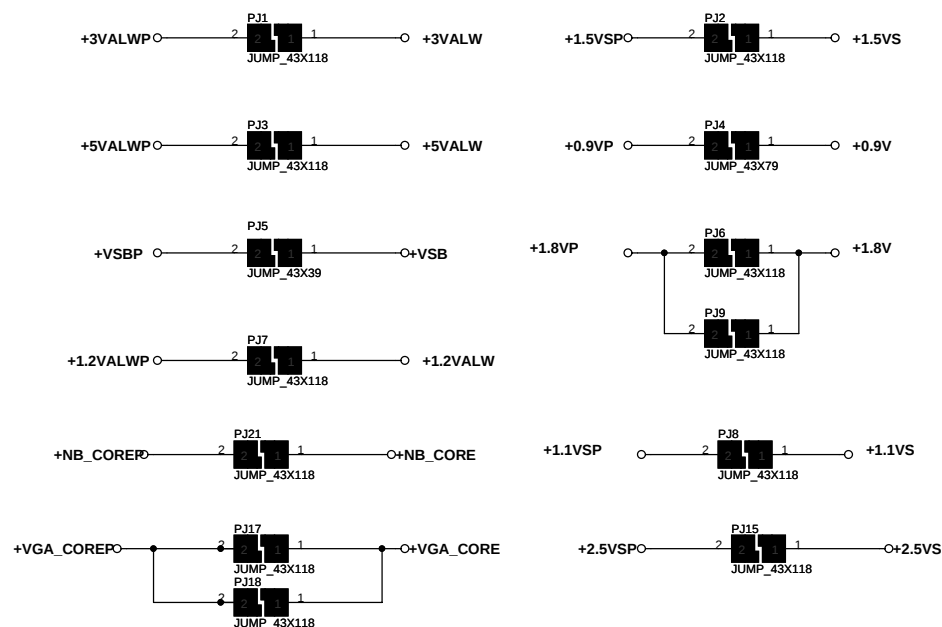
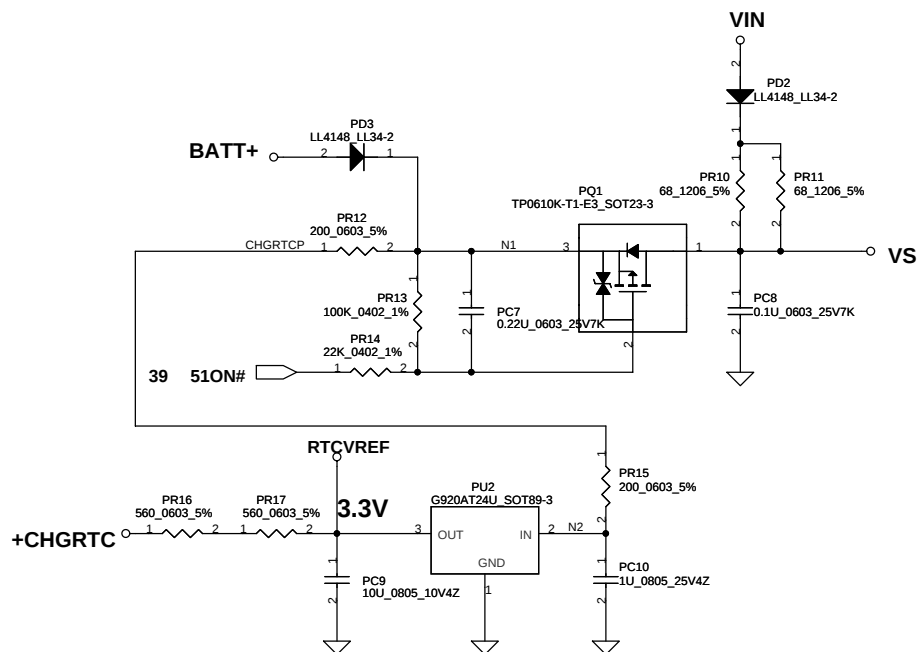
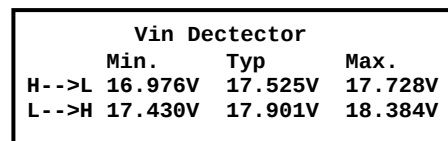
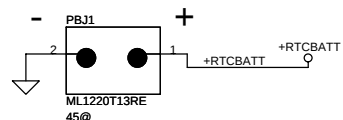
### +1.8V TO +1.8VS



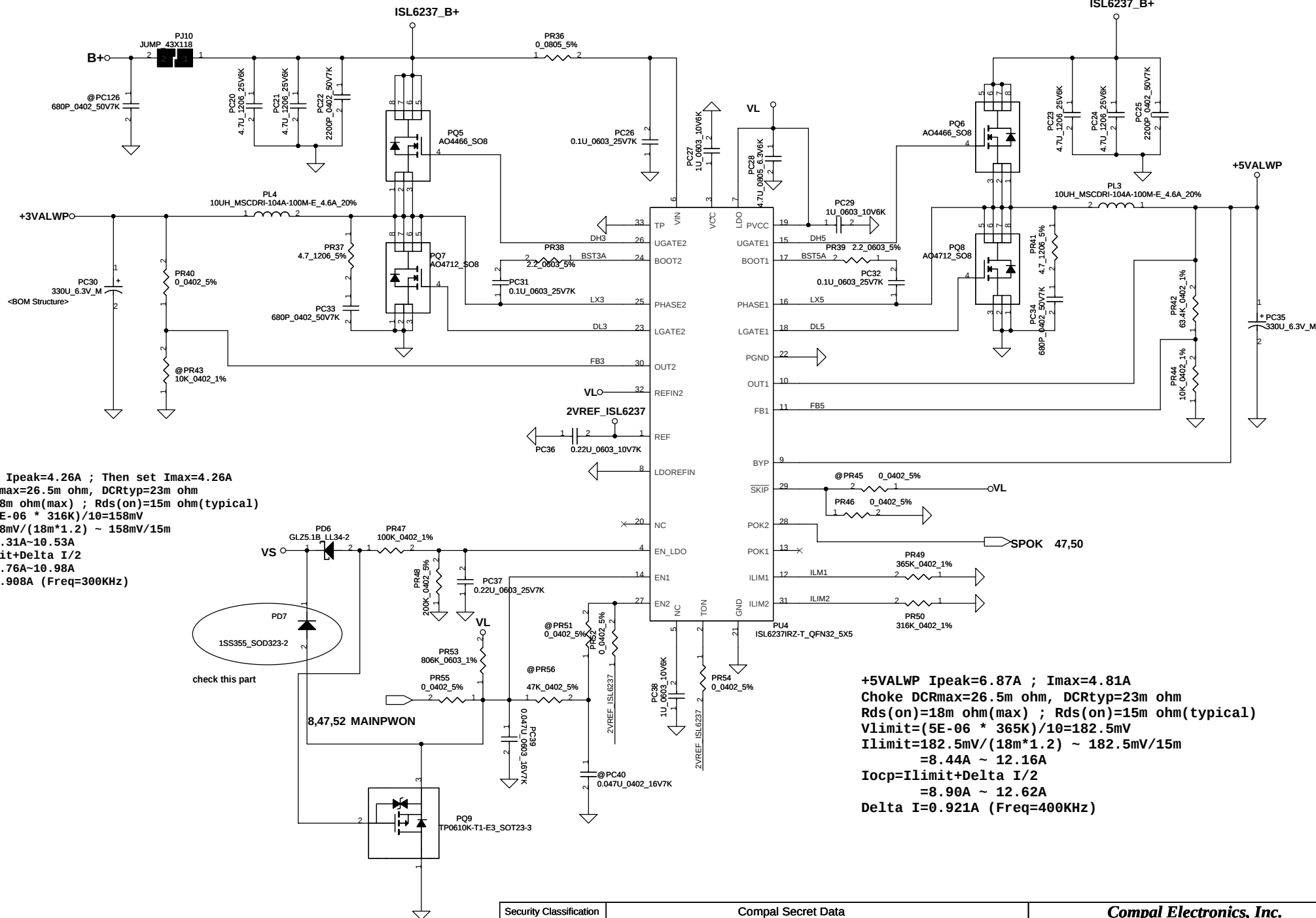
### +1.2VALW TO +1.2V\_HT



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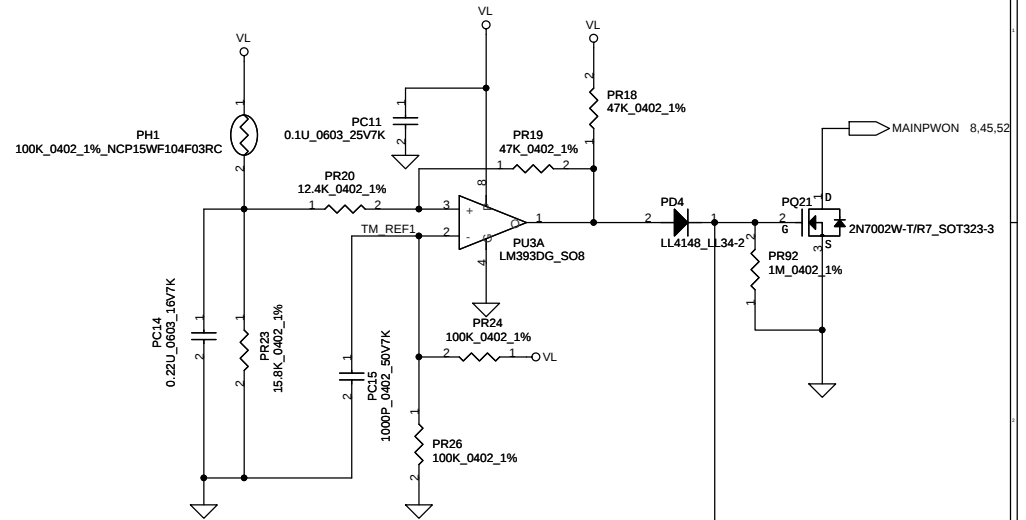
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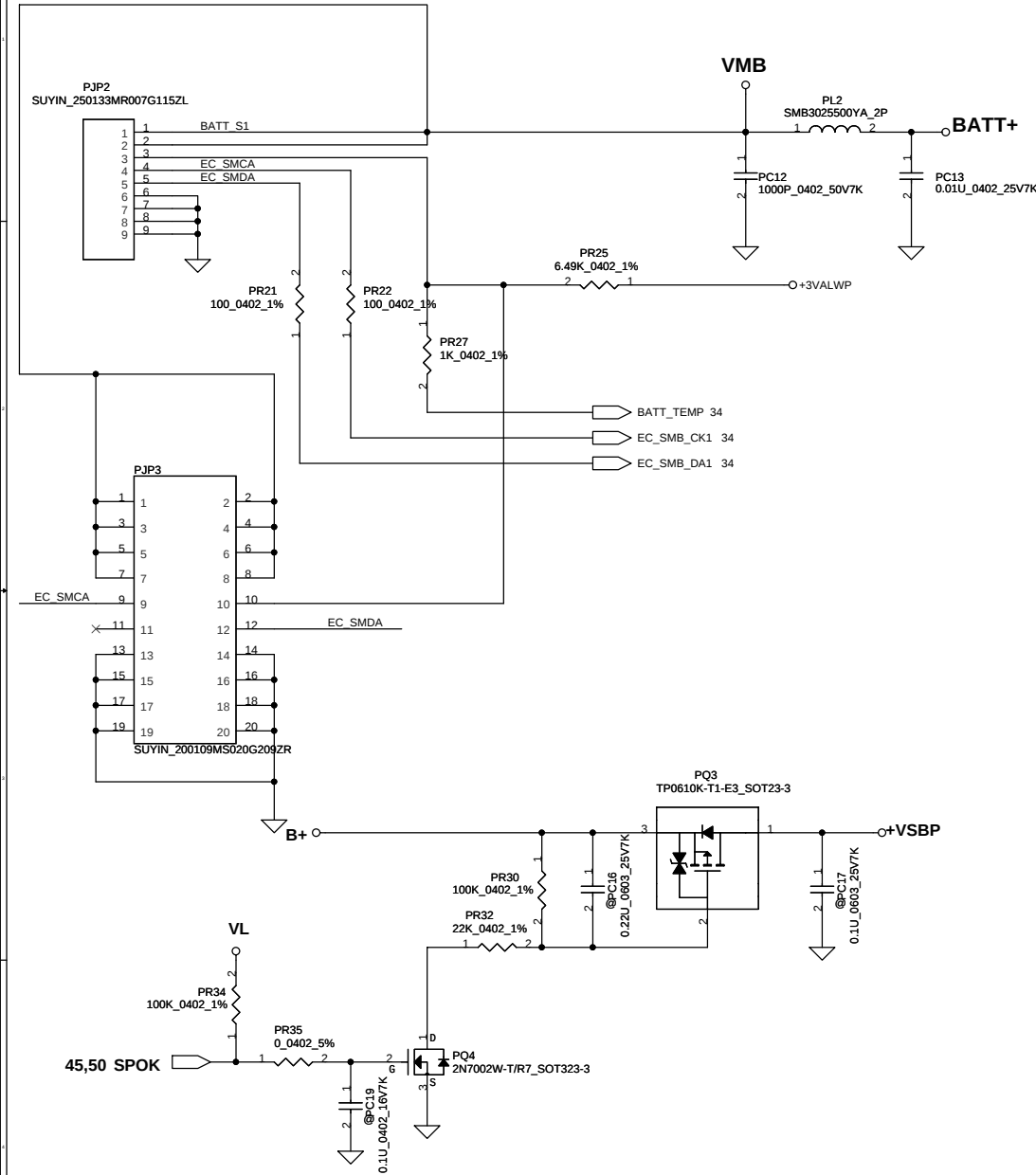
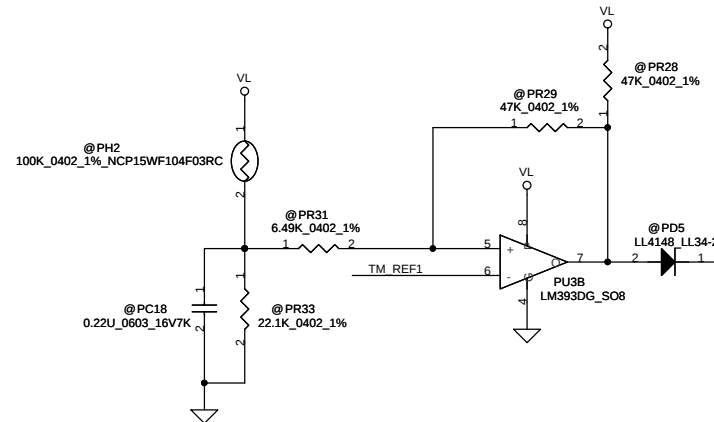
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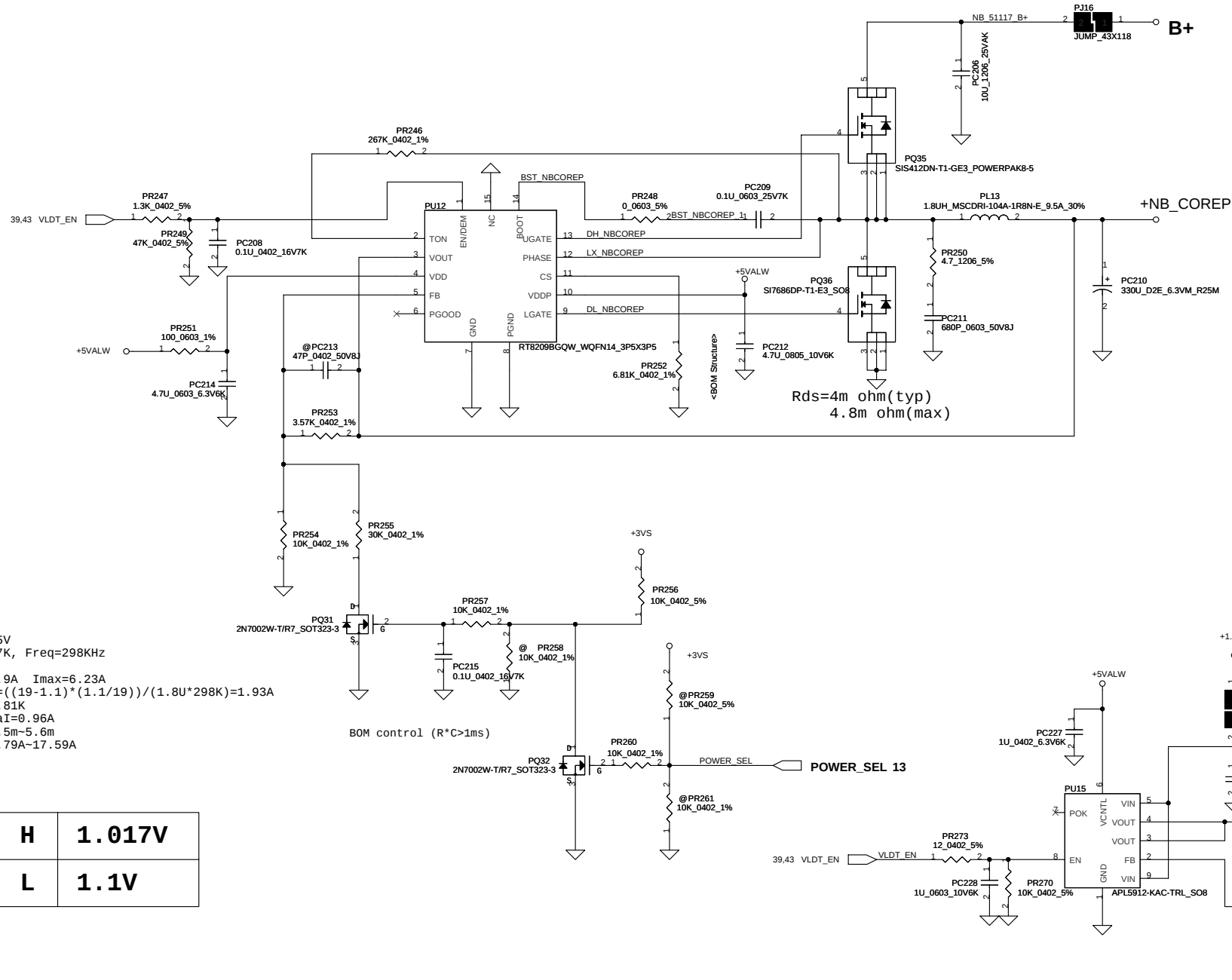
PH1 under CPU botten side :  
CPU thermal protection at 92 degree C



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

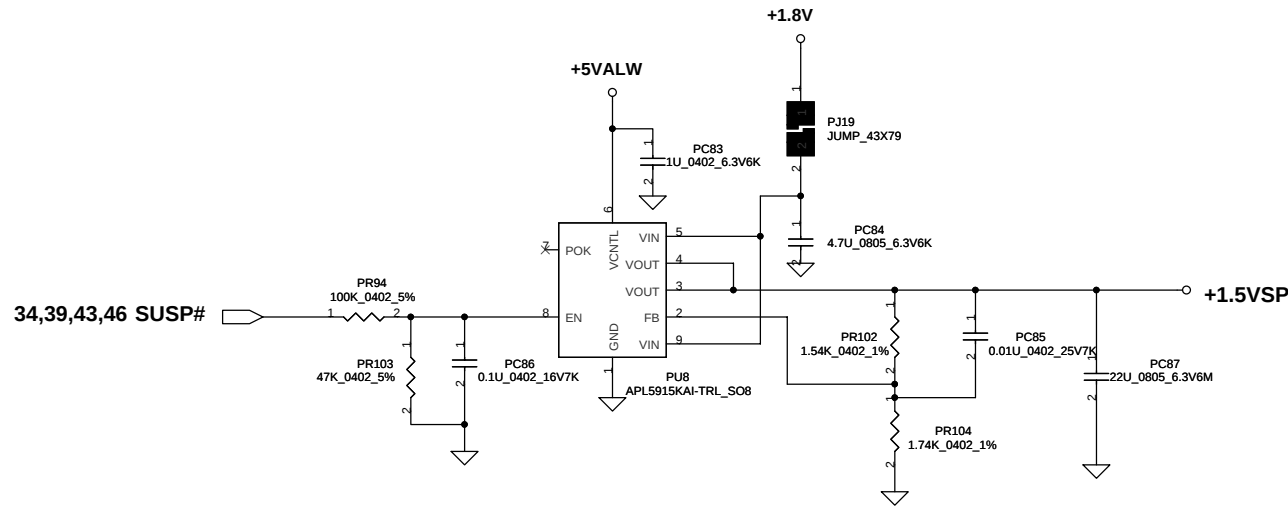
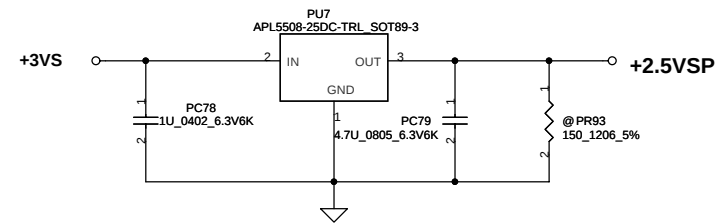
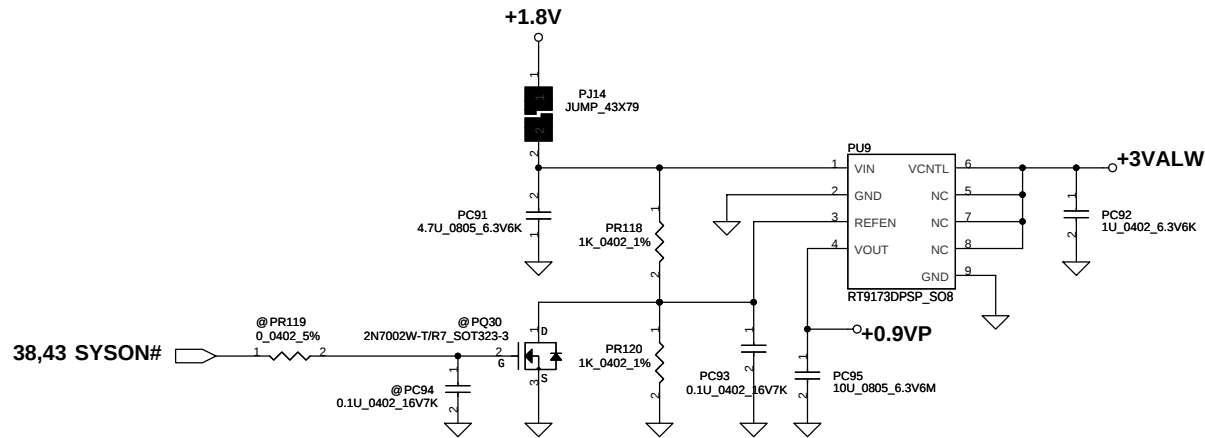


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|   |        |
|---|--------|
| H | 1.017V |
| L | 1.1V   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                |                    |
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| Document Number 401836                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                 |            | Date: Thursday, March 18, 2010 | Sheet 48 of 55     |



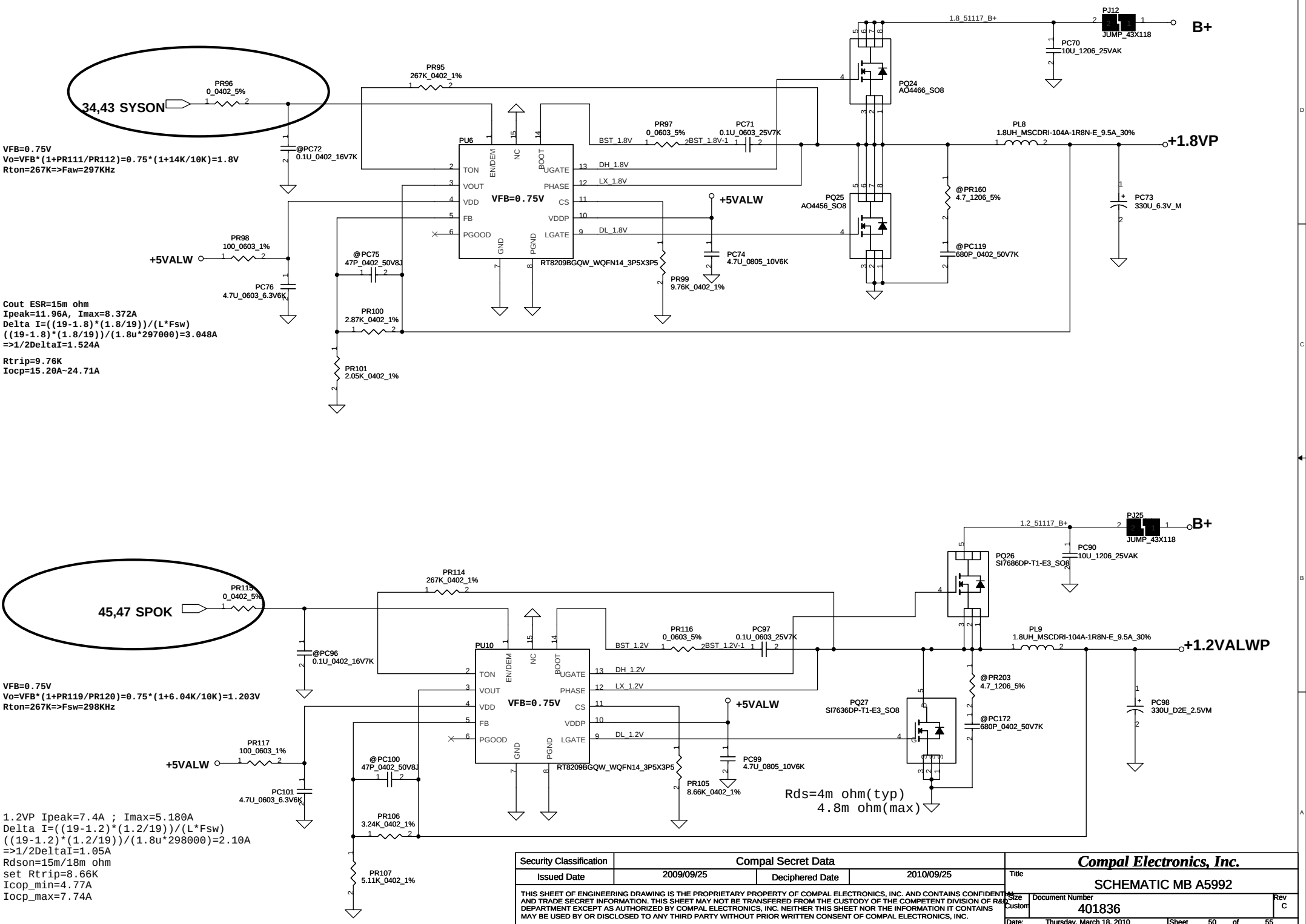
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VFB=0.75V  
 $V_o = VFB * (1 + PR111 / PR112) = 0.75 * (1 + 14K / 10K) = 1.8V$   
 $R_{ton} = 267K \Rightarrow F_{aw} = 297KHz$

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

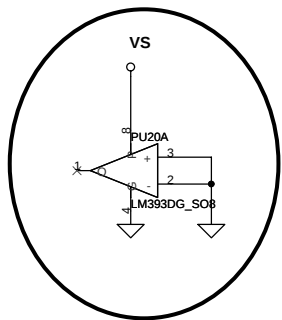
VFB=0.75V  
 $V_o = VFB * (1 + PR119 / PR120) = 0.75 * (1 + 6.04K / 10K) = 1.203V$   
 $R_{ton} = 267K \Rightarrow F_{sw} = 298KHz$

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



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                    | SCHEMATIC MB A5992       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Document Number          | 401836                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 50 of 55                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | C                        |





# ACIN

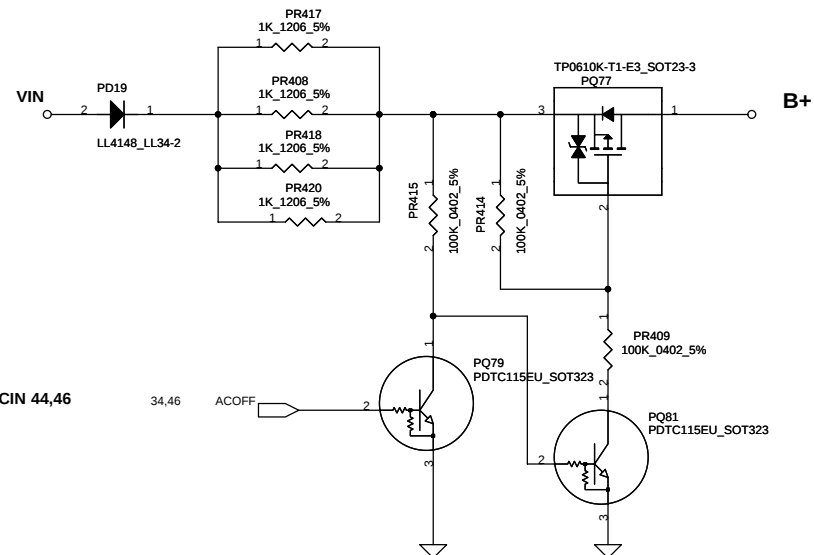
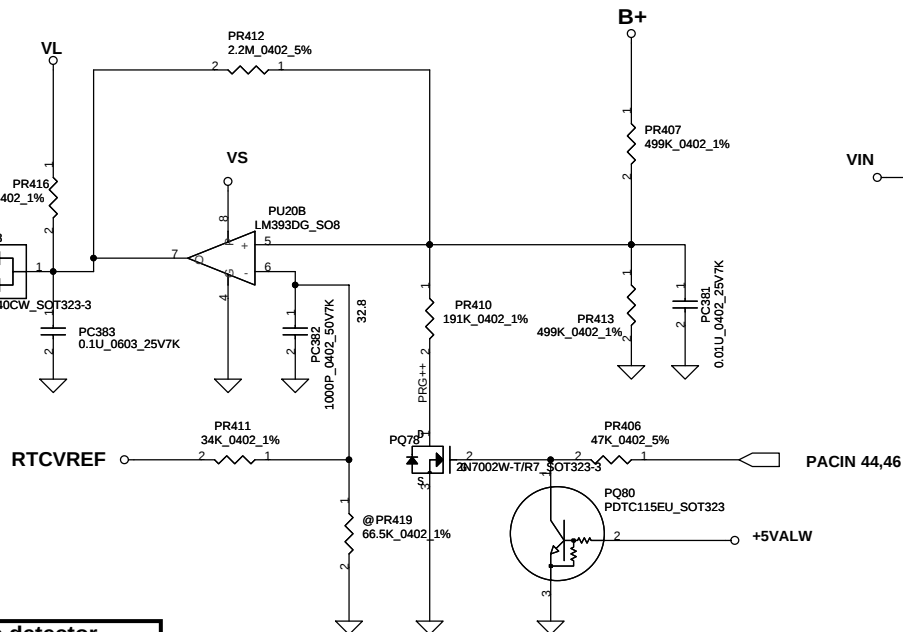
## Precharge detector

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

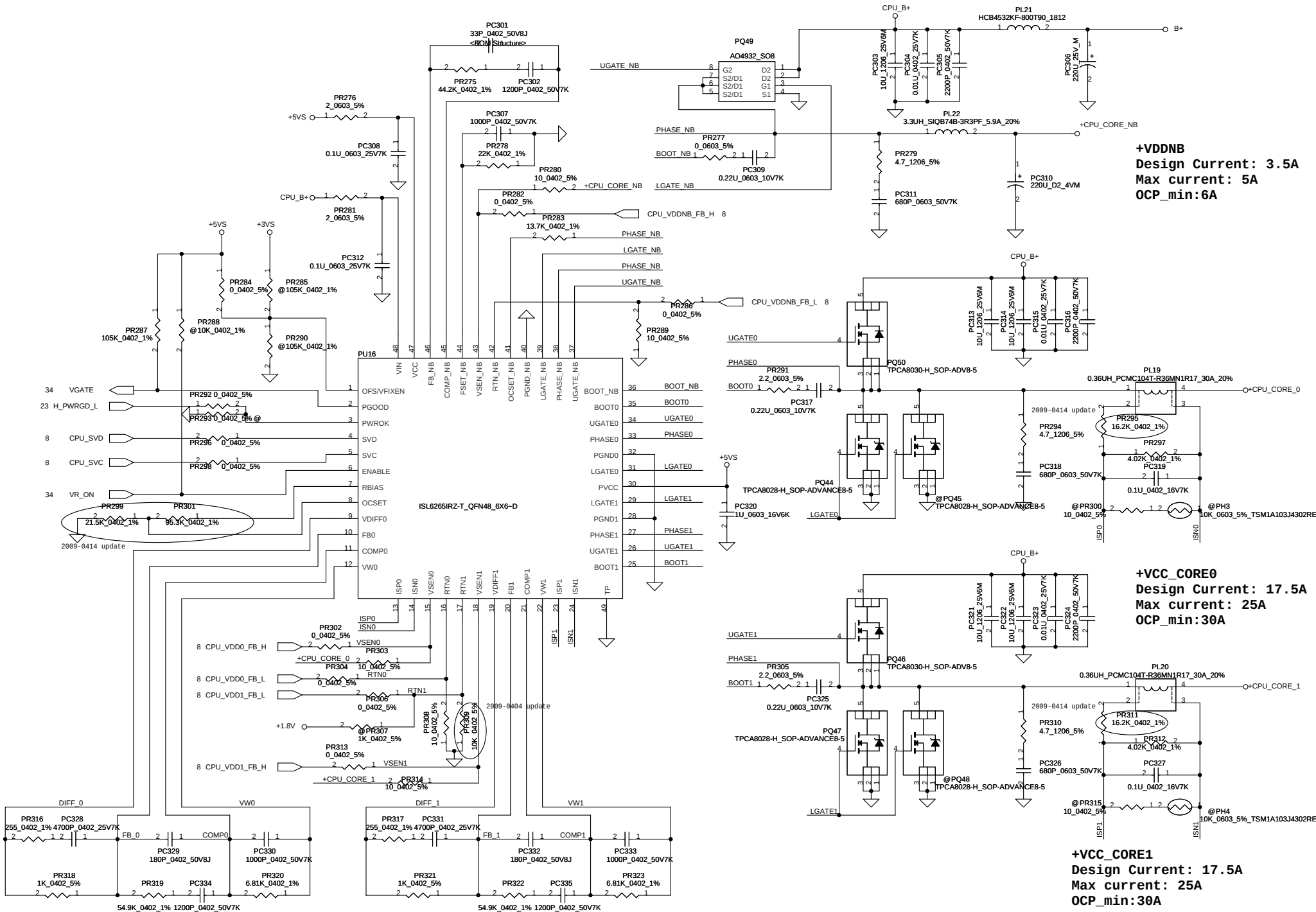
# BATT ONLY

## Precharge detector

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



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|--------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2009/09/25 | Deciphered Date    | 2010/09/25 | Title                    | SCHEMATIC MB A5992       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Thursday, March 18, 2010 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 52 of 55                 |



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

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

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