

# Compal Confidential

## HCW51 Schematics Document

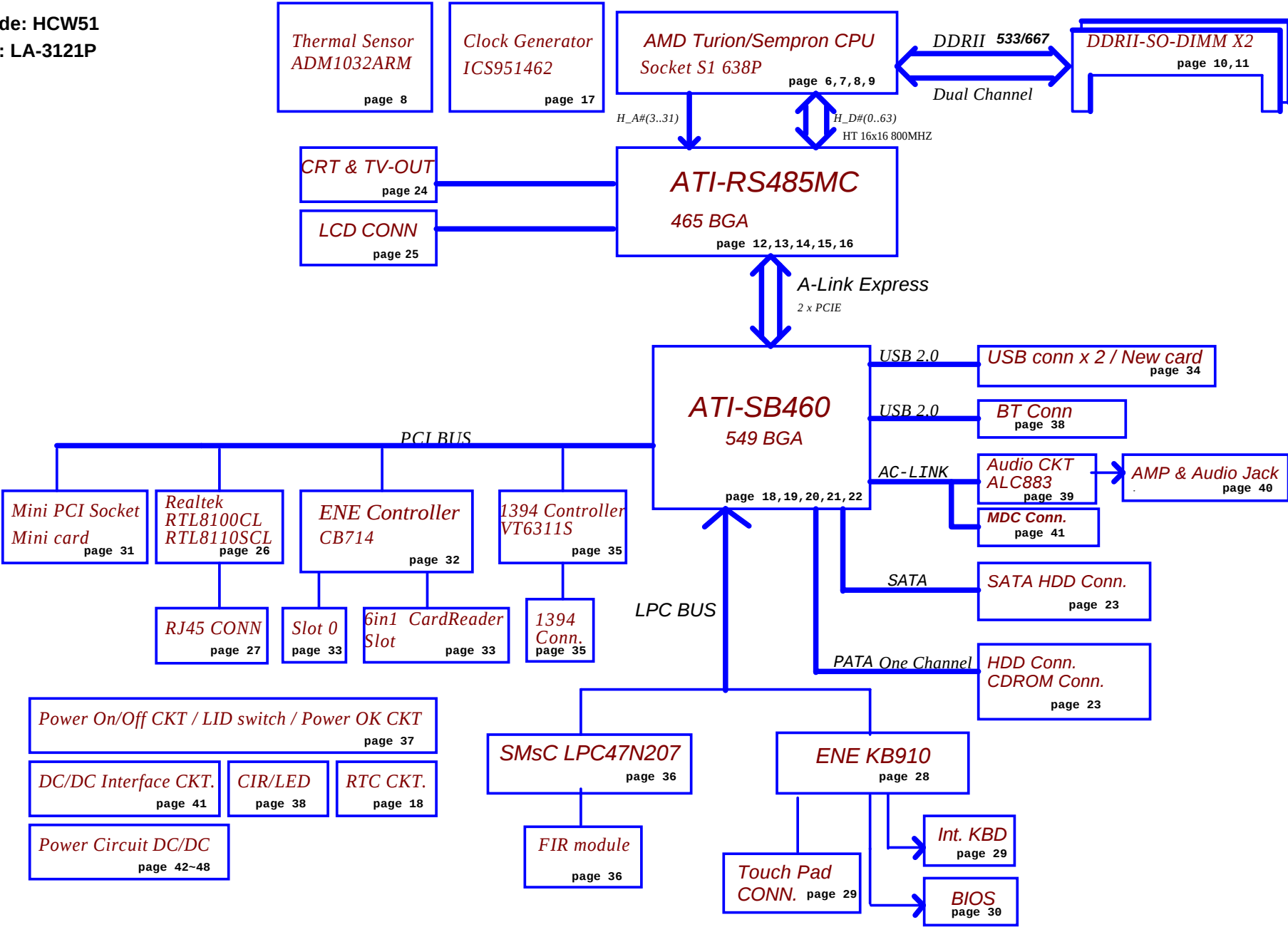
AMD/Sempron/ATI RS485MC/SB460

2006 / 04 / 27      Rev:1.0      FOR MP

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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title                    | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Rev                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 星期一, 五月 08, 2006         | D                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 1 of 51                 |

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Project Code: HCW51  
File Name : LA-3121P



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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                   |                  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | SCHEMATIC, M/B LA-3121P |                  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                   | 2 of 51          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                     | D                |

Voltage Rails

| Power Plane | Description                                 | S1 | S3  | S5  |
|-------------|---------------------------------------------|----|-----|-----|
| VIN         | Adapter power supply (19V)                  | NA | NA  | NA  |
| B+          | AC or battery power rail for power circuit. | NA | NA  | NA  |
| +CPU_CORE   | Core voltage for CPU                        | ON | OFF | OFF |
| +0.9V       | 0.9V switched power rail for DDR terminator | ON | ON  | OFF |
| +1.2VS      | 1.05V switched power rail                   | ON | OFF | OFF |
| +1.5VS      | 1.5V switched power rail                    | ON | OFF | OFF |
| +1.8VALW    | 1.8V always on power rail                   | ON | ON  | ON* |
| +1.8V       | 1.8V power rail for DDR                     | ON | ON  | OFF |
| +1.8VS      | 1.8V switched power rail                    | ON | OFF | OFF |
| +2.5VS      | 2.5V switched power rail                    | ON | OFF | OFF |
| +3VALW      | 3.3V always on power rail                   | 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 |
| +VS         | VS always on power rail                     | ON | ON  | ON* |
| +RTCVCC     | RTC power                                   | ON | ON  | ON  |

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

External PCI Devices

| Device                  | IDSEL# | REQ#/GNT# | Interrupts  |
|-------------------------|--------|-----------|-------------|
| CardBus(SD)             | AD20   | 2         | PIRQE/PIRQH |
| 1394                    | AD16   | 0         | PIRQE       |
| LAN(10/100)             | AD17   | 3         | PIRQF       |
| Mini-PCI(WLAN/TV-Tuner) | AD18   | 1         | PIRQG/PORQH |

EC SM Bus1 address

| Device           | Address     | Device  | Address     |
|------------------|-------------|---------|-------------|
| Smart Battery    | 0001 011X b | ADM1032 | 1001 100X b |
| EEPROM(24C16/02) | 1010 000X b |         |             |
| (24C04)          | 1011 000X b |         |             |

SB460 SM Bus address

| Device                         | Address    |
|--------------------------------|------------|
| Clock Generator<br>(ICS951462) | 1101 001Xb |
| DDR DIMM0                      | 1001 000Xb |
| DDR DIMM2                      | 1001 001Xb |

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

Board ID / SKU ID Table for AD channel

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

BOARD ID Table

| Board ID | PCB Revision |
|----------|--------------|
| 0        | UMA          |
| 1        | DISCRETE     |
| 2        |              |
| 3        |              |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |

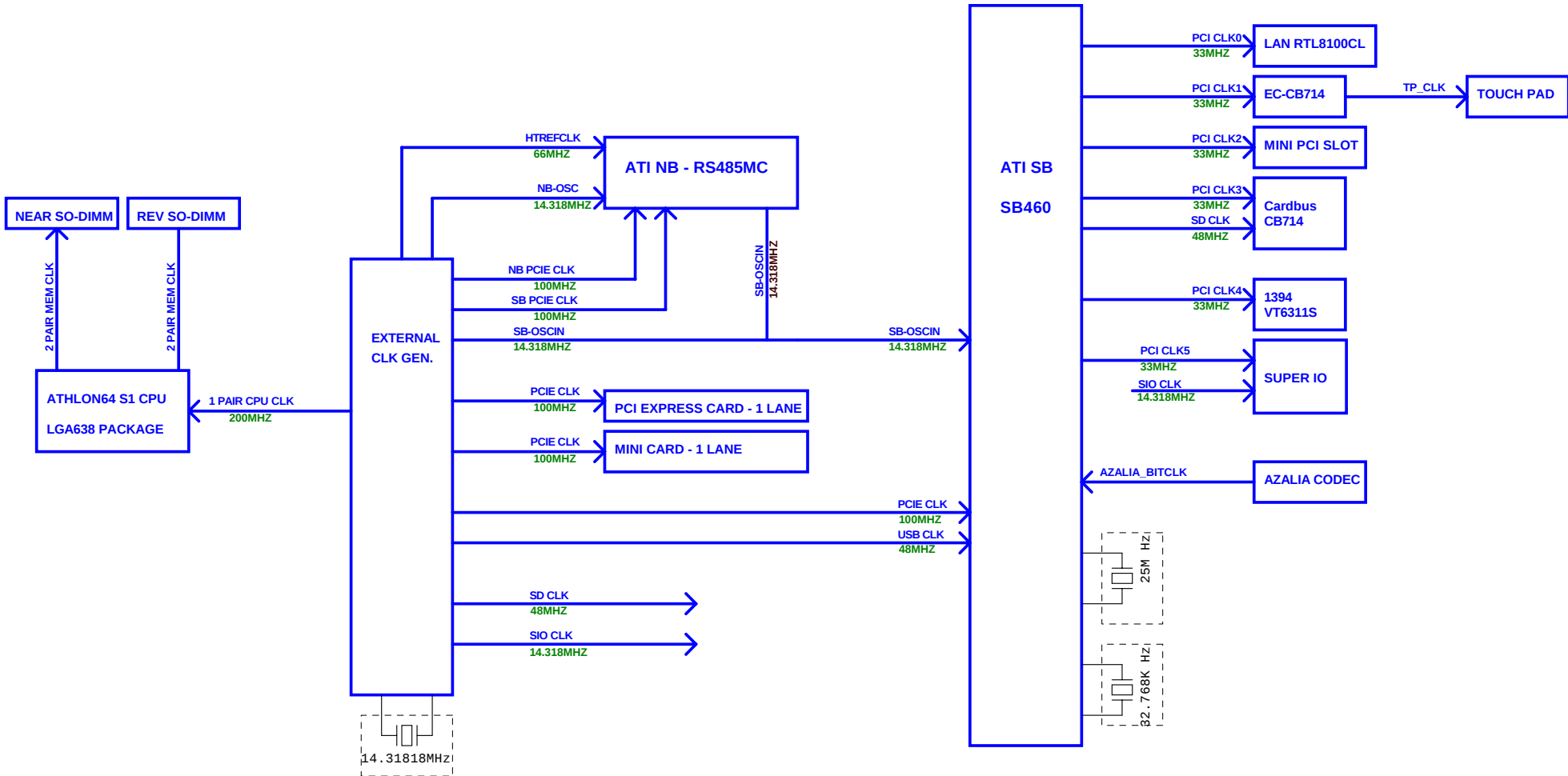
SKU ID Table

| SKU ID | SKU       |
|--------|-----------|
| 0      | W/O SATA  |
| 1      | WITH SATA |
| 2      |           |
| 3      |           |
| 4      |           |
| 5      |           |
| 6      |           |
| 7      |           |

BTO Option Table

| BTO Item               | BOM Structure |
|------------------------|---------------|
| WITH TV-OUT            | TV@           |
| WITH FIR               | FIR@          |
| WITH CARD READER       | 61@           |
| WITH 1394              | 1394@         |
| WITH EXPRESS CARD      | EXPRESS@      |
| WITH CIR               | CIR@          |
| WITH LAN(10/100)       | 100@          |
| WITH LAN(10/100/1000)  | GIGA@         |
| WITH GIGA LAN(8110SBL) | 8110SB@       |
| WITH GIGA LAN(8110SCL) | 8110SC@       |
| WITH PATA HDD          | PATA@         |
| WITH SATA HDD          | SATA@         |
| WITH BLUETOOTH         | BT@           |
| WITH USBx2             | USB2@         |
| WITH LPC47N207         | SI01@         |
| WITH SI01036           | SI02@         |
| WITH SI0 BOTH          | SI0ALL@       |
| WITH SSC               | SPREAD@       |
| W/O SSC                | NOSPREAD@     |
| DIP CAP                | 45@           |
|                        |               |

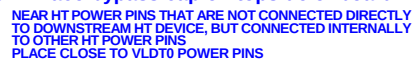
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| Date: 星期一, 五月 08, 2006                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                 |            | Sheet 3 of 51                    |                           |          |



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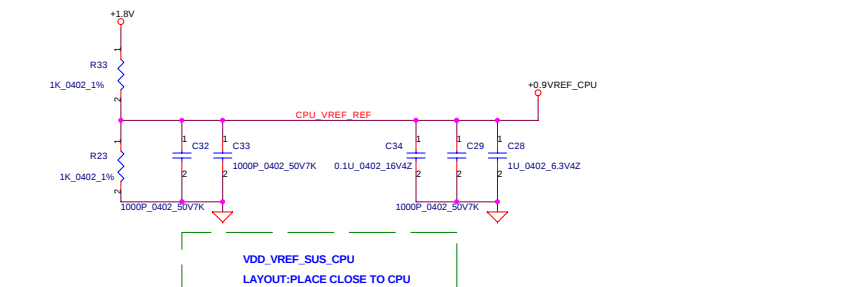
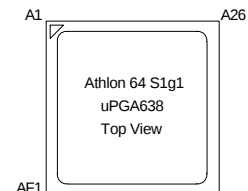
VLDT\_Ax AND VLDT\_Bx ARE CONNECTED TO THE LDT\_RUN POWER SUPPLY THROUGH THE PACKAGE OR ON THE DIE. IT IS ONLY CONNECTED ON THE BOARD TO DECOUPLING NEAR THE CPU PACKAGE



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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics inc</b>    |                           |          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/10/11 | Title<br>SCHEMATIC, M/B LA-3121P |                           |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 6 of 51                    |                           |          |

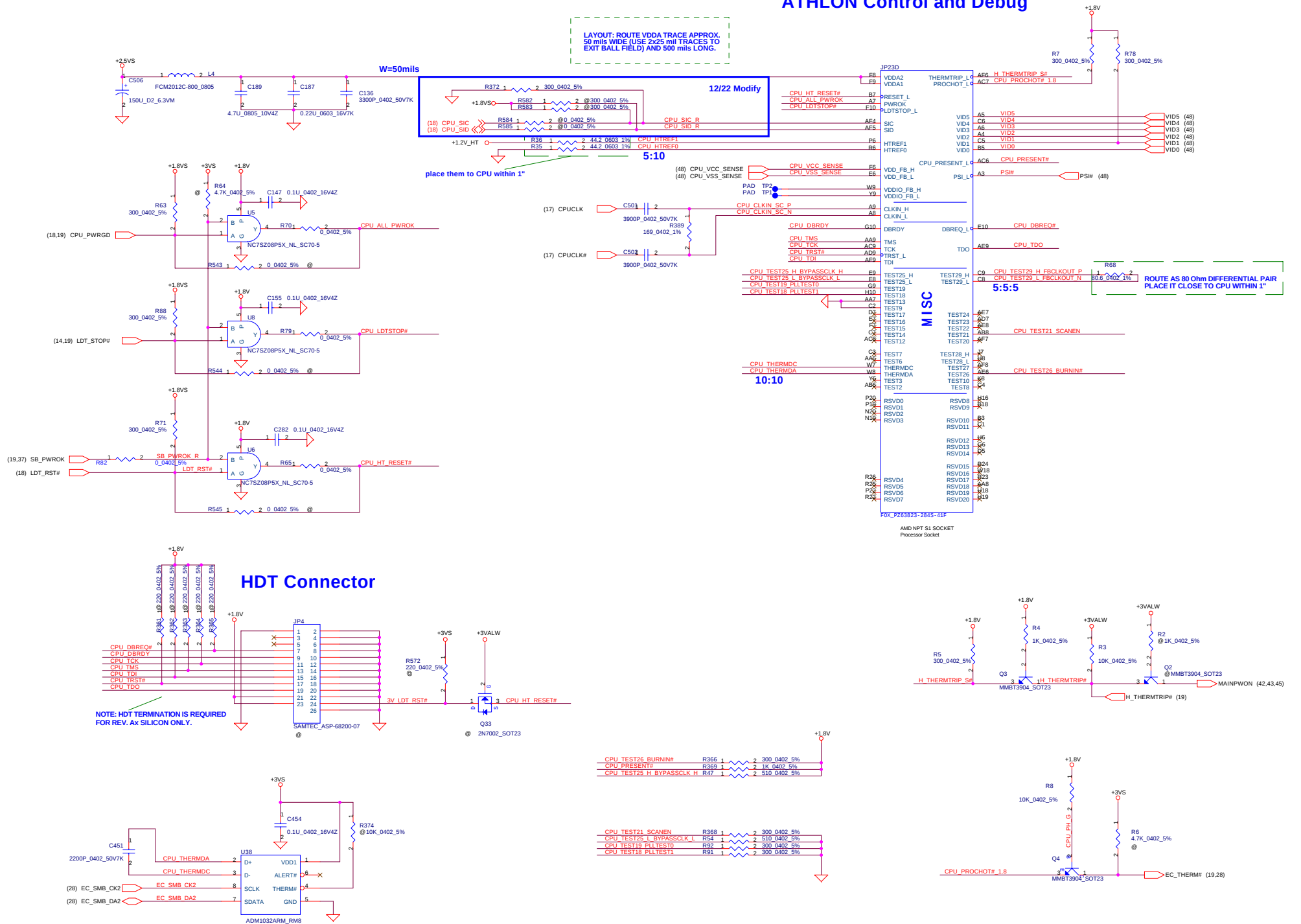
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| (11) DDR_B_DM[3..0] | DDR_B_D03 | AD11 | MA_DAT663 | AA12      | DDR_A_D03 | DDR_A_DM[3..0] (10) |
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|                     | DDR_B_D02 | AE11 | MA_DAT662 | AA12      | DDR_A_D02 |                     |
|                     | DDR_B_D01 | AE14 | MA_DAT661 | AA14      | DDR_A_D01 |                     |
|                     | DDR_B_D00 | AE14 | MA_DAT660 | AA14      | DDR_A_D00 |                     |
|                     | DDR_B_D09 | Y11  | MA_DAT659 | W11       | DDR_A_D09 |                     |
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|                     | DDR_B_D06 | AE13 | MA_DAT656 | AA13      | DDR_A_D06 |                     |
|                     | DDR_B_D05 | AE15 | MA_DAT655 | AA15      | DDR_A_D05 |                     |
|                     | DDR_B_D04 | AE16 | MA_DAT654 | AA15      | DDR_A_D04 |                     |
|                     | DDR_B_D03 | AC18 | MA_DAT653 | AA17      | DDR_A_D03 |                     |
|                     | DDR_B_D02 | AE19 | MA_DAT652 | Y17       | DDR_A_D02 |                     |
|                     | DDR_B_D01 | AD14 | MA_DAT651 | Y14       | DDR_A_D01 |                     |
|                     | DDR_B_D00 | AC14 | MA_DAT650 | W16       | DDR_A_D00 |                     |
|                     | DDR_B_D09 | AE16 | MA_DAT649 | W16       | DDR_A_D09 |                     |
|                     | DDR_B_D08 | AD18 | MA_DAT648 | AD17      | DDR_A_D08 |                     |
|                     | DDR_B_D07 | AD20 | MA_DAT647 | Y18       | DDR_A_D07 |                     |
|                     | DDR_B_D06 | AC20 | MA_DAT647 | AD18      | DDR_A_D06 |                     |
|                     | DDR_B_D05 | AE23 | MA_DAT646 | AA18      | DDR_A_D05 |                     |
|                     | DDR_B_D04 | AE24 | MA_DAT645 | AA21      | DDR_A_D04 |                     |
|                     | DDR_B_D03 | AE20 | MA_DAT644 | AA18      | DDR_A_D03 |                     |
|                     | DDR_B_D02 | AE20 | MA_DAT643 | AA18      | DDR_A_D02 |                     |
|                     | DDR_B_D01 | AE22 | MA_DAT642 | AA20      | DDR_A_D01 |                     |
|                     | DDR_B_D00 | AC22 | MA_DAT641 | Y20       | DDR_A_D00 |                     |
|                     | DDR_B_D09 | AE23 | MA_DAT640 | AA22      | DDR_A_D09 |                     |
|                     | DDR_B_D08 | AD26 | MA_DAT639 | Y22       | DDR_A_D08 |                     |
|                     | DDR_B_D07 | AA25 | MA_DAT638 | W21       | DDR_A_D07 |                     |
|                     | DDR_B_D06 | AA26 | MA_DAT637 | C22       | DDR_A_D06 |                     |
|                     | DDR_B_D05 | AE24 | MA_DAT636 | AA21      | DDR_A_D05 |                     |
|                     | DDR_B_D04 | AD24 | MA_DAT635 | AA21      | DDR_A_D04 |                     |
|                     | DDR_B_D03 | AA23 | MA_DAT634 | AA22      | DDR_A_D03 |                     |
|                     | DDR_B_D02 | AA24 | MA_DAT633 | B24       | DDR_A_D02 |                     |
|                     | DDR_B_D01 | AA24 | MA_DAT632 | Y24       | DDR_A_D01 |                     |
|                     | DDR_B_D00 | AA24 | MA_DAT631 | MA_DAT631 | DDR_A_D00 |                     |
|                     | DDR_B_D09 | AA24 | MA_DAT630 | MA_DAT630 | DDR_A_D09 |                     |
|                     | DDR_B_D08 | AA24 | MA_DAT629 | E22       | DDR_A_D08 |                     |
|                     | DDR_B_D07 | G26  | MA_DAT628 | E21       | DDR_A_D07 |                     |
|                     | DDR_B_D06 | G25  | MA_DAT627 | J19       | DDR_A_D06 |                     |
|                     | DDR_B_D05 | E24  | MA_DAT626 | H24       | DDR_A_D05 |                     |
|                     | DDR_B_D04 | E23  | MA_DAT625 | C23       | DDR_A_D04 |                     |
|                     | DDR_B_D03 | E24  | MA_DAT624 | E20       | DDR_A_D03 |                     |
|                     | DDR_B_D02 | B24  | MA_DAT623 | C23       | DDR_A_D02 |                     |
|                     | DDR_B_D01 | C20  | MA_DAT622 | B22       | DDR_A_D01 |                     |
|                     | DDR_B_D00 | B20  | MA_DAT621 | F18       | DDR_A_D00 |                     |
|                     | DDR_B_D09 | C25  | MA_DAT620 | E18       | DDR_A_D09 |                     |
|                     | DDR_B_D08 | D24  | MA_DAT619 | D22       | DDR_A_D08 |                     |
|                     | DDR_B_D07 | AE21 | MA_DAT618 | C19       | DDR_A_D07 |                     |
|                     | DDR_B_D06 | D20  | MA_DAT617 | G18       | DDR_A_D06 |                     |
|                     | DDR_B_D05 | D18  | MA_DAT616 | G17       | DDR_A_D05 |                     |
|                     | DDR_B_D04 | C18  | MA_DAT615 | C17       | DDR_A_D04 |                     |
|                     | DDR_B_D03 | D14  | MA_DAT614 | F14       | DDR_A_D03 |                     |
|                     | DDR_B_D02 | C14  | MA_DAT613 | E14       | DDR_A_D02 |                     |
|                     | DDR_B_D01 | A20  | MA_DAT612 | H17       | DDR_A_D01 |                     |
|                     | DDR_B_D00 | A19  | MA_DAT611 | E17       | DDR_A_D00 |                     |
|                     | DDR_B_D09 | A16  | MA_DAT610 | MA_DAT610 | DDR_A_D09 |                     |
|                     | DDR_B_D08 | A15  | MA_DAT609 | MA_DAT609 | DDR_A_D08 |                     |
|                     | DDR_B_D07 | A13  | MA_DAT608 | E15       | DDR_A_D07 |                     |
|                     | DDR_B_D06 | D12  | MA_DAT607 | H15       | DDR_A_D06 |                     |
|                     | DDR_B_D05 | E11  | MA_DAT606 | E13       | DDR_A_D05 |                     |
|                     | DDR_B_D04 | G11  | MA_DAT605 | C13       | DDR_A_D04 |                     |
|                     | DDR_B_D03 | B14  | MA_DAT604 | H12       | DDR_A_D03 |                     |
|                     | DDR_B_D02 | A14  | MA_DAT603 | H11       | DDR_A_D02 |                     |
|                     | DDR_B_D01 | A11  | MA_DAT602 | G14       | DDR_A_D01 |                     |
|                     | DDR_B_D00 | C11  | MA_DAT601 | H14       | DDR_A_D00 |                     |
|                     |           |      | MA_DAT600 | E12       | DDR_A_D09 |                     |
|                     |           |      |           | G12       | DDR_A_D08 |                     |
|                     |           |      |           |           | DDR_A_D07 |                     |
|                     |           |      |           |           | DDR_A_D06 |                     |
|                     |           |      |           |           | DDR_A_D05 |                     |
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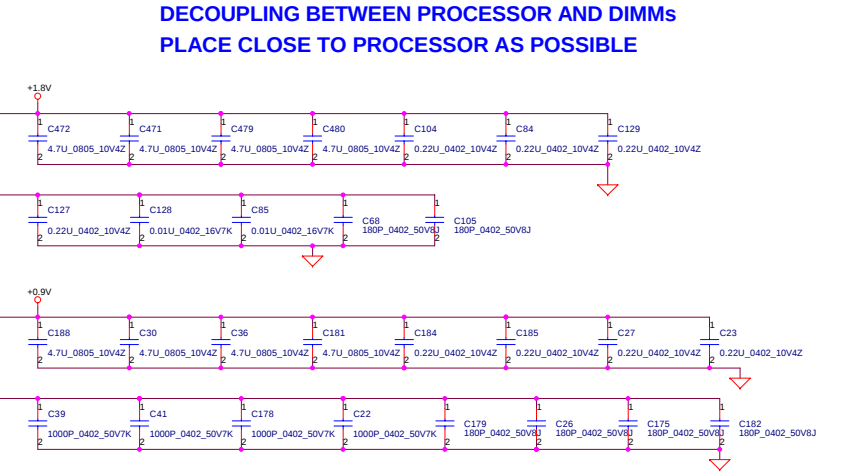
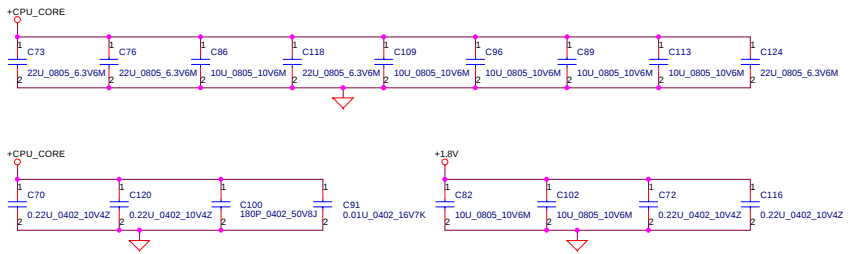
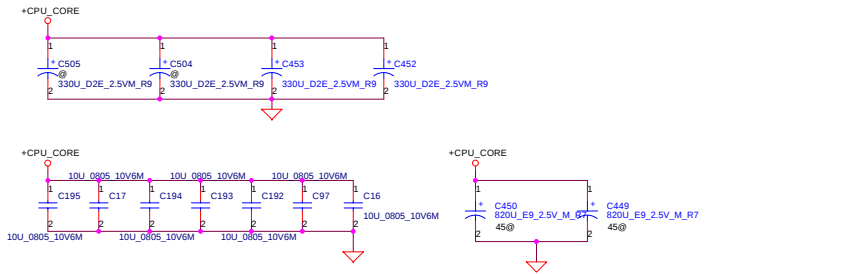
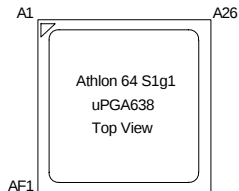
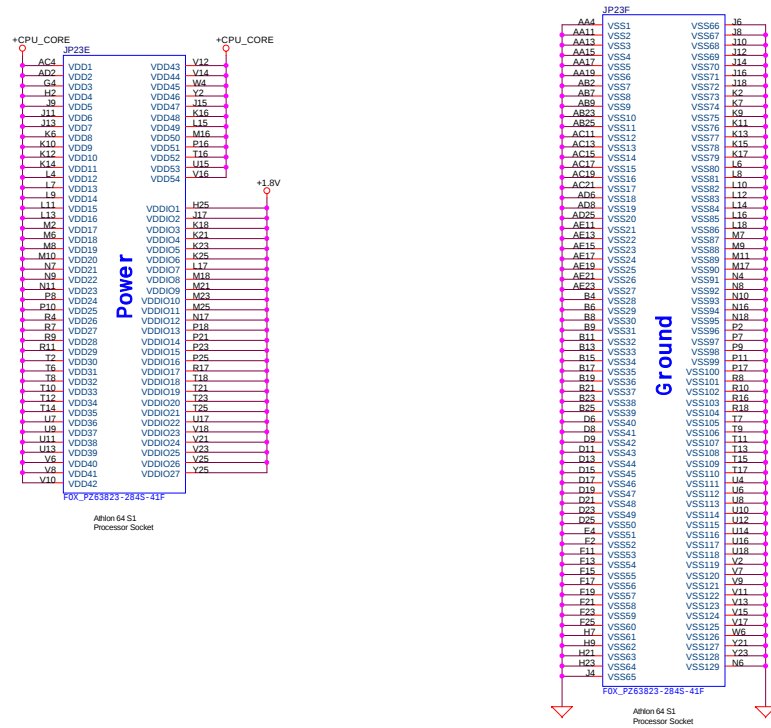


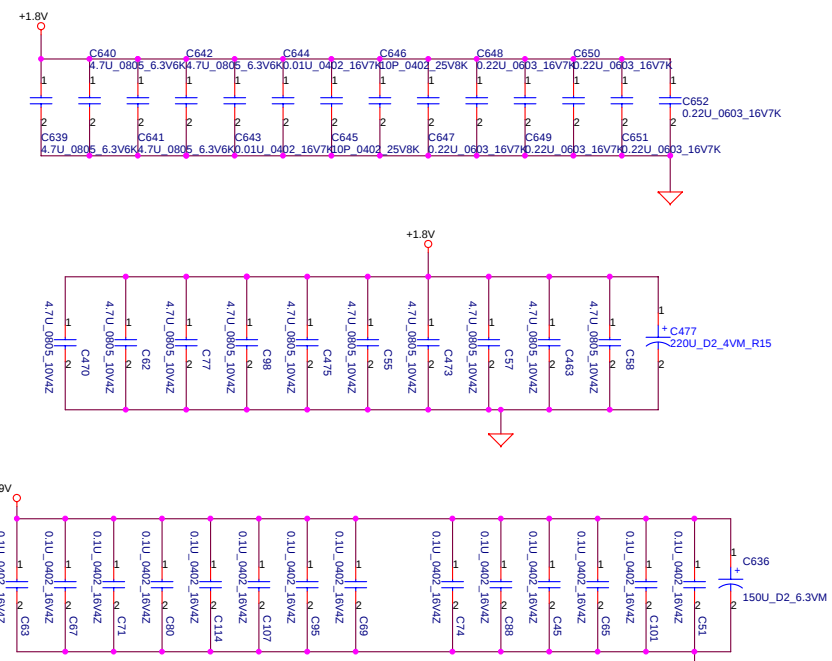
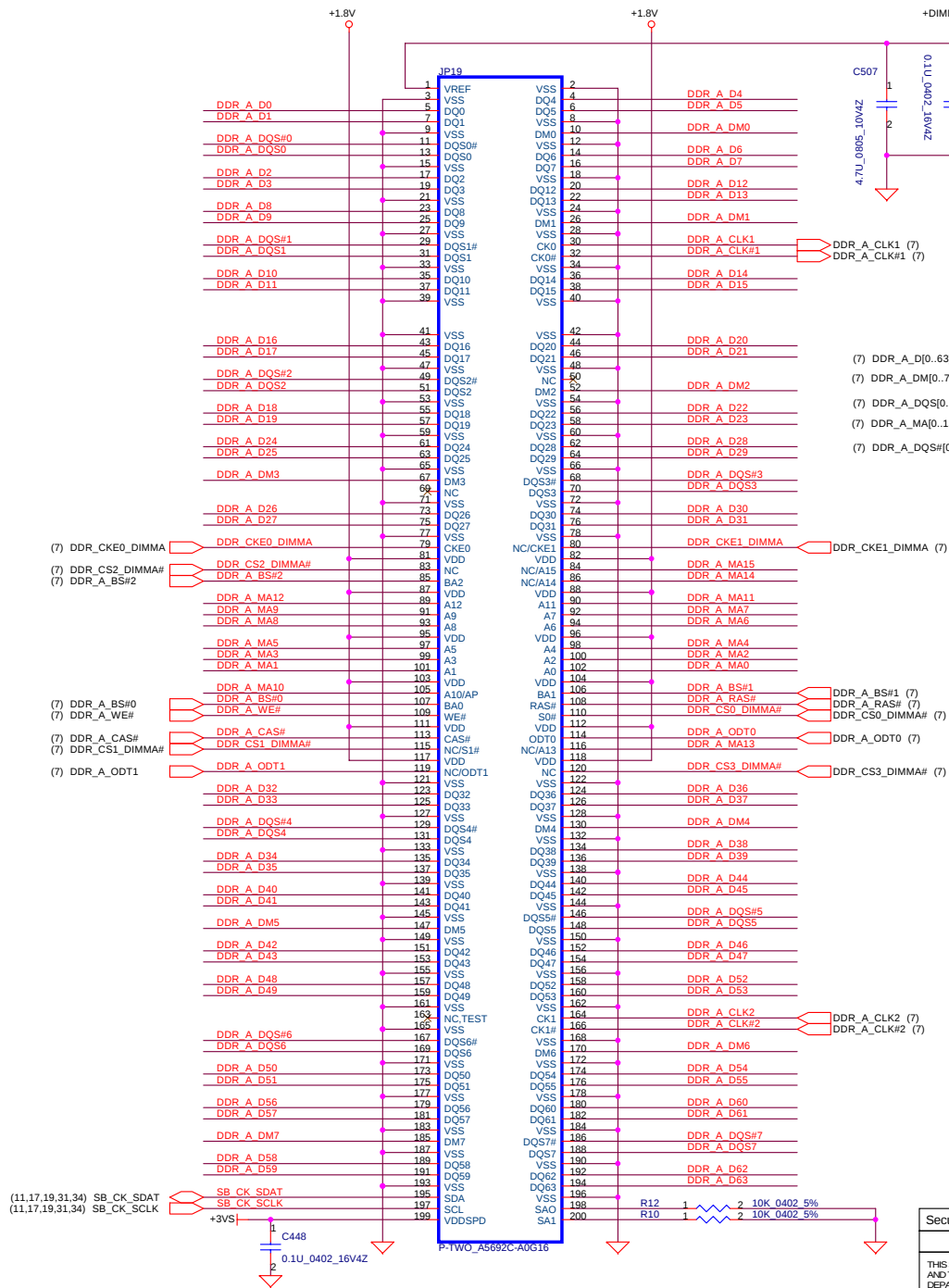
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-------------------------------|--|------------|--|-------|-------------------------|-------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  | <b>Compal Electronics inc</b> |  |            |  |       |                         |       |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2005/05/09         |  | Deciphered Date               |  | 2006/10/11 |  | Title | SCHEMATIC, M/B LA-3121P |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                               |  |            |  | C4    | 401411                  |       |
| Date: 2006.05.08                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                    |  |                               |  |            |  | Sheet | of                      | 51    |

## ATHLON Control and Debug

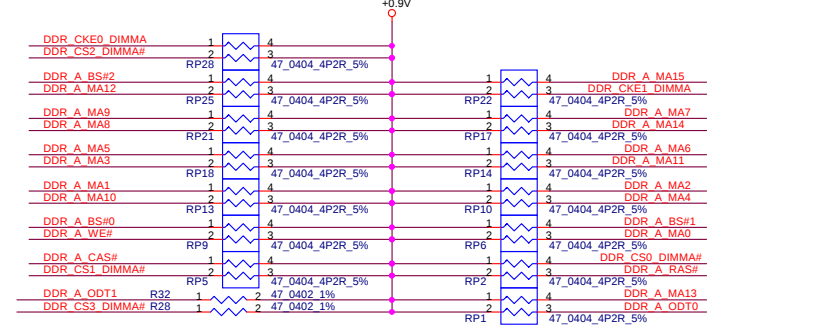


|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |            |                                 |                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|---------------------------------|---------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                    | Compal Secret Data |                 |            | <b>Compal Electronics, Inc.</b> |                           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |            | Date: 華曆三月二日 10, 2006           | Rev D                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |            | Sheet 8 of 51                   |                           |



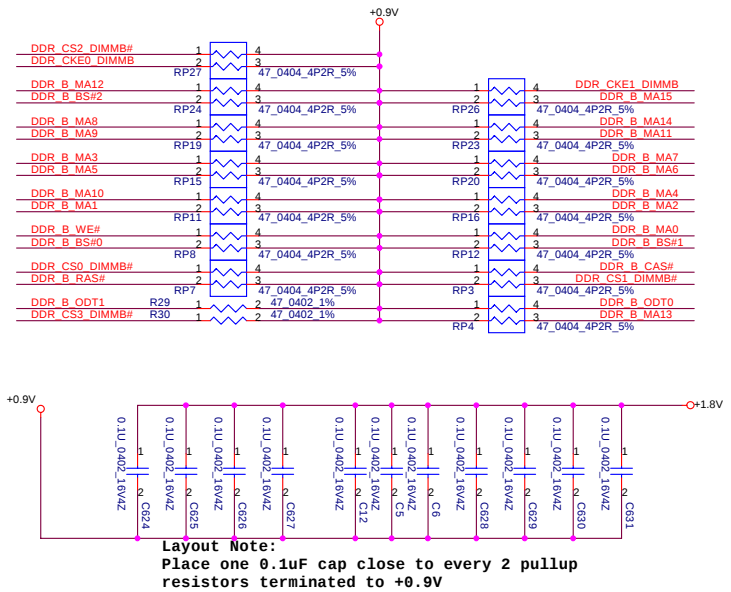
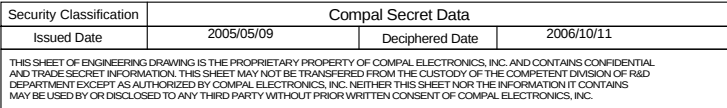


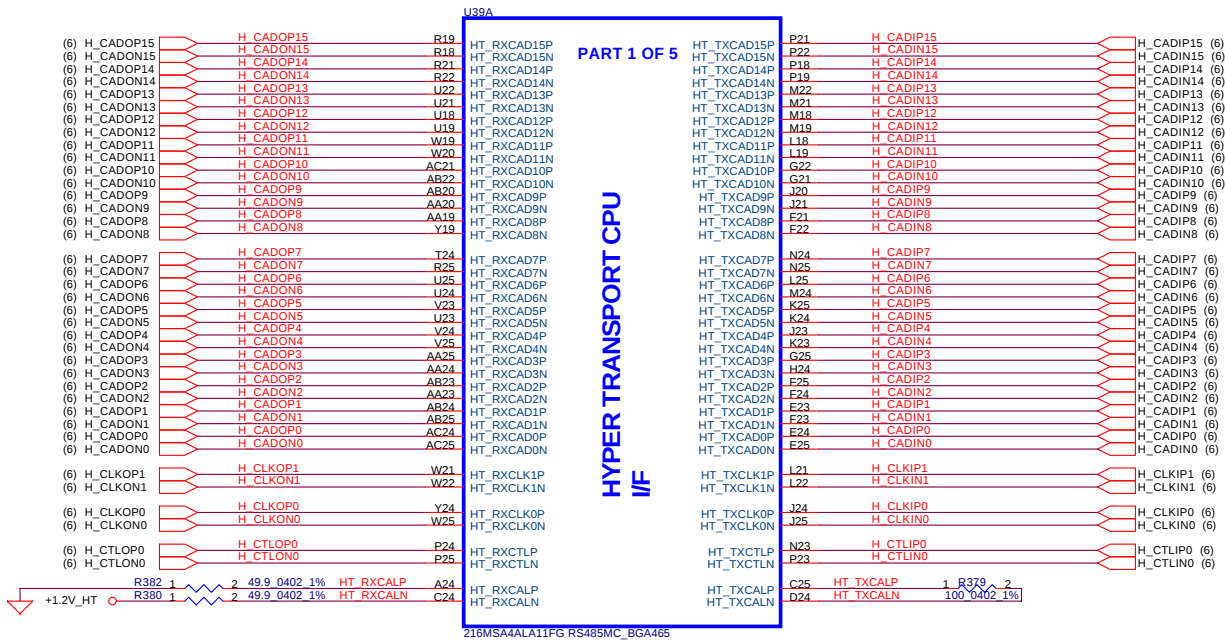
Layout Note:  
Place one cap close to every 2 pullup resistors terminated to +0.9V



Layout Note:  
Place one 0.1uF cap close to every 2 pullup resistors terminated to +0.9V

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                   |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------|---------------------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/10/11 | SCHEMATIC, M/B LA-3121P |                           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                    | Rev D                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 2006/10/11              | 2006/10/11                |





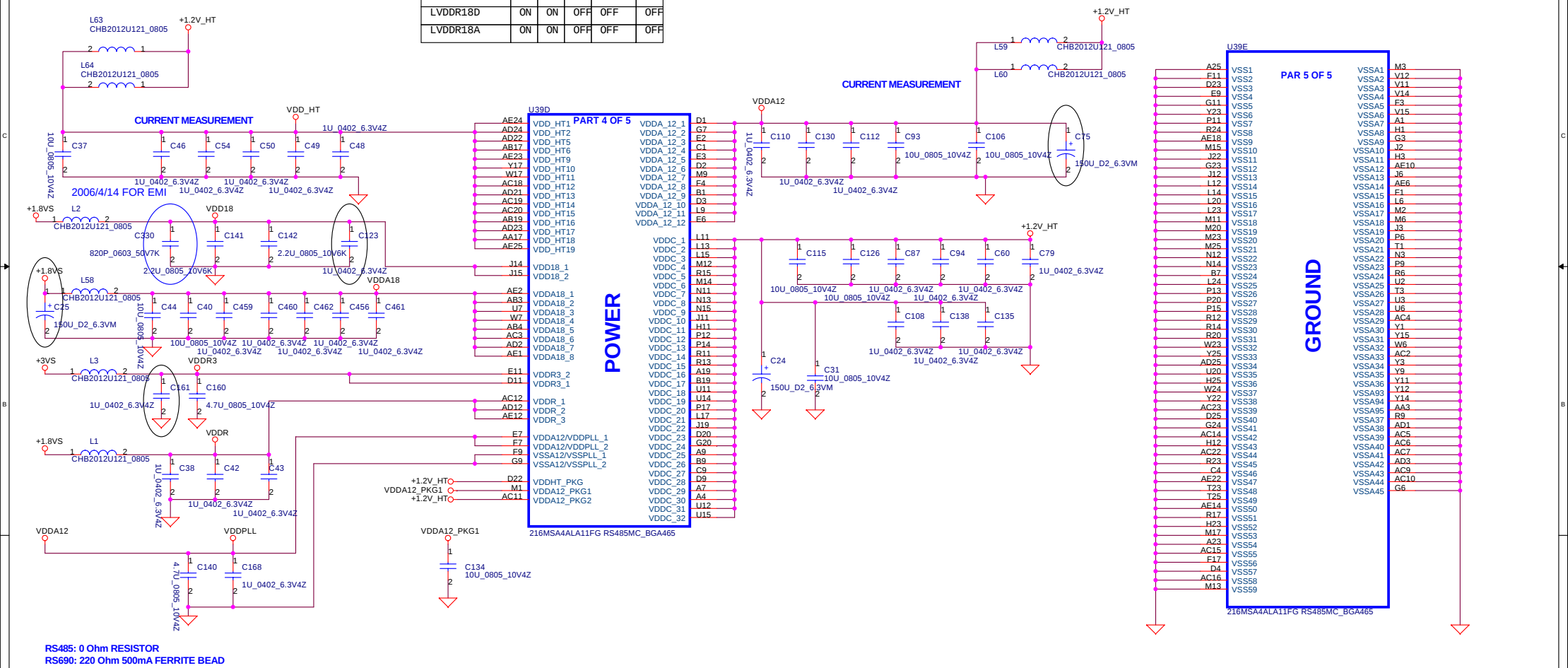
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                  |          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, inc.         |          |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title<br>SCHEMATIC, M/B LA-3121P |          |
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| Date: 星期三, 五月 10, 2006                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | Sheet 12 of 51     |            |                                  |          |





NB RS485 POWER STATES

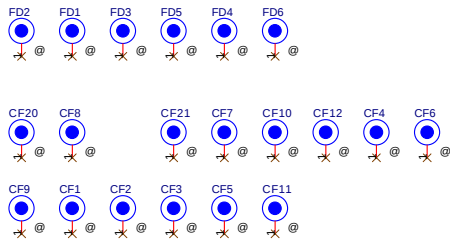
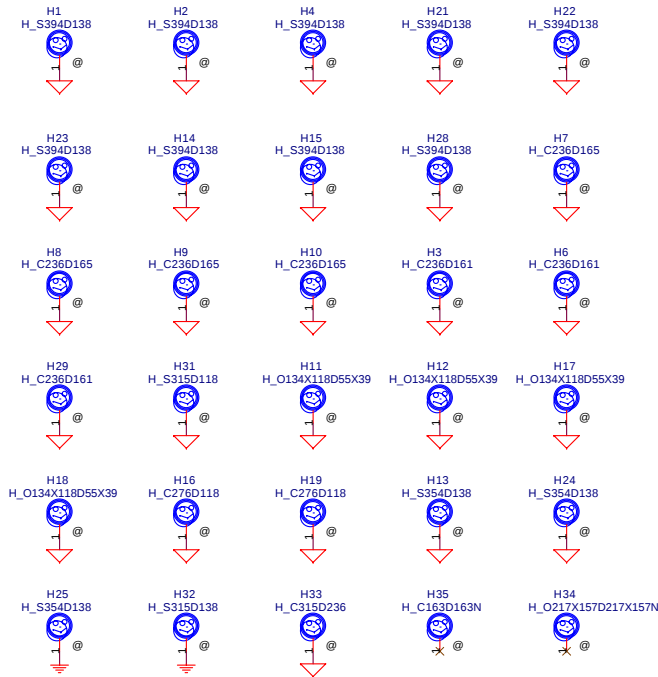
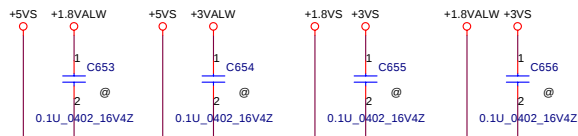
| Power    | Signal | S0 | S1 | S3  | S4/S5 | G3  |
|----------|--------|----|----|-----|-------|-----|
| VDDHT    |        | ON | ON | OFF | OFF   | OFF |
| VDDR     |        | ON | ON | OFF | OFF   | OFF |
| VDD18    |        | ON | ON | OFF | OFF   | OFF |
| VDDC     |        | ON | ON | OFF | OFF   | OFF |
| VDDA18   |        | ON | ON | OFF | OFF   | OFF |
| VDDA12   |        | ON | ON | OFF | OFF   | OFF |
| AVDD     |        | ON | ON | OFF | OFF   | OFF |
| AVDDDI   |        | ON | ON | OFF | OFF   | OFF |
| PLLVD    |        | ON | ON | OFF | OFF   | OFF |
| HTPVDD   |        | ON | ON | OFF | OFF   | OFF |
| VDDR3    |        | ON | ON | OFF | OFF   | OFF |
| LPVDD    |        | ON | ON | OFF | OFF   | OFF |
| LVDDR18D |        | ON | ON | OFF | OFF   | OFF |
| LVDDR18A |        | ON | ON | OFF | OFF   | OFF |





LOAD\_ROM#: LOAD ROM STRAP ENABLE

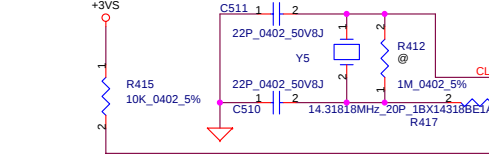
High, LOAD ROM STRAP DISABLE  
Low, LOAD ROM STRAP ENABLE



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                 |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|---------------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics, inc.</b> |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title                           | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                           | Rev D                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 星期三, 五月 10, 2006                | Sheet 16 of 51          |

- 1- PLACE ALL SERIAL TERMINATION RESISTORS CLOSE TO U800
- 2- PUT DECOUPLING CAPS CLOSE TO U800 POWER PIN

### Parallel Resonance Crystal



$I_{oh} = 5 * I_{ref}$   
 $(2.32mA)$   
 $V_{oh} = 0.71V @ 60 ohm$

EXT CLK FREQUENCY SELECT TABLE(MHZ)

| FS2 | FS1 | FS0 | CPU    | SRCCLK [2:1] | HTT   | PCI   | USB   | COMMENT                   |
|-----|-----|-----|--------|--------------|-------|-------|-------|---------------------------|
| 0   | 0   | 0   | Hi-Z   | 100.00       | Hi-Z  | Hi-Z  | 48.00 | Reserved                  |
| 0   | 0   | 1   | X      | 100.00       | X/3   | X/6   | 48.00 | Reserved                  |
| 0   | 1   | 0   | 180.00 | 100.00       | 60.00 | 30.00 | 48.00 | Reserved                  |
| 0   | 1   | 1   | 220.00 | 100.00       | 36.56 | 73.12 | 48.00 | Reserved                  |
| 1   | 0   | 0   | 100.00 | 100.00       | 66.66 | 33.33 | 48.00 | Reserved                  |
| 1   | 0   | 1   | 133.33 | 100.00       | 66.66 | 33.33 | 48.00 | Reserved                  |
| 1   | 1   | 1   | 200.00 | 100.00       | 66.66 | 33.33 | 48.00 | Normal ATHLON64 operation |

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, inc. |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------------------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title                    | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Custom                   | 401411                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | 星期三, 五月 10, 2006        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 17 of 51                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Rev                      | D                       |

The schematic diagram illustrates the PCIe interface connection between the SoC and the PCIe controller. The SoC side (left) shows a 3.3V supply connected to the RST# pin (pin 17) and the NB\_RST# pin (pin 14, 23, 28, 31, 36). A 10k pull-up resistor is connected to the RST# pin. The PCIe controller side (right) shows a 1.8V supply connected to the RST# pin (pin 1) and the NB\_RST# pin (pin 14, 23, 28, 31, 36). A 10k pull-up resistor is connected to the RST# pin. The diagram also shows the connection of various data and control signals, including the RST#, NB\_RST#, and various data and control signals. The SoC pins are labeled with their functions and the PCIe controller pins are labeled with their functions. The diagram includes a note: "PLACE THESE PCIE AC COUPLING CAPS CLOSE TO U600".

1.8VS

1 L7 2

KC FBM-L11-201209-221LMAT\_0805

C515 1 2 22U\_0805 2 6.3V6M

C516 1 2

C512 1 2

C247 1 2 1U\_0603\_10V6K

C250 1 2 1U\_0603\_10V6K

C514 1 2 1U\_0603\_10V6K

PCIE\_VDDR

329 PCIE\_VDDR\_8

329 PCIE\_VDDR\_9

L25 PCIE\_VDDR\_10

L26 PCIE\_VDDR\_11

L29 PCIE\_VDDR\_12

N29 PCIE\_VDDR\_13

20M\_0603\_5% 2 1 R244

18P\_0402\_50V8J 1 2

C314 1 2

Y3 3 4

NC OUT

NC IN

32.768KHZ\_12.5P\_1TJ5125DJ2A073

18P\_0402\_50V8J 1 2

C307 1 2

32K X1

R218 10M\_0402\_5%

32K X2

32K X1 D2 X1

PLACE THESE COMPONENTS CLOSE TO U600, AND

[illegible]

| Signal         | Pin  | Package | Value | Frequency | Power | Notes         |
|----------------|------|---------|-------|-----------|-------|---------------|
| CLK_PCI_LAN_R  | R252 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (26) |
| CLK_PCI_LPC_R  | R255 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (28) |
| CLK_PCI_MINI_R | R247 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (31) |
| CLK_PCI_PCM_R  | R226 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (32) |
| CLK_PCI_1394_R | R223 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (33) |
| CLK_PCI_SIO_R  | R217 | 1       | 2     | 22.0402   | 5%    | NOSPREAD (36) |

[illegible]

2005/12/30 Change net to +3VALW

PCIRST#

IN1

IN2

4

PCI\_RST# (26.31,32,34,35)

R193 10K\_0402\_5%

R190 47K\_0402\_5%

U16 SN74AHC08BDCR SC70

C299 0.1u 0402\_16V4Z

+3VALW

+3V5

SB460 ONLY

RP33

8 PCI\_SERR#

7 PCI\_TRDY#

6 PCI\_FRAME#

5 PCI\_STOP#

8.2K\_1206\_8P4R 5%

RP31

8 PCI\_CLOCK#

7 PCI\_IRQ#

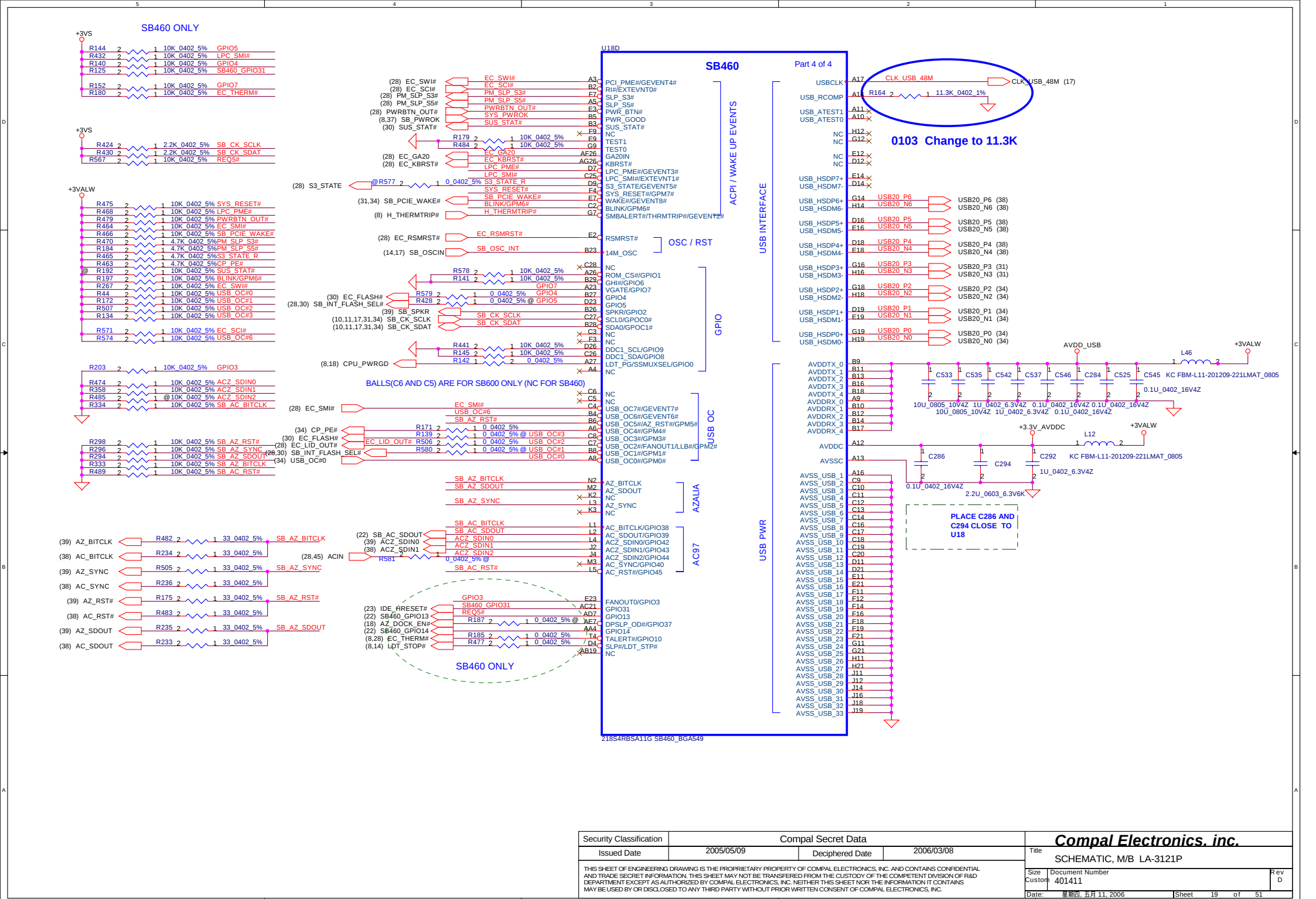
6 PCI\_PERR#

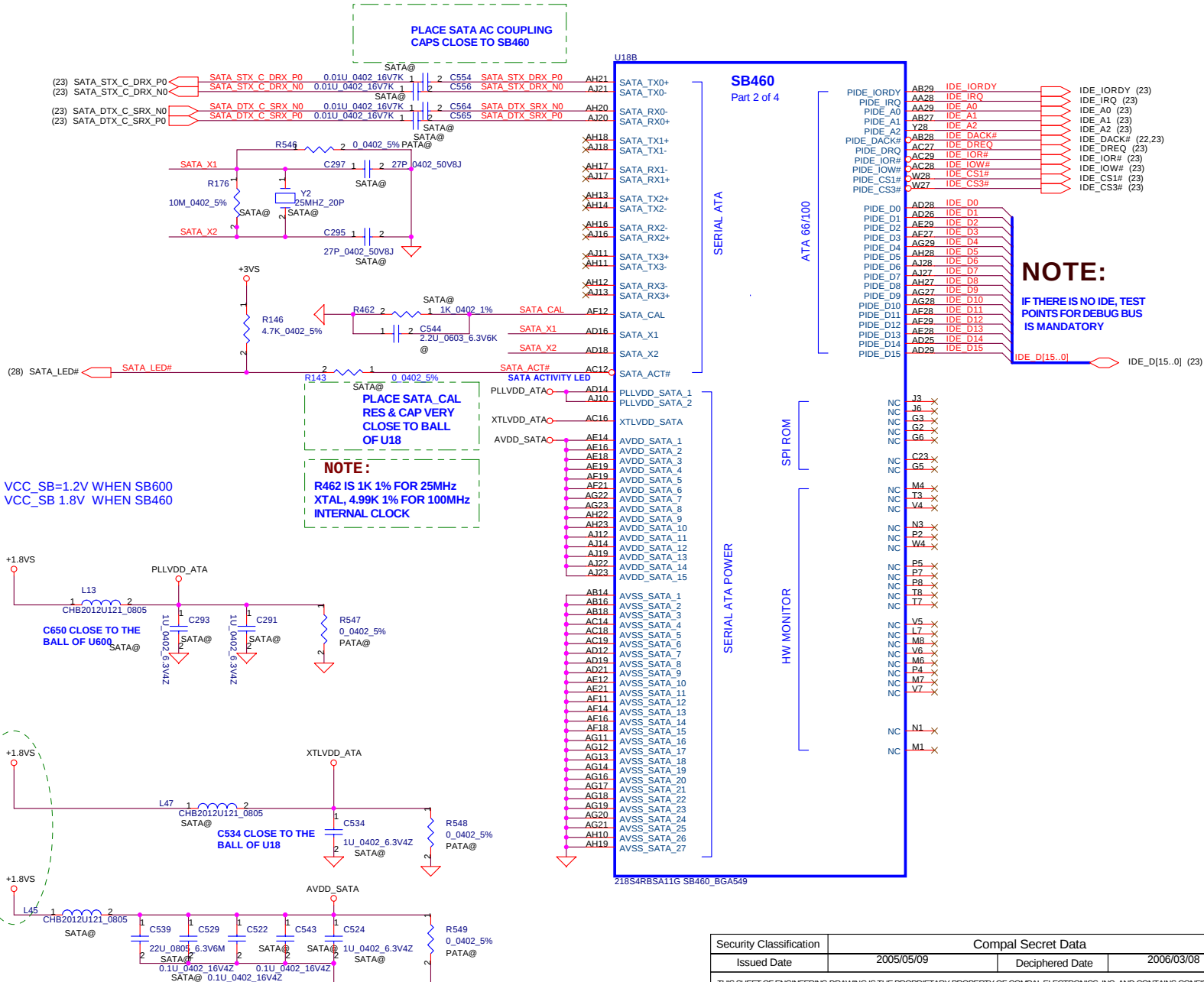
5 PCI\_DEVSEL#

LPC PULL UPS

[illegible]

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                                 |                         |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|-----------------|---------------------------------|-------------------------|-----|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |                 | <b>Compal Electronics, inc.</b> |                         |     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2005/05/09         | Deciphered Date |                                 | 2006/03/08              |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 | Size                            | Document Number         | Rev |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 | Date                            | 401411                  |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 | -P 期間, 五月 11, 2006              | Sheet 18 of 51          |     |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                         |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------|-----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                   |                 |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | SCHEMATIC, M/B LA-3121P |                 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Custom                  | 401411          |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                    |            | 星期四, 五月 11, 2006        | Sheet 20 of 51  |

**Compal Electronics, inc.**

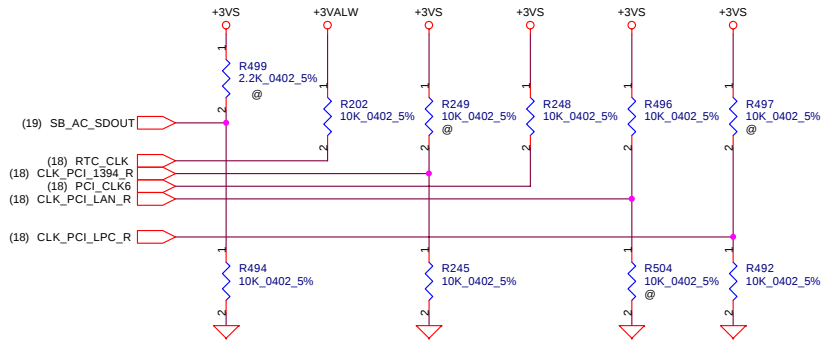
SCHEMATIC, M/B LA-3121P

Size: 401411  
Document Number: 401411  
Rev: D



REQUIRED STRAPS

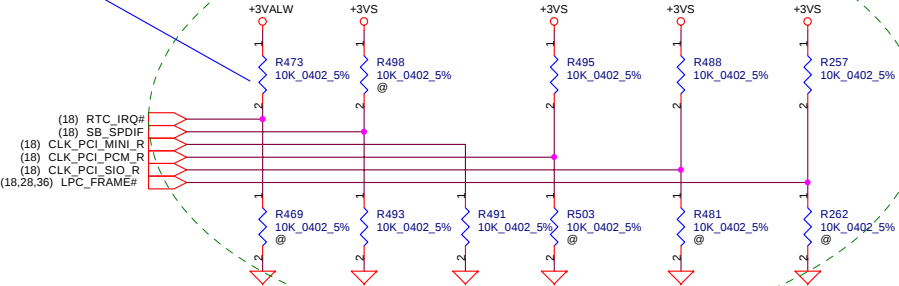
SB600 HAS 15K INTERNAL PD FOR AC\_SDATA\_OUT,  
15K PU FOR RTC\_CLK, EXTERNAL PU/PD IS  
NOT REQUIRED; FOR SB460, EXTERNAL PU/PD ARE  
REQUIRED



|           | SB600                          |                         |                           |                      | SB460                                                                             |                                                                                        |
|-----------|--------------------------------|-------------------------|---------------------------|----------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|           | AC_SDATA_OUT                   | RTC_CLK                 | PCI_1994_R                | PCI_CLK6             | PCI_LAN_R                                                                         | PCI_LPC_R                                                                              |
| PULL HIGH | USE DEBUG STRAPS               | INTERNAL RTC<br>DEFAULT | USE INT. PLL48            | CPU IF=K8<br>DEFAULT | ROM TYPE:<br>H, H = PCI ROM<br>H, L = SPI ROM<br>L, H = LPC ROM<br>L, L = FWH ROM | ROM TYPE:<br>H, H = PCI ROM<br>H, L = LPC I ROM<br>L, H = LPC II ROM<br>L, L = FWH ROM |
| PULL LOW  | IGNORE DEBUG STRAPS<br>DEFAULT | EXTERNAL RTC            | USE EXT. 48MHZ<br>DEFAULT | CPU IF=P4            | DEFAULT                                                                           | DEFAULT                                                                                |

NOTE: R751 PU RESISTOR FOR  
RTC\_IRQ# IS REQUIRED FOR SB600  
TO KEEP THE INPUT FROM FLOATING.

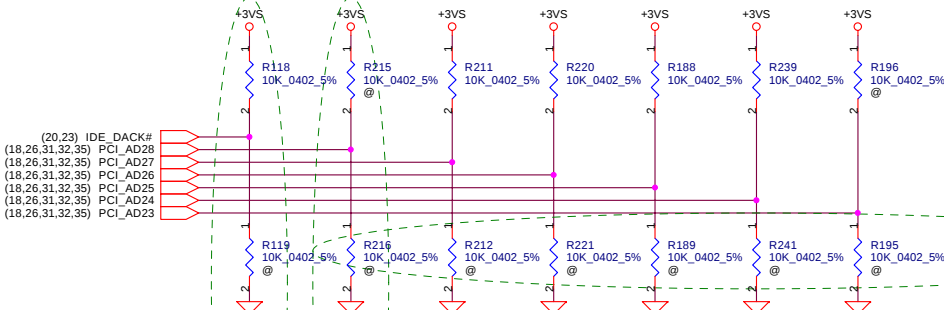
SB460 ONLY



|           | ACPWRON                  | SPDIF_OUT            | PCI_MINI_R                 | PCI_PCM_R                               | PCI_SIO_R                  | LFRAME#                      |
|-----------|--------------------------|----------------------|----------------------------|-----------------------------------------|----------------------------|------------------------------|
| PULL HIGH | MANUAL PWR ON<br>DEFAULT | SIO 24MHZ            | XTAL MODE<br>NOT SUPPORTED | USB PHY POWERDOWN<br>DISABLE<br>DEFAULT | PCIE_CM_SET LOW<br>DEFAULT | ENABLE THERMTRIP#<br>DEFAULT |
| PULL LOW  | AUTO PWR ON              | SIO 48MHZ<br>DEFAULT | 48MHZ OSC MODE<br>DEFAULT  | USB PHY POWERDOWN<br>ENABLE             | PCIE_CM_SET HIGH           | DISABLE THERMTRIP#           |

DEBUG STRAPS

SB600 HAS 15K INTERNAL PU FOR PCI\_AD[28:23]



|           | IDE_DACK#                 | PCI_AD28                  | PCI_AD27               | PCI_AD26                 | PCI_AD25               | PCI_AD24                           | PCI_AD23                          |
|-----------|---------------------------|---------------------------|------------------------|--------------------------|------------------------|------------------------------------|-----------------------------------|
| PULL HIGH | USE LONG RESET<br>DEFAULT | USE LONG RESET<br>DEFAULT | USE PCI PLL<br>DEFAULT | USE ACPI BCLK<br>DEFAULT | USE IDE PLL<br>DEFAULT | USE DEFAULT PCIE STRAPS<br>DEFAULT | BOOTFAILTIMER DISABLED<br>DEFAULT |
| PULL LOW  | USE SHORT RESET           | USE SHORT RESET           | BYPASS PCI PLL         | BYPASS ACPI BCLK         | BYPASS IDE PLL         | USE EEPROM PCIE STRAPS             | BOOTFAILTIMER ENABLED             |

SB460 ONLY

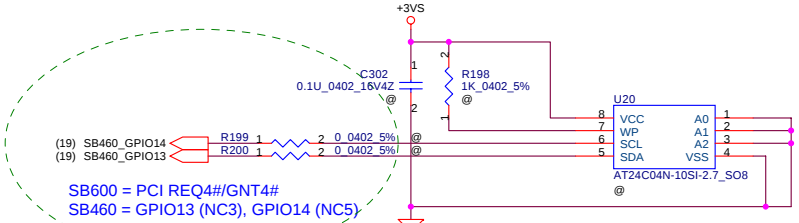
SB600 ONLY

SB600 ONLY

NOTE: FOR  
SB460,  
PCI\_AD23 IS  
RESERVED



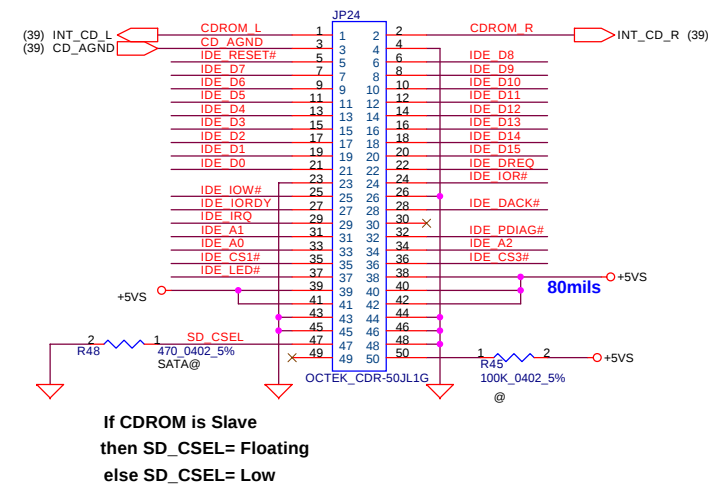
OVERLAP COMMON PADS WHERE  
POSSIBLE FOR DUAL-OP RESISTORS.



SB PCIE EEPROM STRAPS

(20) IDE\_D[0..15] IDE\_D[0..15]

(20) IDE\_A[0..2] IDE\_A[0..2]

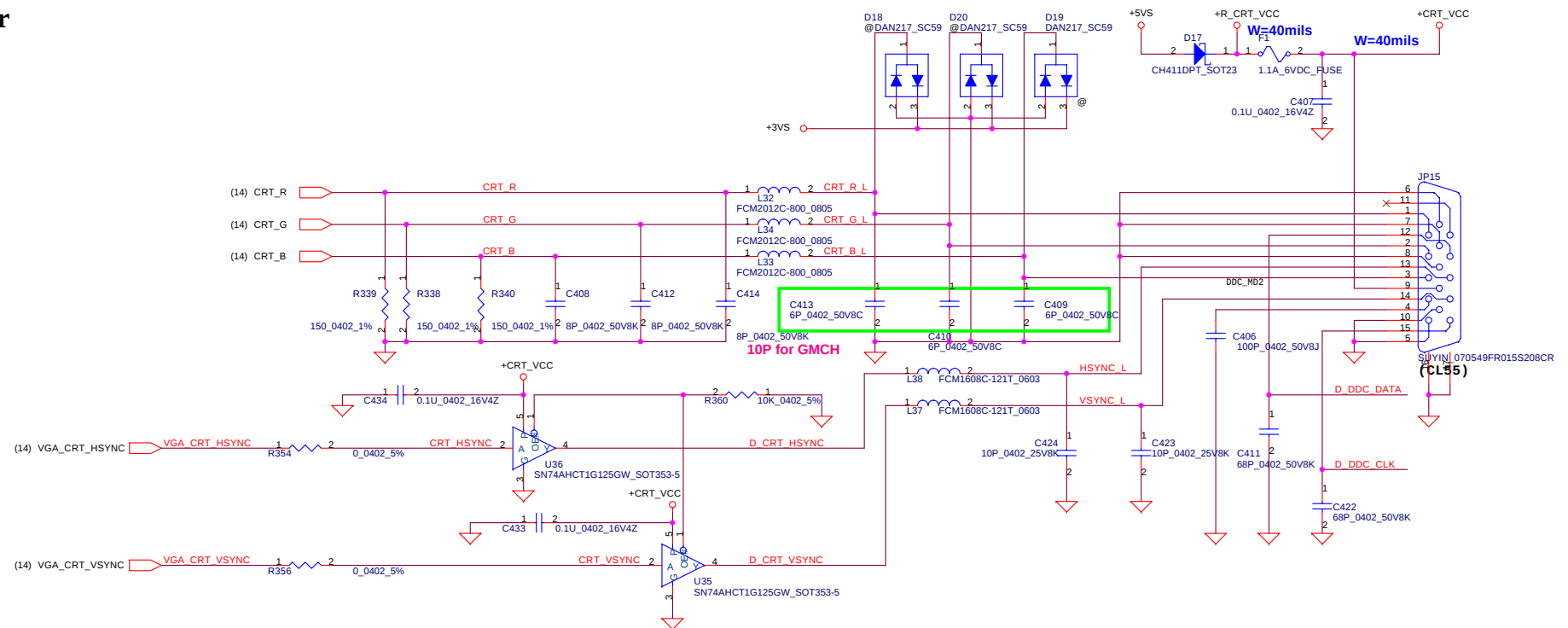
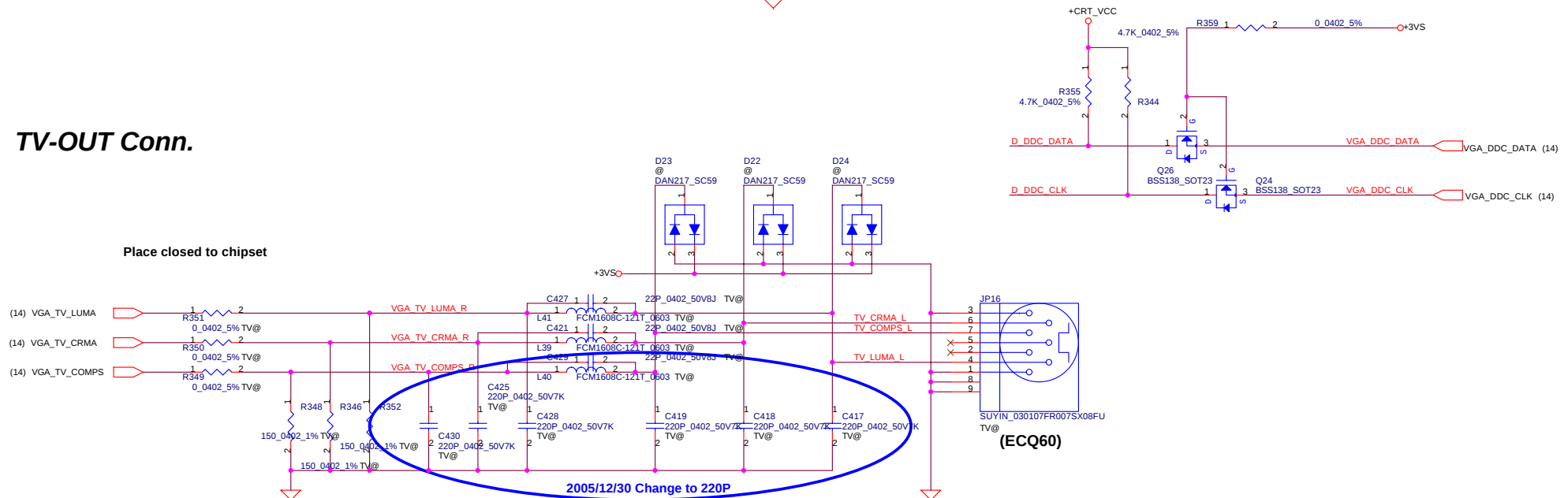


```

If CDROM is Slave
then SD_CSEL= Floating
else SD_CSEL= Low

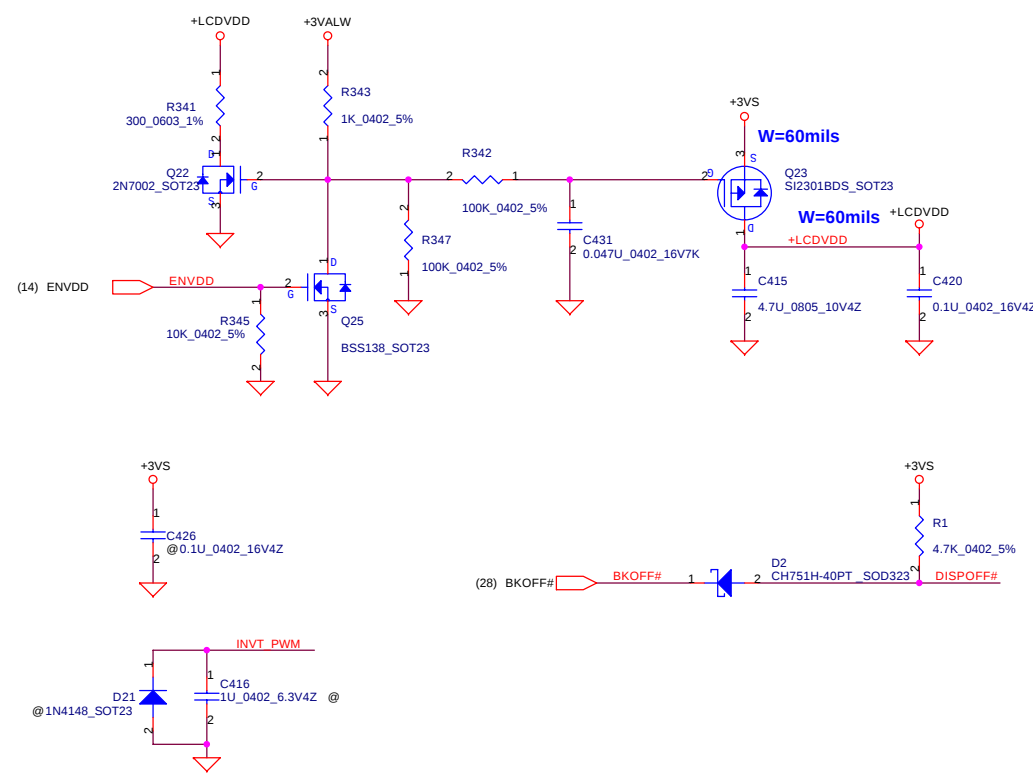
```

## CRT Connector

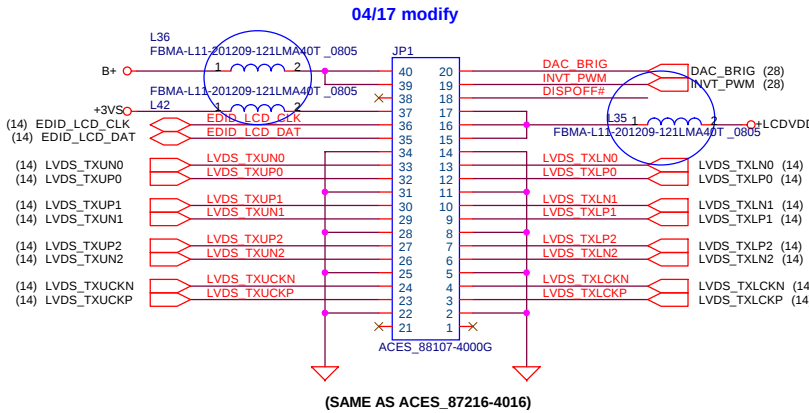
**TV-OUT Conn.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                                                     |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|---------------------------------------------------------------------|---------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | <b>Compal Electronics, inc.</b><br>Title<br>SCHEMATIC, M/B LA-3121P |                           |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Size<br>Custord                                                     | Document Number<br>401411 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: 星期四, 五月 11, 2006                                              | Sheet 24 of 51            |

LCD POWER CIRCUIT



LCD/PANEL CONN.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title                    | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: 星期四, 五月 11, 2006   | Sheet 25 of 51          |

(18,22,31,32,35) PCI\_AD[0..31] PCI\_AD[0..31]

PCI AD0 104 AD0  
PCI AD1 103 AD1  
PCI AD2 102 AD2  
PCI AD3 98 AD3  
PCI AD4 97 AD4  
PCI AD5 96 AD5  
PCI AD6 95 AD6  
PCI AD7 93 AD7  
PCI AD8 90 AD8  
PCI AD9 89 AD9  
PCI AD10 87 AD10  
PCI AD11 86 AD11  
PCI AD12 85 AD12  
PCI AD13 83 AD13  
PCI AD14 82 AD14  
PCI AD15 79 AD15  
PCI AD16 59 AD16  
PCI AD17 58 AD17  
PCI AD18 57 AD18  
PCI AD19 55 AD19  
PCI AD20 53 AD20  
PCI AD21 50 AD21  
PCI AD22 49 AD22  
PCI AD23 47 AD23  
PCI AD24 43 AD24  
PCI AD25 42 AD25  
PCI AD26 40 AD26  
PCI AD27 39 AD27  
PCI AD28 37 AD28  
PCI AD29 36 AD29  
PCI AD30 34 AD30  
PCI AD31 33 AD31

(18,31,32,35) PCI\_CBE#0 C/BE#0  
(18,31,32,35) PCI\_CBE#1 C/BE#1  
(18,31,32,35) PCI\_CBE#2 C/BE#2  
(18,31,32,35) PCI\_CBE#3 C/BE#3

PCI\_AD17 1 2 LAN\_IDSEL 46 IDSEL

(18,31,32,35) PCI\_PAR 76 PAR FRAME#  
(18,31,32,35) PCI\_FRAME# 61 IRDY#  
(18,31,32,35) PCI\_IRDY# 63 TRDY#  
(18,31,32,35) PCI\_TRDY# 67 DEVSEL#  
(18,31,32,35) PCI\_DEVSEL# 68 STOP#  
(18,31,32,35) PCI\_STOP# 69

(18,31,32,35) PCI\_PERR# 70 PERR#  
(18,31,32) PCI\_SERR# 75 SERR#

(18) PCI\_REQ#3 30 REQ#  
(18) PCI\_GNT#3 29 GNT#

(18,31,32) PCI\_INTA# 25 INTA#  
(28) LAN\_PME# 31 PME#

(18,31,32,34,35) PCI\_RST# 27 RST#

(18) CLK\_PCI\_LAN 28 CLK  
(18,31,36) PM\_CLKRUN# 65 PM\_CLKRUN#

CLK\_PCI\_LAN 1 2 CLK\_PCI\_LAN

R504 1 2 0.0402\_5%  
R501 2 1 0.0402\_5%

(28) LAN\_PME# 31 LAN\_PME#

(18,31,32,34,35) PCI\_RST# 27 RST#

(18) CLK\_PCI\_LAN 28 CLK  
(18,31,36) PM\_CLKRUN# 65 PM\_CLKRUN#

CLK\_PCI\_LAN 1 2 CLK\_PCI\_LAN

R504 1 2 0.0402\_5%  
R501 2 1 0.0402\_5%

(28) LAN\_PME# 31 LAN\_PME#

(18,31,32,34,35) PCI\_RST# 27 RST#

(18) CLK\_PCI\_LAN 28 CLK  
(18,31,36) PM\_CLKRUN# 65 PM\_CLKRUN#

CLK\_PCI\_LAN 1 2 CLK\_PCI\_LAN

R504 1 2 0.0402\_5%  
R501 2 1 0.0402\_5%

(28) LAN\_PME# 31 LAN\_PME#

(18,31,32,34,35) PCI\_RST# 27 RST#

(18) CLK\_PCI\_LAN 28 CLK  
(18,31,36) PM\_CLKRUN# 65 PM\_CLKRUN#

CLK\_PCI\_LAN 1 2 CLK\_PCI\_LAN

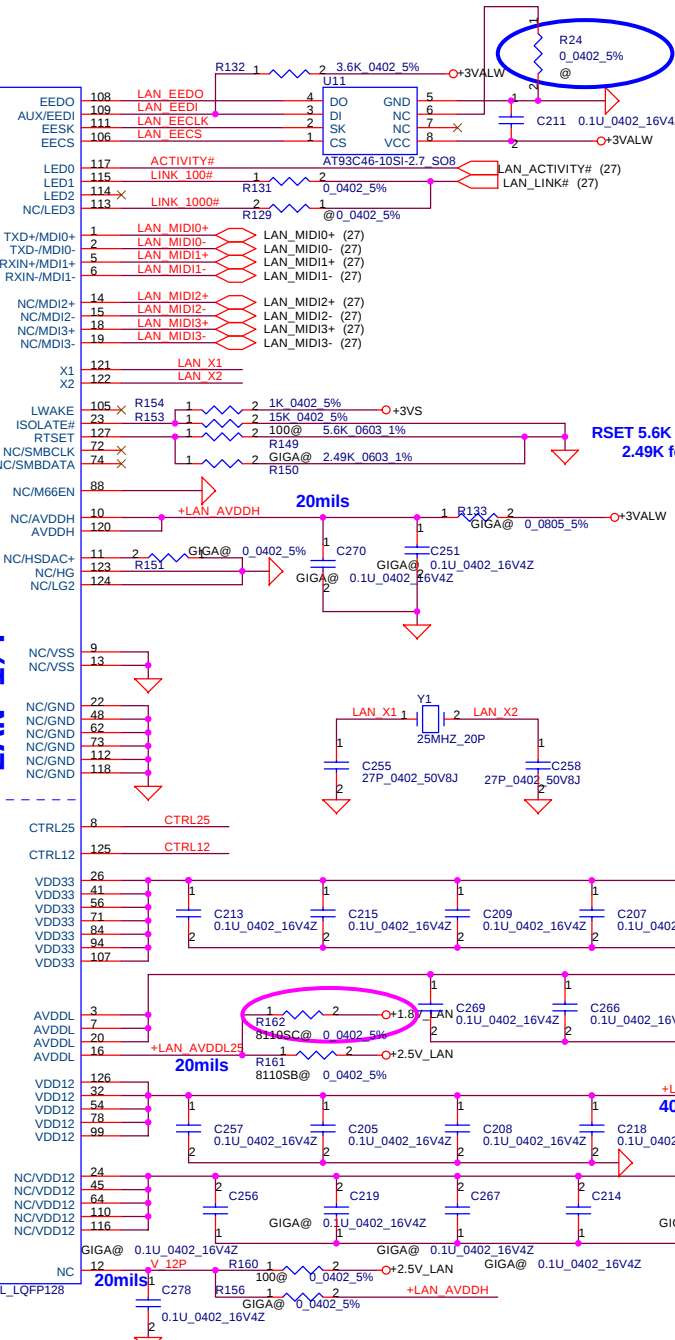
R504 1 2 0.0402\_5%  
R501 2 1 0.0402\_5%

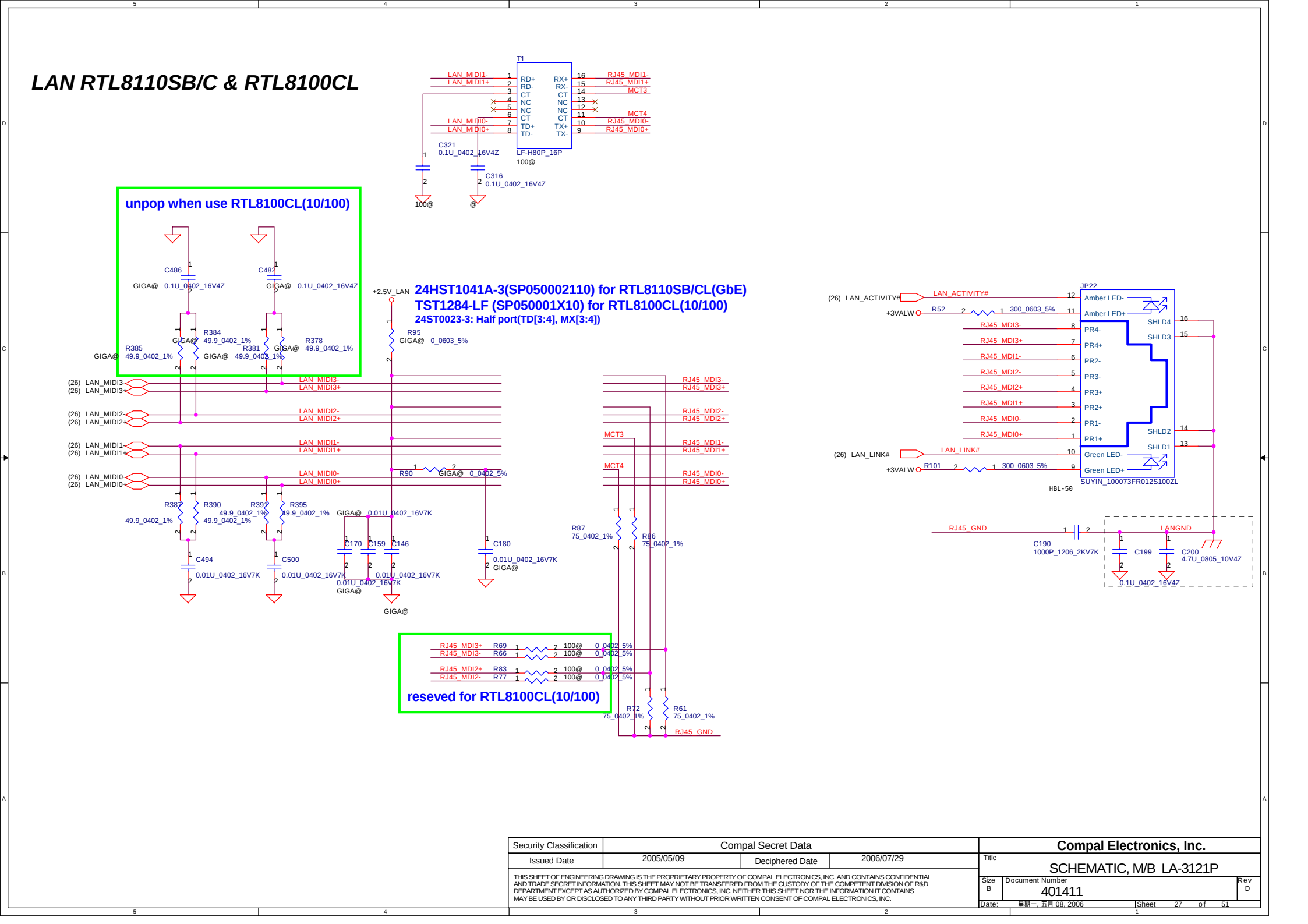
(28) LAN\_PME# 31 LAN\_PME#

PCI I/F

LAN I/F

Power





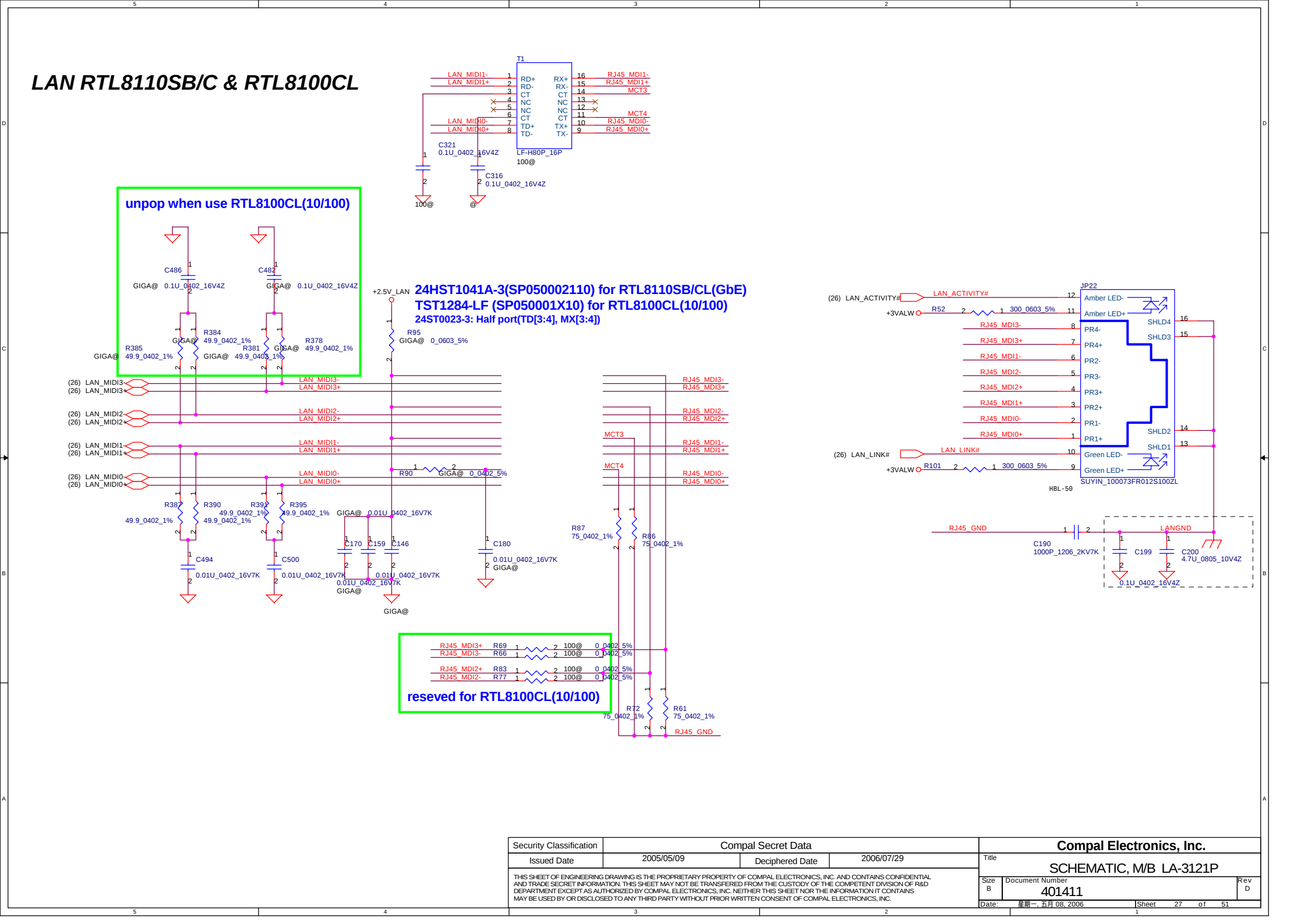
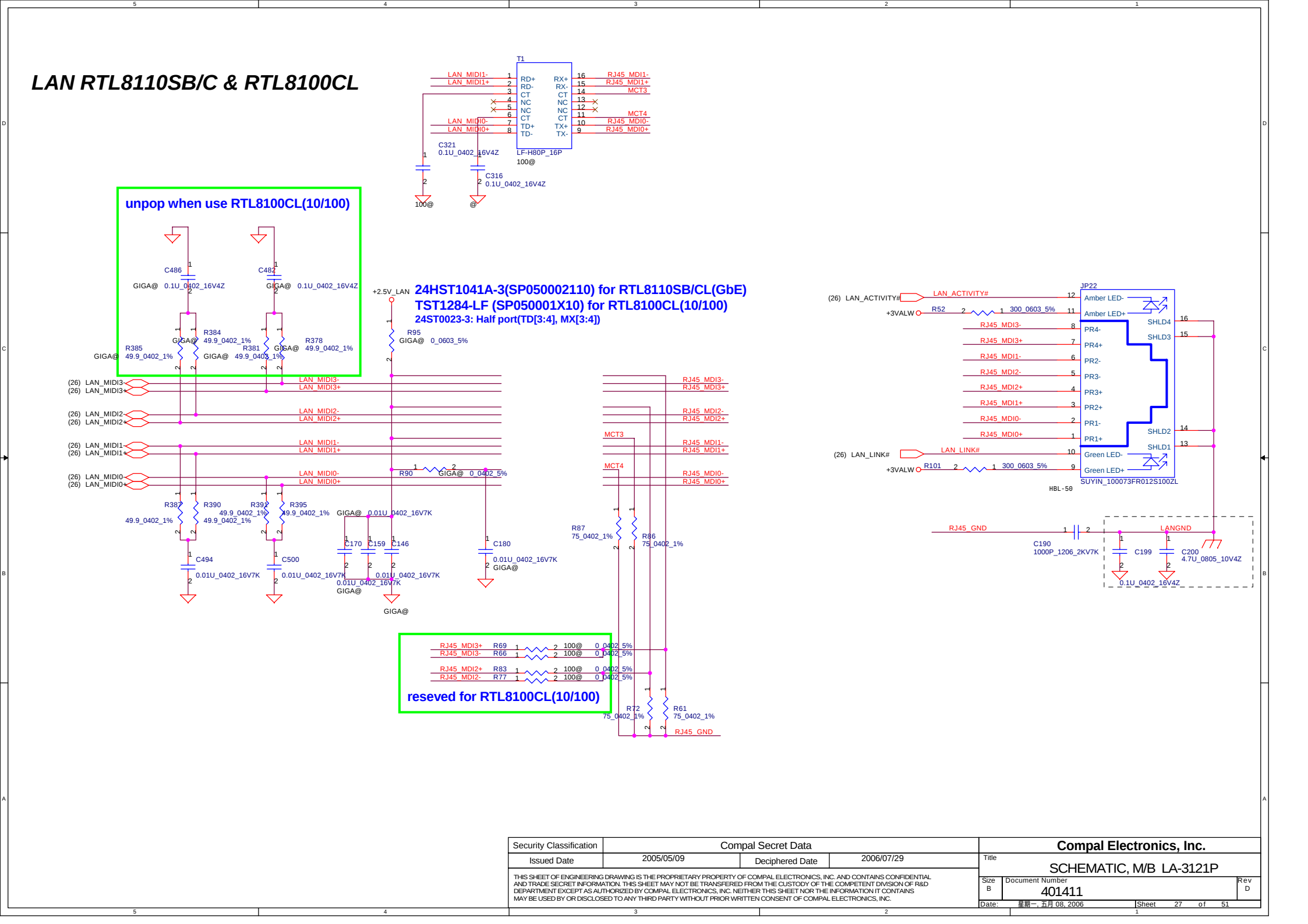
**LAN RTL8110SB/C & RTL8100CL**

unpop when use RTL8100CL(10/100)

24HST1041A-3(SP050002110) for RTL8110SB/CL(GbE)  
TST1284-LF (SP050001X10) for RTL8100CL(10/100)  
24ST0023-3: Half port(TD[3:4], MX[3:4])

reserved for RTL8100CL(10/100)

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 | Compal Secret Data |            | Compal Electronics, Inc. |     |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Document Number | Date               |            | Sheet                    | Rev |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 401411          | 星期一, 五月 08, 2006   |            | 27 of 51                 | D   |



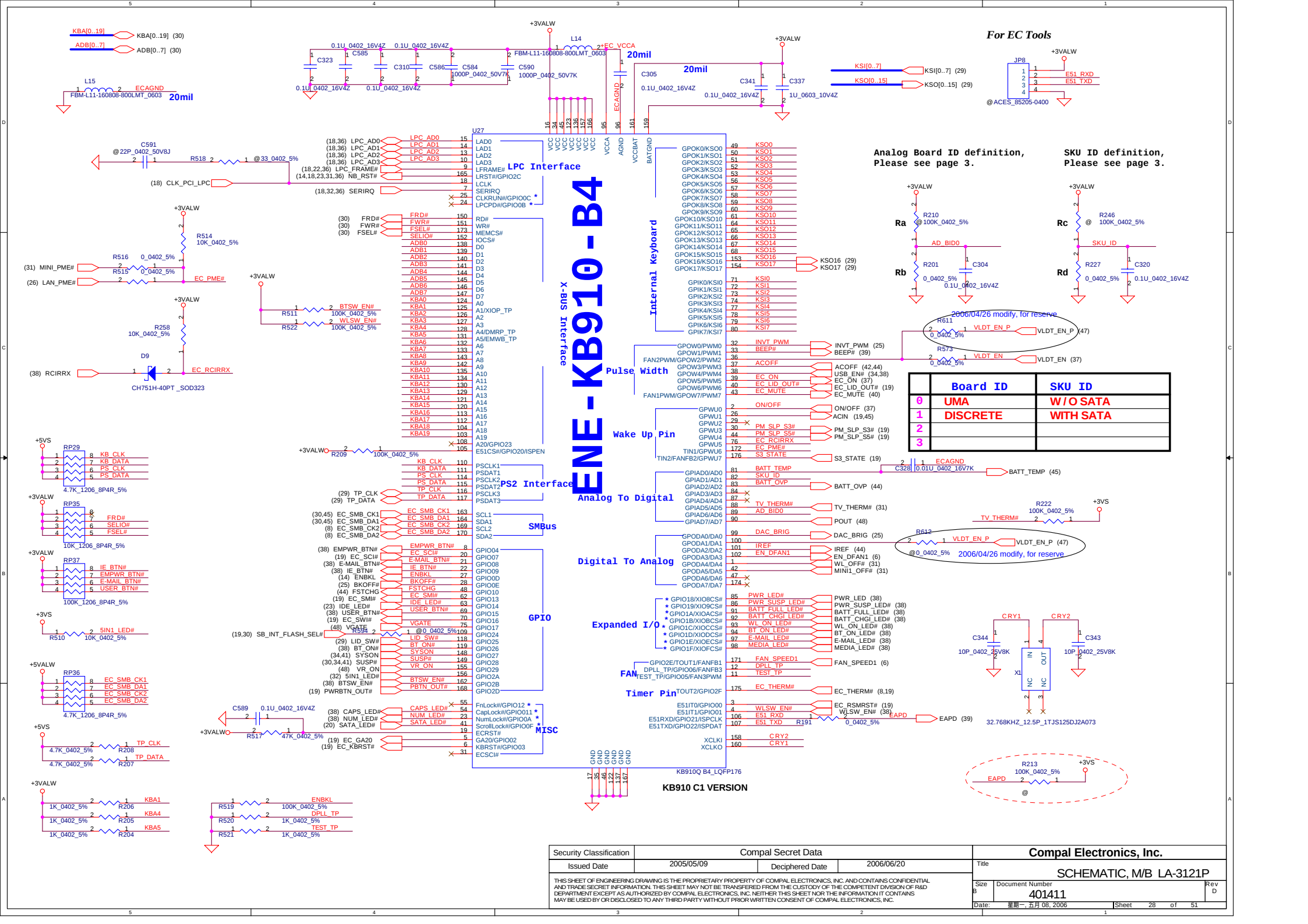
**LAN RTL8110SB/C & RTL8100CL**

unpop when use RTL8100CL(10/100)

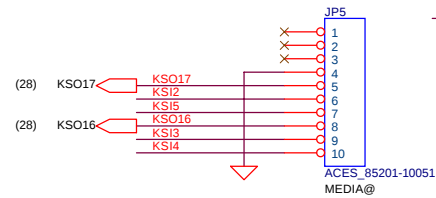
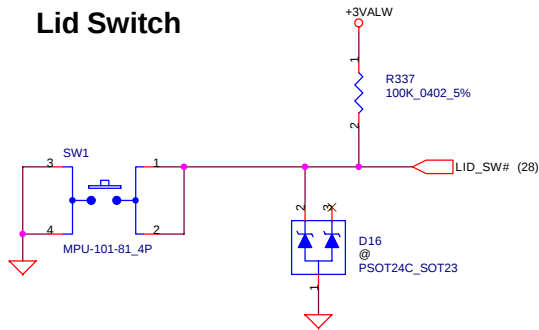
24HST1041A-3(SP050002110) for RTL8110SB/CL(GbE)  
TST1284-LF (SP050001X10) for RTL8100CL(10/100)  
24ST0023-3: Half port(TD[3:4], MX[3:4])

reserved for RTL8100CL(10/100)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                                                                      |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                                                                      |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Sheet 27 of 51<br>Rev D                                              |

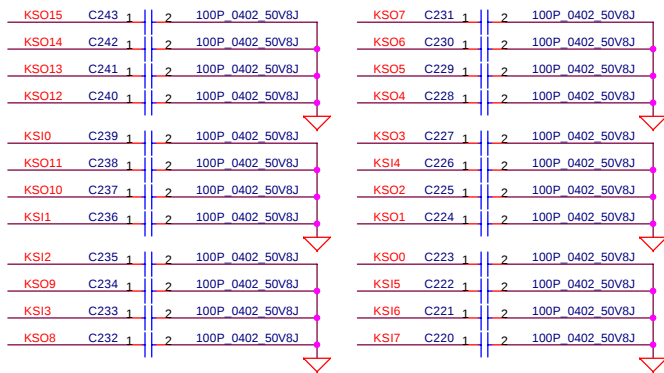


## Lid Switch

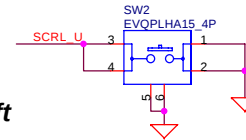


|      | KSO16 | KSO17     |
|------|-------|-----------|
| KSI2 | PLAY  | VOL_UP    |
| KSI3 | STOP  | VOL_DOWN  |
| KSI4 | NEXT  | ARCADE_TV |
| KSI5 | REV   |           |

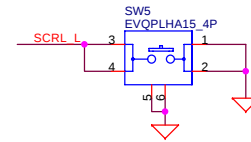
## INT\_KBD Conn.



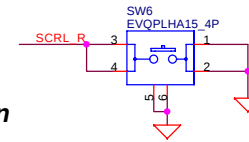
## Scroll Up



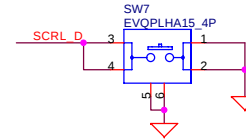
## Scroll Left



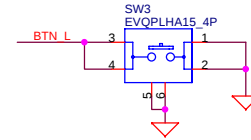
## Scroll Right



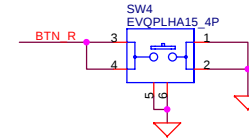
## Scroll Down



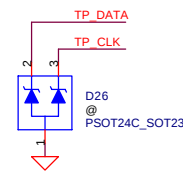
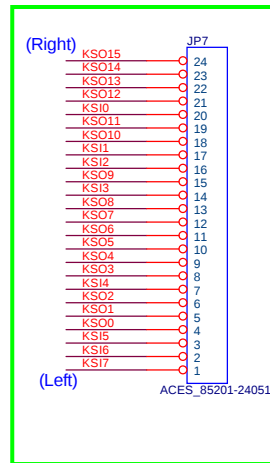
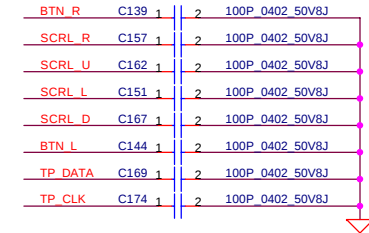
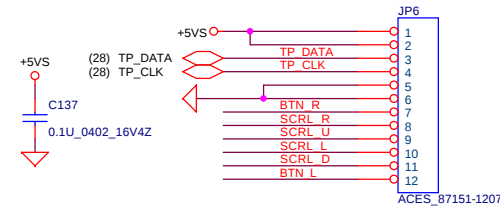
## Left



## Right

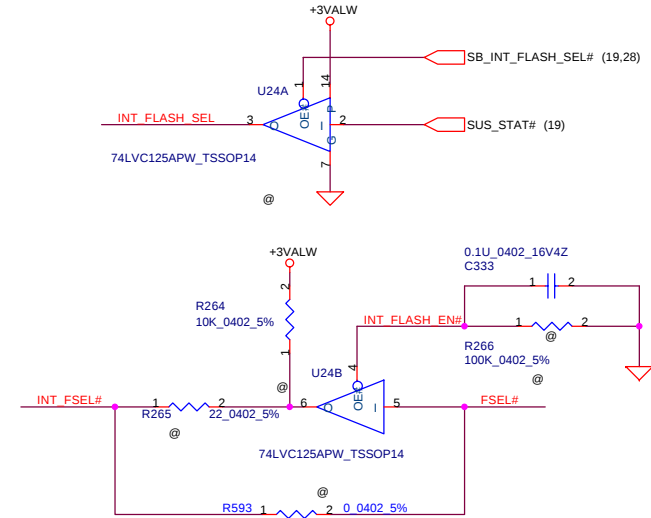
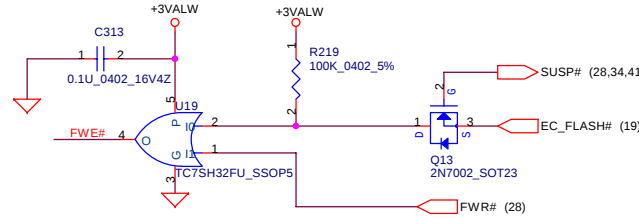
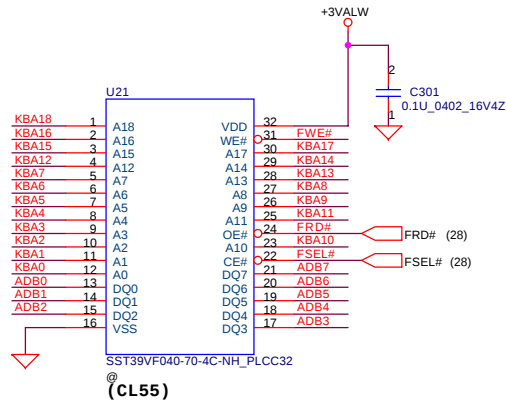


## To TP/B Conn.

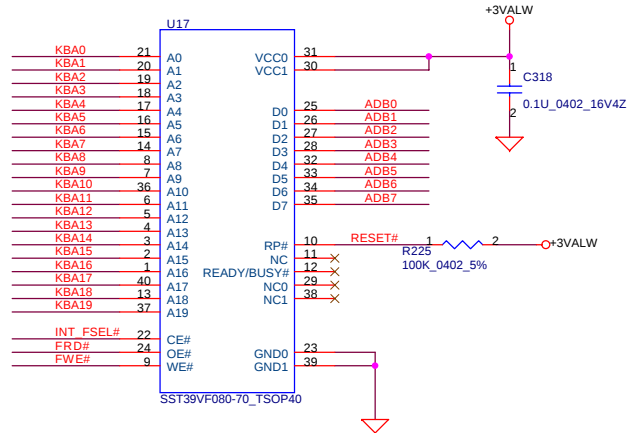


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|--------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, inc. |                         |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Document Number    | Rev D           |                          |                         |
| Custom                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 401411             |                 |                          |                         |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 星期四, 五月 11, 2006   | Sheet           | 29 of 51                 |                         |

(28) KBA[0..19] KBA[0..19]  
(28) ADB[0..7] ADB[0..7]

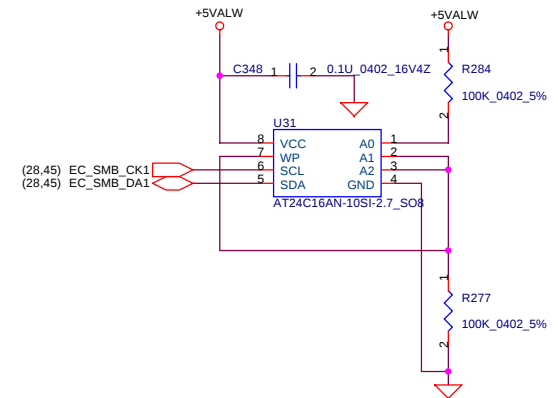
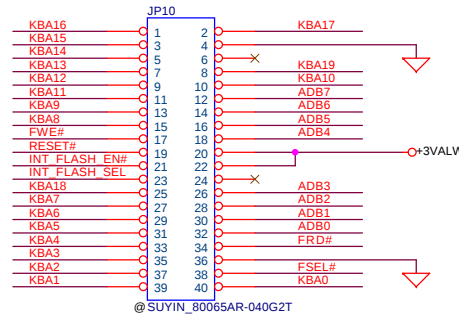


## 1MB Flash ROM

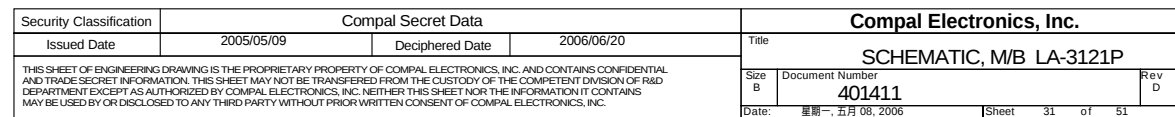
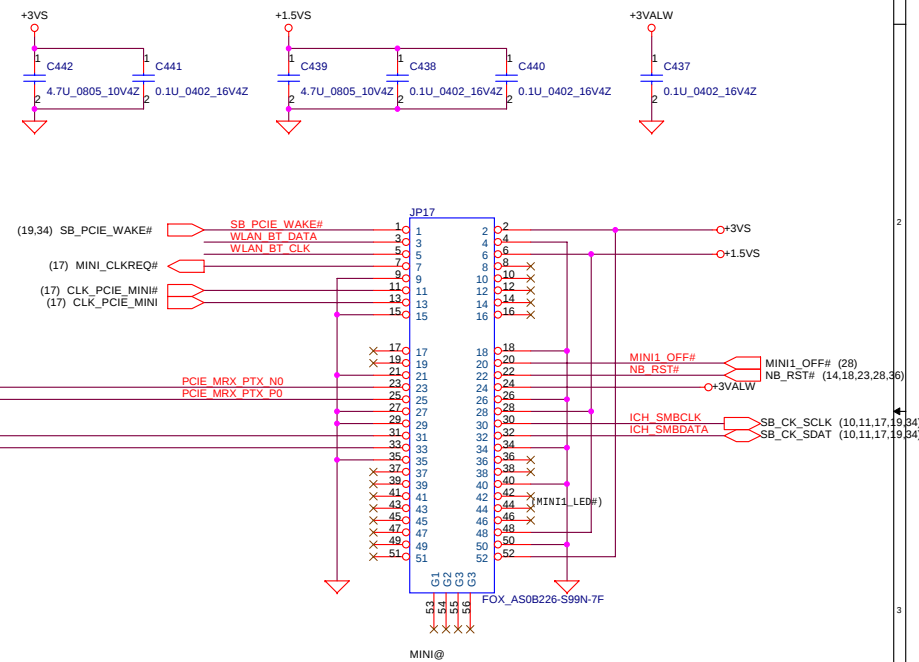
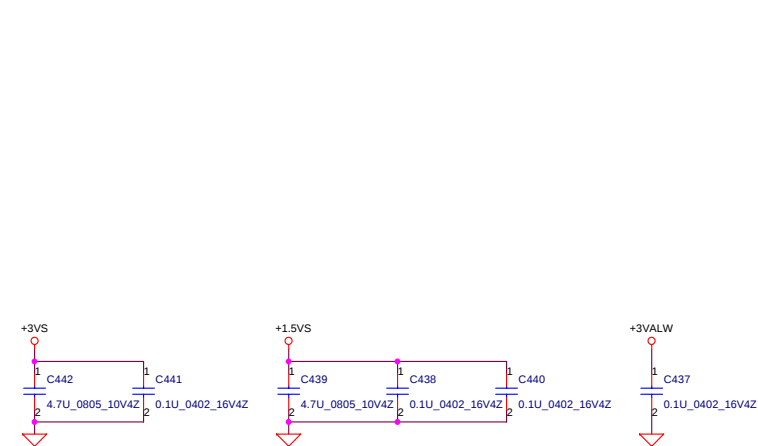


SST part : SA390800000  
MXIC part : SA290080120

## 1MB ROM Socket

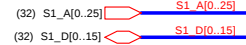
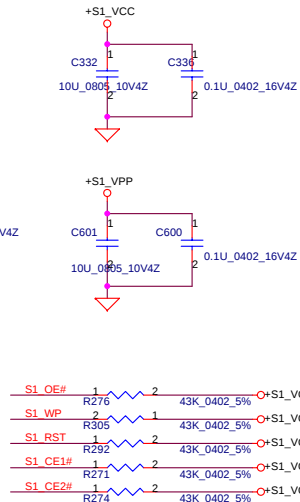
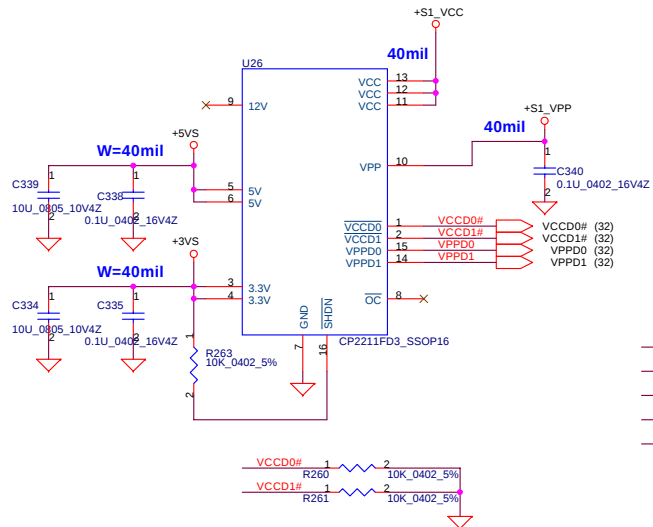


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                                 |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|---------------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | <b>Compal Electronics, inc.</b> |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09         | Deciphered Date | 2006/03/08                      | Title                   |
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| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Document Number    | Rev D           |                                 |                         |
| Custom                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 401411             |                 |                                 |                         |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 星期四, 五月 11, 2006   | Sheet           | 30 of 51                        |                         |

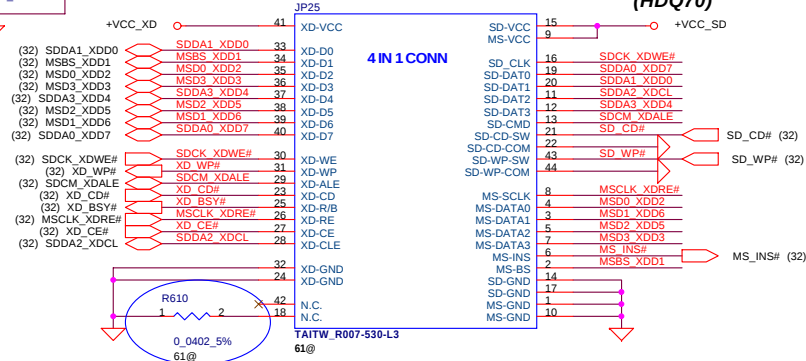
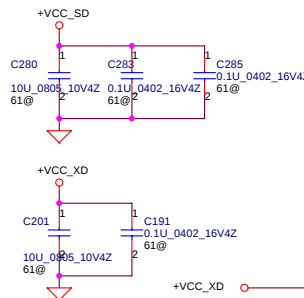
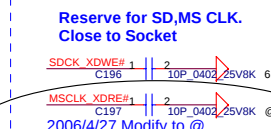
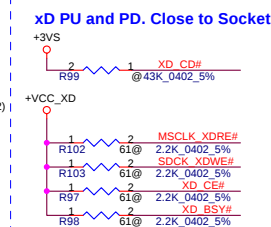
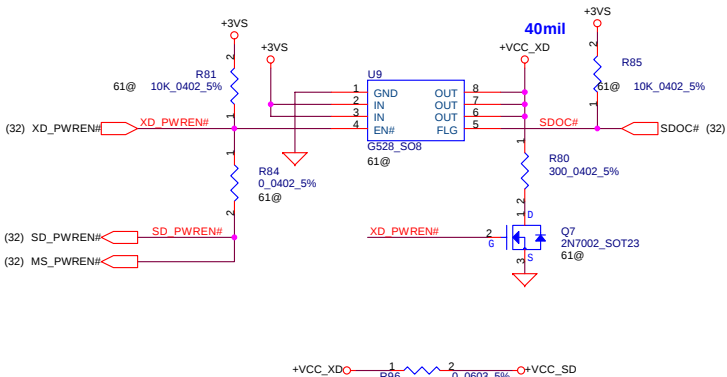




## PCMCIA Power Control

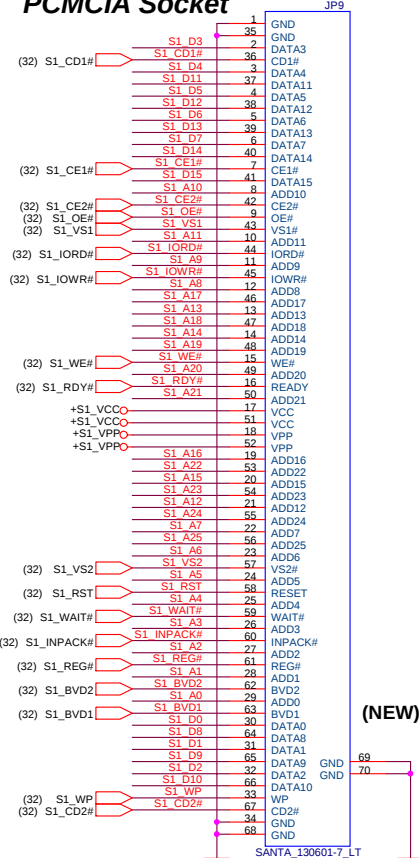


***SD/MS Power Control***  
***XD Power Control***



2006/4/13 modify

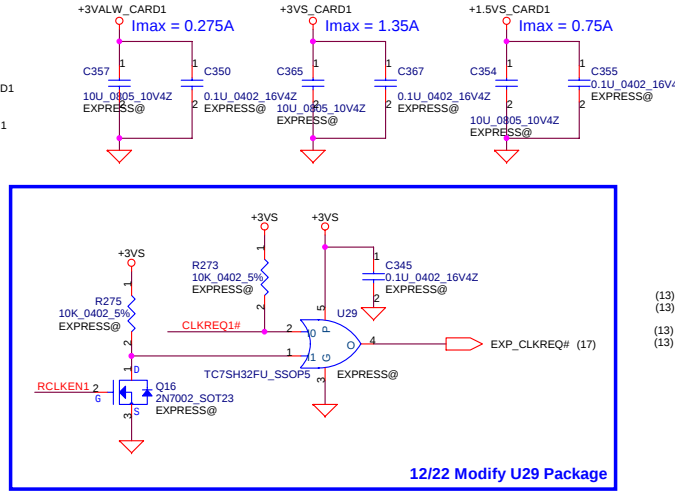
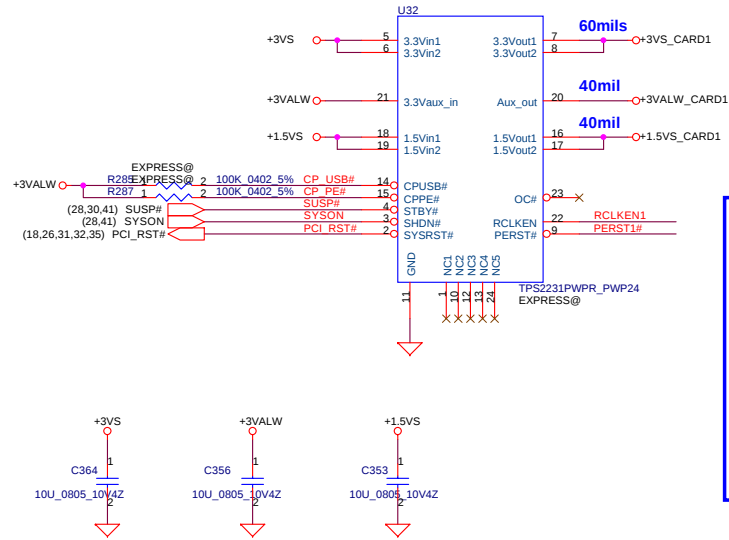
### PCMCIA Socket



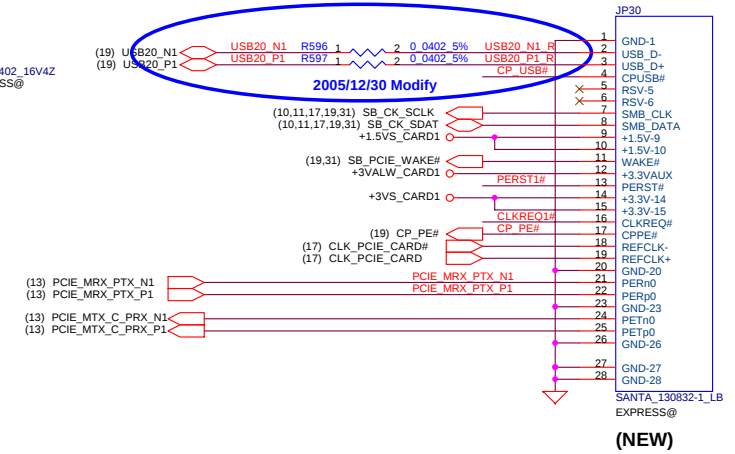
**6 IN 1 Socket**  
(HDQ70)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                                  |                 |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|----------------------------------|-----------------|-------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc.         |                 |       |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09         | Deciphered Date | 2006/06/20 | Title<br>SCHEMATIC, M/B LA-3121P |                 |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: 星期一, 五月 08, 2006           | Sheet 33        | of 51 |

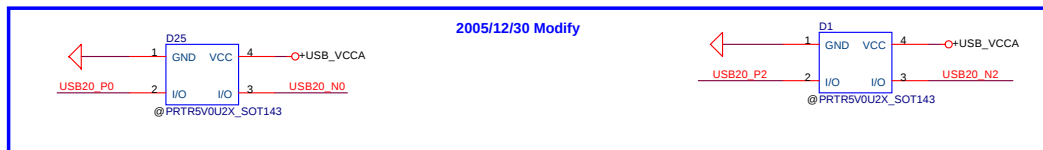
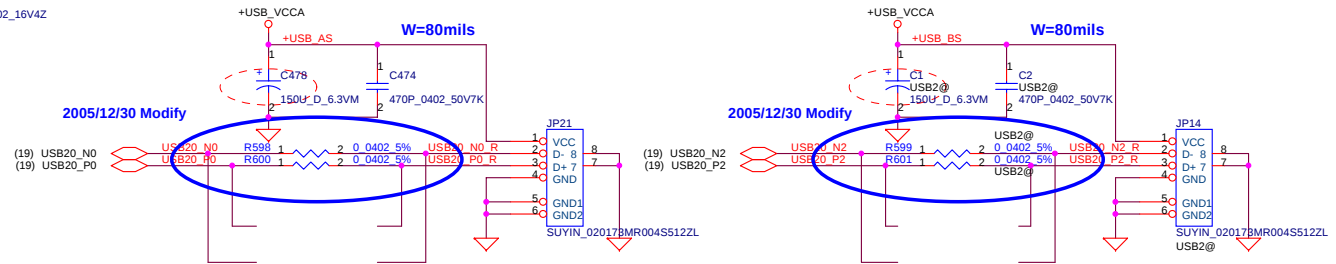
## New Card Power Switch



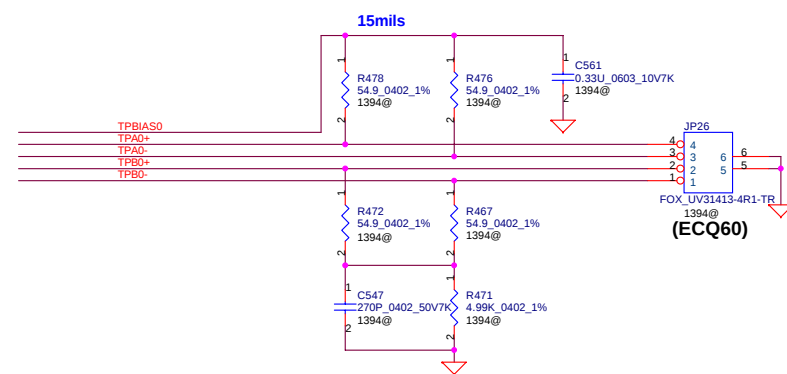
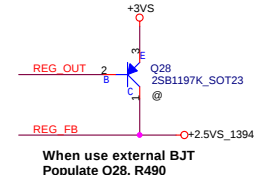
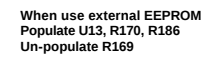
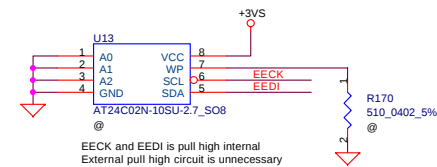
## New Card Socket (Left)



## USB CONN. 1 & 2



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|-----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Size B                   | Document Number |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | 401411                   | Rev D           |
| Date: 星期一, 五月 08, 2006                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                 |            | Sheet 34                 | of 51           |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |          |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Document Number          |          |
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| Date: 星期二, 五月 08, 2006                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Sheet                    | 35 of 51 |

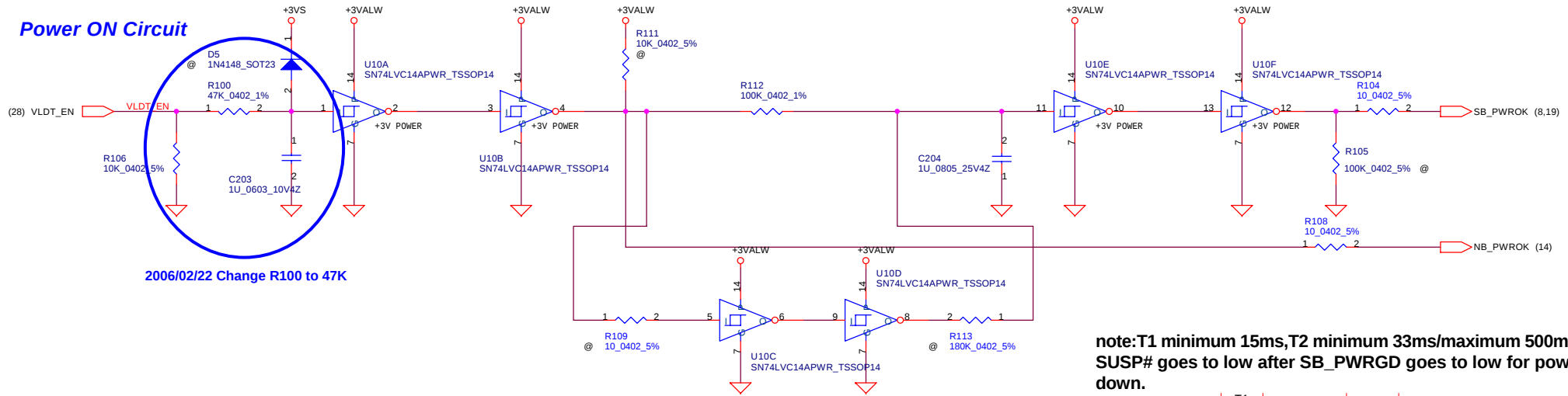
# SUPER I/O SMsC LPC47N207



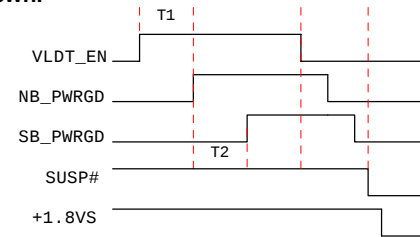
For SW debug use when no seial port

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |            |                          |                   |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|-----------------|------------|--------------------------|-------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |                 |            | Compal Electronics, Inc. |                   |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |            | Date                     | 星期一 - 五月 08, 2006 | Sheet 36 of 51 |

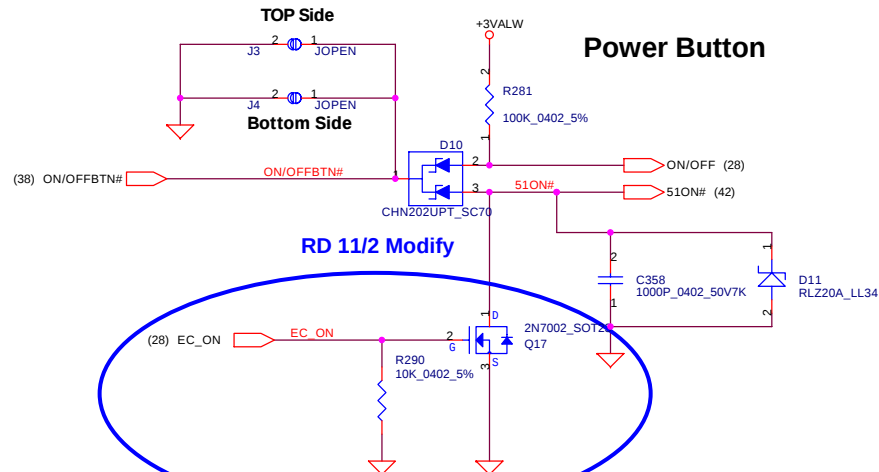
## Power ON Circuit



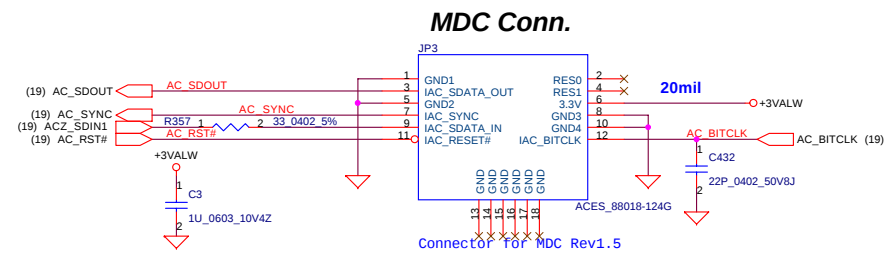
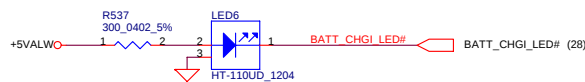
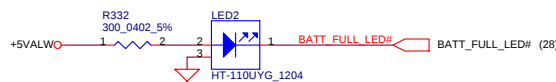
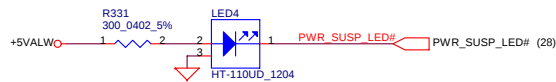
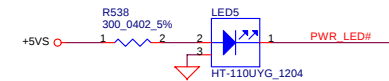
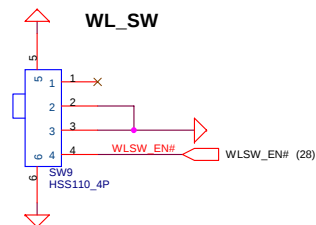
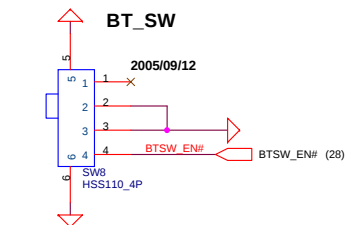
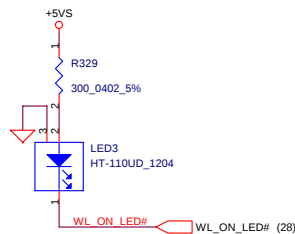
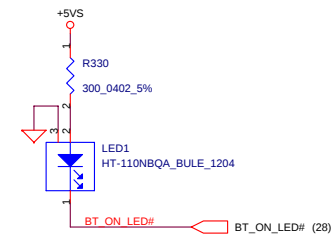
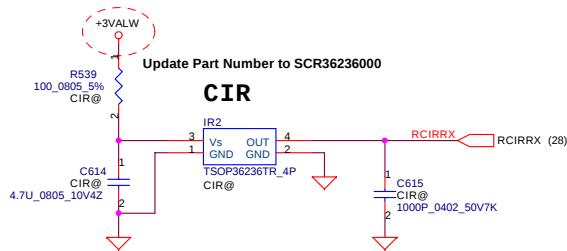
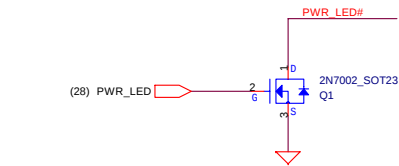
note: T1 minimum 15ms, T2 minimum 33ms/maximum 500ms, SUSP# goes to low after SB\_PWROK goes to low for power down.



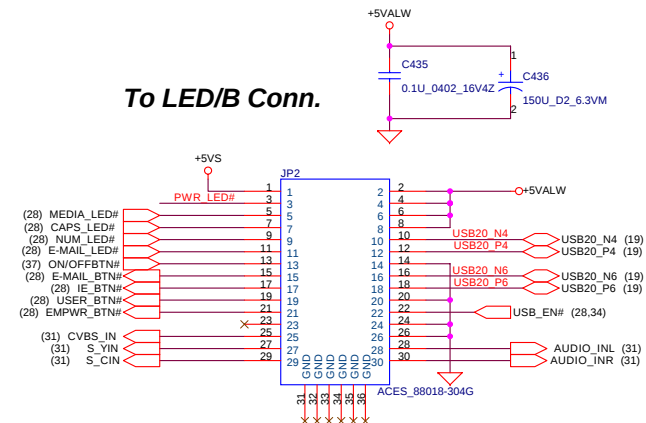
## Power Button



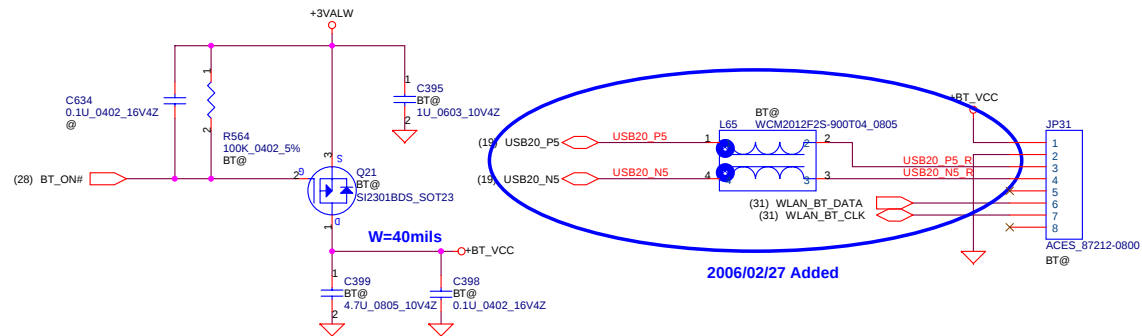
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                    |            |                          |                         |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  | Compal Secret Data |            | Compal Electronics, inc. |                         |
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| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 星期四, 五月 11, 2006 | Sheet              | 37 of 51   | Rev                      | D                       |



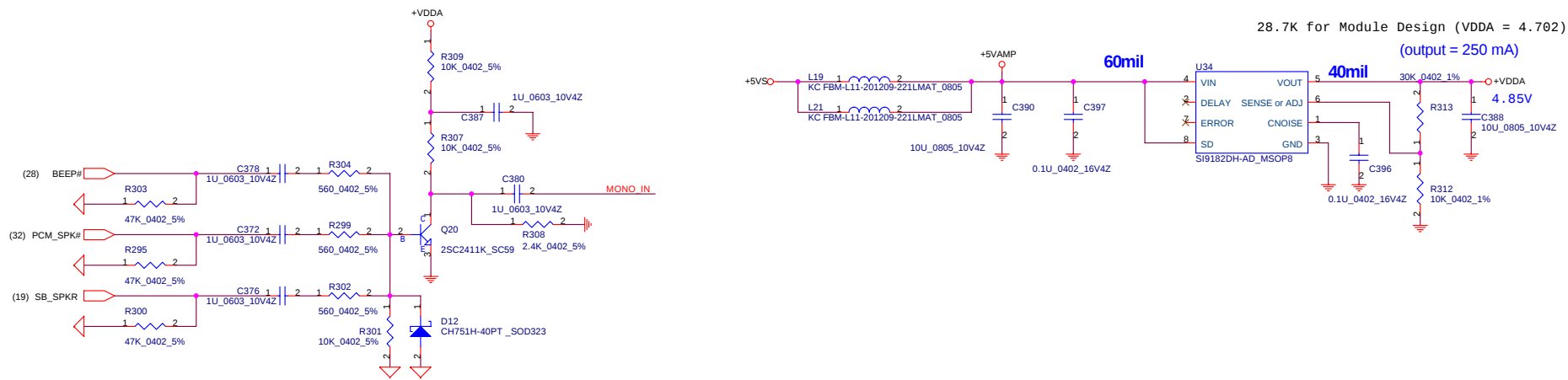
## To LED/B Conn.



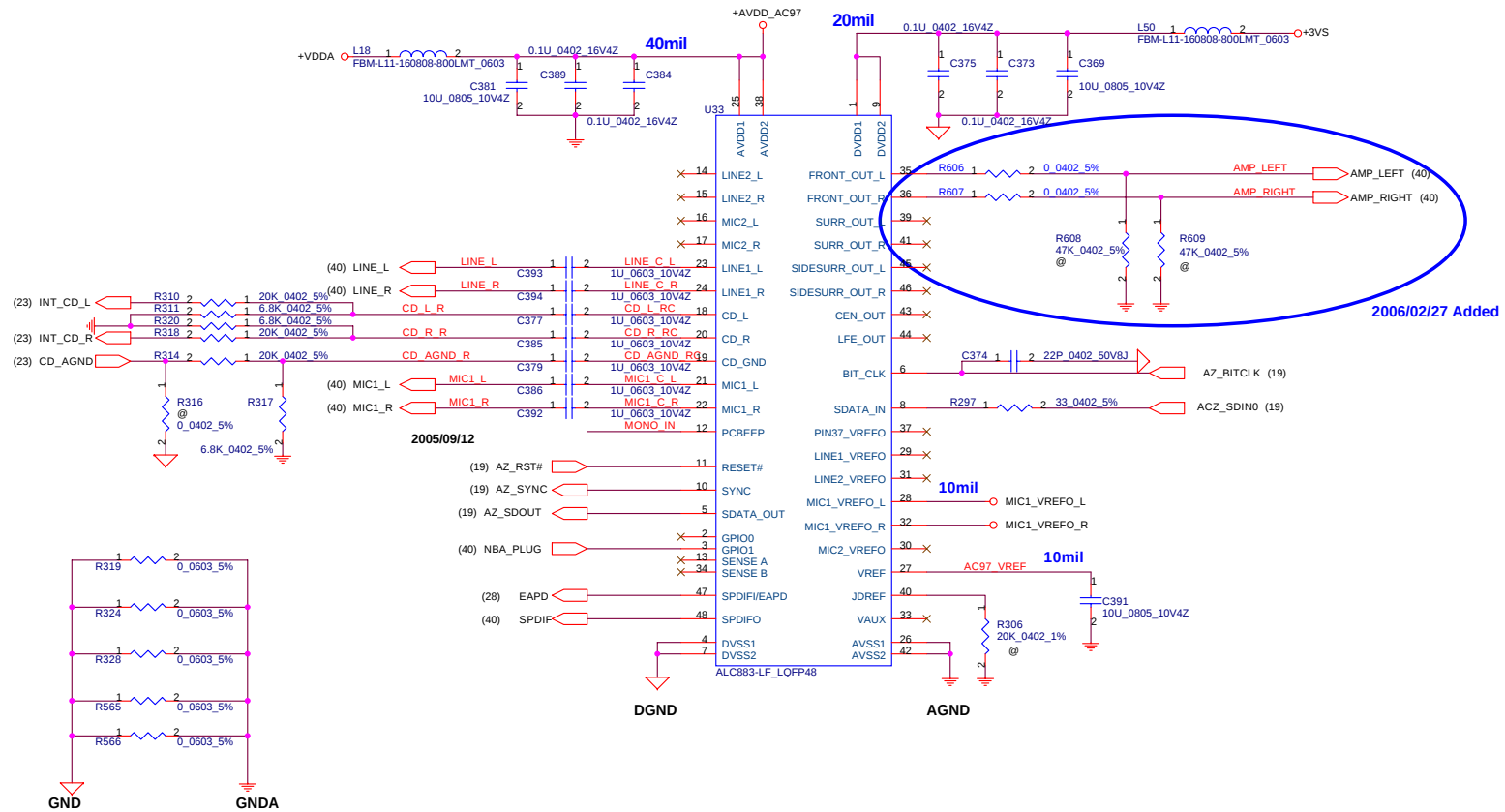
## Bluetooth Conn.



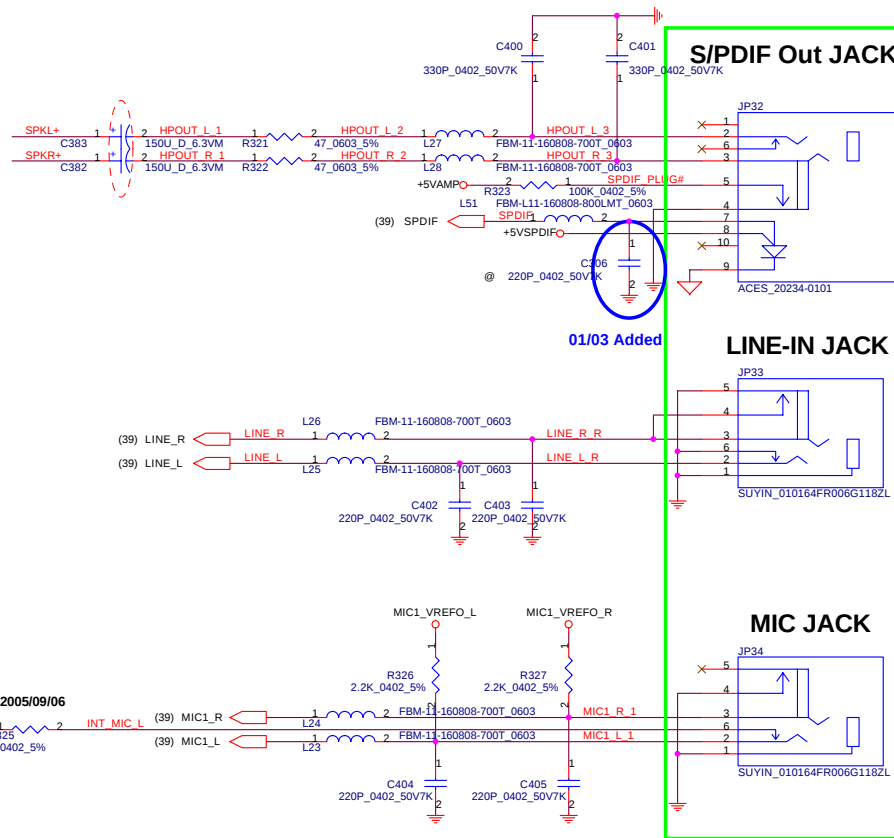
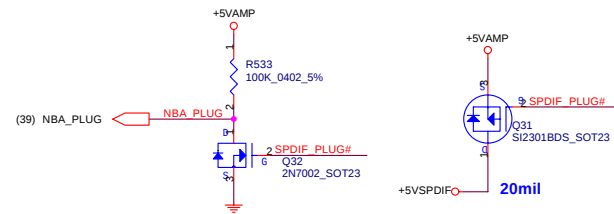
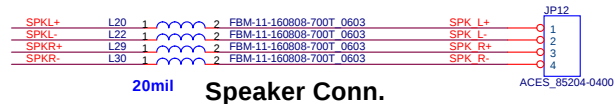
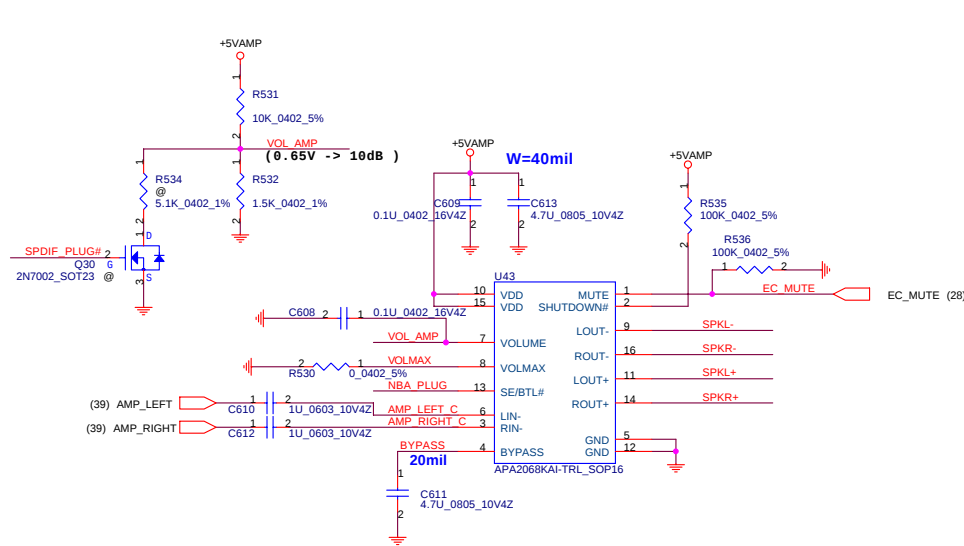
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                         |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|-------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                         |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date:                    | 星期一, 五月 08, 2006        | Sheet 38 of 51 |



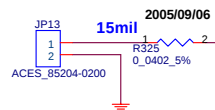
## HD Audio Codec



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                        |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|------------------------|-------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                        |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Size B                   | Document Number 401411 | Rev D |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date: 星期一, 五月 08, 2006   | Sheet 39               | of 51 |

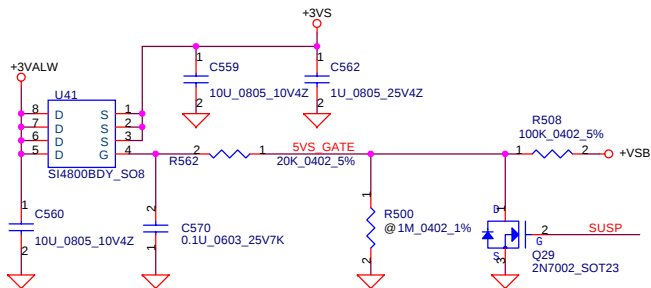


## Int MIC Conn.

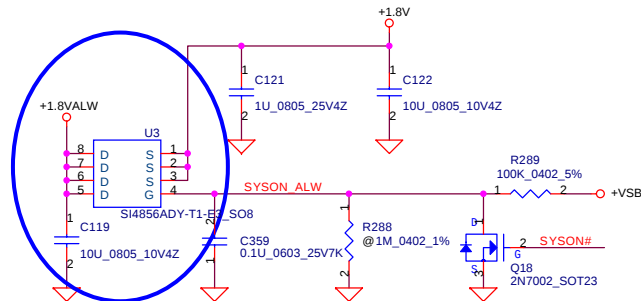


| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |       |
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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/06/20 | Title                    | SCHEMATIC, M/B LA-3121P   |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: 星期一, 五月 08, 2006   | Sheet 40 of 51            |       |

### +3VALW TO +3VS

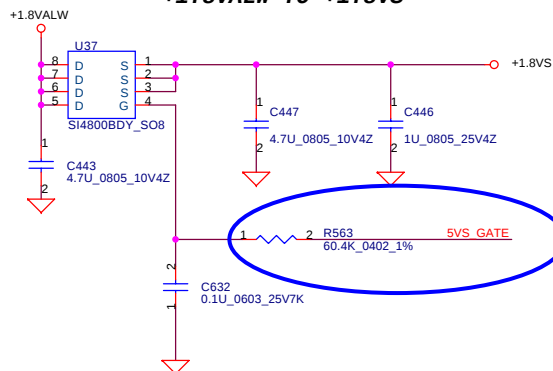


### +1.8VALW TO +1.8V



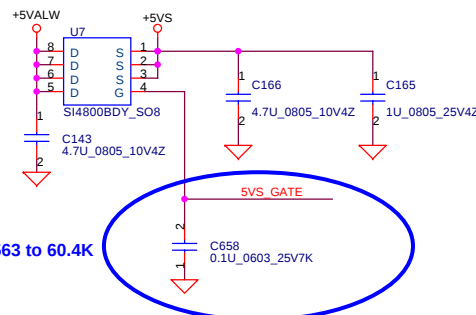
12/30 Change U3 to SI4856ADY

### +1.8VALW TO +1.8VS



12/30 Change R563 to 60.4K

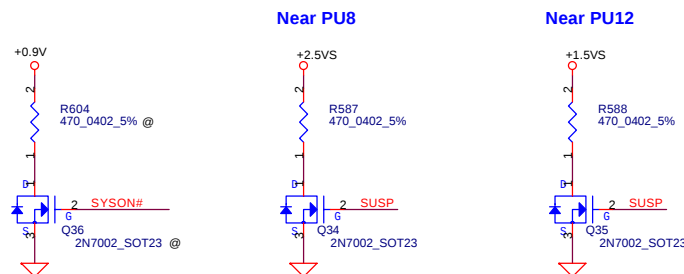
### +5VALW TO +5VS



2006/2/22 Add C658 0.1uF

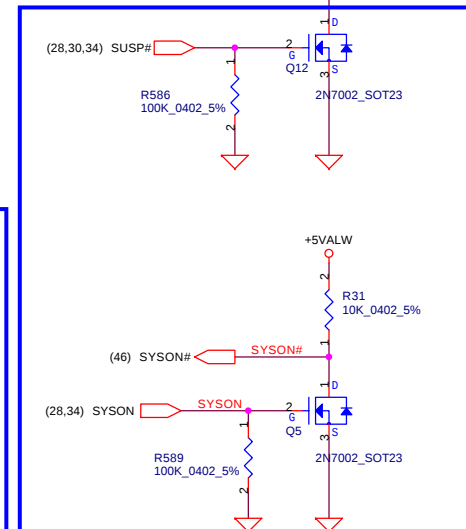
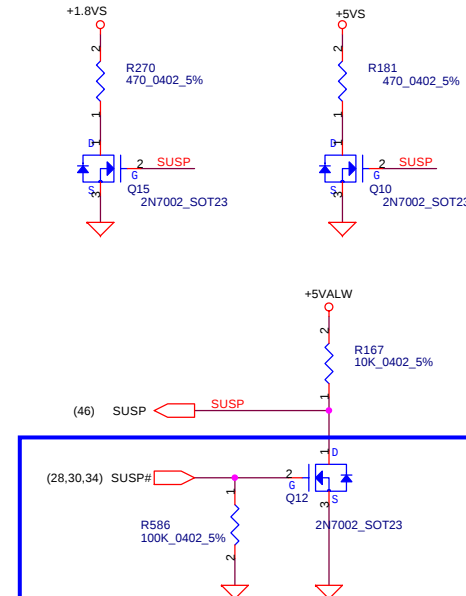
2006/4/13 modify package for lead-free part

### 12/22 Added



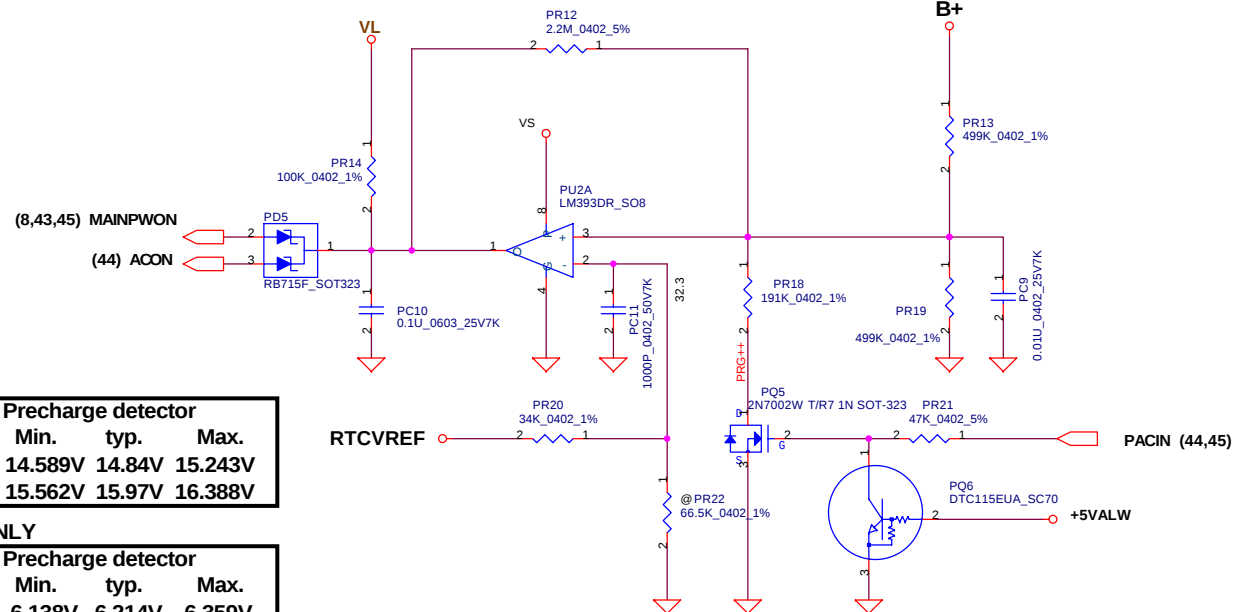
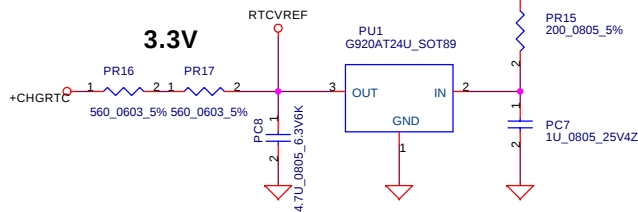
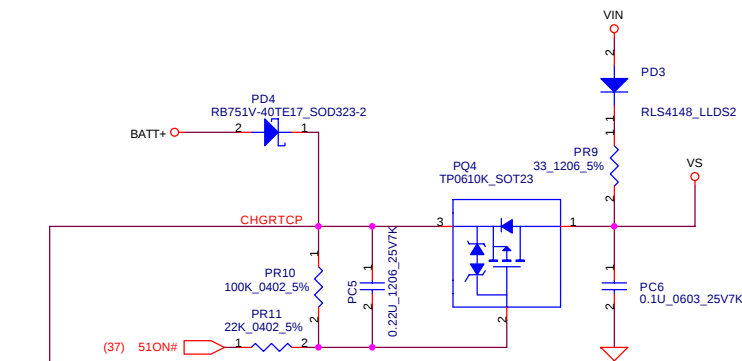
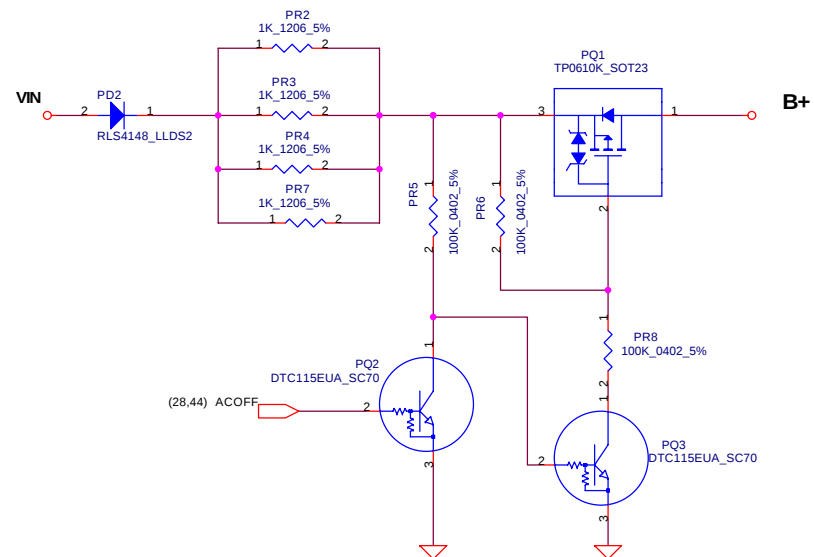
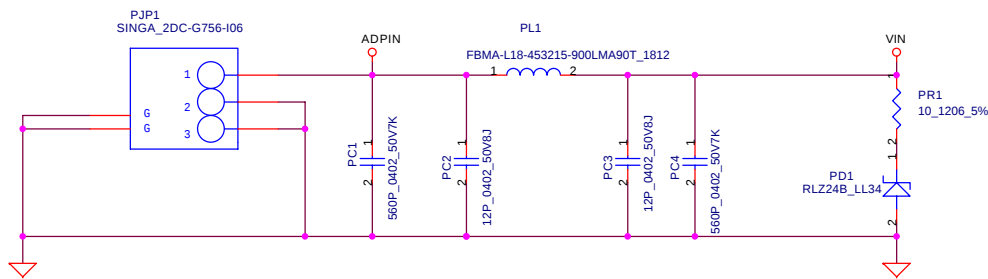
Near PU8

Near PU12



12/22 Change Q5, Q12 to 2N7002

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/03/08 | Title                    | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 星期四, 五月 11, 2006         | Sheet 41 of 51          |



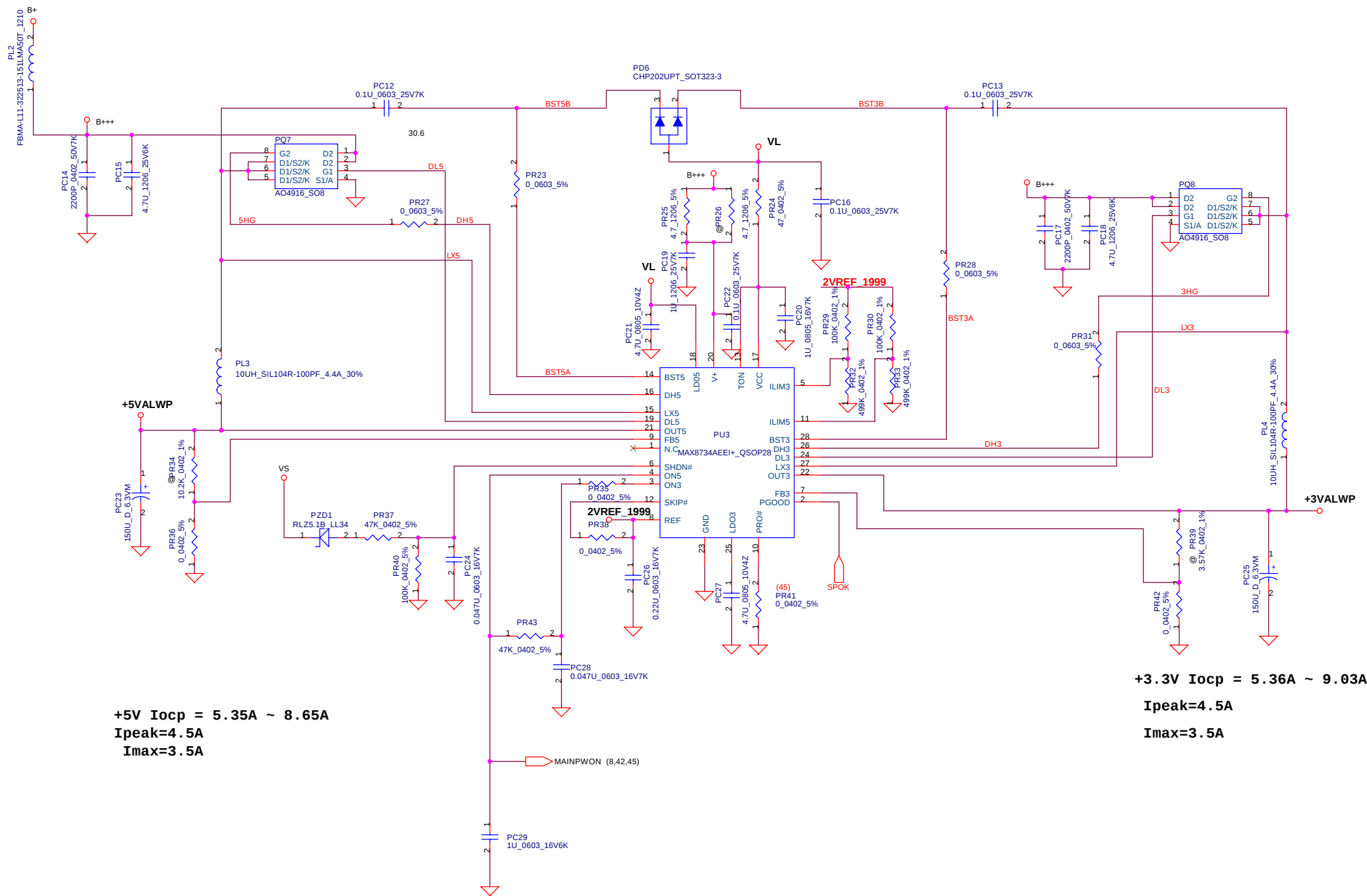
#### ACIN

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

#### BATT ONLY

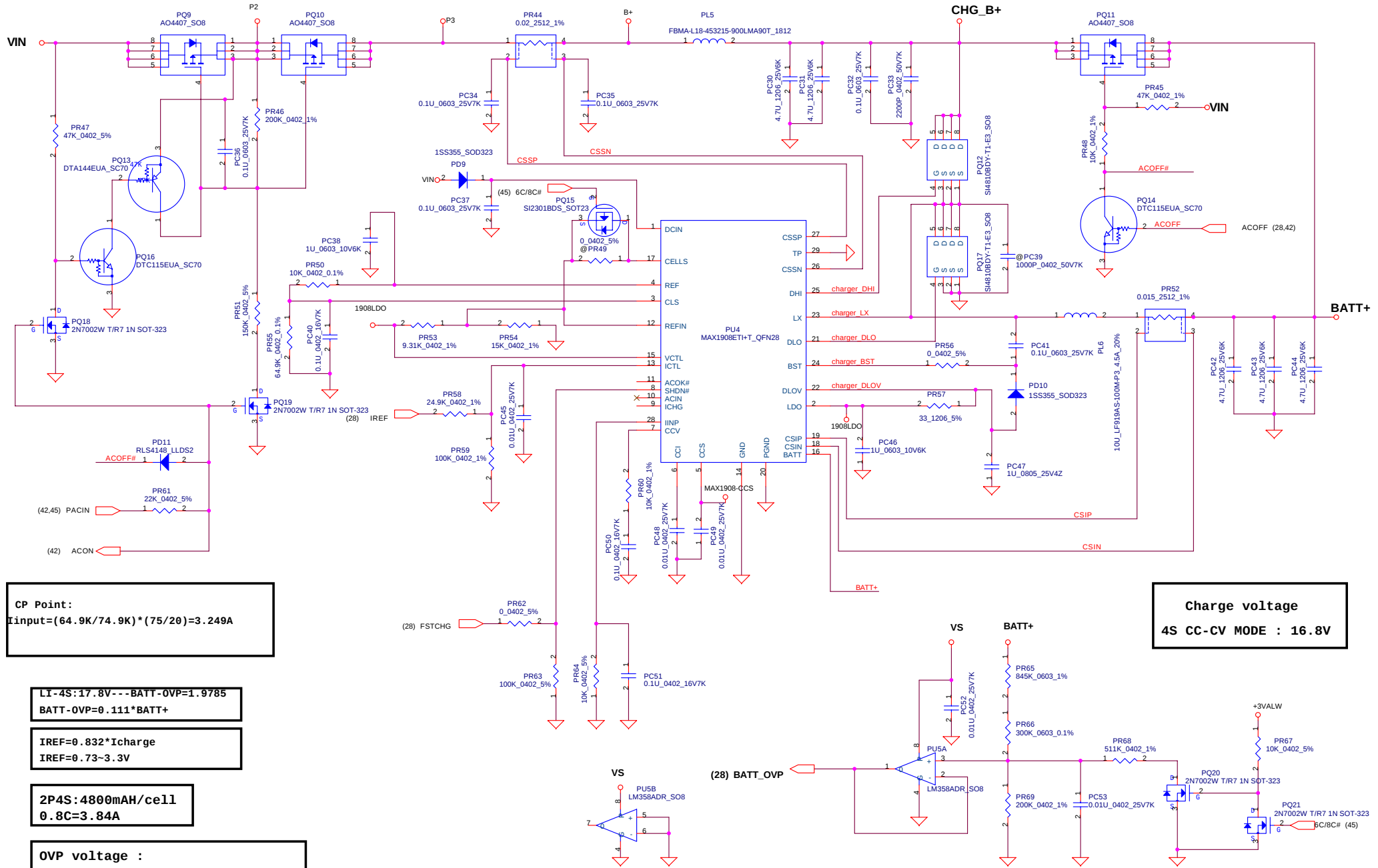
|       | Precharge detector | Min.   | typ.   | Max. |
|-------|--------------------|--------|--------|------|
| H-->L | 6.138V             | 6.214V | 6.359V |      |
| L-->H | 7.196V             | 7.349V | 7.505V |      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |  |                          |                         |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--|--------------------------|-------------------------|----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            |  | Compal Electronics, Inc. |                         |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09         | Deciphered Date | 2006/09/26 |  | Title                    | SCHEMATIC, M/B LA-3121P |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |  | Date:                    | 星期四, 五月 11, 2006        | Sheet 42 of 51 |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|---------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/09/26 | Title                    | SCHMATIC, M/B LA-3121P    |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: 星期四, 五月 11, 2006   | Sheet 43 of 51            |

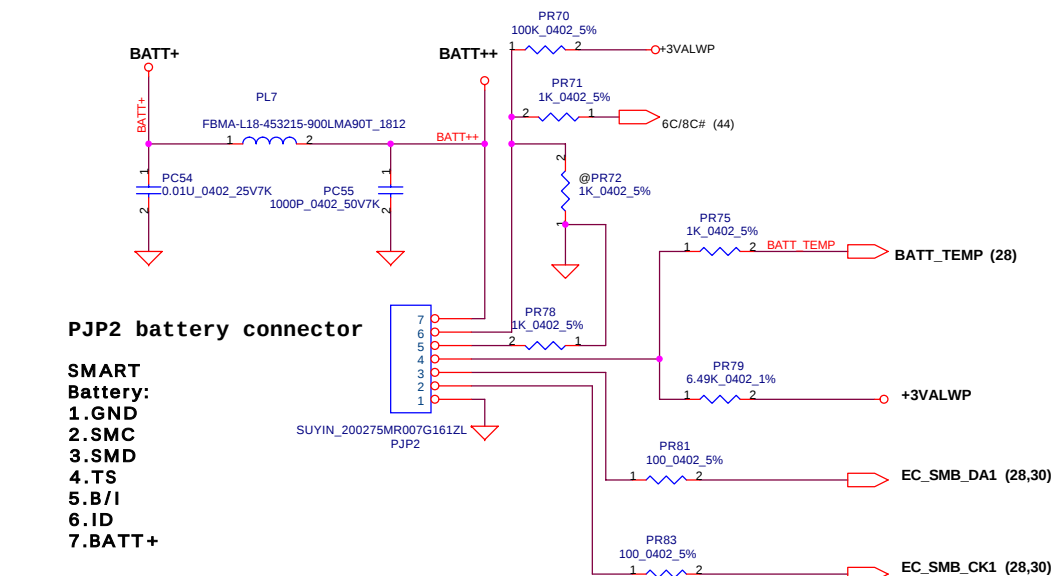
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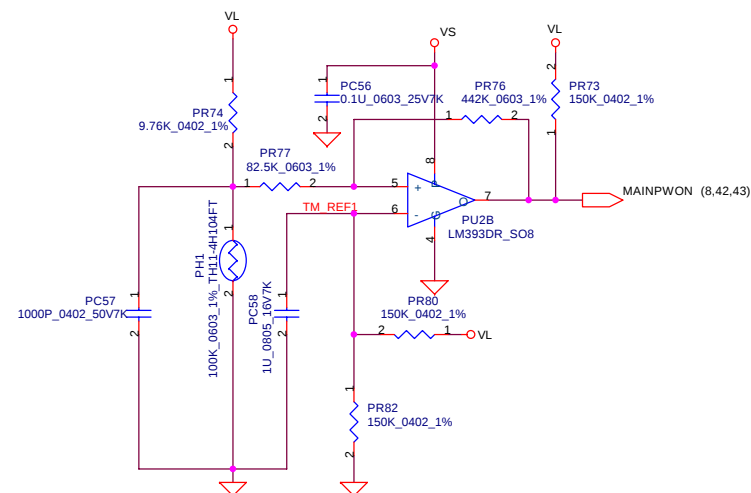
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                        |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: 星期四, 五月 11, 2006   | Sheet 44 of 51         |

## PJP2 battery connector

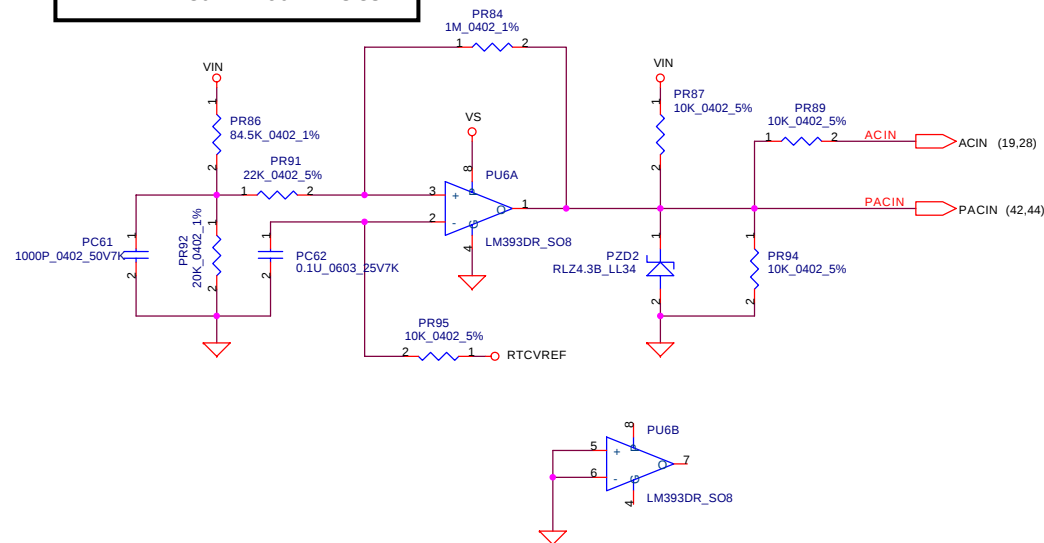
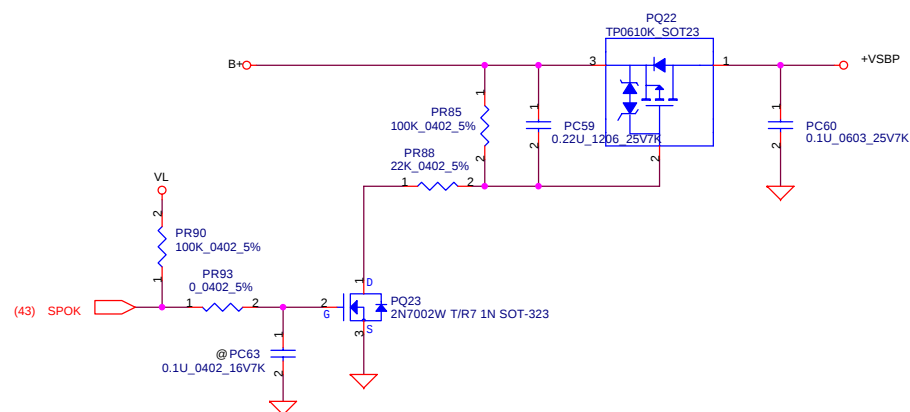
**SMART Battery:**  
**1.GND**  
**2.SMC**  
**3.SMD**  
**4.TS**  
**5.B/I**  
**6.ID**  
**7.BATT+**



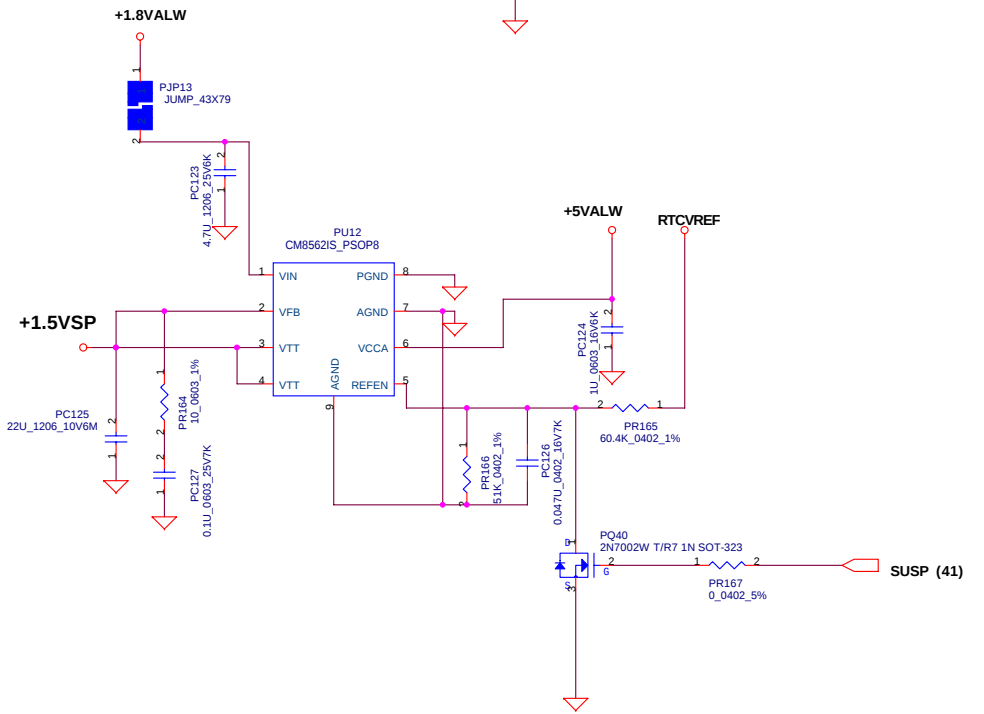
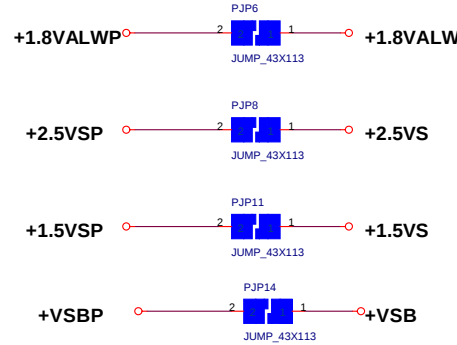
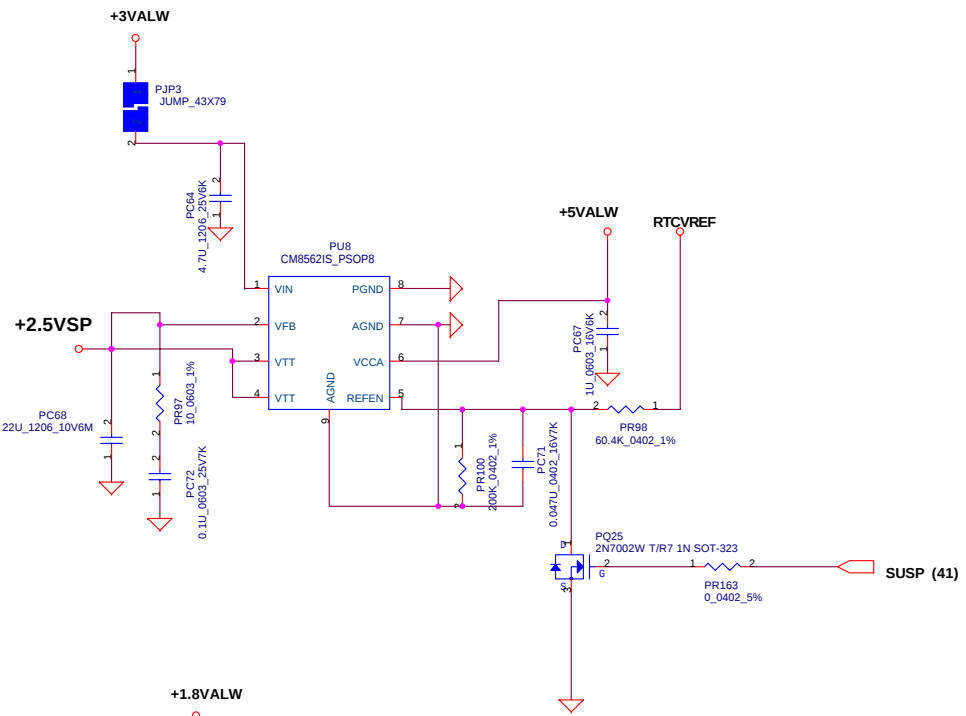
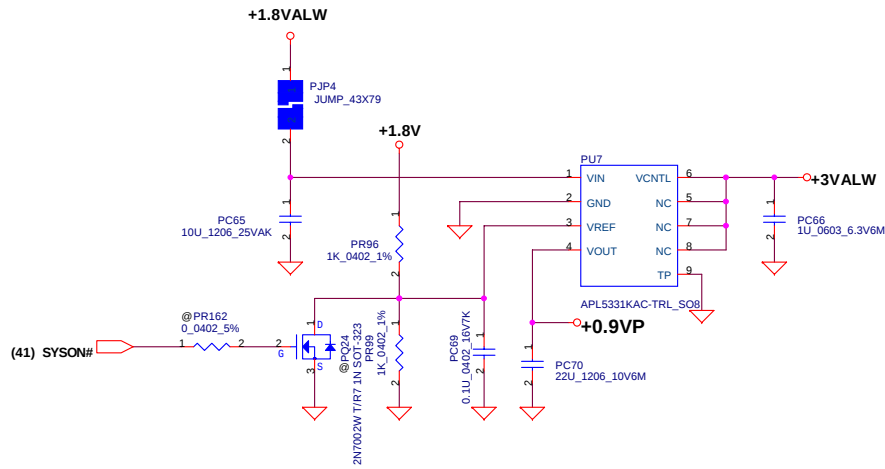
**PH1 under CPU botten side :**  
 CPU thermal protection at 90 degree C  
 Recovery at 70 degree C



**Vin Detector**  
 Min. typ. Max.  
 H-->L 16.976V 17.257V 17.728V  
 L-->H 17.430V 17.901V 18.384V

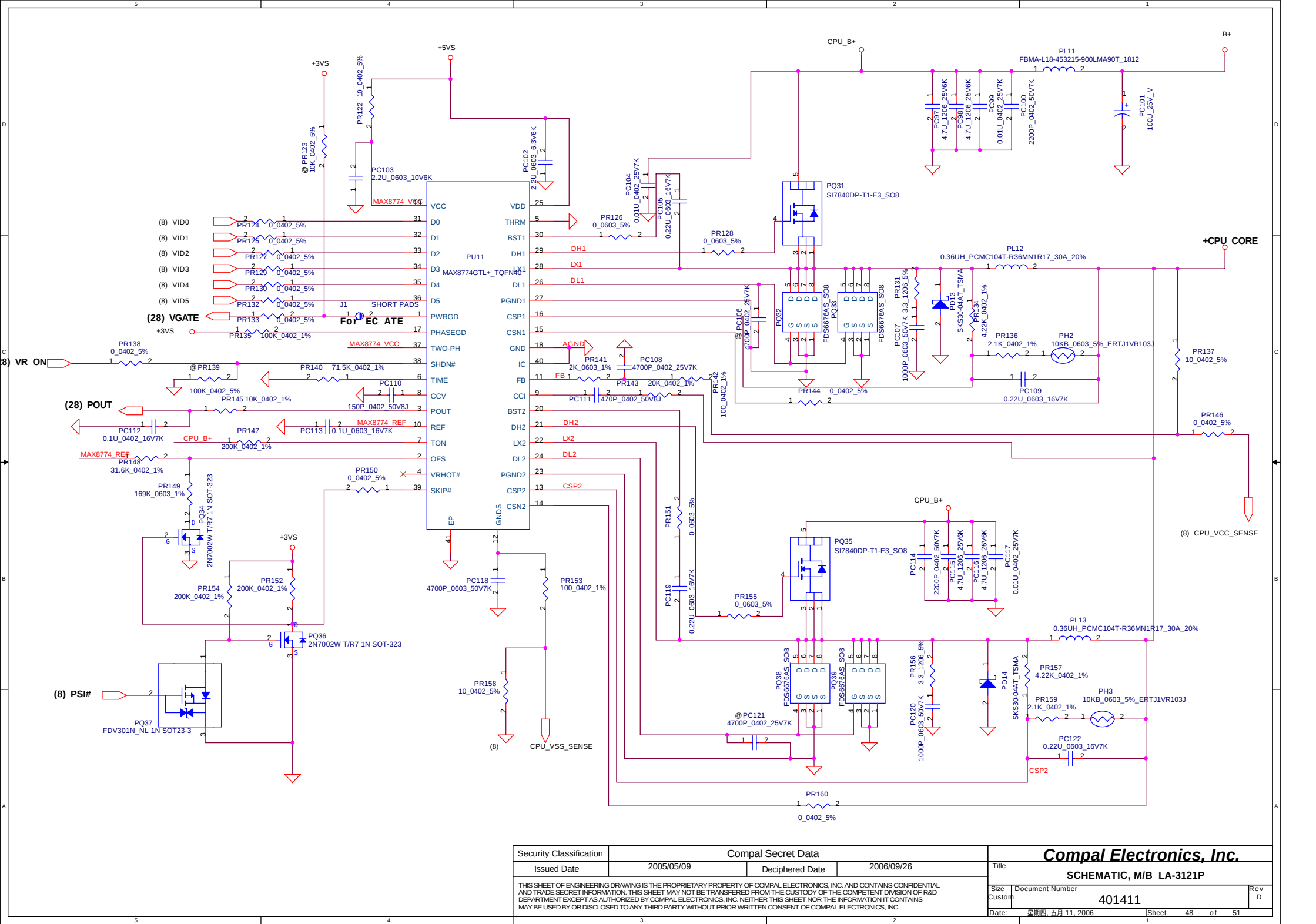


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                         |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/09/26 | Title                    | SCHEMATIC, M/B LA-3121P |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  |                          |  |                 |  |     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|--|-----------------|--|-----|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |                 |  |     |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Size                     |  | Document Number |  | Rev |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |  |                 |  | Custom                   |  | 401411          |  | D   |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 日 期: 五月 11, 2006   |  | Sheet           |  | 46                       |  | of 51           |  |     |  |





|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                         |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|-------------------------|-----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                   |                 |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2005/05/09 | Deciphered Date    | 2006/09/26 | SCHEMATIC, M/B LA-3121P |                 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                   | Rev D           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 星期四, 五月 11, 2006        | Sheet 48 of 51  |

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

Page 1 of 1  
for PWR

| Item | Fixed Issue            | Reason for change                                             | Rev. | PG # | Modify List                                                                                       | VER | Phase |
|------|------------------------|---------------------------------------------------------------|------|------|---------------------------------------------------------------------------------------------------|-----|-------|
| 1    | Schematic update.      | Because schematic update, we don't need this two parts.       | 0.1  | 46   | Delete PQ24 SB000005M10.                                                                          | 0.1 | EVT   |
| 2    | Schematic update.      | Because schematic update, we don't need this two parts.       | 0.1  | 46   | Delete PR162 SD028000080.                                                                         | 0.1 | EVT   |
| 3    | BOM error              | BOM error                                                     | 0.1  | 44   | Change PQ15 from SB923010010 to SB923010020.                                                      | 0.1 | EVT   |
| 4    | BOM error              | BOM error                                                     | 0.1  | 48   | Change PQ37 from SB503010004 to SB503010010                                                       | 0.1 | EVT   |
| 5    | MOSFET thermal issue   | Because we need to reduce MOSFET teperature of high side mos. | 0.1  | 48   | Change PQ31 and PQ35 from SB562940000 to SB578400080.                                             | 0.1 | EVT   |
| 6    | BOM error              | BOM error                                                     | 0.1  | 42   | Change PL1,PL5,PL7 and PL11 form SM010018210 to SM010020720.                                      | 0.1 | EVT   |
| 7    | BOM error              | BOM error                                                     | 0.1  | 47   | Change PR121 from SD000001500 to SD000001580.                                                     | 0.1 | EVT   |
| 8    | BOM error              | BOM error                                                     | 0.1  | 48   | Change PR149 from SD014169300 to SD014169380.                                                     | 0.1 | EVT   |
| 9    | BOM error              | BOM error                                                     | 0.1  | 44   | Change PR55 from SD034100380 to SD034100280.                                                      | 0.1 | EVT   |
| 10   | BOM error              | BOM error                                                     | 0.1  | 44   | Change PR50 from SD034576280 to SD034140280.                                                      | 0.1 | EVT   |
| 11   | BOM error              | BOM error                                                     | 0.1  | 48   | Change PR148 from SD034316200 to SD034316280.                                                     | 0.1 | EVT   |
| 12   | BOM error              | BOM error                                                     | 0.1  | 44   | Change PC52,PC53,PC54,PC87,PC88,PC93 and PC94 from SE075103Z00 to SE075103K80.                    | 0.1 | EVT   |
| 13   | BOM error              | BOM error                                                     | 0.1  | 46   | Change PC70 from SE153106K80 to SE116226M80.                                                      | 0.1 | EVT   |
| 14   | High limit issue.      | Because the high is limited, we need to reduce space.         | 0.1  | 48   | Change PC101 from SF22004M210 to SF10004M080.                                                     | 0.1 | EVT   |
| 15   | BOM error              | BOM error                                                     | 0.1  | 48   | Add PR137 and PR158 SD028100A80.                                                                  | 0.1 | EVT   |
| 16   | Power sequence adjust. | Power sequence adjust.                                        | 0.1  | 47   | Add PR168 SD034100280.                                                                            | 0.1 | EVT   |
| 17   | Power sequence adjust. | Power sequence adjust.                                        | 0.1  | 47   | Delete PR115 SD034100280.                                                                         | 0.1 | EVT   |
| 18   | BOM cost issue.        | BOM cost issue.                                               | 0.1  | 42   | Change PQ5, PQ18, PQ19, PQ20, PQ21, PQ23, PQ25, PQ34, PQ36, PQ40 from SB000005M10 to SB000006800. | 0.1 | EVT   |

Compal Electronics, Inc.

Title  
SCHEMATIC, M/B LA-3121PSize Document Number  
401411Rev  
D

Date: 五月 11, 2006 Sheet 49 of 51

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

Page 2 of 2  
for PWR

| Item | Fixed Issue                  | Reason for change                                   | Rev. | PG # | Modify List                                                 | VER | Phase |
|------|------------------------------|-----------------------------------------------------|------|------|-------------------------------------------------------------|-----|-------|
| 1    | Charger accuracy issue.      | Increase changer accuracy to meet customer request. | 0.2  | 44   | Change PR44 from SE000001E00 to SE000001F00.                | 0.1 | EVT   |
| 2    | Charger accuracy issue.      | Increase changer accuracy to meet customer request. | 0.2  | 44   | Change PR50 form SD034140280 to SD000008B00.                | 0.1 | EVT   |
| 3    | Charger accuracy issue.      | Increase changer accuracy to meet customer request. | 0.2  | 44   | Change PR55 from SD034100280 to SD00000CL80.                | 0.1 | EVT   |
| 4    | Improve IC risk.             | Improve IC risk.                                    | 0.2  | 44   | Change PR60 from SD034100180 to SD034100280.                | 0.1 | EVT   |
| 5    | Improve OCP point.           | Improve OCP point.                                  | 0.3  | 43   | Change PR29 and PR30 from SD034200380 to SD034100380        | 0.1 | EVT   |
| 6    | Improve OCP point.           | Improve OCP point.                                  | 0.3  | 47   | Change PR120 from SD034499280 to SD000001580.               | 0.1 | EVT   |
| 7    | Improve ripple voltage.      | Improve ripple voltage.                             | 0.4  | 46   | Change PC68 and PC125 from SE142475K80 to SE116226M80.      | 0.2 | DVT   |
| 8    | Incresr +1.2VP_HT voltage.   | Incresr +1.2VP_HT voltage.                          | 0.4  | 47   | Change PR108 from SD034340180 to SH034348180.               | 0.2 | DVT   |
| 9    | Incresr +1.8VALWP voltage.   | Incresr +1.8VALWP voltage.                          | 0.4  | 47   | Change PR113 from SD034100280 to SD028102280.               | 0.2 | DVT   |
| 10   | Improve thermal issue.       | Improve thermal issue.                              | 0.4  | 48   | Change PQ32, PQ33, 38, PQ39 from SB000003W00 to SB578320010 | 0.2 | DVT   |
| 11   | Improve thermal issue.       | Improve thermal issue.                              | 0.4  | 48   | Change PL12, PL13 from SH12056BM00 to SH000005680.          | 0.2 | DVT   |
| 12   | Improve +CPU_CORE OCP point. | Improve +CPU_CORE OCP point.                        | 0.4  | 48   | Change PR134, PR157 from SD034150280 to SD034422180         | 0.2 | DVT   |
| 13   | Improve +CPU_CORE OCP point. | Improve +CPU_CORE OCP point.                        | 0.4  | 48   | Change PR136 and PR159 from SD034150280 to SH034210180.     | 0.2 | DVT   |
| 14   | Improve +CPU_CORE OCP point. | Improve +CPU_CORE OCP point.                        | 0.4  | 48   | Change PC109 and PC122 from SE042333K80 to SE026224K80      | 0.2 | DVT   |
| 15   | Improve CPU load line        | Improve CPU load line                               | 0.4  | 48   | Change PR141 from SD014255180 to SD014200180                | 0.2 | DVT   |
| 16   | Improve CPU load line        | Improve CPU load line                               | 0.4  | 48   | Change PR142 and PR153 from SD034100A80 to SD034100080.     | 0.2 | DVT   |
| 17   |                              |                                                     |      |      |                                                             |     |       |
| 18   |                              |                                                     |      |      |                                                             |     |       |

Compal Electronics, Inc.

Title  
SCHEMATIC, M/B LA-3121PSize  
Document Number  
401411Rev  
D

Date: 五月 11, 2006 Sheet 50 of 51

| Item | Fixed Issue                                                 | PG # | Modify List                                                         | VER | Phase |
|------|-------------------------------------------------------------|------|---------------------------------------------------------------------|-----|-------|
| 1    | ATI Recommend.                                              | 13   | Change R376 82.5 ohm to 100 ohm.                                    | 0.2 | DVT   |
| 2    | TV-OUT 阻抗匹配.                                                | 14   | Increase R590,R591,R592 150 ohm pull down resister.                 | 0.2 | DVT   |
| 3    | 解決PCI_RST# 漏電問題.                                            | 18   | Change U15,U16 voltage source +3VS to +3VALW.                       | 0.2 | DVT   |
| 4    | Fixed USB2.0 EYE Diagram .                                  | 19   | Change R164 11.8K ohm to 11.3K ohm.                                 | 0.2 | DVT   |
| 5    | IMPROVE TV-OUT SIGNAL QUALITY.                              | 24   | Change C417,C418,C419,C425,C428,C430 to 220P.                       | 0.2 | DVT   |
| 6    | SB_INT_FLASH_SEL# 改為EC可以控制.                                 | 28   | Add R594.                                                           | 0.2 | DVT   |
| 7    | 解 M插AC電源, LED會閃一下的問題.                                       | 41   | Add R586,R589,Q5,Q12 change to 2N7002.                              | 0.2 | DVT   |
| 8    | 增加+1.5VS, +2.5VS, +0.9V 放電線路.                               | 41   | Add R587,Q34(+2.5VS), R588,Q35(+1.5VS), R604,Q36(+0.9V).            | 0.2 | DVT   |
| 9    | 1W窗.                                                        | 41   | Add C658 0.1uF                                                      | 0.3 | PVT   |
| 10   | Sometimes run S3 test program will interrupt .              | 37   | Change R100 to 47K(Ori : 100K)                                      | 0.3 | PVT   |
| 11   | 改 ?+2.5V_LAN Power.                                         | 26   | C281 change to 10uF                                                 | 0.3 | PVT   |
| 12   | 改善 LAN 訊號品質 ?                                               | 27   | Change R387,R390,R391,R395,C494,C500 placement to near Transformer. | 0.3 | PVT   |
| 13   | 減少 Speaker 訊號增益(預留).                                        | 39   | Add R606(0 ohm),R607(0 ohm),R608(47K未上),R609(47K未上)                 | 0.3 | PVT   |
| 14   | Add Camera Connect.                                         | 31   | Add R605,C657,JP35                                                  | 0.3 | PVT   |
| 15   | Bluetooth 加 chock.                                          | 38   | Add L65                                                             | 0.3 | PVT   |
| 16   | For EMI request                                             | 15   | Add C330                                                            | 0.4 | PVT2  |
| 17   | JP25 5-in-1 connector Spec update (Pin18 from NC to SD-GND) | 33   | Add R610                                                            | 0.4 | PVT2  |
| 18   | Modify Package for Lead-free part                           | 41   | Modify C658 package from 0402 to 0603                               | 0.4 | PVT2  |
| 19   | Reserve                                                     | 28   | Add R611, R612, EC_Pin-100                                          | 1.0 | MP    |
| 20   | for solve MS detect issue                                   | 33   | Remove C197                                                         | 1.0 | MP    |