

# Compal Confidential

Model Name : ZIVY0

File Name : LA-A921PR03

BOM P/N:4319xxxxxx -- ZIVY0

# Compal Confidential

## ZIVY0 M/B Schematics Document

### Intel SharyBay ULT Processor

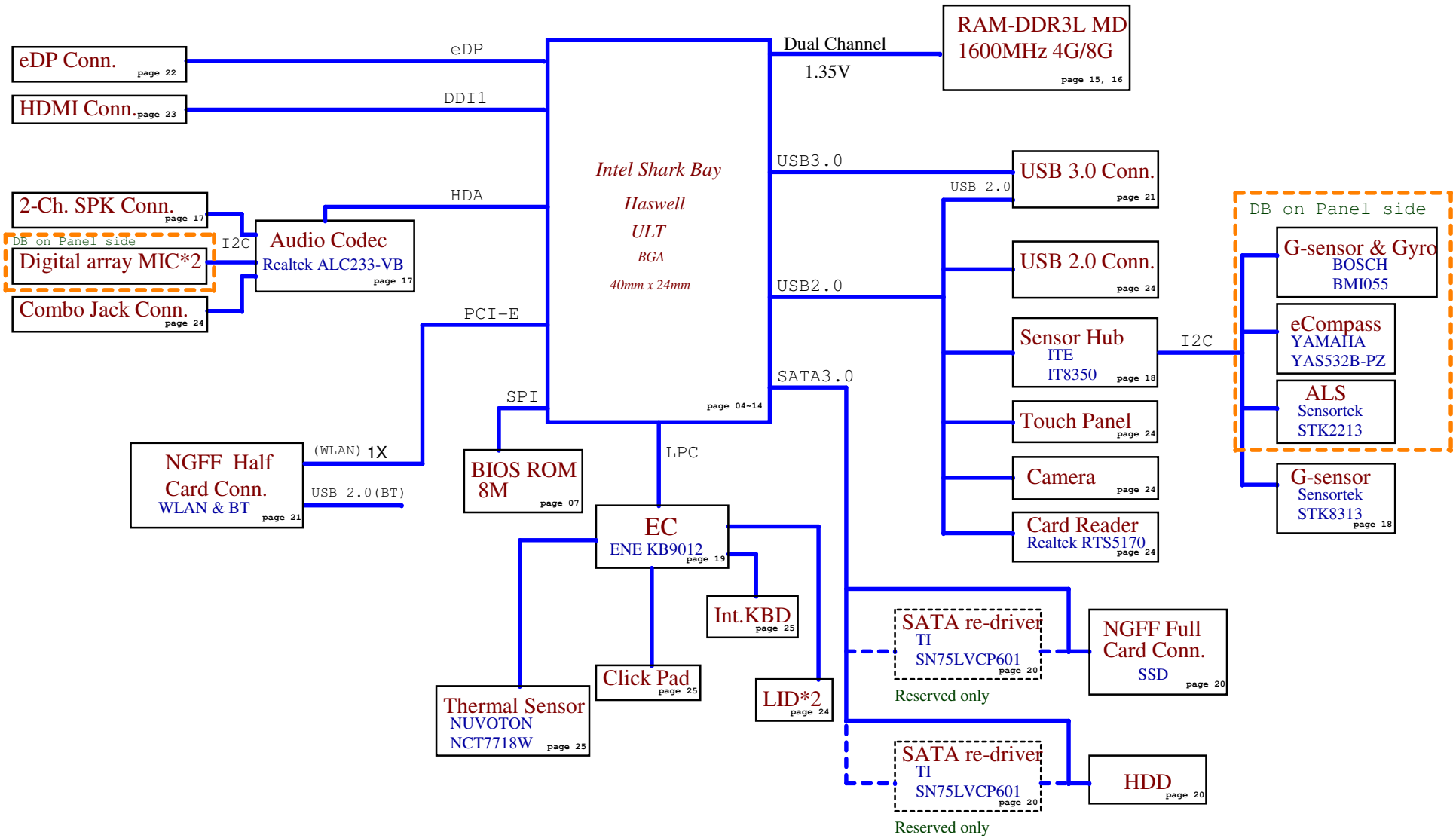
2013-12-01

REV: 1.0

|  |                    |                 |                          |                                       |            |
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Model Name : ZIVY0  
File Name : LA-A921P



|   |            |                    |            |                          |                            |
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|   |            |                    |            | Sheet                    | MB Block Diagram           |
|   |            |                    |            | Rev                      | 1.0                        |
|   |            |                    |            | Date                     | Tuesday, December 17, 2013 |
|   |            |                    |            | Sheet                    | 2 of 38                    |

### Voltage Rails

| power plane                    | State | B+ | +5VALW<br>+3VALW | +1.35V | +5VS<br>+3VS<br>+1.5VS<br>+1.05VS_VTT<br>+CPU_CORE<br>+0.675VS |
|--------------------------------|-------|----|------------------|--------|--|
|                                |       |    |                  |        |  |
| S0                             |       | ○  | ○                | ○      | ○  |
| S3                             |       | ○  | ○                | ○      | ✗  |
| S5 S4/AC                       |       | ○  | ○                | ✗      | ✗  |
| S5 S4/ Battery only            |       | ✗  | ✗                | ✗      | ✗  |
| S5 S4/AC & Battery don't exist |       | ✗  | ✗                | ✗      | ✗  |

| STATE                | SIGNAL | SLP_S0# | SLP_S3# | SLP_S4# | SLP_S5# | +VALW | +V  | +VS | Clock |
|----------------------|--------|---------|---------|---------|---------|-------|-----|-----|-------|
| Full ON              |        | HIGH    | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | ON    |
| 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   |

### BOM Structure Table

| BTO Item         | BOM Structure                                 |
|------------------|---|
| Connector        | ME@   |
| 76 LEVEL         | X76@  |
| Unpop            | @   |
| CPU OPTION       | CPU1@ ~ CPU5@                                 |
| DRAM Option      | H4G@ E4G@ S4G@<br>M4G@ S8G@ E8G@<br>H8G@ H8G@ |
| KB9012           | 9012@   |
| KB9022           | 9022@   |
| No Re-driver     | NR@   |
| TI Re-driver     | TI@   |
| PARADE Re-driver | 8520C@  |
| Segate HDD       | HDDSG@  |
| WD HDD           | HDDWD@  |
| EMI PART         | EMI@  |
| ESD PART         | ESD@  |
| SSD-SATA         | SSDSATA@                                      |

### BOARD ID Table

| Board ID | PCB Revision |
|----------|--------------|
| 0        | 1.0          |
| 1        | 0.3          |
| 2        | 0.2          |
| 3        | 0.1          |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |

### USB 2.0 Port Table

| Port | USB 2.0 Port | 2 External USB Port      |
|------|--------------|--------------------------|
| 0    |              | USB 2.0 Port (I/O Board) |
| 1    |              | USB 3.0/2.0 Port (MB)    |
| 2    |              |                          |
| 3    |              | Card Reader              |
| 4    |              | Touch Screen (reserve)   |
| 5    |              | Camera                   |
| 6    |              | Mini Card (WLAN/BT)      |
| 7    |              | Sensor Fusion            |

### USB 3.0 Port Table

| Port | USB 3.0 Port      |
|------|-------------------|
| 1    |                   |
| 2    | USB 3.0 Port (MB) |
| 3    |                   |
| 4    |                   |

### PCIe Port Table

| Port | Lane | PCIe Port |
|------|------|-----------|
| 1    |      |           |
| 2    |      |           |
| 3    |      |           |
| 4    |      | WLAN      |
| 5    | 0    |           |
|      | 1    |           |
|      | 2    |           |
|      | 3    |           |
| 6    | 0    |           |
|      | 1    |           |
|      | 2    |           |
|      | 3    |           |

### SATA Port Table

| Port | SATA Port      |
|------|----------------|
| 3    | NGFF SSD(SATA) |
| 2    |                |
| 1    |                |
| 0    | HDD            |

### EC SM Bus1 address

| Device          | Address  |
|-----------------|----------|
| Smart Battery   |          |
| Charger         |          |
| Home Key Button | 01100000 |

### EC SM Bus2 address

| Device                  | Address  |
|-------------------------|----------|
| Thermal Sensor NCT7718W | 1001100x |
| SharkBay ULT SML1       |          |

### CPU SM Bus address

| Device    | Address |
|-----------|---------|
| Touch Pad |         |

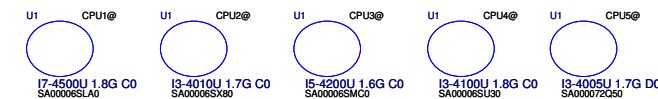
### CPU SML0 Bus address

| Device | Address |
|--------|---------|
|        |         |

### SMBUS Control Table

|            | HOST         | Changer | BATT    | KB9022 | CPU    | HomeKey | Touch Pad | Thermal sensor NCT7718W |
|------------|--------------|---------|---------|--------|--------|---------|-----------|-------------------------|
| EC_SMB_CK1 | KB9022 +3VLP | ✓ +3VLP | ✓ +3VLP | ✗      | ✗      | ✓ +3VLP | ✗         | ✗                       |
| EC_SMB_DA1 | KB9022 +3VLP | ✗       | ✗       | ✗      | ✓ +3VS | ✗       | ✗         | ✓ +3VS                  |
| EC_SMB_DA2 | KB9022 +3VS  | ✗       | ✗       | ✗      | ✗      | ✗       | ✗         | ✗                       |
| SMBCLK     | CPU +3VALW   | ✗       | ✗       | ✗      | ✗      | ✓ +3VS  | ✗         | ✗                       |
| SMBDATA    | CPU +3VALW   | ✗       | ✗       | ✗      | ✗      | ✗       | ✗         | ✗                       |
| SMLOCLK    | CPU +3VALW   | ✗       | ✗       | ✗      | ✗      | ✗       | ✗         | ✗                       |
| SML0DATA   | CPU +3VALW   | ✗       | ✗       | ✗      | ✗      | ✗       | ✗         | ✗                       |
| SML1CLK    | CPU +3VS     | ✗       | ✗       | ✓ +3VS | ✗      | ✗       | ✗         | ✓ +3VS                  |
| SML1DATA   | CPU +3VS     | ✗       | ✗       | ✗      | ✗      | ✗       | ✗         | ✗                       |

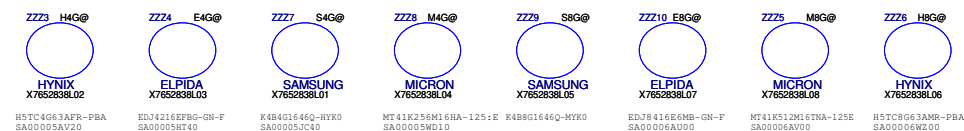
### CPU part



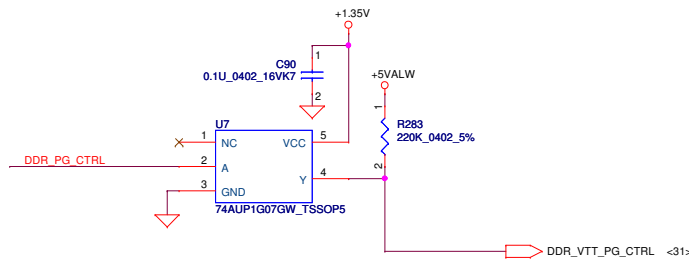
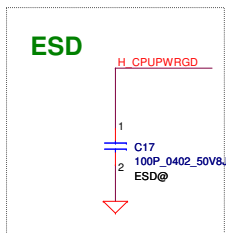
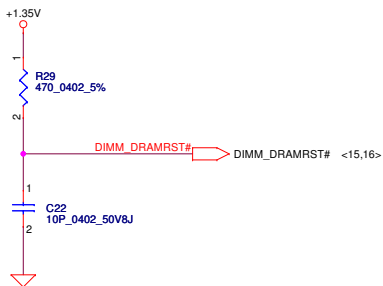
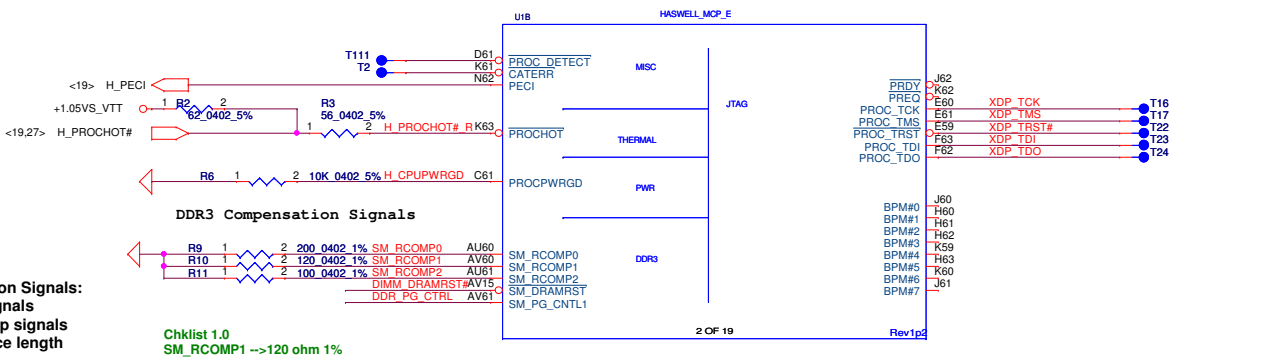
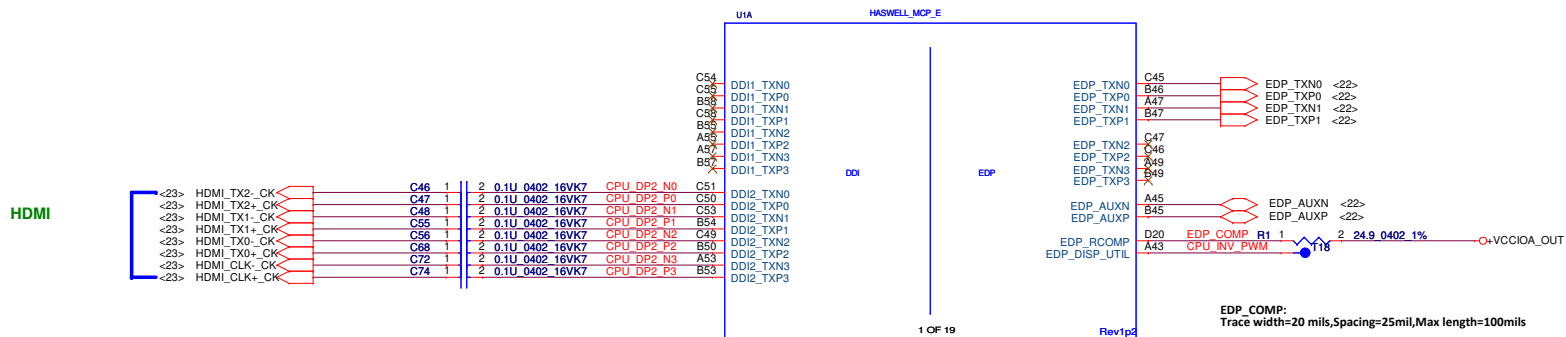
### PCB part



### DRAM







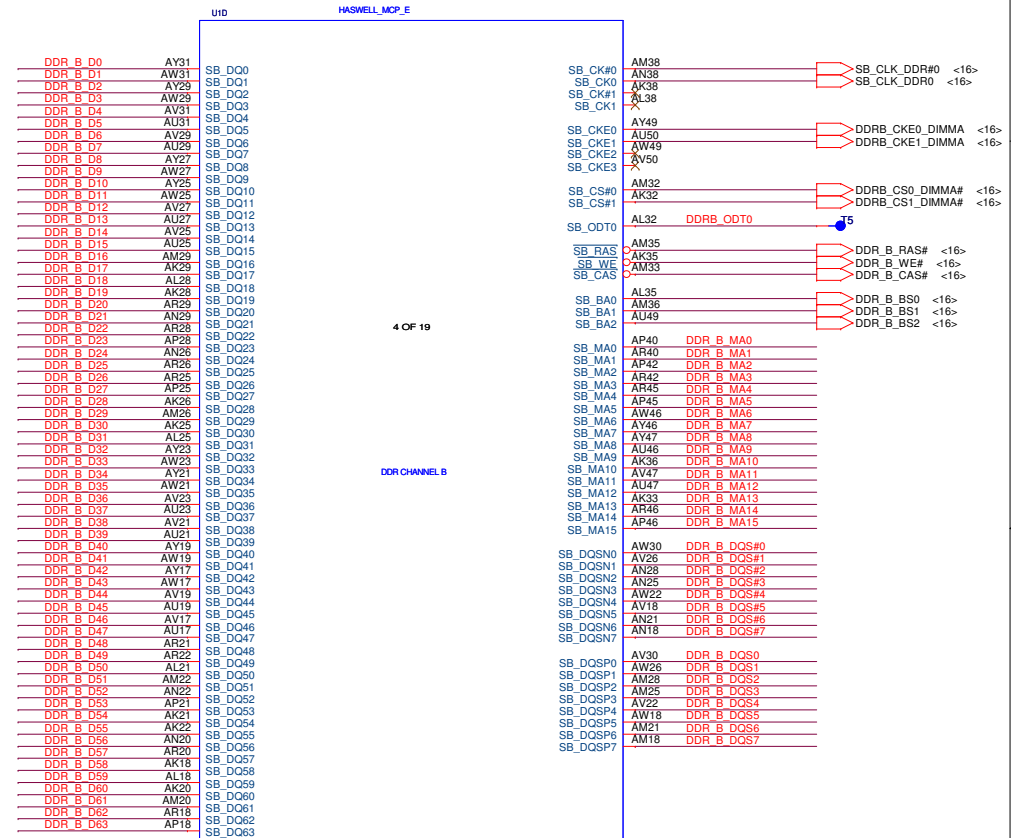
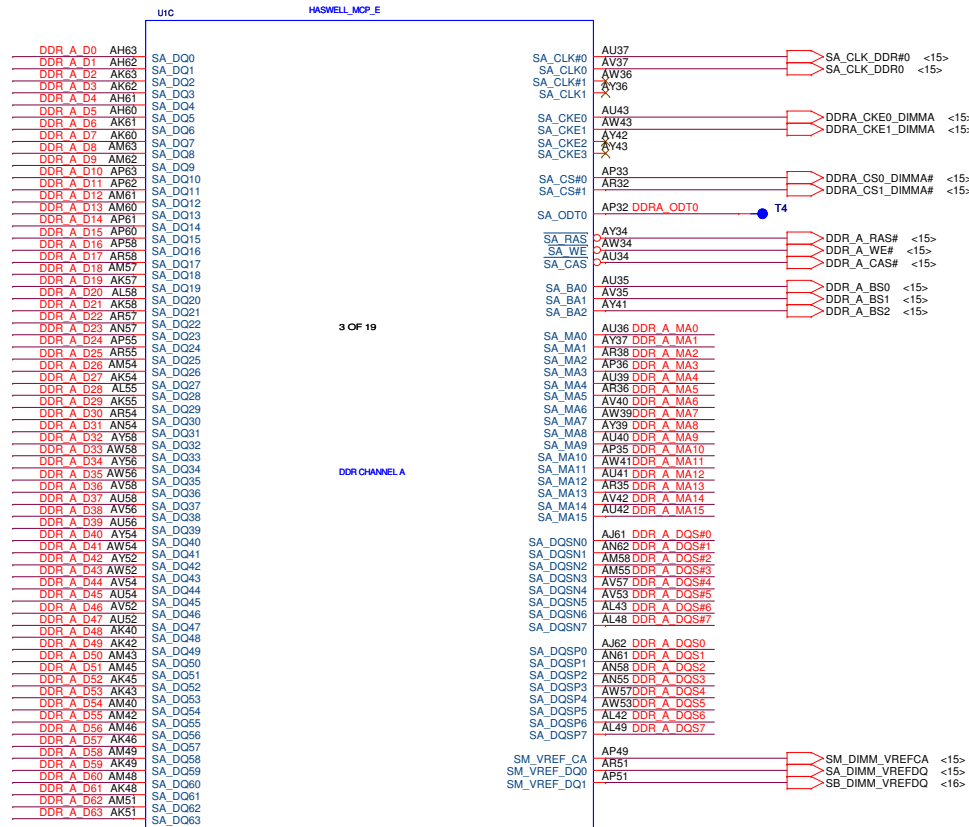
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<15> DDR\_A\_D[0..63]   
 <15> DDR\_A\_MA[0..15]   
 <15> DDR\_A\_DQS#[0..7]   
 <15> DDR\_A\_DQS[0..7] 

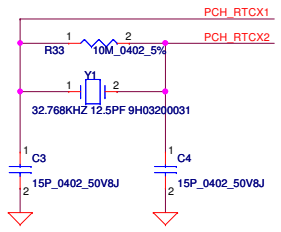
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 <16> DDR\_B\_MA[0..15]   
 <16> DDR\_B\_DQS#[0..7]   
 <16> DDR\_B\_DQS[0..7] 



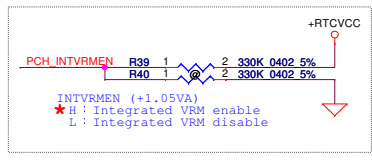
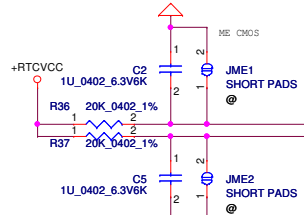
Rev1p2

Rev1p2

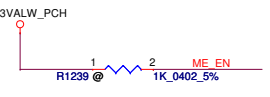
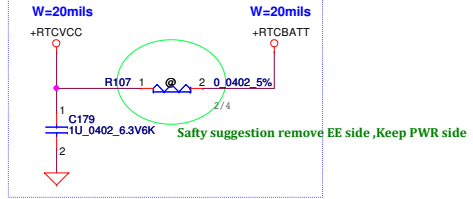
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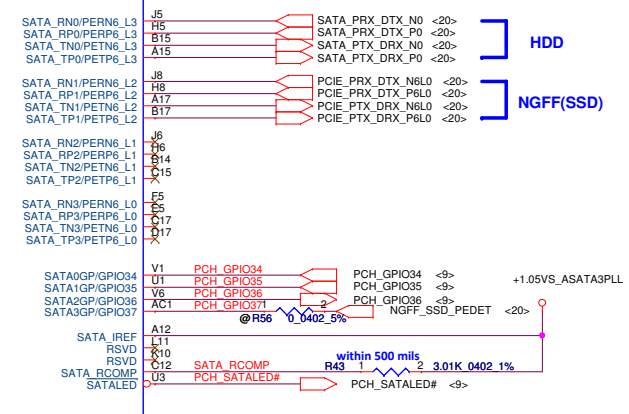
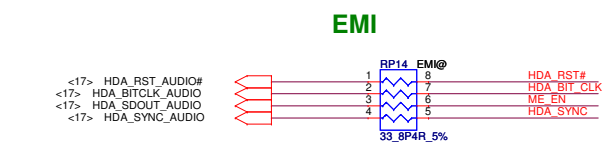
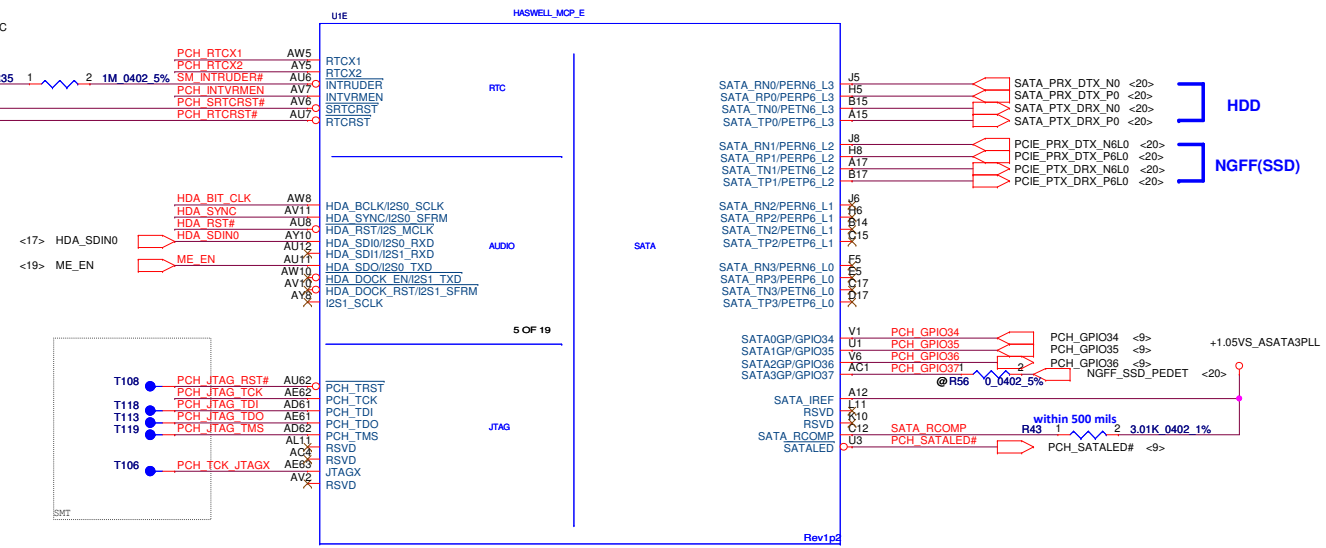
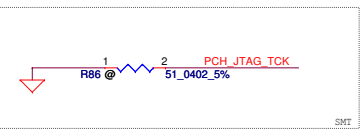
JME2 Short PAD placement to Bottom side.



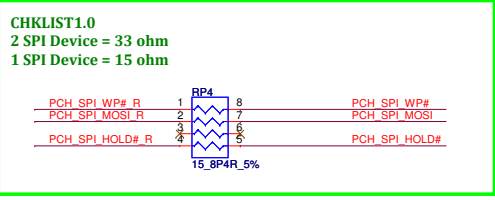
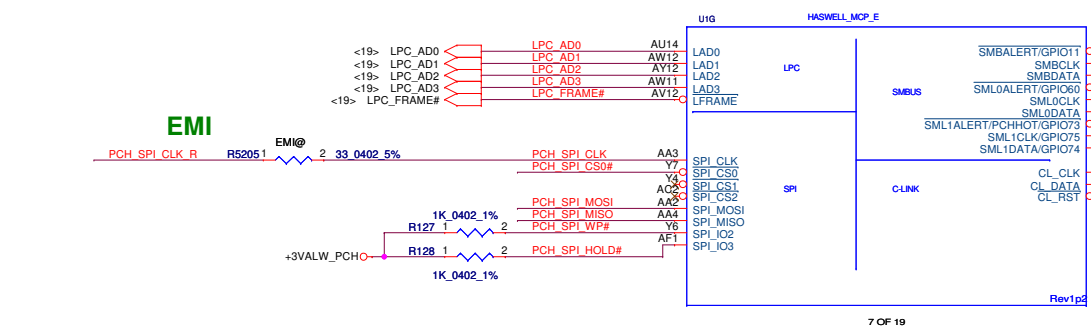
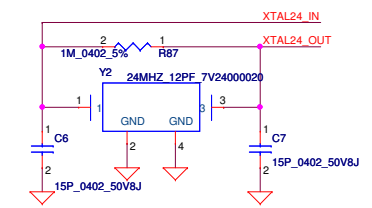
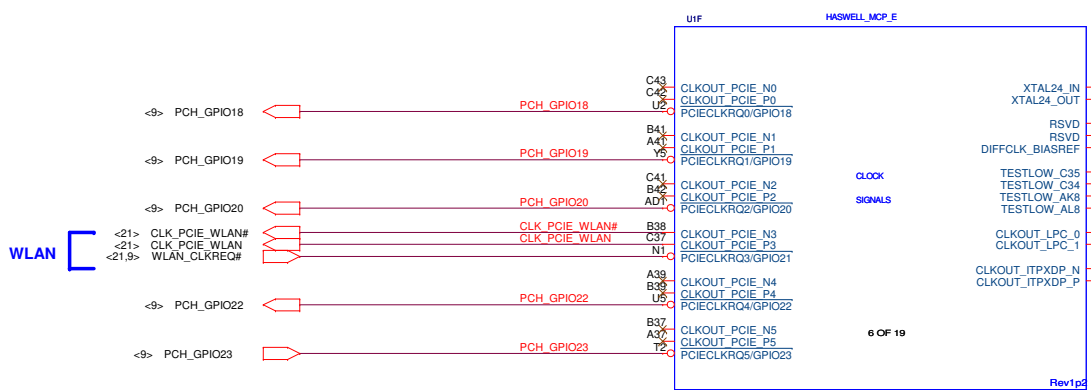
RTC Battery



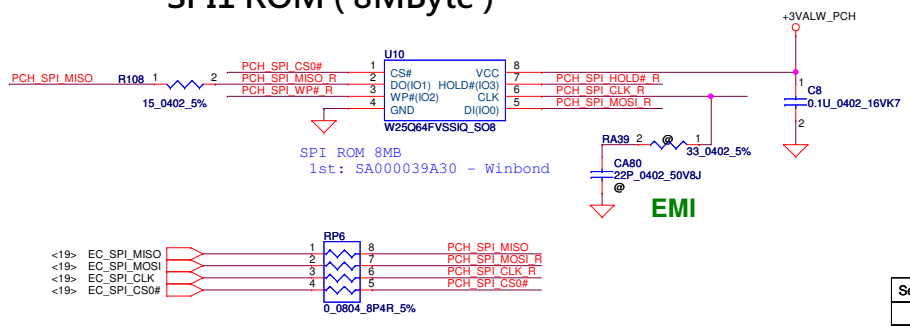
ME debug mode, this signal has a weak internal PD  
 \* Low = Disabled (Default)  
 High = Enabled [Flash Descriptor Security Override]



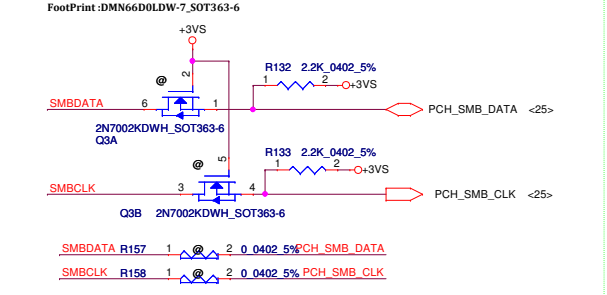
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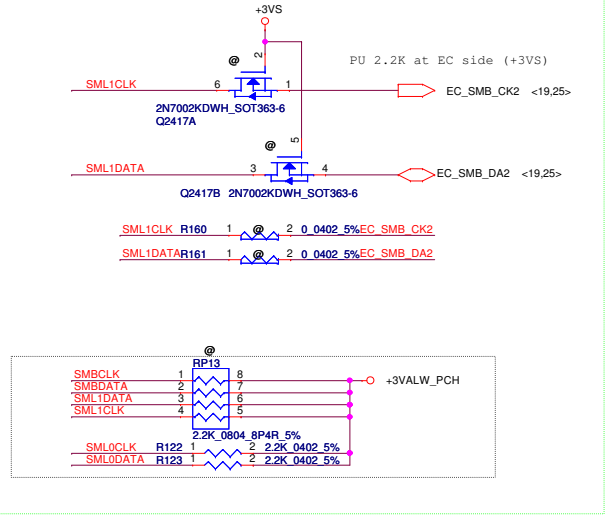
**SPI1 ROM ( 8MByte )**



**SMBus :TP**



**SML1 Bus :EC/Thermal Sensor**



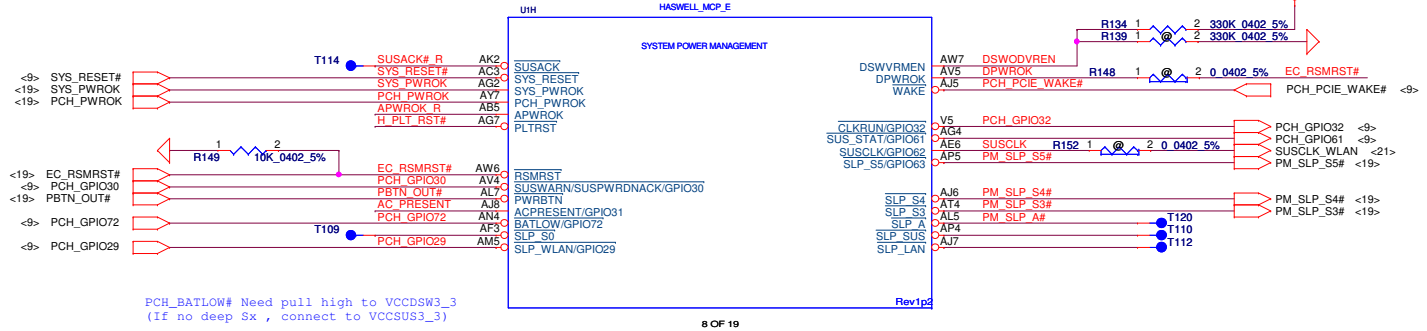
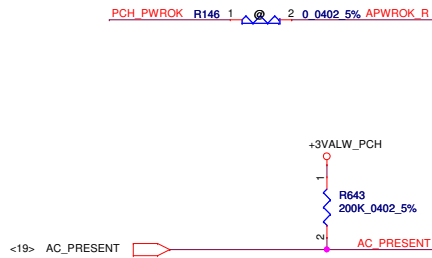
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Note: SUSACK# and SUSWARN# can be tied together if EC does not want to involve in the handshake mechanism for the Deep Sleep state entry and exit

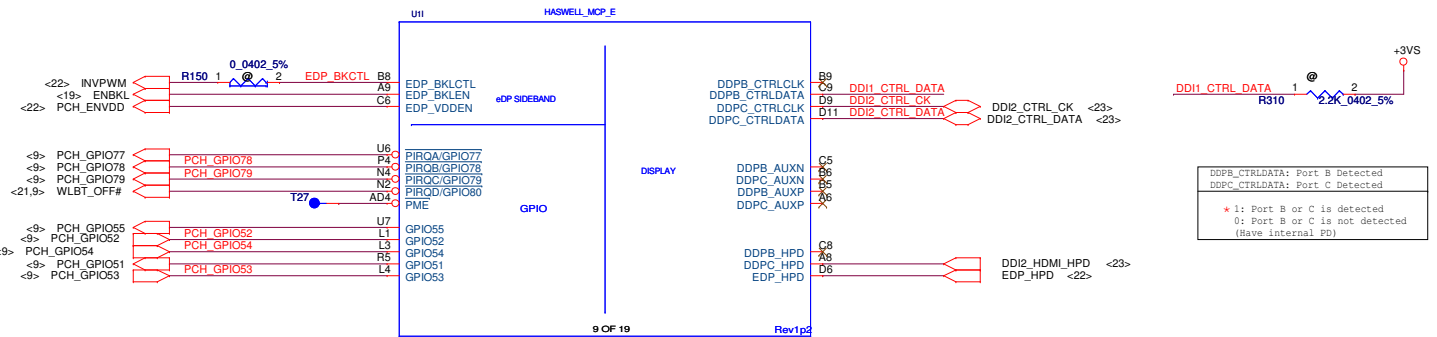
CAN be NC ,if not support Deep Sx

DPWROK: Tired together with RSMRST# that do not support Deep Sx

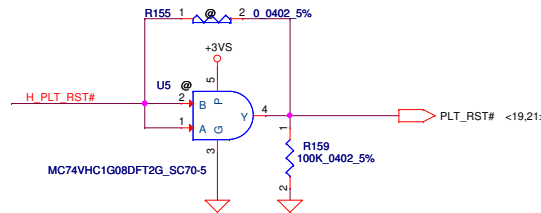
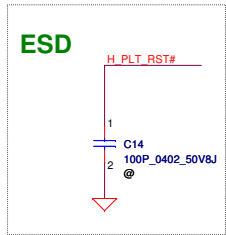
DSWODVREN - On Die DSW VR Enable  
 \* H : Enable (DEFAULT)  
 L : Disable



PCH\_BATLOW# Need pull high to VCCDSW3\_3 (If no deep Sx , connect to VCCSUS3\_3)

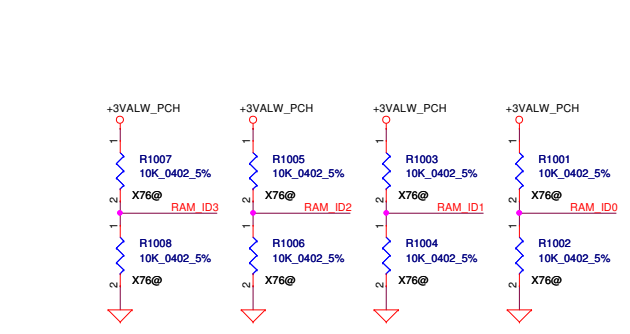
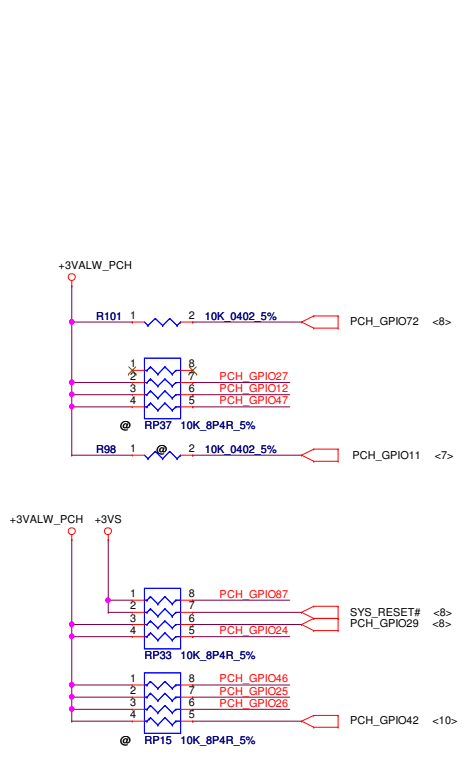
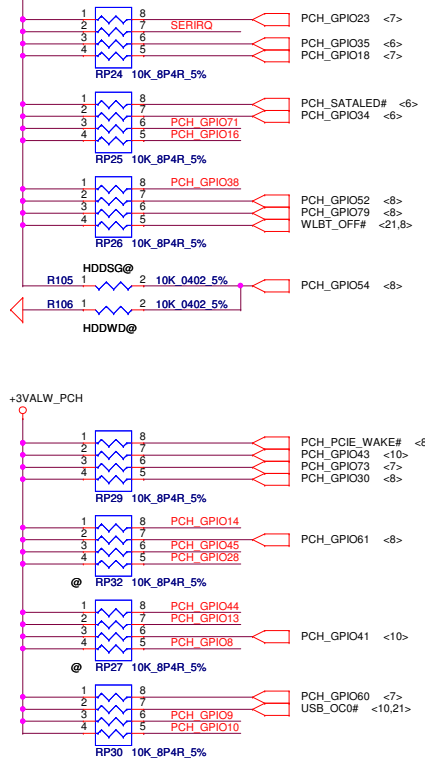
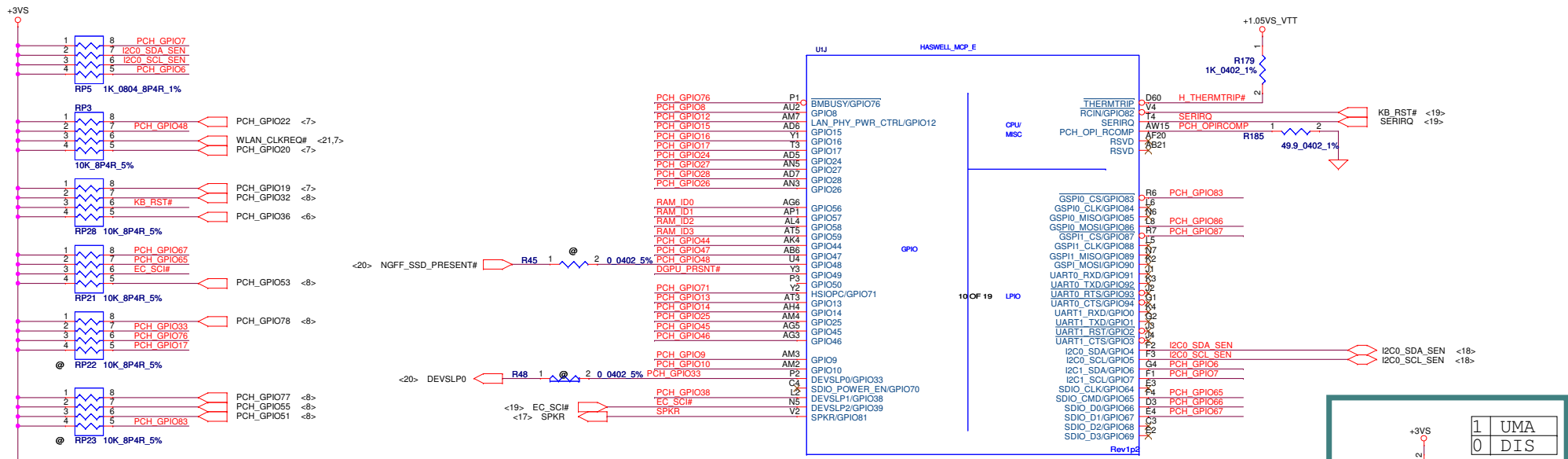


DDPB\_CTRLDATA: Port B Detected  
 DDPC\_CTRLDATA: Port C Detected  
 \* 1: Port B or C is detected  
 0: Port B or C is not detected (Have internal PD)

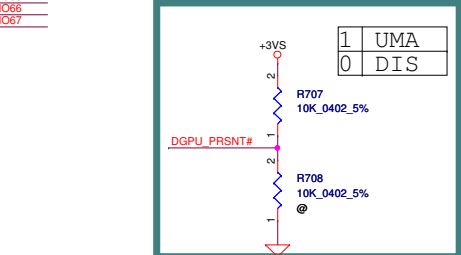


|   |                    |                 |            |   |
|---|--------------------|-----------------|------------|---|
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| Issued Date   | 2013/07/24         | Deciphered Date | 2015/07/24 | HSW MCP(5/11) PM,GPIO,DDI   |
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| RAM_ID3 | RAM_ID2 | RAM_ID1 | RAM_ID0 | RAM P/N                     |
|---------|---------|---------|---------|-----------------------------|
| GPIO59  | GPIO58  | GPIO57  | GPIO56  |                             |
| 0       | 0       | 0       | 0       | HYNIX H5TC4G63AFR-PBA       |
| 0       | 0       | 0       | 1       | SAMSUNG K4B4G1646Q-HYK0     |
| 0       | 0       | 1       | 0       | MICRON MT41K256M16HA-125:E  |
| 0       | 0       | 1       | 1       | ELPIDA EDJ4216EFBG-GN-F     |
| 0       | 1       | 0       | 0       | SAMSUNG K4B8G1646Q-MYK0     |
| 0       | 1       | 0       | 1       | ELPIDA EDJ8416E6MB-GN-F     |
| 0       | 1       | 1       | 0       | MICRON MT41K512M16TNA-125:E |
| 0       | 1       | 1       | 1       | HYNIX H5TC8G63AMR-PBA       |
| 1       | 0       | 0       | 0       | TBD                         |
| 1       | 0       | 0       | 1       | TBD                         |
| 1       | 0       | 1       | 0       | TBD                         |
| 1       | 1       | 0       | 0       | TBD                         |
| 1       | 1       | 0       | 1       | TBD                         |
| 1       | 1       | 1       | 0       | TBD                         |
| 1       | 1       | 1       | 1       | TBD                         |



GPIO59 / GPIO58 : Boot BIOS Strap

1: LPC BUS  
 \* 0: SPI BUS (Have internal PD)

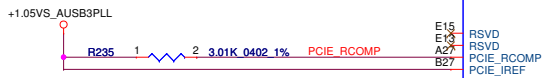
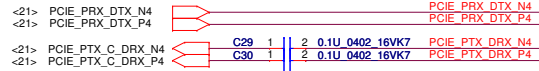
SDIO\_D0 / GPIO66 : Top-Block Swap Override

1: DISABLED  
 \* 0: ENABLED (Have internal PD)

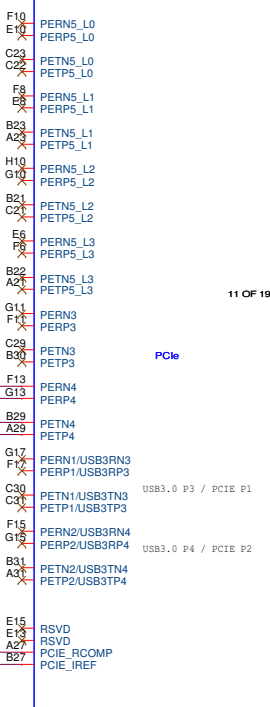
GPIO15 : TLS Confidentiality

1: Intel ME TLS with confidentiality  
 \* 0: Intel ME TLS with no confidentiality (Have internal PD)

WLAN

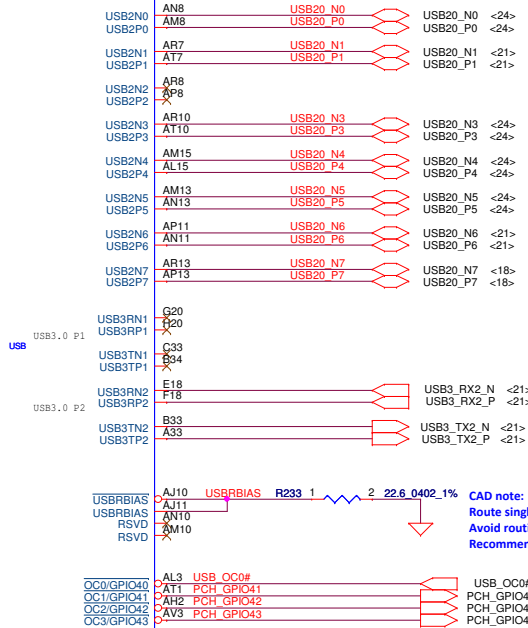


UKK HASWELL\_MCP\_E



11 OF 19

PCIe



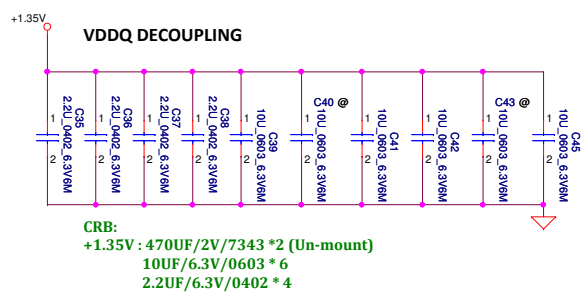
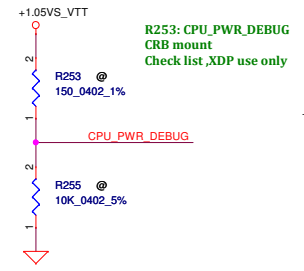
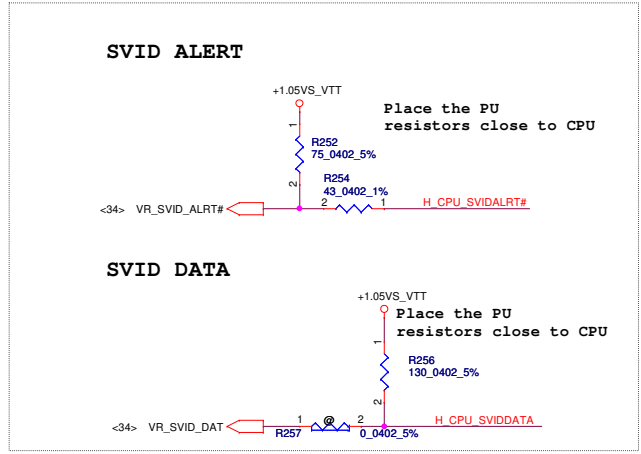
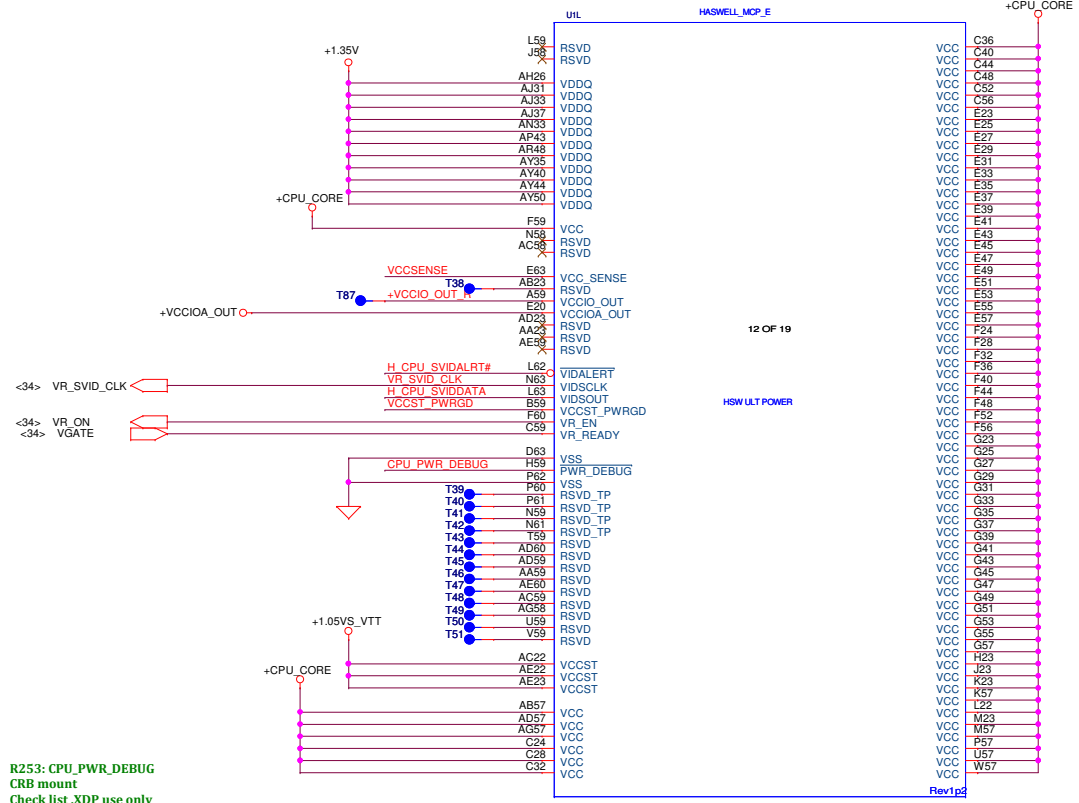
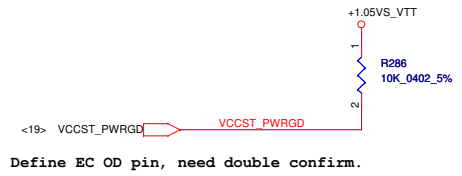
USB2 IO (Sub Board)  
 USB2/3 IO (Main Board)  
 Card Reader  
 Touch Screen  
 Camera  
 Mini Card(WLAN+BT)  
 Sensor

USB2/3 (Main Board)

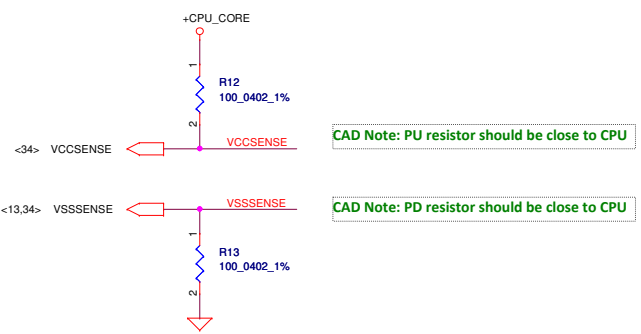
CAD note:  
 Route single-end 50-ohms and max 450-mils length.  
 Avoid routing next to clock pins or under stitching capacitors.  
 Recommended minimum spacing to other signal traces is 15 mils

Rev1p2

|  |            |                    |            |   |            |
|--|------------|--------------------|------------|---|------------|
| Security Classification  |            | Compal Secret Data |            | Compal Electronics, Inc.                    |            |
| Issued Date  | 2013/07/24 | Deciphered Date    | 2015/07/24 | Title<br><b>HSW MCP(7/11) PCIe,USB</b>      |            |
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| Date: Tuesday, December 17, 2013   |            |                    |            | Sheet                                       | 10 of 38   |

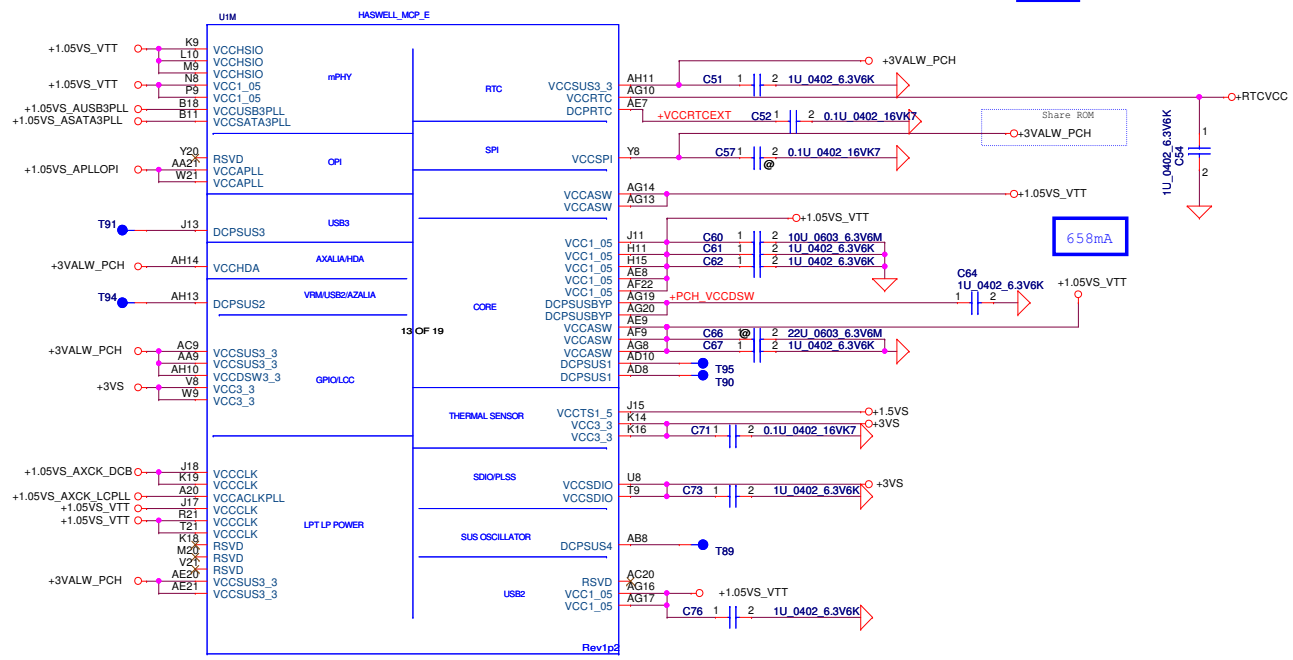
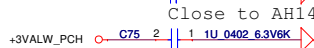
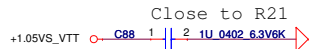
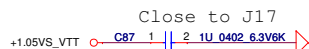
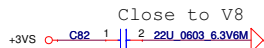
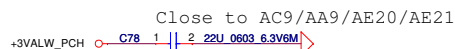
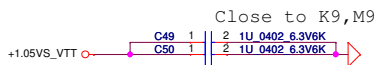
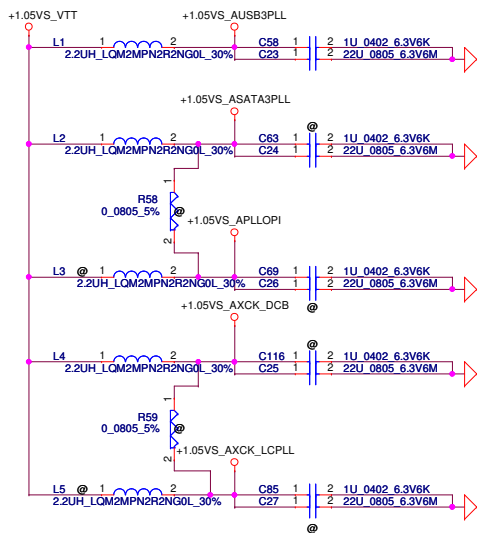


R256: CRB r0.7 changed from 130 Ohms to 110 Ohms



|  |                    |                 |            |                                       |            |
|--|--------------------|-----------------|------------|---------------------------------------|------------|
| Security Classification  | Compal Secret Data |                 |            | Compal Electronics, Inc.              |            |
| Issued Date  | 2013/07/24         | Deciphered Date | 2015/07/24 | Title<br><b>HSW MCP(8/11) Power</b>   |            |
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| Date: Tuesday, December 17, 2013   |                    |                 |            | Sheet                                 | 11 of 38   |

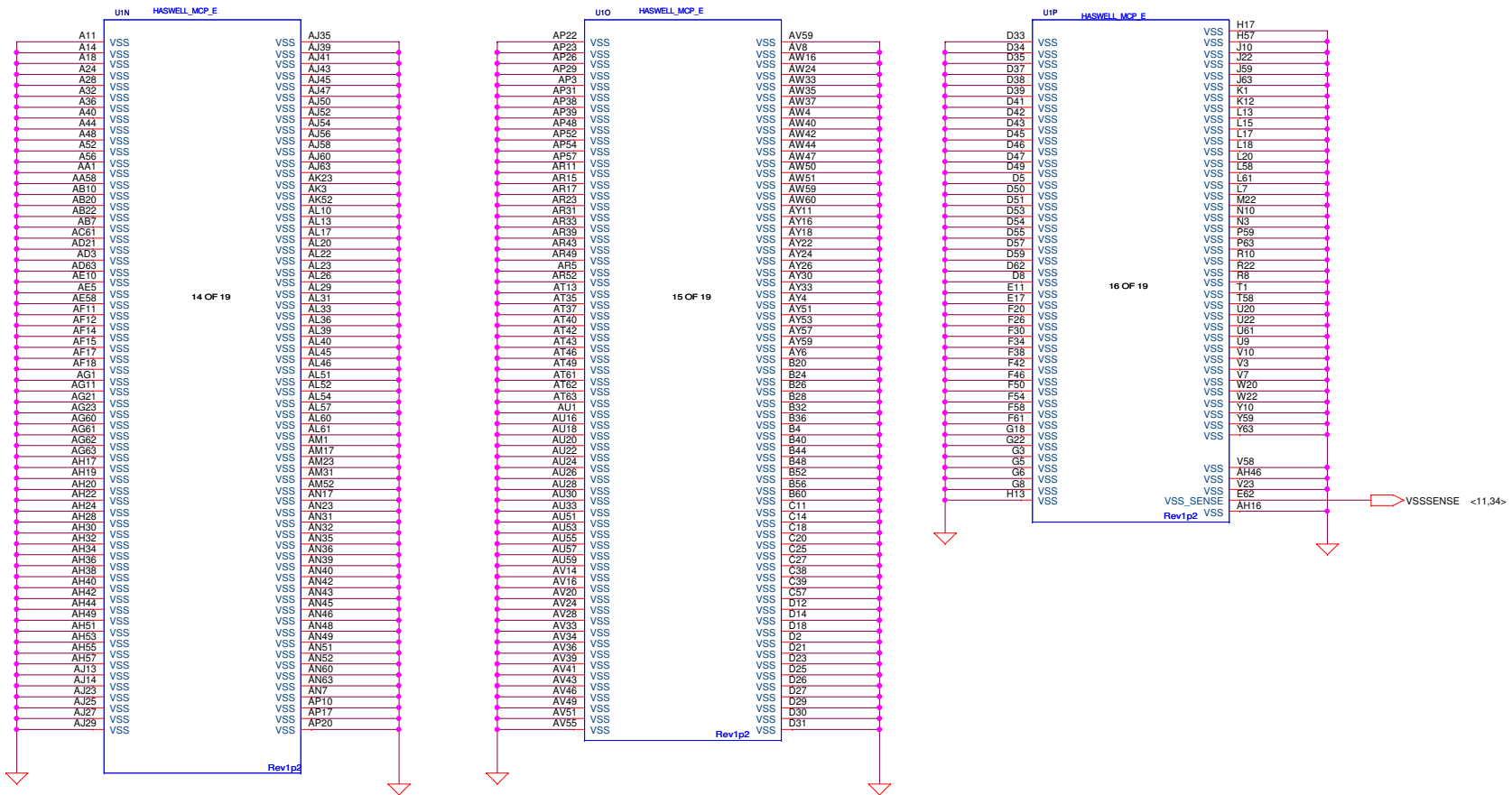
Check Power Source Close to N8  
 +1.05VS\_VTT @ C53 1 2 1U 0402 6.3V6K



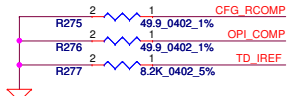
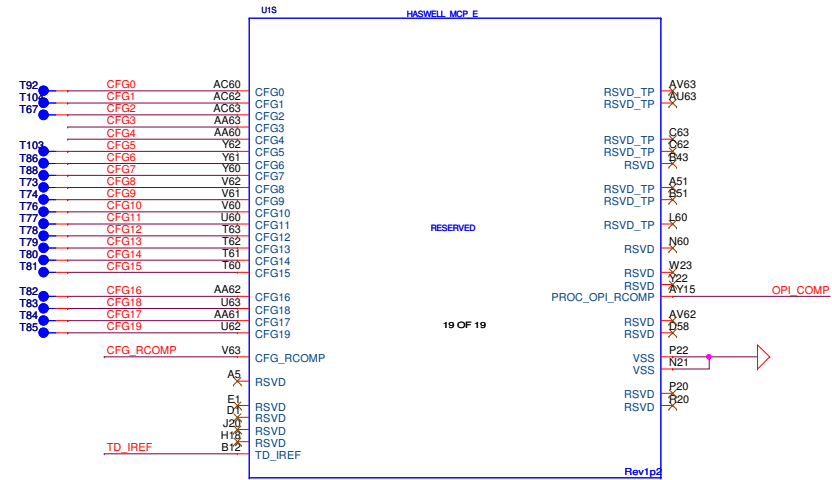
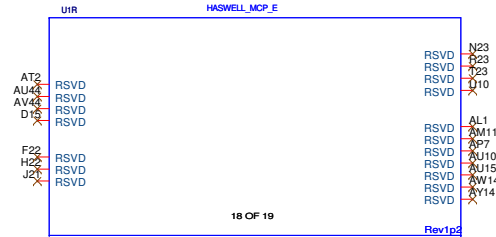
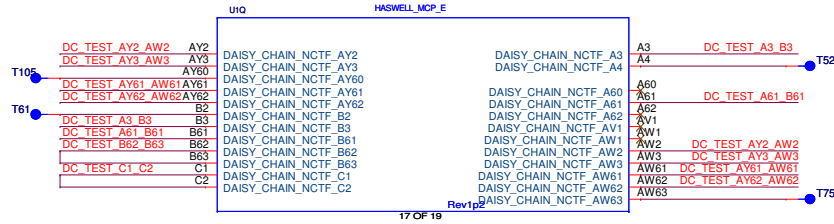
18mA

658mA

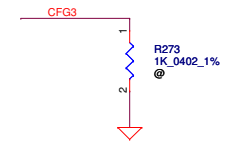
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| Security Classification  | Compal Secret Data |                 | Title      |                                       |
| Issued Date  | 2013/07/24         | Deciphered Date | 2015/07/24 | HSW MCP(9/11) Power                   |
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| Date: Tuesday, December 17, 2013   |                    |                 |            | Rev 1.0                               |
| Sheet 12 of 38   |                    |                 |            |                                       |



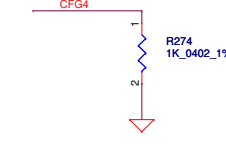
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| Security Classification   |            | Compal Secret Data |            | Compal Electronics, Inc.              |            |
| Issued Date   | 2013/07/24 | Deciphered Date    | 2015/07/24 | Title<br><b>HSW MCP(10/11) GND</b>    |            |
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| Date: Tuesday, December 17, 2013  |            |                    |            | Sheet                                 | 13 of 38   |




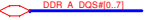

**CFG Straps for Processor**

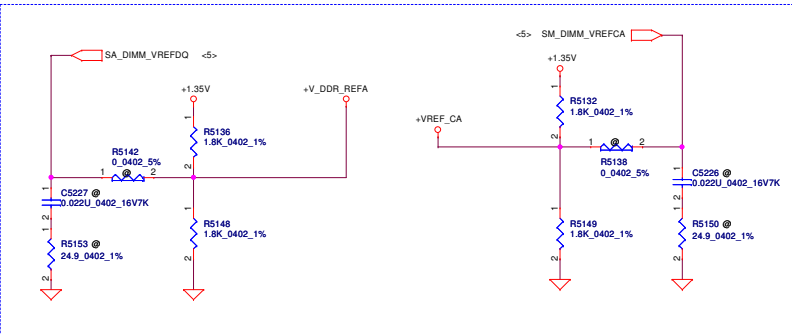
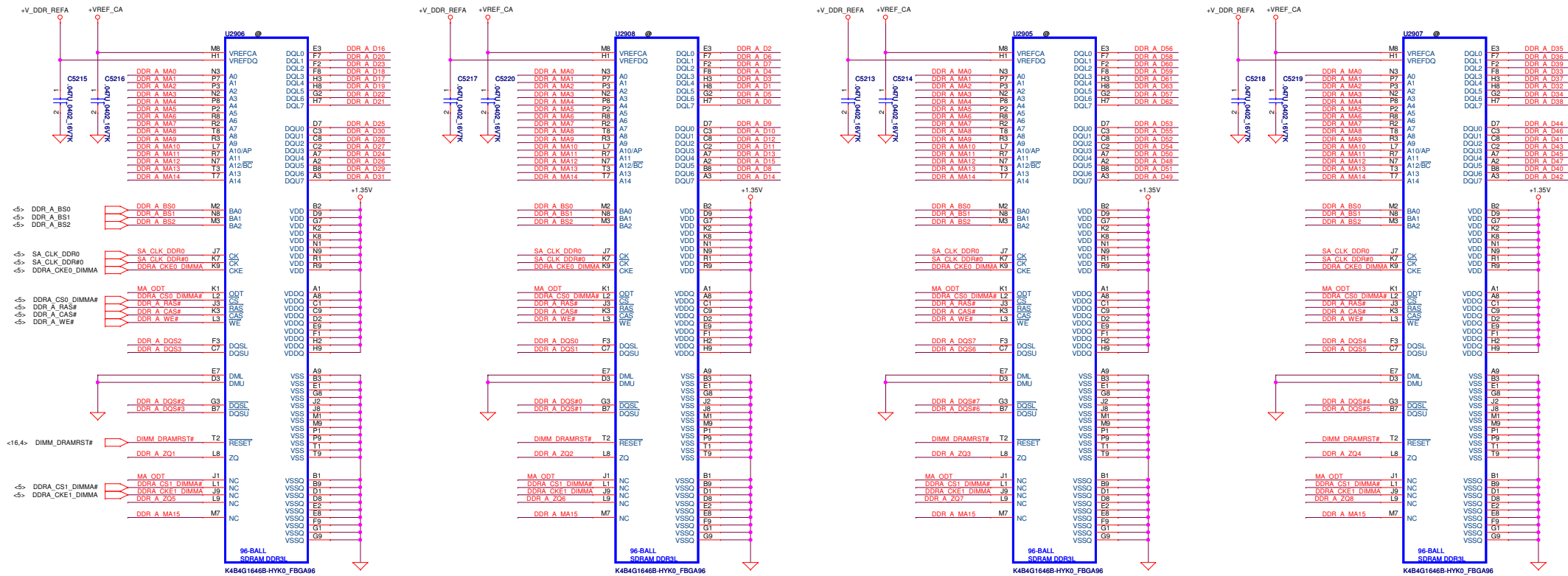


| Physical Debug Enable (DFX Privacy) |   |
|-------------------------------------|---|
| CFG3                                | 1: DISABLED<br>0: ENABLED; SET DFX ENABLED BIT IN DEBUG INTERFACE MSR |

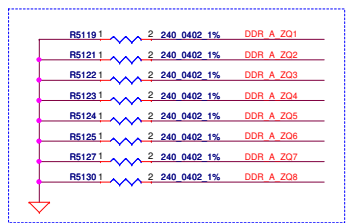


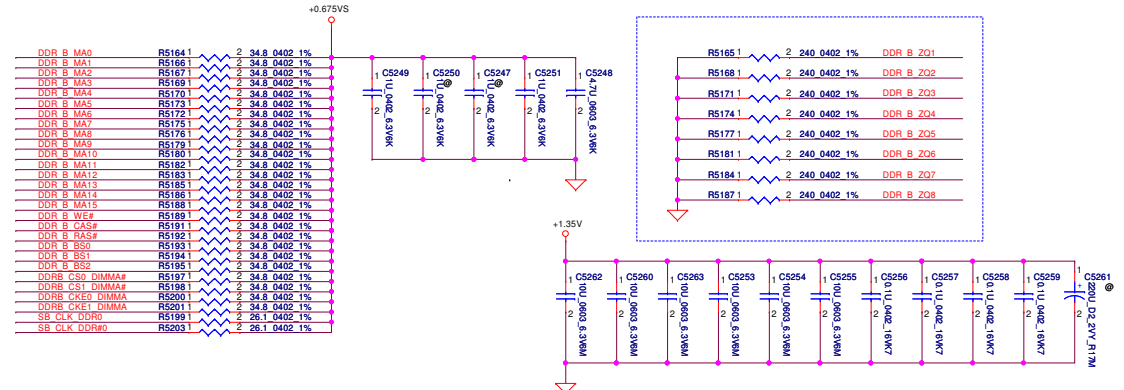
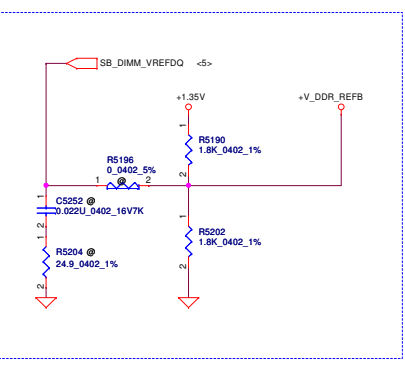
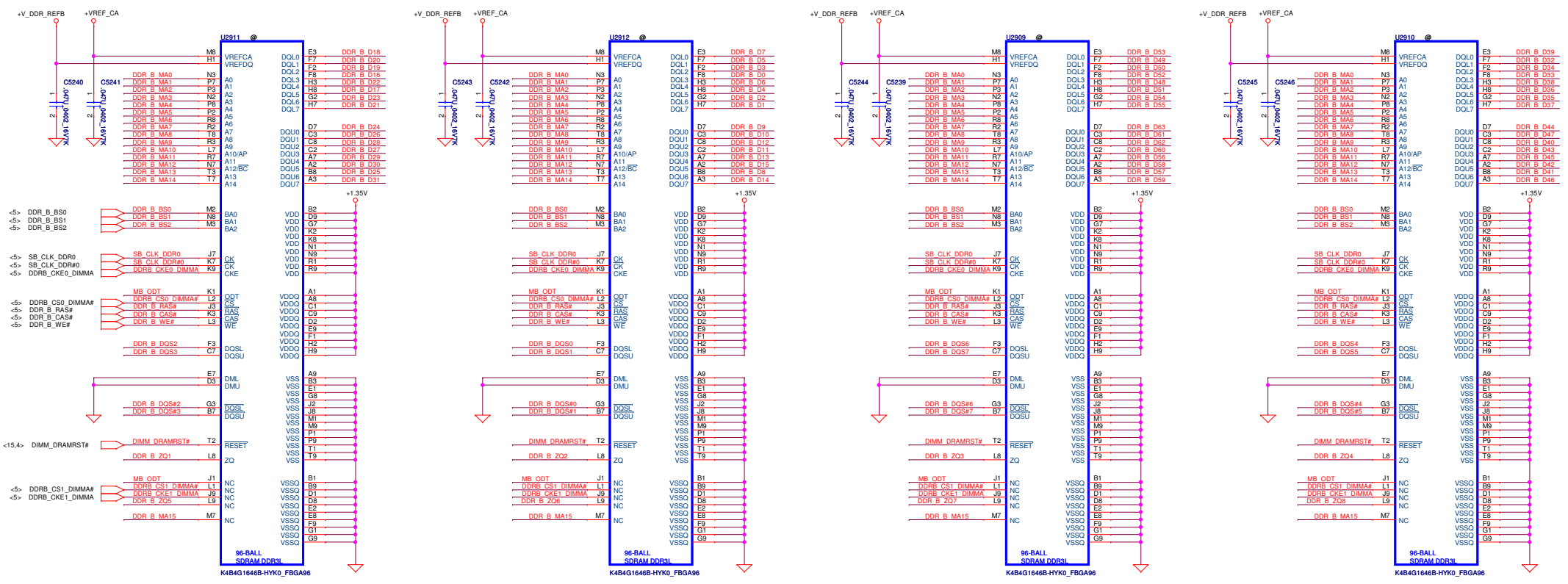
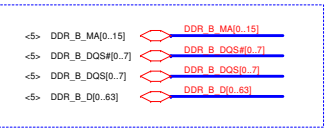
| Display Port Presence Strap |  |
|-----------------------------|--|
| CFG4                        | 1 : Disabled; No Physical Display Port attached to Embedded Display Port<br>0 : Enabled; An external Display Port device is connected to the Embedded Display Port |

- <S> DDR\_A\_MA[0..15]  DDR A MA[0..15]
- <S> DDR\_A\_DQS[0..7]  DDR A DQS[0..7]
- <S> DDR\_A\_DQS[0..7]  DDR A DQS[0..7]
- <S> DDR\_A\_D[0..63]  DDR A D[0..63]



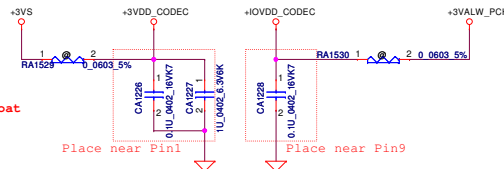
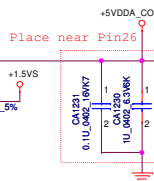
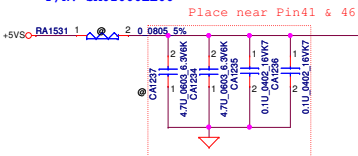
|            |         |   |      |      |    |
|------------|---------|---|------|------|----|
| DDR A MA0  | R5126 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA1  | R5127 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA2  | R5128 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA3  | R5129 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA4  | R5130 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA5  | R5131 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA6  | R5132 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA7  | R5133 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA8  | R5134 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA9  | R5135 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA10 | R5136 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA11 | R5137 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA12 | R5138 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA13 | R5139 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA14 | R5140 1 | 2 | 34.8 | 0402 | 1% |
| DDR A MA15 | R5141 1 | 2 | 34.8 | 0402 | 1% |
| DDR A WE#  | R5142 1 | 2 | 34.8 | 0402 | 1% |
| DDR A CAS# | R5143 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS0  | R5144 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS1  | R5145 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5146 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5147 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5148 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5149 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5150 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5151 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5152 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5153 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5154 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5155 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5156 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5157 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5158 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5159 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5160 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5161 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5162 1 | 2 | 34.8 | 0402 | 1% |
| DDR A BS2  | R5163 1 | 2 | 34.8 | 0402 | 1% |



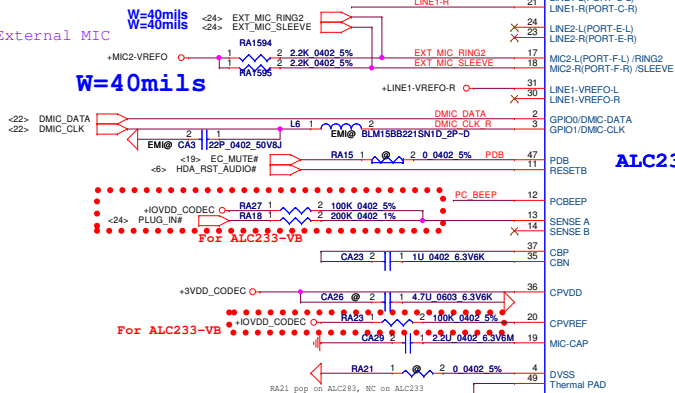




600ohms @100MHz 2A  
P/N: SM01000EE00



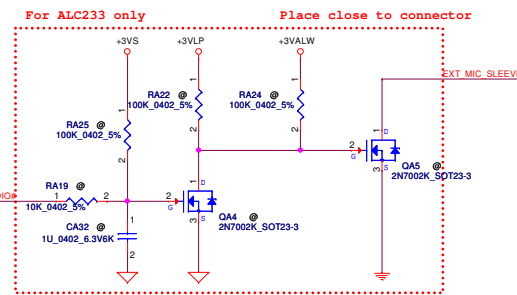
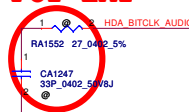
External MIC  
W=40mils  
W=40mils



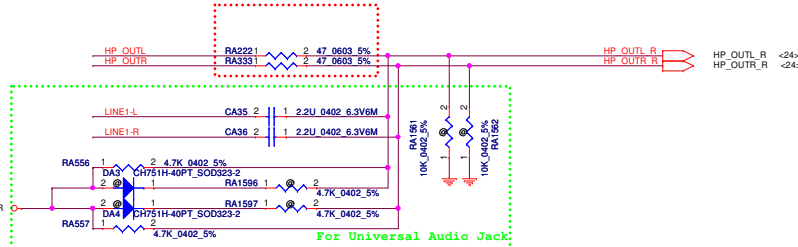
ALC233-CG

ALC233-VB2\_MQFN48\_6X6

For EMI

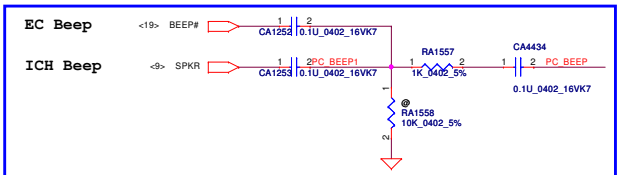


Place close to connector

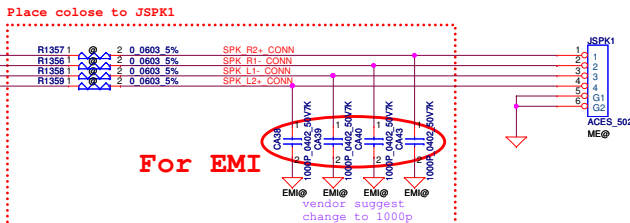


For Universal Audio Jack

PC BEEP



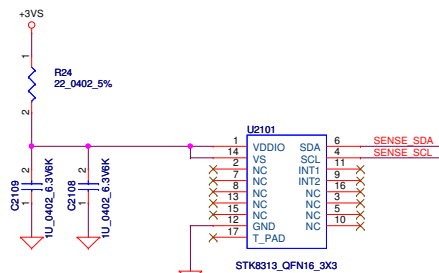
W=40mils



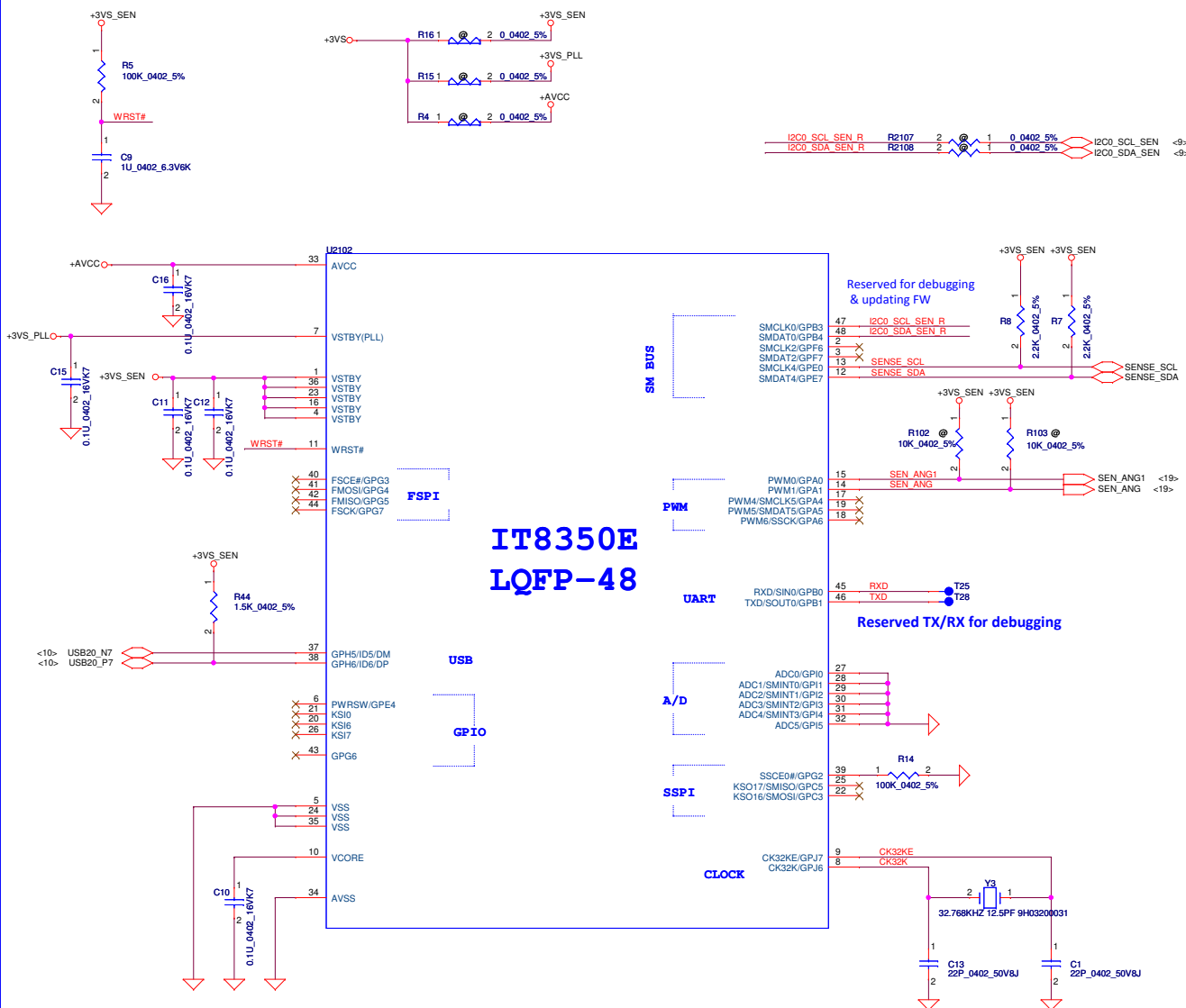
For EMI

|   |                    |                 |                          |                                  |
|---|--------------------|-----------------|--------------------------|----------------------------------|
| Security Classification   | Compal Secret Data |                 | Compal Electronics, Inc. |                                  |
| Issued Date   | 2013/07/24         | Deciphered Date | 2015/07/24               | Title                            |
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|   |                    |                 |                          | LA-A921PR01                      |
|   |                    |                 |                          | Rev 1.0                          |
|   |                    |                 |                          | Date: Tuesday, December 17, 2013 |
|   |                    |                 |                          | Sheet 17 of 38                   |

## 2nd G-sensor

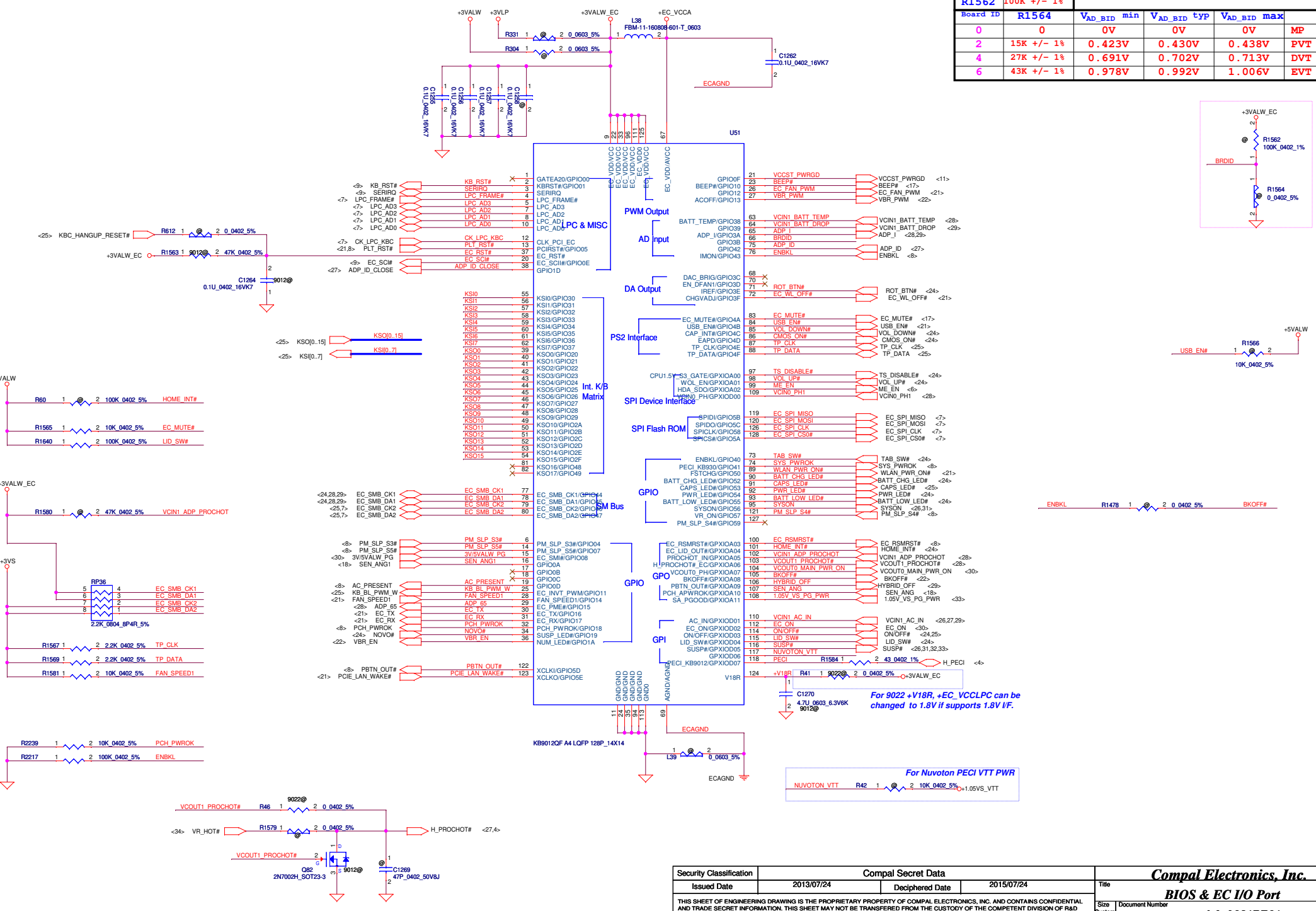


## Sensor Hub



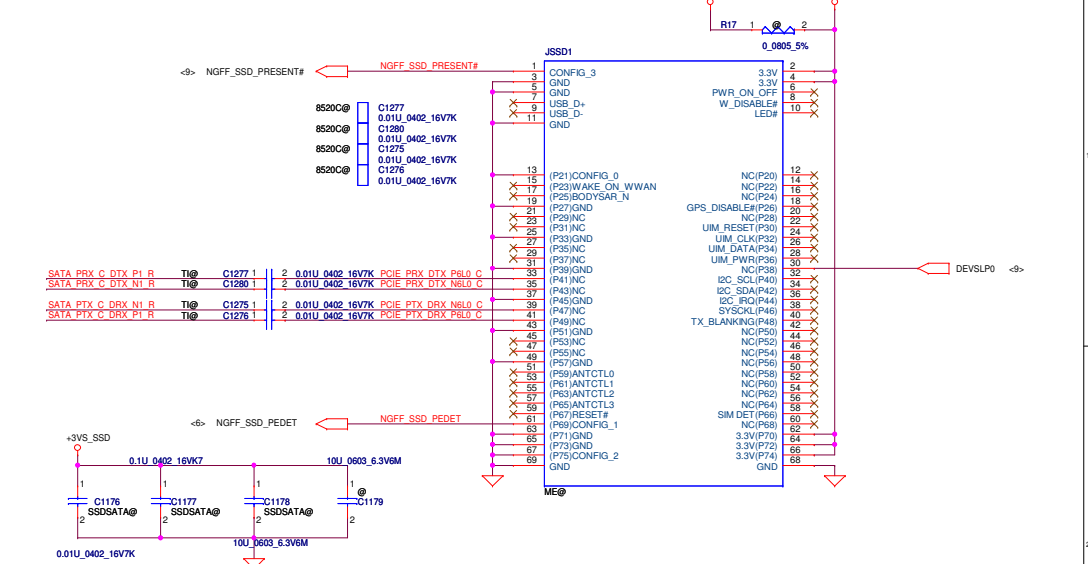
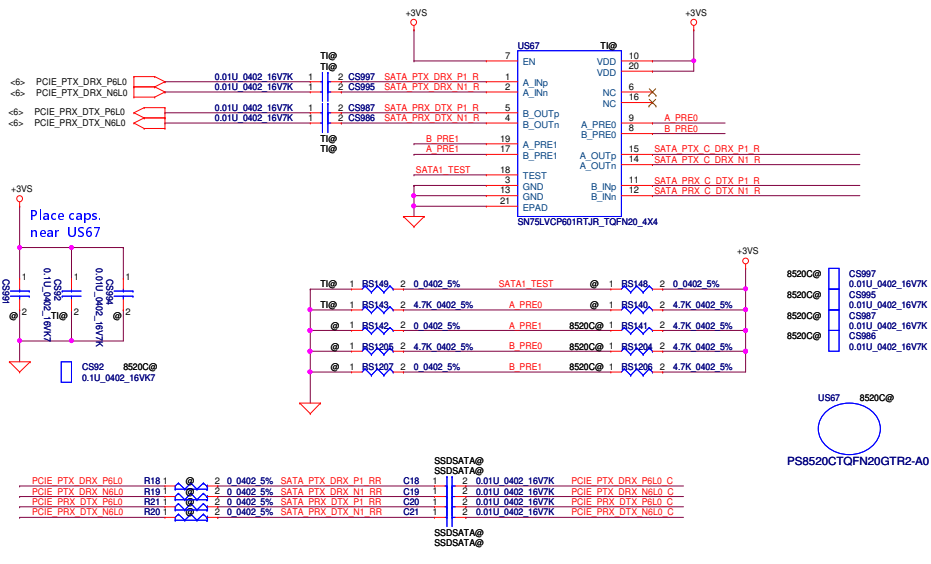
| Security Classification   |  |            |  | Compal Secret Data               |  |            |  | Compal Electronics, Inc. |  |                                |  |             |
|---|--|------------|--|----------------------------------|--|------------|--|--------------------------|--|--------------------------------|--|-------------|
| Issued Date   |  | 2013/07/24 |  | Deciphered Date                  |  | 2015/07/24 |  | Title                    |  |                                |  |             |
|   |  |            |  |                                  |  |            |  | Sensor Fusion            |  |                                |  |             |
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|   |  |            |  | Date: Tuesday, December 17, 2013 |  |            |  | Sheet 18 of 38           |  |                                |  |             |

| Vcc   | 3.3V        |                         |                         |                         |     |
|-------|-------------|-------------------------|-------------------------|-------------------------|-----|
| R1562 | 100K +/- 1% | V <sub>AD_BID</sub> min | V <sub>AD_BID</sub> typ | V <sub>AD_BID</sub> max |     |
| 0     | 0           | 0V                      | 0V                      | 0V                      | MP  |
| 2     | 15K +/- 1%  | 0.423V                  | 0.430V                  | 0.438V                  | PVT |
| 4     | 27K +/- 1%  | 0.691V                  | 0.702V                  | 0.713V                  | DVT |
| 6     | 43K +/- 1%  | 0.978V                  | 0.992V                  | 1.006V                  | EVT |



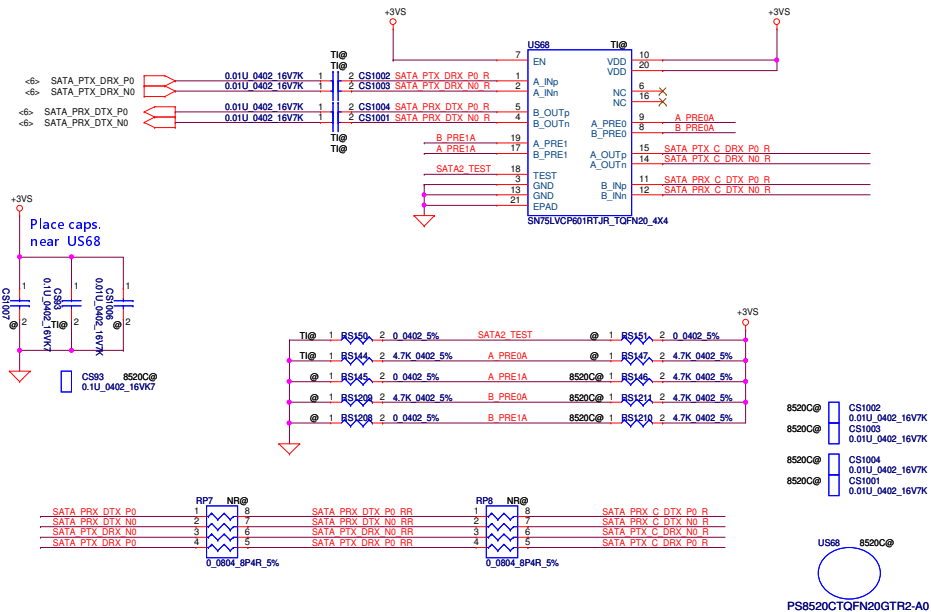
| Security Classification   |                            | Compal Secret Data |            | Title              |  |
|---|----------------------------|--------------------|------------|--------------------|--|
| Issued Date   | 2013/07/24                 | Deciphered Date    | 2015/07/24 | BIOS & EC I/O Port |  |
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| Size  | Document Number            | Rev                |            | 1.0                |  |
|   | LA-A921PR01                |                    |            |                    |  |
| Date:   | Tuesday, December 17, 2013 | Sheet              | 19         | of 38              |  |

## NGFF for SSD(Key B)

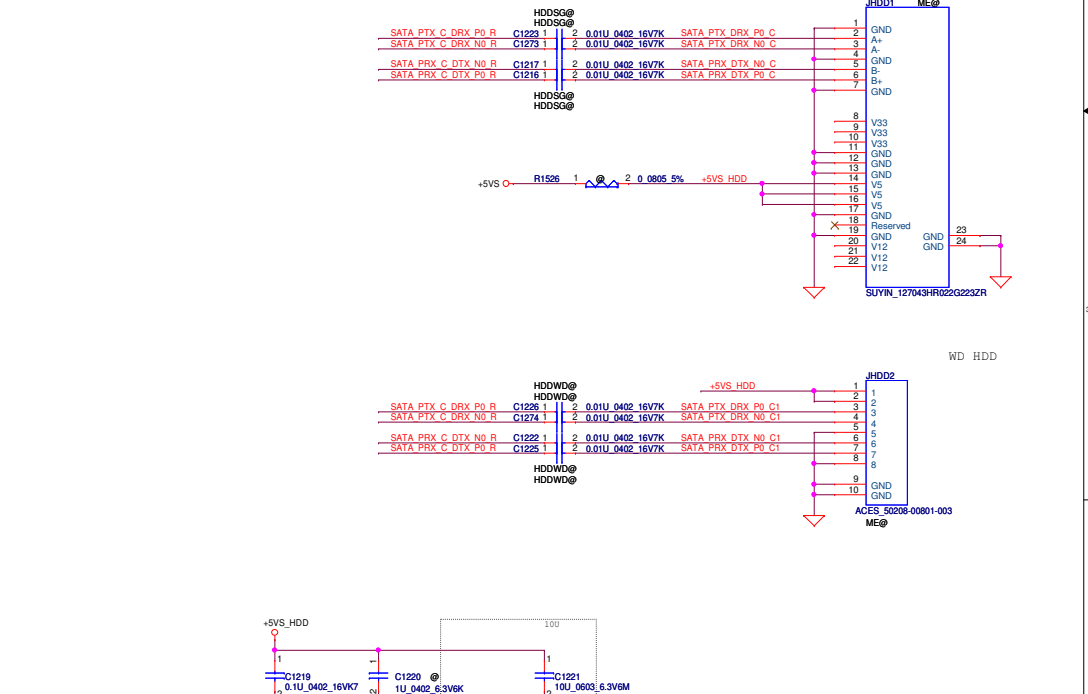


## BOM Setting

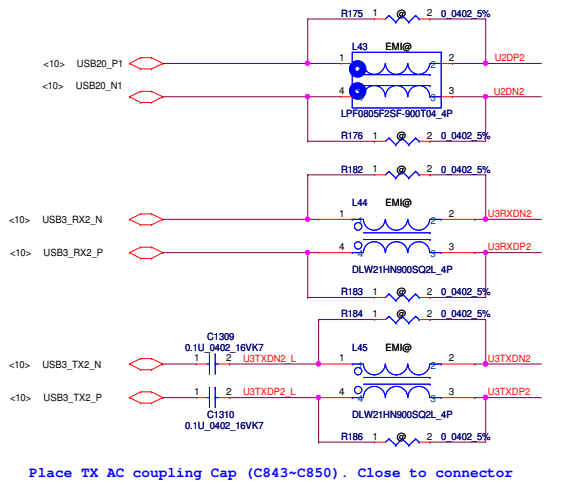
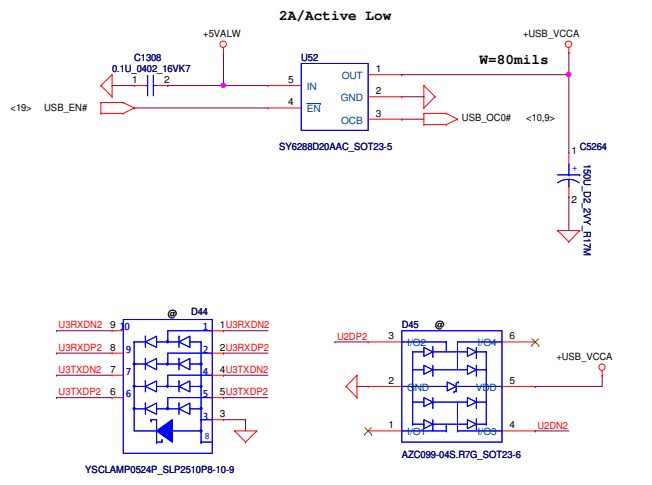
| PARADE 8520C | 8520C@ |
|--------------|--------|
| TI           | TI@    |



## SATA HDD CONN.

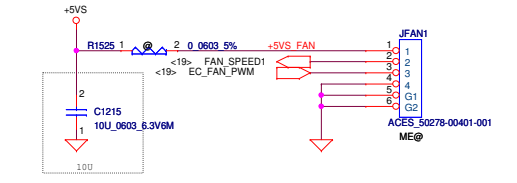


# USB 3.0 Conn.



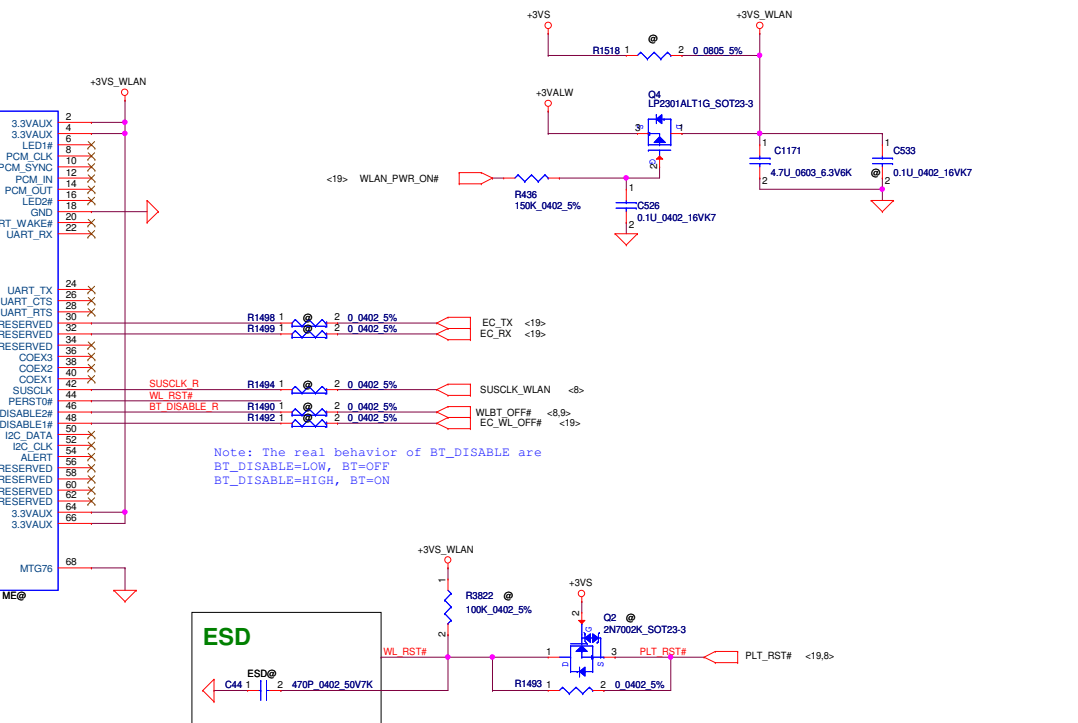
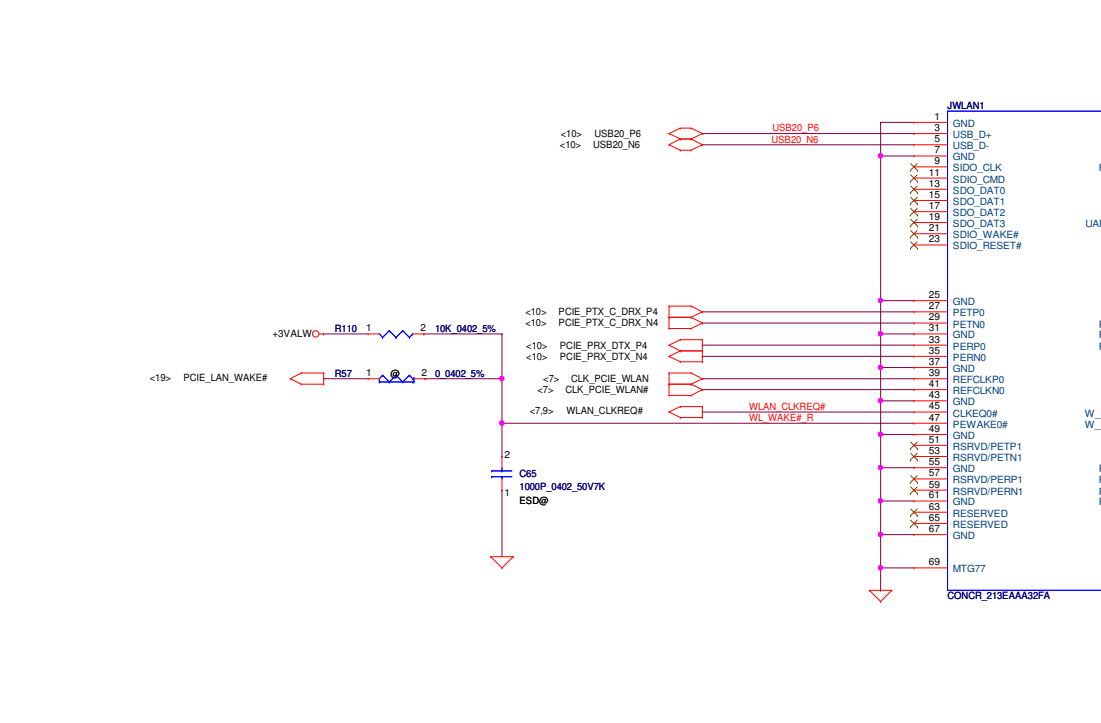
Place TX AC coupling Cap (C843-C850). Close to connector

# FAN CONN.

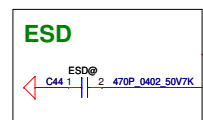


# FAN1 Conn

# NGFF for WLAN(Key E)

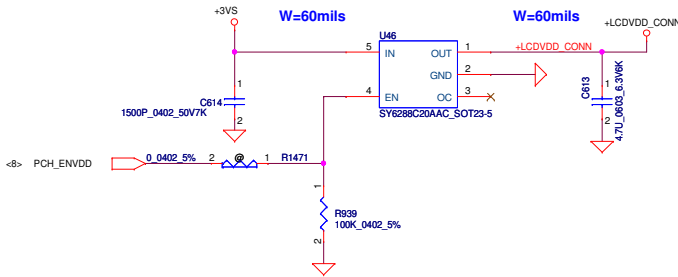


Note: The real behavior of BT\_DISABLE are  
BT\_DISABLE=LOW, BT=OFF  
BT\_DISABLE=HIGH, BT=ON

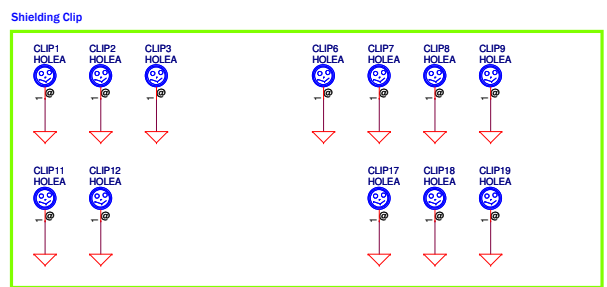
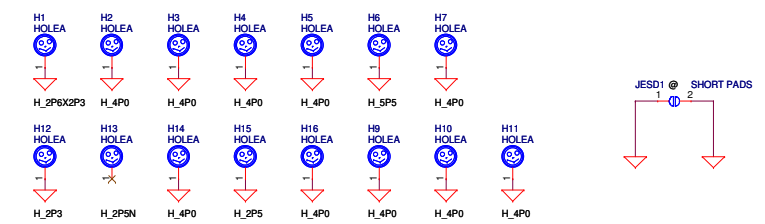
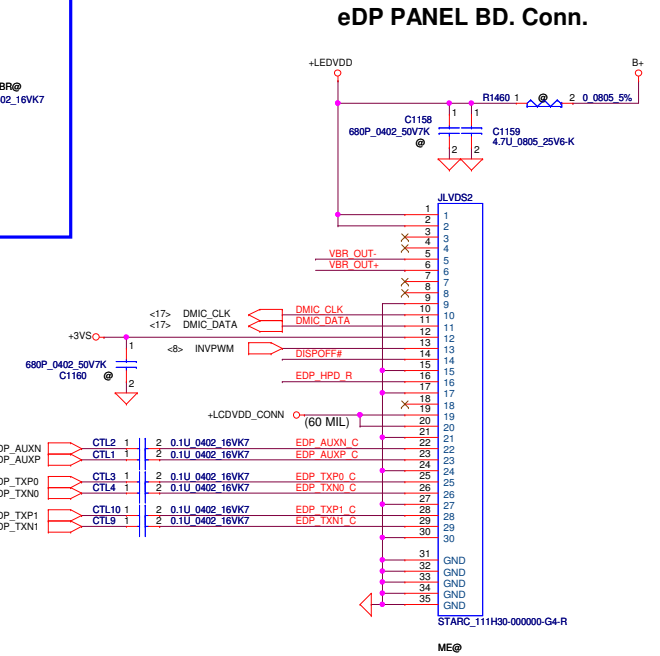
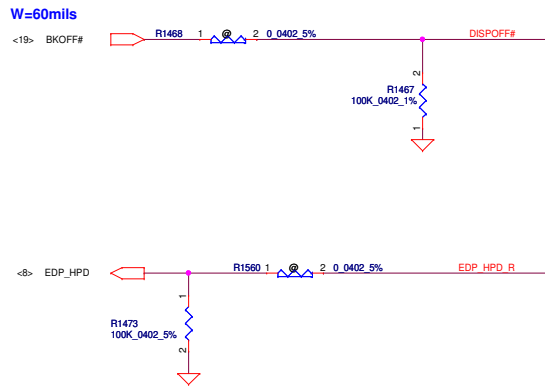
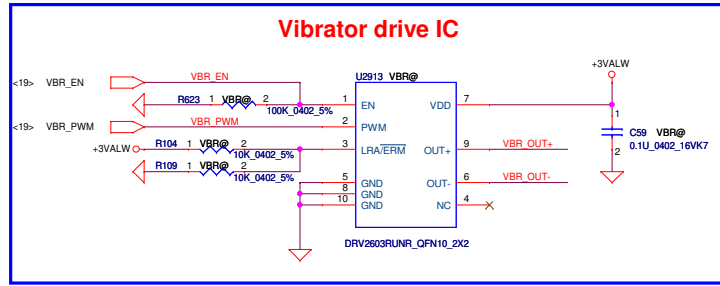


|   |            |                    |            |                 |          |
|---|------------|--------------------|------------|-----------------|----------|
| Security Classification   |            | Compal Secret Data |            | Title           |          |
| Issued Date   | 2013/07/24 | Deciphered Date    | 2015/07/24 | USB3.0/WLAN/FAN |          |
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| Date: Tuesday, December 17, 2013  |            |                    |            | Sheet           | 21 of 38 |

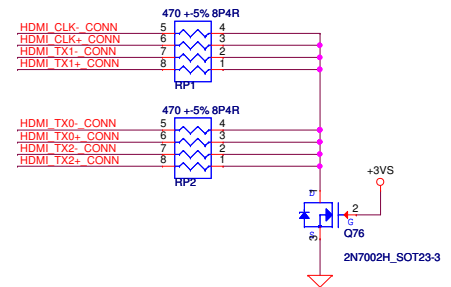
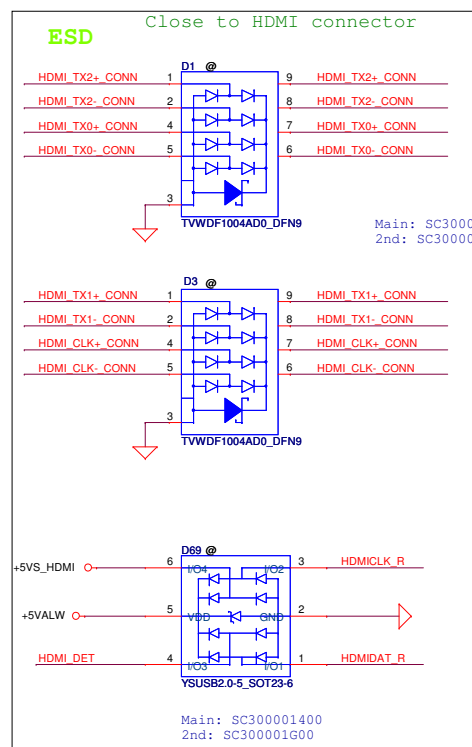
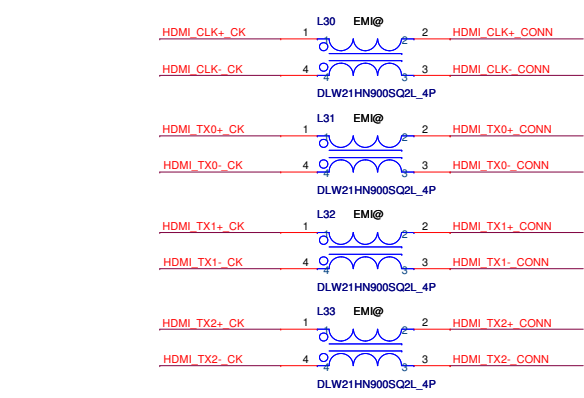
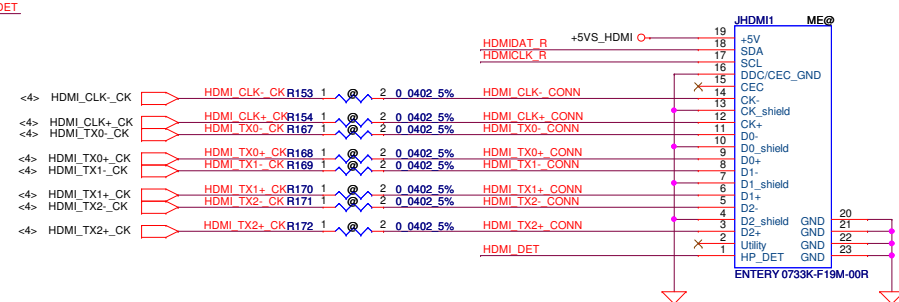
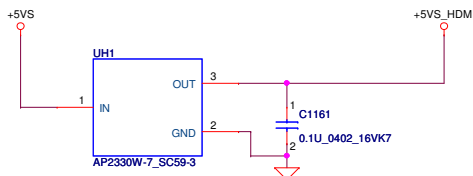
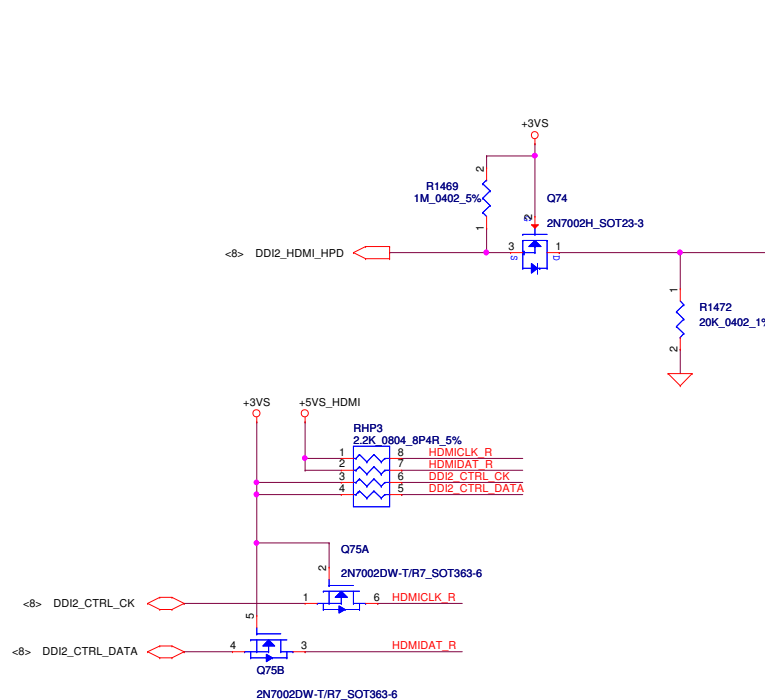
# LCD POWER CIRCUIT



RTD2132R Internal load switch for +LCD\_VCC

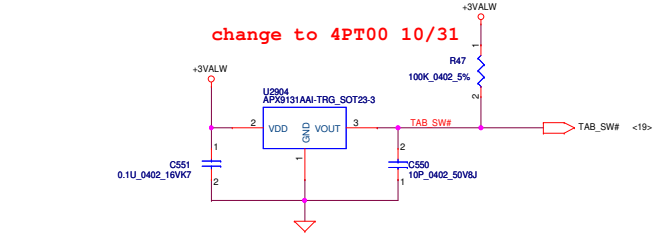


|   |                    |                 |            |                 |                            |                                 |          |
|---|--------------------|-----------------|------------|-----------------|----------------------------|---------------------------------|----------|
| Security Classification   | Compal Secret Data |                 |            | Title           |                            | <b>Compal Electronics, Inc.</b> |          |
| Issued Date   | 2013/07/24         | Deciphered Date | 2015/07/24 | eDP /DMIC/ HOLE |                            |                                 |          |
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|   |                    |                 |            | Customer        | LA-A921PR01                | 1.0                             |          |
|   |                    |                 |            | Date            | Tuesday, December 17, 2013 | Sheet                           | 22 of 38 |

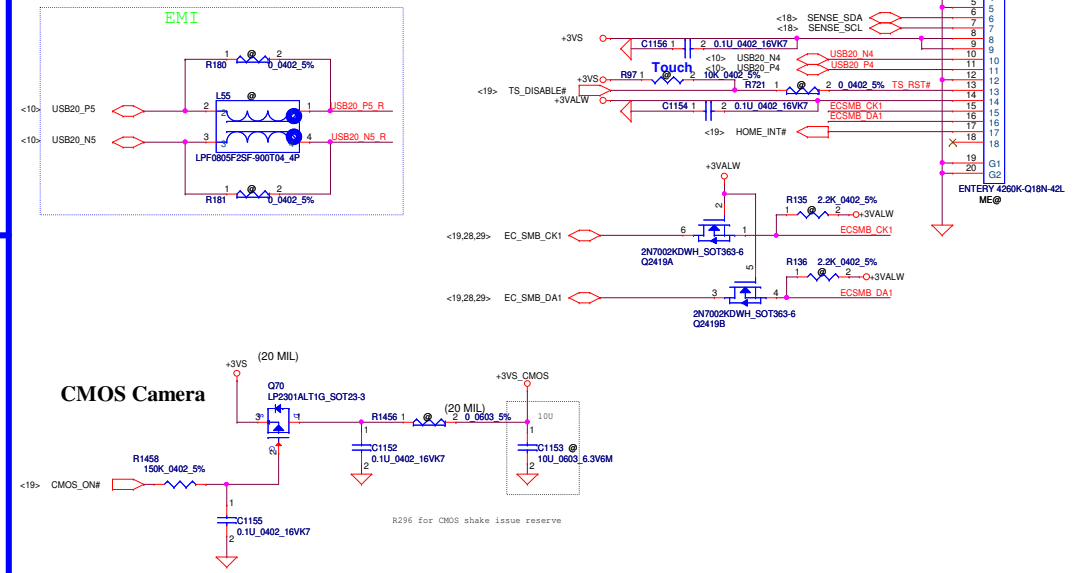


|   |                    |                 |            |                                       |            |
|---|--------------------|-----------------|------------|---------------------------------------|------------|
| Security Classification   | Compal Secret Data |                 |            | Compal Electronics, Inc.              |            |
| Issued Date   | 2013/07/24         | Deciphered Date | 2015/07/24 | Title<br><b>HDMI CONN</b>             |            |
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| Date: Tuesday, December 17, 2013  |                    |                 |            | Sheet 23 of 38                        |            |

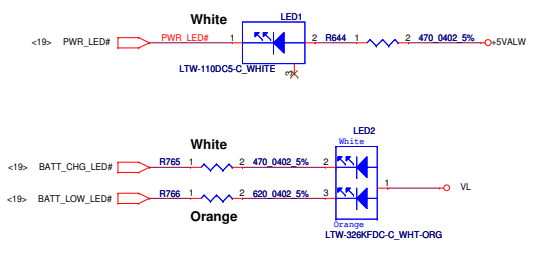
Lid SW (Tablet Mode)



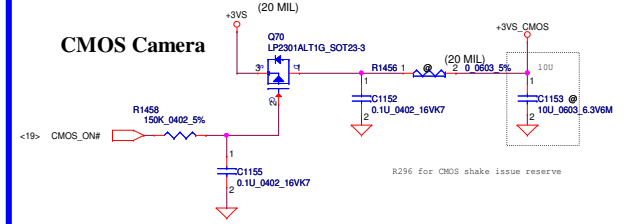
Touch & CMOS Conn



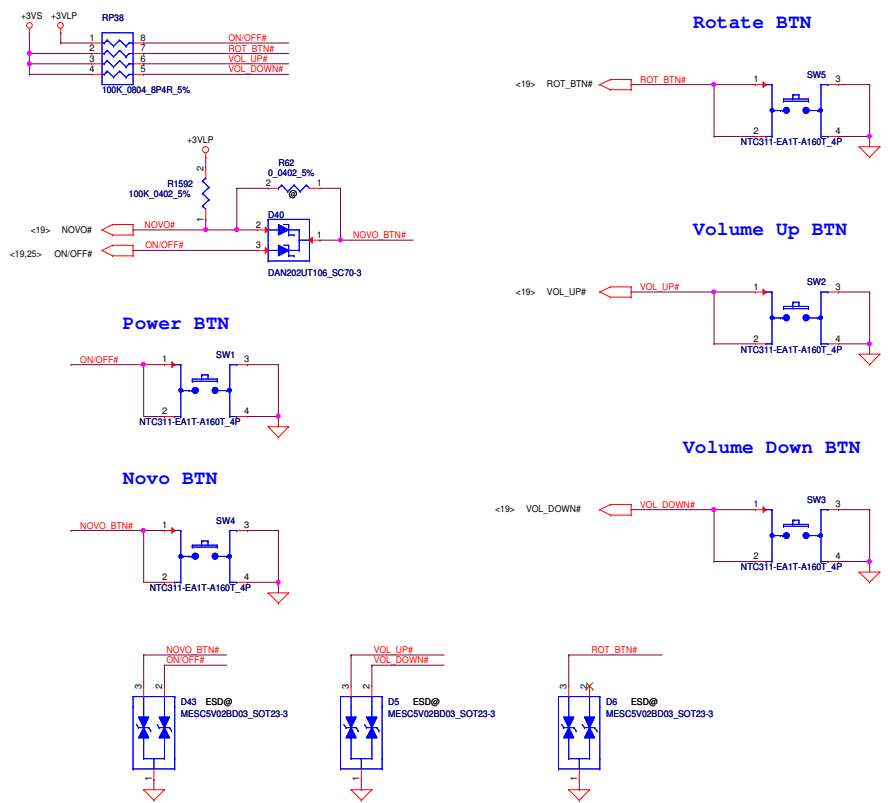
LED



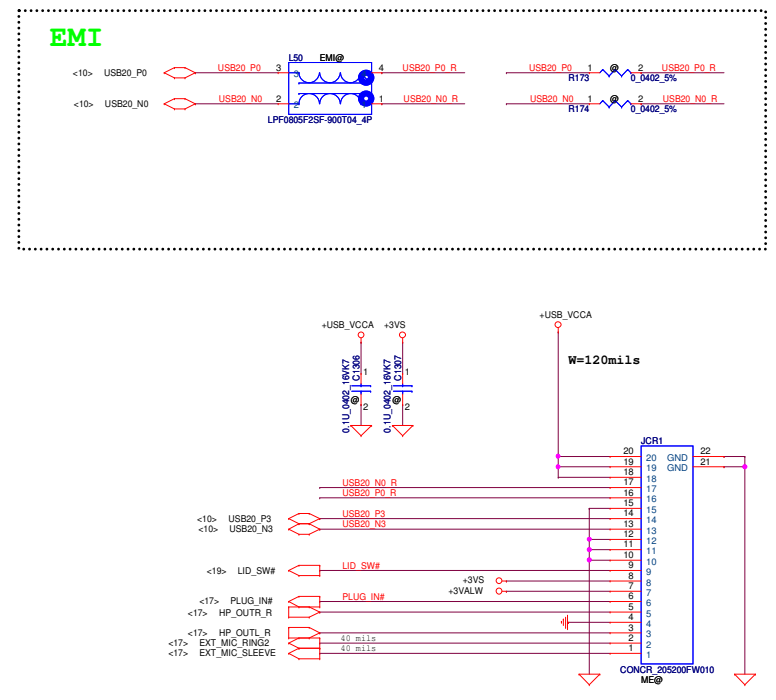
CMOS Camera



BUTTON



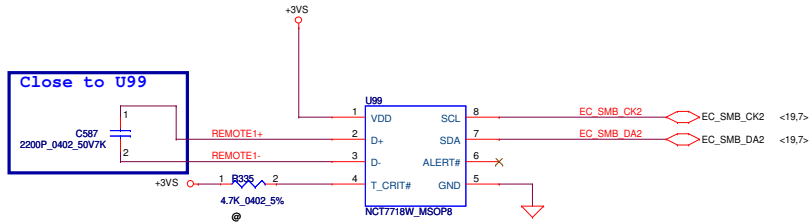
I/O Board



|   |                    |                 |            |                                   |                 |
|---|--------------------|-----------------|------------|-----------------------------------|-----------------|
| Security Classification   | Compal Secret Data |                 | Title      | <b>Compal Electronics, Inc.</b>   |                 |
| Issued Date   | 2013/07/24         | Deciphered Date | 2015/07/24 | <b>Daughter board/LED/BTN/LID</b> |                 |
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|   |                    |                 | Date:      | Tuesday, December 17, 2013        | ISheet 24 of 38 |



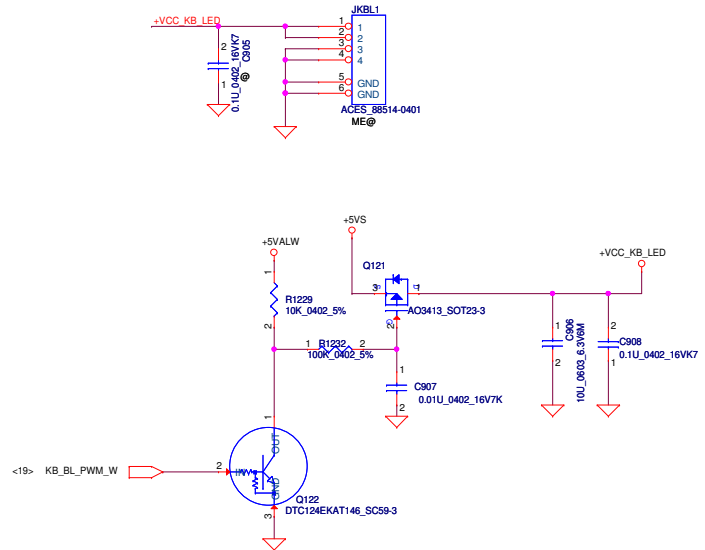
# Thermal Sensor



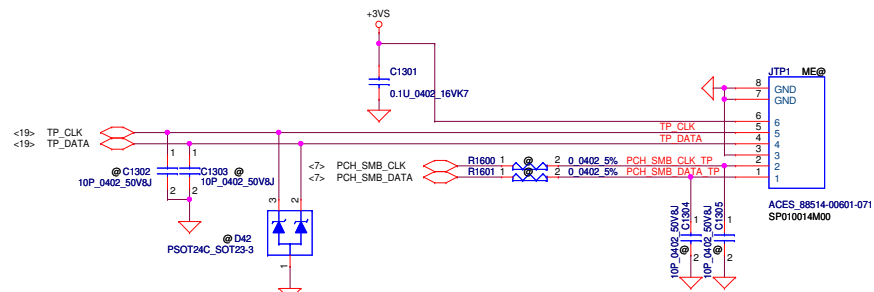
REMOTE1+/-:  
Trace width/space:10/10 mil  
Trace length:<8"

SMBus address: 1001100x

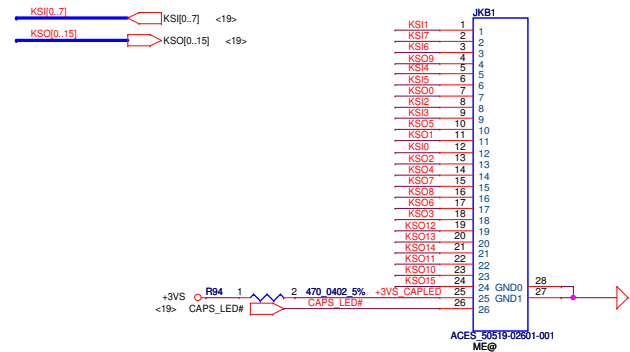
# Keyboard Backlight



# Click Pad

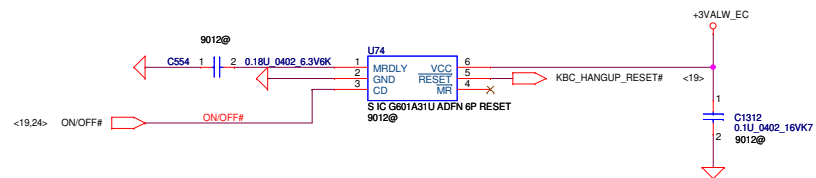


# Keyboard



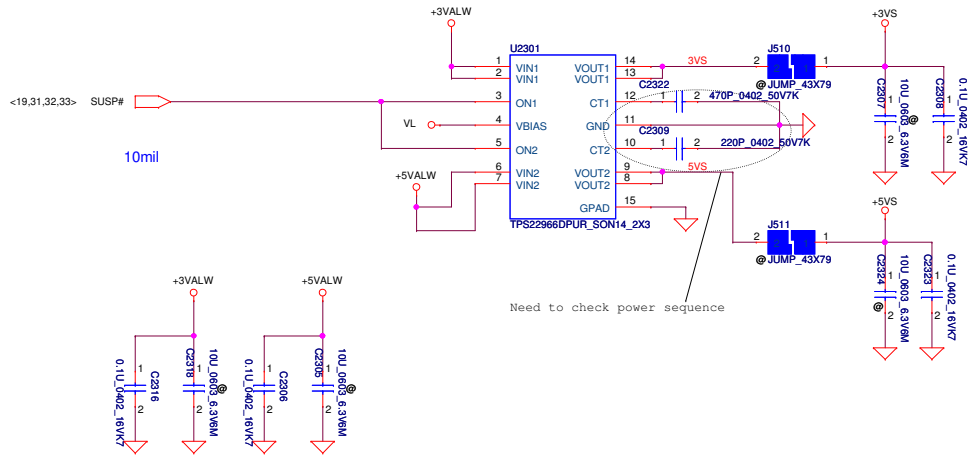
# EC Reset IC

## EC RESEST function

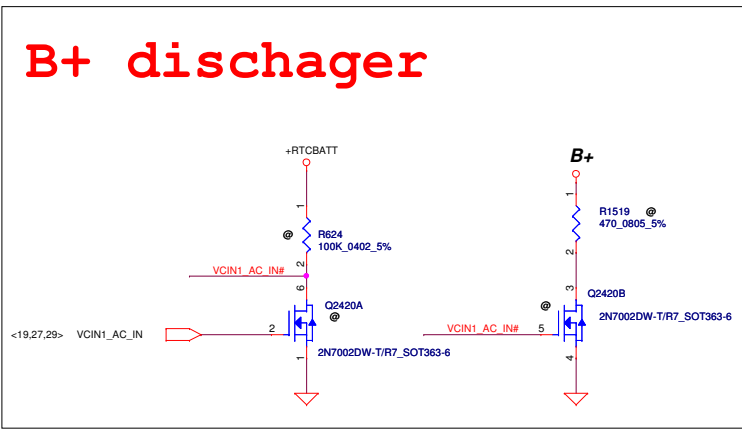
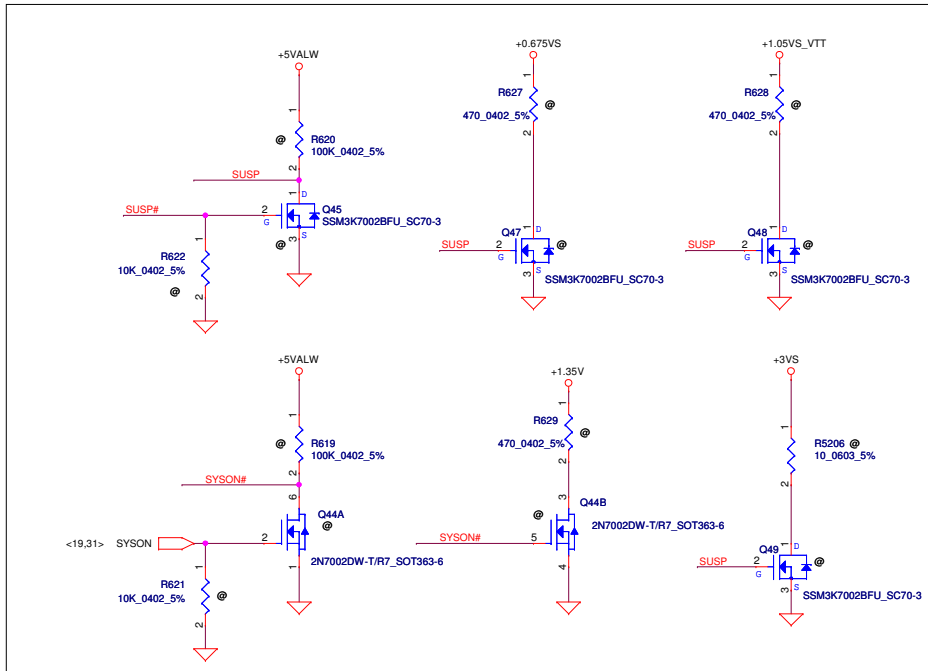


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| Size  | Document Number            | Rev             |            | 1.0   |
| Custom  | LA-A921PR01                |                 |            |       |
| Date:   | Tuesday, December 17, 2013 | Sheet           | 25         | of 38 |

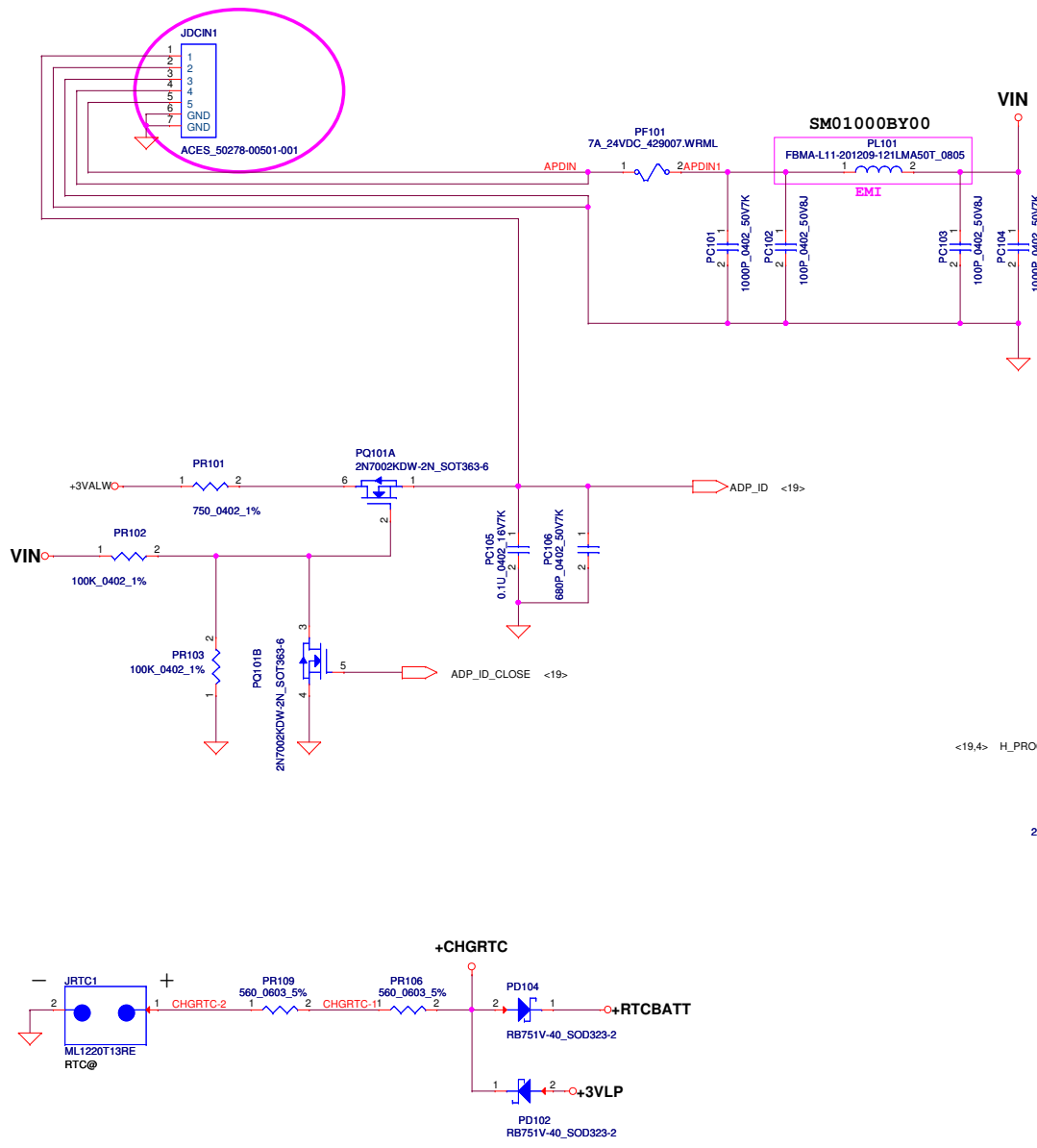
+5VALW TO +5VS  
+3VALW TO +3VS



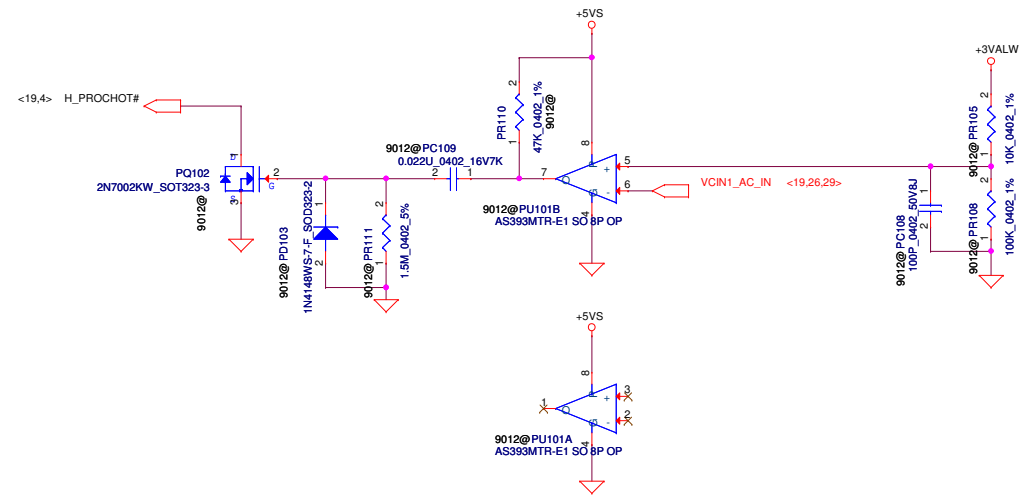
+3VALW TO +3VALW(PCH AUX Power)  
+5VALW TO +5VALW(PCH AUX Power)



|   |                            |                    |             |                          |     |
|---|----------------------------|--------------------|-------------|--------------------------|-----|
| Security Classification   |                            | Compal Secret Data |             | Compal Electronics, Inc. |     |
| Issued Date   | 2013/07/24                 | Deciphered Date    | 2015/07/24  | Title                    |     |
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| Size  | Customer                   | Document Number    | LA-A921PR01 | Rev                      | 1.0 |
| Date:   | Tuesday, December 17, 2013 | Sheet              | 26          | of                       | 38  |



For KB9012 : Keep PU101 One-shot circuit  
 For KB9022 : Remove PU101 One-shot circuit

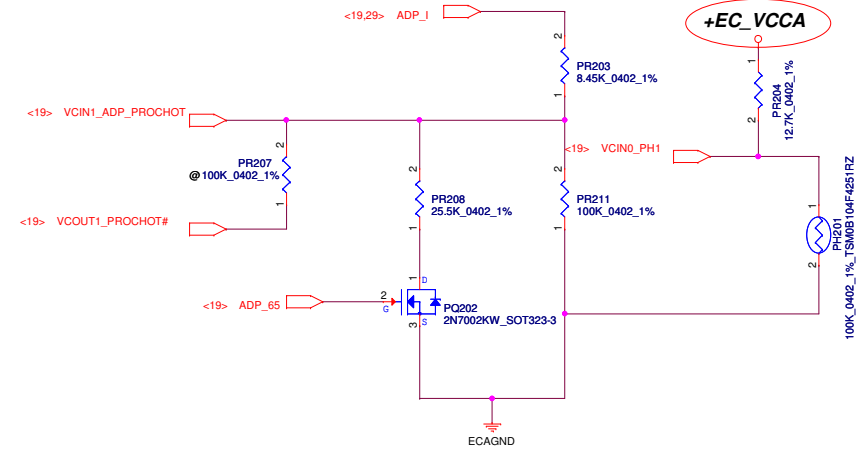
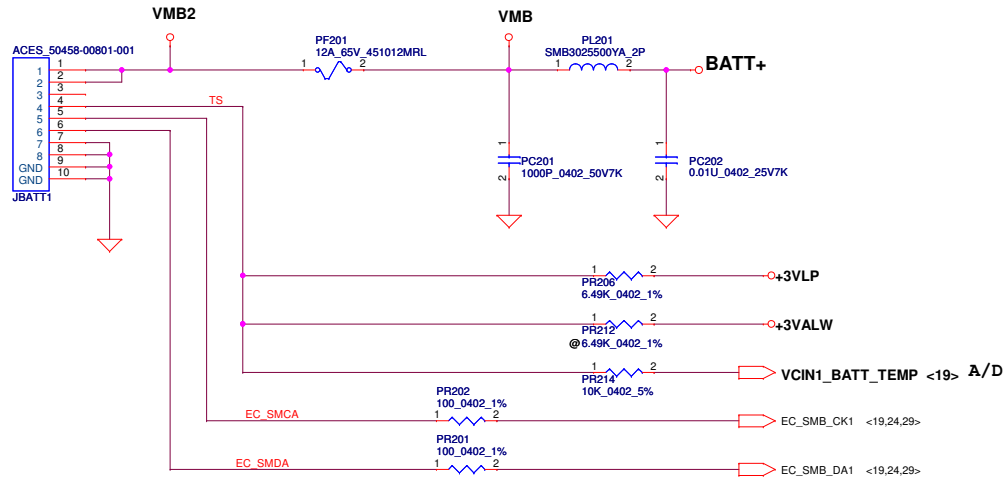


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|---|------------|--------------------|------------|------------------------|----------|
| Security Classification   |            | Compal Secret Data |            | Title                  |          |
| Issued Date   | 2011/06/15 | Deciphered Date    | 2012/07/11 | PWR DCIN / RTC Battery |          |
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|   |            |                    |            | Gx00                   | 1.0      |
| Date: Tuesday, December 17, 2013  |            |                    |            | Sheet                  | 27 of 38 |

PH201 under CPU bottom side :  
 CPU thermal protection at 93 +/-3 degree C  
 Recovery at 56 +/-3 degree C

65W(UMA): 85W active W recovery

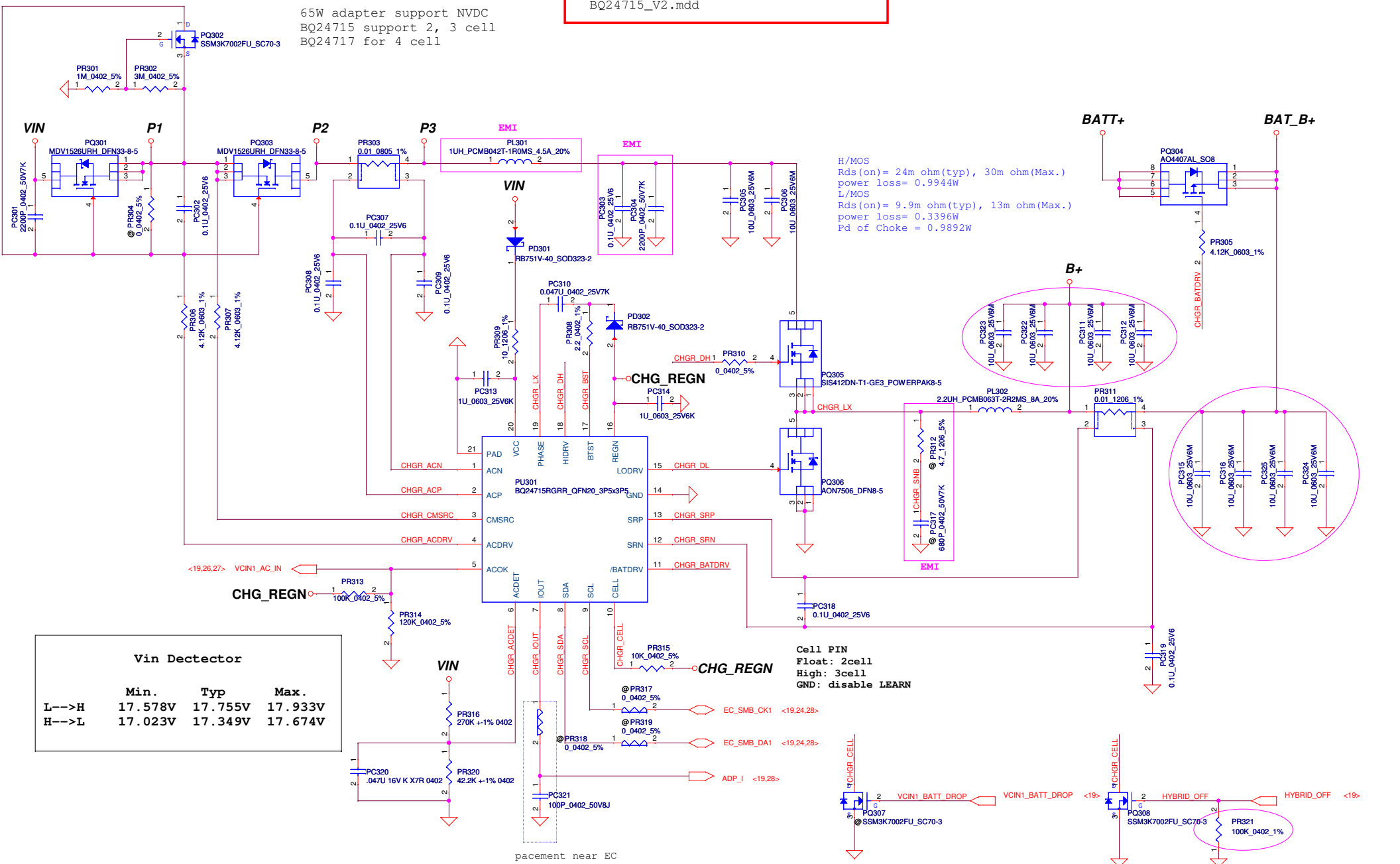
20120314  
 Change to +EC\_VCCA from +3VLP



|  |                    |                 |            |                                   |
|--|--------------------|-----------------|------------|-----------------------------------|
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|  |                    |                 |            | Rev<br>1.0                        |
| Date: Tuesday, December 17, 2013   |                    |                 |            | Sheet 28 of 38                    |

Module model information  
BQ24715\_V2.mdd

65W adapter support NVDC  
BQ24715 support 2, 3 cell  
BQ24717 for 4 cell



H/MOS  
Rds(on) = 24m ohm(typ), 30m ohm(Max.)  
power loss = 0.9944W  
L/MOS  
Rds(on) = 9.9m ohm(typ), 13m ohm(Max.)  
power loss = 0.3396W  
Pd of Choke = 0.9892W

Vin Detector

|       | Min.    | Typ     | Max.    |
|-------|---------|---------|---------|
| L-->H | 17.578V | 17.755V | 17.933V |
| H-->L | 17.023V | 17.349V | 17.674V |

Cell PIN  
Float: 2cell  
High: 3cell  
GND: disable LEARN

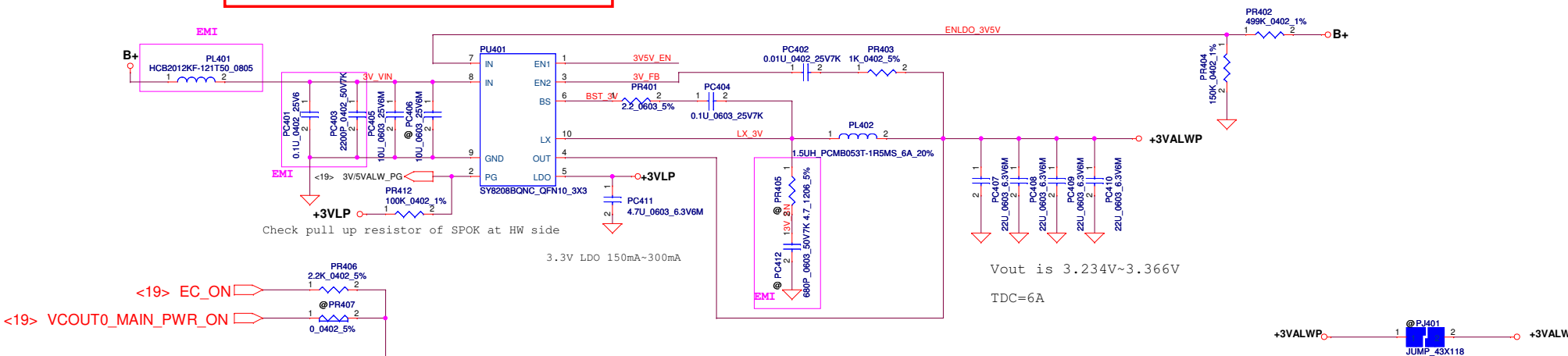
placement near EC

|   |                            |                 |                          |                 |
|---|----------------------------|-----------------|--------------------------|-----------------|
| Security Classification   | Compal Secret Data         |                 | Compal Electronics, Inc. |                 |
| Issued Date   | 2012/04/03                 | Deciphered Date | 2014/12/31               | Title           |
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|   |                            |                 |                          | Rev             |
|   |                            |                 |                          | 1.0             |
| Date:   | Tuesday, December 17, 2013 | Sheet           | 29                       | of              |
| 38  |                            |                 |                          |                 |

Module model information

SY8208E\_V2.mdd

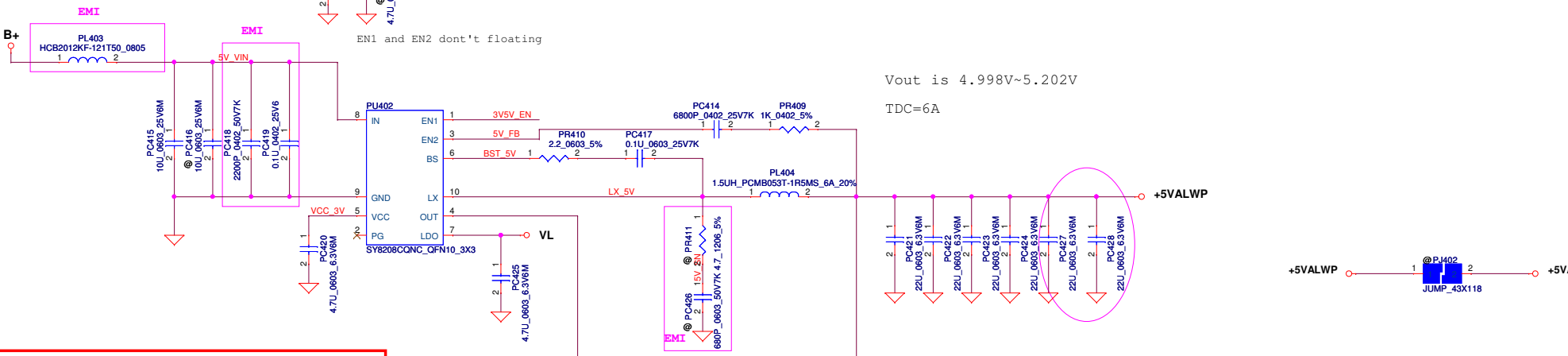
EN1 and EN2 dont't floating



<19> EC\_ON  
<19> VCOUT0\_MAIN\_PWR\_ON

EC VDD0 is +3VL, PC13 UNPOP  
EC VDD0 is +3VALW, PC13 POP

EN1 and EN2 dont't floating



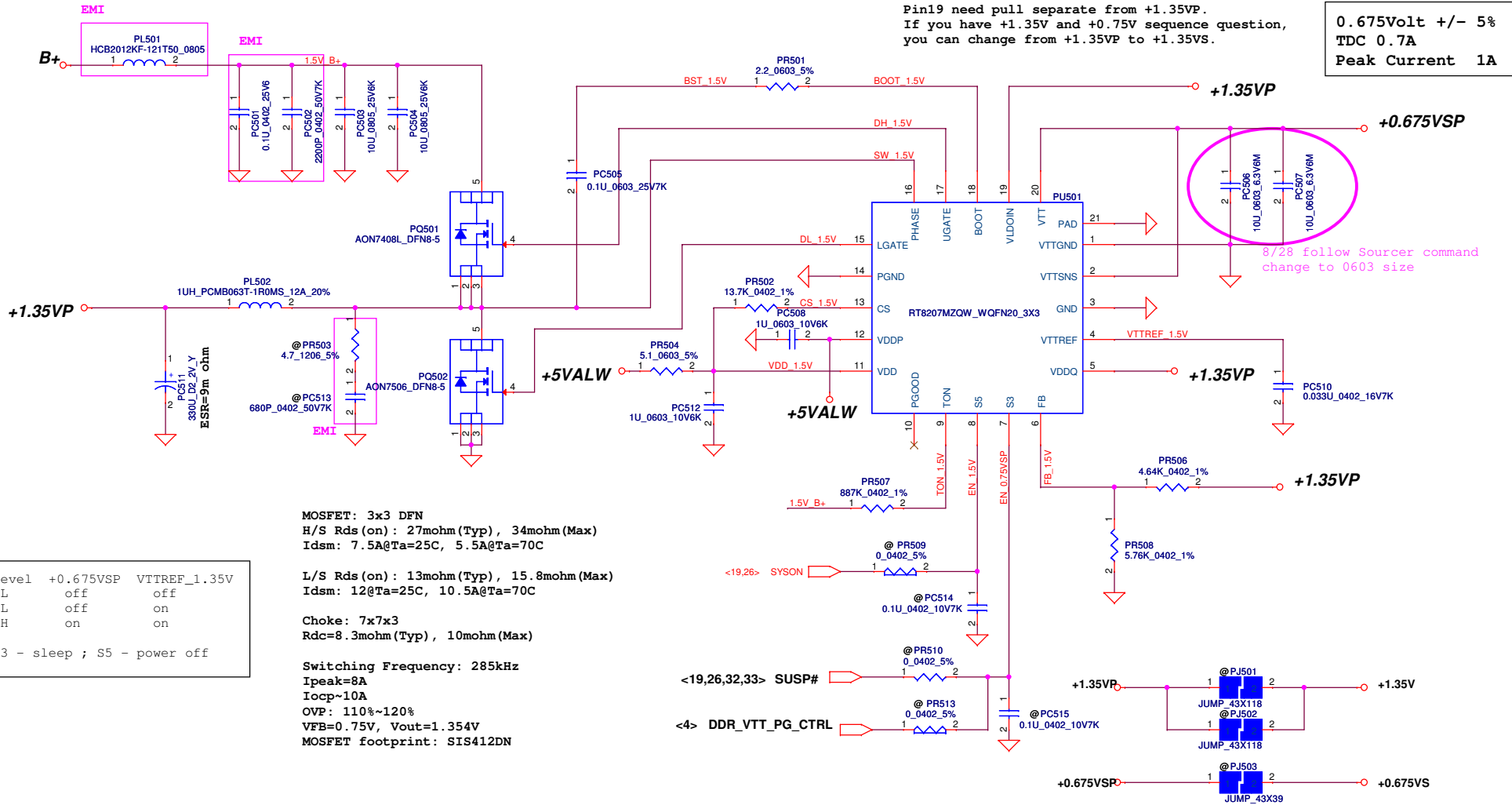
Module model information

SY8208C\_V2.mdd

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|---|----------------------------|--------------------|------------|--------------------------|---------------|
| Issued Date   | 2011/06/15                 | Deciphered Date    | 2012/07/11 | Title                    | +3VALW/+5VALW |
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| Date:   | Tuesday, December 17, 2013 | Sheet              | 30 of 38   | Document Number          | Rev 1.0       |

Module model information

RT8207M\_v1.mdd For Single layer  
RT8207M\_v2.mdd For Dual layer



Pin19 need pull separate from +1.35VP.  
If you have +1.35V and +0.75V sequence question,  
you can change from +1.35VP to +1.35VS.

0.675VOLT +/- 5%  
TDC 0.7A  
Peak Current 1A

8/28 follow Sourcer command  
change to 0603 size

MOSFET: 3x3 DFN  
H/S Rds (on): 27mohm (Typ), 34mohm (Max)  
Idsm: 7.5A@Ta=25C, 5.5A@Ta=70C

L/S Rds (on): 13mohm (Typ), 15.8mohm (Max)  
Idsm: 12@Ta=25C, 10.5A@Ta=70C

Choke: 7x7x3  
Rdc=8.3mohm (Typ), 10mohm (Max)

Switching Frequency: 285kHz  
Ipeak=8A  
Iocp~10A  
OVP: 110%~120%  
VFB=0.75V, Vout=1.354V  
MOSFET footprint: SIS412DN

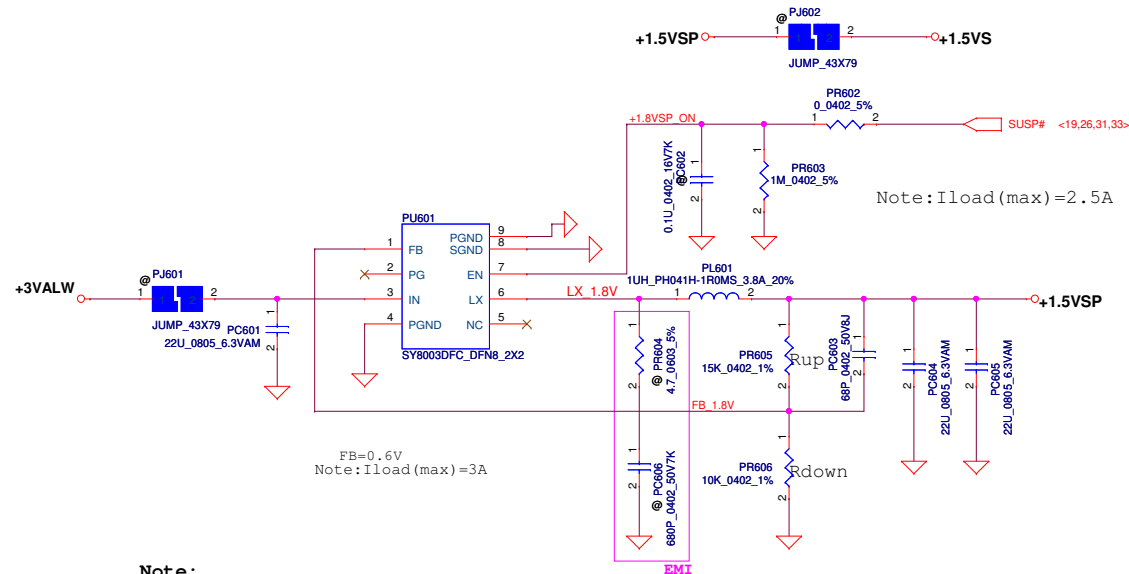
|      |       |           |              |
|------|-------|-----------|--------------|
| Mode | Level | +0.675VSP | VTTREF_1.35V |
| S5   | L     | off       | off          |
| S3   | L     | off       | on           |
| S0   | H     | on        | on           |

Note: S3 - sleep ; S5 - power off

|   |                            |                    |            |                          |    |
|---|----------------------------|--------------------|------------|--------------------------|----|
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|   |                            |                    |            | +1.35VSP/+0.675VSP       |    |
| Date:   | Tuesday, December 17, 2013 | Sheet              | 31         | of                       | 38 |

Module model information

SY8003\_V1.mdd



Note: Iload(max) = 2.5A

FB=0.6V  
Note: Iload(max) = 3A

Note:  
When design Vin=5V, please stuff snubber  
to prevent Vin damage

$$V_{out} = 0.6V * (1 + R_{up}/R_{down})$$

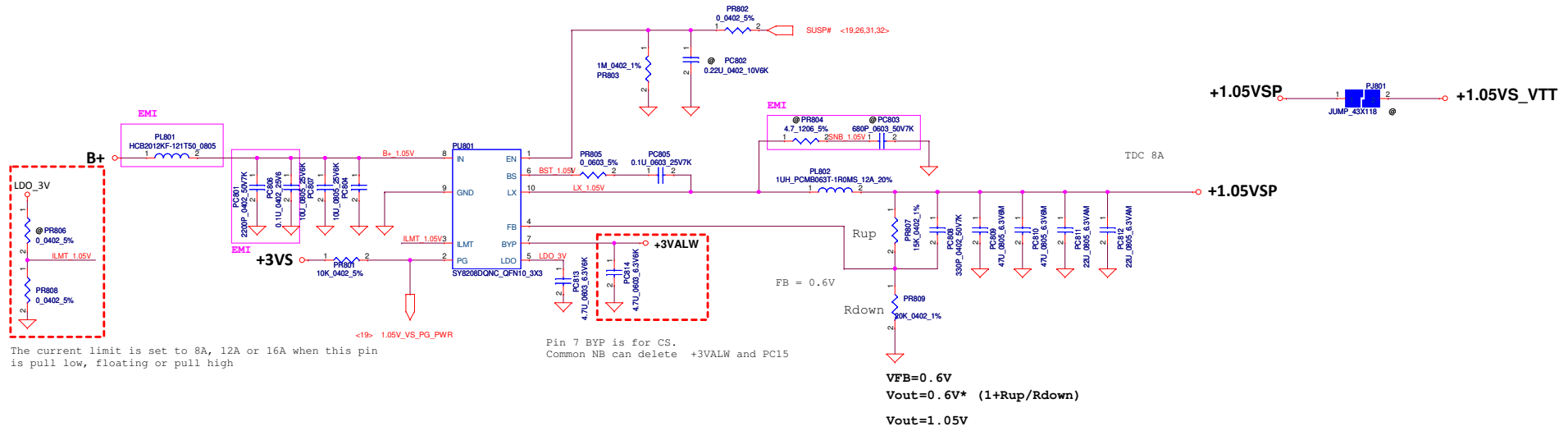
$$V_{out} = 1.5V$$

|   |            |                    |            |                |            |
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| Date: Tuesday, December 17, 2013  |            |                    |            | Sheet          | 32 of 38   |

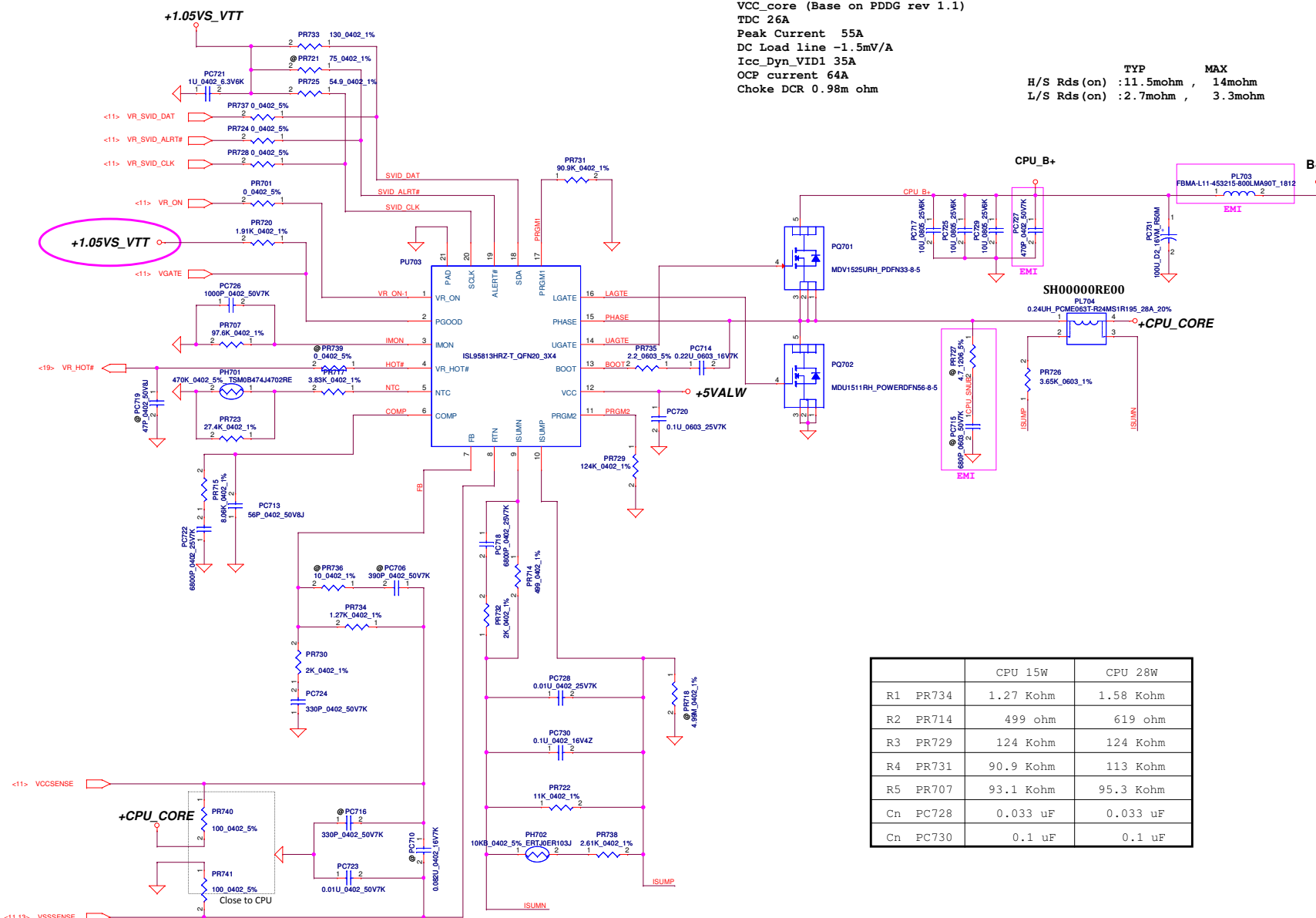


Module model information  
SY8208D\_V1.mdd

EN pin don't floating  
If have pull down resistor at HW side, pls delete PR2



|   |                            |                 |                          |   |
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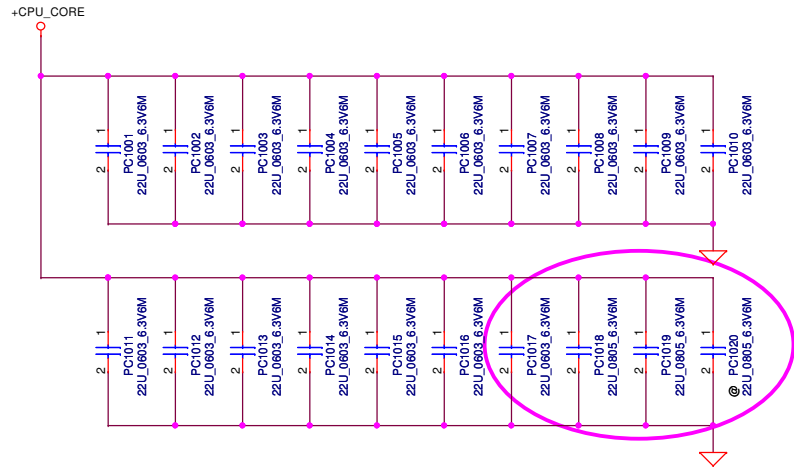


VCC\_core (Base on PDDG rev 1.1)  
 TDC 26A  
 Peak Current 55A  
 DC Load line -1.5mV/A  
 Icc\_Dyn\_VID1 35A  
 OCP current 64A  
 Choke DCR 0.98m ohm

TYP            MAX  
 H/S Rds (on) :11.5mohm , 14mohm  
 L/S Rds (on) :2.7mohm , 3.3mohm

|          | CPU 15W   | CPU 28W   |
|----------|-----------|-----------|
| R1 PR734 | 1.27 Kohm | 1.58 Kohm |
| R2 PR714 | 499 ohm   | 619 ohm   |
| R3 PR729 | 124 Kohm  | 124 Kohm  |
| R4 PR731 | 90.9 Kohm | 113 Kohm  |
| R5 PR707 | 93.1 Kohm | 95.3 Kohm |
| Cn PC728 | 0.033 uF  | 0.033 uF  |
| Cn PC730 | 0.1 uF    | 0.1 uF    |

CPU\_CORE output cap-->36.4



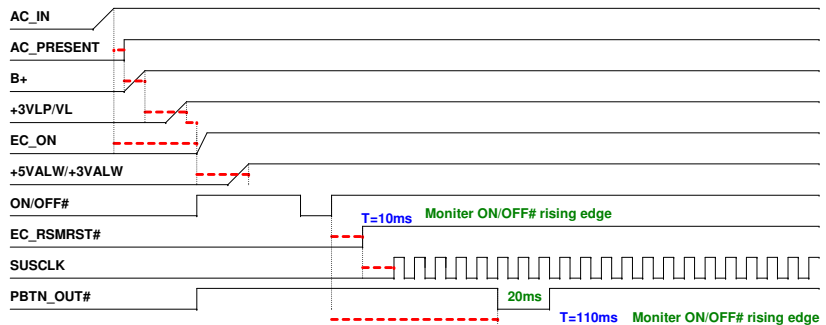
30 X 22uF 0805  
 2012/10/23  
 check the output cap Qty!!!  
 2012/10/24  
 23 pcs 22uF and reserve 7 pcs  
 2013/01/14  
 22uF\*15; reserve 22uF\*5

2013/09/6 22U\_0603x17 + 22U\_0805x2

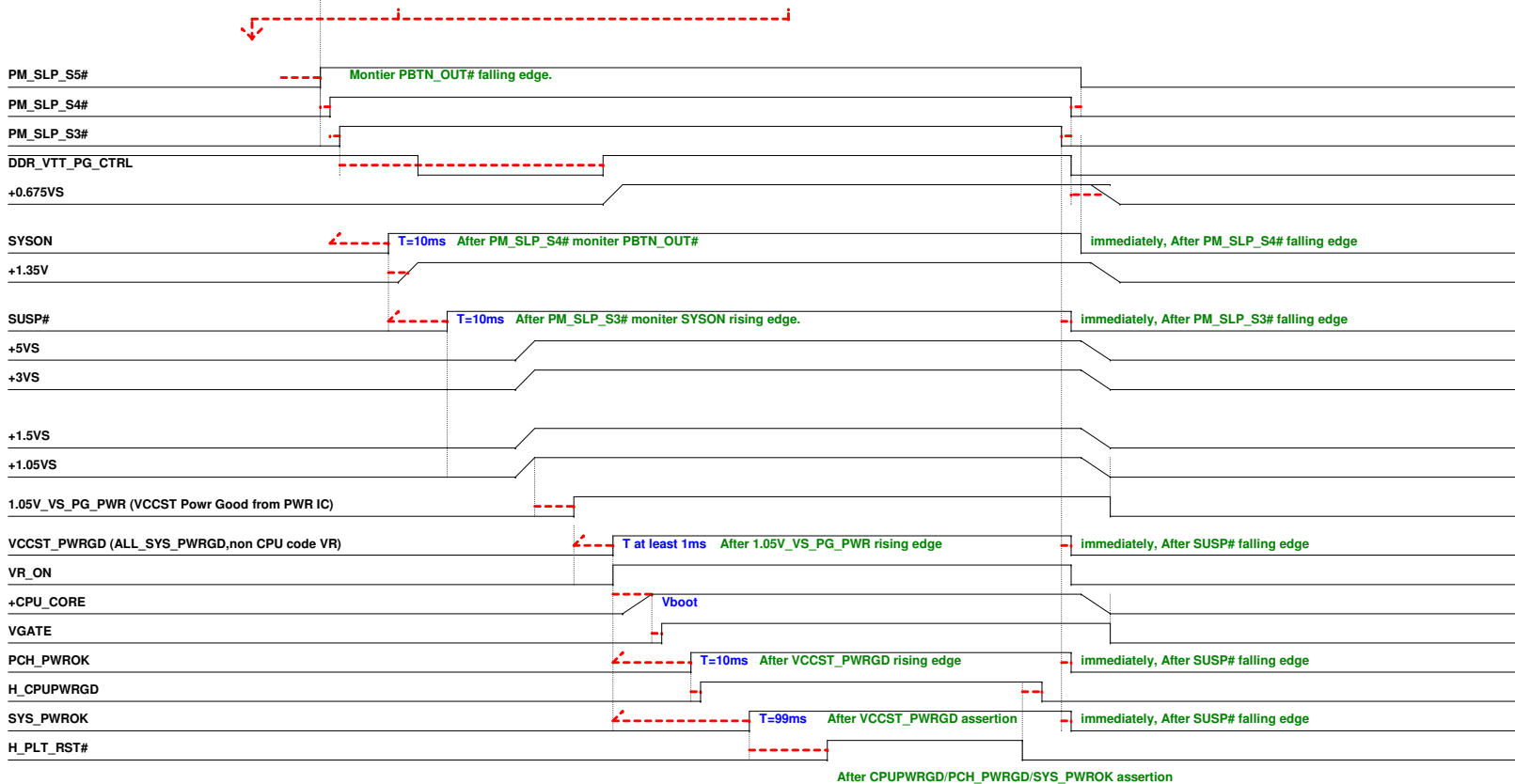
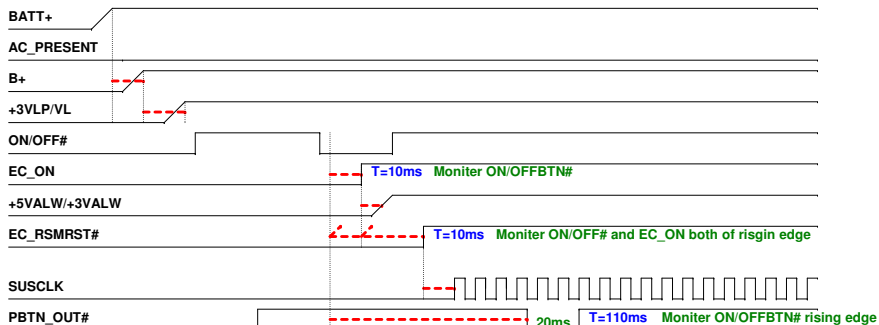
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|   | PMIC                       |                    |            |                          | 1.0                  |
| Date:   | Tuesday, December 17, 2013 | Sheet              | 35         | of                       | 38                   |

| Item | Reason for change                  | PG#   | Modify List   | Phase |
|------|------------------------------------|-------|---|-------|
| 1    | For ME design change               | 21,23 | JHDMI1,JUSB1 change connector type                                    | EVT   |
| 2    | For ME design change               | 24    | SW1,SW2,SW3,SW4,SW5 change type                                       | EVT   |
| 3    | For ME design change               | 24,25 | JCR1,JKB1 change connector type                                       | EVT   |
| 4    | For EC pin common design           | 19    | EC pin 25,27,38,86,123 control pin change                             | EVT   |
| 5    | Follow EC power plane for EC_Reset | 25    | Change U74 power plan   | EVT   |
| 6    | For DVT phase MB ID                | 19    | R1564 change from 43K to 27K  | EVT   |
| 7    | For BDW HDMI request               | 23    | RP1,RP2 change value from 680ohm to 470ohm                            | EVT   |
| 8    | For Audio vender recommend         | 17    | 1. Un-mount RA19,RA22<br>2. Mount RA1551,RA1563<br>3. Add CA1,CA2     | EVT   |
| 9    | For EMI request                    | 17    | R55 change to Bead  | EVT   |
| 10   | For Compal component policy        | 9,21  | U52,U4 change type  | EVT   |
| 11   | For touch vennder recommend        | 24    | 1. JSEN1 pin 13 add 10K pull high<br>2. JSEN1 pin 14 change to +3VALW | EVT   |
| 12   | For SPEC change                    | 6,20  | Delete SSD PCIE interface component                                   | EVT   |
| 13   |                                    |       |   |       |
| 14   |                                    |       |   |       |
| 15   |                                    |       |   |       |
| 16   |                                    |       |   |       |
| 17   |                                    |       |   |       |
| 18   |                                    |       |   |       |
| 19   |                                    |       |   |       |
| 20   |                                    |       |   |       |
| 21   |                                    |       |   |       |
| 22   |                                    |       |   |       |
| 23   |                                    |       |   |       |
| 24   |                                    |       |   |       |
| 25   |                                    |       |   |       |
| 26   |                                    |       |   |       |
| 27   |                                    |       |   |       |
| 28   |                                    |       |   |       |
| 29   |                                    |       |   |       |
| 30   |                                    |       |   |       |

[AC Mode]



[DC Mode]



|   |                            |                 |                          |                |
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