

COMPAL CONFIDENTIAL

MODEL NAME : Goliad MLK 12 UMA ENTRY  
PCB NO : LA-A972P  
BOM P/N : 4319RK31LXX  
GPIO MAP: 3.3b

Goliad MLK 12" UMA ENTRY  
Broadwell U Processor

2013-12-23  
REV : 0.2 (X01)

- @ : Nopop Component
- EMC@ : EMI, ESD and RF Component
- @EMC@ : EMI, ESD and RF Nopop Component
- CXDP@ : XDP Component
- CONN@ : Connector Component
- VPRO@ : Vpro Component
- NVPRO@ : Non-Vpro Component

Layout Dell logo



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REV: X01  
PWB: FGFC2  
DATE: 1352-01

| MB PCB      |                                        |
|-------------|----------------------------------------|
| Part Number | Description                            |
| DA889828899 | PCB 14A LA-A972P REV0 MB W/O DOCKING 2 |

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Cover Sheet

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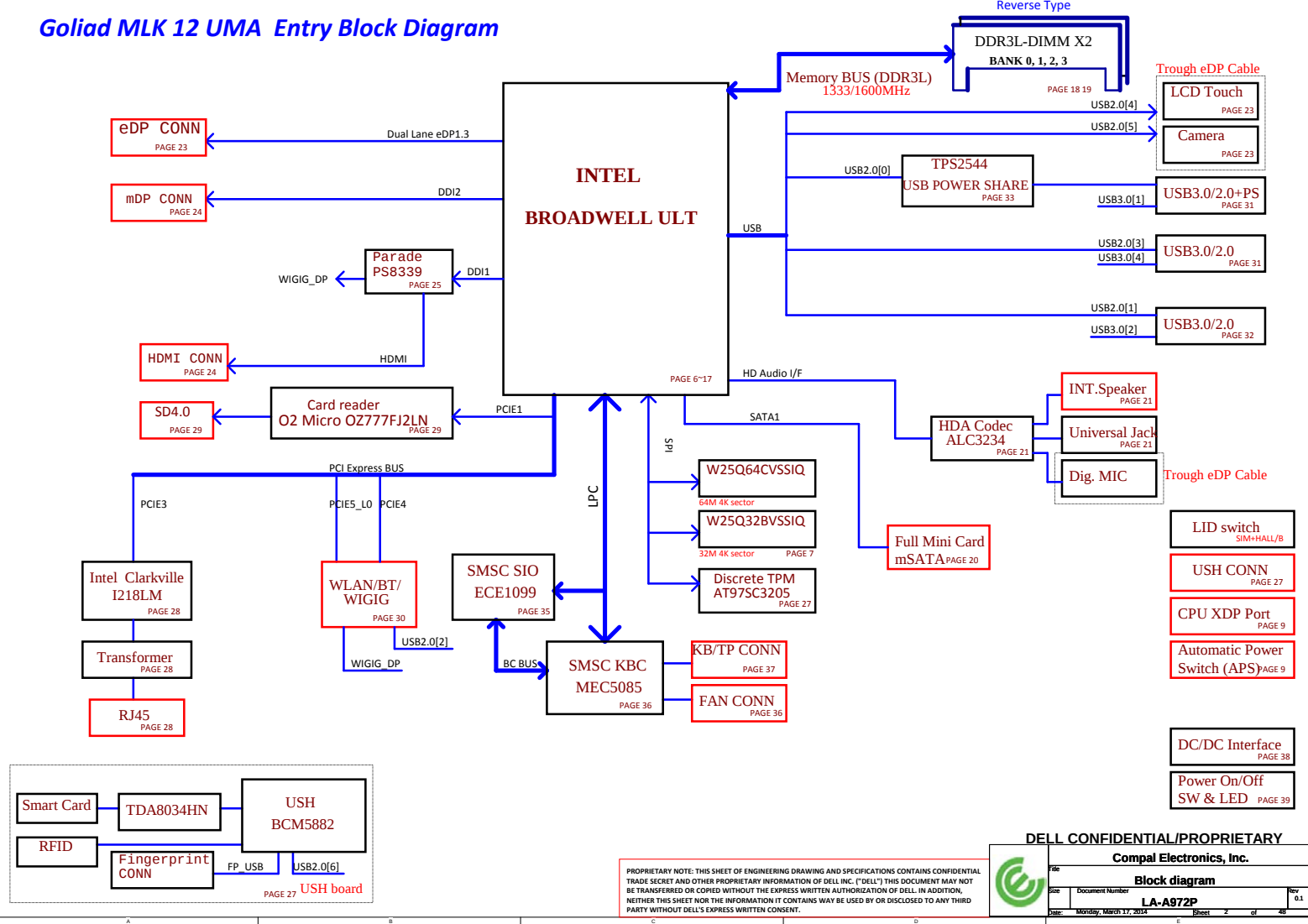
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Goliad MLK 12 UMA Entry Block Diagram



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| Block diagram                 |                        |       |         |
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POWER STATES

| State \ Signal               | SLP S3# | SLP S4# | SLP S5# | SLP A# | ALWAYS PLANE | M PLANE | SUS PLANE | RUN PLANE | CLOCKS |
|------------------------------|---------|---------|---------|--------|--------------|---------|-----------|-----------|--------|
| S0 (Full ON) / M0            | HIGH    | HIGH    | HIGH    | HIGH   | ON           | ON      | ON        | ON        | ON     |
| S3 (Suspend to RAM) / M3     | LOW     | HIGH    | HIGH    | HIGH   | ON           | ON      | ON        | OFF       | OFF    |
| S4 (Suspend to DISK) / M3    | LOW     | LOW     | HIGH    | HIGH   | ON           | ON      | OFF       | OFF       | OFF    |
| S5 (SOFT OFF) / M3           | LOW     | LOW     | LOW     | HIGH   | ON           | ON      | OFF       | OFF       | OFF    |
| S3 (Suspend to RAM) / M-OFF  | LOW     | HIGH    | HIGH    | LOW    | ON           | OFF     | ON        | OFF       | OFF    |
| S4 (Suspend to DISK) / M-OFF | LOW     | LOW     | HIGH    | LOW    | ON           | OFF     | OFF       | OFF       | OFF    |
| S5 (SOFT OFF) / M-OFF        | LOW     | LOW     | LOW     | LOW    | ON           | OFF     | OFF       | OFF       | OFF    |

PM TABLE

| State \ power plane    | +5V_ALW<br>+3.3V_ALW<br>+3.3V_ALW_PCH<br>+3.3V_RTC_LDO | +3.3V_SUS<br>+1.35V_MEM | +5V_RUN<br>+3.3V_RUN<br>+0.675V_DDR_VTT<br>+1.05V_RUN<br>+VCC_CORE | +3.3V_M<br>+1.05V_M | +3.3V_M<br>+1.05V_M<br>(M-OFF) |
|------------------------|--------------------------------------------------------|-------------------------|--------------------------------------------------------------------|---------------------|--------------------------------|
| S0                     | ON                                                     | ON                      | ON                                                                 | ON                  | ON                             |
| S3                     | ON                                                     | ON                      | OFF                                                                | ON                  | OFF                            |
| S5 S4/AC               | ON                                                     | OFF                     | OFF                                                                | ON                  | OFF                            |
| S5 S4/AC doesn't exist | OFF                                                    | OFF                     | OFF                                                                | OFF                 | OFF                            |

| PCIE   | USB3.0   | SATA   | DESTINATION        |
|--------|----------|--------|--------------------|
|        | USB3.0 1 |        | JUSB1-->Rear left  |
|        | USB3.0 2 |        | JUSB3-->Right      |
| PCIE 1 | USB3.0 3 |        | MMI (CARD READER)  |
| PCIE 2 | USB3.0 4 |        | JUSB2-->Rear Right |
| PCIE 3 |          |        | LOM                |
| PCIE 4 |          |        | WLAN - JNGFF1      |
| PCIE 5 |          |        | WiGig - JNGFF1     |
| PCIE 6 |          | SATA 3 | NA                 |
|        |          | SATA 2 | NA                 |
|        |          | SATA 1 | JMINI3             |
|        |          | SATA 0 | NA                 |

| BDW<br>ULT | USB PORT# | DESTINATION  |
|------------|-----------|--------------|
|            | 0         | JUSB1        |
|            | 1         | JUSB3        |
|            | 2         | WLAN + BT    |
|            | 3         | JUSB2        |
|            | 4         | Touch Screen |
|            | 5         | CAMERA       |
|            | 6         | USH          |
|            | 7         | WWAN         |

| USH | 0 | BIO |
|-----|---|-----|
|     | 1 | NA  |

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Port assignment

Size

Document Number

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Sheet

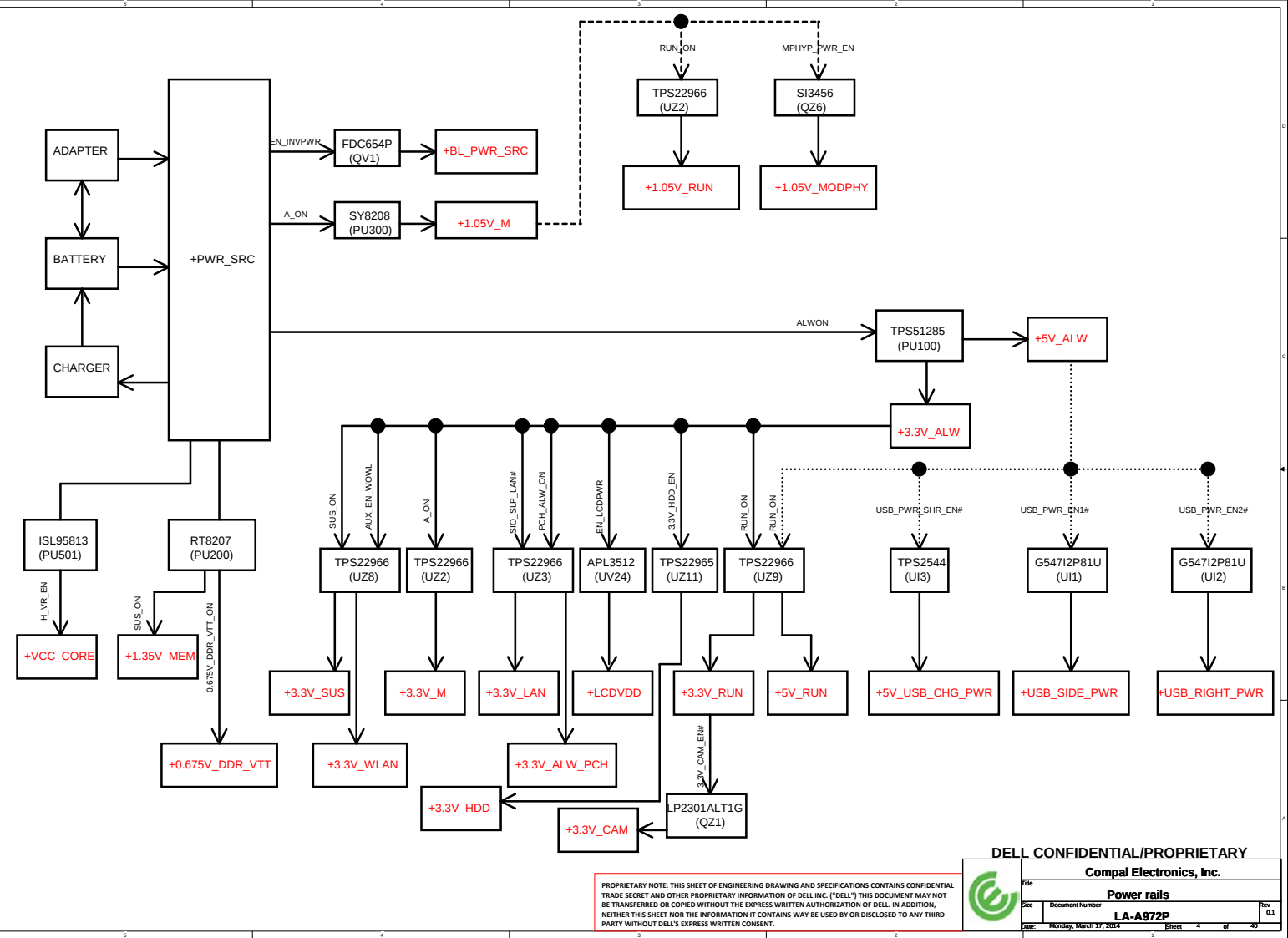
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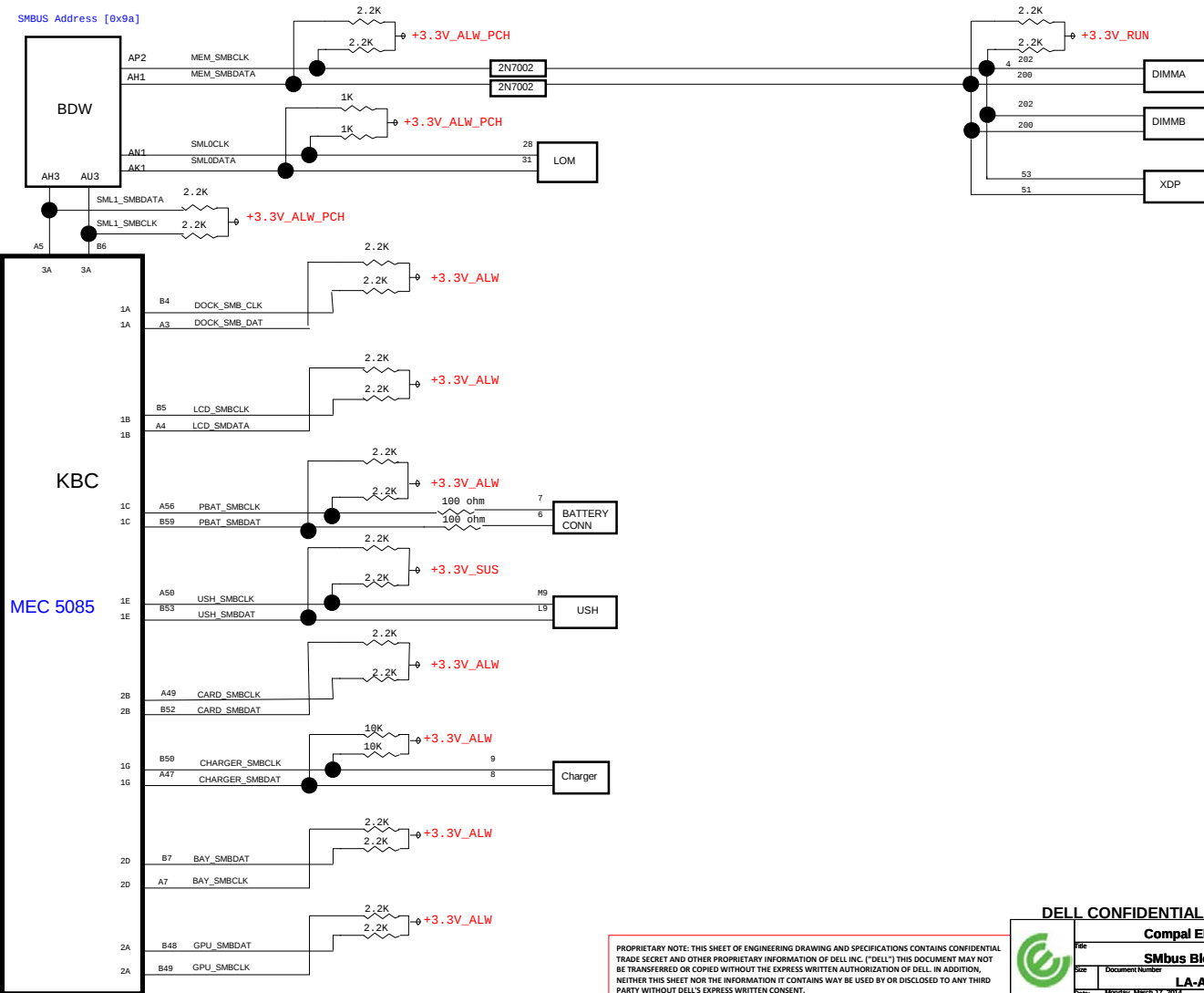


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**Power rails**  
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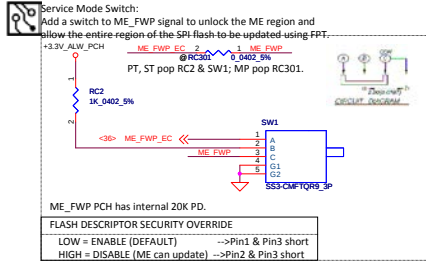
### SMBus Block diagram

LA A0720

|      |                        |              |
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# UMA SATA port

| SATA0  | SATA1 | PCB       | SATA2/PCIE6 L1                          | SATA3/PCIE6 L0                |                                                                  |
|--------|-------|-----------|-----------------------------------------|-------------------------------|------------------------------------------------------------------|
| E-Dock | mSATA | G12 UMA   | M2 3042<br>2nd PCIe Lane for PCIe Cache | M2 3042<br>(HCA & SATA-Cache) | contact to WWAN                                                  |
| NA     | mSATA | G12 Entry | NA                                      | NA                            |                                                                  |
| E-Dock | mSATA | G14 DSC   | M2 3042<br>SATA-Cache(no HCA)           | M2 3030 WIGIG                 | SATA2/PCIE6_L1 contact to WWAN<br>SATA3/PCIE6 L0 contact to WLAN |
| E-Dock | HDD   | G14 UMA   | M2 3042<br>2nd PCIe Lane for PCIe Cache | M2 3042<br>(HCA & SATA-Cache) | contact to WWAN                                                  |
| NA     | mSATA | G14D_En   | NA                                      | M2 3030 WIGIG                 | contact to WLAN                                                  |
| NA     | HDD   | G14U_En   | NA                                      | NA                            |                                                                  |



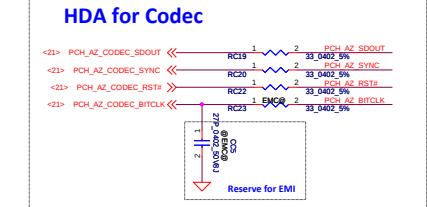
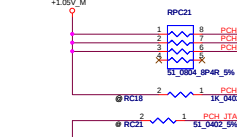
INTVRMEN - INTEGRATED SUS 1.05V VRM  
ENABLE  
High - Enable Internal VRs  
Low - Enable External VRs

ME\_CLR1  
Shunt  
Open  
Keep ME RTC Registers

TPM setting  
Clear ME RTC Registers  
Keep ME RTC Registers

CMOS\_CLR1  
Shunt  
Open  
Clear CMOS

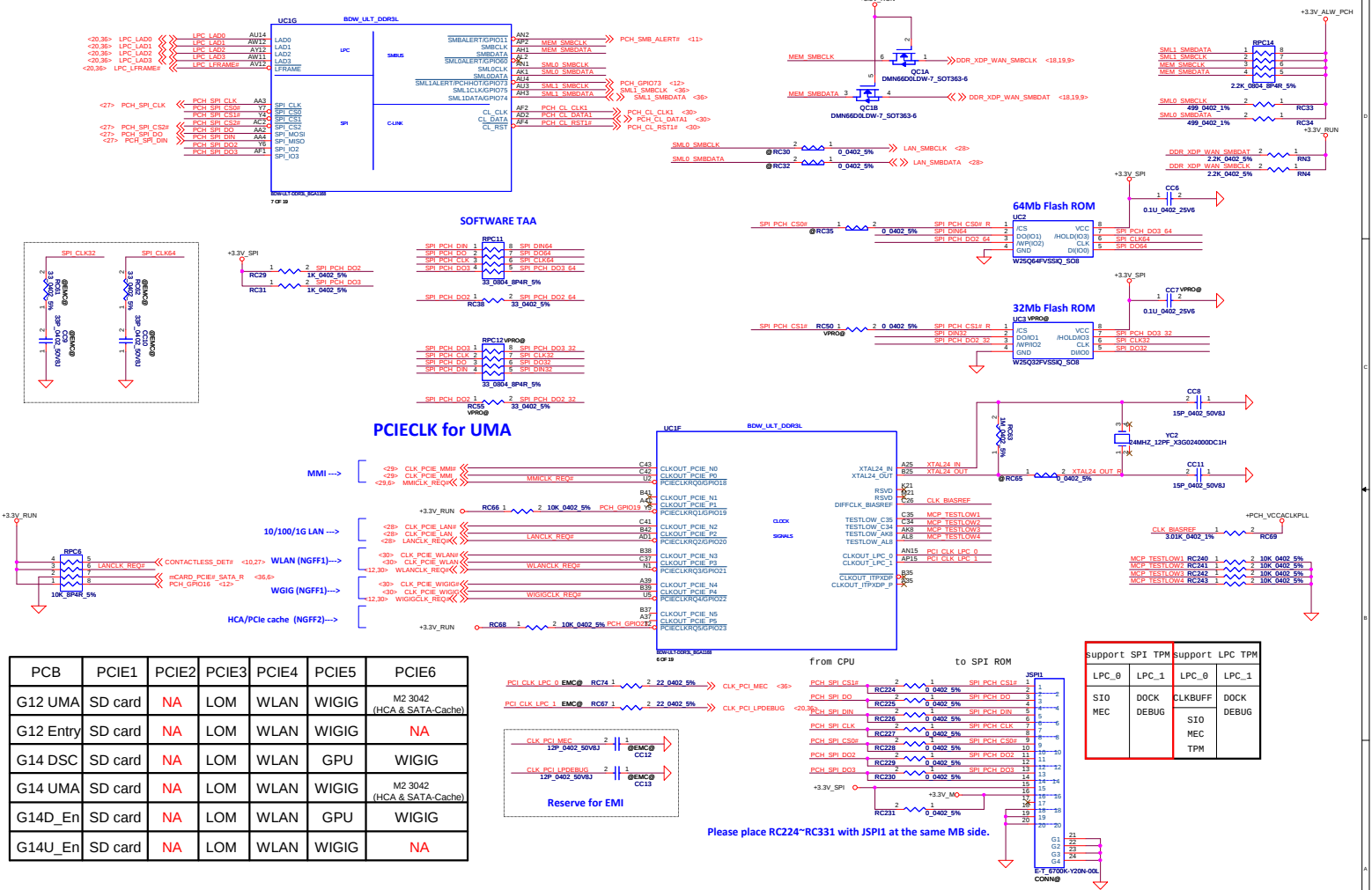
CMOS setting  
Clear CMOS  
Keep CMOS



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| PCB       | PCIE1   | PCIE2 | PCIE3 | PCIE4 | PCIE5 | PCIE6                      |
|-----------|---------|-------|-------|-------|-------|----------------------------|
| G12 UMA   | SD card | NA    | LOM   | WLAN  | WIGIG | M2 3042 (HCA & SATA-Cache) |
| G12 Entry | SD card | NA    | LOM   | WLAN  | WIGIG | NA                         |
| G14 DSC   | SD card | NA    | LOM   | WLAN  | GPU   | WIGIG                      |
| G14 UMA   | SD card | NA    | LOM   | WLAN  | WIGIG | M2 3042 (HCA & SATA-Cache) |
| G14D_En   | SD card | NA    | LOM   | WLAN  | GPU   | WIGIG                      |
| G14U_En   | SD card | NA    | LOM   | WLAN  | WIGIG | NA                         |

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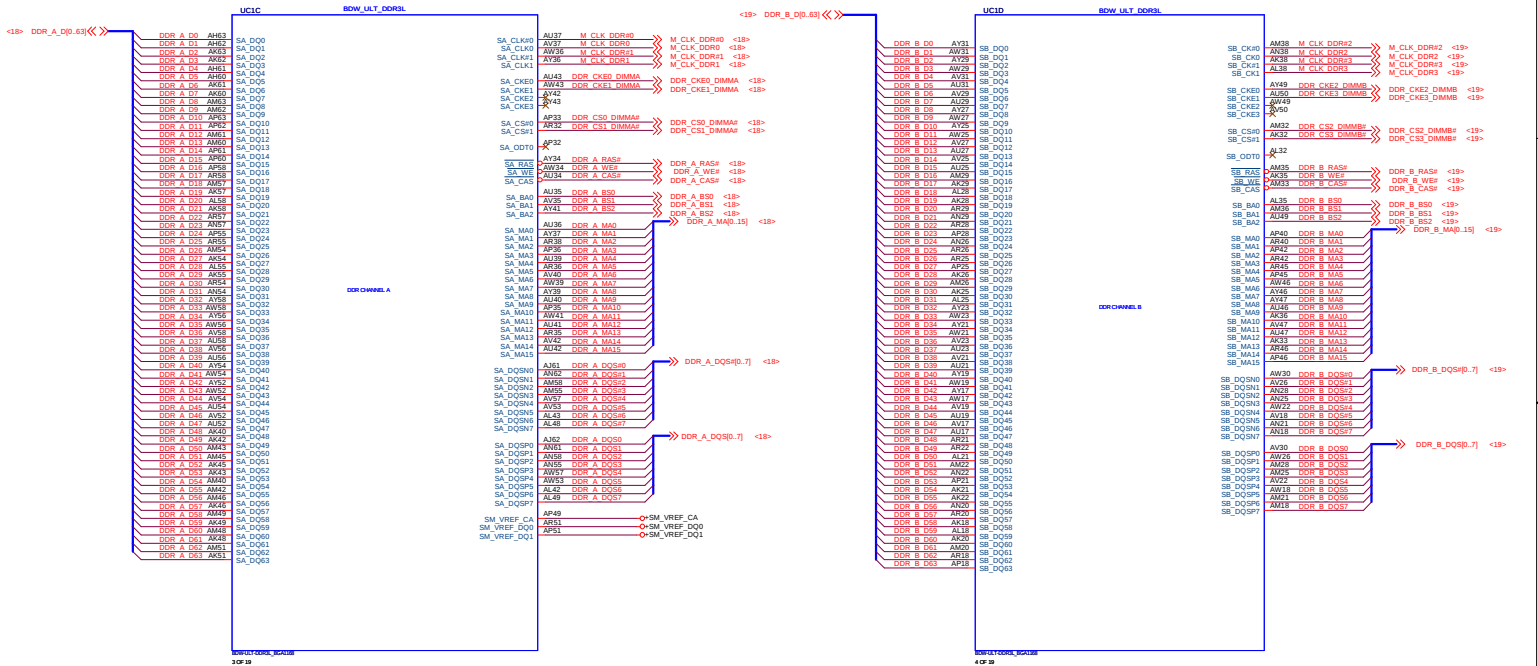
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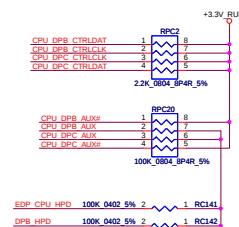
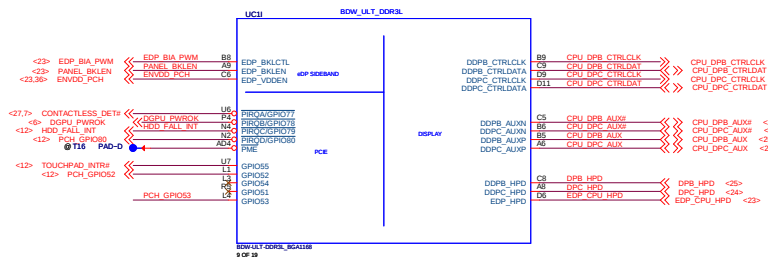
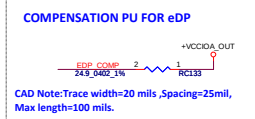
CPU (312)

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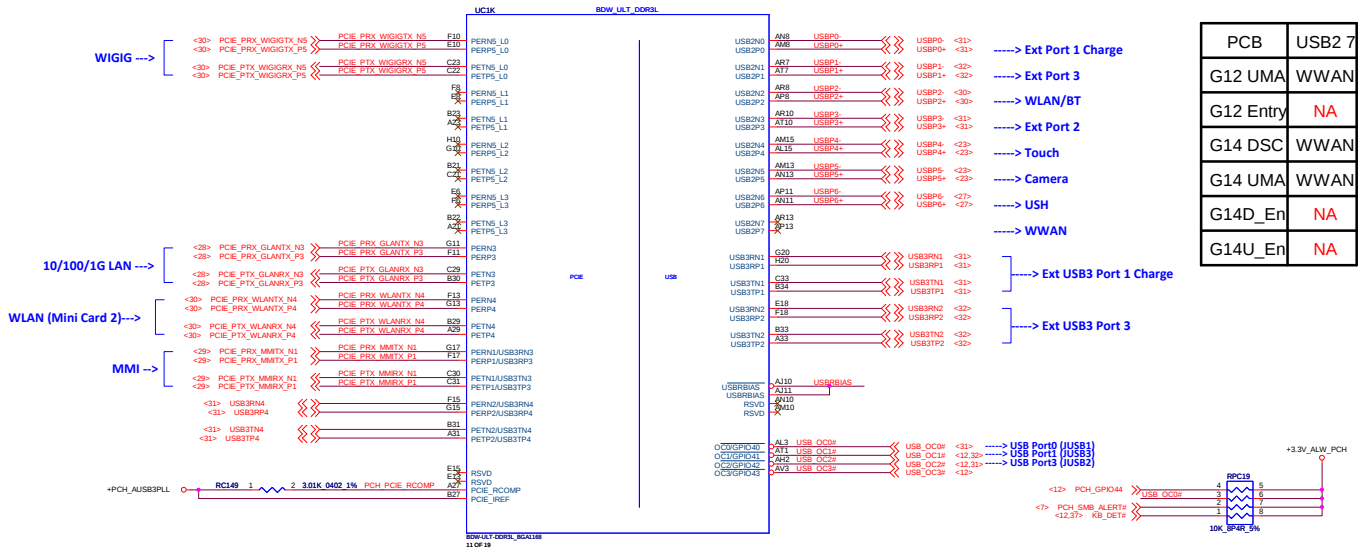




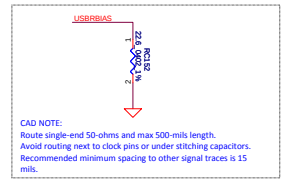
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# PCIE for UMA



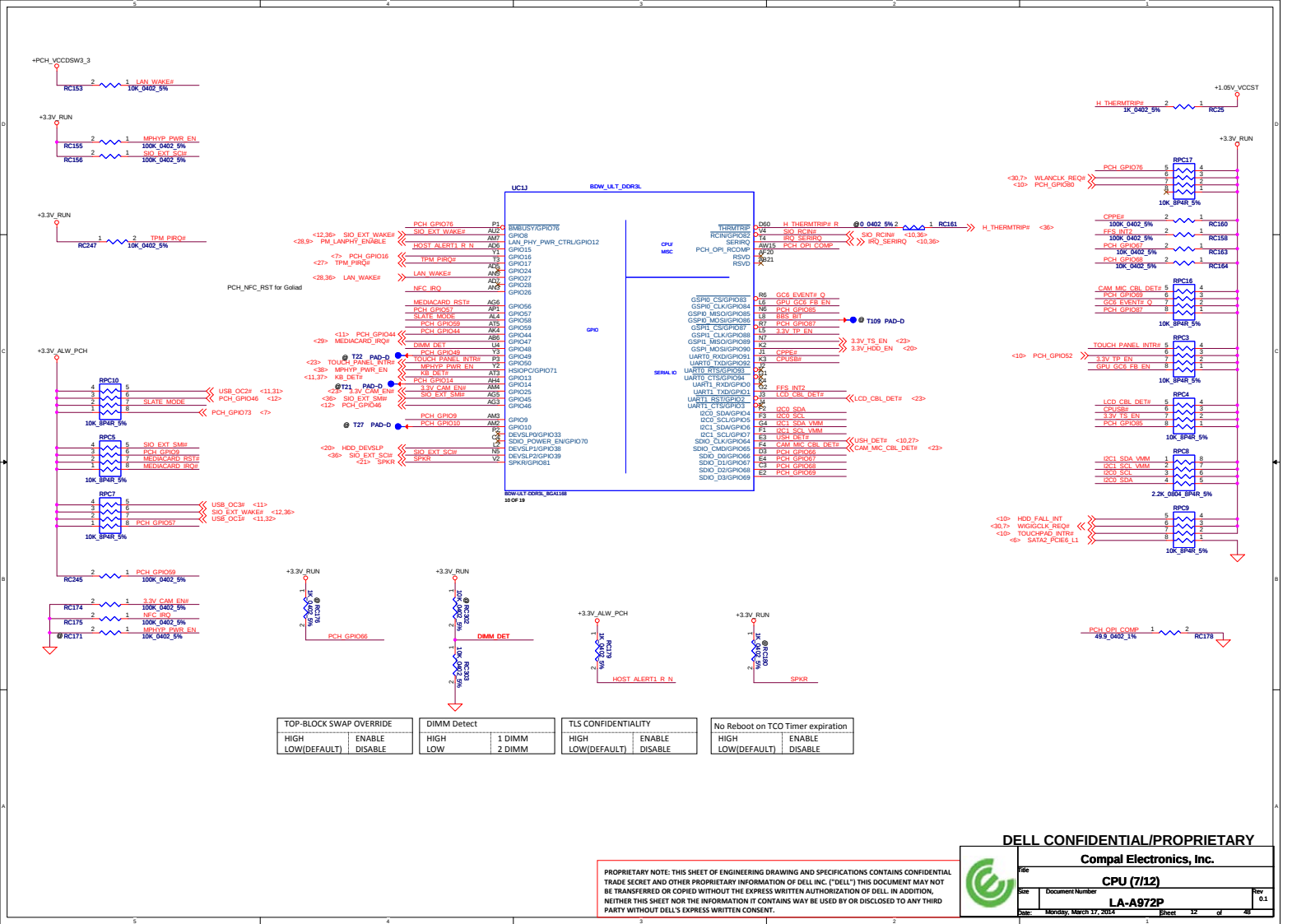
| PCB       | PCIE1   | PCIE2 | PCIE3 | PCIE4 | PCIE5 | PCIE6                      |
|-----------|---------|-------|-------|-------|-------|----------------------------|
| G12 UMA   | SD card | NA    | LOM   | WLAN  | WIGIG | M2 3042 (HCA & SATA-Cache) |
| G12 Entry | SD card | NA    | LOM   | WLAN  | WIGIG | NA                         |
| G14 DSC   | SD card | NA    | LOM   | WLAN  | GPU   | WIGIG                      |
| G14 UMA   | SD card | NA    | LOM   | WLAN  | WIGIG | M2 3042 (HCA & SATA-Cache) |
| G14D_En   | SD card | NA    | LOM   | WLAN  | GPU   | WIGIG                      |
| G14U_En   | SD card | NA    | LOM   | WLAN  | WIGIG | NA                         |



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| TOP-BLOCK SWAP OVERRIDE |         | DIMM Detect |        | TLS CONFIDENTIALITY |         | No Reboot on TCO Timer expiration |         |
|-------------------------|---------|-------------|--------|---------------------|---------|-----------------------------------|---------|
| HIGH                    | ENABLE  | HIGH        | 1 DIMM | HIGH                | ENABLE  | HIGH                              | ENABLE  |
| LOW(DEFAULT)            | DISABLE | LOW         | 2 DIMM | LOW(DEFAULT)        | DISABLE | LOW(DEFAULT)                      | DISABLE |

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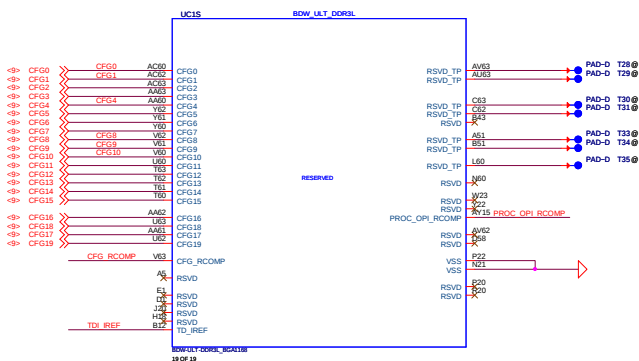
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**CPU (7112)**

**LA-A972P**

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CFG STRAPS for CPU



| EAR-STALL/NOT STALL RESET SEQUENCE AFTER PCU PLL IS LOCKE |                                                           |
|-----------------------------------------------------------|-----------------------------------------------------------|
| CFG0                                                      | 1:(Default) Normal Operation; No stall<br>0:Lane Reversed |

| PCH/PCH LESS MODE SELECTION |                                                 |
|-----------------------------|-------------------------------------------------|
| CFG1                        | 1:(Default) Normal Operation<br>0:Lane Reversed |

| SAFE MODE BOOT |                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------|
| CFG10          | 1: POWER FEATURES ACTIVATED DURING RESET<br>0: POWER FEATURES (ESPECIALLY CLOCK GATINE ARE NOT ACTIVATED |

| NO SVID PROTOCOL CAPABLE VR CONNECTED |                                                                                                                                        |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| CFG9                                  | 1: VRS support SVID protocol are present<br>0:No VR support SVID is present<br>The chip will not generate(OR Respond to) SVID activity |

| ALLOW THE USE OF NOA ON LOCKED UNITS |                                                                                                                                                           |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| CFG8                                 | 1: Enable(Default): Noa will be disable in locked units and enable in un-locked<br>0:Disable Noa will be available pegrardless of the locking of the unit |

| 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 |

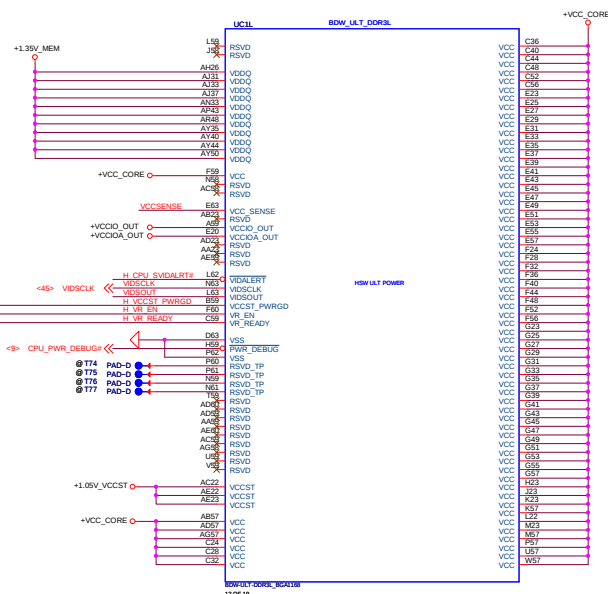
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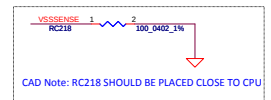
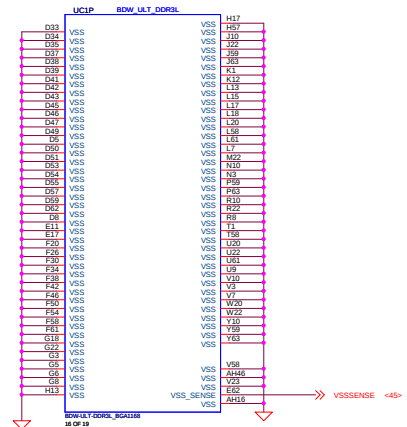
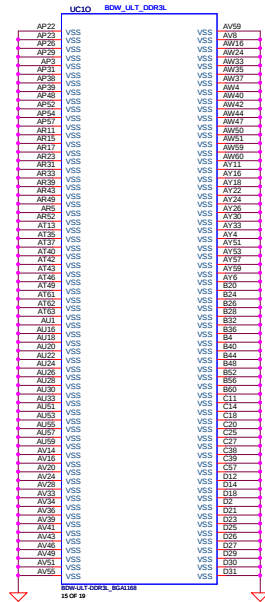
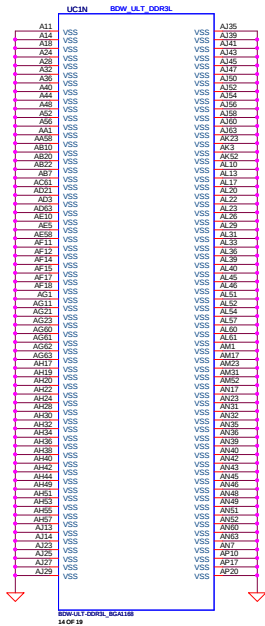


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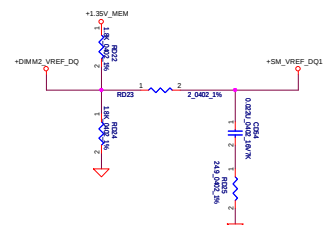
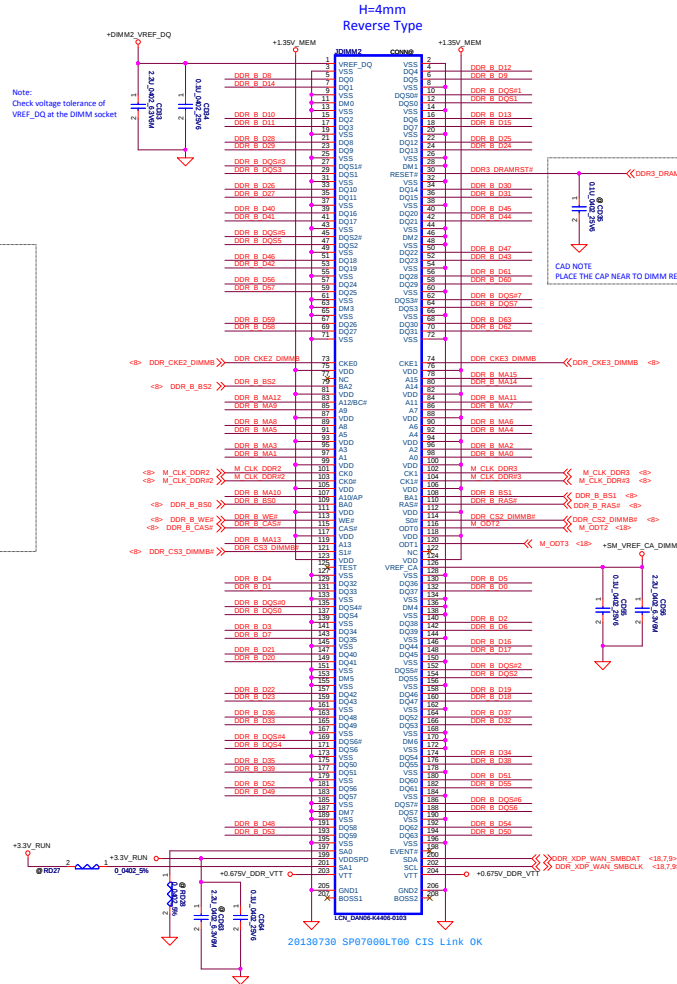
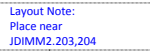
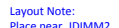


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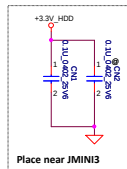
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|  | Title                        |                 |     |
|  | DDR3L                        |                 |     |
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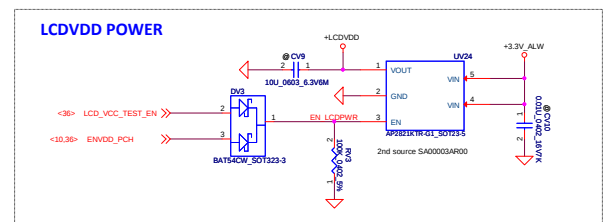
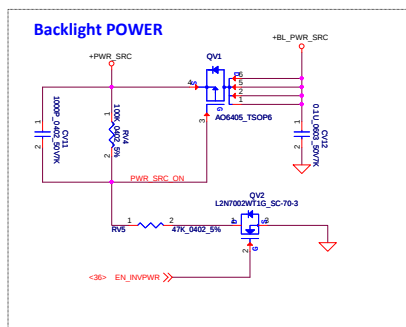
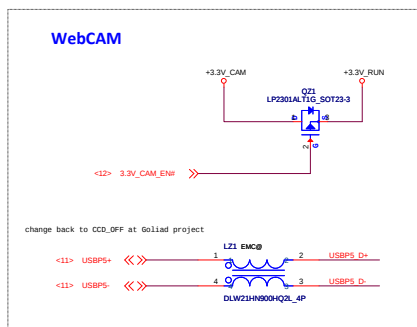
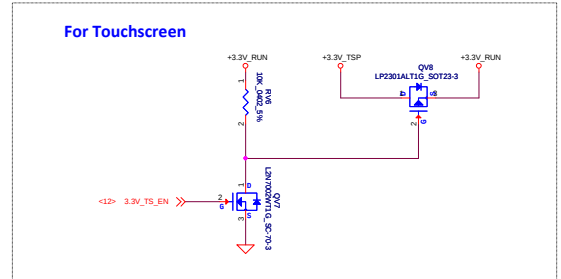
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| Title                                                                                 | LA-A972P        |                                 |       |
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| DP 1.2 MST HUB                |                        |       |          |
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|                               | LA-A972P               | 0.1   |          |
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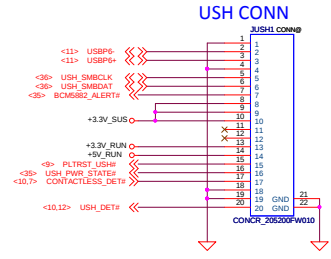
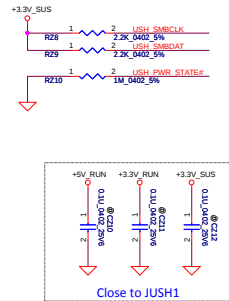
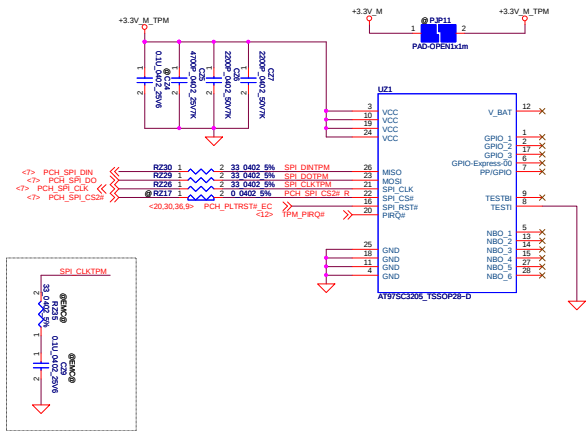
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| D |   |   |   | D |
| C |   |   |   | C |
| B |   |   |   | B |
| A |   |   |   | A |
| 5 | 4 | 3 | 2 | 1 |

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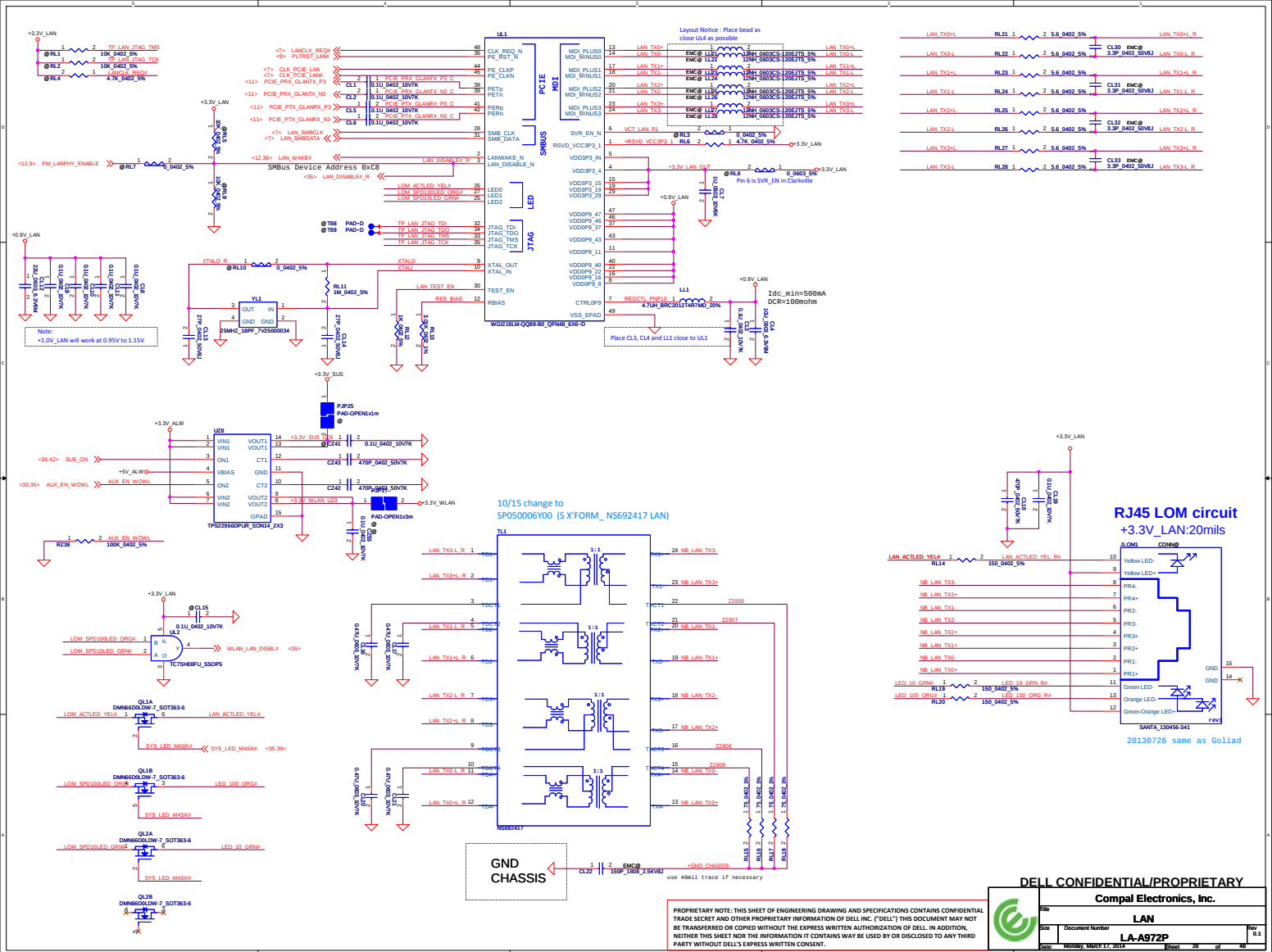


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| DP to VGA & VGA Conn     |                        |          |
| Size                     | Document Number        | Rev      |
|                          | LA-A972P               | 0.1      |
| Date                     | Monday, March 17, 2014 |          |
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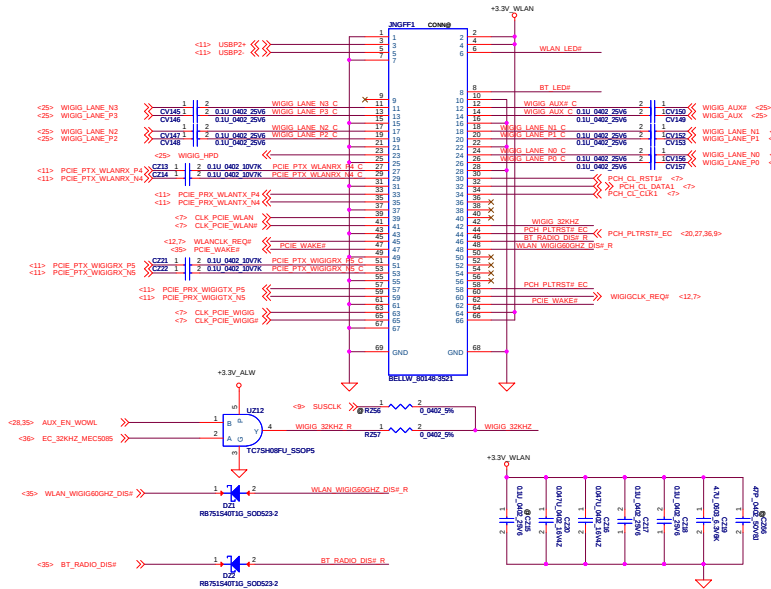


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| Size                          | Document Number        | Rev   | 0.1      |
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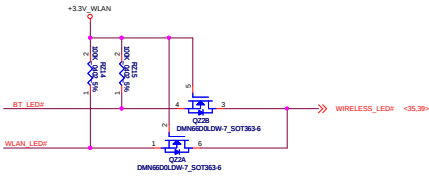
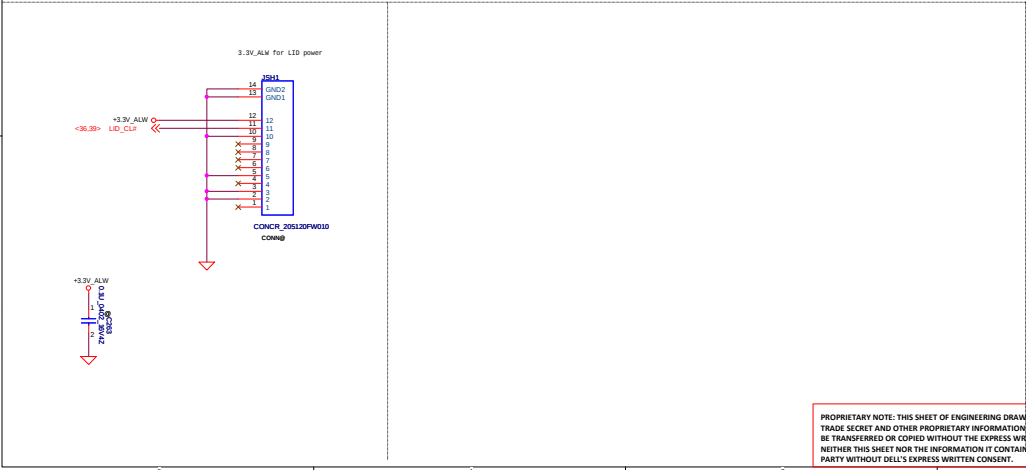




| STATE # | CONFIG_0 | CONFIG_1 | CONFIG_2 | CONFIG_3 | Module Type |
|---------|----------|----------|----------|----------|-------------|
| 0       | GND      | GND      | GND      | GND      | SSD-SATA    |
| 1       | GND      | HIGH     | GND      | GND      | SSD-PCIe    |
| 8       | HIGH     | GND      | GND      | GND      | WWAN        |
| 14      | HIGH     | GND      | HIGH     | HIGH     | HCA-PCIe    |
| 15      | HIGH     | HIGH     | HIGH     | HIGH     | NA          |

| Power Rating TBD |                   |               |        |           |
|------------------|-------------------|---------------|--------|-----------|
| PWR Rail         | Voltage Tolerance | Primary Power |        | Aux Power |
|                  |                   | Peak          | Normal | Normal    |
| +3.3V            |                   |               |        |           |

LED control circuit



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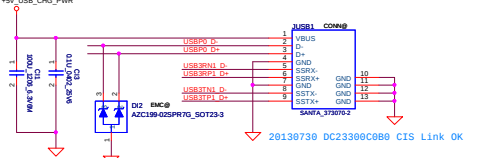
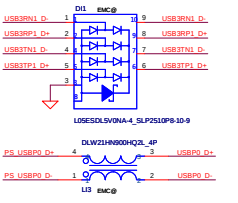
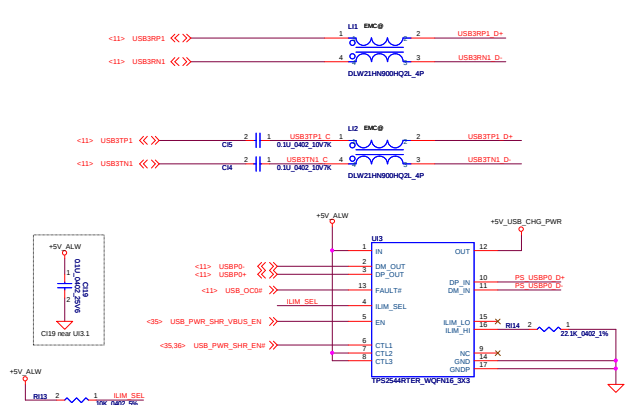
Compal Electronics, Inc.



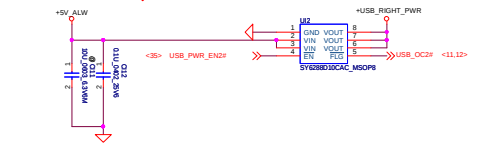
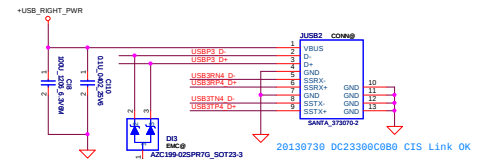
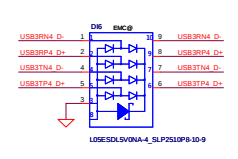
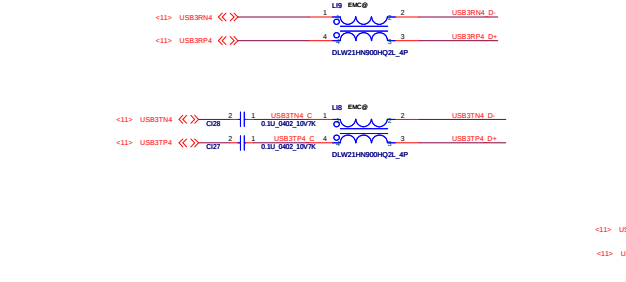
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LA-A972P

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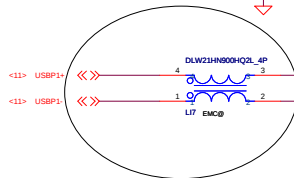
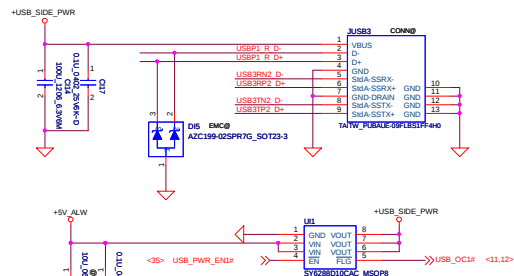
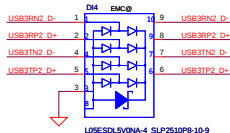
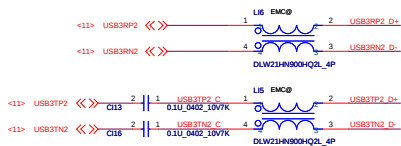
| PCB       | USB2 0  | USB2 3   |
|-----------|---------|----------|
| G12 UMA   | USB3102 | NX3DV221 |
| G12 Entry | NA      | NA       |
| G14 DSC   | USB3102 | NX3DV221 |
| G14 UMA   | USB3102 | NX3DV221 |
| G14D_En   | NA      | NA       |
| G14U_En   | NA      | NA       |



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|                 |                 |
|-----------------|-----------------|
| <b>USB3.0</b>   |                 |
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USB SW

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# NFC on USH/B

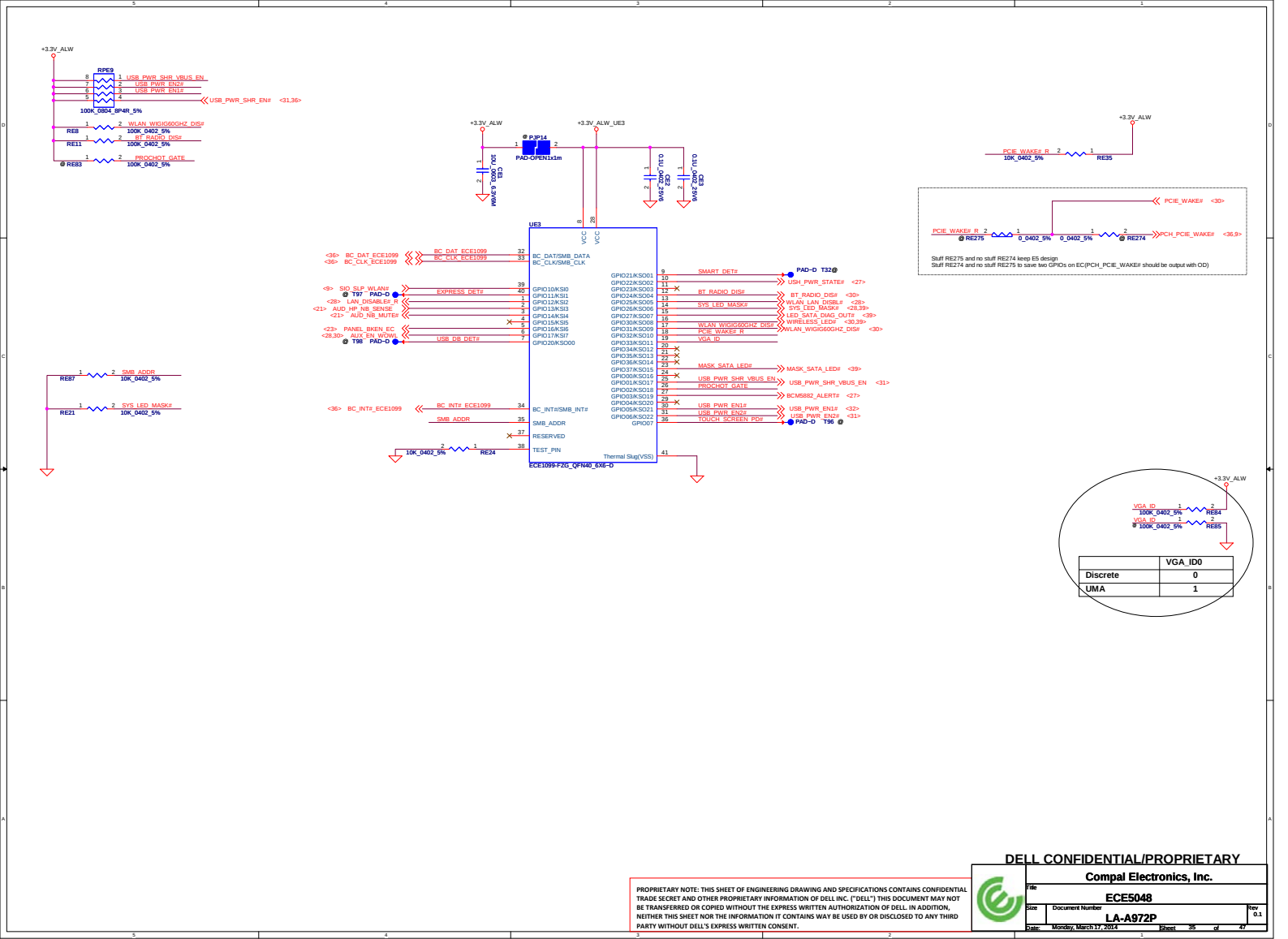
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|   |   |   |   |   |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |
| b |   |   |   | b |
| c |   |   |   | c |
| B |   |   |   | B |
| A |   |   |   | A |

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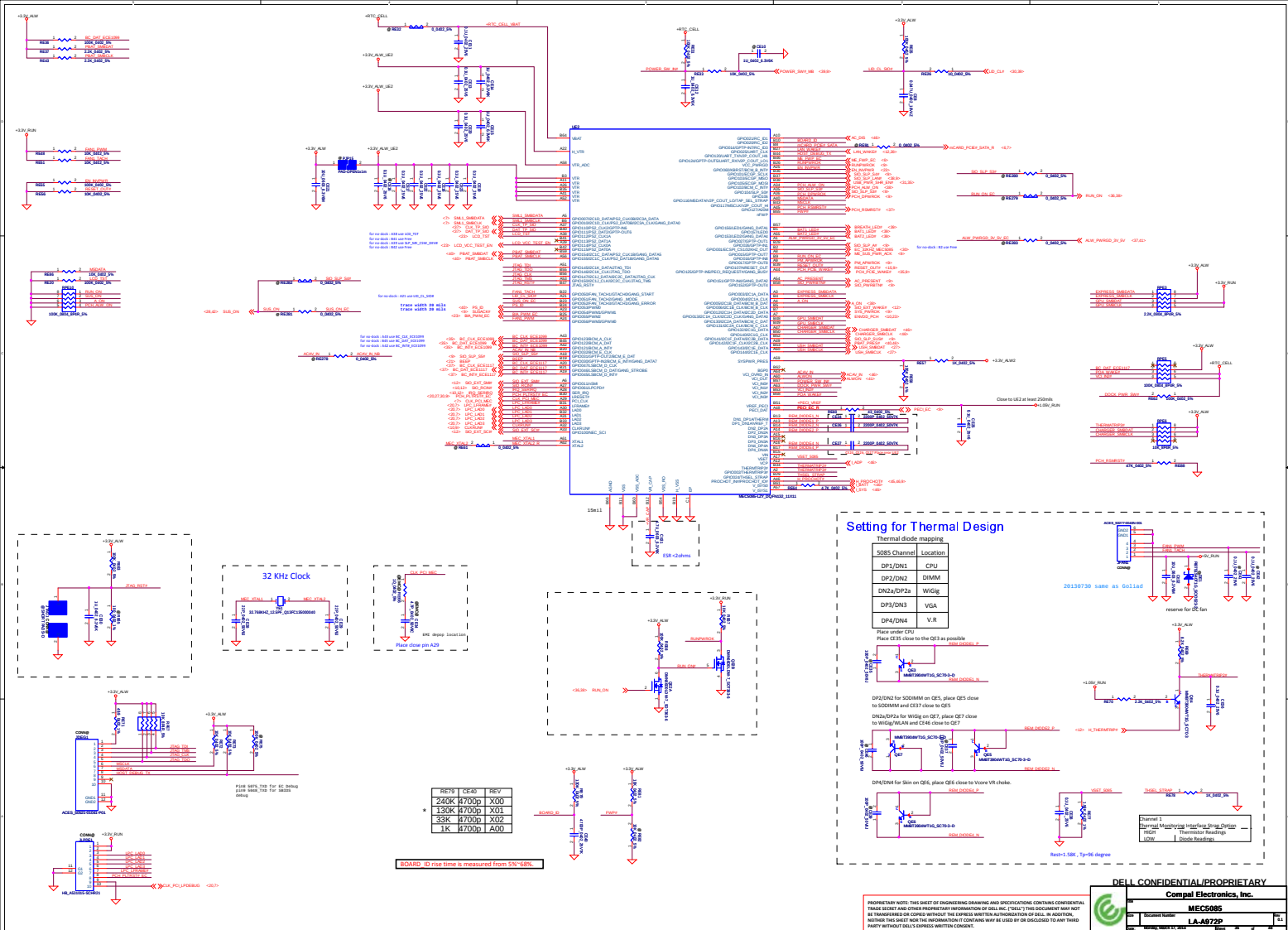
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| Size                          | Document Number        |  | Rev            |
|                               | LA-A972P               |  | 0.1            |
| Date:                         | Monday, March 17, 2014 |  | Sheet 34 of 48 |



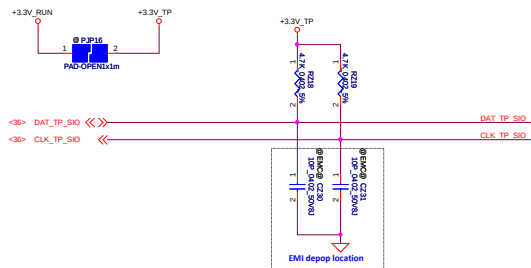
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| Date                     | Monday, March 17, 2014 | Sheet 35 | of 47   |

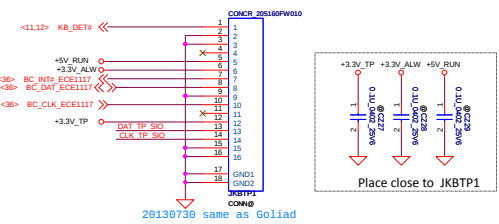
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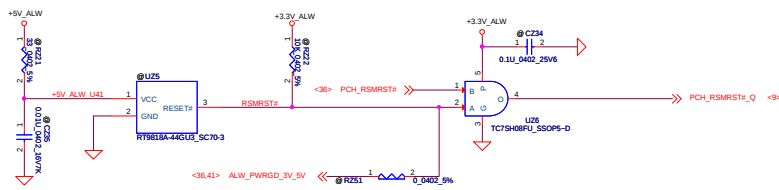
## Touch Pad



## Keyboard



## RSMRST circuit



@eDP Cable

| Part Number | Description                      |
|-------------|----------------------------------|
| DC82C007P00 | H-CONN SET 14A MB-EDP-LED-CAMERA |

@eDP TS Cal

| Part Number | Description                         |
|-------------|-------------------------------------|
| DC82C087Q00 | H-CONN SET 14A MB+EDP+LED-CAMERA-TS |

④DC-IN Cable

| Part Number | Description                          |
|-------------|--------------------------------------|
| DC38100MF00 | CONN SET 0VN DCJACK-MB 2DW1003-03811 |

⑨RTC BATT

| Part Number | Description                          |
|-------------|--------------------------------------|
| DC30100MF00 | CONN SET 0VN DCJACK-MB 20W1003-03811 |

**FAN**

| Part Number | Description                          |
|-------------|--------------------------------------|
| DC28A000800 | FAN SET DAQ20 DC5V AB7405HB-HB3 ADDA |

@USH Board FFC

| Part Number | Description                        |
|-------------|------------------------------------|
| NBX0001KE00 | FFC 26P G PG.5 PAD=0.3 47MM MB-USH |



| Part Number | Description                         |
|-------------|-------------------------------------|
| NBX0001KD00 | FFC 16P G PG.5 PAD=0.3 82MM MB-KBTP |

©NFC Board

| Part Number | Description                          |
|-------------|--------------------------------------|
| NBX0001KC00 | FFC 15P F PG.5 PAD=0.3 40.5MM MB-NFC |

FP FFC

| Part Number | Description                        |
|-------------|------------------------------------|
| NBX0001KB00 | FFC 8P F P0.5 PAD=0.3 22.5MM MB-FP |

©SIM+H&JVE

| Part Number | Description                                 |
|-------------|---------------------------------------------|
| NBX0001CR00 | FFC 12P G PG.5 PAD=0.3 73.3MM MB-SIN+HALL/B |

 Speak

| Part Number | Description                |
|-------------|----------------------------|
| PK230003Q0L | SPK PACK ZJX 2.0W 4 OHM FG |

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## Keyboard

**LA-A972P**

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if support MODPHY off keep DSC solution  
MODPHY timing spec 0.7V/us and <65us

**+1.05V\_RUN/+3.3V\_M source**

The diagram shows the TI92550EVM chip with the following connections and callouts:

- Top Left Callout:** +1.05V\_RUN, Mass Rating: 2495 mA
- Top Right Callout:** For No-Vpro HW configs: +1.05V\_M, NVPROG# RZ52, 0.01 120K 1%
- Bottom Right Callout:** For No-Vpro HW configs: +3.3V\_RUN, NVPROG# RZ54, 0.060K 5%

**Key Connections and Components:**

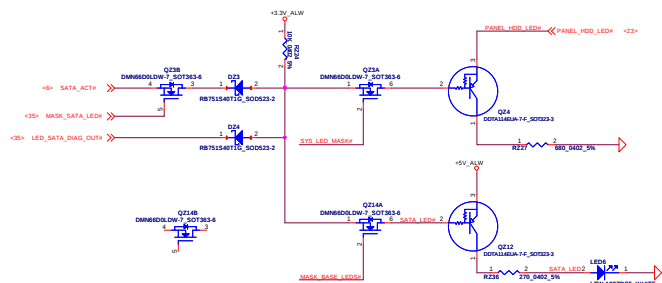
- TI92550EVM Pins:**
  - 1: +1.05V\_M
  - 2: RUN\_ON
  - 3: +5V\_ALW
  - 4: +3.3V\_ALW
  - 5: RUN\_ON
  - 6: A\_ON
  - 7: +1.05V\_M
  - 8: RUN\_ON
  - 9: +3.3V\_ALW
  - 10: RUN\_ON
  - 11: +1.05V\_M
  - 12: RUN\_ON
  - 13: +1.05V\_M
  - 14: RUN\_ON
  - 15: +1.05V\_M
  - 16: RUN\_ON
  - 17: +1.05V\_M
  - 18: RUN\_ON
  - 19: +1.05V\_M
  - 20: RUN\_ON
  - 21: +1.05V\_M
  - 22: RUN\_ON
  - 23: +1.05V\_M
  - 24: RUN\_ON
  - 25: +1.05V\_M
  - 26: RUN\_ON
  - 27: +1.05V\_M
  - 28: RUN\_ON
  - 29: +1.05V\_M
  - 30: RUN\_ON
  - 31: +1.05V\_M
  - 32: RUN\_ON
  - 33: +1.05V\_M
  - 34: RUN\_ON
  - 35: +1.05V\_M
  - 36: RUN\_ON
  - 37: +1.05V\_M
  - 38: RUN\_ON
  - 39: +1.05V\_M
  - 40: RUN\_ON
  - 41: +1.05V\_M
  - 42: RUN\_ON
  - 43: +1.05V\_M
  - 44: RUN\_ON
  - 45: +1.05V\_M
  - 46: RUN\_ON
  - 47: +1.05V\_M
  - 48: RUN\_ON
  - 49: +1.05V\_M
  - 50: RUN\_ON
  - 51: +1.05V\_M
  - 52: RUN\_ON
  - 53: +1.05V\_M
  - 54: RUN\_ON
  - 55: +1.05V\_M
  - 56: RUN\_ON
  - 57: +1.05V\_M
  - 58: RUN\_ON
  - 59: +1.05V\_M
  - 60: RUN\_ON
  - 61: +1.05V\_M
  - 62: RUN\_ON
  - 63: +1.05V\_M
  - 64: RUN\_ON
  - 65: +1.05V\_M
  - 66: RUN\_ON
  - 67: +1.05V\_M
  - 68: RUN\_ON
  - 69: +1.05V\_M
  - 70: RUN\_ON
  - 71: +1.05V\_M
  - 72: RUN\_ON
  - 73: +1.05V\_M
  - 74: RUN\_ON
  - 75: +1.05V\_M
  - 76: RUN\_ON
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  - 78: RUN\_ON
  - 79: +1.05V\_M
  - 80: RUN\_ON
  - 81: +1.05V\_M
  - 82: RUN\_ON
  - 83: +1.05V\_M
  - 84: RUN\_ON
  - 85: +1.05V\_M
  - 86: RUN\_ON
  - 87: +1.05V\_M
  - 88: RUN\_ON
  - 89: +1.05V\_M
  - 90: RUN\_ON
  - 91: +1.05V\_M
  - 92: RUN\_ON
  - 93: +1.05V\_M
  - 94: RUN\_ON
  - 95: +1.05V\_M
  - 96: RUN\_ON
  - 97: +1.05V\_M
  - 98: RUN\_ON
  - 99: +1.05V\_M
  - 100: RUN\_ON
- External Components:**
  - Resistors: RZ41, RZ42, RZ52, RZ54, RZ55, RZ56, RZ57, RZ58, RZ59, RZ60, RZ61, RZ62, RZ63, RZ64, RZ65, RZ66, RZ67, RZ68, RZ69, RZ70, RZ71, RZ72, RZ73, RZ74, RZ75, RZ76, RZ77, RZ78, RZ79, RZ80, RZ81, RZ82, RZ83, RZ84, RZ85, RZ86, RZ87, RZ88, RZ89, RZ90, RZ91, RZ92, RZ93, RZ94, RZ95, RZ96, RZ97, RZ98, RZ99, RZ100.
  - Capacitors: C240, C241, C242, C243, C244, C245, C246, C247, C248, C249, C250, C251, C252, C253, C254, C255, C256, C257, C258, C259, C260, C261, C262, C263, C264, C265, C266, C267, C268, C269, C270, C271, C272, C273, C274, C275, C276, C277, C278, C279, C280, C281, C282, C283, C284, C285, C286, C287, C288, C289, C290, C291, C292, C293, C294, C295, C296, C297, C298, C299, C300.

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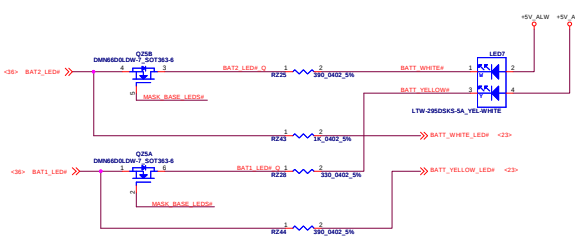
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| <b>Compal Electronics, Inc.</b>      |                 |          |    |
| <b>Power control</b>                 |                 |          |    |
| File                                 |                 | Rev 0.1  |    |
| Size                                 | Document Number | LA-A972P |    |
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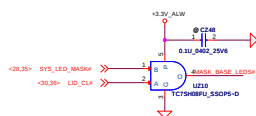
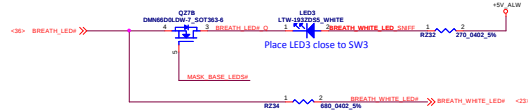
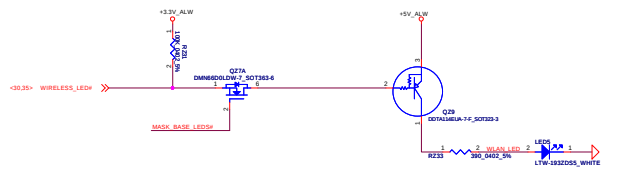
## WLAN LED solution for White LED



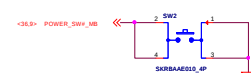
## Breath LED



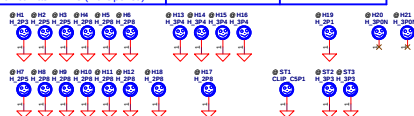
## WLAN LED solution for White LED



## POWER &amp; INSTANT ON SWITCH



| LED Circuit Control Table        |               |         |
|----------------------------------|---------------|---------|
|                                  | SYS_LED_MASK# | LID_CL# |
| Mask All LEDs (Sniffer Function) | 0             | X       |
| Mask Base MB LEDs (Lid Closed)   | 1             | 0       |
| Do not Mask I LEDs (Lid Opened)  | 1             | 1       |



**Fiducial Mark**

FD-1

FIDUCIAL MARK-D

FIDUCIAL MARK-D  
ED3

FD-4



FIDUCIAL MARK-D

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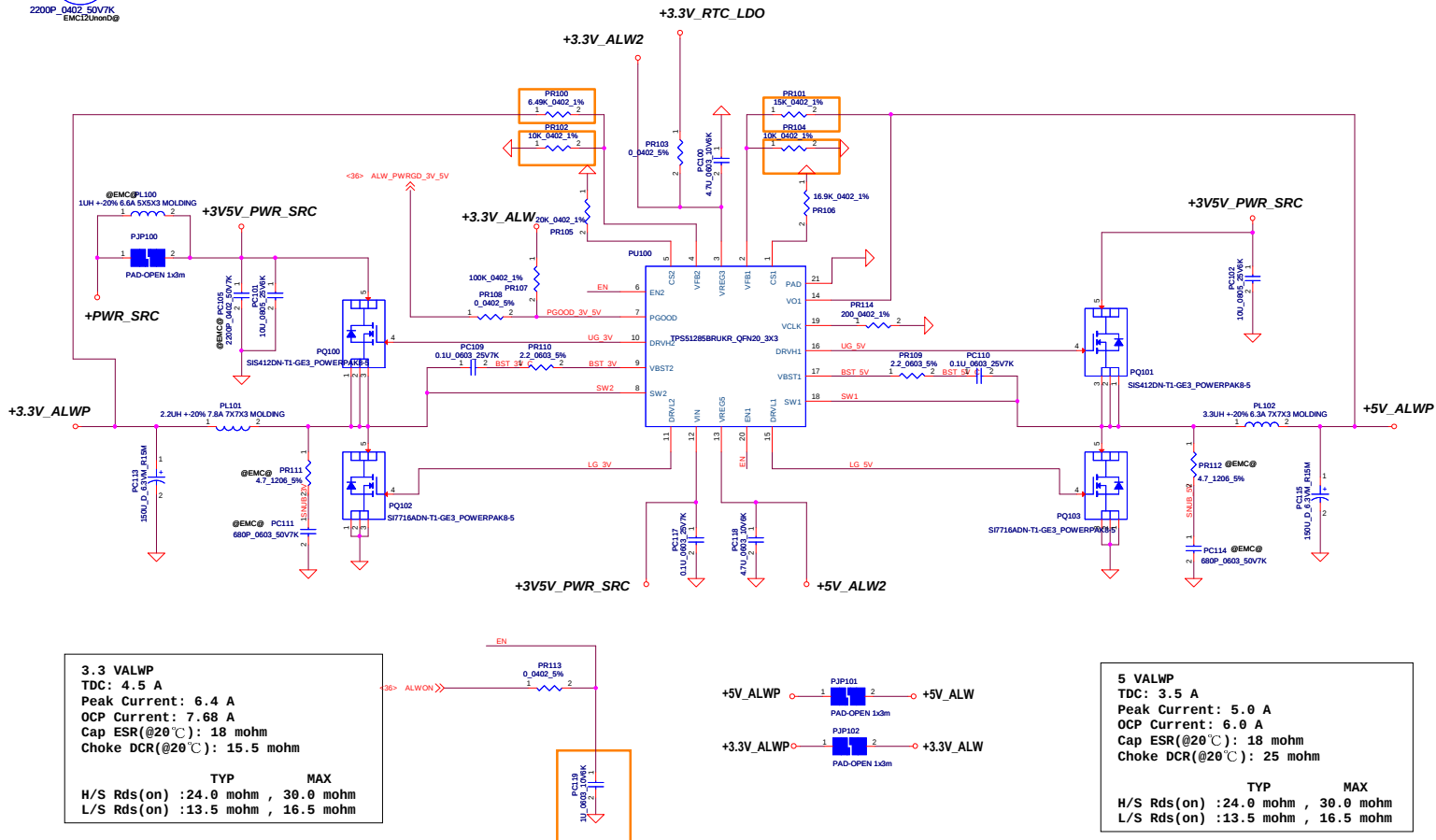
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**PAD. LED**

|      |                 |     |
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| Size | Document Number | Rev |
|      | LA-A972P        | 0   |

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|                                                                                       |                                 |                 |                |
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|                                                                                       | Title                           |                 |                |
|                                                                                       | <b>+5V_ALW/3.3V_ALW</b>         |                 |                |
|                                                                                       | Size                            | Document Number | Rev            |
|                                                                                       | <b>LA-A902P</b>                 |                 | <b>0.1</b>     |
| Date:                                                                                 | Monday, March 17, 2014          |                 | Sheet 41 of 47 |



PC300



2200P\_0402\_50V7K  
EMC12UnonD@



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+1.05V\_M

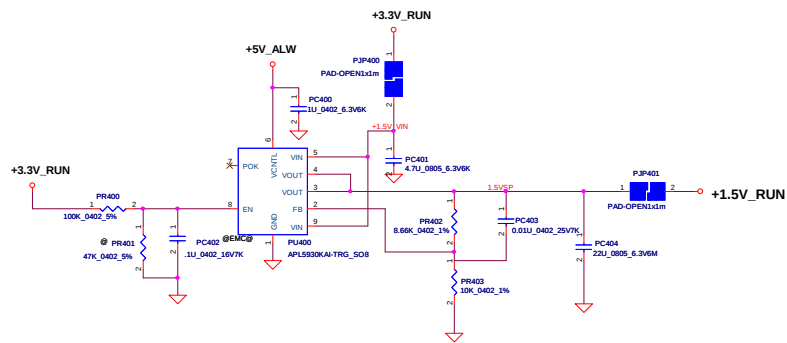
Document Number **LA-A902P**

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|  | Rev |
|  | 0.1 |

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|  | 0.3 |
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**+1.5V\_RUN**  
TDC: 0.47 A  
Peak Current: 0.67 A



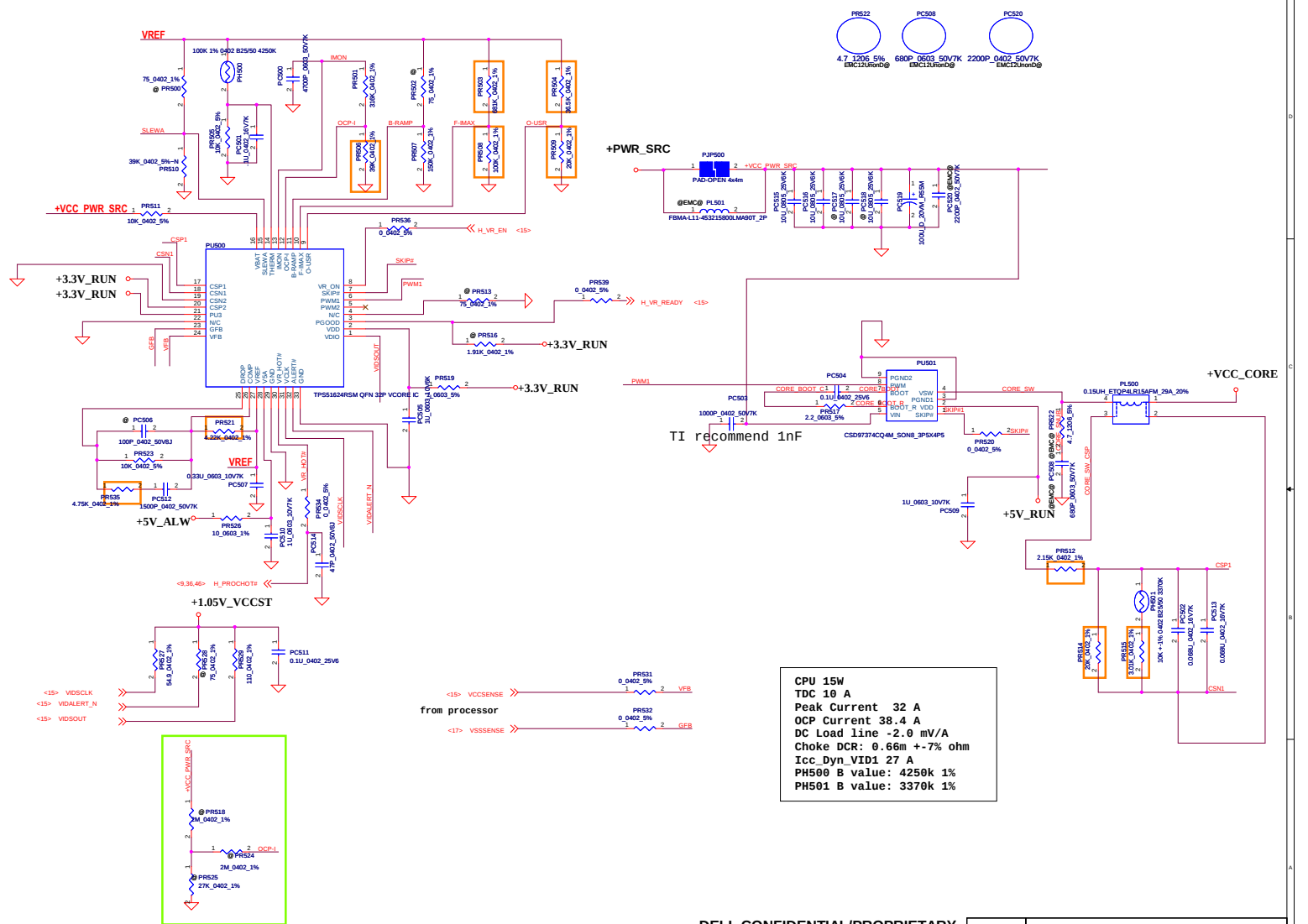
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+1.5VSP

|         |                        |                |     |
|---------|------------------------|----------------|-----|
| File    |                        |                |     |
| +1.5VSP |                        |                |     |
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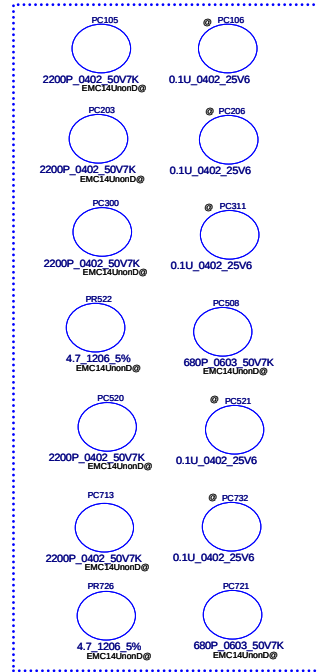
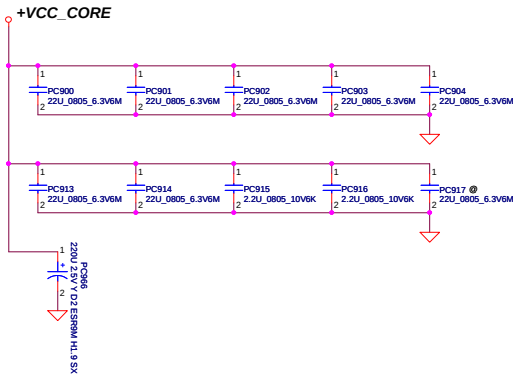
+VCC CORE

| Doc      | Document Number        | Rev            |
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Based on \_RF Cheng. Hill  
鄭智仁(11257) for PT 20131107

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| PROCESSOR DECOUPLING     |                 |                        |                |
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Version Change List (P. I. R. List)

| Item | Page#    | Title                            | Date  | Request<br>Owner | Issue Description                       | Solution Description                                                                                                                      | Rev. |
|------|----------|----------------------------------|-------|------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1    | 47       | VCC_CORE                         | 10/8  | Compal           | To prevent acoustic noise issue         | Remove PC923, PC924, PC925, PC926, PC927, PC928, PC929, PC930, PC931, PC940, PC941, PC943, PC946, PC947, PC948<br>Add PC966               | X01  |
| 2    | 42       | 1.35V_MEN                        | 10/8  | RICHTEK          | To prevent IC damage                    | Add PR204                                                                                                                                 | X01  |
| 3    | 46       | Charger                          | 10/8  | Compal           | Fine tune divider voltage               | Change PR715, PR729 to 154k                                                                                                               | X01  |
| 4    | 41,43,44 | +1.05V_M<br>+1.5V_RUN<br>+3V/+5V | 10/22 | Compal           | To improve the ability of anti-noise    | Change PR307 to 7.5k<br>Change PR310, PR102, PR104, PR403 to 10k<br>Change PR100 to 6.49k<br>Change PR101 to 15k<br>Change PR402 to 8.66k | X01  |
| 5    | 45       | VCC_CORE                         | 10/31 | Compal           | Fine tune IMON                          | Add PR518, PR524, PR525                                                                                                                   | X01  |
| 6    | ALL      | ALL                              | 10/31 | Compal           | RF request                              | Pop PR522,PC508, PR726, PC721, PC713, PL501, PC520                                                                                        | X01  |
| 7    | 46       | Charger                          | 12/05 | Compal           | Has the same behavior with dock circuit | Add PQ711                                                                                                                                 | X01  |
| 8    | 46       | Charger                          | 12/05 | Compal           | To add 2nd source                       | Remove PQ702 Add PQ709, PQ710                                                                                                             | X01  |
| 9    | 46       | Charger                          | 12/05 | Compal           | To reduce leakage current               | Remove PD701 Add PD704, PD705                                                                                                             | X01  |
| 10   | 46       | Charger                          | 3/03  | Compal           | To set OVP level                        | Remove PR729                                                                                                                              | X02  |
| 11   | 46       | Charger                          | 3/03  | Compal           | To set IC function                      | Remove PC720 Add PR788, PR799                                                                                                             | X02  |
| 12   | 40       | DCIN                             | 3/03  | Compal           | For ME change request                   | Change PBATT1                                                                                                                             | X02  |
| 13   | 40       | DCIN                             | 3/03  | Compal           | For EMC change request                  | Add PD5 PC20 PC21 PC22 Remove PC11                                                                                                        | X02  |
|      |          |                                  |       |                  |                                         |                                                                                                                                           |      |
|      |          |                                  |       |                  |                                         |                                                                                                                                           |      |

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|------|-------------|-------|------------|---------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1    | 6           | HW    | 2013/10/8  | COMPAL        | Follow intel reference circuit.                          | Add CC100, RC300 on CPU pin AC4, net name is PM_TEST_RST                                                                                                                                                                                                                                                                                                                                                                                     | 0.2(X01) |
| 2    | 27          | HW    | 2013/10/8  | COMPAL        | Dell drop POA function.                                  | Change JUSH1 from 26 pin to 20 pin, pin define follow E5                                                                                                                                                                                                                                                                                                                                                                                     | 0.2(X01) |
| 3    | 36          | HW    | 2013/10/8  | COMPAL        | Dell drop POA function.                                  | remove POA_WAKE# off page symbol<br>remove POA_ON/OFF#,make UE2.B62 to be NC pin                                                                                                                                                                                                                                                                                                                                                             | 0.2(X01) |
| 4    | 22          | HW    | 2013/10/9  | COMPAL        |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.2(X01) |
| 5    | 24          | HW    | 2013/10/9  | COMPAL        | correct HDMI schematic error.                            | swap HDMI LANE0 & LANE2 BUS                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.2(X01) |
| 6    | 23          | HW    | 2013/10/9  | COMPAL        | Follow EMC suggestion                                    | Change LI1,LI2,LI3,LI4,LI5,LI6,LI7,LI8,LI9,LV3,LV6,LV10,LV12,LV27<br>From SM070003K00 (S COM FI_CHILISIN CMMI21T-900Y-N)<br>To SM070003Y00 (S COM FI_MURATA DLW21HN900HQ2L)                                                                                                                                                                                                                                                                  | 0.2(X01) |
| 7    | 9           | HW    | 2013/10/9  | COMPAL        | reserved for S3 within 2s , system shutdown issue debug. | add RC26, reserved RC27.                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.2(X01) |
| 8    | 36          | HW    | 2013/10/9  | COMPAL        | board ID change.                                         | RE79 change to 130K                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.2(X01) |
| 9    | 24          | HW    | 2013/10/9  | COMPAL        | SATA circuit issue                                       | Swap mSATA P & N                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.2(X01) |
| 10   | 36          | HW    | 2013/10/14 | COMPAL        | follow intel latest design guide.                        | pop RE56 and change from 8.2K to 10K , it's RESET_OUT# pull down resistor                                                                                                                                                                                                                                                                                                                                                                    | 0.2(X01) |
| 11   | 7           | HW    | 2013/10/16 | COMPAL        | RF requirement.                                          | add CC14, CC15 and move CC12, CC13 to behind the resistor (RC72)                                                                                                                                                                                                                                                                                                                                                                             | 0.2(X01) |
| 12   | 20,23,31,32 | HW    | 2013/10/17 | COMPAL        | follow ESD recommend list.                               | change all ESD diode CPN<br>change DI2, DI3, DI5, DV4 from SCA00001100(S ZEN ROW PJDLC05C 3P C/A SOT23) to SC600001600(S DIO ROW AZC199-02S.R7G C/C SOT23 ESD)<br>change DI1,DI6,DI4 from SC300002800(S DIO(BR) TVWDF1004AD0 DFN ESD) to SC300002C00(S DIO(BR) L05ESDL5V0NA-4 SLP2510P8 ESD)<br>change DA1,DA2,DA3,DA6,DA7 from SCA00001L00(S ZEN ROW L30ESDL5V0C3-2 C/A SOT23 ESD) to SCA00002900(S ZEN ROW L03ESDL5V0CC3-2 C/A SOT-23 ESD) | 0.2(X01) |
| 13   | 38          | HW    | 2013/10/17 | COMPAL        | power doesn't split VPRO & NPRO BOM.                     | add RZ41, RZ42, reserve it for VPRO & NVPRO option.                                                                                                                                                                                                                                                                                                                                                                                          | 0.2(X01) |
| 14   | 39          | HW    | 2013/10/17 | COMPAL        | SSI design will cause LED behavior error.                | QL1 Pin2,5 & QL2 Pin2 change from MASK_BASE_LEDS# to SYS_LED_MASK#                                                                                                                                                                                                                                                                                                                                                                           | 0.2(X01) |

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|------|--------------|-------|------------|------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 15   | 20           | HW    | 2013/10/17 | COMPAL           | To solve Line-on HDD dirty shut down issue.                 | UZ8 Pin2 change from +3.3V_ALW to 3.3V_RUN                                                                                                                                                                          | 0.2(X01) |
| 16   | 28, 36, 38   | HW    | 2013/10/17 | COMPAL           | follow Dell requirement.                                    | Add back SUS_ON, change control pin from SUS_ON to SIO_SLP_S4#<br>1. UZ8.3 from SIO_SLP_S4# to SUS_ON<br>2. UE2.B23 -- SUS_ON_EC , RPE10.2 -- SUS_ON<br>3. add RE282, RE281, RE280, RE279<br>4. UE2.B9 -- RUN_ON_EC | 0.2(X01) |
| 17   | 12           | HW    | 2013/10/24 | COMPAL           |                                                             |                                                                                                                                                                                                                     | 0.2(X01) |
| 18   | 6            | HW    | 2013/10/24 | COMPAL           | debug usage.                                                | add RC301                                                                                                                                                                                                           | 0.2(X01) |
| 19   | 9            | HW    | 2013/10/28 | COMPAL           | reserve it to prevent PCH_PLTRST# floating when power on    | add RC304, 100K pull down, on PCH_PLTRST#_EC                                                                                                                                                                        | 0.2(X01) |
| 20   | 6, 7, 22, 28 | HW    | 2013/10/23 | COMPAL           | follow xtal vender suggest                                  | 1 CC1 &CC2 change from 18PF to 3PF<br>2 CC8 & CC11 change from 18PF to 15PF<br>3 CL13 & CL14 change from 33PF to 27PF<br>4 RV81 change from 0 ohm to 2.2K & CV113 change to 18PF                                    | 0.2(X01) |
| 21   | 23           | HW    | 2013/10/29 | COMPAL           | it's designed for E5 Goliad, E6 GMLK doesn't need.          | remove RZ1                                                                                                                                                                                                          | 0.2(X01) |
| 22   | 30           | HW    | 2013/10/29 | COMPAL           |                                                             |                                                                                                                                                                                                                     | 0.2(X01) |
| 23   | 12           | HW    | 2013/10/29 | COMPAL           | To solve backdrive issue.                                   | Change TPM_PIRQ# pull up ( RC247) to +3.3V_RUN from +3.3V_ALW_PCH                                                                                                                                                   | 0.2(X01) |
| 24   | 30           | HW    | 2013/10/30 | COMPAL           | Dell doesn't support MODPHY.                                | add PJP36, depop QZ6, QZ10, RZ16, RZ5, CZ25, CZ38                                                                                                                                                                   | 0.2(X01) |
| 25   | 7            | HW    | 2013/11/2  | COMPAL           | SMBUS Pull High                                             | Add RN3&RN4 pull high to +3.3V_RUN for DDR_XDP_WAN_SMBDAT/SMBCLK                                                                                                                                                    | 0.2(X01) |
| 26   | 21           | HW    | 2013/11/2  | COMPAL           | EMC request.                                                | Add RA42, RA43.                                                                                                                                                                                                     | 0.2(X01) |
| 27   | 21           | HW    | 2013/11/05 | COMPAL           | follow vender suggestion. It's for 15KV ESD fail issue.     | add CA12, CA13<br>change DA1, DA2, DA3, DA4 from GNDA to GND                                                                                                                                                        | 0.2(X01) |
| 28   | 12           | HW    | 2013/11/05 | COMPAL           | GPIO 14 is sus power well, it has risk to cause back drive. | move TPM_PIRQ# from PCH_GPIO14 to PCH_GPIO17, add T21 on PCH_GPIO14                                                                                                                                                 | 0.2(X01) |
| 39   | 21           | HW    | 2013/12/17 | COMPAL           |                                                             |                                                                                                                                                                                                                     | 0.3(X01) |
| 40   | 22           | HW    | 2013/12/17 | COMPAL           |                                                             |                                                                                                                                                                                                                     | 0.3(X01) |

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