

# FM8B Hanks Intel UMA

VER : 3A  
 PWA: W028J  
 PWA: D178M  
 PWB: W026J

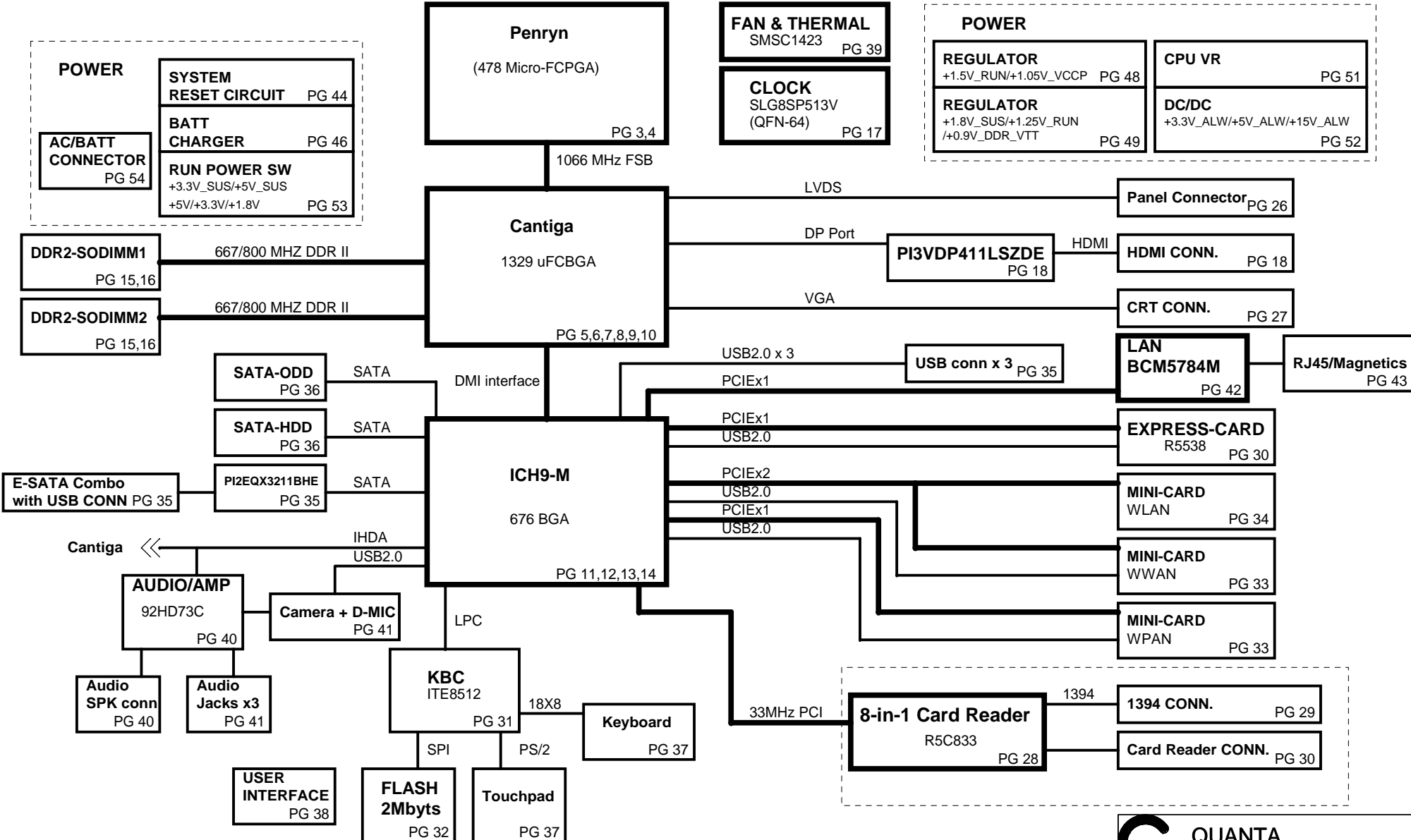



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|       |                                |
|       |                                |
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Power States

| POWER PLANE   | VOLTAGE     | PAGE  | DESCRIPTION              | CONTROL SIGNAL        | ACTIVE IN |
|---------------|-------------|---|--------------------------|-----------------------|-----------|
| +PWR_SRC      | 10V~+19V    | 4,26,32,34,46,48,49,51,52                               | MAIN POWER               |                       | S0-S5     |
| +RTC_CELL     | +3.0V~+3.3V | 11,14,31,32   | RTC                      |                       | S0-S5     |
| +3.3V_ALW     | +3.3V       | 3,31,32,34,36,37,38,44,46,49,52,53,54                   | 8051 POWER               | ALWON                 | S0-S5     |
| +5V_ALW2      | +5V         | 38,48,49,52,53,54                                       | LCD/CHARGE POWER         | ALWON                 | S0-S5     |
| +15V_ALW      | +15V        | 26,36,37,52,53  | LARGE POWER              | +5V_ALW               | S0-S5     |
| +3.3V_LAN     | +3.3V       | 42,43   | LAN POWER                | AUX_ON                |           |
| +5V_SUS       | +5V         | 14,36,38,51,53  | SLP_S5# CTRLD POWER      | SUS_ON                |           |
| +3.3V_SUS     | +3.3V       | 3,11,12,13,14,26,30,37,38,43,48,49,51,53                | SLP_S5# CTRLD POWER      | 3.3V_SUS_ON           |           |
| +1.8V_SUS     | +1.8V       | 6,8,9,15,48,49,53                                       | SODIMM POWER             | DDR_ON                |           |
| +0.9V_DDR_VTT | +0.9V       | 16,49,53  | SODIMM POWER             | 0.9V_DDR_VTT_ON       |           |
| +5V_RUN       | +5V         | 14,18,27,36,37,39,40,41,53                              | SLP_S3# CTRLD POWER      | RUN_ON                |           |
| +3.3V_RUN     | +3.3V       | 3,6,8,9,11,13,14,15,16,17,18,26,27,36,37,38,39,40,41,53 | SLP_S3# CTRLD POWER      | 3.3V_RUN_ON           |           |
| +1.8V_RUN     | +1.8V       | 35,53   | SDVO POWER               | RUN_ON                |           |
| +1.5V_RUN     | +1.5V       | 4,9,14,30,33,34,40,48,53                                | CALISTOGA/ICH8 POWER     | 1.5V_RUN_ON           |           |
| +1.05V_VCCP   | +1.05V      | 3,4,5,6,8,9,11,14,48                                    | CPU/CALISTOGA/ICH8 POWER | 1.05V_RUN_ON          |           |
| +VCC_CORE     | +0.7V~+1.7V | 4,51  | CPU CORE POWER           | IMVP_VR_ON            |           |
| +LCDVCC       | +3.3V       | 26  | LCD Power                | LCDVCC_TST_EN & ENVDD |           |
| +5V_MOD       | +5V         | 36  | Module Power             | MODC_EN#              |           |
| +5V_HDD       | +5V         | 36  | HDD Power                | HDDC_EN#              |           |
| +PBATT        | +10V~+17V   |   | MAIN BATTERY             | CHG_PBATT             |           |
| +SBATT        | +10V~+17V   |   | SECOND BATTERY           | CHG_SBATT             |           |
|               |             |   |                          |                       |           |
|               |             |   |                          |                       |           |

| GND PLANE      | PAGE | DESCRIPTION |
|----------------|------|-------------|
| ⏚ 8731AGND     | 46   |             |
| ⏚ AGND_0.9V    | 49   |             |
| ⏚ AGND_DC/DC   | 52   |             |
| ⏚ AGND_DC2     | 48   |             |
| ⏚ AGND_DDR     | 49   |             |
| ⏚ AGND_ISL6260 | 51   |             |
| ⏚ GND          | ALL  |             |



**QUANTA  
COMPUTER**

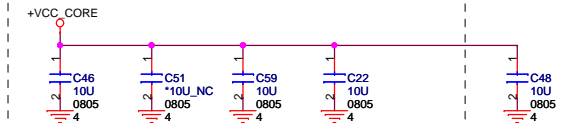
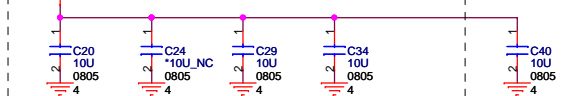
Title: Index & Power Status

Size: Document Number FM6B Rev 3A

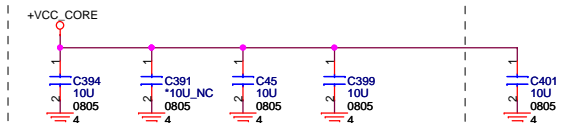
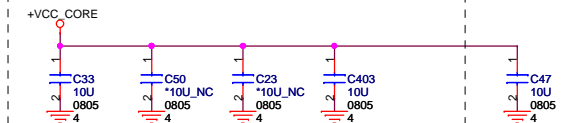
Date: Thursday, October 09, 2008 Sheet 2 of 58



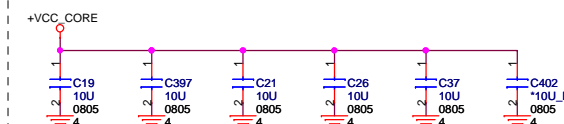
+VCC\_CORE All use 10U 4V(+/-20%,X6S,0805)Pb-Free.



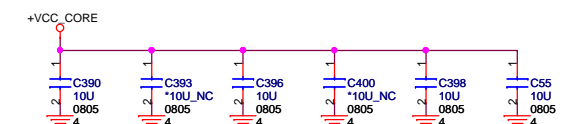
8 inside cavity, north side, secondary layer.



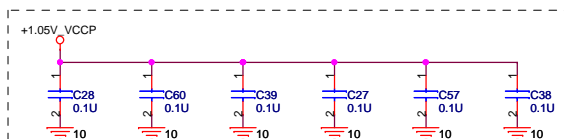
8 inside cavity, south side, secondary layer.



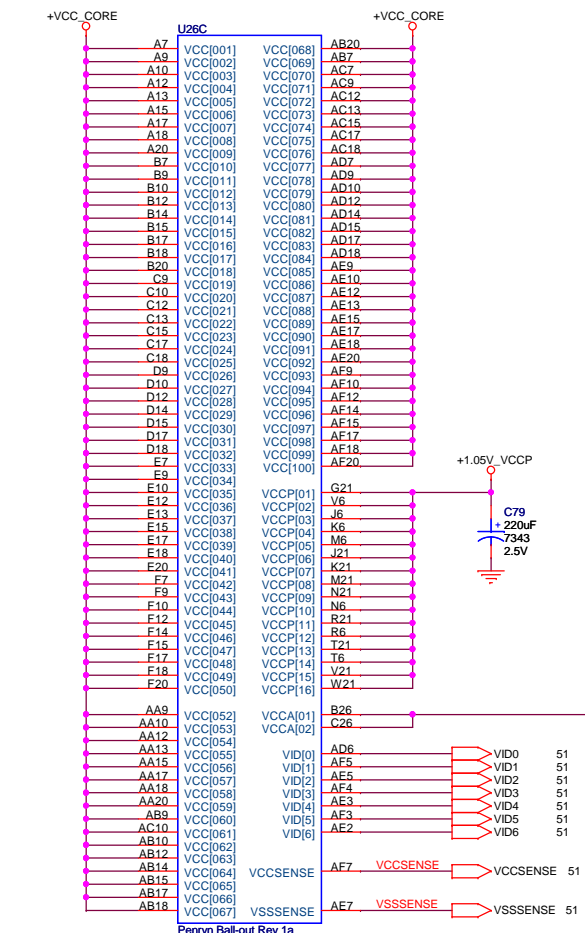
6 inside cavity, north side, primary layer.



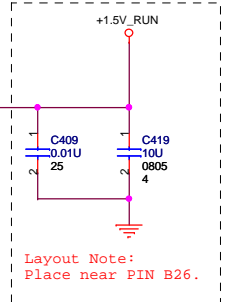
6 inside cavity, south side, primary layer.



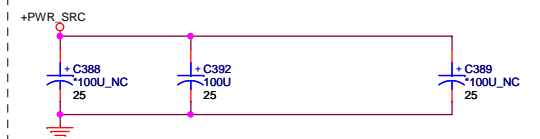
Layout out:  
Place these inside socket cavity on North side secondary.



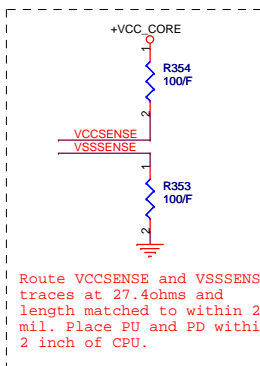
Pennyn Ball-out Rev 1a



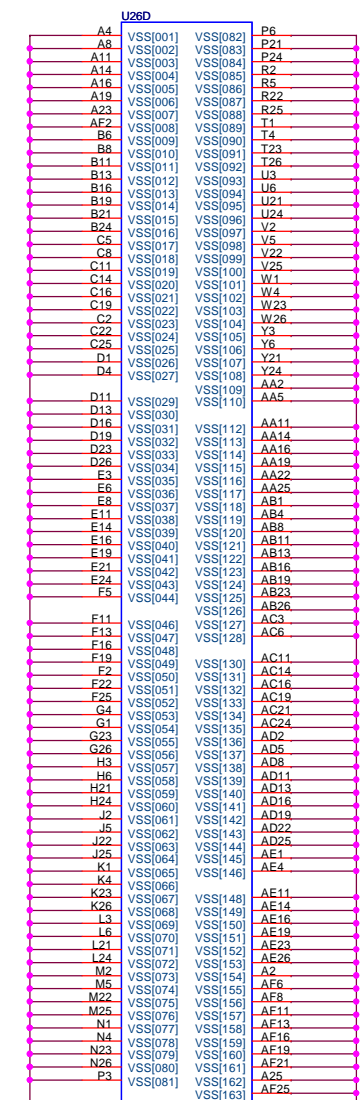
Layout Note:  
Place near PIN B26.



Layout Note:  
Need to add 100uF cap on PWR\_SRC for cap singing.  
Place on PWR\_SRC near +VCC\_CORE.



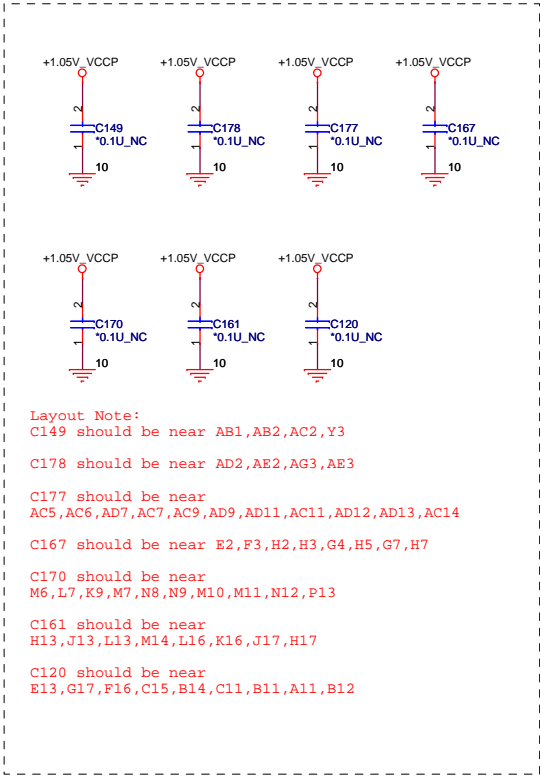
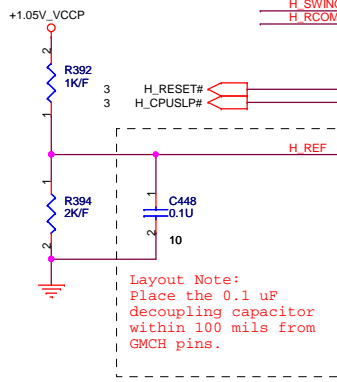
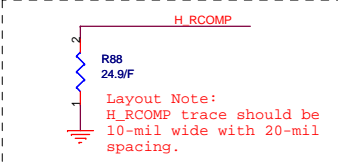
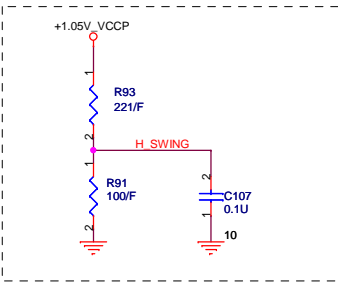
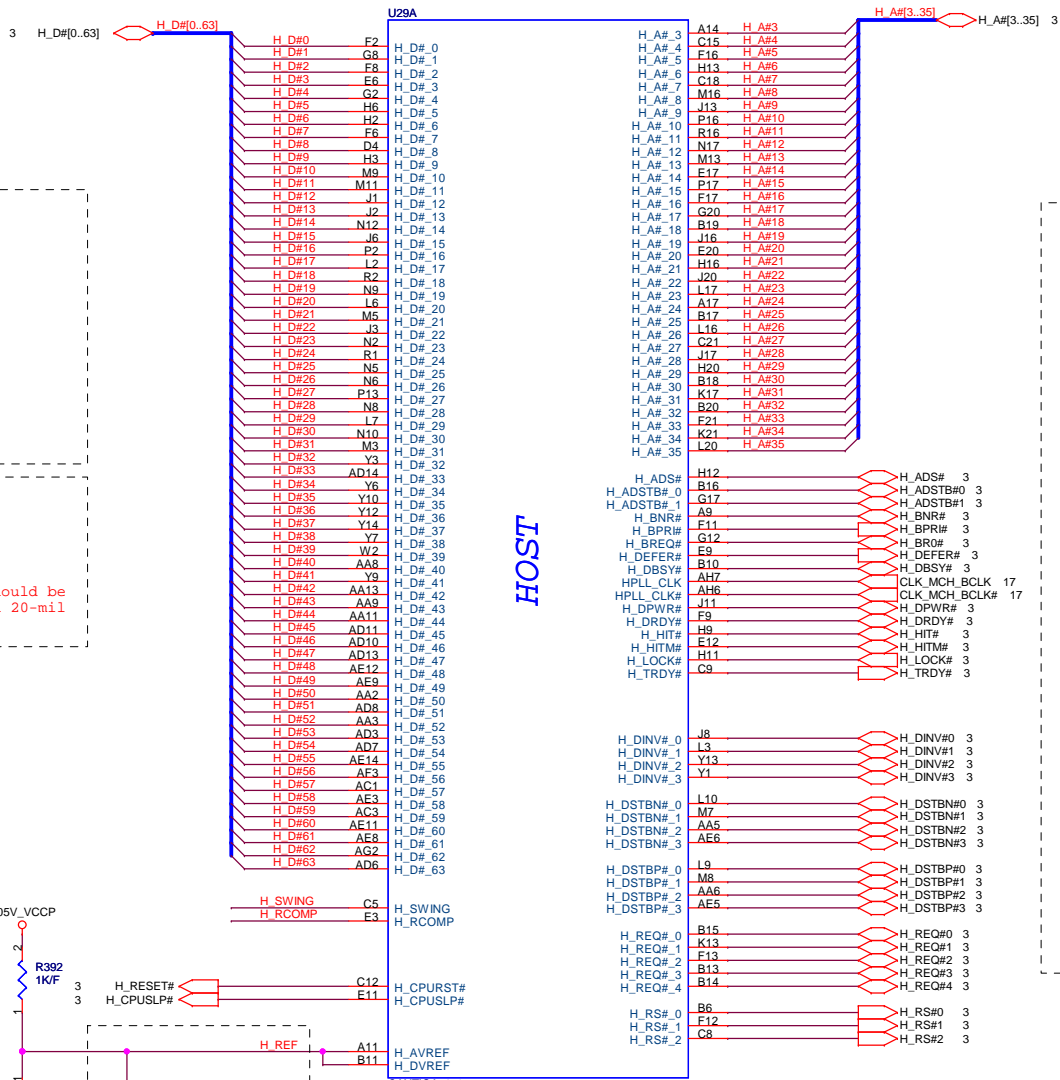
Route VCCSENSE and VSSSENSE traces at 27.4ohms and length matched to within 25 mil. Place PU and PD within 2 inch of CPU.

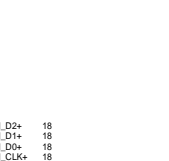
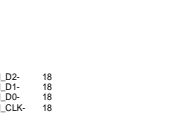
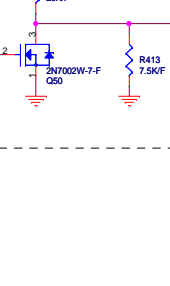
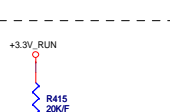
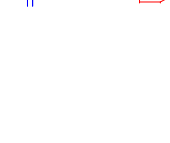
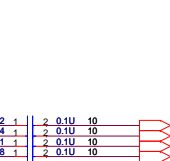
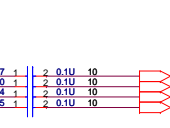
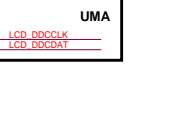
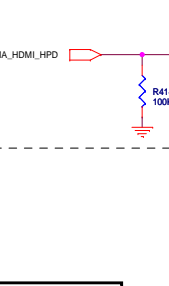
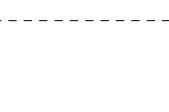
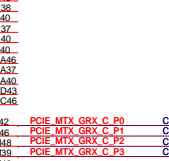
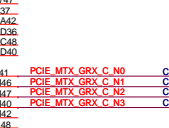
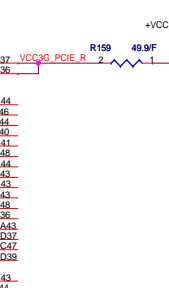
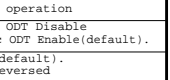
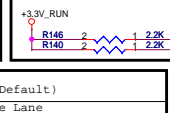
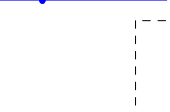
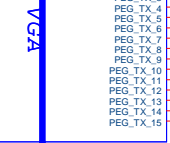
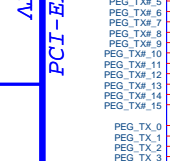
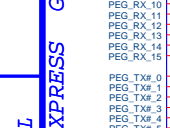
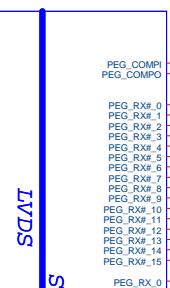
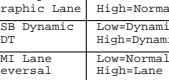
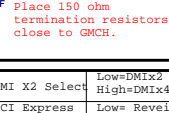
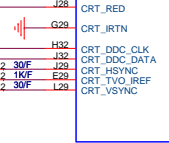
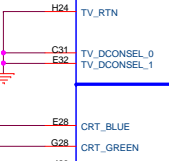
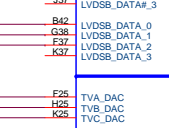
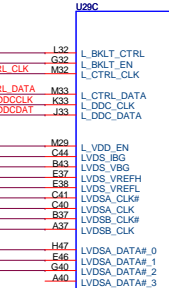
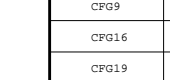
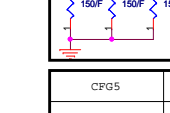
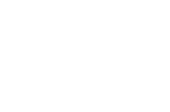
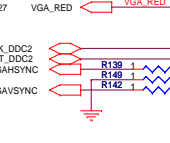
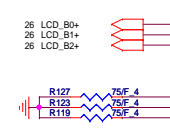
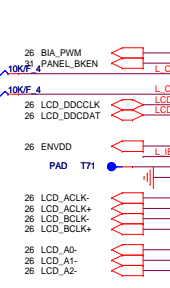
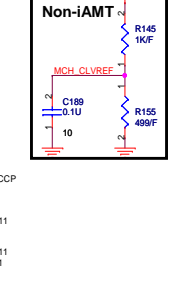
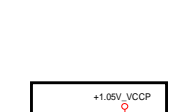
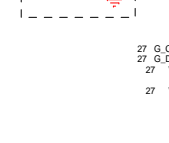
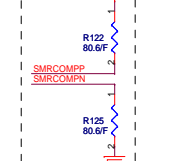
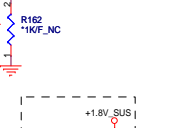
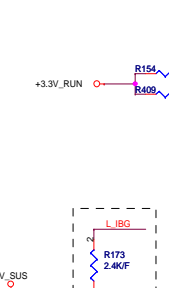
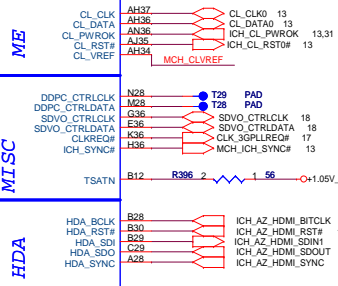
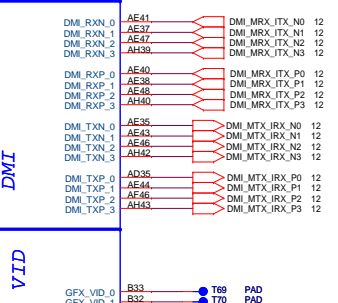
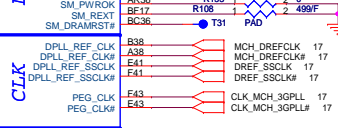
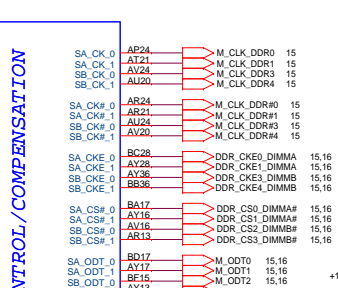
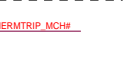
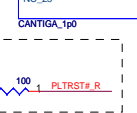
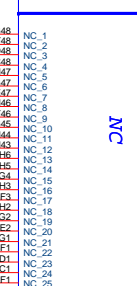
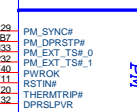
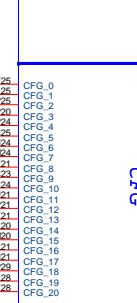
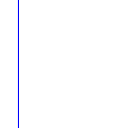
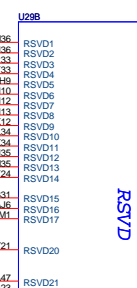
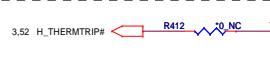
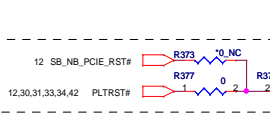
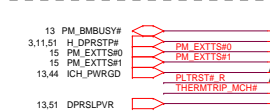
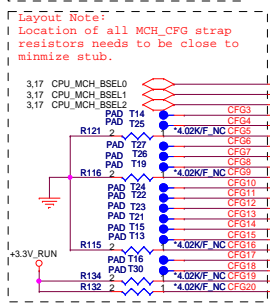
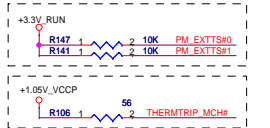
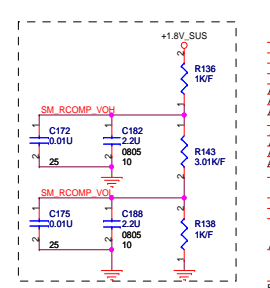


Pennyn Ball-out Rev 1a



|                                     |            |          |
|-------------------------------------|------------|----------|
| Title<br>Merom Processor (POWER)    |            |          |
| Size<br>Document Number<br>FM6B     | Rev<br>3A  |          |
| Date:<br>Thursday, October 09, 2008 | Sheet<br>4 | of<br>58 |





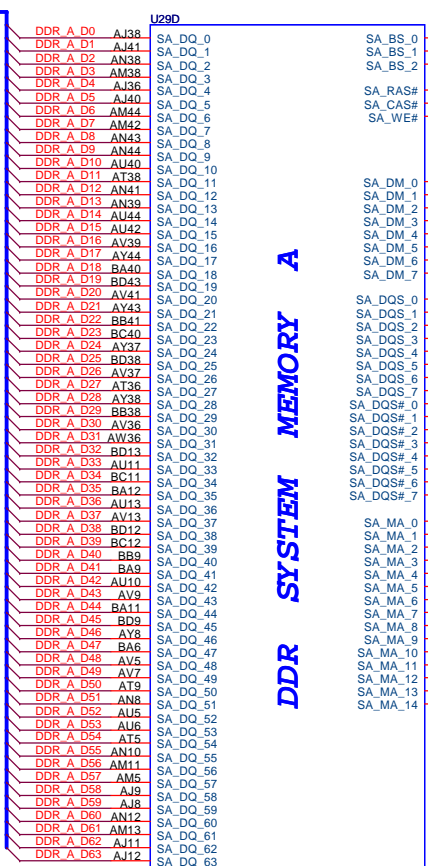
|                |                                |   |
|----------------|--------------------------------|---|
| CFG5           | DMI X2 Select                  | Low=DMiX2<br>High=DMiX4(Default)  |
| CFG9           | PCI Express Graphic Lane       | Low= Reverse Lane<br>High=Normal operation  |
| CFG16          | FSB Dynamic ODT                | Low=Dynamic ODT Disable<br>High=Dynamic ODT Enable(default).  |
| CFG19          | DMI Lane Reversal              | Low=Normal(default).<br>High=Lane Reversed  |
| CFG20          | SDVO/PCIE Concurrent Operation | Low=Only SDVO or PCIeI1 is operational (defaults)<br>High=SDVO and PCIeI1 are operating simultaneously via PEG port |
| SDVO_CTRL_DATA | SDVO Present.                  | Low=No SDVO Device Present (default)<br>High=SDVO Device Present  |

**QUANTA COMPUTER**

Title: Crestine (VGA,DMI)  
 Size: Document Number FMB8  
 Date: Thursday, October 09, 2008 Sheet 6 of 58



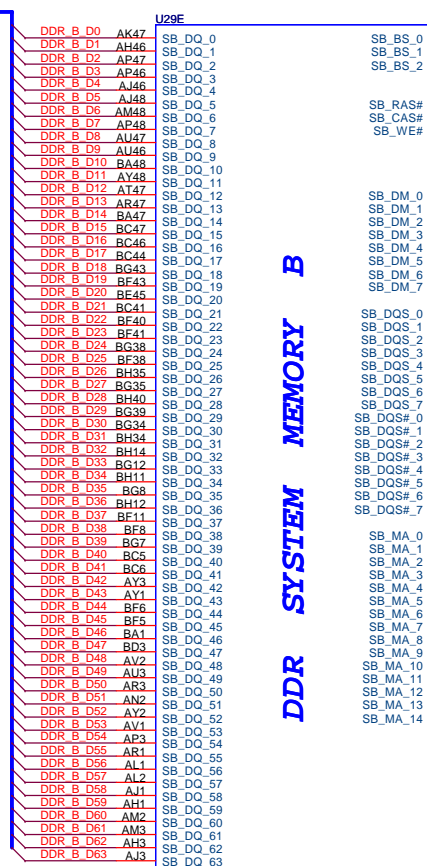
15 DDR\_A\_D[0..63]



DDR SYSTEM MEMORY A

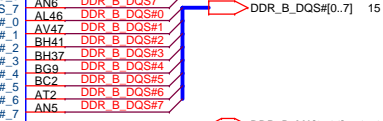
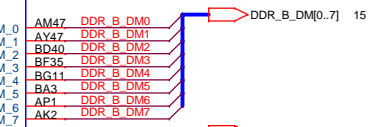
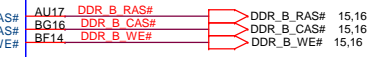
CANTIGA\_1p0

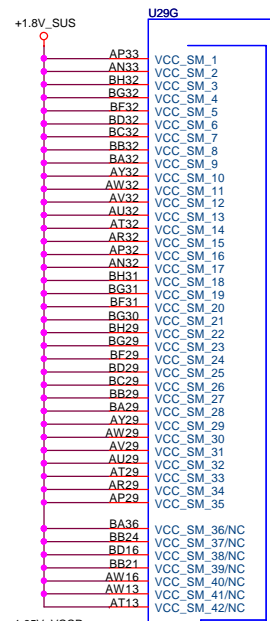
15 DDR\_B\_D[0..63]



DDR SYSTEM MEMORY B

CANTIGA\_1p0





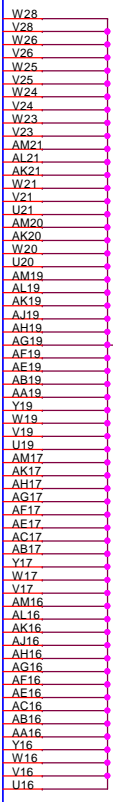
POWER

VCC SM

VCC GFX NCTF

VCC GFX

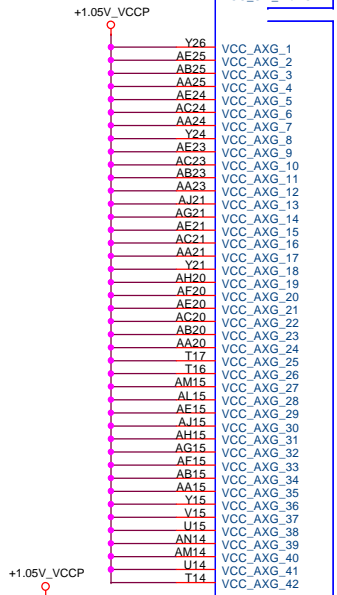
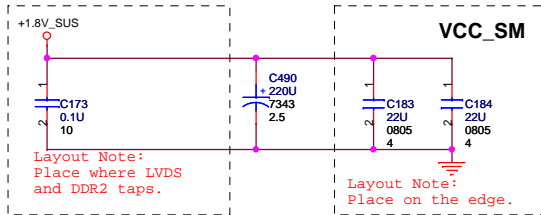
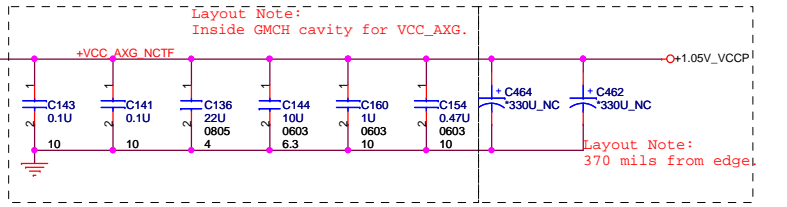
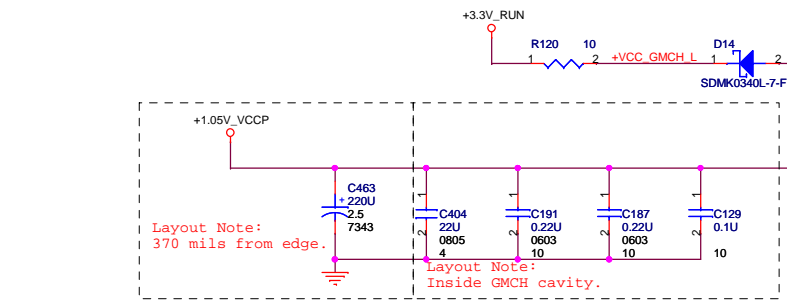
VCC SM LF



VCC CORE

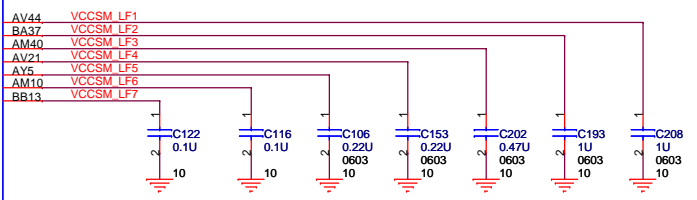
POWER

VCC NCTF



CANTIGA\_1p0

CANTIGA\_1p0

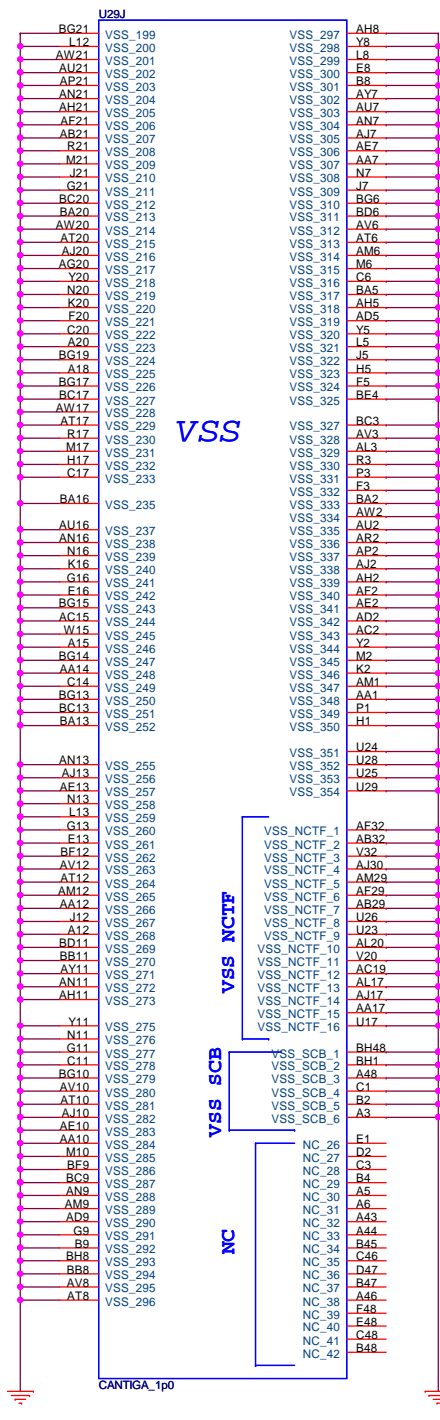
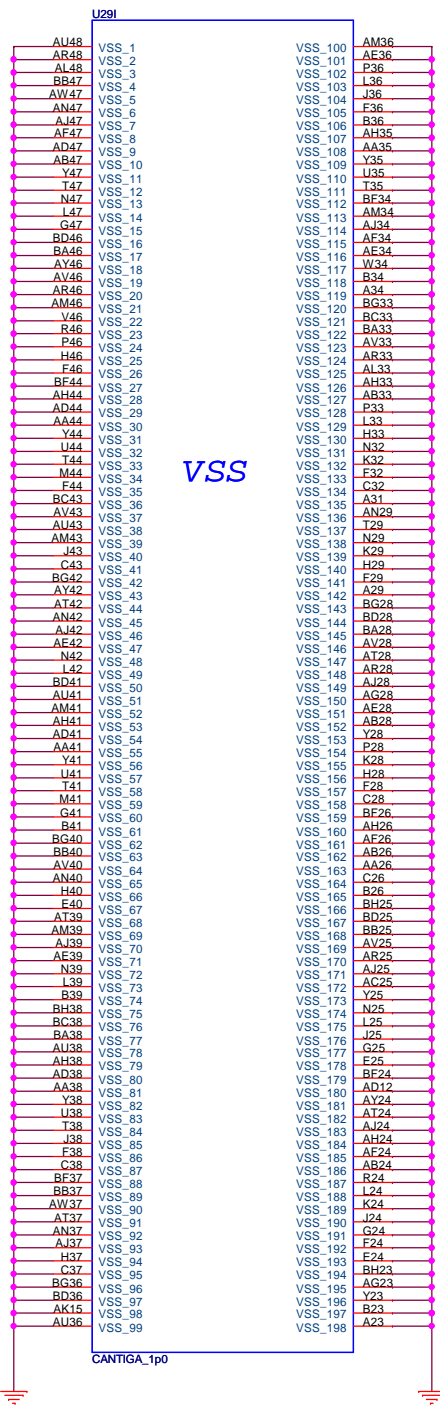


|                      |                            |               |
|----------------------|----------------------------|---------------|
| Title                |                            |               |
| Crestline (VCC,NCTF) |                            |               |
| Size                 | Document Number            | Rev           |
|                      | FM6B                       | 3A            |
| Date:                | Thursday, October 09, 2008 | Sheet 8 of 58 |

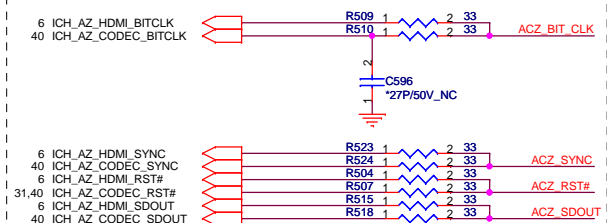
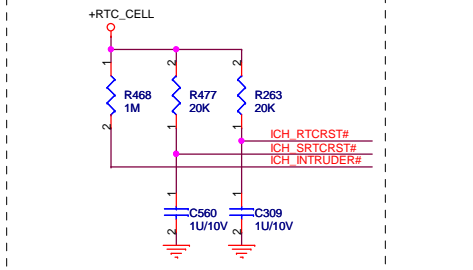
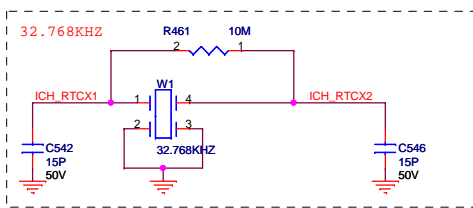
UMA: Places R103, R97 to 10 ohm.  
DIS: Please R103, R97 to 0 ohm.



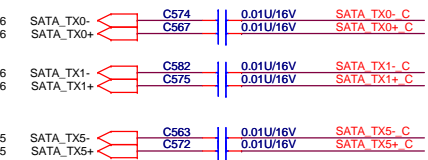




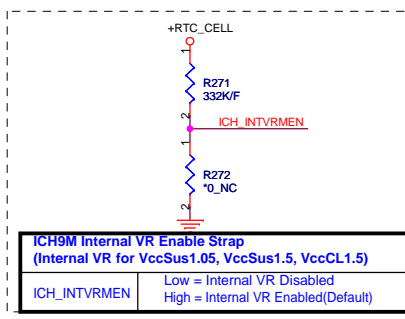
|                 |                            |                |
|-----------------|----------------------------|----------------|
| Title           |                            |                |
| Crestline (VSS) |                            |                |
| Size            | Document Number            | Rev            |
|                 | FM6B                       | 3A             |
| Date:           | Thursday, October 09, 2008 | Sheet 10 of 58 |



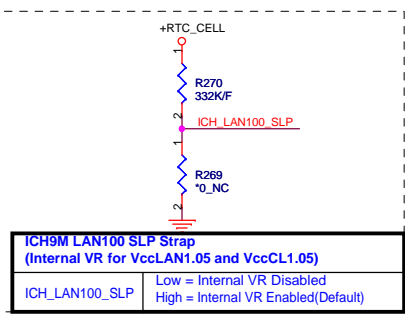
Place all series terms close to ICH9 except for SDIN input lines, which should be close to source. Placement of R523, R524, R509 & R510 should equal distance to the T split trace point as R504 & R507, R515 & R516 respectively. Basically, keep the same distance from T for all series termination resistors.



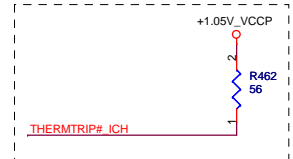
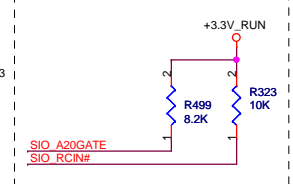
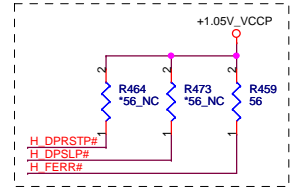
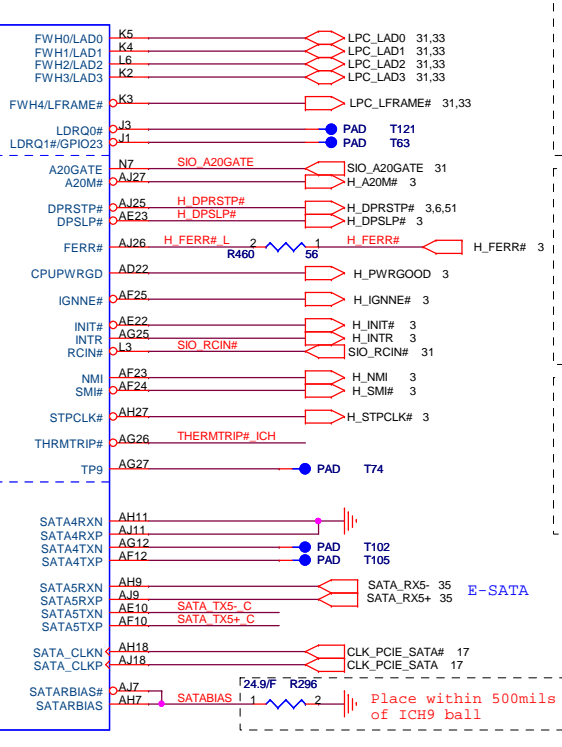
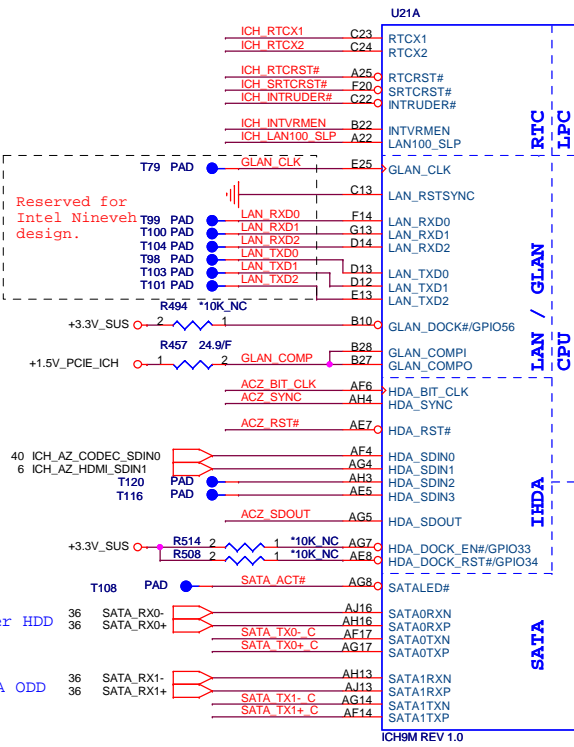
Master HDD  
SATA ODD



**ICH9M Internal VR Enable Strap**  
(Internal VR for VccSus1.05, VccSus1.5, VccCl1.5)  
ICH\_INTVRMEN Low = Internal VR Disabled  
High = Internal VR Enabled(Default)

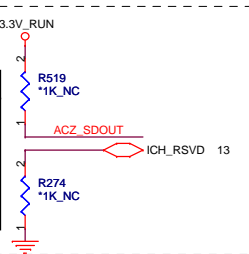


**ICH9M LAN100 SLP Strap**  
(Internal VR for VccLAN1.05 and VccCl1.05)  
ICH\_LAN100\_SLP Low = Internal VR Disabled  
High = Internal VR Enabled(Default)

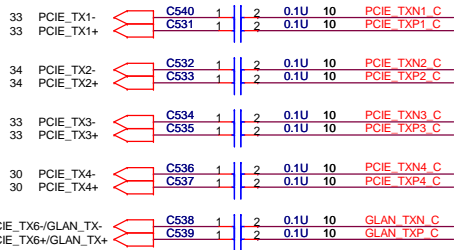


**XOR Chain Entrance Strap**

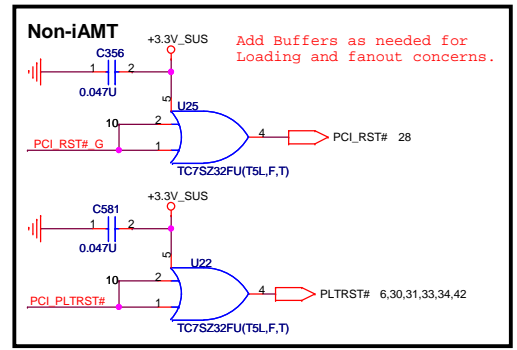
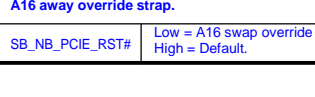
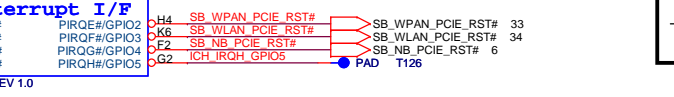
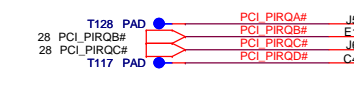
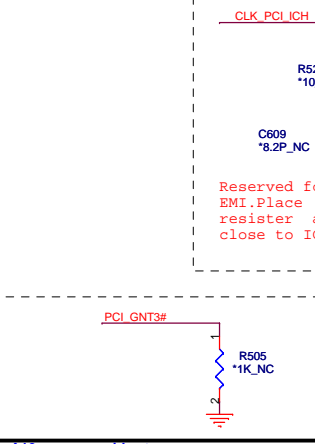
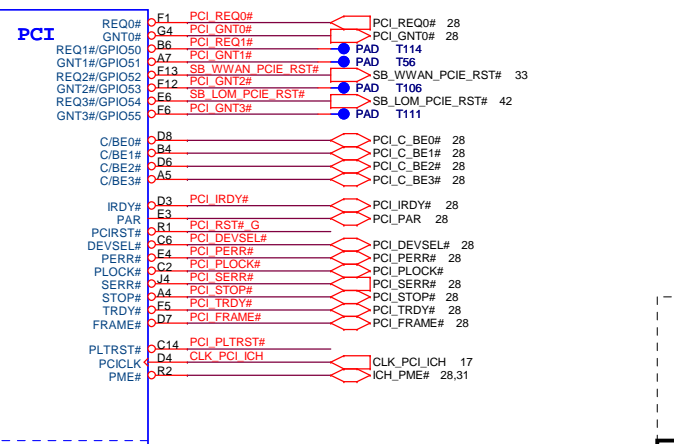
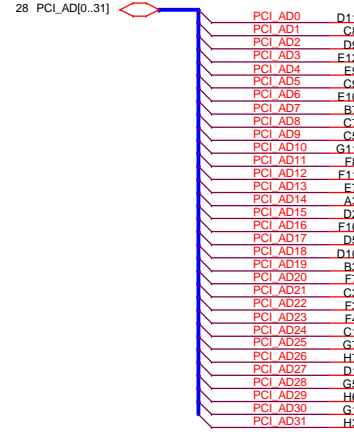
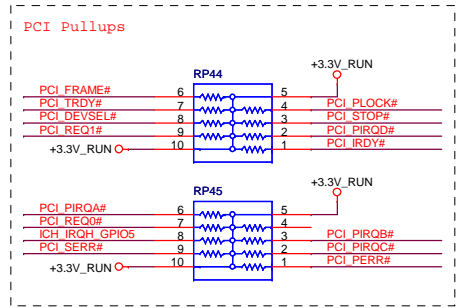
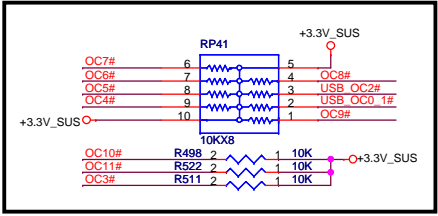
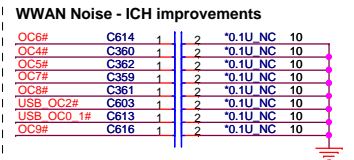
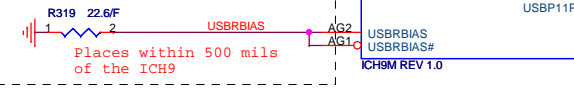
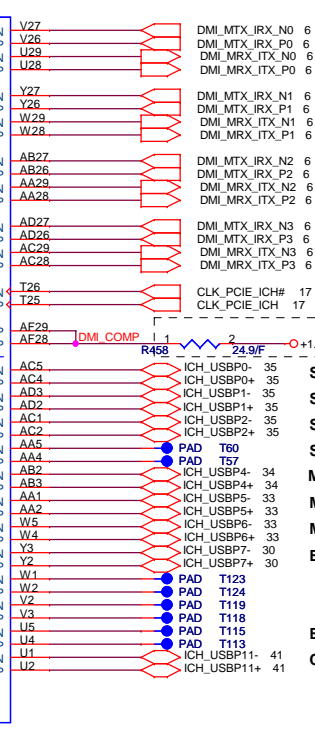
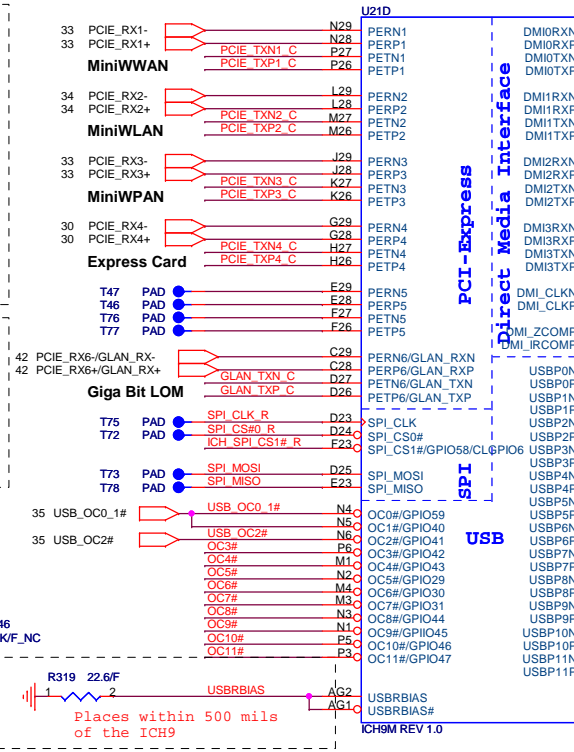
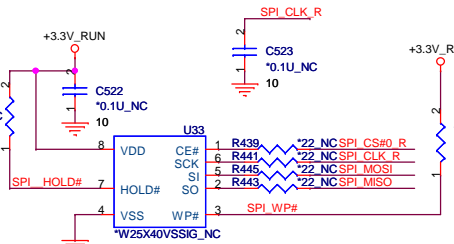
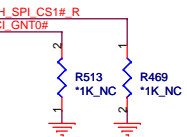
| ICH_RSVD | HDA_SDOUT | Description                |
|----------|-----------|----------------------------|
| 0        | 0         | RSVD                       |
| 0        | 1         | Enter XOR Chain            |
| 1        | 0         | Normal Operation (Default) |
| 1        | 1         | Set PCIe port config bit 1 |



Place TX DC blocking caps close ICH8.



| Boot BIOS Strap |       |          |          |
|-----------------|-------|----------|----------|
|                 | GNT0# | No stuff | SPL_CS1# |
| LPC             | 11    | No stuff | No stuff |
| PCI             | 10    | No stuff | Stuff    |
| SPI             | 01    | Stuff    | No stuff |

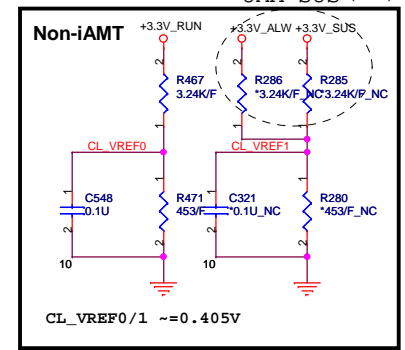
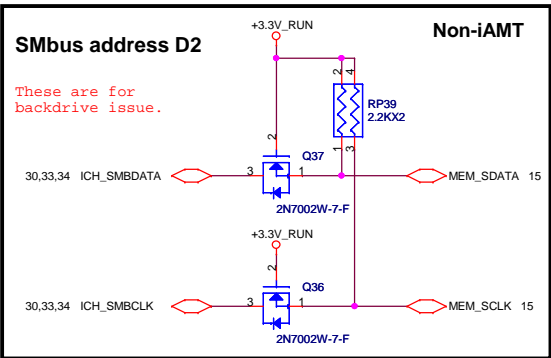
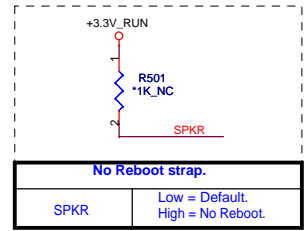
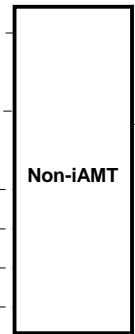
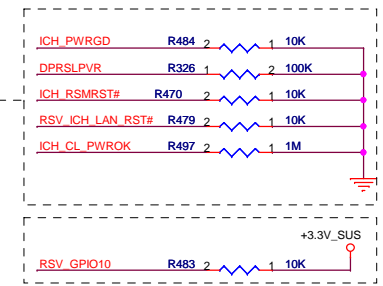
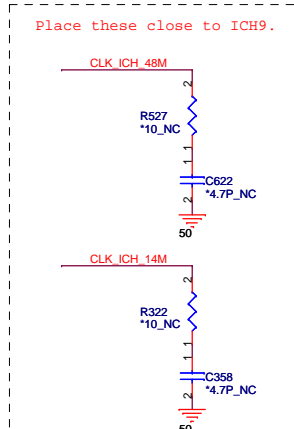
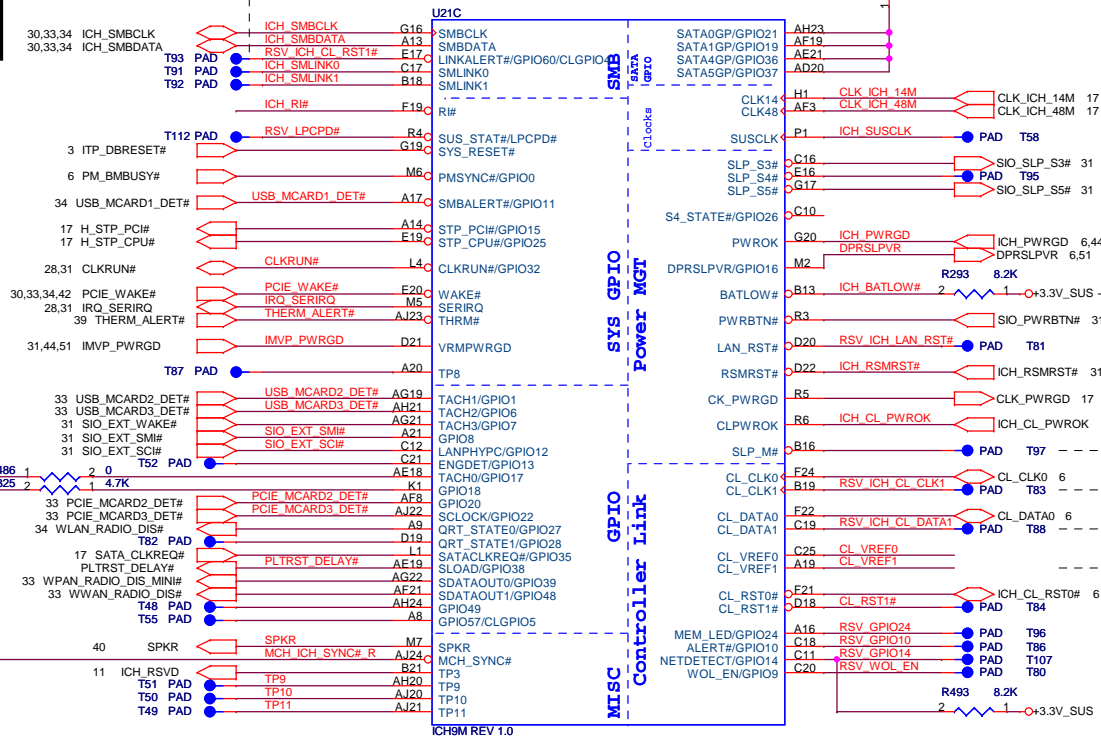
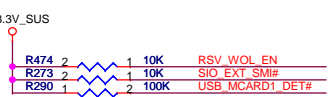
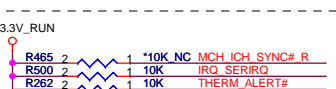
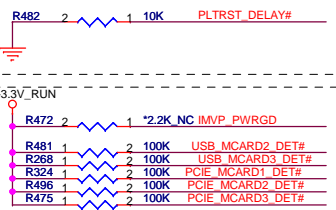
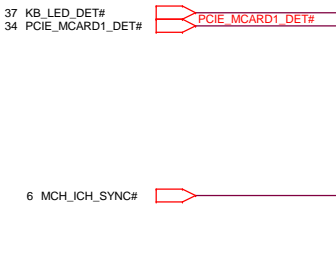
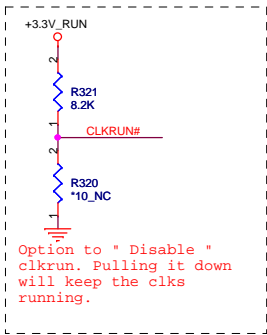
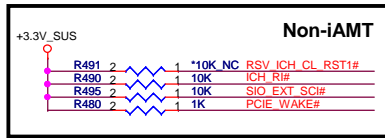
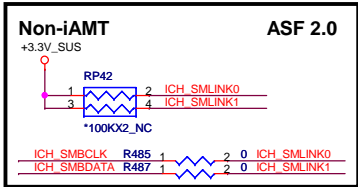
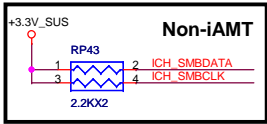


**QUANTA COMPUTER**

Title: ICH9-M (USB,DMI,PCI,PCI)

Size: Document Number FM6B Rev 3A

Date: Thursday, October 09, 2008 Sheet 12 of 58



**QUANTA COMPUTER**

Title: ICH9-M (PM,GPIO,SMB,CL)

Size: Document Number FM6B Rev 3A

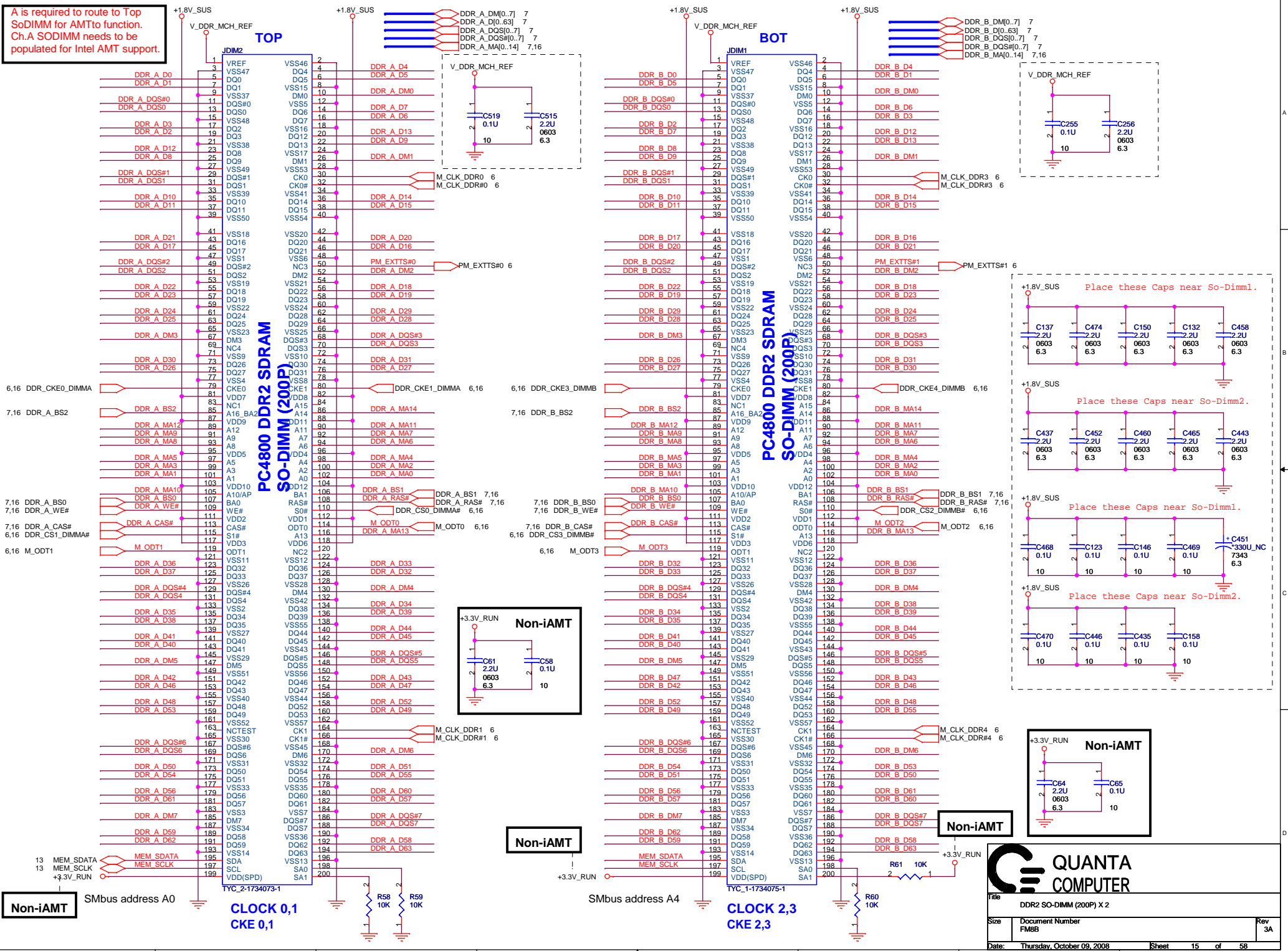
Date: Thursday, October 09, 2008 Sheet 13 of 58







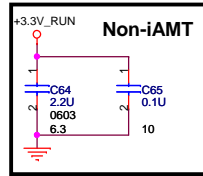
A is required to route to Top SoDIMM for AMTto function. Ch.A SODIMM needs to be populated for Intel AMT support.



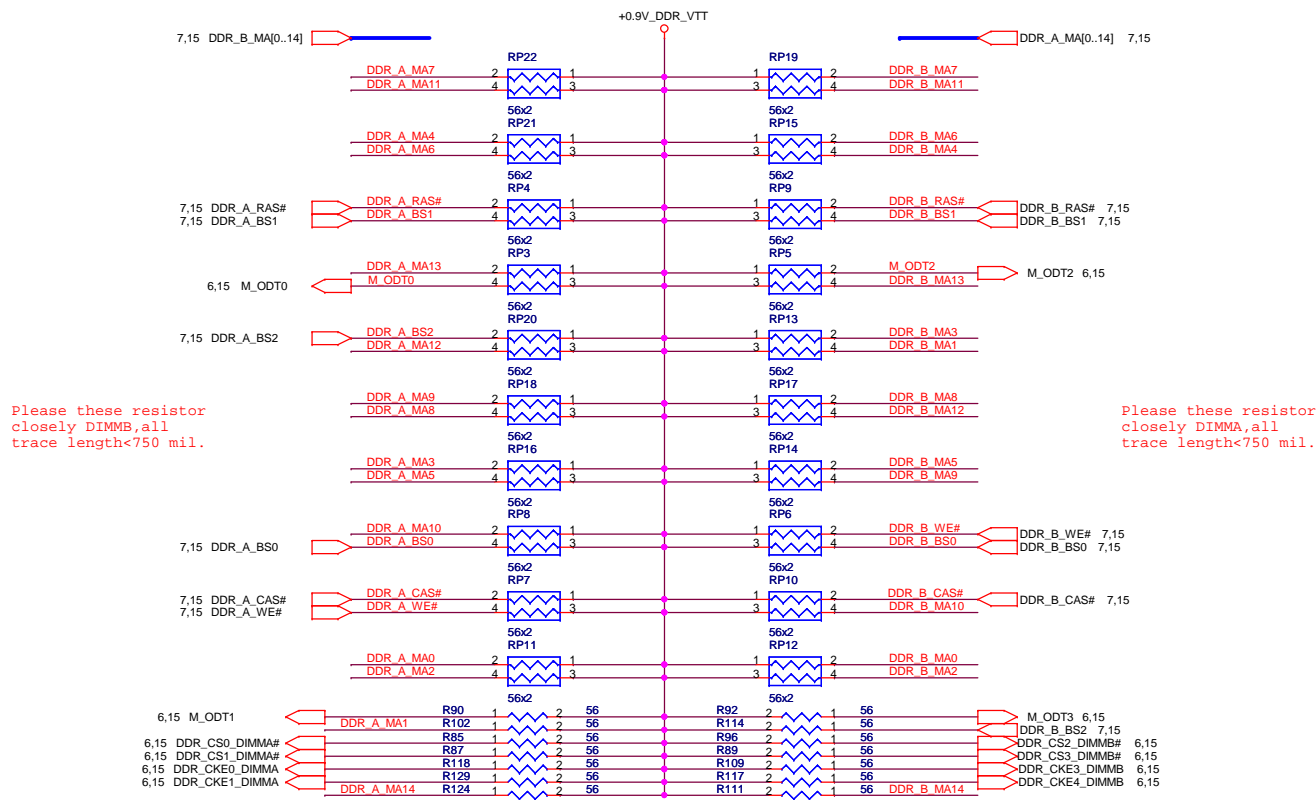
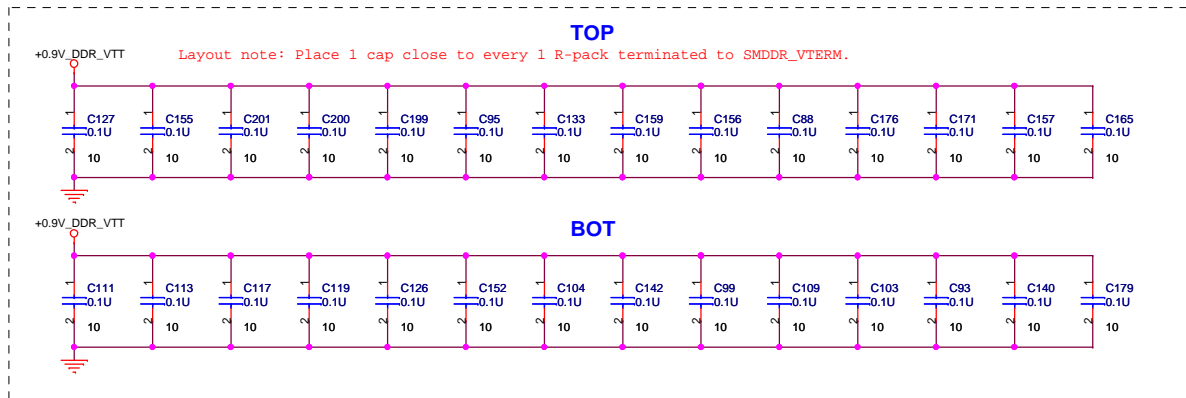
Non-iAMT

Non-iAMT

Non-iAMT



|                                  |                            |                   |
|----------------------------------|----------------------------|-------------------|
| Title<br>DDR2 SO-DIMM (200P) X 2 |                            |                   |
| Size                             | Document Number<br>FM5B    | Rev<br>3A         |
| Date:                            | Thursday, October 09, 2008 | Sheet<br>15 of 58 |



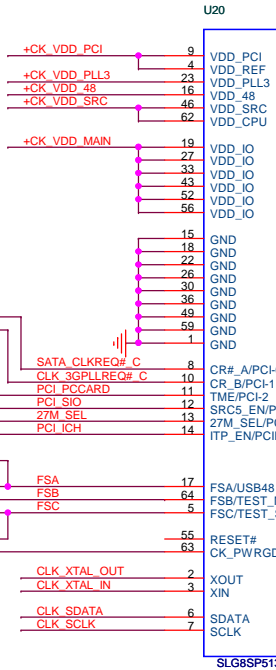
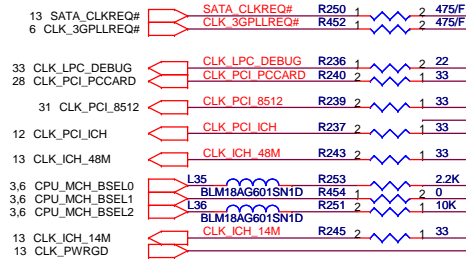
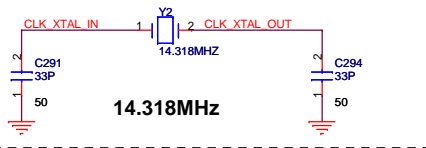
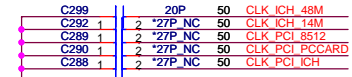
**QUANTA  
COMPUTER**

Title: **DDR2 RES ARRAY**

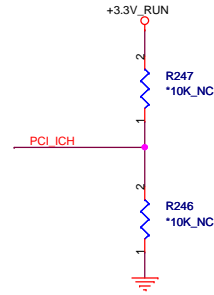
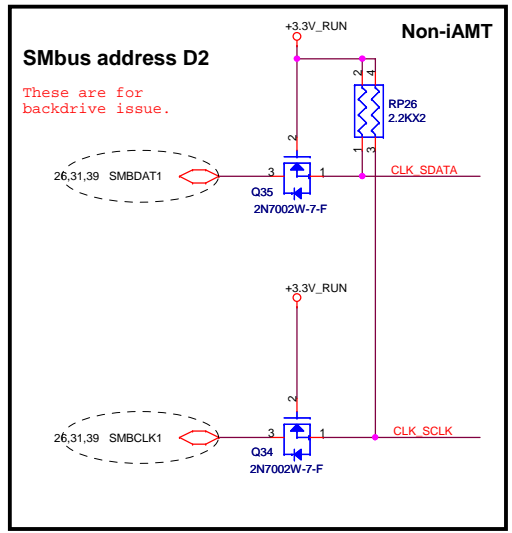
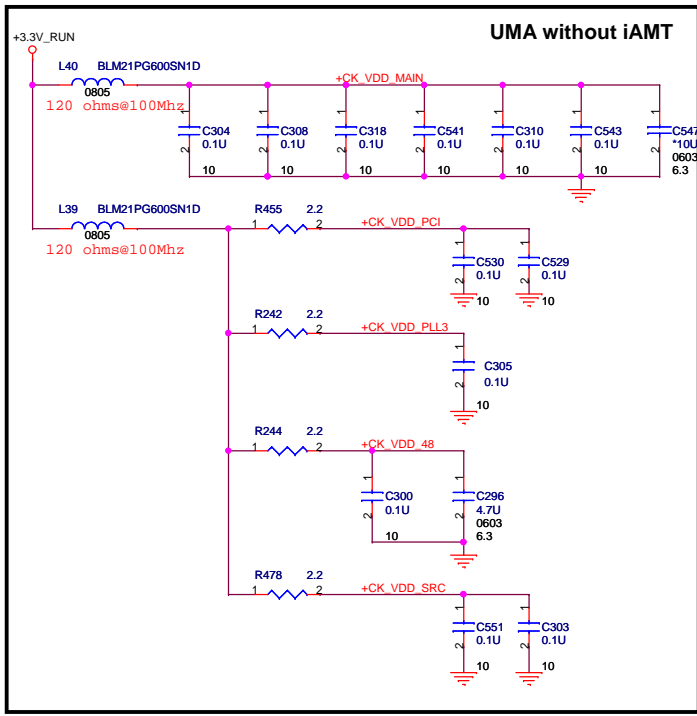
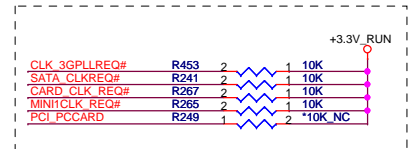
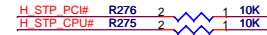
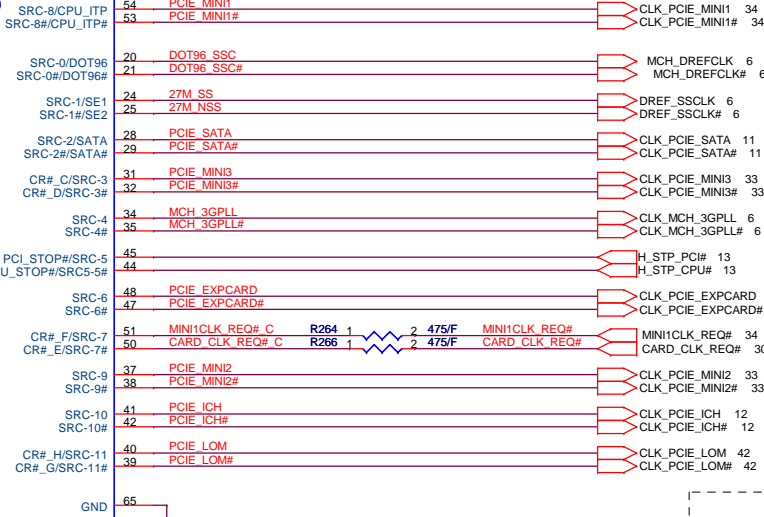
|                                       |                |
|---------------------------------------|----------------|
| Size: <b>Document Number<br/>FM6B</b> | Rev: <b>3A</b> |
|---------------------------------------|----------------|

Date: **Thursday, October 09, 2008** Sheet **16** of **58**

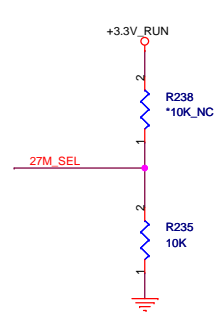
**Add capacitor pads for improving WWAN.**



**CK505 QFN64**



R246 POP: For Internal pull-low.  
R235 POP: For internal pull-high.



| FSC | FSB | FSA | CPU  | SRC | PCI |
|-----|-----|-----|------|-----|-----|
| 1   | 0   | 1   | 100  | 100 | 33  |
| 0   | 0   | 1   | 133  | 100 | 33  |
| 0   | 1   | 1   | 166  | 100 | 33  |
| 0   | 0   | 0   | 266  | 100 | 33  |
| 1   | 0   | 0   | 333  | 100 | 33  |
| 1   | 1   | 0   | 400  | 100 | 33  |
| 1   | 1   | 1   | RSVD | 100 | 33  |

**27M\_SEL**

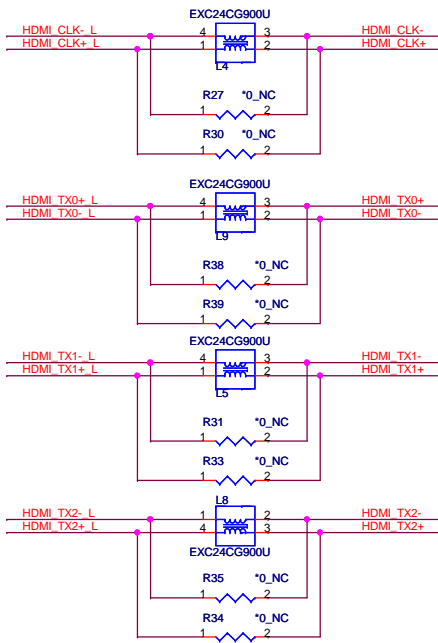
| 27M_SEL (PIN13)     | PIN20  | PIN21  | PIN24     | PIN25     |
|---------------------|--------|--------|-----------|-----------|
| 0=UMA               | DOT96T | DOT96C | 96/100M_T | 96/100M_C |
| 1 = Disc. GRFX down | SRCT0  | SRCC0  | 27Mout    | 27MSSout  |

**QUANTA COMPUTER**

Title: CLOCK GENERATOR

Size: Document Number FM6B Rev 3A

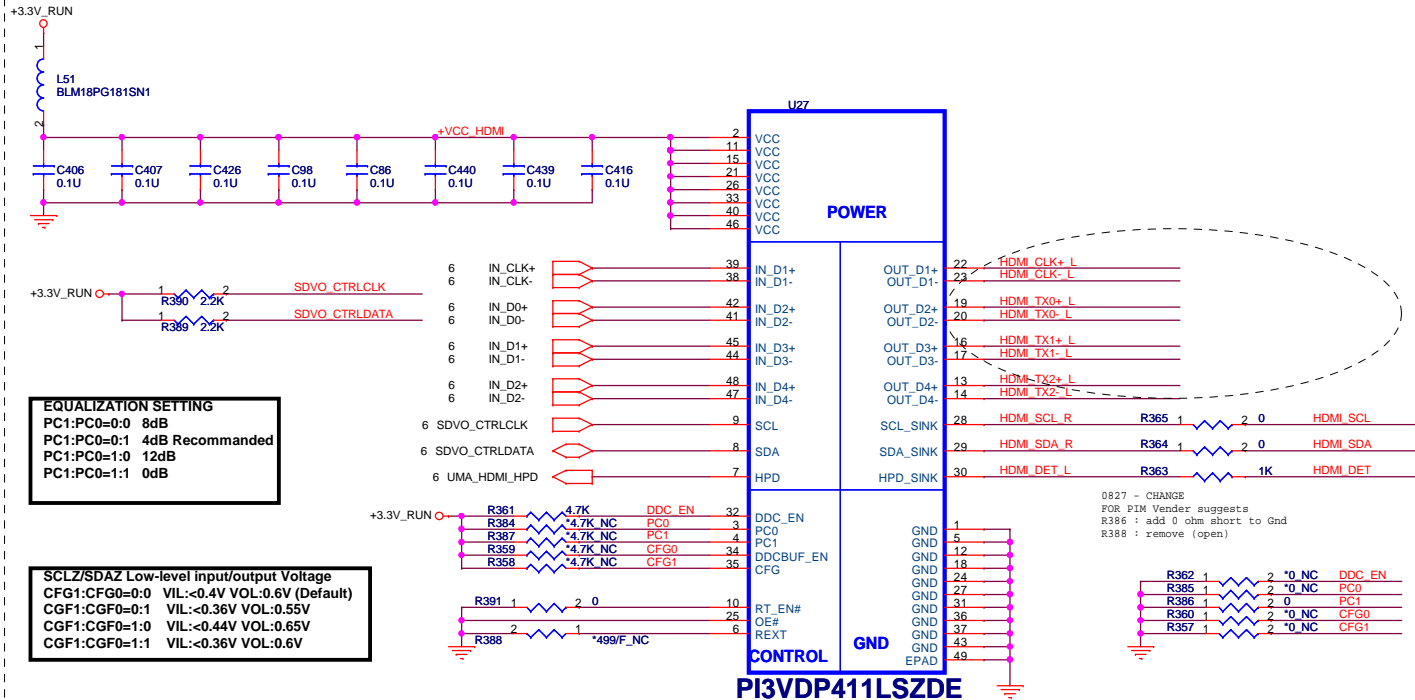
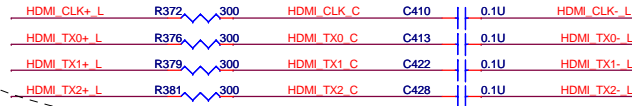
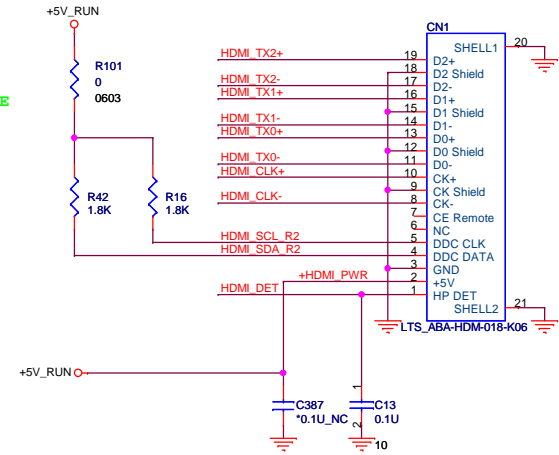
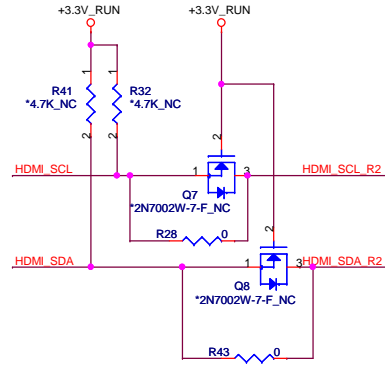
Date: Thursday, October 09, 2008 Sheet 17 of 58



Reserve for EMI and close to HDMI CONN

# HDMI Connector

07-24 - 23  
FOR EA TEST HDMI CHANGE




**EQUALIZATION SETTING**  
 PC1:PC0=0:0 8dB  
 PC1:PC0=0:1 4dB Recommended  
 PC1:PC0=1:0 12dB  
 PC1:PC0=1:1 0dB

**SCL2/SDAZ Low-level input/output Voltage**  
 CFG1:CFG0=0:0 VIL:<0.4V VOL:0.6V (Default)  
 CGF1:CGF0=0:1 VIL:<0.36V VOL:0.55V  
 CGF1:CGF0=1:0 VIL:<0.44V VOL:0.65V  
 CGF1:CGF0=1:1 VIL:<0.36V VOL:0.6V


0827 - CHANGE  
 FOR PIM Vender suggests  
 R386 : add 0 ohm short to Gnd  
 R388 : remove (open)



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|  |                         |           |
|--|-------------------------|-----------|
|  <b>QUANTA<br/>COMPUTER</b> |                         |           |
| Title  |                         |           |
| Size   | Document Number<br>FM6B | Rev<br>3A |
| Date: Thursday, October 09, 2008   |                         |           |
| Sheet 19 of 58   |                         |           |

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|  |                            |                |
|--|----------------------------|----------------|
|  <b>QUANTA<br/>COMPUTER</b> |                            |                |
| Title  |                            |                |
| Size   | Document Number            | Rev            |
|  | FM6B                       | 3A             |
| Date:  | Thursday, October 09, 2008 | Sheet 20 of 58 |



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|--|-----------------|-----|
|  <b>QUANTA<br/>COMPUTER</b> |                 |     |
| Title  |                 |     |
| Size   | Document Number | Rev |
|  | FM6B            | 3A  |
| Date: Thursday, October 09, 2008   |                 |     |
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|  <b>QUANTA<br/>COMPUTER</b> |                            |                |
| Title  |                            |                |
| Size   | Document Number            | Rev            |
|  | FM6B                       | 3A             |
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A

B

C

D

E

4

4

3


3

2

2

1

1

|  |                            |                |
|--|----------------------------|----------------|
|  <b>QUANTA<br/>COMPUTER</b> |                            |                |
| Title: FLASH, RTC & KC   |                            |                |
| Size:  | Document Number:<br>FM6B   | Rev:<br>3A     |
| Date:  | Thursday, October 09, 2008 | Sheet 23 of 58 |

A

B

C

D

E

1

2

3

4

5

A

A

B


B

C

C

D

D

|  |                            |                |
|--|----------------------------|----------------|
|  <b>QUANTA<br/>COMPUTER</b> |                            |                |
| Title: Battery Selector  |                            |                |
| Size:  | Document Number:<br>FM6B   | Rev:<br>3A     |
| Date:  | Thursday, October 09, 2008 | Sheet 24 of 58 |

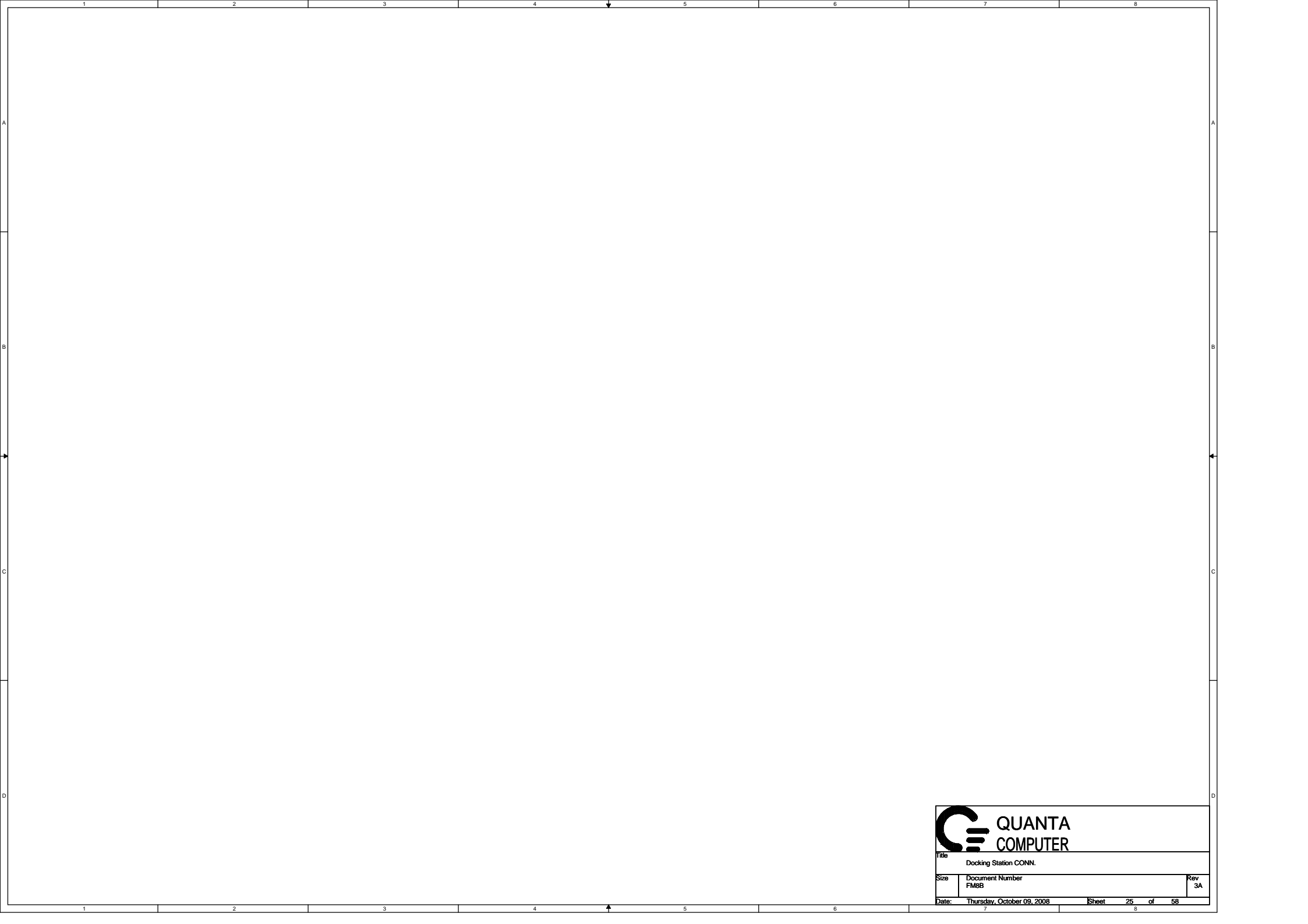
1

2

3

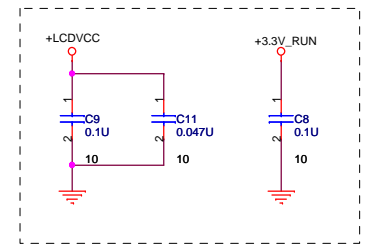
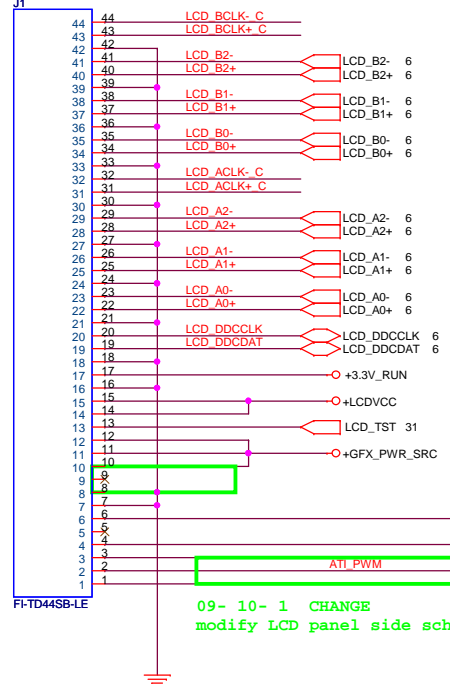
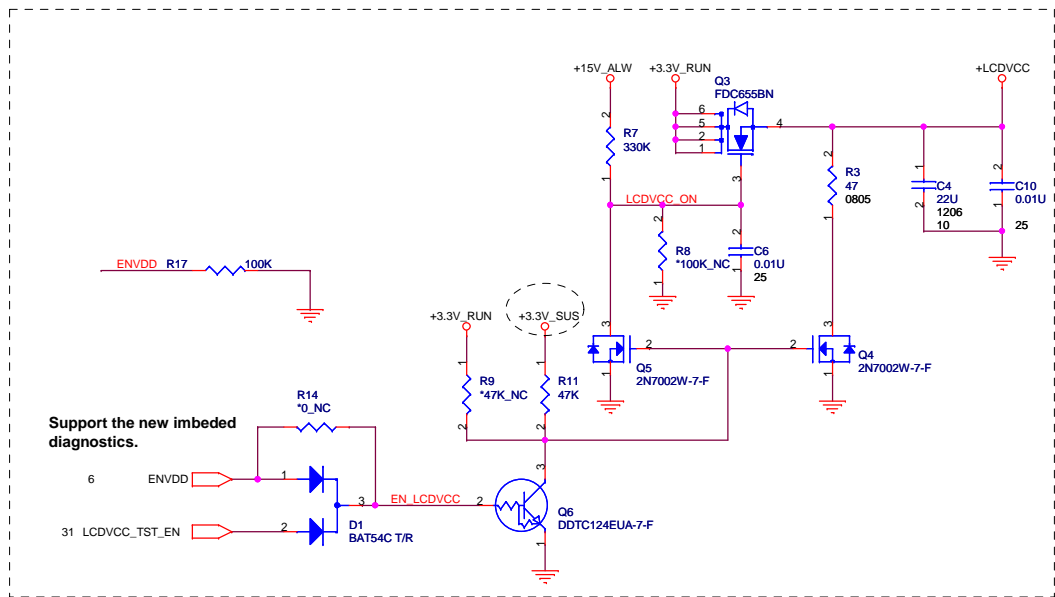
4

5



**QUANTA  
COMPUTER**

|                                  |                 |                |
|----------------------------------|-----------------|----------------|
| Title                            |                 |                |
| Docking Station CONN.            |                 |                |
| Size                             | Document Number | Rev            |
|                                  | FM6B            | 3A             |
| Date: Thursday, October 09, 2008 |                 | Sheet 25 of 58 |



Address : A9H --Contrast  
AAH --Backlight

09- 10- 1 CHANGE  
modify LCD panel side schematic for DPST .

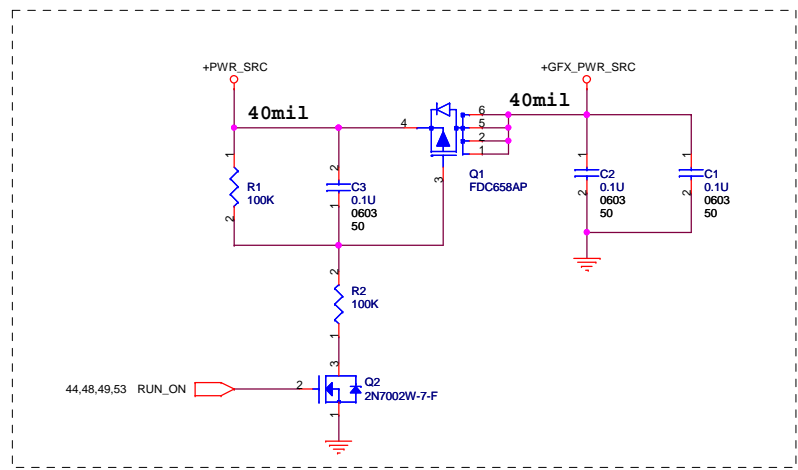
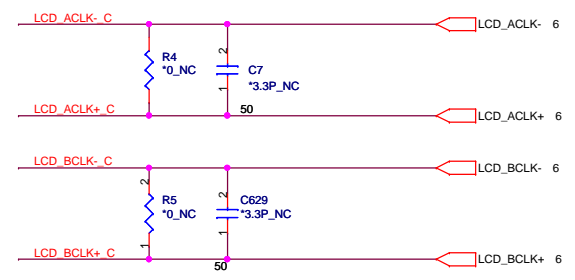
**UMA**  
Populate R351 for DPST implementation only.

Populate R352 for platform without DPST support. No Stuff for Discrete DSPT support due to back up plan.

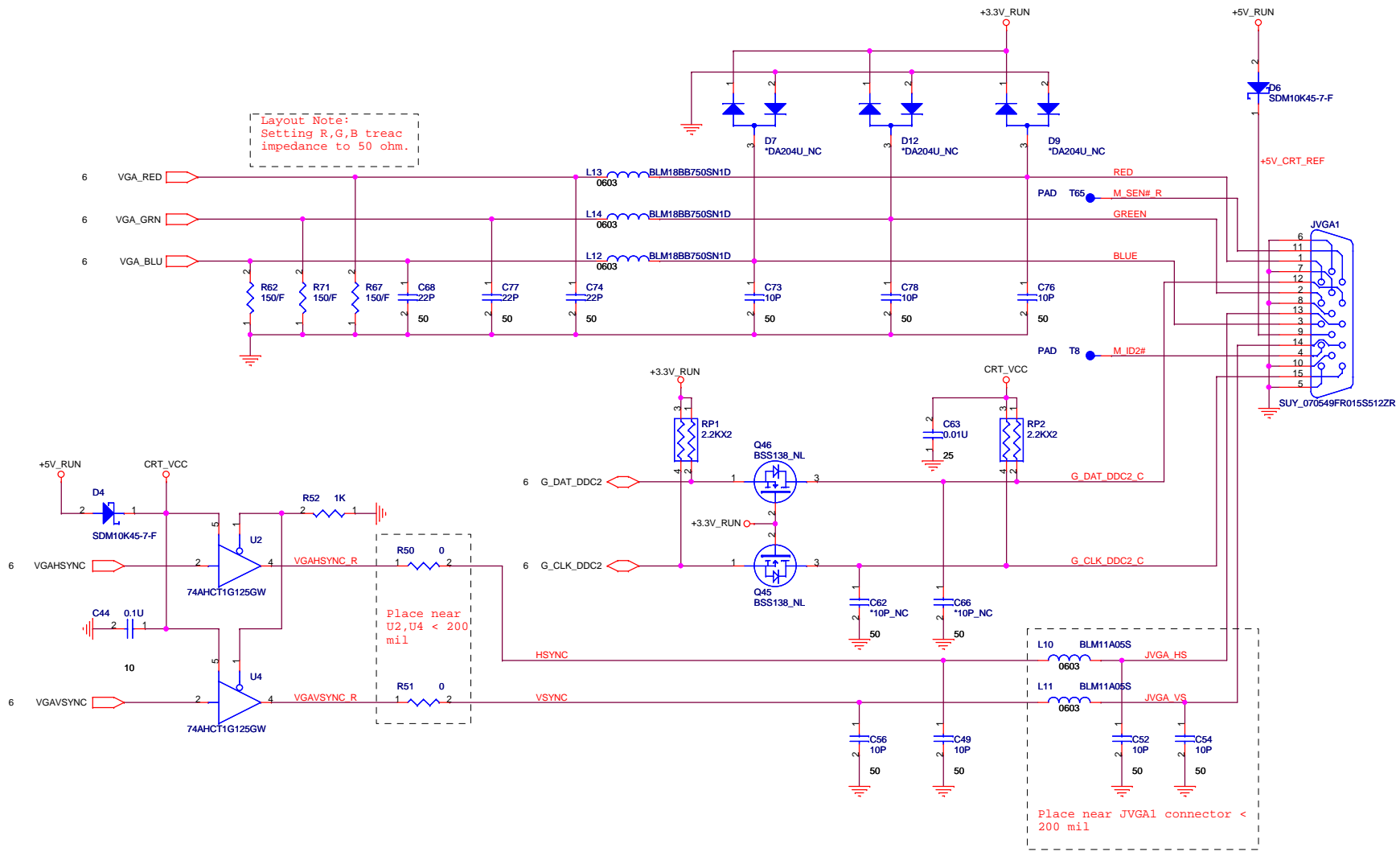
09- 10- 1 CHANGE  
modify LCD panel side schematic for DPST .

**Shunt capacitors on LVDS for improving WWAN.**

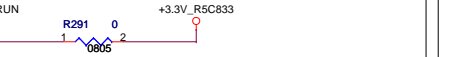
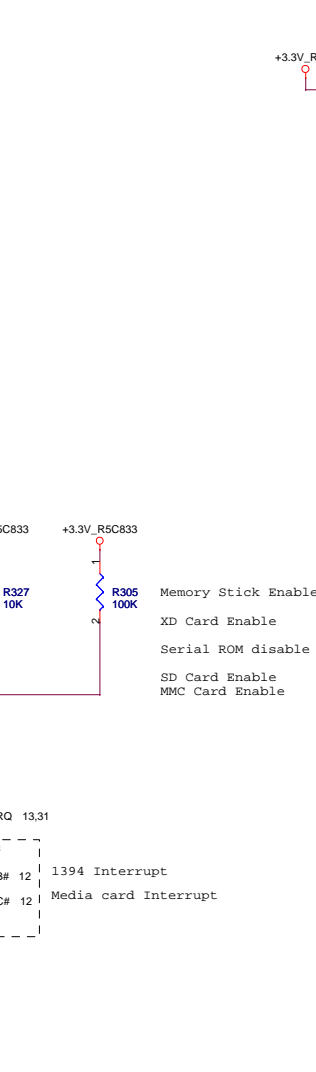
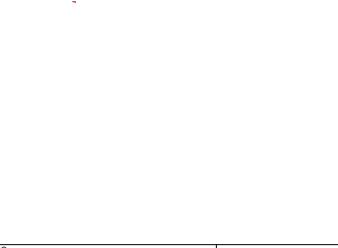
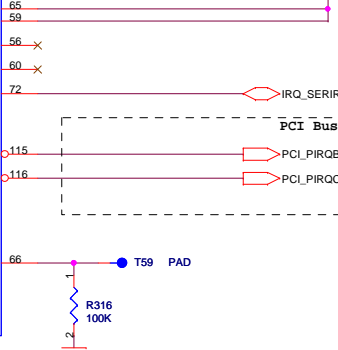
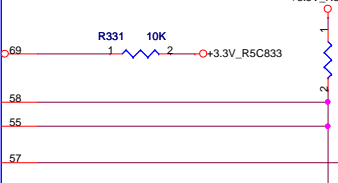
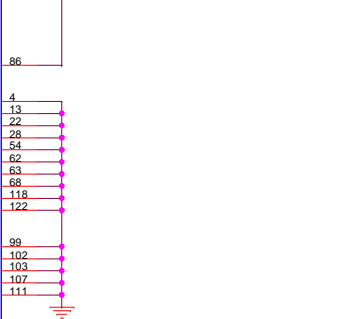
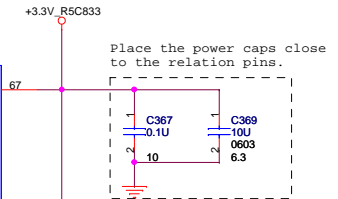
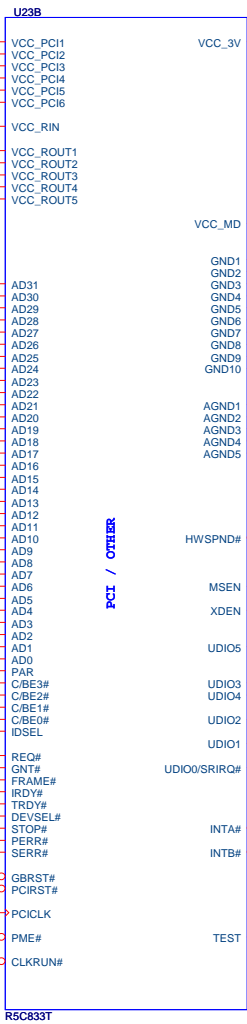
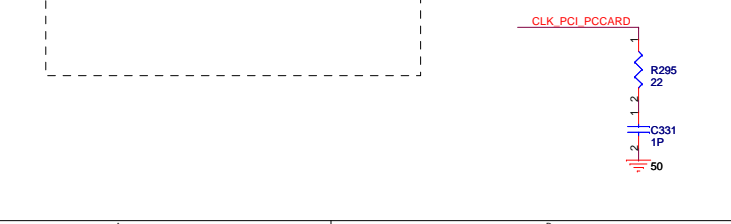
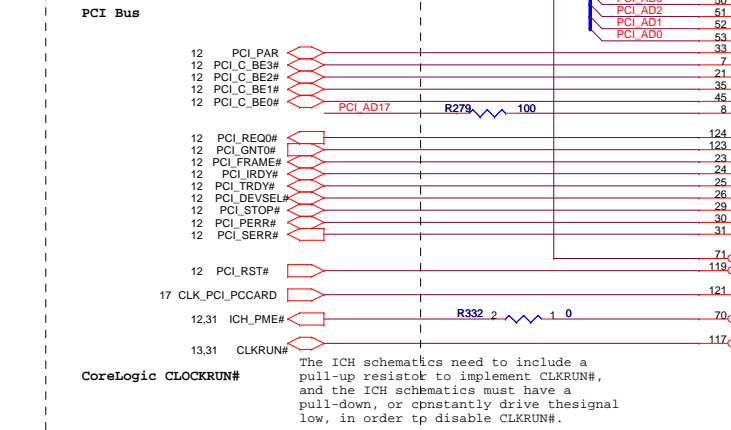
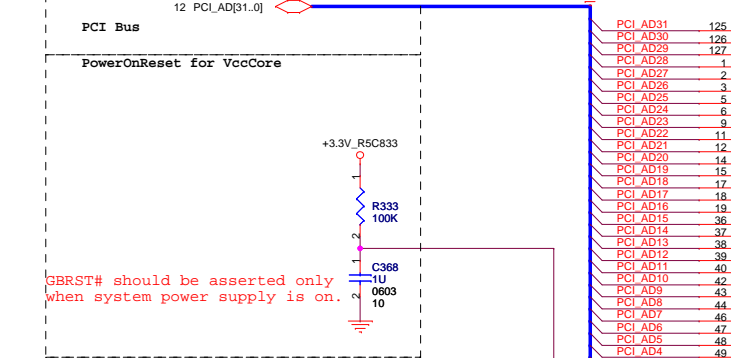
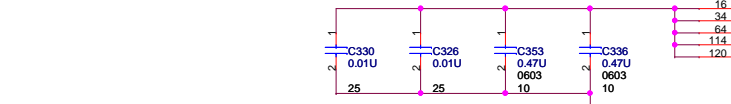
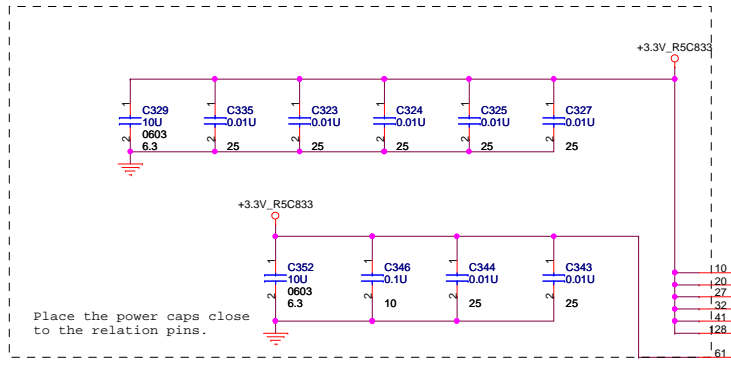
|         |      |   |   |       |    |    |         |
|---------|------|---|---|-------|----|----|---------|
| LCD B0- | C628 | 1 | 2 | *3.3P | NC | 50 | LCD B0+ |
| LCD B1- | C366 | 1 | 2 | *3.3P | NC | 50 | LCD B1+ |
| LCD B2- | C627 | 1 | 2 | *3.3P | NC | 50 | LCD B2+ |
| LCD A0- | C364 | 1 | 2 | *3.3P | NC | 50 | LCD A0+ |
| LCD A1- | C386 | 1 | 2 | *3.3P | NC | 50 | LCD A1+ |
| LCD A2- | C385 | 1 | 2 | *3.3P | NC | 50 | LCD A2+ |







|       |                            |                |
|-------|----------------------------|----------------|
| Title |                            | CRT&TV CONN    |
| Size  | Document Number            | Rev            |
|       | FM6B                       | 3A             |
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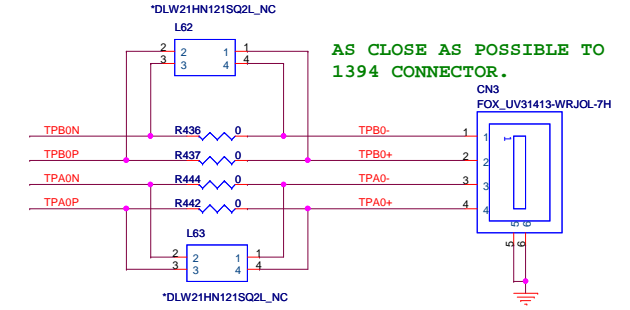
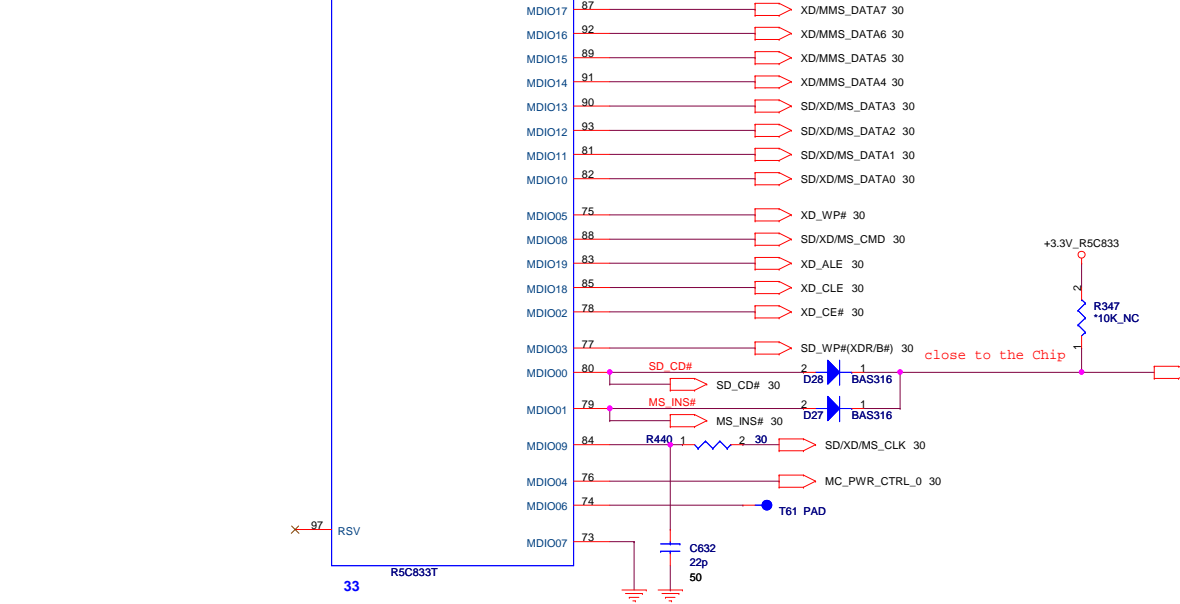
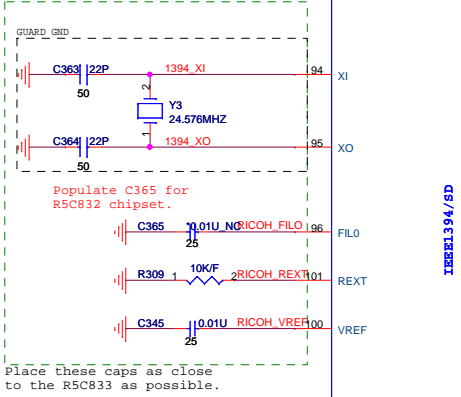
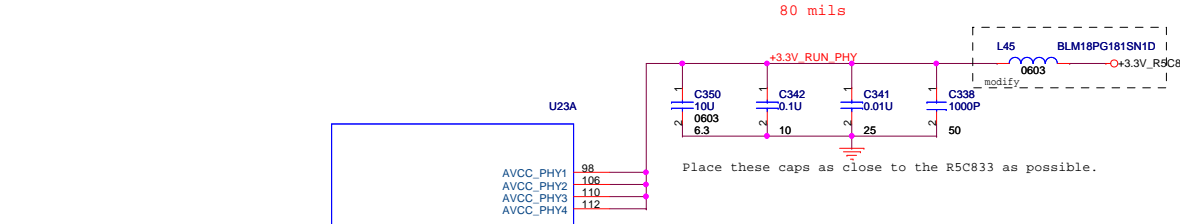
Refer to DELL M07 schematic X06

**QUANTA COMPUTER**

Title: 5 IN 1 CONTROLLER

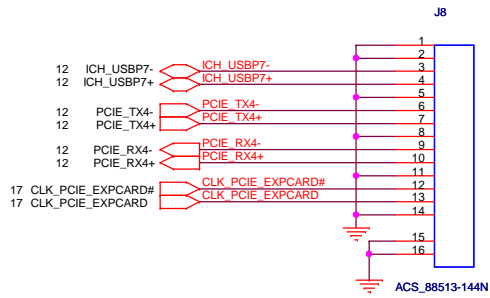
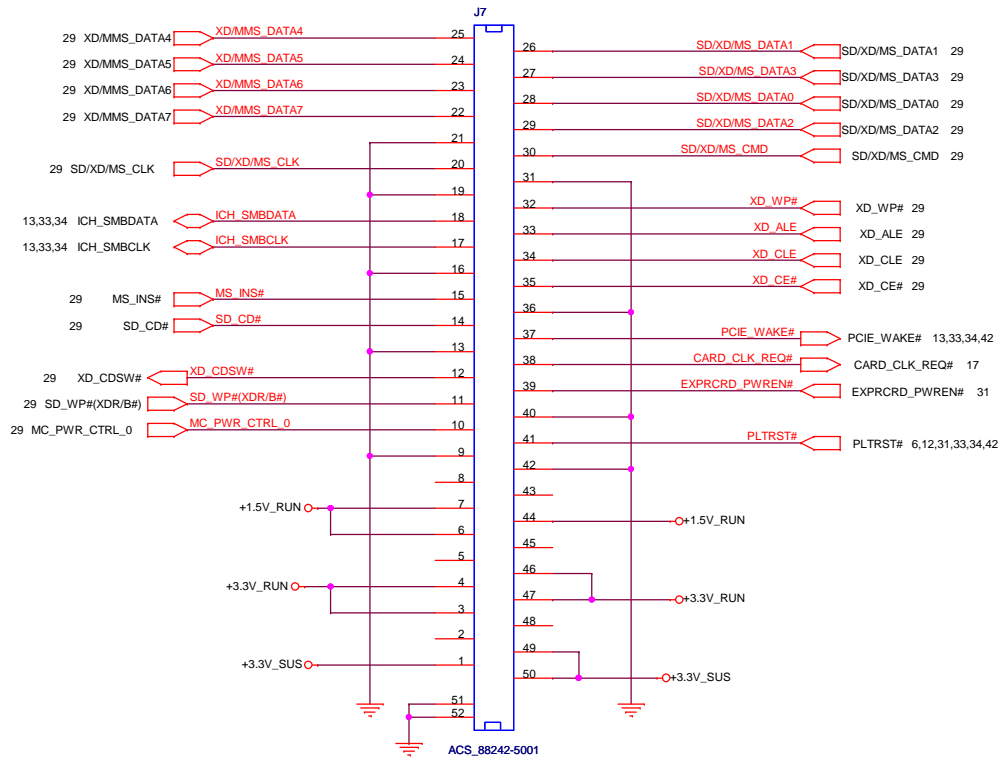
|      |                 |     |
|------|-----------------|-----|
| Size | Document Number | Rev |
|      | FM8B            | 3A  |

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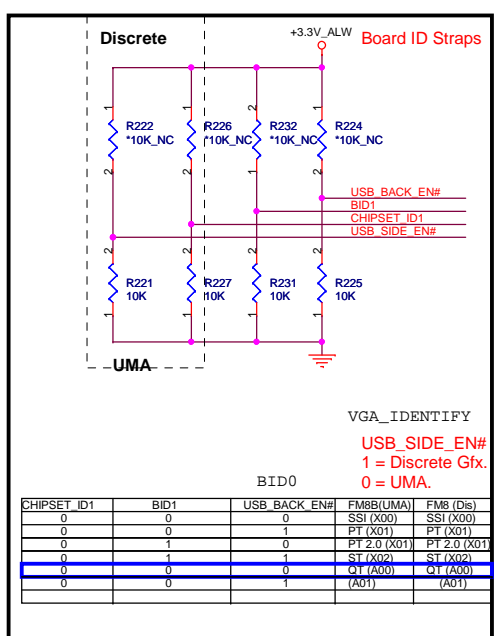
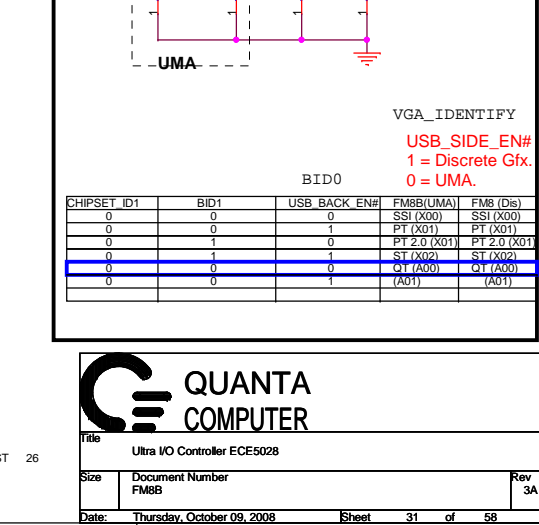
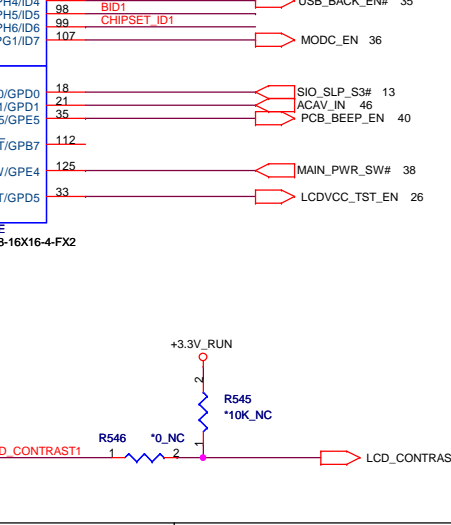
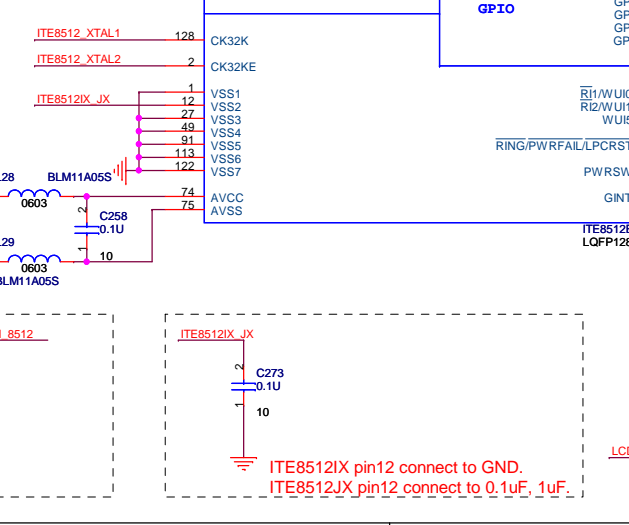
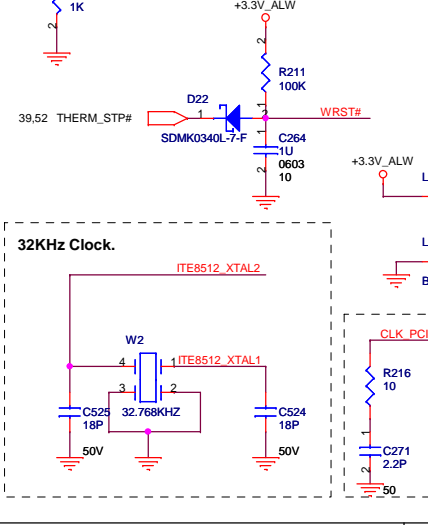
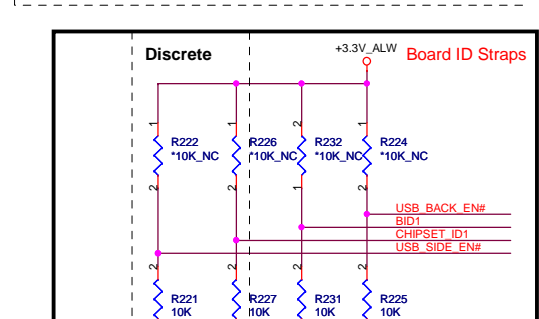
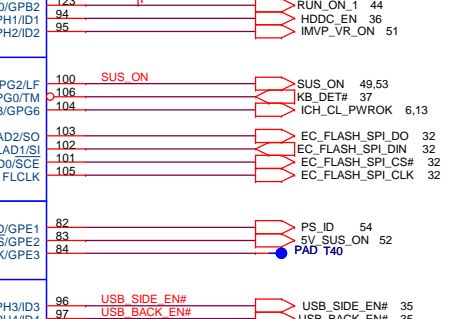
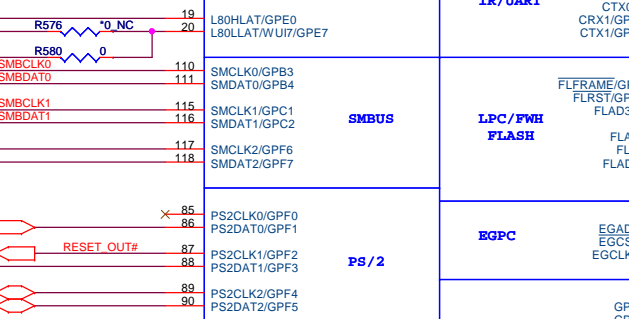
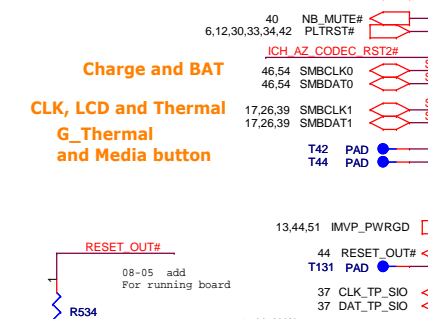
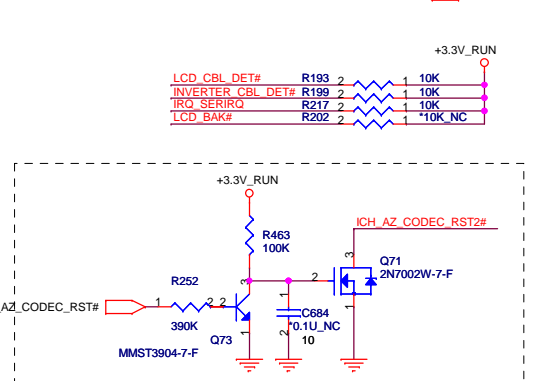
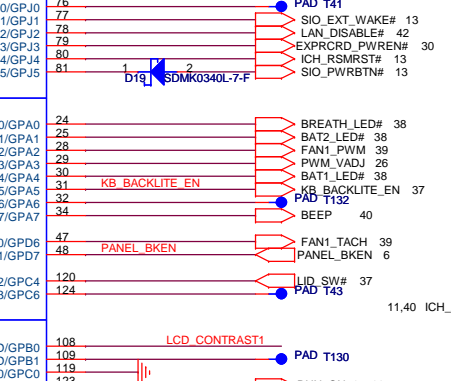
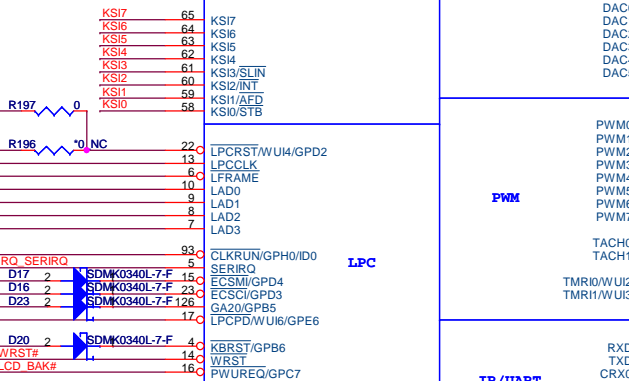
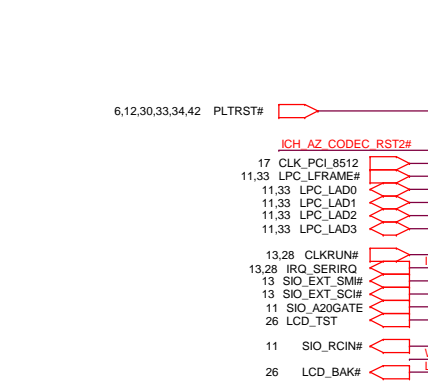
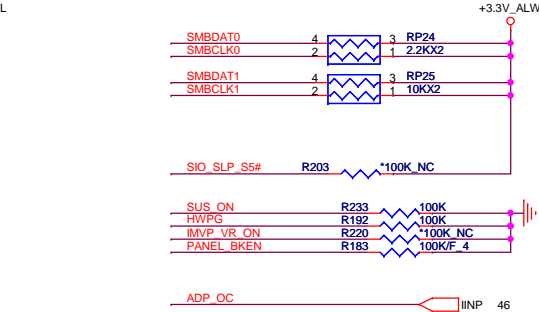
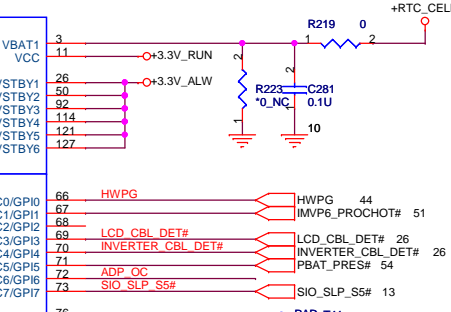
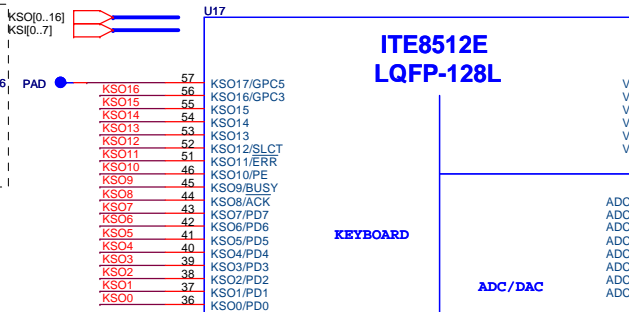
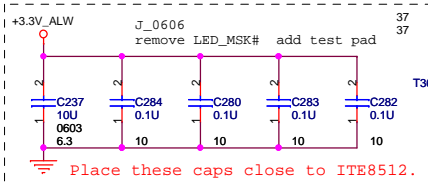


\*TPA0P/TPA0N,TPB0P/TPB0N pair trace : As close as possible.  
 \*TPA0P/TPA0N,TPB0P/TPB0N pair trace : Same length electrically.  
 \*Termination resistor for TPA+/- TPB+/- : As close as possible to its cable driver (device pin out).

# Express Card/CARD READER



|                              |                            |                 |
|------------------------------|----------------------------|-----------------|
|                              |                            |                 |
| Title: ExpressCard/SmartCard |                            |                 |
| Size:                        | Document Number: FM6B      | Rev: 3A         |
| Date:                        | Thursday, October 09, 2008 | Sheet: 30 of 58 |



**QUANTA COMPUTER**

Ultra I/O Controller ECE5028

File: FM8B

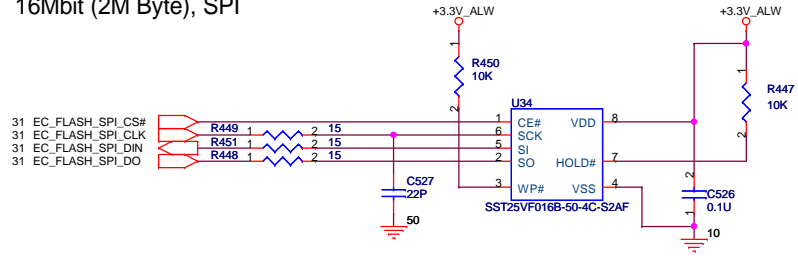
Size: Document Number FM8B

Date: Thursday, October 09, 2008

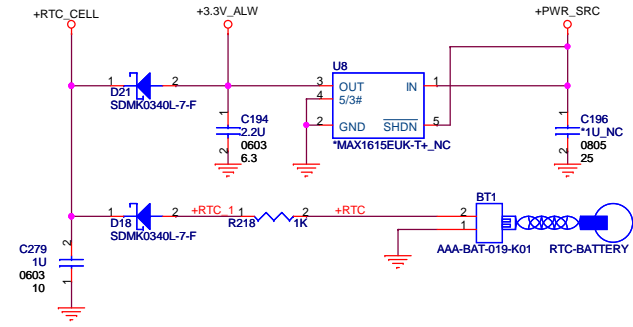
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Rev: 3A

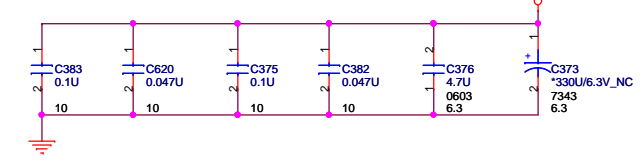
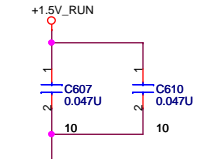
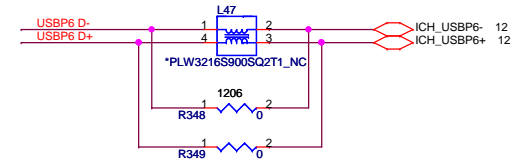
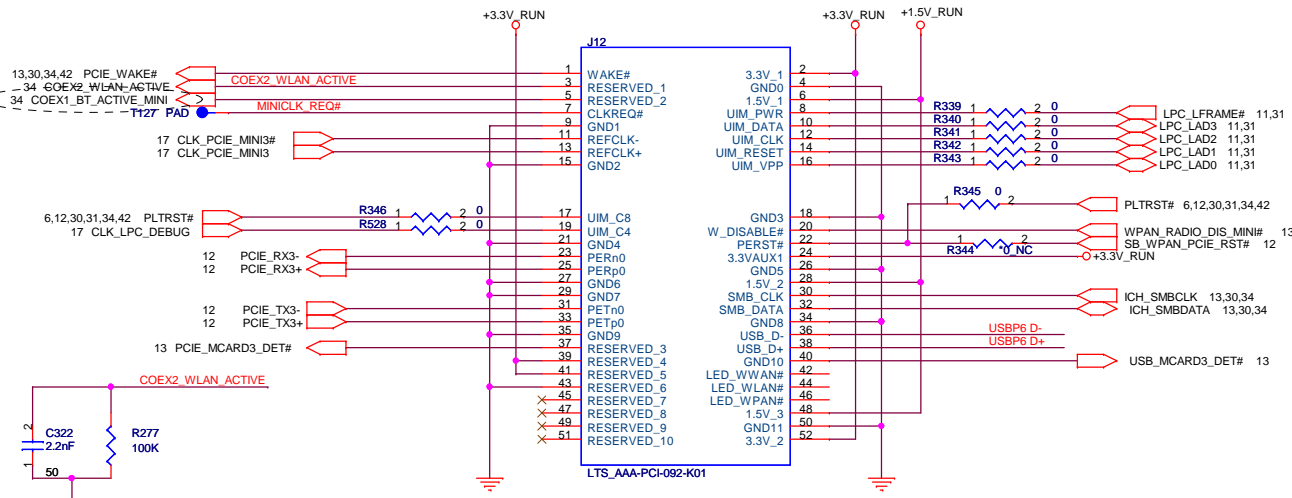
### 16Mbit (2M Byte), SPI



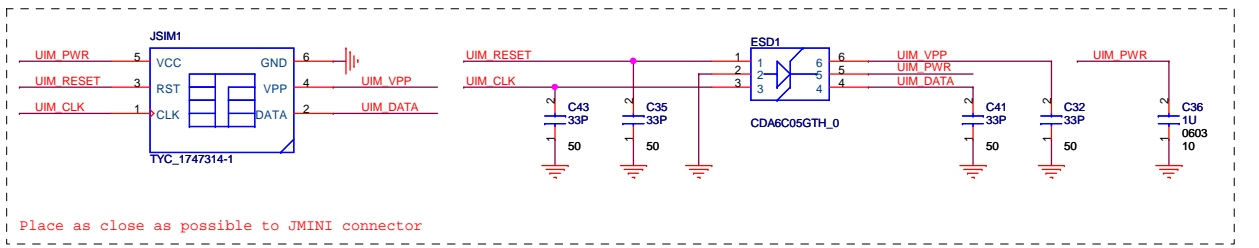
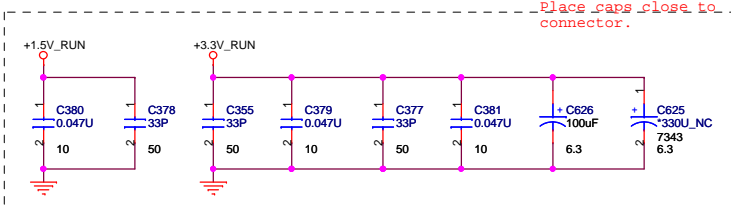
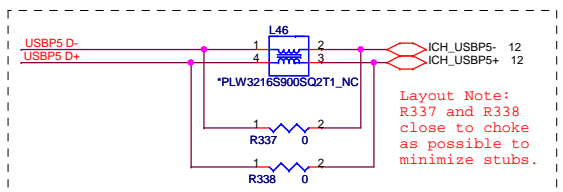
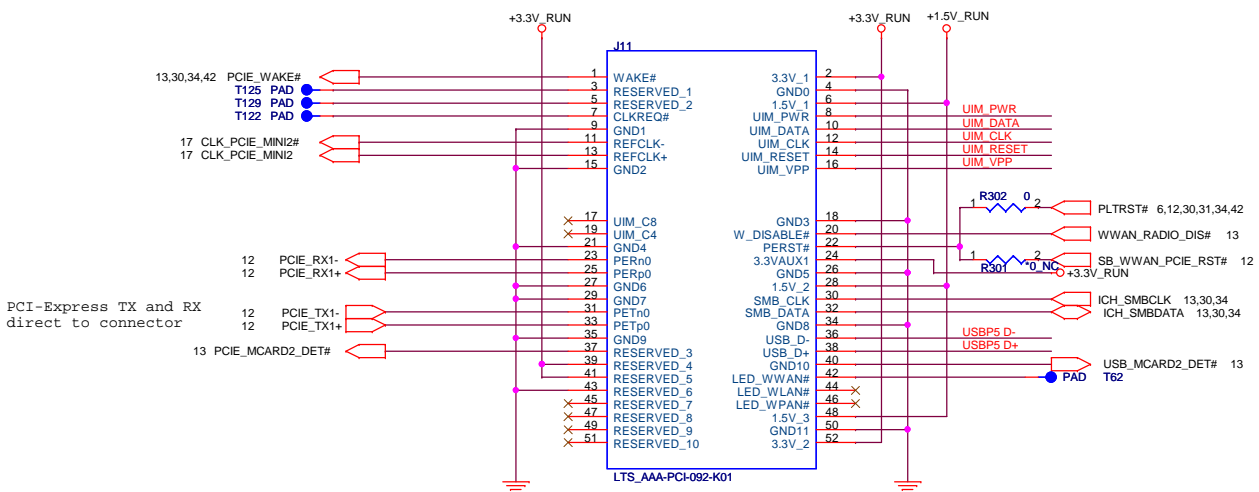
### RTC BATTERY



### MiniCard Robson, BT. UWB connector



### MiniCard WWAN connector

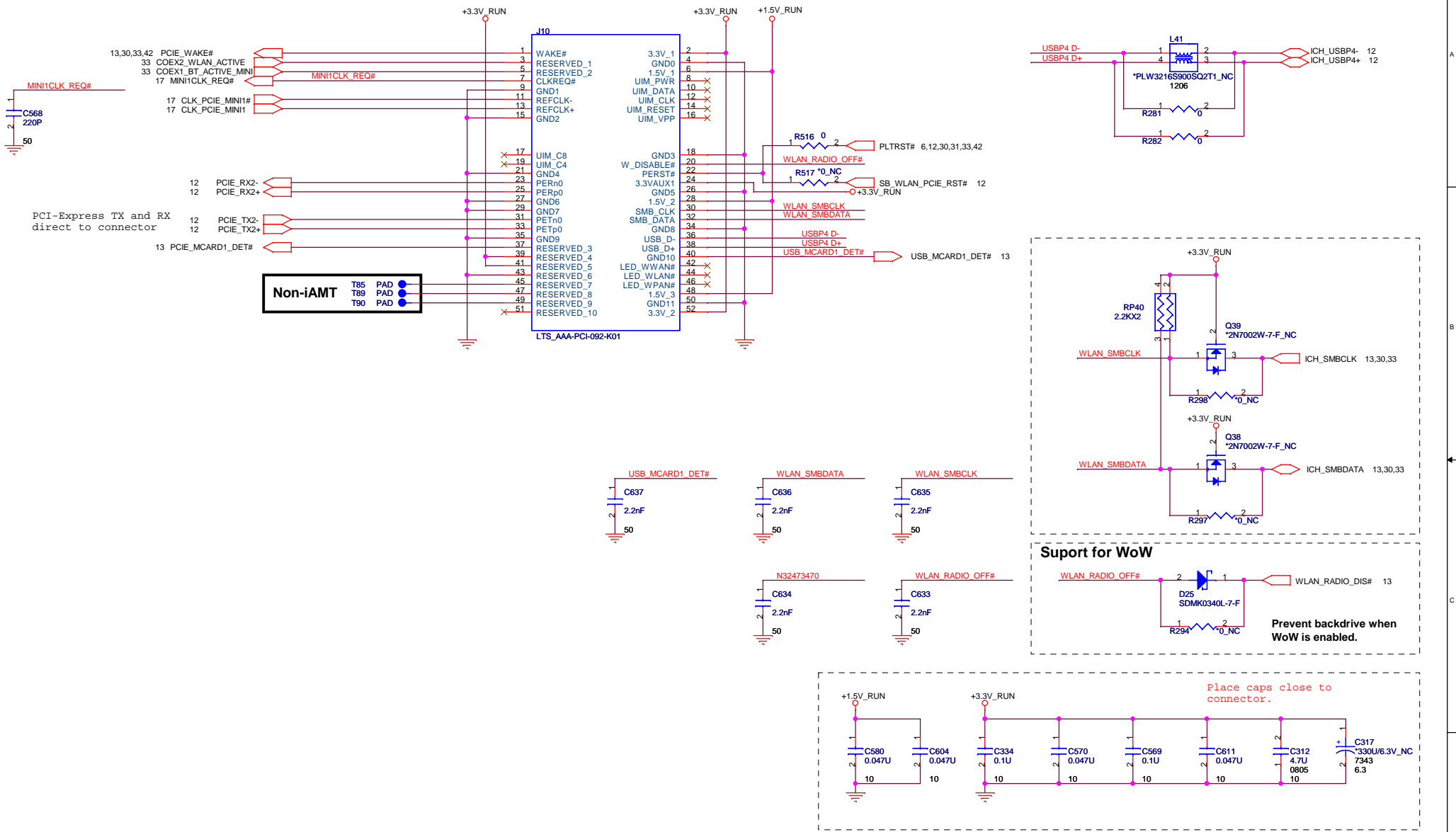


**QUANTA COMPUTER**

Title: MINI-PCI

|                                  |                       |         |
|----------------------------------|-----------------------|---------|
| Size: FM5B                       | Document Number: FM5B | Rev: 3A |
| Date: Thursday, October 09, 2008 | Sheet: 33             | of: 58  |

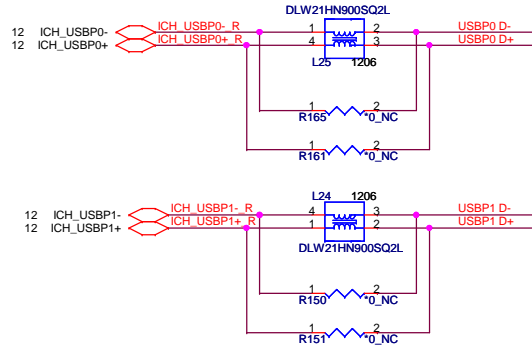
# MiniCard WLAN connector



|       |                            |       |           |
|-------|----------------------------|-------|-----------|
| Title |                            |       | MDC CONN. |
| Size  | Document Number            | Rev   |           |
|       | FM6B                       | 3A    |           |
| Date: | Thursday, October 09, 2008 | Sheet | 34 of 58  |

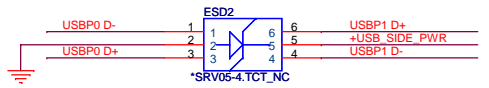


External USB PORT hookup reference. Your design may need more or less external ports and may be mapped differently



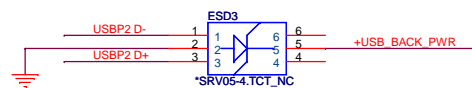
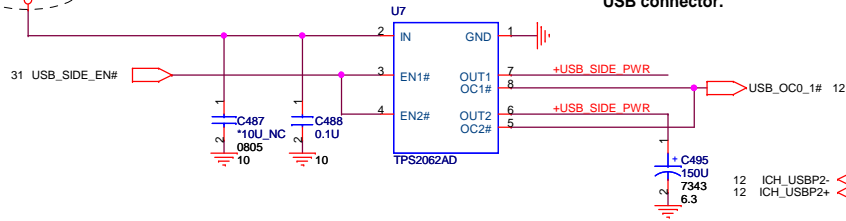
Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.

Place ESD diodes as close as USB connector.

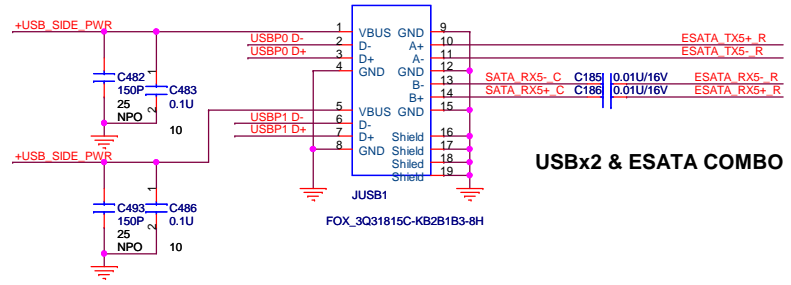


08 - 06 Del  
remove fuse and Jump in the same time

Place one 150uF cap by each USB connector.

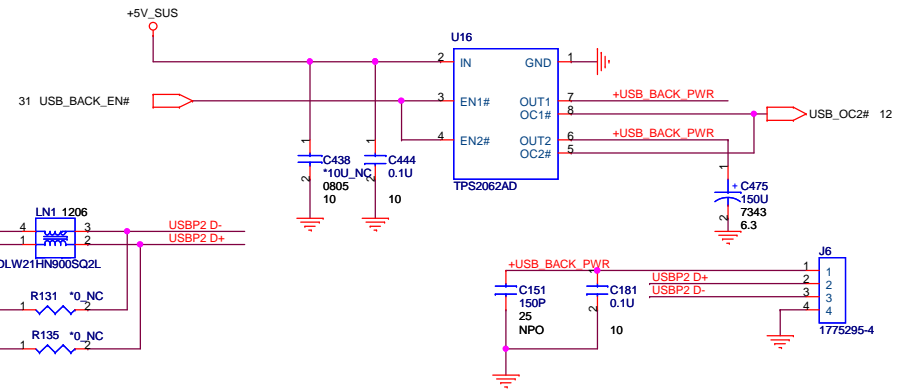
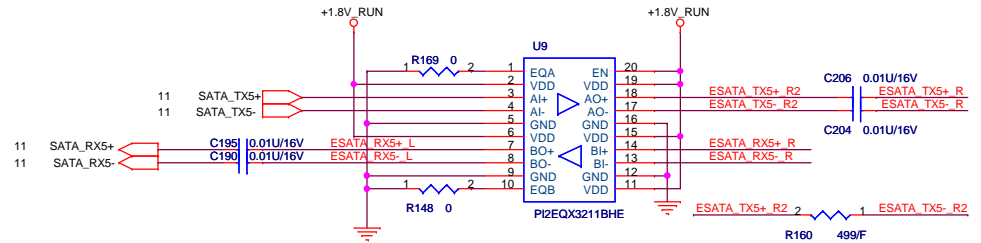
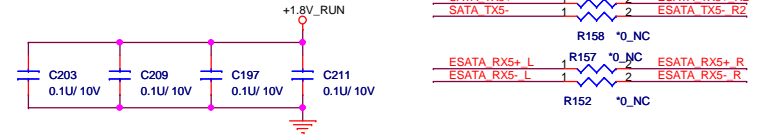


### Side External USBX2



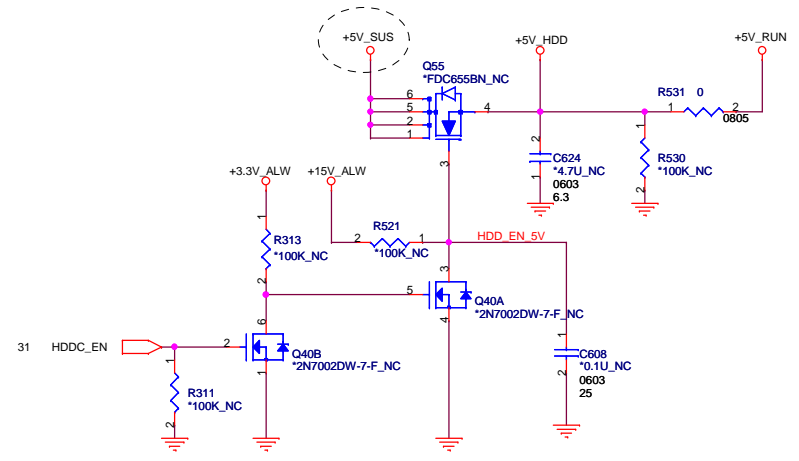
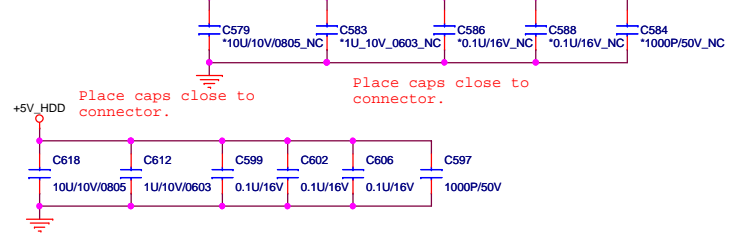
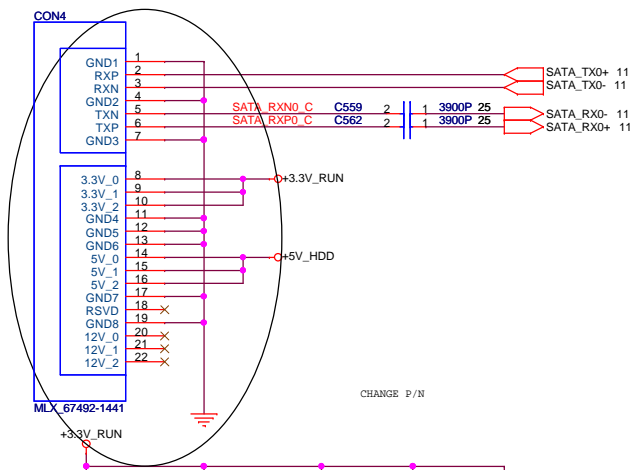
### USBx2 & ESATA COMBO

### E-SATA Re-driver

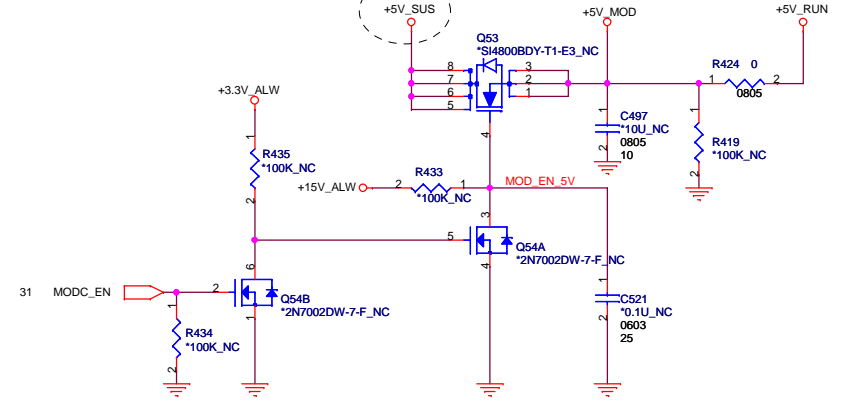
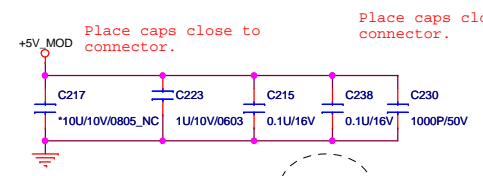
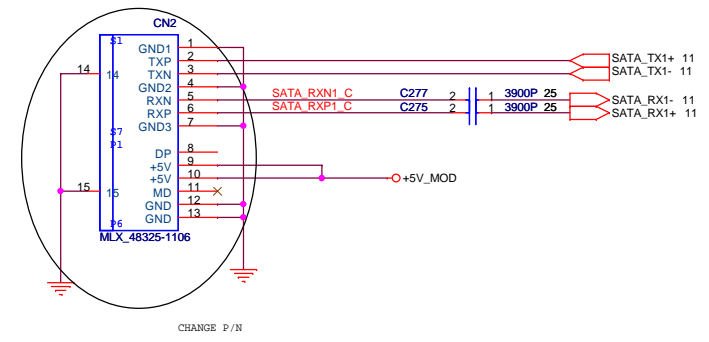


|                         |                            |                |
|-------------------------|----------------------------|----------------|
| Title SERIAL PORT & USB |                            |                |
| Size                    | Document Number FM6B       | Rev 3A         |
| Date:                   | Thursday, October 09, 2008 | Sheet 35 of 58 |

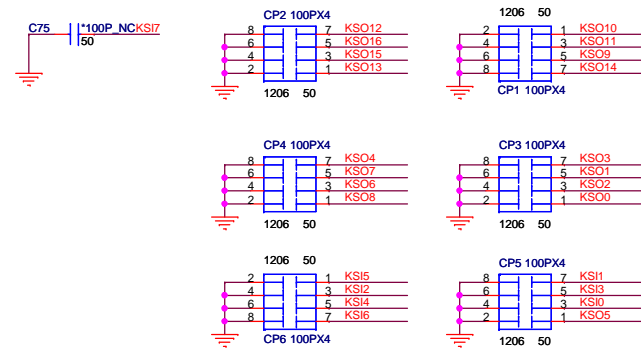
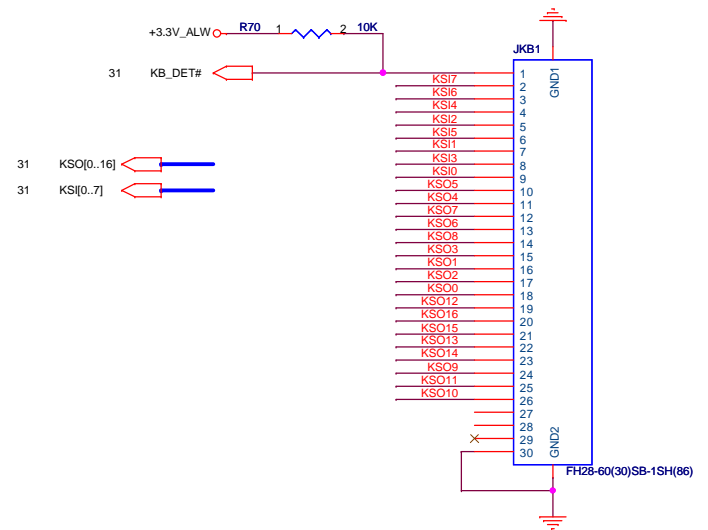
# SATA Connector.



# ODD Connector

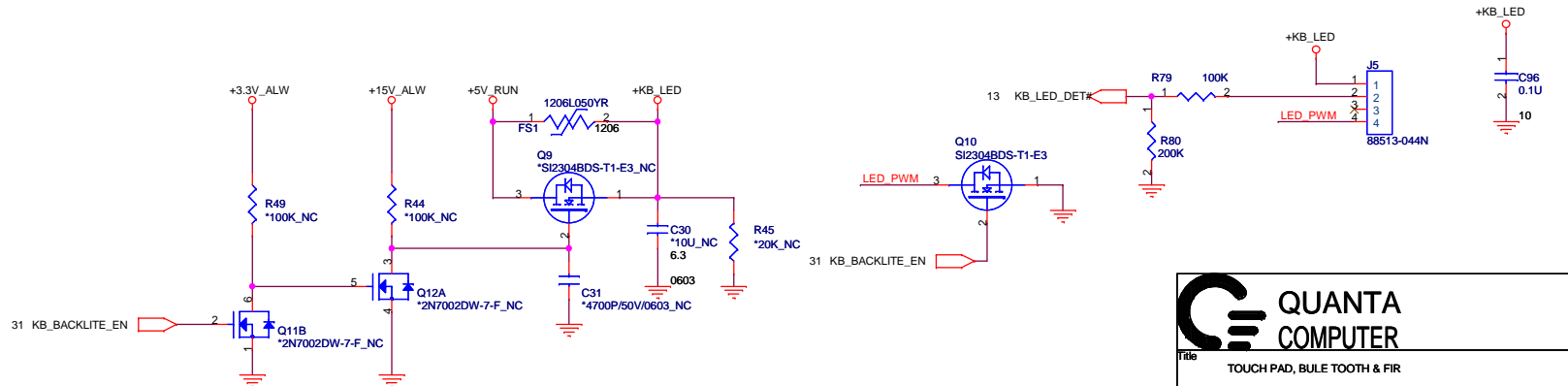


### KEYBOARD CONNECTOR



100P CAPS CLOSE TO JKB1

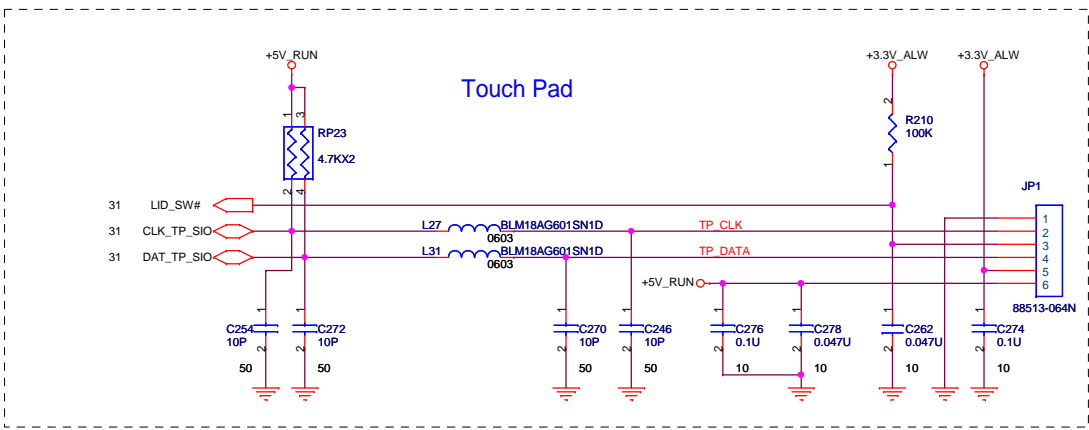
### Key board Illumination



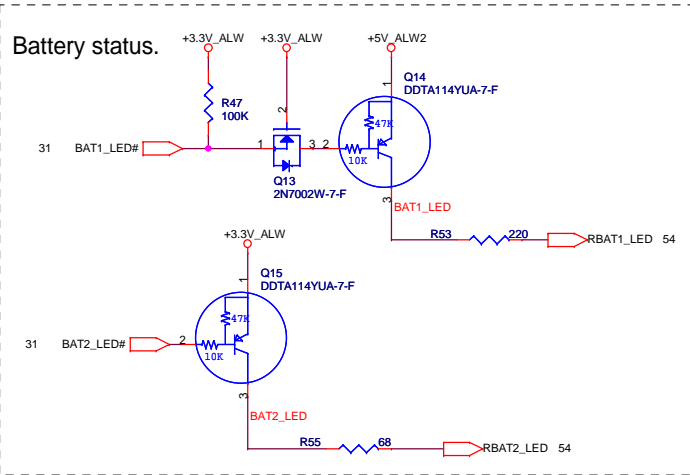
**QUANTA  
COMPUTER**

Title: TOUCH PAD, BULE TOOTH & FIR

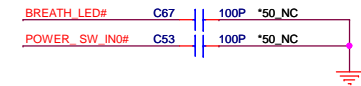
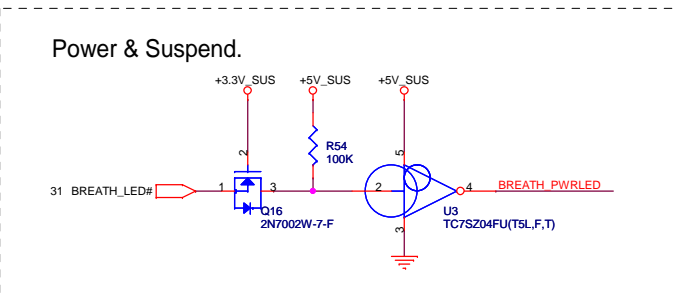
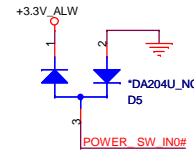
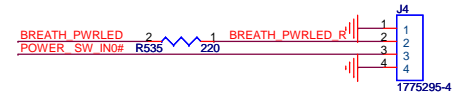
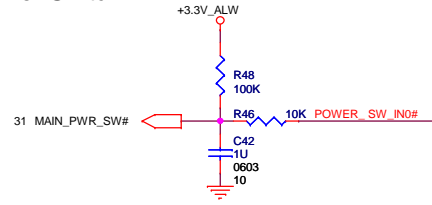
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|----------------------------------|---------|
| Size: Document Number FM5B       | Rev: 3A |
| Date: Thursday, October 09, 2008 |         |
| Sheet 37 of 58                   |         |

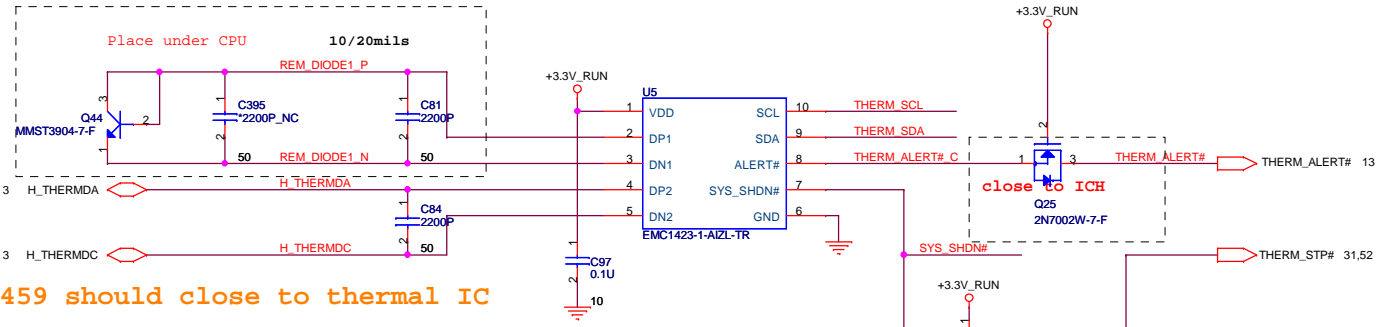
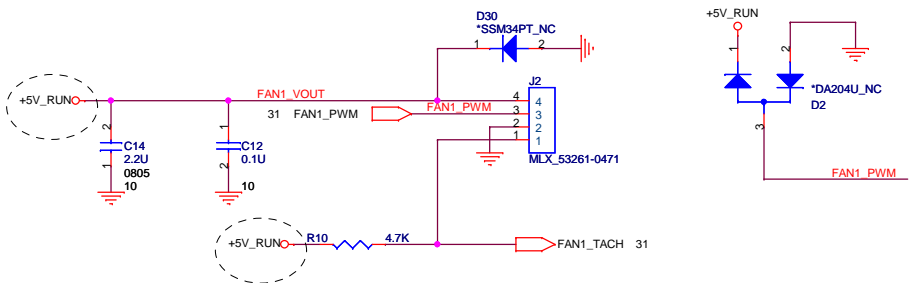


### Touch Pad

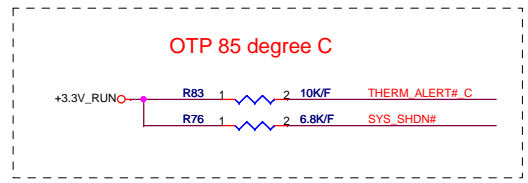
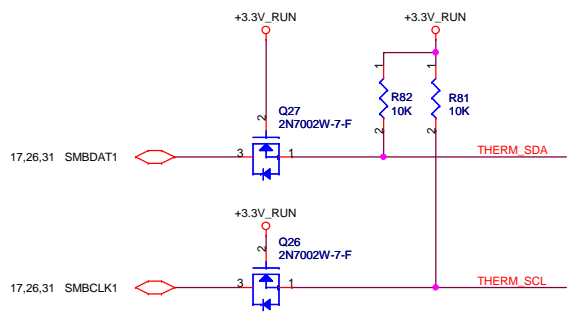


### Power Switch

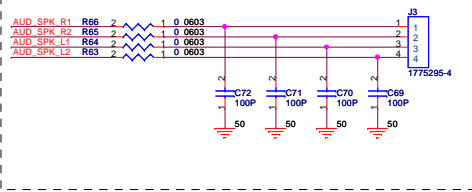
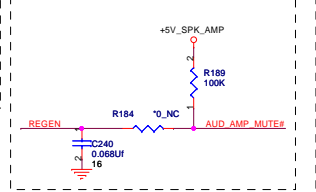
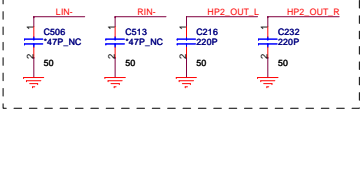
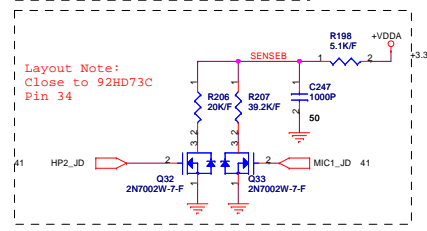
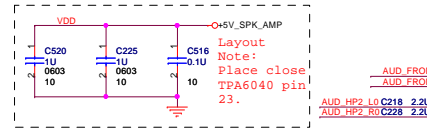
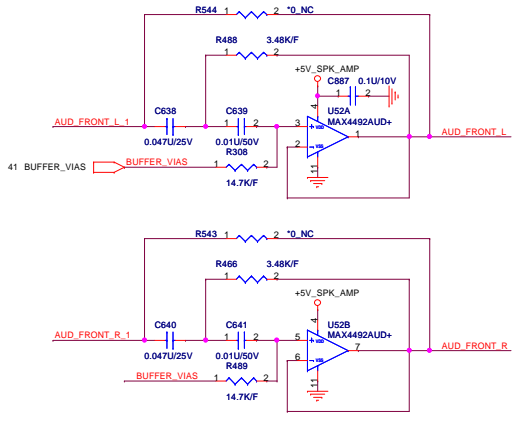




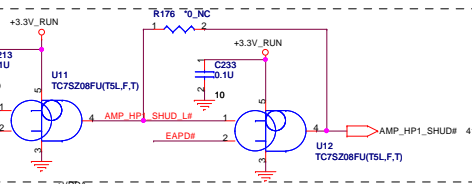
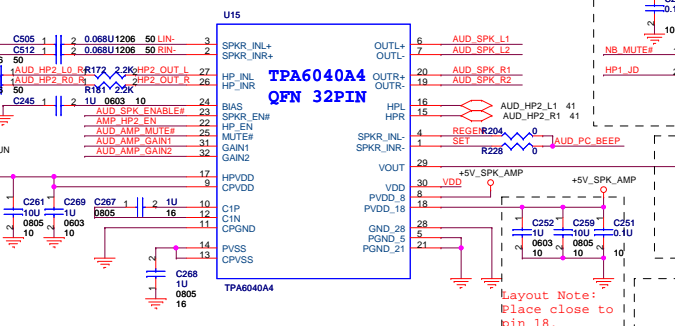
C458, C459 should close to thermal IC



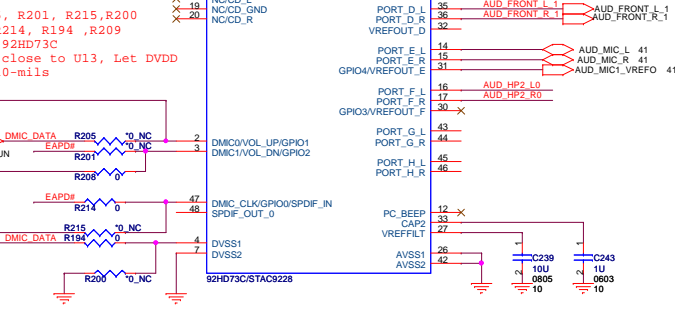
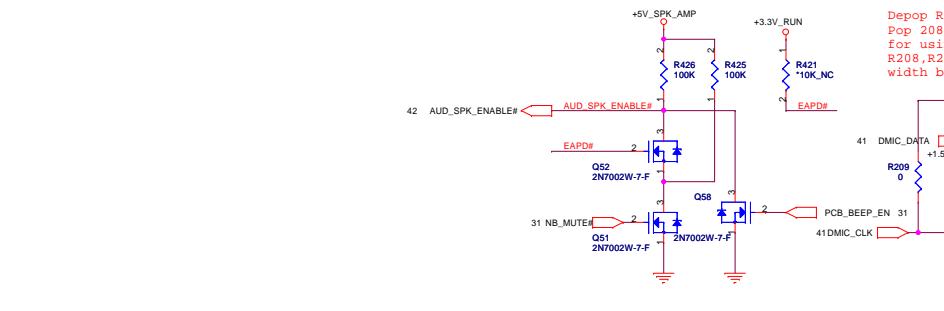
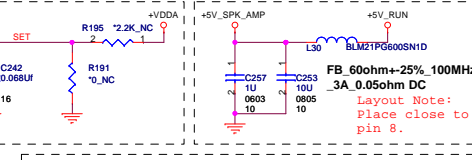
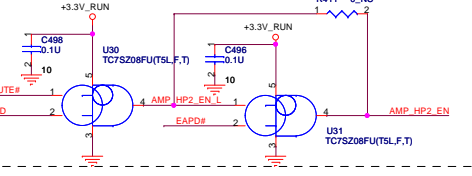
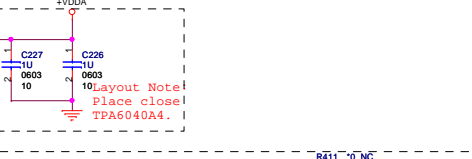
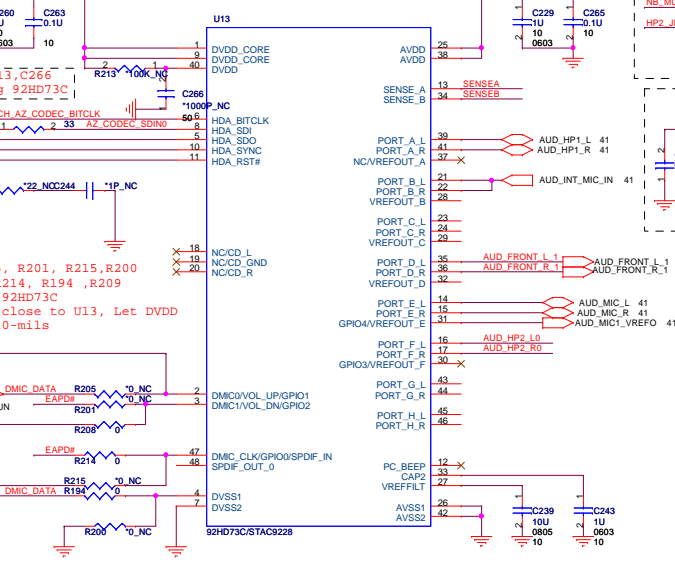
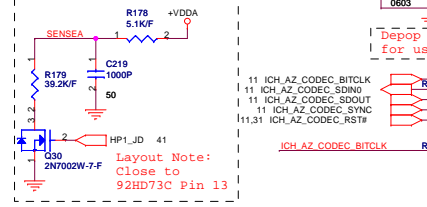
| GAIN1 | GAIN2 | GAIN   |
|-------|-------|--------|
| 0     | 0     | 6dB    |
| 0     | 1     | 10dB   |
| 1     | 0     | 15.6dB |
| 1     | 1     | 21.6dB |



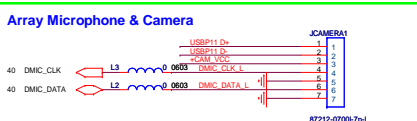
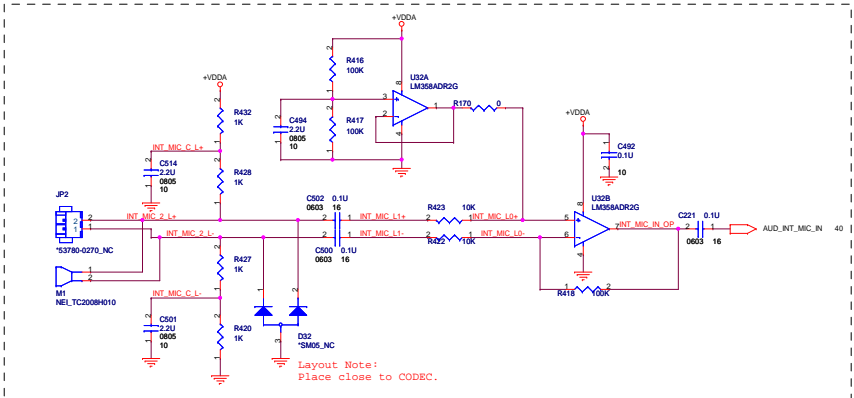
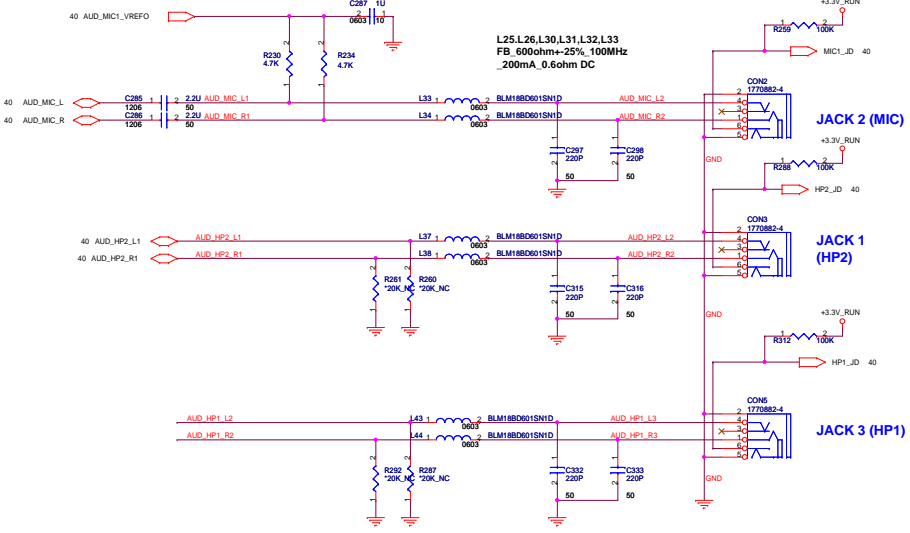
### INTERNAL SPEAKER AMP



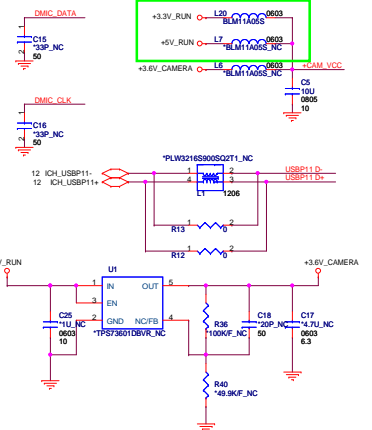
### AZALIA (HD) CODEC



# Headphone Jack Stereo MIC Jack

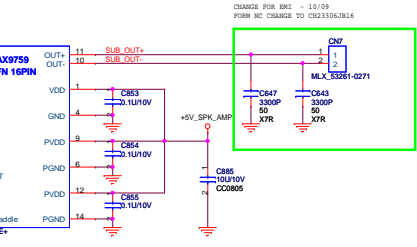
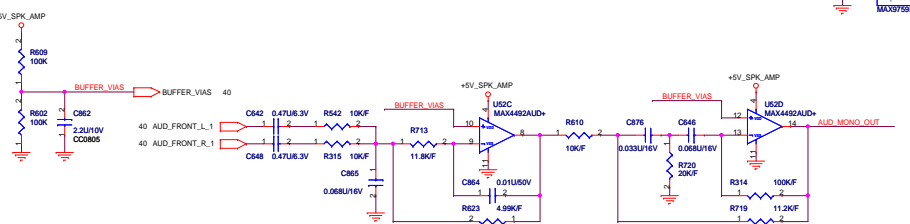


09-10 - 34 use 3.3V for Camera power which can save one LDO and connector change from 6pin to 7pin

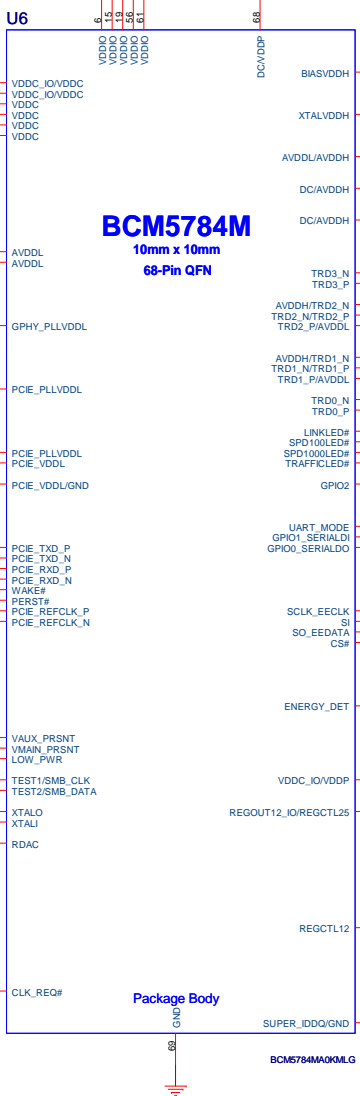
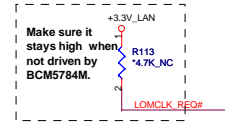
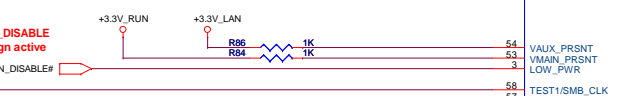
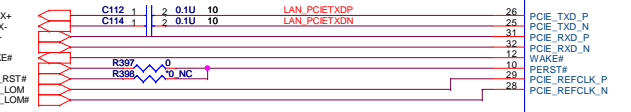
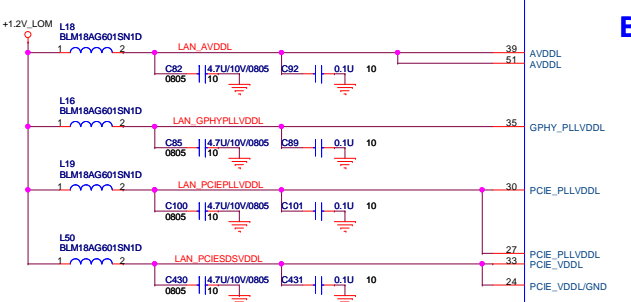
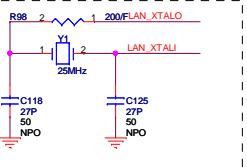
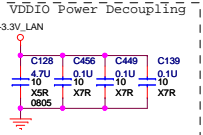
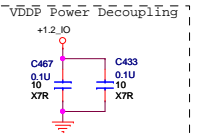
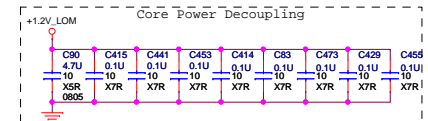


## INTERNAL SUBWOOFER AMP

| Condition   |
|---|
| <b>SYNC</b> Spread-spectrum mode with $f_s = 1200\text{kHz} \pm 70\text{kHz}$ . |
| <b>VDD</b> Fixed-frequency mode with $f_s = 1100\text{kHz}$ .                   |
| <b>GND</b> Fixed-frequency mode with $f_s = 1100\text{kHz}$ .                   |
| <b>FLOAT</b> Fixed-frequency mode with $f_s = 1500\text{kHz}$ .                 |
| <b>Clocked</b> Fixed-frequency mode with $f_s =$ external clock frequency.      |

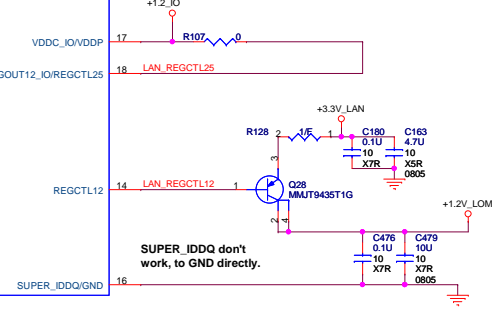
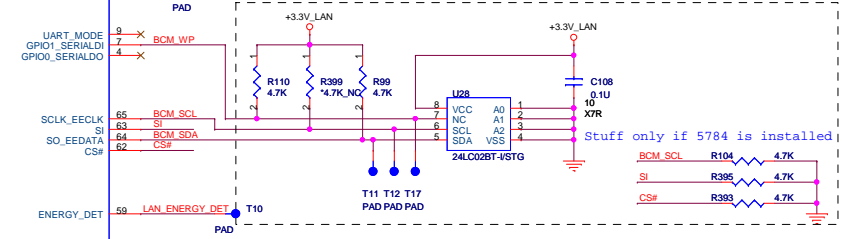
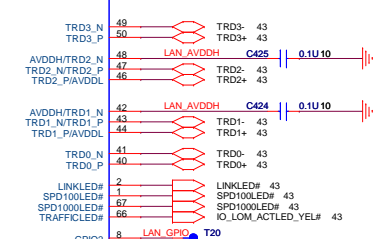
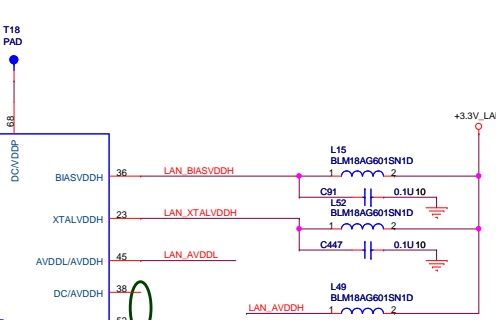


| GAIN1 | GAIN2 | GAIN |
|-------|-------|------|
| 0     | 0     | 24dB |
| 0     | 1     | 18dB |
| 1     | 0     | 12dB |
| 1     | 1     | 6dB  |



**BCM5784M**  
10mm x 10mm  
68-Pin QFN

Note:thermal pad

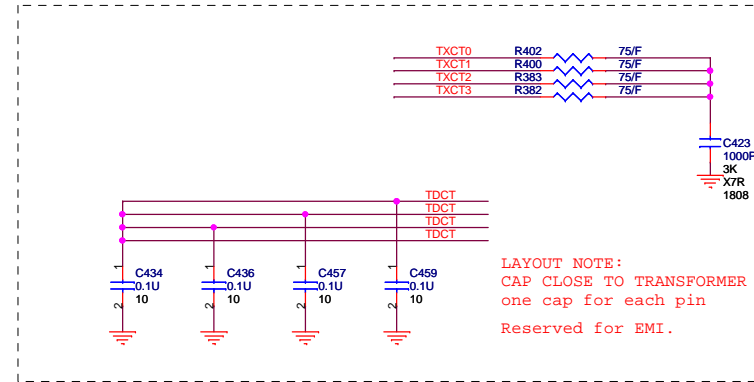
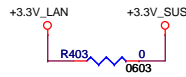
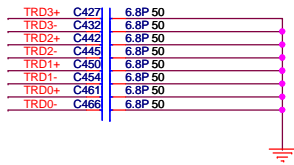
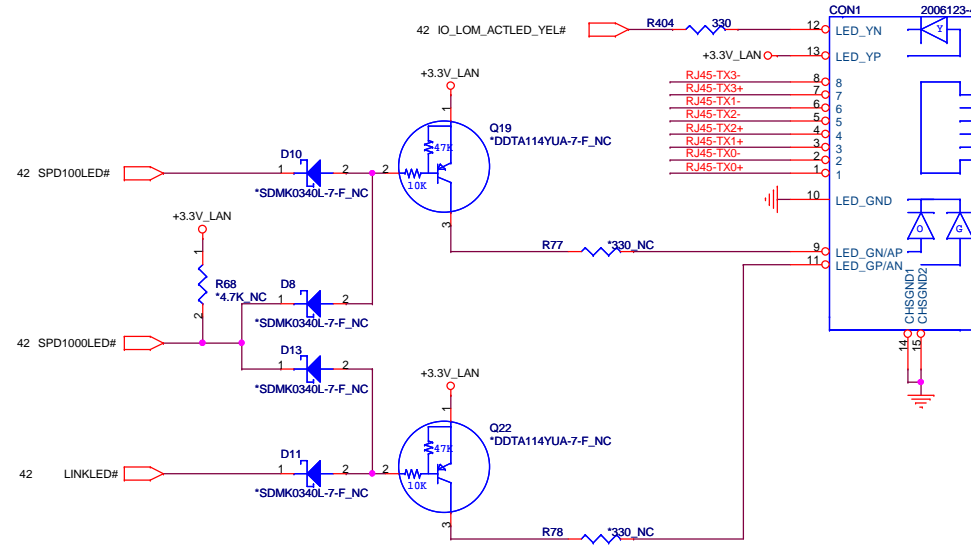
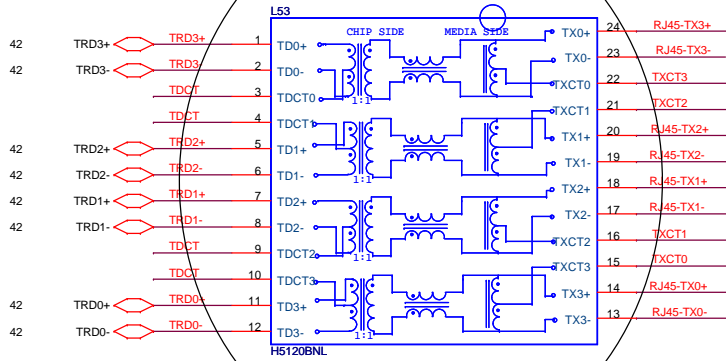


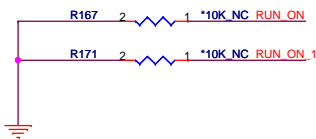
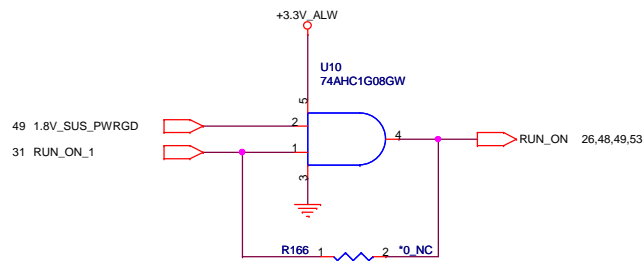
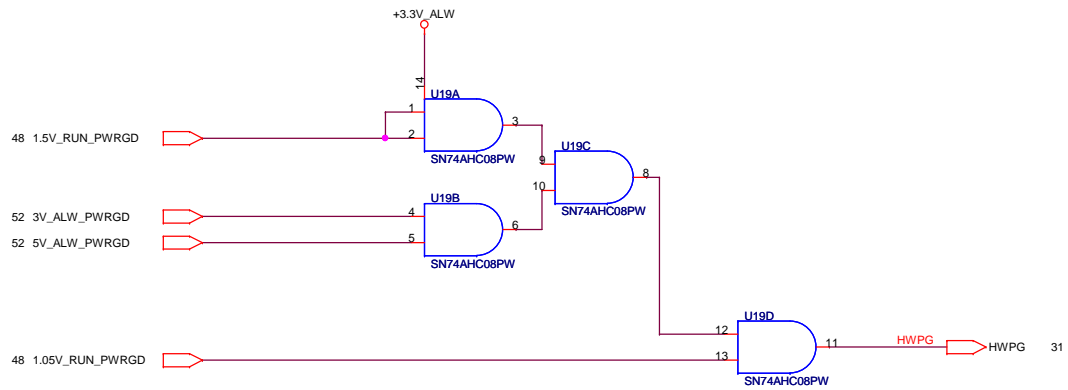
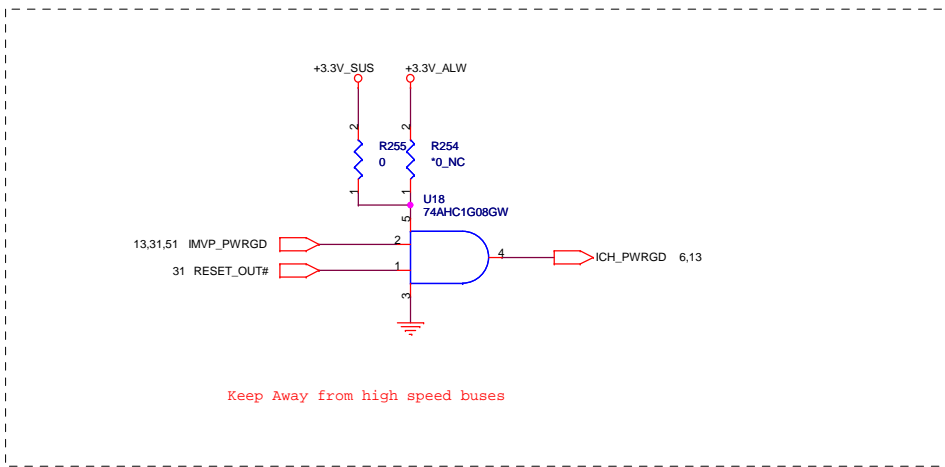
SUPER\_IDDQ don't work, to GND directly.




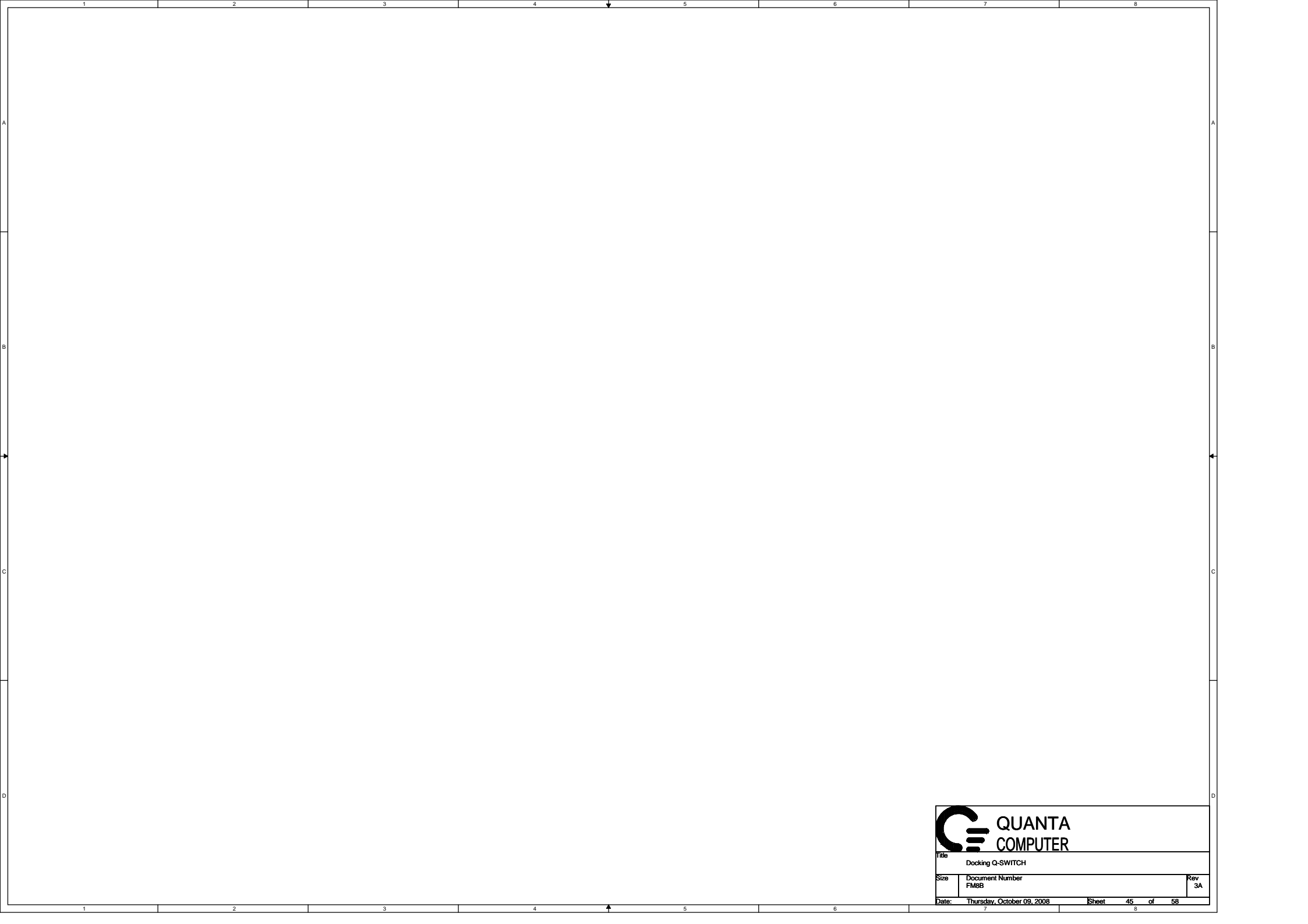
# RJ-45 Connector

## TRANSFORM

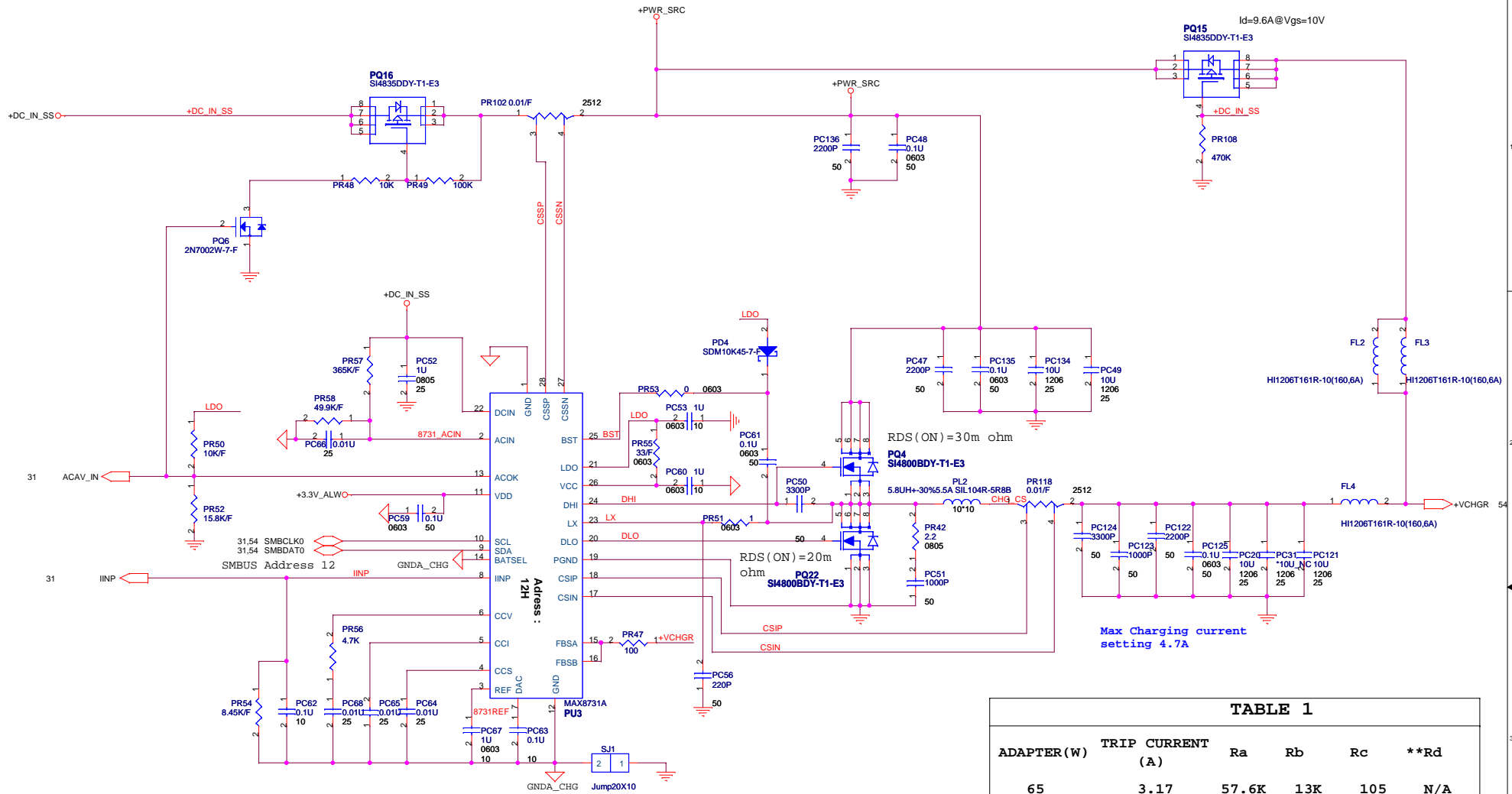




|   |                      |        |
|---|----------------------|--------|
|  |                      |        |
| <b>QUANTA<br/>COMPUTER</b>  |                      |        |
| Title System Reset Circuit  |                      |        |
| Size  | Document Number FM6B | Rev 3A |
| Date: Thursday, October 09, 2008 Sheet 44 of 58                                       |                      |        |



|                  |                            |                |
|------------------|----------------------------|----------------|
| Title            |                            |                |
| Docking Q-SWITCH |                            |                |
| Size             | Document Number            | Rev            |
|                  | FM6B                       | 3A             |
| Date:            | Thursday, October 09, 2008 | Sheet 45 of 58 |



Max Charging current setting 4.7A

| TABLE 1     |                  |       |       |     |       |
|-------------|------------------|-------|-------|-----|-------|
| ADAPTER (W) | TRIP CURRENT (A) | Ra    | Rb    | Rc  | **Rd  |
| 65          | 3.17             | 57.6K | 13K   | 105 | N/A   |
| 90          | 4.43             | 51.1K | 17.8K | 348 | 33.2K |
| 130         | 6.43             | 32.4K | 20.5K | 100 | 27.4K |
| 150         | 7.43             | 30.9K | 24.9K | 432 | 88.7K |
| 200         | 9.75             | 19.1K | 28K   | 301 | 36.5K |
| 230         | (see note3)      | 32.4K | 6.49K | 115 | N/A   |

Note 1: PR96 is populated if ADAPT\_TRIP\_SEL is used to program for the next lower adaptor.  
 ADAPT\_TRIP\_SET is floating for the higher adaptor, grounded for the lower adaptor.

Note 2: 24.9K at PR96 allows the 65W adaptor setting to switch down to 45W.

Note 3: PR35 must be 5mOhms instead of 10mOhms for the 230W adaptor.


**QUANTA COMPUTER**

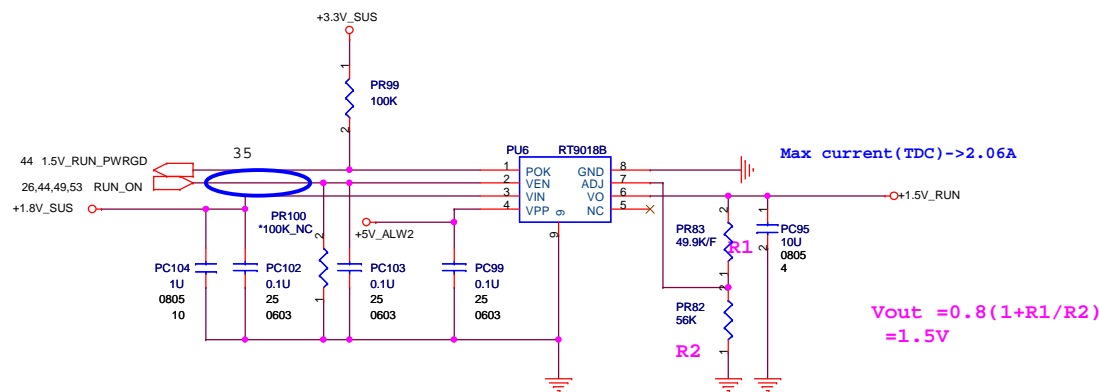
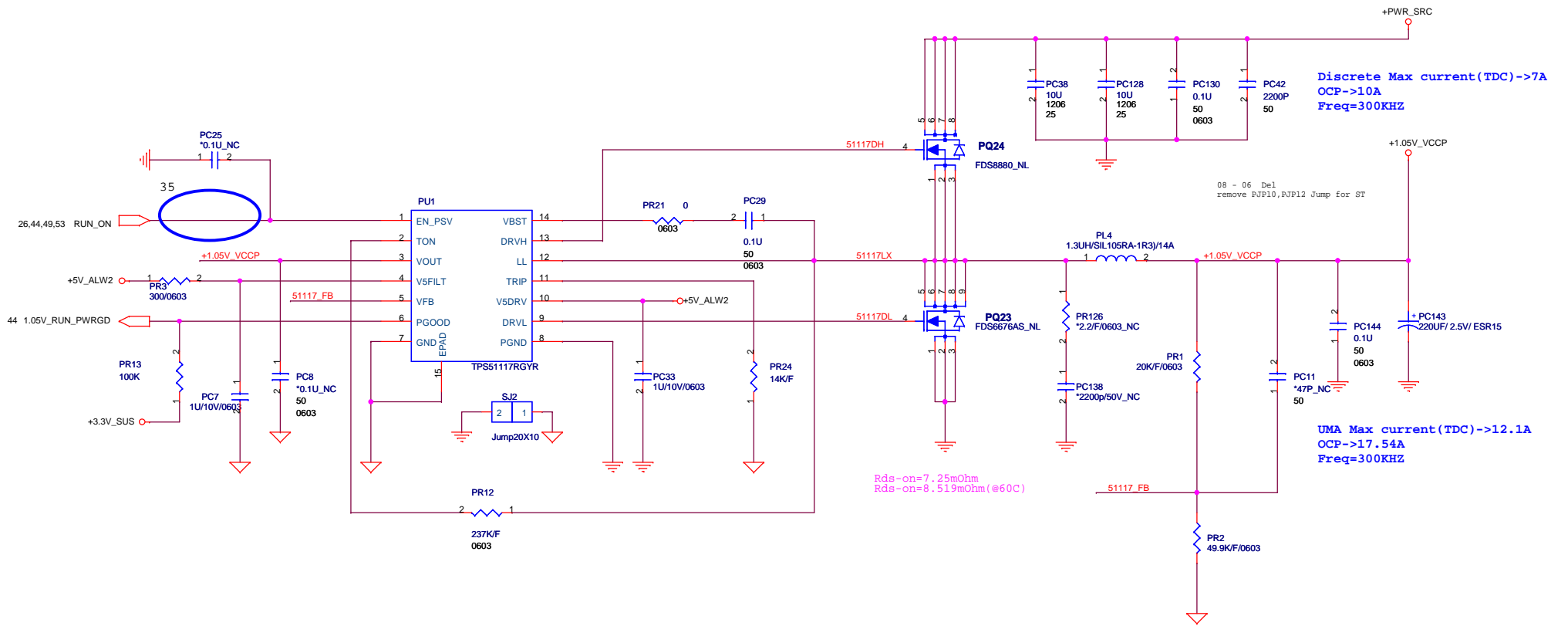
Title: Charger (ISL88731)

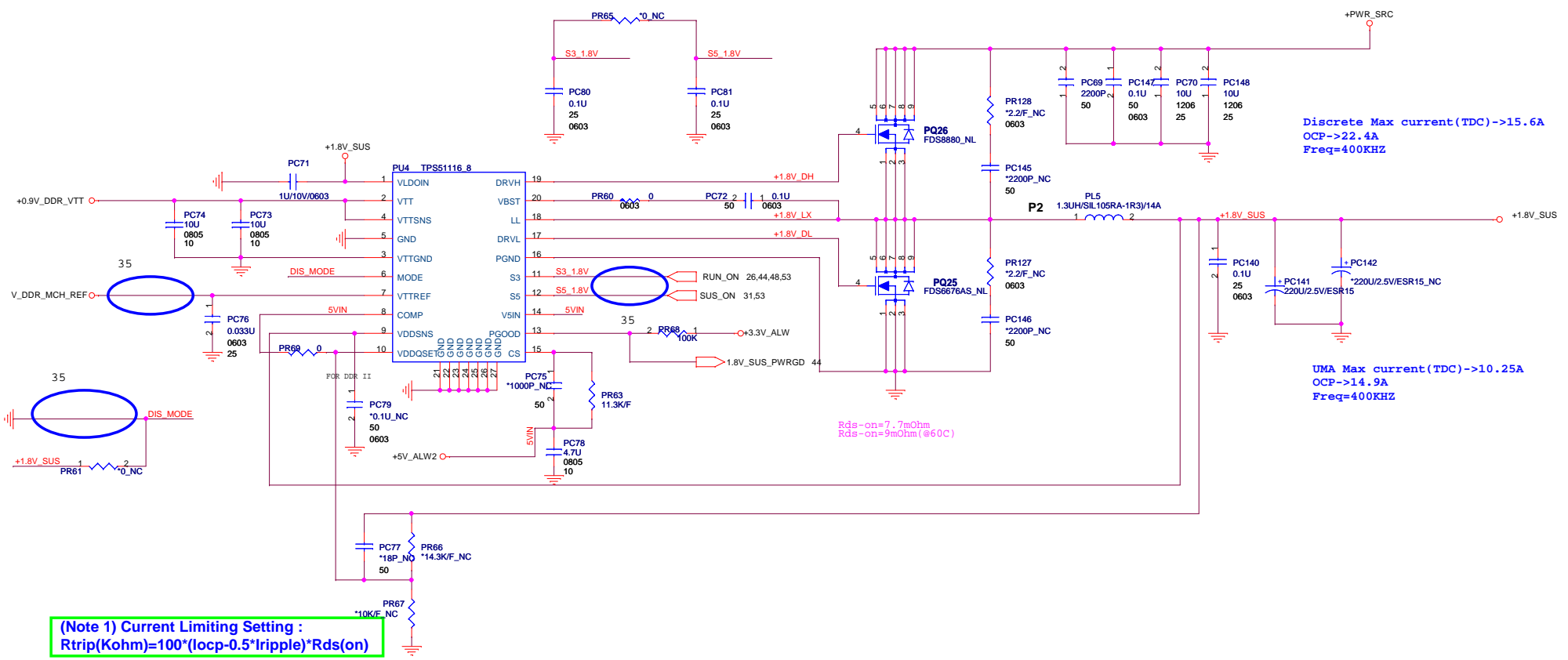
|            |                       |         |
|------------|-----------------------|---------|
| Size: FM8B | Document Number: FM8B | Rev: 3A |
|------------|-----------------------|---------|

Date: Thursday, October 09, 2008 ESheet 46 of 58

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|--|----------------------------|----------------|
|  <b>QUANTA<br/>COMPUTER</b> |                            |                |
| Title  |                            |                |
| Size   | Document Number<br>FM6B    | Rev<br>3A      |
| Date:  | Thursday, October 09, 2008 | Sheet 47 of 58 |






Discrete Max current (TDC) -> 15.6A  
 OCP -> 22.4A  
 Freq = 400KHZ

UMA Max current (TDC) -> 10.25A  
 OCP -> 14.9A  
 Freq = 400KHZ

(Note 1) Current Limiting Setting :  
 $R_{trip}(Kohm) = 100 * (I_{ocp} - 0.5 * I_{ripple}) * R_{ds(on)}$

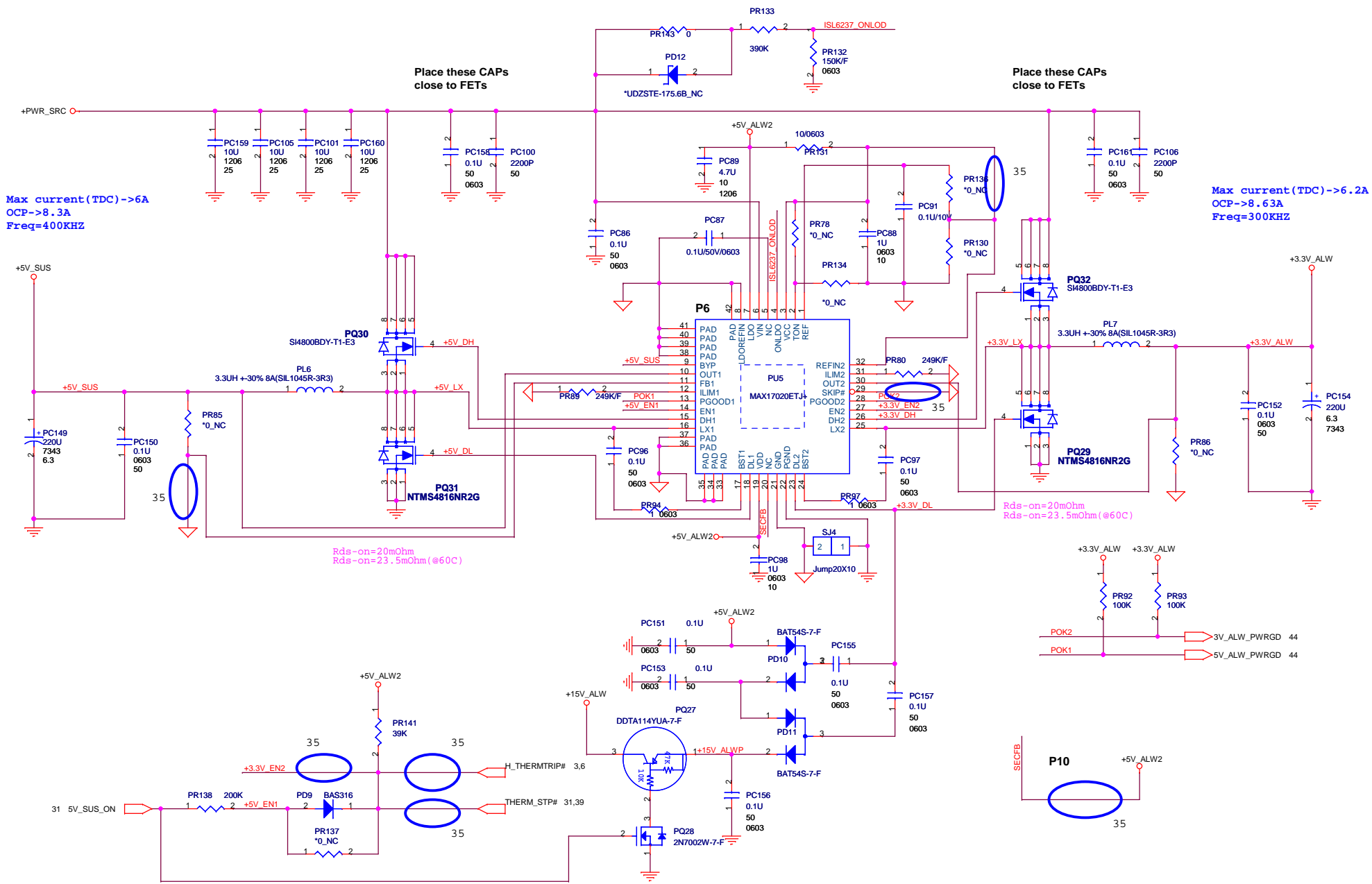
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|--|-----------------|-----|
|  <b>QUANTA<br/>COMPUTER</b> |                 |     |
| Title  |                 |     |
| Size   | Document Number | Rev |
|  | FM6B            | 3A  |
| Date: Thursday, October 09, 2008   |                 |     |
| Sheet 50 of 58   |                 |     |





# DC/DC +3V\_ALW/+5V\_SUS/+5V\_ALW /+15V\_ALW



Max current(TDC)->6A  
 OCP->8.3A  
 Freq=400KHZ

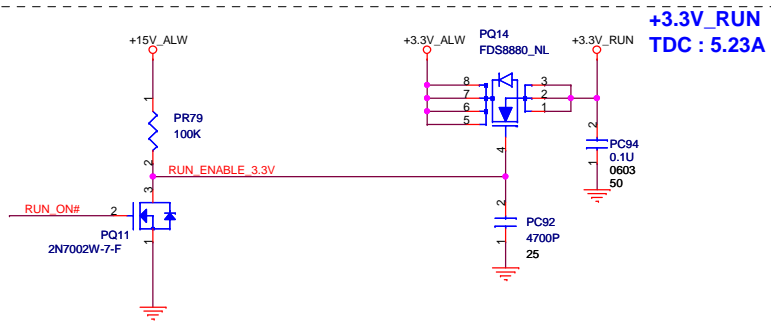
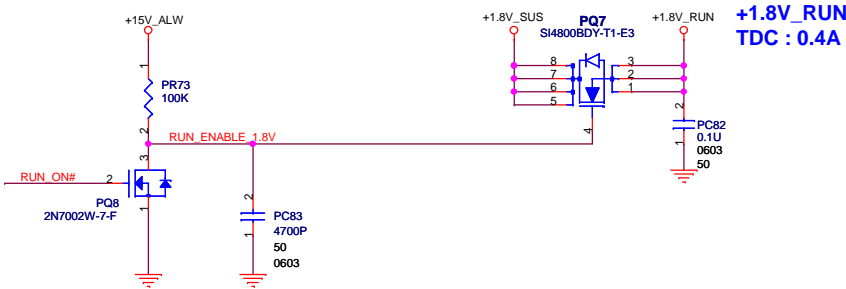
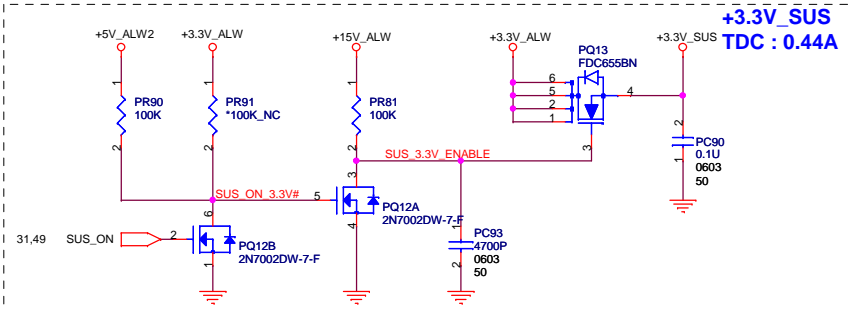
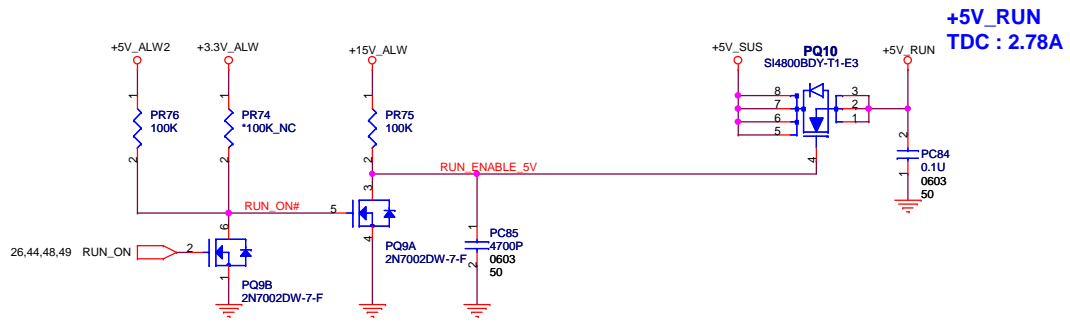
Max current(TDC)->6.2A  
 OCP->8.63A  
 Freq=300KHZ

Rds-on=20mOhm  
 Rds-on=23.5mOhm(@60C)

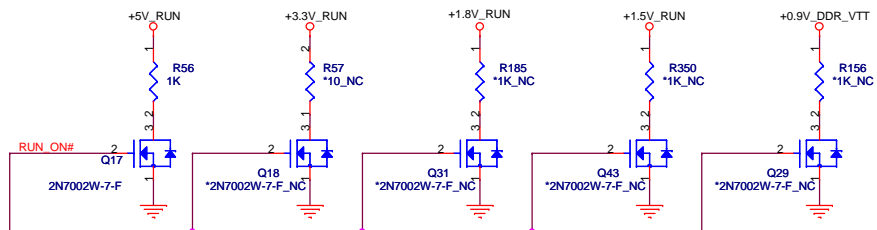
Rds-on=20mOhm  
 Rds-on=23.5mOhm(@60C)



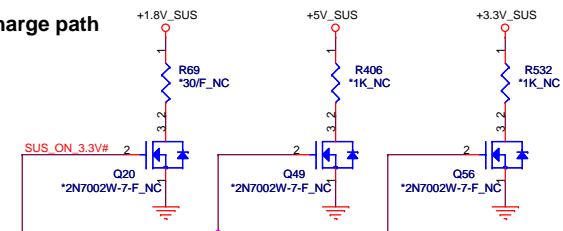
|                                     |                         |           |
|-------------------------------------|-------------------------|-----------|
| Title<br>3VALW.5V.3V, Power On      |                         |           |
| Size<br>FM6B                        | Document Number<br>FM6B | Rev<br>3A |
| Date:<br>Thursday, October 09, 2008 | Sheet<br>52             | of<br>58  |



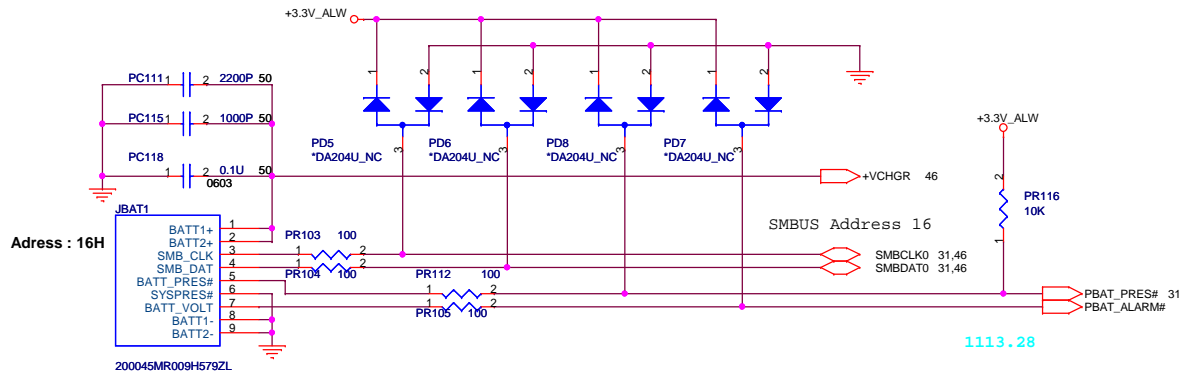
**Reserve discharge path**



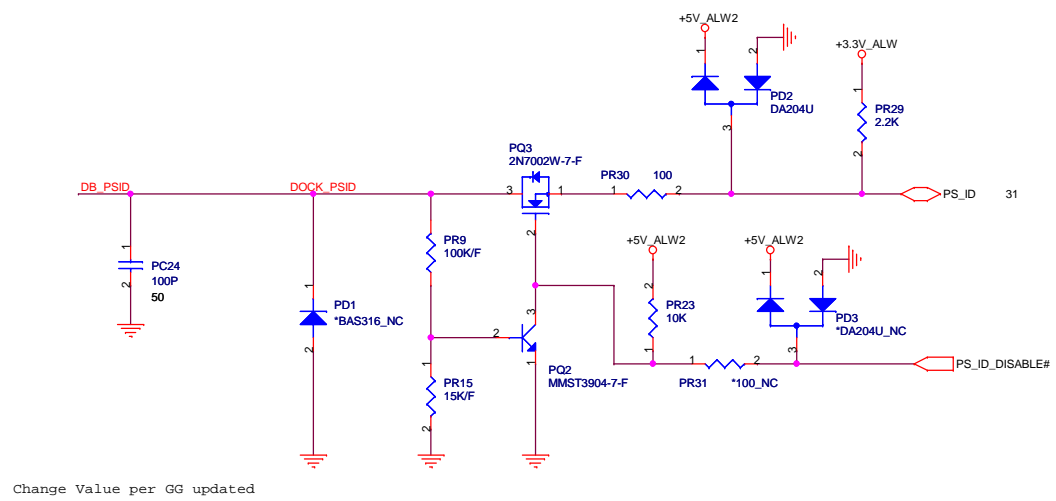
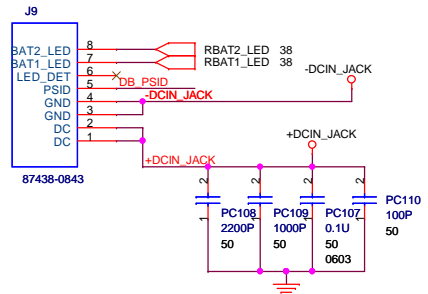
**Reserve discharge path**



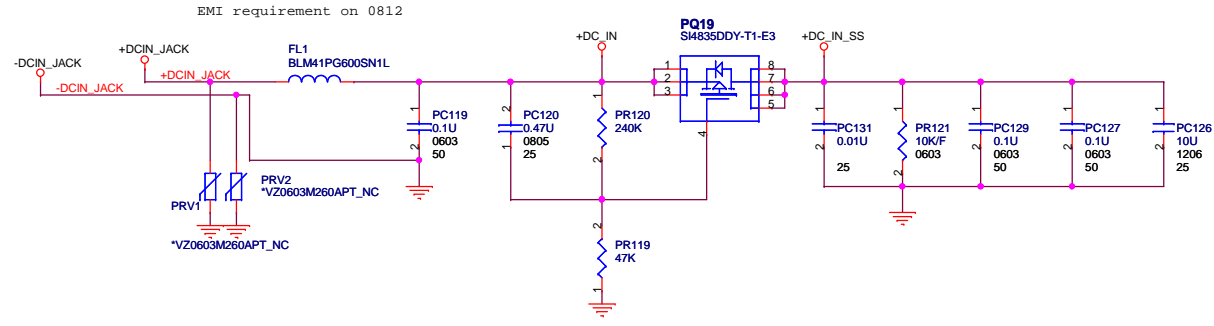
|                       |                            |                   |
|-----------------------|----------------------------|-------------------|
| Title<br>RUN POWER SW |                            |                   |
| Size                  | Document Number<br>FM6B    | Rev<br>3A         |
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1113.28



Change Value per GG updated

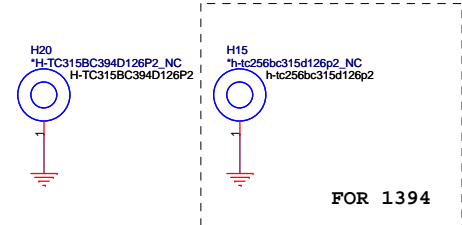
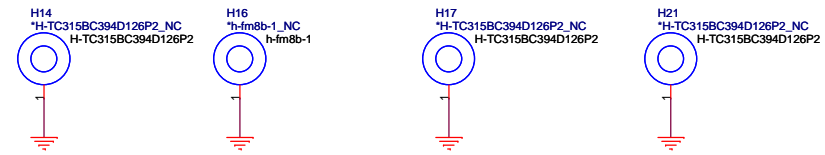
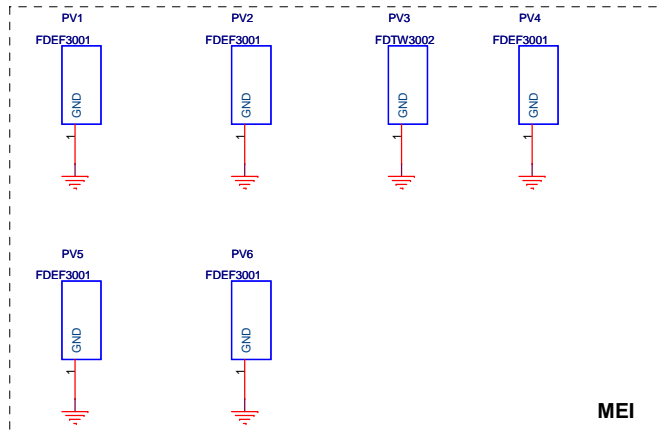
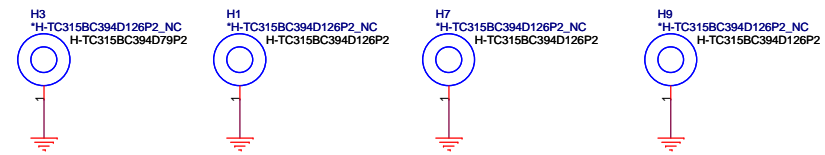
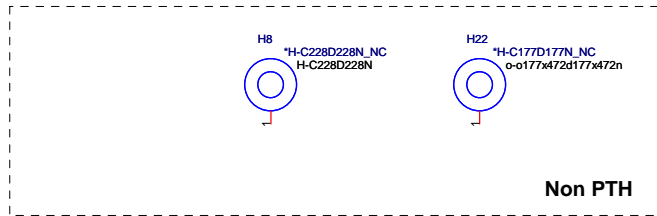
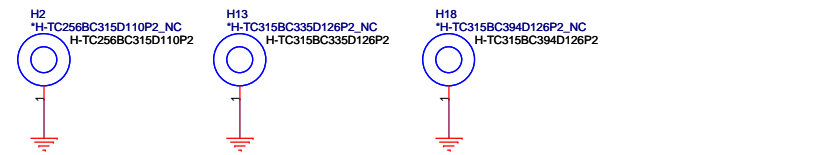
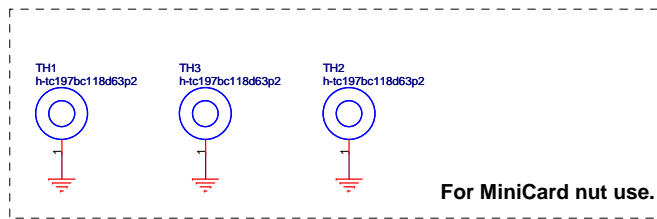
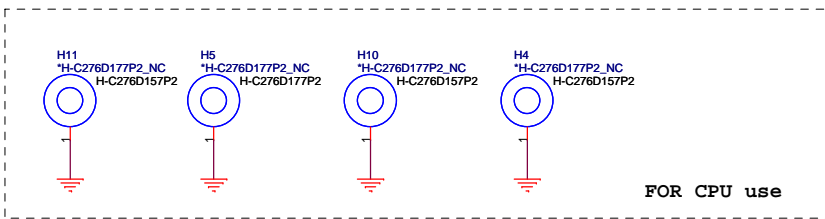


**QUANTA COMPUTER**

Title: DCIN,BATT CONNECTOR

|                            |         |
|----------------------------|---------|
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|----------------------------|---------|


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|                            |                            |                 |
|----------------------------|----------------------------|-----------------|
|                            |                            |                 |
| <b>QUANTA<br/>COMPUTER</b> |                            |                 |
| Title: SCREW PAD           |                            |                 |
| Size:                      | Document Number:<br>FM5B   | Rev:<br>3A      |
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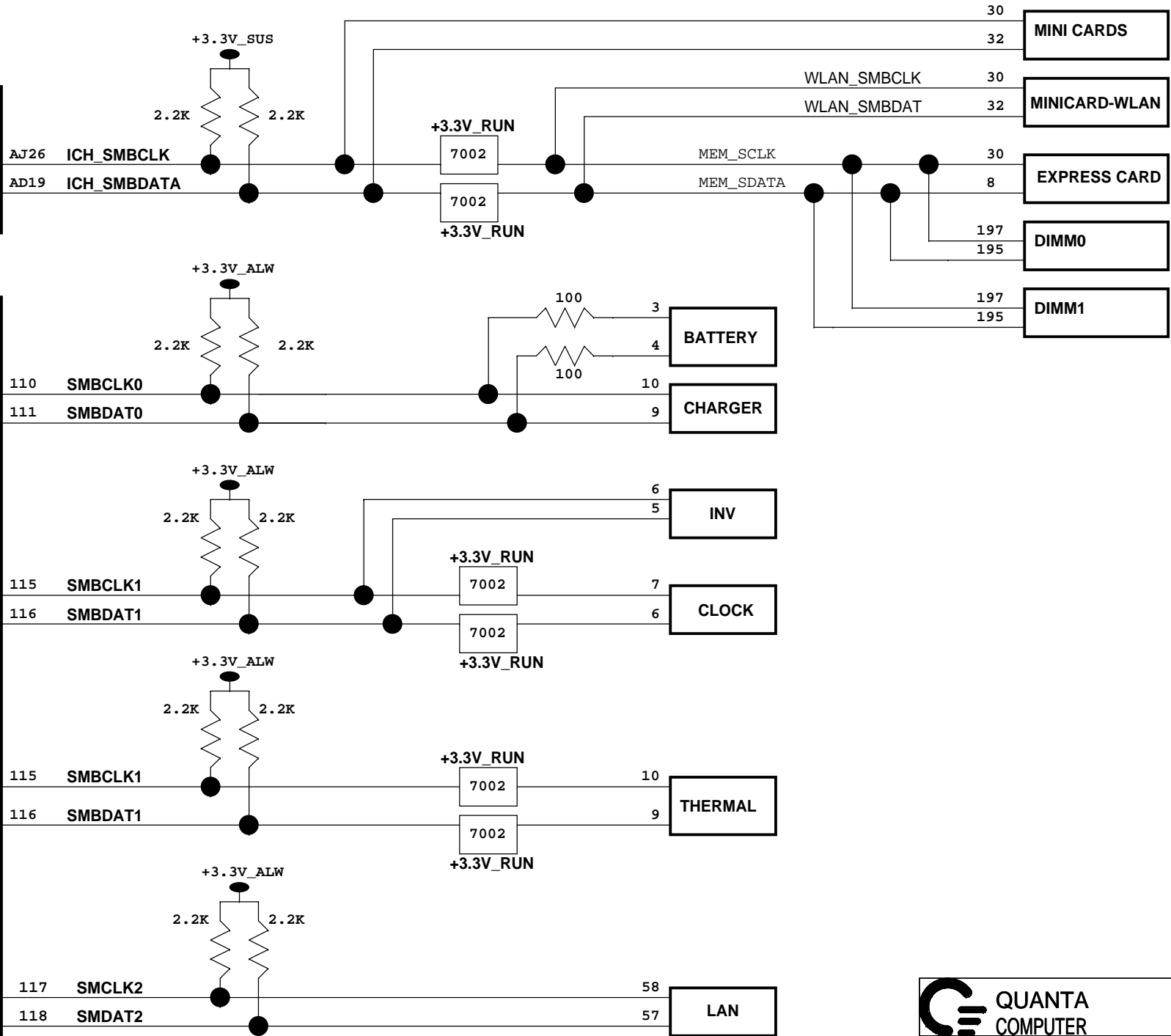
Reserved for EMI.


Stitching caps.

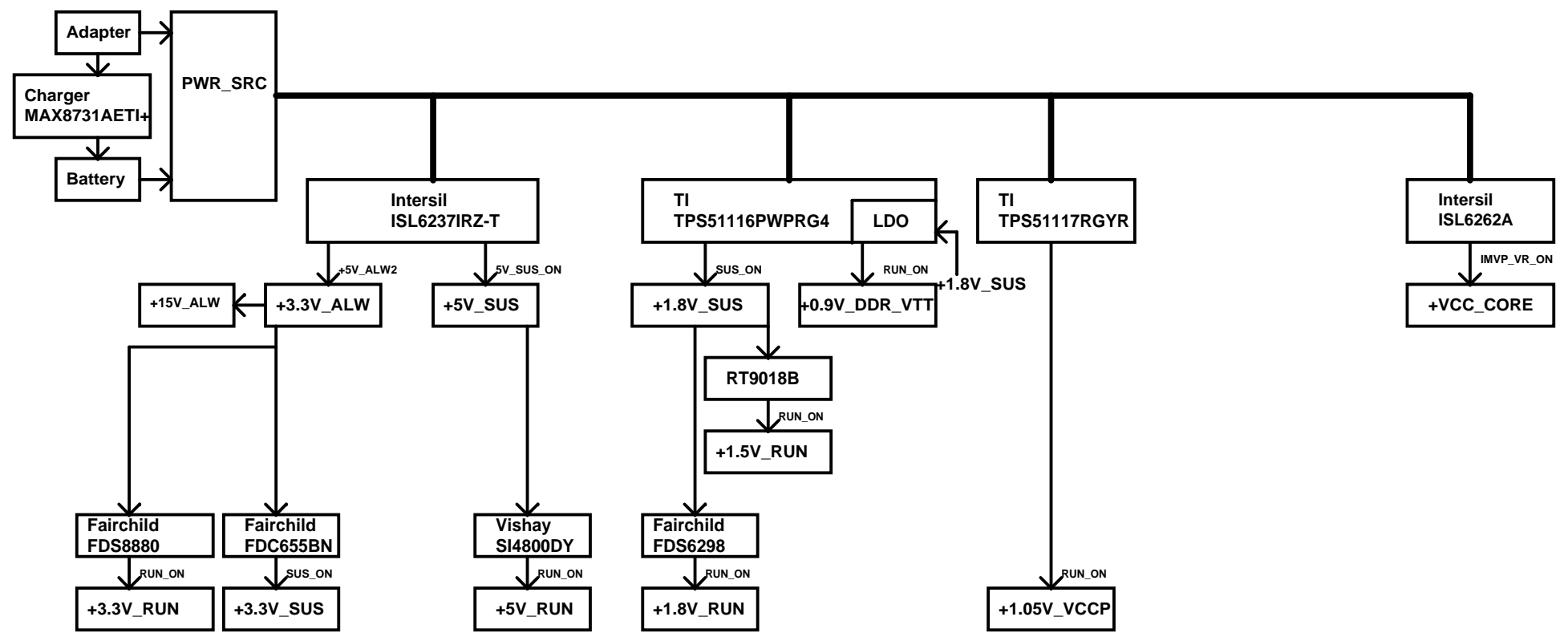
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|  <b>QUANTA<br/>COMPUTER</b> |                         |           |
| Title<br>EMI CAP   |                         |           |
| Size   | Document Number<br>FM6B | Rev<br>3A |
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**ICH9 -M**

**SIO  
ITE8512**



|  |                       |         |
|--|-----------------------|---------|
|  <b>QUANTA<br/>COMPUTER</b> |                       |         |
| Title: SMBUS BLOCK   |                       |         |
| Size: FMSB   | Document Number: FMSB | Rev: 3A |
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