

AK3M(VersaPro) INTEL Montevina BLOCK DIAGRAM

01

**CPU(25/35W)
Penryn**
u-FCPGA 478PIN

Thermal Sensor
GMT780-1

**DC/DC &
Charge**

DC In

Battery

CLK Gen
ICS9LPR395

Dual CH MEM DDRII 800

SO-DIMM STANDARD (DDR II CH A)

SO-DIMM STANDARD (DDR II CH B)

SATA HDD SATA<PORT0> (3 Gb/s (300 MB/s))

SATA ODD SATA<PORT1> (3 Gb/s (300 MB/s))

MINI WLAN CARD PCI-E<PORT3> (2.5 Gb/s)

MINI Robson CARD PCI-E<PORT4> (2.5 Gb/s)
USBX1<PORT8> (480-Mbps)

USB4(CONNECTOR) (480-Mbps)
USBX4<PORT0,1,2,3,> (USB2.0)

FELICA (480-Mbps)
USBX1<PORT10>

Logitech Camera /MIC (480-Mbps)
USBX1<PORT11>

Bluetooth (480-Mbps)
USBX1<PORT6>

TPM 1.2 (SLB 9635 TT 1.2)

Key Board

Touch Pad

Serial 1x D-SUB 9-Pin

**NB
CANTIGA
GM45**
1201-pin FCBGA

**SB
ICH9MB/E**

CRT 1x D-SUB 15-Pin (CRT DDC2B)

LCD 15" W 2-CH LVDS (2x LVDS)

HDMI (1.65 Gb/s)

LEVEL SHIFTER PI3VDP411LST (TMDS)

HDA Azalia

MAC (DMI LINK(X4))

INTEL BOAZMAN 82567 10/100/1000BASE-T (LCI, GLCI)
PCIE<PORT6> (MDI)

RJ-45

EXPRESS CARD (480-Mbps)
USB<PORT4> (2.5 Gb/s)
PCIE<PORT5>

CARDBUS RICOH R5C837 (Media card reader)

CARDBUS RICOH R5C804 (PC Card type-I/II)

HD_AUDIO ALC269 (Azalia)
MIC-In Jack
Headphone Jack
Int. Speaker

HD_MDC (Azalia)

RJ-11 X1 1x 6P2C

EC ITE IT8513/12E

LAN ROM 4MB/512KB

BIOS ROM 2MB

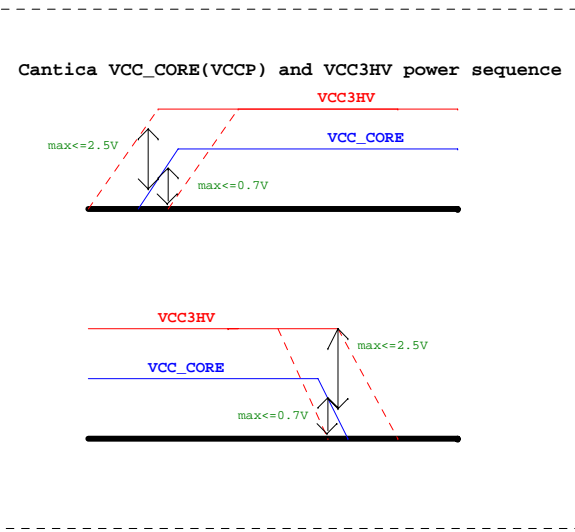
QUANTA COMPUTER

SYSTEM INFORMATION

| | | | |
|--------|-----------------------------|-----------------|---------|
| Title | AK3M MAIN BOARD | | Rev 1A |
| Size B | Document Number | AK3M MAIN BOARD | |
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- 02. PAGE LIST
- 03. CLOCK GENERATOR-ICS9LPR395
- 04. Pennyn CPU (1 of 2)
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- 18. CRT & LCD
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- 21. AUDIO CODEC REALTEK ALC269
- 22. MODEM/BUZZER
- 23. MINI PCI-E
- 24. SATA(HDD)/SATA(ODD)
- 25. INT.KB/TOUCH-PAD/FAN/TPM
- 26. NEW CARD/BLUETOOTH
- 27. USB/FELICA/CAMERA
- 28. SERIAL PORT&SCREW HOLE
- 29. EC ITE8513
- 30. R5C804_PCI
- 31. R5C804_CARDBUS

- 32. POWER CPU CORE (ISL6262A)
- 33. POWER 3V & 5V
- 34. POWER 1.8VSUS/VTT_MEM
- 35. POWER VCCP & INV 5V
- 36. CHARGER(ISL6251)
- 37. Battery connector
- 38. Discharge
- 39. CHANGE HISTORY



AK3M HW table:

| Kind | EE Function | AK3ML(VP) | AK3ML(Int'l) | AK3M(VP) | AK3M(LV) AK3M(LV)-LTP | AK3M(Int'l) |
|------------------|--------------------------------|-------------|--------------|------------|--------------------------|-------------|
| I/O | HDMI | X | X | X | O | O |
| Chipset | TPM | X | X | O | X | X |
| | NB | GM45 | GM45 | GM45 | GM45 | GM45 |
| | FSB | 1066/667 | 1066/667 | 1066/667 | 1066/667 | 1066/667 |
| | LAN | 82567LF | 82567LF | 82567LM | 82567LF | 82567LF |
| | SB | ICH9M-E | ICH9M-E | ICH9M-E | ICH9M-B | ICH9M-B |
| | IAMT | X | X | O | X | X |
| LED | Power bottom LED | Green Green | Green Green | Blue Blue | Blue Blue | Blue Blue |
| | Power status | Green Amber | Green Amber | Blue Amber | Blue Amber | Blue Amber |
| | Battery charger status | Amber | Amber | Amber | Amber | Amber |
| | IDE access (HDD Access) | Green | Green | Blue | Blue | Blue |
| | Caps lock status | Green | Green | Blue | Blue | Blue |
| | Scroll lock status | Green | Green | Blue | Blue | Blue |
| | Num lock status | Green | Green | Blue | Blue | Blue |
| | Radio wave status | Green | Green | Blue | Blue | Blue |
| | SD/MS/xD Access | NO | NO | NO | Blue | Blue |
| | ECO status | Blue Green | Blue Green | Blue Green | Blue Green | Blue Green |
| Power button LED | Green | Green | Blue | Blue | Blue | |
| SW/BTN | Power SW | O | O | O | O | O |
| | ECO button | O | O | O | O | O |
| | Short Cut Key - I | X | X | X | O | O |
| | Short Cut Key - II | X | X | X | O | O |
| | Soft button | X | X | X | O | O |
| | Font size change button - Up | X | X | X | O | O |
| | Font size change button - Down | X | X | X | O | O |
| | Radio wave SW (Slide SW) | O | O | O | O | O |
| | CD/DVD launch&control | X | X | X | X | X |
| | Dimmer button | X | X | X | X | X |

AK3M PWR Rails table:

| Power Rails | Level | S0 | S3 | S4 | S5 | S3 | S4 | S5 | Ctl Signal |
|--------------|--------|----|----|----|----|------|----|----|---------------|
| | | M0 | M1 | | | Moff | | | |
| 15VPCU | 15V | O | O | O | O | O | O | O | PWR DC/DC |
| 5VPCU | 5V | O | O | O | O | O | O | O | |
| 3VPCU | 3.3V | O | O | O | O | O | O | O | |
| RVCC3 | 3.3V | O | O | O | O | O | O | O | RVCC_ON |
| VCC3M(3VRSM) | 3.3V | O | O | O | O | O | O | O | LAN_WOL_EN_EC |
| VCC3M_CLK | 3.3V | O | O | O | O | X | X | X | SLP_M_ON |
| VCC1.05M | 1.05V | O | O | O | O | X | X | X | SUSON |
| VCC3M(3VRSM) | 3.3V | O | O | O | O | O | O | O | |
| 5VSUS | 5V | O | O | O | O | O | X | X | |
| 3VSUS | 3V | O | O | O | O | O | X | X | |
| 1.8VSUS | 1.8V | O | O | O | O | O | X | X | |
| VTT_MEM | 0.9V | O | O | O | O | X | X | X | |
| SMDDR_VREF | 0.9V | O | O | O | O | X | X | X | |
| BT_VCC3 | 3.3V | O | X | X | X | O | X | X | BTON_EC |
| VCC5 | 5V | O | X | X | X | X | X | X | MAINON |
| VCC3 | 3.3V | O | X | X | X | X | X | X | |
| VCC1.5 | 1.5V | O | X | X | X | X | X | X | |
| VCCP | 1.05V | O | X | X | X | X | X | X | |
| CPU_CORE | By VID | O | X | X | X | X | X | X | |

BIOS/EC control S4/S5 WOL in Moff

AK3M Mx control table:

| ICH9 Signal | AK3Mx Signal | S0 | S3 | S4 | S5 | S3 | S4 | S5 |
|-------------|--------------|----|----|----|----|------|----|----|
| | | M0 | M1 | | | Moff | | |
| SLP_S3# | SUSB# | H | L | L | L | L | L | L |
| SLP_S4# | SUSC# | H | H | H | H | H | L | L |
| S4_STATE# | S4_STATE# | H | H | L | L | H | L | L |
| SLP_S5# | SUSD# | H | H | H | H | H | H | L |
| SLP_M# | SLP_M# | H | H | H | H | L | L | L |

Intel ME supports PWR states table:

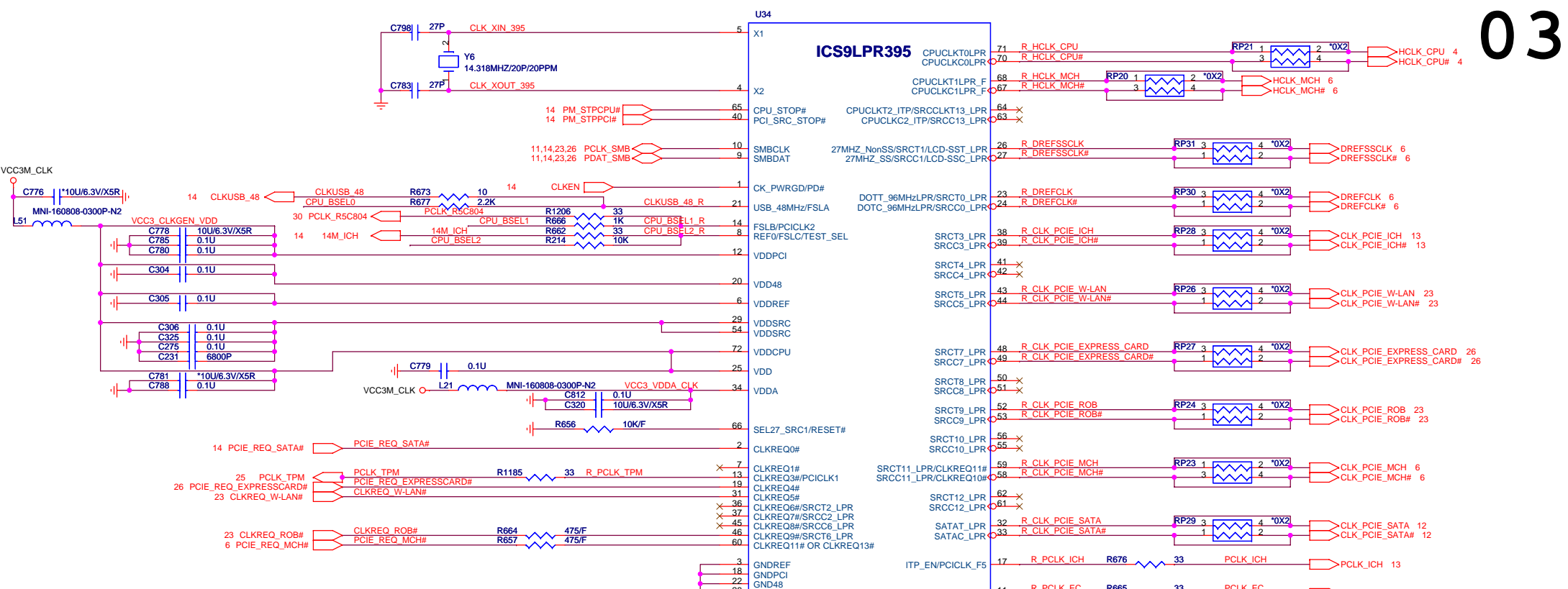
| Sx state | Mx state | System Source | |
|----------|----------|---------------|----|
| | | AC | DC |
| S0 | M0 | O | O |
| S3-S5 | M1 | O | X |
| S3-S5 | Moff | O | O |

QUANTA COMPUTER

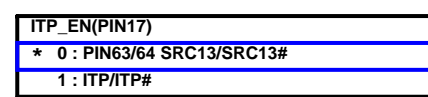
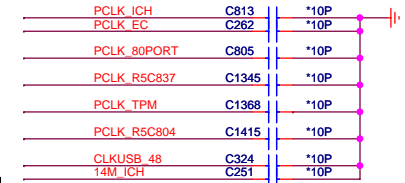
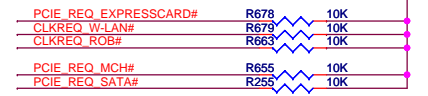
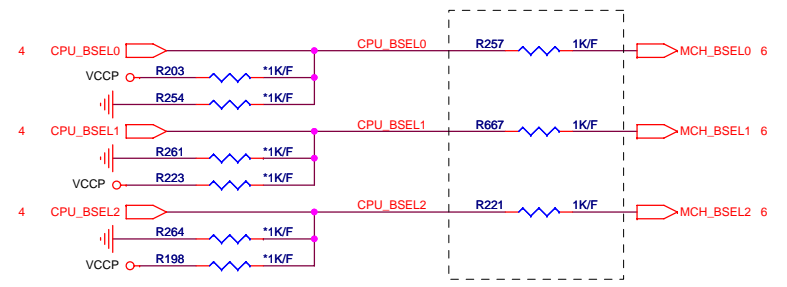
SYSTEM INFORMATION

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CPU CLK SEL



| FSC | FSB | FSA | CPU | SRC | PCI | REF | USB | DOT | Spread % |
|-------|-------|-------|--------|-----|-------|--------|-----|-----|----------|
| BSEL2 | BSEL1 | BSEL0 | | | | | | | |
| 0 | 0 | 0 | 266.66 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 0 | 0 | 1 | 133.33 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| * 0 | 1 | 0 | 200.00 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 0 | 1 | 1 | 166.66 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 1 | 0 | 0 | 333.33 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 1 | 0 | 1 | 100.00 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 1 | 1 | 0 | 400.00 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |
| 1 | 1 | 1 | 200.00 | 100 | 33.33 | 14.318 | 48 | 96 | 0.5 Down |

ITP_EN(PIN17)

* 0 : PIN63/64 SRC13/SRC13#

1 : ITP/ITP#

LCDSEL/27M Select Table

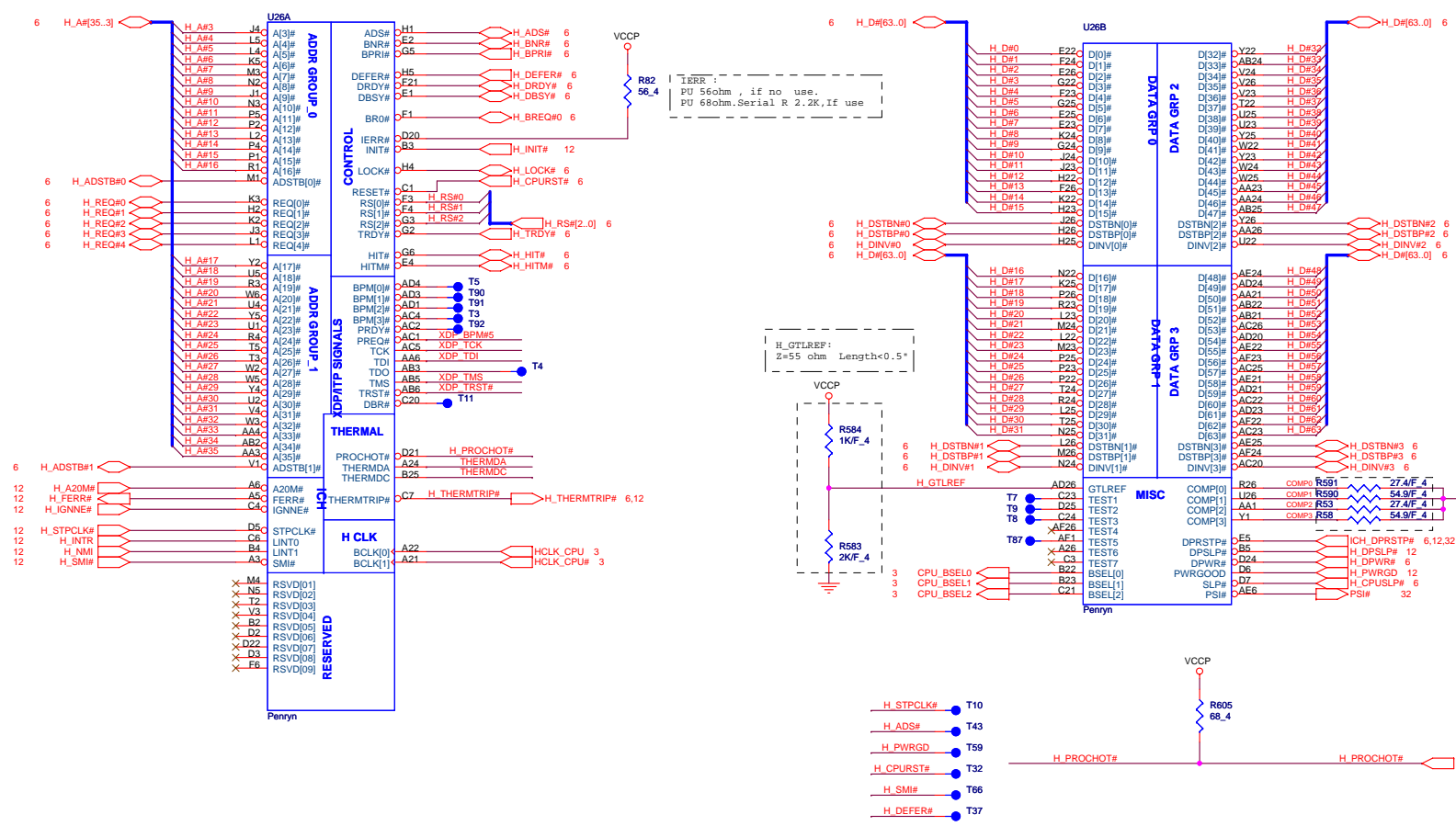
| 27 Select_SCR | SEL27_SRC1 | Dot96/SRC0 | 27MHz/SRC1/LCD |
|---------------|------------|------------|---------------------|
| PIN16 | PIN66 | PIN 23/24 | PIN 26/27 |
| 0 | 0 | SRC0 | 27MHZ (Ext Default) |
| * 1 | 0 | DOT96 | LCD (INT Default) |
| 0 | 1 | SRC0 | SRC1 |
| 1 | 1 | DOT96 | SRC1 |

QUANTA
COMPUTER

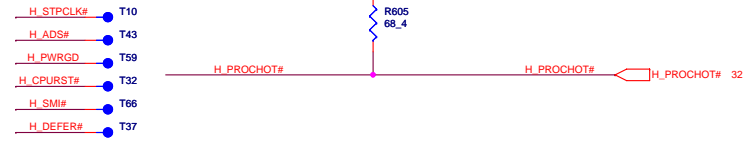
file
CLOCK GENERATOR-ICS9LPR395

Size Document Number
AK3M MAIN BOARD

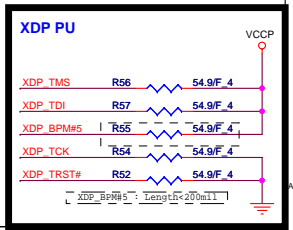
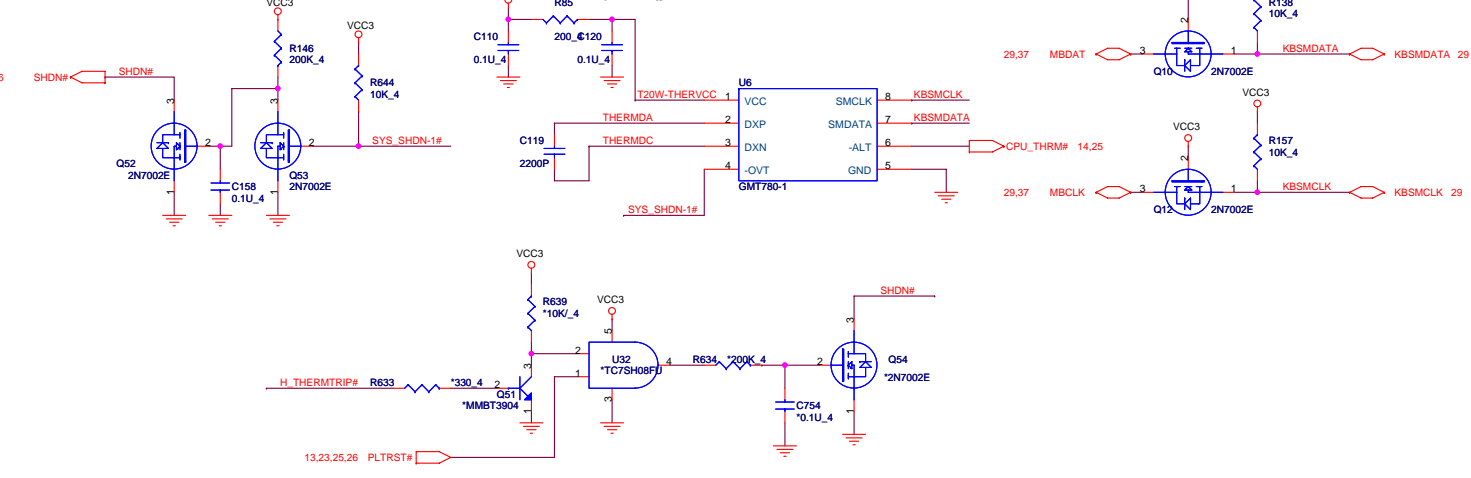
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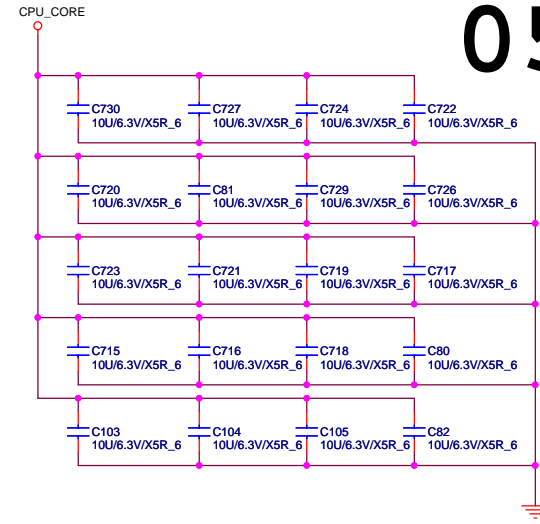
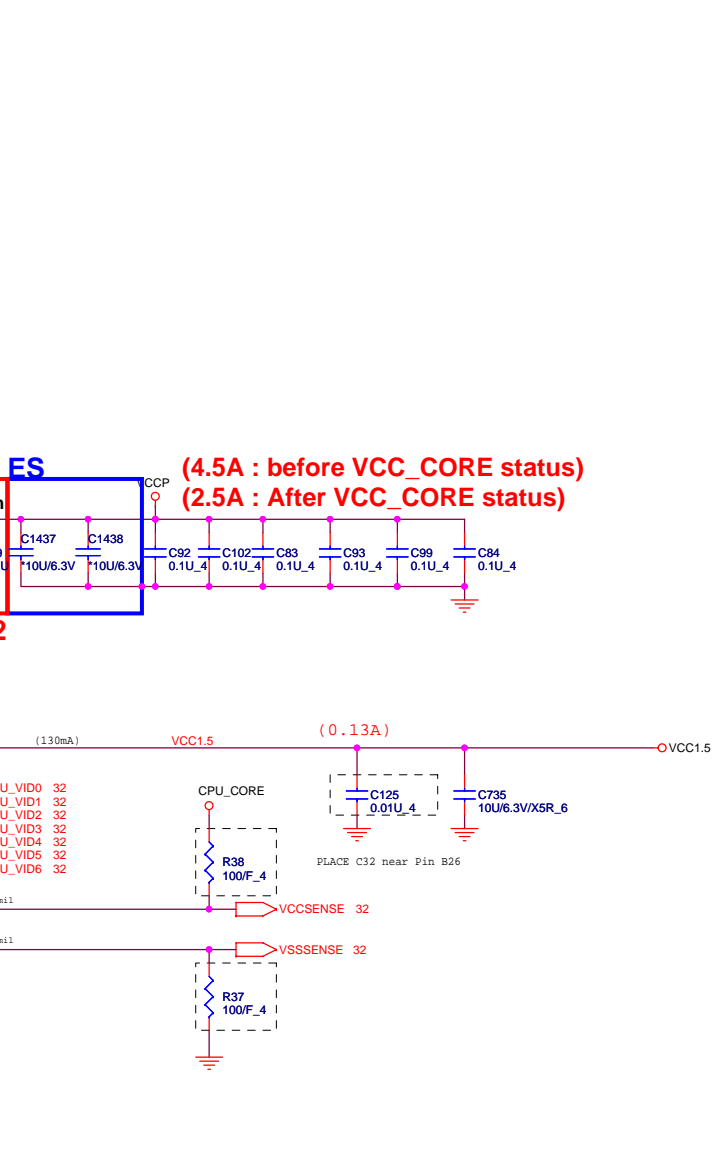
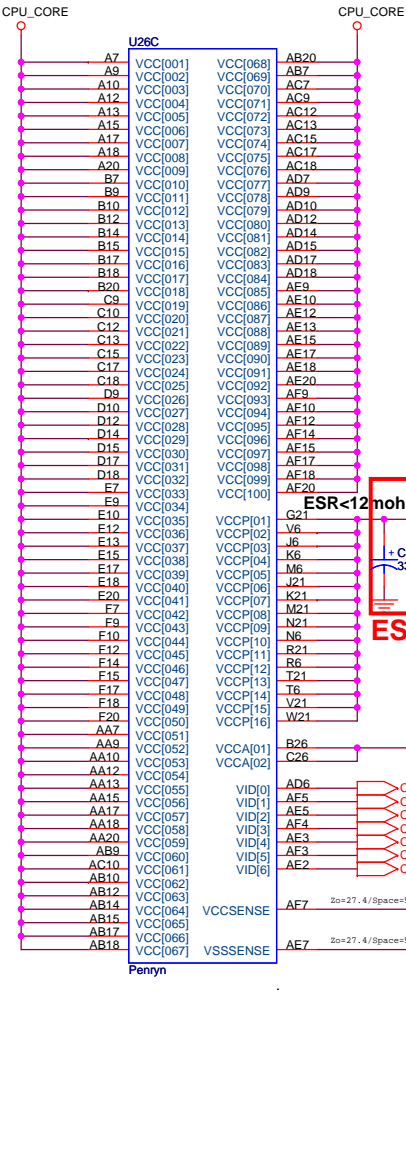
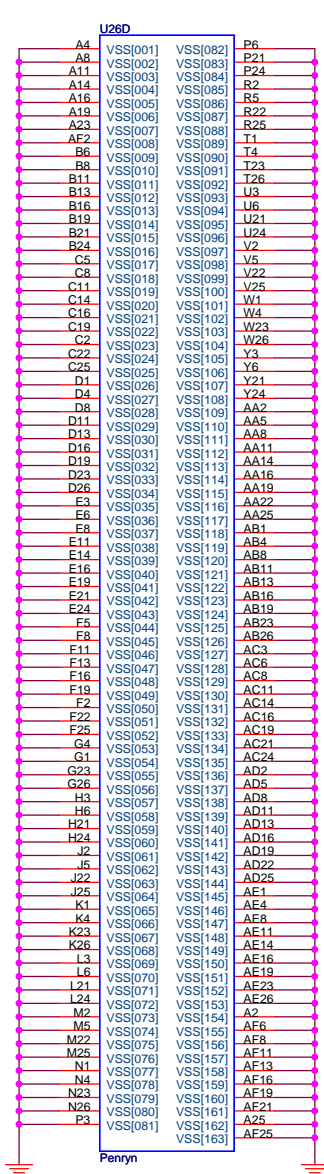


Layout To Be:
 COMP0, COMP2 : 2oz=27.4ohm,
 COMP1, COMP3 : 2oz=5ohm



Thermal Sensor



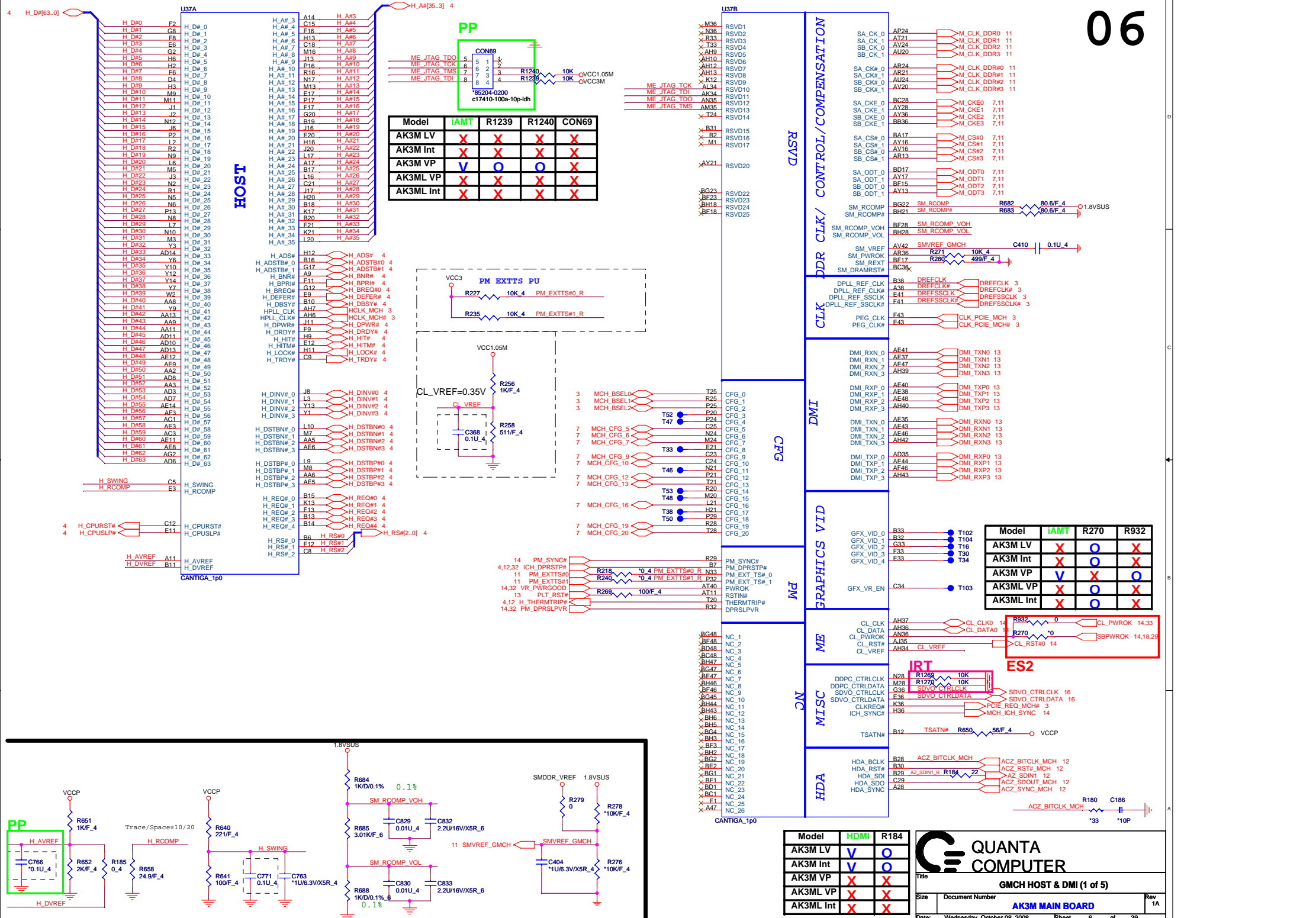


QUANTA COMPUTER

Title: Penryn CPU 2 of 2

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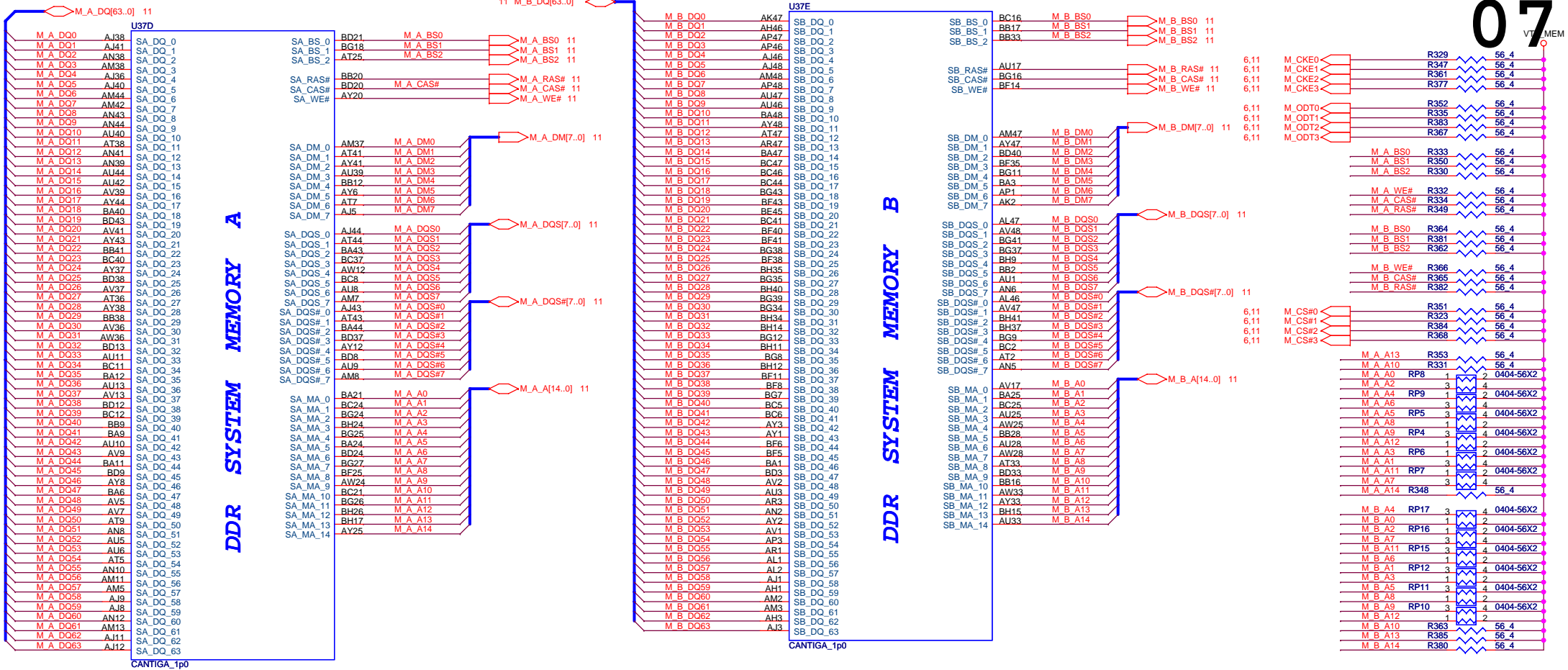
| Model | iAMT | R1239 | R1240 | CON69 |
|-----------|------|-------|-------|-------|
| AK3M LV | X | X | X | X |
| AK3M Int | X | X | X | X |
| AK3M VP | V | O | O | X |
| AK3ML VP | X | X | X | X |
| AK3ML Int | X | X | X | X |

| Model | iAMT | R270 | R932 |
|-----------|------|------|------|
| AK3M LV | X | O | X |
| AK3M Int | X | O | X |
| AK3M VP | V | X | O |
| AK3ML VP | X | O | X |
| AK3ML Int | X | O | X |

| Model | HDMI | R184 |
|-----------|------|------|
| AK3M LV | V | O |
| AK3M Int | V | O |
| AK3M VP | X | X |
| AK3ML VP | X | X |
| AK3ML Int | X | X |



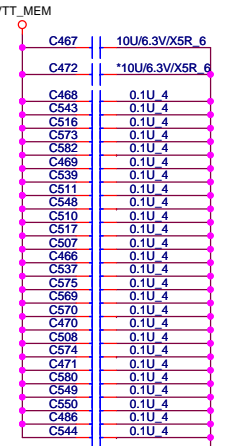
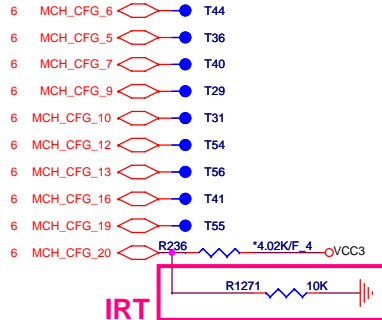
GMCH HOST & DMI (1 of 5)



07 VTT MEM

GMCH Strap pin description

| Low | | High |
|--|--|---|
| CGF5 | DMIX2 | * DMIX4 |
| CGF6 | ITPM HOST interface enable | * ITPM HOST interface disable |
| CGF7 | AMT Fireware will use TLS cipher suite with no confidentiality | * AMT Fireware will use TLS cipher suite with confidentiality |
| CGF9 | PCIe Graphics lan : Reverse Lane | * PCIe Graphics lan : Normal operation |
| CGF10 | PCIe Loopback enable | * PCIe Loopback disable |
| CGF16 | FSB Dynamic ODT Disabled | * FSB Dynamic ODT Enabled |
| CGF19 | * DMI LANE Normal | DMI LANE Reversed |
| CGF20 | * only SDVO/DP/HDMI or PCIe is operational | SDVO/DP/HDMI and PCIe are operational simultaneously via the PEG port |
| CGF[12:13]:XOR /ALLZ / Clock Un-gating 00 = Reserve 01 = XOR mode enabled 10 = All-Z mode enabled * 11 = Normal Operation(Default) | | |



QUANTA COMPUTER

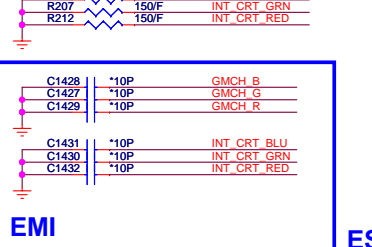
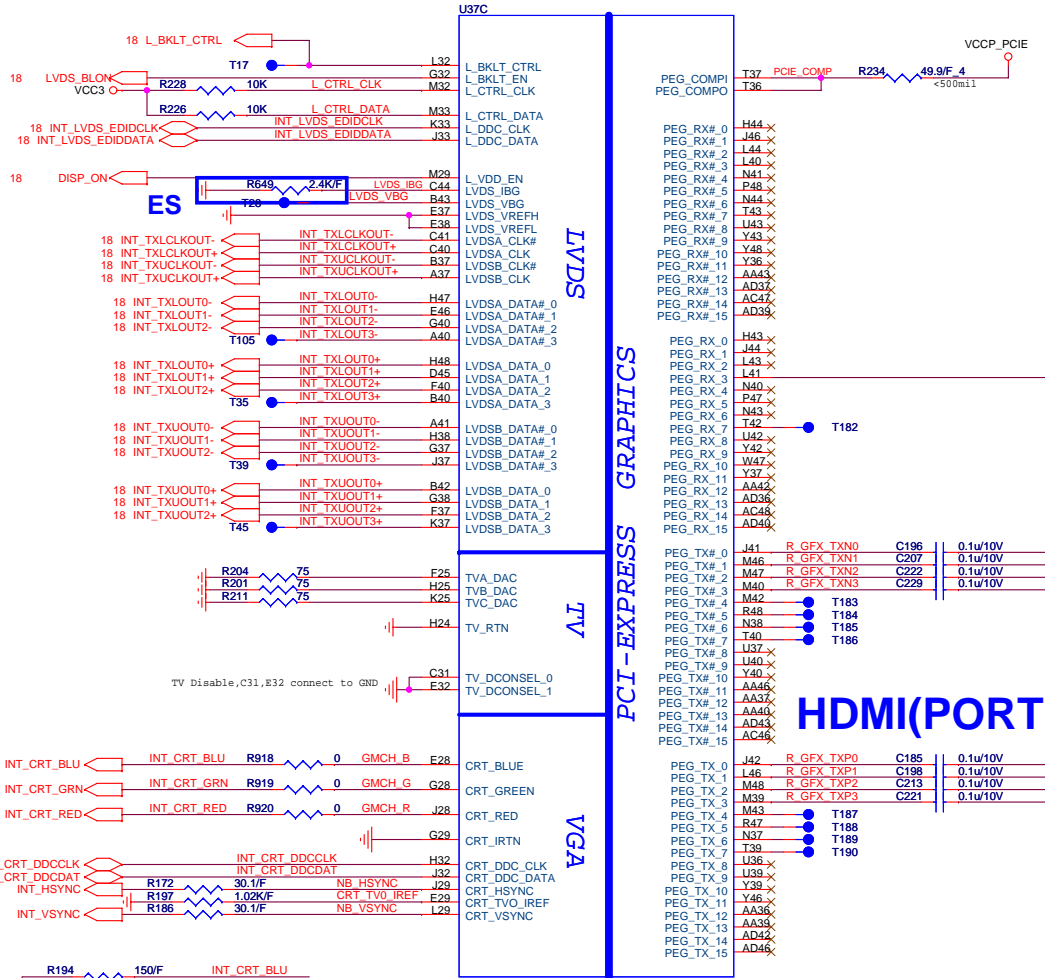
AK3M MAIN BOARD

GMCH DDR II 2 of 5

Rev 1A

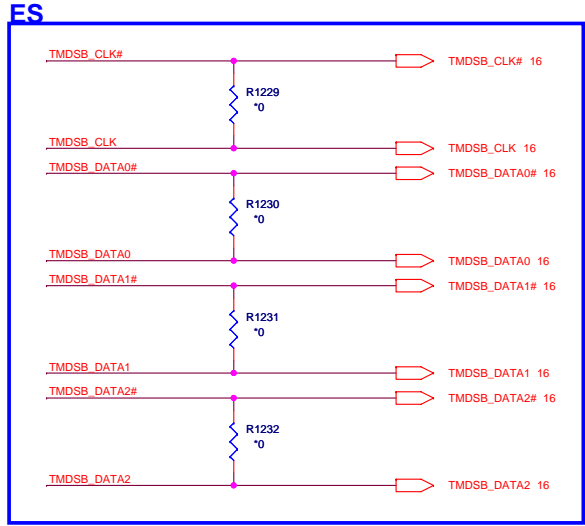
Wednesday, October 08, 2008

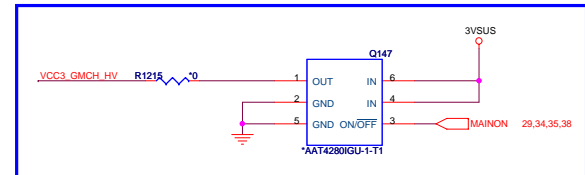
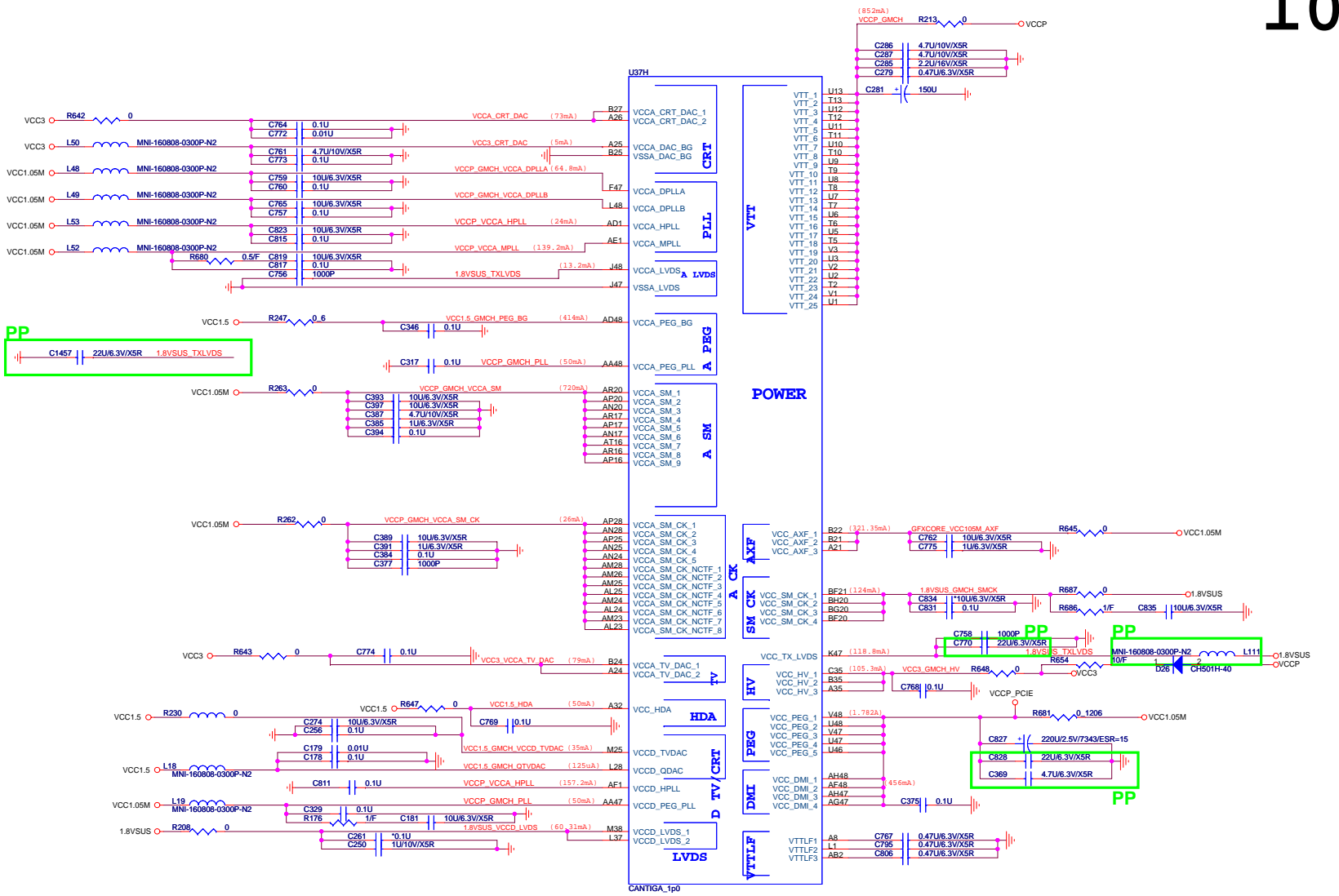
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CANTIGA_fp0

| Model | HDMI | C196 | C207 | C222 | C229 | C185 | C198 | C213 | C221 | R661 |
|-----------|------|------|------|------|------|------|------|------|------|------|
| AK3M LV | V | O | O | O | O | O | O | O | O | O |
| AK3M Int | V | O | O | O | O | O | O | O | O | O |
| AK3M VP | X | X | X | X | X | X | X | X | X | X |
| AK3ML VP | X | X | X | X | X | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X | X | X | X | X | X |





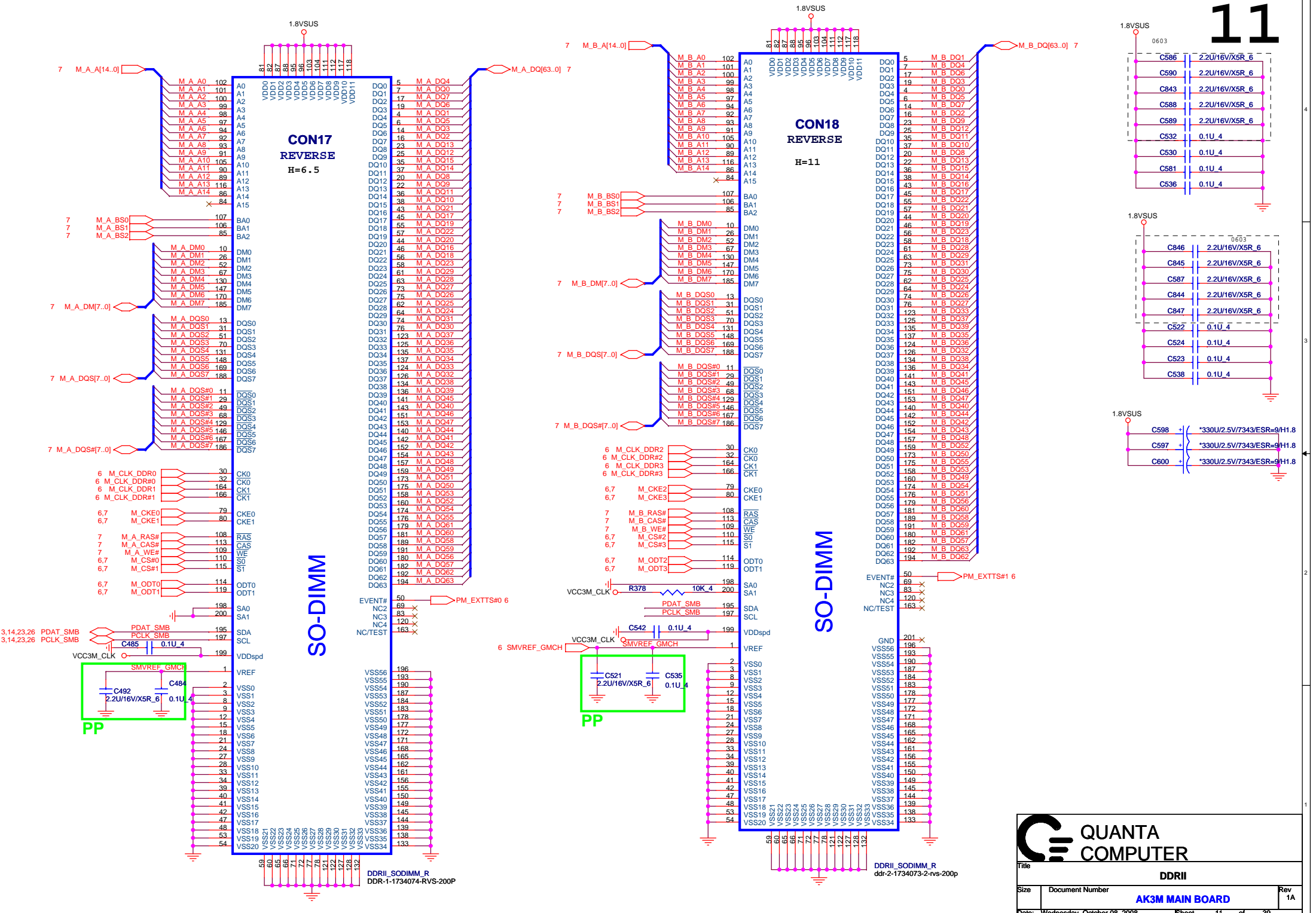
ES

QUANTA COMPUTER

Title: **GMCH Power 5 of 5**

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**CON17
REVERSE
H=6.5**

**CON18
REVERSE
H=11**

SO-DIMM

SO-DIMM

QUANTA COMPUTER

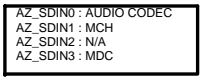
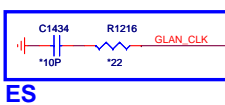
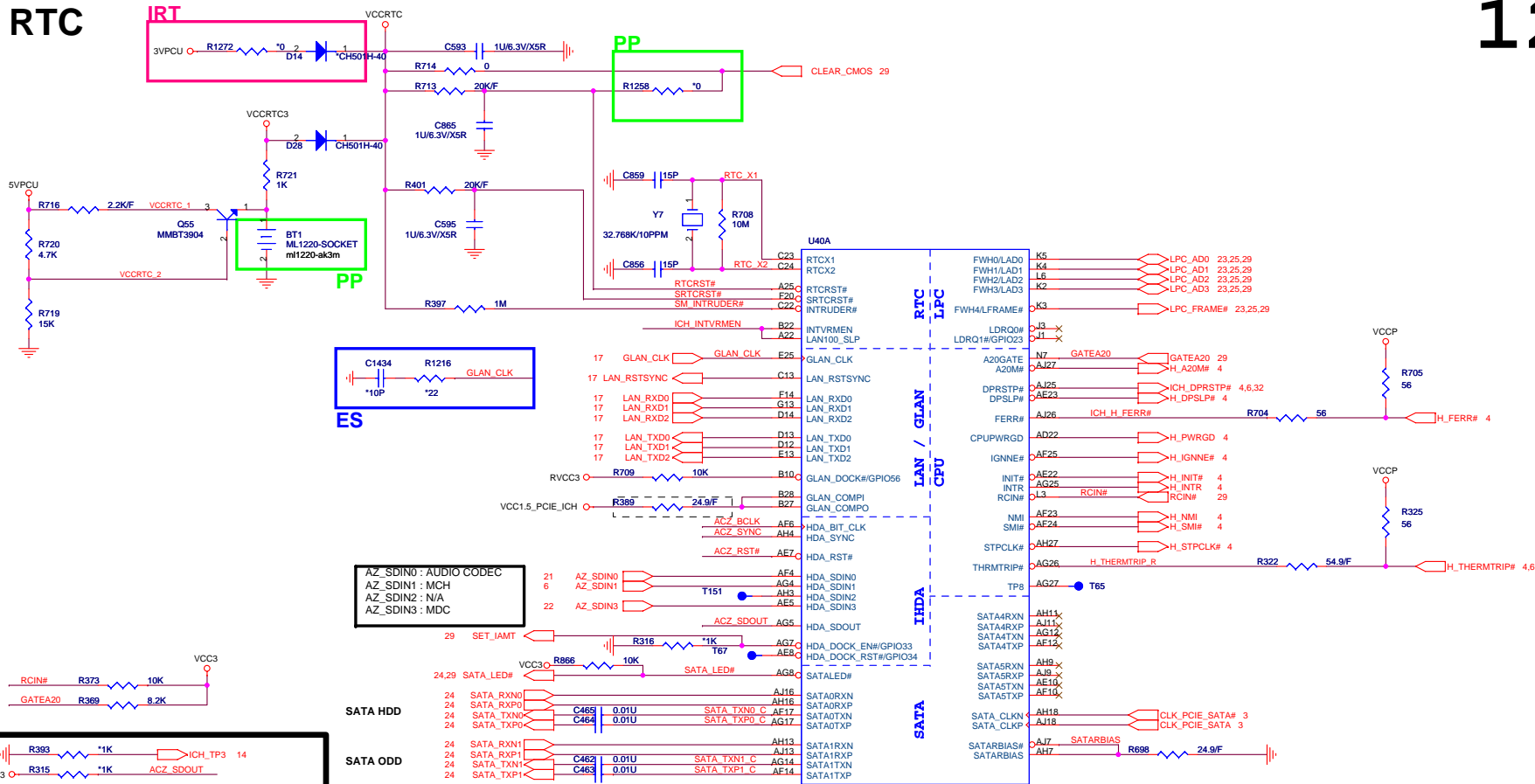
Title: **DDRII**

Size: Document Number: **AK3M MAIN BOARD** Rev: 1A

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DDRII_SODIMM_R
DDR-1-1734074-RVS-200P

DDRII_SODIMM_R
ddr-2-1734073-2-rvs-200p



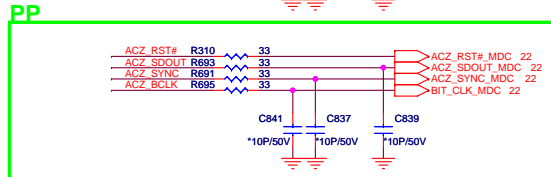
XOR Chain Entrance Strap

| ICH_TP3 | ACZ_SDOUT | Description |
|---------|-----------|----------------------------|
| 0 | 0 | RSVD |
| 0 | 1 | Enter XOR Chain |
| 1 | 0 | * Normal opration |
| 1 | 1 | Set PCIe port config bit 1 |

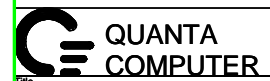
Internal VRM Enable for Vccsus1_05, VccSus1_5, VccCL1_5, vccLAN1_05, vccCL1_05)

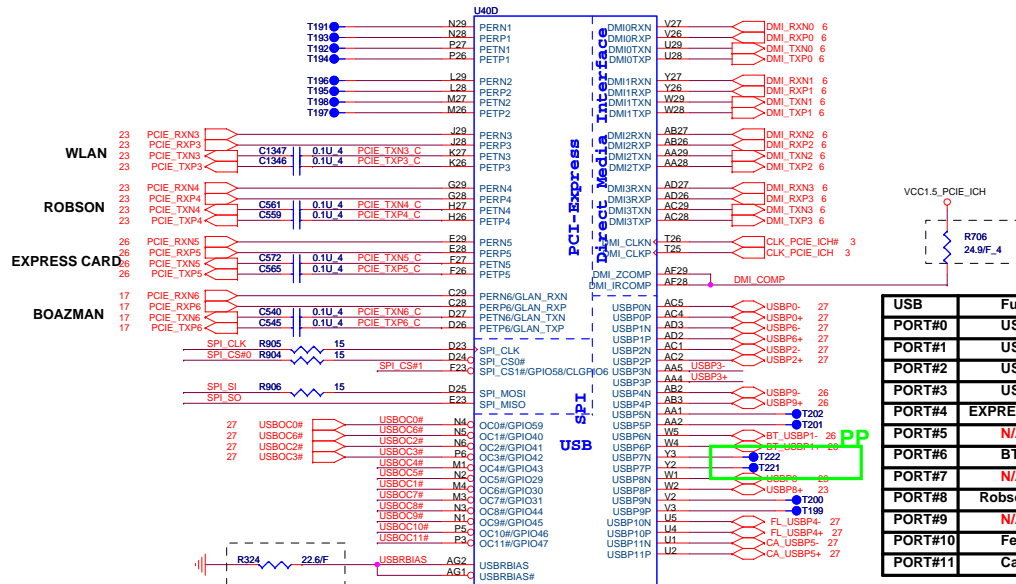
| | INTVRMEN |
|------------------|----------|
| Enable (default) | 1 |
| Disable | 0 |

| Model | HDMI | R697 | R306 | R304 | R308 | R341 |
|-----------|------|------|------|------|------|------|
| AK3M LV | V | O | O | O | O | O |
| AK3M Int | V | O | O | O | O | O |
| AK3M VP | X | X | X | X | X | X |
| AK3ML VP | X | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X | X |



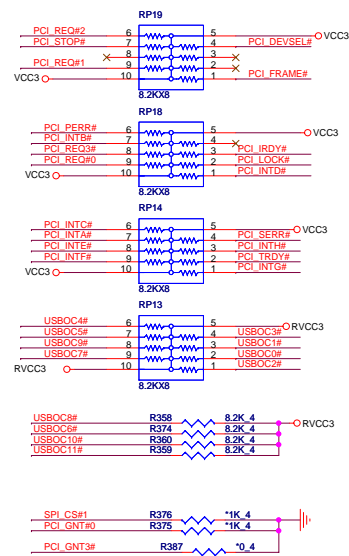
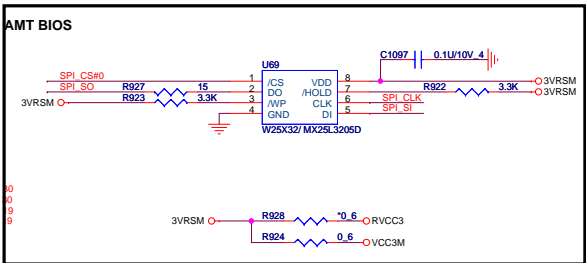
| Model | MDC | R310 | R693 | R691 | R695 |
|-----------|-----|------|------|------|------|
| AK3M LV | X | X | X | X | X |
| AK3M Int | V | O | O | O | O |
| AK3M VP | X | X | X | X | X |
| AK3ML VP | X | X | X | X | X |
| AK3ML Int | V | O | O | O | O |



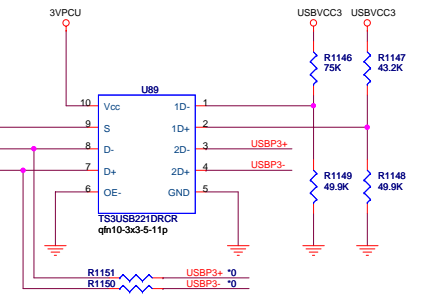


| USB | Function |
|---------|--------------|
| PORT#0 | USB |
| PORT#1 | USB |
| PORT#2 | USB |
| PORT#3 | USB |
| PORT#4 | EXPRESS CARD |
| PORT#5 | N/A |
| PORT#6 | BT |
| PORT#7 | N/A |
| PORT#8 | Robson CARD |
| PORT#9 | N/A |
| PORT#10 | Felica |
| PORT#11 | Camera |

| Model | iAMT | U69 |
|-----------|------|-------|
| AK3M-LV | X | 512KB |
| AK3M-Int | X | 512KB |
| AK3M-VP | X | 4MB |
| AK3ML-VP | V | 512KB |
| AK3ML-Int | X | 512KB |



| Model | iPod charge | U89 | R1146-R1149 | R1150-R1151 |
|-----------|-------------|-----|-------------|-------------|
| AK3M-LV | V | O | O | X |
| AK3M-Int | V | O | O | X |
| AK3M-VP | X | X | X | O |
| AK3ML-VP | X | X | X | O |
| AK3ML-Int | X | X | X | O |



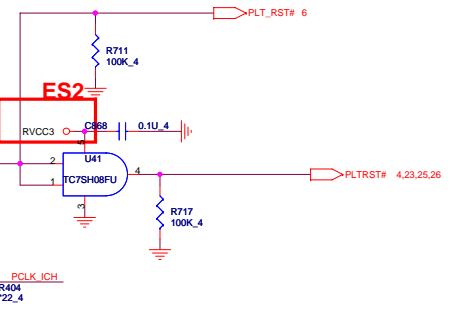
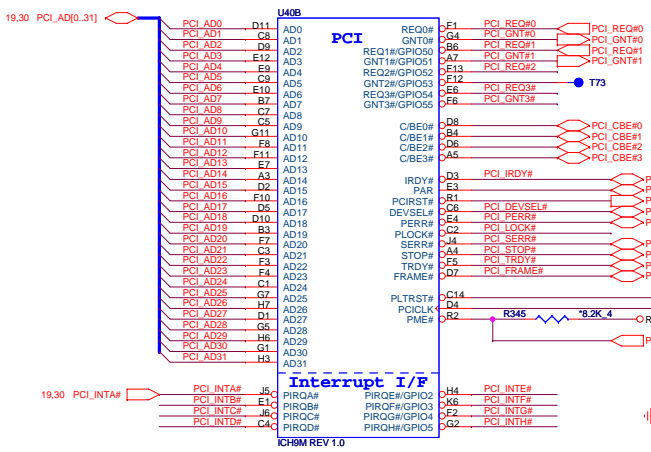
GPIO49 : NC
 GPIO20 : Can't pull high.
A16 SWAP Override strap

| PCI_GNT#3 | Low = A16 swap override enabled High = Default |
|-----------|---|
| 0 | 1 |
| 1 | 0 |
| 1 | 1 |

ICH9 Boot BIOS select

| PCI_GNT#0 | SPI_CS#1 | Boot BIOS Location |
|-----------|----------|--------------------|
| 0 | 1 | SPI |
| 1 | 0 | PCI |
| 1 | 1 | LPC (Default) |

| IRQ | Description |
|-------|---|
| PIRQA | USB UHCI Controller #1, USB UHCI Controller #4 |
| PIRGB | Audio, Modem, SMIbus |
| PIRQC | USB UHCI Controller #3, SATA/IDE Native Mode |
| PIRQD | USB UHCI Controller #2 |
| PIRQE | INT LAN; option for SCI,TCO,HPET #0,1,2; T1B412 |
| PIRQF | option for SCI,TCO,HPET #0,1,2; T1B412 |
| PIRQG | option for SCI,TCO,HPET #0,1,2; T1B412 |
| PIRQH | USB eHCI Controller; option for SCI,TCO,HPET #0,1,2 |



QUANTA COMPUTER

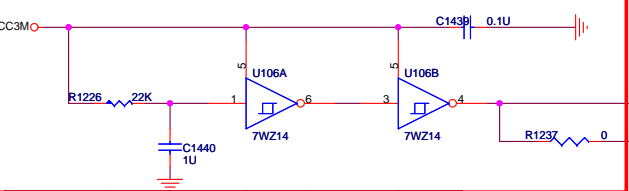
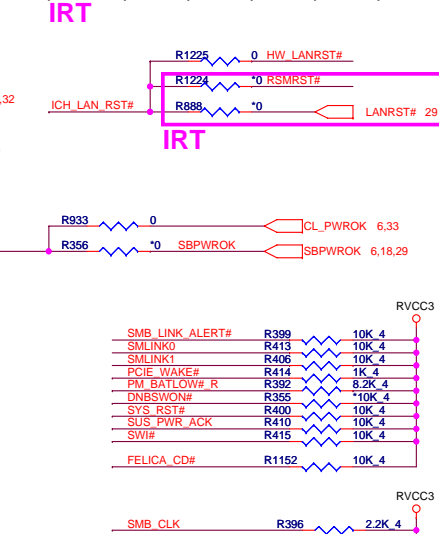
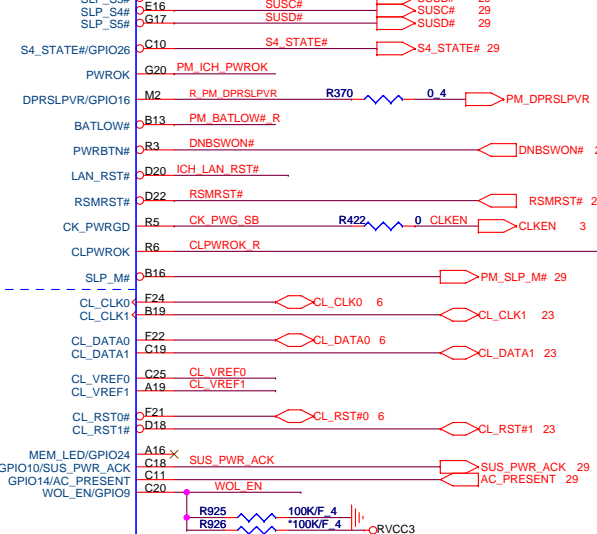
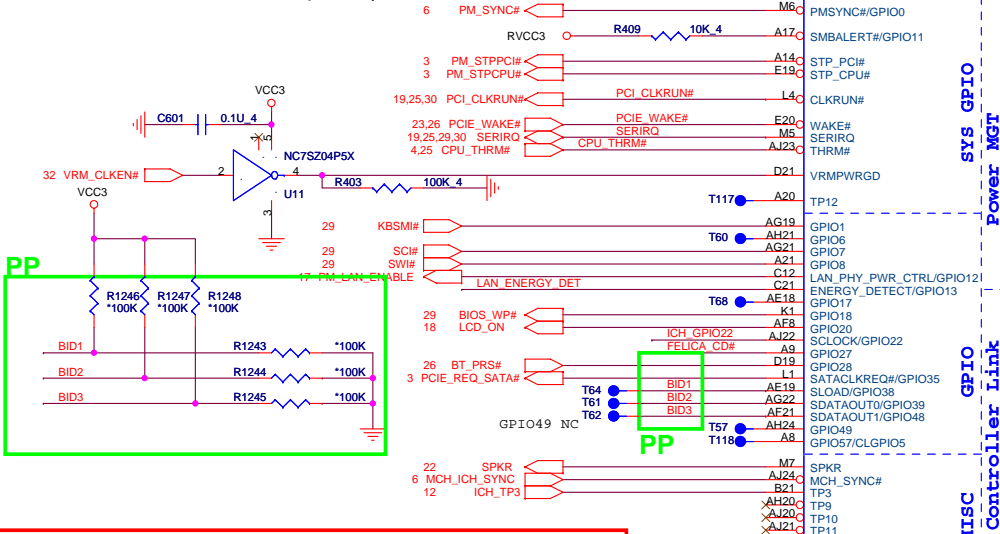
Title: **ICH9-M PCIE 2 of 4**

Size: Document Number **AK3M MAIN BOARD** Rev 1A

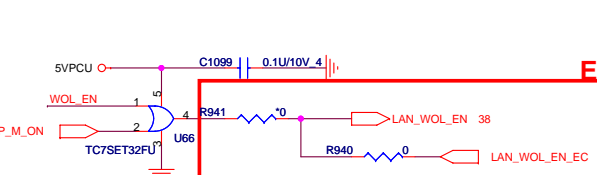
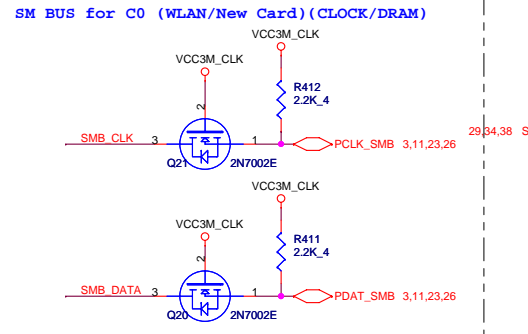
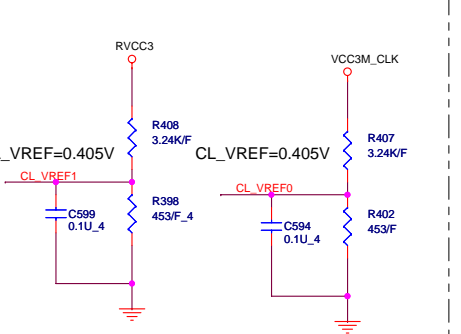
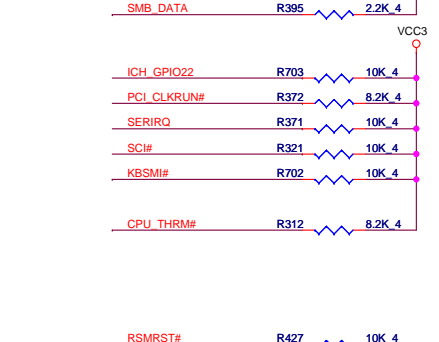
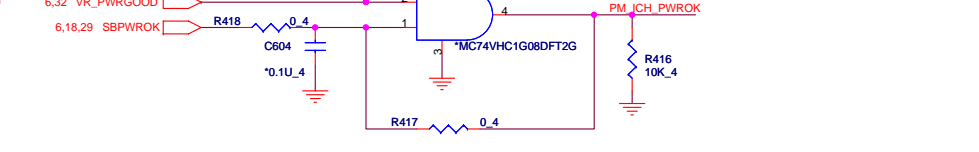
Date: Wednesday, October 08, 2008 Sheet 13 of 39

| Model | BID1 | BID2 | BID3 |
|-------------------|------|------|------|
| AK3M LV-DDR3 | H | H | H |
| AK3M WW-LV-DDR3 | L | H | H |
| AK3M VP-DDR2 | L | L | H |
| AK3ML VP-DDR2 | L | H | L |
| AK3M WW-VP-DDR2 | L | H | L |
| AK3M LV-DDR3(LTP) | L | H | H |


| Model | iAMT | R1224 | R888 | R1225 | R933 | R356 |
|-----------|------|-------|------|-------|------|------|
| AK3M LV | X | X | O | X | X | O |
| AK3M Int | X | X | O | X | X | O |
| AK3M VP | V | X | X | O | O | X |
| AK3ML VP | X | X | O | X | X | O |
| AK3ML Int | X | X | O | X | X | O |



| Model | iAMT | R1226 | U106 | C1439-40 | R1237 |
|-----------|------|-------|------|----------|-------|
| AK3M LV | X | X | X | X | X |
| AK3M Int | X | X | X | X | X |
| AK3M VP | V | O | O | O | O |
| AK3ML VP | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X |



| Model | iAMT | R941 | R940 | U66 | C1099 |
|-----------|------|------|------|-----|-------|
| AK3M LV | X | X | O | X | X |
| AK3M Int | X | X | O | X | X |
| AK3M VP | V | O | X | O | O |
| AK3ML VP | X | X | O | X | X |
| AK3ML Int | X | X | O | X | X |



QUANTA COMPUTER

File: ICH9-M GPIO 3 of 4

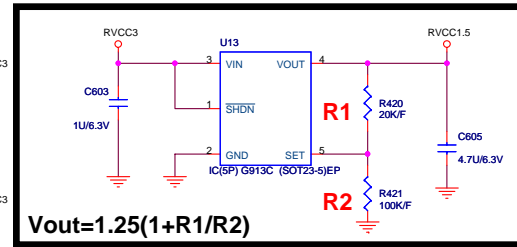
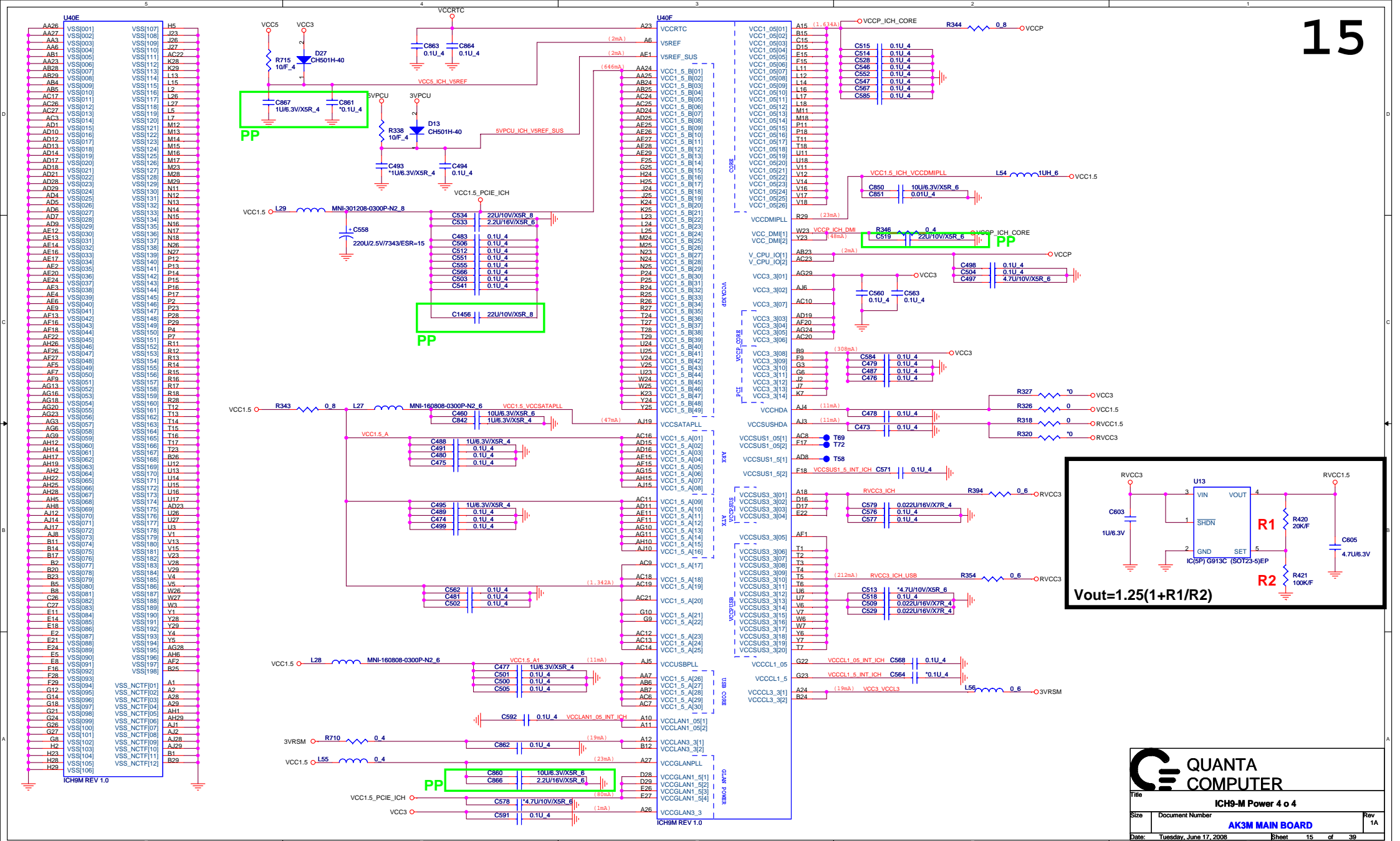
Title: **AK3M MAIN BOARD**

Size: Document Number

Date: Wednesday, October 08, 2008

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Rev 1A



QUANTA COMPUTER

Title: ICH9-M Power 4 o 4

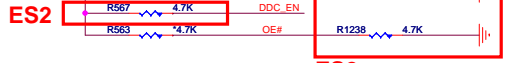
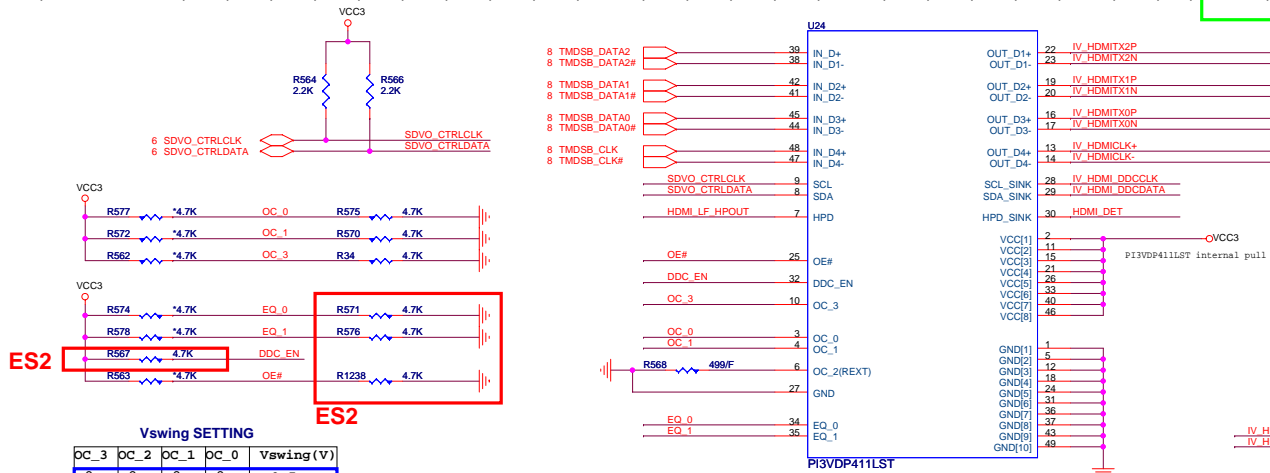
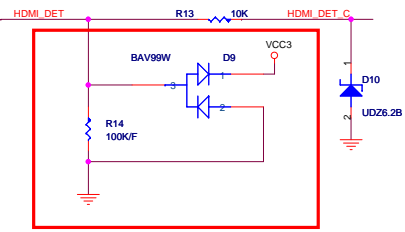
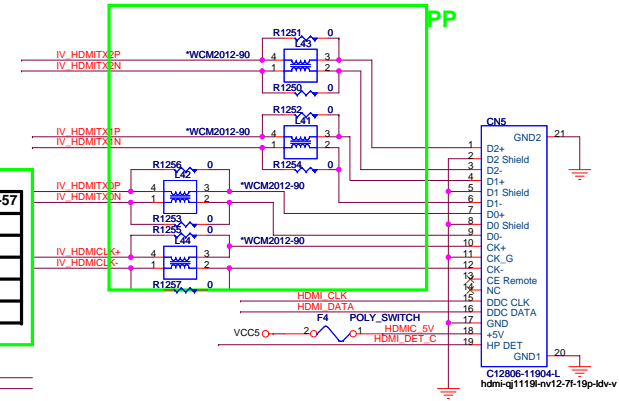
Size: Document Number: AK3M MAIN BOARD Rev 1A

Date: Tuesday, June 17, 2008 Sheet 15 of 39

HDMI CONNECTOR

HDMI LEVEL SHIFT

| Model | HDMI | U24 | CN5 | F4 | R564 | R566 | R579 | R570 | R34 | R568 | C707-09 | C709 | R569 | R581 | R559 | D10-11 | R13 | R571 | R576 | R567 | R1238 | R14 | D9 | R1250-57 | |
|-----------|------|-----|-----|----|------|------|------|------|-----|------|---------|------|------|------|------|--------|-----|------|------|------|-------|-----|----|----------|---|
| AK3M LV | V | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O |
| AK3M Int | V | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | |
| AK3M VP | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| AK3ML VP | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| AK3ML Int | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |

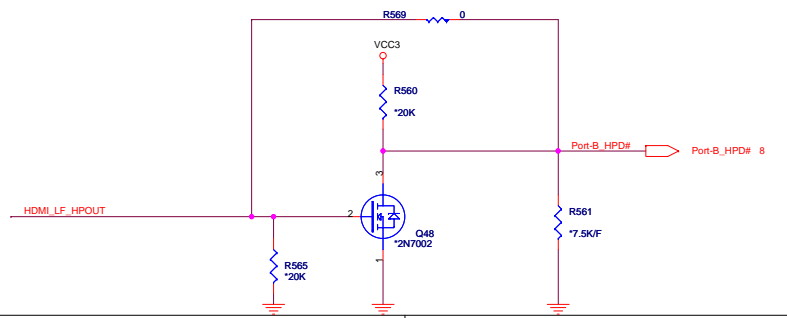
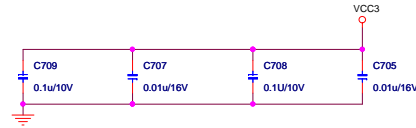


Vswing SETTING

| oc_3 | oc_2 | oc_1 | oc_0 | Vswing (V) |
|------|------|------|------|------------|
| 0 | 0 | 0 | 0 | 0.5 |
| 0 | 0 | 0 | 1 | 0.6 |
| 0 | 0 | 1 | 0 | 0.75 |
| 0 | 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 0.4 |
| 1 | 0 | 0 | 1 | 0.4 |
| 1 | 0 | 1 | 0 | 0.4 |
| 1 | 0 | 1 | 1 | 0.4 |

EQUALIZATION SETTING

| EQ_0 | EQ_1 | EQUALIZATION |
|------|------|--------------|
| 0 | 0 | 3dB |
| 0 | 1 | 7.2dB |
| 1 | 0 | 10dB |
| 1 | 1 | 12dB |

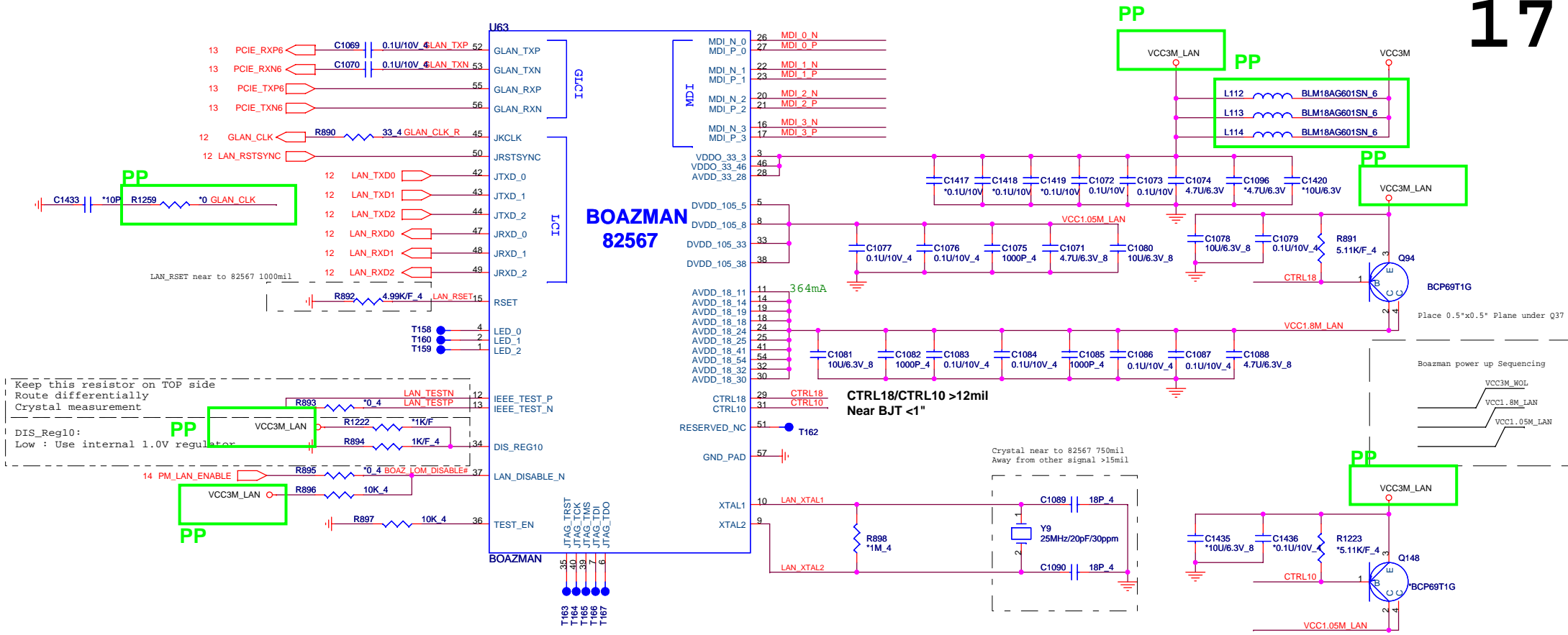


QUANTA COMPUTER

File: **HDMI(PI3VDP411LST)**

Size: Document Number **AK3M MAIN BOARD** Rev 1A

Date: Wednesday, October 06, 2010 Sheet 16 of 39



Keep this resistor on TOP side
Route differentially
Crystal measurement

DIS_Reg10:
Low : Use internal 1.0V regulator

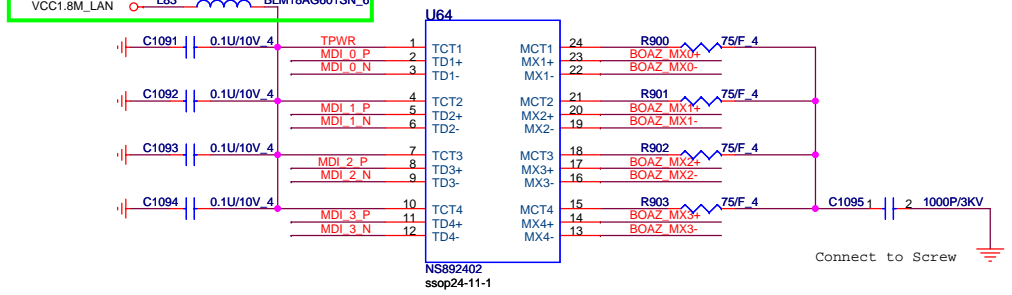
Place 0.5"x0.5" Plane under Q37

Boazman power up Sequencing

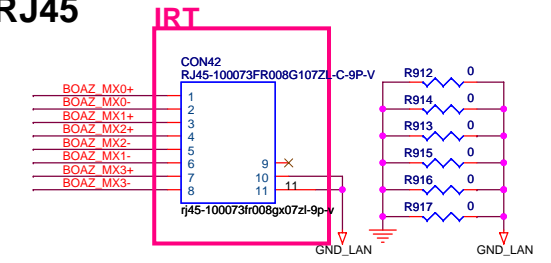
VCC3M_WOL
VCC1.8M_LAN
VCC1.05M_LAN

Crystal near to 82567 750mil
Away from other signal >15mil

LAN TRANSFORMER

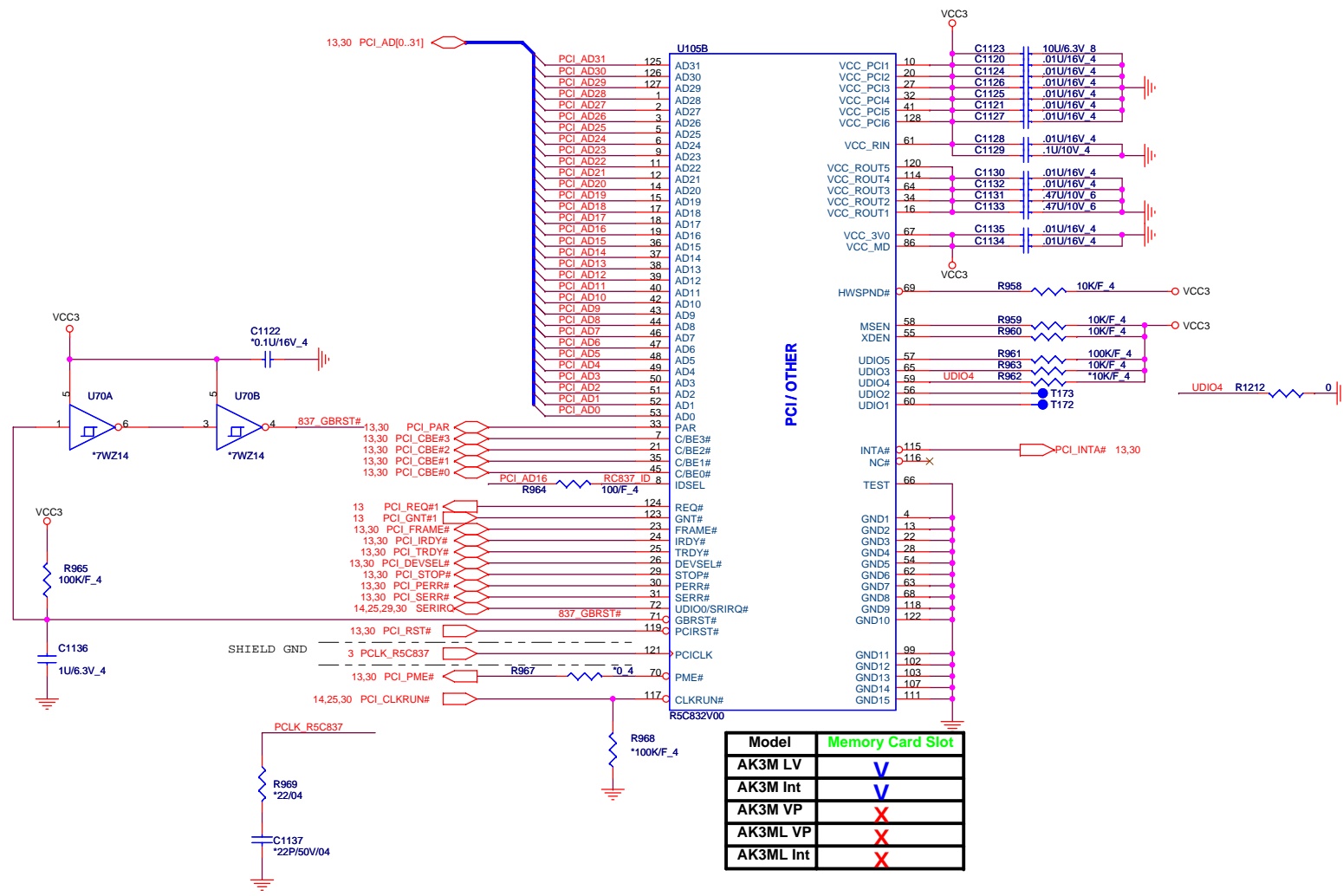


RJ45



| | | | |
|-------|-----------------------------|-----------------|----------|
| Title | | LAN BOAZMAN | |
| Size | Document Number | AK3M MAIN BOARD | |
| Date: | Wednesday, October 08, 2008 | Sheet | 17 of 39 |
| | | | Rev 1A |

1. Level 1 Environment-related Substances should NEVER be Used.
2. Purchase ink, paint, wire rods, and Molding resins only from the business Partners that Sony approves as Green Partners.



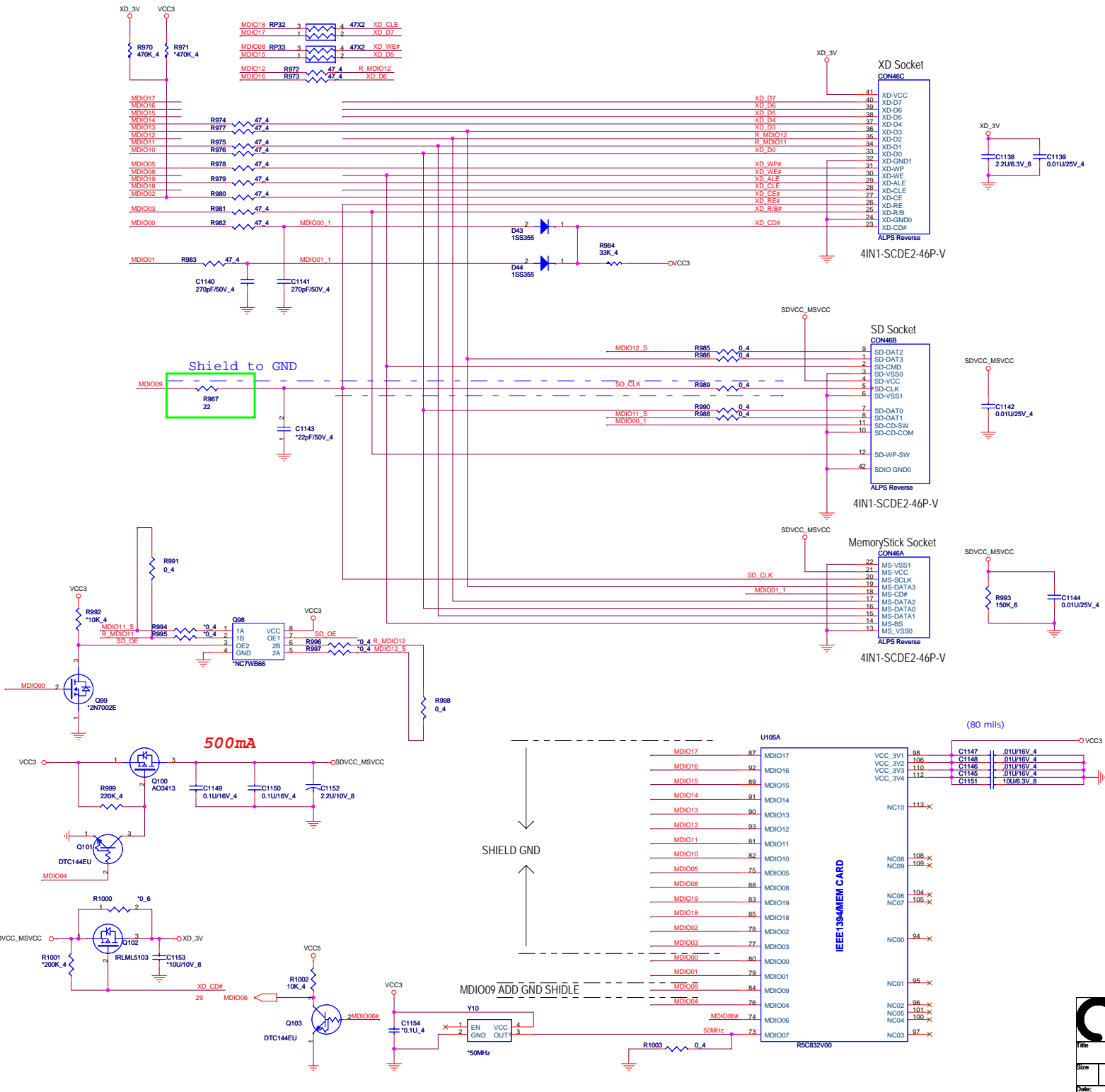
| Model | Memory Card Slot |
|-----------|------------------|
| AK3M LV | ✓ |
| AK3M Int | ✓ |
| AK3M VP | ✗ |
| AK3ML VP | ✗ |
| AK3ML Int | ✗ |

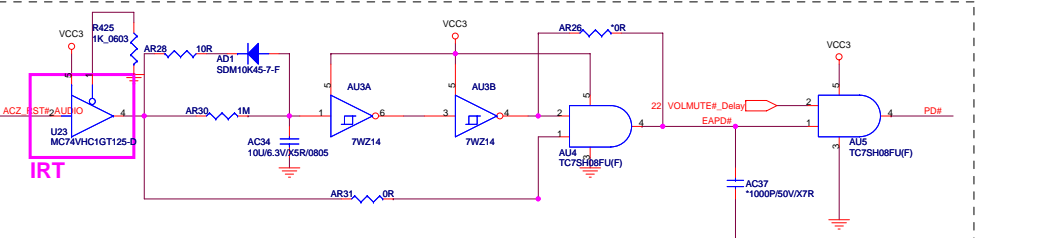
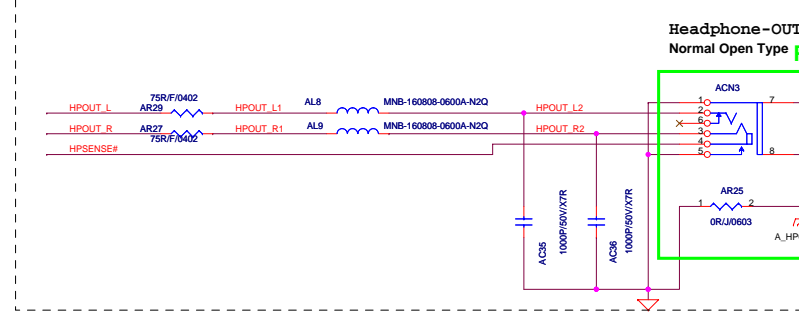
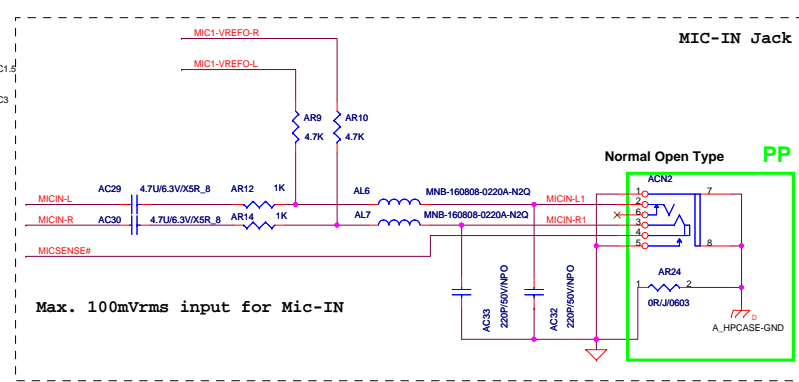
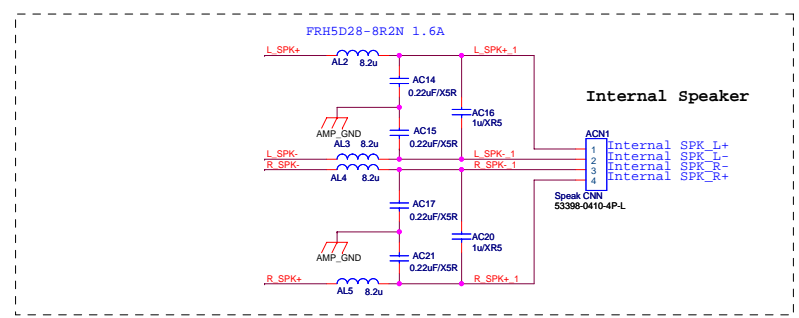
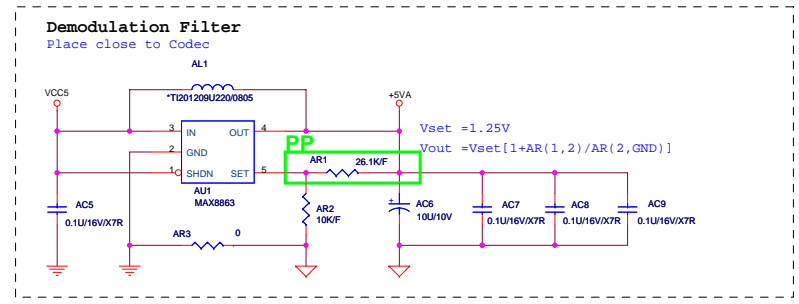
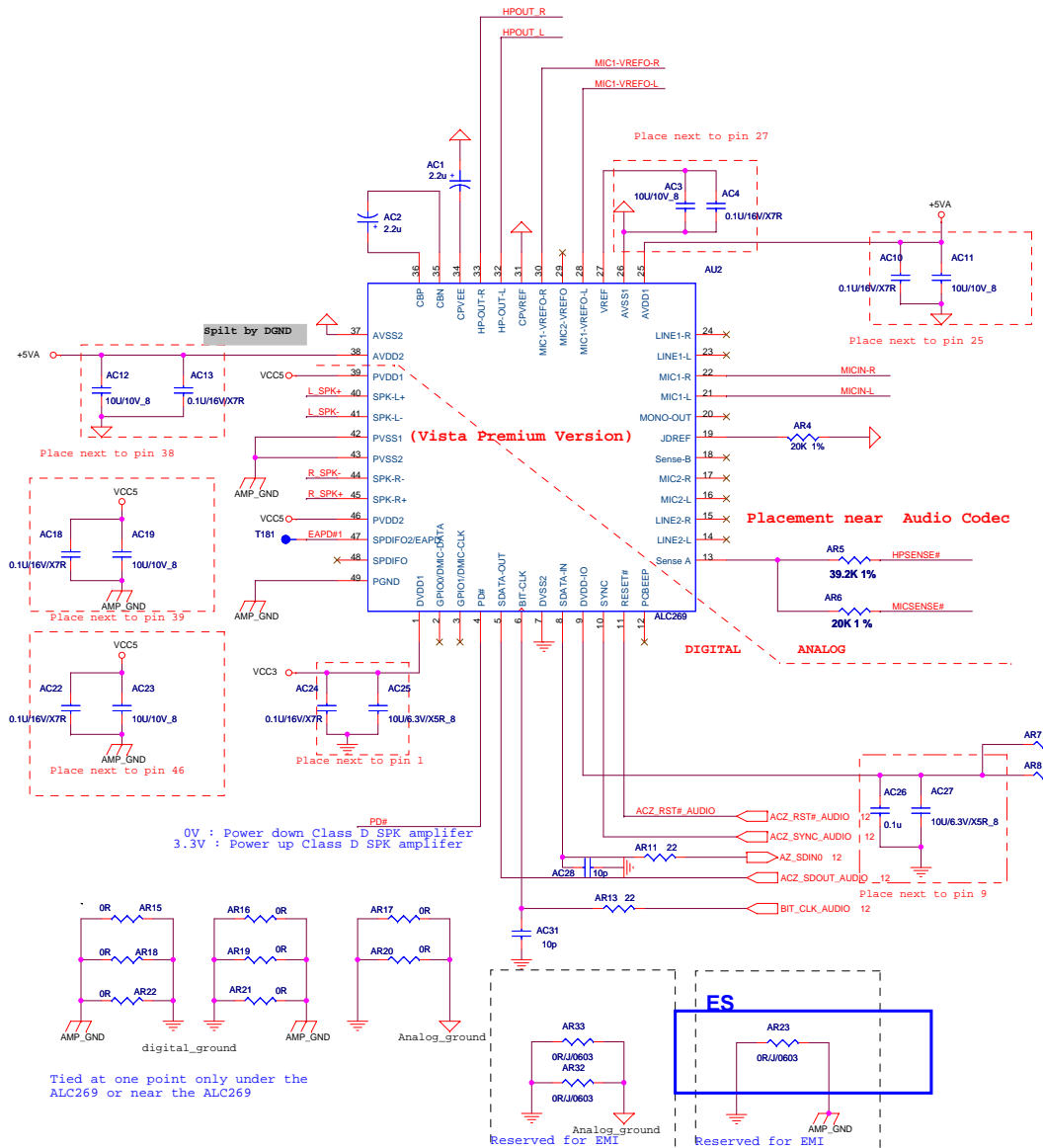
QUANTA COMPUTER

Title: **R5C837_PCI**

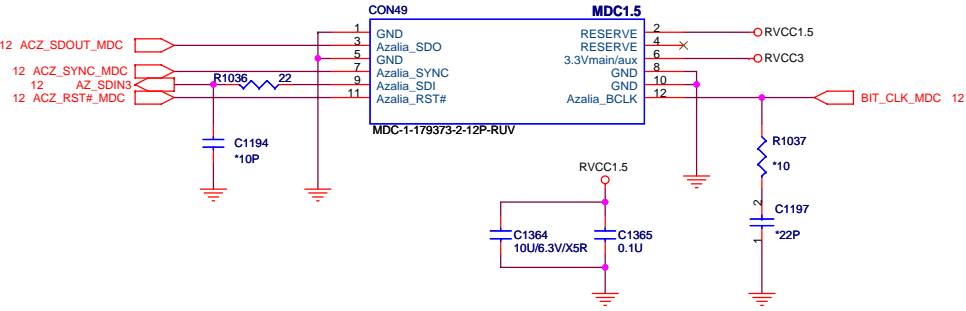
Size: Document Number **AK3M MAIN BOARD** Rev 1A

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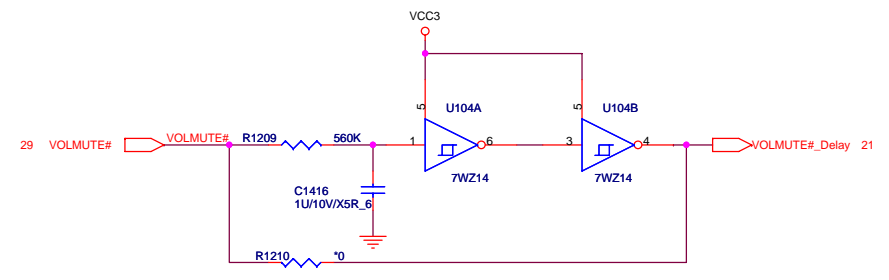




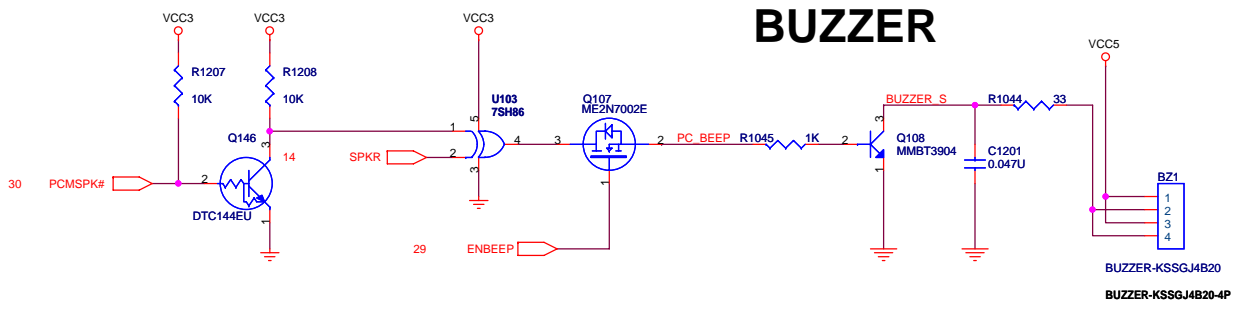
HD_MDC



| Model | MDC | CON49 | R1036 | C1364-65 |
|-----------|-----|-------|-------|----------|
| AK3M LV | X | X | X | X |
| AK3M Int | V | O | O | O |
| AK3M VP | X | X | X | X |
| AK3ML VP | X | X | X | X |
| AK3ML Int | V | O | O | O |



BUZZER

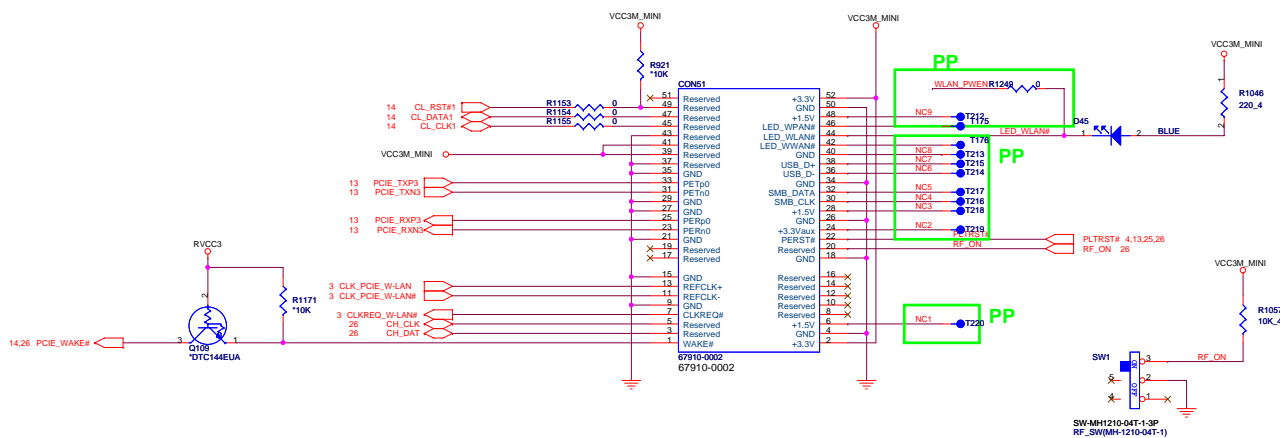


**QUANTA
COMPUTER**

Title: **MODEM/BUZZER**

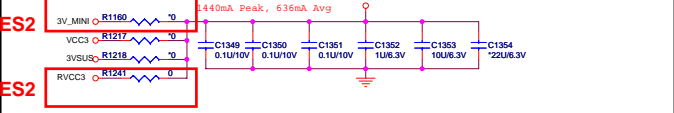
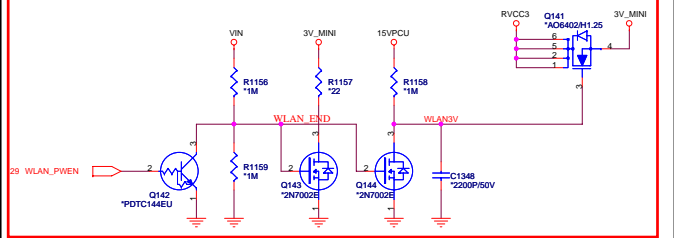
Size: Document Number **AK3M MAIN BOARD** Rev 1A

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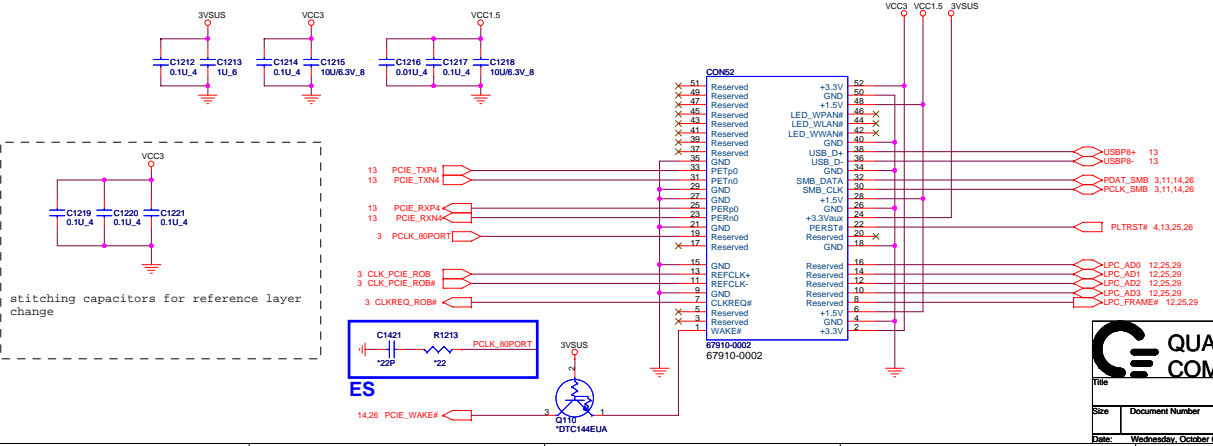
WLAN PWR

ES2



| Model | IAMT | R1153-55 | R1156-60 | R1241 | Q141-44 | C1348 | R1217 | R1218 | D45 |
|-----------|------|----------|----------|-------|---------|-------|-------|-------|-------|
| AK3M LV | X | X | X | X | X | X | O | X | Blue |
| AK3M Int | X | X | X | X | X | X | O | X | Blue |
| AK3M VP | V | O | X | O | X | X | X | X | Blue |
| AK3ML VP | X | X | X | X | X | X | X | X | Green |
| AK3ML Int | X | X | X | X | X | X | O | X | Green |

MINI PCIE CARD (Robson)



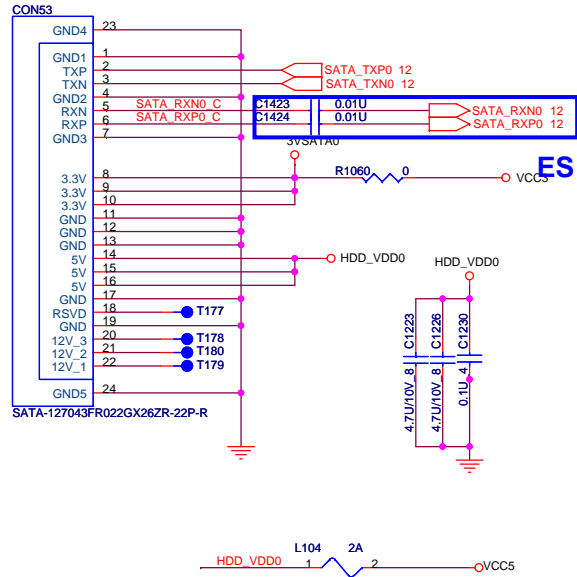
QUANTA COMPUTER

Title: MINI PCIE

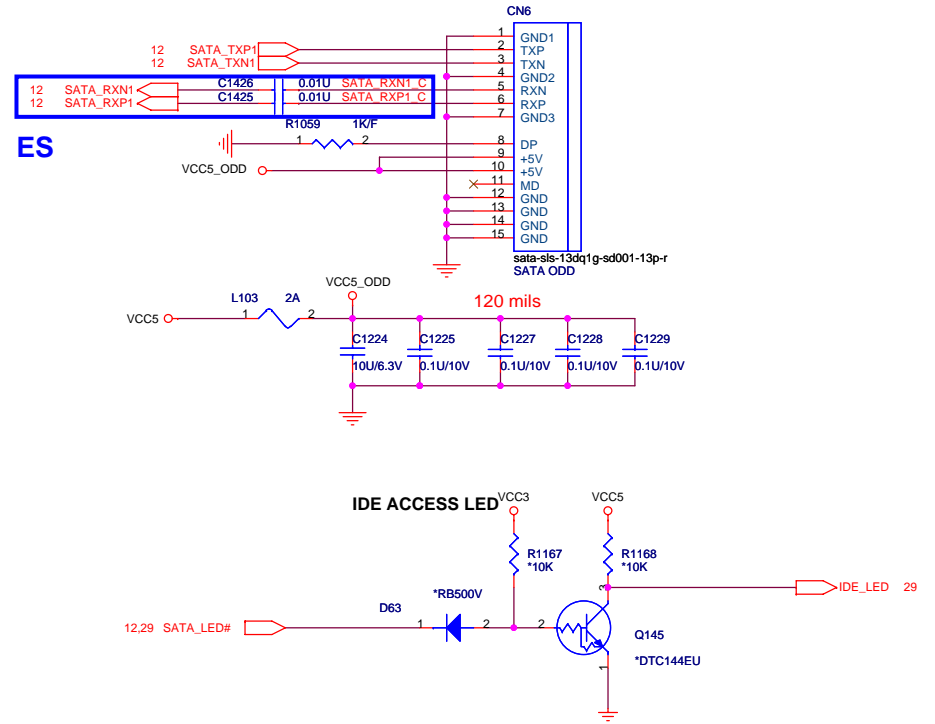
Size: Document Number: AK3M MAIN BOARD Rev: 1A

Date: Wednesday, October 06, 2009 Sheet: 23 of 39

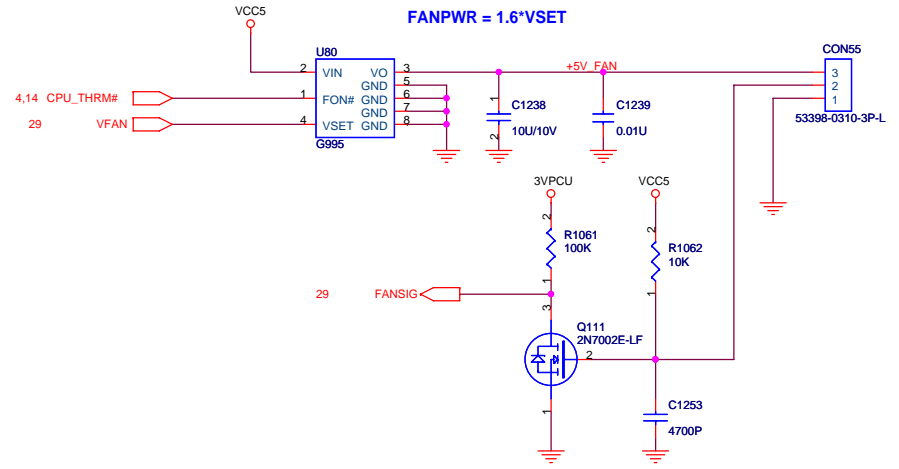
SATA HDD



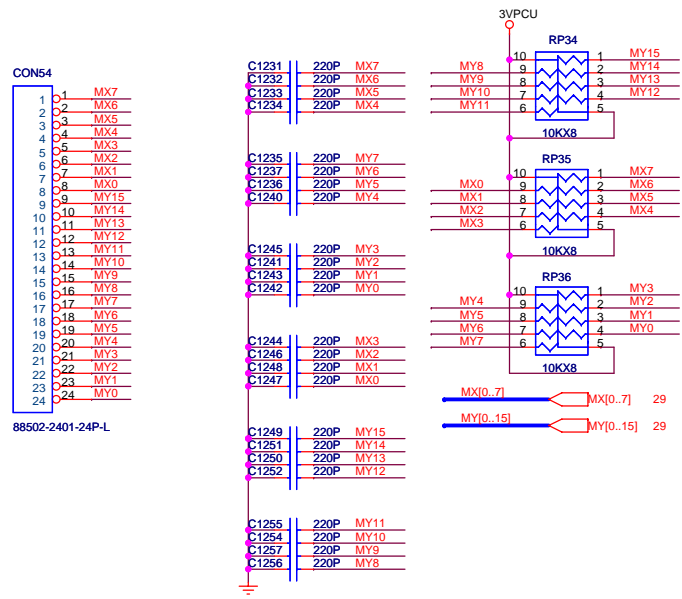
SATA ODD



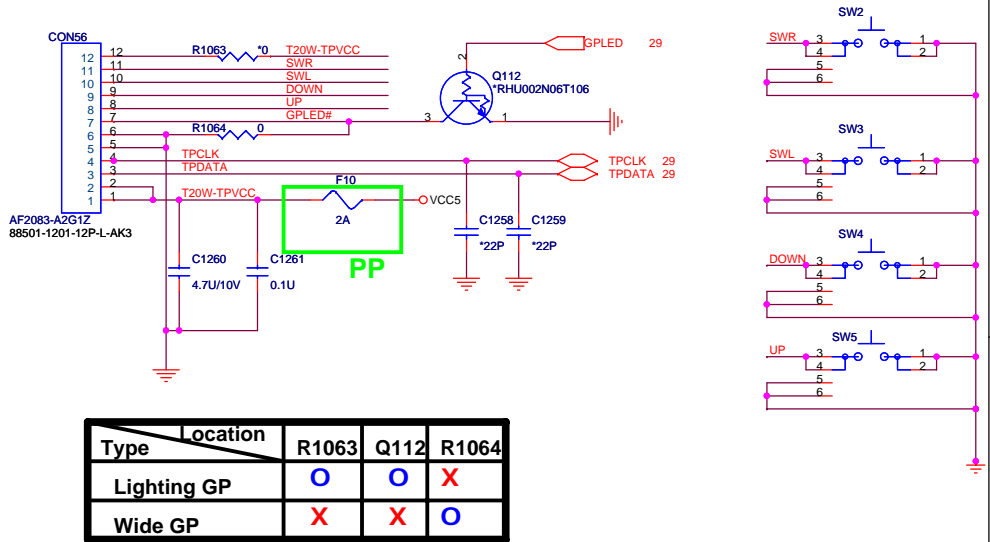
FAN CONTROL



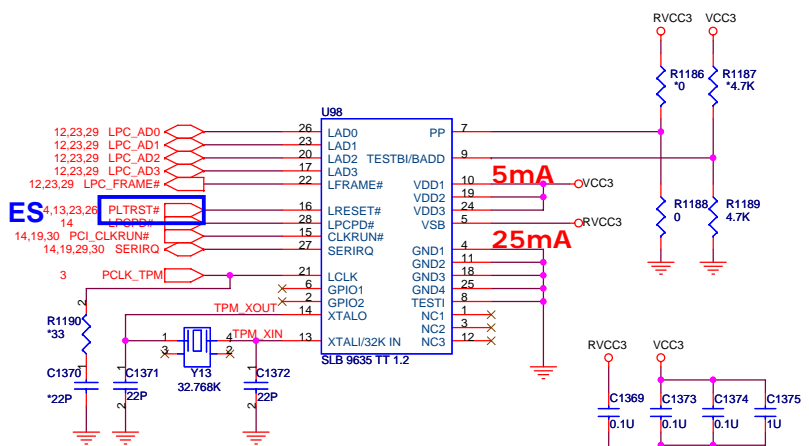
INT. KEYBOARD



TOUCH-PAD



TPM 1.2

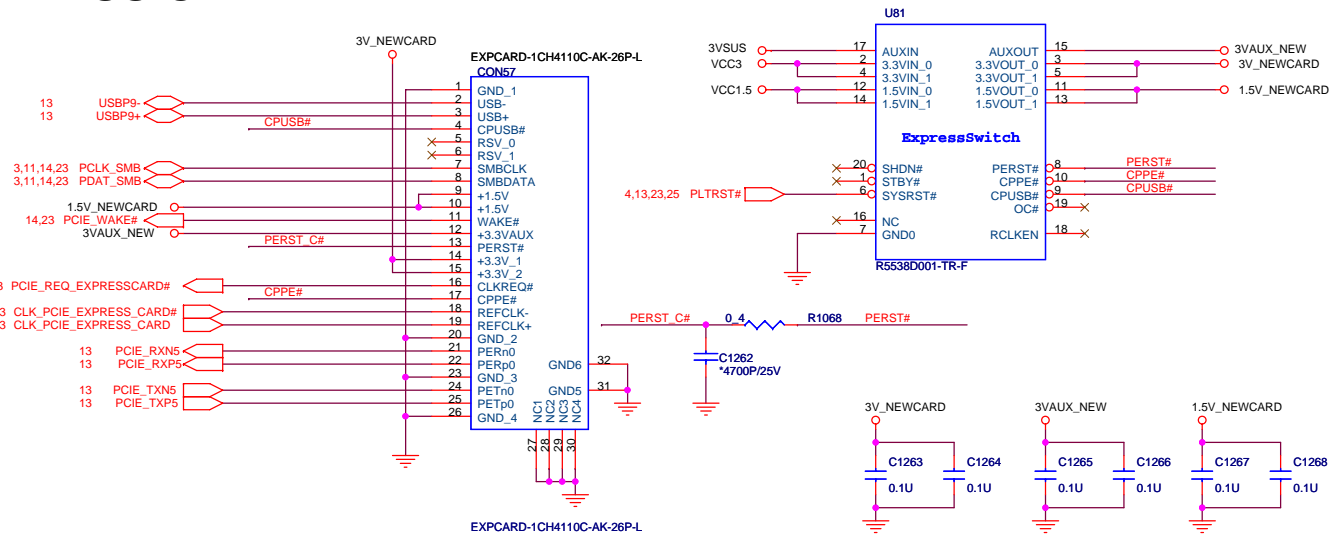


| I/O Address | | | |
|-------------|-------|------|--|
| BADDR | Index | Data | |
| 0 | 2E | 2F | |
| 1 | 4E | 4F | |

| Model | TPM | U98 | Y13 | R1188-89 | C1369 | C1371-75 |
|-----------|-----|-----|-----|----------|-------|----------|
| AK3M LV | X | X | X | X | X | X |
| AK3M Int | X | X | X | X | X | X |
| AK3M VP | V | O | O | O | O | O |
| AK3ML VP | X | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X | X |



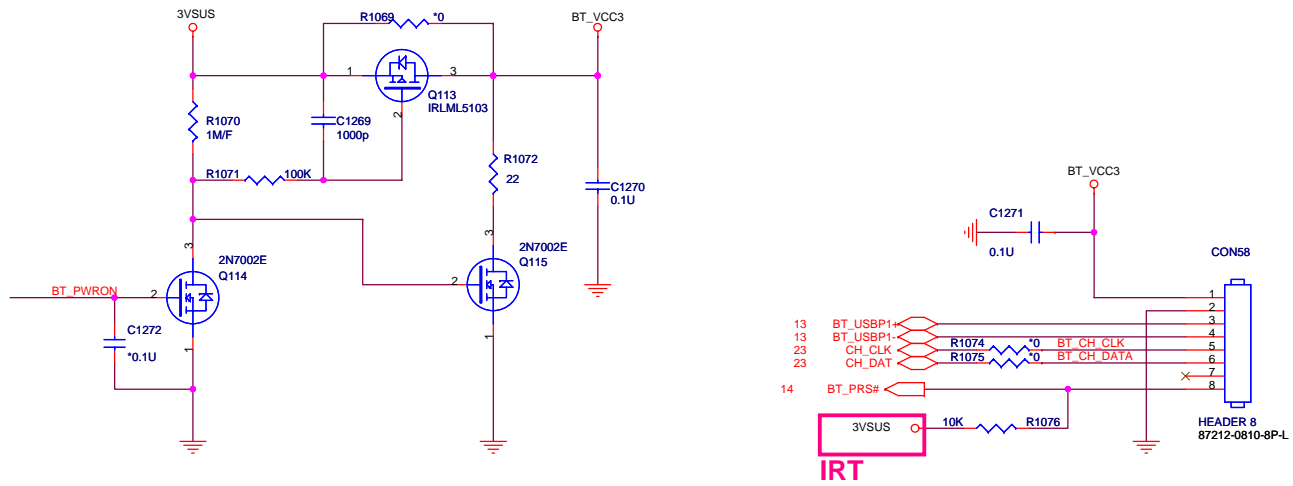
EXPRESS CARD



| Model | Express Card | U81 | C1263-68 | R1068 | CON57 |
|-----------|--------------|-----|----------|-------|-------|
| AK3M LV | V | O | O | O | O |
| AK3M Int | V | O | O | O | O |
| AK3M VP | X | X | X | X | X |
| AK3ML VP | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X |

BLUETOOTH

| RF_ON | BTON_EC | BT_VCC3 |
|-------|---------|---------|
| High | High | 3.3V |
| High | LOW | 0V |
| LOW | High | 0V |
| LOW | LOW | 0V |



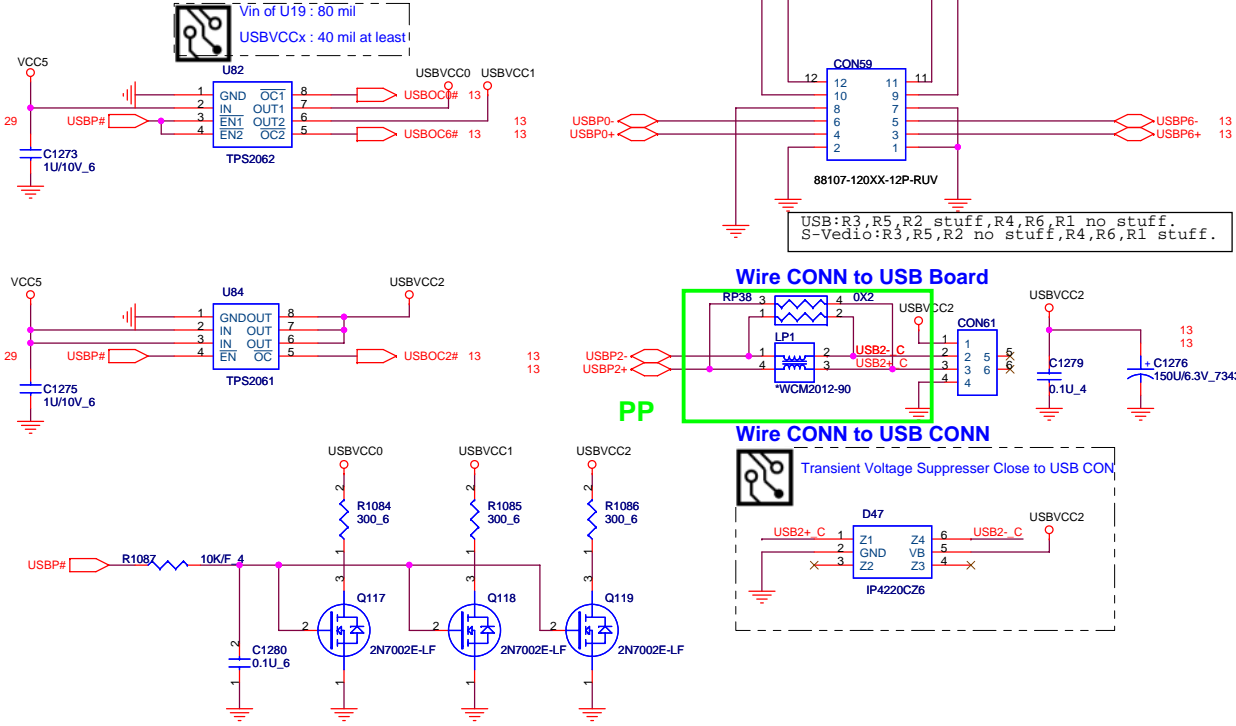
| BT_PRS# Use for Card Detect | |
|-----------------------------|---------|
| LOW | INSTALL |
| High | NO CARD |

| Model | Bluetooth | R1073 | U93 | C1363 | Q113-15 | R1070-72 | R1076 | C1269-71 | CON58 |
|-----------|-----------|-------|-----|-------|---------|----------|-------|----------|-------|
| AK3M LV | V | X | O | O | O | O | O | O | O |
| AK3M Int | V | X | O | O | O | O | O | O | O |
| AK3M VP | X | O | X | X | X | X | X | X | X |
| AK3ML VP | X | O | X | X | X | X | X | X | X |
| AK3ML Int | X | O | X | X | X | X | X | X | X |

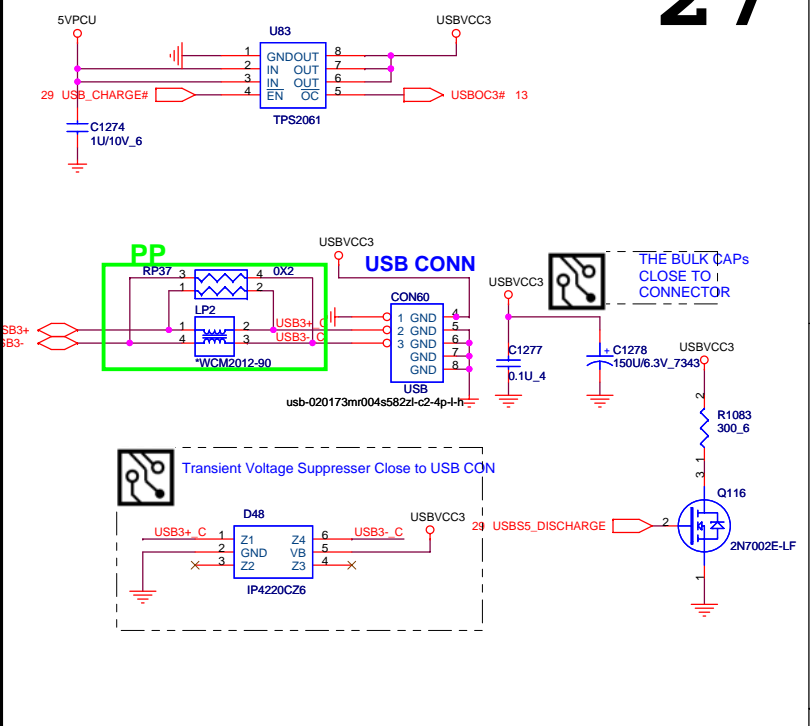


RIGHT SIDE USB CONN

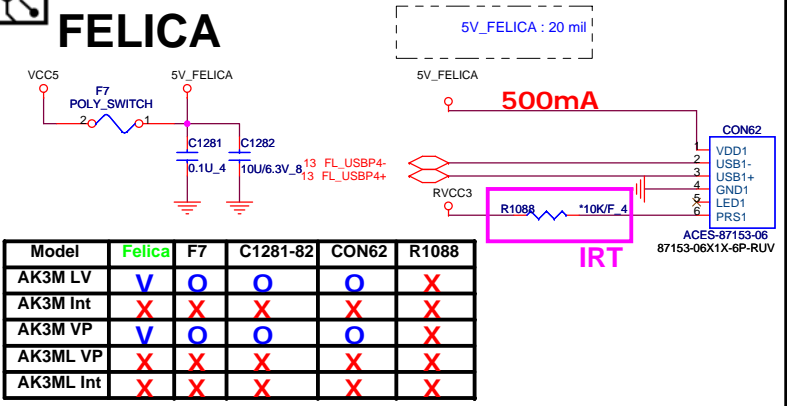
27



LEFT SIDE USB CONN

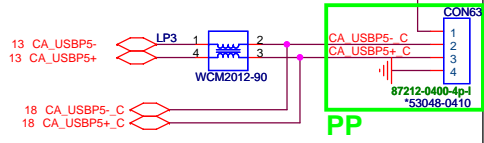
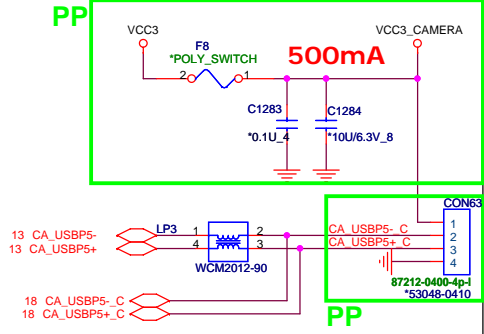


FELICA



| Model | Felica | F7 | C1281-82 | CON62 | R1088 |
|-----------|--------|----|----------|-------|-------|
| AK3M LV | V | O | O | O | X |
| AK3M Int | X | X | X | X | X |
| AK3M VP | V | O | O | O | X |
| AK3ML VP | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X |

USB CAMERA



QUANTA COMPUTER

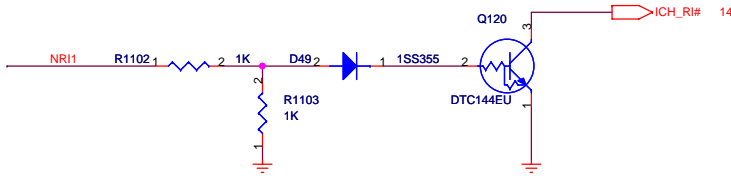
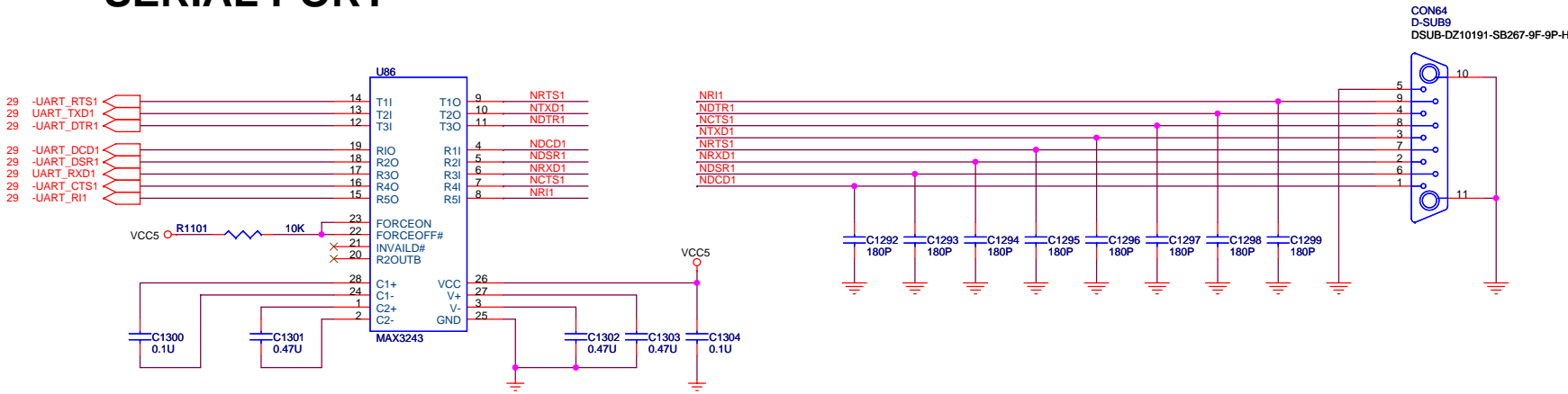
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Size: Document Number **AK3M MAIN BOARD** Rev 1A

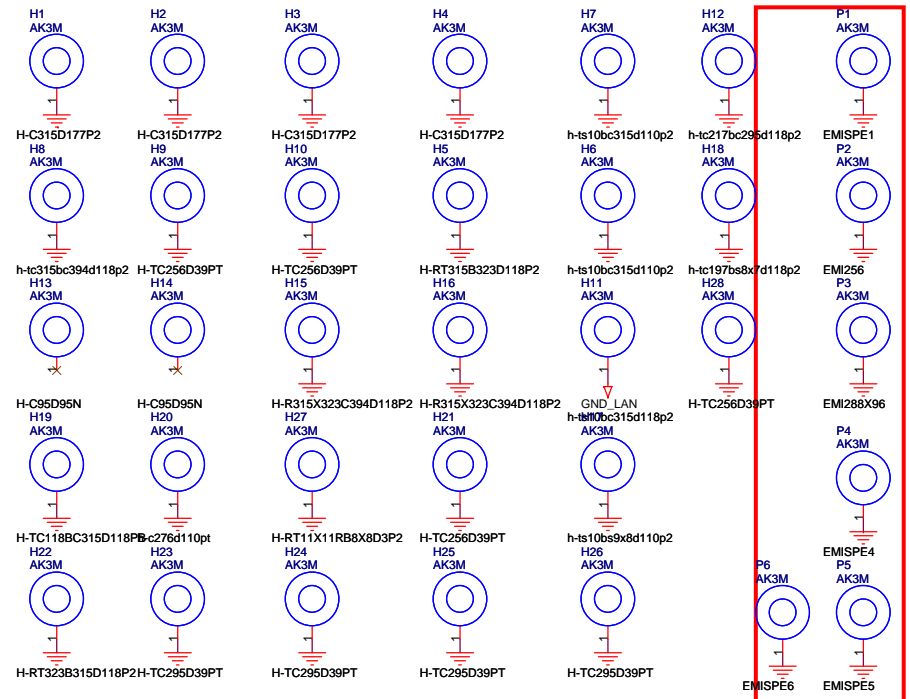
Date: Wednesday, October 08, 2008 Sheet 27 of 39

VCC3_CAMERA : 20 mil


SERIAL PORT



| Model | Serial Port | U86 | CON64 | Q120 | D49 | R1101-03 | C1292-C1304 |
|-----------|-------------|-----|-------|------|-----|----------|-------------|
| AK3M LV | X | X | X | X | X | X | X |
| AK3M Int | X | X | X | X | X | X | X |
| AK3M VP | V | O | O | O | O | O | O |
| AK3ML VP | X | X | X | X | X | X | X |
| AK3ML Int | X | X | X | X | X | X | X |



SCREW HOLE

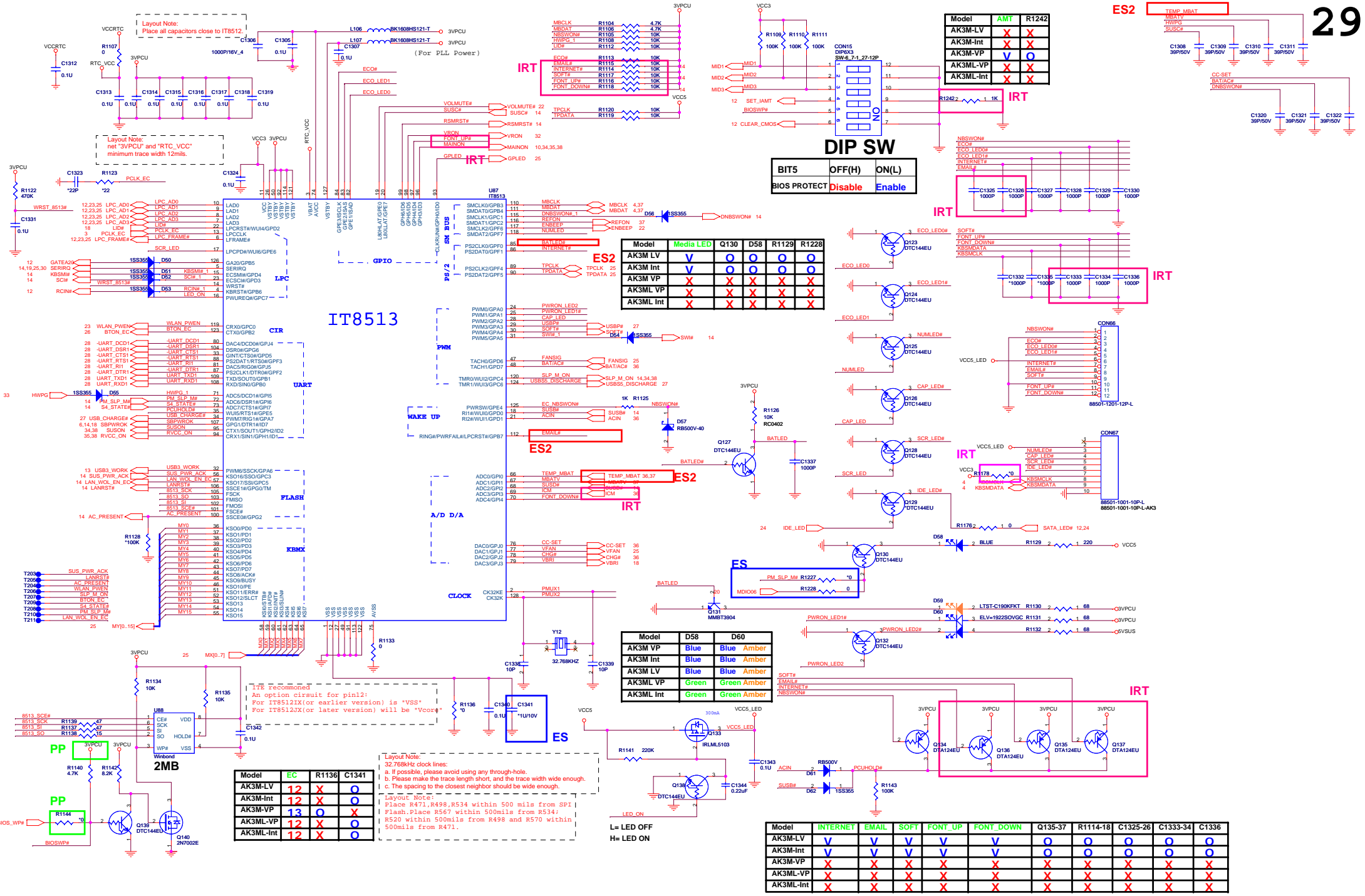


QUANTA COMPUTER

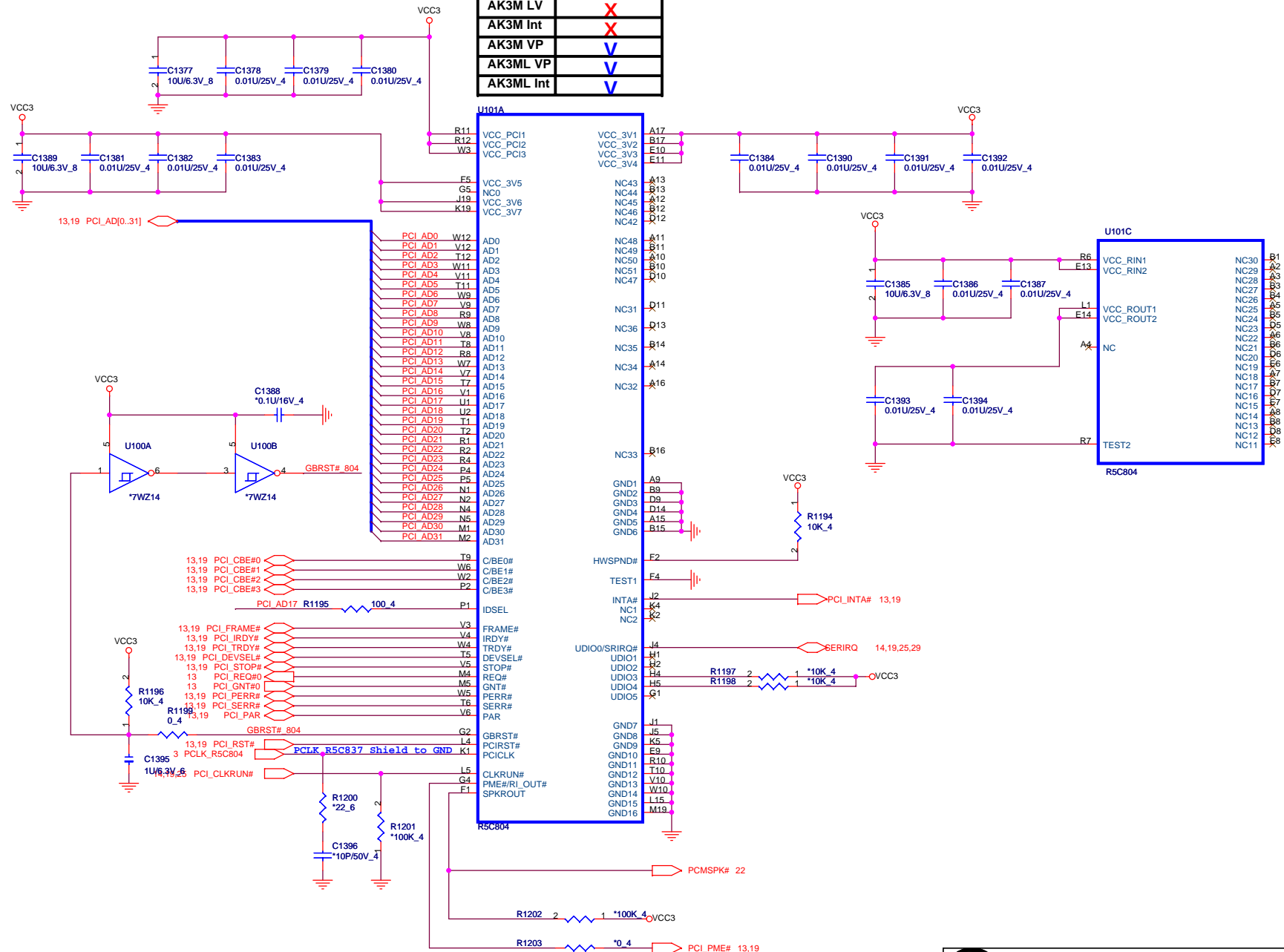
Title: SERIAL PORT&SCREW HOLE


| | | |
|------|------------------------|-----|
| Size | Document Number | Rev |
| | AK3M MAIN BOARD | 1A |

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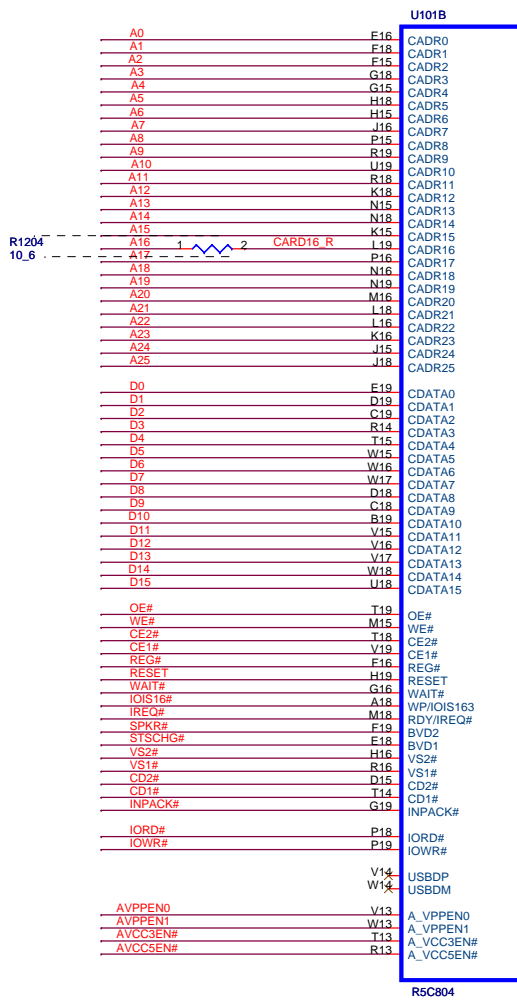
| Model | PCMCIA |
|-----------|--------|
| AK3M LV | X |
| AK3M Int | X |
| AK3M VP | V |
| AK3ML VP | V |
| AK3ML Int | V |





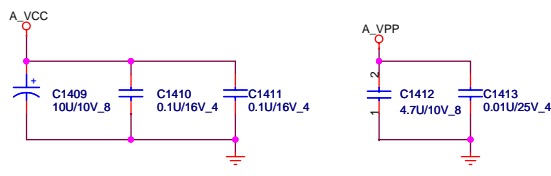
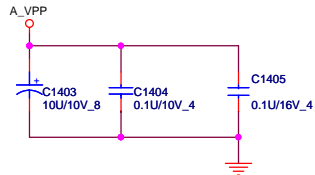
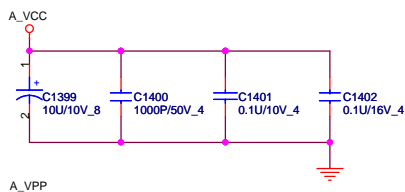
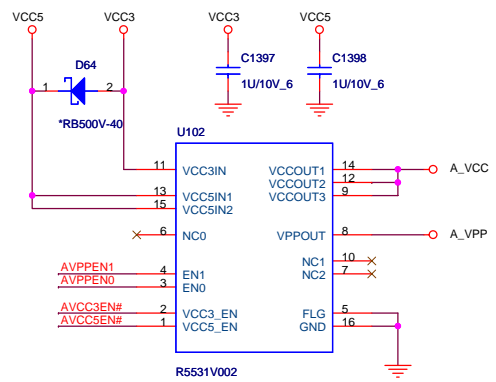
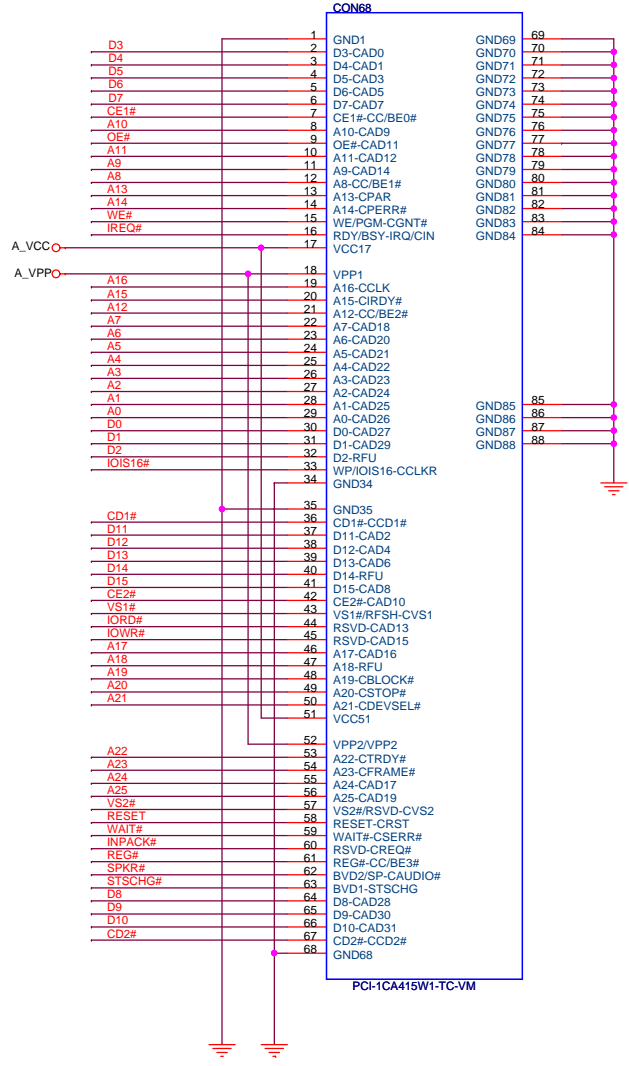
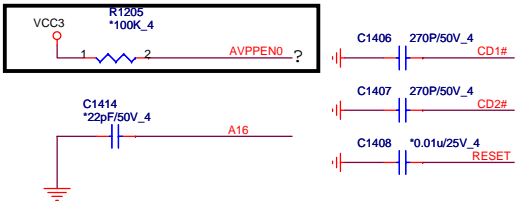
QUANTA COMPUTER

| | | | |
|-------|-----------------------------|------------------------|----------|
| Title | | R5C804_PCI | |
| Size | Document Number | AK3M MAIN BOARD | |
| Date: | Wednesday, October 08, 2008 | Sheet | 30 of 39 |
| | | Rev | 1A |



R1204
10_6

Close to CHIP

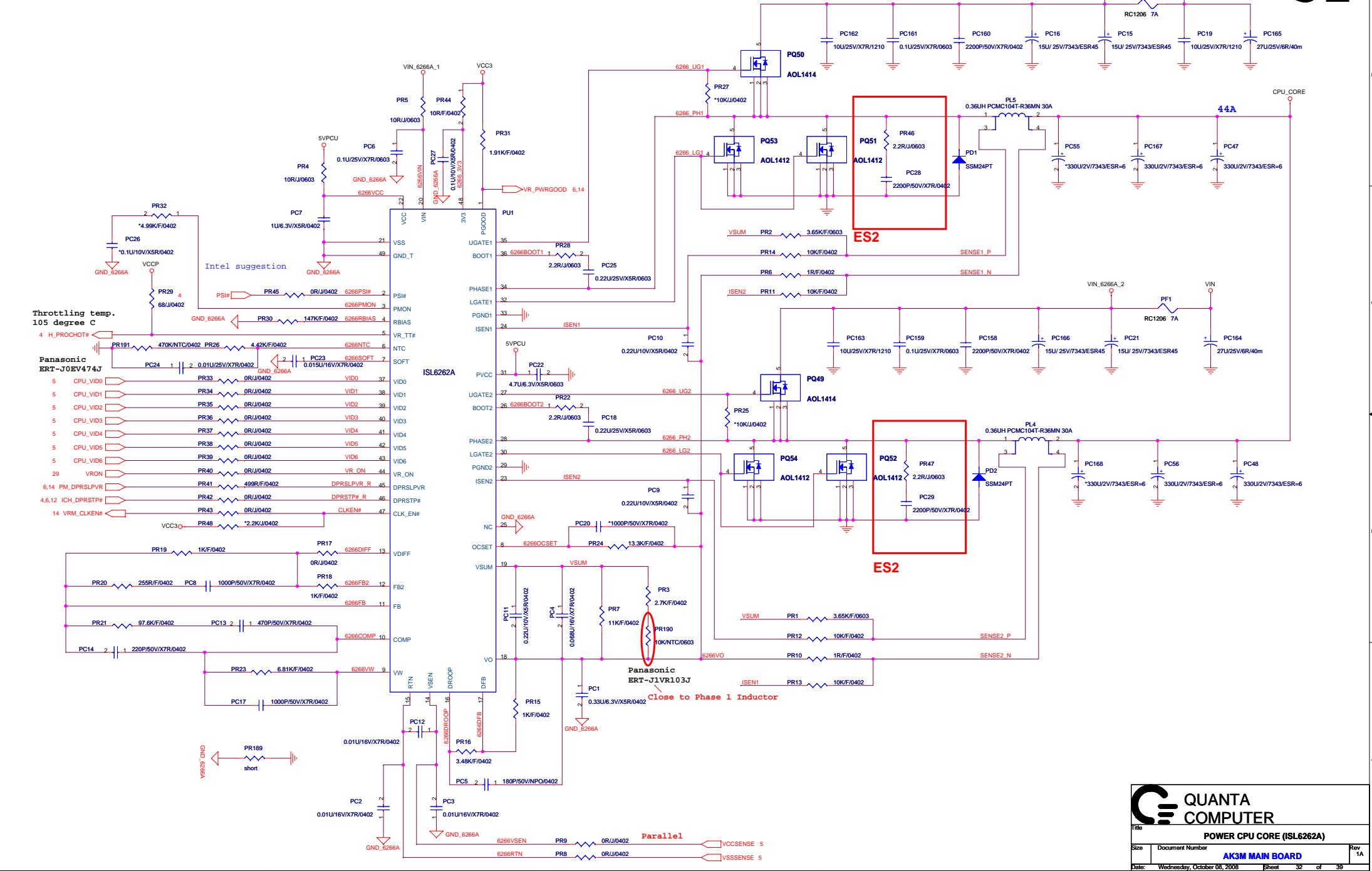


QUANTA COMPUTER

Title: **R5C804_CARDBUS**

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Throttling temp.
105 degree C

4 H_PROCHOT#

- 5 CPU_VID0
- 5 CPU_VID1
- 5 CPU_VID2
- 5 CPU_VID3
- 5 CPU_VID4
- 5 CPU_VID5
- 5 CPU_VID6
- 29 VR_ON
- 6.14 PM_DPRSLPVR
- 4.6.12 ICH_DPRSTP#
- 14 VR_CLKEN#

Intel suggestion

ISL6262A

Panasonic ERT-J1VR103J
Close to Phase 1 Inductor

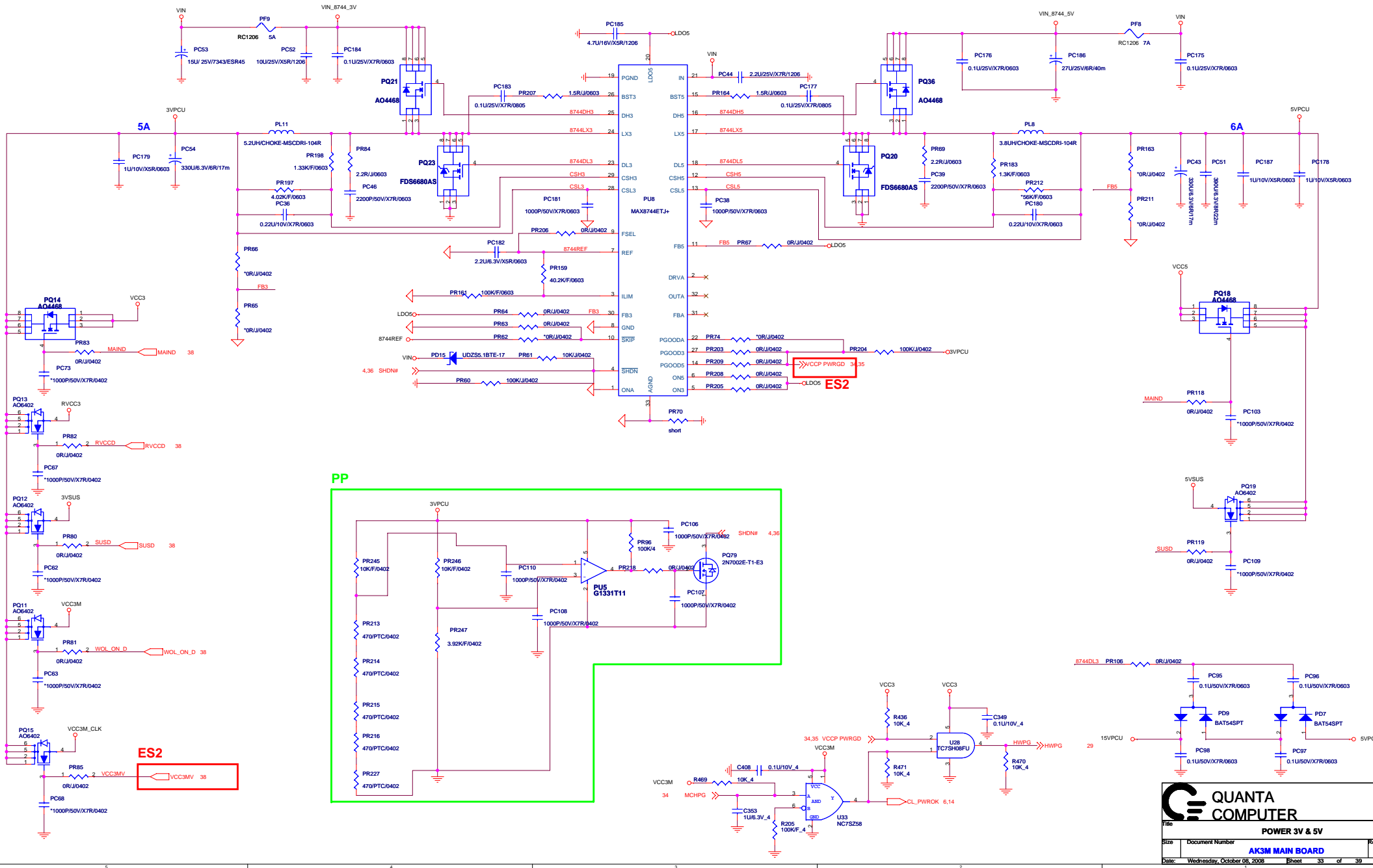
Parallel
VCCSENSE 5
VSSSENSE 5

QUANTA COMPUTER

Title: **POWER CPU CORE (ISL6262A)**

| | | |
|------|------------------------|-----|
| Size | Document Number | Rev |
| | AK3M MAIN BOARD | 1A |

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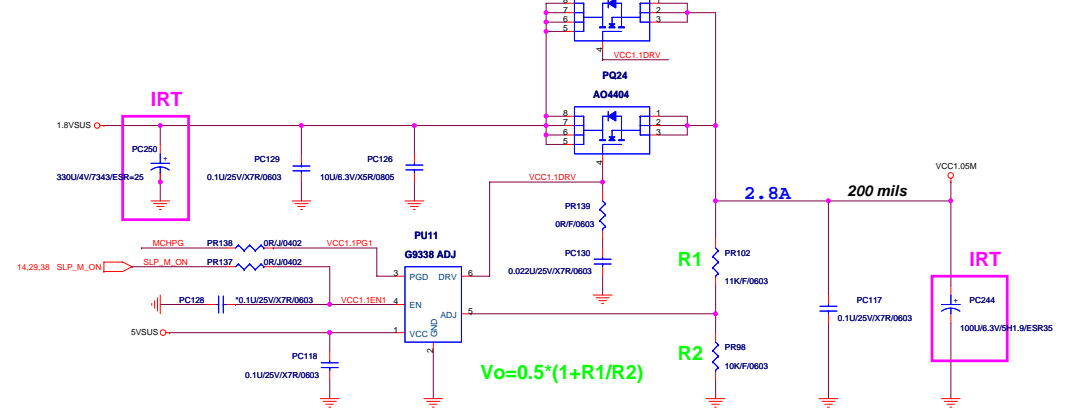
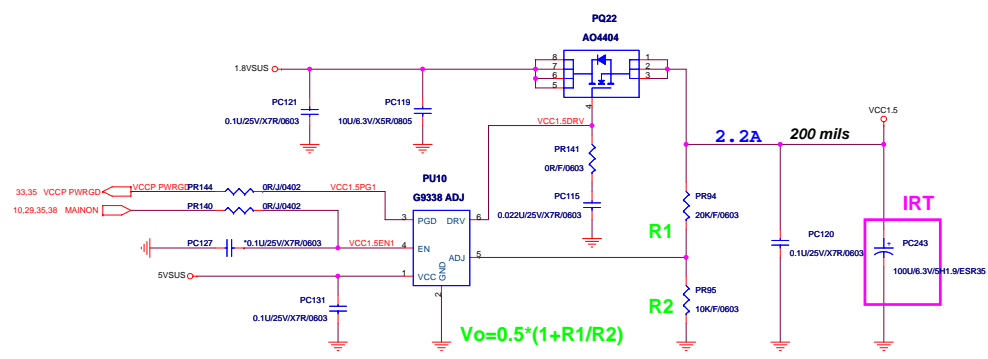
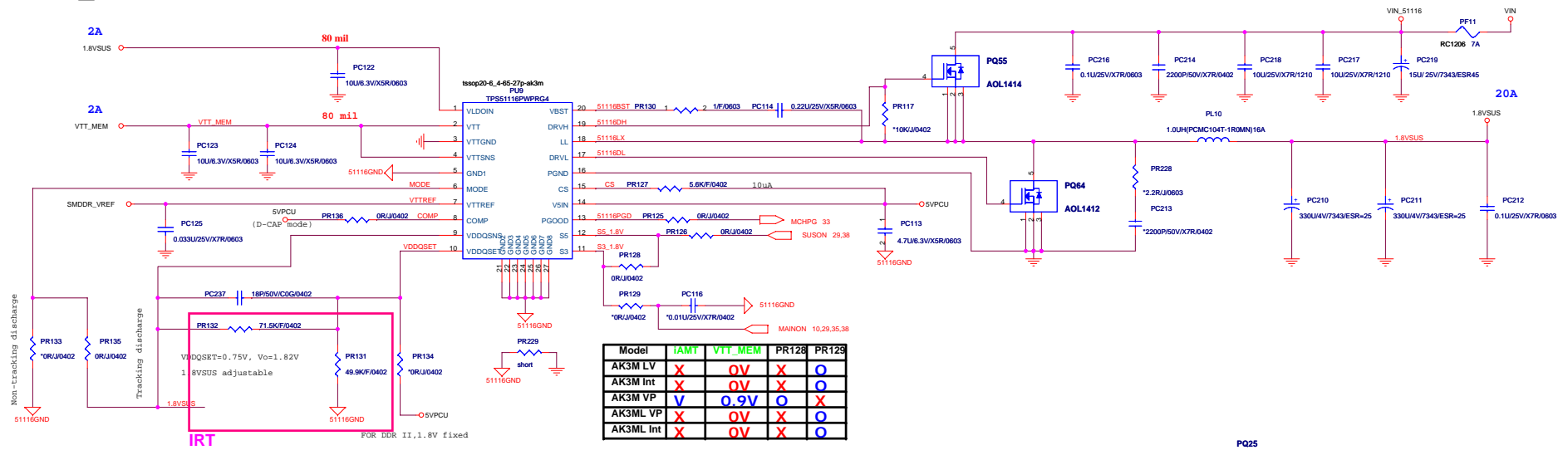
QUANTA COMPUTER

File: **POWER 3V & 5V**

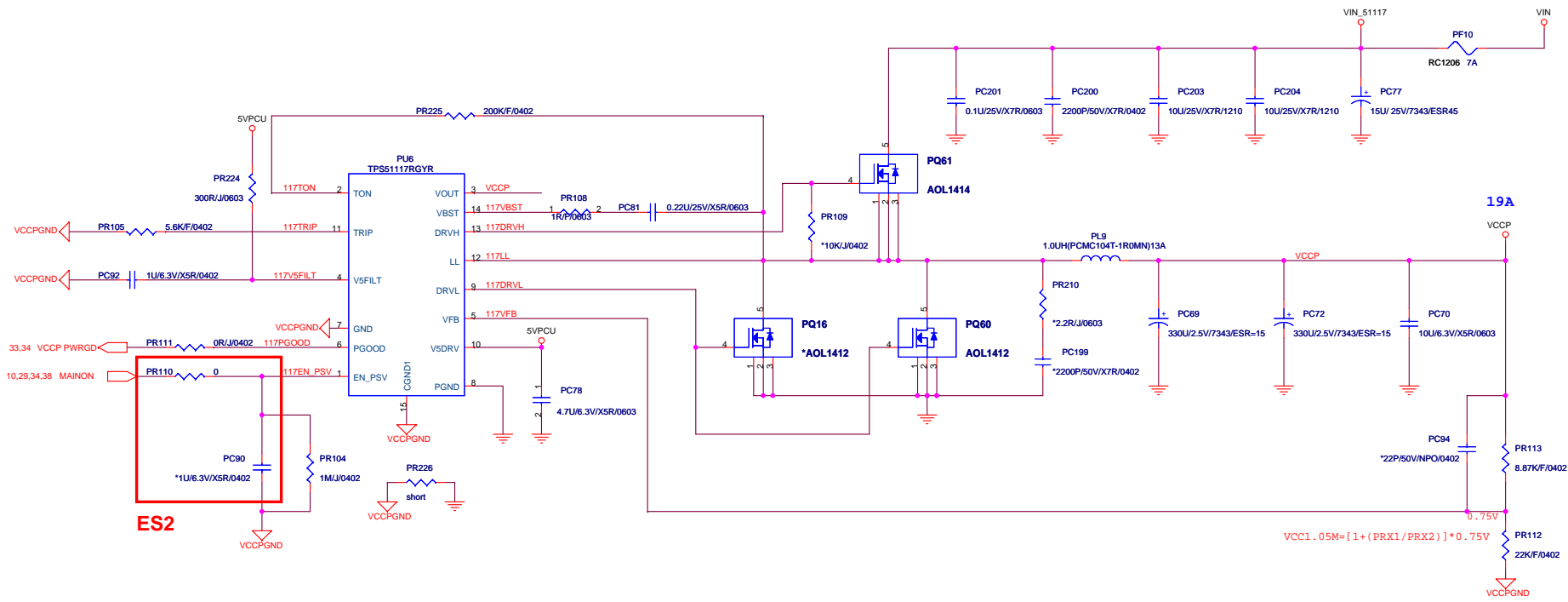
Size: **Document Number** **AK3M MAIN BOARD** Rev: 1A

Date: **Wednesday, October 08, 2008** Sheet: 33 of 39

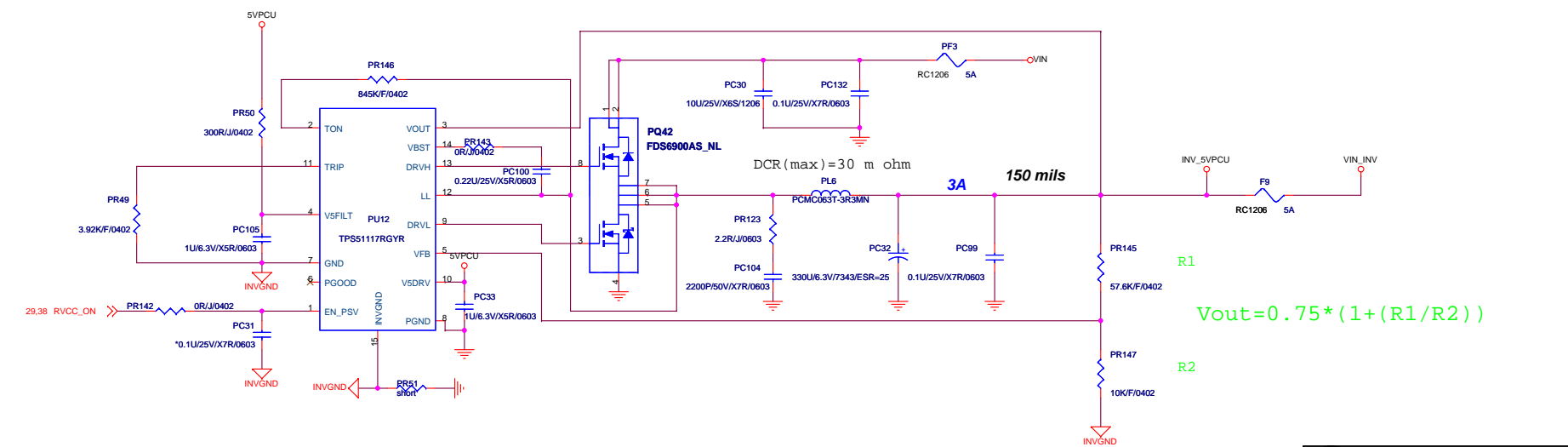
1.8VSUS & VTT_MEM & VCC1.8 & VCC1.5 & VCC1.25 & VCC1.05M



VCCP & INV 5V



$$VCC1.05M = [1 + (PRX1 / PRX2)] * 0.75V$$



$$V_{out} = 0.75 * (1 + (R1 / R2))$$

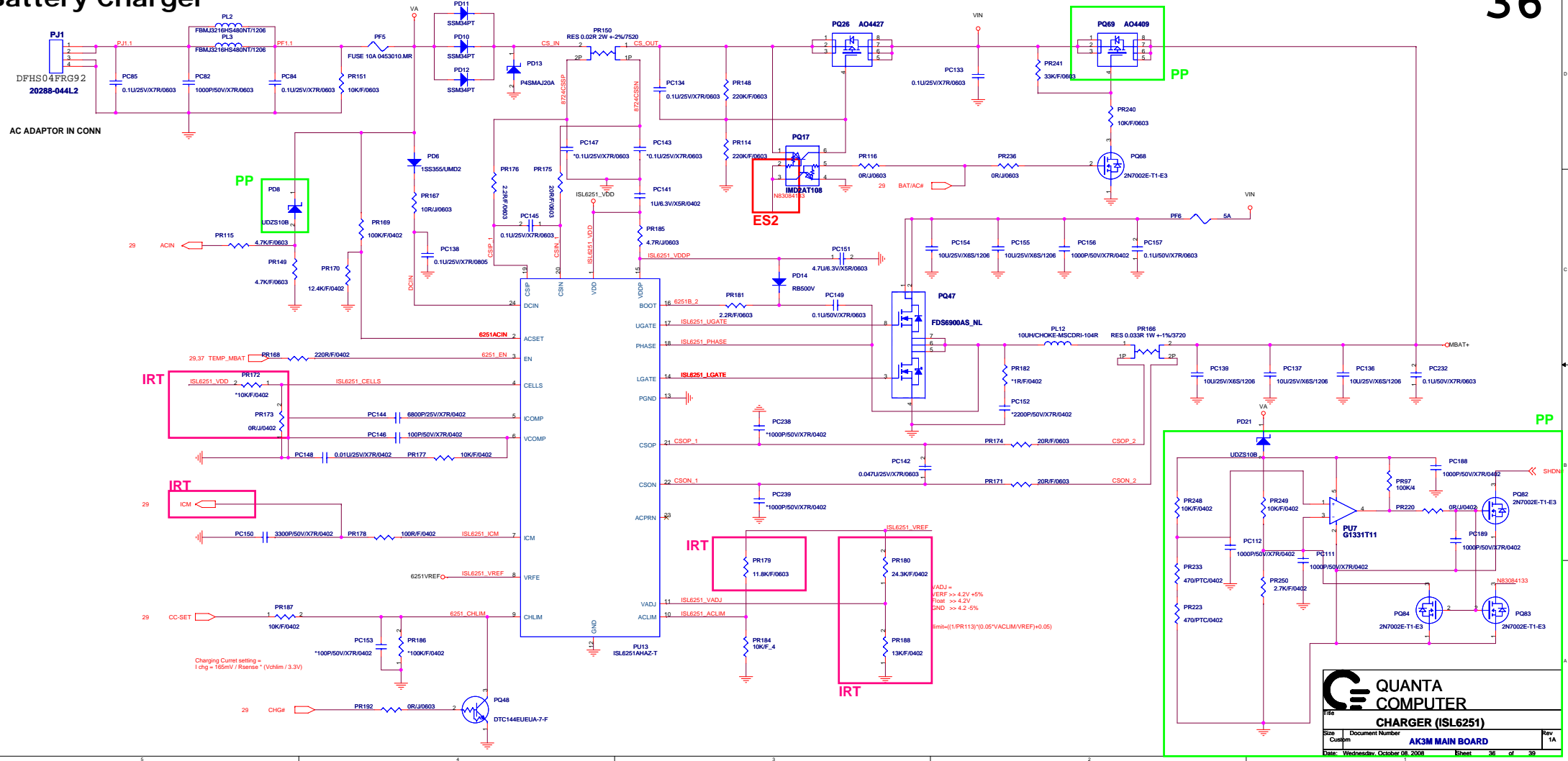
QUANTA COMPUTER

Title: **POWER VCCP & INV 5V**

Size: Document Number **AK3M MAIN BOARD** Rev 1A

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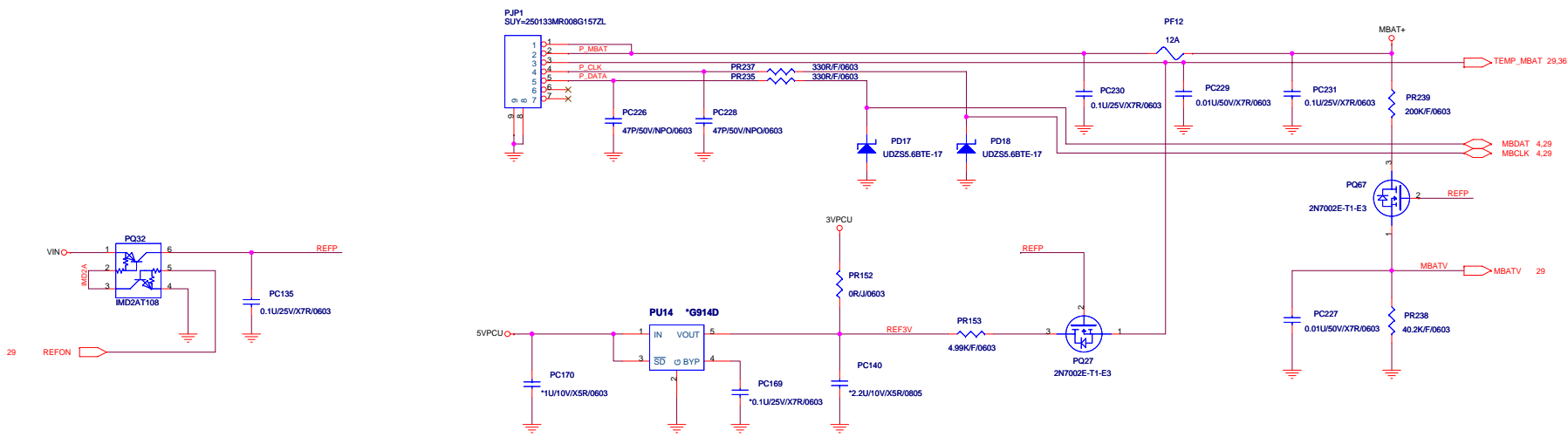
Battery Charger



QUANTA COMPUTER
CHARGER (ISL6251)

File: _____
 Size: _____ Document Number: **AK3M MAIN BOARD** Rev: 1A
 Date: Wednesday, October 08, 2008 Sheet: 36 of 36

Battery Connector



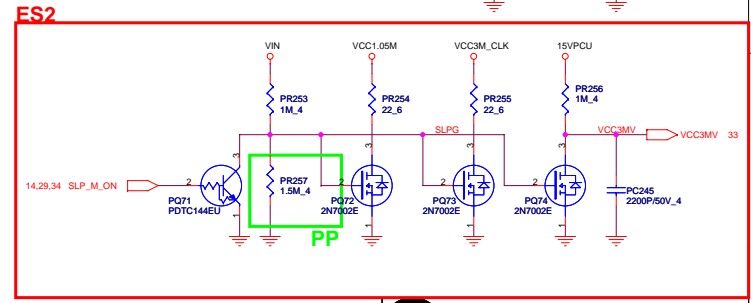
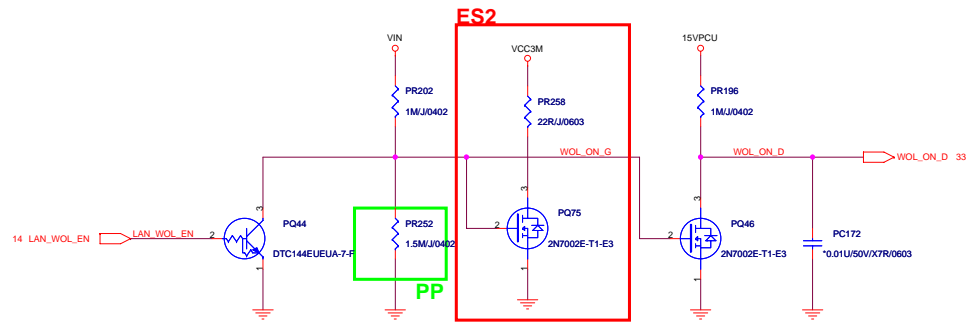
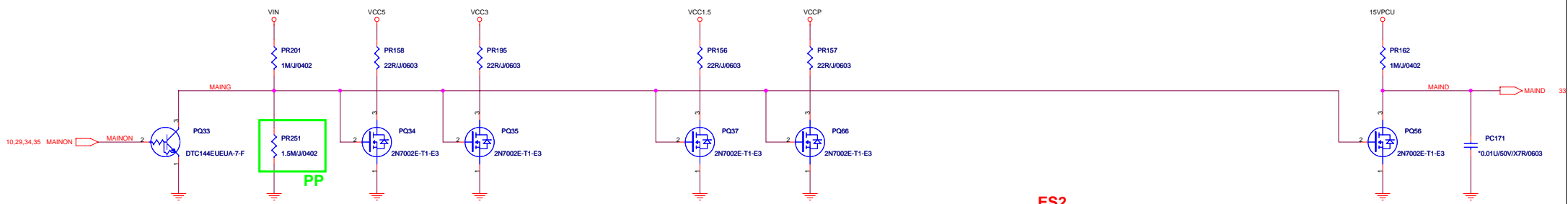
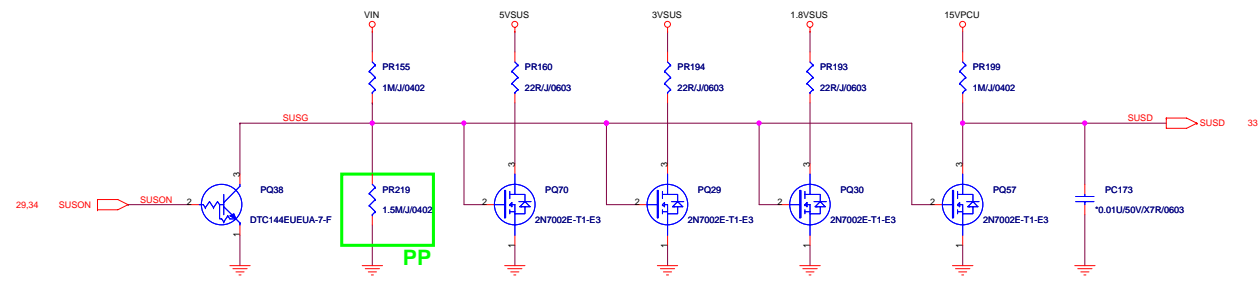
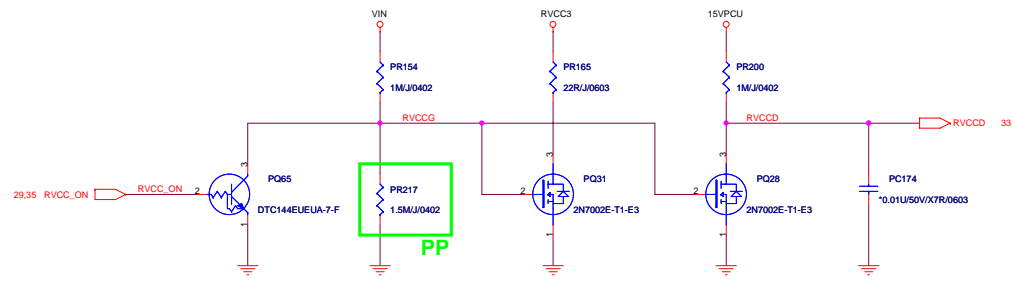
TEMP_MBAT voltage :

| | System Off | System On |
|-----------------|------------|-----------|
| Battery | 0V | 1.6V |
| Adapter | 3.3V | 3.3V |
| Battery+Adapter | 1.6V | 1.6V |

MBATV voltage :

| | |
|-------------|--|
| Li-ion 4S*P | $16.8V * 40.2 / (200 + 40.2) = 2.812V$ |
| | $12.0V * 40.2 / (200 + 40.2) = 2.008V$ |
| Ni-MH 8S1P | $8.0V * 40.2 / (200 + 40.2) = 1.34V$ |

Discharge Circuit



ES

PAGE03:<1>Del R254,R223,R264 to cancel fixed HW frequency selection.
<2>Add R1219-21 for HW debug purpose.

PAGE05:Reserved C1437-38 for VCCP

PAGE08:<1>Reserved C1428-32 for CRT EMI solution.
<2>The R649 change 2.4K/F from 2.37K/F ohm base on Intel's suggestion.
<3>Reserved R1229-32 for HDMI EMI.

PAGE10:Reserved R1215,Q147 for VCC_HV power timing.

PAGE12:<1>CLEAR_CMOS path change same as AK3.
<2>Reserved C1434,R1216 for LAN CLK EMI solution.

PAGE14:<1>Reserved R1214,C1422 for CLK PWROK.
<2>Add R1226,C1440,U106,C1439,R1224,R1225 for LAN_RST# optional HW design.

PAGE17:<1>Reserved C1433 for LAN CLK EMI solution.
<2>Reserved VCC1.05M_LAN external voltage regulator.

PAGE18:<1>R947/R949/R950/R951 change 2.2K from 4.7Kohm/10K base on Intel suggest P/U value range
<2>Add LCD power discharge design
<3>Add R1235-36 for LCD brightness HW selection

PAGE21:AR23 change to connect with AMP_GND.This's EMI request.

PAGE23:<1>Add C1421,R1213 for EMI.
<2>Reserved R1217-18 for HW optional design.

PAGE24:Add C1423-C1425 for SATA AC CAP.

PAGE25:TPM change PLTRST# from PCI_RST#.

PAGE28:Quanta S.I team suggest to add FSB/PCIE stitching caps(C1441-54).

PAGE29:<1>C1341 must be removed base on ITE suggestion.
<2>Add R1227-28 for iAMT debug LED

PAGE33:3V/5V controller change MAX8744 from MAX17020.

PAGE35:The PR146 change 845K/F from 499K/F.

ES2

PAGE05:C79 need to change CH733RM8831 for mechanical interference

PAGE06:<1>AK3M(iAMT&non-iAMT) BOM make control table for CL_PWROK selection
<2>AK3M(iAMT&non-iAMT) BOM make control table for ME JTAG debug interface.

PAGE13:U41 change RVCC3 from VCC3 for AK33 PCIE card leakage current issue.

PAGE14:<1>iAMT model add R1237 and connect HW_LANRST# with EC
<2>AK3M(iAMT&non-iAMT) BOM make control table for HW LANRST design selection
<3>AK3M(iAMT&non-iAMT) BOM make control table for CL_PWROK and LAN_RST# selection
<4>AK3M(iAMT&non-iAMT) BOM make control table for LAN power control selection

PAGE16:AK3M(LV/Int) add R571,R576,R567,R14,R1238,D9 for HDMI.

PAGE18:AK3M(VP) add R1235 and del R1236 for LED LCD

PAGE22:MDC change RVCC1.5 from VCC1.5 to support wake on Modem.

PAGE23:<1>WLAN interface delete LPC bus.
<2>AK3M(VP) BOM lost to add R1161
<3>AK3M(iAMT&non-iAMT) BOM make control table for WLAN PWR control design selection.

PAGE25:Del L105,Add F10 for NECP request.

PAGE27:Add R1088 for Felica design request.

PAGE28:EMI ground pads make layout's symbol.

PAGE29:<1>The EC of MTEMPV signal rename TEMP_MBAT.
<2>EC GPIO PIN swap between PN112 and PIN85.It's for AK33 battery LED blink issue when AC plug-in first time.
<3>AK3M(iAMT&non-iAMT) BOM make control table for GPIO33 control design selection.

PAGE33:ADD AU6, PQ79, PR86, PR245, PR246, PR213, PR214, PR215, PR216, PR247 for power design change.

PAGE32:PR46,PR47,PC29,PC28 for power design change.

PAGE35:Del PC90,PR110 change 0 ohm

PAGE36:Add Posistor circuit.

PAGE38:<1>VCC3M_CLK/VCC1.05M add power discharge circuit and level shift.
<2>VCC3M add power discharge circuit.

PP

PAGE03:R666 change 1K from 4.7K for Intel suggestion.

PAGE06:<1>C766 del part for Intel suggestion.
<2>ME JTAG modify layout PIN assignment.

PAGE09:<1>VCC_35 connect with VCC1.05M for Intel suggestion.
<2>Add C1458-C1462 for Intel suggestion.

PAGE10:<1>C828 change 22UF from 10UF for Intel suggestion.

<2>C369 change 4.7UF from 1UF for Intel suggestion.
<3>Del R646,Add L111,the C770 change 22UF from 10UF for Intel suggestion.
<4>Add C1457 for Intel suggestion.

PAGE11:C492,C484, C521,C535 add parts for Intel suggestion.

PAGE12:<1>AK3Mx BOM make control table for MDC interface
<2>Batt cell modify layout's footprint according to SMT request.
<3>RTC clear design add R1258 position for optional design.

PAGE13:USB Port#7 disconnect with WLAN card.

PAGE14:AK3Mx BOM make control table for HW Board ID selection

PAGE15:<1>Del C861,Add C876 for Intel suggestion.
<2>Add C1456 for Intel suggestion.
<3>Add C860,the C866 change 2.2UF from 0.1UF for Intel suggestion.
<4>C519 change 22UF from 4.7UF for Intel suggestion.

PAGE16:HDMI model add R1250-57 for EMI request.

PAGE17:<1>LAN reserve R1259 for EMI solution.
<2>L83 change BLM18AG601SN from 0ohm for EMI.
<3>LAN PWR add L112-L114 for EMI.

PAGE18:<1>L87-L89 change BLM18BA750SN1D from BLM18BA220 for EA solution.
<2>C1112-C1117 change 4.7PF from 10PF for EA solution.

PAGE20:R987 change 22 from 47 ohm for NECP request

PAGE21:<1>ACN2,ACN3 modify footprint for SINGATRON
<2>AR24,AR25 add 0hm.
<3>AR1 change 26.1K/F from 29.4K/F ohm.

PAGE23:<1>Add R1249 for w/o WLAN card's LED test
<2>WLAN PIN assignment modify to meet Intel WiFi 5100/5300 HW Pin-out.
<3>AK3Mx BOMs delete R1048,R1161,C1356 for WLAN Interface change

PAGE25:F10 change Fuse from Polyswitch.

PAGE27: <1>AK3M(LV) BOM delete F8,C1283,C1284,CON63 for USB Camera interface.
<2>All AK3Mx BOMs add RP37,RP38 for EMI USB request.

PAGE29:<1>All AK3Mx serial BOMs add R1242 part.
<2>R1140 change 3VPCU from VCC3 for ITE debug card refresh.
<3>R1144 delete part for ITE debug card refresh.

PAGE33:Posistor circuit modify design

PAGE36:<1>PD8 change UDZS10B from UDZS15B-7-F
<2>PQ69 change AO4409 from AO4427.
<3>Posistor circuit modify design

PAGE38:PR257,PR252,PR251,PR219,PR217 change 1.5M from 1M for PWR change.

IRT

PAGE03:del R660,R659,R674,R675,R1219,R1220,R1221 for cost down.

PAGE04:del R600 for cost down.

PAGE05:del R609 for cost down.

PAGE06: <1>Add R1269,R1270 for NECP request.
<2>del R222,R653,R238 for cost down.

PAGE07:Add R1271 for CFG20 P/L

PAGE08:del R145,R154,R199,R661 for cost down.

PAGE12:<1>del R328,R341,R689 cost down.
<2>del D14 for RTC issue

PAGE14:Non-AMT BOMs del R1224 and add R888.

PAGE17:LAN connector of footprint change DIP from SMD

PAGE18:del R948,R956,R957 for cost down.

PAGE19:del R966 for cost down.

PAGE22:del R1174 for cost down.

PAGE23:del R1211 for cost down.

PAGE25:del R1065,R1066 for cost down.

PAGE26:B/T detection change 3VSUS

PAGE27:<1>del R1077,R1078,R1082 for cost down.
<2>del R1088 for w/o Felica detection.

PAGE29:<1>EC(PIN97) change FONT_UP#
<2>EC(PIN69) add ICM
<3>Add location R1178 and remove this part .
<4>SW bottom make BOM control table
<5>SET_IAMT function make control table

PAGE31:del L108,L109,L110 for cost down.

PAGE34:<1>ADD PC250 for power request.
<2>change PC243 and PC244 value to100U from 220U.
<3>PR132 change 71.5K/F,PR131 change 49.9K/F

PAGE36:<1>PU13 add ICM signal and connect with EC
<2>Del PR172 Add PR173 for charge battery cell consideration
<3>PR180 change 24.3K from 215K
<4>PR188 change 13K from 100K
<5>PR179 change 11.8K from 44.2K

PAGE21:U23 change MC74VHC1GT125-D for Mute issue

MP

PAGE19:U105 layout symbol change to tqfp128-16x16-4-nw

PAGE29:U87 layout symbol change to lqfp128-16x16-4-nw