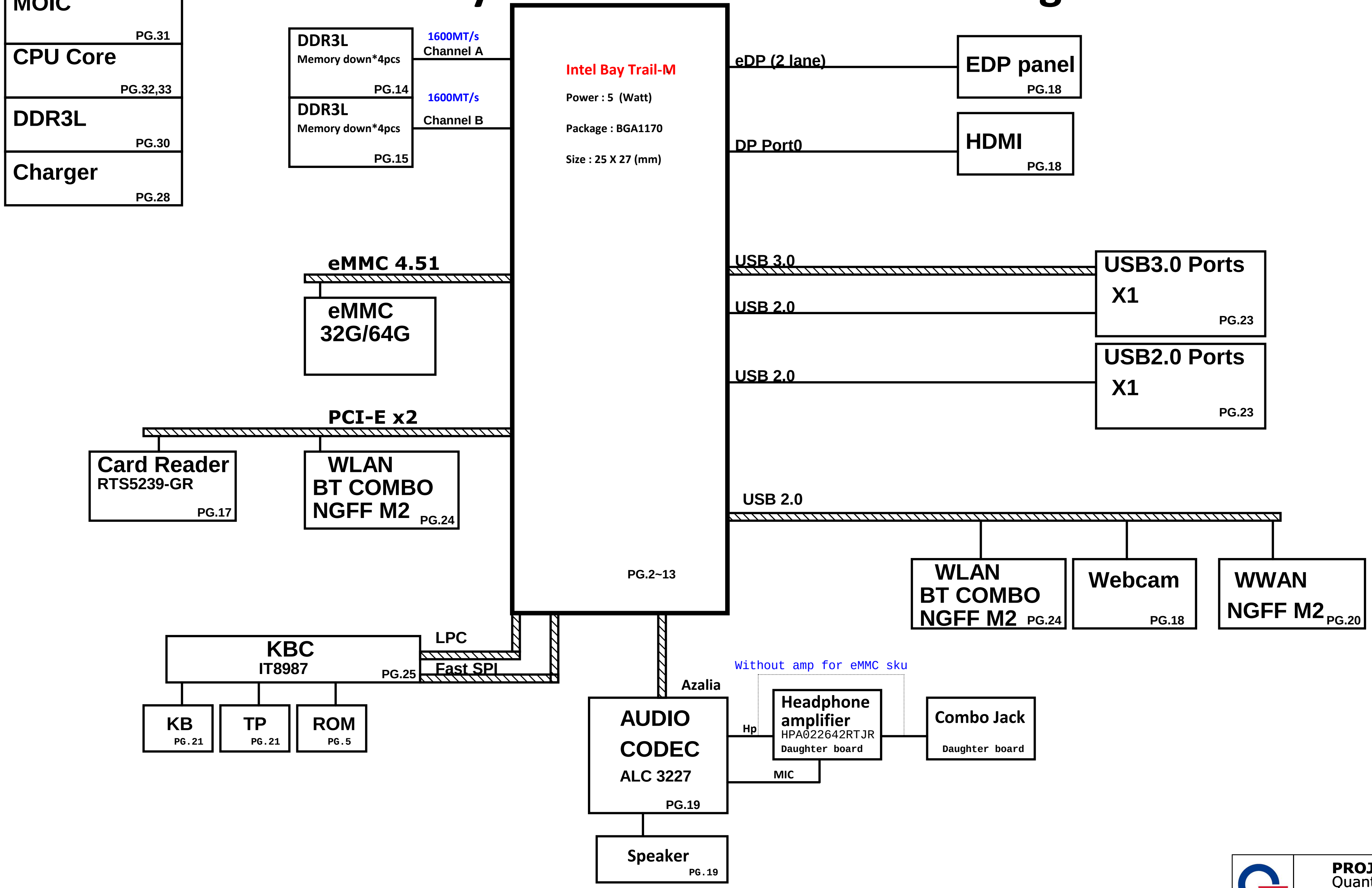
# UMA (11.6")
# Intel Bay Trail-M Platform Block Diagram



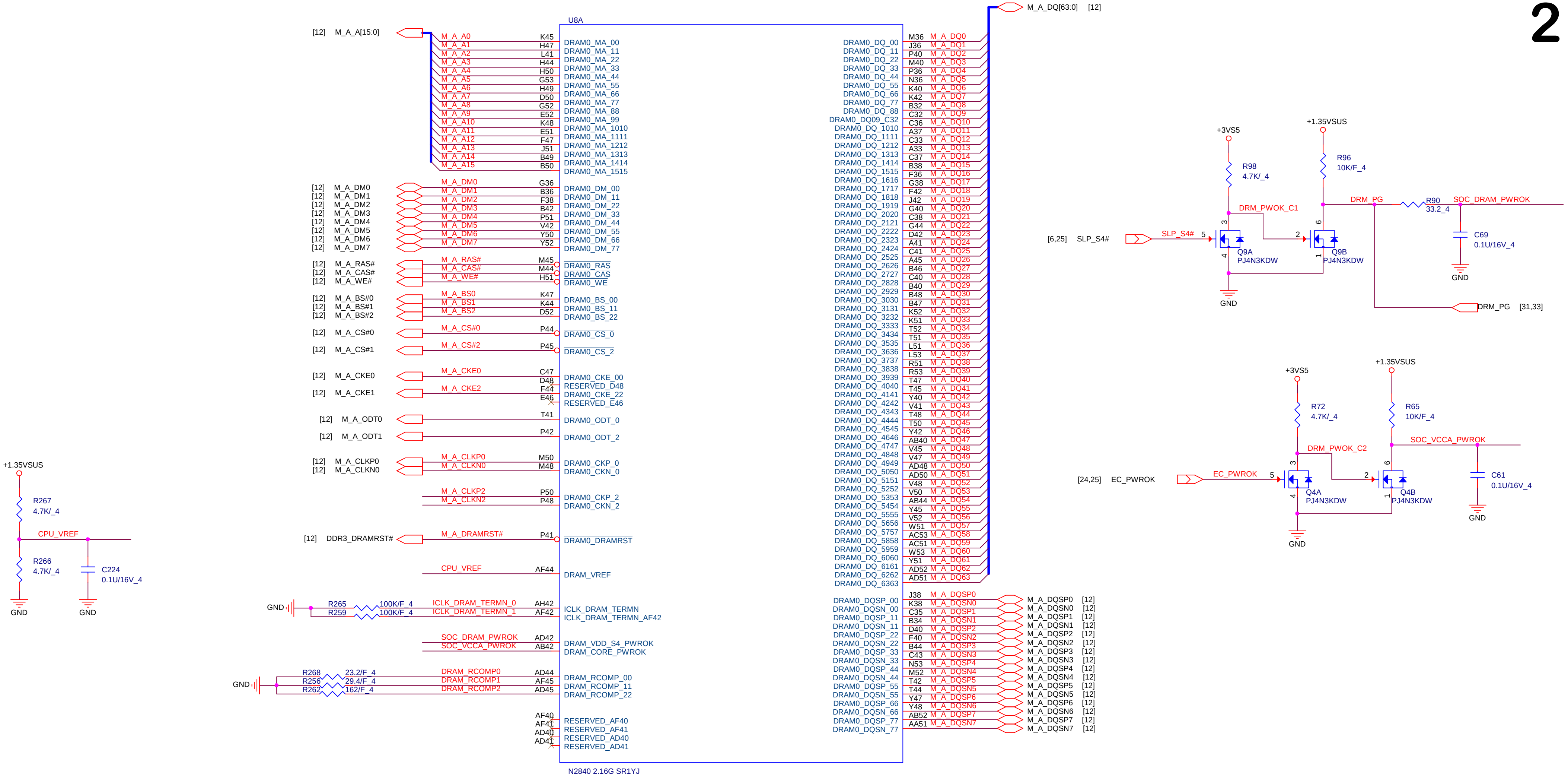



NB5

PROJECT : Y0HC
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | BLOCK DIAGRAM | 1A |

Date: Tuesday, July 21, 2015 Sheet 1 of 33



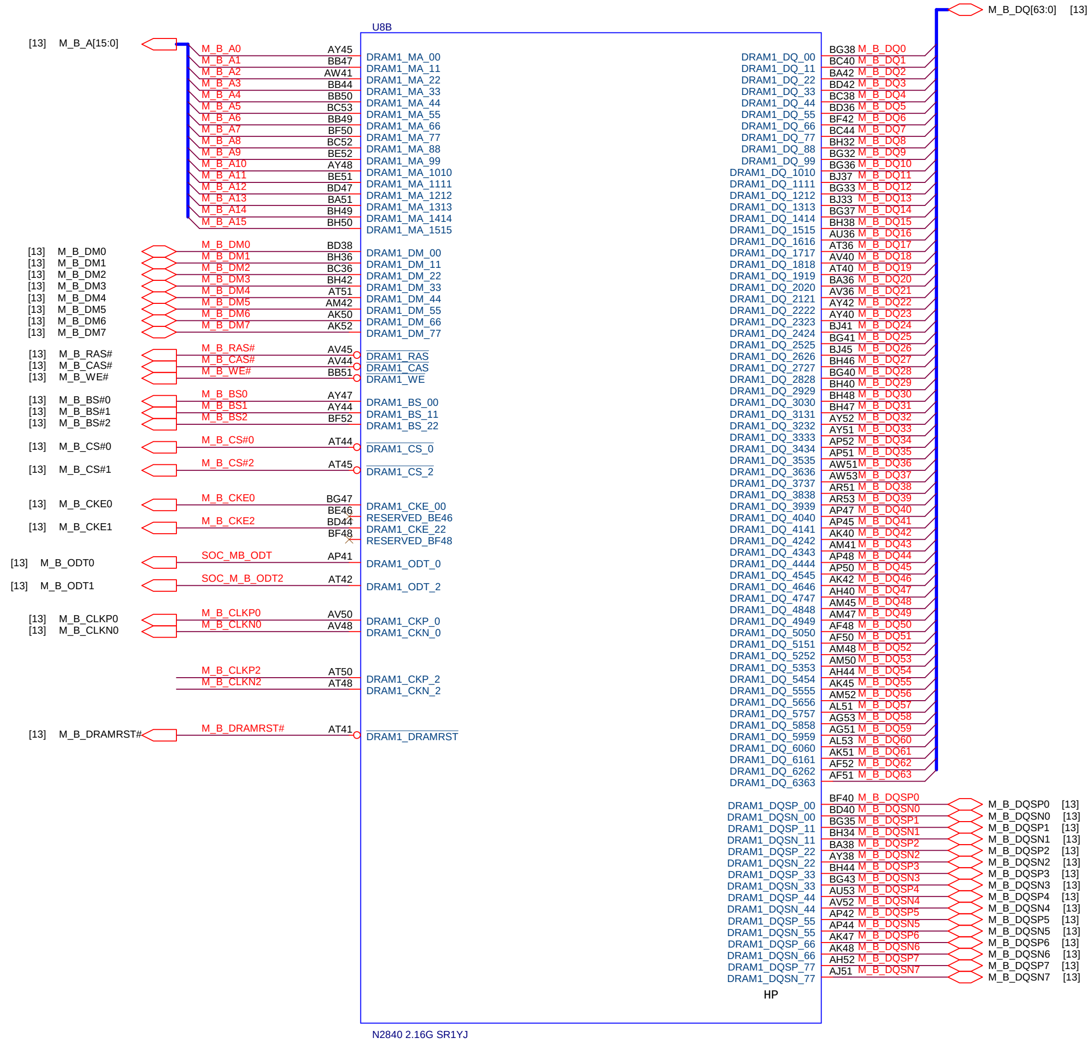

**INTEL CPU**

| TOPBS PN | QBCON | Vender PN | Description | |
|---|---|---|---|---|
| AJSR1YJUT01 | Default | | CPU(1170P)N2840 2.16G SR1YJ(FCBGA)TOPBSQ | N2840 |
| | AJSR1YJUT00 | | CPU (1170P)N2840 2.16G SR1YJ(FCBGA)QBCON | N2840 |

NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | Valley 1/9 (DDRA) | 1A |

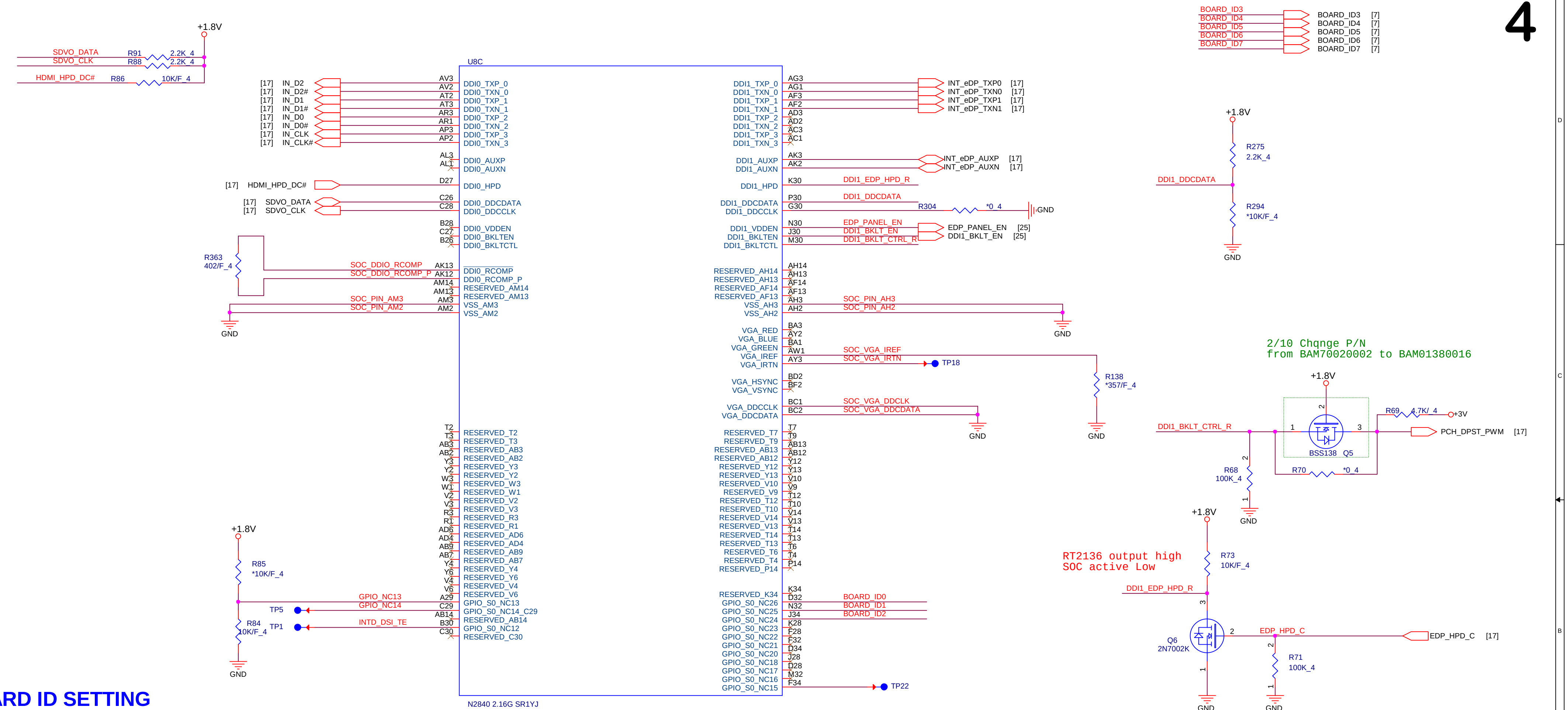



**PROJECT : Y0HC**
Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| | Valley 2/9 (DDRB) | 1A |

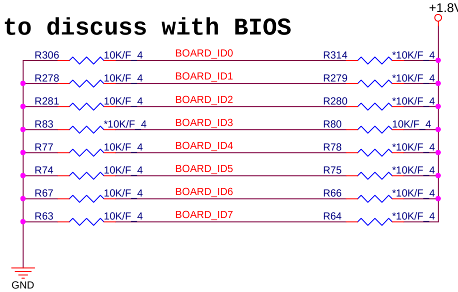
Date: Tuesday, July 21, 2015 Sheet 8 of 33

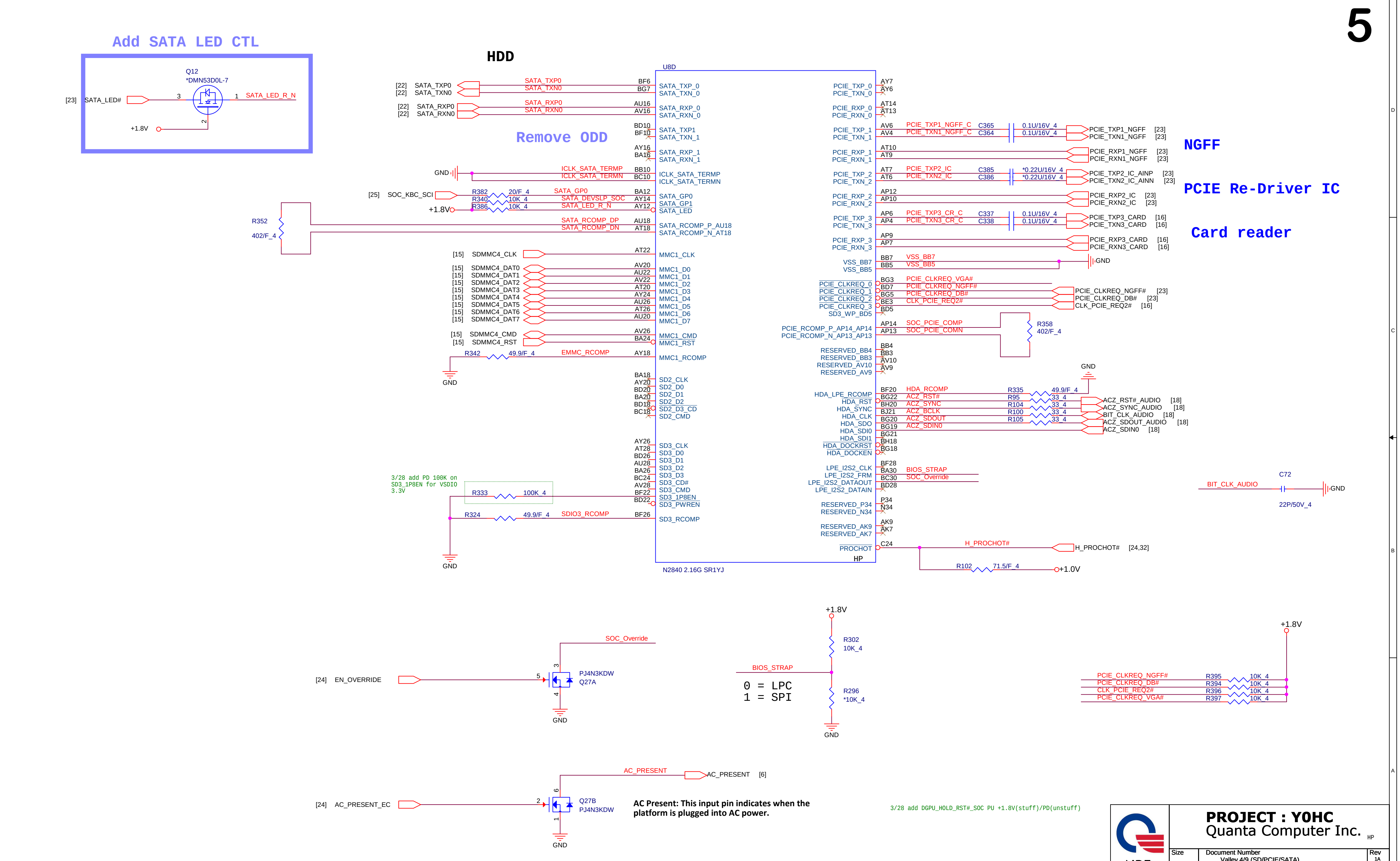



# BOARD ID SETTING

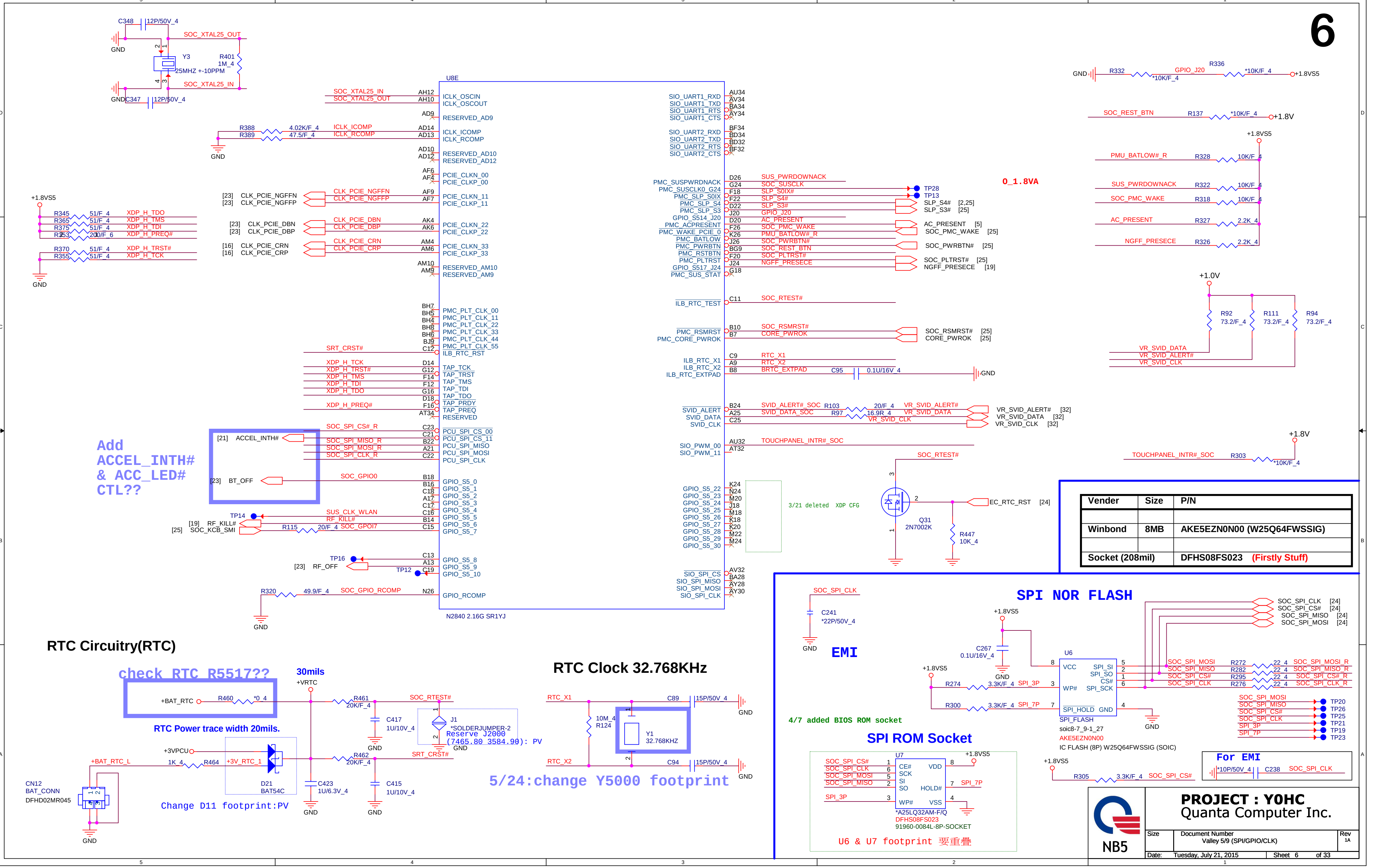
| Model | BOARD_ID7 | BOARD_ID6 | BOARD_ID5 | BOARD_ID4 | BOARD_ID3 | BOARD_ID2 | BOARD_ID1 | BOARD_ID0 |
|---|---|---|---|---|---|---|---|---|
| | Reserve (Default = 00) | | DDR RAM Setting ID543<br>000 = SAM 2G (256M *16* 4PCS)<br>001 = HYN 2G (256M *16* 4PCS) Default<br>010 = MTI 2G (256M *16* 4PCS)<br>101 = SAM 2G (256M *16* 4PCS) E Die<br>011 = SAM 4G (256M *16* 8PCS)<br>100 = HYN 4G (256M *16* 8PCS)<br>111 = MTI 4G (256M *16* 8PCS) | | | eMMC Setting ID210<br>000 = HYN 32G Default<br>001 = SDC 32G<br>010 = SAM 32G<br>100 = HYN 64G<br>101 = SDC 64G<br>110 = SAM 64G | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Need to discuss with BIOS






| | | |
|---|---|---|
| NB5 | PROJECT : Y0HC | |
| | Quanta Computer Inc. | HP |
| Size | Document Number: Valley 4/9 (SD/PCIE/SATA) | Rev 1A |
| | Date: Tuesday, July 21, 2015 | Sheet 5 of 33 |

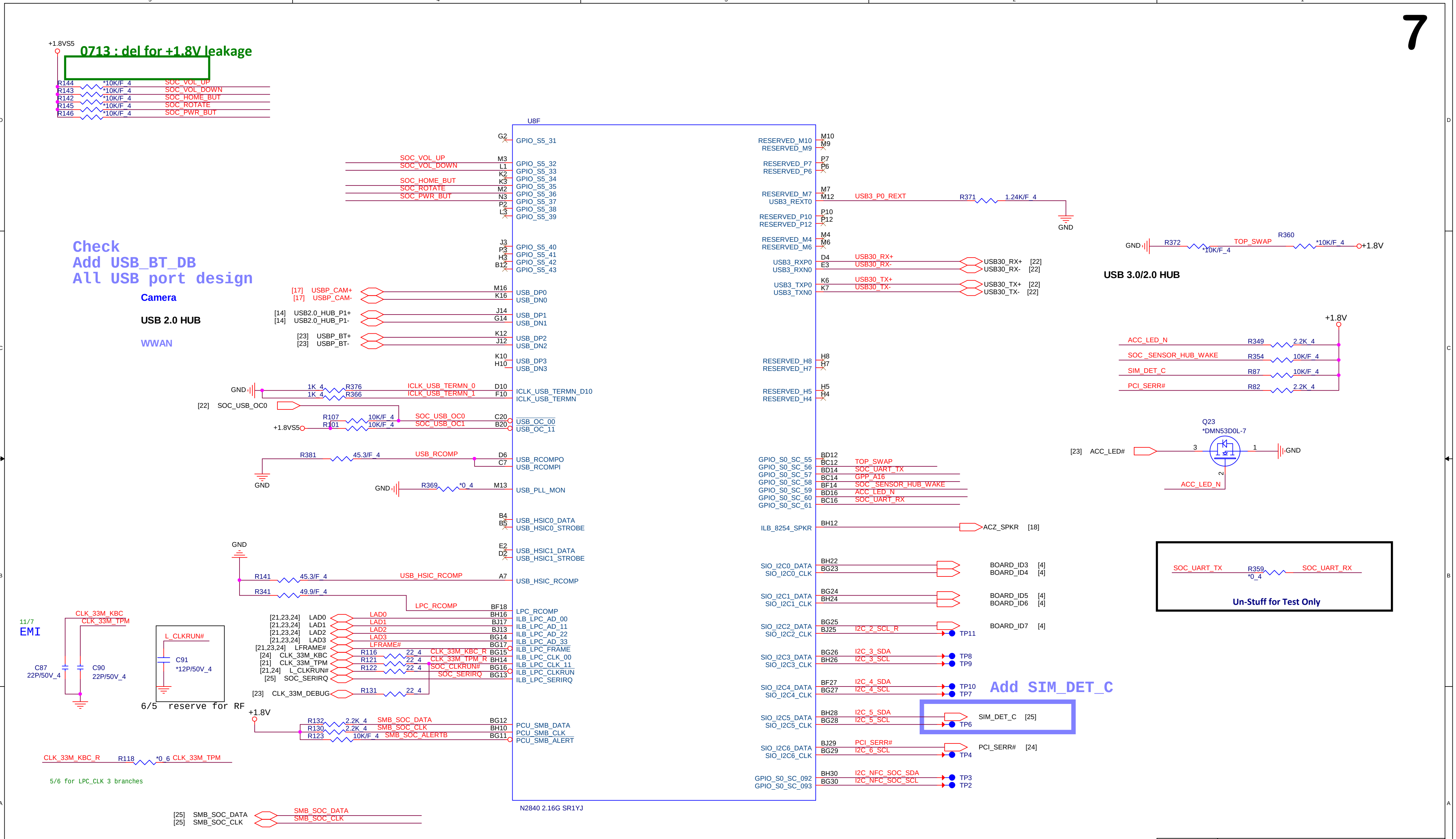



| Vender | Size | P/N |
|---|---|---|
| | | |
| Winbond | 8MB | AKE5EZN0N00 (W25Q64FWSSIG) |
| | | |
| Socket (208mil) | | DFHS08FS023 (Firstly Stuff) |

PROJECT : Y0HC
Quanta Computer Inc.
NB5

| Size | Document Number | Rev |
|---|---|---|
| | Valley 5/9 (SPI/GPIO/CLK) | 1A |

Date: Tuesday, July 21, 2015 Sheet 6 of 33

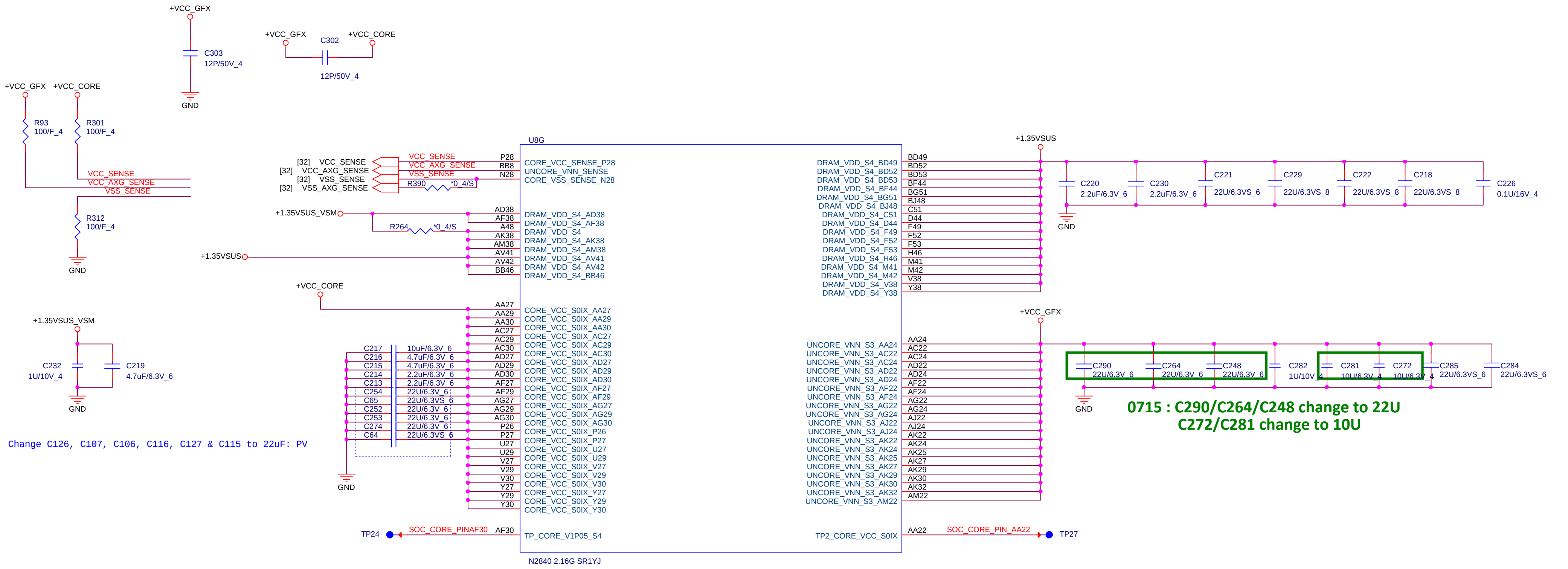



NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

Size | Document Number: Valley 6/9 (USB/LPC/I2C) | Rev 1A

Date: Tuesday, July 21, 2015 | Sheet 7 of 33

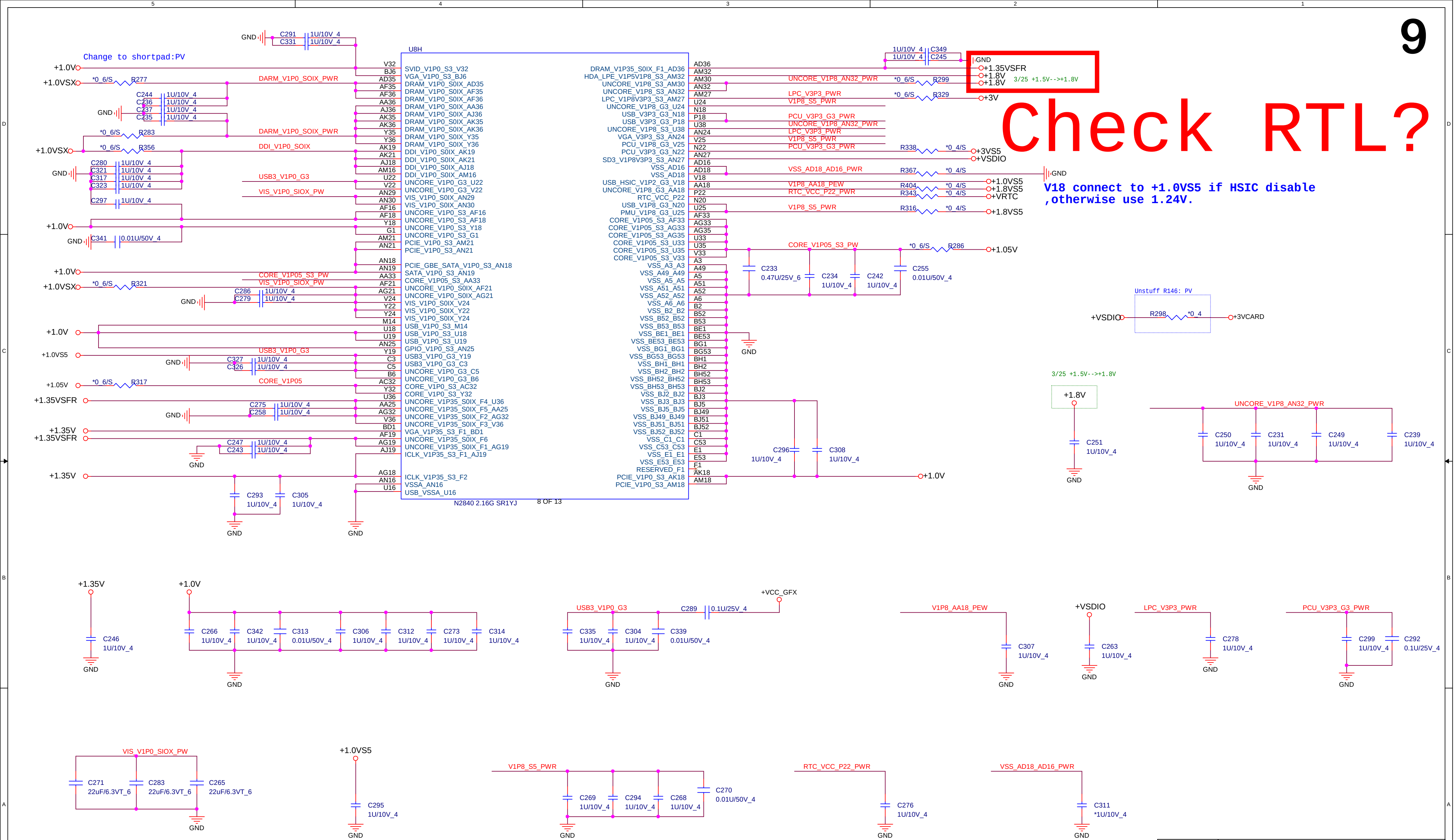



NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

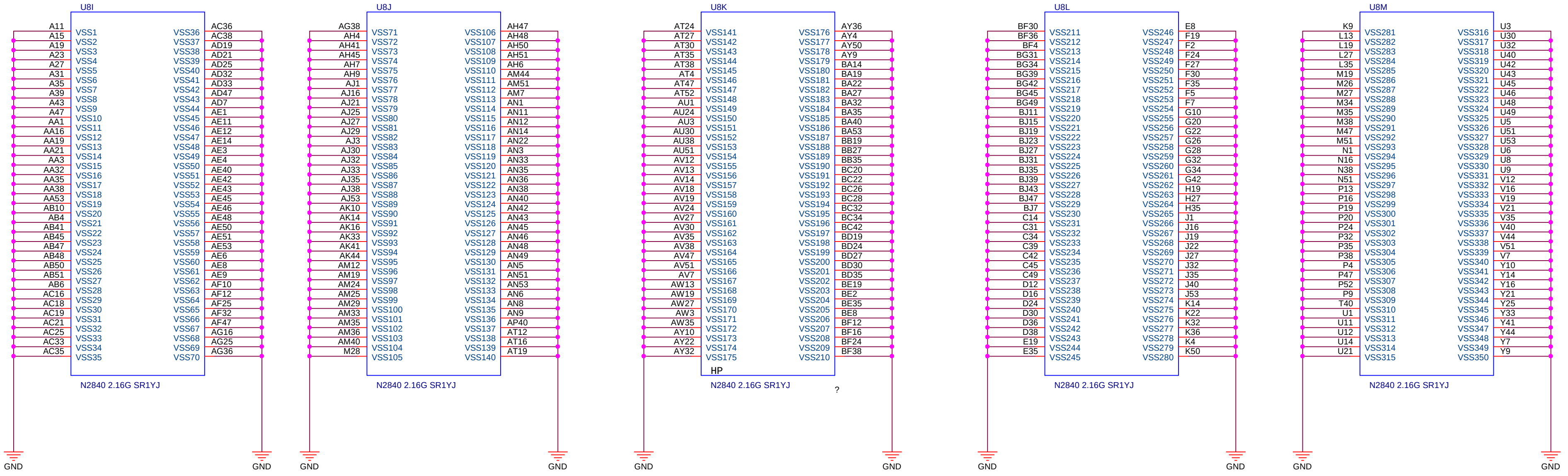
| Size | Document Number | Rev |
|---|---|---|
| | Valley 7/9 (Power 1) | 1A |

Date: Tuesday, July 21, 2015 Sheet 8 of 33





PROJECT : Y0HC
Quanta Computer Inc.
NB5
Size | Document Number: Valley 8/9 (Power 2) | Rev 1A
Date: Tuesday, July 21, 2015 | Sheet 9 of 33



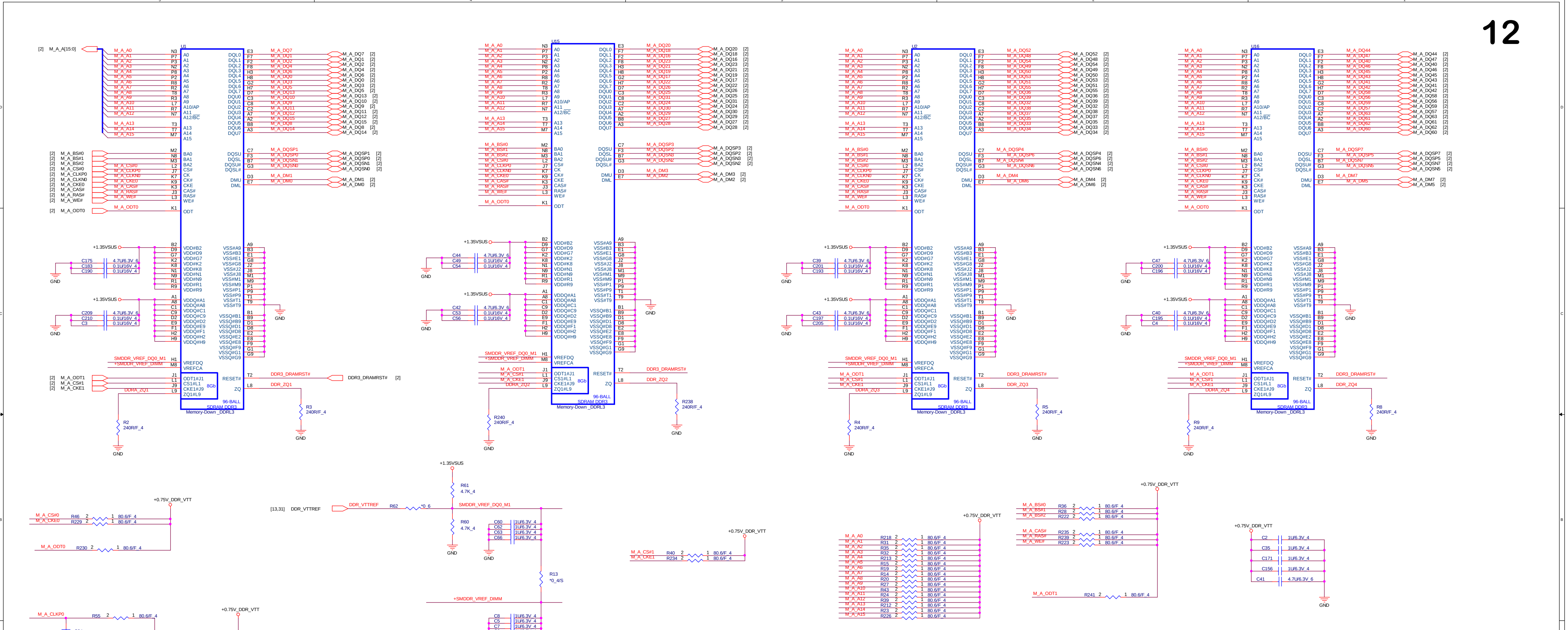

**PROJECT : Y0HC**
Quanta Computer Inc.
HP

NB5

| Size | Document Number | Rev |
|---|---|---|
| | Valley 9/9 (GND) | 1A |

Date: Tuesday, July 21, 2015 Sheet 10 of 33

3/21 deleted XDP CN6

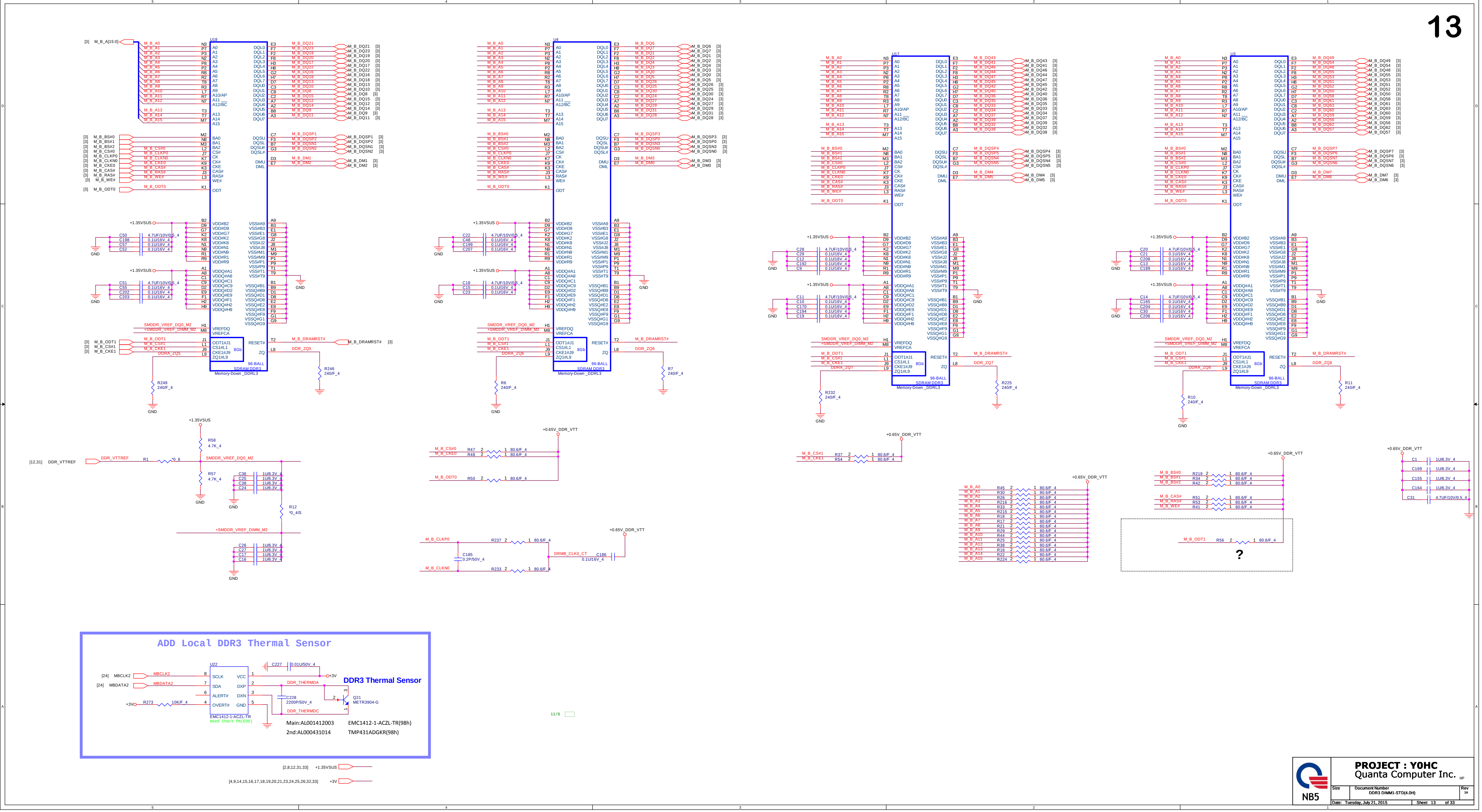


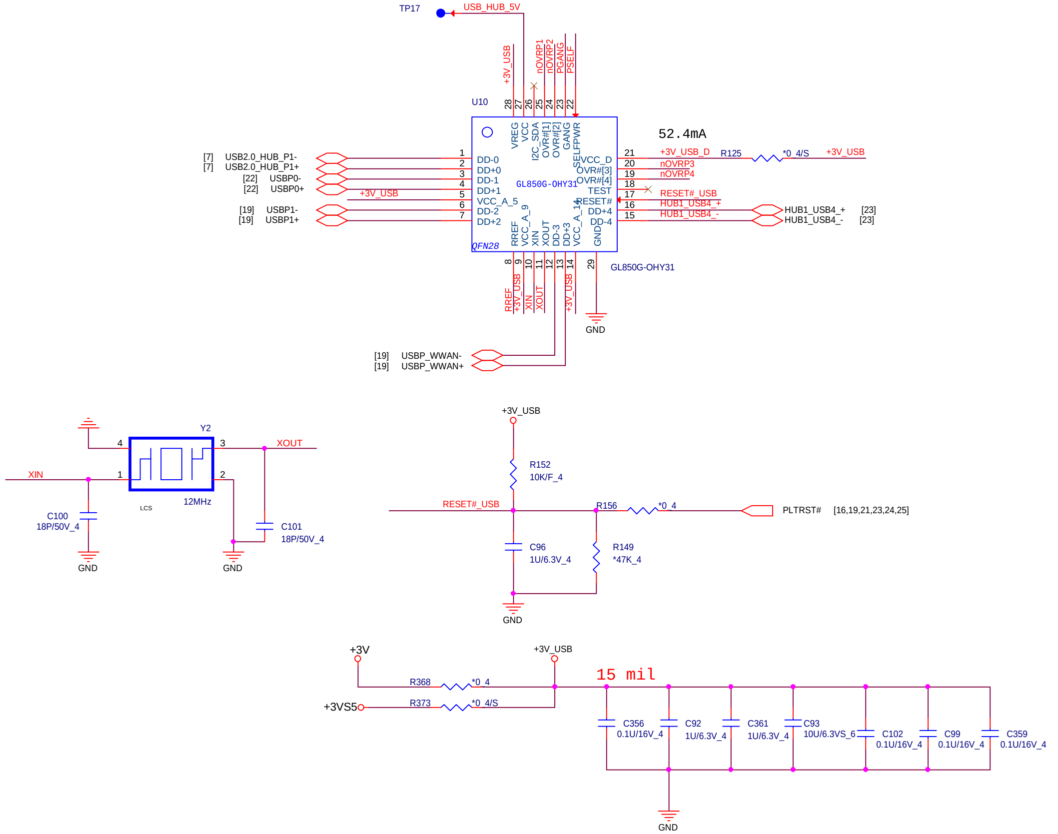
| DDR3L | | | | |
|---|---|---|---|---|
| TOPBS PN | QBCON | Vender PN | Description | |
| AKD5PGSTW14 | AKD5PGSTW15 | H5TC4G63CFR-PBA | IC SDRAM (96P) H5TC4G63CFR-PBA | Hynix (default) |
| AKD5PGST508 | AKD5PGST509 | K4B4G1646Q-HYK0 | IC SDRAM (96P) K4B4G1646Q-HYK0 | Samsung |
| AKD5PGSTL18 | AKD5PGSTL19 | MT41K256M16LY-107:N | IC SDRAM(96P)MT41K256M16LY-107:N | Micron |
| | | | | |

NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

Size | Document Number: DDR3 DIMM0-STD(4.0H) | Rev: 1A


ADD Local DDR3 Thermal Sensor
DDR3 Thermal Sensor
U22
EMC1412-1-ACZL-TR
Main:AL001412003
2nd:AL000431014
EMC1412-1-ACZL-TR(98h)
TMP431ADGKR(98h)
SDRAM DDR3
Memory-Down_DDRL3
+1.35VSUS
+0.65V_DDR_VTT
DDR_VTTREF
SMDDR_VREF_DQ0_M2
+SMDDR_VREF_DIMM_M2
?
PROJECT : Y0HC
Quanta Computer Inc.
NB5
DDR3 DIMM1-STD(4.0H)
Date Tuesday, July 21, 2015
Sheet 13 of 33




NB5

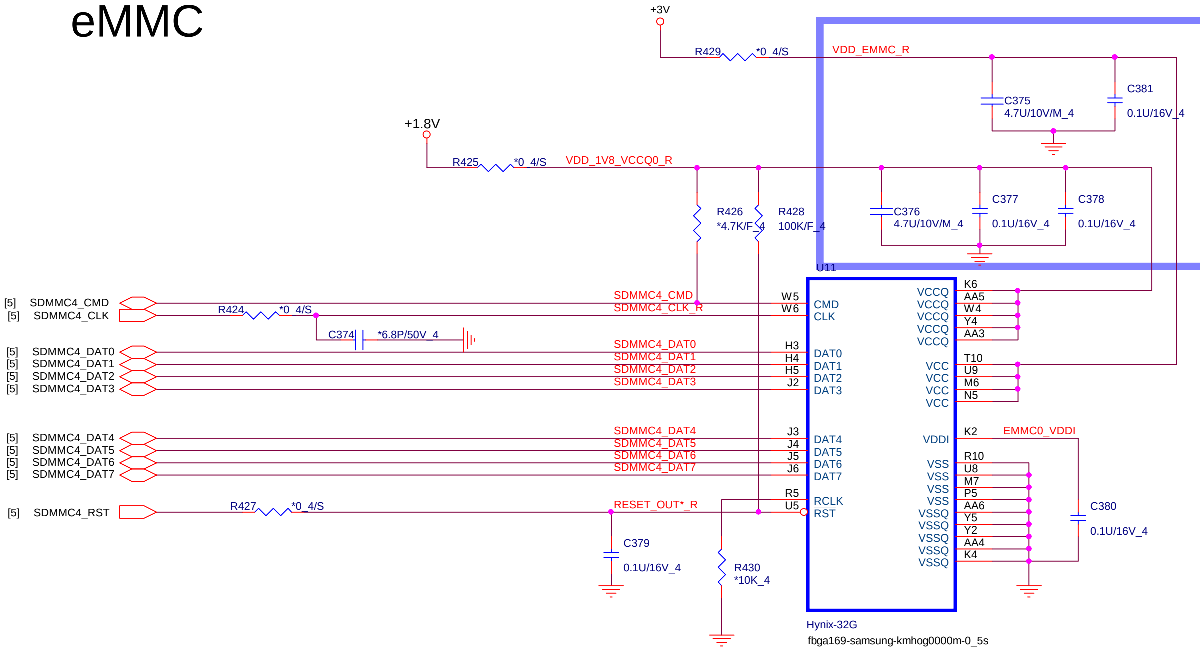
**PROJECT : Y0HC**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | USB30 HUB RTS5401-GR | 1A |
| Date: Tuesday, July 21, 2015 | Sheet 14 of 33 | |

# eMMC



[4,5,6,7,9,18,25,33] +1.8V

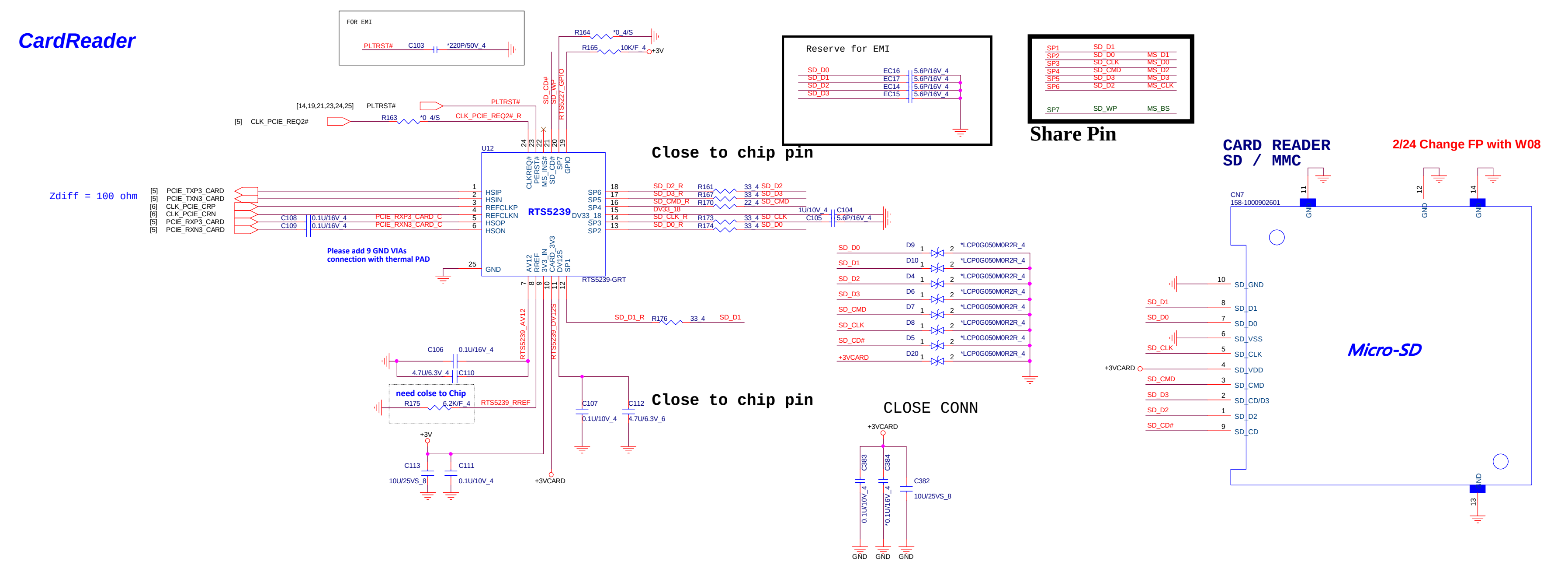



Same as Y0BC

**footprint：BGA 169、BGA 153 co-lay**
**BGA 169 PIN：14mmX18mm**
**BGA 169 PIN：12mmX16mm**
**BGA 153 PIN：11.5mmX13mm**

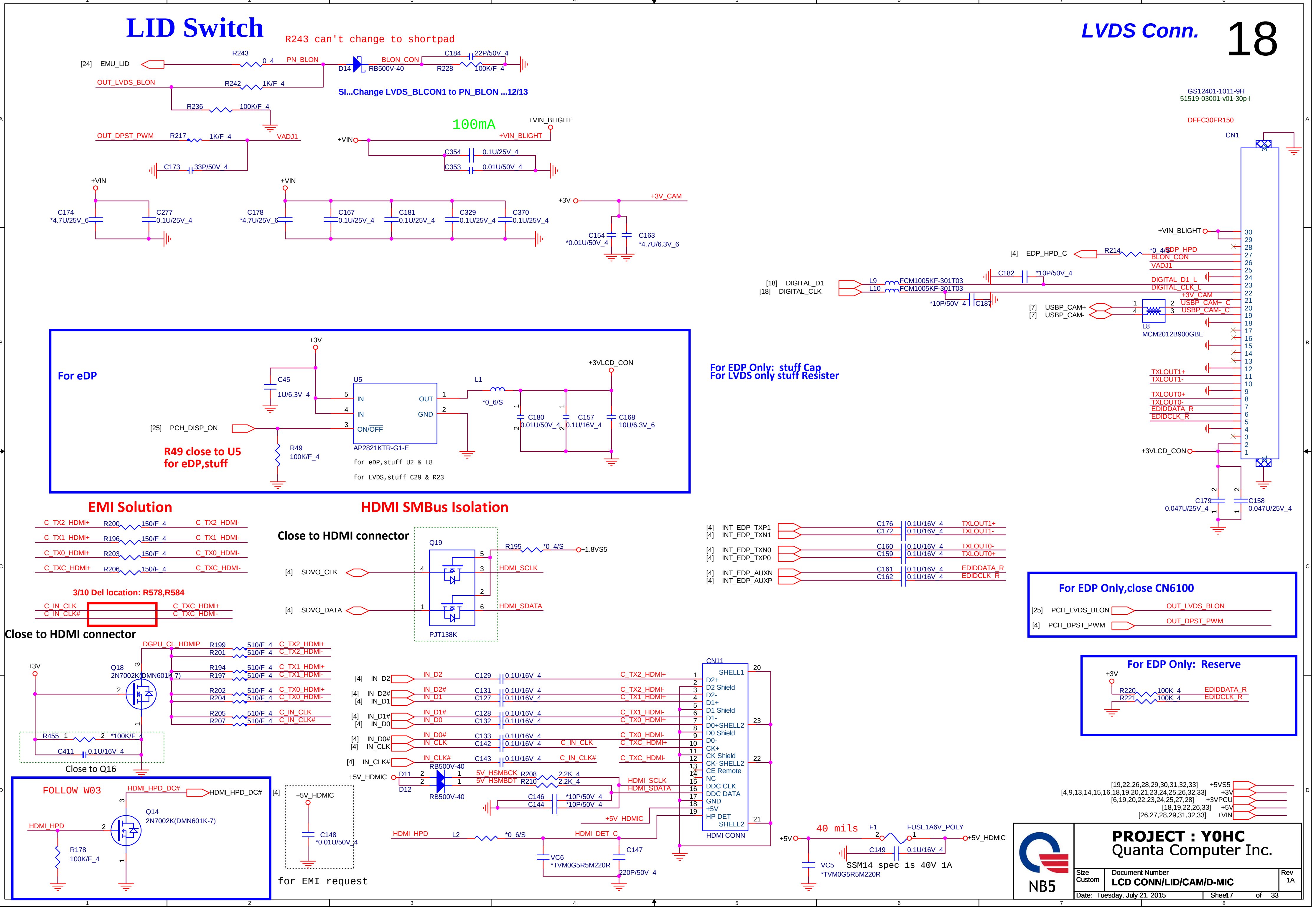
**iNAND (eMMC) V4.51**

| TOPBSQ | QBCON | Description | SIZE | Vender |
|---|---|---|---|---|
| AKE3SZ-TW01 | AKE3SZ-TW02 | IC FLASH(153P)H26M64103EMR(FBGA) | 32G | Hynix (Default) |
| AKE5SZ0T513 | AKE5SZ0T512 | IC FLASH(153)KLMBG4GEND-B031(FBGA) | 32G | samaung |
| AKE3SFUT000 | AKE3SFUT001 | IC FLASH(153P)SDIN9DW4-32G(FBGA) | 32G | SanDisk |
| | | | | |
| AKE3TG-TW01 | AKE3TG-TW02 | IC FLASH(153P)H26M78103CCR(FBGA) | 64G | Hynix |
| AKE3TZPT521 | AKE3TZPT520 | IC FLASH(153)KLMCG8GEND-B031(FBGA) | 64G | samaung |
| AKE3TFUT101 | AKE3TFUT102 | IC FLASH(153P)SDIN9DW4-64G(FBGA) | 64G | SanDisk |
| | | | | |
| | | | | |

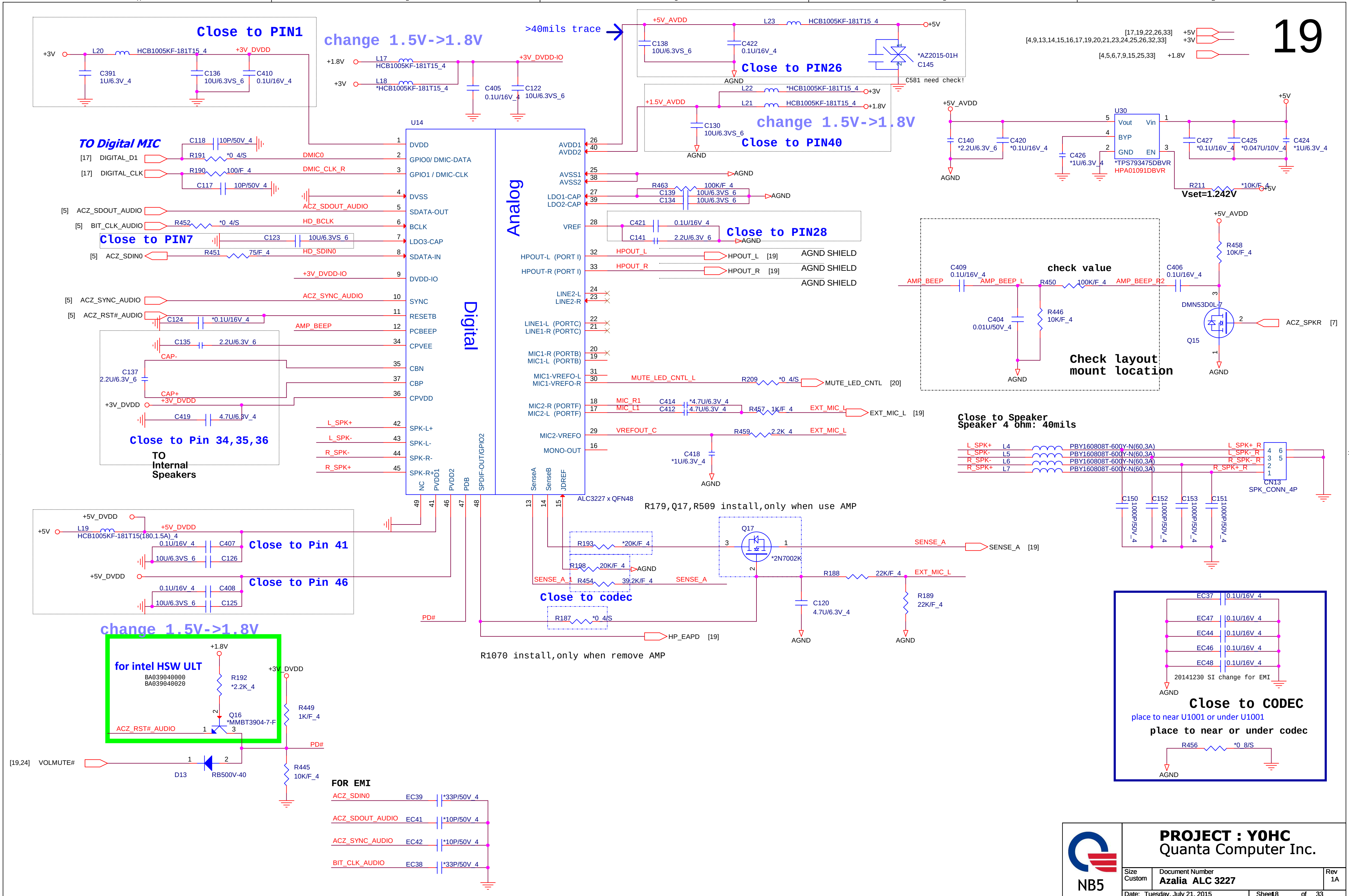



| | |
|---|---|
| PROJECT : Y0HC | Quanta Computer Inc. |
| Document Number | TOPAZ_S3_Main |
| Rev | 1A |
| Date: | Tuesday, July 21, 2015 |
| Sheet | 16 of 33 |

NB5



LID Switch
R243 can't change to shortpad
[24] EMU_LID
R243 0_4 PN_BLON
D14 RB500V-40
BLON_CON
C184 22P/50V_4
R228 100K/F_4
OUT_LVDS_BLON
R242 1K/F_4
SI...Change LVDS_BLCON1 to PN_BLON ...12/13
R236 100K/F_4
OUT_DPST_PWM
R217 1K/F_4
VADJ1
C173 33P/50V_4
100mA
+VIN_BLIGHT
+VIN
C354 0.1U/25V_4
C353 0.01U/50V_4
C174 *4.7U/25V_6
C277 0.1U/25V_4
C178 *4.7U/25V_6
C167 0.1U/25V_4
C181 0.1U/25V_4
C329 0.1U/25V_4
C370 0.1U/25V_4
+3V
+3V_CAM
C154 *0.01U/50V_4
C163 *4.7U/6.3V_6
LVDS Conn.
18
GS12401-1011-9H
51519-03001-v01-30p-l
DFFC30FR150
CN1
+VIN_BLIGHT
[4] EDP_HPD_C
R214 *0_4/S
EDP_HPD
BLON_CON
VADJ1
C182 *10P/50V_4
[18] DIGITAL_D1
[18] DIGITAL_CLK
L9 FCM1005KF-301T03
L10 FCM1005KF-301T03
DIGITAL_D1_L
DIGITAL_CLK_L
*10P/50V_4 C187
+3V_CAM
[7] USBP_CAM+
[7] USBP_CAM-
USBP_CAM+_C
USBP_CAM-_C
L8 MCM2012B900GBE
For EDP Only: stuff Cap
For LVDS only stuff Resister
TXLOUT1+
TXLOUT1-
TXLOUT0+
TXLOUT0-
EDIDDATA_R
EDIDCLK_R
+3VLCD_CON
C179 0.047U/25V_4
C158 0.047U/25V_4
For eDP
+3V
C45 1U/6.3V_4
U5
IN
IN
ON/OFF
OUT
GND
AP2821KTR-G1-E
L1 *0_6/S
+3VLCD_CON
C180 0.01U/50V_4
C157 0.1U/16V_4
C168 10U/6.3V_6
[25] PCH_DISP_ON
R49 100K/F_4
R49 close to U5
for eDP,stuff
for eDP,stuff U2 & L8
for LVDS,stuff C29 & R23
EMI Solution
C_TX2_HDMI+ R200 150/F_4 C_TX2_HDMI-
C_TX1_HDMI+ R196 150/F_4 C_TX1_HDMI-
C_TX0_HDMI+ R203 150/F_4 C_TX0_HDMI-
C_TXC_HDMI+ R206 150/F_4 C_TXC_HDMI-
3/10 Del location: R578,R584
C_IN_CLK C_TXC_HDMI+
C_IN_CLK# C_TXC_HDMI-
HDMI SMBus Isolation
Close to HDMI connector
Q19
R195 *0_4/S
+1.8VS5
[4] SDVO_CLK
HDMI_SCLK
[4] SDVO_DATA
HDMI_SDATA
PJT138K
[4] INT_EDP_TXP1
[4] INT_EDP_TXN1
[4] INT_EDP_TXN0
[4] INT_EDP_TXP0
[4] INT_EDP_AUXN
[4] INT_EDP_AUXP
C176 0.1U/16V_4 TXLOUT1+
C172 0.1U/16V_4 TXLOUT1-
C160 0.1U/16V_4 TXLOUT0-
C159 0.1U/16V_4 TXLOUT0+
C161 0.1U/16V_4 EDIDDATA_R
C162 0.1U/16V_4 EDIDCLK_R
For EDP Only,close CN6100
[25] PCH_LVDS_BLON OUT_LVDS_BLON
[4] PCH_DPST_PWM OUT_DPST_PWM
Close to HDMI connector
DGPU_CL_HDMIP
+3V
Q18 2N7002K(DMN601K-7)
R199 510/F_4 C_TX2_HDMI+
R201 510/F_4 C_TX2_HDMI-
R194 510/F_4 C_TX1_HDMI+
R197 510/F_4 C_TX1_HDMI-
R202 510/F_4 C_TX0_HDMI+
R204 510/F_4 C_TX0_HDMI-
R205 510/F_4 C_IN_CLK
R207 510/F_4 C_IN_CLK#
R455 *100K/F_4
C411 0.1U/16V_4
Close to Q16
FOLLOW W03
HDMI_HPD_DC#
HDMI_HPD
Q14 2N7002K(DMN601K-7)
R178 100K/F_4
+5V_HDMIC
C148 *0.01U/50V_4
for EMI request
[4] IN_D2 C129 0.1U/16V_4 C_TX2_HDMI+
[4] IN_D2# C131 0.1U/16V_4 C_TX2_HDMI-
[4] IN_D1 C127 0.1U/16V_4 C_TX1_HDMI+
[4] IN_D1# C128 0.1U/16V_4 C_TX1_HDMI-
[4] IN_D0 C132 0.1U/16V_4 C_TX0_HDMI+
[4] IN_D0# C133 0.1U/16V_4 C_TX0_HDMI-
[4] IN_CLK C142 0.1U/16V_4 C_IN_CLK C_TXC_HDMI+
[4] IN_CLK# C143 0.1U/16V_4 C_IN_CLK# C_TXC_HDMI-
D11 D12 RB500V-40
5V_HSMBCK R208 2.2K_4 HDMI_SCLK
5V_HSMBDT R210 2.2K_4 HDMI_SDATA
C146 *10P/50V_4
C144 *10P/50V_4
+5V_HDMIC
HDMI_HPD L2 *0_6/S HDMI_DET_C
VC6 *TVM0G5R5M220R
C147 220P/50V_4
CN11
SHELL1
D2+
D2 Shield
D2-
D1+
D1 Shield
D1-
D0+SHELL2
D0 Shield
D0-
CK+
CK Shield
CK- SHELL2
CE Remote
NC
DDC CLK
DDC DATA
GND
+5V
HP DET
SHELL2
HDMI CONN
For EDP Only: Reserve
+3V
R220 100K_4 EDIDDATA_R
R221 100K_4 EDIDCLK_R
40 mils
F1 FUSE1A6V_POLY
+5V +5V_HDMIC
C149 0.1U/16V_4
VC5 *TVM0G5R5M220R
SSM14 spec is 40V 1A
[19,22,26,28,29,30,31,32,33] +5VS5
[4,9,13,14,15,16,18,19,20,21,23,24,25,26,32,33] +3V
[6,19,20,22,23,24,25,27,28] +3VPCU
[18,19,22,26,33] +5V
[26,27,28,29,31,32,33] +VIN
PROJECT : Y0HC
Quanta Computer Inc.
NB5
Size Custom
Document Number LCD CONN/LID/CAM/D-MIC
Rev 1A
Date: Tuesday, July 21, 2015
Sheet 17 of 33




**PROJECT : Y0HC**
Quanta Computer Inc.

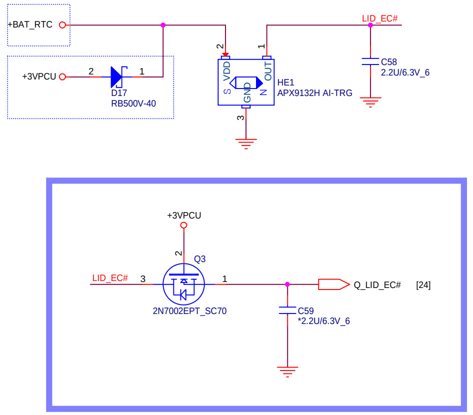
NB5

| Size | Document Number | Rev |
|---|---|---|
| Custom | Azalia ALC 3227 | 1A |

Date: Tuesday, July 21, 2015 Sheet 18 of 33

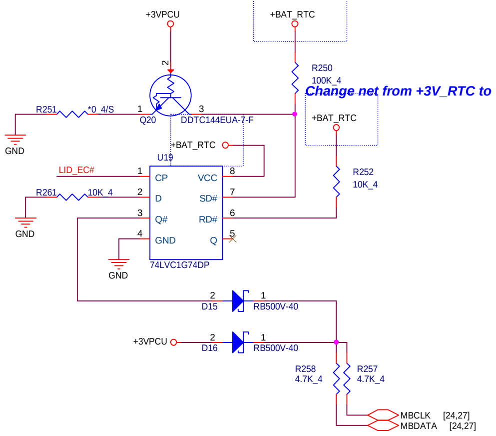
## LID

Change net from +3V_RTC to +BAT_RTC




check with Y0BC?

Change net from +3V_RTC to +BAT_RTC




| Input | | | | Output | |
|---|---|---|---|---|---|
| SD | RD | CP | D | Q | Q |
| L | H | X | X | H | L |
| H | L | X | X | L | H |
| L | L | X | X | H | H |

[1] H = HIGH voltage level;
L = LOW voltage level;
X = don't care.

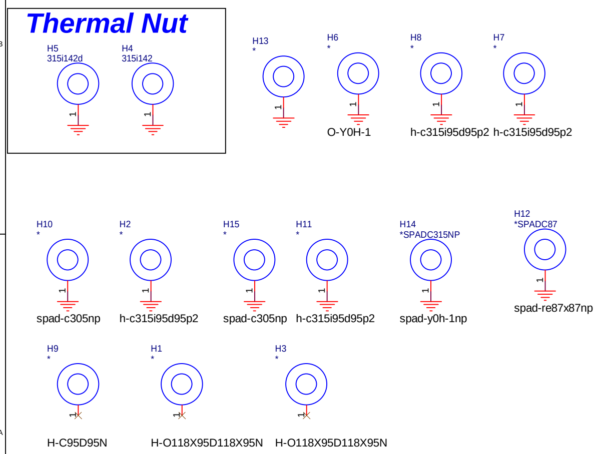
| Input | | | | Output | |
|---|---|---|---|---|---|
| SD | RD | CP | D | $Q_{n+1}$ | $\overline{Q}_{n+1}$ |
| H | H | ↑ | L | L | H |
| H | H | ↑ | H | H | L |

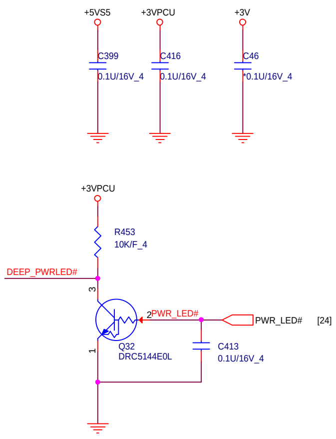
[1] H = HIGH voltage level;
L = LOW voltage level;
↑ = LOW-to-HIGH CP transition;
$Q_{n+1}$ = state after the next LOW-to-HIGH CP transition.

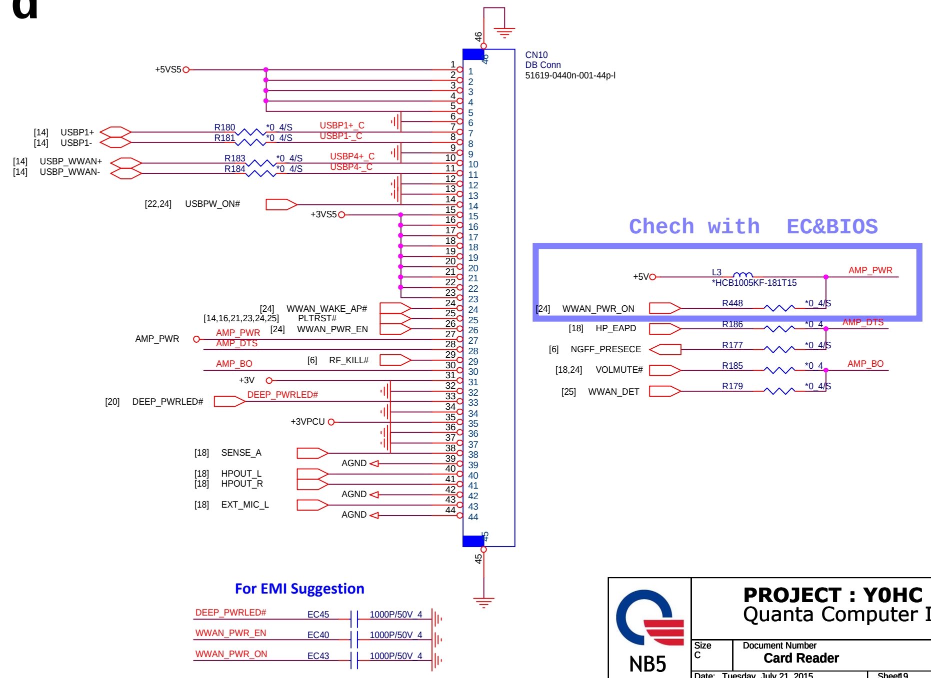
# Daughter Board

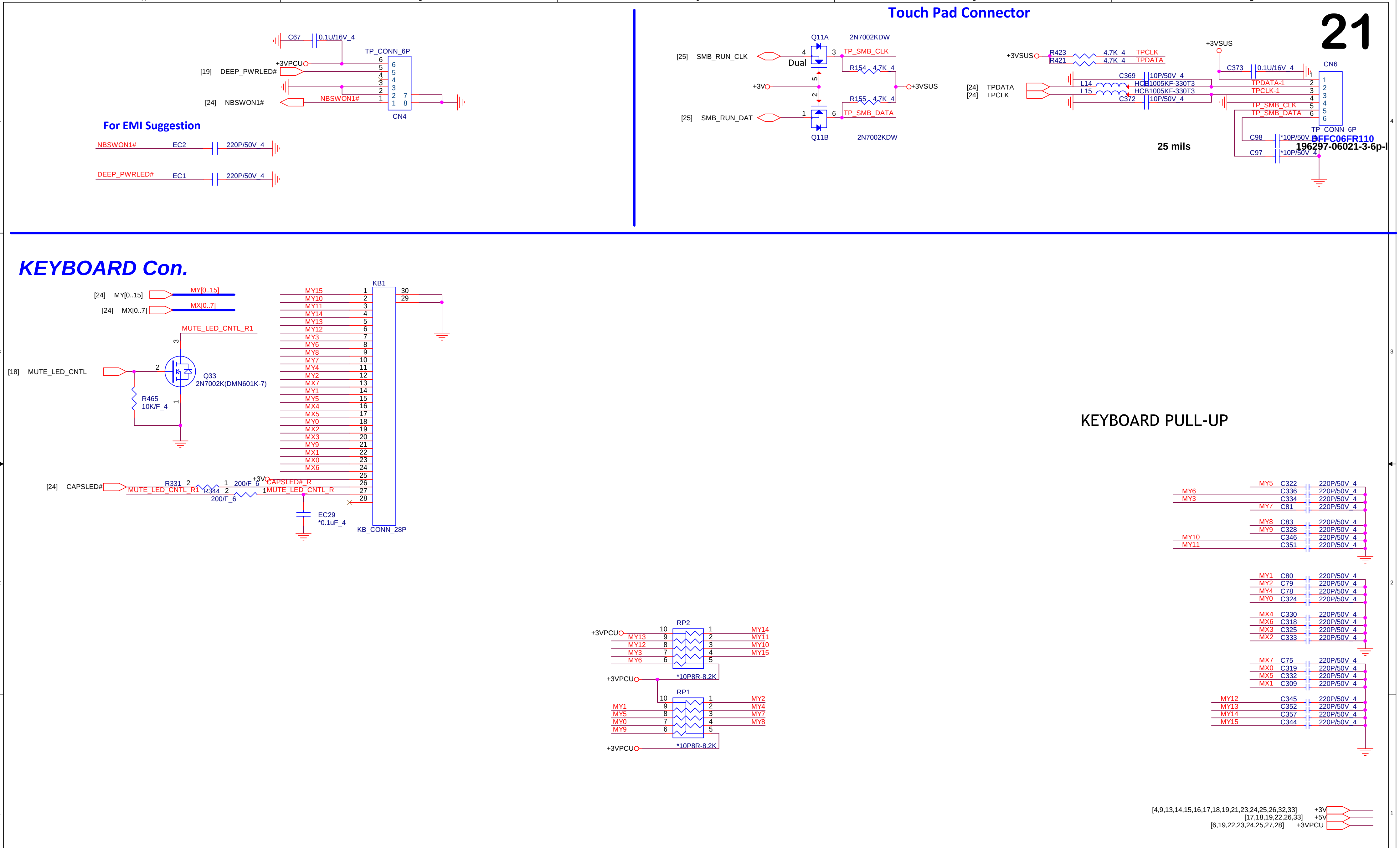
## HOLE

### Thermal Nut





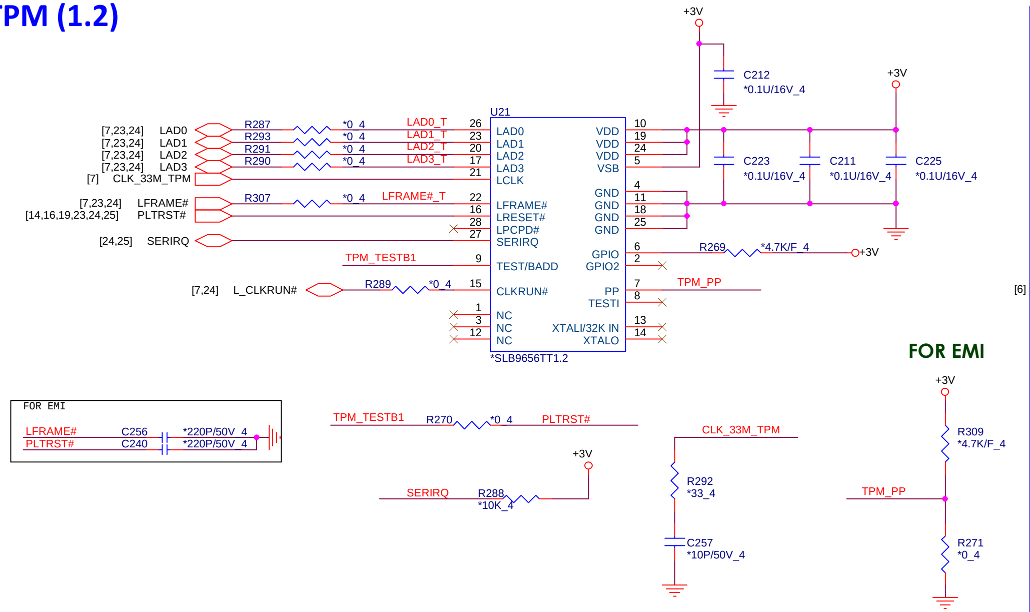

NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | TPM/TP/FAN/LED | 1A |

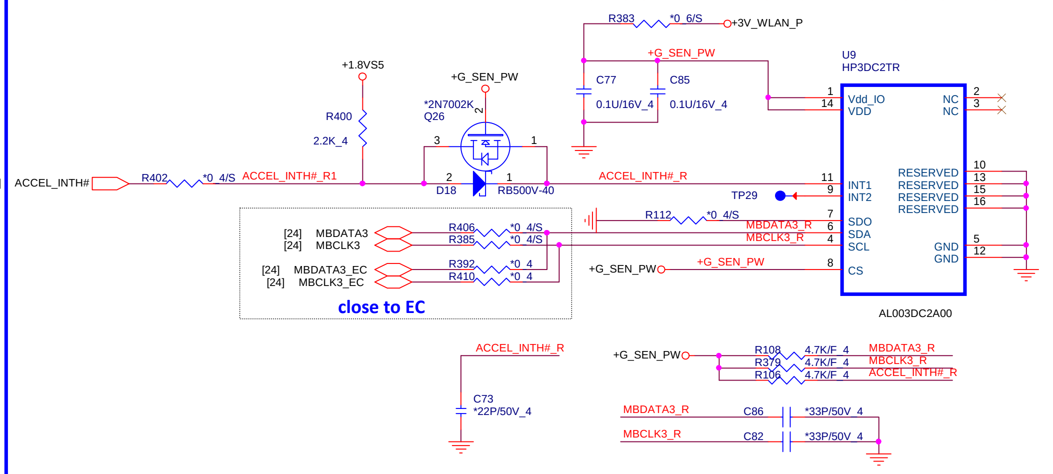
Date: Tuesday, July 21, 2015 Sheet 20 of 33

# TPM (1.2)




# Accelerometer Sensor

## G-Sensor Power need check




# Touch screen

# Green CLK Circuitry

[19,22,26,28,29,30,31,32,33] +5VS5
[6,19,20,22,23,24,25,27,28] +3VPCU

[4,9,13,14,15,16,17,18,19,20,23,24,25,26,32,33] +3V
[17,18,19,22,26,33] +5V

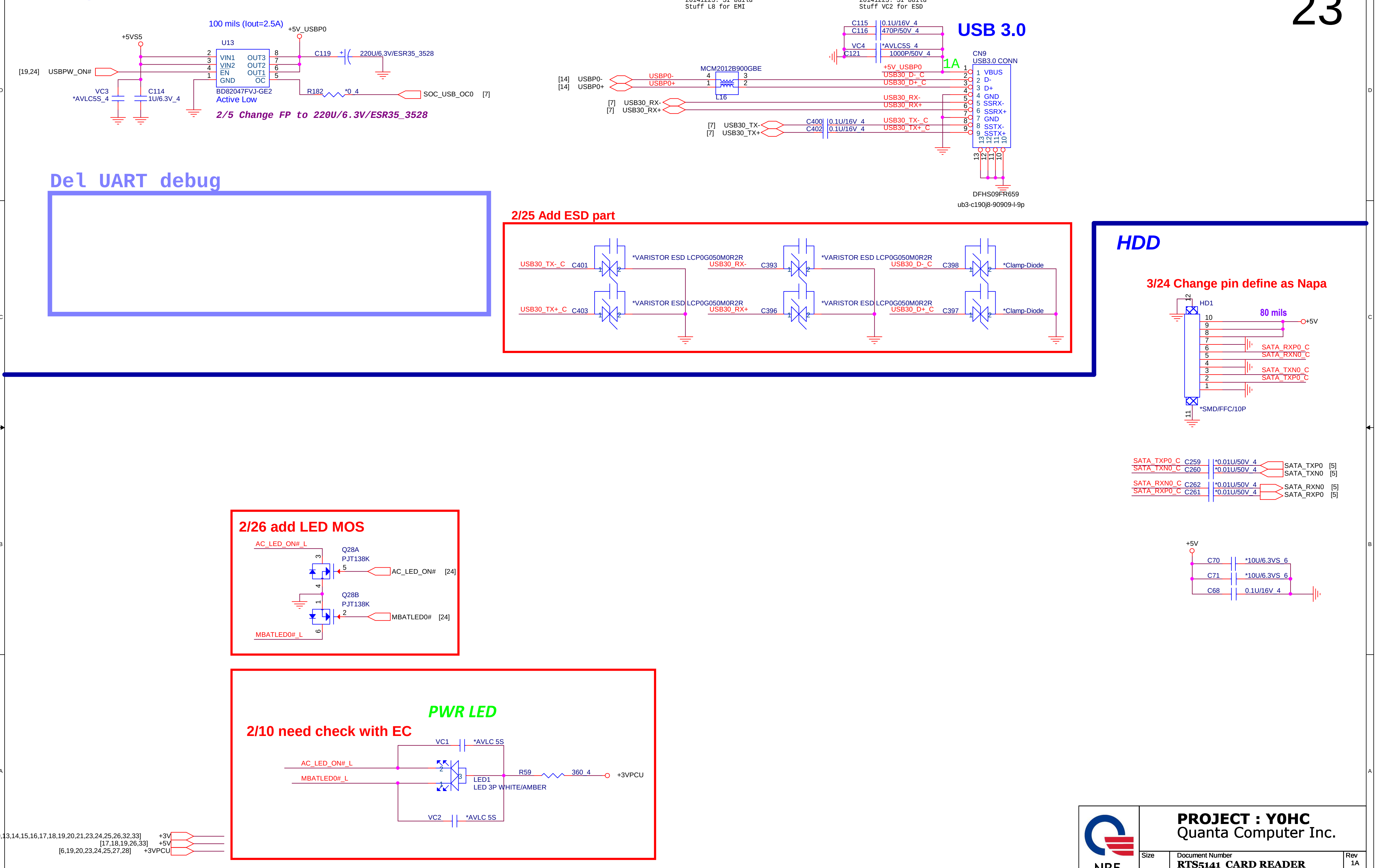
NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | USB3.0/GCLK/TS/FR | 1A |

Date: Tuesday, July 21, 2015 Sheet 21 of 33

# USB 2.0/3.0 Combo



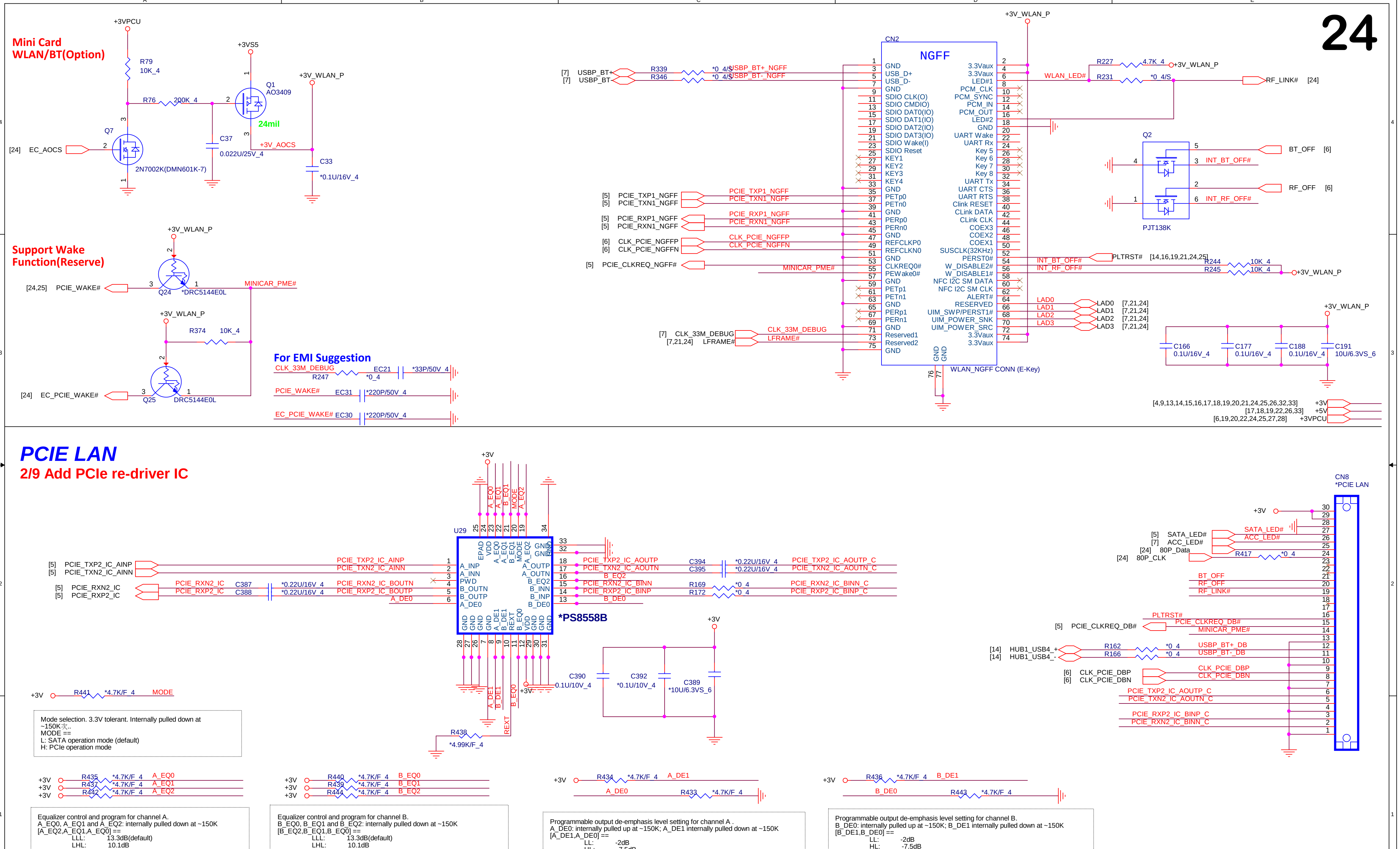

PROJECT : Y0HC

Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| | RTS5141 CARD READER | 1A |

Date: Tuesday, July 21, 2015 Sheet 22 of 33




Mode selection. 3.3V tolerant. Internally pulled down at ~150K?..
MODE ==
L: SATA operation mode (default)
H: PCIe operation mode

Equalizer control and program for channel A.
A_EQ0, A_EQ1 and A_EQ2: internally pulled down at ~150K
[A_EQ2,A_EQ1,A_EQ0] ==
LLL: 13.3dB(default)
LHL: 10.1dB
HLL: 14.7dB
HHL: 16.5dB
LLH: 14dB
LHH: 8dB
HLH: 11.9dB
HHH: 15.6dB

Equalizer control and program for channel B.
B_EQ0, B_EQ1 and B_EQ2: internally pulled down at ~150K
[B_EQ2,B_EQ1,B_EQ0] ==
LLL: 13.3dB(default)
LHL: 10.1dB
HLL: 14.7dB
HHL: 16.5dB
LLH: 14dB
LHH: 8dB
HLH: 11.9dB
HHH: 15.6dB

Programmable output de-emphasis level setting for channel A .
A_DE0: internally pulled up at ~150K; A_DE1 internally pulled down at ~150K
[A_DE1,A_DE0] ==
LL: -2dB
HL: -7.5dB
LH: -3.5dB (default)
HH: -6dB

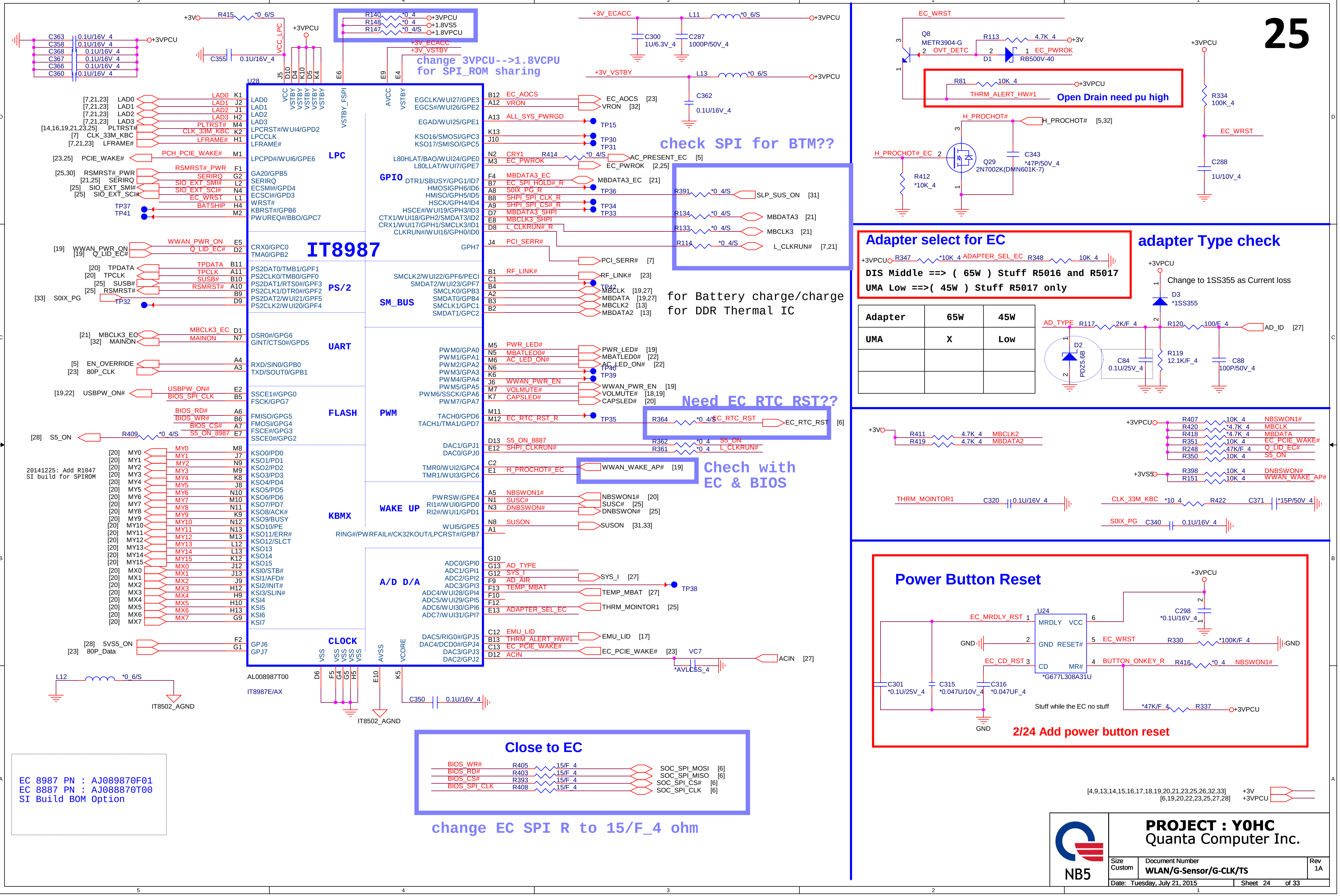
Programmable output de-emphasis level setting for channel B.
B_DE0: internally pulled up at ~150K; B_DE1 internally pulled down at ~150K
[B_DE1,B_DE0] ==
LL: -2dB
HL: -7.5dB
LH: -3.5dB (default)
HH: -6dB

NB5
PROJECT : Y0HC
Quanta Computer Inc.

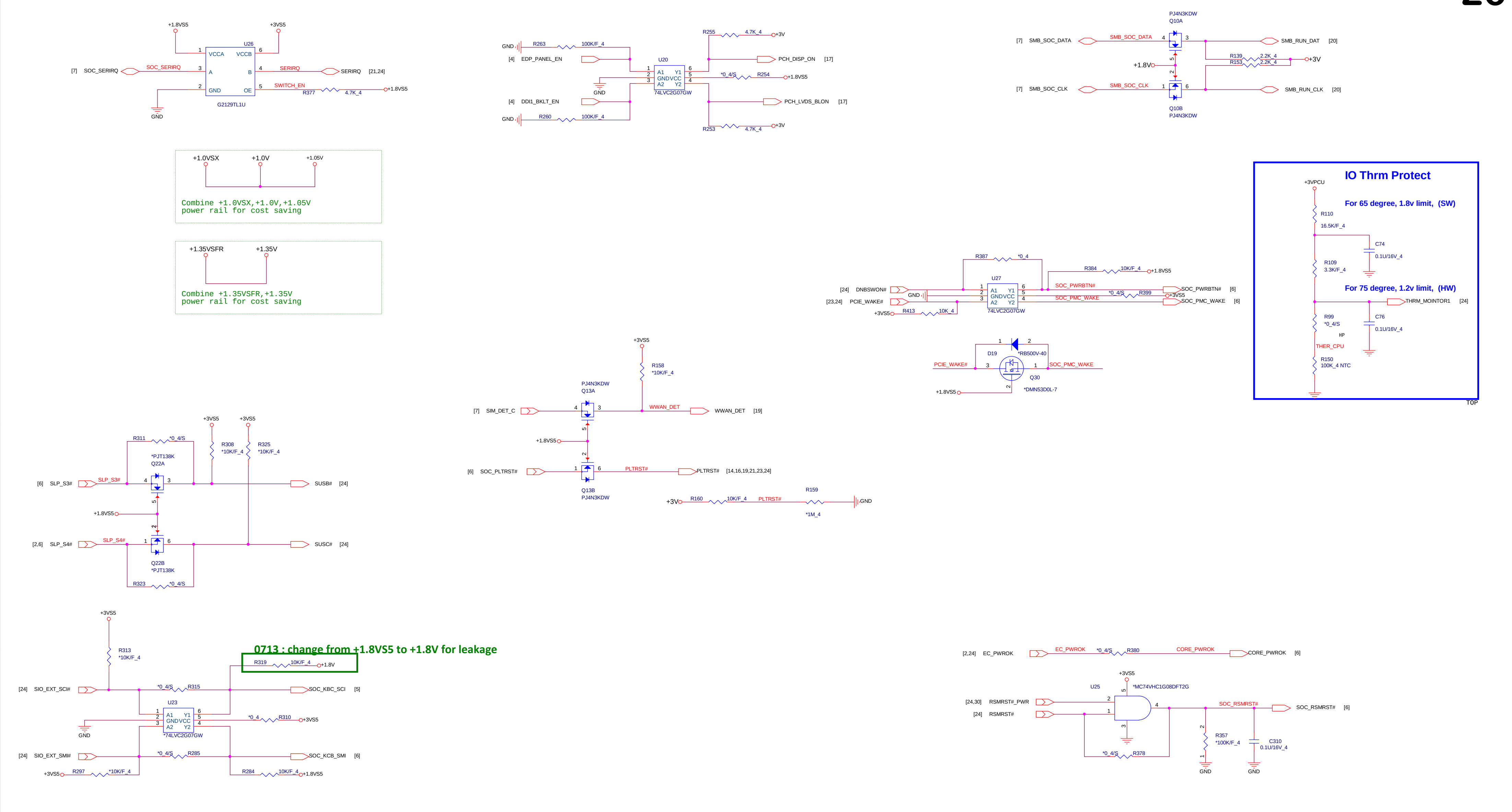
| Size | Document Number | Rev |
|---|---|---|
| | WLAN | 1A |

Date: Tuesday, July 21, 2015 Sheet 23 of 33

Chip power down. 3.3V tolerant. Internally pulled down at ~150K.
PWD ==
L: Normal operation (default)




| Adapter | 65W | 45W |
|---|---|---|
| UMA | X | Low |
| | | |
| | | |




PROJECT : Y0HC

Quanta Computer Inc.

NB5

Document Number: Level shift/Thermistor

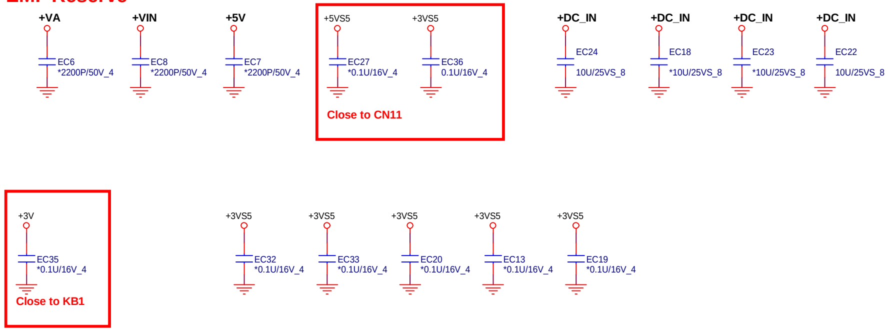
Rev 1A

Date: Tuesday, July 21, 2015 Sheet 25 of 33

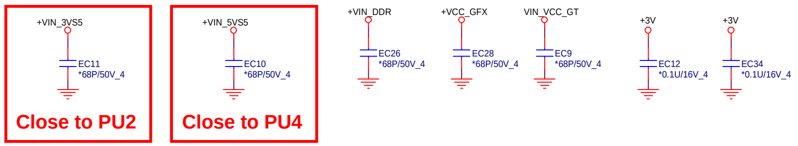
## I/O port definition

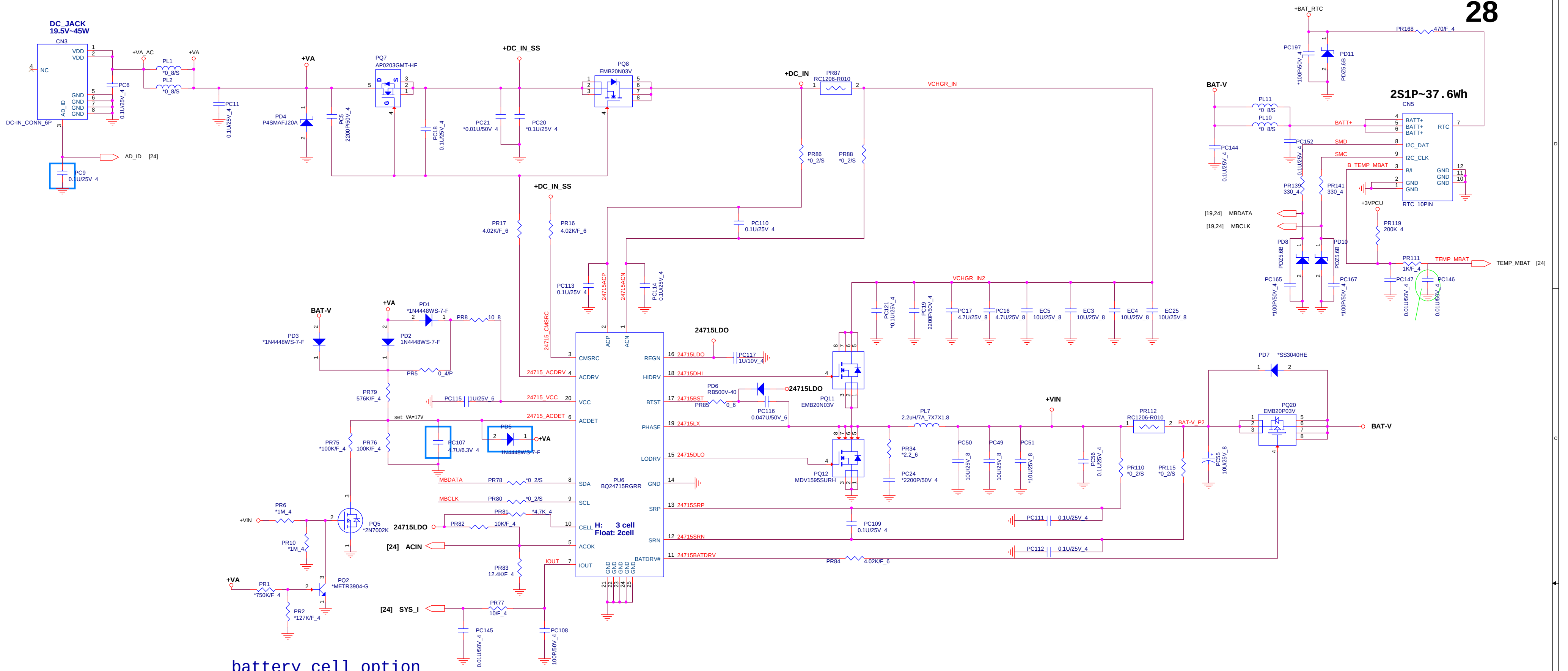
| | Brasswell-M | Note |
|---|---|---|
| | | |
| SATA Port0 | HDD | |
| SATA Port1 | ODD | |
| | | |
| PCIE Port0 | Card reader | |
| PCIE Port1 | | |
| PCIE Port2 | | |
| PCIE Port3 | WIFI | |
| | | |
| USB3.0 Port0 | USB 2.0/3.0 Combo | |
| USB3.0 Port1 | | |
| USB3.0 Port2 | | |
| USB3.0 Port3 | | |
| | | |
| USB2.0 Port0 | USB 2.0/3.0 Combo | |
| USB2.0 Port1 | USB 2.0 | |
| USB2.0 Port2 | Webcam | |
| USB2.0 Port3 | BT | |
| USB2.0 Port4 | WWAN | |

## EMI Reserve




## RF Reserve





battery cell option

| | 2-cell | 3-cell |
|---|---|---|
| PR26 | un-stuff | stuff |

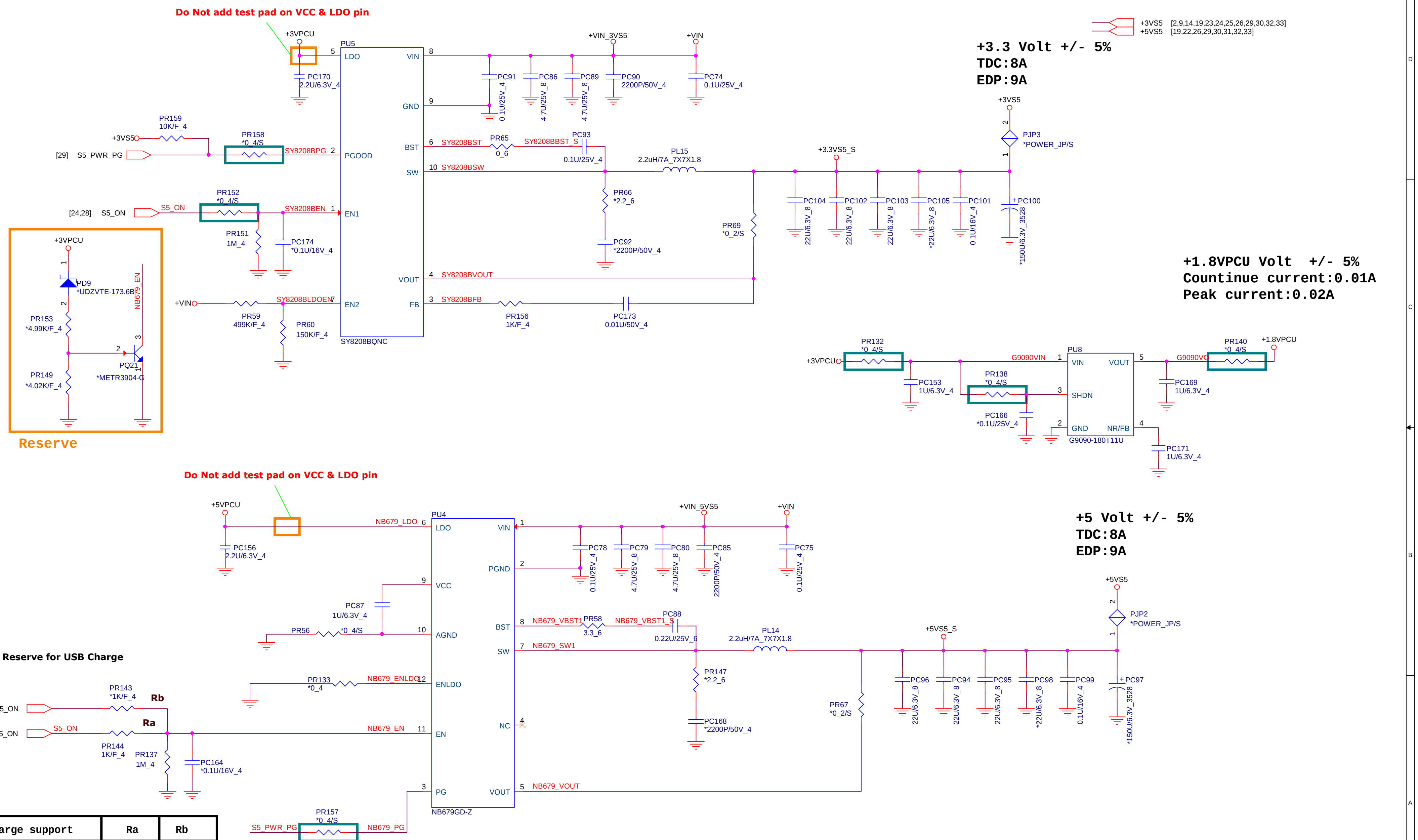
PROJECT : Y0HC
Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| Custom | Charger(BQ24715) | 1A |

# DC/DC +3VS5/+5VS5






| USB Charge support | Ra | Rb |
|---|---|---|
| Vine (No support) | Stuff | NA |
| Envy (Support) | NA | Stuff |

**PROJECT : Y0HC**
Quanta Computer Inc.

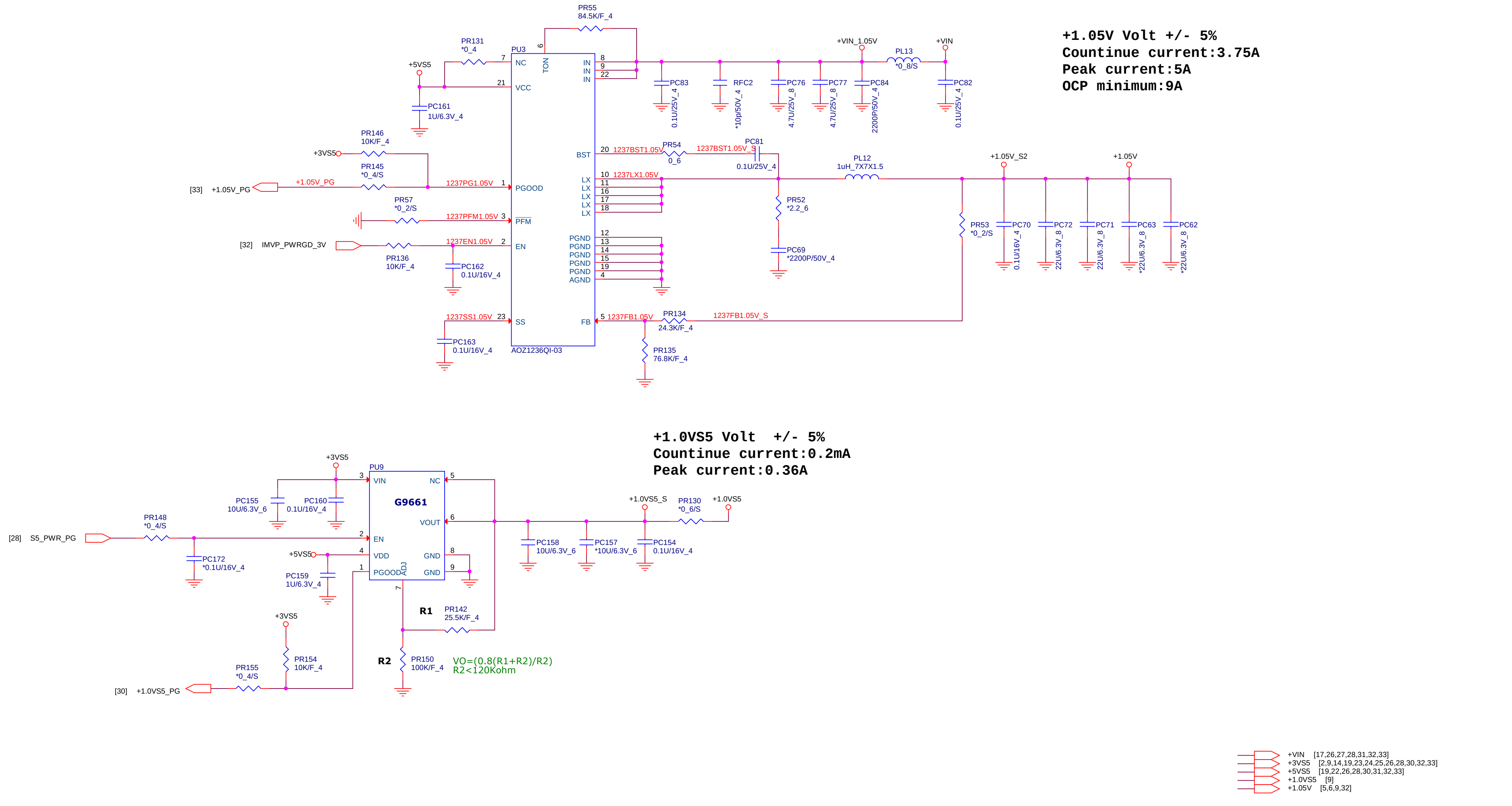
NB5

| Size | Document Number | Rev |
|---|---|---|
| Custom | 3/5VPCU(SY8208B/SY8208C) | 1A |

Date: Tuesday, July 21, 2015 Sheet 28 of 33

**+1.05V Volt +/- 5%**
**Countinue current:3.75A**
**Peak current:5A**
**OCP minimum:9A**

**+1.0VS5 Volt +/- 5%**
**Countinue current:0.2mA**
**Peak current:0.36A**

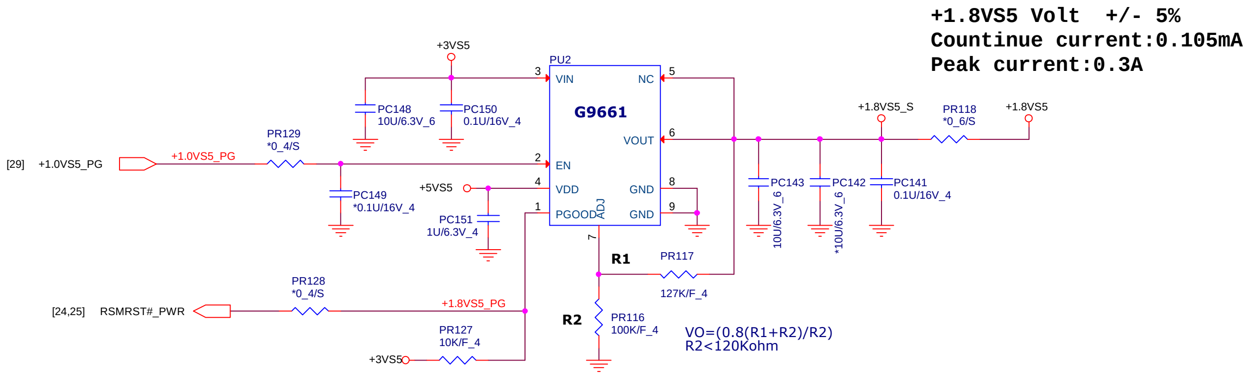



**PROJECT : Y0HC**
Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| | +1.05V/+1.5V (SY8002) | 1A |

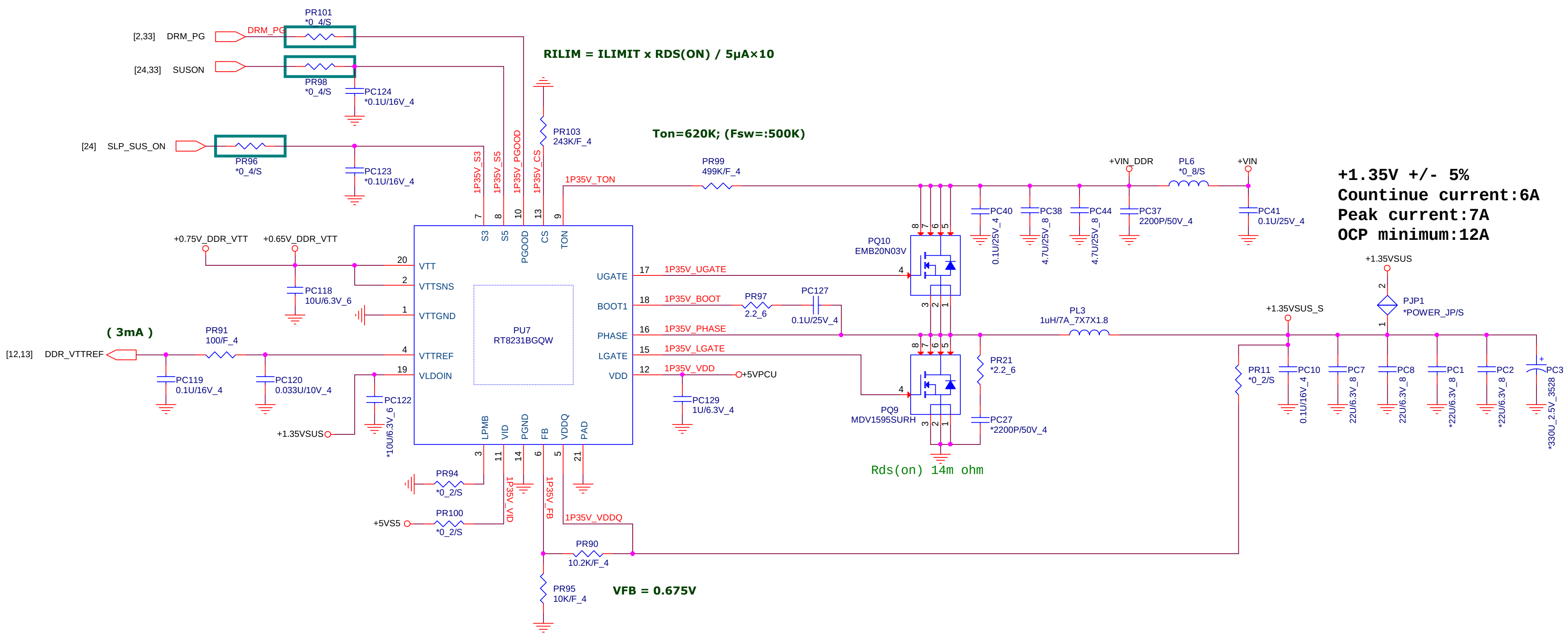
Tuesday, July 21, 2015 Sheet 29 of 33




PROJECT : Y0HC
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | NB5 | |

Date: Tuesday, July 21, 2015 Sheet 30 of 33

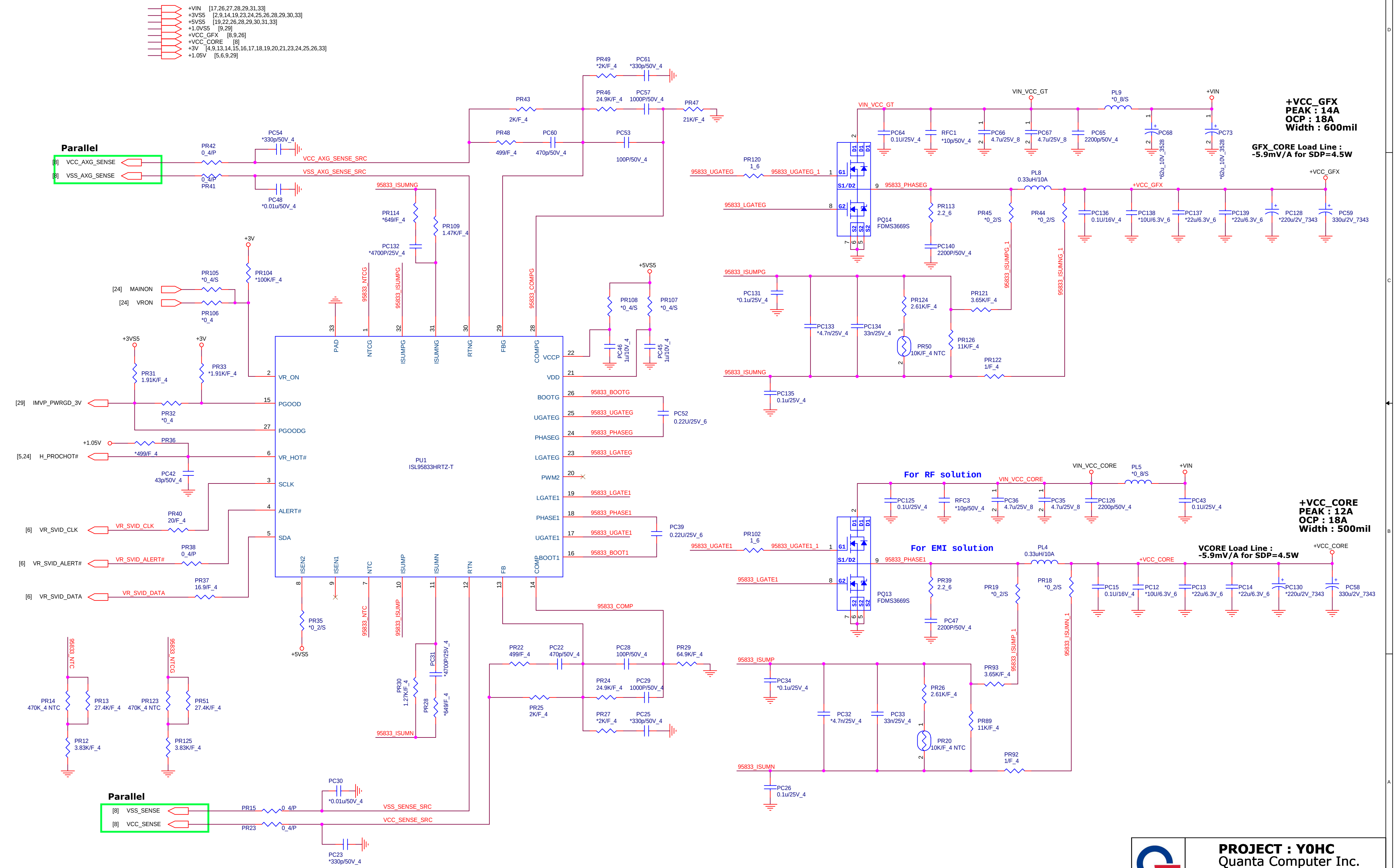



**PROJECT : Y0HC**
Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| | DDR3 (RT8231B)/1.8VS5 | 1A |

Date: Tuesday, July 21, 2015 Sheet 31 of 33

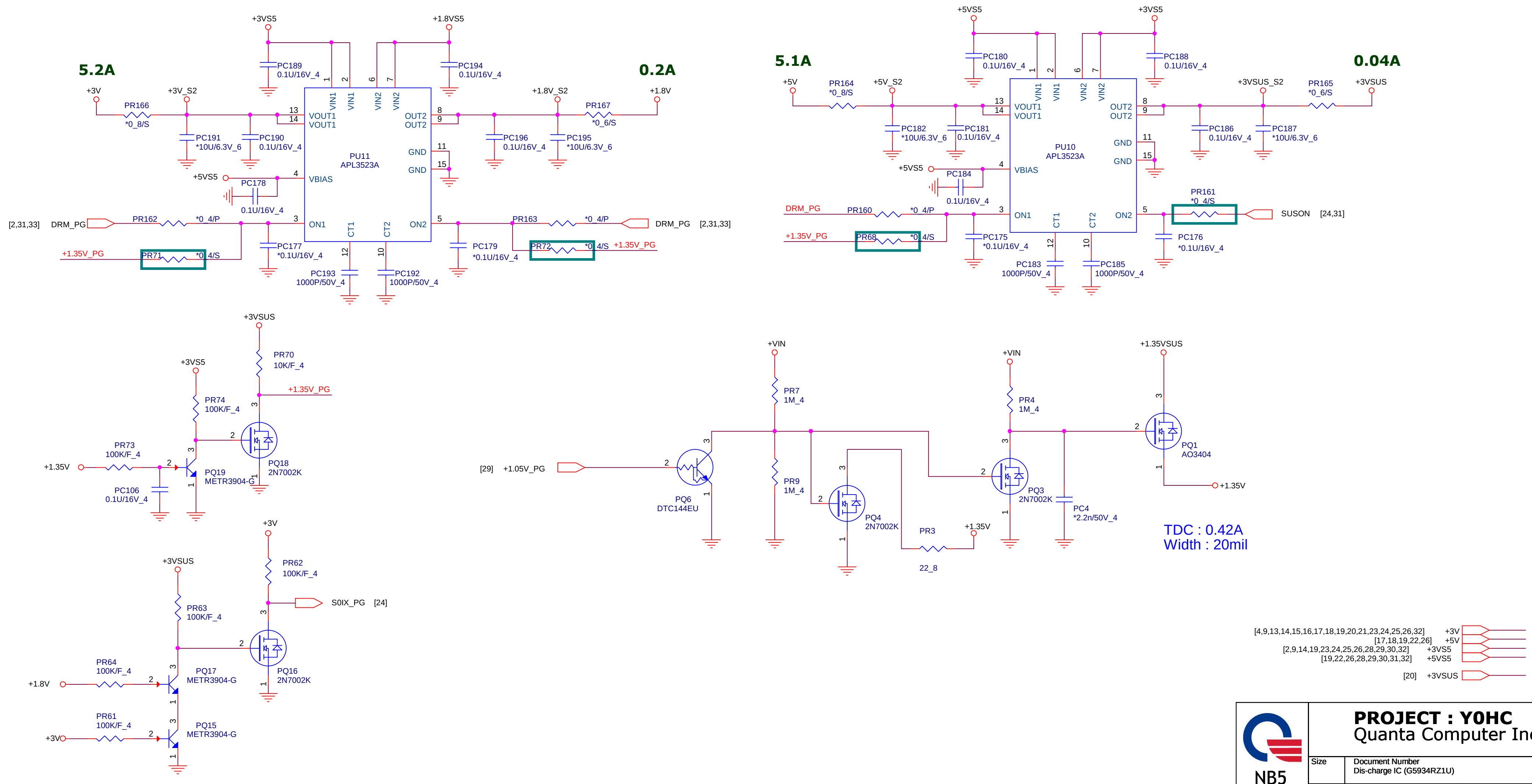



PROJECT : Y0HC
Quanta Computer Inc.

NB5

| Size | Document Number | Rev |
|---|---|---|
| Custom | +VCC_CORE(ISL95833) | 1A |

Date: Tuesday, July 21, 2015 Sheet 32 of 33




NB5

**PROJECT : Y0HC**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| | Dis-charge IC (G5934RZ1U) | 1A |
| Date: Tuesday, July 21, 2015 | Sheet 33 of 33 | |