Y12A INTEL SYSTEM DIAGRAM

+3VS5/+5VS5 PG.29
+1.05V/+1.5V PG.30
CPU Core PG.32
DDR3L PG.31
Charger PG.28

SODIMM1 Max. 8GB STD PG.12 — 1600MT/s DDR3 L Channel A
SODIMM2 Max. 8GB STD PG.13 — 1600MT/s DDR3 L Channel B

Intel Bay Trail-M
Power : 5 (Watt)
Package : BGA1170
Size : 25 X 27 (mm)
PG.2~11

eDP (5.4Gb/s) eDP → DP to LVDS Converter RTD 2136 PG.15 → LVDS Interface → LVDS PG.15
DDI (5.4Gb/s) DP Port0 → HDMI PG.17

USB 3.0 → USB3.0 HUB RTS5401 PG.25 → USB 3.0 → USB3.0 Ports X2 PG.18
USB 2.0 → Touch Screen PG.24
PORT0 → USB 2.0 → Port1 → USB2.0 Ports X1 PG.18
PORT2 → BT PG.26
PORT3 → Webcam PG.16

HDD PG.23 — SATA2 3GB/s
ODD PG.23 — SATA2 3GB/s

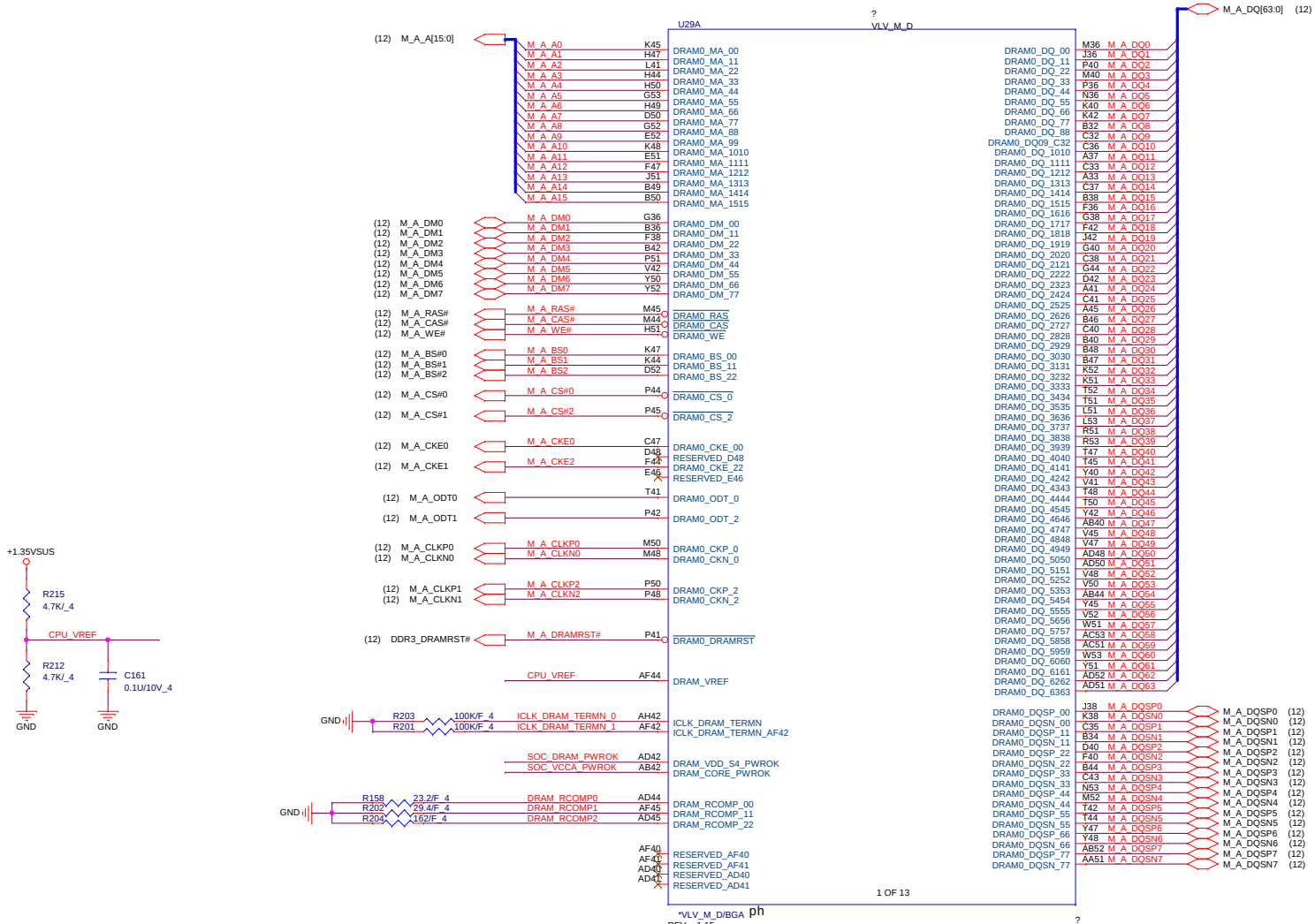
PCI-E x3
LANE0 → Card Reader RTS5239 PG.21
LANE2 → LAN RTL8166EH 10/100 PG.20
LANE1 → WLAN BT COMBO PG.26 — USB 2.0 PORT10

Accelerometer PG.24 — SMBUS
KBC IT8987 PG.27 — LPC
LPC Interface → TPM SLB9665 PG.22; KB PG.22; TP PG.22; ROM PG.6; FAN PG.22

Azalia → AUDIO CODEC ALC 3227 PG.18
Headphone amplifier HPA0022642RTJR PG.19 — Hp → Combo Jack PG.18
MIC
Speaker PG.18

Stackup
TOP
GND
IN1
IN2
VCC
BOT

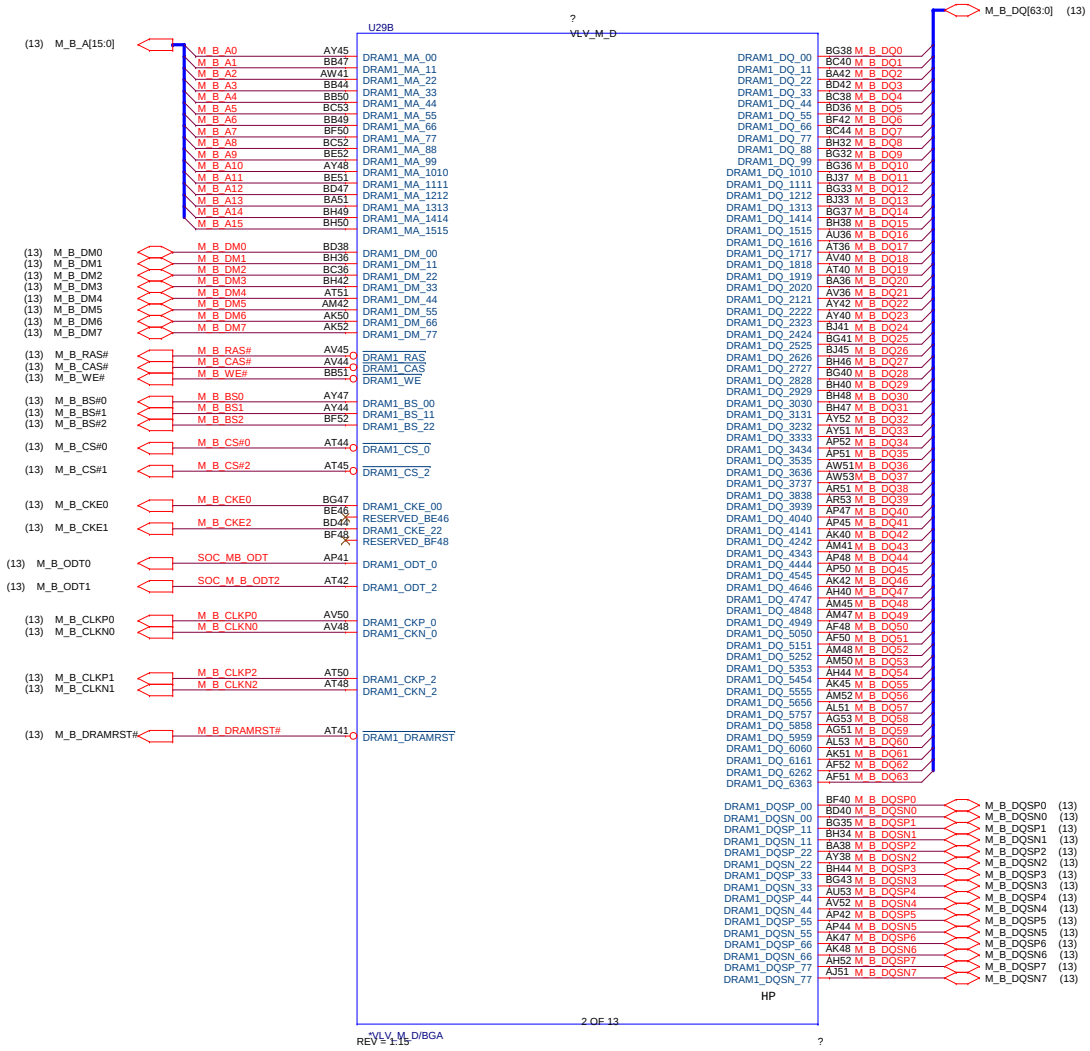
PROJECT : Y12E-BTM
Quanta Computer Inc.
Document Number: BLOCK DIAGRAM
Rev: 1A
Date: Thursday, May 08, 2014
Sheet 1 of 42



PROJECT : Y12E-BTM

Quanta Computer Inc.

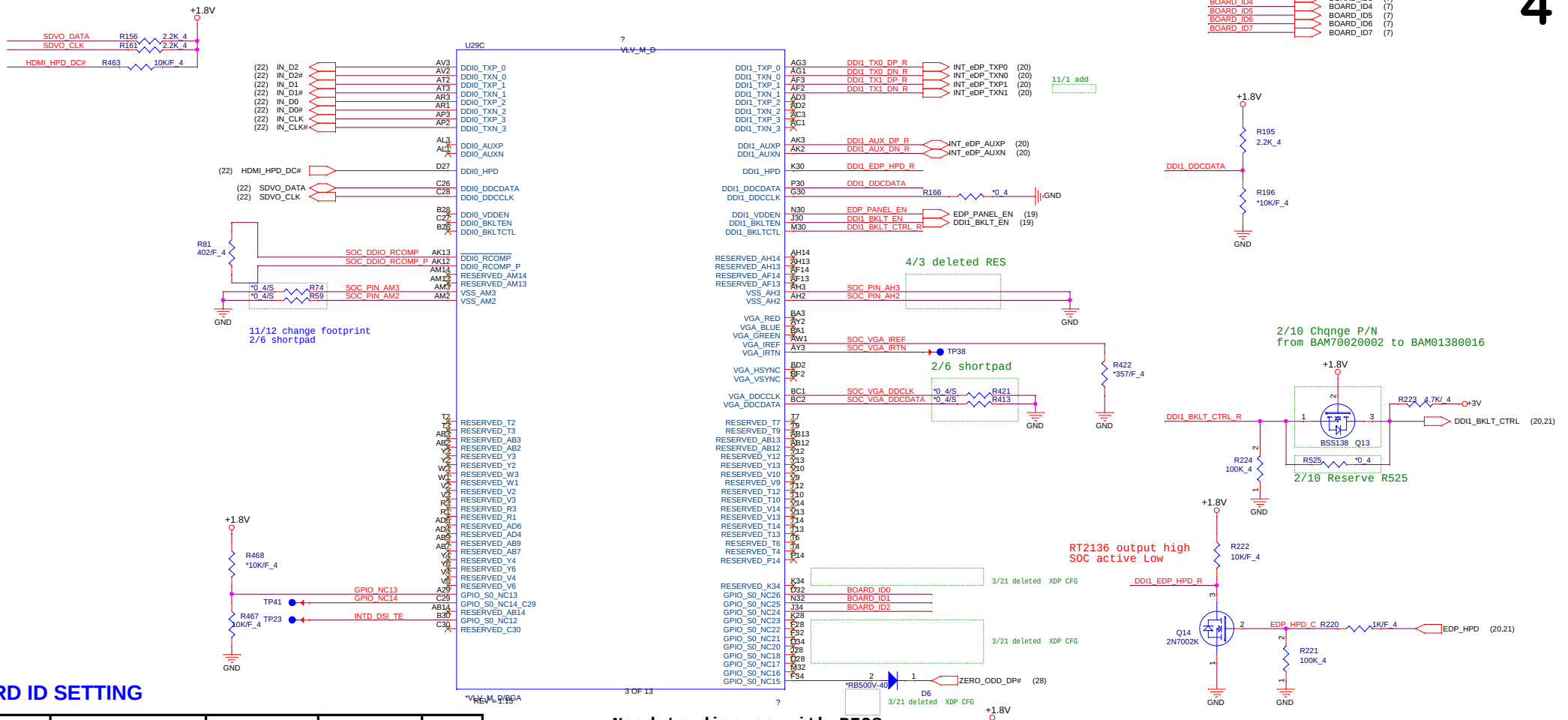
Document Number: Valley 1/9 (DDRA)		Rev: 1A
Date: Thursday, May 08, 2014	Sheet 2	of 42



PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number	Rev
Valley 2/9 (DDRB)	1A
Date: Thursday, May 08, 2014	Sheet 3 of 42



BOARD ID SETTING

	Reserve (Default = 000)			Pavilion/Envy 00 = Pavilion 01 = Envy 10 = Pavilion Special Edition 11 = Y12E Pavilion		14" = 00 15" = 01 17" = 10		UMA=0 S.G =1
Model	BOARD_ID7	BOARD_ID6	BOARD_ID5	BOARD_ID4	BOARD_ID3	BOARD_ID2	BOARD_ID1	BOARD_ID0
Pavillian 14"	0	0	0	1	1	0	0	1
Pavillian 15.6"	0	0	0	1	1	0	1	1
Pavillian 17"	0	0	0	1	1	1	0	1

PROJECT : Y12E-BTM
Quanta Computer Inc.

Document Number	Rev
Valley 3/9 (Display)	1A
Date: Friday, May 16, 2014	Sheet 4 of 42

HDD

ODD

3/21 add PEG on port0

GPU

WIFI

LAN

3/21 card reader change to port3

Card reader

2/10 change P/N from BAM70020002 to BAM01380016

3/28 add PD 100K on SD3_1P8EN for VSDIO 3.3V

0 = LPC
1 = SPI

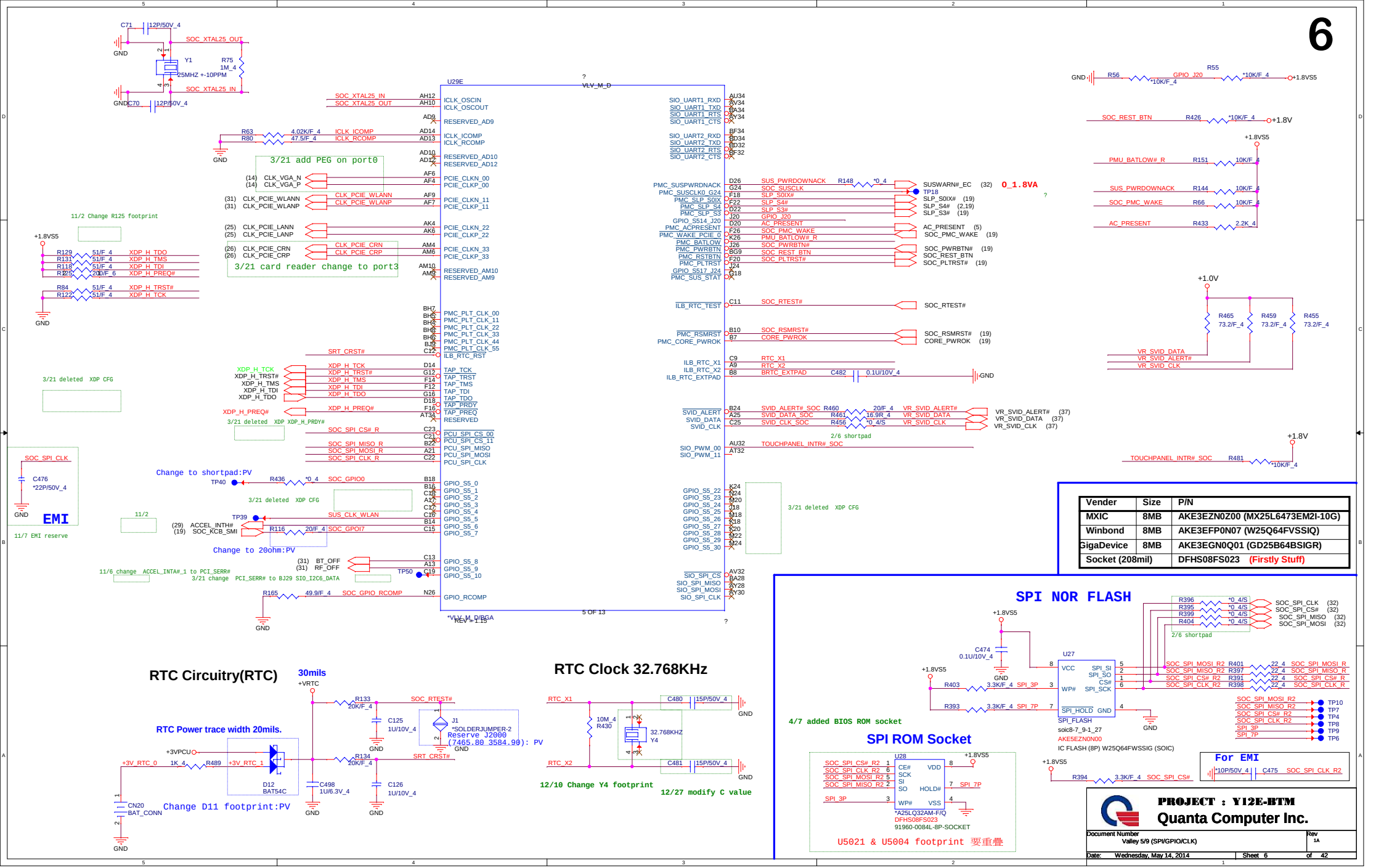
AC Present: This input pin indicates when the platform is plugged into AC power.

3/28 add DGPU_HOLD_RST#_SOC PU +1.8V(stuff)/PD(unstuff)

PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number	Rev
Valley 4/9 (SD/PCIE/SATA)	1A
Date: Thursday, May 08, 2014	Sheet 5 of 42



Vender	Size	P/N
MXIC	8MB	AKE3EZN0Z00 (MX25L6473EM2I-10G)
Winbond	8MB	AKE3EFP0N07 (W25Q64FVSSIQ)
GigaDevice	8MB	AKE3EGN0Q01 (GD25B64BSIGR)
Socket (208mil)		DFHS08FS023 (Firstly Stuff)

PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number: Valley 5/9 (SPI/GPIO/CLK)	Rev: 1A	
Date: Wednesday, May 14, 2014	Sheet 6	of 42

+1.8VS5

R400 *10K/F_4 SOC_VOL_UP
R415 *10K/F_4 SOC_VOL_DOWN
R414 *10K/F_4 SOC_HOME_BUT
R408 *10K/F_4 SOC_ROTATE
R409 *10K/F_4 SOC_PWR_BUT

Add HUB power detect circuit: PV

(30) HUB_PWR_DET

Change USB port define: PV

USB 3.0/2.0 HUB
USB2.0 CONN
BT
Camera

U29F

GPIO_S5_31 G2
GPIO_S5_32 M3
GPIO_S5_33 L1
GPIO_S5_34 K2
GPIO_S5_35 K3
GPIO_S5_36 M2
GPIO_S5_37 N3
GPIO_S5_38 P2
GPIO_S5_39 L3
GPIO_S5_40 J3
GPIO_S5_41 P3
GPIO_S5_42 H3
GPIO_S5_43 B12

SOC_VOL_UP
SOC_VOL_DOWN
SOC_HOME_BUT
SOC_ROTATE
SOC_PWR_BUT

USB_DP0 M16
USB_DN0 K16
USB_DP1 J14
USB_DN1 G14
USB_DP2 K12
USB_DN2 J12
USB_DP3 K10
USB_DN3 H10

(30) USB30_D+
(30) USB30_D-
(23) USBP1+
(23) USBP1-
(31) USBP_BT+
(31) USBP_BT-
(21) USBP_CAM+
(21) USBP_CAM-

GND
1K_4 R85
1K_4 R86
ICLK_USB_TERMN_0
ICLK_USB_TERMN_1
ICLK_USB_TERMN_D10 D10
ICLK_USB_TERMN F10

11/2
(29,30) SOC_USB_OC0
R123 10K/F_4
R439 10K/F_4
SOC_USB_OC0
SOC_USB_OC1
USB_OC_00 C20
USB_OC_11 B20
+1.8VS5

R87 45.3/F_4 USB_RCOMP
USB_RCOMPO D6
USB_RCOMPI C7
GND

GND
R89 *0_4
11/10 Reserver 0R
USB_PLL_MON M13

USB_HSIC0_DATA B4
USB_HSIC0_STROBE B5

GND
USB_HSIC1_DATA E2
USB_HSIC1_STROBE D2

R429 45.3/F_4 USB_HSIC_RCOMP
USB_HSIC_RCOMP A7
R124 49.9/F_4
LPC_RCOMP BF18
LPC_RCOMP BH16

(27,31,32) LAD0
(27,31,32) LAD1
(27,31,32) LAD2
(27,31,32) LAD3
(27,31,32) LFRAME#
(32) CLK_33M_KBC
(27,31) CLK_33M_TPM
(27,32) L_CLKRUN#
(19) SOC_SERIRQ

ILB_LPC_AD_00 BJ17
ILB_LPC_AD_11 BJ13
ILB_LPC_AD_22 BG14
ILB_LPC_AD_33 BG17
ILB_LPC_FRAME BG15
ILB_LPC_CLK_00 BH14
ILB_LPC_CLK_11 BG16
ILB_LPC_CLKRUN BG13
ILB_LPC_SERIRQ

R417 22_6 CLK_33M_KBC_R
R432 22_6 CLK_33M_TPM_R
R418 22_6 SOC_CLKRUN#

11/7
EMI
CLK_33M_KBC
CLK_33M_TPM
C477 22P/50V_4
C483 22P/50V_4
11/2

+1.8V
R105 2.2K_4 SMB_SOC_DATA
R98 2.2K_4 SMB_SOC_CLK
R427 10K/F_4 SMB_SOC_ALERTB
PCU_SMB_DATA BG12
PCU_SMB_CLK BH10
PCU_SMB_ALERT BG11

CLK_33M_KBC_R R560 *0_6 CLK_33M_TPM
5/6 for LPC_CLK 3 branches

(19) SMB_SOC_DATA
(19) SMB_SOC_CLK
SMB_SOC_DATA
SMB_SOC_CLK

*VLV_M_D/BGA
REV = 1.15
6 OF 13

?
VLV_M_D

RESERVED_M10 M10
RESERVED_M9 M9
RESERVED_P7 P7
RESERVED_P6 P6
RESERVED_M7 M7
USB3_REXT0 M12
RESERVED_P10 P10
RESERVED_P12 P12
RESERVED_M4 M4
RESERVED_M6 M6

USB3_P0_REXT
R88 1.24K/F_4
GND

USB3_RXP0 D4
USB3_RXN0 E3
USB3_TXP0 K6
USB3_TXN0 K7

USB30_RX+ (30)
USB30_RX- (30)
USB30_TX+ (30)
USB30_TX- (30)

RESERVED_H8 H8
RESERVED_H7 G7
RESERVED_H5 H5
RESERVED_H4 G4

GPIO_S0_SC_55 BD12
GPIO_S0_SC_56 BC12
GPIO_S0_SC_57 BD14
GPIO_S0_SC_58 BC14
GPIO_S0_SC_59 BF14
GPIO_S0_SC_60 BD16
GPIO_S0_SC_61 BC16

BT_COMBO_EN#_R
TOP_SWAP
SOC_UART_TX
SOC_SENSOR_HUB_WAKE
TOUCH_PANEL_SOC_RST#
SOC_UART_RX

ILB_8254_SPKR BH12
ACZ_SPKR (23)

SIO_I2C0_DATA BH22
SIO_I2C0_CLK BG23
SIO_I2C1_DATA BG24
SIO_I2C1_CLK BH24
SIO_I2C2_DATA BG25
SIO_I2C2_CLK BJ25
SIO_I2C3_DATA BG26
SIO_I2C3_CLK BH26
SIO_I2C4_DATA BF27
SIO_I2C4_CLK BG27
SIO_I2C5_DATA BH28
SIO_I2C5_CLK BG28
SIO_I2C6_DATA BJ29
SIO_I2C6_CLK BG29
GPIO_S0_SC_092 BH30
GPIO_S0_SC_093 BG30

I2C_2_SCL_R TP43
I2C_3_SDA TP44
I2C_3_SCL TP45
I2C_4_SDA TP46
I2C_4_SCL TP47
I2C_5_SDA TP48
I2C_5_SCL TP49
PCI_SERR# TP51
I2C_NFC_SOC_SDA TP52
I2C_NFC_SOC_SCL TP53

BOARD_ID3 (4)
BOARD_ID4 (4)
BOARD_ID5 (4)
BOARD_ID6 (4)
BOARD_ID7 (4)

3/21 change PCI_SERR# to BJ29 SIO_I2C6_DATA
PCI_SERR# (32)

2/10 Change P/N
from BAM70020002 to BAM01380016

BT_COMBO_EN#_R
Q36 *BSS138
BT_COMBO_EN# (31)
+1.8V

GND R425 10K/F_4 TOP_SWAP R406 *10K/F_4 +1.8V

USB 3.0/2.0 HUB

2/10 change P/N from BAM70020002 to BAM01380016

Q37 BSS138
GND
ACC_LED# (23)
TOUCH_PANEL_SOC_RST#

Change R128 to 2.2K ohm: PV
+1.8V
TOUCH_PANEL_SOC_RST# R431 2.2K_4
SOC_SENSOR_HUB_WAKE R407 10K/F_4

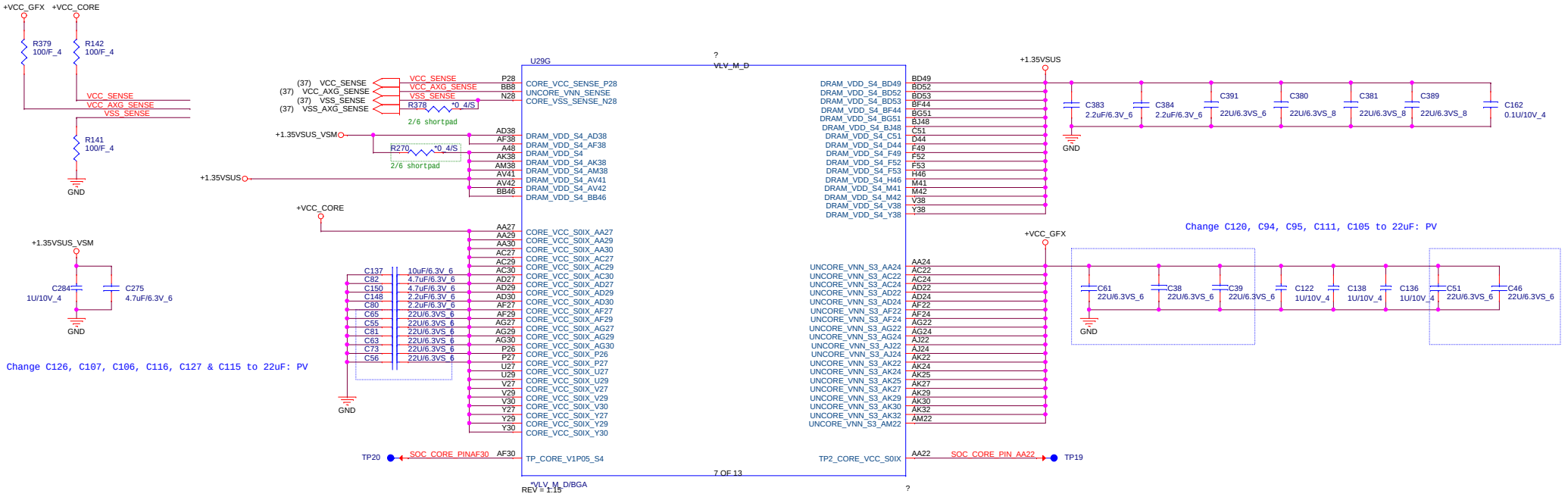
SOC_UART_TX R109 *0_4 SOC_UART_RX
Un-Stuff for Test Only

12/13

BT_COMBO_EN#_R R416 *2.2K_4
Reserve R2021:PV
+1.8V

PROJECT : Y12E-BTM
Quanta Computer Inc.

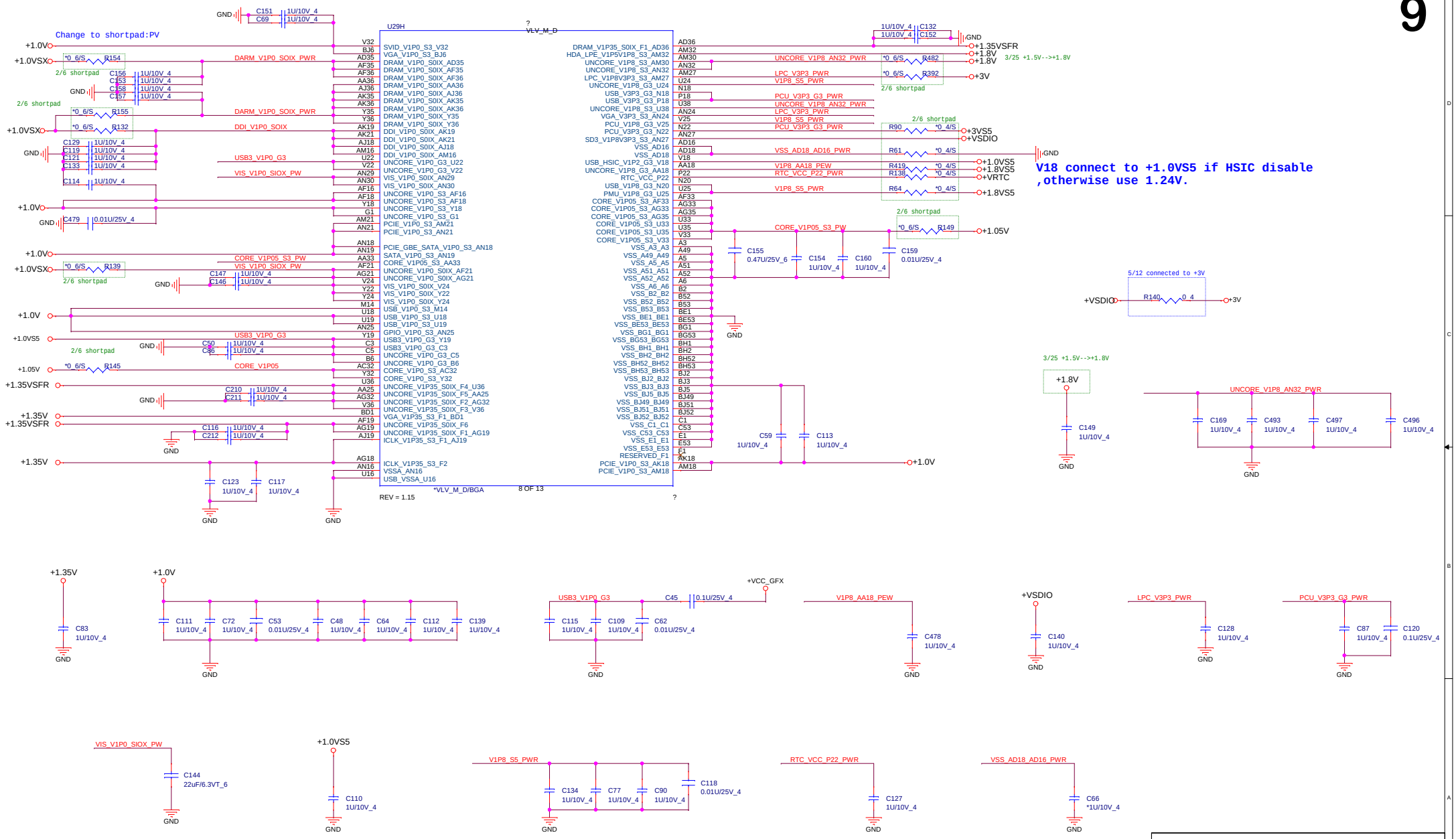
Document Number	Rev
Valley 6/9 (USB/LPC/I2C)	1A
Date: Thursday, May 08, 2014	Sheet 7 of 42

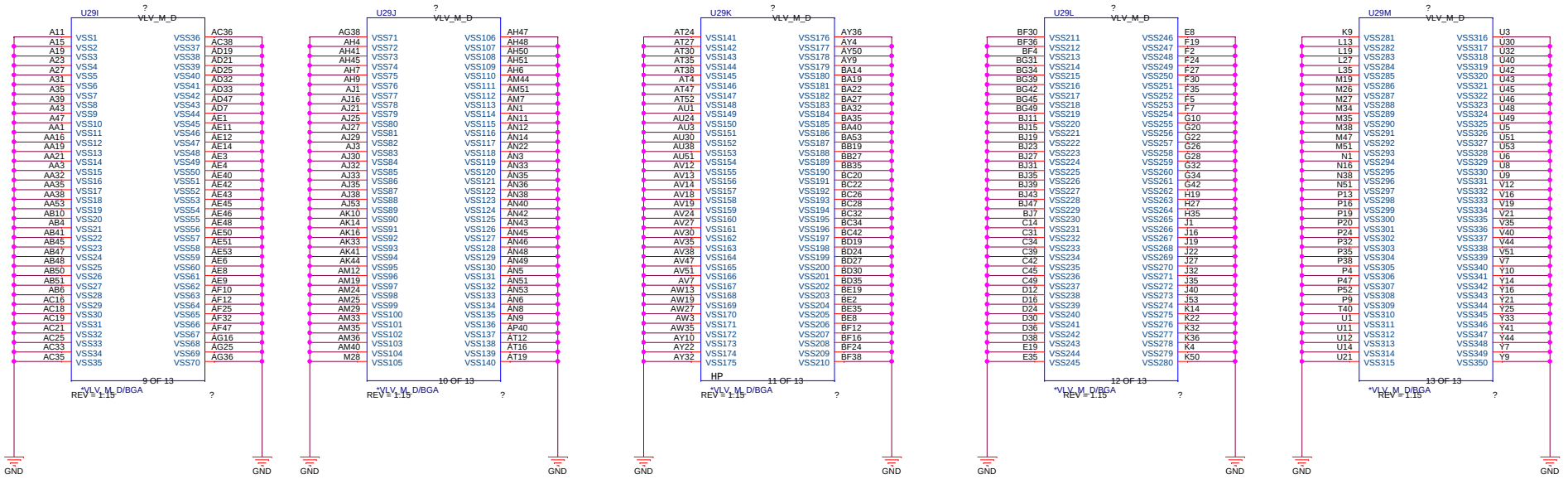


PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number	Rev
Valley 7/9 (Power 1)	1A
Date: Thursday, May 08, 2014	Sheet 8 of 42


Change to shortpad:PV
U29H
VLV_M_D
*VLV_M_D/BGA
8 OF 13
REV = 1.15
V18 connect to +1.0VS5 if HSIC disable ,otherwise use 1.24V.
5/12 connected to +3V
3/25 +1.5V-->+1.8V
2/6 shortpad
PROJECT : Y12E-BTM
Quanta Computer Inc.
Document Number
Valley 8/9 (Power 2)
Rev
1A
Date: Monday, May 12, 2014
Sheet 9 of 42



PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number: Valley 9/9 (GND)		Rev: 1A
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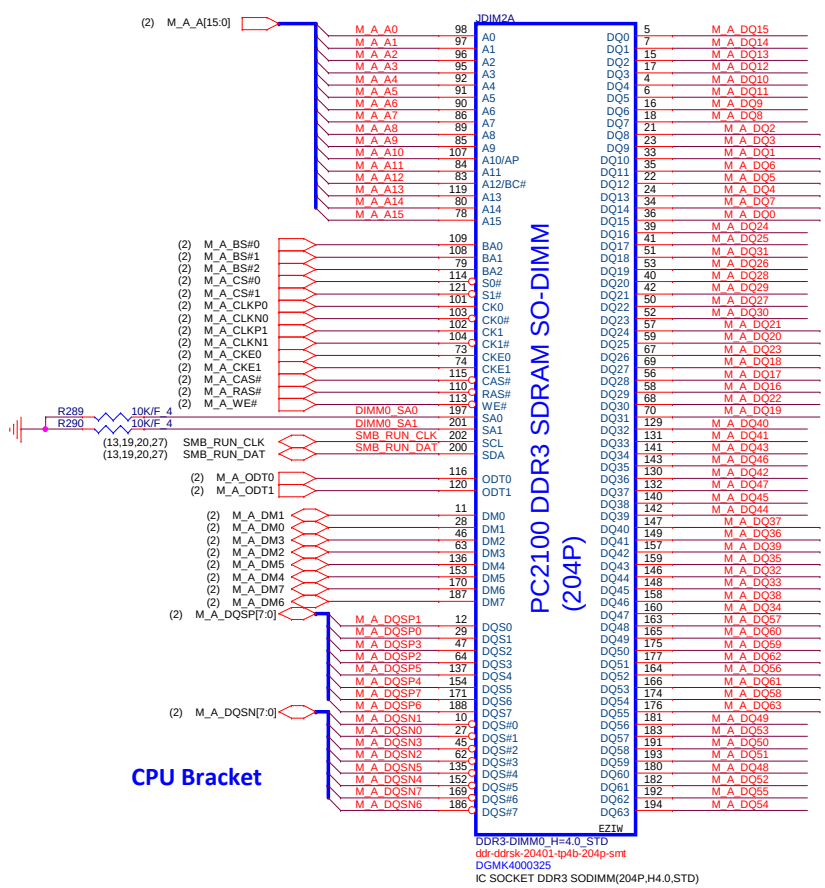
3/21 deleted XDP CN6

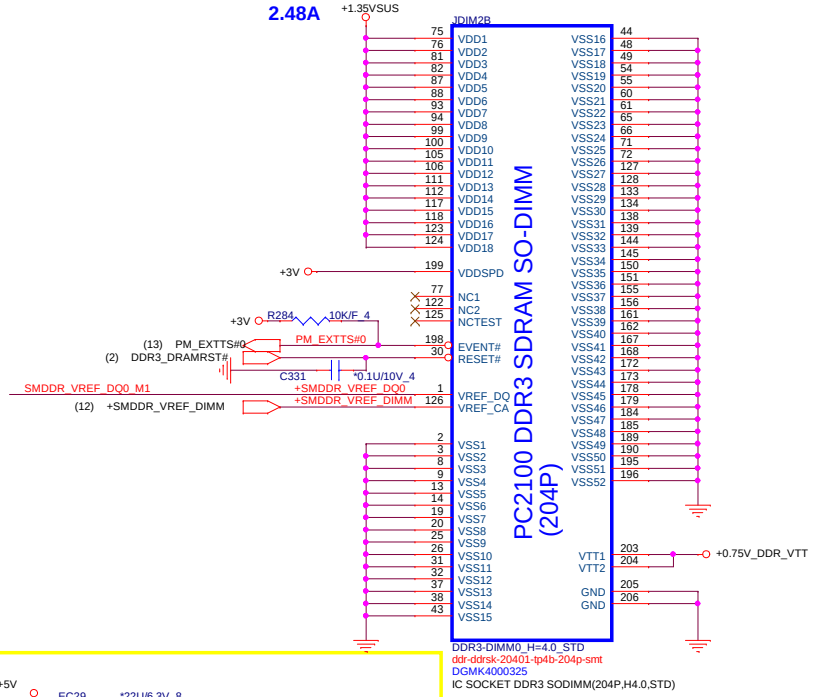
PROJECT : Y12E-BTM

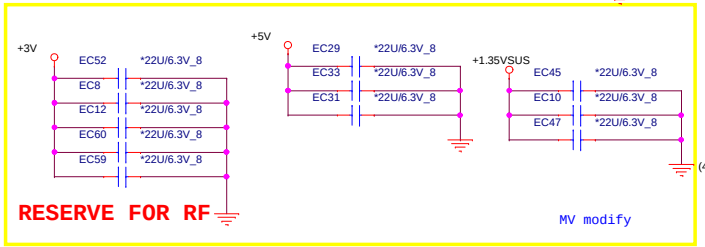
Quanta Computer Inc.

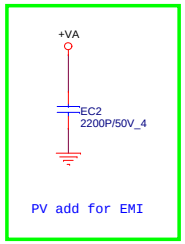
Document Number	Rev
HSW XDP & APS	1A

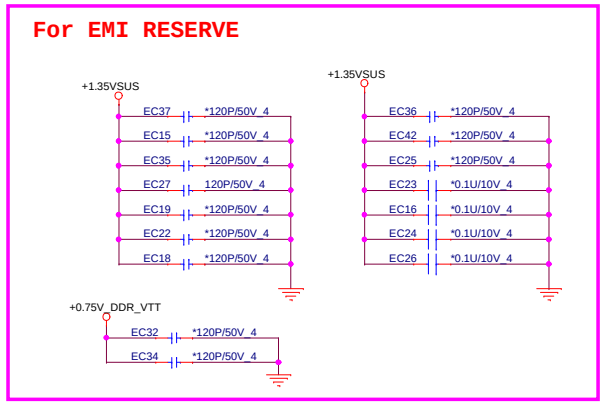
Date: Thursday, May 08, 2014 | Sheet 11 of 42

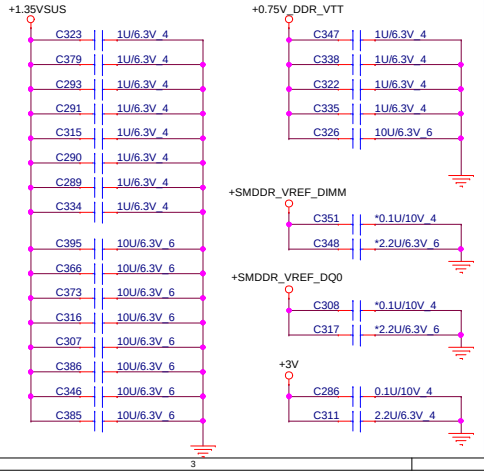


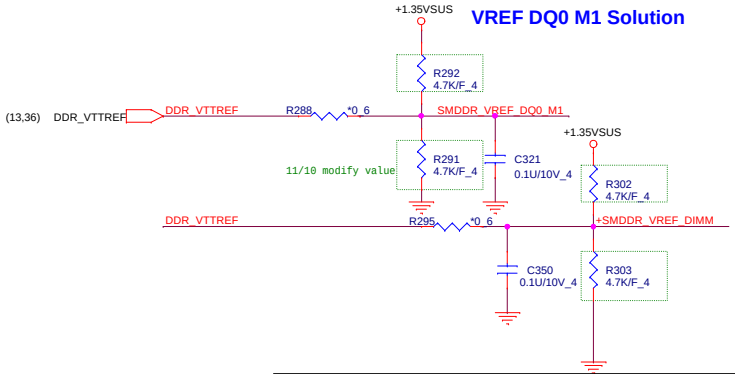








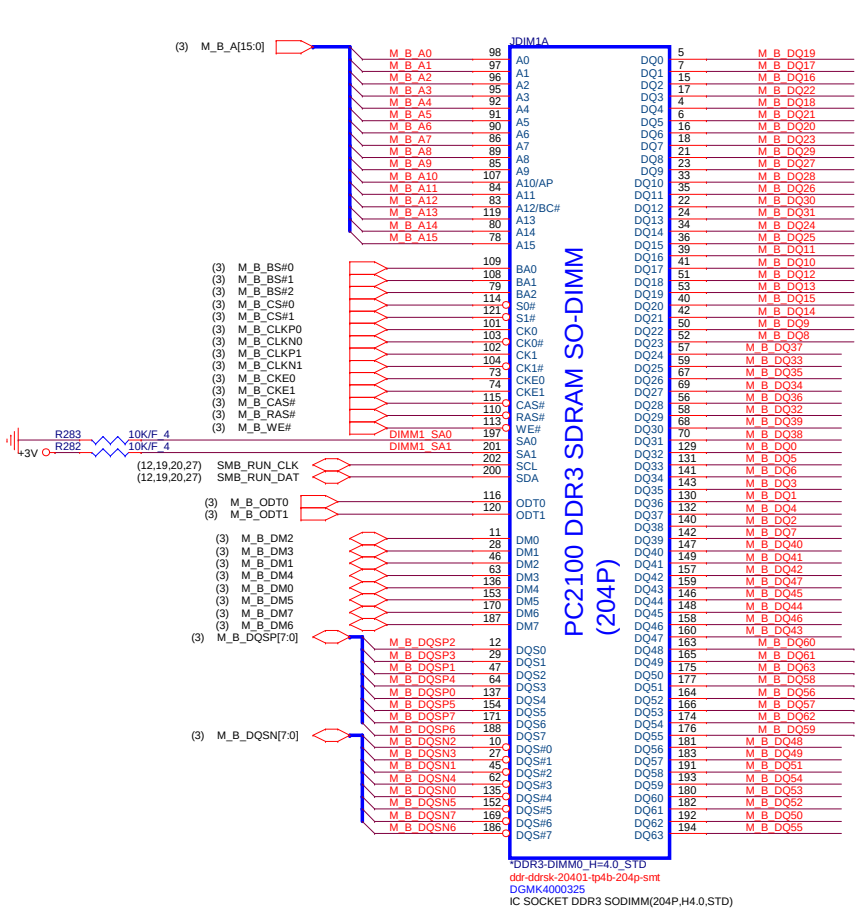


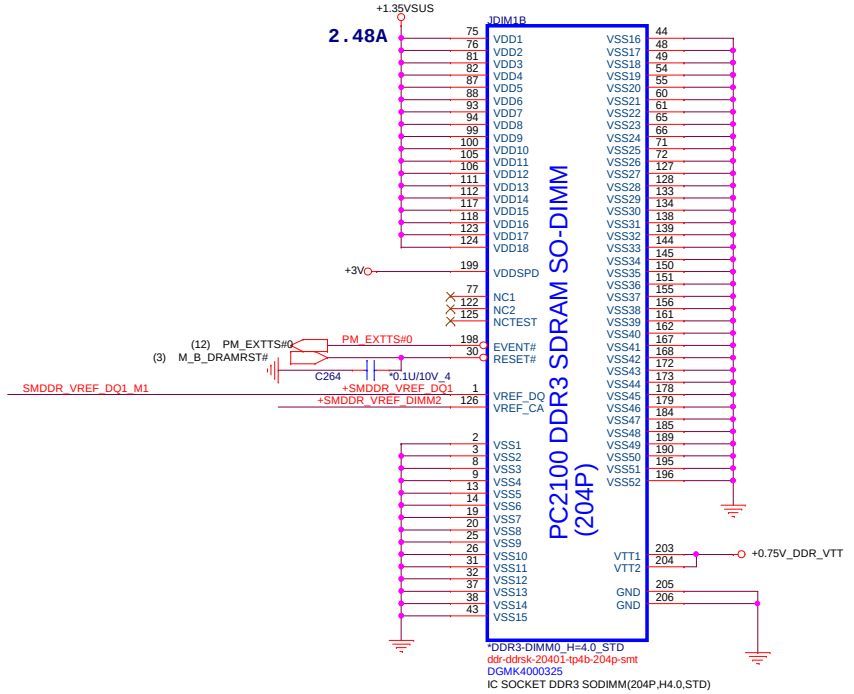


PROJECT : Y12E-BTM

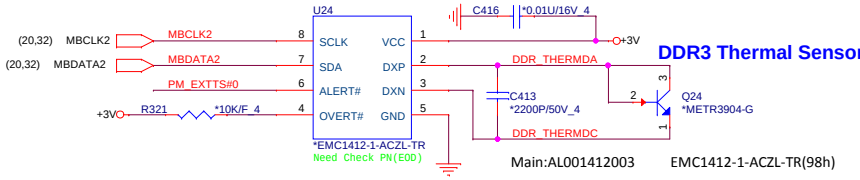
Quanta Computer Inc.

Document Number	Rev
DDR3 DIMM0-STD(4.0H)	1A
Date: Thursday, May 08, 2014	Sheet 12 of 42





Local Thermal Sensor



DDR3 Thermal Sensor

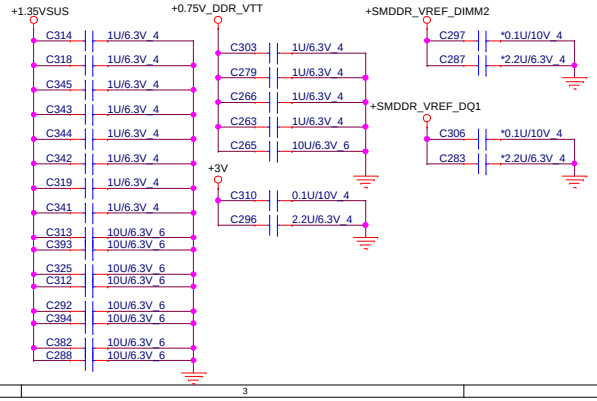
?

Main:AL001412003 EMC1412-1-ACZL-TR(98h)

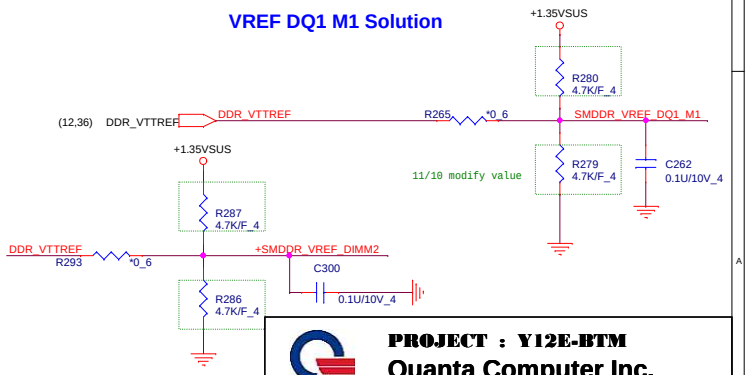
2nd:AL000431014 TMP431ADGKR(98h)

Place these Caps near So-Dimm1.

1uF/10uF 4pcs on each side of connector



VREF DQ1 M1 Solution



(2,8,12,22,36,39) +1.35VSUS

(12,36) +0.75V_DDR_VTT

(4,5,9,12,14,15,16,19,20,21,22,23,24,25,26,27,28,29,30,31,32,39,40) +3V

PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number	Rev
DDR3 DIMM1-STD(4.0H)	1A
Date: Thursday, May 08, 2014	Sheet 13 of 42

+1.05V_GFX

Near GPU
C629 *22U/6.3VS_6
C631 *22U/6.3VS_6
C626 *10U/6.3VS_6
C625 *10U/6.3VS_6
C627 *4.7U/6.3V_6
C537 1U/6.3V_4
C622 *1U/6.3V_4
Under GPU

U14A
1/14 PCI_EXPRESS

AA22 AB23 AC24 AD25 AE26 AE27 PEX_IOVDD

PEX_IOVDD + PEX_IOVDDQ = 1.042A

+1.05V_GFX

4/2 stuff 1 22u(AA10)

Near GPU
C628 22U/6.3VS_6
C633 *22U/6.3VS_6
C624 *10U/6.3VS_6
C632 10U/6.3VS_6
C630 4.7U/6.3V_6
Under GPU
C587 *1U/6.3V_4
C584 *1U/6.3V_4

AA10 AA12 AA13 AA16 AA18 AA19 AA20 AA21 AB22 AC23 AD24 AE25 AF26 AF27 PEX_IOVDDQ

PEX_PLL_HVDD +
PEX_SVDD_3V3 = 143mA

+3V_AON

C536 0.1U/10V_4
C527 4.7U/6.3V_6
C166 4.7U/6.3V_6
Near GPU

AA8 AA9 PEX_PLL_HVDD
AB8 PEX_SVDD_3V3

(40) VGPU_CORE_SENSE F2 VDD_SENSE
(40) VSS_GPU_SENSE F1 GND_SENSE

*200/F_4 R446 PEX_TSTCLK AF22 PEX_TSTCLK_OUT
PEX_TSTCLK# AE22 PEX_TSTCLK_OUT
CX300T30001 Change to 0ohm

+1.05V_GFX R447 0_6

Near GPU
4.7U/6.3V_6 C591
1U/6.3V_4 C564
0.1U/10V_4 C563
Under GPU

PEX_PLLVDD AA14 AA15 PEX_PLLVDD

PEX_PLLVDD = 130mA

10K/F_4 R554 TESTMODE AD9 TESTMODE

2.49K/F_4 R558 PEX_TERMP AF25 PEX_TERMP

bga595-nvidia-n13p-gv2-s-a2 COMMON

1/14 PCI_EXPRESS

PEX_WAKE AB6
PEX_RST AC7 VGA_RST# R557 100/F_4 PEGX_RST# (17)
PEX_CLKREQ AC6 PEX_CLKREQ# R555 10K/F_4 +3V_AON
PEX_REFCLK AE8 CLK_VGA_P (6)
PEX_REFCLK AD8 CLK_VGA_N (6)
PEX_TX0 AC9 PEG_RXP0_C C588 0.22U/10V_4 PEG_RXP0 (5)
PEX_TX0 AB9 PEG_RXN0_C C589 0.22U/10V_4 PEG_RXN0 (5)
PEX_RX0 AG6 PEG_TXP0 (5)
PEX_RX0 AG7 PEG_TXN0 (5)
PEX_TX1 AB10 PEG_RXP1_C TP21
PEX_TX1 AC10 PEG_RXN1_C TP22
PEX_RX1 AF7 PEG_TXP1_C TP24
PEX_RX1 AE7 PEG_TXN1_C TP25
PEX_TX2 AD11
PEX_TX2 AC11
PEX_RX2 AE9
PEX_RX2 AF9
PEX_TX3 AC12
PEX_TX3 AB12
PEX_RX3 AG9
PEX_RX3 AG10
PEX_TX4 AB13
PEX_TX4 AC13
PEX_RX4 AF10
PEX_RX4 AE10
PEX_TX5 AD14
PEX_TX5 AC14
PEX_RX5 AE12
PEX_RX5 AF12
PEX_TX6 AC15
PEX_TX6 AB15
PEX_RX6 AG12
PEX_RX6 AG13
PEX_TX7 AB16
PEX_TX7 AC16
PEX_RX7 AF13
PEX_RX7 AE13
PEX_TX8 AD17
PEX_TX8 AC17
PEX_RX8 AE15
PEX_RX8 AF15
PEX_TX9 AC18
PEX_TX9 AB18
PEX_RX9 AG15
PEX_RX9 AG16
PEX_TX10 AB19
PEX_TX10 AC19
PEX_RX10 AF16
PEX_RX10 AE16
PEX_TX11 AD20
PEX_TX11 AC20
PEX_RX11 AE18
PEX_RX11 AF18
PEX_TX12 AC21
PEX_TX12 AB21
PEX_RX12 AG18
PEX_RX12 AG19
PEX_TX13 AD23
PEX_TX13 AE23
PEX_RX13 AF19
PEX_RX13 AE19
PEX_TX14 AF24
PEX_TX14 AE24
PEX_RX14 AE21
PEX_RX14 AF21
PEX_TX15 AG24
PEX_TX15 AG25
PEX_RX15 AG21
PEX_RX15 AG22
NC
GF117 GF119

3/25 deleted PEG1~3, then add test points

NVDD = 32.22 ~ 26.66 A

+VGACORE

Under GPU
C560 1U/6.3V_4
C568 1U/6.3V_4
C548 1U/6.3V_4
C565 1U/6.3V_4
C555 4.7U/6.3V_6
C552 4.7U/6.3V_6
C583 4.7U/6.3V_6
C579 4.7U/6.3V_6
C571 4.7U/6.3V_6
C580 4.7U/6.3V_6
C572 4.7U/6.3V_6
C551 4.7U/6.3V_6
C554 4.7U/6.3V_6
C553 4.7U/6.3V_6
C557 330u_2.5V_3528

U14E
11/14 NVVDD

K10 K12 K14 K16 K18 L11 L13 L15 L17 M10 M12 M14 M16 M18 N11 N13 N15 N17 P10 P12 P14 P16 P18 R11 R13 R15 R17 T10 T12 T14 T16 T18 U11 U13 U15 U17 V10 V12 V14 V16 V18 VDD

Near GPU
C569 22U/6.3V_8
C617 47U/6.3VS_8
C575 4.7U/6.3V_6
C556 4.7U/6.3V_6
C618 4.7U/6.3V_6
C573 4.7U/6.3V_6
C574 4.7U/6.3V_6

bga595-nvidia-n13p-gv2-s-a2 COMMON

VDD33 = 56mA

U14C
14/14 XVDD/VDD33

AD10 NC
AD7 NC
B19 NC
F11 3V3AUX_NC
V5 FERMI_RSVD1_NC
V6 FERMI_RSVD2_NC

CONFIGURABLE POWER CHANNELS
* nc on substrate

G1 XPWR_G1
G2 XPWR_G2
G3 XPWR_G3
G4 XPWR_G4
G5 XPWR_G5
G6 XPWR_G6
G7 XPWR_G7
V1 XPWR_V1
V2 XPWR_V2
W1 XPWR_W1
W2 XPWR_W2
W3 XPWR_W3
W4 XPWR_W4

VDD33 G10 G12 G8 G9

+3V_AON

Near GPU
C329 4.7U/6.3V_6
C561 1U/10V_6
C576 0.1U/10V_4
Under GPU

+3V_GFX

C610 4.7U/6.3V_6
C351 1U/10V_6
C534 0.1U/10V_4
C547 0.1U/10V_4
Under GPU

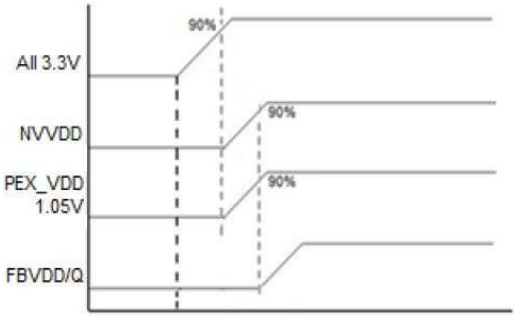
bga595-nvidia-n13p-gv2-s-a2 COMMON

SYS_PEX_RST_MON# (17)

+3V
U5 MC74VHC1G08DFT2G
C549 0.1U/10V_4
(19,25,26,27,31,32) PLTRST#
(19) DGPU_HOLD_RST#
R278 0_4
R296 0_4

+3V
U1 *MC74VHC1G08DFT2G
C535 0.1U/10V_4
PEGX_RST#
R281 100K/F_4

(17) GPU_PEX_RST_HOLD#
GPU_PEX_RST_HOLD#



4/3(remove GC6) unstuff U5002 and stuff R5081 for PEGX_RST#.

+3V_GFX

R559 4.7K_4
CLKREQ_C1
Q48 DRC5144E0L
PCIE_CLKREQ_VGA# (5)
PEX_CLKREQ# 2
Q47 DRC5144E0L

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Quanta Computer Inc.

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PV modify

FBA_ODT_L — FBA_CMD2 — R6 — 10K/F_4
FBA_ODT_H — FBA_CMD18 — R300 — 10K/F_4
FBA_RST# — FBA_CMD5 — R271 — 10K/F_4
FBA_CKE_L — FBA_CMD3 — R13 — 10K/F_4
FBA_CKE_H — FBA_CMD19 — R301 — 10K/F_4

R550 10K/F_4 PS_FB_CLAMP F3

U14B

NC	GF119
FB_CLAMP	GF117

2/14 FBA

FBA_D0	E18	VMA_DQ0
FBA_D1	F18	VMA_DQ1
FBA_D2	E16	VMA_DQ2
FBA_D3	F17	VMA_DQ3
FBA_D4	D20	VMA_DQ4
FBA_D5	D21	VMA_DQ5
FBA_D6	F20	VMA_DQ6
FBA_D7	E21	VMA_DQ7
FBA_D8	E15	VMA_DQ8
FBA_D9	D15	VMA_DQ9
FBA_D10	F15	VMA_DQ10
FBA_D11	F13	VMA_DQ11
FBA_D12	C13	VMA_DQ12
FBA_D13	B13	VMA_DQ13
FBA_D14	E13	VMA_DQ14
FBA_D15	D13	VMA_DQ15
FBA_D16	B15	VMA_DQ16
FBA_D17	C16	VMA_DQ17
FBA_D18	A13	VMA_DQ18
FBA_D19	A15	VMA_DQ19
FBA_D20	B18	VMA_DQ20
FBA_D21	A18	VMA_DQ21
FBA_D22	A19	VMA_DQ22
FBA_D23	C19	VMA_DQ23
FBA_D24	B24	VMA_DQ24
FBA_D25	C23	VMA_DQ25
FBA_D26	A25	VMA_DQ26
FBA_D27	A24	VMA_DQ27
FBA_D28	A21	VMA_DQ28
FBA_D29	B21	VMA_DQ29
FBA_D30	C20	VMA_DQ30
FBA_D31	C21	VMA_DQ31
FBA_D32	R22	VMA_DQ32
FBA_D33	R24	VMA_DQ33
FBA_D34	T22	VMA_DQ34
FBA_D35	R23	VMA_DQ35
FBA_D36	N25	VMA_DQ36
FBA_D37	N26	VMA_DQ37
FBA_D38	N23	VMA_DQ38
FBA_D39	N24	VMA_DQ39
FBA_D40	V23	VMA_DQ40
FBA_D41	V22	VMA_DQ41
FBA_D42	T23	VMA_DQ42
FBA_D43	U22	VMA_DQ43
FBA_D44	Y24	VMA_DQ44
FBA_D45	AA24	VMA_DQ45
FBA_D46	Y22	VMA_DQ46
FBA_D47	AA23	VMA_DQ47
FBA_D48	AD27	VMA_DQ48
FBA_D49	AB25	VMA_DQ49
FBA_D50	AD26	VMA_DQ50
FBA_D51	AC25	VMA_DQ51
FBA_D52	AA27	VMA_DQ52
FBA_D53	AA26	VMA_DQ53
FBA_D54	W26	VMA_DQ54
FBA_D55	Y25	VMA_DQ55
FBA_D56	R26	VMA_DQ56
FBA_D57	T25	VMA_DQ57
FBA_D58	N27	VMA_DQ58
FBA_D59	R27	VMA_DQ59
FBA_D60	V26	VMA_DQ60
FBA_D61	V27	VMA_DQ61
FBA_D62	W27	VMA_DQ62
FBA_D63	W25	VMA_DQ63

TP17 — FBA_CMD1 — (18) FBA_CMD0 — C27 — FBA_CMD0
(18) FBA_CMD1 — C26 — FBA_CMD1
(18) FBA_CMD2 — E24 — FBA_CMD2
(18) FBA_CMD3 — F24 — FBA_CMD3
(18) FBA_CMD4 — D27 — FBA_CMD4
(18) FBA_CMD5 — D26 — FBA_CMD5
(18) FBA_CMD6 — F25 — FBA_CMD6
(18) FBA_CMD7 — F26 — FBA_CMD7
(18) FBA_CMD8 — F23 — FBA_CMD8
(18) FBA_CMD9 — G22 — FBA_CMD9
(18) FBA_CMD10 — G23 — FBA_CMD10
(18) FBA_CMD11 — G24 — FBA_CMD11
(18) FBA_CMD12 — F27 — FBA_CMD12
(18) FBA_CMD13 — G25 — FBA_CMD13
(18) FBA_CMD14 — G27 — FBA_CMD14
(18) FBA_CMD15 — G26 — FBA_CMD15
TP13 — FBA_CMD17 — (18) FBA_CMD16 — M24 — FBA_CMD16
M23 — FBA_CMD17
(18) FBA_CMD18 — K24 — FBA_CMD18
(18) FBA_CMD19 — K23 — FBA_CMD19
(18) FBA_CMD20 — M27 — FBA_CMD20
(18) FBA_CMD21 — M26 — FBA_CMD21
(18) FBA_CMD22 — M25 — FBA_CMD22
(18) FBA_CMD23 — K26 — FBA_CMD23
(18) FBA_CMD24 — K22 — FBA_CMD24
(18) FBA_CMD25 — J23 — FBA_CMD25
(18) FBA_CMD26 — J25 — FBA_CMD26
(18) FBA_CMD27 — J24 — FBA_CMD27
(18) FBA_CMD28 — K27 — FBA_CMD28
(18) FBA_CMD29 — K25 — FBA_CMD29
TP27 — FBA_CMD31 — (18) FBA_CMD30 — J27 — FBA_CMD30
J26 — FBA_CMD31

+1.35V_GFX
R462 *60.4_4 F22 FBA_DEBUG0
R464 *60.4_4 J22 FBA_DEBUG1

(18) VMA_CLK0 — D24 — FBA_CLK0
(18) VMA_CLK0# — D25 — FBA_CLK0
(18) VMA_CLK1 — N22 — FBA_CLK1
(18) VMA_CLK1# — M22 — FBA_CLK1

D18 FBA_WCK01
C18 FBA_WCK01
D17 FBA_WCK23
D16 FBA_WCK23
T24 FBA_WCK45
U24 FBA_WCK45
V24 FBA_WCK67
V25 FBA_WCK67

FB_PLLAVDD = 55mA

+1.05V_GFX — L40 HCB1005KF-330T30(33 300MA) — FB_PLLAVDD
C590 22U/6.3VS_6
C567 0.1U/10V_4
C541 0.1U/10V_4
C542 0.1U/10V_4
F16 FBA_PLLAVDD
P22 FBA_PLLAVDD
H22

FB_DLLAVDD	GF119
FB_PLLAVDD	GF117

FB_DLLAVDD = 15mA

INT

FB_VREF_PROBE D23

bga595-nvidia-n13p-gv2-s-a2 COMMON

VMA_DQ[63:0] — VMA_DQ[63:0] (18)

FBVDDQ + FBVDD = 3.116A

+1.35V_GFX

U14D 12/14 FBVDDQ

C543 0.1U/10V_4
C558 0.1U/10V_4
C596 2U/10V_6
C591 2U/10V_6
C609 4.7U/6.3V_6
C612 10U/6.3V_6
C595 22U/6.3VS_6
C561 4.7U/6.3V_6

B26 C25 E23 E26 F14 F21 G13 G14 G15 G16 G18 G19 G20 G21 H24 H26 J21 K21 L22 L24 L26 M21 N21 R21 T21 V21 W21 — FBVDDQ

FB_CAL_PD_VDDQ — D22 FB_CAL_PD_VDDQ — R294 40.2/F_4 — +1.35V_GFX
FB_CAL_PU_GND — C24 FB_CAL_PU_GND — R275 42.2/F_4
FB_CALTERM_GND — B25 FB_CALTERM_GND — R274 51.1/F_4

bga595-nvidia-n13p-gv2-s-a2 COMMON

U14F 13/14 GND

A2 AB17 AB20 AB24 AC2 AC22 AC26 AC5 AC8 AD12 AD13 AD15 AD16 AD18 AD19 AD21 AD22 AE11 AE14 AE17 AE20 AB11 AF1 AF11 AF14 AF17 AF20 AF23 AF5 AF8 AG2 AG26 AB14 B1 B11 B14 B17 B20 B23 B27 B5 B8 E11 E14 E17 E2 E20 E22 E25 E5 E8 H2 H23 H25 H5 K11 K13 K15 K17 L10 L12 L14 L16 L18 L2 L23 L25 L5 M11 — GND

M13 M15 M17 N10 N12 N14 N16 N18 P11 P13 P15 P17 P2 P23 P26 P5 R10 R12 R14 R16 R18 T11 T13 T15 T17 U10 U12 U14 U16 U18 U2 U23 U26 U5 V11 V13 V15 V17 Y2 Y23 Y26 Y5 — GND

GND AA7
GND AB7

bga595-nvidia-n13p-gv2-s-a2 COMMON

FBA_DQM0 D19 VMA_DM0
FBA_DQM1 D14 VMA_DM1
FBA_DQM2 C17 VMA_DM2
FBA_DQM3 C22 VMA_DM3
FBA_DQM4 P24 VMA_DM4
FBA_DQM5 W24 VMA_DM5
FBA_DQM6 AA25 VMA_DM6
FBA_DQM7 U25 VMA_DM7
VMA_DM[7:0] (18)

FBA_DQS_WP0 E19 VMA_WDQS0
FBA_DQS_WP1 C15 VMA_WDQS1
FBA_DQS_WP2 B16 VMA_WDQS2
FBA_DQS_WP3 B22 VMA_WDQS3
FBA_DQS_WP4 R25 VMA_WDQS4
FBA_DQS_WP5 W23 VMA_WDQS5
FBA_DQS_WP6 AB26 VMA_WDQS6
FBA_DQS_WP7 T26 VMA_WDQS7
VMA_WDQS[7:0] (18)

FBA_DQS_RN0 F19 VMA_RDQS0
FBA_DQS_RN1 C14 VMA_RDQS1
FBA_DQS_RN2 A16 VMA_RDQS2
FBA_DQS_RN3 A22 VMA_RDQS3
FBA_DQS_RN4 P25 VMA_RDQS4
FBA_DQS_RN5 W22 VMA_RDQS5
FBA_DQS_RN6 AB27 VMA_RDQS6
FBA_DQS_RN7 T27 VMA_RDQS7
VMA_RDQS[7:0] (18)

Change Default setting from DGPU_PWR_EN for tuning sequence

For support GC6

+3V
U9 *NL17SZ32DFT2G
C611 0.1U/10V_4
(19,42) DGPU_PWR_EN — R529 *0_4
(40,42) DGPU_VC_EN — R530 *0_4
(17,19) GC6_FB_EN
DGPU_FB_EN (41)
R531 100K/F_4
R526 0_4

4/3 (remove GC6)add 0 ohm for removing GC6 function
un stuff U5020 and R5441.

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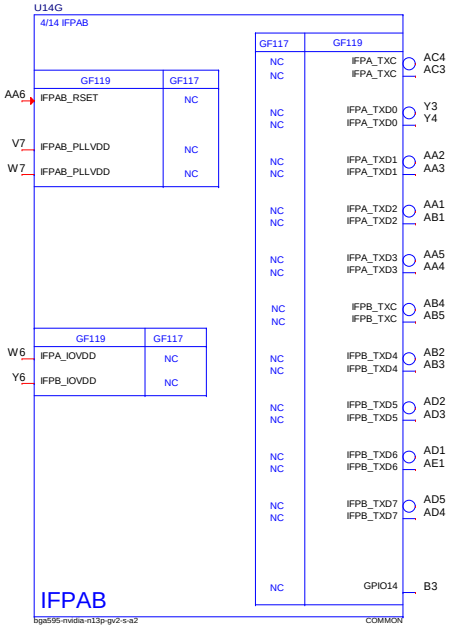

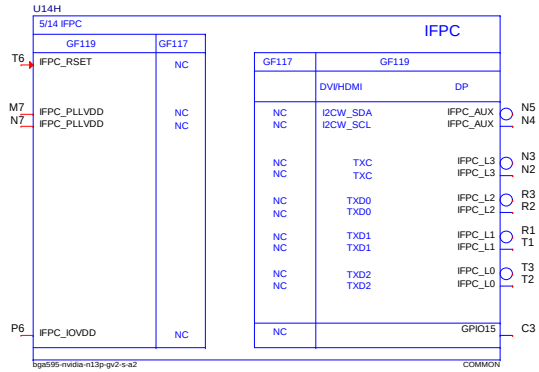

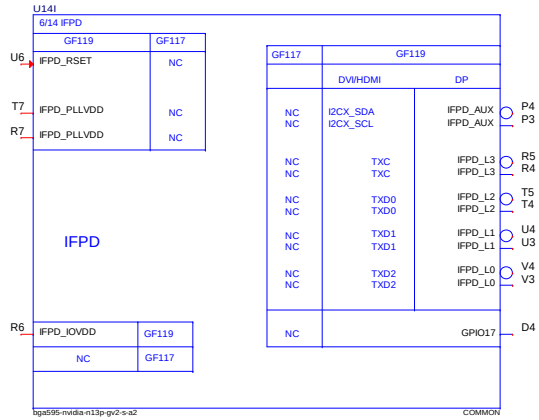

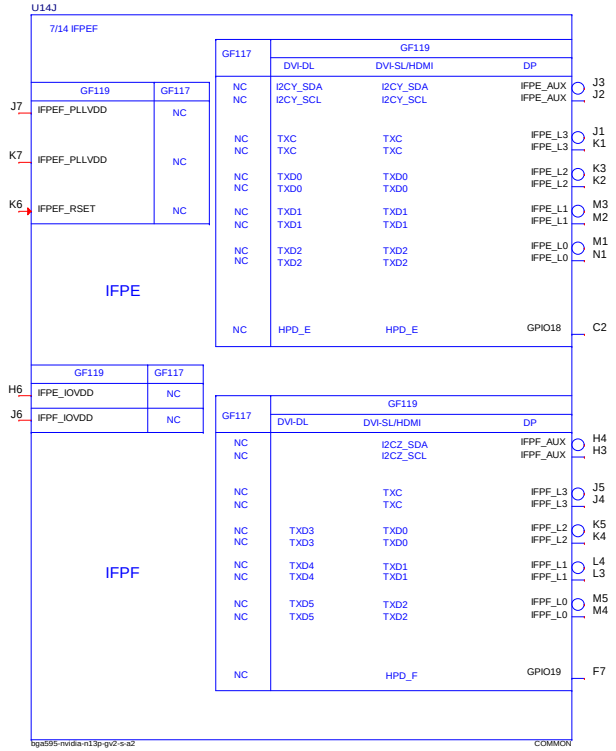

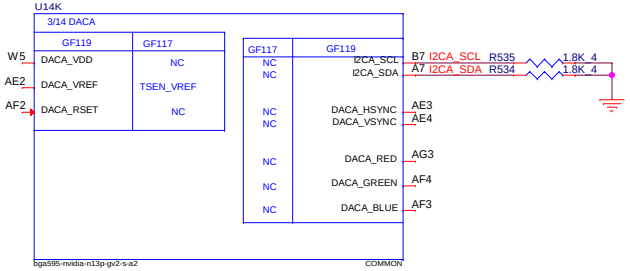

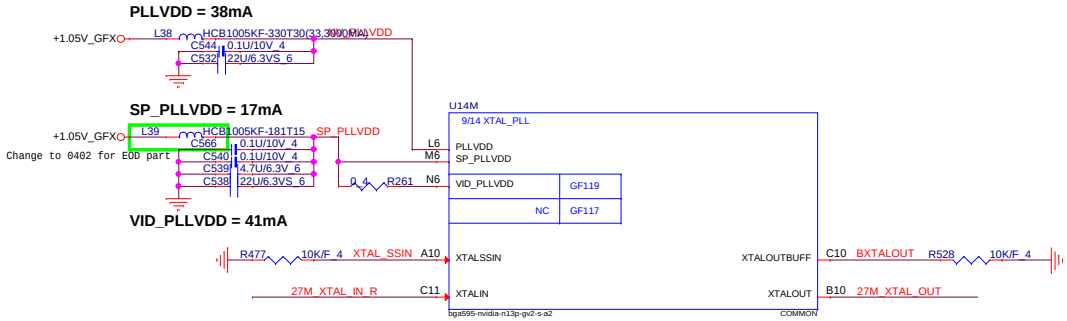

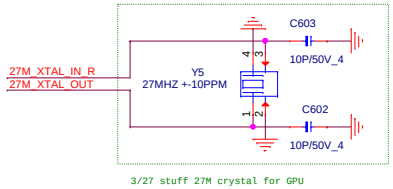

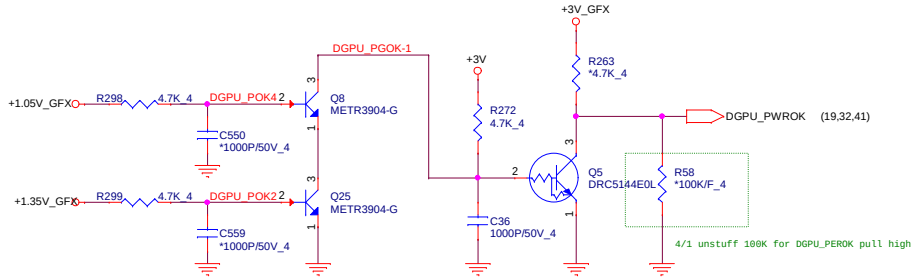

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	N14M-GS (DISPLAY)	2A

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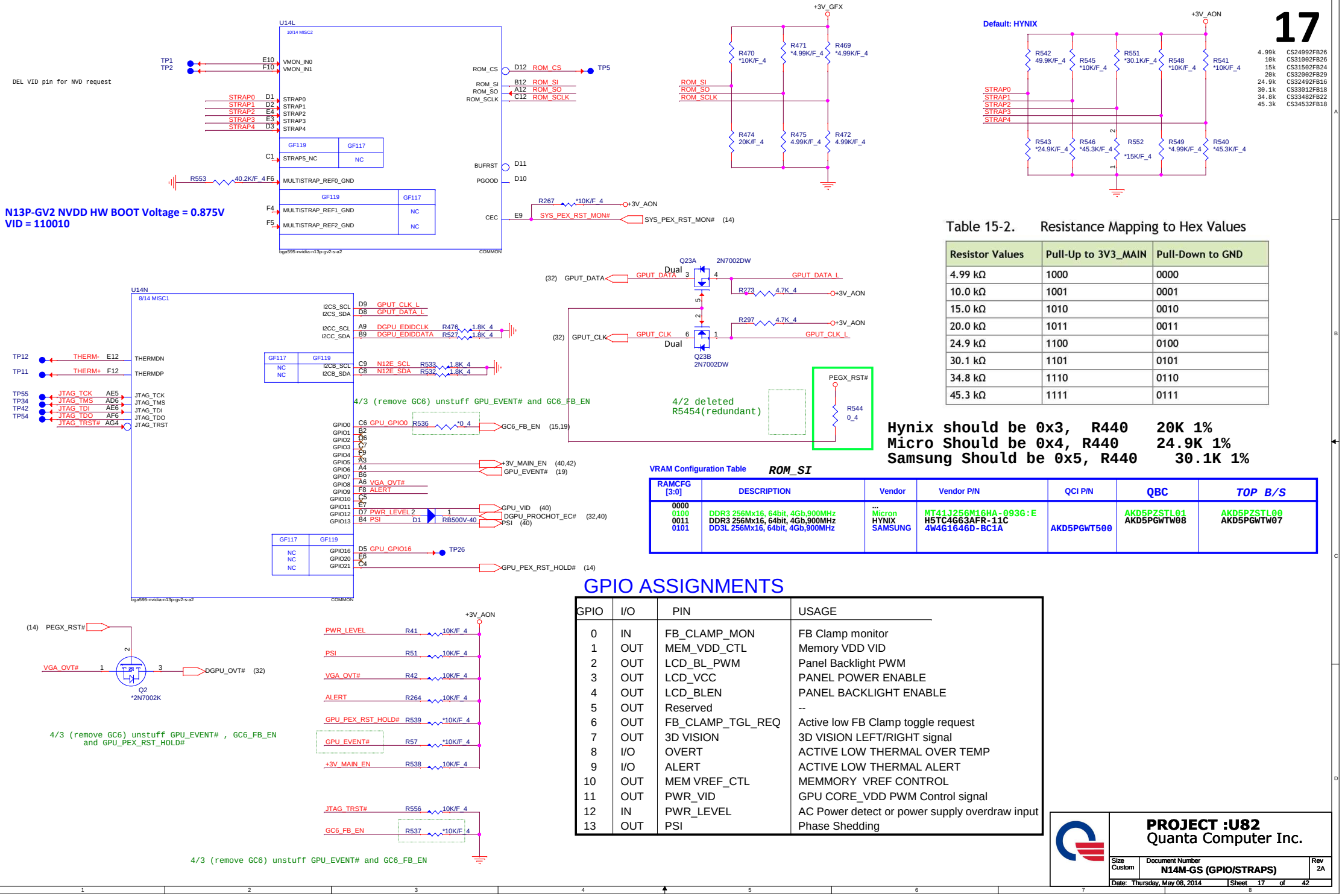

Table 15-2. Resistance Mapping to Hex Values

Resistor Values	Pull-Up to 3V3_MAIN	Pull-Down to GND
4.99 kΩ	1000	0000
10.0 kΩ	1001	0001
15.0 kΩ	1010	0010
20.0 kΩ	1011	0011
24.9 kΩ	1100	0100
30.1 kΩ	1101	0101
34.8 kΩ	1110	0110
45.3 kΩ	1111	0111

Hynix should be 0x3, R440 20K 1%
Micro Should be 0x4, R440 24.9K 1%
Samsung Should be 0x5, R440 30.1K 1%

VRAM Configuration Table — *ROM_SI*

RAMCFG [3:0]	DESCRIPTION	Vendor	Vendor P/N	QCI P/N	QBC	*TOP B/S*
0000		...				
0100	DDR3 256Mx16, 64bit, 4Gb,900MHz	Micron	MT41J256M16HA-093G:E	AKD5PGWT500	AKD5PZSTL01	AKD5PZSTL00
0011	DDR3 256Mx16, 64bit, 4Gb,900MHz	HYNIX	H5TC4G63AFR-11C		AKD5PGWTW08	AKD5PGWTW07
0101	DD3L 256Mx16, 64bit, 4Gb,900MHz	SAMSUNG	4W4G1646D-BC1A			

GPIO ASSIGNMENTS

GPIO	I/O	PIN	USAGE
0	IN	FB_CLAMP_MON	FB Clamp monitor
1	OUT	MEM_VDD_CTL	Memory VDD VID
2	OUT	LCD_BL_PWM	Panel Backlight PWM
3	OUT	LCD_VCC	PANEL POWER ENABLE
4	OUT	LCD_BLEN	PANEL BACKLIGHT ENABLE
5	OUT	Reserved	--
6	OUT	FB_CLAMP_TGL_REQ	Active low FB Clamp toggle request
7	OUT	3D VISION	3D VISION LEFT/RIGHT signal
8	I/O	OVERT	ACTIVE LOW THERMAL OVER TEMP
9	I/O	ALERT	ACTIVE LOW THERMAL ALERT
10	OUT	MEM VREF_CTL	MEMMORY VREF CONTROL
11	OUT	PWR_VID	GPU CORE_VDD PWM Control signal
12	IN	PWR_LEVEL	AC Power detect or power supply overdraw input
13	OUT	PSI	Phase Shedding

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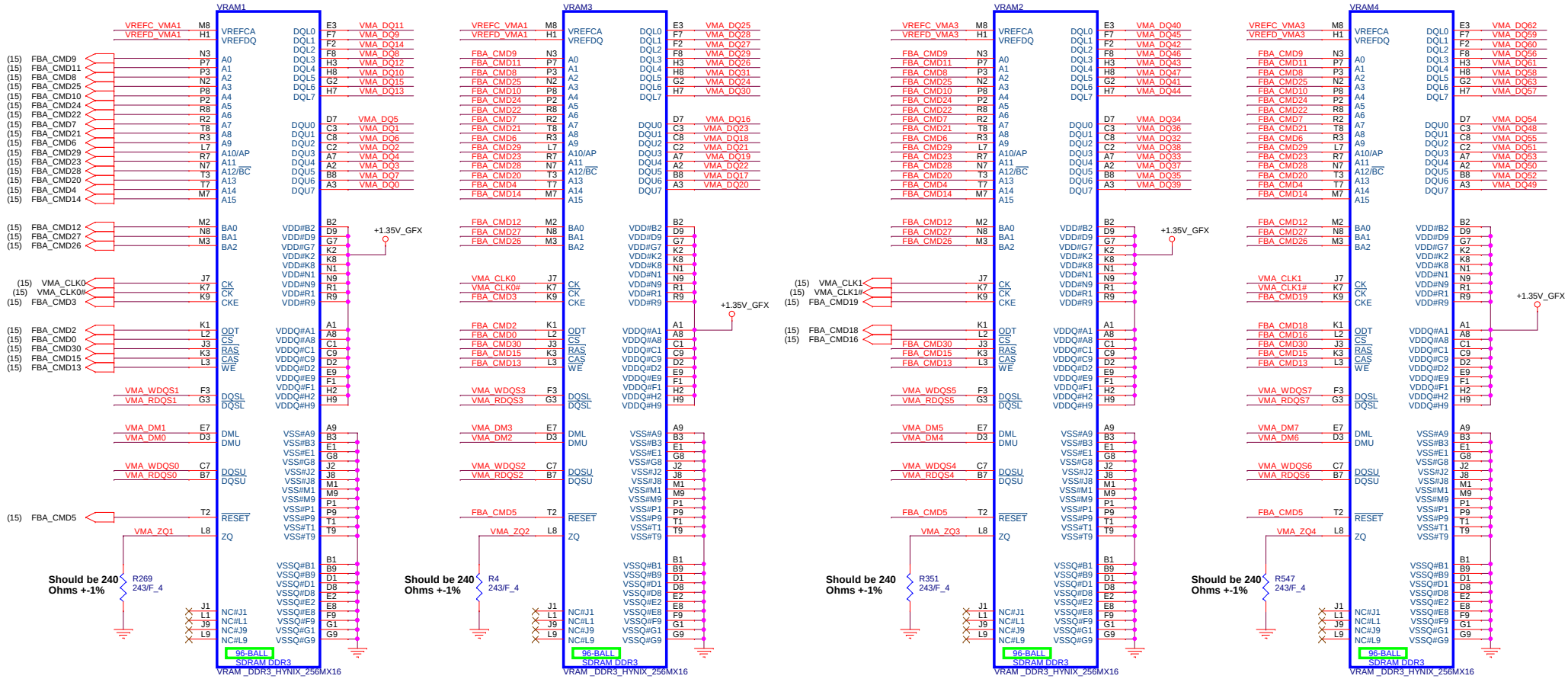
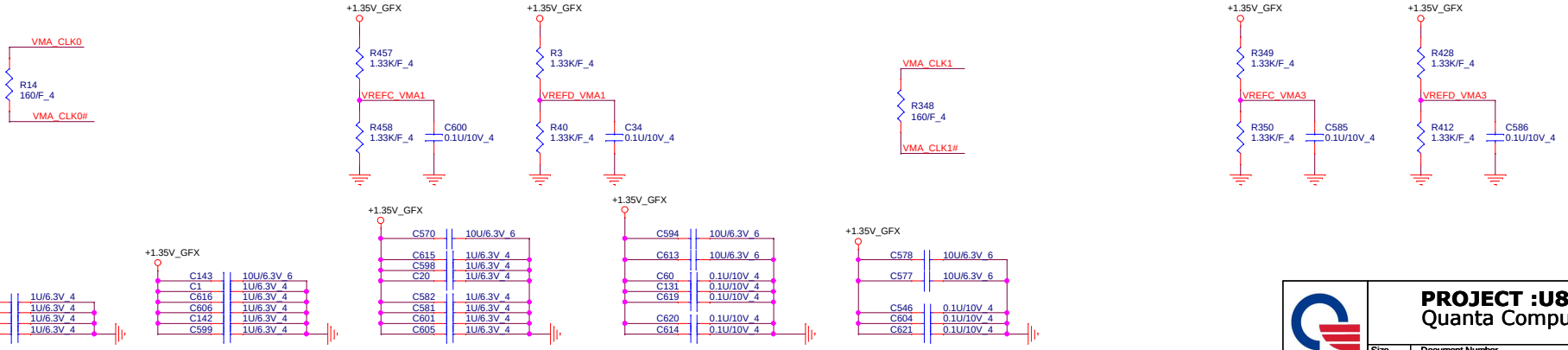
CHANNEL A: 256MB/512MB DDR3

HYU 256Mx16, PN : AKD5PGWTW08---AKD5PGWTW07
HYU 128Mx16, PN : AKD5MZDTW03---AKD5MZDTW02
QBC TOP B/S
SAM 256Mx16, PN : AKD5PZDT501---AKD5PZDT500
SAM 128Mx16, PN : AKD5MGGT535---AKD5MGGT534

(15) VMA_DQ[63..0]
(15) VMA_DM[7..0]
(15) VMA_WDQS[7..0]
(15) VMA_RDQS[7..0]





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Quanta Computer Inc.

Size	Document Number	Rev
Custom	DGPU Memory (DDR3)	2A
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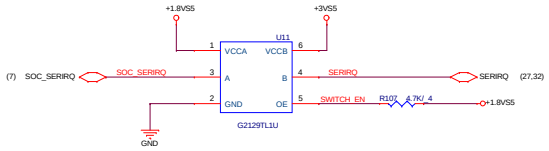
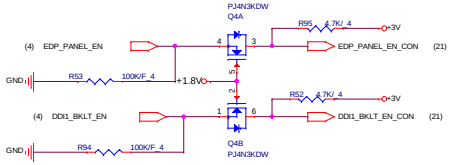
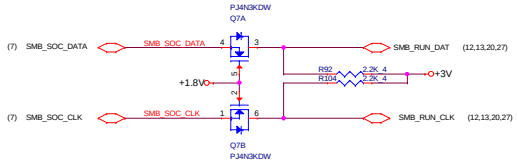
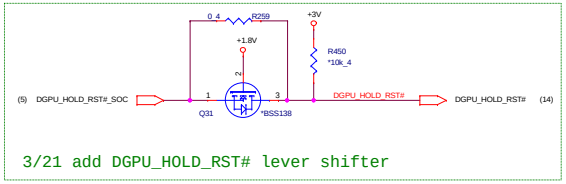


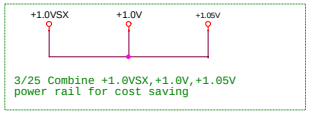




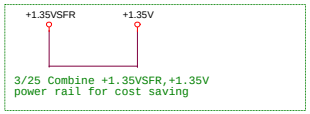
11/4 Delete deplicate TP lever shift



3/21 add DGPU_HOLD_RST# lever shifter

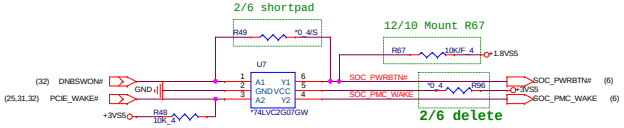


3/25 Combine +1.0VSX,+1.0V,+1.05V
power rail for cost saving

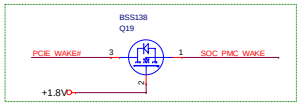


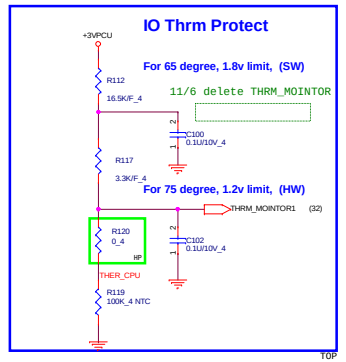
3/25 Combine +1.35VSFR,+1.35V
power rail for cost saving

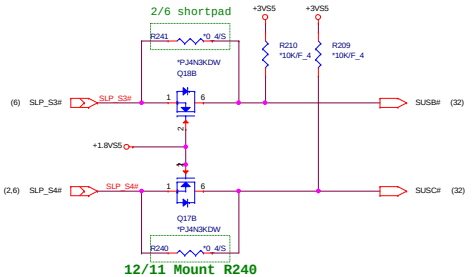
2/6 shortpad



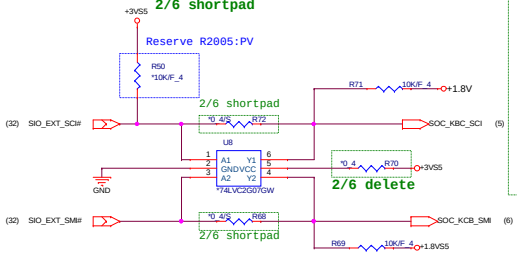
2/6 delete

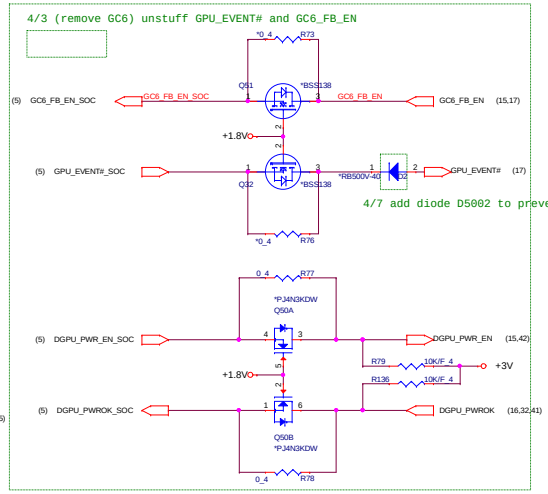




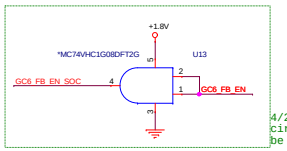


12/11 Mount R240
2/6 shortpad

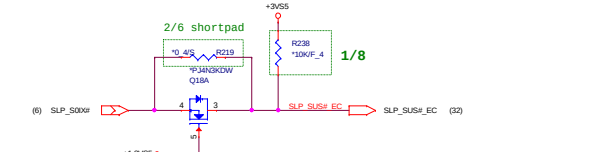


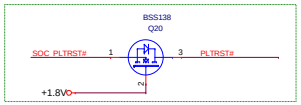


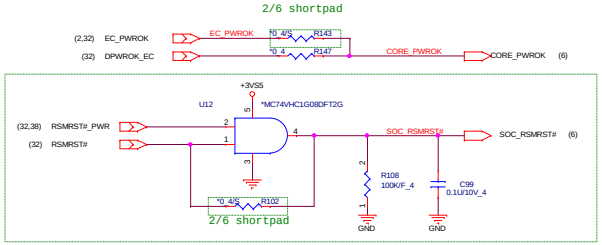
3/28 add level shifter for GPU GPIO



4/2 reserved an And gate to avoid voltage divider
circuit from nvidia suggestion (the AND gate need to
be replaced to +1.8V Vcc driven)







11/5 Add AND gate

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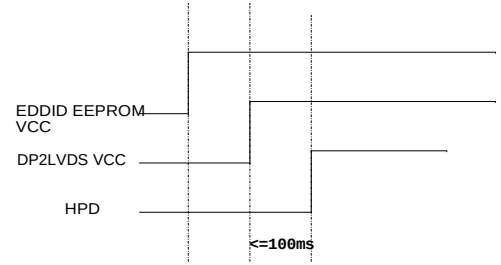
RTD2136 Dual Channel only

RTD2136S Power Up Sequence 20



Reserve for co layout EDP CON, EDP only please stuff

R374 *0_4 INT_eDP_AUXN_R → INT_eDP_AUXN_R (21)
R375 *0_4 INT_eDP_AUXP_R → INT_eDP_AUXP_R (21)
R29 *0_4 INT_eDP_TXP0_R → INT_eDP_TXP0_R (21)
R30 *0_4 INT_eDP_TXN0_R → INT_eDP_TXN0_R (21)
R31 *0_4 INT_eDP_TXP1_R → INT_eDP_TXP1_R (21)
R32 *0_4 INT_eDP_TXN1_R → INT_eDP_TXN1_R (21)

+3.3V_2136_A
+1.2V_2136
+3.3V_2136_D
Pine 18: keep 80 Mile Trace
+SWR_LX

R27 100k/F_4
EDP_HPD_2136

U2

(4) INT_eDP_AUXN — INT_eDP_AUXN — C24 0.1U/10V_4 — INT_eDP_AUXN_2136
(4) INT_eDP_AUXP — INT_eDP_AUXP — C25 0.1U/10V_4 — INT_eDP_AUXP_2136
(4) INT_eDP_TXP0 — INT_eDP_TXP0 — C26 0.1U/10V_4 — INT_eDP_TXP0_2136
(4) INT_eDP_TXN0 — INT_eDP_TXN0 — C27 0.1U/10V_4 — INT_eDP_TXN0_2136
(4) INT_eDP_TXP1 — INT_eDP_TXP1 — C28 0.1U/10V_4 — INT_eDP_TXP1_2136
(4) INT_eDP_TXN1 — INT_eDP_TXN1 — C29 0.1U/10V_4 — INT_eDP_TXN1_2136

DP_HPD
TESTMODE
AUX-CH_N
AUX-CH_P
LANE0P
LANE0N
LANE1P
LANE1N
CIICSCL1
CIICSDA1
MIICSDA1
MIICSCL1
MIICSDA0
MIICSCL0
NC

RTD2136R

SWR_LX
DP_V12 SWR_VCCK VCCK
DP_V33
SWR_VDD PVCC
DP_GND
GND
DP_REXT
PWMOUT PANEL_VCC PWMIN
BL_EN

TXO0- 42 TXLOUT0-_2136 (21)
TXO0+ 41 TXLOUT0+_2136 (21)
TXO1- 40 TXLOUT1-_2136 (21)
TXO1+ 39 TXLOUT1+_2136 (21)
TXO2- 38 TXLOUT2- (21)
TXO2+ 37 TXLOUT2+ (21)
TXOC- 36 TXLCLKOUT- (21)
TXOC+ 35 TXLCLKOUT+ (21)
TXO3- 34
TXO3+ 33
TXE0- 32 TXUOUT0- (21)
TXE0+ 31 TXUOUT0+ (21)
TXE1- 30 TXUOUT1- (21)
TXE1+ 29 TXUOUT1+ (21)
TXE2- 28 TXUOUT2- (21)
TXE2+ 27 TXUOUT2+ (21)
TXEC- 26 TXUCLKOUT- (21)
TXEC+ 25 TXUCLKOUT+ (21)
TXE3- 24
TXE3+ 23
BL_EN 44 LVDS_BLON_2136 → LVDS_BLON_2136 (21)

SCL1_2136 13
SDA1_2136 14
(21) EDIDDATA_2136 45
(21) EDIDCLK_2136 46
SDAT_2136 47
SCLK_2136 48
49

(12,13,19,27) SMB_RUN_CLK — R25 *0_4
(12,13,19,27) SMB_RUN_DAT — R23 *0_4
Reserve

IC底部需接GND

Use 1% Res on R2178

R373 12K_4
2136_DISP_ON → 2136_DISP_ON (21)
2136_DPST_PWM → 2136_DPST_PWM (21)
R362 0_4 → DDI1_BKLT_CTRL (4,21)
11/1 Modify
R361 100K/F_4

2/6 shortpad
(13,32) MBCLK2 — R26 *0_4/S — SCL1_2136
(13,32) MBDATA2 — R24 *0_4/S — SDA1_2136
Default

+3V — R18 4.7K_4 SCLK_2136
R19 4.7K_4 SDAT_2136

Default : ROM ONLY MODE

MODE_CFG1(PIN48) \ MODE_CFG0(PIN47)	0	1
0	X	EP MODE
1	ROM ONLY MODE	EEPROM MODE

(4,21) EDP_HPD — EDP_HPD — R28 1K/F_4 — EDP_HPD_2136

(4,5,9,12,13,14,15,16,19,21,22,23,24,25,26,27,28,29,30,31,32,39,40) +3V

L8: need use CV-4709MN00 for Vendor suggestion

keep 80 Mile Trace
+3V — L33 PBY160808T-600Y-N(60,3A) USING 60R 2A — +3.3V_2136_D
C447 10U/6.3VS_6
C450 0.1U/10V/X7R_4
C451 0.1U/10V/X7R_4
CLOSE TO Pin22

+3.3V_2136_D
C456 0.1U/10V/X7R_4
C449 22U/6.3VS_6
Close to Pin18

+3V — L35 PBY160808T-600Y-N(60,3A) USING 60R 1A — +3.3V_2136_A
C463 10U/6.3VS_6
C461 0.1U/10V/X7R_4
C462 0.1U/10V/X7R_4
Close to Pin5

+SWR_LX — L7 *4.7UH_1A — +1.2V_2136
R22 0_8
C22 22U/6.3VS_6
C454 0.1U/10V/X7R_4
C23 0.1U/10V/X7R_4
C459 0.1U/10V/X7R_4
Close to Pin17
Close to Pin11
Close to Pin43

SWR MODE	LDO MODE
Stuff L8	Stuff R86

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LID

12/9 Modify connection

(32) EMU_LID — R356 0_4 — PN_BLON — 2 D11 1 BLON_CON RB500V-40 — C435 22P/50V_4 — R354 100K/F_4

12/24 D11 change P/N

LVDS_BLON1 — R360 1K/F_4

LVDS_BLON1 — R359 100K/F_4

390mA

+VIN_BLIGHT

02/06 shortpad

+VIN — L6 *0_8/S — +VIN_BLIGHT

C19 0.1U/25V_4

C12 0.1U/25V_4

C7 0.01U/25V_4

C17 *4.7U/25V_8

12/9 Modify

For LVDS

(20) 2136_DISP_ON — R364 0_8 — +3VLCD_CON — 80 mile trace

R365 100K/F_4

C448 4.7U/6.3VS_4

12/9 Modify

For eDP

+3V

C436 *1U/6.3V_4

U26 *AP2821KTR-G1 (IN, IN, ON/OFF, OUT, GND)

(19) EDP_PANEL_EN_CON — R17 *0_4 — DISP_ON_L

R506 *100K/F_4

12/25 change to 0R

L34 *0_6

C453 *0.01U/16V_4

C452 0.1U/10V_4

C440 *10U/6.3V_6

+3VLCD_CON

(20) TXUCLKOUT- — TXUCLKOUT-
(20) TXUCLKOUT+ — TXUCLKOUT+
(20) TXUOUT0+ — TXUOUT0+
(20) TXUOUT0- — TXUOUT0-
(20) TXUOUT1+ — TXUOUT1+
(20) TXUOUT1- — TXUOUT1-
(20) TXUOUT2+ — TXUOUT2+
(20) TXUOUT2- — TXUOUT2-

(20) TXLCLKOUT+ — TXLCLKOUT+
(20) TXLCLKOUT- — TXLCLKOUT-

(20) TXLOUT2+ — TXLOUT2+
(20) TXLOUT2- — TXLOUT2-

BRIGHT — R366 1K/F_4 — VADJ1

C433 22P/50V_4

12/24 Chane value

+3V — R21 4.7K_4 EDIDCLK — R16 4.7K_4 EDIDDATA

For LVDS Only:

RF

C457 *10P/50V_4

C455 *10P/50V_4

LVDS Conn.

21

lvds-50671-04041-001-40p-l

DFFC40FR067

+3VLCD_CON

11/18 Modify pin38

GS12401-1011-9H CN2

11/1 Modify pin define

C9 *0.047U/10V_4

C2 *0.047U/10V_4

+3V — R12 Rb 0_6 — C16 1000P/50V_4

For LVDS Only: Stuff Rb

12/24 Modify Pin24,27,38

For LVDS Only: Stuff Rc

For EDP Only: Stuff Rd

(4,20) EDP_HPD — R352 Rc 0_4 — R353 Rd *0_4 EDP_HPD_R

MCM2012B900GBE

(7) USBP_CAM- — USBP_CAM-_C
(7) USBP_CAM+ — USBP_CAM+_C

L8

(23) DIGITAL_CLK — L32 BLM15AG601SN1D(600,300MA)
(23) DIGITAL_D1 — L31 BLM15AG601SN1D(600,300MA)

12/13 swap Pin6/8

12/9 EMI

C434 *10P/50V_4

C437 *10P/50V_4

+3V_CAM

+VIN_BLIGHT

VADJ1

BLON_CON

(20) INT_eDP_TXP1_R — C442 *0.1U/10V_4 — R9 0_4 — TXLOUT0+
(20) TXLOUT0+_2136
(20) TXLOUT0-_2136 — R8 0_4 — TXLOUT0-
(20) INT_eDP_TXN1_R — C441 *0.1U/10V_4

(20) INT_eDP_TXP0_R — C444 *0.1U/10_4 — R11 0_4 — TXLOUT1+
(20) TXLOUT1+_2136
(20) TXLOUT1-_2136 — R10 0_4 — TXLOUT1-
(20) INT_eDP_TXN0_R — C443 *0.1U/10V_4

(20) INT_eDP_AUXN_R — C445 *0.1U/10V_4 — R15 0_4 — EDIDDATA_R
(20) EDIDDATA
(20) EDIDCLK — R20 0_4 — EDIDCLK_R
(20) INT_eDP_AUXP_R — C446 *0.1U/10V_4

For EDP Only: stuff Cap

For LVDS only stuff Resistor

+3V — +3V_CAM

C438 *0.01U/16V_4

C439 *4.7U/6.3V_4

11/1 Modify

12/9 Modify

For LVDS Only: stuff Ra,Rb,Rc

R368 100K/F_4

(20) 2136_DPST_PWM — R369 Ra 0_4 — BRIGHT

(20) LVDS_BLON_2136 — R357 Rb Rc 0_4 — LVDS_BLON1

11/1 Modify

12/9 Modify

For EDP Only: stuff Rd,Re,Rf

(4,20) DDI1_BKLT_CTRL — R363 Rd *10_4 — BRIGHT

(19) DDI1_BKLT_EN_CON — R358 Re Rf *0_4 — LVDS_BLON1

For EDP Only: stuff

+3V — R367 *100K/F_4 EDIDDATA_R — R372 *100K/F_4 EDIDCLK_R

+3V — R371 *1K_4 BRIGHT — R355 *1K_4 LVDS_BLON1

(20) EDIDCLK_2136 — EDIDCLK

(20) EDIDDATA_2136 — EDIDDATA

(4,5,9,12,13,14,15,16,19,20,22,23,24,25,26,27,28,29,30,31,32,39,40) +3V
(6,19,23,27,31,32,33,34) +3VPCU
(12,22,23,24,27,28,31,39) +5V
(28,33,34,35,36,37,39,40,41,42) +VIN

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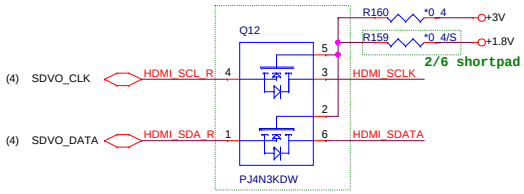
HDMI Conn.

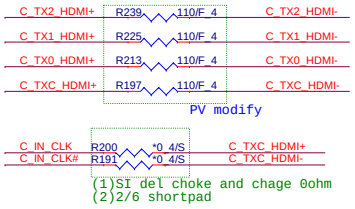
HDMI SMBus Isolation



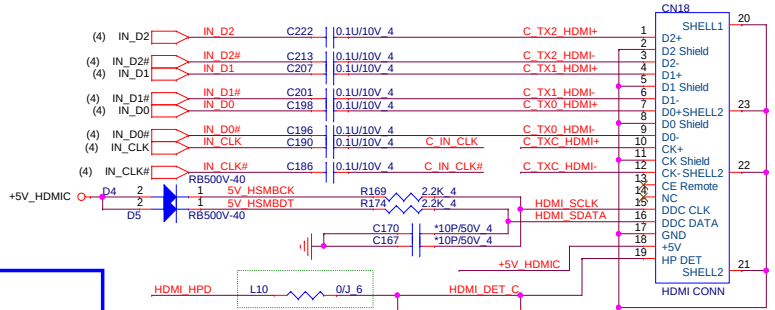
Close to HDMI connector

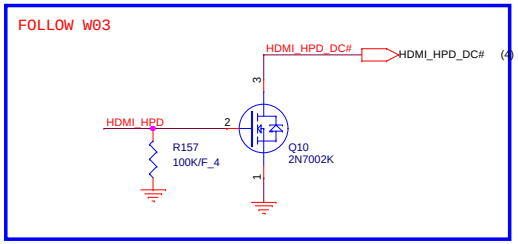
12/9 change P/N

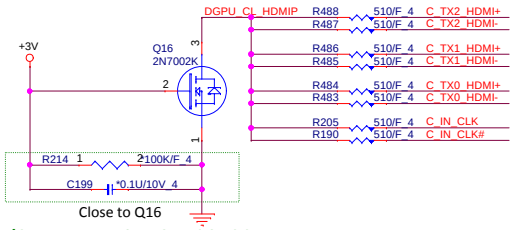
EMI Solution



10/31
modify footprint

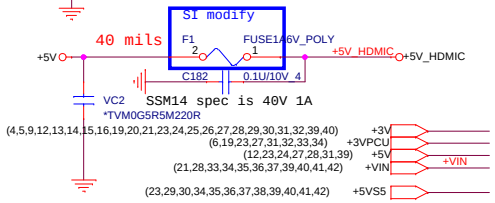


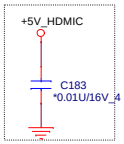




12/24 unmount R214&C199

SI modify



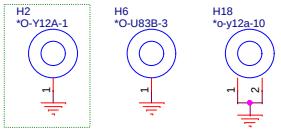


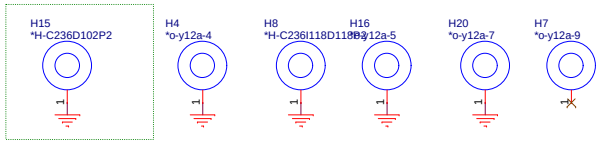
for EMI request

11/5 Change CPU Bracket

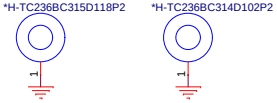
Hole

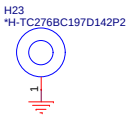
11/6

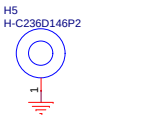


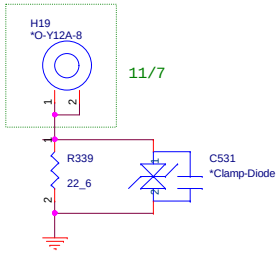


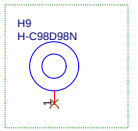
12/11





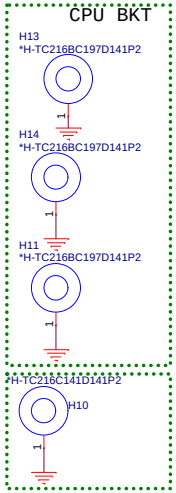




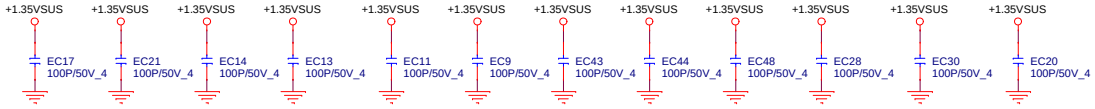


12/11

12/11



EMI



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Quanta Computer Inc.

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Close to PIN1

12/10 Modify

L26 HCB1005KF-181T15

C376 1U/6.3V_4

C396 10U/6.3VS_6

C388 0.1U/10V_4

3/25 +1.5V-->+1.8V

L30 HCB1005KF-181T15

L29 *HCB1005KF-181T15

12/13 Modify
02/06 unmount

C422 0.1U/10V_4

C421 10U/6.3VS_6

>40mils trace

L36 HCB1005KF-181T15

12/10 Modify

C429 10U/6.3VS_6

C426 0.1U/10V_4

Close to PIN26

*AZ2015-01H

C507

C581 need check!

(12,22,24,27,28,31,39) +5V
(4,5,9,12,13,14,15,16,19,20,21,22,24,25,26,27,28,29,30,31,32,39,40) +3V
+1.5V

12/24 Delete U31 and related component

U31

C517 *2.2U/6.3V_6

C511 *0.1U/10V_4

C509 *1U/6.3V_4

*TPS793475DBVR
HPA01091DBVR

C516 *0.1U/10V_4

C510 *0.033U/10V_4

C508 *1U/6.3V_4

R494 *10K_4

Vset=1.242V

TO Digital MIC

(21) DIGITAL_D1

(21) DIGITAL_CLK

C403 10P/50V_4

R319 *0_4/S

DMIC0

R322 100/F_4

DMIC_CLK_R

C409 10P/50V_4

(5) ACZ_SDOUT_AUDIO

(5) BIT_CLK_AUDIO

R326 *0_4/S

HD_BCLK

Close to PIN7

10U/6.3VS_6

C412

(5) ACZ_SDIN0

R334 33_4

HD_SDIN0

+3V_DVDD-IO

(5) ACZ_SYNC_AUDIO

(5) ACZ_RST#_AUDIO

C428 *0.1U/10V_4

AMP_BEEP

C525 2.2U/6.3V_4

C521 2.2U/6.3V_4

CAP-

CAP+

+3V_DVDD

4.7U/6.3V_6

C523

Close to Pin 34,35,36

TO Internal Speakers

L_SPK+

L_SPK-

R_SPK-

R_SPK+

U25

DVDD
GPIO0/ DMIC-DATA
GPIO1 / DMIC-CLK
DVSS
SDATA-OUT
BCLK
LDO3-CAP
SDATA-IN
DVDD-IO
SYNC
RESETB
PCBEEP
CPVEE
CBN
CBP
CPVDD
SPK-L+
SPK-L-
SPK-R-
SPK-R+

NC PVDD1 PVDD2 PDB SPDIF-OUT/GPIO2

Analog

Digital

AVDD1 AVDD2

AVSS1 AVSS2

LDO1-CAP LDO2-CAP

PR37 100K/F_4

C425 10U/6.3VS_6

C400 10U/6.3VS_6

11/11 add

VREF

C420 0.1U/10V_4

C423 2.2U/6.3V_4

Close to PIN28

HPOUT-L (PORT I)

HPOUT-R (PORT I)

HPOUT_L

HPOUT_R

(24) HPOUT_L

(24) HPOUT_R

AGND SHIELD

LINE2-L LINE2-R

LINE1-L (PORTC) LINE1-R (PORTC)

MIC1-R (PORTB) MIC1-L (PORTB)

MIC1-VREFO-L MIC1-VREFO-R

MUTE_LED_CNTL_R2 R325 *0_4/S

11/2

MUTE_LED_CNTL (27)

MIC2-R (PORTF) MIC2-L (PORTF)

MIC_R1 C427 2.2U/6.3V_4

MIC_L1 C432 2.2U/6.3V_4

R347 1K/F_4 EXT_MIC_L

MIC2-VREFO

VREFOUT_C R327 2.2K_4 EXT_MIC_L

C414 *1U/6.3V_4

MONO-OUT

SenseA SenseB JDREF

ALC3227 x QFN48

Close to Speaker

Speaker 4 ohm: 40mils

11/7 swap pin define

INT SPEAKER CONN

L_SPK+ L5 TI160808U600 L_SPK+_R

L_SPK- L4 TI160808U600 L_SPK-_R

R_SPK- L2 TI160808U600 R_SPK-_R

R_SPK+ L3 TI160808U600 R_SPK+_R

12/26 Change footprint to 0402
2/6 change footprint to 0603

CN3

C11 1000P/50V_4

C14 1000P/50V_4

C15 1000P/50V_4

C13 1000P/50V_4

Check layout
mount location

check value

C424 0.1U/10V_4

AMP_BEEP

AMP_BEEP_L

R343 100K/F_4

AMP_BEEP_R2

C431 0.01U/25V_4

R344 10K_4

C430 0.1U/10V_4

R338 10K_4

BSS138

Q28

ACZ_SPKR (7)

12/24 change 2N7002K
2/10 change P/N from BAM70020002 to BAM01380016

+5V_DVDD

+5V

L25 HCB1005KF-181T15

12/10 Modify

0.1U/10V_4 C392

10U/6.3VS_6 C377

Close to Pin 41

0.1U/10V_4 C397

10U/6.3VS_6 C399

Close to Pin 46

PD#

(24) HP_EAPD

12/24 change 2N7002K

11/11

Q41 2N7002K

R342 20K/F_4

R346 20K/F_4

R341 39.2K/F_4

SENSE_A_1

SENSE_A

Close to codec

R504 *0_4/S

0206 shortpad

R323 22K/F_4 EXT_MIC_L

R328 22K/F_4

C405 4.7U/6.3V_6

3/25 +1.5V-->+1.8V

for intel HSW ULT

Q22
BA039040000
BA039040020

+1.8V

R345 *2.2K_4

Q27 *MMBT3904-7-F

ACZ_RST#_AUDIO

+3V_DVDD

R315 1K/F_4

PD#

(24,32) VOLMUTE#

D10 RB500V-40

R340 10K_4

11/2 Modify pin name
2/10 delete R294 & R296 to mount L23 for EMI

2/10 delete R259 & R261 to mount L18 for EMI

C398 *10P/50V_4 SENSE_A

C401 *10P/50V_4 EXT_MIC_L

C407 *10P/50V_4 LINEOUT_L_C

C410 *10P/50V_4 LINEOUT_R_C

C330 220P/50V_4 ACC_LED#

C333 220P/50V_4 SATA_LED#

C337 220P/50V_4 DEEP_PWRLED#

C378 *220P/50V_4 USBPW_ON#

C362 0.1U/10V_4 +3VPCU

C359 0.1U/10V_4 +3V

C468 0.1U/10V_4 +3VS5

C370 0.1U/10V_4 +5VS5

For EMI
Place close to CN92

11/12 Swap pin

10/31 delet USB3.0

MCM2012B900GBE L23

(7) USBP1+
(7) USBP1-

USBP1+_C
USBP1-_C

(7) ACC_LED#
(5) SATA_LED#
(27) DEEP_PWRLED#

12/25 change pin15 from
+3VS5 to +5VS5

(29,32) USBPW_ON#

SENSE_A

EXT_MIC_L

(24) LINEOUT_L_C

(24) LINEOUT_R_C

SMD FPC 30P

CN9

EC61 1000P/50V_4

EC40 1000P/50V_4

EC46 1000P/50V_4

EC51 1000P/50V_4

EC41 1000P/50V_4

Close to CODEC

place to near U28 or under U28

R505 *0_8/S

PROJECT : Y12E-BTM

Quanta Computer Inc.

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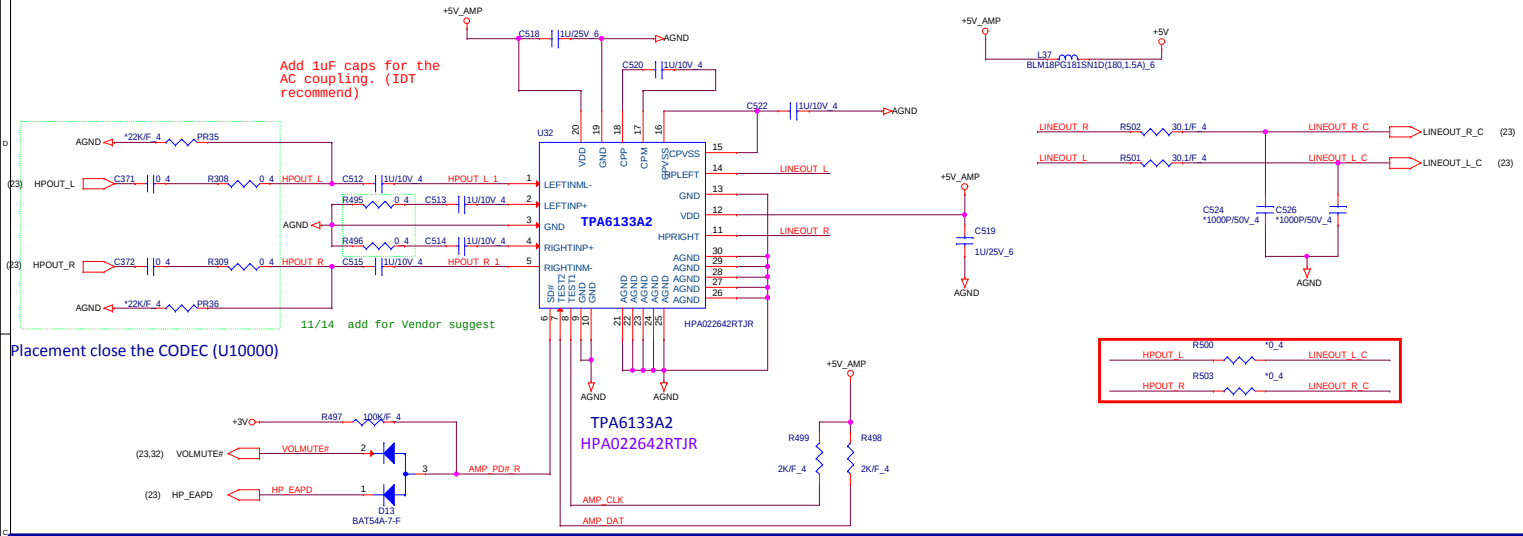
Azalia ALC 3227	1A
Date: Thursday, May 08, 2014	Sheet 23 of 42

Head Phone out



(12,22,23,27,28,31,39) +5V
(21,28,33,34,35,36,37,39,40,41,42) +VIN

PROJECT : Y12E-BTM
Quanta Computer Inc.

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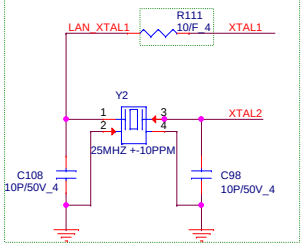
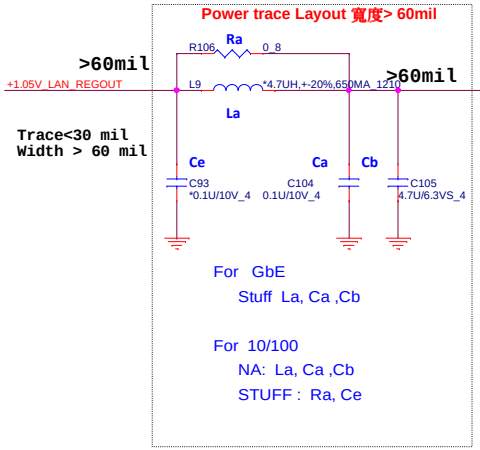
HP Amp	1A
Date: Thursday, May 08, 2014	Sheet 24 of 42

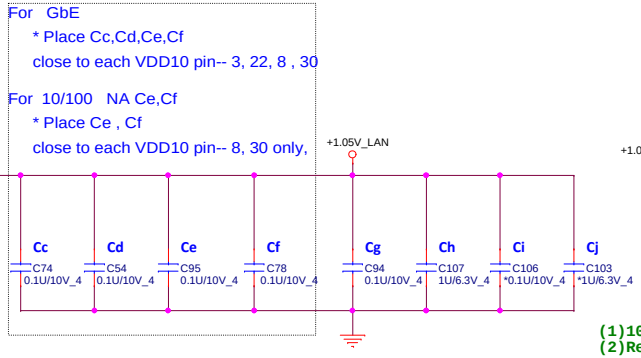
For EMI 0 ~ 22 ohm

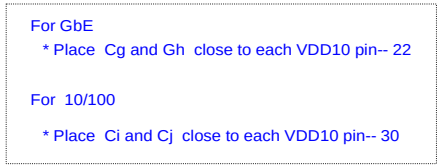
10/31 add crystal

Change Y1 PN to BG625000121: PV

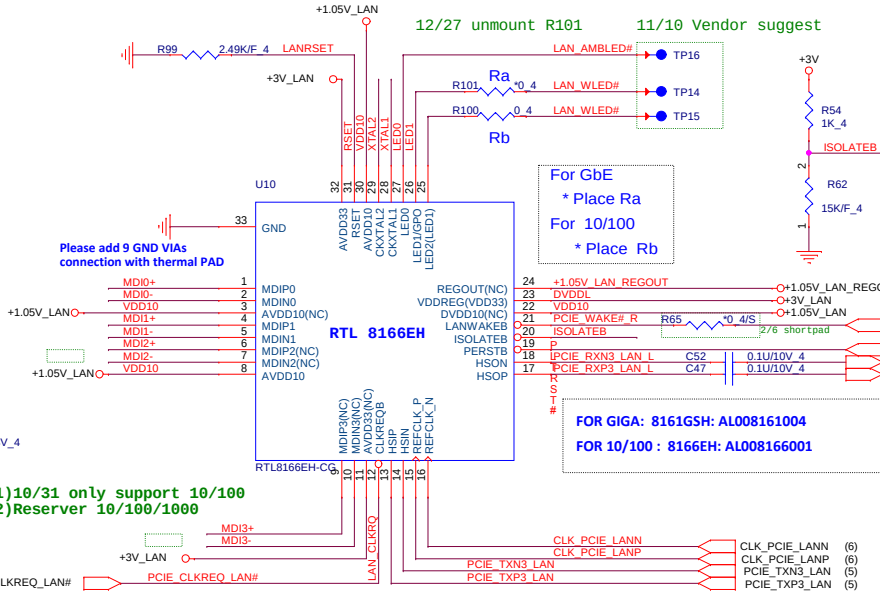




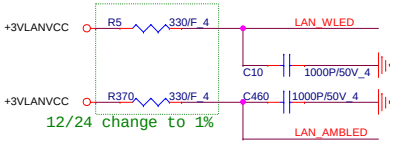




12/27 unmount R101 11/10 Vendor suggest

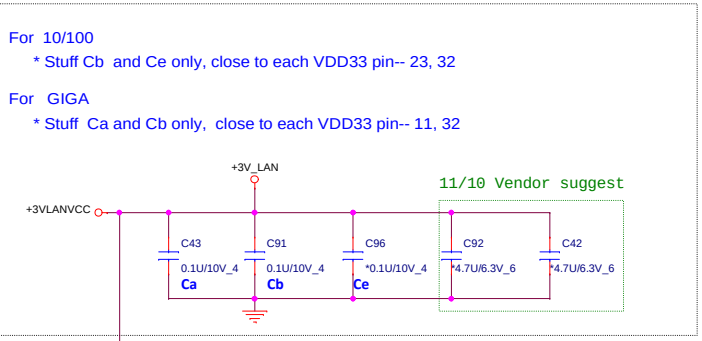


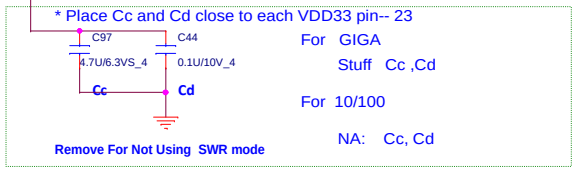
(1)10/31 only support 10/100
(2)Reserver 10/100/1000



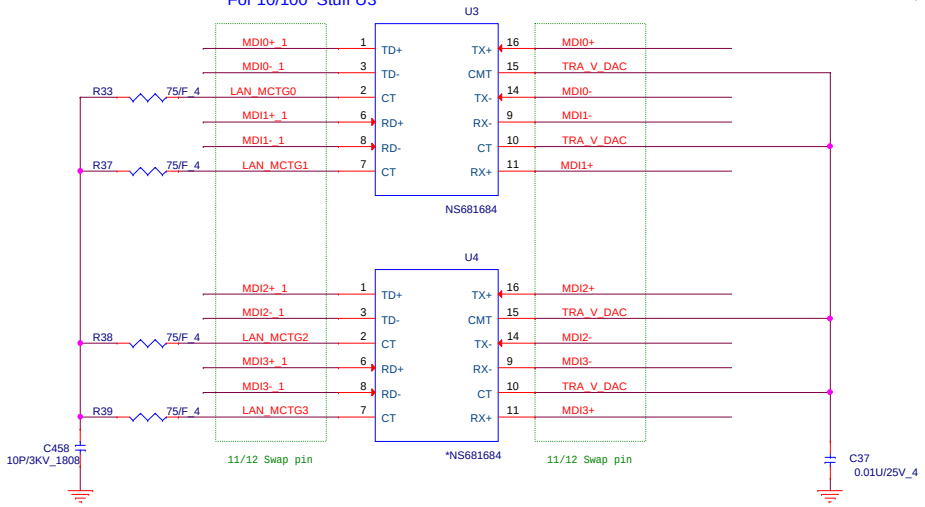
12/24 change to 1%

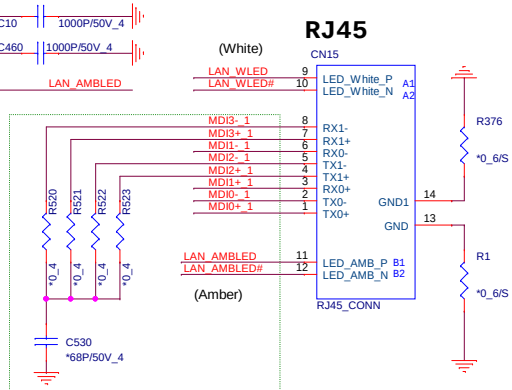
11/10 Modify name





For GbE Stuff U3, U4
For 10/100 Stuff U3





(1)10/31 Delete 10/100
(2)Change RJ45 P/N for U83B
(3)11/7 Reserver 10/100/1000
(4)12/17 EMI reserve TX2+/- & TX3+/- R and C.
(5)Change LAN CONN P/N & footprint

For GiGA
BOT:GST5009B LF,DB0Z06LAN00
FCE :NS892407 ,DB0LL1LAN00
For 10/100
BOT: TST1284R LF DB0EL5LAN00
FCE :NS892408 ,DB0EF7LAN01

(4,5,9,12,13,14,15,16,19,20,21,22,23,24,26,27,28,29,30,31,32,39,40) (39) +3V +3VLANVCC

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RTL 8161/RJ45	1A
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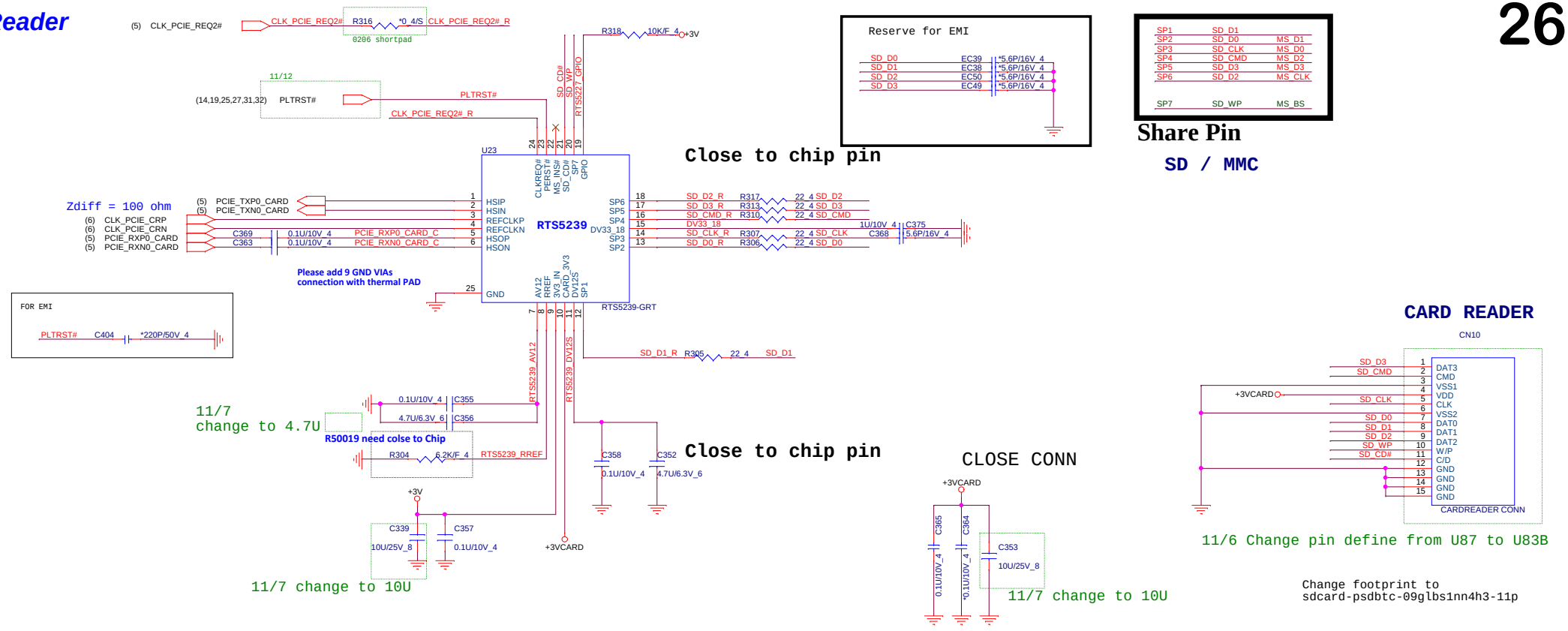
CardReader



PROJECT : Y12E-BTM

Quanta Computer Inc.

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CR RTS5237 & CR SOCKET	1A
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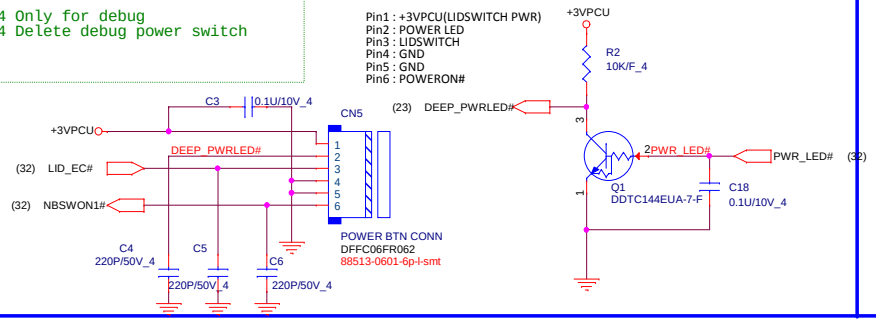
Power Botton Connector

11/14 Only for debug
12/24 Delete debug power switch

Pin1 : +3VPCU(LIDSWITCH PWR)
Pin2 : POWER LED
Pin3 : LIDSWITCH
Pin4 : GND
Pin5 : GND
Pin6 : POWERON#



Lid Switch FOR 15"

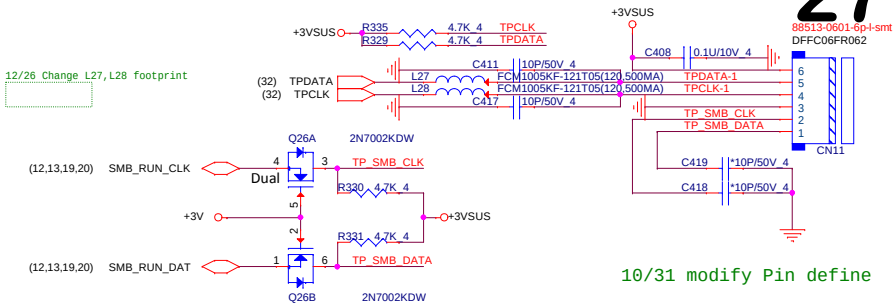
11/2 delete LID switch

Touch Pad Connector

27

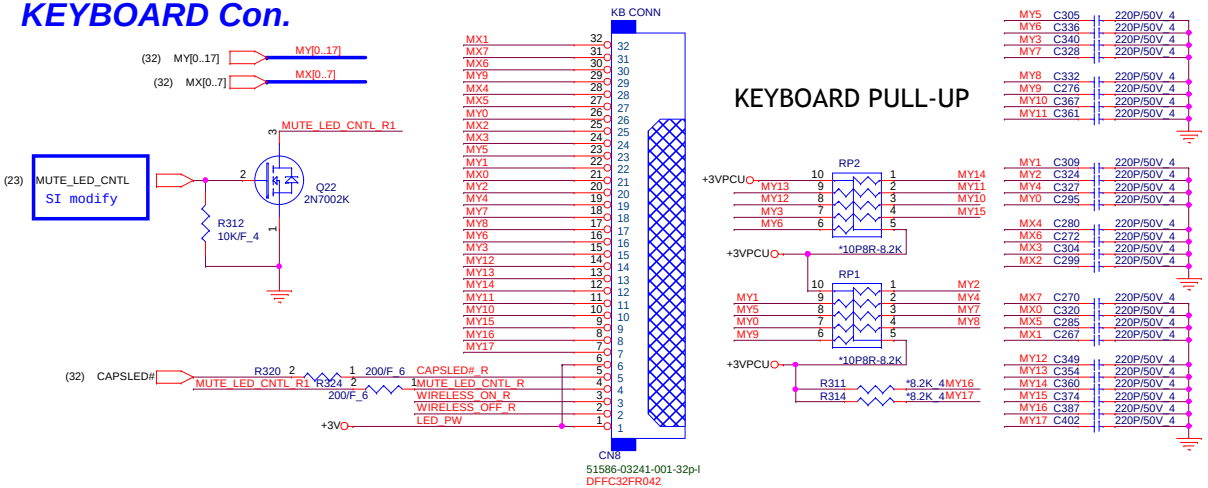
88513-0601-6p-l-smt
DFFC06FR062

12/26 Change L27,L28 footprint

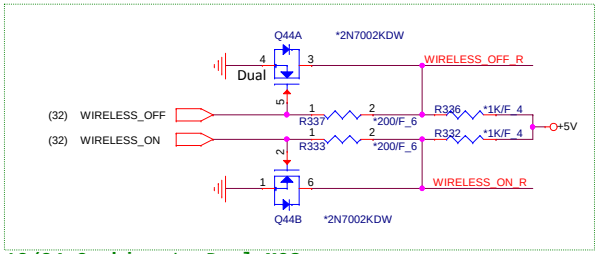


10/31 modify Pin define

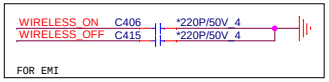
KEYBOARD Con.



KEYBOARD PULL-UP



12/24 Combine to Dual MOS



11/7 Delete backlight KB

2/6 Unmount TPM and its related component

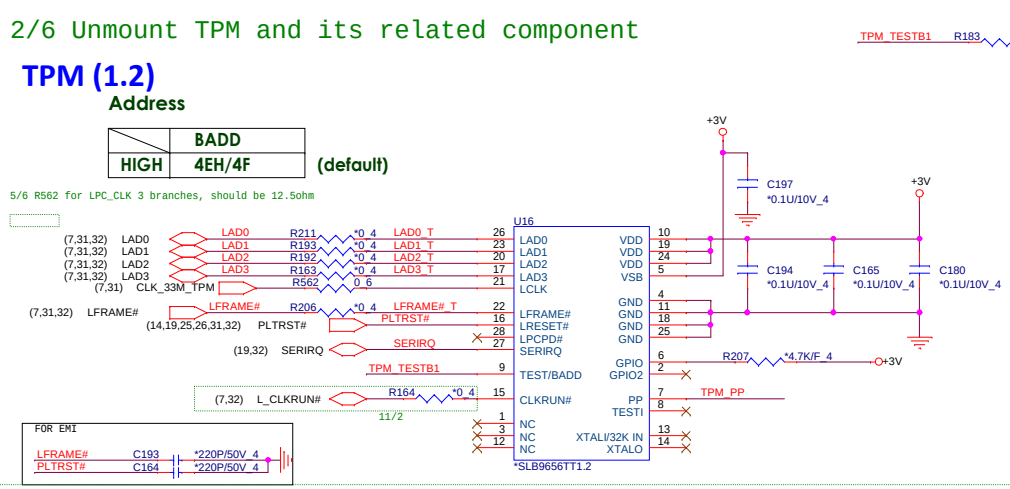
TPM (1.2)

Address

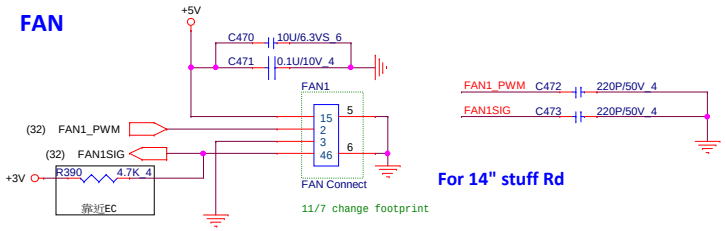
	BADD
HIGH	4EH/4F

(default)

5/6 R562 for LPC_CLK 3 branches, should be 12.5ohm



FAN



For 14" stuff Rd

11/7 change footprint

(4,5,9,12,13,14,15,16,19,20,21,22,23,24,25,26,28,29,30,31,32,39,40) +3V
(12,22,23,24,28,31,39) +5V
(6,19,23,31,32,33,34) +3VPCU

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Quanta Computer Inc.

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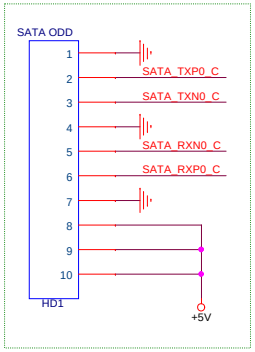
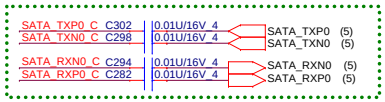
TPM/TP/FAN/LED	1A
Date: Monday, May 12, 2014	Sheet 27 of 42

SATA HDD Connector(Cable type) 14", 15", 17"

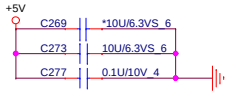
+5V: 2 A(4 Pin)
Gnd : (5 Pin)
+3V: 2 A(4 Pin)





11/12 delete 14" and 15" SATA CONN

11/1 Modify pin define and footprint
11/11 Swap pin
12/25 change footprint

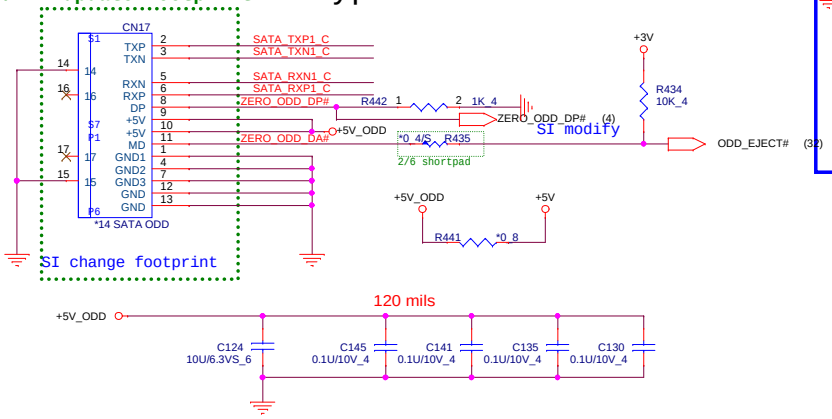


SATA ODD CONNECTOR

14" SATA ODD

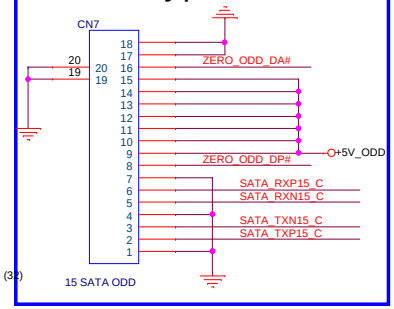
12/24 update footprint

Bypass CAP close conn

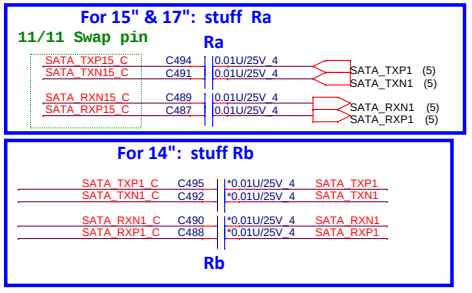


15" & 17" SATA ODD

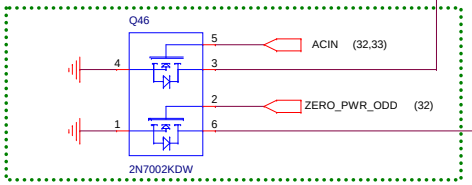
New Type



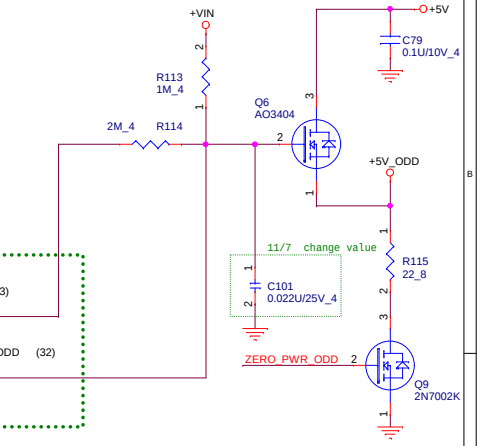
11/6 update footprint

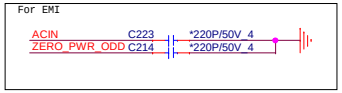


11/1 Colayout 15" & 17" ODD



12/24 change to dual MOS





(2,9,19,23,29,30,31,34,35,37,38,39,42) +3VS5

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Quanta Computer Inc.

Document Number	Rev
HDD/ODD	1A
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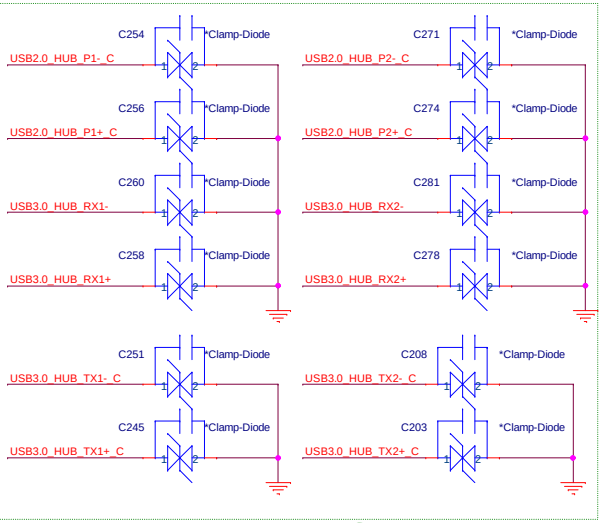
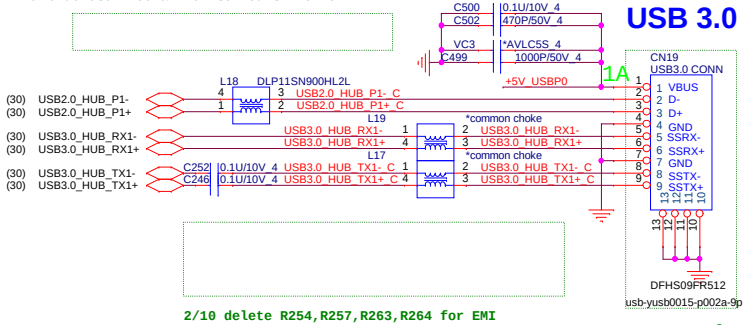
USB 2.0/3.0 Combo



11/1 modify

2/10 delete R259 & R261 to mount L18 for EMI

USB 3.0

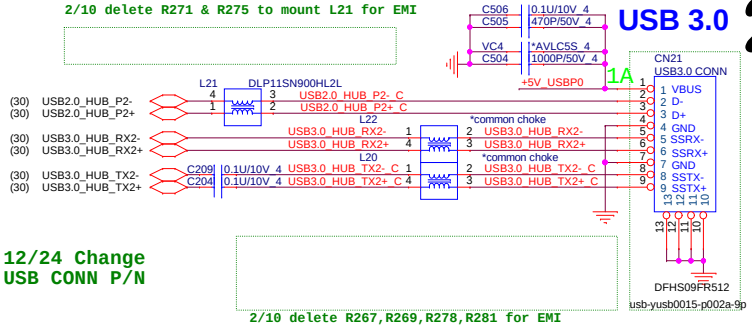


2/10 delete R254,R257,R263,R264 for EMI

10/31 delet USB3.0 Charger IC

2/10 delete R271 & R275 to mount L21 for EMI

USB 3.0

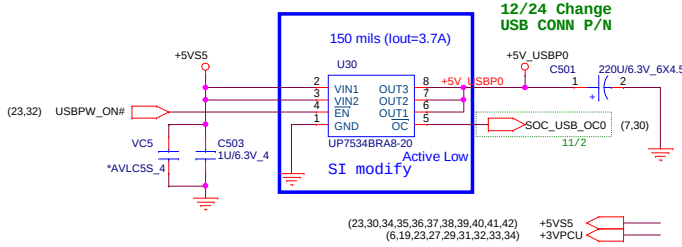


12/24 Change USB CONN P/N

2/10 delete R267,R269,R278,R281 for EMI

11/12 modify

12/24 Change USB CONN P/N



2/6 shortpad

Leap Motion

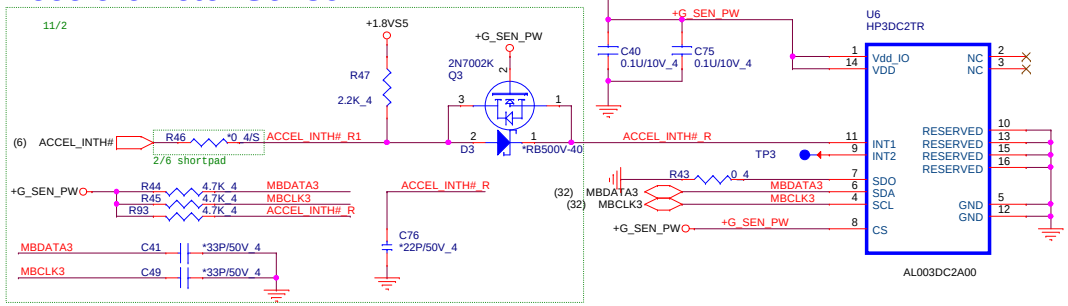
11/7 Delete Leap motion

Fingerprint Conn

11/7 Delete Fingerprint CONN

Accelerometer Sensor

沿用U82

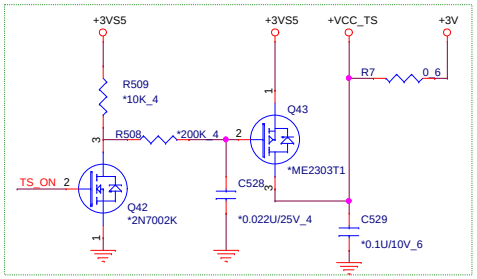


Green CLK Circuitry

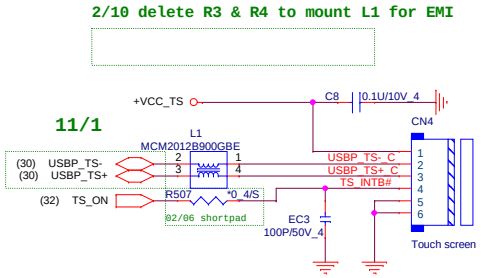
10/30 delete Green Clock

Touch screen

12/24 modify control schematic



2/10 delete R3 & R4 to mount L1 for EMI



(4,5,9,12,13,14,15,16,19,20,21,22,23,24,25,26,27,28,30,31,32,39,40) +3V
(12,22,23,24,27,28,31,39) +5V
(6,19,23,27,29,31,32,33,34) +3VPCU

PROJECT : Y12E-BTM

Quanta Computer Inc.

Document Number	Rev
USB3.0/GCLK/TS/FR	1A
Date: Thursday, May 08, 2014	Sheet 29 of 42

11/6 add leap motion
11/7 Delete leap motion

Add HUB power detect circuit: PV

2/10 Chqnge P/N
from BAM70020002 to BAM01380016

USB3 CON1

USB3 CON2

RTS5401-GR QFN76

2/6 shortpad

Add R2000 & R2001 for USB port power control: PV

Reserve R2007 for USB HUB: PV

Change C210 & C209 to 18pF: PV

Change USB port define: PV

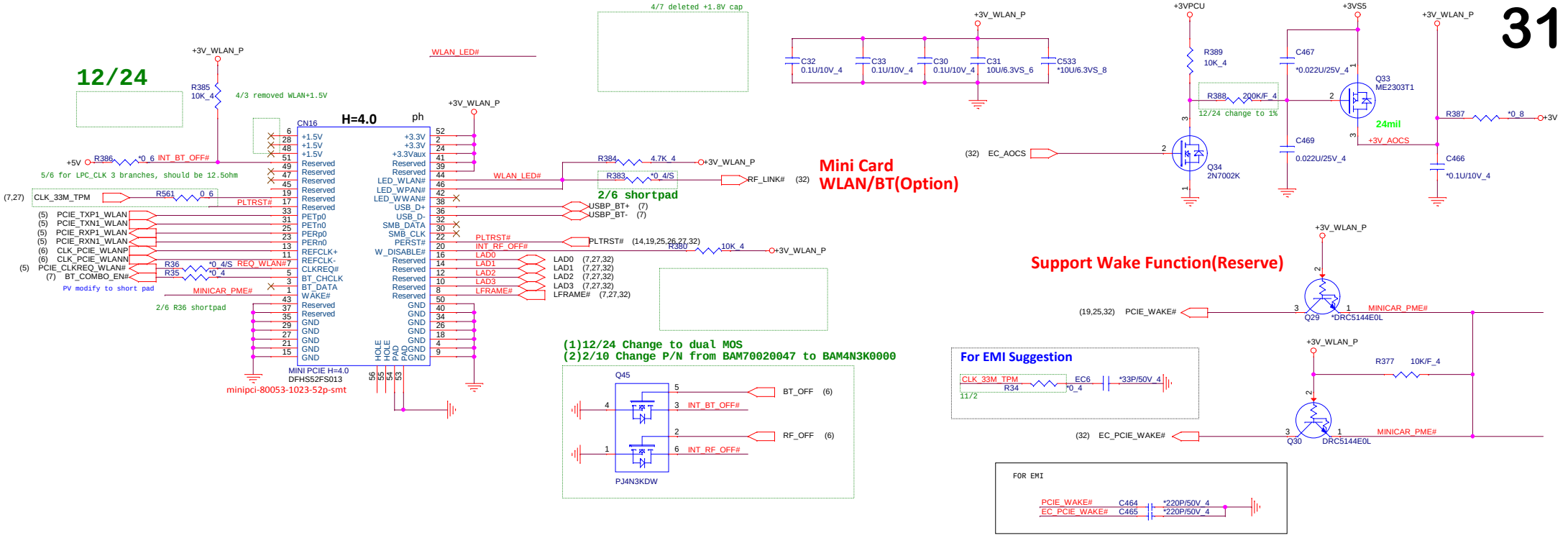
Touch screen

Change U17 from 1MB to 128kB:PV

Change OCP2 & OCP3 control rule: PV

+1.2V_DV
1.2Volt +/- 5%
TDC : 800mA
OCP : 3.5A

PROJECT :	Y12E-BTM
Quanta Computer Inc.	
Document Number	USB30 HUB RTS5401-GR
Rev	1A
Date:	Thursday, May 08, 2014
Sheet	30 of 42



USB 3.0 re-driver

10/31 delet USB3.0 re-driver IC

PROJECT :	Y12E-BTM
Quanta Computer Inc.	
Document Number: WLAN	Rev: 1A
Date: Thursday, May 08, 2014	Sheet 31 of 42

EC P/N:AJ089870F01

32

IT8987

AJ089870F01
IT8987E/AX

LPC
LAD0 10
LAD1 9
LAD2 8
LAD3 7
PLTRST# 22
CLK_33M_KBC 13
LFRAME# 6
PCH_PCIE_WAKE# 17
EC_A20GATE 126
SERIRQ 5
SIO_EXT_SMI# 15
SIO_EXT_SCI# 23
EC_WRST 14
KBRST# 4
GPUT_CLK 16

PS/2
BATSHIP 113
LID_EC# 123
TPDATA 86
TPCLK 85
SUSB# 88
DPWROK_EC 87
SLP_SUS# 90
89

UART
RSMRST# 119
MAINON 33
108
RF_LINK# 109

FLASH
USBPW_ON# 125
BIOS_SPI_CLK 105
BIOS_RD# 103
BIOS_WR# 102
BIOS_CS# 101
S5_ON 100

KBMX
MY0 36
MY1 37
MY2 38
MY3 39
MY4 40
MY5 41
MY6 42
MY7 43
MY8 44
MY9 45
MY10 46
MY11 51
MY12 52
MY13 53
MY14 54
MY15 55
MX0 58
MX1 59
MX2 60
MX3 61
MX4 62
MX5 63
MX6 64
MX7 65

CLOCK
5VS5_ON 128
ZERO_PWR_ODD 2

GPIO
EC_AOCS 84
VRON 83
TP33 82
MY16 56
MY17 57
EC_ACPRESENT 19
EC_PWROK 20
ODD_EJECT# 122
PCI_SERR# 99
S0IX_PG_R 98
ACIN 97
96
TP32 95
MBDATA3 94
MBCLK3 93
L_CLKRUN# 93
SUSWARN#_EC 3

SM_BUS
TP29 117
GPUT_DATA 118
MBCLK 110
MBDATA 111
MBCLK2 115
MBDATA2 116

PWM
PWR_LED# 24
MBATLED0# 25
AC_LED_ON# 28
TS_ON 29
FAN1_PWM 30
DGPU_PROCHOT_EC# 31
VOLMUTE# 32
CAPSLED# 34
FAN1SIG 47
TP37 48

WAKE UP
NBSWON1# 107
SUSC# 18
DNBSWON# 21
SUSON 35
LAN_POWER 112

A/D D/A
LM_Enable 66
AD_TYPE 67
SYS_I 68
AD_AIR 69
TEMP_MBAT 70
RSMRST#_PWR 71
ADAPTER_SEL_EC 72
73
EMU_LID 81
THRM_ALERT_HW#1 80
EC_PCIE_WAKE# 79
WIRELESS_OFF 78

THERMAL
DGPU_PROCHOT# 77
WIRELESS_ON 76
TP28 124
H_PROCHOT#_EC 124

POWER
+3VPCU
+3V_ECACC
+3V_VSTBY
+1.8VPCU
+3V

GND
IT8502_AGND

Adapter select for EC

Hi(3.3V)	==>	(65W)
Low(0V)	==>	(45W)
Medium(1.65V)	==>	(90W)

11/6 Change EC ADP define

adapter Type check

1/8 duumy D6011 for power request

Change to 1SS355 as Current loss

EC

3/25 delete EC ROM and its related IC

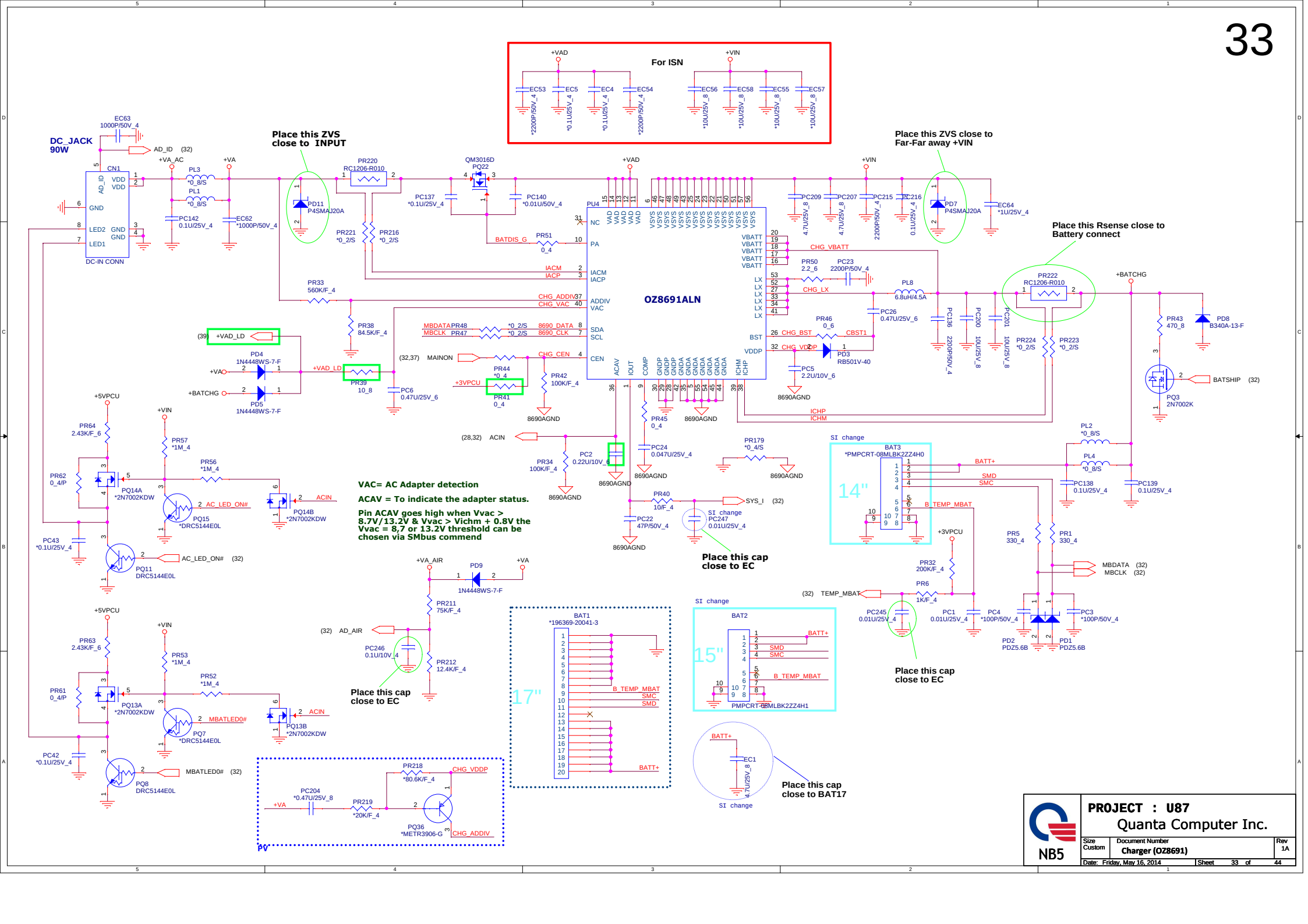
CPU

SOC_SPI_CLK
SOC_SPI_MISO
SOC_SPI_MOSI
SOC_SPI_CS#

PROJECT : Y12E-BTM

Quanta Computer Inc.

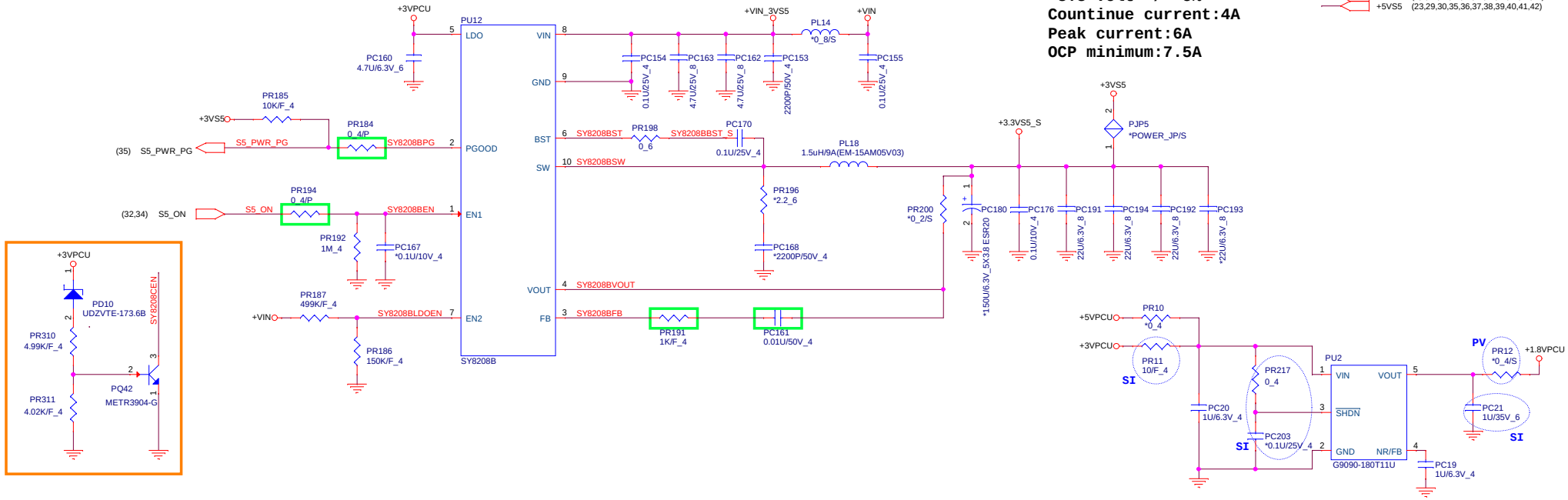
Document Number	Rev
EC (IT8987)	1A
Date: Thursday, May 08, 2014	Sheet 32 of 42



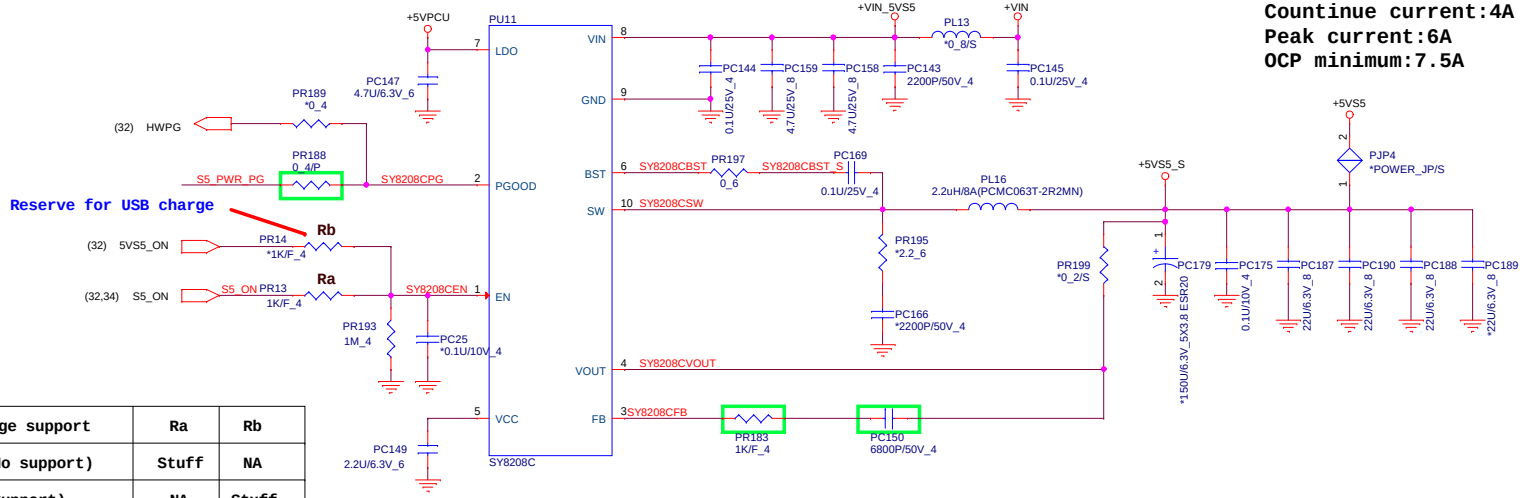
NB5	PROJECT : U87 Quanta Computer Inc.		
	Size: Custom	Document Number: Charger (OZ8691)	Rev: 1A
	Date: Friday, May 16, 2014	Sheet 33 of 44	

DC/DC +3VS5/+5VS5

+3.3 Volt +/- 5%
Countinue current:4A
Peak current:6A
OCP minimum:7.5A



+5 Volt +/- 5%
Countinue current:4A
Peak current:6A
OCP minimum:7.5A

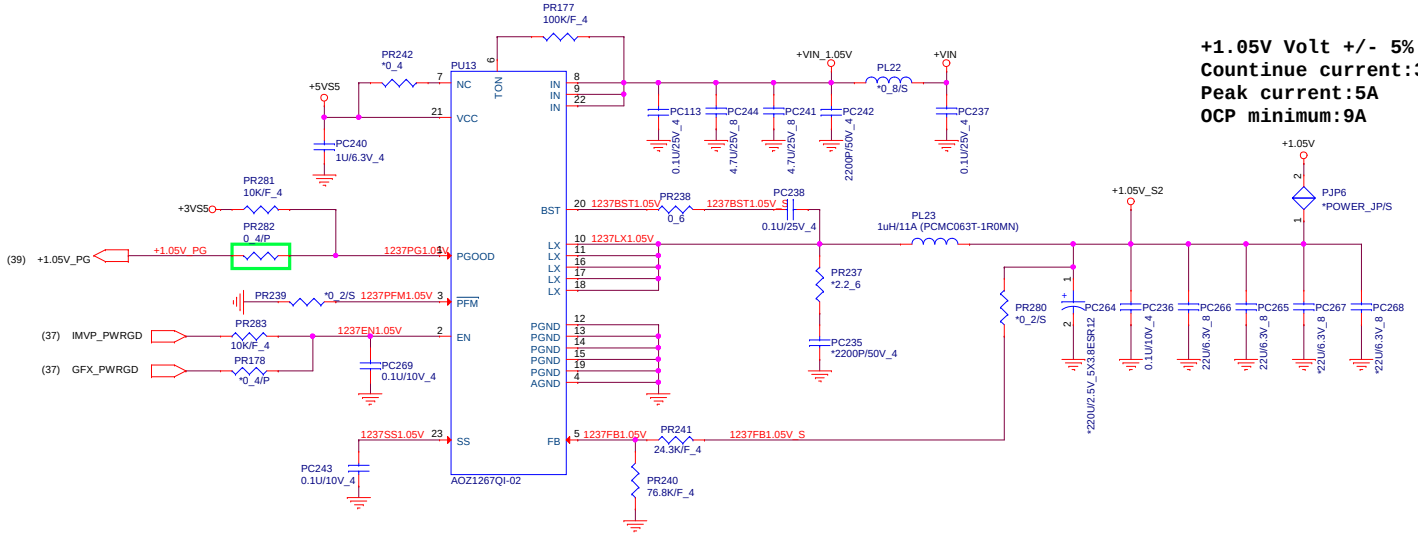


USB Charge support	Ra	Rb
Vine (No support)	Stuff	NA
Envy (Support)	NA	Stuff

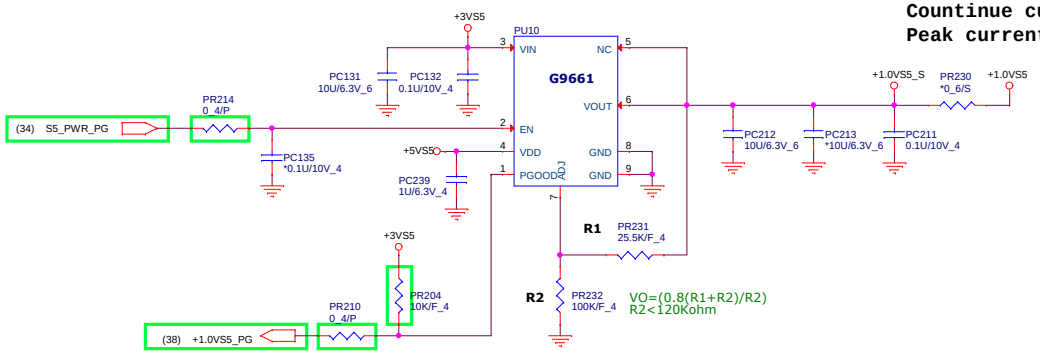
PROJECT : Y12E-BTM
Quanta Computer Inc.

Document Number	Rev
3/5VPCU(SY8208BC)	1A
Date: Thursday, May 08, 2014	Sheet 34 of 42

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

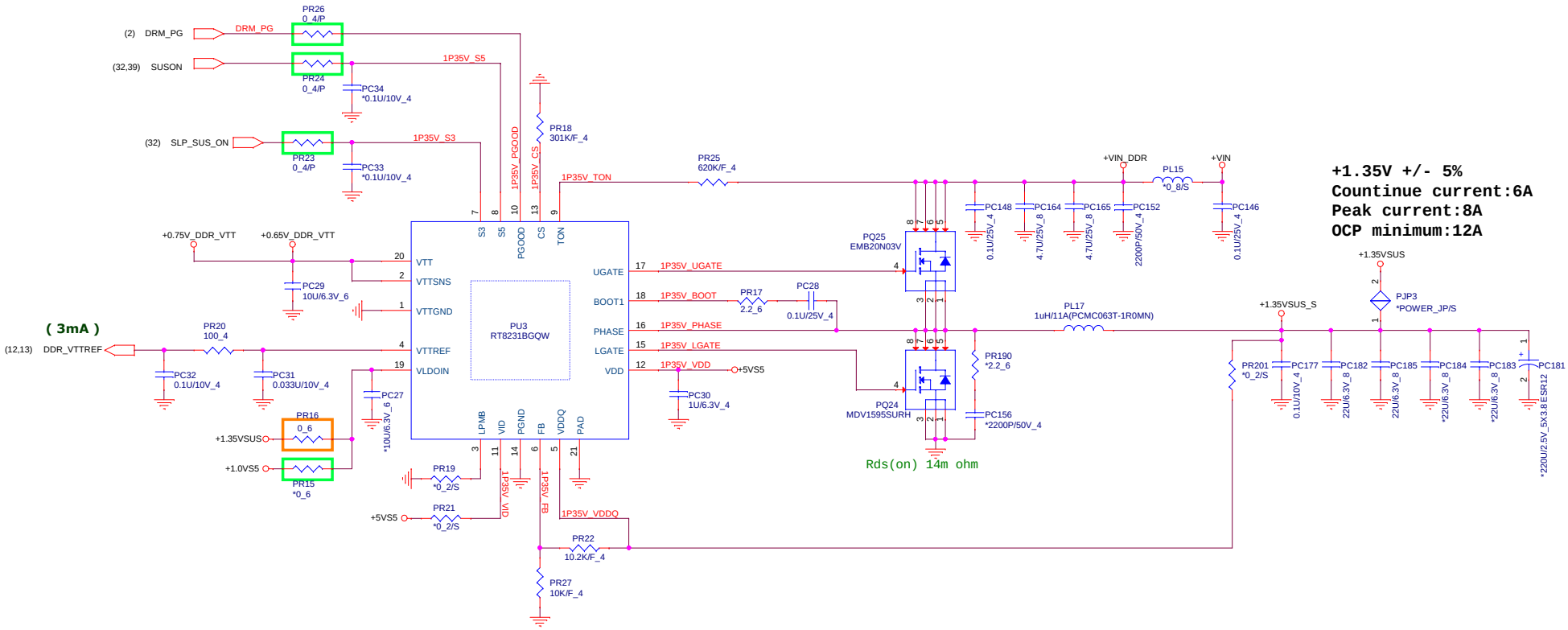


+1.0VS5 Volt +/- 5%
Countinue current:0.2mA
Peak current:0.36A



PROJECT : Y12E-BTM
Quanta Computer Inc.

Document Number	Rev
+1.05V/+1.5V (SY8002)	1A
Date: Thursday, May 08, 2014	Sheet 35 of 42



PROJECT : Y12E-BTM

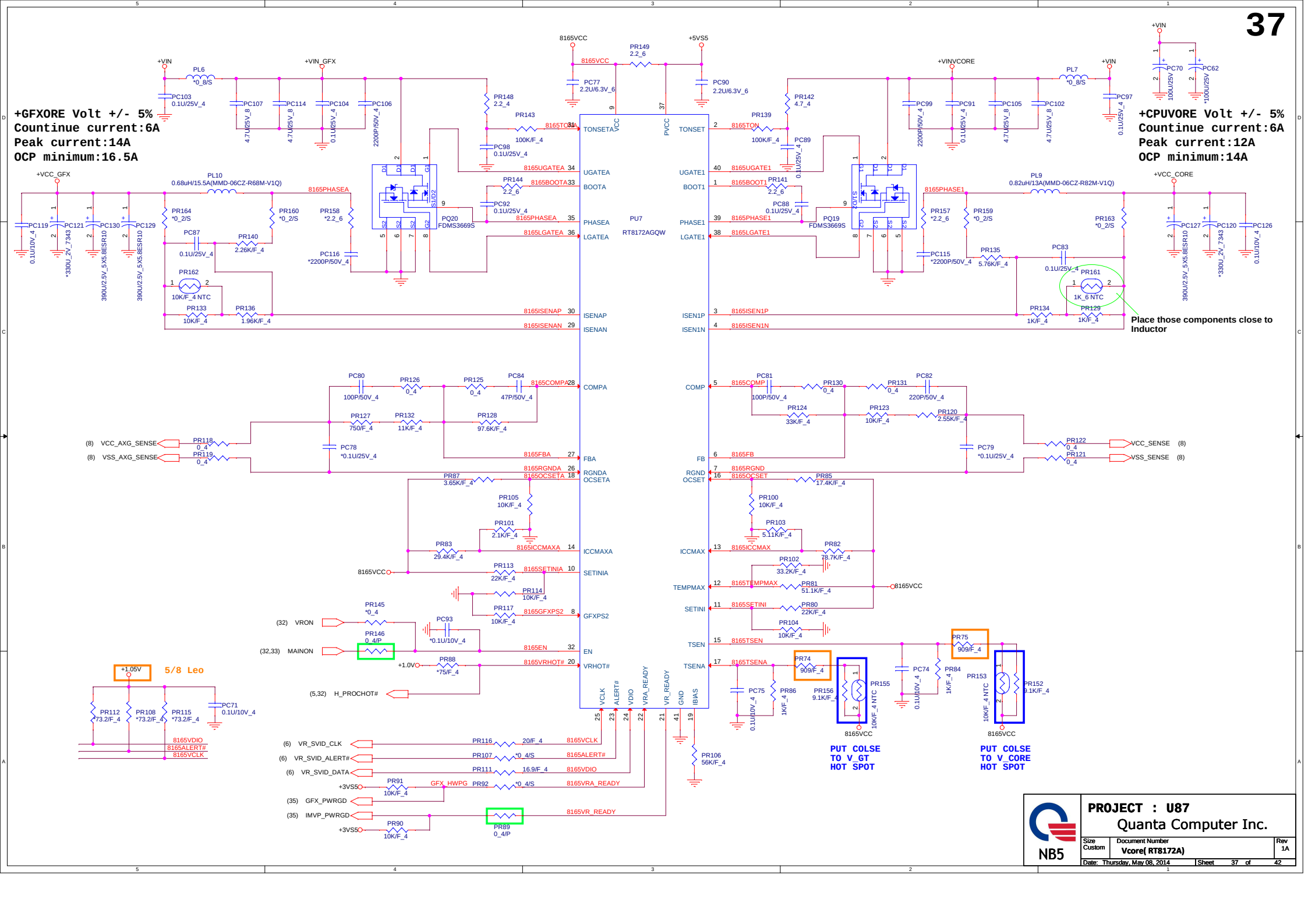
Quanta Computer Inc.

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

Date: Thursday, May 08, 2014 Sheet 36 of 42

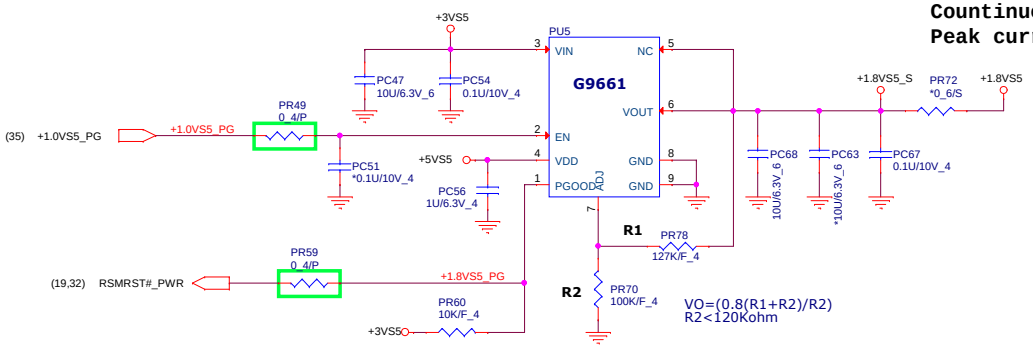
+GFXORE Volt +/- 5%
Countinue current:6A
Peak current:14A
OCP minimum:16.5A

+CPUVORE Volt +/- 5%
Countinue current:6A
Peak current:12A
OCP minimum:14A



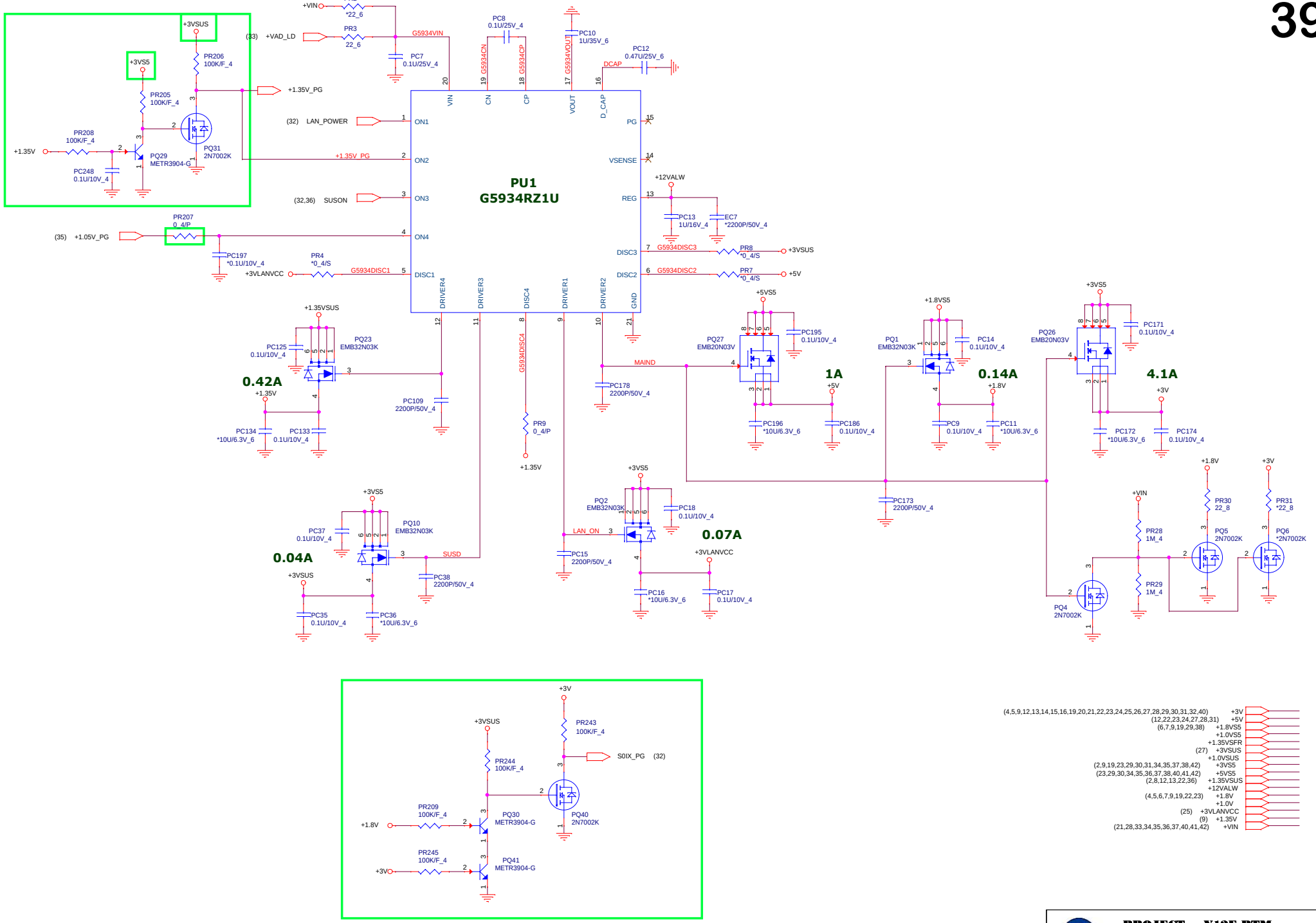
Quanta Computer Inc.	PROJECT : U87		
NB5	Size: Custom	Document Number: Vcore(RT8172A)	Rev: 1A
	Date: Thursday, May 08, 2014	Sheet 37 of 42	

+1.8VS5 Volt +/- 5%
Countinue current:0.105mA
Peak current:0.3A



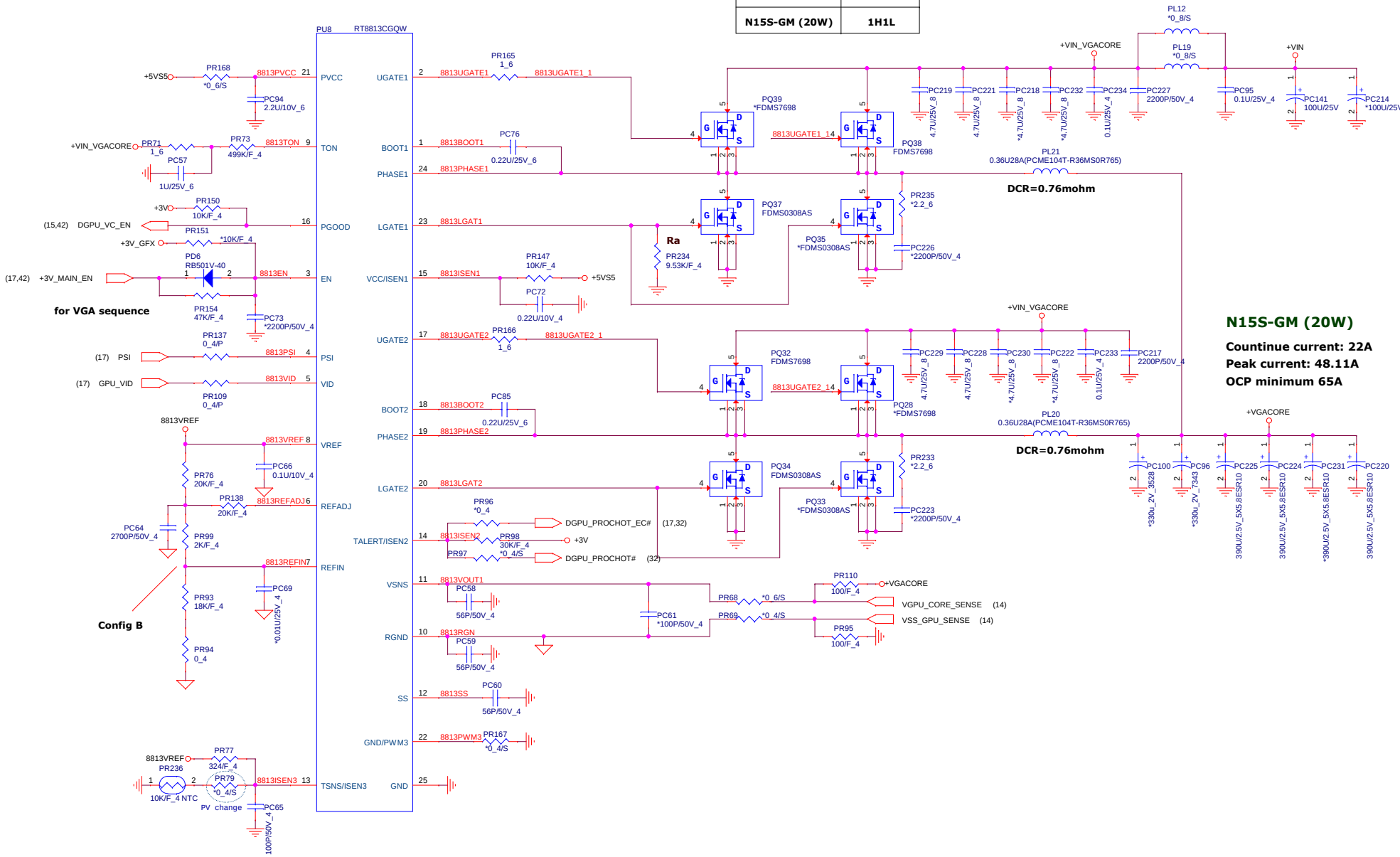
PROJECT : Y12E-BTM
Quanta Computer Inc.

Document Number	Rev
1.0VS5/1.8VS5/1.24VS5	1A
Date: Thursday, May 08, 2014	Sheet 38 of 42


PU1
G5934RZ1U
VIN
CN
CP
VOUT
D_CAP
PG
VSENSE
REG
DISC3
DISC2
GND
ON1
ON2
ON3
ON4
DISC1
DRIVER4
DRIVER3
DISC4
DRIVER1
DRIVER2
+3VSUS
+3VS5
+1.35V_PG
(32) LAN_POWER
(32,36) SUSON
(35) +1.05V_PG
+VIN
(33) +VAD_LD
+12VALW
+3VLANVCC
+1.35VSUS
+5VS5
+1.8VS5
+3V
+5V
+1.35V
+1.8V
MAIND
LAN_ON
SUSD
G5934DISC1
G5934DISC2
G5934DISC3
G5934DISC4
G5934VIN
G5934VOUT
DCAP
0.42A
1A
0.14A
4.1A
0.07A
0.04A
S0IX_PG (32)
PROJECT : Y12E-BTM
Quanta Computer Inc.
Document Number
Dis-charge IC (G5934RZ1U)
Rev
1A
Date: Thursday, May 08, 2014
Sheet 39 of 42

VGA Core

VGA TYPE	MOSFET
N15S-GM (20W)	1H1L



N15S-GM (20W)

Countinue current: 22A

Peak current: 48.11A

OCP minimum 65A

PROJECT :U83

Quanta Computer Inc.

Size	Document Number	Rev
Custom	+VGACORE (RT8813A)	1A

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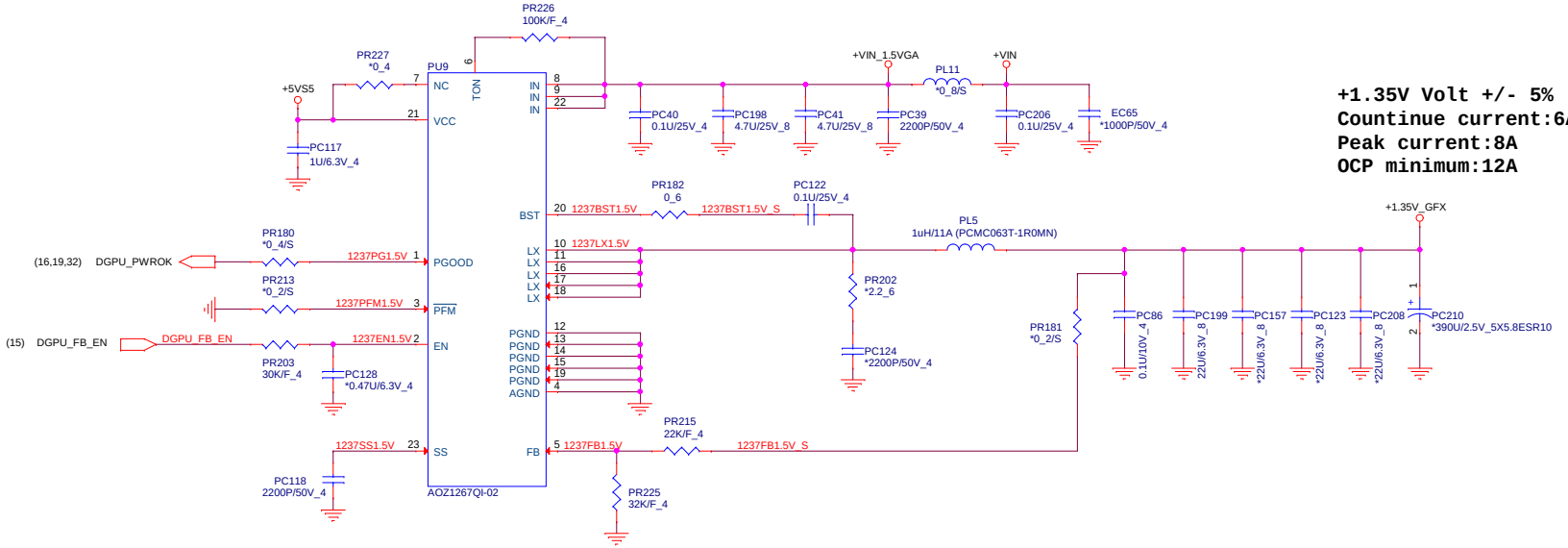
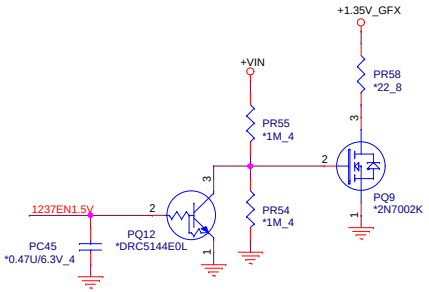


+1.35V Volt +/- 5%
Countinue current:6A
Peak current:8A
OCP minimum:12A

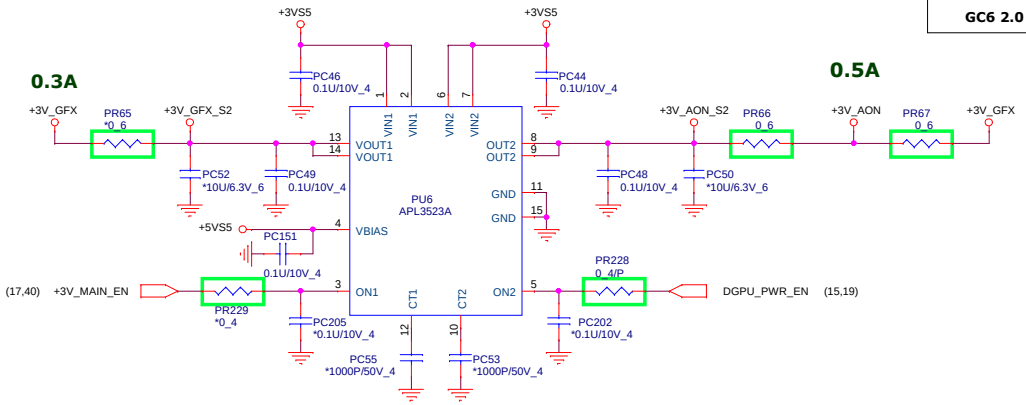


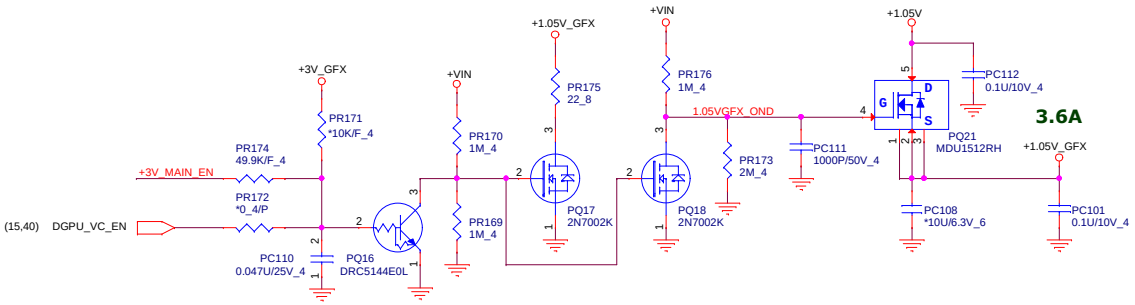
PROJECT :U83
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+1.35V_VGA(AOZ1237)	1A

Date: Thursday, May 08, 2014 Sheet 41 of 42

GC6 Support	PR65/PR229	PR67
NA	NA	Stuff
GC6 2.0	Stuff	NA





PROJECT :U83
Quanta Computer Inc.

Size	Document Number	Rev
Custom	1.05V_VGA/3V_VGA	1A
Date: Thursday, May 08, 2014	Sheet 42 of 42	