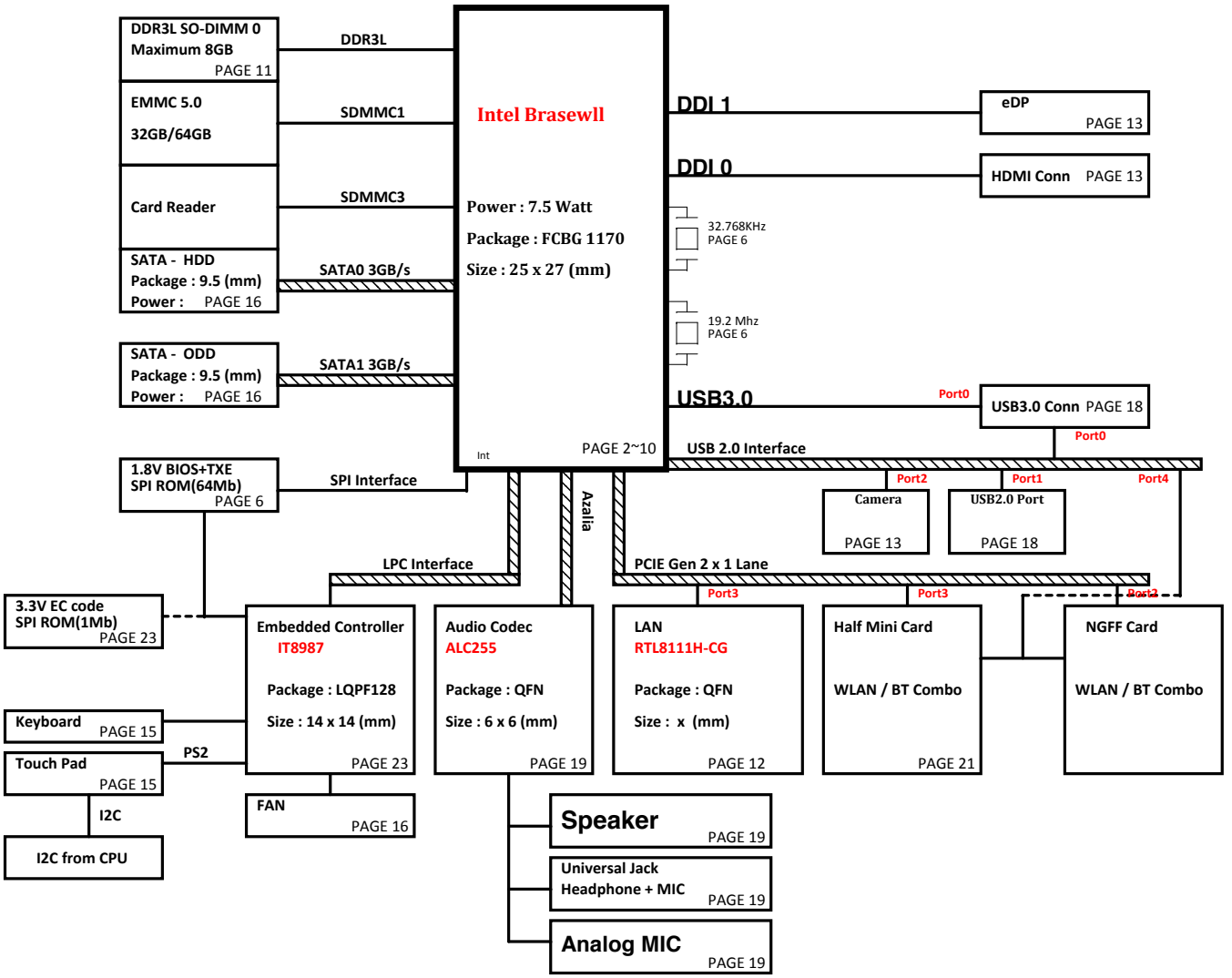
Z8AD UMA(14")
Intel Brasewll Platform Block Diagram

BOM

EM@ : EMMc
HD@ : HDD
GS@ :G-sensor
TPM@ : TPM
TSI@ :TOUCH SCREEN I2C
SP@ :Special



Quanta Computer Inc.
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+1.35VSUS [3,9,11,27]
+3V_S5 [3,5,9,12,14,15,16,22,26]

PLACE THE RESISTORS AS CLOSE AS POSSIBLE TO SOC(BSW)
ROUTE THEM AS SINGLE ENDED LINES

R212 *49.9_4 M_A_MON1P
R208 *100_4
R213 *49.9_4 M_A_MON1N
GND

ROUTE ALL VREF POWER SIGNALS AS THICK TRACES

+1.35VSUS
PLACE TWO 4.7K RESISTORS CLOSE TO CPU PINS ON M_VREF
ROUTE THE VREF POWER SIGNALS WITH THICK TRACES

R228 *4.7K_4
M_A_VREF_CA
R220 *4.7K_4
C203 *0.1U/16V_4
GND GND

+1.35VSUS
PLACE 0.1UF CAP CLOSE TO CPU

R227 *4.7K_4
M_A_VREF_DQ
R219 *4.7K_4
C202 *0.1U/16V_4
GND GND

[11] M_A_A[15:0]

U23A

M_A_A0	BB47	DDR3_M0_MA_0	
M_A_A1	BC42	DDR3_M0_MA_1	
M_A_A2	BJ48	DDR3_M0_MA_2	
M_A_A3	BH47	DDR3_M0_MA_3	
M_A_A4	BD42	DDR3_M0_MA_4	
M_A_A5	BH48	DDR3_M0_MA_5	
M_A_A6	BB46	DDR3_M0_MA_6	
M_A_A7	BE46	DDR3_M0_MA_7	
M_A_A8	BD44	DDR3_M0_MA_8	
M_A_A9	BE52	DDR3_M0_MA_9	
M_A_A10	BJ45	DDR3_M0_MA_10	
M_A_A11	BB49	DDR3_M0_MA_11	
M_A_A12	BF48	DDR3_M0_MA_12	
M_A_A13	BF44	DDR3_M0_MA_13	
M_A_A14	BD47	DDR3_M0_MA_14	
M_A_A15	BD49	DDR3_M0_MA_15	

[11] M_A_DM0	M_A_DM0	AP52	DDR3_M0_DM_0
[11] M_A_DM1	M_A_DM1	AT48	DDR3_M0_DM_1
[11] M_A_DM2	M_A_DM2	AP44	DDR3_M0_DM_2
[11] M_A_DM3	M_A_DM3	BA53	DDR3_M0_DM_3
[11] M_A_DM4	M_A_DM4	BG41	DDR3_M0_DM_4
[11] M_A_DM5	M_A_DM5	AY36	DDR3_M0_DM_5
[11] M_A_DM6	M_A_DM6	BD32	DDR3_M0_DM_6
[11] M_A_DM7	M_A_DM7	BH30	DDR3_M0_DM_7

[11] M_A_RAS#	M_A_RAS#	BA40	DDR3_M0_RASB
[11] M_A_CAS#	M_A_CAS#	BG45	DDR3_M0_CASB
[11] M_A_WE#	M_A_WE#	BH44	DDR3_M0_WEB

[11] M_A_BS#0	M_A_BS#0	BH46	DDR3_M0_BS_0
[11] M_A_BS#1	M_A_BS#1	AY40	DDR3_M0_BS_1
[11] M_A_BS#2	M_A_BS#2	BF52	DDR3_M0_BS_2

[11] M_A_CS#0	M_A_CS#0	AY38	DDR3_M0_CSB_0
[11] M_A_CS#1	M_A_CS#1	AU38	DDR3_M0_CSB_1

[11] M_A_CKE0	M_A_CKE0	BB44	DDR3_M0_CKE_0
[11] M_A_CKE1	M_A_CKE1	AY42	DDR3_M0_CKE_1

[11] M_A_ODT0	M_A_ODT0	AV36	DDR3_M0_ODT_0
[11] M_A_ODT1	M_A_ODT1	BA38	DDR3_M0_ODT_1

[11] M_A_CLK0	M_A_CLK0	BD40	DDR3_M0_CK_0
[11] M_A_CLK0#	M_A_CLK0#	BF40	DDR3_M0_CKB_0
[11] M_A_CLK1	M_A_CLK1	BD38	DDR3_M0_CK_1
[11] M_A_CLK1#	M_A_CLK1#	BF38	DDR3_M0_CKB_1

[11] M_A_DRAMRST#	M_A_DRAMRST#	BA42	DDR3_M0_DRAMRSTB

	M_A_VREF_CA	AT28	DRAM_M0_OCAVREF
	M_A_VREF_DQ	AU28	DRAM_M0_ODQVREF

	M_A_MON1P	AT30	RSVD_AT30
	M_A_MON1N	AU30	RSVD_AU30

	SOC_DRAM_PWROK	AV28	DDR3_DRAM_PWROK

GND R179 182_4 DRAM_RCOMP0 BA28 DDR3_M0_RCOMPPD

DDR3_M0_DQ_0	AK51	M_A_DQ0	
DDR3_M0_DQ_1	AL51	M_A_DQ1	
DDR3_M0_DQ_2	AT52	M_A_DQ2	
DDR3_M0_DQ_3	AR51	M_A_DQ3	
DDR3_M0_DQ_4	AL53	M_A_DQ4	
DDR3_M0_DQ_5	AK52	M_A_DQ5	
DDR3_M0_DQ_6	AR53	M_A_DQ6	
DDR3_M0_DQ_7	AP51	M_A_DQ7	
DDR3_M0_DQ_8	AP48	M_A_DQ8	
DDR3_M0_DQ_9	AT47	M_A_DQ9	
DDR3_M0_DQ_10	AY48	M_A_DQ10	
DDR3_M0_DQ_11	AV50	M_A_DQ11	
DDR3_M0_DQ_12	AP47	M_A_DQ12	
DDR3_M0_DQ_13	AT50	M_A_DQ13	
DDR3_M0_DQ_14	AY50	M_A_DQ14	
DDR3_M0_DQ_15	AV45	M_A_DQ15	
DDR3_M0_DQ_16	AT40	M_A_DQ16	
DDR3_M0_DQ_17	AP42	M_A_DQ17	
DDR3_M0_DQ_18	AT38	M_A_DQ18	
DDR3_M0_DQ_19	AP40	M_A_DQ19	
DDR3_M0_DQ_20	AT44	M_A_DQ20	
DDR3_M0_DQ_21	AV41	M_A_DQ21	
DDR3_M0_DQ_22	AP41	M_A_DQ22	
DDR3_M0_DQ_23	AV42	M_A_DQ23	
DDR3_M0_DQ_24	BD52	M_A_DQ24	
DDR3_M0_DQ_25	AV52	M_A_DQ25	
DDR3_M0_DQ_26	BC53	M_A_DQ26	
DDR3_M0_DQ_27	AV51	M_A_DQ27	
DDR3_M0_DQ_28	AW51	M_A_DQ28	
DDR3_M0_DQ_29	BC52	M_A_DQ29	
DDR3_M0_DQ_30	AW53	M_A_DQ30	
DDR3_M0_DQ_31	BB51	M_A_DQ31	
DDR3_M0_DQ_32	BG42	M_A_DQ32	
DDR3_M0_DQ_33	BG43	M_A_DQ33	
DDR3_M0_DQ_34	BG37	M_A_DQ34	
DDR3_M0_DQ_35	BJ37	M_A_DQ35	
DDR3_M0_DQ_36	BH42	M_A_DQ36	
DDR3_M0_DQ_37	BJ41	M_A_DQ37	
DDR3_M0_DQ_38	BH36	M_A_DQ38	
DDR3_M0_DQ_39	BH38	M_A_DQ39	
DDR3_M0_DQ_40	BC36	M_A_DQ40	
DDR3_M0_DQ_41	BA36	M_A_DQ41	
DDR3_M0_DQ_42	AU34	M_A_DQ42	
DDR3_M0_DQ_43	AU32	M_A_DQ43	
DDR3_M0_DQ_44	BF36	M_A_DQ44	
DDR3_M0_DQ_45	BD36	M_A_DQ45	
DDR3_M0_DQ_46	AV34	M_A_DQ46	
DDR3_M0_DQ_47	AV32	M_A_DQ47	
DDR3_M0_DQ_48	BF34	M_A_DQ48	
DDR3_M0_DQ_49	BC34	M_A_DQ49	
DDR3_M0_DQ_50	BA32	M_A_DQ50	
DDR3_M0_DQ_51	BD30	M_A_DQ51	
DDR3_M0_DQ_52	BD34	M_A_DQ52	
DDR3_M0_DQ_53	BA34	M_A_DQ53	
DDR3_M0_DQ_54	BF30	M_A_DQ54	
DDR3_M0_DQ_55	BD28	M_A_DQ55	
DDR3_M0_DQ_56	BJ33	M_A_DQ56	
DDR3_M0_DQ_57	BG29	M_A_DQ57	
DDR3_M0_DQ_58	BH34	M_A_DQ58	
DDR3_M0_DQ_59	BG32	M_A_DQ59	
DDR3_M0_DQ_60	BG28	M_A_DQ60	
DDR3_M0_DQ_61	BJ29	M_A_DQ61	
DDR3_M0_DQ_62	BH28	M_A_DQ62	
DDR3_M0_DQ_63	BG33	M_A_DQ63	

M_A_DQ[63:0] [11]

DDR3_M0_DQSP_0	AM52	M_A_DQS0	
DDR3_M0_DQSN_0	AM51	M_A_DQS#0	
DDR3_M0_DQSP_1	AV47	M_A_DQS1	
DDR3_M0_DQSN_1	AV48	M_A_DQS#1	
DDR3_M0_DQSP_2	AT42	M_A_DQS2	
DDR3_M0_DQSN_2	AT41	M_A_DQS#2	
DDR3_M0_DQSP_3	AY52	M_A_DQS3	
DDR3_M0_DQSN_3	BA51	M_A_DQS#3	
DDR3_M0_DQSP_4	BH40	M_A_DQS4	
DDR3_M0_DQSN_4	BG39	M_A_DQS#4	
DDR3_M0_DQSP_5	AT32	M_A_DQS5	
DDR3_M0_DQSN_5	AT34	M_A_DQS#5	
DDR3_M0_DQSP_6	BC30	M_A_DQS6	
DDR3_M0_DQSN_6	BC32	M_A_DQS#6	
DDR3_M0_DQSP_7	BH32	M_A_DQS7	
DDR3_M0_DQSN_7	BG31	M_A_DQS#7	

M_A_DQS[7:0] M_A_DQS[7:0] [11]
M_A_DQS#[7:0] M_A_DQS#[7:0] [11]

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VLV_M_D/BGA
REV = 1.15

Channel 0	Channel 1	SoC Supported Memory Operation Speed
1333 MHz	X	1066 MHz
1600 MHz	X	1600 MHz
1333 MHz	1333 MHz	1066 MHz
1600 MHz	1600 MHz	1600 MHz

Channel 0 need to
be populated first for the platform to power on

+3V_S5
R240 4.7K_4
+1.35VSUS
R231 10K_4
DRM_PWOK_C1
HWPG_1.35V [22,27]
HWPG_1.35V R232 *short_4 SOC_DRAM_PWROK
C208 *0.1U/16V_4
GND

[6,14] SLP_S4#
SLP_S4# 5 3 4 Q27A PJ4N3KDW
2 6 1 Q27B PJ4N3KDW
GND

Quanta Computer Inc.
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Size	Document Number	Rev
	Valley 1/9 (DDRA)	3A
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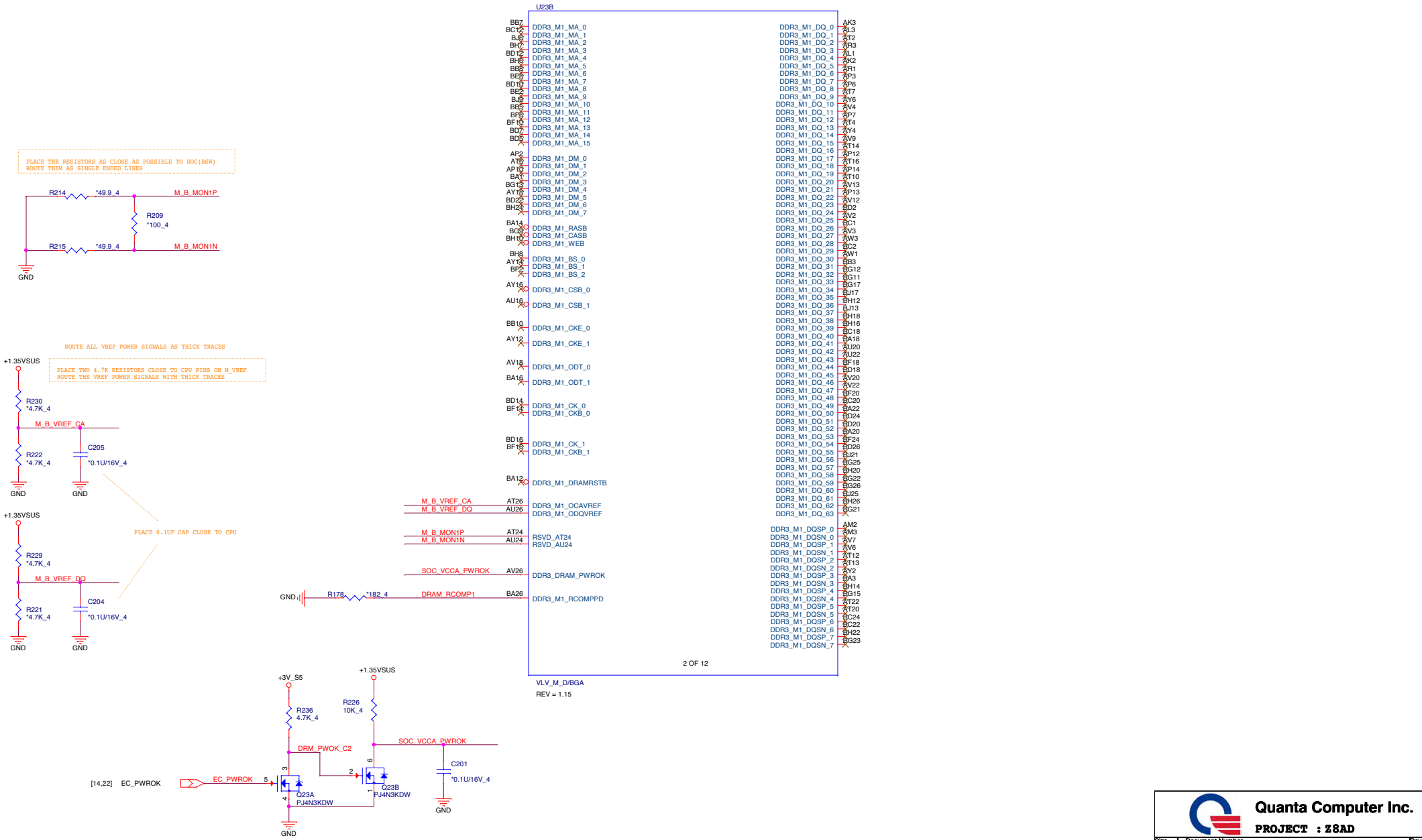

Quanta Computer Inc.			
PROJECT : Z8AD			
Size	Document Number		Rev
	Valley 2/9 (DDRB)		3A
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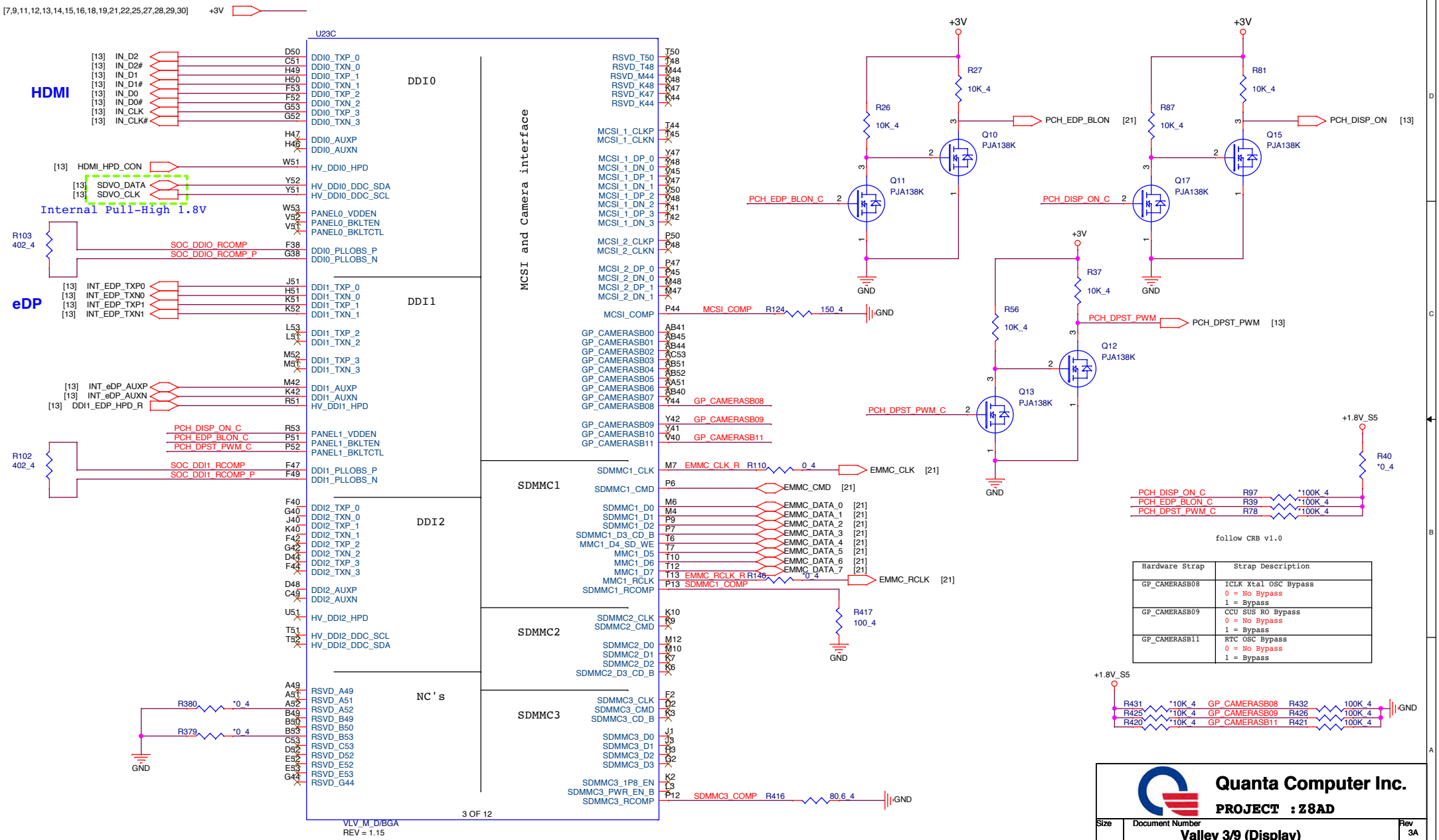
[7,9,11,12,13,14,15,16,18,19,21,22,25,27,28,29,30] +3V
U23C
HDMI
[13] IN_D2
[13] IN_D2#
[13] IN_D1
[13] IN_D1#
[13] IN_D0
[13] IN_D0#
[13] IN_CLK
[13] IN_CLK#
DDI0_TXP_0
DDI0_TXN_0
DDI0_TXP_1
DDI0_TXN_1
DDI0_TXP_2
DDI0_TXN_2
DDI0_TXP_3
DDI0_TXN_3
DDI0
DDI0_AUXP
DDI0_AUXN
[13] HDMI_HPD_CON
HV_DDI0_HPD
[13] SDVO_DATA
[13] SDVO_CLK
HV_DDI0_DDC_SDA
HV_DDI0_DDC_SCL
Internal Pull-High 1.8V
PANEL0_VDDEN
PANEL0_BKLTEN
PANEL0_BKLTCTL
R103 402_4
SOC_DDIO_RCOMP
SOC_DDIO_RCOMP_P
DDI0_PLLOBS_P
DDI0_PLLOBS_N
eDP
[13] INT_EDP_TXP0
[13] INT_EDP_TXN0
[13] INT_EDP_TXP1
[13] INT_EDP_TXN1
DDI1_TXP_0
DDI1_TXN_0
DDI1_TXP_1
DDI1_TXN_1
DDI1
DDI1_TXP_2
DDI1_TXN_2
DDI1_TXP_3
DDI1_TXN_3
[13] INT_eDP_AUXP
[13] INT_eDP_AUXN
[13] DDI1_EDP_HPD_R
DDI1_AUXP
DDI1_AUXN
HV_DDI1_HPD
PCH_DISP_ON_C
PCH_EDP_BLON_C
PCH_DPST_PWM_C
PANEL1_VDDEN
PANEL1_BKLTEN
PANEL1_BKLTCTL
R102 402_4
SOC_DDI1_RCOMP
SOC_DDI1_RCOMP_P
DDI1_PLLOBS_P
DDI1_PLLOBS_N
DDI2_TXP_0
DDI2_TXN_0
DDI2_TXP_1
DDI2_TXN_1
DDI2_TXP_2
DDI2_TXN_2
DDI2_TXP_3
DDI2_TXN_3
DDI2
DDI2_AUXP
DDI2_AUXN
HV_DDI2_HPD
HV_DDI2_DDC_SCL
HV_DDI2_DDC_SDA
R380 *0_4
R379 *0_4
GND
RSVD_A49
RSVD_A51
RSVD_A52
RSVD_B49
RSVD_B50
RSVD_B53
RSVD_C53
RSVD_D52
RSVD_E52
RSVD_E53
RSVD_G44
NC's
MCSI and Camera interface
RSVD_T50
RSVD_T48
RSVD_M44
RSVD_K48
RSVD_K47
RSVD_K44
MCSI_1_CLKP
MCSI_1_CLKN
MCSI_1_DP_0
MCSI_1_DN_0
MCSI_1_DP_1
MCSI_1_DN_1
MCSI_1_DP_2
MCSI_1_DN_2
MCSI_1_DP_3
MCSI_1_DN_3
MCSI_2_CLKP
MCSI_2_CLKN
MCSI_2_DP_0
MCSI_2_DN_0
MCSI_2_DP_1
MCSI_2_DN_1
MCSI_COMP
MCSI_COMP R124 150_4
GND
GP_CAMERASB00
GP_CAMERASB01
GP_CAMERASB02
GP_CAMERASB03
GP_CAMERASB04
GP_CAMERASB05
GP_CAMERASB06
GP_CAMERASB07
GP_CAMERASB08
GP_CAMERASB09
GP_CAMERASB10
GP_CAMERASB11
SDMMC1
SDMMC1_CLK
SDMMC1_CMD
SDMMC1_D0
SDMMC1_D1
SDMMC1_D2
SDMMC1_D3_CD_B
MMC1_D4_SD_WE
MMC1_D5
MMC1_D6
MMC1_D7
MMC1_RCLK
SDMMC1_RCOMP
M7 EMMC_CLK_R R110 0_4
EMMC_CLK [21]
EMMC_CMD [21]
EMMC_DATA_0 [21]
EMMC_DATA_1 [21]
EMMC_DATA_2 [21]
EMMC_DATA_3 [21]
EMMC_DATA_4 [21]
EMMC_DATA_5 [21]
EMMC_DATA_6 [21]
EMMC_DATA_7 [21]
T13 EMMC_RCLK_R R146 0_4
EMMC_RCLK [21]
P13 SDMMC1_COMP
R417 100_4
SDMMC2
SDMMC2_CLK
SDMMC2_CMD
SDMMC2_D0
SDMMC2_D1
SDMMC2_D2
SDMMC2_D3_CD_B
SDMMC3
SDMMC3_CLK
SDMMC3_CMD
SDMMC3_CD_B
SDMMC3_D0
SDMMC3_D1
SDMMC3_D2
SDMMC3_D3
SDMMC3_1P8_EN
SDMMC3_PWR_EN_B
SDMMC3_RCOMP
P12 SDMMC3_COMP R416 80.6_4
3 OF 12
VLV_M_D/BGA
REV = 1.15
+3V
R27 10K_4
R26 10K_4
Q10 PJA138K
Q11 PJA138K
PCH_EDP_BLON_C
PCH_EDP_BLON [21]
R81 10K_4
R87 10K_4
Q15 PJA138K
Q17 PJA138K
PCH_DISP_ON_C
PCH_DISP_ON [13]
R37 10K_4
R56 10K_4
Q12 PJA138K
Q13 PJA138K
PCH_DPST_PWM_C
PCH_DPST_PWM
PCH_DPST_PWM [13]
+1.8V_S5
R40 *0_4
PCH_DISP_ON_C R97 *100K_4
PCH_EDP_BLON_C R39 *100K_4
PCH_DPST_PWM_C R78 *100K_4
follow CRB v1.0
Hardware Strap
Strap Description
GP_CAMERASB08
ICLK Xtal OSC Bypass
0 = No Bypass
1 = Bypass
GP_CAMERASB09
CCU SUS RO Bypass
0 = No Bypass
1 = Bypass
GP_CAMERASB11
RTC OSC Bypass
0 = No Bypass
1 = Bypass
R431 *10K_4 GP_CAMERASB08 R432 100K_4
R425 *10K_4 GP_CAMERASB09 R426 100K_4
R420 *10K_4 GP_CAMERASB11 R421 100K_4
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[6,8,26,28,29] +1.05V_S5
[9,12,13,14,15,16,19,20,21,22,26,30] +1.8V

SATA HDD

SATA ODD

U23D

[16] SATA_TXP0 — C31 SATA_TXP_0
[16] SATA_TXN0 — B30 SATA_TXN_0
[16] SATA_RXP0 — N28 SATA_RXP_0
[16] SATA_RXN0 — M28 SATA_RXN_0
[16] SATA_TXP1 — C29 SATA_TXP1
[16] SATA_TXN1 — A29 SATA_TXN_1
[16] SATA_RXP1 — J28 SATA_RXP_1
[16] SATA_RXN1 — K28 SATA_RXN_1

[14] SOC_KBC_SCI — R484 *short_4 SATA_GP0 — AH2 SATA_GP0
R400 *short_4 SATA_GP1 — AG3 SATA_GP1
DEVSLP0 — AG1 SATA_GP2
[14] SOC_KCB_SMI — GPIO_SUS7 R101 *0_4 — [16] DEVSLP0 — AF3 SATA_GP3
[6] GPIO_SUS7 — [16] ODD_PRSNT# — R477 *0_4 SATA_LED# — AH3 SATA_LED

SATA_RCOMP_DP — N30 SATA_OBSP
SATA_RCOMP_DN — M30 SATA_OBSN
R116 402_4

SOC_SPI_CLK — W3 FST_SPI_CLK
SOC_SPI_CS# — V4 FST_SPI_CS0_B
V6 FST_SPI_CS1_B
V7 FST_SPI_CS2_B
FST_SPI_D0 — V2 FST_SPI_D0
FST_SPI_D1 — V3 FST_SPI_D1
FST_SPI_D2 — U1 FST_SPI_D2
FST_SPI_D3 — U3 FST_SPI_D3

B16 RSVD_B16
C16 RSVD_C16

BIOS_STRAP — AK9 GP_SSP_2_CLK
AK10 GP_SSP_2_FS
AK12 GP_SSP_2_TXD
AK13 GP_SSP_2_RXD

NGFF X1

WLAN x1

LAN x1

PCIE_TXP_0 — C24
PCIE_TXN_0 — B24
PCIE_RXP_0 — G20
PCIE_RXN_0 — G21
PCIE_TXP_1 — A25 PCIE_TXP1_NGFF_C C343 0.1U/16V_4 — PCIE_TXP1_NGFF [19]
PCIE_TXN_1 — C25 PCIE_TXN1_NGFF_C C344 0.1U/16V_4 — PCIE_TXN1_NGFF [19]
PCIE_RXP_1 — D20 — PEG_RXP1_NGFF [19]
PCIE_RXN_1 — F20 — PEG_RXN1_NGFF [19]
PCIE_TXP_2 — B26 PCIE_TXP2_WLAN_C C342 0.1U/16V_4 — PCIE_TXP2_WLAN [20]
PCIE_TXN_2 — C26 PCIE_TXN2_WLAN_C C341 0.1U/16V_4 — PCIE_TXN2_WLAN [20]
PCIE_RXP_2 — D22 — PCIE_RXP2_WLAN [20]
PCIE_RXN_2 — F22 — PCIE_RXN2_WLAN [20]
PCIE_TXP_3 — A27 PCIE_TXP3_LAN_C C340 0.1U/16V_4 — PCIE_TXP3_LAN [12]
PCIE_TXN_3 — C27 PCIE_TXN3_LAN_C C348 0.1U/16V_4 — PCIE_TXN3_LAN [12]
PCIE_RXP_3 — G24 — PCIE_RXP3_LAN [12]
PCIE_RXN_3 — J24 — PCIE_RXN3_LAN [12]

AM10 SP7_R
PCIE_CLKREQ0B — AM12 PCIE_CLKREQ1_NGFF# — PCIE_CLKREQ1_NGFF# [19]
PCIE_CLKREQ1B — AK14 PCIE_CLKREQ2_WLAN# — PCIE_CLKREQ2_WLAN# [20]
PCIE_CLKREQ2B — AM14 PCIE_CLKREQ3_LAN# — PCIE_CLKREQ3_LAN# [12]
PCIE_CLKREQ3B

PCIE_OBSP — D26 SOC_PCIE_COMP — R107 402_4
PCIE_OBSN — F26 SOC_PCIE_COMN

MF_HDA_RSTB — AF13 ACZ_RST# — R268 75_4 — PCH_AZ_CODEC_RST# [18]
MF_HDA_SYNC — AF12 ACZ_SYNC — R264 75_4 — PCH_AZ_CODEC_SYNC [18]
MF_HDA_CLK — AD9 ACZ_BCLK — R258 75_4 — PCH_AZ_CODEC_BITCLK [18]
MF_HDA_SDO — AF14 ACZ_SDOUT — R265 75_4 — PCH_AZ_CODEC_SDOUT [18]
MF_HDA_SDI0 — AD7 ACZ_SDIN0 — R262 *short_4 — PCH_AZ_CODEC_SDIN0 [18]
MF_HDA_SDI1 — AD6
MF_HDA_DOCKRSTB — AB7
MF_HDA_DOCKENB — AB9
CRB is 75 ohm

SPKR — H4 — ACZ_SPKR [18]

PROCHOT — AD50 SOC_PROCHOT# R433 *short_4 — H_PROCHOT# [22,24,28,29]
R448 20K_4 — +1.8V_S5
C354 0.1U/16V_4 — GND

VLV_M_D/BGA
4 OF 12
REV = 1.15

+1.8V_S5
PCIE_CLKREQ1_NGFF# R525 10K_4
PCIE_CLKREQ2_WLAN# R523 10K_4
PCIE_CLKREQ3_LAN# R522 10K_4
DEVSLP0 R478 10K_4
SP7_R R521 10K_4

+1.8V_S5
Add SSD ID 1/14
High is SSD ,Low is ODD
R810 *100K/F_4
[16] SSD_ID — R811 SATA_GP3 — 10K_4

SPI NOR FLASH

+1.8V_S5
C364 0.1U/16V_4 — GND
U22
VCC — SPI_SI — SOC_SPI_MOSI_R R495 10_4 FST_SPI_D0
SPI_SO — SOC_SPI_MISO_R R438 10_4 FST_SPI_D1
CS# — SOC_SPI_CS#_R R440 33_4 SOC_SPI_CS#
WP# — SPI_SCK — SOC_SPI_CLK_R R496 10_4 SOC_SPI_CLK
FST_SPI_D2 R439 10_4 FST_SPI_D2_R
FST_SPI_D3 R494 10_4 FST_SPI_D3_R
SPI_HOLD GND — GND
SPI_FLASH
soic8-7_9-1_27
AKE5EZN0N00
IC FLASH (8P) W25Q64FWSSIG (SOIC)

2nd source: AKE5EG-0Q01

+1.8V_S5
R140 3.3K_4 SOC_SPI_CS#
R139 3.3K_4 FST_SPI_D2_R
R493 3.3K_4 FST_SPI_D3_R

+1.8V_S5
R513 *10K_4
BIOS_STRAP
0 = LPC
1 = SPI
R514 *10K_4
GND

+3V_S5
R356 10K_4 — AC_PRESENT [6]
Q43 2N7002K
Q42 2N7002K
[24] ACPRESENT — R351 *short_4 AC_PRESENT_NM 2
GND

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

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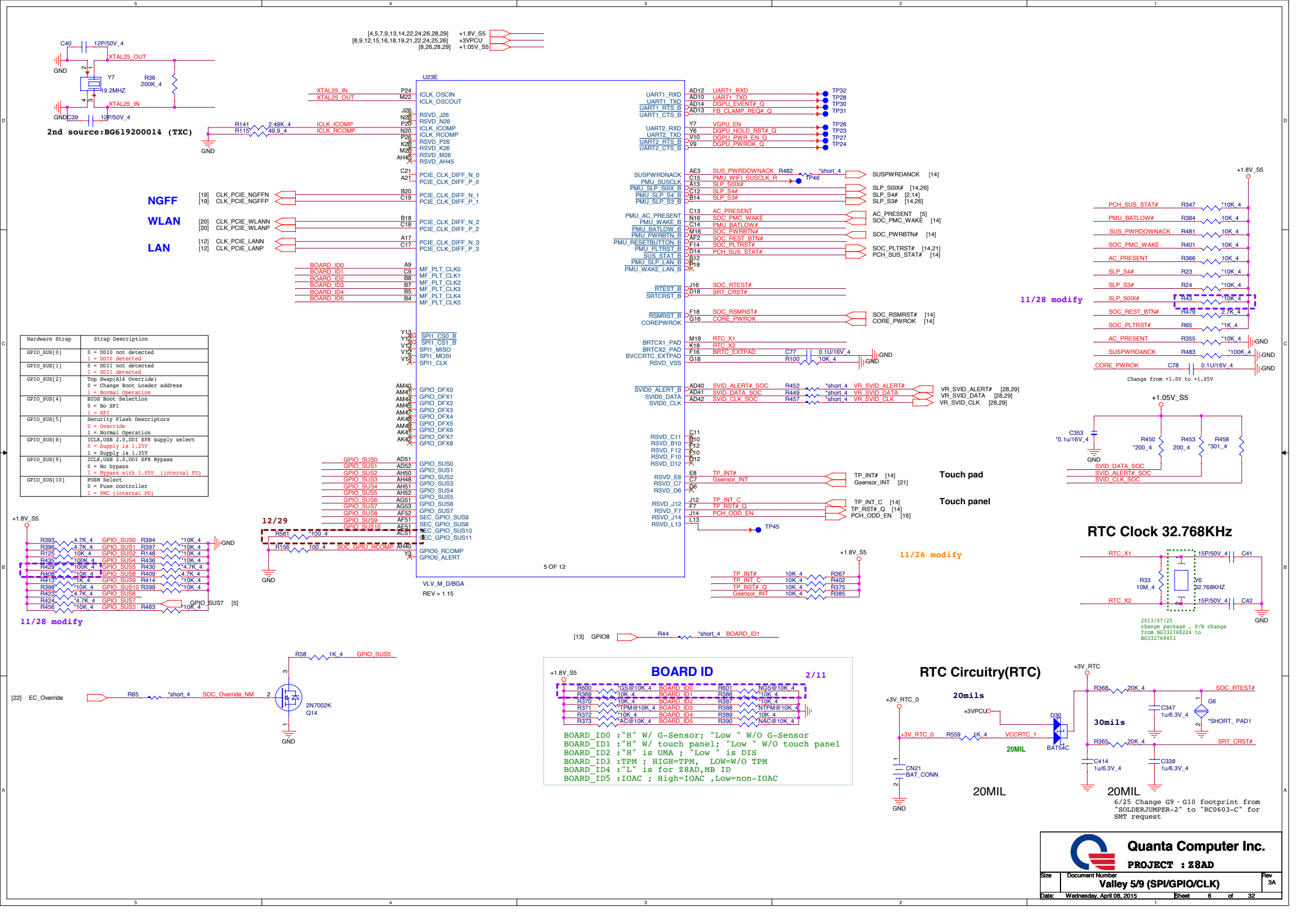

Hardware Strap	Strap Description
GPIO_SUS[0]	0 = DDI0 not detected 1 = DDI0 detected
GPIO_SUS[1]	0 = DDI1 not detected 1 = DDI1 detected
GPIO_SUS[2]	Top Swap(A16 Override) 0 = Change Boot Loader address 1 = Normal Operation
GPIO_SUS[4]	BIOS Boot Selection 0 = No SPI 1 = SPI
GPIO_SUS[5]	Security Flash Descriptors 0 = Override 1 = Normal Operation
GPIO_SUS[8]	ICLK,USB 2.0,DDI SFR supply select 0 = Supply is 1.25V 1 = Supply is 1.35V
GPIO_SUS[9]	ICLK,USB 2.0,DDI SFR Bypass 0 = No bypass 1 = Bypass with 1.05V (internal PU)
GPIO_SUS[10]	POSN Select 0 = Fuse controller 1 = PMC (internal PD)

+1.8V_S5 [4,5,6,9,13,14,22,24,26,28,29]

+3V [4,9,11,12,13,14,15,16,18,19,21,22,25,27,28,29,30]

U23F

[17] USB30_TX0+ B32 USB3_TXP0
[17] USB30_TX0- C32 USB3_TXN0
[17] USB30_RX0+ F28 USB3_RXP0
[17] USB30_RX0- D28 USB3_RXN0

A33 USB3_TXP1
C33 USB3_TXN1
F30 USB3_RXP1
D30 USB3_RXN1

C34 USB3_TXP2
B35 USB3_TXN2
G32 USB3_RXP2
J32 USB3_RXN2

C35 USB3_TX3
A35 USB3_TXN3
G33 USB3_RXP3
J33 USB3_RXN3

R106 402_4
USB3_OBSP D34 USB3_OBSP
USB3_OBSN F34 USB3_OBSN

C37 RSVD_C37
A37 RSVD_A37
F36 RSVD_F36
D36 RSVD_D36
M34 RSVD_M34
M32 RSVD_M32

C38 RSVD_C38
B38 RSVD_B38
G36 RSVD_G36
J36 RSVD_J36

N34 RSVD_N34
P34 RSVD_P34

USB_OTG_ID B48

USB_DP0 C42 USBP0+ [17]
USB_DN0 B42 USBP0- [17]

USB_DP1 C43 USBP1+ [17]
USB_DN1 B44 USBP1- [17]

USB_DP2 C41 USBP2+ [13]
USB_DN2 A41 USBP2- [13]

USB_DP3 C45 USBP3+ [13]
USB_DN3 A45 USBP3- [13]

USB_DP4 B40 USBP4+ [19,20]
USB_DN4 C40 USBP4- [19,20]

USB_OC_00 P14 10K_4 R418 SOC_USB_OC0 [17]
USB_OC_11 P16 10K_4 R419 +1.8V_S5

RSVD_B46 B46 USB2_OBSP R91 *49.9_4 R383 *short_4 GND
USB_VBUSSNS B47 USB_VBUSSNS R382 *0_4 GND
USB_RCOMP A48 USB_RCOMP R381 113_4 GND

+1.8V_S5 R361 *20K_4
C336 *0.1U/16V_4 GND

USB_HSIC_0_STROBE M36
USB_HSIC_0_DATA N36
USB_HSIC_1_STROBE K38
USB_HSIC_1_DATA M38
USB_HSIC_RCOMP N38 USB_HSIC_RCOMP 45.3_4 R111 GND

RSVD_H5 H5
RSVD_H7 H7

RSVD_P28 P28
RSVD_P30 C30
RSVD_AF50 AF50
RSVD_AF48 AF48
RSVD_AF44 AF44
RSVD_AF45 AF45

Port 1 is debug port

USB3.0

USB2

TouchPanel

CAMERA

BT

[19,20] CLK_24M_DEBUG R446 22_4 [22] CLK_24M_KBC R437 22_4 SOC_CLKOUT_0 P2 MF_LPC_CLKOUT0
SOC_CLKOUT_1 R3 MF_LPC_CLKOUT1
[15] CLK_TPM R443 TPM@22_4 [15,22] CLKRUN# R442 22_4 SOC_CLKRUN# T3 LPC_CLKRUNB
For TPM

[15,19,20,22] LFRAME# LFRAME# P3 LPC_FRAMEB
[15,19,20,22] LAD0 LAD0 M3 MF_LPC_AD0
[15,19,20,22] LAD1 LAD1 M2 MF_LPC_AD1
[15,19,20,22] LAD2 LAD2 N3 MF_LPC_AD2
[15,19,20,22] LAD3 LAD3 N1 MF_LPC_AD3

[14,15] SOC_SERIRQ SOC_SERIRQ T2 ILB_SERIRQ

GND R114 100_4 LPC_RCOMP T4 LPC_HVT_RCOMP

I2C0_SDA AH7 I2C_0_SDA_R R510 *short_4 I2C_0_SDA [14]
I2C0_SCL AK6 I2C_0_SCL_R R515 *short_4 I2C_0_SCL [14]

Touch pad

I2C1_SDA AH6 I2C_1_SDA R490 *short_4 I2C1_SDA_GPIO6 [13]
I2C1_SCL AF6 I2C_1_SCL R501 *short_4 I2C1_SCL_GPIO7 [13]

Touch panel

I2C2_SDA AF7 I2C_2_SDA_R R503 *short_4 I2C_2_SDA [21]
I2C2_SCL AF9 I2C_2_SCL_R R492 *short_4 I2C_2_SCL [21]

G Sensor

I2C3_SDA AD2 I2C_3_SDA
I2C3_SCL AE4 I2C_3_SCL

I2C4_SDA AD3 I2C_4_SDA
I2C4_SCL AC1 I2C_4_SCL

I2C5_SDA AC3 I2C_5_SDA
I2C5_SCL AB2 I2C_5_SCL

I2C6_SDA AB3 I2C_6_SDA
I2C6_SCL AA1 I2C_6_SCL

RSVD_Y2 Y2 I2C_NFC_SOC_SDA T7
RSVD_AA3 AA3 I2C_NFC_SOC_SCL T6

+1.8V_S5
R127 51_4 XDP_H_TDO
R128 51_4 XDP_H_TMS
R444 51_4 XDP_H_TDI
R126 51_4 XDP_H_PREQ#
R445 51_4 XDP_H_TRST#
R167 51_4 XDP_H_TCK
R415 *10K_4 RSVD_M13
GND

XDP_H_TCK AF42 TCK
XDP_H_TDI AD47 TDI
XDP_H_TDO AF40 TDO
XDP_H_TMS AD48 TMS
XDP_H_TRST# AB48 TRST_B
TP29
XDP_H_PRDY# AD45 CX_PRDY_B
XDP_H_PREQ# AF41 CX_PREQ_B
RSVD_M13 M13 RSVD_M13

+1.8V_S5
R185 1K_4 SMB_SOC_DATA AM7 MF_SMB_DATA
R186 1K_4 SMB_SOC_CLK AM6 MF_SMB_CLK
R508 1K_4 SMB_SOC_ALERTB AM9 MF_SMB_ALERTB
[16] SMB1ALERT# R509 *short_4

6 OF 12

VLV_M_D/BGA

REV = 1.15

+1.8V_S5
I2C_0_SDA R511 1K_4
I2C_0_SCL R516 1K_4
I2C_1_SDA R489 1K_4
I2C_1_SCL R500 1K_4
I2C_2_SDA_R R502 1K_4
I2C_2_SCL_R R491 1K_4
I2C_3_SDA R464 1K_4
I2C_3_SCL R480 1K_4
I2C_4_SDA R465 *1K_4
I2C_4_SCL R466 1K_4
I2C_5_SDA R467 *1K_4
I2C_5_SCL R468 1K_4
I2C_6_SDA R469 *1K_4
I2C_6_SCL R470 1K_4
I2C_NFC_SOC_SDA R472 *1K_4
I2C_NFC_SOC_SCL R471 1K_4

change to 1K as CRB

+3V
+1.8V_S5
R218 200K_4
R216 2.2K_4
R217 2.2K_4
GND C185 0.1U/25V_4
U11
1 GND EN 8
2 VREF1 VREF2 7
SMB_SOC_DATA 4 SDA1 SDA2 5 SMB_RUN_DAT [11,20,21]
SMB_SOC_CLK 3 SCL1 SCL2 6 SMB_RUN_CLK [11,20,21]
PCA9306
C206 0.1U/25V_4 GND

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+VCC_CORE [28]
+VGG [29]
+3V [4,7,9,11,12,13,14,15,16,18,19,21,22,25,27,28,29,30]
+1.05V_S5 [6,26,28,29]
+1.15V [26]

3/16 change 0 ohm by acer

U23G

VCC1_SENSEP R467 VCC0_SENSEP_R AG32
VCC1_SENSEN R498 VCC0_SENSEN_R AJ32
R486 VCC1_SENSEP_R AD29
R497 VCC1_SENSEN_R AF27
VGG_SENSEP AD24
VGG_SENSEN AD22
VNN_REFIN_R AC27
[28] VCC1_SENSEP
[28] VCC1_SENSEN
[29] VGG_SENSEP
[29] VGG_SENSEN
T8 Fixed Vnn Sense

CORE_VCC0_SENSE
CORE_VSS0_SENSE
CORE_VCC1_SENSE
CORE_VSS1_SENSE
DDI_VGG_SENSE
UNCORE_VSS_SENSE[2]
UNCORE_VSS_SENSE[1]

3.5A

UNCORE_VNN_S4[1] AA18
UNCORE_VNN_S4[2] AA19
UNCORE_VNN_S4[3] AA21
UNCORE_VNN_S4[4] AA22
UNCORE_VNN_S4[5] AA24
UNCORE_VNN_S4[6] AA25
UNCORE_VNN_S4[7] AC18
UNCORE_VNN_S4[8] AC19
UNCORE_VNN_S4[9] AC21
UNCORE_VNN_S4[10] AC22
UNCORE_VNN_S4[11] AC24
UNCORE_VNN_S4[12] AC25
UNCORE_VNN_S4[13] AD25
UNCORE_VNN_S4[14] AD27

+1.05V_S5
C149 1U/10V_4
C145 1U/10V_4
C129 1U/10V_4
C128 10U/6.3V_6
C96 10U/6.3V_6
C52 10U/6.3V_6
C130 *1U/10V_4
C141 *1U/10V_4
GND

+VCC_CORE
C160 22uF/6.3V_6
C164 22uF/6.3V_6
C161 4.7uF/6.3V_6
C159 4.7uF/6.3V_6
C165 4.7uF/6.3V_6
GND

AF36 AG33 AG35 AG36 AG38 AJ33 AJ36 AJ38
CORE_VCC1_S0IX[3]
CORE_VCC1_S0IX[7]
CORE_VCC1_S0IX[8]
CORE_VCC1_S0IX[9]
CORE_VCC1_S0IX[10]
CORE_VCC1_S0IX[14]
CORE_VCC1_S0IX[15]
CORE_VCC1_S0IX[16]

6.4A

+VCC_CORE
C152 22uF/6.3V_6
C150 22uF/6.3V_6
C162 4.7uF/6.3V_6
C163 4.7uF/6.3V_6
C151 4.7uF/6.3V_6
GND

AF30 AG27 AG29 AG30 AJ27 AJ29 AJ30 AF29
CORE_VCC1_S0IX[2]
CORE_VCC1_S0IX[4]
CORE_VCC1_S0IX[5]
CORE_VCC1_S0IX[6]
CORE_VCC1_S0IX[11]
CORE_VCC1_S0IX[12]
CORE_VCC1_S0IX[13]
CORE_VCC1_S0IX[1]

RSVD_AA30 AA30
UNCORE_V1P15_S0IX[6] V33
UNCORE_V1P15_S0IX[1] AA32
UNCORE_V1P15_S0IX[2] AA33
UNCORE_V1P15_S0IX[3] AA35
UNCORE_V1P15_S0IX[4] AA36
UNCORE_V1P15_S0IX[5] AC32
UNCORE_V1P15_S0IX[7] Y30
UNCORE_V1P15_S0IX[8] Y32
UNCORE_V1P15_S0IX[9] Y33
UNCORE_V1P15_S0IX[10] Y35

VCCSRANSOCI_OBS R153 *0_4 GND
CORE_1P05_PWR
C137 1U/10V_4
C104 1U/10V_4
C136 1U/10V_4
C105 1U/10V_4
C148 1U/10V_4
C126 *1U/10V_4
C118 *1U/10V_4
GND

+VGG
C154 *1U/10V_4
C595 22uF/6.3V_6
C596 *22uF/6.3V_6
C157 10u/6.3V_6
C177 10u/6.3V_6
C156 10u/6.3V_6
C179 22uF/6.3V_6
C178 22uF/6.3V_6
GND

1/7 add

AD16 AD18 AD19 AF16 AF18 AF19 AF21 AF22 AJ19 AG16 AG18 AG19 AG21 AG22 AG24 AJ21 AJ22 AJ24 AK24
DDI_VGG_S0IX[1]
DDI_VGG_S0IX[2]
DDI_VGG_S0IX[3]
DDI_VGG_S0IX[4]
DDI_VGG_S0IX[5]
DDI_VGG_S0IX[6]
DDI_VGG_S0IX[7]
DDI_VGG_S0IX[8]
DDI_VGG_S0IX[15]
DDI_VGG_S0IX[9]
DDI_VGG_S0IX[10]
DDI_VGG_S0IX[11]
DDI_VGG_S0IX[12]
DDI_VGG_S0IX[13]
DDI_VGG_S0IX[14]
DDI_VGG_S0IX[16]
DDI_VGG_S0IX[17]
DDI_VGG_S0IX[18]
DDI_VGG_S0IX[19]

11A

1.9A

ICLK_GND_OFF[2] V19
ICLK_GND_OFF[1] V18
ICLK_1P05_PWR
C144 1U/10V_4
C140 *1U/10V_4
GND

DDR_V1P05A_G3[1] AM21
DDR_V1P05A_G3[4] AM33
DDR_V1P05A_G3[2] AM22
DDR_V1P05A_G3[5] AN22
DDR_V1P05A_G3[6] AN32
DDR_V1P05A_G3[3] AM32
DDR_1P05_PWR
C171 1U/10V_4
C186 10U/6.3V_6
C187 10U/6.3V_6
GND

PCIE_V1P05A_G3[1] V22
PCIE_V1P05A_G3[2] V24
SATA_V1P05A_G3[2] U24
SATA_V1P05A_G3[1] U22
USB3_V1P05A_G3[2] V27
USB3_V1P05A_G3[1] U27
BMPD_1P05_PWR
C66 1U/10V_4
C80 1U/10V_4
C61 1U/10V_4
GND

USBSSIC_V1P05A_G3 V29
USBSSIC_1P05_PWR
C86 1U/10V_4
C72 1U/10V_4
GND

FUSE3_V1P05A_G5 N18
FUSE_V1P05A_G3 U19
FUSE3_1P05_PWR
FUSE_1P05_PWR
C81 1U/10V_4
C67 1U/10V_4
C76 1U/10V_4
GND

+VGG
C597 10u/6.3V_6
C158 1U/10V_4
C169 1U/10V_4
C167 1U/10V_4
C172 1U/10V_4
C180 1U/10V_4
C168 1U/10V_4
GND

CORE_V1P15_PWR
AK30 AK35 AK36 AM29
CORE_V1P15_S0IX[1]
CORE_V1P15_S0IX[2]
CORE_V1P15_S0IX[3]
CORE_V1P15_S0IX[4]

0.7A

FUSE_1P15_PWR
AK33 AJ35
FUSE_V1P15_S0IX[2]
FUSE_V1P15_S0IX[1]

1/13 Add

DDI_1P15_PWR
AM19 AK21
DDI_V1P15_S0IX[2]
DDI_V1P15_S0IX[1]
C170 1U/10V_4
C183 1U/10V_4
C184 1U/10V_4
GND

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VLV_M_D/BGA
REV = 1.15

+1.15V
R176 *short_8
R183 *short_8 CORE_V1P15_PWR
R192 *short_8
R191 *short_8 DDI_1P15_PWR
R166 *SHORT_6 FUSE_1P15_PWR

+1.05V_S5
C101 10U/6.3V_6
C51 10U/6.3V_6
C54 10U/6.3V_6
C55 10U/6.3V_6
C50 10U/6.3V_6
GND

+VGG
C598 *100U/6.3V_1206
GND
1/13 Add

+1.05V_S5
R122 *short_8 CORE_1P05_PWR
R149 *short_8
R150 *short_8 ICLK_1P05_PWR
R189 *short_8 DDR_1P05_PWR
R184 *short_8
R75 *SHORT_6 USBSSIC_1P05_PWR
R73 *SHORT_6 BMPD_1P05_PWR
R80 *SHORT_6 FUSE3_1P05_PWR
R79 *SHORT_6 FUSE_1P05_PWR
R66 *SHORT_6 FUSE1_1P05_PWR
FUSE1_1P05_PWR [9]

IO Thrm Protect

+3VPCU
R403 *10K_4
default 25 degree for detect temperature
THRM_MOINTOR [22]
R404 *0_4
C349 *0.1U/16V_4
THER_CPU
R392 *10K_6_NTC

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+1.35VSUS [2,3,11,27]
+3V_RTC [6]
+3V_S5 [2,3,5,12,14,15,16,22,26]
+3VPCU [6,8,12,15,16,18,19,21,22,24,25,26]
+1.8V_S5 [4,5,6,7,13,14,22,24,26,28,29]
+1.24VS5 [26]

+PLLDDR_1P35_PWR
+CLKDDR_1P35_PWR

C196 1U/10V_4
C200 22uF/6.3V_6
C199 22uF/6.3V_6
C197 1U/10V_4

U23H

AN27 AM25 BE1 BE53 BJ2 BJ3 BJ49 BJ5 BH50 BH5 BH49 BH4 BE3 BG51 BG3 BJ51 BJ52 AY10 AY44 AV44 AV10 BE51 AV38 AV16 AU36 AU18 AN36 AN35 AN19 AN18 AM36 AM18

DDRSFR_VDDQ_G_S4
DDR_VDDQ_G_S4[2]
DDR_VDDQ_G_S4[16]
DDR_VDDQ_G_S4[19]
DDR_VDDQ_G_S4[26]
DDR_VDDQ_G_S4[27]
DDR_VDDQ_G_S4[28]
DDR_VDDQ_G_S4[29]
DDR_VDDQ_G_S4[25]
DDR_VDDQ_G_S4[24]
DDR_VDDQ_G_S4[23]
DDR_VDDQ_G_S4[22]
DDR_VDDQ_G_S4[17]
DDR_VDDQ_G_S4[21]
DDR_VDDQ_G_S4[20]
DDR_VDDQ_G_S4[30]
DDR_VDDQ_G_S4[31]
DDR_VDDQ_G_S4[14]
DDR_VDDQ_G_S4[15]
DDR_VDDQ_G_S4[13]
DDR_VDDQ_G_S4[10]
DDR_VDDQ_G_S4[18]
DDR_VDDQ_G_S4[12]
DDR_VDDQ_G_S4[11]
DDR_VDDQ_G_S4[9]
DDR_VDDQ_G_S4[8]
DDR_VDDQ_G_S4[7]
DDR_VDDQ_G_S4[6]
DDR_VDDQ_G_S4[5]
DDR_VDDQ_G_S4[4]
DDR_VDDQ_G_S4[3]
DDR_VDDQ_G_S4[1]

1.9A

+1.35VSUS
1.9A
C194 22uF/6.3V_6
C182 22uF/6.3V_6
C192 22uF/6.3V_6
C195 22uF/6.3V_6
GND

0.6A

DDI_VDDQ_G3[1] DDI_VDDQ_G3[2] → V36 Y36
MIPI_V1P2A_G3[2] MIPI_V1P2A_G3[1] → T40 P40
ICLK_VSFR_G3[2] ICLK_VSFR_G3[1] → Y27 Y25
CORE_VSFR_G3[5] CORE_VSFR_G3[6] CORE_VSFR_G3[7] → P38 V30 AC30
CORE_VSFR_G3[4] CORE_VSFR_G3[2] CORE_VSFR_G3[3] CORE_VSFR_G3[1] → AF35 AD35 AD38 AC36
USBHSIC_V1P2A_G3 USB_VDDQ_G3[2] USB_VDDQ_G3[3] USB_VDDQ_G3[1] USBSSIC_V1P2A_G3 → M41 U35 V35 H44 P41
USB_V1P8A_G3 → AA29
USB_V3P3A_G3[2] USB_V3P3A_G3[1] → C23 B22
RTC_V3P3RTC_G5[2] RTC_V3P3RTC_G5[1] RTC_V3P3A_G5[1] RTC_V3P3A_G5[2] → C5 B6 D4 E3
FUSE_V1P8A_G3 FUSE1_V1P05A_G4 FUSE0_V1P05A_G3 → U16 H10 G10
RSVD_VSS RSVD_K20 RSVD_M20 → A3 K20 M20

C112 1U/10V_4 → GND → DDI_1P24_PWR
C92 1U/10V_4 C93 1U/10V_4 → GND → DPY_1P24_PWR
C83 1U/10V_4 → GND → ICLK_VSFR_1P24_PWR
C62 1U/10V_4 C91 1U/10V_4 → GND → PLL_1P24_PWR
C146 1U/10V_4 → GND → PLLCPU_1P24_PWR
C147 1U/10V_4 C181 1U/10V_4 → GND GND → USBHSIC_1P24_PWR USB_1P24_PWR
AA29 → USB_1P8_PWR
C346 1U/10V_4 → GND → USB_3P3_PWR
C73 1U/10V_4 C84 1U/10V_4 → GND GND → +VRTC_3P3 RTC_3P3A_PWR
FUSE_1P8_PWR FUSE1_1P05_PWR → FUSE1_1P05_PWR [8]
TP_FUSE_PWR → TP12
TP_FUSE_LDO → TP13

R391 10K_4 → GND

0.2A

C85 1U/10V_4 C71 1U/10V_4 → GND
CF3_3P3_PWR → E1
C79 1U/10V_4 → GND → CF1_3P3_PWR
C155 1U/10V_4 → GND → CORE_1P8_PWR
AH4 → GPIOCF2_1P8_PWR
C120 1U/10V_4 C127 1U/10V_4 C121 1U/10V_4 → GND → AD33 AK18 AF33
C173 1U/10V_4 C174 1U/10V_4 → GND → AK19 → GPIOCF1_1P8_PWR

SDIO_V3P3A_V1P8A_G3[1]
SDIO_V3P3A_V1P8A_G3[2]
SDIO_V3P3A_V1P8A_G3[3]
UNCORE_V1P8A_G3[2]
UNCORE_V1P8A_G3[1]
GPIO_V1P8A_G3[5]
GPIO_V1P8A_G3[1]
GPIO_V1P8A_G3[3]
GPIO_V1P8A_G3[2]
GPIO_V1P8A_G3[4]

0.6A

8 OF 12

VLV_M_D/BGA

REV = 1.15

PLACE THE CAPS UNDER THE PKG SHADOW

USBHSIC_1P24_PWR → C94 1U/10V_4 → GND
USB_1P24_PWR → C82 1U/10V_4 C68 1U/10V_4 → GND GND
USB2_1P24_PWR → C74 1U/10V_4 → GND
USBSSIC_1P24_PWR → C106 1U/10V_4 → GND

+1.24VS5
R64 *short_8 ICLK_VSFR_1P24_PWR → C69 1U/10V_4
R108 *SHORT_6 USBSSIC_1P24_PWR
R98 *SHORT_6 USBHSIC_1P24_PWR
R63 *short_8 USB_1P24_PWR
R62 *short_8
R60 *short_8 USB2_1P24_PWR → C63 1U/10V_4
R113 *SHORT_6 DDI_1P24_PWR
R162 *short_8 PLLCPU_1P24_PWR → C153 1U/10V_4
R93 *SHORT_6 DPY_1P24_PWR
R61 *short_8 PLL_1P24_PWR → C89 1U/10V_4
GND

FUSE_1P8_PWR → C113 1U/10V_4 → GND
FUSE1_1P05_PWR → C90 1U/10V_4 → GND

+1.8V_S5
R112 *SHORT_6 FUSE_1P8_PWR
R117 *SHORT_6 GPIOCF2_1P8_PWR
R180 *SHORT_6 USB_1P8_PWR
R181 *SHORT_6 GPIOCF1_1P8_PWR

+3V_S5
R374 *SHORT_6 USB_3P3_PWR

TWO PAD SHARING

+3V
R71 *0_6
+1.8V
R70 *SHORT_6 CF3_3P3_PWR
SD3 IO SUPPLY

+3V_S5
R86 *SHORT_6
+1.8V_S5
R94 *0_6 CF1_3P3_PWR
+3VO
R813 *0_6
LPC IO SUPPLY

3/2 add

+1.35VSUS
R210 *short_8 +PLLDDR_1P35_PWR → C190 *1U/16V_4 → GND
R211 *short_8 +CLKDDR_1P35_PWR → C191 *1U/16V_4 → GND

+1.5V
+1.8V_S5
R165 *SHORT_6 CORE_1P8_PWR
R163 *0_6
AUDIO IO SUPPLY

待確認

+3V_S5
R69 *SHORT_6 RTC_3P3A_PWR
+3VPCU
R68 *0_6
C70 0.1U/16V_4 → GND

CAPS PLACE NEAR SOC PIN

+3V_RTC
R67 *SHORT_6 +VRTC_3P3
C60 0.1U/16V_4 → GND

VSDIO VOLTAGE SETTING (CF3_3P3_PWR)
SDMMC3_PWR_EN_N

Quanta Computer Inc.
PROJECT : Z8AD

Size	Document Number	Rev
	Valley 8/9 (Power 2)	3A
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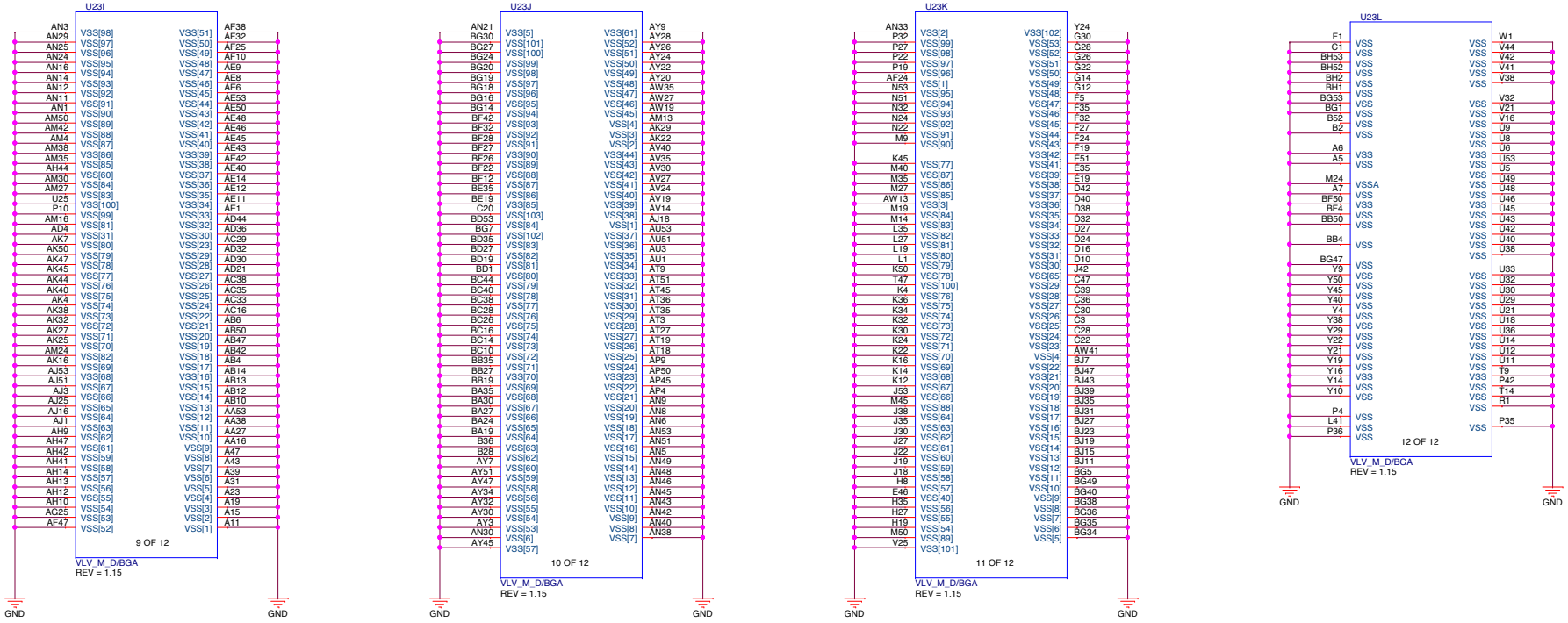
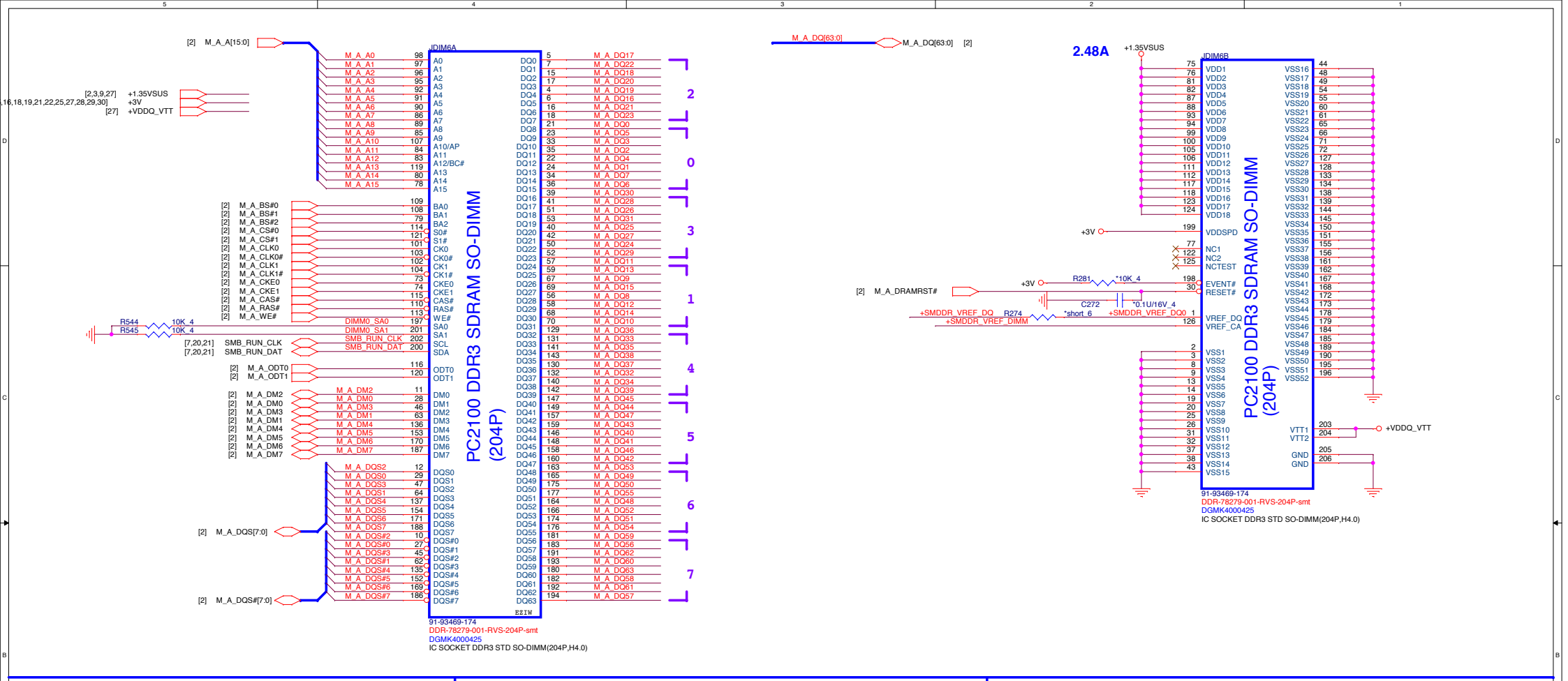


Quanta Computer Inc.			
PROJECT : Z8AD			
Size	Document Number: Valley 9/9 (GND)		Rev: 3A
Date: Wednesday, April 08, 2015		Sheet 10 of 32	


JDIM6A
PC2100 DDR3 SDRAM SO-DIMM
(204P)
[2] M_A_A[15:0]
[2,3,9,27] +1.35VSUS
[16,18,19,21,22,25,27,28,29,30] +3V
[27] +VDDQ_VTT
[2] M_A_BS#0
[2] M_A_BS#1
[2] M_A_BS#2
[2] M_A_CS#0
[2] M_A_CS#1
[2] M_A_CLK0
[2] M_A_CLK0#
[2] M_A_CLK1
[2] M_A_CLK1#
[2] M_A_CKE0
[2] M_A_CKE1
[2] M_A_CAS#
[2] M_A_RAS#
[2] M_A_WE#
R544 10K_4
R545 10K_4
DIMM0_SA0
DIMM0_SA1
[7,20,21] SMB_RUN_CLK
[7,20,21] SMB_RUN_DAT
SMB_RUN_CLK
SMB_RUN_DAT
[2] M_A_ODT0
[2] M_A_ODT1
[2] M_A_DM2
[2] M_A_DM0
[2] M_A_DM3
[2] M_A_DM1
[2] M_A_DM4
[2] M_A_DM5
[2] M_A_DM6
[2] M_A_DM7
[2] M_A_DQS[7:0]
[2] M_A_DQS#[7:0]
91-93469-174
DDR-78279-001-RVS-204P-smt
DGMK4000425
IC SOCKET DDR3 STD SO-DIMM(204P,H4.0)
M_A_DQ[63:0]
[2] M_A_DQ[63:0]
2.48A
+1.35VSUS
JDIM6B
PC2100 DDR3 SDRAM SO-DIMM
(204P)
+3V
[2] M_A_DRAMRST#
R281 *10K_4
C272 *0.1U/16V_4
+SMDDR_VREF_DQ
+SMDDR_VREF_DIMM
R274 *short_6
+SMDDR_VREF_DQ0_1
+VDDQ_VTT
91-93469-174
DDR-78279-001-RVS-204P-smt
DGMK4000425
IC SOCKET DDR3 STD SO-DIMM(204P,H4.0)
Place these Caps near So-Dimm0.
0.1uF/10uF 4pcs on each side of connector
+1.35VSUS
C289
*330u/2V_7343
Near SO-DIMM
+1.35VSUS
C386 0.1U/16V_4
C407 0.1U/16V_4
C406 0.1U/16V_4
C383 0.1U/16V_4
C387 0.1U/16V_4
C385 0.1U/16V_4
C405 0.1U/16V_4
C384 0.1U/16V_4
C413 10U/6.3V_6
C408 10U/6.3V_6
C411 10U/6.3V_6
C379 10U/6.3V_6
C412 10U/6.3V_6
C381 10U/6.3V_6
C380 10U/6.3V_6
C382 10U/6.3V_6
+VDDQ_VTT
C258 1U/6.3V_4
C266 1U/6.3V_4
C255 1U/6.3V_4
C268 1U/6.3V_4
C264 10U/6.3V_6
+SMDDR_VREF_DIMM
C409 0.1U/16V_4
C410 *2.2U/6.3V_6
+SMDDR_VREF_DQ0
C254 0.1U/16V_4
C259 *2.2U/6.3V_6
+3V
C388 0.1U/16V_4
C378 0.1U/16V_4
Follow CHK list
VREF DQ0 M1 Solution
+1.35VSUS
R556 4.7K_4
[27] +VDDQ
R557 *0_6
+SMDDR_VREF_DQ
R558 4.7K_4
+1.35VSUS
R554 4.7K_4
R555 *0_6
+SMDDR_VREF_DIMM_L
R553 *short_6
+SMDDR_VREF_DIMM
R552 4.7K_4
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PROJECT : Z8AD
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DDR3 DIMM0-STD(4.0H)
Rev 1A
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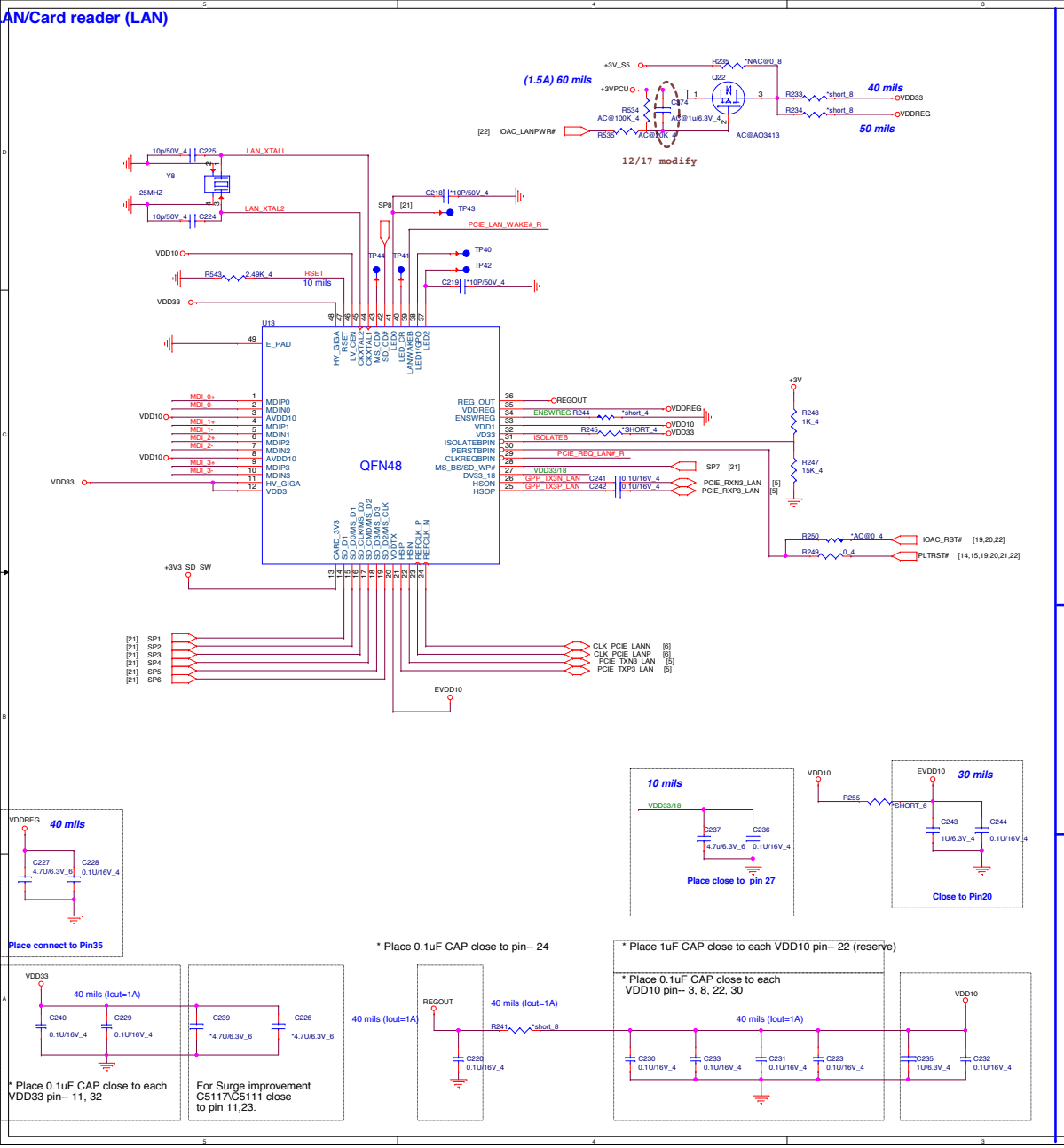
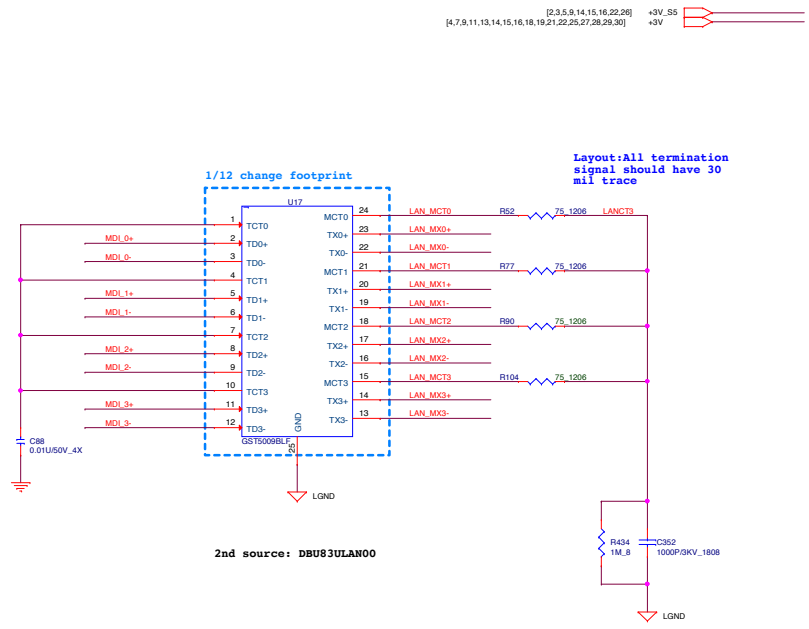
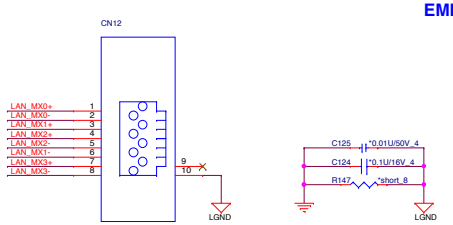
LAN/Card reader (LAN)



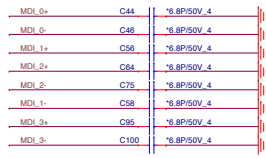
Transformer (LAN)

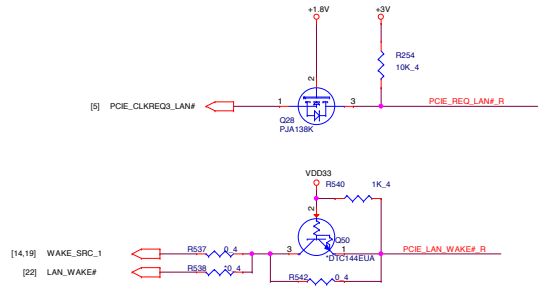


RJ45 Connector



EMI





Quanta Computer Inc.	
PROJECT : Z8AD	
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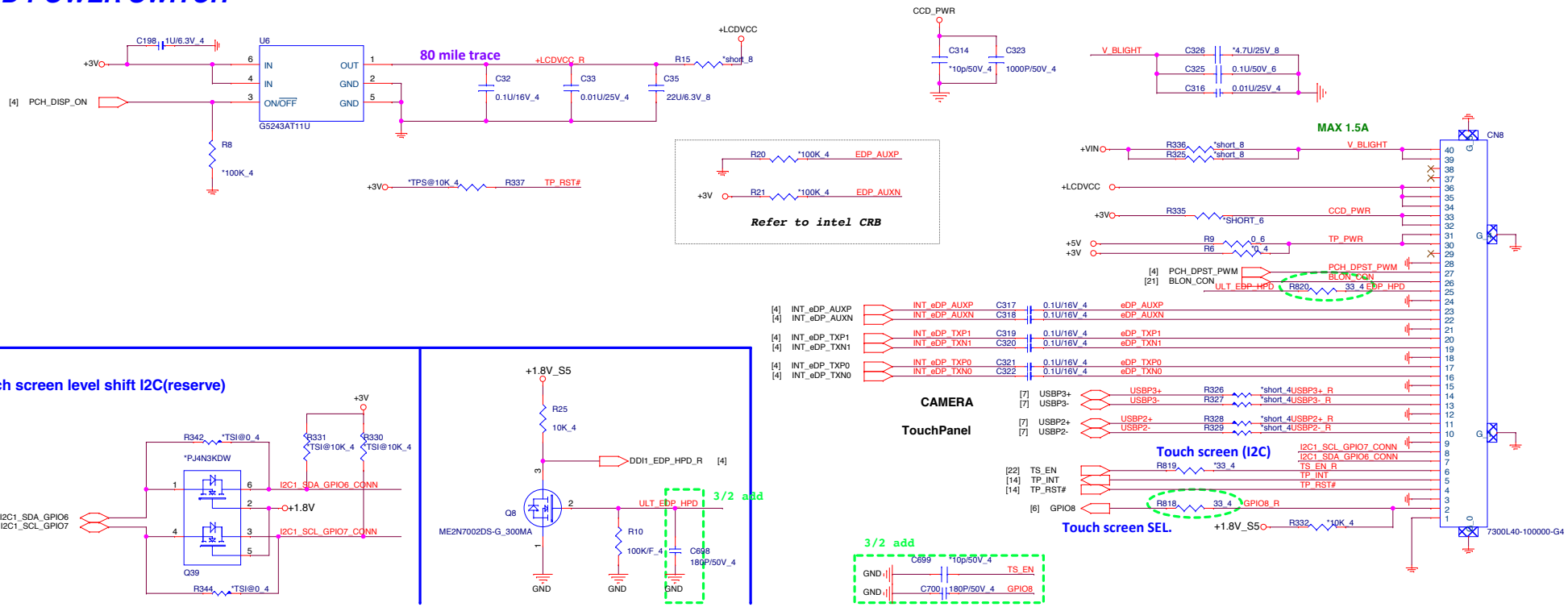
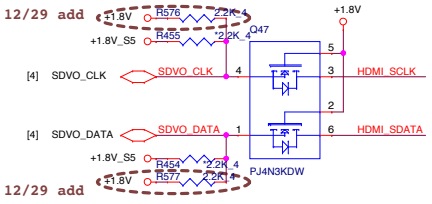
LCD POWER SWITCH



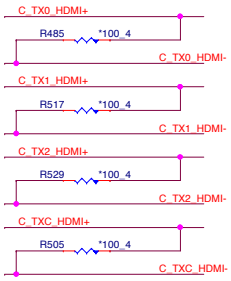
Touch screen level shift I2C(reserve)

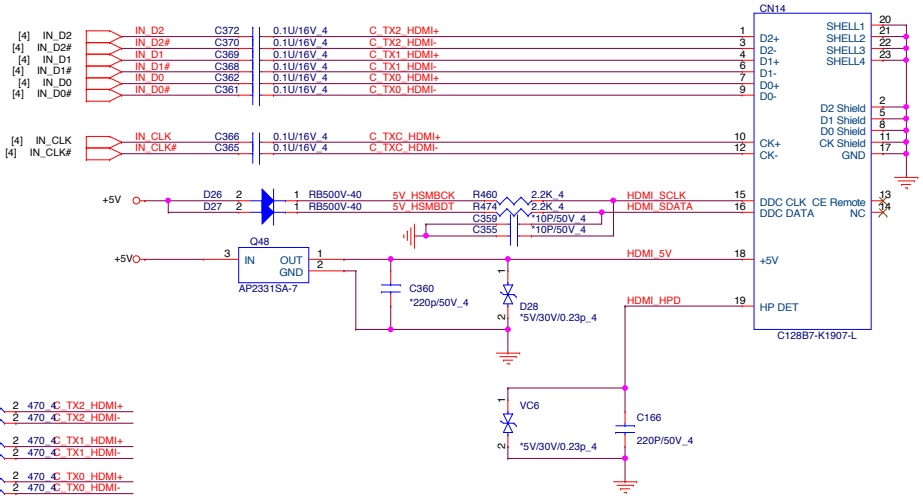
HDMI Conn.

HDMI SMBus Isolation

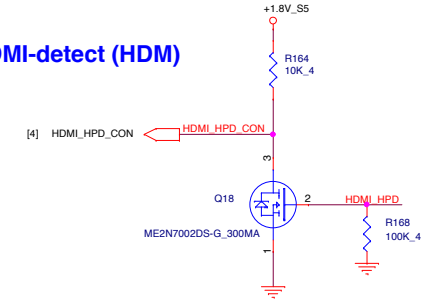


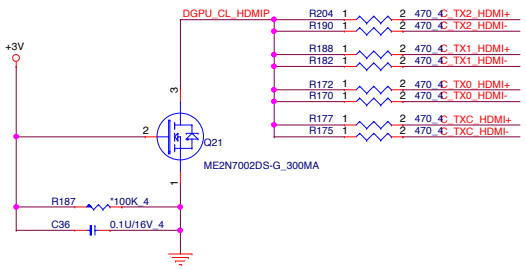
EMI (EMC)





HDMI-detect (HDM)





Quanta Computer Inc.		
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[4,5,6,7,9,13,22,24,26,28,29] +1.8V_S5
[2,3,5,9,12,15,16,22,26] +3V_S5
[9,12,13,15,16,19,20,21,22,26,30] +1.8V
[4,7,9,11,12,13,15,16,18,19,21,22,25,27,28,29,30] +3V

[3,22] EC_PWROK — R357 0_4
[22] DPWROK_EC — R364 *0_4
CORE_PWROK [6]
R363 100K_4
GND

[22] RSMRST# — R378 *0_4 — SOC_RSMRST# [6]
[26] PMU_RSMRST# — R377 0_4
R376 *100K_4
GND

10/30 add
Reserve For EC GPIO input.
R14 0_4 R7 *10K_4 GND
[6,26] SLP_S3# — Q6A *PJ4N3KDW — SUSB# [22,28,29]
+1.8V_S5 — R18 *10K_4 — +3V_S5
R11 *10K_4
[2,6] SLP_S4# — Q6B *PJ4N3KDW — SUSC# [22]
10/30 add
Reserve For EC GPIO input.
R19 0_4 R12 *10K_4 GND

+1.8V_S5 — R427 *10K_4
+1.8V_S5 — R406 0_4 — +3V_S5
U18 G2129TL1U
[7,15] SOC_SERIRQ — SOC_SERIRQ — VCCA VCCB — A B — GND OE — SERIRQ [22]
R407 *10K_4 — +1.8V_S5
GND

+1.8V_S5
[6] PCH_SUS_STAT# — PCH_SUS_STAT# — Q41 *PJA138K
R354 *10K_4 — +3V_S5
PCH_SLP_S0_N — PCH_SLP_S0_N [22]
R31 *0_4

Reserve for +1.8V new EC

+1.8V_S5 — R45 10K_4
+1.8V_S5 — R38 *0_4
+3V_S5 — R35 0_4
[6] SOC_PWRBTN#
[6] SOC_PMC_WAKE
U7 74LVC2G07GW
GND — DNBSWON# [22]
WAKE_SRC_1 [12,19]
R41 *10K_4 — +3V_S5

+1.8V_S5 — R74 *10K_4
[5] SOC_KCB_SMI
[5] SOC_KBC_SCI
+3V_S5
+1.8V_S5 — R57 10K_4
U9 74LVC2G07GW
GND — SIO_EXT_SMI# [22]
SIO_EXT_SCI# [22]

+1.8V_S5
[6] SUSPWRDANCK — Q20 *PJA138K — PCH_SUSPWRDANCK [22,26]
R174 0_4

+3V
Touch Panel interrupt
R345 *TPS@10K_4
TP_INT_C [6]
[13] TP_INT — Q37 *TPS@PJA138K
*TPS@PJA138K Q54
GND
toTouch screen INT

+3V
R362 *10K_4
TP_RST# [13]
R360 *10K_4
[6] TP_RST#_Q — *PJA138K Q45
*PJA138K Q44
GND

[6,26] SLP_S0IX# — Q7 *PJA138K
R29 *0_4 — R16 *10K_4 — +3V_S5
SLP_SUS#_EC [22]
R17 *0_4 — SLP_SUS#_PW [27]
+1.8V_S5
[6,21] SOC_PLTRST# — PJA138K Q9
PLTRST# [12,15,19,20,21,22]
R22 10K_4 — +3V

+TPVDD_1
+1.8V
U15 PCA9306
GND — C276 0.1U/25V_4
R284 200K_4
C273 0.1U/25V_4 — GND
R288 2.2K_4
R286 2.2K_4
[7] I2C_0_SDA — I2C_6_SDA_R [15]
[7] I2C_0_SCL — I2C_6_SCL_R [15]

For Touch pad : POWER-A
[6] TP_INT# — TP_INT# — Q31 ME2N7002DS-G_300MA
R283 10K_4 — +TPVDD_1
R280 10K_4
TP_SENSOR_INT_R — TP_SENSOR_INT_R [15]
Q32 ME2N7002DS-G_300MA
GND

3/2 Del

Quanta Computer Inc.
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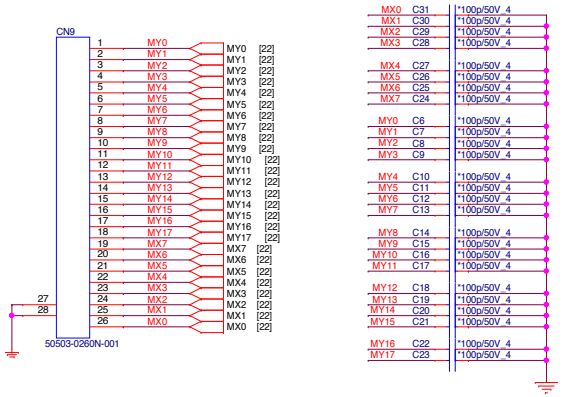
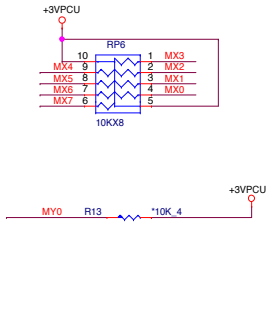
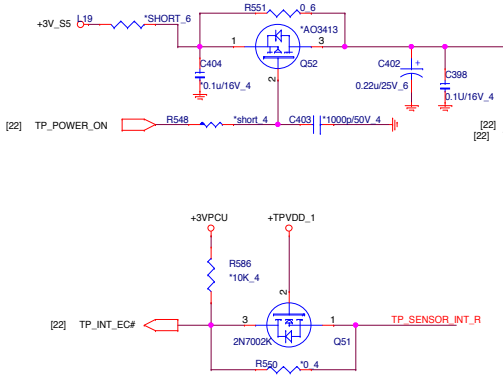
KEYBOARD (KBC)



INTERNAL KEYBOARD STRIP SET (KBC)

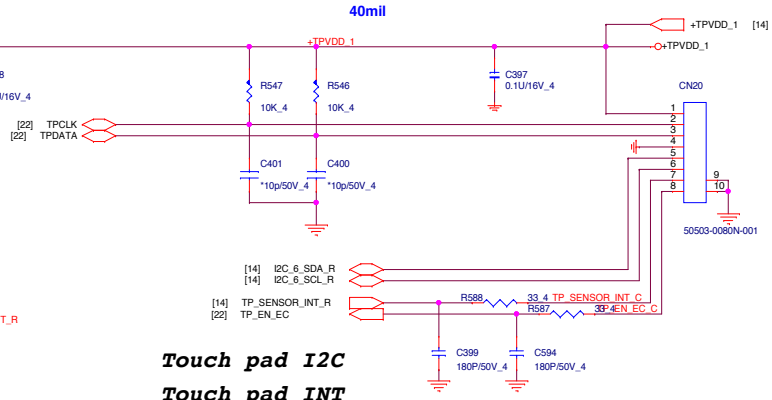


TOUCH PAD (TPD)



POWER-A

40mil

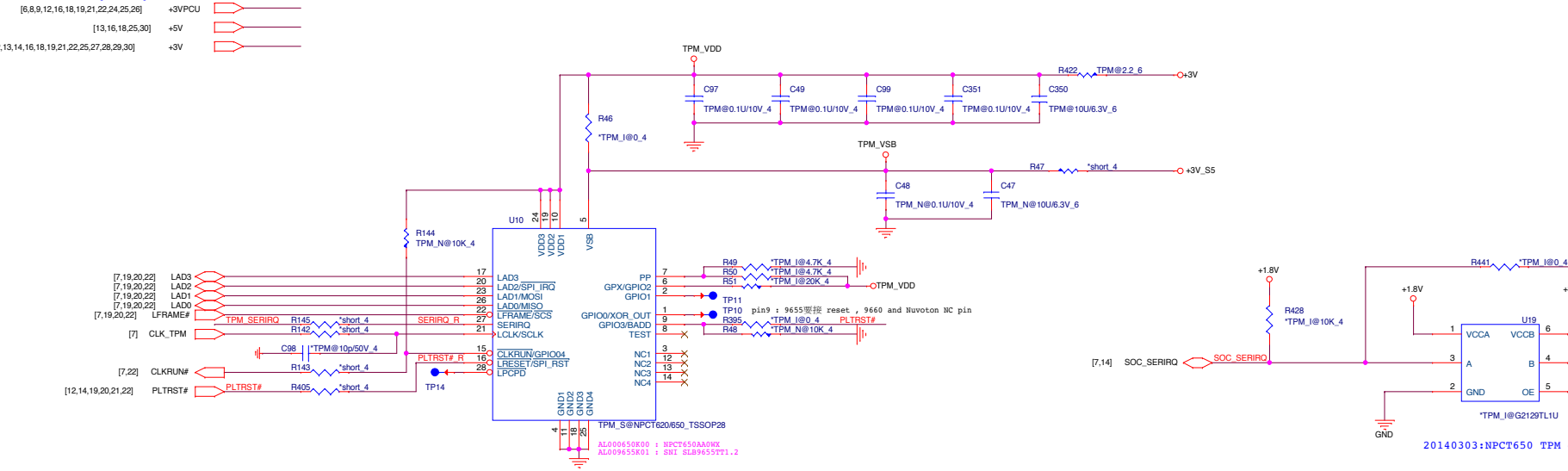


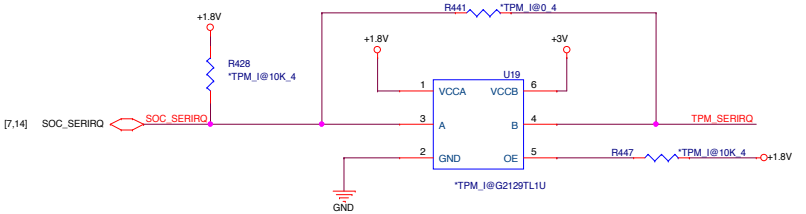
Touch pad I2C

Touch pad INT

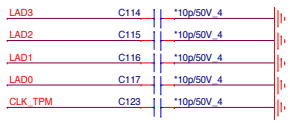
Touch pad ON/OFF

TPM (TPM)





20140303:NPCT650 TPM doesn't need SERIRQ.



TPM_N for 新唐

TPM_I for 英飛凌---- default

Quanta Computer Inc.

PROJECT : Z8AD

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	KB/BT/TP	1A

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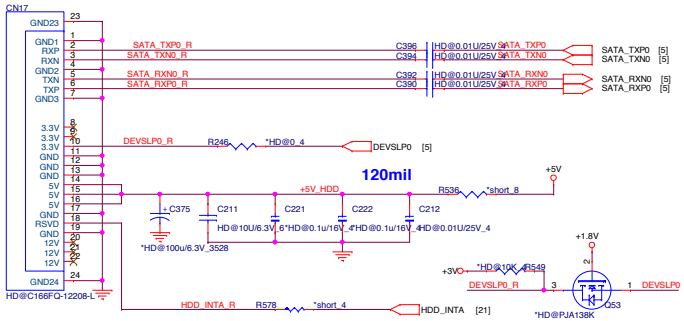
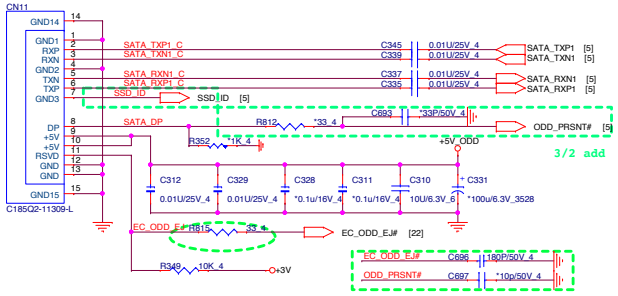
2.5" SATA HDD (HDD)

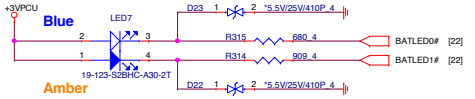


SATA ODD Connector

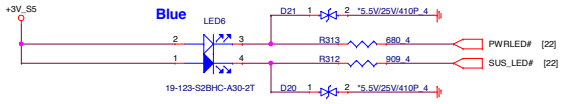


LED/SW (UIF)

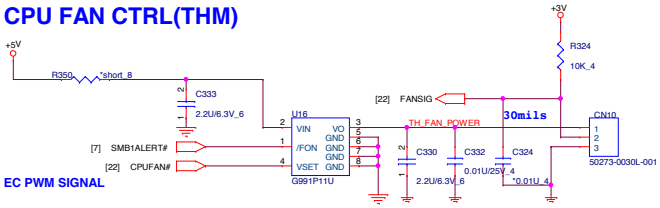
Battery indicator



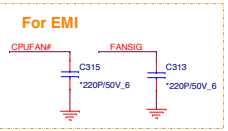
PWR indicator



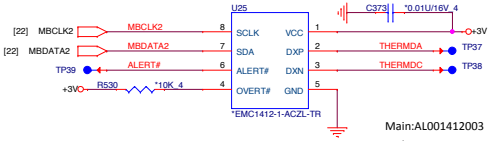
CPU FAN CTRL(THM)



For EMI

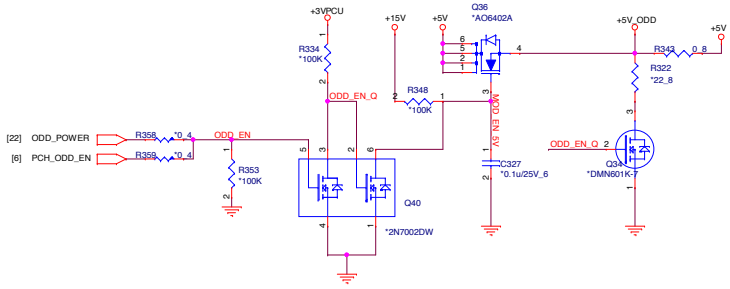


CPU Thermal sensor(THS) / MB Local TEMP

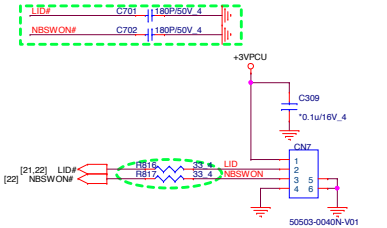


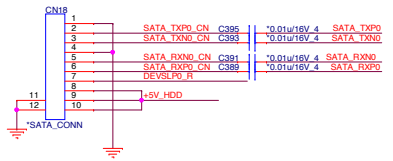
Main:AL001412003 EMC1412-1-ACZL-TR(98h)
2nd:AL000431014 TMP431ADGKR(98h)

ODD Power (SATA)



PWR button DB CON

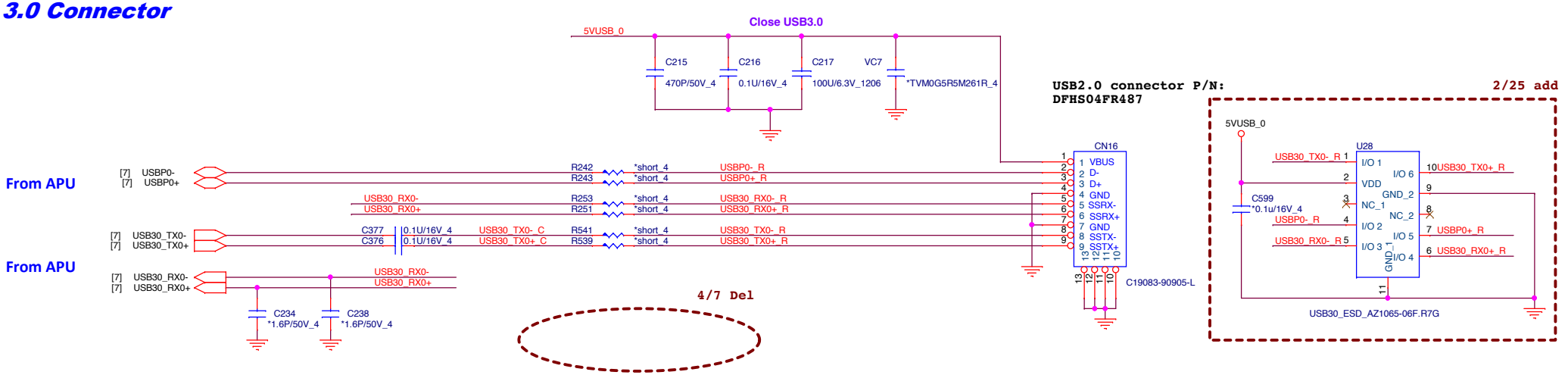




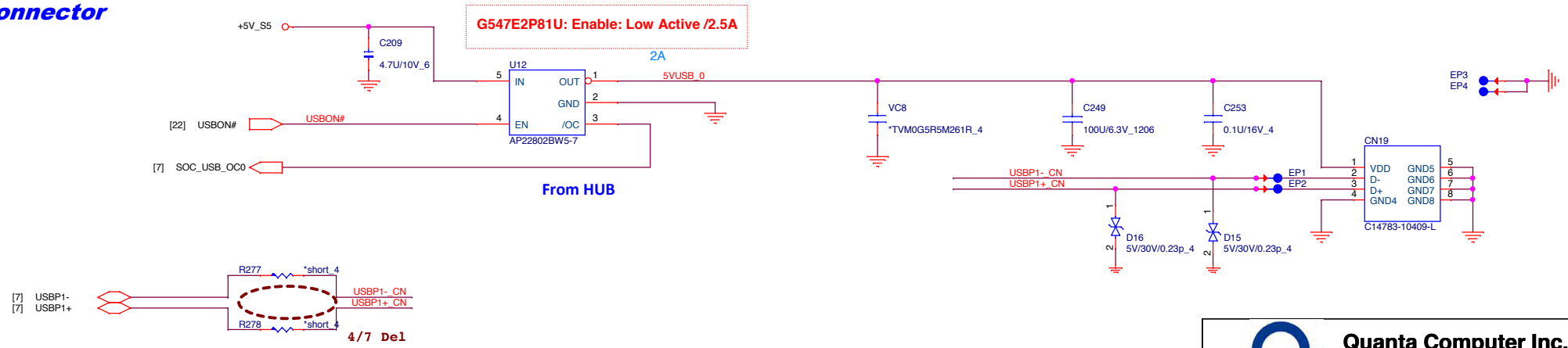
Quanta Computer Inc.
PROJECT : Z8AD

Size	Document Number	Rev
	HDD/Hall/eMMC/LED	1A
Date: Wednesday, April 08, 2015	Sheet 16 of 32	

USB 3.0 Connector

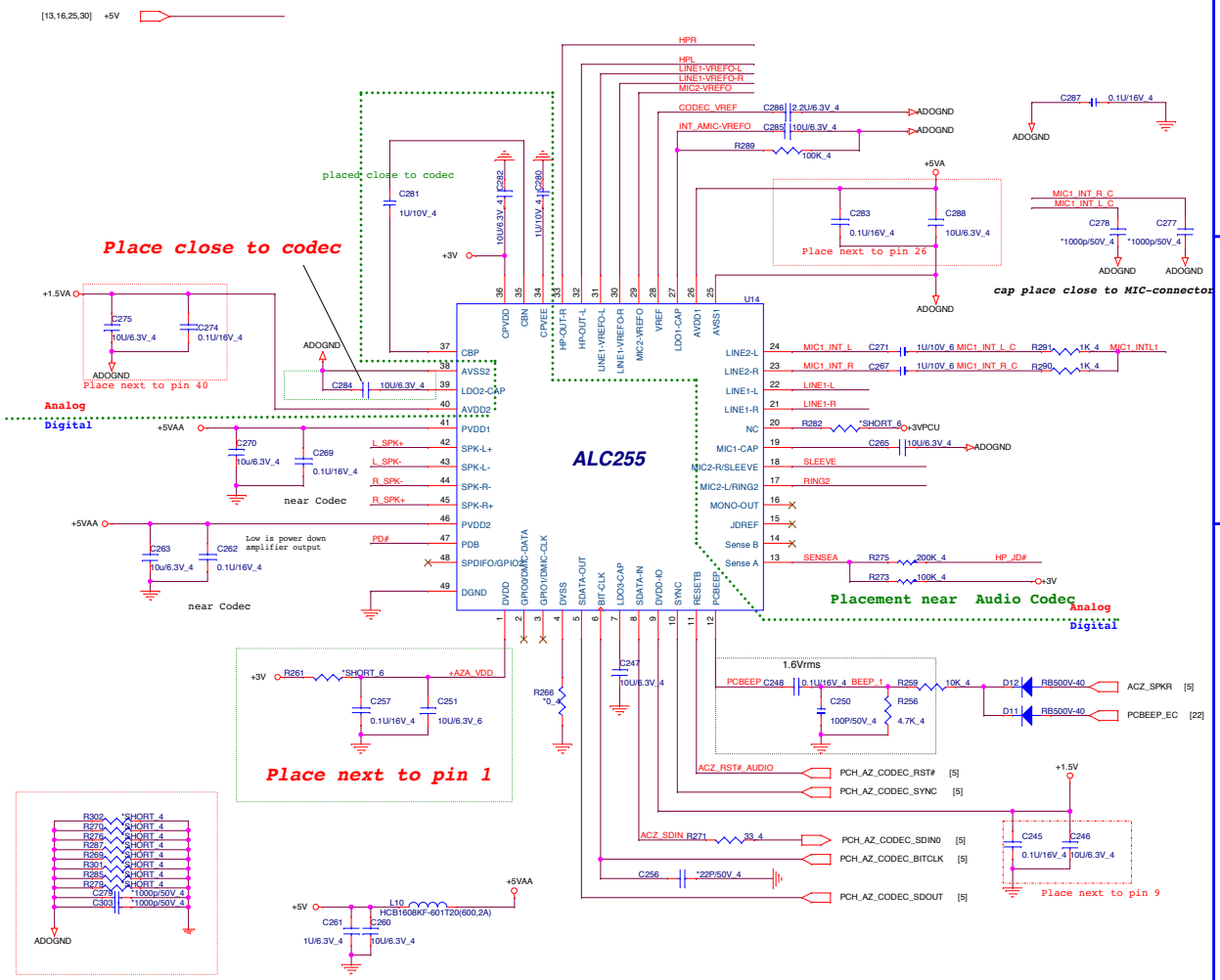


USB 2.0 Connector

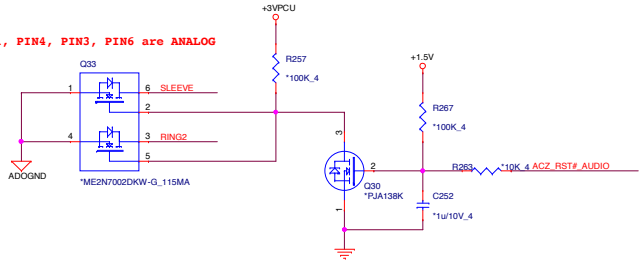


Quanta Computer Inc.		
PROJECT : Z8AD		
Size	Document Number: USB / eMMC CONN	Rev: 1A
Date: Wednesday, April 08, 2015	Sheet 17 of 32	

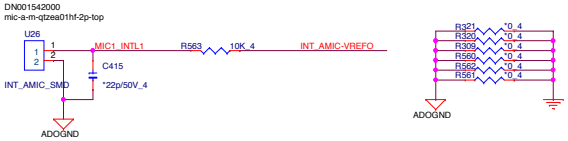
Codec(ADO)



Grounding circuit(ADO)

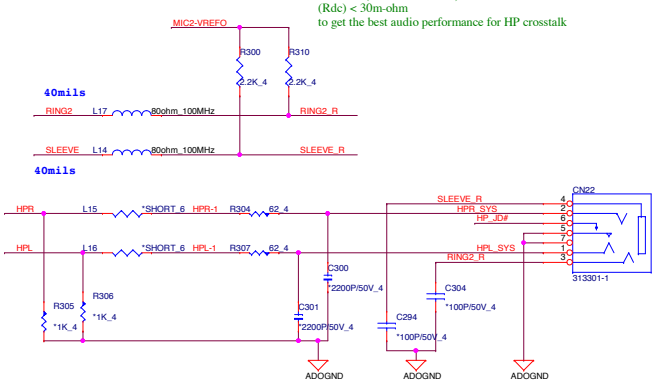


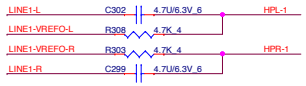
INT MIC array



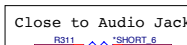
HEADPHONE/MIC/LINE combo

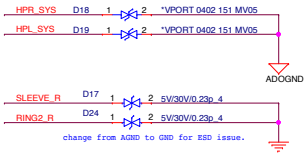
FB1/FB2(SLEEVE/RING2) should choose DC resistance (Rdc) < 30m-ohm to get the best audio performance for HP crosstalk





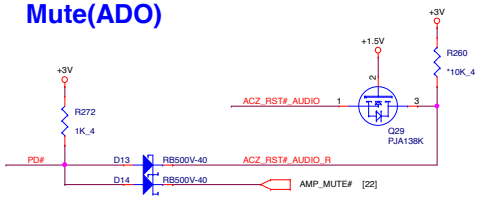
Close to Audio Jack



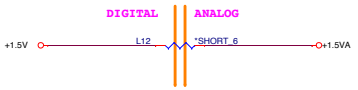


Codec PWR 5V(ADO)

Mute(ADO)



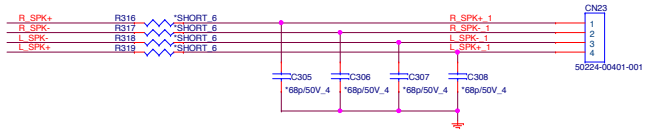
Codec PWR 1.5V(ADO)



Internal Speaker

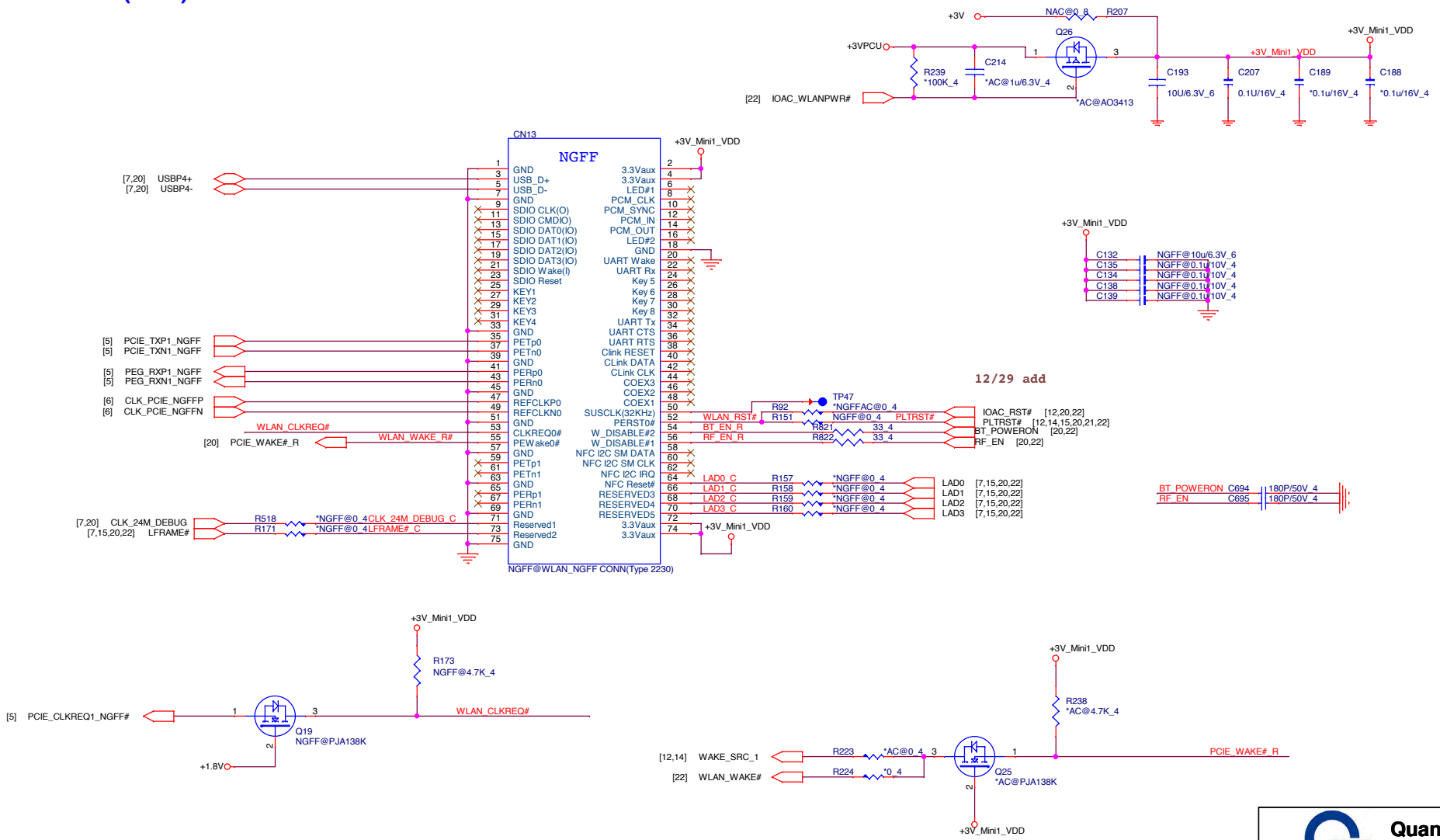
40mil for each signal

footprint 88266-040xx-xxx-4p-1



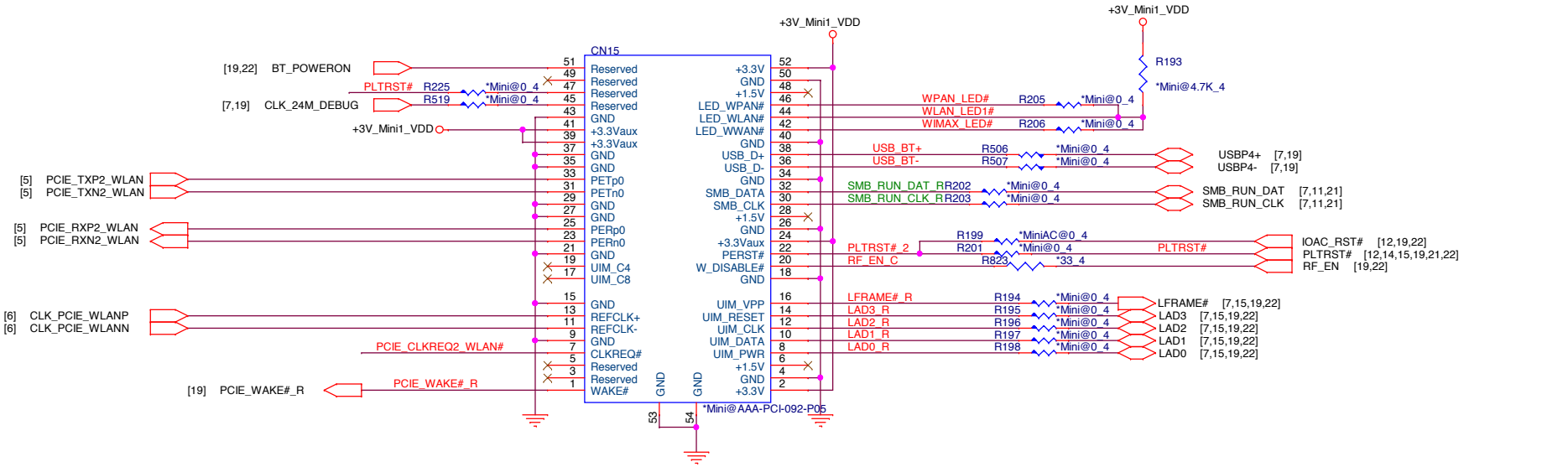
Quanta Computer Inc.		
PROJECT : Z8AD		
Size	Document Number: ALC283/HP/SPK	Rev: 1A
Date: Wednesday, April 08, 2015	Sheet 18 of 32	

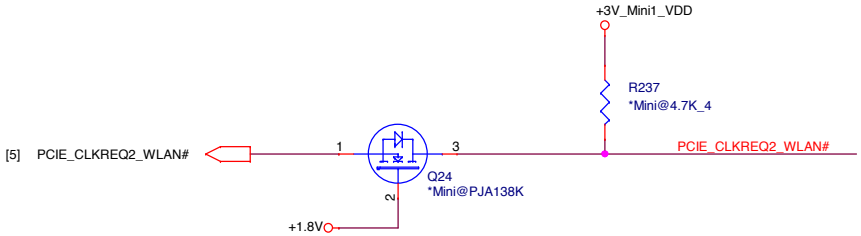
NGFF WiFi & BT (NGF)



Quanta Computer Inc.		
PROJECT : Z8AD		
Size	Document Number: USB HUB -1	Rev: 1A
Date: Wednesday, April 08, 2015	Sheet 19 of 32	

WLAN





[9,12,13,14,15,16,19,21,22,26,30] +1.8V

[4,7,9,11,12,13,14,15,16,18,19,21,22,25,27,28,29,30] +3V

Quanta Computer Inc.

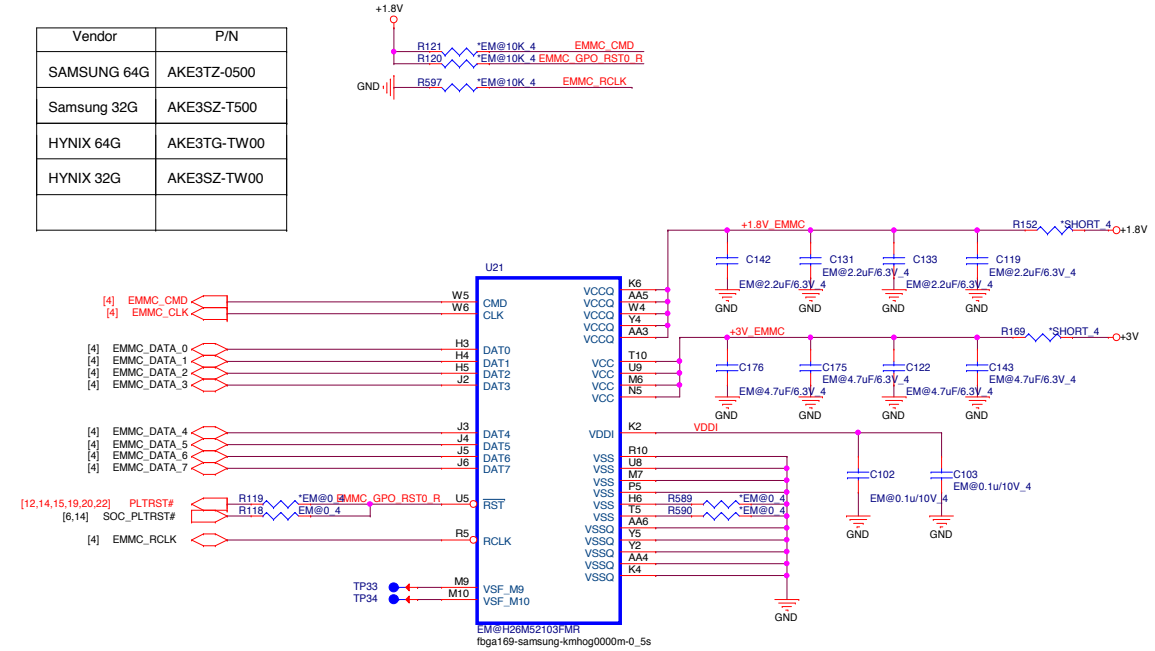
PROJECT : Z8AD

Size	Document Number	Rev
	WiFi & BT	1A

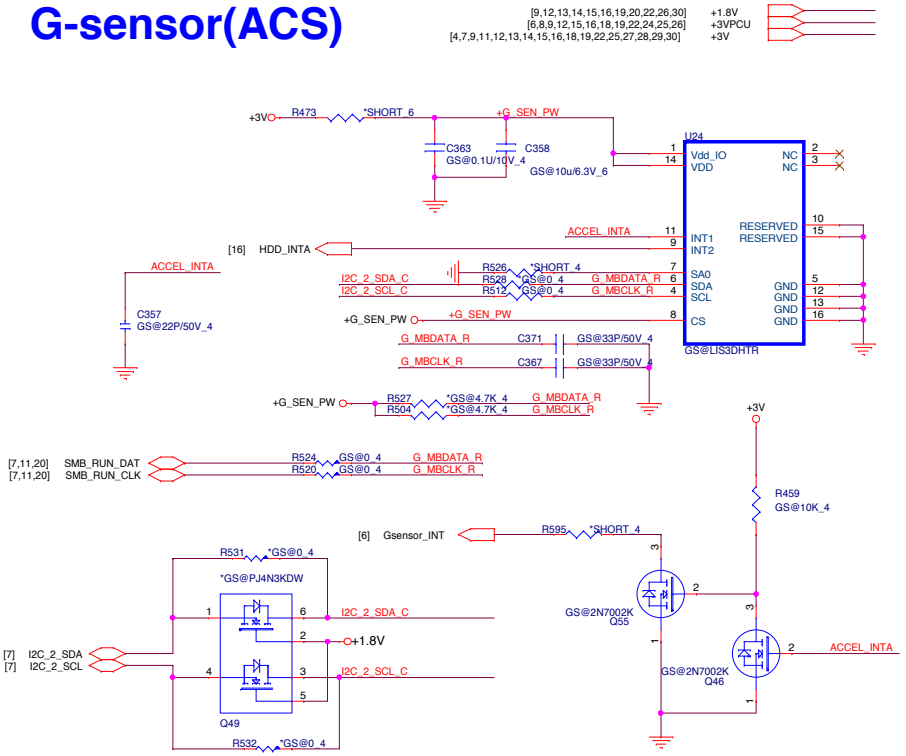
Date: Wednesday, April 08, 2015 Sheet 20 of 32

eMMC

Vendor	P/N
SAMSUNG 64G	AKE3TZ-0500
Samsung 32G	AKE3SZ-T500
HYNIX 64G	AKE3TG-TW00
HYNIX 32G	AKE3SZ-TW00



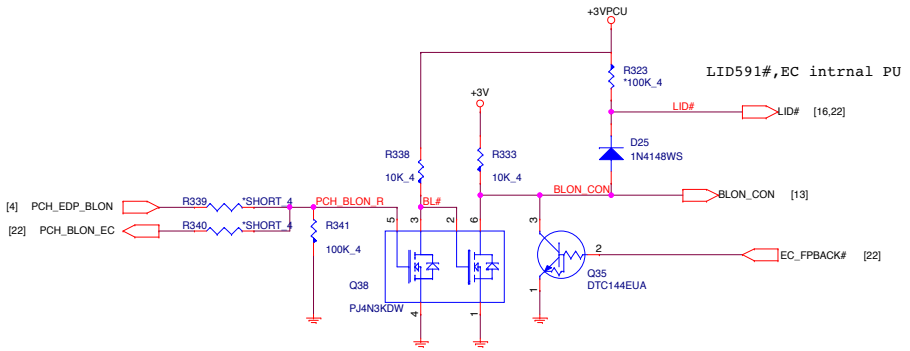
G-sensor(ACS)



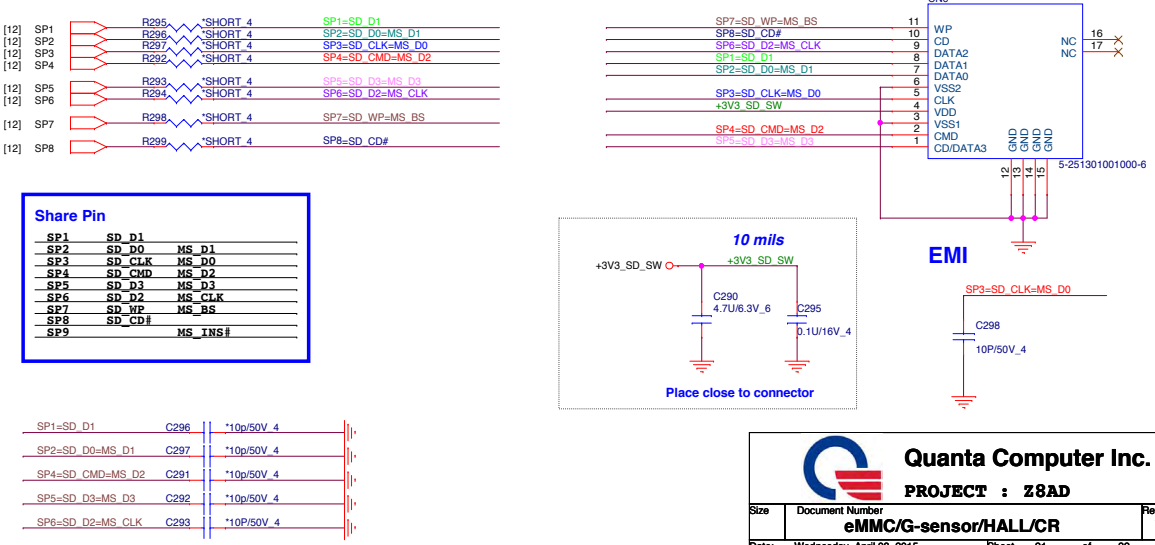
G Sensor INT

HALL IC (HSR)

2nd source : AL008251000 -- YBT
3rd source : AL009132001
4th source : AL009249000



SD/MMC CARD READER (DRD)



Share Pin

SP1	SD_D1	
SP2	SD_D0	MS_D1
SP3	SD_CLK	MS_D0
SP4	SD_CMD	MS_D2
SP5	SD_D3	MS_D3
SP6	SD_D2	MS_CLK
SP7	SD_WP	MS_BS
SP8	SD_CD#	
SP9		MS_INS#

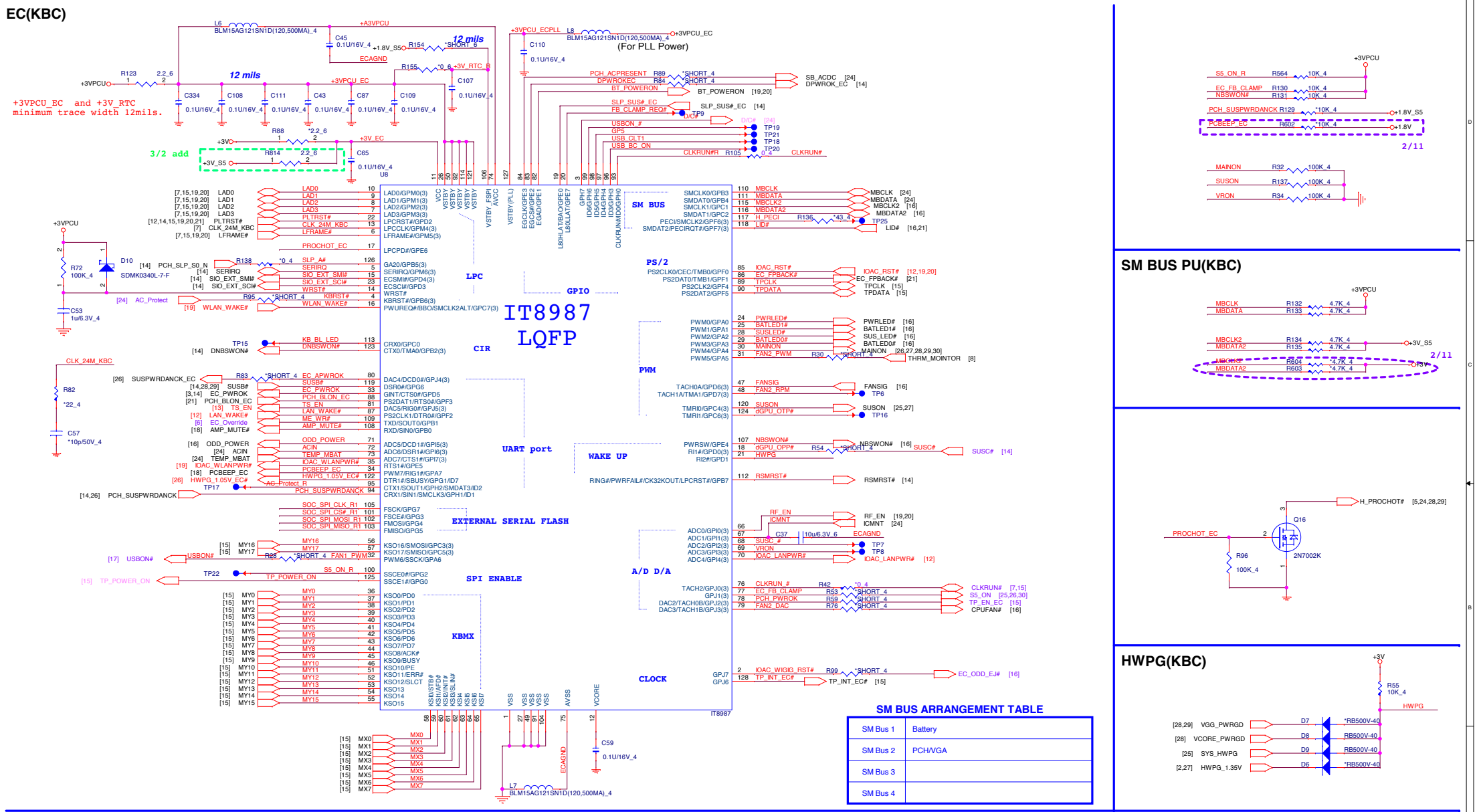
Quanta Computer Inc.

PROJECT : Z8AD

Size	Document Number	Rev
	eMMC/G-sensor/HALL/CR	1A

Date: Wednesday, April 08, 2015 Sheet 21 of 32

EC(KBC)



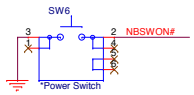
SM BUS ARRANGEMENT TABLE

SM Bus 1	Battery
SM Bus 2	PCH/VGA
SM Bus 3	
SM Bus 4	

SM BUS PU(KBC)

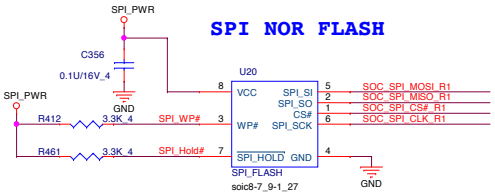
HWPG(KBC)

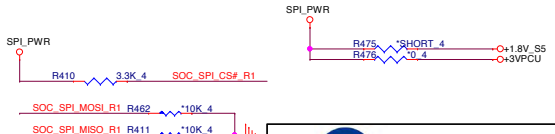
For test only



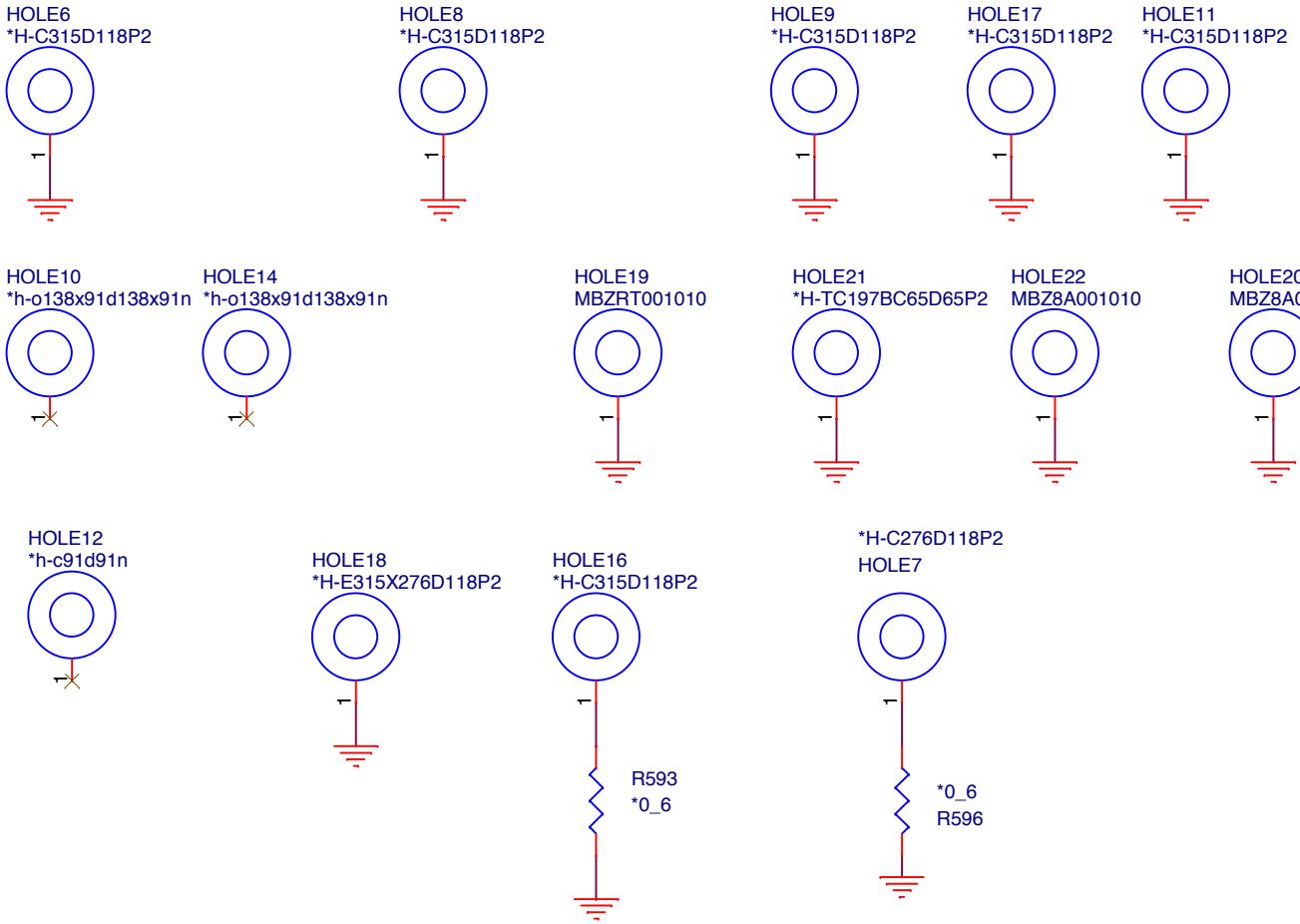
Reset SW (FSW)

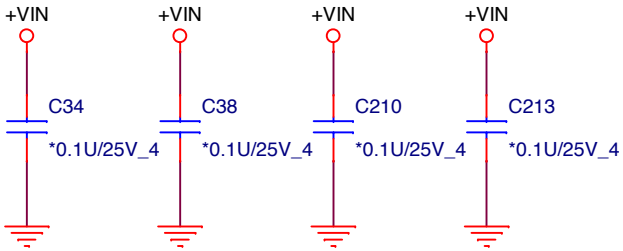
SPI NOR FLASH





Quanta Computer Inc.			
PROJECT : Z8AD			
Size	Document Number	KBC IT8987	Rev 3A
Date: Wednesday, April 08, 2015	Sheet 22 of 32		

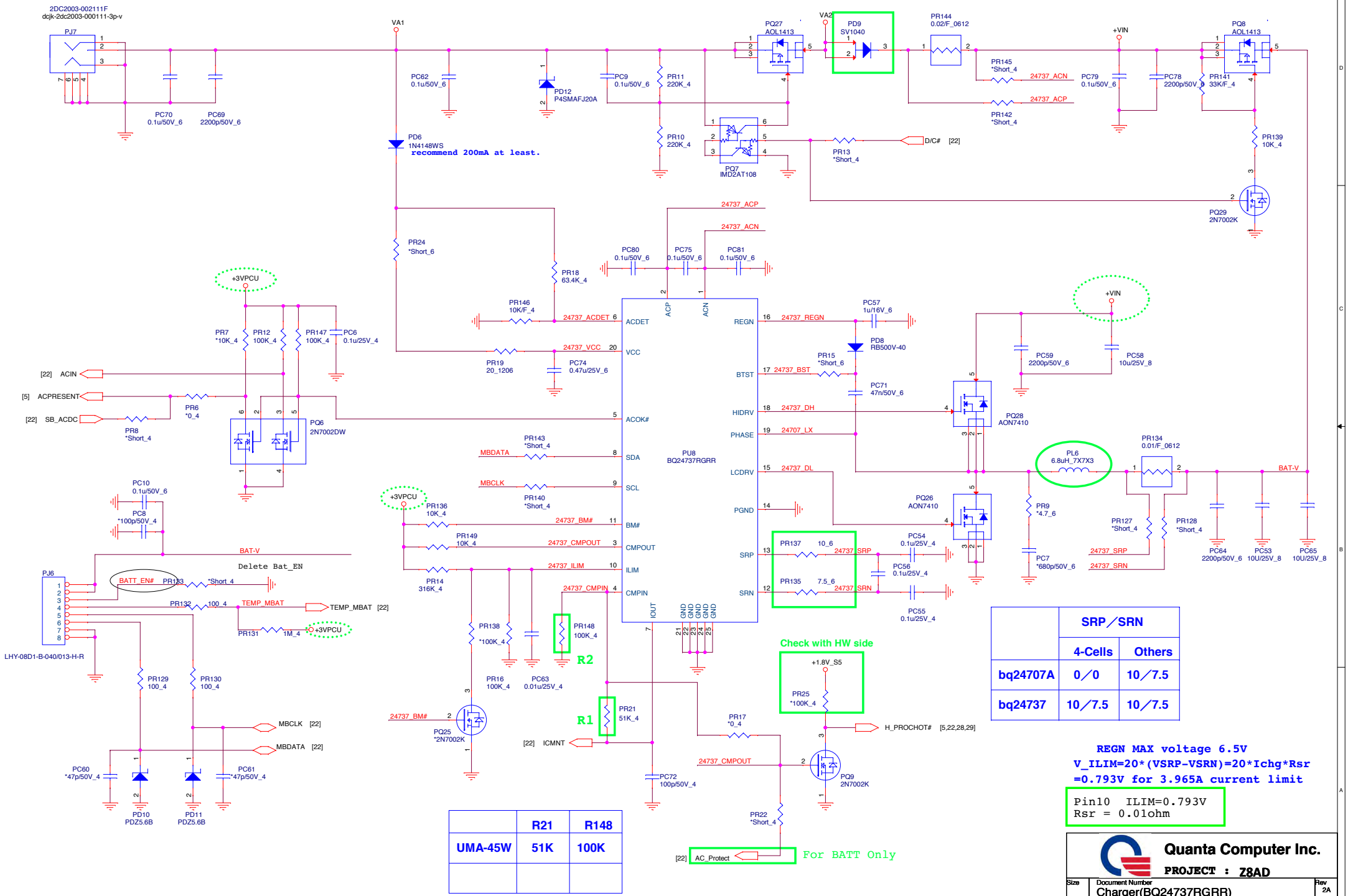




Quanta Computer Inc.

PROJECT : Z8AD

Size	Document Number	Rev
	Thermal / Hole	1A
Date: Wednesday, April 08, 2015	Sheet 23 of 32	



	SRP／SRN	
	4-Cells	Others
bq24707A	0／0	10／7.5
bq24737	10／7.5	10／7.5

	R21	R148
UMA-45W	51K	100K

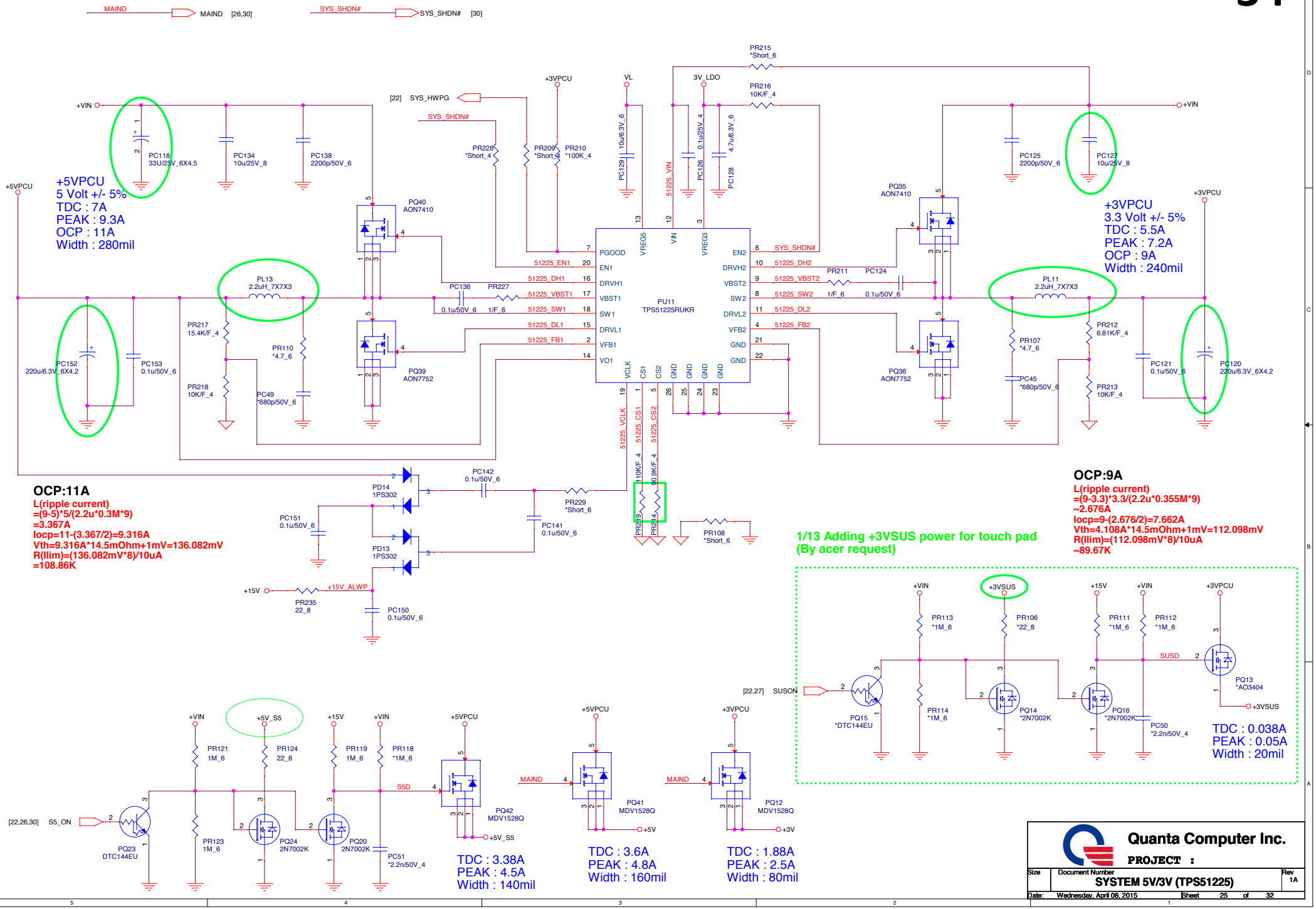
REGN MAX voltage 6.5V
V_ILIM=20*(VSRP-VSRN)=20*Ichg*Rsr
=0.793V for 3.965A current limit

Pin10 ILIM=0.793V
Rsr = 0.01ohm

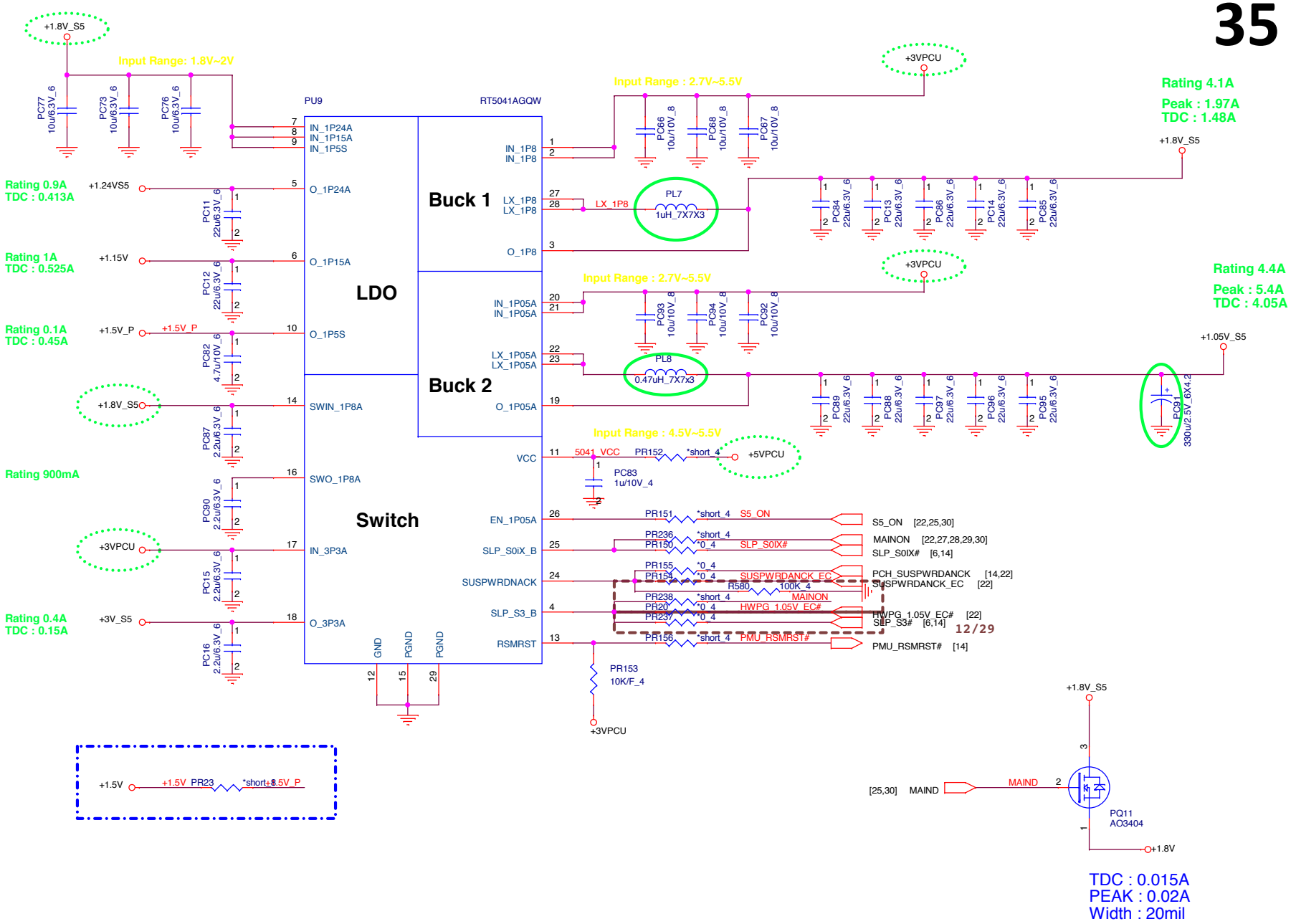
Quanta Computer Inc.
PROJECT : Z8AD

Size	Document Number	Rev
	Charger(BQ24737RGRR)	2A

Date: Wednesday, April 08, 2015 Sheet 24 of 32



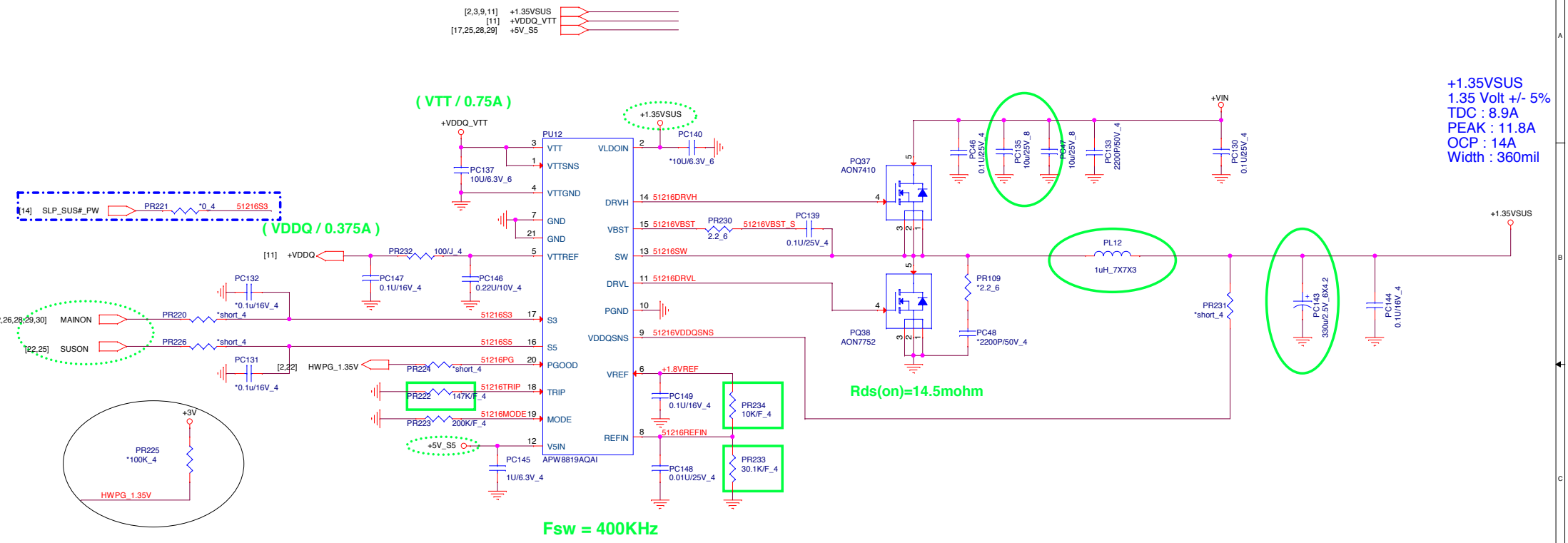
Quanta Computer Inc.		
PROJECT :		
Size	Document Number: SYSTEM 5V/3V (TPS51225)	Rev: 1A
Date: Wednesday, April 08, 2015	Sheet 25 of 32	



Quanta Computer Inc.

PROJECT :

Size	Document Number	Rev
Custom	PMIC (RT5041AGQW)	A
Date: Wednesday, April 08, 2015	Sheet 26 of 32	



OCP=14A
L ripple current
=(19-1.35)*1.35/(1u*400k*19)
=3.135A
Vtrip=14-(3.135/2)*14.5mohm
=180.269mV
Rlimit=180.269mV/10uA*8=144.21Kohm

DDR=1.35V
PR104=10K/F_4
PR106=30.1K/F_4

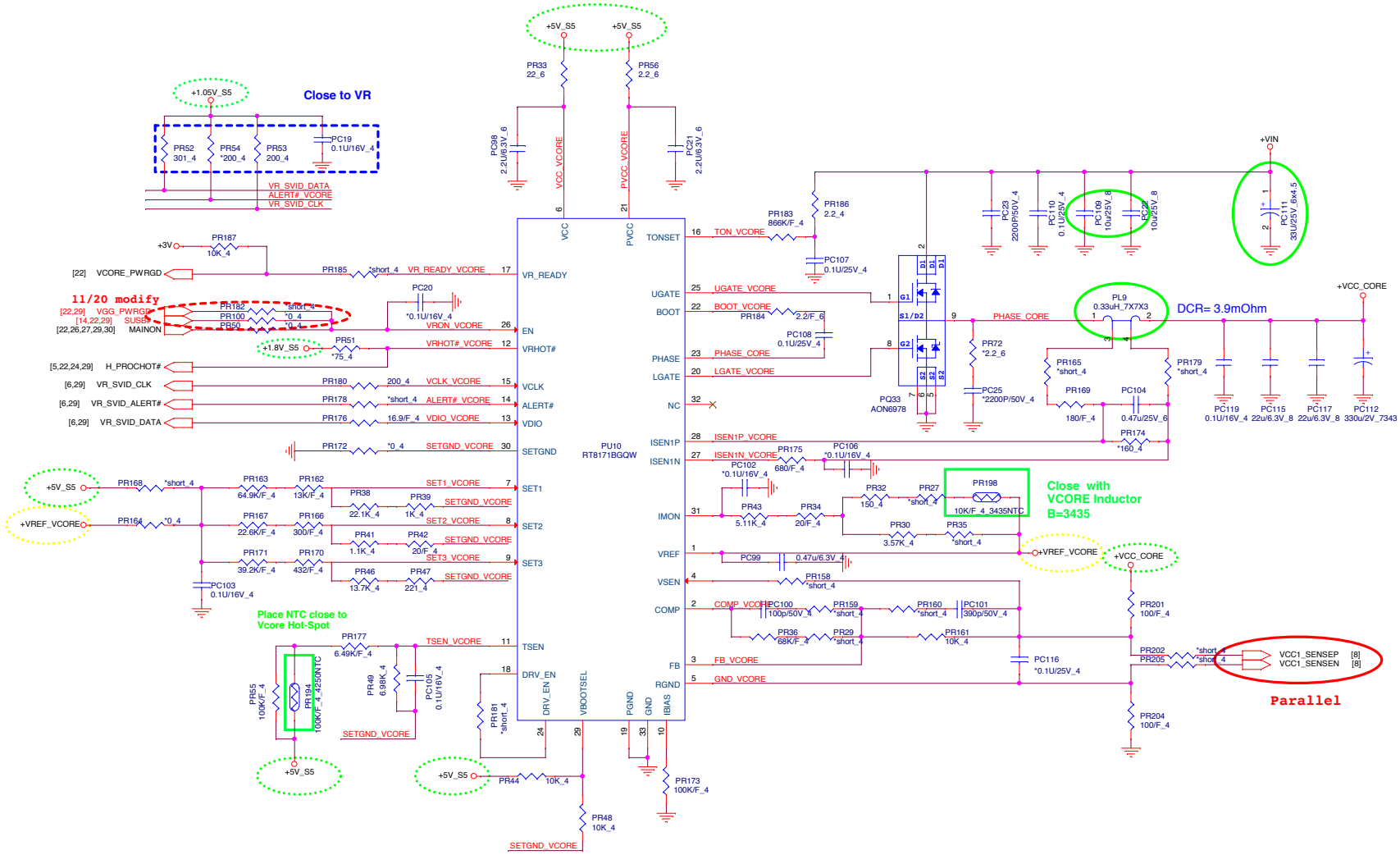
Mode	Frequency	Discharge mode
200K	400K	Tracking Discharge
100K	300K	Tracking Discharge

	S3	S5	+1.35VSUS	REF	VTT
S0	1	1	ON	ON	ON
S3 (mainon off)	0	1	ON	ON	OFF
S4/S5	0	0	OFF	OFF	OFF

Quanta Computer Inc.
PROJECT :

Size	Document Number	Rev
	DDR3L (APW8819)	1A

Date: Wednesday, April 08, 2015 Sheet 27 of 32



VR 12.1

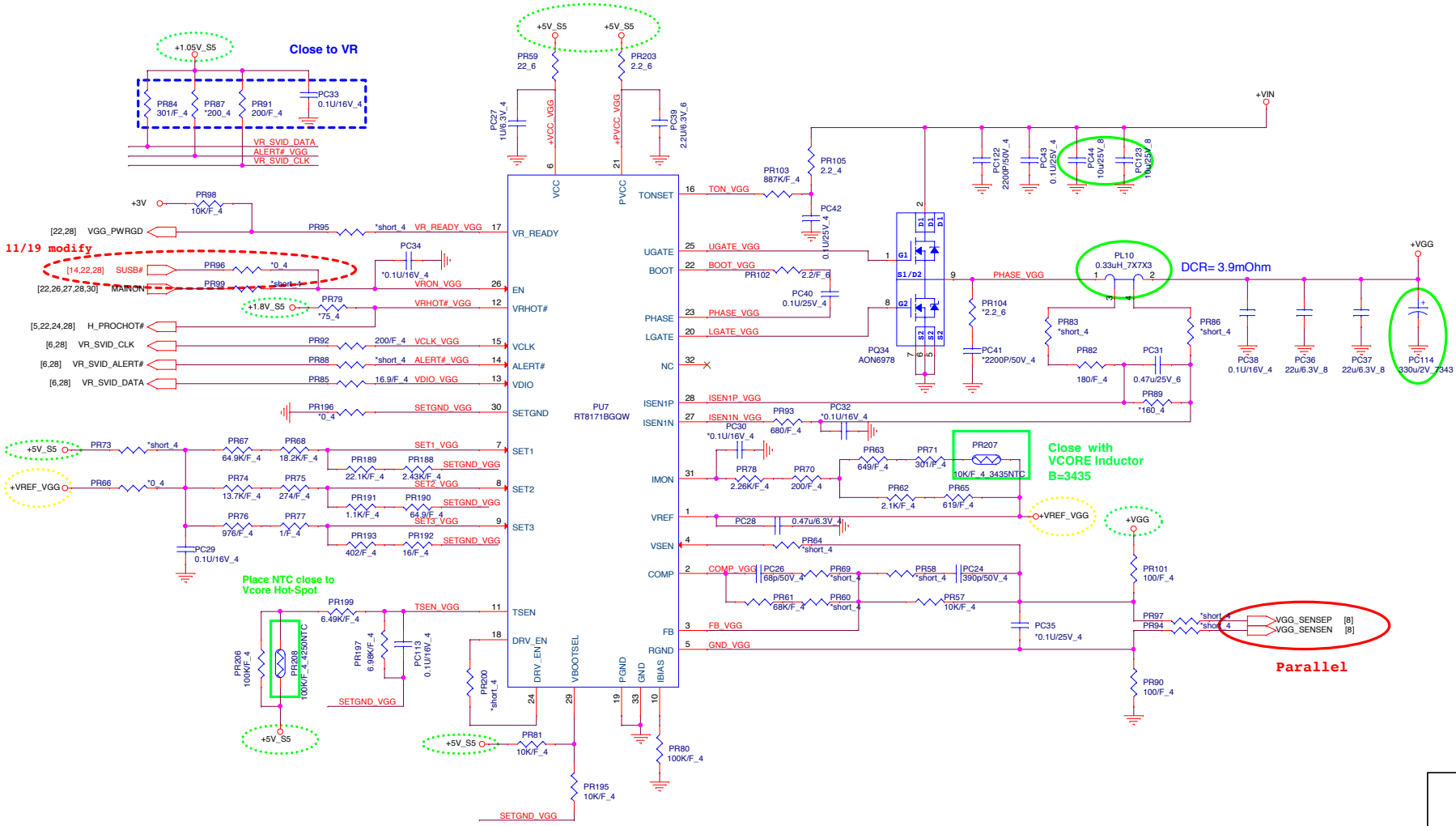
Braswell - VCC0+1 (1 Phase)

Icc TDC PL2：TBD
Icc Max：7A
OCP：12.4A
Fsw：800KHz
Vboot：1V
VR address：0

VCC0+1 L/L：
R_DC_LL：0 mV/A
R_AC_LL：0 mV/A

Quanta Computer Inc.
PROJECT：

Size	Document Number	Rev
	VCC0+1 (RT8171BGQW)	2A
Date: Wednesday, April 08, 2015	Sheet 28 of 32	



VR 12.1

Braswell - VGG (1 Phase)

Icc TDC PL2：TBD

Icc Max：15A

OCP：20.7A

Fsw：800KHz

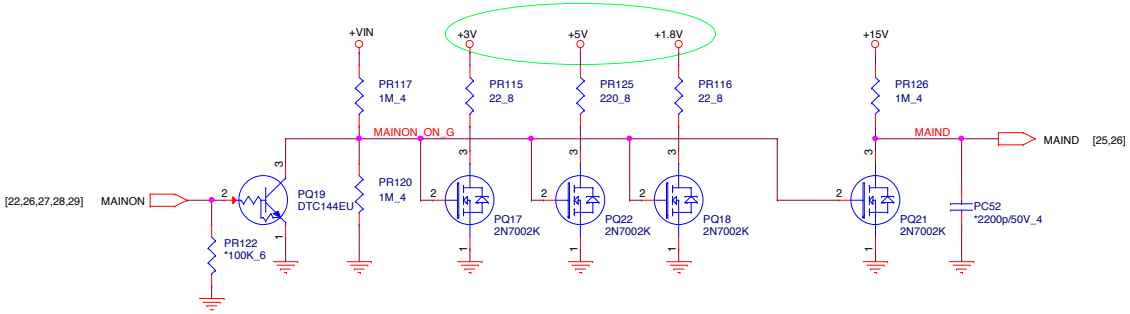
VR Address：5

VCORE L/L：

R_DC_LL：0 mV/A

R_AC_LL：0 mV/A

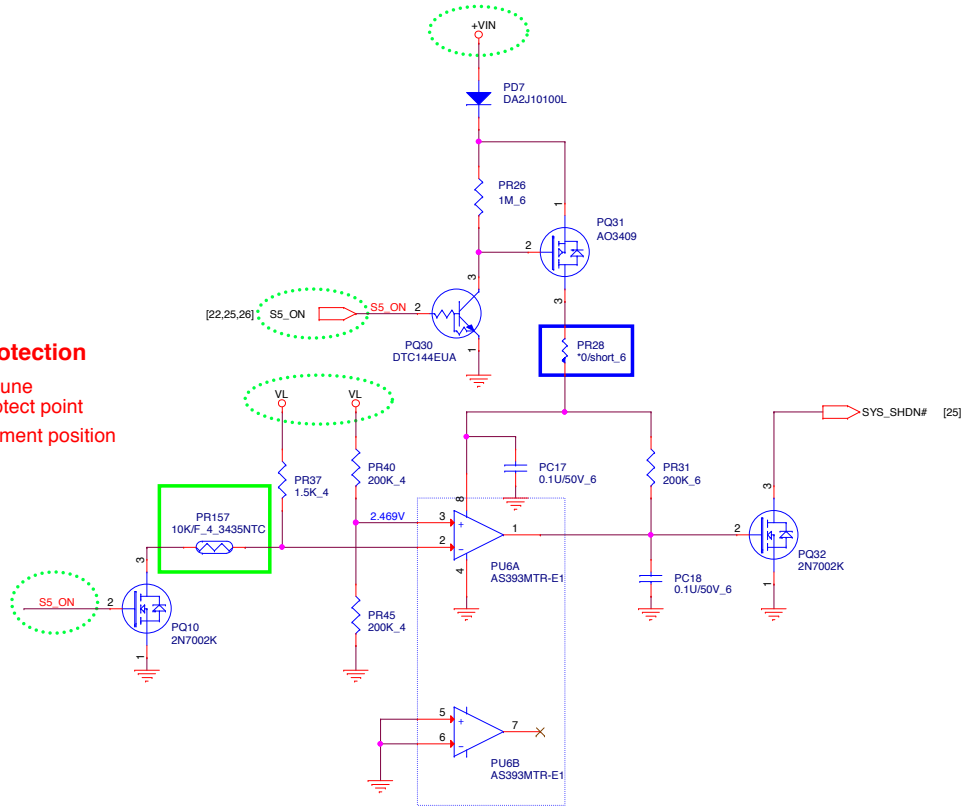
Quanta Computer Inc.	PROJECT :	
Size	Document Number: +VGG (RT8171BGQW)	Rev: 2A
Date: Wednesday, April 08, 2015	Sheet 29 of 32	



Thermal Protection

(1) Need fine tune
for thermal protect point

(2) Note placement position



For EC control thermal protection (output 3.3V)

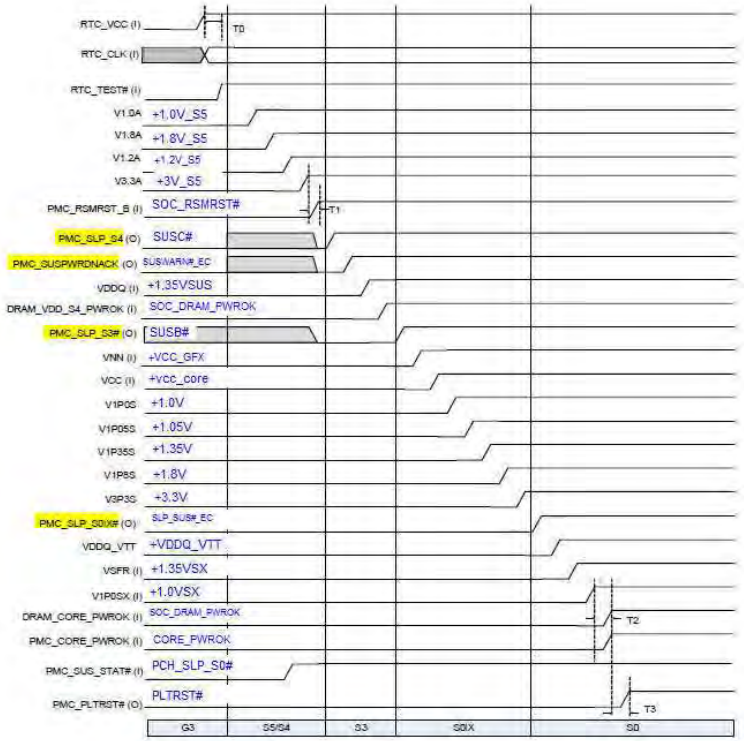
Quanta Computer Inc.

PROJECT :

Size	Document Number	Rev
	Thermal / Discharge	1A

Date: Wednesday, April 08, 2015 Sheet 30 of 32

Bay Trail-M S4/S5 to S0 (Power Up) Sequence



Quanta Computer Inc.		
PROJECT : Z8AD		
Size	Document Number: Power sequence	Rev: 1A
Date: Wednesday, April 08, 2015	Sheet 31 of 32	

Model	Version	CHANGE LIST
Z8AD	B	
	12/25	page 6: change GPIO_SUS7 net connect to SOC_KCB_SMI net & add R429 page 12: change U13 pin34 connect to GND & Del PCIERST# net page 14: add Q54 & R22 page 19: Del PCIERST# net & change C214 connect +3VPCU & IOAC_WLANPWR# & Q25 pin2 connect +3V_Mini1_VDD page 20: Del PCIERST# net page 31: add MAINON net & PR236
	12/29	page 6: add R581 connect to GND & R585, PMU_WIFI_SUSCLK_R net page 14: add Q54 for Touch screen & U13 circuit for Intel WIFI card page 19: add WIFI_SUSCLK net & R584 page 26: add SLP_S3# net & PR237 & PR238 &MAINON net
	1/06	page 6: Move SOC_KCB_SMI to SATA_GP1(pin AG3) page 14: add R591 page 15:add R588,R587,C594,RR586 page 16: Del Q55,R579 page 21: DelD29 & add Q55,R592,R589,R590
	1/06	page 3: Del R533 page 14: Del R591 page 8: Del R499,R488 & addC595,C596 page 21: Del R592
	C	
	12/25	page 6: add board ID 0 & R600,R601 page 22: add R602 ,R598 & R599 &Del R109
	3/2	page 5: add ODD circuit ODD_PRSNT# connect to SATA_LED# (U34D AH3) & Add SSD ID at pin AF3 (SATA_GP3) ,Add R810,R811 page 22: add R813 page 16: add R812,C693 &ODD_PRSNT# net ,SSD ID net page 22: add R814 page 6: Del R585 & Add TP 24 page 14: Del U27,R583,R582,C593 page 19: Del R584 & Add TP 47 page 13: Add R818,R819,R820,C698,C699,C700 page 16: Add R815,R816,R817,C696,C697,C701,C702 page 19: Add R821,R822,,C694,C695