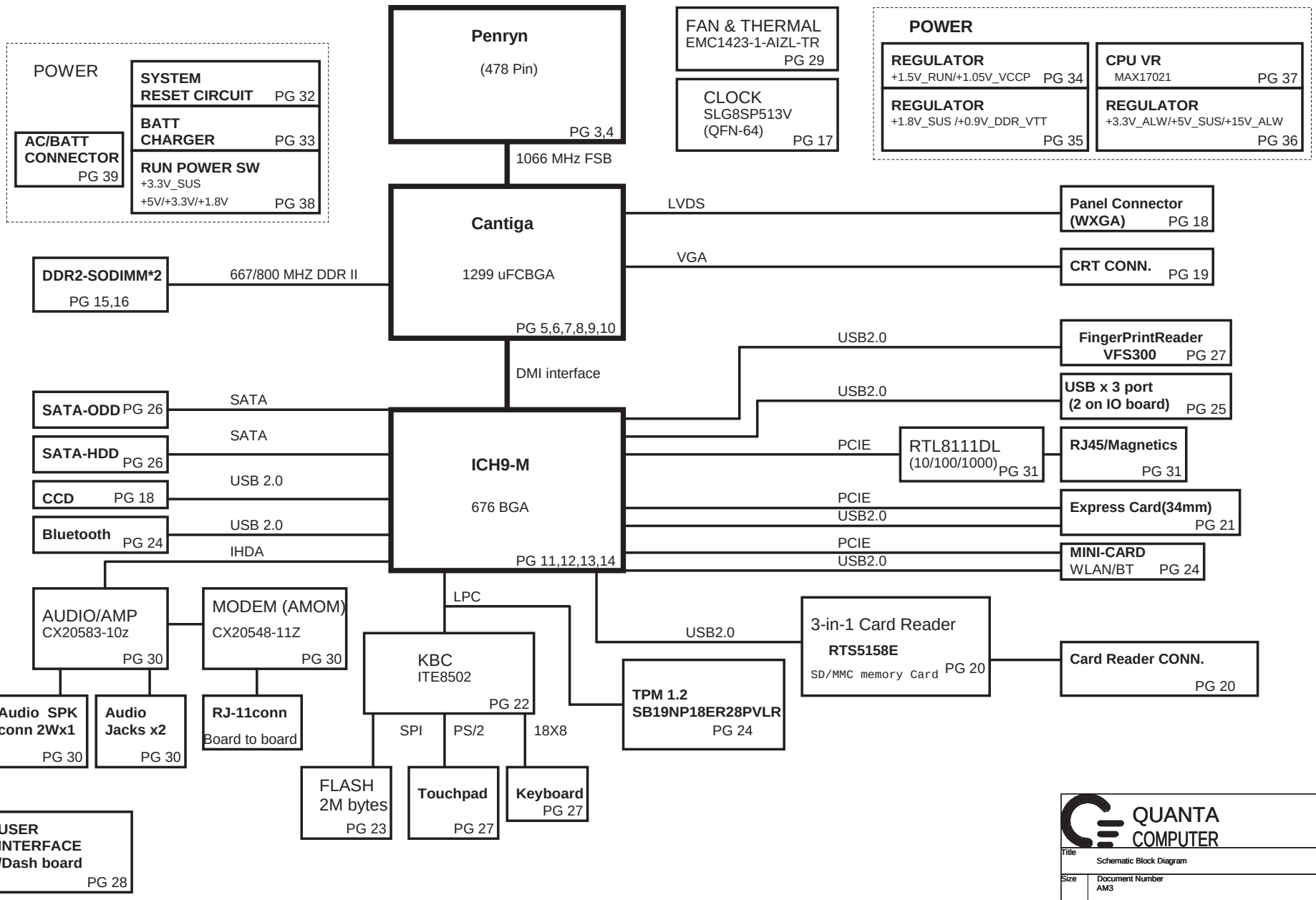
12.1" AM3 Low Rider Block Diagram

VER : C3A

M/B PCB



QUANTA COMPUTER

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19	CRT Conn
20	
22	SIO (ITE8502)
23	
24	Mini Card / BT
25	USB
26	SATA Conn HDD and ODD
27	TP / KEYBOARD / FP
28	SWITCH /LED
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30	
31	
32	System Reset Circuit
33	Battery Selector & Charger
34	
35	
36	MAX17020 (+5V/+3V ALW)
37	
38	RUN Power Switch
	DCIN,Batt
	PAD& SCREW
	EMI CAP
	SMBUS BLOCK

Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
+PWR_SRC	10V~+19V	4,26,32,34,46,48,49,51,52,56	MAIN POWER		S0~S5
+RTC_CELL	+3.0V~+3.3V	11,14,31,32	RTC		S0~S5
+3.3V_ALW	+3.3V	3,31,32,34,36,37,38,44,46,49,52,53,54	8051 POWER	ALWON	S0~S5
+15V_ALW	+15V	26,36,37,52,53	LARGE POWER	+5V_ALW	S0~S5
+3.3V_LAN	+3.3V	42,43	LAN POWER	AUX_ON	
+5V_SUS	+5V	14,38,51,53	SLP_S5# CTRLD POWER	SUS_ON	
+3.3V_SUS	+3.3V	3,11,12,13,14,26,30,37,38,43,48,49,51,53	SLP_S5# CTRLD POWER	3.3V_SUS_ON	
+1.8V_SUS	+1.8V	6,8,9,15,48,49,53	SODIMM POWER	DDR_ON	
+0.9V_DDR_VTT	+0.9V	16,49,53	SODIMM POWER	0.9V_DDR_VTT_ON	
+5V_RUN	+5V	14,18,27,36,37,38,39,40,41,53	SLP_S3# CTRLD POWER	RUN_ON	
+3.3V_RUN	+3.3V	14,18,27,36,37,38,39,40,41,53	SLP_S3# CTRLD POWER	3.3V_RUN_ON	
+1.5V_RUN	+1.5V	4,9,14,30,33,34,48,53,56	CALISTOGA/ICH8 POWER	1.5V_RUN_ON	
+1.05V_VCCP	+1.05V	3,4,5,6,8,9,11,14,48,56	CPU/CALISTOGA/ICH8 POWER	1.05V_RUN_ON	
+VCC_CORE	+0.7V~+1.77V	4,51,56	CPU CORE POWER	IMVP_VR_ON	
+LCDVCC	+3.3V	26	LCD Power	LCDVCC_TST_EN & ENVDD	
+PBATT	+10V~+17V		MAIN BATTERY	CHG_PBATT	
+SBATT	+10V~+17V		SECOND BATTERY	CHG_SBATT	

GND PLANE	PAGE	DESCRIPTION
GND	ALL	

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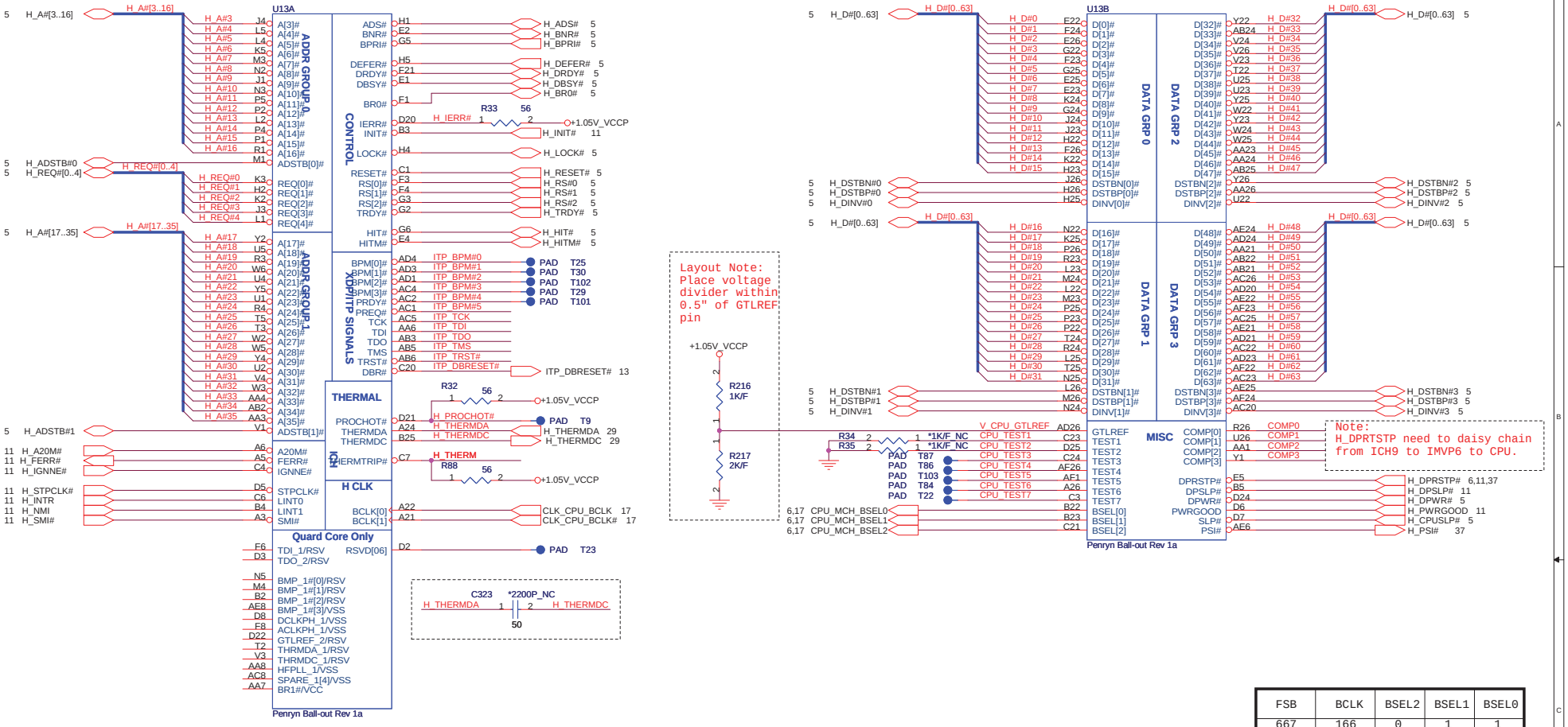
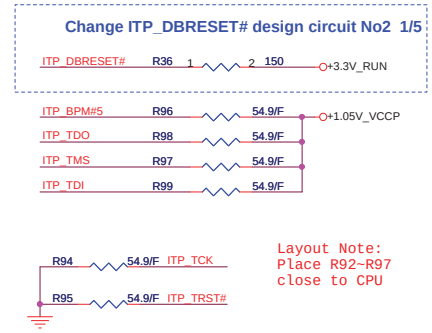
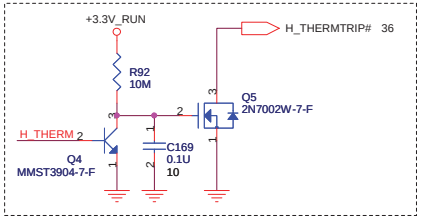


FSB	BCLK	BSEL2	BSEL1	BSEL0
667	166	0	1	1
800	200	0	1	0
1066	266	0	0	0

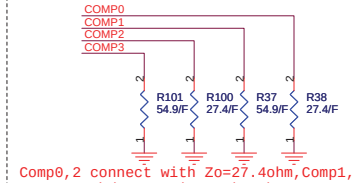
Populate ITP700Flex for bringup





ITP disable guidelines

Signal	Resistor Value	Connect To	Resistor Placement
TDI	150 ohm +/- 5%	VTT	Within 2.0" of the ITP
TMS	39 ohm +/- 5%	VTT	Within 2.0" of the ITP
TRST#	680 ohm +/- 5%	GND	Within 2.0" of the ITP
TCK	27 ohm +/- 5%	GND	Within 2.0" of the ITP
TDO	Open	VTT	Within 2.0" of the ITP
ITP_EN	R268 Depop	+3VRUN	Close to CK410M Pin8



QUANTA COMPUTER

Title	Penryn Processor (HOST BUS)	
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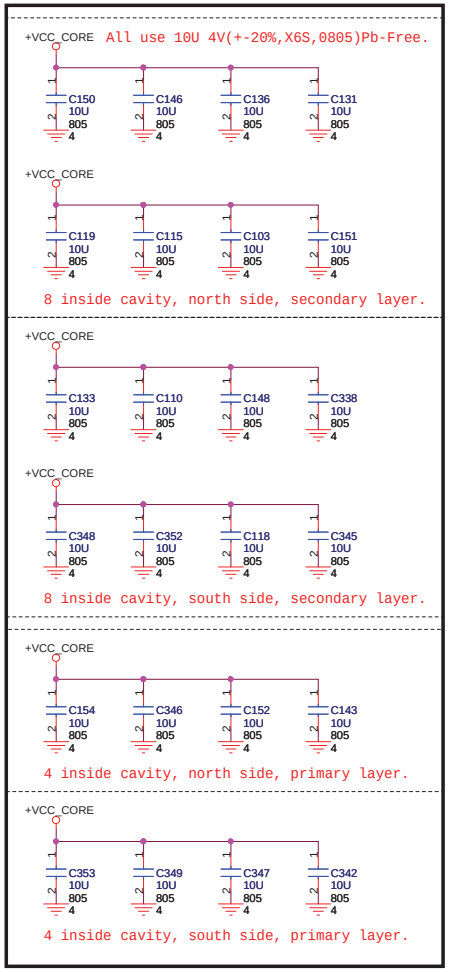
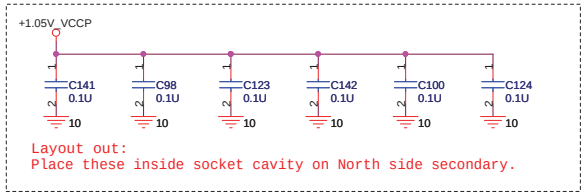
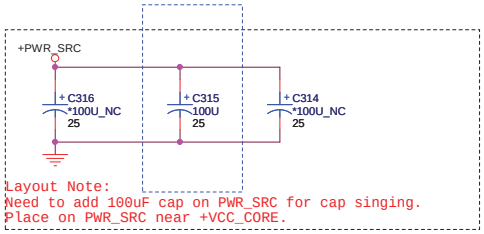
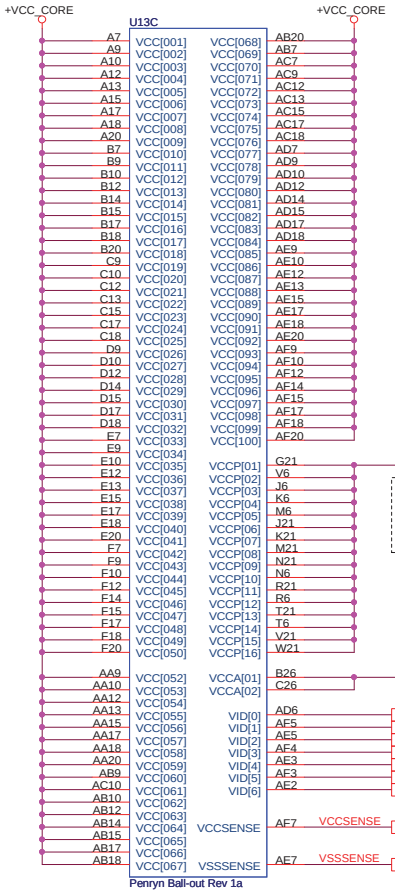
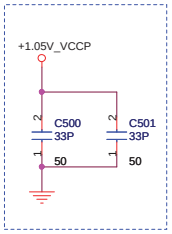




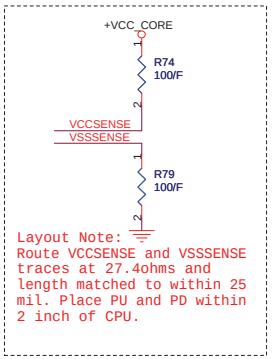


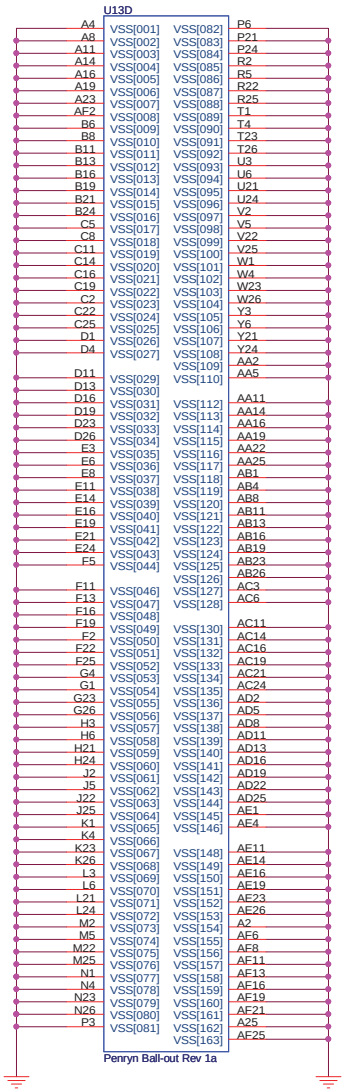
Add C315 for Acoustic No1 0220





Add those caps for EMI solution No3 0318





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Title	Penryn Processor (POWER)	
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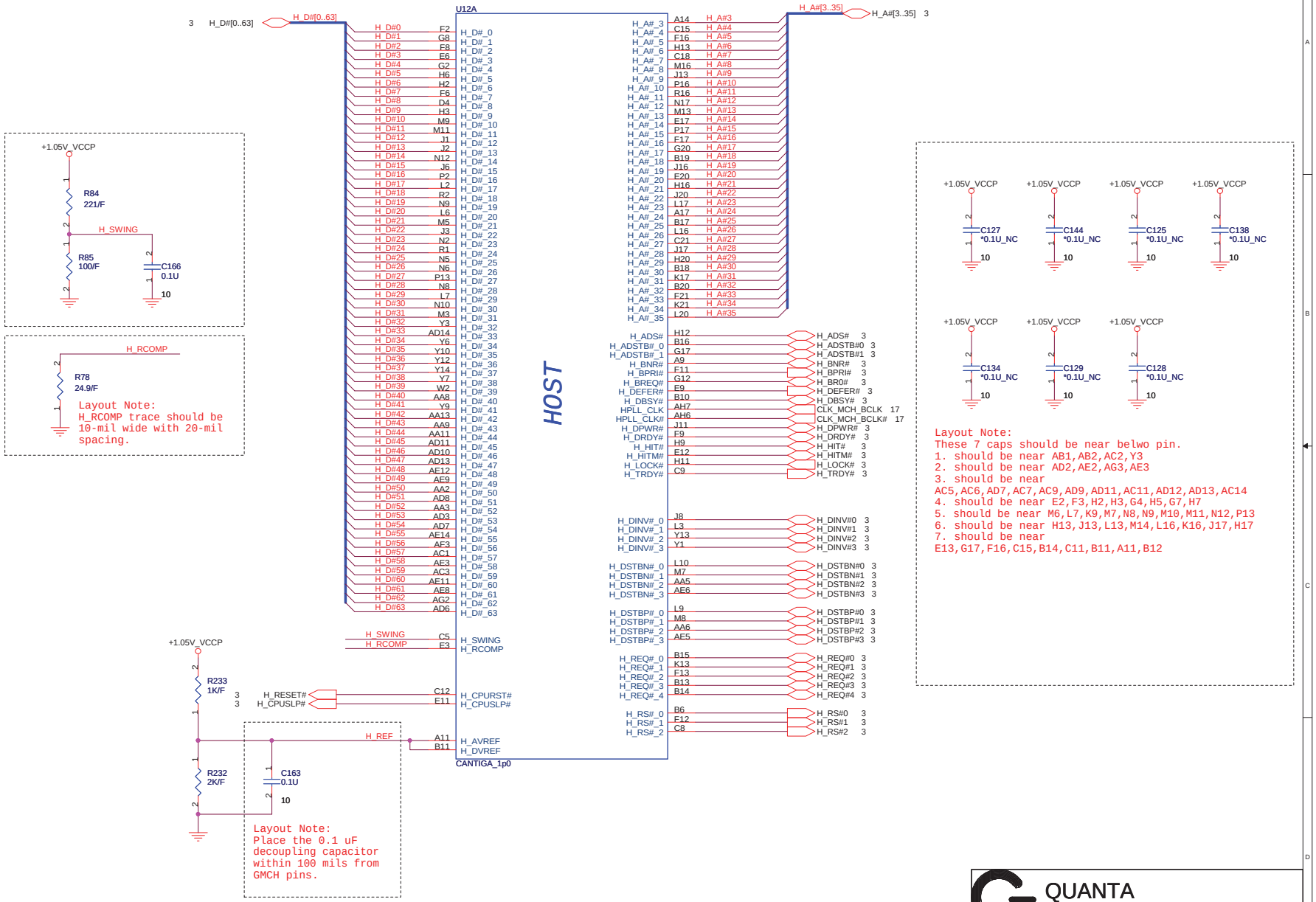

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Title	Cantiga (HOST)	
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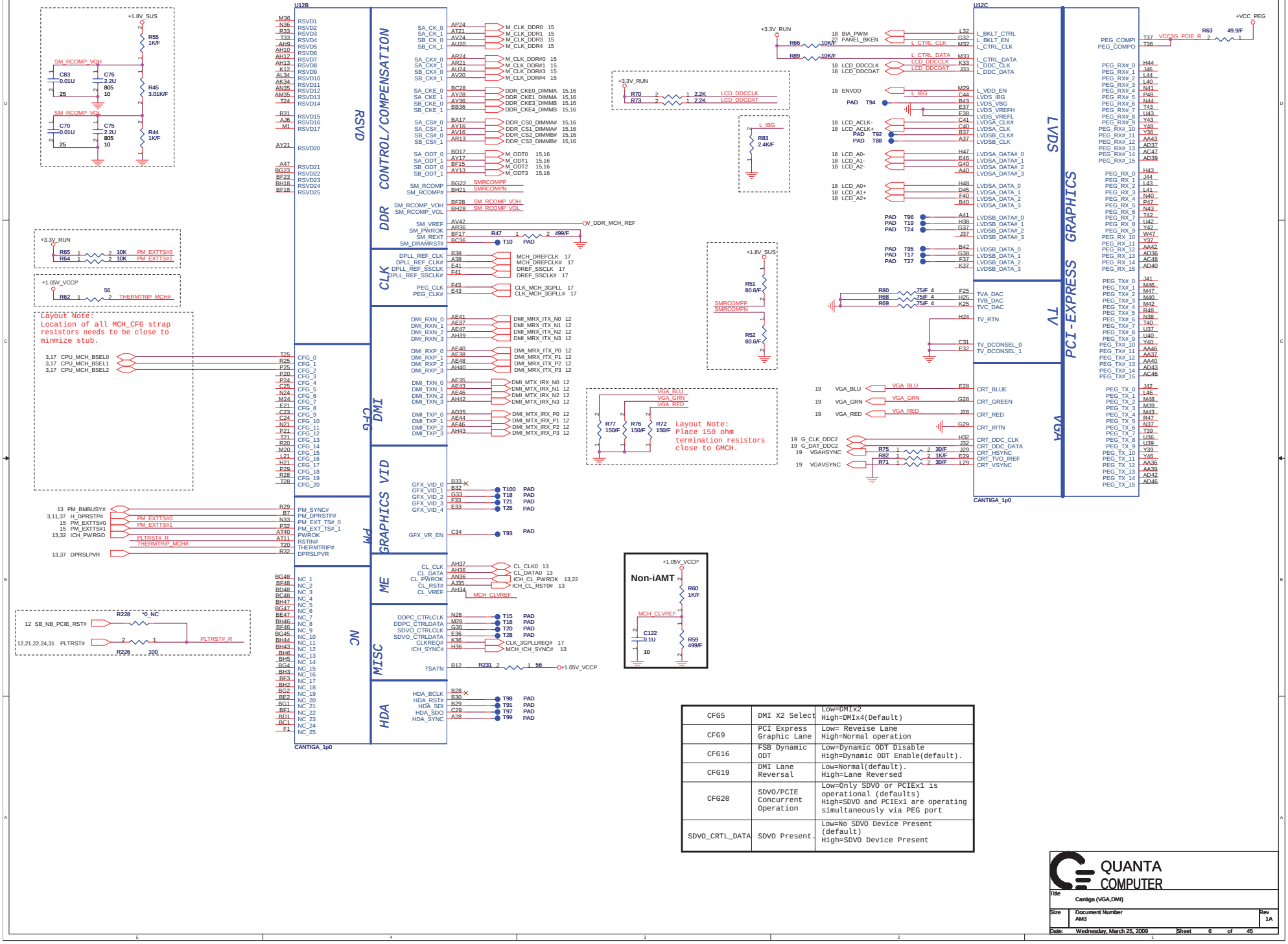
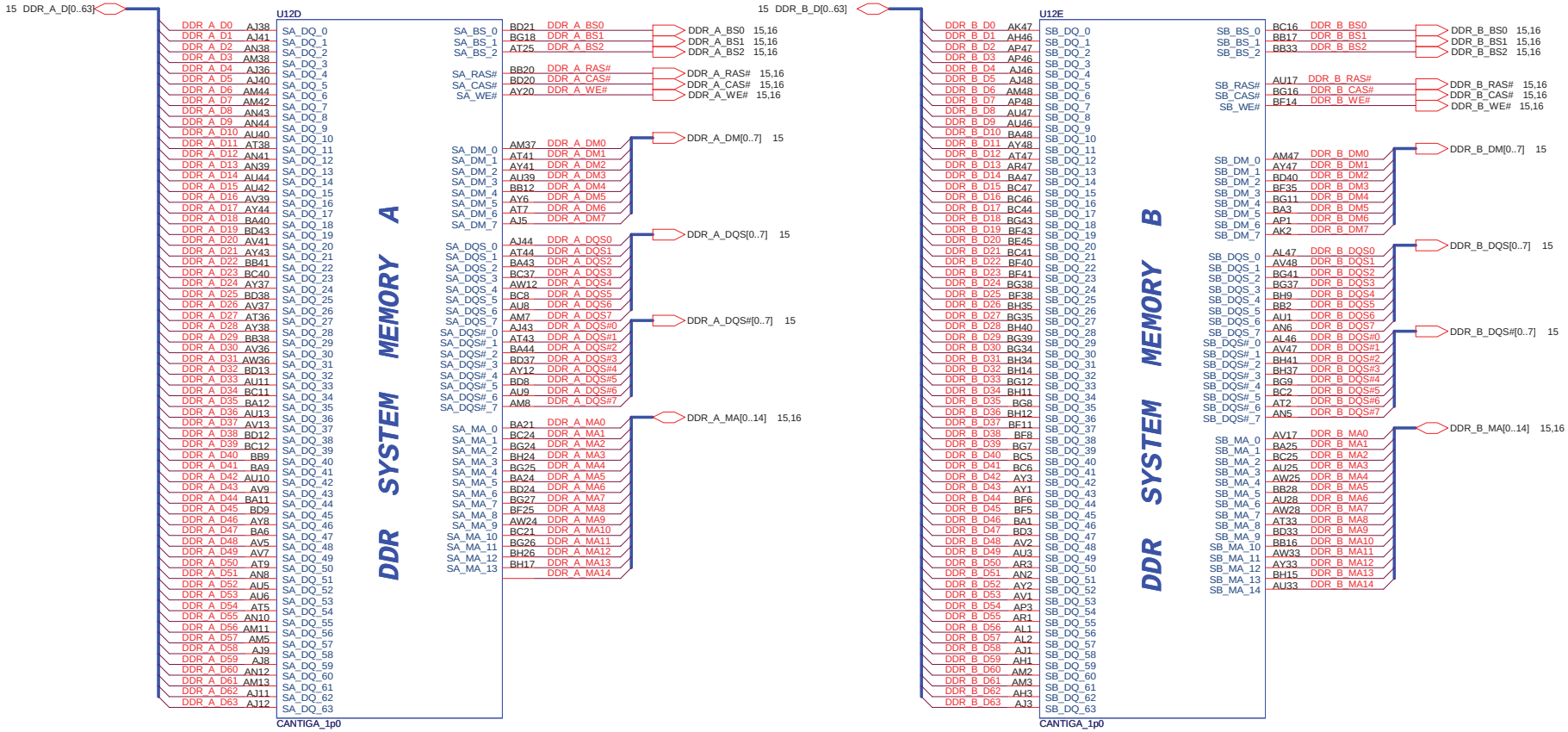


CFG5	DMI X2 Select	Low=DMIx2 High=DMIx4(Default)
CFG9	PCI Express Graphic Lane	Low= Reveise Lane High=Normal operation
CFG16	FSB Dynamic ODT	Low=Dynamic ODT Disable High=Dynamic ODT Enable(default).
CFG19	DMI Lane Reversal	Low=Normal(default). High=Lane Reversed
CFG20	SDVO/PCIE Concurrent Operation	Low=Only SDVO or PCIEx1 is operational (defaults) High=SDVO and PCIEx1 are operating simultaneously via PEG port
SDVO_CRTL_DATA	SDVO Present.	Low=No SDVO Device Present (default) High=SDVO Device Present



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Title	Cantiga (DDR2)	
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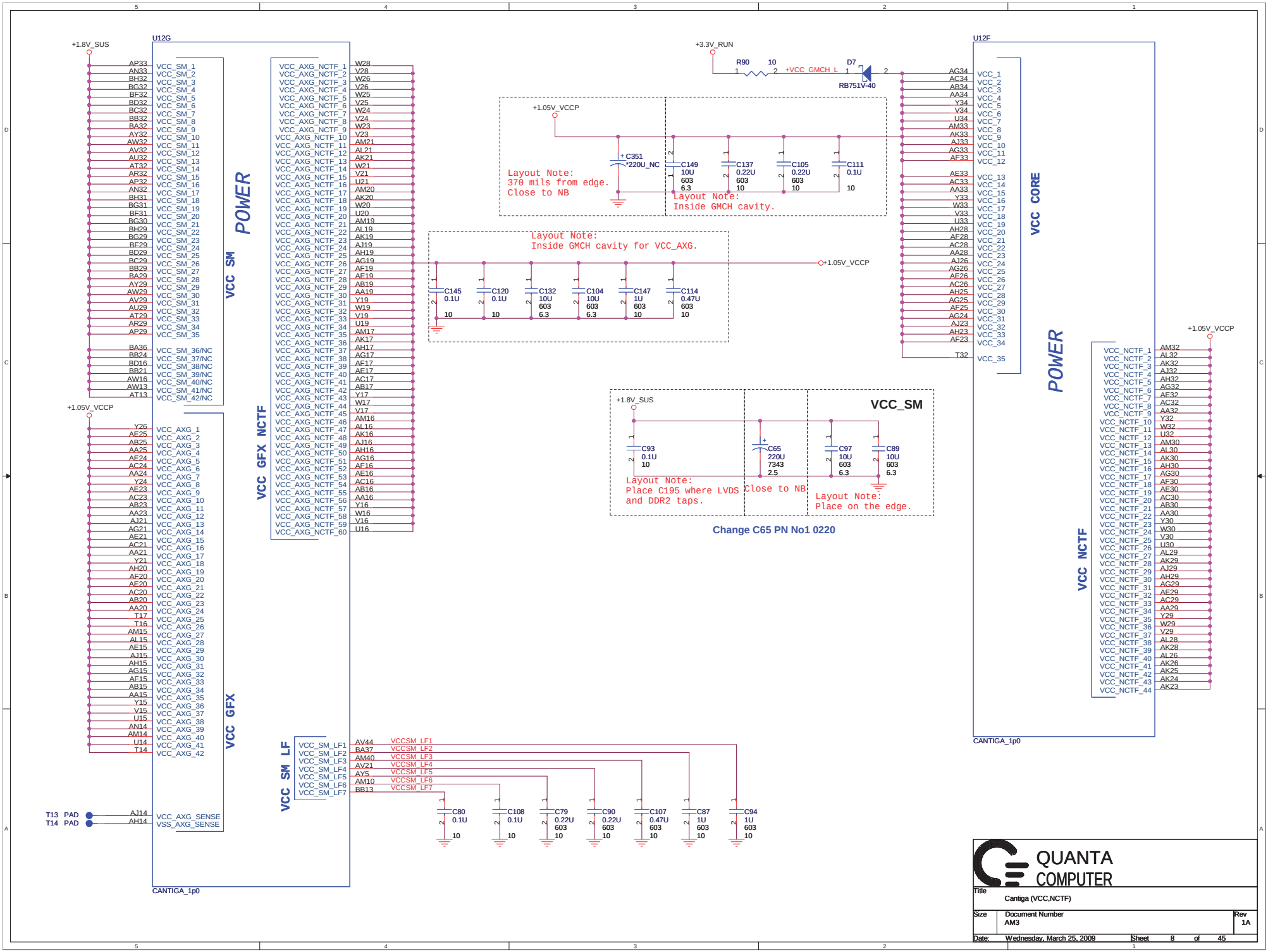
U12G
+1.8V_SUS
VCC_SM_1
VCC_SM_2
VCC_SM_3
VCC_SM_4
VCC_SM_5
VCC_SM_6
VCC_SM_7
VCC_SM_8
VCC_SM_9
VCC_SM_10
VCC_SM_11
VCC_SM_12
VCC_SM_13
VCC_SM_14
VCC_SM_15
VCC_SM_16
VCC_SM_17
VCC_SM_18
VCC_SM_19
VCC_SM_20
VCC_SM_21
VCC_SM_22
VCC_SM_23
VCC_SM_24
VCC_SM_25
VCC_SM_26
VCC_SM_27
VCC_SM_28
VCC_SM_29
VCC_SM_30
VCC_SM_31
VCC_SM_32
VCC_SM_33
VCC_SM_34
VCC_SM_35
VCC_SM_36/NC
VCC_SM_37/NC
VCC_SM_38/NC
VCC_SM_39/NC
VCC_SM_40/NC
VCC_SM_41/NC
VCC_SM_42/NC
VCC SM POWER
+1.05V_VCCP
VCC_AXG_1
VCC_AXG_2
VCC_AXG_3
VCC_AXG_4
VCC_AXG_5
VCC_AXG_6
VCC_AXG_7
VCC_AXG_8
VCC_AXG_9
VCC_AXG_10
VCC_AXG_11
VCC_AXG_12
VCC_AXG_13
VCC_AXG_14
VCC_AXG_15
VCC_AXG_16
VCC_AXG_17
VCC_AXG_18
VCC_AXG_19
VCC_AXG_20
VCC_AXG_21
VCC_AXG_22
VCC_AXG_23
VCC_AXG_24
VCC_AXG_25
VCC_AXG_26
VCC_AXG_27
VCC_AXG_28
VCC_AXG_29
VCC_AXG_30
VCC_AXG_31
VCC_AXG_32
VCC_AXG_33
VCC_AXG_34
VCC_AXG_35
VCC_AXG_36
VCC_AXG_37
VCC_AXG_38
VCC_AXG_39
VCC_AXG_40
VCC_AXG_41
VCC_AXG_42
VCC GFX
T13 PAD
T14 PAD
VCC_AXG_SENSE
VSS_AXG_SENSE
VCC_AXG_NCTF_1
VCC_AXG_NCTF_2
VCC_AXG_NCTF_3
VCC_AXG_NCTF_4
VCC_AXG_NCTF_5
VCC_AXG_NCTF_6
VCC_AXG_NCTF_7
VCC_AXG_NCTF_8
VCC_AXG_NCTF_9
VCC_AXG_NCTF_10
VCC_AXG_NCTF_11
VCC_AXG_NCTF_12
VCC_AXG_NCTF_13
VCC_AXG_NCTF_14
VCC_AXG_NCTF_15
VCC_AXG_NCTF_16
VCC_AXG_NCTF_17
VCC_AXG_NCTF_18
VCC_AXG_NCTF_19
VCC_AXG_NCTF_20
VCC_AXG_NCTF_21
VCC_AXG_NCTF_22
VCC_AXG_NCTF_23
VCC_AXG_NCTF_24
VCC_AXG_NCTF_25
VCC_AXG_NCTF_26
VCC_AXG_NCTF_27
VCC_AXG_NCTF_28
VCC_AXG_NCTF_29
VCC_AXG_NCTF_30
VCC_AXG_NCTF_31
VCC_AXG_NCTF_32
VCC_AXG_NCTF_33
VCC_AXG_NCTF_34
VCC_AXG_NCTF_35
VCC_AXG_NCTF_36
VCC_AXG_NCTF_37
VCC_AXG_NCTF_38
VCC_AXG_NCTF_39
VCC_AXG_NCTF_40
VCC_AXG_NCTF_41
VCC_AXG_NCTF_42
VCC_AXG_NCTF_43
VCC_AXG_NCTF_44
VCC_AXG_NCTF_45
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VCC_AXG_NCTF_52
VCC_AXG_NCTF_53
VCC_AXG_NCTF_54
VCC_AXG_NCTF_55
VCC_AXG_NCTF_56
VCC_AXG_NCTF_57
VCC_AXG_NCTF_58
VCC_AXG_NCTF_59
VCC_AXG_NCTF_60
VCC GFX NCTF
VCC_SM_LF1
VCC_SM_LF2
VCC_SM_LF3
VCC_SM_LF4
VCC_SM_LF5
VCC_SM_LF6
VCC_SM_LF7
VCC SM LF
VCCSM_LF1
VCCSM_LF2
VCCSM_LF3
VCCSM_LF4
VCCSM_LF5
VCCSM_LF6
VCCSM_LF7
C80 0.1U 10
C108 0.1U 10
C79 0.22U 603 10
C90 0.22U 603 10
C107 0.47U 603 10
C87 1U 603 10
C94 1U 603 10
CANTIGA_1p0
+3.3V_RUN
R90 10
+VCC_GMCH_L
D7
RB751V-40
+1.05V_VCCP
C351 *220U_NC
C149 10U 603 6.3
C137 0.22U 603 10
C105 0.22U 603 10
C111 0.1U 10
Layout Note:
370 mils from edge.
Close to NB
Layout Note:
Inside GMCH cavity.
Layout Note:
Inside GMCH cavity for VCC_AXG.
+1.05V_VCCP
C145 0.1U 10
C120 0.1U 10
C132 10U 603 6.3
C104 10U 603 6.3
C147 1U 603 10
C114 0.47U 603 10
+1.8V_SUS
VCC_SM
C93 0.1U 10
C65 220U 7343 2.5
C97 10U 603 6.3
C89 10U 603 6.3
Layout Note:
Place C195 where LVDS
and DDR2 taps.
Close to NB
Layout Note:
Place on the edge.
Change C65 PN No1 0220
U12F
VCC_1
VCC_2
VCC_3
VCC_4
VCC_5
VCC_6
VCC_7
VCC_8
VCC_9
VCC_10
VCC_11
VCC_12
VCC_13
VCC_14
VCC_15
VCC_16
VCC_17
VCC_18
VCC_19
VCC_20
VCC_21
VCC_22
VCC_23
VCC_24
VCC_25
VCC_26
VCC_27
VCC_28
VCC_29
VCC_30
VCC_31
VCC_32
VCC_33
VCC_34
VCC_35
VCC CORE
POWER
+1.05V_VCCP
VCC_NCTF_1
VCC_NCTF_2
VCC_NCTF_3
VCC_NCTF_4
VCC_NCTF_5
VCC_NCTF_6
VCC_NCTF_7
VCC_NCTF_8
VCC_NCTF_9
VCC_NCTF_10
VCC_NCTF_11
VCC_NCTF_12
VCC_NCTF_13
VCC_NCTF_14
VCC_NCTF_15
VCC_NCTF_16
VCC_NCTF_17
VCC_NCTF_18
VCC_NCTF_19
VCC_NCTF_20
VCC_NCTF_21
VCC_NCTF_22
VCC_NCTF_23
VCC_NCTF_24
VCC_NCTF_25
VCC_NCTF_26
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VCC_NCTF_28
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VCC_NCTF_30
VCC_NCTF_31
VCC_NCTF_32
VCC_NCTF_33
VCC_NCTF_34
VCC_NCTF_35
VCC_NCTF_36
VCC_NCTF_37
VCC_NCTF_38
VCC_NCTF_39
VCC_NCTF_40
VCC_NCTF_41
VCC_NCTF_42
VCC_NCTF_43
VCC_NCTF_44
VCC NCTF
CANTIGA_1p0
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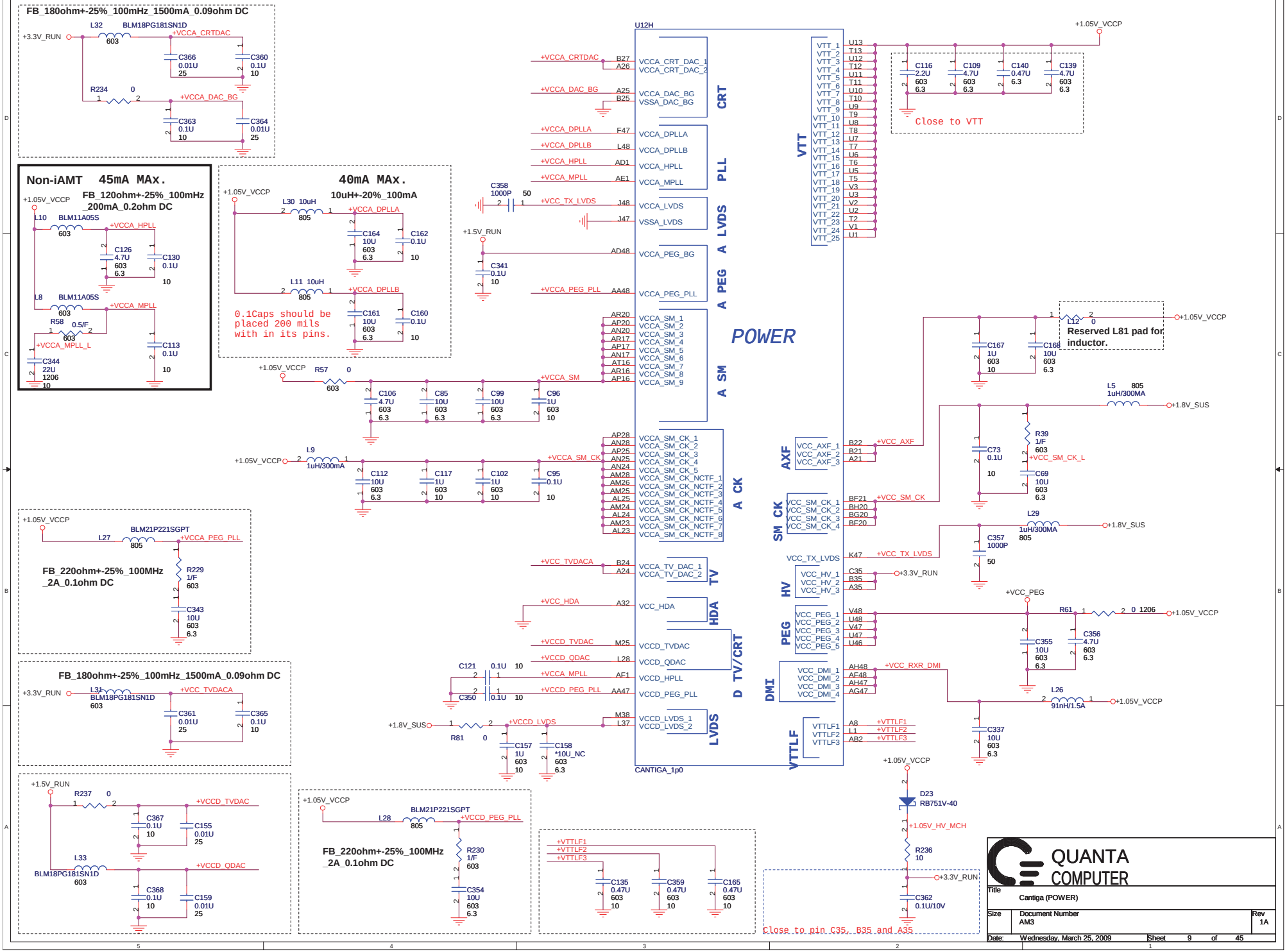
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
Non-iAMT 45mA MAx.
FB_120ohm+-25%_100mHz_200mA_0.2ohm DC
40mA MAx.
10uH+-20%_100mA
0.1Caps should be placed 200 mils with in its pins.
U12H
CANTIGA_1p0
POWER
CRT
PLL
LVDS
PEG
SM CK
AXF
HV
DMI
VTT
VTTLF
HDA
TV
Close to VTT
Reserved L81 pad for inductor.
FB_220ohm+-25%_100MHz_2A_0.1ohm DC
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
Close to pin C35, B35 and A35
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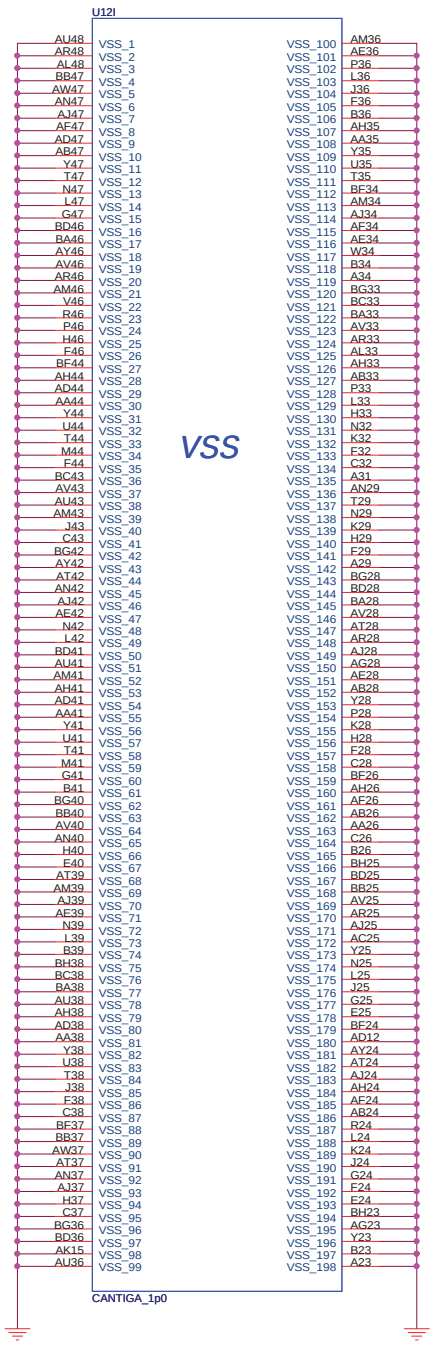

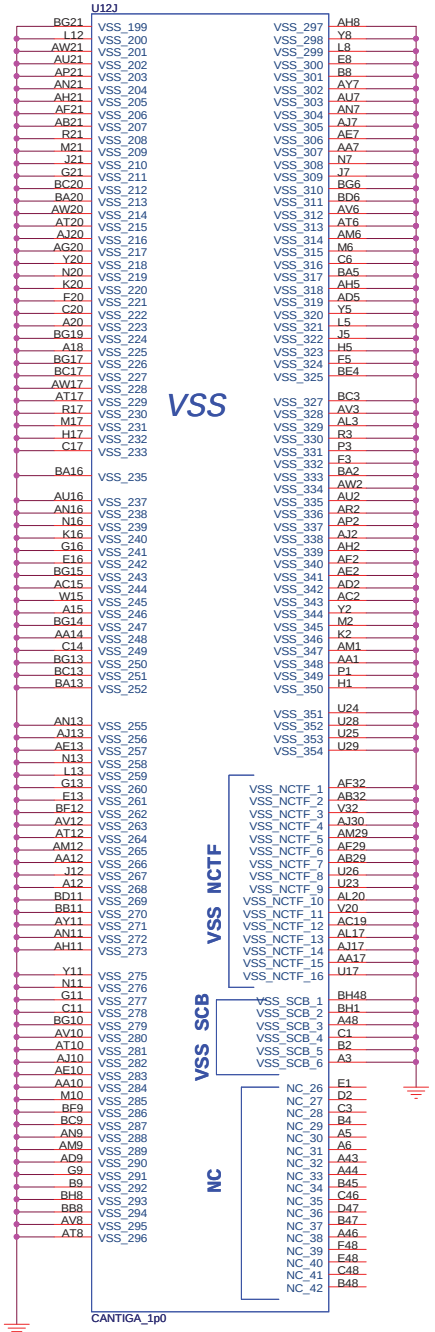

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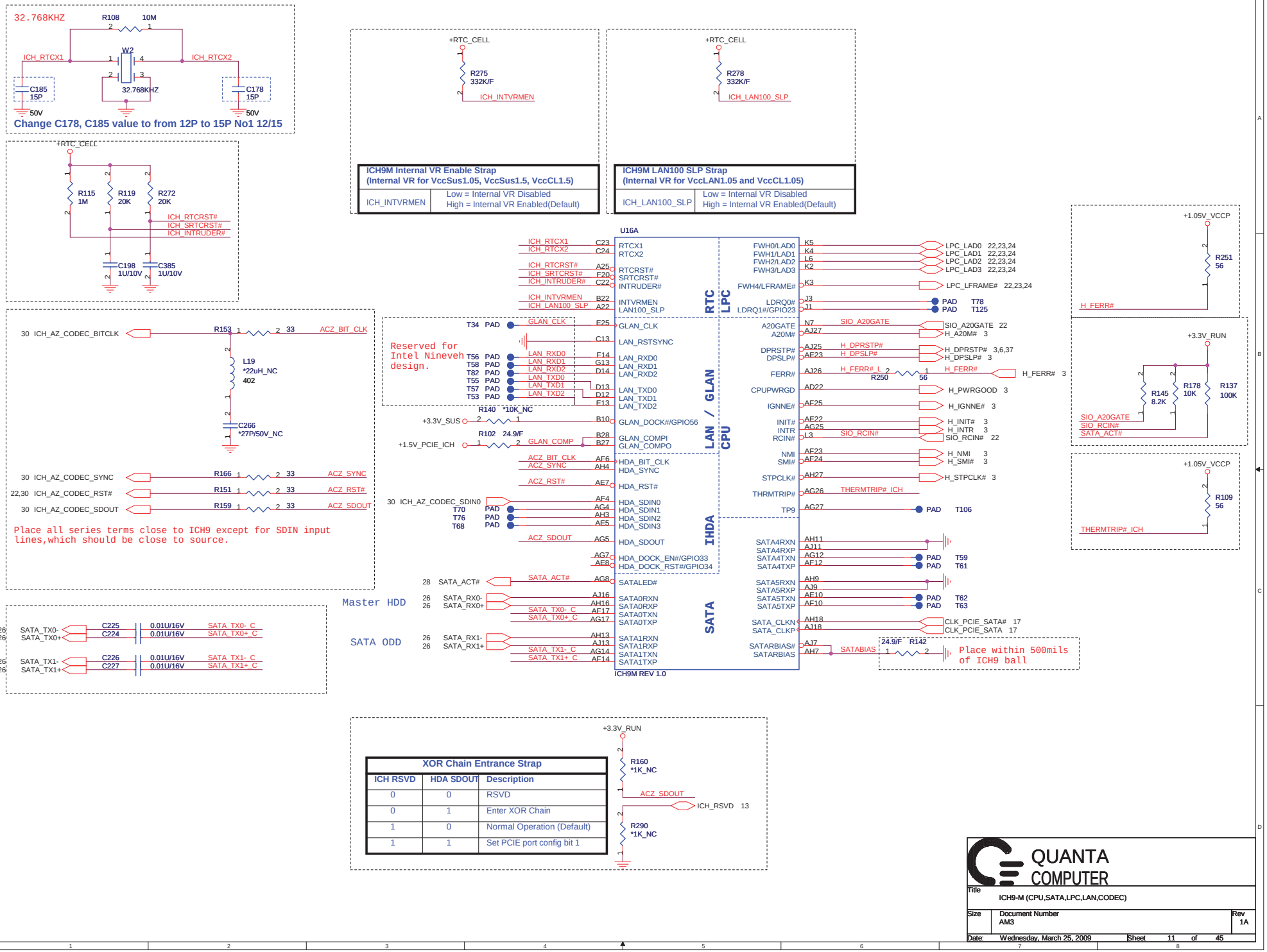

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Title	ICH9-M (CPU,SATA,LPC,LAN,CODEC)	
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Place TX DC blocking caps close ICH9.

24 PCIE_TX2- C172 1 2 0.1U 10 PCIE_TXN2_C
24 PCIE_TX2+ C173 1 2 0.1U 10 PCIE_TXP2_C

21 PCIE_TX4- C181 1 2 0.1U 10 PCIE_TXN4_C
21 PCIE_TX4+ C184 1 2 0.1U 10 PCIE_TXP4_C

31 PCIE_TX6-/GLAN_TX- C174 1 2 0.1U 10 GLAN_TXN_C
31 PCIE_TX6+/GLAN_TX+ C175 1 2 0.1U 10 GLAN_TXP_C

MiniWWAN

24 PCIE_RX2- PERN2
24 PCIE_RX2+ PERP2
PCIE_TXN2_C PETN2
PCIE_TXP2_C PETP2

Express Card

21 PCIE_RX4- PERN3
21 PCIE_RX4+ PERP3
PCIE_TXN4_C PETN3
PCIE_TXP4_C PETP3

T104 PAD PERN4
T105 PAD PERP4
T107 PAD PETN4
T31 PAD PETP4

31 PCIE_RX6-/GLAN_RX- PERN5
31 PCIE_RX6+/GLAN_RX+ PERP5
GLAN_TXN_C PETN5
GLAN_TXP_C PETP5

Giga Bit LOM

T32 PAD PERN6/GLAN_RXN
T83 PAD PERP6/GLAN_RXP
T37 PAD PETN6/GLAN_TXN
PETP6/GLAN_TXP

U16D

PCI-Express

Direct Media Interface

DMI0RXN DMI_MTX_IRX_N0 6
DMI0RXP DMI_MTX_IRX_P0 6
DMI0TXN DMI_MRX_ITX_N0 6
DMI0TXP DMI_MRX_ITX_P0 6

DMI1RXN DMI_MTX_IRX_N1 6
DMI1RXP DMI_MTX_IRX_P1 6
DMI1TXN DMI_MRX_ITX_N1 6
DMI1TXP DMI_MRX_ITX_P1 6

DMI2RXN DMI_MTX_IRX_N2 6
DMI2RXP DMI_MTX_IRX_P2 6
DMI2TXN DMI_MRX_ITX_N2 6
DMI2TXP DMI_MRX_ITX_P2 6

DMI3RXN DMI_MTX_IRX_N3 6
DMI3RXP DMI_MTX_IRX_P3 6
DMI3TXN DMI_MRX_ITX_N3 6
DMI3TXP DMI_MRX_ITX_P3 6

DMI_CLKN CLK_PCIE_ICH# 17
DMI_CLKP CLK_PCIE_ICH 17

DMI_ZCOMP
DMI_IRCOMP DMI_COMP R249 24.9/F +1.5V_PCIE_ICH

Place within 500mils of ICH9

SPI

SPI_CLK
SPI_CS0#
SPI_CS1#/GPIO58/CLGPIO6
SPI_MOSI
SPI_MISO

USB

25 USB_OC_0# OC0#/GPIO59
OC1#/GPIO40
25 USB_OC1_3# OC2#/GPIO41
OC3#/GPIO42
OC4#/GPIO43
OC5#/GPIO29
OC6#/GPIO30
OC7#/GPIO31
OC8#/GPIO44
OC9#/GPIIC45
OC10#/GPIO46
OC11#/GPIO47

USBP0N AC5 ICH_USBP0- 25
USBP0P AC4 ICH_USBP0+ 25
USBP1N AD3 ICH_USBP1- 25
USBP1P AD2 ICH_USBP1+ 25
USBP2N AC1 PAD T75
USBP2P AC2 PAD T71
USBP3N AA5 ICH_USBP3- 25
USBP3P AA4 ICH_USBP3+ 25
USBP4N AB2 ICH_USBP4- 24
USBP4P AB3 ICH_USBP4+ 24
USBP5N AA1 PAD T73
USBP5P AA2 PAD T69
USBP6N W5 ICH_USBP6- 24
USBP6P W4 ICH_USBP6+ 24
USBP7N Y3 ICH_USBP7- 21
USBP7P Y2 ICH_USBP7+ 21
USBP8N W1 PAD T79
USBP8P W2 PAD T74
USBP9N V2 ICH_USBP9- 20
USBP9P V3 ICH_USBP9+ 20
USBP10N U5 ICH_USBP10- 27
USBP10P U4 ICH_USBP10+ 27
USBP11N U1 ICH_USBP11- 18
USBP11P U2 ICH_USBP11+ 18

Side pair Top / left
Side pair bottom / right
Pair 1 top / left
Pair 1 bottom / right
Mini Card (WLAN)
Bluetooth
Express Card
Card reader
Biometric
Camera

R176 22.6/F USBRBIAS AG2
AG1 USBRBIAS#

Places within 500 mils of the ICH9

ICH9M REV 1.0

Boot BIOS Strap			
		GNT0#	SPI_CS1#
LPC	11	No stuff	No stuff
PCI	10	No stuff	Stuff
SPI	01	Stuff	No stuff

Update USB OC circuit No24 11/17

RP28 10KX8 +3.3V_SUS
OC7# 6 5 OC9#
OC6# 7 4 OC2#
OC5# 8 3 USB_OC_0#
OC4# 9 2 OC8#
+3.3V_SUS 10 1
OC10# R144 2 1 10K +3.3V_SUS
OC11# R163 2 1 10K
USB_OC1_3# R156 2 1 10K

PCI Pullups

RP26 +3.3V_RUN
PCI_FRAME# 6 5 PCI_PLOCK#
PCI_TRDY# 7 4 PCI_STOP#
PCI_DEVSEL# 8 3 PCI_PIRQD#
PCI_REQ1# 9 2 PCI_PERR#
+3.3V_RUN 10 1

RP27 +3.3V_RUN
PCI_IRDY# 6 5 PCI_PIRQA#
PCI_PIRQC# 7 4 PCI_REQ0#
PCI_PIRQE# 8 3 ICH_IRQH_GPIO5
PCI_PIRQB# 9 2 PCI_SERR#
+3.3V_RUN 10 1
PCI_REQ2# R139 2 1 8.2K +3.3V_RUN

SB_WLAN_PCIE_RST# R148 2 1 20K
SB_NB_PCIE_RST# R182 2 1 20K
SB_LOM_PCIE_RST# R152 2 1 20K

BIOS should not enable the internal GPIO pull up resistor.

U16B

PCI

D11 AD0 REQ0# F1 PCI_REQ0#
C8 AD1 GNT0# G4
D9 AD2 REQ1#/GPIO50 B6 PCI_REQ1#
E12 AD3 GNT1#/GPIO51 A7
E9 AD4 REQ2#/GPIO52 F13 PCI_REQ2#
C9 AD5 GNT2#/GPIO53 E12
E10 AD6 REQ3#/GPIO54 E6 SB_LOM_PCIE_RST#
B7 AD7 GNT3#/GPIO55 F6
C7 AD8
C5 AD9 C/BE0# D8
G11 AD10 C/BE1# B4
F8 AD11 C/BE2# D6
F11 AD12 C/BE3# A5
E7 AD13
A3 AD14 IRDY# D3 PCI_IRDY#
D2 AD15 PAR F3
F10 AD16 PCIRST# R1 PCI_RST# 23
D5 AD17 DEVSEL# C6 PCI_DEVSEL#
D10 AD18 PERR# E4 PCI_PERR#
B3 AD19 PLOCK# C2 PCI_PLOCK#
F7 AD20 SERR# J4 PCI_SERR#
C3 AD21 STOP# A4 PCI_STOP#
F3 AD22 TRDY# F5 PCI_TRDY#
F4 AD23 FRAME# D7 PCI_FRAME#
C1 AD24
G7 AD25 PLTRST# C14 PLTRST# 6,21,22,24,31
H7 AD26 PCICLK D4 CLK_PCI_ICH CLK_PCI_ICH 17
D1 AD27 PME# R2
G5 AD28
H6 AD29
G1 AD30
H3 AD31

Add SB_LOM_PCIE_RST# No25 11/18

Interrupt I/F

PCI_PIRQA# J5 PIRQA# PIRQE#/GPIO2 H4 PCI_PIRQE#
PCI_PIRQB# E1 PIRQB# PIRQF#/GPIO3 K6 SB_WLAN_PCIE_RST#
PCI_PIRQC# J6 PIRQC# PIRQG#/GPIO4 F2 SB_NB_PCIE_RST#
PCI_PIRQD# C4 PIRQD# PIRQH#/GPIO5 G2 ICH_IRQH_GPIO5

SB_WLAN_PCIE_RST# 24
SB_NB_PCIE_RST# 6
PAD T77

ICH9M REV 1.0

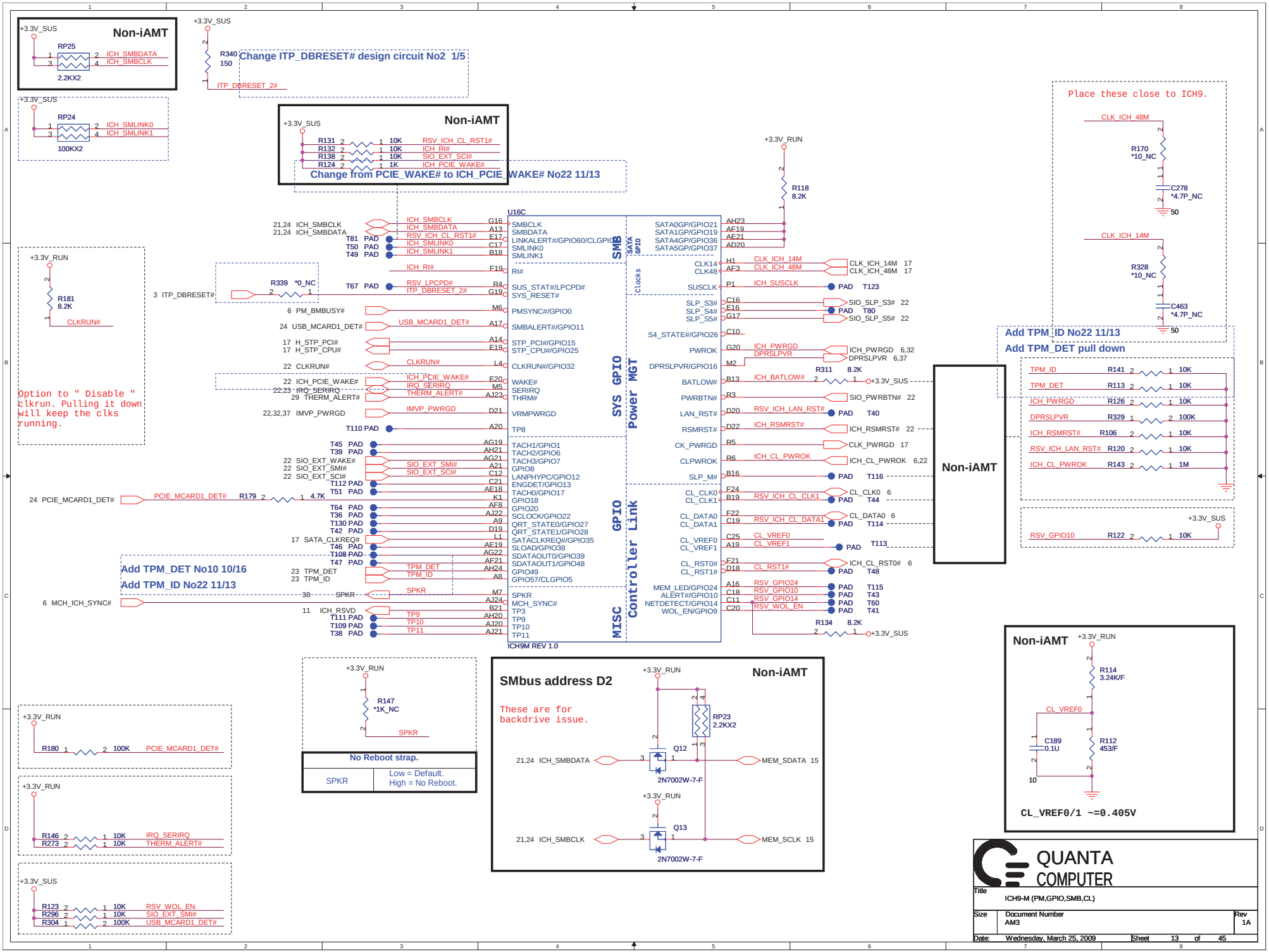
CLK_PCI_ICH
R161 *10_NC
C265 *8.2P_NC
16

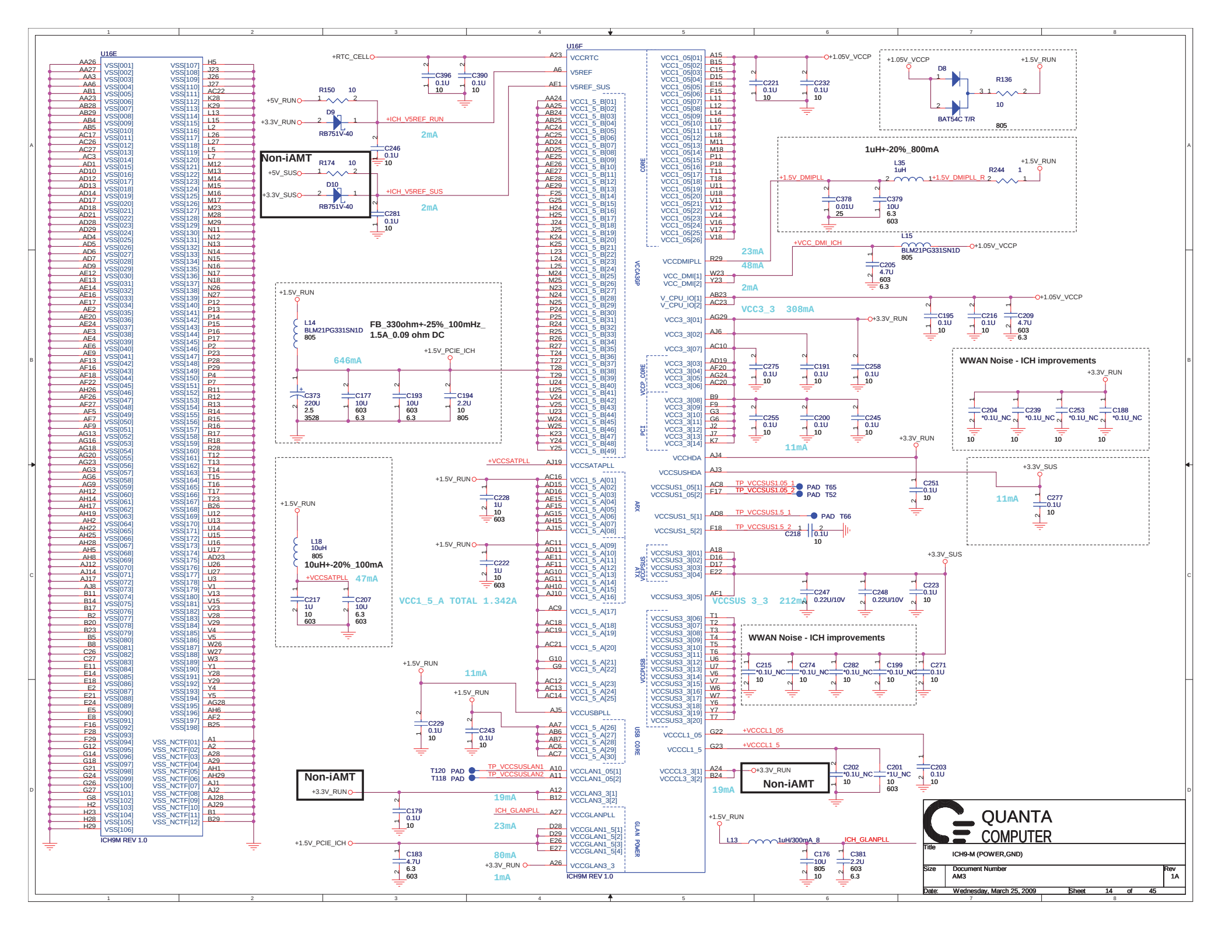
Reserved for EMI.Place resister and cap close to ICH.

A16 away override strap.	
SB_NB_PCIE_RST#	Low = A16 swap override enabled. High = Default.

QUANTA COMPUTER

Title	ICH9-M (USB,DMI,PCIE,PCI)	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 12 of 45	


Non-iAMT
RP25
ICH_SMBDATA
ICH_SMBCLK
2.2KX2
RP24
ICH_SMLINK0
ICH_SMLINK1
100KX2
R340
150
Change ITP_DBRESET# design circuit No2 1/5
ITP_DBRESET_2#
Change from PCIE_WAKE# to ICH_PCIE_WAKE# No22 11/13
R131 10K RSV_ICH_CL_RST1#
R132 10K ICH_RI#
R138 10K SIO_EXT_SCI#
R124 1K ICH_PCIE_WAKE#
U16C
ICH9M REV 1.0
SMB
SATA GPIO
Clocks
SYS
GPIO
Power MGT
GPIO
Controller Link
MISC
R118
8.2K
R181
8.2K
CLKRUN#
Option to " Disable " clkrun. Pulling it down will keep the clks running.
R339 *0_NC
R179 4.7K
Add TPM_DET No10 10/16
Add TPM_ID No22 11/13
R147
*1K_NC
No Reboot strap.
SPKR
Low = Default.
High = No Reboot.
SMbus address D2
These are for backdrive issue.
RP23
2.2KX2
Q12
Q13
2N7002W-7-F
MEM_SDATA 15
MEM_SCLK 15
R180 100K PCIE_MCARD1_DET#
R146 10K IRQ_SERIRQ
R273 10K THERM_ALERT#
R123 10K RSV_WOL_EN
R296 10K SIO_EXT_SMI#
R304 100K USB_MCARD1_DET#
Place these close to ICH9.
CLK_ICH_48M
R170
*10_NC
C278
*4.7P_NC
CLK_ICH_14M
R328
*10_NC
C463
*4.7P_NC
Add TPM_ID No22 11/13
Add TPM_DET pull down
TPM_ID R141 10K
TPM_DET R113 10K
ICH_PWRGD R126 10K
DPRSLPVR R329 100K
ICH_RSMRST# R106 10K
RSV_ICH_LAN_RST# R120 10K
ICH_CL_PWROK R143 1M
RSV_GPIO10 R122 10K
Non-iAMT
R114
3.24K/F
CL_VREF0
C189
0.1U
R112
453/F
CL_VREF0/1 ~=0.405V
QUANTA COMPUTER
Title
ICH9-M (PM,GPIO,SMB,CL)
Size
Document Number
AM3
Rev
1A
Date: Wednesday, March 25, 2009
Sheet 13 of 45


U16E
ICH9M REV 1.0
U16F
ICH9M REV 1.0
Non-iAMT
FB_330ohm+-25%_100mHz_
1.5A_0.09 ohm DC
10uH+-20%_100mA
1uH+-20%_800mA
WWAN Noise - ICH improvements
VCC1_5_A TOTAL 1.342A
VCC3_3 308mA
VCCSUS 3_3 212mA
QUANTA COMPUTER
Title
ICH9-M (POWER,GND)
Size
Document Number
AM3
Rev
1A
Date:
Wednesday, March 25, 2009
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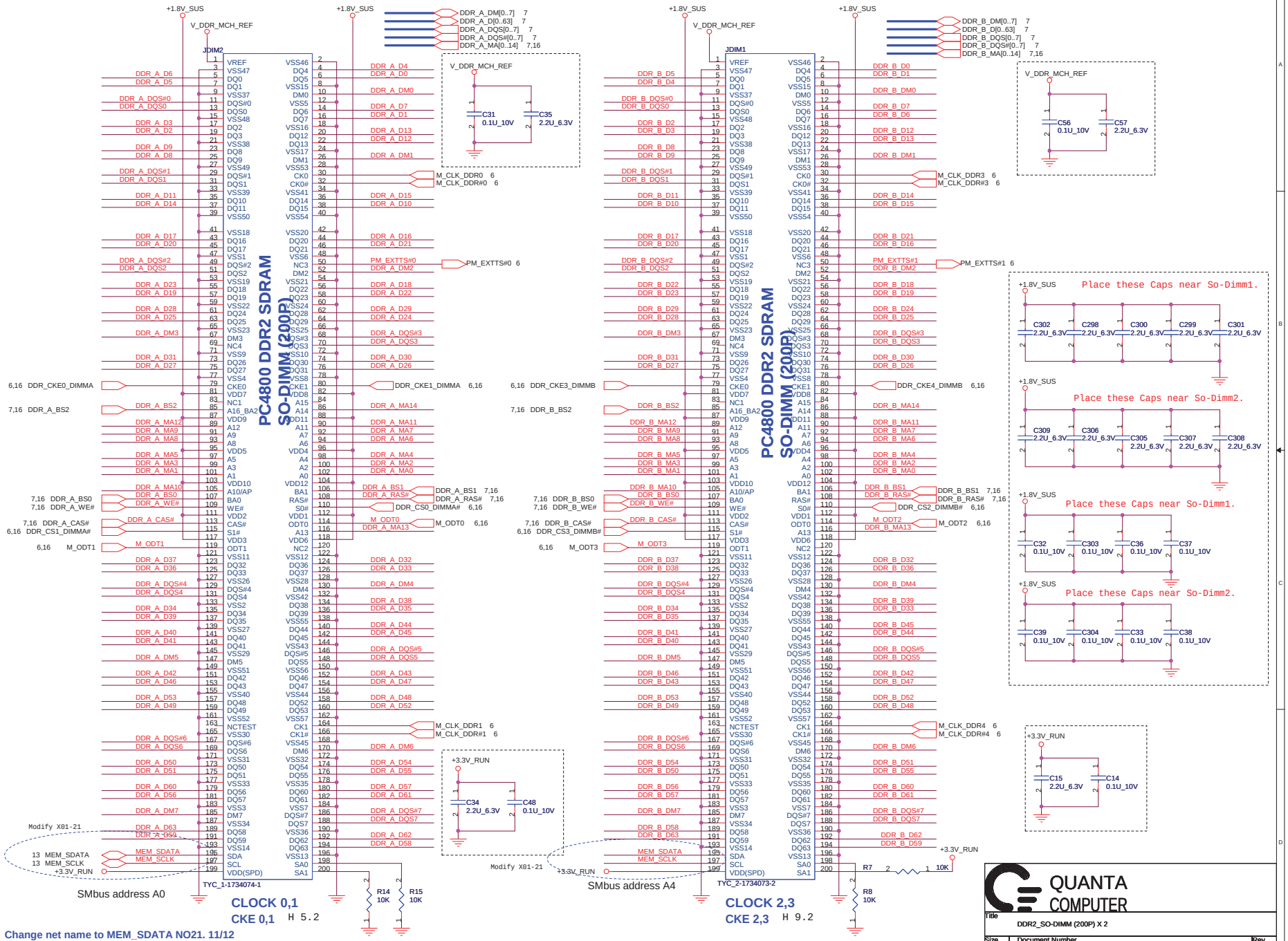
14
of
45

MASTER

RFQ PN =DGMK0005619 and DGMK0005601

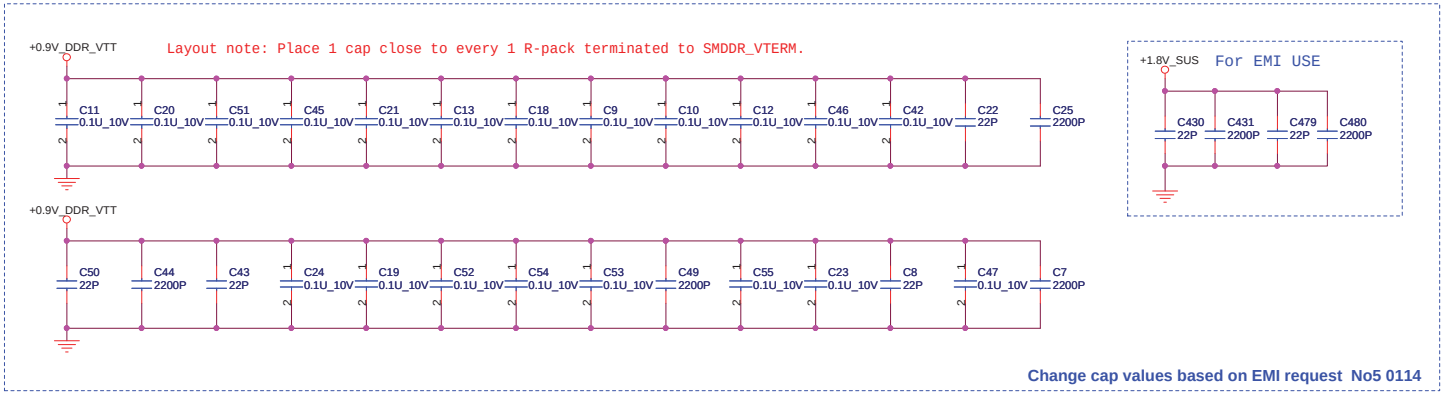
SLAVE

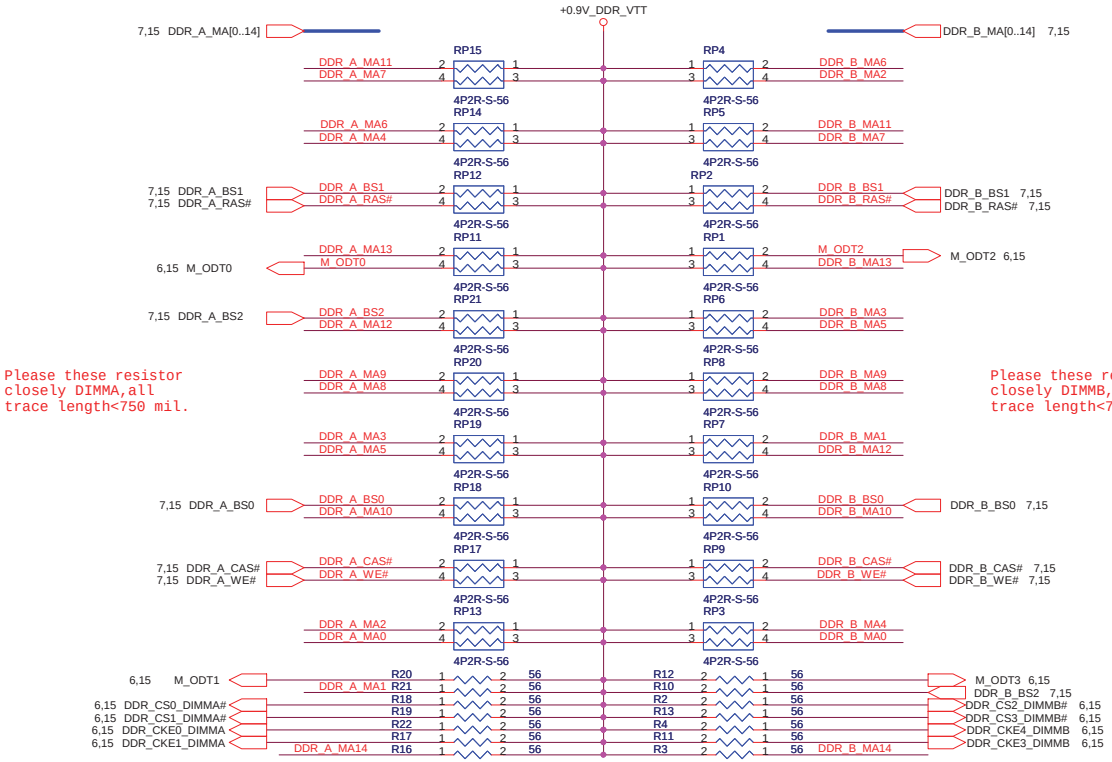


Change net name to MEM_SDATA NO21. 11/12

QUANTA COMPUTER

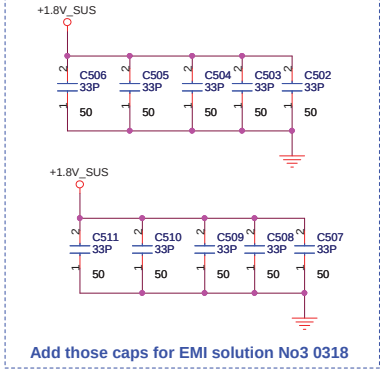
Title	DDR2_SO-DIMM (200P) X 2	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 15 of 45	





Please these resistor closely DIMMA,all trace length<750 mil.

Please these resistor closely DIMMB,all trace length<750 mil.



QUANTA COMPUTER

Title	DDR2 RES. ARRAY	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 16 of 45	

Add capacitor pads for improving WWAN.

C394 20P 50 FSA
C375 1 2 *27P_NC 50 FSC
C382 1 2 *27P_NC 50 PCI_SIO
C387 1 2 *27P_NC 50 PCI_ICH

CLK_XTAL_IN — Y1 14.318MHZ — CLK_XTAL_OUT
C372 33P 50
C369 33P 50
14.318MHz

Change resister values based on EMI request No5 0114
Change resister values based on EMI request No6 0119

U14
CK505
QFN64
SLG8SP513V

+CK_VDD_PCI 9
+CK_VDD_PLL3 23
+CK_VDD_48 16
+CK_VDD_SRC 46
+CK_VDD_MAIN 19
VDD_PCI 4
VDD_REF
VDD_PLL3
VDD_48
VDD_SRC 62
VDD_CPU
VDD_IO 27
VDD_IO 33
VDD_IO 43
VDD_IO 52
VDD_IO 56
GND 15
GND 18
GND 22
GND 26
GND 30
GND 36
GND 49
GND 59
GND 1

13 SATA_CLKREQ# — SATA_CLKREQ# R257 475/F
6 CLK_3GPLLREQ# — CLK_3GPLLREQ# R259 475/F
SATA_CLKREQ# C 8
CLK_3GPLLREQ# C 10
PCI_PCCARD 11
PCI_SIO 12
27M_SEL 13
PCI_ICH 14
CR#_A/PCI-0
CR_B/PCI-1
TME/PCI-2
SRC5_EN/PCI-3
27M_SEL/PCI-4
ITP_EN/PCIF-5#

24 CLK_LPC_DEBUG — CLK_LPC_DEBUG R261 22
23 CLK_TPM — CLK_TPM R262 22

22 CLK_PCI_8512 — CLK_PCI_8512 R266 33

12 CLK_PCI_ICH — CLK_PCI_ICH R271 33
20 CLK_5158_48M — CLK_5158_48M R289 22
13 CLK_ICH_48M — CLK_ICH_48M R288 22

3,6 CPU_MCH_BSEL0
3,6 CPU_MCH_BSEL1
3,6 CPU_MCH_BSEL2
L40 BLM18AG601SN1D — R287 2.2K — FSA 17
L36 BLM18AG601SN1D — R248 10K — FSC 5
FSA/USB48 64
FSB/TEST_MODE
FSC/TEST_SEL/REF

13 CLK_ICH_14M — CLK_ICH_14M R247 33
13 CLK_PWRGD — RESET# 55
CK_PWRGD/PD# 63

CLK_XTAL_OUT 2
CLK_XTAL_IN 3
XOUT
XIN

CLK_SDATA 6
CLK_SCLK 7
SDATA
SCLK

GND 65

CPU-0 61 — CPU_BCLK — RP33 — CLK_CPU_BCLK 3
CPU-0# 60 — CPU_BCLK# — RP33 — CLK_CPU_BCLK# 3
CPU-1 58 — MCH_BCLK — RP34 — CLK_MCH_BCLK 5
CPU-1# 57 — MCH_BCLK# — RP34 — CLK_MCH_BCLK# 5
SRC-8/CPU_ITP 54 — PCIE_MINI1 — RP35 — CLK_PCIE_MINI1 24
SRC-8#/CPU_ITP# 53 — PCIE_MINI1# — RP35 — CLK_PCIE_MINI1# 24
SRC-0/DOT96 20 — DOT96_SSC — RP42 — MCH_DREFCLK 6
SRC-0#/DOT96# 21 — DOT96_SSC# — RP42 — MCH_DREFCLK# 6
SRC-1/SE1 24 — 27M_SS — RP41 — DREF_SSCLK 6
SRC-1#/SE2 25 — 27M_NSS — RP41 — DREF_SSCLK# 6
SRC-2/SATA 28 — PCIE_SATA — RP43 — CLK_PCIE_SATA 11
SRC-2#/SATA# 29 — PCIE_SATA# — RP43 — CLK_PCIE_SATA# 11
CR#_C/SRC-3 31
CR#_D/SRC-3# 32
SRC-4 34 — MCH_3GPLL — RP40 — CLK_MCH_3GPLL 6
SRC-4# 35 — MCH_3GPLL# — RP40 — CLK_MCH_3GPLL# 6
PCI_STOP#/SRC-5 45 — H_STP_PCI# 13
CPU_STOP#/SRC5-5# 44 — H_STP_CPU# 13
SRC-6 48 — PCIE_EXPCARD — RP36 — CLK_PCIE_EXPCARD 21
SRC-6# 47 — PCIE_EXPCARD# — RP36 — CLK_PCIE_EXPCARD# 21
CR#_F/SRC-7 51 — MINI1CLK_REQ#_C — R243 475/F — MINI1CLK_REQ# — MINI1CLK_REQ# 24
CR#_E/SRC-7# 50 — CARD_CLK_REQ#_C — R242 475/F — CARD_CLK_REQ# — CARD_CLK_REQ# 21
SRC-9 37
SRC-9# 38
SRC-10 41 — PCIE_ICH — RP38 — CLK_PCIE_ICH 12
SRC-10# 42 — PCIE_ICH# — RP38 — CLK_PCIE_ICH# 12
CR#_H/SRC-11 40 — PCIE_LOM — RP39 — CLK_PCIE_LOM 31
CR#_G/SRC-11# 39 — PCIE_LOM# — RP39 — CLK_PCIE_LOM# 31

+3.3V_RUN
H_STP_PCI# R245 10K
H_STP_CPU# R246 10K

Reserved for EMI
CLK_5158_48M
R291 *10_NC
C403 *8.2P_NC
16

+3.3V_RUN
CLK_3GPLLREQ# R258 10K
SATA_CLKREQ# R252 10K
CARD_CLK_REQ# R268 10K
MINI1CLK_REQ# R241 10K
PCI_PCCARD R260 *10K_NC

PCI_SIO R269 *10K_NC

+3.3V_RUN
R201 *10K_NC
PCI_ICH
R486 10K
Add R201 ND R486 No9 0202

UMA without iAMT
+3.3V_RUN
L37 BLM21PG600SN1D 805 120 ohms@100Mhz
+CK_VDD_MAIN
C377 0.1U 10
C371 0.1U 10
C395 0.1U 10
C391 0.1U 10
C370 0.1U 10
C383 0.1U 10
C384 *10U_NC 603 6.3

L39 BLM21PG600SN1D 805 120 ohms@100Mhz
R292 2.2 — +CK_VDD_PCI — C376 0.1U 10
R294 2.2 — +CK_VDD_PLL3 — C393 0.1U 10
R293 2.2 — +CK_VDD_48 — C389 0.1U 10 — C397 4.7U 603 6.3
R295 2.2 — +CK_VDD_SRC — C374 0.1U 10

SMbus address D2
These are for backdrive issue.
Non-iAMT
+3.3V_RUN
RP37 2.2KX2
18,22,29 SMBDAT1 — Q23 2N7002W-7-F — CLK_SDATA
+3.3V_RUN
18,22,29 SMBCLK1 — Q24 2N7002W-7-F — CLK_SCLK

27M_SEL
R263 10K

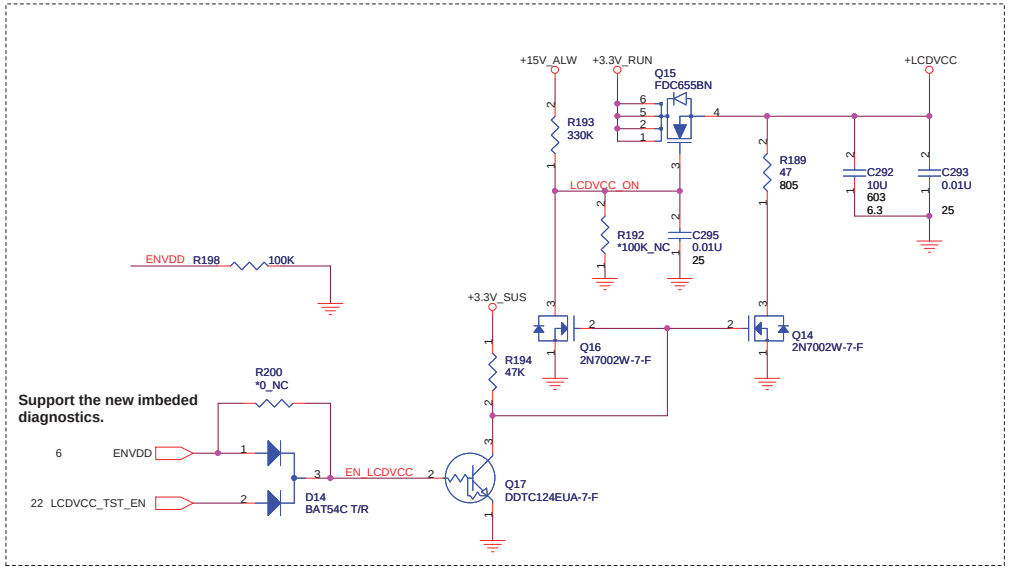
FSC	FSB	FSA	CPU	SRC	PCI
1	0	1	100	100	33
0	0	1	133	100	33
0	1	1	166	100	33
0	1	0	200	100	33
0	0	0	266	100	33
1	0	0	333	100	33
1	1	0	400	100	33
1	1	1	RSVD	100	33

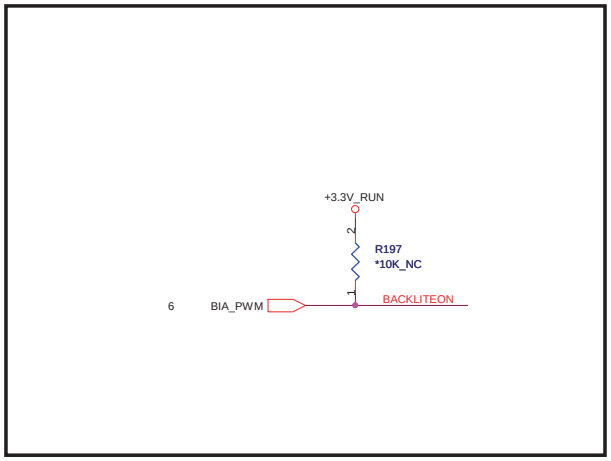
27M_SEL

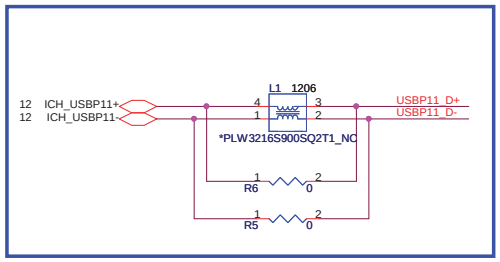
27M_SEL (PIN13)	PIN20	PIN21	PIN24	PIN25
0=UMA	DOT96T	DOT96C	96/ 100M_T	96/ 100M_C
1 = Disc. GRFX down	SRCT0	SRCC0	27Mout	27MSSout

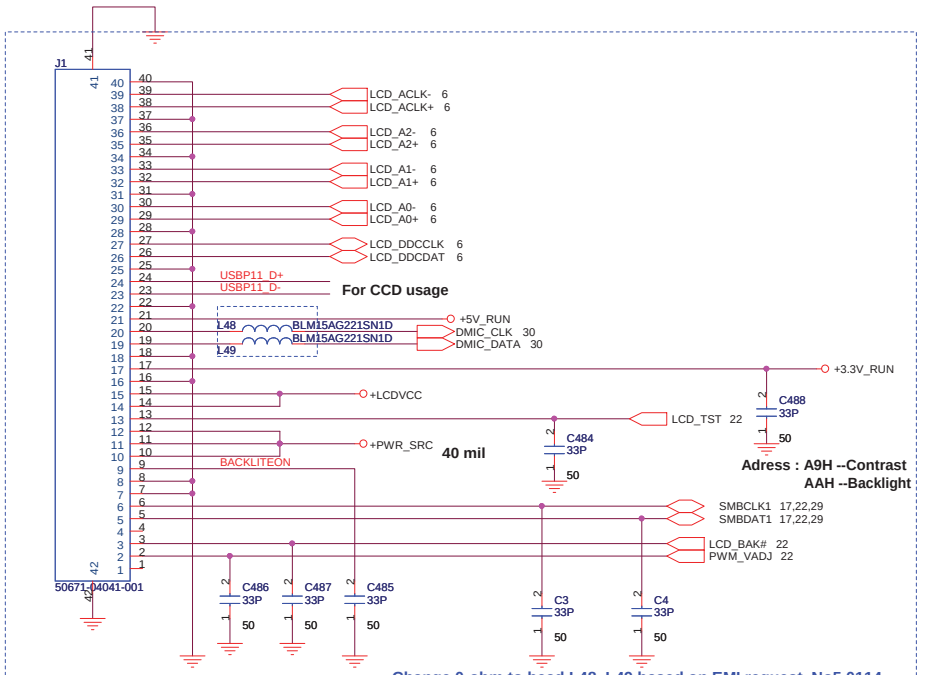
QUANTA COMPUTER

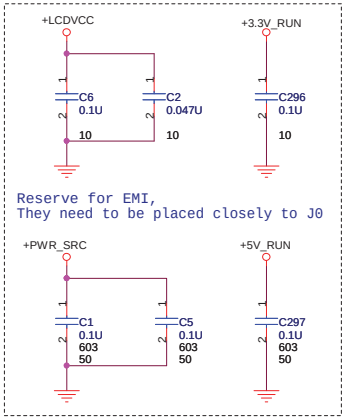
Title	CLOCK GENERATOR	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 17 of 45	





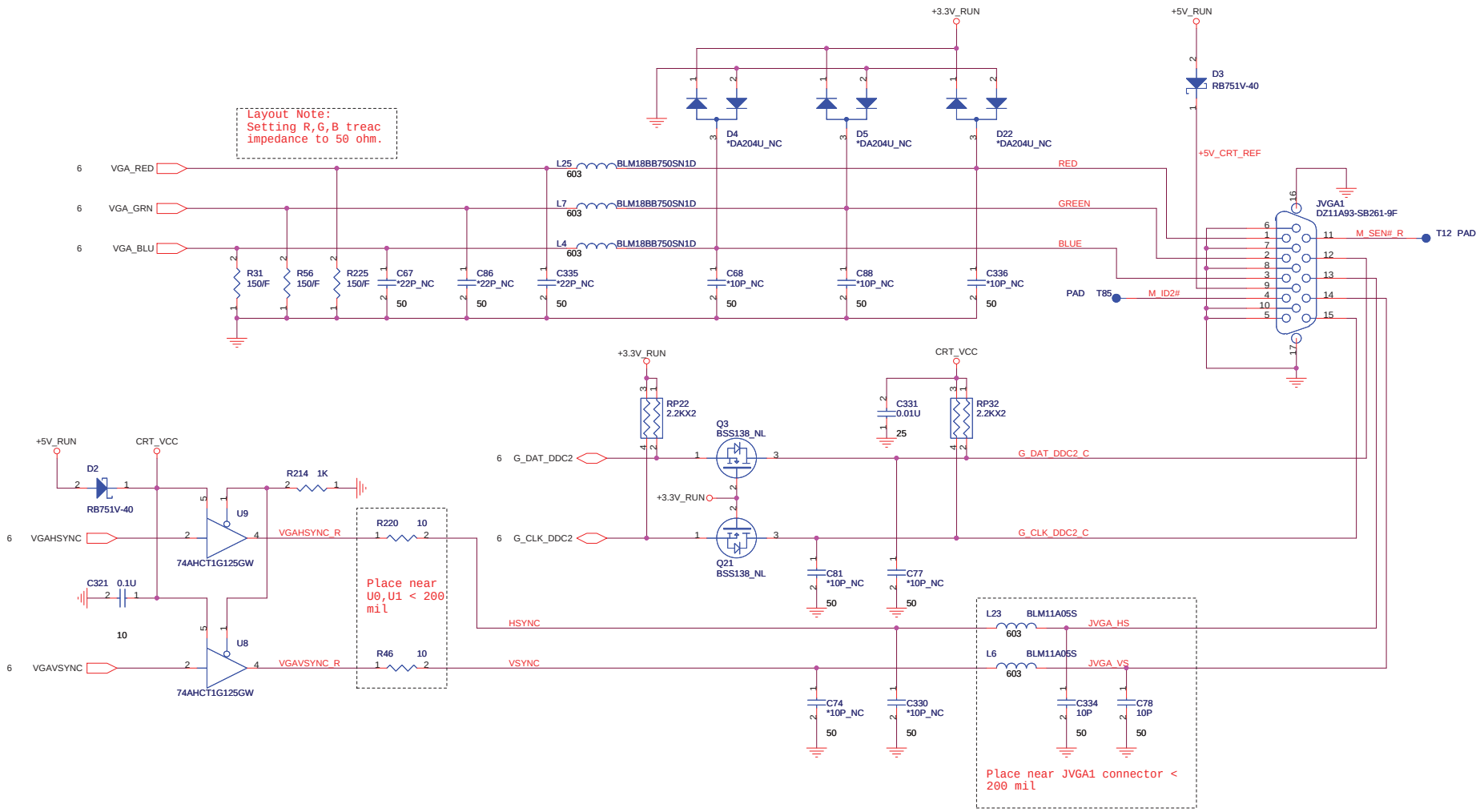






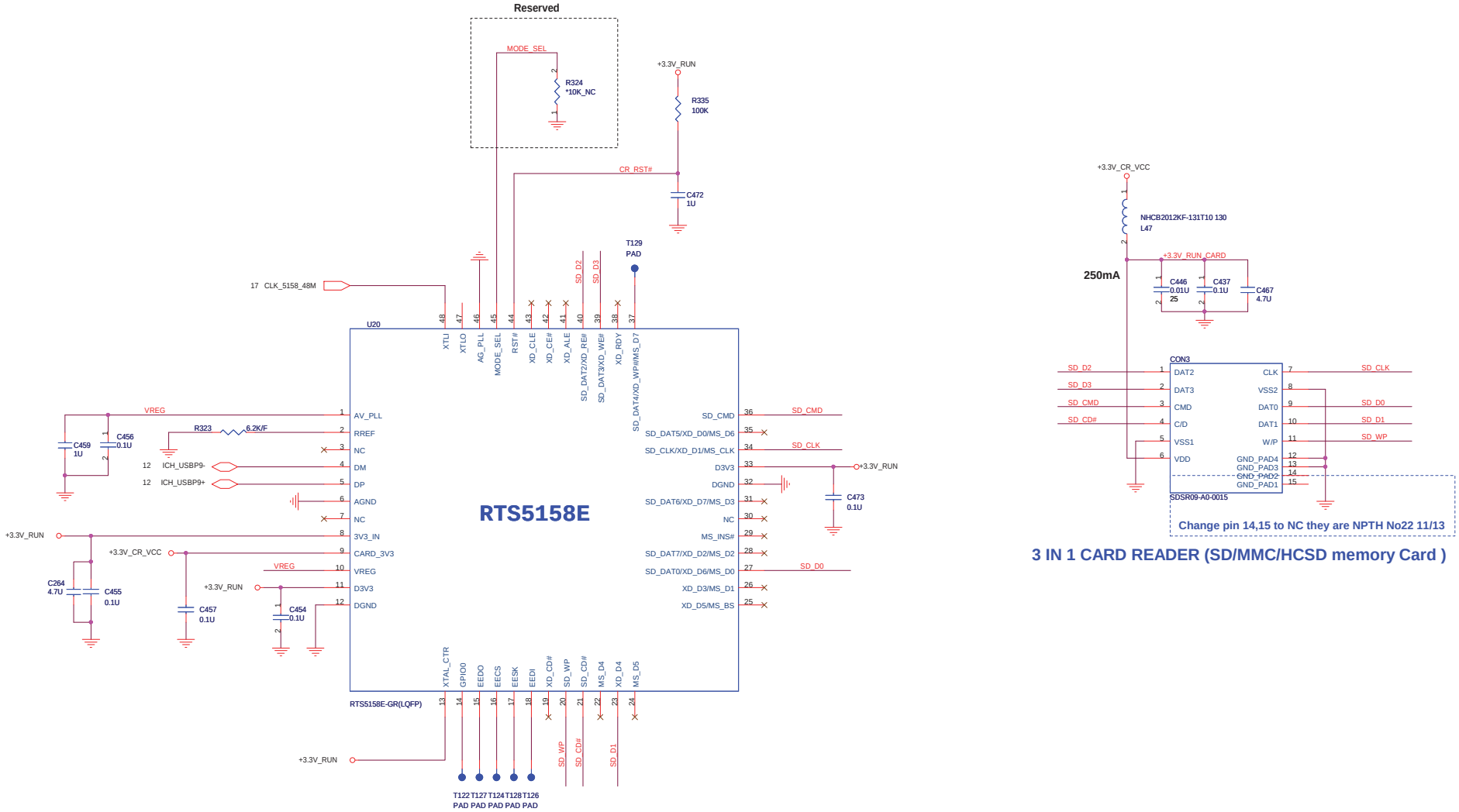
QUANTA COMPUTER

Title	LCD CONN & CK-SSCD	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 18 of 45	



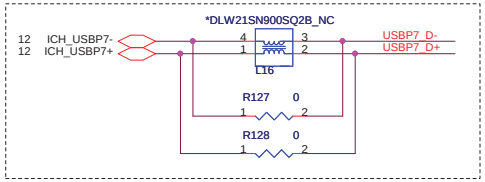
QUANTA COMPUTER

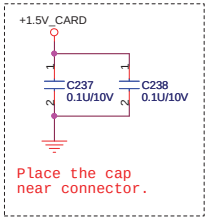
Title	CRT&TV CONN	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 19 of 45	

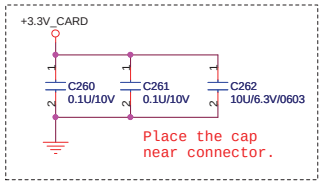


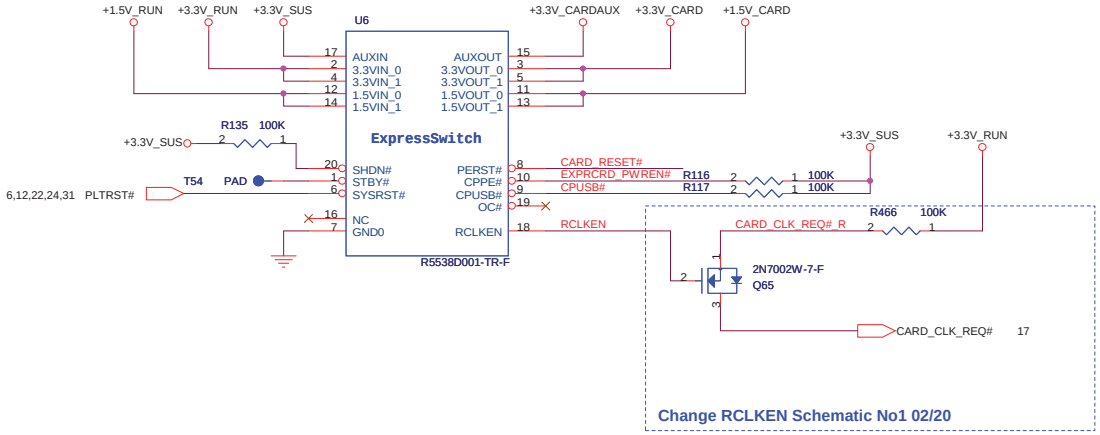
QUANTA COMPUTER		
Title: 5 IN 1 CONTROLLER		
Size	Document Number: AM3	Rev: 1A
Date: Wednesday, March 25, 2009	Sheet 20 of 45	

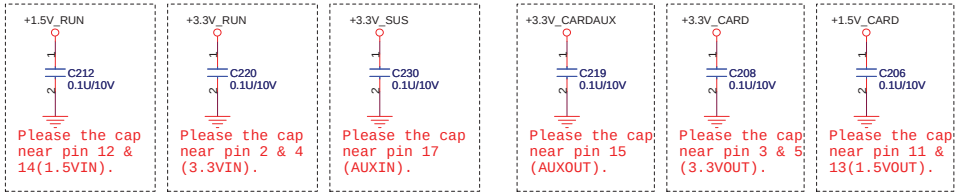
+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.

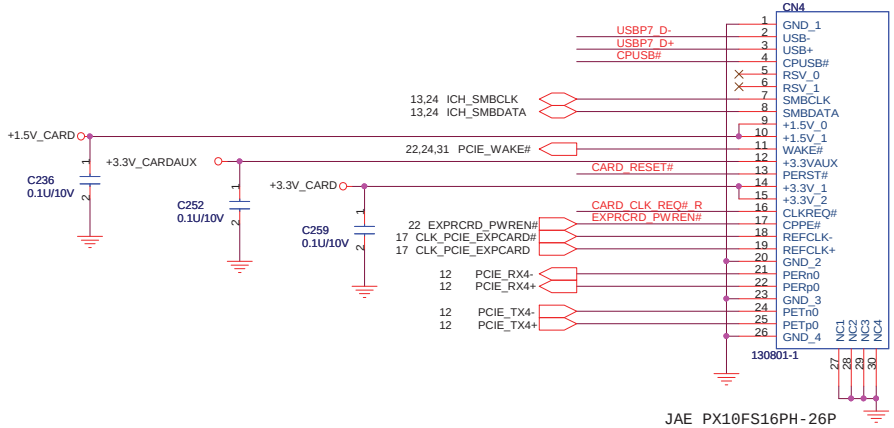










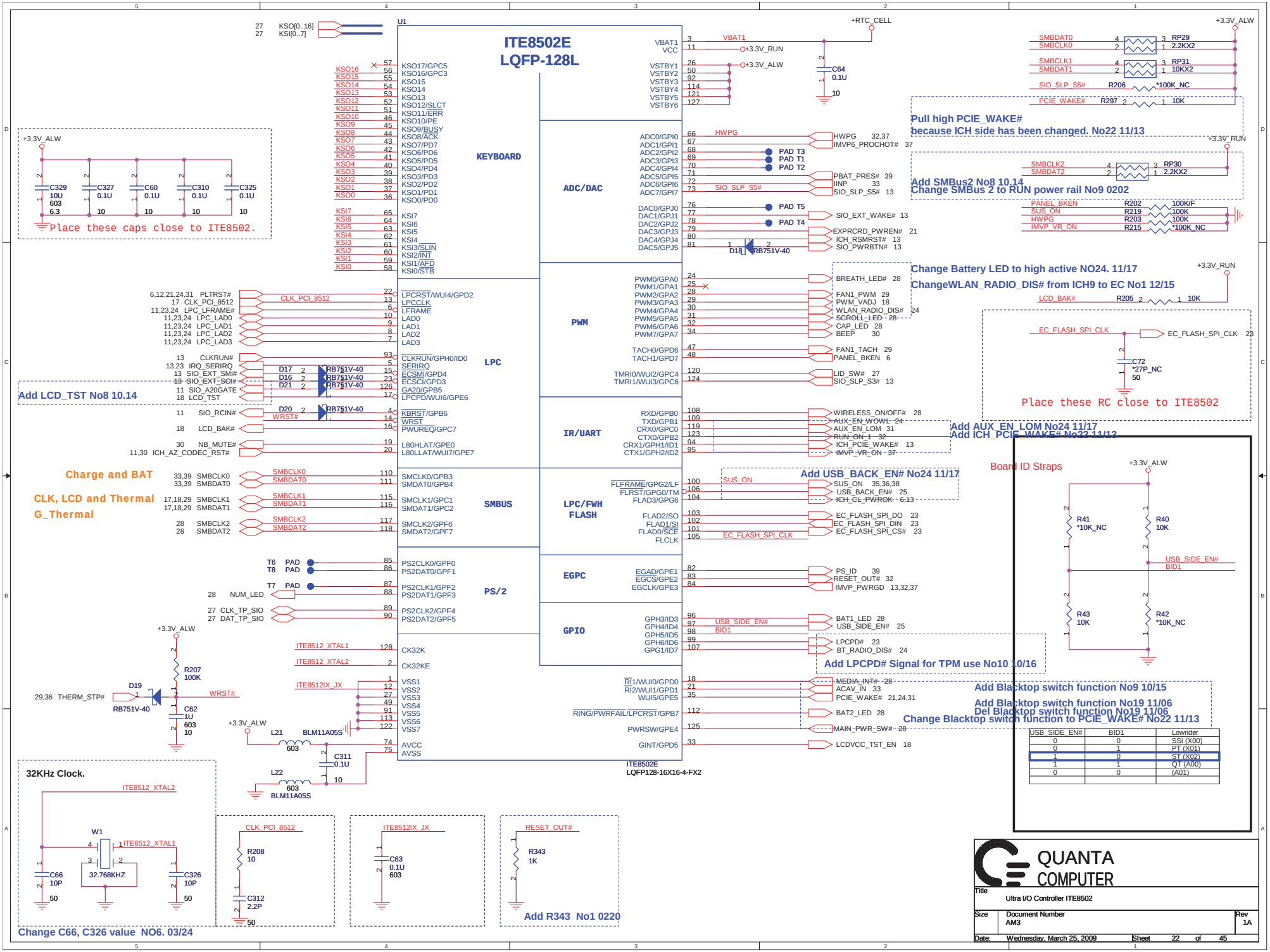


JAE PX10FS16PH-26P

Express Card

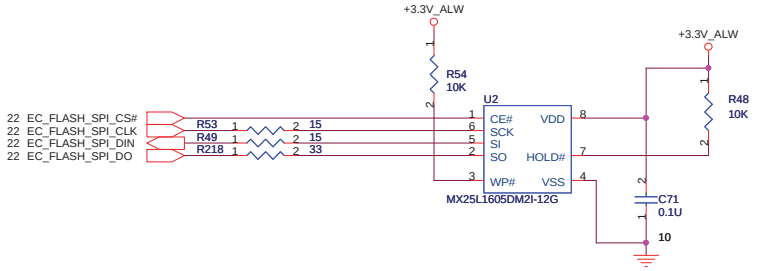
QUANTA COMPUTER

Title	blank	
Size	Document Number AM3	Rev 1A
Date: Wednesday, March 25, 2009	Sheet 21 of 45	

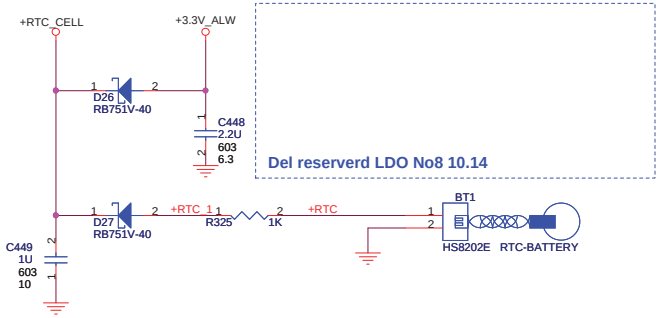


USB_SIDE_EN#	BID1	Lowrider
0	0	SSI (X00)
0	1	PT (X01)
1	0	ST (X02)
1	1	QT (A00)
0	0	(A01)

16Mbit (2M Byte), SPI

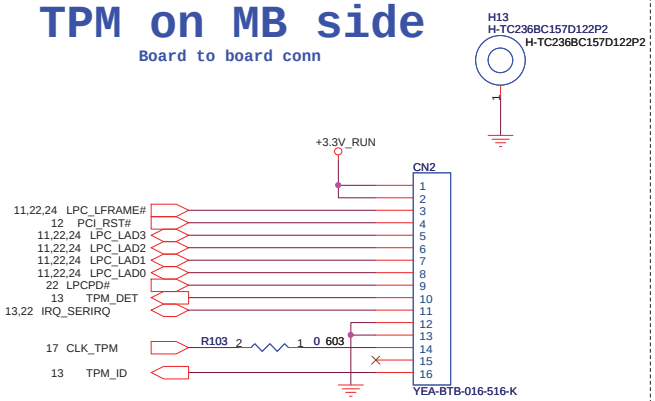


RTC BATTERY



TPM on MB side

Board to board conn



Change pin define and add TPM_DET and LPCPD# No10 10/16

Add 0-ohm resister for EMI request No16 10/29

Add TPM_ID No22 11/13

QUANTA COMPUTER

Title	Ultra I/O Controller ECE5028	
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MiniCard WLAN connector

H12
H-TC95BC236D55P2
H-TC95BC236D55P2

PCI-Express TX and RX
direct to connector

FOR DEBUG CARD

Non-iAMT
T117 PAD
T121 PAD
T119 PAD

J6
AAA-PCI-052-K01

Place caps close to connector.

Suport for WoW

WLAN_RADIO_OFF# D24 RB751V-40 WLAN_RADIO_DIS# 22

R283 *0_NC

Prevent backdrive when WoW is enabled.

Support Dell BT365 (Little Stone) module

Bluetooth BTB Conn

J4
YEA-BTB-016-514-K

H15
H-TC232BC157D122P2
H-TC232BC157D122P2

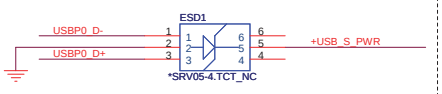
Change BT_LED to low active No11 10.17
Change BT_LED to high No12 10.20
Add R337 No1 12.15

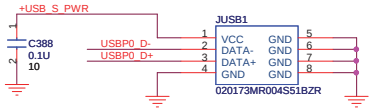
L42 *PLW3216S900SQ2T1_NC 1206

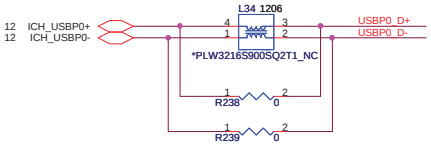
Title	MDC CONN.	
Size	Document Number AM3	Rev 1A
Date:	Wednesday, March 25, 2009	Sheet 24 of 45

QUANTA COMPUTER

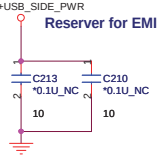
Place ESD diodes as
close as USB connector.



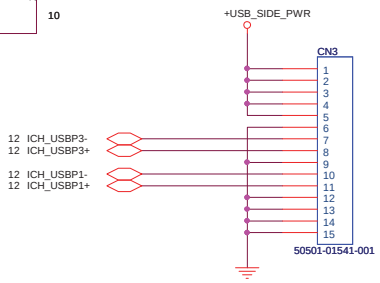




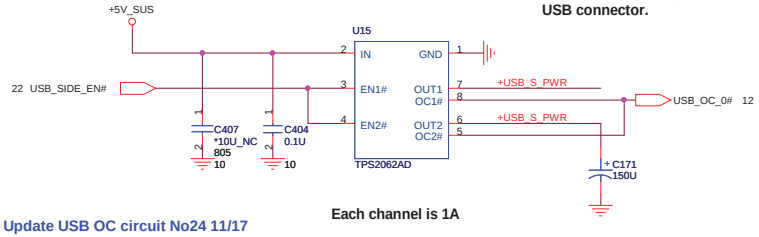
Reserver for EMI



Connector to IO board USBX2



Place one 150uF cap by each
USB connector.

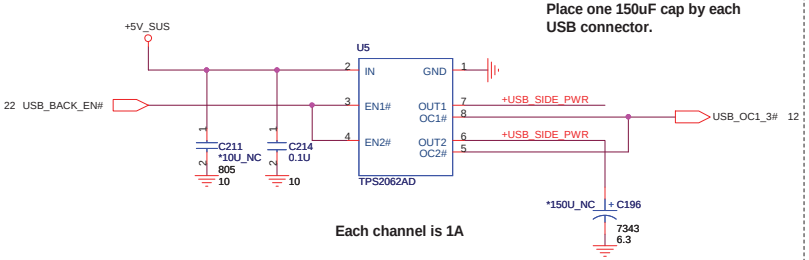


Each channel is 1A

Update USB OC circuit No24 11/17

Change C171 PN No1 0220

Place one 150uF cap by each
USB connector.



Each channel is 1A

Move 2062 from IO to MB No13 10.21

QUANTA COMPUTER

Title	SERIAL PORT & USB	
Size	Document Number AM3	Rev 1A
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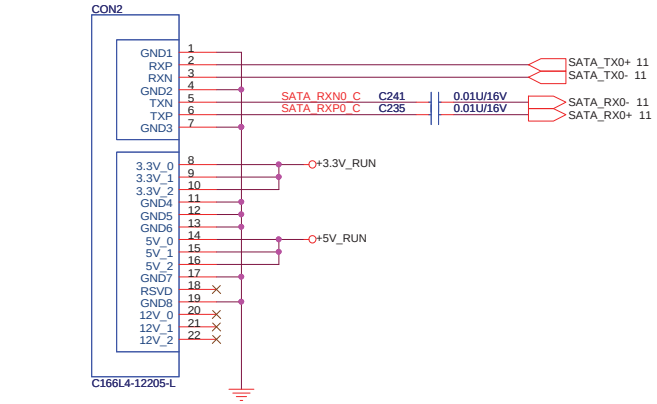
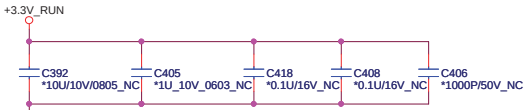
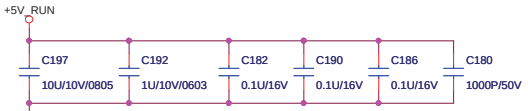
SATA HDD Connector.



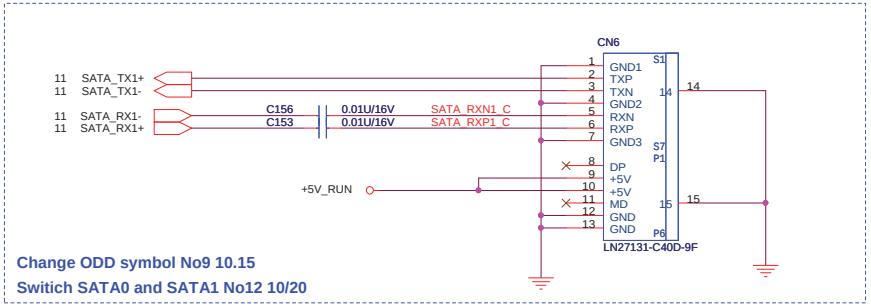


Place caps close to connector.



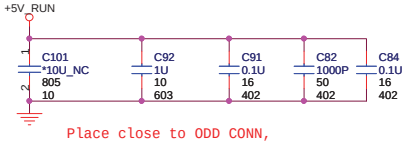
Place caps close to connector.

SATA ODD Connector.



Change ODD symbol No9 10.15

Switch SATA0 and SATA1 No12 10/20



Place close to ODD CONN,

QUANTA COMPUTER

Title	SATA (HDD&CD_ROM)	
Size	Document Number AM3	Rev 1A
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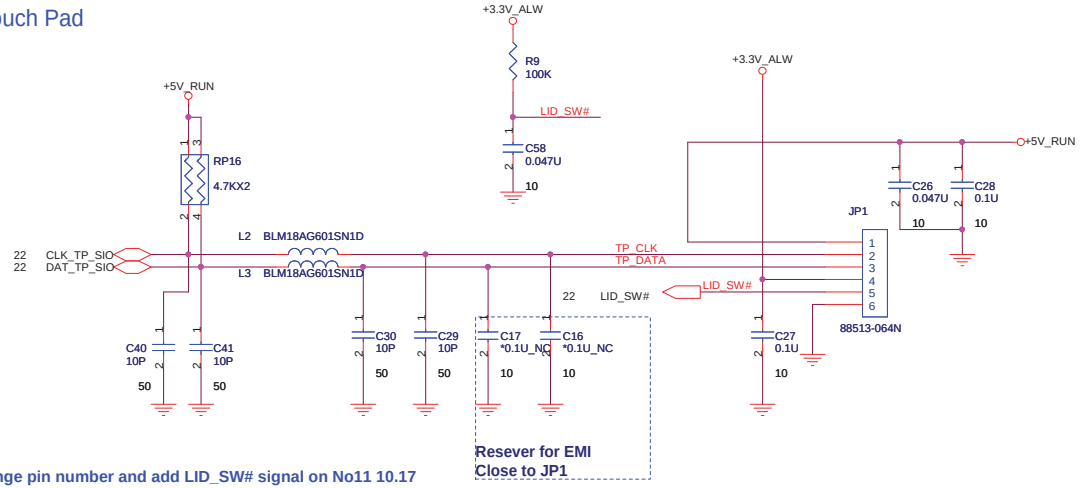
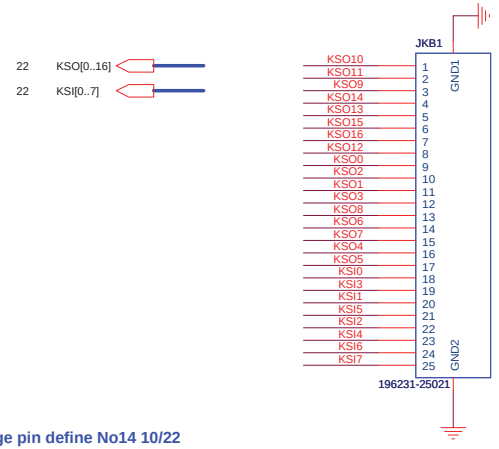
Touch Pad



Resever for EMI
Close to JP1

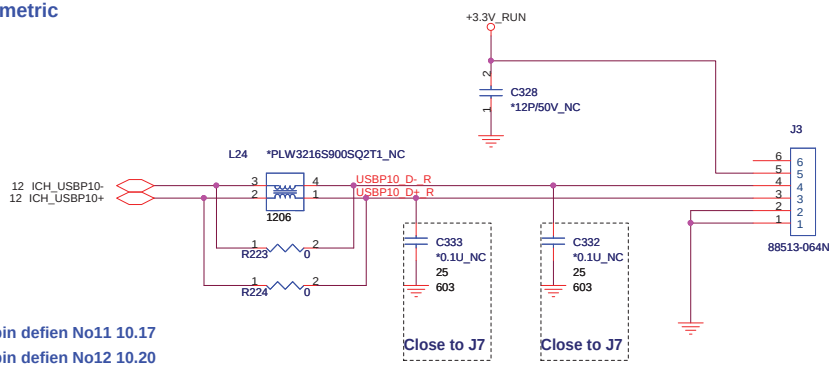
Change pin number and add LID_SW# signal on No11 10.17
Change pin define No14 10/22
Change touch pad pn and footprint No14 10/22
Change Touch pad pin define, avoiding power and ground pin close to each other

KEYBOARD CONNECTOR



Change pin define No14 10/22
Change pin define No22 11/13

Biometric



Close to J7
Close to J7

Change pin defien No11 10.17
Change pin defien No12 10.20
Change touch pad pn and footprint No14 10/22
Change FP pin define No15 10/24
Change FP pin define No23 11/14

QUANTA COMPUTER

Title	TOUCH PAD, BULE TOOTH & FIR	
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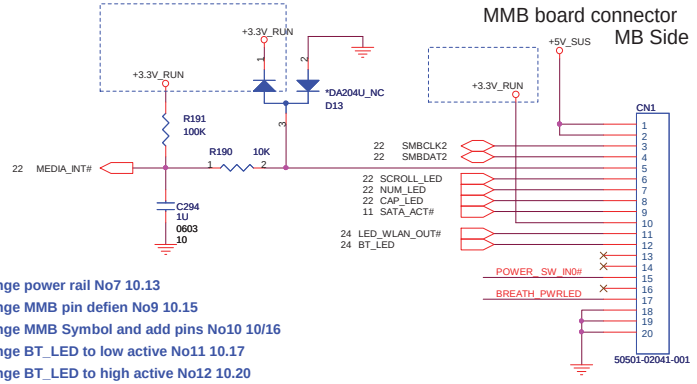
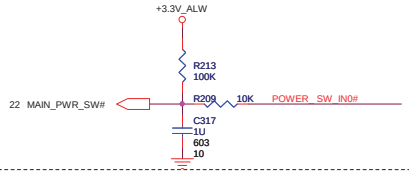
MMB board connector MB Side



Change power rail No7 10.13
Change MMB pin defien No9 10.15
Change MMB Symbol and add pins No10 10/16
Change BT_LED to low active No11 10.17
Change BT_LED to high active No12 10.20
Change 3.3V_ALW to 3.3V_SUS No24 11/17
Change MMB IC power rail from SUS to RUN No26 11/19

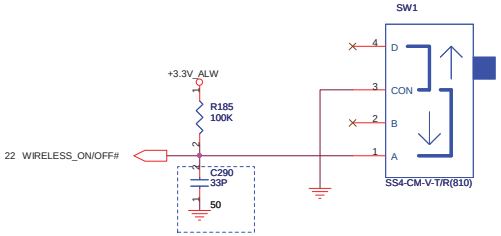
Power Switch



Blacktop Switch

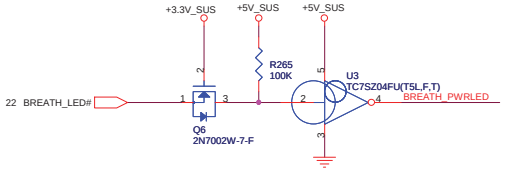
Add Blacktop switch function No9 10/15
Del Blacktop switch function No19 11/06
Add Blacktop switch function No19 11/06
Del Blacktop switch function No23 11/14

WLAN SWITCH



Change C290 PN and size No3 0318

Power & Suspend.

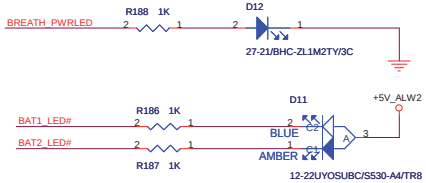


Battery status.

Change Battery setting NO20. 11/11
Change Battery setting NO24. 11/17

Add WLAN LED on MB NO7. 10/13
Del WLAN LED on MB No9 10/15

Right angle LED



Change Battery setting NO20. 11/11
Change Battery setting NO24. 11/17
Change R186., R187 and R188 value NO6. 03/24

QUANTA COMPUTER

Title	SWITCH, KEYBOARD & LED	
Size	Document Number AM3	Rev 1A
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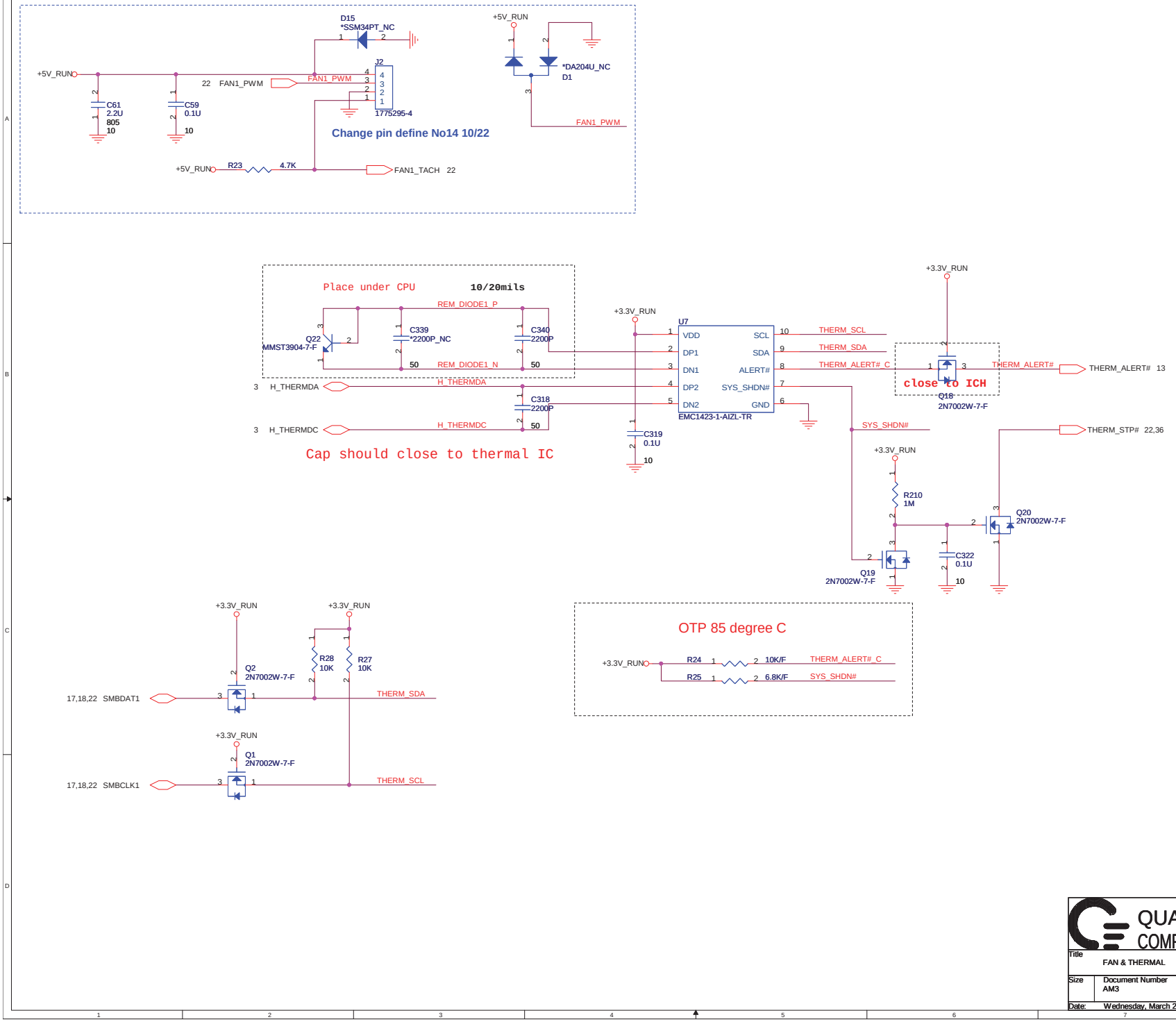

QUANTA COMPUTER

Title	FAN & THERMAL	
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AUDIO CODEC

Put the RC close to U23 pin 6, reserve for EMI

Add PC beep for system error circuit No9 10.14
Del PC beep No9 10.15

Speakers conn

Layout rule, Close to connector

Add ESD2 for ESD concern No6 1/19
Remove ESD2 for ESD concern No8 1/21

Jack Sense

Del CAP No9 10.15

PC BEEP

Close to Codec

Change Beep design No1 12/15

Change power rail to sus for supporting wake from RJ11 No1 12/15

Change size and PN

I=2A

Change power rail to sus for supporting wake from RJ11 No1 12/15

Layout rule, Close to Audio chip

Change setting according to DELL request No 17 11/03
Add resisters and caps according to EMI request No27 11/20
Change speaker signal to L chanel. No1 12/15

Audio Jacks

Add R341/R342 for Surge concern No2 1/5

Remove pull high resister

HP JACKN NO TYPE

Remove pull high resister

L24.L25,L30,L31, FB_600ohm+-25%_100MHz _200mA_0.6ohm DC

MIC JACK NO TYPE

Pin 26 connected to ground No 18 11/05

Del net on pin59 No9 10.15

GAIN	R157 Pull-up
-46 dB	R10 Omit
-18 dB	R10 Populate

Layout rule, Close to Audio codec

Add resisters and caps according to EMI request No27 11/20

board to board conn to Modem card

Change PN and footprint No16 10/29

Close to U31

Title			
Size	Document Number AM3		Rev 1A
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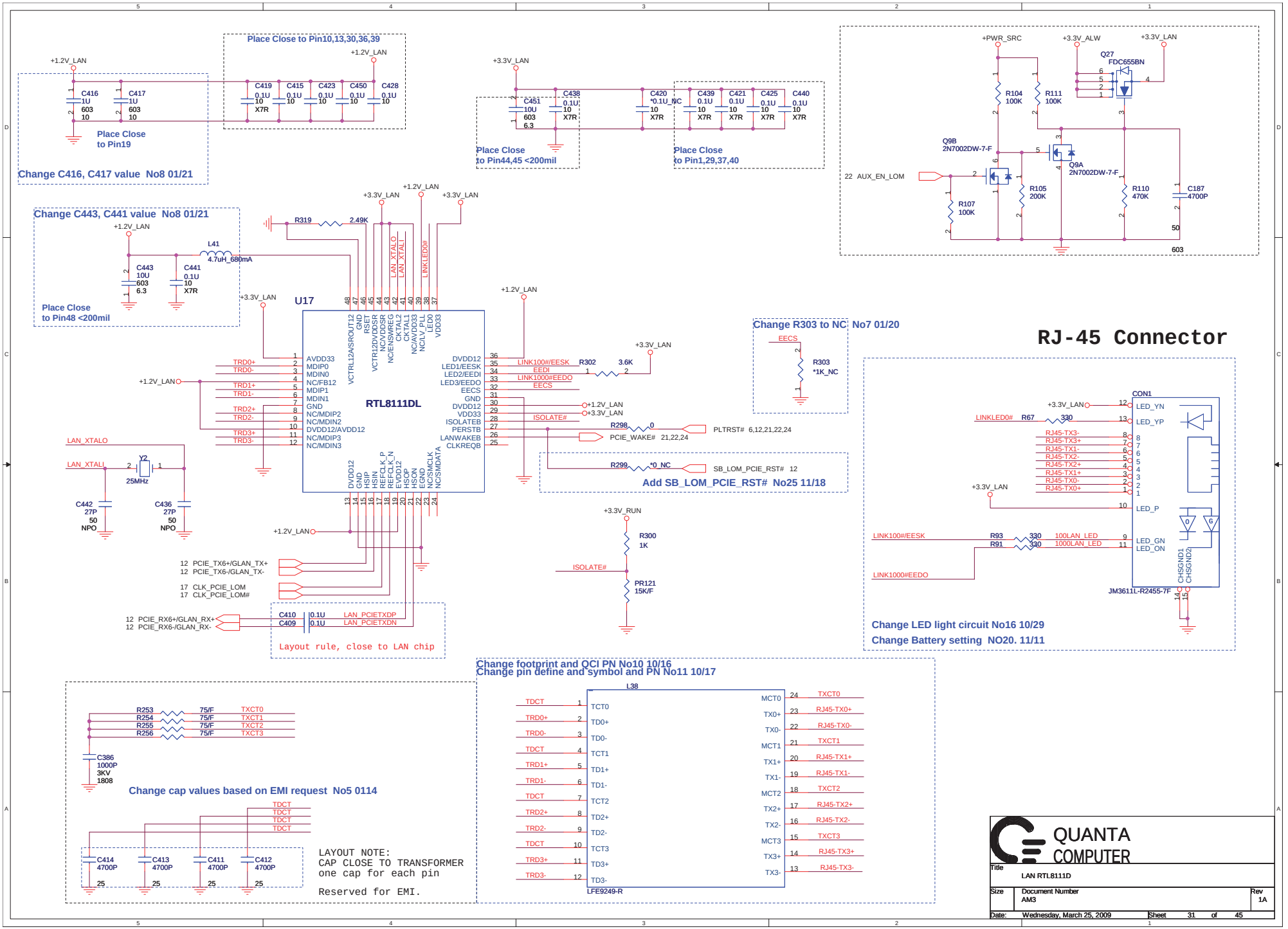
QUANTA COMPUTER


Place Close to Pin10,13,30,36,39
Place Close to Pin19
Change C416, C417 value No8 01/21
Place Close to Pin44,45 <200mil
Place Close to Pin1,29,37,40
Change C443, C441 value No8 01/21
Place Close to Pin48 <200mil
U17
RTL8111DL
Change R303 to NC No7 01/20
RJ-45 Connector
Add SB_LOM_PCIE_RST# No25 11/18
Change LED light circuit No16 10/29
Change Battery setting NO20. 11/11
Layout rule, close to LAN chip
Change cap values based on EMI request No5 0114
LAYOUT NOTE:
CAP CLOSE TO TRANSFORMER
one cap for each pin
Reserved for EMI.
Change footprint and QCI PN No10 10/16
Change pin define and symbol and PN No11 10/17
QUANTA COMPUTER
LAN RTL8111D
Document Number AM3
Rev 1A
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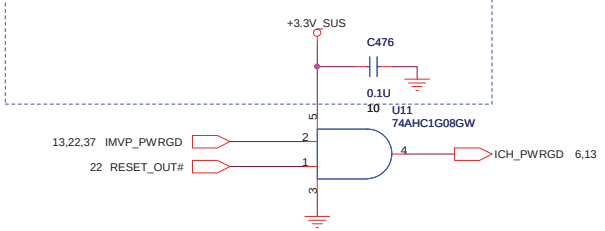
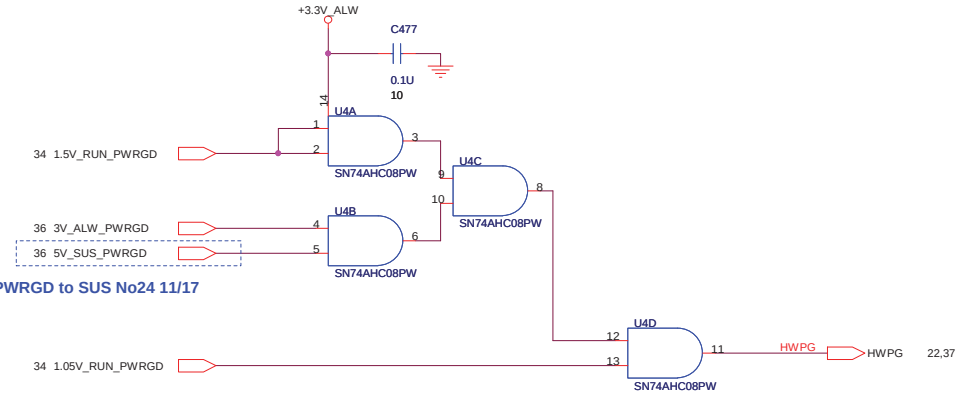
Change power source No22 11/13

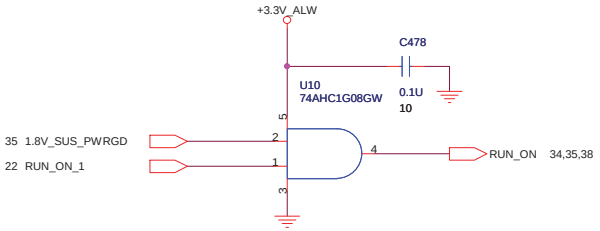
Remove 0-ohm resister and 3.3V_ALW power rail No3 01/06

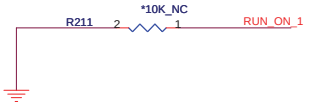


Keep Away from high speed buses



Change from 5V_ALW_PWRGD to SUS No24 11/17





QUANTA COMPUTER

Title	System Reset Circuit	
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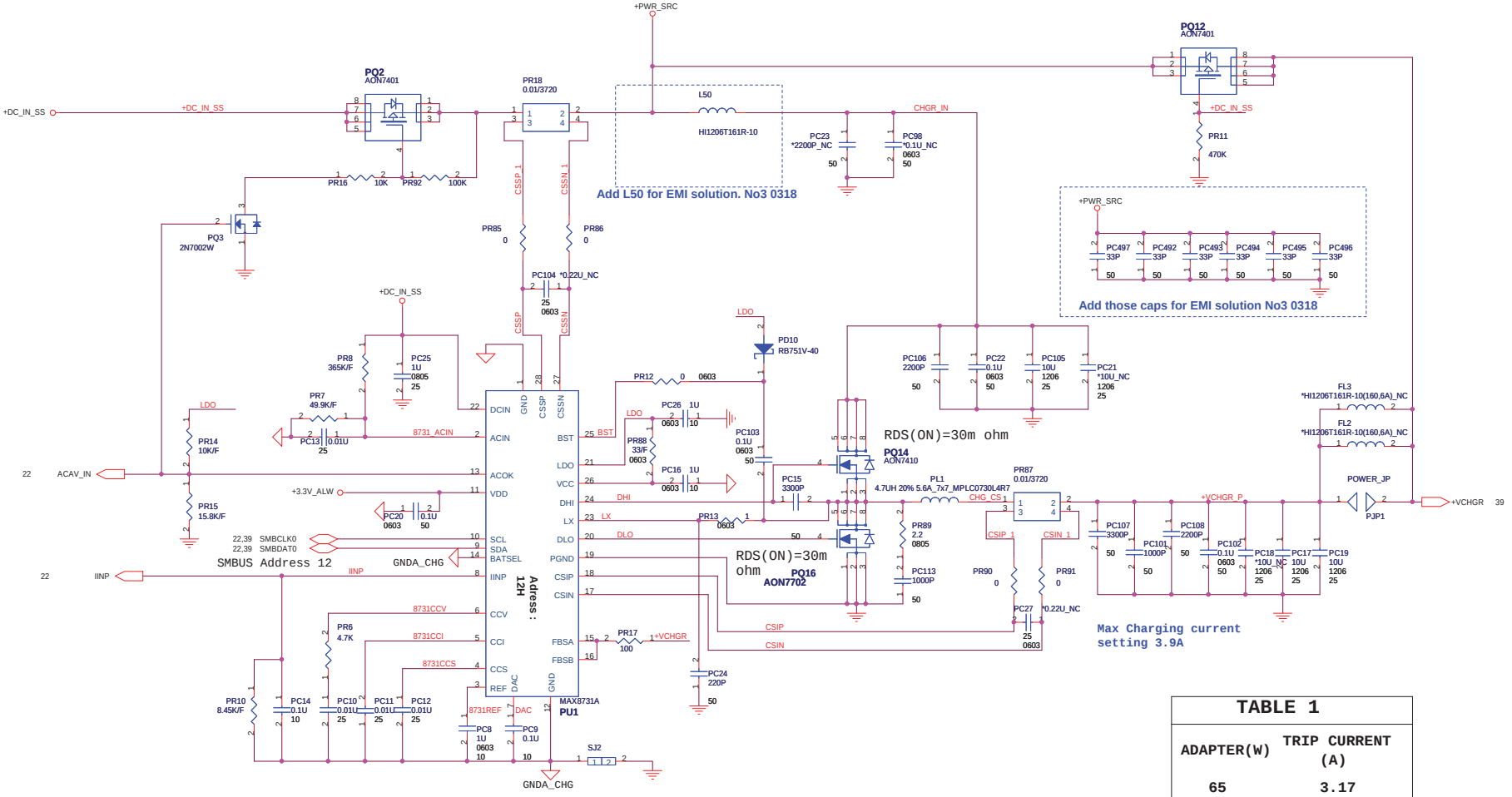

TABLE 1

ADAPTER(W)	TRIP CURRENT (A)
65	3.17
90	4.43
130	6.43
150	7.43
200	9.75
230	11.28 (see note3)

QUANTA COMPUTER

Title	Charger (MAX8731A)	
Size	Document Number AM3	Rev 1A
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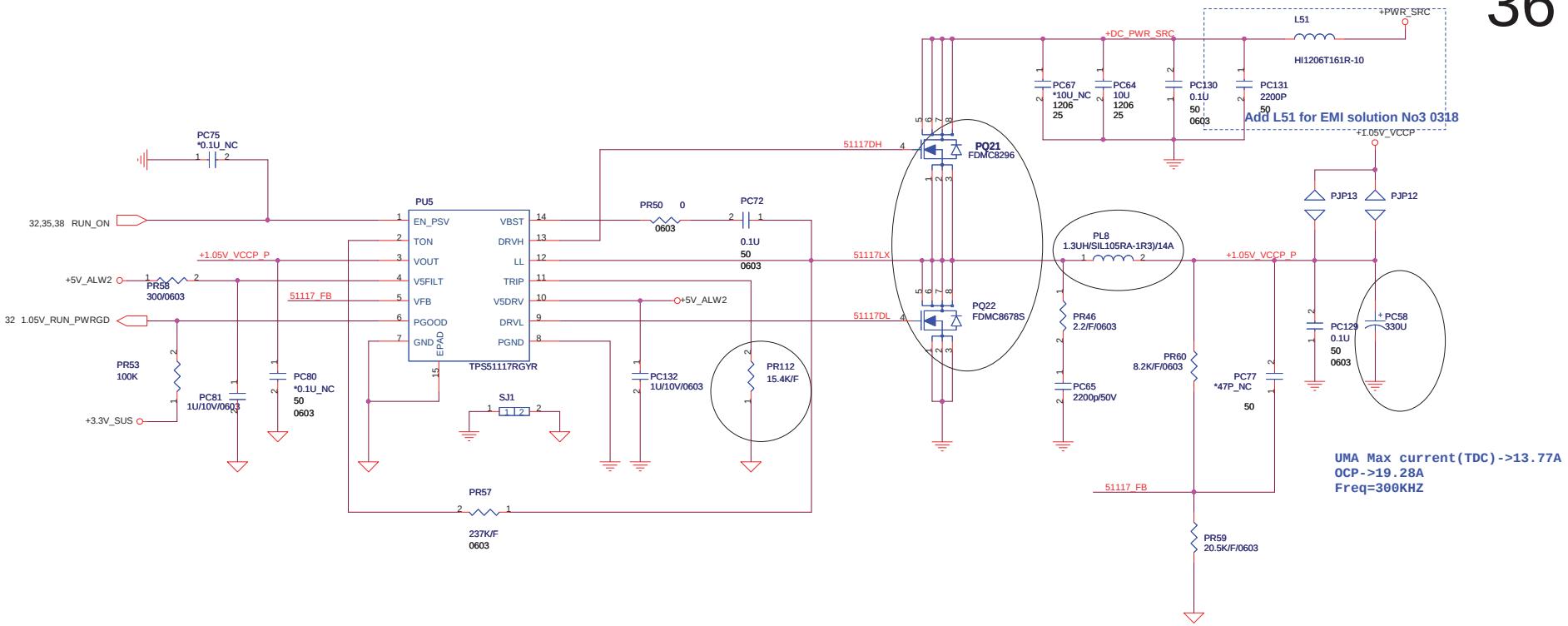
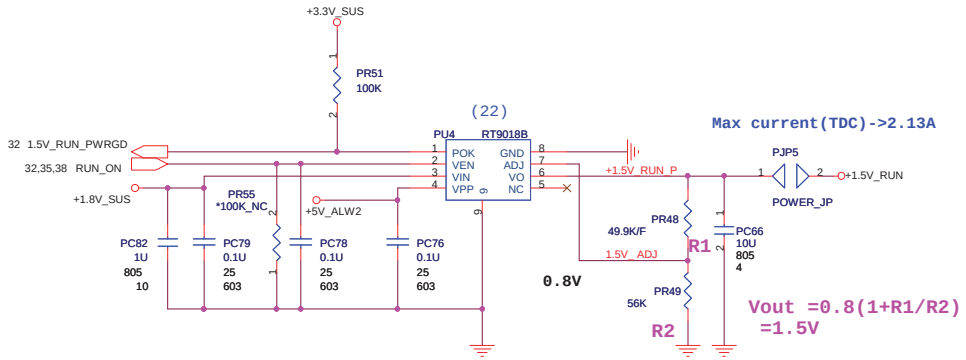
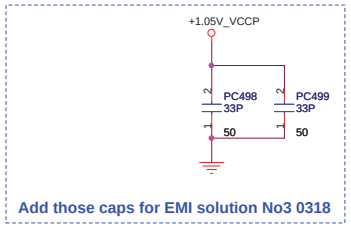
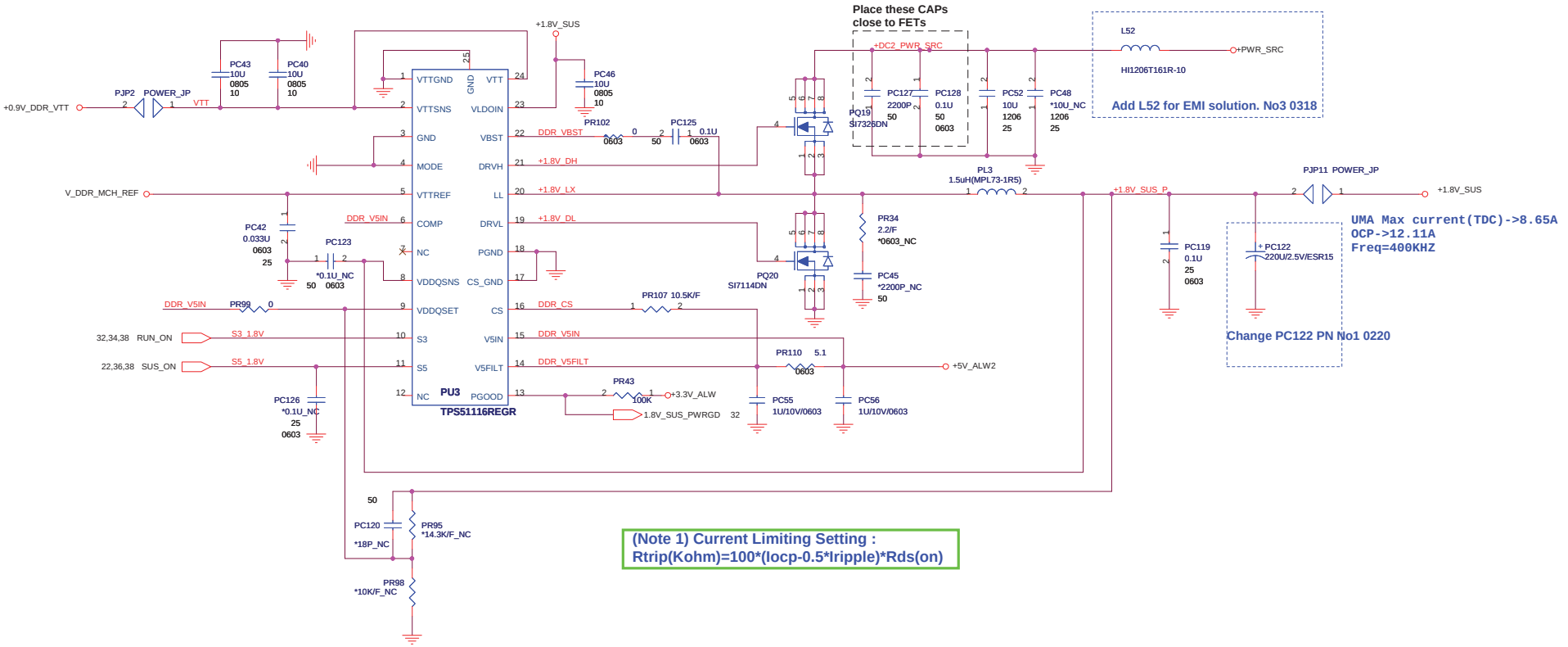






QUANTA COMPUTER		
Title: 1.05_VCCP & 1.5V_RUN		
Size	Document Number: AM3	Rev: 1A
Date: Wednesday, March 25, 2009	Sheet 34 of 45	



QUANTA COMPUTER

Title	1.8VSUS & 0.9VTT (TPS51116)	
Size	Document Number AM3	Rev 1A
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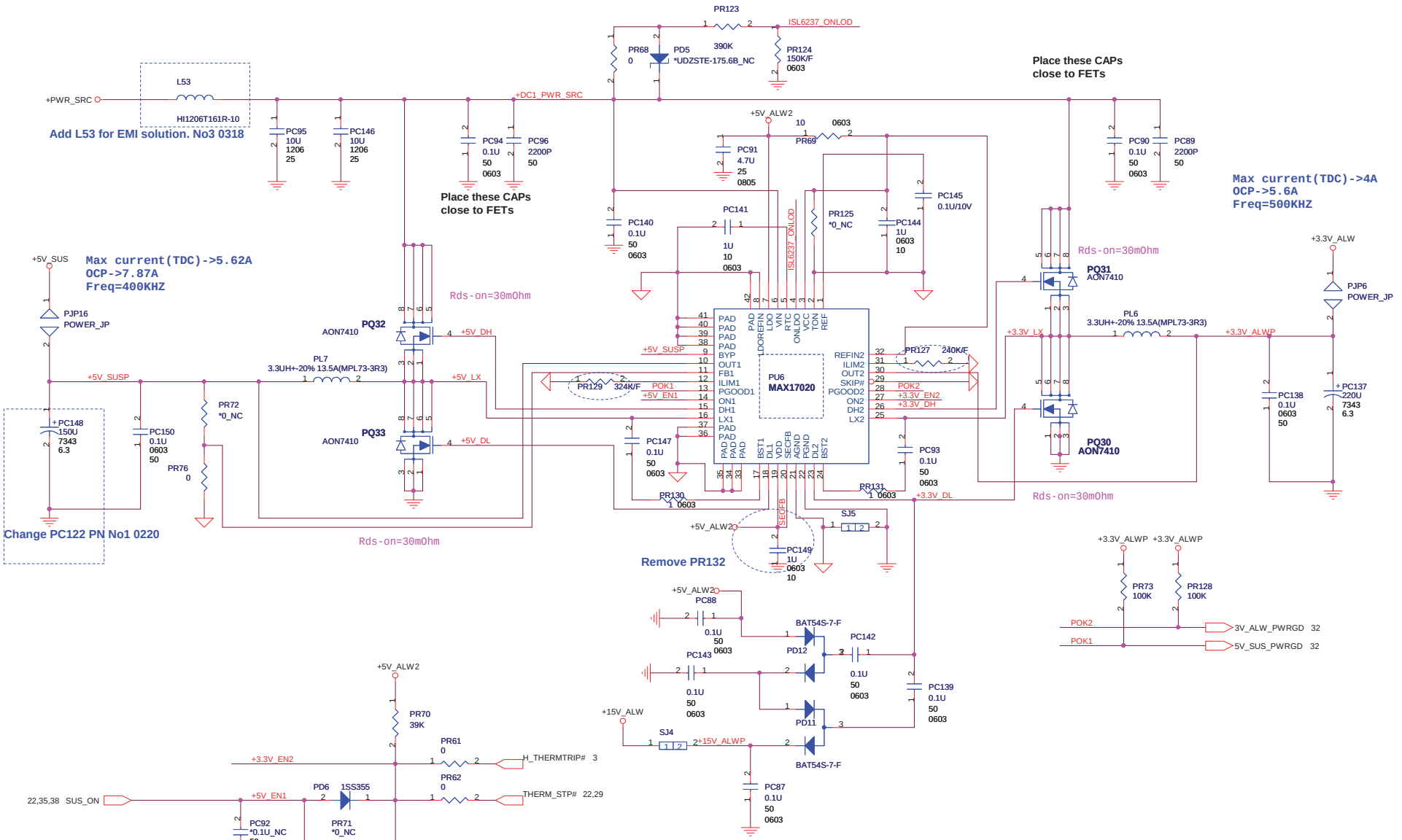
DC/DC +3V_ALW/+5V_SUS/+15V_ALW



Title	3VALW,5V,3V, Power On	
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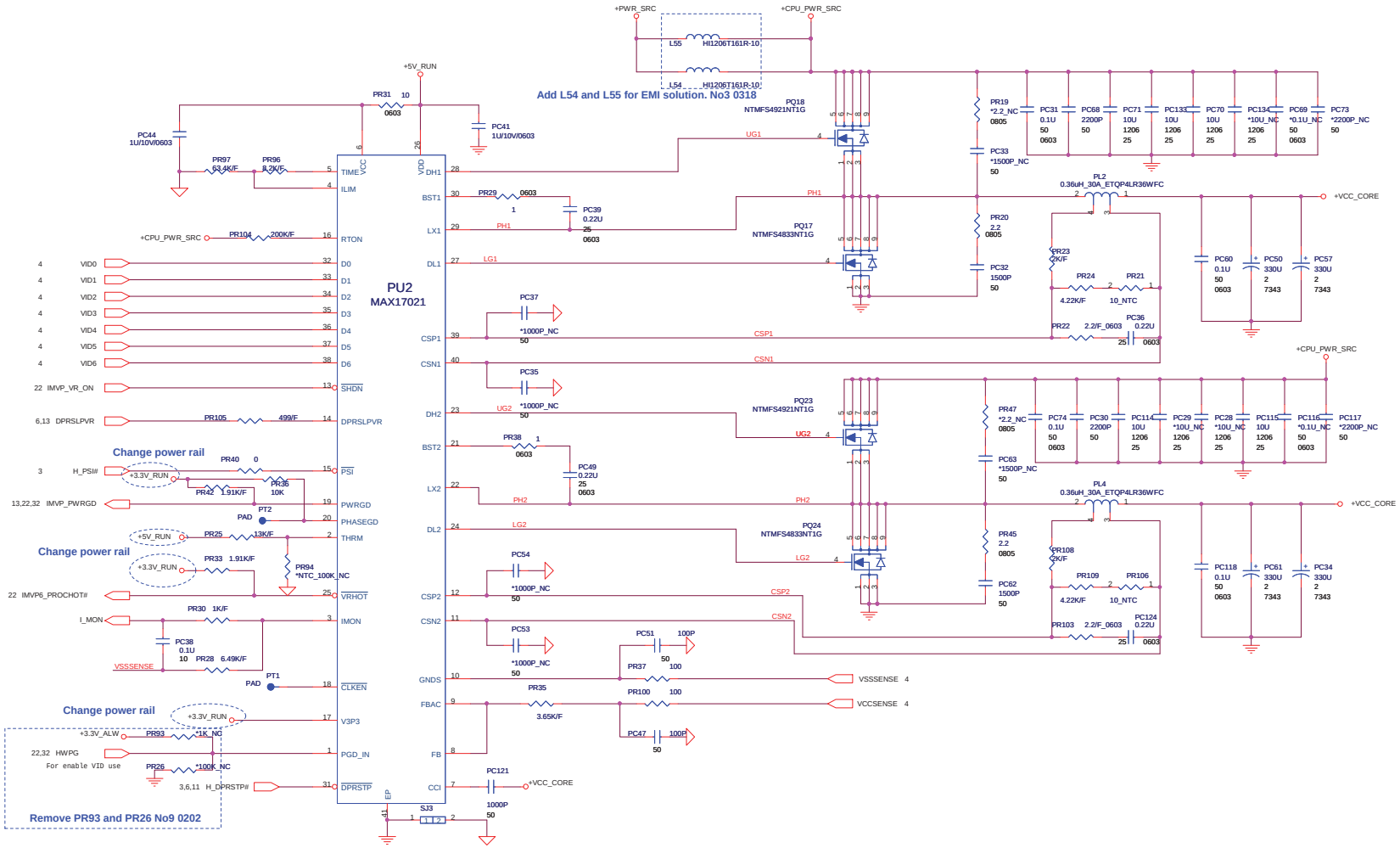
QUANTA COMPUTER



QUANTA COMPUTER			
Title	Vcore-MAX17021		
Size	Document Number AM3		Rev 1A
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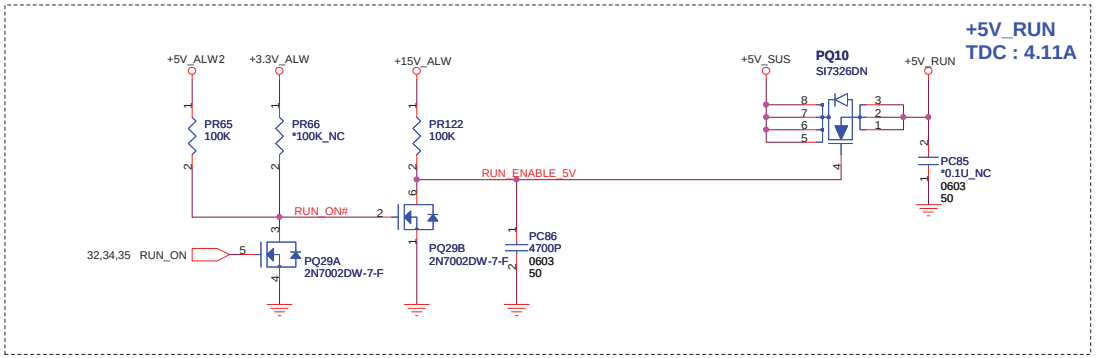

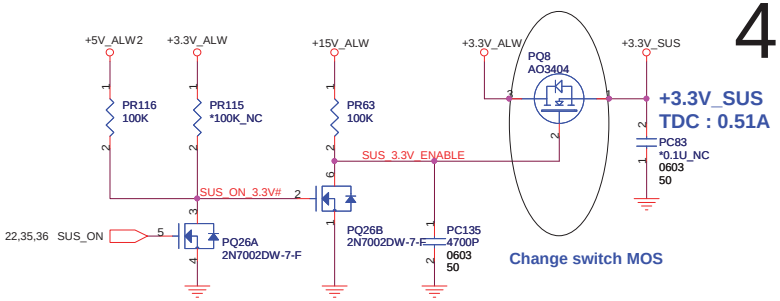

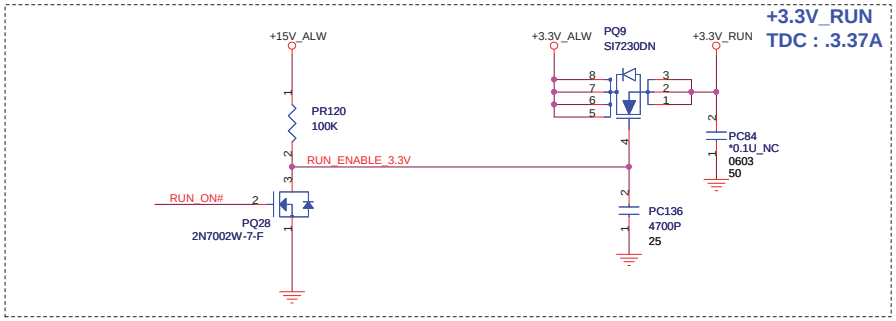

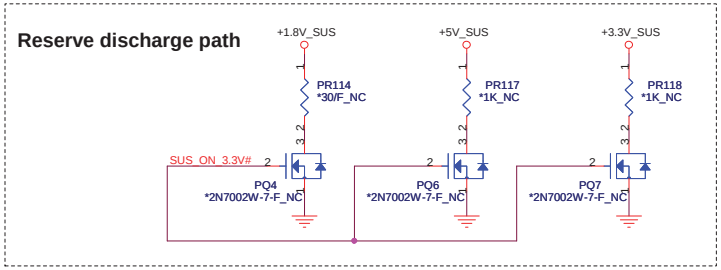

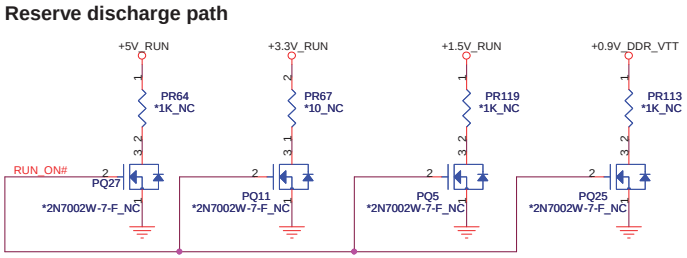

QUANTA COMPUTER

Title	RUN POWER SW	
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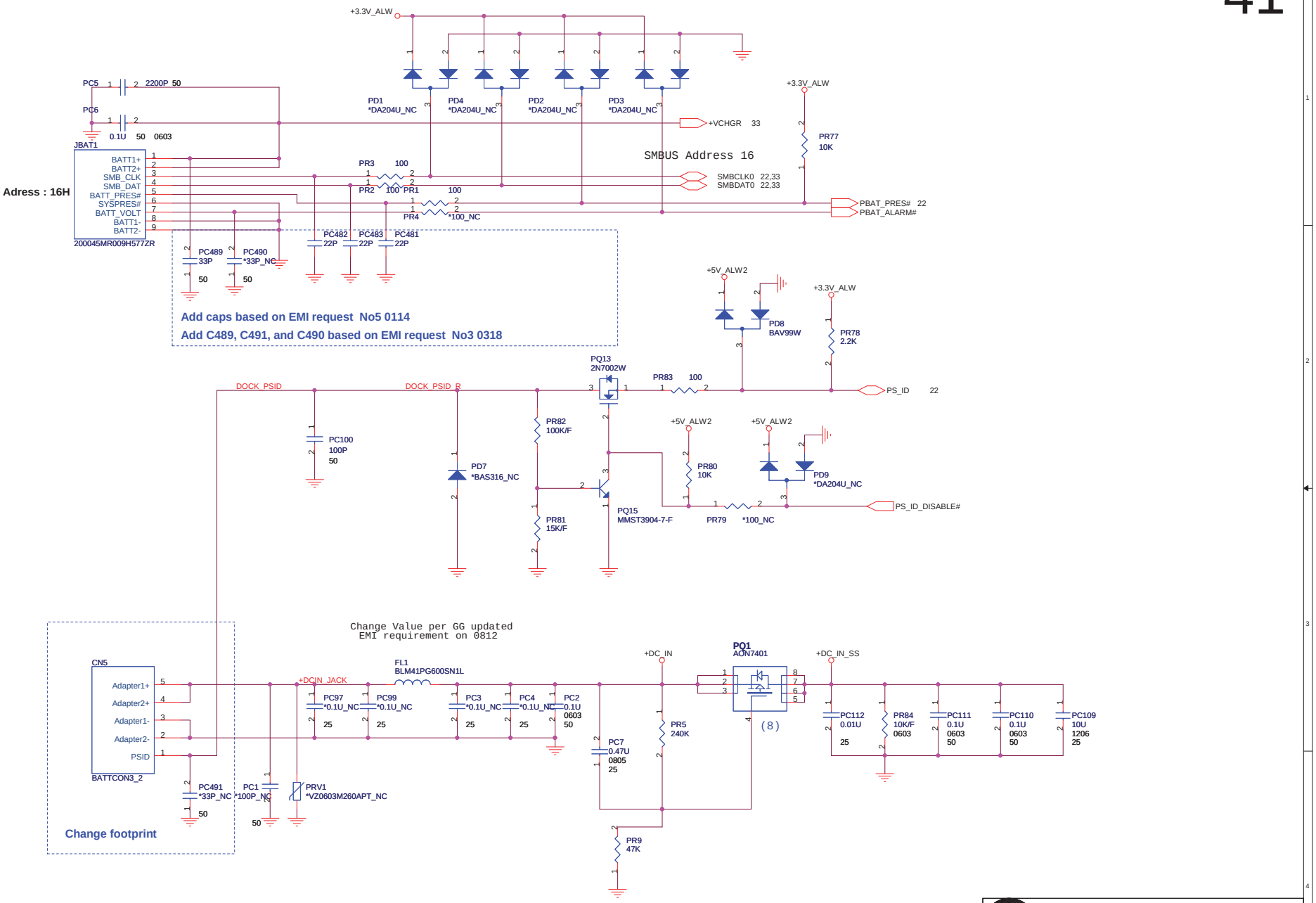

QUANTA COMPUTER

Title	DCIN,BATT CONNECTOR	
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Create hole footprints No9 10.15

For CPU use

H9
H-C276O165X185P2
H-C276O165X185P2

H7
H-C276D177P2
H-C276D177P2

H6
H-C276I201D161P2
H-C276I201D161P2

For ODD use

H20
H-TC236BC91D91P2
H-TC236BC91D91P2

H21
H-TC236BC91D91P2
H-TC236BC91D91P2

Add Screw hole No6 0119

H1
h-tc354bc236d110p2
h-tc354bc236d110p2

H2
h-c236d110p2
h-c236d110p2

H3
h-c236d91pb
h-c236d91pb

H4
H-C323D126P2
H-C323D126P2

H5
H-TC236BC91D91P2
H-TC236BC91D91P2

H8
H-TC236BC91D91P2
H-TC236BC91D91P2

H10
H-C323D126P2
H-C323D126P2

H11
H-C323D126P2
H-C323D126P2

H14
h-tsbc323d126p2
h-tsbc323d126p2

H17
H-TO91X118BO236X264D91X118P2
H-TO91X118BO236X264D91X118P2

H19
H-C236D110P2
H-C236D110P2

H16
H-C276D126P2
H-C276D126P2

H22
H-TsBC236D98P2
H-TsBC236D98P2

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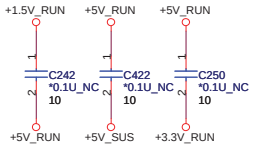
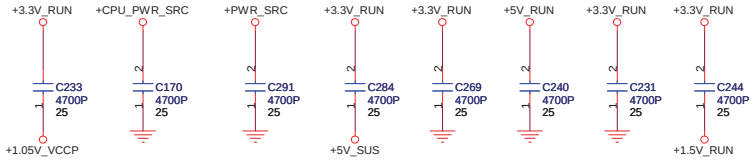
Reserved for EMI.

Stitching caps for PCI bus.



Stitching caps for PCI EMC.



QUANTA COMPUTER

Title	EMI CAP	
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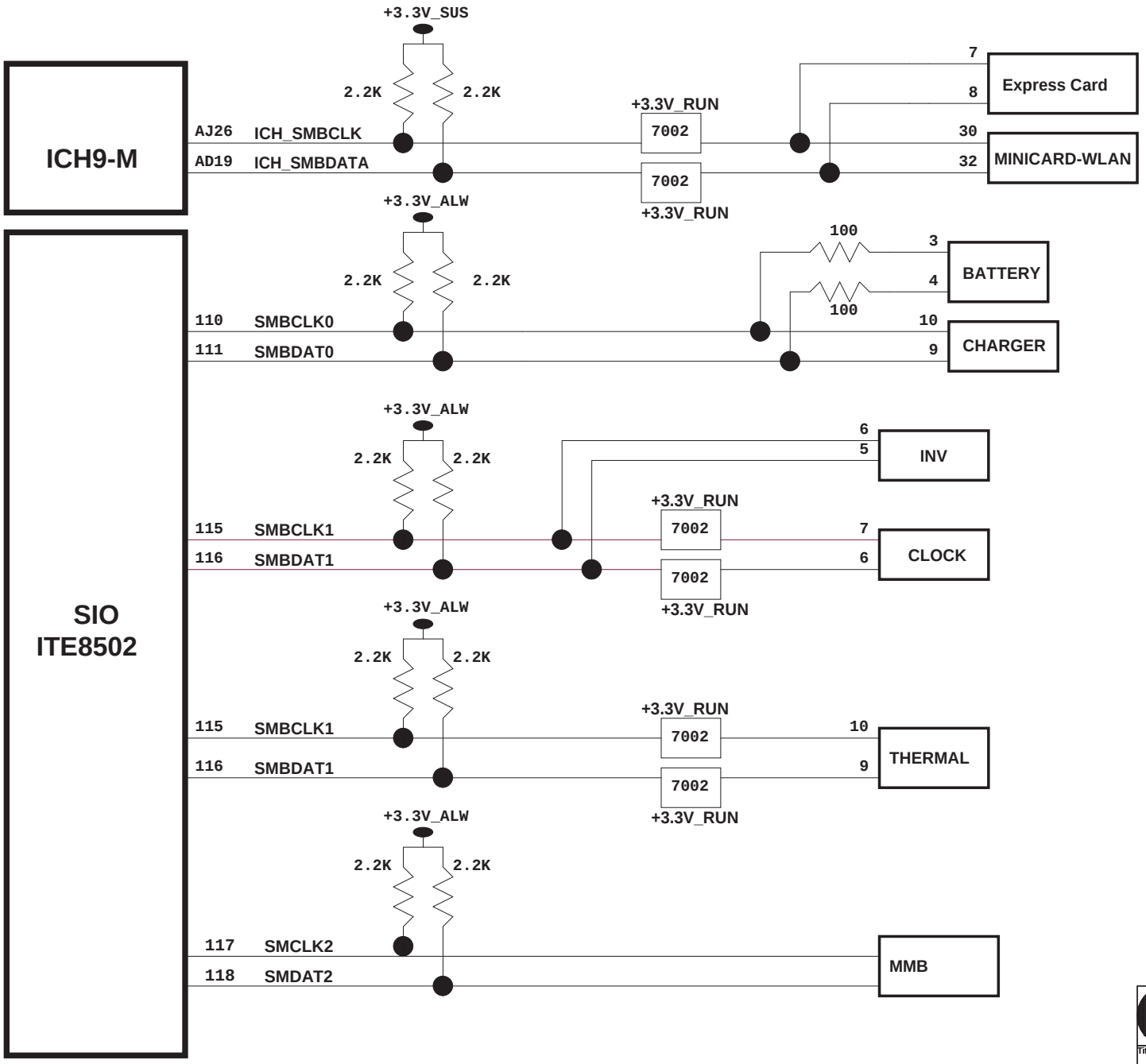

QUANTA COMPUTER

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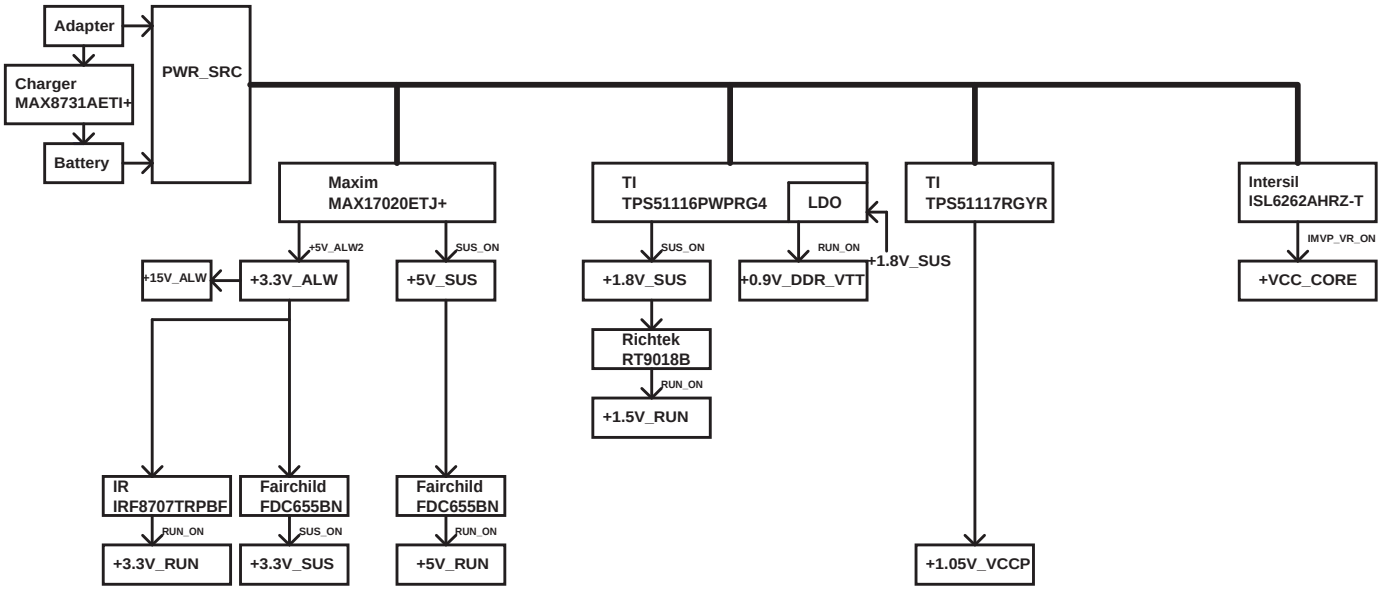

QUANTA COMPUTER

Title	Schematic Block Diagram	
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