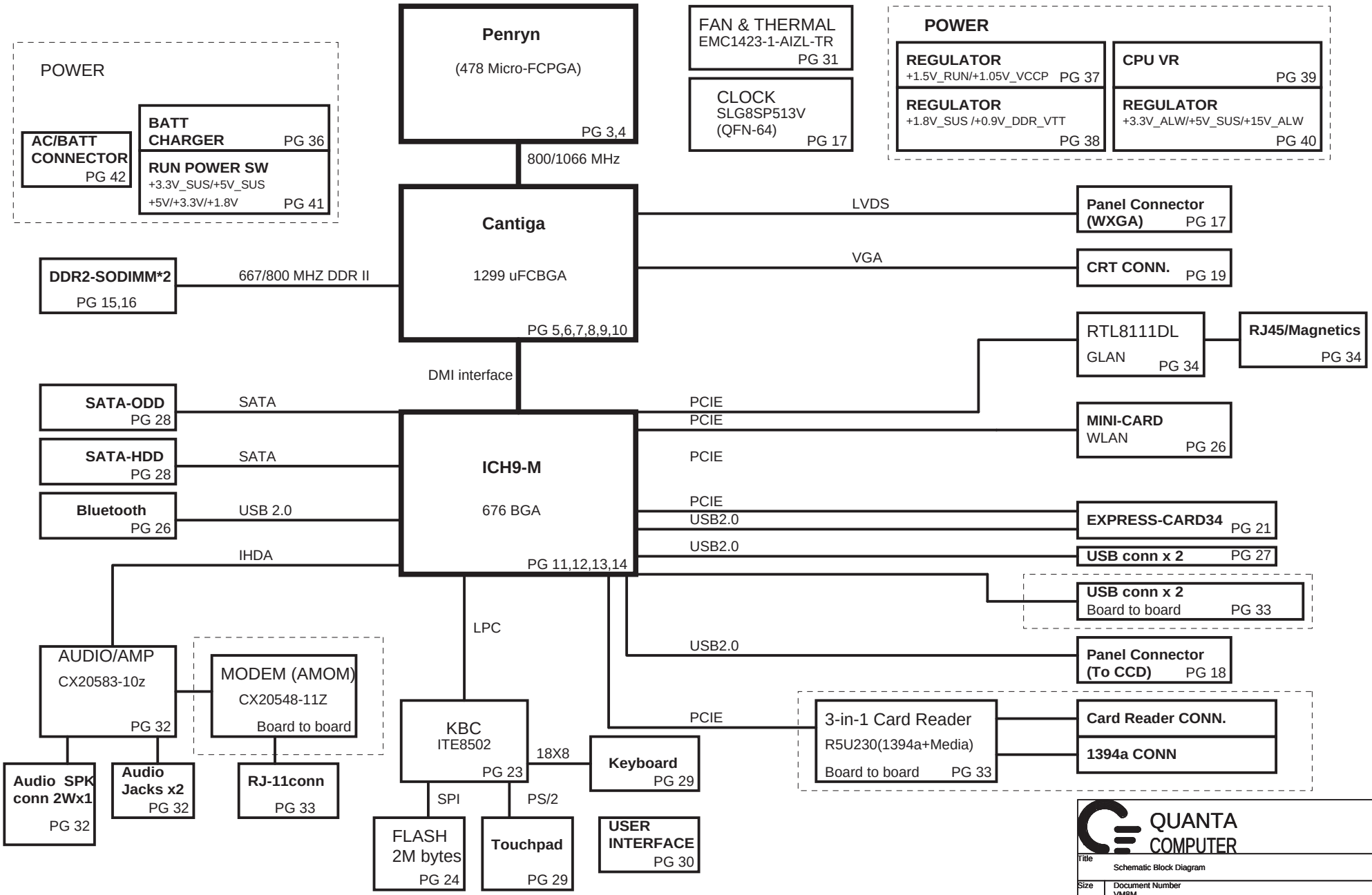
VM8M Block Diagram Intel UMA

VER :E3B



QUANTA COMPUTER

Title	Schematic Block Diagram	
Size	Document Number VM8M	Rev 1A
Date: Saturday, June 06, 2009	Sheet 1 of 46	

Table of Contents

Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
+PWR_SRC	10V~+19V	4,18,24,36,37,3,8,39,40,44	MAIN POWER		S0~S5
+RTC_CELL	+3.0V~+3.3V	11,14,23,24	RTC		S0~S5
+3.3V_ALW	+3.3V	3,23,24,30,35,36,38,40,41,42,45	8051 POWER	ALWON	S0~S5
+5V_ALW2	+5V	37,38,40,41,42	LCD/CHARGE POWER	ALWON	S0~S5
+15V_ALW	+15V	11,18,40,41	LARGE POWER	+5V_ALW	S0~S5
+3.3V_LAN	+3.3V	34	LAN POWER		
+5V_SUS	+5V	14,27,30,39,40,41,44	SLP_S5# CTRLD POWER	SUS_ON	
+3.3V_SUS	+3.3V	3,11,12,13,14,18,25,30,37,39,41,45	SLP_S5# CTRLD POWER	3.3V_SUS_ON	
+1.8V_SUS	+1.8V	6,8,9,15,37,38,41	SODIMM POWER	DDR_ON	
+0.9V_DDR_VTT	+0.9V	16,38,41	SODIMM POWER	0.9V_DDR_VTT_ON	
+5V_RUN	+5V	14,18,19,21,25,28,29,30,31,32,41,44	SLP_S3# CTRLD POWER	RUN_ON	
+3.3V_RUN	+3.3V	3,6,8,9,11,12,13,14,15,17,30,31,32,34,18,19, 20,21,23,25,26,28,41,44,45	SLP_S3# CTRLD POWER	3.3V_RUN_ON	
+1.5V_RUN	+1.5V	4,9,14,26,37,41,44	CALISTOGA/ICH8 POWER	1.5V_RUN_ON	
+1.05V_VCCP	+1.05V	3,4,6,8,9,11,14,37,44	CPU/CALISTOGA/ICH8 POWER	1.05V_RUN_ON	
+VCC_CORE	+0.7V~+1.77V	4,39	CPU CORE POWER	IMVP_VR_ON	
+LCDVCC	+3.3V	18	LCD Power	LCDVCC_TST_EN & ENVDD	
+5V_MOD	+5V	28	Module Power		
+5V_HDD	+5V	28	HDD Power		
+PBATT	+10V~+17V	42	MAIN BATTERY	CHG_PBATT	

GND PLANE	PAGE	DESCRIPTION
GND	ALL	

QUANTA COMPUTER

Title	Index & Power Status	
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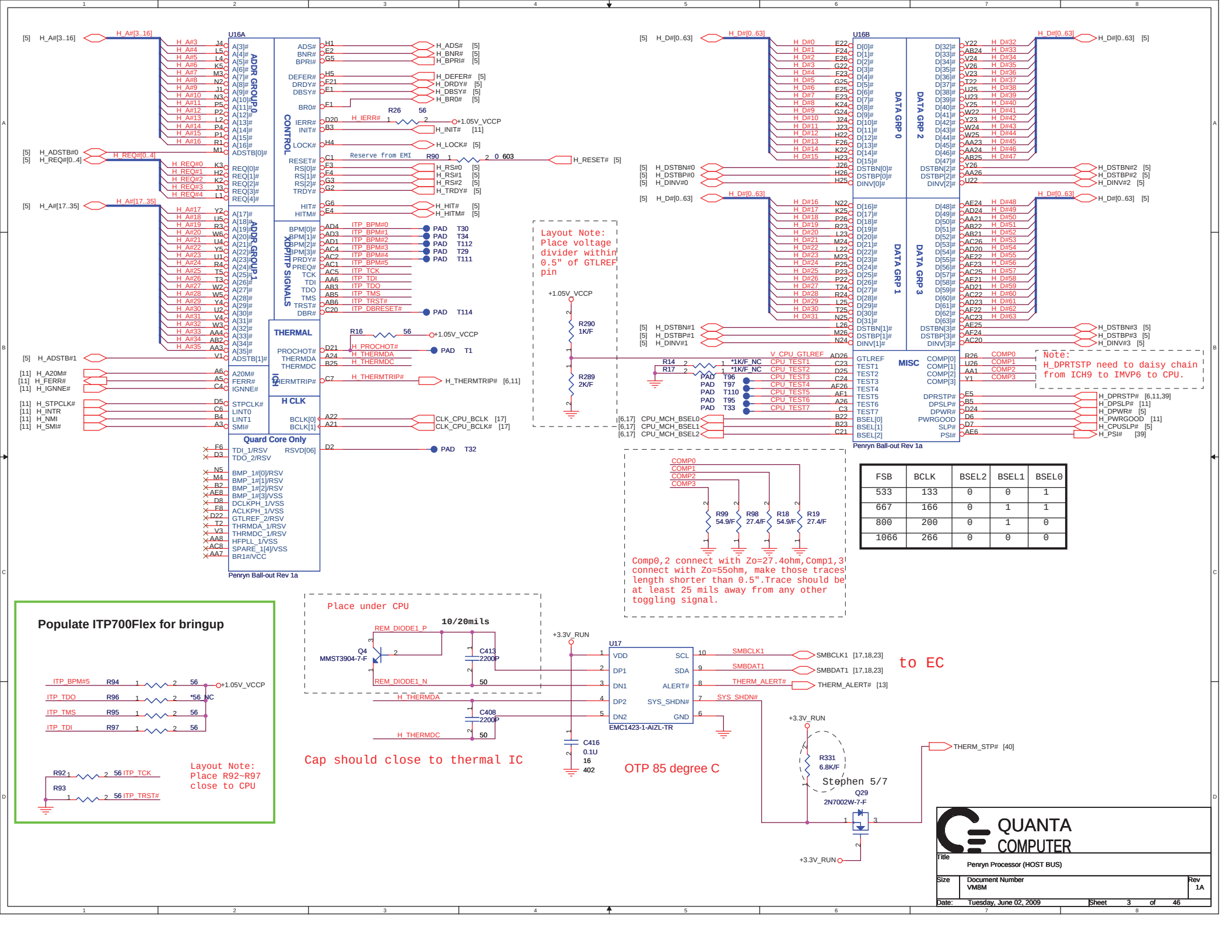
U16A
ADDR GROUP 0
ADDR GROUP 1
CONTROL
RESET#
RS[0]#
RS[1]#
RS[2]#
TRDY#
HIT#
HITM#
XDP/ITP SIGNALS
BPM[0]#
BPM[1]#
BPM[2]#
BPM[3]#
PRDY#
PREQ#
TCK
TDI
TDO
TMS
TRST#
DBR#
THERMAL
PROCHOT#
THERMDA
THERMDC
THERMTRIP#
H CLK
STPCLK#
LINT0
LINT1
SMI#
BCLK[0]
BCLK[1]
Quard Core Only
TDI_1/RSV
TDO_2/RSV
RSVD[06]
BMP_1#[0]/RSV
BMP_1#[1]/RSV
BMP_1#[2]/RSV
BMP_1#[3]/VSS
DCLKPH_1/VSS
ACLKPH_1/VSS
GTLREF_2/RSV
THRMDA_1/RSV
THRMDC_1/RSV
HFPLL_1/VSS
SPARE_1[4]/VSS
BR1#/VCC
Penryn Ball-out Rev 1a
U16B
DATA GRP 0
DATA GRP 1
DATA GRP 2
DATA GRP 3
MISC
GTLREF
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6
TEST7
BSEL[0]
BSEL[1]
BSEL[2]
COMP[0]
COMP[1]
COMP[2]
COMP[3]
DPRSTP#
DPSLP#
DPWR#
PWRGOOD
SLP#
PSI#
Penryn Ball-out Rev 1a
Layout Note:
Place voltage divider within 0.5" of GTLREF pin
R290 1K/F
R289 2K/F
V_CPU_GTLREF
Note:
H_DPRTSTP need to daisy chain from ICH9 to IMVP6 to CPU.
COMP0
COMP1
COMP2
COMP3
R99 54.9/F
R98 27.4/F
R18 54.9/F
R19 27.4/F
Comp0,2 connect with Zo=27.4ohm,Comp1,3 connect with Zo=55ohm, make those traces length shorter than 0.5".Trace should be at least 25 mils away from any other toggling signal.
FSB | BCLK | BSEL2 | BSEL1 | BSEL0
533 | 133 | 0 | 0 | 1
667 | 166 | 0 | 1 | 1
800 | 200 | 0 | 1 | 0
1066 | 266 | 0 | 0 | 0
Populate ITP700Flex for bringup
ITP_BPM#5 R94 56
ITP_TDO R96 *56 NC
ITP_TMS R95 56
ITP_TDI R97 56
+1.05V_VCCP
R92 56 ITP_TCK
R93 56 ITP_TRST#
Layout Note:
Place R92~R97 close to CPU
Place under CPU
10/20mils
REM_DIODE1_P
REM_DIODE1_N
Q4
MMST3904-7-F
C413 2200P
50
H_THERMDA
H_THERMDC
C408 2200P
50
Cap should close to thermal IC
+3.3V_RUN
U17
VDD
DP1
DN1
DP2
DN2
SCL
SDA
ALERT#
SYS_SHDN#
GND
EMC1423-1-AIZL-TR
SMBCLK1
SMBDAT1
THERM_ALERT#
SYS_SHDN#
C416 0.1U 16 402
OTP 85 degree C
to EC
R331 6.8K/F
Q29
2N7002W-7-F
THERM_STP# [40]
Stephen 5/7
QUANTA COMPUTER
Title
Penryn Processor (HOST BUS)
Size
Document Number
VM8M
Rev
1A
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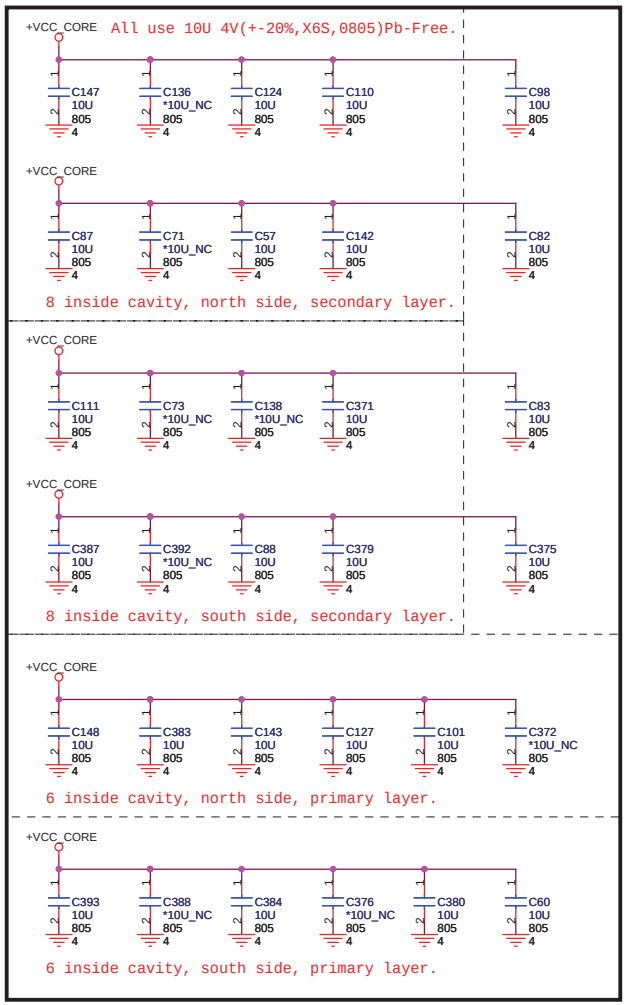

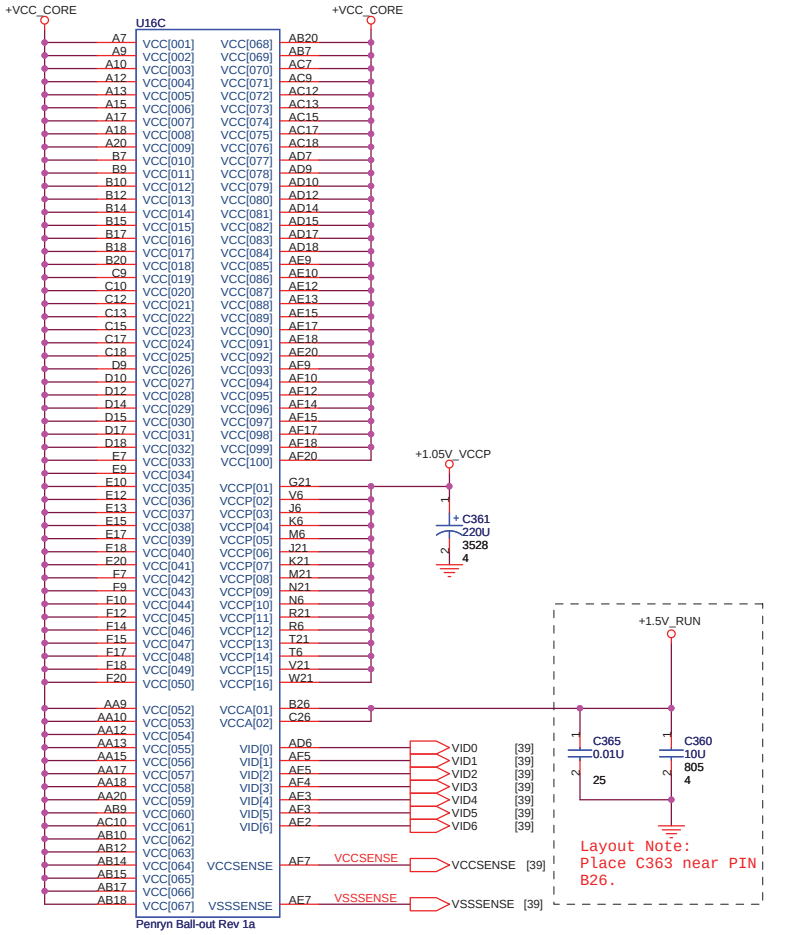

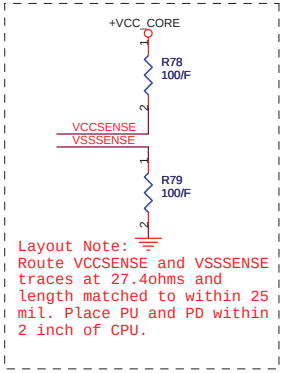

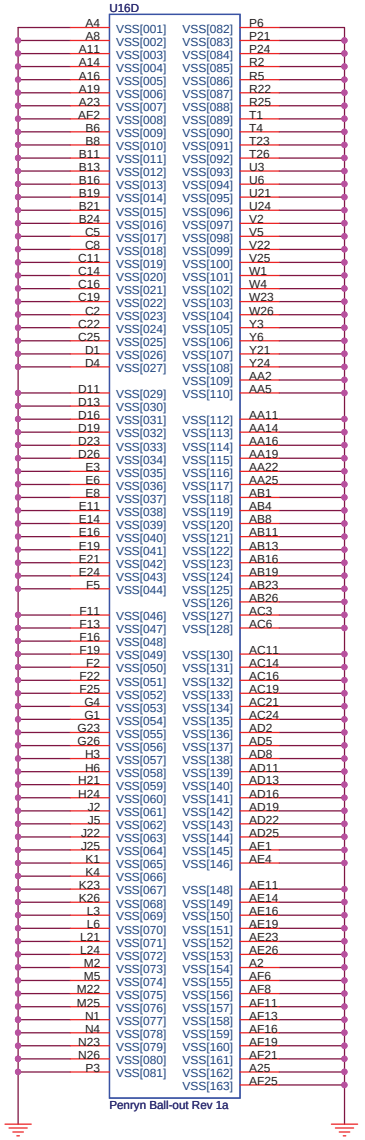

QUANTA COMPUTER

Title	Penryn Processor (POWER)	
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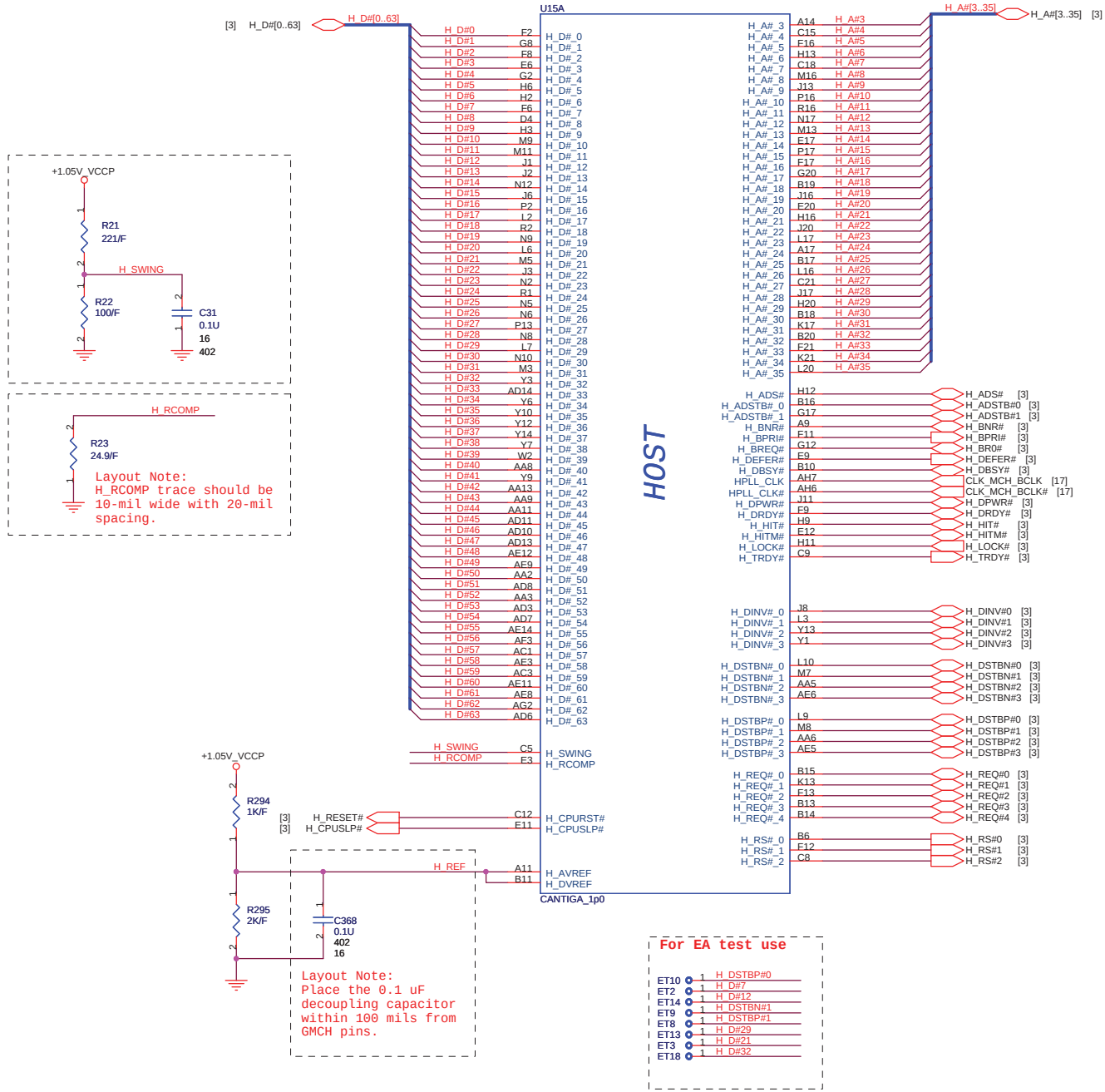

QUANTA COMPUTER		
Title: Cantiga (HOST)		
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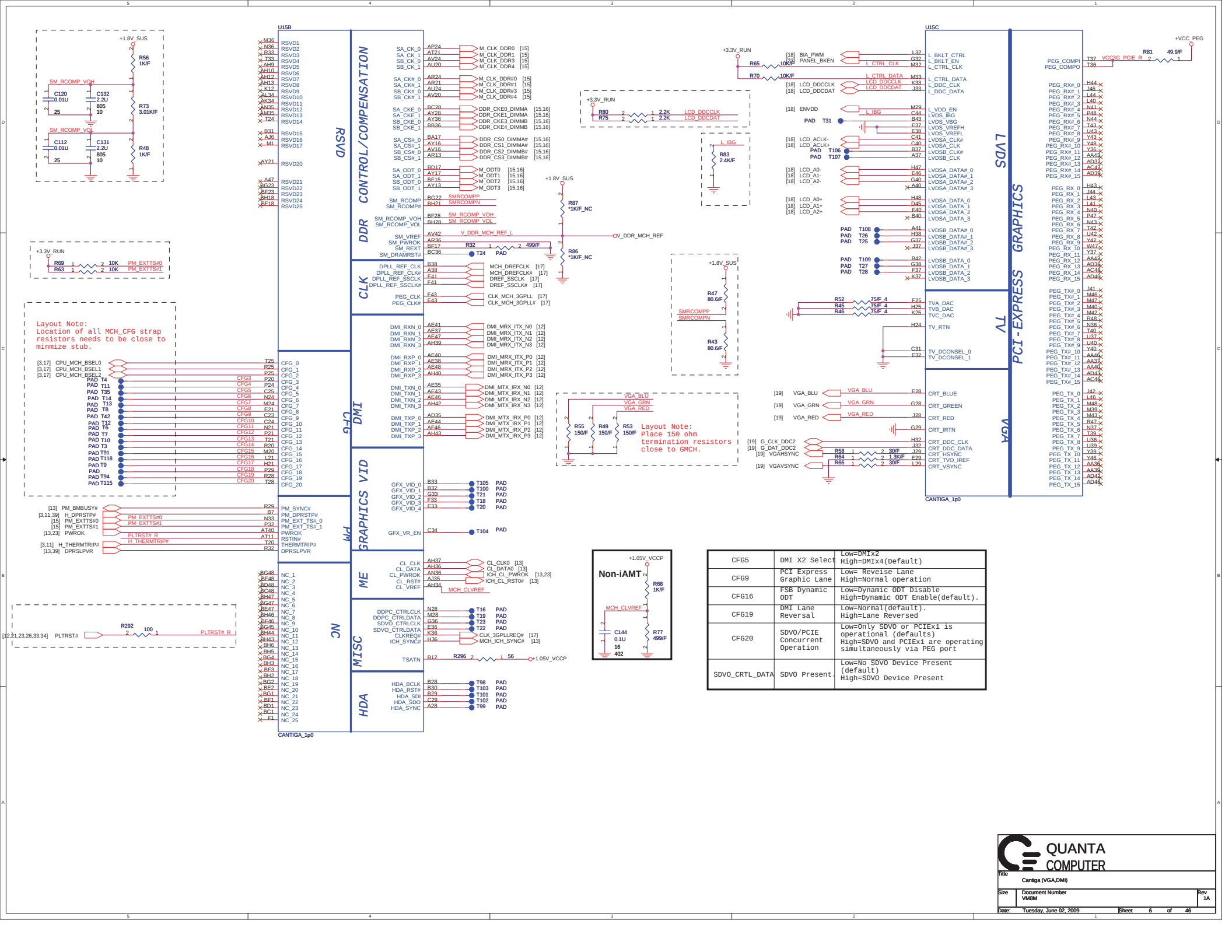
U15B
RSVD
CONTROL/COMPENSATION
DDR
CLK
DMI
CFG
GRAPHICS VID
PWR
ME
MISC
HDA
NC
CANTIGA_1p0
U15C
LVDS
PCI-EXPRESS GRAPHICS
TV
VGA
CANTIGA_1p0
Layout Note:
Location of all MCH_CFG strap
resistors needs to be close to
minmize stub.
Layout Note:
Place 150 ohm
termination resistors
close to GMCH.
Non-iAMT
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
QUANTA COMPUTER
Title
Cantiga (VGA,DMI)
Size
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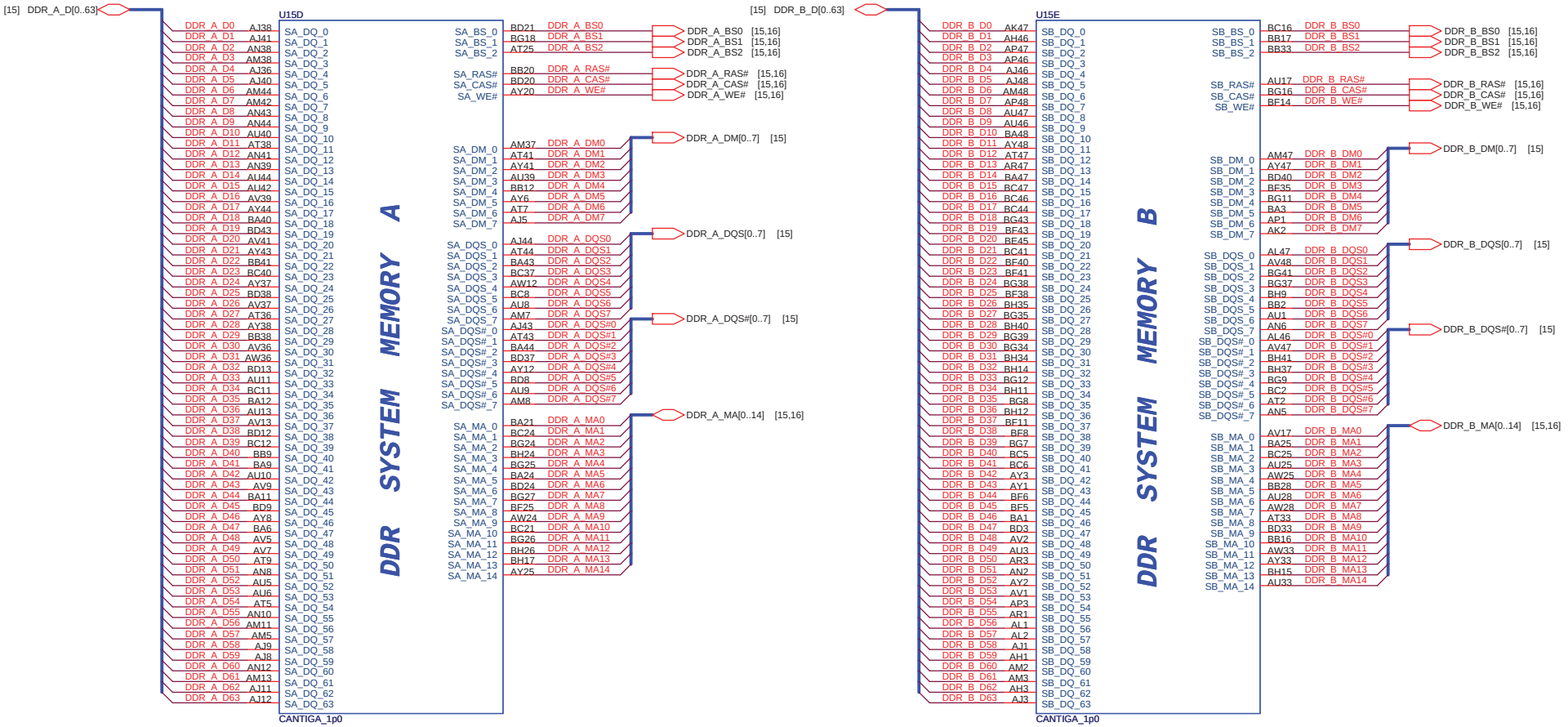

QUANTA COMPUTER		
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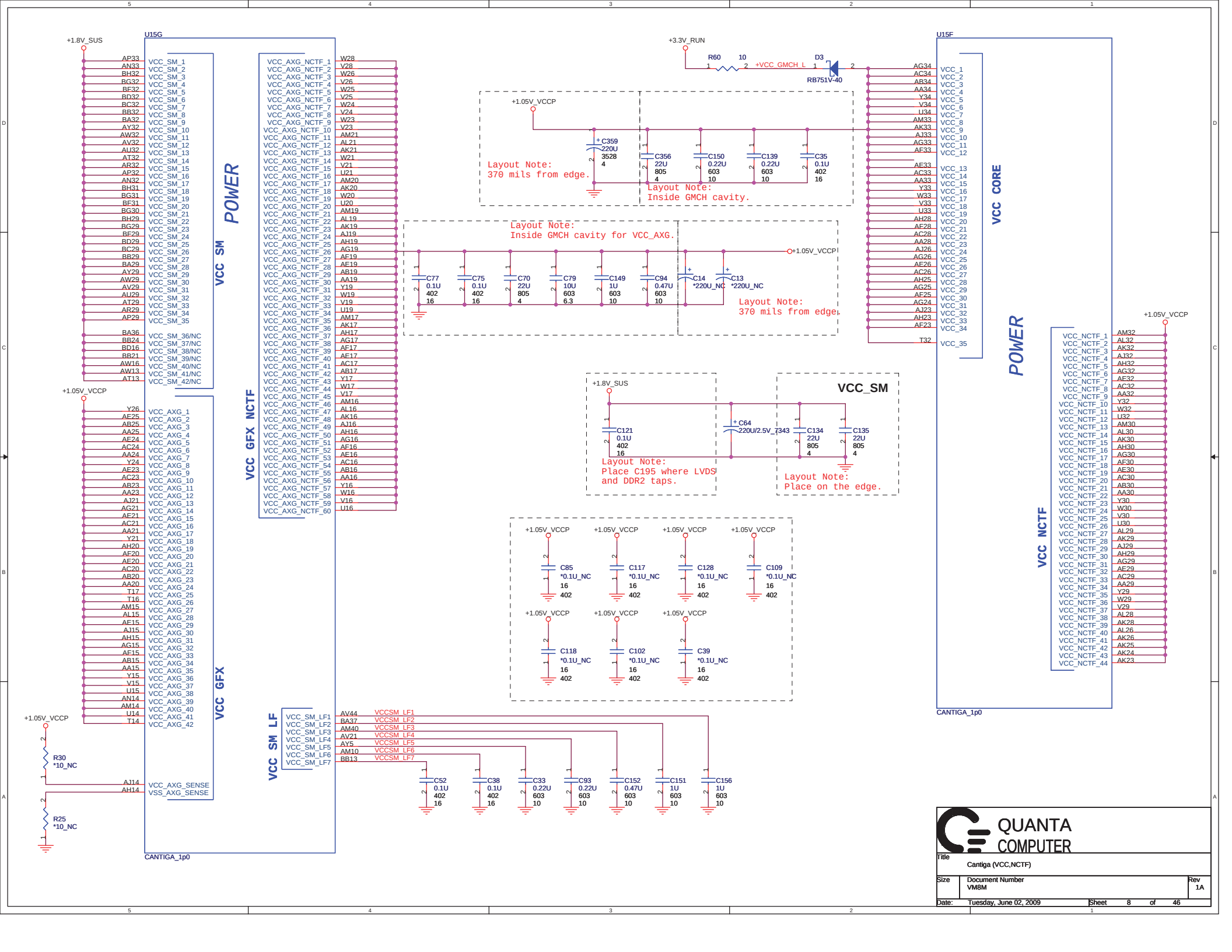
U15G
VCC_SM_1
VCC_SM_2
VCC_SM_3
VCC_SM_4
VCC_SM_5
VCC_SM_6
VCC_SM_7
VCC_SM_8
VCC_SM_9
VCC_SM_10
VCC_SM_11
VCC_SM_12
VCC_SM_13
VCC_SM_14
VCC_SM_15
VCC_SM_16
VCC_SM_17
VCC_SM_18
VCC_SM_19
VCC_SM_20
VCC_SM_21
VCC_SM_22
VCC_SM_23
VCC_SM_24
VCC_SM_25
VCC_SM_26
VCC_SM_27
VCC_SM_28
VCC_SM_29
VCC_SM_30
VCC_SM_31
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
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
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
VCC_AXG_NCTF_46
VCC_AXG_NCTF_47
VCC_AXG_NCTF_48
VCC_AXG_NCTF_49
VCC_AXG_NCTF_50
VCC_AXG_NCTF_51
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
VCC_AXG_SENSE
VSS_AXG_SENSE
CANTIGA_1p0
U15F
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
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
VCC_NCTF_27
VCC_NCTF_28
VCC_NCTF_29
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
+1.8V_SUS
+1.05V_VCCP
+3.3V_RUN
+VCC_GMCH_L
R60 10
D3 RB751V-40
R30 *10_NC
R25 *10_NC
Layout Note: 370 mils from edge.
Layout Note: Inside GMCH cavity.
Layout Note: Inside GMCH cavity for VCC_AXG.
Layout Note: 370 mils from edge.
Layout Note: Place C195 where LVDS and DDR2 taps.
Layout Note: Place on the edge.
VCC_SM
C359 220U 3528 4
C356 22U 805 4
C150 0.22U 603 10
C139 0.22U 603 10
C35 0.1U 402 16
C77 0.1U 402 16
C75 0.1U 402 16
C70 22U 805 4
C79 10U 603 6.3
C149 1U 603 10
C94 0.47U 603 10
C14 *220U_NC
C13 *220U_NC
C121 0.1U 402 16
C64 220U/2.5V_7343
C134 22U 805 4
C135 22U 805 4
C85 *0.1U_NC 16 402
C117 *0.1U_NC 16 402
C128 *0.1U_NC 16 402
C109 *0.1U_NC 16 402
C118 *0.1U_NC 16 402
C102 *0.1U_NC 16 402
C39 *0.1U_NC 16 402
C52 0.1U 402 16
C38 0.1U 402 16
C33 0.22U 603 10
C93 0.22U 603 10
C152 0.47U 603 10
C151 1U 603 10
C156 1U 603 10
QUANTA COMPUTER
Title: Cantiga (VCC,NCTF)
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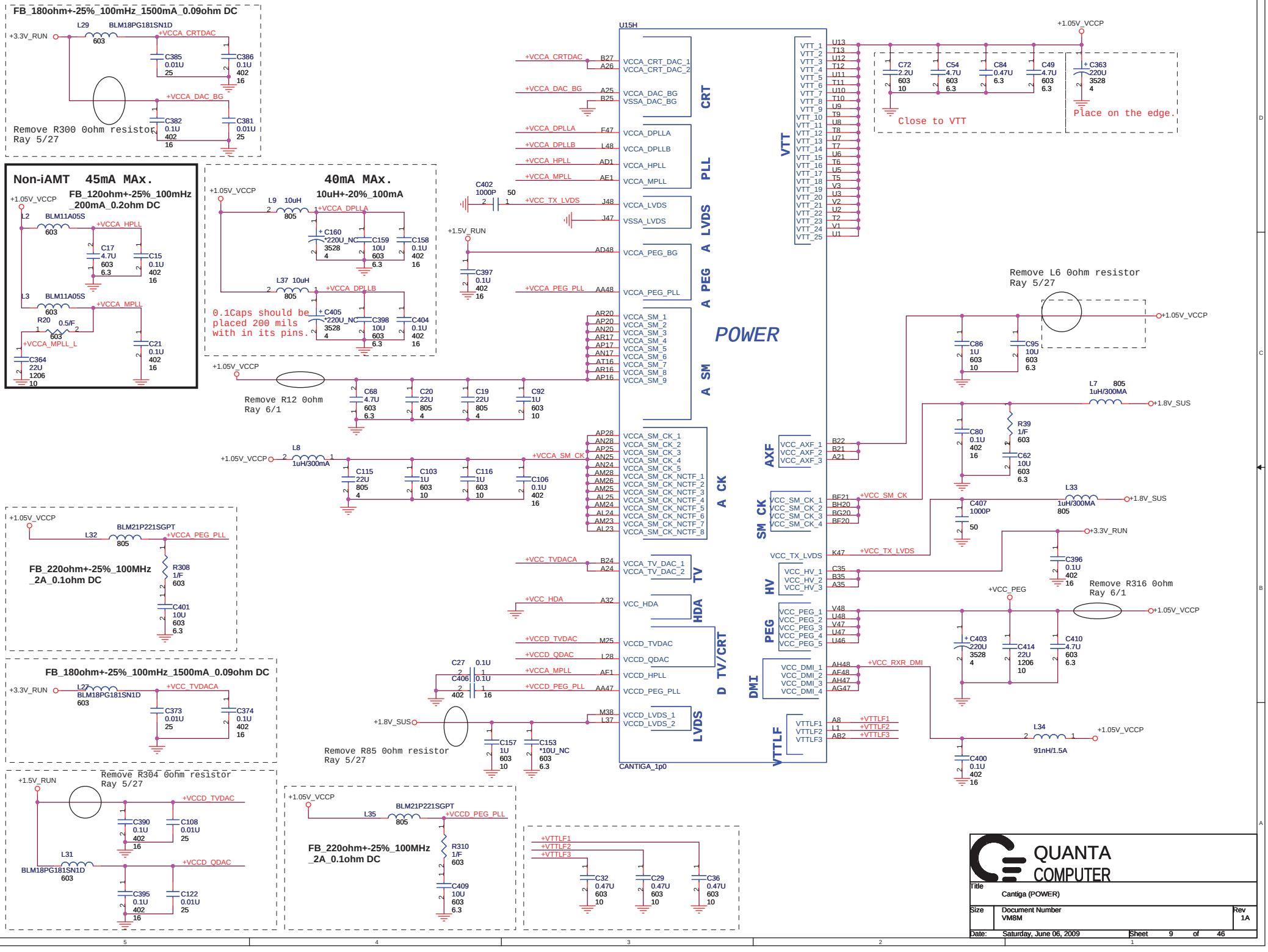
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
Remove R300 0ohm resistor.
Ray 5/27
Non-iAMT 45mA MAx.
FB_120ohm+-25%_100mHz
_200mA_0.2ohm DC
40mA MAx.
10uH+-20%_100mA
0.1Caps should be placed 200 mils with in its pins.
Remove R12 0ohm
Ray 6/1
Remove R85 0ohm resistor
Ray 5/27
Remove R304 0ohm resistor
Ray 5/27
FB_220ohm+-25%_100MHz
_2A_0.1ohm DC
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
FB_220ohm+-25%_100MHz
_2A_0.1ohm DC
U15H
CANTIGA_1p0
CRT
PLL
LVDS
A PEG
A SM
POWER
A CK
AXF
SM CK
HV
PEG
DMI
TV
HDA
D TV/CRT
LVDS
VTTLF
VTT
Close to VTT
Place on the edge.
Remove L6 0ohm resistor
Ray 5/27
Remove R316 0ohm
Ray 6/1
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COMPUTER
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Cantiga (POWER)
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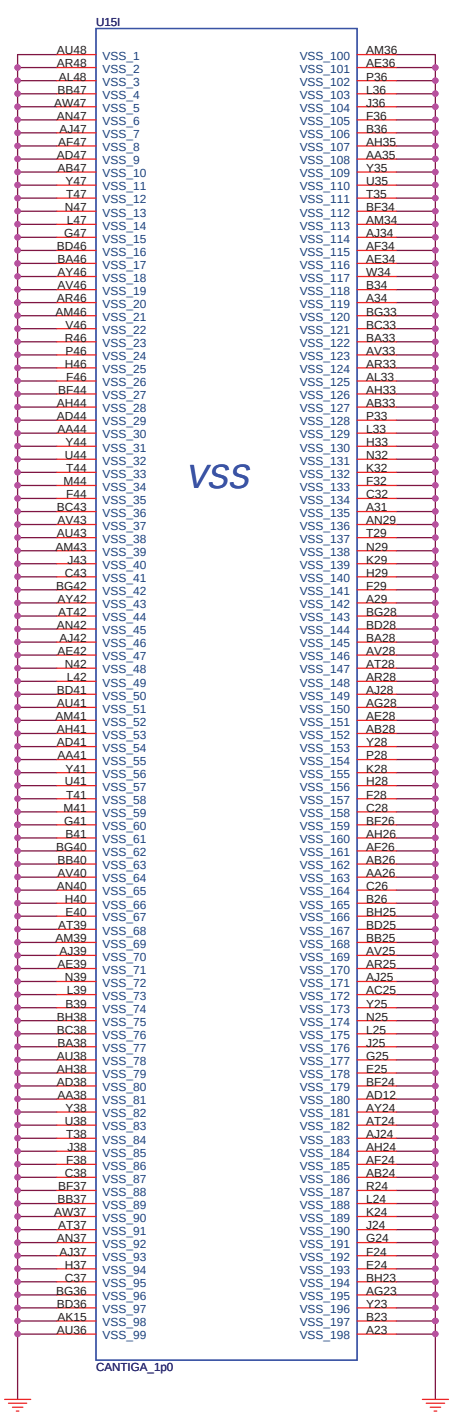

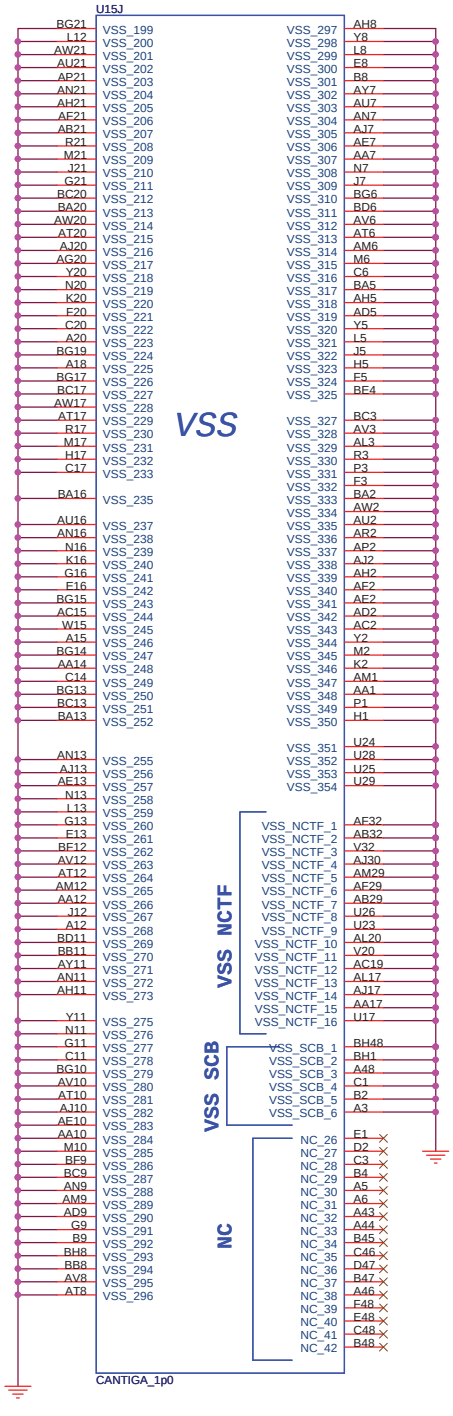

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Title	Cantiga (VSS)	
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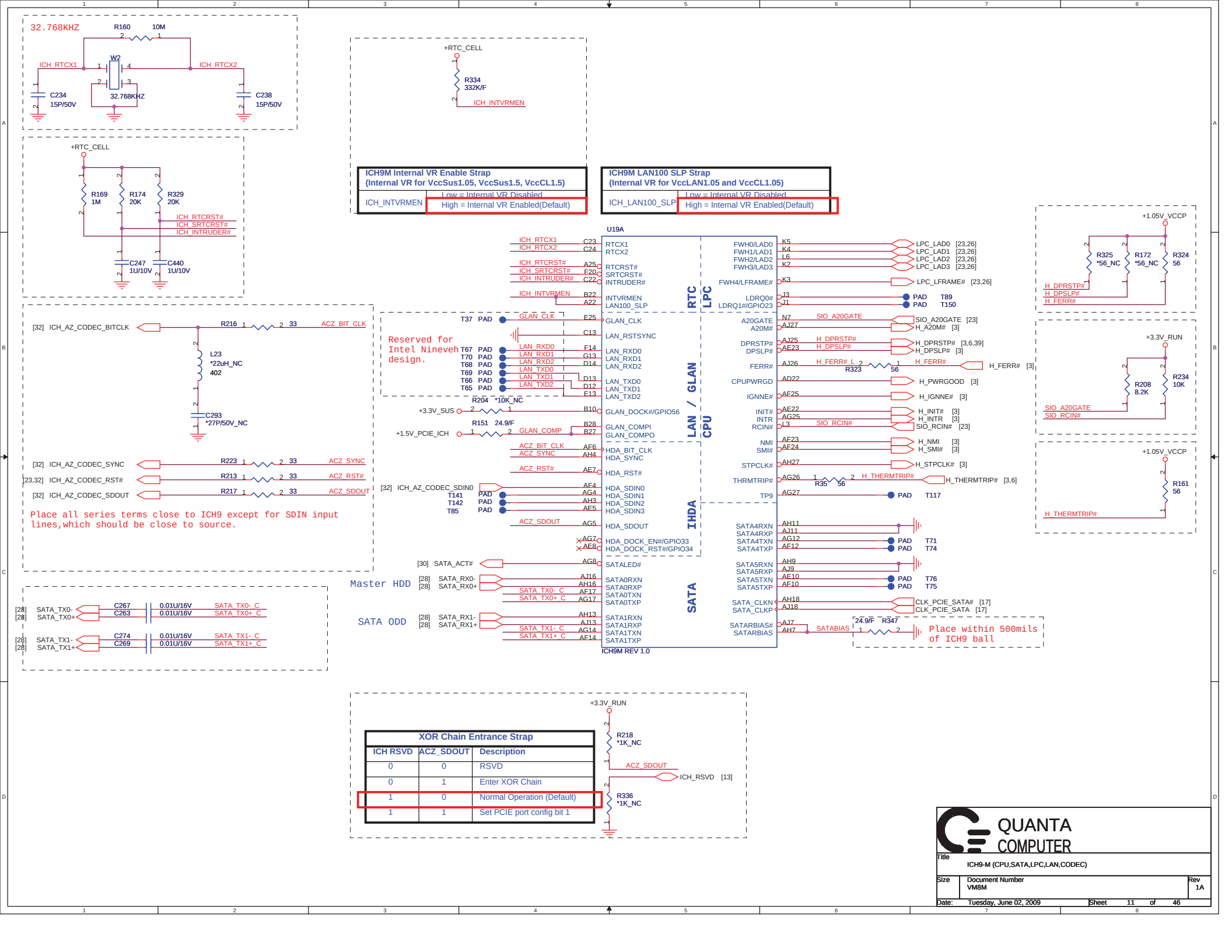
32.768KHZ
R160 10M
W2
ICH_RTCX1
ICH_RTCX2
C234 15P/50V
32.768KHZ
C238 15P/50V
+RTC_CELL
R334 332K/F
ICH_INTVRMEN
ICH9M Internal VR Enable Strap
(Internal VR for VccSus1.05, VccSus1.5, VccCL1.5)
ICH_INTVRMEN
Low = Internal VR Disabled
High = Internal VR Enabled(Default)
ICH9M LAN100 SLP Strap
(Internal VR for VccLAN1.05 and VccCL1.05)
ICH_LAN100_SLP
Low = Internal VR Disabled
High = Internal VR Enabled(Default)
+RTC_CELL
R169 1M
R174 20K
R329 20K
ICH_RTCRST#
ICH_SRTCRST#
ICH_INTRUDER#
C247 1U/10V
C440 1U/10V
U19A
RTCX1
RTCX2
RTCRST#
SRTCRST#
INTRUDER#
INTVRMEN
LAN100_SLP
RTC
LPC
GLAN_CLK
LAN_RSTSYNC
LAN_RXD0
LAN_RXD1
LAN_RXD2
LAN_TXD0
LAN_TXD1
LAN_TXD2
GLAN_DOCK#/GPIO56
GLAN_COMPI
GLAN_COMPO
LAN / GLAN
CPU
HDA_BIT_CLK
HDA_SYNC
HDA_RST#
HDA_SDIN0
HDA_SDIN1
HDA_SDIN2
HDA_SDIN3
HDA_SDOUT
HDA_DOCK_EN#/GPIO33
HDA_DOCK_RST#/GPIO34
IHDA
SATALED#
SATA0RXN
SATA0RXP
SATA0TXN
SATA0TXP
SATA1RXN
SATA1RXP
SATA1TXN
SATA1TXP
SATA
FWH0/LAD0
FWH1/LAD1
FWH2/LAD2
FWH3/LAD3
FWH4/LFRAME#
LDRQ0#
LDRQ1#/GPIO23
A20GATE
A20M#
DPRSTP#
DPSLP#
FERR#
CPUPWRGD
IGNNE#
INIT#
INTR
RCIN#
NMI
SMI#
STPCLK#
THRMTRIP#
TP9
SATA4RXN
SATA4RXP
SATA4TXN
SATA4TXP
SATA5RXN
SATA5RXP
SATA5TXN
SATA5TXP
SATA_CLKN
SATA_CLKP
SATARBIAS#
SATARBIAS
ICH9M REV 1.0
Reserved for Intel Nineveh design.
T37 PAD
T67 PAD
T70 PAD
T68 PAD
T69 PAD
T66 PAD
T65 PAD
R204 *10K_NC
R151 24.9/F
+3.3V_SUS
+1.5V_PCIE_ICH
[32] ICH_AZ_CODEC_BITCLK
R216 33
ACZ_BIT_CLK
L23 *22uH_NC 402
C293 *27P/50V_NC
[32] ICH_AZ_CODEC_SYNC
R223 33
ACZ_SYNC
[23,32] ICH_AZ_CODEC_RST#
R213 33
ACZ_RST#
[32] ICH_AZ_CODEC_SDOUT
R217 33
ACZ_SDOUT
Place all series terms close to ICH9 except for SDIN input lines,which should be close to source.
[32] ICH_AZ_CODEC_SDIN0
T141 PAD
T142 PAD
T85 PAD
[30] SATA_ACT#
Master HDD
[28] SATA_RX0-
[28] SATA_RX0+
SATA_TX0- C
SATA_TX0+ C
SATA ODD
[28] SATA_RX1-
[28] SATA_RX1+
SATA_TX1- C
SATA_TX1+ C
[28] SATA_TX0-
[28] SATA_TX0+
C267 0.01U/16V
C263 0.01U/16V
SATA_TX0- C
SATA_TX0+ C
[28] SATA_TX1-
[28] SATA_TX1+
C274 0.01U/16V
C269 0.01U/16V
SATA_TX1- C
SATA_TX1+ C
LPC_LAD0 [23,26]
LPC_LAD1 [23,26]
LPC_LAD2 [23,26]
LPC_LAD3 [23,26]
LPC_LFRAME# [23,26]
PAD T89
PAD T150
SIO_A20GATE [23]
H_A20M# [3]
H_DPRSTP# [3,6,39]
H_DPSLP# [3]
H_FERR# [3]
H_PWRGOOD [3]
H_IGNNE# [3]
H_INIT# [3]
H_INTR [3]
SIO_RCIN# [23]
H_NMI [3]
H_SMI# [3]
H_STPCLK# [3]
H_THERMTRIP# [3,6]
PAD T117
PAD T71
PAD T74
PAD T76
PAD T75
CLK_PCIE_SATA# [17]
CLK_PCIE_SATA [17]
SATABIAS
24.9/F R347
Place within 500mils of ICH9 ball
+1.05V_VCCP
R325 *56_NC
R172 *56_NC
R324 56
H_DPRSTP#
H_DPSLP#
H_FERR#
+3.3V_RUN
R208 8.2K
R234 10K
SIO_A20GATE
SIO_RCIN#
+1.05V_VCCP
R161 56
H_THERMTRIP#
+3.3V_RUN
R218 *1K_NC
ACZ_SDOUT
ICH_RSVD [13]
R336 *1K_NC
XOR Chain Entrance Strap
ICH RSVD | ACZ_SDOUT | Description
0 | 0 | RSVD
0 | 1 | Enter XOR Chain
1 | 0 | Normal Operation (Default)
1 | 1 | Set PCIE port config bit 1
QUANTA COMPUTER
Title
ICH9-M (CPU,SATA,LPC,LAN,CODEC)
Size
Document Number
VM8M
Rev
1A
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Sheet 11 of 46

Place TX DC blocking caps close ICH9.

[26] PCIE_TX2-
[26] PCIE_TX2+
C227 1 2 0.1U 16 PCIE_TXN2_C
C228 1 2 0.1U 16 PCIE_TXP2_C

[21] PCIE_TX4-
[21] PCIE_TX4+
C276 1 2 0.1U 16 PCIE_TXN4_C
C275 1 2 0.1U 16 PCIE_TXP4_C

[33] PCIE_TX5-
[33] PCIE_TX5+
C2234 1 2 0.1U 16 PCIE_TXN5_C
C2237 1 2 0.1U 16 PCIE_TXP5_C

[34] PCIE_TX6-/GLAN_TX-
[34] PCIE_TX6+/GLAN_TX+
C229 1 2 0.1U 16 GLAN_TXN_C
C230 1 2 0.1U 16 GLAN_TXP_C

U19D

MiniWWAN
[26] PCIE_RX2-
[26] PCIE_RX2+
PCIE_TXN2_C
PCIE_TXP2_C

MiniWLAN

MiniWPAN
[21] PCIE_RX4-
[21] PCIE_RX4+
PCIE_TXN4_C
PCIE_TXP4_C

Express Card
[33] PCIE_RX5-
[33] PCIE_RX5+
PCIE_TXN5_C
PCIE_TXP5_C

1394+Cardreader
[34] PCIE_RX6-/GLAN_RX-
[34] PCIE_RX6+/GLAN_RX+
GLAN_TXN_C
GLAN_TXP_C

Giga Bit LOM

PCI-Express

Direct Media Interface

SPI

USB

DMI_CLKN
DMI_CLKP
CLK_PCIE_ICH# [17]
CLK_PCIE_ICH [17]

DMI_ZCOMP
DMI_IRCOMP
DMI_COMP
R322 24.9/F
+1.5V_PCIE_ICH

Place within 500mils of ICH9

T39 PAD
T44 PAD
T82 PAD
SPI_CLK_R
SPI_CS#0_R
ICH_SPI_CS1#_R
SPI_CLK
SPI_CS0#
SPI_CS1#/GPIO58/CLGPIO6

T40 PAD
T45 PAD
SPI_MOSI
SPI_MISO

[27] USB_OC0_1#
[33] USB_OC_3#
USB_OC0_1#
USB_OC_3#

R354 22.6/F
USBRBIAS
Places within 500 mils of the ICH9

ICH9M REV 1.0

Side Pair Left
Side Pair Left
Side Pair Right
Side Pair Right
Camera
Mini Card (WWAN)
Bluetooth
Express Card
Mini Card (WLAN)

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

RP39 10KX8
+3.3V_SUS
OC7# OC6# OC5# OC4# OC10# OC11#
OC9# USB_OC_3# USB_OC0_1# OC8#
R207 10K
R225 10K

PCI Pullups
RP37
RP38
+3.3V_RUN
PCI_FRAME# PCI_TRDY# PCI_DEVSEL# PCI_REQ1#
PCI_PLOCK# PCI_STOP# PCI_PIRQD# PCI_PERR#
PCI_IRDY# PCI_PIRQC# PCI_PIRQE# PCI_PIRQB#
PCI_PIRQA# PCI_REQ0# ICH_IRQH_GPIO5 PCI_SERR#
PCI_REQ2# R202 8.2K

GPIO3 R211 8.2K
GPIO4 R238 8.2K
GPIO54 R386 8.2K
BIOS should not enable the internal GPIO pull up resistor.

U19B

PCI
REQ0# GNT0# REQ1#/GPIO50 GNT1#/GPIO51 REQ2#/GPIO52 GNT2#/GPIO53 REQ3#/GPIO54 GNT3#/GPIO55
PCI_REQ0# PCI_GNT0# PCI_REQ1# PCI_GNT1# PCI_REQ2# PCI_GNT2# GPIO54 PCI_GNT3#
PAD T2080 PAD T86 PAD T73 PAD T77
C/BE0# C/BE1# C/BE2# C/BE3#
IRDY# PAR PCIRST# DEVSEL# PERR# PLOCK# SERR# STOP# TRDY# FRAME#
PCI_IRDY# PCI_DEVSEL# PCI_PERR# PCI_PLOCK# PCI_SERR# PCI_STOP# PCI_TRDY# PCI_FRAME#
PAD T88
PLTRST# PCICLK PME#
PLTRST# CLK_PCI_ICH
PLTRST# [6,21,23,26,33,34]
CLK_PCI_ICH [17]

Interrupt I/F
PIRQA# PIRQB# PIRQC# PIRQD#
PIRQE#/GPIO2 PIRQF#/GPIO3 PIRQG#/GPIO4 PIRQH#/GPIO5
PCI_PIRQA# PCI_PIRQB# PCI_PIRQC# PCI_PIRQD#
PCI_PIRQE# GPIO3 GPIO4 ICH_IRQH_GPIO5
PAD T93

ICH9M REV 1.0

CLK_PCI_ICH
R224 *10_NC
C306 *8.2P_NC
Reserved for EMI.Place resister and cap close to ICH.

QUANTA COMPUTER

Title	ICH9-M (USB,DMI,PCIE,PCI)		
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Non-iAMT

+3.3V_SUS
RP41
ICH_SMBDATA
ICH_SMBCLK
2.2KX2

Non-iAMT ASF 2.0

+3.3V_SUS
RP36
ICH_SMLINK0
ICH_SMLINK1
*10KX2_NC

ICH_SMBCLK R191 0 ICH_SMLINK0
ICH_SMBDATA R193 0 ICH_SMLINK1

Non-iAMT

+3.3V_SUS
R194 10K RSV_ICH_CL_RST1#
R197 10K ICH_RI#
R203 10K SIO_EXT_SCI#
R179 1K PCIE_WAKE#

+3.3V_RUN
R175 8.2K

U19C

[21] ICH_SMBCLK — ICH_SMBCLK G16
[21] ICH_SMBDATA — ICH_SMBDATA A13
T60 PAD — RSV_ICH_CL_RST1# F17
T58 PAD — ICH_SMLINK0 C17
T57 PAD — ICH_SMLINK1 B18
ICH_RI# F19
T81 PAD — RSV_LPCPD# R4
+3.3V_SUS — R24 1K — G19
[6] PM_BMBUSY# M6
[26] USB_MCARD1_DET# — USB_MCARD1_DET# A17
[17] H_STP_PCI# A14
[17] H_STP_CPU# E19
[23] CLKRUN# — CLKRUN# L4
[21,26,34] PCIE_WAKE# — PCIE_WAKE# E20
[23] IRQ_SERIRQ — IRQ_SERIRQ M5
[3] THERM_ALERT# — THERM_ALERT# AJ23
[23,39] IMVP_PWRGD — IMVP_PWRGD D21
T133 PAD A20
T51 PAD AG19
T129 PAD AH21
[23] SIO_EXT_WAKE# AG21
[23] SIO_EXT_SMI# — SIO_EXT_SMI# A21
[23] SIO_EXT_SCI# — SIO_EXT_SCI# C12
T135 PAD C21
T61 PAD AE18
[26] PCIE_MCARD1_DET# — PCIE_MCARD1_DET# — R235 4.7K — K1
T78 PAD AF8
T126 PAD AJ22
T128 PAD A9
T50 PAD D19
[17] SATA_CLKREQ# L1
T54 PAD AE19
T127 PAD AG22
T56 PAD AF21
T46 PAD AH24
T140 PAD A8
[32] SPKR — SPKR M7
[6] MCH_ICH_SYNC# — MCH_ICH_SYNC# R AJ24
[11] ICH_RSVD B21
T132 PAD — TP9 AH20
T131 PAD — TP10 AJ20
T130 PAD — TP11 AJ21

SMB
SATA GP10
Clocks
SYS GPIO
Power MGT
GPIO
Controller Link
MISC

SMBCLK
SMBDATA
LINKALERT#/GPIO60/CLGPIO3
SMLINK0
SMLINK1
RI#
SUS_STAT#/LPCPD#
SYS_RESET#
PMSYNC#/GPIO0
SMBALERT#/GPIO11
STP_PCI#/GPIO15
STP_CPU#/GPIO25
CLKRUN#/GPIO32
WAKE#
SERIRQ
THRM#
VRMPWRGD
TP8
TACH1/GPIO1
TACH2/GPIO6
TACH3/GPIO7
GPIO8
LANPHYPC/GPIO12
ENGDET/GPIO13
TACH0/GPIO17
GPIO18
GPIO20
SCLOCK/GPIO22
QRT_STATE0/GPIO27
QRT_STATE1/GPIO28
SATACLKREQ#/GPIO35
SLOAD/GPIO38
SDATAOUT0/GPIO39
SDATAOUT1/GPIO48
GPIO49
GPIO57/CLGPIO5
SPKR
MCH_SYNC#
TP3
TP9
TP10
TP11

SATA0GP/GPIO21 AH23
SATA1GP/GPIO19 AE19
SATA4GP/GPIO36 AE21
SATA5GP/GPIO37 AD20
CLK14 H1 — CLK_ICH_14M — CLK_ICH_14M [17]
CLK48 AF3 — CLK_ICH_48M — CLK_ICH_48M [17]
SUSCLK P1 — ICH_SUSCLK — PAD T146
SLP_S3# C16 — SIO_SLP_S3# [23]
SLP_S4# E16 — PAD T64
SLP_S5# G17 — SIO_SLP_S5# [23]
S4_STATE#/GPIO26 C10
PWROK G20 — PWROK [6,23]
DPRSLPVR — DPRSLPVR [6,39]
DPRSLPVR/GPIO16 M2
BATLOW# B13 — ICH_BATLOW# — R346 8.2K — +3.3V_SUS
PWRBTN# R3 — SIO_PWRBTN# [23]
LAN_RST# D20 — RSV_ICH_LAN_RST# — PAD T47
RSMRST# D22 — ICH_RSMRST# — ICH_RSMRST# [23]
CK_PWRGD R5 — CLK_PWRGD [17]
CLPWROK R6 — ICH_CL_PWROK — ICH_CL_PWROK [6,23]
SLP_M# B16 — PAD T137
CL_CLK0 F24
CL_CLK1 B19 — RSV_ICH_CL_CLK1 — PAD T52
CL_DATA0 F22 — CL_DATA0 [6]
CL_DATA1 C19 — RSV_ICH_CL_DATA1 — PAD T134
CL_VREF0 C25 — CL_VREF0
CL_VREF1 A19
CL_RST0# F21 — ICH_CL_RST0# [6]
CL_RST1# D18 — CL_RST1# — PAD T53
MEM_LED/GPIO24 A16 — RSV_GPIO24 — PAD T136
ALERT#/GPIO10 C18 — RSV_GPIO10 — PAD T49
NETDETECT/GPIO14 C11 — RSV_GPIO14 — PAD T72
WOL_EN/GPIO9 C20 — RSV_WOL_EN — PAD T48
R201 8.2K — +3.3V_SUS

ICH9M REV 1.0

Place these close to ICH9.

CLK_ICH_48M — R226 *10_NC — C309 *4.7P_NC — 50
CLK_ICH_14M — R721 *10_NC — C457 *4.7P_NC — 50

+3.3V_RUN
R237 8.2K
CLKRUN#
R236 *10_NC

Option to " Disable " clkrun. Pulling it down will keep the clks running.

Non-iAMT

PWROK R192 10K
DPRSLPVR R352 100K
ICH_RSMRST# R157 10K
RSV_ICH_LAN_RST# R176 10K
ICH_CL_PWROK R206 1M

+3.3V_SUS
RSV_GPIO10 R180 10K

+3.3V_RUN
R210 *1K_NC
SPKR

No Reboot strap.

SPKR	Low = Default. High = No Reboot.

+3.3V_RUN
R249 100K PCIE_MCARD1_DET#

+3.3V_RUN
R327 *10K_NC MCH_ICH_SYNC# R
R209 10K IRQ_SERIRQ
R328 10K THERM_ALERT#

+3.3V_SUS
R178 10K RSV_WOL_EN
R337 10K SIO_EXT_SMI#
R344 100K USB_MCARD1_DET#

SMbus address D2

Non-iAMT

These are for backdrive issue.

+3.3V_RUN
RP27 2.2KX2
[21] ICH_SMBDATA — Q19 2N7002W-7-F — SDATA [15,26]
+3.3V_RUN
[21] ICH_SMBCLK — Q18 2N7002W-7-F — SCLK [15,26]

Non-iAMT

+3.3V_RUN
R168 3.24K/F
CL_VREF0
C240 0.1U 16 402
R164 453/F

CL_VREF0/1 ~=0.405V

QUANTA COMPUTER

Title	ICH9-M (PM,GPIO,SMB,CL)	
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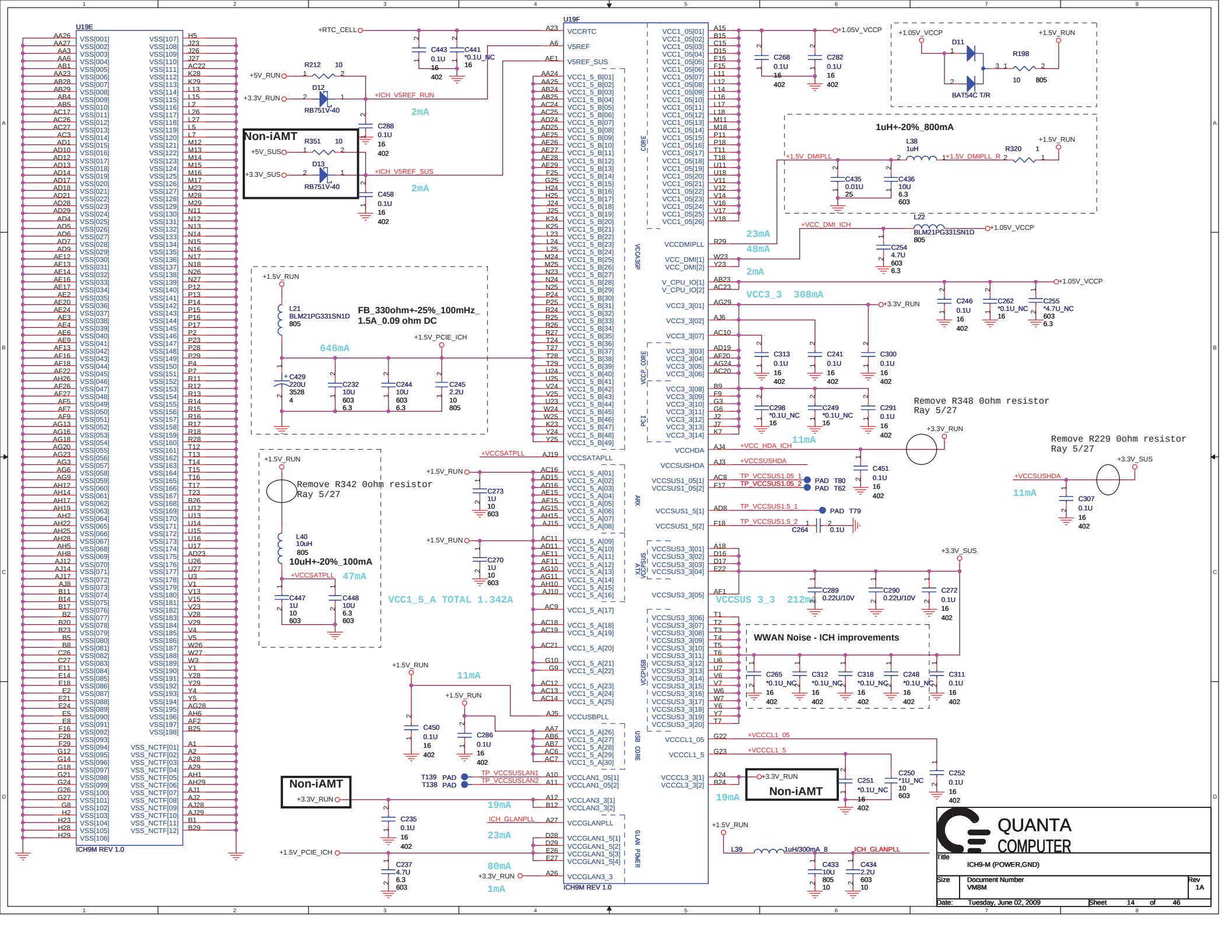
U19E
ICH9M REV 1.0
U19F
ICH9M REV 1.0
Non-iAMT
R212 10
D12
RB751V-40
+5V_RUN
+3.3V_RUN
+ICH_V5REF_RUN
2mA
C288 0.1U 16 402
C458 0.1U 16 402
C443 0.1U 16 402
C441 *0.1U_NC 16
+RTC_CELL
Non-iAMT
R351 10
D13
RB751V-40
+5V_SUS
+3.3V_SUS
+ICH_V5REF_SUS
2mA
L21 BLM21PG331SN1D 805
FB_330ohm+-25%_100mHz_ 1.5A_0.09 ohm DC
646mA
+1.5V_PCIE_ICH
C429 220U 3528 4
C232 10U 603 6.3
C244 10U 603 6.3
C245 2.2U 10 805
Remove R342 0ohm resistor
Ray 5/27
L40 10uH 805
10uH+-20%_100mA
47mA
C447 1U 10 603
C448 10U 6.3 603
VCC1_5_A TOTAL 1.342A
C273 1U 10 603
C270 1U 10 603
11mA
C450 0.1U 16 402
C286 0.1U 16 402
Non-iAMT
C235 0.1U 16 402
C237 4.7U 6.3 603
19mA
23mA
80mA
1mA
T139 PAD
T138 PAD
TP_VCCSUSLAN1
TP_VCCSUSLAN2
ICH_GLANPLL
C268 0.1U 16 402
C282 0.1U 16 402
+1.05V_VCCP
D11
BAT54C T/R
R198 10 805
1uH+-20%_800mA
L38 1uH
C435 0.01U 25
C436 10U 6.3 603
+1.5V_DMIPLL
+1.5V_DMIPLL_R
R320
23mA
48mA
2mA
+VCC_DMI_ICH
L22 BLM21PG331SN1D 805
C254 4.7U 603 6.3
VCC3_3 308mA
C246 0.1U 16 402
C262 *0.1U_NC 16
C255 *4.7U_NC 603 6.3
C313 0.1U 16 402
C241 0.1U 16 402
C300 0.1U 16 402
C298 *0.1U_NC 16
C249 *0.1U_NC 16
C291 0.1U 16 402
Remove R348 0ohm resistor
Ray 5/27
11mA
C451 0.1U 16 402
TP_VCCSUS1.05_1
TP_VCCSUS1.05_2
PAD T80
PAD T62
TP_VCCSUS1.5_1
PAD T79
TP_VCCSUS1.5_2
C264 0.1U
Remove R229 0ohm resistor
Ray 5/27
C307 0.1U 16 402
C289 0.22U/10V
C290 0.22U/10V
C272 0.1U 16 402
VCCSUS 3_3 212mA
WWAN Noise - ICH improvements
C265 *0.1U_NC 16 402
C312 *0.1U_NC 16 402
C318 *0.1U_NC 16 402
C248 *0.1U_NC 16 402
C311 0.1U 16 402
Non-iAMT
C251 *0.1U_NC 16
C250 *1U_NC 10 603
C252 0.1U 16 402
19mA
L39 1uH/300mA_8
C433 10U 805 10
C434 2.2U 603 10
QUANTA COMPUTER
Title ICH9-M (POWER,GND)
Size Document Number VM8M Rev 1A
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A is required to route to Top SoDIMM for AMTto function. Ch.A SODIMM needs to be populated for Intel AMT support.

PC4800 DDR2 SDRAM SO-DIMM (200P)

CN3

DDR2_SODIMM

SMbus address A0

CLOCK 0,1
CKE 0,1

Non-iAMT

CN2

2-1734073-2

SMbus address A4

CLOCK 2,3
CKE 2,3

Non-iAMT

Non-iAMT

Non-iAMT

Place these Caps near So-Dimm1.

Place these Caps near So-Dimm2.

Place these Caps near So-Dimm1.

Place these Caps near So-Dimm2.

QUANTA COMPUTER

Title	DDR2 SO-DIMM (200P) X 2	
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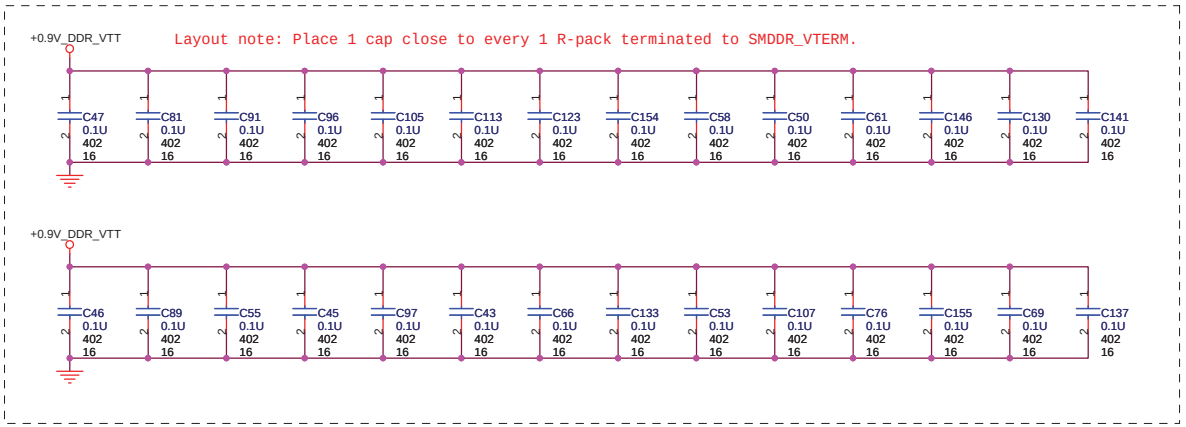

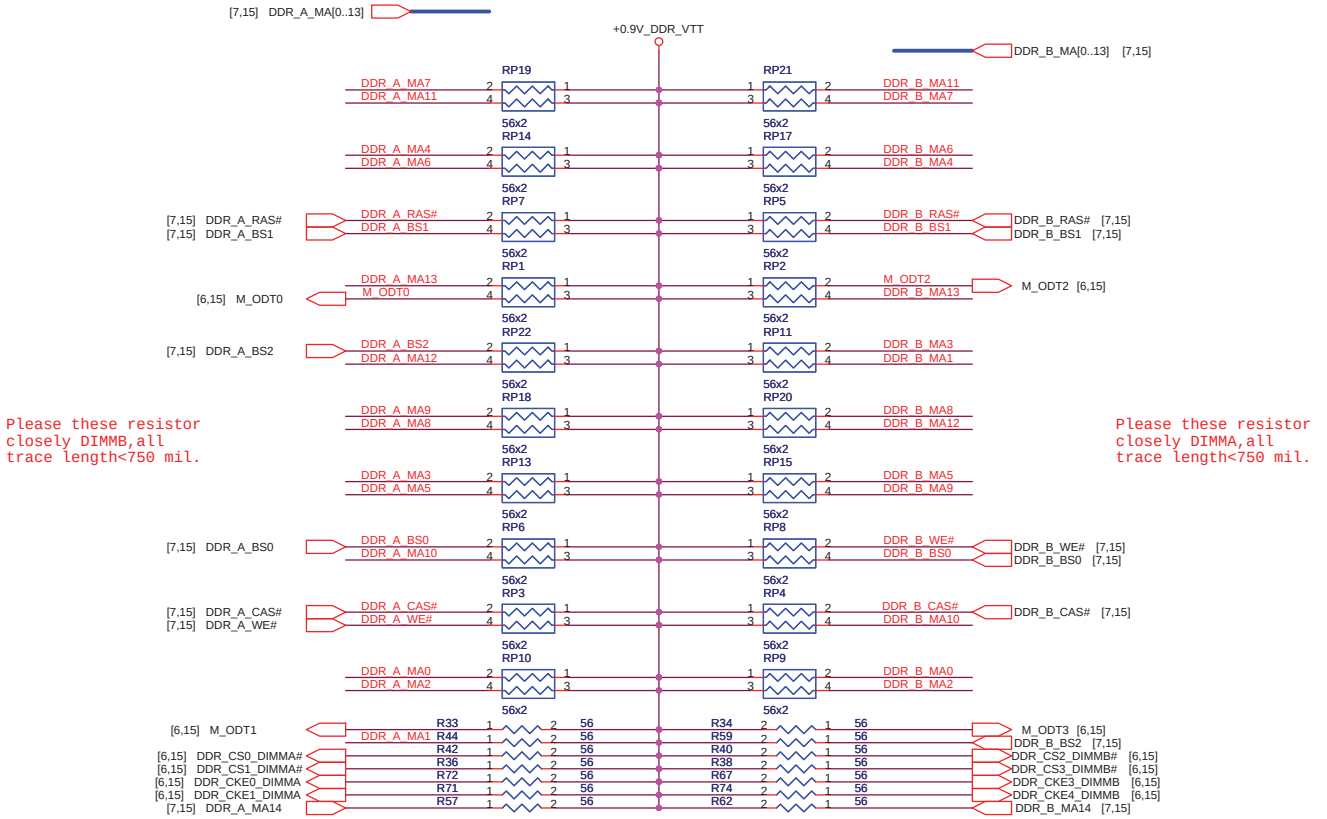

Please these resistor closely DIMMB,all trace length<750 mil.

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

QUANTA COMPUTER

Title	DDR2 RES ARRAY	
Size	Document Number VM8M	Rev 1A
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Add capacitor pads for improving WWAN.

C224 20P 50 FSA
C194 *27P_NC 50 FSC
C206 *27P_NC 50 PCI_SIO
C216 *27P_NC 50 PCI_ICH

Y1 14.318MHZ
CLK_XTAL_IN CLK_XTAL_OUT
C187 33P 50
C188 33P 50
14.318MHz

U4
CK505
QFN64
SLG8SP513V

+CK_VDD_PCI +CK_VDD_PLL3 +CK_VDD_48 +CK_VDD_SRC +CK_VDD_MAIN
VDD_PCI VDD_REF VDD_PLL3 VDD_48 VDD_SRC VDD_CPU VDD_IO VDD_IO VDD_IO VDD_IO VDD_IO VDD_IO
GND GND GND GND GND GND GND GND GND GND

CPU-0 CPU-0# RP23 CLK_CPU_BCLK [3] CLK_CPU_BCLK# [3]
CPU-1 CPU-1# RP24 CLK_MCH_BCLK [5] CLK_MCH_BCLK# [5]
SRC-8/CPU_ITP SRC-8#/CPU_ITP# RP25 CLK_PCIE_MINI1 [26] CLK_PCIE_MINI1# [26]
SRC-0/DOT96 SRC-0#/DOT96# RP31 MCH_DREFCLK [6] MCH_DREFCLK# [6]
SRC-1/SE1 SRC-1#/SE2 RP32 DREF_SSCLK [6] DREF_SSCLK# [6]
SRC-2/SATA SRC-2#/SATA# RP33 CLK_PCIE_SATA [11] CLK_PCIE_SATA# [11]
CR#_C/SRC-3 CR#_D/SRC-3# RP40 CLK_PCIE_CARD [33] CLK_PCIE_CARD# [33]
SRC-4 SRC-4# RP30 CLK_MCH_3GPLL [6] CLK_MCH_3GPLL# [6]
PCI_STOP#/SRC-5 CPU_STOP#/SRC5-5# H_STP_PCI# [13] H_STP_CPU# [13]
SRC-6 SRC-6# RP43 CLK_PCIE_EXPCARD [21] CLK_PCIE_EXPCARD# [21]
CR#_F/SRC-7 CR#_E/SRC-7# R108 475/F MINI1CLK_REQ# R199 475/F CARD_CLK_REQ# MINI1CLK_REQ# [26] CARD_CLK_REQ# [21]
SRC-9 SRC-9#
SRC-10 SRC-10# RP28 CLK_PCIE_ICH [12] CLK_PCIE_ICH# [12]
CR#_H/SRC-11 CR#_G/SRC-11# RP29 CLK_PCIE_LOM [34] CLK_PCIE_LOM# [34]
GND

CR#_A/PCI-0 CR_B/PCI-1 TME/PCI-2 SRC5_EN/PCI-3 27M_SEL/PCI-4 ITP_EN/PCIF-5#
FSA/USB48 FSB/TEST_MODE FSC/TEST_SEL/REF
RESET# CK_PWRGD/PD#
XOUT XIN
SDATA SCLK

[13] SATA_CLKREQ# SATA_CLKREQ# R118 475/F
[6] CLK_3GPLLREQ# CLK_3GPLLREQ# R121 475/F
[26] CLK_LPC_DEBUG CLK_LPC_DEBUG R131 33
[23] CLK_PCI_8512 CLK_PCI_8512 R127 33 PCI_SIO
[12] CLK_PCI_ICH CLK_PCI_ICH R138 33 27M_SEL
[13] CLK_ICH_48M CLK_ICH_48M R143 33 PCI_ICH
[3,6] CPU_MCH_BSEL0 R145 2.2K FSA
[3,6] CPU_MCH_BSEL1 FSB
[3,6] CPU_MCH_BSEL2 R116 10K FSC
[13] CLK_ICH_14M CLK_ICH_14M R114 33
[13] CLK_PWRGD
CLK_XTAL_OUT CLK_XTAL_IN
[3,18,23] SMBDAT1 [3,18,23] SMBCLK1

Remove R107 0ohm
Ray 5/27

CLK_LPC_DEBUG
C205 33P 50
EMI 4/3

+3.3V_RUN
CLK_3GPLLREQ# R122 10K
SATA_CLKREQ# R119 10K
MINI1CLK_REQ# R109 10K

+3.3V_RUN
H_STP_PCI# R111 10K
H_STP_CPU# R112 10K

+3.3V_RUN
R142 *10K_NC
PCI_ICH
R135 10K

PCI_SIO R130 *10K_NC

UMA without iAMT

+3.3V_RUN
L16 BLM21PG600SN1D 805 120 ohms@100Mhz +CK_VDD_MAIN
C215 0.1U 402 16
C213 0.1U 402 16
C207 0.1U 402 16
C195 0.1U 402 16
C178 0.1U 402 16
C182 0.1U 402 16
C211 *10U_NC 603 6.3
L17 BLM21PG600SN1D 805 120 ohms@100Mhz
R113 2.2 +CK_VDD_PCI
C199 0.1U 402 16
R136 2.2 +CK_VDD_PLL3
C214 0.1U 402 16
R140 2.2 +CK_VDD_48
C210 0.1U 402 16
C212 4.7U 603 6.3
R317 2.2 +CK_VDD_SRC
C180 0.1U 402 16

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

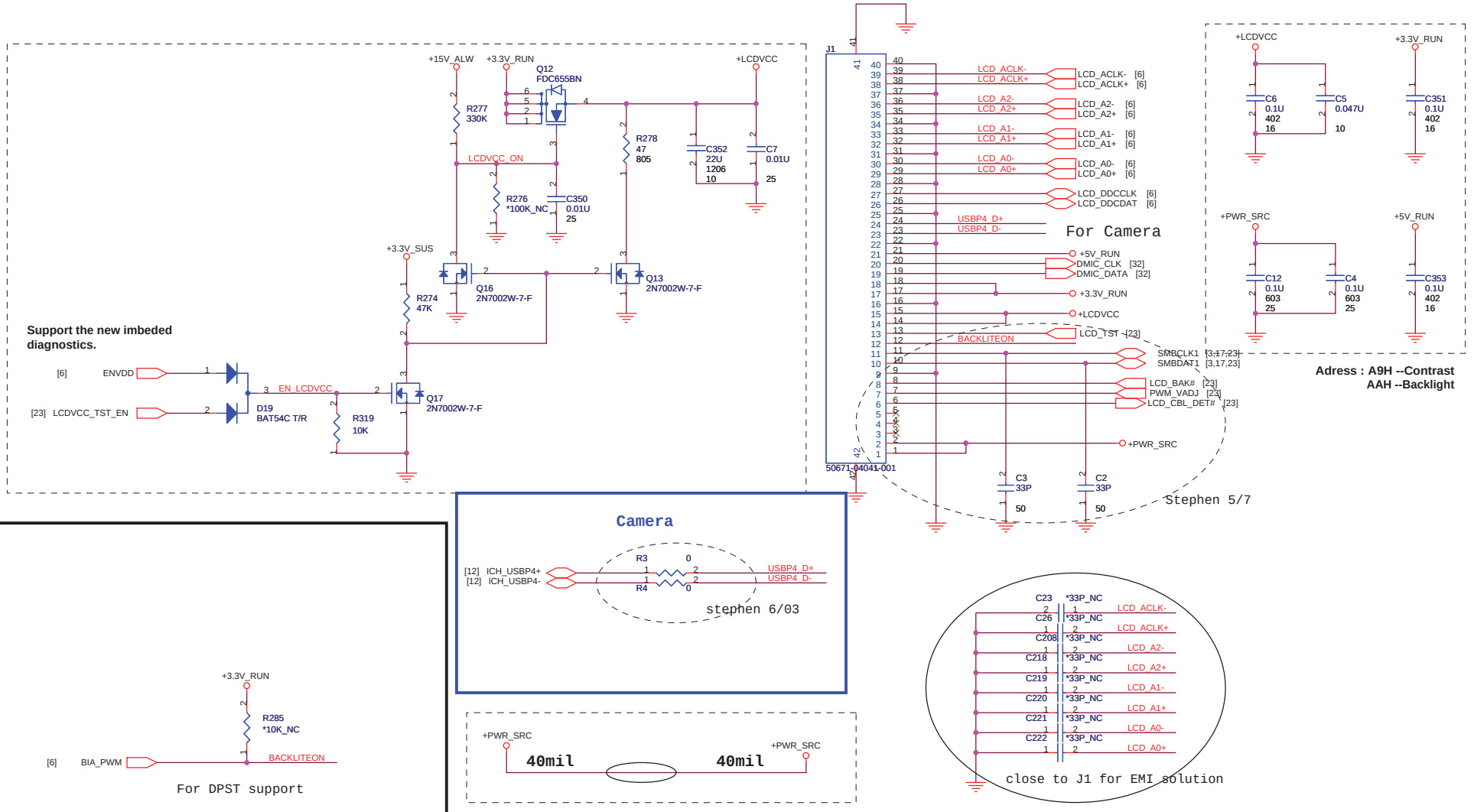
27M_SEL
R132 10K

27M_SEL

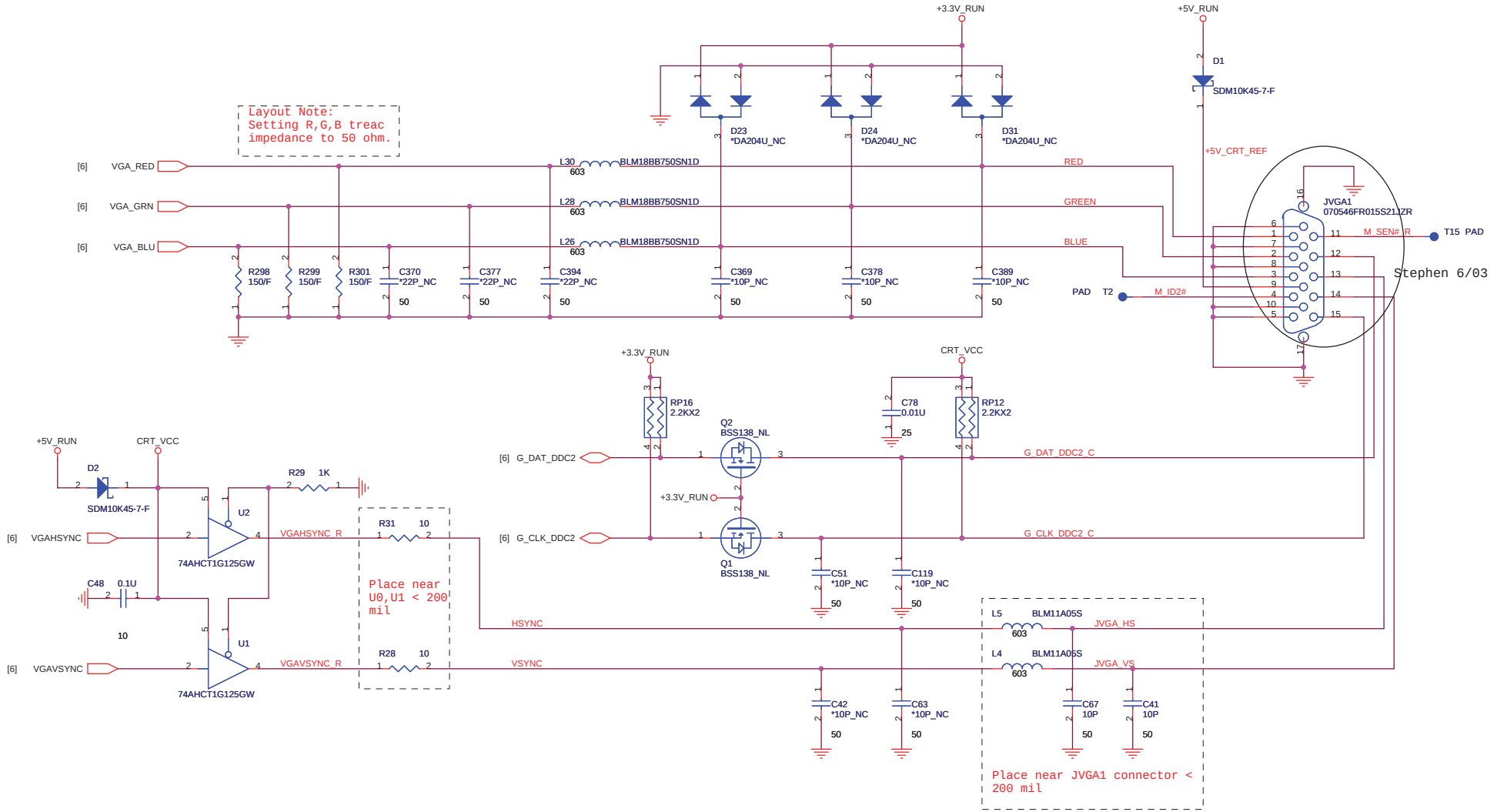
27M_SEL (PIN13)	PIN20	PIN21	PIN24	PIN25
0=UMA	DOT96T	DOT96C	96/ 100M_T	96/ 100M_C
1 = Disc. GRFX down	SRCT0	SRCC0	27Mout	27MSSout

QUANTA COMPUTER

Title	CLOCK GENERATOR	
Size	Document Number VM8M	Rev 1A
Date: Saturday, June 06, 2009	Sheet 17 of 46	



QUANTA COMPUTER		
Title	LCD CONN & CK-SSCD	
Size	Document Number VM8M	Rev 1A
Date: Wednesday, June 03, 2009	Sheet 18 of 46	



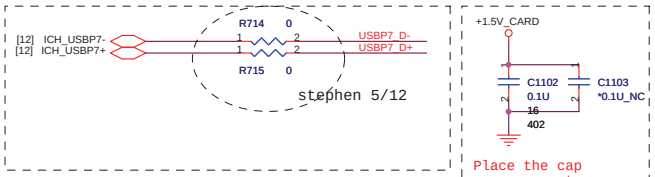
QUANTA COMPUTER

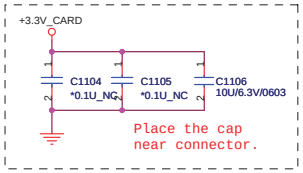
Title	CRT&TV CONN	
Size	Document Number VM8M	Rev 1A
Date: Saturday, June 06, 2009	Sheet 19 of 46	

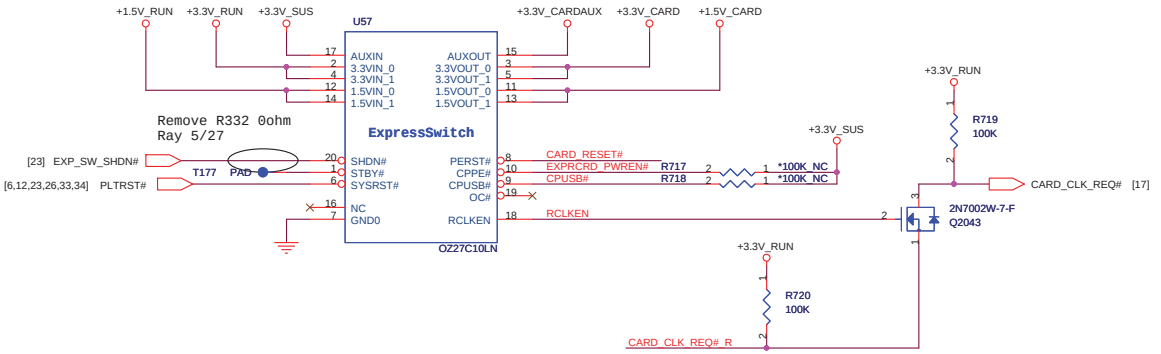
QUANTA COMPUTER

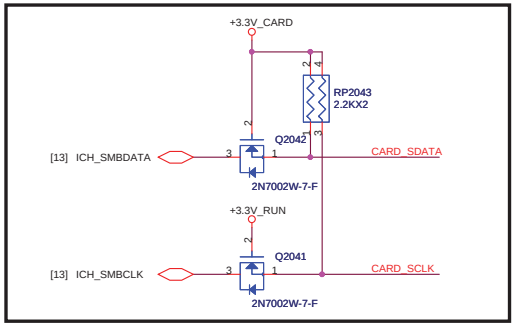
Title	Card Reader-RTS5158E	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 20 of 46	

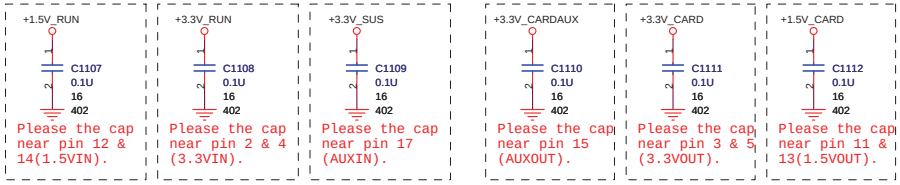
+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.



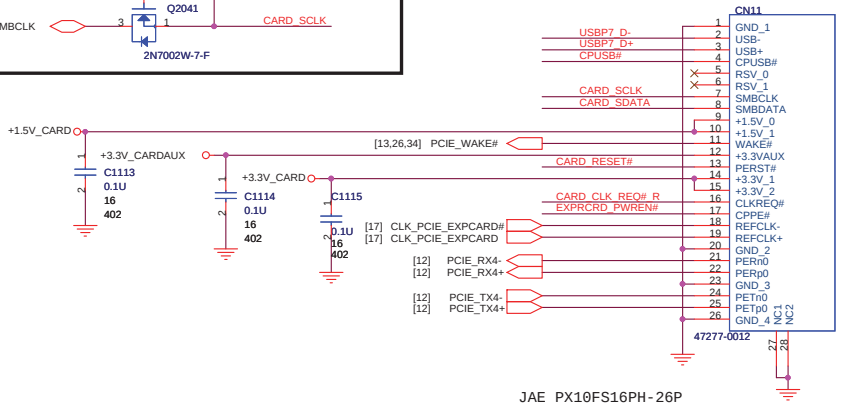








Express Card



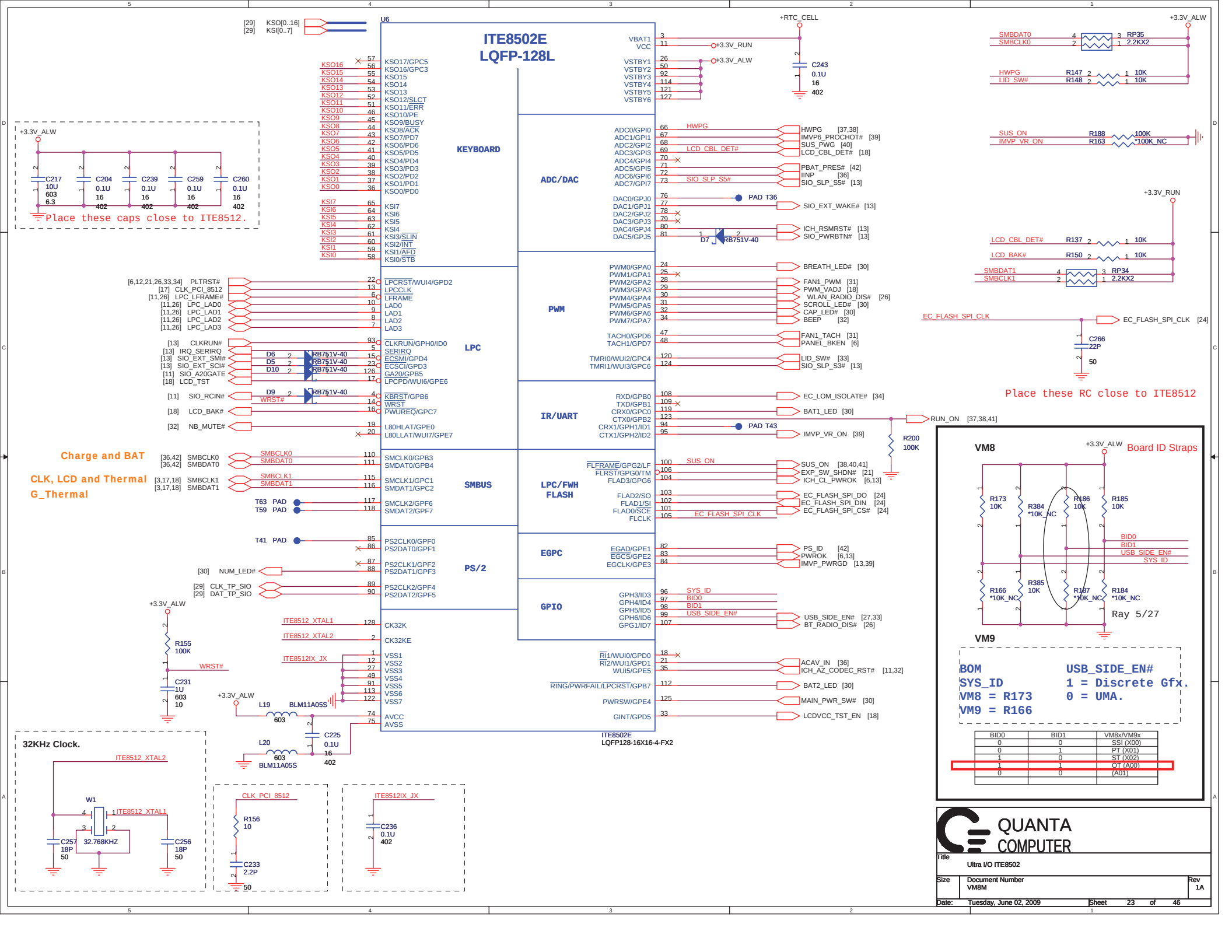
JAE PX10FS16PH-26P

Express Card cage

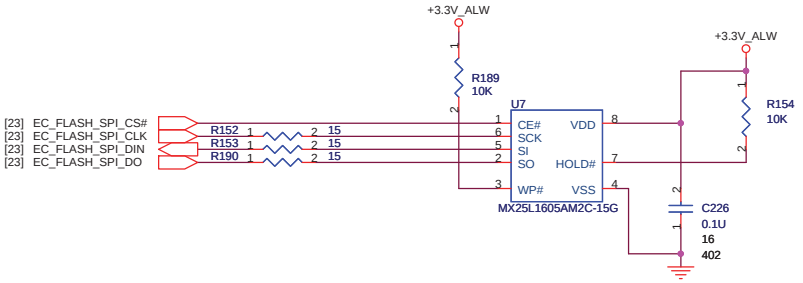
QUANTA COMPUTER		
Title: Express Card		
Size	Document Number: VM8M	Rev: 1A
Date: Tuesday, June 02, 2009	Sheet 21 of 46	

QUANTA COMPUTER

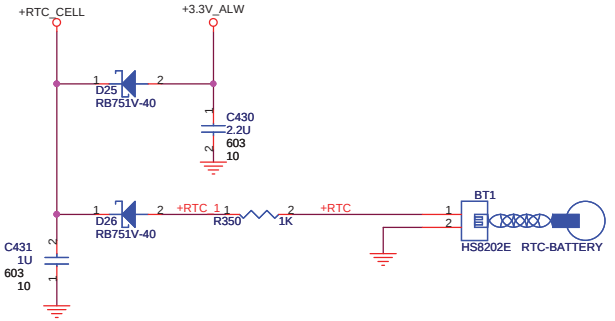
Title	black	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 22 of 46	


ITE8502E
LQFP-128L
U6
KEYBOARD
ADC/DAC
LPC
PWM
IR/UART
SMBUS
LPC/FWH FLASH
EGPC
PS/2
GPIO
Place these caps close to ITE8512.
Place these RC close to ITE8512
Charge and BAT
CLK, LCD and Thermal
G_Thermal
32KHz Clock.
Board ID Straps
VM8
VM9
Ray 5/27
BOM
SYS_ID
VM8 = R173
VM9 = R166
USB_SIDE_EN#
1 = Discrete Gfx.
0 = UMA.
BID0 BID1 VM8x/VM9x
0 0 SSI (X00)
0 1 PT (X01)
1 0 ST (X02)
1 1 OT (A00)
0 0 (A01)
QUANTA COMPUTER
Title Ultra I/O ITE8502
Size Document Number VM8M Rev 1A
Date: Tuesday, June 02, 2009 Sheet 23 of 46

16Mbit (2M Byte), SPI



RTC BATTERY



QUANTA COMPUTER

Title	Ultra I/O Controller ECE5028	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 24 of 46	

QUANTA COMPUTER

Title	Black	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 25 of 46	

MiniCard WLAN connector

+3.3V_RUN — Remove R349 0ohm Ray 6/1 — +3.3V_RUN

USBP8 D+ / USBP8 D- — R243 0 / R242 0 — ICH_USBP8+ [12] / ICH_USBP8- [12]

Remove L24 Stephen 6/8

Remove R248,R247,R246,R245,R244 0ohm Ray 5/27

FOR DEBUG CARD

J6 — 88907-5204

[13,21,34] PCIE_WAKE#		1	WAKE#	+3.3V	2	
COEX2_WLAN_ACTIVE		3	Reserved	GND	4	
COEX1_BT_ACTIVE_MINI		5	Reserved	+1.5V	6	
[17] MINI1CLK_REQ#	MINI1CLK_REQ#	7	CLKREQ#	Reserved	8	LPC_LFRAME# [11,23]
		9	GND	Reserved	10	LPC_LAD3 [11,23]
[17] CLK_PCIE_MINI1#		11	REFCLK-	Reserved	12	LPC_LAD2 [11,23]
[17] CLK_PCIE_MINI1		13	REFCLK+	Reserved	14	LPC_LAD1 [11,23]
		15	GND	Reserved	16	LPC_LAD0 [11,23]
[6,12,21,23,33,34] PLTRST#		17	Reserved	GND	18	PLTRST# [6,12,21,23,33,34]
[17] CLK_LPC_DEBUG		19	Reserved	Reserved	20	
		21	GND	PERST#	22	WLAN_RADIO_OFF#
[12] PCIE_RX2-		23	PERn0	+3.3Vaux	24	
[12] PCIE_RX2+		25	PERp0	GND	26	+3.3V_RUN
		27	GND	+1.5V	28	
PCI-Express TX and RX direct to connector		29	GND	SMB_CLK	30	WLAN_SMBCLK
[12] PCIE_TX2-		31	PETn0	SMB_DATA	32	WLAN_SMBDATA
[12] PCIE_TX2+		33	PETp0	GND	34	
		35	GND	USB_D-	36	USBP8 D-
[13] PCIE_MCARD1_DET#		37	Reserved	USB_D+	38	USBP8 D+
		39	Reserved	GND	40	USB_MCARD1_DET# [13]
		41	Reserved	LED_WWAN#	42	
		43	Reserved	LED_WLAN#	44	LED_WLAN_OUT# [30]
		45	Reserved	LED_WPAN#	46	
		47	Reserved	+1.5V	48	
		49	Reserved	GND	50	
		51	Reserved	+3.3V	52	

Remove R359,R360 0ohm Ray 5/27

Remove R251 0ohm Ray 5/27

Non-iAMT: T154 PAD, T153 PAD, T152 PAD

WLAN_SMBCLK — SCLK [13,15]

WLAN_SMBDATA — SDATA [13,15]

MINI1CLK_REQ# — C465 220P 50

+1.5V_RUN: C459 0.047U 10; C461 0.047U 10

+3.3V_RUN: C321 0.1U 16 402; C460 0.047U 10; C462 0.1U 16 402; C466 0.047U 10; C467 4.7U 805 10; C464 *220U_NC 3528 4

Place caps close to connector.

Suport for WoW

WLAN_RADIO_OFF# — D14 RB751V-40 — WLAN_RADIO_DIS# [23]

Prevent backdrive when WoW is enabled.

Bluetooth

+3.3V_RUN

J4 — 87213-1000G

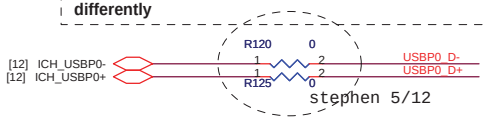
		1	GND	Activity LED	2	BT_LED [30]
		3	3.3V(Logic)	COEX2	4	COEX2_WLAN_ACTIVE
[23] BT_RADIO_DIS#		5	Radio Enable/Disable#	COEX1	6	COEX1_BT_ACTIVE_MINI
PAD T92		7	RSVD	USB-	8	ICH_USBP6- [12]
[12] ICH_USBP6+		9	USB+	GND	10	

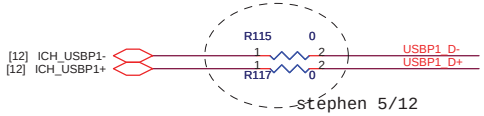
C463 0.1U 16 402; C455 100P 50; R353 10K; C456 33P 50; C453 *0.1U_NC 16 402

QUANTA COMPUTER

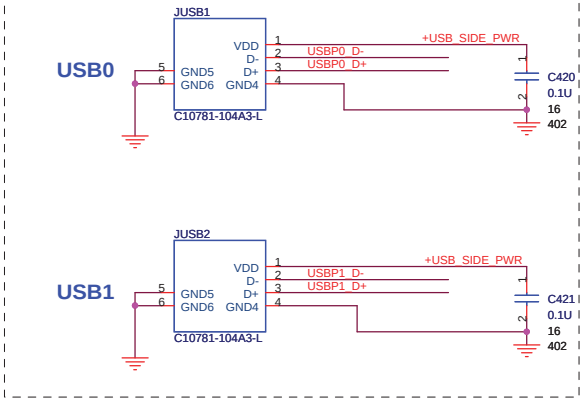
Title	MDC CONN.		
Size	Document Number VM8M		Rev 1A
Date:	Monday, June 08, 2009	Sheet 26 of 46	

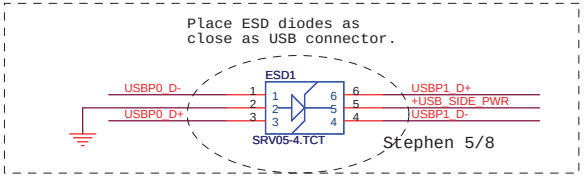
External USB PORT hookup reference. Your design may need more or less external ports and may be mapped differently

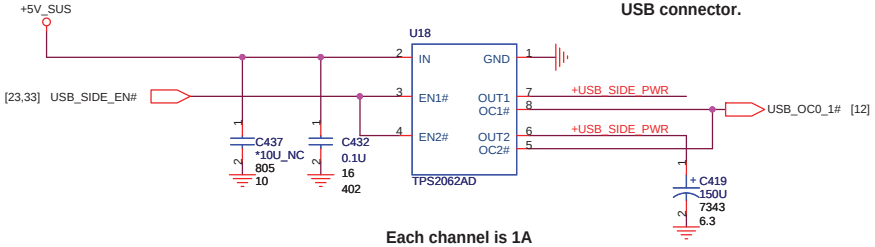




Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.

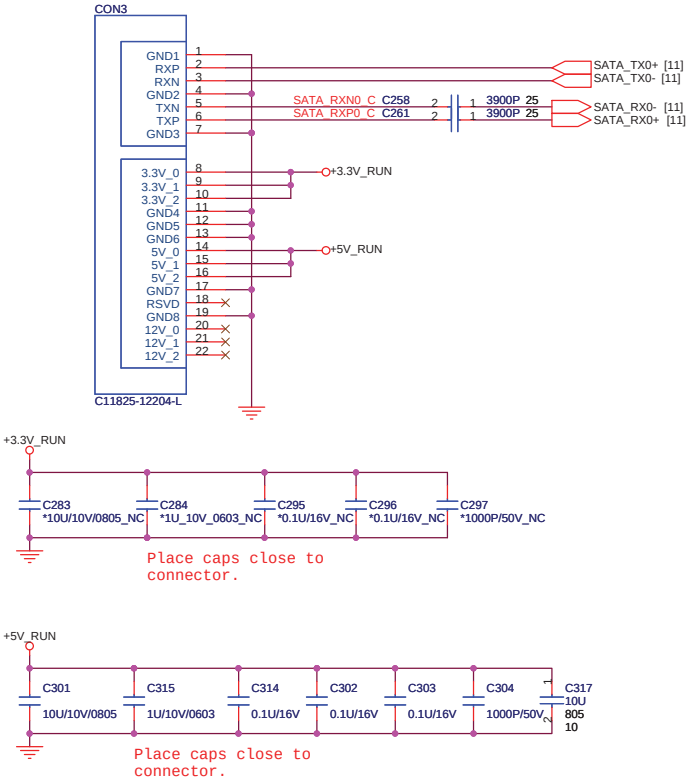






Title	SERIAL PORT & USB	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 27 of 46	

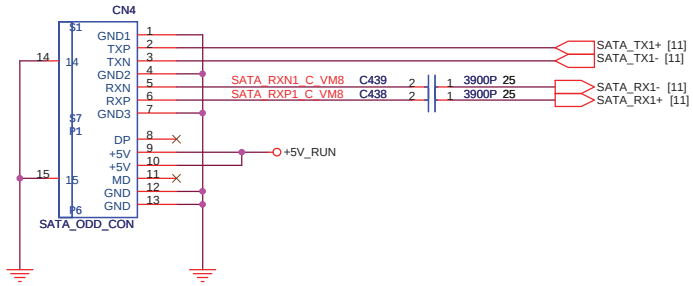
SATA HDD Connector.

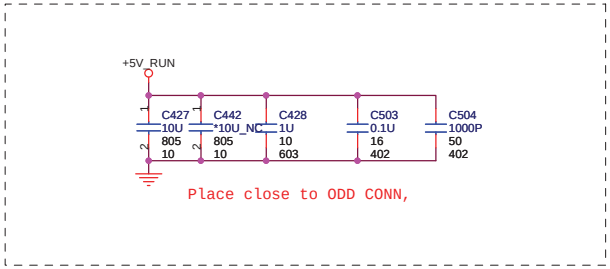


Place caps close to connector.

Place caps close to connector.

SATA ODD Connector.

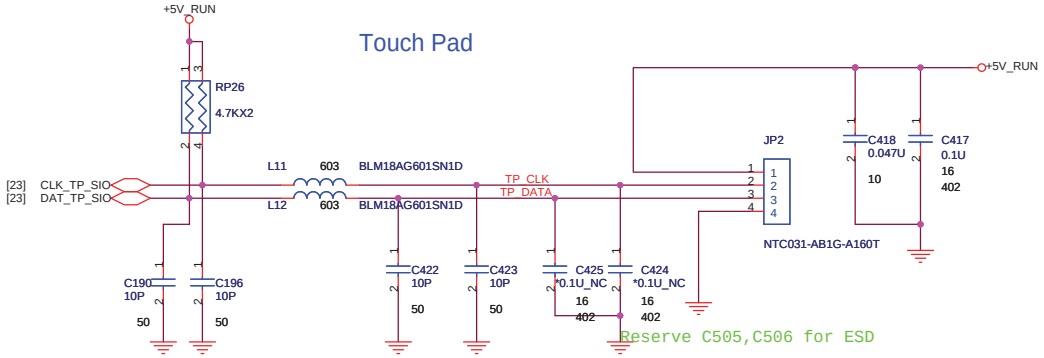




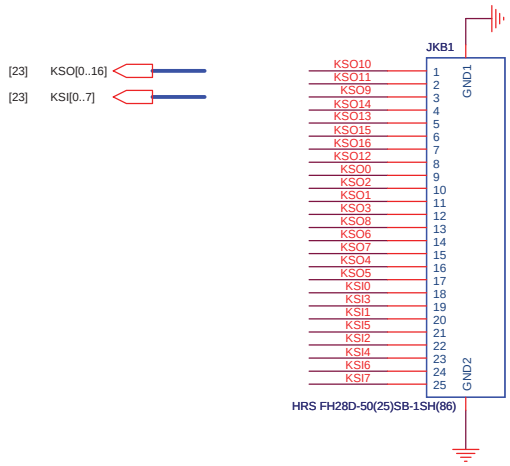
Place close to ODD CONN,

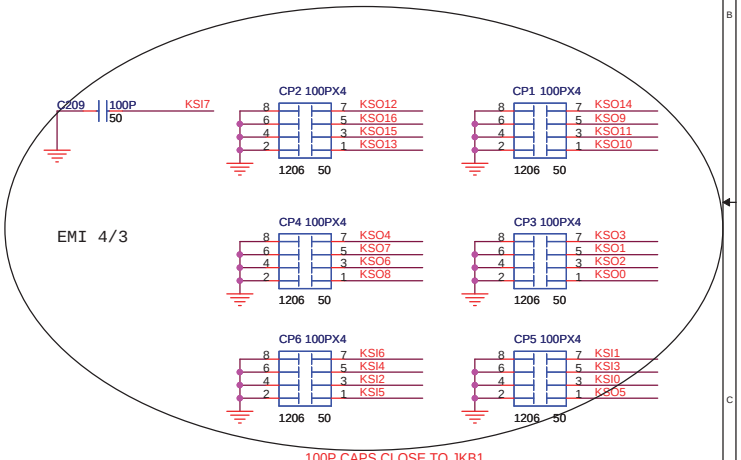
QUANTA COMPUTER		
Title: SATA (HDD&CD_ROM)		
Size	Document Number: VM8M	Rev: 1A
Date: Tuesday, June 02, 2009	Sheet 28 of 46	

Touch Pad



KEYBOARD CONNECTOR

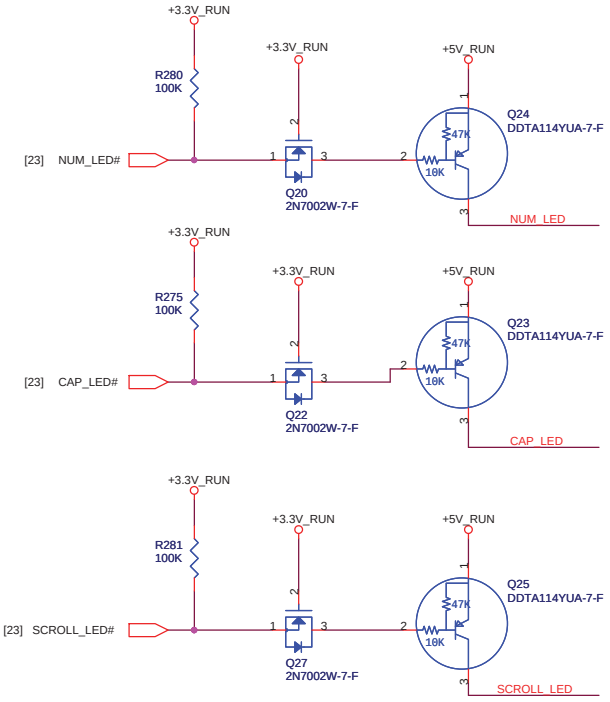




QUANTA COMPUTER

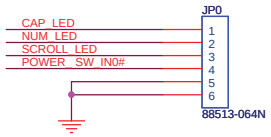
Title	TOUCH PAD, BULE TOOTH & FIR	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 29 of 46	

Keyboard LED

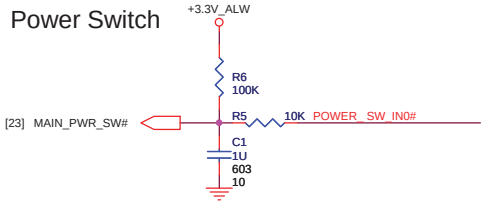


Dash board connector

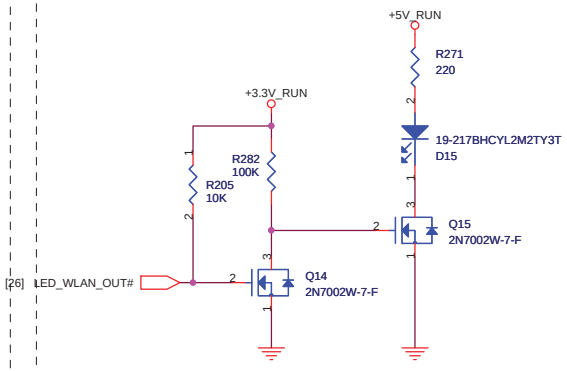
Keyboard LED



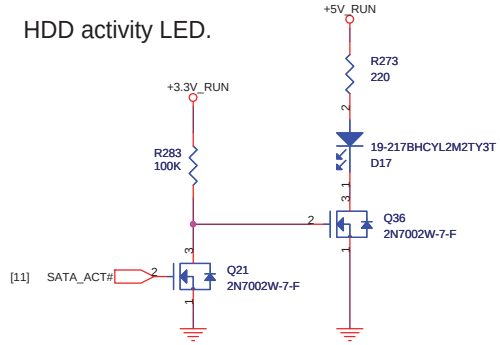
Power Switch



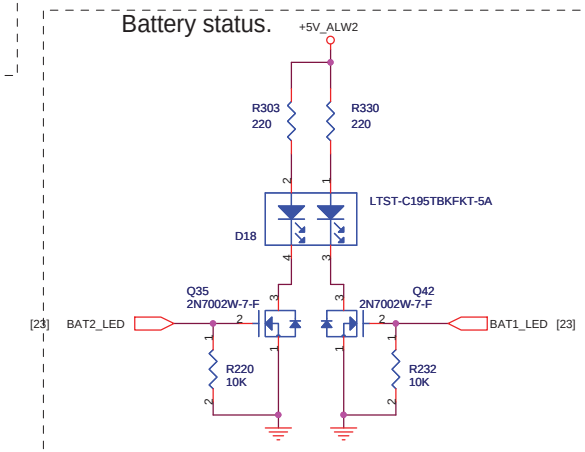
WLAN



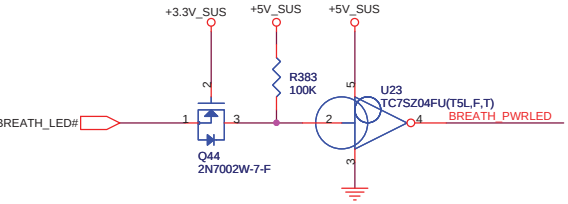
HDD activity LED.



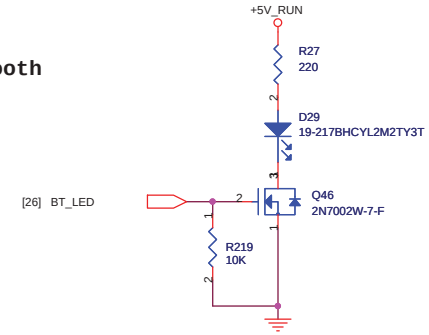
Battery status.



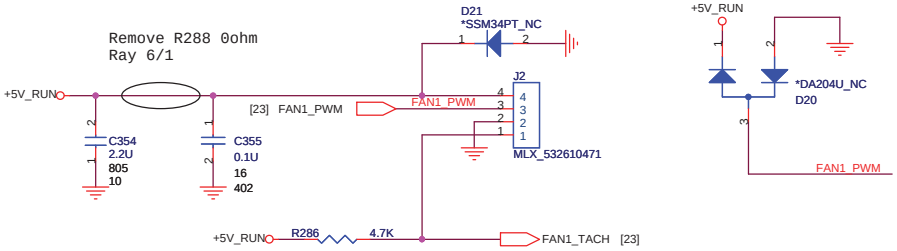
Power & Suspend.



Bluetooth

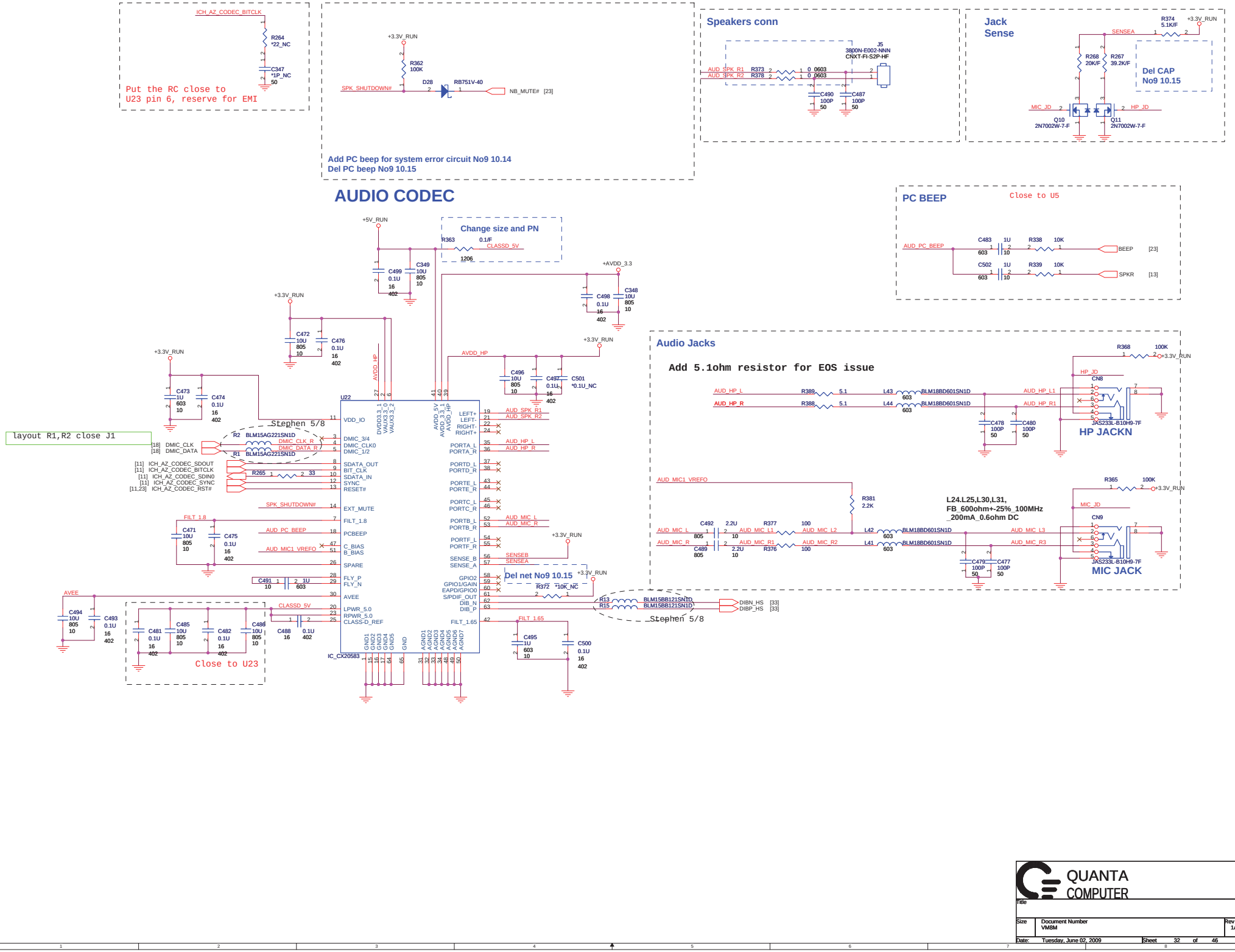


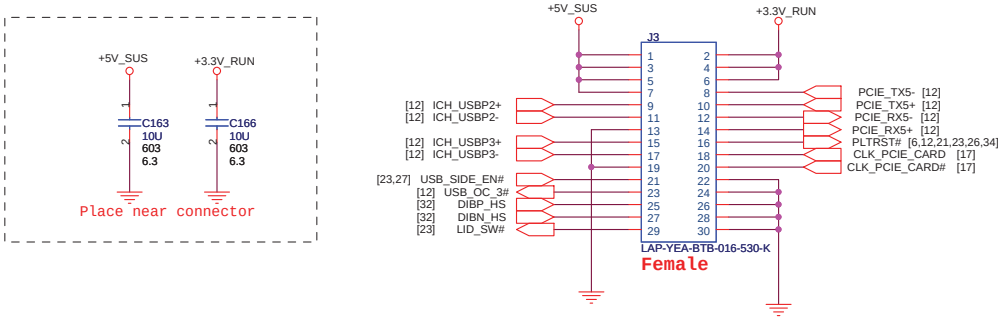
QUANTA COMPUTER		
Title: SWITCH, KEYBOARD & LED		
Size	Document Number: VM8M	Rev: 1A
Date: Tuesday, June 02, 2009	Sheet 30 of 46	



QUANTA COMPUTER

Title	FAN & THERMAL	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 31 of 46	

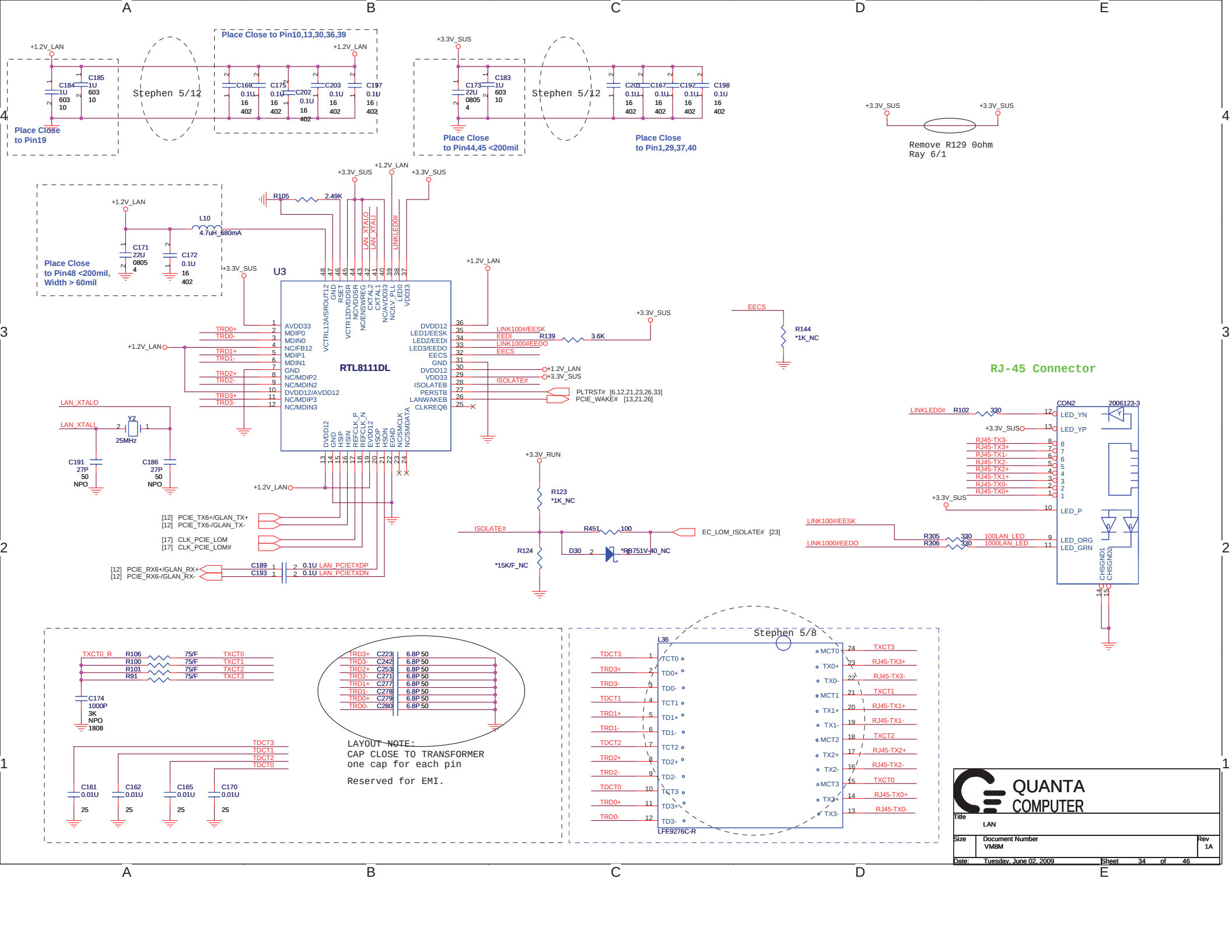

ICH_AZ_CODEC_BITCLK
R264 *22_NC
C347 *1P_NC 50
Put the RC close to U23 pin 6, reserve for EMI
+3.3V_RUN
R362 100K
SPK_SHUTDOWN#
D28
RB751V-40
NB_MUTE# [23]
Add PC beep for system error circuit No9 10.14
Del PC beep No9 10.15
Speakers conn
J5 3800N-E002-NNN CNXT-FI-S2P-HF
AUD_SPK_R1
AUD_SPK_R2
R373
R378
C490 100P 50
C487 100P 50
Jack Sense
R374 5.1K/F
SENSEA
R268 20K/F
R267 39.2K/F
Del CAP No9 10.15
MIC_JD
HP_JD
Q10 2N7002W-7-F
Q11 2N7002W-7-F
AUDIO CODEC
PC BEEP
Close to U5
AUD_PC_BEEP
C483 1U 10
R338 10K
BEEP [23]
C502 1U 10
R339 10K
SPKR [13]
+5V_RUN
Change size and PN
R363 0.1/F
CLASSD_5V
1206
C499 0.1U 16 402
C349 10U 805 10
+AVDD_3.3
C498 0.1U 16 402
C348 10U 805 10
+3.3V_RUN
C472 10U 805 10
C476 0.1U 16 402
AVDD_HP
C496 10U 805 10
C497 0.1U 16 402
C501 *0.1U_NC
C473 1U 603 10
C474 0.1U 16 402
Stephen 5/8
layout R1,R2 close J1
R2 BLM15AG221SN1D
R1 BLM15AG221SN1D
[18] DMIC_CLK
[18] DMIC_DATA
DMIC_CLK_R
DMIC_DATA_R
[11] ICH_AZ_CODEC_SDOUT
[11] ICH_AZ_CODEC_BITCLK
[11] ICH_AZ_CODEC_SDIN0
[11] ICH_AZ_CODEC_SYNC
[11,23] ICH_AZ_CODEC_RST#
R265 33
SPK_SHUTDOWN#
FILT_1.8
C471 10U 805 10
C475 0.1U 16 402
AUD_PC_BEEP
AUD_MIC1_VREFO
C491 1U 603
AVEE
C494 10U 805 10
C493 0.1U 16 402
C481 0.1U 16 402
C485 10U 805 10
C482 0.1U 16 402
C486 10U 805 10
C488 16
0.1U 402
Close to U23
CLASSD_5V
U22
VDD_IO
DMIC_3/4
DMIC_CLK0
DMIC_1/2
SDATA_OUT
BIT_CLK
SDATA_IN
SYNC
RESET#
EXT_MUTE
FILT_1.8
PCBEEP
C_BIAS
B_BIAS
SPARE
FLY_P
FLY_N
AVEE
LPWR_5.0
RPWR_5.0
CLASS-D_REF
IC_CX20583
DVDD3_1
DVDD3_0
VAUX3_0
VAUX3_2
AVDD_5V
AVDD_3.3
AVDD_HP
LEFT+
LEFT-
RIGHT-
RIGHT+
PORTA_L
PORTA_R
PORTD_L
PORTD_R
PORTE_L
PORTE_R
PORTC_L
PORTC_R
PORTB_L
PORTB_R
PORTF_L
PORTF_R
SENSE_B
SENSE_A
GPIO2
GPIO1/GAIN
EAPD/GPIO0
S/PDIF_OUT
DIB_N
DIB_P
FILT_1.65
AUD_SPK_R1
AUD_SPK_R2
AUD_HP_L
AUD_HP_R
AUD_MIC_L
AUD_MIC_R
SENSEB
SENSEA
Del net No9 10.15
R372 *10K_NC
R13 BLM15BB121SN1D
R15 BLM15BB121SN1D
DIBN_HS [33]
DIBP_HS [33]
Stephen 5/8
C495 1U 603 10
C500 0.1U 16 402
Audio Jacks
Add 5.1ohm resistor for EOS issue
AUD_HP_L
AUD_HP_R
R389 5.1
R388 5.1
L43 BLM18BD601SN1D
L44 BLM18BD601SN1D
AUD_HP_L1
AUD_HP_R1
C478 100P 50
C480 100P 50
R368 100K
HP_JD
CN8
JAS233L-B10H9-7F
HP JACKN
AUD_MIC1_VREFO
R381 2.2K
L24.L25,L30,L31, FB_600ohm+-25%_100MHz _200mA_0.6ohm DC
AUD_MIC_L
AUD_MIC_R
C492 2.2U 805
C489 2.2U 805
R377 100
R376 100
AUD_MIC_L1
AUD_MIC_L2
AUD_MIC_R1
AUD_MIC_R2
L42 BLM18BD601SN1D
L41 BLM18BD601SN1D
AUD_MIC_L3
AUD_MIC_R3
C479 100P 50
C477 100P 50
R365 100K
MIC_JD
CN9
JAS233L-B10H9-7F
MIC JACK
QUANTA COMPUTER
Title
Size
Document Number VM8M
Rev 1A
Date: Tuesday, June 02, 2009
Sheet 32 of 46



Board to board connector (Modem Card + Cardreader+1394a+ 2 USB Port)

QUANTA COMPUTER

Title		
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 33 of 46	


Place Close to Pin10,13,30,36,39
Stephen 5/12
Place Close to Pin19
Stephen 5/12
Place Close to Pin44,45 <200mil
Place Close to Pin1,29,37,40
Remove R129 0ohm
Ray 6/1
Place Close to Pin48 <200mil, Width > 60mil
U3
RTL8111DL
RJ-45 Connector
LAYOUT NOTE:
CAP CLOSE TO TRANSFORMER
one cap for each pin
Reserved for EMI.
Stephen 5/8
LFE9276C-R
QUANTA COMPUTER
LAN
VM8M
Tuesday, June 02, 2009

QUANTA COMPUTER

Title	System Reset Circuit	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 35 of 46	

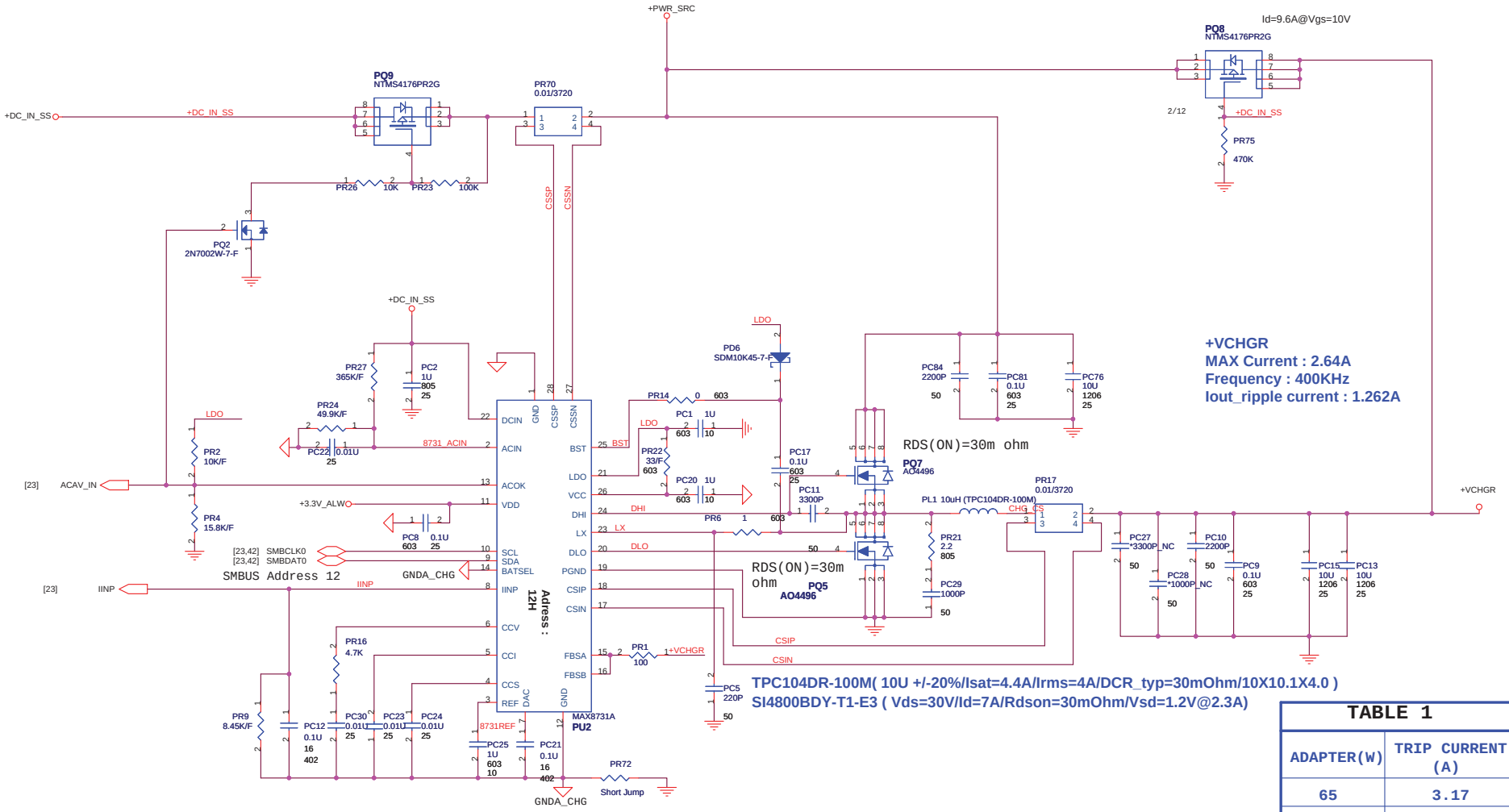
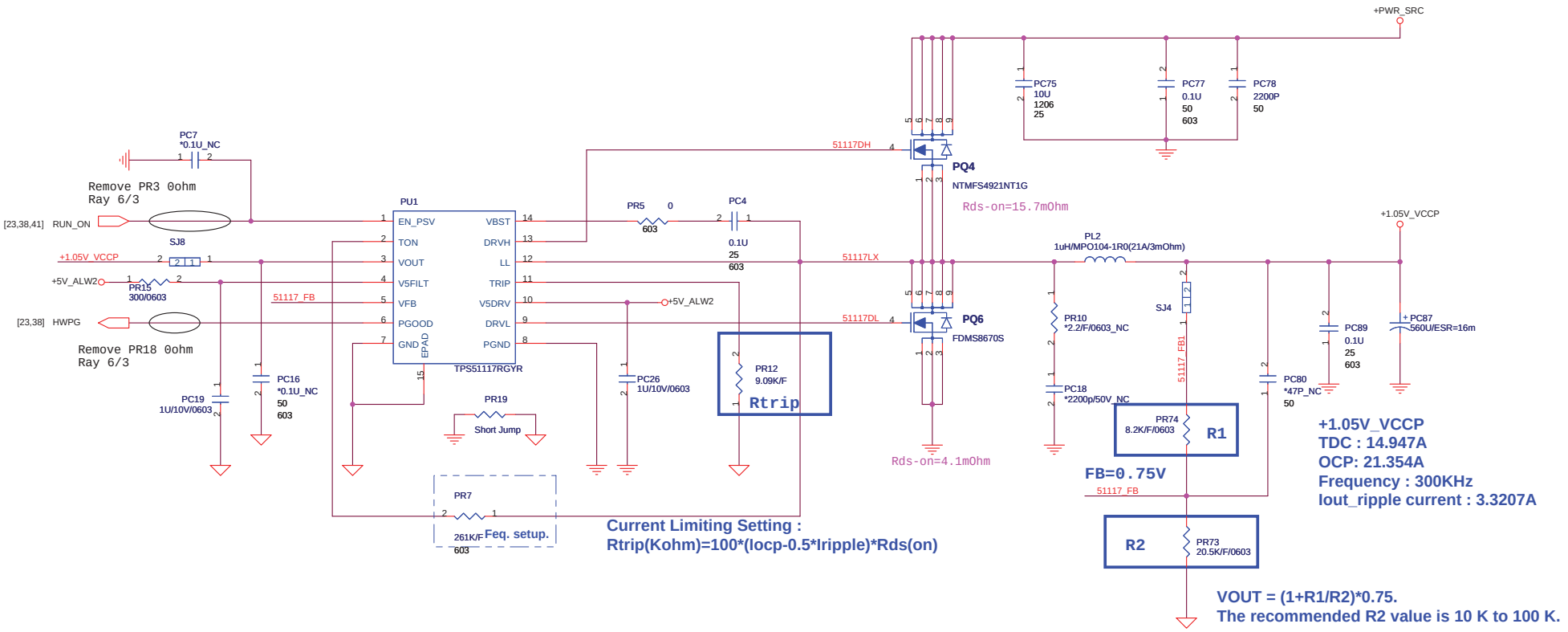


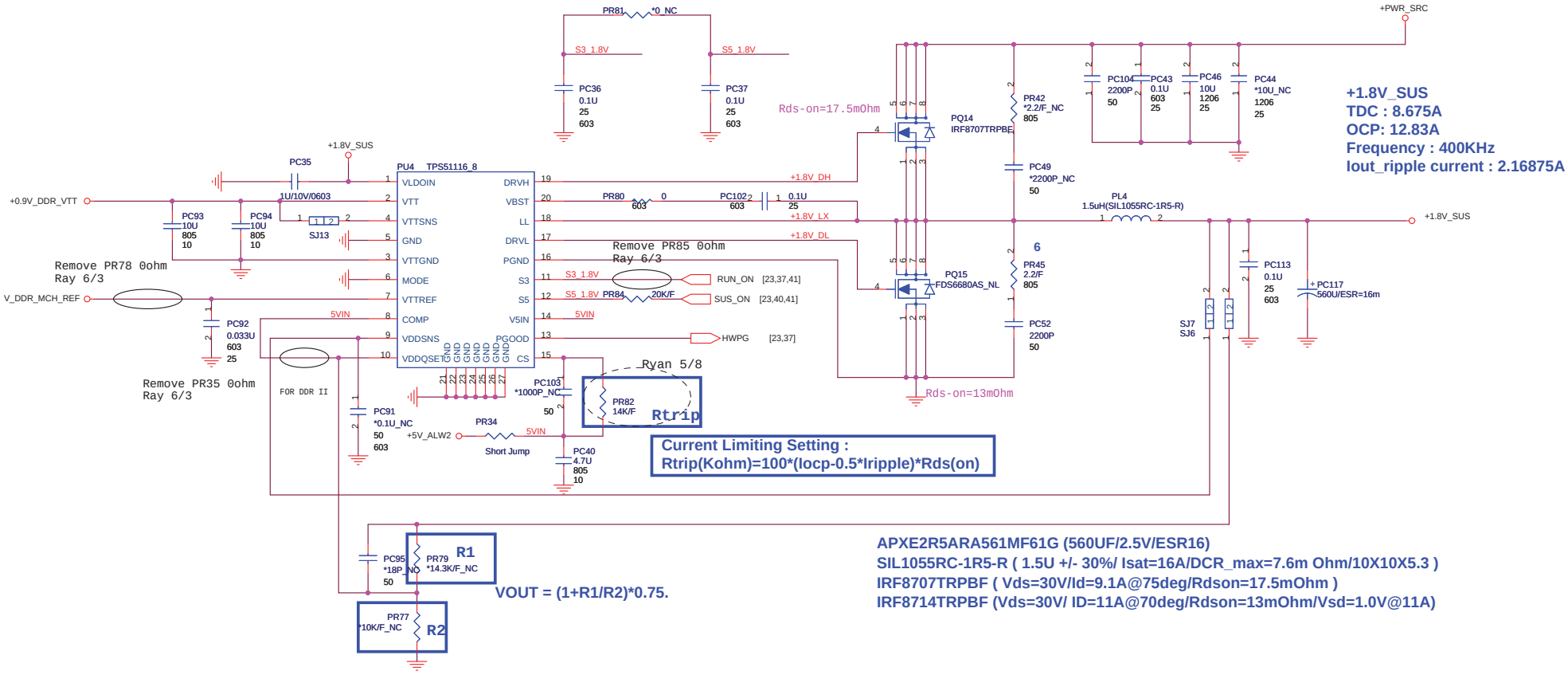
TABLE 1	
ADAPTER(W)	TRIP CURRENT (A)
65	3.17
90	4.43
130	6.43
150	7.43
200	9.75
230	11.28

QUANTA COMPUTER

Title	Charger (MAX8731A)	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 36 of 46	



QUANTA COMPUTER		
Title: 1.05_VCCP & 1.5V_RUN(TPS51117)		
Size	Document Number VM8M	Rev 1A
Date: Wednesday, June 03, 2009	Sheet 37 of 46	



QUANTA COMPUTER

Title	1.8VSUS & 0.9VTT (TPS51116)	
Size	Document Number VM8M	Rev 1A
Date: Wednesday, June 03, 2009	Sheet 38 of 46	

+PWR_SRC

C358 *100U_NC 25 | C367 *100U_NC 25 | C357 *100U_NC 25

Layout Note:
Need to add 100uF cap on PWR_SRC for cap singing.
Place on PWR_SRC near +VCC_CORE.

+VCC_CORE
TDC : 35A
MAX:47A
Frequency : 300KHz
Iout_ripple current : 9.64A of each phase.

+3.3V_SUS | PR38 10 603 | PAD PT1 | PC47 0.1U 10

Remove PR41,PR39 0ohm
Ray 6/3

PR40 499/F

H_DPRSTP# [3,6,11]
DPRSLPVR [6,13]
IMVP_VR_ON [23]
VID6 [4]
VID5 [4]
VID4 [4]
VID3 [4]
VID2 [4]
VID1 [4]
VID0 [4]

+3.3V_RUN | PR44 1.91K/F

[13,23] IMVP_PWRGD
Remove PR46 0ohm
Ray 6/3
[3] H_PSI#
PWR_MON
+3.3V_ALW
[23] IMVP6_PROCHOT#

PR88 4.99K/F | PR89 499/F | PC105 0.1U 10 | PR47 147K/F | PR48 *4.02K/F_NC | PR91 *NTC_470K_NC | PC54 *0.01U_NC 16 | PC106 *0.01U_NC 16

MAT
ERTJ0EV474J
Close to Phase 1 Inductor

ISL6266_VO | PR90 *12.7K/F_NC

PC55 *1000P_NC 50 | PR49 3.9K
Rayn 6/3

PC108 *220P_NC 50 | PR94 *97.6K/F_NC | PC109 *470P_NC 50

PR50 *255/F_NC | PC59 *1000P_NC 50 | PR51 60.4K/F

PR53 11K
Rayn 6/3

Remove PR54 0ohm
Ray 6/3

MAX17410

PU3

GND	3V3	CLK_EN#	DPRSTP#	DPRSLPVR	VR_ON	VID6	VID5	VID4	VID3	VID2	VID1	VID0	PGOOD	PSI#	PMON	RBIAS	VR_TT#	NTC	SOFT(PHSGD)	OCSET(PGDIN)	VW(FB)	COMP(VPS)	FB(SGND)	FB2(TIME)
49	48	47	46	45	44	43	42	41	40	39	38	37	1	2	3	4	5	6	7	8	9	10	11	12

VDIFF(ILIM)	VSEN(OUTS)	RTN(GNDS)	DROOP(CCI)	DFB(CSN2)	VO(CSN1)	VSUM(CSPAVG)	VIN	GND	VDD	ISEN2(CSP2)	ISEN1(CSP1)	NC	BOOT1	UGATE1	PHASE1	PGND1	LGATE1	PVCC	LGATE2	PGND2	PHASE2	UGATE2	BOOT2	NC
13	14	15	16	17	18	19	20	21	22	23	24	25	36	35	34	33	32	31	30	29	28	27	26	25

PR43 603 | PC50 0.22U 25 603 | UG1 | PH1 | +5V_SUS | PC53 2.2U 10 805 | LG1 | LG2 | PC56 0.22U 25 603 | PR52 603

Remove PR96 0ohm
Ray 6/3

PC62 0.22U 25 603 | PC61 0.22U 25 603 | ISEN1 | ISEN2 | ISL6266_VO

PC58 *0.01U_NC 50 | PR95 *4.02K/F_NC 603 | PC112 1000P 50 | PR98 10 603 | PR97 10 603 | +5V_SUS

PC63 *0.01U_NC 50 | PC64 *0.01U_NC 16 | PC110 0.33U 16 603 | PC66 *0.1U_NC 50 603 | PC65 1U 10 603

PR87 Short Jump

[4] VCCSENSE
[4] VSSSENSE
Parallel

Remove PR55,PR56 0ohm
Ray 6/3

VSUM | PC111 0.22U 10 603 | PC107 0.1U 10 | PR92 11K/F | PR93 2.61K/F | PR86 10K_NTC | ISL6266_VO

Close to Phase 1 Inductor

+PWR_SRC

PQ11 NTMFS4921NT1G | UG1 | PR36 *2.2_NC 805 | PC42 *1500P_NC 50 | PC99 0.1U 50 603 | PC101 2200P 50 | PC97 10U 1206 25 | PC39 *10U_NC 1206 25 | PC41 *10U_NC 1206 25 | PC96 10U 1206 25 | PC98 *0.1U_NC 50 603 | PC100 *2200P_NC 50

PH1 | PQ12 NTMFS4833NT1G | LG1 | PR37 2.2 805 | PC38 1500P 50

PL3 0.36uH_30A_ETQP4LR36WFC | +VCC_CORE

PC45 0.1U 25 603 | PC57 *330U_NC 2 7343 | PC48 330U 2 7343

VSUM | PR101 3.65K/F 603 | ISEN1 | PR59 1.82K/F 603 | ISL6266_VO | PR100 1 603 | ISEN2 | PR57 *10K_NC 603

+PWR_SRC

PQ18 NTMFS4921NT1G | UG2 | PR61 *2.2_NC 805 | PC68 *1500P_NC 50 | PC114 0.1U 50 603 | PC120 2200P 50 | PC70 10U 1206 25 | PC118 *10U_NC 1206 25 | PC71 *10U_NC 1206 25 | PC116 10U 1206 25 | PC119 *0.1U_NC 50 603 | PC115 *2200P_NC 50

PH2 | PQ17 NTMFS4833NT1G | LG2 | PR62 2.2 805 | PC69 1500P 50

PL5 0.36uH_30A_ETQP4LR36WFC | +VCC_CORE

PC67 0.1U 50 603 | PC60 330U 2 7343 | PC51 330U 2 7343

Ryan 5/20

VSUM | PR102 3.65K/F 603 | ISEN2 | PR58 1.82K/F 603 | ISL6266_VO | PR99 1 603 | ISEN1 | PR60 *10K_NC 603

D6 D5 D4 D3 D2 D1 D0	Output
0 0 0 0 0 0 0	1.500V
0 0 0 0 0 0 1	1.4875
0 0 0 0 1 0 1	1.4375
0 0 0 0 1 1 1	1.4125
0 0 0 1 0 0 0	1.4000
0 0 1 0 0 0 1	1.2875
0 0 1 1 0 0 0	1.2000
0 0 1 1 1 0 0	1.1500
0 1 0 1 0 0 0	1.0000
0 1 0 1 0 1 1	0.9625
0 1 1 1 1 0 0	0.7500
1 0 0 0 1 0 0	0.6500
1 0 1 0 0 0 0	0.5000
1 1 0 0 0 0 0	0.3000

ETQP4LR36WFC (0.36U +/- 20%/ Isat=24A/DCR_max=1.1m Ohm/11.5X10X4)
NTMFS4921NT1G (Vds=30V/Id=10.2A@85deg/Rdson=10.5mOhm)
NTMFS4946NT1G (Vds=30V/ ID=14.6A@85deg/Rdson=5.1mOhm/Vsd=1.0V@30A)
EEFSX0D331YR (330UF/2V/ESR9)

QUANTA COMPUTER

Title	CPU_Core_2Phase (MAX17410)		
Size	Document Number VM8M		Rev 1A
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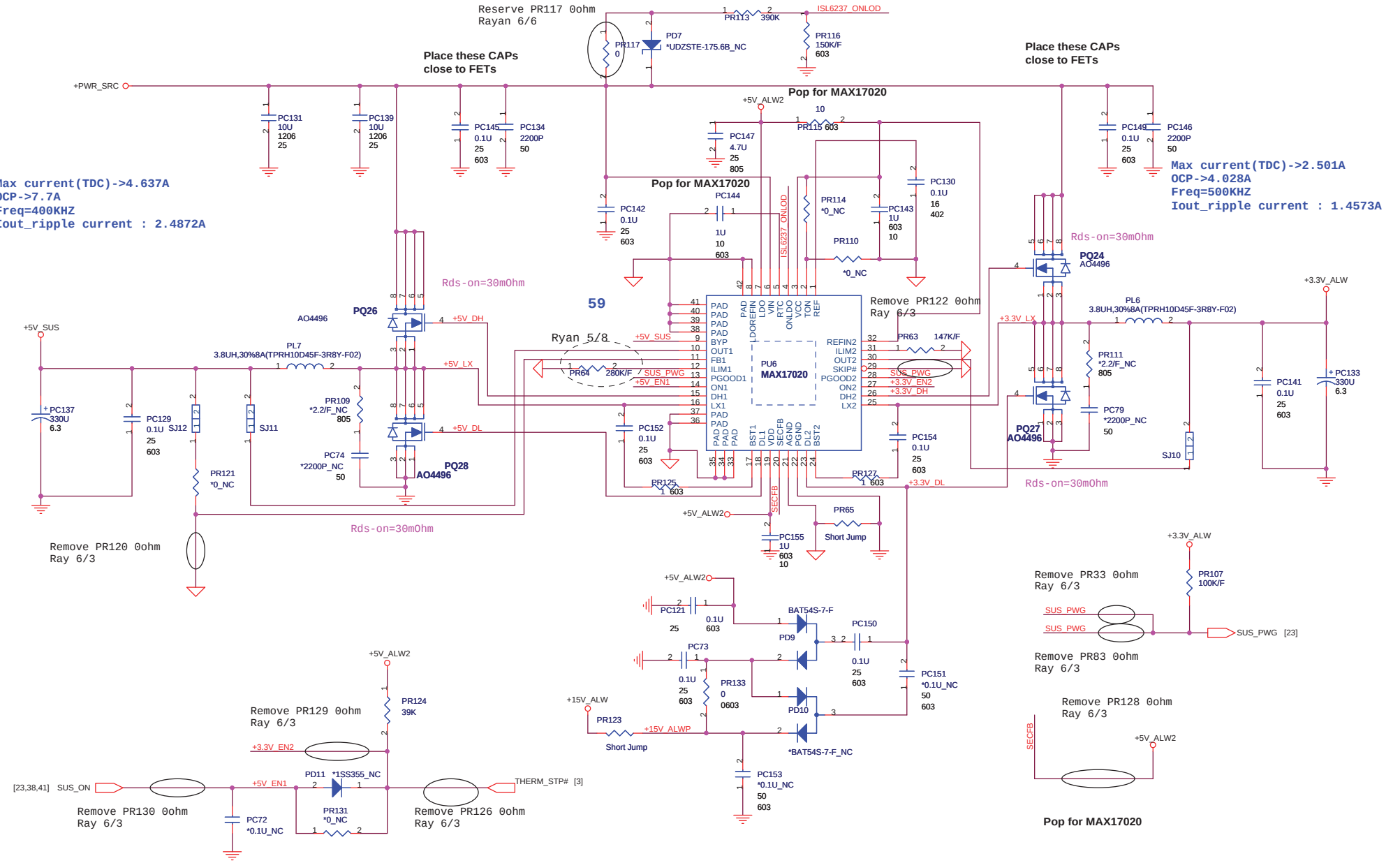
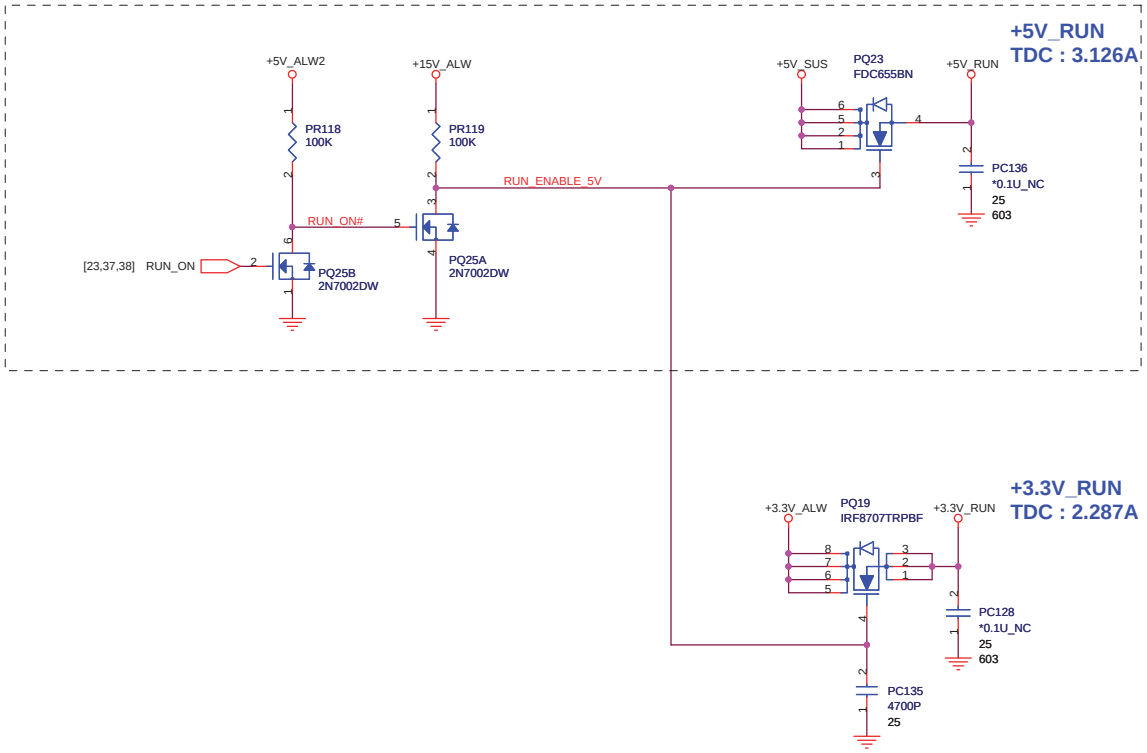
DC/DC +3V_ALW/+5V_SUS/+5V_ALW /+15V_ALW

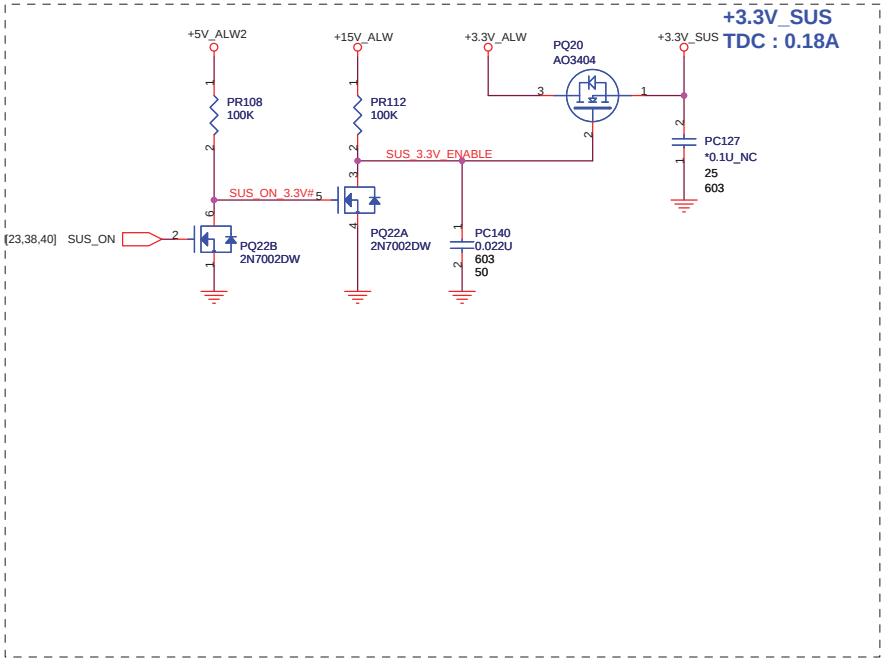


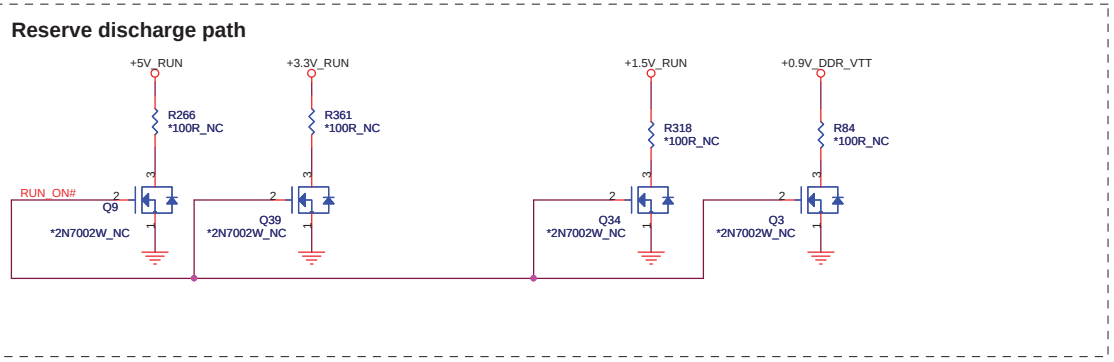
APXE6R3ARA331MF61G (330UF/6.3V/ESR17)
TPC104DR-3R8Y(3.8U +/- 30%/ Isat=6A/DCR_max=12m Ohm/10X10X4)
SI4800BDY-T1-E3 (Vds=30V/Id=7A/Rdson=30mOhm/Vsd=1.2V@2.3A)

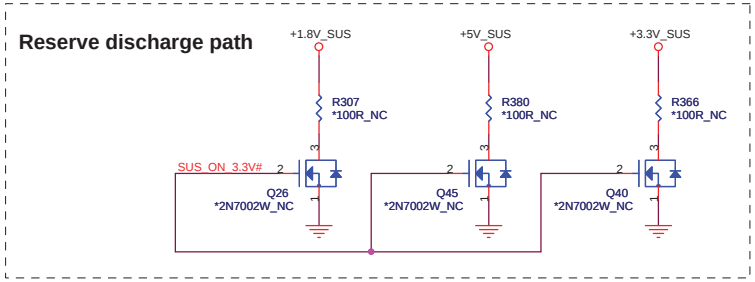
QUANTA COMPUTER

Title	3VALW,5V,3V,(MAX17020)	
Size	Document Number VM8M	Rev 1A
Date: Saturday, June 06, 2009	Sheet 40 of 46	



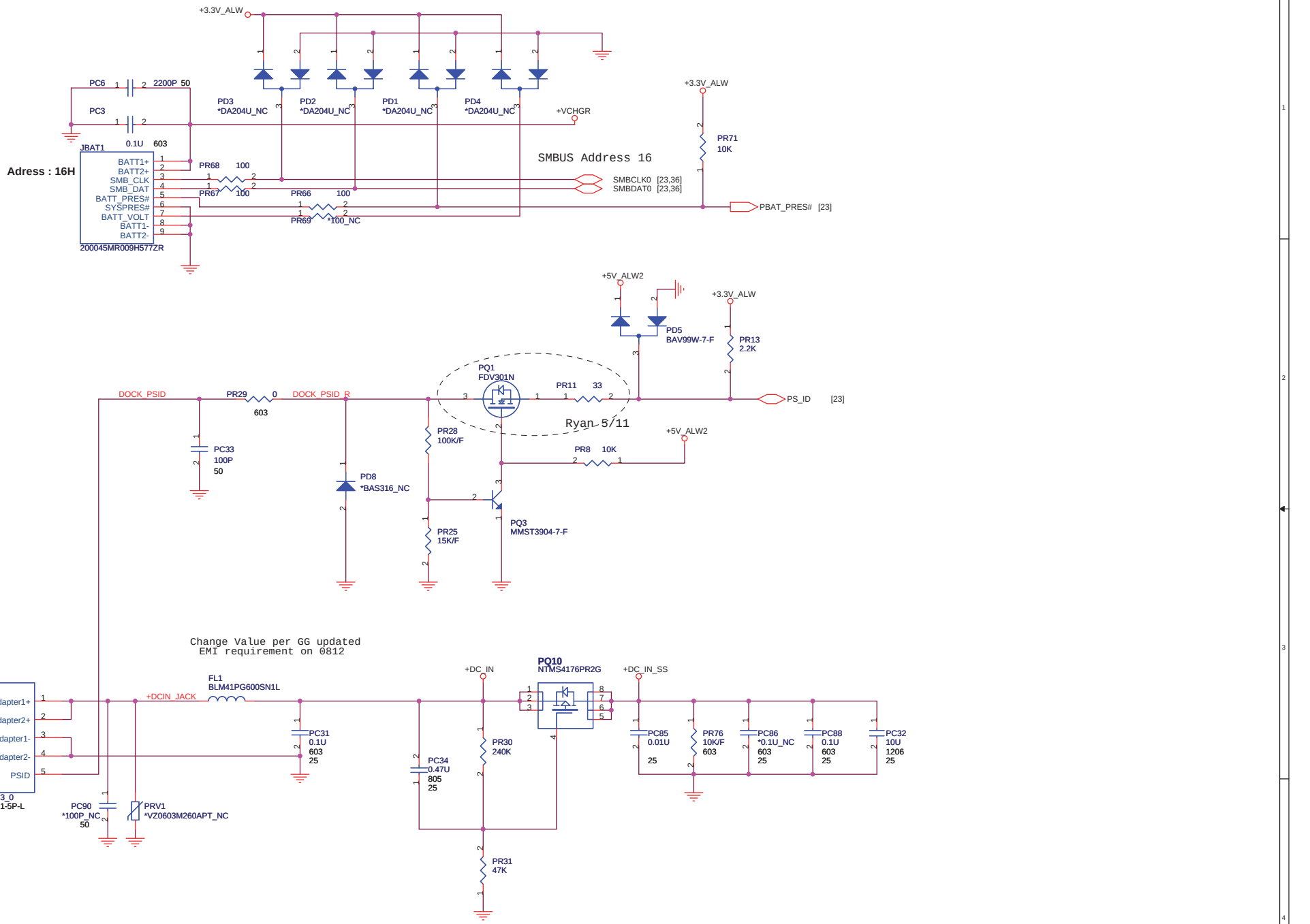






QUANTA COMPUTER

Title	RUN POWER SW	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 41 of 46	



QUANTA COMPUTER

Title	DCIN,BATT CONNECTOR	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 42 of 46	

H4
h-c276d126p2
h-c276d126p2

H6
H-C236D165P2
H-C236D165P2

H5
h-c236d154p2
h-c236d154p2

H8
h-o236x256d154x173p2
h-o236x256d154x173p2

H7
H-C236D165P2
H-C236D165P2

H12
h-c276d126p2
h-c276d126p2

H2
h-c276d126p2
h-c276d126p2

H9
NUT
h-c276d126p2

H15
NUT
h-c276d126p2

H1
h-c276d126p2
h-c276d126p2

H13
h-c276d126p2
h-c276d126p2

H18
h-c276d126p2
h-c276d126p2

H16
h-c276d126p2
h-c276d126p2

H19
h-o106x126d106x126n
h-o106x126d106x126n

H20
H-C276D110P2
H-C276D110P2

H26
H-C276D110P2
H-C276D110P2

H11
H-O197X323N
H-O197X323N

H17
h-c276d126p2
h-c276d126p2

H3
h-c106d106n
h-c106d106n

For Express Card

H21
H-TR220X299BC197D118P2
H-TR220X299BC197D118P2

H22
H-TR220X299BI158D118P2
H-TR220X299BI158D118P2

H23
H-TR197X211BC197D114P2
H-TR197X211BC197D114P2

H24
H-TR220X319BC197D114P2
H-TR220X319BC197D114P2

Stephen 6/4

H28
H-TR220X299BC197D118P2
H-O67X20D67X20N

DB board

H10
h-c236d146p2
h-c236d146p2

H14
h-c236d146p2
h-c236d146p2

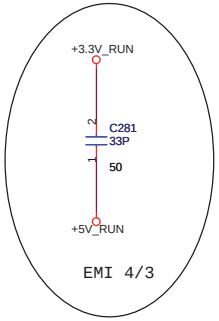
Mini card

H25
H-C205D63P2
H-C205D63P2

QUANTA COMPUTER

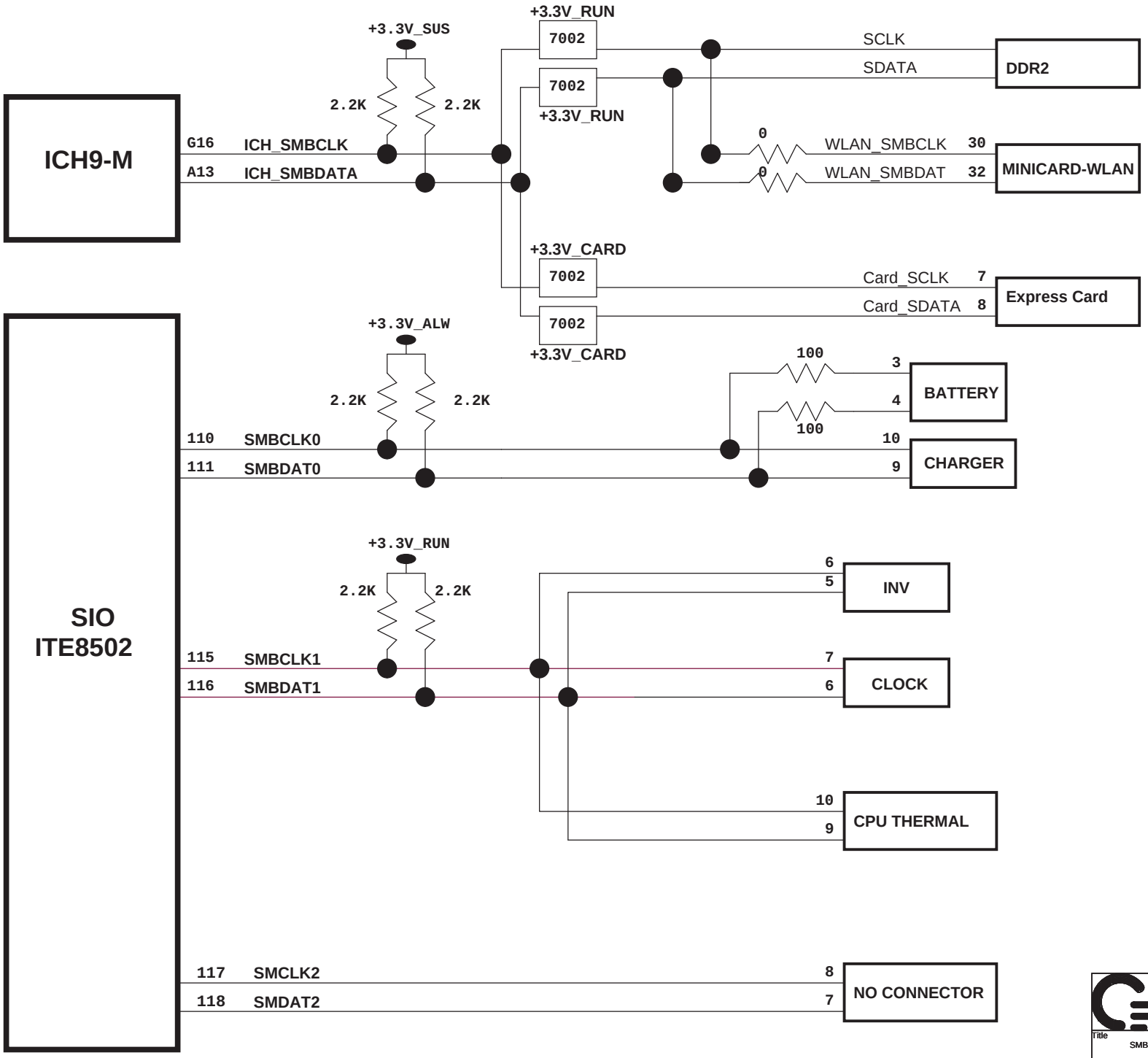
Title	SCREW PAD	
Size	Document Number VM8M	Rev 1A
Date: Saturday, June 06, 2009	Sheet 43 of 46	

Reserved for EMI.



QUANTA COMPUTER

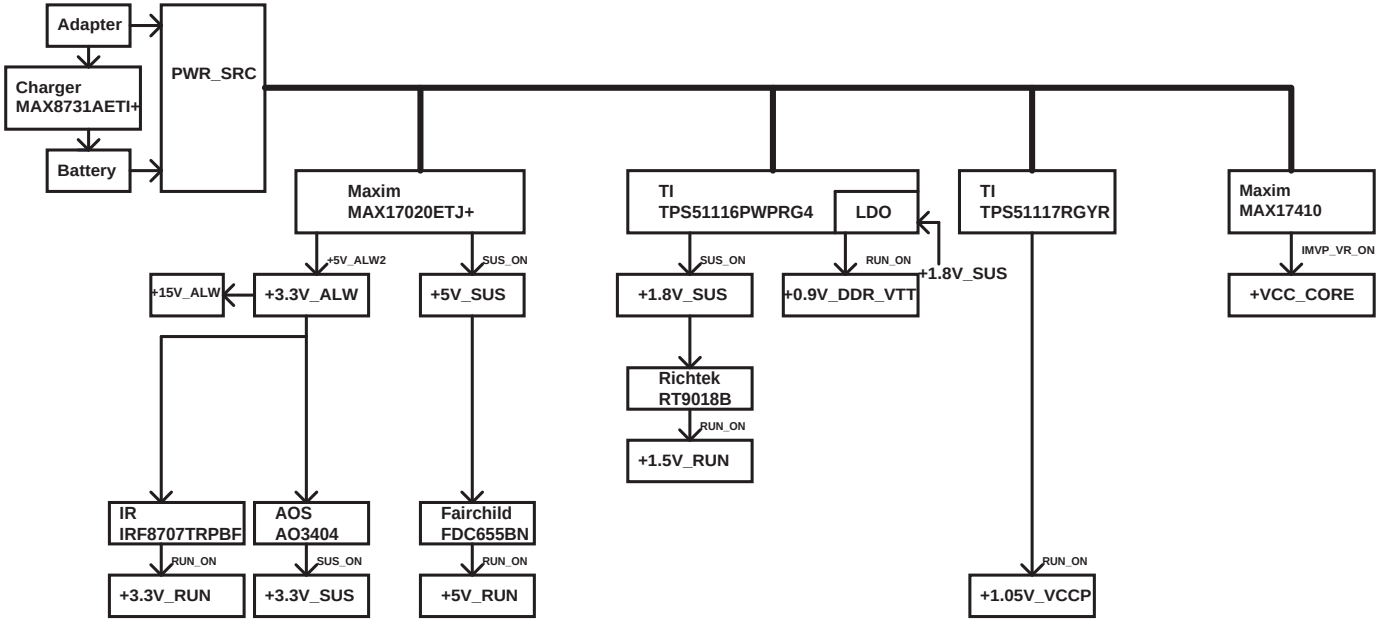
Title	EMI CAP	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 44 of 46	



QUANTA COMPUTER

Title	SMBUS BLOCK	
Size	Document Number VM8M	Rev 1A
Date: Monday, June 08, 2009	Sheet 45 of 46	

VER : 1A



QUANTA COMPUTER

Title	Schematic Block Diagram	
Size	Document Number VM8M	Rev 1A
Date: Tuesday, June 02, 2009	Sheet 46 of 46	