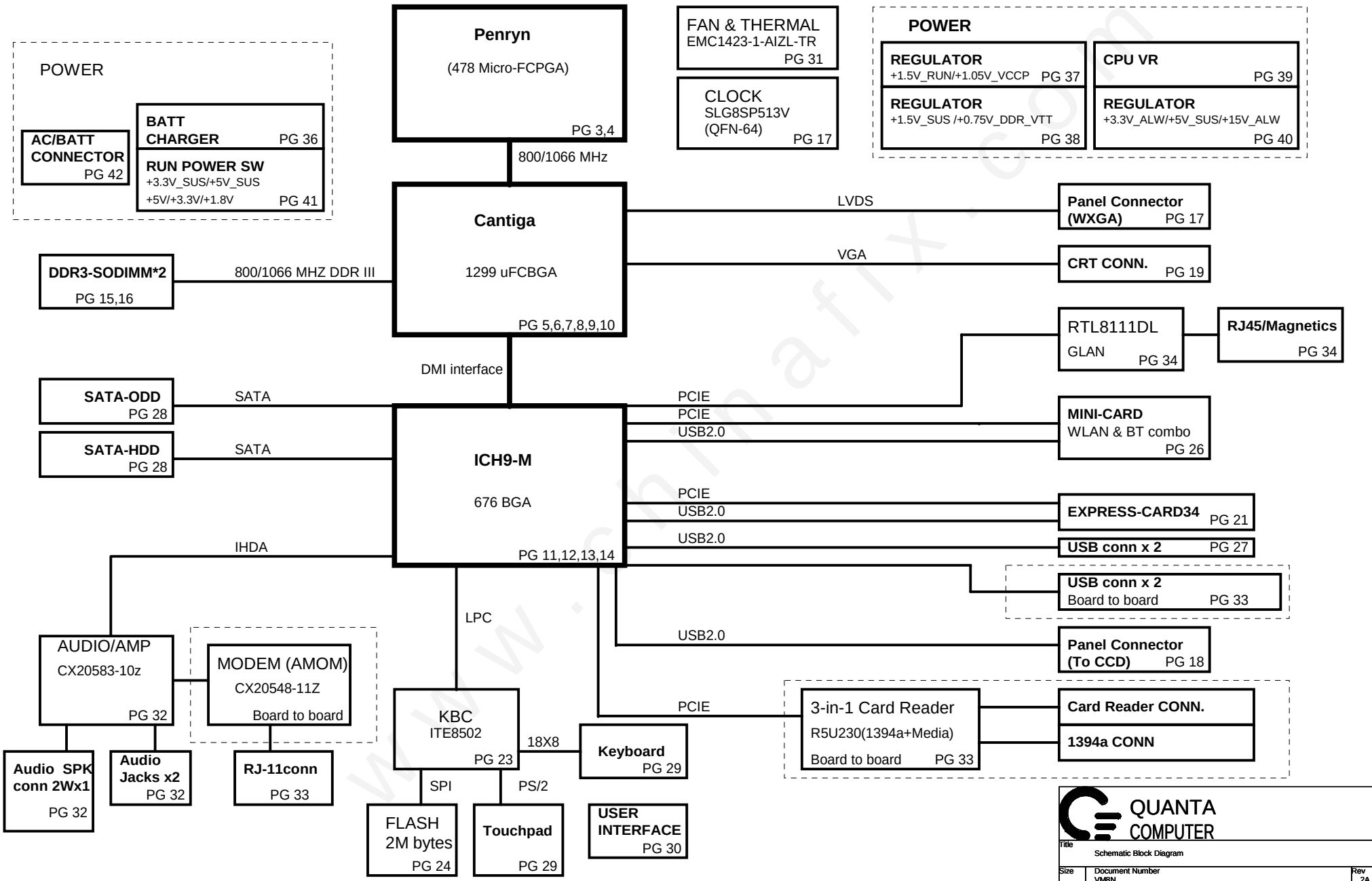
VM8(9)N Block Diagram Intel UMA

VER :B2B



QUANTA COMPUTER

Title	Schematic Block Diagram	
Size	Document Number VM8N	Rev 2A
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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	
+1.5V_SUS	+1.5V	6,8,9,15,37,38,41	SODIMM POWER	DDR_ON	
+0.75V_DDR_VTT	+0.75V	16,38,41	SODIMM POWER	0.75V_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	

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Title	Index & Power Status	
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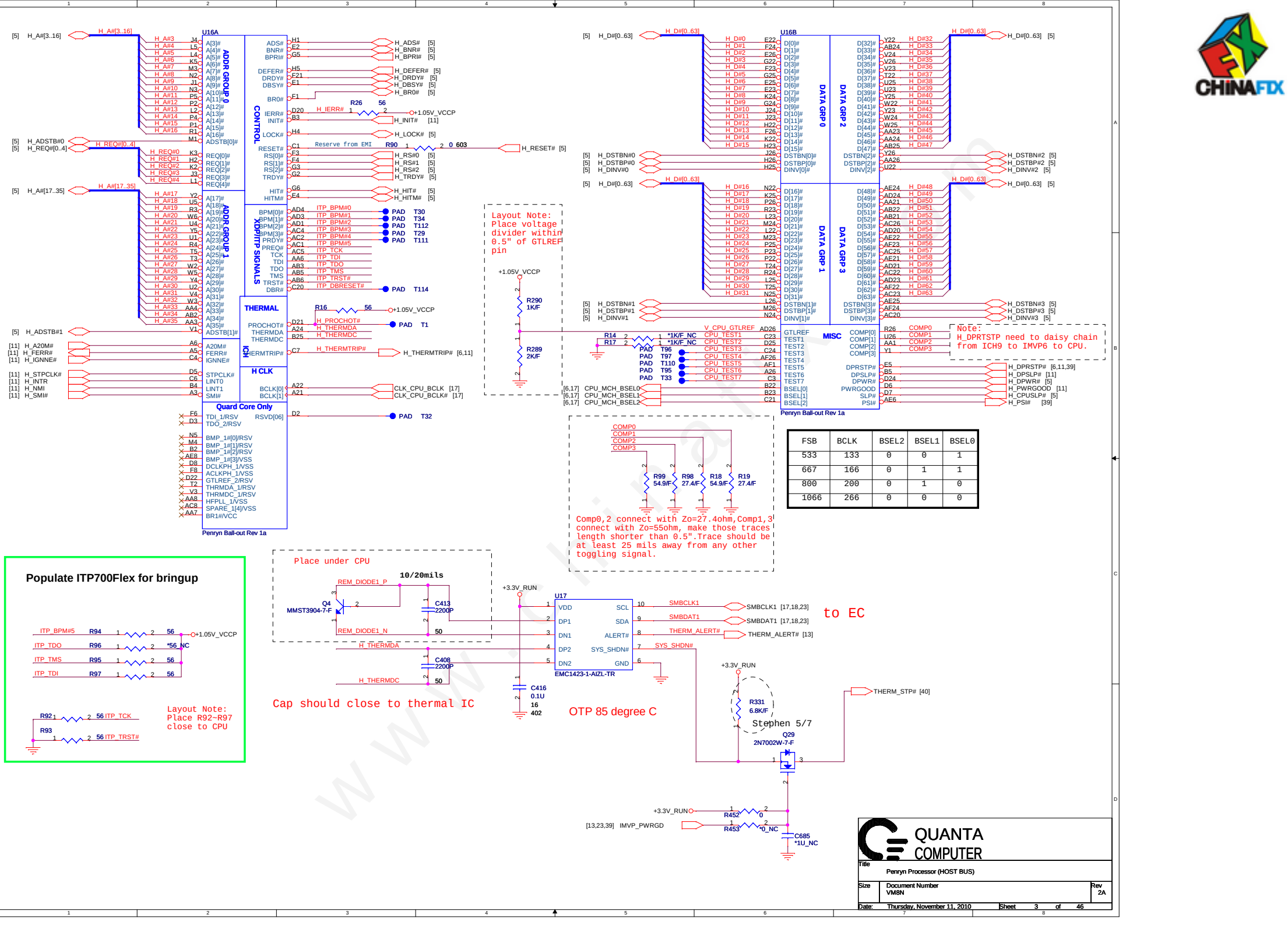
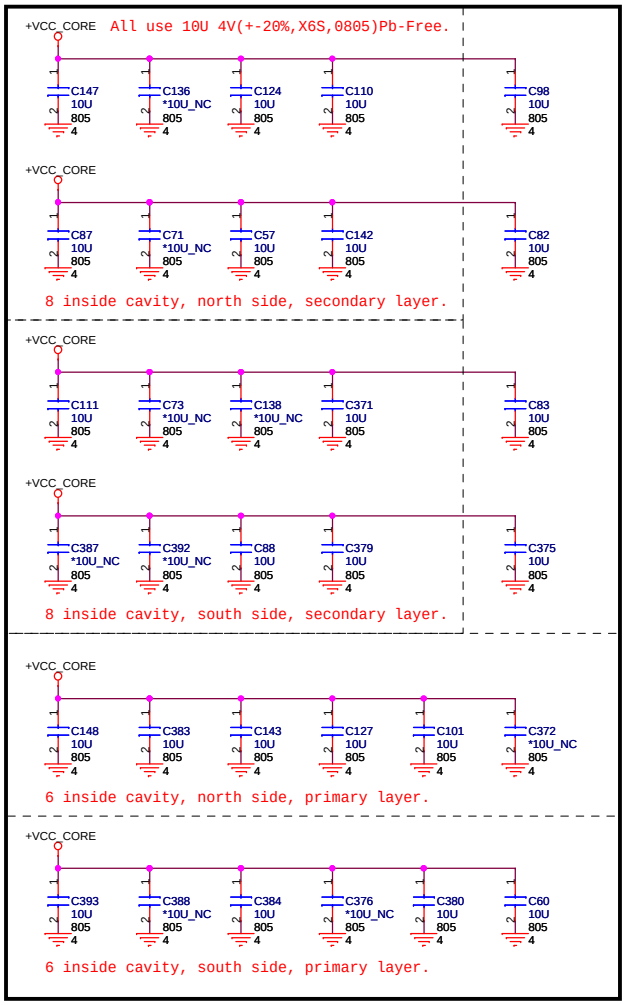
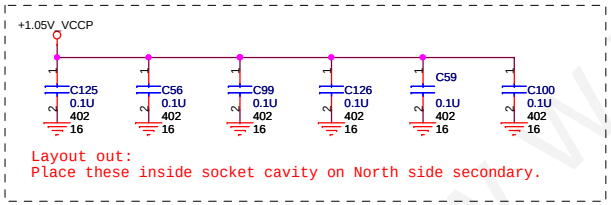
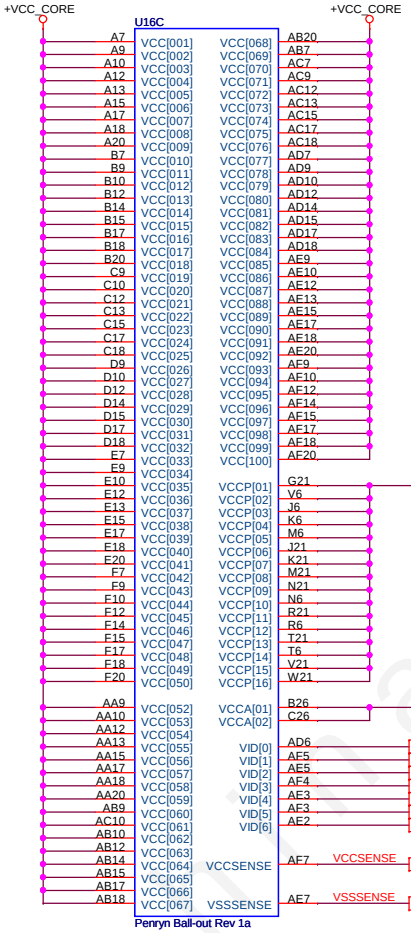
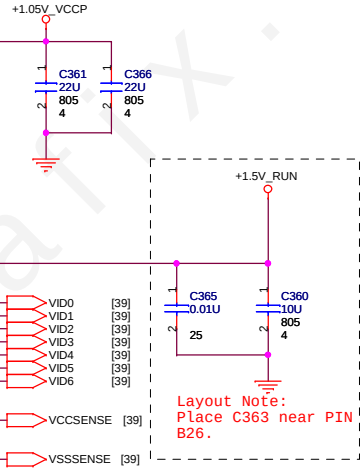
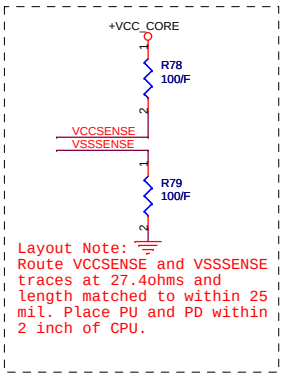

U16A
ADDR GROUP 0
ADDR GROUP 1
CONTROL
XDP/ITP SIGNALS
THERMAL
H CLK
Quard Core Only
Penryn Ball-out Rev 1a
U16B
DATA GRP 0
DATA GRP 1
DATA GRP 2
DATA GRP 3
MISC
Penryn Ball-out Rev 1a
Layout Note:
Place voltage divider within 0.5" of GTLREF pin
+1.05V_VCCP
R290 1K/F
R289 2K/F
V_CPU_GTLREF
Note:
H_DPRSTP 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 +1.05V_VCCP
ITP_TDO R96 *56_NC
ITP_TMS R95 56
ITP_TDI R97 56
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
C408 2200P
H_THERMDC
Cap should close to thermal IC
+3.3V_RUN
U17
EMC1423-1-AIZL-TR
VDD SCL DP1 SDA DN1 ALERT# DP2 SYS_SHDN# DN2 GND
SMBCLK1
SMBDAT1
THERM_ALERT#
SYS_SHDN#
C416 0.1U 16 402
OTP 85 degree C
to EC
R331 6.8K/F
Stephen 5/7
Q29 2N7002W-7-F
THERM_STP# [40]
R452 0
R453 *0_NC
C685 *1U_NC
IMVP_PWRGD
QUANTA COMPUTER
Title Penryn Processor (HOST BUS)
Size Document Number VM8N Rev 2A
Date: Thursday, November 11, 2010 Sheet 3 of 46

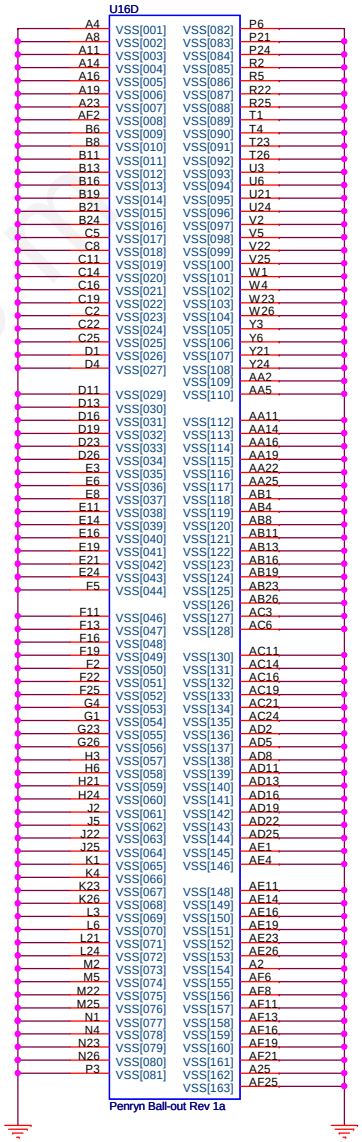












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QUANTA COMPUTER

Title	Penryn Processor (POWER)	
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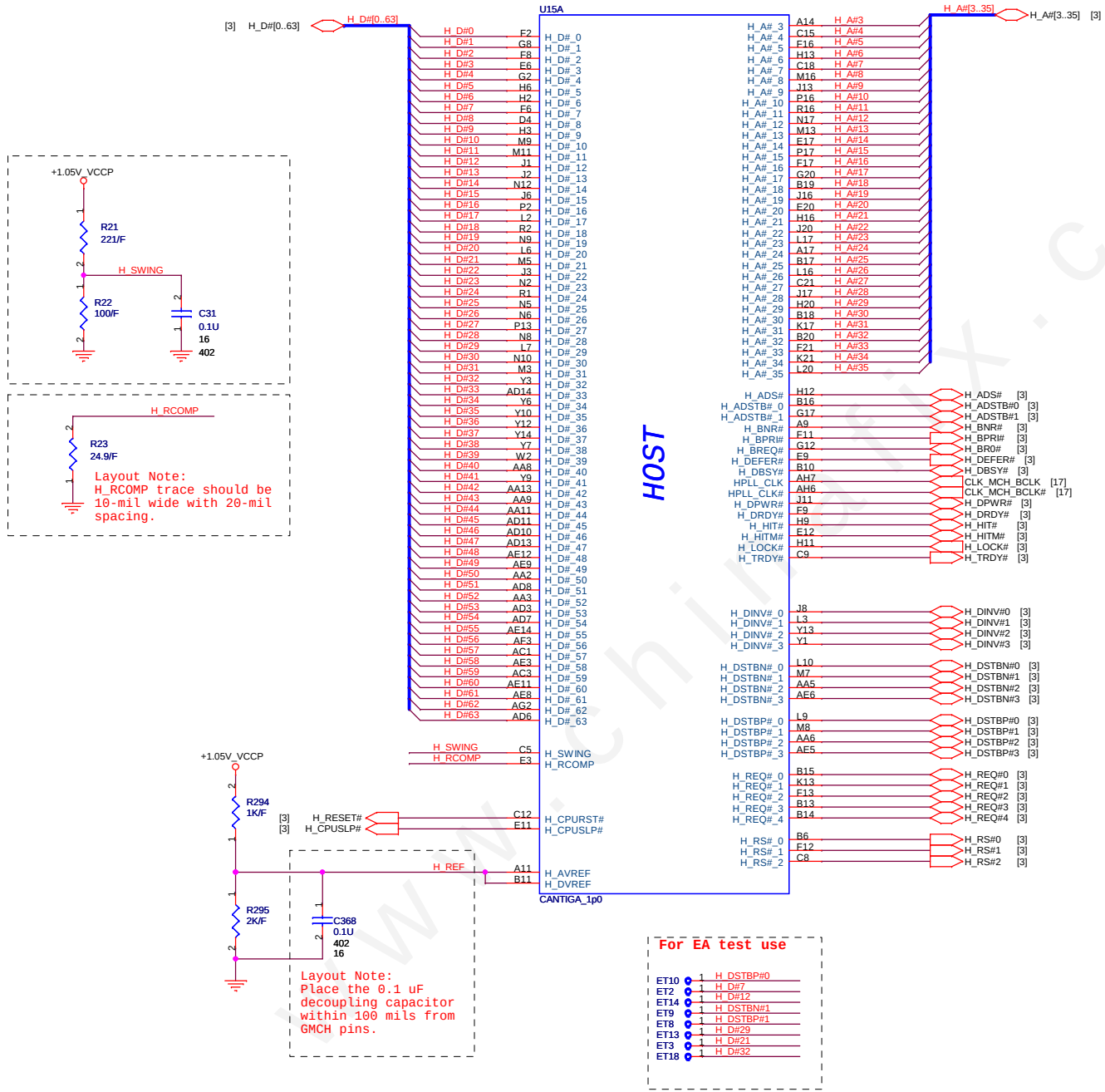

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QUANTA COMPUTER		
Title: Cantiga (HOST)		
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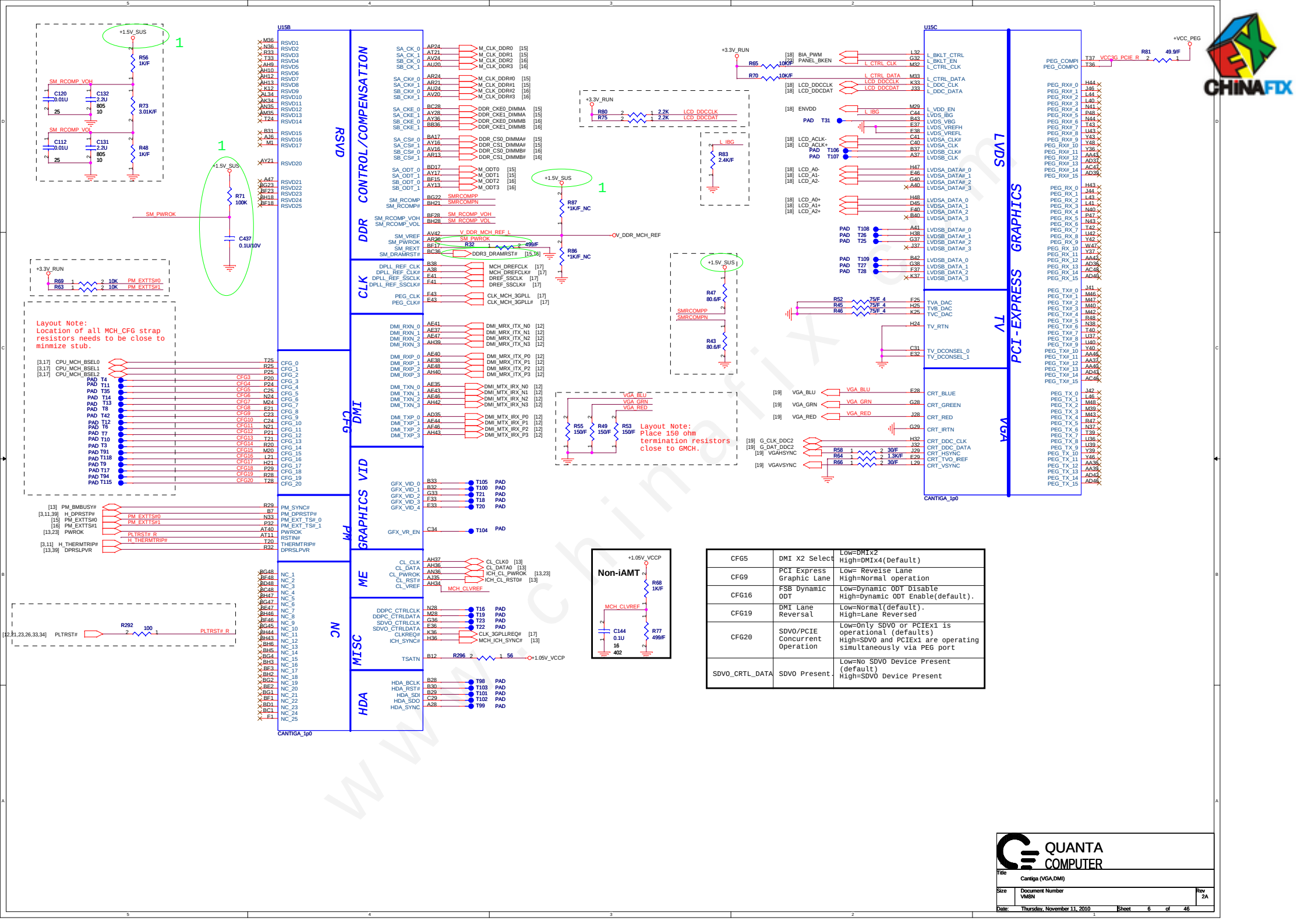
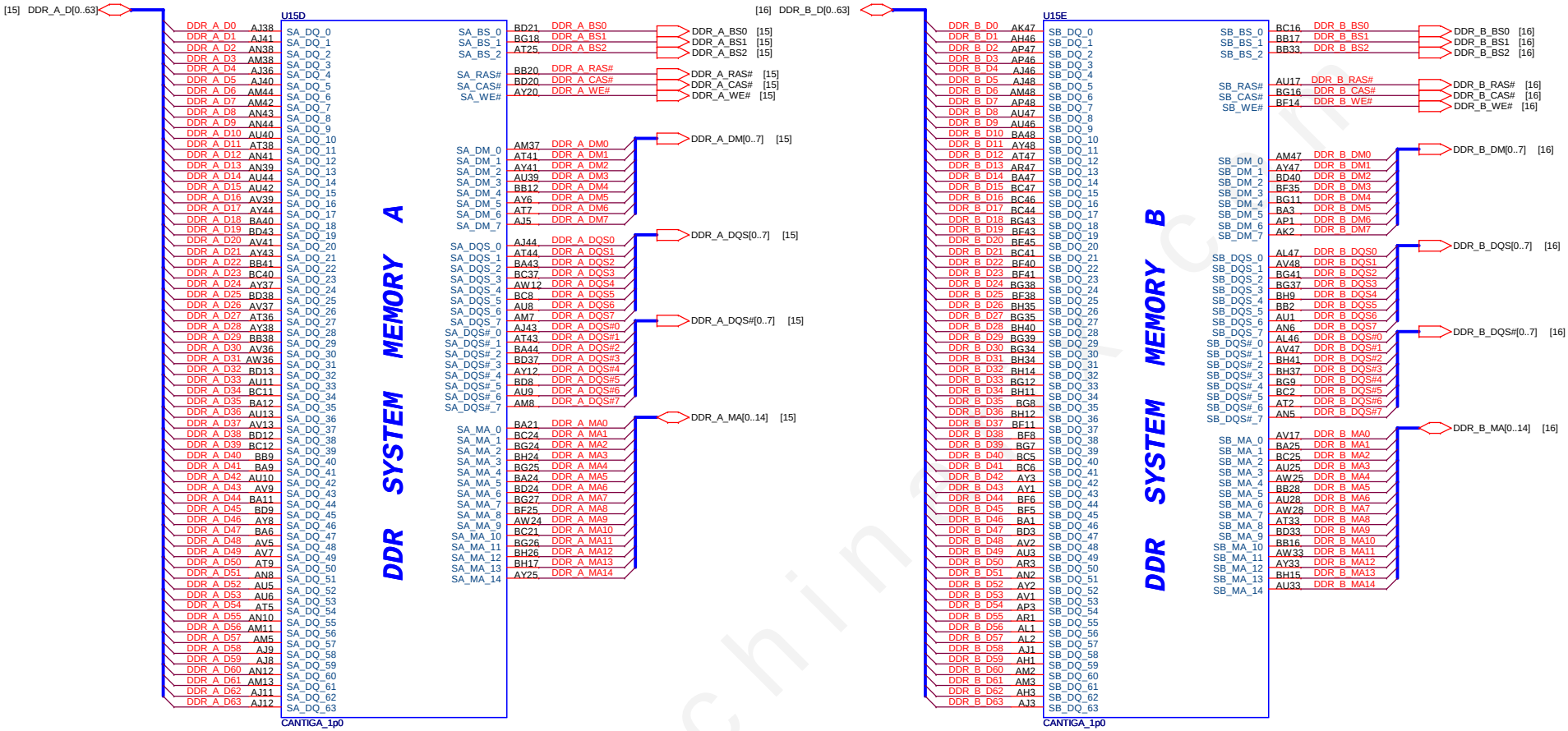

U15B
RSVD
DDR CONTROL/COMPENSATION
CLK
DMI
CFG
GRAPHICS VID
PM
ME
MISC
HDA
NC
U15C
LVDS
TV
PCI-EXPRESS GRAPHICS
VGA
CANTIGA_1p0
Layout Note:
Location of all MCH_CFG strap resistors needs to be close to minmize stub.
Layout Note:
Place 150 ohm termination resistors close to GMCH.
Non-iAMT
CFG5 DMI X2 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 Document Number VM8N Rev 2A
Date: Thursday, November 11, 2010 Sheet 6 of 46



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QUANTA COMPUTER		
Title	Cantiga (DDR2)	
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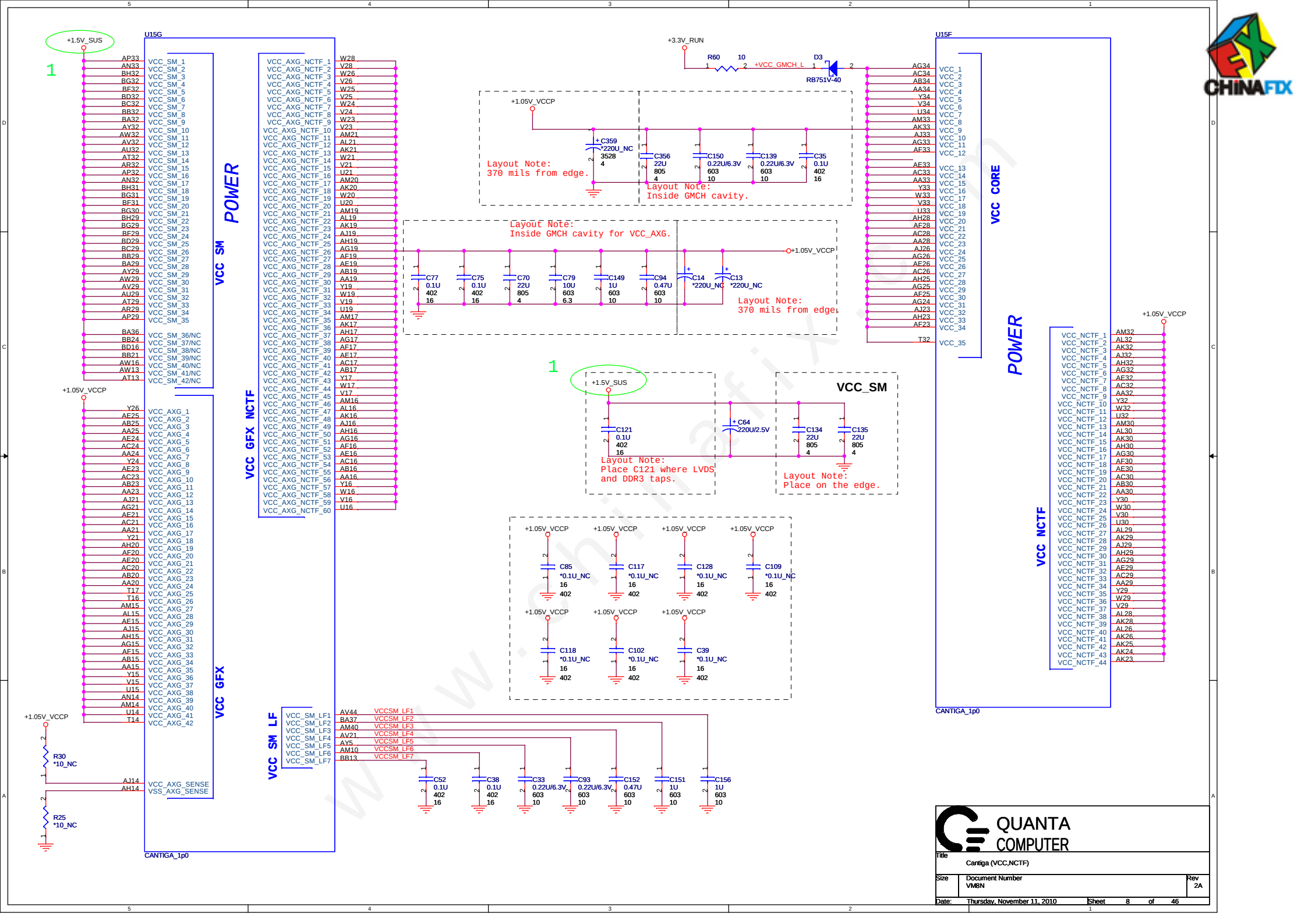
U15G
U15F
POWER
VCC SM
VCC GFX NCTF
VCC GFX
VCC SM LF
VCC CORE
VCC NCTF
CANTIGA_1p0
+1.5V_SUS
+1.05V_VCCP
+3.3V_RUN
VCC_SM
Layout Note: 370 mils from edge.
Layout Note: Inside GMCH cavity.
Layout Note: Inside GMCH cavity for VCC_AXG.
Layout Note: 370 mils from edge.
Layout Note: Place C121 where LVDS and DDR3 taps.
Layout Note: Place on the edge.
QUANTA COMPUTER
Title: Cantiga (VCC,NCTF)
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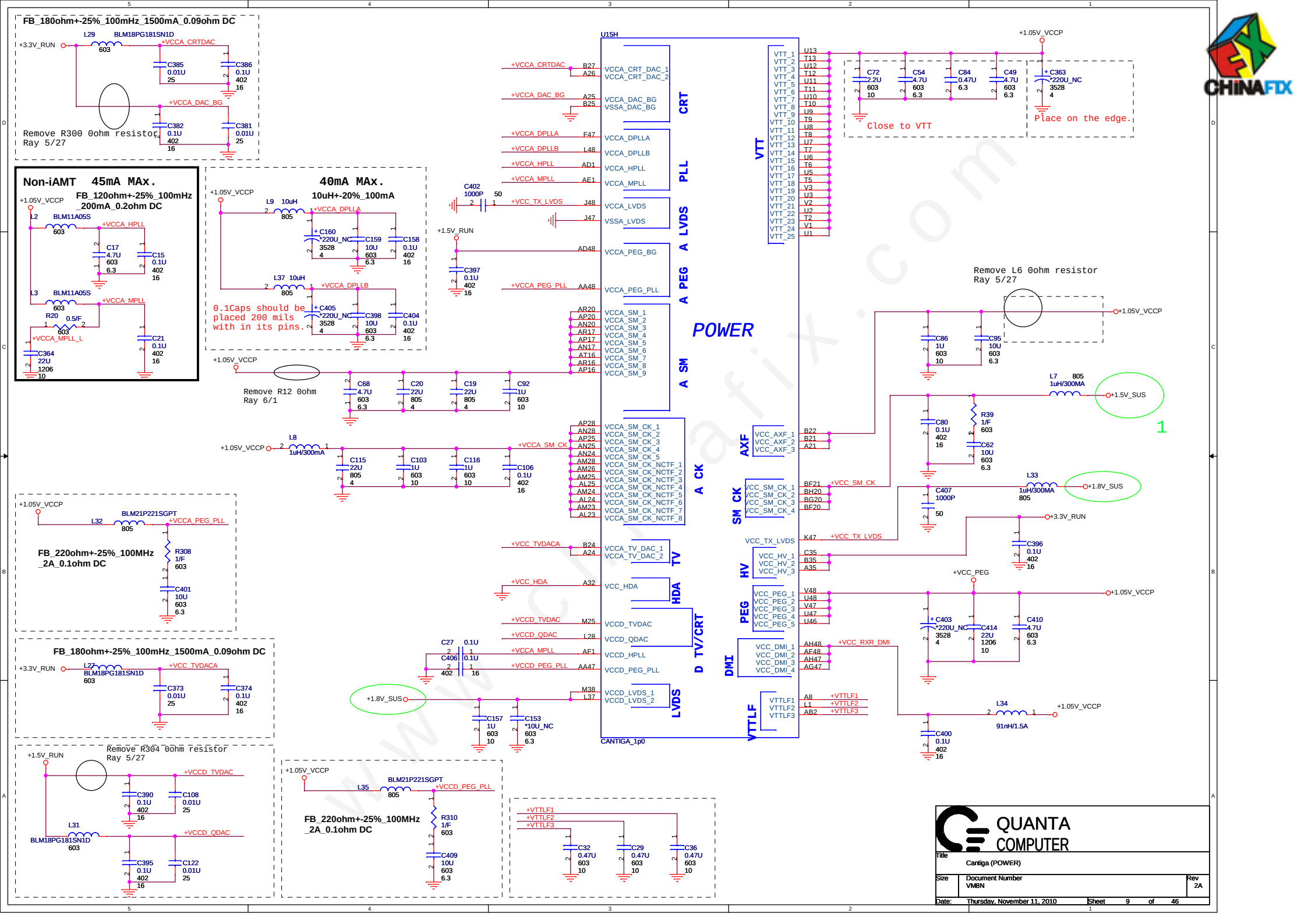
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
Remove R300 0ohm resistor
Ray 5/27
Non-iAMT 45mA MAx.
FB_120ohm+-25%_100mHz_200mA_0.2ohm DC
40mA MAx.
10uH+-20%_100mA
0.1Caps should be placed 200 mils with in its pins.
Remove R12 0ohm
Ray 6/1
FB_220ohm+-25%_100MHz_2A_0.1ohm DC
FB_180ohm+-25%_100mHz_1500mA_0.09ohm DC
Remove R304 0ohm resistor
Ray 5/27
FB_220ohm+-25%_100MHz_2A_0.1ohm DC
Close to VTT
Place on the edge.
Remove L6 0ohm resistor
Ray 5/27
POWER
CRT
PLL
LVDS
PEG
SM CK
AXF
HV
DMI
TV/CRT
HDA
TV
LVDS
VTTLF
CANTIGA_1p0
QUANTA COMPUTER
Title
Cantiga (POWER)
Size
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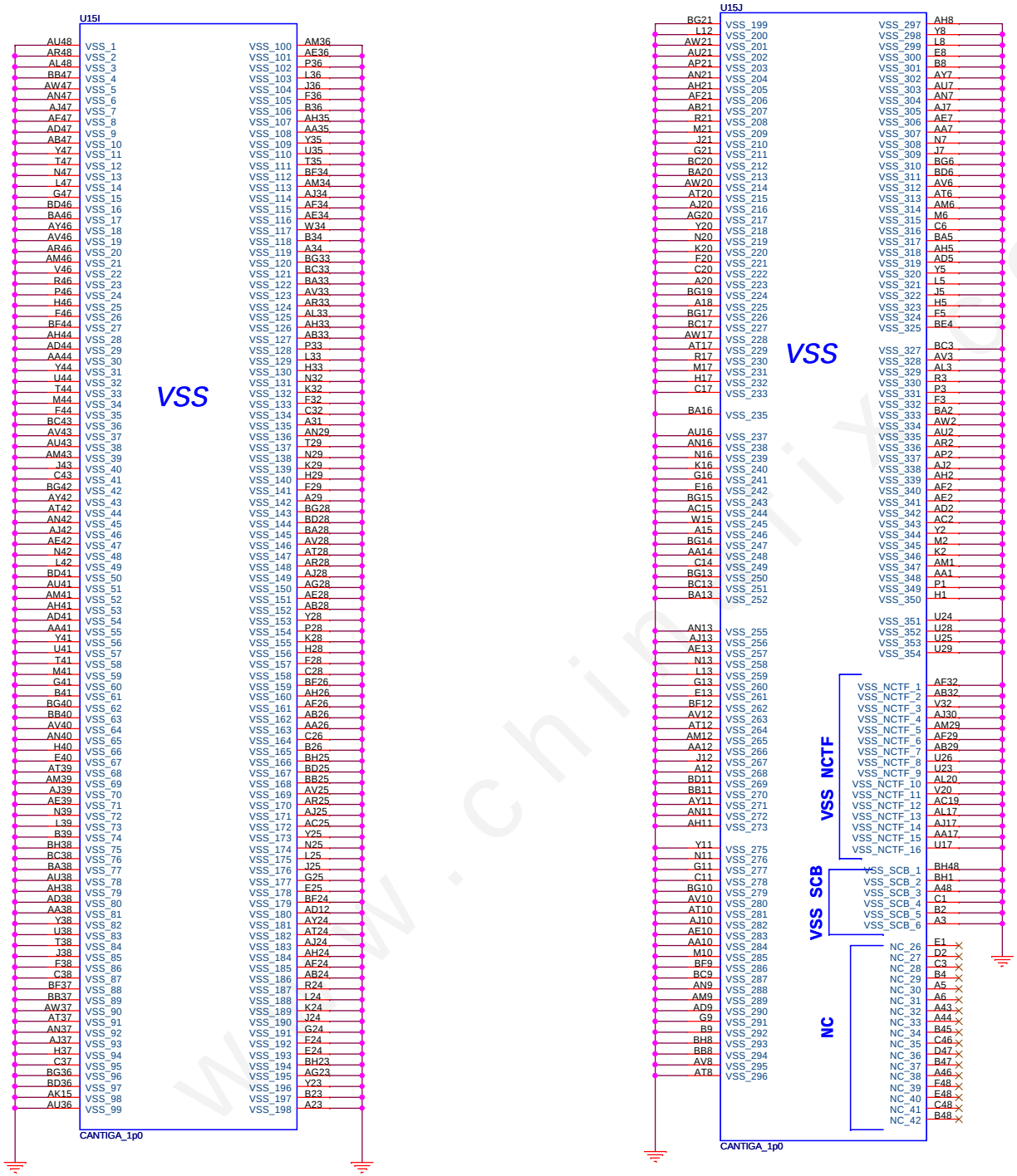

Title	Cantiga (VSS)
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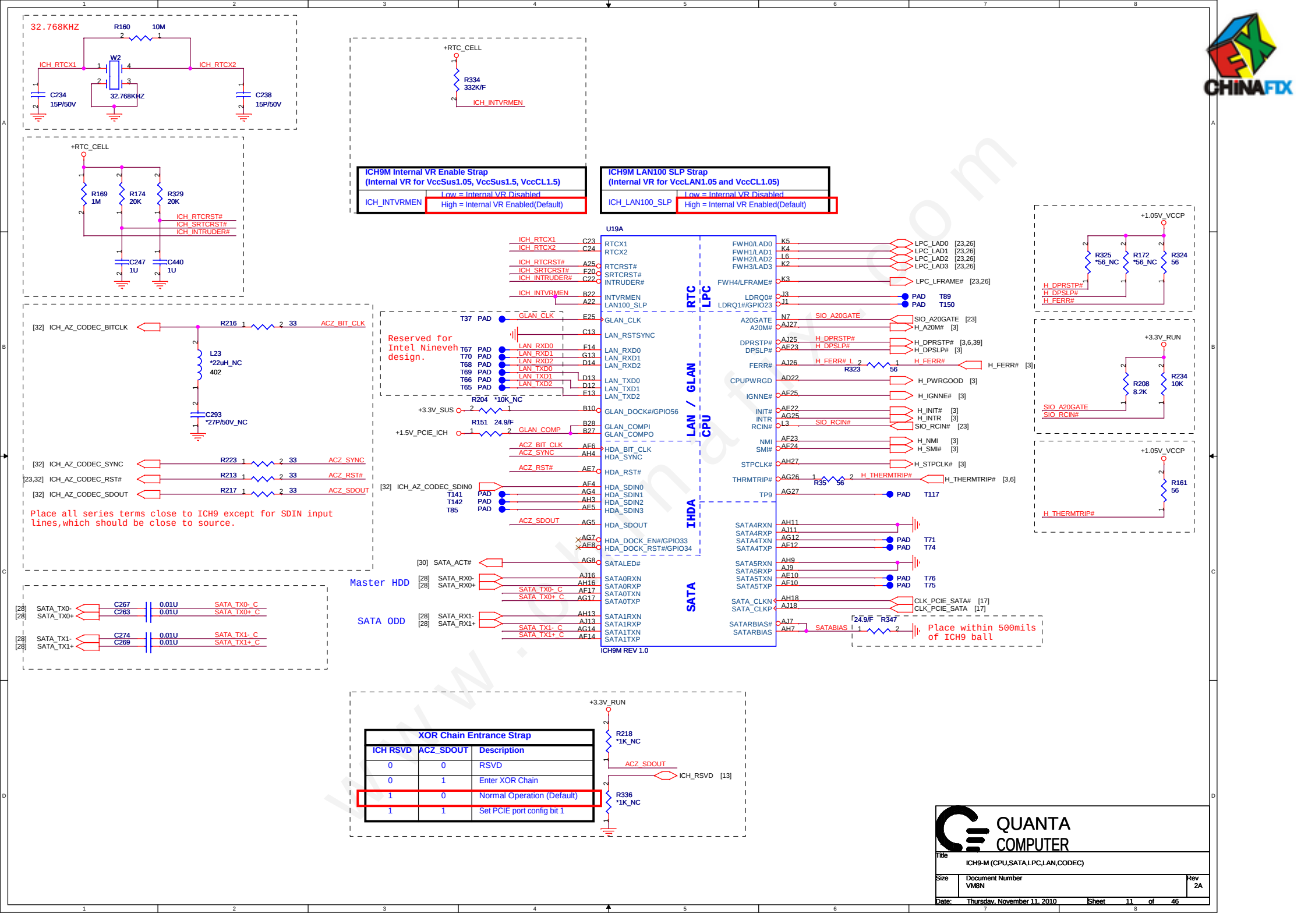
32.768KHZ
R160 10M
W2
ICH_RTCX1
ICH_RTCX2
C234 15P/50V
32.768KHZ
C238 15P/50V
+RTC_CELL
R334 332K/F
ICH_INTVRMEN
ICH9M Internal VR Enable Strap
(Internal VR for VccSus1.05, VccSus1.5, VccCL1.5)
ICH_INTVRMEN
Low = Internal VR Disabled
High = Internal VR Enabled(Default)
ICH9M LAN100 SLP Strap
(Internal 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
C440 1U
U19A
RTC
LPC
LAN / GLAN
CPU
IHDA
SATA
ICH9M REV 1.0
Reserved for Intel Nineveh design.
Place all series terms close to ICH9 except for SDIN input lines,which should be close to source.
Master HDD
SATA ODD
Place within 500mils of ICH9 ball
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
R218 *1K_NC
R336 *1K_NC
ICH_RSVD [13]
+1.05V_VCCP
+3.3V_RUN
R325 *56_NC
R172 *56_NC
R324 56
R208 8.2K
R234 10K
R161 56
R323 56
R35 56
R347 24.9/F
SATABIAS
QUANTA COMPUTER
Title
ICH9-M (CPU,SATA,LPC,LAN,CODEC)
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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+
MiniWLAN
MiniWPAN
[21] PCIE_RX4-
[21] PCIE_RX4+
Express Card
[33] PCIE_RX5-
[33] PCIE_RX5+
1394+Cardreader
[34] PCIE_RX6-/GLAN_RX-
[34] PCIE_RX6+/GLAN_RX+
Giga Bit LOM

PCI-Express

PERN1 N29
PERP1 N28
PETN1 P27
PETP1 P26
PERN2 L29
PERP2 L28
PETN2 M27
PETP2 M26
PERN3 J29
PERP3 J28
PETN3 K27
PETP3 K26
PERN4 G29
PERP4 G28
PETN4 H27
PETP4 H26
PERN5 E29
PERP5 E28
PETN5 F27
PETP5 F26
PERN6/GLAN_RXN C29
PERP6/GLAN_RXP C28
PETN6/GLAN_TXN D27
PETP6/GLAN_TXP D26

PCIE_TXN2_C
PCIE_TXP2_C
PCIE_TXN4_C
PCIE_TXP4_C
PCIE_TXN5_C
PCIE_TXP5_C
GLAN_TXN_C
GLAN_TXP_C

Direct Media Interface

DMI0RXN V27
DMI0RXP V26
DMI0TXN U29
DMI0TXP U28
DMI1RXN Y27
DMI1RXP Y26
DMI1TXN W29
DMI1TXP W28
DMI2RXN AB27
DMI2RXP AB26
DMI2TXN AA29
DMI2TXP AA28
DMI3RXN AD27
DMI3RXP AD26
DMI3TXN AC29
DMI3TXP AC28
DMI_CLKN T26
DMI_CLKP T25
DMI_ZCOMP AE29
DMI_IRCOMP AF28

DMI_MTX_IRX_N0 [6]
DMI_MTX_IRX_P0 [6]
DMI_MRX_ITX_N0 [6]
DMI_MRX_ITX_P0 [6]
DMI_MTX_IRX_N1 [6]
DMI_MTX_IRX_P1 [6]
DMI_MRX_ITX_N1 [6]
DMI_MRX_ITX_P1 [6]
DMI_MTX_IRX_N2 [6]
DMI_MTX_IRX_P2 [6]
DMI_MRX_ITX_N2 [6]
DMI_MRX_ITX_P2 [6]
DMI_MTX_IRX_N3 [6]
DMI_MTX_IRX_P3 [6]
DMI_MRX_ITX_N3 [6]
DMI_MRX_ITX_P3 [6]
CLK_PCIE_ICH# [17]
CLK_PCIE_ICH [17]

DMI_COMP
R322 1 2 24.9/F
+1.5V_PCIE_ICH

Place within 500mils of ICH9

SPI

T39 PAD
T44 PAD
T82 PAD
SPI_CLK_R
SPI_CS#0_R
ICH_SPI_CS1#_R
SPI_CLK D23
SPI_CS0# D24
SPI_CS1#/GPIO58/CLGPIO6 F23
T40 PAD
T45 PAD
SPI_MOSI
SPI_MISO
SPI_MOSI D25
SPI_MISO E23

USB

[27] USB_OC0_1#
[33] USB_OC_3#
USB_OC0_1#
USB_OC_3#
OC0#/GPIO59 N4
OC1#/GPIO40 N5
OC2#/GPIO41 N6
OC3#/GPIO42 P6
OC4#/GPIO43 M1
OC5#/GPIO29 N2
OC6#/GPIO30 M4
OC7#/GPIO31 M3
OC8#/GPIO44 N3
OC9#/GPIIO45 N1
OC10#/GPIO46 P5
OC11#/GPIO47 P3

USBP0N AC5
USBP0P AC4
USBP1N AD3
USBP1P AD2
USBP2N AC1
USBP2P AC2
USBP3N AA5
USBP3P AA4
USBP4N AB2
USBP4P AB3
USBP5N AA1
USBP5P AA2
USBP6N W5
USBP6P W4
USBP7N Y3
USBP7P Y2
USBP8N W1
USBP8P W2
USBP9N V2
USBP9P V3
USBP10N U5
USBP10P U4
USBP11N U1
USBP11P U2

ICH_USBP0- [27]
ICH_USBP0+ [27]
ICH_USBP1- [27]
ICH_USBP1+ [27]
ICH_USBP2- [33]
ICH_USBP2+ [33]
ICH_USBP3- [33]
ICH_USBP3+ [33]
ICH_USBP4- [18]
ICH_USBP4+ [18]
PAD T113
PAD T148
PAD T149
PAD T151
ICH_USBP7- [21]
ICH_USBP7+ [21]
ICH_USBP8- [26]
ICH_USBP8+ [26]
PAD T90
PAD T147
PAD T83
PAD T84
PAD T145
PAD T144

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

R354 22.6/F
USBRBIAS AG2
USBRBIAS AG1
USBRBIAS
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

RP39 10KX8
+3.3V_SUS
OC7# 6
OC6# 7
OC5# 8
OC4# 9
10
5 OC9#
4 USB_OC_3#
3 USB_OC0_1#
2 OC8#
1
OC10# R207 2 1 10K
OC11# R225 2 1 10K
+3.3V_SUS

PCI Pullups

RP37
+3.3V_RUN
PCI_FRAME# 6
PCI_TRDY# 7
PCI_DEVSEL# 8
PCI_REQ1# 9
+3.3V_RUN 10
5 PCI_PLOCK#
4 PCI_STOP#
3 PCI_PIRQD#
2 PCI_PERR#
1

RP38
+3.3V_RUN
PCI_IRDY# 6
PCI_PIRQC# 7
PCI_PIRQE# 8
PCI_PIRQB# 9
+3.3V_RUN 10
5
4 PCI_PIRQA#
3 PCI_REQ0#
2 ICH_IRQH_GPIO5
1 PCI_SERR#
PCI_REQ2# R202 2 1 8.2K +3.3V_RUN

U19B

PCI

AD0 D11
AD1 C8
AD2 D9
AD3 E12
AD4 E9
AD5 C9
AD6 E10
AD7 B7
AD8 C7
AD9 C5
AD10 G11
AD11 F8
AD12 F11
AD13 E7
AD14 A3
AD15 D2
AD16 F10
AD17 D5
AD18 D10
AD19 B3
AD20 F7
AD21 C3
AD22 F3
AD23 F4
AD24 C1
AD25 G7
AD26 H7
AD27 D1
AD28 G5
AD29 H6
AD30 G1
AD31 H3

REQ0# F1 PCI_REQ0#
GNT0# G4 PCI_GNT0#
REQ1#/GPIO50 B6 PCI_REQ1#
GNT1#/GPIO51 A7 PCI_GNT1#
REQ2#/GPIO52 E13 PCI_REQ2#
GNT2#/GPIO53 E12 PCI_GNT2#
REQ3#/GPIO54 E6 GPIO54
GNT3#/GPIO55 F6 PCI_GNT3#

PAD T2080
PAD T86
PAD T73
PAD T77

C/BE0# D8
C/BE1# B4
C/BE2# D6
C/BE3# A5

IRDY# D3 PCI_IRDY#
PAR E3
PCIRST# R1
DEVSEL# C6 PCI_DEVSEL#
PERR# E4 PCI_PERR#
PLOCK# C2 PCI_PLOCK#
SERR# J4 PCI_SERR#
STOP# A4 PCI_STOP#
TRDY# F5 PCI_TRDY#
FRAME# D7 PCI_FRAME#

PAD T88

PLTRST# C14 PLTRST#
PCICLK D4 CLK_PCI_ICH
PME# R2

PLTRST# [6,21,23,26,33,34]
CLK_PCI_ICH [17]

Interrupt I/F

PCI_PIRQA# J5 PIRQA#
PCI_PIRQB# E1 PIRQB#
PCI_PIRQC# J6 PIRQC#
PCI_PIRQD# C4 PIRQD#

PIRQE#/GPIO2 H4 PCI_PIRQE#
PIRQF#/GPIO3 K6 GPIO3
PIRQG#/GPIO4 F2 GPIO4
PIRQH#/GPIO5 G2 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.

+3.3V_RUN
GPIO3 R211 2 1 8.2K
GPIO4 R238 2 1 8.2K
GPIO54 R386 2 1 8.2K
BIOS should not enable the internal GPIO pull up resistor.

QUANTA COMPUTER

Title	ICH9-M (USB,DMI,PCIE,PCI)	
Size	Document Number VM8N	Rev 2A
Date: Thursday, November 11, 2010	Sheet 12 of 46	

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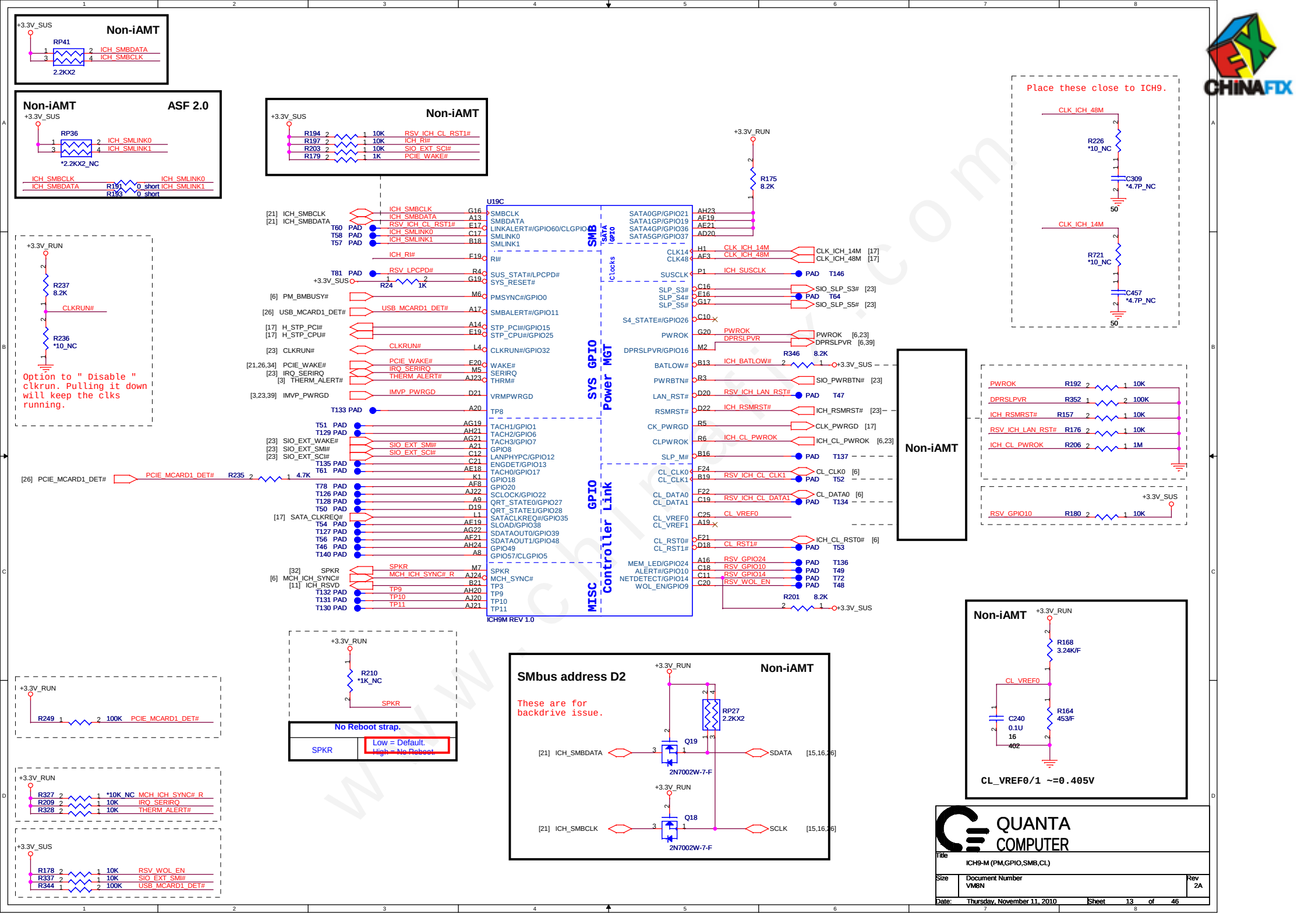
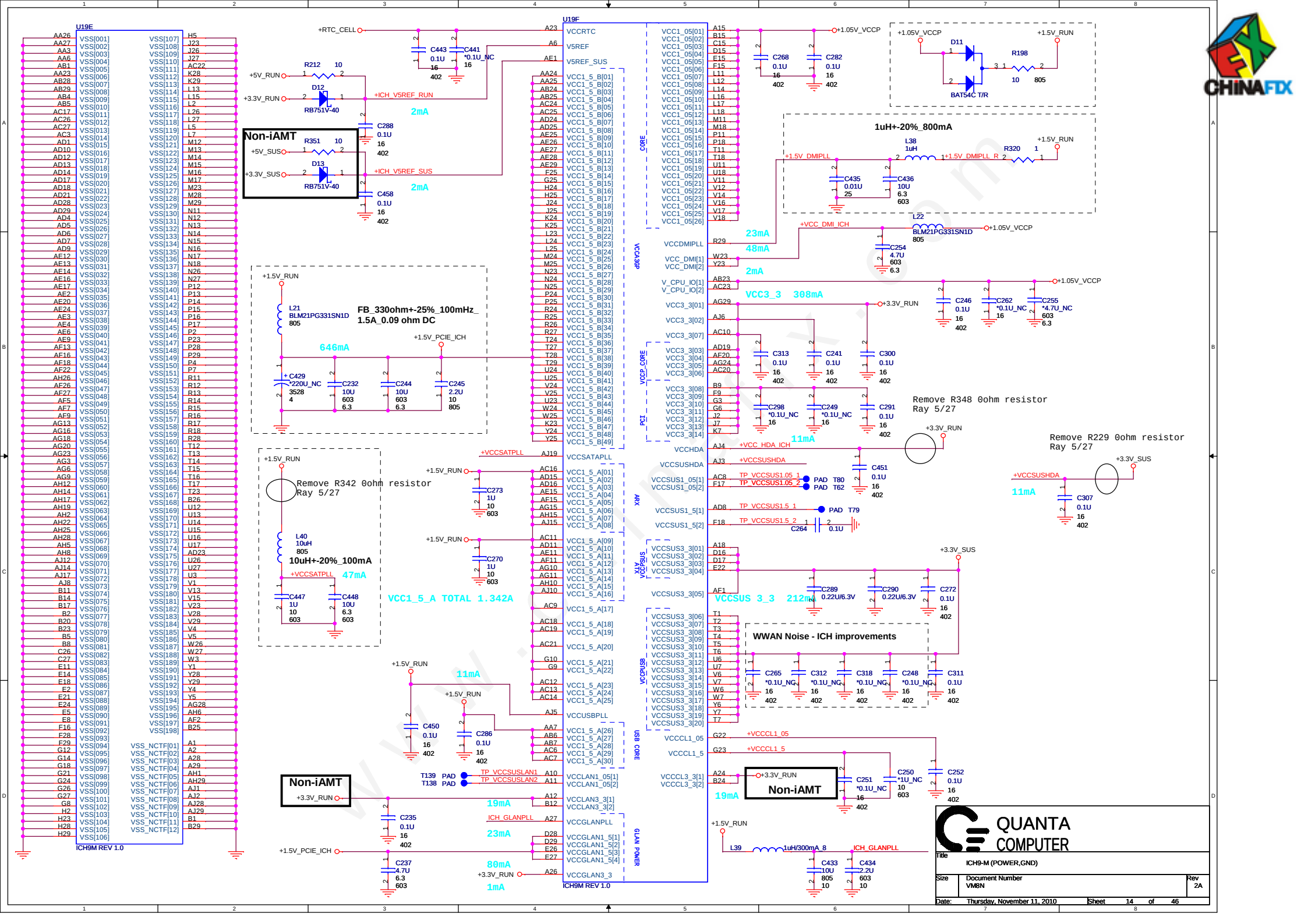

Non-iAMT
+3.3V_SUS
RP41
ICH_SMBDATA
ICH_SMBCLK
2.2KX2
Non-iAMT
ASF 2.0
RP36
ICH_SMLINK0
ICH_SMLINK1
*2.2KX2_NC
R191 0_short
R193 0_short
Non-iAMT
R194 10K RSV_ICH_CL_RST1#
R197 10K ICH_RI#
R203 10K SIO_EXT_SCI#
R179 1K PCIE_WAKE#
+3.3V_RUN
R175 8.2K
Place these close to ICH9.
CLK_ICH_48M
R226 *10_NC
C309 *4.7P_NC
CLK_ICH_14M
R721 *10_NC
C457 *4.7P_NC
U19C
SMBCLK
SMBDATA
LINKALERT#/GPIO60/CLGPIO
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
ICH9M REV 1.0
SMB
SATA GPIO
Clocks
SYS_GPIO
Power MGT
GPIO
Controller Link
MISC
SATA0GP/GPIO21
SATA1GP/GPIO19
SATA4GP/GPIO36
SATA5GP/GPIO37
CLK14
CLK48
SUSCLK
SLP_S3#
SLP_S4#
SLP_S5#
S4_STATE#/GPIO26
PWROK
DPRSLPVR/GPIO16
BATLOW#
PWRBTN#
LAN_RST#
RSMRST#
CK_PWRGD
CLPWROK
SLP_M#
CL_CLK0
CL_CLK1
CL_DATA0
CL_DATA1
CL_VREF0
CL_VREF1
CL_RST0#
CL_RST1#
MEM_LED/GPIO24
ALERT#/GPIO10
NETDETECT/GPIO14
WOL_EN/GPIO9
R346 8.2K
R201 8.2K
Non-iAMT
PWROK R192 10K
DPRSLPVR R352 100K
ICH_RSMRST# R157 10K
RSV_ICH_LAN_RST# R176 10K
ICH_CL_PWROK R206 1M
RSV_GPIO10 R180 10K
Option to " Disable " clkrun. Pulling it down will keep the clks running.
R237 8.2K
CLKRUN#
R236 *10_NC
PCIE_MCARD1_DET# R235 4.7K
R210 *1K_NC
SPKR
No Reboot strap.
Low = Default.
High = No Reboot.
SMbus address D2
These are for backdrive issue.
RP27 2.2KX2
Q19
2N7002W-7-F
Q18
2N7002W-7-F
Non-iAMT
R168 3.24K/F
C240 0.1U 16 402
R164 453/F
CL_VREF0/1 ~=0.405V
R249 100K PCIE_MCARD1_DET#
R327 *10K_NC MCH_ICH_SYNC# R
R209 10K IRQ_SERIRQ
R328 10K THERM_ALERT#
R178 10K RSV_WOL_EN
R337 10K SIO_EXT_SMI#
R344 100K USB_MCARD1_DET#
QUANTA COMPUTER
Title ICH9-M (PM,GPIO,SMB,CL)
Size Document Number VM8N Rev 2A
Date: Thursday, November 11, 2010 Sheet 13 of 46


U19E
ICH9M REV 1.0
U19F
ICH9M REV 1.0
+RTC_CELL
C443 0.1U 16 402
C441 *0.1U_NC 16
R212 10
+5V_RUN
+3.3V_RUN
D12 RB751V-40
+ICH_V5REF_RUN
2mA
C288 0.1U 16 402
Non-iAMT
R351 10
+5V_SUS
+3.3V_SUS
D13 RB751V-40
+ICH_V5REF_SUS
2mA
C458 0.1U 16 402
+1.5V_RUN
L21 BLM21PG331SN1D 805
FB_330ohm+-25%_100mHz_ 1.5A_0.09 ohm DC
646mA
+1.5V_PCIE_ICH
C429 *220U_NC 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
+VCCSATPLL
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
+3.3V_RUN
19mA
C235 0.1U 16 402
ICH_GLANPLL
23mA
C237 4.7U 6.3 603
80mA
1mA
T139 PAD TP_VCCSUSLAN1
T138 PAD TP_VCCSUSLAN2
+1.05V_VCCP
C268 0.1U 16 402
C282 0.1U 16 402
+1.5V_VCCP
D11
R198 10 805
BAT54C T/R
1uH+-20%_800mA
L38 1uH
+1.5V_DMIPLL
+1.5V_DMIPLL_R
R320
C435 0.01U 25
C436 10U 6.3 603
23mA
+VCC_DMI_ICH
L22 BLM21PG331SN1D 805
C254 4.7U 603 6.3
48mA
2mA
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
+VCC_HDA_ICH
C451 0.1U 16 402
+VCCSUSHDA
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
VCCSUS 3_3 212mA
C289 0.22U/6.3V
C290 0.22U/6.3V
C272 0.1U 16 402
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
+VCCCL1_05
+VCCCL1_5
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 VM8N
Rev: 2A
Date: Thursday, November 11, 2010
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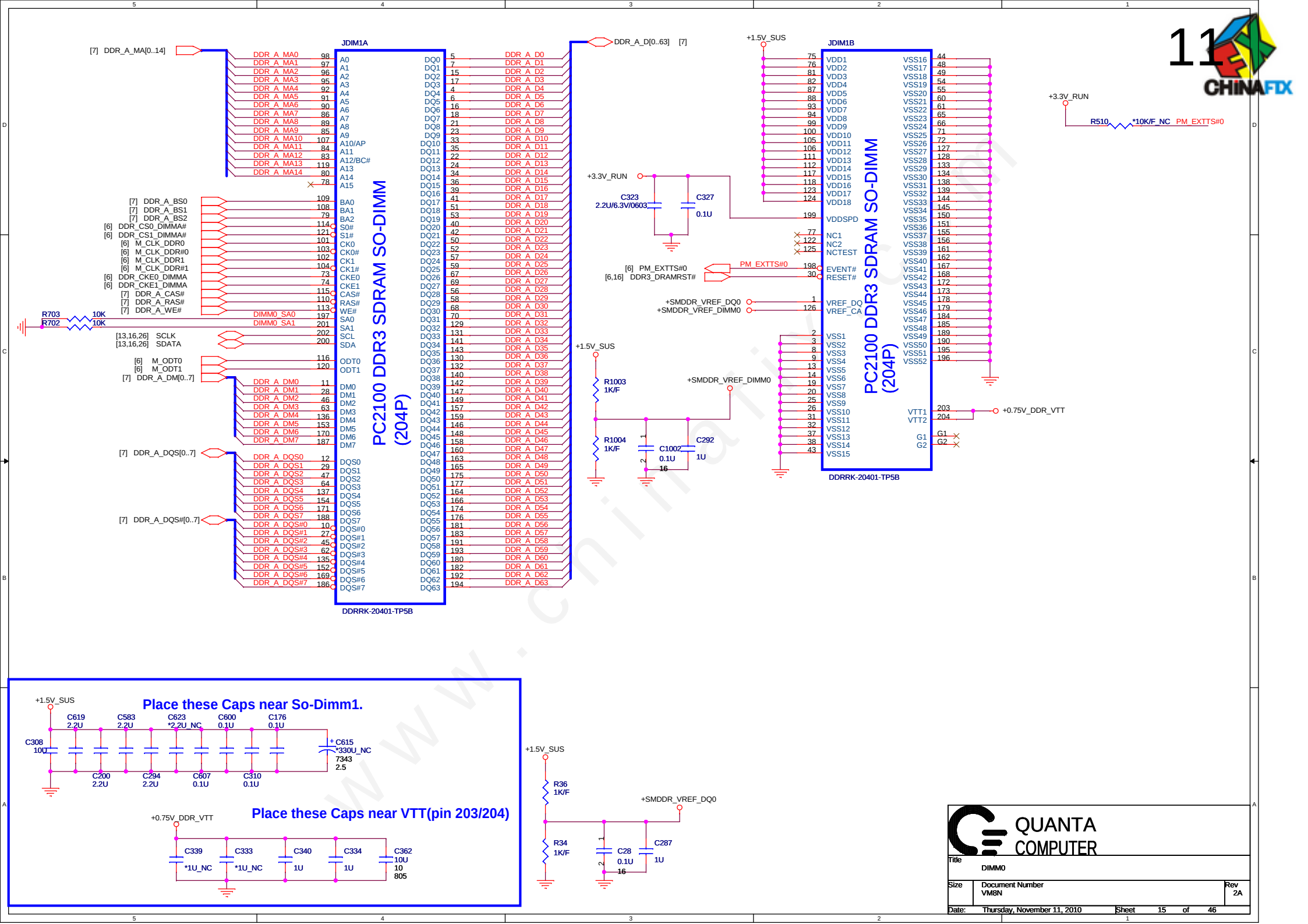

Title	DIMM0		
Size	Document Number VM8N		Rev 2A
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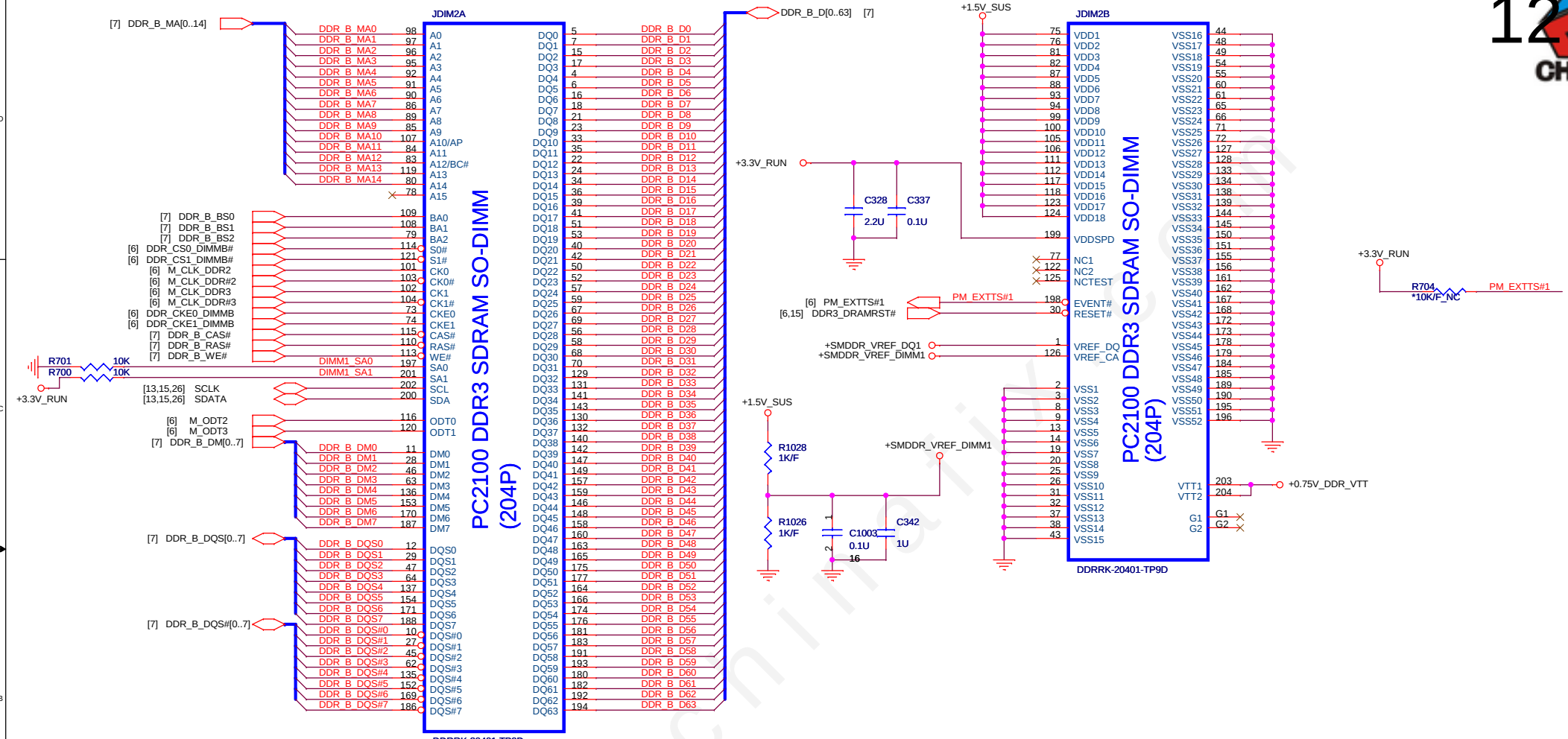

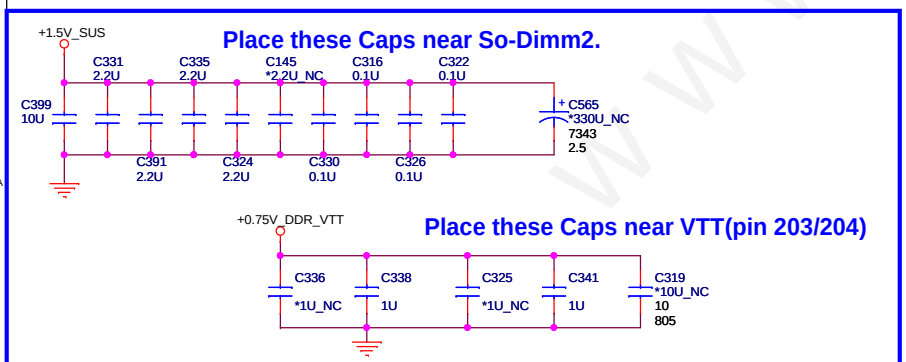

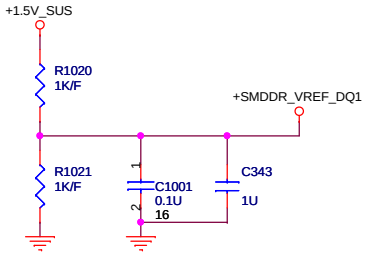

QUANTA COMPUTER

Title	DIMM1	
Size	Document Number VM8N	Rev 2A
Date: Thursday, November 11, 2010	Sheet 16 of 46	

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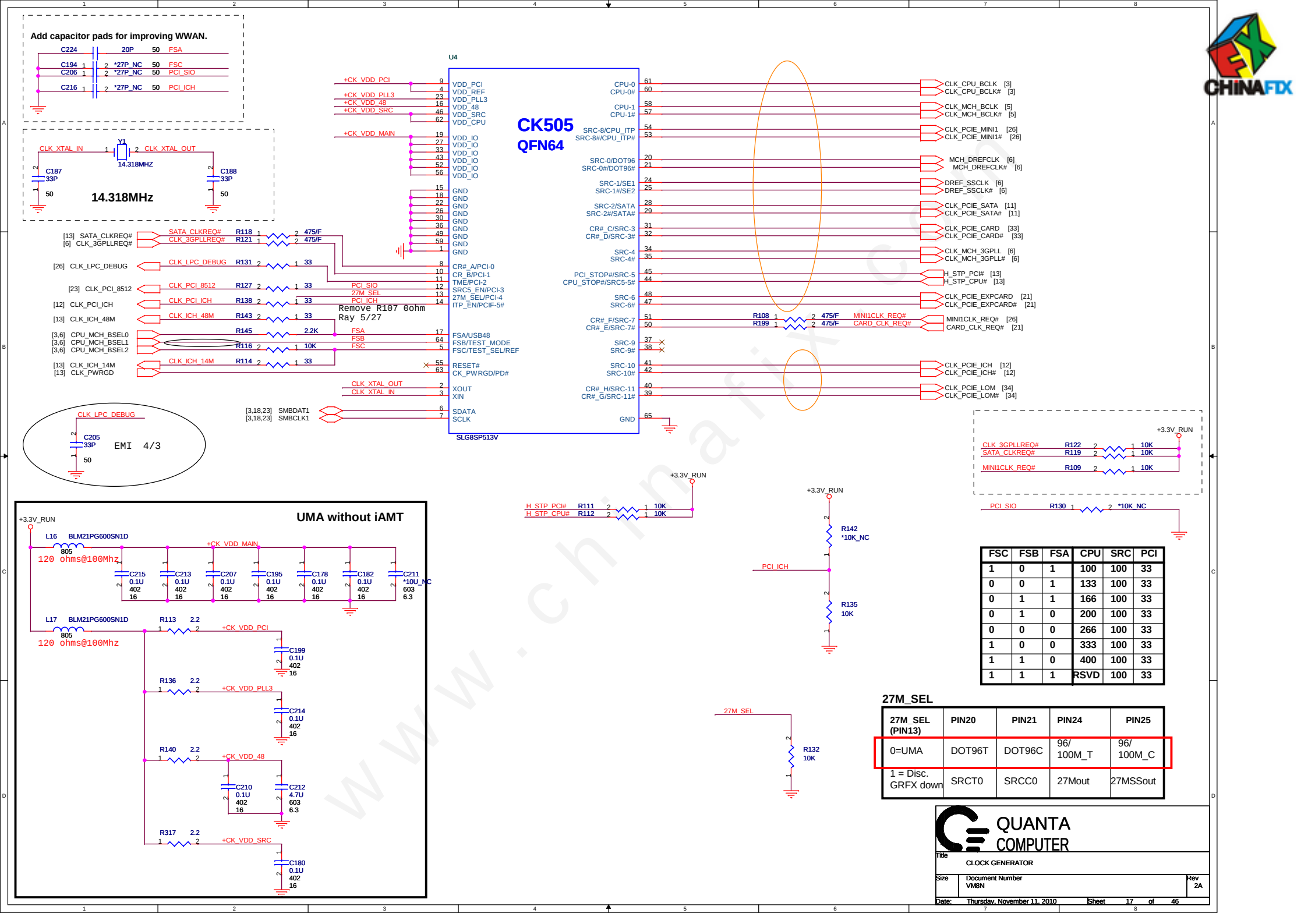

FSC	FSB	FSA	CPU	SRC	PCI
1	0	1	100	100	33
0	0	1	133	100	33
0	1	1	166	100	33
0	1	0	200	100	33
0	0	0	266	100	33
1	0	0	333	100	33
1	1	0	400	100	33
1	1	1	RSVD	100	33

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 VM8N	Rev 2A
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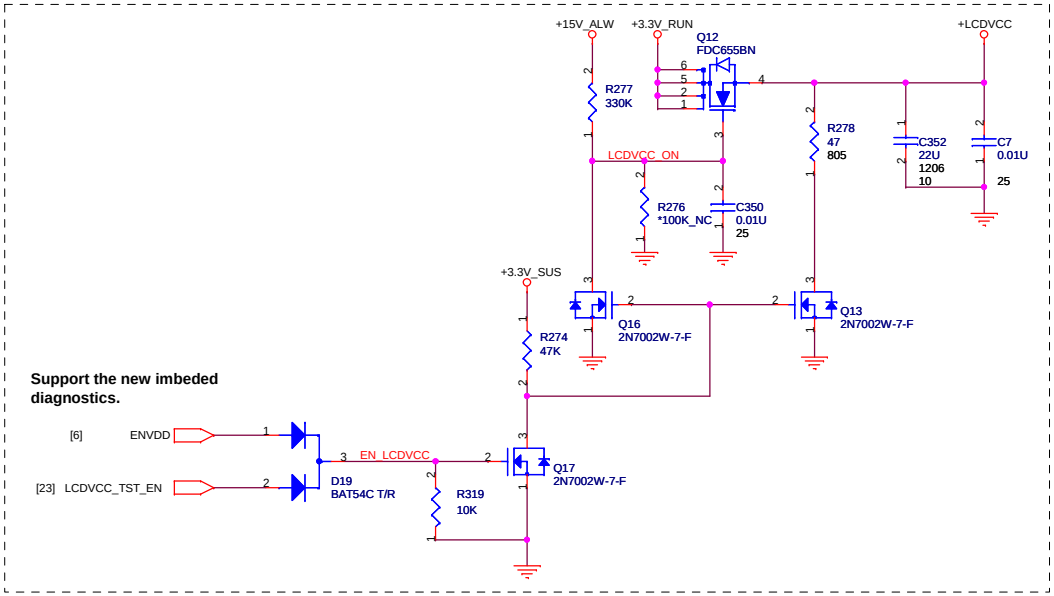
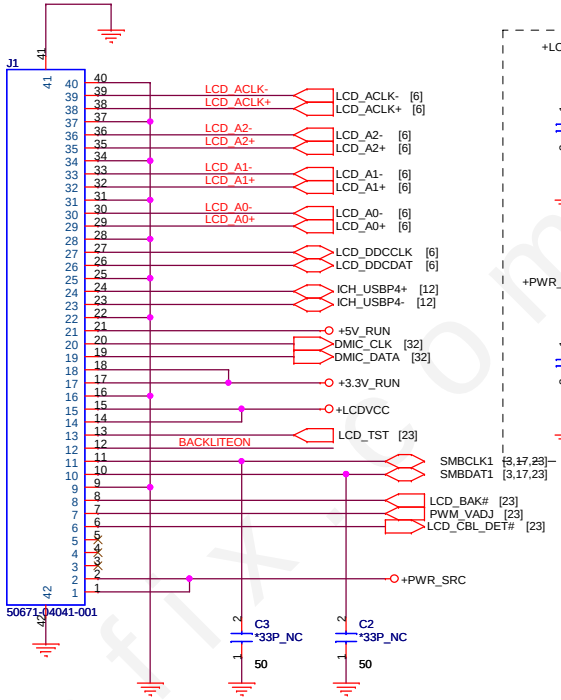
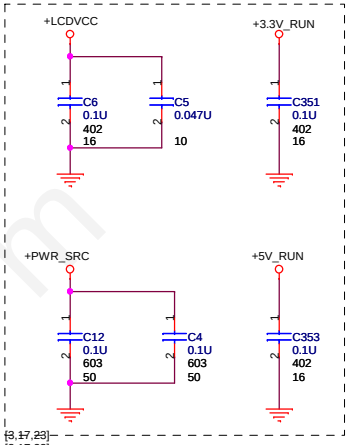
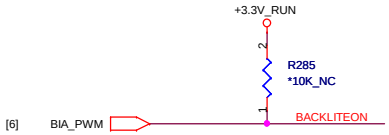


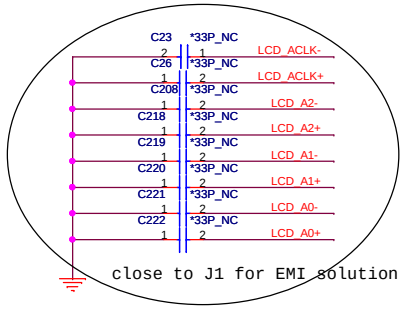




Adress : A9H --Contrast
AAH --Backlight



For DPST support



close to J1 for EMI solution

3

QUANTA COMPUTER		
Title: LCD CONN & CK-SSCD		
Size	Document Number: VM8N	Rev: 2A
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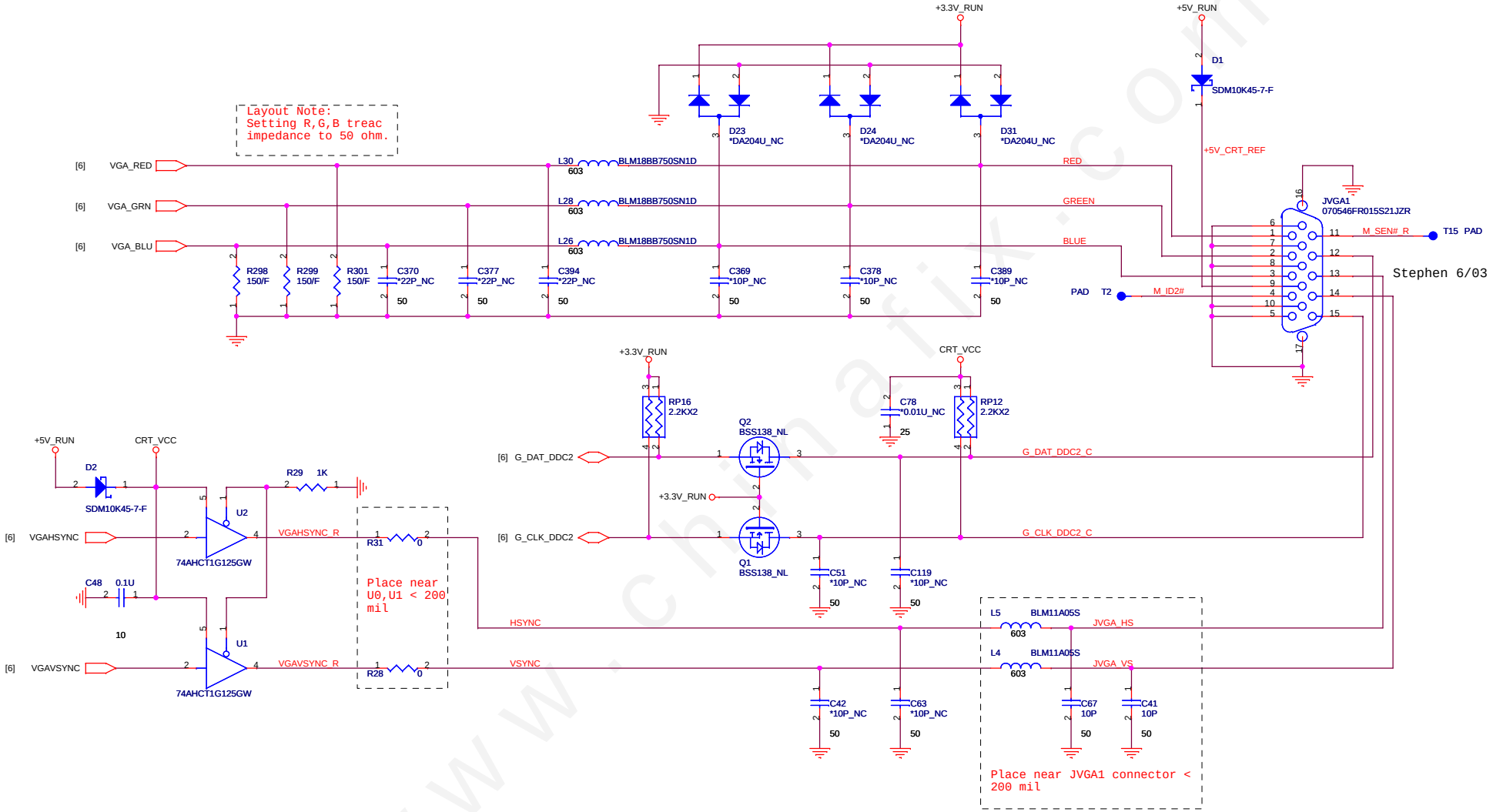

QUANTA COMPUTER			
Title	CRT&TV CONN		
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Date:	Thursday, November 11, 2010	Sheet 19 of 46	

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QUANTA COMPUTER

Title	Card Reader-RTS5158E	
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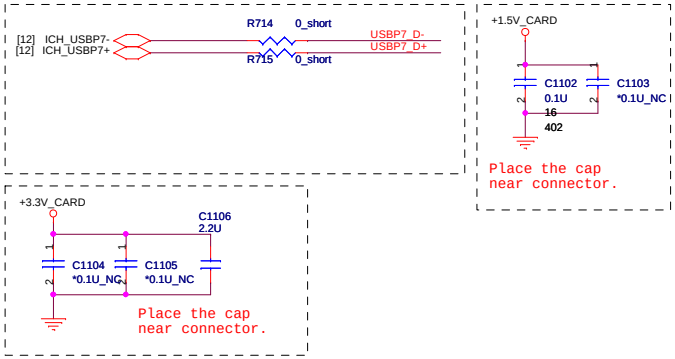
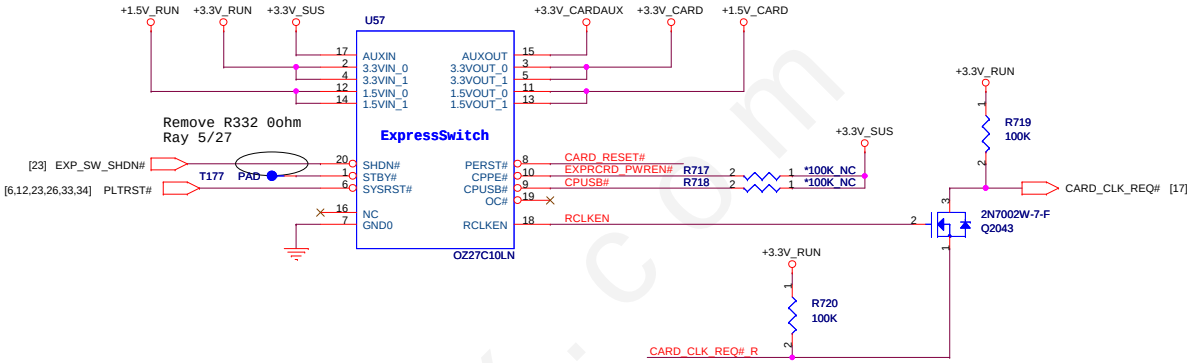
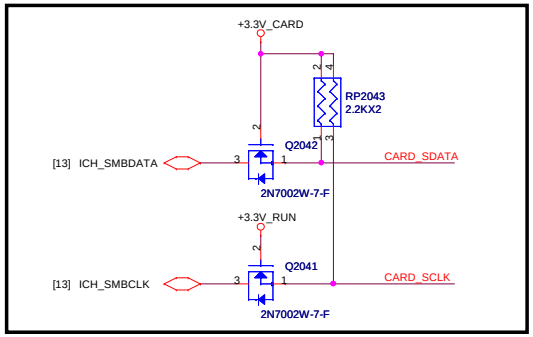
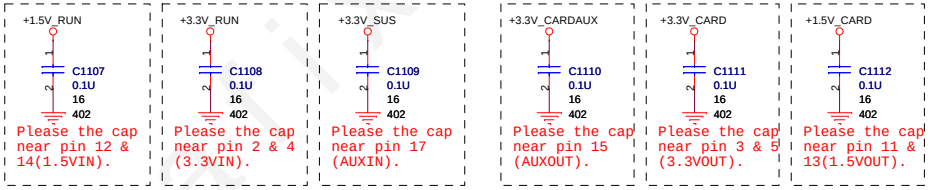
+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.

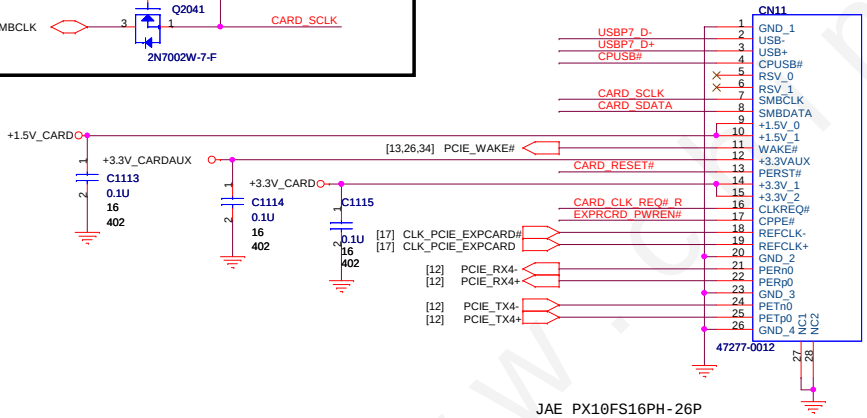








Express Card



JAE PX10FS16PH-26P

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Title	Express Card	
Size	Document Number VM8N	Rev 2A
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QUANTA COMPUTER

Title	black	
Size	Document Number VM8N	Rev 2A
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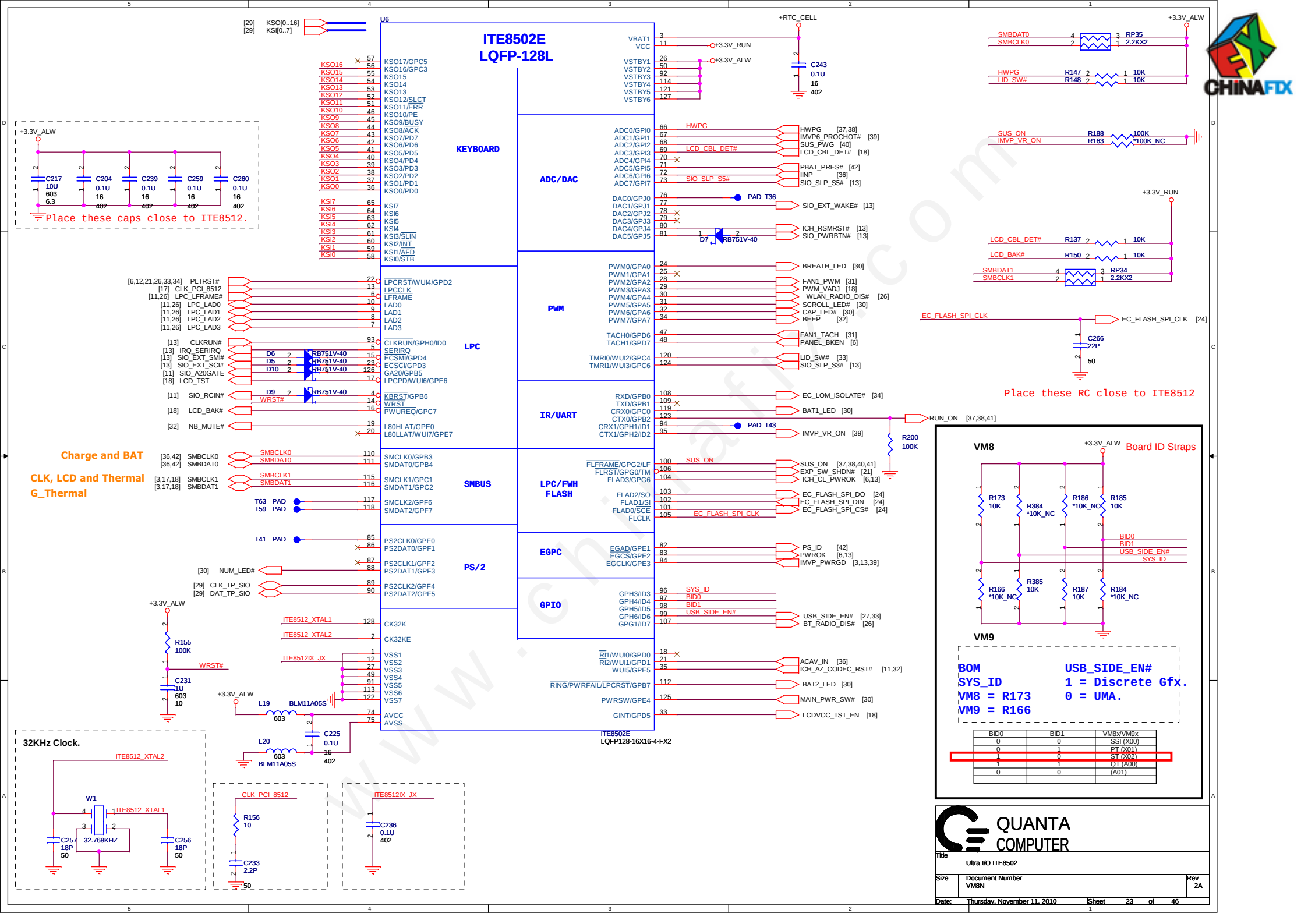
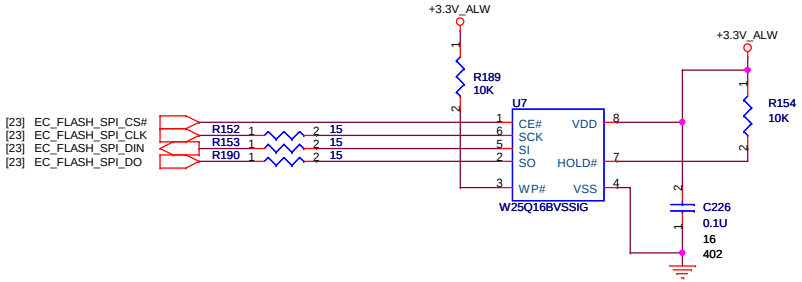
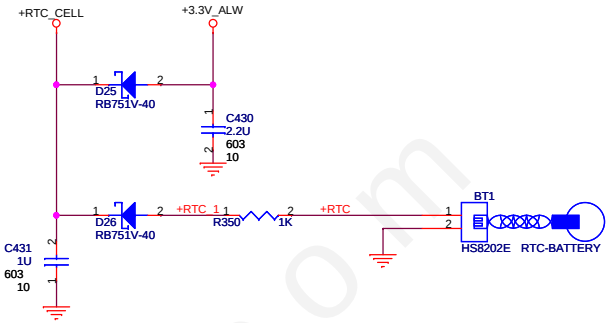


BID0	BID1	VM8x/VM9x
0	0	SSI (X00)
0	1	PT (X01)
1	0	ST (X02)
1	1	QT (A00)
0	0	(A01)

16Mbit (2M Byte), SPI



RTC BATTERY



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QUANTA COMPUTER

Title	Ultra I/O Controller ECE5028	
Size	Document Number VM8N	Rev 2A
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QUANTA COMPUTER

Title	Black	
Size	Document Number VM8N	Rev 2A
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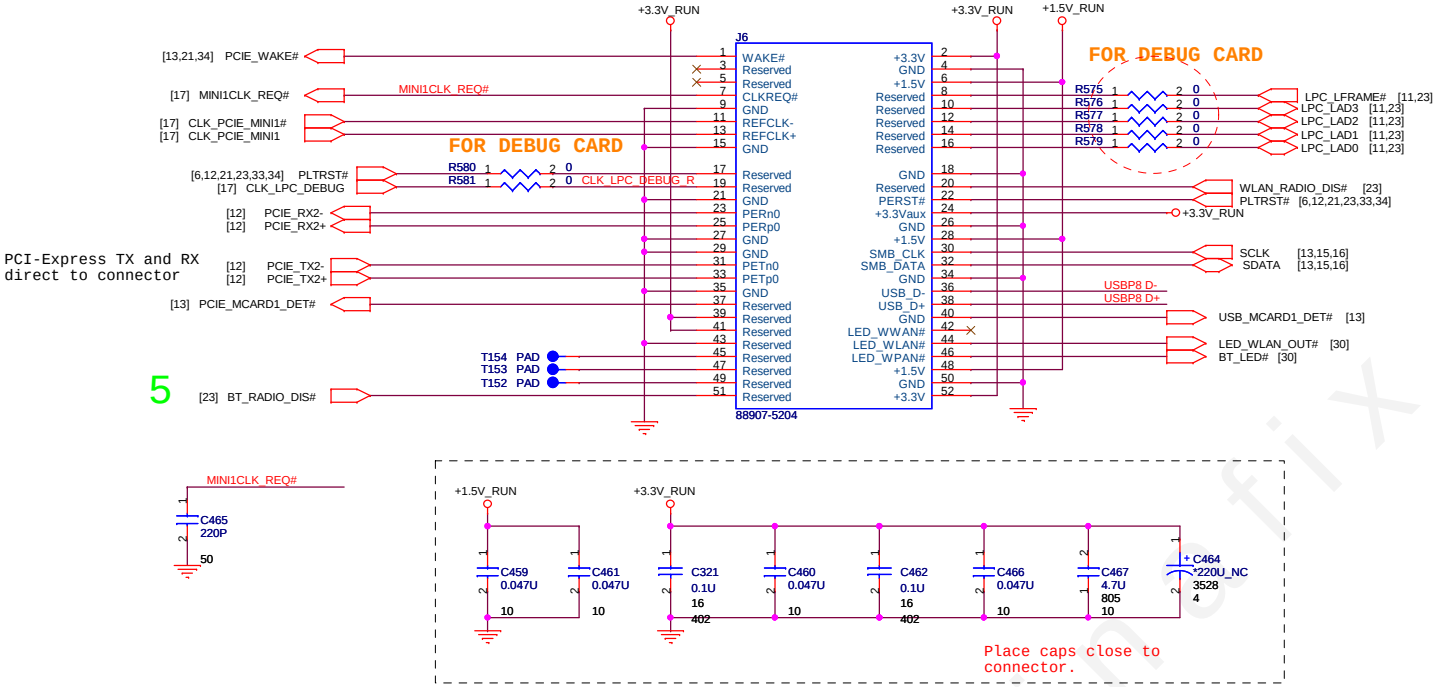
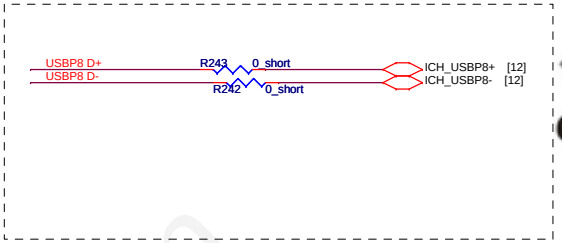
MiniCard WLAN & BT connector





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QUANTA COMPUTER

Title	MDC CONN.	
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Date: Thursday, November 11, 2010	Sheet 26 of 46	

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

[12] ICH_USBP0-
[12] ICH_USBP0+
R120 0_short
R125 0_short
USBP0_D-
USBP0_D+

[12] ICH_USBP1-
[12] ICH_USBP1+
R115 0_short
R117 0_short
USBP1_D-
USBP1_D+

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

USB0

JUSB1
C10781-104A3-L
GND8 GND7 GND5 GND6 VDD D- D+ GND4
+USB_SIDE_PWR
USBP0_D-
USBP0_D+

USB1

JUSB2
C10781-104A3-L
GND8 GND7 GND5 GND6 VDD D- D+ GND4
+USB_SIDE_PWR
USBP1_D-
USBP1_D+
+ C648
100U
25

ESD1
*SRV05-4.TCT_NC
USBP0_D-
USBP0_D+
USBP1_D+
+USB_SIDE_PWR
USBP1_D-

I continuous 2A
I short 2.3A

+5V_SUS
C8783
*1U_NC
10
C320
10U
C305
0.1U/16V
U18
UP7534BRA8-15
IN1 IN2 EN# GND OUT3 OUT2 OUT1 OC#
+USB_SIDE_PWR
[23,33] USB_SIDE_EN#
USB_OC0_1# [12]

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Title	SERIAL PORT & USB	
Size	Document Number VM8N	Rev 2A
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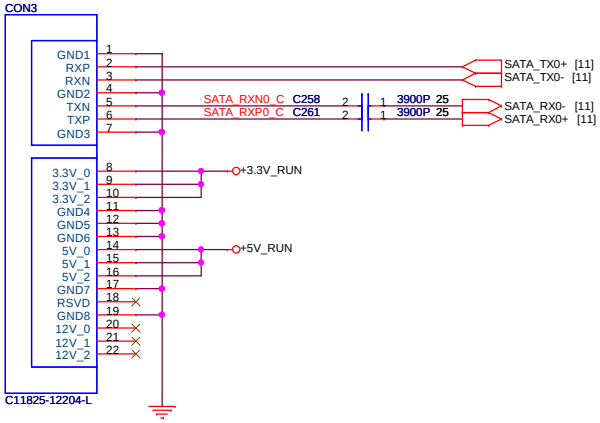
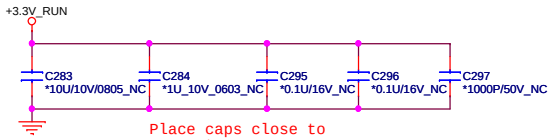
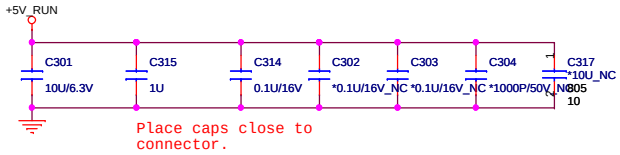
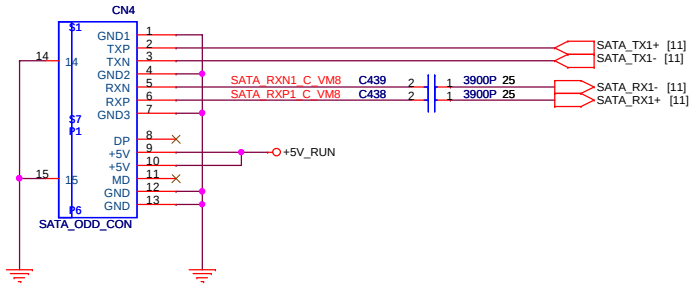
SATA HDD Connector.

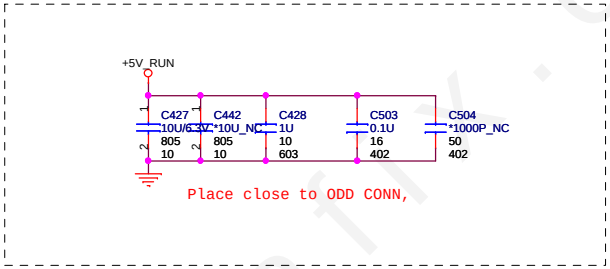






SATA ODD Connector.





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QUANTA COMPUTER

Title	SATA (HDD&CD_ROM)	
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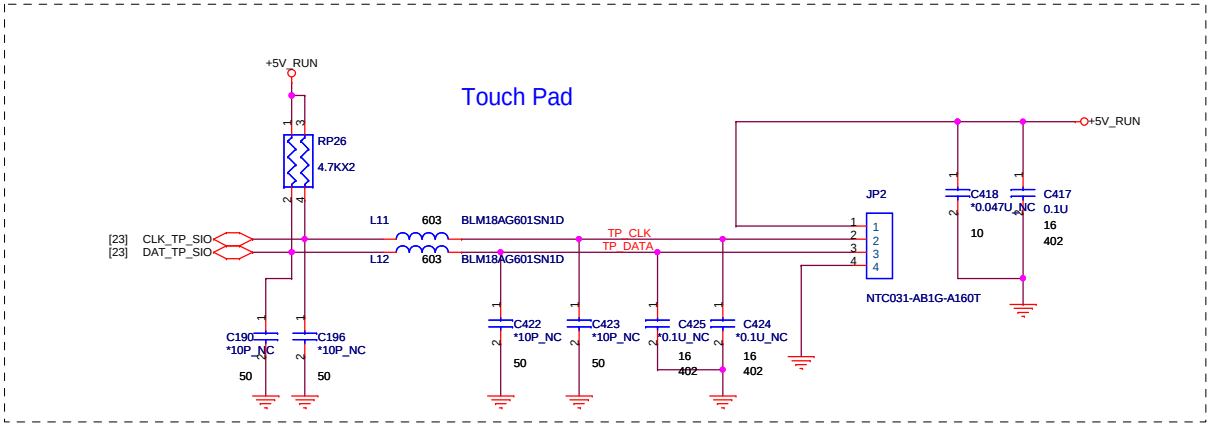
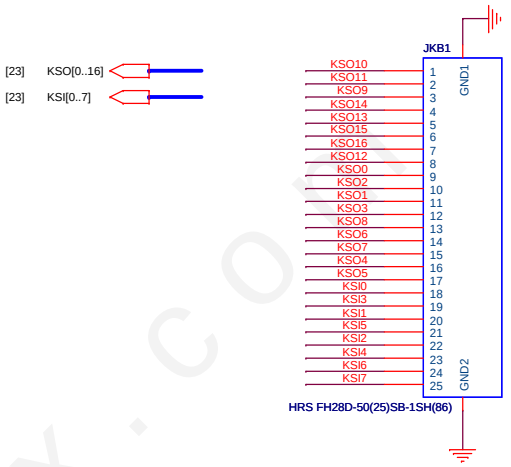
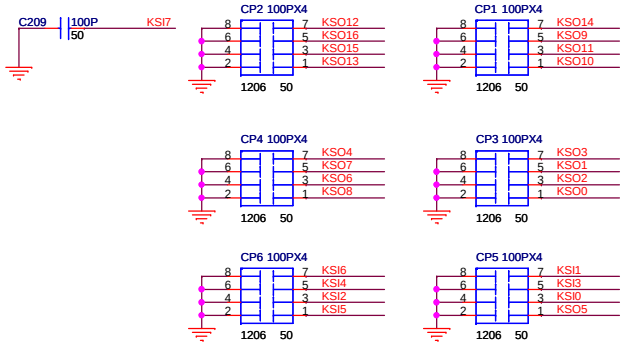
Date: Thursday, November 11, 2010	Sheet 28 of 46	



KEYBOARD CONNECTOR





100P CAPS CLOSE TO JKB1

QUANTA COMPUTER

Title	TOUCH PAD, BULE TOOTH & FIR	
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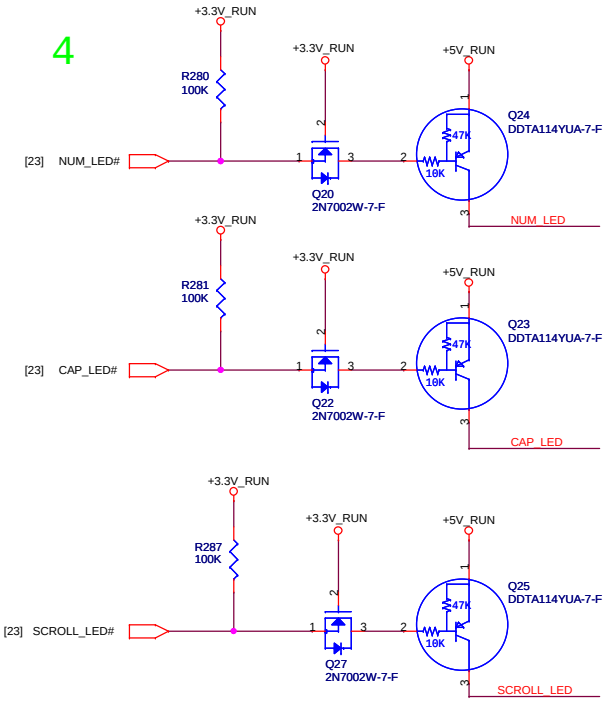
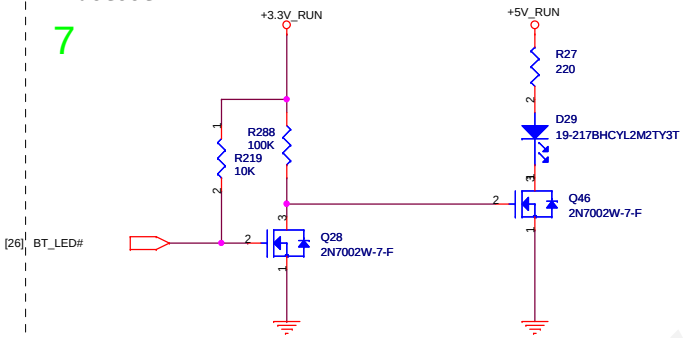
Keyboard LED

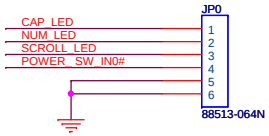


Bluetooth

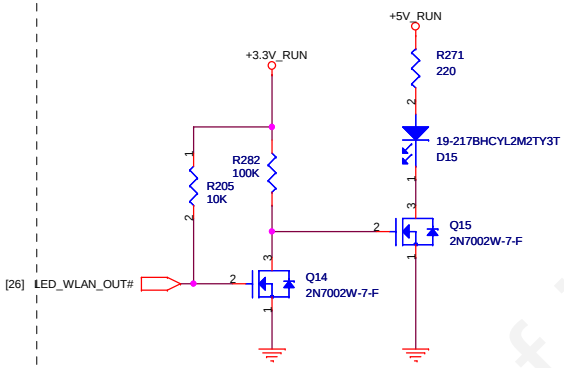


Dash board connector

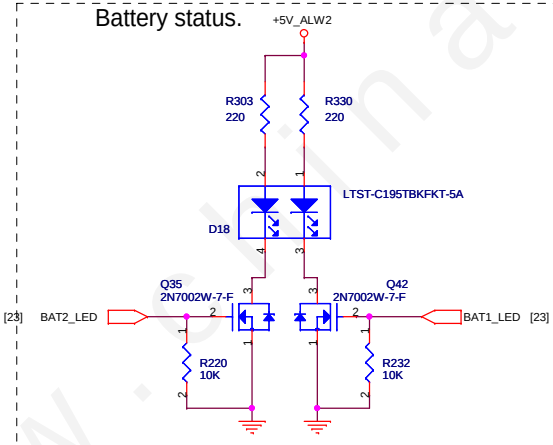
Keyboard LED



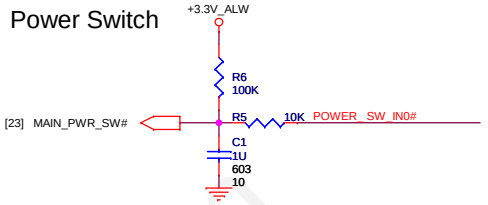
WLAN



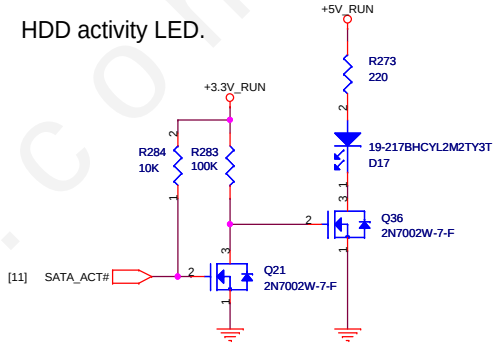
Battery status.

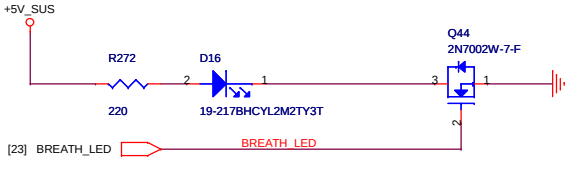


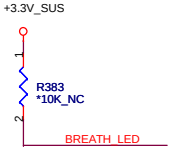
Power Switch



HDD activity LED.







QUANTA COMPUTER		
Title: SWITCH, KEYBOARD & LED		
Size	Document Number: VM8N	Rev: 2A
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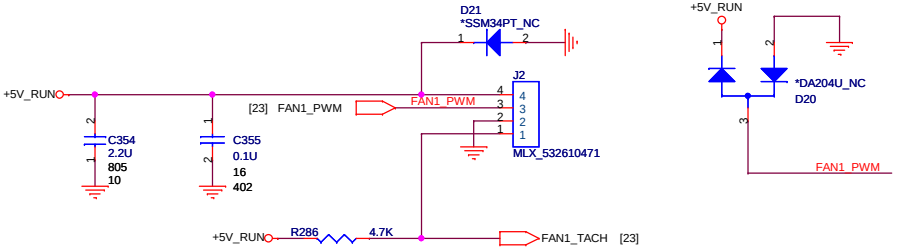

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QUANTA COMPUTER

Title	FAN & THERMAL	
Size	Document Number VM8N	Rev 2A
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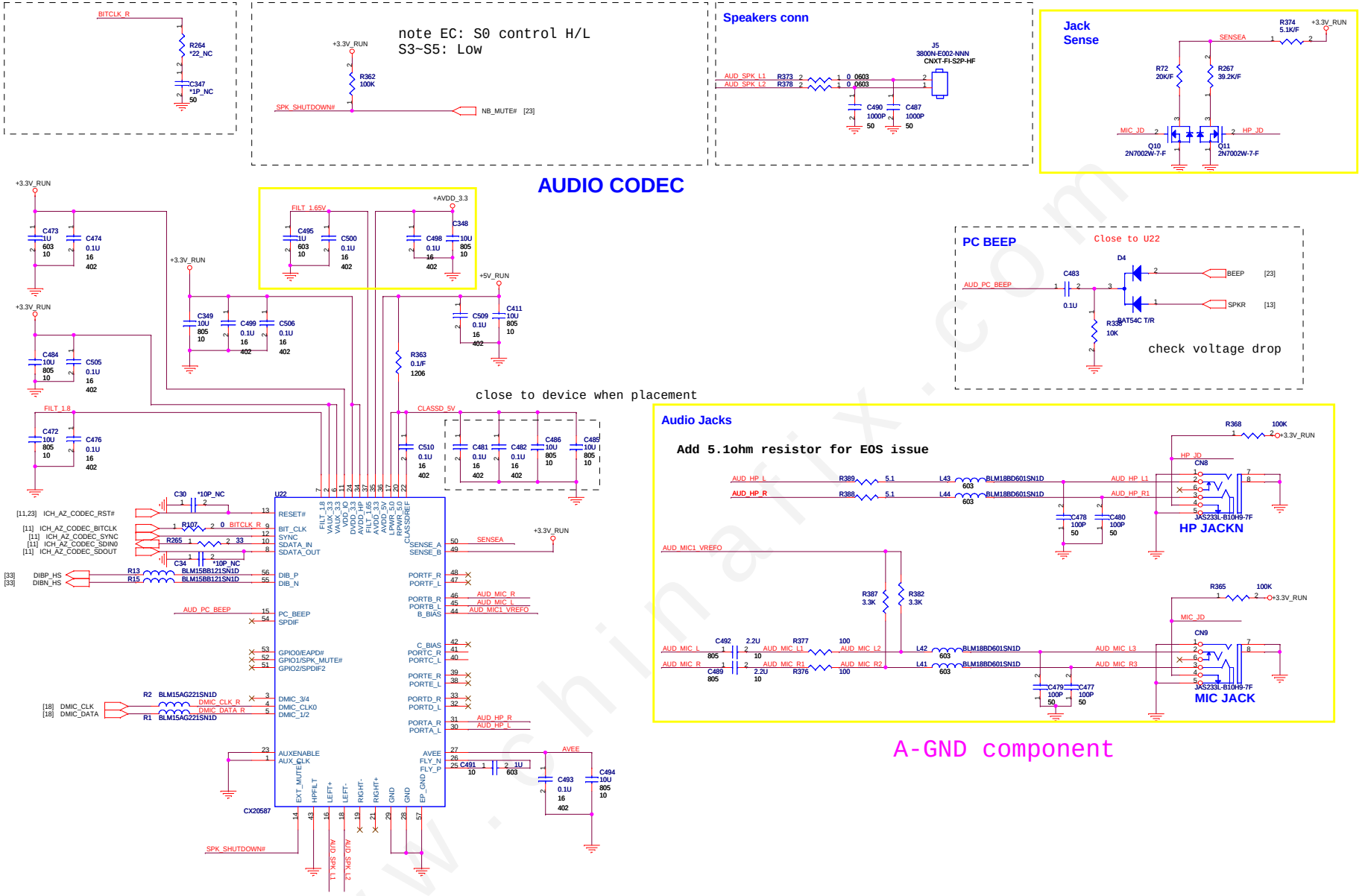
AUDIO CODEC



6

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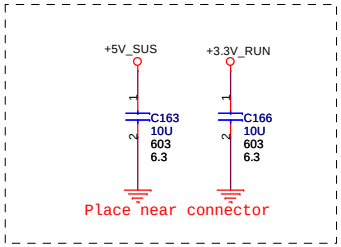
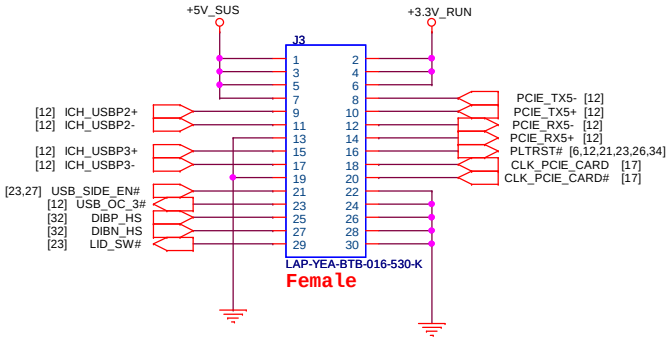
QUANTA COMPUTER

Title		
Size	Document Number VM8N	Rev 2A
Date: Thursday, November 11, 2010	Sheet 32 of 46	





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

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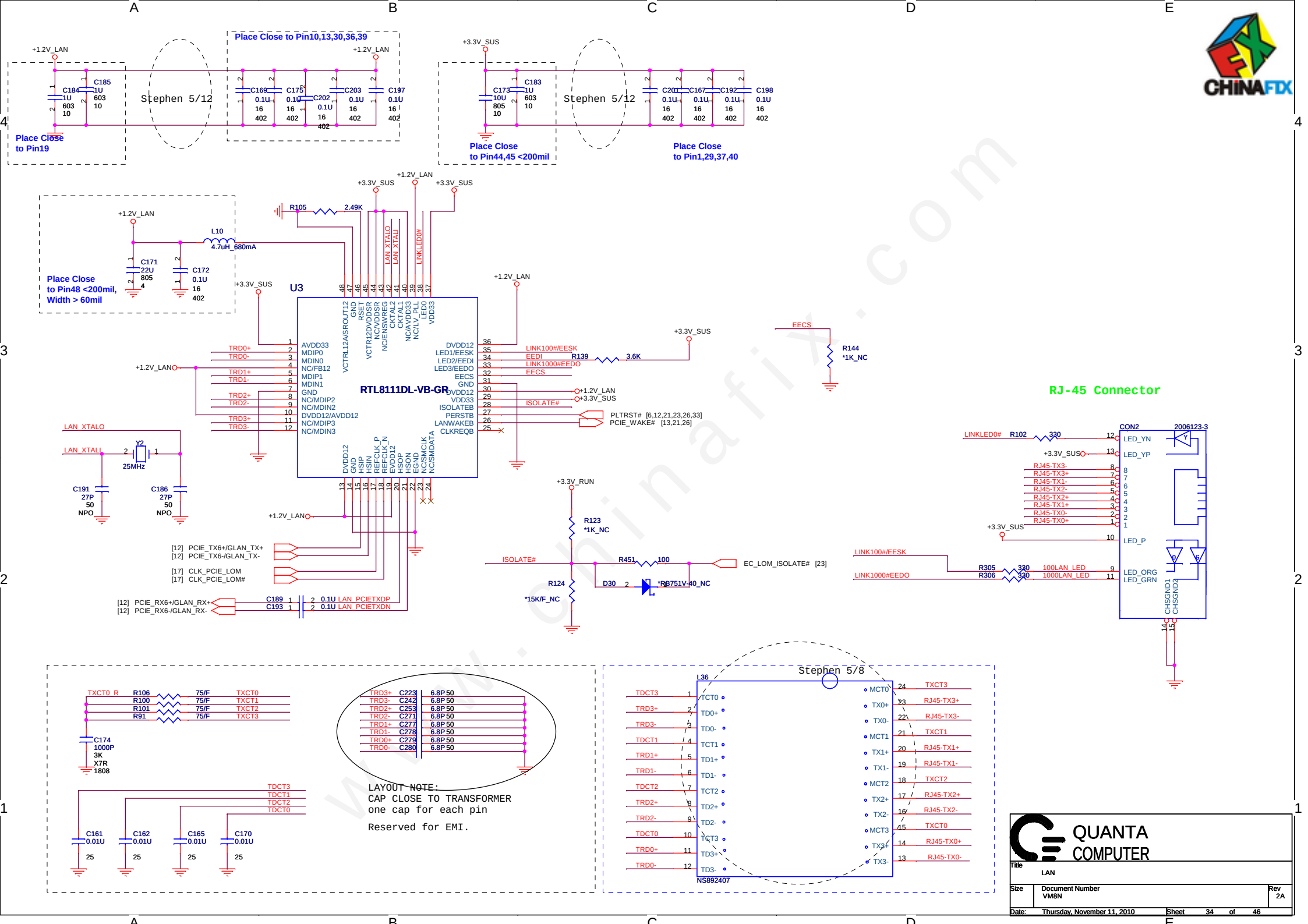
QUANTA COMPUTER

Title		
Size	Document Number VM8N	Rev 2A
Date: Thursday, November 11, 2010	Sheet 33 of 46	


Place Close to Pin10,13,30,36,39
Stephen 5/12
Place Close to Pin19
Place Close to Pin44,45 <200mil
Place Close to Pin1,29,37,40
Place Close to Pin48 <200mil, Width > 60mil
U3
RTL8111DL-VB-GR
RJ-45 Connector
Stephen 5/8
LAYOUT NOTE:
CAP CLOSE TO TRANSFORMER
one cap for each pin
Reserved for EMI.
NS892407
QUANTA COMPUTER
Title LAN
Size Document Number VM8N Rev 2A
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QUANTA COMPUTER

Title	System Reset Circuit	
Size	Document Number VM8N	Rev 2A
Date: Thursday, November 11, 2010	Sheet 35 of 46	

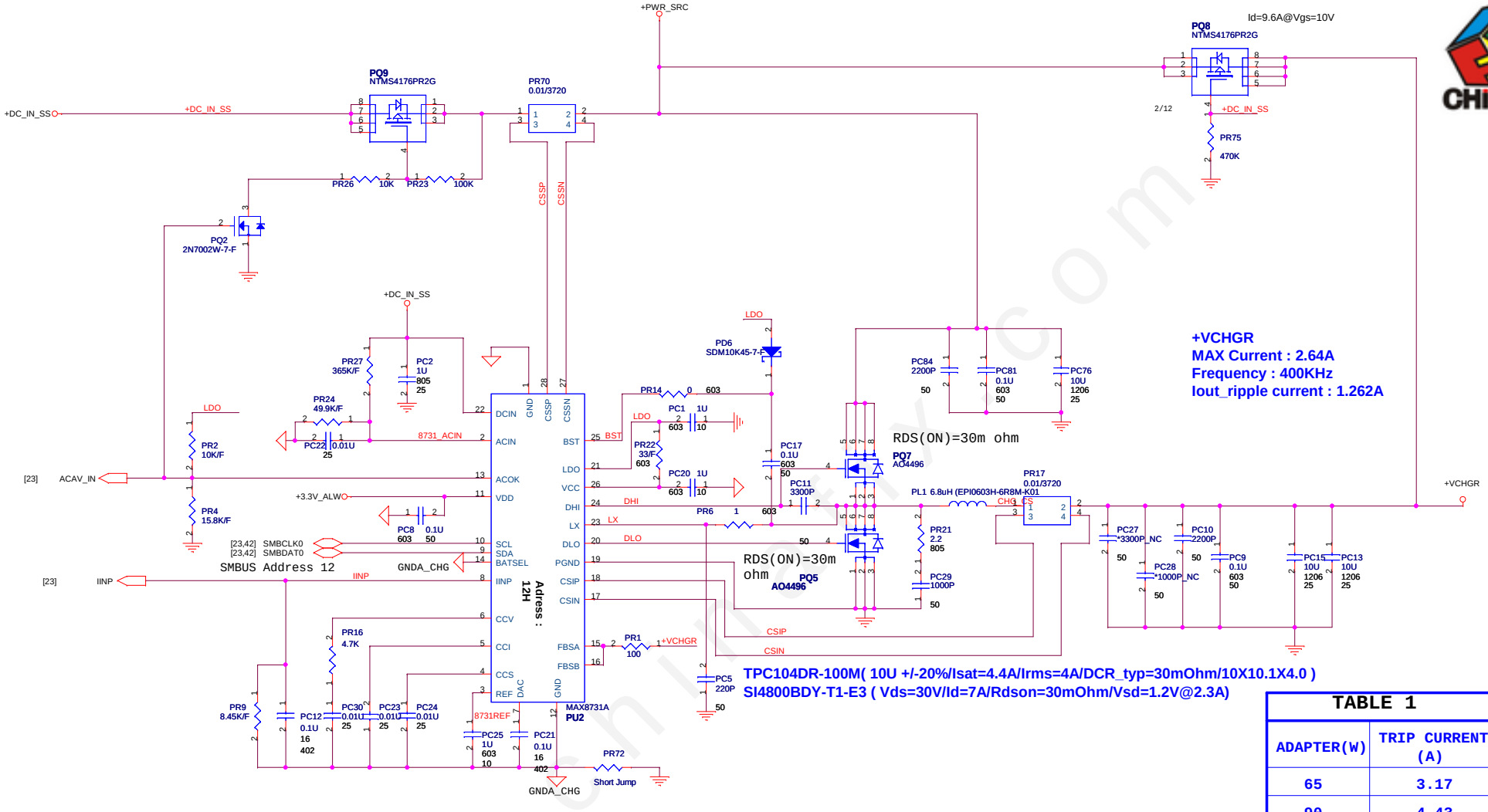

TABLE 1

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)	
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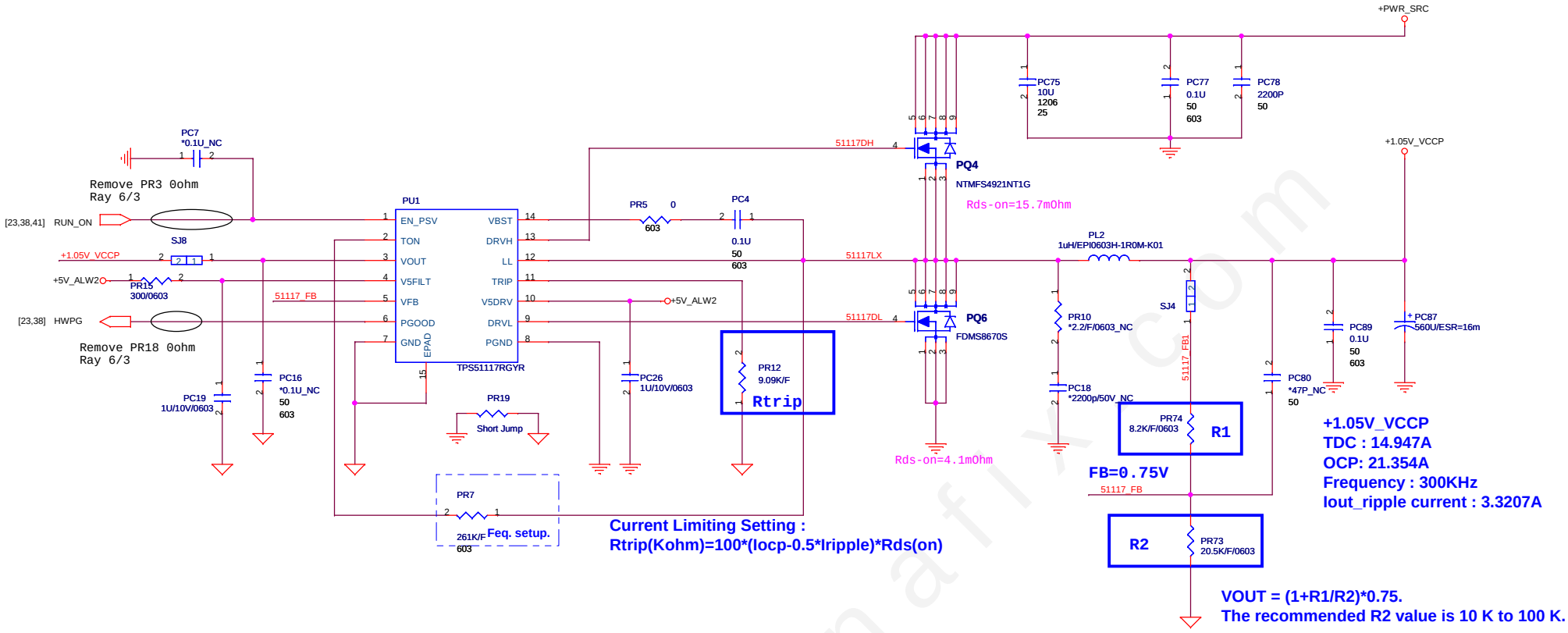

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QUANTA COMPUTER		
Title	1.05_VCCP & 1.8V_SUS(TPS51117)	
Size	Document Number VM8N	Rev 2A
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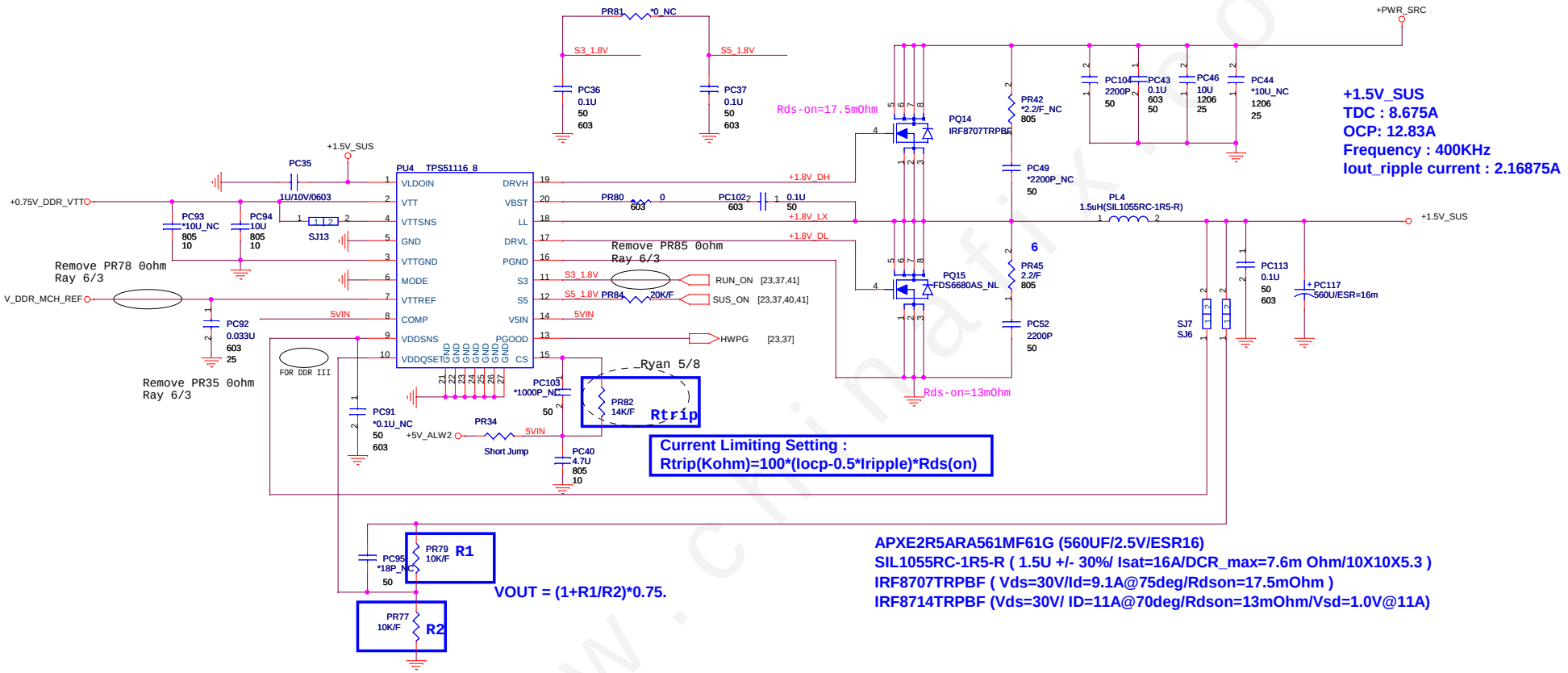

+1.5V_SUS
TDC : 8.675A
OCP: 12.83A
Frequency : 400KHz
Iout_ripple current : 2.16875A

Current Limiting Setting :
Rtrip(Kohm)=100*(Iocp-0.5*Iripple)*Rds(on)

VOUT = (1+R1/R2)*0.75.

APXE2R5ARA561MF61G (560UF/2.5V/ESR16)
SIL1055RC-1R5-R (1.5U +/- 30%/ Isat=16A/DCR_max=7.6m Ohm/10X10X5.3)
IRF8707TRPBF (Vds=30V/Id=9.1A@75deg/Rdson=17.5mOhm)
IRF8714TRPBF (Vds=30V/ ID=11A@70deg/Rdson=13mOhm/Vsd=1.0V@11A)

QUANTA COMPUTER

Title	1.8VSUS & 0.9VTT (TPS51116)	
Size	Document Number VM8N	Rev 2A
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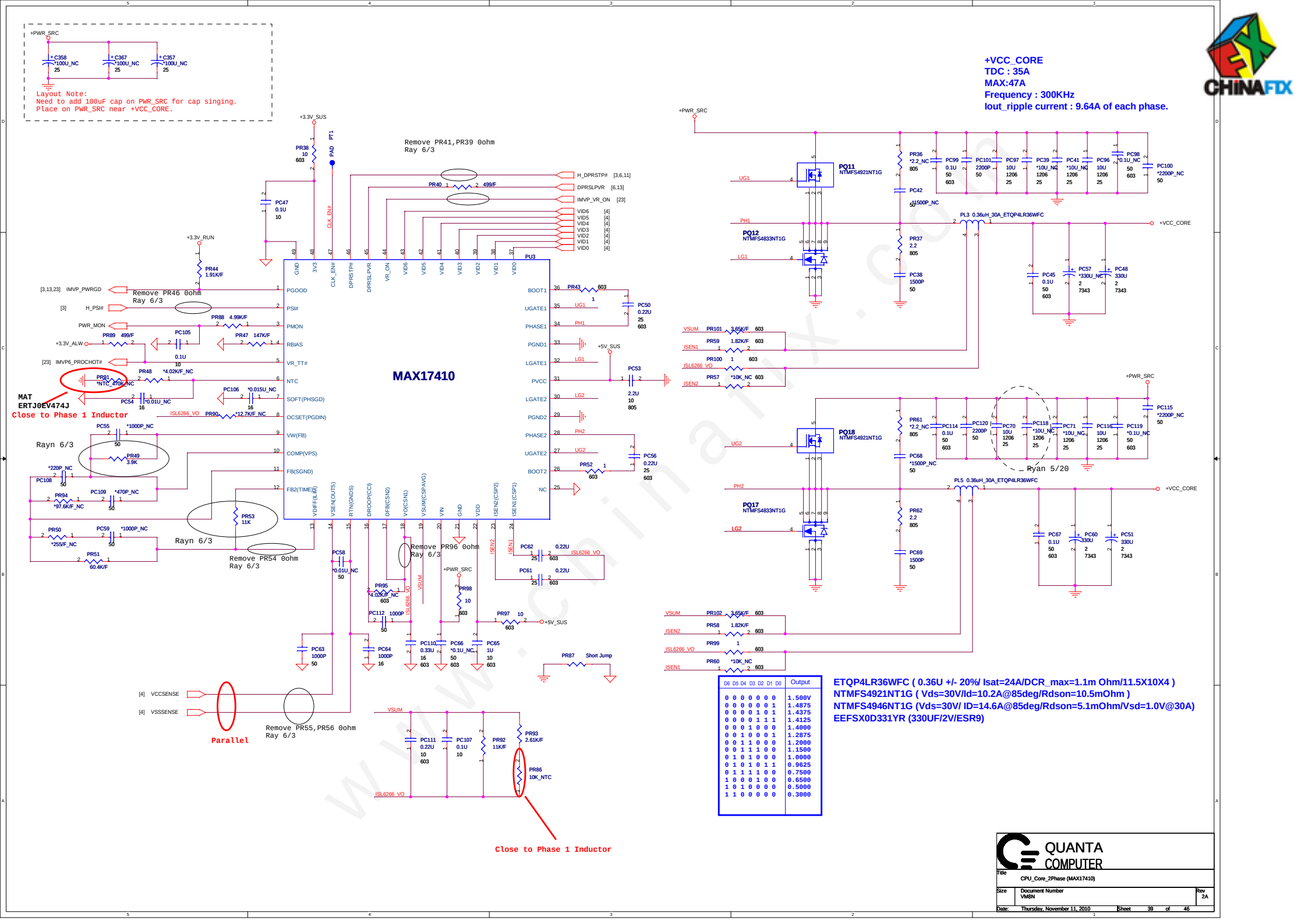
+VCC_CORE
TDC : 35A
MAX:47A
Frequency : 300KHz
Iout_ripple current : 9.64A of each phase.
MAX17410
Layout Note:
Need to add 100uF cap on PWR_SRC for cap singing.
Place on PWR_SRC near +VCC_CORE.
Remove PR41,PR39 0ohm
Ray 6/3
Remove PR46 0ohm
Ray 6/3
MAT
ERTJ0EV474J
Close to Phase 1 Inductor
Rayn 6/3
Remove PR96 0ohm
Ray 6/3
Remove PR54 0ohm
Ray 6/3
Remove PR55,PR56 0ohm
Ray 6/3
Parallel
Close to Phase 1 Inductor
Ryan 5/20
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)
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
QUANTA COMPUTER
Title
CPU_Core_2Phase (MAX17410)
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2A
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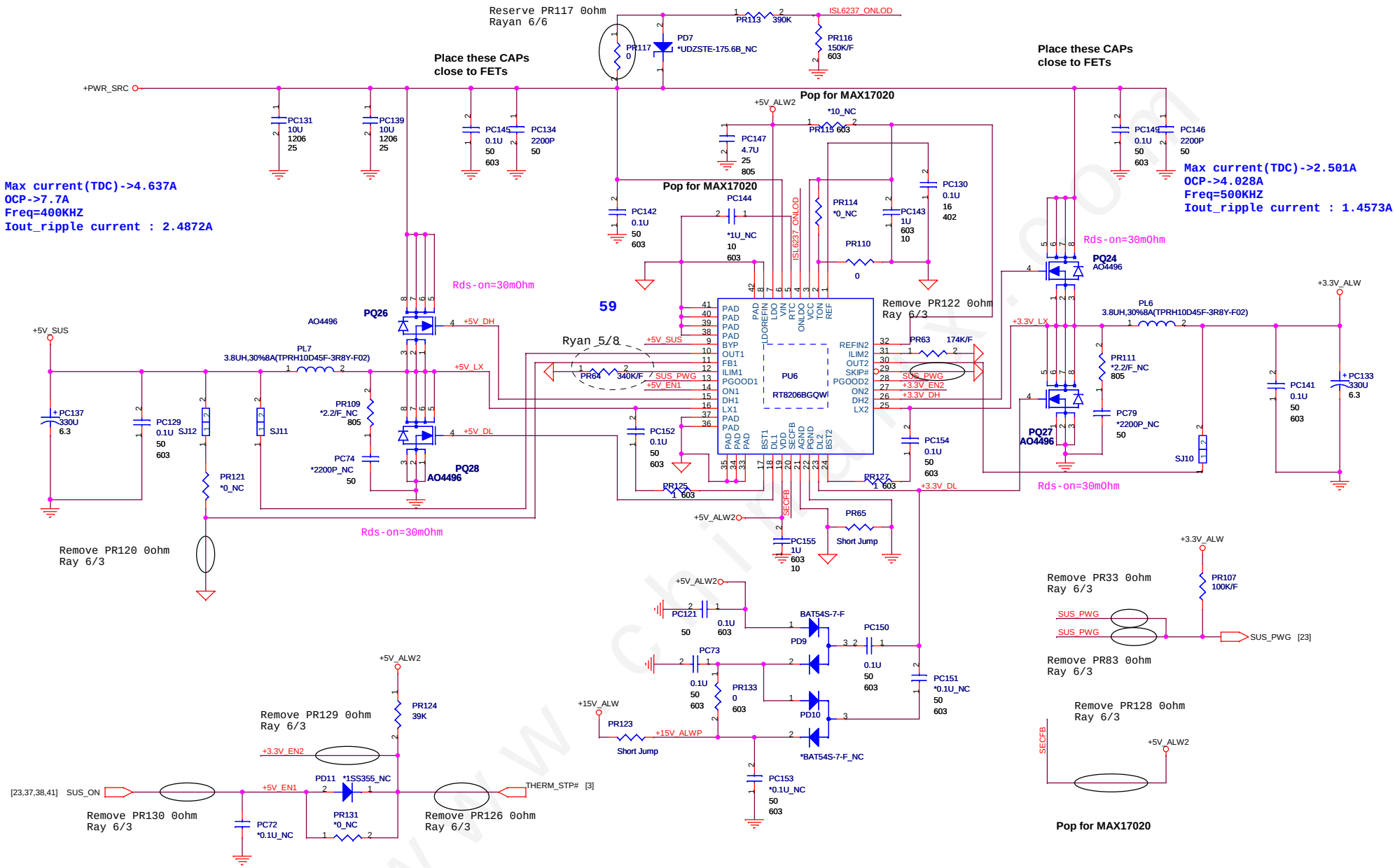
DC/DC +3V_ALW/+5V_SUS/+5V_ALW /+15V_ALW



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)	
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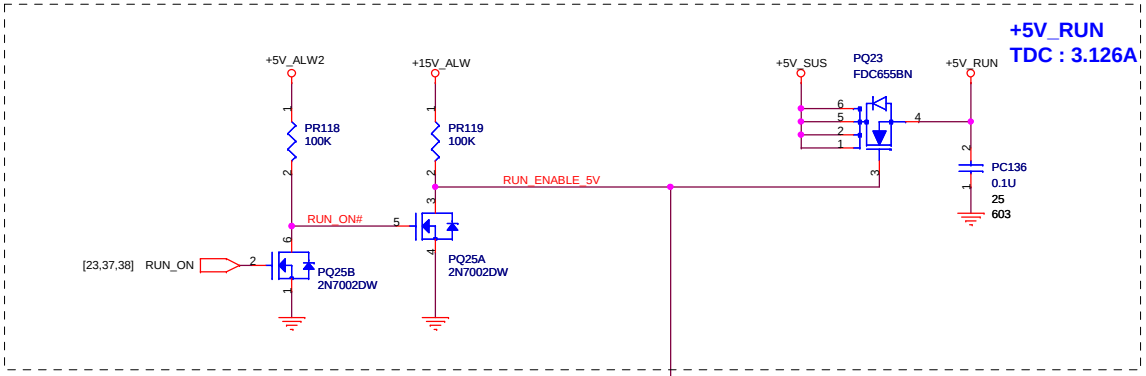

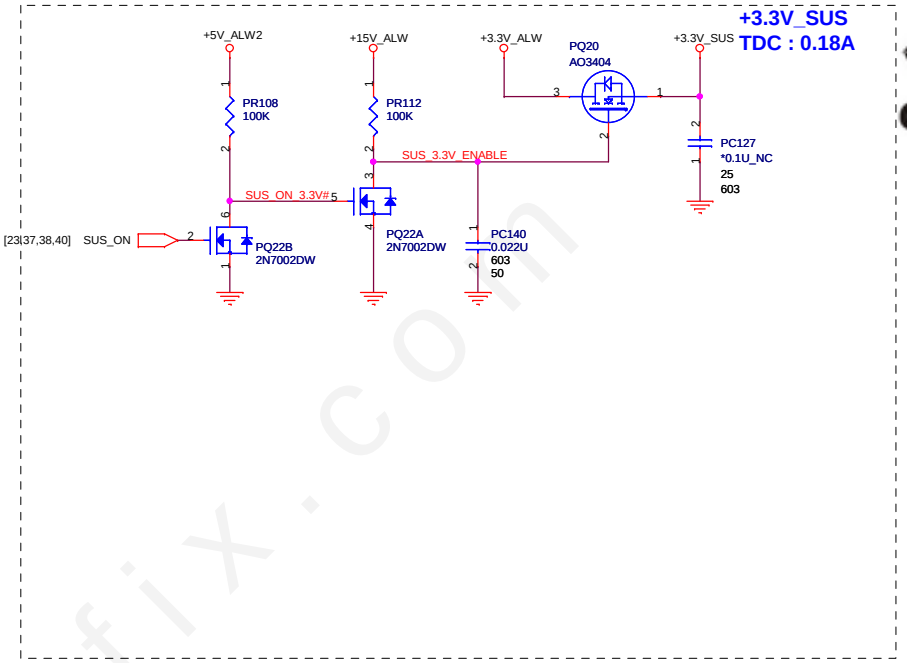

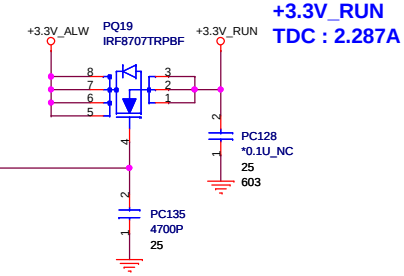

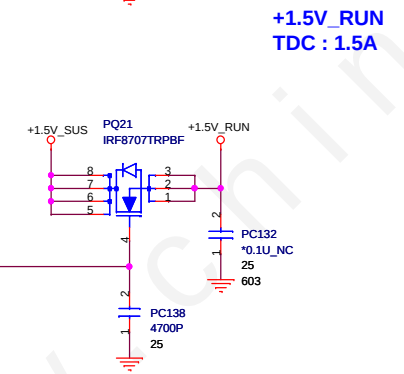

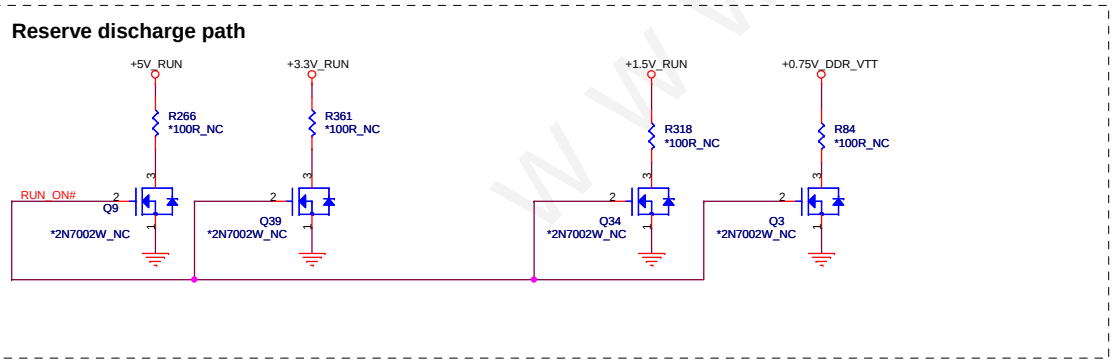

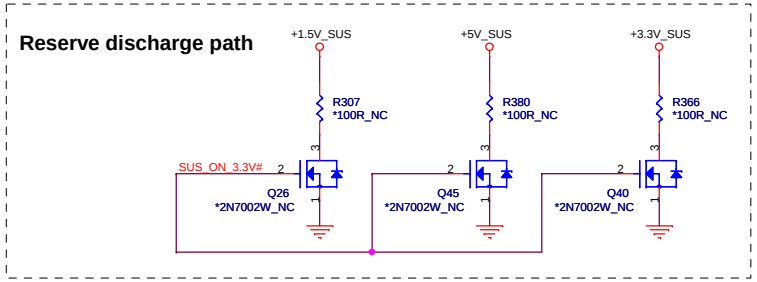

QUANTA COMPUTER

Title	RUN POWER SW	
Size	Document Number VM8N	Rev 2A
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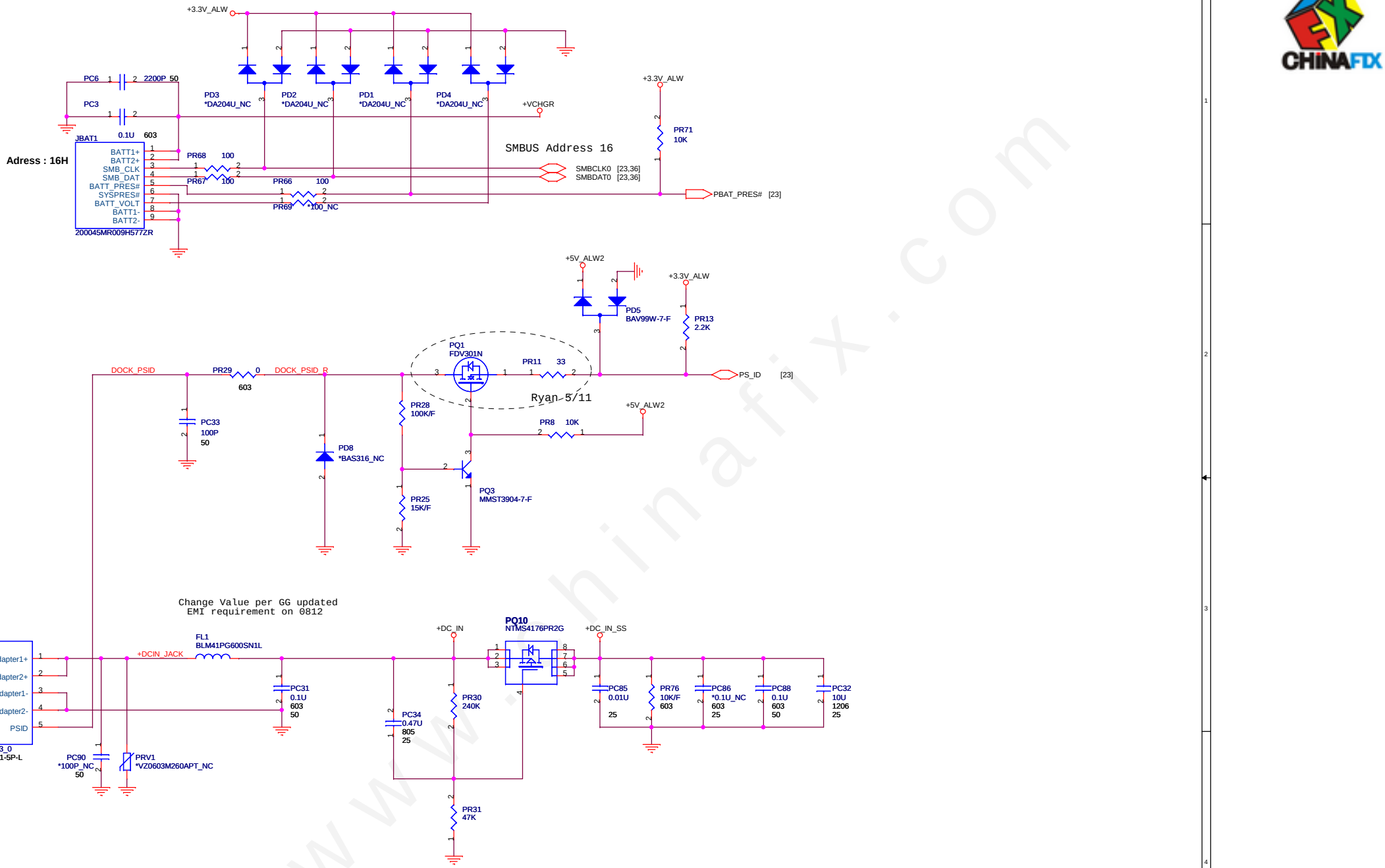

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QUANTA COMPUTER

Title	DCIN,BATT CONNECTOR	
Size	Document Number VM8N	Rev 2A
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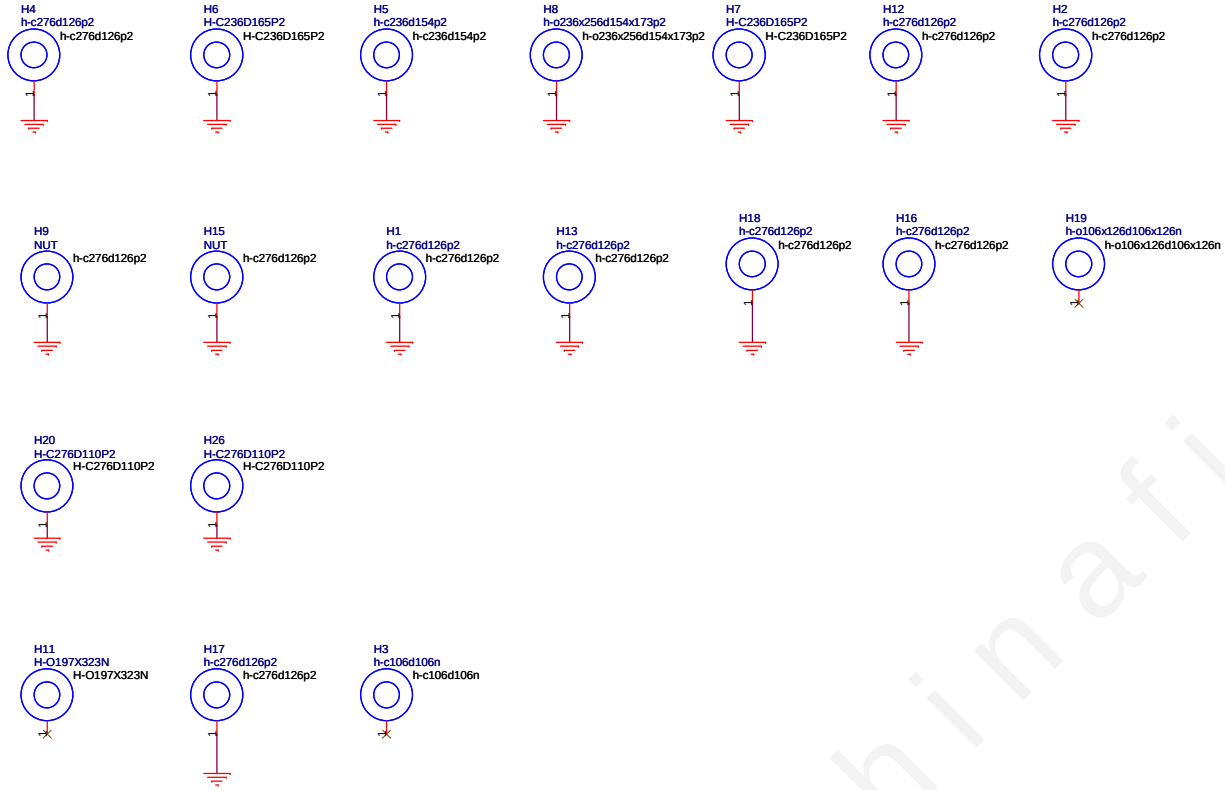

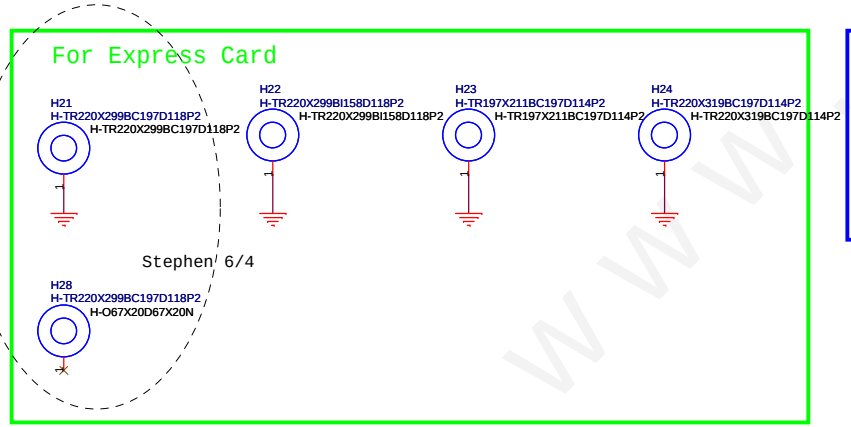

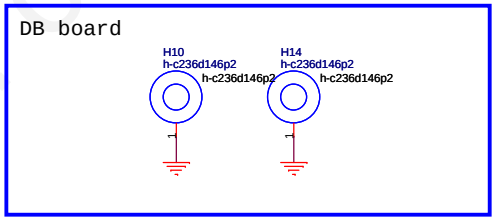

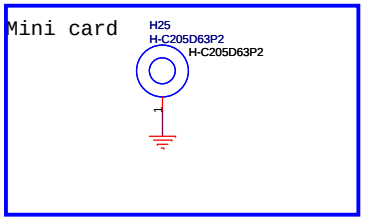

QUANTA COMPUTER

Title	SCREW PAD	
Size	Document Number VM8N	Rev 2A
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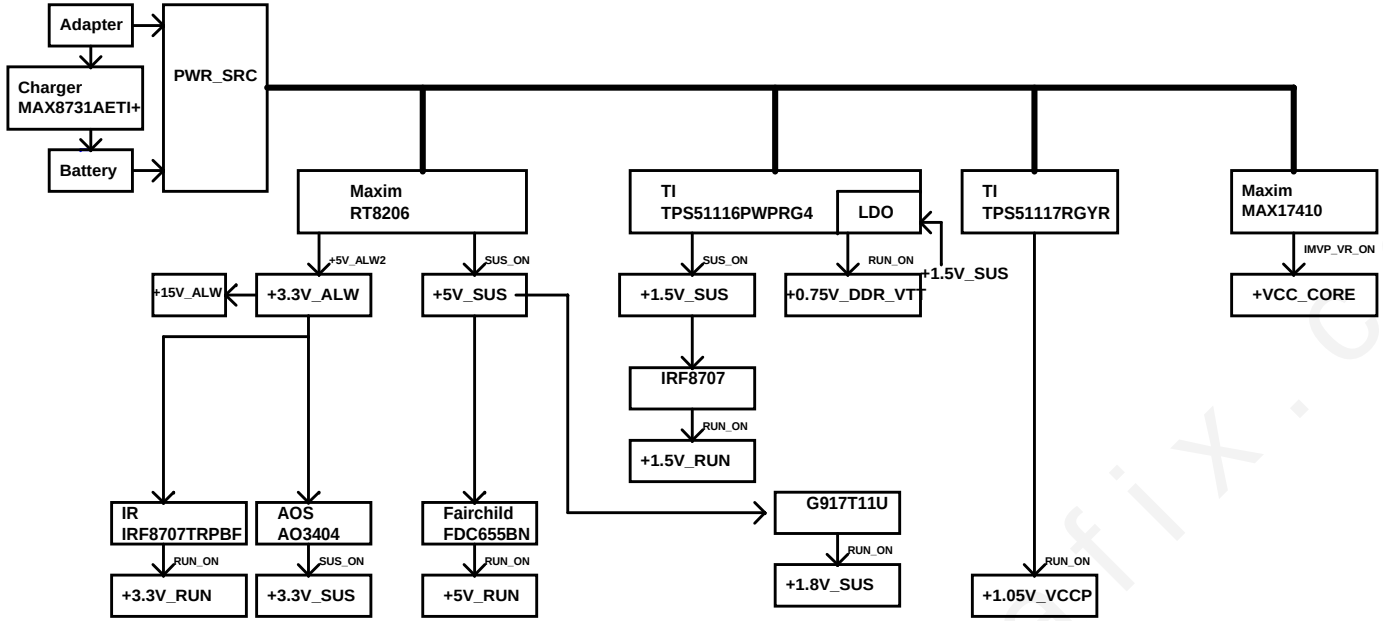
VER : 1A



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QUANTA COMPUTER

Title	Schematic Block Diagram	
Size	Document Number VM8N	Rev 2A
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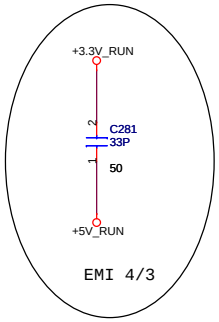
Reserved for EMI.



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QUANTA COMPUTER		
Title: EMI CAP		
Size	Document Number: VM8N	Rev: 2A
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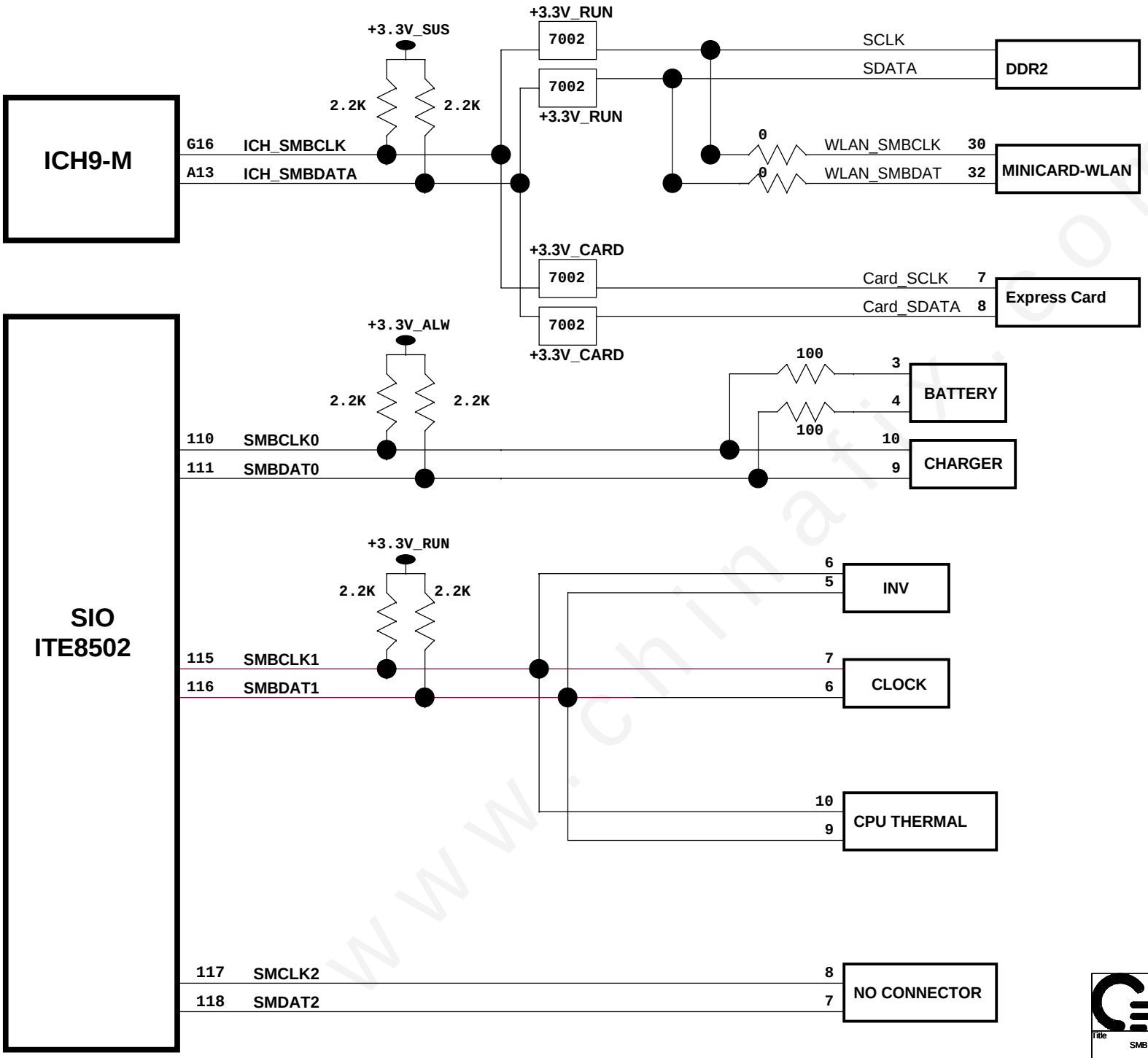

QUANTA COMPUTER

Title	SMBUS BLOCK	
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