Altlantis/Apollo Block Diagram

PCB STACK UP

- LAYER 1 : TOP
- LAYER 2 : SGND1
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : IN3
- LAYER 7 : SGND2
- LAYER 8 : BOT

RUN POWER SW PG 36,37

AC/BATT CONNECTOR PG 34

BATT CHARGER PG 34

CPU VR PG 38

DC/DC +3VSUS +5VSUS PG 33

Turion64 Sempron
25W/35W
AMD Socket S1 638P
PG 2,3,4

DDRII-SODIMM1 PG 5 — *DDRII 667mhz*

DDRII-SODIMM2 PG 5 — *DDRII 667mhz*

HT Link

nVIDIA C51M/D
Integraded VGA Function
468PIN
PG 6,7,8

PCI-E

Mini PCI-E Card
PCI Express Mini Card
(Wireless LAN/WAN) PG 27

Express Card (NEW CARD) PG 28

SIM CARD PG 27

PCI-Express 16X

NVDIA G3-64 for 15.4"
NVDIA G3-128 for 17"
Graphics PG 9,10,11,12,13,14

Option for 17" only
HDMI CON PG 18

TV_OUT
CRT_OUT
CRT/S-VIDEO PG 19

LVDS(2 Channel)
Panel Connector 15" / 17" PG 18

Cable Docking PG 31
- TV_OUT
- VGA
- RJ-45
- CIR/Pwr btn
- SPDIF Out
- Stereo MIC
- Headphone Jack
- USB Port
- VOL Cntr

HT Link

CLOCK INTERFACE

nVIDIA MCP51M
508PIN
PG 15,16,17

USB2.0

Bluetooth PG 28

USB2.0 I/O Ports X3 PG 26

Camera 1.3MP PG 23

Mini PCI-E Card x1
Express Card x1
Cable Docking x1

PCI BUS / 33MHz

LAN

Azalia

Option for 17" only

SATA - HDD PG 28 — *SATA2*

SATA - HDD PG 26 — *SATA0*

PATA- CD-ROM PG 26 — *PATA (66/100/133)*

LPC

Conexant
Venice AMOM
CX20549-12
PG 23

Two-element microphone PG 23

Audio Jacks (Phone/SPDIF/MIC) PG 23

REALTEK
RTL8201CL (10/100)/ REL8211B (10/100 /Gigabit)
PG 20

RJ45 PG 20

RICOH
RICOH 832
PG 21

IEEE1394 CONN PG 21

Memory CardReader PG 22

Keyboard Touch Pad PG 29

CIR PG 23

Capacitive Sense SW PG 29

ENE KBC
KB3920 Bx
PG 30

X-Bus

FAN PG 31

Flash PG 30

AUDIO Amplifier PG 25

Jack to Speaker PG 25

MDC DAA PG 24

MODEM RJ 11 PG 20

PCI ROUTING TABLE	IDSEL	INTERUPT	DEVICE
REQ0# / GNT0#	AD21	INTA#,INTB#	RICOH832

VAULE DEFINE
A=0603,B=0805,C=1206,F=1%,
OTHER IS 0402

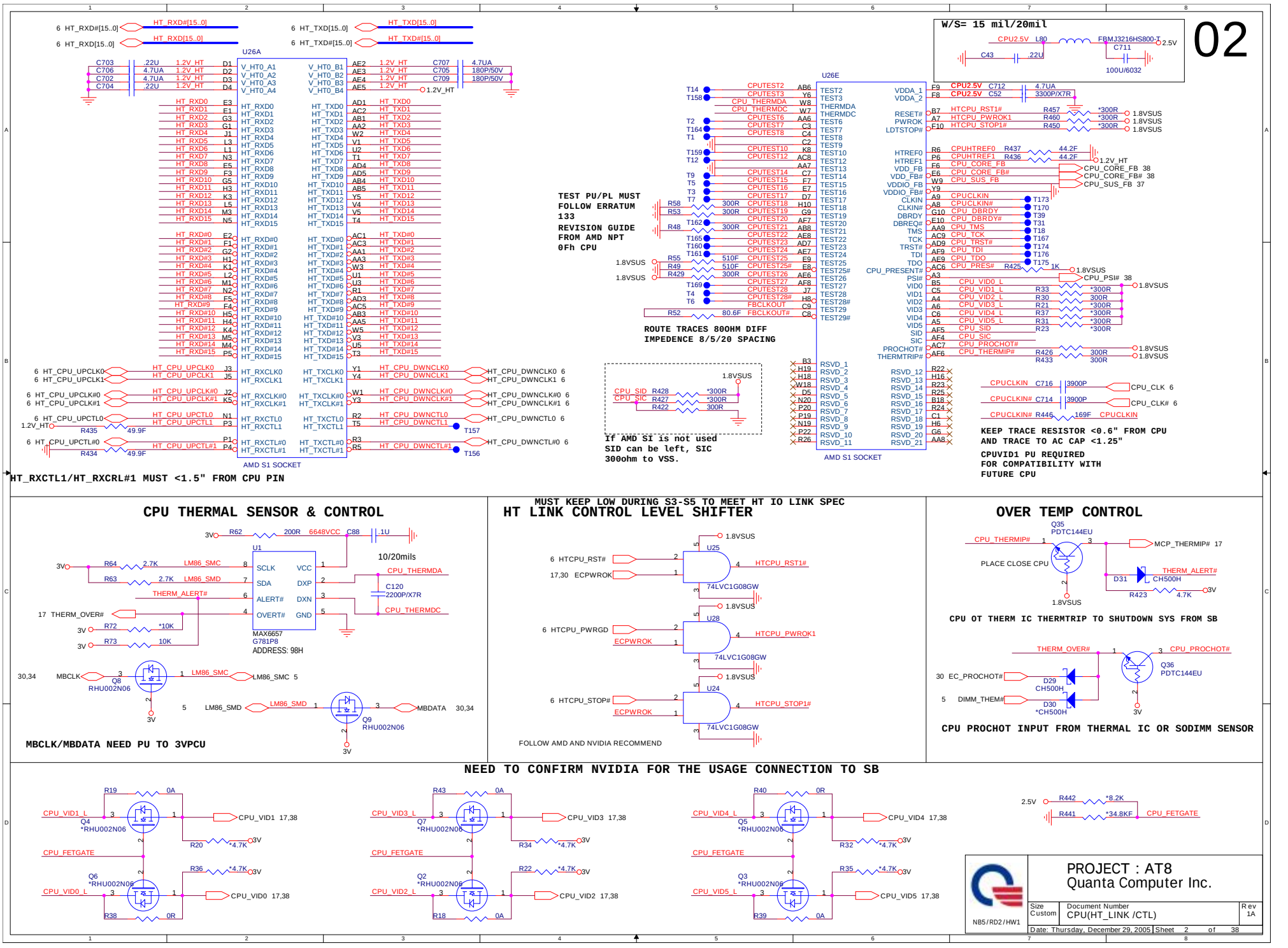
EXAMPLE
10R=10ohm(0402)
10A=10ohm(0603)
10B=10ohm(0805)
10C=10ohm(1206)
10/F=10ohm(0402 and 1%)

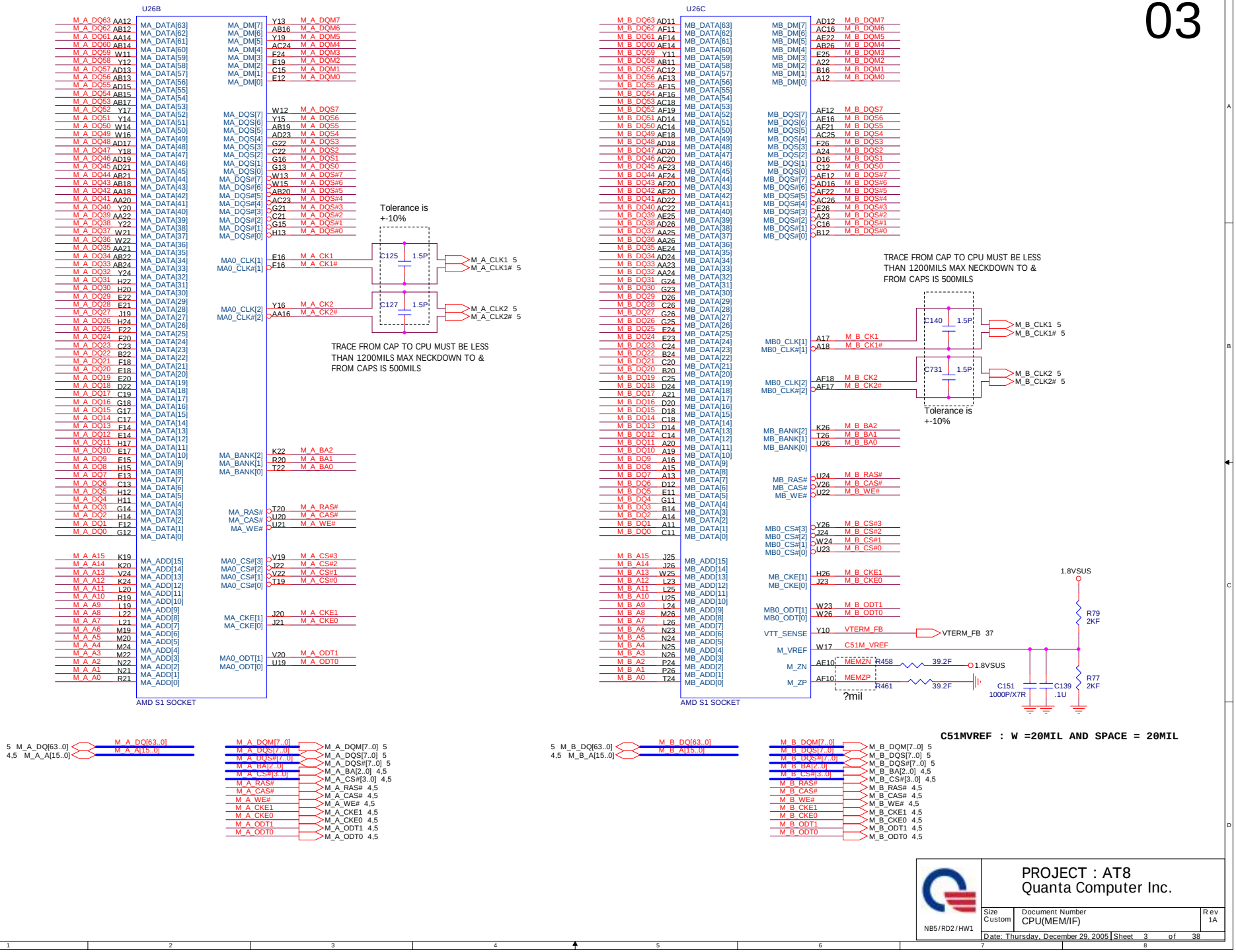
NB5/RD2/HW1

PROJECT : AT8
Quanta Computer Inc.

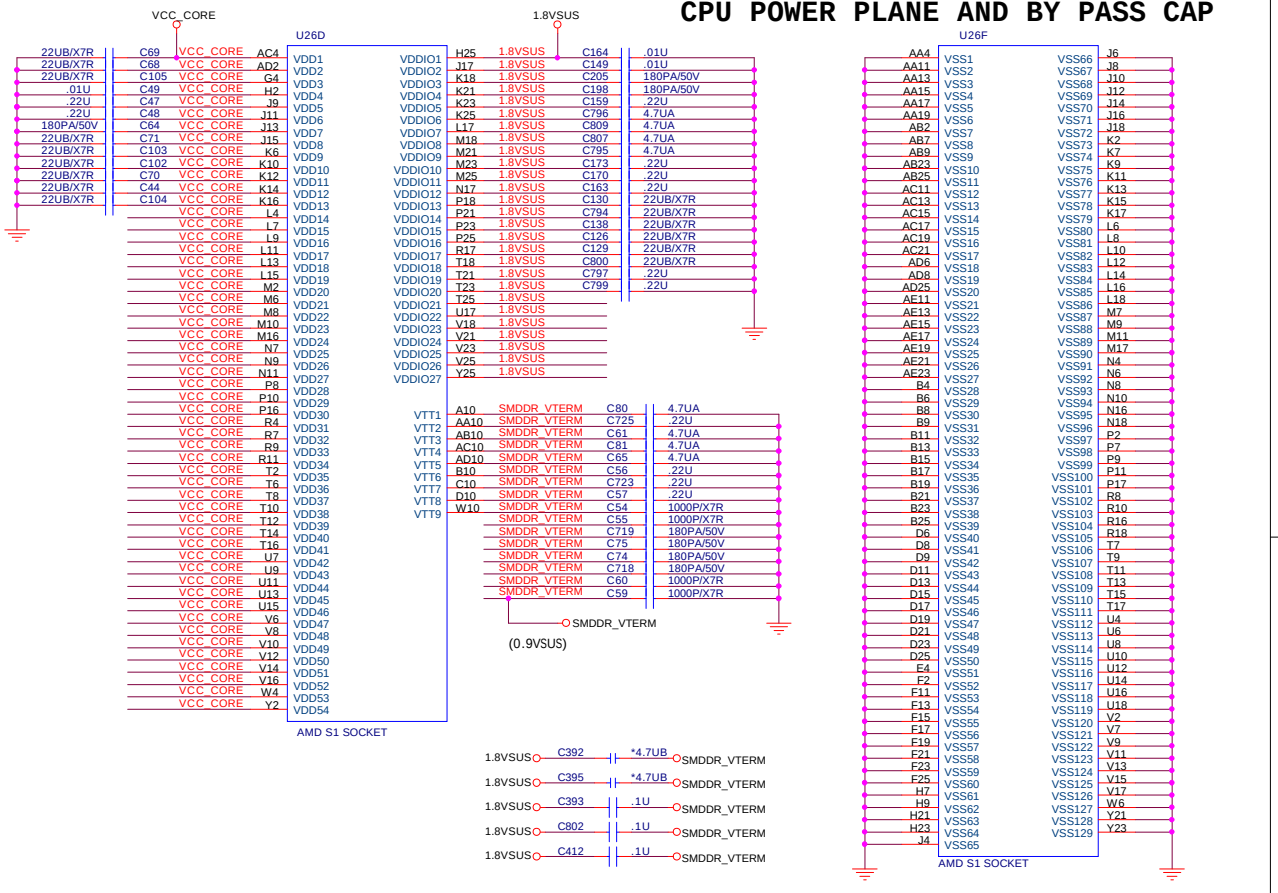
Size	Document Number	Rev
Custom	Block Diagram	1A

Date: Thursday, December 29, 2005 Sheet 1 of 38





CPU POWER PLANE AND BY PASS CAP

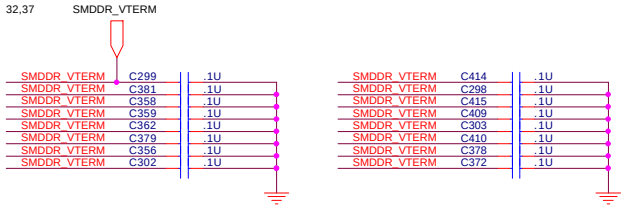


DDR2 TERMINATION BYPASS CAP

04

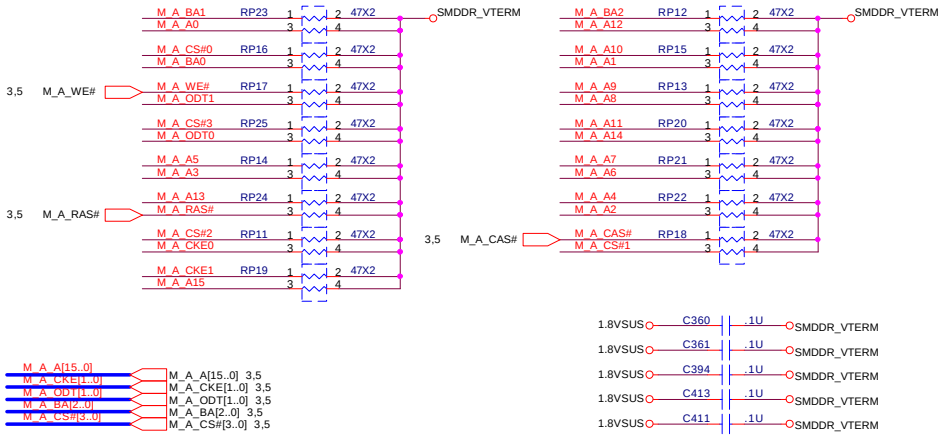
CHANNEL A

CHANNEL B

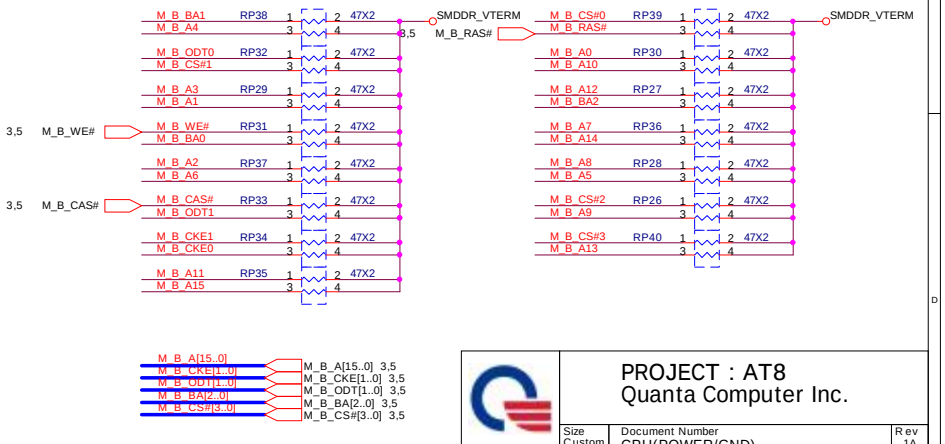


Layout note: Place one cap close to every 2 pullup resistors terminated to SMDDR_VTERM

DDRII CHANNEL A TERMINATION



DDRII CHANNEL B TERMINATION

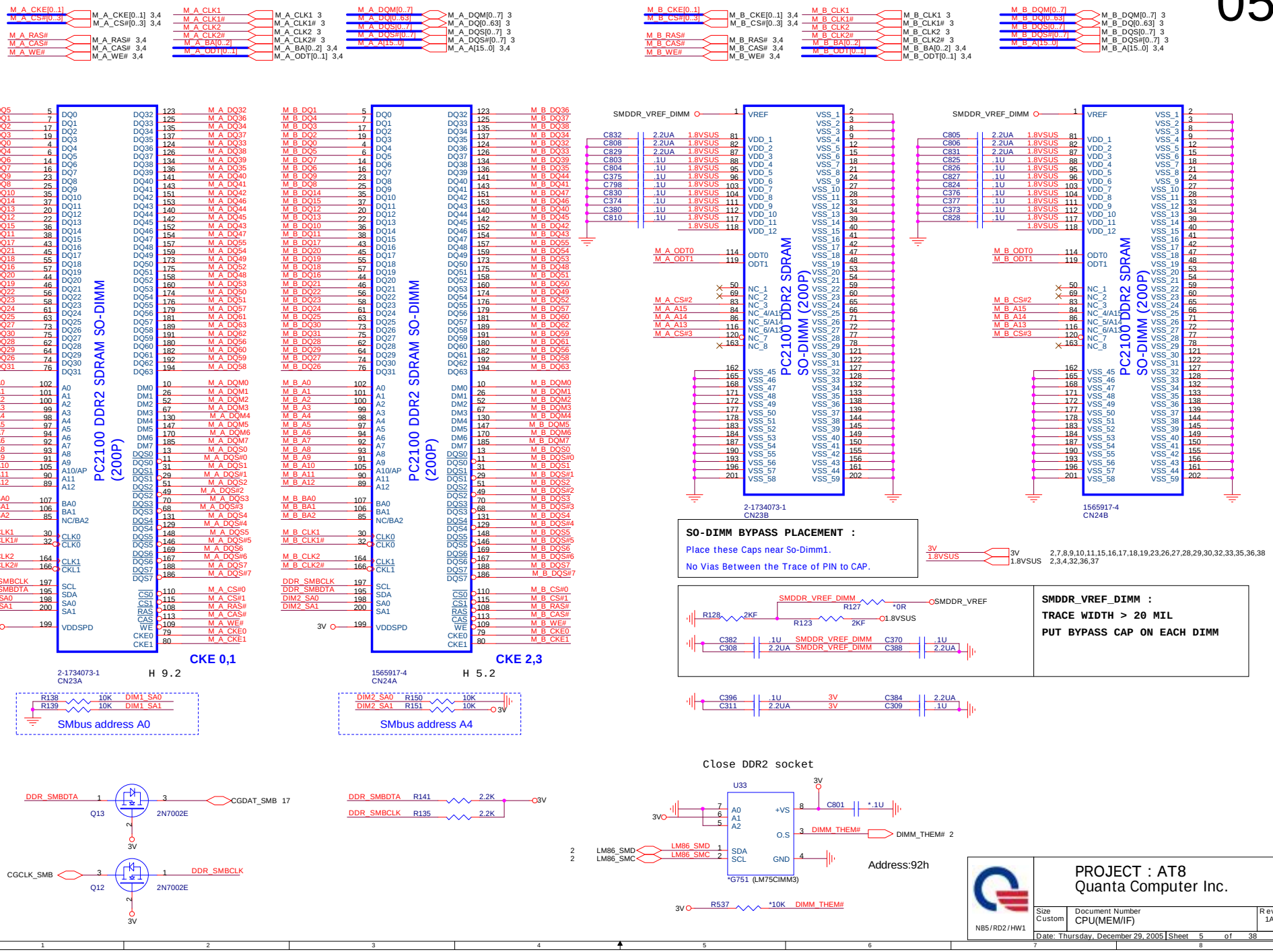


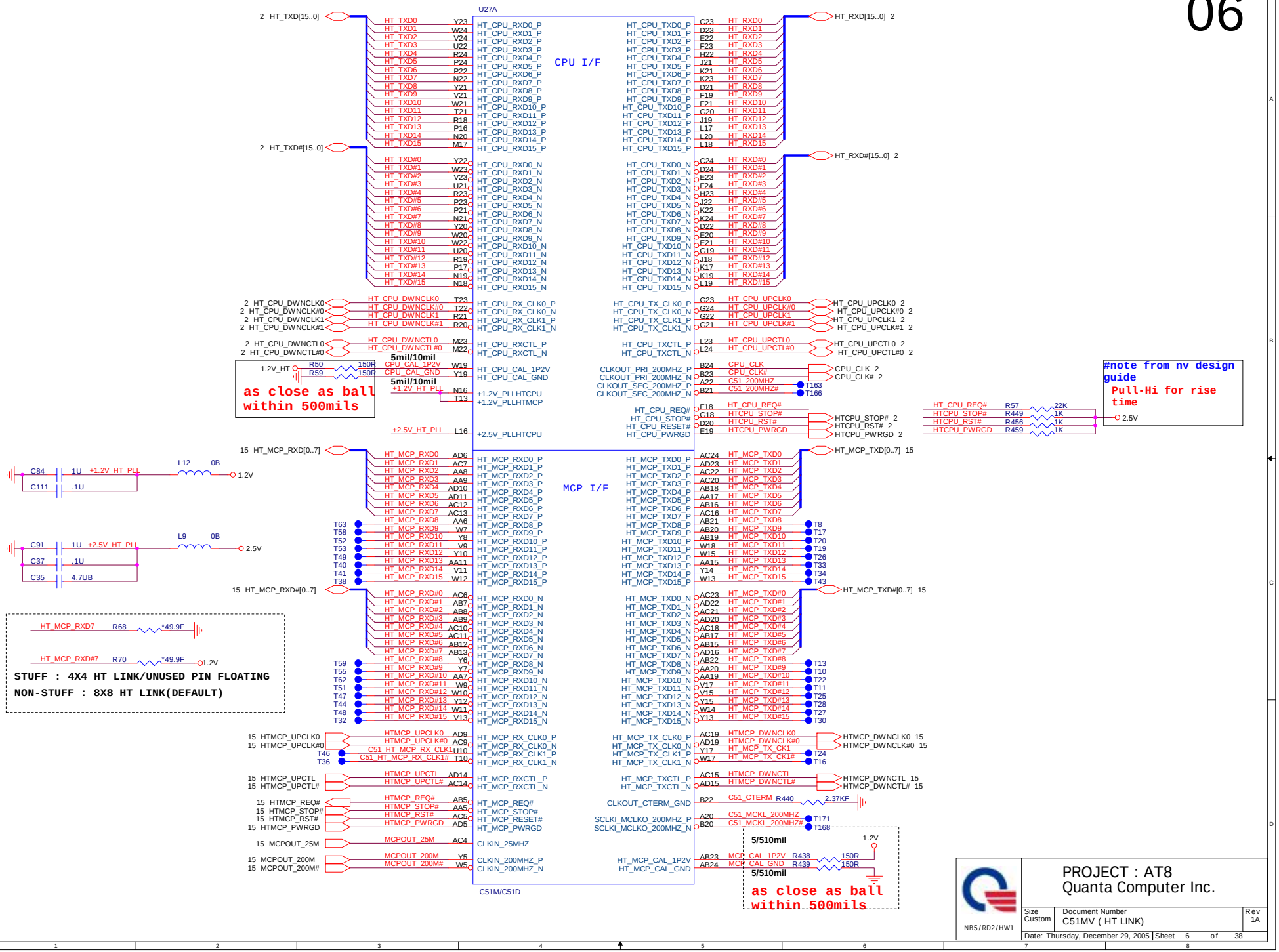
NB5/RD2/HW1

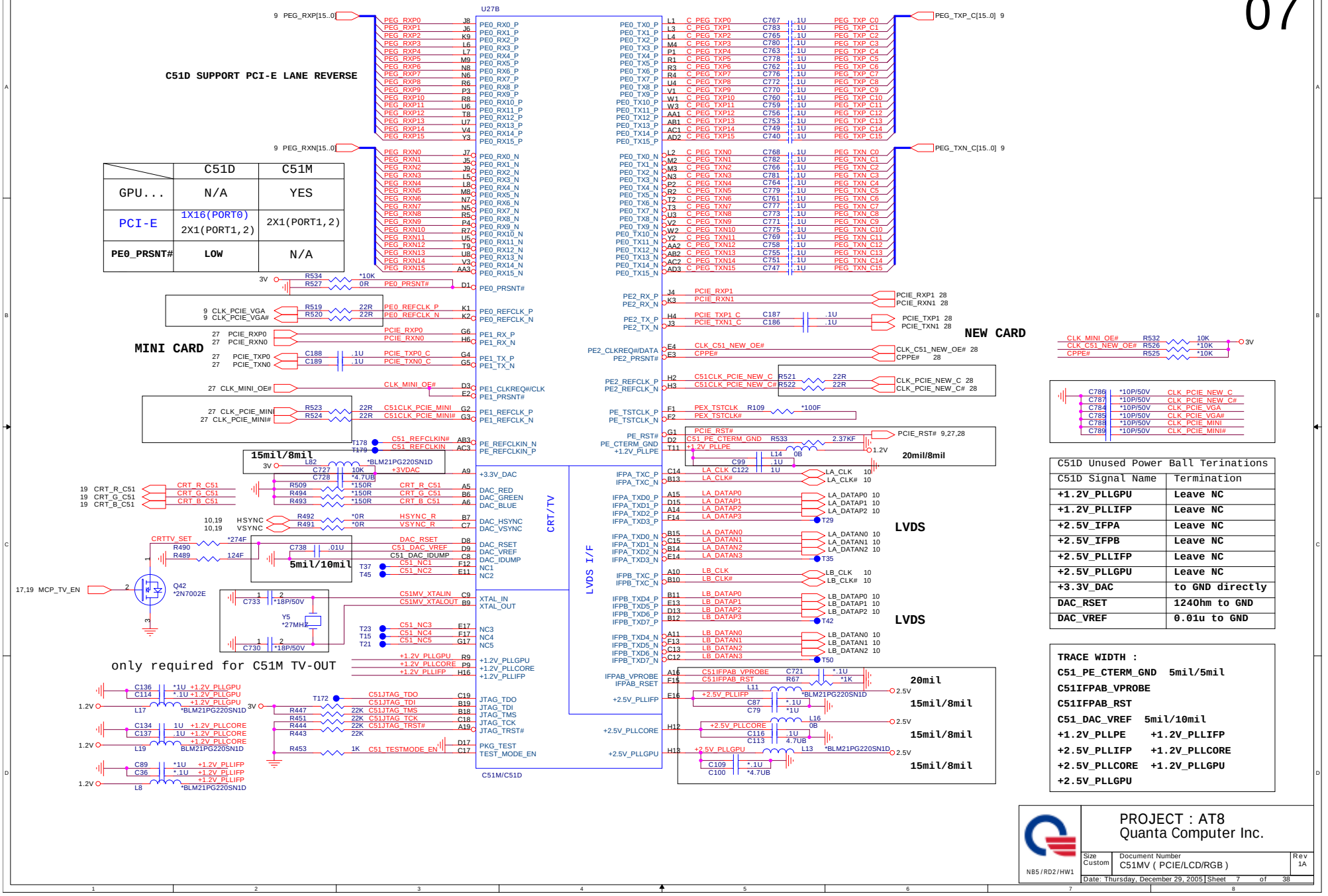
PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU(POWER/GND)	1A

Date: Thursday, December 29, 2005 Sheet 4 of 38

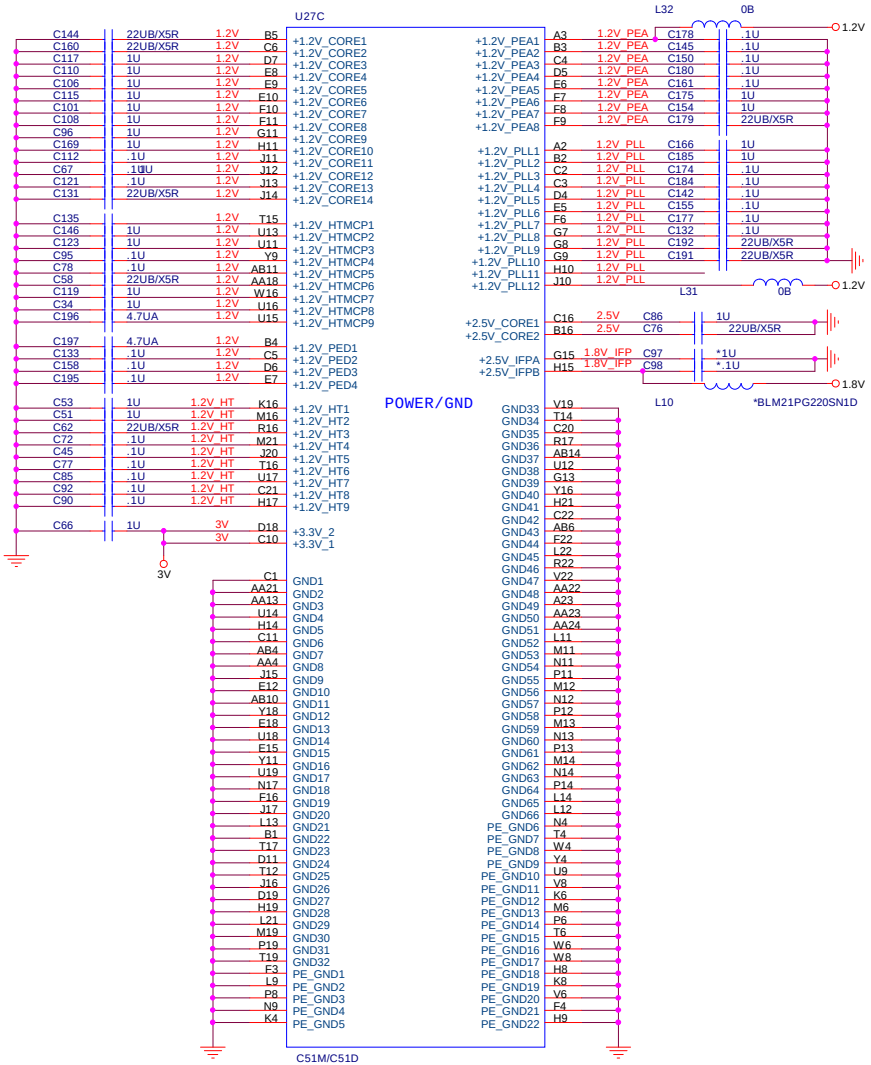


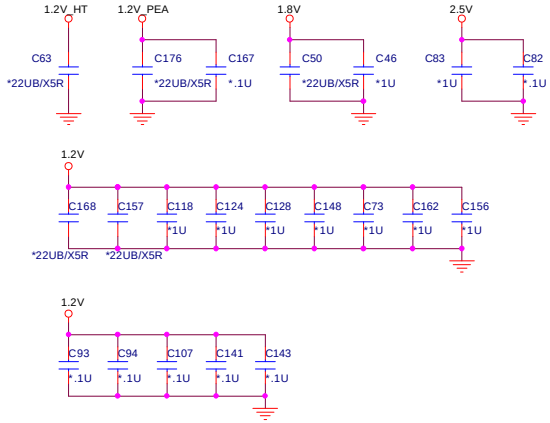




	C51D	C51M
GPU...	N/A	YES
PCI-E	1X16(PORT0) 2X1(PORT1,2)	2X1(PORT1,2)
PE0_PRSNT#	LOW	N/A

C51M/C51D POWER PLANE/GND & BYPASS



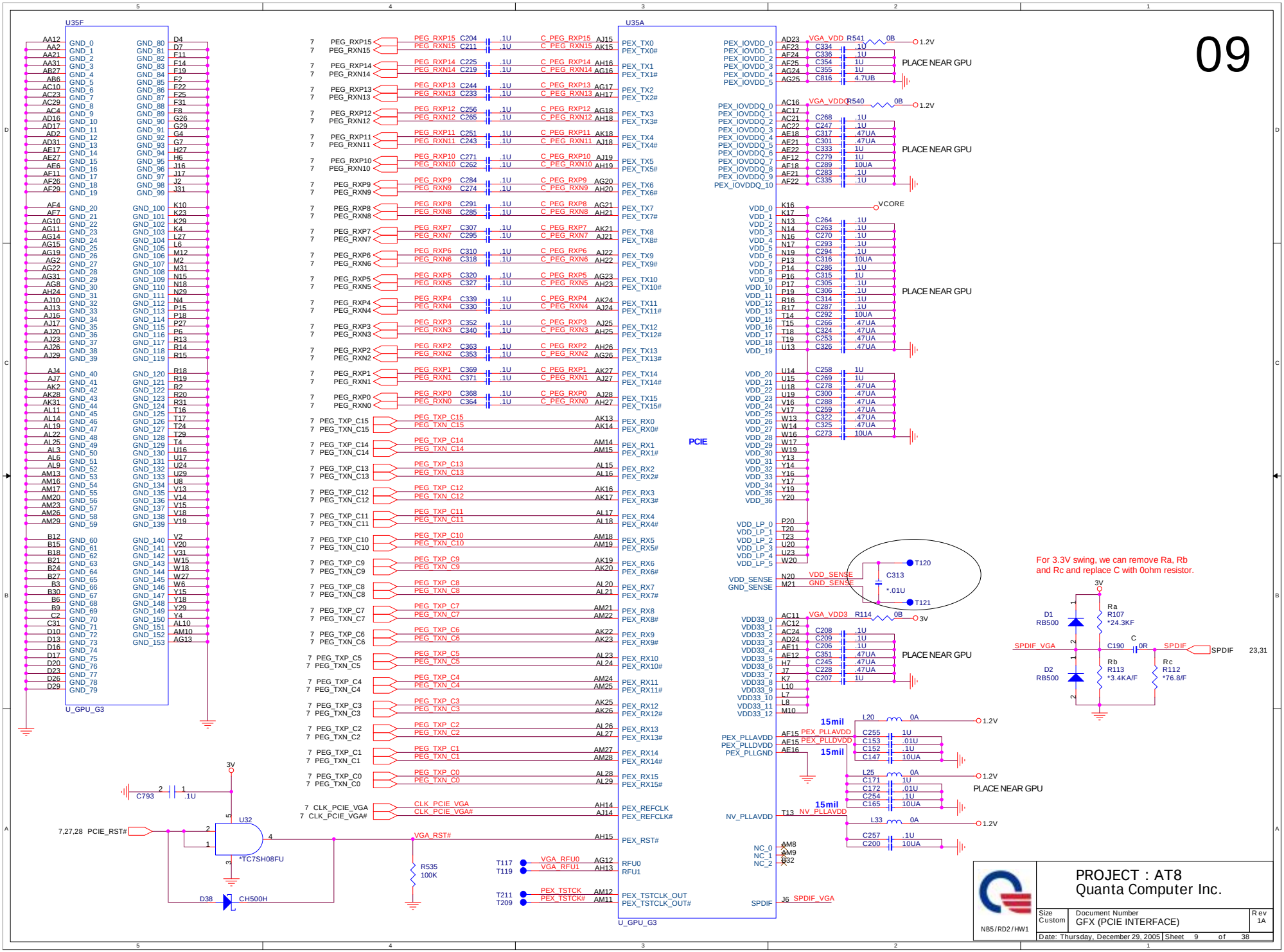


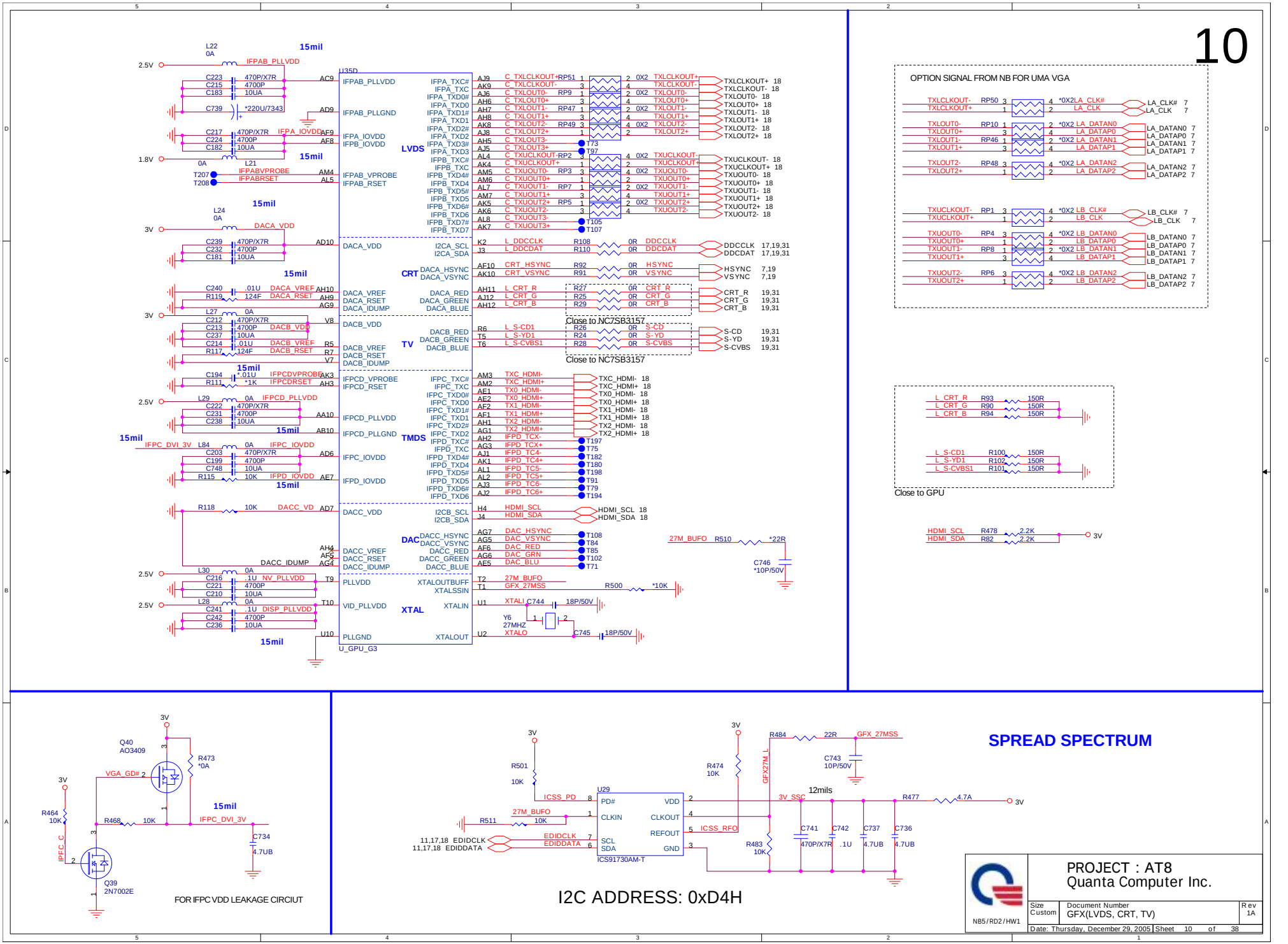
PROJECT : AT8
Quanta Computer Inc.

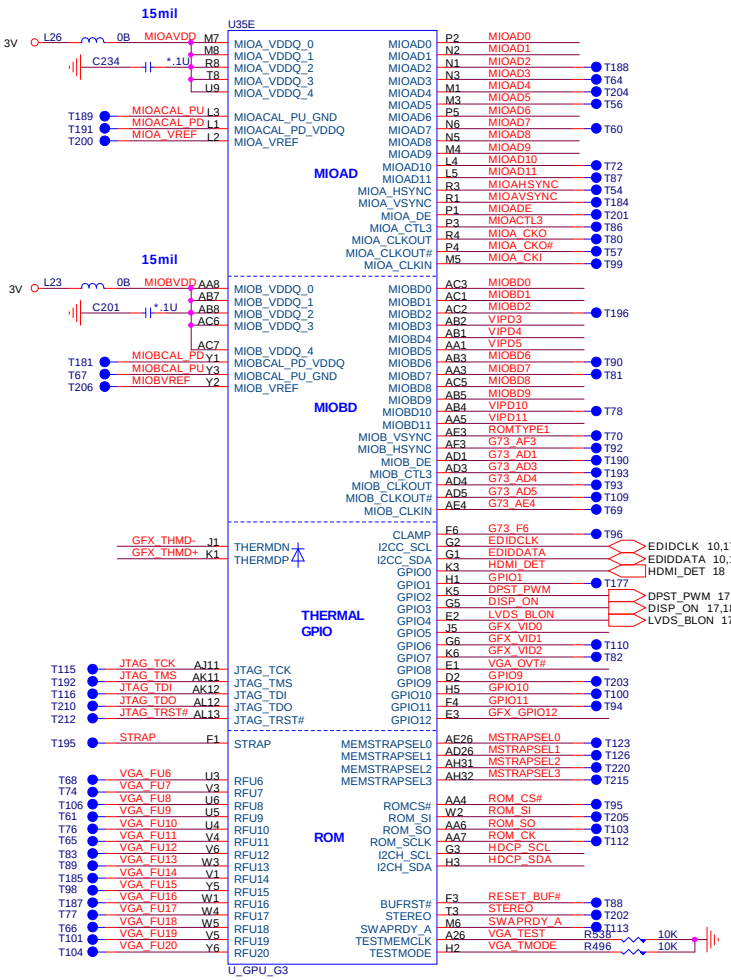
NB5/RD2/HW1

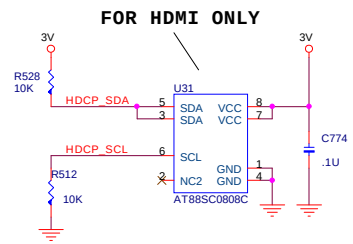
Size	Document Number	Rev
Custom	C51MV (POWER/GND)	1A

Date: Wednesday, January 11, 2006 Sheet 8 of 38





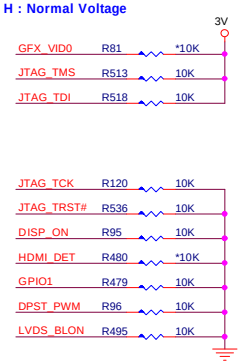


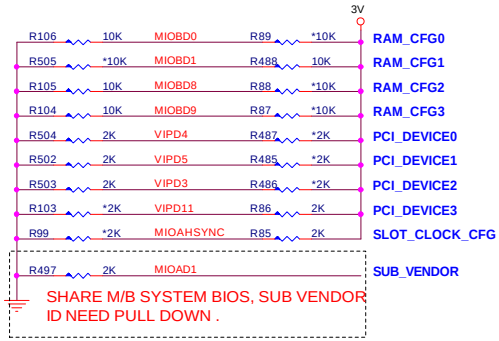


PCI DEVICE

PCI_DEVICE[3:0]	DESCRIPTION
1000	G72M/G73M
0111	G72M-V/G73M-V
others	Reserved

GFX_VID0
L : Low Voltage
H : Normal Voltage



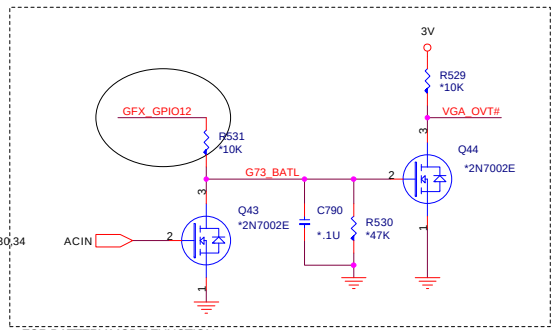


G72M VRAM Configuration Table

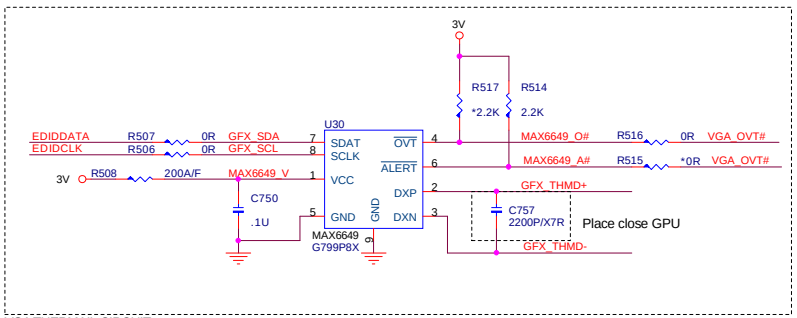
RAM_CFG[3:0]	DESCRIPTION	Vendor
0000	DDR2 16Mx16x4, 64bit, 128MB	Elpida
0001	DDR2 16Mx16x4, 64bit, 128MB	Samsung
0010	DDR2 16Mx16x4, 64bit, 128MB	Infineon
0011	DDR2 16Mx16x4, 64bit, 128MB	Hynix
0100	Reserved	
0101	DDR2 32Mx16x4, 64bit, 256MB	Samsung
0110	DDR2 32Mx16x4, 64bit, 256MB	Infineon
0111	DDR2 32Mx16x4, 64bit, 256MB	Hynix
1000	DDR2 16Mx16x2, 32bit, 64MB	Elpida
1001	DDR2 16Mx16x2, 32bit, 64MB	Samsung
1010	DDR2 16Mx16x2, 32bit, 64MB	Infineon
1011	DDR2 16Mx16x2, 32bit, 64MB	Hynix
others	Reserved	

G73M VRAM Configuration Table

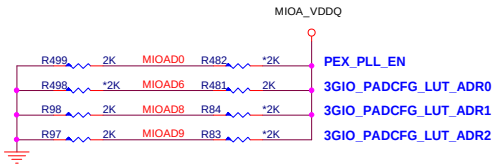
RAM_CFG[3:0]	DESCRIPTION	Vendor
0000	DDR2 16Mx16x8, 128bit, 256MB	Elpida
0001	DDR2 16Mx16x8, 128bit, 256MB	Samsung
0010	DDR2 16Mx16x8, 128bit, 256MB	Infineon
0011	DDR2 16Mx16x8, 128bit, 256MB	Hynix
0100	Reserved	
0101	DDR2 32Mx16x8, 128bit, 512MB	Samsung
0110	DDR2 32Mx16x8, 128bit, 512MB	Infineon
0111	DDR2 32Mx16x8, 128bit, 512MB	Hynix
1000	DDR2 16Mx16x4, 64bit, 128MB	Elpida
1001	DDR2 16Mx16x4, 64bit, 128MB	Samsung
1010	DDR2 16Mx16x4, 64bit, 128MB	Infineon
1011	DDR2 16Mx16x4, 64bit, 128MB	Hynix
1100	Reserved	
1101	DDR2 32Mx16x4, 64bit, 256MB	Samsung
1110	DDR2 32Mx16x4, 64bit, 256MB	Infineon
1111	DDR2 32Mx16x4, 64bit, 256MB	Hynix



FOR BATTERY MODE FUNCTION
GFX_GPIO12=H ENABLE
GFX_GPIO12=L DISABLE



VGA THERMAIL CIRCUIT



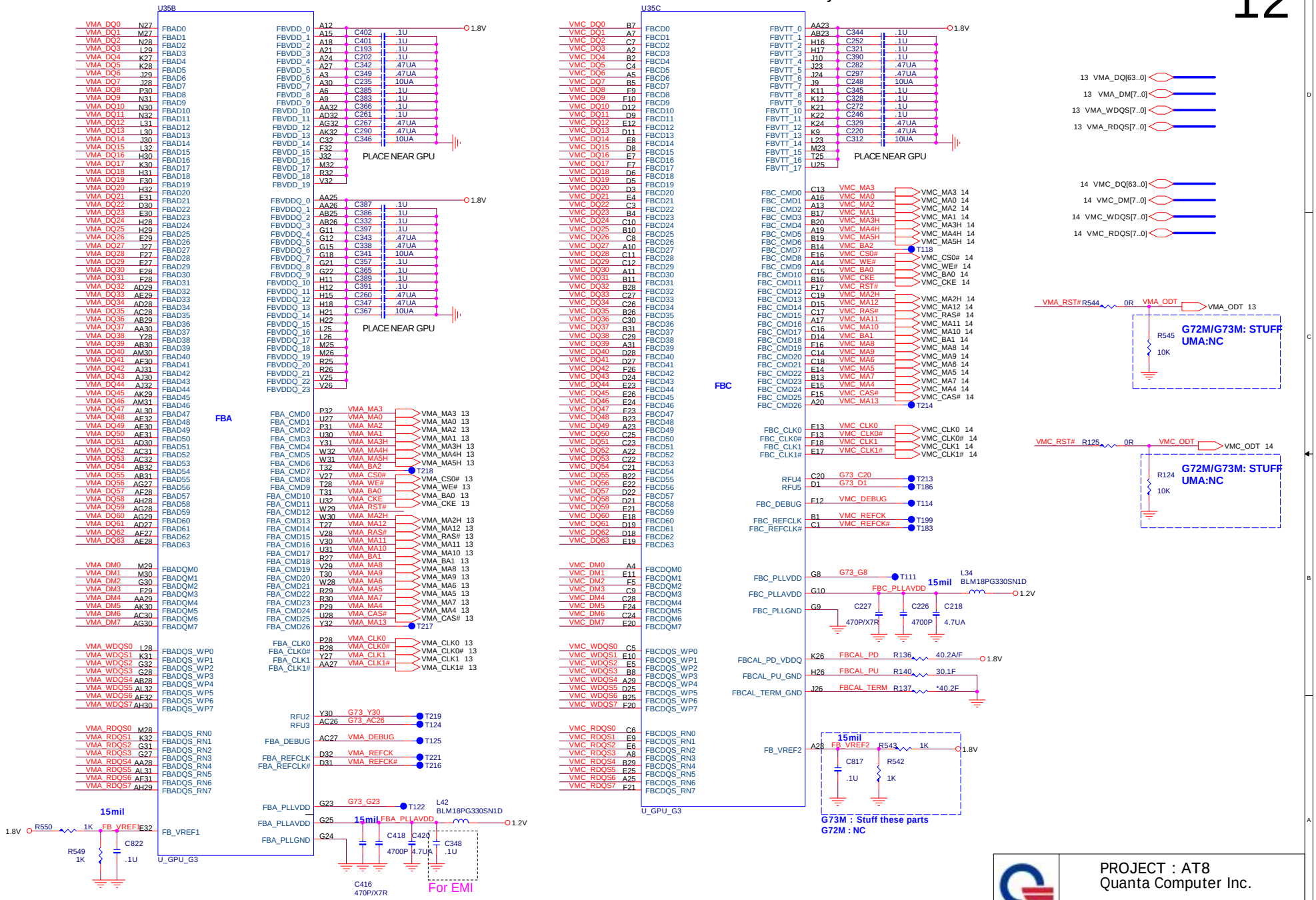
PROJECT : AT8
Quanta Computer Inc.

NB5/RD2/HW1

Size	Document Number	Rev
Custom	GFX(ROM, GPIO, STRAP)	1A

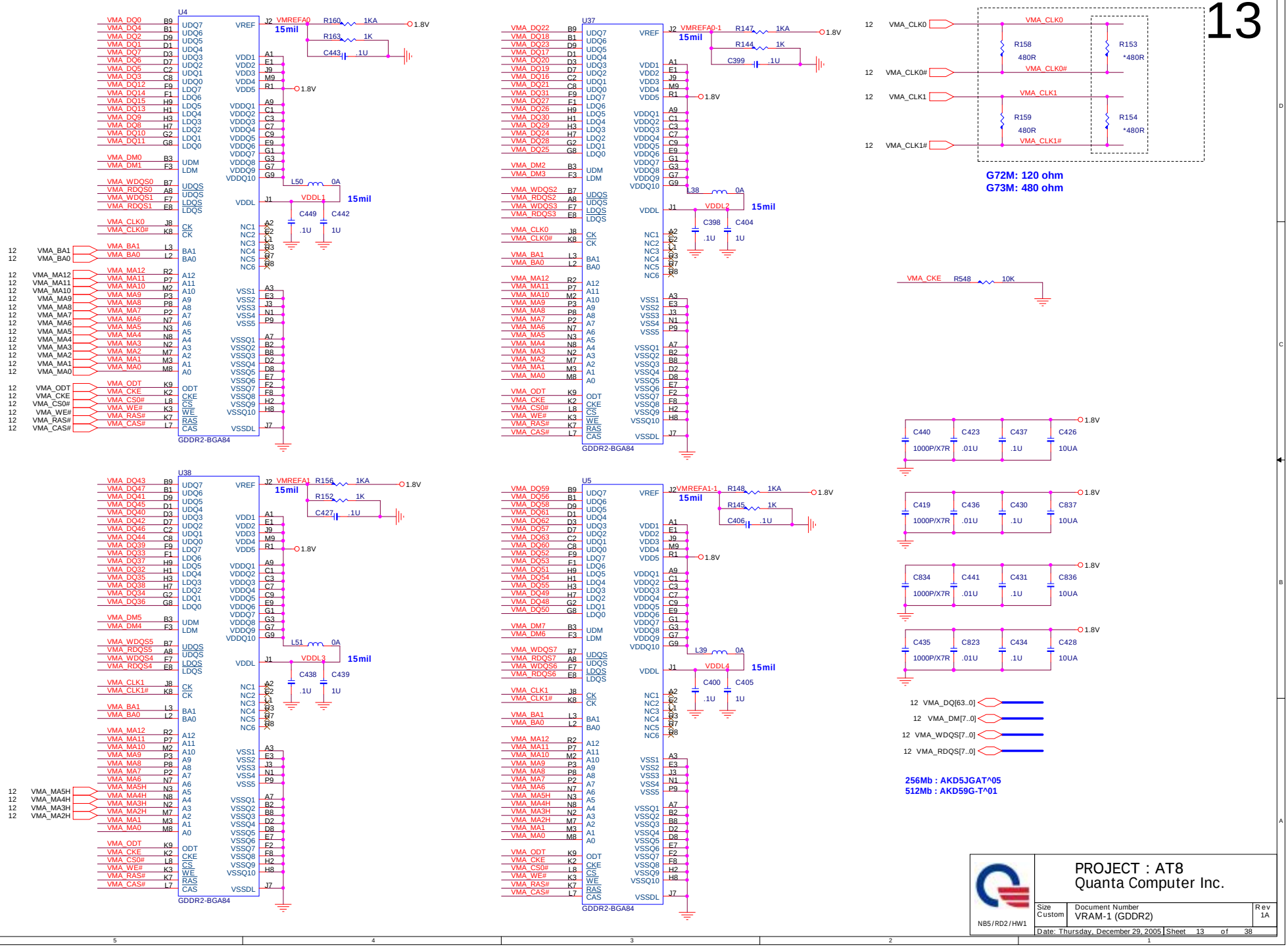
Date: Thursday, December 29, 2005 | Sheet 11 of 38

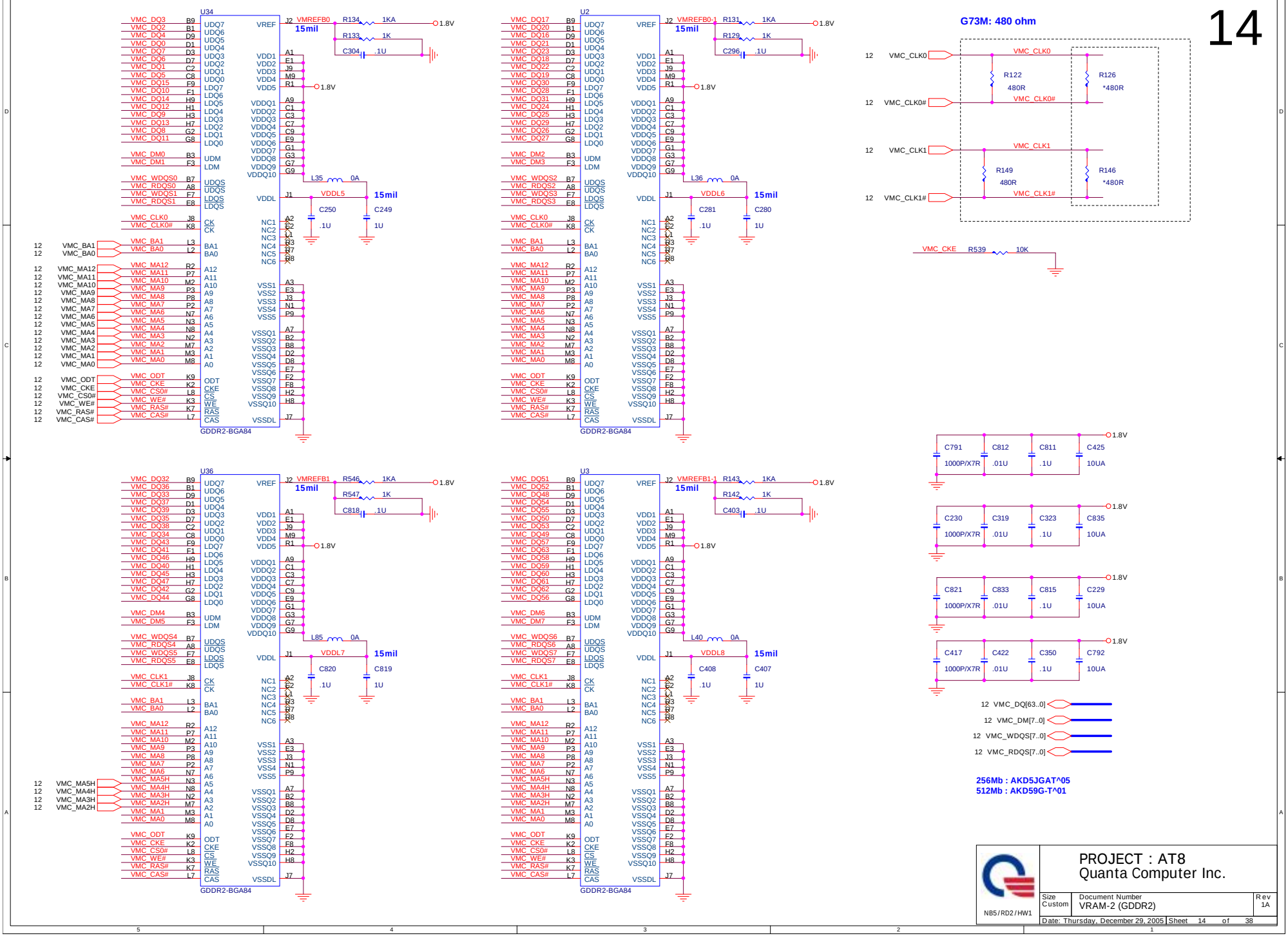
Channel C is available on G73M only

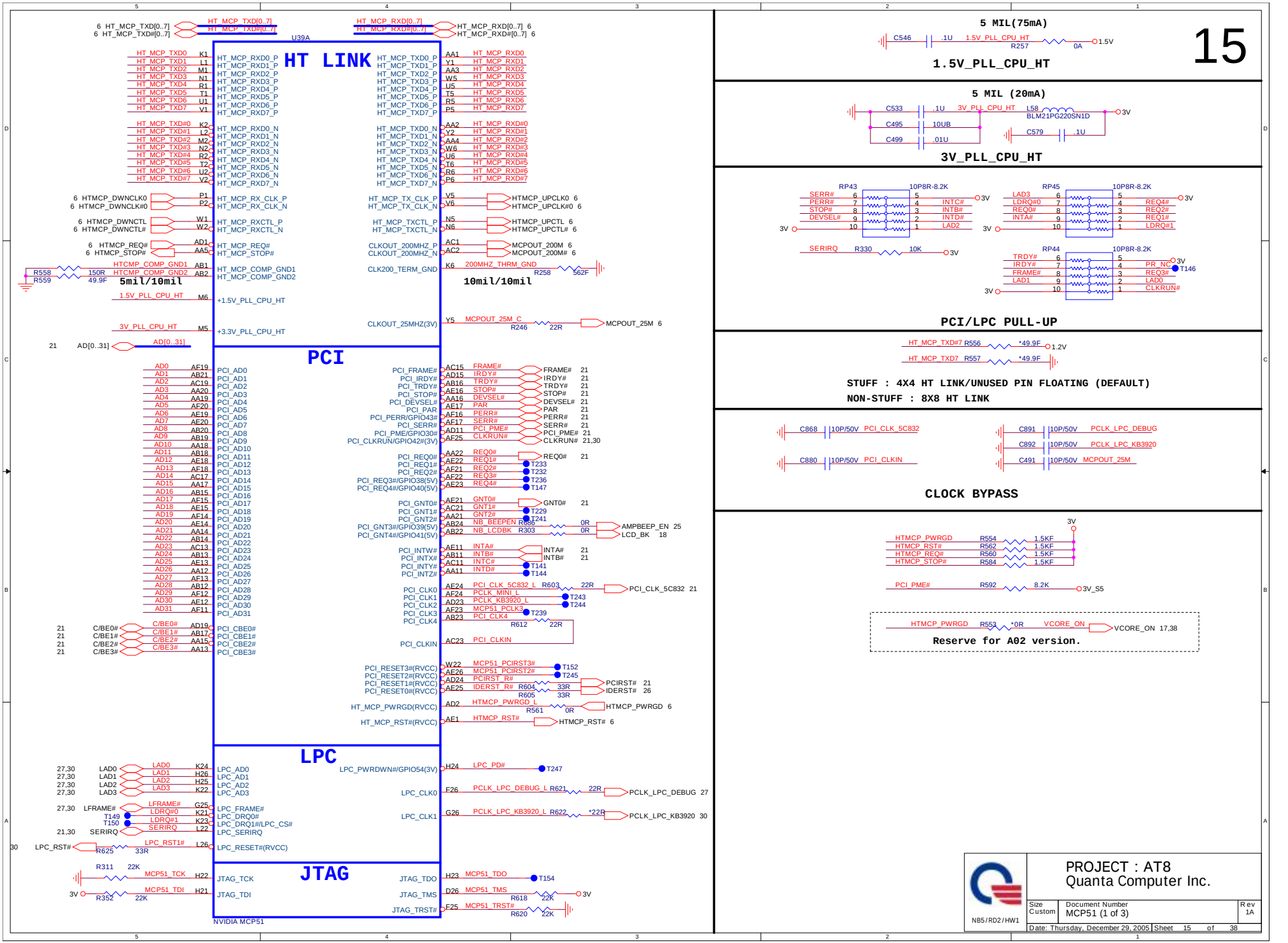


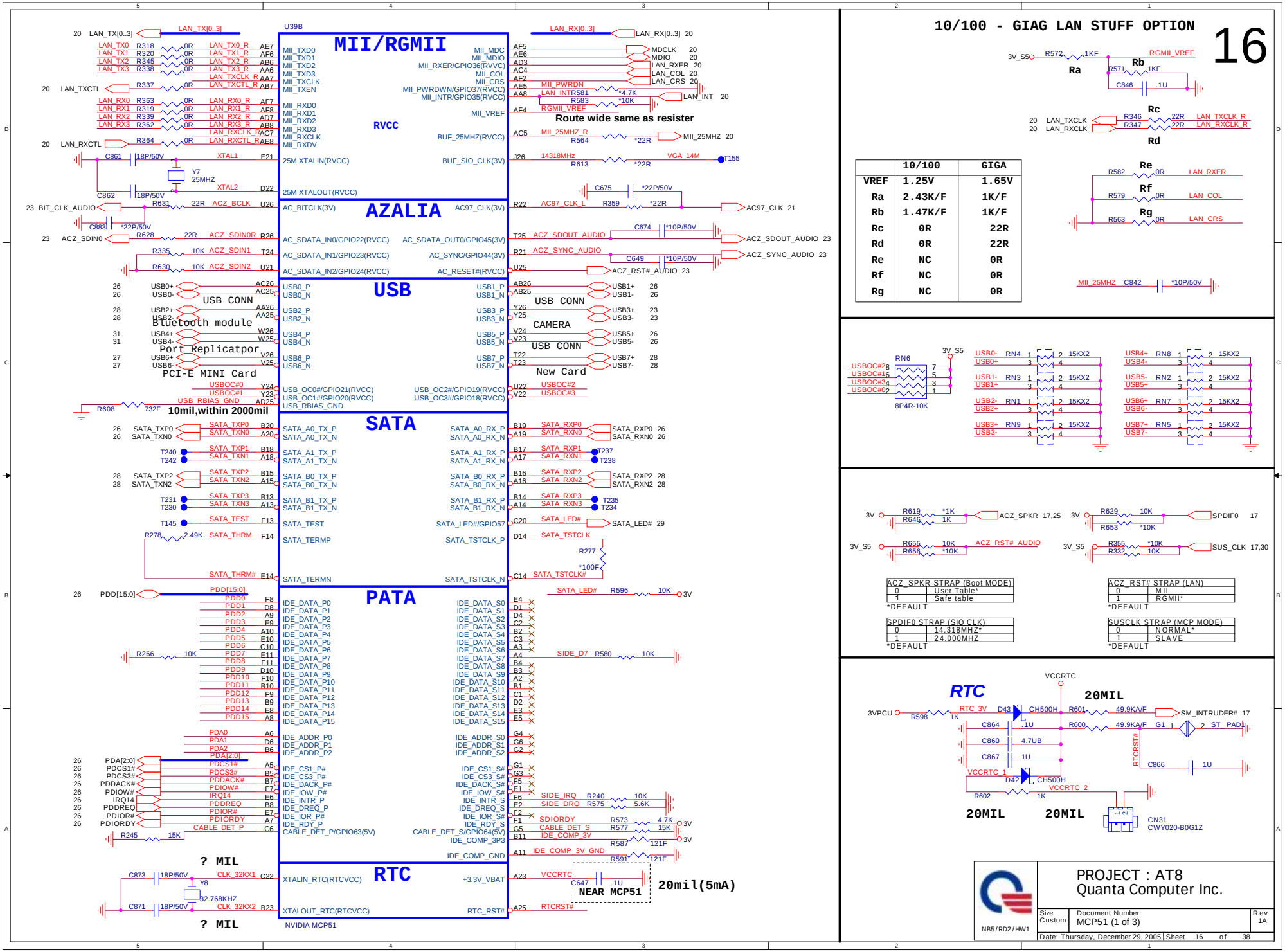
VREF = FBVDDQ * Rbot/(Rtop + Rbot)

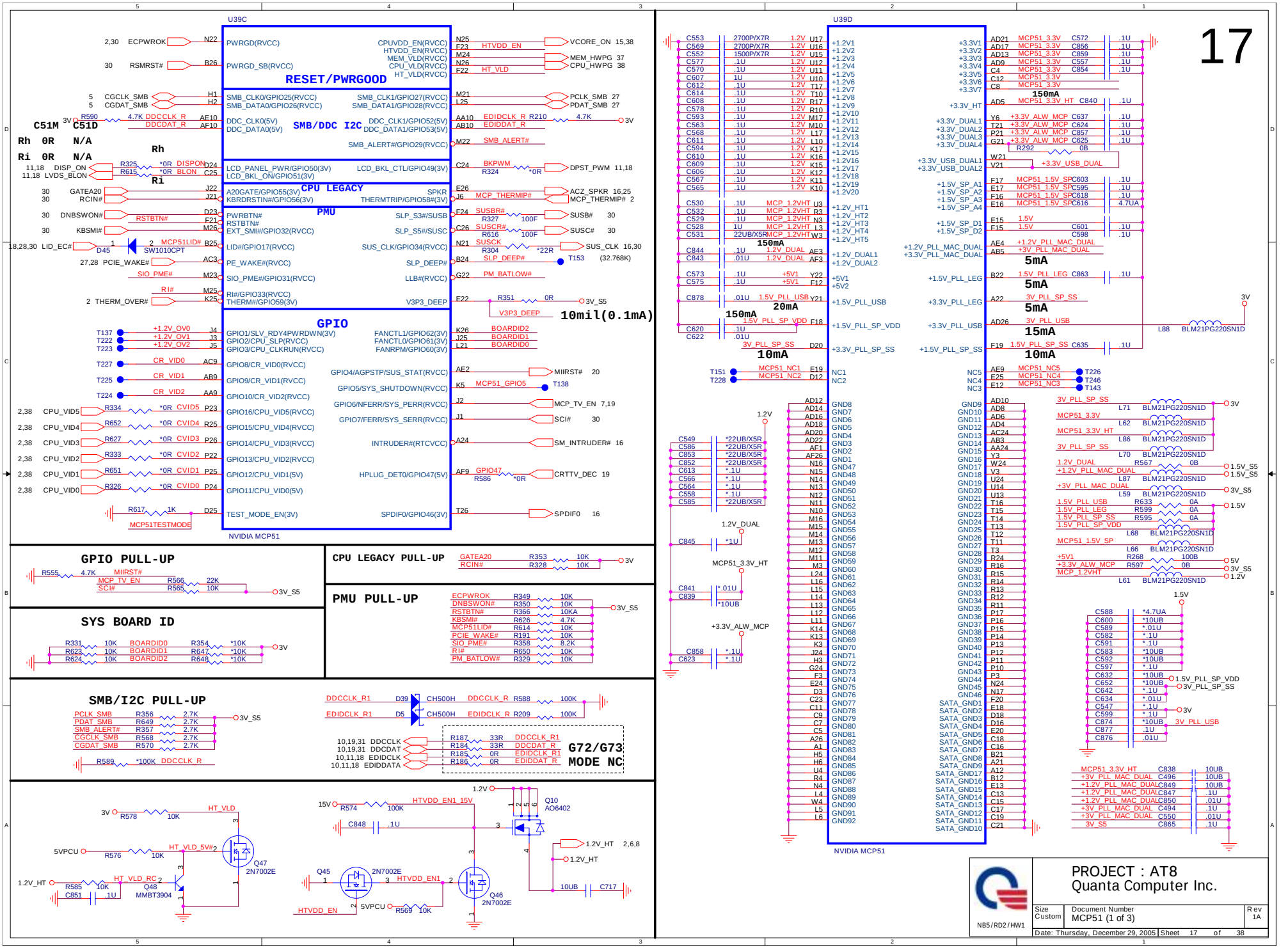
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.		
	Size: Custom	Document Number: GFX (MEM INTERFACE)	Rev: 1A
	Date: Thursday, December 29, 2005	Sheet 12 of 38	

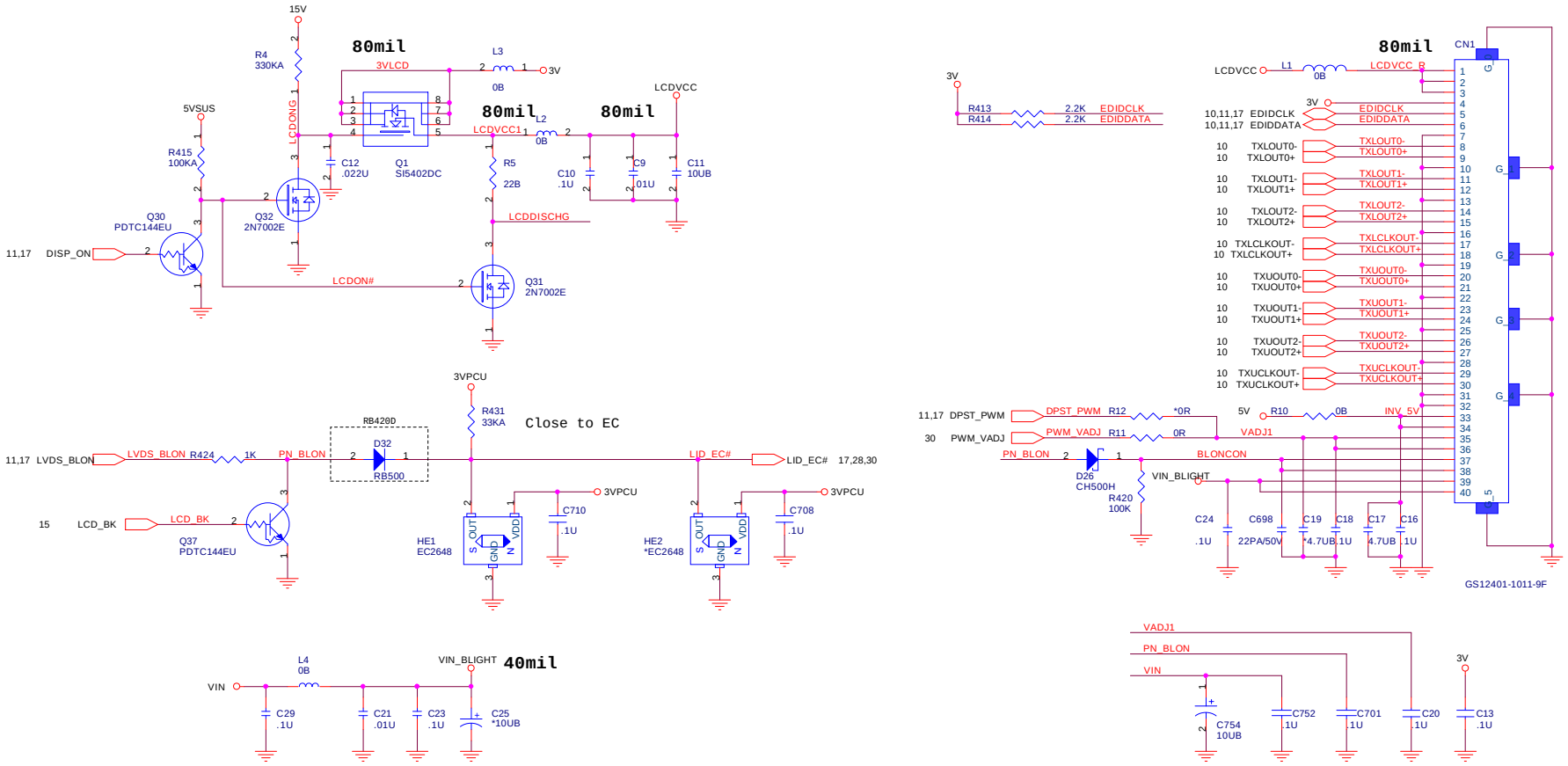


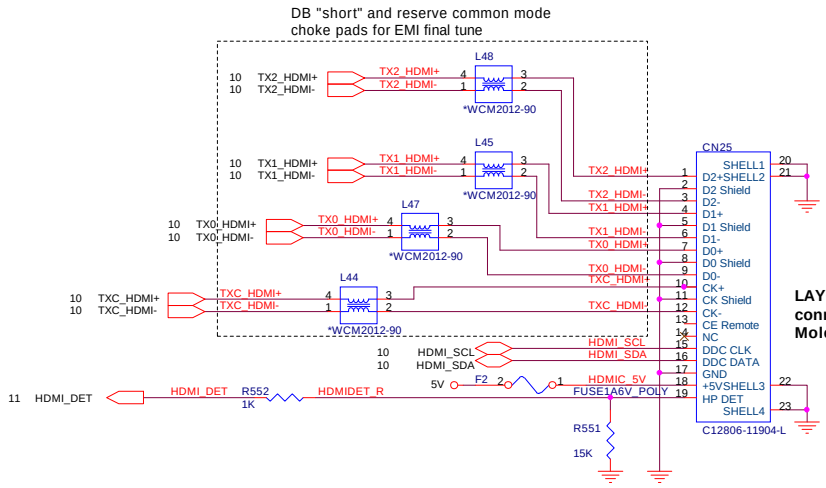








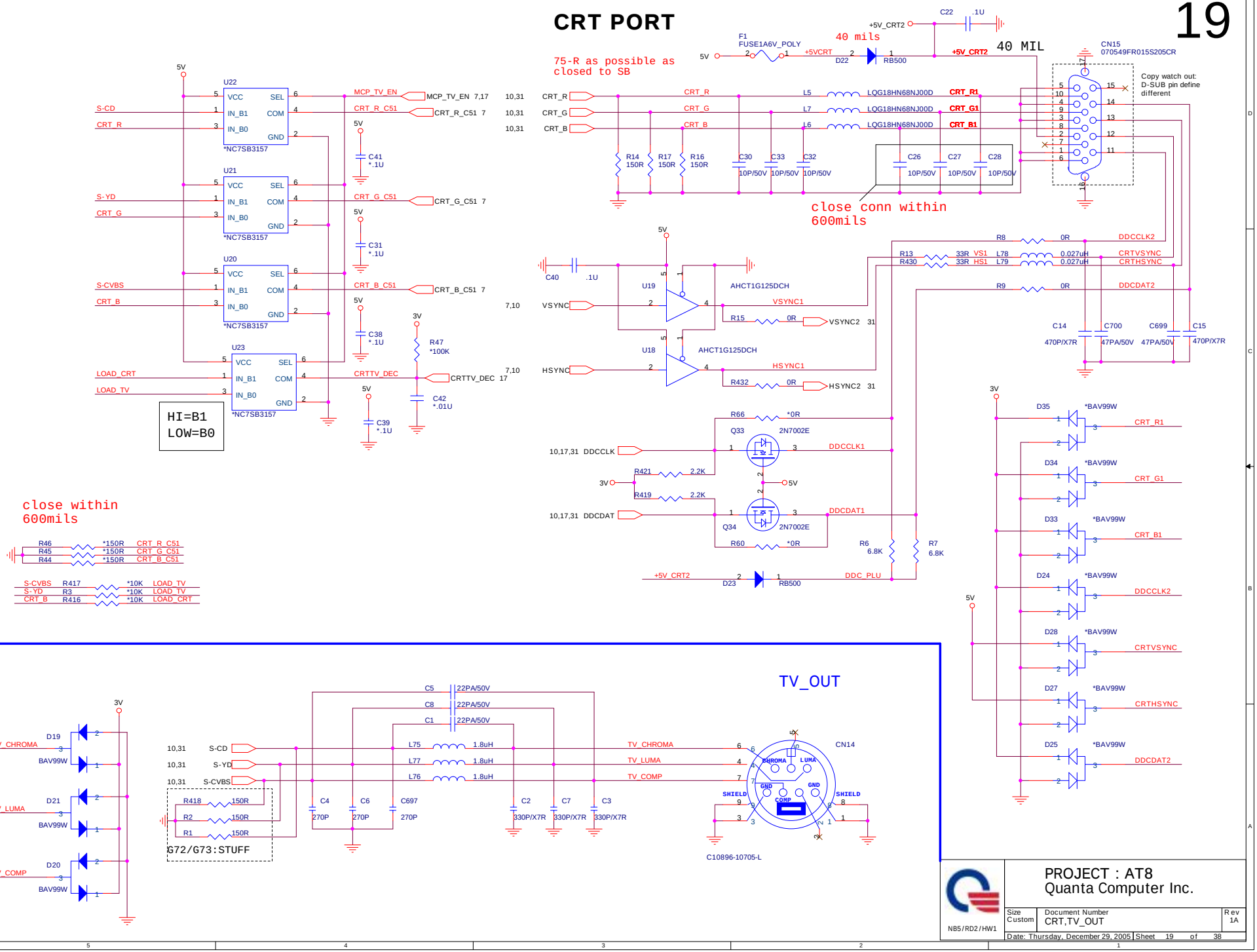


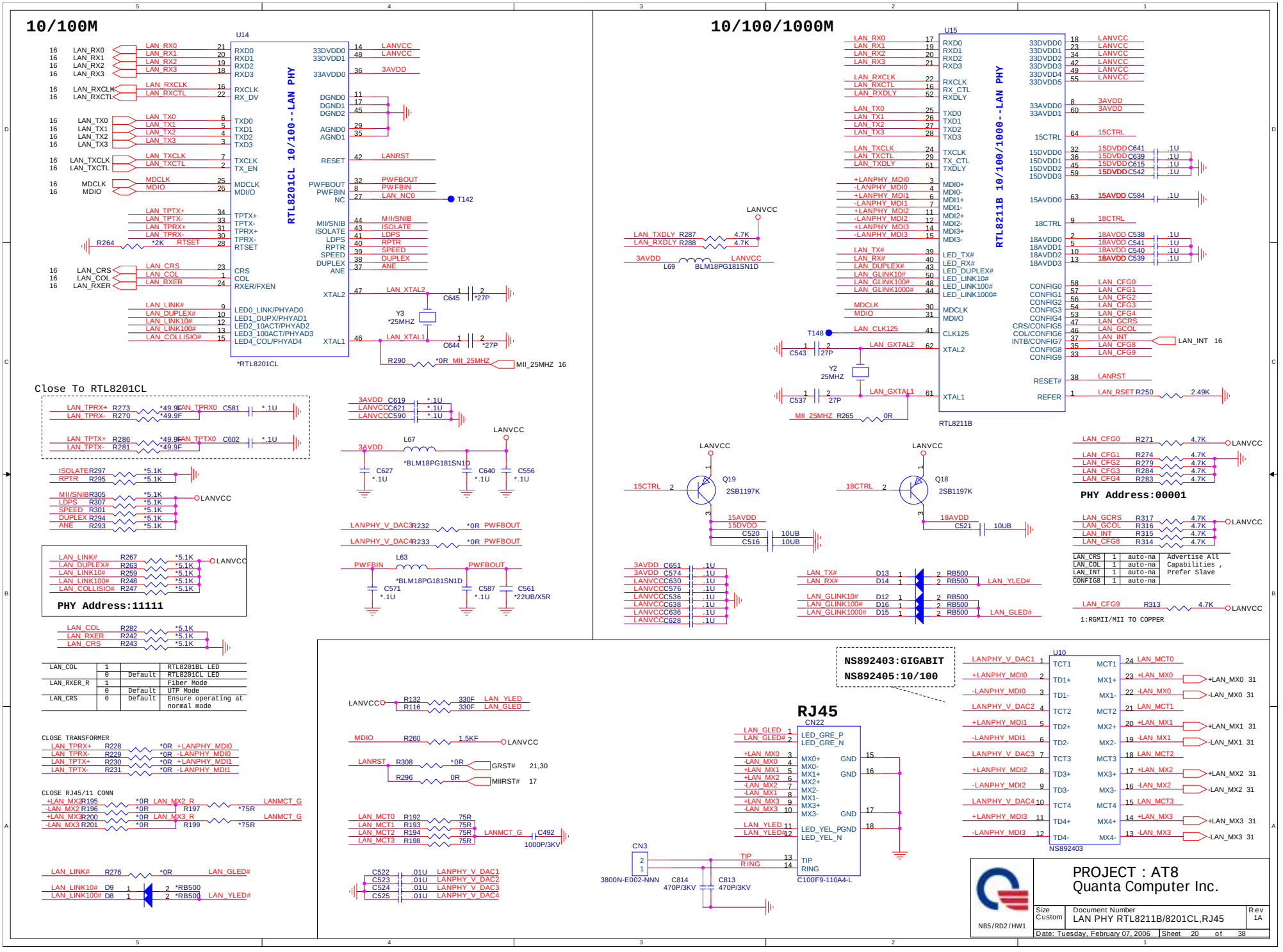


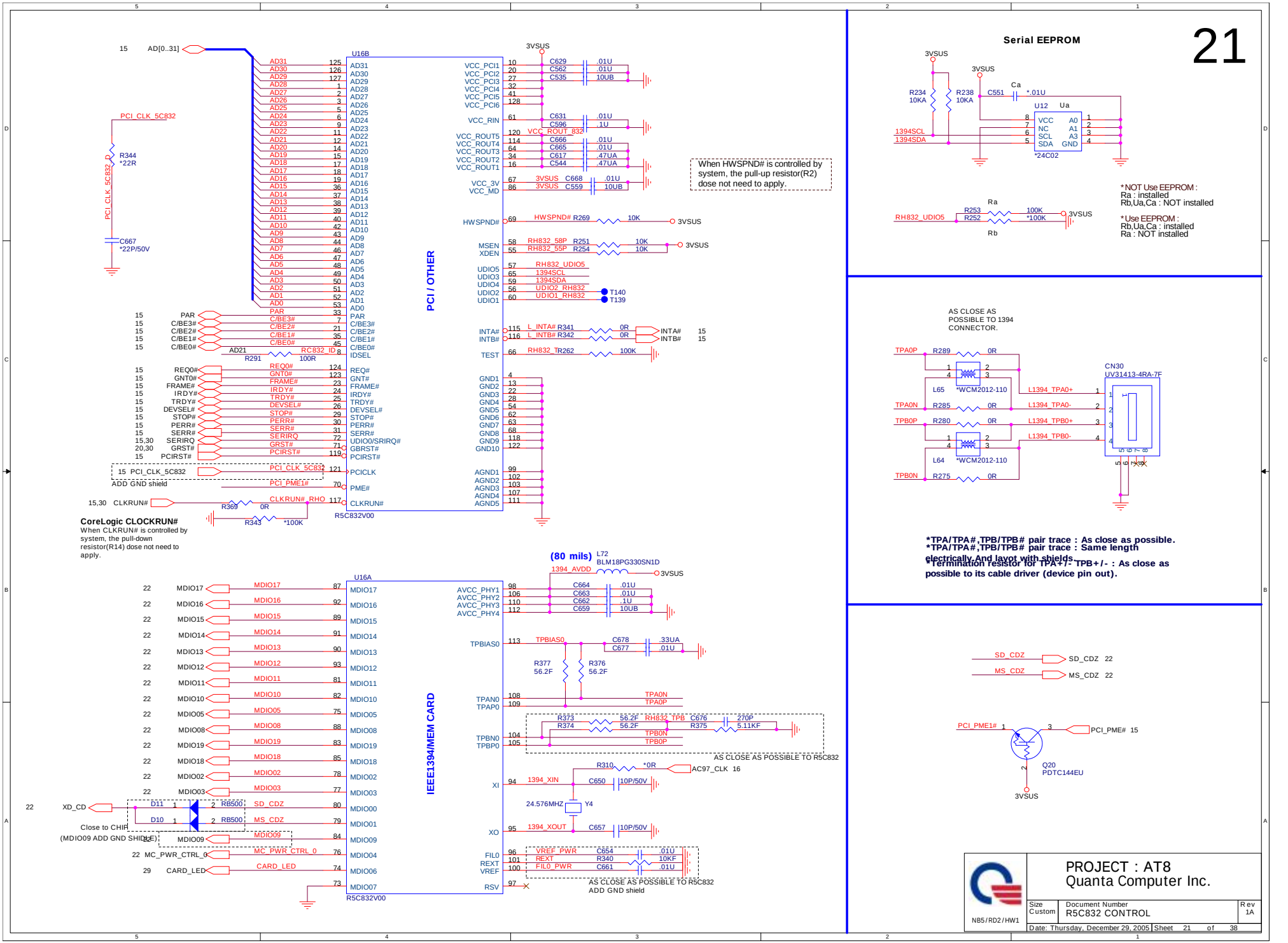
HDMI PORT

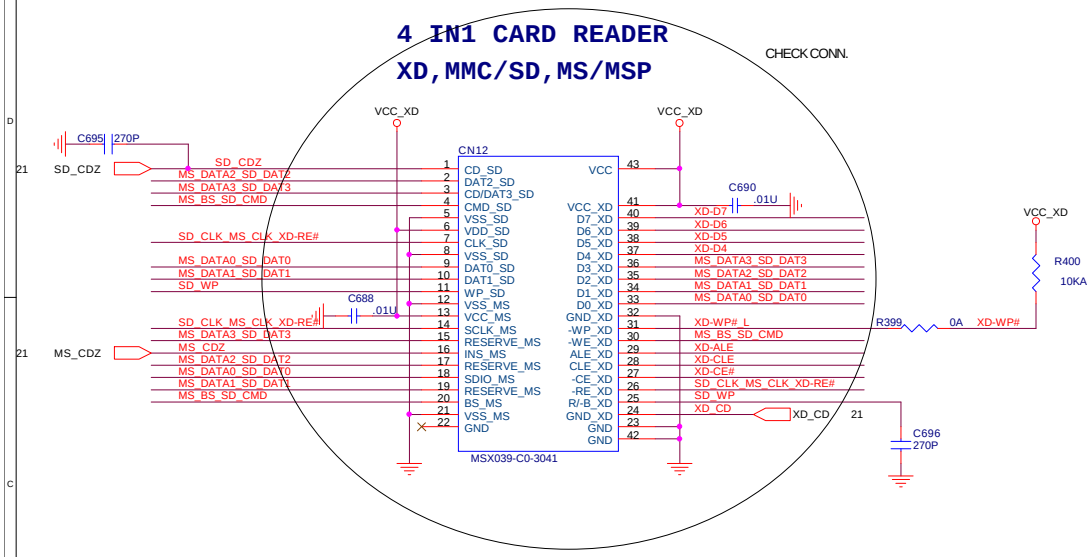
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: LCD CONN,HDMI CONN	Rev: 1A
Date: Thursday, December 29, 2005	Sheet 18 of 38	

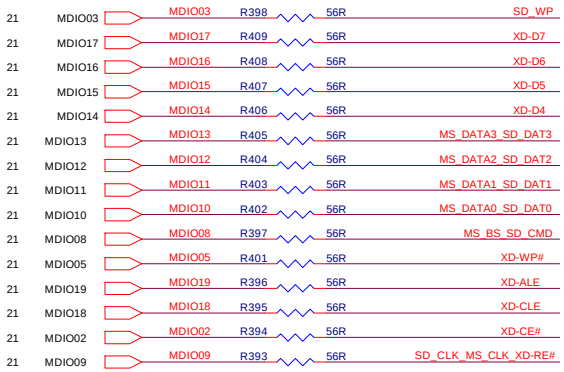
CRT PORT

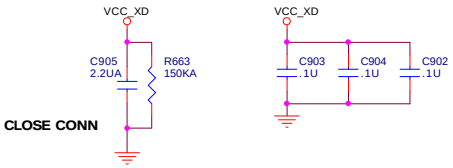


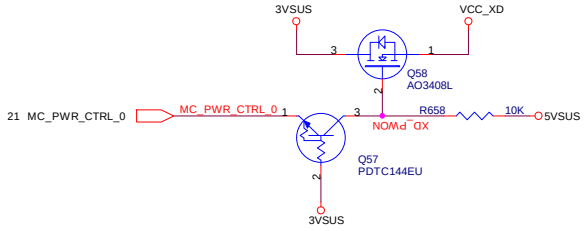




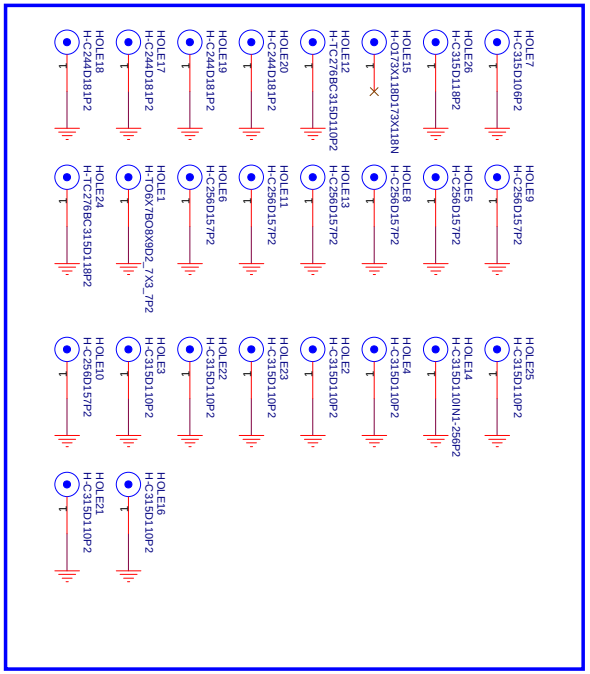




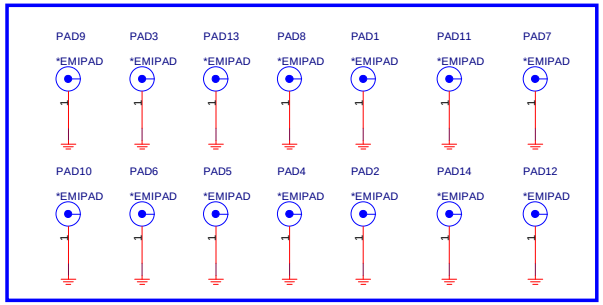




SCREW HOLE



EMI PAD



PROJECT : AT8
Quanta Computer Inc.

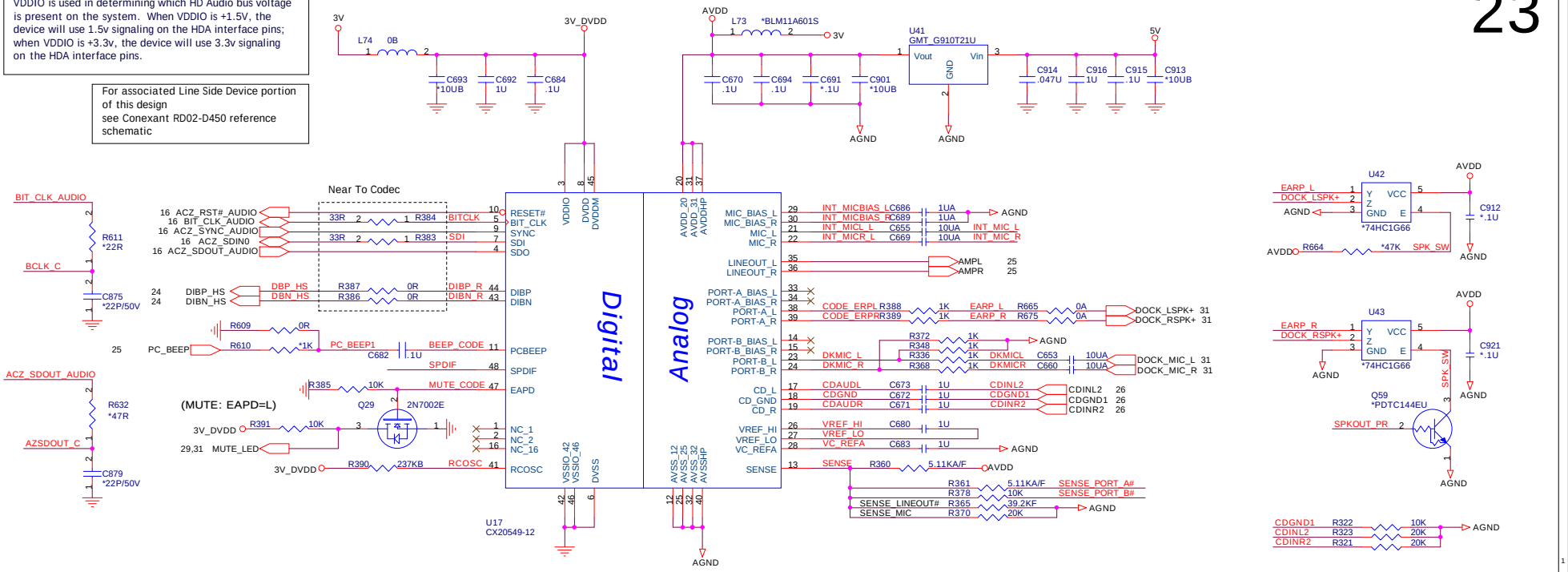
Size	Document Number	Rev
Custom	CARD READER CONN	1A

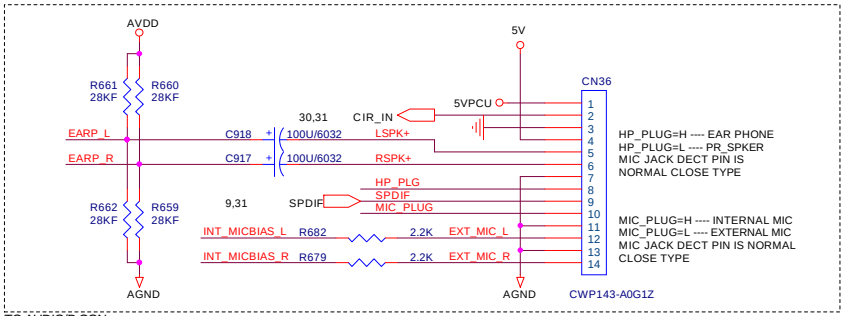
NB5/RD2/HW1

Date: Thursday, December 29, 2005 Sheet 22 of 38

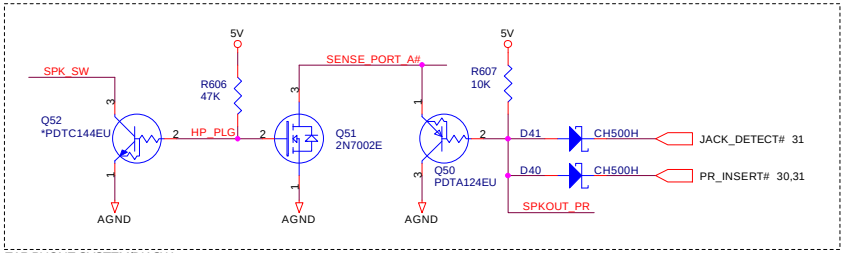
VDDIO is used in determining which HD Audio bus voltage is present on the system. When VDDIO is +1.5V, the device will use 1.5v signaling on the HDA interface pins; when VDDIO is +3.3v, the device will use 3.3v signaling on the HDA interface pins.

For associated Line Side Device portion of this design see Conexant RD02-D450 reference schematic

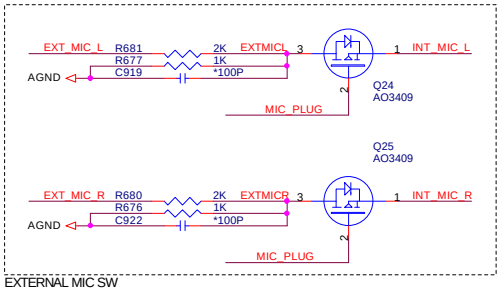




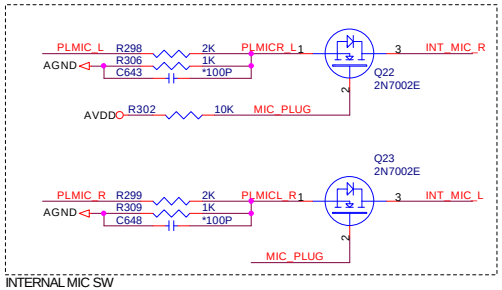
TO AUDIO/B CON.



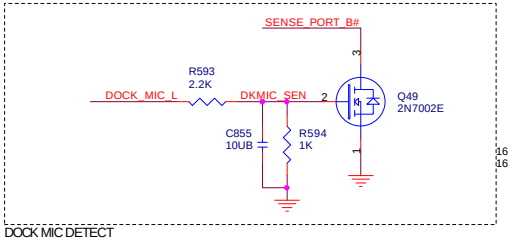
EAR PHONE SYSTEM/DK SW



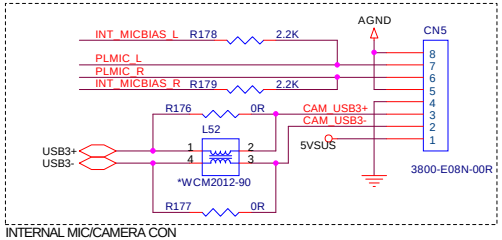
EXTERNAL MIC SW



INTERNAL MIC SW



DOCK MIC DETECT



INTERNAL MIC/CAMERA CON

PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Azalia CTRL_CONEXANT20549-12	1A

NB5/RD2/HW1

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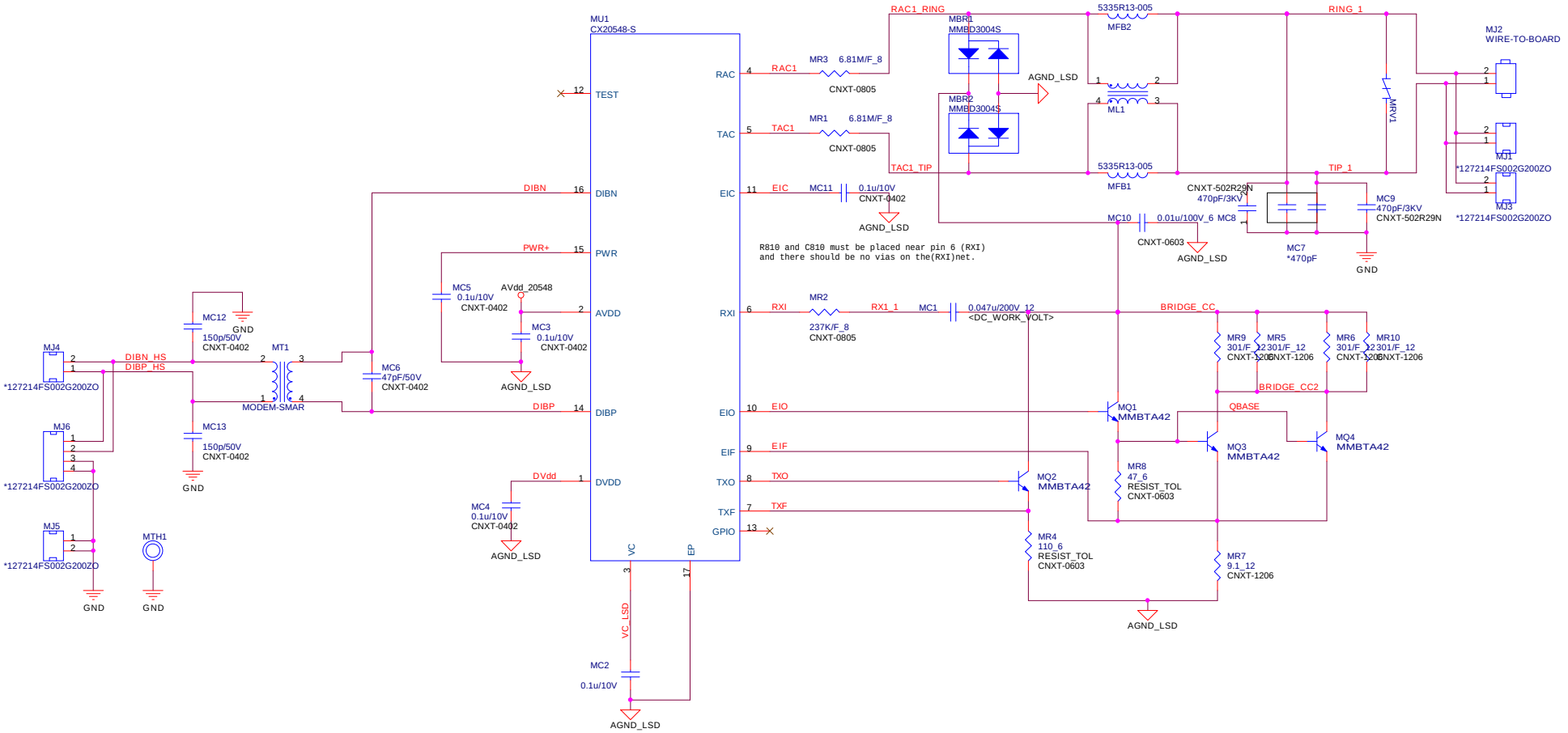
Revision History		
REV	Description	Date
0	Initial Release	April 26, 2005

23 DIBN_HS
23 DIBP_HS



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Custom	MODEM (DAA)	1A

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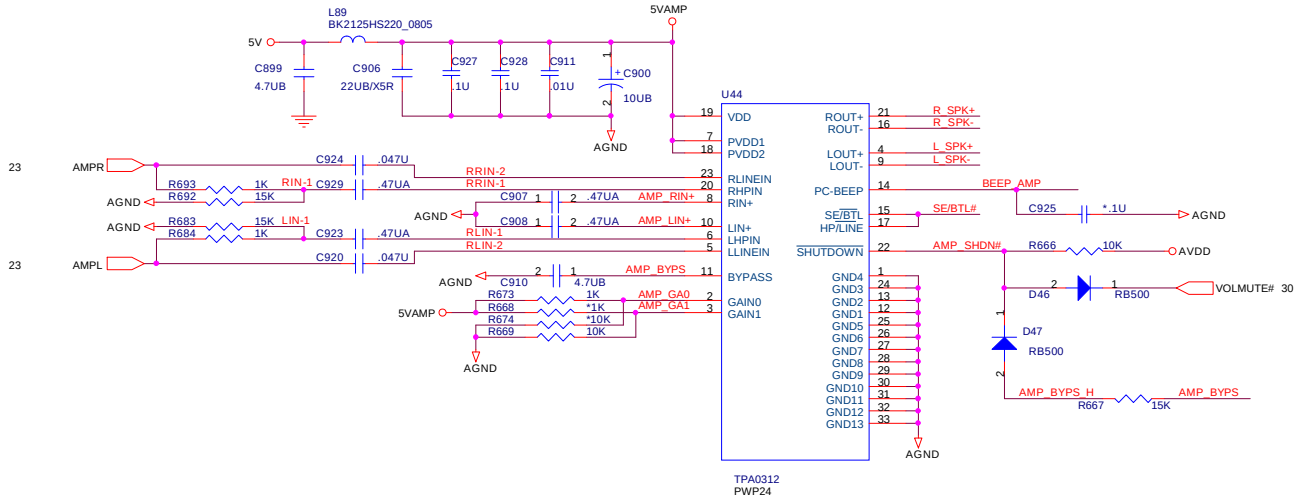
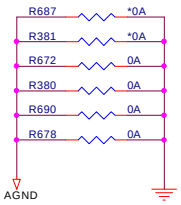
AUDIO AMPLIFIER

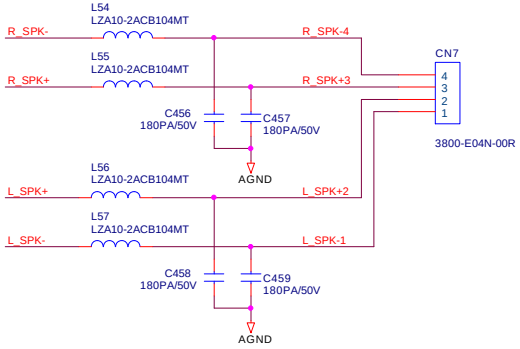


0312 Gain Table

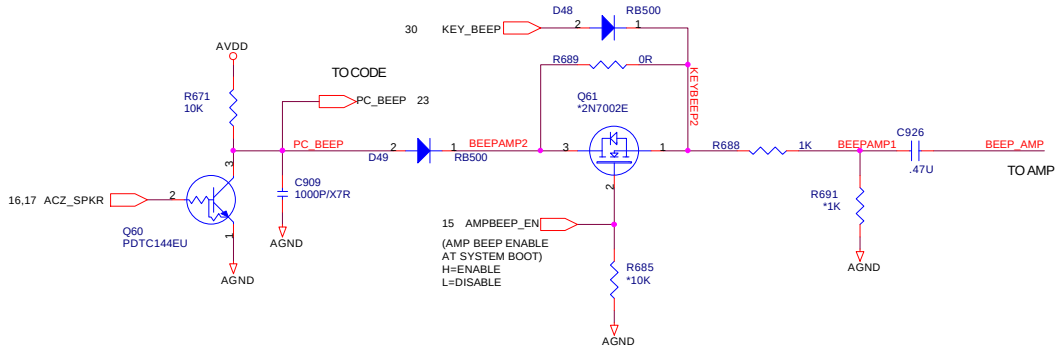
GAIN0	GAIN1	SE/BTL	AV(INV)
0	0	0	6dB
0	1	0	10dB
1	0	0	15.6dB
1	1	0	21.6dB
x	x	1	4.1dB



INT. SPEAKER



PCSPK BEEP



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	Size: Custom	Document Number: JACK, AMP_TPA0312	Rev: 1A
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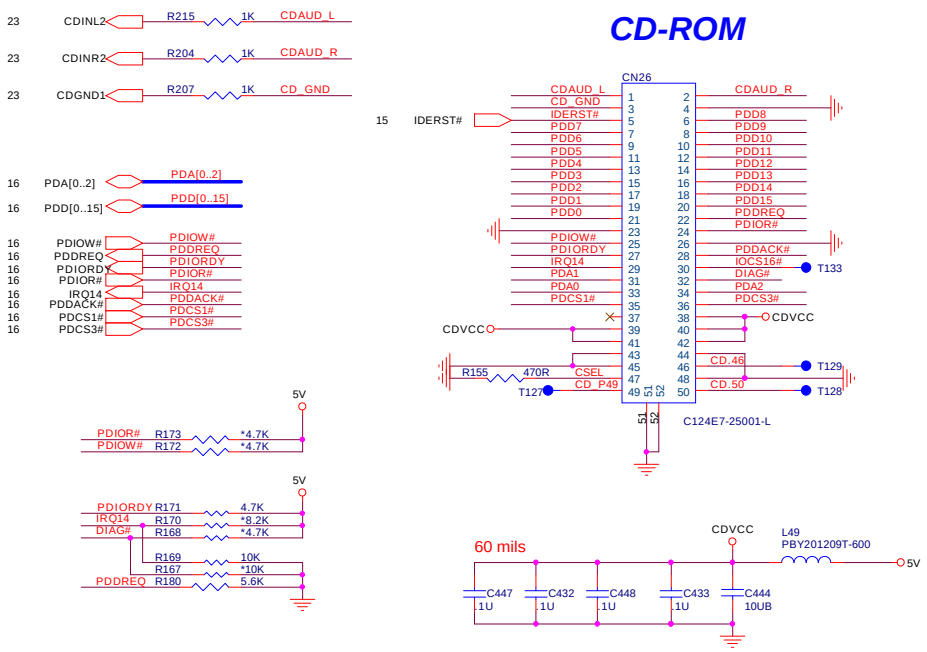
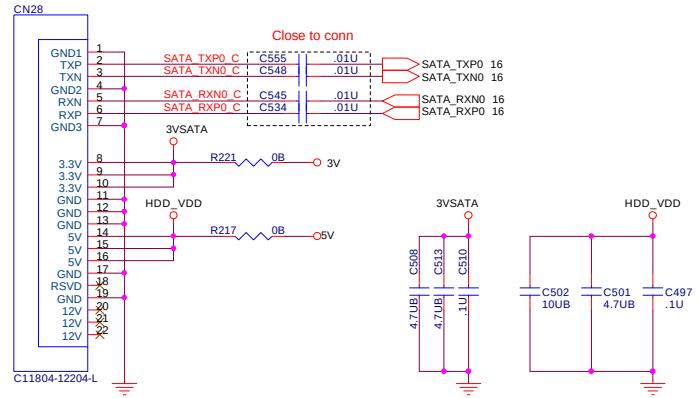
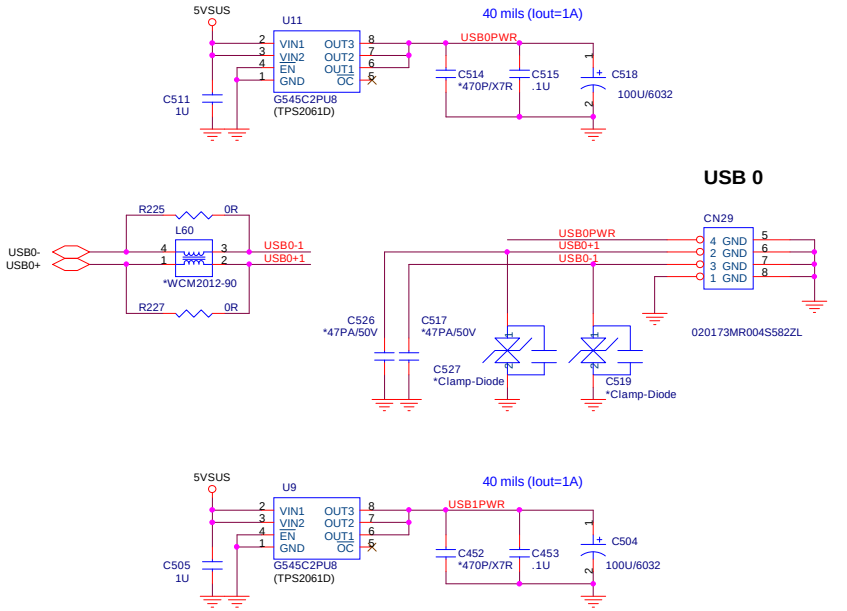
CD-ROM



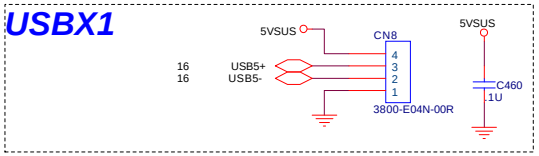
SATA_1 CONNECTOR



USBX2



USBX1



TO AD/B

NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
	Size: Custom Document Number: SATA HDD, CD-ROM,USBX2	Rev: 1A
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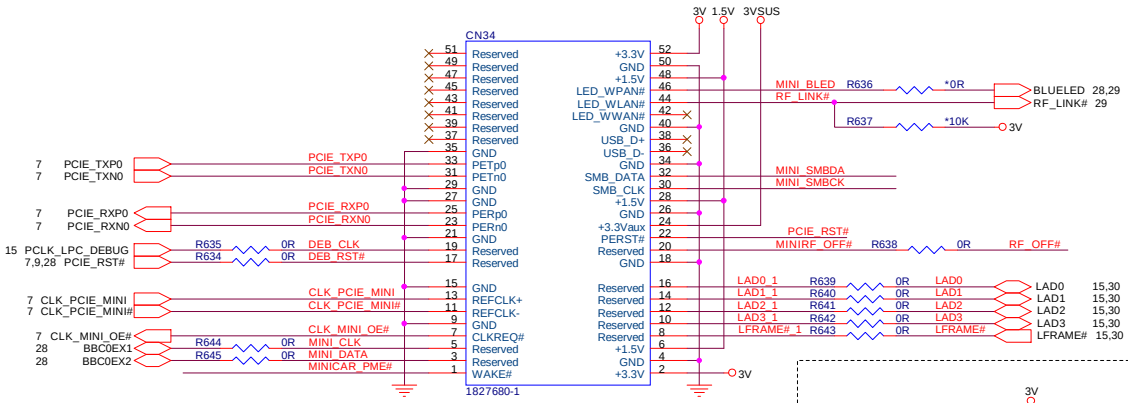
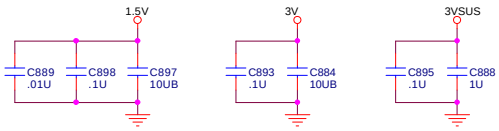
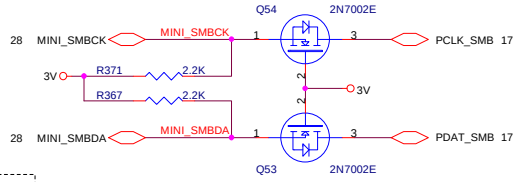
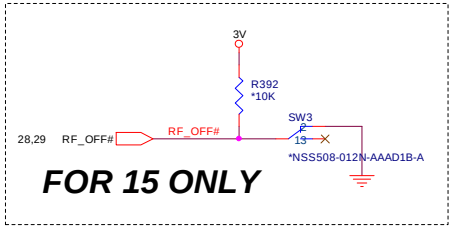
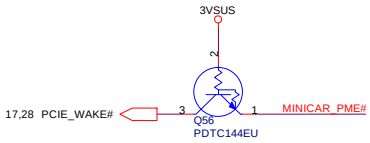
Mini PCI-E Card 1
WLAN





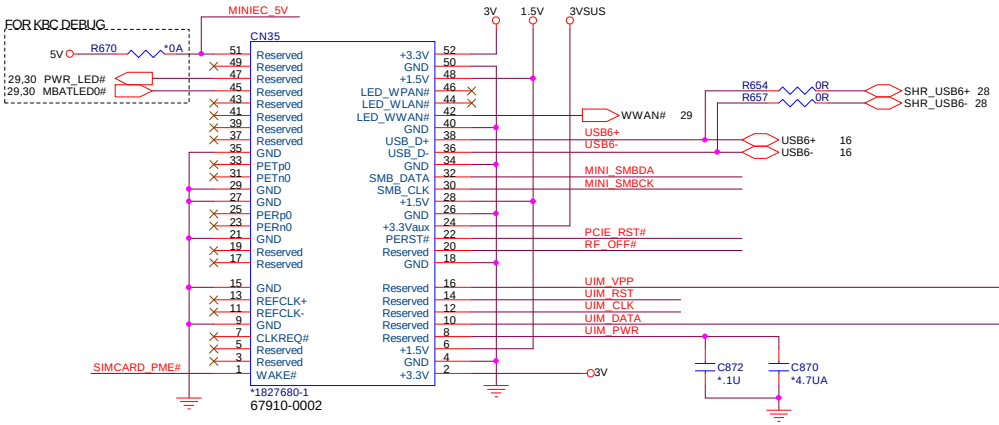


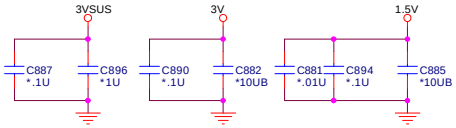


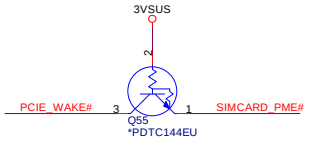


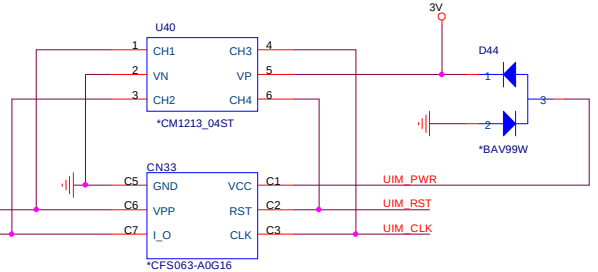
Mini PCI-E Card 2
WWAN(W/SIM)

FOR 15 ONLY









NB5/RD2/HW1

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Quanta Computer Inc.

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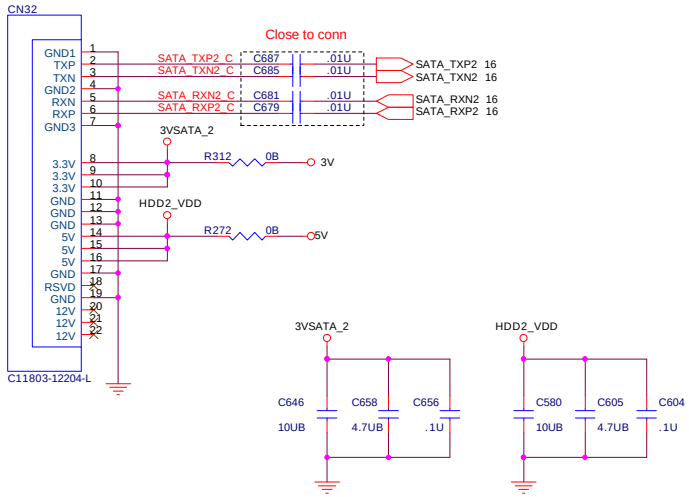
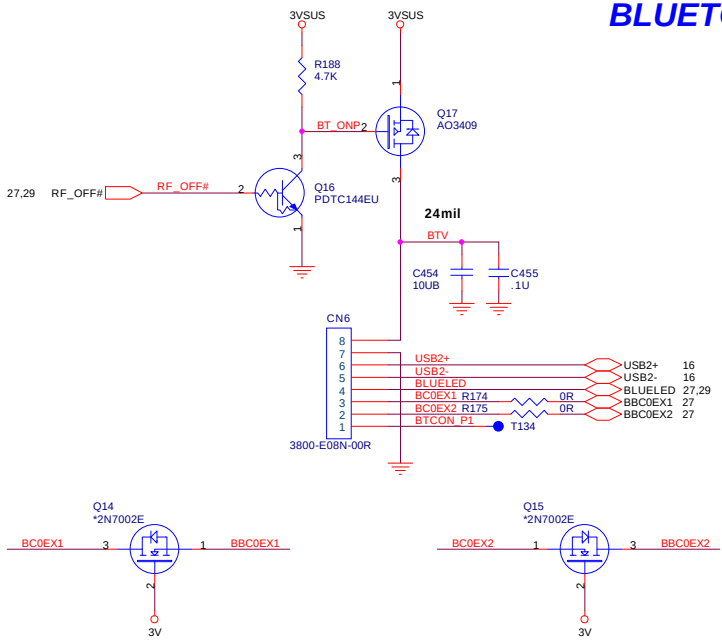
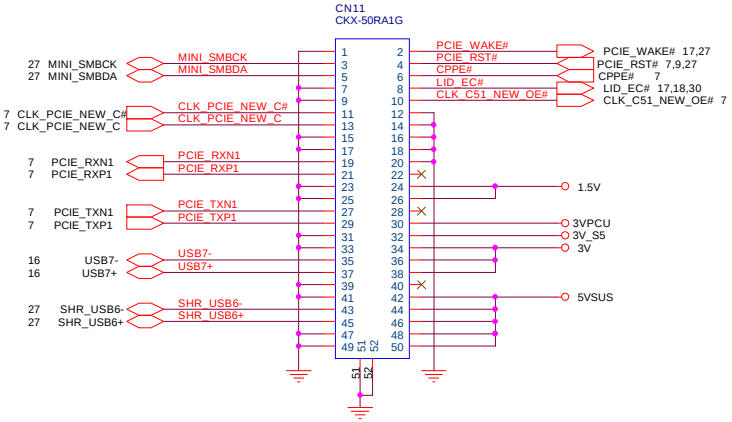
SATA_2 CONNECTOR
For 17"W Second HDD

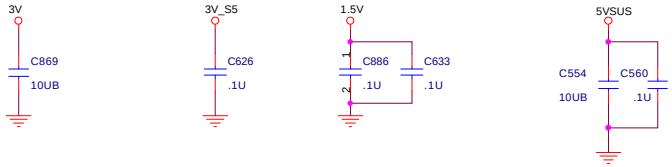


BLUETOOTH



NEWCARD





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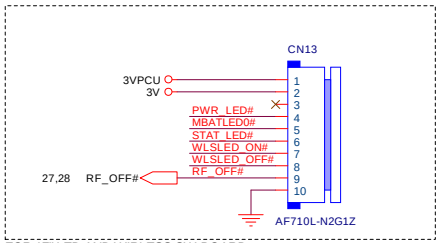
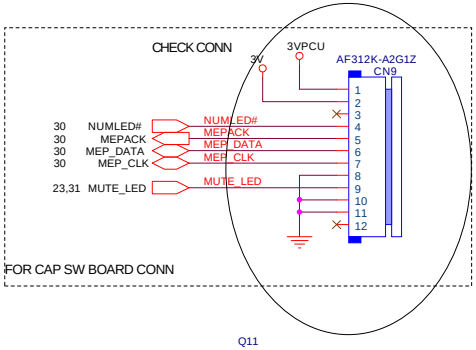
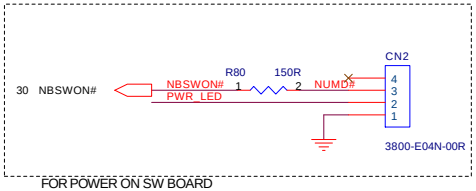


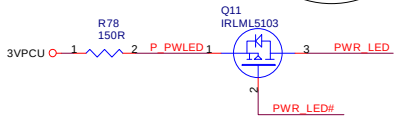
FOR 17" LED AND WIRLESS SW BOARD

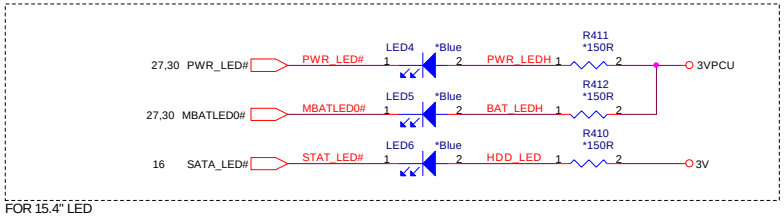


FOR CAP SW BOARD CONN

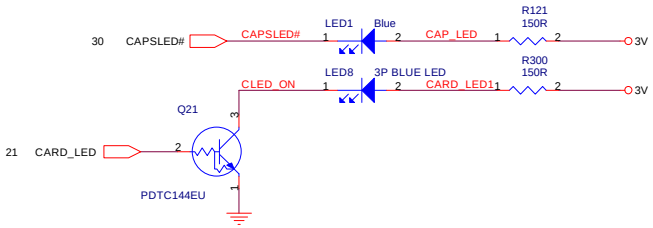


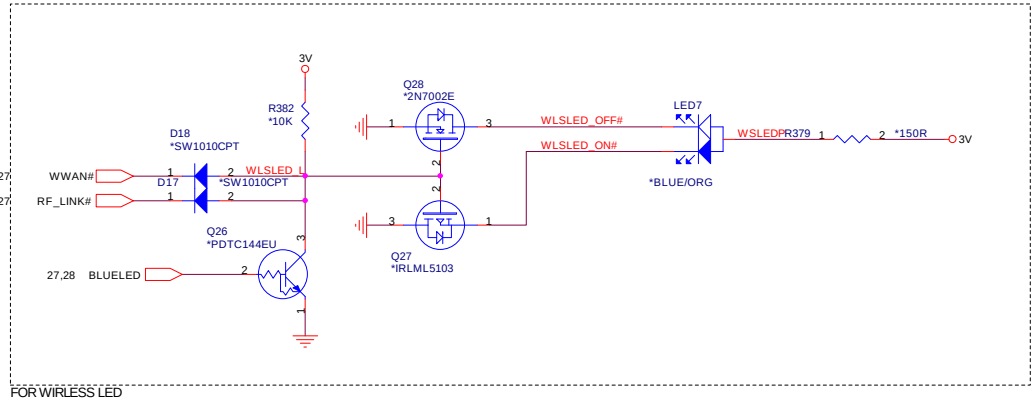
FOR POWER ON SW BOARD



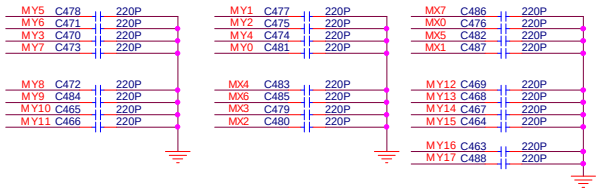


FOR 15.4" LED

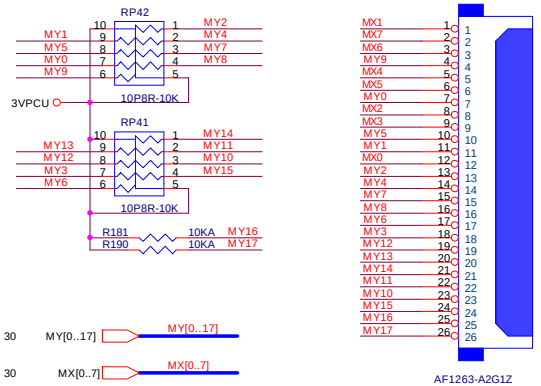


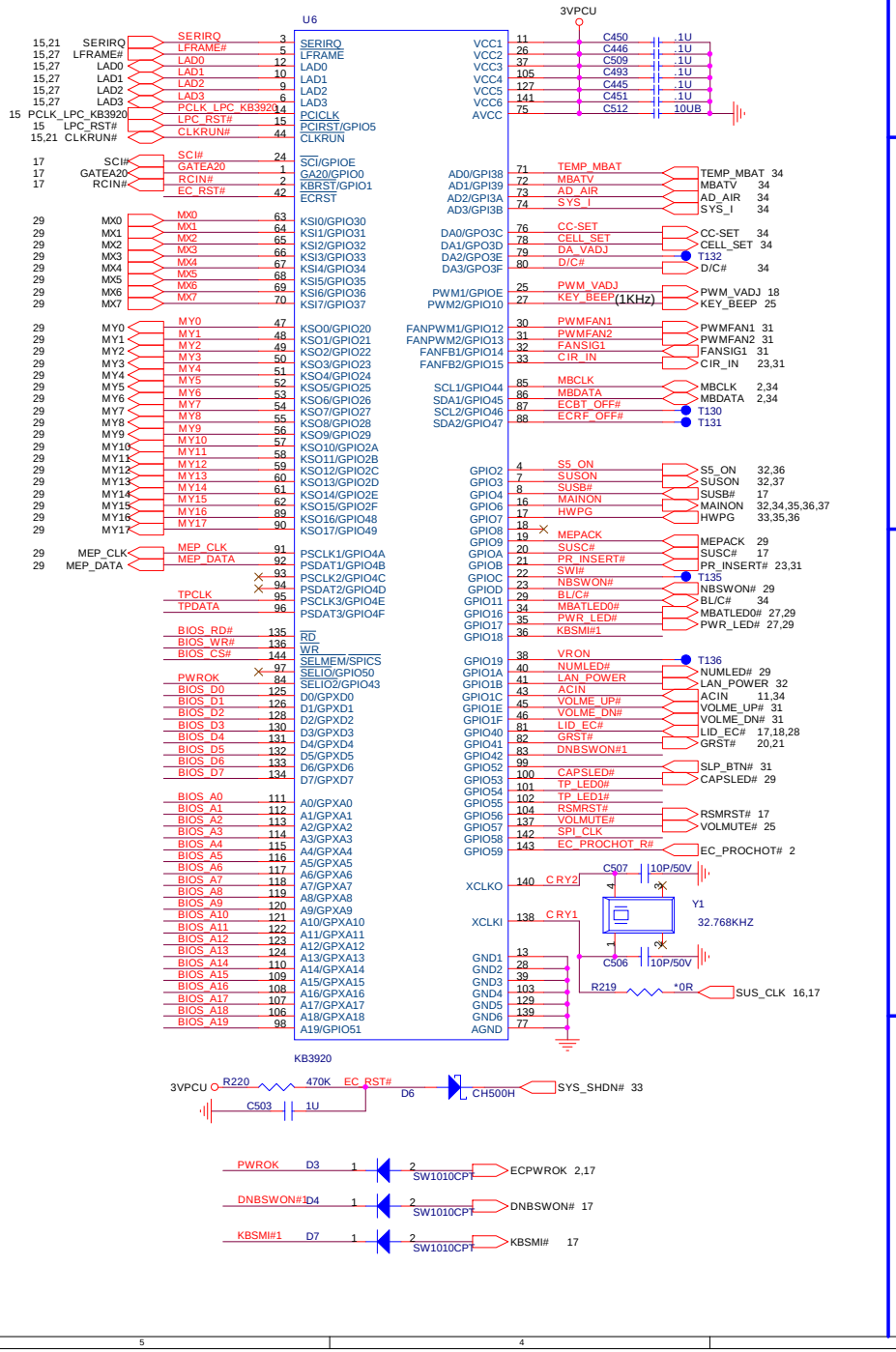


FOR WIRLESS LED



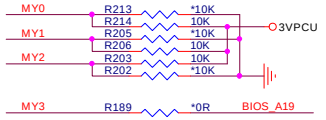
KEYBOARD PULL-UP



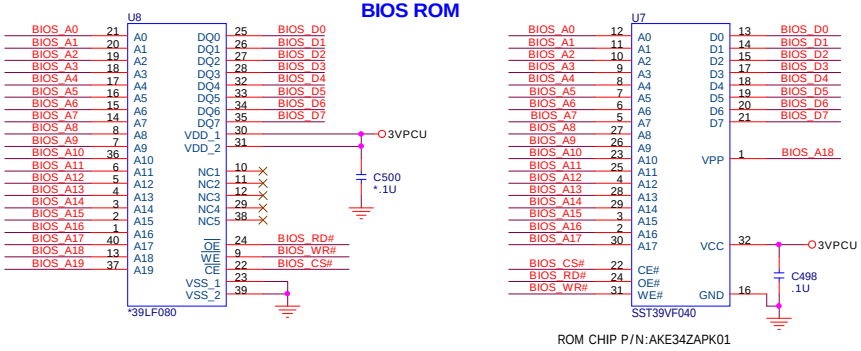


STRAP PIN

MY0	47	TP_TEST: Clock Test Mode Low: Test Mode. HIGH: 32kHz clock in normal runing
MY1	48	TP_PLL: DPLL Test Mode Low: Test Mode. HIGH: Normal operation
MY2	49	TP_SPI: Default flash access Low: Boot from SPI flash part HIGH: Boot from ISA flash part
MY3	50	TP_ISP: In System Programming Mode Low: ISP mode HIGH: Normal Mode

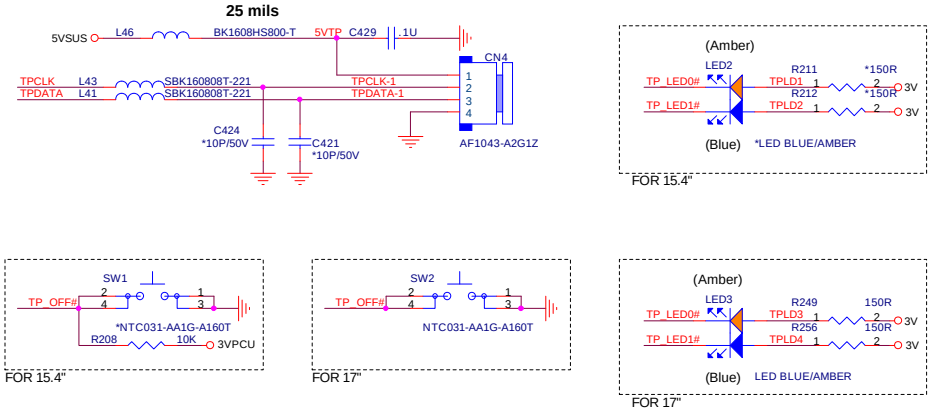


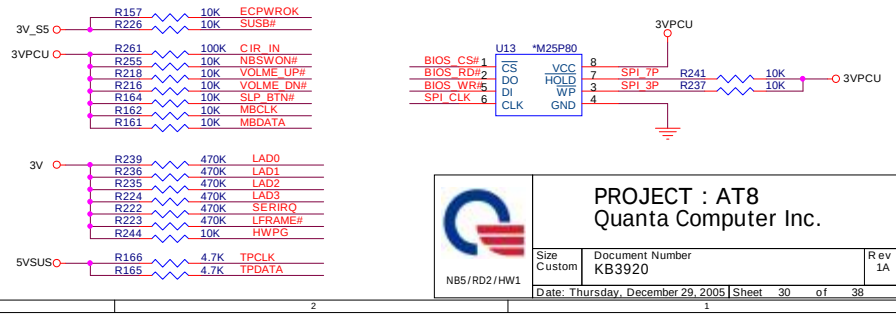
BIOS ROM



ROM CHIP P/N:AKE34ZAPK01

TOUCH PAD CONNECTOR





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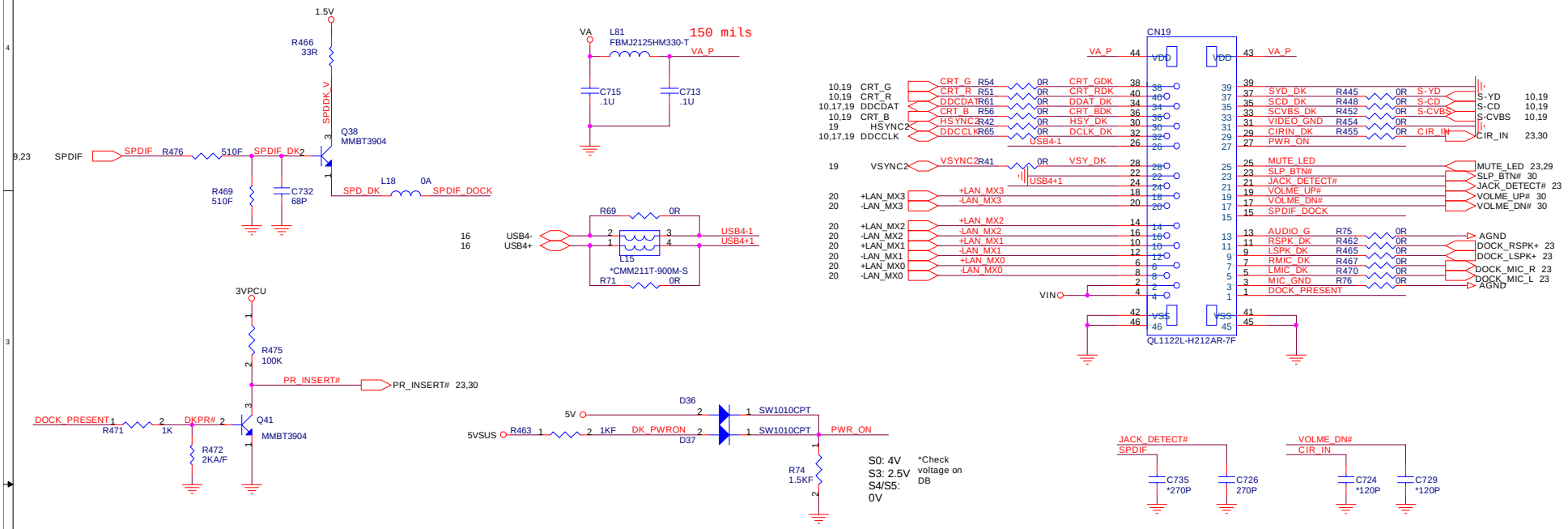
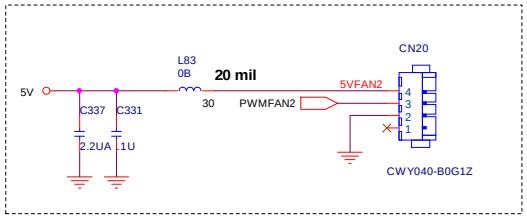
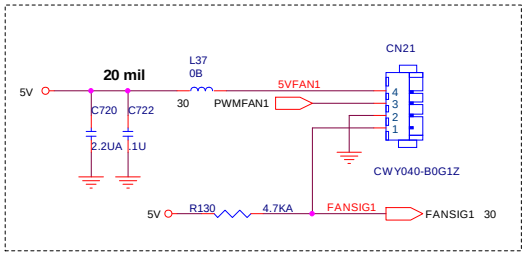
CABLE DOCK



FAN



FAN2 PWM CONNECTOR



FAN1 PWM CONNECTOR

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Quanta Computer Inc.

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Custom	CABLE DOCKING	1A

NB5/RD2/HW1

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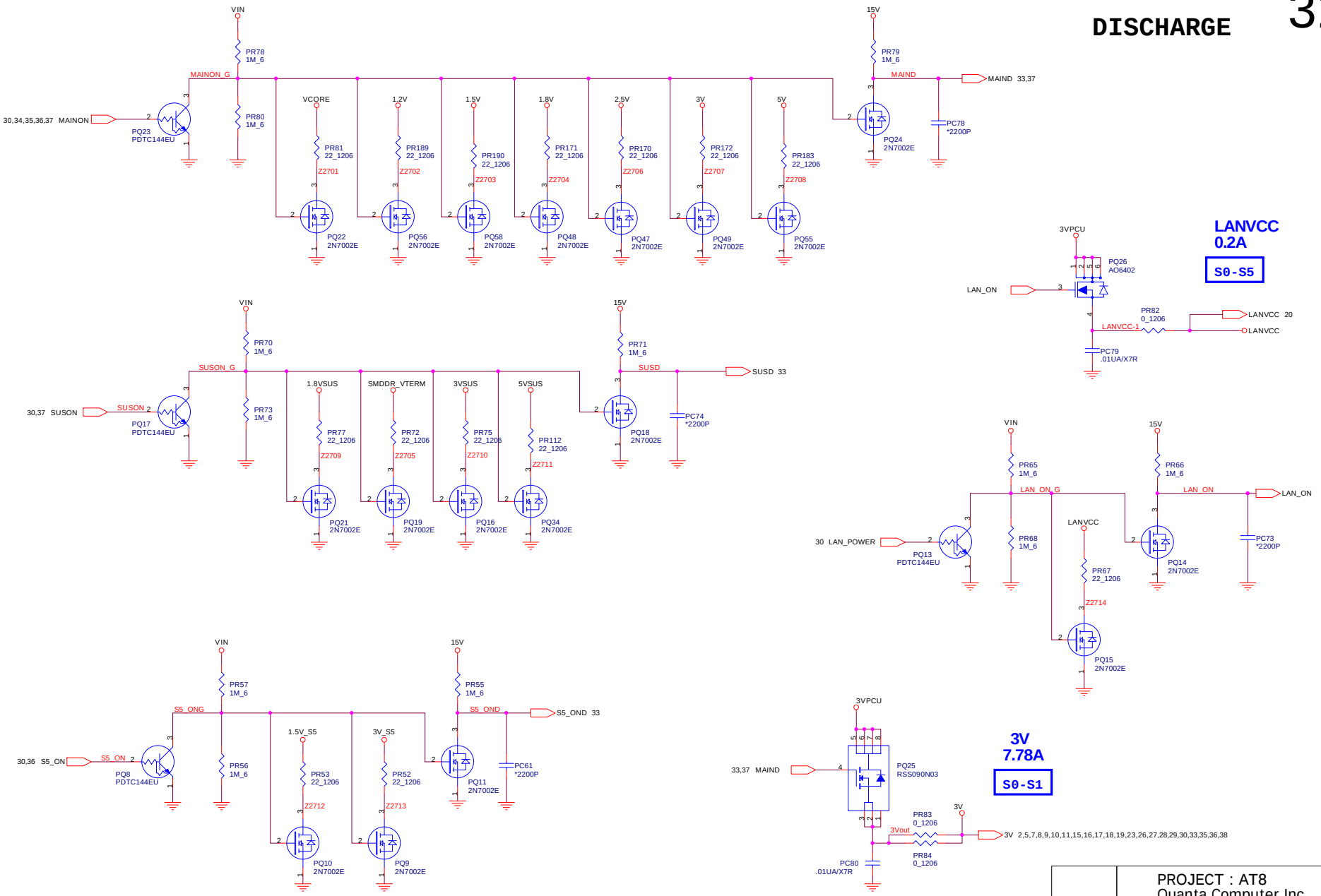
DISCHARGE

32



PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE	1A

NB5/RD2/HW1

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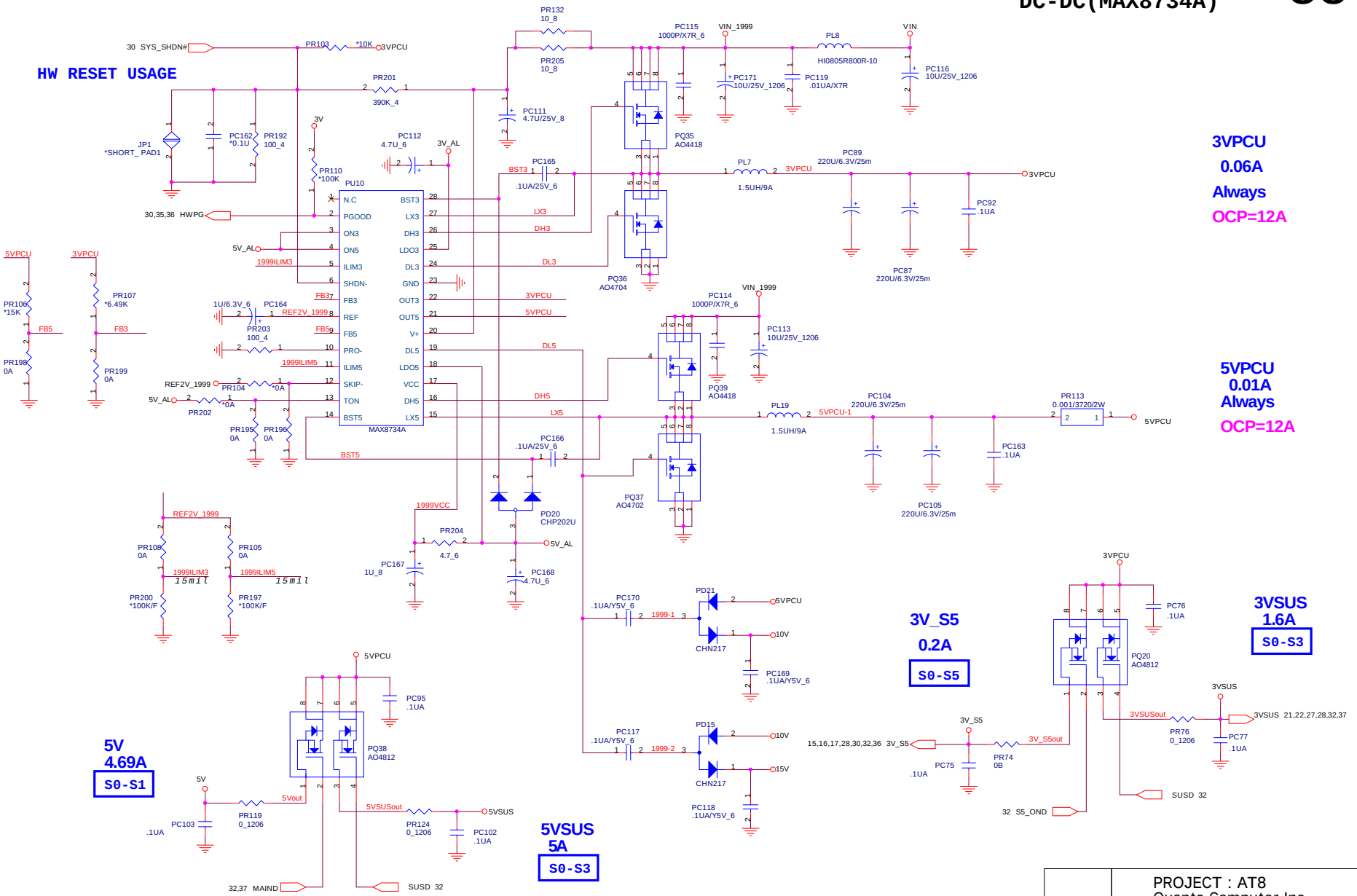
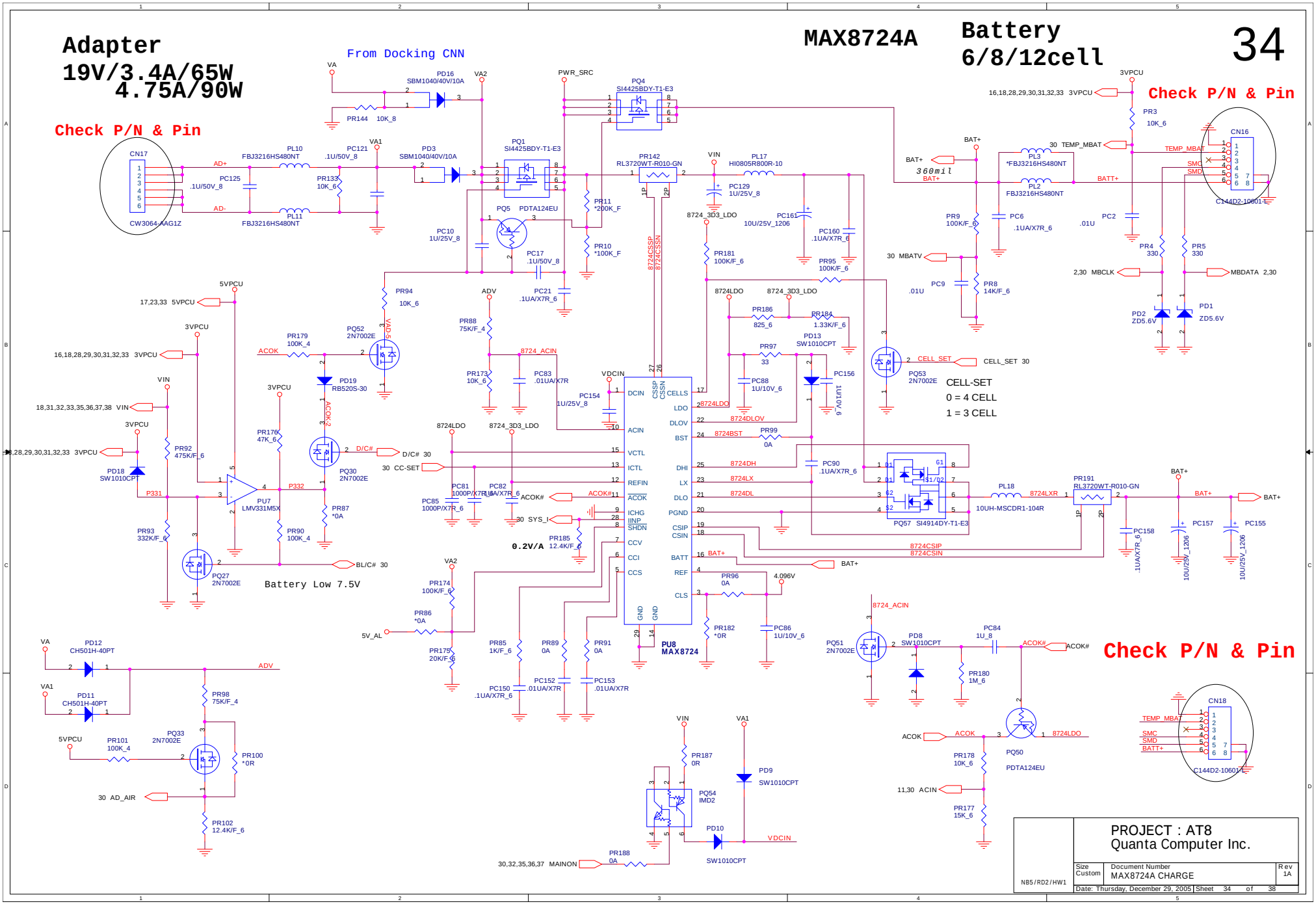
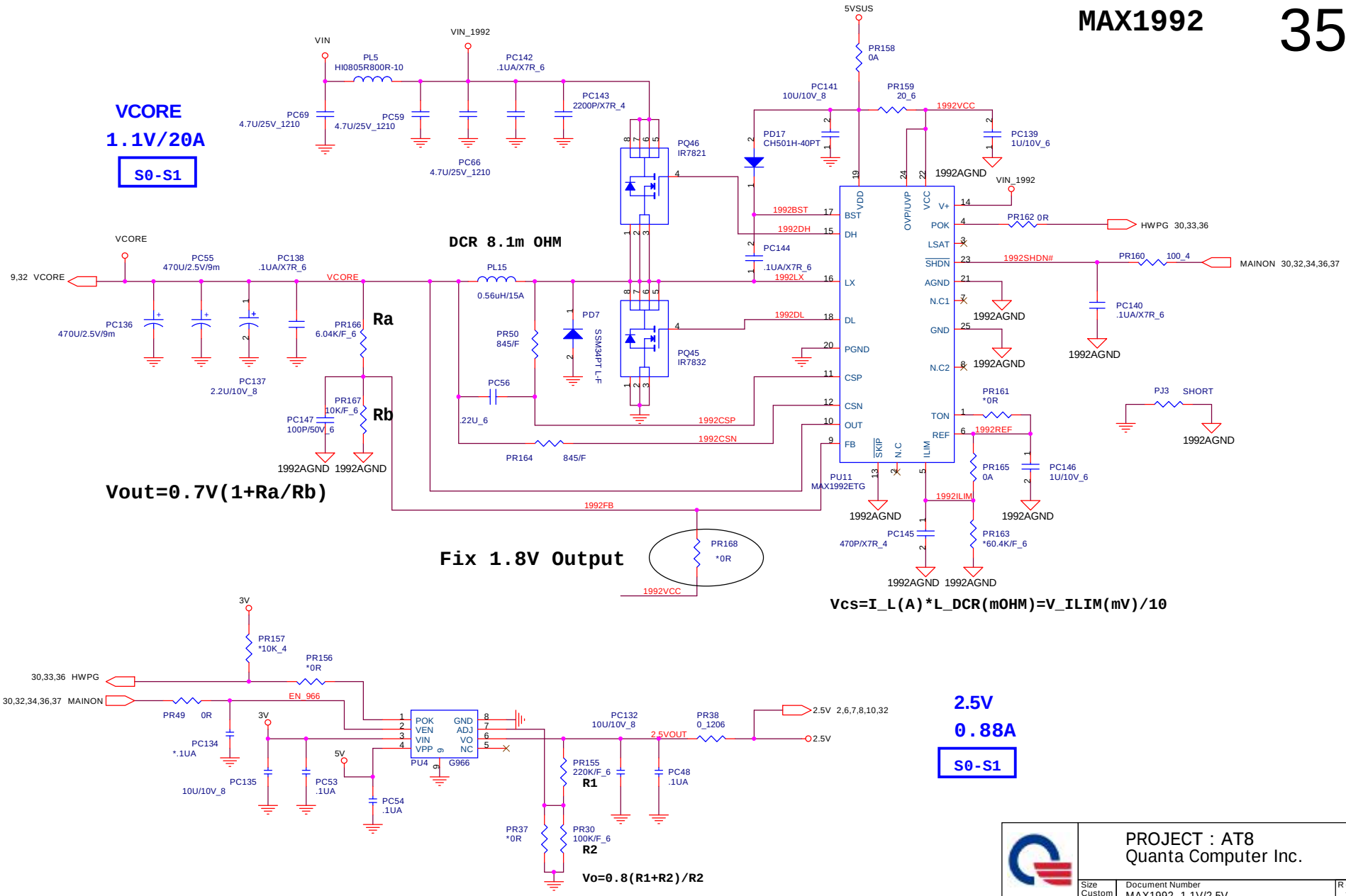
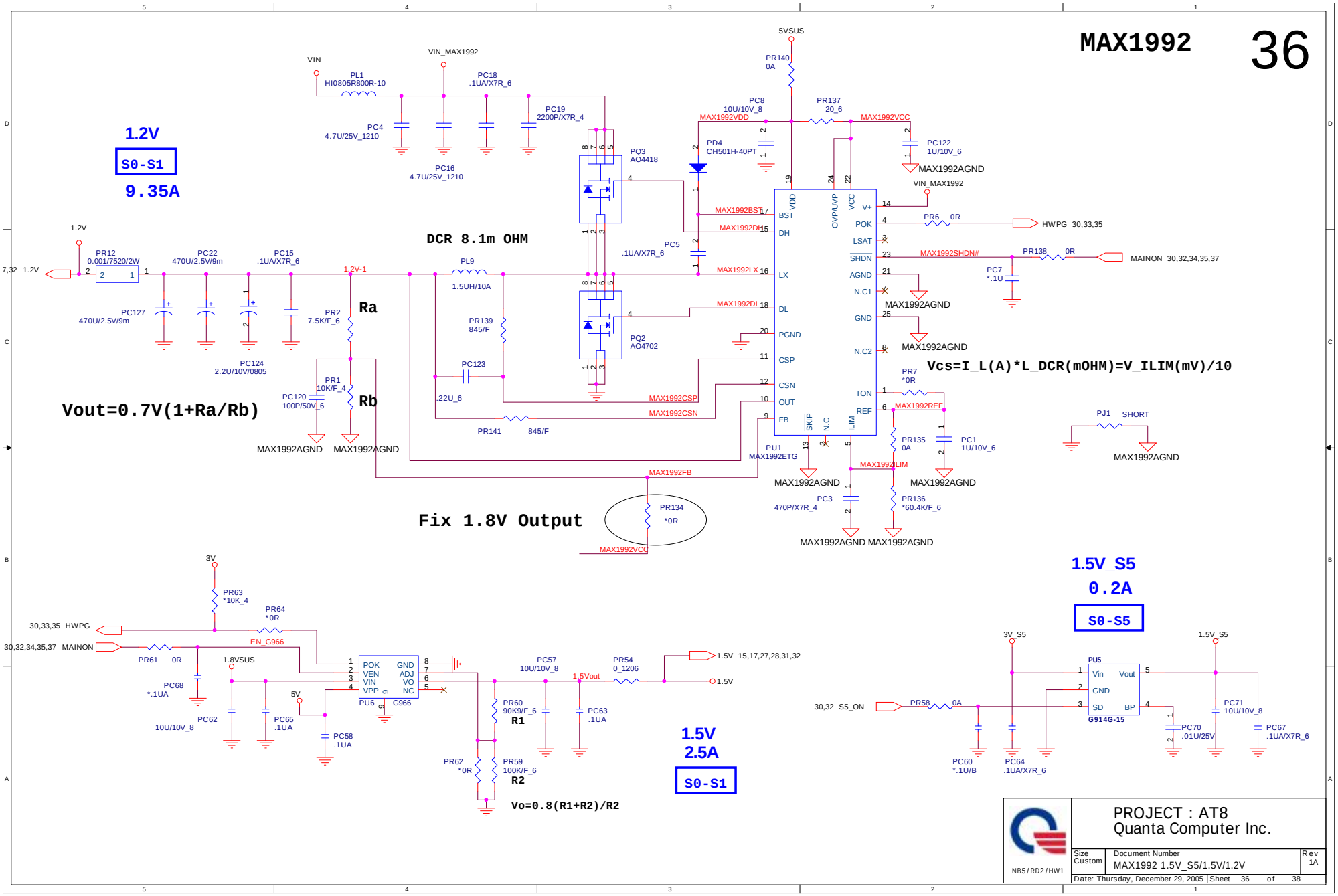




MAX1992





1.8VSUS 9.1A
S0-S3

1.8 Volt +/-5%
Design Current:15.0A
OCP: Max. 18.0A

DCR 1.1m Ohms+-10%

SMDDR_VTERM 1.53A / 0.9V
S0-S3

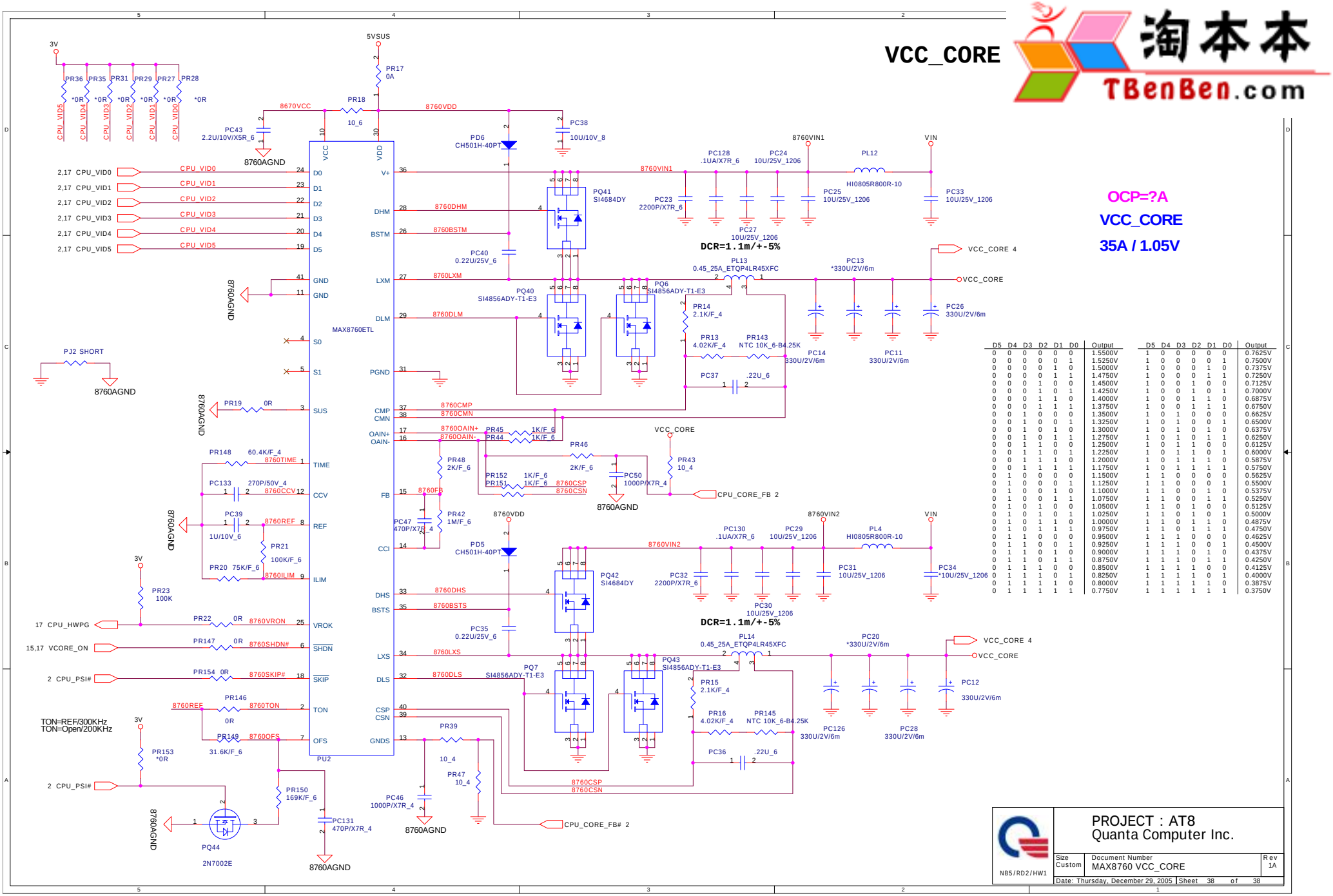
0.9 Volt +/-5%
Design Current:1.5A
Maximum Current: 1.8A

SMDDR_VTERM 0.9V ?A
S0-S3

0.9V/1.2A

1.8V 4.75A
S0-S1

VCC_CORE



D5	D4	D3	D2	D1	D0	Output
0	0	0	0	0	0	1.5500V
0	0	0	0	0	1	1.5250V
0	0	0	0	1	0	1.5000V
0	0	0	0	1	1	1.4750V
0	0	0	1	0	0	1.4500V
0	0	0	1	0	1	1.4250V
0	0	0	1	1	0	1.4000V
0	0	0	1	1	1	1.3750V
0	0	1	0	0	0	1.3500V
0	0	1	0	0	1	1.3250V
0	0	1	0	1	0	1.3000V
0	0	1	0	1	1	1.2750V
0	0	1	1	0	0	1.2500V
0	0	1	1	0	1	1.2250V
0	0	1	1	1	0	1.2000V
0	0	1	1	1	1	1.1750V
0	1	0	0	0	0	1.1500V
0	1	0	0	0	1	1.1250V
0	1	0	0	1	0	1.1000V
0	1	0	0	1	1	1.0750V
0	1	0	1	0	0	1.0500V
0	1	0	1	0	1	1.0250V
0	1	0	1	1	0	1.0000V
0	1	0	1	1	1	0.9750V
0	1	1	0	0	0	0.9500V
0	1	1	0	0	1	0.9250V
0	1	1	0	1	0	0.9000V
0	1	1	0	1	1	0.8750V
0	1	1	1	0	0	0.8500V
0	1	1	1	0	1	0.8250V
0	1	1	1	1	0	0.8000V
0	1	1	1	1	1	0.7750V

D5	D4	D3	D2	D1	D0	Output
1	0	0	0	0	0	0.7625V
1	0	0	0	0	1	0.7500V
1	0	0	0	1	0	0.7375V
1	0	0	0	1	1	0.7250V
1	0	0	1	0	0	0.7125V
1	0	0	1	0	1	0.7000V
1	0	0	1	1	0	0.6875V
1	0	0	1	1	1	0.6750V
1	0	1	0	0	0	0.6625V
1	0	1	0	0	1	0.6500V
1	0	1	0	1	0	0.6375V
1	0	1	0	1	1	0.6250V
1	0	1	1	0	0	0.6125V
1	0	1	1	0	1	0.6000V
1	0	1	1	1	0	0.5875V
1	0	1	1	1	1	0.5750V
1	1	0	0	0	0	0.5625V
1	1	0	0	0	1	0.5500V
1	1	0	0	1	0	0.5375V
1	1	0	0	1	1	0.5250V
1	1	0	1	0	0	0.5125V
1	1	0	1	0	1	0.5000V
1	1	0	1	1	0	0.4875V
1	1	0	1	1	1	0.4750V
1	1	1	0	0	0	0.4625V
1	1	1	0	0	1	0.4500V
1	1	1	0	1	0	0.4375V
1	1	1	0	1	1	0.4250V
1	1	1	1	0	0	0.4125V
1	1	1	1	0	1	0.4000V
1	1	1	1	1	0	0.3875V
1	1	1	1	1	1	0.3750V