AK3M(VersaPro)
INTEL Montevina
BIOCK DIAGRAM

01

CPU(25/35W)
Penryn
u-FCPGA 478PIN

Thermal Sensor
GMT780-1

CLK Gen
ICS9LPR395

DC/DC & Charge

DC In

Battery

FSB 1066/667

Dual CH MEM DDRII 800

SO-DIMM STANDARD

DDR II CH A

SO-DIMM STANDARD

DDR II CH B

NB
CANTIGA
GM45
1201-pin FCBGA

CRT DDC2B

CRT
1x D-SUB 15-Pin

2x LVDS

LCD
15" W 2-CH LVDS

TMDS

LEVEL SHIFTER
PI3VDP411LST

1.65 Gb/s

HDMI

HDA

Azalia

DMI LINK(X4)

SATA HDD
SATA<PORT0>

3 Gb/s (300 MB/s)

SATA ODD
SATA<PORT1>

3 Gb/s (300 MB/s)

MINI WLAN CARD
PCI-E<PORT3>

2.5 Gb/s

MINI Robson CARD
PCI-E<PORT4>
USBX1<PORT8>

2.5 Gb/s

480-Mbps

USBX4(CONNECTOR)
USBX4<PORT0,1,2,3,>

480-Mbps

USB2.0

FELICA
USBX1<PORT10>

480-Mbps

Logitec Camera /MIC
USBX1<PORT11>

480-Mbps

Bluetooth
USBX1<PORT6>

480-Mbps

TPM 1.2
SLB 9635 TT 1.2

LPC

Key Board

Touch Pad

Serial 1x D-SUB 9-Pin

SB
ICH9MB/E

MAC

LCI

GLCI

INTEL
BOAZMAN 82567
10/100/1000BASE-T
PCIE<PORT6>

MDI

RJ-45

480-Mbps

2.5 Gb/s

EXPRESS CARD
USB<PORT4>
PCIE<PORT5>

CARDBUS
RICOH R5C837

PCI 2.3

CARDBUS
RICOH R5C804

Media card reader

PC Card type-I/II

Azalia

HD_ AUDIO
ALC269

MIC-In Jack

Headphone Jack

Int. Speaker

Azalia

HD_MDC

RJ-11 X1
1x 6P2C

SPI

SPI

LAN ROM
4MB/512KB

EC
ITE IT8513/12E

SPI

SPI

BIOS ROM
2MB

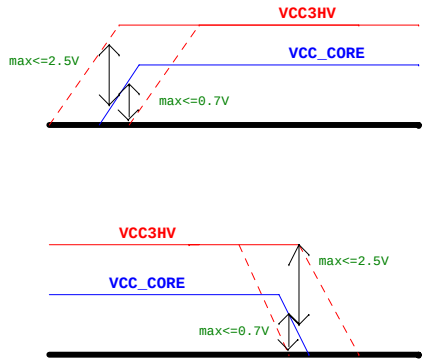
QUANTA COMPUTER

Title: SYSTEM INFORMATION

Size: B | Document Number: AK3M MAIN BOARD | Rev: 1A

Date: Wednesday, October 08, 2008 | Sheet 1 of 39

Cantica VCC_CORE(VCCP) and VCC3HV power sequence



AK3M HW table:

Kind	EE Function	AK3ML(VP)	AK3ML(Int'l)	AK3M(VP)	AK3M(LV) AK3M(LV)-LTP	AK3M(Int'l)
I/O	HDMI	X	X	X	O	O
Chipset	TPM	X	X	O	X	X
	NB	GM45	GM45	GM45	GM45	GM45
	FSB	1066/667	1066/667	1066/667	1066/667	1066/667
	LAN	82567LF	82567LF	82567LM	82567LF	82567LF
	SB	ICH9M-E	ICH9M-E	ICH9M-E	ICH9M-B	ICH9M-B
	IAMT	X	X	O	X	X
LED	Power bottom LED	Green Green	Green Green	Blue Blue	Blue Blue	Blue Blue
	Power status	Green Amber	Green Amber	Blue Amber	Blue Amber	Blue Amber
	Battery charger status	Amber	Amber	Amber	Amber	Amber
	IDE access (HDD Access)	Green	Green	Blue	Blue	Blue
	Caps lock status	Green	Green	Blue	Blue	Blue
	Scroll lock status	Green	Green	Blue	Blue	Blue
	Num lock status	Green	Green	Blue	Blue	Blue
	Radio wave status	Green	Green	Blue	Blue	Blue
	SD/MS/xD Access	NO	NO	NO	Blue	Blue
	ECO status	Blue Green	Blue Green	Blue Green	Blue Green	Blue Green
	Power button LED	Green	Green	Blue	Blue	Blue
SW/BTN	Power SW	O	O	O	O	O
	ECO button	O	O	O	O	O
	Short Cut Key - I	X	X	X	O	O
	Short Cut Key - II	X	X	X	O	O
	Soft button	X	X	X	O	O
	Font size change button - Up	X	X	X	O	O
	Font size change button - Down	X	X	X	O	O
	Radio wave SW (Slide SW)	O	O	O	O	O
	CD/DVD launch&control	X	X	X	X	X
	Dimmer button	X	X	X	X	X

AK3M PWR Rails table:

Power Rails	Level	S0	S3	S4	S5	S3	S4	S5	Ctl Signal
		M0	M1			Moff			
15VPCU	15V	O	O	O	O	O	O	O	PWR DC/DC
5VPCU	5V	O	O	O	O	O	O	O	
3VPCU	3.3V	O	O	O	O	O	O	O	
RVCC3	3.3V	O	O	O	O	O	O	O	RVCC_ON
VCC3M(3VRSM)	3.3V	O	O	O	O	O	O	O	LAN_WOL_EN_EC
VCC3M_CLK	3.3V	O	O	O	O	X	X	X	SLP_M_ON
VCC1.05M	1.05V	O	O	O	O	X	X	X	
VCC3M(3VRSM)	3.3V	O	O	O	O	O	O	O	LAN_WOL_EN
5VSUS	5V	O	O	O	O	O	X	X	SUSON
3VSUS	3V	O	O	O	O	O	X	X	
1.8VSUS	1.8V	O	O	O	O	O	X	X	
VTT_MEM	0.9V	O	O	O	O	X	X	X	
SMDDR_VREF	0.9V	O	O	O	O	X	X	X	
BT_VCC3	3.3V	O	X	X	X	O	X	X	BTON_EC
VCC5	5V	O	X	X	X	X	X	X	MAINON
VCC3	3.3V	O	X	X	X	X	X	X	
VCC1.5	1.5V	O	X	X	X	X	X	X	
VCCP	1.05V	O	X	X	X	X	X	X	
CPU_CORE	By VID	O	X	X	X	X	X	X	VRON

BIOS/EC control S4/S5 WOL in Moff

AK3M Mx control table:

ICH9 Signal	AK3Mx Signal	S0	S3	S4	S5	S3	S4	S5
		M0	M1			Moff		
SLP_S3#	SUSB#	H	L	L	L	L	L	L
SLP_S4#	SUSC#	H	H	H	H	H	L	L
S4_STATE#	S4_STATE#	H	H	L	L	H	L	L
SLP_S5#	SUSD#	H	H	H	H	H	H	L
SLP_M#	SLP_M#	H	H	H	H	L	L	L

Intel ME supports PWR states table:

Sx state	Mx state	System Source	
		AC	DC
S0	M0	O	O
S3-S5	M1	O	X
S3-S5	Moff	O	O

QUANTA COMPUTER

Title: SYSTEM INFORMATION

Size: Custom | Document Number: AK3M MAIN BOARD | Rev: 1A

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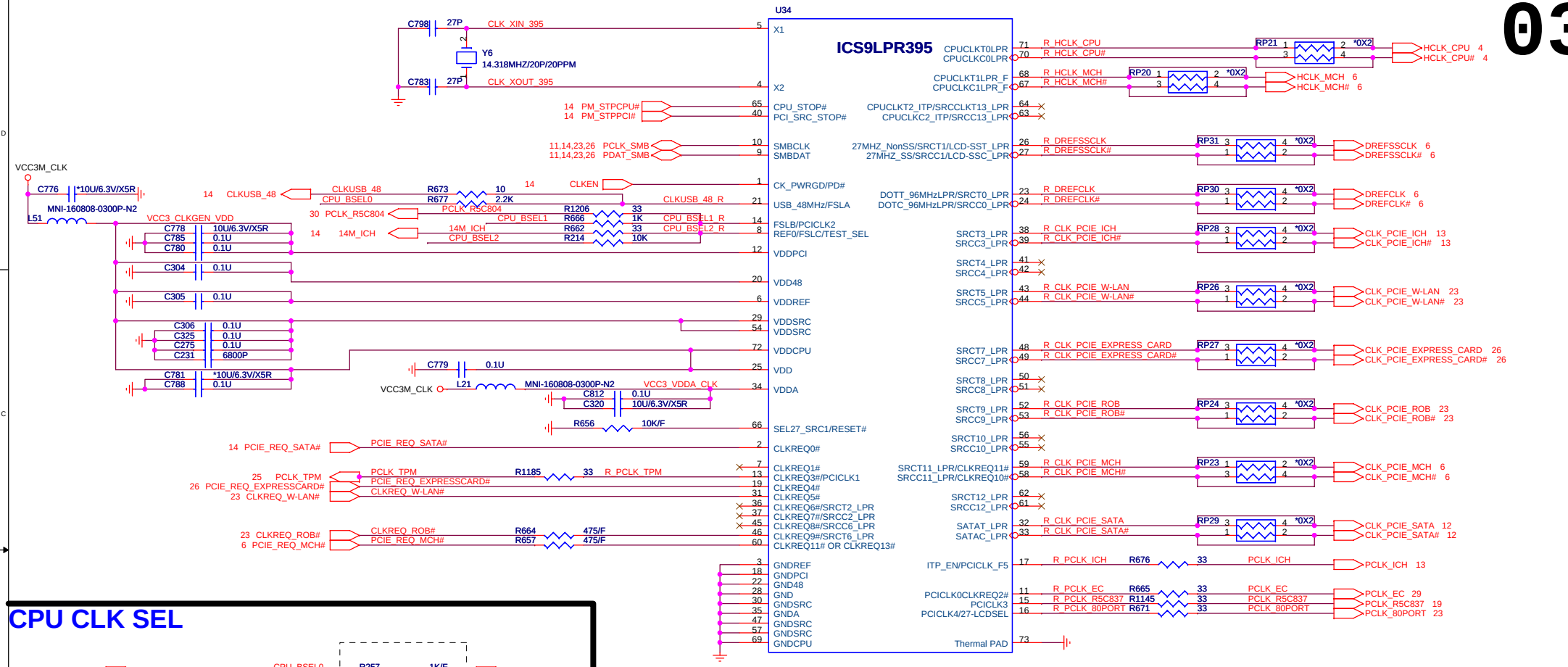
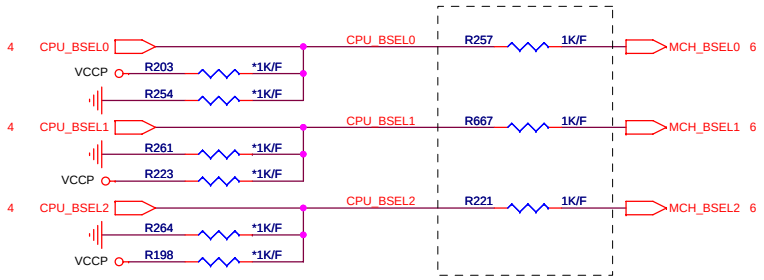
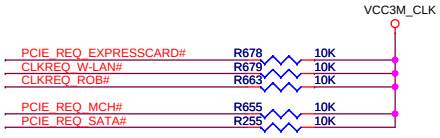
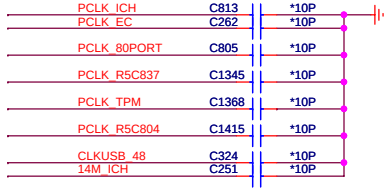


CPU CLK SEL







FSC BSEL2	FSB BSEL1	FSA BSEL0	CPU	SRC	PCI	REF	USB	DOT	Spread %	
0	0	0	266.66	100	33.33	14.318	48	96	0.5 Down	
0	0	1	133.33	100	33.33	14.318	48	96	0.5 Down	
* 0	1	0	200.00	100	33.33	14.318	48	96	0.5 Down	
0	1	1	166.66	100	33.33	14.318	48	96	0.5 Down	
1	0	0	333.33	100	33.33	14.318	48	96	0.5 Down	
1	0	1	100.00	100	33.33	14.318	48	96	0.5 Down	
1	1	0	400.00	100	33.33	14.318	48	96	0.5 Down	
1	1	1	200.00	100	33.33	14.318	48	96	0.5 Down	

ITP_EN(PIN17)
* 0 : PIN63/64 SRC13/SRC13#
1 : ITP/ITP#

LCDSEL/27M Select Table

27 Select_SCR PIN16	SEL27_SRC1 PIN66	Dot96/SRC0 PIN 23/24	27MHz/SRC1/LCD PIN 26/27
0	0	SRC0	27MHZ (Ext Default)
* 1	0	DOT96	LCD (INT Default)
0	1	SRC0	SRC1
1	1	DOT96	SRC1

QUANTA COMPUTER

Title	CLOCK GENERATOR-ICS9LPR395	
Size	Document Number: AK3M MAIN BOARD	Rev 1A
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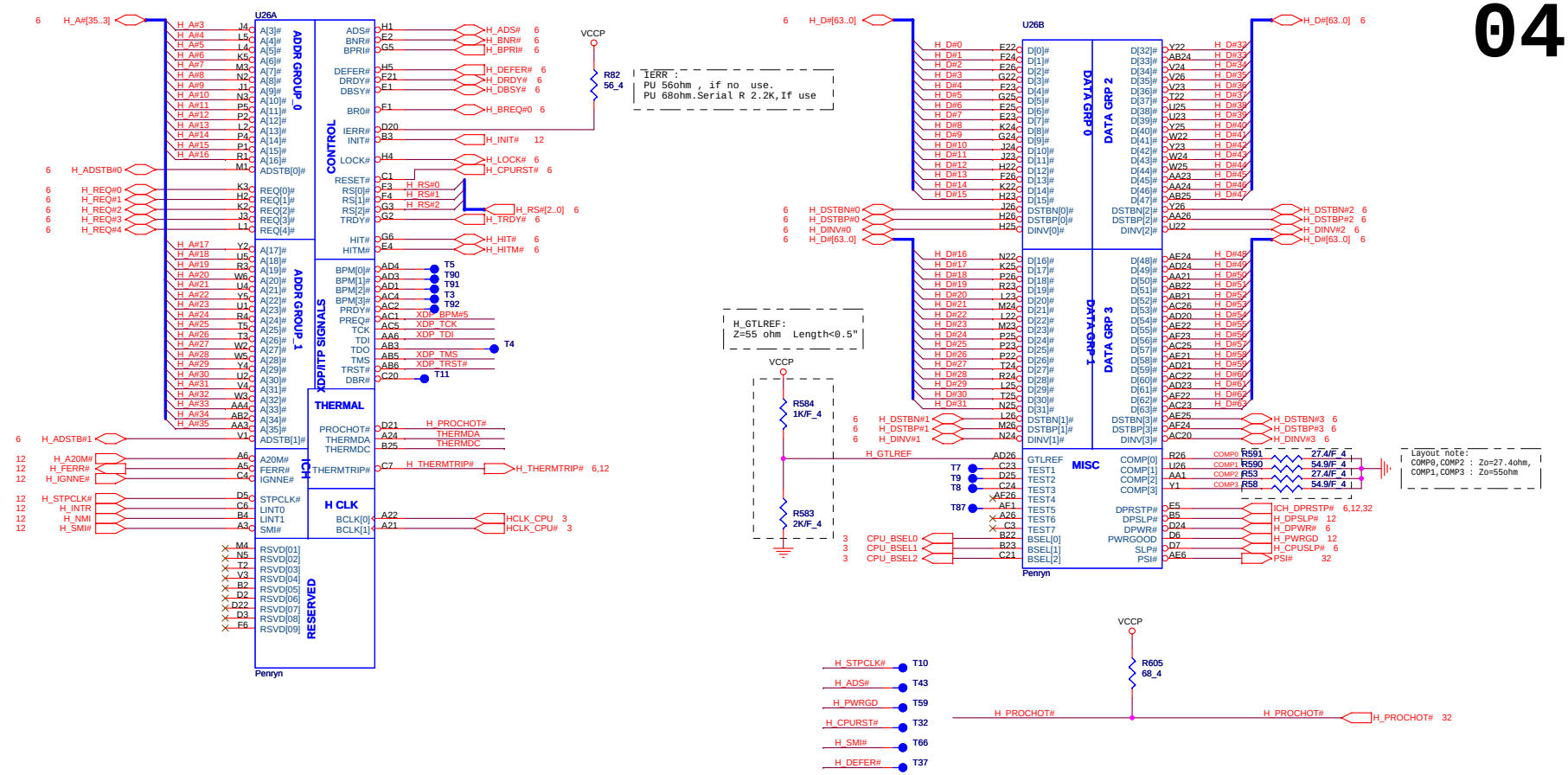
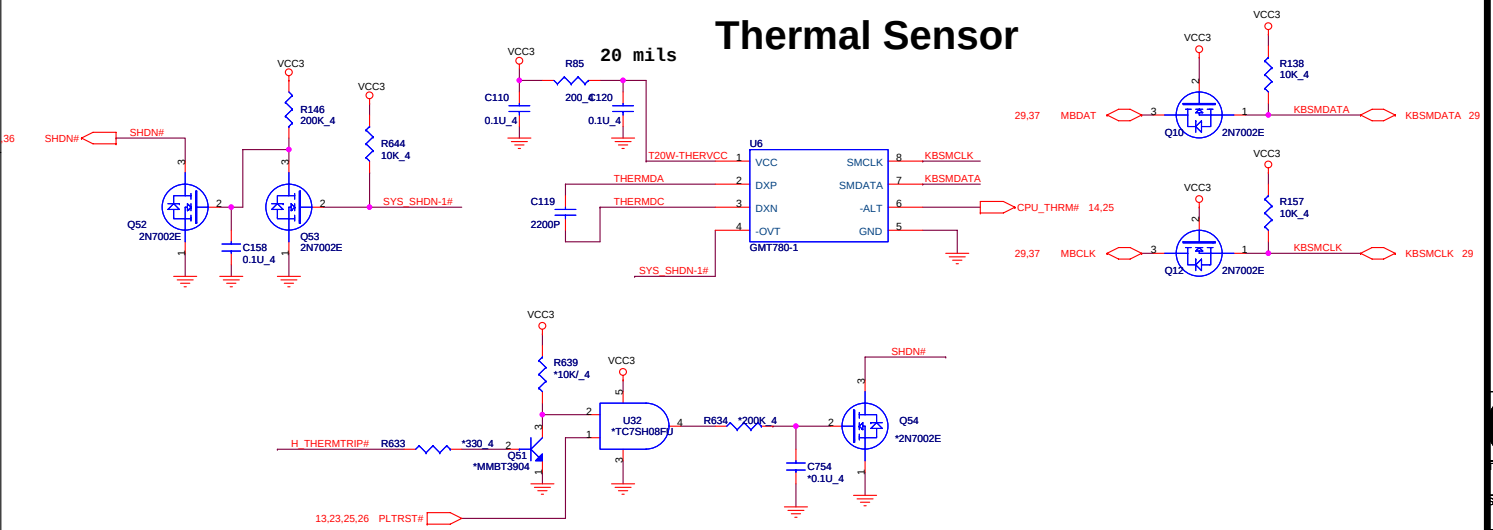
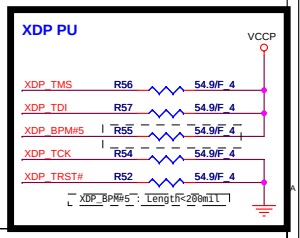


Thermal Sensor





QUANTA COMPUTER

Title	Pennyn CPU1 of 2	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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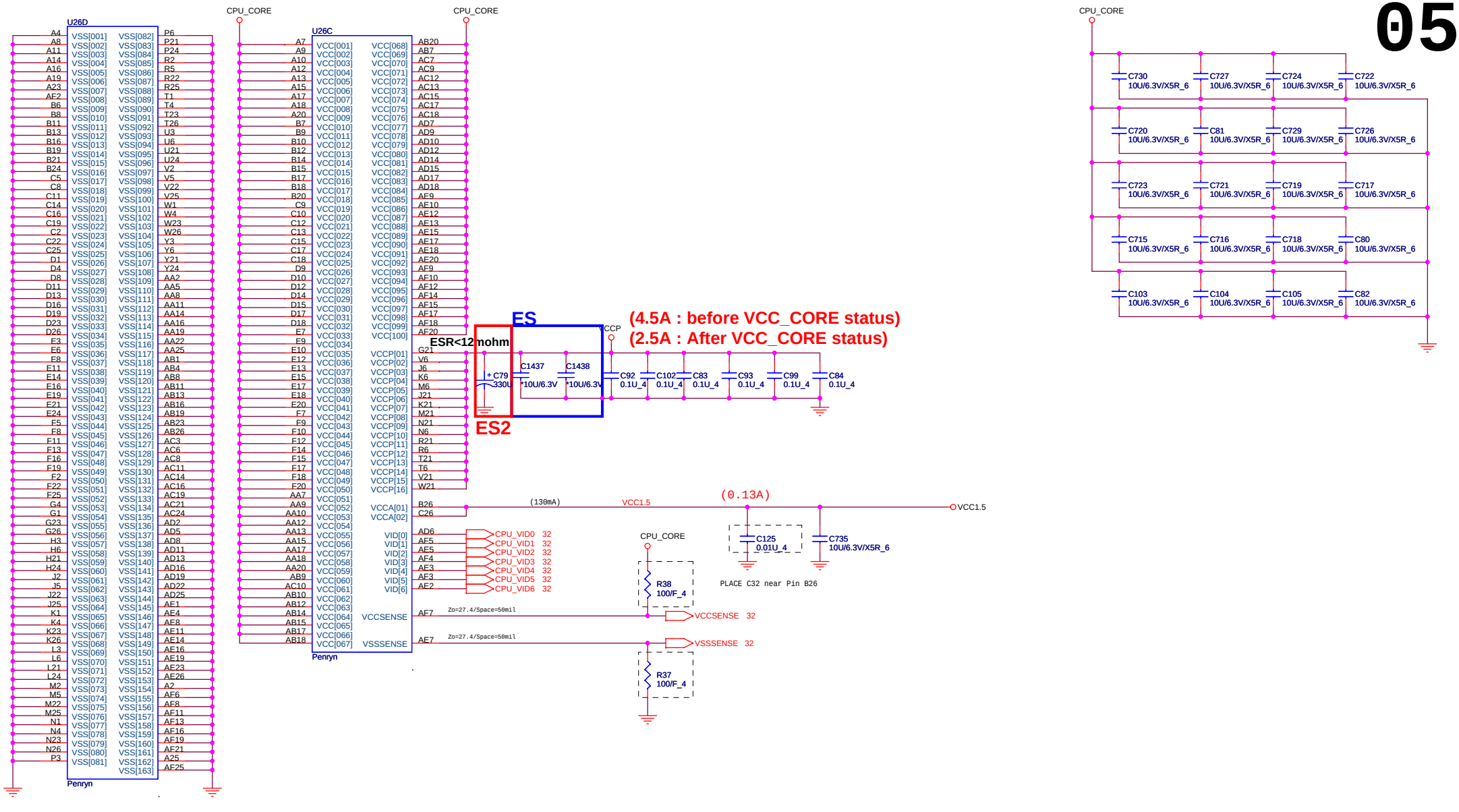
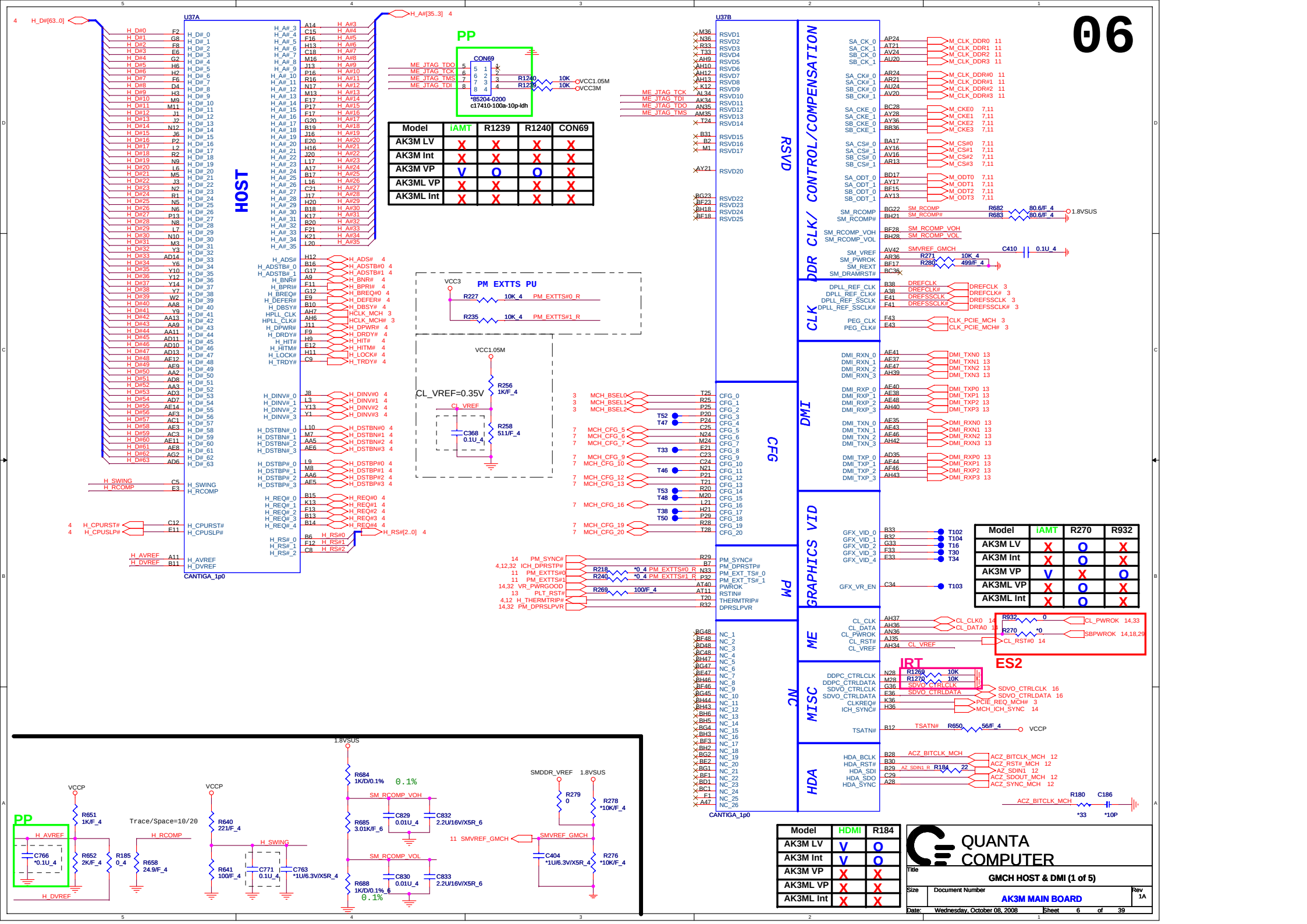


QUANTA COMPUTER			
Title: Penryn CPU 2 of 2			
Size	Document Number: AK3M MAIN BOARD		Rev: 1A
Date: Wednesday, October 08, 2008	Sheet 5 of 39		



Model	iAMT	R1239	R1240	CON69
AK3M LV	X	X	X	X
AK3M Int	X	X	X	X
AK3M VP	V	O	O	X
AK3ML VP	X	X	X	X
AK3ML Int	X	X	X	X

Model	iAMT	R270	R932
AK3M LV	X	O	X
AK3M Int	X	O	X
AK3M VP	V	X	O
AK3ML VP	X	O	X
AK3ML Int	X	O	X

Model	HDMI	R184
AK3M LV	V	O
AK3M Int	V	O
AK3M VP	X	X
AK3ML VP	X	X
AK3ML Int	X	X

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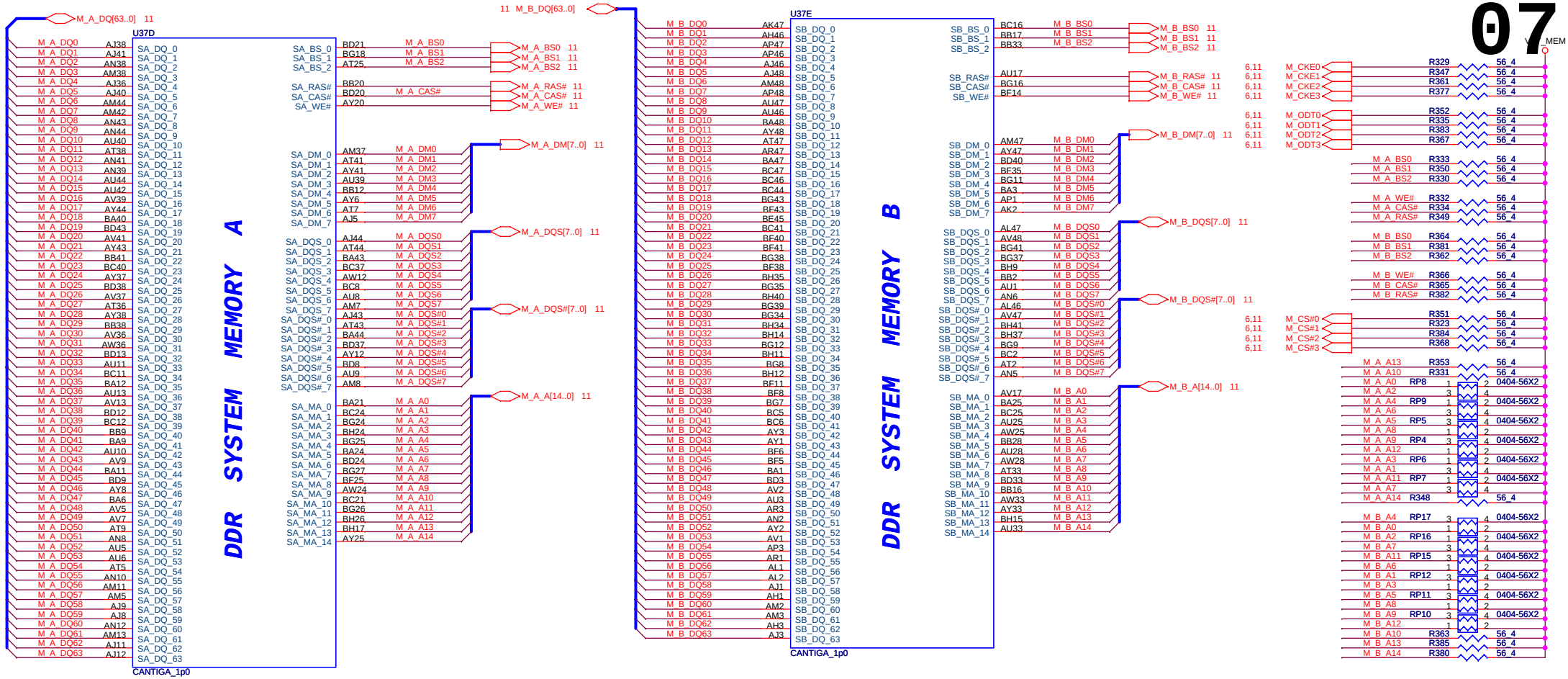
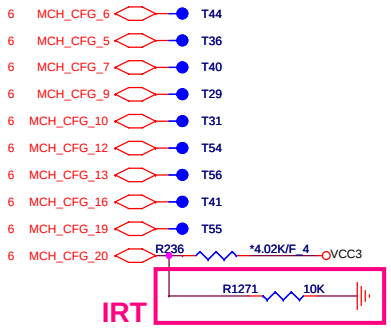


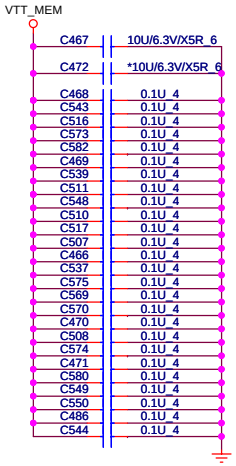
GMCH Strap pin description

	Low	High
CGF5	DMIx2	* DMIx4
CGF6	ITPM HOST interface enable	* ITPM HOST interface disable
CGF7	AMT Fireware will use TLS cipher suite with no confidentiality	* AMT Fireware will use TLS cipher suite with confidentiality
CGF9	PCIE Graphics lan : Reverse Lane	* PCIE Graphics lan : Normal operation
CGF10	PCIE Loopback enable	* PCIE Loopback disable
CGF16	FSB Dynamic ODT Disabled	* FSB Dynamic ODT Enabled
CGF19 *	DMI LANE Normal	DMI LANE Reversed
CGF20 *	only SDVO/DP/iHDMI or PCIE is operational	SDVO/DP/iHDMI and PCIE are operation simultaneously via the PEG port

CGF[12:13]:XOR /ALLZ / Clock Un-gating
00 = Reserve
01 = XOR mode enabled
10 = All-Z mode enabled
* 11 = Normal Operation(Default)

int.Pull-down : CFG 18,19,20
Int.Pull-high : CFG CFG 3~17





QUANTA COMPUTER

Title	GMCH DDR II 2 of 5	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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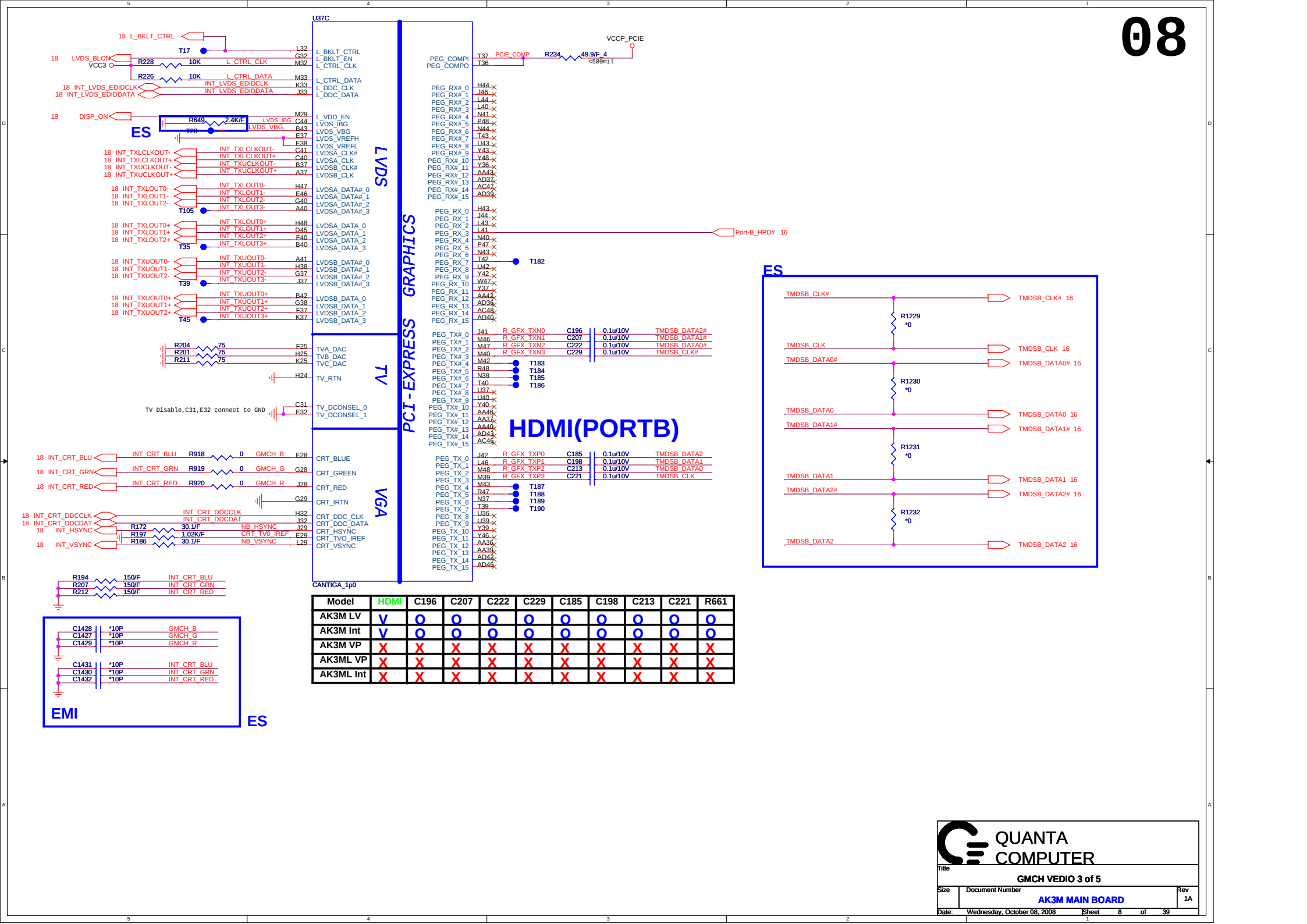

Model	HDMI	C196	C207	C222	C229	C185	C198	C213	C221	R661
AK3M LV	V	O	O	O	O	O	O	O	O	O
AK3M Int	V	O	O	O	O	O	O	O	O	O
AK3M VP	X	X	X	X	X	X	X	X	X	X
AK3ML VP	X	X	X	X	X	X	X	X	X	X
AK3ML Int	X	X	X	X	X	X	X	X	X	X

QUANTA COMPUTER

Title	GMCH VEDIO 3 of 5	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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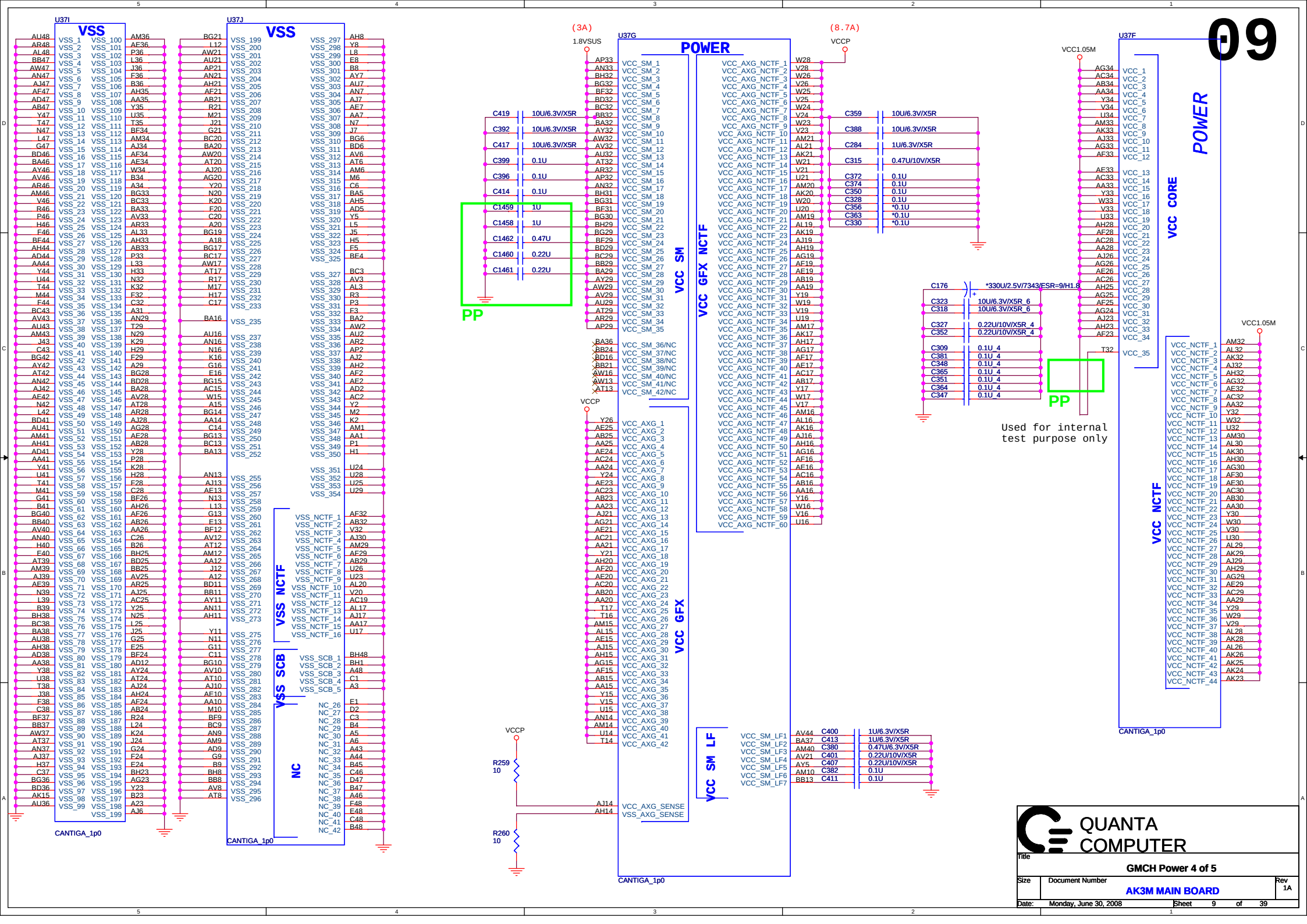
09
U37I
VSS
CANTIGA_1p0
U37J
VSS
VSS NCTF
VSS SCB
NC
CANTIGA_1p0
(3A)
1.8VSUS
U37G
POWER
VCC SM
VCC GFX NCTF
VCC GFX
VCC SM LF
(8.7A)
VCCP
C419 10U/6.3V/X5R
C392 10U/6.3V/X5R
C417 10U/6.3V/X5R
C399 0.1U
C396 0.1U
C414 0.1U
C1459 1U
C1458 1U
C1462 0.47U
C1460 0.22U
C1461 0.22U
PP
C359 10U/6.3V/X5R
C388 10U/6.3V/X5R
C284 1U/6.3V/X5R
C315 0.47U/10V/X5R
C372 0.1U
C374 0.1U
C350 0.1U
C328 0.1U
C356 *0.1U
C363 *0.1U
C330 *0.1U
VCC1.05M
U37F
VCC CORE
POWER
VCC NCTF
CANTIGA_1p0
C176 *330U/2.5V/7343/ESR=9/H1.8
C323 10U/6.3V/X5R_6
C318 10U/6.3V/X5R_6
C327 0.22U/10V/X5R_4
C352 0.22U/10V/X5R_4
C309 0.1U_4
C381 0.1U_4
C348 0.1U_4
C365 0.1U_4
C351 0.1U_4
C364 0.1U_4
C347 0.1U_4
PP
T32
Used for internal test purpose only
R259 10
R260 10
C400 1U/6.3V/X5R
C413 1U/6.3V/X5R
C380 0.47U/6.3V/X5R
C401 0.22U/10V/X5R
C407 0.22U/10V/X5R
C382 0.1U
C411 0.1U
QUANTA COMPUTER
Title: GMCH Power 4 of 5
Size: Document Number: AK3M MAIN BOARD
Rev: 1A
Date: Monday, June 30, 2008
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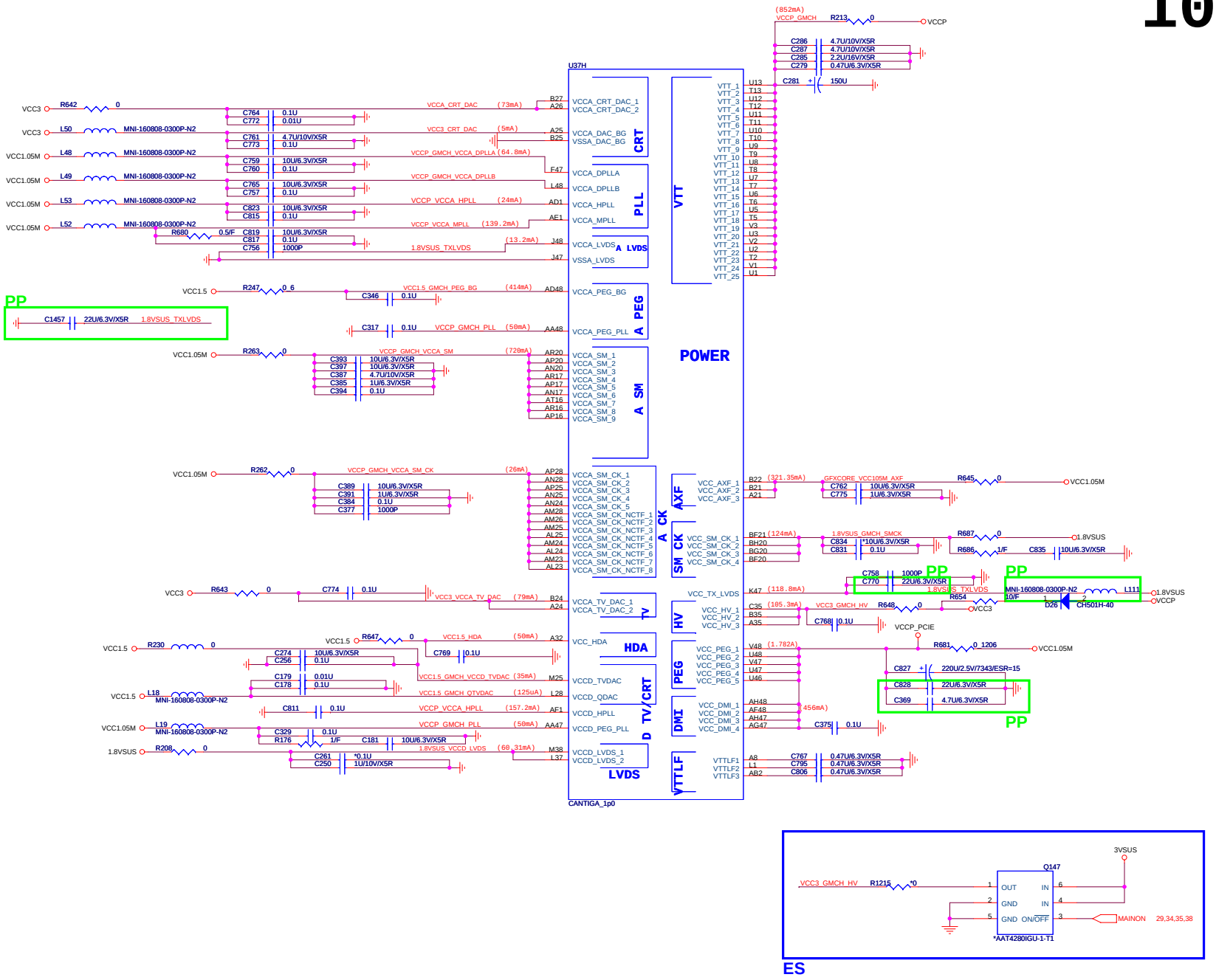

QUANTA COMPUTER			
Title	GMCH Power 5 of 5		
Size	Document Number	AK3M MAIN BOARD	Rev 1A
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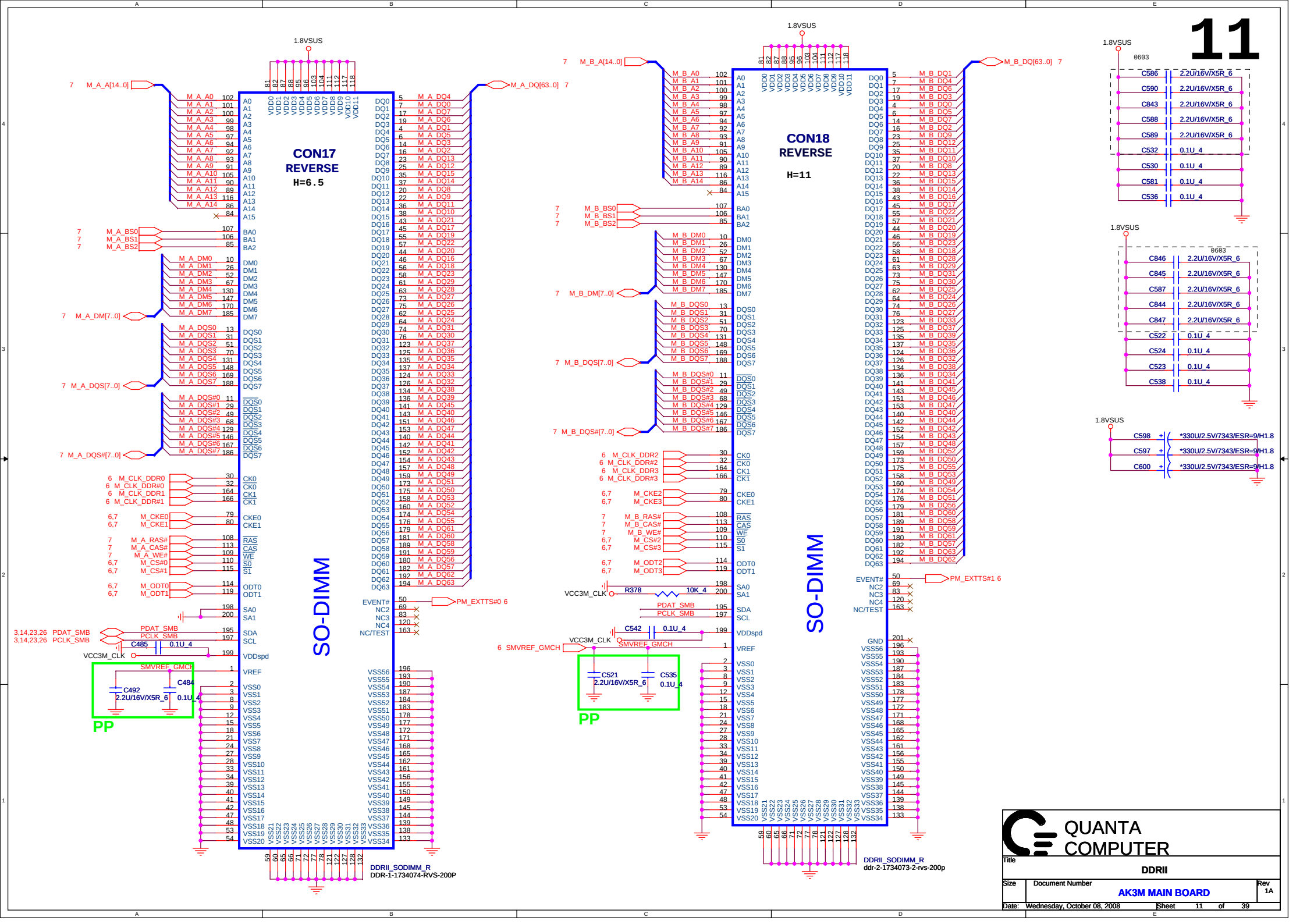

QUANTA COMPUTER

Title	DDRII	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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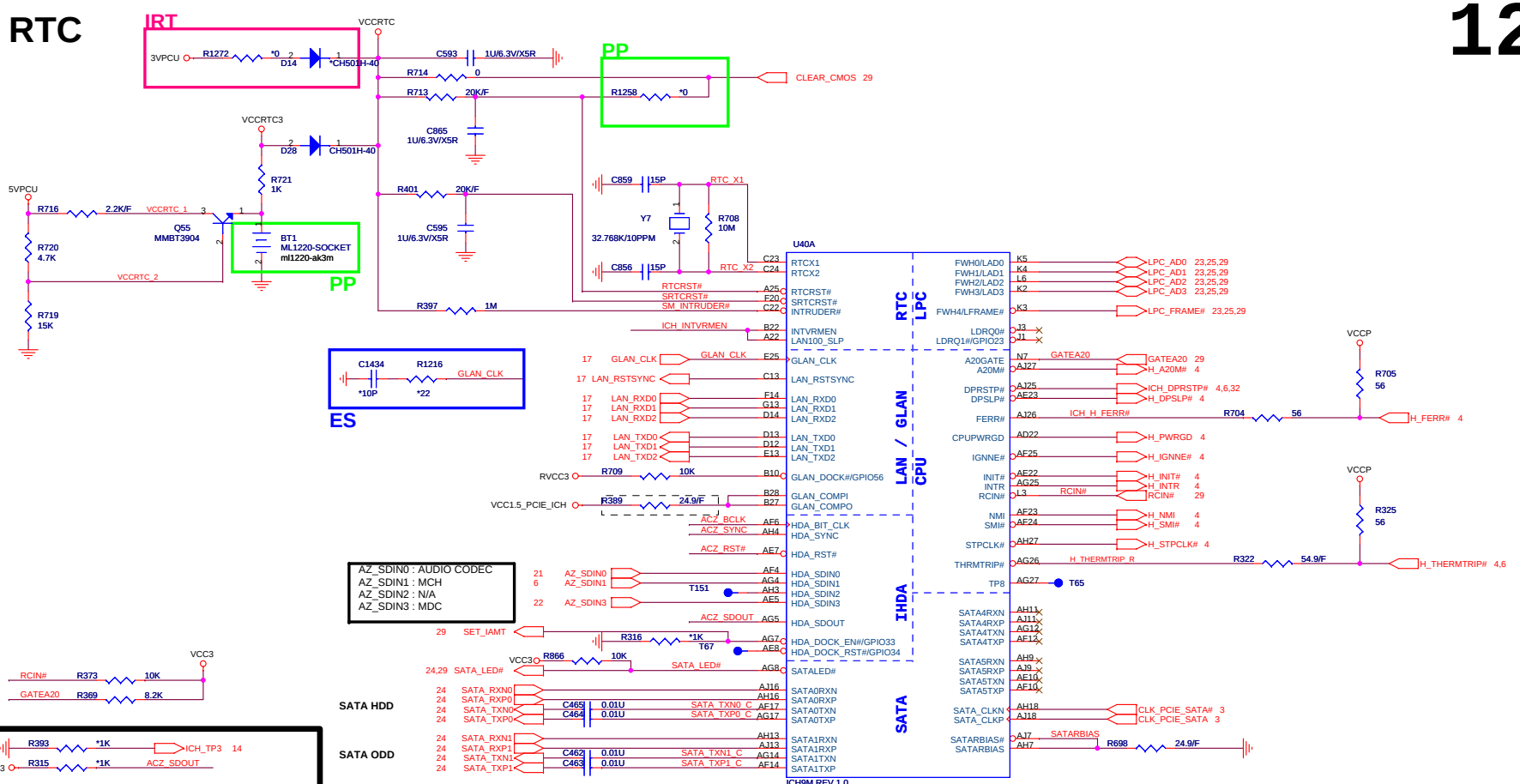
RTC

IRT

PP

ES

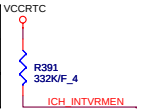


XOR Chain Entrance Strap

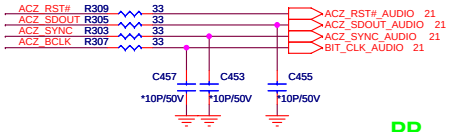
ICH_TP3	ACZ_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	* Normal opration
1	1	Set PCIE port config bit 1

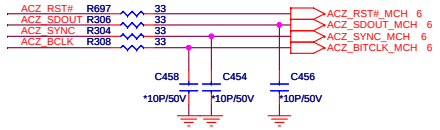
Internal VRM Enable for Vccsus1_05, VccSus1_5 , VccCL1_5, vccLAN1_05,vccCL1_05)

	INTVRMEN
Enable (default)	1
Disable	0



Model	HDMI	R697	R306	R304	R308	R341
AK3M LV	V	O	O	O	O	O
AK3M Int	V	O	O	O	O	O
AK3M VP	X	X	X	X	X	X
AK3ML VP	X	X	X	X	X	X
AK3ML Int	X	X	X	X	X	X





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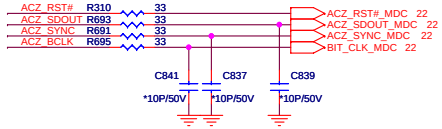

Model	MDC	R310	R693	R691	R695
AK3M LV	X	X	X	X	X
AK3M Int	V	O	O	O	O
AK3M VP	X	X	X	X	X
AK3ML VP	X	X	X	X	X
AK3ML Int	V	O	O	O	O

QUANTA COMPUTER

Title: ICH9-M HOST1 of 4

Size | Document Number: AK3M MAIN BOARD | Rev: 1A

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Model	iPod charge	U89	R1146-R1149	R1150-R1151
AK3M-LV	V	O	O	X
AK3M-Int	V	O	O	X
AK3M-VP	X	X	X	O
AK3ML-VP	X	X	X	O
AK3ML-Int	X	X	X	O

USB	Function
PORT#0	USB
PORT#1	USB
PORT#2	USB
PORT#3	USB
PORT#4	EXPRESS CARD
PORT#5	N/A
PORT#6	BT
PORT#7	N/A
PORT#8	Robson CARD
PORT#9	N/A
PORT#10	Felica
PORT#11	Camera

Model	iAMT	U69
AK3M-LV	X	512KB
AK3M-Int	X	512KB
AK3M-VP	V	4MB
AK3ML-VP	X	512KB
AK3ML-Int	X	512KB

GPIO49 : NC
GPIO20 : Can't pull high.

A16 SWAP Override strap

PCI_GNT#3	Low = A16 swap override enabled High = Default

ICH9 Boot BIOS select

PCI_GNT#0	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC (Default)

IRQ	Description
PIRQA	USB UHCI Controller #1,USB UHCI Controller #4
PIRQB	Audio, Modem , SMBus
PIRQC	USB UHCI Controller #3,SATA/IDE Native Mode
PIRQD	USB UHCI Controller #2
PIRQE	INT LAN, option for SCI,TCO,HPET #0,1,2 , TI8412
PIRQF	option for SCI,TCO,HPET #0,1,2 ,TI8412
PIRQG	option for SCI,TCO,HPET #0,1,2 ,TI8412
PIRQH	USB EHCI Controller ,option for SCI,TCO,HPET #0,1,2

QUANTA COMPUTER

Title: ICH9-M PCIE 2 of 4

Size: | Document Number: AK3M MAIN BOARD | Rev: 1A

Date: Wednesday, October 08, 2008 | Sheet 13 of 39

Model	BID1	BID2	BID3
AK3M LV-DDR3	H	H	H
AK3M WW-LV-DDR3	L	H	H
AK3M VP-DDR2	L	L	H
AK3ML VP-DDR2	L	H	L
AK3M WW-VP-DDR2	L	L	L
AK3M LV-DDR3(LTP)	L	H	H

Model	iAMT	R1224	R888	R1225	R933	R356
AK3M LV	X	X	O	X	X	O
AK3M Int	X	X	O	X	X	O
AK3M VP	V	X	X	O	O	X
AK3ML VP	X	X	O	X	X	O
AK3ML Int	X	X	O	X	X	O

IRT

Model	iAMT	R1226	U106	C1439-40	R1237
AK3M LV	X	X	X	X	X
AK3M Int	X	X	X	X	X
AK3M VP	V	O	O	O	O
AK3ML VP	X	X	X	X	X
AK3ML Int	X	X	X	X	X

ES2

Model	iAMT	R941	R940	U66	C1099
AK3M LV	X	X	O	X	X
AK3M Int	X	X	O	X	X
AK3M VP	V	O	X	O	O
AK3ML VP	X	X	O	X	X
AK3ML Int	X	X	O	X	X

ES2

U40C — ICH9M REV 1.0

SMB: SMBCLK, SMBDATA, LINKALERT#/GPIO60/CLGPIO3, SMLINK0, SMLINK1

SYS GPIO: RI#, SUS_STAT#/LPCPD#, SYS_RESET#, PMSYNC#/GPIO0, SMBALERT#/GPIO11, STP_PCI#, STP_CPU#, CLKRUN#, WAKE#, SERIRQ, THRM#, VRMPWRGD, TP12

Power MGT: GPIO1, GPIO6, GPIO7, GPIO8, LAN_PHY_PWR_CTRL/GPIO12, ENERGY_DETECT/GPIO13, GPIO17, GPIO18, GPIO20, SCLOCK/GPIO22, GPIO27, GPIO28, SATACLKREQ#/GPIO35, SLOAD/GPIO38, SDATAOUT0/GPIO39, SDATAOUT1/GPIO48, GPIO49, GPIO57/CLGPIO5

GPIO Controller Link: SPKR, MCH_SYNC#, TP3, TP9, TP10, TP11

SATA GPIO: SATA0GP/GPIO21, SATA1GP/GPIO19, SATA4GP/GPIO36, SATA5GP/GPIO37

Clocks: CLK14, CLK48, SUSCLK

MISC: MEM_LED/GPIO24, GPIO10/SUS_PWR_ACK, GPIO14/AC_PRESENT, WOL_EN/GPIO9

QUANTA COMPUTER

Title: ICH9-M GPIO 3 of 4

Size: | Document Number: AK3M MAIN BOARD | Rev: 1A

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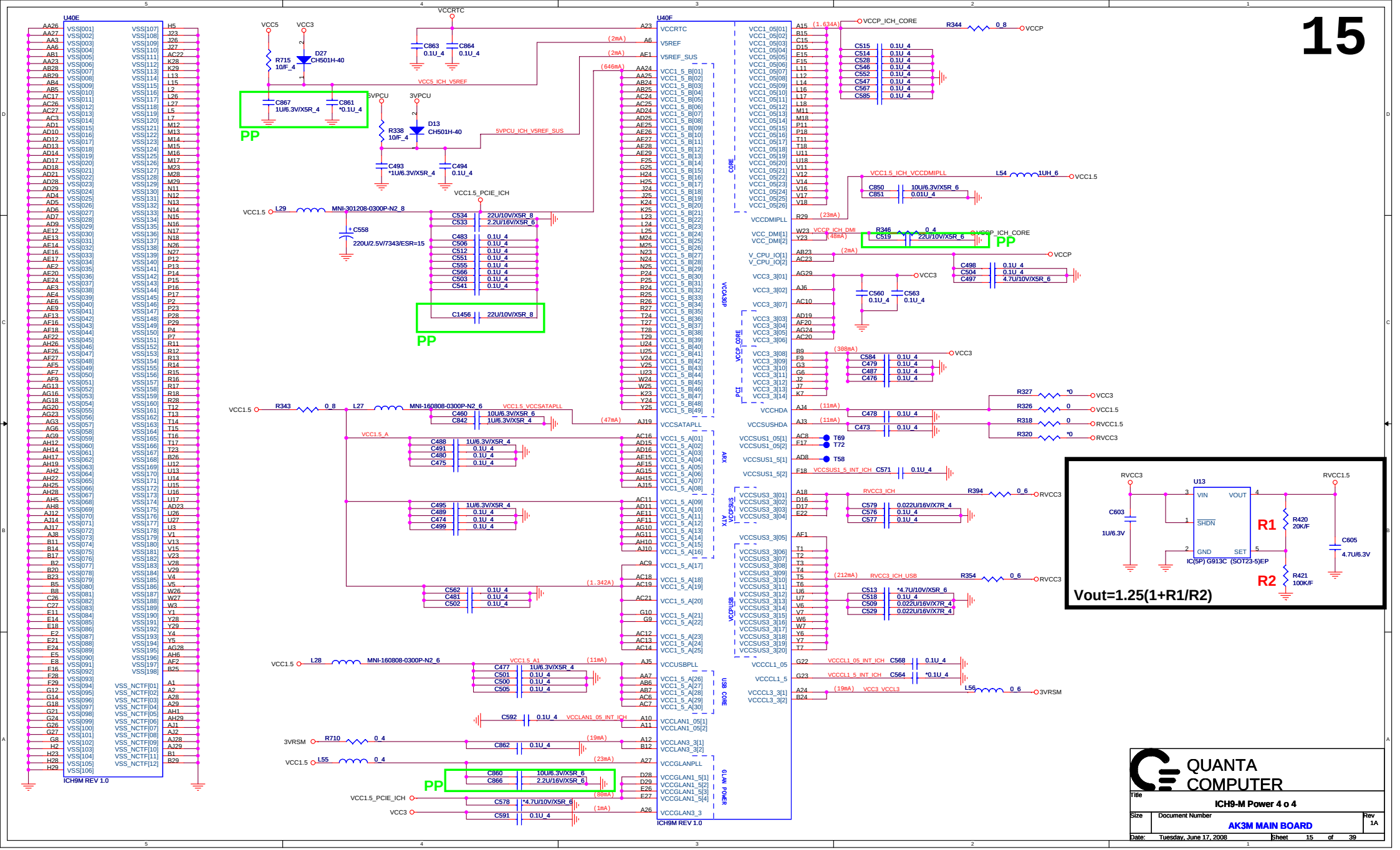

U40E
ICH9M REV 1.0
U40F
ICH9M REV 1.0
PP
PP
PP
Vout=1.25(1+R1/R2)
U13
IC(5P) G913C (SOT23-5)EP
R1
R2
QUANTA COMPUTER
ICH9-M Power 4 o 4
AK3M MAIN BOARD
Tuesday, June 17, 2008
Sheet 15 of 39

HDMI CONNECTOR

HDMI LEVEL SHIFT

Model	HDMI	U24	CN5	F4	R564	R566	R575	R570	R34	R568	C707-09	C705	R569	R581	R559	D10-11	R13	R571	R576	R567	R1238	R14	D9	R1250-57
AK3M LV	V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
AK3M Int	V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
AK3M VP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AK3ML VP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AK3ML Int	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

PP

PP

ES2

ES2

ES2

Vswing SETTING

OC_3	OC_2	OC_1	OC_0	Vswing(V)
0	0	0	0	0.5
0	0	0	1	0.6
0	0	1	0	0.75
0	0	1	1	1
1	0	0	0	0.4
1	0	0	1	0.4
1	0	1	0	0.4
1	0	1	1	0.4

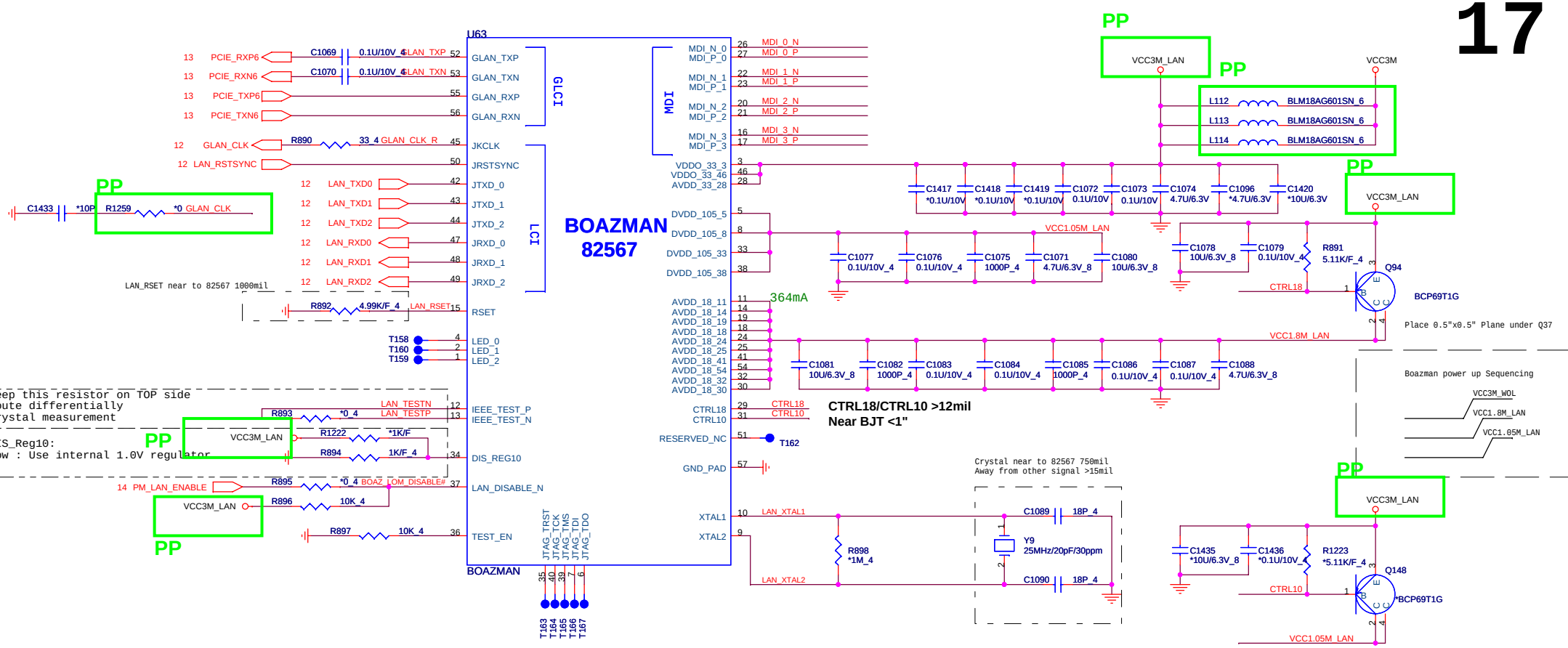
EQUALIZATION SETTING

EQ_0	EQ_1	EQUALIZATION
0	0	3dB
0	1	7.2dB
1	0	10dB
1	1	12dB

PI3VDP411LST internal pull down 100K ohm for HPD_SINK

Title	HDMI(PI3VDP411LST)	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
Date: Wednesday, October 08, 2008	Sheet 16 of 39	

QUANTA COMPUTER

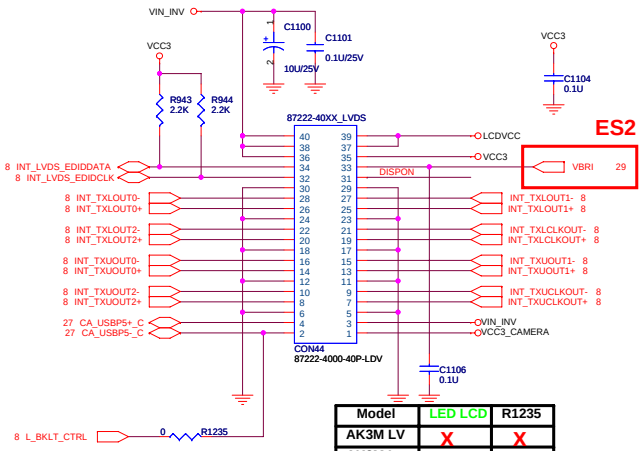


1.Level 1 Environment-related Substances Should NEVER be Used.
2.Purchase ink, paint, wire rods, and Molding resins only from the business Partners that Sony approves as Green Partners.

QUANTA COMPUTER

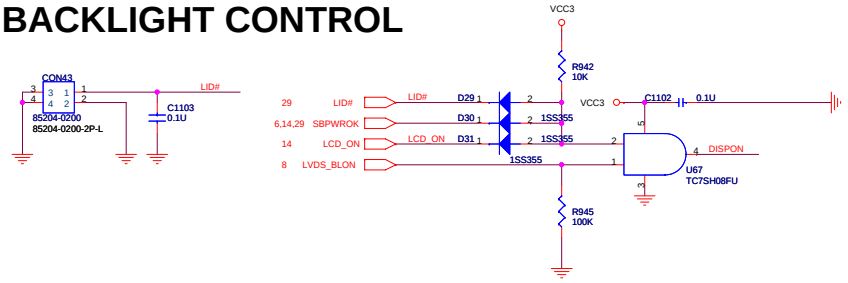
Title	LAN BOAZMAN	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
Date: Wednesday, October 08, 2008	Sheet 17 of 39	

LCD CONNECTOR

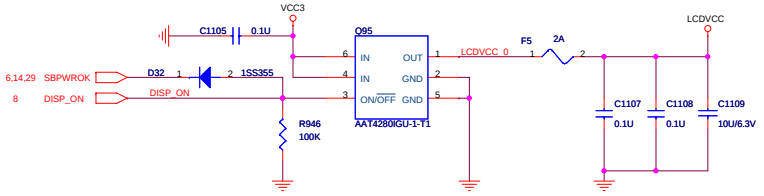


Model	LED LCD	R1235
AK3M LV	X	X
AK3M Int	X	X
AK3M VP	V	O
AK3ML VP	X	X
AK3ML Int	X	X

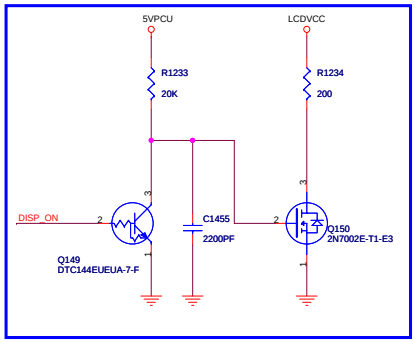
BACKLIGHT CONTROL

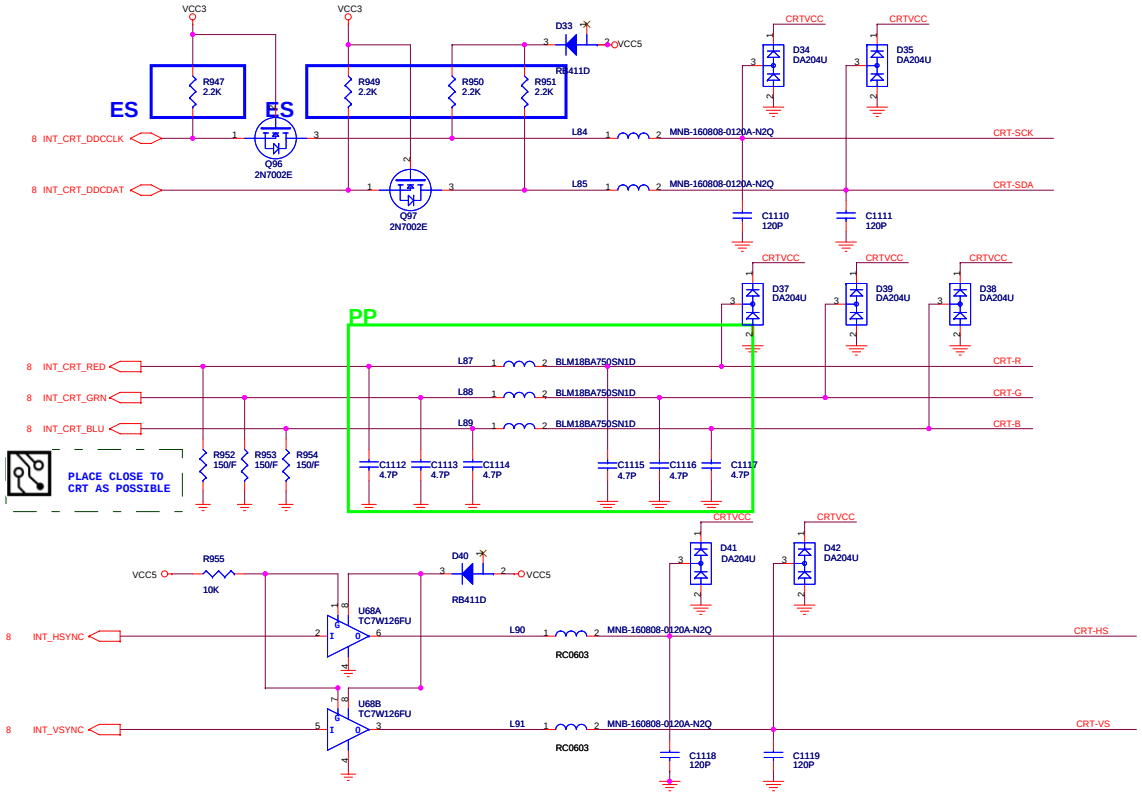


LCDVCC SLEW CONTROL

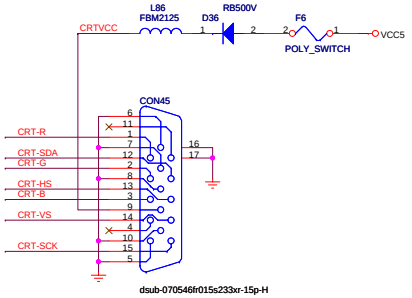


ES





CRT CONNECTOR



QUANTA COMPUTER

Title	CRT & LCD	
Size	Document Number: AK3M MAIN BOARD	Rev 1A
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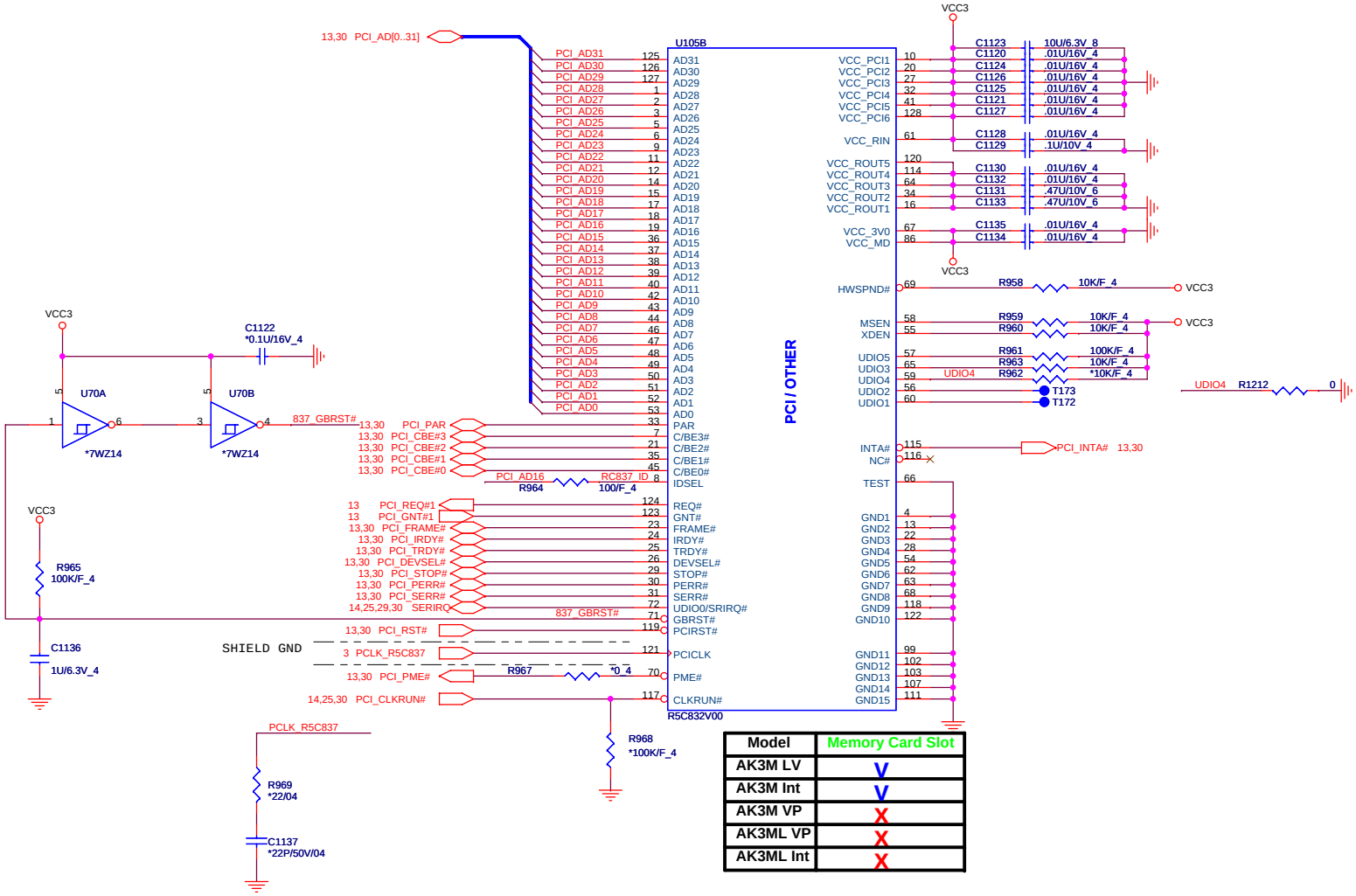

Model	Memory Card Slot
AK3M LV	V
AK3M Int	V
AK3M VP	X
AK3ML VP	X
AK3ML Int	X

QUANTA COMPUTER

Title	R5C837_ PCI	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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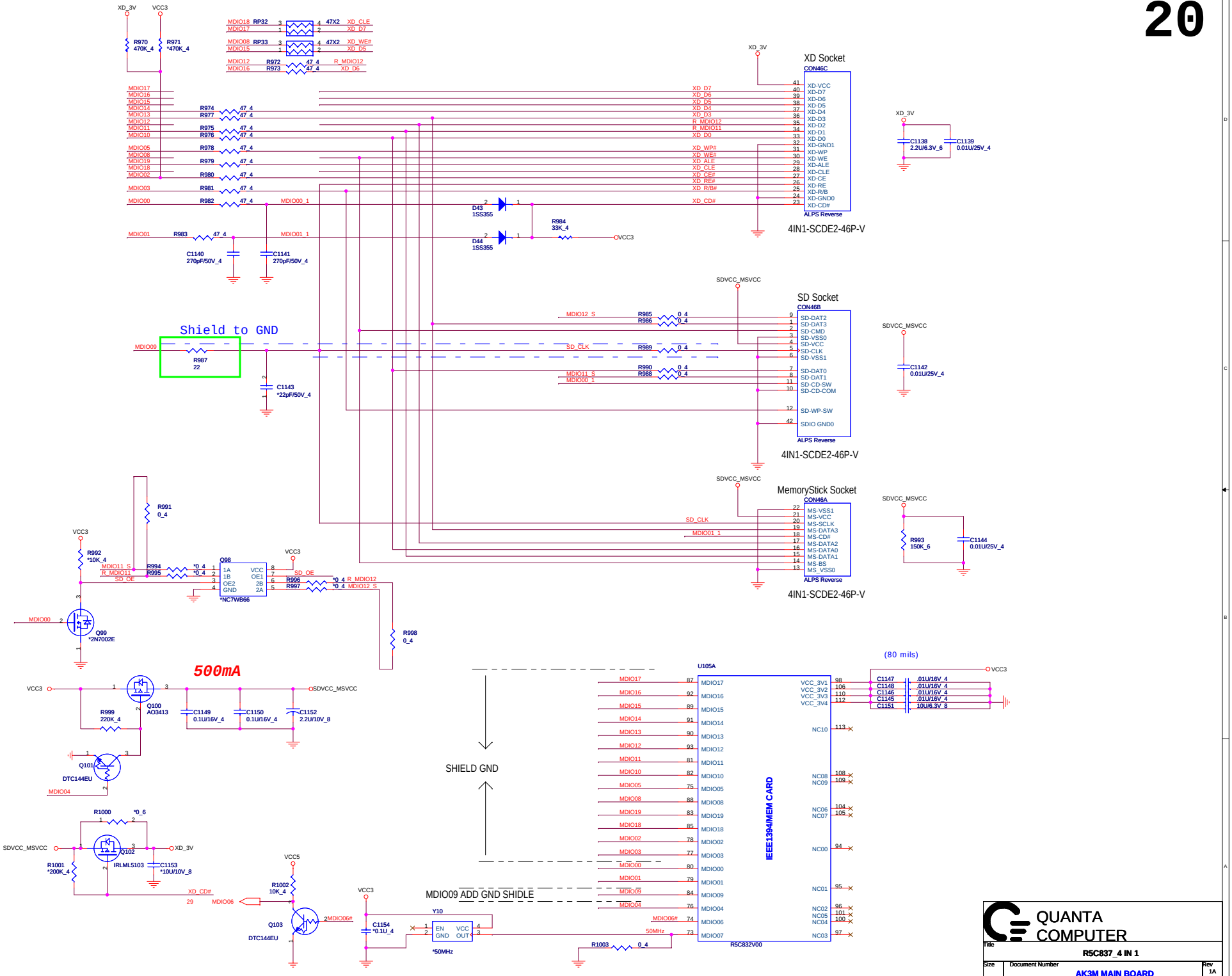
XD Socket
CON46C
4IN1-SCDE2-46P-V
SD Socket
CON46B
4IN1-SCDE2-46P-V
MemoryStick Socket
CON46A
4IN1-SCDE2-46P-V
Shield to GND
500mA
SHIELD GND
MDIO09 ADD GND SHIDLE
U105A
IEEE1394/MEM CARD
R5C832V00
(80 mils)
QUANTA COMPUTER
R5C837_4 IN 1
AK3M MAIN BOARD
Wednesday, October 08, 2008
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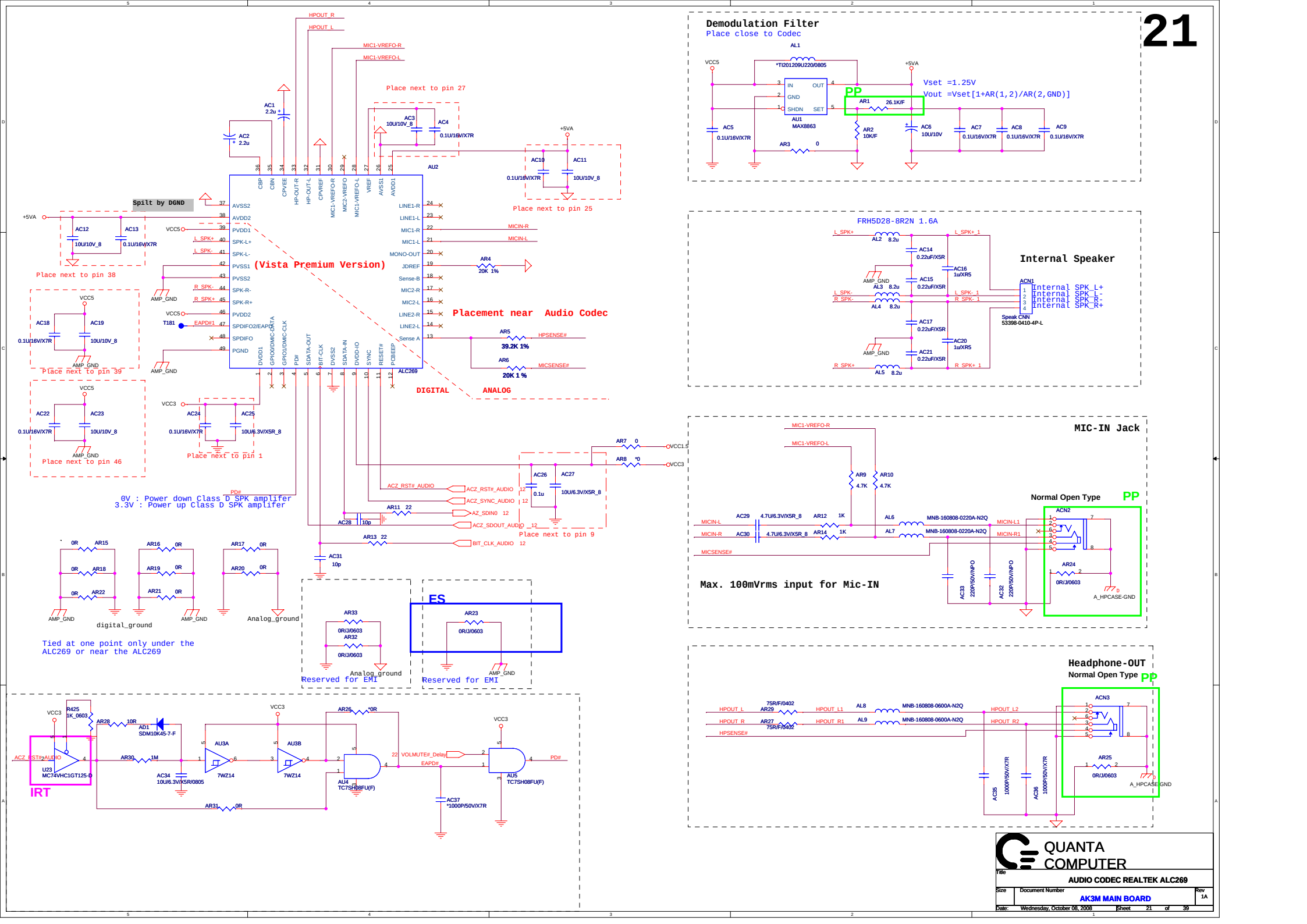
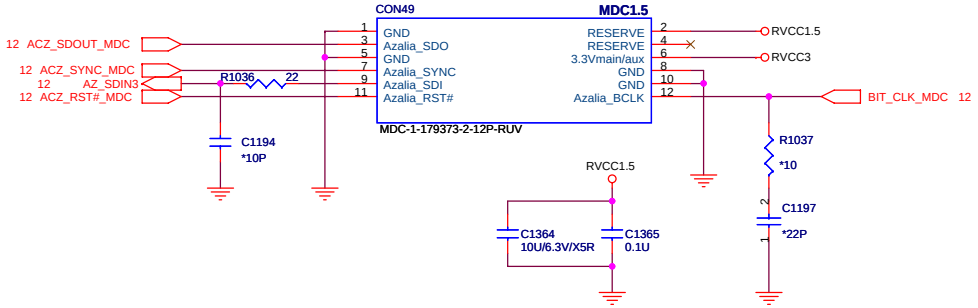
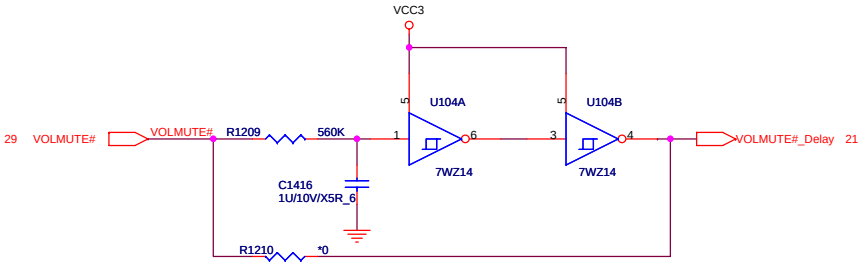

Demodulation Filter
Place close to Codec
Vset =1.25V
Vout =Vset[1+AR(1,2)/AR(2,GND)]
PP
FRH5D28-8R2N 1.6A
Internal Speaker
Internal SPK_L+
Internal SPK_L-
Internal SPK_R-
Internal SPK_R+
Speak CNN
53398-0410-4P-L
MIC-IN Jack
Normal Open Type
Max. 100mVrms input for Mic-IN
Headphone-OUT
Normal Open Type
Spilt by DGND
(Vista Premium Version)
Placement near Audio Codec
DIGITAL
ANALOG
Place next to pin 27
Place next to pin 25
Place next to pin 38
Place next to pin 39
Place next to pin 46
Place next to pin 1
Place next to pin 9
0V : Power down Class D SPK amplifer
3.3V : Power up Class D SPK amplifer
Tied at one point only under the
ALC269 or near the ALC269
digital_ground
Analog_ground
Reserved for EMI
ES
IRT
QUANTA
COMPUTER
AUDIO CODEC REALTEK ALC269
AK3M MAIN BOARD
Wednesday, October 08, 2008

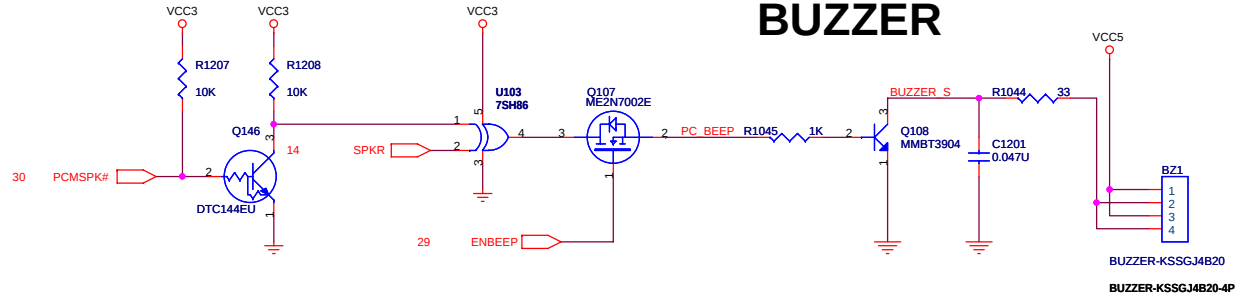
HD_MDC



Model	MDC	CON49	R1036	C1364-65
AK3M LV	X	X	X	X
AK3M Int	V	O	O	O
AK3M VP	X	X	X	X
AK3ML VP	X	X	X	X
AK3ML Int	V	O	O	O



BUZZER



QUANTA COMPUTER

Title	MODEM/BUZZER	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
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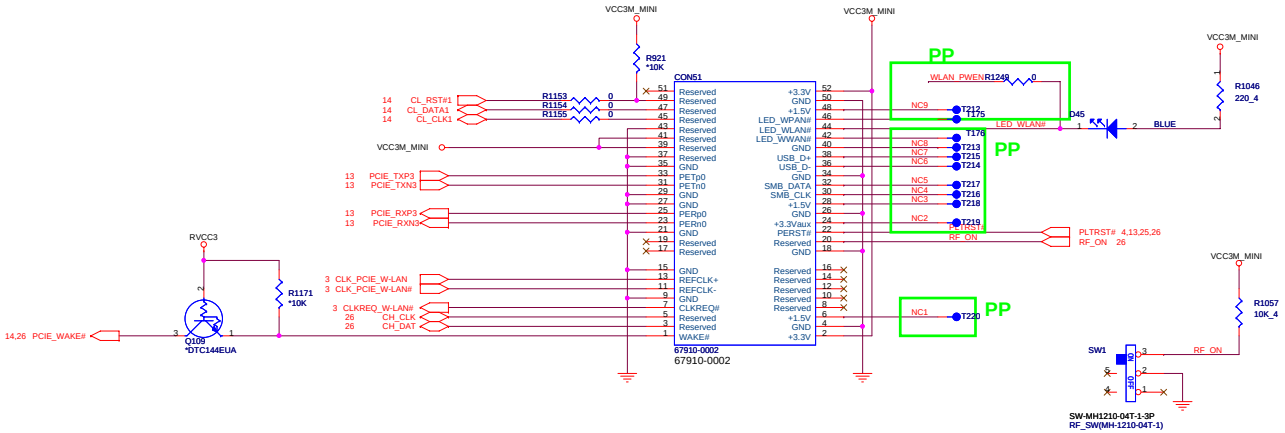
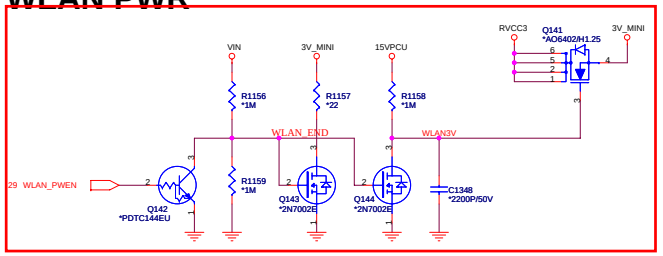
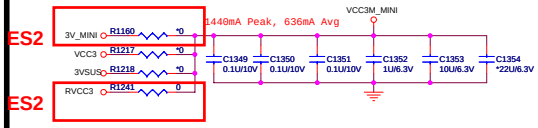
MINI PCIE CARD (WLAN)



WLAN PWR

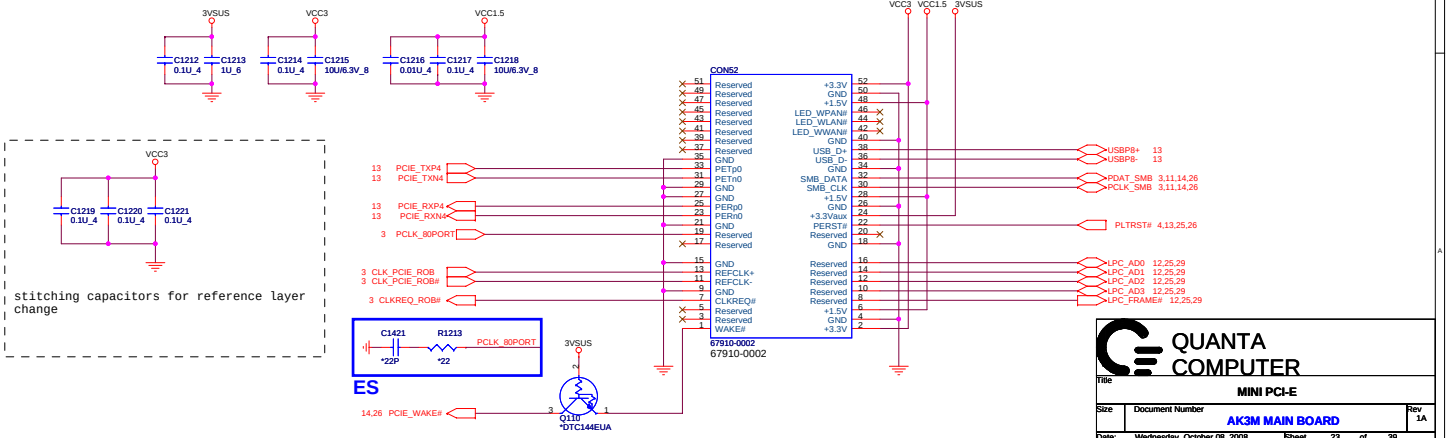
ES2





Model	iAMT	R1153-55	R1156-60	R1241	Q141-44	C1348	R1217	R1218	D45
AK3M LV	X	X	X	X	X	X	O	X	Blue
AK3M Int	X	X	X	X	X	X	O	X	Blue
AK3M VP	V	O	X	O	X	X	X	X	Blue
AK3ML VP	X	X	X	X	X	X	O	X	Green
AK3ML Int	X	X	X	X	X	X	O	X	Green

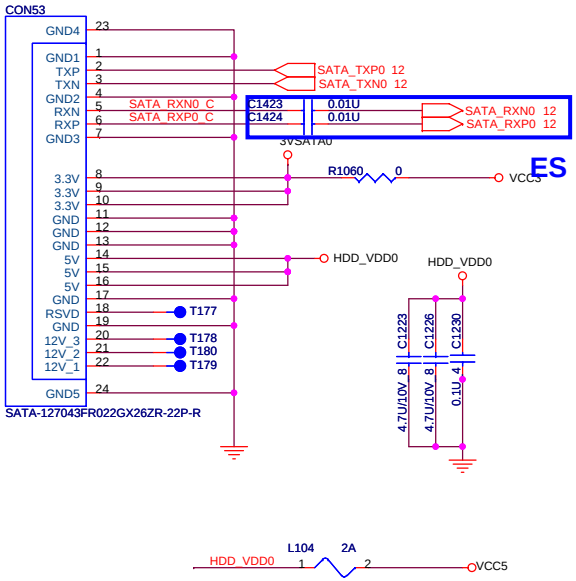
MINI PCIE CARD (Robson)



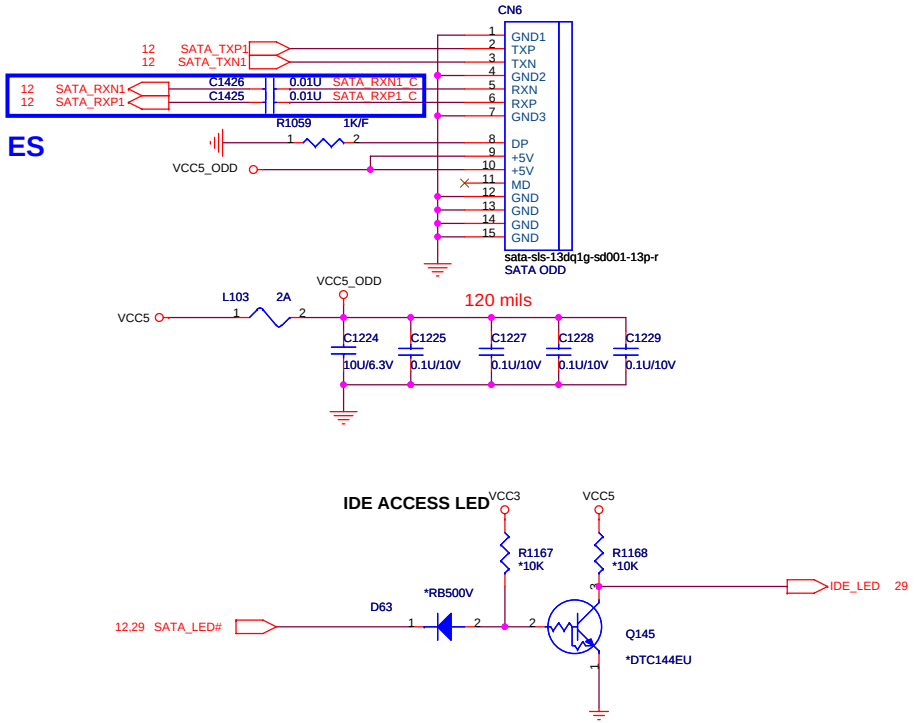
QUANTA COMPUTER

Title	MINI PCI-E	
Size	Document Number: AK3M MAIN BOARD	Rev 1A
Date: Wednesday, October 08, 2008	Sheet 23 of 39	

SATA HDD



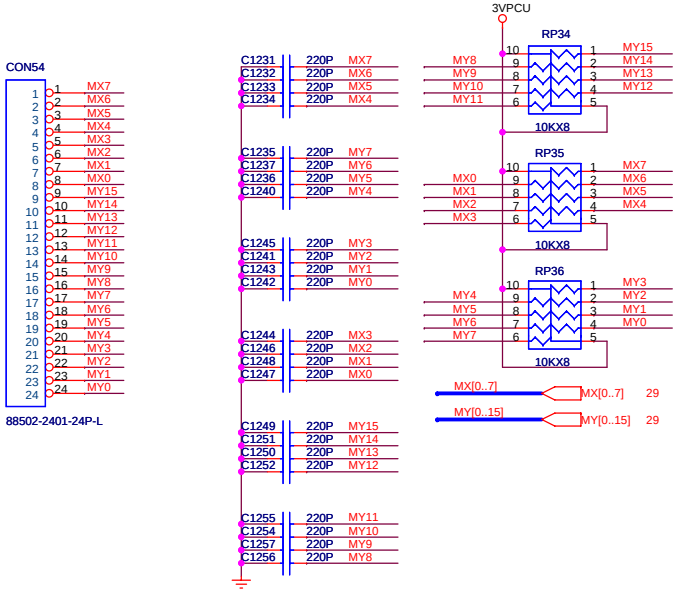
SATA ODD



QUANTA COMPUTER

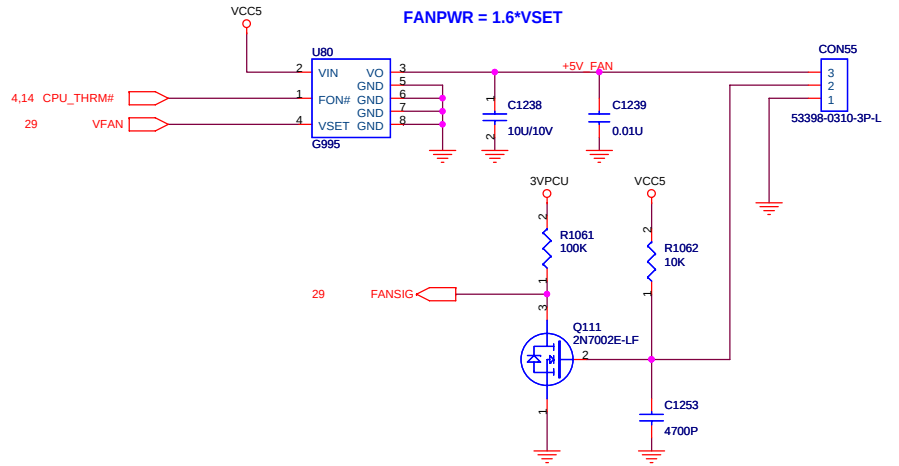
Title	SATA(HDD)/SATA(ODD)	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
Date: Wednesday, October 08, 2008	Sheet 24 of 39	

INT. KEYBOARD

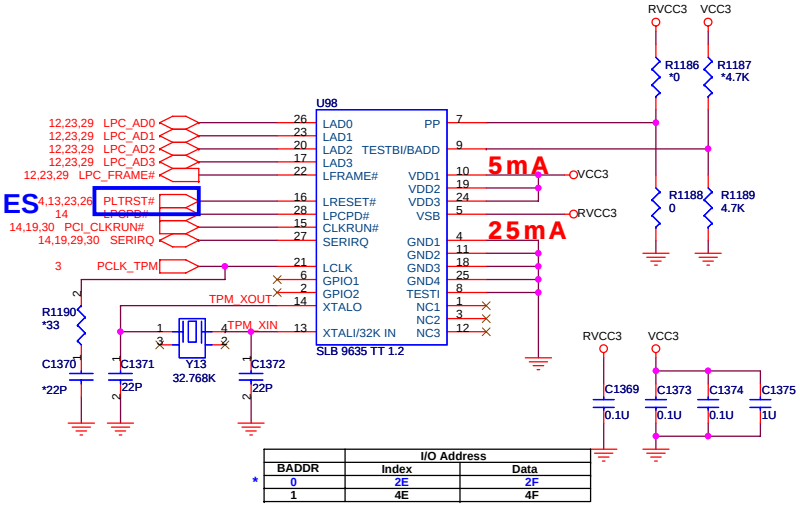


FAN CONTROL

25



TPM 1.2

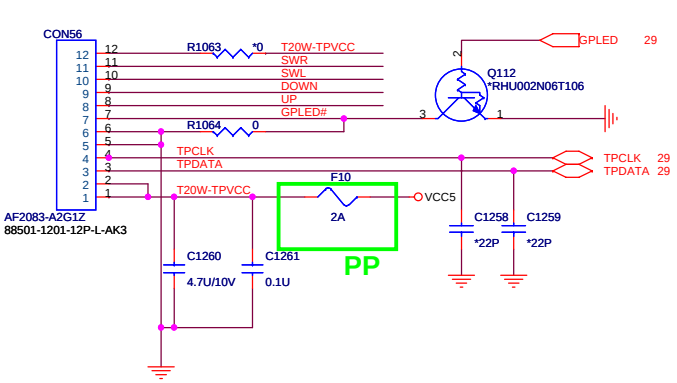


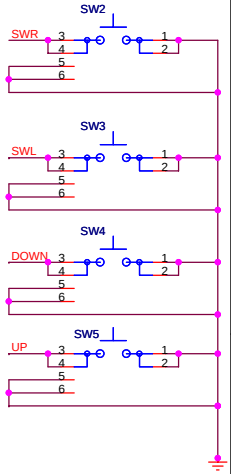
	I/O Address	
BADDR	Index	Data
0	2E	2F
1	4E	4F

*

Model	TPM	U98	Y13	R1188-89	C1369	C1371-75
AK3M LV	X	X	X	X	X	X
AK3M Int	X	X	X	X	X	X
AK3M VP	V	O	O	O	O	O
AK3ML VP	X	X	X	X	X	X
AK3ML Int	X	X	X	X	X	X

TOUCH-PAD



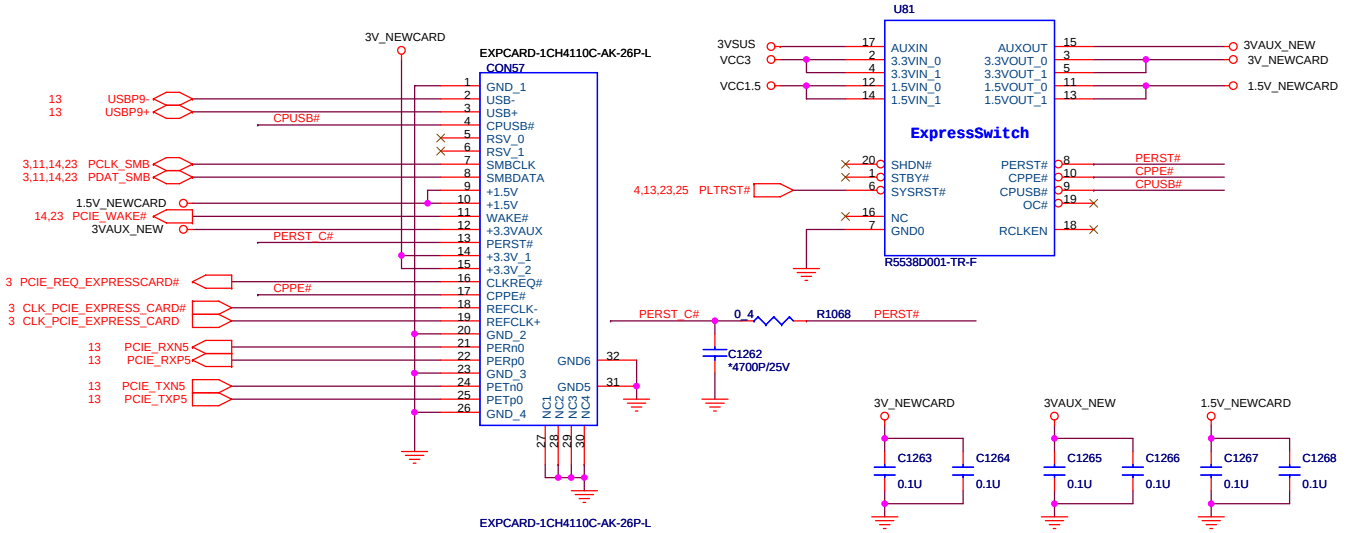


Location / Type	R1063	Q112	R1064
Lighting GP	O	O	X
Wide GP	X	X	O

QUANTA COMPUTER

Title	INT.KB/TOUCH-PAD/FAN/TPM	
Size	Document Number: AK3M MAIN BOARD	Rev 1A
Date: Wednesday, October 08, 2008	Sheet 25 of 39	

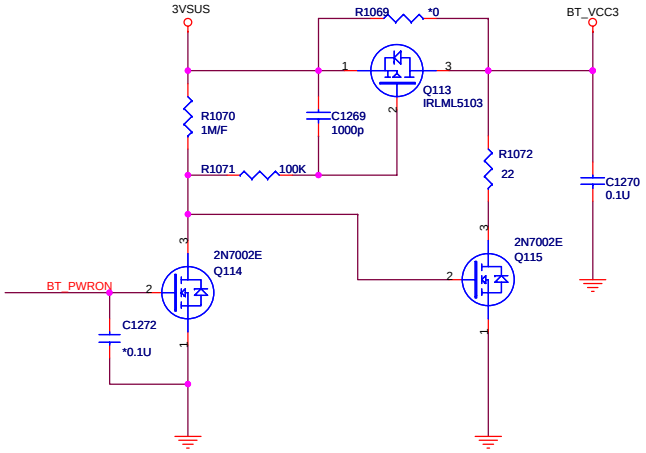
EXPRESS CARD

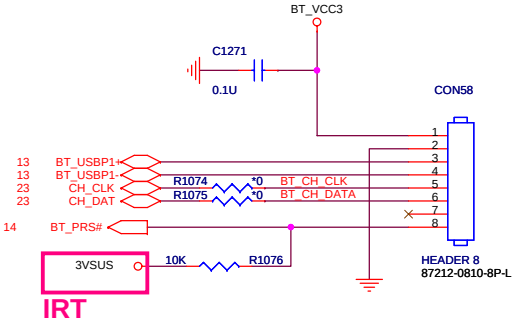


Model	Express Card	U81	C1263-68	R1068	CON57
AK3M LV	V	O	O	O	O
AK3M Int	V	O	O	O	O
AK3M VP	X	X	X	X	X
AK3ML VP	X	X	X	X	X
AK3ML Int	X	X	X	X	X

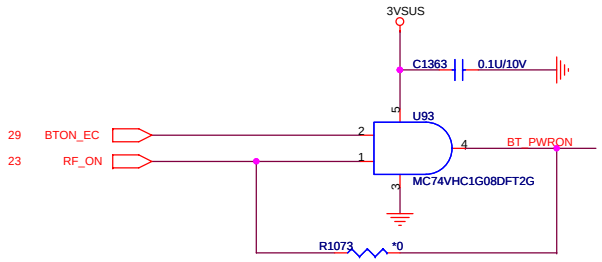
BLUETOOTH

RF_ON	BTON_EC	BT_VCC3
High	High	3.3V
High	LOW	0V
LOW	High	0V
LOW	LOW	0V





BT_PRS# Use for Card Detect	
LOW	INSTALL
High	NO CARD

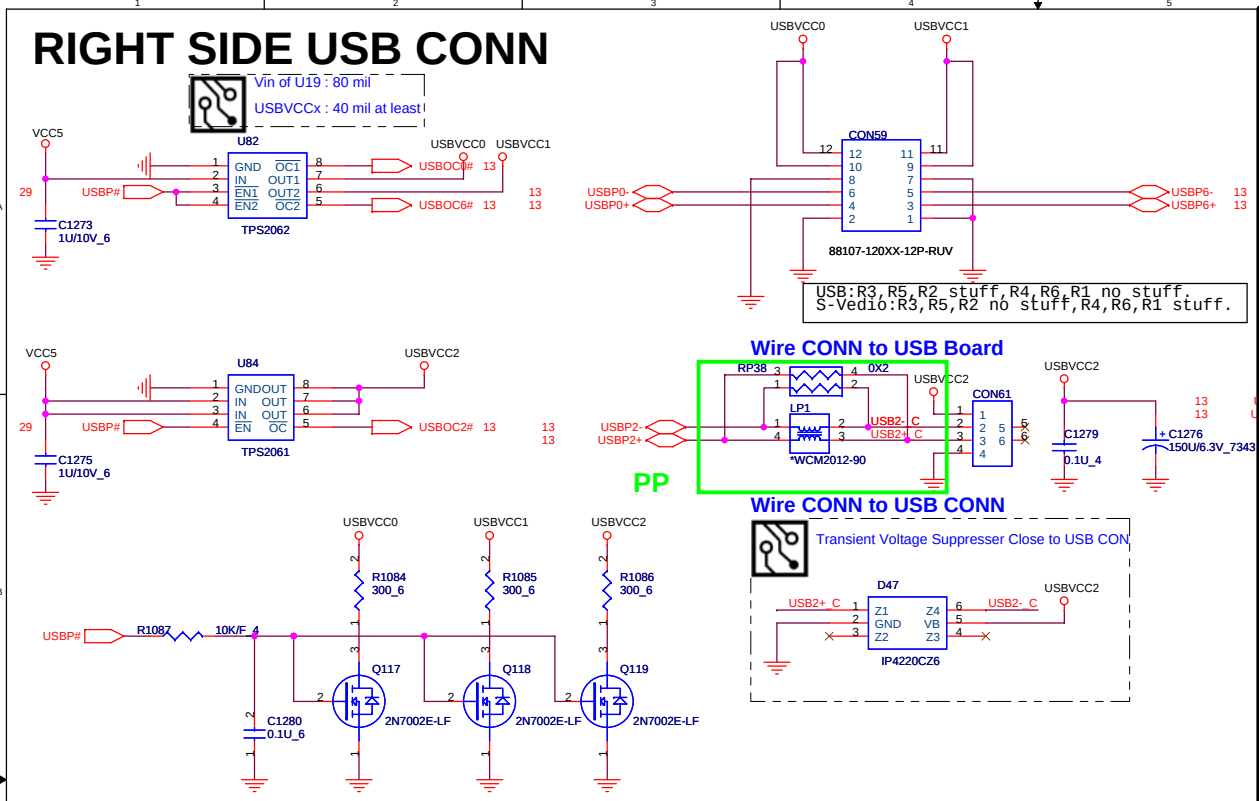


Model	Bluetooth	R1073	U93	C1363	Q113-15	R1070-72	R1076	C1269-71	CON58
AK3M LV	V	X	O	O	O	O	O	O	O
AK3M Int	V	X	O	O	O	O	O	O	O
AK3M VP	X	O	X	X	X	X	X	X	X
AK3ML VP	X	O	X	X	X	X	X	X	X
AK3ML Int	X	O	X	X	X	X	X	X	X

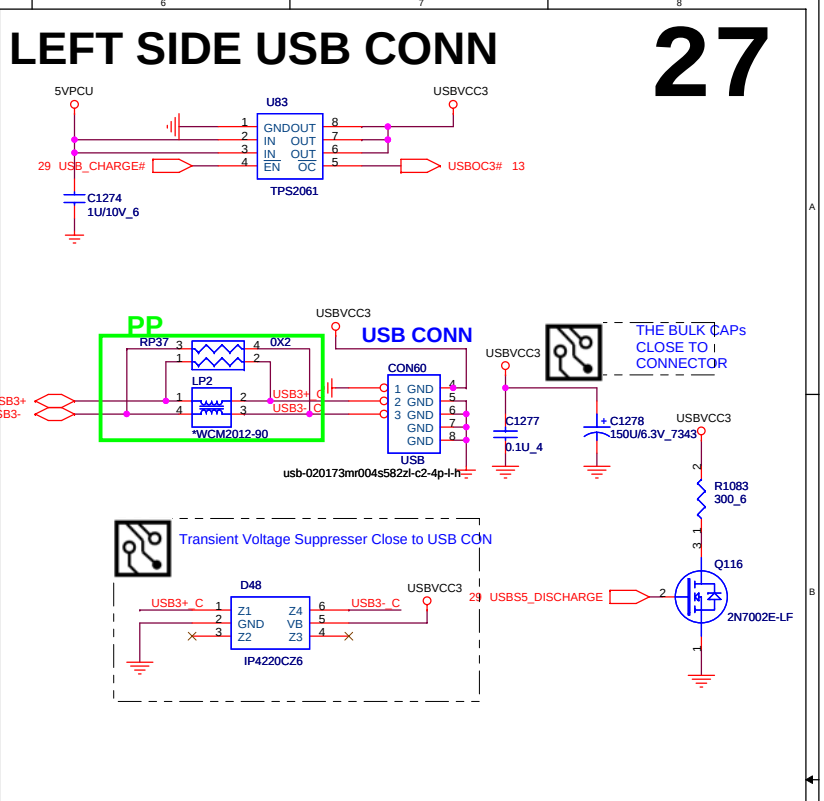
QUANTA COMPUTER

Title	NEW CARD/BLUETOOTH	
Size	Document Number: AK3M MAIN BOARD	Rev: 1A
Date: Wednesday, October 08, 2008	Sheet 26 of 39	

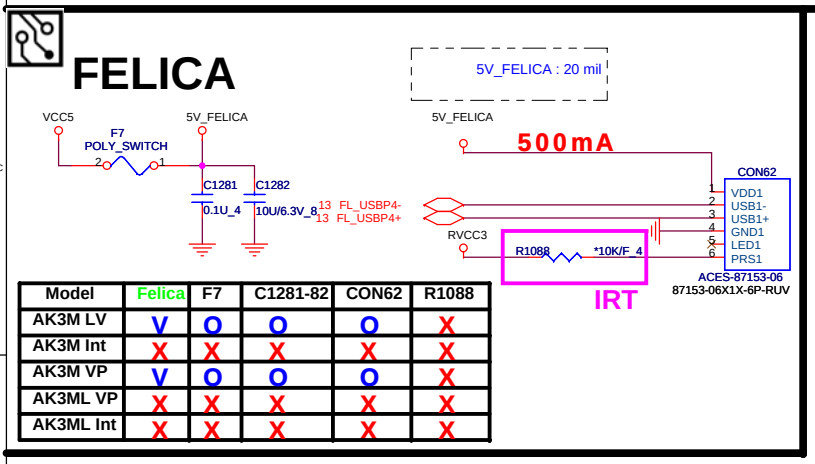
RIGHT SIDE USB CONN



LEFT SIDE USB CONN

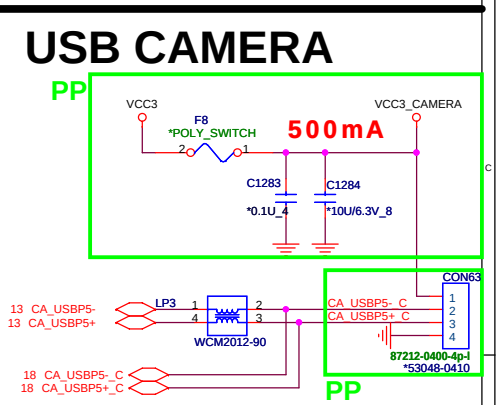


FELICA



Model	Felica	F7	C1281-82	CON62	R1088
AK3M LV	V	O	O	O	X
AK3M Int	X	X	X	X	X
AK3M VP	V	O	O	O	X
AK3ML VP	X	X	X	X	X
AK3ML Int	X	X	X	X	X

USB CAMERA



VCC3_CAMERA : 20 mil

QUANTA COMPUTER

Title	USB/FELICA/CAMERA	
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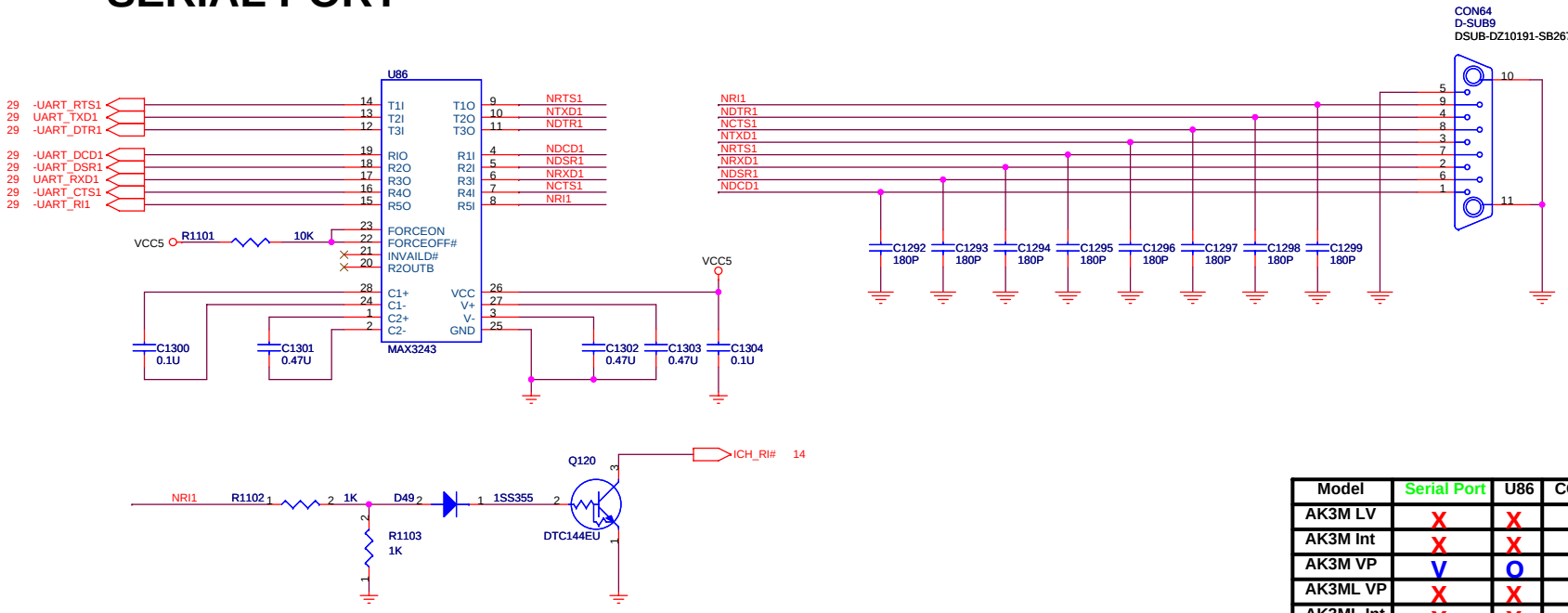
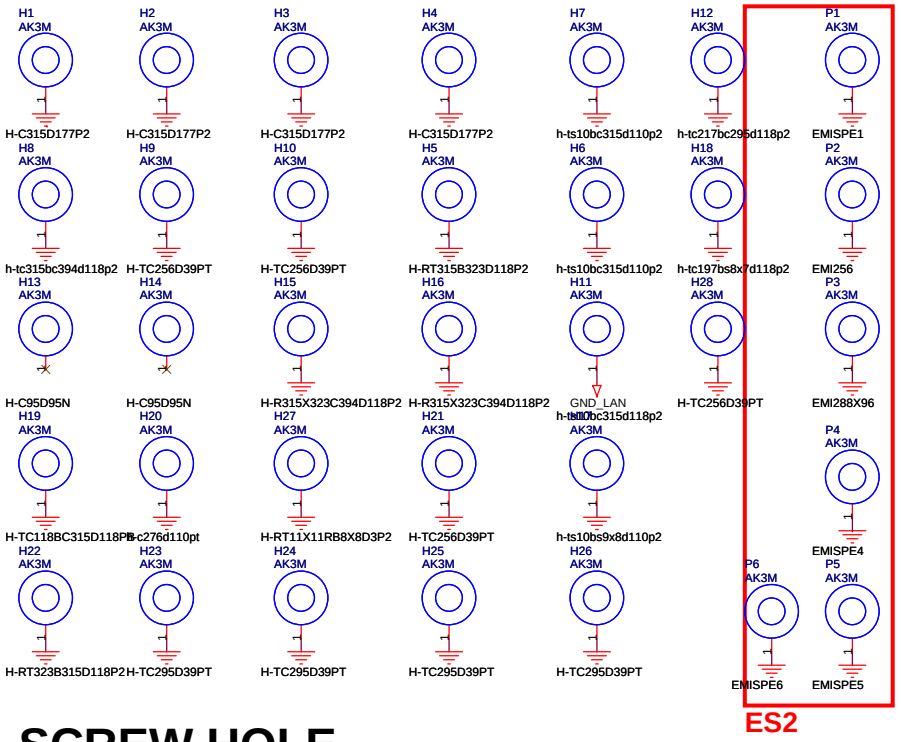
SERIAL PORT

28



Model	Serial Port	U86	CON64	Q120	D49	R1101-03	C1292-C1304
AK3M LV	X	X	X	X	X	X	X
AK3M Int	X	X	X	X	X	X	X
AK3M VP	V	O	O	O	O	O	O
AK3ML VP	X	X	X	X	X	X	X
AK3ML Int	X	X	X	X	X	X	X



SCREW HOLE

QUANTA COMPUTER

Title	SERIAL PORT&SCREW HOLE	
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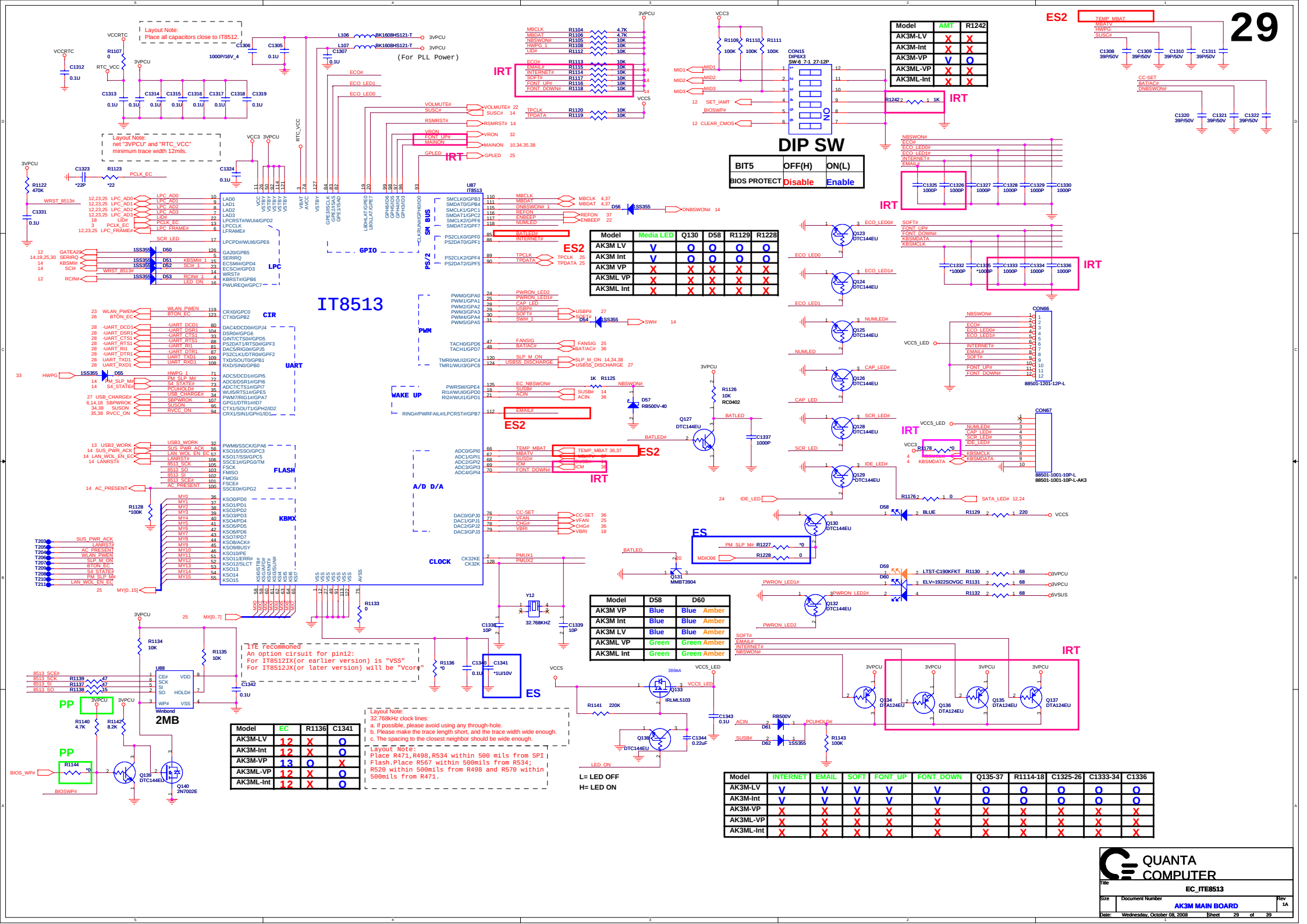

Model	AMT	R1242
AK3M-LV	X	X
AK3M-Int	X	X
AK3M-VP	V	O
AK3ML-VP	X	X
AK3ML-Int	X	X

Model	Media LED	Q130	D58	R1129	R1228
AK3M LV	V	O	O	O	O
AK3M Int	V	O	O	O	O
AK3M VP	X	X	X	X	X
AK3ML VP	X	X	X	X	X
AK3ML Int	X	X	X	X	X

Model	D58	D60
AK3M VP	Blue	Blue Amber
AK3M Int	Blue	Blue Amber
AK3M LV	Blue	Blue Amber
AK3ML VP	Green	Green Amber
AK3ML Int	Green	Green Amber

Model	EC	R1136	C1341
AK3M-LV	12	X	O
AK3M-Int	12	X	O
AK3M-VP	13	O	X
AK3ML-VP	12	X	O
AK3ML-Int	12	X	O

Model	INTERNET	EMAIL	SOFT	FONT_UP	FONT_DOWN	Q135-37	R1114-18	C1325-26	C1333-34	C1336
AK3M-LV	V	V	V	V	V	O	O	O	O	O
AK3M-Int	V	V	V	V	V	O	O	O	O	O
AK3M-VP	X	X	X	X	X	X	X	X	X	X
AK3ML-VP	X	X	X	X	X	X	X	X	X	X
AK3ML-Int	X	X	X	X	X	X	X	X	X	X

BIT5	OFF(H)	ON(L)
BIOS PROTECT	Disable	Enable

QUANTA COMPUTER

Title	EC_ITE8513	
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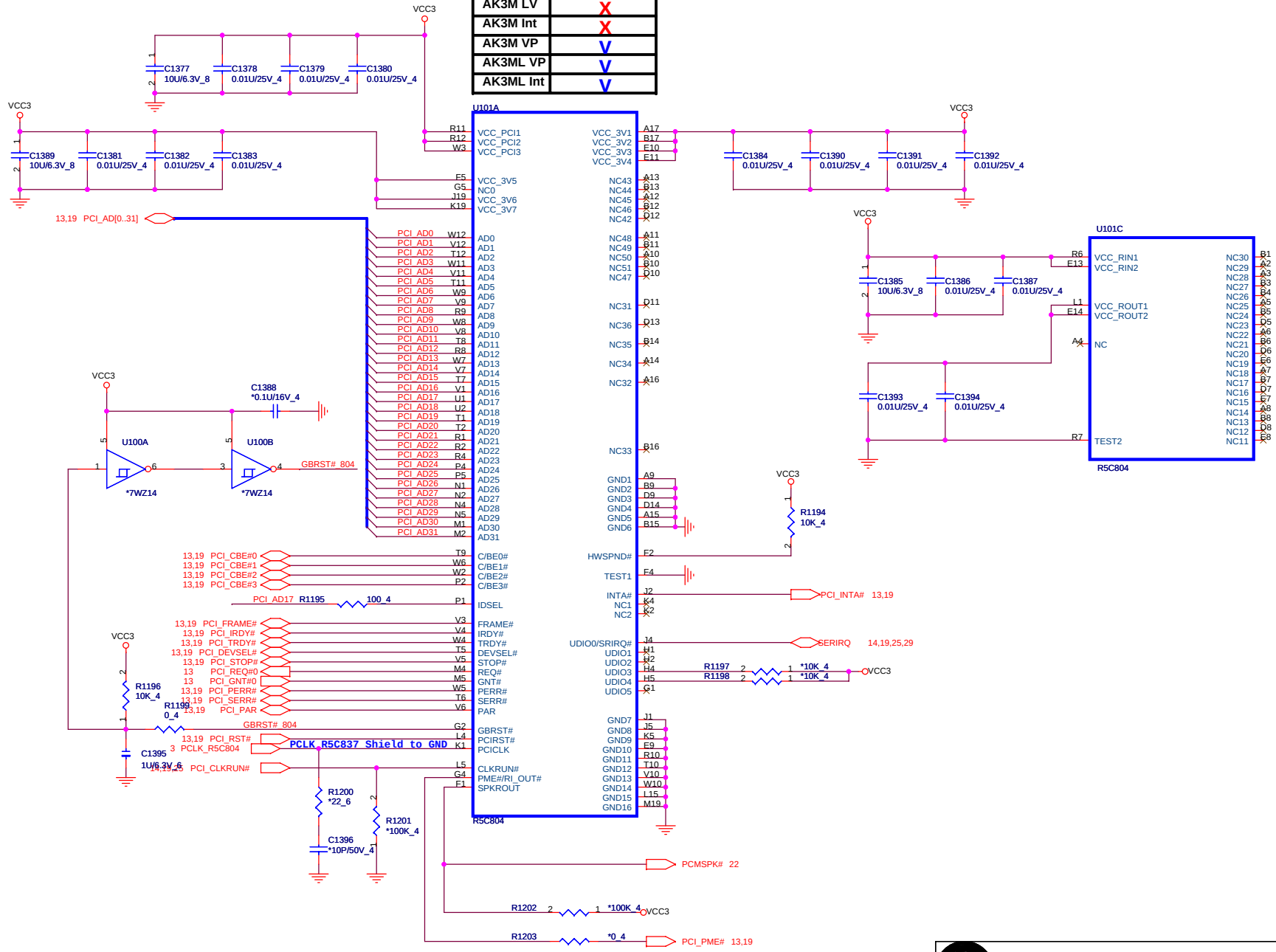
Model	PCMCIA
AK3M LV	X
AK3M Int	X
AK3M VP	V
AK3ML VP	V
AK3ML Int	V



QUANTA COMPUTER

Title	R5C804_PCI
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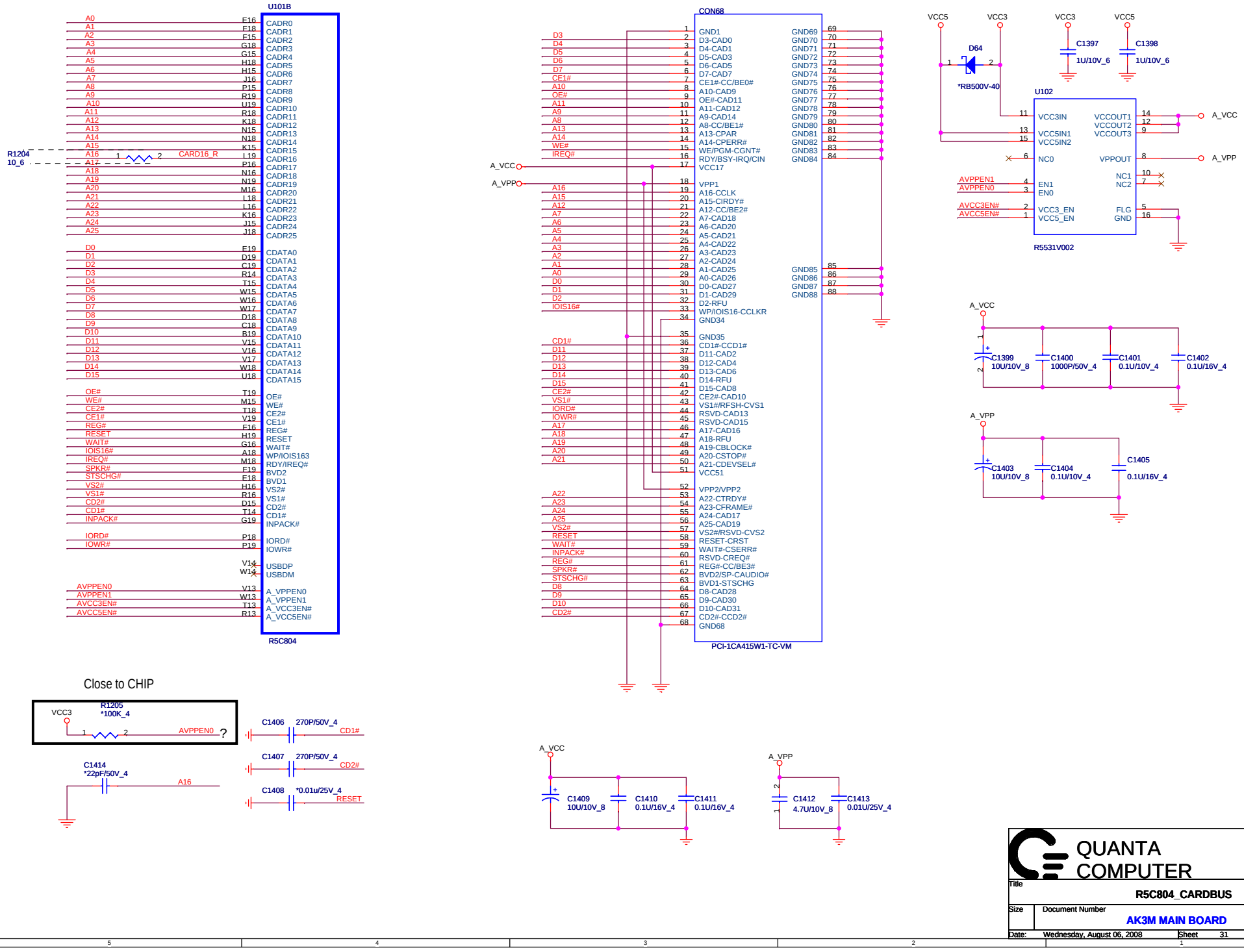

QUANTA COMPUTER

Title	R5C804_CARDBUS	
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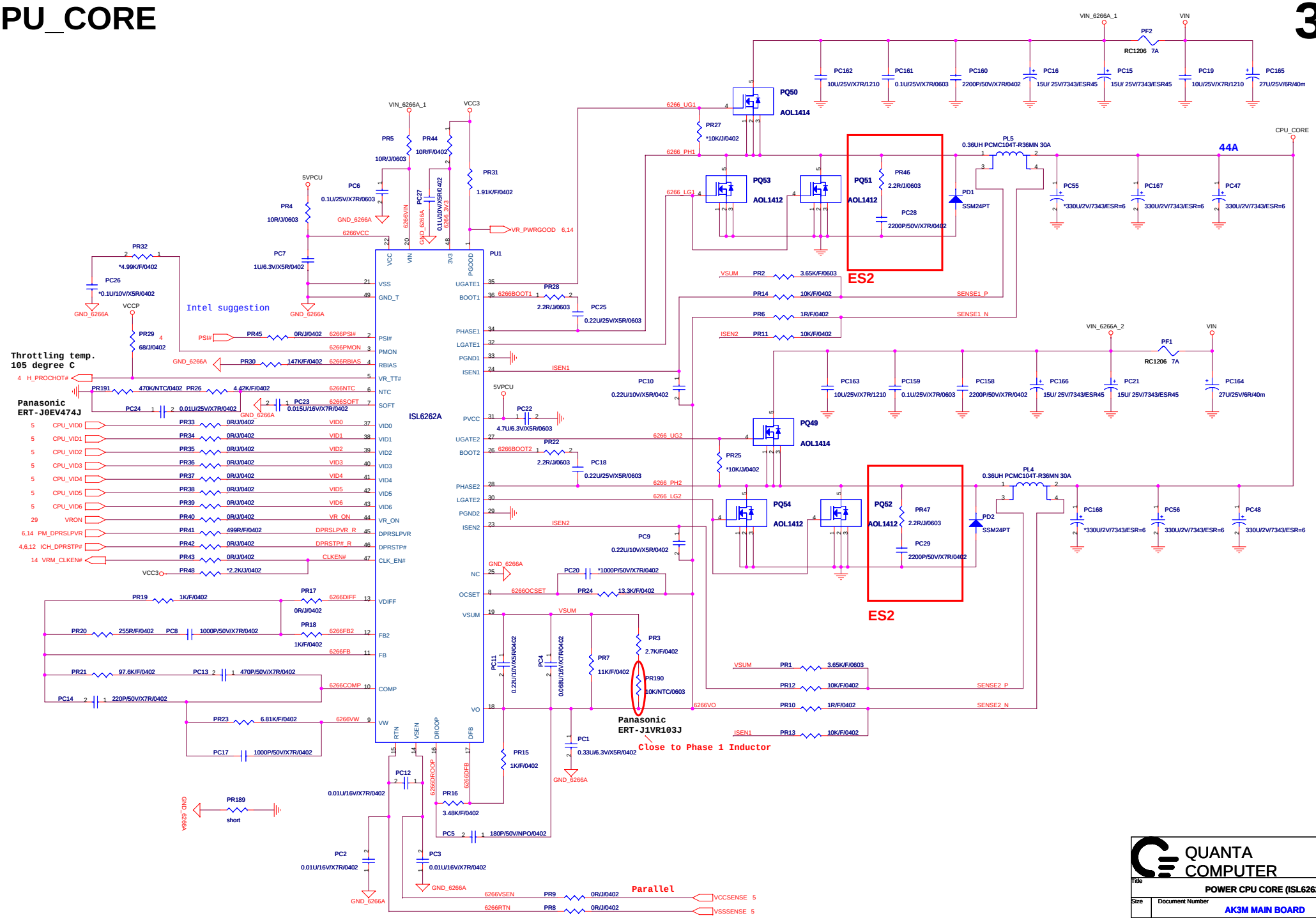
CPU_CORE



Title	POWER CPU CORE (ISL6262A)
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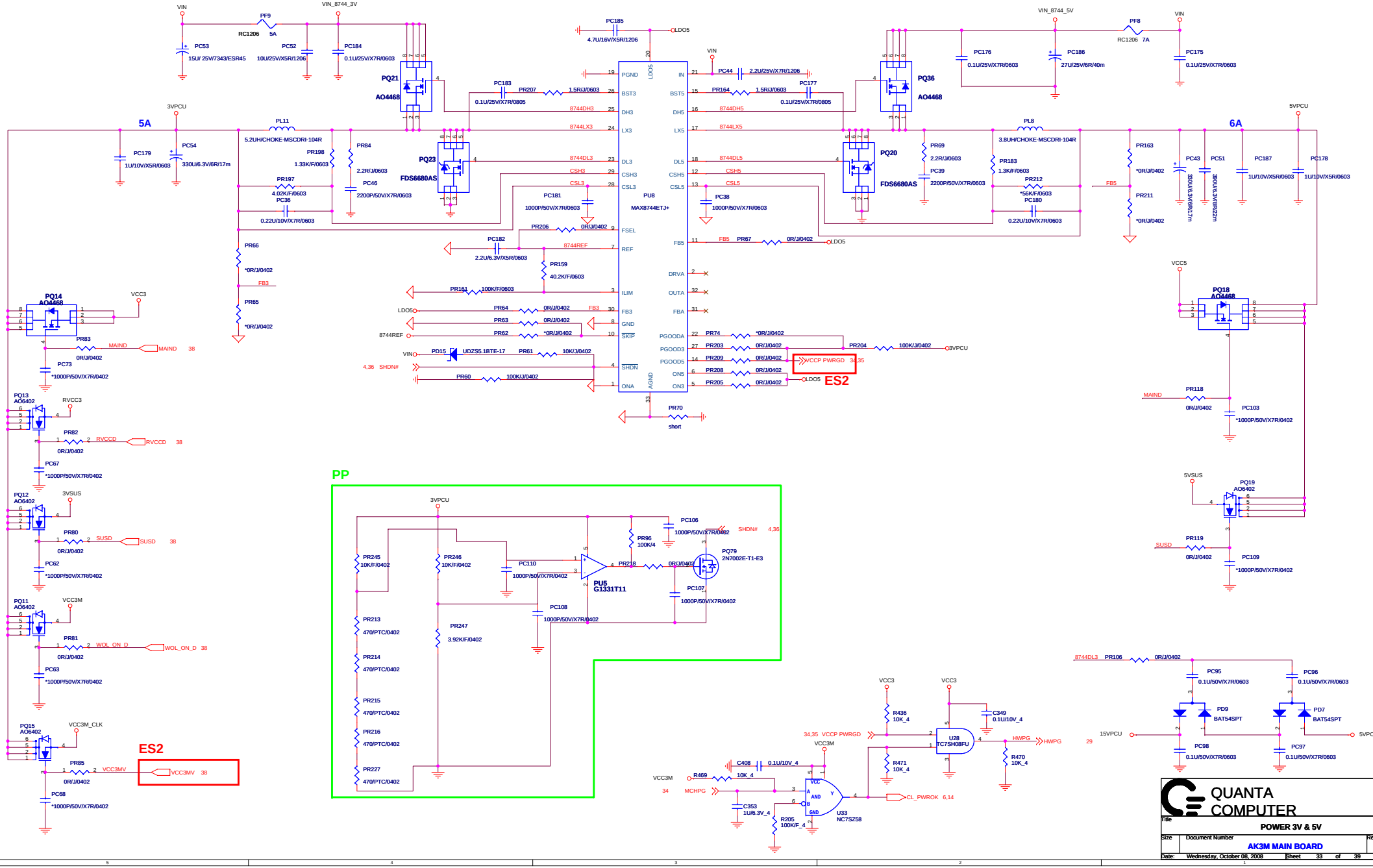
QUANTA COMPUTER



QUANTA COMPUTER

Title	POWER 3V & 5V	
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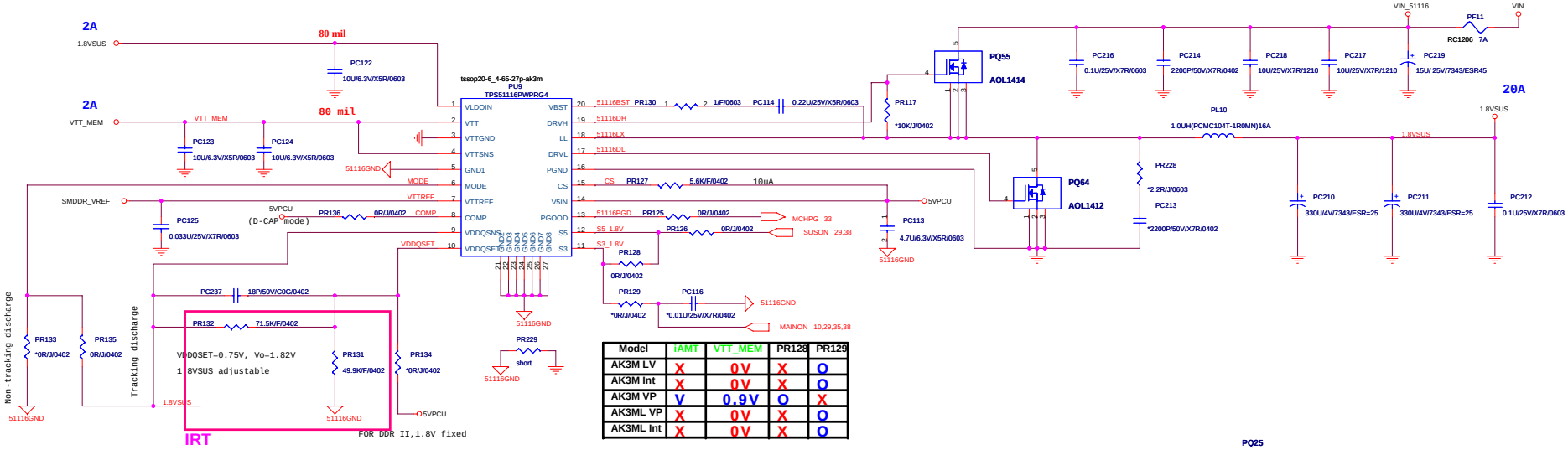
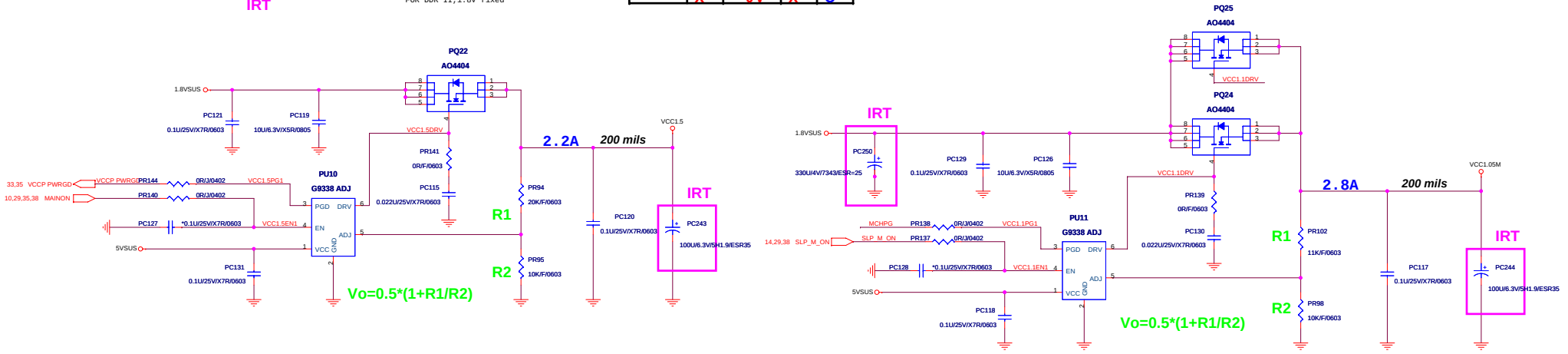
1.8VSUS & VTT_MEM & VCC1.8 & VCC1.5 & VCC1.25 & VCC1.05M



Model	IAMT	VTT_MEM	PR128	PR129
AK3M LV	X	0V	X	O
AK3M Int	X	0V	X	O
AK3M VP	V	0.9V	O	X
AK3ML VP	X	0V	X	O
AK3ML Int	X	0V	X	O



QUANTA COMPUTER

Title	POWER 1.8VSUS/VTT_MEM	
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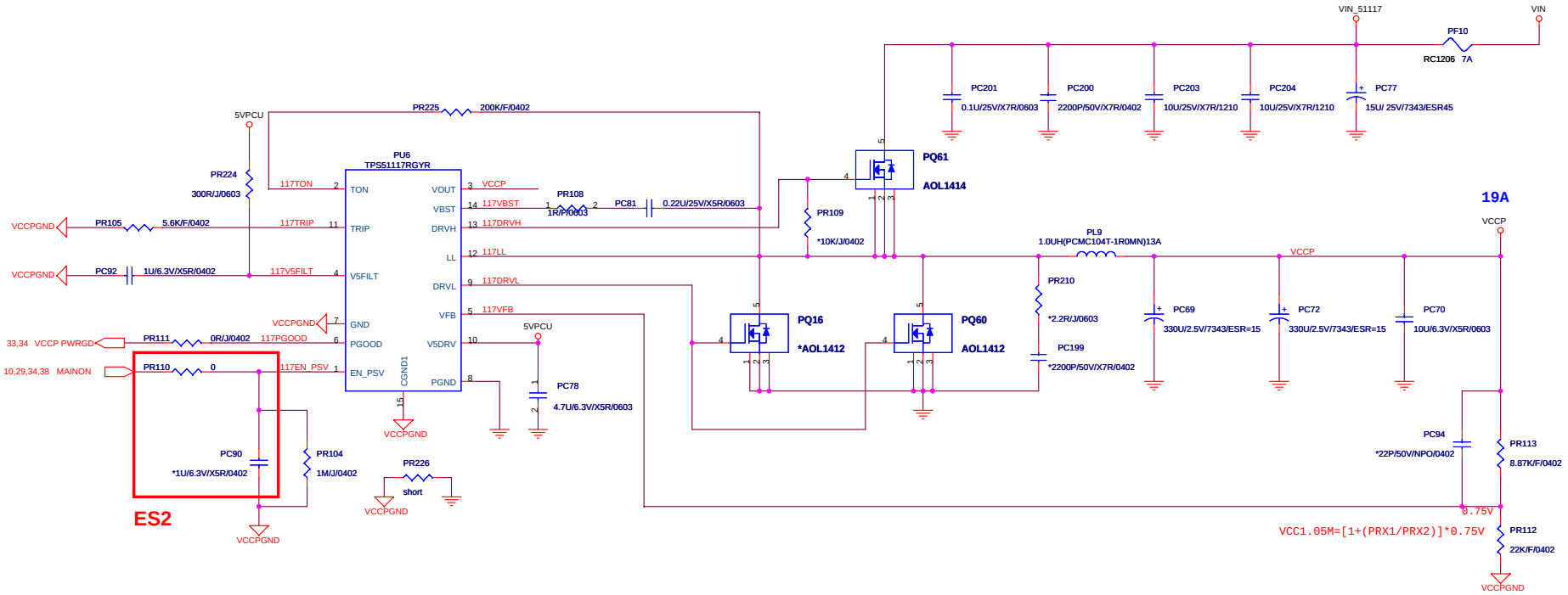
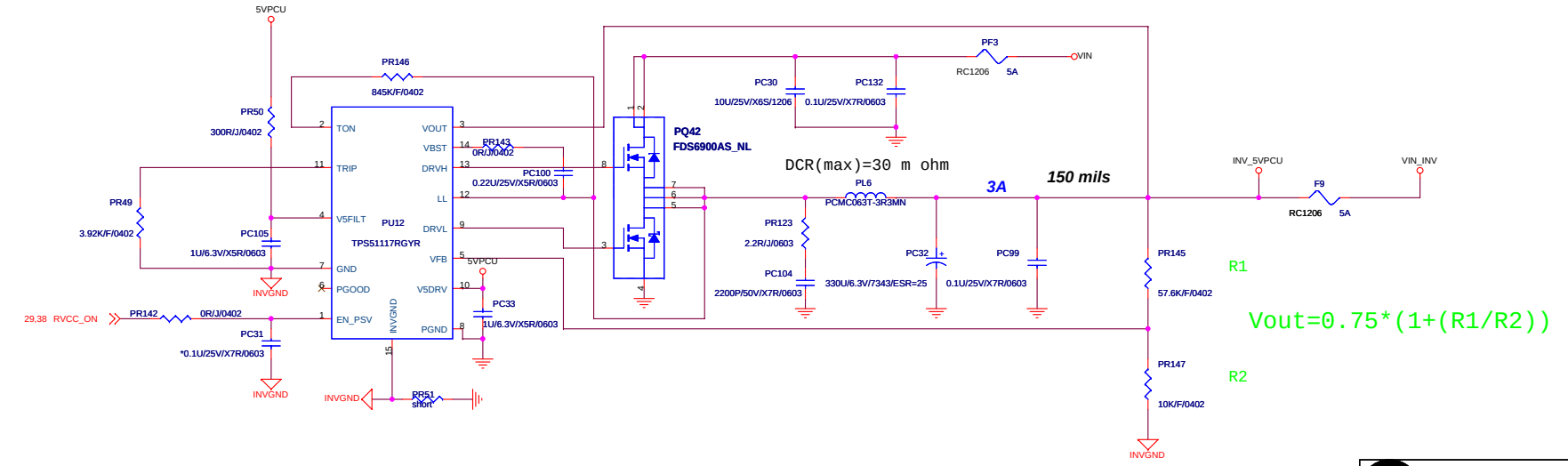
VCCP & INV 5V





QUANTA COMPUTER

Title: POWER VCCP & INV 5V

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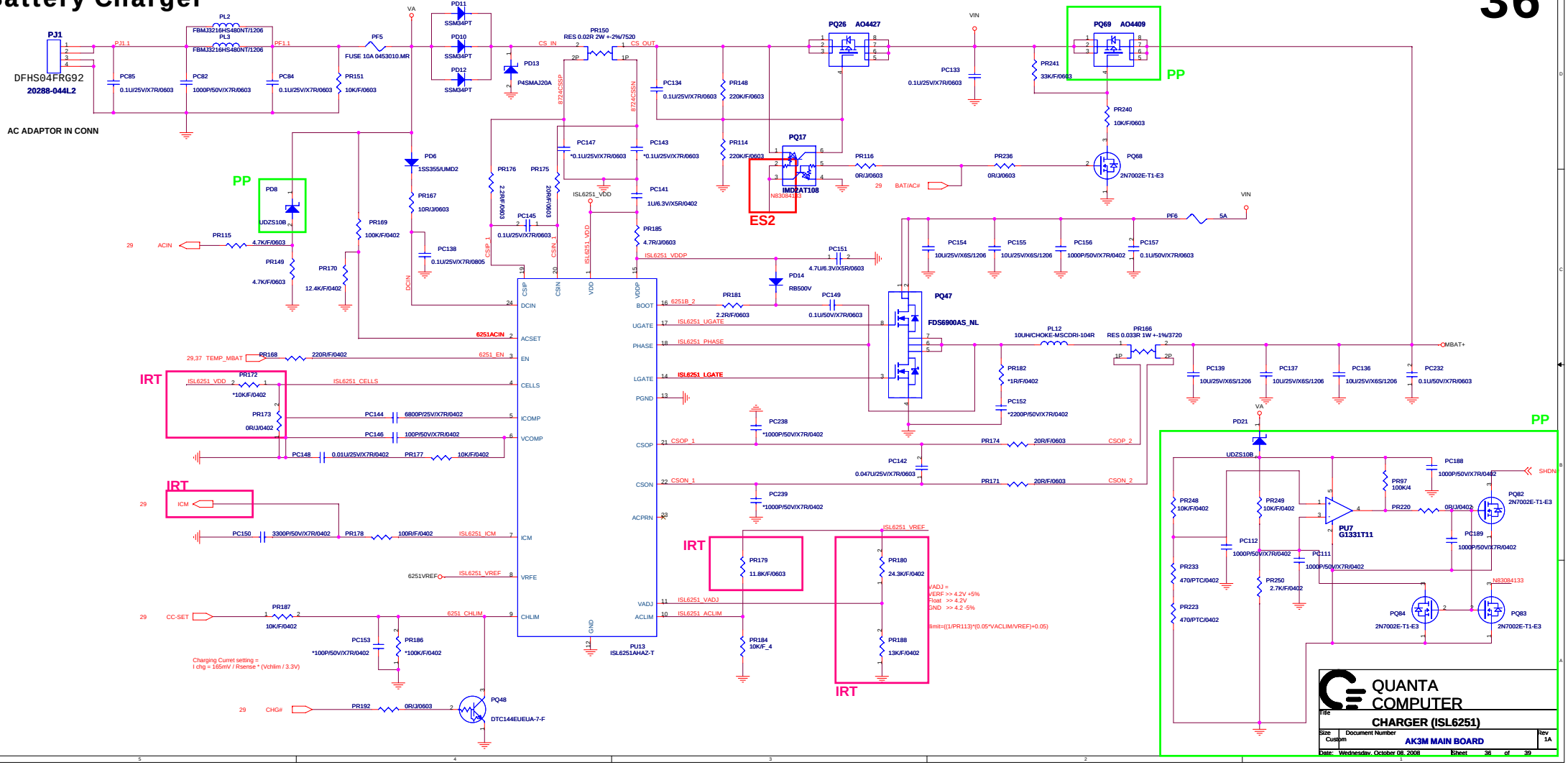
Battery Charger



QUANTA COMPUTER

Title: CHARGER (ISL6251)

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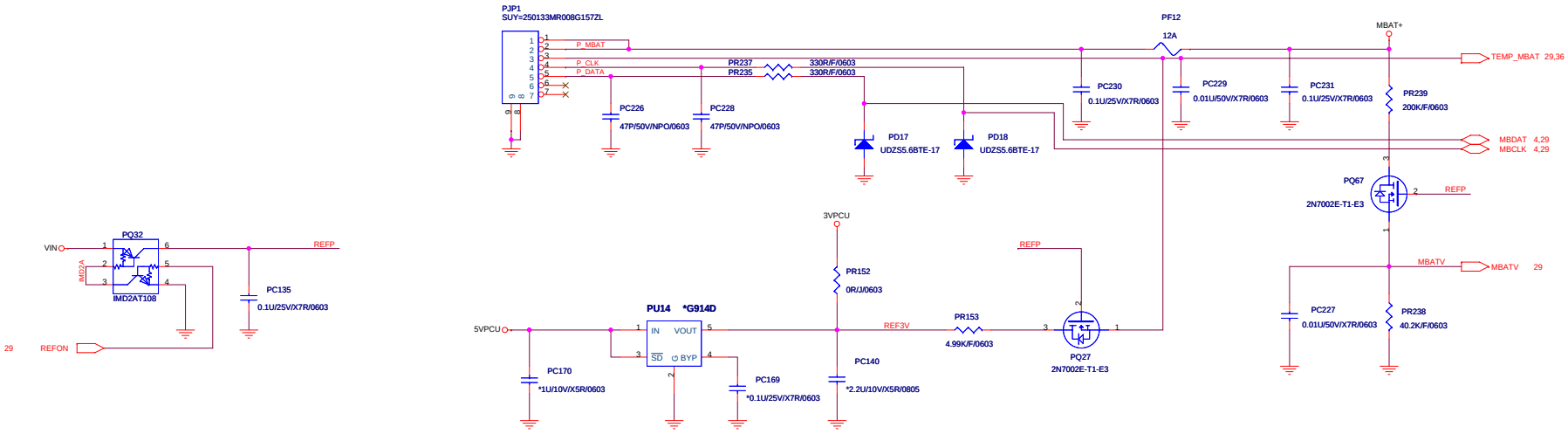
Battery Connector



TEMP_MBAT voltage :		
	System Off	System On
Battery	0V	1.6V
Adapter	3.3V	3.3V
Battery+Adapter	1.6V	1.6V

MBATV voltage :	
Li-ion 4S*P	16.8V*40.2/(200+40.2)= 2.812V 12.0V*40.2/(200+40.2)= 2.008V
Ni-MH 8S1P	8.0V*40.2/(200+40.2)= 1.34V

QUANTA COMPUTER

Title	Battery connector	
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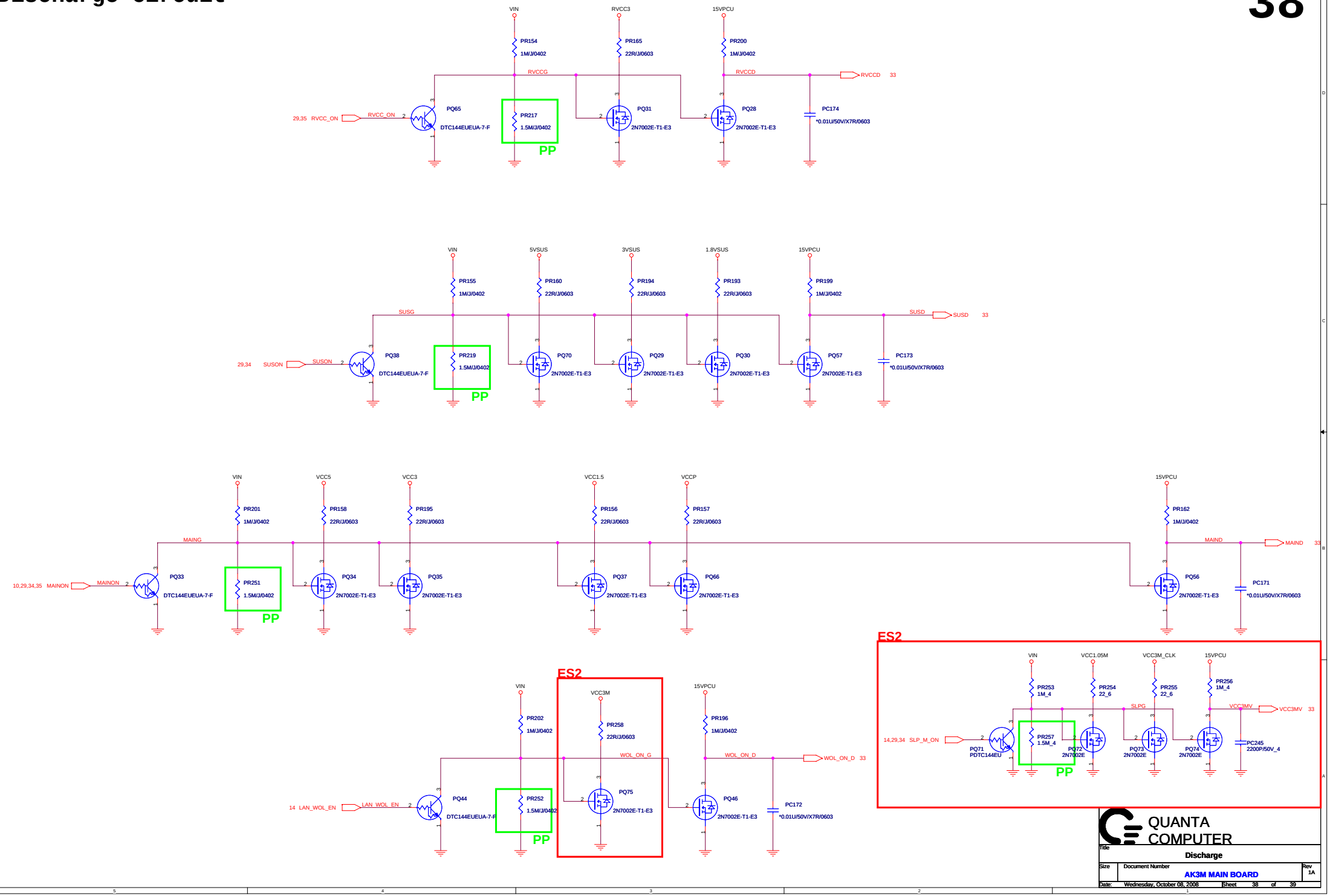
Discharge Circuit



QUANTA COMPUTER

Title	Discharge	
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CHANGE HISTORY

ES

PAGE03:<1>Del R254,R223,R264 to cancel fixed HW frequency selection.
<2>Add R1219-21 for HW debug purpose.
PAGE05:Reserved C1437-38 for VCCP
PAGE08:<1>Reserved C1428-32 for CRT EMI solution.
<2>The R649 change 2.4K/F from 2.37K/F ohm base on Intel's suggestion.
<3>Reserved R1229-32 for HDMI EMI.
PAGE10:Reserved R1215,Q147 for VCC_HV power timing.
PAGE12:<1>CLEAR_CMOS path change same as AK3.
<2>Reserved C1434,R1216 for LAN CLK EMI solution.
PAGE14:<1>Reserved R1214,C1422 for CLK PWROK.
<2>Add R1226,C1440,U106,C1439,R1224,R1225 for LAN_RST# optional HW design.
PAGE17:<1>Reserved C1433 for LAN CLK EMI solution.
<2>Reserved VCC1.05M_LAN external voltage regulator.
PAGE18:<1>R947/R949/R950/R951 change 2.2K from 4.7Kohm/10K base on Intel suggest P/U value range
<2>Add LCD power discharge design
<3>Add R1235-36 for LCD brightness HW selection
PAGE21:AR23 change to connect with AMP_GND.This's EMI request.
PAGE23:<1>Add C1421,R1213 for EMI.
<2>Reserved R1217-18 for HW optional design.
PAGE24:Add C1423-C1425 for SATA AC CAP.
PAGE25:TPM change PLTRST# from PCI_RST#.
PAGE28:Quanta S.I team suggest to add FSB/PCIE stitching caps(C1441-54).
PAGE29:<1>C1341 must be removed base on ITE suggestion.
<2>Add R1227-28 for iAMT debug LED
PAGE33:3V/5V controller change MAX8744 from MAX17020.
PAGE35:The PR146 change 845K/F from 499K/F.

ES2

PAGE05:C79 need to change CH733RM8831 for mechanical interference
PAGE06:<1>AK3M(iAMT&non-iAMT) BOM make control table for CL_PWROK selection
<2>AK3M(iAMT&non-iAMT) BOM make control table for ME JTAG debug interface.
PAGE13:U41 change RVCC3 from VCC3 for AK33 PCIE card leakage current issue.
PAGE14:<1>iAMT model add R1237 and connect HW_LANRST# with EC
<2>AK3M(iAMT&non-iAMT) BOM make control table for HW LANRST design selection
<3>AK3M(iAMT&non-iAMT) BOM make control table for CL_PWROK and LAN_RST# selection
<4>AK3M(iAMT&non-iAMT) BOM make control table for LAN power control selection
PAGE16:AK3M(LV/Int) add R571,R576,R567,R14,R1238,D9 for HDMI.
PAGE18:AK3M(VP) add R1235 and del R1236 for LED LCD
PAGE22:MDC change RVCC1.5 from VCC1.5 to support wake on Modem.
PAGE23:<1>WLAN interface delete LPC bus.
<2>AK3M(VP) BOM lost to add R1161
<3>AK3M(iAMT&non-iAMT) BOM make control table for WLAN PWR control design selection.
PAGE25:Del L105,Add F10 for NECP request.
PAGE27:Add R1088 for Felica design request.
PAGE28:EMI ground pads make layout's symbol.
PAGE29:<1>The EC of MTEMPV signal rename TEMP_MBAT.
<2>EC GPIO PIN swap between PN112 and PIN85.It's for AK33 battery LED blink issue when AC plug-in first time.
<3>AK3M(iAMT&non-iAMT) BOM make control table for GPIO33 control design selection.
PAGE33:ADD AU6, PQ79, PR86, PR245, PR246, PR213, PR214, PR215, PR216, PR247 for power design change.
PAGE32:PR46,PR47,PC29,PC28 for power design change.
PAGE35:Del PC90,PR110 change 0 ohm
PAGE36:Add Posistor circuit.
PAGE38:<1>VCC3M_CLK/VCC1.05M add power discharge circuit and level shift.
<2>VCC3M add power discharge circuit.

PP

PAGE03:R666 change 1K from 4.7K for Intel suggestion.
PAGE06:<1>C766 del part for Intel suggestion.
<2>ME JTAG modify layout PIN assignment.
PAGE09:<1>VCC_35 connect with VCC1.05M for Intel suggestion.
<2>Add C1458-C1462 for Intel suggestion.
PAGE10:<1>C828 change 22UF from 10UF for Intel suggestion.
<2>C369 change 4.7UF from 1UF for Intel suggestion.
<3>Del R646,Add L111,the C770 change 22UF from 10UF for Intel suggestion.
<4>Add C1457 for Intel suggestion.
PAGE11:C492,C484, C521,C535 add parts for Intel suggestion.
PAGE12:<1>AK3Mx BOM make control table for MDC interface
<2>Batt cell modify layout's footprint according to SMT request.
<3>RTC clear design add R1258 position for optional design.
PAGE13:USB Port#7 disconnect with WLAN card.
PAGE14:AK3Mx BOM make control table for HW Board ID selection
PAGE15:<1>Del C861,Add C876 for Intel suggestion.
<2>Add C1456 for Intel suggestion.
<3>Add C860,the C866 change 2.2UF from 0.1UF for Intel suggestion.
<4>C519 change 22UF from 4.7UF for Intel suggestion.
PAGE16:HDMI model add R1250-57 for EMI request.
PAGE17:<1>LAN reserve R1259 for EMI solution.
<2>L83 change BLM18AG601SN from 0ohm for EMI.
<3>LAN PWR add L112-L114 for EMI.
PAGE18:<1>L87-L89 change BLM18BA750SN1D from BLM18BA220 for EA solution.
<2>C1112-C1117 change 4.7PF from 10PF for EA solution.
PAGE20:R987 change 22 from 47 ohm for NECP request
PAGE21:<1>ACN2,ACN3 modify footprint for SINGATRON
<2>AR24,AR25 add 0hm.
<3>AR1 change 26.1K/F from 29.4K/F ohm.
PAGE23:<1>Add R1249 for w/o WLAN card's LED test
<2>WLAN PIN assignment modify to meet Intel WiFi 5100/5300 HW Pin-out.
<3>AK3Mx BOMs delete R1048,R1161,C1356 for WLAN Interface change
PAGE25:F10 change Fuse from Polyswitch.
PAGE27: <1>AK3M(LV) BOM delete F8,C1283,C1284,CON63 for USB Camera interface.
<2>All AK3Mx BOMs add RP37,RP38 for EMI USB request.
PAGE29:<1>All AK3Mx serial BOMs add R1242 part.
<2>R1140 change 3VPCU from VCC3 for ITE debug card refresh.
<3>R1144 delete part for ITE debug card refresh.
PAGE33:Posistor circuit modify design
PAGE36:<1>PD8 change UDZS10B from UDZS15B-7-F
<2>PQ69 change AO4409 from AO4427.
<3>Posistor circuit modify design
PAGE38:PR257,PR252,PR251,PR219,PR217 change 1.5M from 1M for PWR change.

IRT

PAGE03:del R660,R659,R674,R675,R1219,R1220,R1221 for cost down.
PAGE04:del R600 for cost down.
PAGE05:del R609 for cost down.
PAGE06: <1>Add R1269,R1270 for NECP request.
<2>del R222,R653,R238 for cost down.
PAGE07:Add R1271 for CFG20 P/L
PAGE08:del R145,R154,R199,R661 for cost down.
PAGE12:<1>del R328,R341,R689 cost down.
<2>del D14 for RTC issue
PAGE14:Non-AMT BOMs del R1224 and add R888.
PAGE17:LAN connector of footprint change DIP from SMD
PAGE18:del R948,R956,R957 for cost down.
PAGE19:del R966 for cost down.
PAGE22:del R1174 for cost down.
PAGE23:del R1211 for cost down.
PAGE25:del R1065,R1066 for cost down.
PAGE26:B/T detection change 3VSUS
PAGE27:<1>del R1077,R1078,R1082 for cost down.
<2>del R1088 for w/o Felica detection.
PAGE29:<1>EC(PIN97) change FONT_UP#
<2>EC(PIN69) add ICM
<3>Add location R1178 and remove this part .
<4>SW bottom make BOM control table
<5>SET_IAMT function make control table
PAGE31:del L108,L109,L110 for cost down.
PAGE34:<1>ADD PC250 for power request.
<2>change PC243 and PC244 value to100U from 220U.
<3>PR132 change 71.5K/F,PR131 change 49.9K/F
PAGE36:<1>PU13 add ICM signal and connect with EC
<2>Del PR172 Add PR173 for charge battery cell consideration
<3>PR180 change 24.3K from 215K
<4>PR188 change 13K from 100K
<5>PR179 change 11.8K from 44.2K
PAGE21:U23 change MC74VHC1GT125-D for Mute issue

MP

PAGE19:U105 layout symbol change to tqfp128-16x16-4-nw
PAGE29:U87 layout symbol change to lqfp128-16x16-4-nw

QUANTA COMPUTER

Title	CHANGE HISTORY	
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