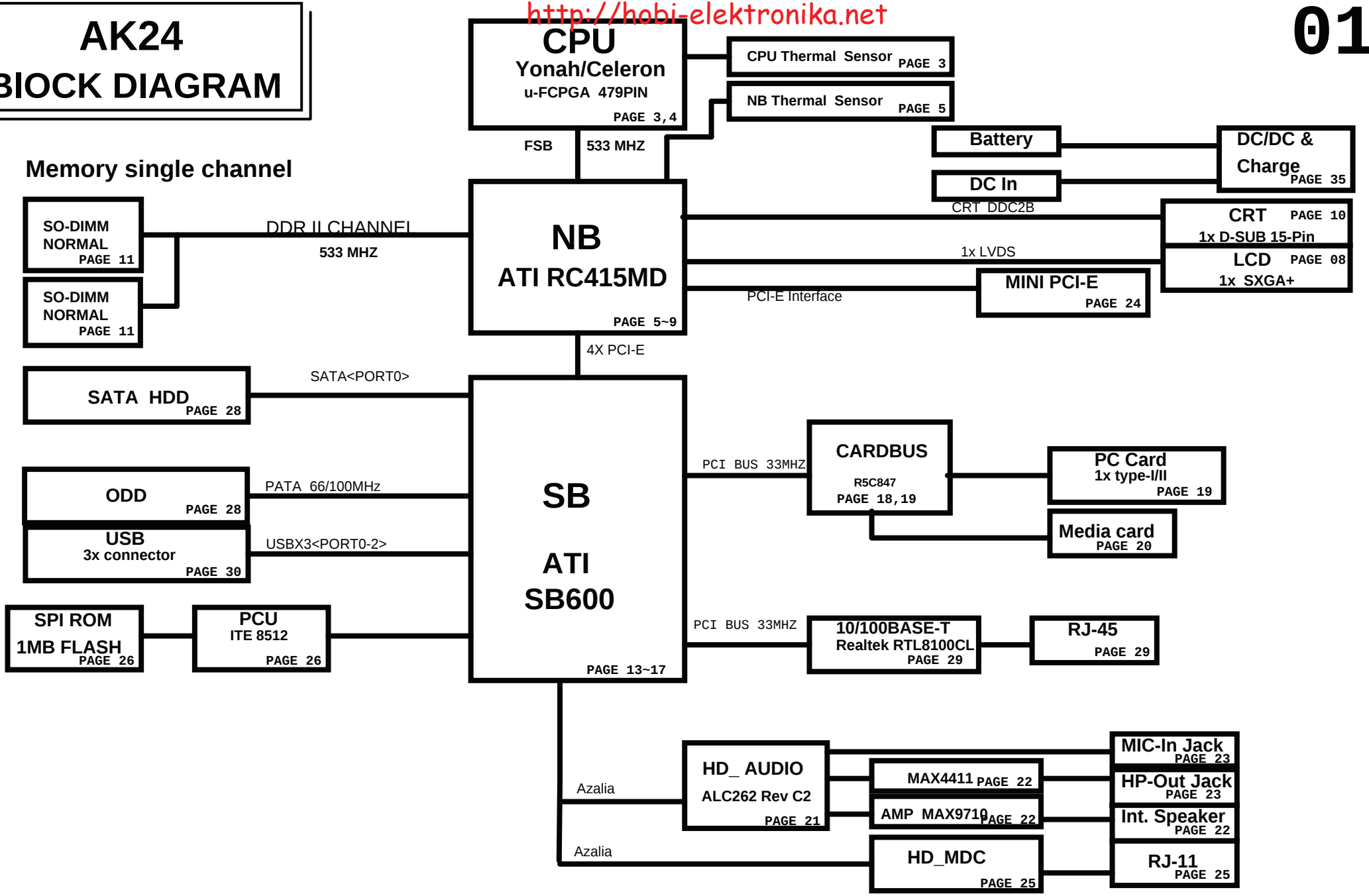


AK24 BLOCK DIAGRAM

Memory single channel



1. PAGE LIST

01--BLOCK DIAGRAM	31--CPU CORE (MAX8736)
02--PAGE LIST	32--3V/5V_MAX8744
03--Yonah CPU (HOST BUS)-1	33--VCCP/VCC1.2/VCC1.5
04--Yonah CPU (POWER/NC)-2	34--1.8VSUS/DDRTERM
05--RC415MD-AGTL+ I/F 1/5	35--Battery charger
06--RC415MD-PCIE LINK I/F 2/5	36--Battery CONN
07--RC415MD-DDR2 I/F 3/5	37--Discharge
08--RC415MD-VIDEO & STRAPS 4/5	38--Change list
09--RC415MD-POWER 5/5	
10--CRT PORT	
11--DDRII SODIMM X2 and Terms	
12--EXT CLK GEM	
13--SB600-PCIE/PCI/CPU/LPC -1	
14--SB600-ACPI/GPIO/USB/AC97 -2	
15--SB600-SATA/IDE/HWM/SPI -3	
16--SB600-POWER & DECOUPLING -4	
17--SB600-STRAPS -5	
18--R5C847_ PCI	
19--R5C847_ CARDBUS/MEDIA	
20--SD_MS_XD SLOT	
21--HD_ALC262	
22--AUDIO AMP.	
23--BUZZER & Headphone-out	
24--Mini PCI-E	
25--HD_MDC	
26--PCU ITE 8512	
27--INT.KB &TP CONN	
28--SATA(HDD),PATA(ODD) CONN	
29--LAN (RTL 8100CL)	
30--USB PORT/USB Board CONN	

2. PCI Description :

IDSEL	CHIP
AD24	LAN (RTL8100CL)
AD26	CardBus (R5C847)
AD28	

PCIINT	CHIP
IRQA	LAN(RTL8100CL)
IRQB	CardBus
IRQC	CardBus
IRQD	CardBus
IRQE	
IRQF	

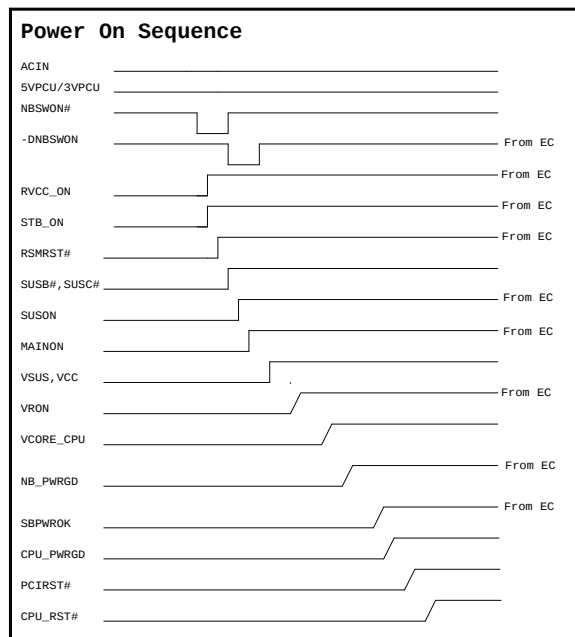
BUSMASTER	CHIP
REQ0 / GNT0	LAN(RTL8100CL)
REQ1 / GNT1	CardBus R5C847
REQ2 / GNT2	
REQ3 / GNT3	
REQ4 / GNT4	

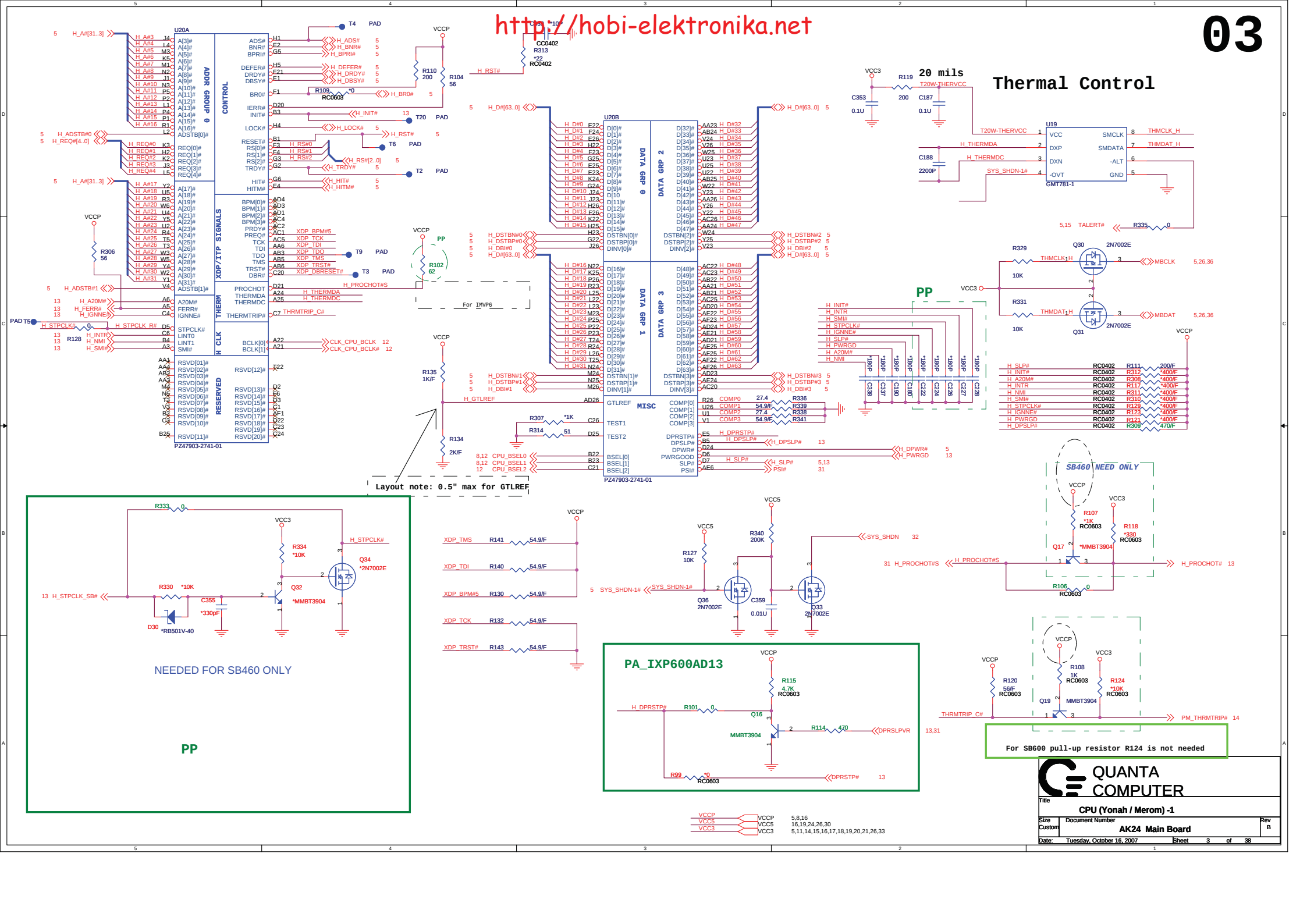
3. PCI_E Description :

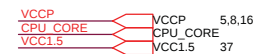
CHIP
Port 0,1 A-LINK
Port 2 Mini-PCIE (Wireless card)

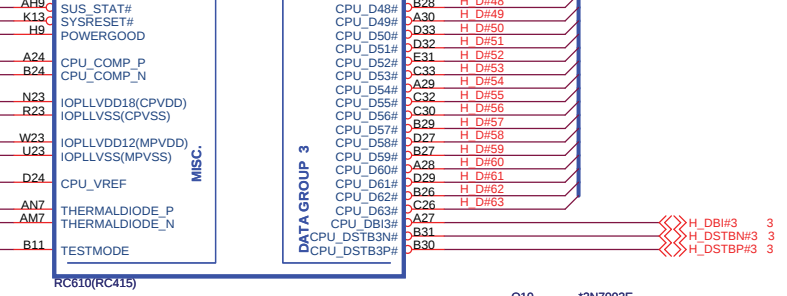
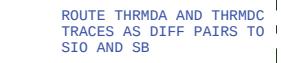
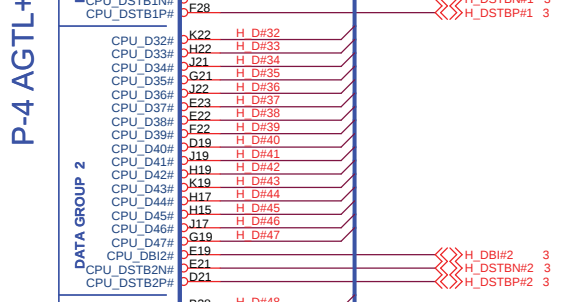
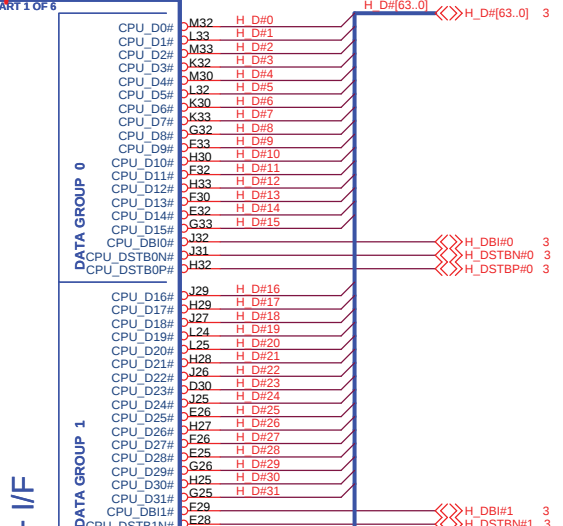
POWER RAIL	VOLTAGE SIGNAL	S0	S1	S2	S3	S4	S5
CPU_CORE	VRON	ON	ON	ON	OFF	OFF	OFF
VCC_NB	VRON	ON	ON	ON	OFF	OFF	OFF
VTT_DDR	MAINON	ON	ON	ON	OFF	OFF	OFF
VCCP	MAINON	ON	ON	ON	OFF	OFF	OFF
VCCCORE	VRON	ON	ON	ON	OFF	OFF	OFF
RVCC3	RVCCON	ON	ON	ON	ON	ON	OFF
VCC1.2	MAINON	ON	ON	ON	OFF	OFF	OFF
VCC1.5	MAINON	ON	ON	ON	OFF	OFF	OFF
VCC1.8	MAINON	ON	ON	ON	OFF	OFF	OFF
VCC3.3	MAINON	ON	ON	ON	OFF	OFF	OFF
VCC5	MAINON	ON	ON	ON	OFF	OFF	OFF
+1.2VALW	STB_ON	ON	ON	ON	ON	ON	ON
+3.3VALW	STB_ON	ON	ON	ON	ON	ON	ON
1.8VSUS	SUSON	ON	ON	ON	ON	OFF	OFF
3VSUS	SUSON	ON	ON	ON	ON	OFF	OFF
5VSUS	SUSON	ON	ON	ON	ON	OFF	OFF
3VPCU	VIN	ON	ON	ON	ON	ON	ON
5VPCU	VIN	ON	ON	ON	ON	ON	ON

5. POWER ON SEQUENCE

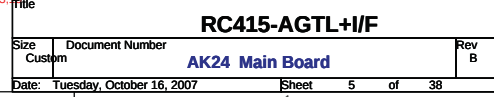
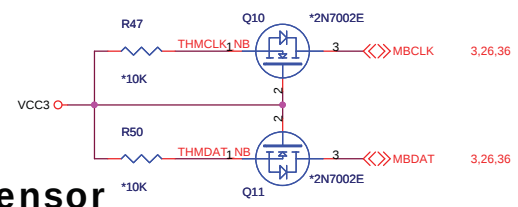
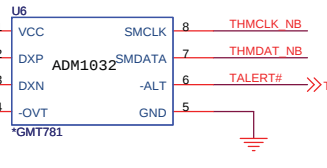








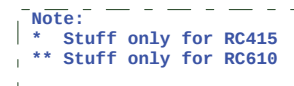
RC610/RC415	RC610	RC415
R72	53.6R	49.9R
R73	21R	24.9R



```
Note:
*   Stuff only for RC415
**  Stuff only for RC610
*** Stuff only for RC415 and SB460
```



06

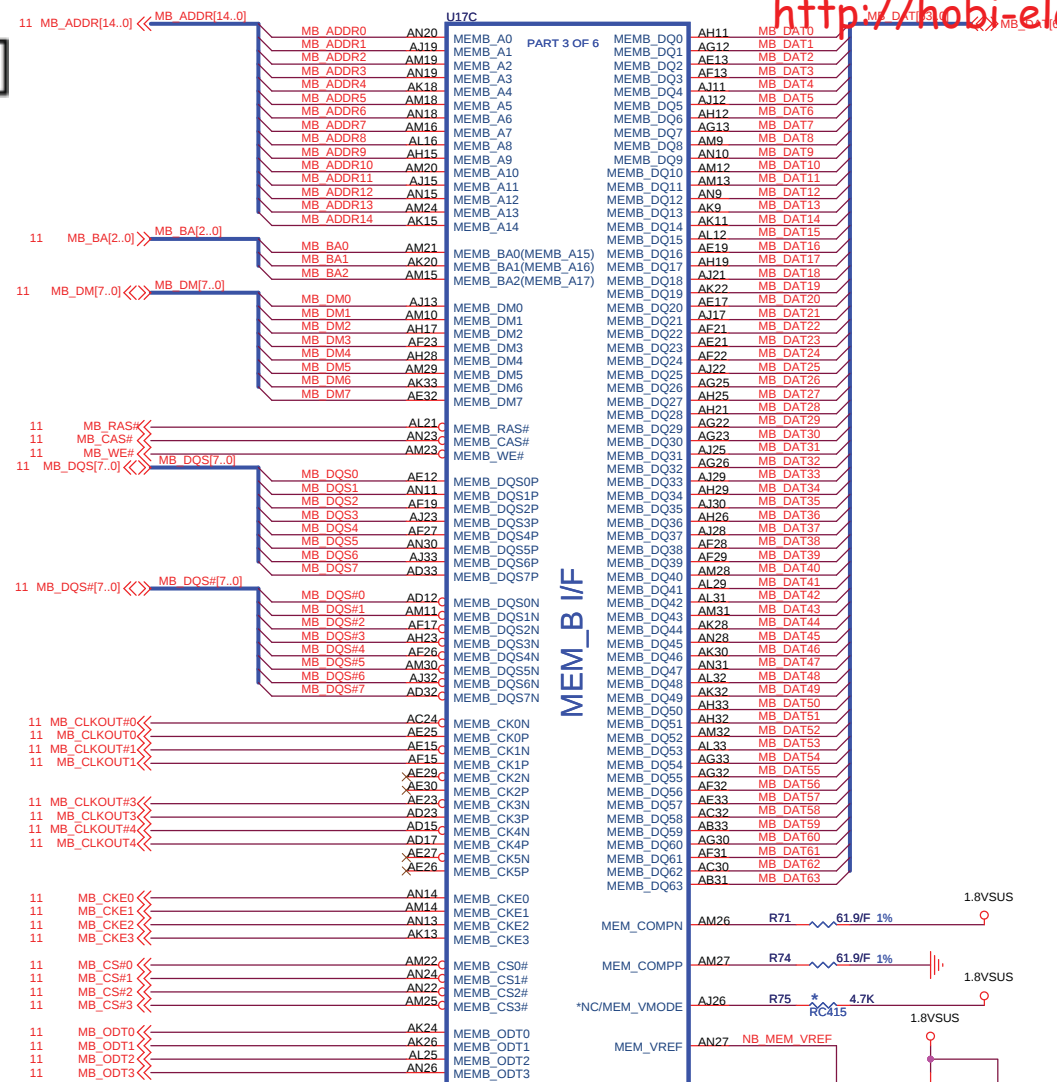


QUANTA
COMPUTER

RC415-PCIE I/F

AK24 Main Board

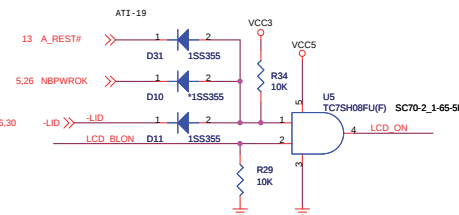
Sheet 6 of 38



RESISTOR	RC610	RC415
R71	40.2R	61.9R
R74	40.2R	61.9R

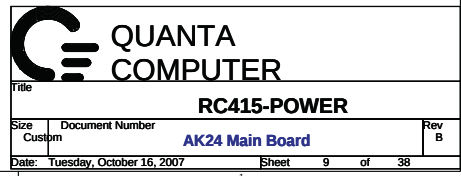
Note:
* Stuff only for RC415
** Stuff only for RC610

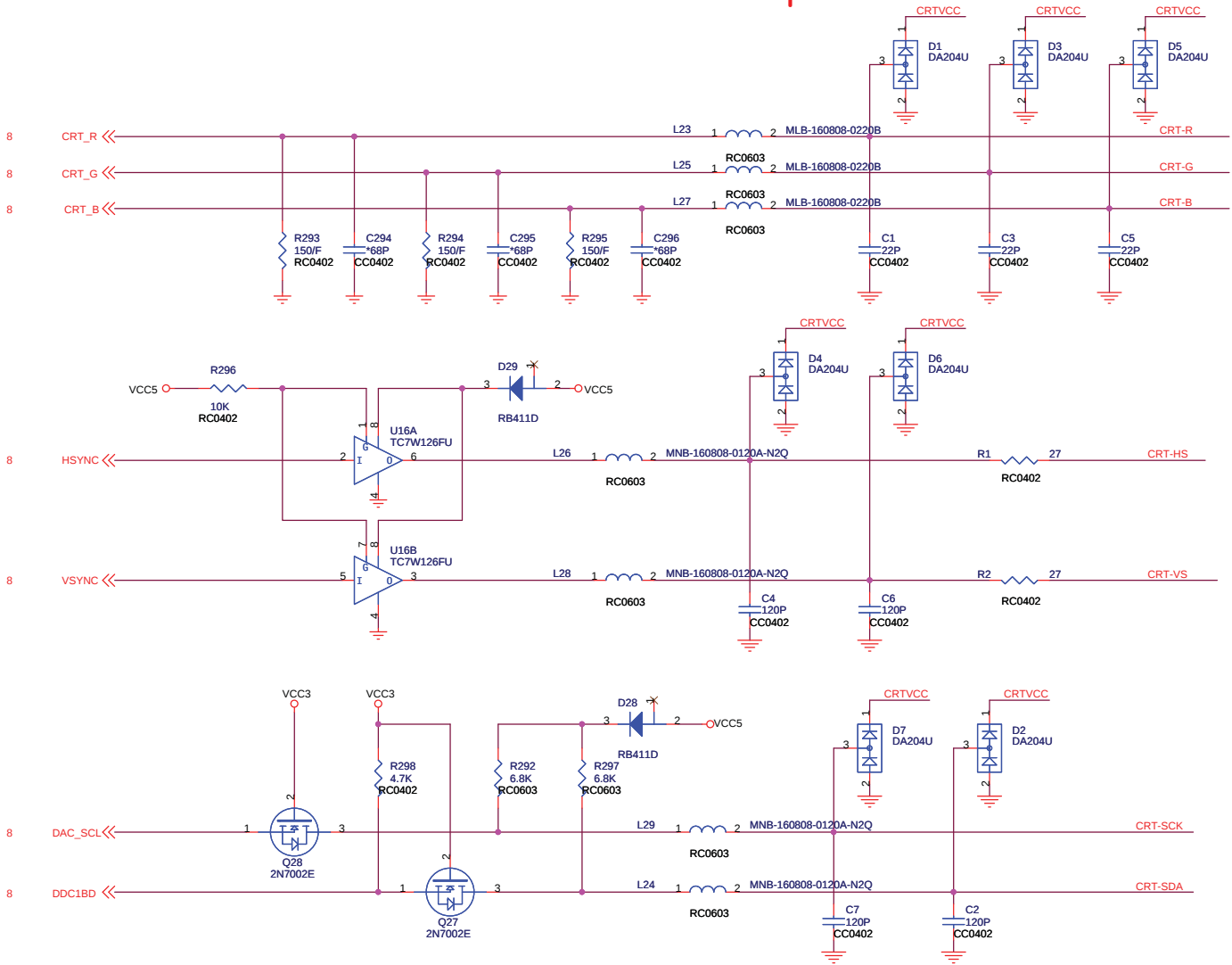
MEM_VREF SHOULD
USE 20MIL TRACE



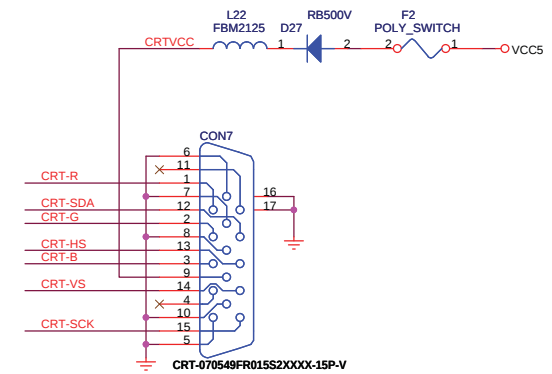


09



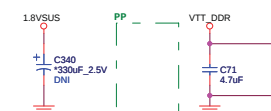
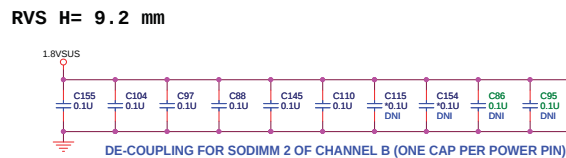
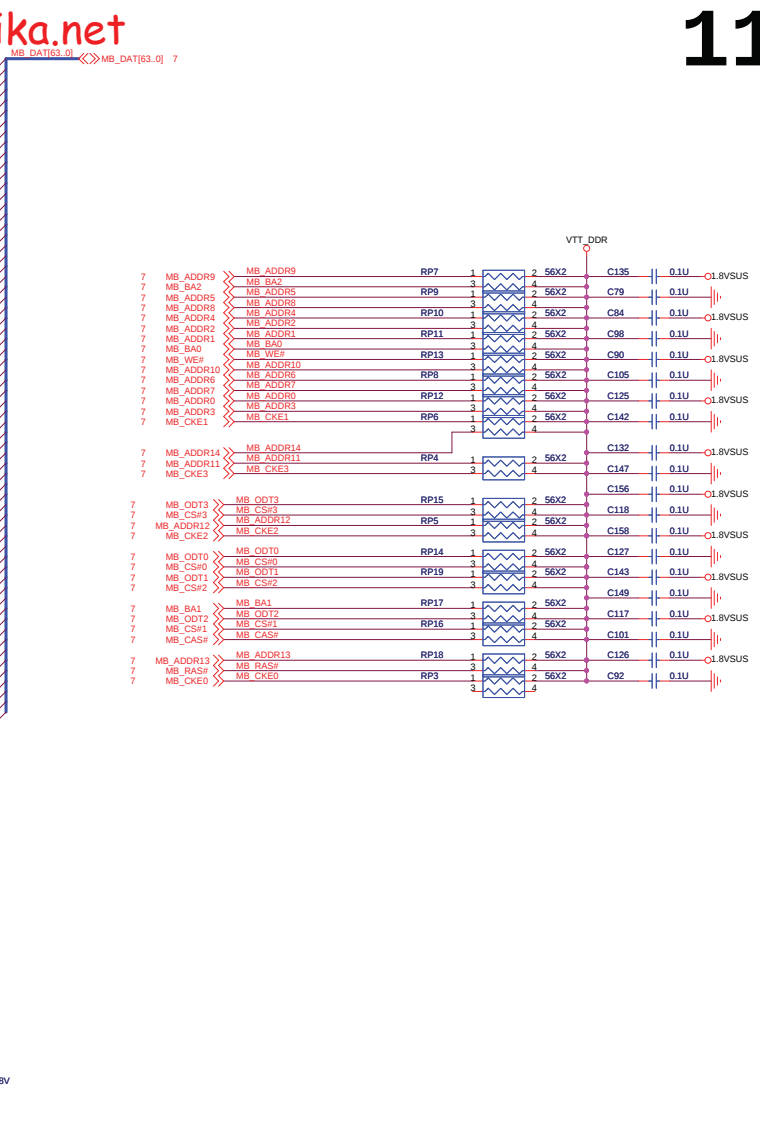
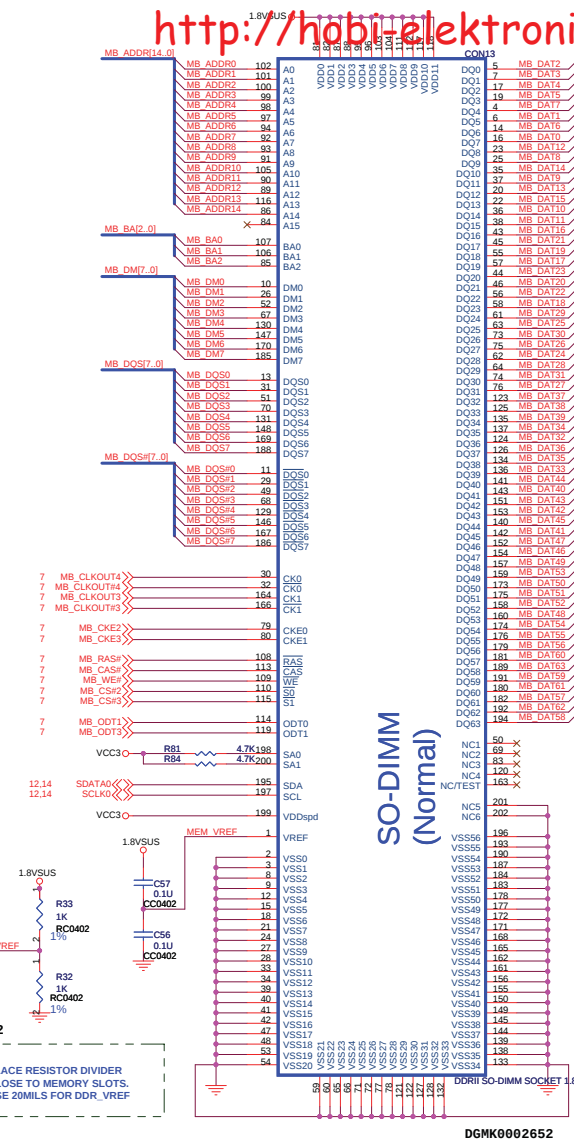


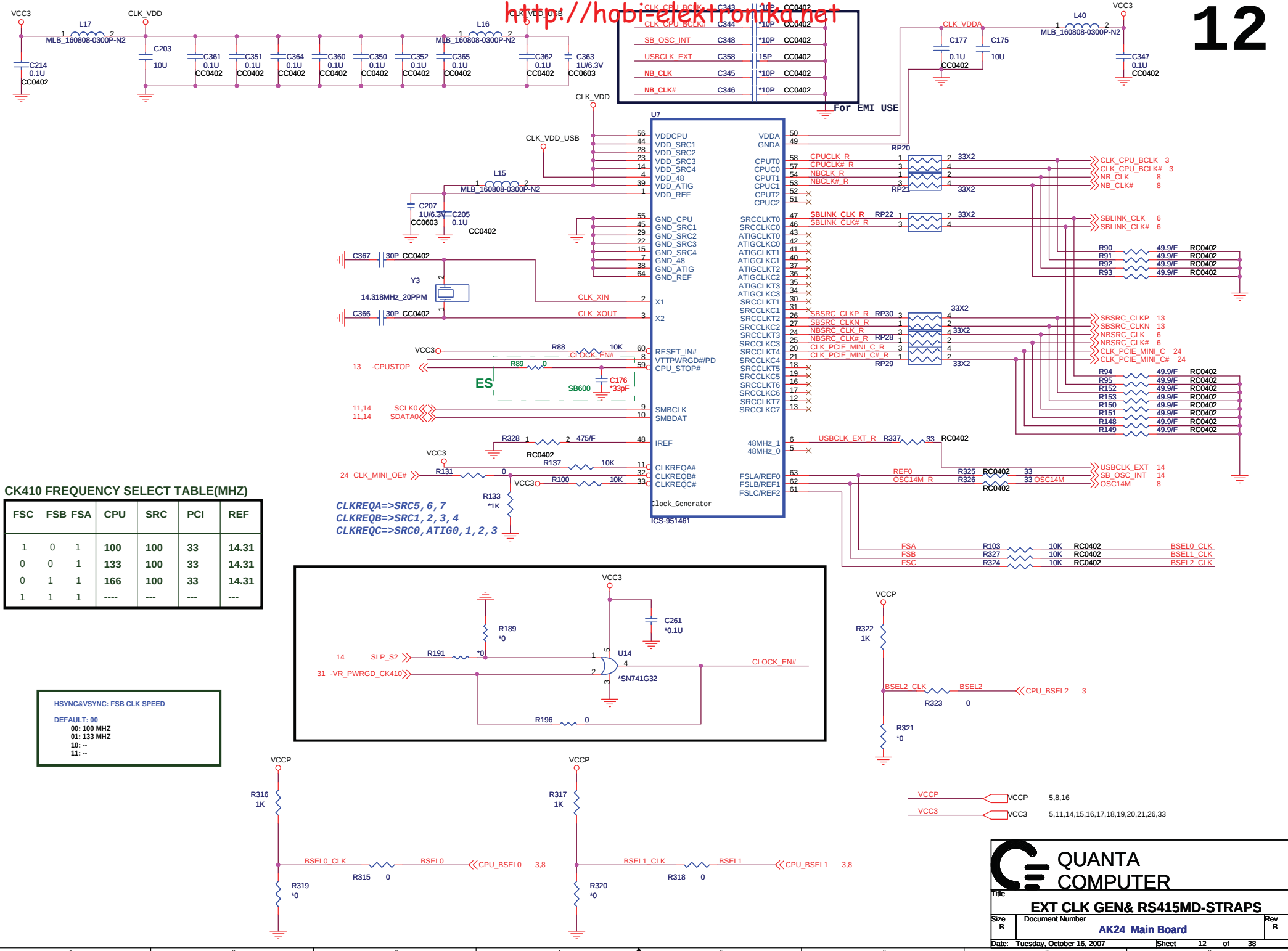
CRT CONNECTOR

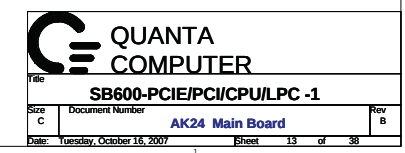


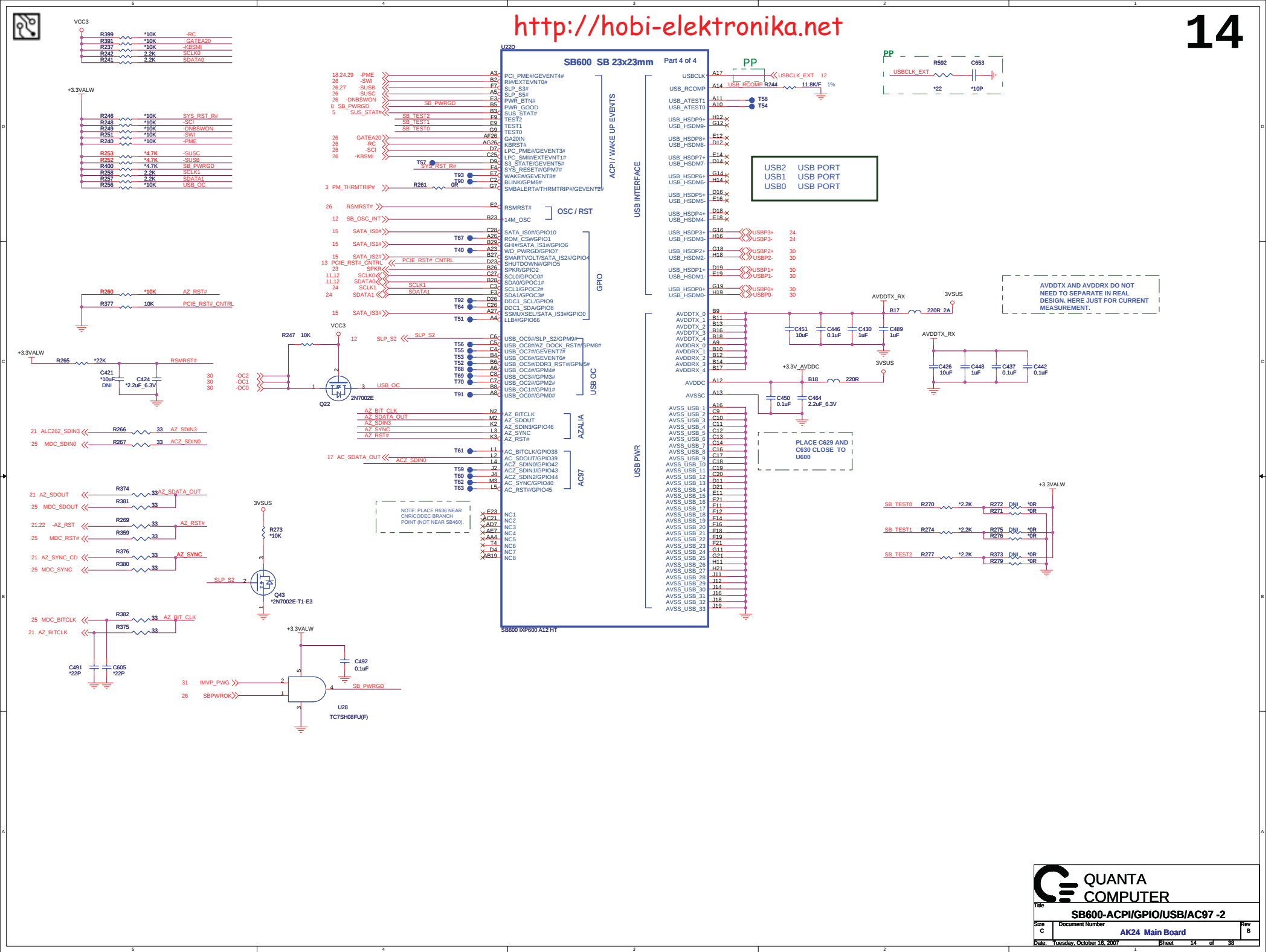
VCC5 16,19,24,26,30
VCC3 5,11,14,15,16,17,18,19,20,21,26,33

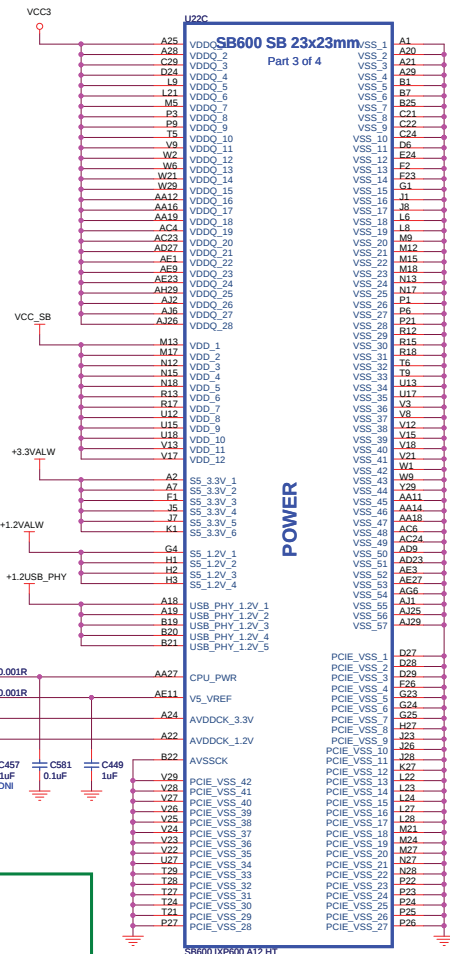
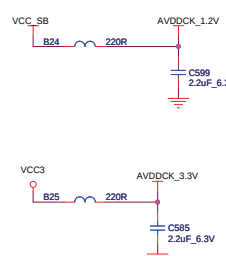
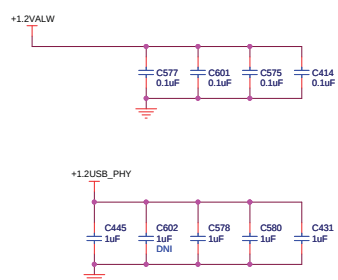
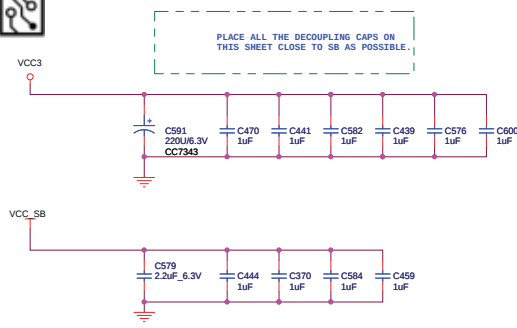
 QUANTA COMPUTER		
Title CRT/TV OUT PORT		
Size B	Document Number AK24 Main Board	Rev B
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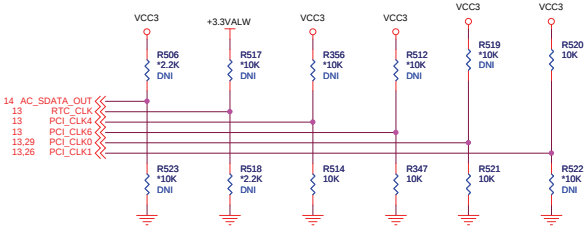






REQUIRED STRAPS

SB600 HAS AN INTERNAL PD FOR AC_SDATA_OUT
SB600 HAS AN INTERNAL PU FOR RTC_CLK

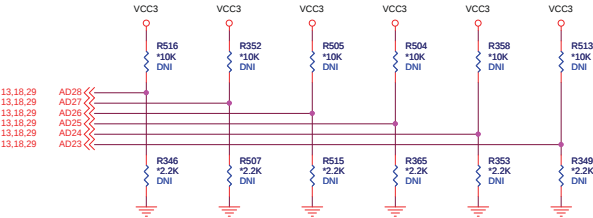


SB600 Internal PD 10K

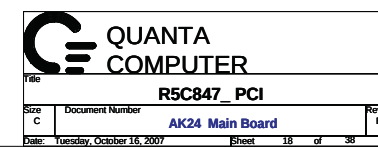
	AC_SDOUT	RTC_CLK	PCI_CLK4	PCI_CLK6	PCI_CLK0	PCI_CLK1
PULL HIGH	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	USE INT. PLL48	CPU IF=K8	ROM TYPE: H, H = PCI ROM H, L = SPI ROM L, H = LPC ROM L, L = FWH ROM	
PULL LOW	IGNORE DEBUG STRAPS DEFAULT	EXT. RTC (PD on X1, apply 32KHz to RTC_CLK)	USE EXT. 48MHZ DEFAULT	CPU IF=P4 DEFAULT	DEFAULT	

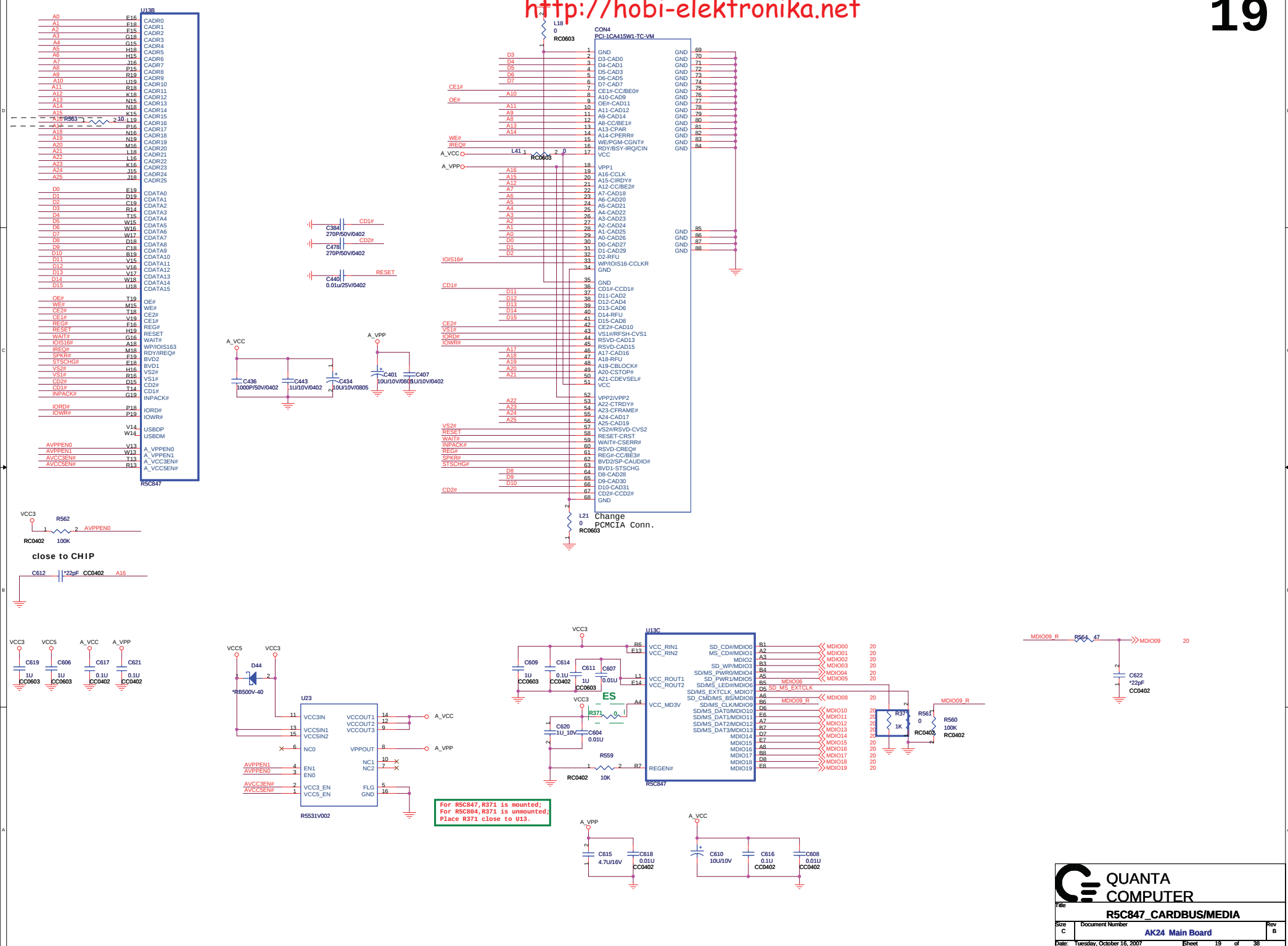
DEBUG STRAPS

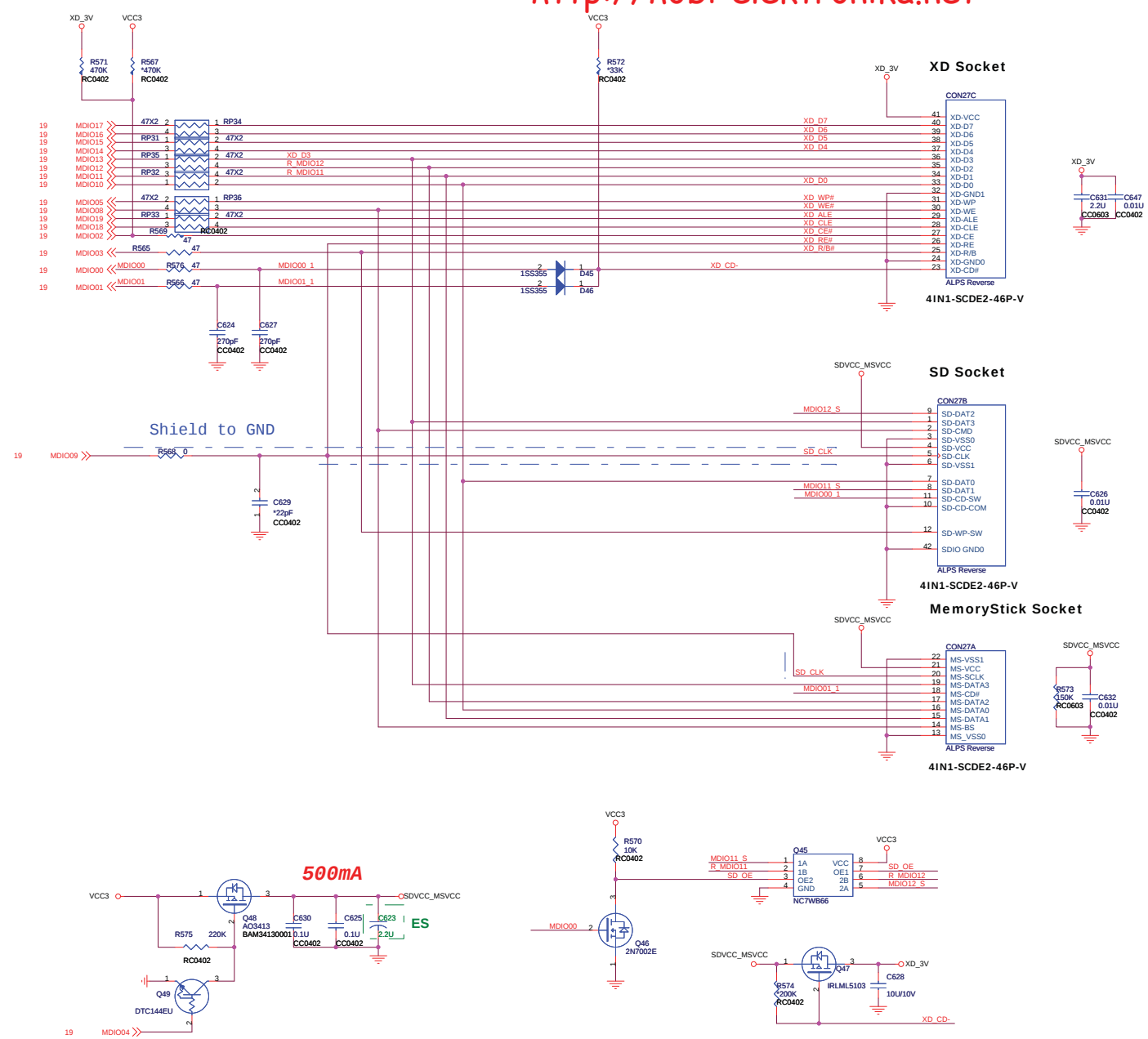
SB600 HAS 15K INTERNAL PU FOR PCI_AD[28:23]

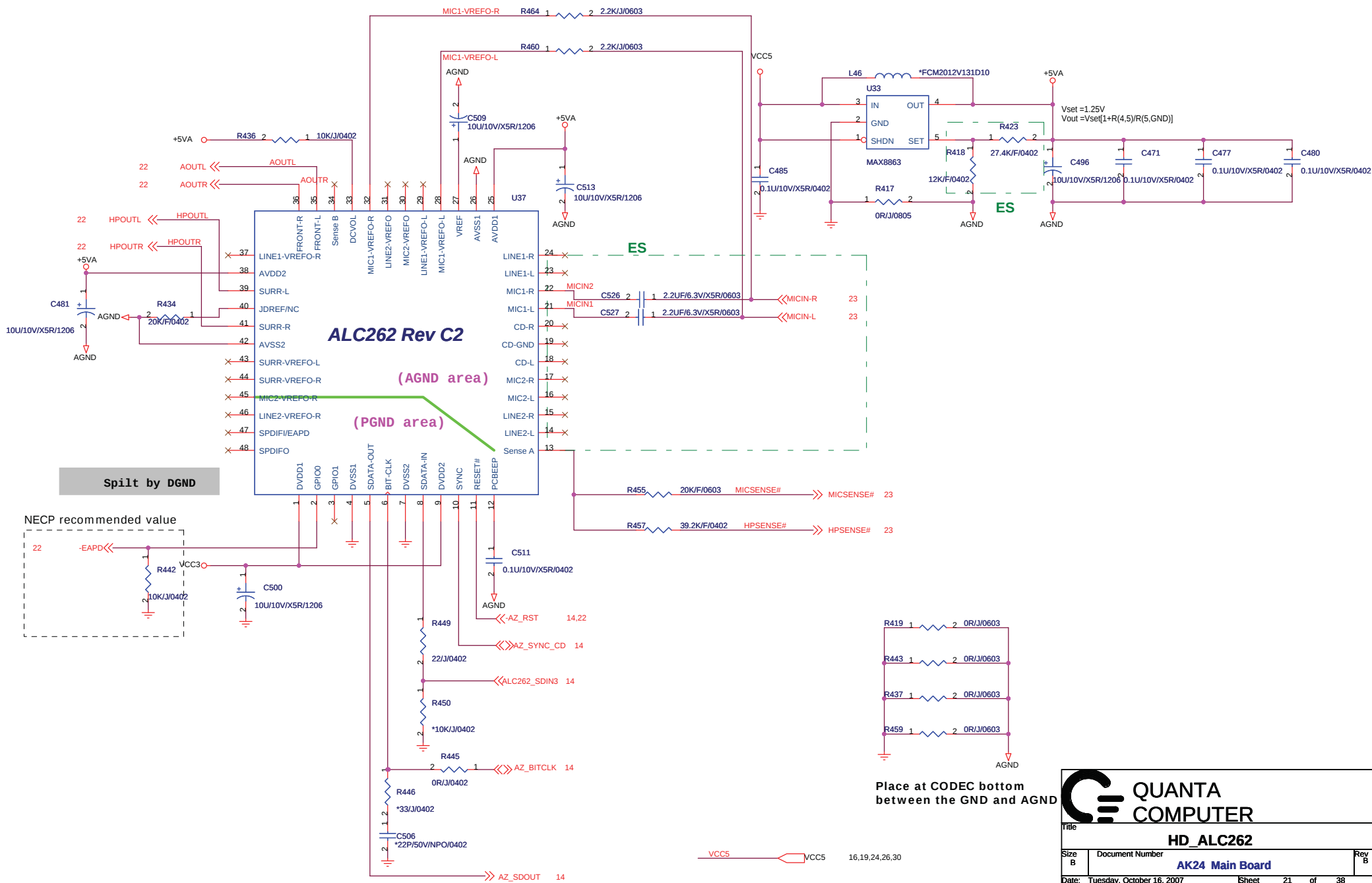


	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE LONG RESET DEFAULT	USE PCI PLL DEFAULT	USE ACPI BCLK DEFAULT	USE IDE PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	BOOTFAILTIMER DISABLED DEFAULT
PULL LOW	USE SHORT RESET	BYPASS PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS	BOOTFAILTIMER ENABLED

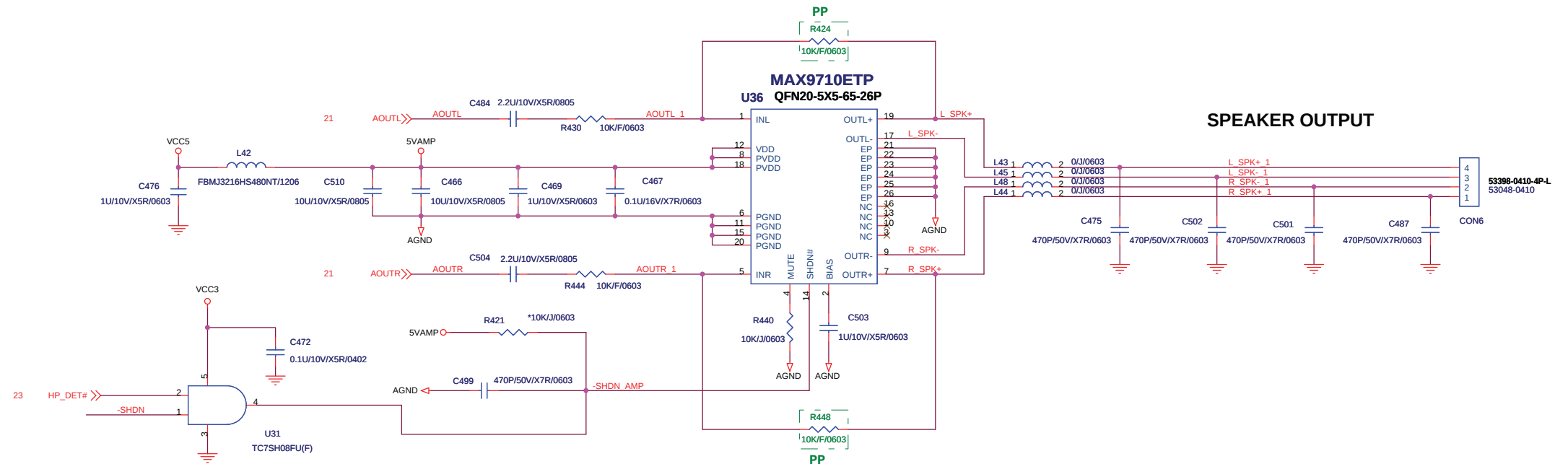




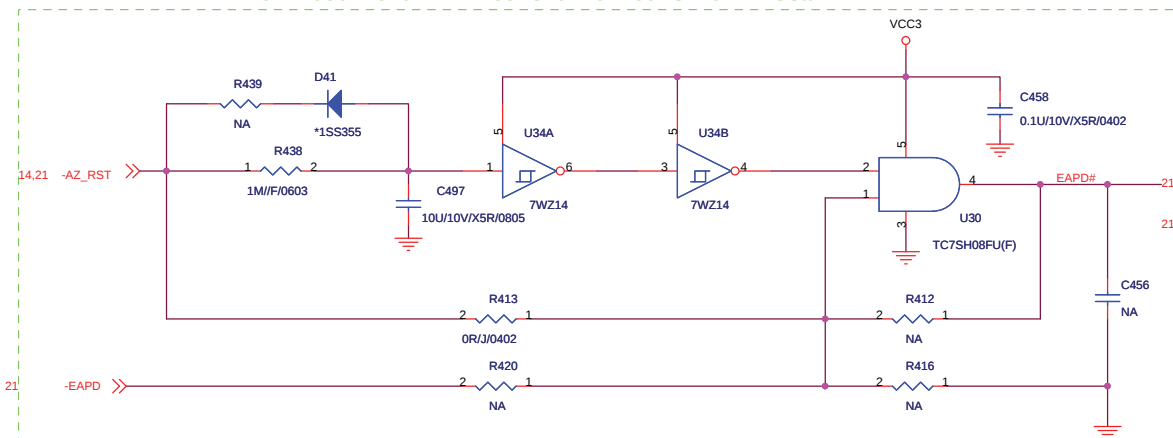




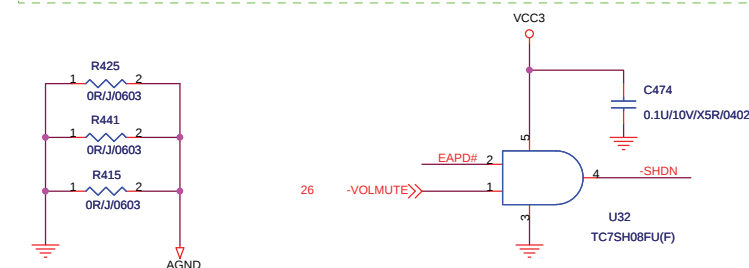
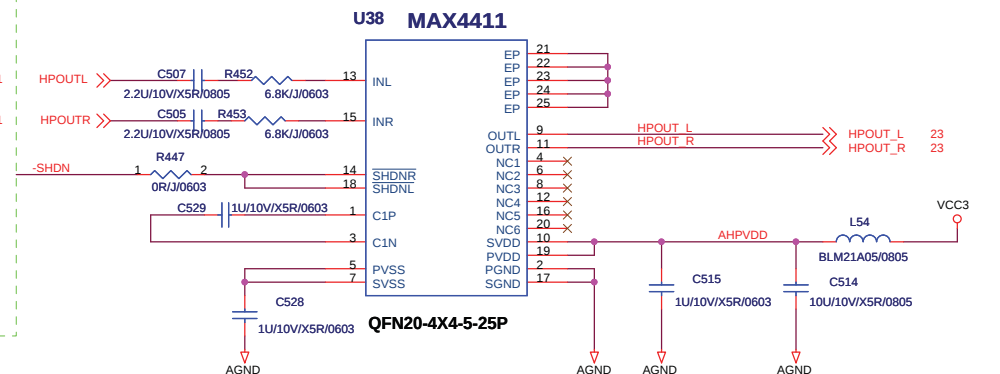
Audio AMP.



NECP recommend EAPD Control circuit for Vista



H.P AMPLIFIER

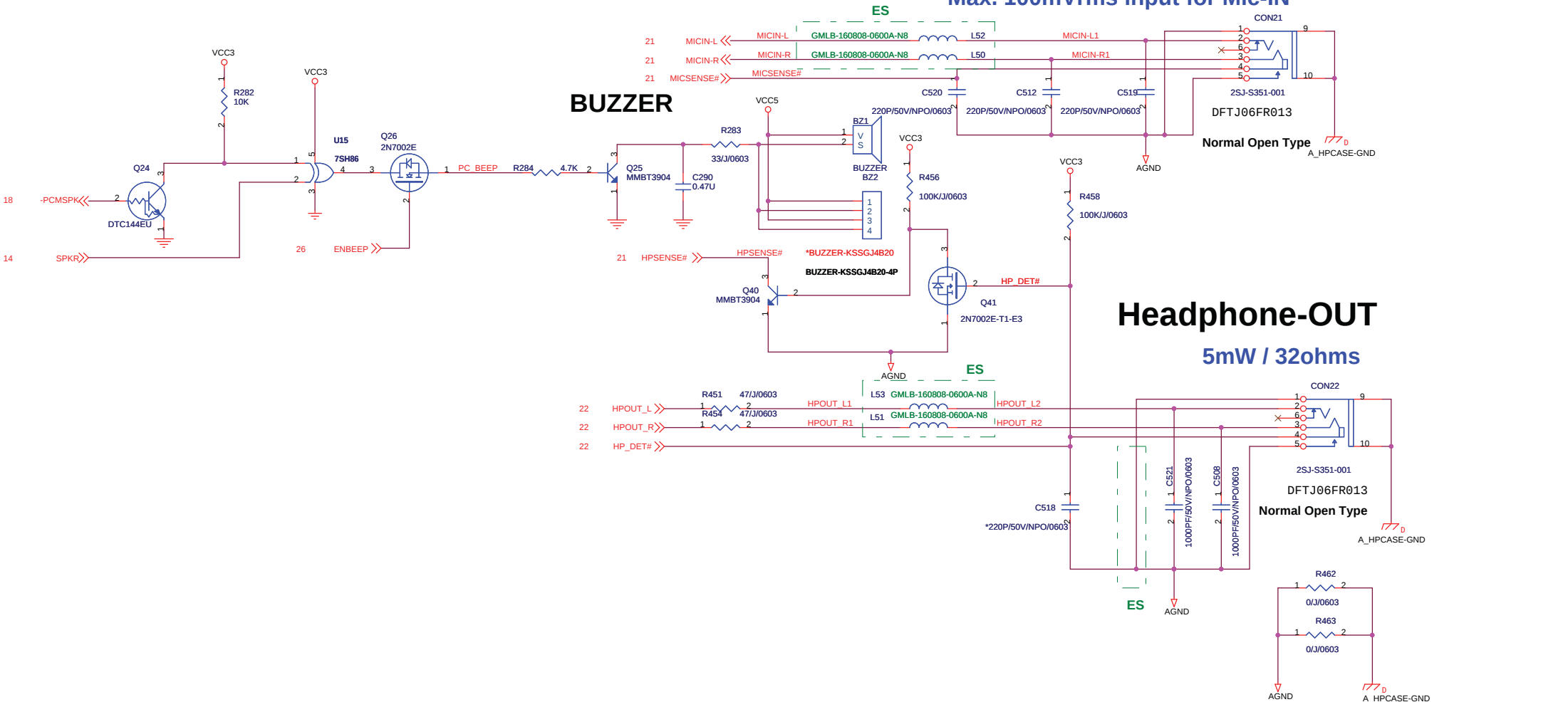


Max. 100mVrms input for Mic-IN

BUZZER

Headphone-OUT

5mW / 32ohms



VCC3	VCC3	5,11,14,15,16,17,18,19,20,21,26,33
5VPCU	5VPCU	8
VCC5	VCC5	16,19,24,26,30

**QUANTA
COMPUTER**

Title

BUZZER & AUDIO/BOARD

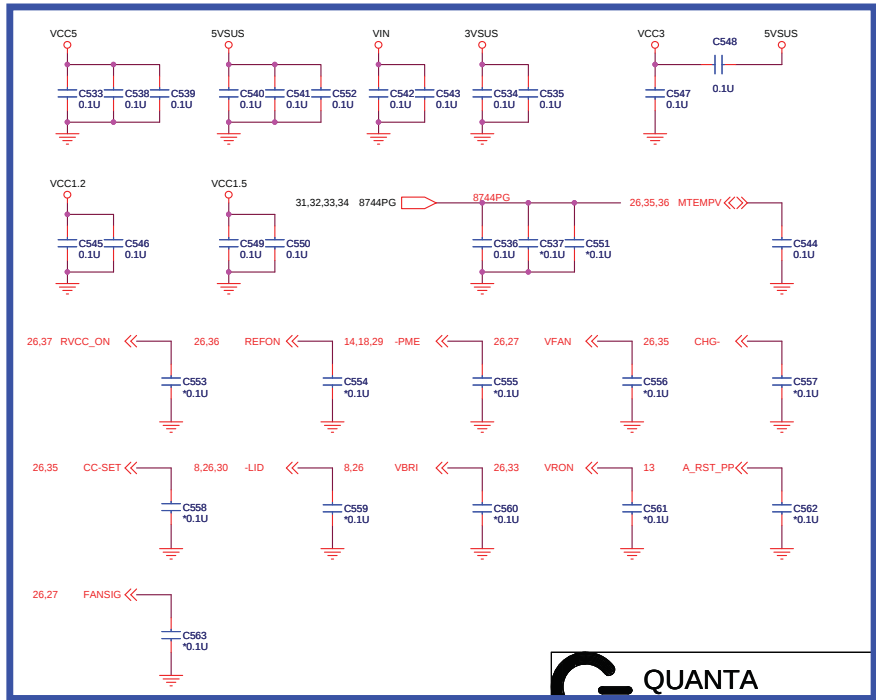
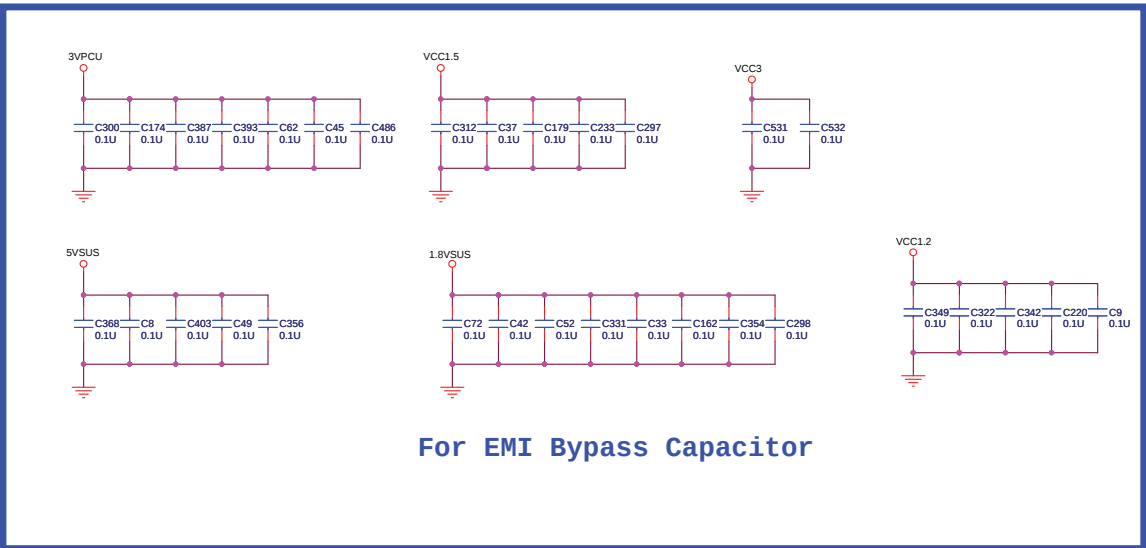
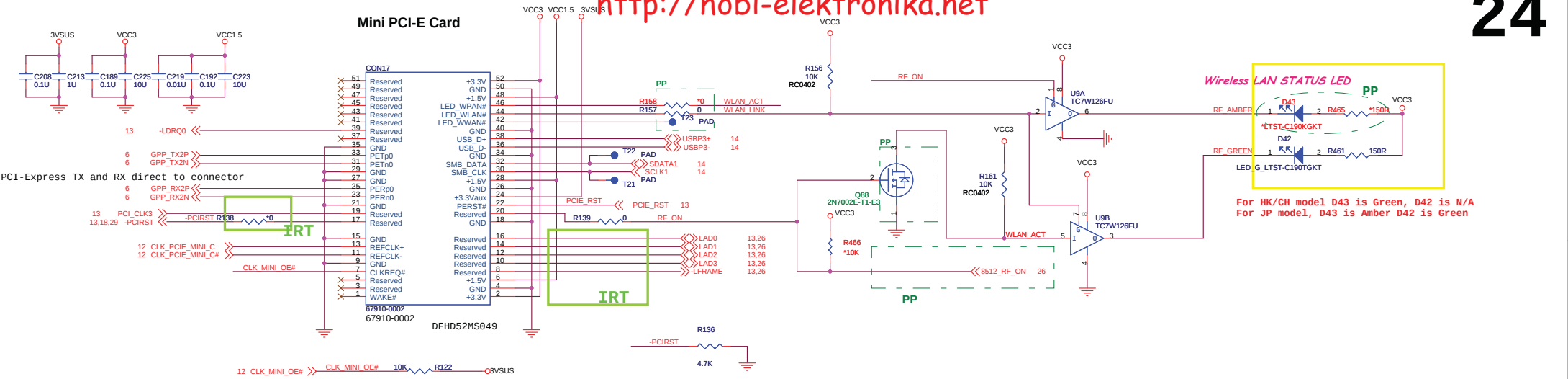
Size Custom

Document Number **AK24 Main Board**

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Rev B



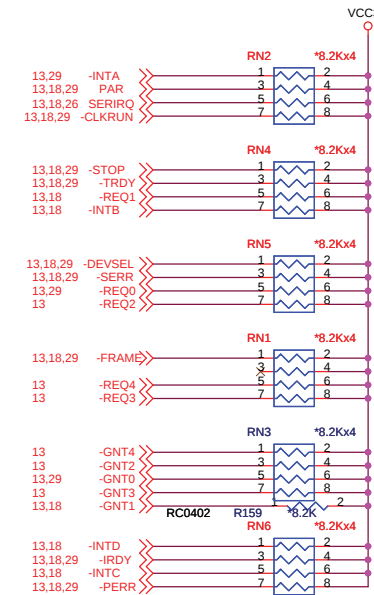
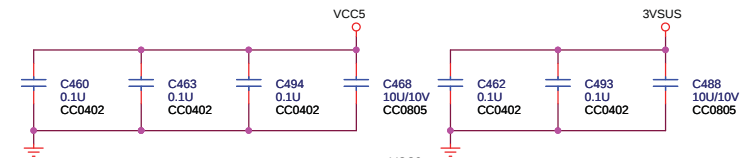
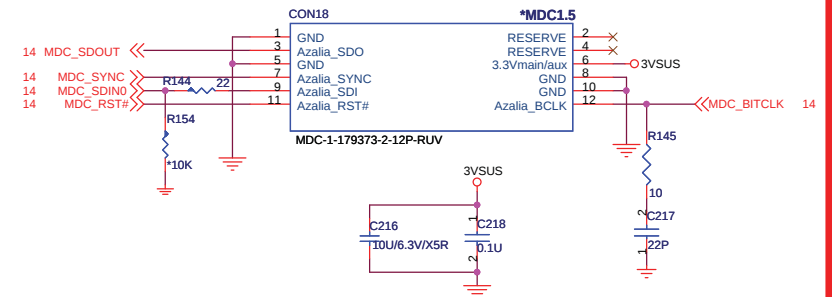
VCC3 VCC3 5,11,14,15,16,17,18,19,20,21,26,33
3VSUS 3VSUS 9,14,29
VCC1.5 VCC1.5 37



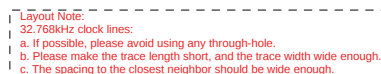
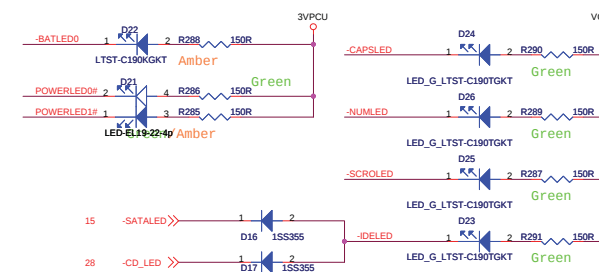
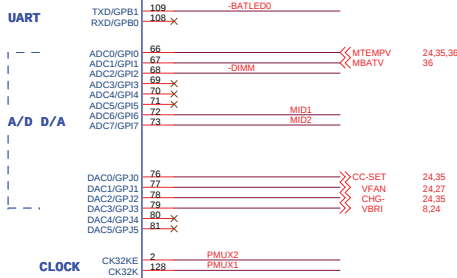
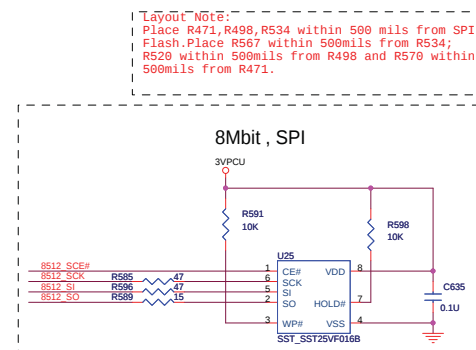
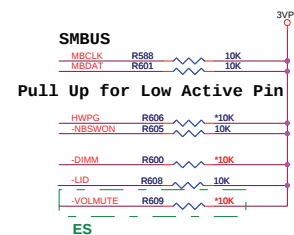
Title			
Mini PCI-E Card			
Size	Document Number	Rev	
Custom	AK24 Main Board	B	
Date:	Tuesday, October 16, 2007	Sheet	24 of 38

For JP model don't have HD_MDC

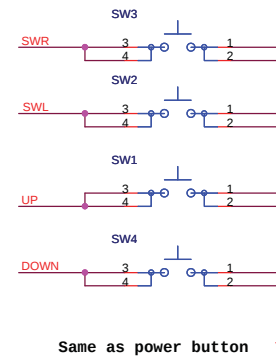
HD_MDC



		QUANTA COMPUTER	
		Title	
Size B		Document Number	Rev B
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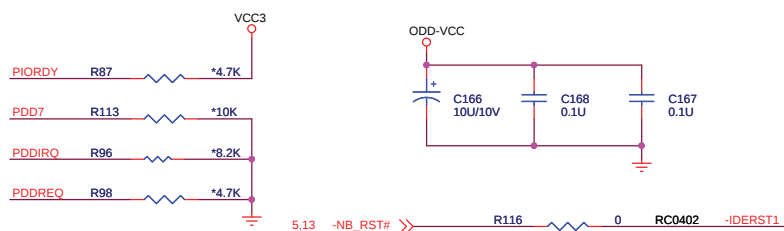
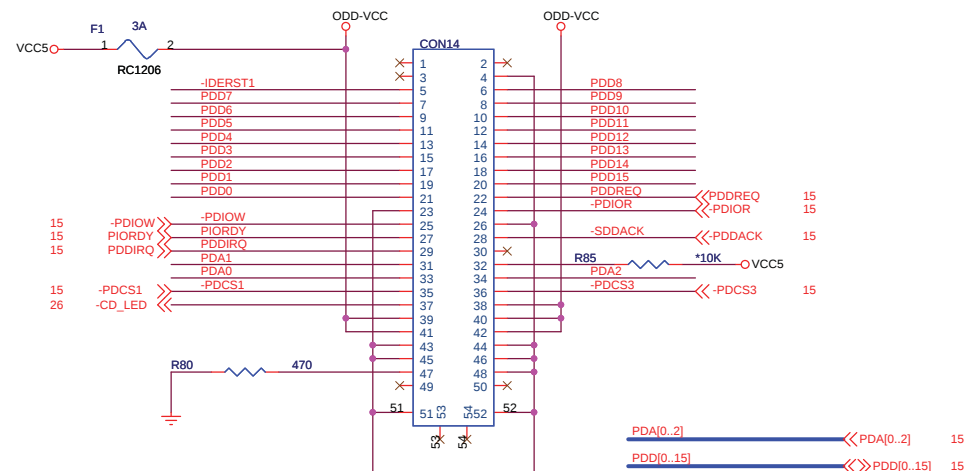
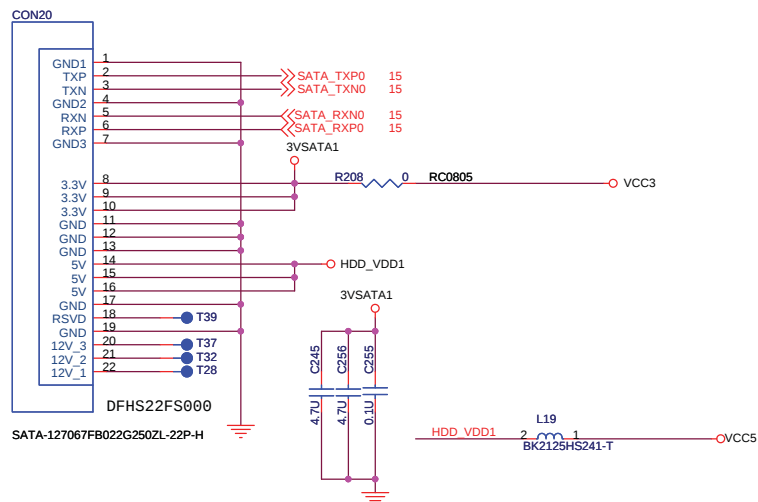
Please reserve this connector
for serial debug port & KBS download usage.



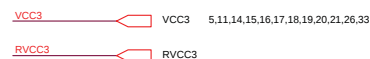
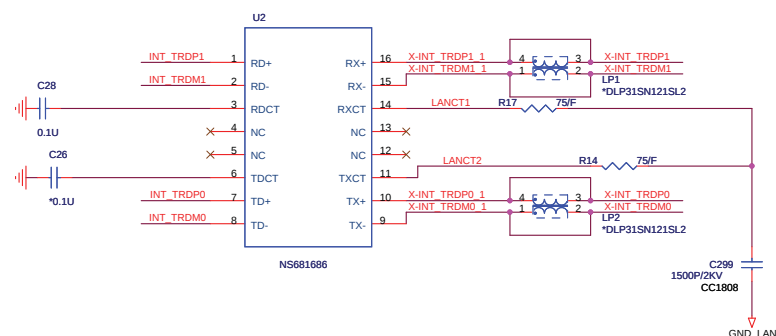
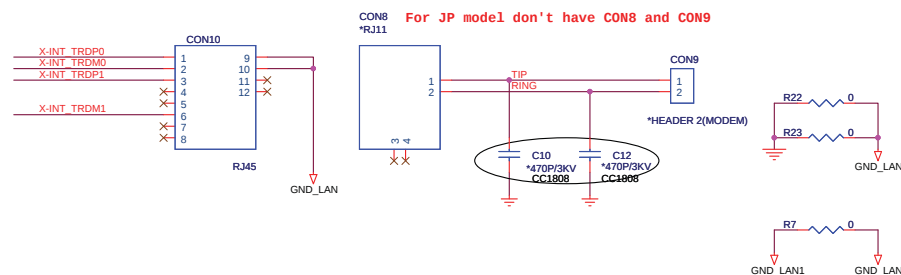
PP	EMI
SWR	C649 0.22U/10V/X7R/0603
SWL	C650 0.22U/10V/X7R/0603
UP	C651 0.22U/10V/X7R/0603
DOWN	C652 0.22U/10V/X7R/0603

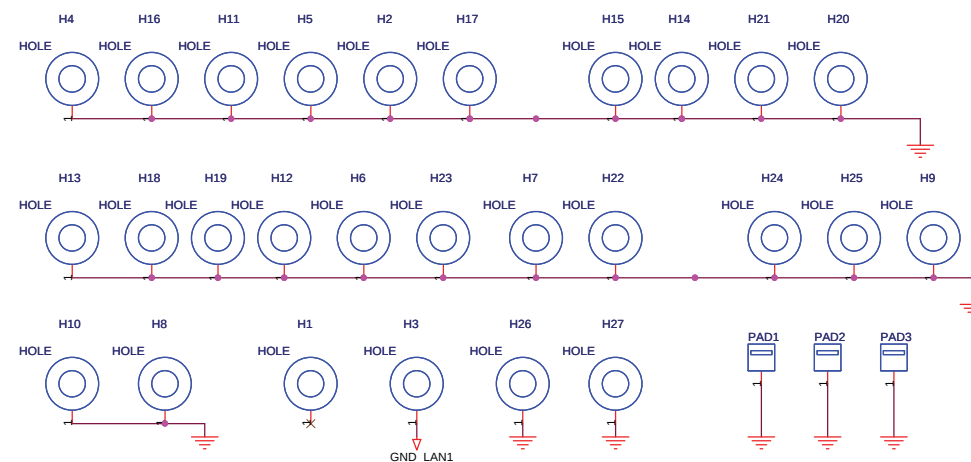
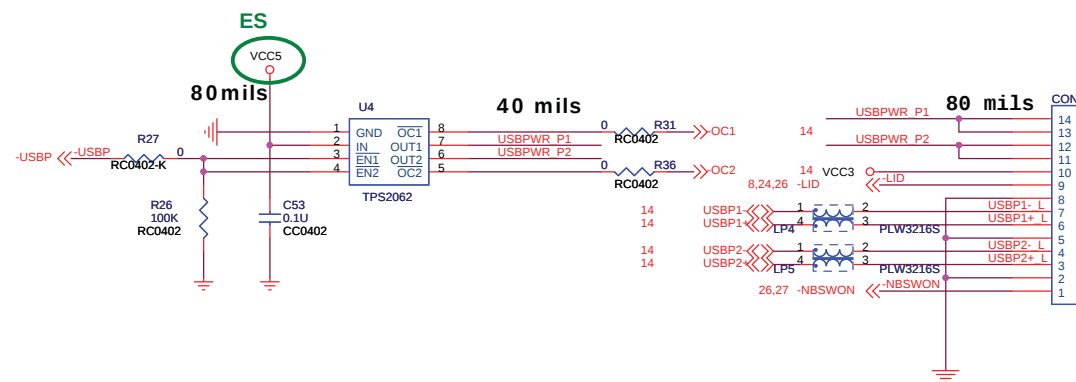
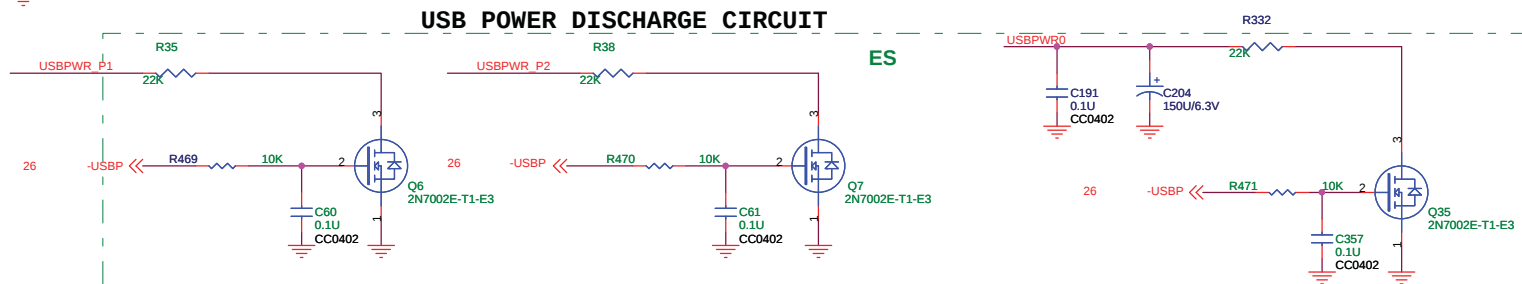
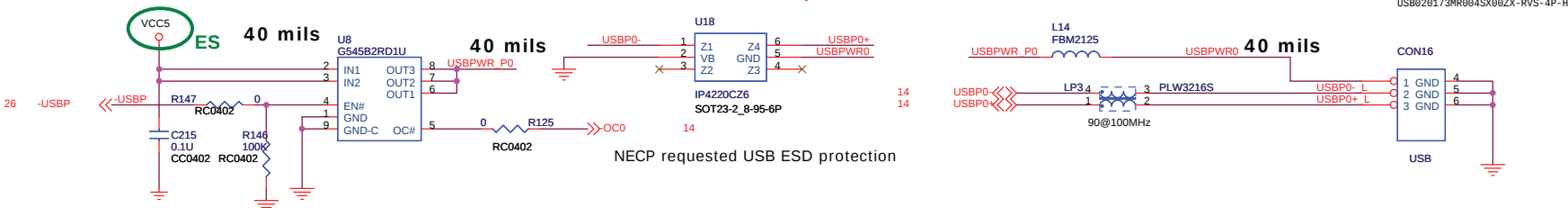
Same as power button

3VPCU	3VPCU	16,24,26,32,34
VCC5	VCC5	16,19,24,26,30

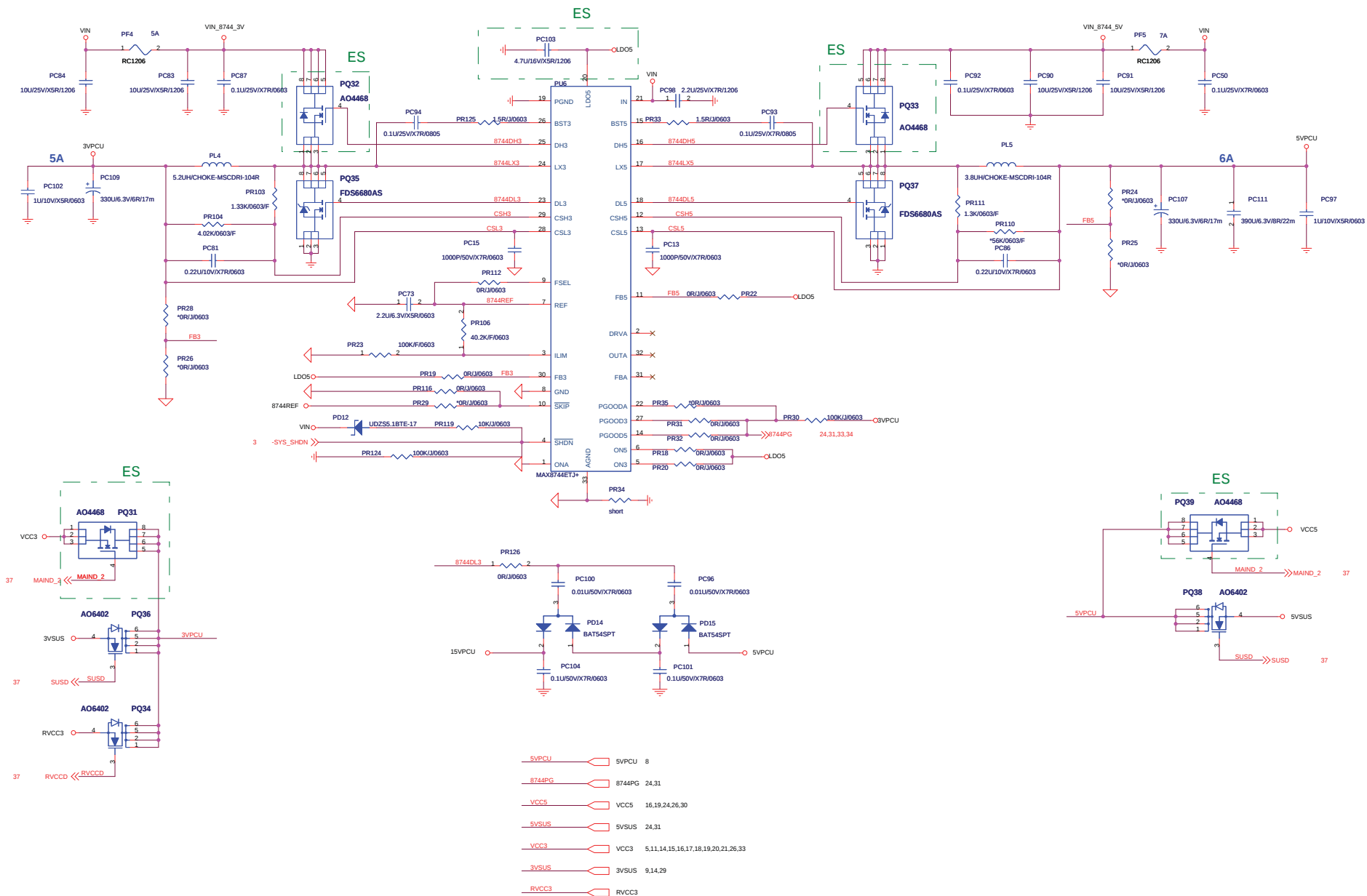


VCC3 VCC3 5,11,14,15,16,17,18,19,20,21,26,33
VCC5 VCC5 16,19,24,26,30





VCC3 VCC3 5,11,14,15,16,17,18,19,20,21,26,33
 5VSUS 5VSUS 24,31



Quanta Computer

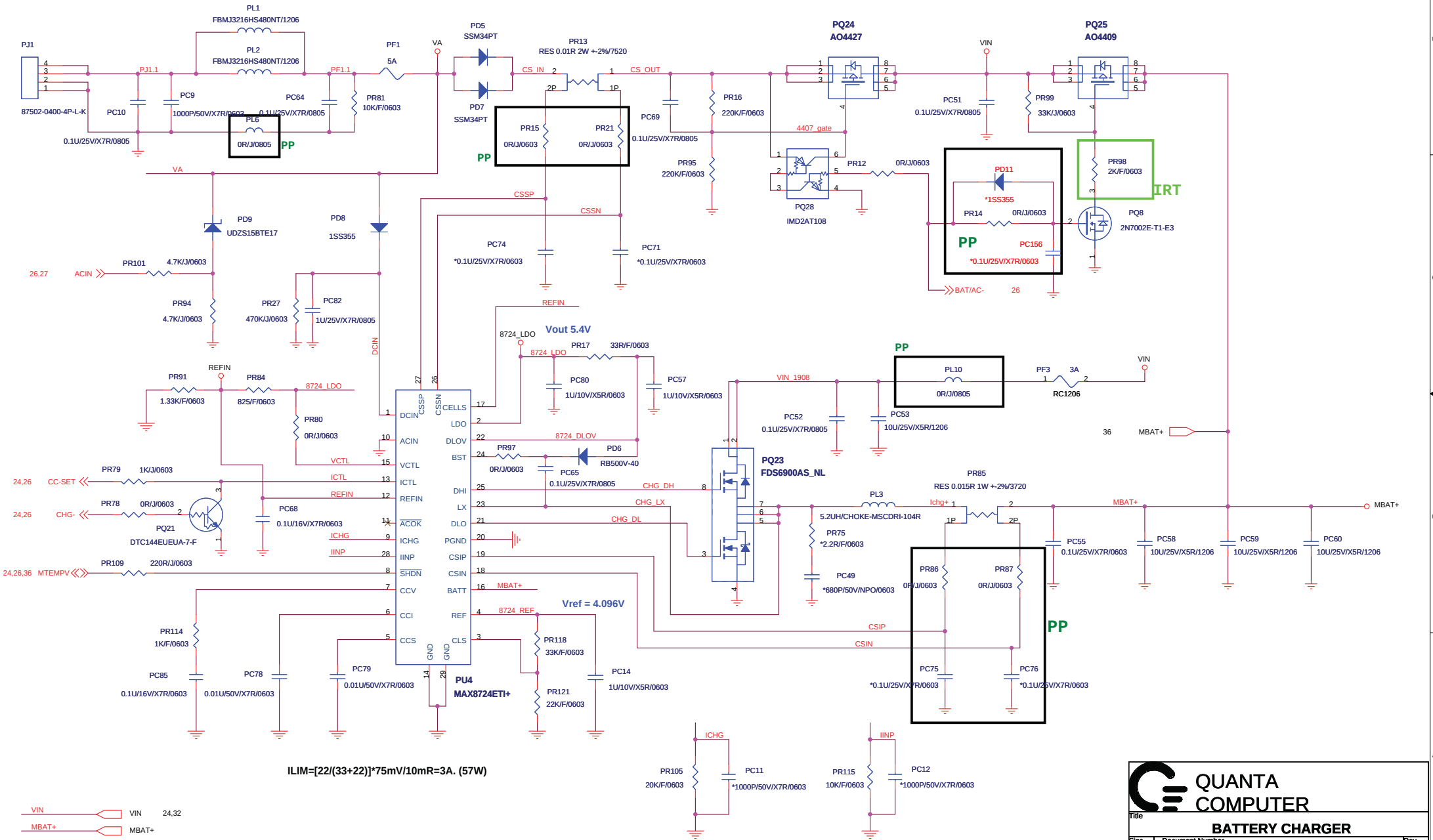
DC/DC 3V&5V

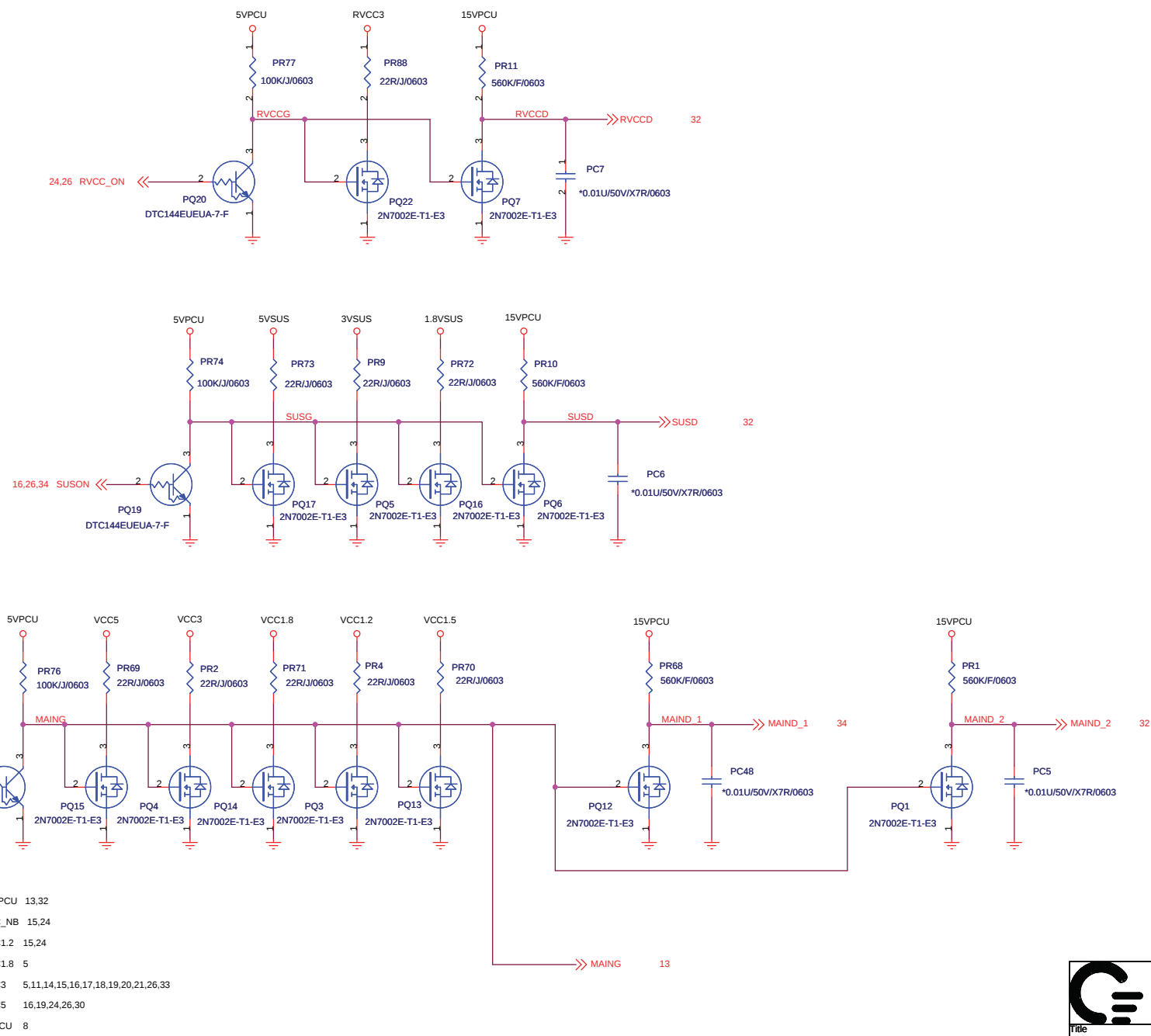
AK24 Main Board

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3VSUS	3VSUS	9,14,29
5VPCU	5VPCU	8

Battery Charger





- 15VPCU 15VPCU 13,32
- VCC_NB VCC_NB 15,24
- VCC1.2 VCC1.2 15,24
- VCC1.8 VCC1.8 5
- VCC3 VCC3 5,11,14,15,16,17,18,19,20,21,26,33
- VCC5 VCC5 16,19,24,26,30
- 5VPCU 5VPCU 8

- RVCC3 RVCC3
- 1.8VSUS 1.8VSUS 5,11,24,33
- 3VSUS 3VSUS 9,14,29
- 5VSUS 5VSUS 24,31
- RVCCD RVCCD 32
- SUSD SUSD 32
- MAIND_1 MAIND_1 34
- MAIND_2 MAIND_2 32



QUANTA
COMPUTER

Title			DISCHARGE		
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《ES2 Change list(Rev 2A)

0323:

1.Change SB460 to SB600;

2.Change TI1510 to R5C847;

3.Change EC WINBOND 541 to ITE8512;

4.Remove ATI DDR2-667 workaround;

0325:

1.Remove 1394 function circuit;

2.Delete U59 Express power switch circuit;

0327:

Page 12: Change R89 from 4.7K to 0 and reserve C176 for SB600;

Page 20: Change Media Card CONN to reverse model;

Page 21: Change C526,C527 value to 2.2uF and Delete C516, C517, C522~C525 for NECP requirement;

Page 23: Change L49 to 0ohm for NECP requirement;

Page 24: Remove RF Switch and Let EC(Pin:PWM4/GPA4) control Enable/Disable function;

Page 26: Reserve 10K Pull-up resistor for -VOLMUTE;

0329:

Page 26: Add R342 for KB_NEW use;

Page 30: Change USB Power line from 5VSUS to VCC5 and Add USB Power discharge circuit for NECP requirement;

0403:

Page 16: Reserve R503,add R502 for lable no found issue;

Delete the original reserved Page 37:VGA power;

0409:

Page 13:ADD R360 and R363 for the selection of R5C847 and R5C804;

Page 18:ADD R364 for the selection of R5C847 and R5C804;

Page 19:ADD R371 for the selection of R5C847 and R5C804;

0411:

Page 21:Change the Value of R423 and R418 to 27.4K and 12K for NECP request;

0413:

Page 20:Change C623 to 2.2uF from 47uF for NECP request;

0418:

Page 33:Change PR171 from 97.6K to 51.1K,Change PC41 from 3300PF/50V/X7R/0603 to 0.01UF/50V/X7R/0603,

Change PR169 from 100K/F/0603 to 20K/F/0603,Change PQ47 from AO4468 to AO4404 for current limit setting of VCC1.2;

《ES2 to PP Change list(Rev 3A)

0511:

Page 33:Change PR171 from 51.1K to 287K,Change PR169 from 20K to 100K,Change PC41 from 0.01UF to 2200PF for current limit setting of VCC1.2;

Page 35:Add PD11 and PC156,but no mount it;

0514:

Page 14:Delete R243 for leaving more space to the trace layout;

0515:

Page 3:Delete R166,D18,C224,U10,C222,Q20 for leaving more space to add PCIE_PVDD Power Sequence Requirement circuit;

Page 13:Add and Reserve AMD PCIE_PVDD Power Sequence Requirement circuit;

Page 15:Delete R403,R468,R493,R490,U53,R494,R495,C567 for leaving more space to add PCIE_PVDD Power Sequence Requirement circuit;

0519:

Page3:Add and Reserve C222,C224,C226,C227,C228 to H_INIT#,H_IGNNE#,H_STPCLK#,H_SMI#,H_INTR signal for AMD recommendation;

Page13:Using VRON to control PCIE_PVDD Power Sequence Requirement circuit;

0521:

Page3:Change R102 to 62ohm from 75ohm for following Intel CPU Spec;

Page5:Change R76 to 127ohm from 100ohm,R78 to 61.9ohm from 51ohm for following Intel CPU Spec;

Page9:ADD RC415MD Power Up Sequence to follow VDDR3/VDDLTT33/AVDD power up after VDD_MEM and VDD18 for AMD recommendation;

Page22:Change R424,R448 from 11K to 10K due to change gain of internal speaker;

0523:

Page11:Delete C341 for EMI layout suggestion;

Page24:Add Q88 and Delete D35 for WLAN LED driver schedule requirement of NECP(Reserve R158,R466,D43,R465);

Page26:Add C648 for EMI solution;

Page27:Add C649,C650,C651,C652 for EMI solution;

Page35:Add PL6,PL10,PR15,PR21,PR86,PR87 and Reserve PC75,PC76 for EMI solution;

0524:

Page14:Add and Reserve R592,C653 for EMI solution;

《PP to IRT Change list

Page13: Add R166,R167,C229 from ATI suggestion

Del B15, Add B19 from ATI suggestion

Page24: Delete R142, RP27,RP26,R126 and change to short circuit for non-necessary parts.

0904

《AK23 to AK24 Change list for AK24 PP using

Page13: A:Del reserve parts R162,R166,C221

B:Reserve R162,C229 to disable RC delay PCIE_VDDR timing

C:Change Q87 type from 2N7002 TO DTC144 to Enable EC delay PCIE_VDDR timing

D:Del B16 Add B26 from PA_SB600AT4

1012 IRT change for LCD flash issue.

Page 8:Add D31 for A_RST# signal

Page 13:Add R634 for A_RST# signal