Page	Title of schematic page	Rev.	Date
01	Page List	1A	
02	Block Diagram	1A	
03	Change List	1A	
04	FP2 1/4(PEG&UMI)	1A	
05	FP2 2/4(DDR3 I/F)	1A	
06	FP2 3/4(DP/MISC)	1A	
07	FP2 4/4(POWER/GND)	1A	
08	FCH 1/6(GPIO/USB/AZ)	1A	
09	FCH 2/6(UMI/PCIE/PCI/CLK)	1A	
10	FCH 3/6(SATA/VGA/SPI)	1A	
11	FCH 4/6(POWER)	1A	
12	FCH 5/6(Strap)	1A	
13	FCH 6/6(GND)	1A	
14	DDR3 DIMM-0-STD	1A	
15	DDR3 DIMM-1-STD	1A	
16	WPCE985L & FLASH	1A	
17	LVDS\TS\NFC	1A	
18	CARD READER(RTS5209)	1A	
19	HDMI/THERMAL	1A	
20	USB	1A	
21	LAN (RTL8111GS)	1A	
22	WLAN/KB-BL	1A	
23	HDD/ODD/G-SENSOR/TP/FAN	1A	
24	Audio ALC233-CG	1A	
25	LED/PS/DMIC\Camera	1A	
26	POWER +VCC_CORE (ISL62771)	1A	
27	POWER 3VPCU&RVCC5(TPS51427)	1A	
28	POWER 1.35VSUS/VTT_MEM	1A	
29	POWER +1.1V(G5602R41U)-5A	1A	
30	POWER VCC1.2/VCC2.5/Thermal	1A	
31	POWER(BAT IN / ADA IN/ UL)	1A	
32	POWER CHARGER (ISL88731C)	1A	
33	HOLE/EMI/KB	1A	
34	eDP to LVDS	1A	
35	IO PORT LIST	1A	

* : No mount
I@ : For native eDP output
D@ : For eDP to LVDS output

1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

HKA BLOCK DIAGRAM

02

DDR3L : 1.35V
DDR3 : 1.5V

Dual Channel

P14~P15

DDR SYSTEM MEMORY

AMD <CPU>

RICHLAND

BGA827

(31mm X 27mm)

P4~P7

eDP

eDP to LVDS
RTD2136R

LVDS

P35

P17

HDMI

P19

UMI

TOUCH SCREEN

P17

PORT5

Camera P25

PORT7

WiMax/BT P22

PORT6

USB I/O P20

PORT1

USB I/O P20

PORT0

USB 2.0

USB I/O P20

PORT1

PORT11

PORT10

USB I/O P20

PORT0

USB 3.0

P23 HDD SATA0

6Gb/s

P23 ODD SATA1

3Gb/s

AMD <FCH>

BOLTON-M3

BGA656

(24.5mm X 24.5mm)

SATA Gen3

SATA Gen2

USB

HDA

SPI

P8~P13

PCIE Interfaces

5GT/s

PCI-Express Gen2

PCIE2

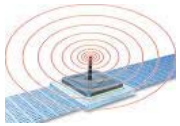
PCIE0

PCIE1

Giga-LAN
RTL8111GS
P21

RJ45

P21



WLAN/BT P22

Card Reader
RTS5227E
P18

SD-XC

P18

Azalia

Audio CODEC
ALC233-CG
P24

SPI ROM
8MB P10

Thermal Sensor

Beside CPU

Beside HDD

Beside Audio Jack

P19

LPC

EC
NPCE985L
P16

I2C

NFC
Foxconn
T77H446 P17

Lid Switch
P16

Power LED

Charge LED

HDD Status LED

Caps Lock LED

Num Lock LED

Button

ASSIST#

Power SW

Woofer

HP Jack

MIC Jack

SPK

DMIC

P34 P24 P24 P24 P24

G Sensor
LIS331DLHTR
P23

SPI

PS2/SMBUS

P23

Touch Pad

P22,P33

Back Light Keyboard

Change List

MB_SCH_DVT_001

P21 Reserve U30,LR12,LR13,LC21

Reason : For LAN S5 wake up won't be supported.
Possible Risk: No.

MB_SCH_DVT_002

P25 Chang R198 and R309 resistor

Reason : Modify circuit for LED Light
Possible Risk: No.

MB_SCH_DVT_003

P22 Delete R333 0ohm and add F9(0.35A) fuse

P22 Delete R468[100K],Q33[2N7002]

Reason : Modify circuit for KB BL protection.
Possible Risk: No.

MB_SCH_DVT_004

P9 Change part of Crystal Y1 32.768K.

Reason : Original part is EOD.
Possible Risk: No.

MB_SCH_DVT_005

P8 Modify circuit for NFC function.

Change R865,R866 to R861,R864.
change NFC_EN from GPIO166 to GEVENT22#.

Reason : To enable NFC function.
Possible Risk: No.

MB_SCH_DVT_006

P16 Reserve diode KD4 for EC_PWRBTN#.

P22 Reserve diode D12 for WLAN_RF_ON.

Reason :For cost down.
Possible Risk: No.

MB_SCH_DVT_007

P20 Add choke for USB ports.

P25 Add choke for Camera USB interface.

Reason :EMI issue.
Possible Risk: No.

MB_SCH_DVT_008

P7,P11 Change capacitors 22U X5R 0805 to 22U X5R 0603.

Reason :To enlarge the distance between Cap. and Keyboard.
Possible Risk: No.

MB_SCH_DVT_009

P33 Change FCH NUT shape.

Reason :To fit screw's size.
Possible Risk: No.

MB_SCH_DVT_010

P16 Add KR42 10K ohm.

Reason :To fit LVDS panel power sequence.
Possible Risk: No.

MB_SCH_DVT_011

P8 Add SMBUS path from FCH to RTD2136R.

Reason :Reserve the way to flash RTD2136R eFuse.
Possible Risk: No.

MB_SCH_DVT_012

P9,P21 Change Capacitors for XTAL Y2, LY1.

Reason :For more precisely frequency of XTAL.
Possible Risk: No.

MB_SCH_DVT_013

P19 Change Resistor of HDMI signals resistors.

Reason :For better HDMI signal quality.
Possible Risk: No.

MB_SCH_PVT_001-0606

P17 Change LVDS connector.

Reason : For factory's strong request.
Possible Risk: No

MB_SCH_PVT_002-0606

P23 Remove R303, R304.

Reason : To remove SMBUS interface of TP.
Possible Risk: No

MB_SCH_PVT_003-0606

P6 Add R790, C547, C548 for APU_PWRGD, APU_RST#

Reason : To reduce noise.
Possible Risk: No

MB_SCH_PVT_004-0610

P8 Add R792, R793 and NFC-IRQ_FCH_1

Reason : Change NFC IRQ to GEVENT18 and reserve GEVENT5.
Possible Risk: No

MB_SCH_PVT_005-0610

P20 Add D23~D30

P24 Add AD8~AD13

Reason : For ESD protection.
Possible Risk: No

MB_SCH_PVT_006-0611

P33 Add RP1~RP7

Reason : For ESD protection.
Possible Risk: No

MB_SCH_PVT_007-0611

P33 Add D35,R775,C549 but reserved.

Reason : reserved for NFC power sequence.
Possible Risk: No

MB_SCH_PVT_008-0614

P19 Change value of R102,R179.

Reason : For thermal shutdown protection by Thermal RD's suggestion.
Possible Risk: No

POWER

2A-P1
Change PC580 and PC599 from 0.047u to 0.068 for fine tune IC response

2A-P2
add PC617, PC618, PC619, PC620 for meet AMD SPEC of ripple

2A-P3
change PR58 from 255k to 196k for fine tune OCP

2A-P4
change from 3.75k to 3K for fine tune OCP

3A-P1
change to oringin one for better OVP accuracy

3A-P2
For garbage issue

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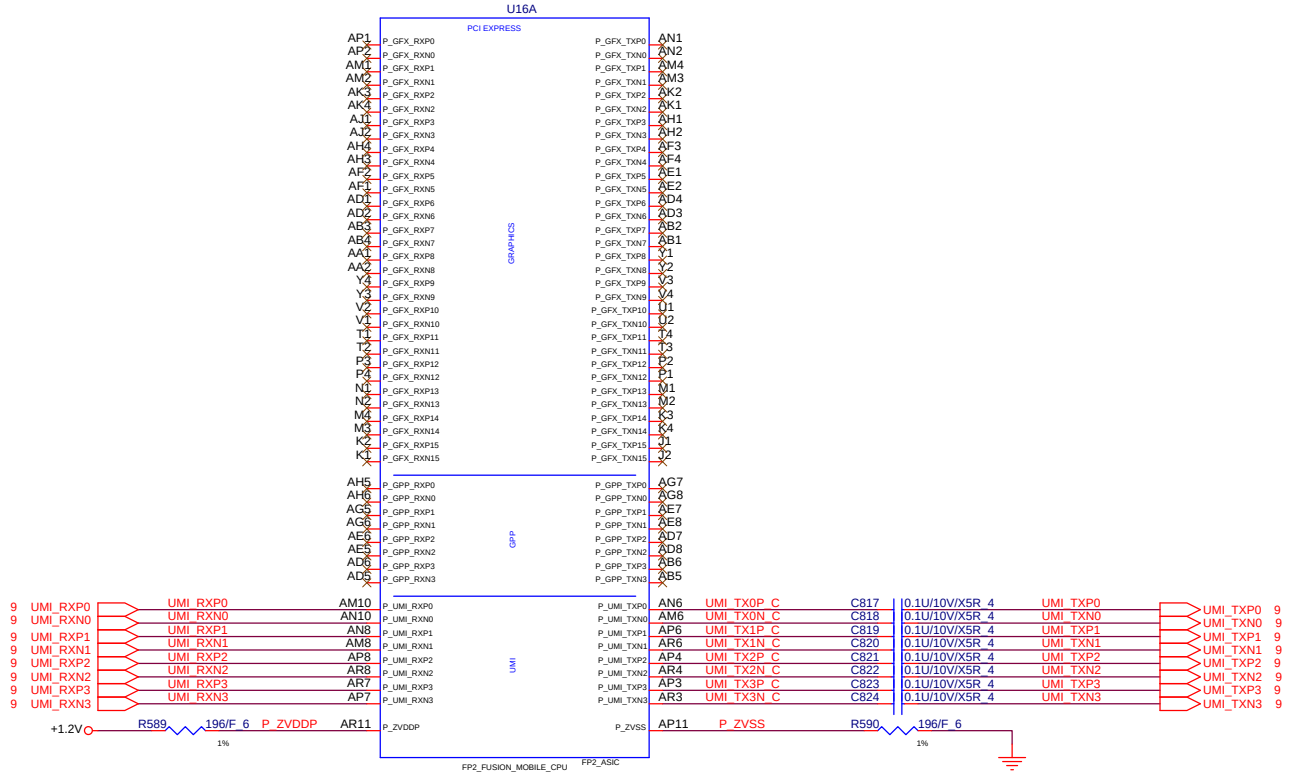

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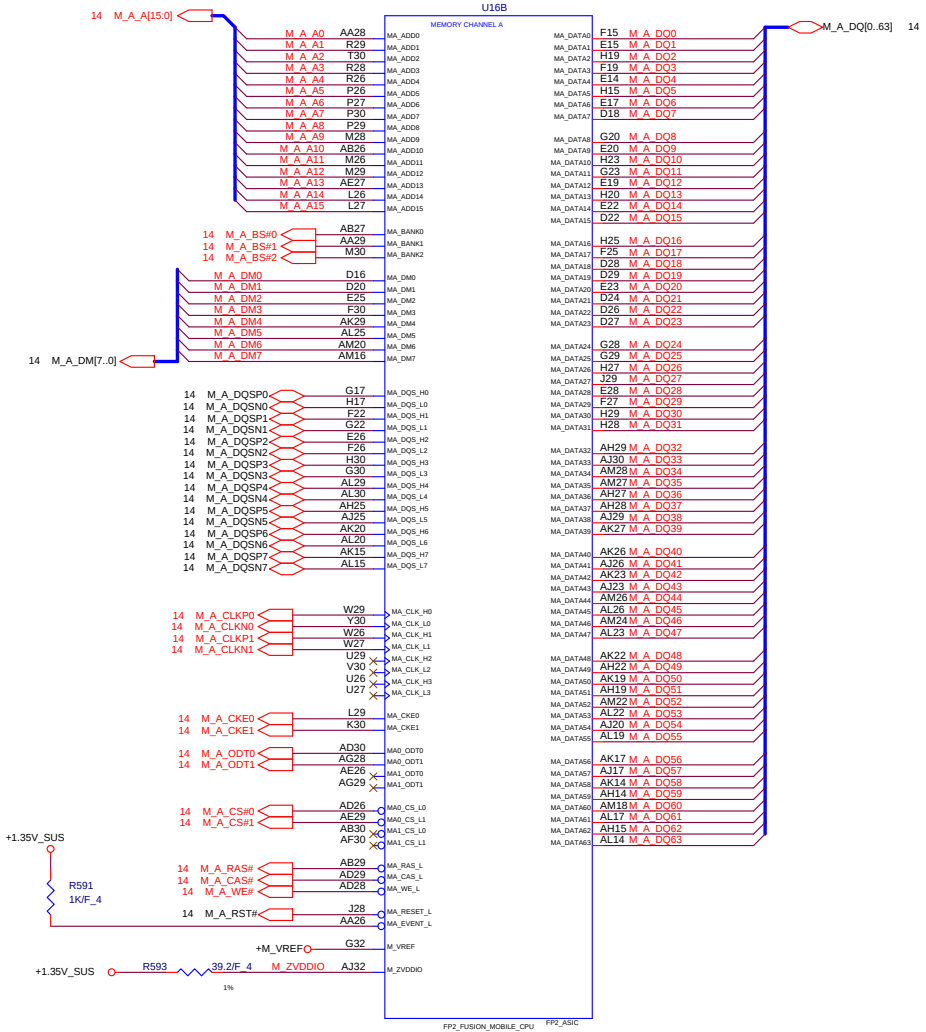
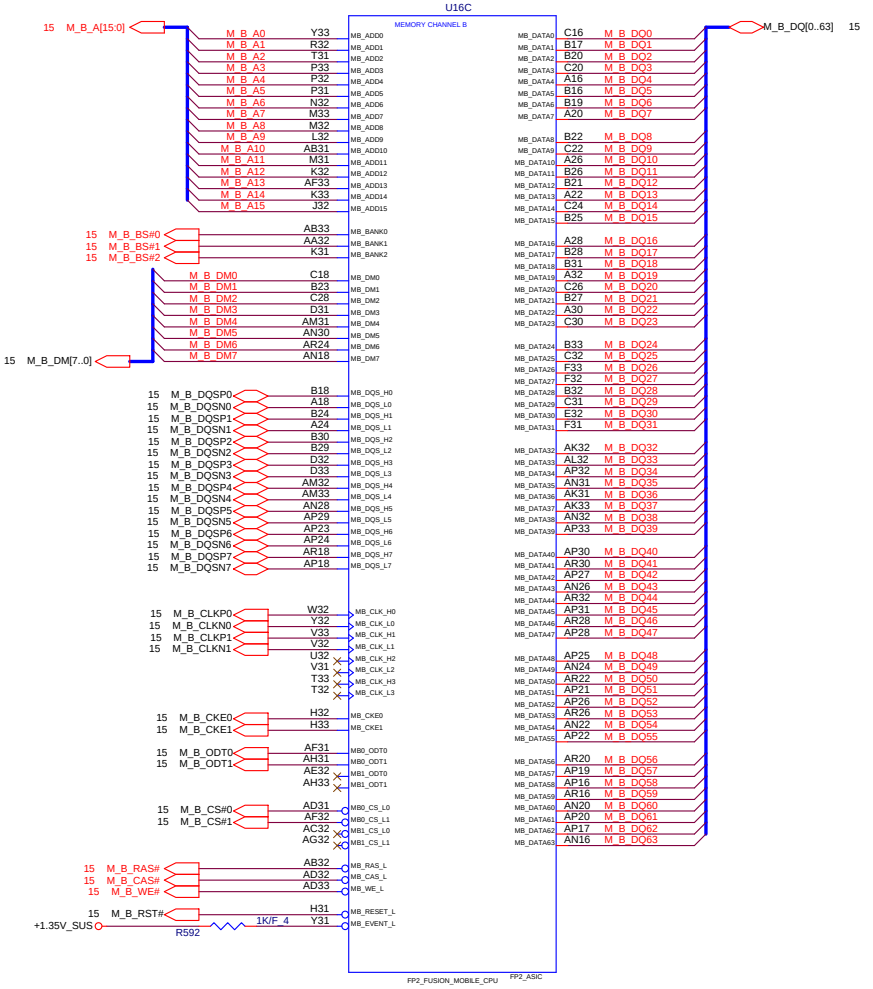
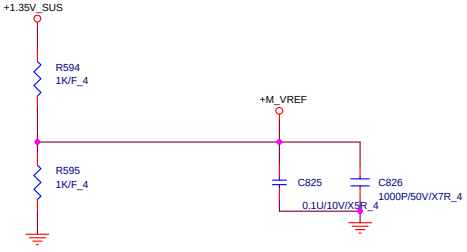
Size	Document Number	Rev
	FP2 1/4(PEG&UMI)	1A
Date: Friday, June 14, 2013	Sheet 4 of 35	







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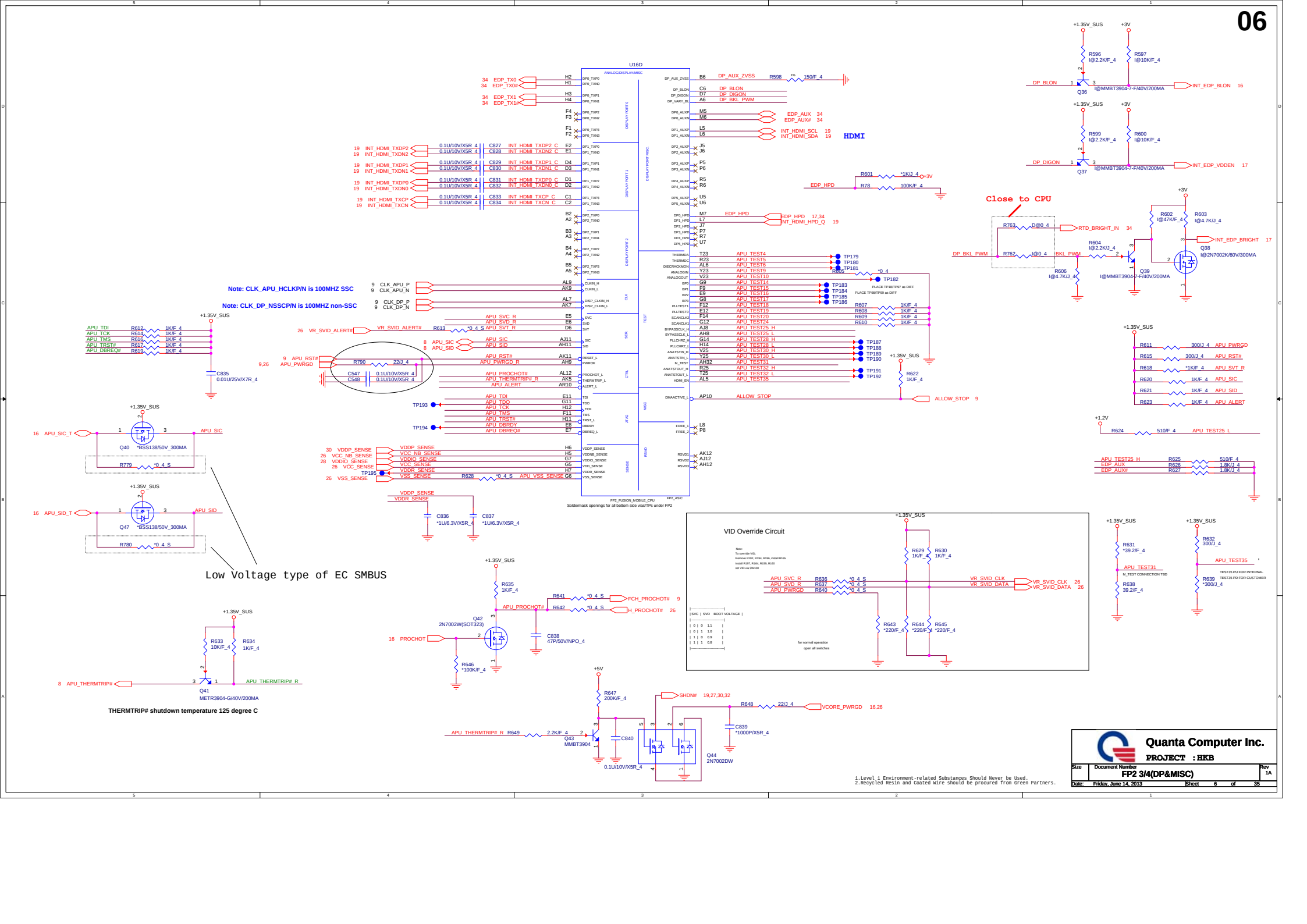
Size	Document Number	Rev
	FP2 2/4(DDR3 I/F)	1A
Date: Friday, June 14, 2013	Sheet 5 of 35	


U16D
Note: CLK_APU_HCLKP/N is 100MHZ SSC
Note: CLK_DP_NSSCP/N is 100MHZ non-SSC
Close to CPU
HDMI
Low Voltage type of EC SMBUS
VID Override Circuit
THERMTRIP# shutdown temperature 125 degree C
Soldermask openings for all bottom side vias/TPs under FP2
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FP2 3/4(DP&MISC)
Friday, June 14, 2013
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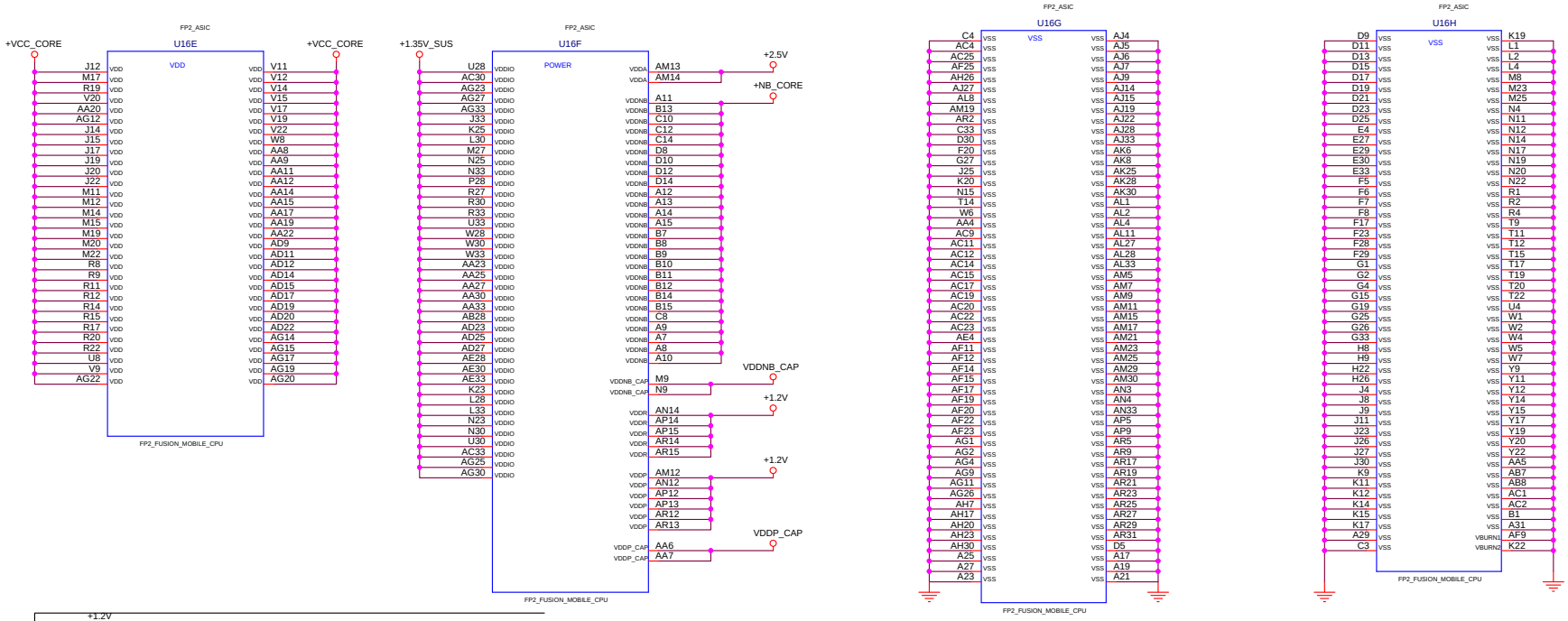

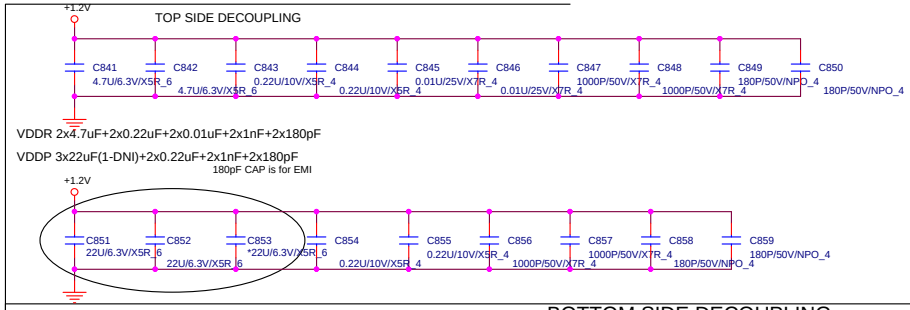

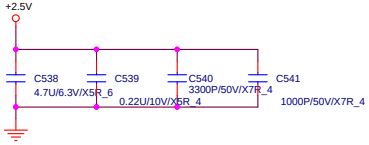

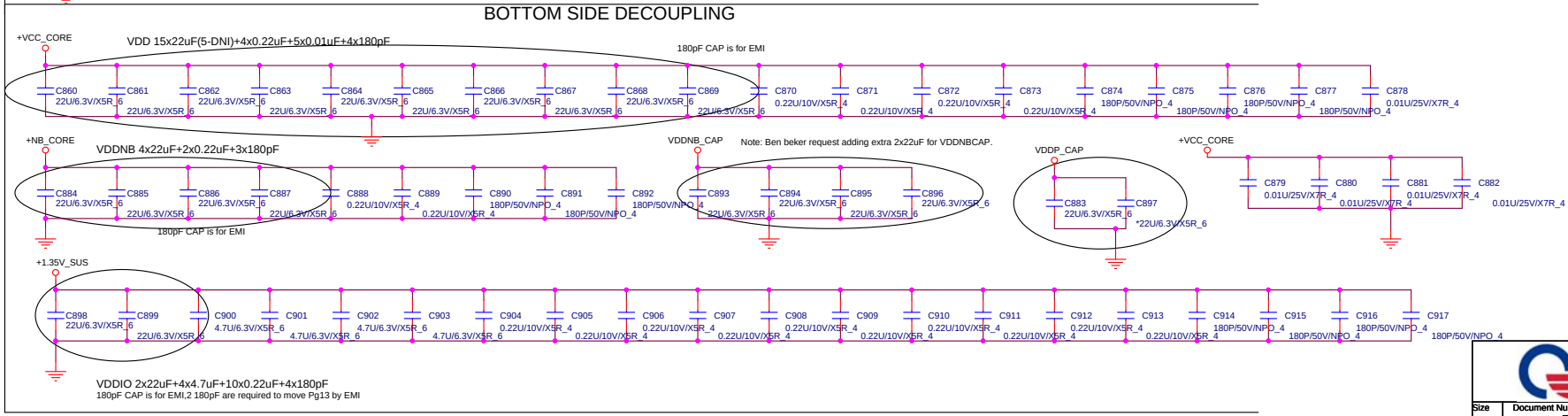

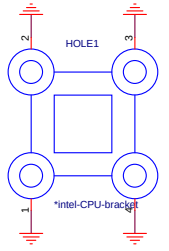

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Size	Document Number	Rev
	FP2 4/4(POWER&GND)	1A
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FCH 1/5(GPIO/USB/AZ)

U15A

Bolton-M3
Part 4 of 5

PCIE_RST2#/GEVENT4#
RI#/GEVENT22#
SPI_CS3#/GBE_STAT1/GEVENT21#
SLP_S3#
SLP_S5#
PWR_BTN#
PWR_GOOD
TEST0
TEST1/TMS
TEST2
GA20IN/GEVENT0#
KBRST#/GEVENT1#
PME#/GEVENT3#
LPC_SMI#/GEVENT23#
LPC_PD#/GEVENT5#
SYS_RESET#/GEVENT19#
WAKE#/GEVENT8#
IR_RX1/GEVENT20#
THRMTRIP#/SMBALERT#/GEVENT2#
WD_PWRGD
RSMRST#
CLK_REQ4#/SATA_IS0#/GPIO64
CLK_REQ3#/SATA_IS1#/GPIO63
SMARTVOLT1/SATA_IS2#/GPIO50
CLK_REQ0#/SATA_IS3#/GPIO60
SATA_IS4#/FANOUT3/GPIO55
SATA_IS5#/FANIN3/GPIO59
SPKR/GPIO66
SCL0/GPIO43
SDA0/GPIO47
SCL1/GPIO227
SDA1/GPIO228
CLK_REQ2#/FANIN4/GPIO62
CLK_REQ1#/FANOUT4/GPIO61
IR_LED#/LLB#/GPIO184
SMARTVOLT2/SHUTDOWN#/GPIO51
DDR3_RST#/GEVENT7#/VGA_PD
GBE_LED0/GPIO183
SPI_HOLD#/GBE_LED1/GEVENT9#
GBE_LED2/GEVENT10#
GBE_STAT0/GEVENT11#
CLK_REQG#/GPIO65/OSCIN/IDLEEXIT#
BLINK/USB_OC7#/GEVENT18#
USB_OC6#/IR_TX1/GEVENT6#
USB_OC5#/IR_TX0/GEVENT17#
USB_OC4#/IR_RX0/GEVENT16#
USB_OC3#/AC_PRES/TDO/GEVENT15#
USB_OC2#/TCK/GEVENT14#
USB_OC1#/TDI/GEVENT13#
USB_OC0#/SPI_TPM_CS#/TRST#/GEVENT12#
AZ_BITCLK
AZ_SDOUT
AZ_SDIN0/GPIO167
AZ_SDIN1/GPIO168
AZ_SDIN2/GPIO169
AZ_SDIN3/GPIO170
AZ_SYNC
AZ_RST#
PS2_DAT/SDA4/GPIO187
PS2_CLK/CEC/SCL4/GPIO188
SPI_CS2#/GBE_STAT2/GPIO189
PS2KB_DAT/GPIO189
PS2KB_CLK/GPIO190
PS2M_DAT/GPIO191
PS2M_CLK/GPIO192
KSO_0/GPIO209
KSO_1/GPIO210
KSO_2/GPIO211
KSO_3/GPIO212
KSO_4/GPIO213
KSO_5/GPIO214
KSO_6/GPIO215
KSO_7/GPIO216
KSO_8/GPIO217
KSO_9/GPIO218
KSO_10/GPIO219
KSO_11/GPIO220
KSO_12/GPIO221
KSO_13/GPIO222
KSO_14/XDB0/GPIO223
KSO_15/XDB1/GPIO224
KSO_16/XDB2/GPIO225
KSO_17/XDB3/GPIO226

ACPI / WAKE UP EVENTS
GPIO
HDA/I2S AUDIO
3V_S5
EMBEDDED CTRL

USBCLK/14M_25M_48M_OSC
USB_RCOMP
USB_FSD1P/GPIO186
USB_FSD1N
USB_FSD0P/GPIO185
USB_FSD0N
USB_HSD13P
USB_HSD13N
USB_HSD12P
USB_HSD12N
USB_HSD11P
USB_HSD11N
USB_HSD10P
USB_HSD10N
USB_HSD9P
USB_HSD9N
USB_HSD8P
USB_HSD8N
USB_HSD7P
USB_HSD7N
USB_HSD6P
USB_HSD6N
USB_HSD5P
USB_HSD5N
USB_HSD4P
USB_HSD4N
USB_HSD3P
USB_HSD3N
USB_HSD2P
USB_HSD2N
USB_HSD1P
USB_HSD1N
USB_HSD0P
USB_HSD0N
USBSS_CALRP
USBSS_CALRN
USB_SS_TX3P
USB_SS_TX3N
USB_SS_RX3P
USB_SS_RX3N
USB_SS_TX2P
USB_SS_TX2N
USB_SS_RX2P
USB_SS_RX2N
USB_SS_TX1P
USB_SS_TX1N
USB_SS_RX1P
USB_SS_RX1N
USB_SS_TX0P
USB_SS_TX0N
USB_SS_RX0P
USB_SS_RX0N
SCL2/GPIO193
SDA2/GPIO194
SCL3_LV/GPIO195
SDA3_LV/GPIO196
EC_PWM0/EC_TIMER0/GPIO197
EC_PWM1/EC_TIMER1/GPIO198
EC_PWM2/EC_TIMER2/WOL_EN/GPIO199
EC_PWM3/EC_TIMER3/GPIO200
KSI_0/GPIO201
KSI_1/GPIO202
KSI_2/GPIO203
KSI_3/GPIO204
KSI_4/GPIO205
KSI_5/GPIO206
KSI_6/GPIO207
KSI_7/GPIO208

USB 2.0
USB 1.1
USB MISC
USB 3.0

USB_RCOMP_SB:35 ohm,<1"

USBSS_CALP/N:35 ohm,<1"

USB3.0 Connector

USB3.0 Connector IPOD

Carama USB

WLAN Min-Card

Touch screen

USB2.0 Connector

USB port 0 for Debug port

+1.1V_SUS
+3V_S5
+3V

USBSS_CALN R650 1K/F_4
USB_OC2# R652 10K/F_4
FCH_TEST0 R653 *2.2K/F_4
FCH_TEST1 R657 *2.2K/F_4
FCH_TEST2 R654 *2.2K/F_4
SCL2 R655 10K/F_4
SDA2 R656 10K/F_4
SCL3 R658 10K/F_4
SDA3 R659 10K/F_4
SCL1 R660 2.2K/F_4
SDA1 R661 2.2K/F_4
USB_OC3# R662 10K/F_4
USB_OC0# R663 10K/F_4
EC_PWRBTN# R664 *10K/F_4
PCIE_WAKE# R665 *10K/F_4
APU_THERMTRIP# R778 *10K/F_4
SMB_RUN_CLK R666 2.2K/F_4
SMB_RUN_DAT R667 2.2K/F_4
WD_PWRGD R668 10K/F_4
ACZ_BCLK_R R669 *10K/F_4
ACZ_SDIN0 R670 *10K/F_4
ACZ_SDIN1 R671 *10K/F_4
ACZ_SDIN2 R672 *10K/F_4
USB_RCOMP_SB R674 11.8K/F_6
USBSS_CALP R675 1K/F_4
ACZ_BCLK_R C918 15P/50V/C0G_4
PCIE_WAKE# C919 *100P/50V/NPO_4
PLTRST# C920 150P/50V/NPO_4
FCH_PWROK_EC C921 220P/50V/X7R_4
R677 4.7K/J_4
R678 4.7K/J_4
Q45 2N7002DW
R681 *0_4_S
R684 *0_4_S
R685 *0_4
R686 *0_4
R687 *0_4
R688 *0_4
R689 100K/F_4
Q46 2N7002W(SOT323)
R793 10K/F_4
R791 0_4
R792 *0_4
NFCIRQ
NFC-IRQ_FCH
NFC-IRQ_FCH_1
APU_SIC
APU_SID

FCH 2/5(UMI/PCIE/PCI/CLK/LPC)

Place these PICE AC coupling cap close to FCH

PCIE_CALP/N_FCH:55 ohm,<1"

U15E

Bolton-M3

Part 1 of 5

PCI EXPRESS INTERFACES

PCI INTERFACE

PCI CLKS

CLOCK GENERATOR

LPC

APU

S5 PLUS

Internal PU 8.5k to 3V

DMIC_DETECT R706 *1K/F_4

DMIC_DETECT:
High : Single DMIC
Low : Dual DMIC

USE GROUND GUARD FOR 32K_X1 AND 32K_X2

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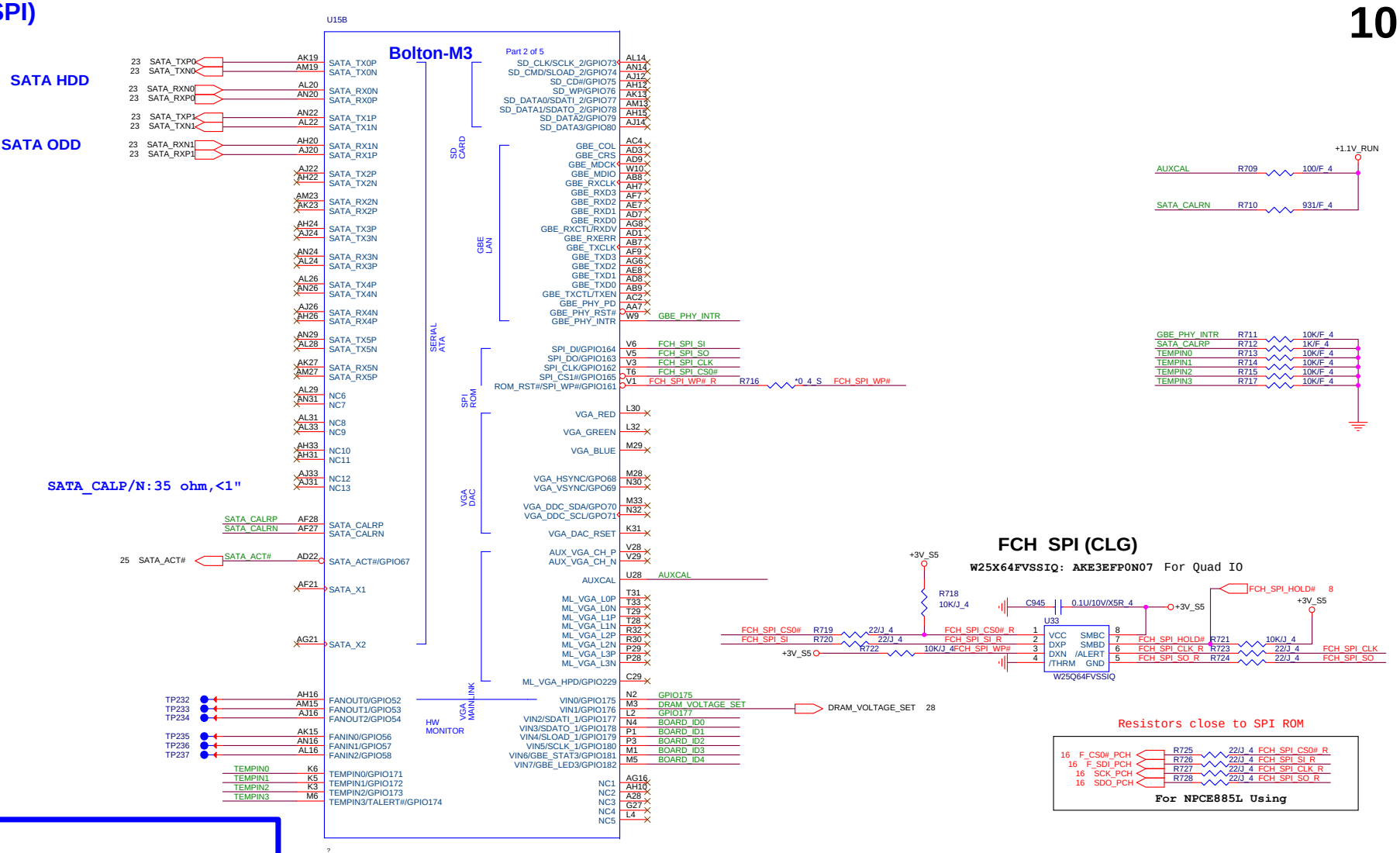
PROJECT : HKB

Size	Document Number	Rev
	FCH 2/5(UMI/PCIE/PCI/CLK/LPC)	1A

Date: Friday, June 14, 2013 Sheet 9 of 35

FCH 3/5(SATA/VGA/SPI)



SIZE	Board ID0
HKA 14"	0
HKB 15"	1

I/F	Board ID1
eDP	0
LVDS	1

CPU	Board ID2	Board ID3
A4	0	0
A6	0	1
A8	1	0
A10	1	1

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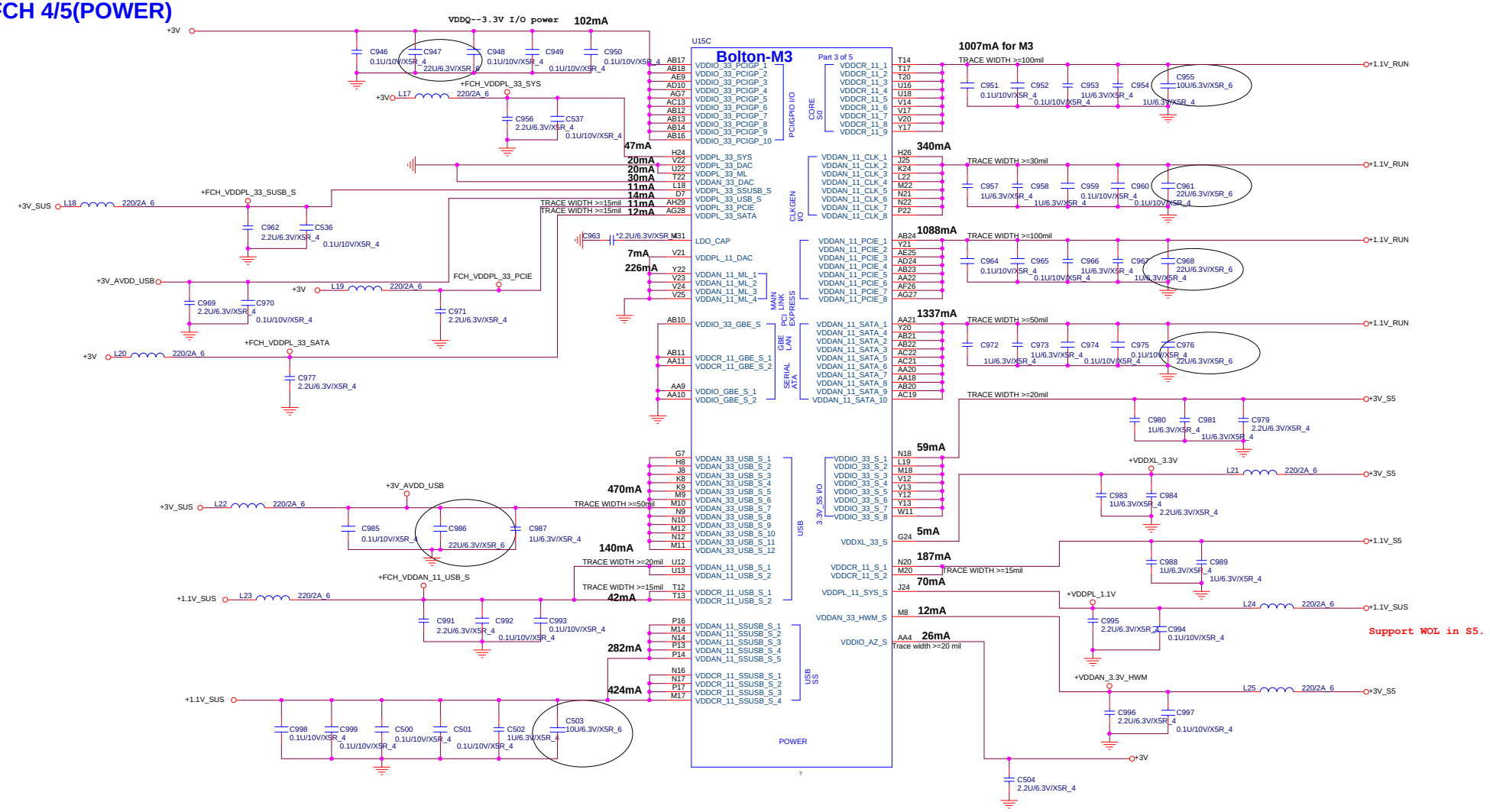
PROJECT : HKB

Size	Document Number	Rev
	FCH 3/6(SATA/VGA/SPI)	1A
Date: Friday, June 14, 2013	Sheet 10 of 35	

FCH 4/5(POWER)



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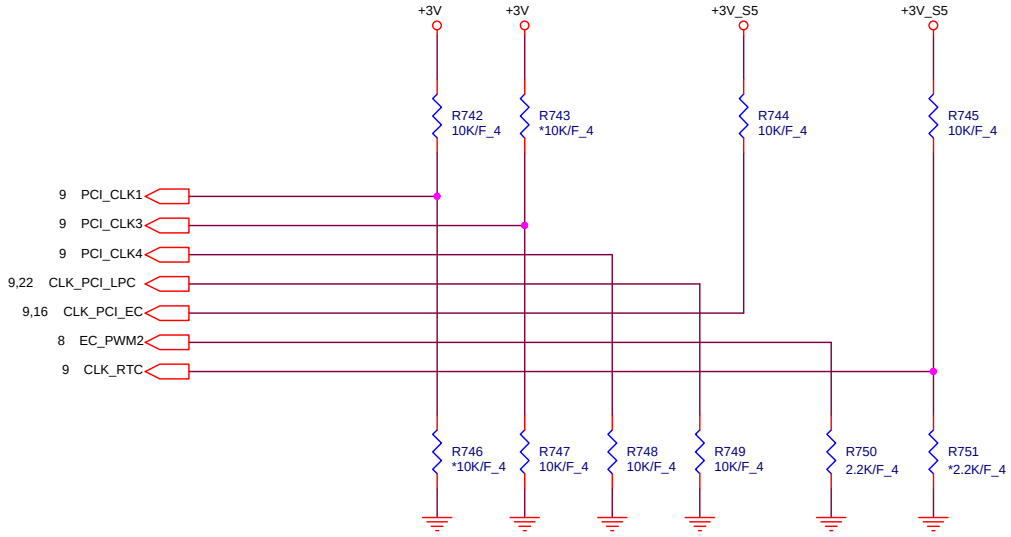
STRAPS PINS

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.



REQUIRED STRAPS

	--------	PCI_CLK1	--------	PCI_CLK3	PCI_CLK4	(LPCCLK0) CLK_PCI_LPC	(LPCCLK1) CLK_PCI_EC	EC_PWM2	CLK_RTC
PULL HIGH	--------	ALLOW PCIE Gen2 DEFAULT	--------	USE DEBUG STRAP	Reserved	AMD internal EC ENABLED	CLKGEN ENABLED DEFAULT	LPC ROM	S5 PLUS MODE DISABLED DEFAULT
PULL LOW	--------	FORCE PCIE Gen1	--------	IGNORE DEBUG STRAP DEFAULT	Required setting for integrated clock mode DEFAULT	EC DISABLED DEFAULT	CLKGEN DISABLED	SPI ROM DEFAULT	S5 PLUS MODE enble

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DEBUG STRAPS

FCH has 15K Internal Pull Up for PCI_AD[27:23]

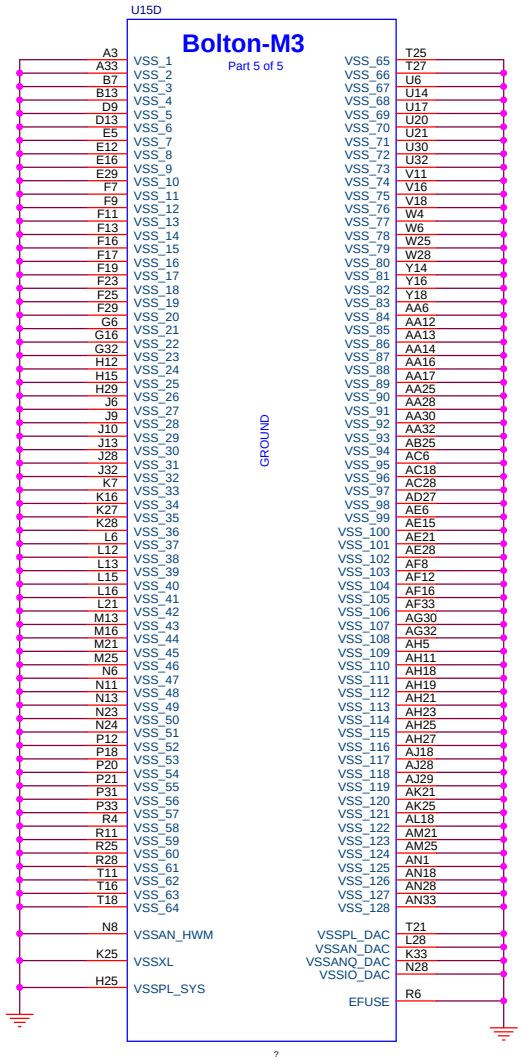
remove reserve pull low resistor
reserve test point only.

	PCI_AD27		PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL DEFAULT		normal REFCLK DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
PULL LOW	BYPASS PCI PLL		Inverted REFCLK	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT

Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	FCH 5/6(Strap)	1A

Date: Friday, June 14, 2013 Sheet 12 of 35

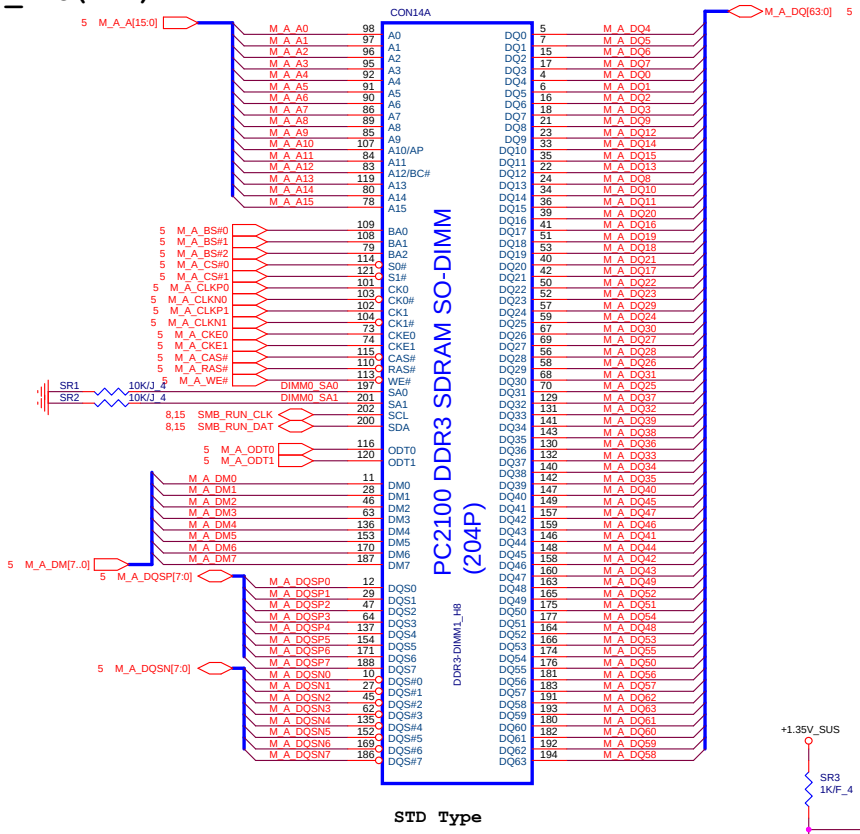


1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

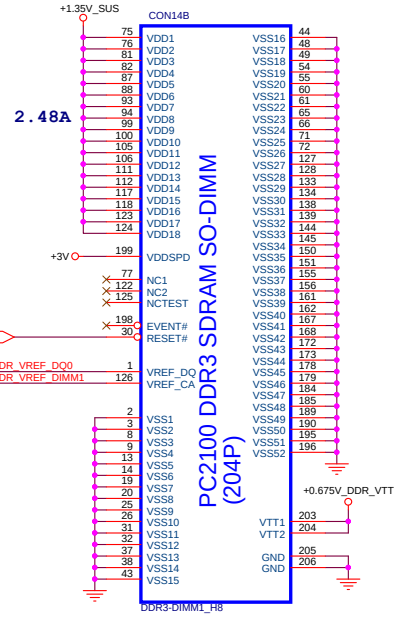
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	FCH 6/6(GND)	1A
Date: Friday, June 14, 2013	Sheet 13 of 35	

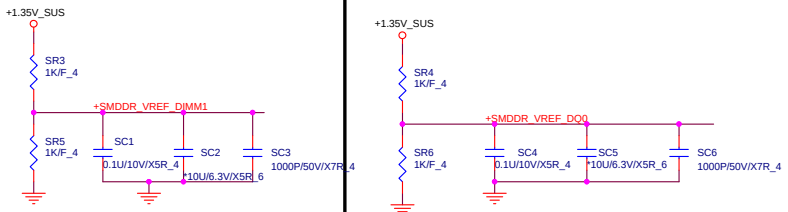
DDR_RVS (DDR)



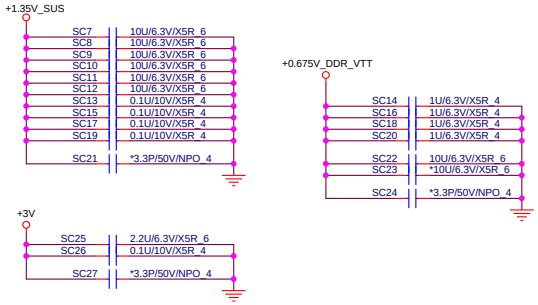
STD Type



STD Type



Place these Caps near So-Dimm1.



1.Level 1 Environment-related Substances Should Never be Used.
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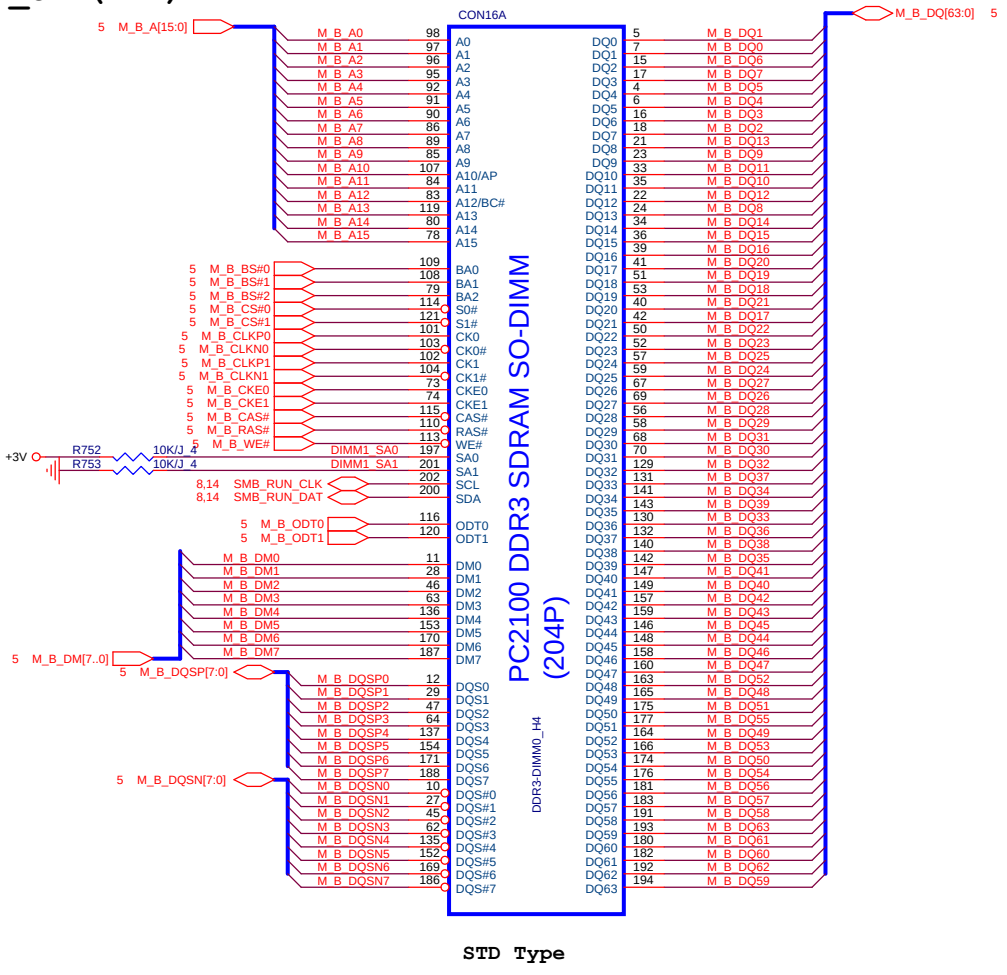
Quanta Computer Inc.

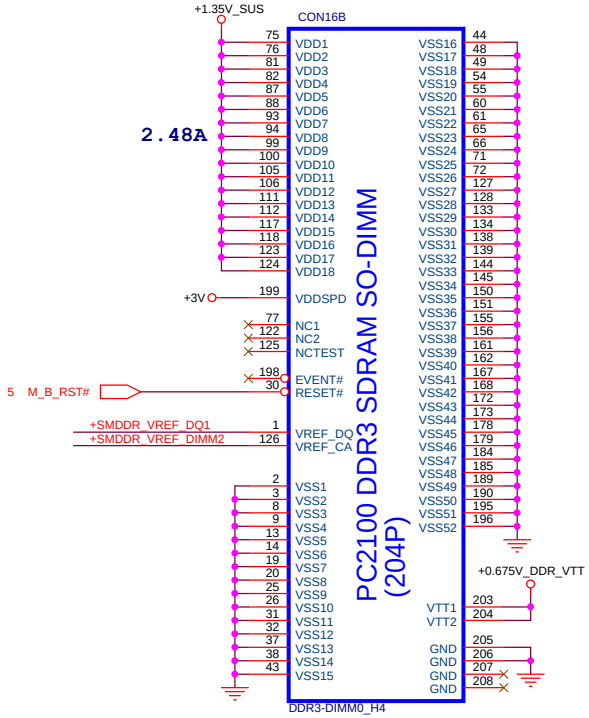
PROJECT : HKB

Size	Document Number	Rev
	DDRIII SO-DIMM-0	1A
Date: Friday, June 14, 2013	Sheet 14 of 35	

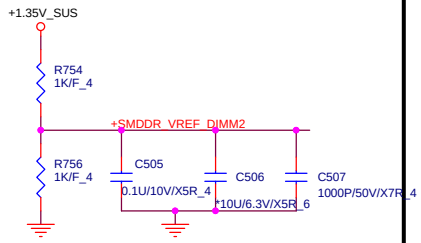
DDR_STD (DDR)

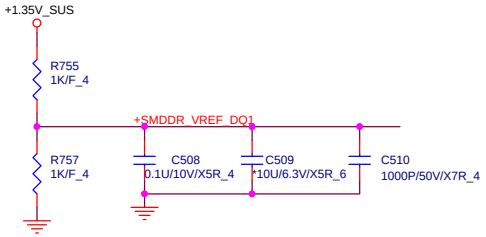


STD Type

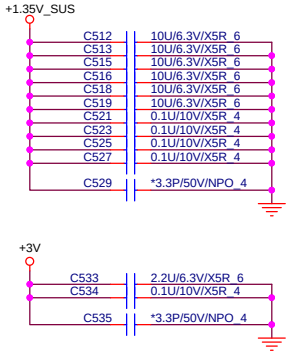


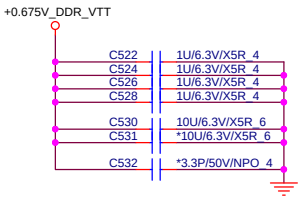
STD Type

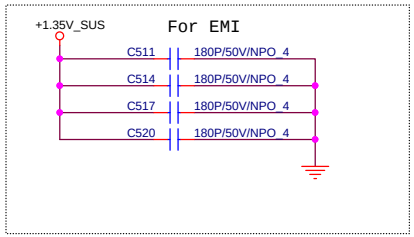




Place these Caps near So-Dimm1.







1.Level 1 Environment-related Substances Should Never be Used.
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Quanta Computer Inc.

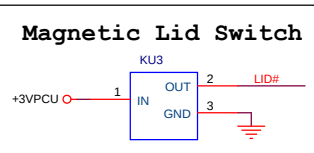
PROJECT : HKB

Size	Document Number	Rev
	DDRIII SO-DIMM-1	1A
Date: Friday, June 14, 2013	Sheet 15 of 35	

** Straping Pin,Can not pull low.
Note the input leakage current to the strap pins must be less than 10uA.

Since ECSCI is OD, no need for a back-drive protection diode on this signal. But note there is internal PU in chipset at default

Magnetic Lid Switch



E-CMOS :AL002618001/EC2618NLB1GR
PROLIFIC : AL003661003/PT3661-BB
BCD : AL009249000/AH9249NTR-G1

Charger IC
Battery
eDP to LVDS
Therm1
Therm2
APU DTS

MODEL ID	
High	HK8/HK9(KR29 mount KR30 no mount)
Low	GD5/GD6(KR29 mount KR30 no mount)

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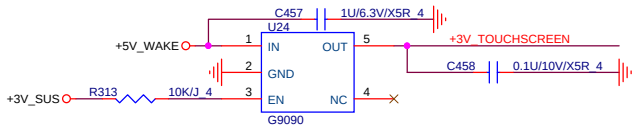
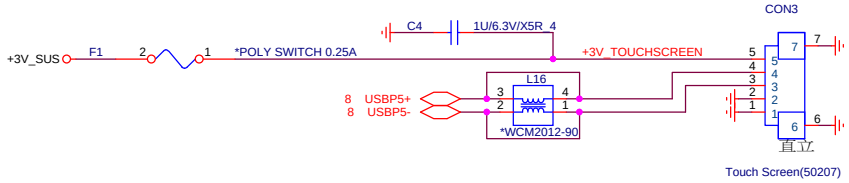
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	NPCE985L	1A
Date: Friday, June 14, 2013	Sheet 16 of 35	

Touch Screen



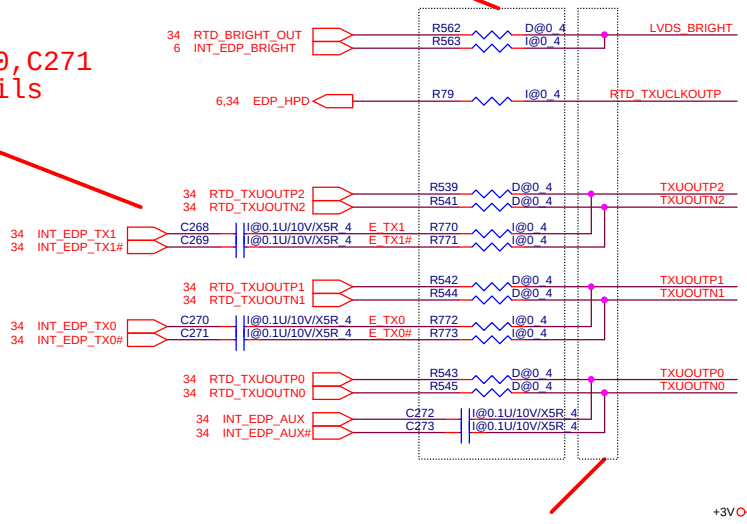


Add for EMI

Camera HD specification
Voltage: Max. 3.6V
Current : Max. 200mA
OCP: 200mA ~ 300mA

Distance between C268,C269,C270,C271 and CON5 must larger than 500 mils

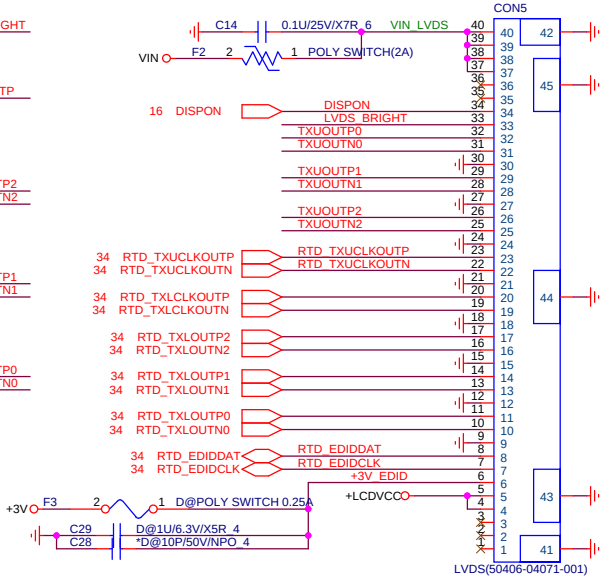
Close to connector



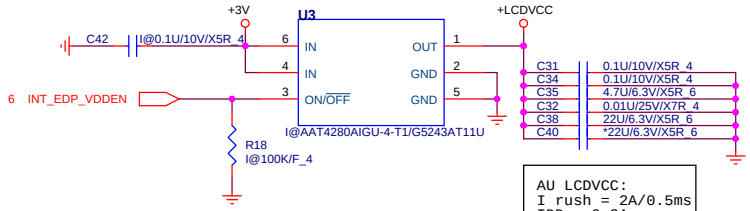
Branches are as short as possible!!

FAST,UL/CSA

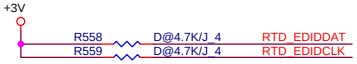
LVDS



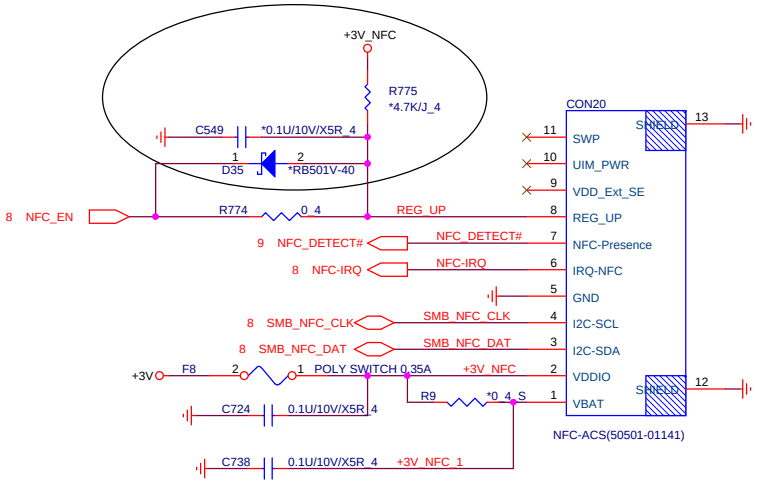
NB LVDS enable



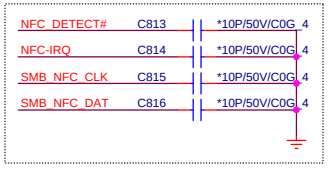
AU LCDVCC:
I rush = 2A/0.5ms
IDD = 0.3A

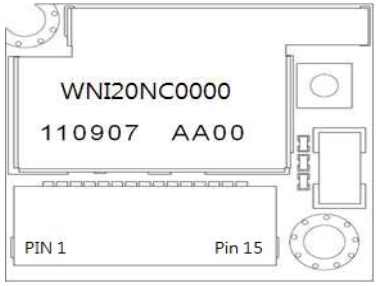


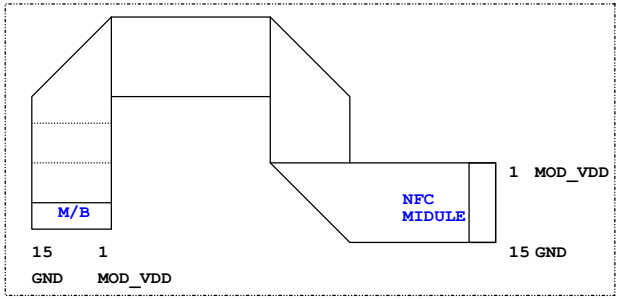
NFC



For EMI.
Close to CON20





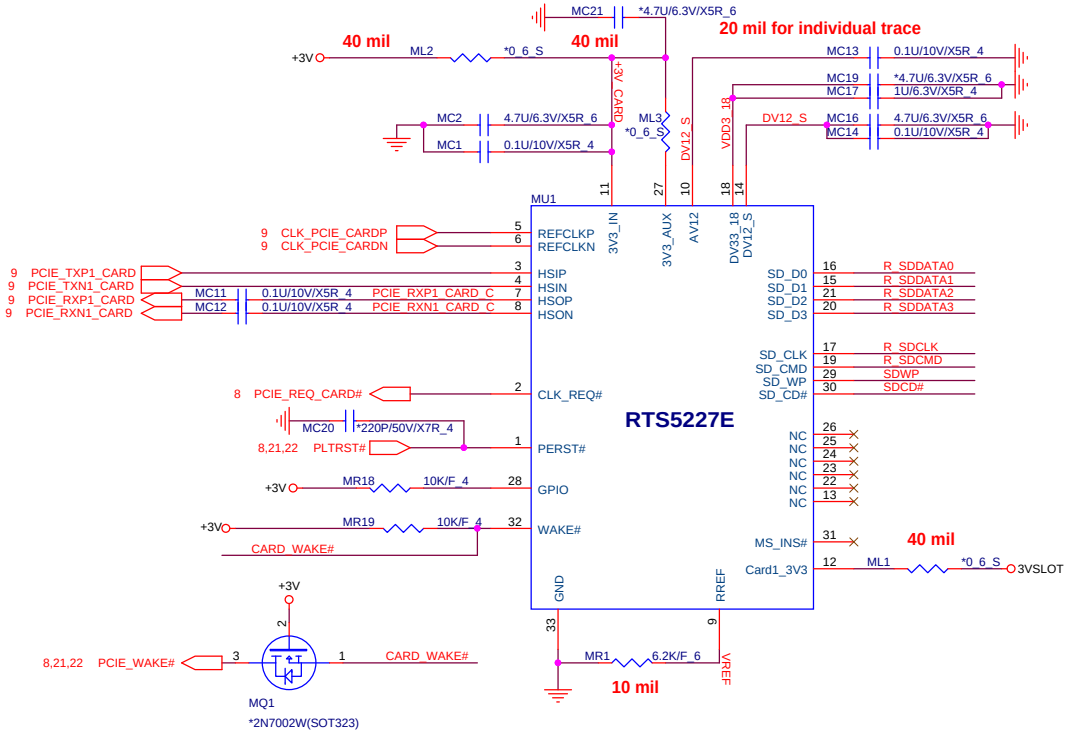


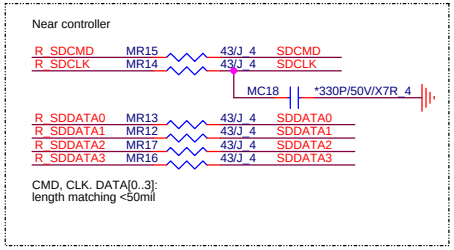
NFC module :
Vender : Samsung SNC-i20
Power consumption : Max. 160mW/48mA
Power Ripple +/- 50mV

1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

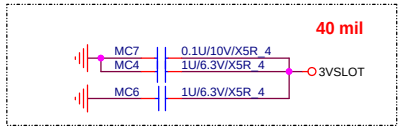
Quanta Computer Inc.
PROJECT : HKB

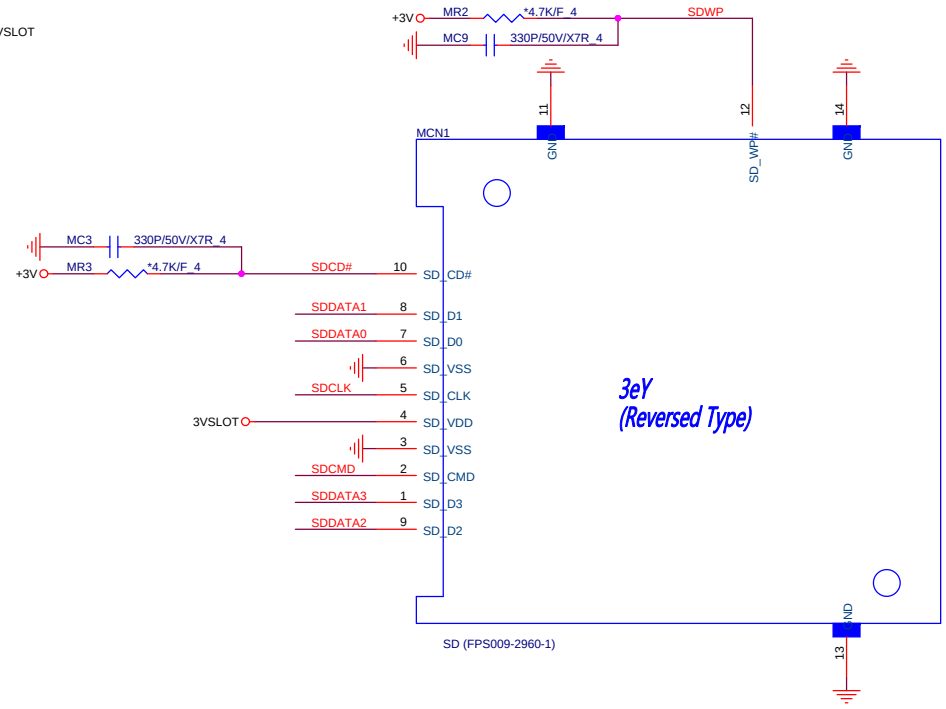
Size	Document Number	Rev
	LVDS\TS\NFC	1A
Date: Monday, June 17, 2013	Sheet 17 of 35	





These component need to close to Slot





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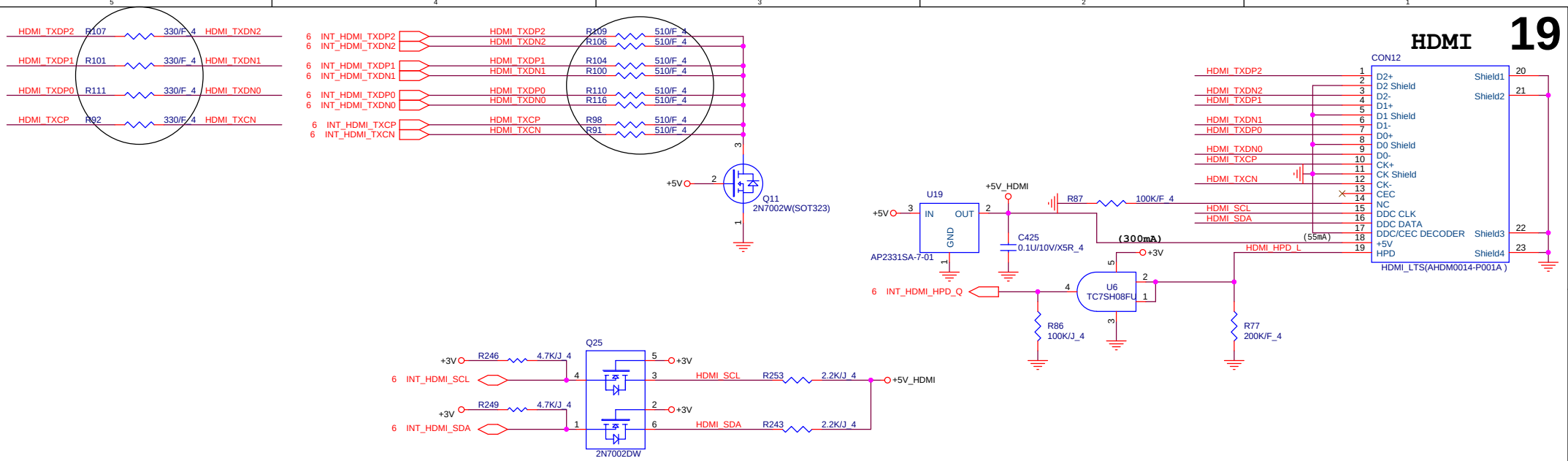
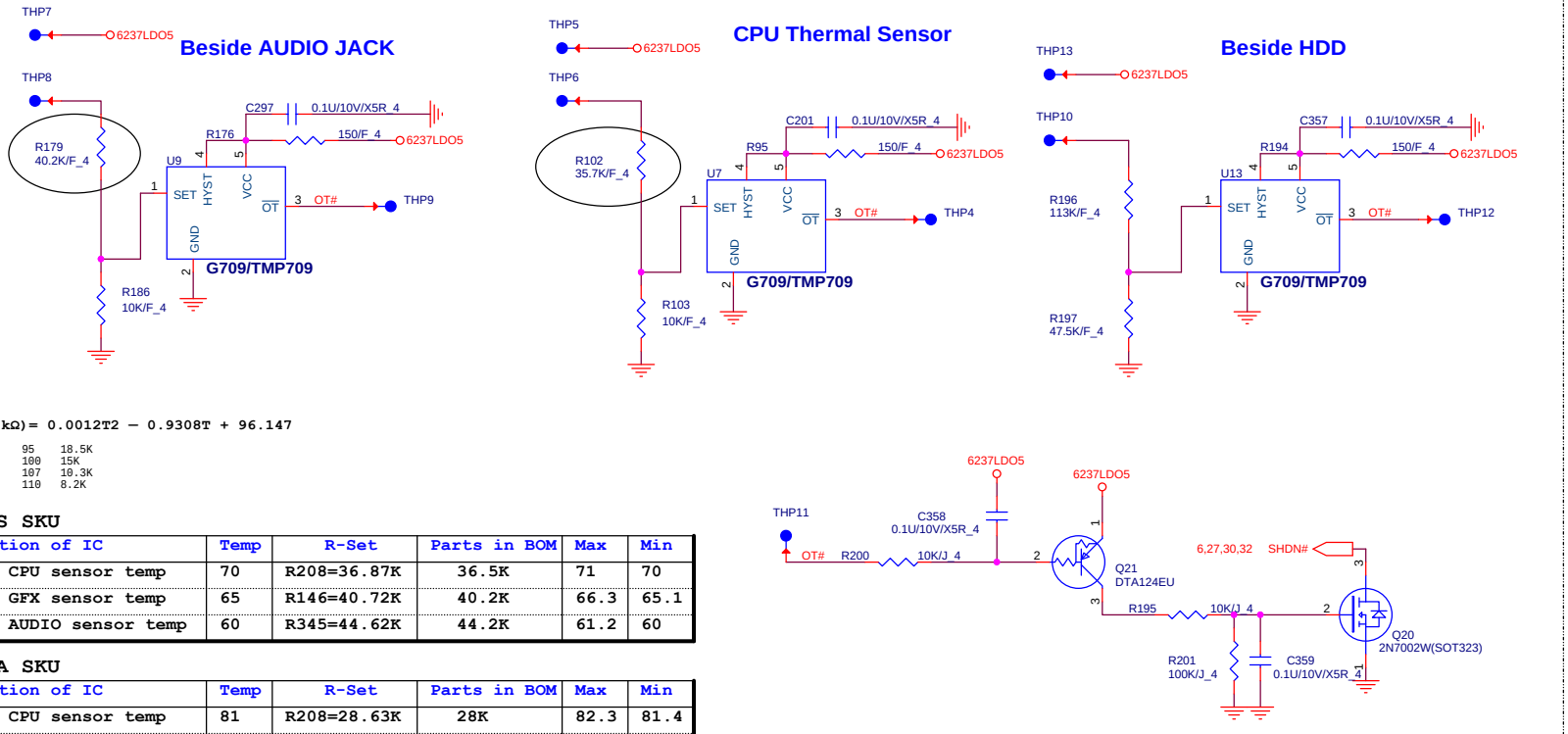
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	Card Reader(RTS5227E)	1A
Date: Friday, June 14, 2013	Sheet 18 of 35	



H/W Thermal Protect



RSET(kΩ)= 0.0012T2 – 0.9308T + 96.147

95	18.5K
100	15K
107	10.3K
110	8.2K

DIS SKU

Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp	70	R208=36.87K	36.5K	71	70
Near GFX sensor temp	65	R146=40.72K	40.2K	66.3	65.1
Near AUDIO sensor temp	60	R345=44.62K	44.2K	61.2	60

UMA SKU

Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp	81	R208=28.63K	28K	82.3	81.4
Near AUDIO sensor temp	58	R345=46.2K	46.4K	58.4	57.1

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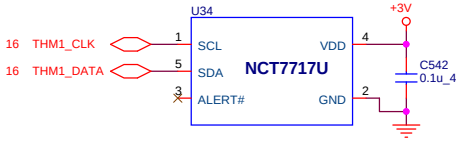
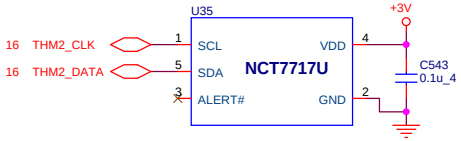
Thermal Request

Close to FIN



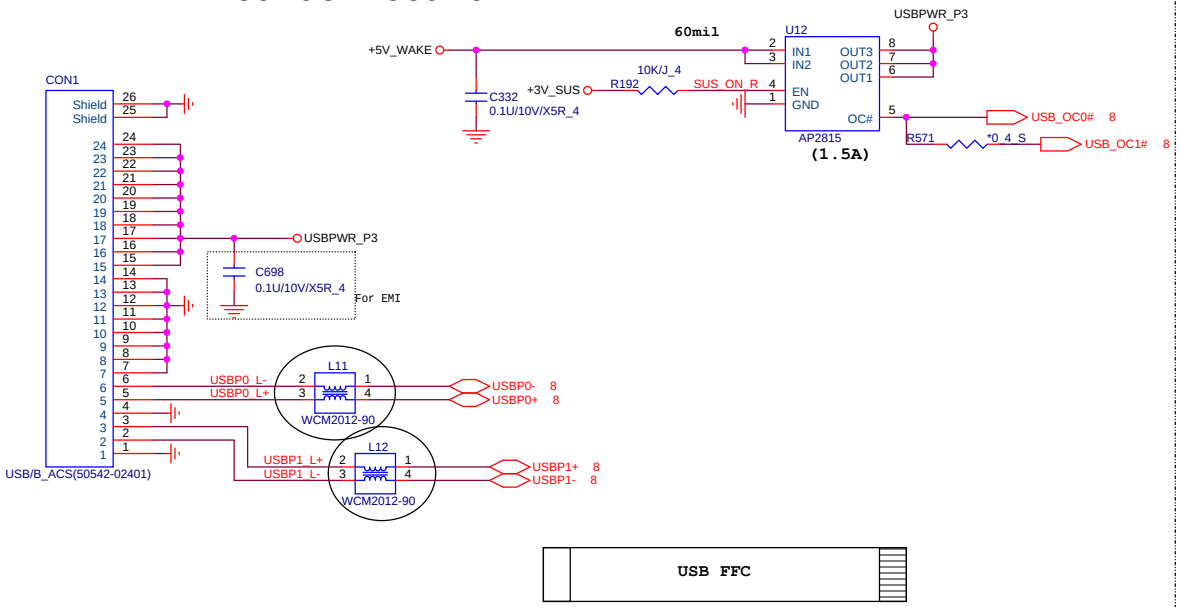
Far away heat portion



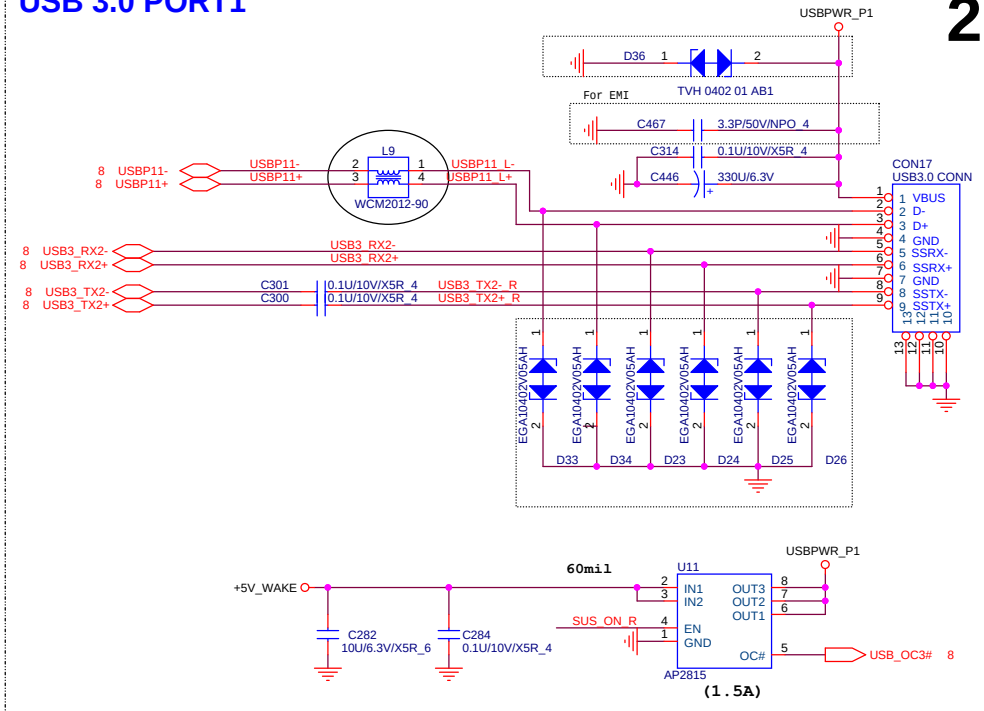
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	HDMI/Thermal	1A
Date: Tuesday, June 18, 2013	Sheet 19 of 35	

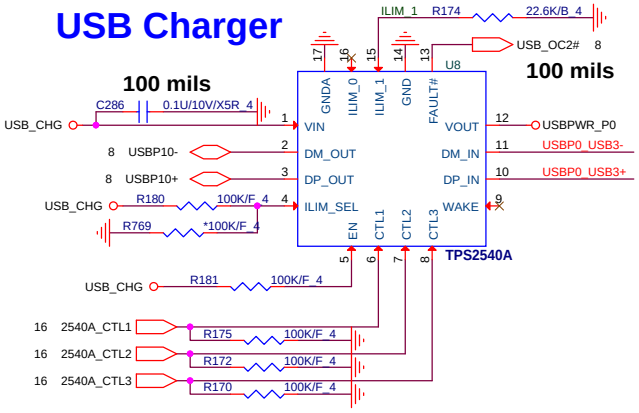
MB to USB board



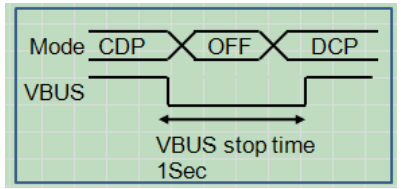
USB 3.0 PORT1



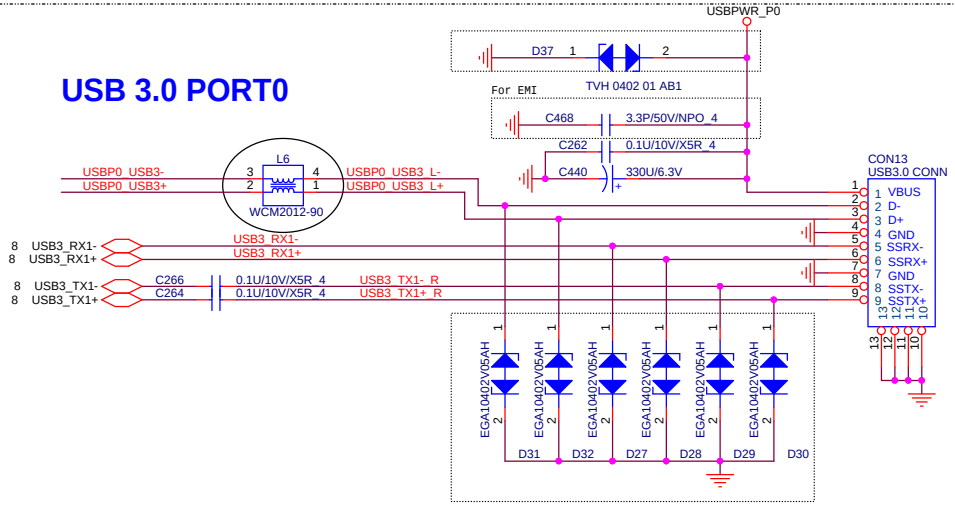
USB Charger



SDP : Standard Downstream Port
CDP : Charging downstream port
DCP : Dedicated Charging Port
Enable/Disable : setting by BIOS



USB 3.0 PORT0



CTL_1	CTL_2	CTL_3	TPS 2540A/2543 Truth Table
0	0	0	OUT discharge, power switch OFF
0	X	1	DCP,Auto-detect(S3/S4/S5, 1.5A)
X	1	0	SDP, USB2.0 mode(S0, 0.5A)
1	0	0	DCP, BC SPEC1.2 only(S3/Deep standby/S4/S5, 1.5A)
1	0	1	DCP, Divider mode only(S3/S4/S5, 1.5A)
1	1	1	CDP (S0, 1.5A)

System State	USB Battery Charging Setting			
	Disable	C(1 2 3)	Enable	C(1 2 3)
S0	SDP	(X 1 0)	CDP	(1 1 1)
S3	SDP	(X 1 0)	DCP BC	(1 0 0)
DS3	Charger OFF	(0 0 0)	DCP BC	(1 0 0)
S4	Charger OFF	(0 0 0)	DCP BC	(1 0 0)
S5	Charger OFF	(0 0 0)	DCP BC	(1 0 0)

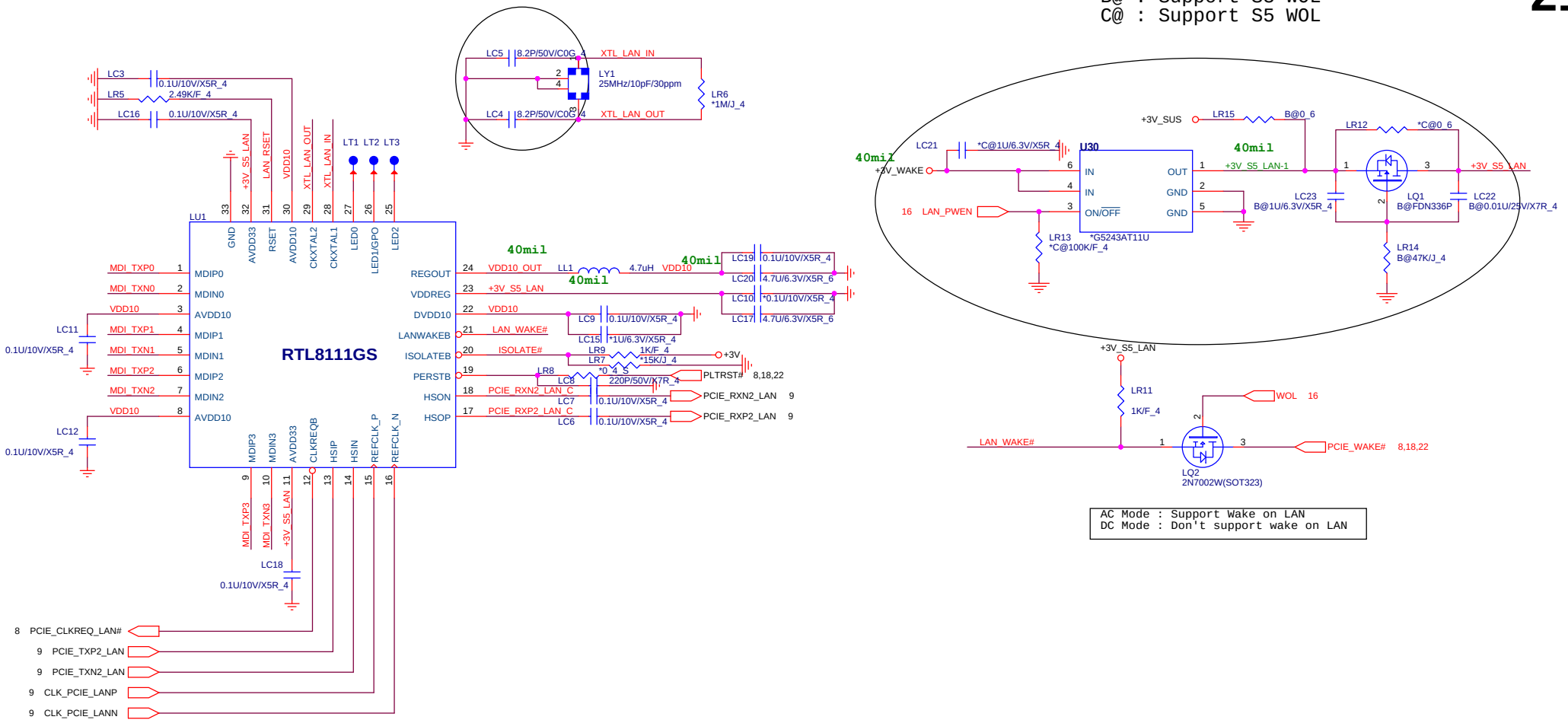
ILIM_SEL	(I LIMIT(A)= 48000/R)	
HI	I_LIM_1	
LO	I_LIM_0	48000/22.6K=2.123A

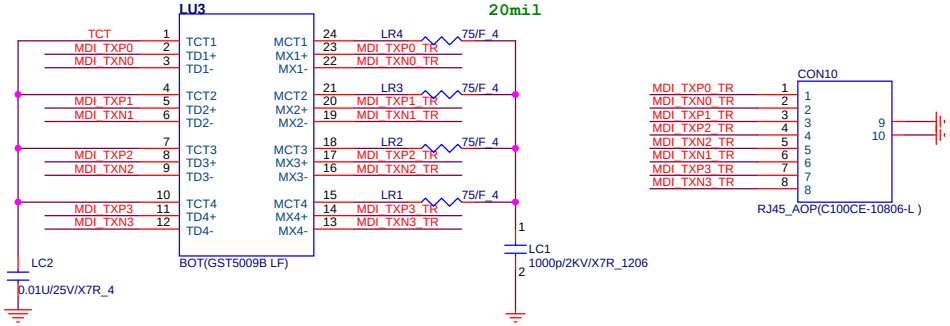
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	USB/USB Charger	1A
Date: Friday, June 14, 2013	Sheet 20 of 35	

B@ : Support S3 WOL
C@ : Support S5 WOL



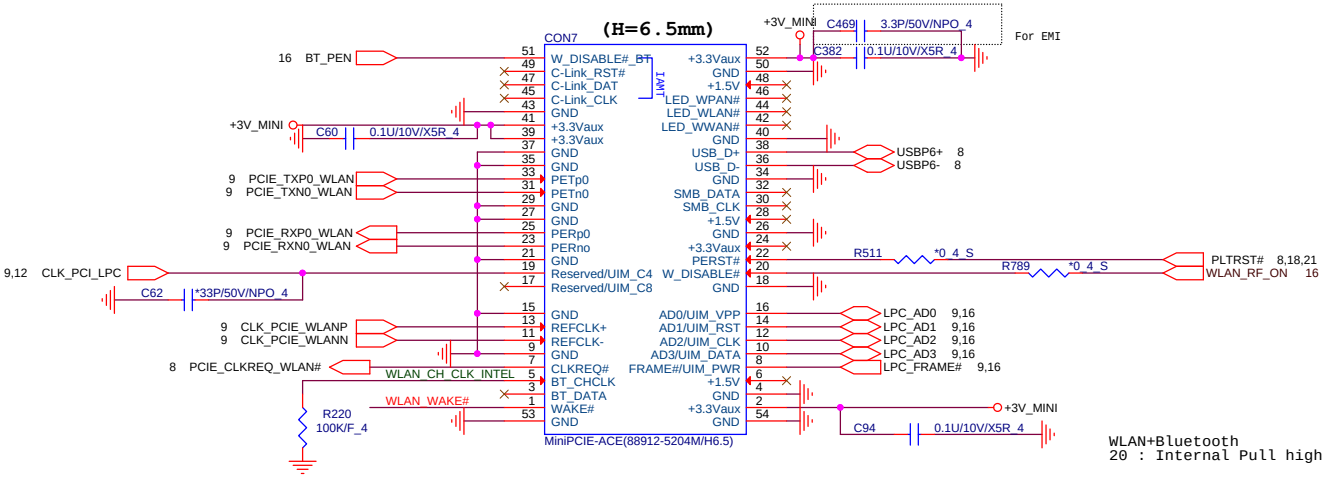


1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

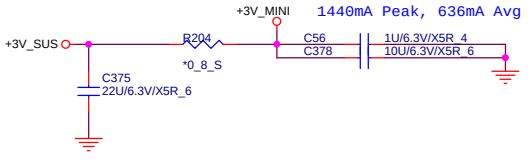
Quanta Computer Inc.
PROJECT : HKB

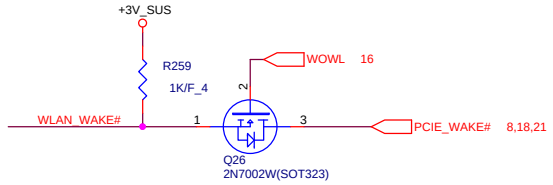
Size	Document Number	Rev
	LAN RTL8111GS	1A
Date: Friday, June 14, 2013	Sheet 21 of 35	

WLAN/WIMAX/WIDI



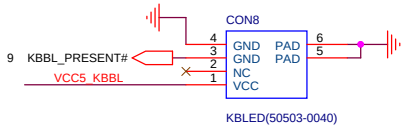
WLAN+Bluetooth
20 : Internal Pull high 25K ~ 58K

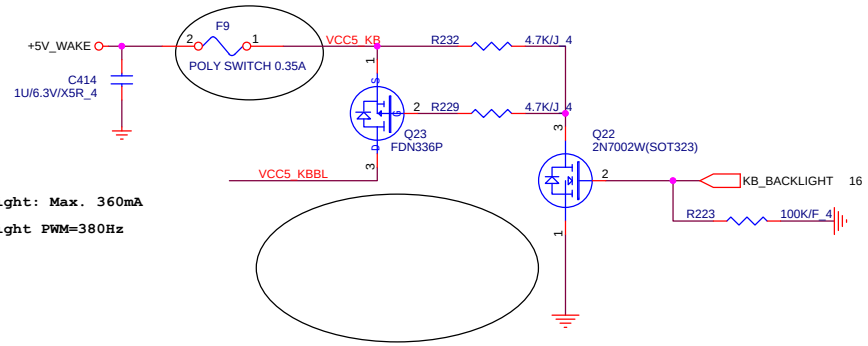




AC Mode : Support Wake on WLAN
DC Mode : Don't support wake on WLAN

KB BACKLIGHT





KB Backlight: Max. 360mA

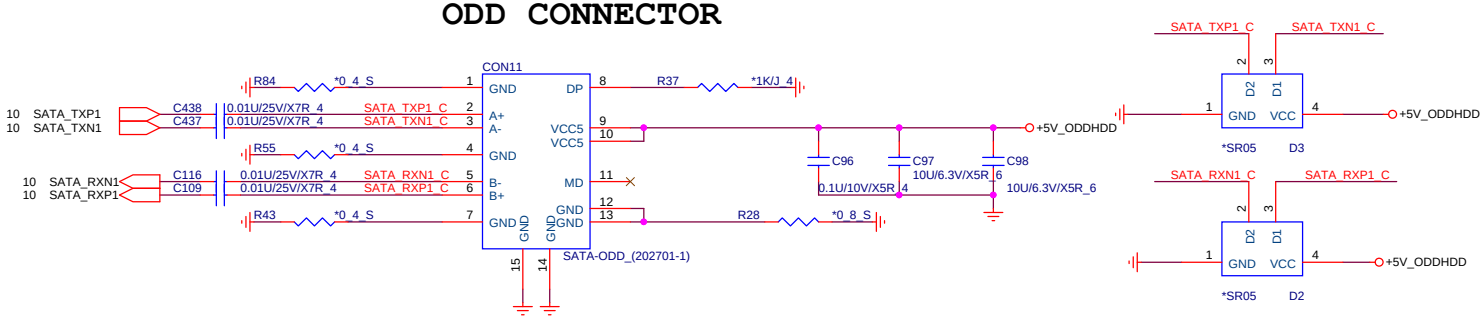
KB Backlight PWM=380Hz

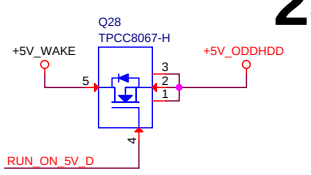
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : HKB

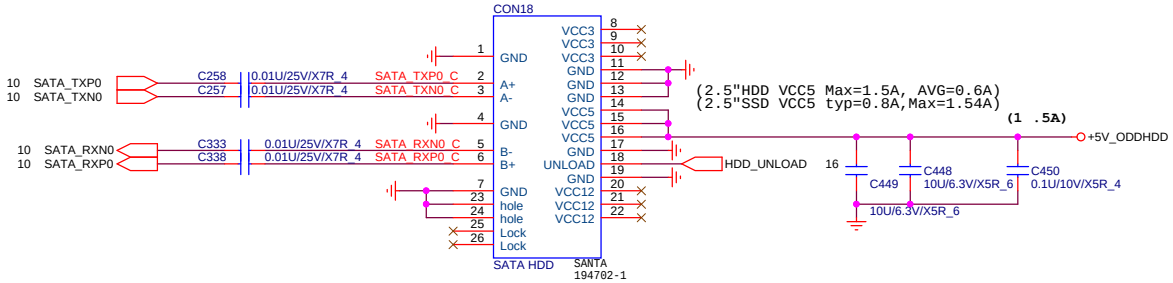
Size	Document Number	Rev
	WLAN/KB-BL	1A
Date: Friday, June 14, 2013	Sheet 22 of 35	

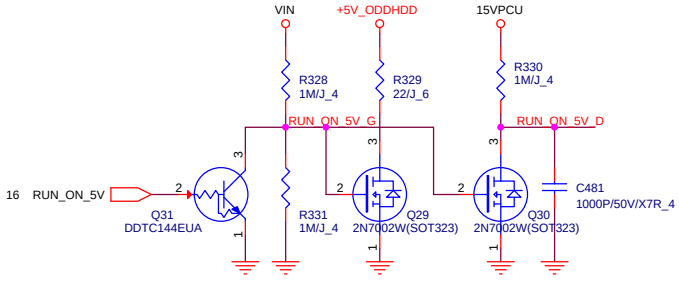
ODD CONNECTOR

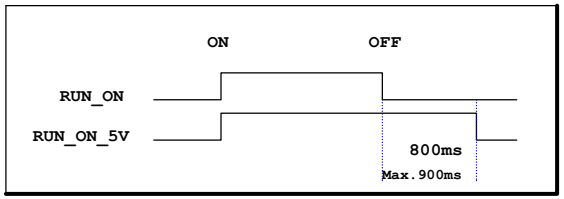




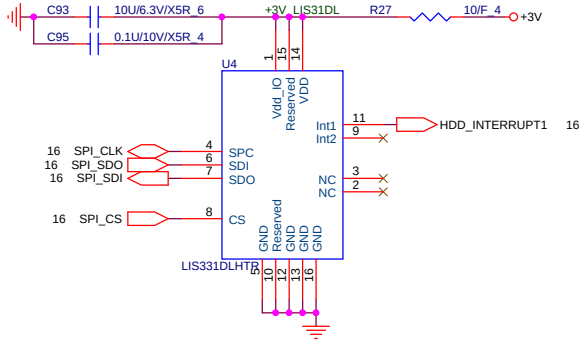
HDD CONNECTOR

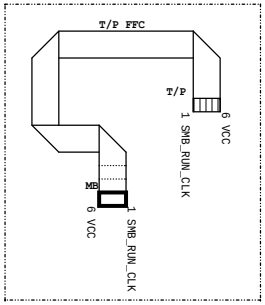




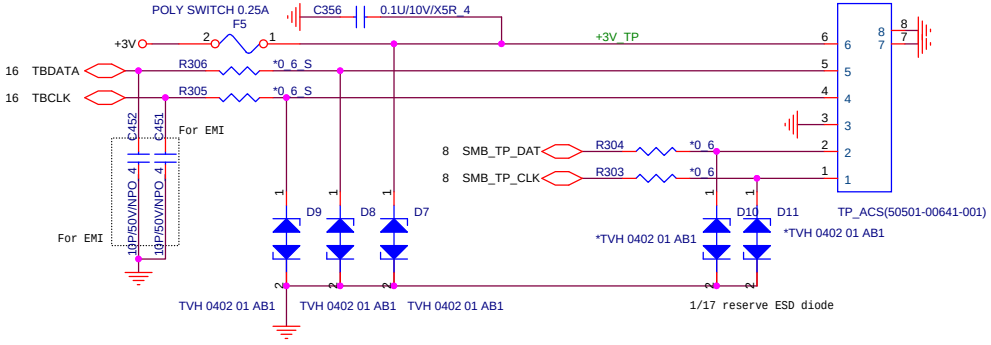


HDD PROTECT SPI INTERFACE

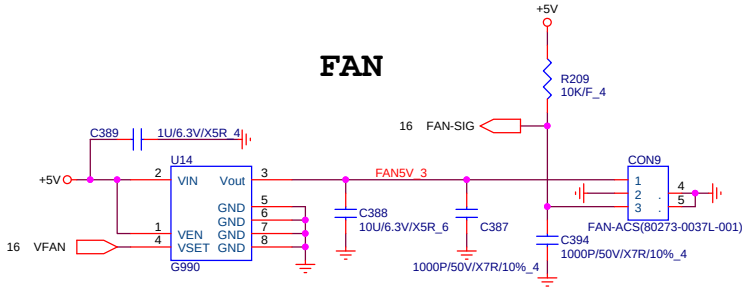




T/P Board to T/P



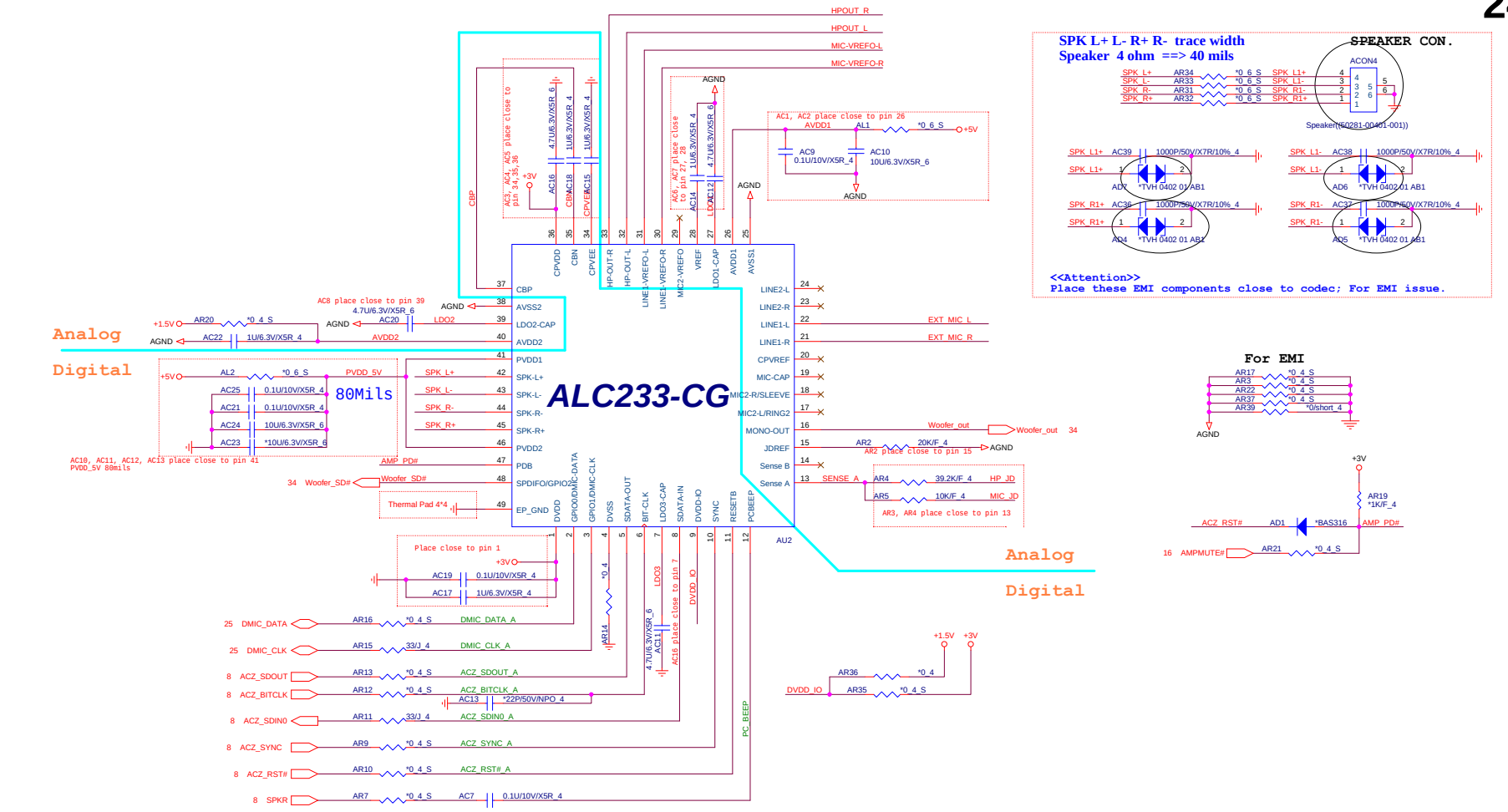
FAN

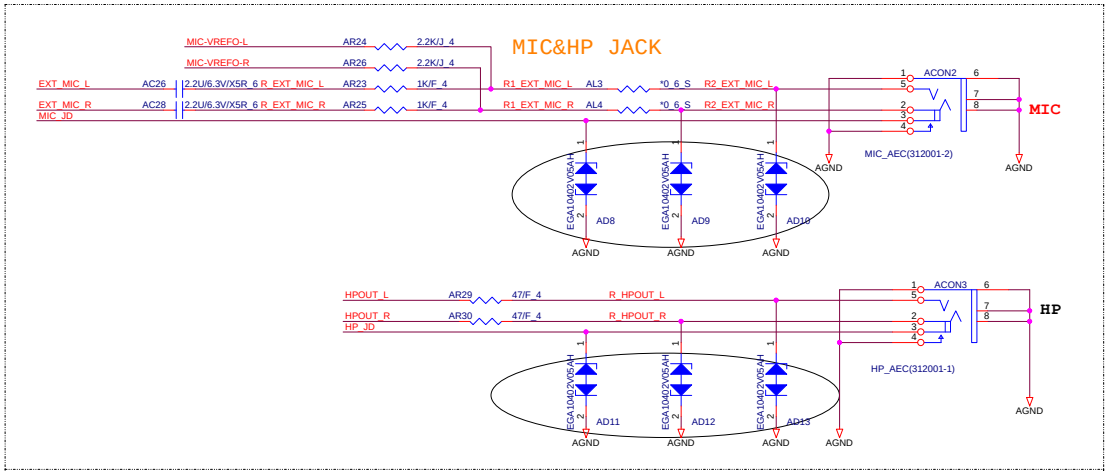


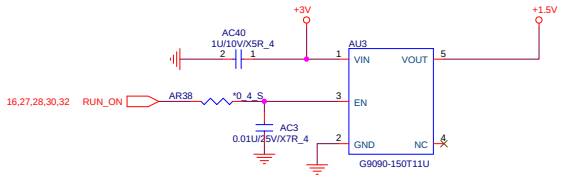
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	HDD/ODD/Gsensor/TP/FAN	1A
Date: Tuesday, June 18, 2013	Sheet 23 of 35	







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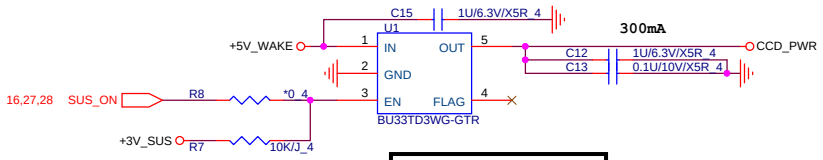
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	AUDIO(ALC233-CG)HP&MIC	1A
Date: Friday, June 14, 2013	Sheet 24 of 36	

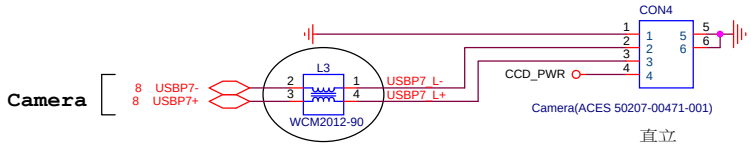
Camera

USB Camera Power

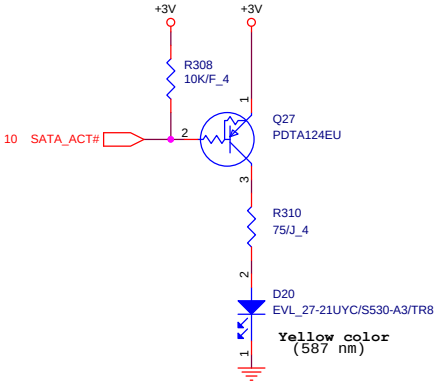


Camera HD specification
Voltage: Max. 3.6V
Current : Max. 200mA
OCP: 200mA ~ 300mA

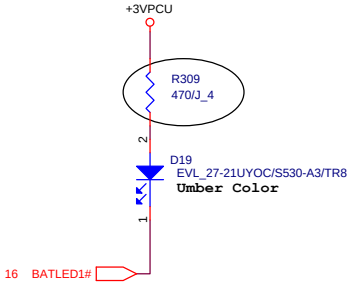
Camera



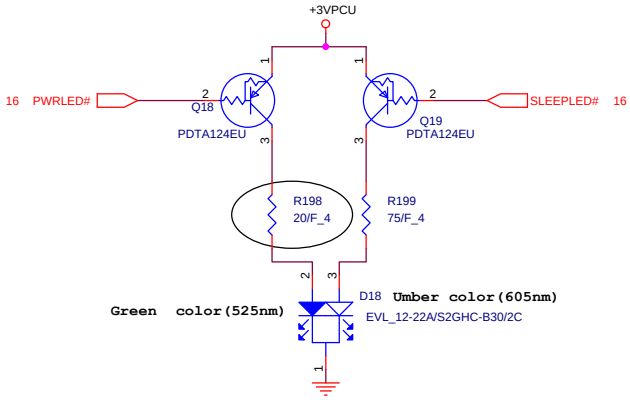
SATA LED



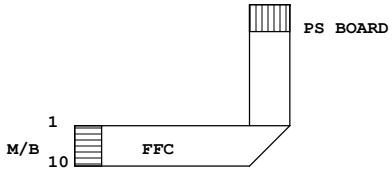
BATTERY LED



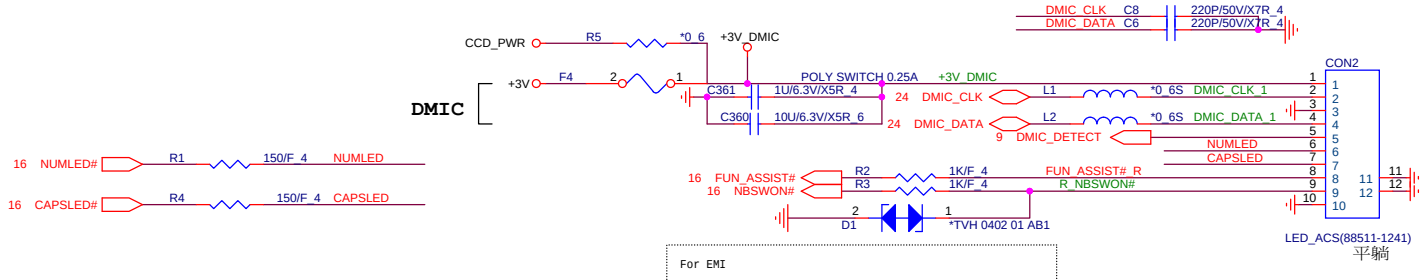
Power/Sleep LED



PS BOARD



Power SW Board Connector



1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	LED/PS/DMIC\Camera	1A
Date: Friday, June 14, 2013	Sheet 25 of 35	

Richland 25W: GRP A
VDD_NB LL: -4.0mV/A

PU112
ISL62771HRTZ-T

Fsw=300KHz
No Offset on VDDNB
Place NTC close to the GFX_CORE inductor
No Offset on VCC_CORE
Place NTC close to the VCORE Hot-Spot.
Place NTC close to the NB_CORE Hot-Spot.
Catch resistor in H/W side
Place NTC close to the VCORE inductor of phase 1

VCORE LL: -2.1mV/A
Richland 25W: GRP A

EDC: 33A
TDC: 22A

EDC: 35A
TDC: 22A

1.Level 1 Environment-related Substances Should Never be Used.
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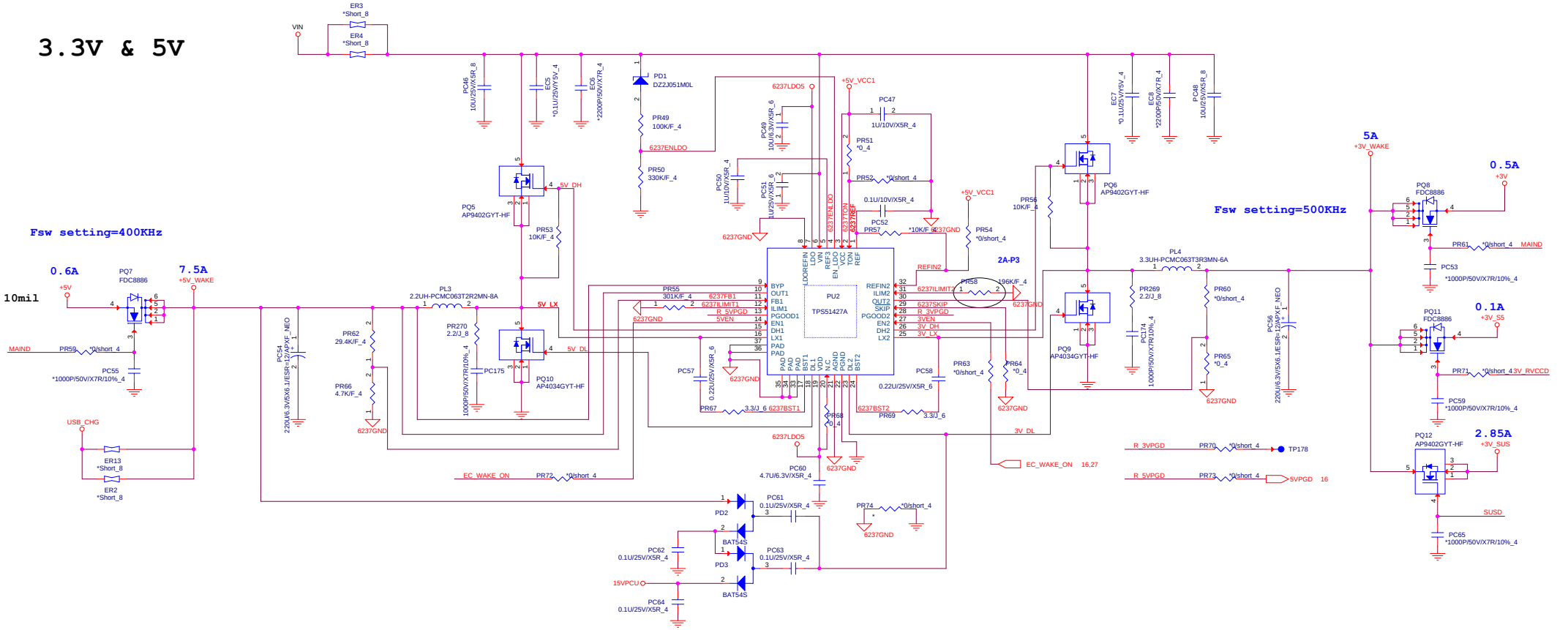
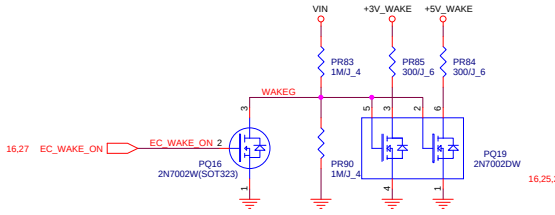
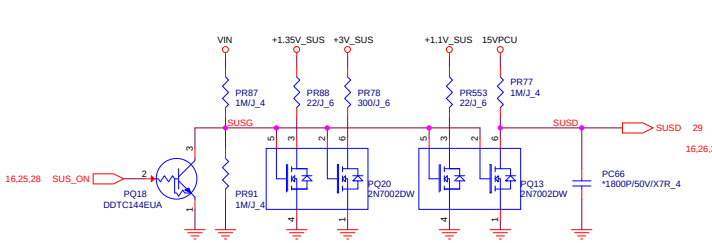
Quanta Computer Inc.
PROJECT : HKA

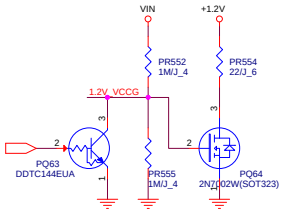
Size	Document Number	Rev
	+VCC_CORE (ISL62771)	1A
Date: Friday, June 14, 2013	Sheet 26 of 36	

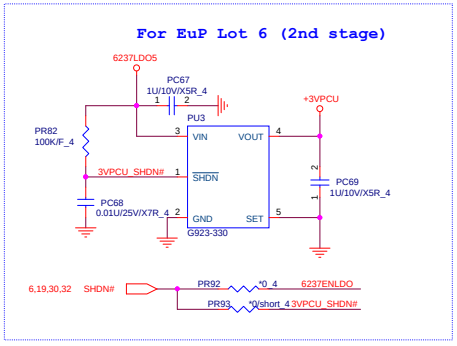
3.3V & 5V

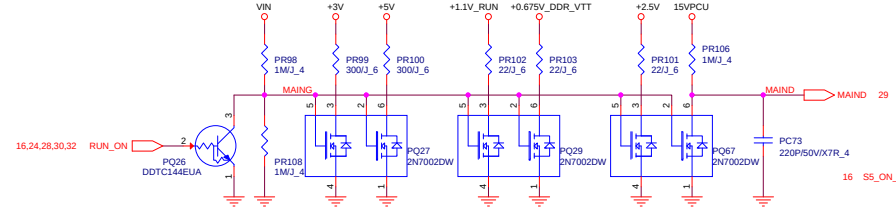


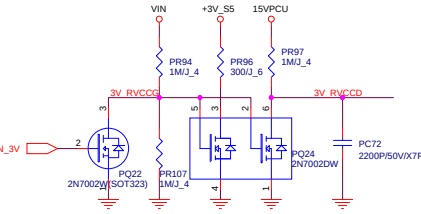


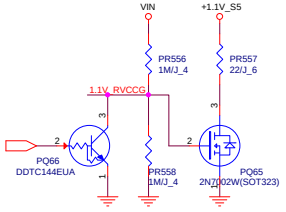












1.Level 1 Environment-related Substances Should Never be Used.
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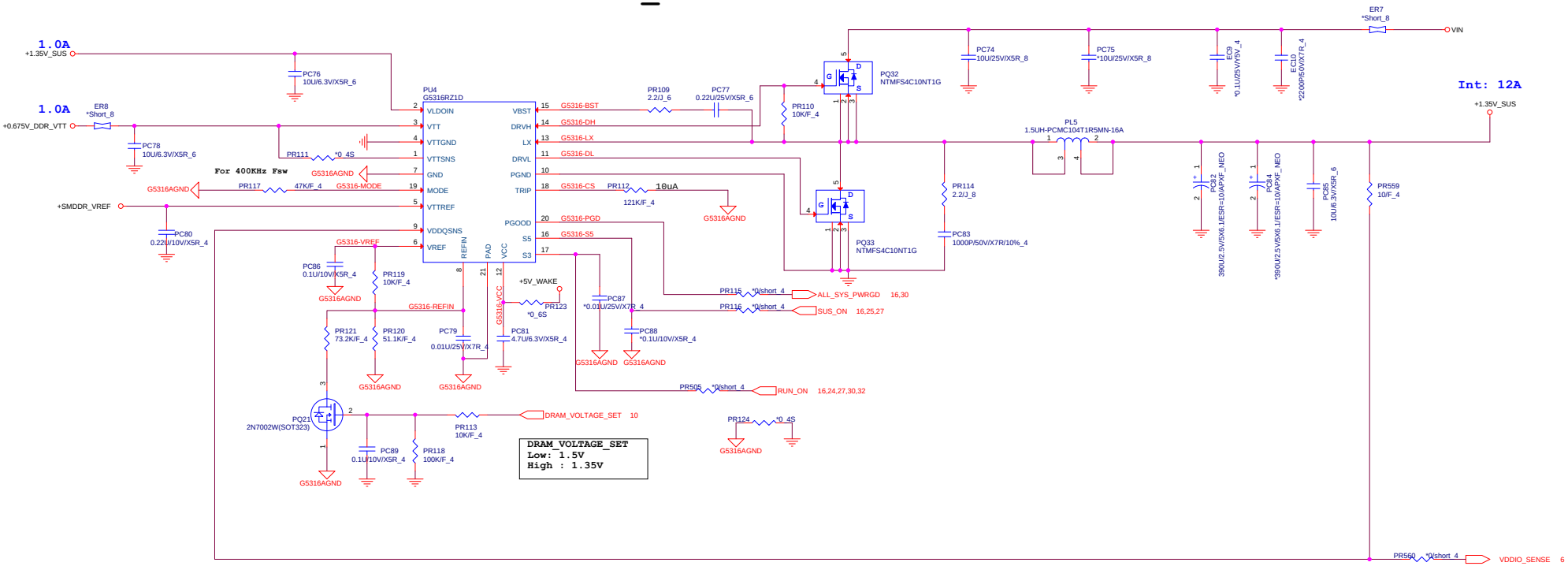
Quanta Computer Inc.
PROJECT : HKA

Size	Document Number	Rev
	3VPCU&5VPCU(TPS51427A)	1A
Date: Friday, June 14, 2013	Sheet 27 of 36	

1.35VSUS & VTT_MEM



MODE	Resistor on Mode	Fsw	Discharge Mode
3	200Kohm	400KHz	Tracking discharge
2	100Kohm	300KHz	
1	68Kohm	300KHz	Non-tracking discharge
0	47Kohm	400KHz	

STATE	S3	S5	1.5VSUS	VTTREF	VTT
S0	1	1	On	On	On
S3	0	1	On	On	Off/High Z
S4/S5	0	0	Off	Off	Off

1.Level 1 Environment-related Substances Should Never be Used.
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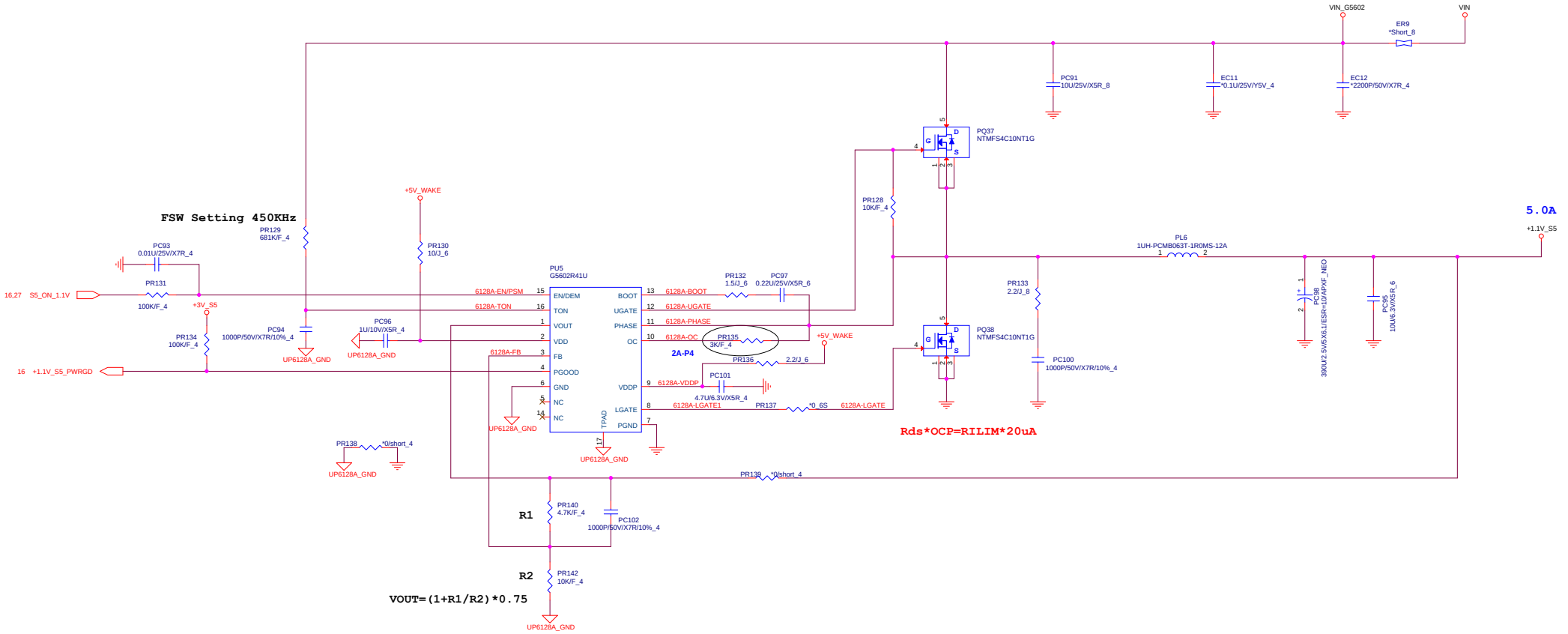
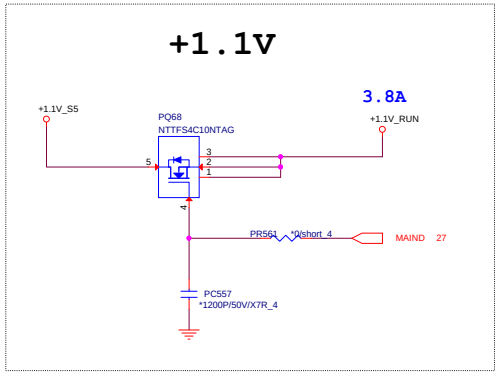
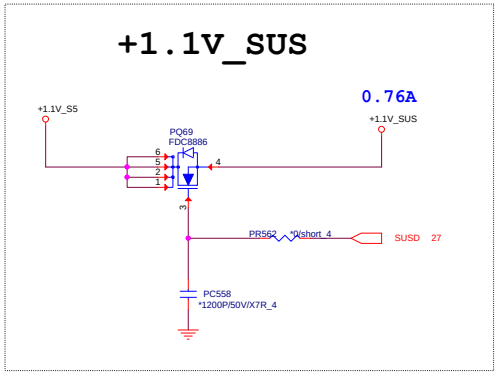
Quanta Computer Inc.
PROJECT : HKA

Size	Document Number	Rev
	1.35VSUS/VTT_MEM	1A

Date: Friday, June 14, 2013 Sheet 28 of 36







1.Level 1 Environment-related Substances Should Never be Used.
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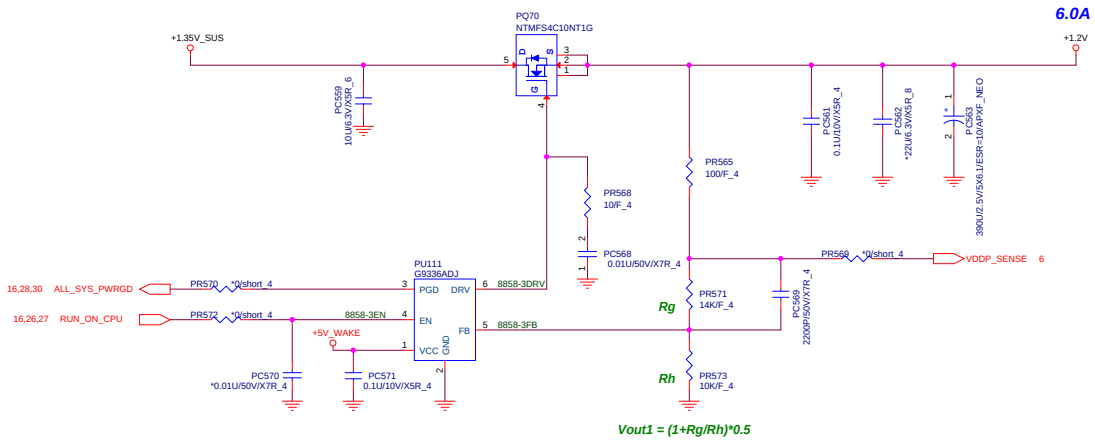
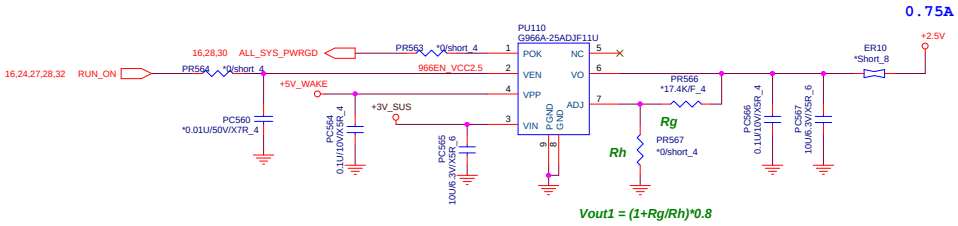
Quanta Computer Inc.
PROJECT : HKA

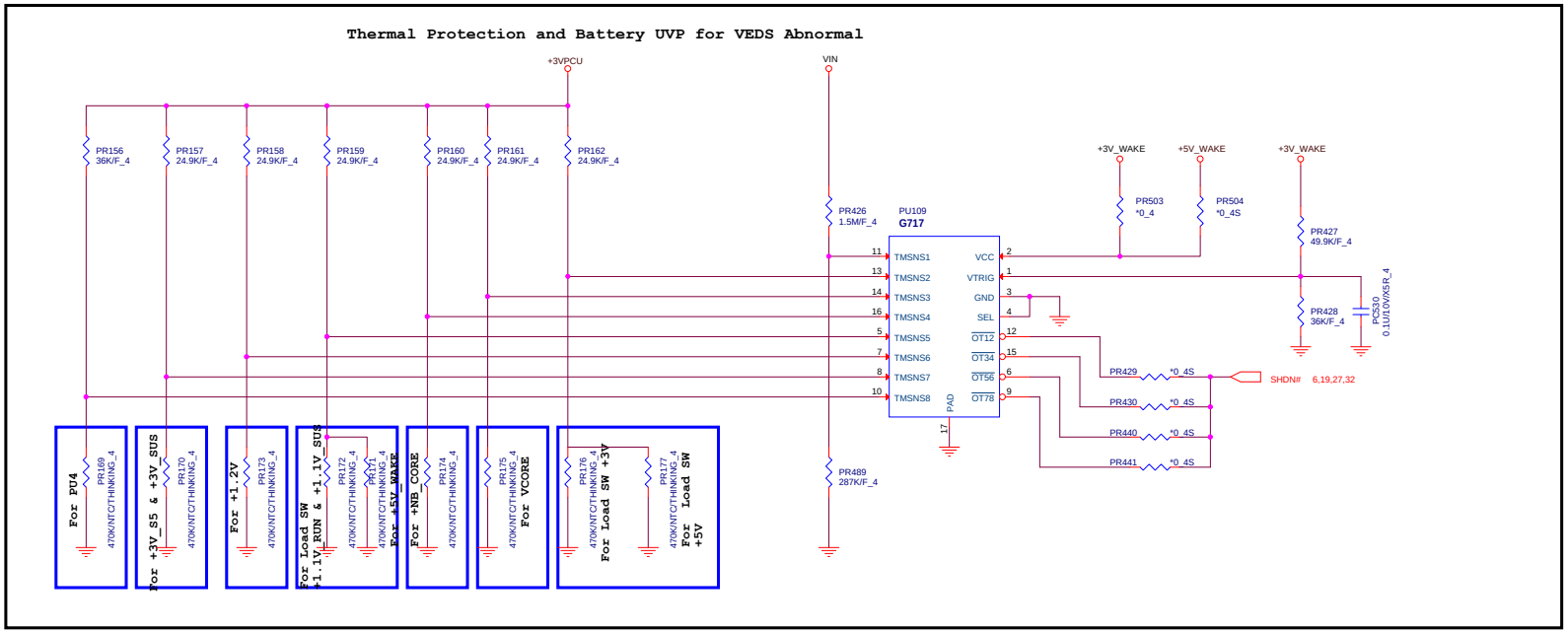
Size	Document Number	Rev
	+1.1V (UP1522RQDD)	1A
Date: Friday, June 14, 2013	Sheet 29 of 36	

VCC1.2



VCC2.5





1.Level 1 Environment-related Substances Should Never be Used.
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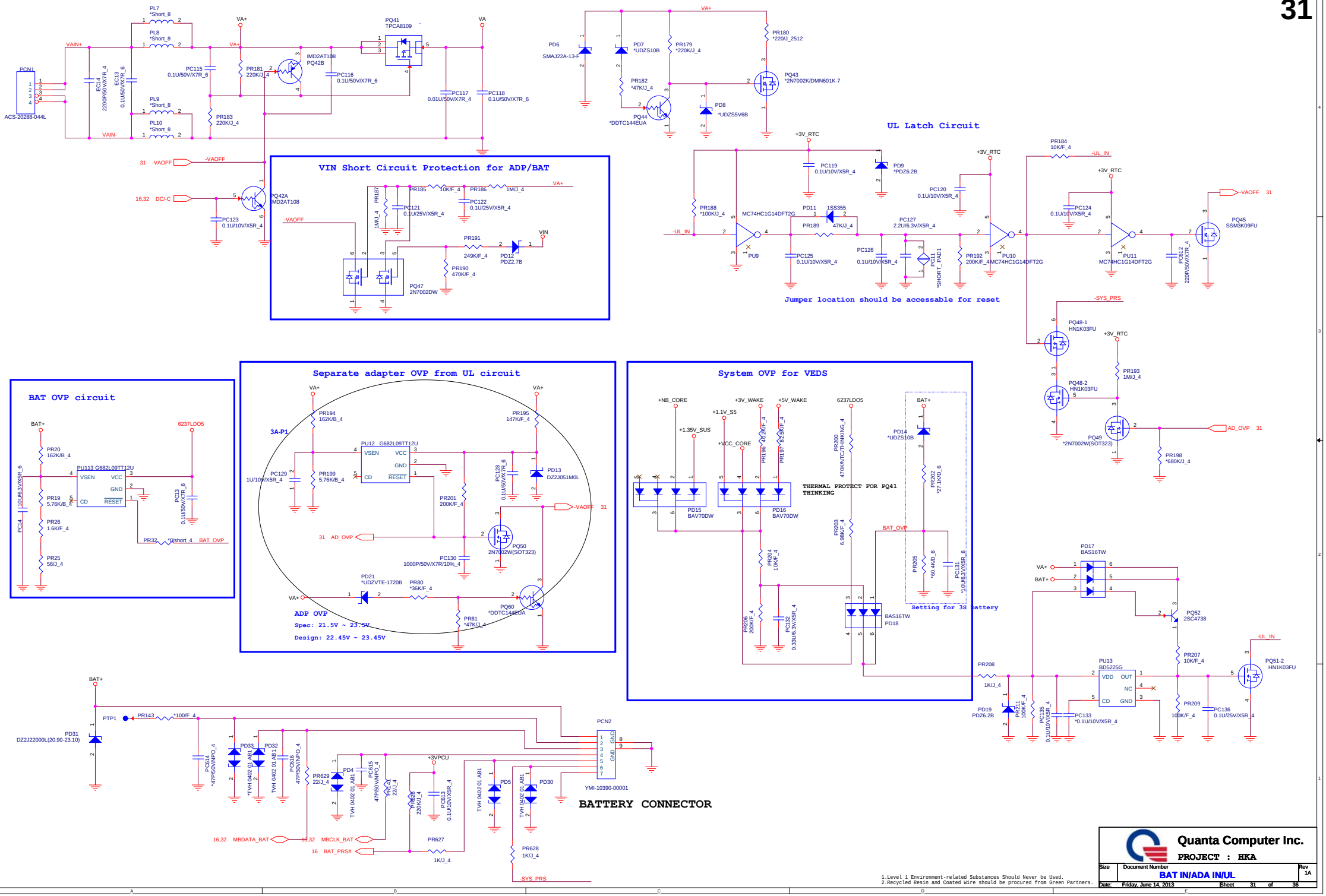
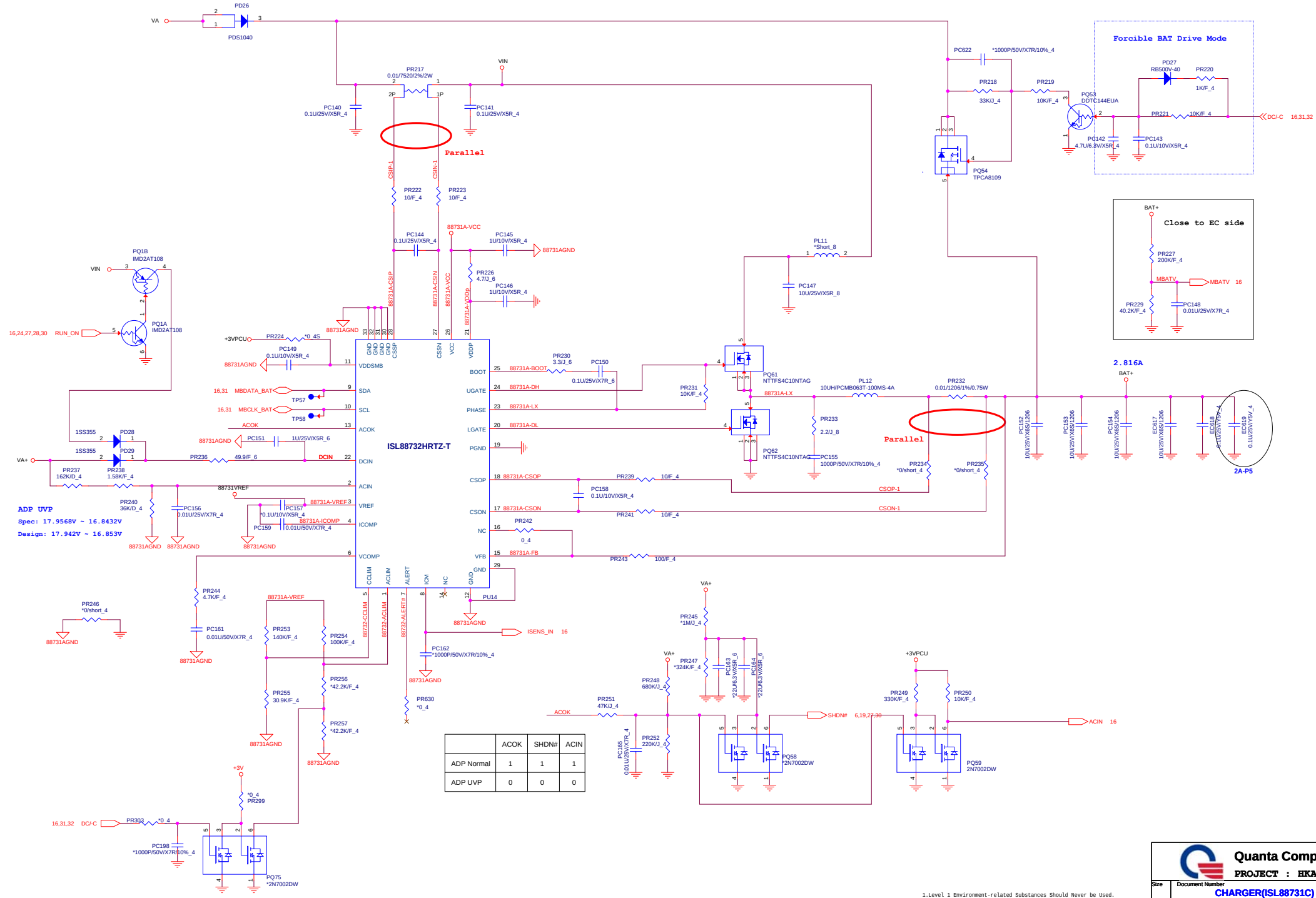
Quanta Computer Inc.
PROJECT : HKA

Size	Document Number	Rev
	VCC1.2/VCC2.5/Thermal	1A
Date: Friday, June 14, 2013	Sheet 30 of 36	


VIN Short Circuit Protection for ADP/BAT
UL Latch Circuit
Jumper location should be accessable for reset
BAT OVP circuit
Separate adapter OVP from UL circuit
ADP OVP
Spec: 21.5V ~ 23.5V
Design: 22.45V ~ 23.45V
System OVP for VEDS
THERMAL PROTECT FOR PQ41 THINKING
Setting for 3S battery
BATTERY CONNECTOR
Quanta Computer Inc.
PROJECT : HKA
BAT IN/ADA IN/UL
Friday, June 14, 2013
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.



	ACOK	SHDN#	ACIN
ADP Normal	1	1	1
ADP UVP	0	0	0

1.Level 1 Environment-related Substances Should Never be Used.
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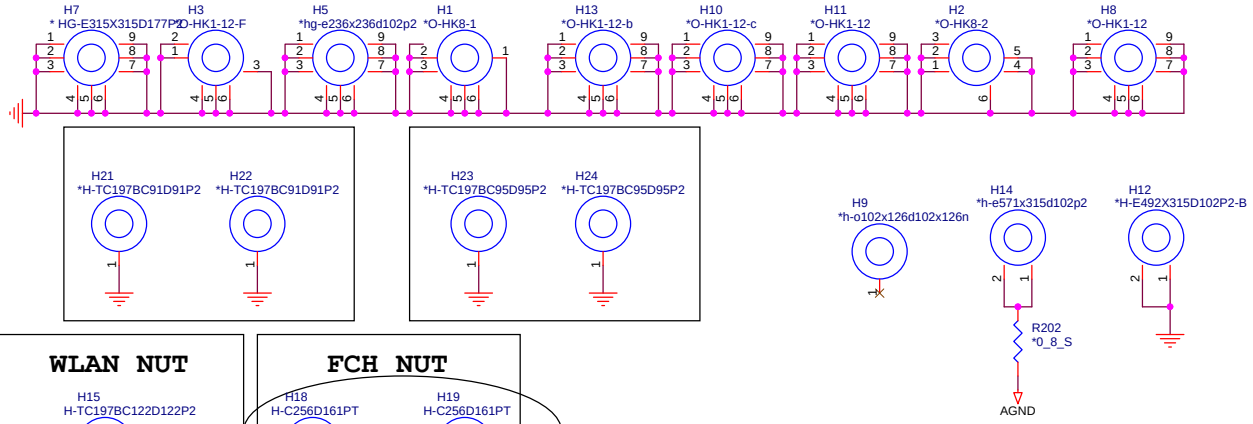
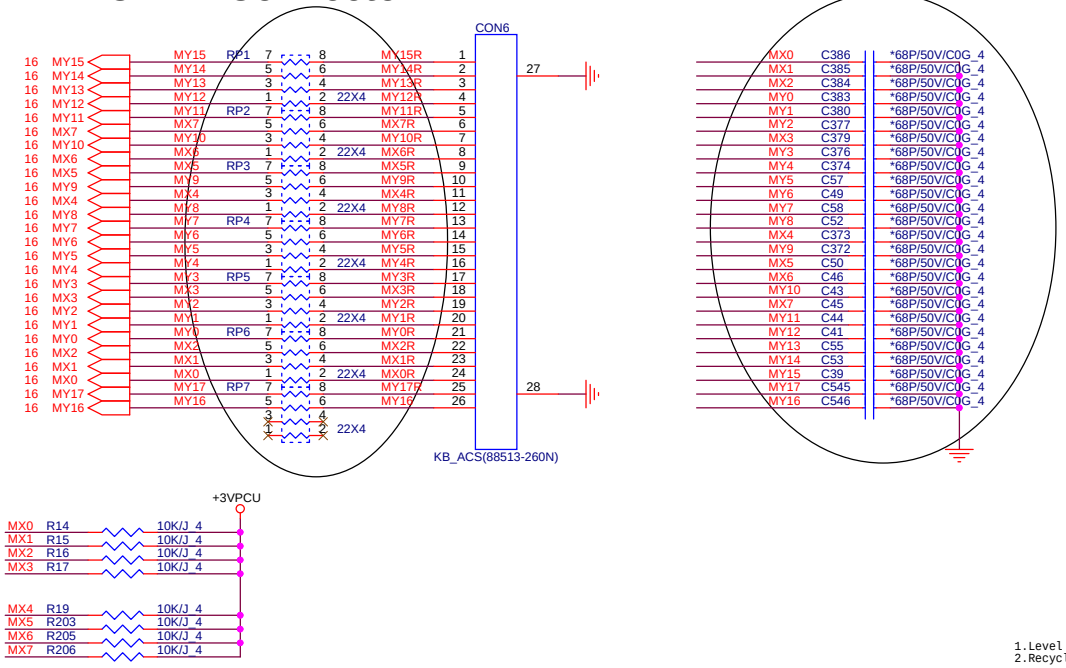
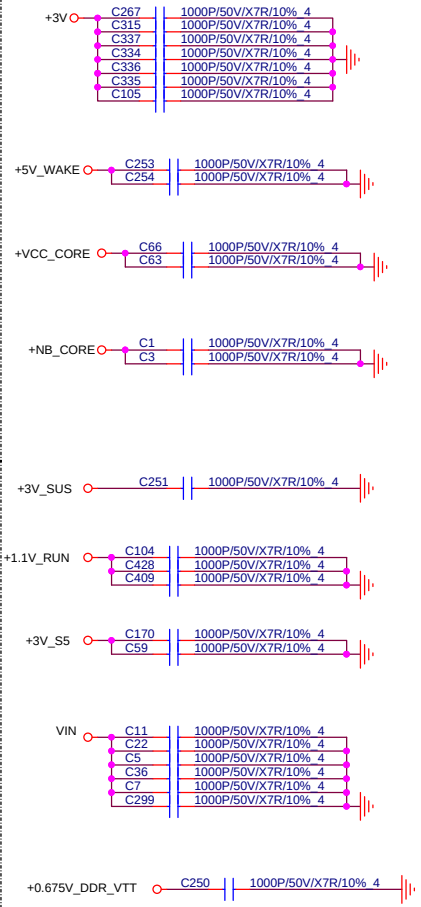
Quanta Computer Inc.
PROJECT : HKA

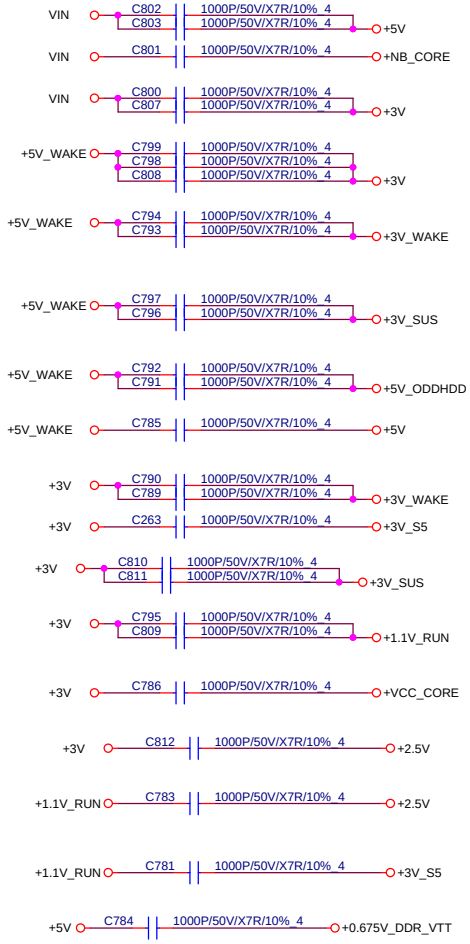
Size	Document Number	Rev
	CHARGER(ISL88731C)	1A
Date: Friday, June 14, 2013	Sheet 32 of 36	



KEY BOARD Connector







1.Level 1 Environment-related Substances Should Never be Used.
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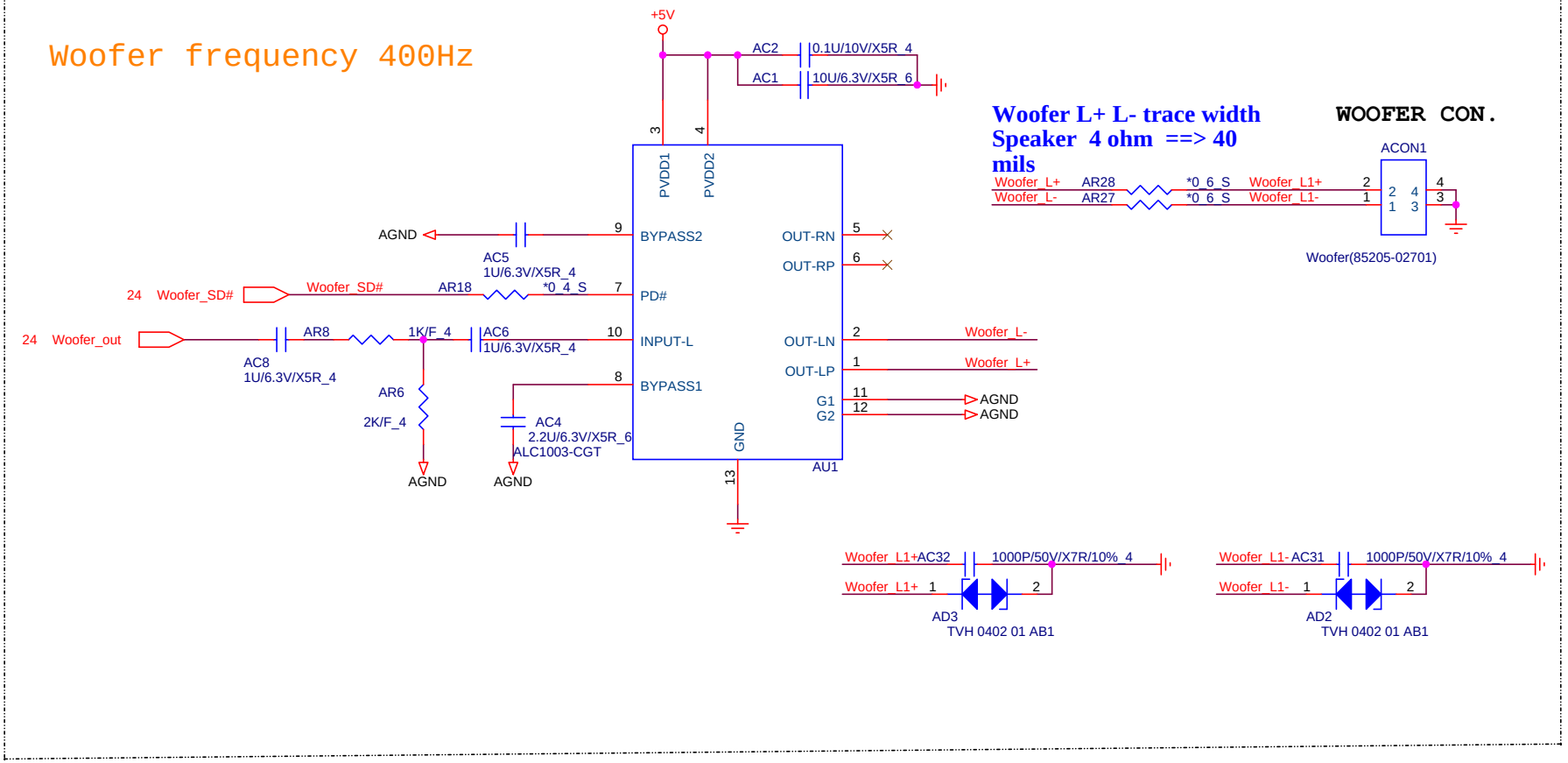
Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	HOLE/EMI/KB	1A
Date: Friday, June 14, 2013	Sheet 33 of 36	

Woofer frequency 400Hz

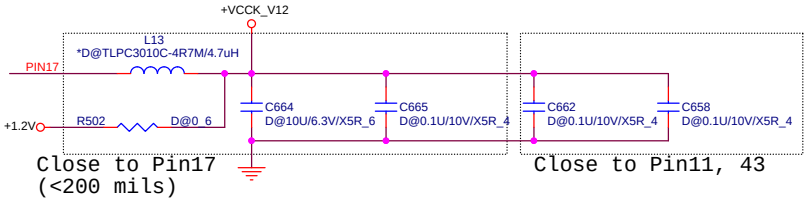


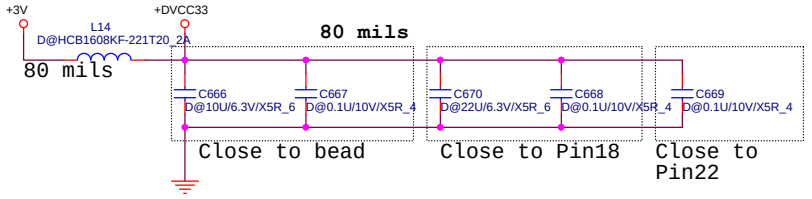
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

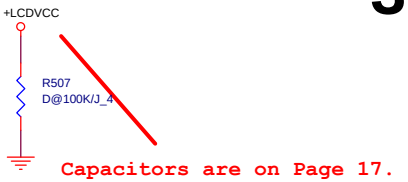
Quanta Computer Inc.

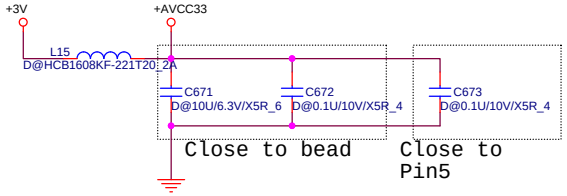
PROJECT : HKB

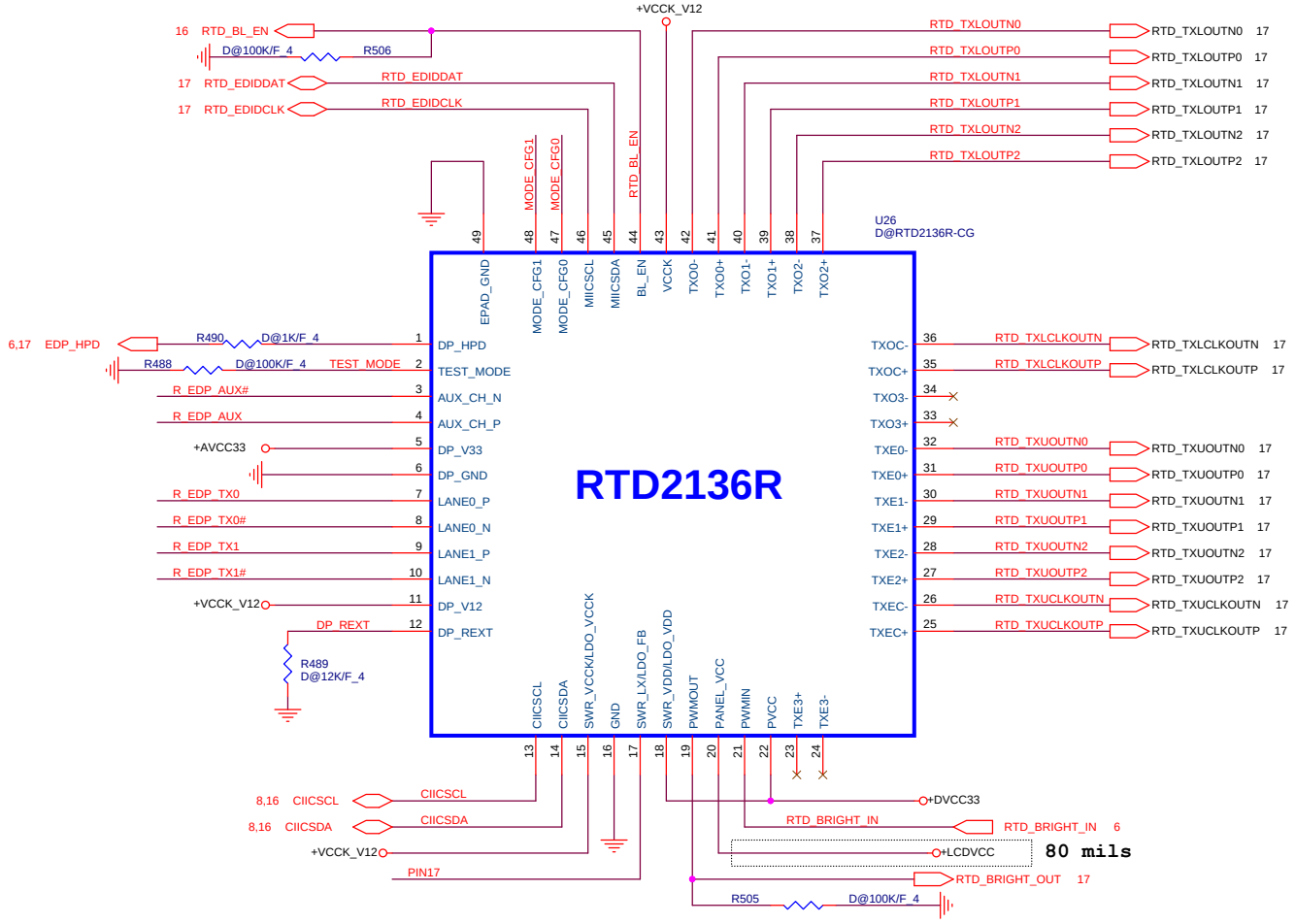
Size	Document Number	Rev
	Woofer(ALC1003-CGT)	1A
Date: Friday, June 14, 2013	Sheet 34 of 36	

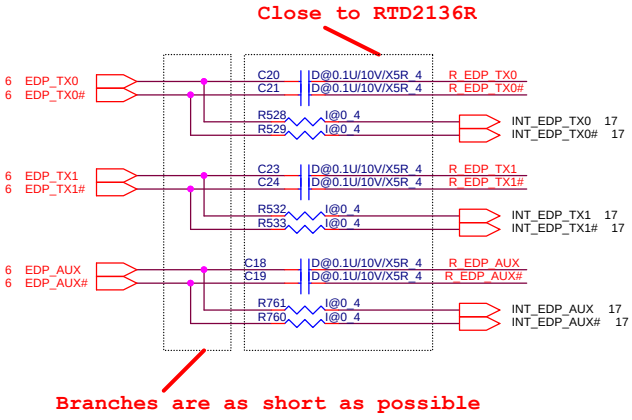


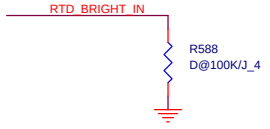


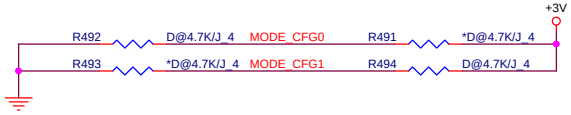












		MODE_CFG0(PIN47)	
		0	1
MODE_CFG1(PIN48)	0	X	EP MODE
	1	ROM ONLY MODE	EEPROM MODE

1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : HKB

Size	Document Number	Rev
	eDP to LVDS	1A
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I/O PORT LIST

USB PORT Architecture	
PORT 0	USB2.0
PORT 1	USB2.0
PORT 2	N/A
PORT 3	N/A
PORT 4	N/A
PORT 5	Touch Screen
PORT 6	WiMAX/BT
PORT 7	Camera
PORT 8	N/A
PORT 9	N/A
PORT 10	USB3.0
PORT 11	USB3.0
PORT 12	N/A
PORT 13	N/A

PCIE BUS	
PORT 0	WLAN Port
PORT 1	CARD READER
PORT 2	GLAN(RTL8111GS)
PORT 3	N/A

SATA BUS	
PORT 0	HDD
PORT 1	ODD
PORT 2	N/A
PORT 3	N/A
PORT 4	N/A
PORT 5	N/A

M/B ID LIST

SIZE	Board ID0
HKA 14"	0
HKB 15"	1

I/F	Board ID1
eDP	0
LVDS	1

CPU	Board ID2	Board ID3
A4	0	0
A6	0	1
A8	1	0
A10	1	1

SM BUS LIST

SM BUS	MBCLK/MBDATA	WRITE	READ	Function
ISL88732HRTZ-T	0001 001X	0001 0010	0001 0011	Charger

SM BUS	MBCLK_BAT/MBDATA_BAT	WRITE	READ	Function
VGP-BPS35A	0001 011X	0001 0110	0001 0111	Battery

SM BUS	SMB0_RUN_CLK/SMB0_RUN_DAT	WRITE	READ	Function
DIMM Module 0	1010 000X	1010 0000	1010 0001	DDRIII
DIMM Module 1	1010 010X	1010 0100	1010 0101	DDRIII

SM BUS	SMB1_RUN_CLK/SMB1_RUN_DAT	WRITE	READ	Function
Synaptics	0010 110X	0010 1100	0010 1101	Click PAD

POWER MAP

	S0	S3	S4	S5 (Charger Enable)	S5 (Charger Disable)
RUN_ON_CPU	H	L	L	L	L
+NB_CORE	H	L	L	L	L
+VCC_CORE	H	L	L	L	L
+1.2V	H	L	L	L	L
RUN_ON	H	L	L	L	L
+5V	H	L	L	L	L
+3V	H	L	L	L	L
+2.5V	H	L	L	L	L
+1.1V_RUN	H	L	L	L	L
+0.75V_DDR_VTT	H	L	L	L	L
SUS_ON	H	H	L	L	L
+1.35V_SUS	H	H	L	L	L
+3V_SUS	H	H	L	L	L
+1.1V_SUS	H	H	L	L	L
S5_ON_1.1V	H	H	*H/L	L	L
+1.1V_S5	H	H	*H/L	L	L
S5_ON_3V	H	H	*H/L	L	L
+3V_S5	H	H	*H/L	L	L
EC_WAKE_ON	H	H	*H/L	H	L
+3V_WAKE	H	H	*H/L	H	L
+5V_WAKE	H	H	*H/L	H	L
RUN_ON_5V	H	L	L	L	L
+5V_ODDHDD	H	L	L	L	L

* H: If wake up event exists.