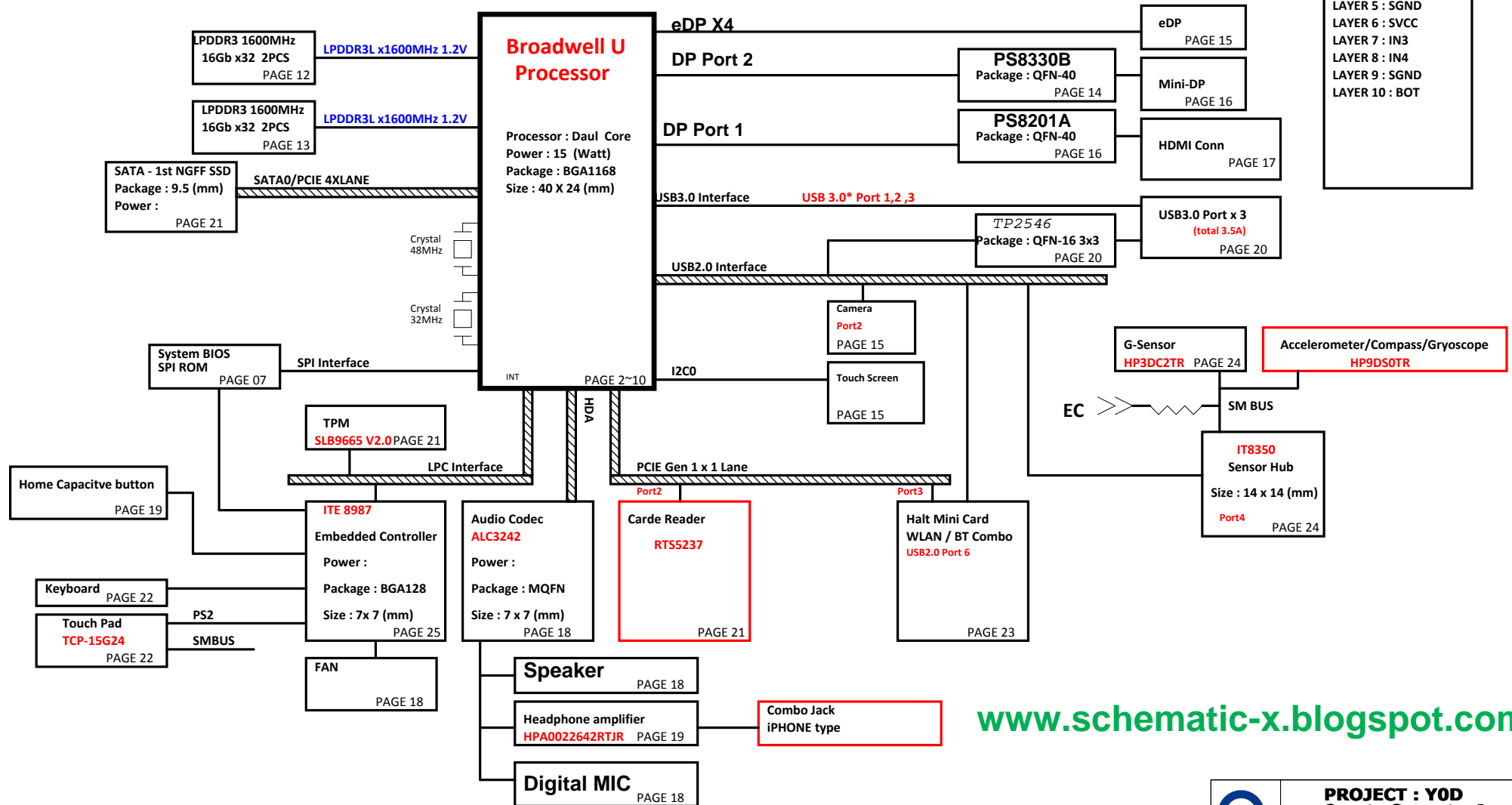


13" Pike Intel Crescent Bay ULT Platform Block Diagram

PCB 10L STACK UP

LAYER 1 : TOP
 LAYER 2 : SGND
 LAYER 3 : IN1(High)
 LAYER 4 : IN2(Low)
 LAYER 5 : SGND
 LAYER 6 : SVCC
 LAYER 7 : IN3
 LAYER 8 : IN4
 LAYER 9 : SGND
 LAYER 10 : BOT


www.schematic-x.blogspot.com


PROJECT : Y0D
 Quanta Computer Inc.

Size	Document Number	Rev
Custom	Block Diagram	1A
Date	Tuesday, October 28, 2014	Sheet 1 of 32



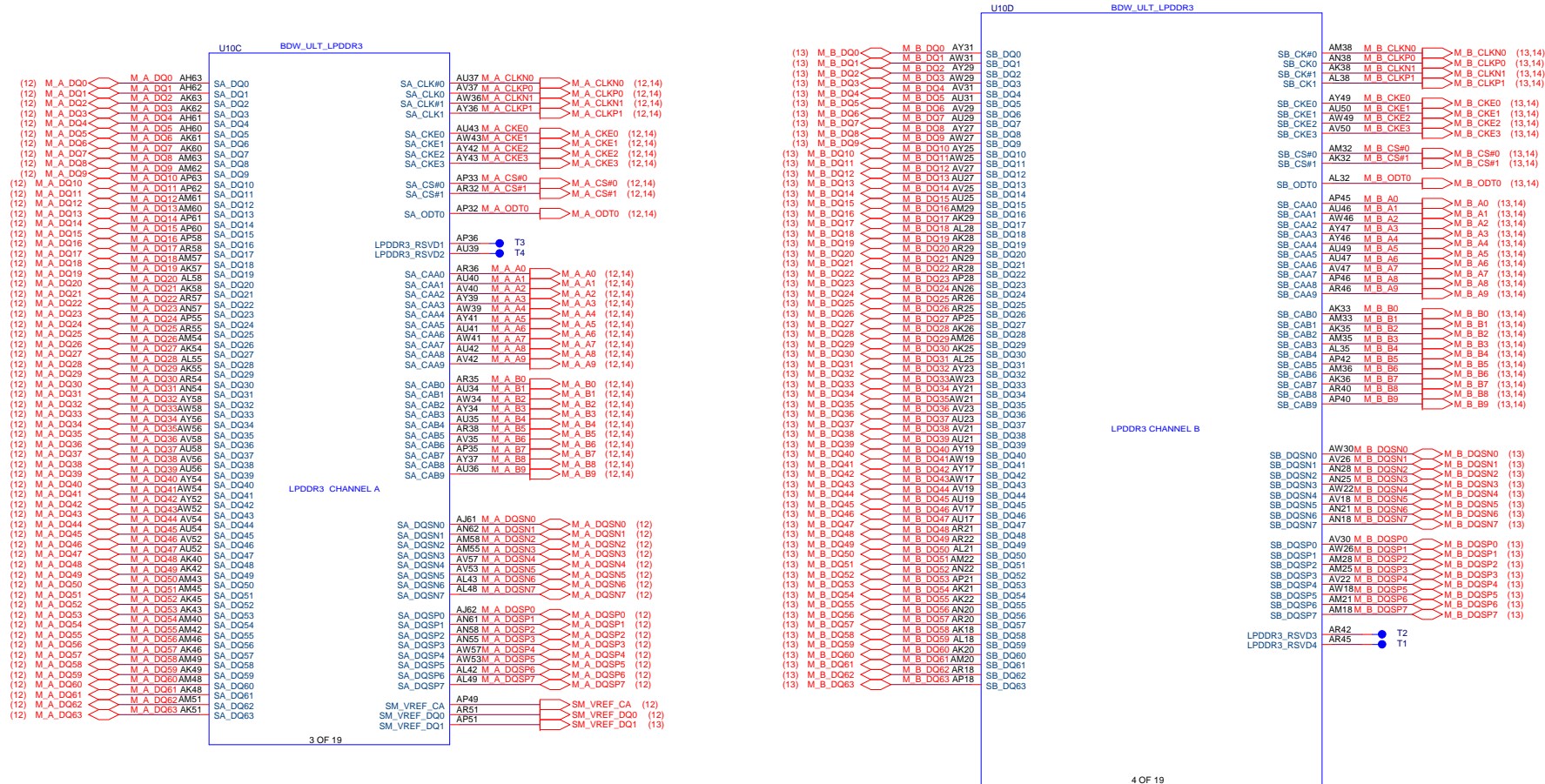
A



Broadwell ULT Processor LPDDR3)

03

(12) M_A_DQ[63:0]
(13) M_B_DQ[63:0]
(12) M_A_DQSN[7:0]
(12) M_A_DQSP[7:0]
(13) M_B_DQSN[7:0]
(13) M_B_DQSP[7:0]



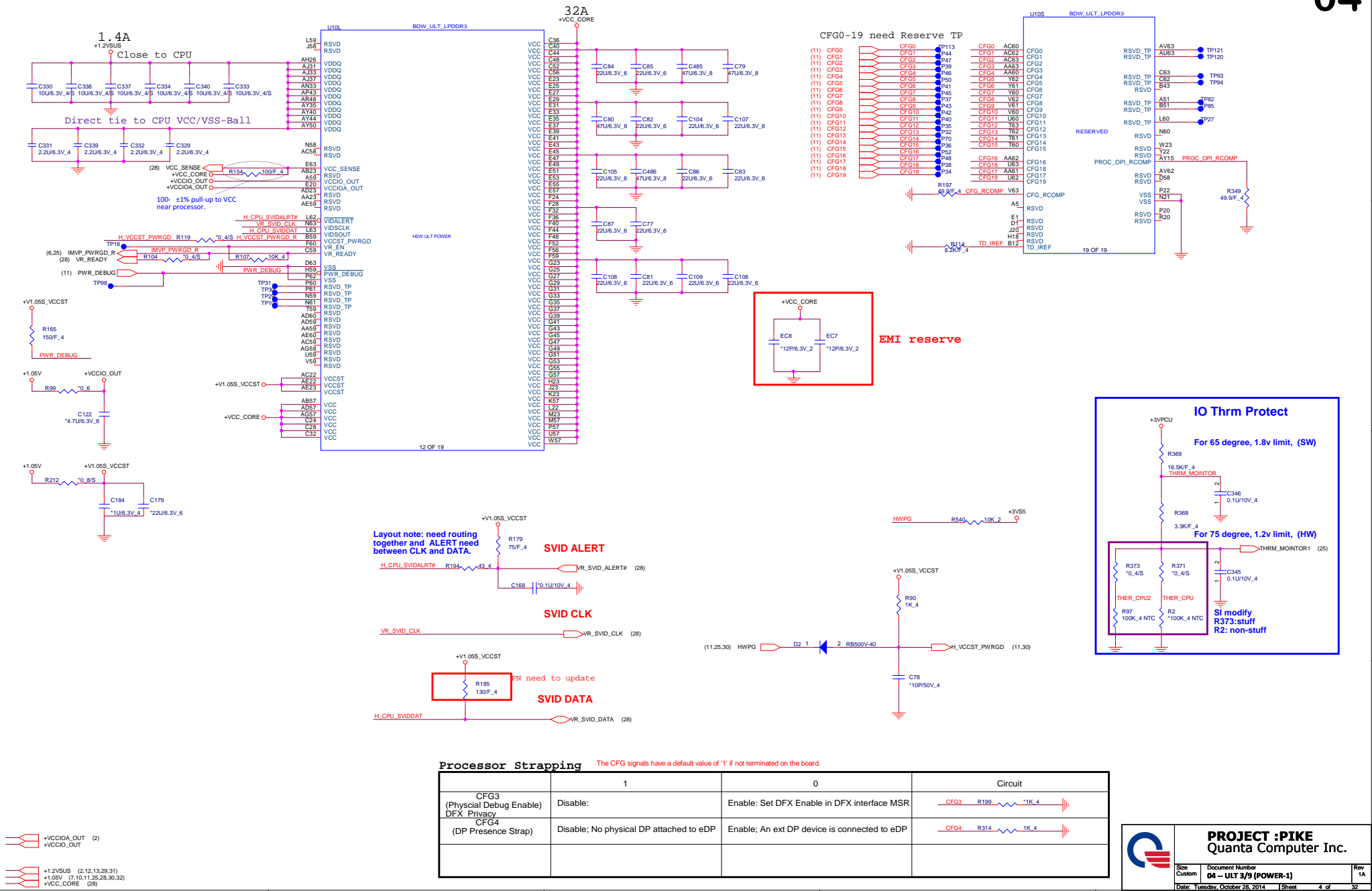
3 OF 19

4 OF 19



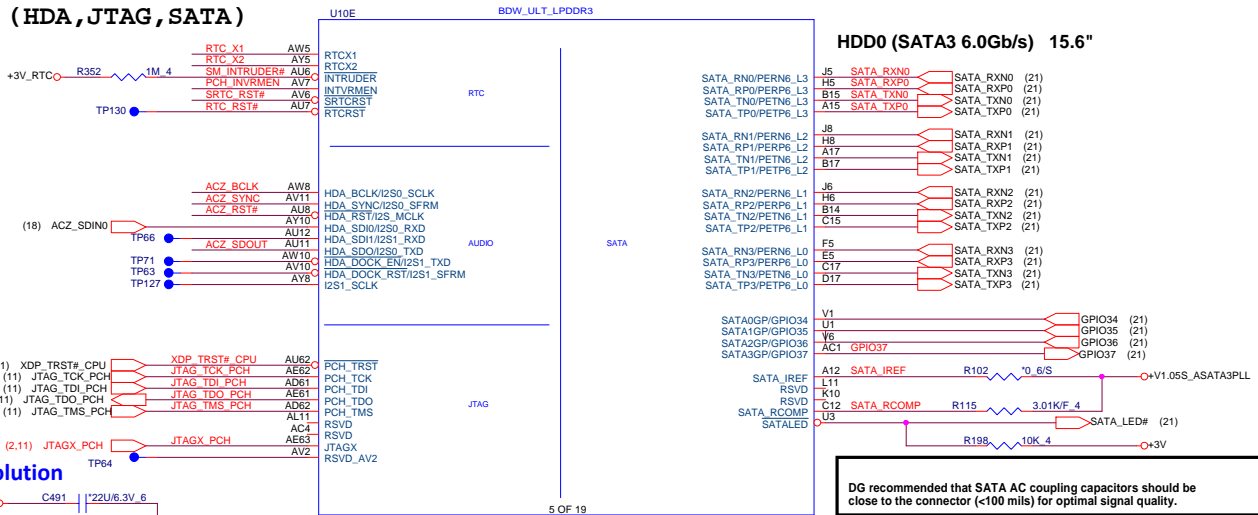
PROJECT :PIKE
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ULT 2/9 (DDR3 I/F)	1A
Date: Tuesday, October 28, 2014	Sheet 3 of 32	

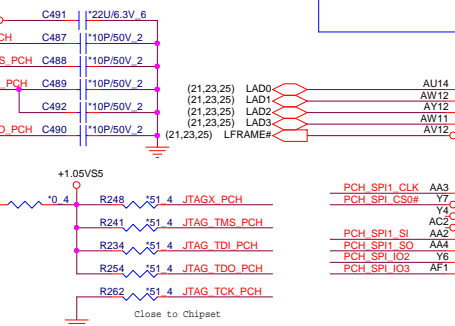




Lynx Point-LP Platform Controller Hub (HDA, JTAG, SATA)



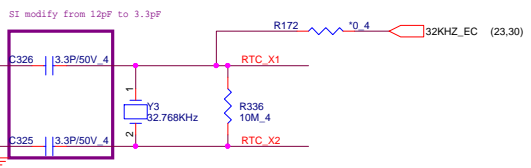
RF Solution



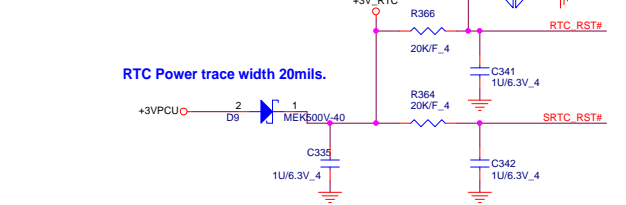
PCH Strap Table

Pin Name	Strap description	Sampled	Configuration	Circuit						
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode							
SDIO_D0 /GPIO66	Top-Block Swap	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)							
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up							
HDA_SDO /I2S0_TXD	Flash Descriptor Security Only for Interposer	PWROK	0 = Default (weak pull-down 20K) 1 = Can be Overriden							
GPIO_MOSI /GPIO86	Boot BIOS Selection	PWROK	<table border="1"><thead><tr><th>GNT0#</th><th>Boot Location</th></tr></thead><tbody><tr><td>1</td><td>LPC</td></tr><tr><td>0</td><td>SPI(Default)</td></tr></tbody></table>	GNT0#	Boot Location	1	LPC	0	SPI(Default)	
GNT0#	Boot Location									
1	LPC									
0	SPI(Default)									
GPIO15	TLS Confidentiality	PWROK	0 = ME Crypto Transport Layer Security cipher suite with no confidentiality(Default) 1 = Intel ME Crypto TLS cipher suite with confidentiality							
DSWVRMEN	Deep Sx Well On-Die Voltage Regulator Enable	ALWAYS	Should be always pull-up							

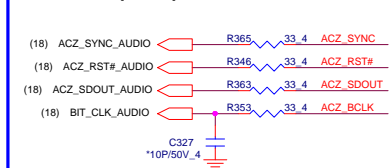
RTC Clock 32.768KHz



RTC Circuitry(RTC)



HDA Bus(CLG)

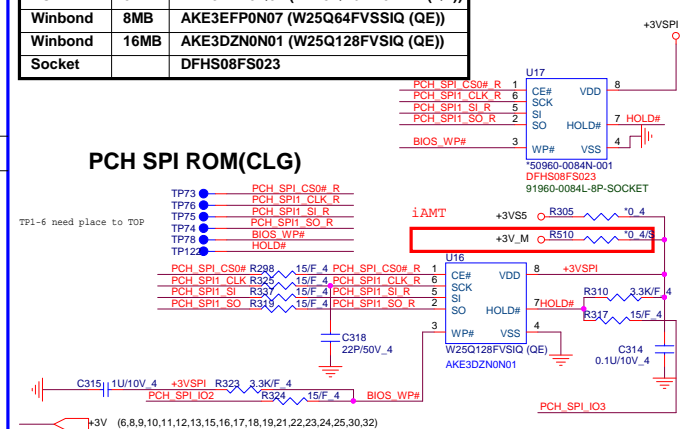


GPIO Pull UP

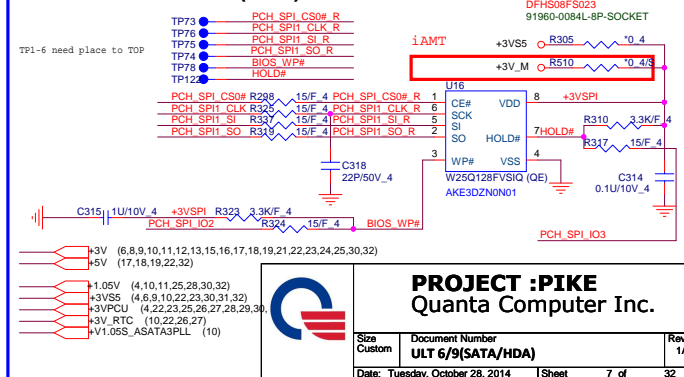


Vender	Size	P/N
EON	8MB	AKE3EZNO01 (EN25QH64-104HIP (QE))
Winbond	8MB	AKE3EFP0N07 (W25Q64FVSSIQ (QE))
Winbond	16MB	AKE3DZN0N01 (W25Q128FVSIQ (QE))
Socket		DFHS08FS023

4M SPI ROM Socket



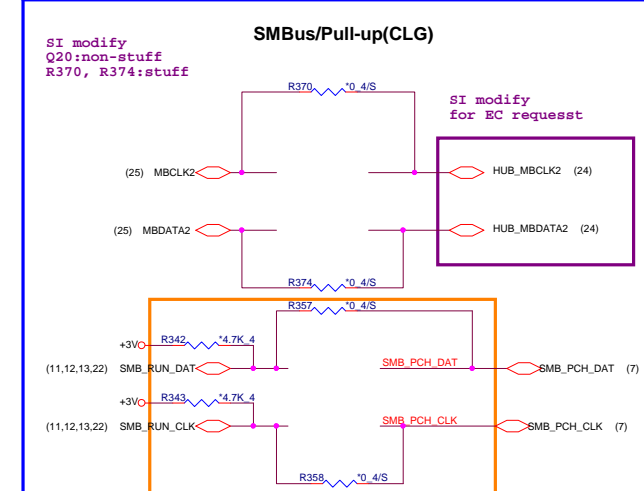
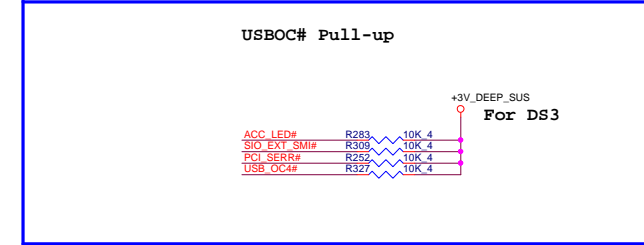
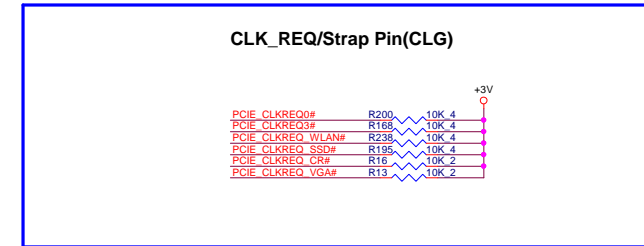
PCH SPI ROM(CLG)



PROJECT :PIKE
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Size	Document Number	Rev
Custom	ULT 6/9(SATA/HDA)	1A
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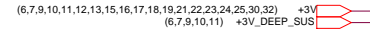


```
PV modify
Q19 remove
R357,R358:stuff
R342,R343 non-stuff
```

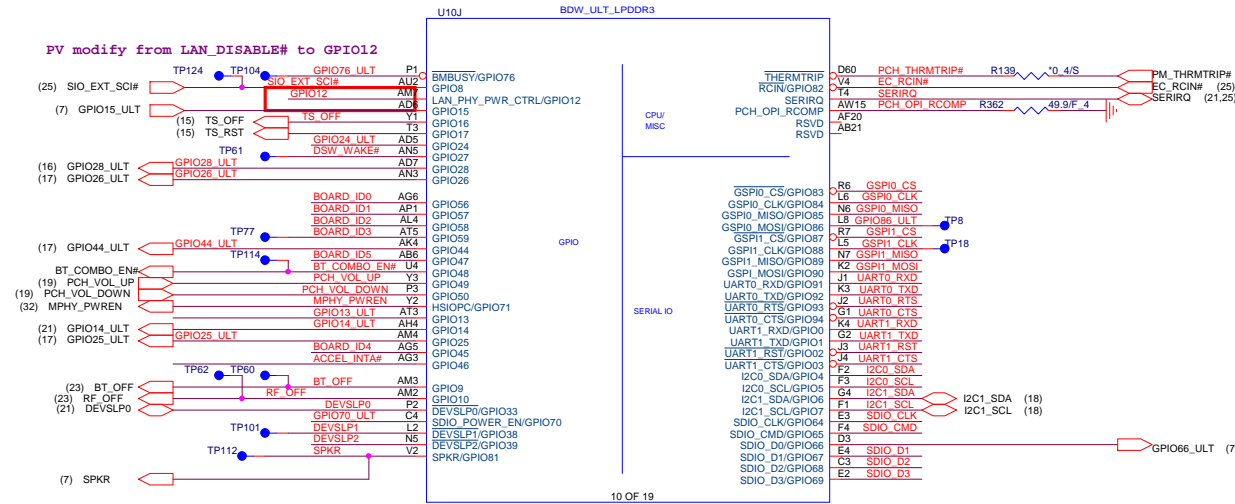
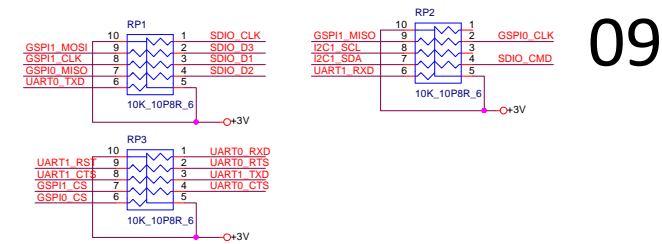


PROJECT :PIKE
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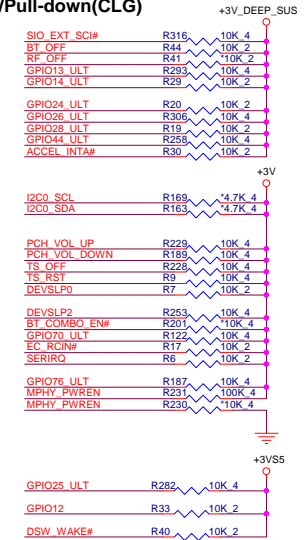
Size Custom	Document Number ULT 7/9 (PCIE/USB/CLK)	Rev 1A
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Lynx Point-LP Platform Controller Hub (HDA,JTAG,SATA) Haswell (GPIO)



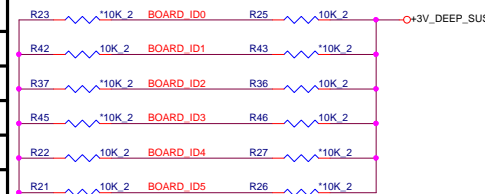
GPIO Pull-up/Pull-down(CLG)



Close to EC



Model	BOARD_ID5	BOARD_ID4	BOARD_ID3	BOARD_ID2	BOARD_ID1	BOARD_ID0
HYNIX LPDDR3 8GB	0	0	0	0	0	1
ELPIDA LPDDR3 8GB	0	0	0	0	1	0
SAM LPDDR3 8GB	0	0	0	0	1	1
HYNIX LPDDR3 4GB	0	0	0	1	0	0
ELPIDA LPDDR3 4GB	0	0	0	1	0	1
SAM LPDDR3 4GB	0	0	0	1	1	0
SPI ROM 8MB			0			
SPI ROM 16MB			1			




(6,7,8,10,11,12,13,15,16,17,18,19,21,22,23,24,25,30,32) +3V
(4,6,7,10,22,23,30,31,32) +3V5

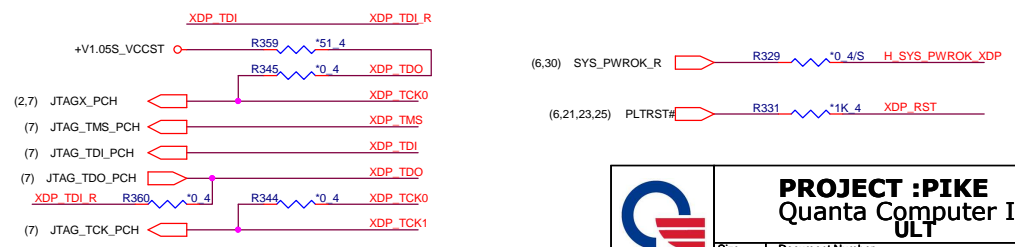
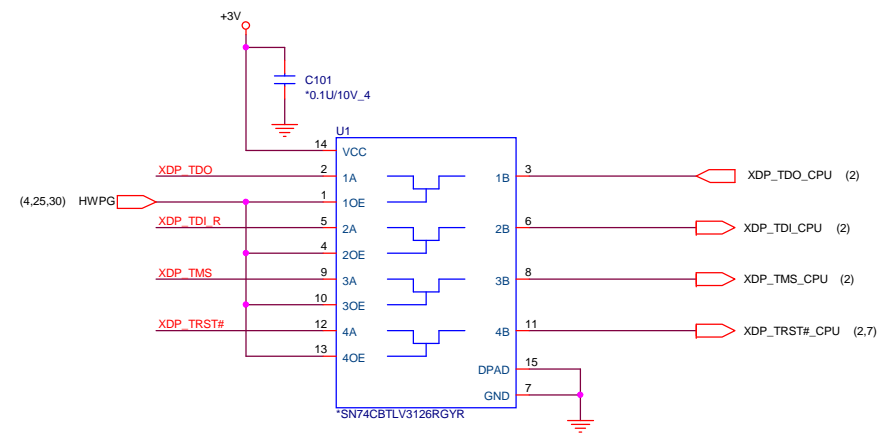
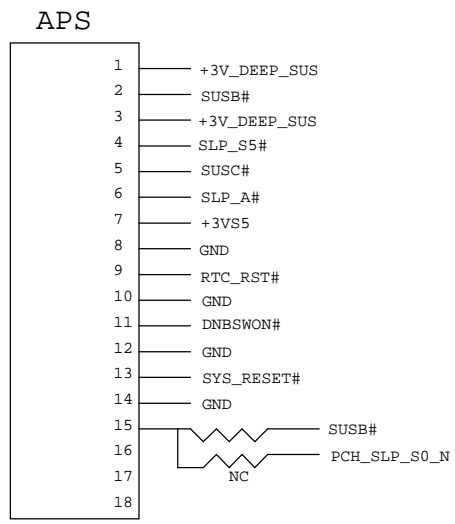
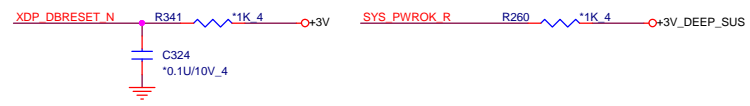
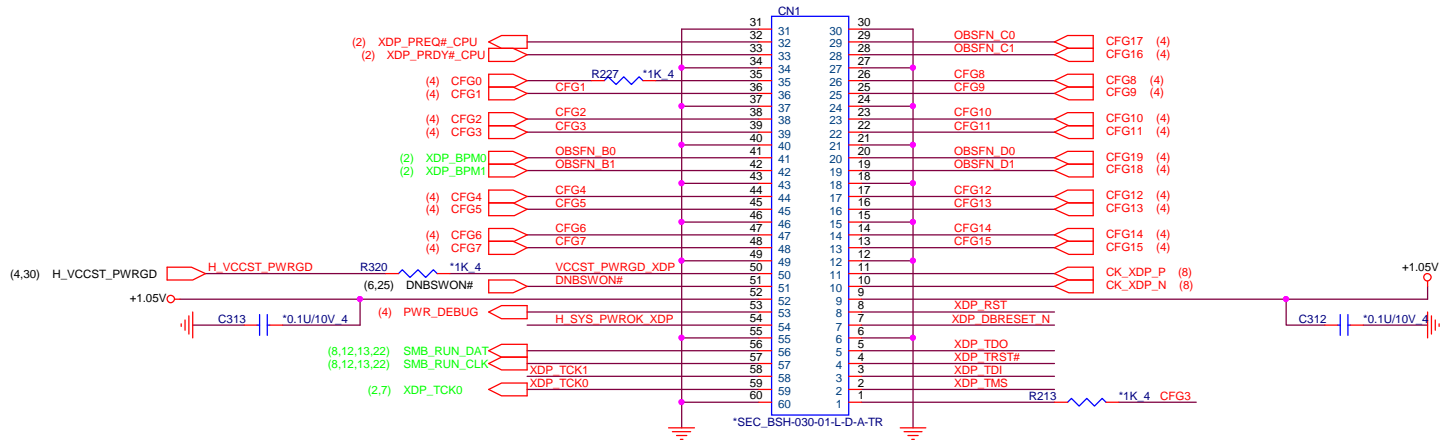
PROJECT :PIKE
Quanta Computer Inc.

Size Custom Document Number **ULT 8/9 (GPIO/MISC)** Rev 1A

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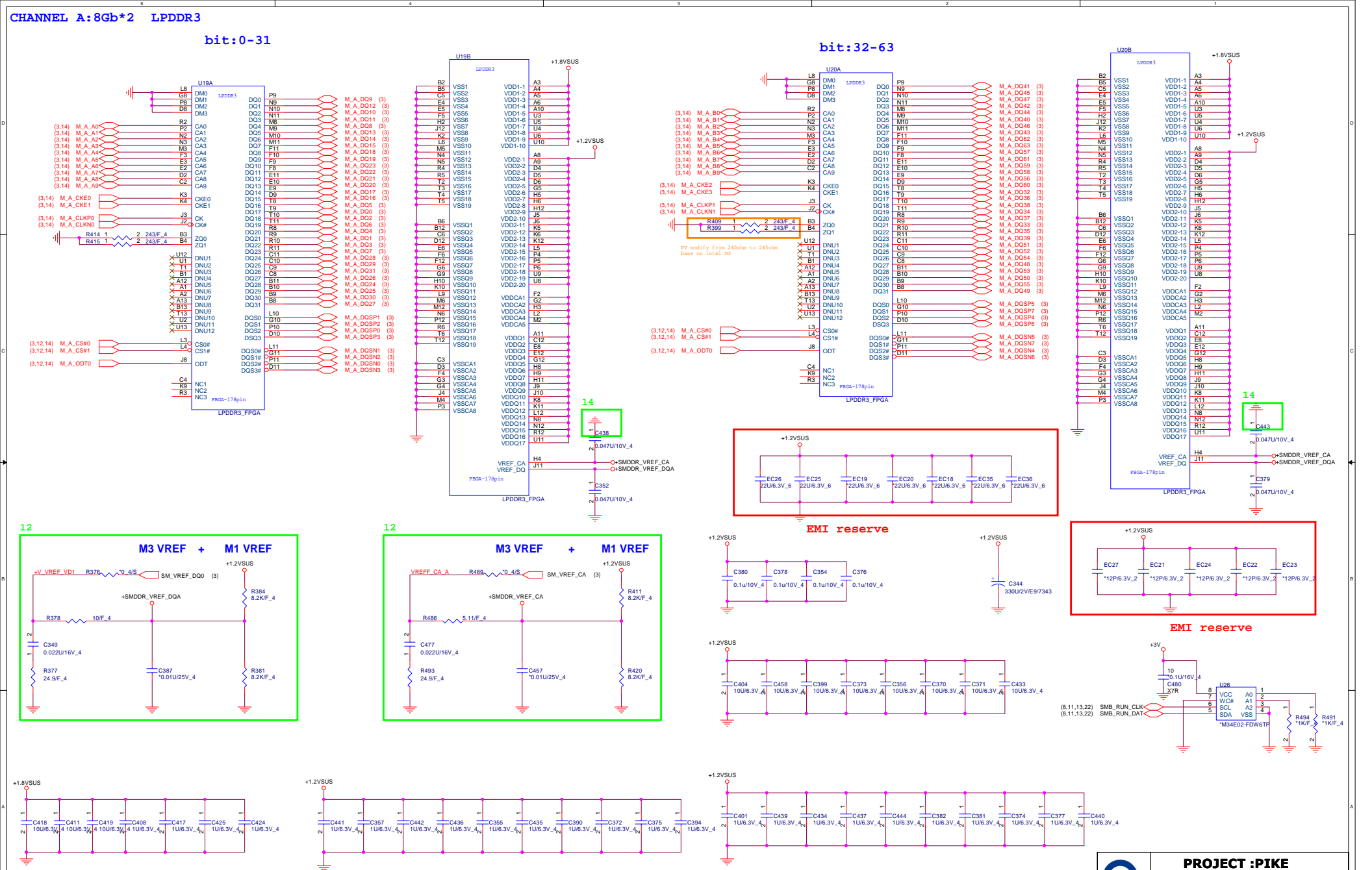
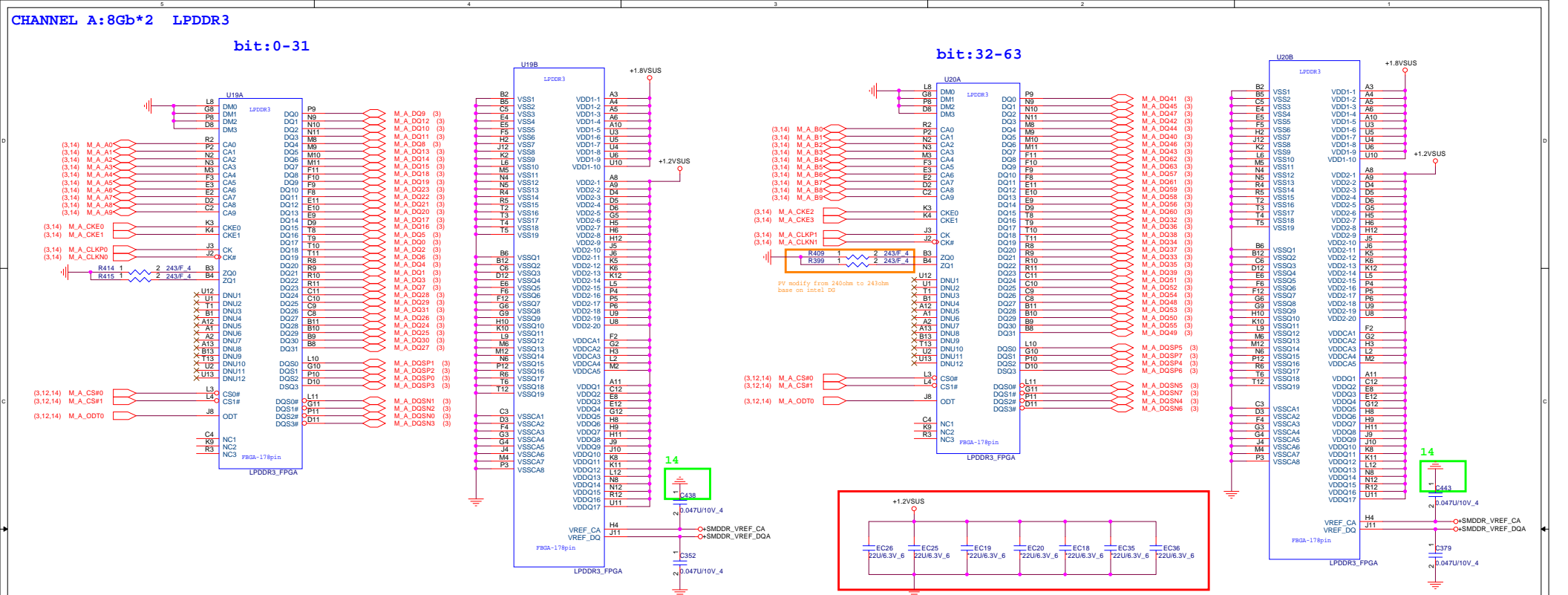
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	Size Custom Document Number ULT 9/9(POWER-2)	Rev 1A
Date: Tuesday, October 28, 2014 Sheet 100f		32



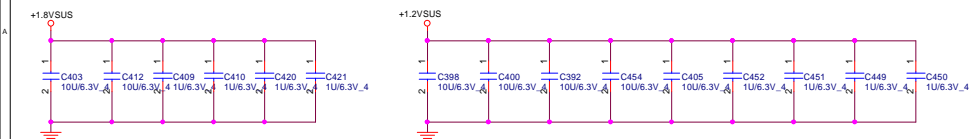
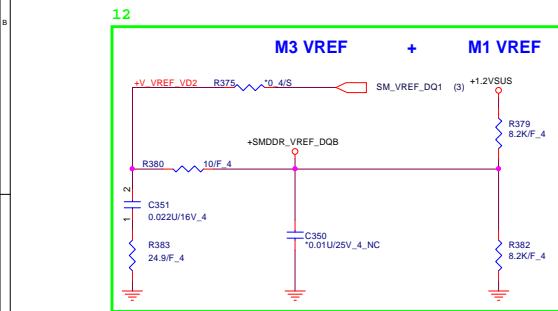
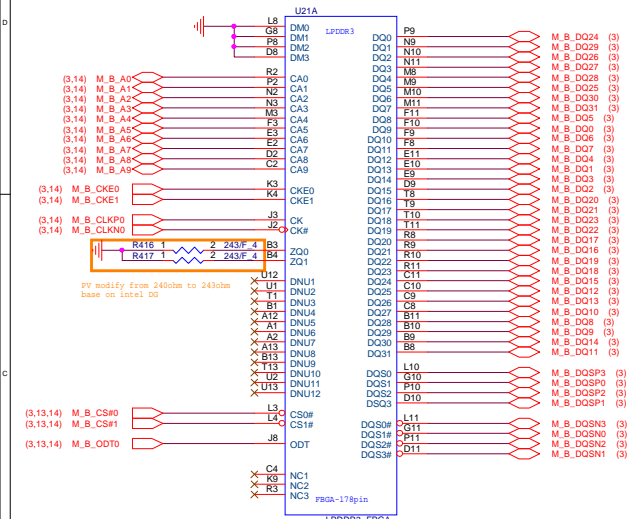
PROJECT :PIKE
Quanta Computer Inc.
ULT

Size	Document Number	Rev
	HSW XDP & APS	1A
Date: Tuesday, October 28, 2014 Sheet 11 of 32		

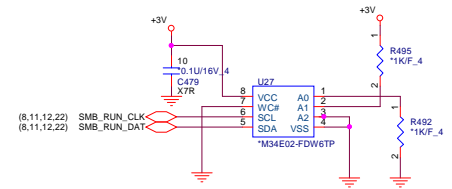
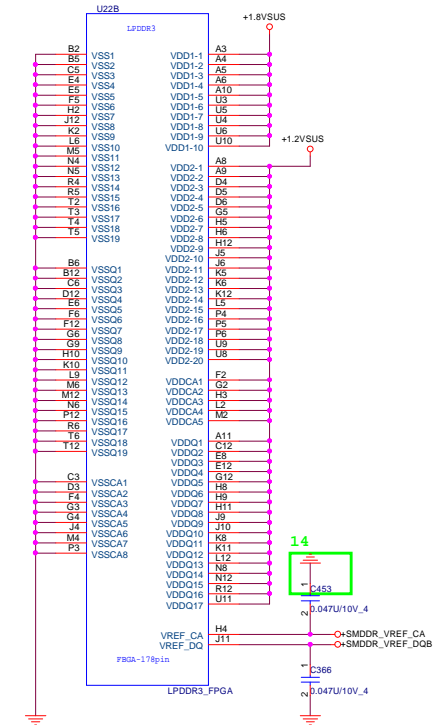
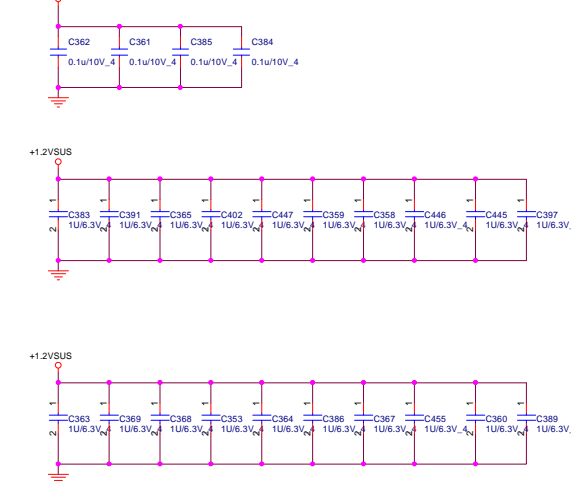
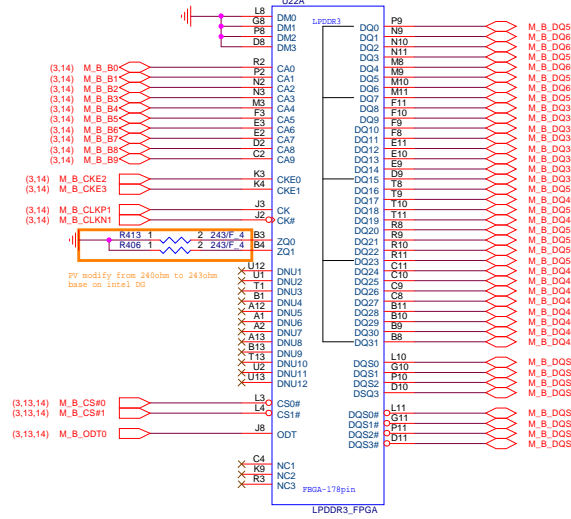
5					4					3					2					1				
CHANNEL A:8Gb*2 LPDDR3																								
bit:0-31												bit:32-63												

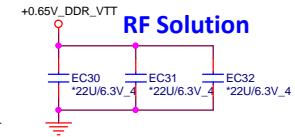
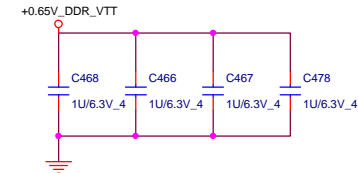
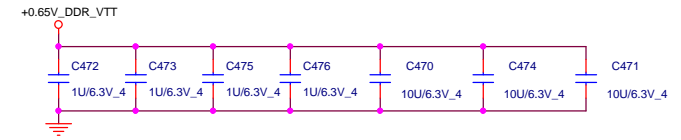
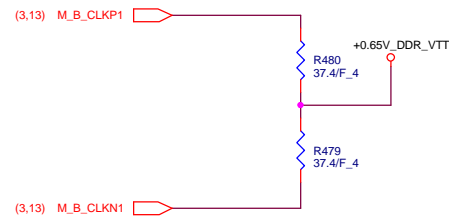
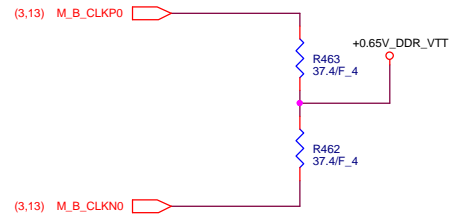
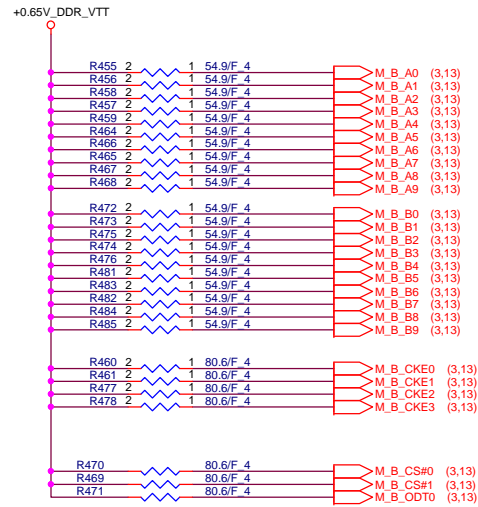
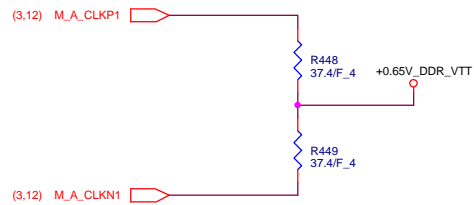
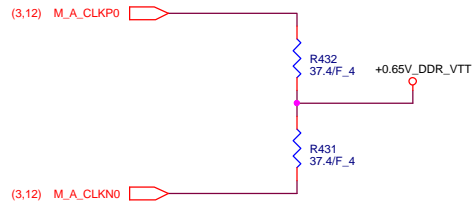
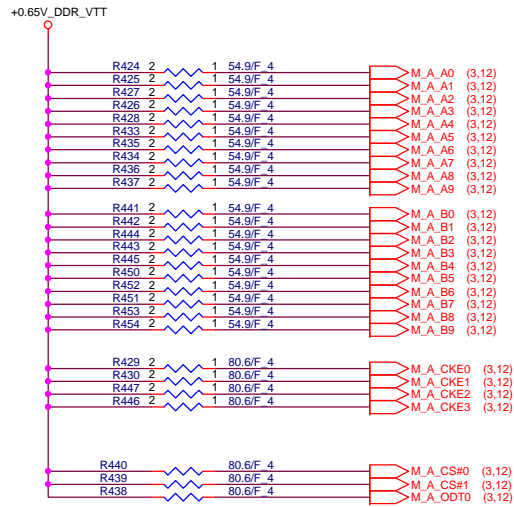


bit:0-31



bit:32-63

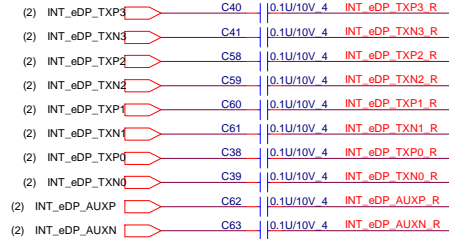
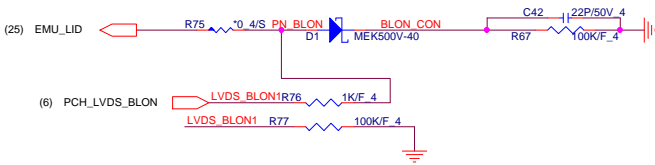




LID Switch

LVDS Conn.

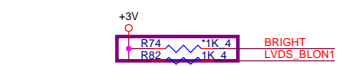
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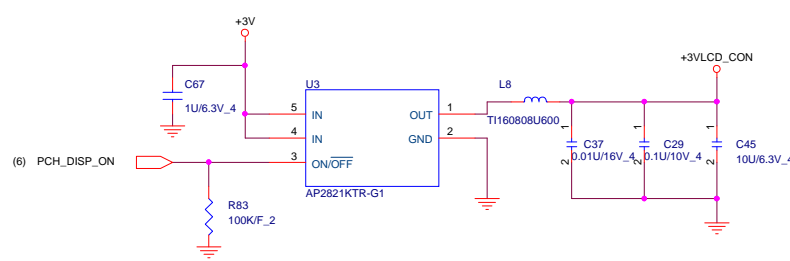
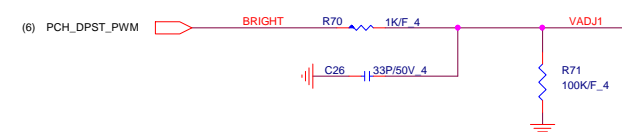
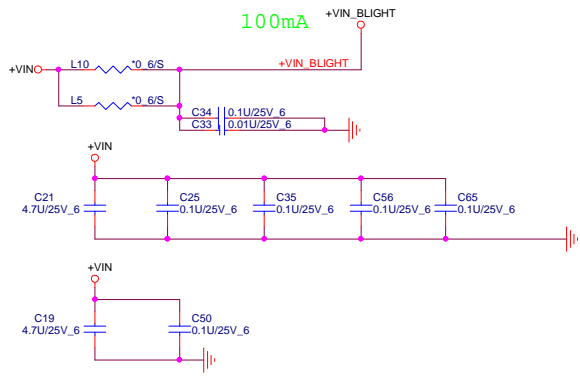
Check

INT_eDP_AUXN_R
INT_eDP_AUXP_R
INT_eDP_TXN1_R
INT_eDP_TXP1_R
INT_eDP_TXN0_R
INT_eDP_TXP0_R
INT_eDP_TXN2_R
INT_eDP_TXP2_R
INT_eDP_TXN3_R
INT_eDP_TXP3_R

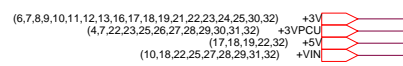
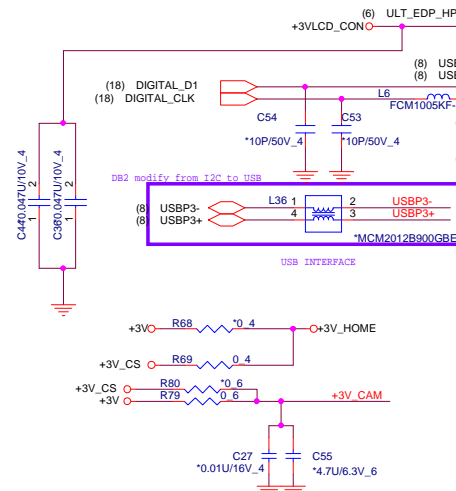
51519-04 41-001
lvds-50671-0404 4001-40p-1
DFFC40FR06



S1 modify
R74 non-stuff



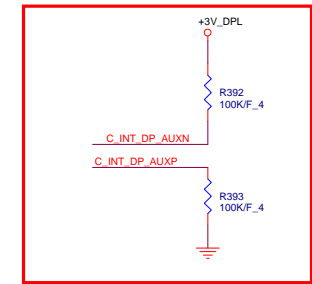
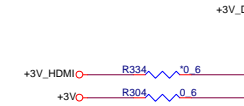
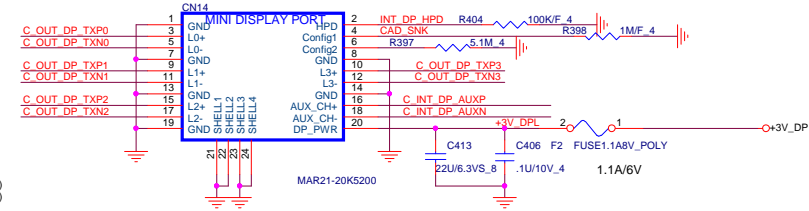
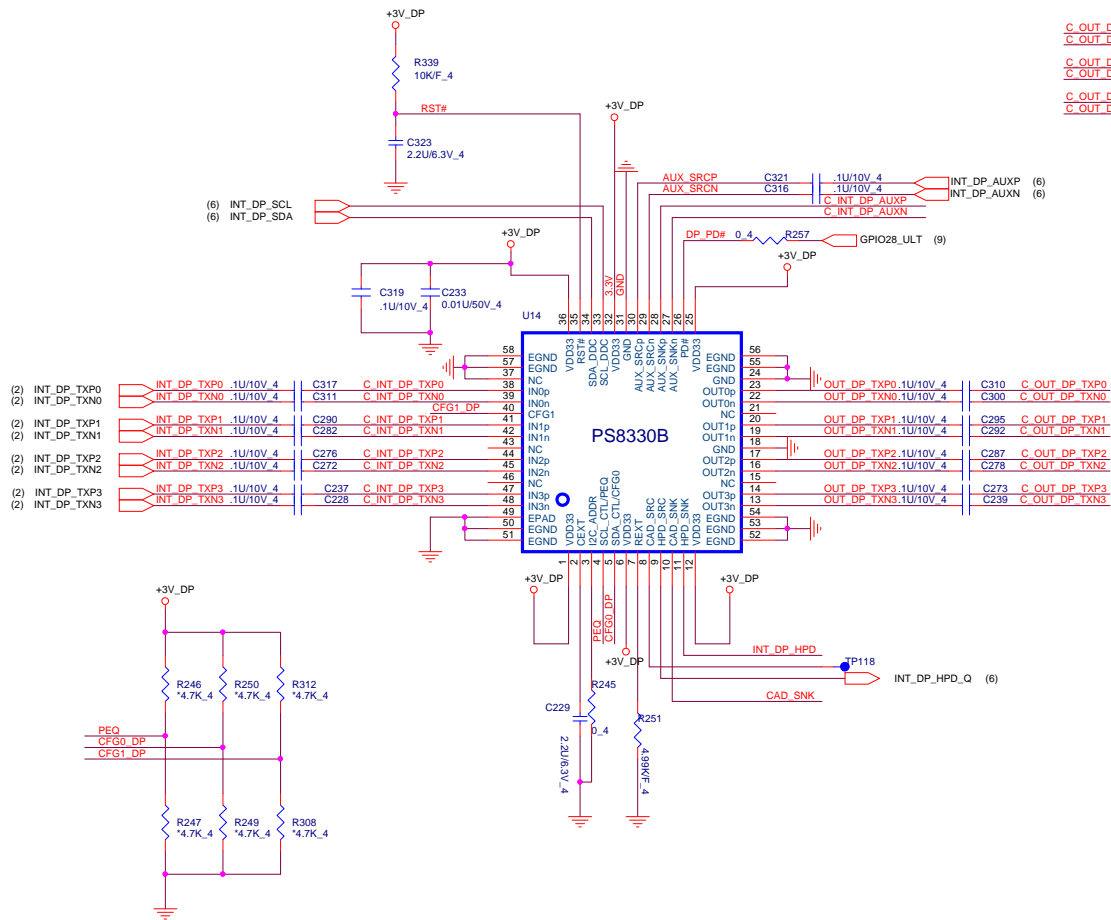
For EDP Only: stuff U3 Circuit



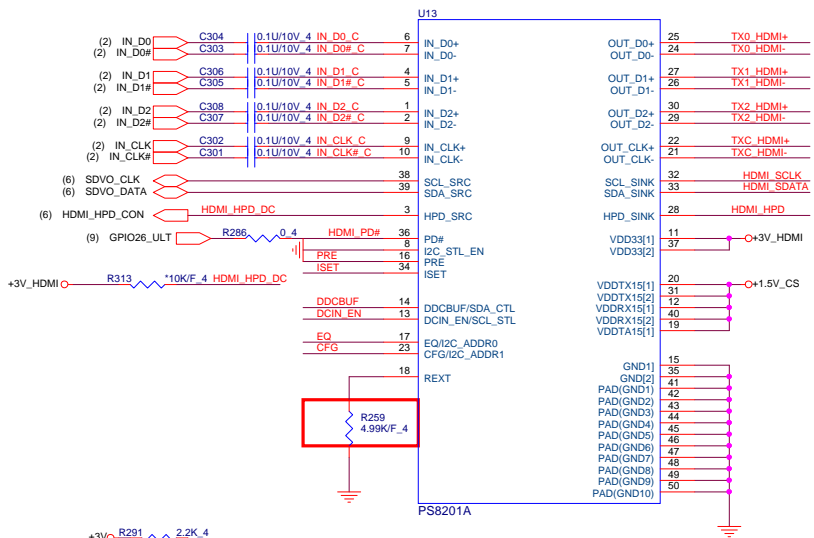
		PROJECT :PIKE Quanta Computer Inc.	
Size Custom	Document Number	Rev 1A	
LCD CONN/LID/CAM			
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Mini Display

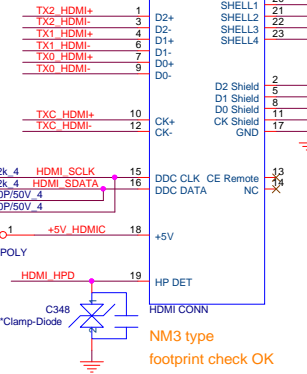
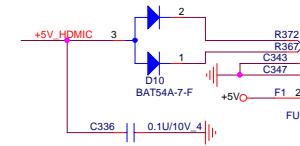
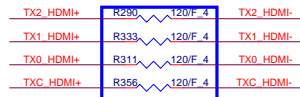
+5V (17,18,19,22,32)
+3V (6,7,8,9,10,11,12,13,15,17,18,19,21,22,23,24,25,30,32)



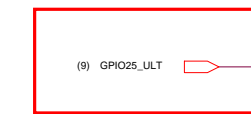
for intel recommend



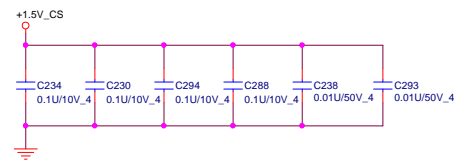
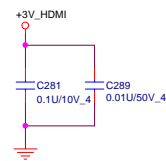
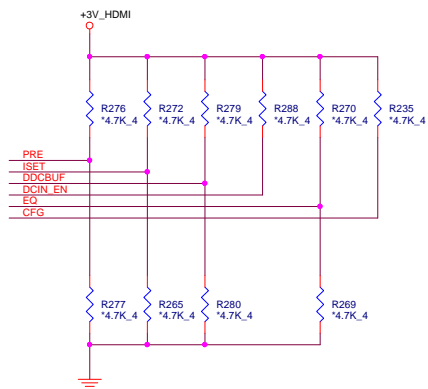
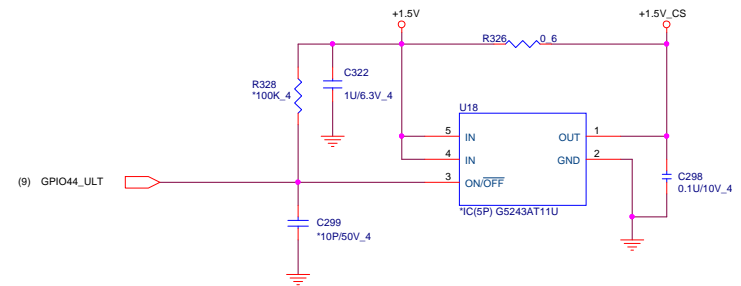
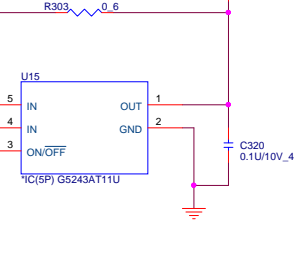
EMI Solution

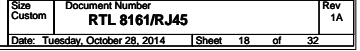


for CS

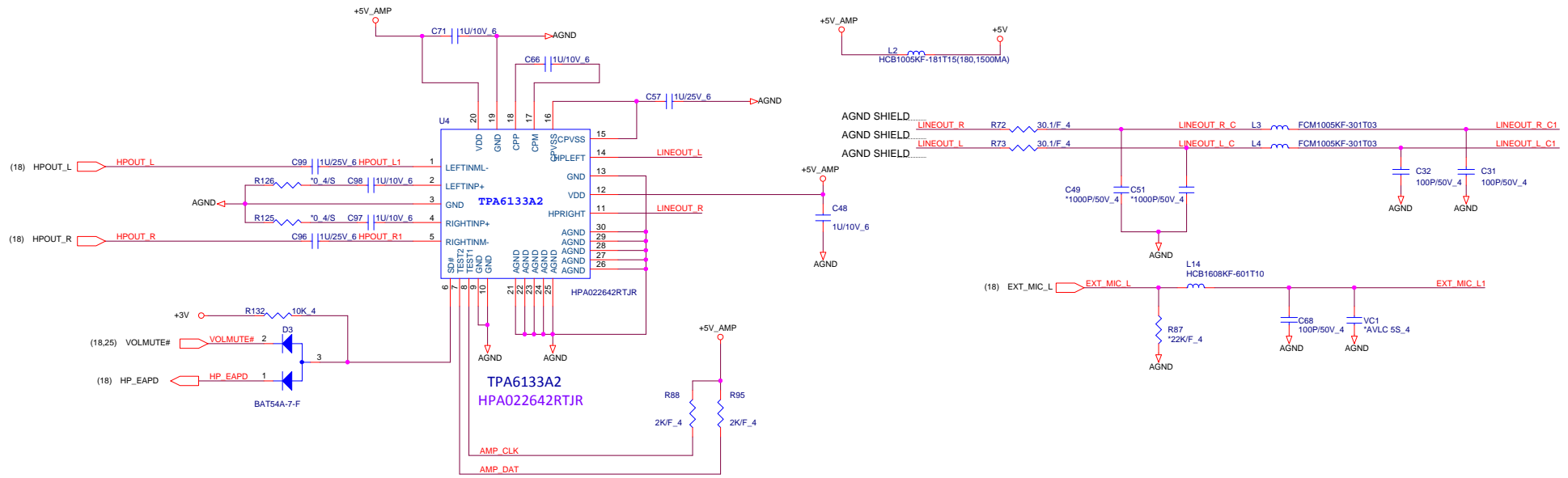


Check BIOS





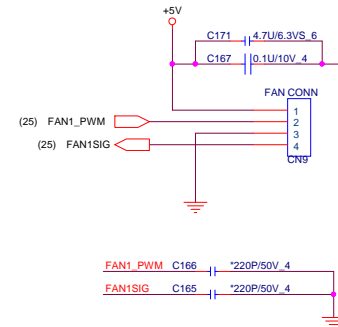
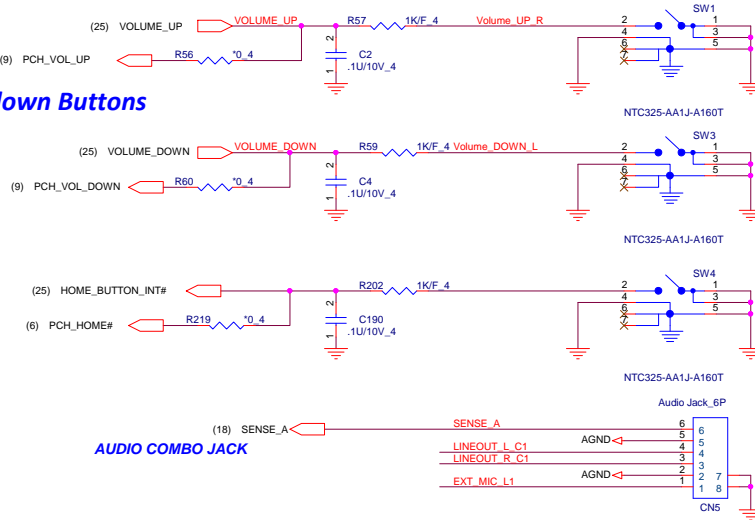
Head Phone out



Audio combo JACK & Volume up/down Button

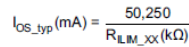
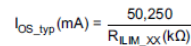
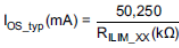
FAN

Volume up/down Buttons



(6,7,8,9,10,11,12,13,15,16,17,18,21,22,23,24,25,30,32) +3V
 (17,18,22,32) +5V
 (20,28,29,31,32) +5VSS

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		Quanta Computer Inc.	
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SYSTEM GLOBAL POWER STATE	TPS2546 CHARGING MODE	CTL1	CTL2	CTL3	ILIM_SEL	CURRENT LIMIT SETTING
S0	SDP1	1	1	0	1 or 0	ILIM_HI / ILIM_LO
S0	SDP2, no discharge to / from CDP	1	1	1	0	ILIM_LO
S0	CDP, load detection with ILIM_LO + 60mA thresholds or if a BC1.2 primary detection occurs	1	1	1	1	ILIM_HI
S4/S5	Auto mode, load detection with power wake thresholds	0	0	1	1	ILIM_HI
S3/S4/S5	Auto mode, no load detection	0	0	1	0	ILIM_HI
S3	Auto mode, keyboard/mouse wake up, load detection with ILIM_LO + 60 mA thresholds	0	1	1	1	ILIM_HI
S3	Auto mode, keyboard/mouse wake-up, no load detection	0	1	1	0	ILIM_HI
S3	SDP1, keyboard/mouse wake-up	0	1	0	1 or 0	ILIM_HI / ILIM_LO

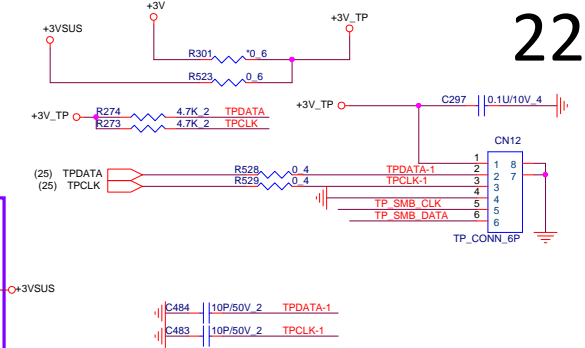


USB 3.0

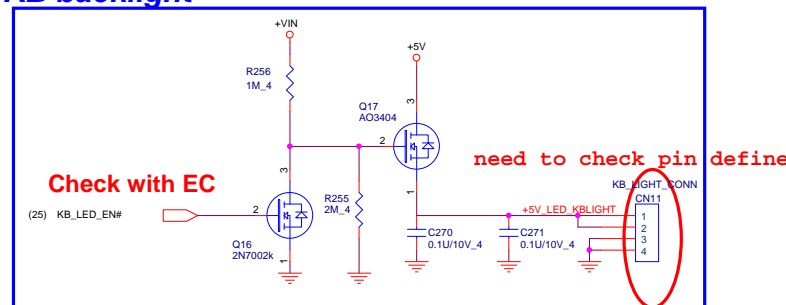


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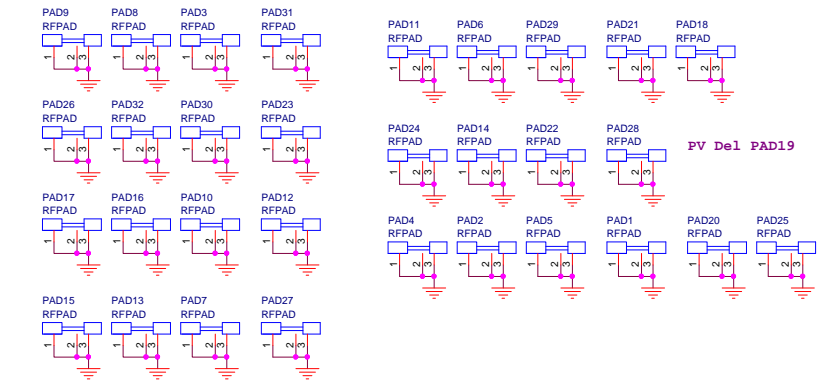


MY5	C250	220P/50V 4
MY6	C243	220P/50V 4
MY3	C246	220P/50V 4
MY7	C245	220P/50V 4
MY8	C244	220P/50V 4
MY9	C256	220P/50V 4
MY10	C282	220P/50V 4
MY11	C260	220P/50V 4
MY1	C249	220P/50V 4
MY2	C247	220P/50V 4
MY4	C242	220P/50V 4
MY0	C253	220P/50V 4
MX4	C255	220P/50V 4
MX6	C257	220P/50V 4
MX3	C251	220P/50V 4
MX2	C252	220P/50V 4
MX7	C258	220P/50V 4
MX0	C248	220P/50V 4
MX5	C254	220P/50V 4
MX1	C259	220P/50V 4
MY12	C285	220P/50V 4
MY13	C264	220P/50V 4
MY14	C263	220P/50V 4
MY15	C261	220P/50V 4



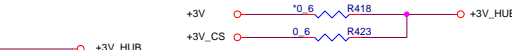
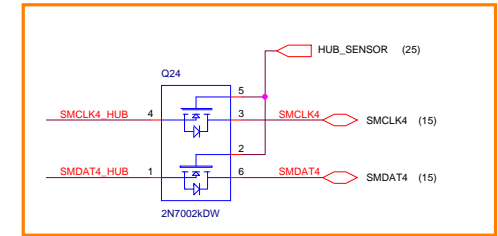
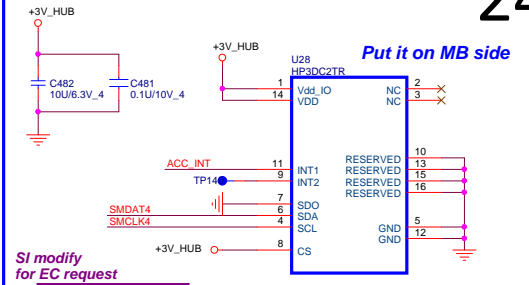


GND GUARD



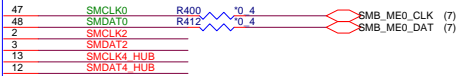
(6,7,8,9,10,11) +3V_DEEP_SUS
(6,7,8,9,10,11,12,13,15,16,17,18,19,21,22,24,25,30,32) +3V
(17,18,19,22,32) +5V
(4,7,22,25,26,27,28,29,30,31,32) +3VPCU

Accelerometer Sensor



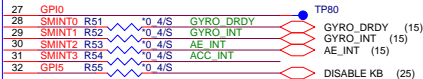
Reserved SMBus channel 0 for debugging & updating FW
Reserved

SMBus channel 4 for connecting the Sensor (G-sensor)



Reserved TX/RX for debugging

if no use ADC function,
please pull down to GND
SMINTx for sensor interrupt




GPG2 can't floating

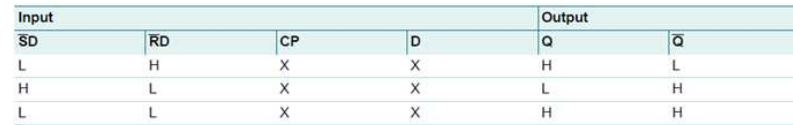


External crystal is must be item
when USB func. is used !

32.768kHz clock lines:

- If possible, please avoid using any through-hole.
- Please make the trace length short, and the trace width wide enough.
- The spacing to the closest neighbor should be wide enough.

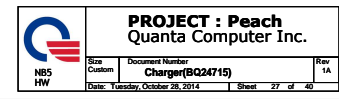
		PROJECT :PIKE Quanta Computer Inc.	
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[1] H = HIGH voltage level;
L = LOW voltage level;
↑ = LOW-to-HIGH CP transition;
 Q_{n+1} = state after the next LOW-to-HIGH CP transition.

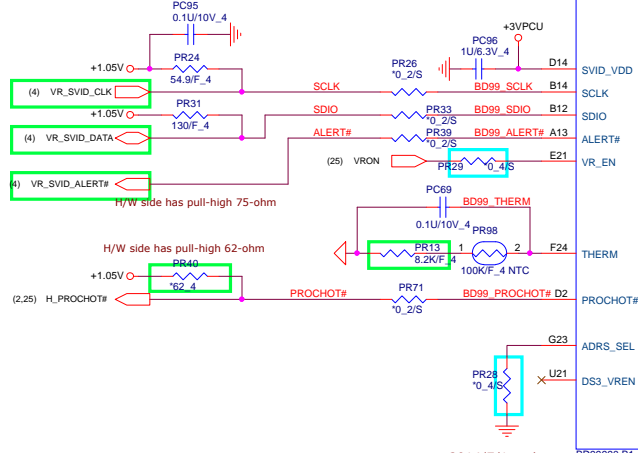
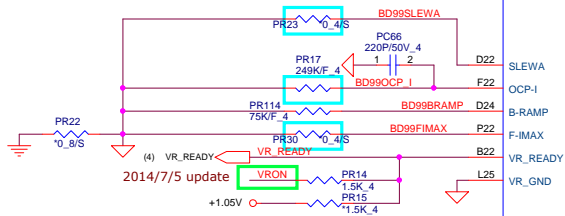
Input				Output	
SD	RD	CP	D	Q_{n+1}	\bar{Q}_{n+1}
H	H	\uparrow	L	L	H
H	H	\uparrow	H	H	L

[1] H = HIGH voltage level;
L = LOW voltage level;
↑ = LOW-to-HIGH CP transition;
 Q_{n+1} = state after the next LOW-to-HIGH CP transition.

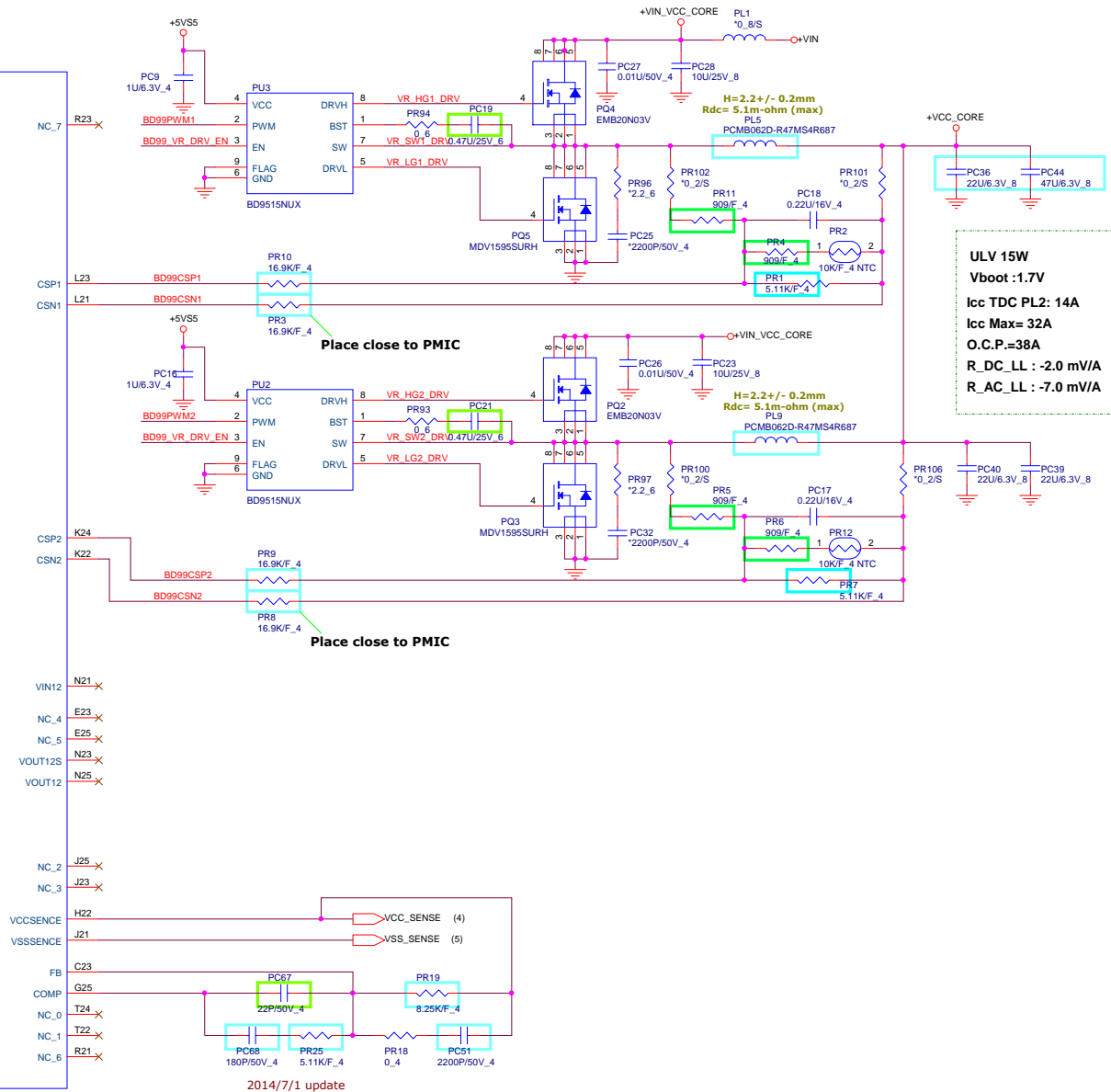


(10,15,18,22,25,27,29,31,32) +VIN
(4,7,22,23,25,26,27,29,30,31,32) +3VPCU
(4) +VCC_CORE
(4,6,7,9,10,22,23,30,31,32) +3VSUS
(20,29,31,32) +5VS5
(17,18,19,22,32) +5V
(4,7,10,11,25,30,32) +1.05V
(12,15,18,29,30) +1.8VSUS

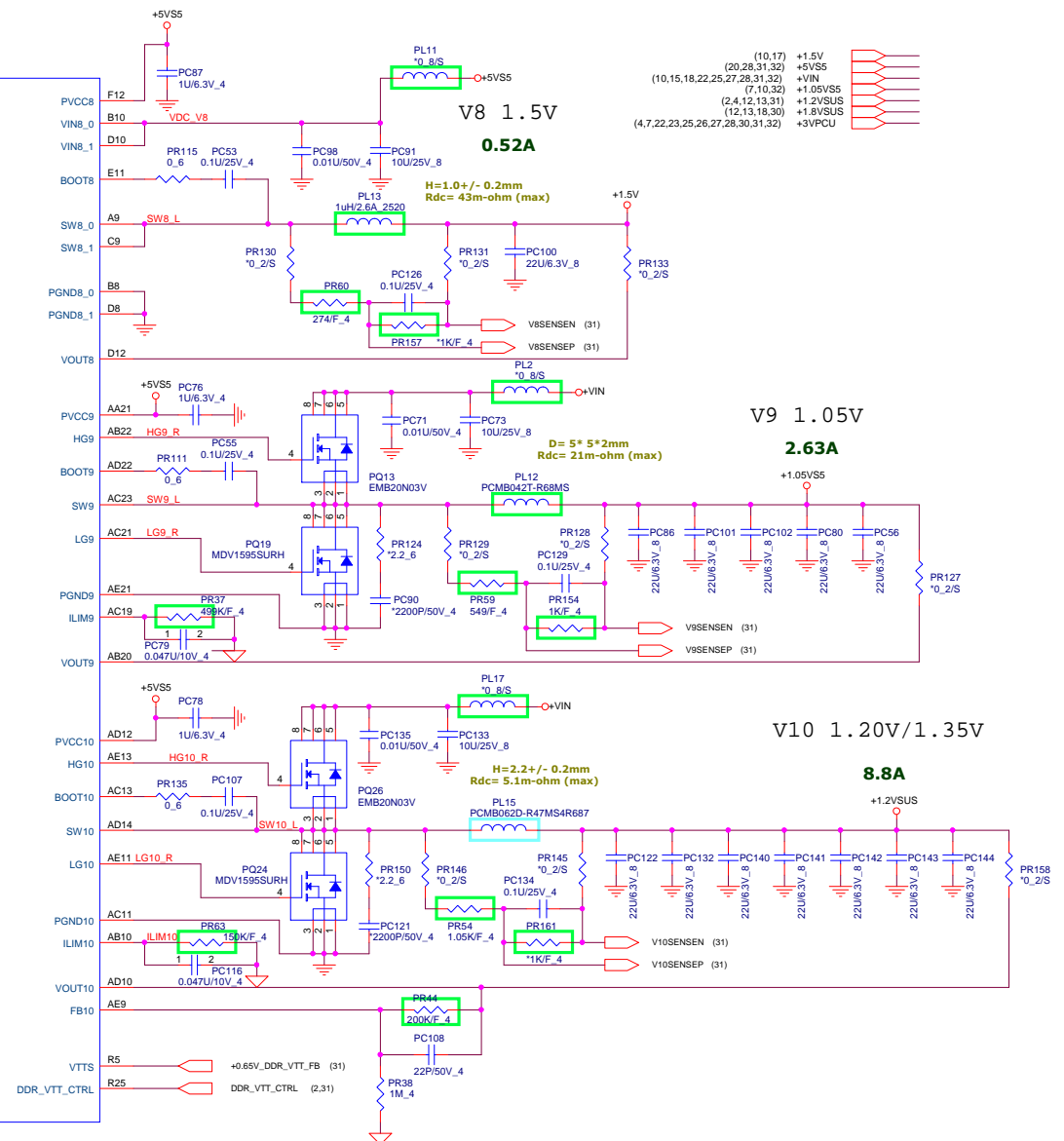
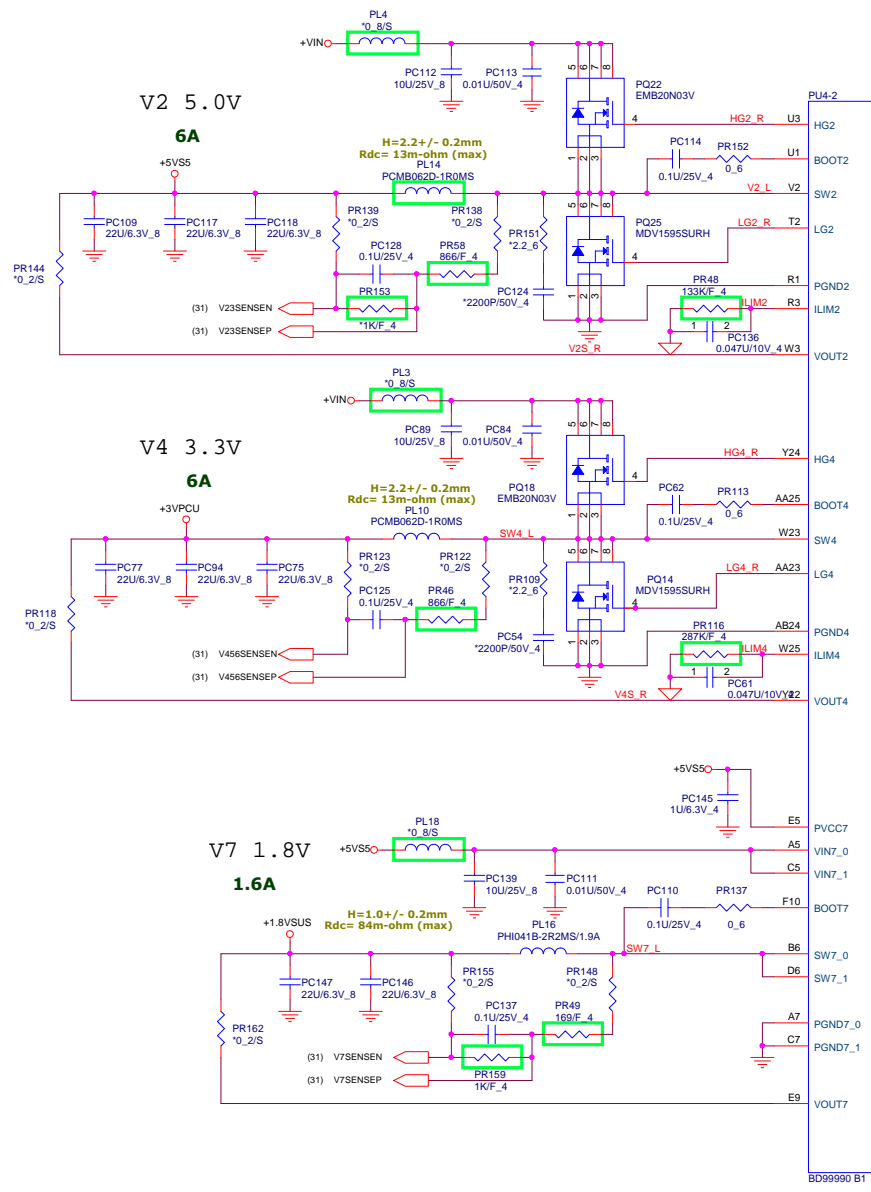
PU4-1
NC_7
R23
BD99PWM1 U25 PWM1
BD99_VR_DRV_EN C25 VR_DRV_EN
BD99PWM2 V24 PWM2

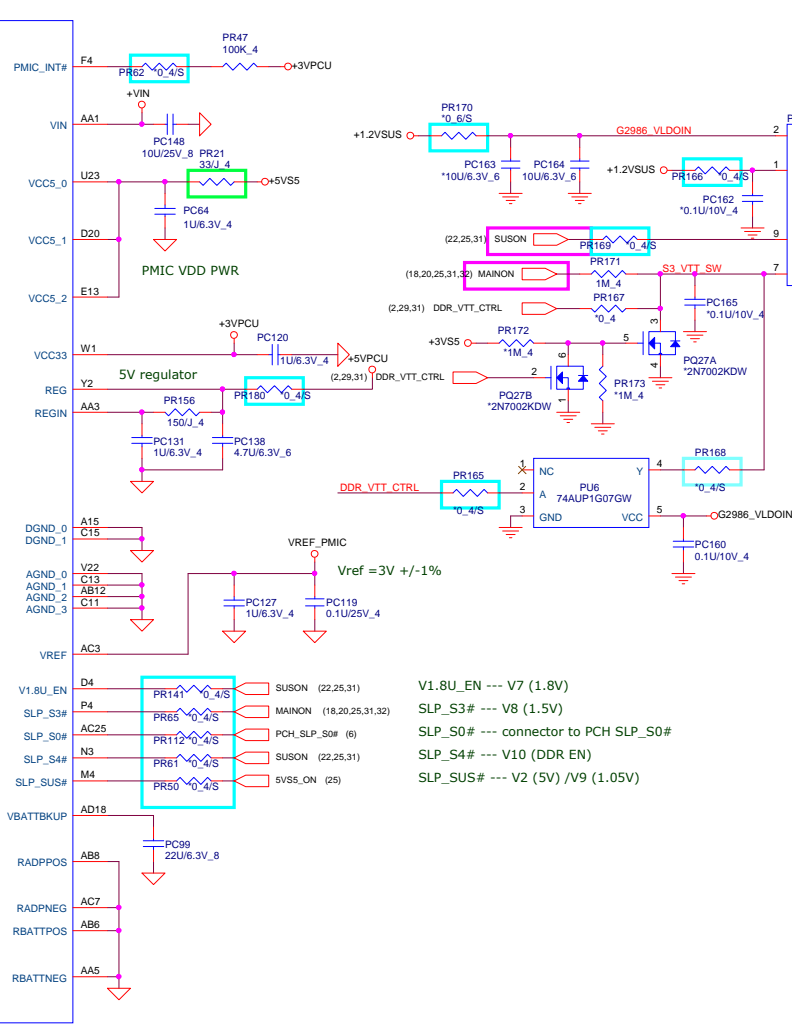


Unit of BOM size is millimeter.
0603 inch = 1608 mm
0402 inch = 1005 mm

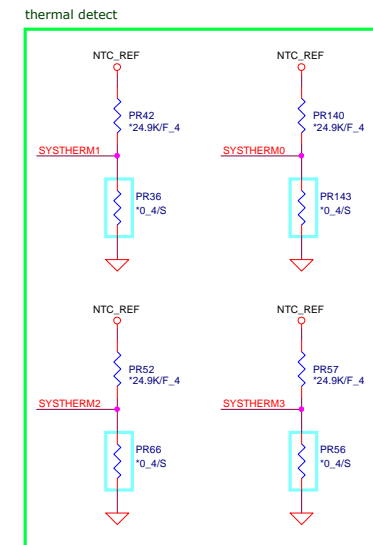


ULV 15W
Vboot : 1.7V
Icc TDC PL2: 14A
Icc Max= 32A
O.C.P.=38A
R_DC_LL : -2.0 mV/A
R_AC_LL : -7.0 mV/A





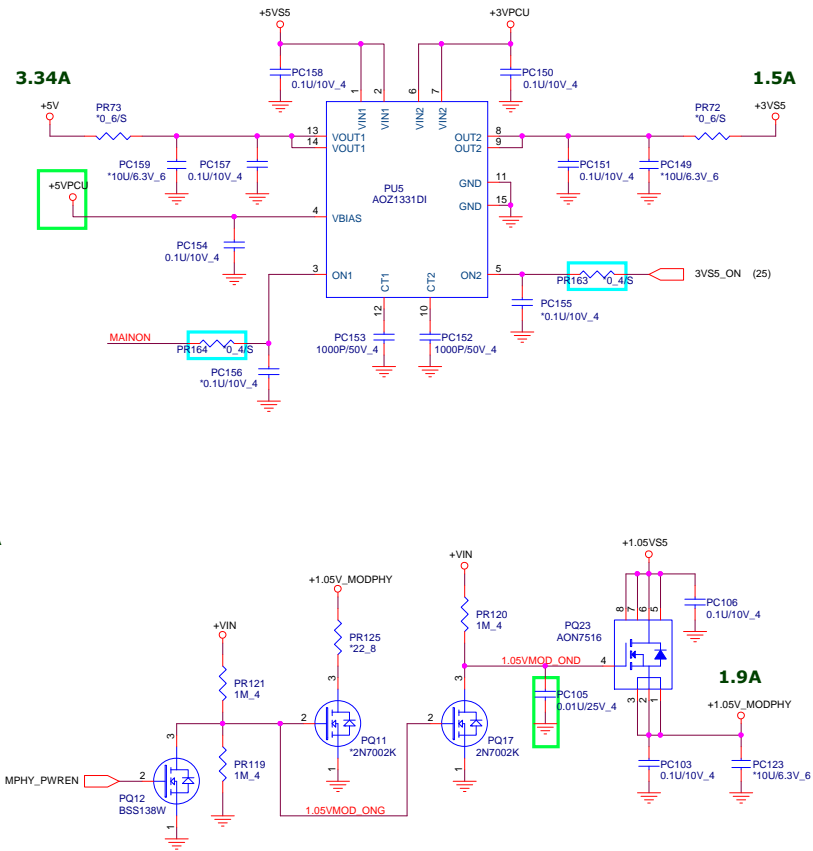
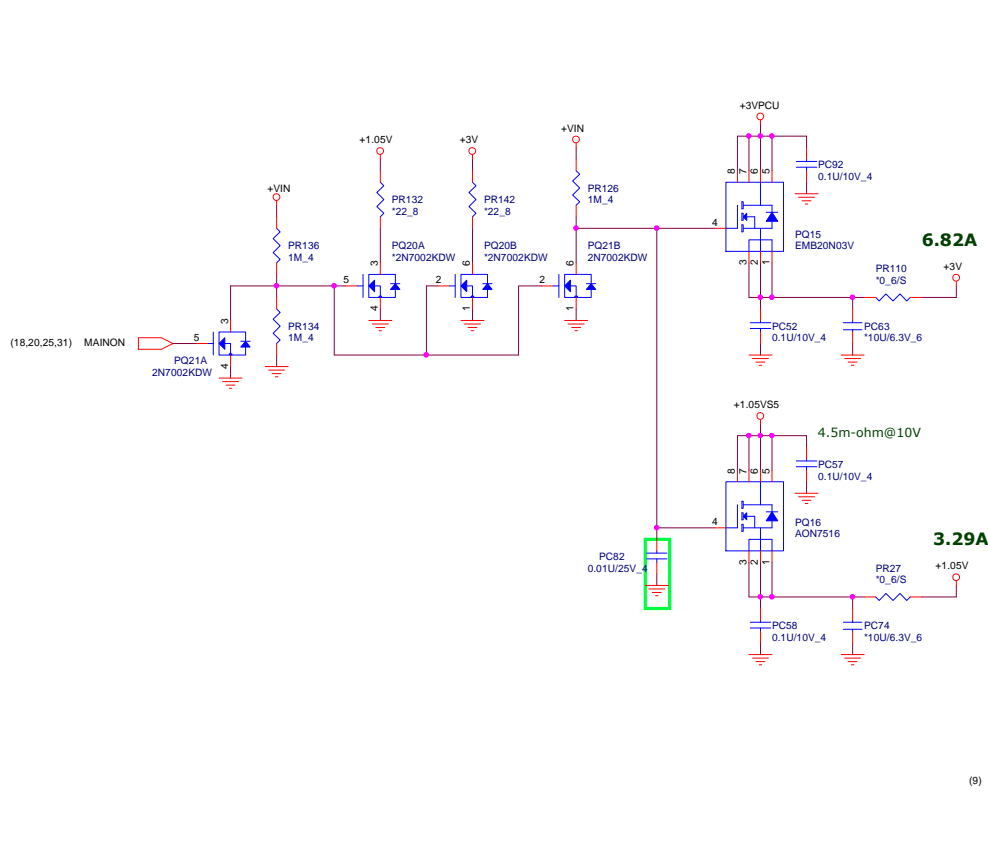
(2,4,12,13,29) +1.2VSUS
(4,7,22,23,25,26,27,28,29,30,32) +3VPCU
(6,7,8,9,10,11,12,13,15,16,17,18,19,21,22,23,24,25,30,32) +3V
+3VSUS
(4,6,7,9,10,22,23,30,32) +3VSS
(29,31) +0.65V_DDR_VTT_FB
(14) +0.65V_DDR_VTT




Load switch

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(10,15,18,22,25,27,28,29,31)	+VIN
(4,7,22,23,25,26,27,28,29,30,31)	+3VPCU
(6,7,8,9,10,11,12,13,15,16,17,18,19,21,22,23,24,25,30)	+3V
	+3VSUS
(4,6,7,9,10,22,23,30,31)	+3VS5
(20,28,29,31)	+5VS5
(17,18,19,22)	+5V
(4,7,10,11,25,28,30)	+1.05V
(10)	+1.05V_MODPHY



IMVP_PWRGD

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	Quanta Computer Inc.		
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