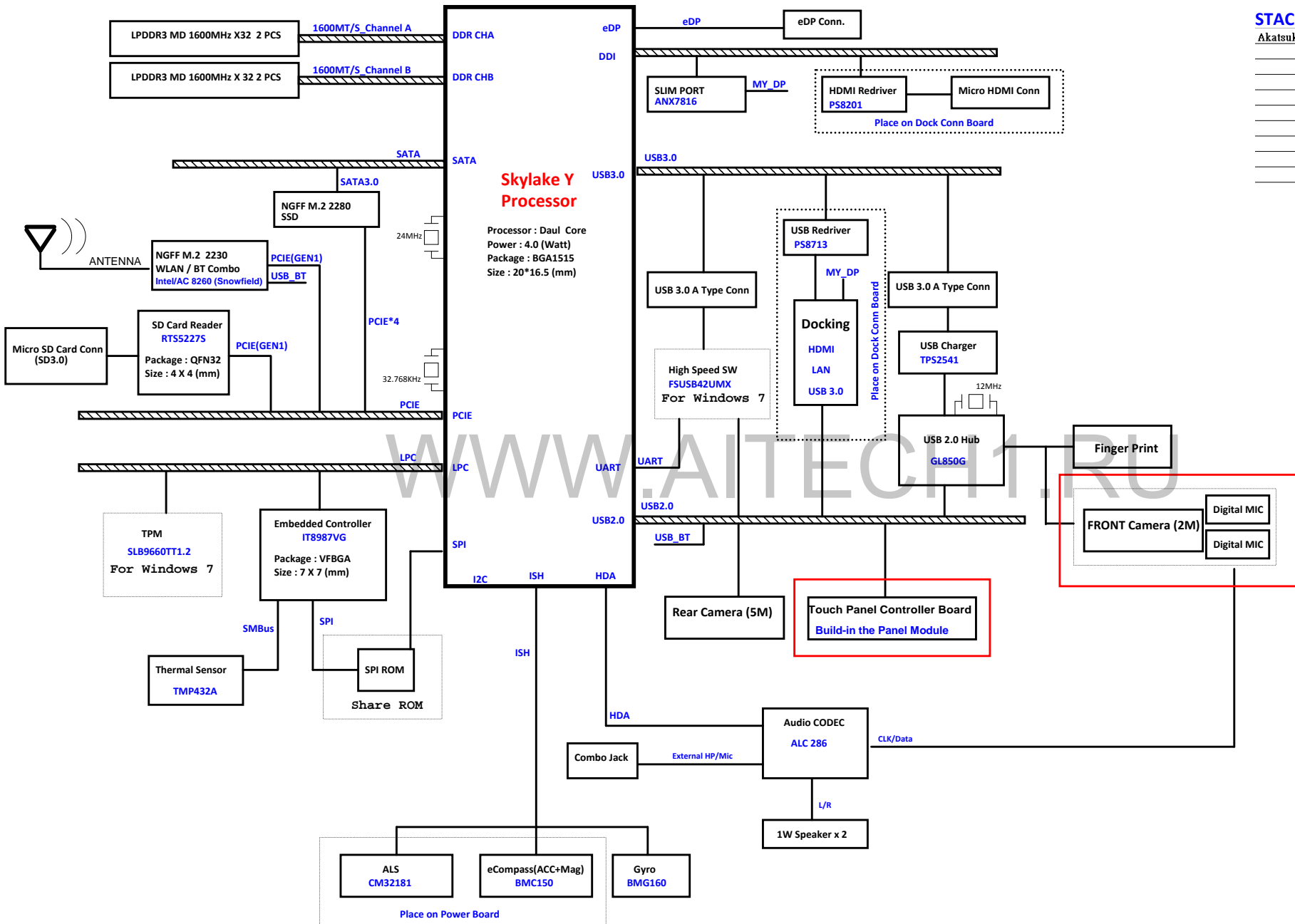


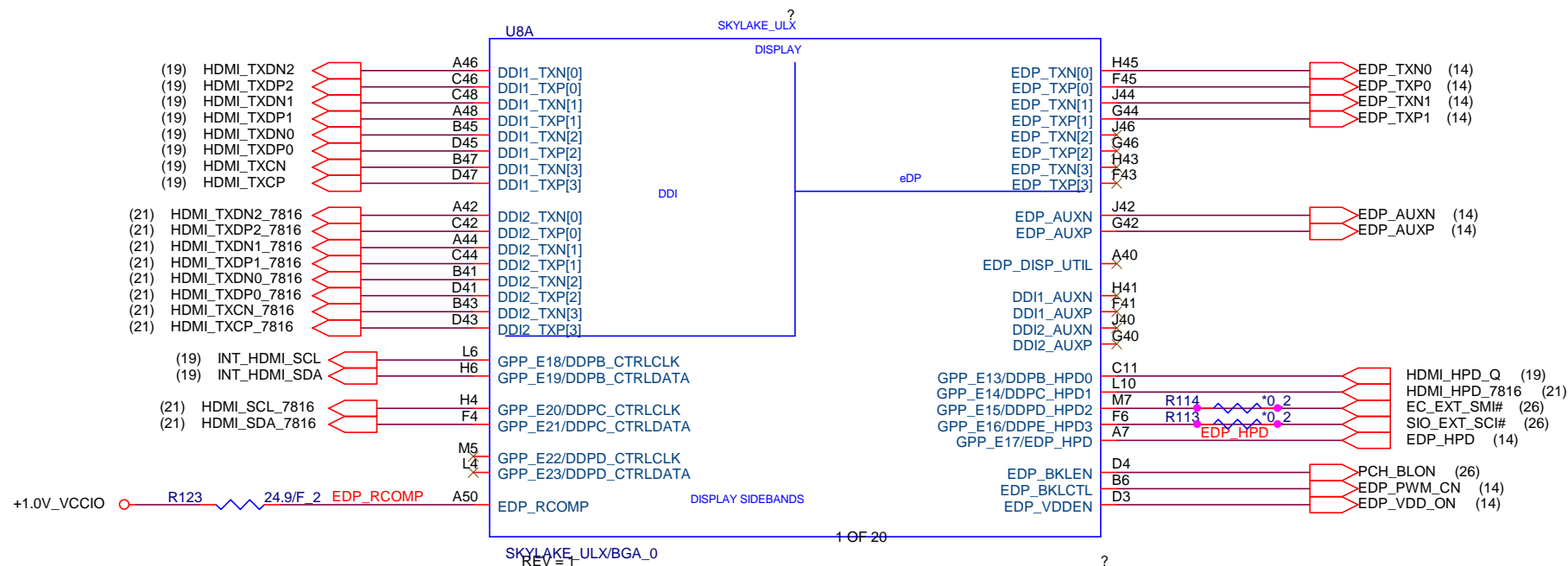
Akatsuki Block Diagram

01



STACK UP

Akatsuki HDI 10L 2-6-2+ Stack up
L1-TOP
L2-IN1
L3-GND1
L4-IN2
L5-GND3
L6-SVCC
L7-IN3
L8-GND3
L9-IN4
L10-BOT



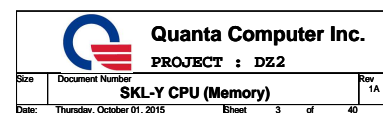
WWW.AITECH1.RU

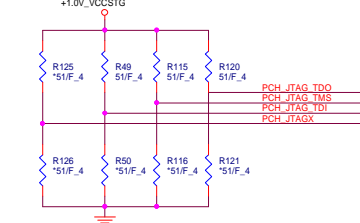
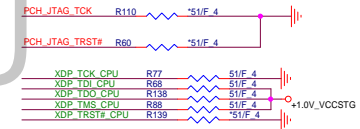
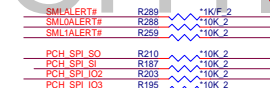
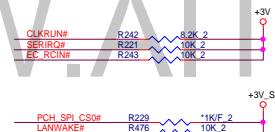
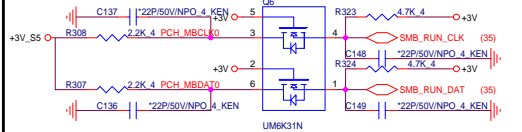
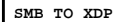
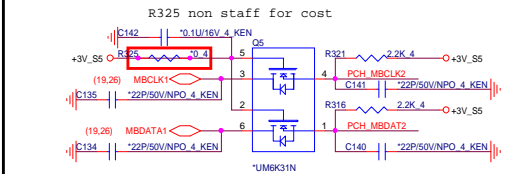
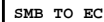
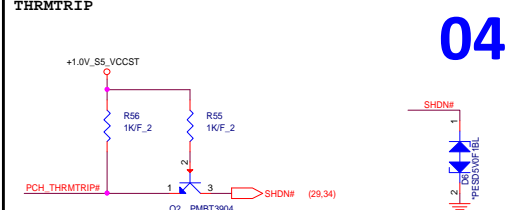


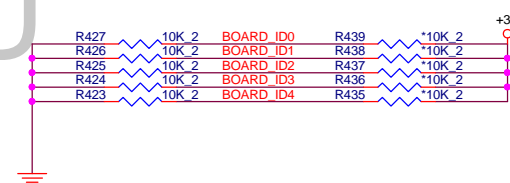
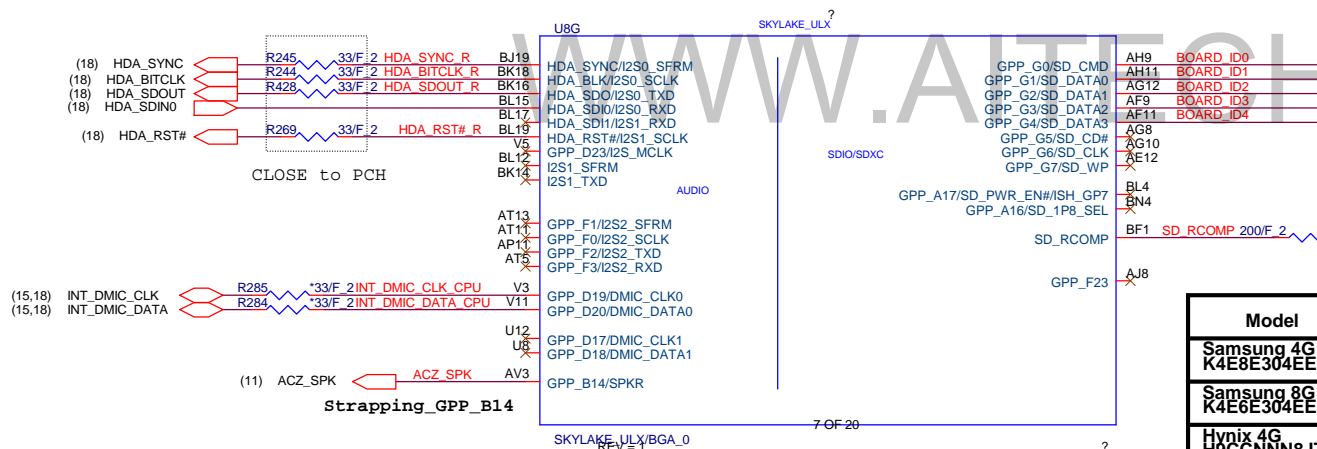
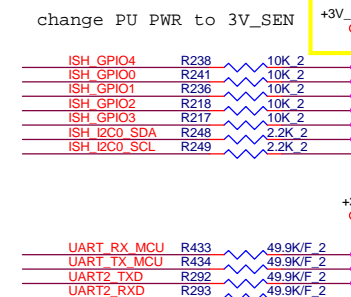
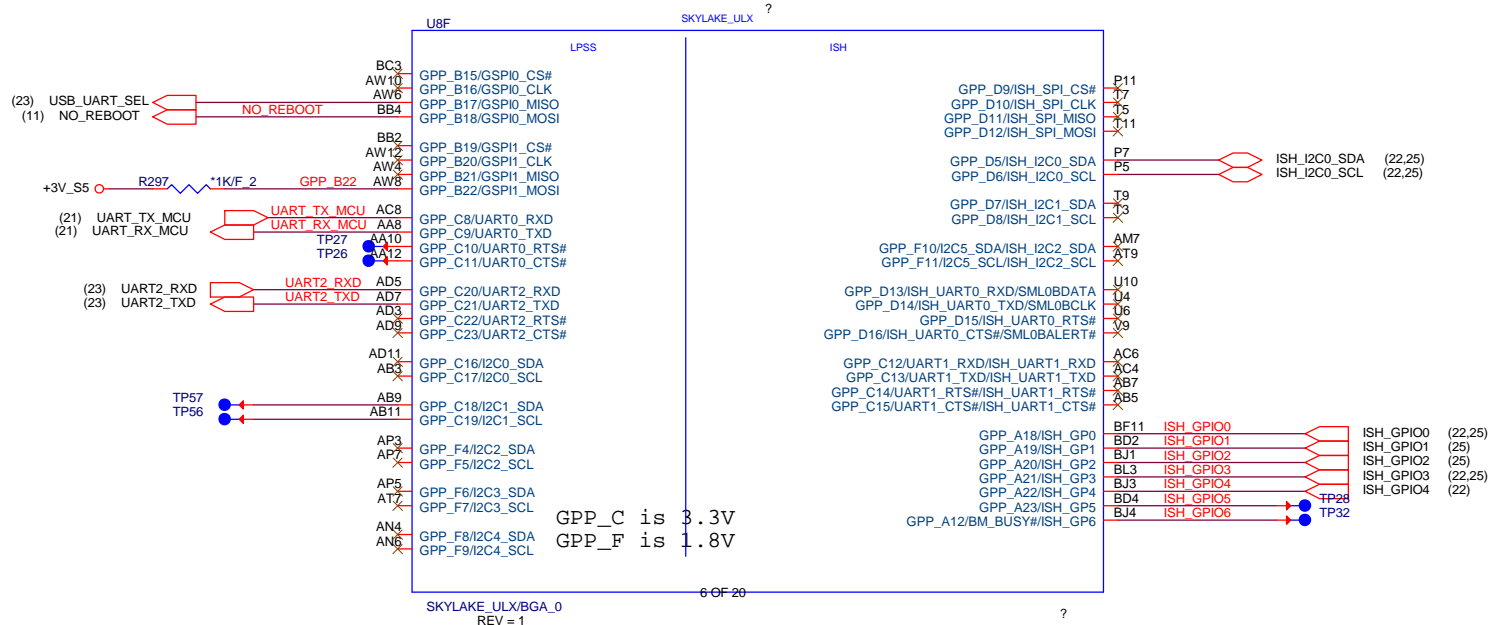
Quanta Computer Inc.

PROJECT : DZ2

Size	Document Number	Rev
	SKL-Y CPU (DDI/EDP)	1A
Date:	Thursday, October 01, 2015	Sheet 2 of 40



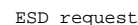




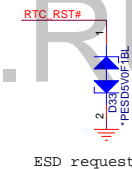
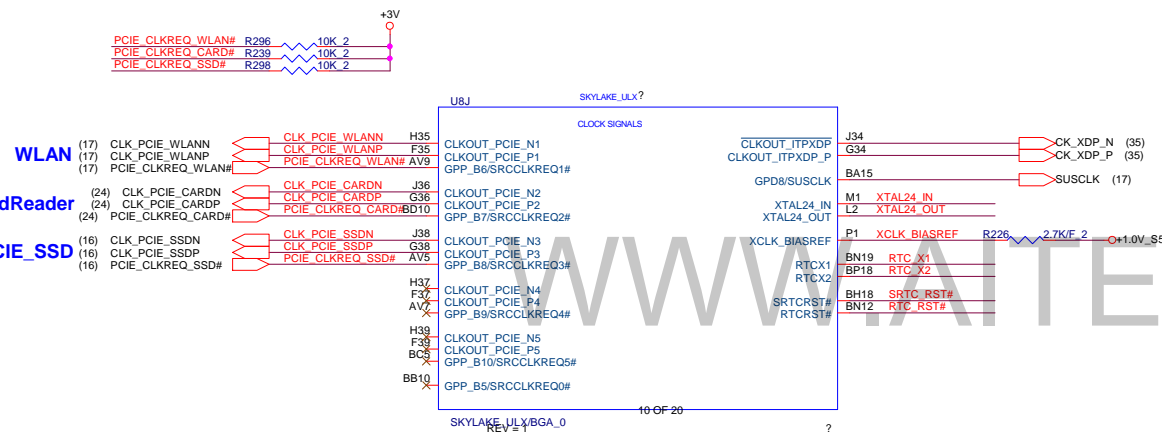
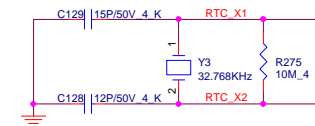
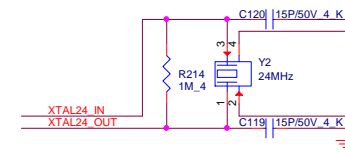
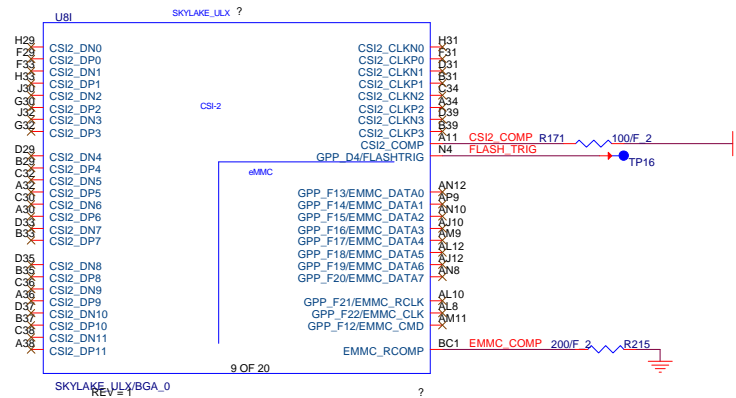
Model				BOARD_ID4	BOARD_ID3	BOARD_ID2	BOARD_ID1	BOARD_ID0
Samsung 4G K4E8E304EE-EGCE				0	0	0	0	0
Samsung 8G K4E6E304EE-EGCE				0	0	0	0	1
Hynix 4G H9CCNNN8JTBLAR-NUD				0	0	0	1	0
Hynix 8G H9CCNNNBTLBLAR-NUD				0	0	0	1	1
				0	0	1	0	0

Security Flash Descriptors

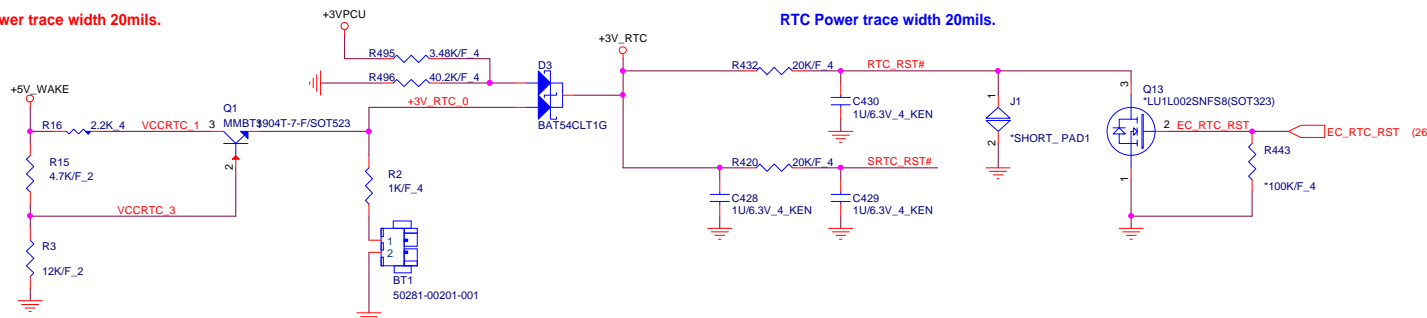


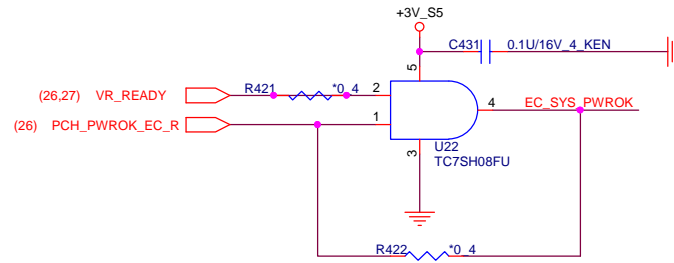
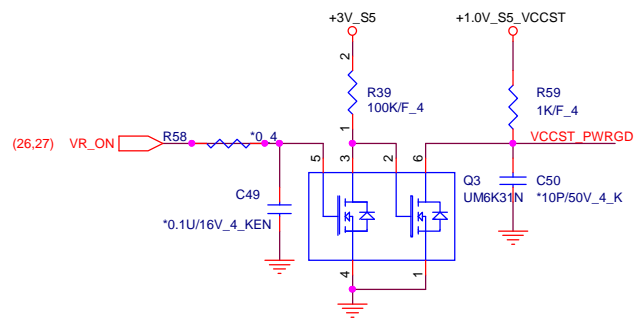
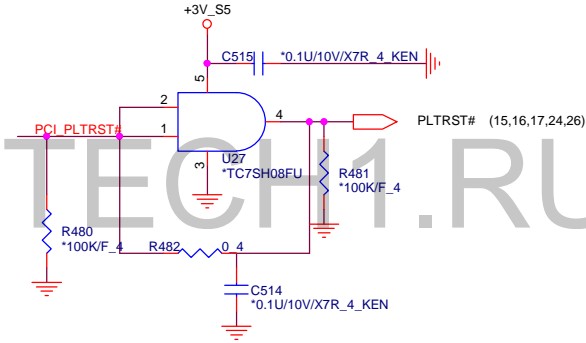
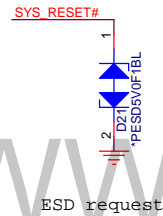
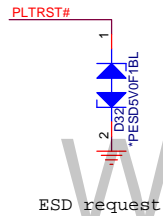
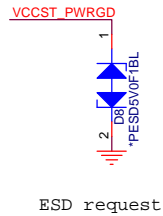
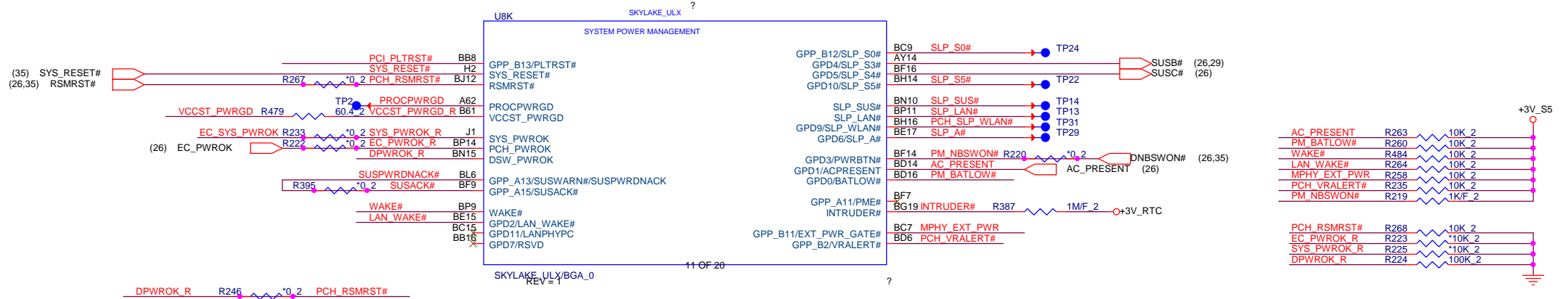


Size	Document Number	Rev
	SKL-Y CPU (PCIE/USB3)	1A
Date:	Thursday, October 01, 2015	Sheet 6 of 40



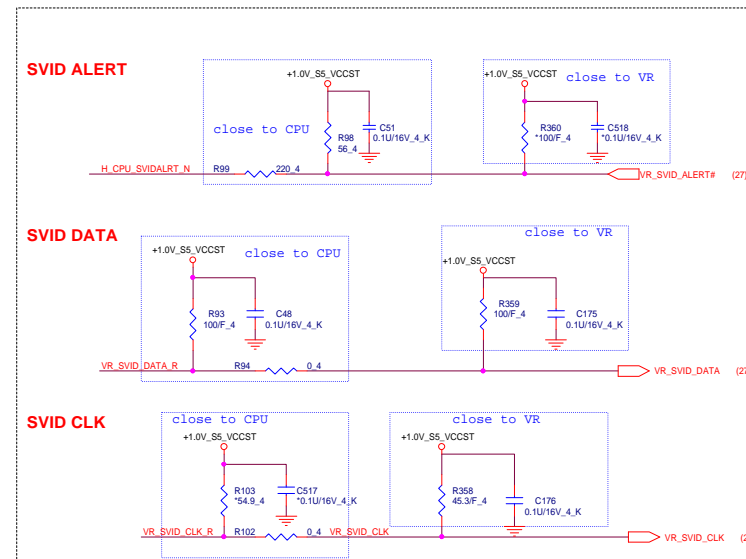
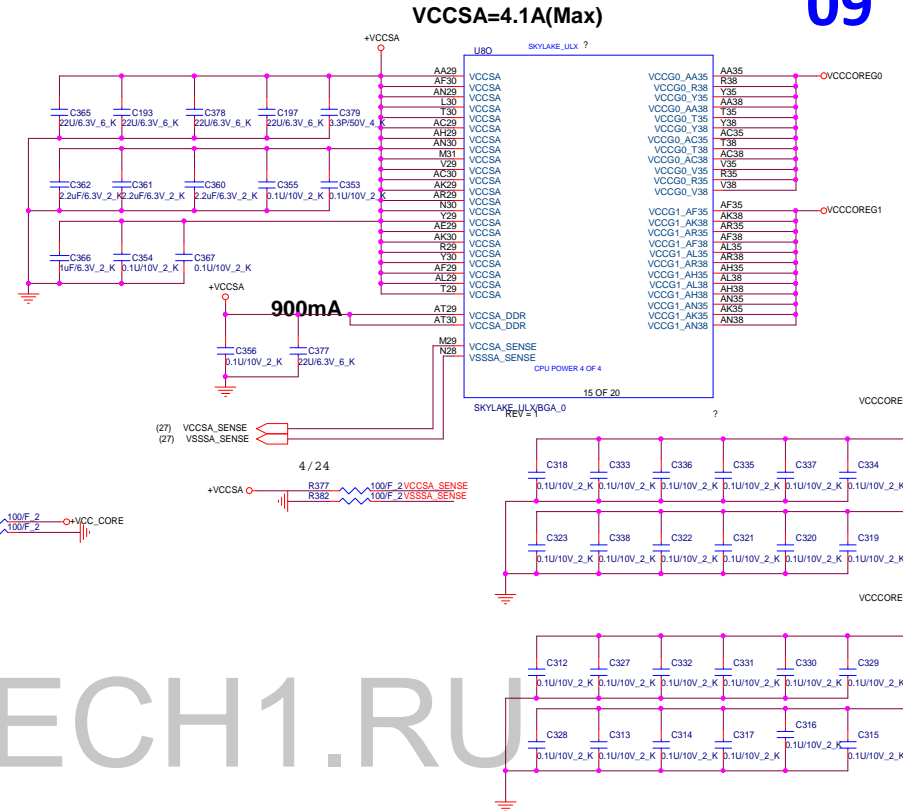
RTC Power trace width 20mils.



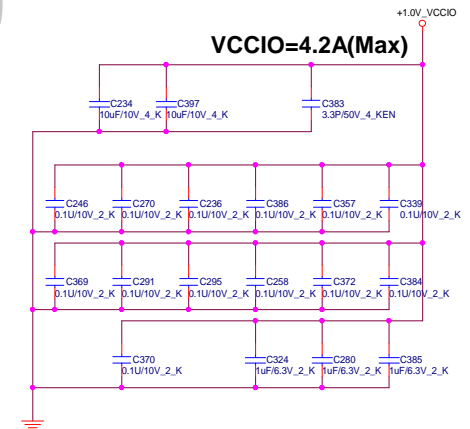
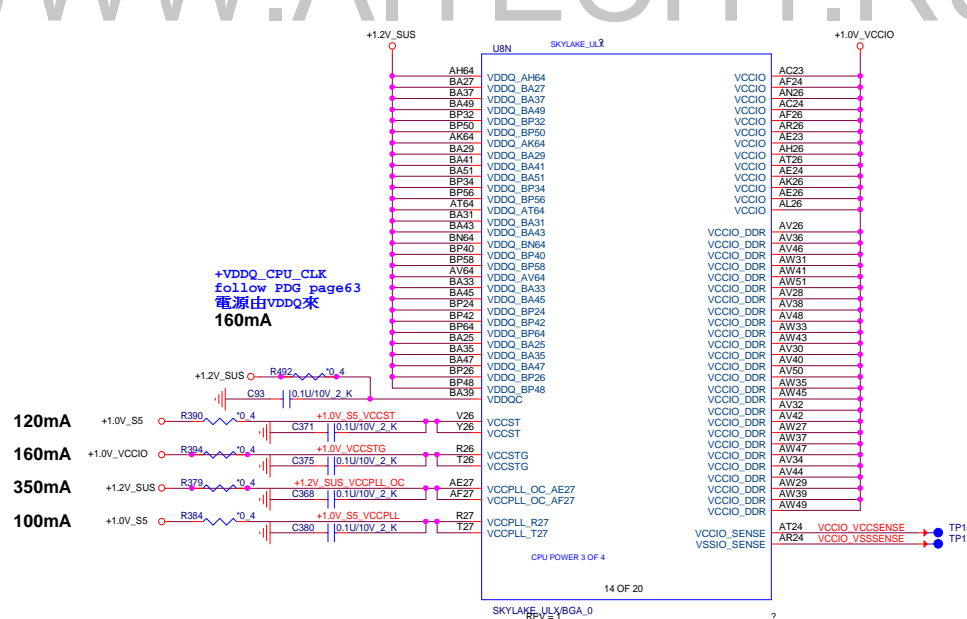
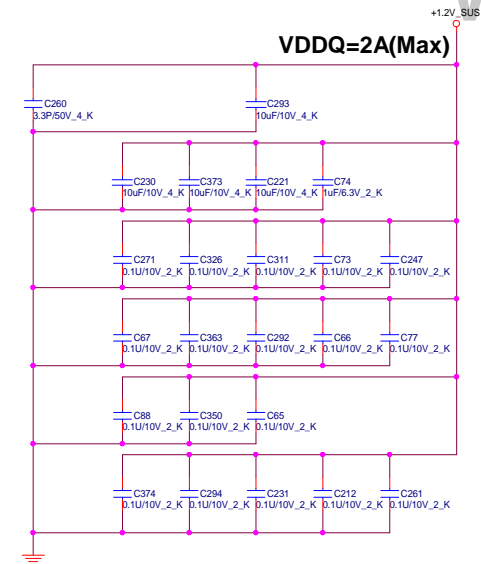
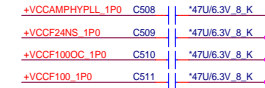
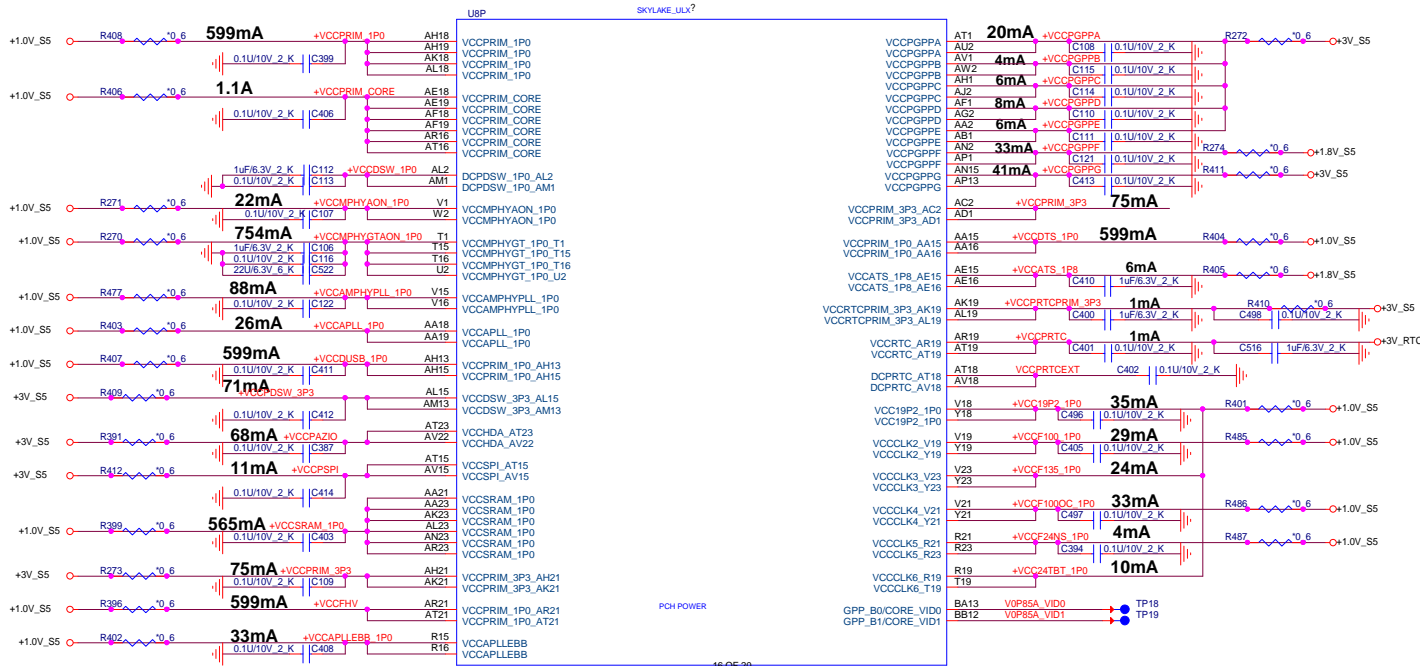
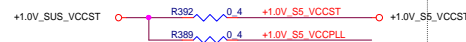


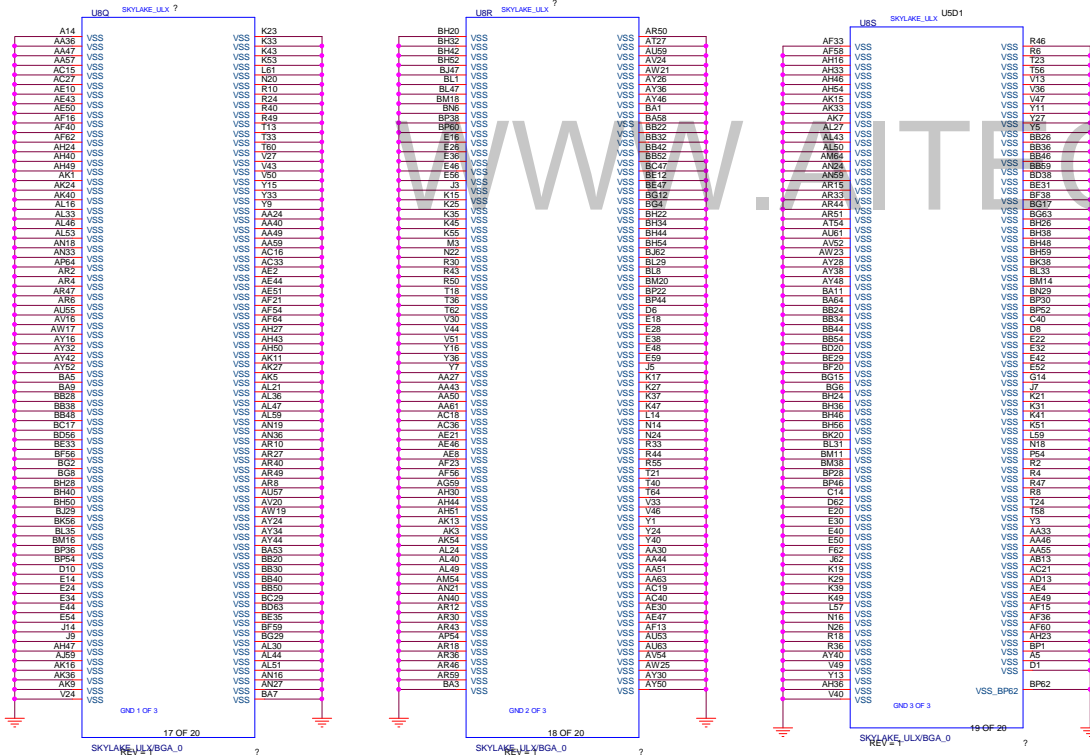
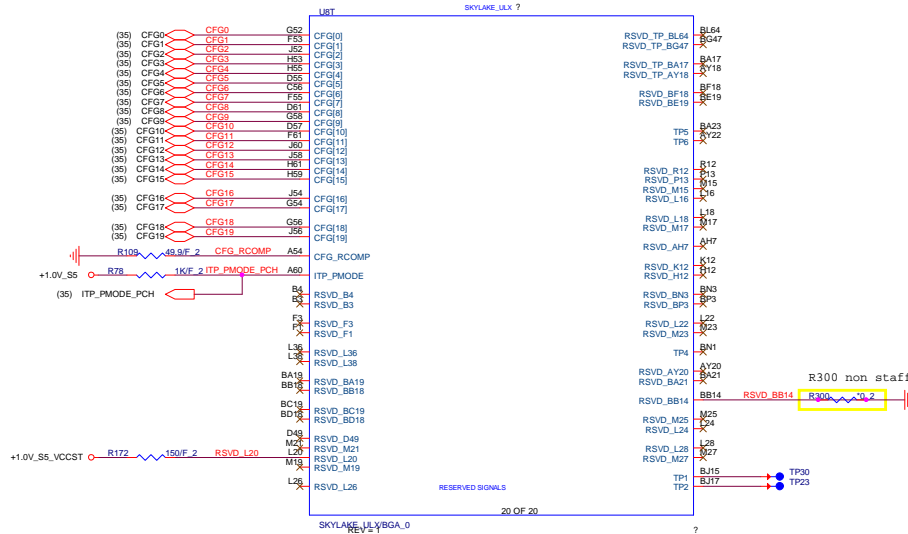
Quanta Computer Inc.
PROJECT : DZ2

Size	Document Number	Rev
	SKL-Y CPU (PWR MANAGE)	1A
Date:	Thursday, October 01, 2015	Sheet 8 of 40

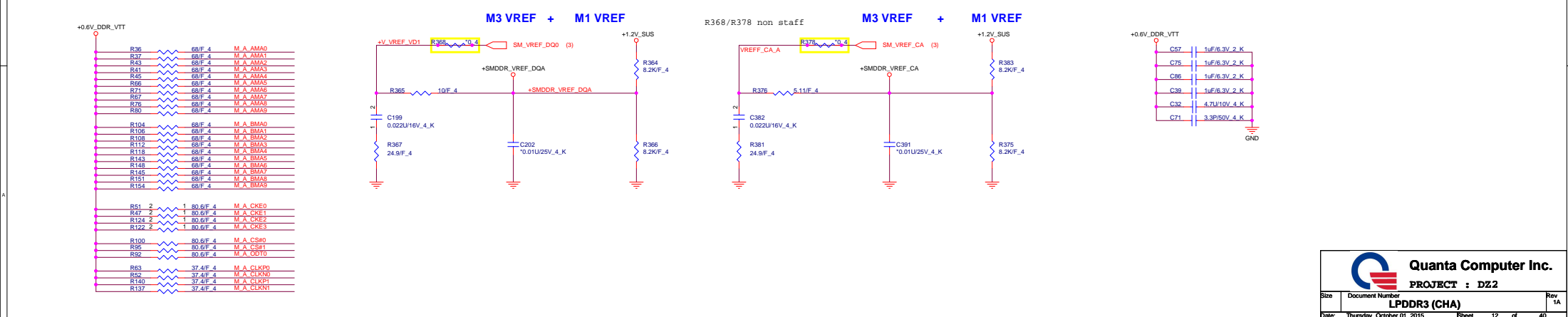
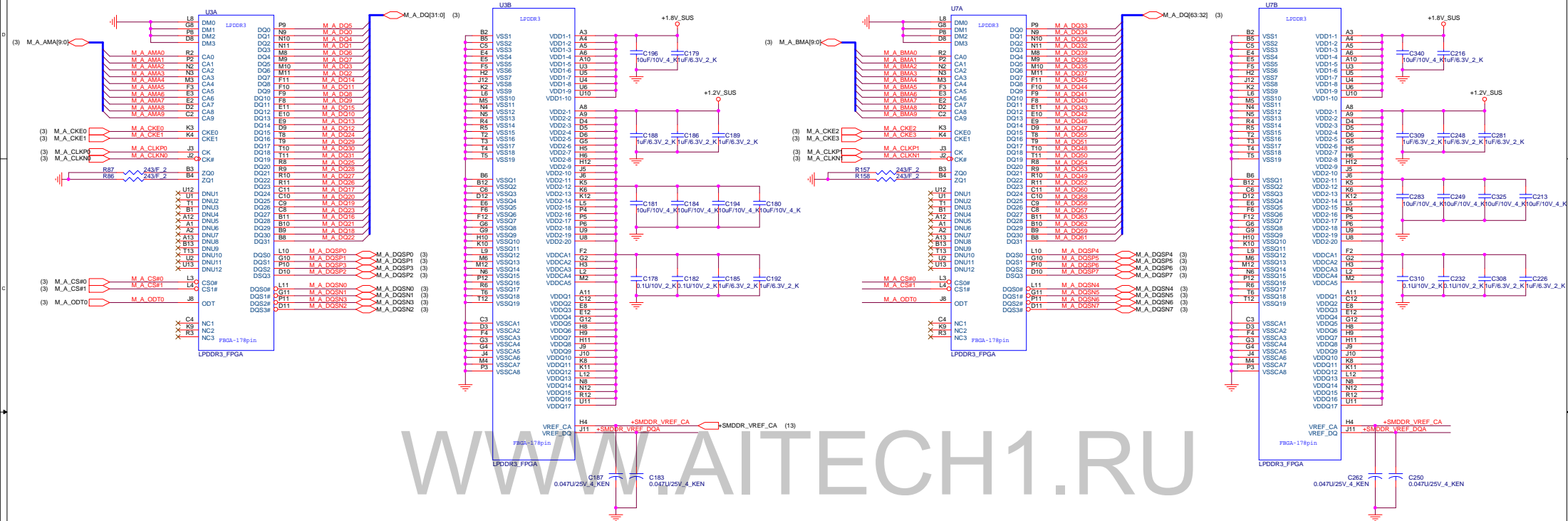


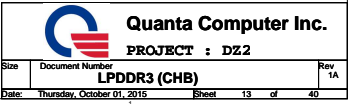
For Load switch <=65usec full load ready

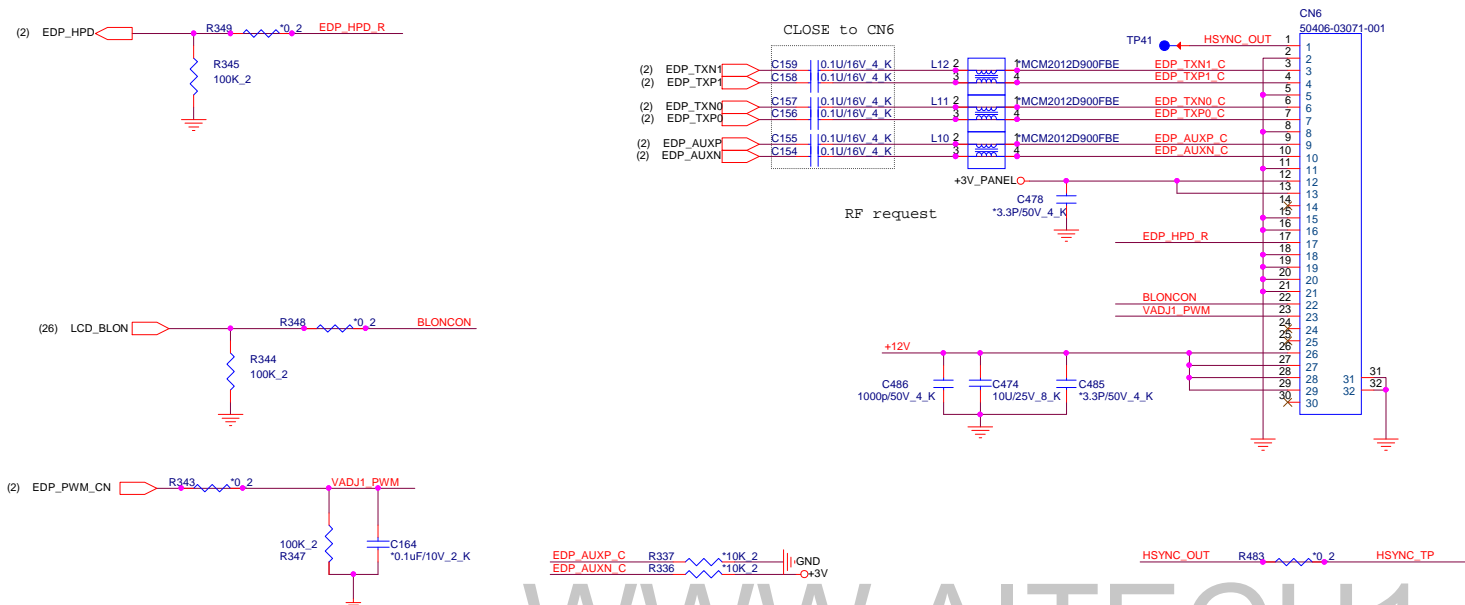




	1	0	
CFG0 EAR-STALL/NOT STALL RESET SEQUENCE AFTER PCU PLL IS LOCKED	(DEFAULT) NORMAL OPERATION NO STALL		
CFG4 eDP Enable	DISABLED	ENABLED	
SPKR / GPP_B14	ENABLED	DISABLED	(5) ACZ_SPK
GSP10_MOSI /GPP_B18	ENABLED	DISABLED	(5) NO_REBOOT
SMBALERT# /GPP_C2	ENABLED	DISABLED	Already Pull-high on Page.4
Boot BIOS Strap Bit /GPP_B22	LPC	SPI	(default:SPI) Page5 Reserve PU1K
SML0ALERT#/ GPP_C5	ESPI	LPC	Already Pull-high on Page.4(default:LPC)
SML1ALERT#/ PCHHOT#/ GPP_B23			Already Pull-high on Page.4
SPI0_MOSI (PCH_SPI_SI)			Already Pull-high on Page.4
SPI0_MISO (PCH_SPI_SO)			Already Pull-high on Page.4
SPI0_IO2 (PCH_SPI_IO2)			Already Pull-high on Page.4
SPI0_IO3 (PCH_SPI_IO3)			Already Pull-high on Page.4
HDA_SDO/ I2S_TXD0	DISABLED	ENABLED	Already Pull-high on Page.5
Security Flash Descriptors			
DDPB_CTRLDATA / GPP_E19	ENABLED		Used on HDMI DDC
DDPC_CTRLDATA / GPP_E21			No Used







Pin No	Symbol	I/O	Function
1	HSync_OUT	O	HSync OUT
2	H_GND	P	High Speed Ground
3	Lane1_N	I	Complement Signal Link Lane 1
4	Lane1_P	I	True Signal Link Lane 1
5	H_GND	P	High Speed Ground
6	Lane0_N	I	Complement Signal Link Lane 0
7	Lane0_P	I	True Signal Link Lane 0
8	H_GND	P	High Speed Ground
9	AUX_CH_P	I	True Signal Auxiliary Channel
10	AUX_CH_N	I	Complement Signal Auxiliary Channel
11	H_GND	P	High Speed Ground
12	LCD_VCC	P	LCD logic and driver power(3.3V)
13	LCD_VCC	P	LCD logic and driver power(3.3V)
14	NC	I	Reserved for LCD manufacturer's use
15	LCD_GND	P	LCD logic and driver ground

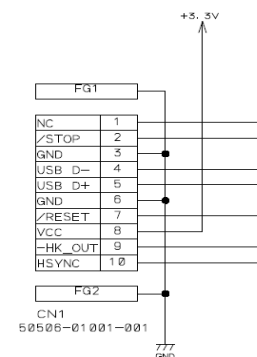
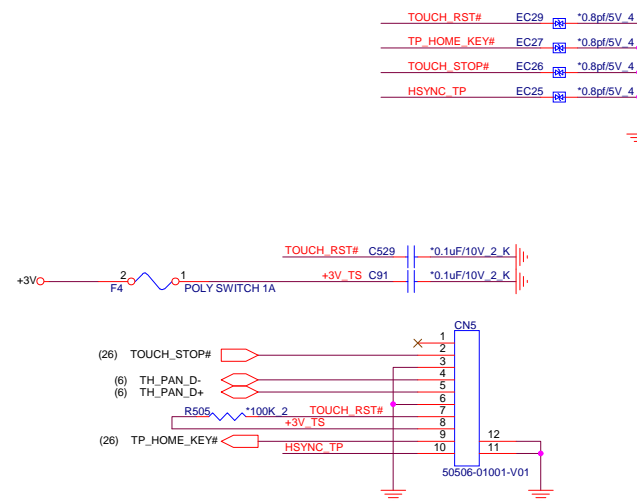
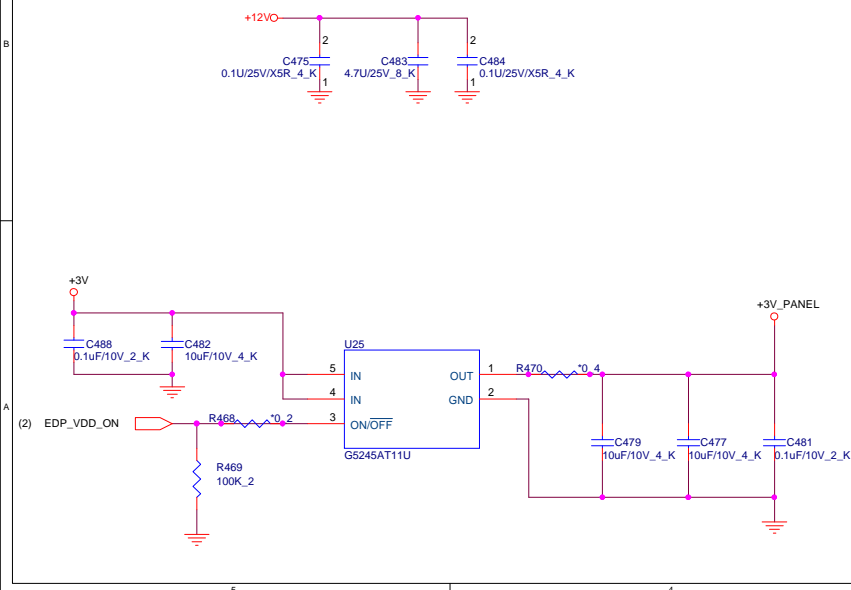
Pin No	Symbol	I/O	Function
16	LCD_GND	P	LCD logic and driver ground
17	HPD	O	HPD signal pin
18	BL_GND	P	Backlight ground
19	BL_GND	P	Backlight ground
20	BL_GND	P	Backlight ground
21	BL_GND	P	Backlight ground
22	BL_ENABLE	I	Backlight On/Off
23	BL_PWM_DIM	I	System PWM
24	NC	-	Reserved for LCD manufacturer's use
25	NC	-	Reserved for LCD manufacturer's use
26	BL_PWR	P	Backlight power
27	BL_PWR	P	Backlight power
28	BL_PWR	P	Backlight power
29	BL_PWR	P	Backlight power
30	NC	-	Reserved for LCD manufacturer's use

WWW.AITECH1.RU

LCD PWR

TOUCH

Touch Panel ESD



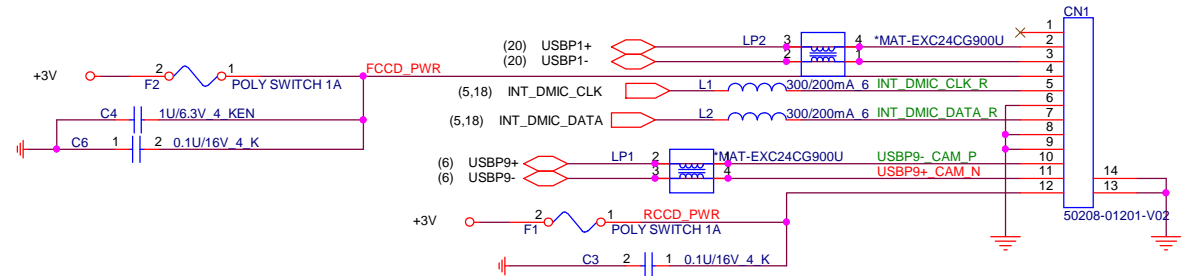
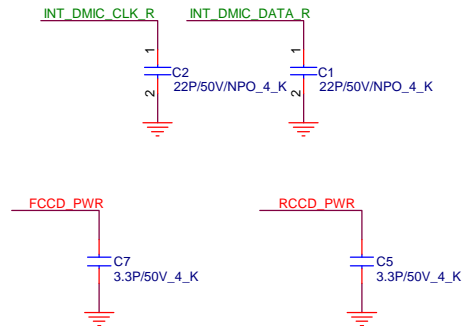
Quanta Computer Inc.

PROJECT : DZ2

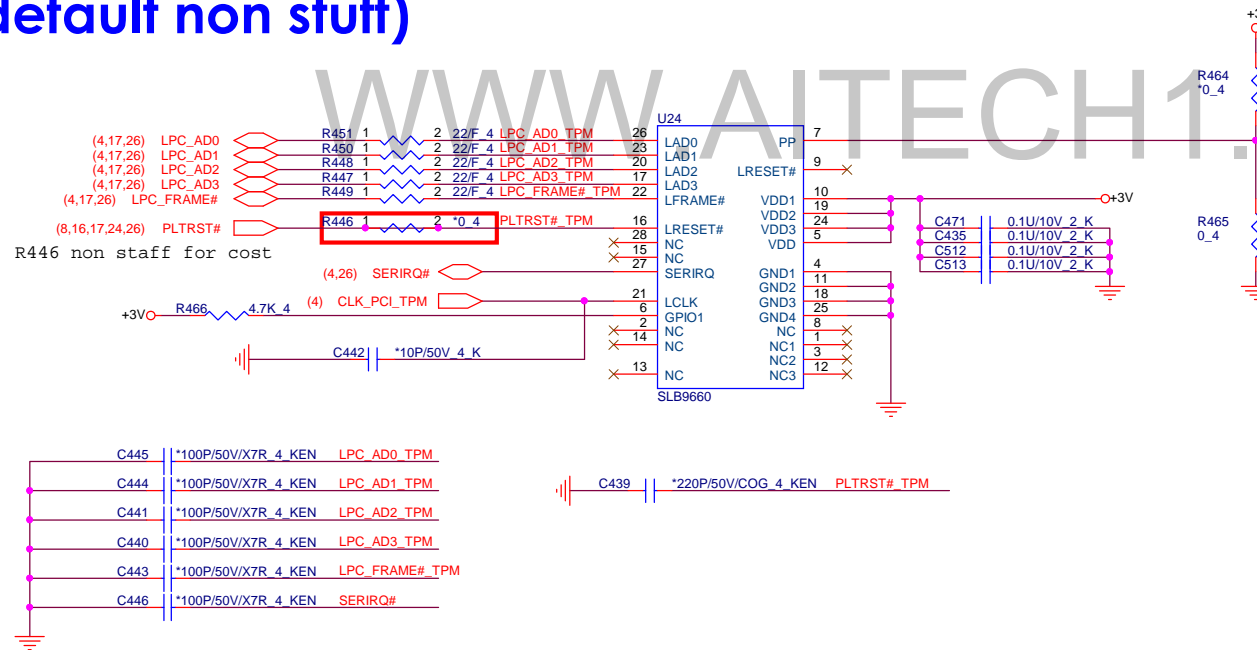
Size	Document Number	Rev
	eDP/Touch	1A

Date: Thursday, October 01, 2015 Sheet 14 of 40

For EMI close to connector

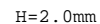


TPM (default non stuff)



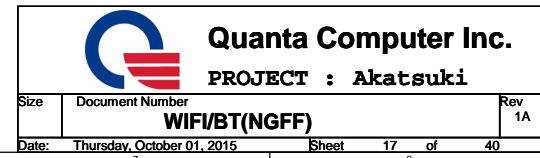
HIGH	BADD 4EH/4F	Address (default)
------	----------------	----------------------

U9 TPM Support CFG	
SLB9660	TPM 1.2 (AL009660K00)

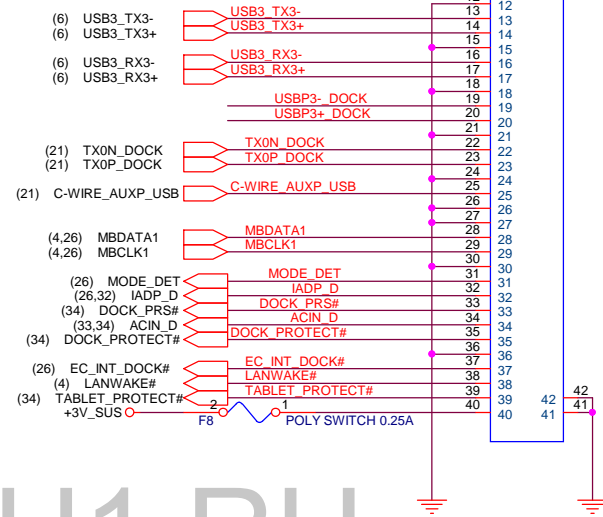
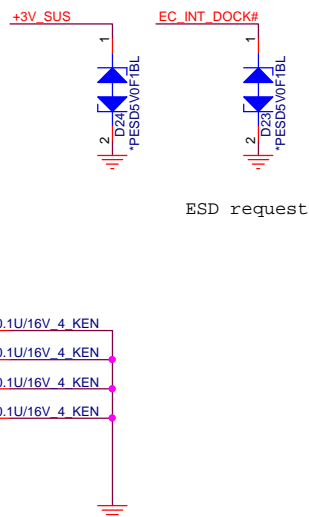
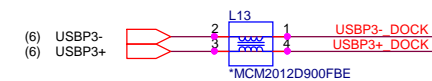
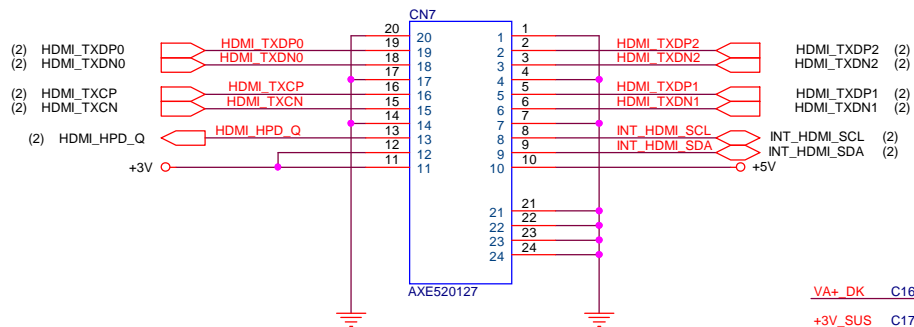


Size	Document Number	Rev
	SSD (NGFF CONN)	1A
Date:	Thursday, October 01, 2015	Sheet 16 of 40

17



HDMI / Docking

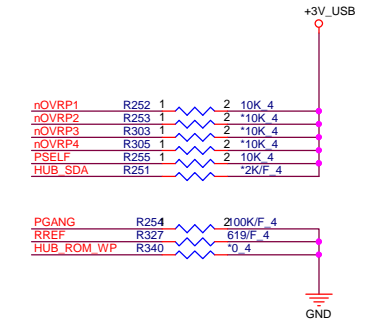
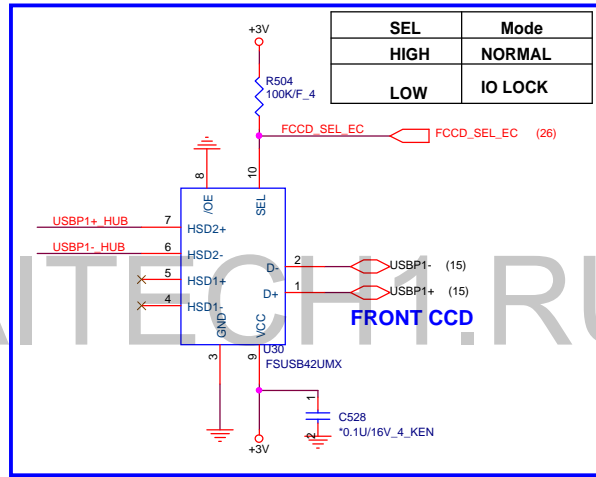
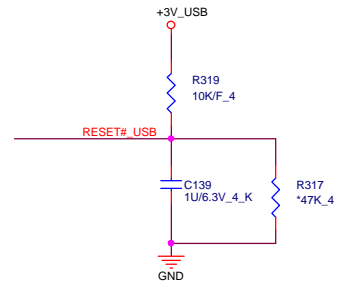
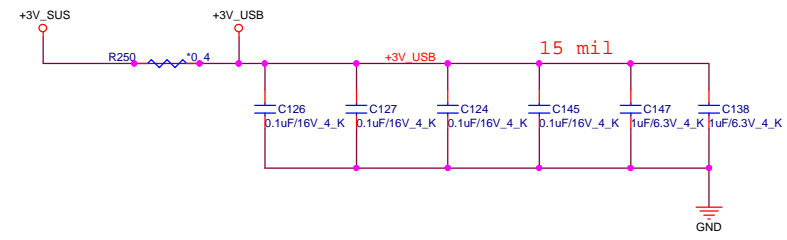
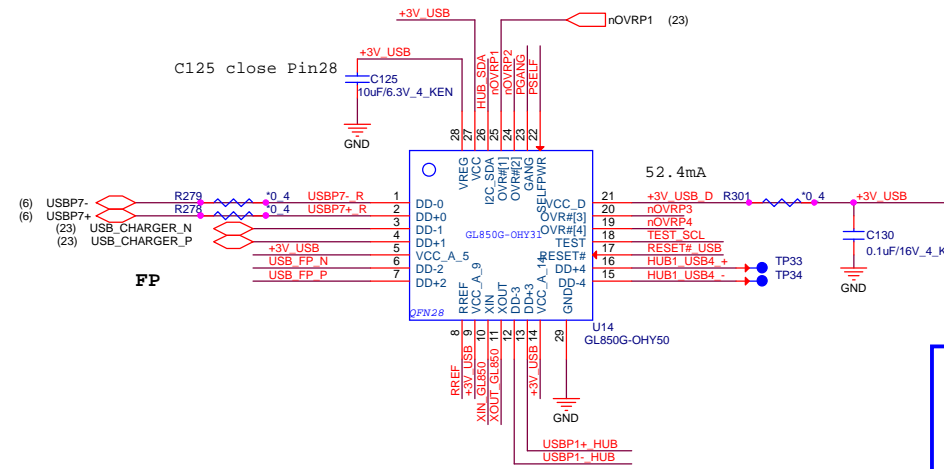


WWW.AITECH1.RU

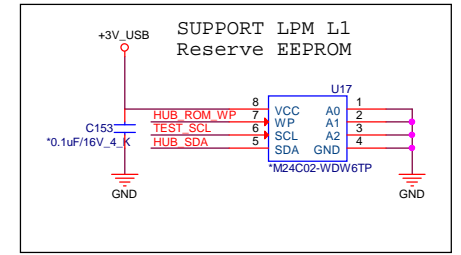
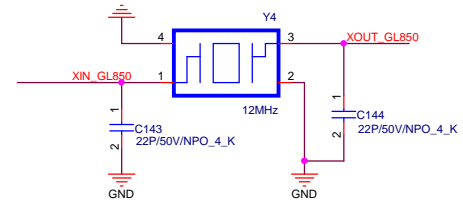
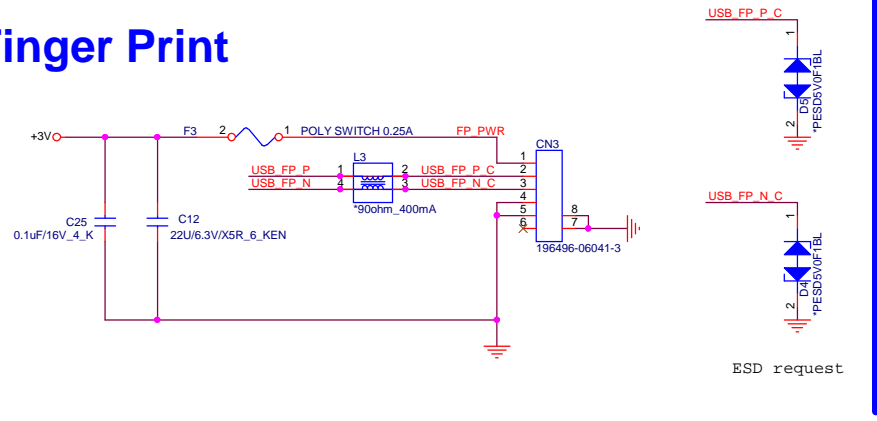
	Stand/ table Mode	Chamshell Mode
MODE DET	HIGH	LOW

USB 2.0 Hub

TO PCH
USB3

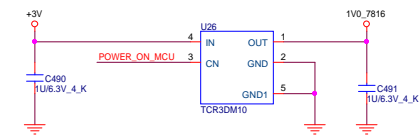
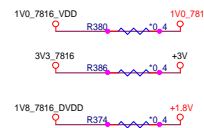
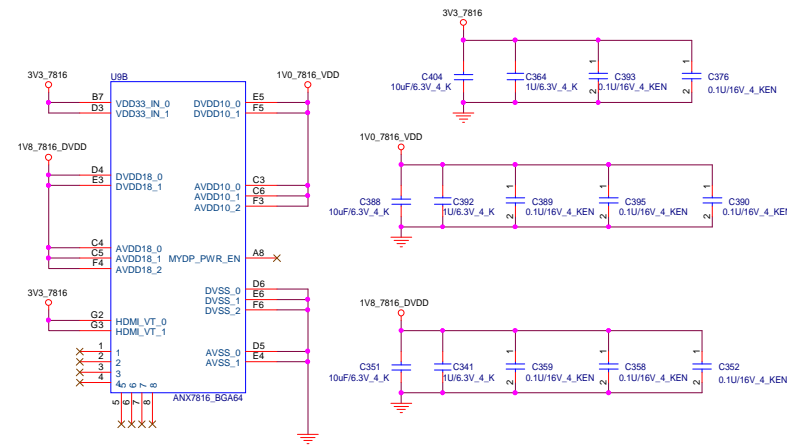
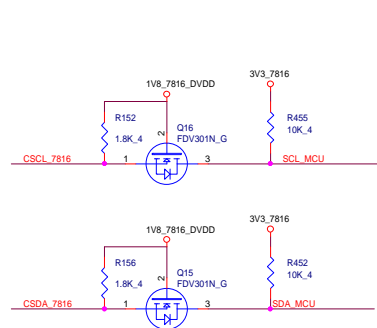
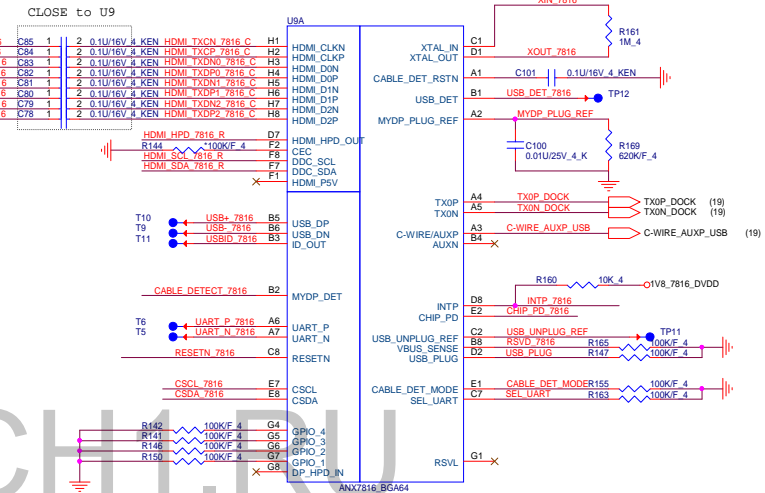
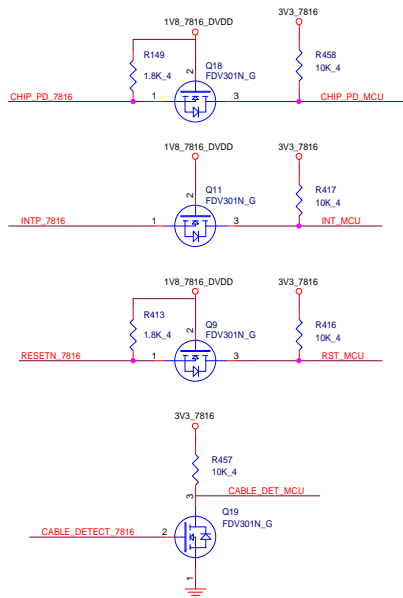
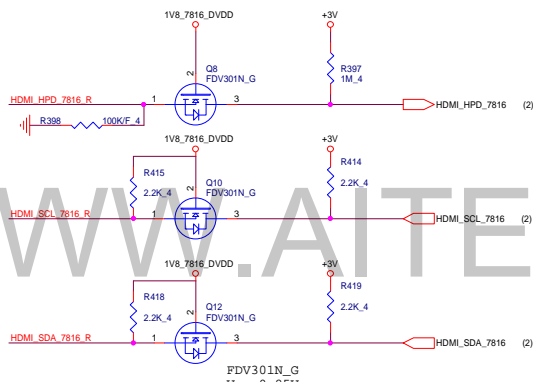
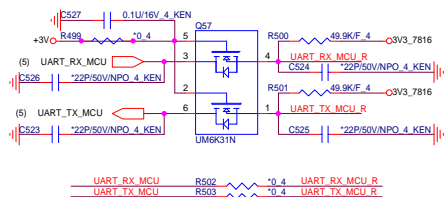
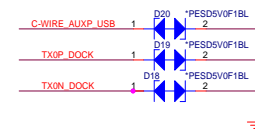
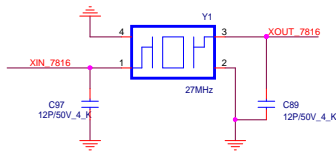
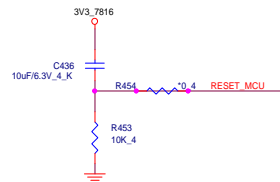
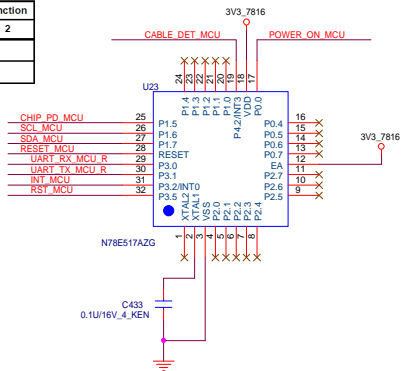


Finger Print

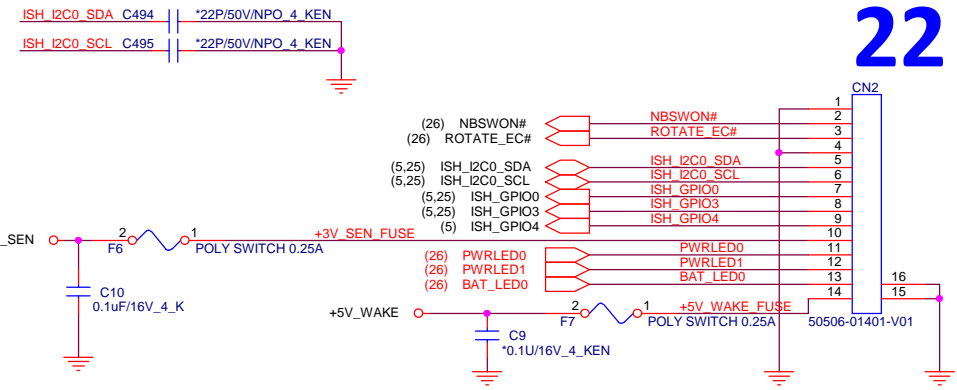
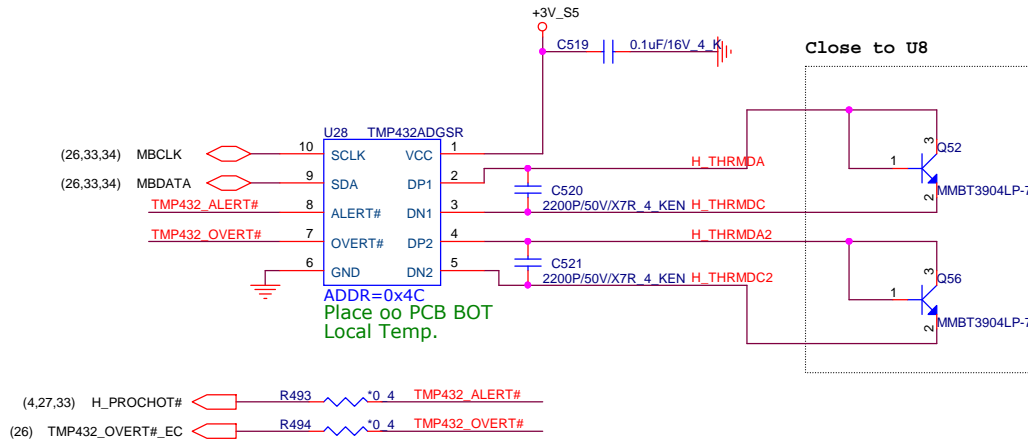


21

Pin number	Symbol	Alternate Function	
		1	2
29	P3.0	RXD	
30	P3.1	TXD	

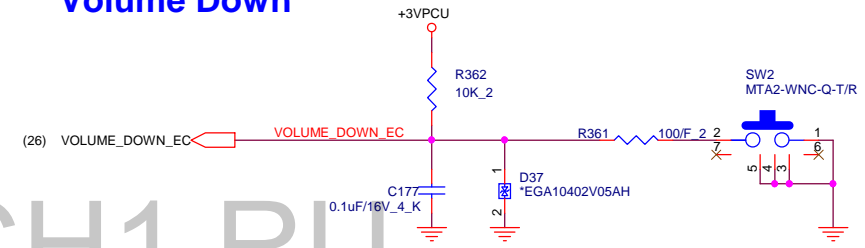


Thermal Sensor(THM)

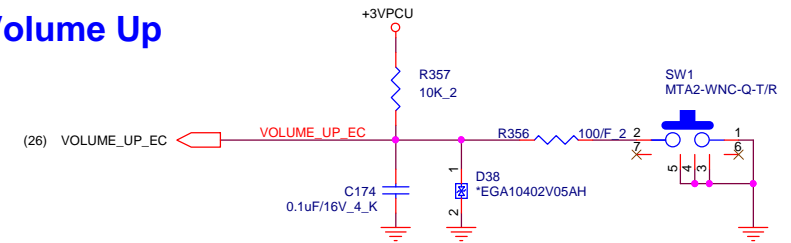


22

Volume Down



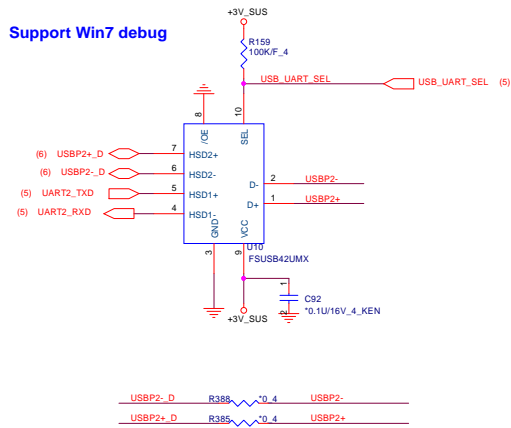
Volume Up



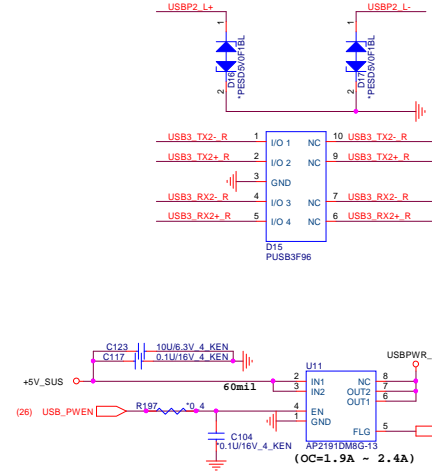
Quanta Computer Inc.

PROJECT : DZ2

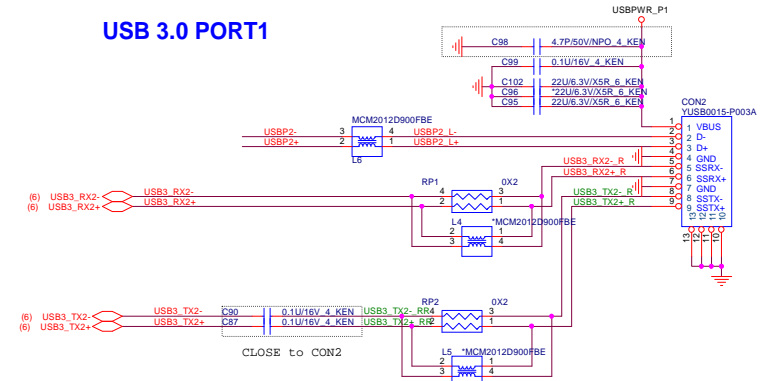
Size	Document Number	Rev
	SW Button/LED	1A
Date:	Thursday, October 01, 2015	Sheet 22 of 40



SEL	/OE	Mode
HIGH	LOW	USB Mode
LOW	LOW	UART Mode



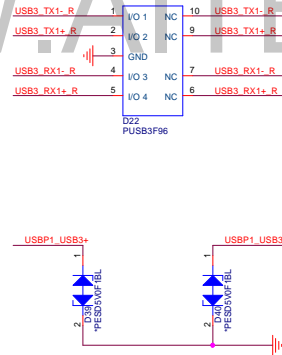
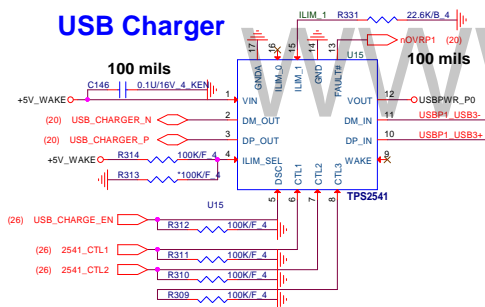
USB 3.0 PORT1



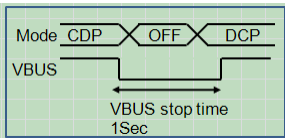
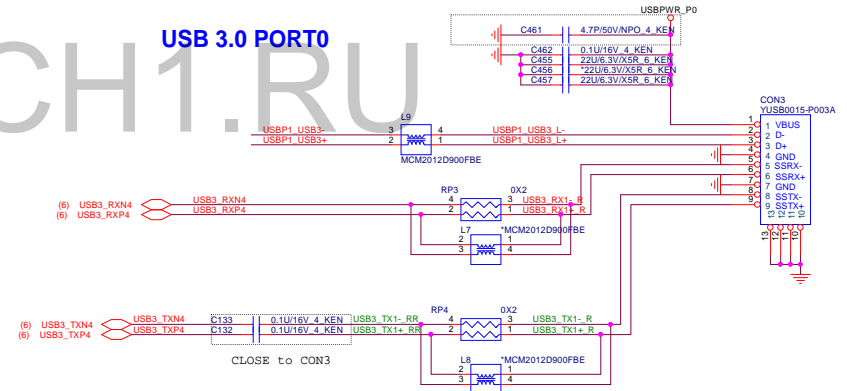
	TPS2541		
ILIM_SEL	Pin15	Pin16	
High	V		
Low		V	

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

USB Charger



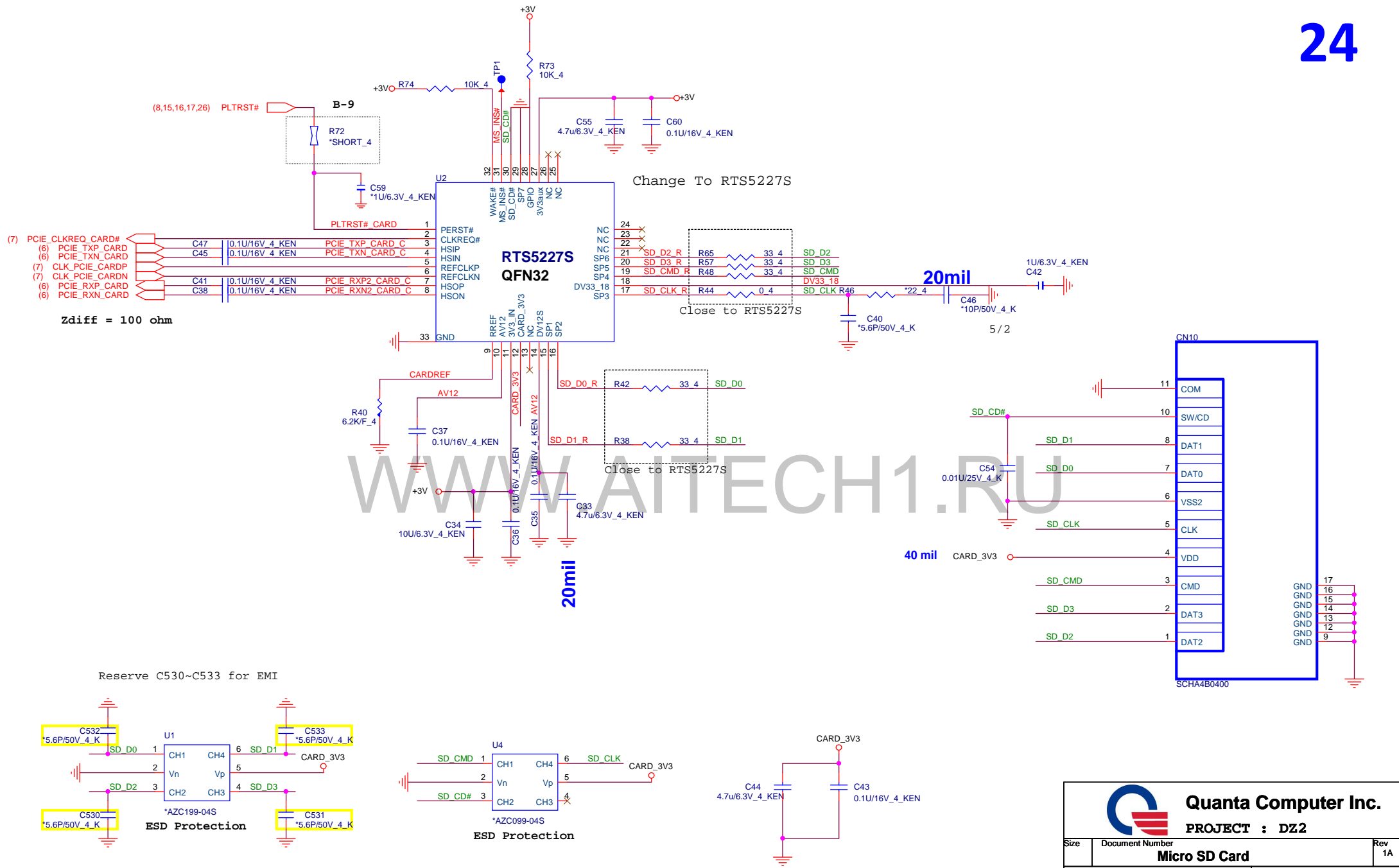
USB 3.0 PORT0



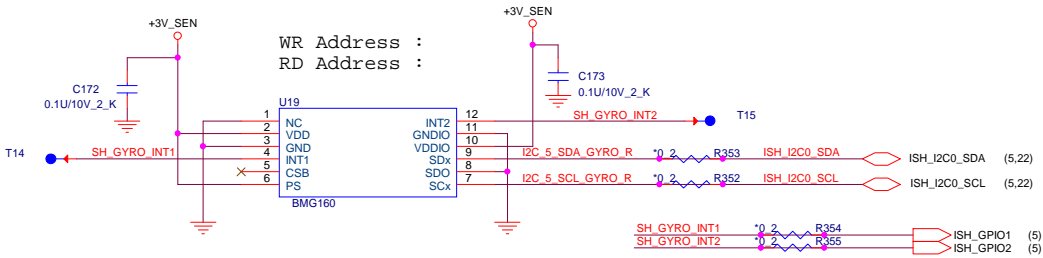
ILIM_SEL (I LIMIT(A)= 48000/R)		
HI	I_LIM_1	
LO	I_LIM_0	48000/22.6K=2.123A

USB_CHARGER_EN	CTL_1	CTL_2	CTL_3	TPS 2541 Truth Table
1	0	0	X	DCP, Auto-detect (S3/S4/S5, 1.5A)
1	0	1	X	DCP, BC SPEC1.2 only (S3/Deep standby/S4/S5, 1.5A)
1	1	0	X	DCP, Divider mode only (S3/S4/S5, 1.5A)
1	1	1	0	SDP, USB2.0 mode (S0, 0.5A)
1	1	1	1	CDP (S0, 1.5A)
0	X	X	X	OUT discharge, power switch OFF

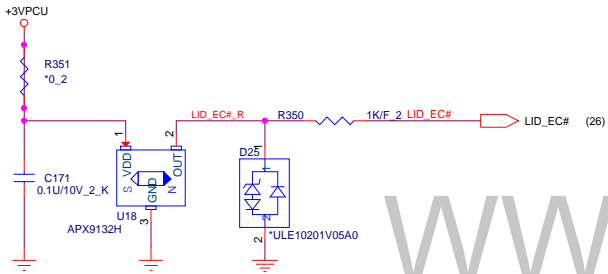
System State	USB Battery Charging Setting		
	Disable(AC and DC mode)(EN 1 2 3)	Enable(AC mode) (EN 1 2 3)	Enable(DC mode)(EN 1 2 3)
S0	SDP (1 1 1 0)	SDP (1 1 1 0)	SDP (1 1 1 0)
S3	SDP (1 1 1 0)	DCP Auto (1 0 0 X)	Charger OFF (0 X X X)
DS3	Charger OFF (0 X X X)	DCP Auto (1 0 0 X)	Charger OFF (0 X X X)
S4	Charger OFF (0 X X X)	DCP Auto (1 0 0 X)	Charger OFF (0 X X X)
S5	Charger OFF (0 X X X)	DCP Auto (1 0 0 X)	Charger OFF (0 X X X)



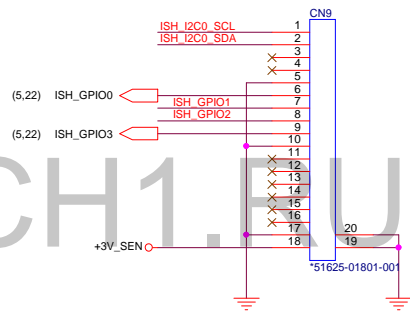
Gyroscope (BMG160)



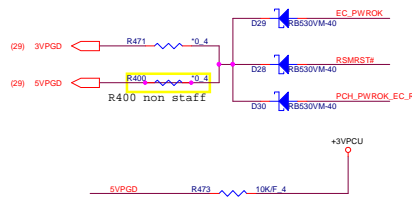
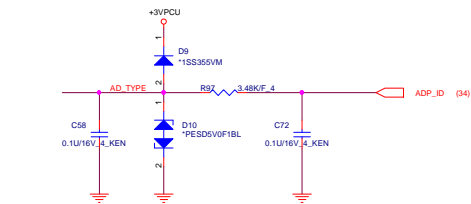
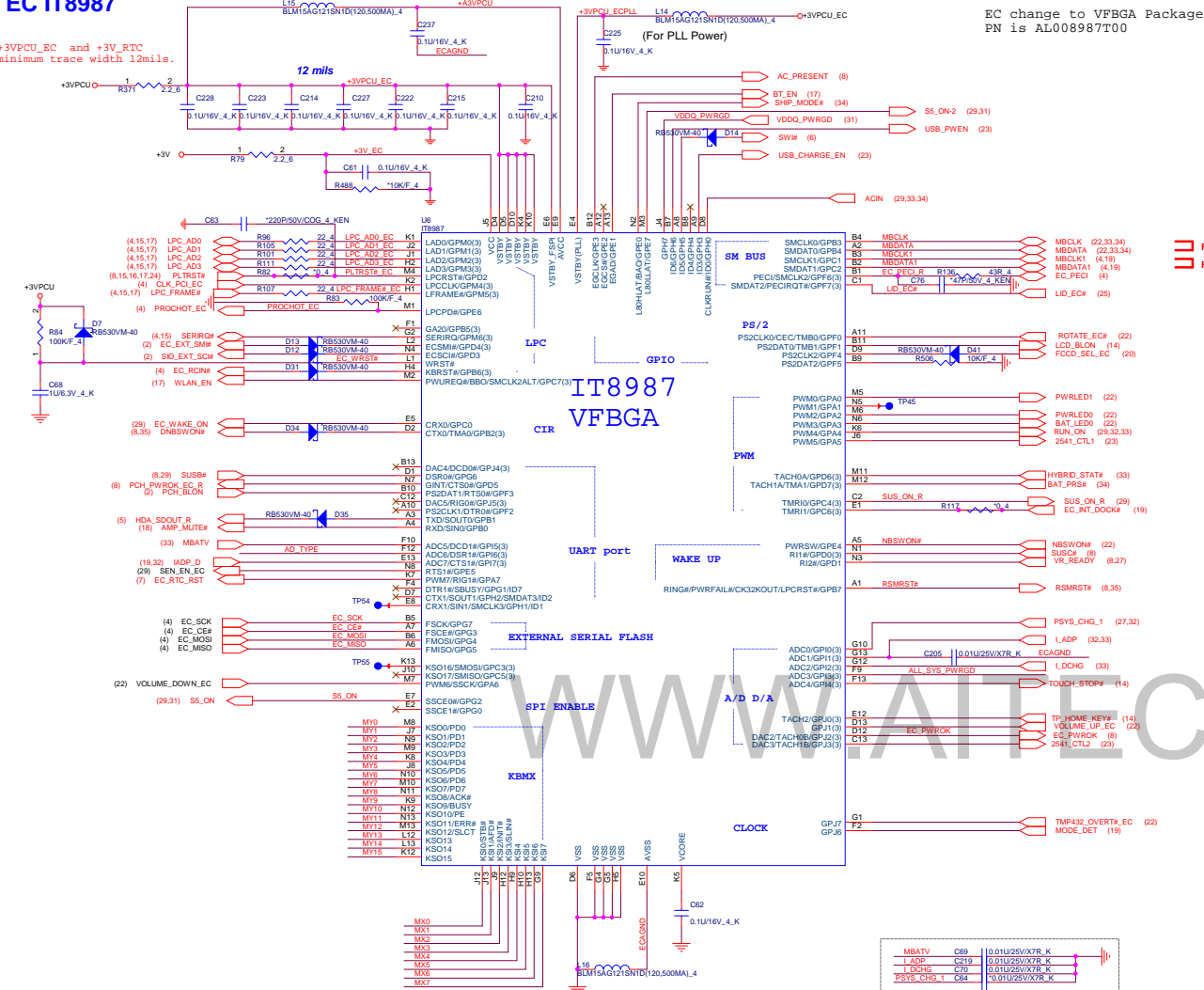
LID SENSOR



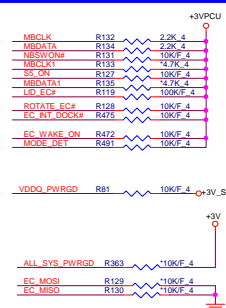
ISH DEBUG



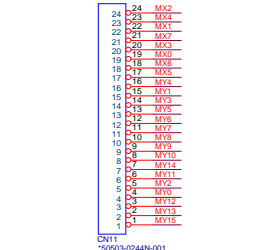
+3VPCU_EC and +3V_RTC
minimum trace width 12mils.



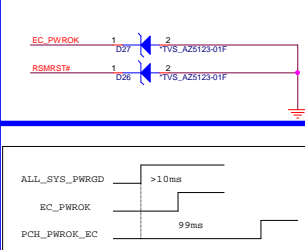
EC PU/PD



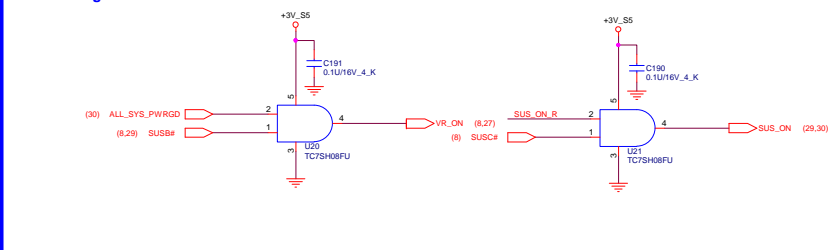
DEBUG	Reserve for ESD	For throttling
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31

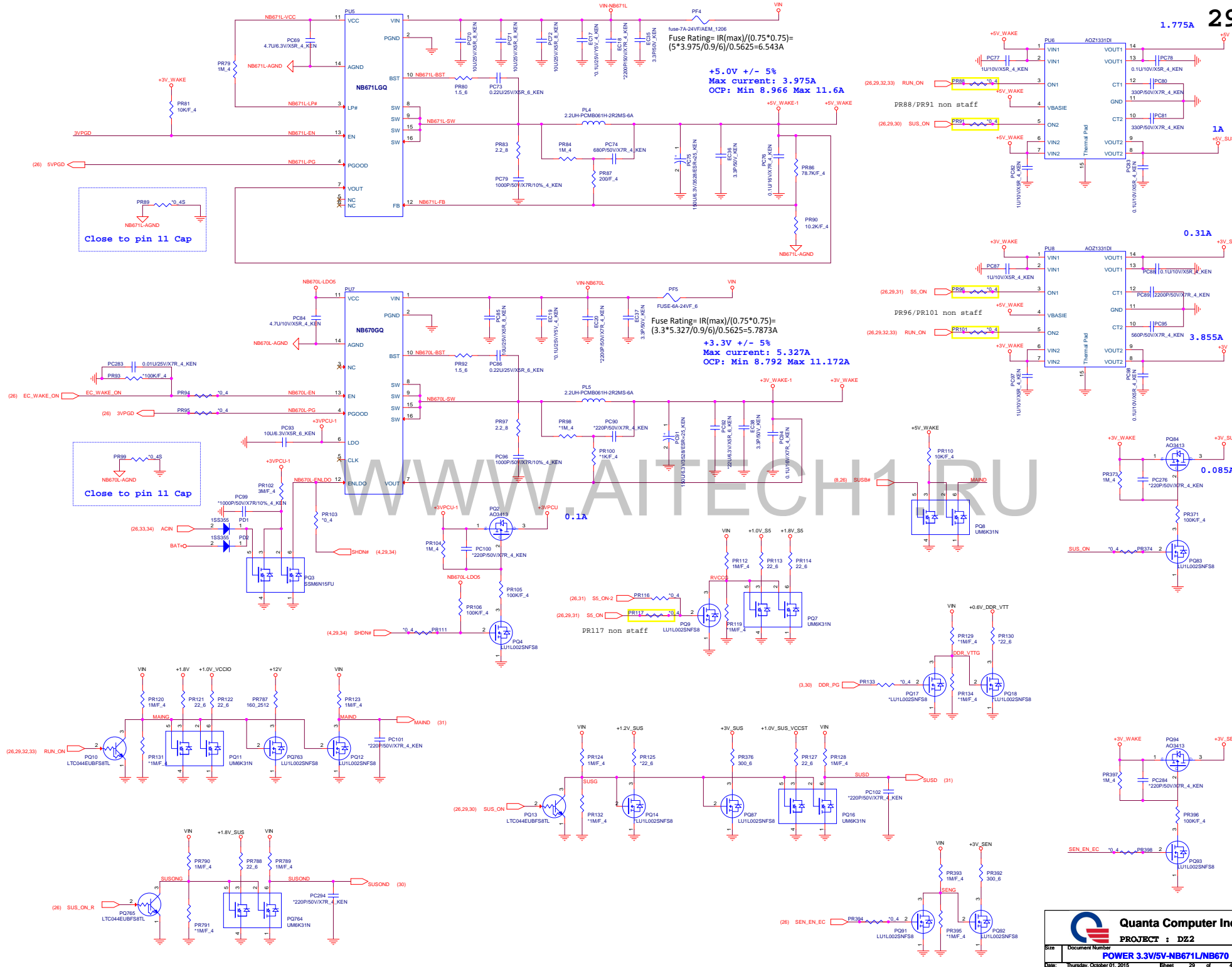


Reserve for ESD

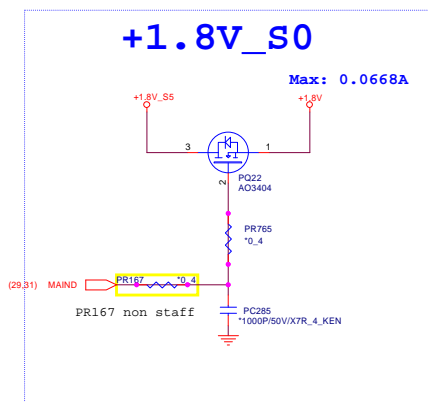
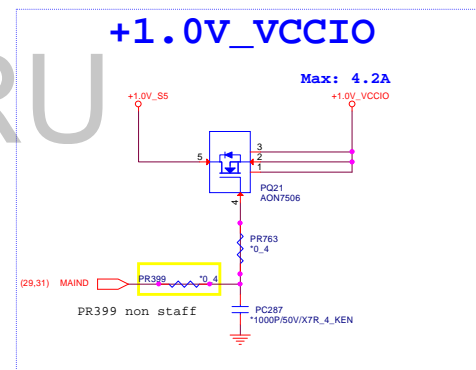
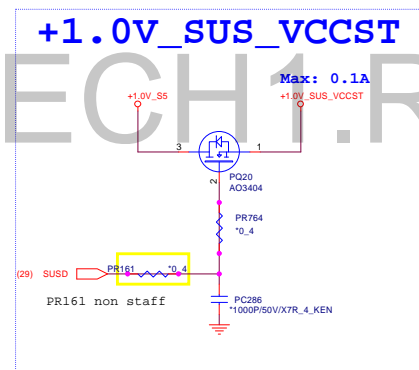
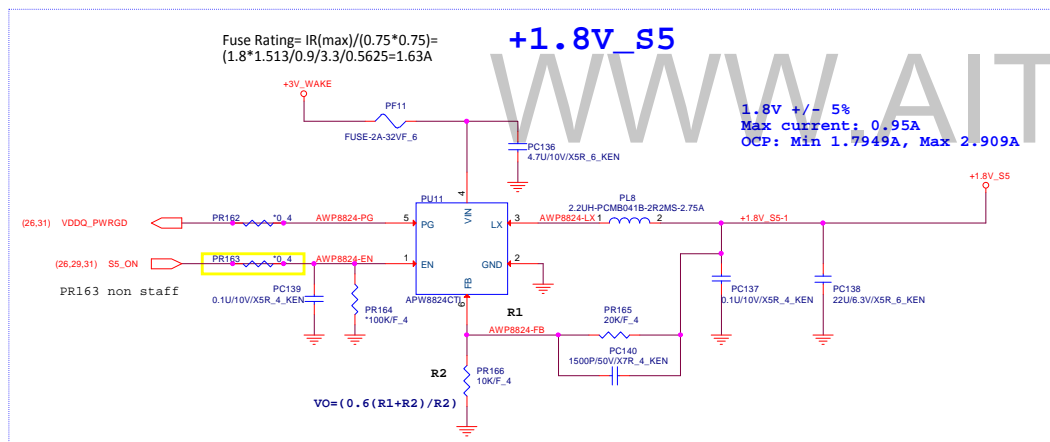
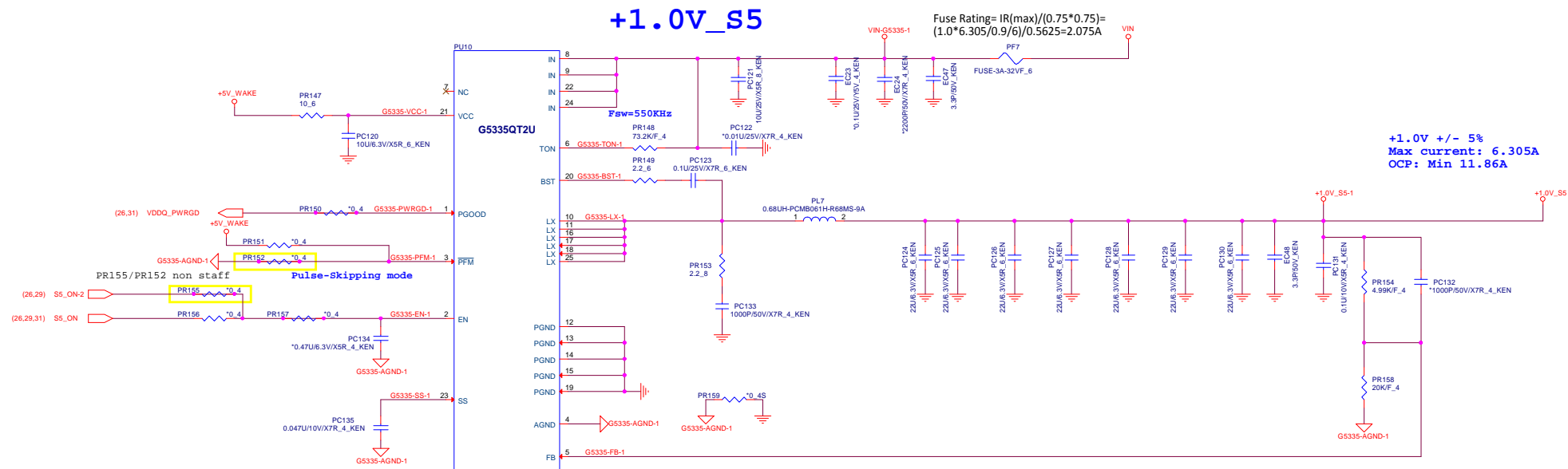


For throttling

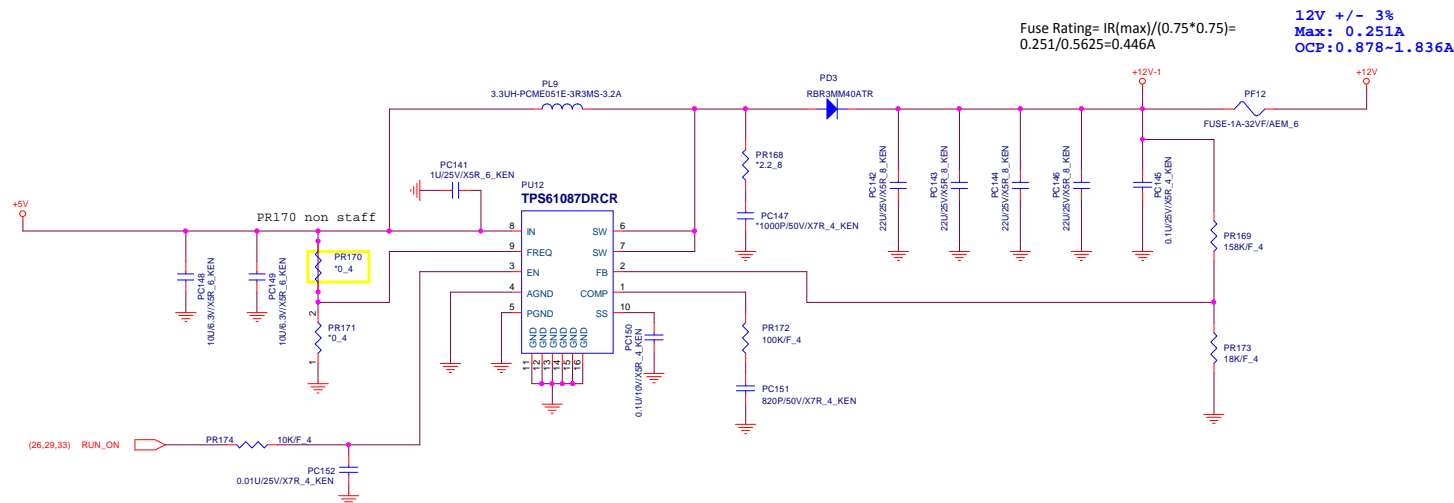




+1.0V_S5

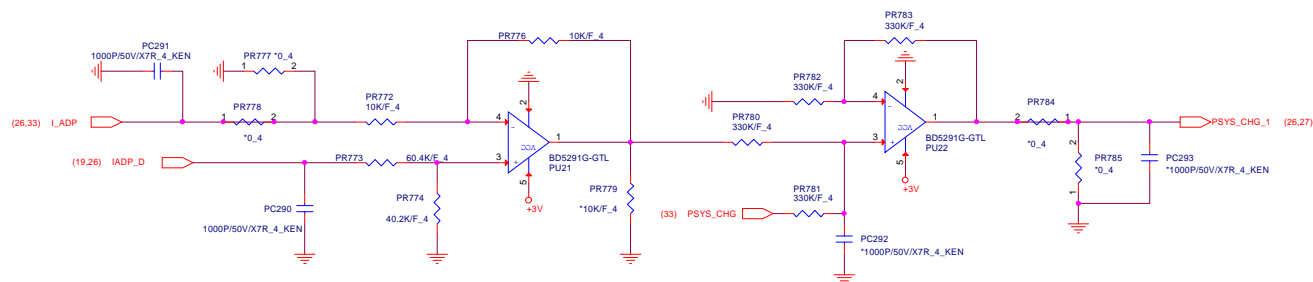


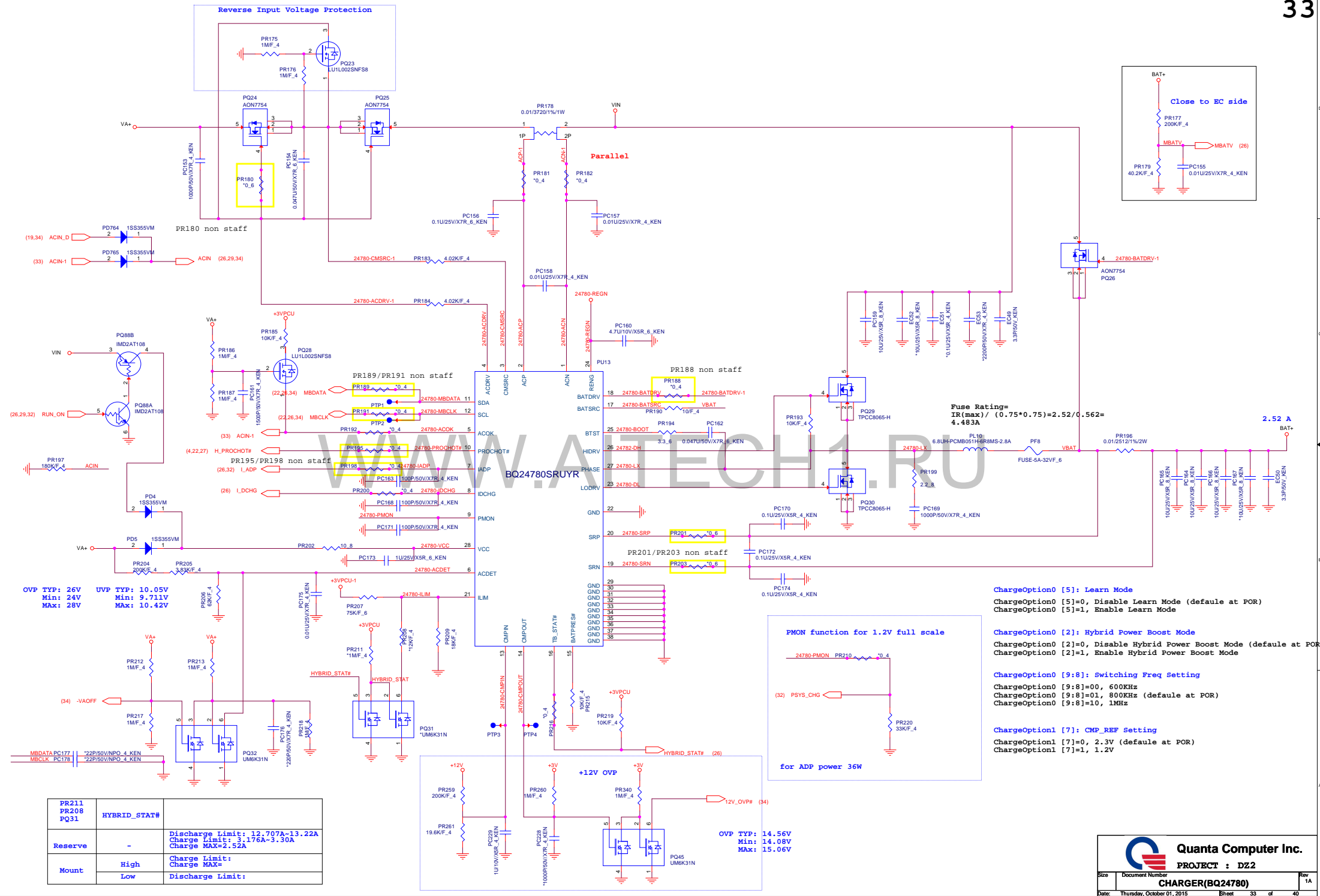
+12V for LED Backlight



WWW.AITECH1.RU

Total system power monitor

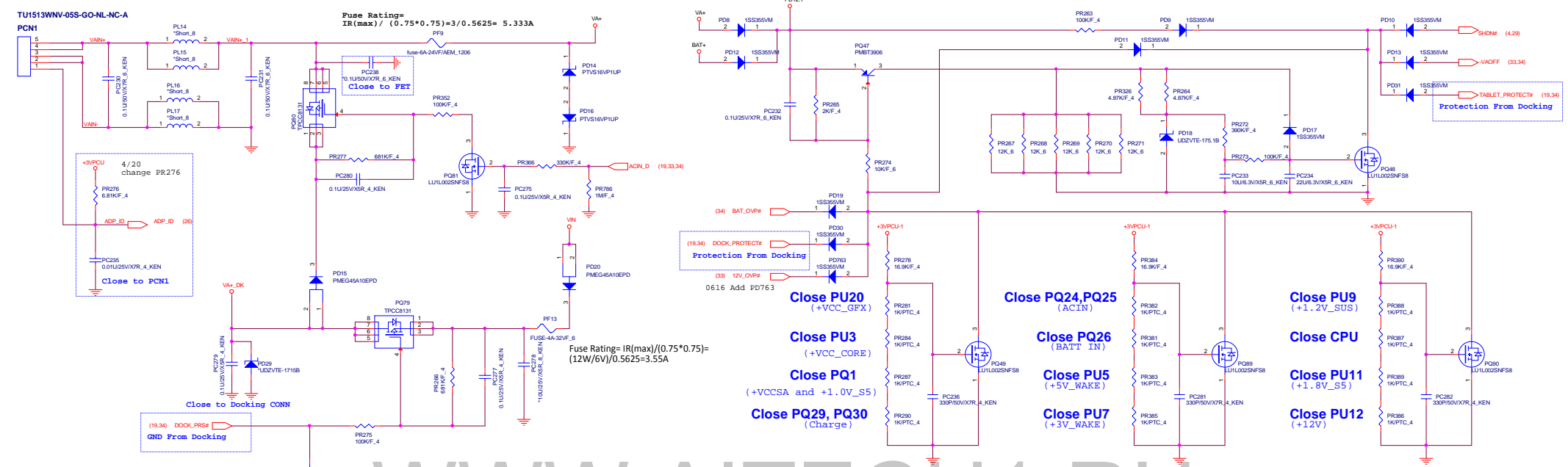




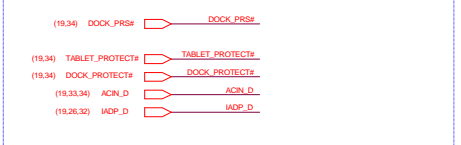
AC IN

AC ADAPTOR IN CONN

Thermal Protection

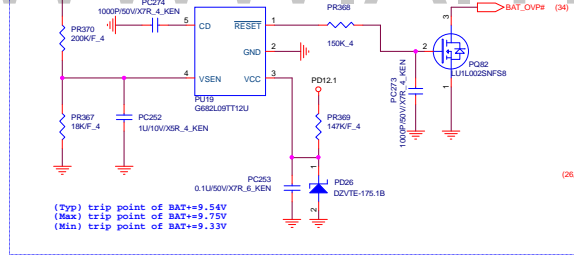


Signal To Docking CONN

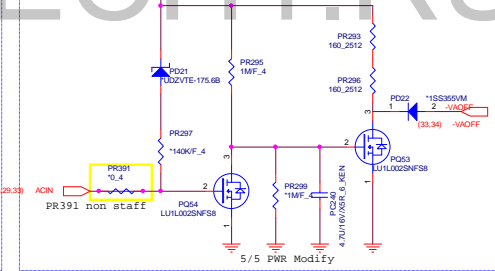


BATTERY OVP

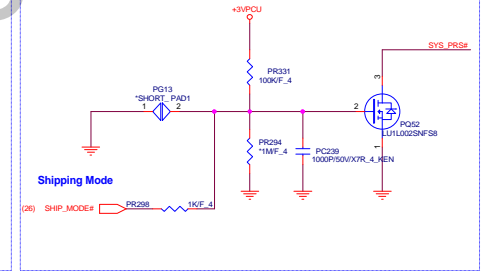
Latched until remove both BAT and ADP



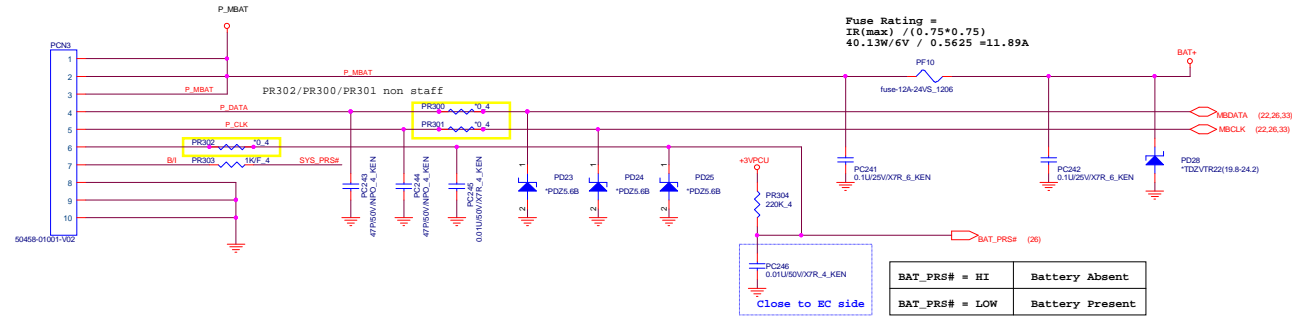
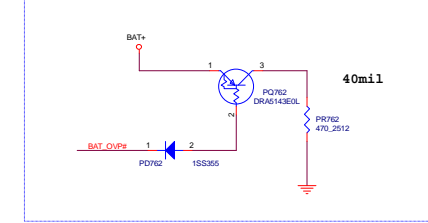
Adapter Discharge



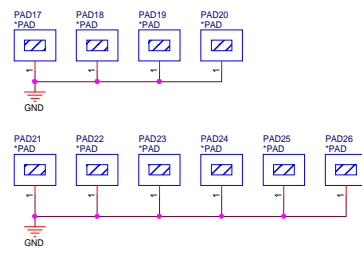
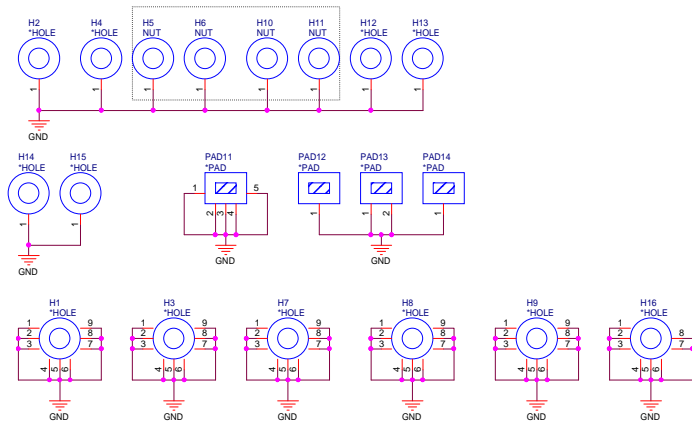
Shipping Mode



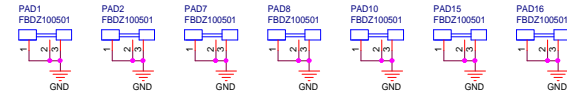
Battery discharge circuit



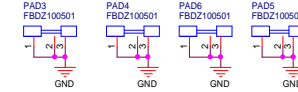
SCREW HOLE



CLIP SHIELDING (CPU)



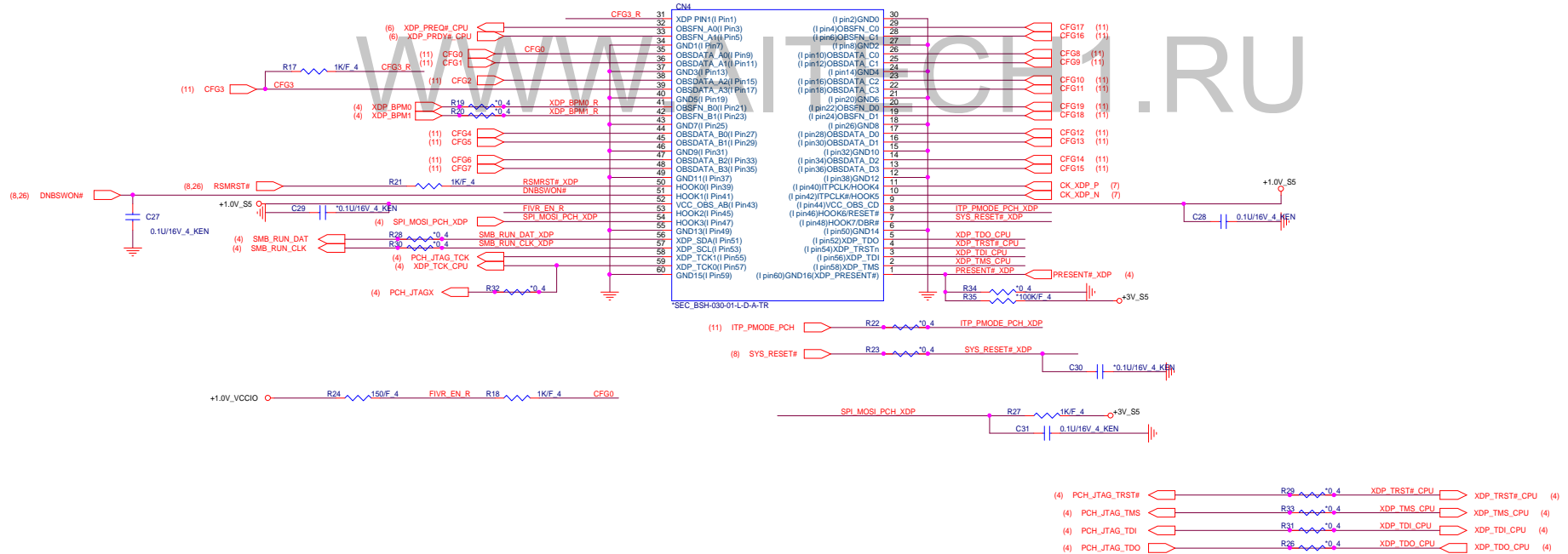
CLIP SHIELDING (PWR)



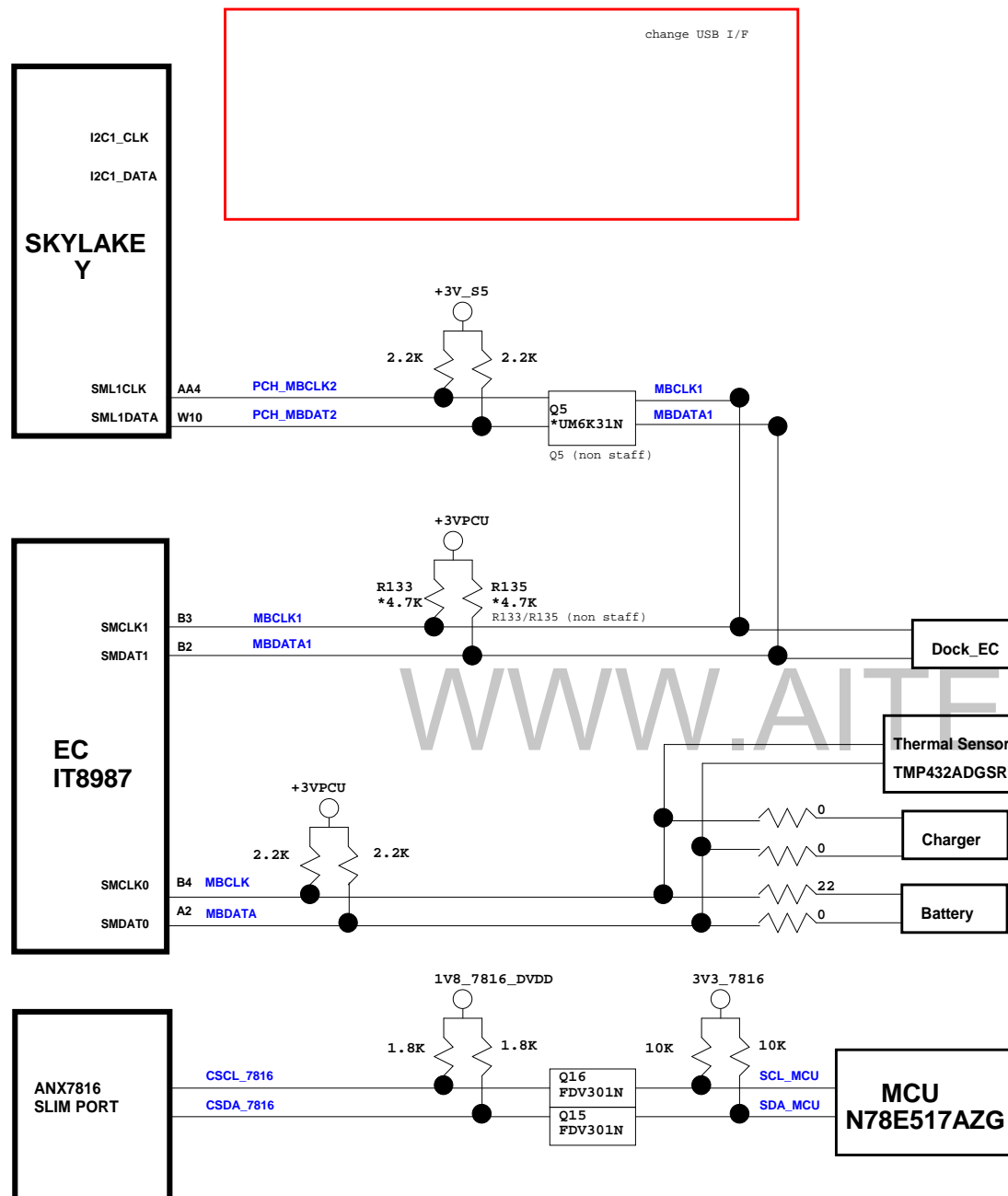
35

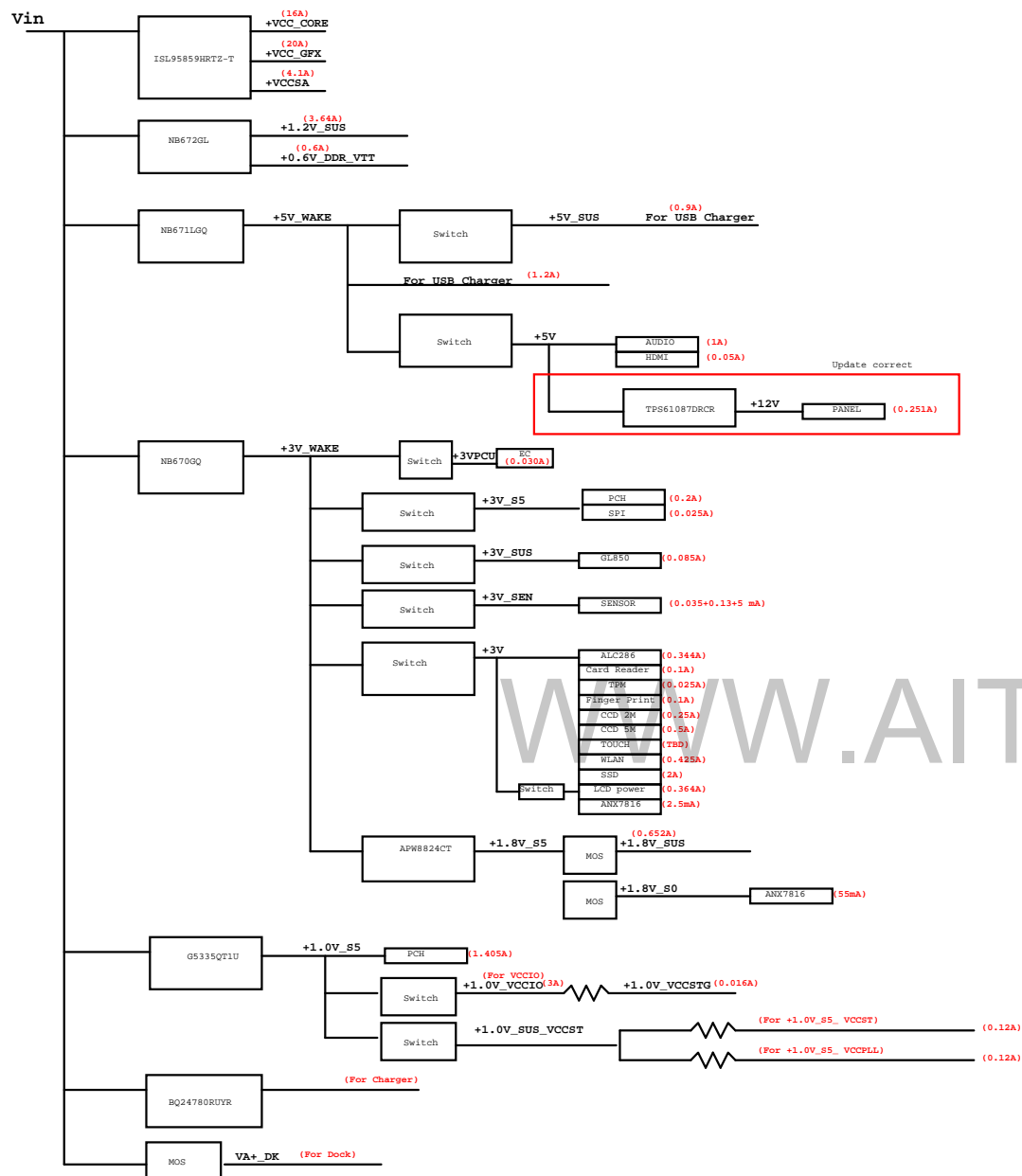
XDP

(I Pin1) = Intel DG Pin1 insch









OS status	S0	S3	(Soft OFF)	(Soft OFF)	(Soft OFF)
H/W status	S0	S3	S5 S4 (Win8 off) Charge Enable	S5 S4 (Win8 off) Charge Disable WoL Disable	S5 S4 (Win8 off) WoL Enable
RUN_ON	H	L	L	L	L
+3V	H	L	L	L	L
+5V	H	L	L	L	L
+0.6V_DDR_VTT	H	L	L	L	L
+12V	H	L	L	L	L
+1.8V	H	L	L	L	L
+VCCSA	H	L	L	L	L
+VCC_GFX	H	L	L	L	L
+VCC_CORE	H	L	L	L	L
+1.0V_VCCIO(+1.0V_VCCSTG)	H	L	L	L	L
SUS_ON	H	H	L	L	L
+5V_SUS	H	H	L	L	L
+3V_SUS	H	H	L	L	L
+1.2V_SUS	H	H	L	L	L
+1.8V_SUS	H	H	L	L	L
+1.0V_SUS_VCCST	H	H	L	L	L
S5_ON	H	H	L	L	H
+1.8V_S5	H	H	L	L	H
+3V_S5	H	H	L	L	H
+1.0V_S5	H	H	L	L	H
EC_WAKE_ON	H	H	H	L	H
+3V_WAKE	H	H	H	L	H
+5V_WAKE	H	H	H	L	H
+3VPCU-1	H	H	H	H	H
+3VPCU	H	H	H	H	H

CHANGE LIST ES1 to ES2

01. P-01 add Thermal Sensor
02. P-04 R190/R211 chagne to non stuff
03. P-04 add U29 for SPI ROM co lay
04. P-07 C119,C120 change to 15P,C129 change to 15P,C128 chagne to 12P for Vendor advice, add R495,R496 for RTC max is 3.2V
05. P-10 Add R492 Follow INTEL PDG
06. P-17 R5 change to Non Stall for INTEL WLAN module, R4 change to non stuff
07. P-18 ACON2 change Footprint , AU1 change P/N, AD1,AD3 chagne to staff for ESD request
08. P-15 CS,C7 staff for RF
09. P-21 C97,C89 change to 12P for Vendor advice, R380,R386,R374,R454 change to non staff, reserve Q57 Mos for +3V Leakage
10. P-22 Add U26,Q52,Q56,R493,R494,C519,C520,C521 for Thermal
11. P-26 ACIN net change to GND, C64 non staff PWR team request for Voore
12. P-26 R400 change to staff and R471 change to non stuff
13. P-29 PG1,PG11,ER3,ER4,PG16,PG2 change to short, PR90 change to 10.2K, PC80 change to 330P, add PQ763,PR787 for +12V discharger
14. P-30 PG3 change to short , change 1.8V_SUS enable net name ,EC39,EC46 staff for RF
15. P-31 PG4,ER1 change to short, 1V_S5 change SS.ON-2 enable , EC47,EC48 staff for RF
16. P-32 ER2 change to short ,U21,U22 change P/N, PC292,PC293 non staff PWR team request for Voore
17. P-33 add 12 GVP,PR259,PR261,PR260,PR340,PC228,PC229,PQ45, PC161 change to 1500P, Add PD764,PD765 ,PR197 change Value , EC49,EC50 staff for RF
18. P-34 change PQ79,PQ80,add PD763, PCN1 change Footprint , Add PR786, add PCN3
19. P-35 Del R25 and CN4 chagne to non stuff, PAD1,PAD2,PAD7,PAD8,PAD10,PAD15,PAD16 change Footprint , change NUT P/N
20. P-14 P4 chagne to 1A, R470 non stuff
21. P-20 C143,C144 change to 22P vendor advice, R250 change to non stuff
22. P-16 R467,R463 non staff, R200,R461 change to stuff
23. P-25 R352,R353,R354,R355 non stuff
24. P-29 add PR787,PQ763 , add C522 ,add 1.8V_SUS discharge circuit
25. P-23 CON2,CON3 change Footprint , L6,L9 stuff for EMI
26. P-13 change UI2/UI6 MB_B_DQ, MB_DQS net name
27. P-05 Chane D35 from the resistor to the diode for HDA_SDOVT voltage issue
28. P-29 PQ8,PR110 change to stuff, PR376,PR392 change Value, PR97,PC96,PR83,PC79 staff for EMI ,EC45,EC30 staff for RF
29. P-24 R44 change value from 33 Ohm to 0 Ohm, C40 Non stuff
30. P-05 Change USB_UART_SEL port from GPP_C16 to GPP_B17
31. P-29 PC4,PC8,PR13,PR33,PR34,PR37,PR45,PC32,PC33,PR62,PR26,PC18,PR35,PC24,PC29 change value, EC35,EC36,EC37,EC38 staff for RF
32. P-09 C233,C259,C379 staff for RF
33. P-10 C260,C383 staff for RF
34. P-12 C71 staff for RF
35. P-13 C94 staff for RF
35. P-28 EC34,EC31,EC32,EC33 staff for RF

Change history (ES2 to PP)

- 20150810
01. P-03 R89/R280 non staff for cost
02. P-04 Del R208/R183 for touch change I/F, R262/R286/R287/R175/R176/R177/R178/R228/R265/R232/R325 non staff for cost , R196/R188/R209/R202 change to 15 ohm for SPI
03. P-08 R220/R421/R58/R267/R233/R222/R246/R395 non staff for cost
04. P-10 R406/R408/R271/R270/R477/R403/R407/R409/R391/R412/R399/R273/R396/R402/R272/R274/R411/R404/R405/R401/R485/R486/R487/R410/R394/R379/R492 non staff for cost
05. P-14 R349/R348/R343/R483/R468 non staff for cost, Del C492/C493/EC28/R153 and Add R505/C529 for change touch I/F , U25 change to GS245AT11U
06. P-16 R461/R460/R462 non staff for cost
07. P-17 R6/R7/R8/R9/R12 non staff for cost
08. P-18 R474/R16/R17/R22 non staff for cost
09. P-20 add U30 for change touch I/F, PCCD under USB HUB,R278/R279/R301 non staff for cost
10. P-06 change touch I/F,USB2 port1
11. P-07 change R3 to 12K/R495 to 3.48K/R496 to 40.2K for RTC volatge level
12. P-26 add D41 to prevent leakage issue, Add R506 for dock ID, R117/R82 non staff for cost
13. P-25 R351 non staff for cost
14. P-02 R113/R114 non staff for cost
15. P-23 R197 non staff for cost
16. P-15 R446 non staff for cost
17. P-35 R19/R20/R28/R30/R29/R31/R33/R26/R22/R23/R32 non staff for cost ,change NUT and thermal CLIP for ME request
18. P-21 R499 non staff for cost
19. P-27 PR3/PR4/PR1/PR2/PR39/PR40/PR61/PR63/PR55/PR57/PR19 non staff for cost
20. P-28 PR68/PR69/PR74/PR75 non staff for cost
21. P-29 PR94/PR95/PR111/PR394/PR398/PR374 non staff for cost ,Del PG1/PG2/PG11/ER3/ER4/PQ16
22. P-30 PR137/PR138/PR141/PR766 non staff for cost , Del PG3
23. P-31 PR157/PR162/PR764/PR763/PR765/PR150 non staff for cost , Del ER1/PQ4
24. P-32 PR778/PR784 non staff for cost , Del ER2
25. P-33 PR192/PR200/PR210/PR181/PR182/PR216 non staff for cost
26. P-05 change Touch IF from I2C to USB, and Del R290/R291/TP20/TP21/R276/R277
27. P-34 Del PCN2 for BAT Conn change

- 20150821
01. P-35 C30 non staff

Change history (PP to MRT)

- 20150917
01. P-16 R334/R338 non staff for cost
02. P-12 R368/R378 non staff for cost
03. P-13 R444 non staff for cost
04. P-11 R300 non staff for cost
05. P-26 R400 non staff for cost

07. P-27 PR14/PR17/PR25/PR32/PR47/PR66/PR22/PR20 non staff for cost
08. P-29 PR88/PR91/PR96/PR101/PR117 non staff for cost
09. P-30 PR146 non staff for cost
10. P-31 PR155/PR161/PR167/PR399/PR152 non staff for cost
11. P-32 PR170 non staff for cost
12. P-33 PR195/PR188/PR189/PR191/PR198/PR180/PR201/PR203 non staff for cost
13. P-34 PR300/PR301/PR302/PR391 non staff for cost
20150921
01. P-24 Reserve C530/C531/C532/C533 for EMI request
20150924
01. P-05 change I2H PU power to 3V_SEN