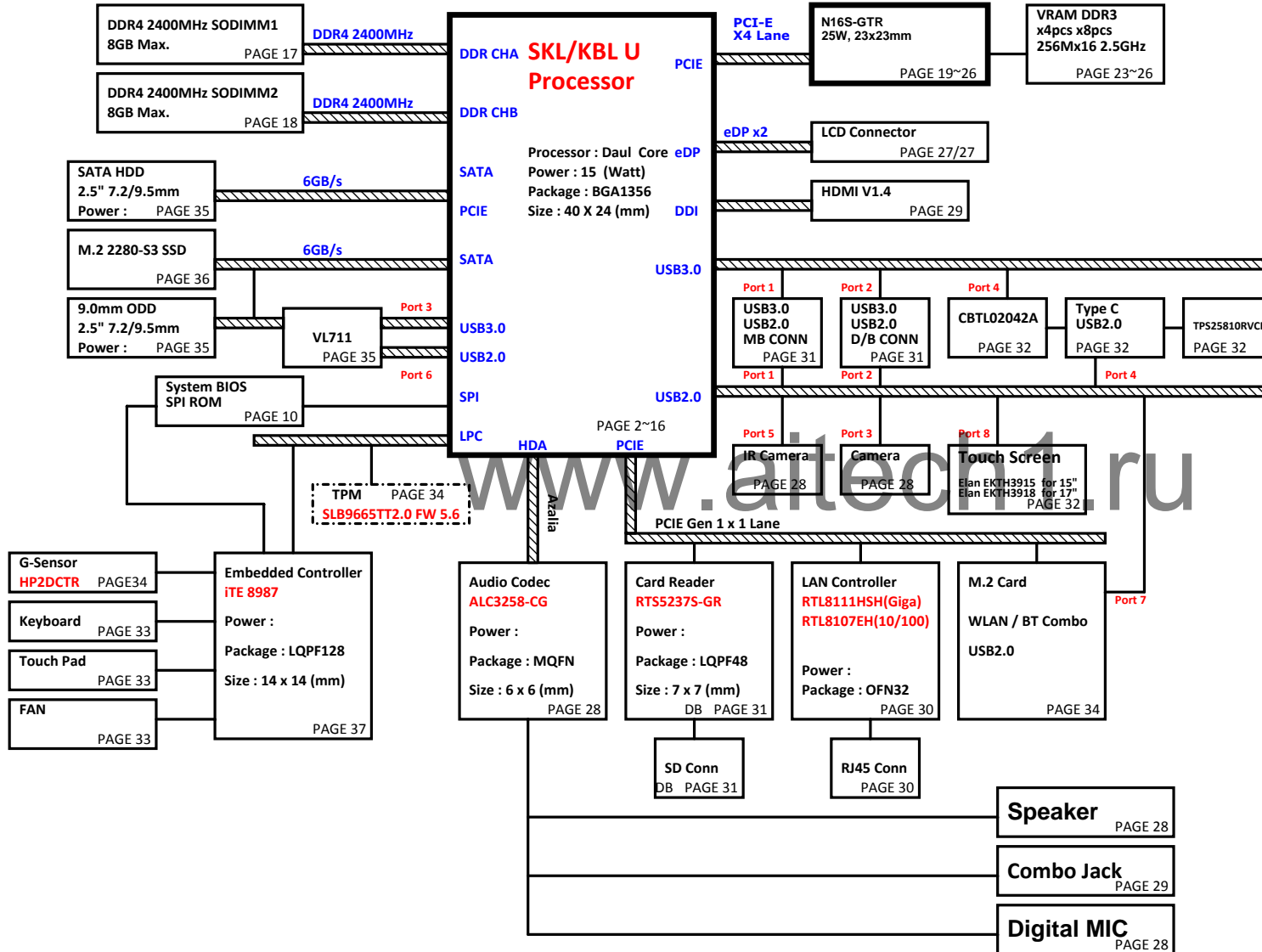


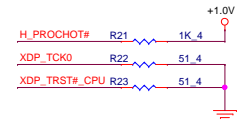
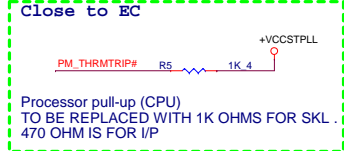
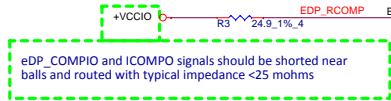
NFL 2SPD DIS/UMA (15/17")

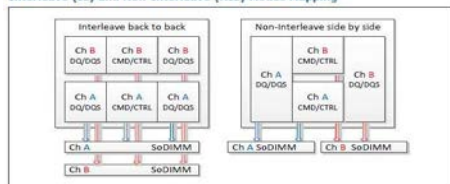
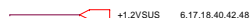
Intel SKL/KBL ULT Platform Block Diagram

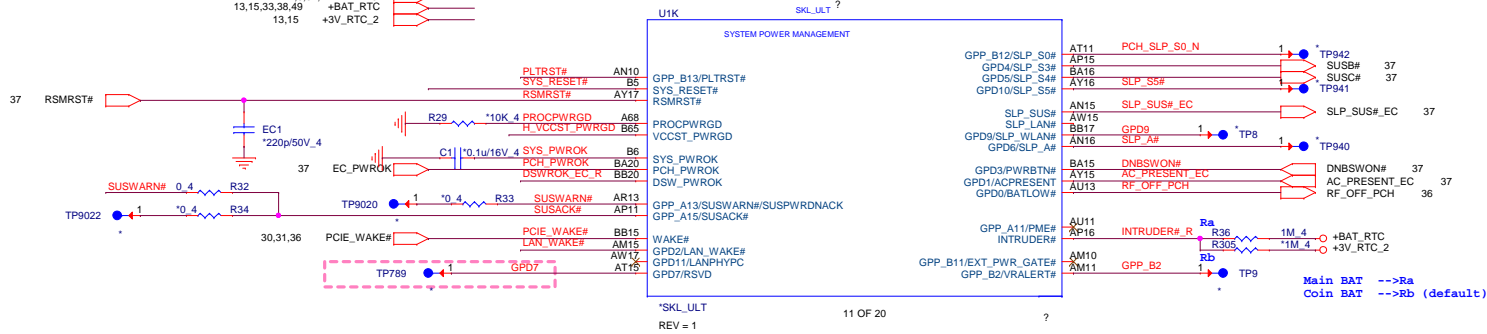
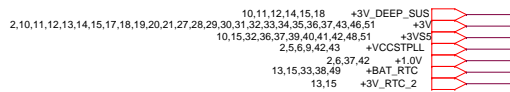
PCB 8L STACK UP

LAYER 1 : TOP
 LAYER 2 : SGND
 LAYER 3 : IN1(High)
 LAYER 4 : IN2(Low)
 LAYER 5 : SVCC
 LAYER 6 : IN3(High)
 LAYER 7 : SGND1
 LAYER 8 : BOT

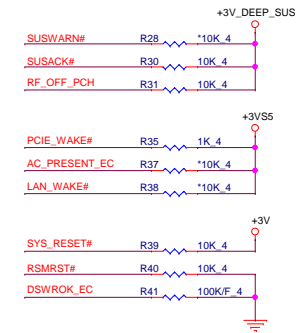




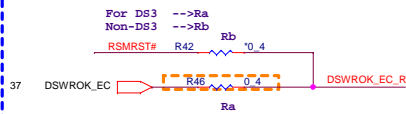




PCH Pull-high/low(CLG)

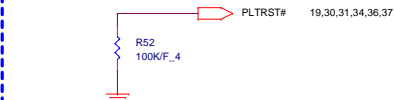


For DS3 Sequence

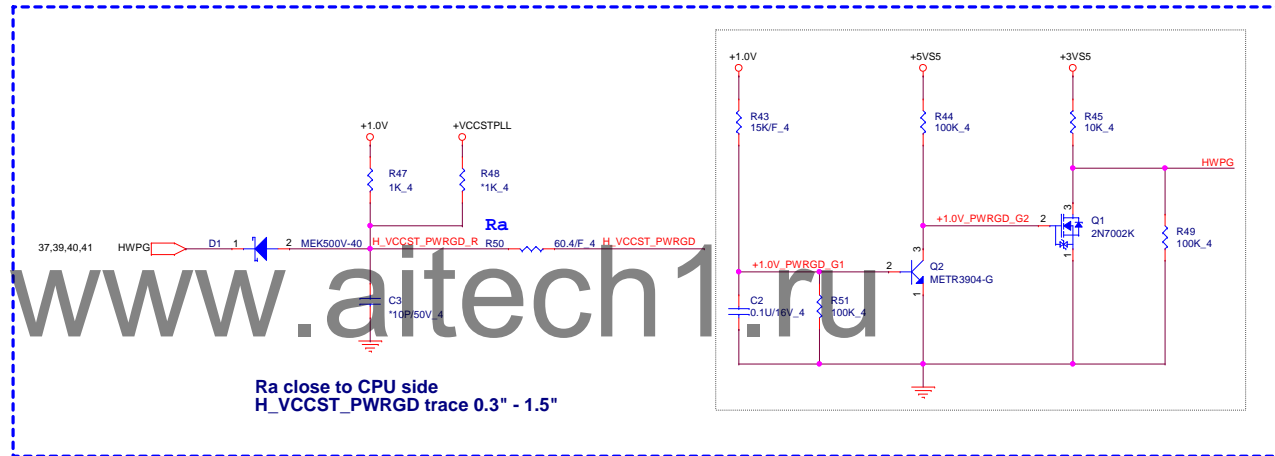
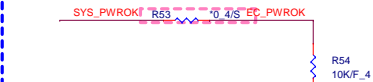


PLTRST#(CLG)

Check Rise/Fall time less than 100ns

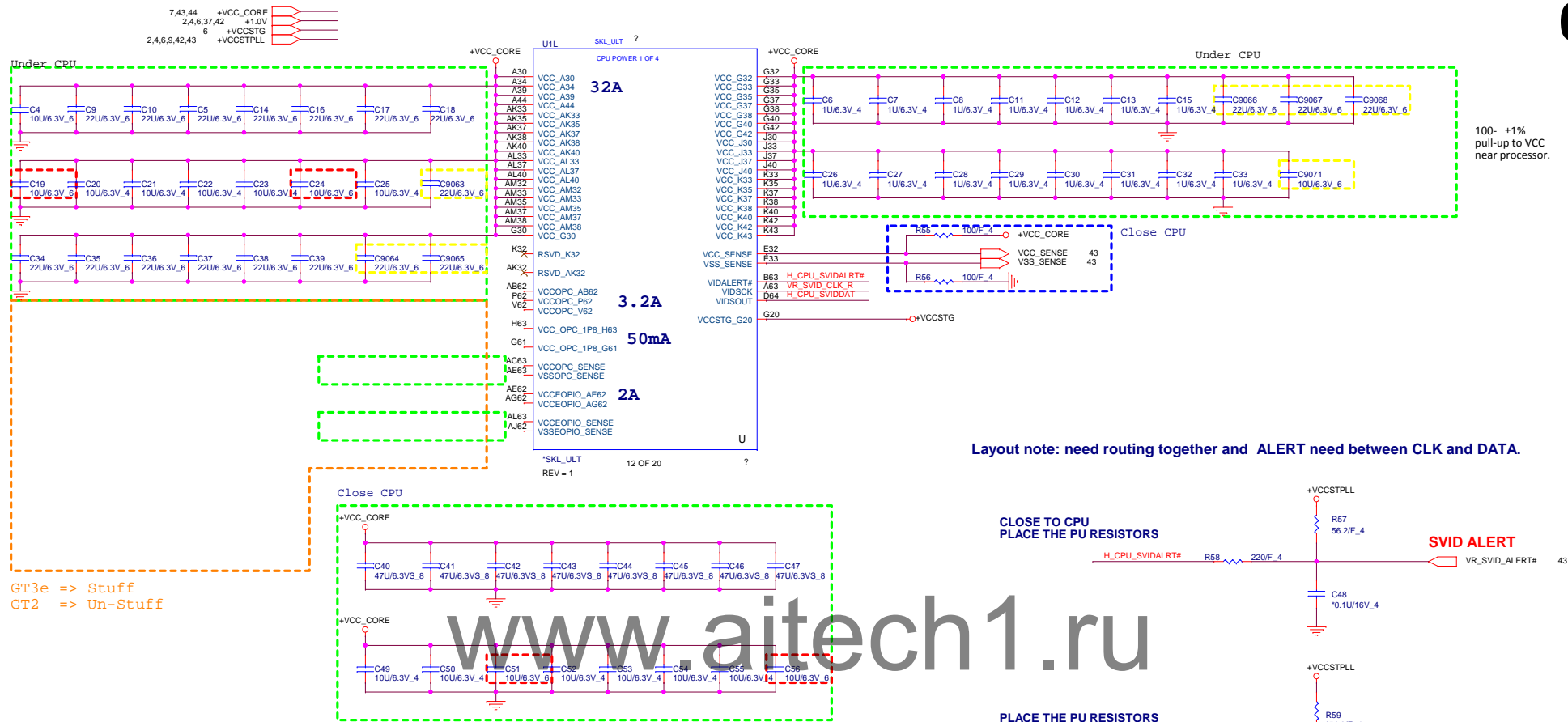


System PWR_OK(CLG)



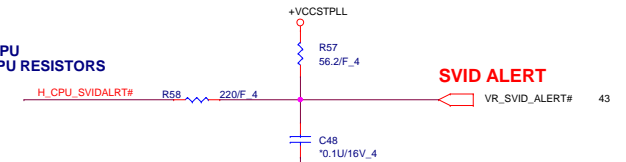
PROJECT : G74A
Quanta Computer Inc.

Size Custom	Document Number 04 -- SKYLAKE 3/15(PowerManger)	Rev 1A
Date: Wednesday, January 11, 2017	Sheet 4 of 51	

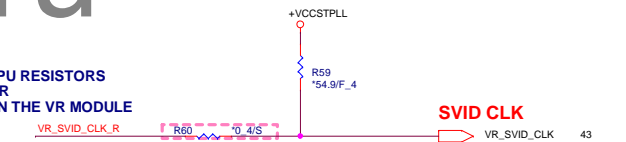


Layout note: need routing together and ALERT need between CLK and DATA.

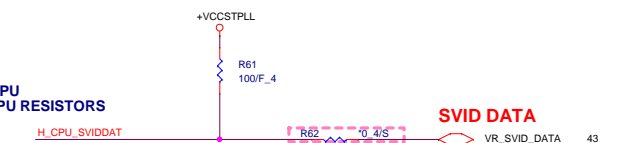
CLOSE TO CPU
PLACE THE PU RESISTORS



PLACE THE PU RESISTORS
CLOSE TO VR
PULL UP IS IN THE VR MODULE

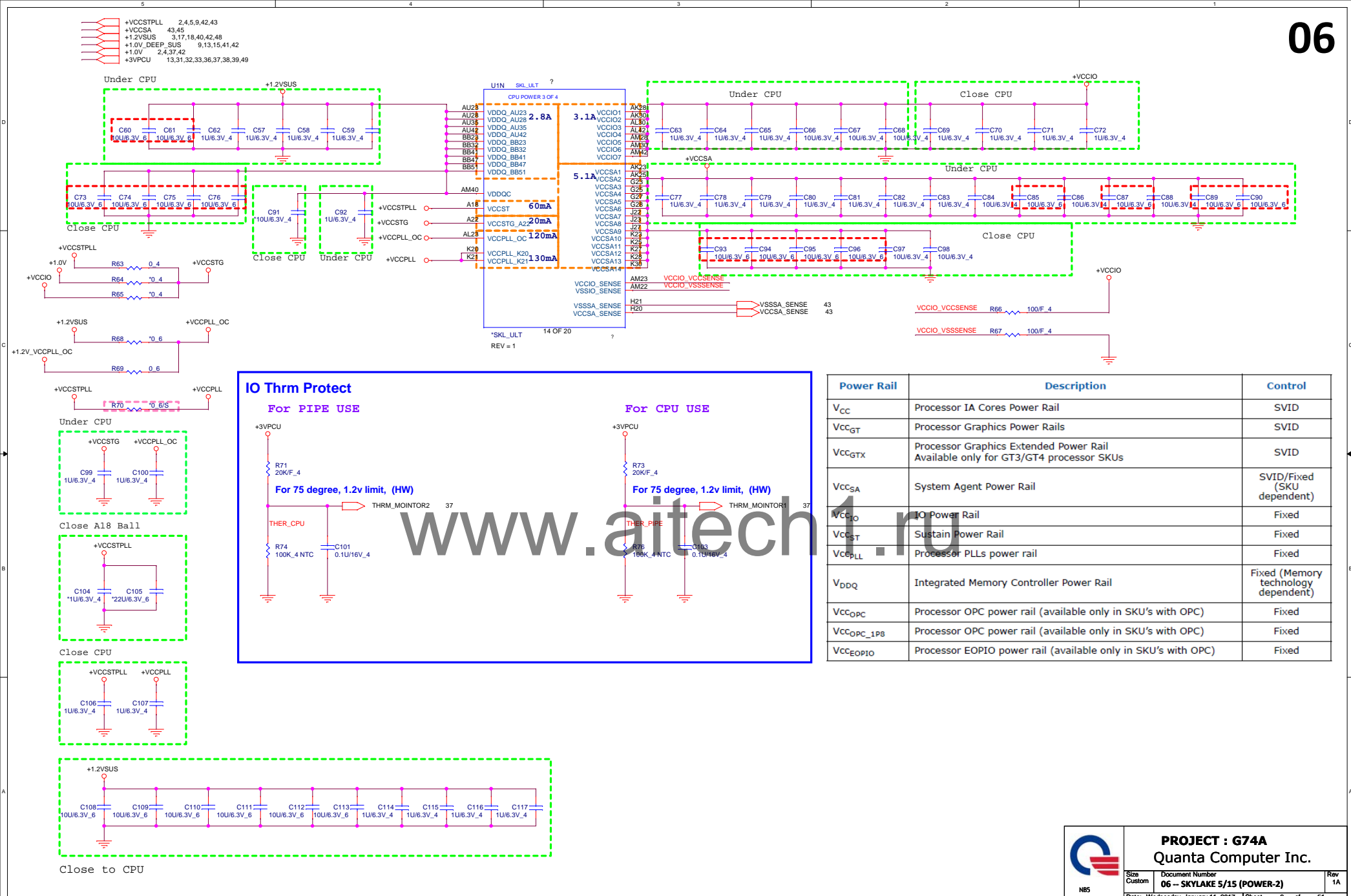


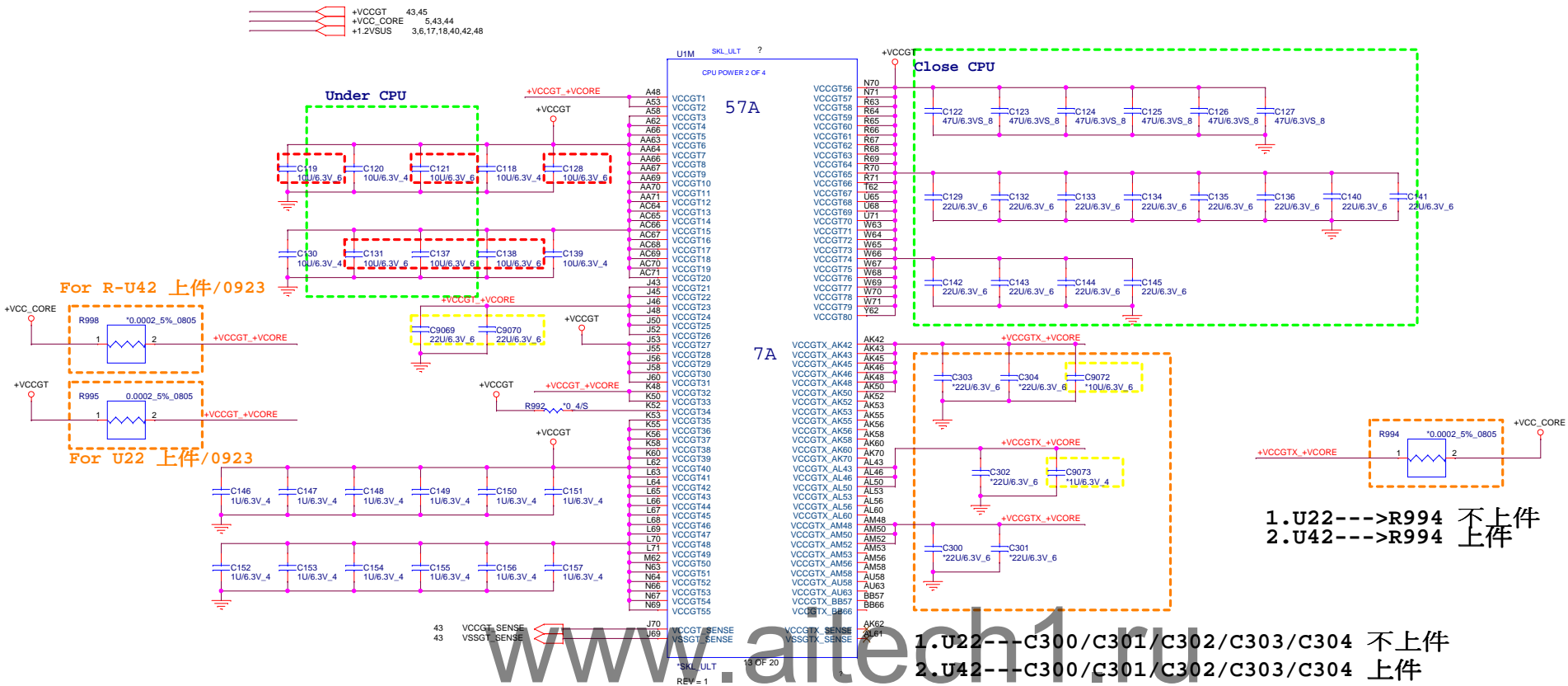
CLOSE TO CPU
PLACE THE PU RESISTORS



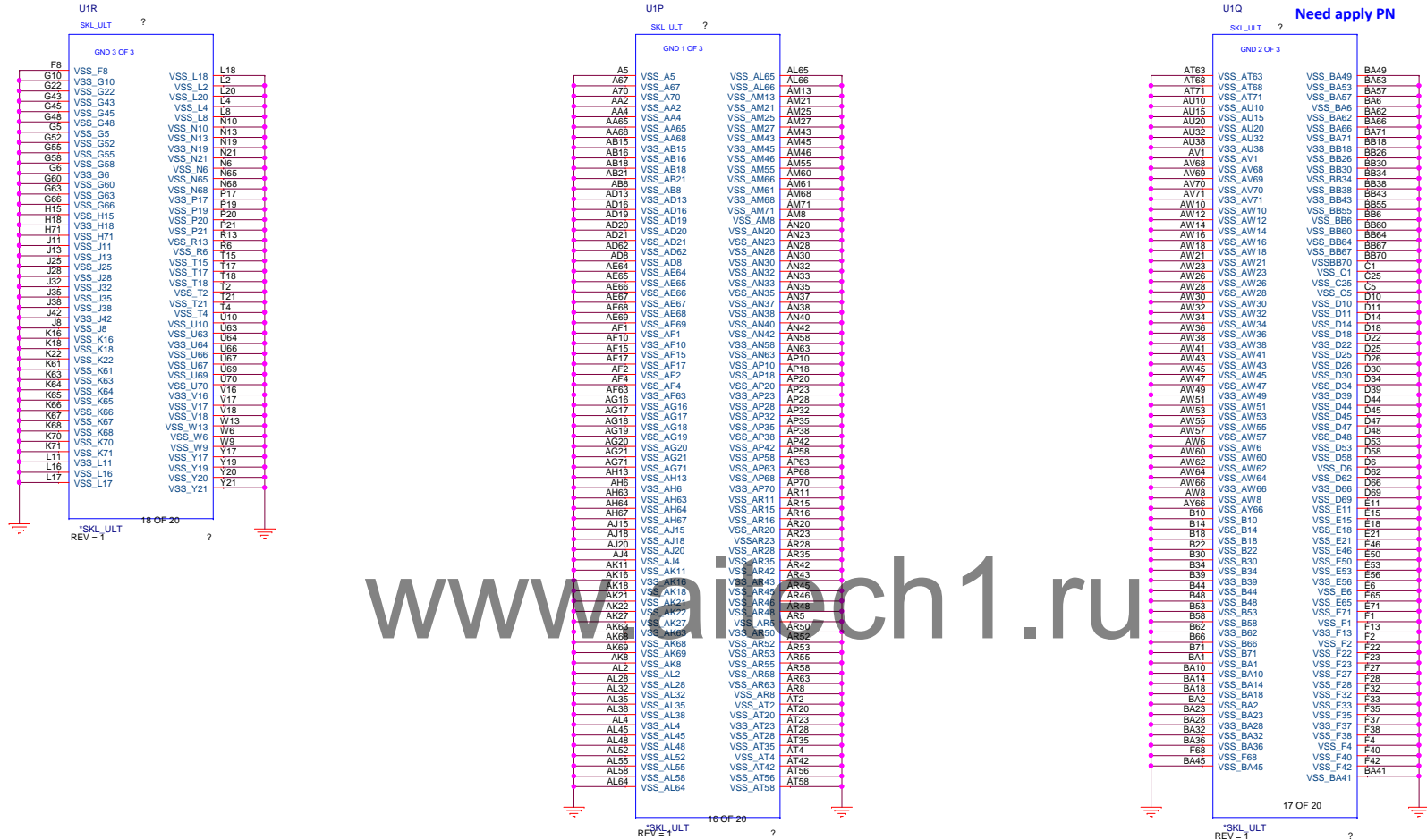
Power Rail	Description	Control
V _{CC}	Processor IA Cores Power Rail	SVID
V _{CCGT}	Processor Graphics Power Rails	SVID
V _{CCGTX}	Processor Graphics Extended Power Rail Available only for GT3/GT4 processor SKUs	SVID
V _{CCSA}	System Agent Power Rail	SVID/Fixed (SKU dependent)
V _{CCIO}	IO Power Rail	Fixed
V _{CCST}	Sustain Power Rail	Fixed
V _{CCPLL}	Processor PLLs power rail	Fixed
V _{DDQ}	Integrated Memory Controller Power Rail	Fixed (Memory technology dependent)
V _{CCOPC}	Processor OPC power rail (available only in SKU's with OPC)	Fixed
V _{CCOPC_1P8}	Processor OPC power rail (available only in SKU's with OPC)	Fixed
V _{CCEOPIO}	Processor EOPIO power rail (available only in SKU's with OPC)	Fixed

		PROJECT : G74A Quanta Computer Inc.	
Size Custom	Document Number 05 -- SKYLAKE 4/15 (POWER-1)	Rev 1A	
Date: Wednesday, January 11, 2017		Sheet 5 of 51	

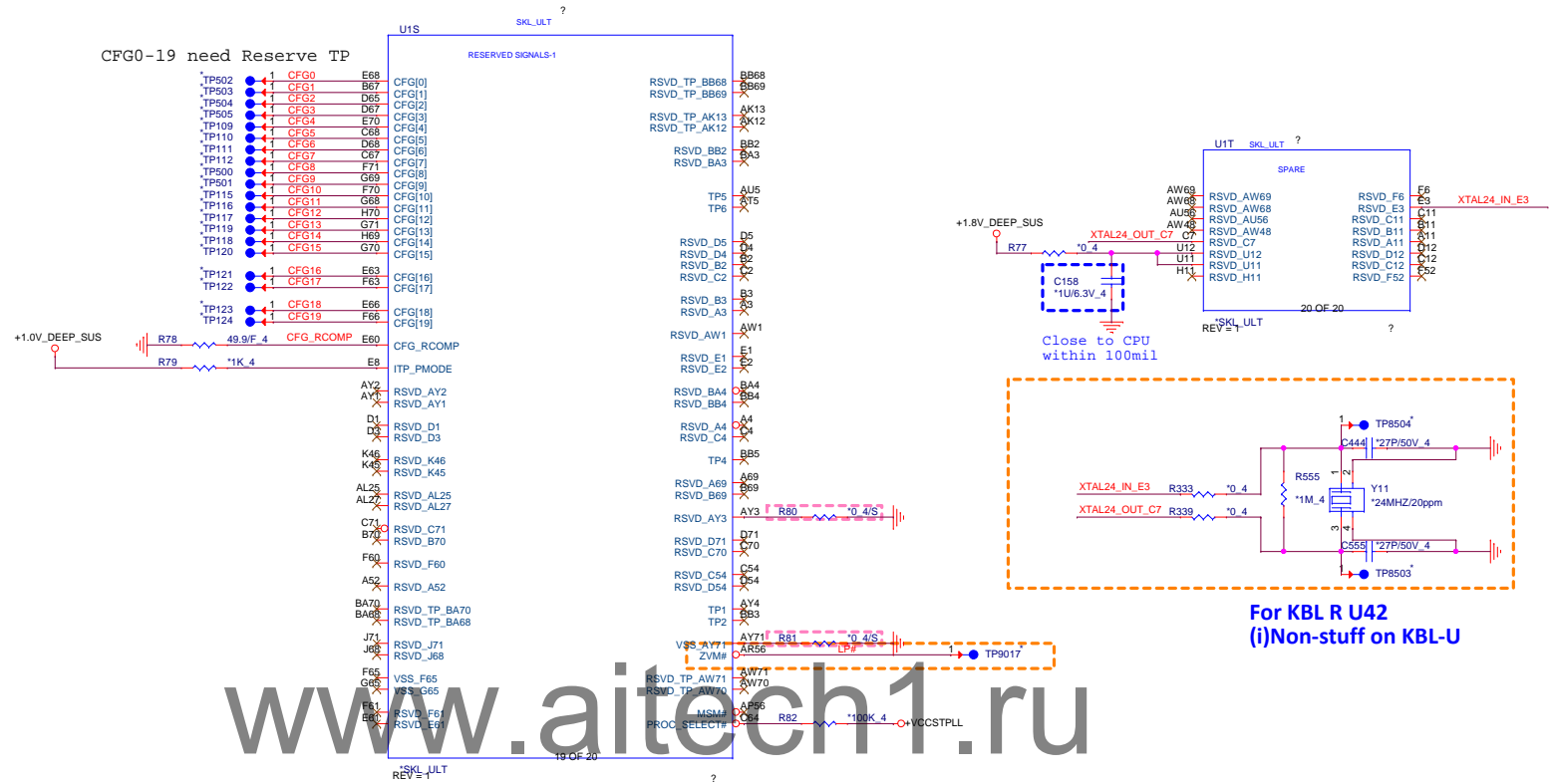




Power Rail	Description	Control
V _{CC}	Processor IA Cores Power Rail	SVID
V _{CCGT}	Processor Graphics Power Rails	SVID
V _{CCGTX}	Processor Graphics Extended Power Rail Available only for GT3/GT4 processor SKUs	SVID
V _{CCSA}	System Agent Power Rail	SVID/Fixed (SKU dependent)
V _{CCIO}	IO Power Rail	Fixed
V _{CCST}	Sustain Power Rail	Fixed
V _{CCPLL}	Processor PLLs power rail	Fixed
V _{DDQ}	Integrated Memory Controller Power Rail	Fixed (Memory technology dependent)
V _{CCOPC}	Processor OPC power rail (available only in SKU's with OPC)	Fixed
V _{CCOPC_1PB}	Processor OPC power rail (available only in SKU's with OPC)	Fixed
V _{CCEOPIO}	Processor EOPIO power rail (available only in SKU's with OPC)	Fixed



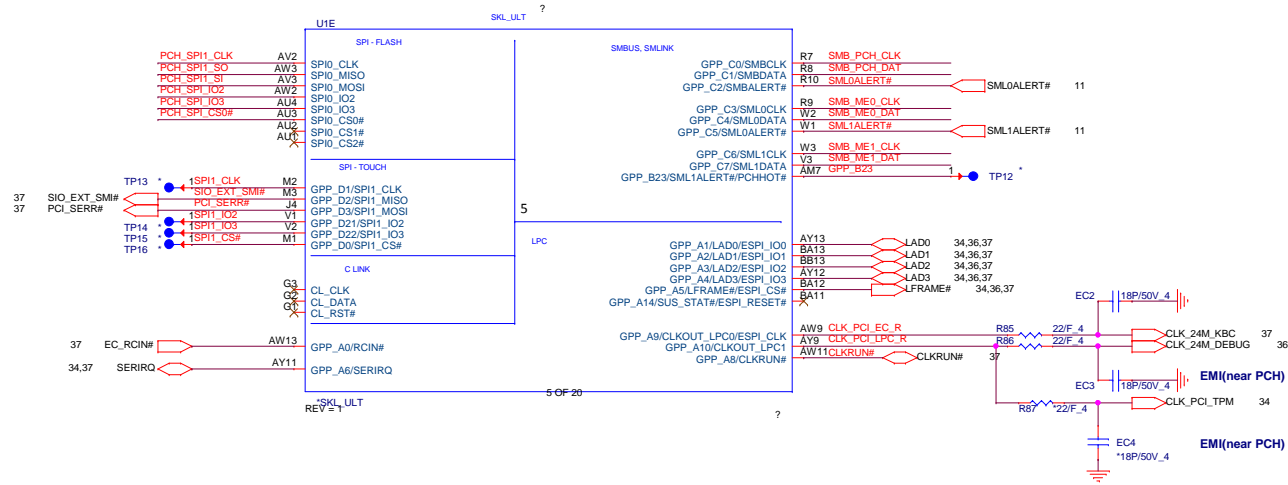
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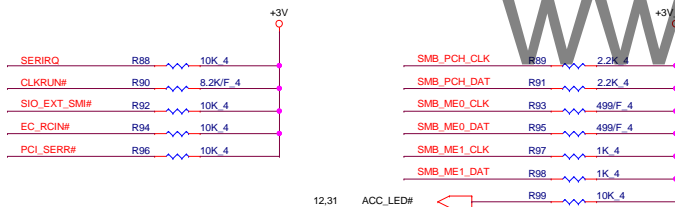
Processor Strapping The CFG signals have a default value of '1' if not terminated on the board.

	1	0	Circuit
CFG3 (Physical Debug Enable) DFX Privacy	Disable:	Enable: Set DFX Enable in DFX interface MSR	
CFG4 (DP Presence Strap)	Disable: No physical DP attached to eDP	Enable: An ext DP device is connected to eDP	

+3V_DEEP_SUS	4,11,12,14,15,18
+3V	2,4,11,12,13,14,15,17,18,19,20,21,27,28,29,30,31,32,33,34,35,36,37,43,46,51
+5V	27,28,29,33,35,51
+1.0V	2,4,6,37,42
+3V55	4,15,32,36,37,39,40,41,42,48,51



GPIO Pull UP



PCH SPI ROM (CLG)

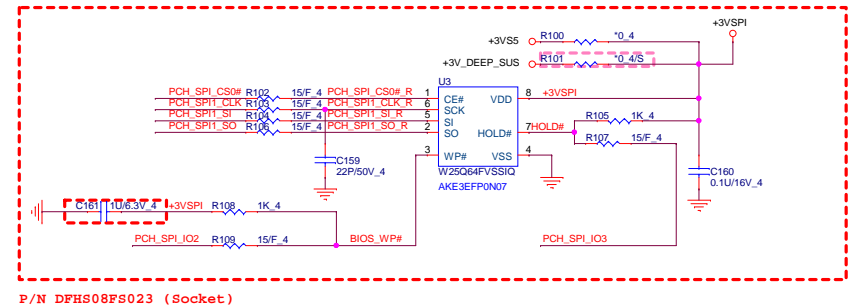
Vender	Size	P/N
EON	8MB	AKE3EZN0Q01 (EN25QH64-104HIP)
Winbond	8MB	AKE3EFP0N07 (W25Q64FVSSIQ)
GigaDevice	8MB	AKE3EGN0Q01 (GD25B64BSIGR)
Socket		DFHS08F5023



need place to TOP

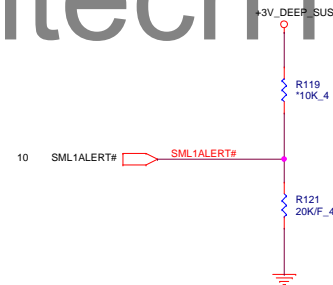
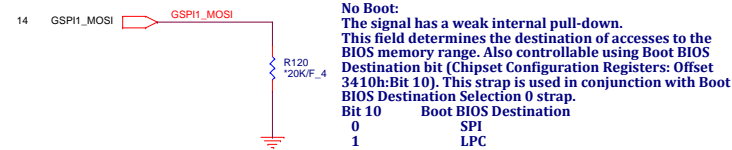
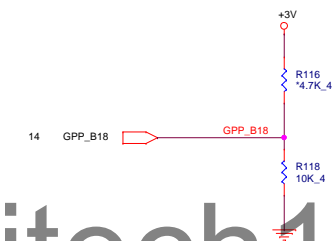
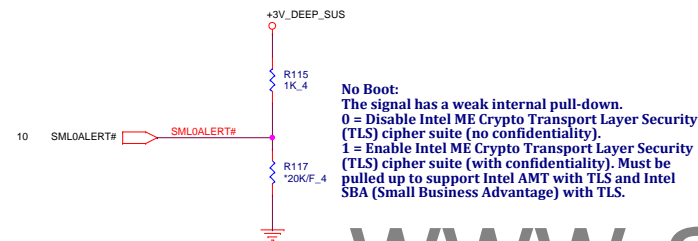
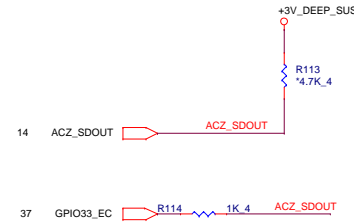
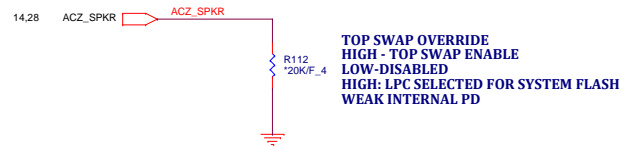
TP size TP2675

PCH SPI ROM (CLG)




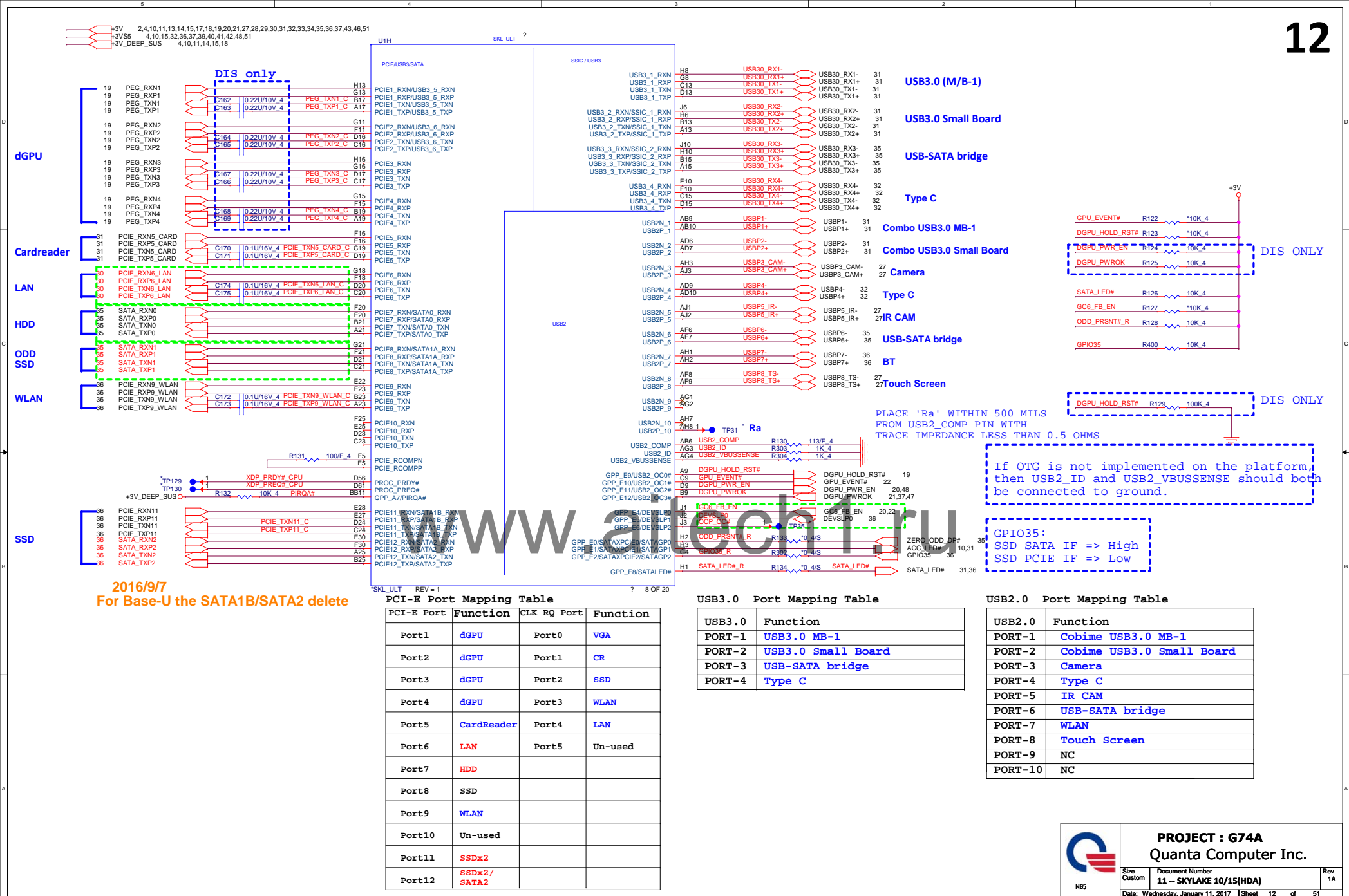
Functional Strap Definitions

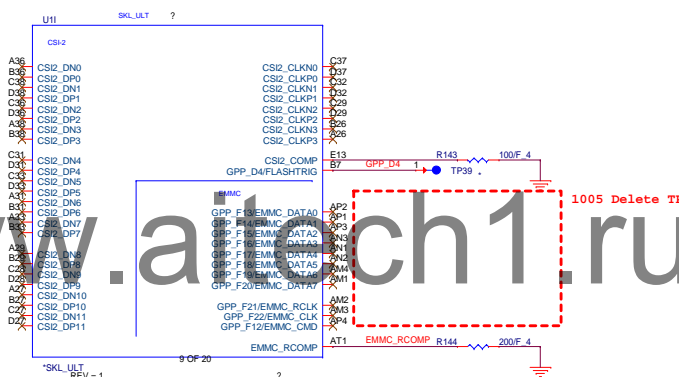
DESIGN NOTE:
WEAK PULL UP RESISTOR PRESENT ON THIS NET



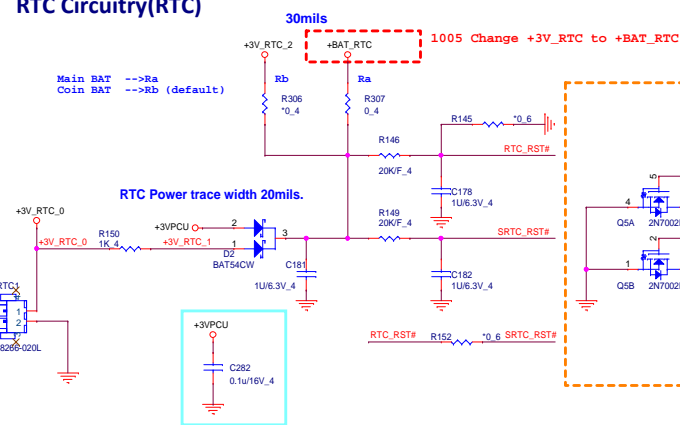
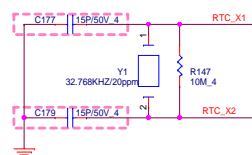
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 NB5	PROJECT : G74A Quanta Computer Inc.			
	Size Custom	Document Number 11 -- SKYLAKE 10/15(HDA)		Rev 1A
	Date: Wednesday, January 11, 2017 Sheet 11 of 51			

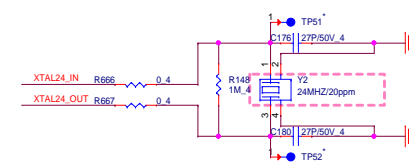


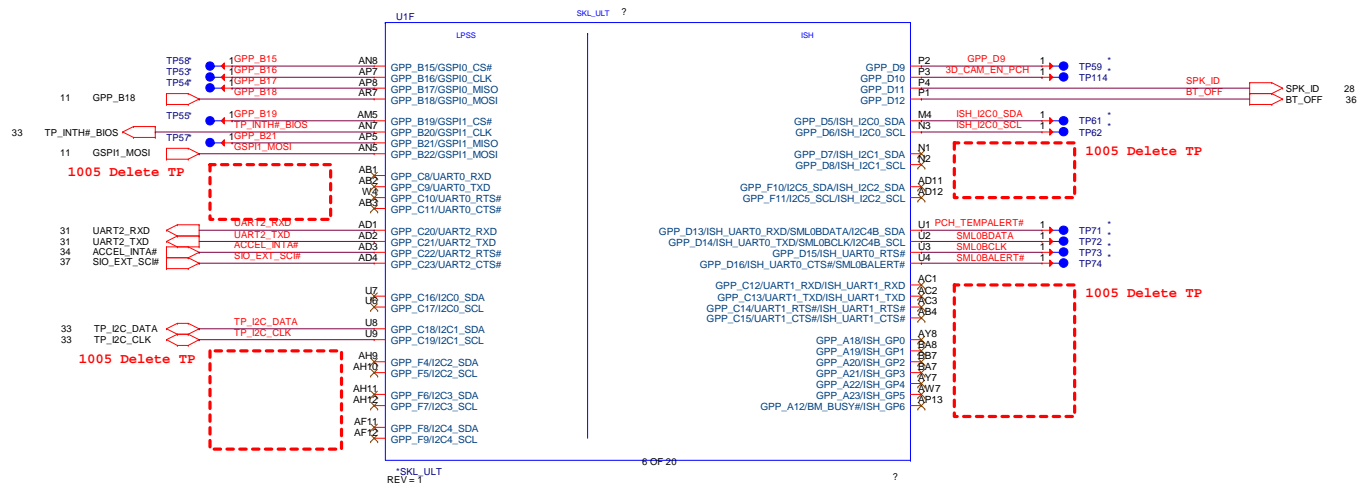


RTC Circuitry(RTC)

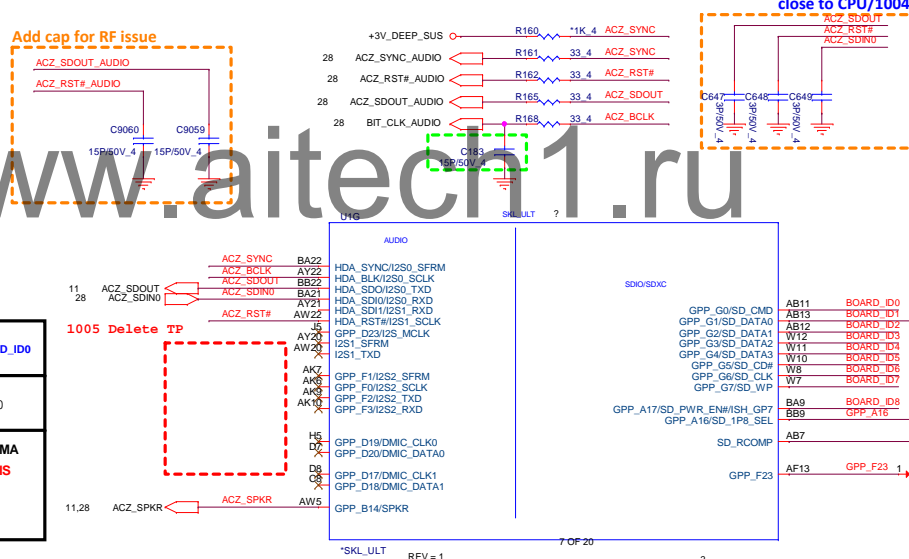


The 24 MHz (50 Ohm ESR) XTAL used for Skylake-U needs to be replaced by 38.4 MHz (30 Ohm ESR) XTAL for Cannonlake-U.

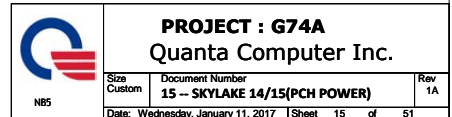




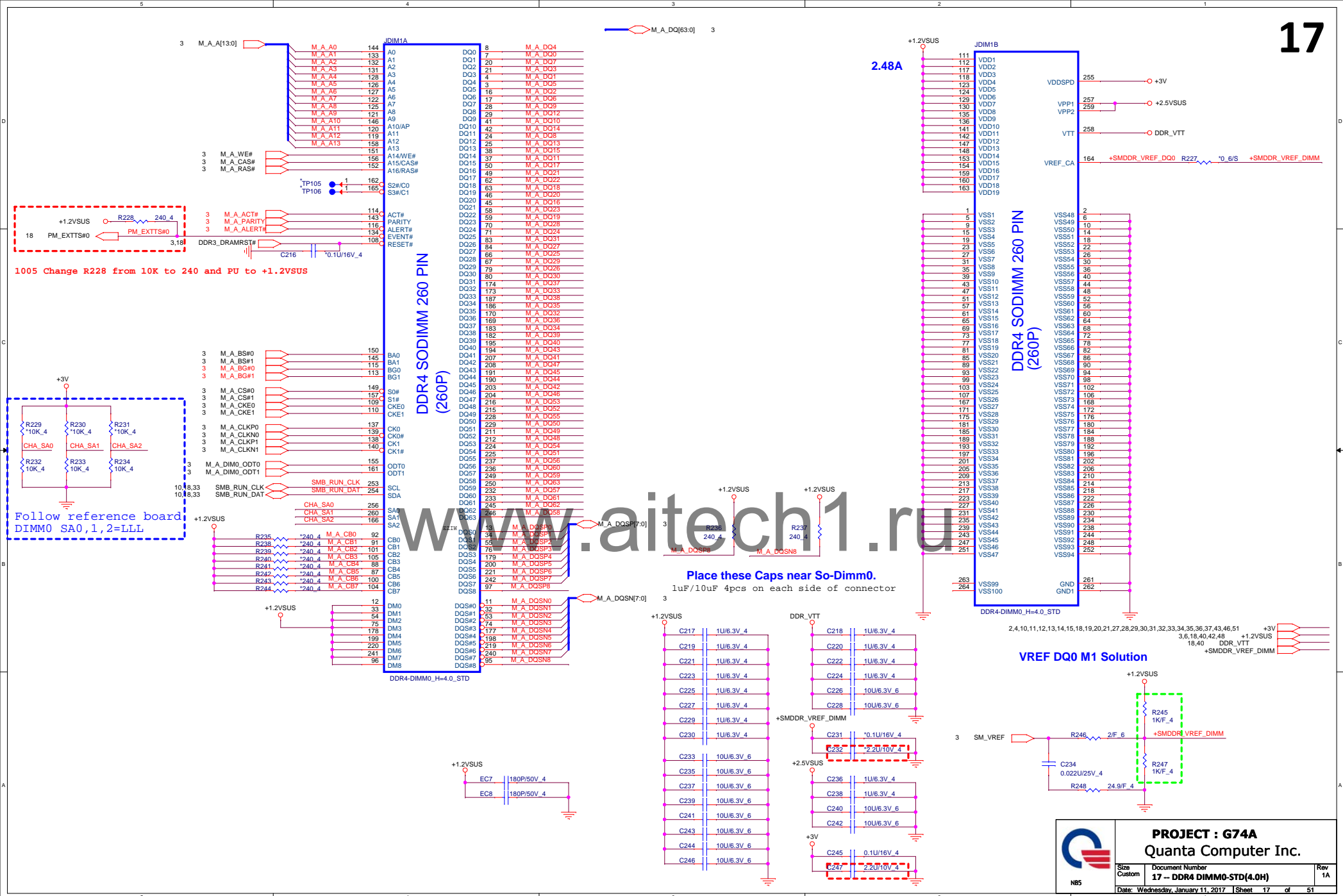
HDA Bus(CLG)

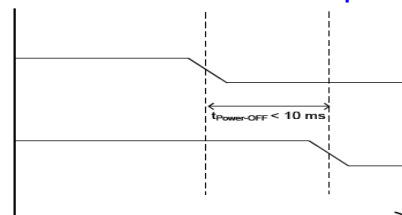


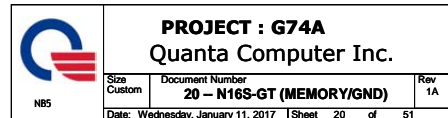
SkyLake U	BOARD_ID[8:7]	Board ID 6	Board ID 5	Board ID 4	Board ID 3	BOARD_ID[2:1]	BOARD_ID0
Model	ID8 ID7	ID6	ID5	ID4	ID3	ID2 ID1	ID0
Definition	Reserve (Default = 00)	Reserve (Default = 0)	0 : AMD 1 : Nvidia GPU setting	0 : 4VRAM 1 : 8VRAM	0 : VGA CAM 1 : IR CAM	00 : 14" 01 : 15 1SPD 10 : 17" 11 : 2SPD	0 : UMA 1 : DIS

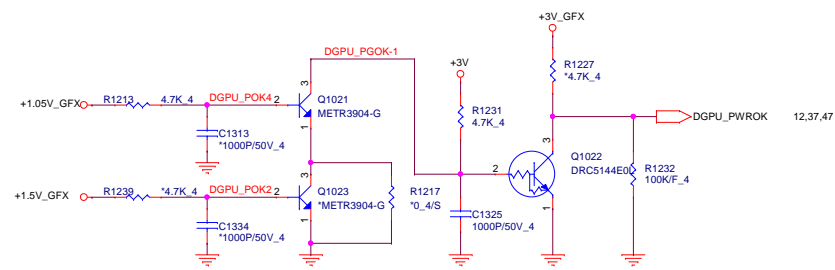
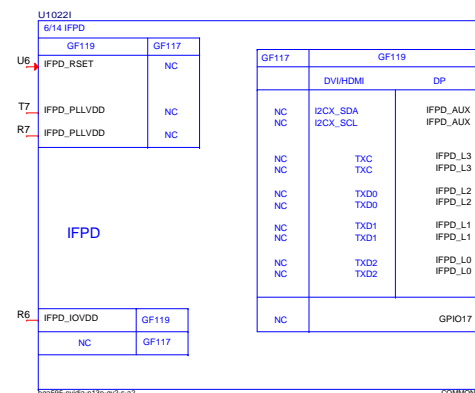
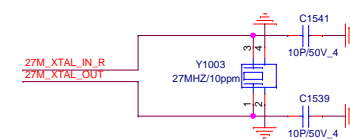
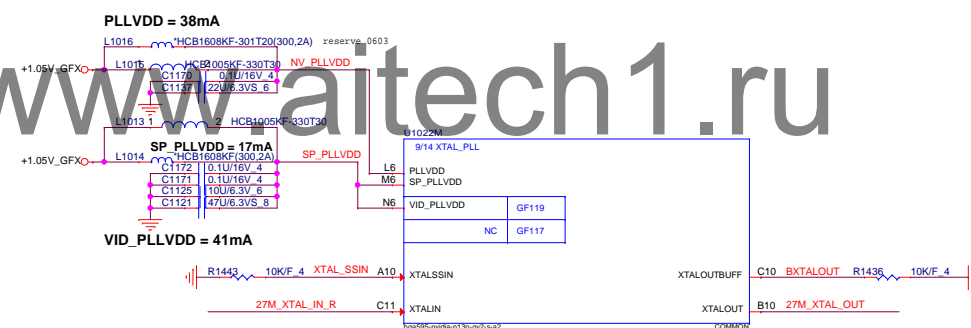
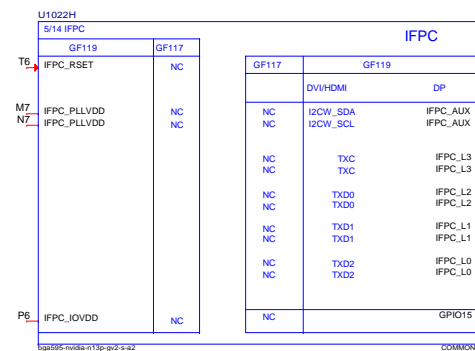
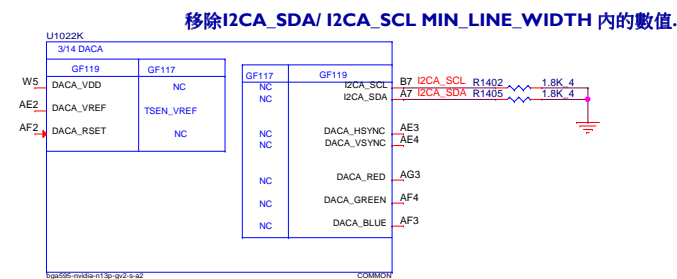
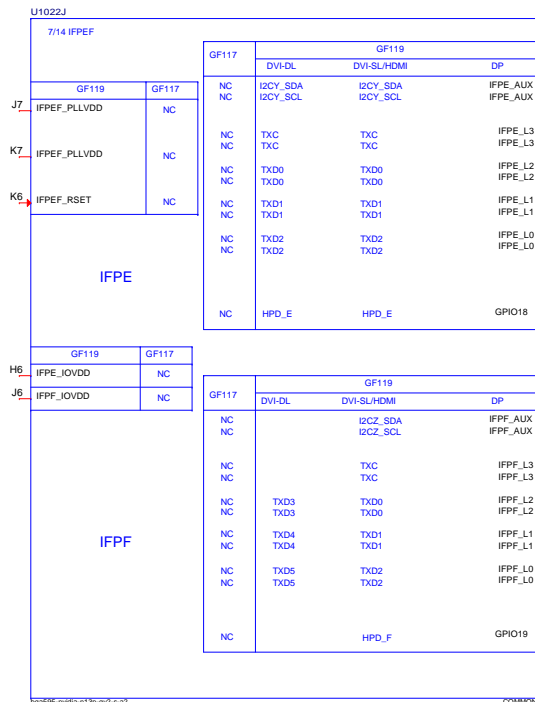
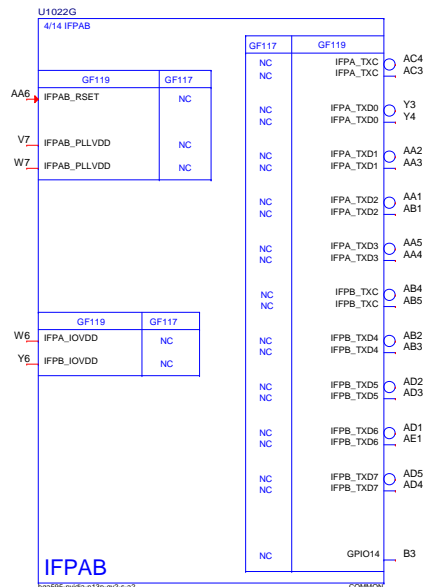


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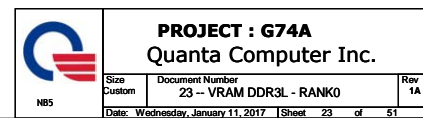


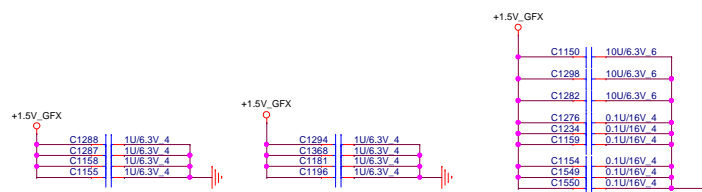
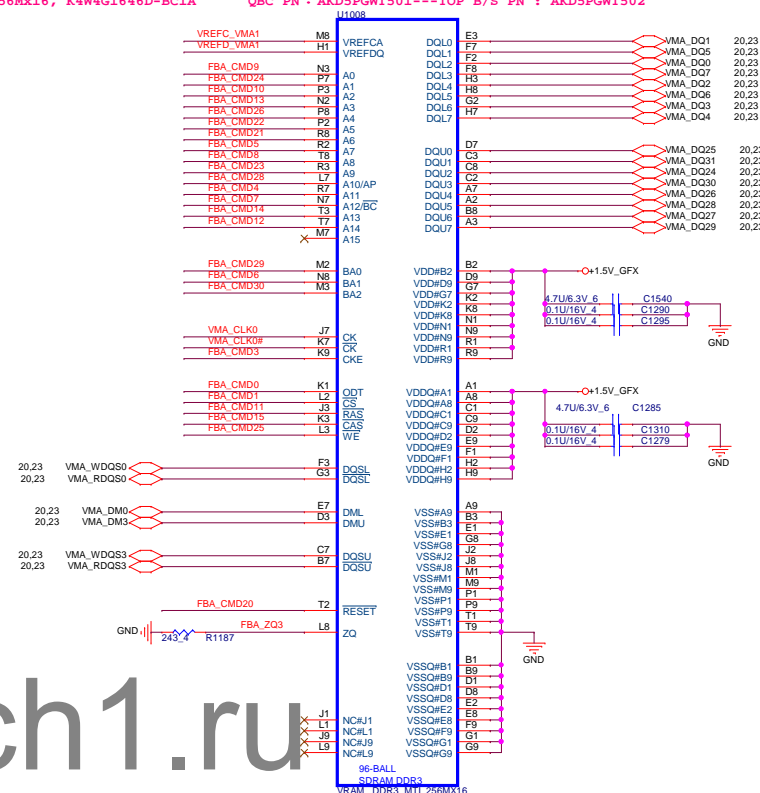
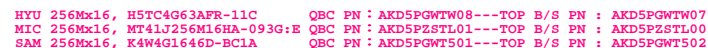


Resistor Values	Pull-Up to 3V3_MAIN	Pull-Down to GND
4.99 kΩ	1000	0000
10.0 kΩ	1001	0001
15.0 kΩ	1010	0010
20.0 kΩ	1011	0011
24.9 kΩ	1100	0100
30.1 kΩ	1101	0101
34.8 kΩ	1110	0110
45.3 kΩ	1111	0111

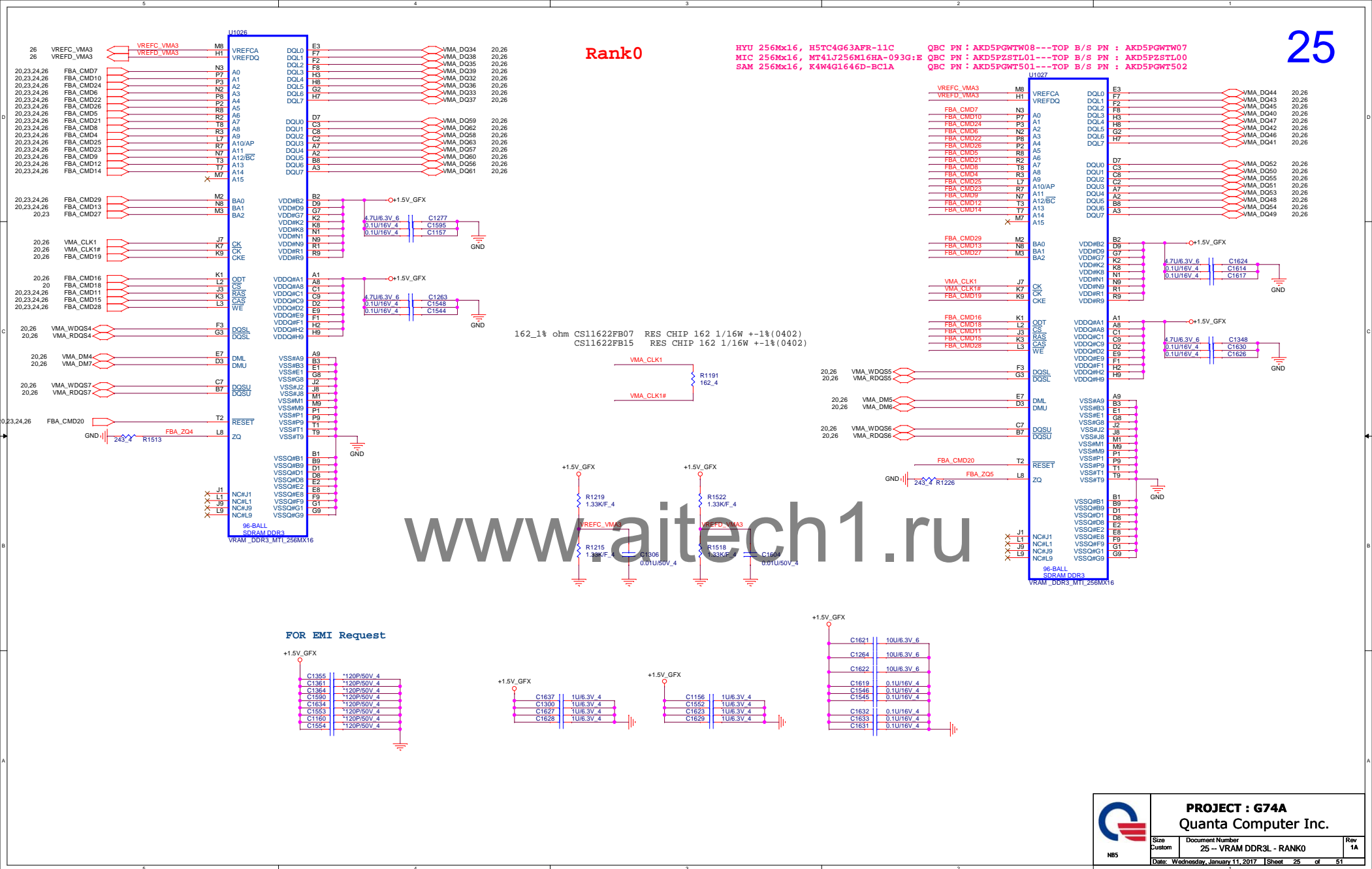
VRAM Configuration Table							
ROM_SI E							
RAMCFG [3:0]	DESCRIPTION	Vendor	Vendor P/N	256Mx16 Strap	128Mx16 Strap	QBC	TOP B/S
1100 0111 1111	DDR3 256Mx16, 64bit, 4Gb, 1GMHz DDR3 256Mx16, 64bit, 4Gb, 1GMHz DDR3 256Mx16, 64bit, 4Gb, 1GMHz	HYNIX Micron SAMSUNG	H5TC4G663CFR-N0C MT41J256M16LY-091G:N K4W4G1646E-BC1A	0xC 0x7 0xD	0x9 0x3 0x4	AKD5P2DWT02 AKD59GSTL01 AKD5PGDT501	AKD5P2DWT01 AKD59GSTL00 AKD5PGDT500

GPIO	I/O	PIN	USAGE
0	IN	FB_CLAMP_MON	FB Clamp monitor
1	OUT	MEM_VDD_CTL	Memory VDD VID
2	OUT	LCD_BL_PWM	Panel Backlight PWM
3	OUT	LCD_VCC	PANEL POWER ENABLE
4	OUT	LCD_BLEN	PANEL BACKLIGHT ENABLE
5	OUT	Reserved	--
6	OUT	FB_CLAMP_TGL_REQ	Active low FB Clamp toggle request
7	OUT	3D VISION	3D VISION LEFT/RIGHT signal
8	I/O	OVERT	ACTIVE LOW THERMAL OVER TEMP
9	I/O	ALERT	ACTIVE LOW THERMAL ALERT
10	OUT	MEM_VREF_CTL	MEMMORY VREF CONTROL
11	OUT	PWR_VID	GPU CORE_VDD PWM Control signal
12	IN	PWR_LEVEL	AC Power detect or power supply overdraw input
13	OUT	PSI	Phase Shedding



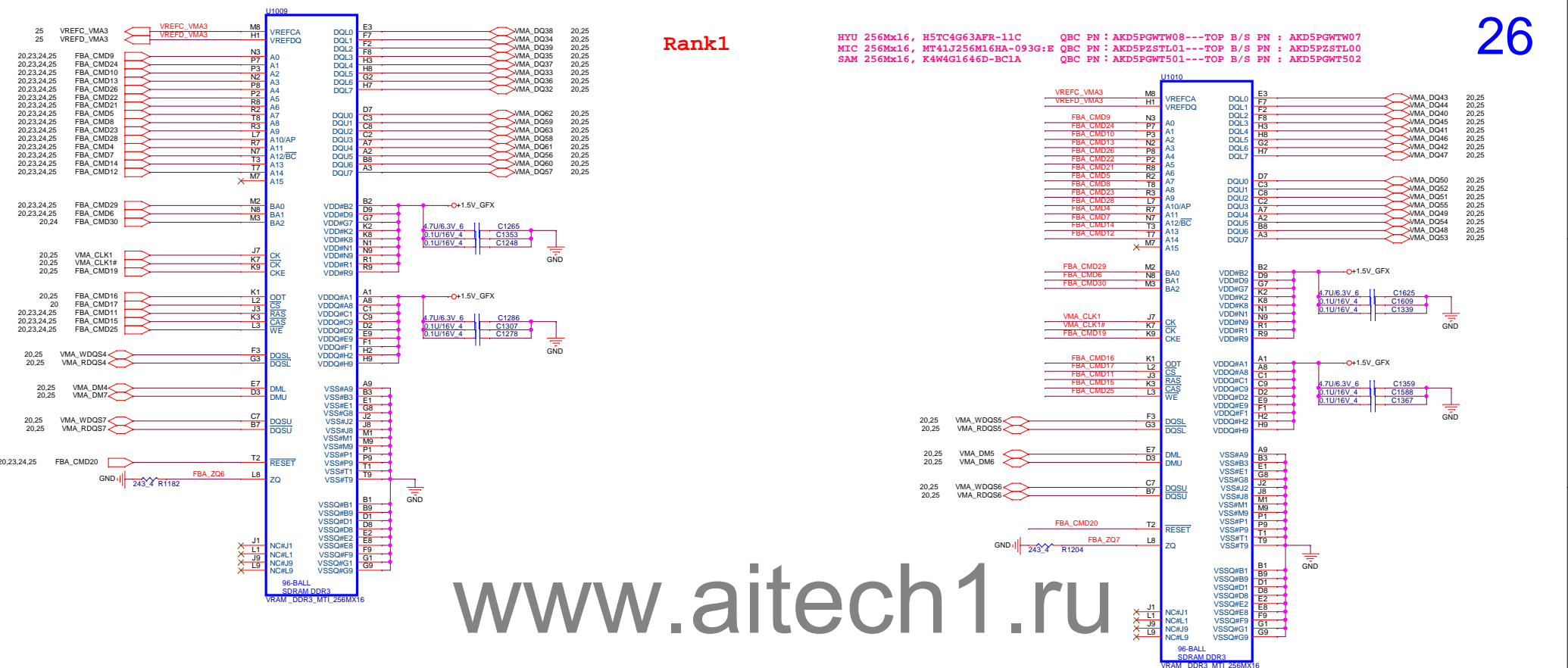


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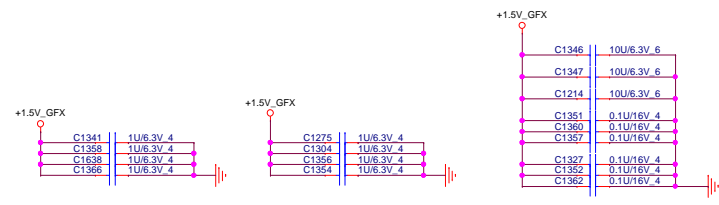



Rank1

HYU 256Mx16, H5TC4G63AFR-11C QBC PN : AKD5PGWTW08---TOP B/S PN : AKD5PGWTW07
MIC 256Mx16, MT41J256M16HA-093G:E QBC PN : AKD5PZSTL01---TOP B/S PN : AKD5PZSTL00
SAM 256Mx16, K4W4G1646D-BC1A QBC PN : AKD5PGWT501---TOP B/S PN : AKD5PGWT502



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	PROJECT : G74A Quanta Computer Inc.		
	Size Custom	Document Number 26 -- VRAM DDR3L - RANK1	Rev 1A
	Date: Wednesday, January 11, 2017 Sheet 26 of 51		

7 EMU_LID

R4501 0.4

PN_BLON

D4501

2 1 BLON_CON

R4502 22p/50V_4

100k/F_4

R4503 1K/F_4

LVDS_BLON1

R4504 100k/F_4

2A / 80mils

+VIN_BLIGHT

+VIN_BLIGHT

+VIN

FUSE SMD 1.5A 24V POLY F4502

C4504 0.1u/25V_4

C4505 0.01u/50V_4

C4508 4.7u/25V_6

C4509 0.1u/25V_6

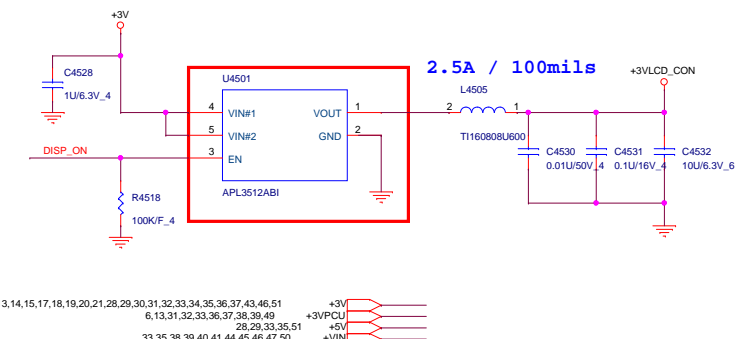
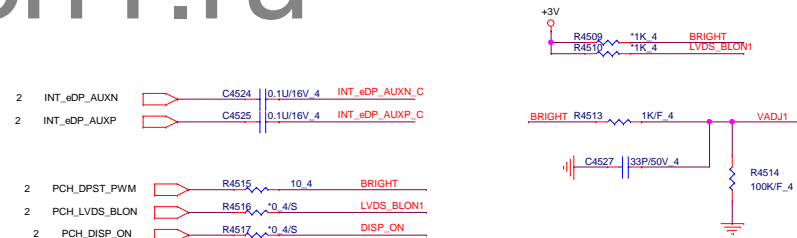
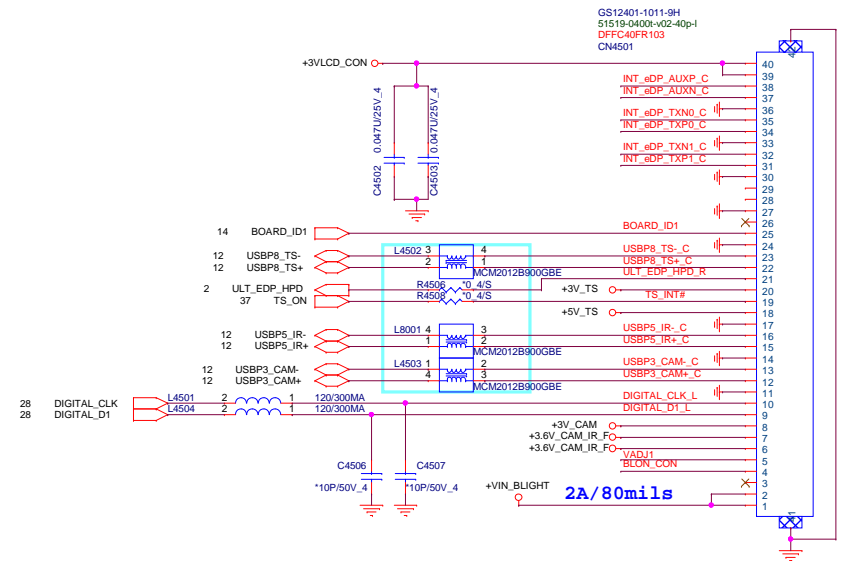
C4510 0.1u/25V_6

C4511 0.1u/25V_6

C4512 4.7u/25V_6

[illegible]
$$V_O = (0.6(R_1 + R_2)/R_2)$$

27



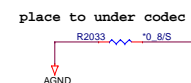
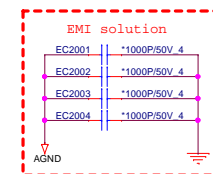
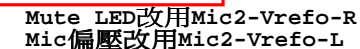
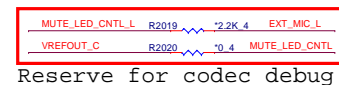
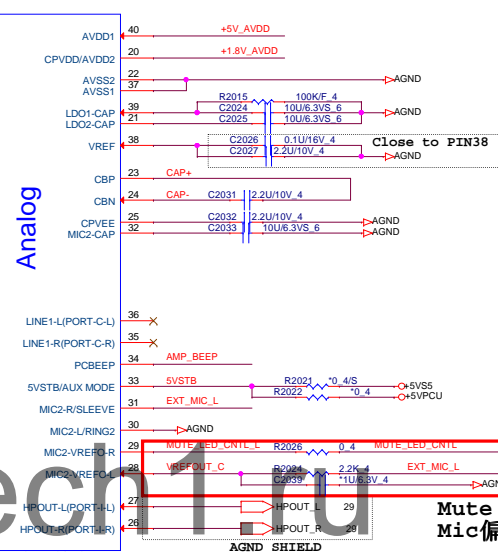
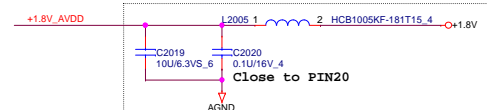
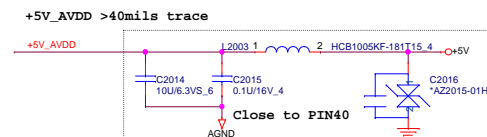
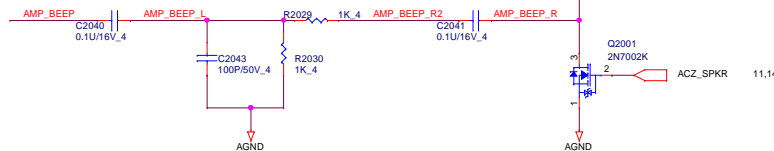
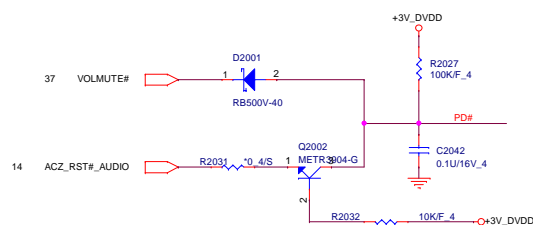
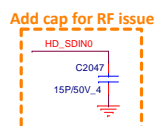
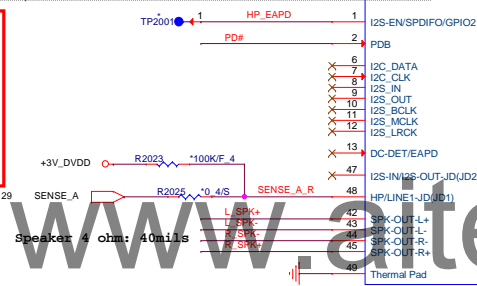
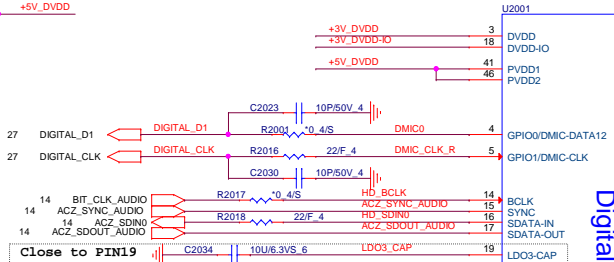
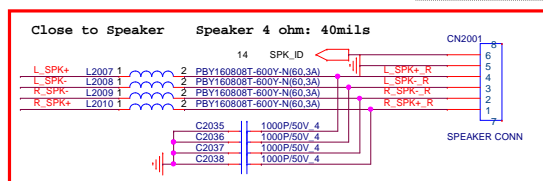
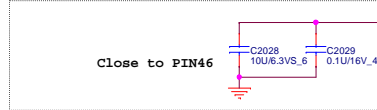
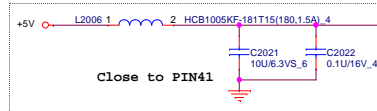
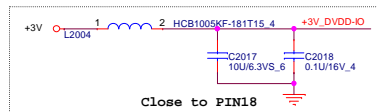
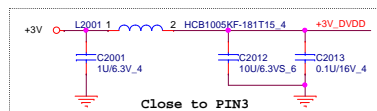
2,4,10,11,12,13,14,15,17,18,19,20,21,28,29,30,31,32,33,34,35,36,37,43,46,51
6,13,31,32,33,36,37,38,39,49
28,29,33,35,51
33,35,38,39,40,41,44,45,46,47,50

+3V
+3VPCU
+5V
+VIN

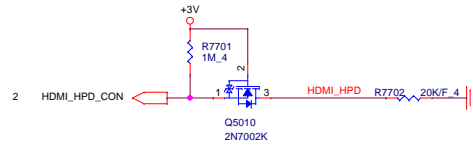
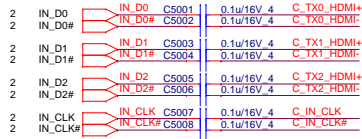


PROJECT : G74A
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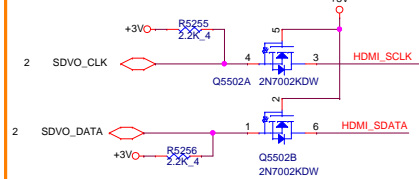
Size Custom	Document Number 27 -- eDP CONN/LID/CAM/D-MIC/TS	Re
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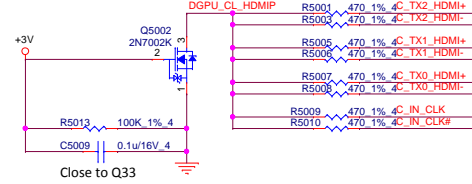
HDMI CONN



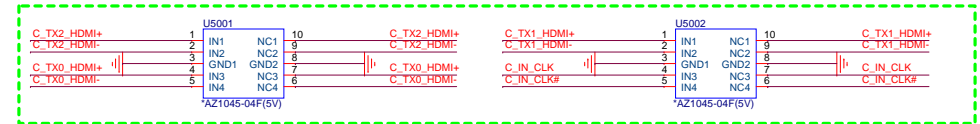
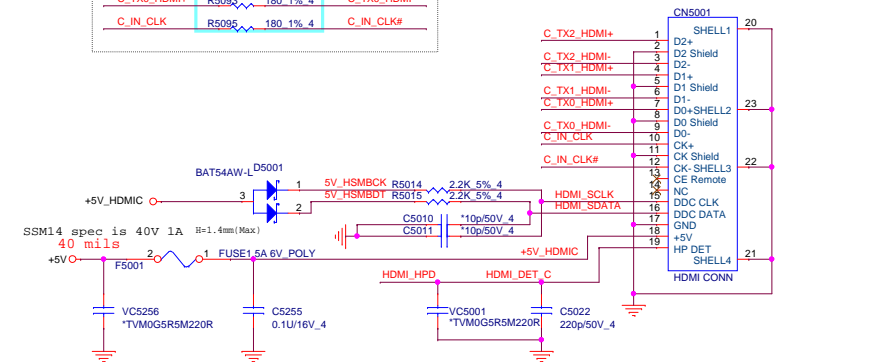
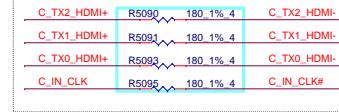
HDMI SMBus Isolation



Close to HDMI connector



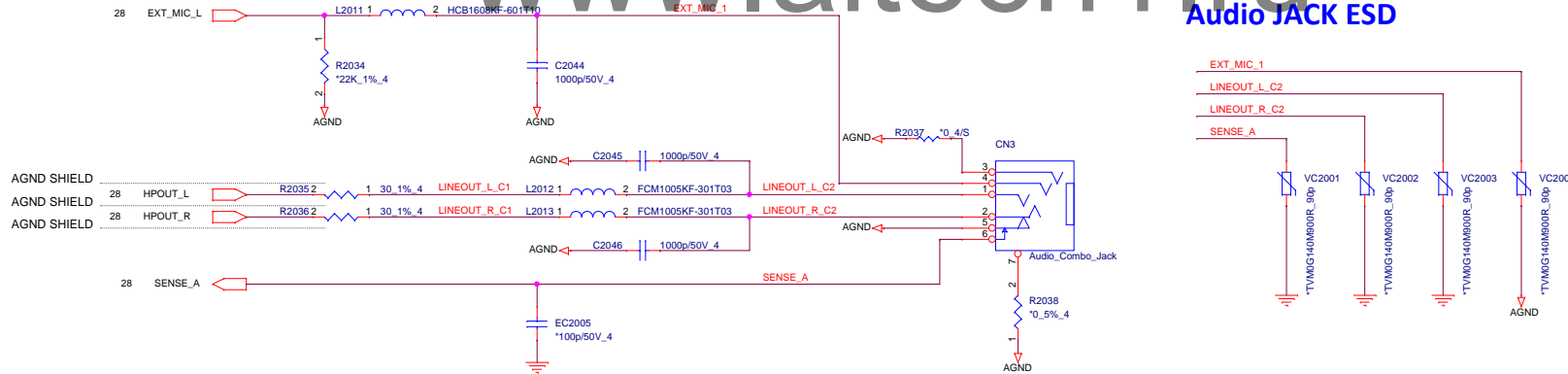
EMI Solution

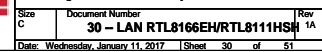


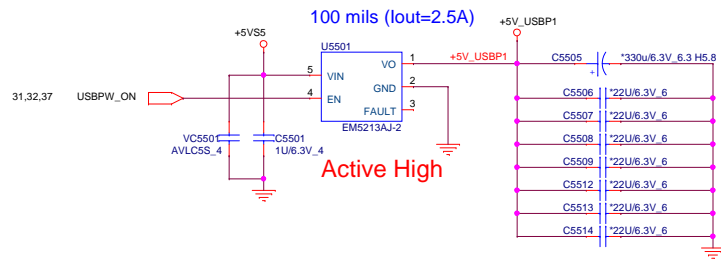
Audio Jack

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Audio JACK ESD

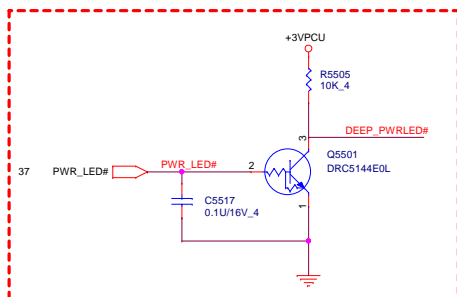




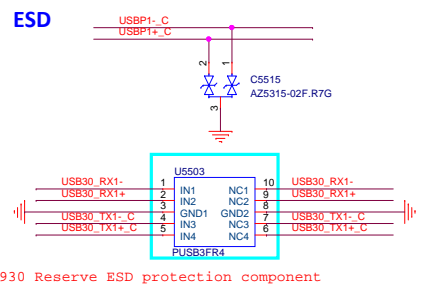


Daughter Board

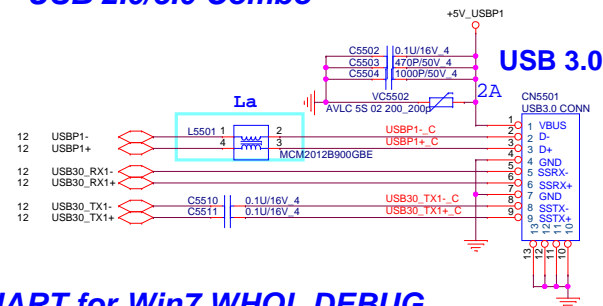
1123 Add PWR_LED MOS Circuit



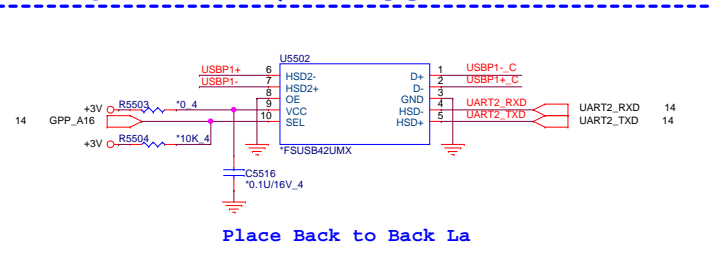
ESD



USB 2.0/3.0 Combo



UART for Win7 WHQL DEBUG

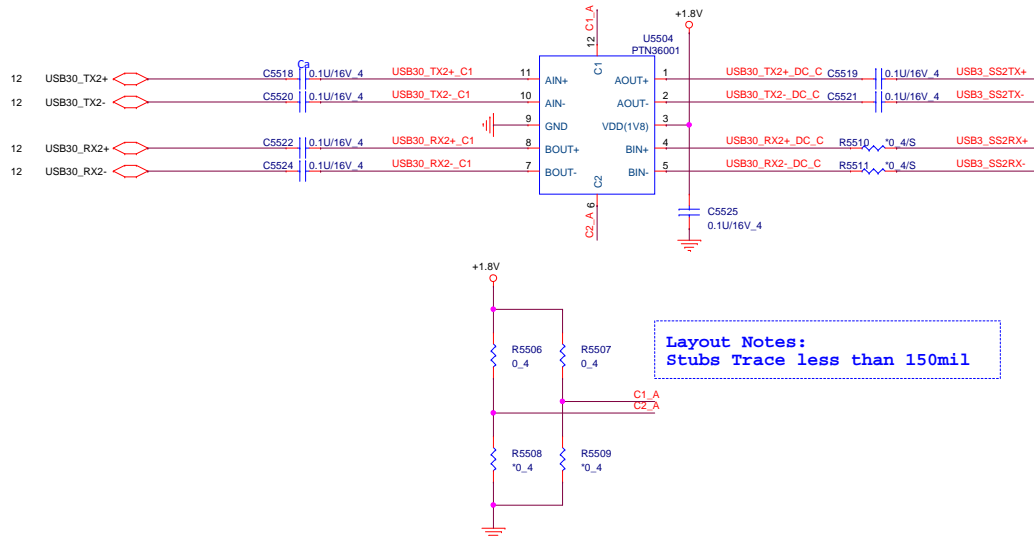


USB3.0

USB3.0 Re-driver IC

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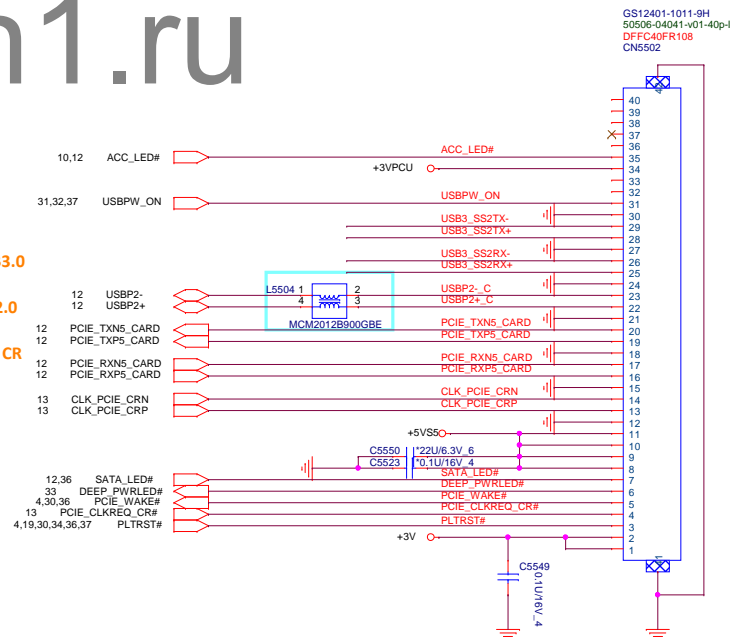
USB3.0 re-driver IC



2 SPD:1 USB3.0

2 SPD :1 USB2.0

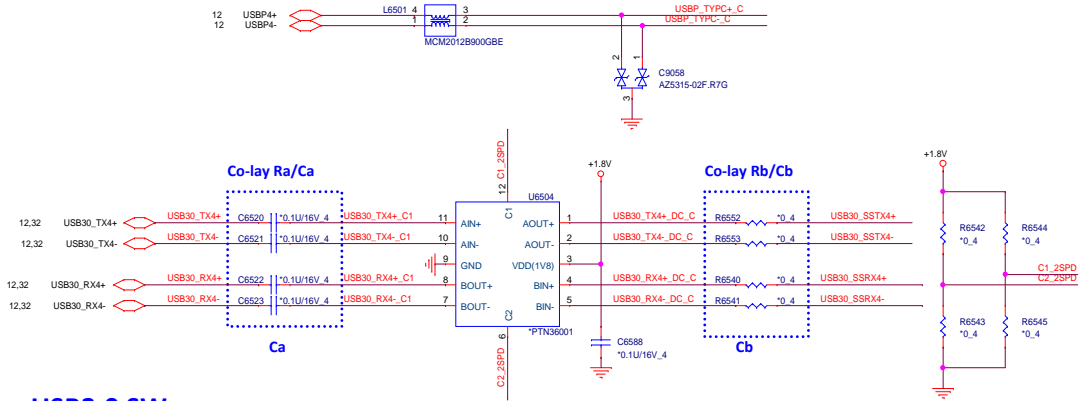
15" :PCIE to CR



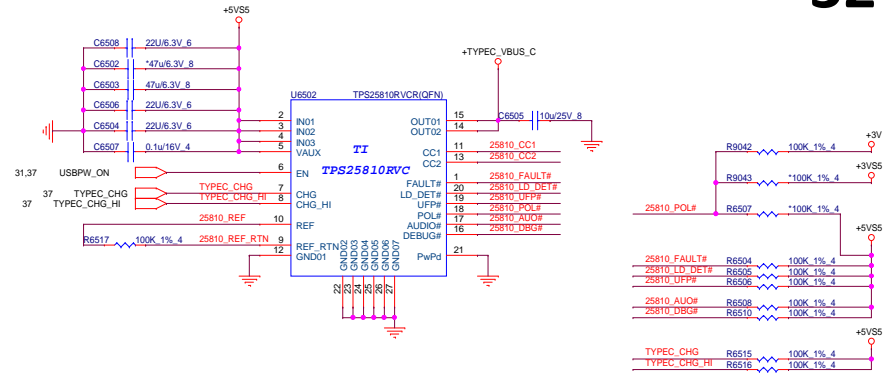
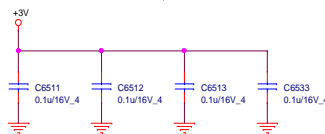
PROJECT : G74A
Quanta Computer Inc.

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Date: Wednesday, January 11, 2017 Sheet 31 of 51

USB2.0



USB3.0 SW

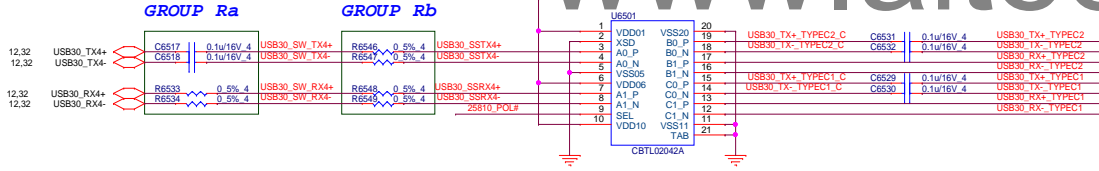


TPS25810 Port	CC1	CC2	OUT	VCONN On CC1 for CC2	POLb	UFPb	AUDIOb	DEBUb
Nothing Attached	OPEN	OPEN	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
UFP Connected	Rd	OPEN	IN1	NO	Hi-Z	LOW	Hi-Z	Hi-Z
UFP Connected	OPEN	Rd	IN1	NO	LOW	LOW	Hi-Z	Hi-Z
Powered Cable/No UFP Connected	OPEN	Ra	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
Powered Cable/No UFP Connected	Ra	OPEN	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
Powered Cable/UFP Connected	Rd	Ra	IN1	CC2	Hi-Z	LOW	Hi-Z	Hi-Z
Powered Cable/UFP Connected	Ra	Rd	IN1	CC1	LOW	LOW	Hi-Z	Hi-Z
Debug Accessory Connected	Rd	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	LOW	Hi-Z
Audio Adapter Accessory Connected	Ra	Ra	OPEN	NO	Hi-Z	Hi-Z	LOW	Hi-Z

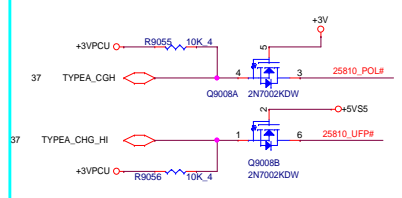
CHG	CHG_H	CC Capability Broadcast	Current Limit	Load Detect Threshold
0	0	STD	1.67 A	NA
0	1	S10	1.67 A	NA
1	0	1.5 A	1.67 A	NA
1	1	3.0 A	3.34 A	1.77 A

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To USB3 SWITCH

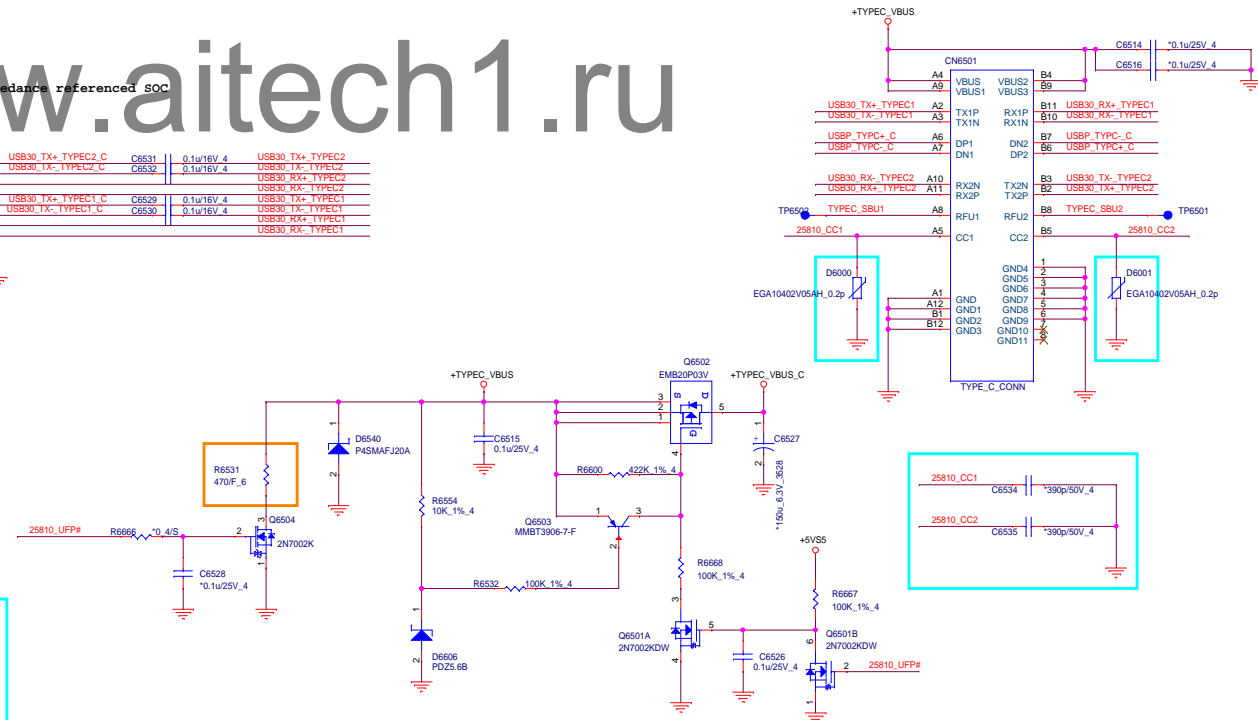
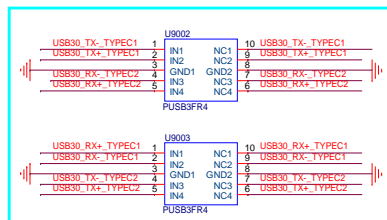


Add Type-C A/B side recognition

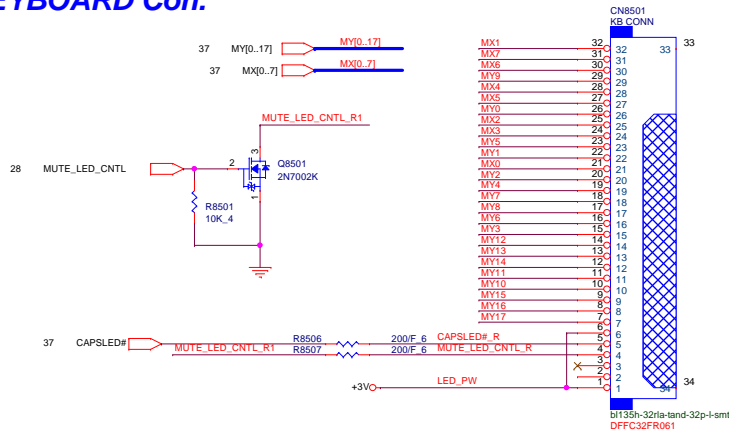


SEL = CMOS single-ended input
operation mode select
SEL = LOW: A <---> B
SEL = HIGH: A <---> C

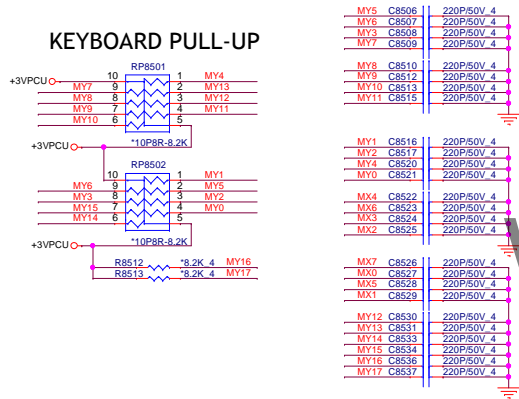
TYPE C USB3.0 ESD



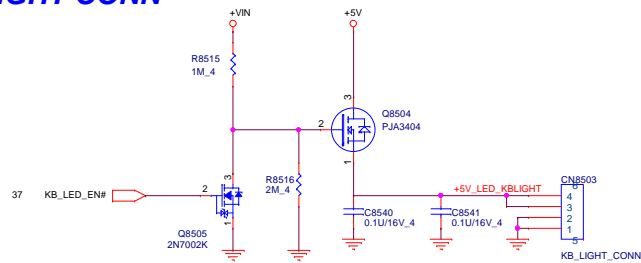
KEYBOARD Con.



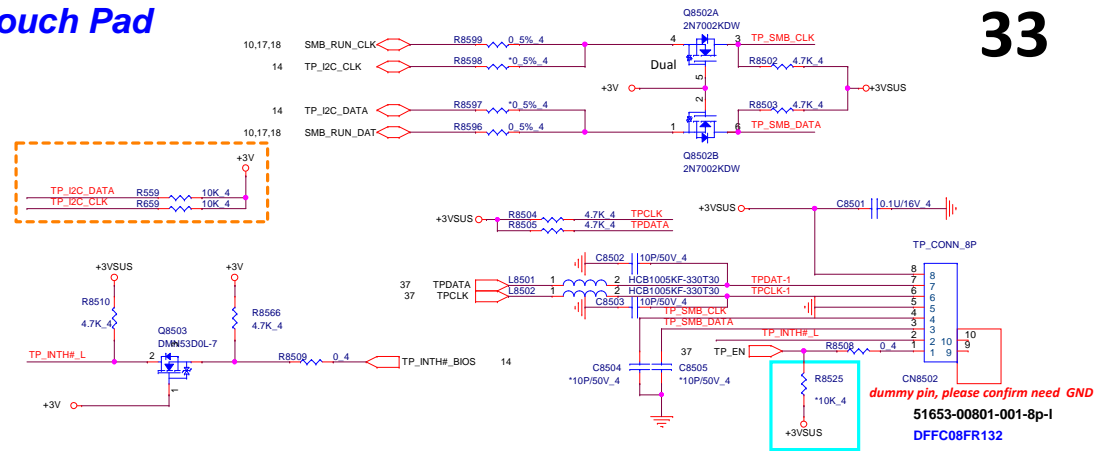
KEYBOARD PULL-UP



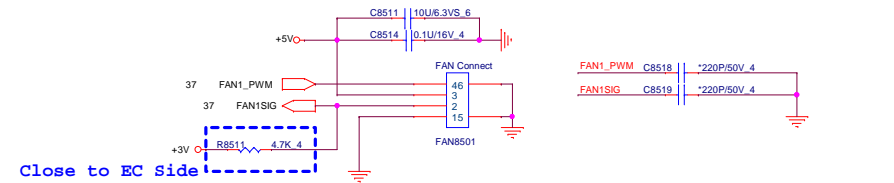
KB LIGHT CONN



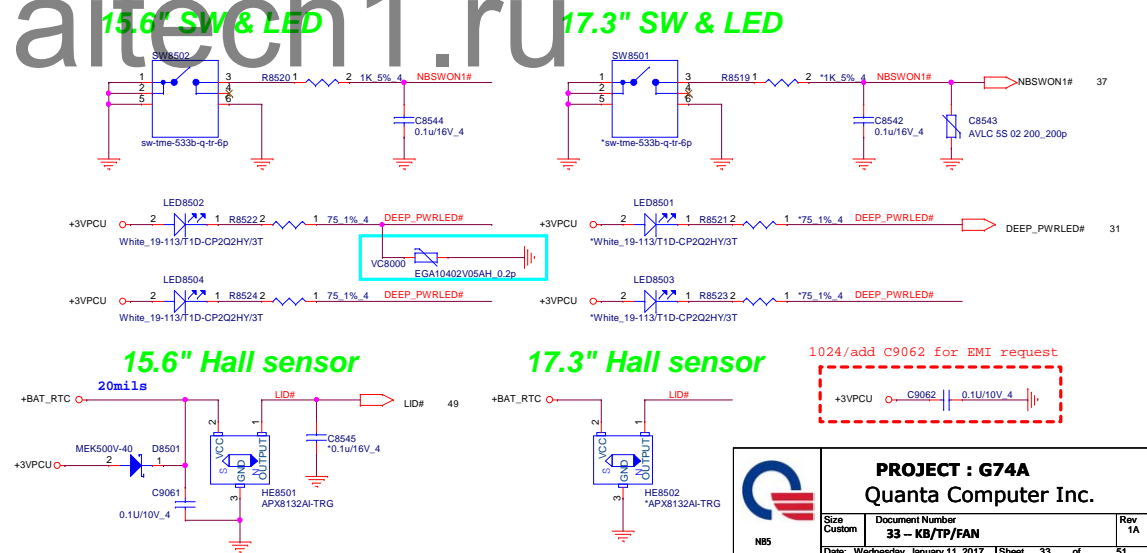
Touch Pad



FAN

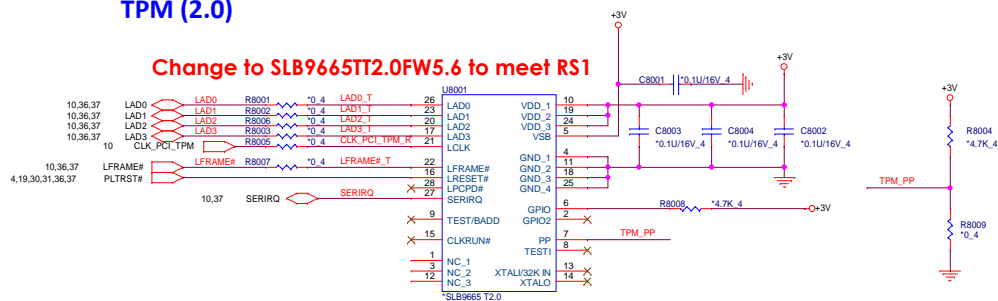


PWR Button & LED & HALL IC

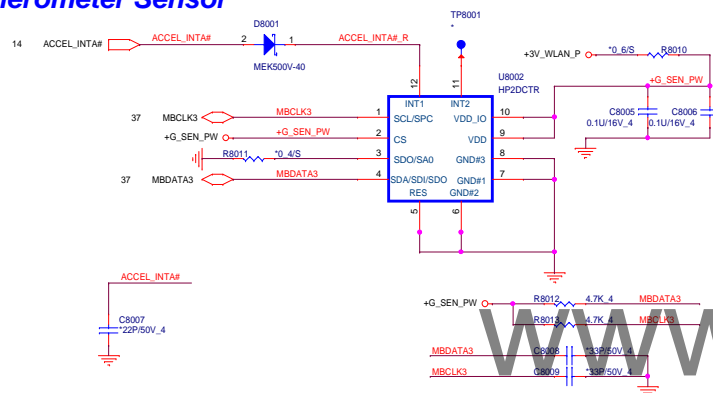


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Quanta Computer Inc.		
Size	Document Number	Rev
Custom	33 - KB/TP/FAN	1A
Date: Wednesday, January 11, 2017 Sheet 33 of 51		

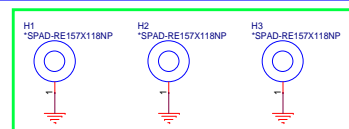
Change to SLB9665TT2.0FW5.6 to meet RS1



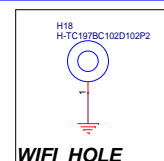
Accelerometer Sensor



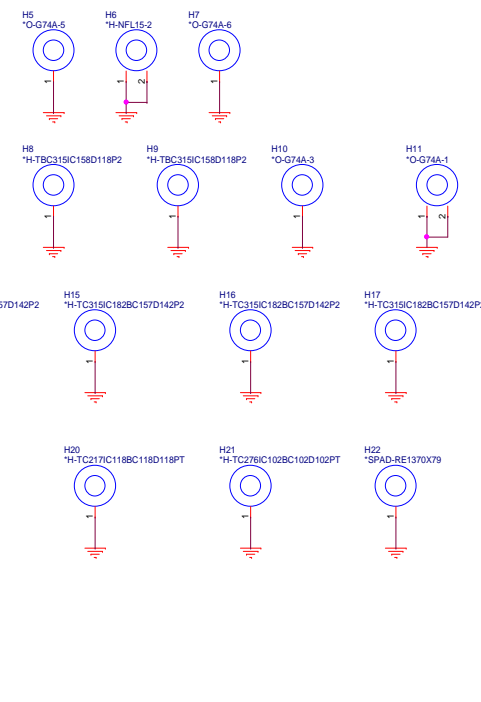
Holes



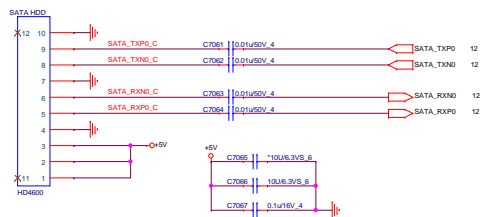
10/17 EMI request



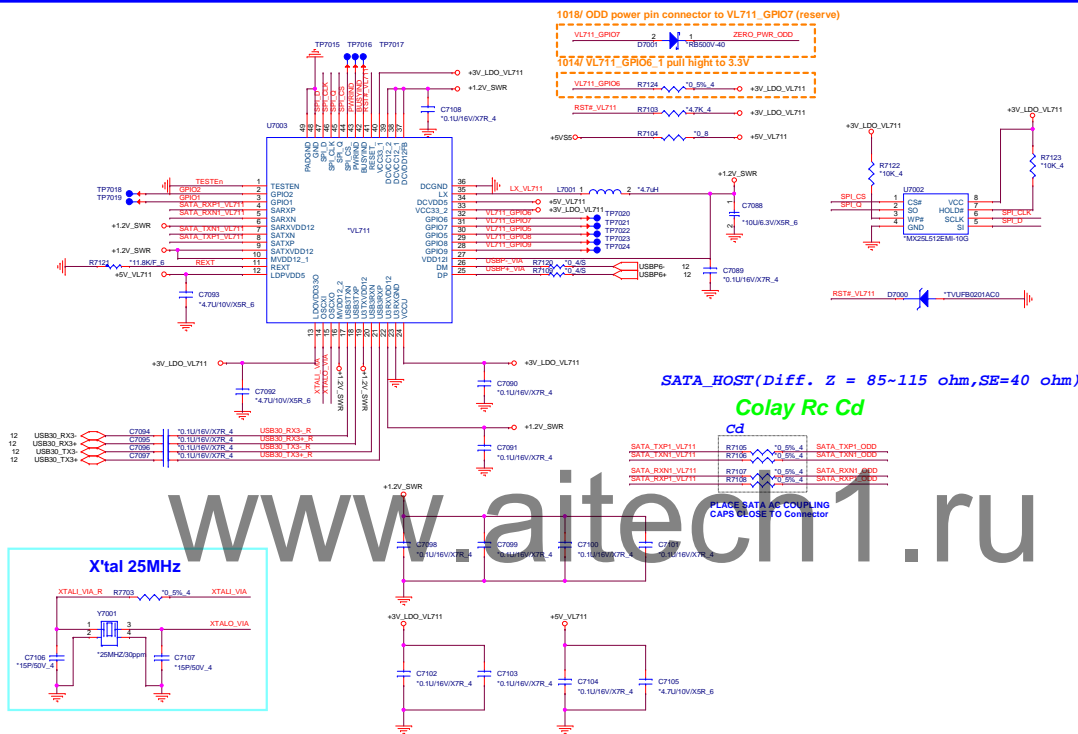
WIFI HOLE



SATA HDD & LED

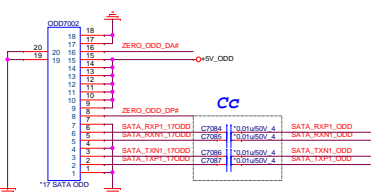


USB3.0 to SATA

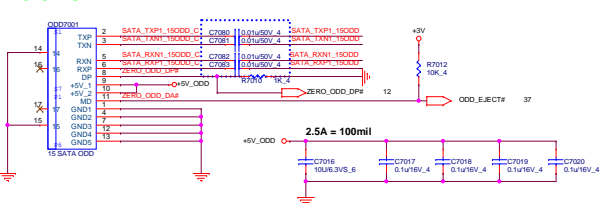


SATA ODD

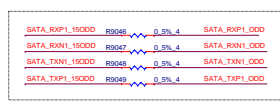
17.3" ODD



15.6" ODD

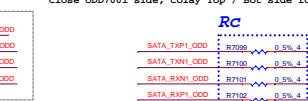


Colay Cc, Ce
15.6" ODD STUFF



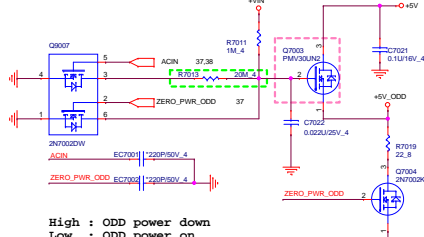
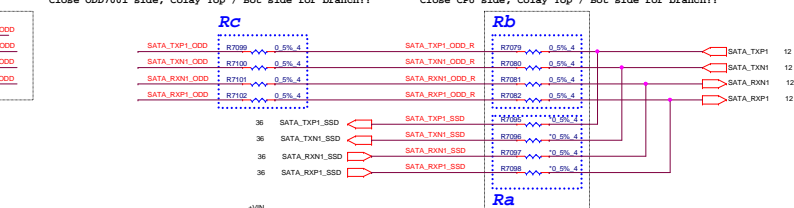
Colay Rc, Cd

Close ODD7001 side, Colay Top / Bot side for branch!!

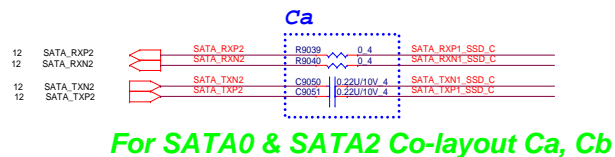


Colay Ra, Rb

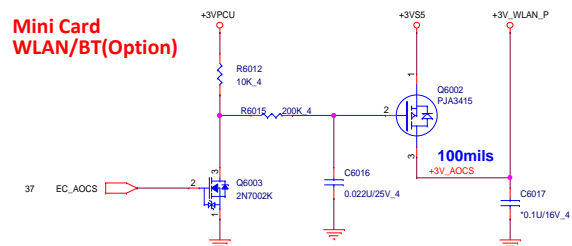
Close CPU side, Colay Top / Bot side for branch!!



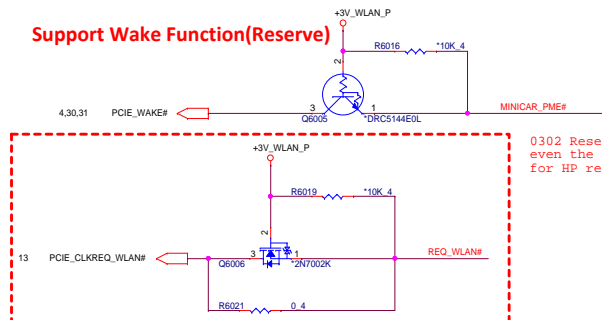
High : ODD power down
Low : ODD power on



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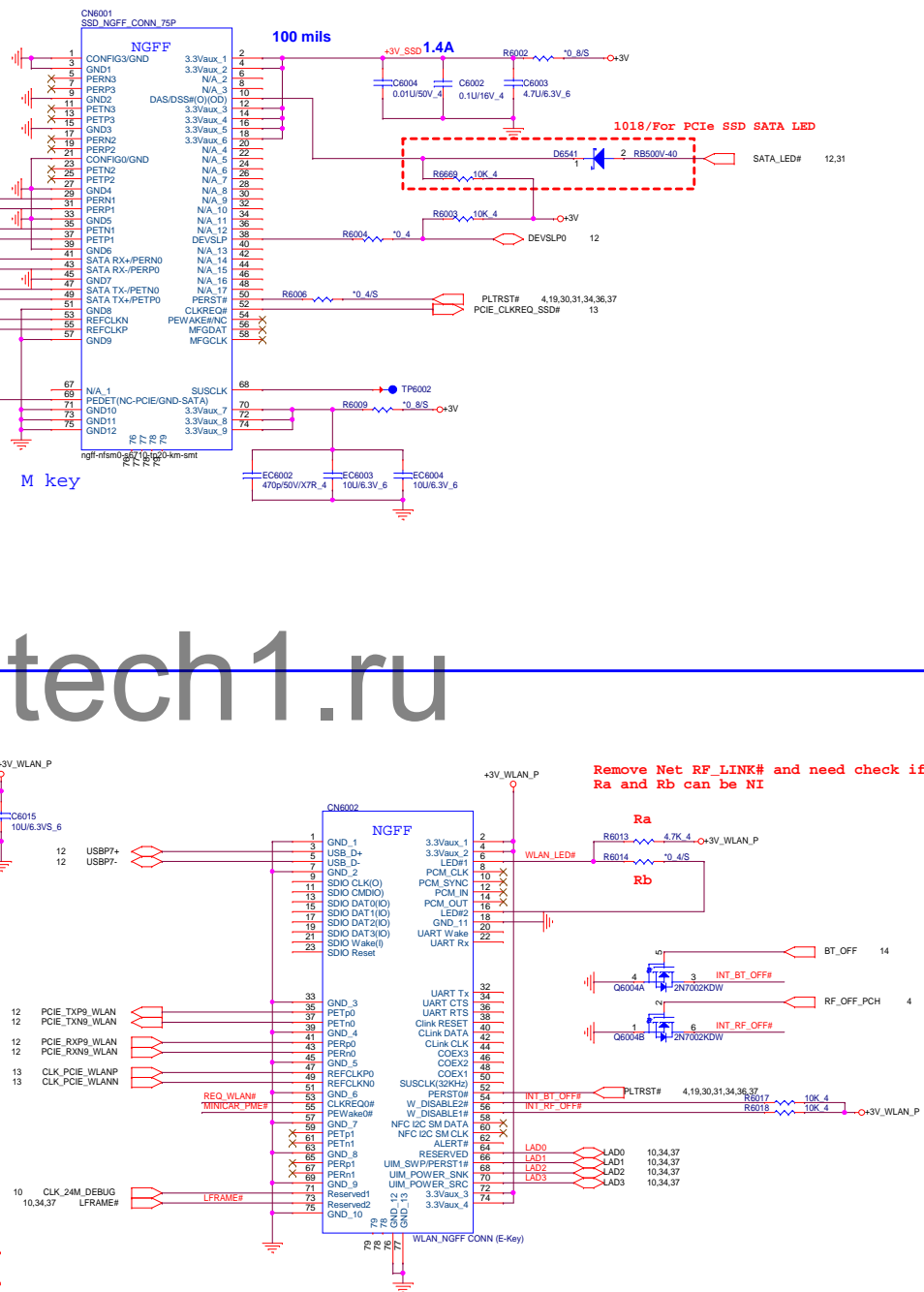
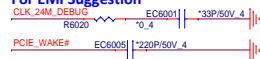
Mini Card
WLAN/BT(Optional)

Support Wake Function(Reserve)



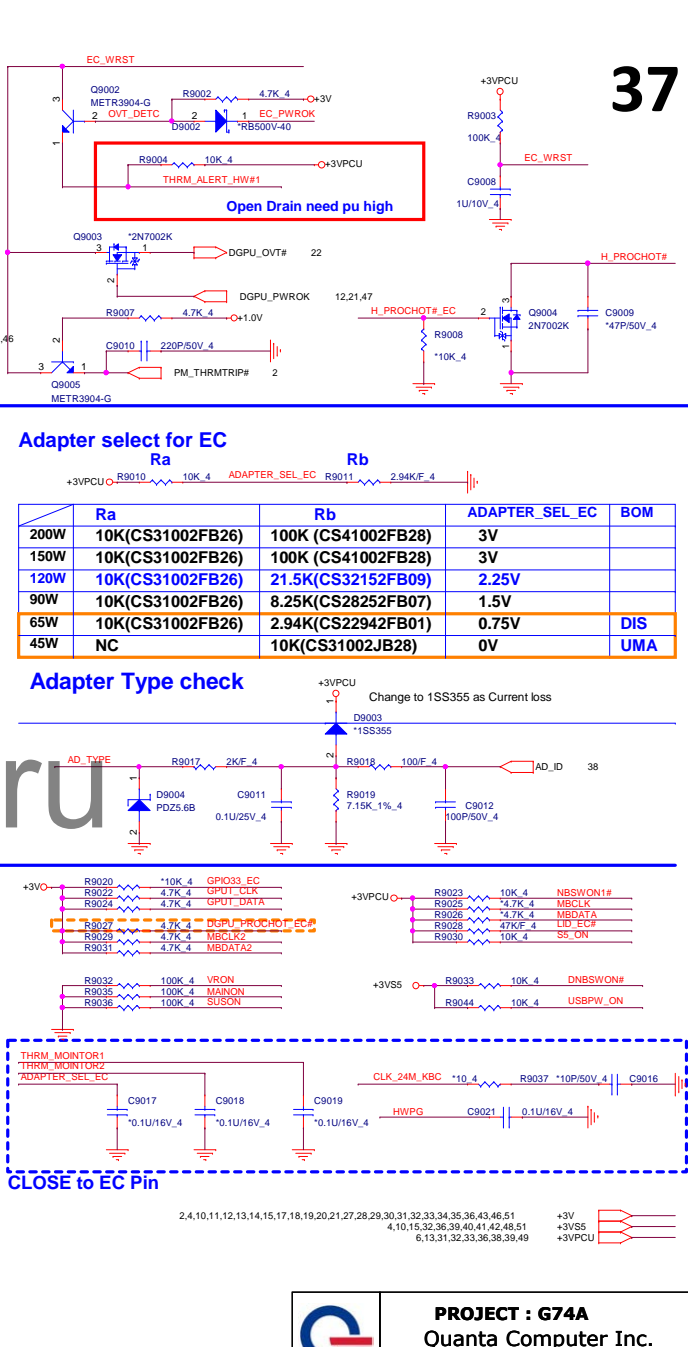
```
0302 Reserved the MOSFET at CLKREQ#
even the current leakage test passed
for HP requested
```

For EMI Suggestion



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Adapter Type check

Change to 1SS355 as Current loss

AD_TYPE

AD_ID 38

[illegible]

THRM_MON170
THRM_MON180
THRM_MON190
ADAPTER_SEL_EC

C9017 0.1U/16V_4
C9018 0.1U/16V_4
C9019 0.1U/16V_4

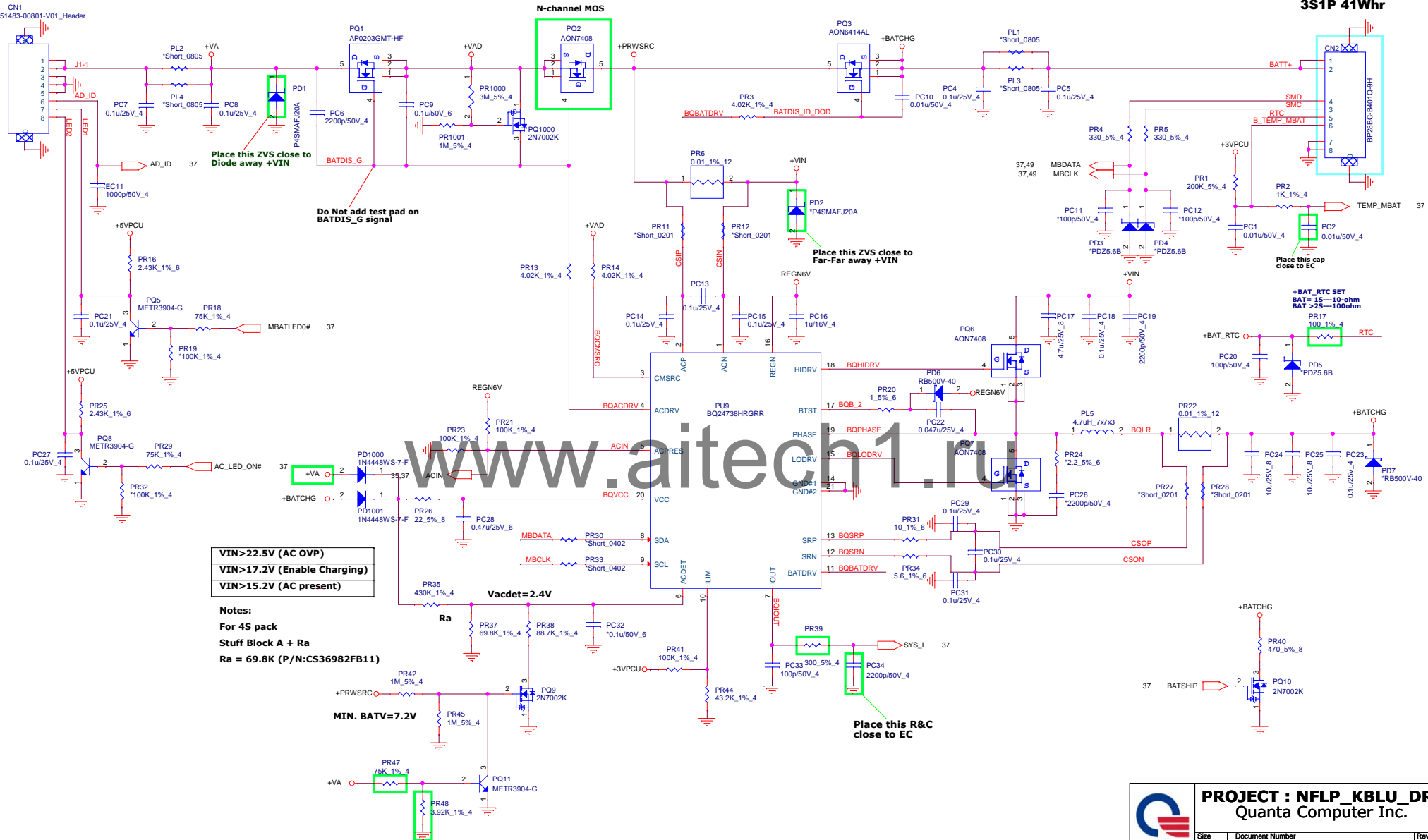
CLK_24M_KBC *10_4
R9037 *10P/50V_4
C9016

HWPW
C9021 0.1U/16V_4

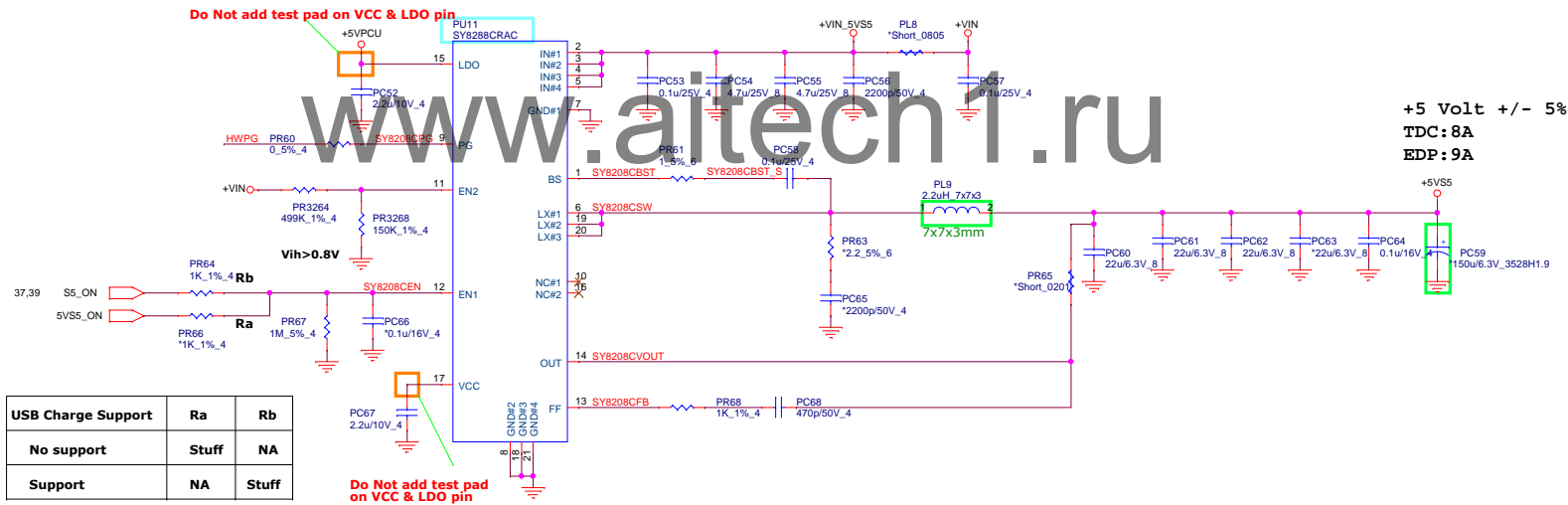
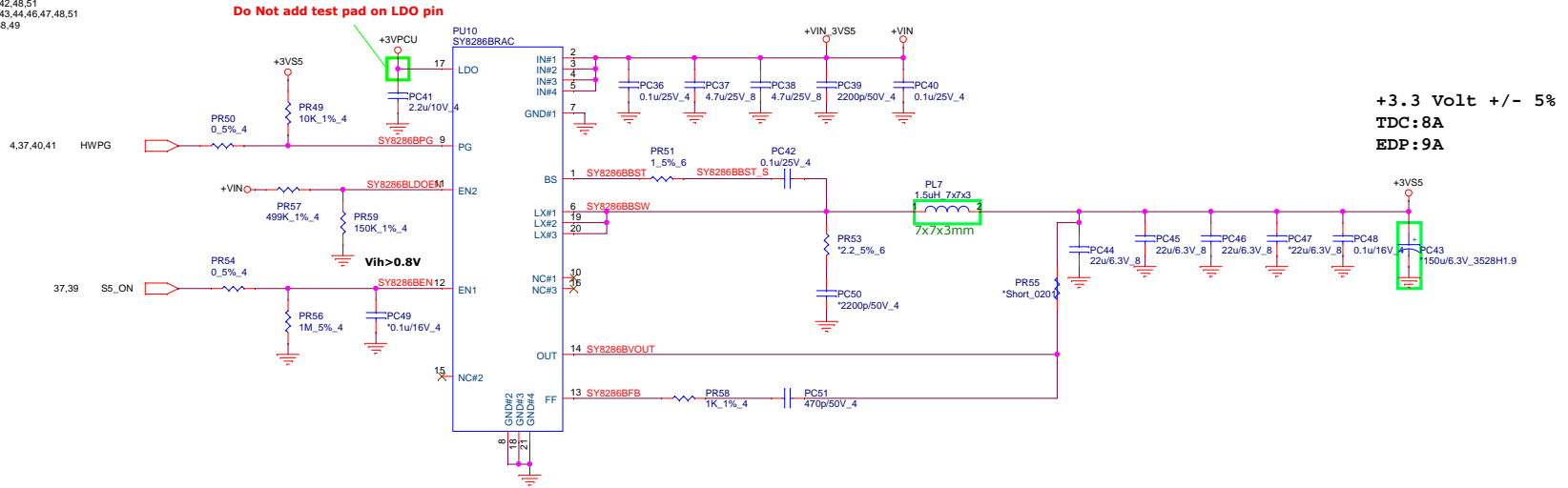
	AC_PRESENT_EC	H_PROCHOT#_EC	H_PROCHOT#
AC IN: AC mode Operation	H	L	H
AC remove: AC mode to DC mode	L	L	L
DC mode recover from PROCHOT	L	H	H

+3VPCU	6,13,31,32,33,36,37,38,39,49
+5VPCU	28,39,48,51
+BAT_RTC	4,13,15,33,49
+VIN	27,33,35,39,40,41,44,45,46,47,50
+3VPCU	6,13,31,32,33,36,37,38,39,49

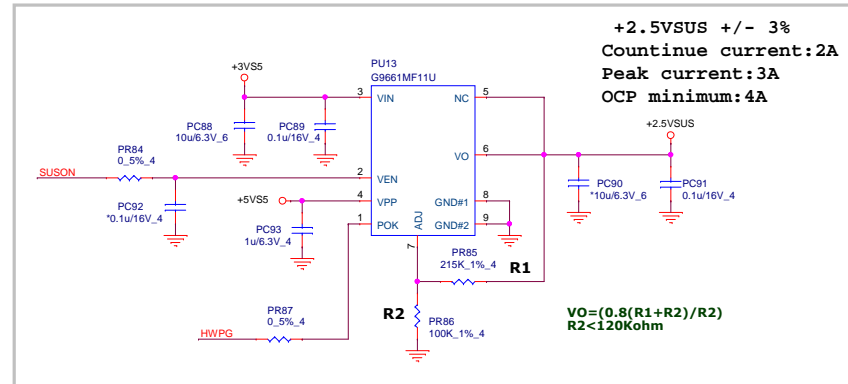
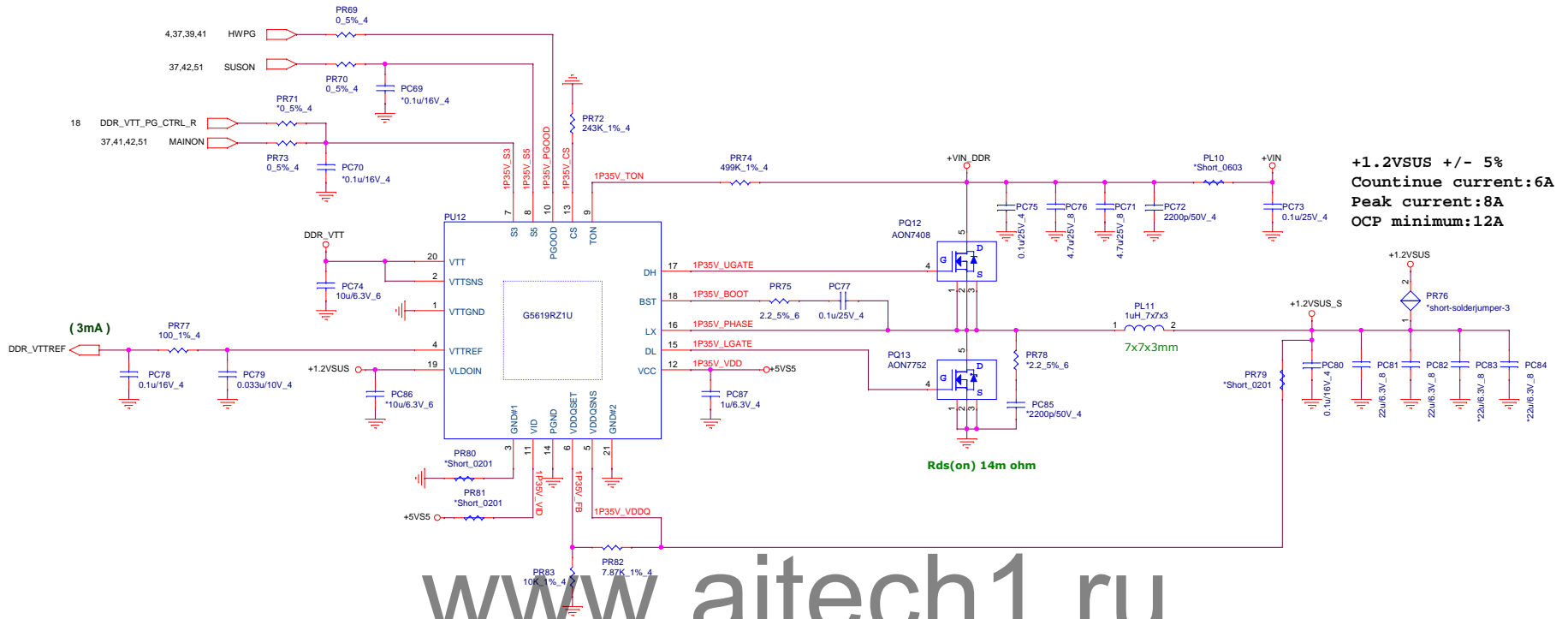
ADP=65W



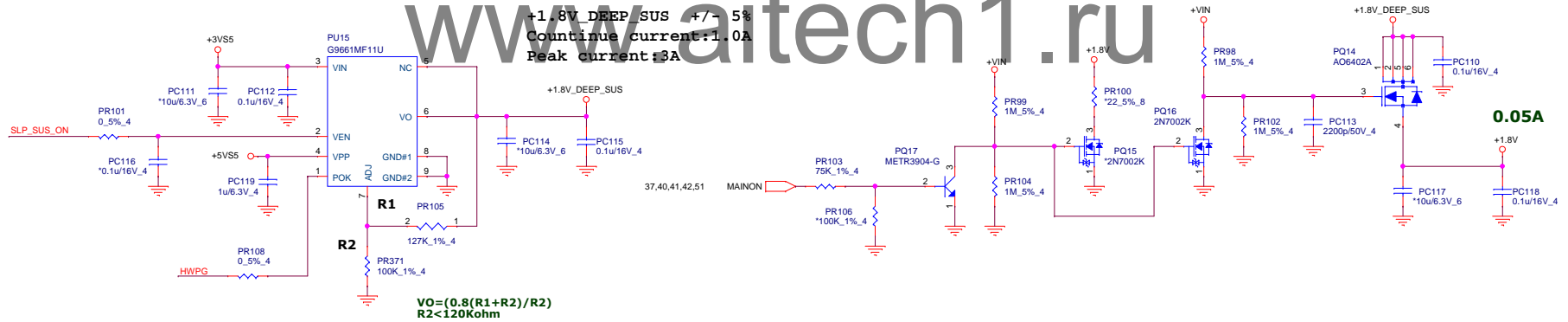
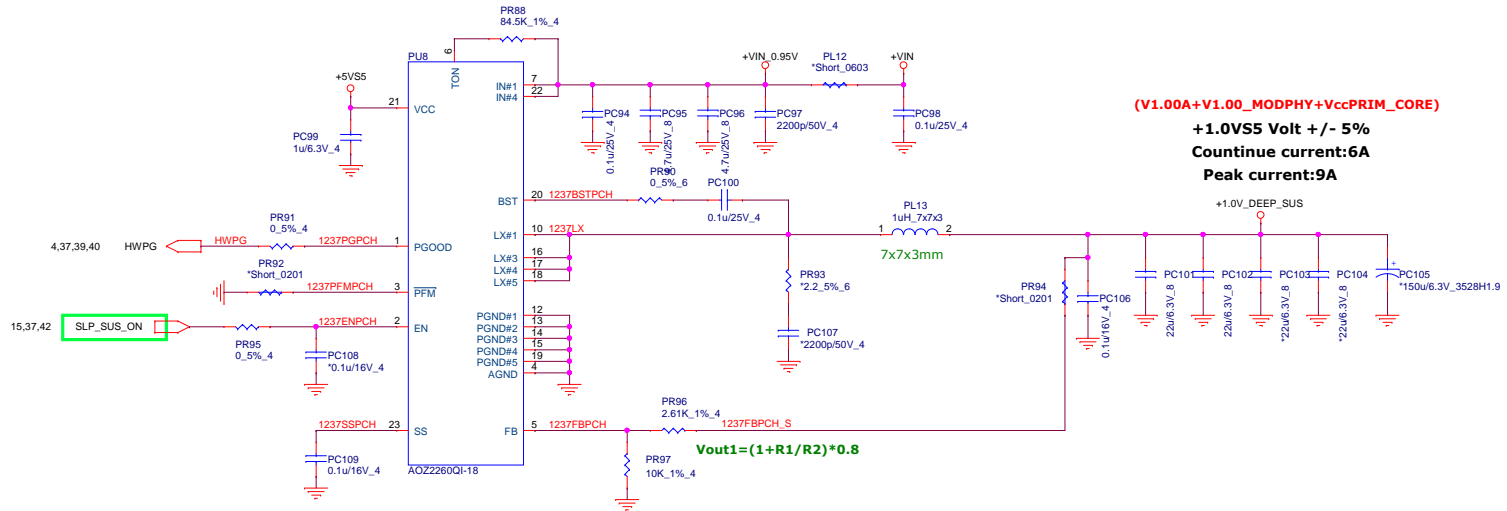
+VIN	27,33,35,38,40,41,44,45,46,47,50
+3VS5	4,10,15,32,36,37,40,41,42,48,51
+5VS5	4,28,31,32,35,40,41,42,43,44,46,47,48,51
+3VPCU	6,13,31,32,33,36,37,38,49
+5VPCU	28,38,48,51



+VIN 27,33,35,38,39,41,44,45,46,47,50
 +5VS5 4,28,31,32,35,39,41,42,43,44,46,47,48,51
 +1.2VSUS 3,6,17,18,42,48
 DDR_VTT 17,18



+VIN	27,33,35,38,39,40,44,45,46,47,50
+3VS5	4,10,15,32,36,37,39,40,42,48,51
+5VS5	4,28,31,32,35,39,40,42,43,44,46,47,48,51
+1.0V_DEEP_SUS	9,13,15,42
+1.8V_DEEP_SUS	9,15
MAINON	37,40,41,42,51
+1.5V	

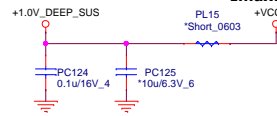


+1.0V	2,4,6,37
+3VSS	4,10,15,32,36,37,39,40,41,48,51
+5VSS	4,28,31,32,35,39,40,41,43,44,46,47,48,51
+VCCIO	2,6
+1.2V_SUS	3,6,17,18,40,48
+VCCSTPLL	2,4,5,6,9,43
+1.0V_DEEP_SUS	9,13,15,41
+1.2V_VCCPLL_OC	6
MAINON	37,40,41,51

Volume Segment
Vcc_ST: 0.12A
Vcc_PLL: 0.12A

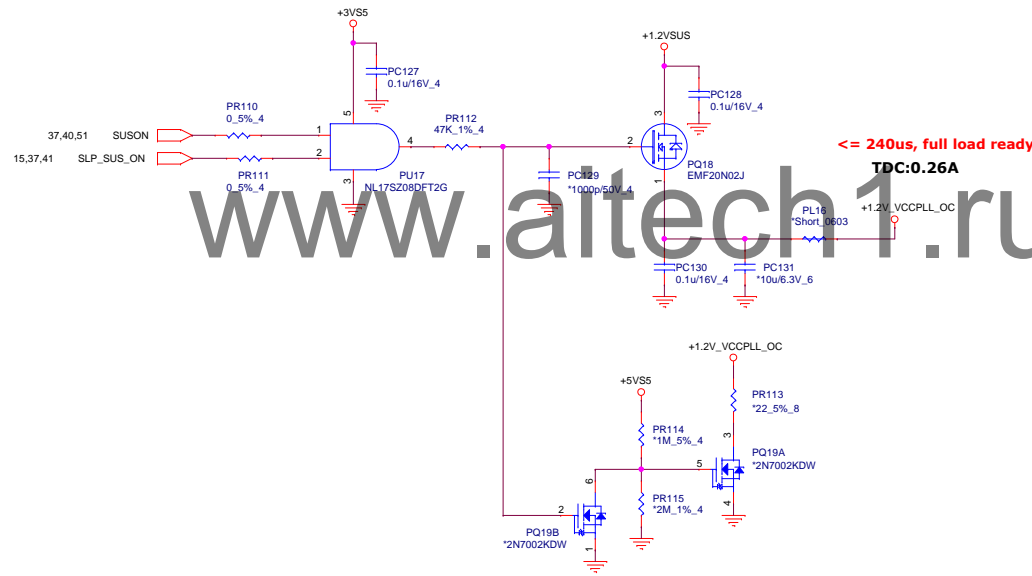
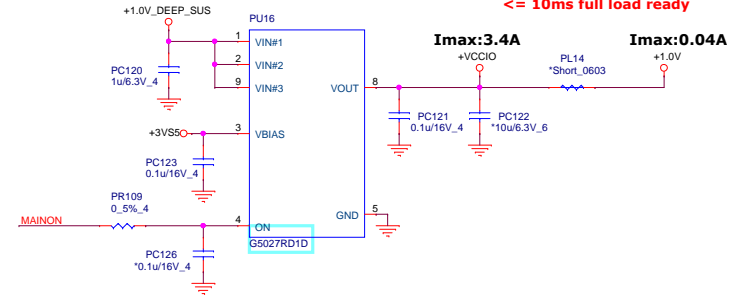
<= 10ms, full load ready
(Vcc_ST+Vcc_PLL)

Imax:0.24A



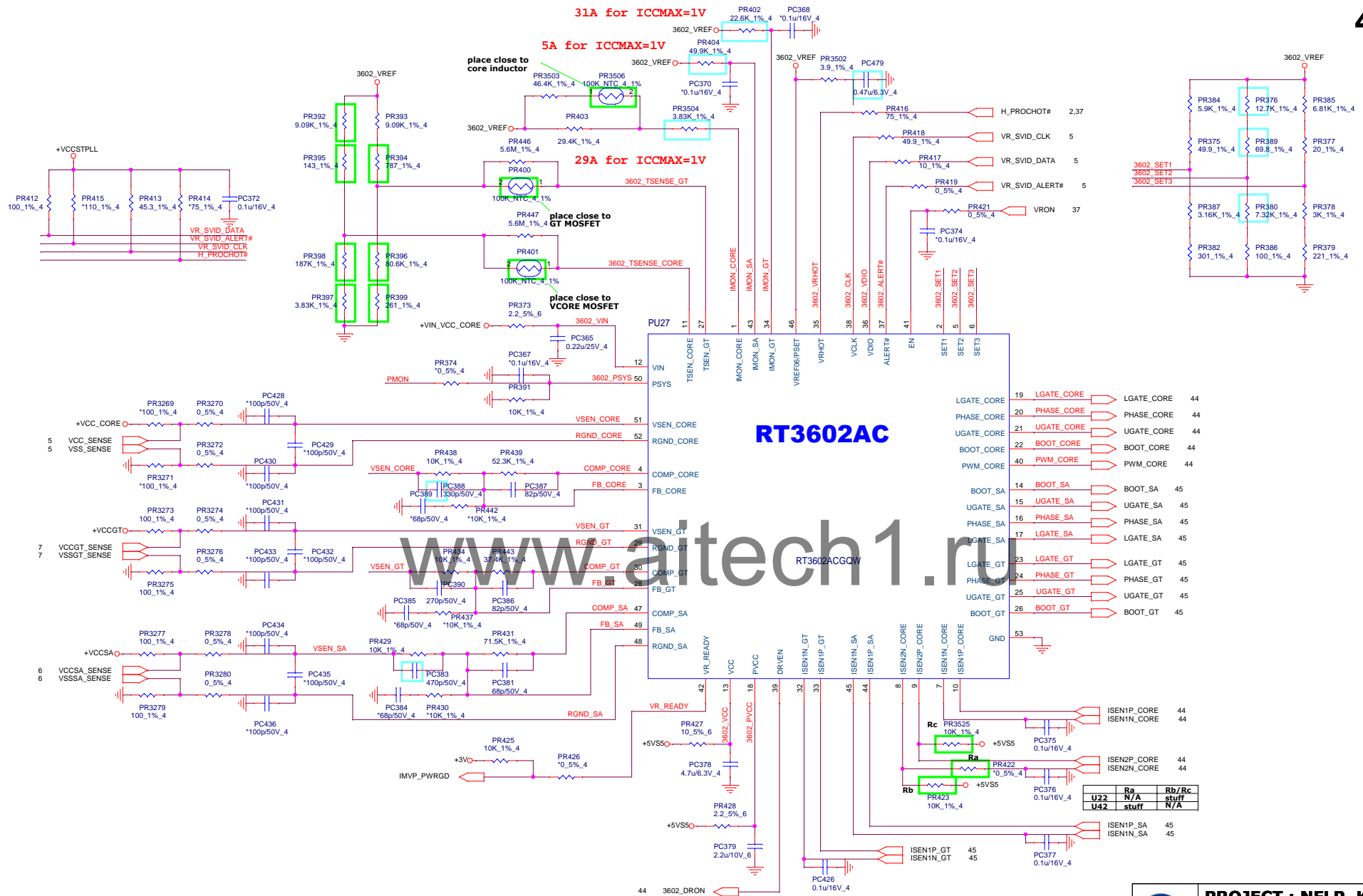
Volume Segment
Vcc_STG: 0.04A
Vcc_IO: 3.4A

<= 10ms full load ready

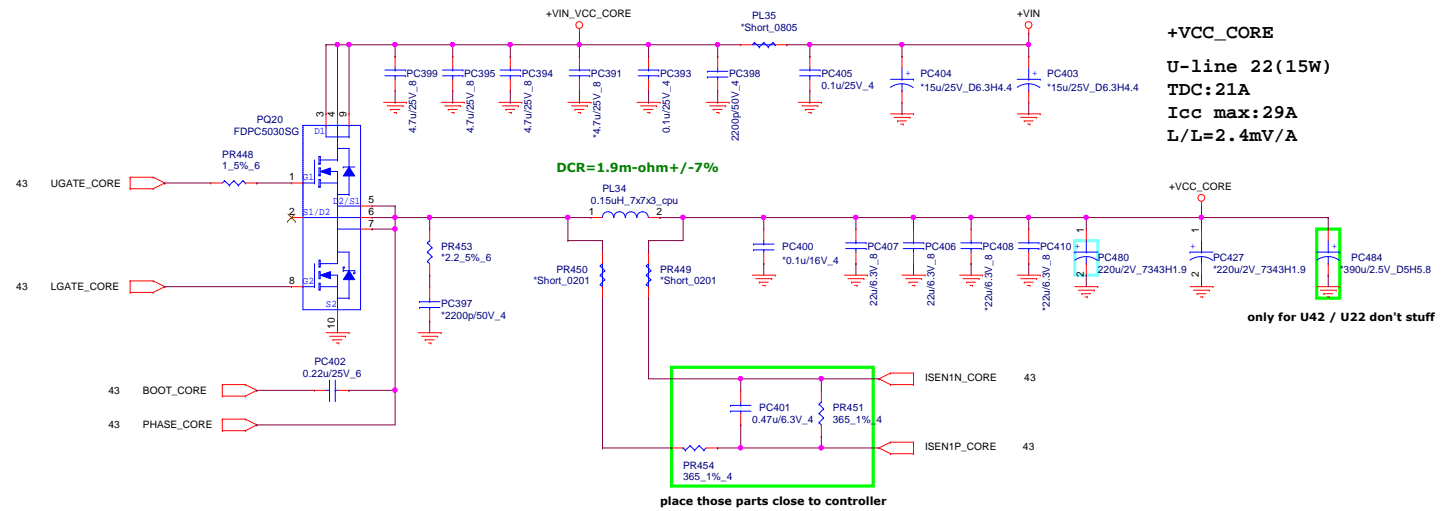


<= 240us, full load ready

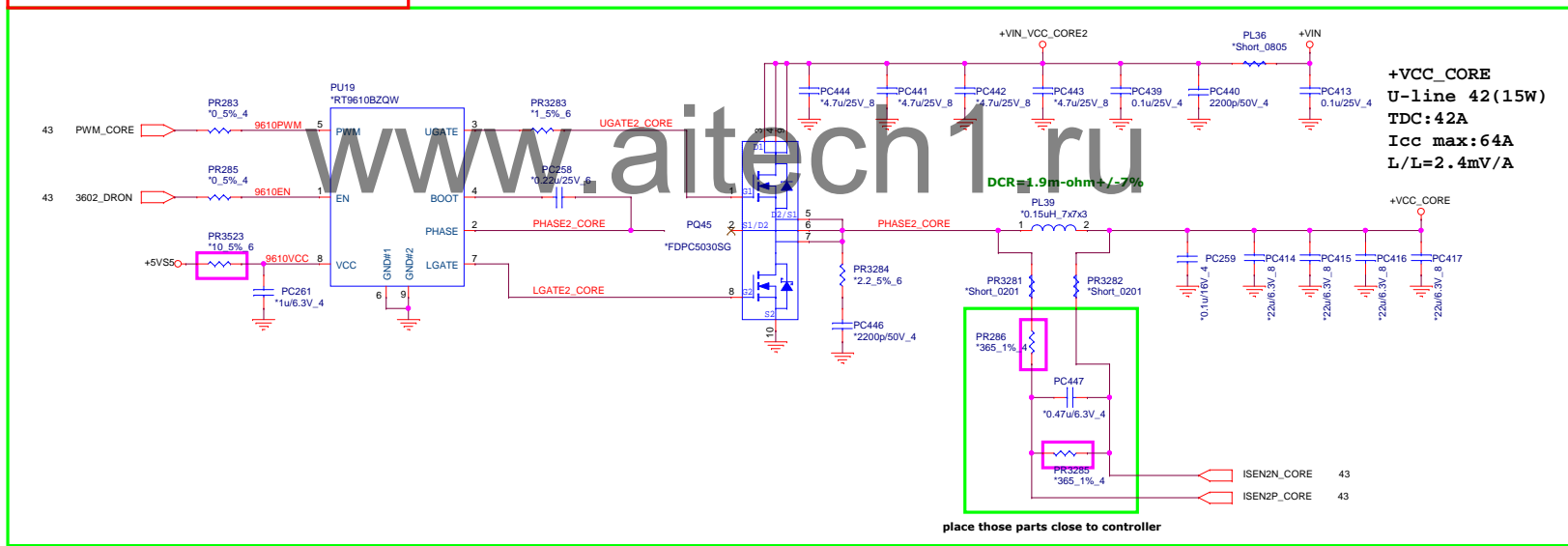
TDC:0.26A



+VIN 27,33,35,38,39,40,41,45,46,47,50
+5VSS 4,28,31,32,35,39,40,41,42,43,46,47,48,51

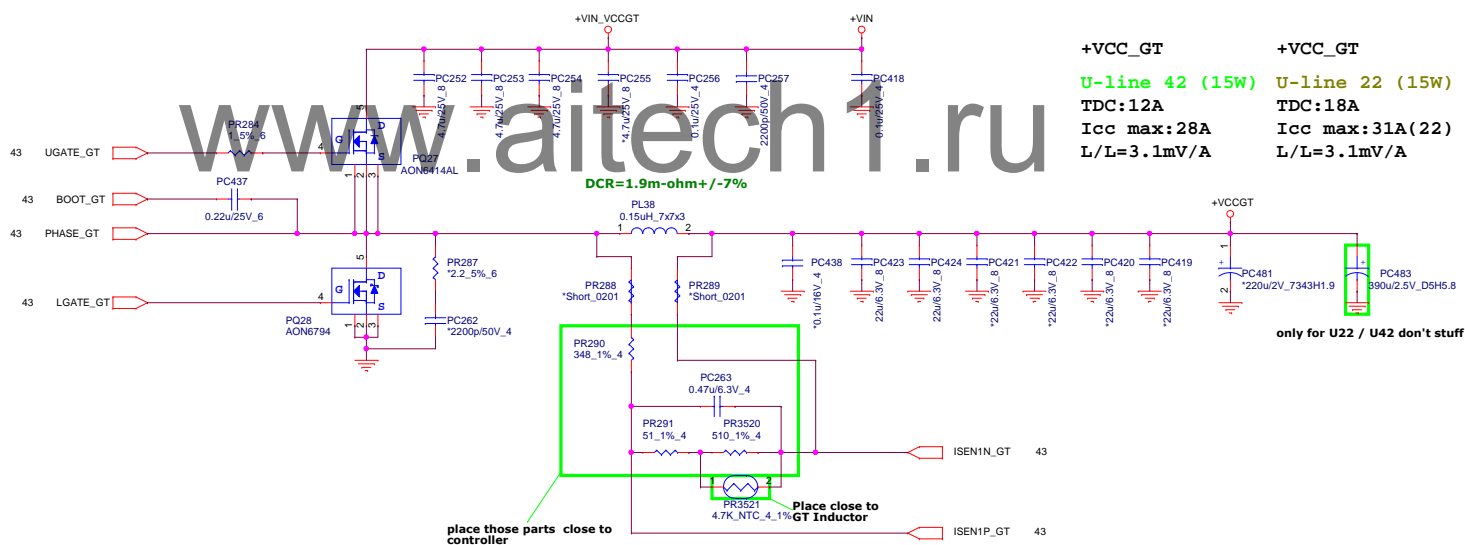


For U42 --> Add These Components

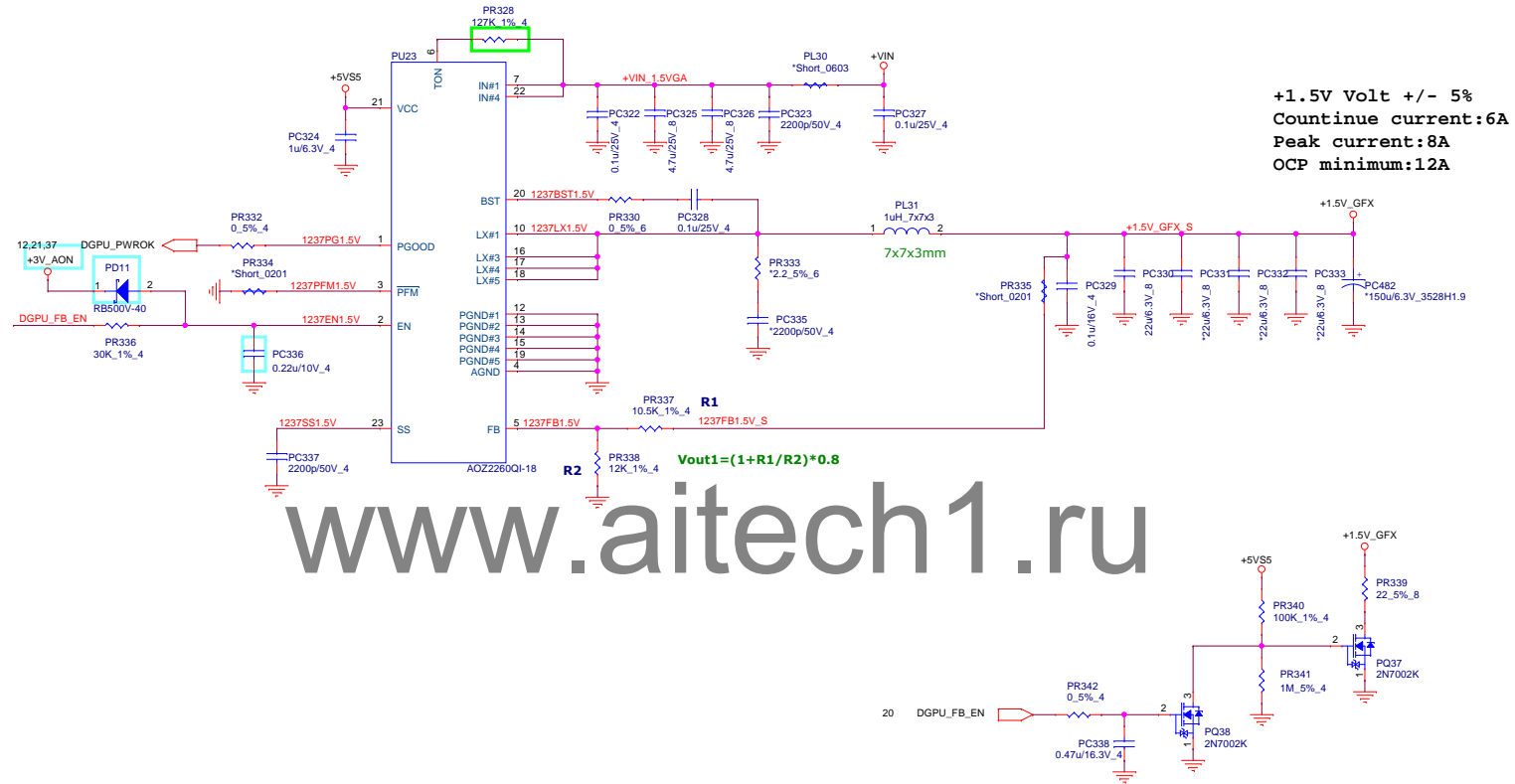


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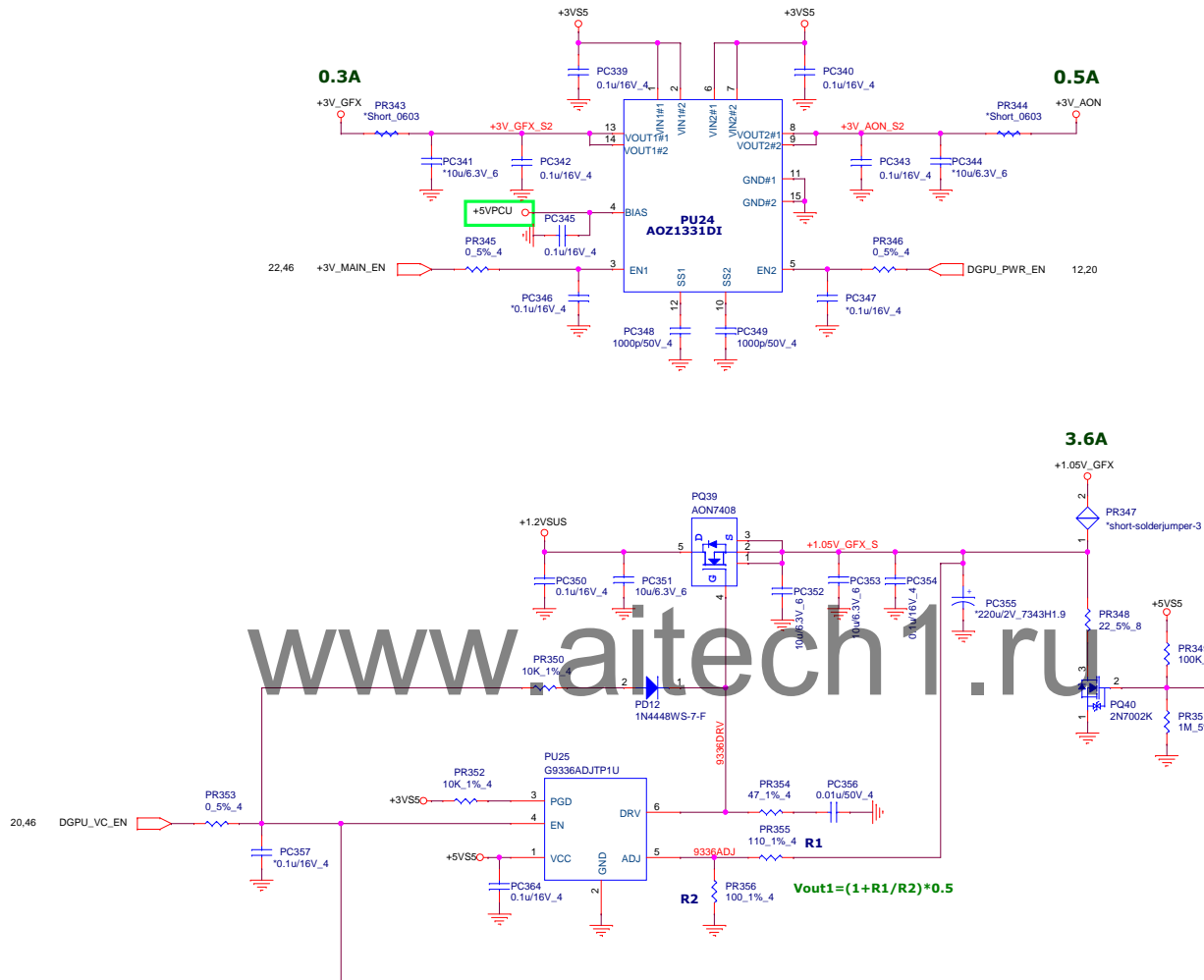


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 +1.5V_GFX 20,21,23,24,25,26

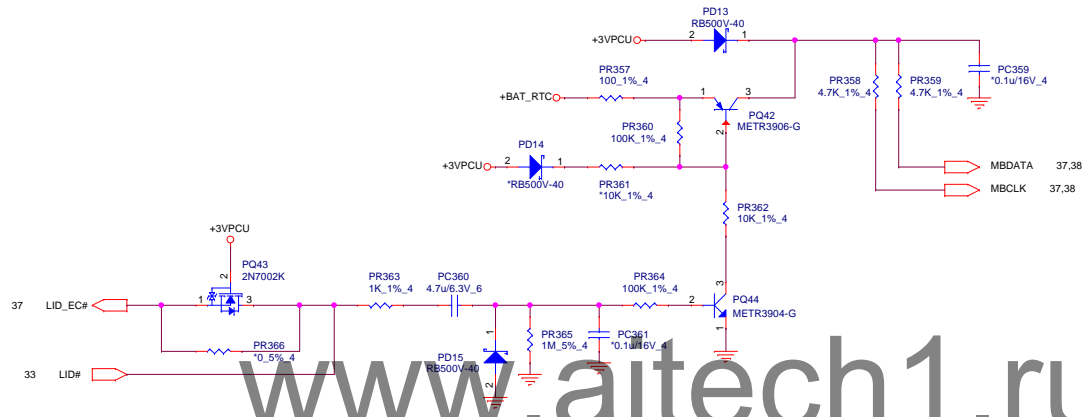


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+VIN	27,33,35,38,39,40,41,44,45,46,47,50
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+5VS5	4,28,31,32,35,39,40,41,42,43,44,46,47,51
+3V_GFX	19,21,22,46
+3V_AON	19,22,47
+1.2VSUS	3,6,17,18,40,42
+1.05V_GFX	19,20,21



+3VPCU 6,13,31,32,33,36,37,38,39
+BAT_RTC 4,13,15,33,38



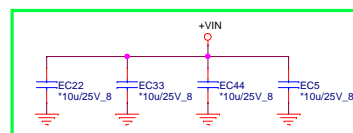
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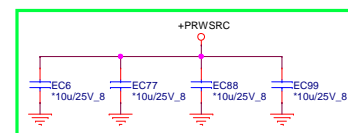
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EMI request for ISN



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