

Model Name: GA-Z77-D3H

1.2

SHEET

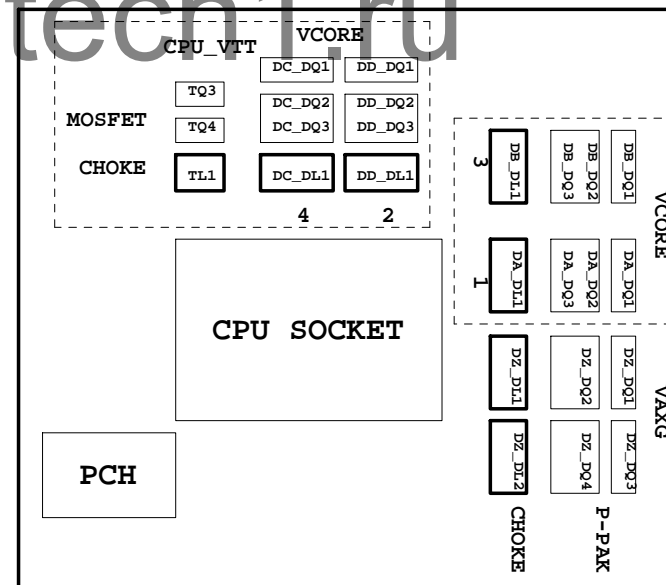
TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*3 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS , TPM SLB9635TT
21	VT2021 CODEC
22	REAR AUDIO JACK
23	VCORE PWM_IR3564
24	VCORE PWM DRIVER IR3598
25	NCP3933 OVER VOLTAGE
26	DISCRETE POWER
27	DDR_15V & CPU_VTT PWM IR3570

SHEET

TITLE

28	DDR_15V & CPU_VTT PWM DRIVER CHL8550
29	VCCSA POWER
30	F_PANEL , F_USB2.0/3.0
31	ATX POWER, CLOCK GEN
32	HWM , KB/MS , FAN CTRL
33	LAN ATHEROS AR8151
34	N/A
35	M-SATA
36	DVI
37	HDMI , R_USB30
38	TABLE LIST
39	
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Title		
Cover Sheet		
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GA-Z77-D3H

Component value change history

Data	Change Item	Reason
0.1-1124	E-BOM	
02-1216	1. ADD PCH_HS & MOS_HS料號	
	2. PCIE gen2 switch PI3PCIE2415ZHE --> ASM1440	
	3. load-line DAR5=12K , DAR40=1.78K	
10A-0105	1. Z77料號更新	
	2. PWM Driver power vcc or +12V?	
	3. DART2 --> 47K/1/4/S , DAR44 --> 0 ohm	
10B-0113	1. Vcore & VAXG VSEN modify , DAR1,DAR51=100/4/1,DAR2,DAR54=0/4,DAC1,DAC24=3.3nF	
	2. 1.54K加替料:10RC4-001541-22R TA-I	
	1. Remove IR PWM 1X3 pin	
10C-0117	1. DA_DR11,DC_DR11,DZ_DR18 1ohm --> 0ohm	
10D-0119	1. Prochot R65 : 1.65K/4/1 --> 2.74K/4/1	
10E-EVT-0201	1. Modify choke=0.36uH , DRIVER=5V	
10F	1. IR3564要改用新料號03R	
	2. poochot change 100K	
10T	1. 0 OHM Short-pad	
	2. DDR3 FOR OC 2400MHz UP	
10G-1.01	0. PCB Rev1.0 --> Rev1.01 (DDR3 OC 2400MHz+)	
	1. RS_PWM相關線路移除 (若有上prochot pull up改100 ohm)	
	2. Add M/B ID for DDR3 OC	
	3. 固態電容區分100uF/6.3V & 100uF/16V	
10H-1.02	1. PCB Rev1.01 --> Rev1.02 (DDR3 OC 2800MHz+)	
	2. Add M/B ID for DDR3 OC	
	3. ADD DC79 FOR A_CPUPWROK	
	4. 100u 16V-->6.3V	
10I-0430	1. PWM IR3564 --> IR3564A	11C-0709 1. EJ168 10HP2-800168-20R --> 10HP2-800168-10R
	2. Remove DAESD1	11D-0824 1. U8 NCT3931 --> NCT3933 2. M/B ID OR7,OR51 --> OR15,OR48 3. Remove DAEP1 1*3 pin
	3. RJK0393DPA 10IF9-040393-01R --> 10IF9-040393-11R	11E-1219 1. USB_LAN "11NR6-702009-06R" --> "11NR6-702009-96R"
11B-0703	1. EJ168 update料號:10HP2-800168-20R 1. VCC1_05_PCH 1.05 --> 1.1V	12A 2. Remove LAESD1 1. Remove Vitu MVP

Circuit or PCB layout change

DATE	Change Item	Reason
P67X-UD3-B3		
2011/02/18-0.1	1. 移除LAR11 ,LAR14 , NR28 ,新增NTPT11	
2011/02/18-1.0	2. 新增DR388,DR389,DR391 ; Remove DQ49,DR347,DR371 3. CR44改成R0603-RH 4. R1,LAR3,RBR20,LABC25 -->R0402-2-SHORT 5. RAQ1 --> Q_TO223-MASK 6. RARN1 --> R8P4R-0402-SHORT 7. CESD1-5 --> SSOP5 8. RAQ2,RAEC1一起往下移40mil 9. CESD2文字面要標pin1	
2011/03/8-1.01	1. Add "Dolby" logo	
2011/03/8-1.02	1. UAFB1,UAFB2,UBF1,UBF2 Footprint update 1206-->1812 2. Add "AD1" FOR 5VSB	
Z68XP-D3		
1.0	1. update MINI_PCIE footprint 2. 文字面 : SLOT部分全對齊	
Z77-D3H-0.1	EVT	
0.2-1216	1. Remove SE9172 , Add VCC3 內層(注意其他內層power,跨切割) 2. SPDIF AGND --> GND 3. PCI SLOT & PCIEX1/X4 CAP COST DOWN 4. 0 ohm --> SHORT PAD 5. REMOVE SMBUS FROM COMP TO SOLDER SIDE IN DR POWER 6. SATA3 connect Change to 90 degree (記得SATA3訊號部分要做挖空) 7. Add "108dB"文字面 8. Remove VCC1_05_PCH & VCC1_8_PCH gate net 9. Add EJ168 R_USB30_1 & F_USB3 10. UAE1/UAE2 NET SWAP 11. 內層+12V要打VIA在COMA處 12. SPDIFO_HDMI走12mil	
1.0	1. SATA2-SATA3文字面要隱藏 2. DART2 移至 DC_DQ1左上方 3. Q7 & DAR31 NET Change	1.2 1. 移除 Virtu MVP
1.01	1. 0 OHM SHORT PAD (LAN & AUDIO) 2. DDR3 2400MHz OC modify (DDR3 DQ 走T型)	
1.02	1. DDR3 2400MHz OC modify (縮小DDR3間距)	
1.1	1. F.B "FB0603-RH" change to "FB0402-RH" 2. ATX_12V_2X2 change to ATX_12V_2X4 3. ATRSI08 LAN ARSI61 CO=layout 4. Add pwok R200,BC9 放在ATX 端 5. msATA LAYOUT 龍華& FOXCONN CO-LAY(變更FOOTPRINT) 6. For USB3.0 eTron EJ168A 0.11um modify (UBU1 pin88/89) 7. add VCC1_05_PCH over voltage control	
1.11	1. Remove ITE8728 GP66 For Exp Function	

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BOM & PCB MODIFY HISTORY

Title

Document Number

GA-Z77-D3H

Rev

1.2

Date:

Tuesday, July 30, 2013

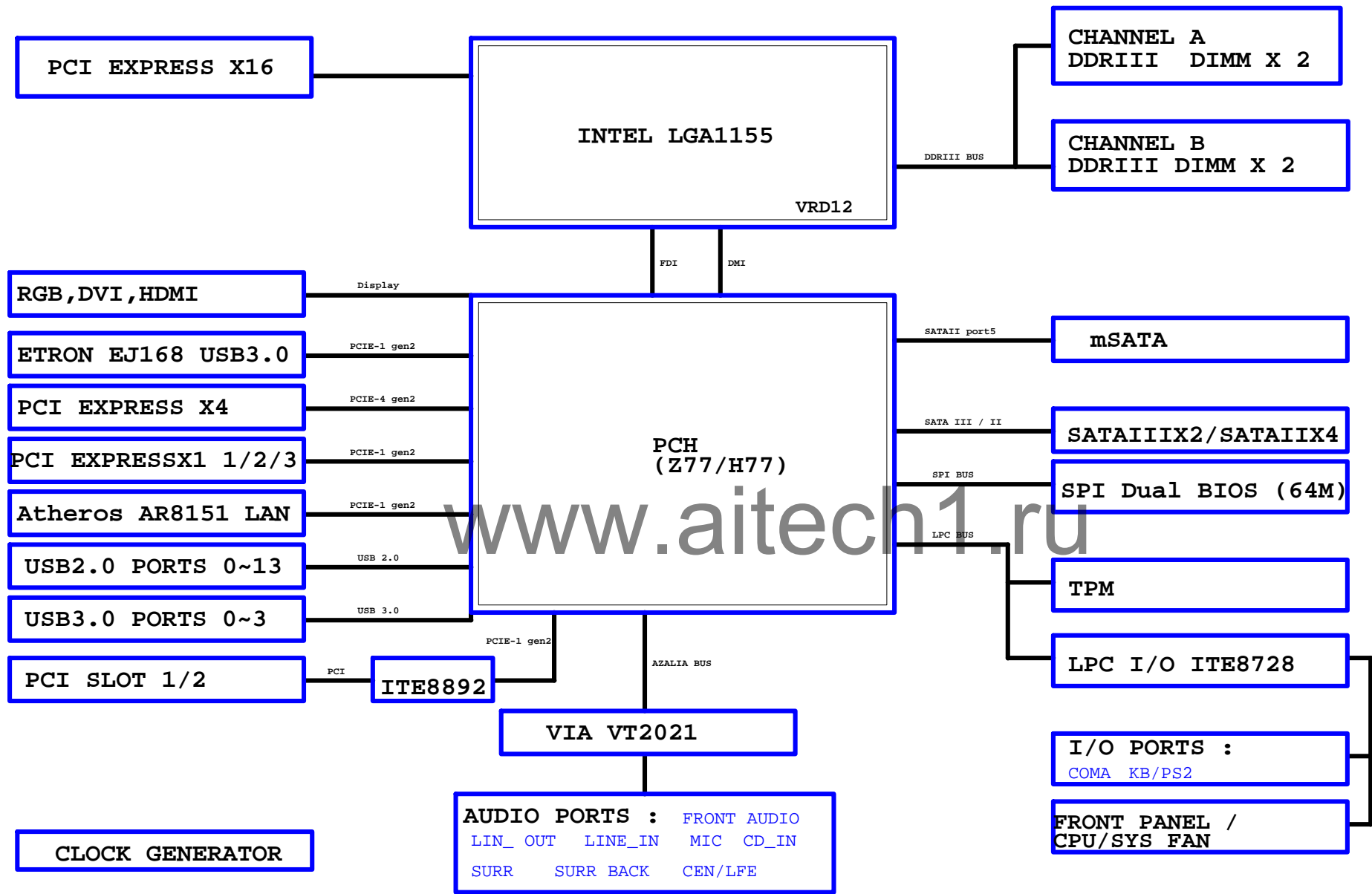
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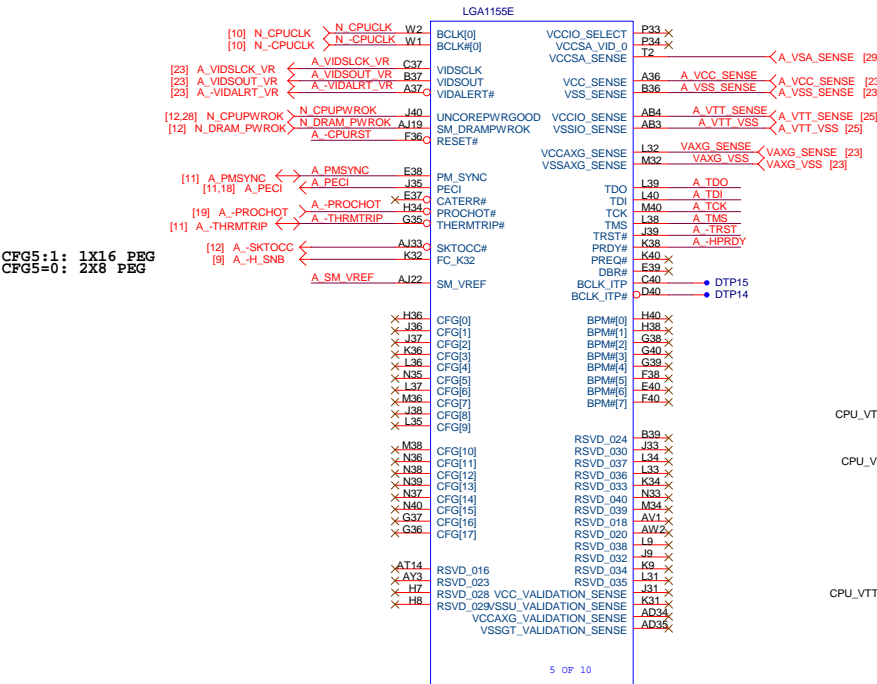
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BLOCK DIAGRAM



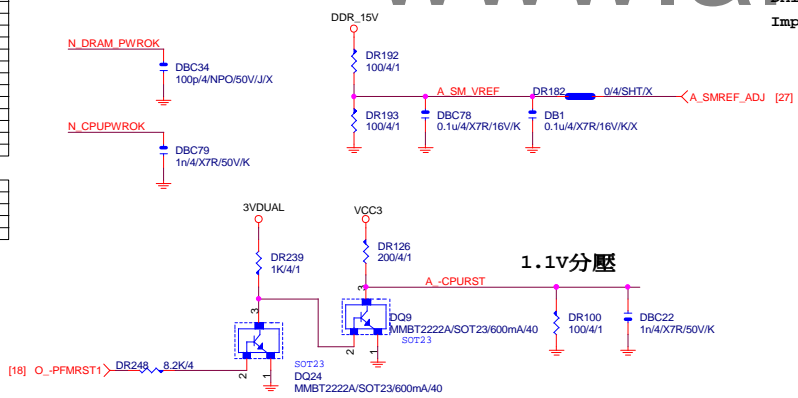


CFG5:1: 1X16 PEG
CFG5:0: 2X8 PEG

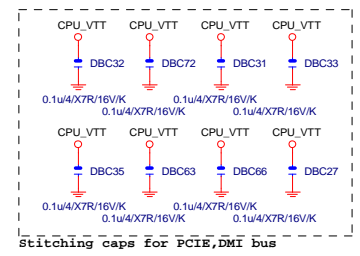
CFG	R	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	RSVD	RSVD	RSVD
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8 ,X4 ,X4

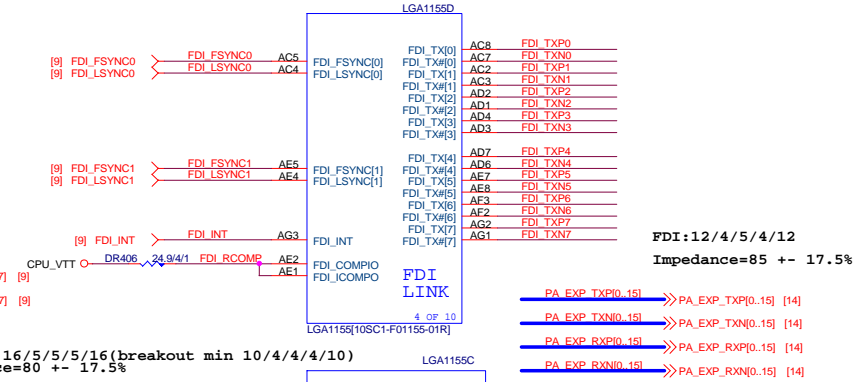
CFG 0-17 all internal PULL-UP



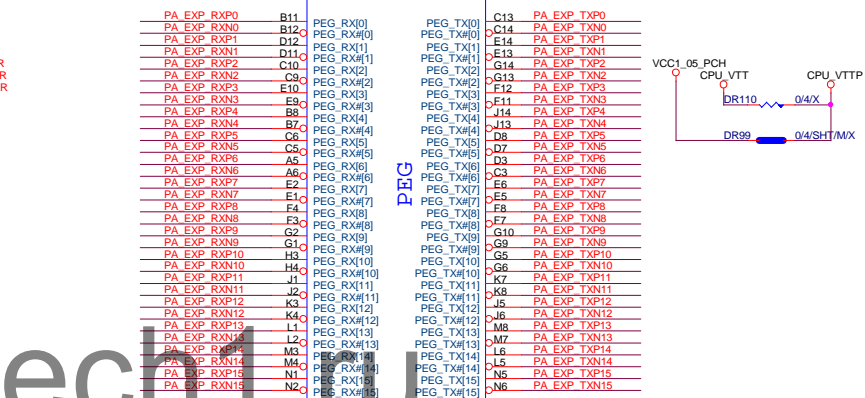
(18) O_PFMRS1# DR248 8.2K/4



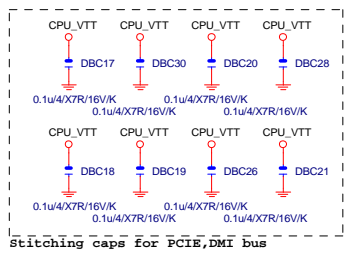
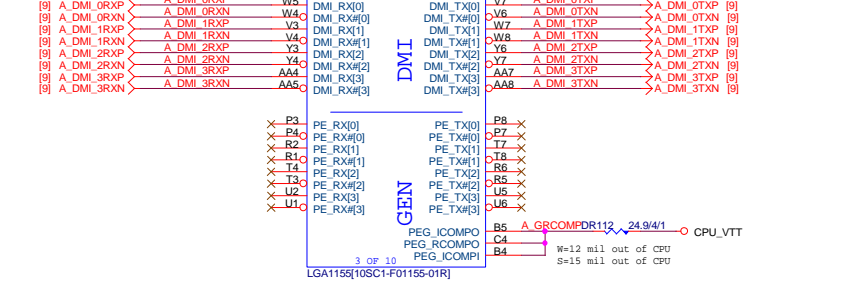
Stitching caps for PCIe, DMI bus



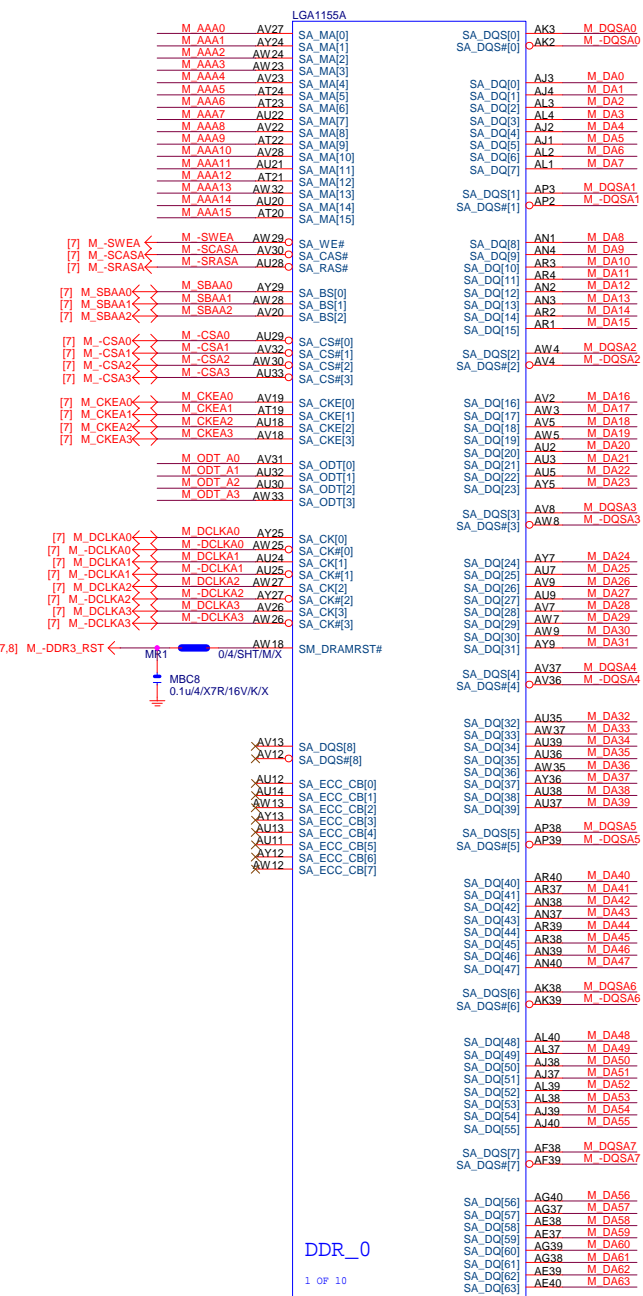
PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



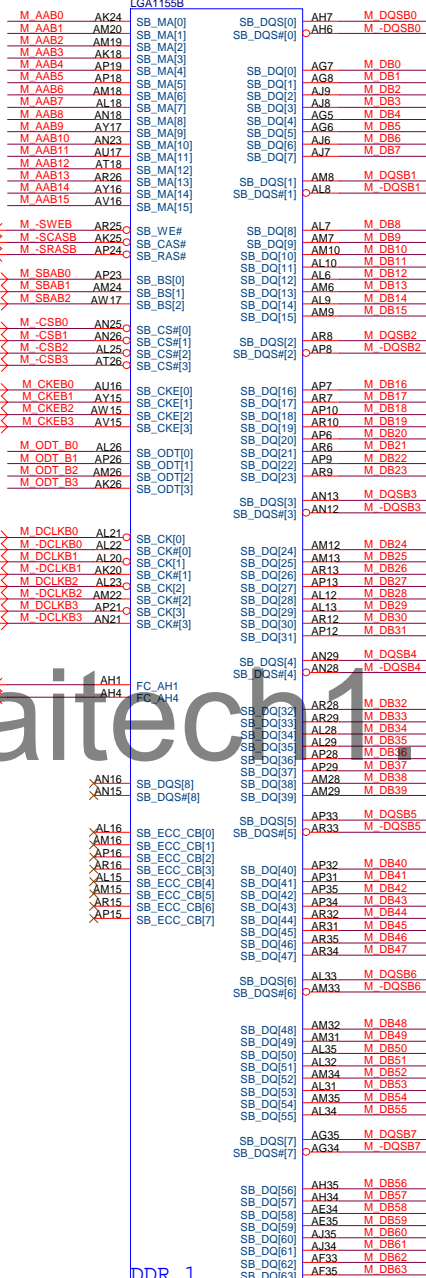
DMI:12/4/5/4/12
Impedance=85 +- 17.5%



Stitching caps for PCIe, DMI bus

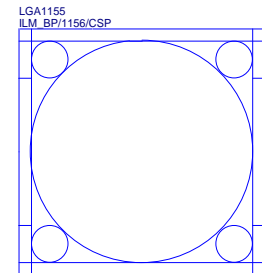


LGA1155[10SC1-F01155-01R]

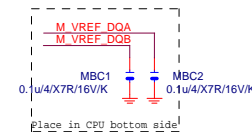


DDR_1

LGA1155[10SC1-F01155-01R]



Need check the new CPU ME

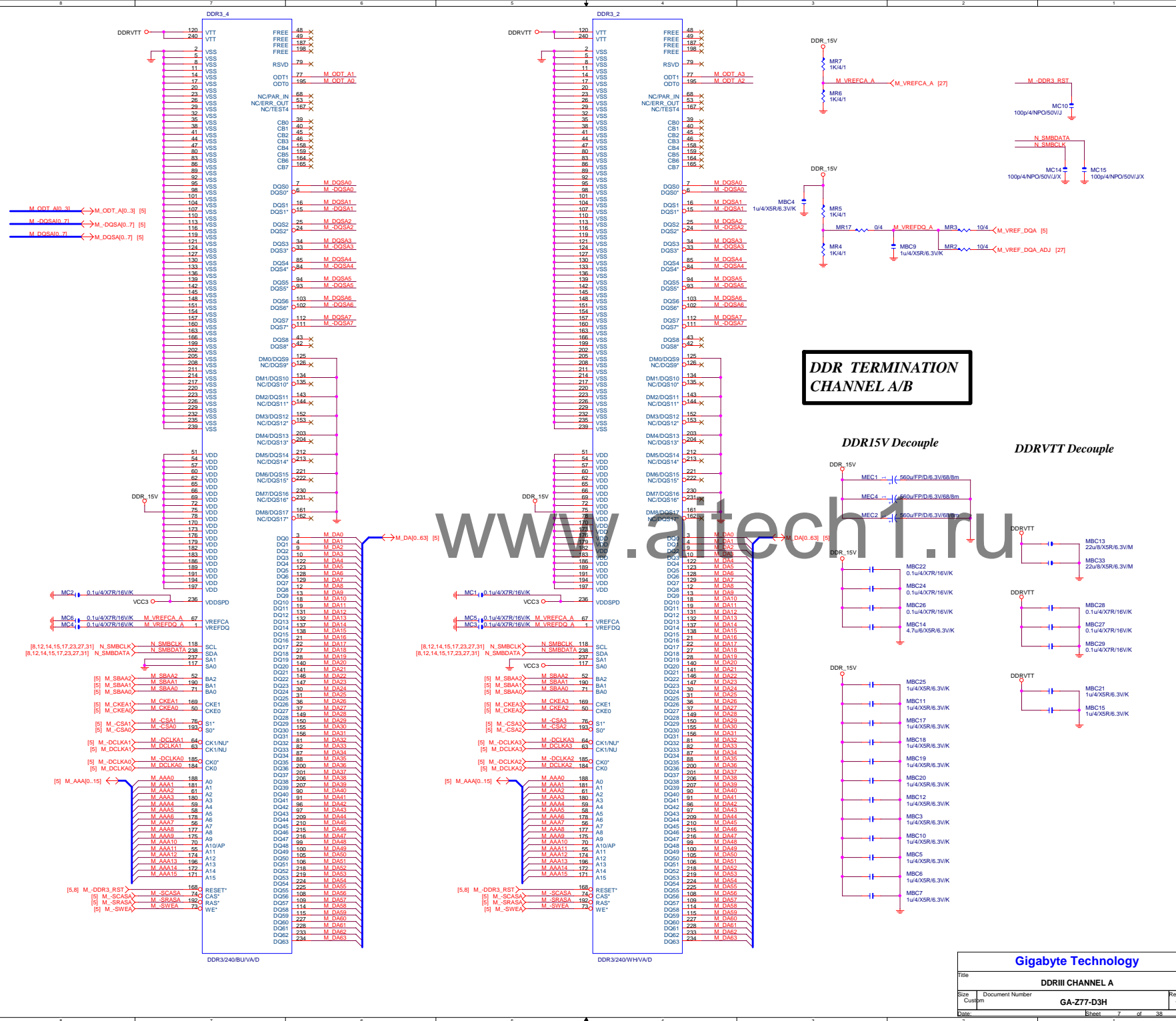


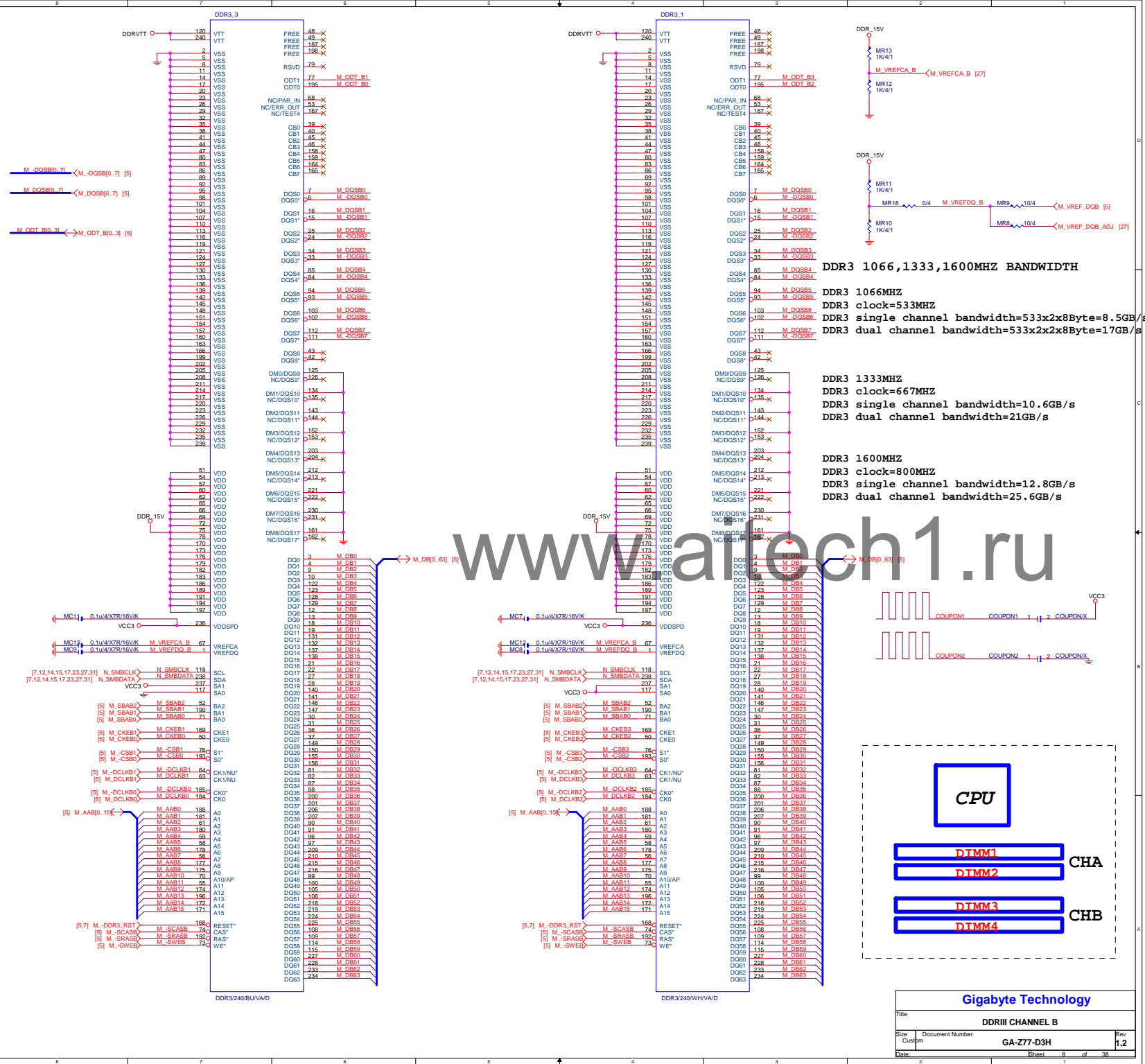
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CPU LGA1156-B

Size Custom Document Number GA-Z77-D3H Rev 1.2

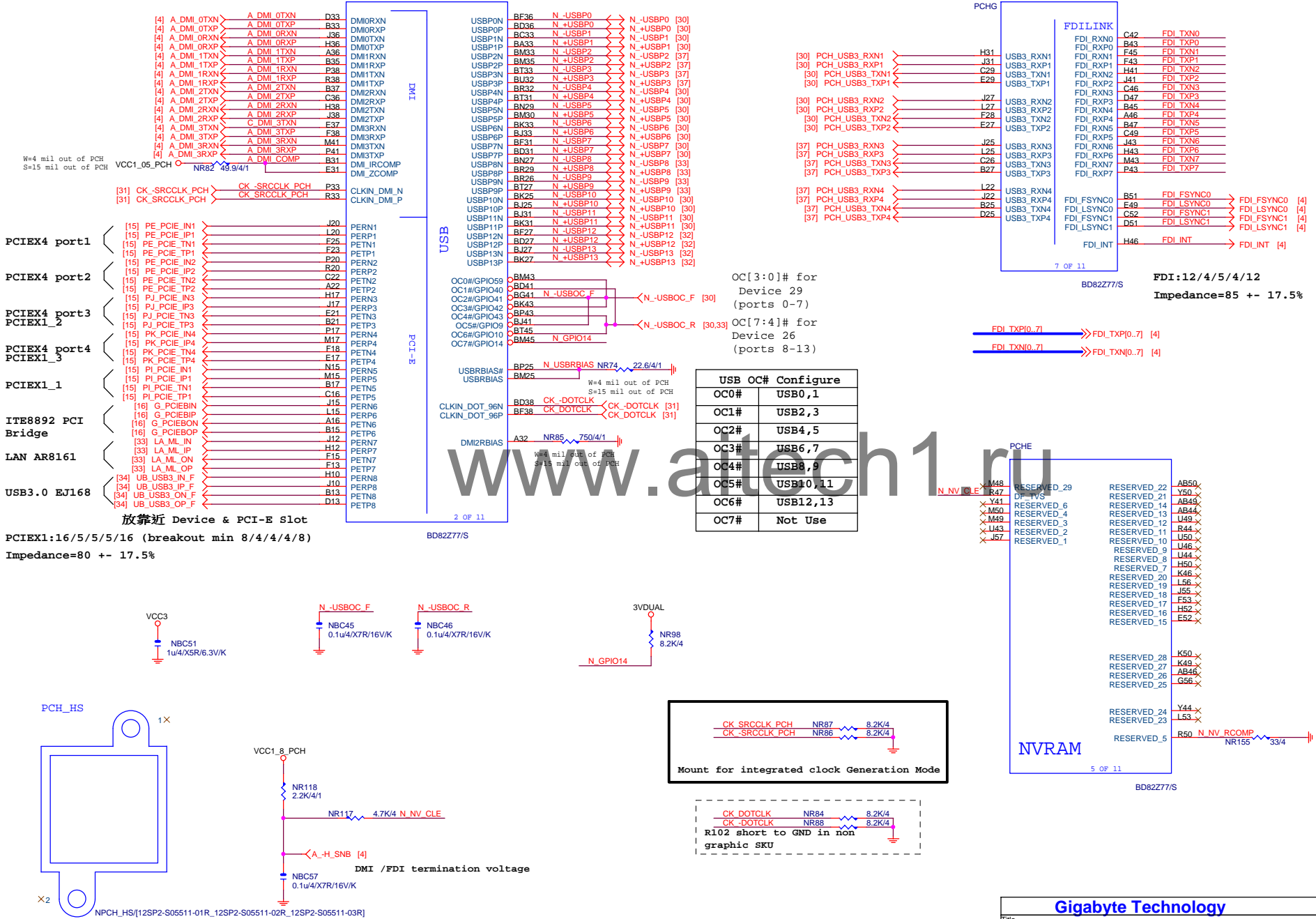
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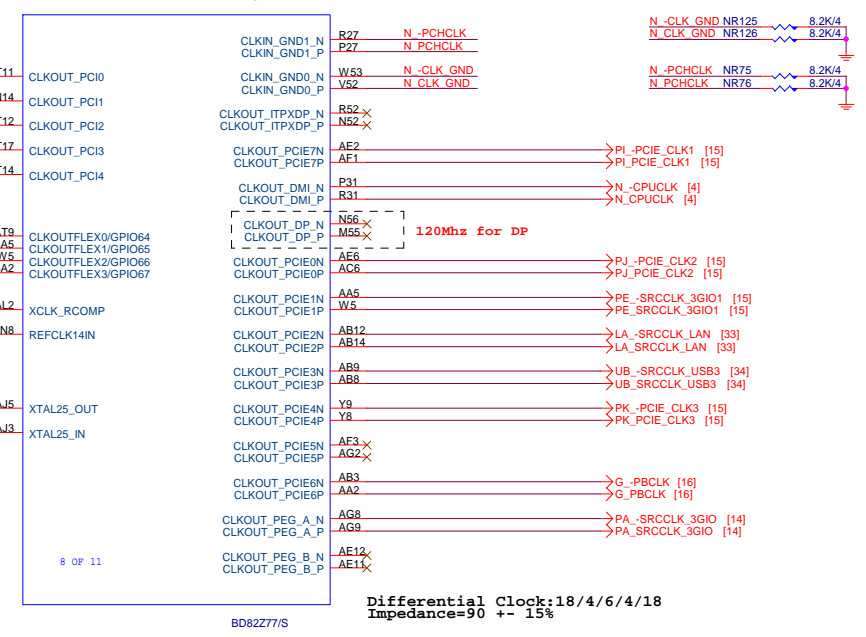


USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



USB OC# Configure	
OC0#	USB0_1
OC1#	USB2_3
OC2#	USB4_5
OC3#	USB6_7
OC4#	USB8_9
OC5#	USB10_11
OC6#	USB12,13
OC7#	Not Use

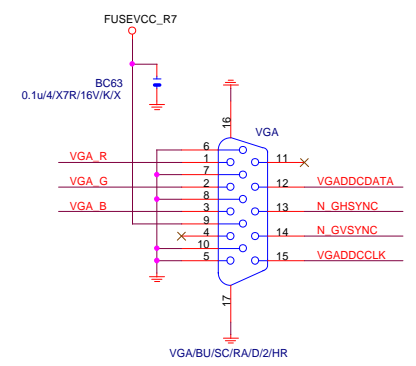
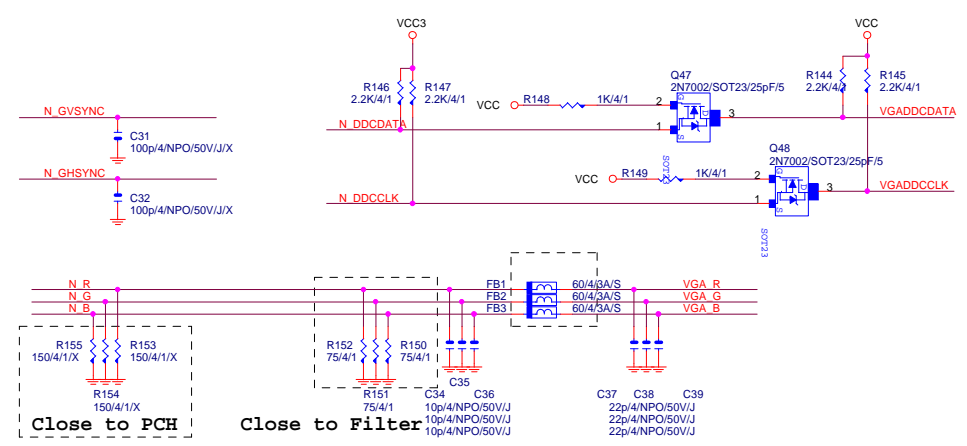
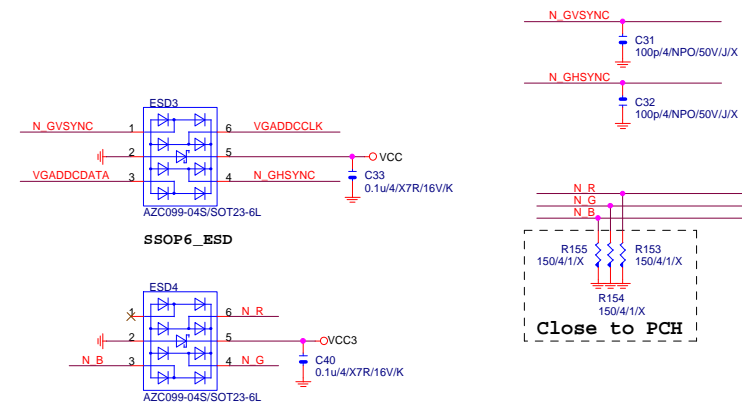


Differential Clock:18/4/6/4/18
Impedance=90 +- 15%

Mount for integrated clock Generation Mode



Check if NC for P67 non graphic chip



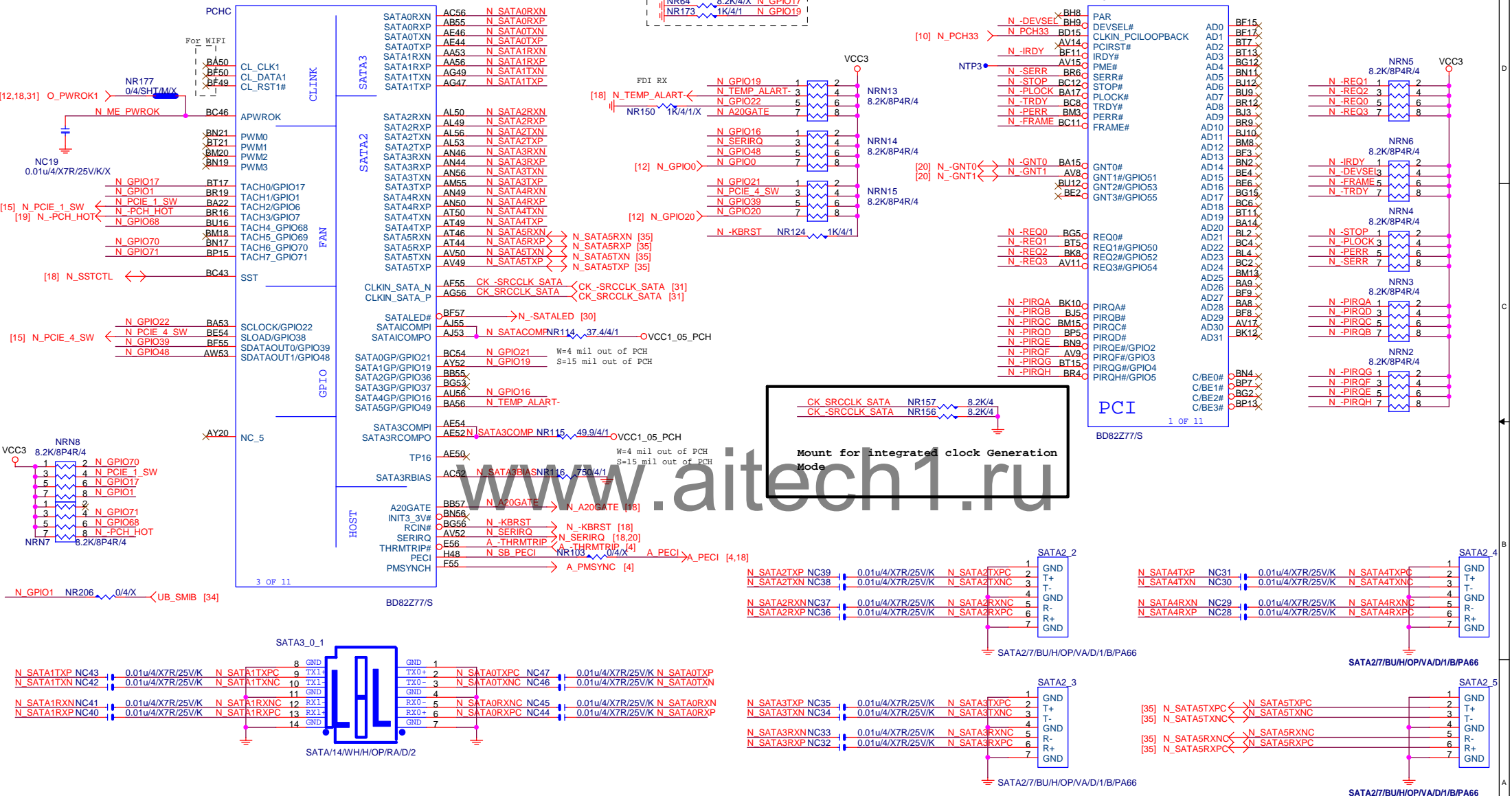
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)

Impedance=90 +- 17.5%

SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)

Impedance=90 +- 17.5%

MB-ID



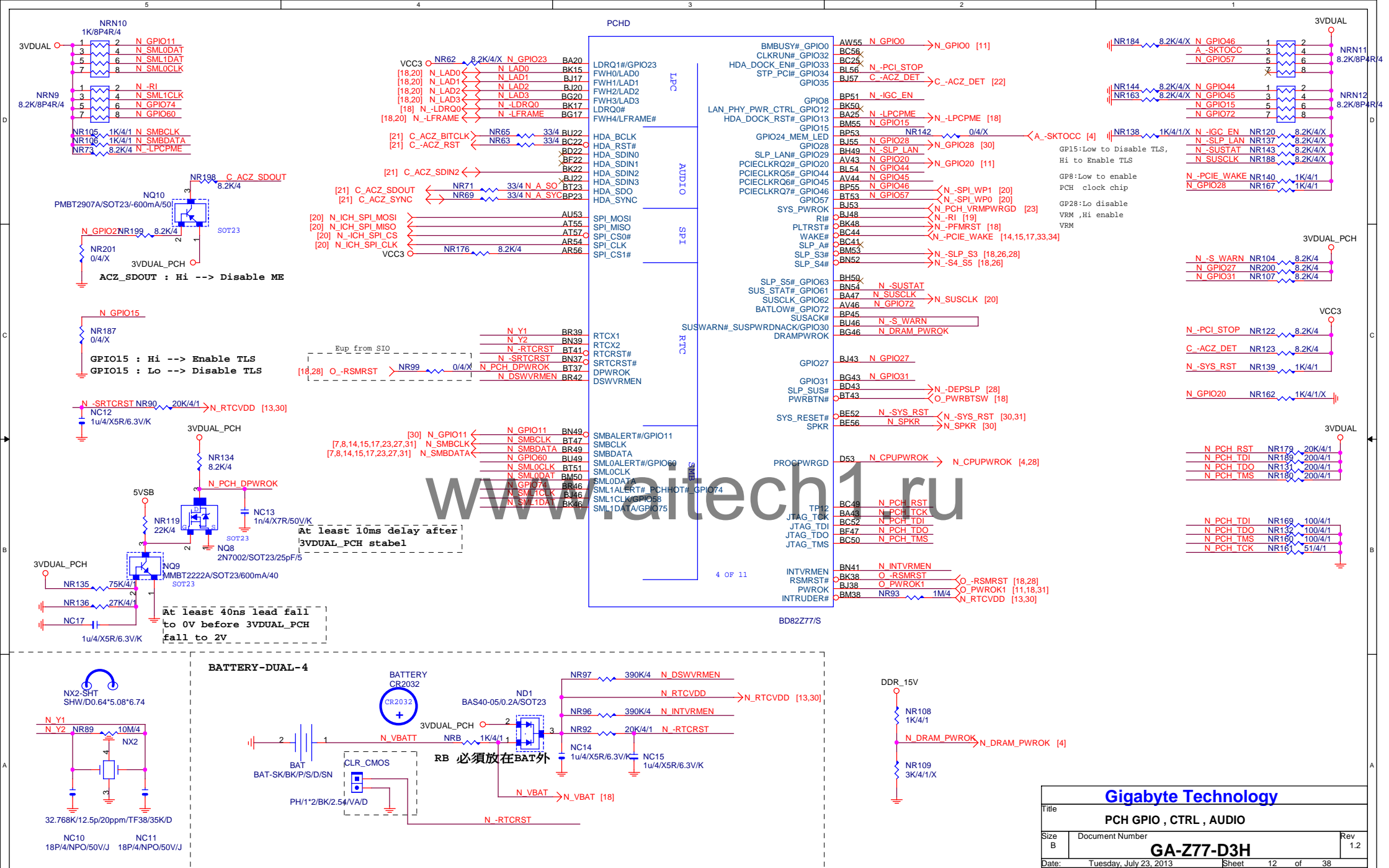
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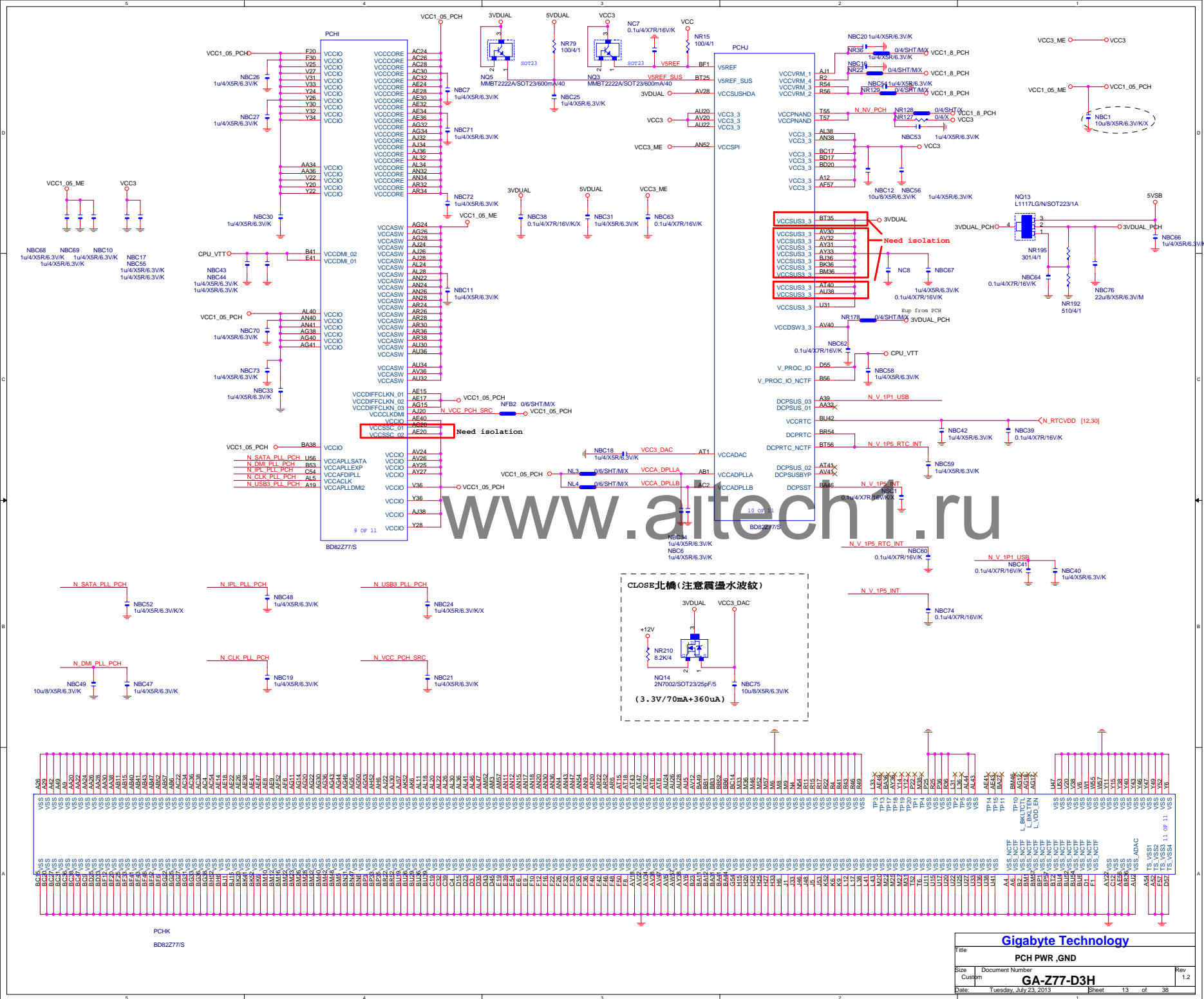
PCH HOST , SATA, PCI

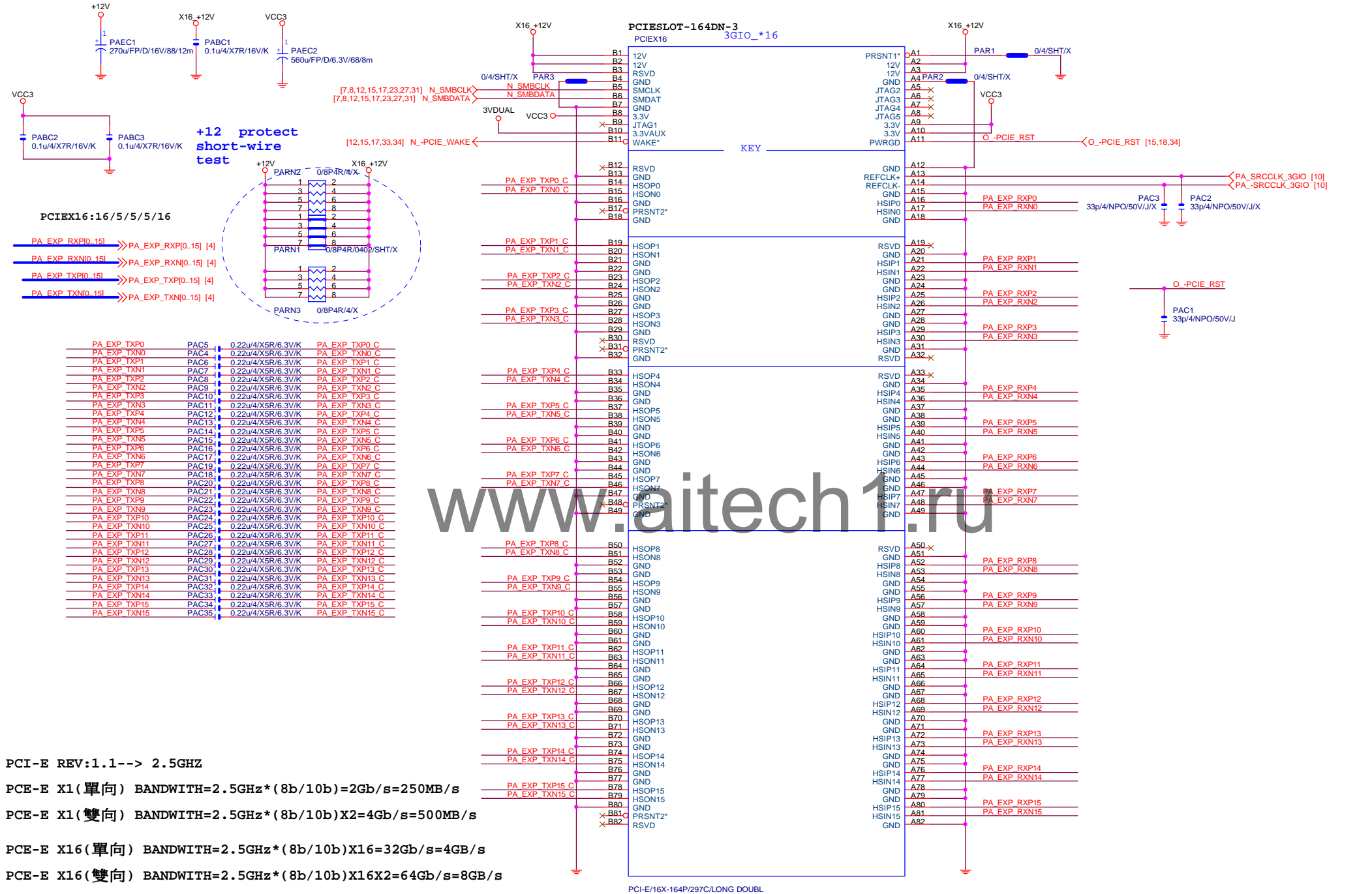
Size B Document Number

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PCI-E REV:1.1--> 2.5GHZ

PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

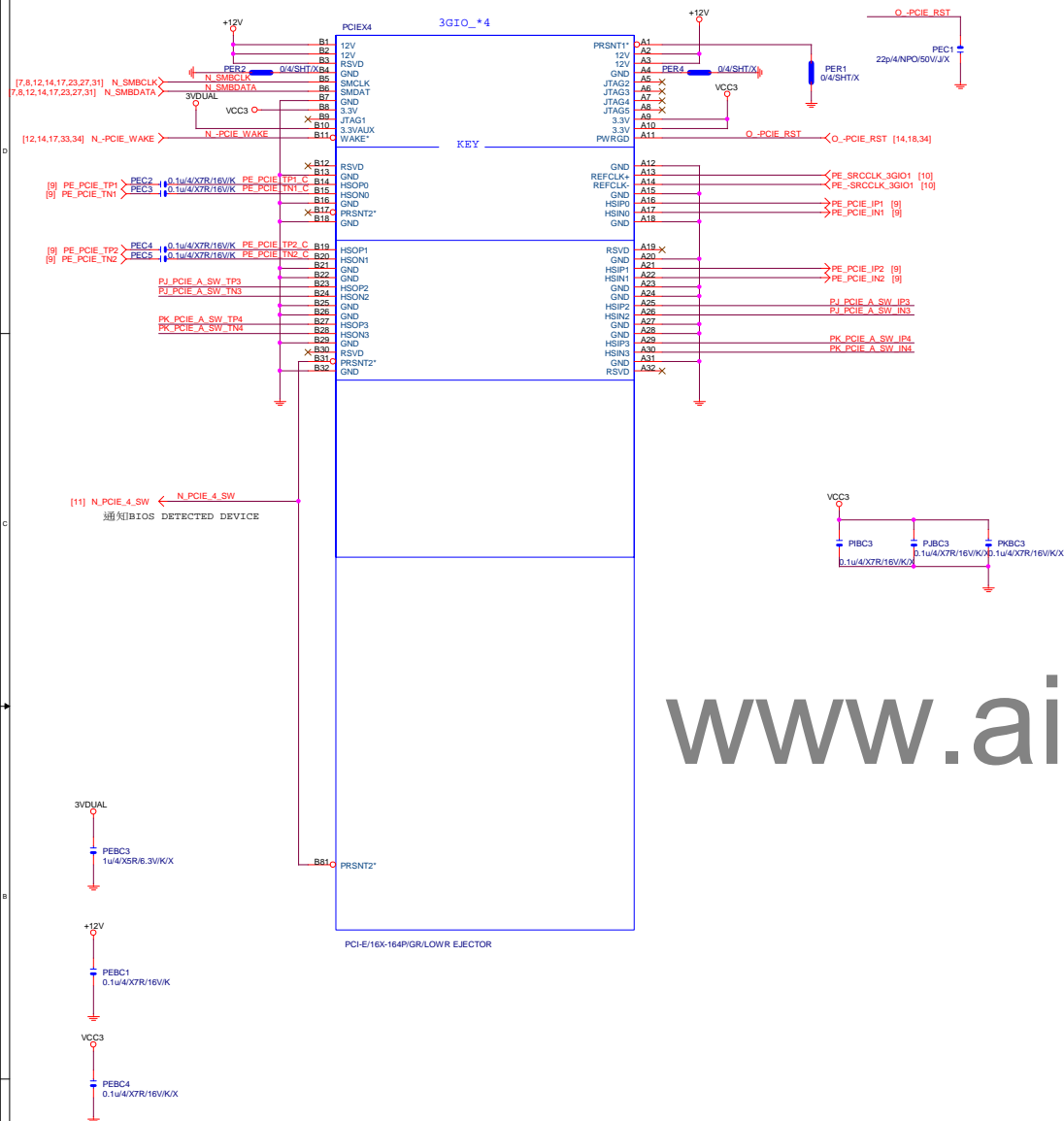
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

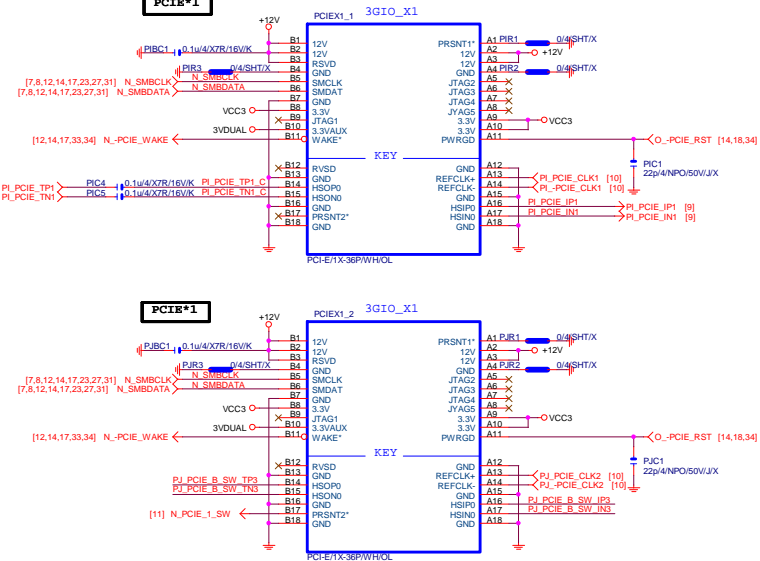
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Title			
PCI EXPRESS * 16			
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PCIE*4

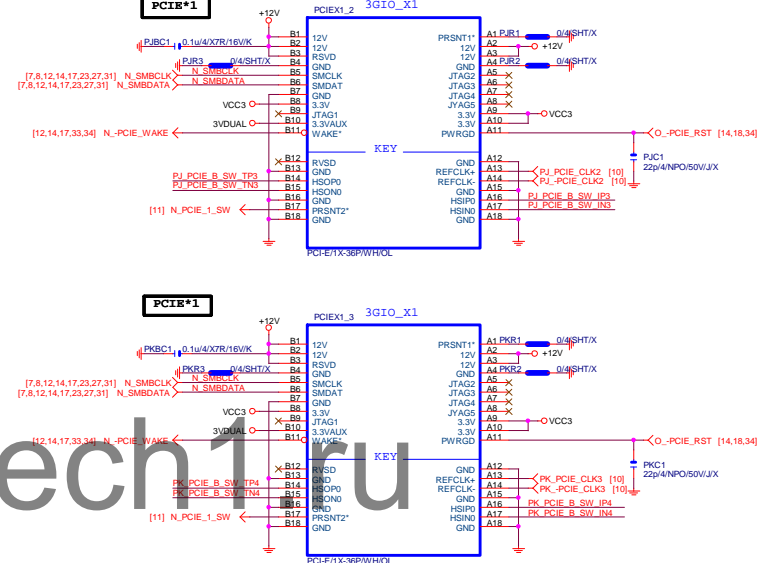


	N_PCIE_4_SW (PCH GPIO38)	PCIE_X4_X1 (SIO GPIO26)
P_Cult --> X1	H	H
PCIE_X4 No devices		
PCIE_X4 -> X1	H	H
PCIE_X4 Have devices		
PCIE_X4 -> X4	L	L
PCIE1_2/PCIE_X1_3 --> N/A		

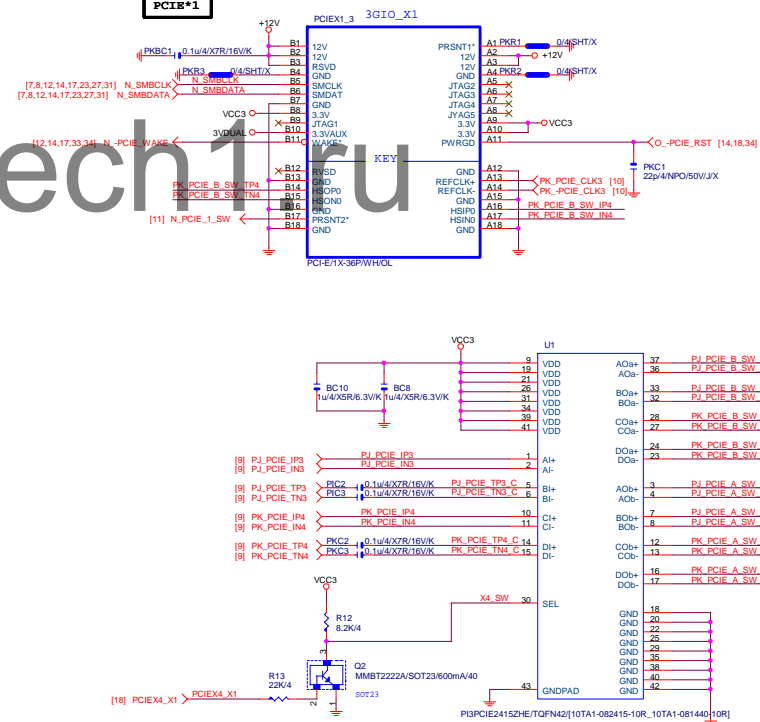
PCIE*1



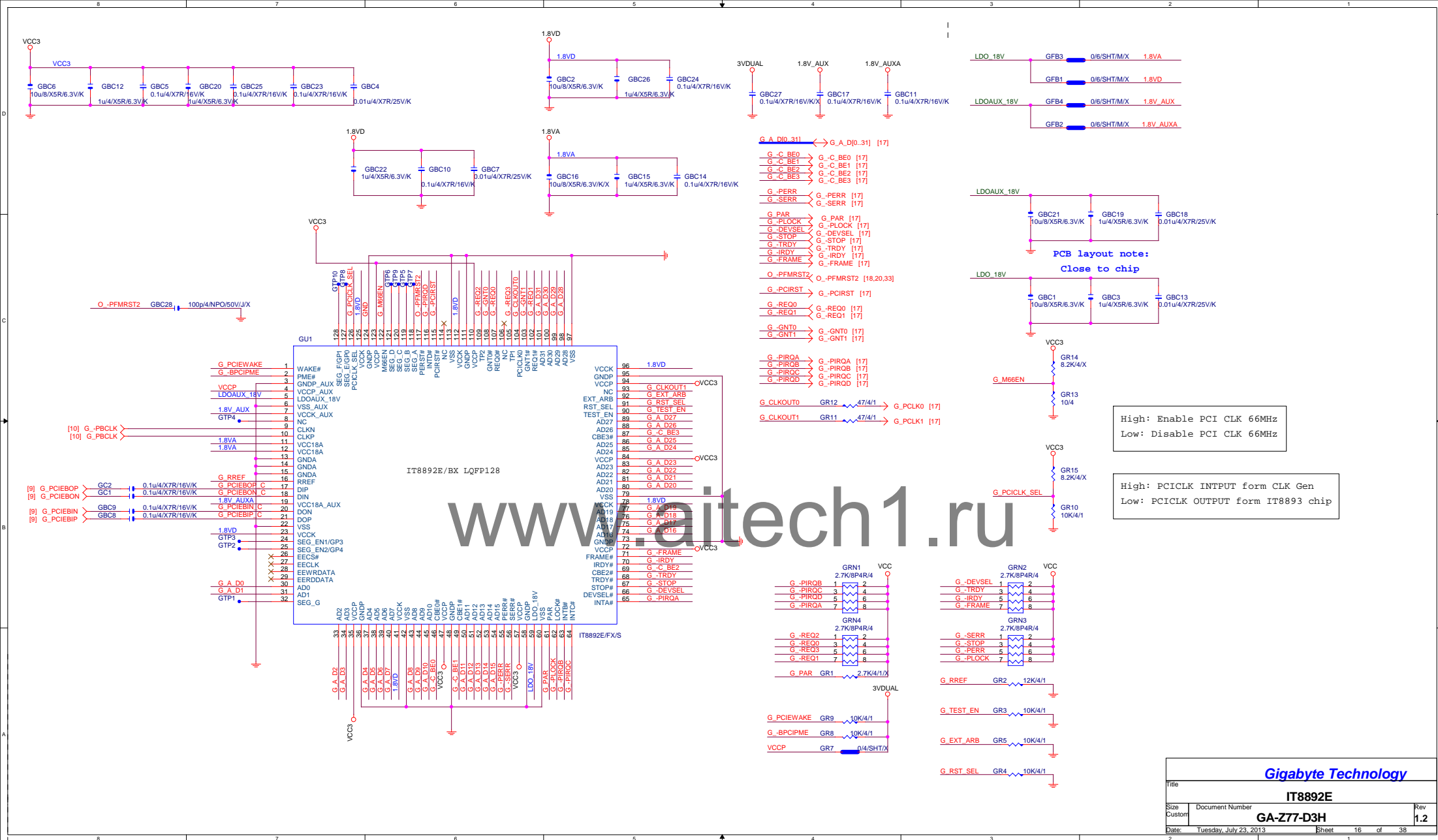
PCIE*1

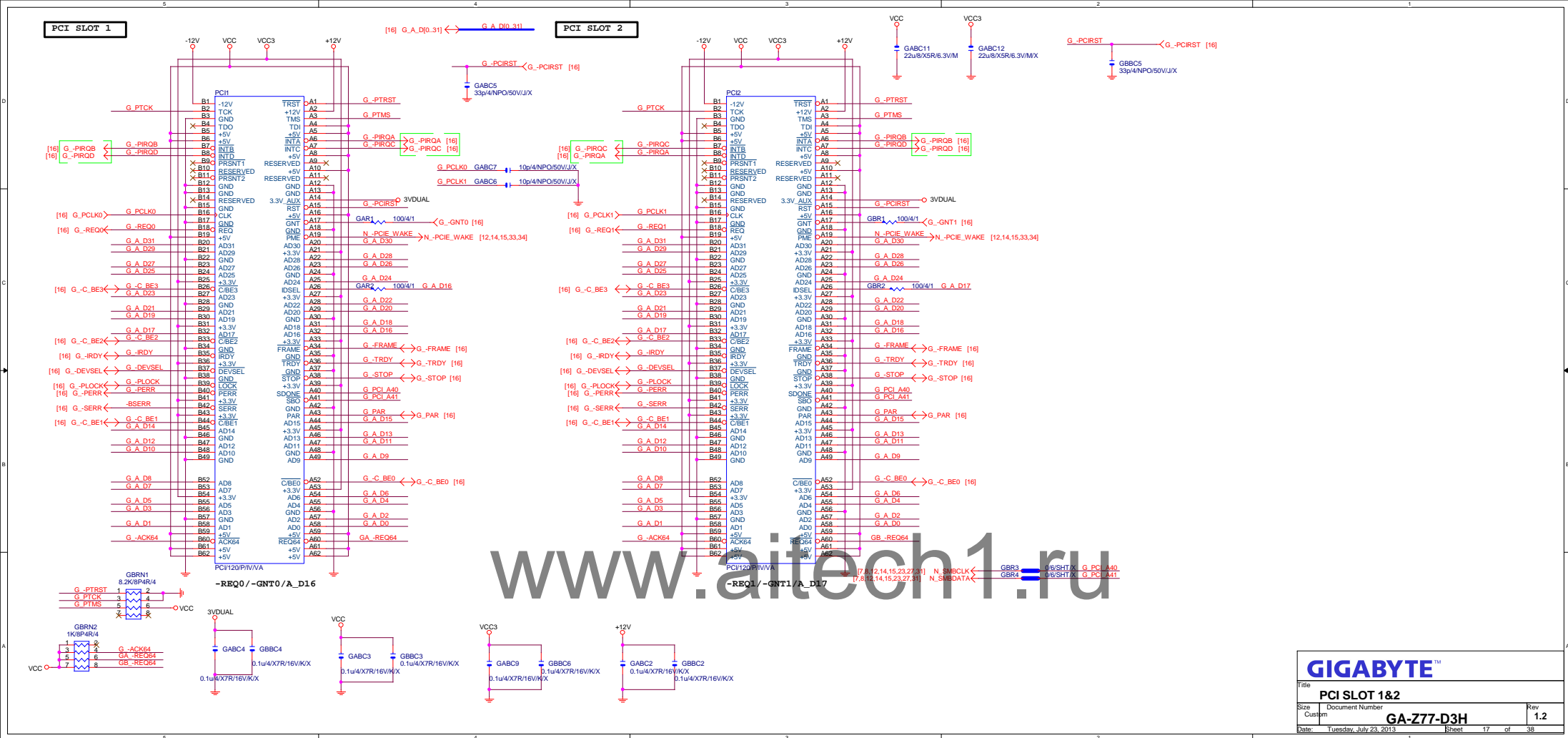


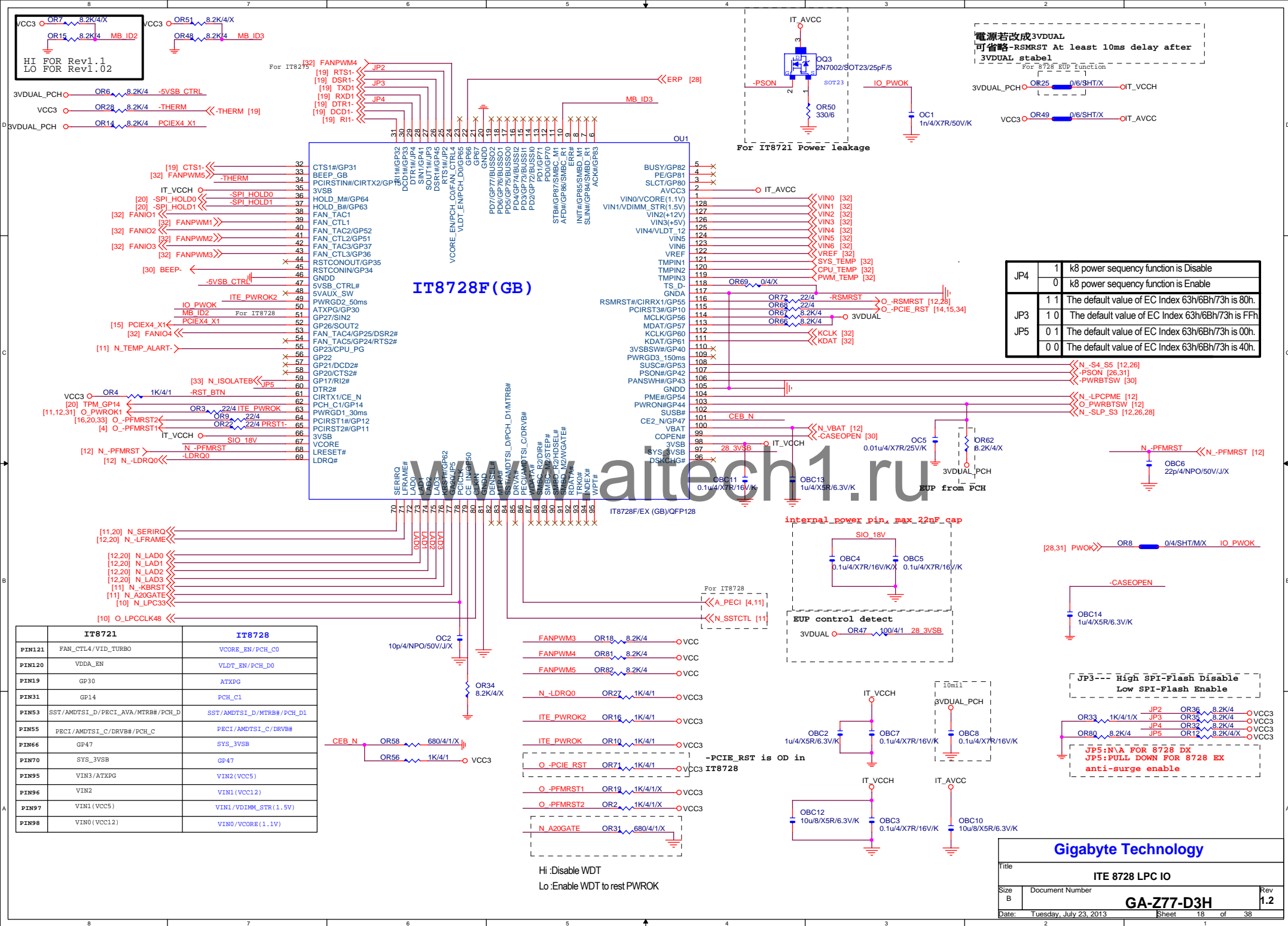
PCIE*1



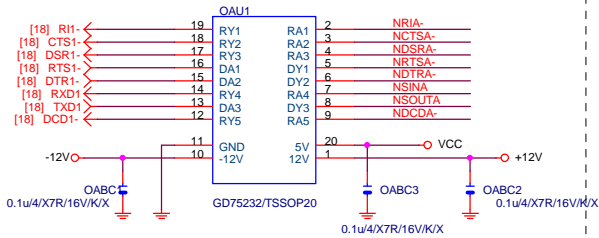
Function	SEL
xI--> x0a	L;PCIEX4 SLOT-->X1
xI--> x0b	H;PCIEX4 SLOT-->X4



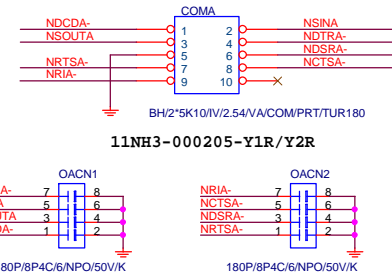
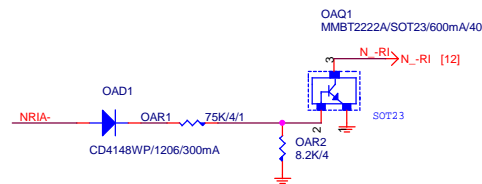




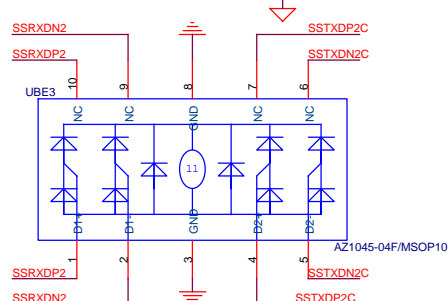
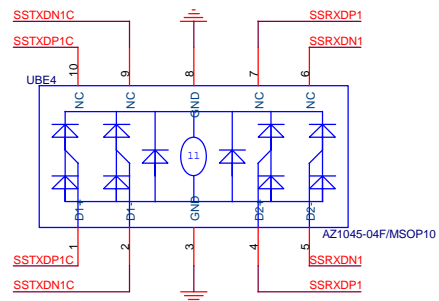
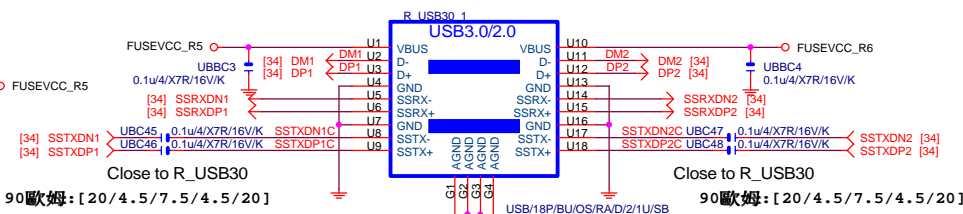
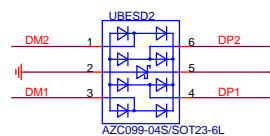
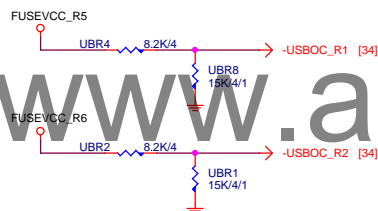
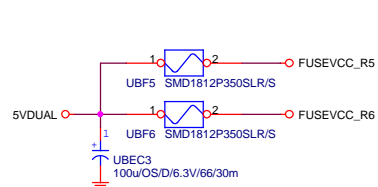
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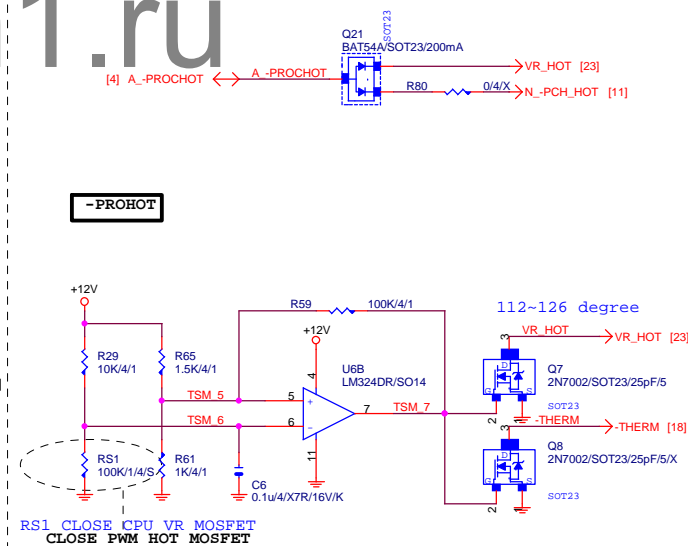
COM RI



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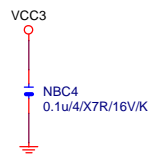


-PROHOT



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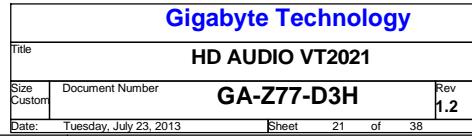
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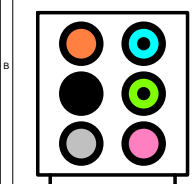
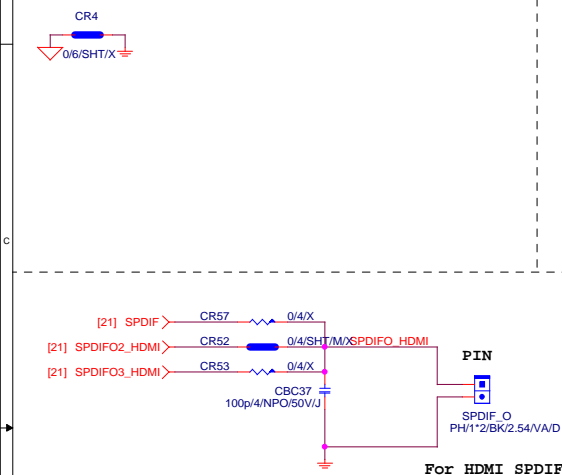


CR36: 20K/4/1 @Realtek cdec & VT1708S-CE
CR36: 51K/4/1 @VIA codec VT1708S-CD/VT2021
CBC38 100p @VIA codec VT1708S

CBC38 100p/4/NPO/50V/JXX

CR36 5.1K/4/1





AZALIA JACK

AUDIOB

BLUE
LINE-IN

GREEN
LINE-OUT

PINK
MIC-IN

AUDIOA

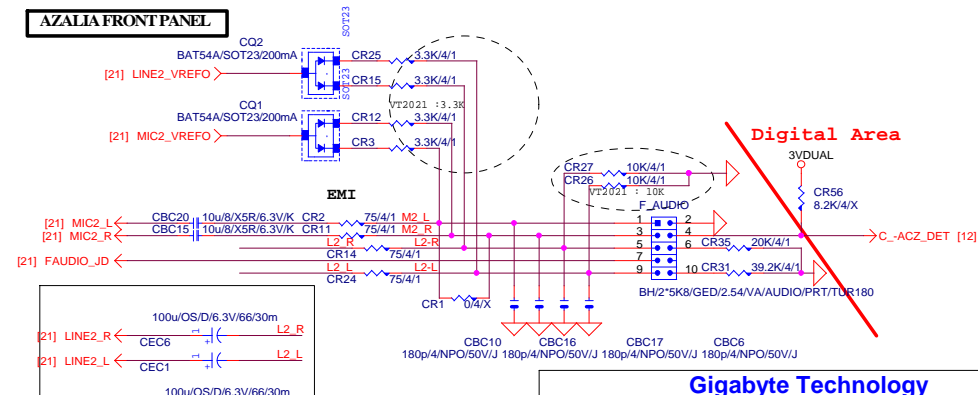
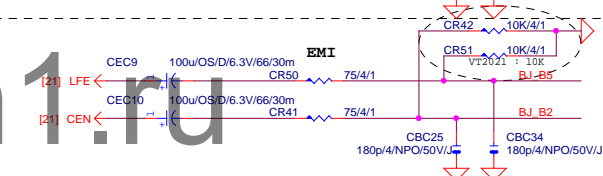
Orange
CEN/LFE

Black
SURROUND

SPDIF

2X3RP/25P/BU, GE, OR, BK, GY, RA[11NR6-403025-61R]

2X3RP/25P/BU, GE, OR, BK, GY, RA[11NR6-403025-61R]

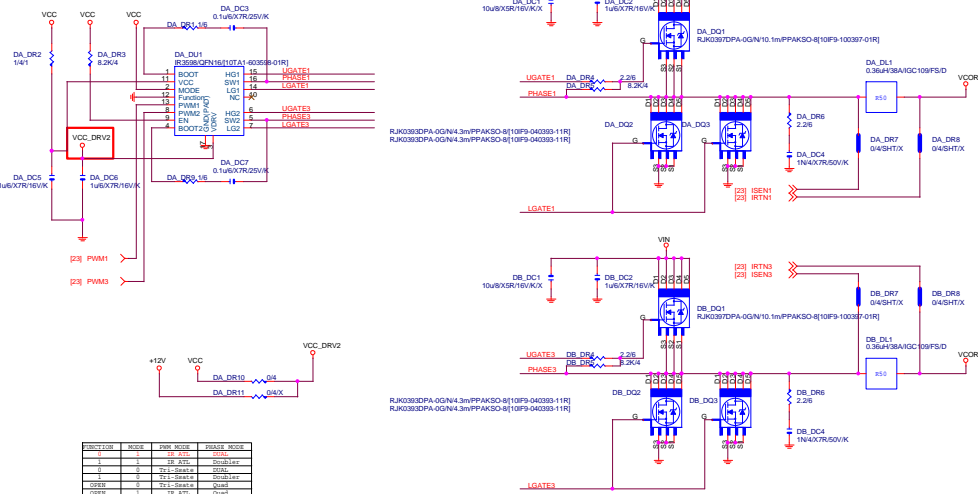


3VDUAL
CR56
8.2K/4X

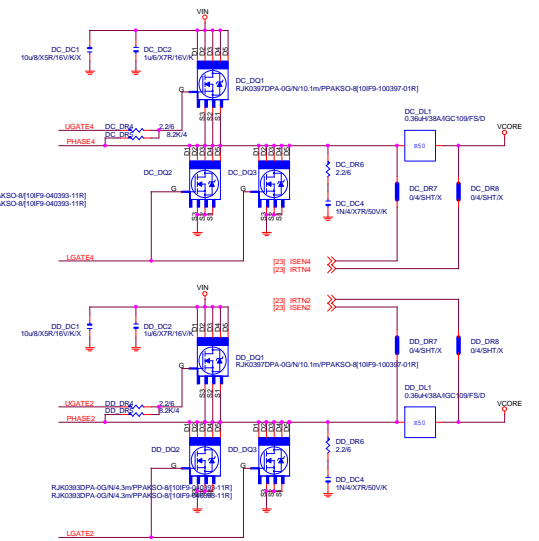
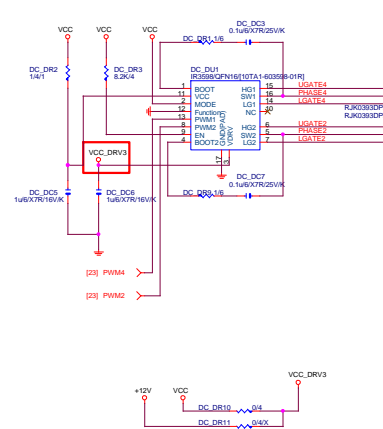
2
4
6 CR35 20K/4/1
10 CR31 39.2K/4/1
5K8/GED/2.54/VA/AUDIO/PRT/TUR180

Title				AUDIO JACK			
Size Custom		Document Number				GA-Z77-D3H	
						Rev 1.2	
Date:		Tuesday, July 23, 2013			Sheet		22 of 38

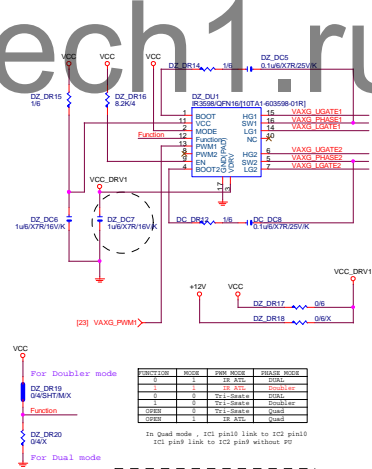
VCORE Phase 1,3



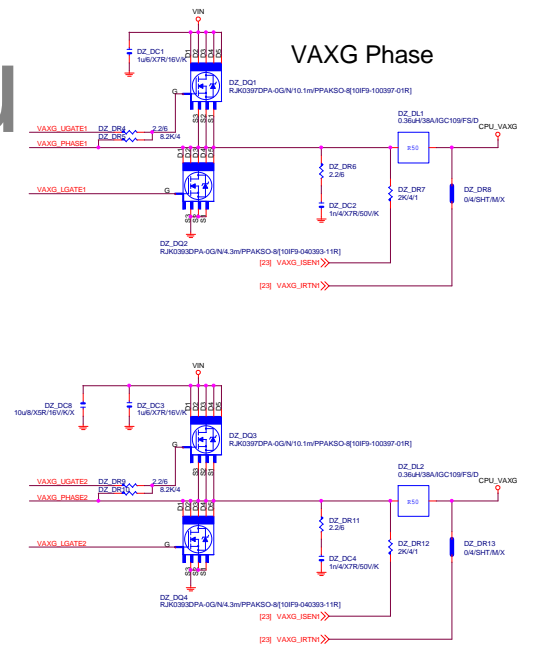
VCORE Phase 4,2



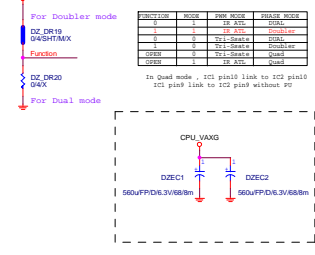
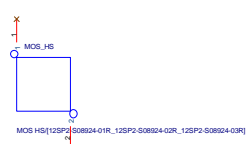
VAXG PHASE 1,2



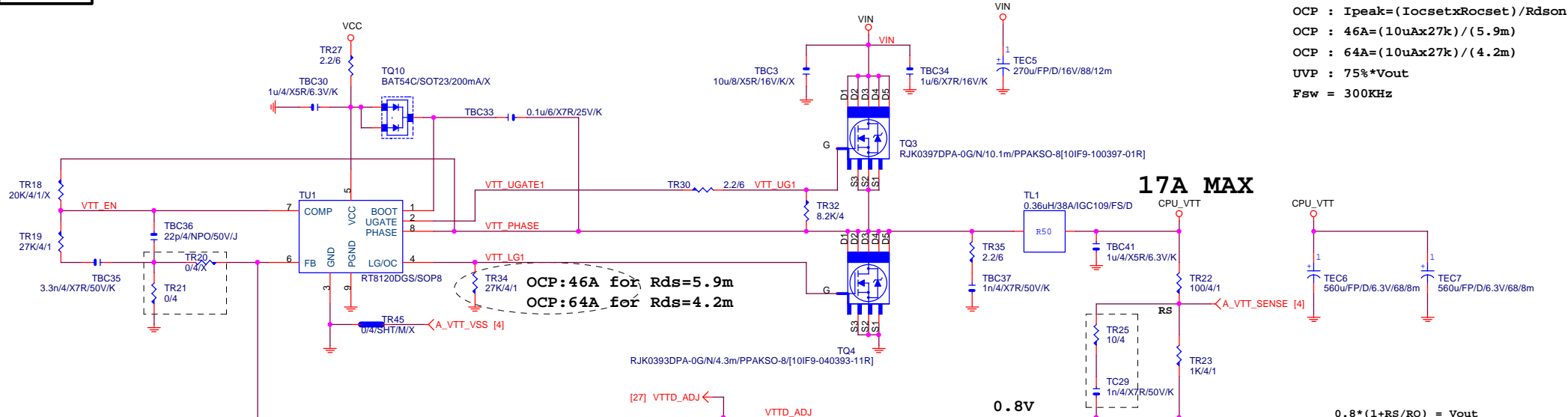
VAXG Phase



MOS HEATSINK

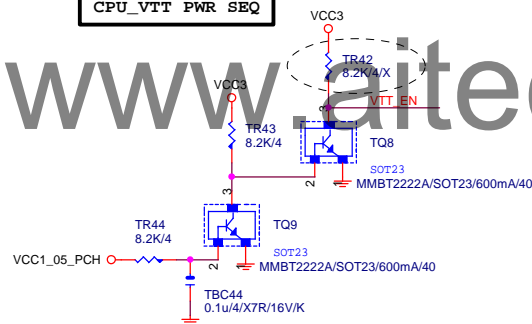


CPU_VTT



$$OCP: 46A = \frac{R_{ocset} * I_{ocset}}{R_{ds(on)}} = \frac{27K * 10uA}{5.9m}$$

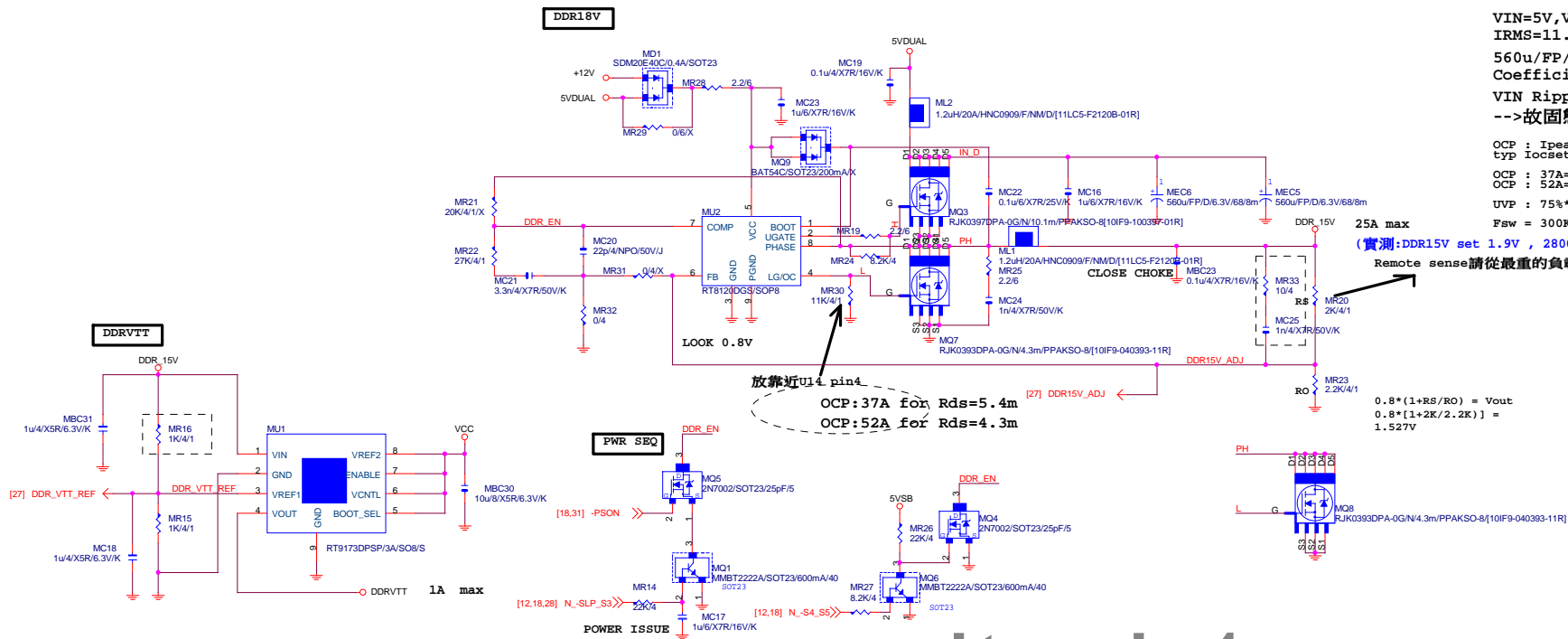
CPU_VTT PWR SEQ



VTT_SEL	
HI	1.05V
LO	1.0V

GIGABYTE™

Title	RT8120 CPU_VTT		
Size	Document Number	Rev	1.2
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VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A

OCF : $I_{peak} = (I_{ocset} \times R_{ocset}) / R_{dson}$
 typ $I_{ocset} = 10uA$, $R_{ocset} = 33k$
 OCF : $37A = (10uA \times 11k) / (5.9m / 5.9m)$
 OCF : $52A = (10uA \times 11k) / (4.2m / 4.2m)$
 UVP : $75\% \times V_{out}$
 Fsw = 300KHz
 (實測:DDR15V set 1.9V, 2800MHz Ipeak=12.15A, Iaverage=8.2A)

Remote sense請從最重的負載端點拉回

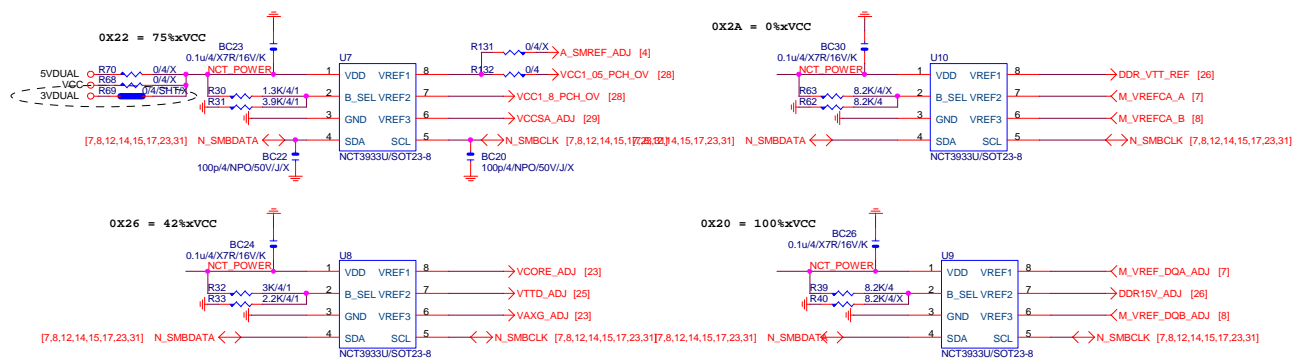
放靠近U14 pin4
 OCP:37A for $R_{ds}=5.4m$
 OCP:52A for $R_{ds}=4.3m$

$0.8 \times (1 + R_S / R_O) = V_{out}$
 $0.8 \times [1 + 2K / 2.2K] = 1.527V$

GIGABYTE™			
Title			
RT8120_DDR_15V			
Size	Document Number	Rev	
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	ITE8728	ITE8728
Z77-D3H/ H77-D3H(MVP)	MB_ID2 (GP27)	MB_ID3 (GP86)
1.0 3931	1	0
1.01 3931	1	1
1.02 3931	0	1
1.1 3931	1	1
1.1 3933	0	0



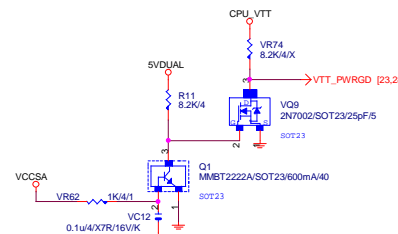
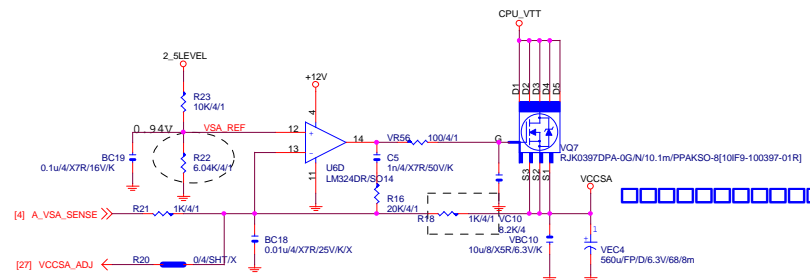
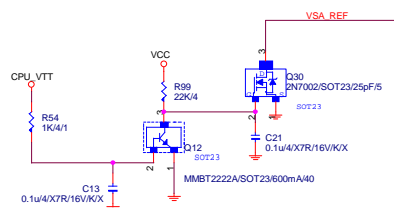
NCT3933	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	SMREF	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	CPU_VTT
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	VCCSA	VAXG

Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-Z77-D3H	Rev 1.2
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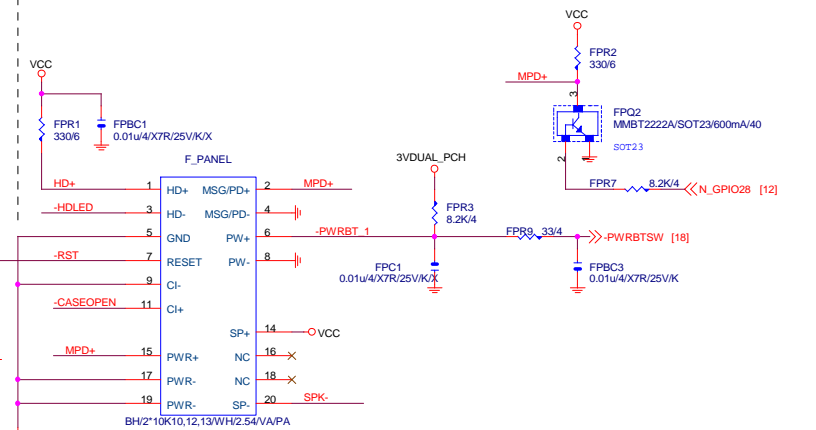
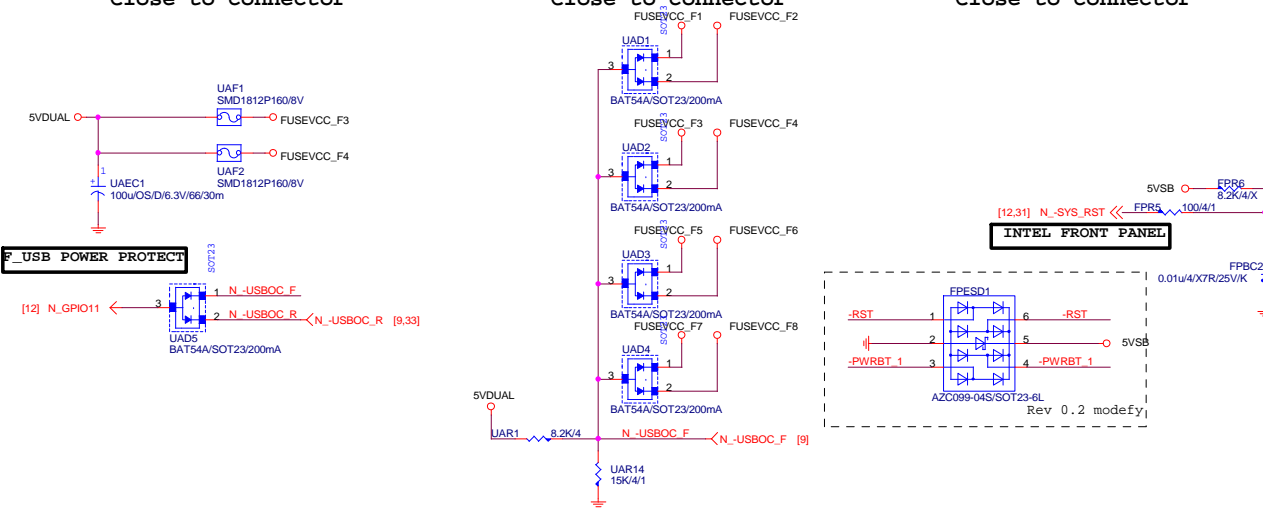
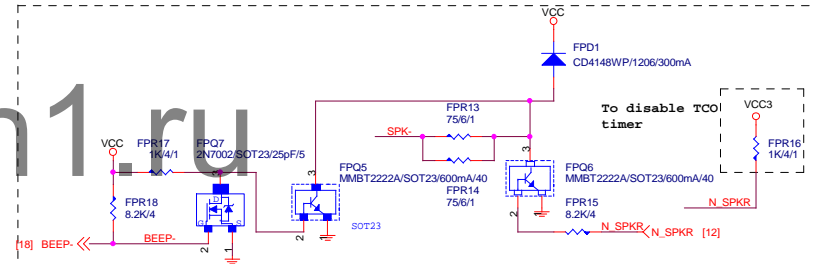
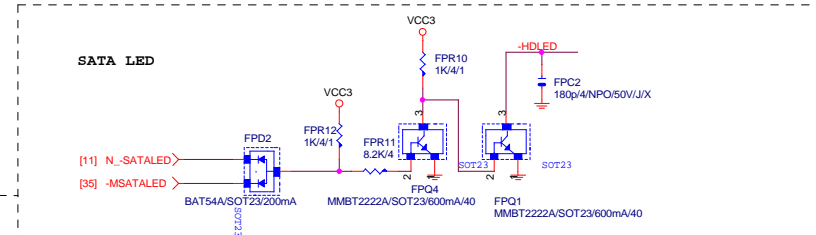
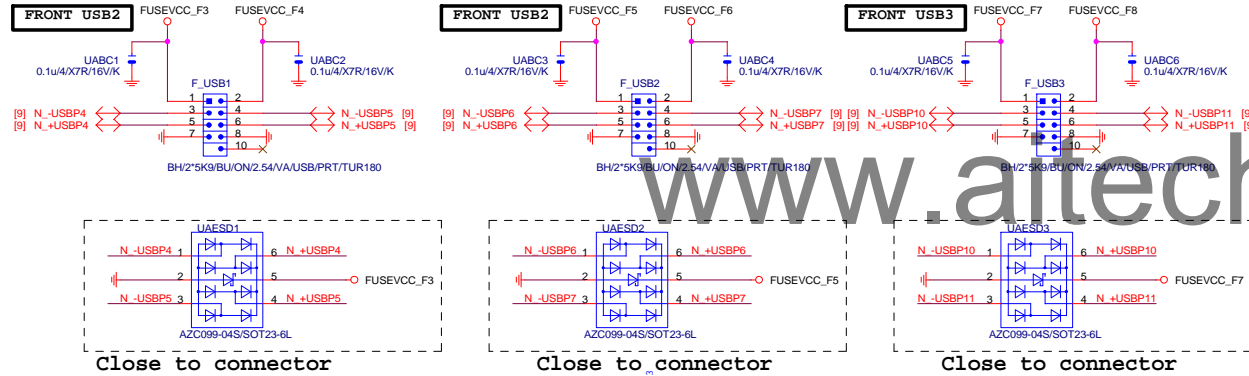
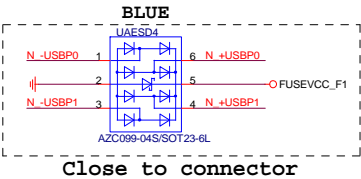
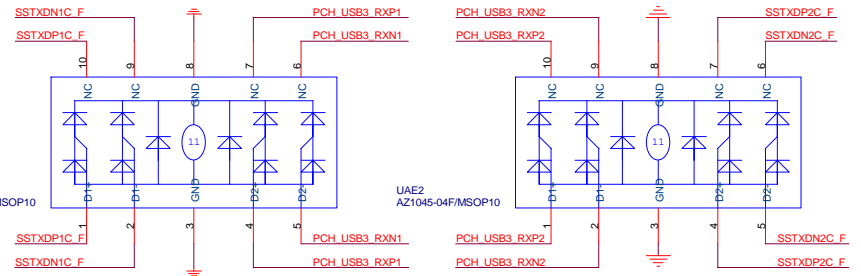
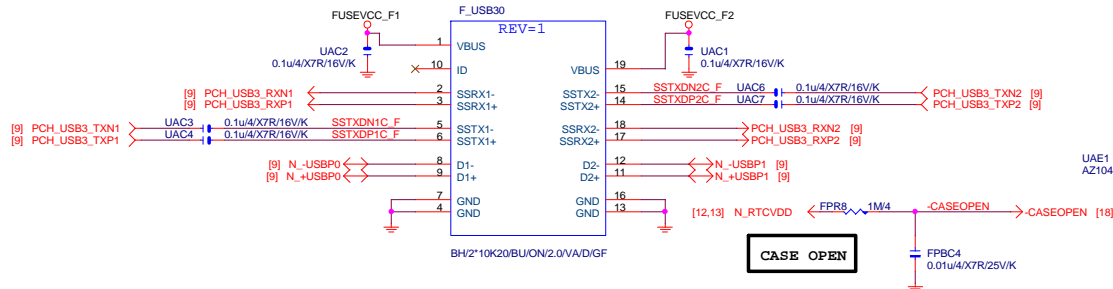
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VCC_SA

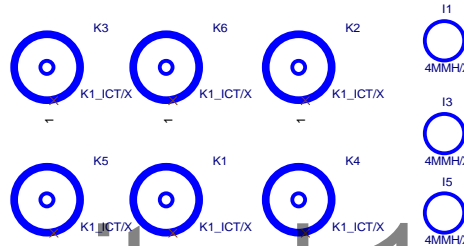
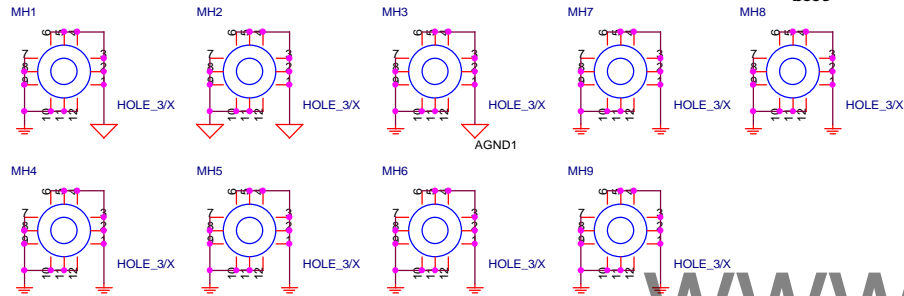
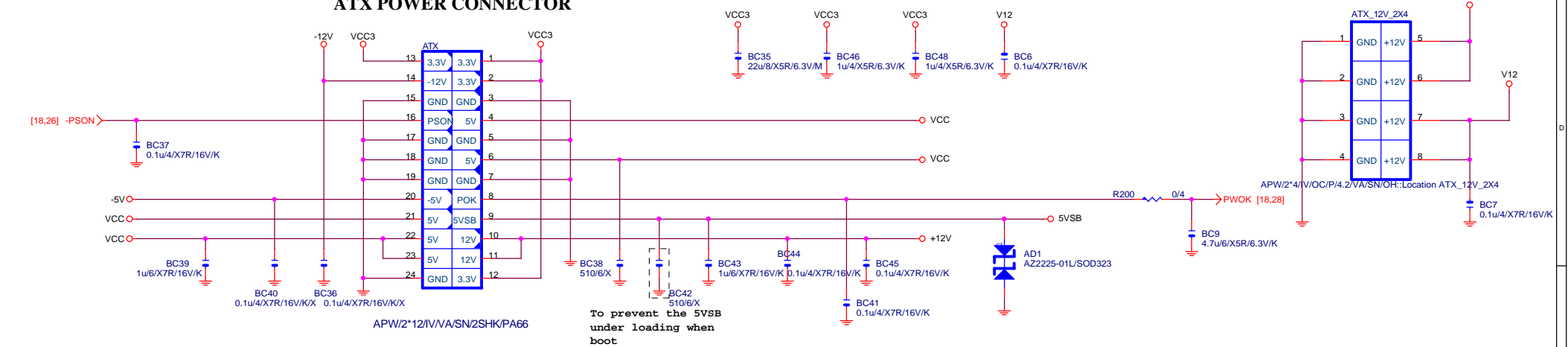


Gigabyte Technology			
File	CPU VTT PWM_ISL6312		
Size	Document Number	GA-Z77-D3H	
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Front USB3.0

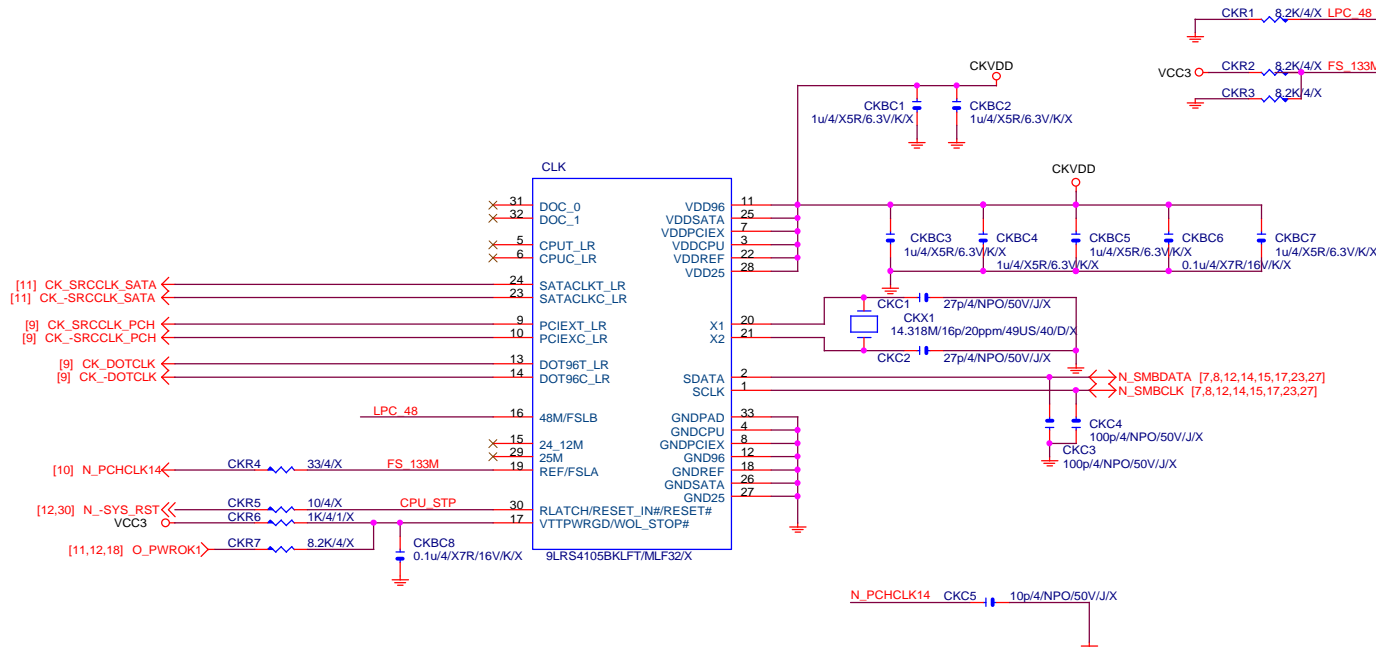


ATX POWER CONNECTOR



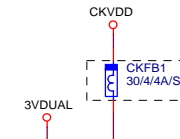
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CLK GEN



CPU Frequency Selection

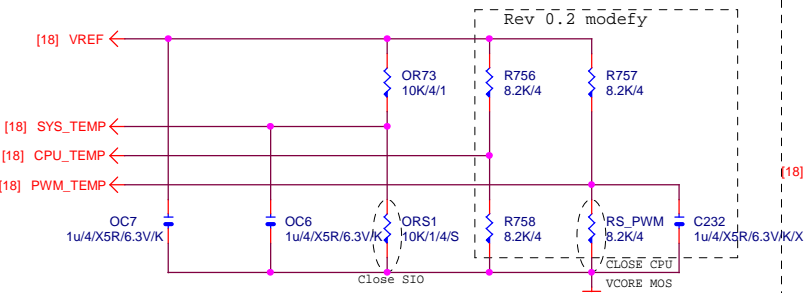
FS	CPU
0	100M <Default>
1	133M



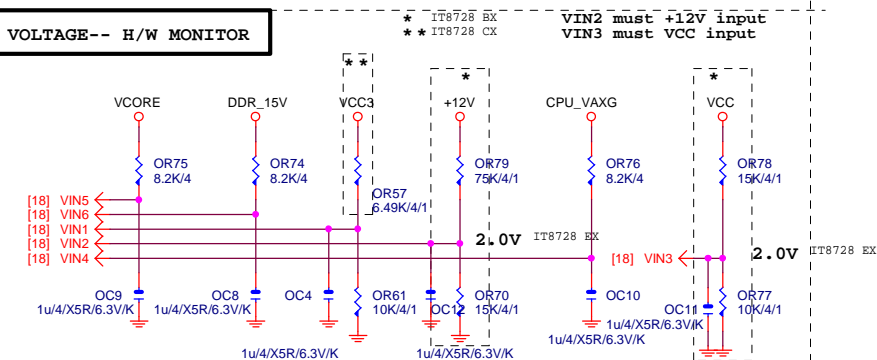
Gigabyte Technology

Title		ATX POWER CONNECTOR	
Size	Document Number	GA-Z77-D3H	
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TEMP H/W MONITOR

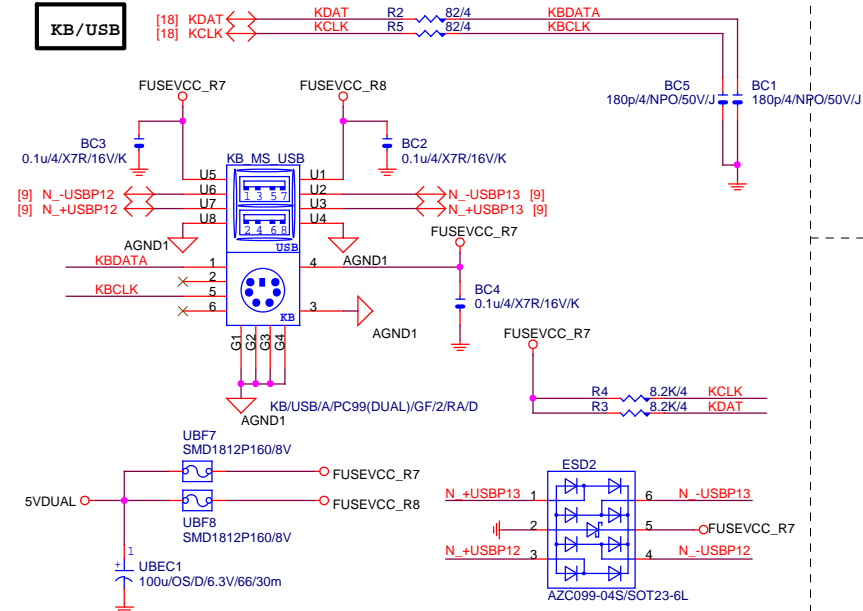


VOLTAGE-- H/W MONITOR

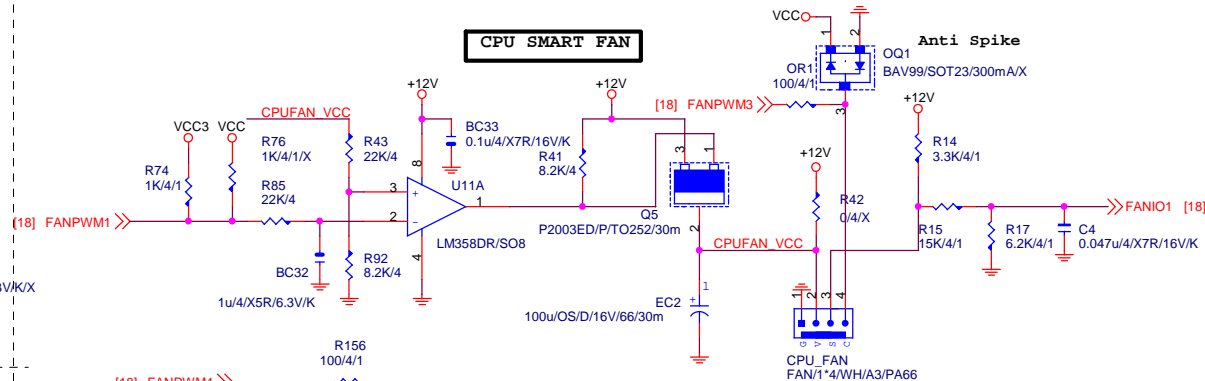


The division voltage of VIN2 & VIN3 must be around 2.9V

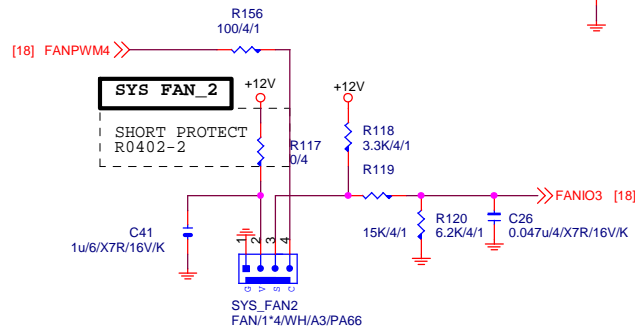
KB/USB



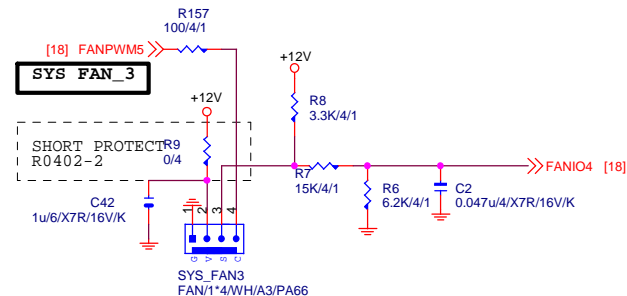
CPU SMART FAN



SYS FAN_2

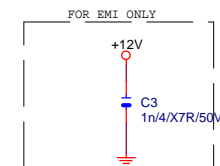
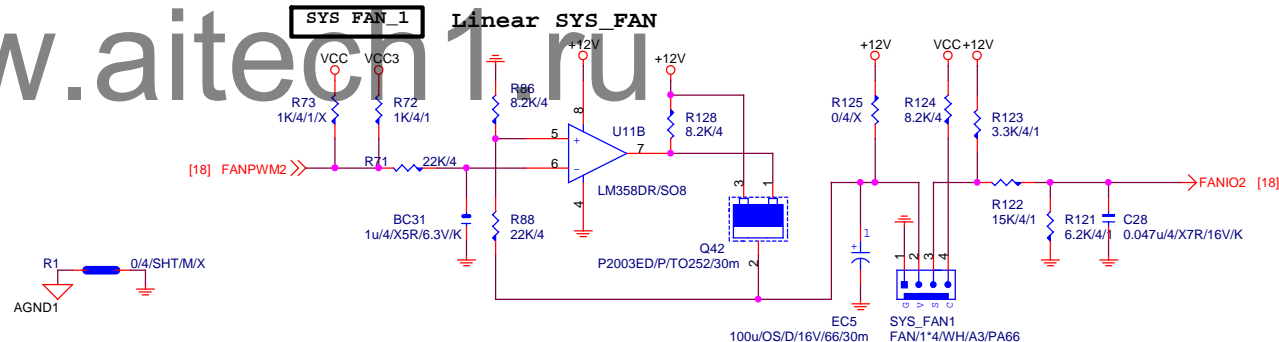


SYS FAN_3



SYS FAN_1

Linear SYS FAN



Gigabyte Technology

HWM,KB/MS, FAN CTRL

Size	Document Number
Custom	GA

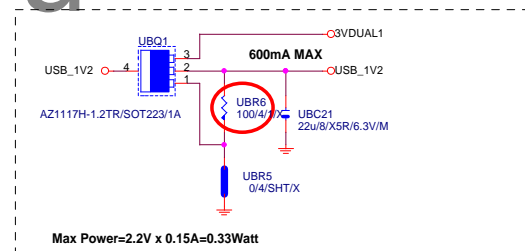
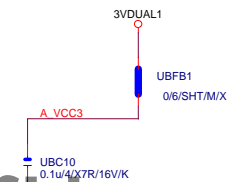
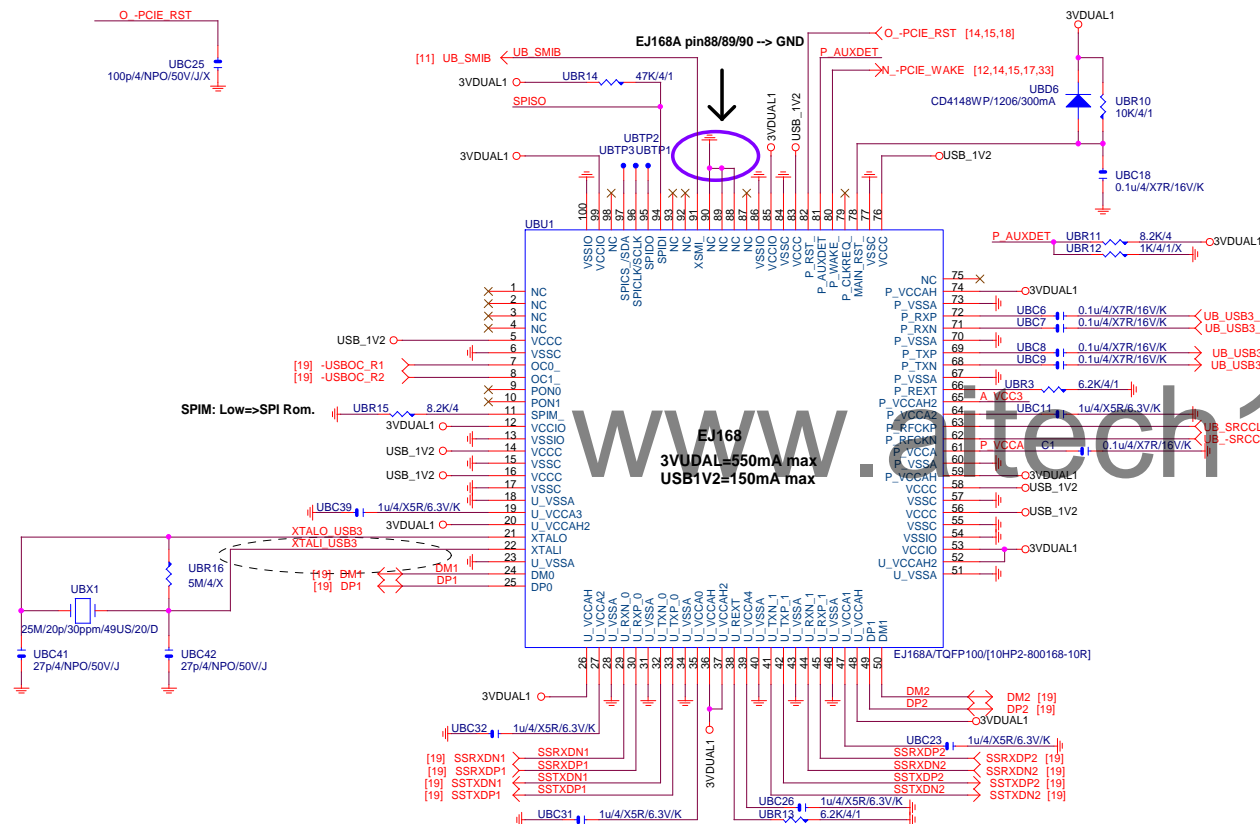
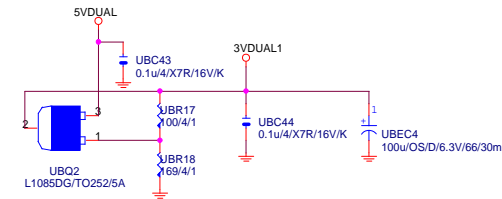
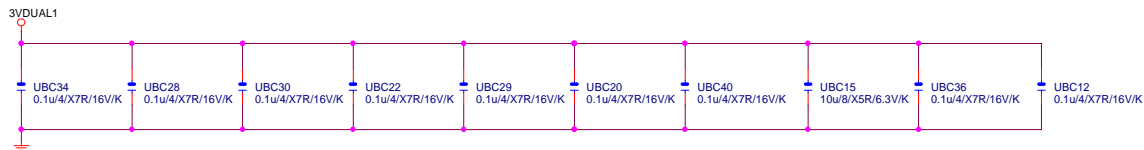
GA-Z77-D3H

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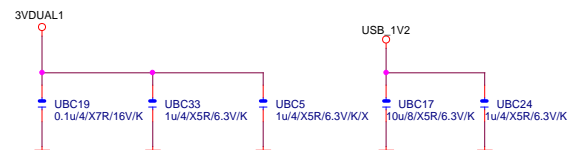
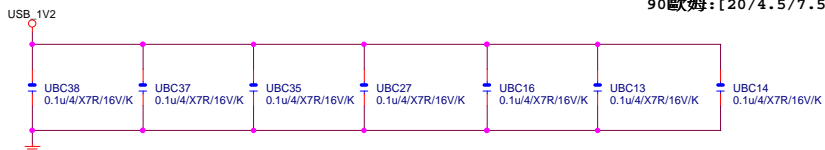
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Rev	1.2
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1.2

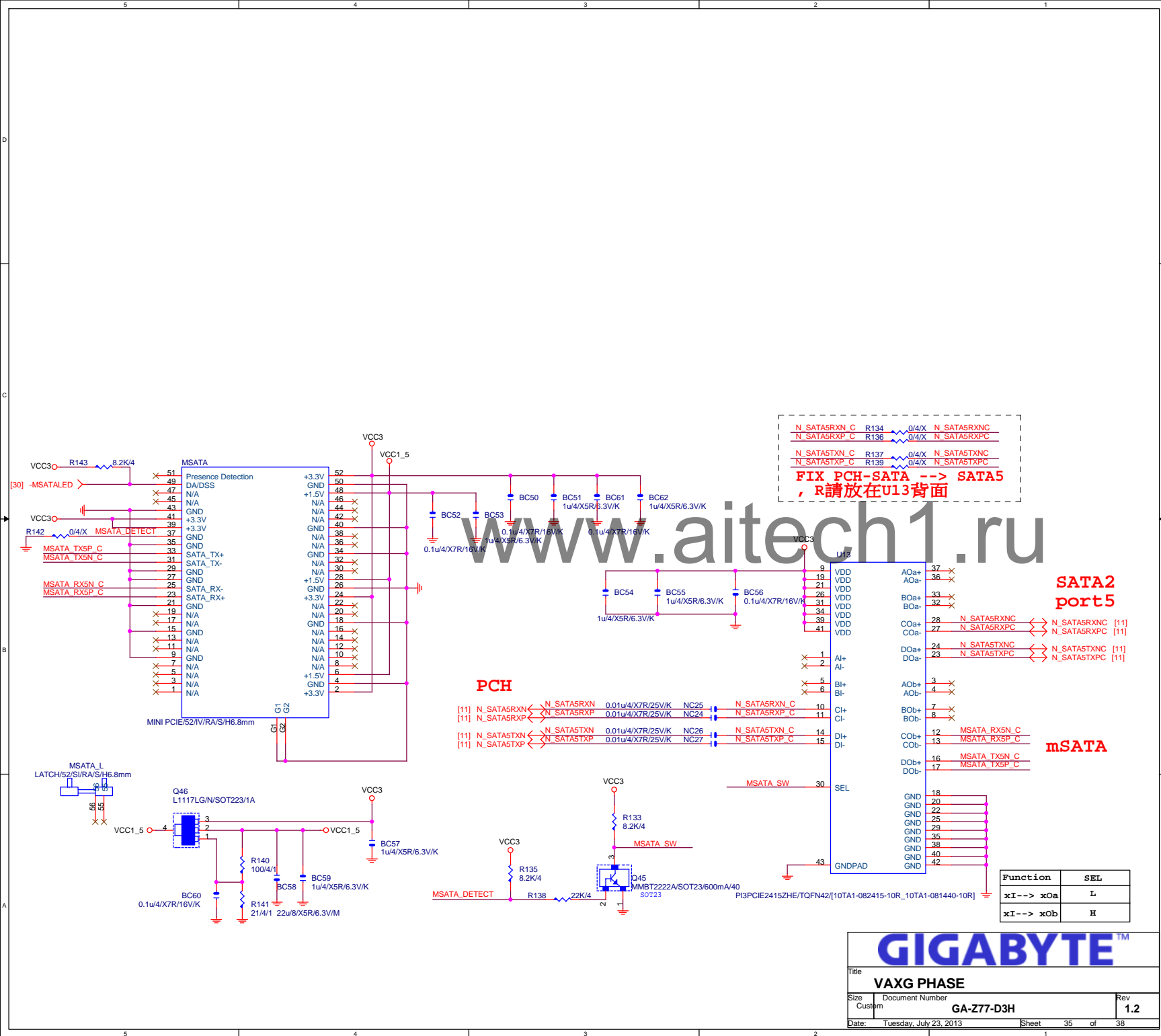


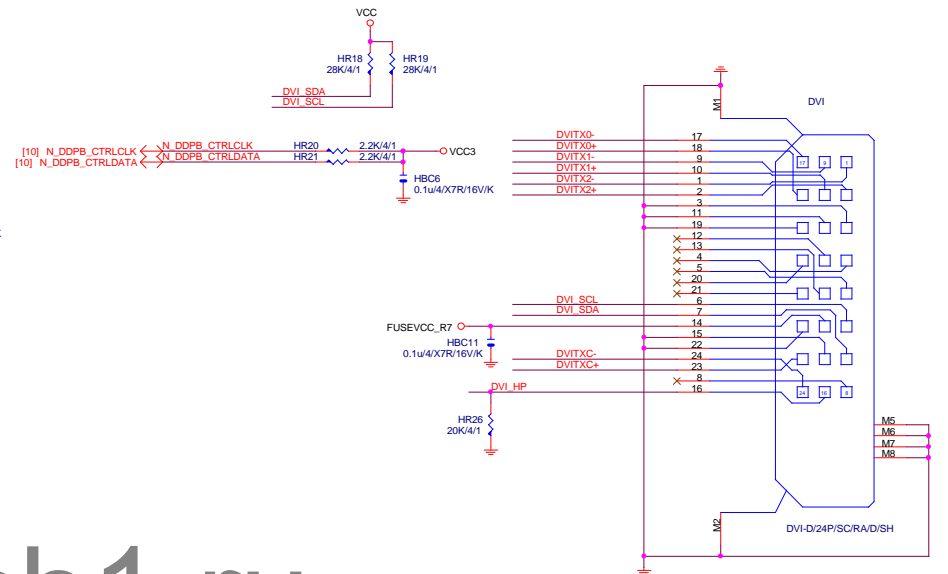
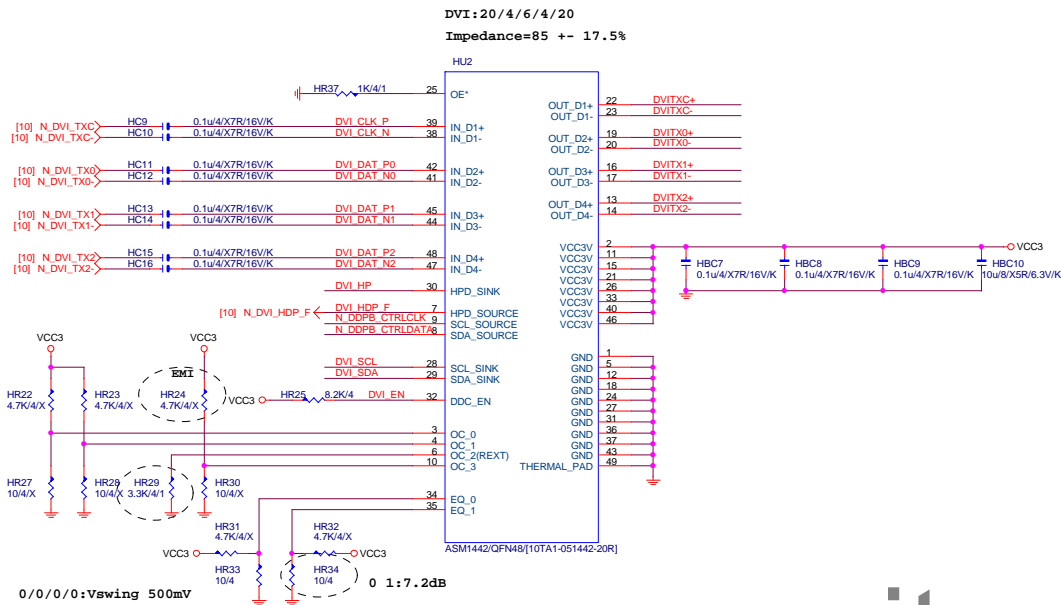
AZ1117H-1.2TR/SOT223/1A-->UR17:0/4, UR16:N/A [1.2V]
L1117LG/N/SOT223/1A-->UR17:0/4, UR16:100/4/1 [1.25V]



USB3.0 --> 5GHz
BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s

GIGABYTE™		
Title E-TRON EJ168		
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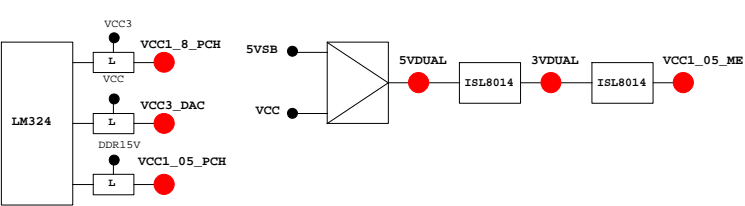
Gigabyte Technology			
TI TSB43AB23 1394			
Size	Document Number	Rev	
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PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQ#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

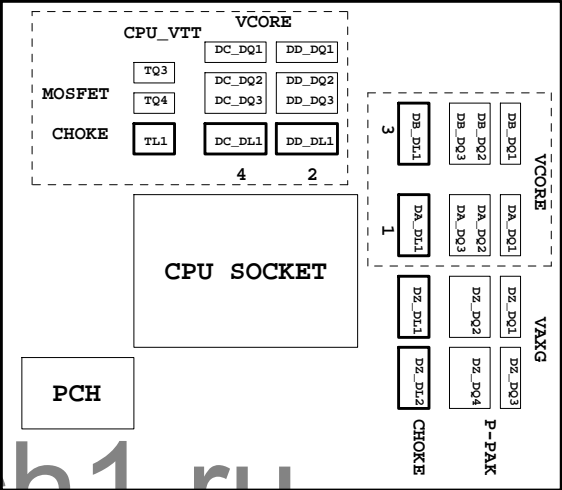
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCI_E_RST	
RSMRST#CIRRXL/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PWRST1	
PCIRST1#/GP12	-PWRST2	
3VBSBW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSW#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRXL2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH