

Model Name: GA-H61M-S2P-GQ

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	PCI EXPRESS*1 SLOT
16	IT8892E
17	PCI SLOT1&2
18	ITE 8728 LPC IO
19	COM,KB_USB,USB_ESATA,-PROCHOT
20	HWM,FAN CTRL,OV,
21	DUAL BIOS
22	FP,FUSB,SPK,SATALED
23	Realtek ALC887-VD2
24	REAR AUDIO JACK
25	Artheros AR8151
26	DISCRETE POWER
27	ATX

SHEET TITLE

28	RT8120_CPU_VTT
29	VCORE ISL95836_1
30	VCORE ISL95836_2
31	VCORE ISL95836_3
32	LPT

Model Name: GA-H61M-S2P-GQ

Component value change history

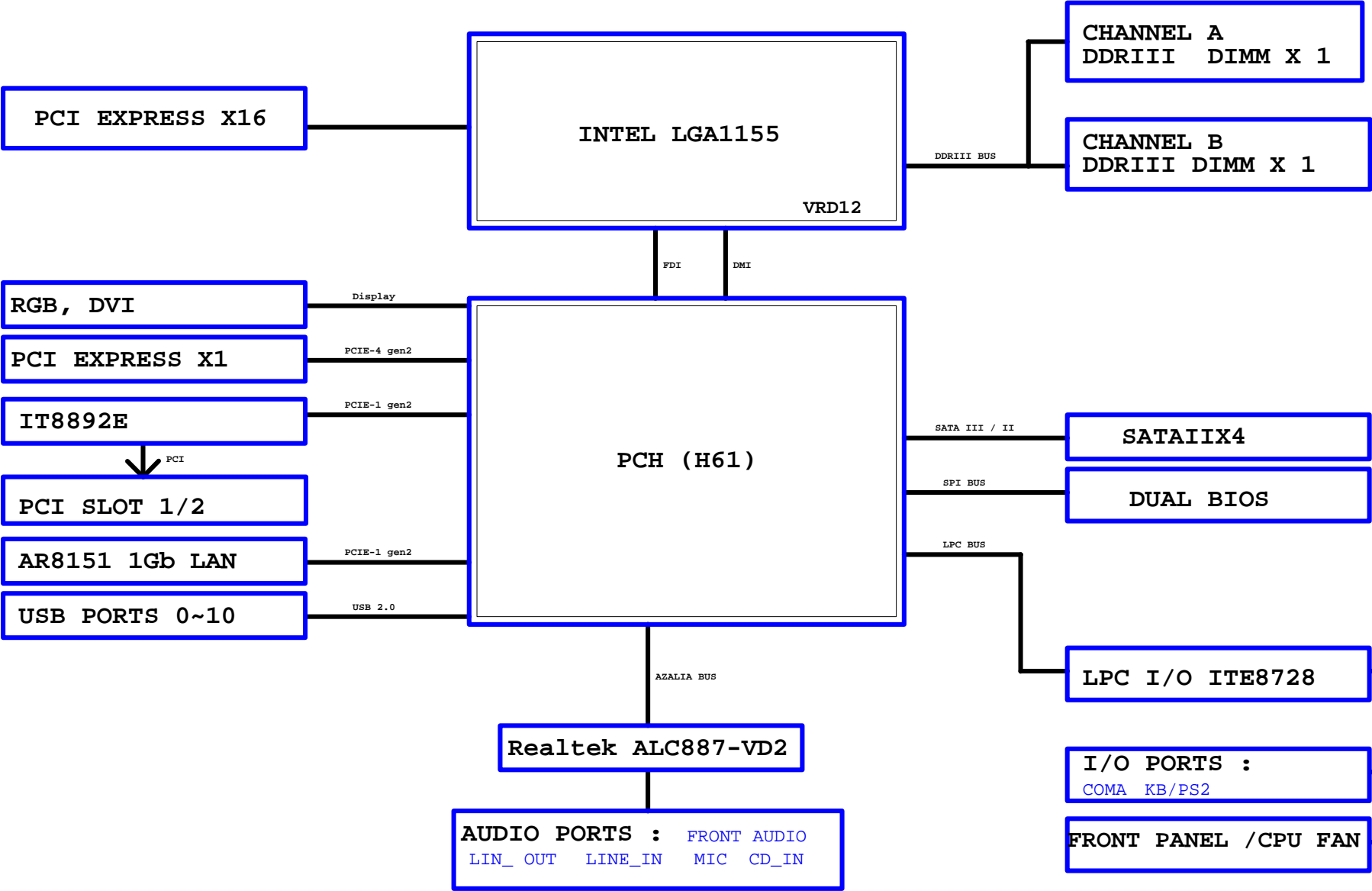
2011/12/21

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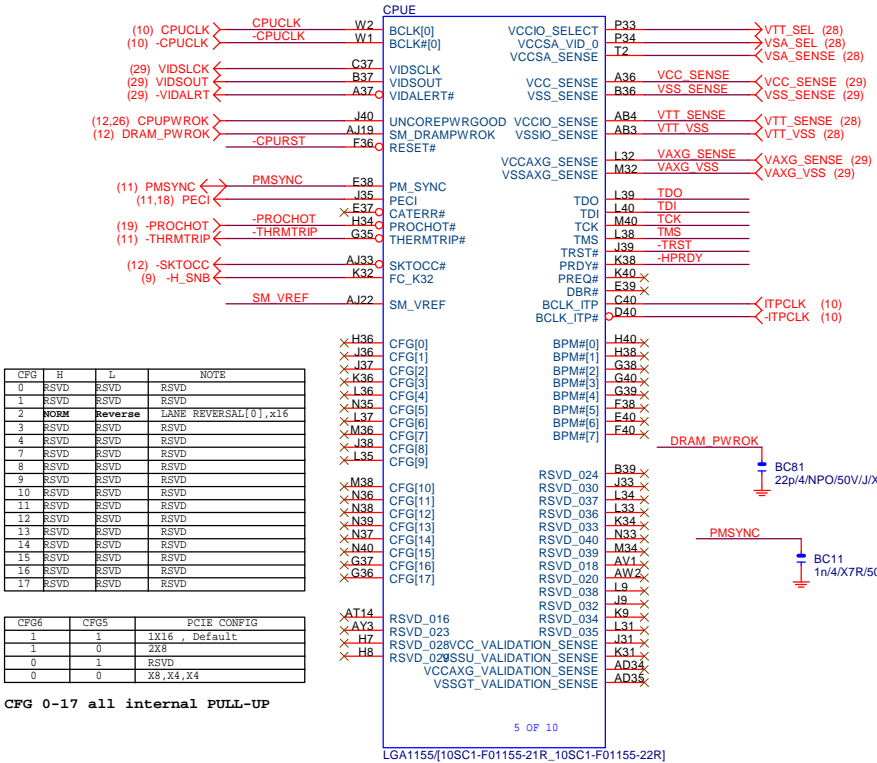
Circuit or PCB layout change

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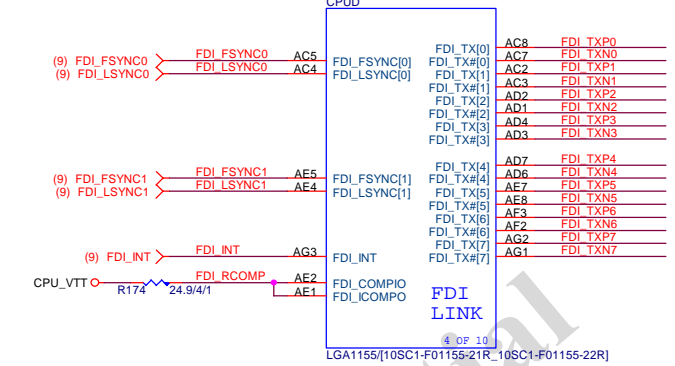
BLOCK DIAGRAM



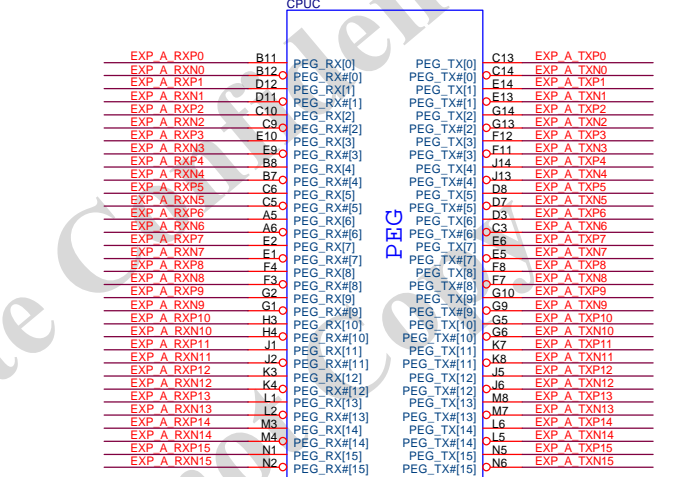
CPU E



CPU D FDI



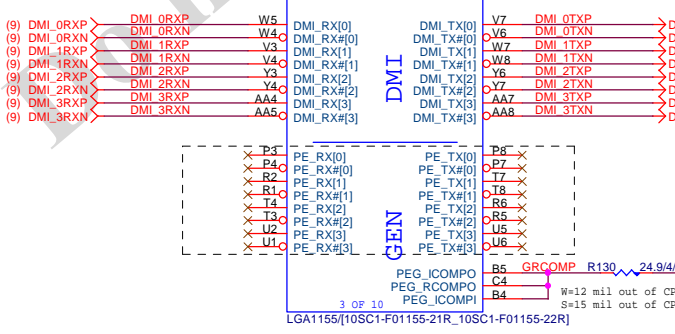
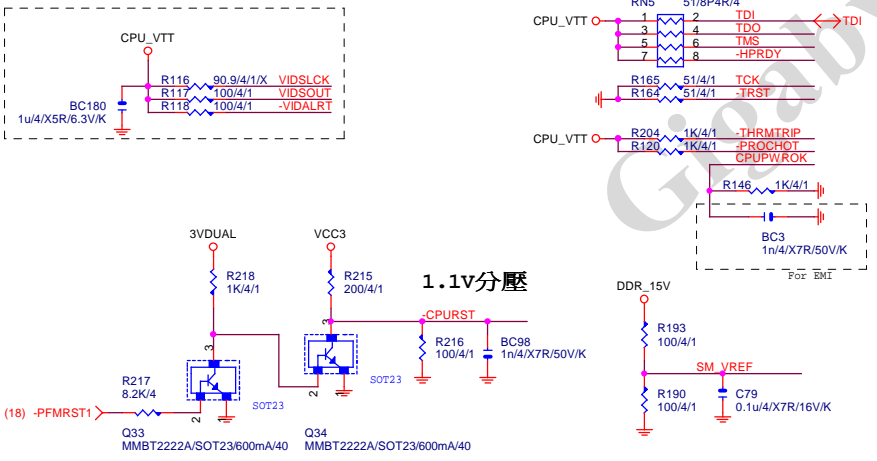
CPU C



STITCHING CAP.

N/A

Stitching caps for PCIE, DMI, FDI bus



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Title: CPU LGA1155-A

Size: Custom

Document Number: GA-H61M-S2P-GQ

Date: Friday, July 06, 2012

Sheet: 4 of 32

Rev: 1.0

CPU A

CPUA

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MAAA6	AT23	SA_MA[5]	SA_DQ[2]	AL3	MDA2
MAAA7	AU22	SA_MA[6]	SA_DQ[3]	AL4	MDA3
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MAAA9	AT22	SA_MA[8]	SA_DQ[4]	AJ1	MDA5
MAAA10	AV28	SA_MA[10]	SA_DQ[5]	AL2	MDA6
MAAA11	AU21	SA_MA[11]	SA_DQ[6]	AL1	MDA7
MAAA12	AT21	SA_MA[12]	SA_DQ[7]		
MAAA13	AW32	SA_MA[13]	SA_DQS[1]	AP3	DQSA1
MAAA14	AU20	SA_MA[14]	SA_DQS[1]	AP2	-DQSA1
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(7) -SWEA	AW29	SA_WE#	SA_DQ[8]	AN1	MDA8
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(7) -SRASA	AU28	SA_RAS#	SA_DQ[9]	AR3	MDA10
			SA_DQ[10]	AR4	MDA11
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			SA_DQ[15]		
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(7) -CSA1	AV32	SA_CS#	SA_DQS[2]	AW4	-DQSA2
(7) -CSA2	AW30	SA_CS#	SA_DQS[2]	AW4	DQSA2
(7) -CSA3	AW33	SA_CS#	SA_DQS[2]	AW4	-DQSA2
(7) CKEA0	AV19	SA_CKE[0]	SA_DQ[16]	AV2	MDA16
(7) CKEA1	AT19	SA_CKE[1]	SA_DQ[17]	AW3	MDA17
			SA_DQ[18]	AV5	MDA18
			SA_DQ[19]	AW5	MDA19
			SA_DQ[20]	AU2	MDA20
MODT_A0	AV31	SA_ODT[0]	SA_DQ[21]	AU3	MDA21
MODT_A1	AU32	SA_ODT[1]	SA_DQ[22]	AU5	MDA22
	AW30	SA_ODT[2]	SA_DQ[23]	AU5	MDA23
	AW33	SA_ODT[3]			
(7) DCLKA0	AY25	SA_CLK[0]	SA_DQS[3]	AV8	DQSA3
(7) -DCLKA0	AW25	SA_CLK[0]	SA_DQS[3]	AW8	-DQSA3
(7) DCLKA1	AU24	SA_CLK[1]			
(7) -DCLKA1	AU25	SA_CLK[1]			
	AW27	SA_CLK[2]	SA_DQ[24]	AY7	MDA24
	AY27	SA_CLK[2]	SA_DQ[25]	AU7	MDA25
	AV26	SA_CLK[3]	SA_DQ[26]	AV9	MDA26
	AW26	SA_CLK[3]	SA_DQ[27]	AU9	MDA27
	AW26	SA_CLK[3]	SA_DQ[28]	AV7	MDA28
			SA_DQ[29]	AW7	MDA29
			SA_DQ[30]	AW9	MDA30
			SA_DQ[31]	AY9	MDA31
(7,8) -DDR3_RST	AW18	SM_DRAMRST#			
			SA_DQS[4]	AV37	DQSA4
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			SA_DQ[32]	AU35	MDA32
			SA_DQ[33]	AW37	MDA33
			SA_DQ[34]	AU39	MDA34
			SA_DQ[35]	AU36	MDA35
			SA_DQ[36]	AW35	MDA36
			SA_DQ[37]	AY36	MDA37
			SA_DQ[38]	AU38	MDA38
			SA_DQ[39]	AU37	MDA39
			SA_DQS[5]	AP38	DQSA5
			SA_DQS[5]	AP39	-DQSA5
			SA_DQ[40]	AR40	MDA40
			SA_DQ[41]	AR37	MDA41
			SA_DQ[42]	AN38	MDA42
			SA_DQ[43]	AN37	MDA43
			SA_DQ[44]	AR39	MDA44
			SA_DQ[45]	AR38	MDA45
			SA_DQ[46]	AN39	MDA46
			SA_DQ[47]	AN40	MDA47
			SA_DQS[6]	AK38	DQSA6
			SA_DQS[6]	AK39	-DQSA6
			SA_DQ[48]	AL40	MDA48
			SA_DQ[49]	AL37	MDA49
			SA_DQ[50]	AJ38	MDA50
			SA_DQ[51]	AJ37	MDA51
			SA_DQ[52]	AL39	MDA52
			SA_DQ[53]	AL38	MDA53
			SA_DQ[54]	AJ39	MDA54
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			SA_DQ[56]	AG40	MDA56
			SA_DQ[57]	AG37	MDA57
			SA_DQ[58]	AE38	MDA58
			SA_DQ[59]	AE37	MDA59
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			SA_DQ[62]	AE40	MDA62
			SA_DQ[63]	AE40	MDA63

DDR_0

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LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]

CPU B

CPUB

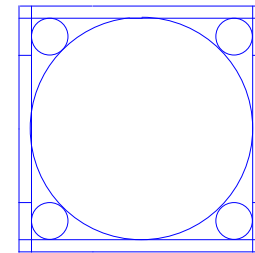
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MAAB6	AM18	SB_MA[6]	SB_DQ[2]	AJ9	MDB2
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MAAB15	AY16	SB_MA[15]			
(8) -SWEB	AR25	SB_WE#	SB_DQ[8]	AL7	MDB8
(8) -SCASB	AK25	SB_CAS#	SB_DQ[9]	AM7	MDB9
(8) -SRASB	AP24	SB_RAS#	SB_DQ[10]	AM10	MDB10
			SB_DQ[11]	AL10	MDB11
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(8) SBAB1	AM24	SB_BS[1]	SB_DQ[13]	AM6	MDB13
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	AY15	SB_CKE[3]	SB_DQ[19]	AR10	MDB19
MODT_B0	AL26	SB_ODT[0]	SB_DQ[20]	AP6	MDB20
MODT_B1	AP26	SB_ODT[1]	SB_DQ[21]	AR6	MDB21
	AM26	SB_ODT[2]	SB_DQ[22]	AP9	MDB22
	AK26	SB_ODT[3]	SB_DQ[23]	AR9	MDB23
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			SB_DQS[3]	AN12	-DQSB3
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	AL23	SB_CLK[2]	SB_DQ[27]	AP13	MDB27
	AM22	SB_CLK[2]	SB_DQ[28]	AL12	MDB28
	AP21	SB_CLK[3]	SB_DQ[29]	AL13	MDB29
	AN21	SB_CLK[3]	SB_DQ[30]	AR12	MDB30
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VREF_DQA	AH4	FC_AH4			
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			SB_DQ[49]	AM31	MDB49
			SB_DQ[50]	AL35	MDB50
			SB_DQ[51]	AL32	MDB51
			SB_DQ[52]	AM34	MDB52
			SB_DQ[53]	AL31	MDB53
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LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]

CPU SOCKET

CR
CPU RETENTION/X

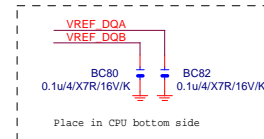
Need check the new CPU ME

CPU



ILM_BP/1156/CSP/ILM_BP/1156/CSP/12KRC-0F0001-05R_12KRC-0F0001-31R]

DDR SIGNAL



(7) MODT_A[0..1] <-- MODT_A0..11

(8) MODT_B[0..1] <-- MODT_B0..11

(7) MDA[0..63] <-- MDA0..631

(8) MDB[0..63] <-- MDB0..631

(7) DQSA[0..7] <-- DQSA0..71

(7) -DQSA[0..7] <-- -DQSA0..71

(7) MAA[A0..15] <-- MAA0..151

(8) MAA[B0..15] <-- MAA0..151

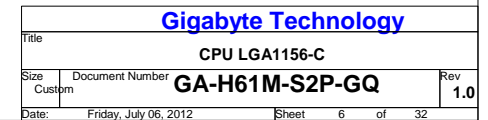
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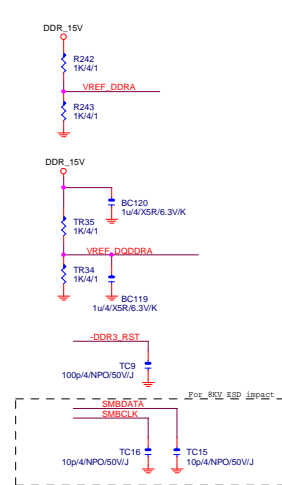
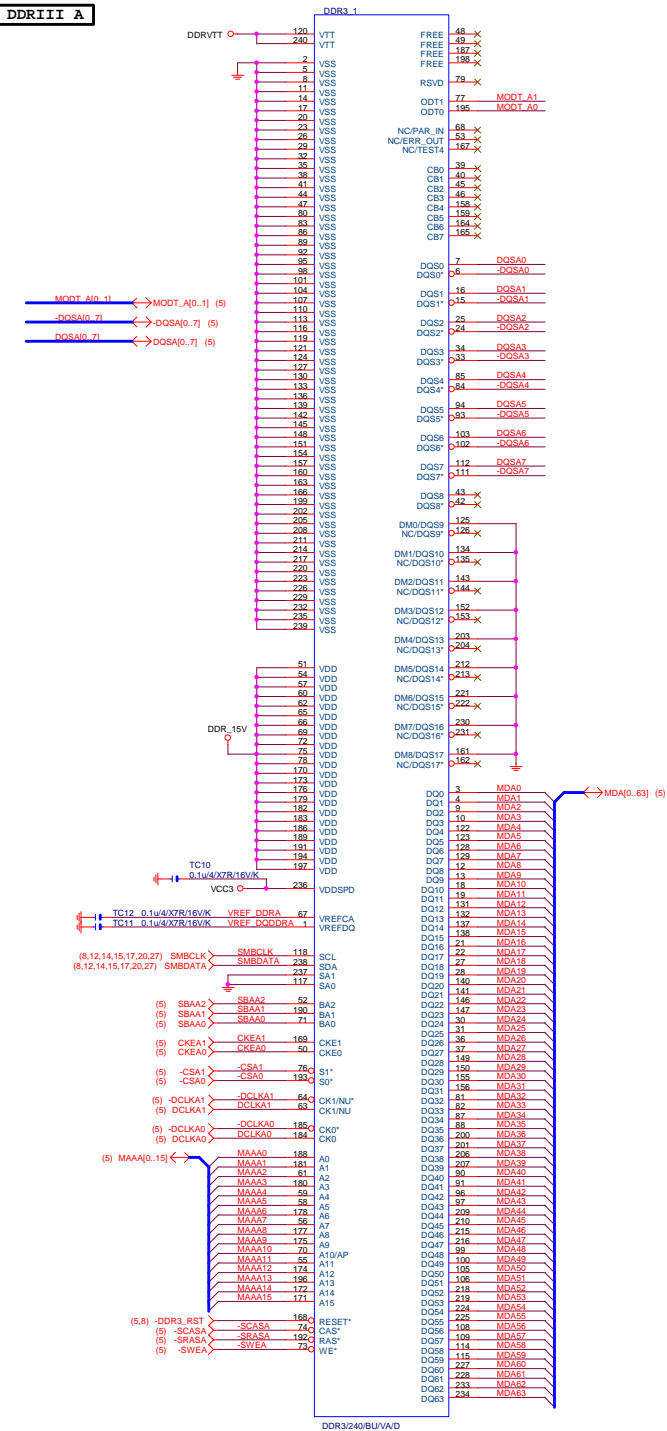
Gigabyte Technology

Title			
CPU LGA1156-B			
Size			
Document Number			
GA-H61M-S2P-GQ			
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Friday, July 06, 2012			
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1.0			

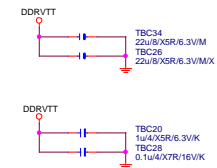
CPU I,J GND



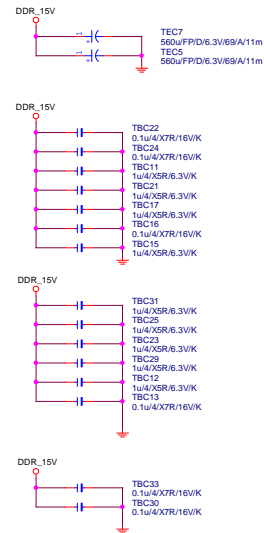
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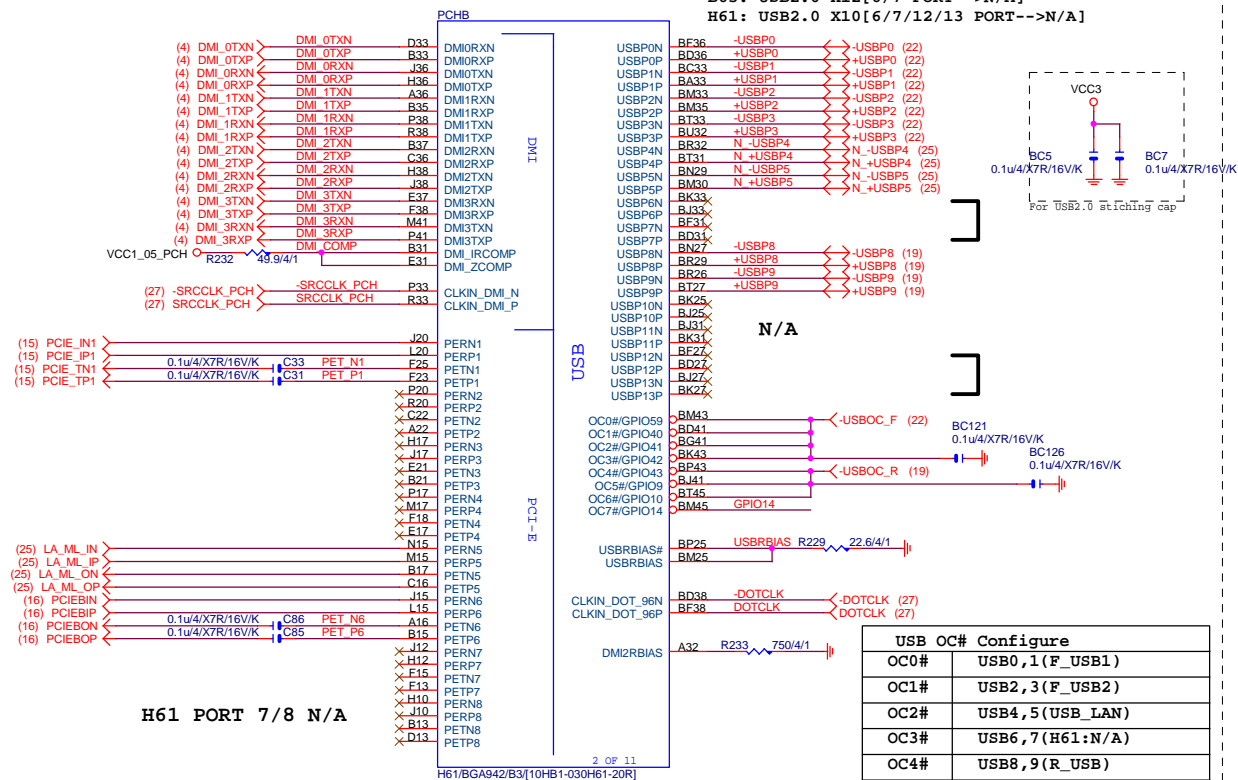
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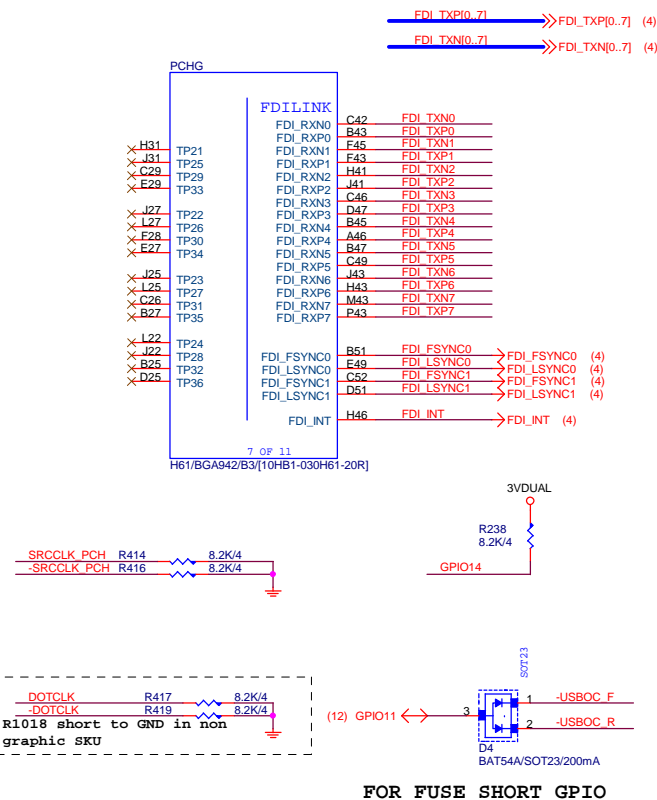
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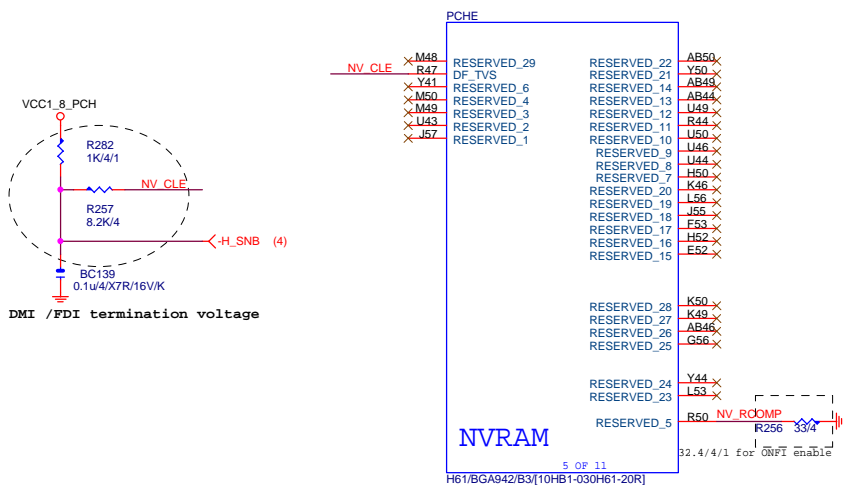
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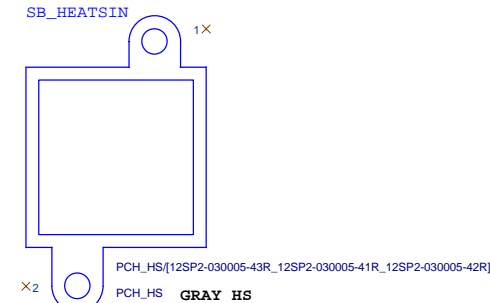
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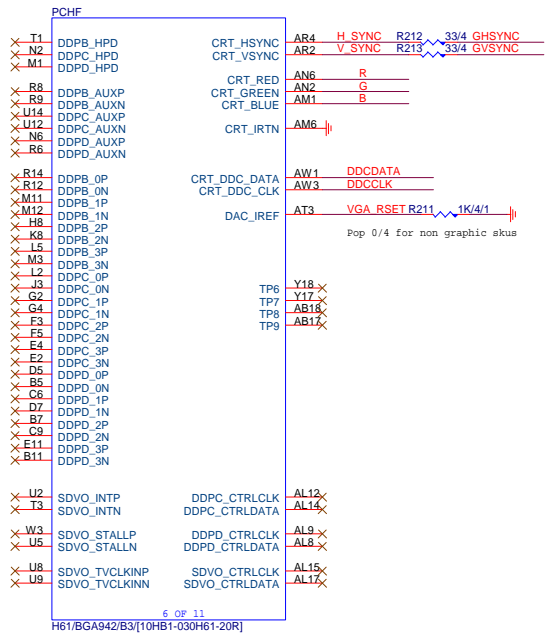
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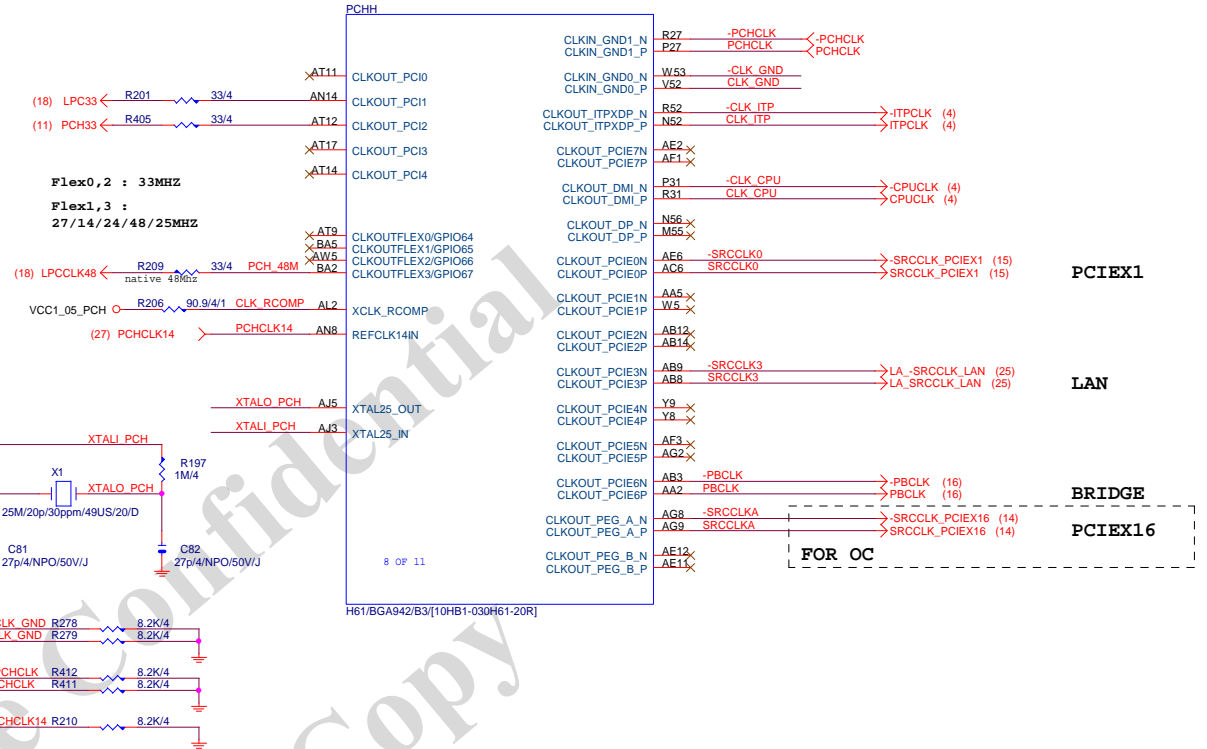
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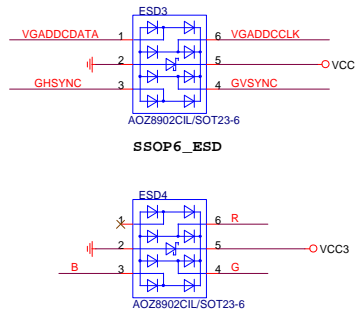
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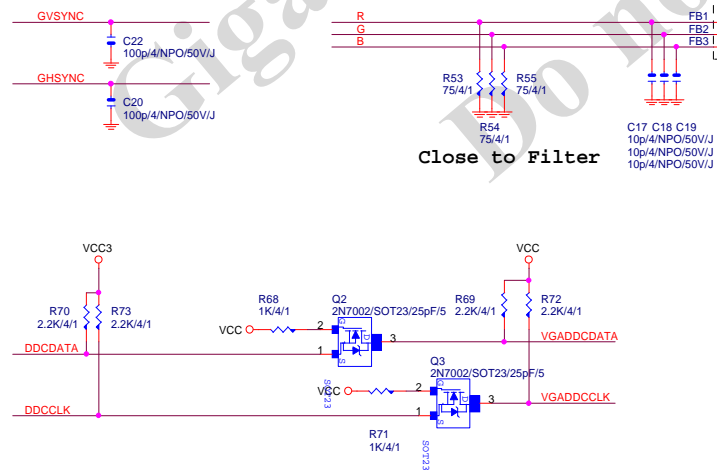
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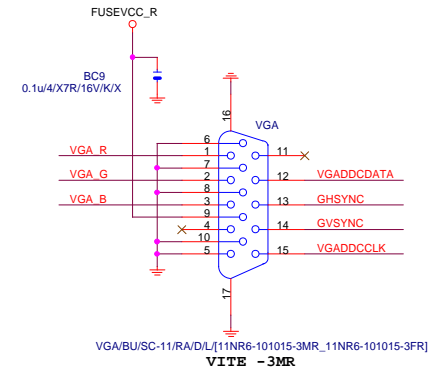
VGA ESD



VGA SIGNAL

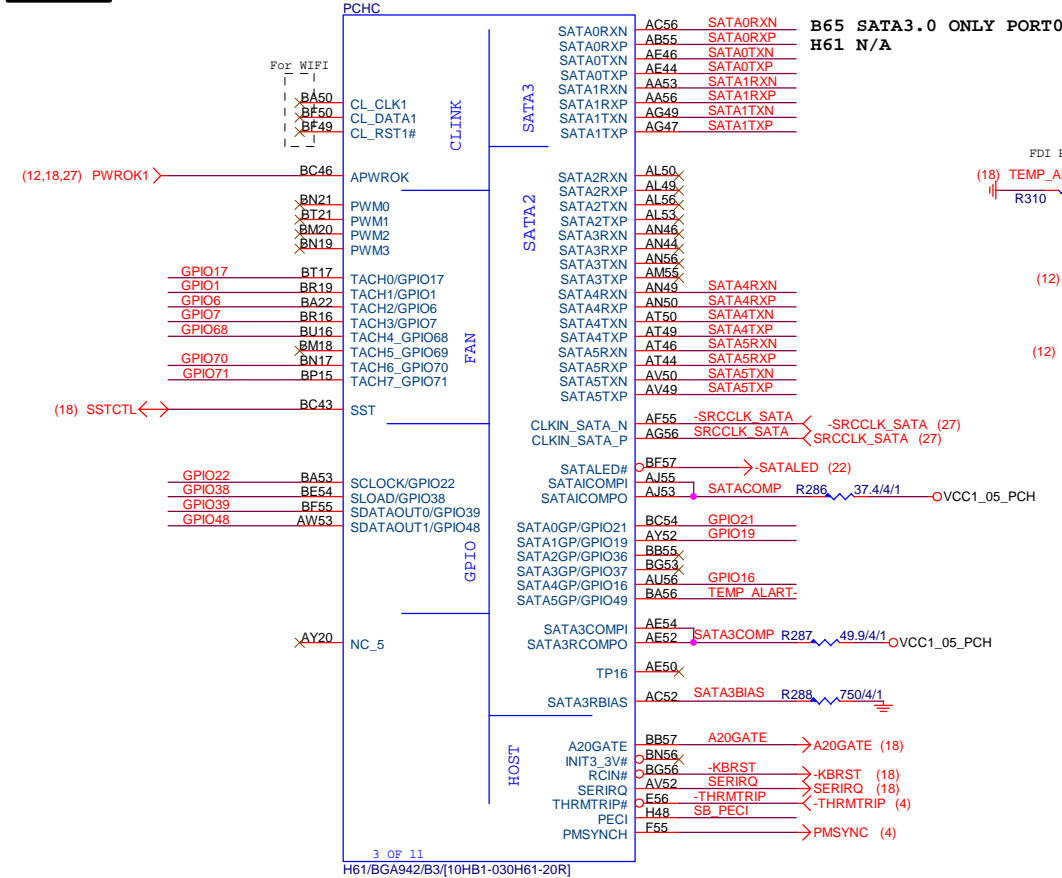


D-SUB

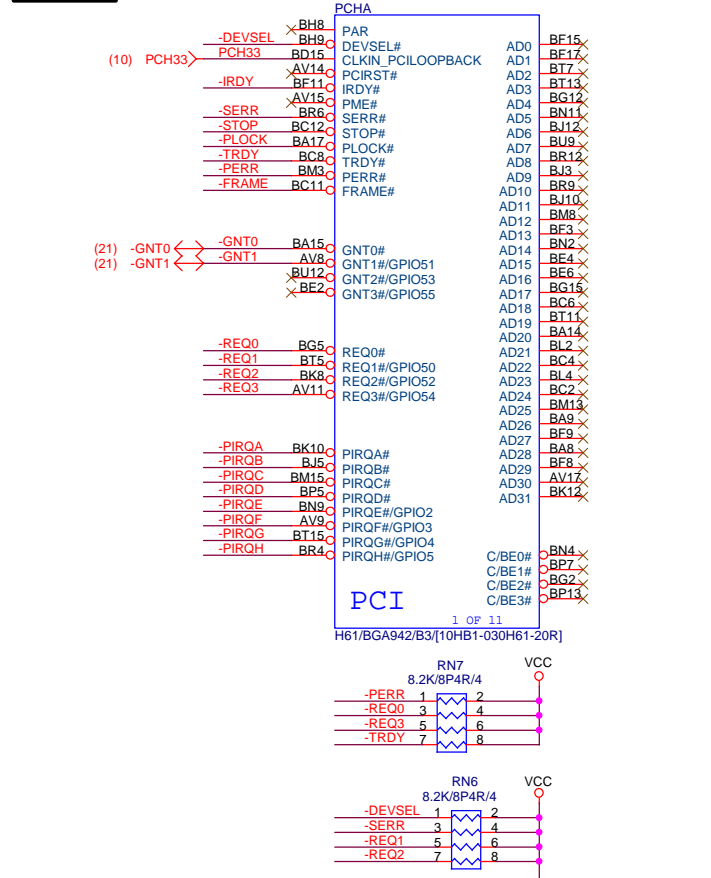


Gigabyte Technology			
Title			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-H61M-S2P-GQ	1.0	
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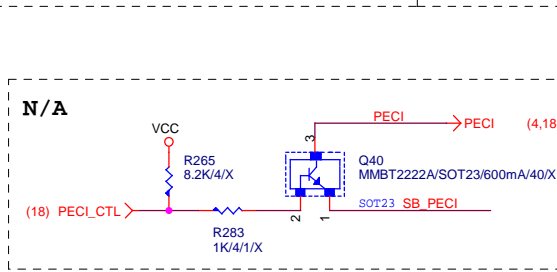
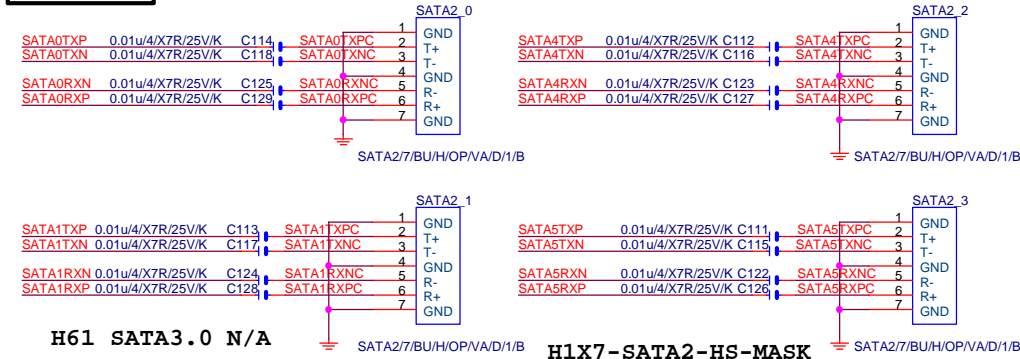
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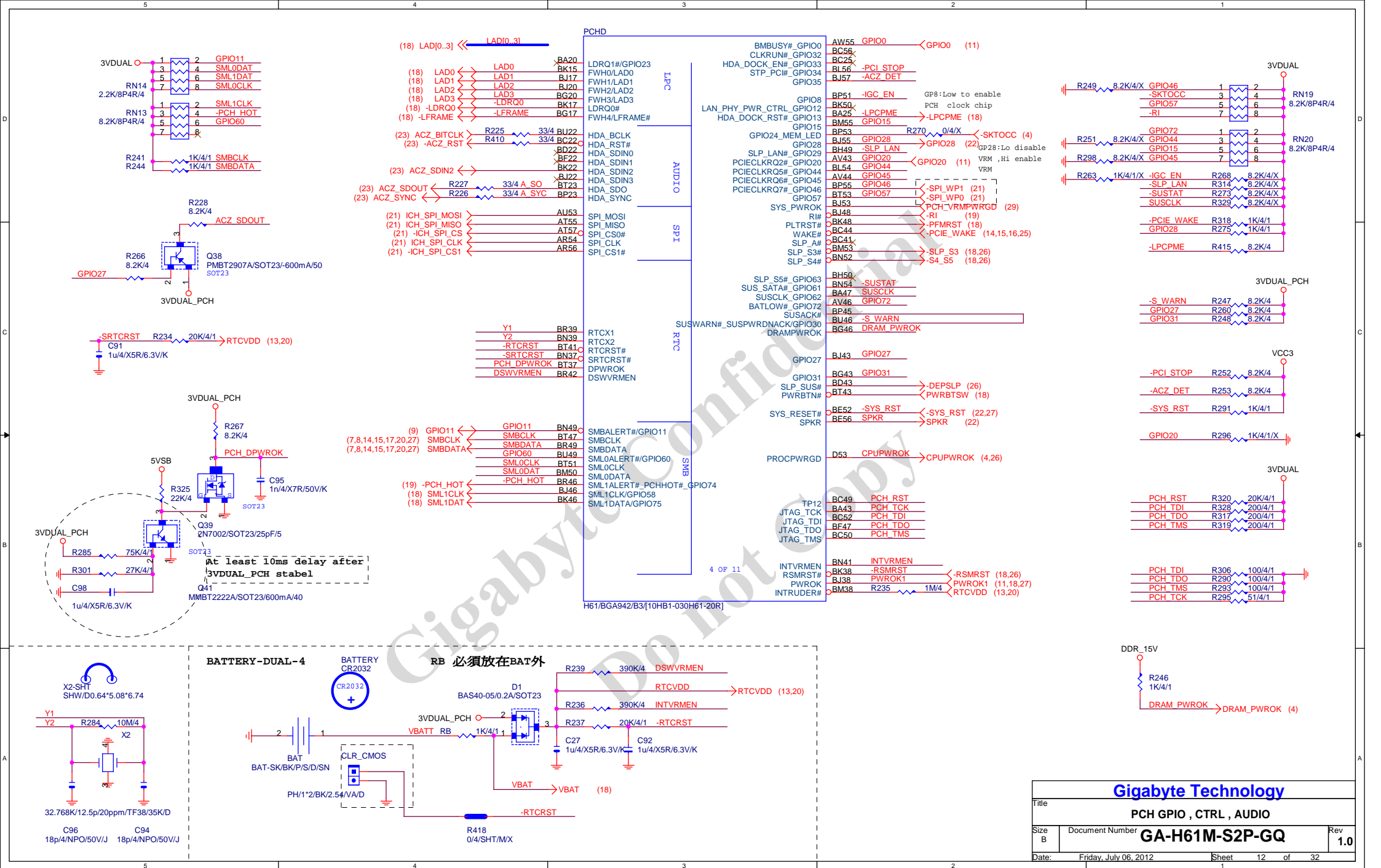


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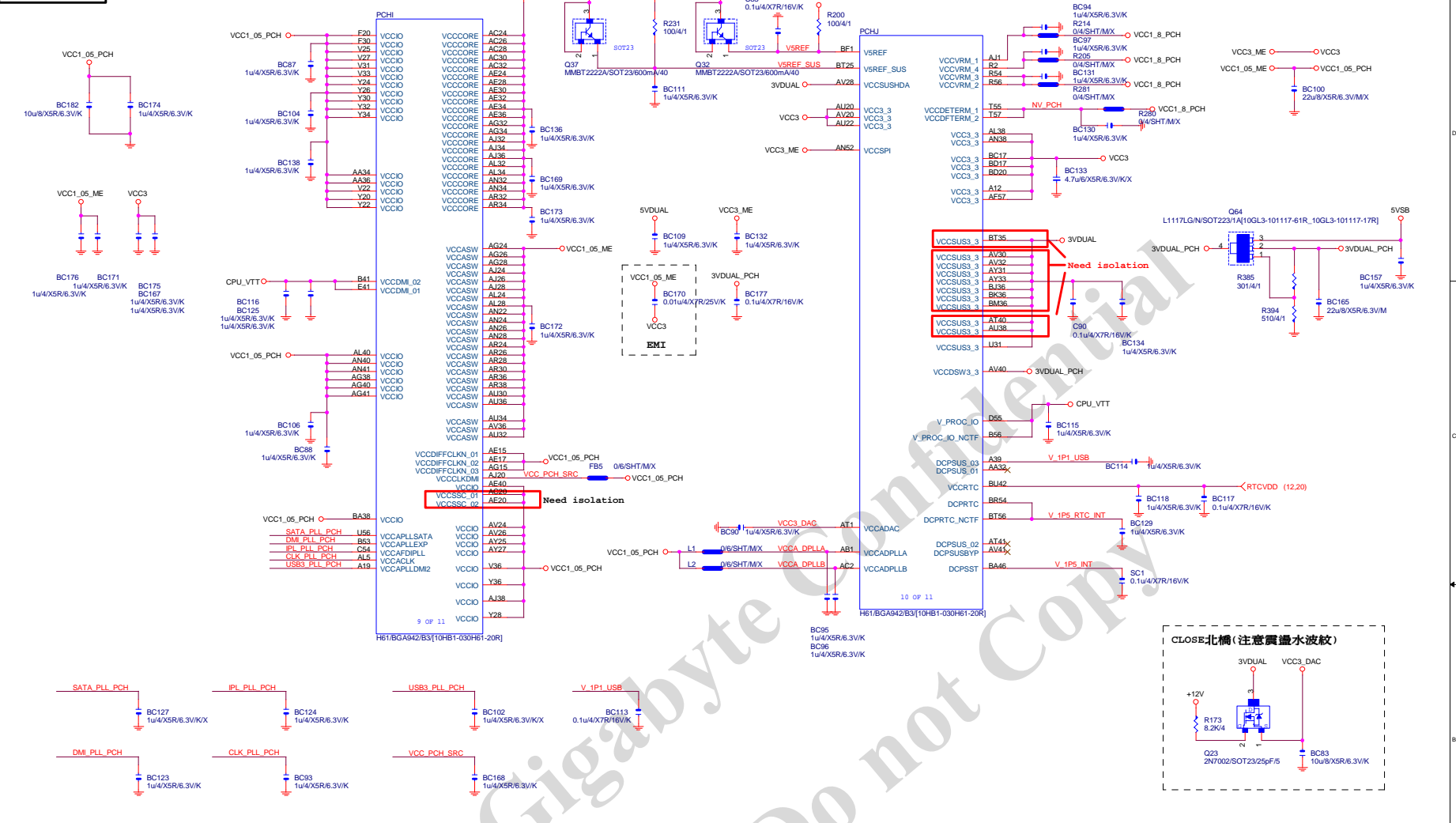


SATA CONN.

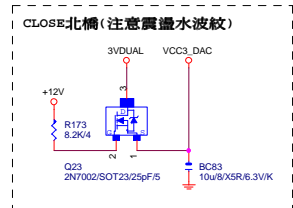
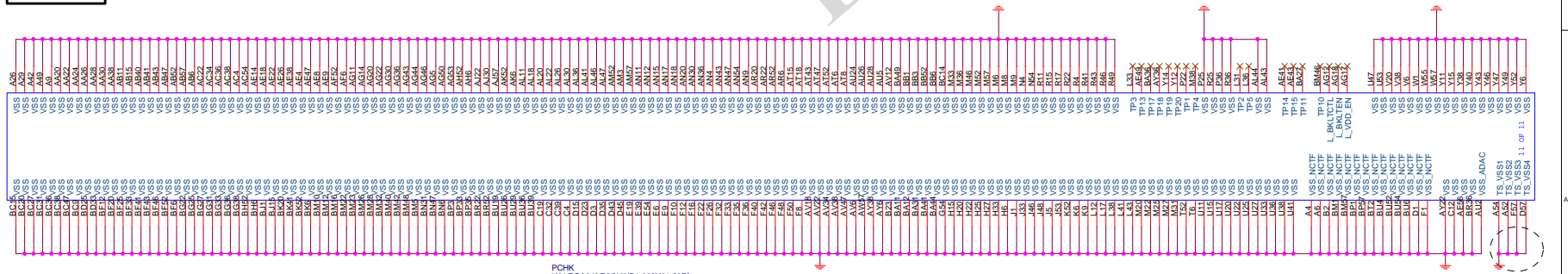




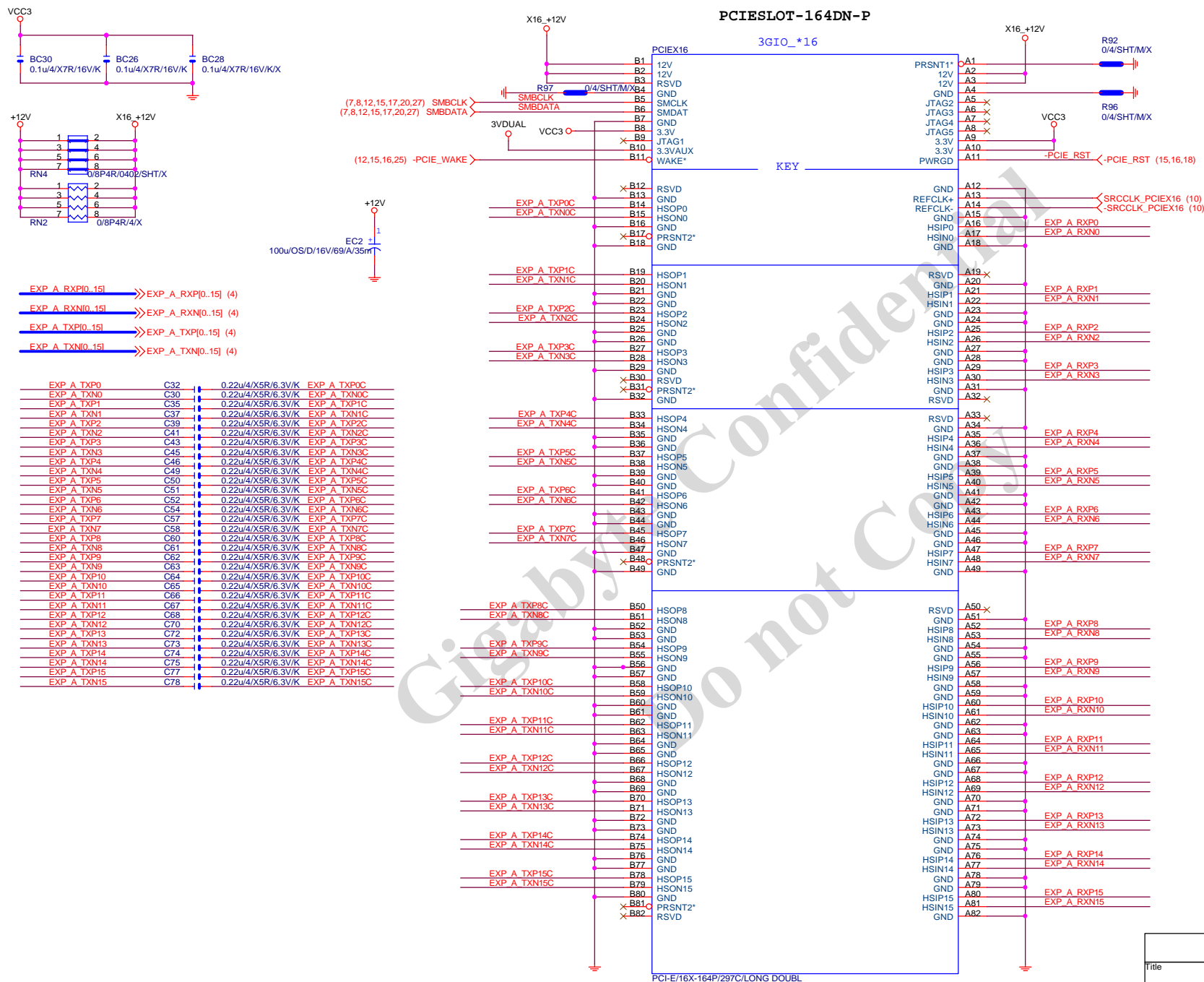
PCH I POWER



PCH K GND



PCIEX16



PCI-E/16X-164P/297C/LONG DOUBL

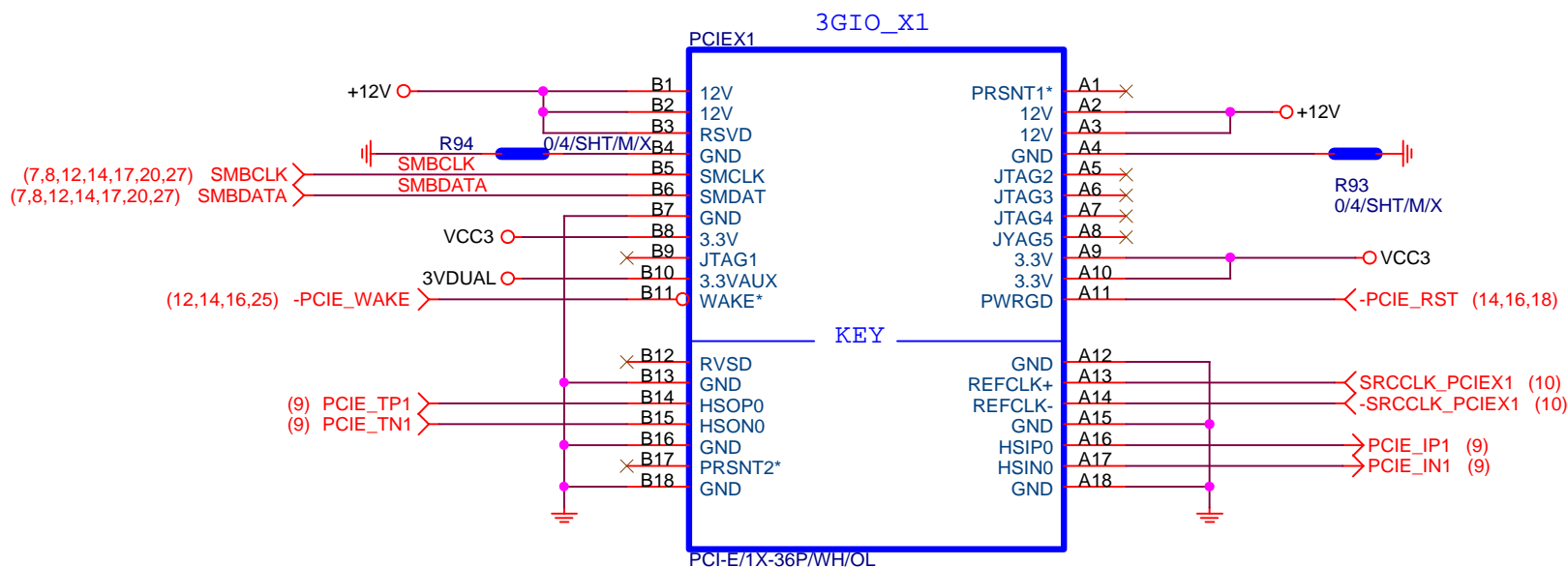
DOUBLE PUSH LATCH

Gigabyte Technology

PCI EXPRESS * 16

Size	Document Number	GA-H61M-S2P-GQ
Custom		

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3VDUAL

BC31

0.1u/4/X7R/16V/K/X

+12V

BC23

0.1u/4/X7R/16V/K/X

VCC3

BC25

0.1u/4/X7R/16V/K/X

-PCIE_RST

C28

10p/4/NPO/50V/J

Gigabyte Technology

Title

PCI EXPRESS X 1 PORT

Size
A

Document Number

GA-H61M-S2P-GQ

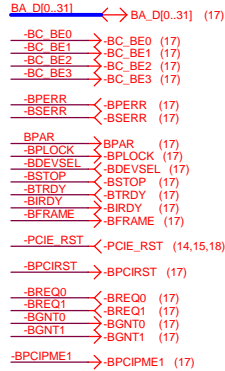
Rev
1.0

Date: Friday, July 06, 2012

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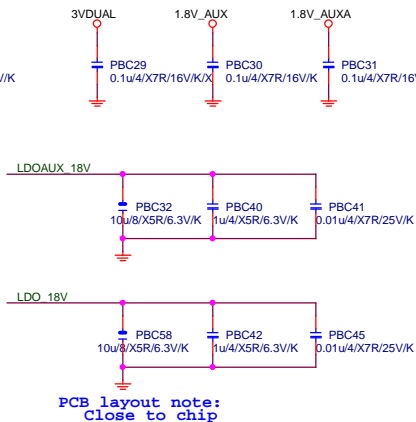
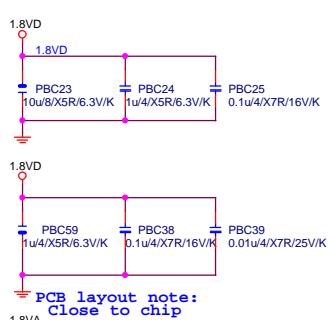
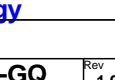
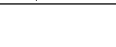
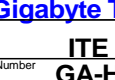
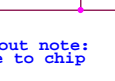
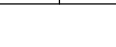
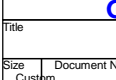
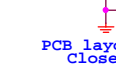
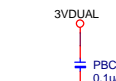
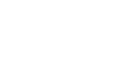
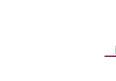
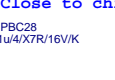
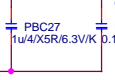
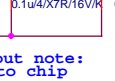
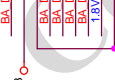
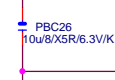
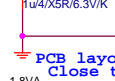
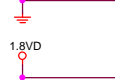
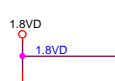
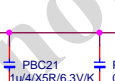
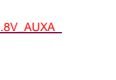
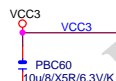
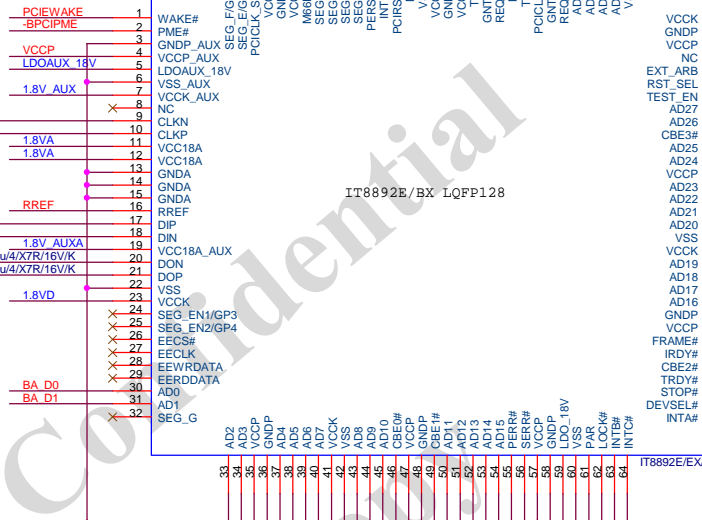
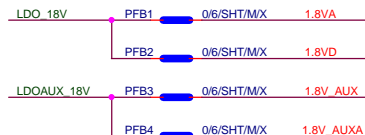
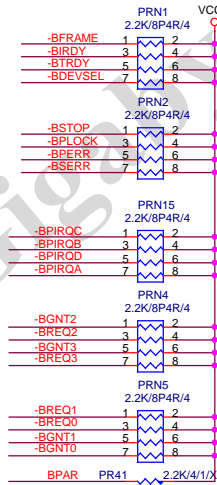
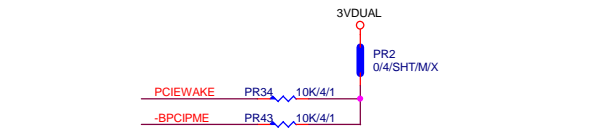
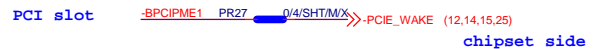
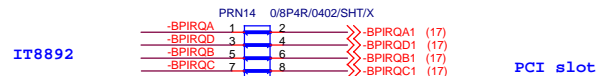
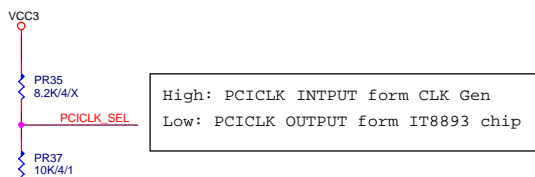
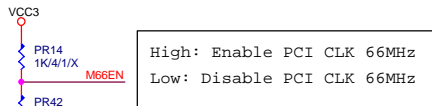
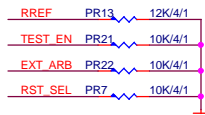
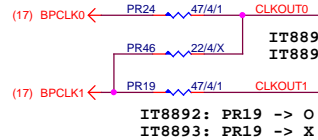
PCIe TO PCI

PCI:5/4/5 Impedance=50 +- 15%

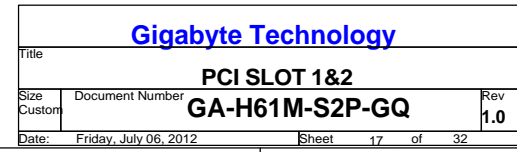
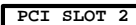


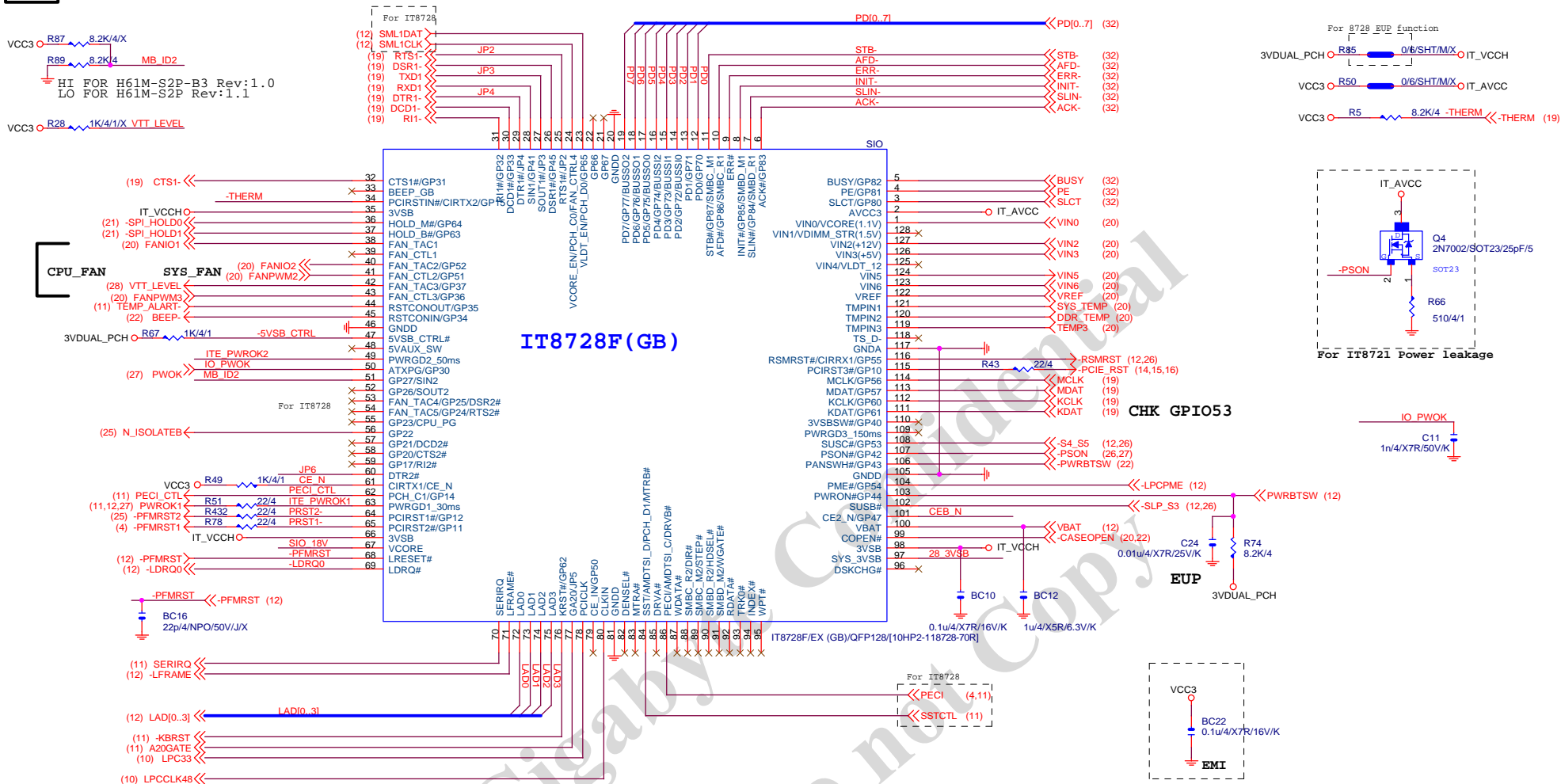
Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm

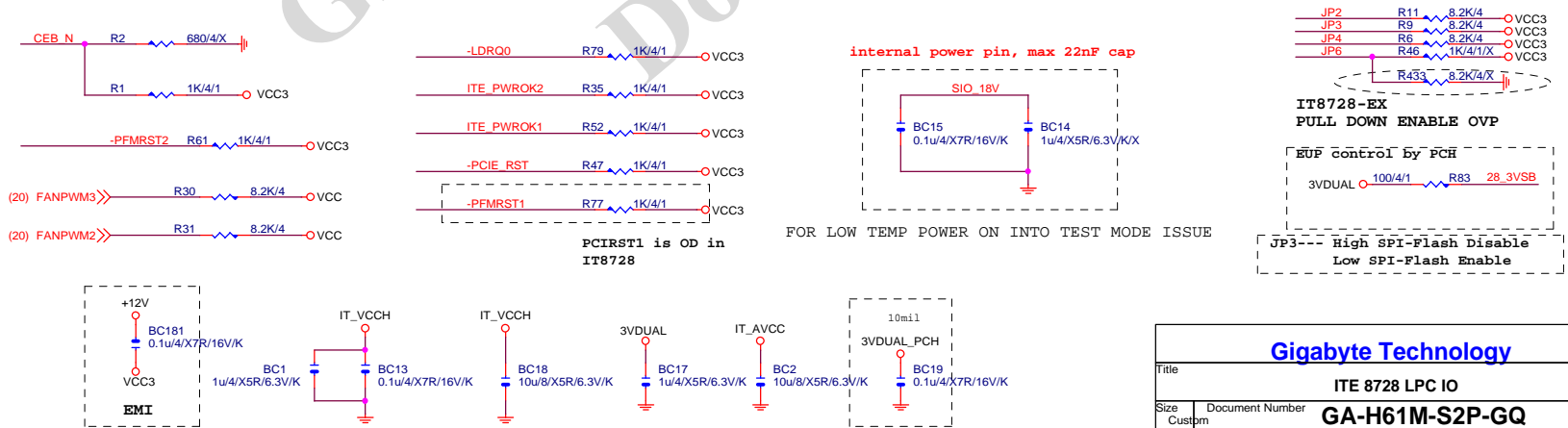


Gigabyte Technology			
Title			
ITE IT8892E			
GA-H61M-S2P-GQ			
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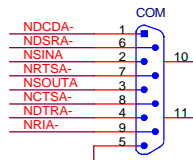
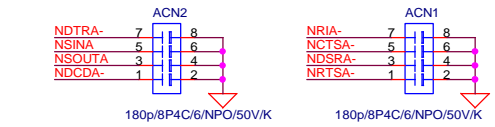
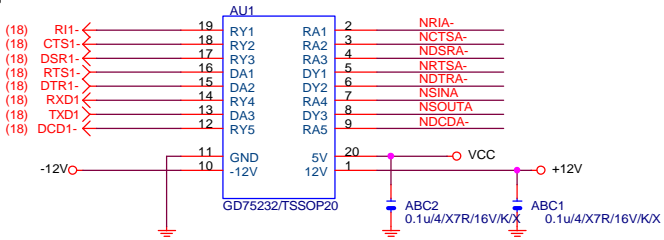




	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VING/VCORE(1.3V)/NC

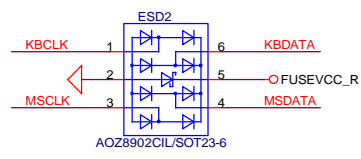
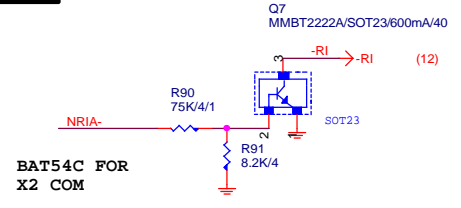


COM



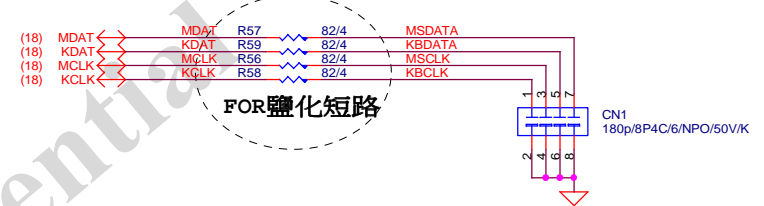
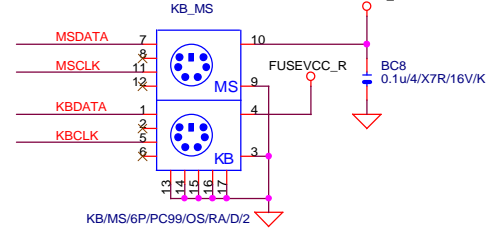
VITE -1QR

COM RI

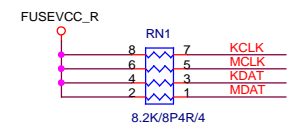


CLOSE KB_MS

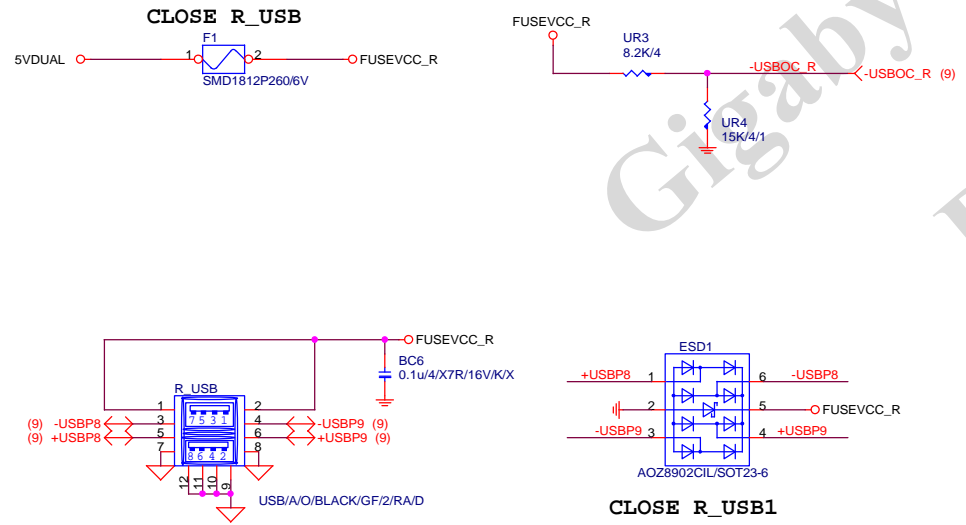
KB/MS



FOR 鹽化短路

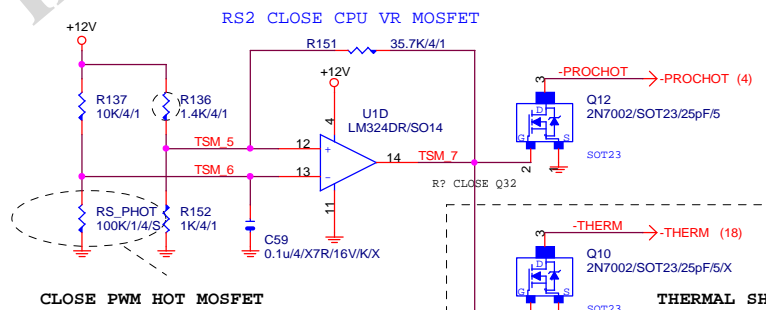
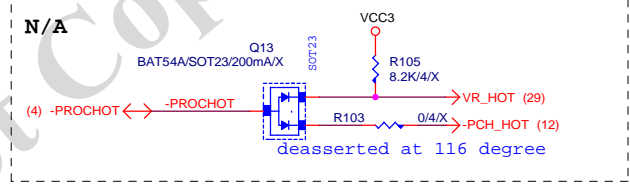


R_USB1

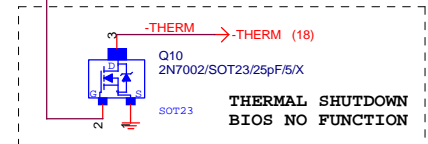


CLOSE R_USB1

-PROHOT



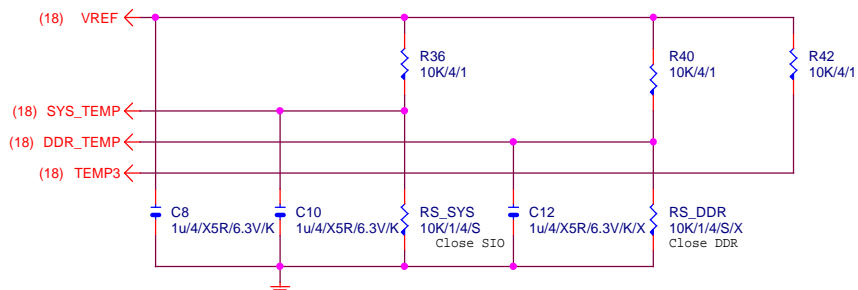
CLOSE PWM HOT MOSFET



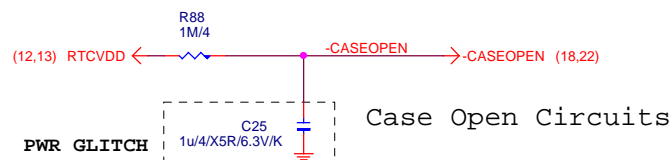
Gigabyte Technology

Title				COM,-RI,KB_USB,USB_ESATA,-PROHOT	
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TEMP H/W MONITOR

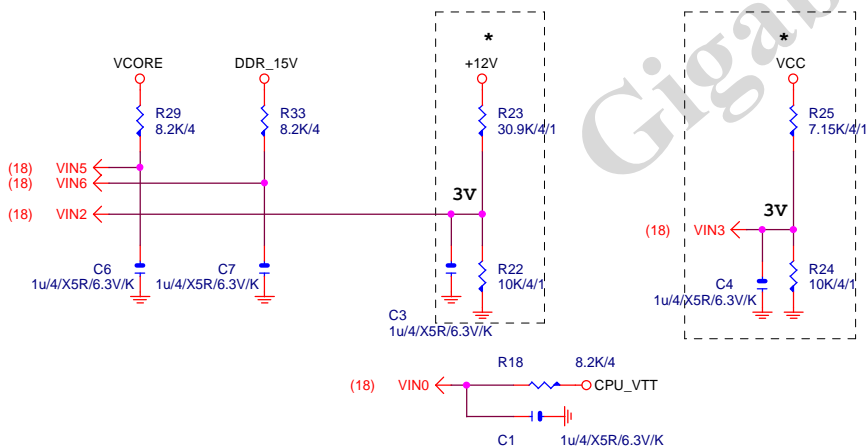


CASE OPEN

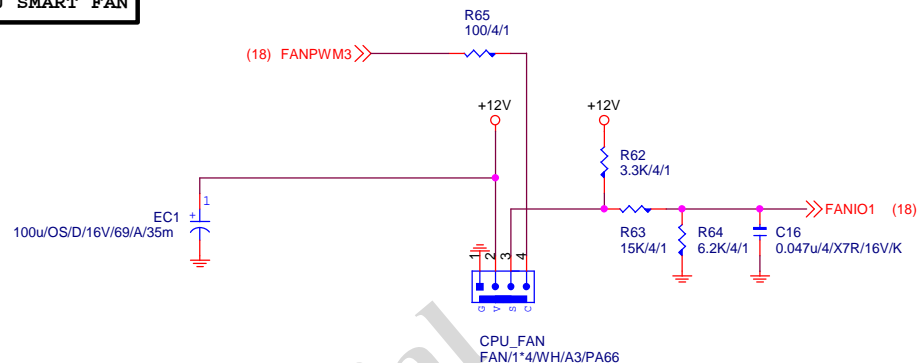


VOLTAGE-- H/W MONITOR

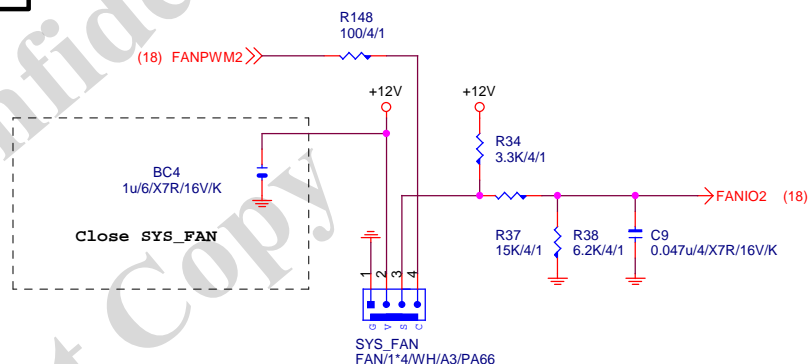
IT8728/EX VIN2/VIN3-->2V



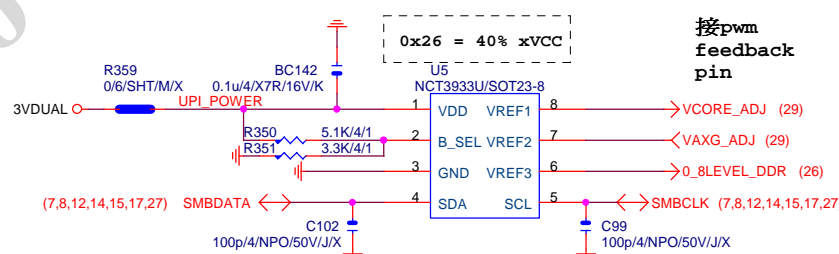
CPU SMART FAN



SYS SMART FAN



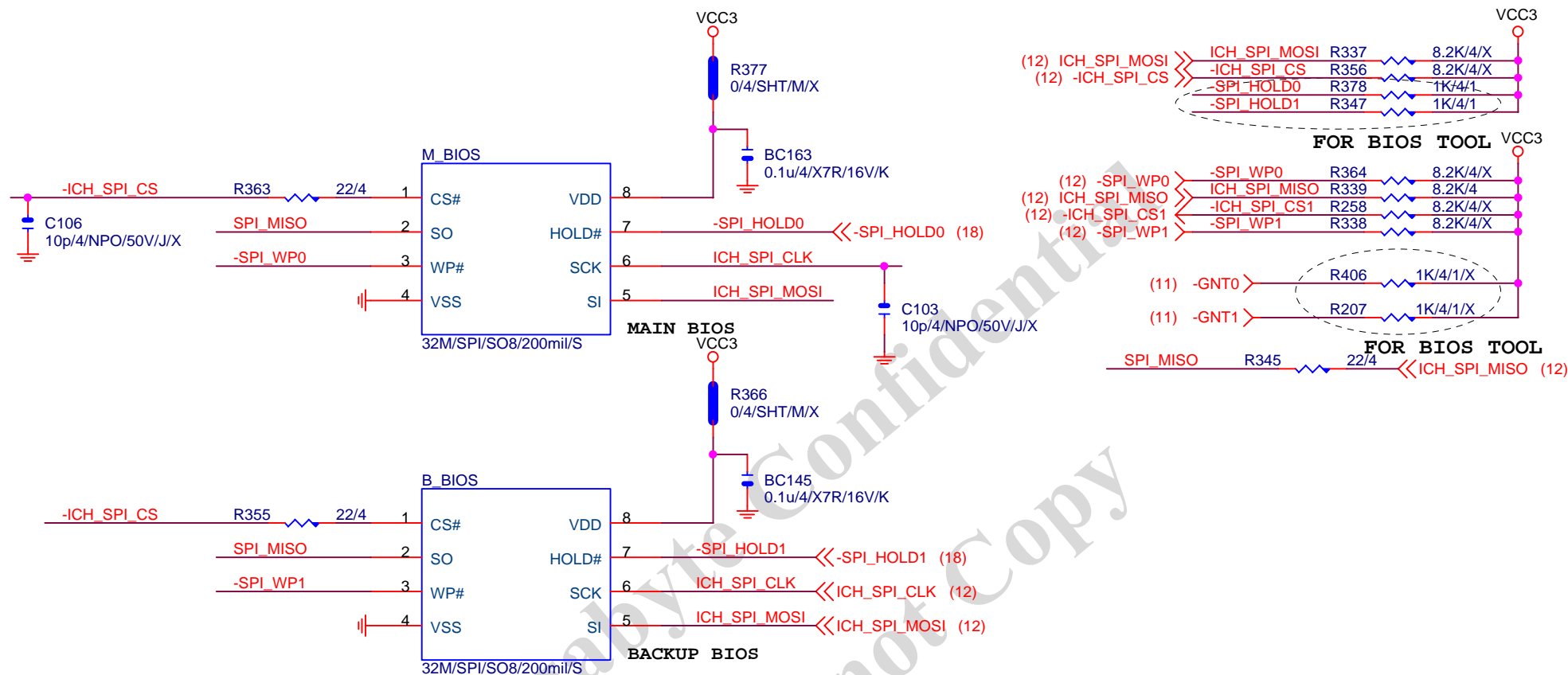
O.V.



Gigabyte Technology

Title		HWM,FAN CTRL,OV	
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DUAL BIOS



B65使用64M BIOS
使用H67暫用32M
H61使用32M BIOS

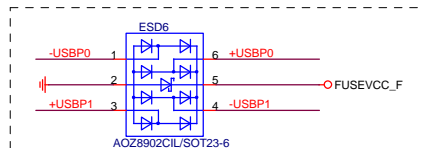
BOOT DEVICE	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1

1 means floating
0 means PD 1K

Gigabyte Technology

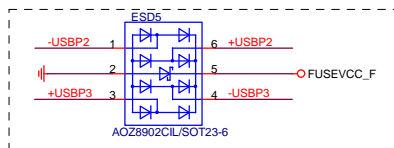
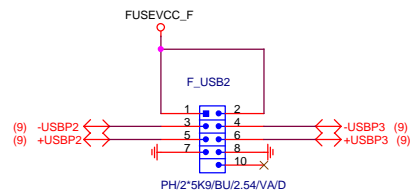
Title		
DUAL BIOS		
Size A	Document Number GA-H61M-S2P-GQ	Rev 1.0
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FRONT USB1

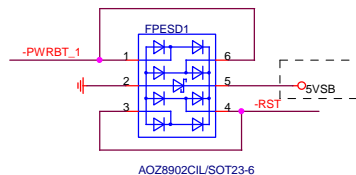


Close to connector

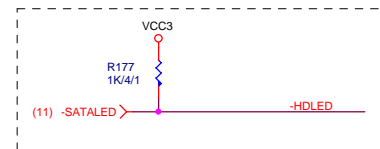
FRONT USB2



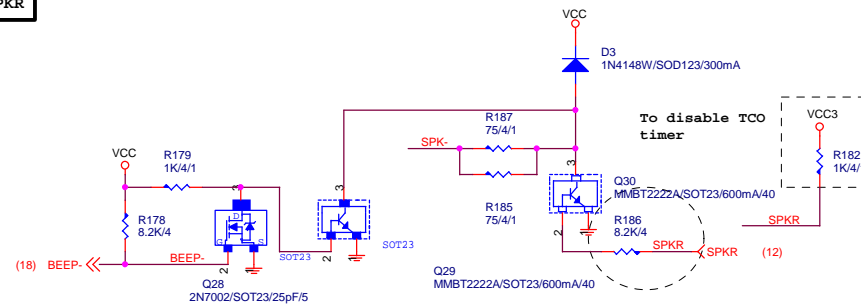
Close to connector



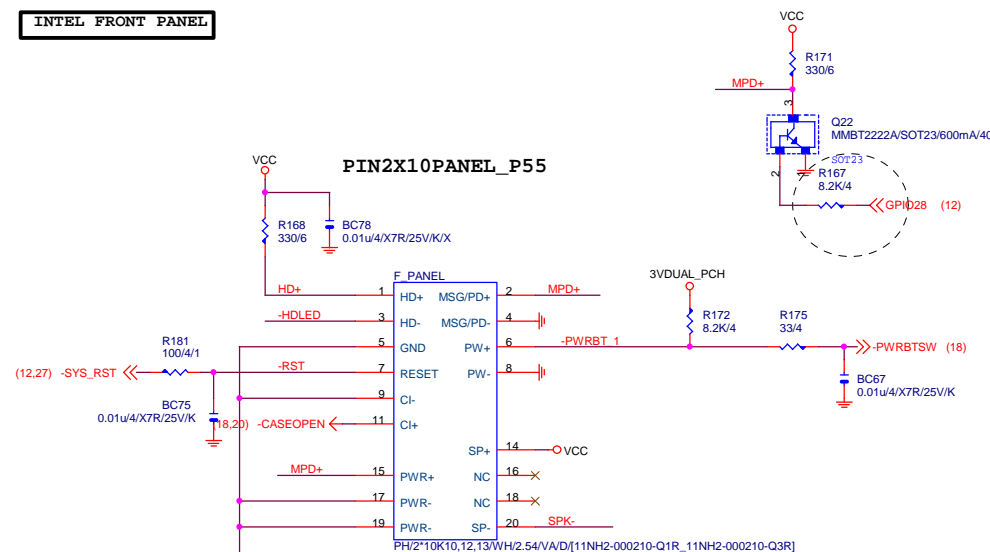
SATA LED



SPKR



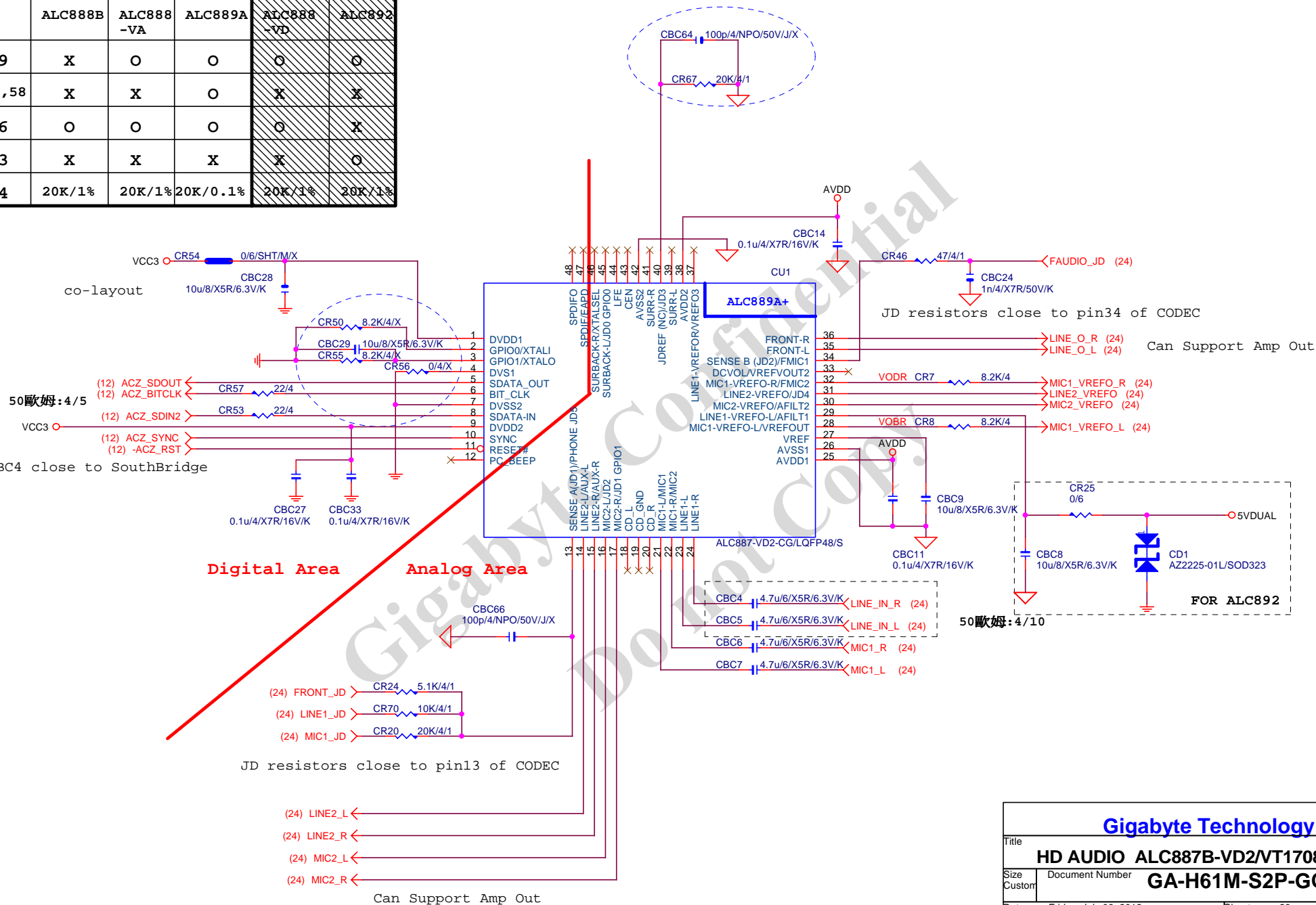
INTEL FRONT PANEL



Gigabyte Technology

Title			
FP,F_USB,USB PWR,SPKR,SATA LED			
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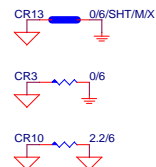
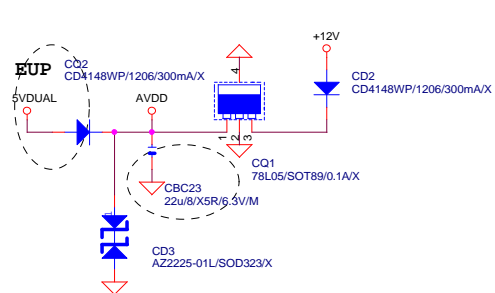
	ALC888B	ALC888-VA	ALC889A	ALC888-VD	ALC892
CR59	X	O	O	O	O
CR53,58	X	X	O	X	X
CR56	O	O	O	O	X
CR63	X	X	X	X	O
CR34	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%



Gigabyte Technology

Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021		
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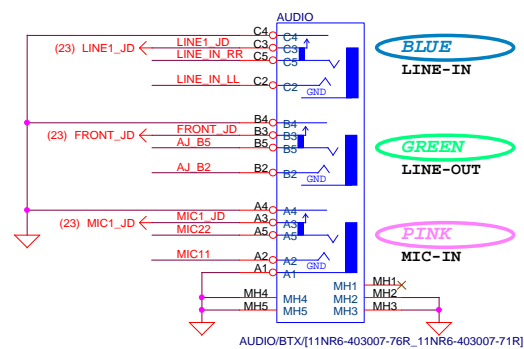
CODEC POWER/EMI PAD



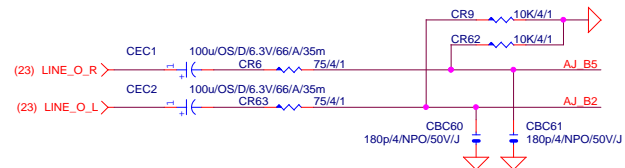
SPDIF

N/A

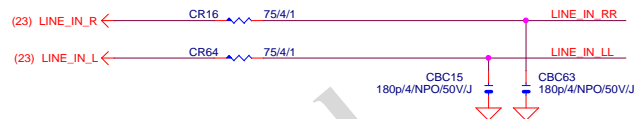
AZALIA JACK



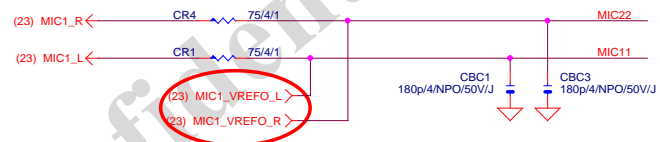
LINE-OUT



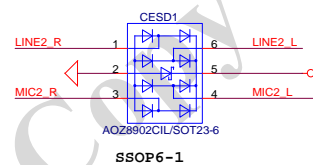
LINE-IN



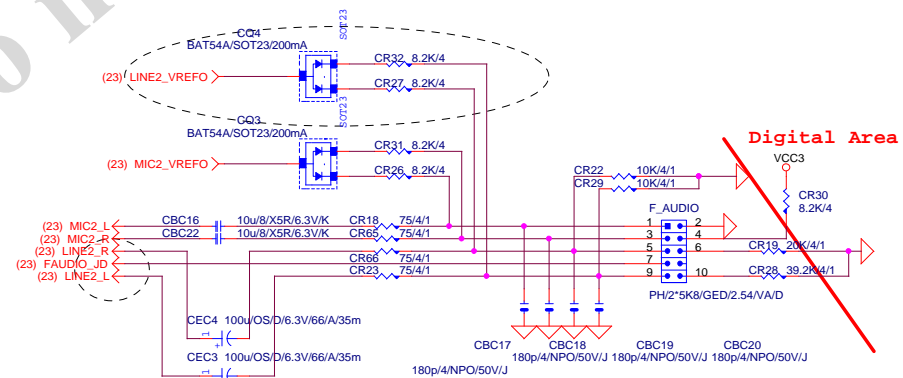
MIC-IN



F_AUDIOESD



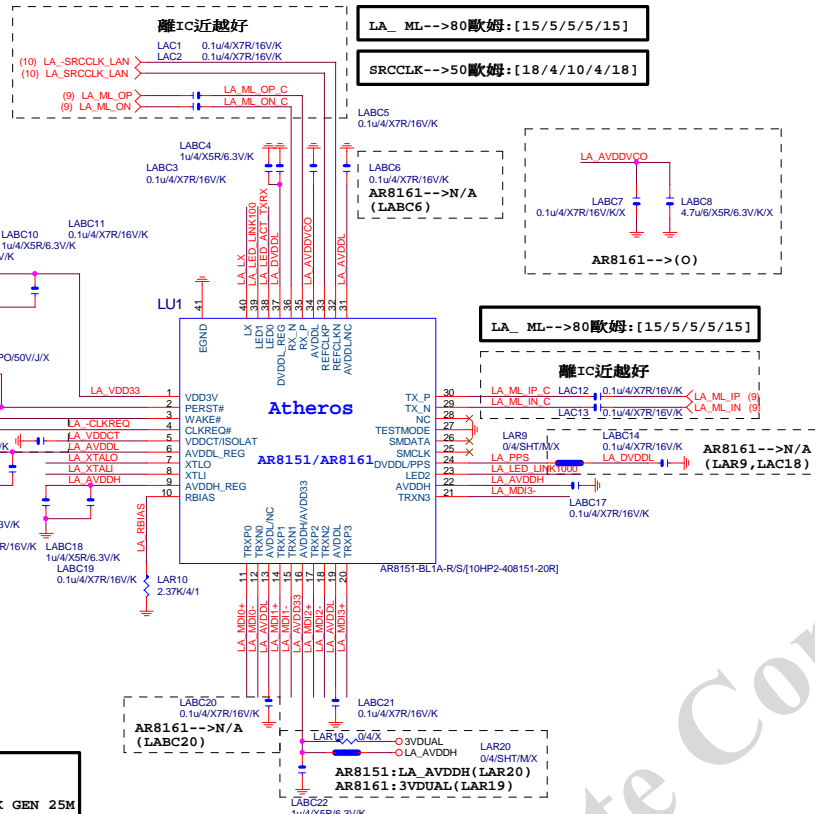
AZALIA FRONT PANEL



Gigabyte Technology

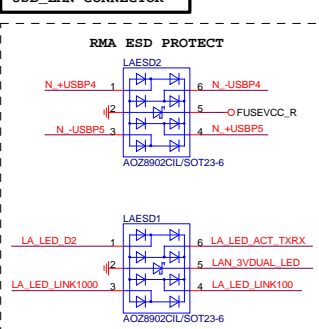
Title			
AUDIO JACK			
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LAN:AR8151/AR8161

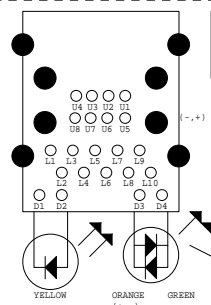
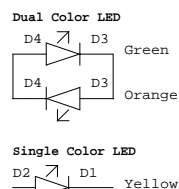


SCH BOM OPT:(二擇一使用)
-->(LAC30):M/B有CLK GEN 25M
-->(LAX1,LAC31,LAC32):M/B無CLK GEN 25M

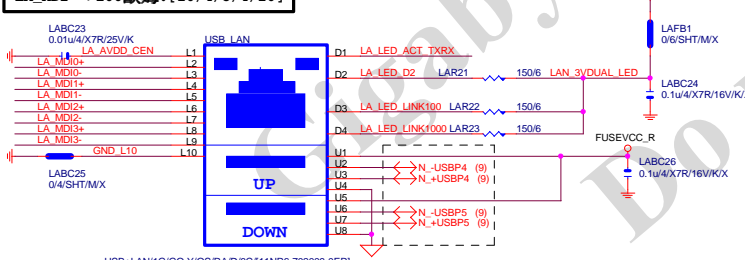
USB LAN CONNECTOR



注意:LAN LED PROTECT:(CO-LAYOUT)
1.ESD(6PIN):AOZ8902CIL/SOT23-6(DEFAULT)
2.SURGE(5PIN):AZ2025-04S/SOT23-5L



LA MDI-->100歐姐:[20/4/8/4/20]



注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

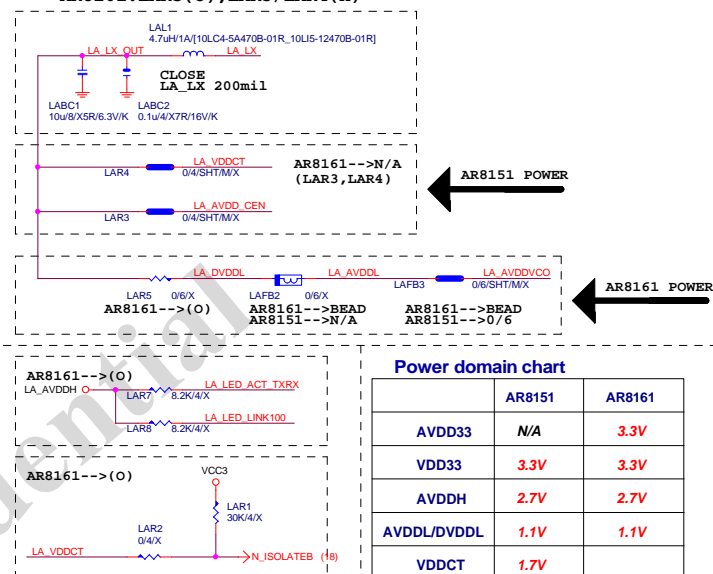
料號	規格	廠商
11NR6-702009-0ER	1G LAN (12core)	UDE
11NR6-702009-91R	1G LAN(8 core)	FOXCONN
11NR6-702009-92R	1G LAN(8 core)	UDE
11NR6-702009-11R	1G LAN(12core/RED)	UDE
11NR6-702009-12R	1G LAN(8 core/RED)	FOXCONN

USB LAN BOM區分:

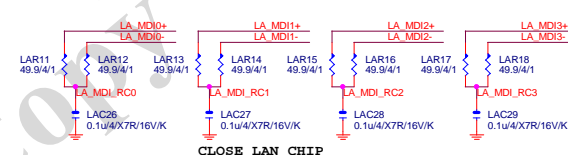
1. (紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2. (黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3. (黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

LAN POWER

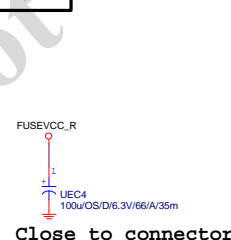
```
NEW DESIGN ONLY FOR INTERNAL SWR
AR8151:LAR3(O),LAR5(X)
AR8161:LAR5(O),LAR3/LAR4(X)
```



MDI : AR8161-->N/A



USB X3 POWER



EMI SHORT PAD

PS:視EMI需求



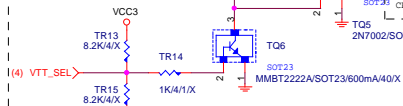
Gigabyte Technology			
Title			
ARTHEROS AR8151/AR8161			
Size	Document Number	Rev	
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CPU_VTT

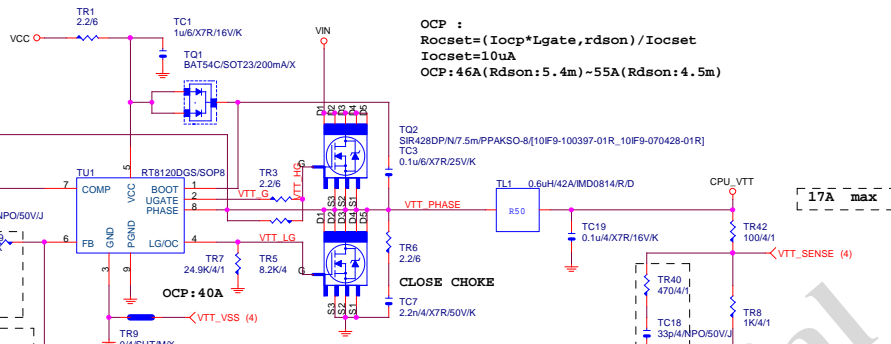
N/A

VTT_SEL	
HI	1.05V
LO	1.0V



VTT_LEVEL	
HI	1.05V
LO	1.0V

By GPI to inform BIOS the default CPU_VTT is 1.05/1.1V

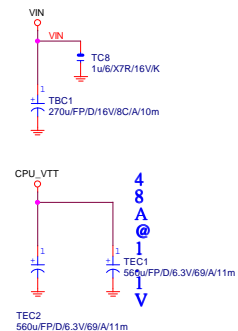


OCF :
 $R_{ocset} = (I_{ocp} * L_{gate} / r_{dson}) / I_{ocset}$
 $I_{ocset} = 10\mu A$
 $OCF = 46A (R_{dson} : 5.4m) \sim 55A (R_{dson} : 4.5m)$

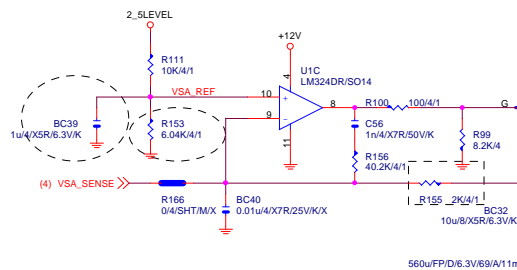
CLOSE CHOKE

LOOK 0.8V

17A max

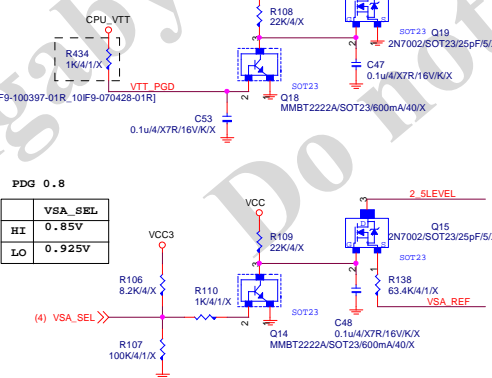


VCCSA



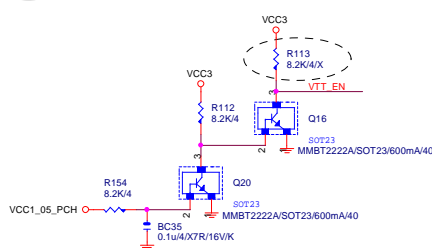
VCCSA PWR SEQ

N/A

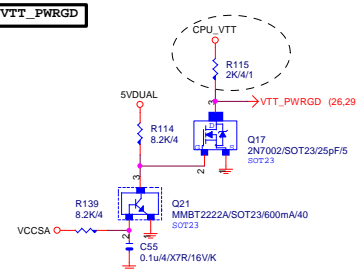


VSA_SEL	
HI	0.85V
LO	0.925V

CPU_VTT PWR SEQ



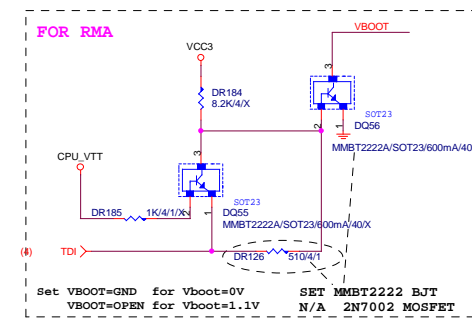
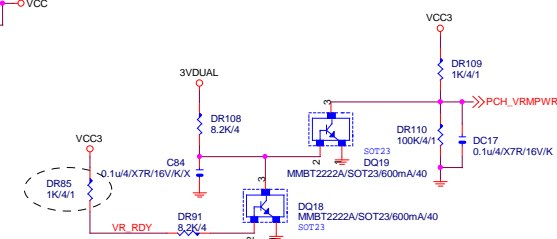
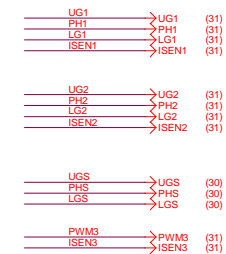
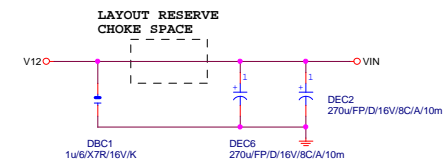
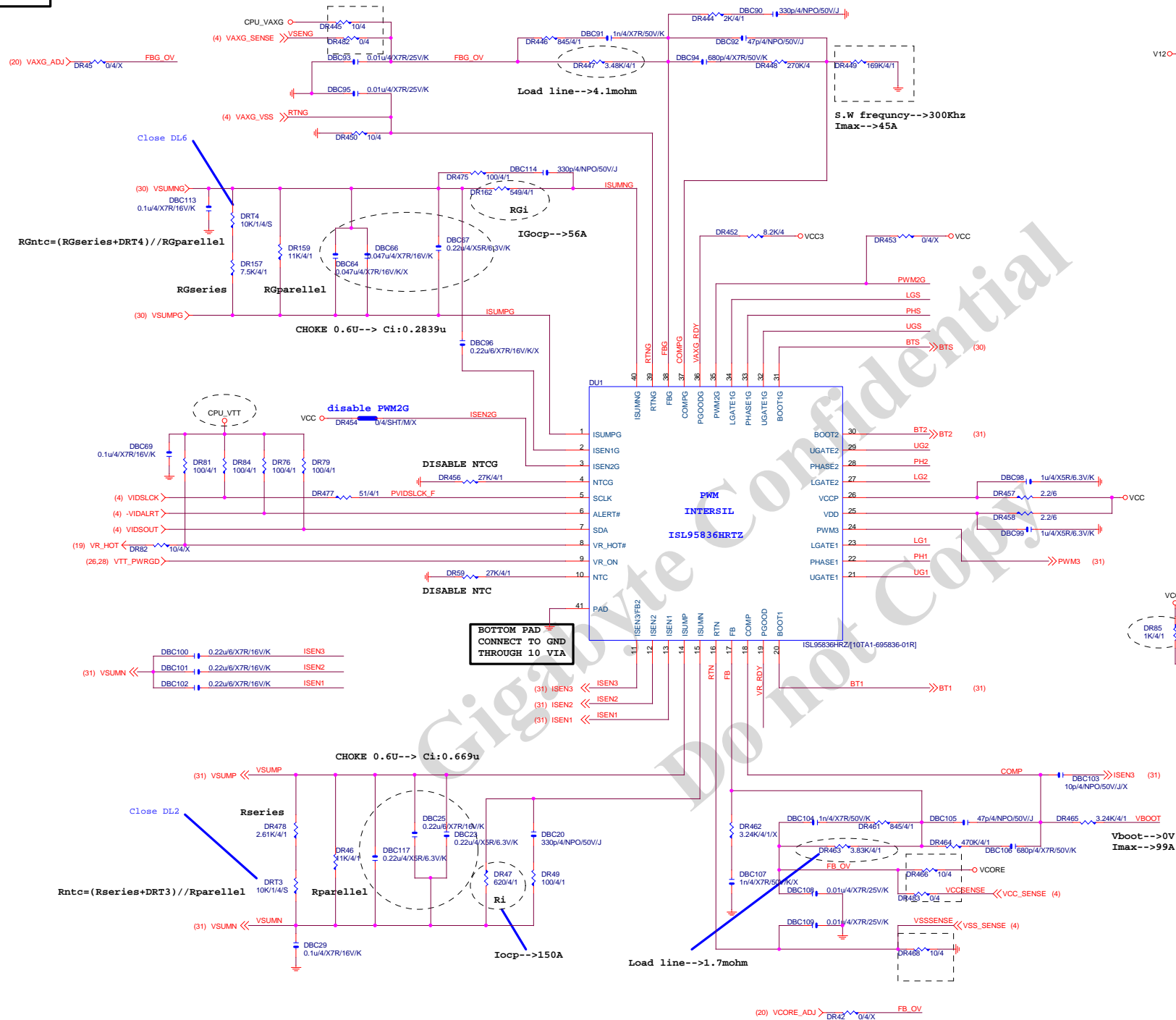
VTT_PWRGD



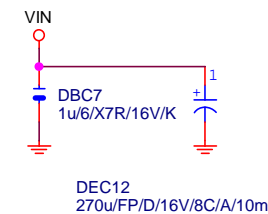
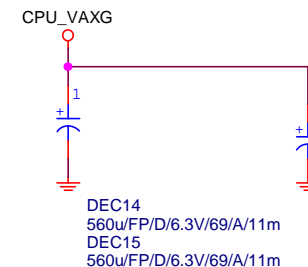
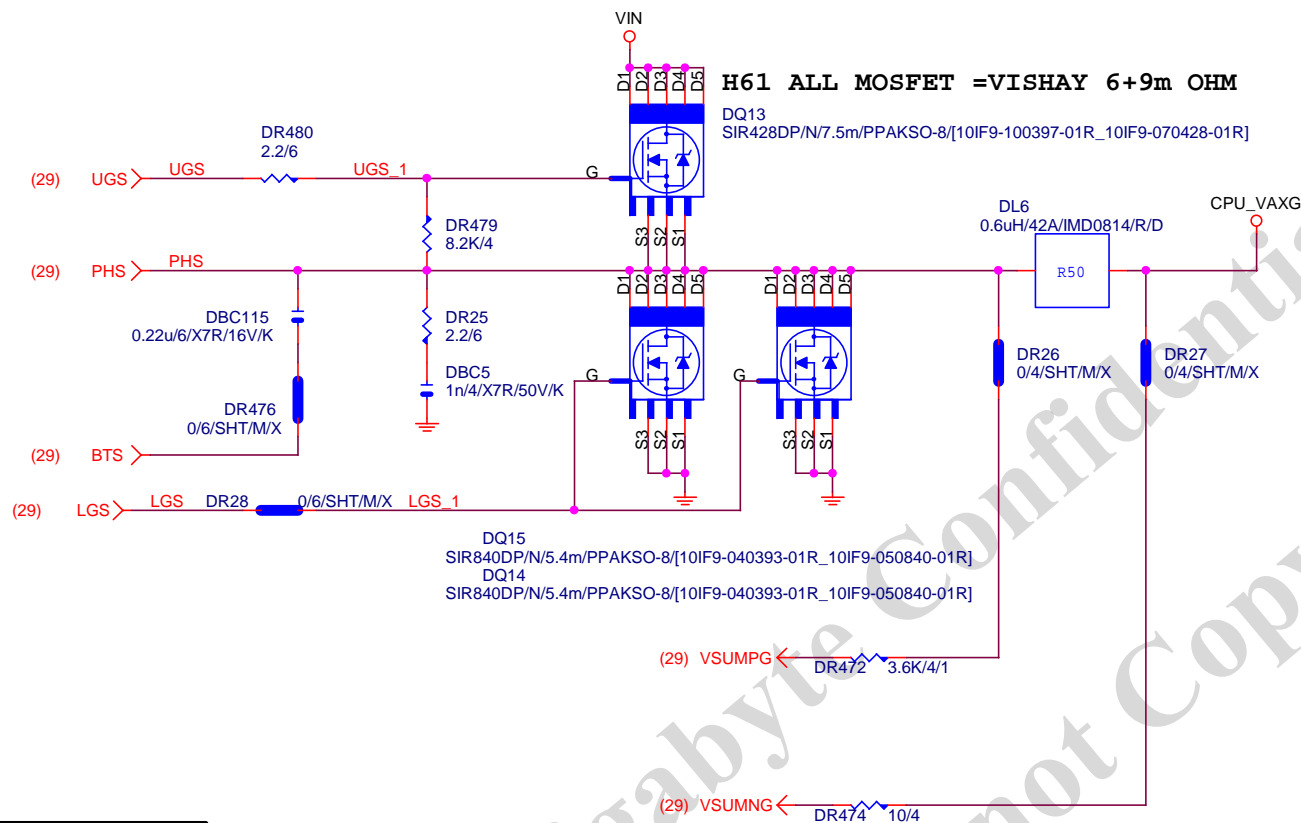
GIGABYTE

Title			
CPU_VTT PWM_RT8120			
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VCORE PWM



VAXG

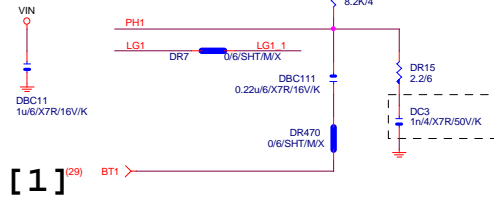


MOS HEATSINK

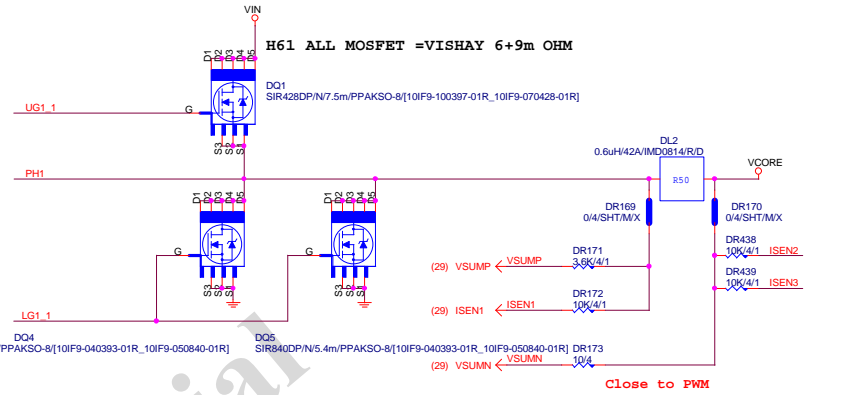
Gigabyte Technology

Title			
CPU CORE VR-2			
Size	Document Number	GA-H61M-S2P-GQ	
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PHASE 1

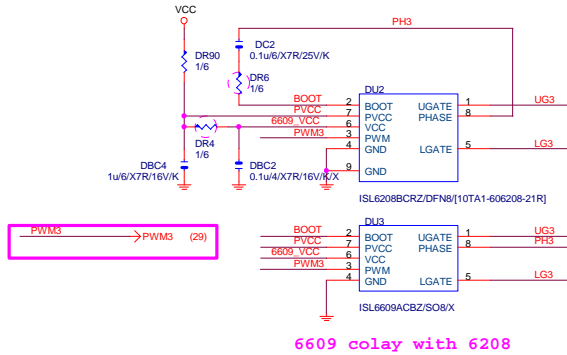


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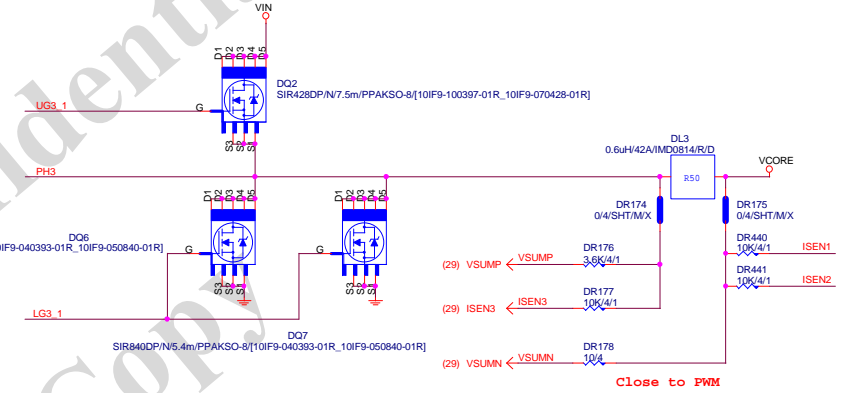


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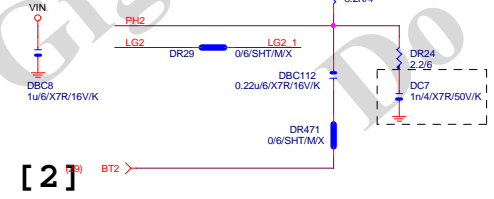
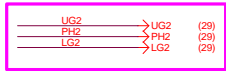
Pop ISL6625CB for PS1
 [ISL6625CBZ/S08]



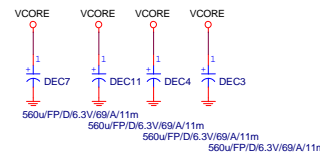
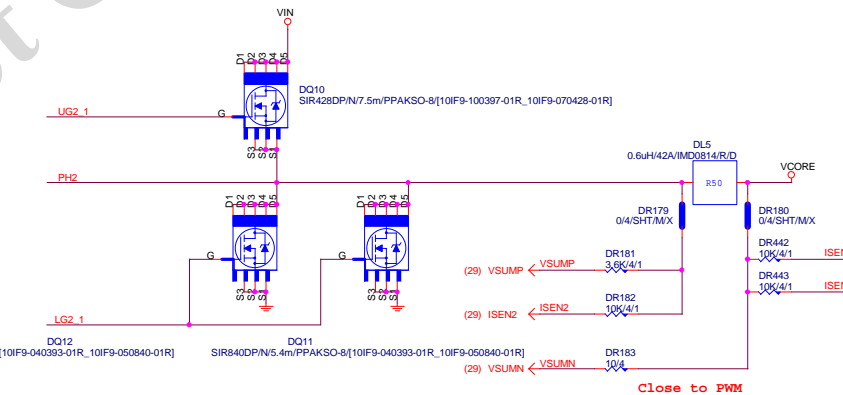
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PHASE 2



[2]

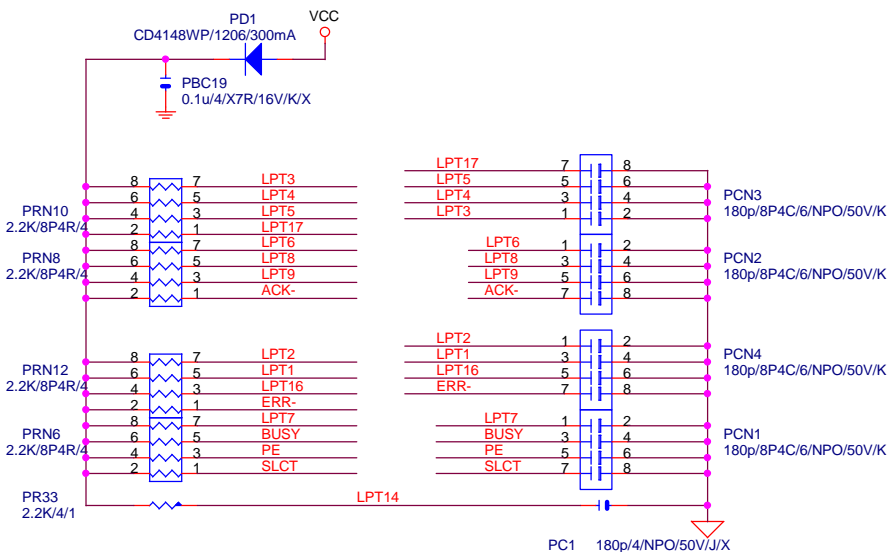
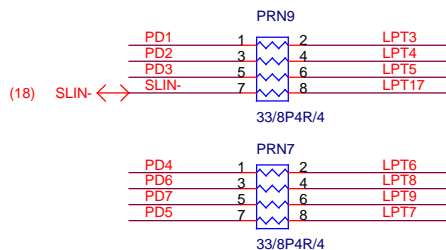
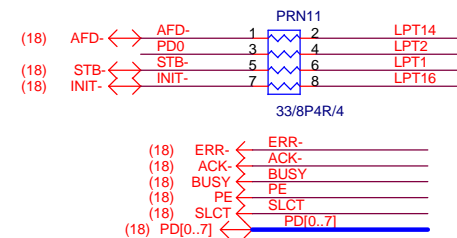


Gigabyte Technology			
CPU CORE VR-3			
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TPM

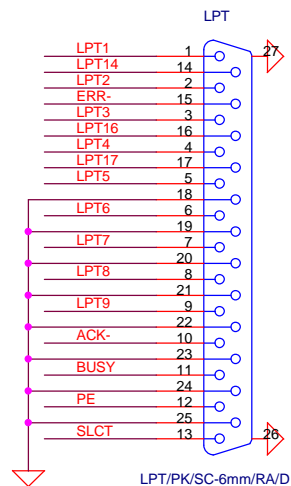
N/A

LPT PORT



COMB

N/A



Gigabyte Technology

Title			
LPT			
Size Custom	Document Number		Rev
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