

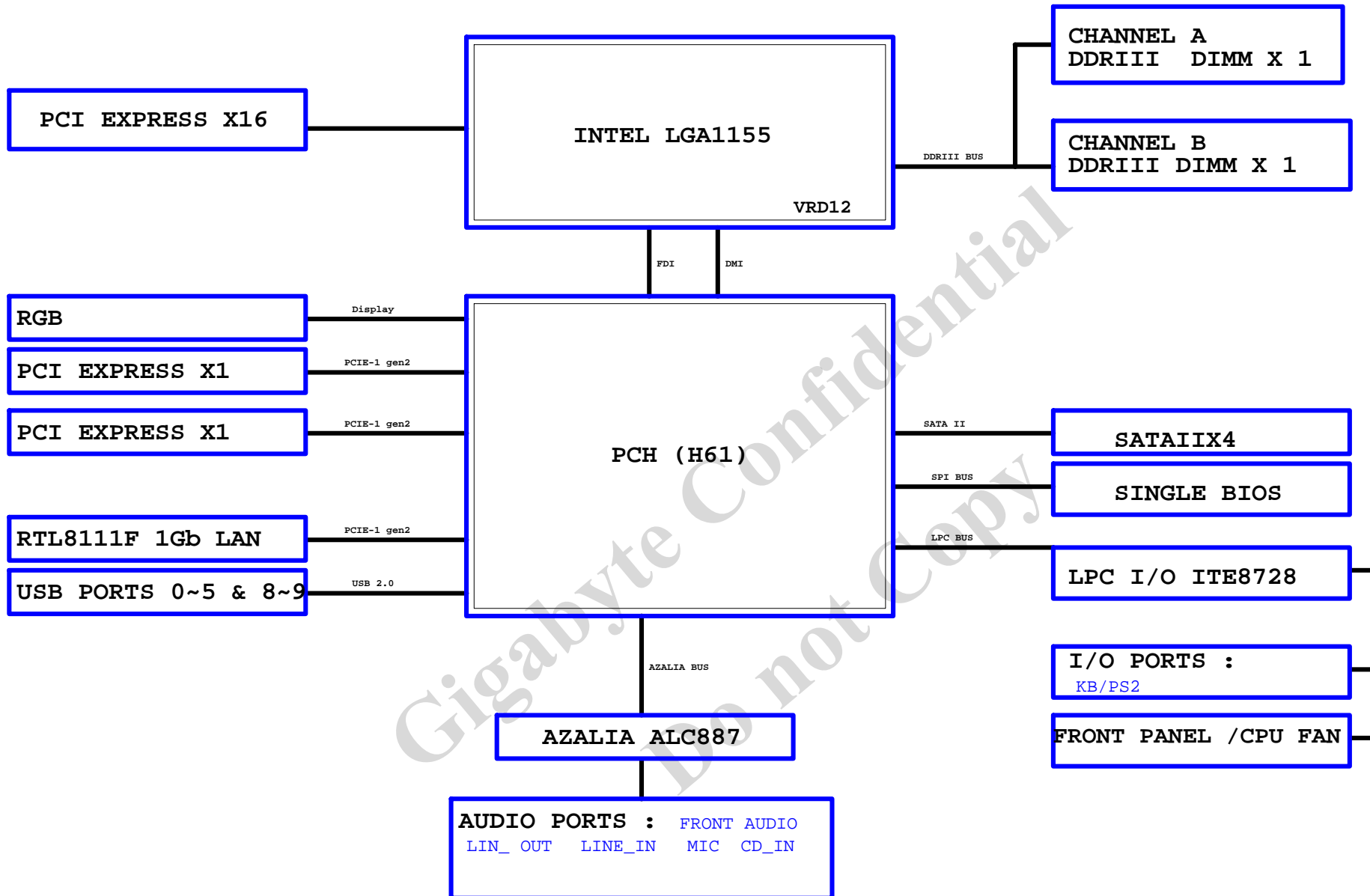
SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*1x2 SLOT
16	ITE 8620 LPC IO
17	KB_MS,R_USB,-PROCHOT
18	HWM,FAN CTRL,OV
19	Dual BIOS
20	FP,FUSB,SPK,SATALED
21	ALC887
22	REAR AUDIO JACK
23	REALTEK 8111F/USB_LAN
24	DISCRETE POWER
25	ATX,-S_WARN,-S_ACK,5VDUAL
26	CPU_VTT
27	VCORE INTERSIL_95836_1

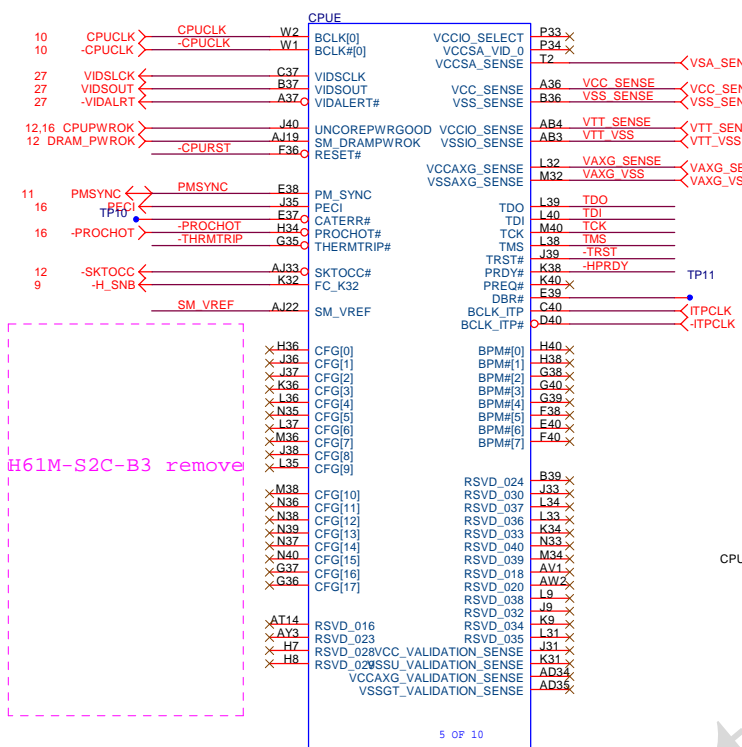
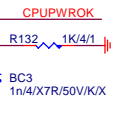
SHEET	TITLE
28	VCORE INTERSIL_95836_2
29	VCORE INTERSIL_95836_3
30	LPT

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# BLOCK DIAGRAM

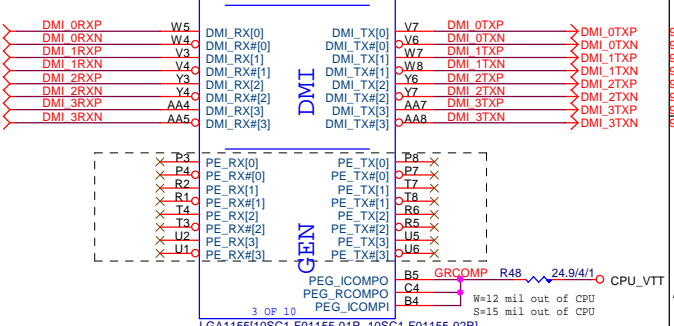
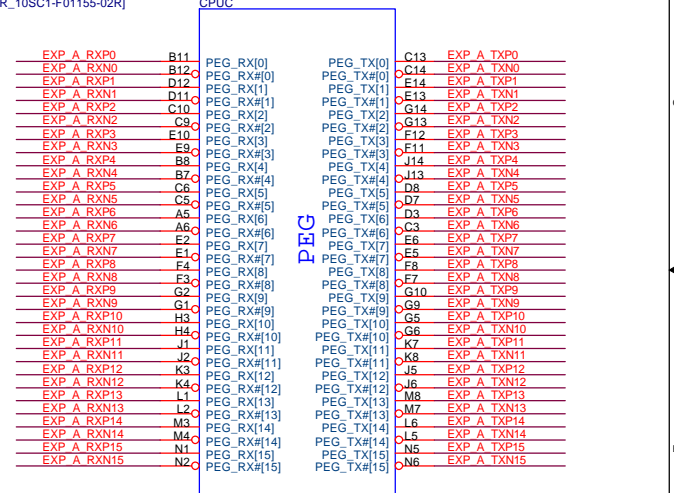
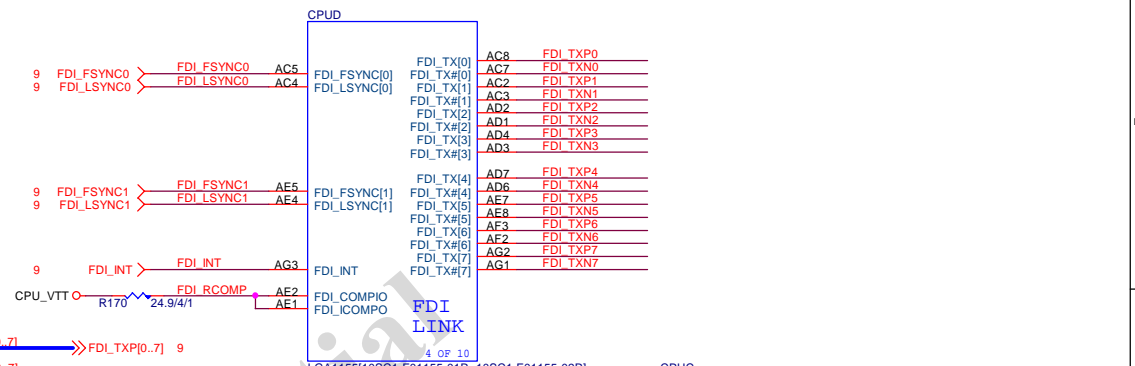
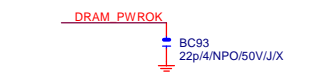
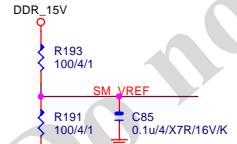
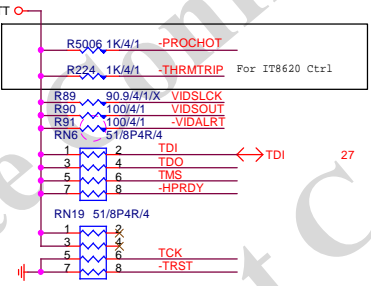
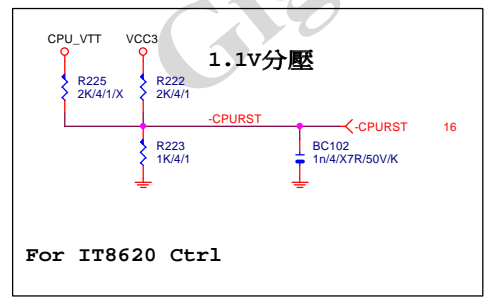




CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NORM	Reverse	LANE REVERSAL[0], x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1x16, Default
1	0	Z8
0	0	RSVD
0	0	X8, X4, X4

CFG 0-17 all internal PULL-UP



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Title		CPU LGA1155-A	
Size	Document Number	GA-H61M-DS2	Rev
Custom			4.01
Date:	Wednesday, September 25, 2013	Sheet	4 of 30

CPUA

Pin list for CPUA including signals like MAAA0-AV27, SWEA, SBA00, CS0A0, CKEA0, MODT\_A0, DLCKA0, DDR3\_RST, AV13-AV18, U35-U40, AP38, AG37, AE33, AG39, AE37, AE39, AE40.

DDR\_0

1 OF 10

LGA1155[10SC1-F01155-01R\_10SC1-F01155-02R]

CPUB

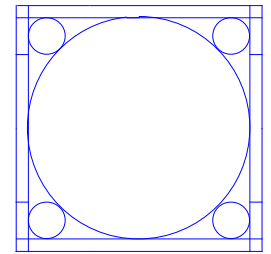
Pin list for CPUB including signals like MAAB0-AK24, SWEB, SBAB0, CSB0, CKEB0, DCLKB0, VREF\_DQB, VREF\_DOA, AN16-AN19, AL16-AL19, AP21-AP25, AM16-AM19, AP32-AP34, AR32-AR34, AM32-AM34, AL35-AL38, AE35-AE38, AJ35-AJ38, AF33-AF35, AH35-AH38, AE34, AJ34, AF33.

DDR\_1

2 OF 10

LGA1155[10SC1-F01155-01R\_10SC1-F01155-02R]

CR CPU RETAINIONX

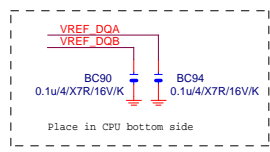


Need check the new CPU ME

CPU

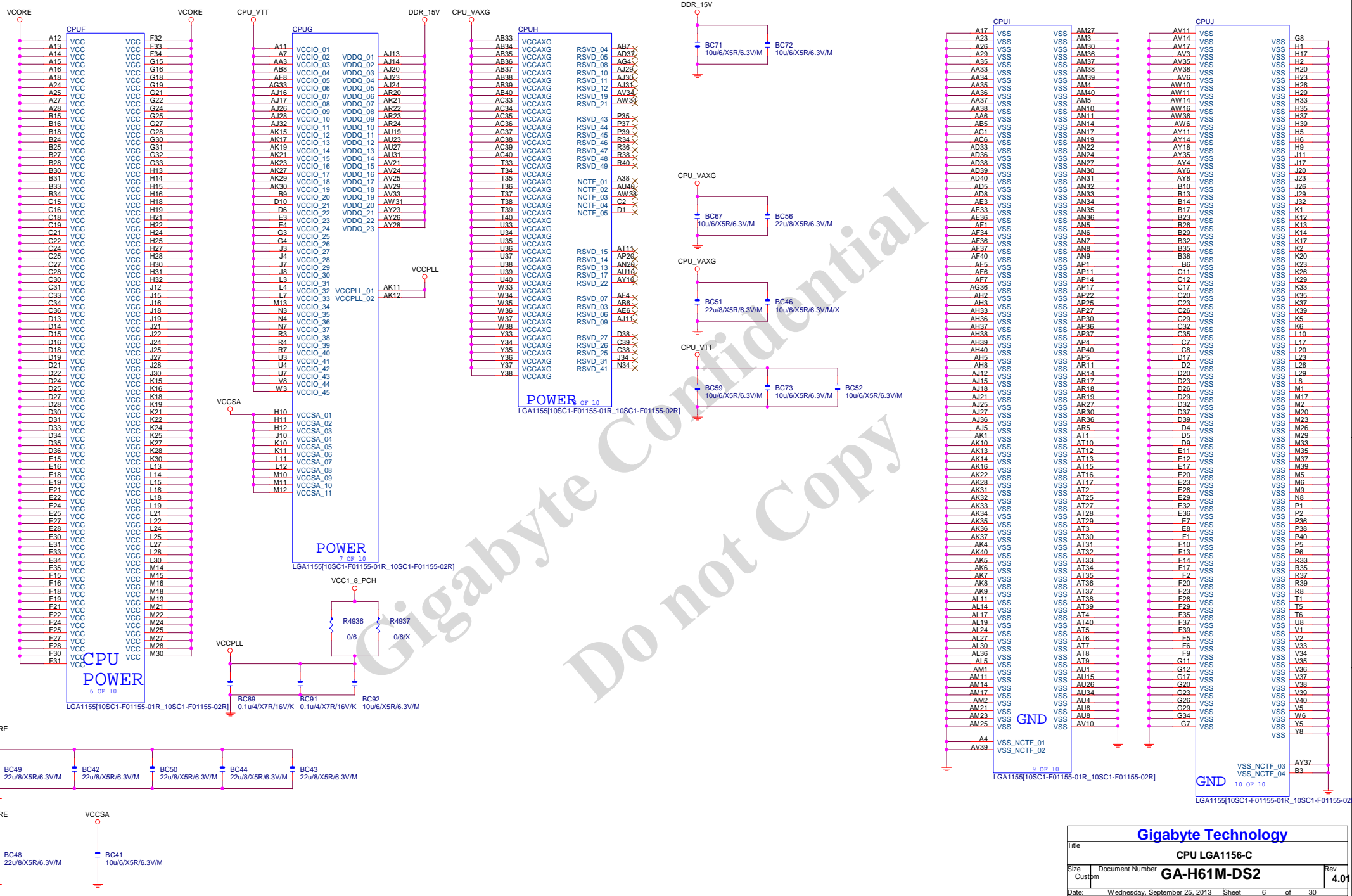


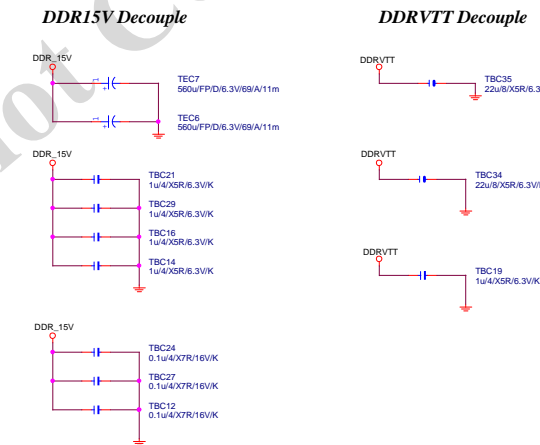
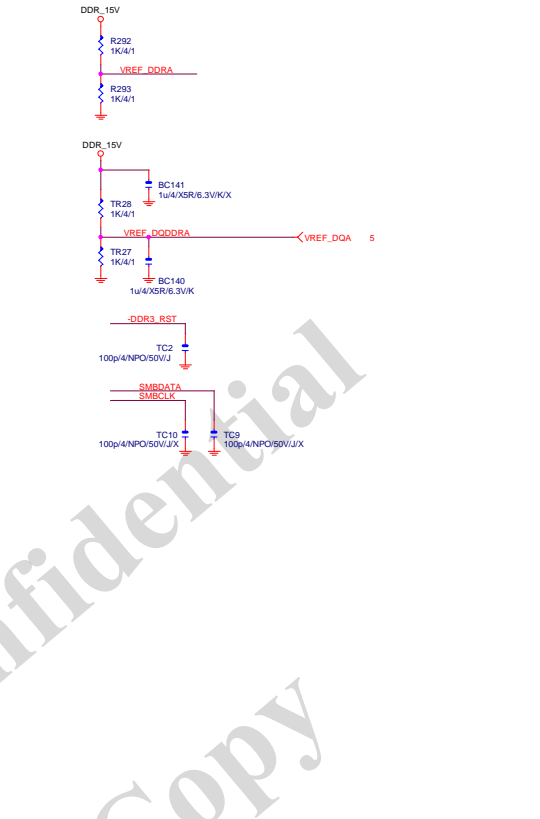
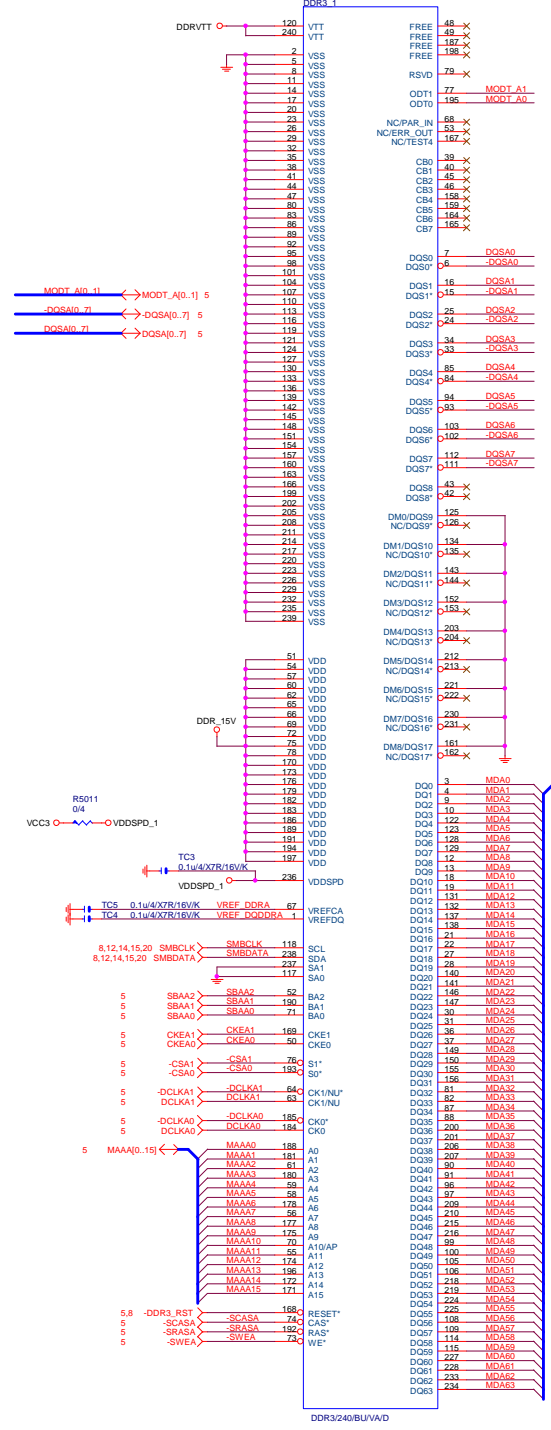
ILM\_BP/1156/CSP/[12KRC-0F0001-31R]



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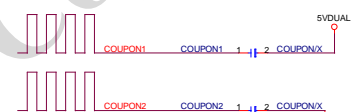
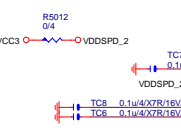
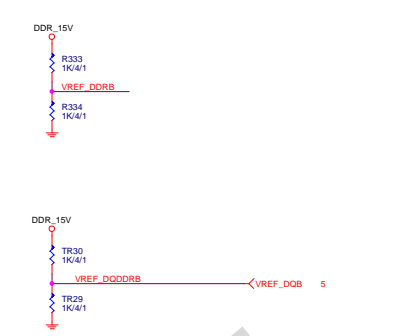
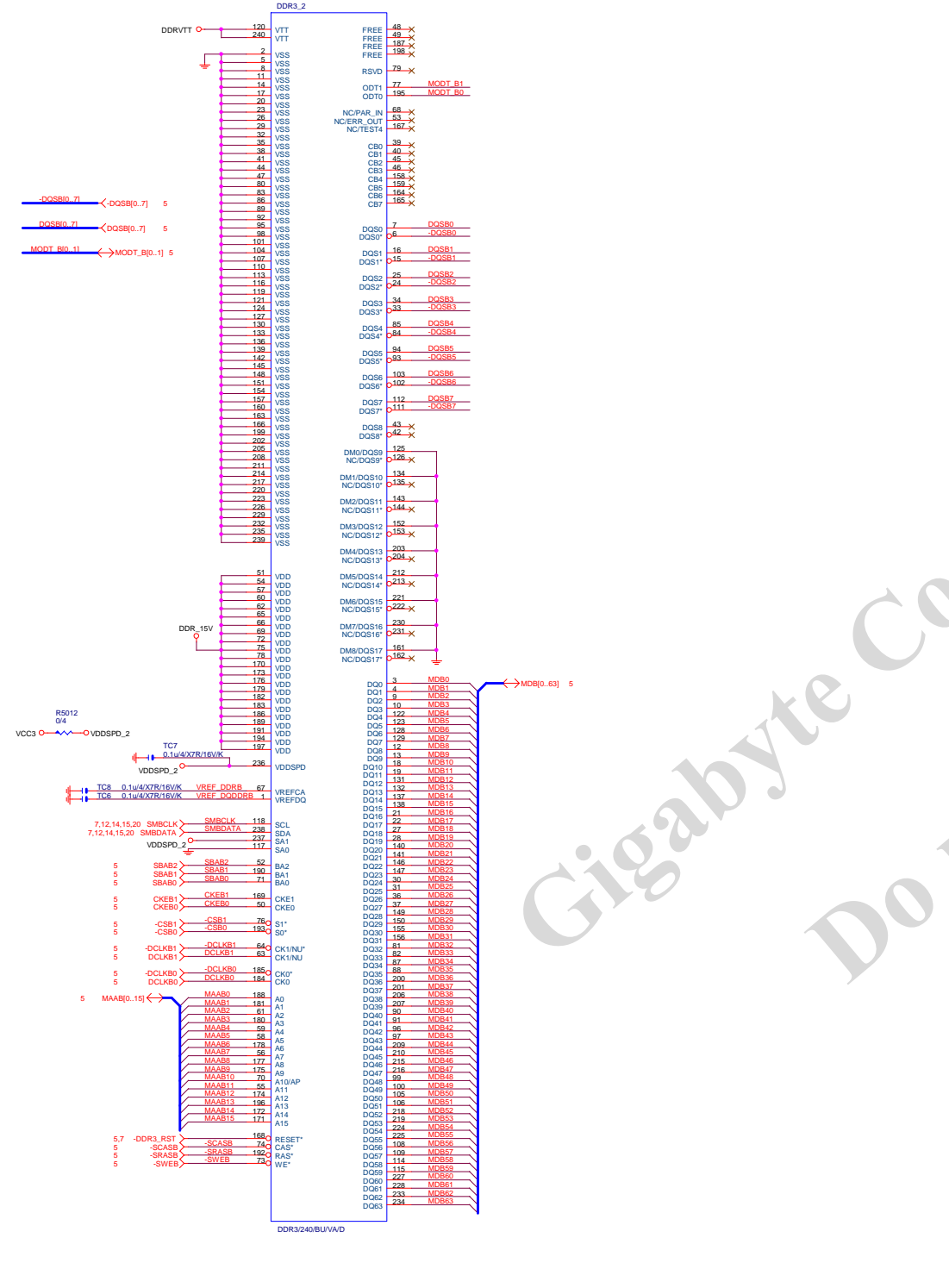
Product information table with fields: Title (CPU LGA1156-B), Size (Custom), Document Number (GA-H61M-DS2), Date (Wednesday, September 25, 2013), Sheet (5 of 30), Rev (4.0).



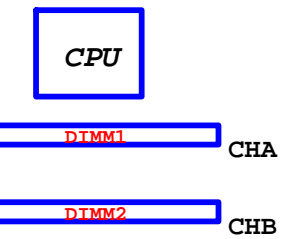


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<b>Gigabyte Technology</b>			
Title <b>DDRIII CHANNEL A</b>			
Size	Document Number	Rev	
Custpm	<b>GA-H61M-DS2</b>	<b>4.01</b>	
Date:	Sheet 7 of 30		

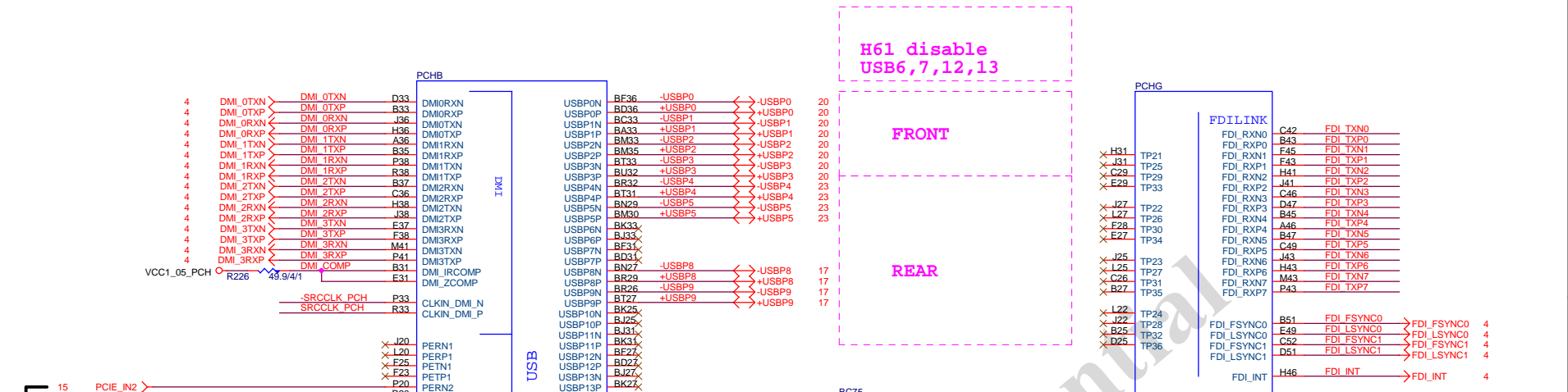


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<b>Gigabyte Technology</b>		
Title	DDR3 CHANNEL B	
Size	Document Number	Rev
Custom	GA-H61M-DS2	4.01
Date:	Sheet	8 of 30

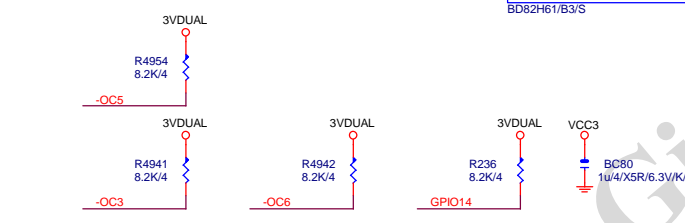
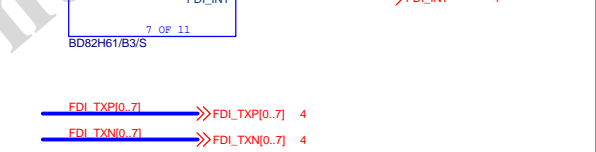
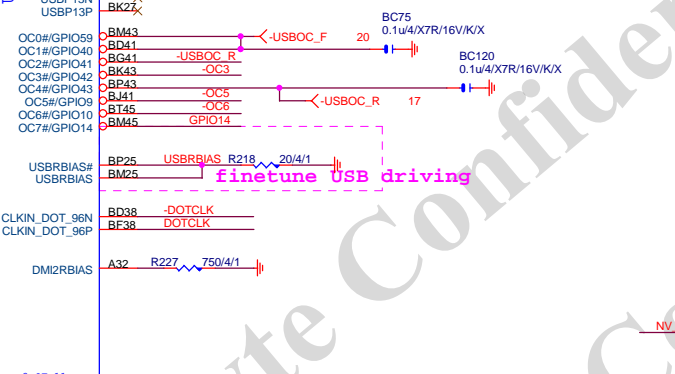
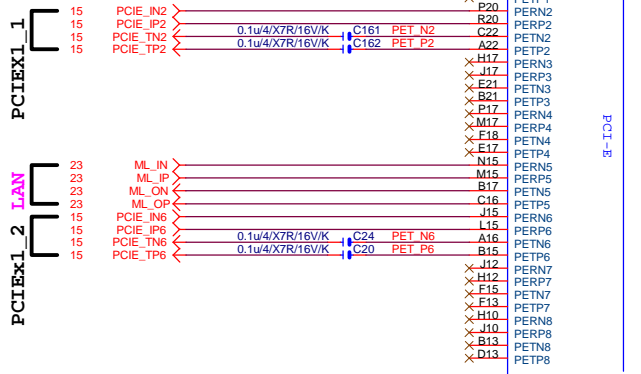




H61 disable  
USB6,7,12,13

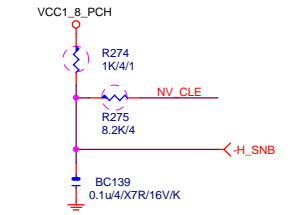
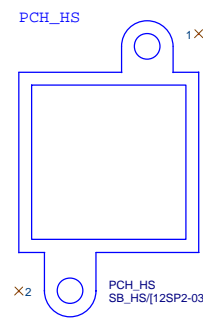
FRONT

REAR

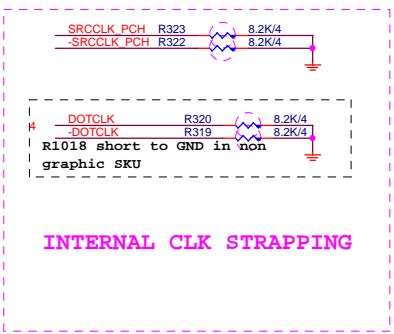


USB OC# Configure for H61	
OC0#	USB0,1(F_USB1)
OC1#	USB2,3(F_USB2)
OC2#	USB4,5(USB_LAN)
OC3#	N/A
OC4#	USB8,9(R_USB1)
OC5#	USB10~11(R_USB2)
OC6#	N/A
OC7#	GPIO14

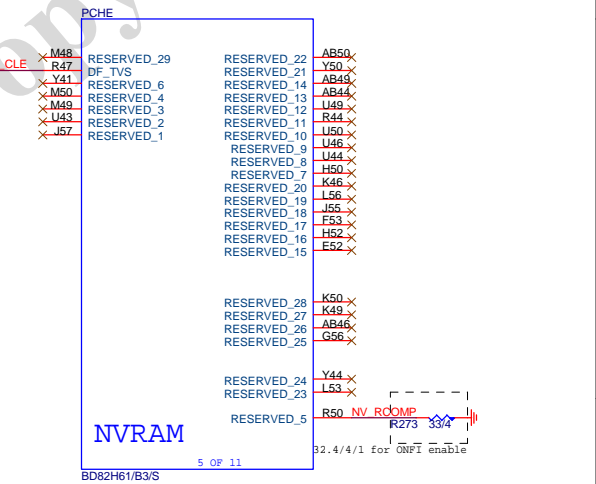
NEW FOOTPRINT: BGAHSINK\_PCH\_HS



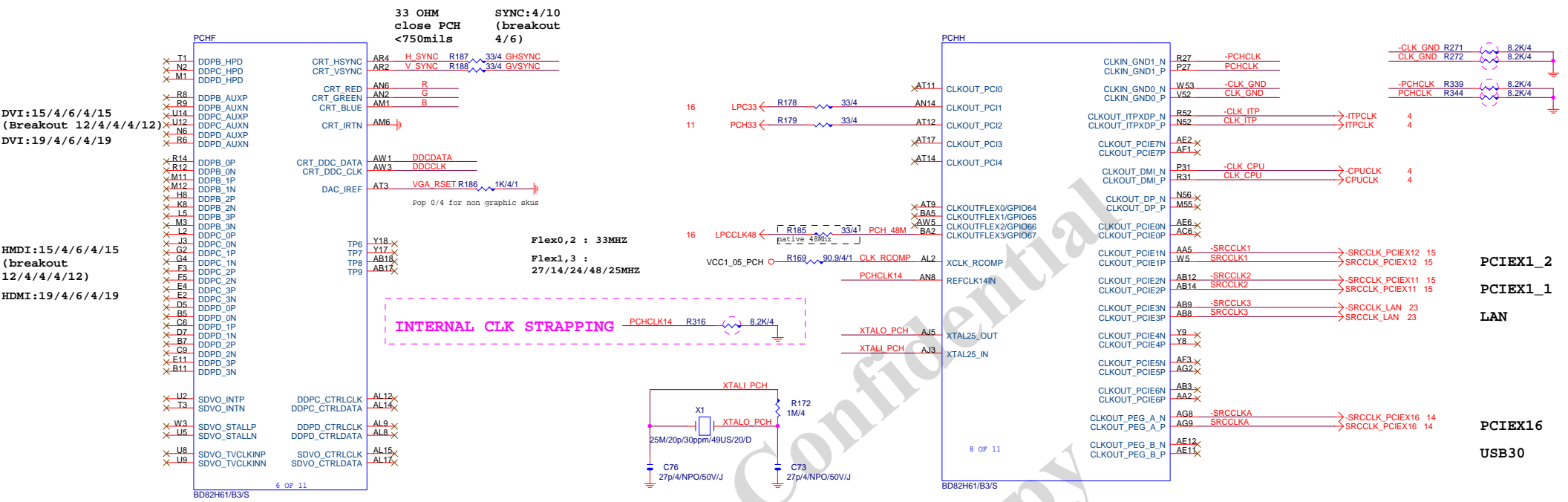
DMI / FDI termination voltage



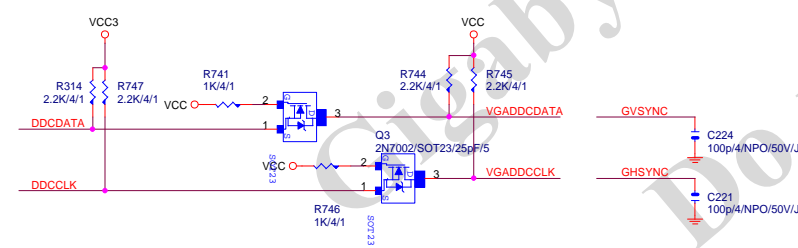
INTERNAL CLK STRAPPING



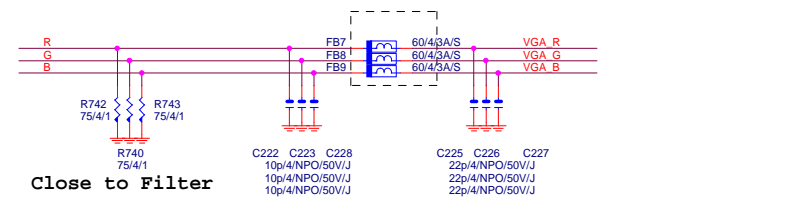
<b>Gigabyte Technology</b>		
Title PCH FDI,DMI,USB ,PCIE,NVRAM		
Size Custom	Document Number <b>GA-H61M-DS2</b>	Rev 4.01
Date:	Wednesday, September 25, 2013	Sheet 9 of 30



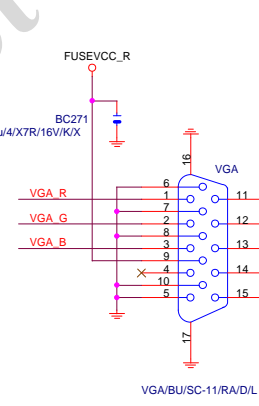
**VGA DDC**



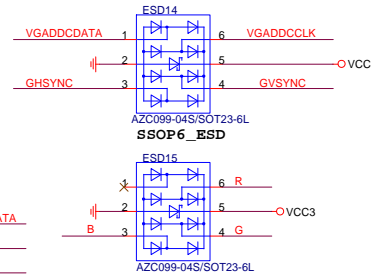
**VGA DDC**



**VGA CONNECTOR**

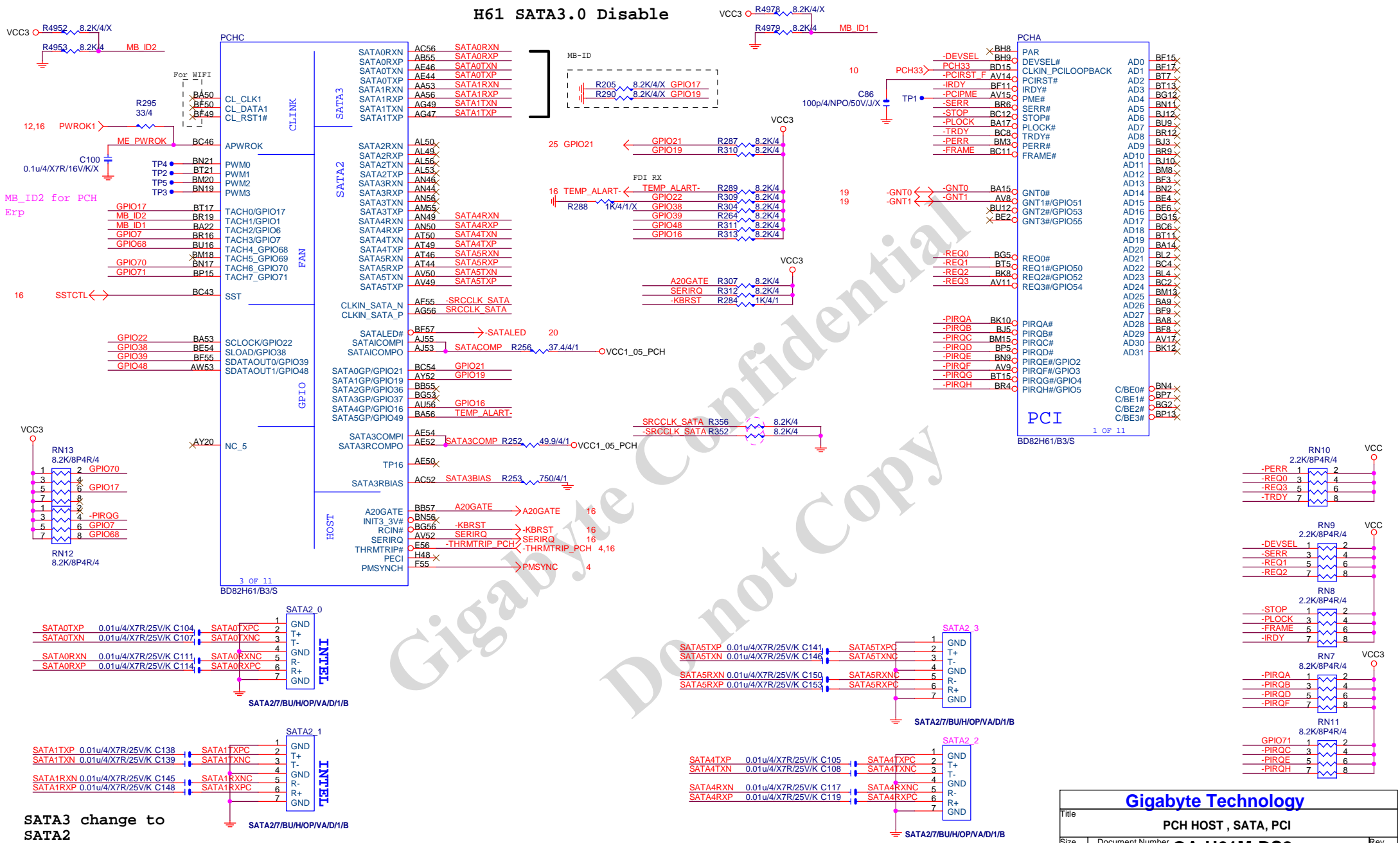


**VGA ESD**

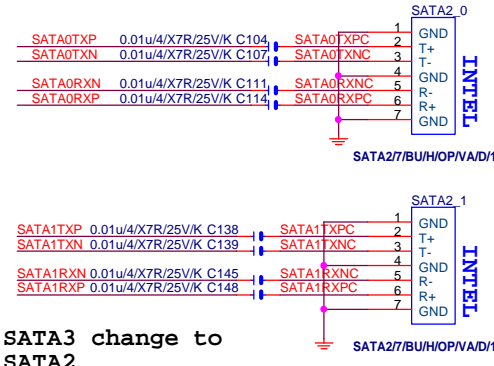


<b>Gigabyte Technology</b>	
Title <b>PCH DISPLAY ,CLK BUFFER</b>	
Size Document Number <b>GA-H61M-DS2</b>	
Date: Wednesday, September 25, 2013	Rev <b>4.01</b>
Sheet 10	of 30

H61 SATA3.0 Disable

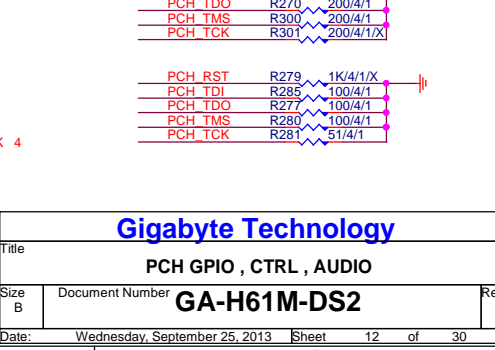
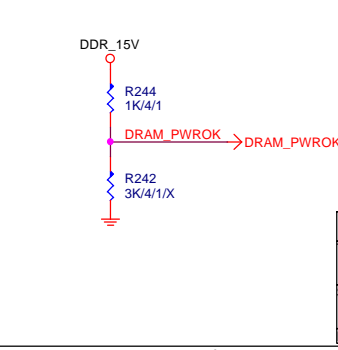
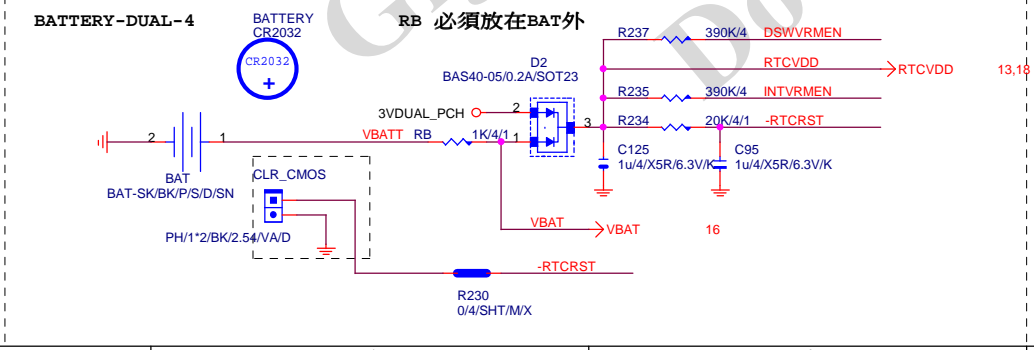
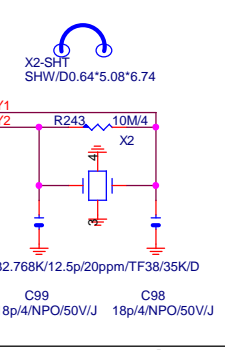
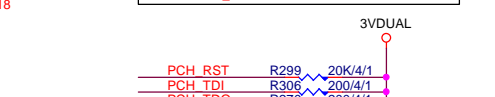
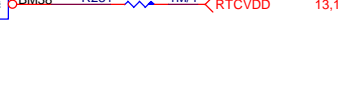
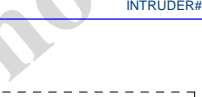
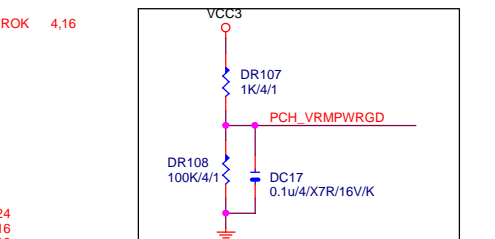
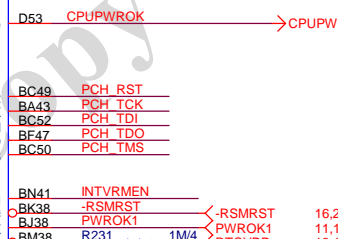
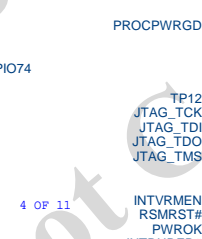
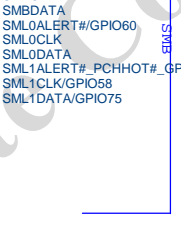
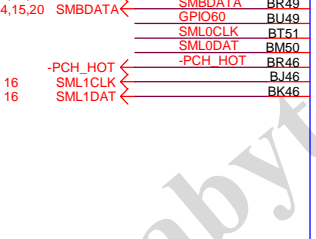
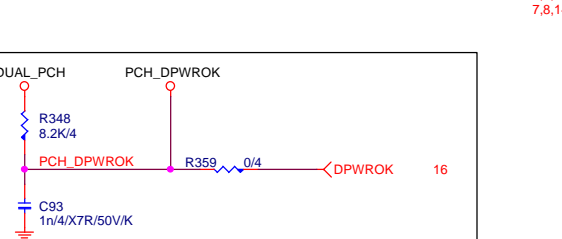
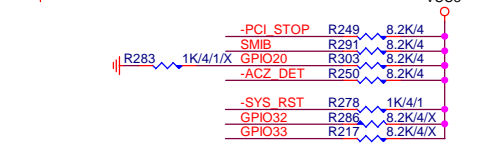
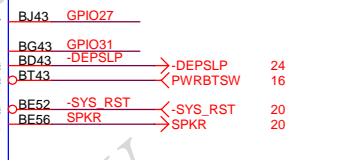
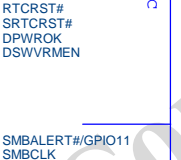
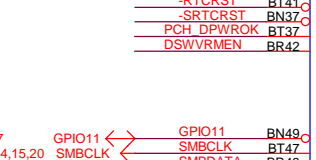
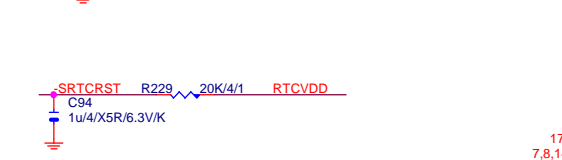
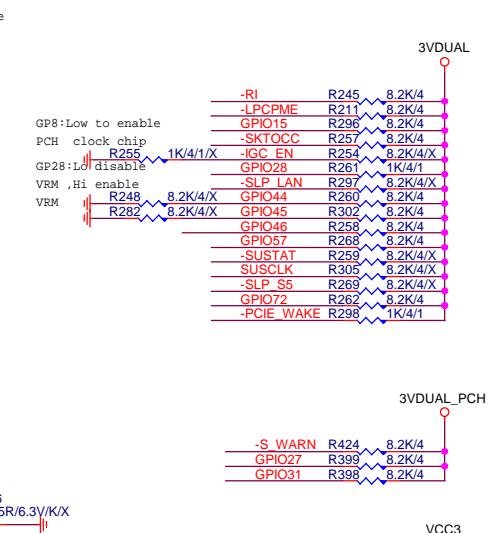
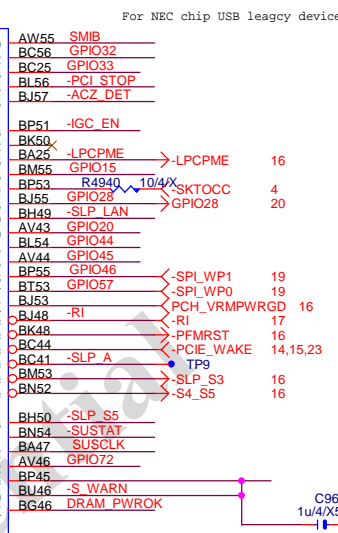
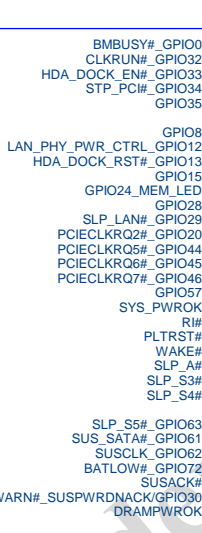
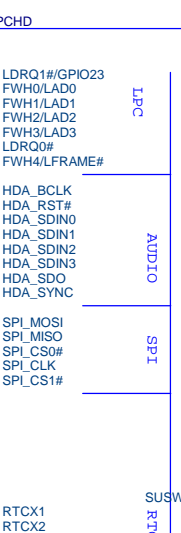
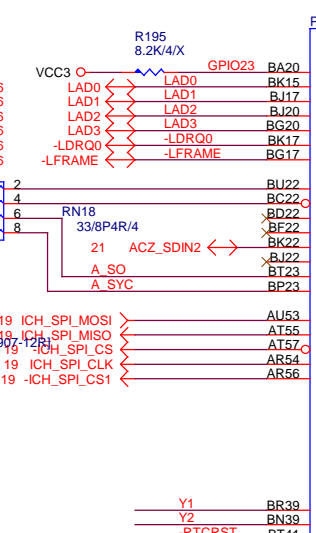
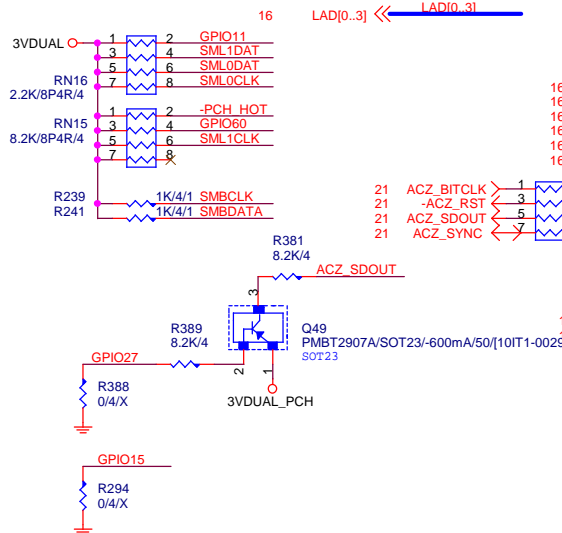


SATA3 change to SATA2



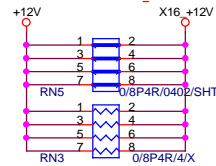
H1X7-SATA2-HS-MASK

Gigabyte Technology logo and title block. Title: PCH HOST, SATA, PCI. Document Number: GA-H61M-DS2. Rev: 4.01. Date: Wednesday, September 25, 2013. Sheet: 11 of 30.



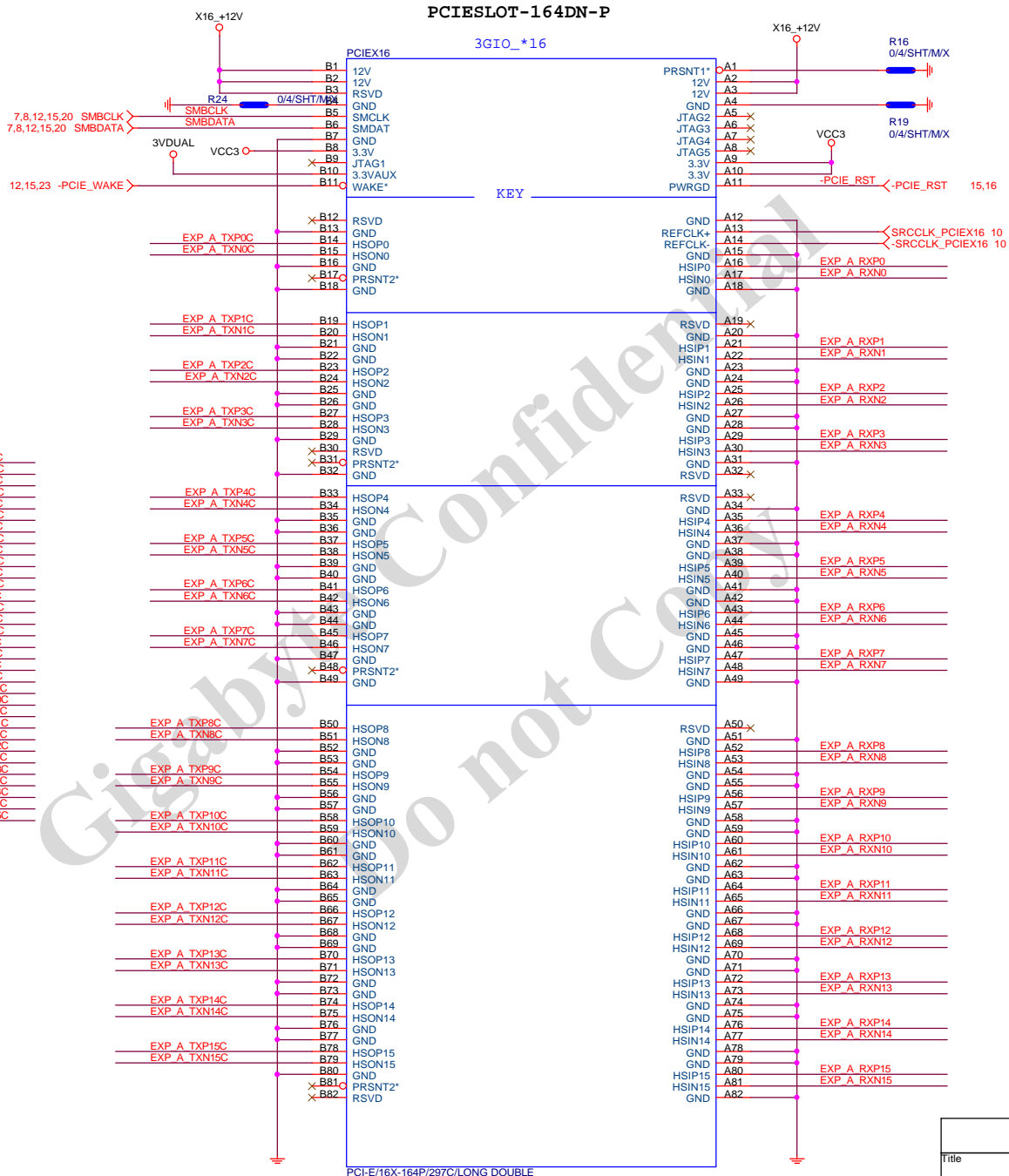
Gigabyte Technology		
Title PCH GPIO , CTRL , AUDIO		
Size B	Document Number GA-H61M-DS2	Rev 4.01
Date:	Wednesday, September 25, 2013	Sheet 12 of 30





- EXP A\_RXP0\_15] >> EXP\_A\_RXP[0..15] 4
- EXP A\_RXN0\_15] >> EXP\_A\_RXN[0..15] 4
- EXP A\_TXP0\_15] >> EXP\_A\_TXP[0..15] 4
- EXP A\_TXN0\_15] >> EXP\_A\_TXN[0..15] 4

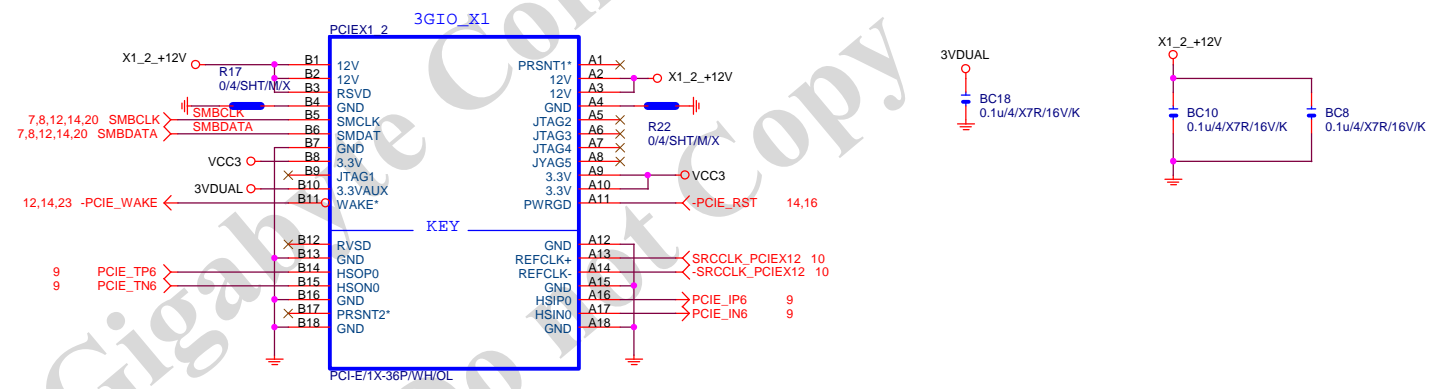
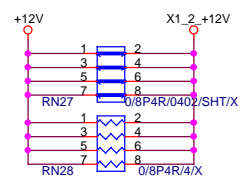
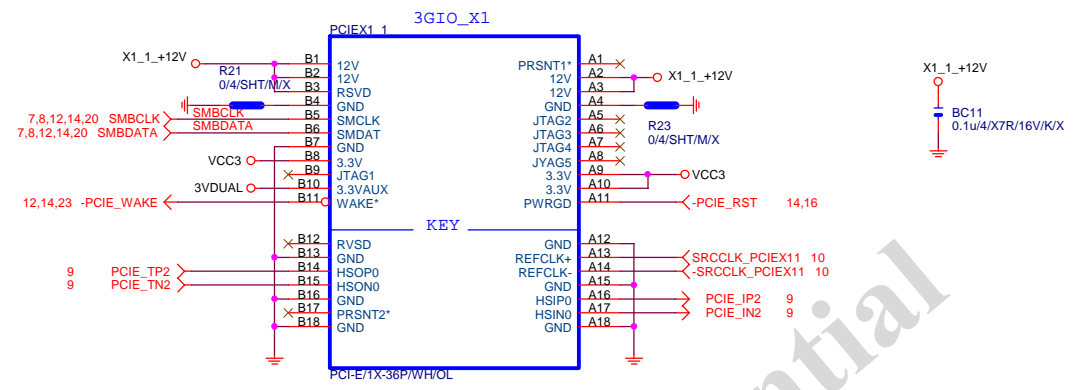
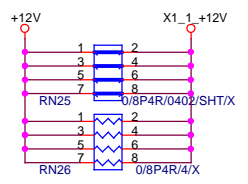
EXP A_TXP0	C22	0.22u/4/X5R/6.3V/K	EXP A_TXP0C
EXP A_TXN0	C26	0.22u/4/X5R/6.3V/K	EXP A_TXN0C
EXP A_TXP1	C29	0.22u/4/X5R/6.3V/K	EXP A_TXP1C
EXP A_TXN1	C31	0.22u/4/X5R/6.3V/K	EXP A_TXN1C
EXP A_TXP2	C33	0.22u/4/X5R/6.3V/K	EXP A_TXP2C
EXP A_TXN2	C35	0.22u/4/X5R/6.3V/K	EXP A_TXN2C
EXP A_TXP3	C37	0.22u/4/X5R/6.3V/K	EXP A_TXP3C
EXP A_TXN3	C40	0.22u/4/X5R/6.3V/K	EXP A_TXN3C
EXP A_TXP4	C48	0.22u/4/X5R/6.3V/K	EXP A_TXP4C
EXP A_TXN4	C49	0.22u/4/X5R/6.3V/K	EXP A_TXN4C
EXP A_TXP5	C52	0.22u/4/X5R/6.3V/K	EXP A_TXP5C
EXP A_TXN5	C54	0.22u/4/X5R/6.3V/K	EXP A_TXN5C
EXP A_TXP6	C56	0.22u/4/X5R/6.3V/K	EXP A_TXP6C
EXP A_TXN6	C58	0.22u/4/X5R/6.3V/K	EXP A_TXN6C
EXP A_TXP7	C60	0.22u/4/X5R/6.3V/K	EXP A_TXP7C
EXP A_TXN7	C61	0.22u/4/X5R/6.3V/K	EXP A_TXN7C
EXP A_TXP8	C63	0.22u/4/X5R/6.3V/K	EXP A_TXP8C
EXP A_TXN8	C64	0.22u/4/X5R/6.3V/K	EXP A_TXN8C
EXP A_TXP9	C66	0.22u/4/X5R/6.3V/K	EXP A_TXP9C
EXP A_TXN9	C67	0.22u/4/X5R/6.3V/K	EXP A_TXN9C
EXP A_TXP10	C69	0.22u/4/X5R/6.3V/K	EXP A_TXP10C
EXP A_TXN10	C70	0.22u/4/X5R/6.3V/K	EXP A_TXN10C
EXP A_TXP11	C71	0.22u/4/X5R/6.3V/K	EXP A_TXP11C
EXP A_TXN11	C72	0.22u/4/X5R/6.3V/K	EXP A_TXN11C
EXP A_TXP12	C74	0.22u/4/X5R/6.3V/K	EXP A_TXP12C
EXP A_TXN12	C75	0.22u/4/X5R/6.3V/K	EXP A_TXN12C
EXP A_TXP13	C77	0.22u/4/X5R/6.3V/K	EXP A_TXP13C
EXP A_TXN13	C78	0.22u/4/X5R/6.3V/K	EXP A_TXN13C
EXP A_TXP14	C79	0.22u/4/X5R/6.3V/K	EXP A_TXP14C
EXP A_TXN14	C80	0.22u/4/X5R/6.3V/K	EXP A_TXN14C
EXP A_TXP15	C82	0.22u/4/X5R/6.3V/K	EXP A_TXP15C
EXP A_TXN15	C83	0.22u/4/X5R/6.3V/K	EXP A_TXN15C



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

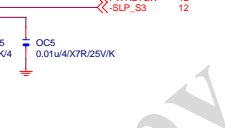
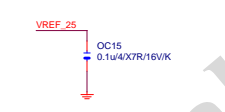
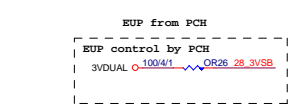
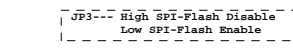
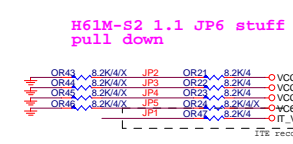
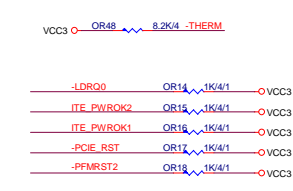
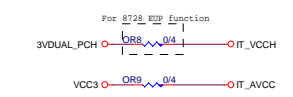
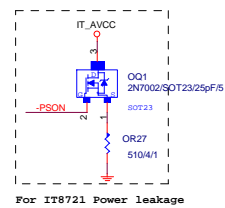
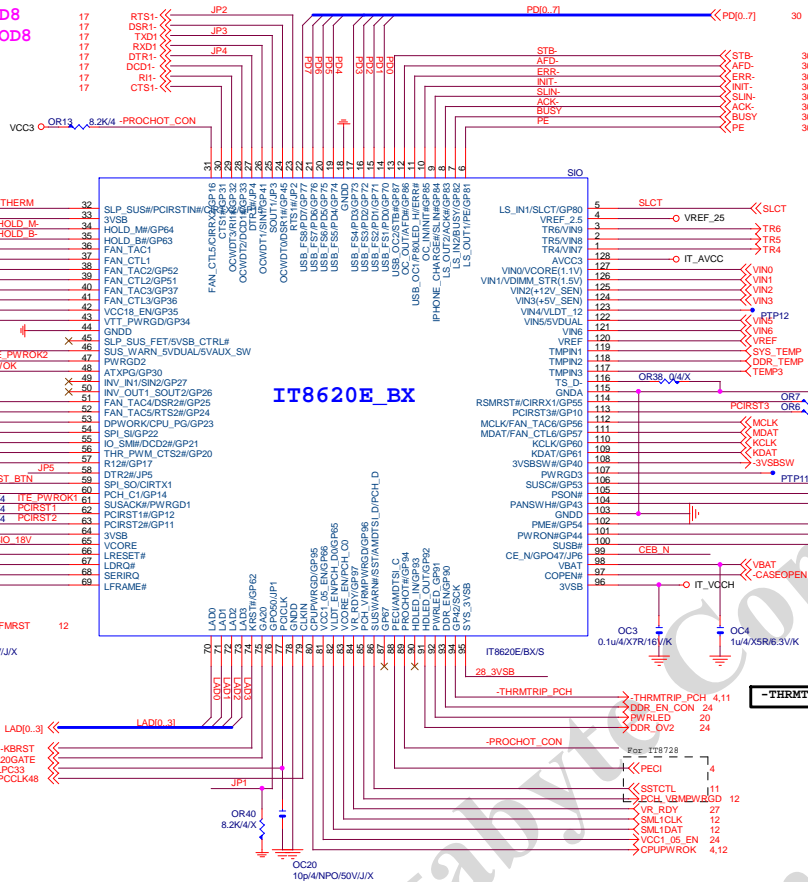
<b>Gigabyte Technology</b>		
Title <b>PCI EXPRESS * 16</b>		
Size Custom	Document Number <b>GA-H61M-DS2</b>	Rev <b>4.01</b>
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**PCIE\*1**



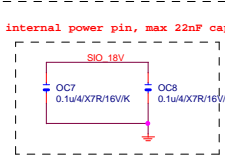
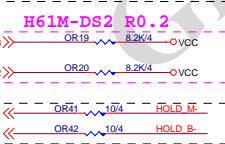
<b>Gigabyte Technology</b>		
<b>PCIEX1,X2/CLK GEN</b>		
Size Custom	Document Number	Rev
	<b>GA-H61M-DS2</b>	<b>4.01</b>
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GP22 Default GP22 DIOD8  
GP23 Default CPU\_PG DOD8

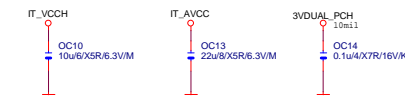


-PROCHOT

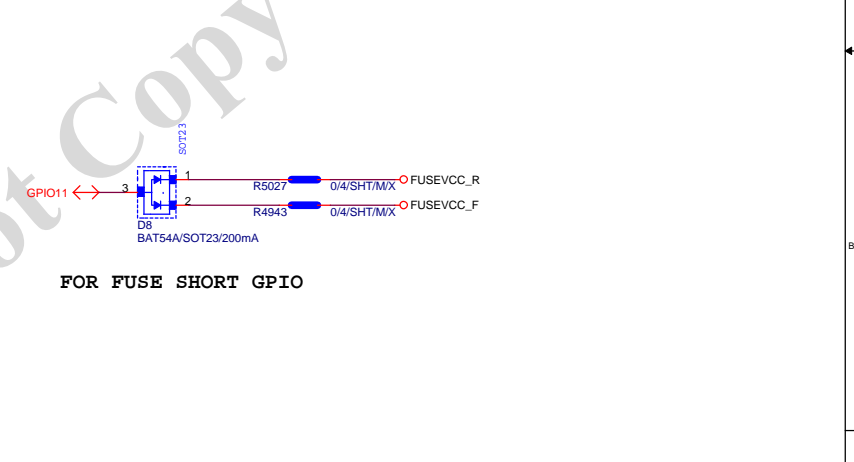
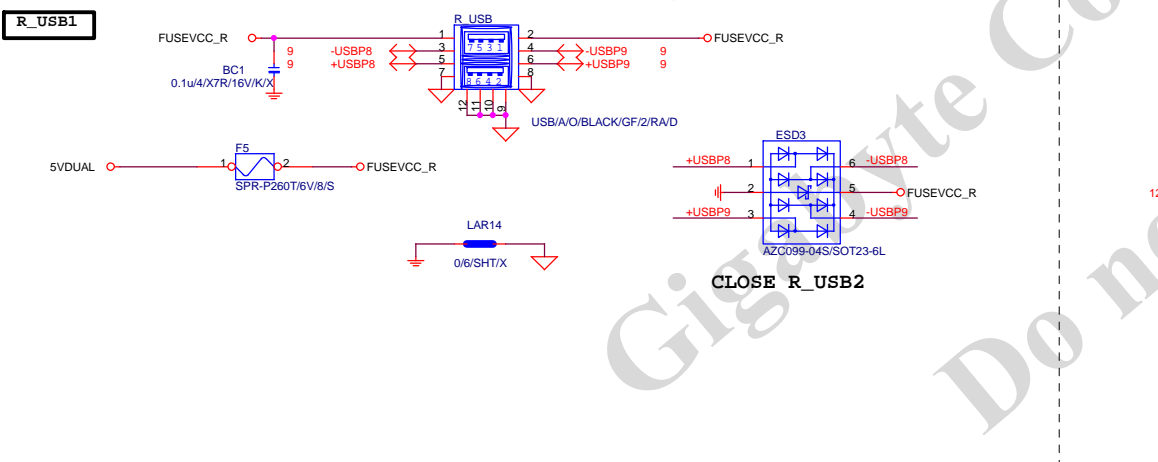
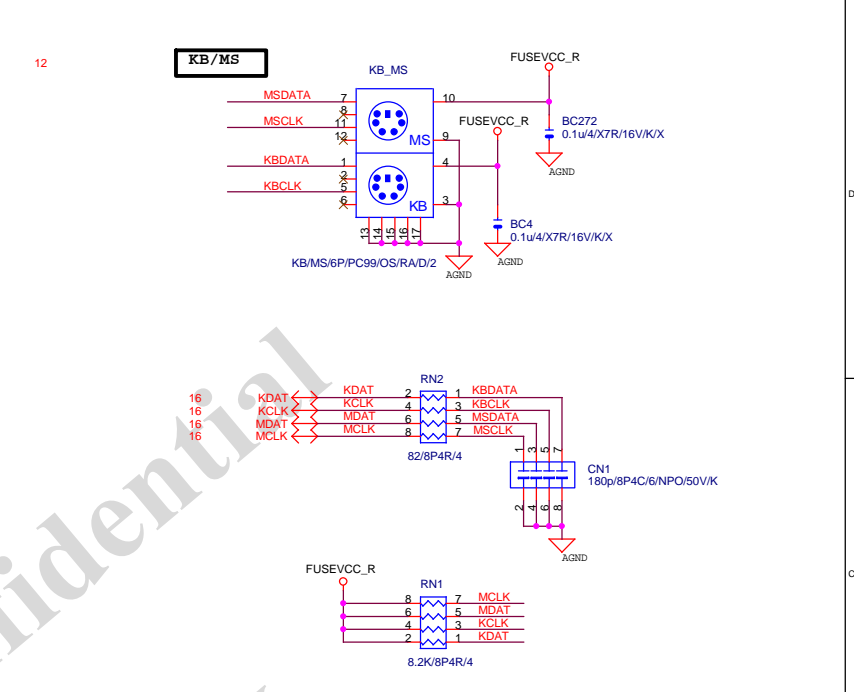
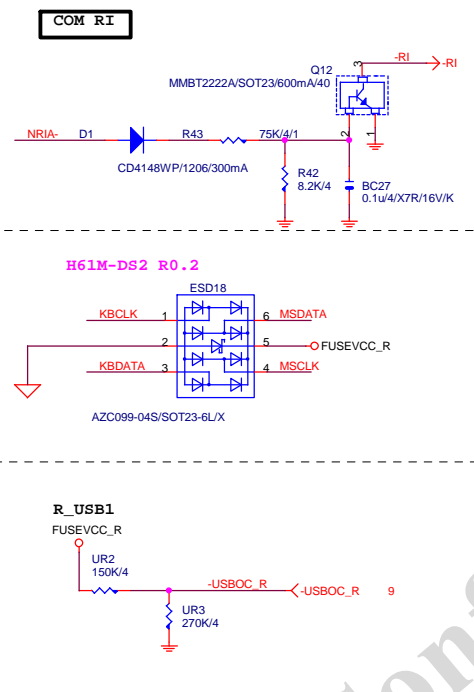
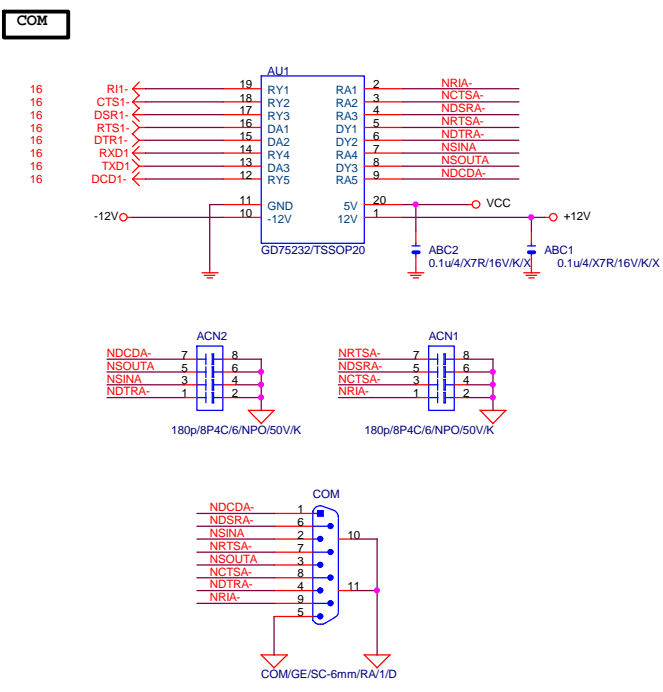
-THERMTRIP

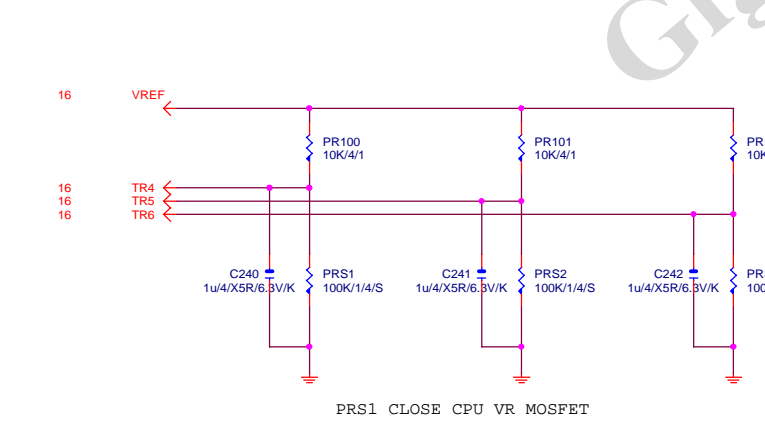
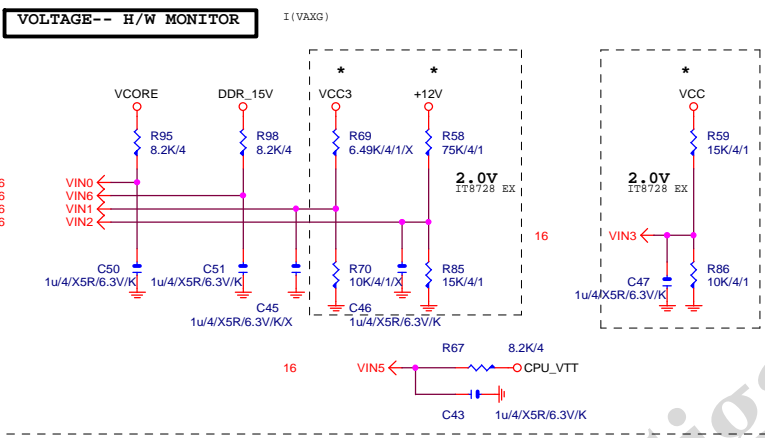
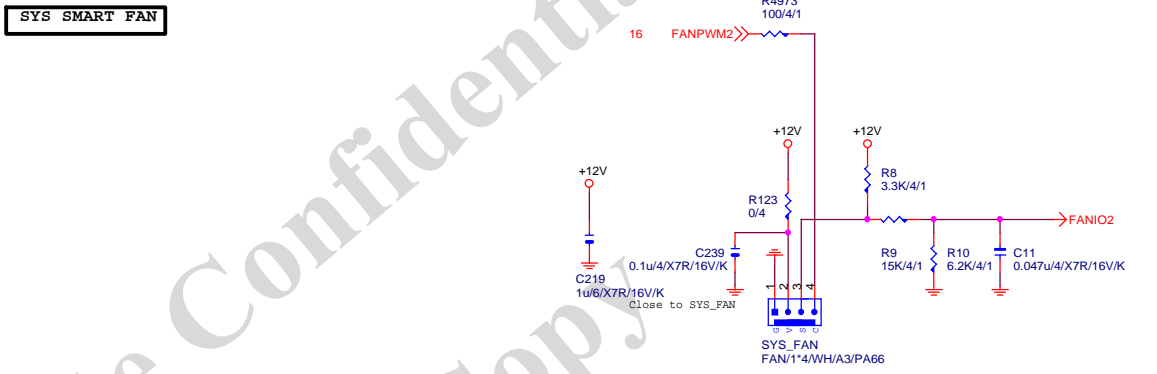
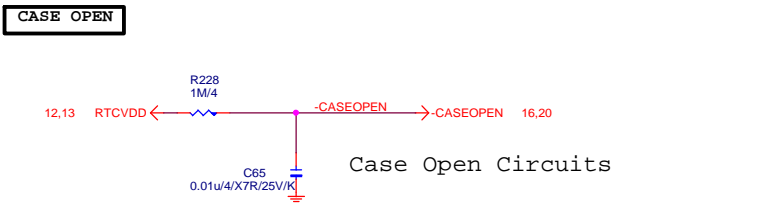
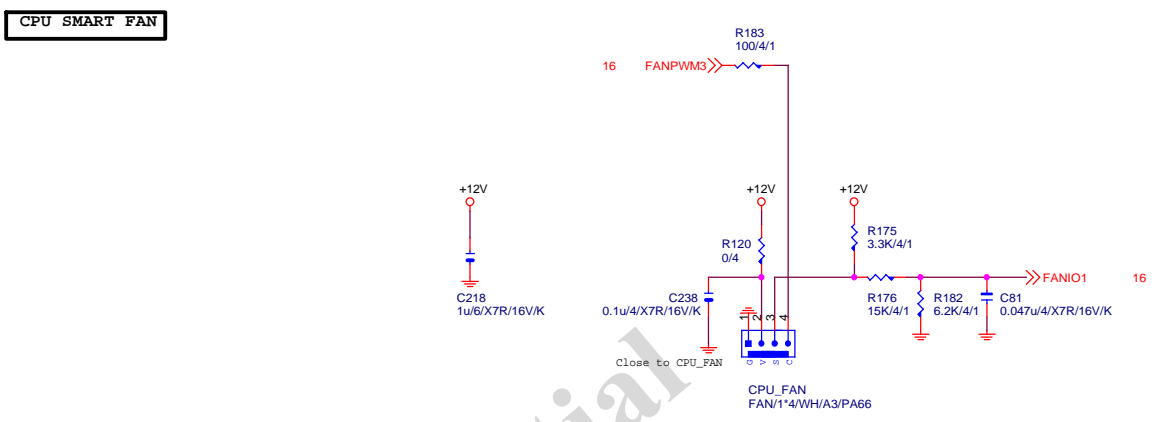
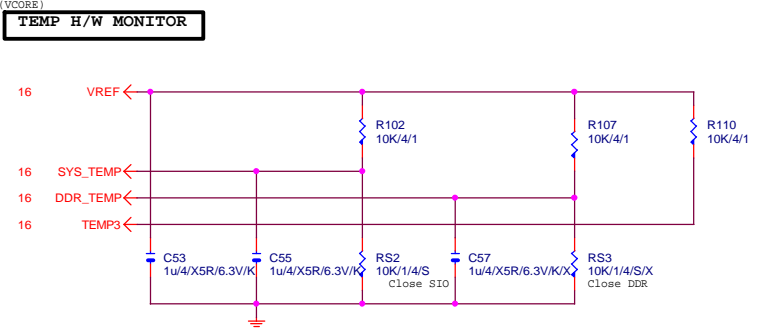


IT8728	
PIN121	VCORE_EN/PCH_D0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_CL
PIN53	SST/ANDTSL_D/MTRB#/PCH_D1
PIN55	PECI/ANDTSL_C/DRV98
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STK(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC





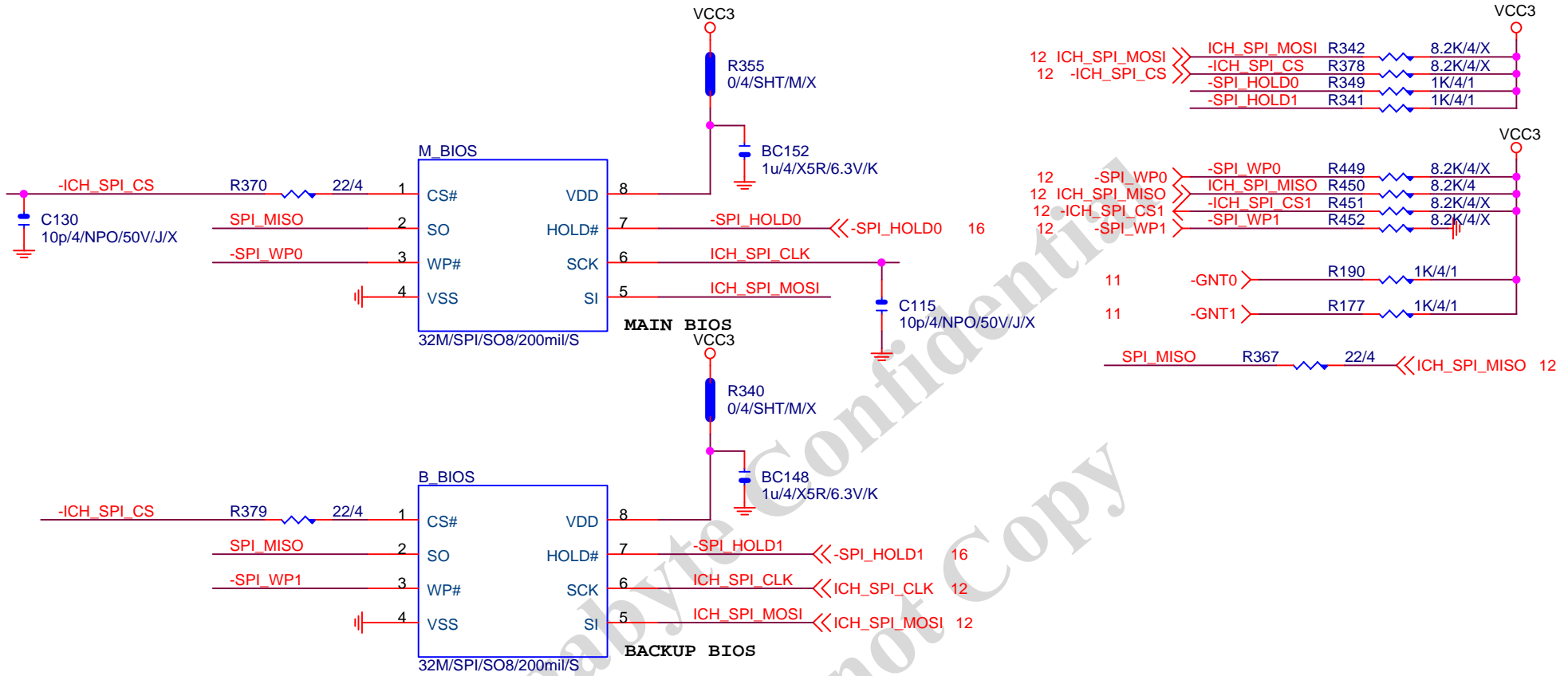




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Do not Copy

<b>Gigabyte Technology</b>		
Title		
HWM,FAN CTRL,OV		
Size	Document Number	Rev
Custom	<b>GA-H61M-DS2</b>	<b>4.01</b>
Date:	Wednesday, September 25, 2013	Sheet 18 of 30

**DUAL BIOS**



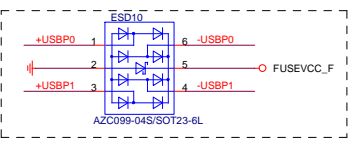
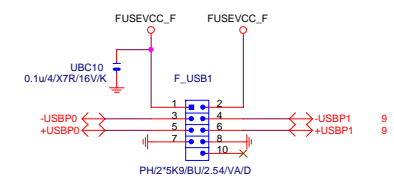
BOOT DEVICE	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1

1 means floating  
0 means PD 1K

**Gigabyte Technology**

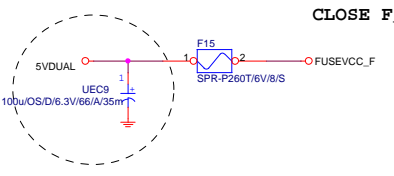
Title		
<b>SINGLE BIOS</b>		
Size A	Document Number	Rev
	<b>GA-H61M-DS2</b>	<b>4.01</b>
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**FRONT USB1**

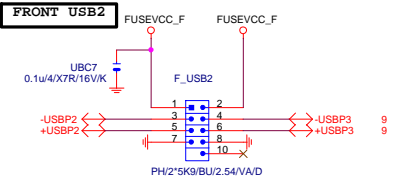


Close to connector

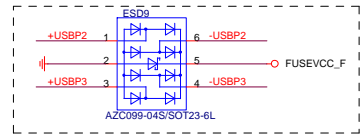
change to BLUE COLOR



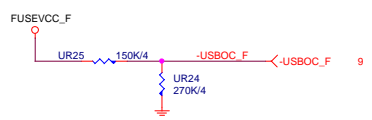
CLOSE F\_USB1



**FRONT USB3**



Close to connector

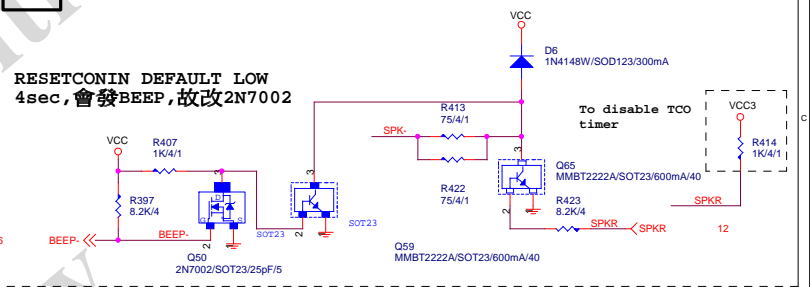


**SATA LED**

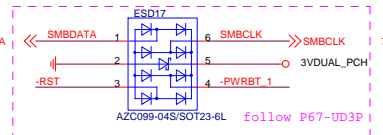


**SPKR**

RESETCONIN DEFAULT LOW  
4sec, 會發BEEP, 故改2N7002

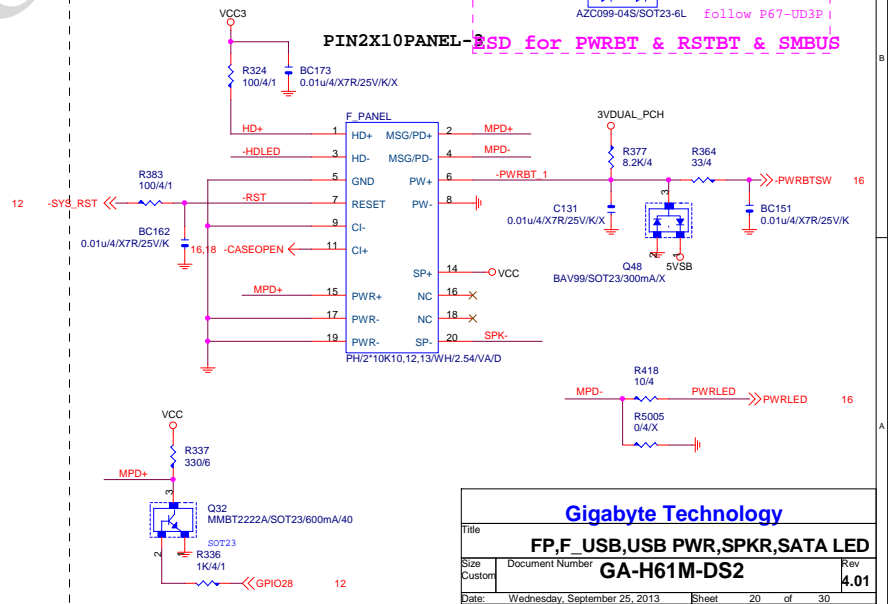


**INTEL FRONT PANEL**



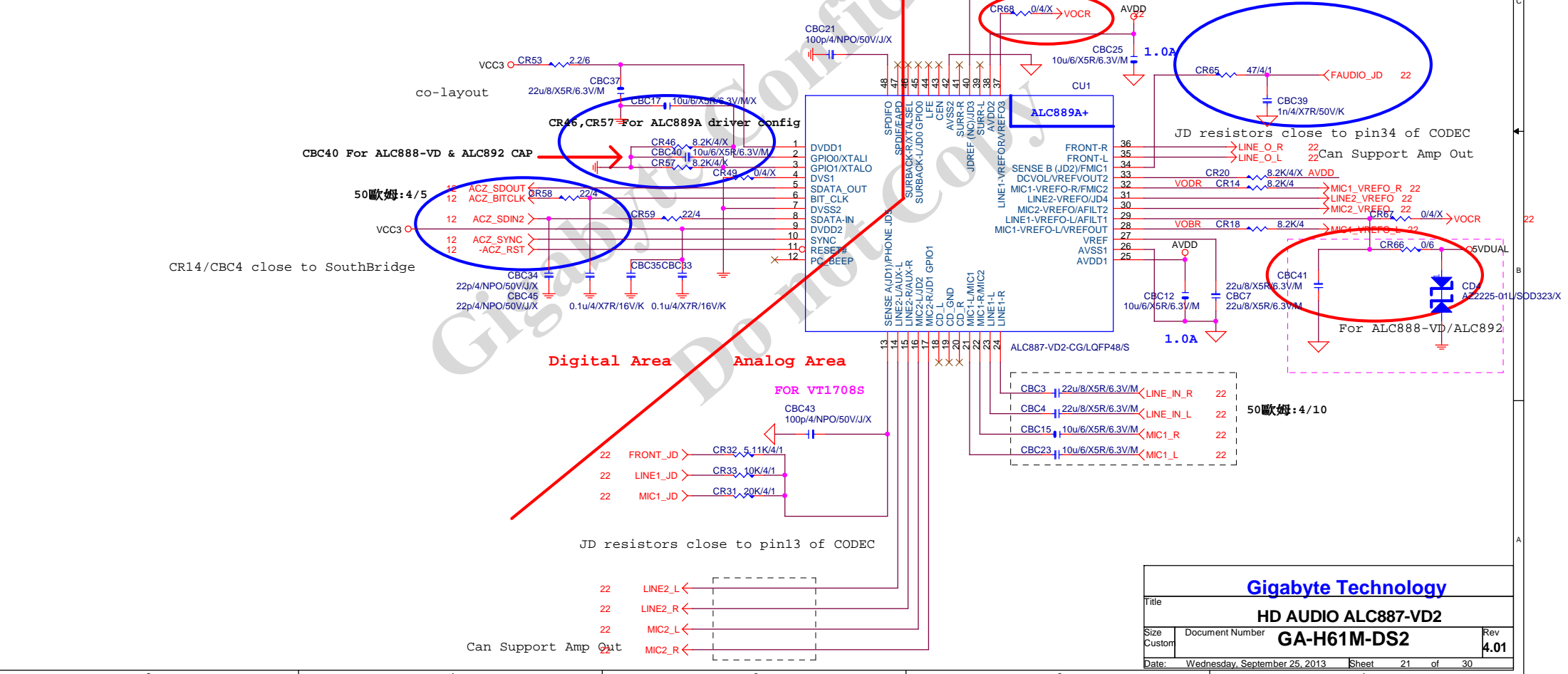
7,8,12,14,15 SMBDATA << SMBDATA 1 6 SMBCLK >> SMBCLK 7,8,12,14,15  
3V3V\_PCH 3V3V\_PCH 5  
-RST 3 4 -PWRBT\_1  
AZC099-04S/SOT23-6L follow P67-UD3P

PIN2X10PANEL - 3SD for PWRBT & RSTBT & SMBUS



<b>Gigabyte Technology</b>		
Title	<b>FP,F_USB,USB PWR,SPKR,SATA LED</b>	
Size	Document Number	Rev
Custom	<b>GA-H61M-DS2</b>	<b>4.01</b>
Date:	Wednesday, September 25, 2013	Sheet 20 of 30

	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A
CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	O	X	O	O	X
CR48	O	O	X	O	X	X	O
CBC2/CBC4/CBC5/CBC6/CBC10/CBC11	4.7uF/X5R	4.7uF/X5R	4.7uF/X5R	4.7uF/X5R	4.7uF/X5R	10uF/X5R	4.7uF/X5R
CR1/CR3/CR10/CR12/CR15/CR19/CR56/CR27/CR55/CR37/CR28/CR34/CR6/CR9/CR51/CR61	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	66 ohm or lower	75 ohm
CR66/CR68/CD3/CBC41	X	X	X	O	X	X	X
CR67/CD1/CD2/CQ3/CQ5	O	O	O	X	O	O	O



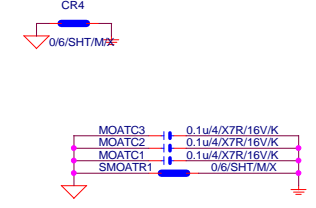
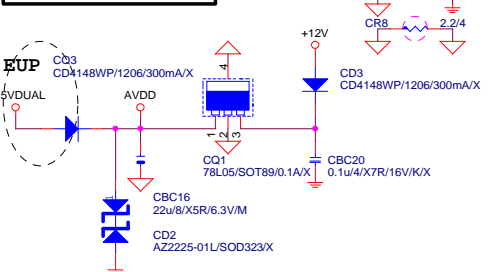
**Gigabyte Technology**

**HD AUDIO ALC887-VD2**

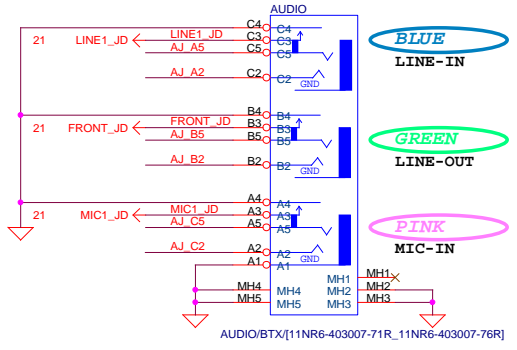
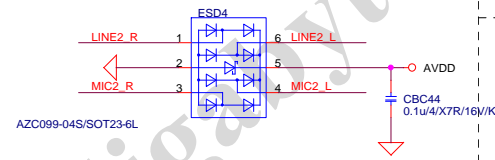
Size: Document Number **GA-H61M-DS2** Rev **4.01**

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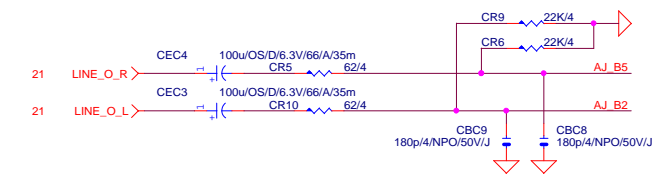
**CODEC POWER/EMI PAD**



**AZALIA JACK**

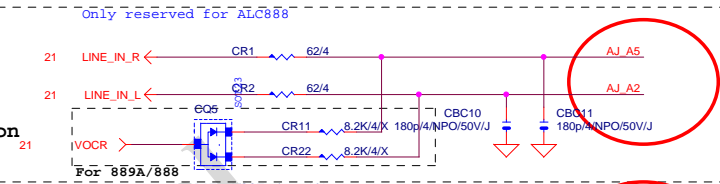


**LINE-OUT**

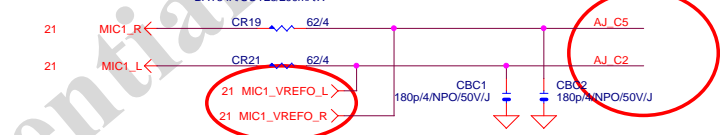


**LINE-IN**

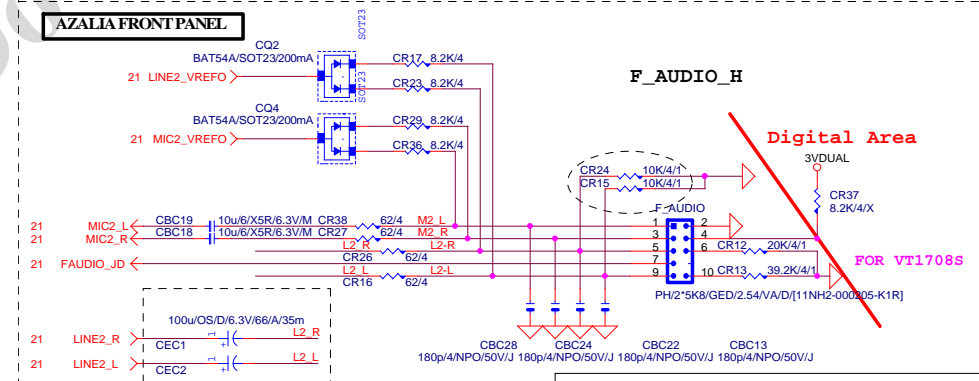
Verify MIC function in LINE-in



**MIC-IN**



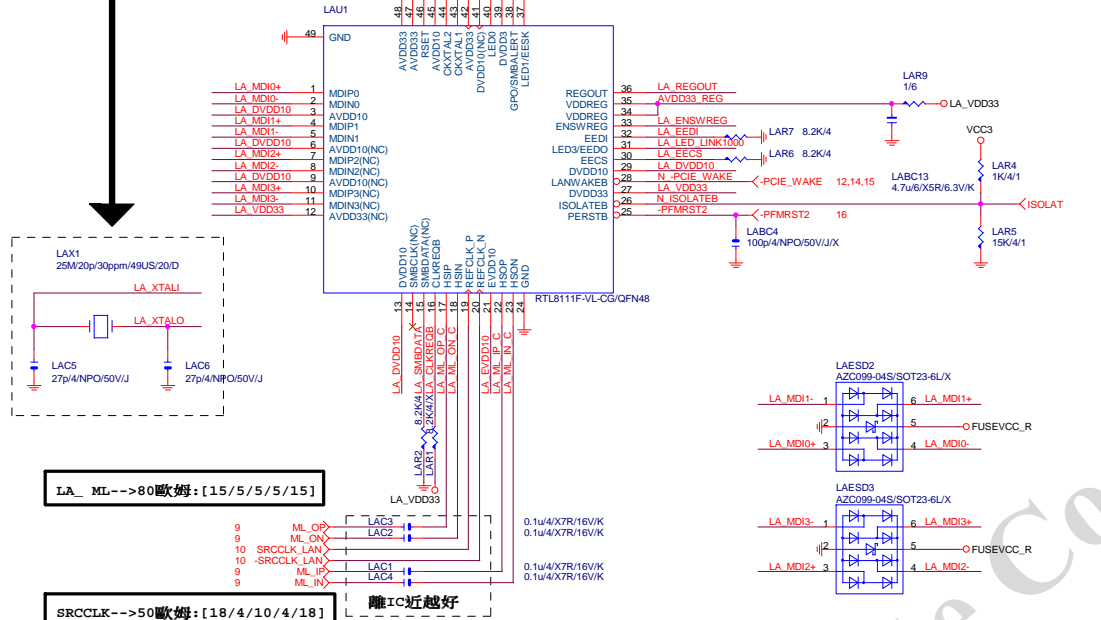
**AZALIA FRONT PANEL**



<b>Gigabyte Technology</b>		
<b>AUDIO JACK</b>		
Title	Document Number	Rev
	<b>GA-H61M-DS2</b>	<b>4.01</b>
Size Custom	Date: Wednesday, September 25, 2013	Sheet 22 of 30

LAN:RTL8111E/VB/VL

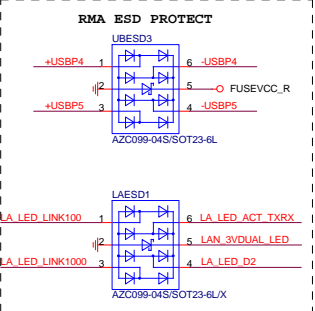
SCH BOM OPT: (二擇一使用)  
--> (LAR11) :M/B有CLK GEN 25M  
--> (LAX1, LAC5, LAC6) :M/B無CLK GEN 25M



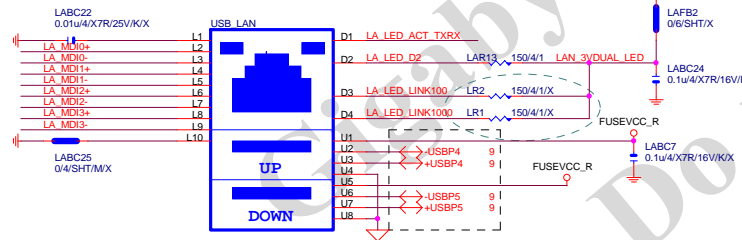
LA\_ML-->80歐姆:[15/5/5/15]

SRCLK-->50歐姆:[18/4/10/4/18]

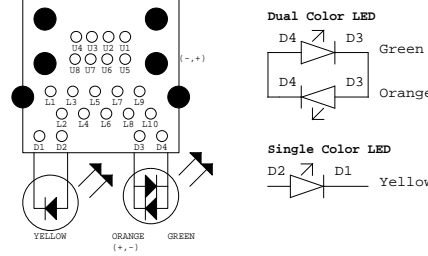
USB LAN CONNECTOR



LA\_MDI-->100歐姆:[20/4/8/4/20]



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

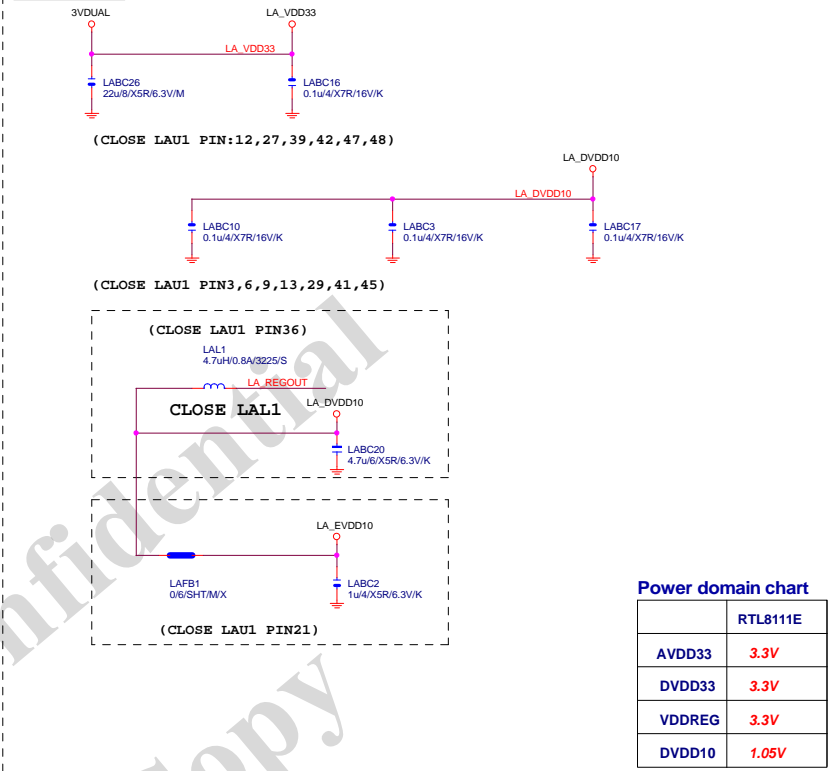


料號	規格	廠商
11NR6-702009-0ER	1G LAN (12core)	UDE
11NR6-702009-91R	1G LAN (8 core)	FOXCONN
11NR6-702009-92R	1G LAN (8 core)	UDE
11NR6-702009-11R	1G LAN (12core/RED)	UDE
11NR6-702009-12R	1G LAN (8 core/RED)	FOXCONN

USB LAN BOM區分:

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

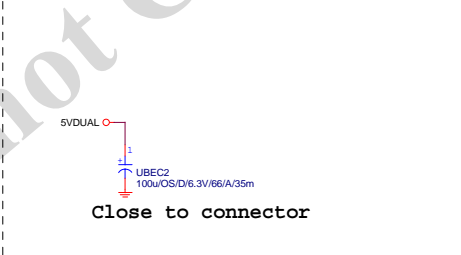
LAN POWER



Power domain chart

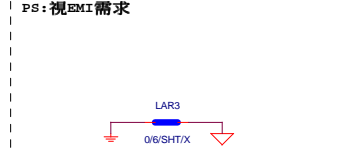
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDD33	3.3V
DVDD10	1.05V

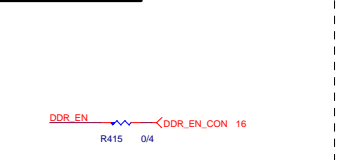
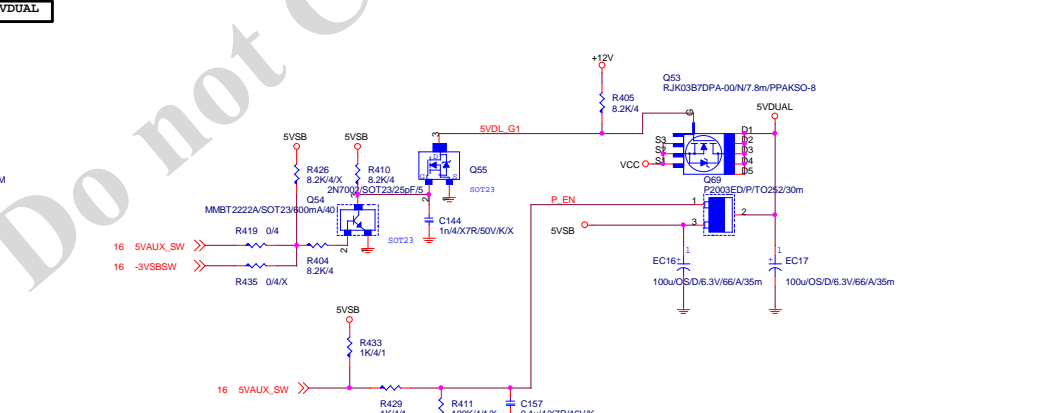
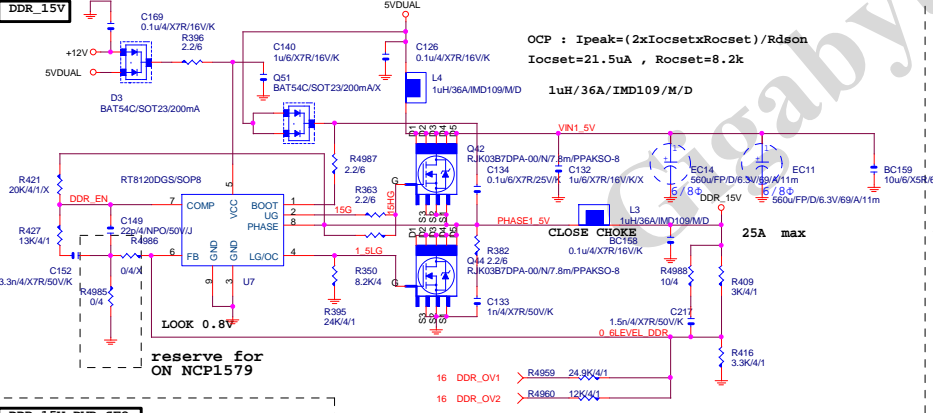
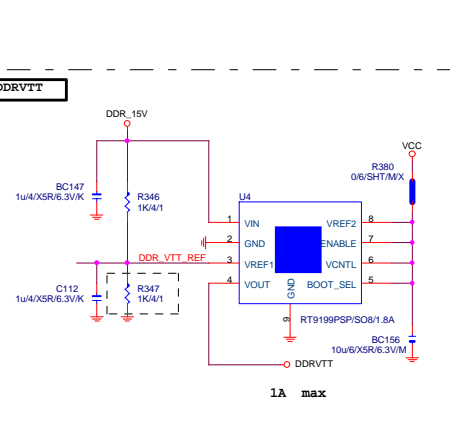
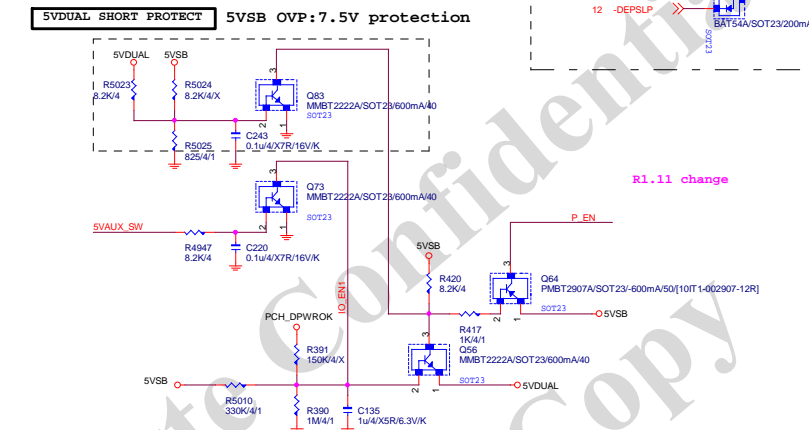
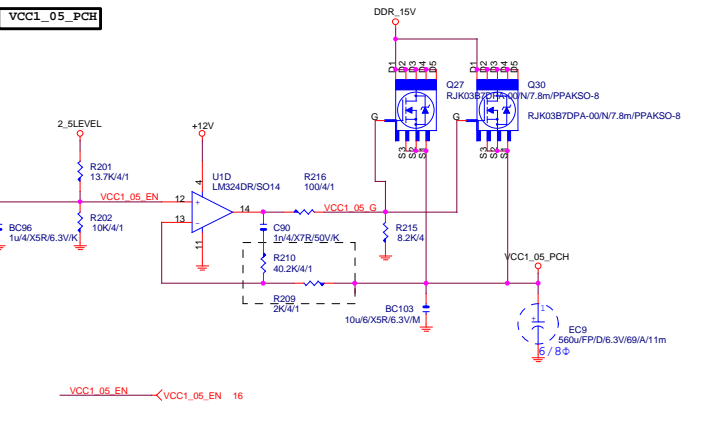
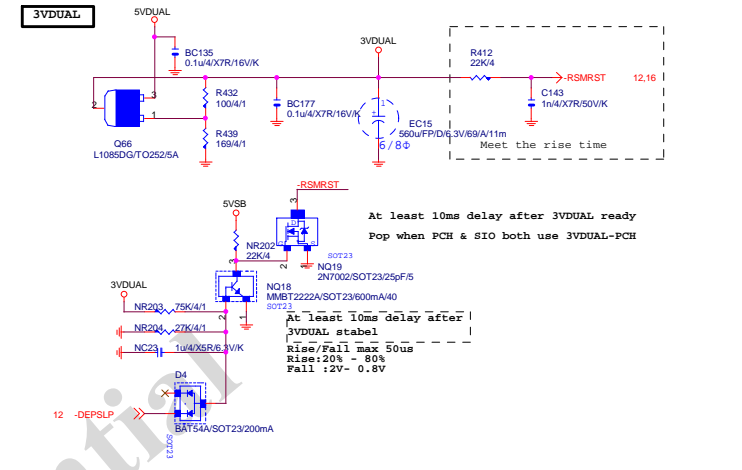
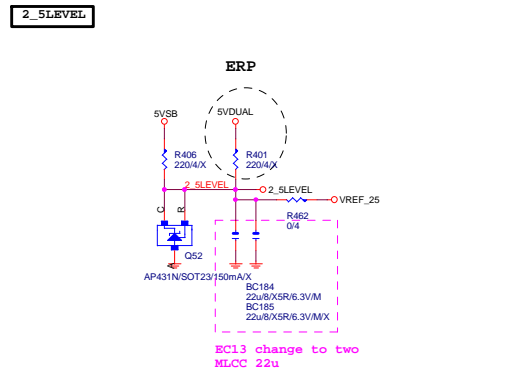
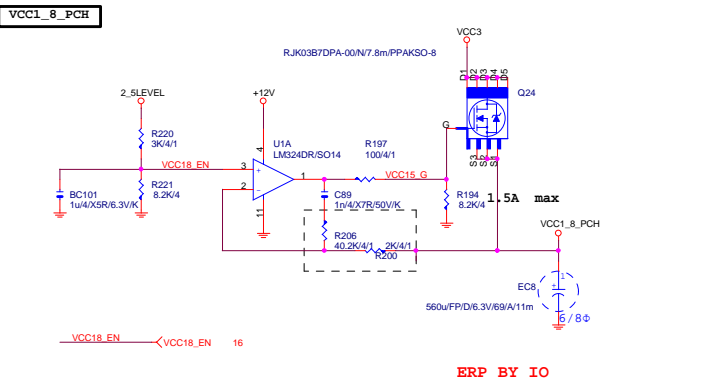
USB X3 POWER



USB OC/FUSE PROTECT

EMI SHORT PAD



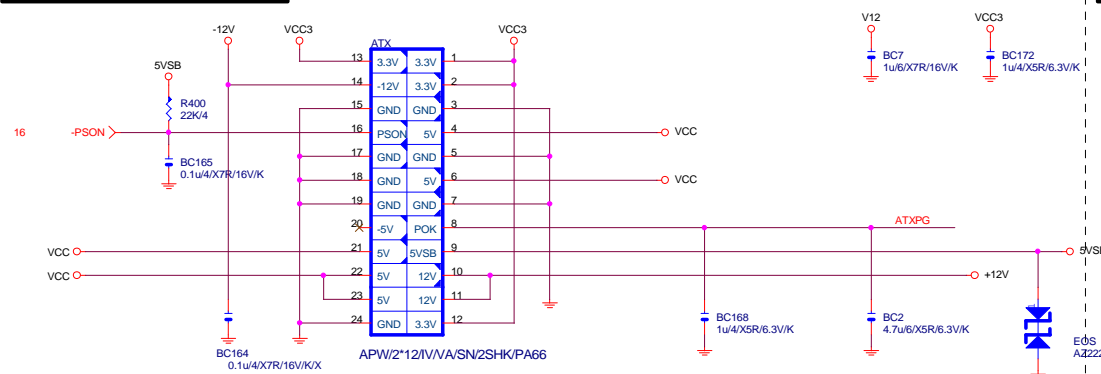


ERP & FIX ERP 5VSB DROP

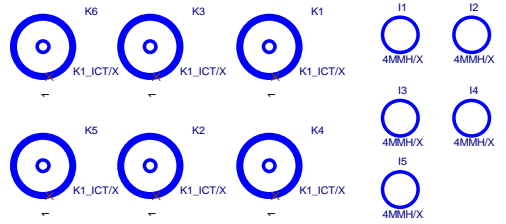
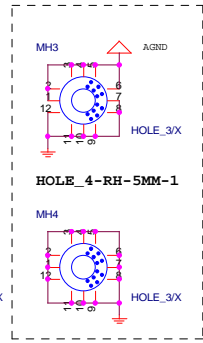
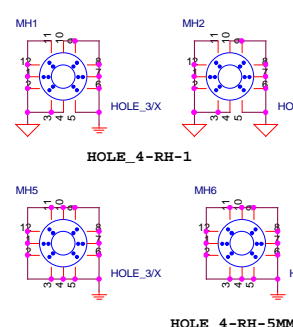
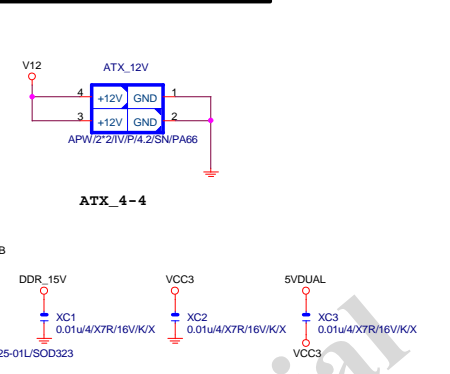
<b>Gigabyte Technology</b>			
File	DISCRETE POWER		
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**ATXX24 POWER CONNECTOR**



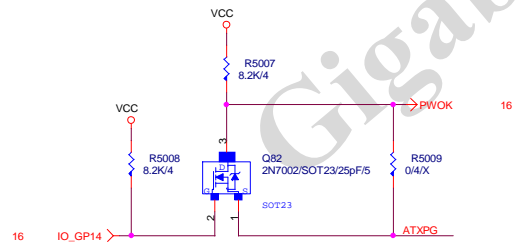
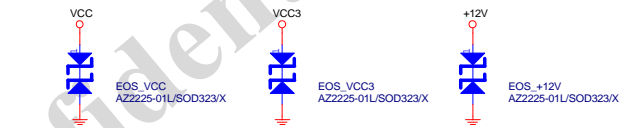
**ATXX4 POWER CONNECTOR**



To prevent the 5VSB under loading when boot

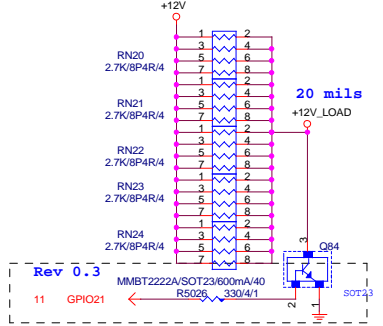
5VDUAL1 (USB PORT/DDR.III POWER)  
5VDUAL ( 3VDUAL/OTHER)

-S\_WARN-->5VDUAL1-->-S\_ACK (PCH)-->-DEPSLP/-RSMRST-->5VDUAL-->3VDUAL



**【技術通報R&D技術通報153】**

To fix 12V light load abnormal issue



Rev 0.3

CPU\_VTT

VTT_EN	
HI	ENABLE
LO	DISABLE

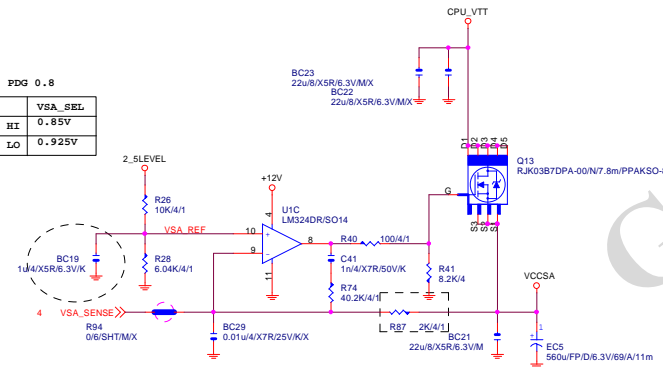
VTT OV option



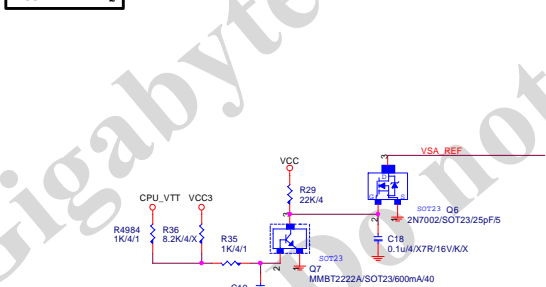
VCCSA

PDG 0.8

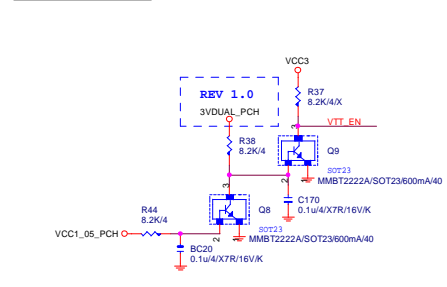
VSA_SEL	
HI	0.85V
LO	0.925V

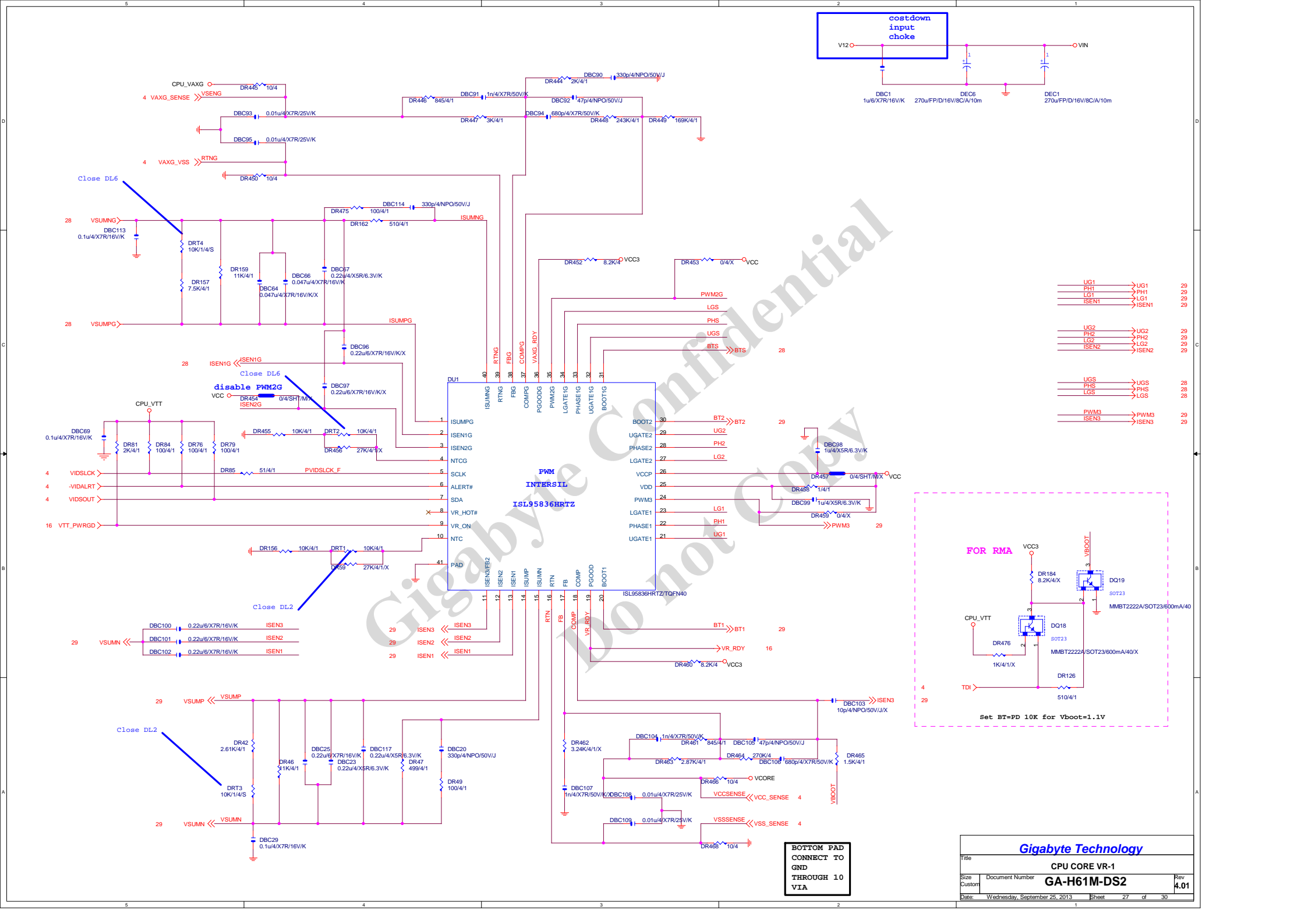


VCCSA PWR SEQ



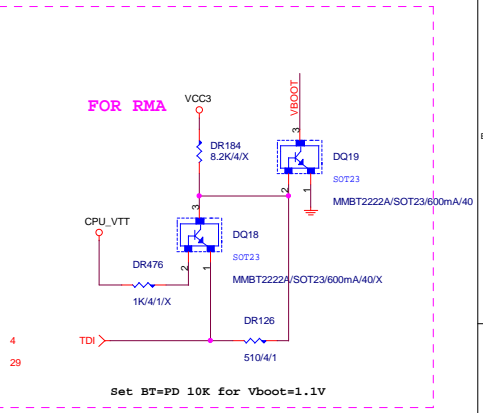
CPU\_VTT PWR SEQ





costdown input choke

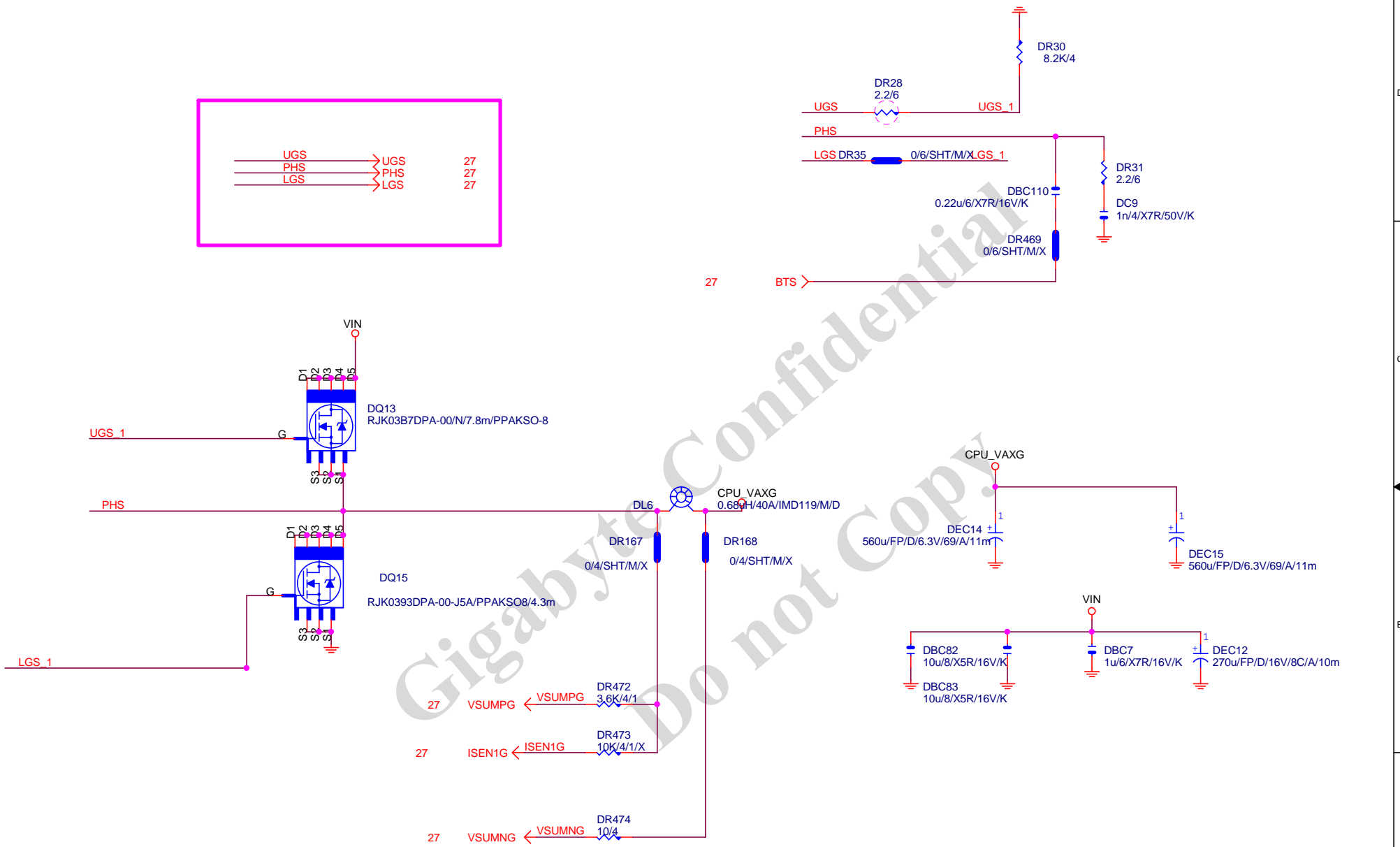
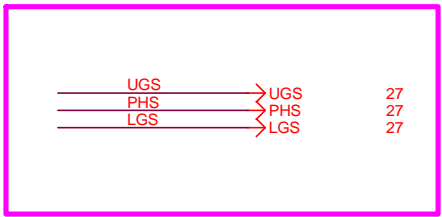
UG1	UG1	29
PH1	PH1	29
LG1	LG1	29
ISEN1	ISEN1	29
UG2	UG2	29
PH2	PH2	29
LG2	LG2	29
ISEN2	ISEN2	29
UG3	UG3	28
PH3	PH3	28
LG3	LG3	28
PWM3	PWM3	29
ISEN3	ISEN3	29



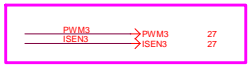
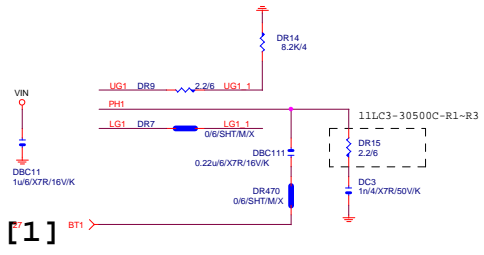
BOTTOM PAD  
CONNECT TO  
GND  
THROUGH 10  
VIA

<b>Gigabyte Technology</b>		
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Size	Document Number	Rev
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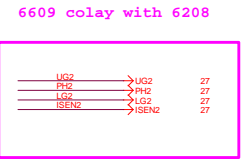
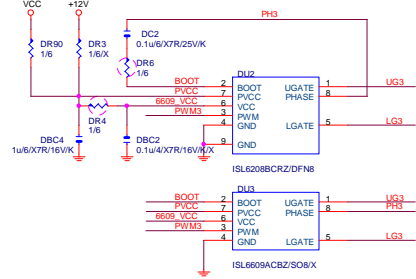
**VAXG**



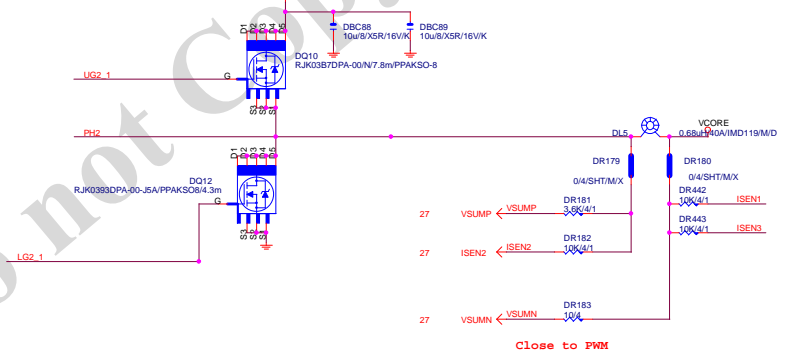
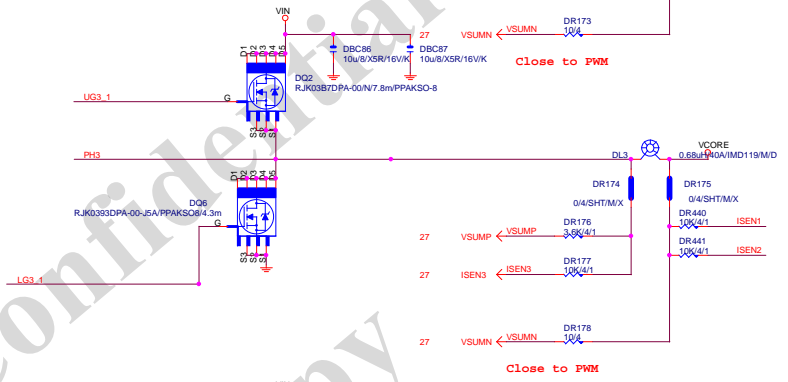
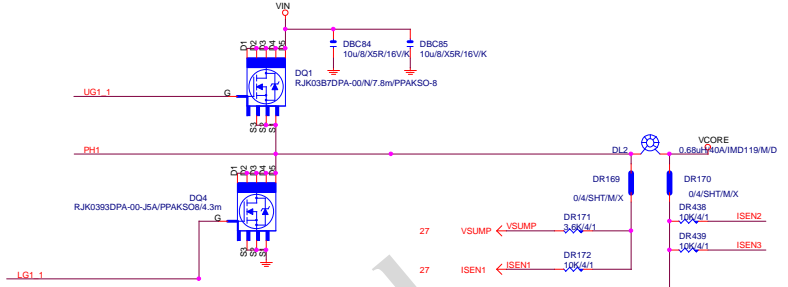
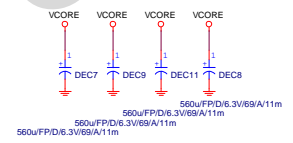
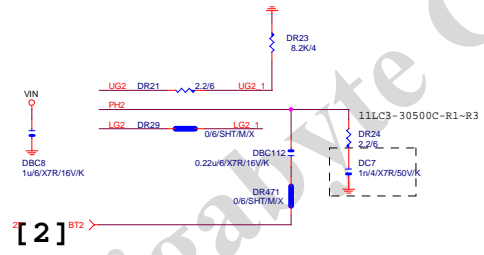
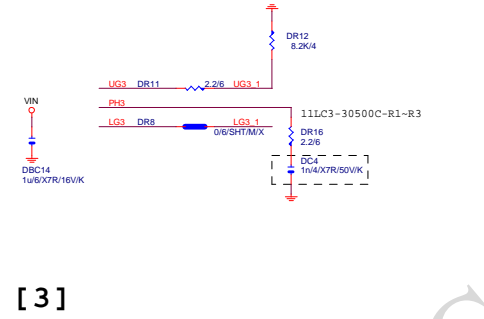
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Title <b>CPU CORE VR-2</b>		
Size Custom	Document Number <b>GA-H61M-DS2</b>	Rev <b>4.01</b>
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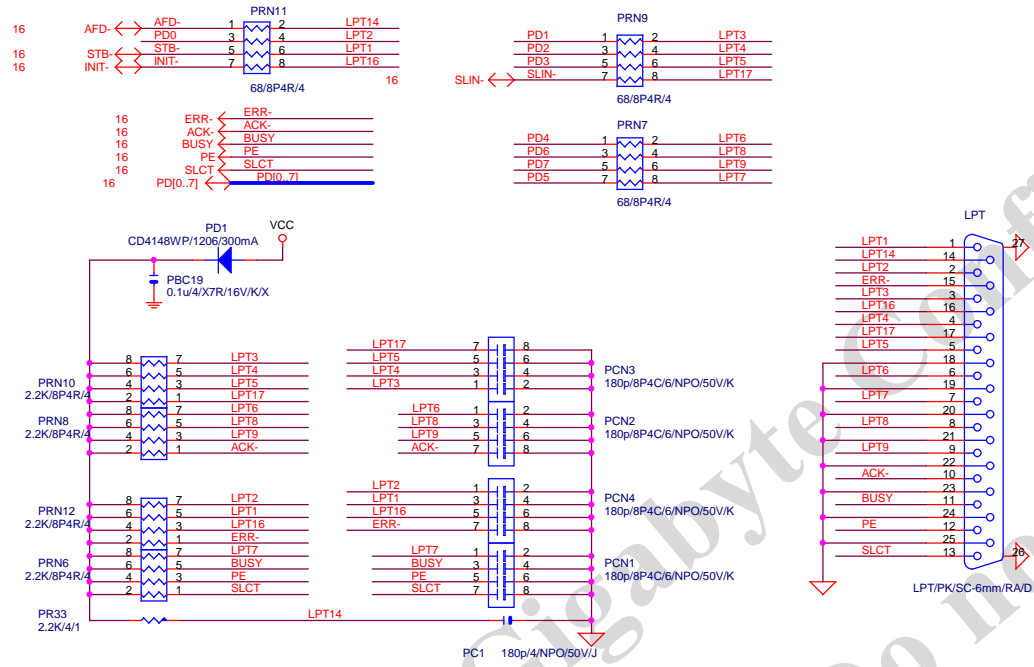
Pop 1S16625CB for PBT  
[1S16625CBZ/908]



6609 colay with 6208



**LPT PORT**



<b>Gigabyte Technology</b>			
Title: <b>LPT</b>			
Size: Custom	Document Number: <b>GA-H61M-DS2</b>		Rev: <b>4.01</b>
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