

Model Name: GA-H61M-DS2

Revision 2.21

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 8728 LPC IO
17	COMA,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 8111E/USB_LAN
24	DISCRETE POWER
25	ATX,-S_WARN,-S_ACK,5VDUAL
26	Richtek_RT8120_CPU_VTT
27	VCORE INTERSIL_95836_1

SHEET

TITLE

28	VCORE INTERSIL_95836_2
29	VCORE INTERSIL_95836_3
30	LPT

Gigabyte Technology

Title		
Cover Sheet		
Size	Document Number	Rev
Custom	GA-H61M-DS2	2.21
Date:	Friday, March 30, 2012	Sheet 1 of 30

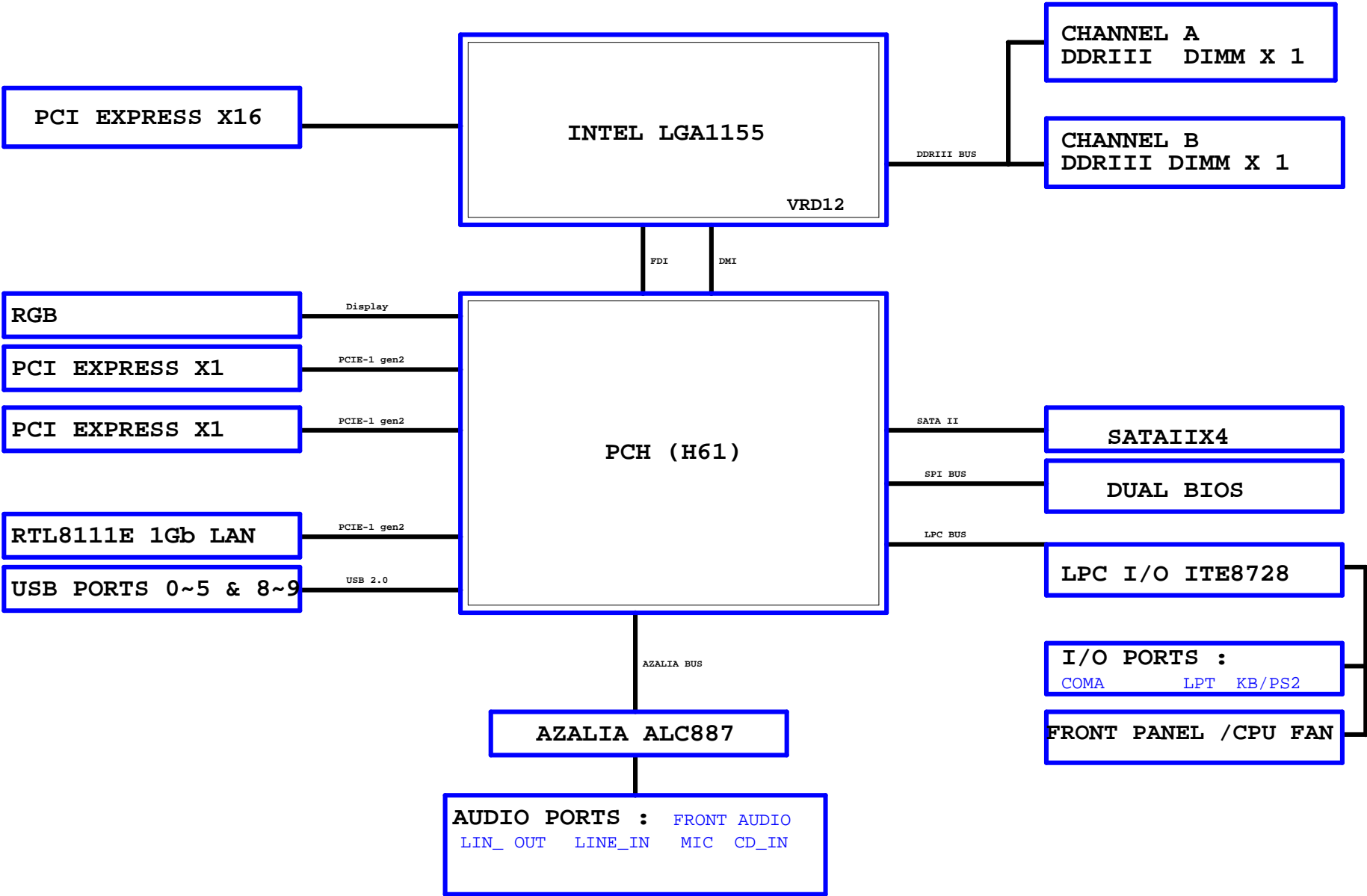
Revision 2.21

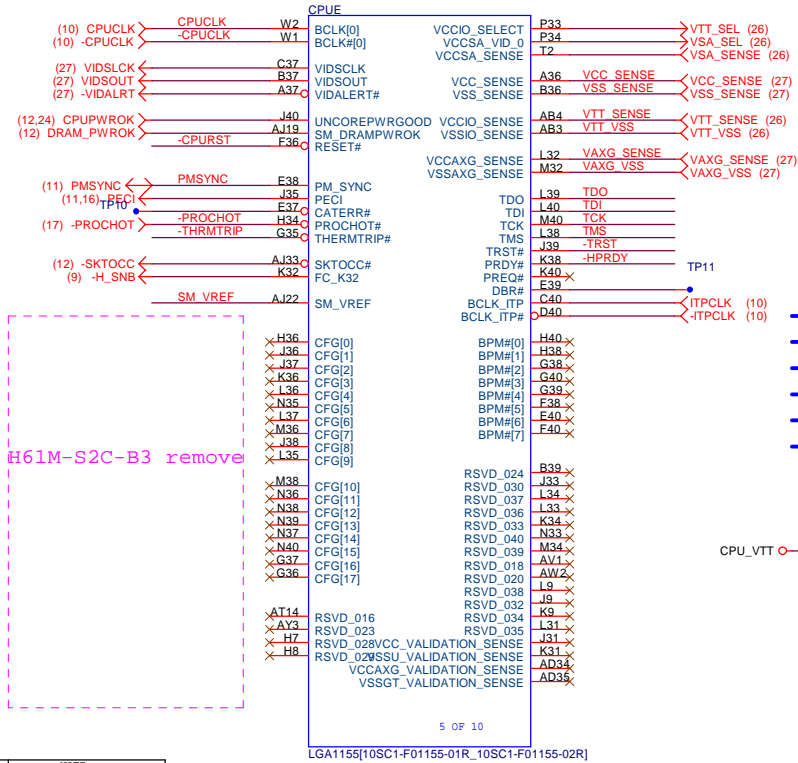
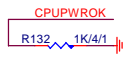
2011/11/30

Data	Change Item	Reason
2011.08.22	9MH61MDS2-00-12A	H61M-DS2 R1.2 BOM first release
	remove BC35 & BC34 change to 0.1u fix SIO 8728 factory issue	
	some CAP change to Japan's os-con & adjust loadline	
	add second source ON-MOSFET for VRM	
2011.09.08	9MH61MDS2-00-12B	
	costdown BOM	
2011.10.31	9MH61MDS2-00-12C	
	MOSFET change to 9+6 solution	
2011.11.16	9MH61MDS2-00-12D	
	PWM change to ISL95836	
	DDR & CPU_VTT PWM change to RT8120DGSP	
2011.11.16	9MH61MDS2-00-20A	
	costdown sequence , VTT_SEL & VSA_SEL circuit	
	9MH61MDS2-00-20B	
	LAN change to RTL8111F-VL	
	remove R37 to fix CPU_VTT no Voltage ready	
	9MH61MDS2-00-20C	
	TR68 & R416 changet to 3.3K fix Voltage level	
	add BC165 fix STR issue	
	9MH61MDS2-00-20D	
	fix frequency down issue & change to PBOM	
	9MH61MDS2-00-20E	
	TR68 change to 3K adjust CPU_VTT Voltage level	
	9MH61MDS2-00-20F	
2012.02.04	Build 22A BOM	
2012.02.2	EC5 change to Taiwan 560u CAP , VCORE 560u CAP change to 820u	
2012.02.21	Add EC18 to fix CPU FAN issue	

[illegible]

BLOCK DIAGRAM



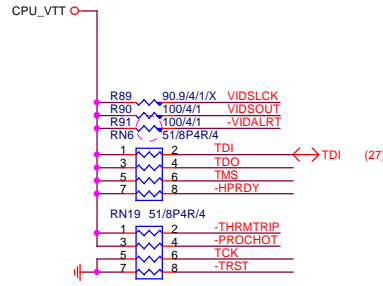
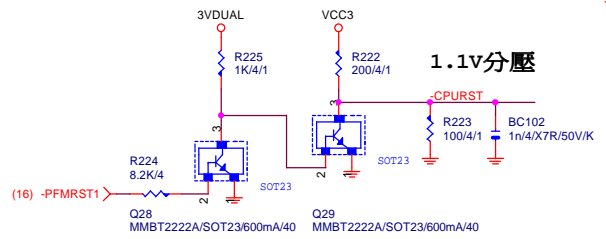
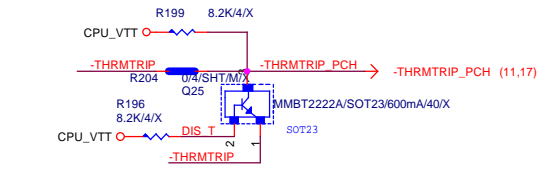
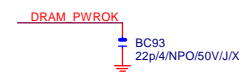


H61M-S2C-B3 remove

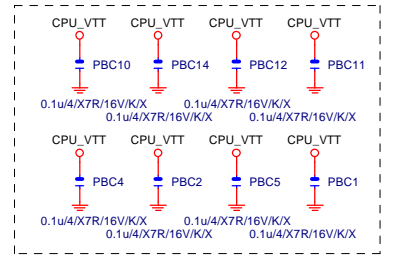
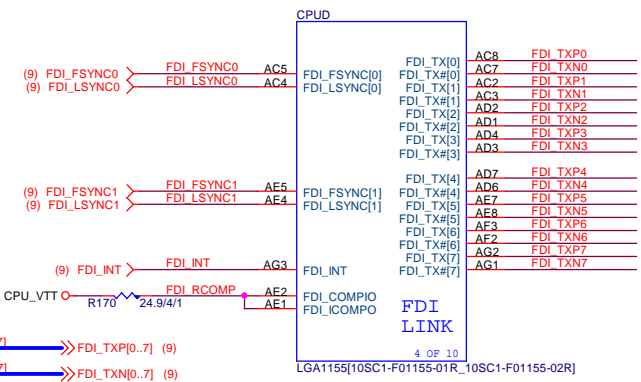
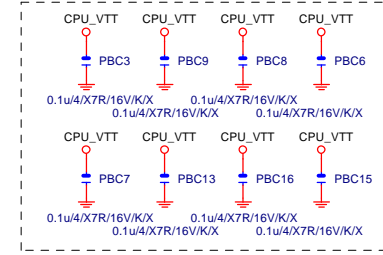
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NORM	Reverse	LANE REVERSAL[0..x16]
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD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

CFG6	CFG5	PCIE CONFIG
1	1	1X16, Default
1	0	2X8
0	1	RSVD
0	0	X8_X4_X4

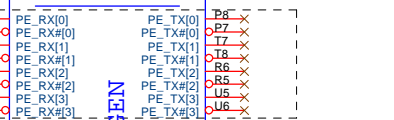
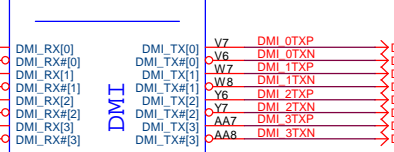
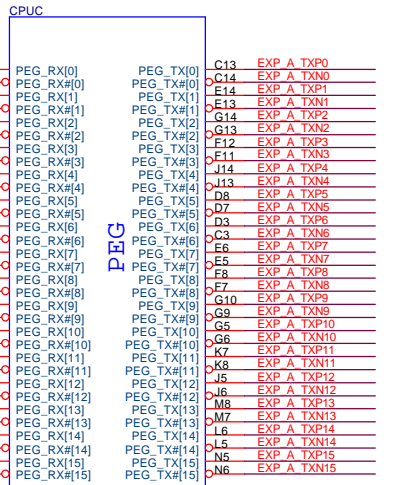
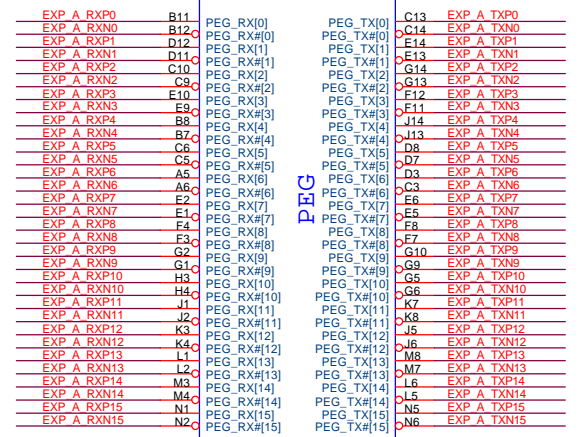
CFG 0-17 all internal PULL-UP



Stitching caps for PCIE,DMI,FDI bus

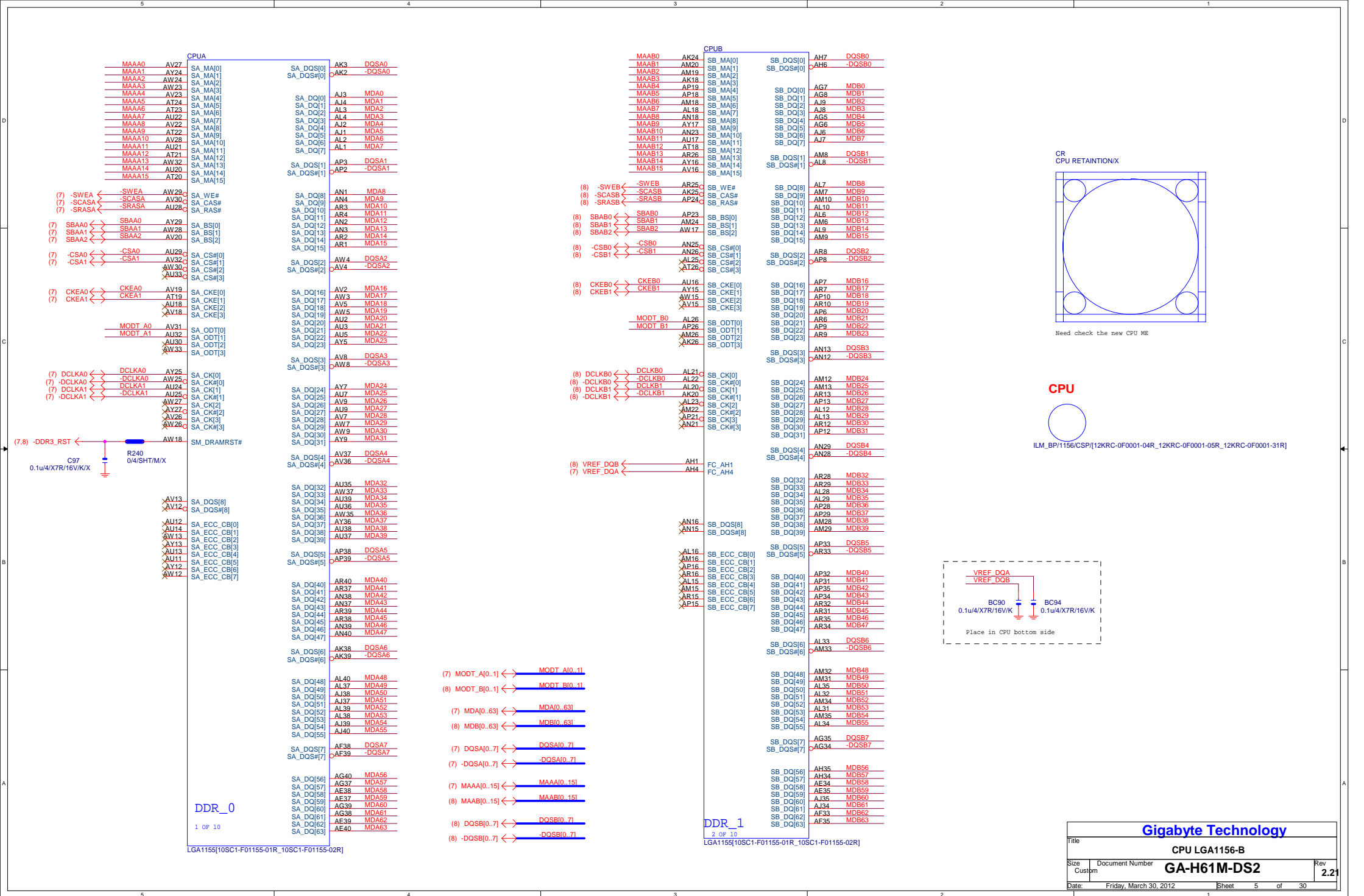


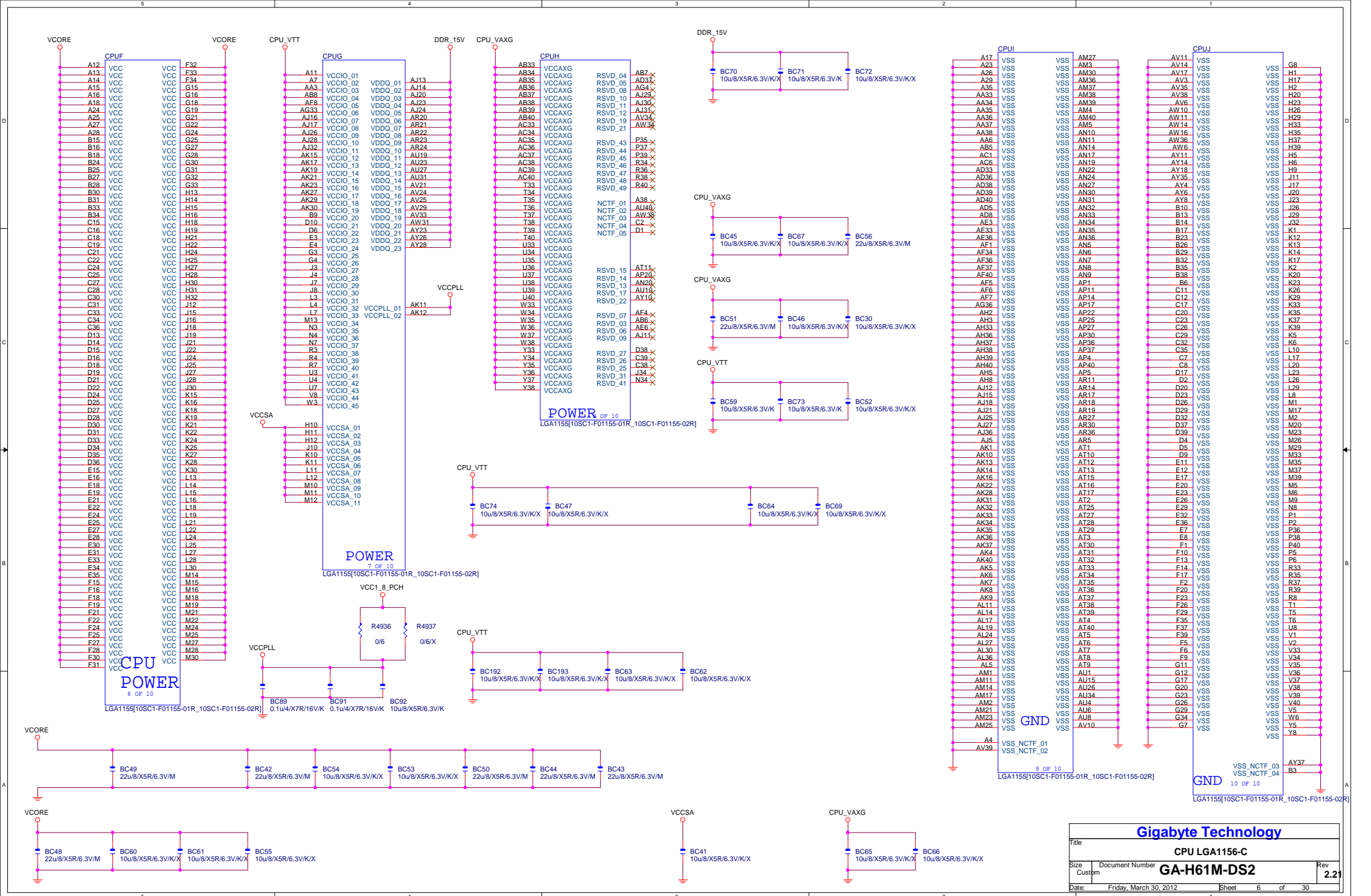
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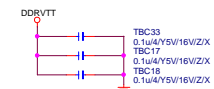
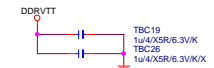
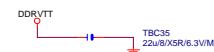
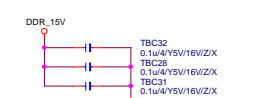
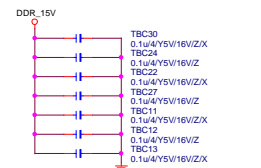
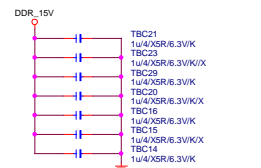
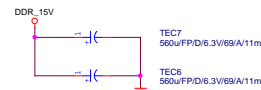


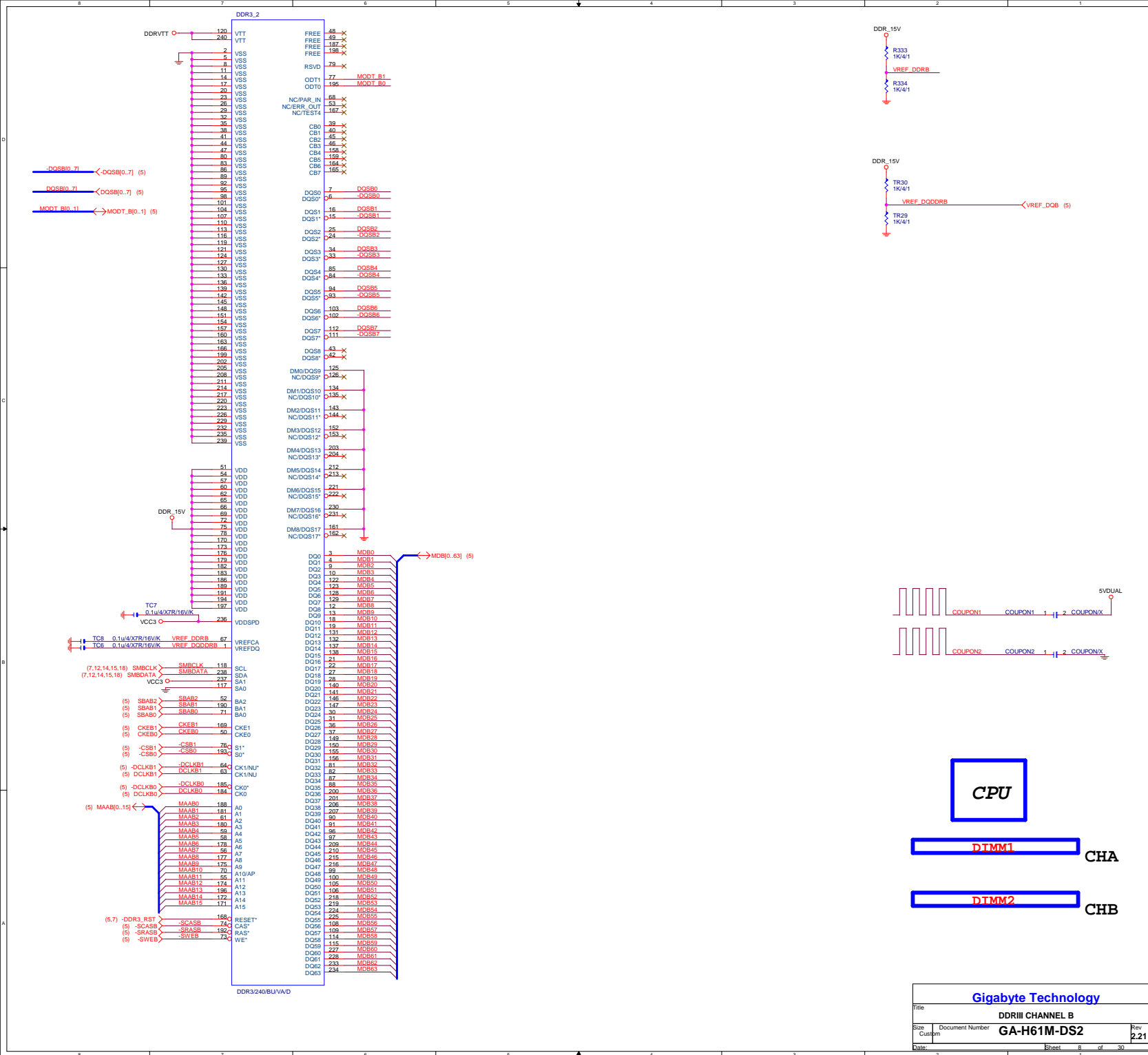
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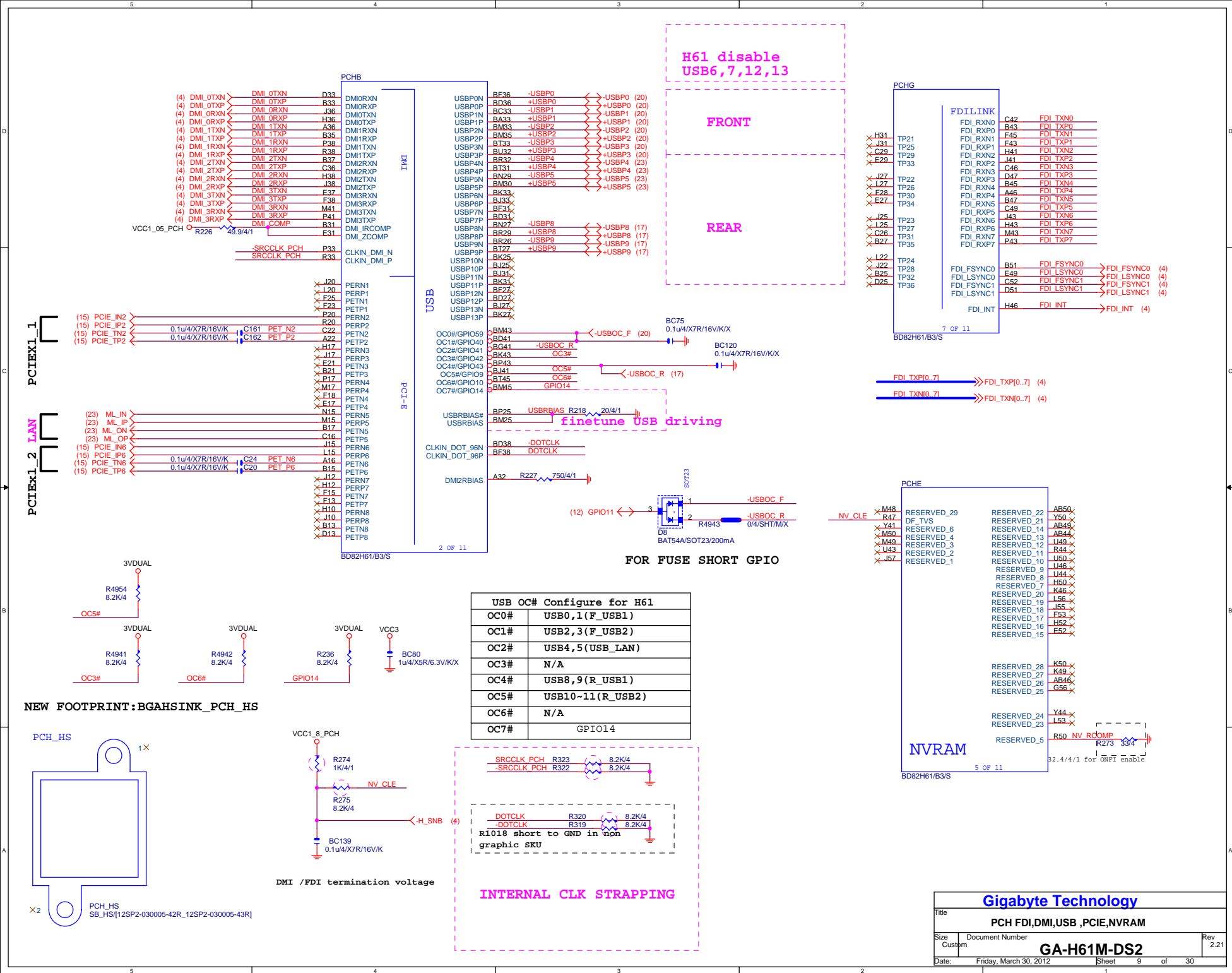
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CPU LGA1155-A		
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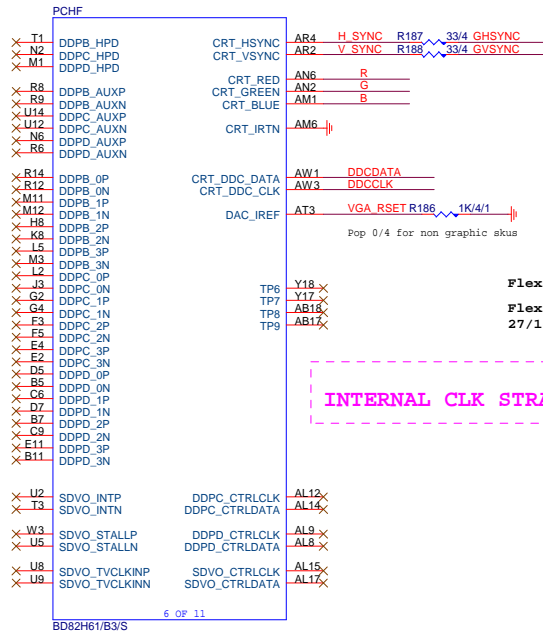










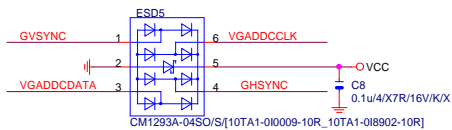
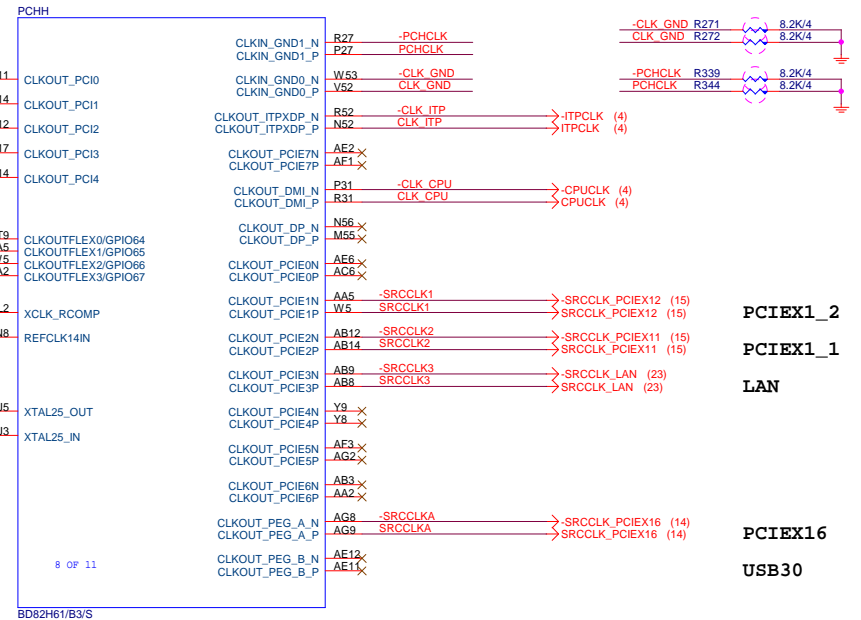
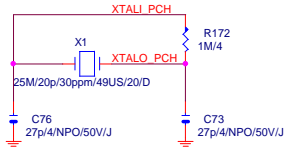


Flex0,2 : 33MHZ

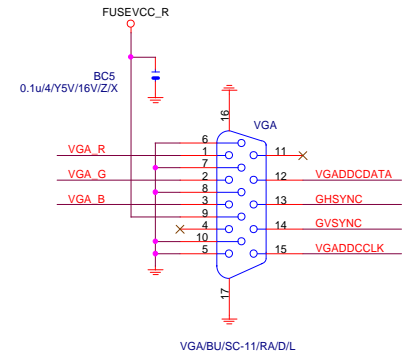
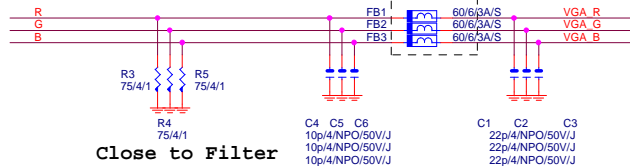
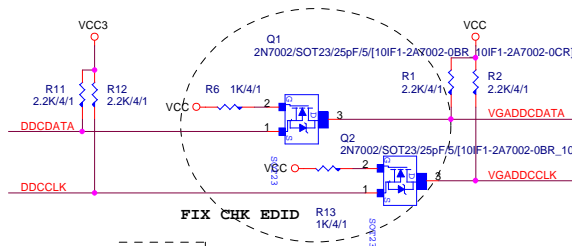
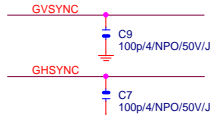
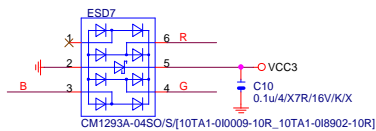
Flex1,3 :
27/14/24/48/25MHZ

INTERNAL CLK STRAPPING

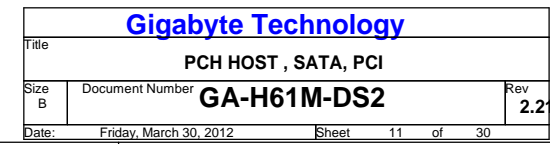
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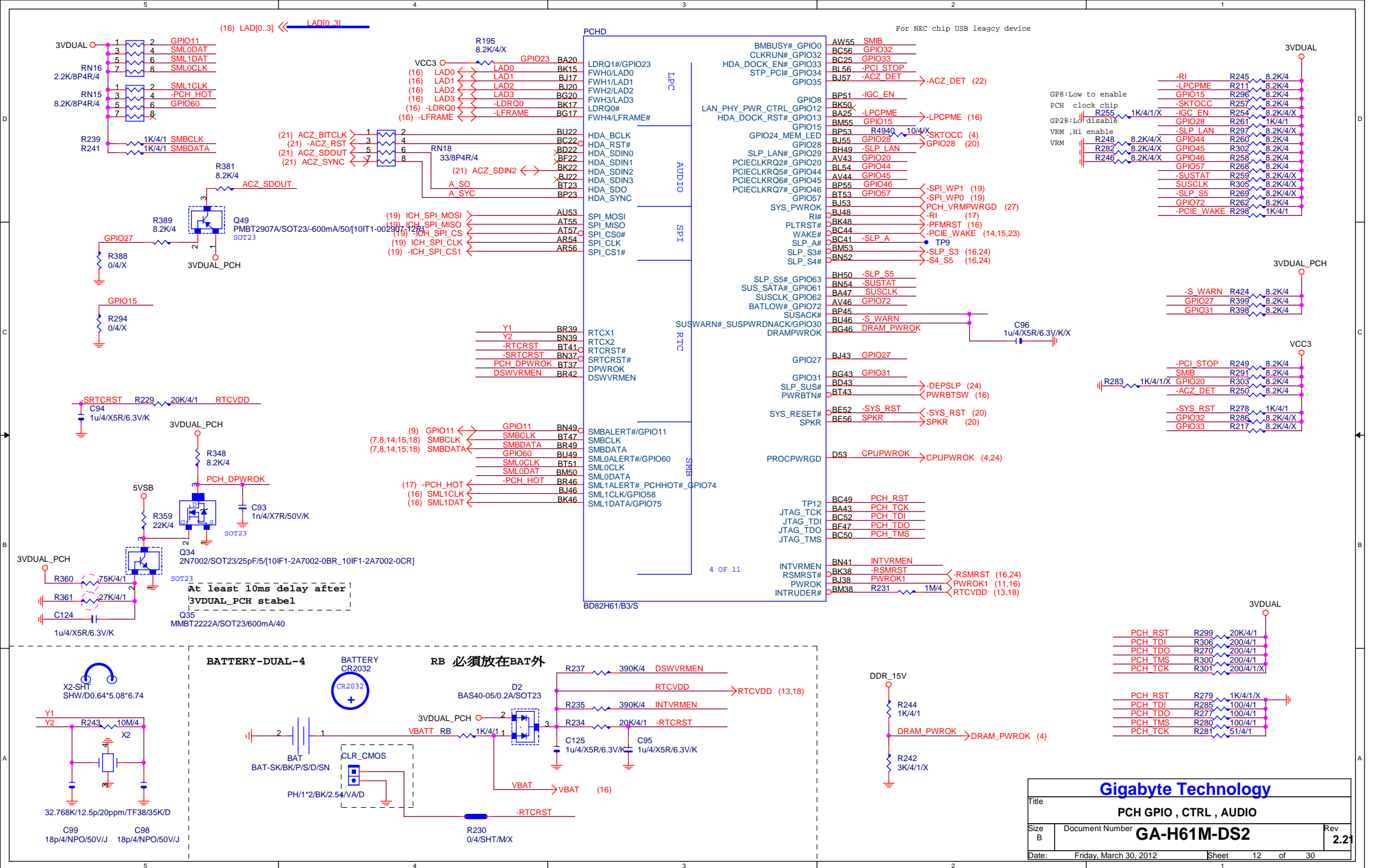
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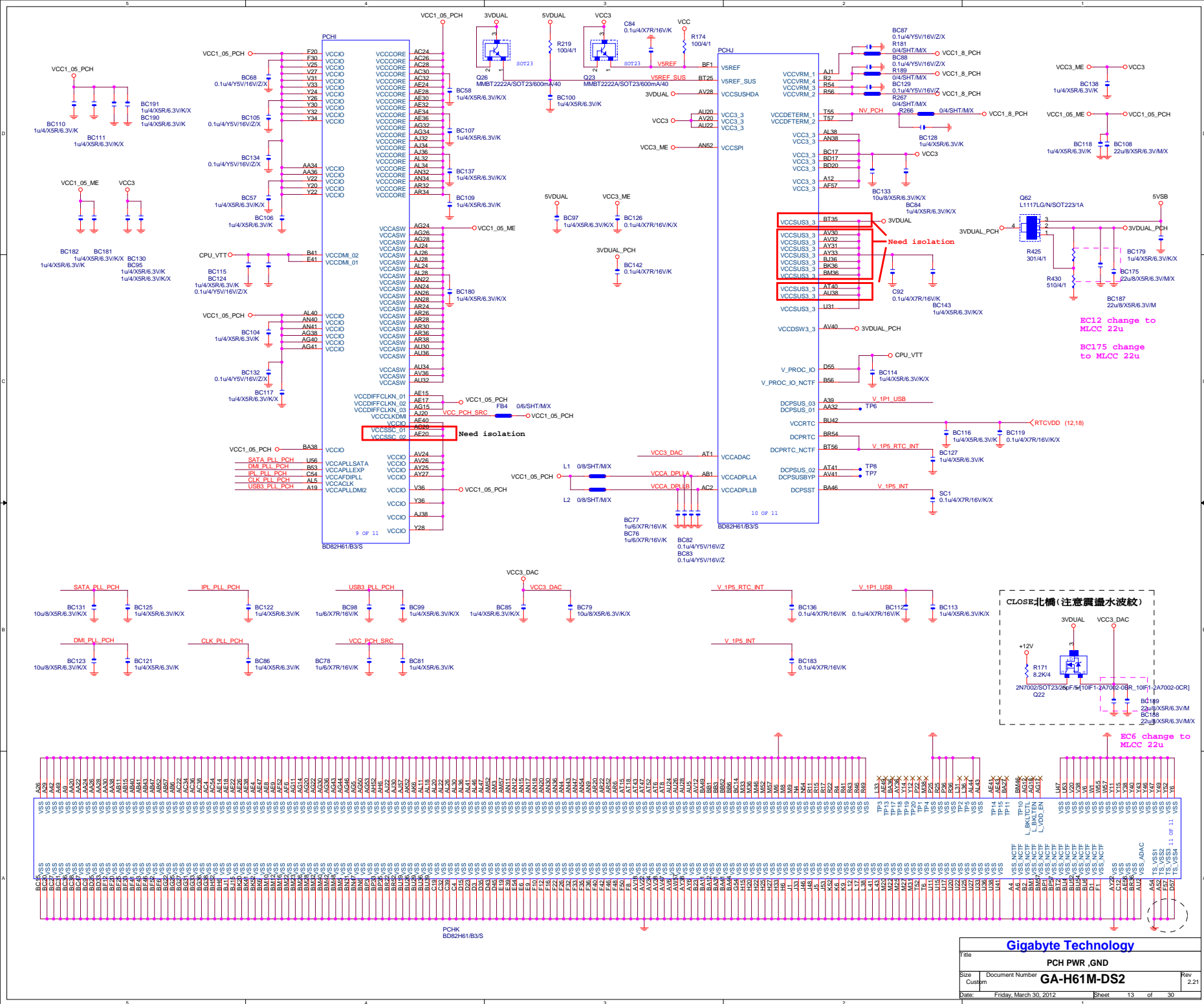


Gigabyte Technology			
Title			
PCH DISPLAY ,CLK BUFFER			
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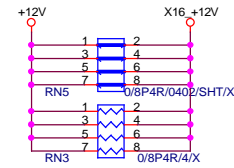
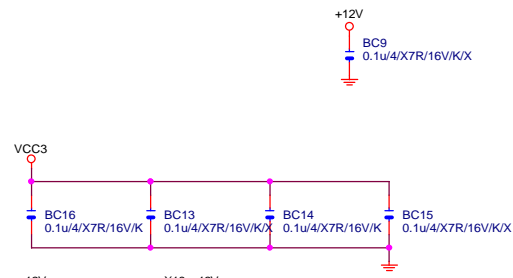


H1X7-SATA2-HS-MASK



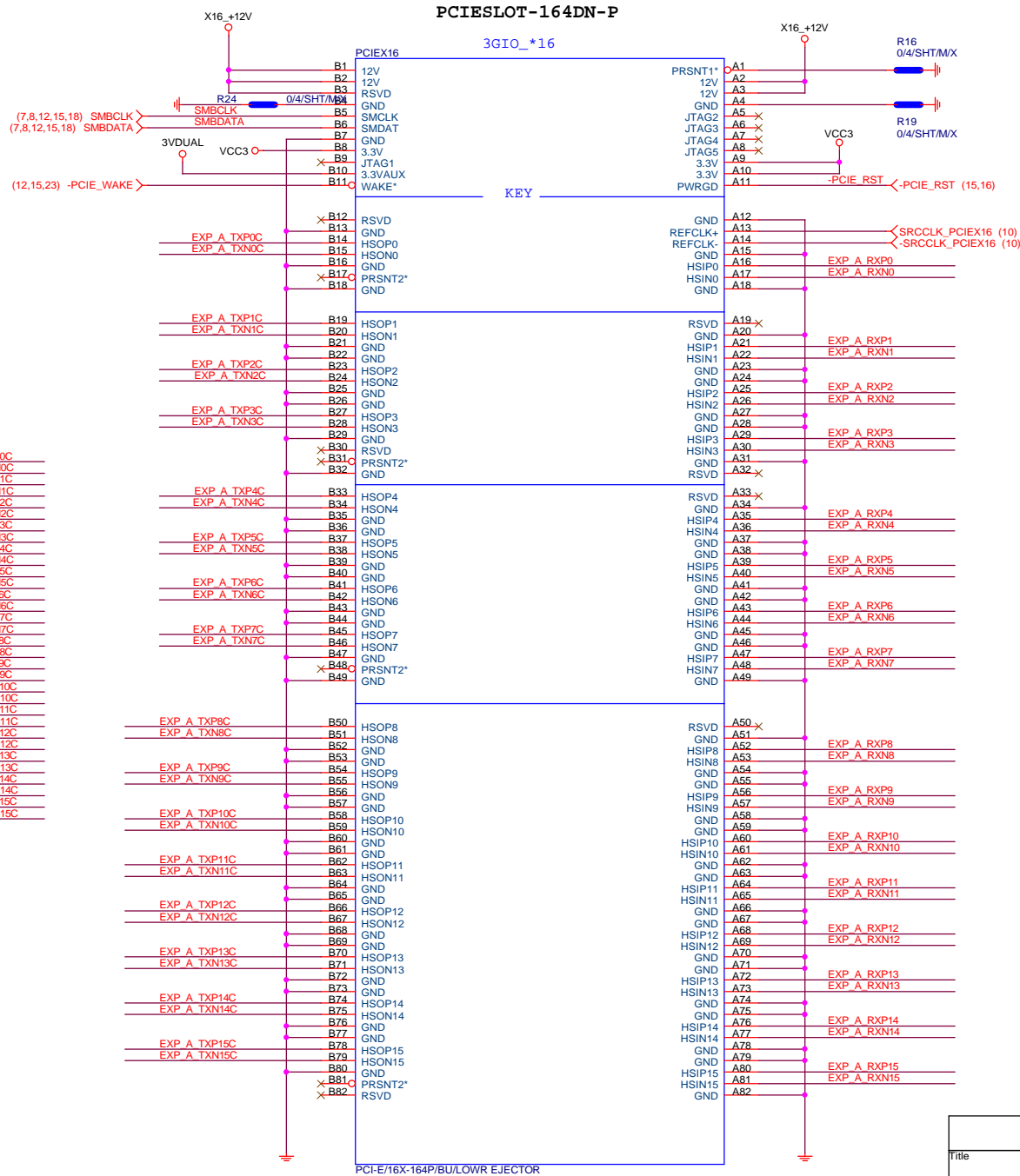


EC6D_8D10MM-RH



EXP A RXP[0..15] >> EXP_A_RXP[0..15] (4)
EXP A RXN[0..15] >> EXP_A_RXN[0..15] (4)
EXP A TXP[0..15] >> EXP_A_TXP[0..15] (4)
EXP A TXN[0..15] >> EXP_A_TXN[0..15] (4)

EXP A TXP0	C22	0.22u4/X5R/6.3V/K	EXP A TXP0C
EXP A TXN0	C26	0.22u4/X5R/6.3V/K	EXP A TXN0C
EXP A TXP1	C29	0.22u4/X5R/6.3V/K	EXP A TXP1C
EXP A TXN1	C31	0.22u4/X5R/6.3V/K	EXP A TXN1C
EXP A TXP2	C33	0.22u4/X5R/6.3V/K	EXP A TXP2C
EXP A TXN2	C35	0.22u4/X5R/6.3V/K	EXP A TXN2C
EXP A TXP3	C37	0.22u4/X5R/6.3V/K	EXP A TXP3C
EXP A TXN3	C40	0.22u4/X5R/6.3V/K	EXP A TXN3C
EXP A TXP4	C48	0.22u4/X5R/6.3V/K	EXP A TXP4C
EXP A TXN4	C49	0.22u4/X5R/6.3V/K	EXP A TXN4C
EXP A TXP5	C52	0.22u4/X5R/6.3V/K	EXP A TXP5C
EXP A TXN5	C54	0.22u4/X5R/6.3V/K	EXP A TXN5C
EXP A TXP6	C56	0.22u4/X5R/6.3V/K	EXP A TXP6C
EXP A TXN6	C58	0.22u4/X5R/6.3V/K	EXP A TXN6C
EXP A TXP7	C60	0.22u4/X5R/6.3V/K	EXP A TXP7C
EXP A TXN7	C61	0.22u4/X5R/6.3V/K	EXP A TXN7C
EXP A TXP8	C63	0.22u4/X5R/6.3V/K	EXP A TXP8C
EXP A TXN8	C64	0.22u4/X5R/6.3V/K	EXP A TXN8C
EXP A TXP9	C66	0.22u4/X5R/6.3V/K	EXP A TXP9C
EXP A TXN9	C67	0.22u4/X5R/6.3V/K	EXP A TXN9C
EXP A TXP10	C69	0.22u4/X5R/6.3V/K	EXP A TXP10C
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EXP A TXP11	C71	0.22u4/X5R/6.3V/K	EXP A TXP11C
EXP A TXN11	C72	0.22u4/X5R/6.3V/K	EXP A TXN11C
EXP A TXP12	C74	0.22u4/X5R/6.3V/K	EXP A TXP12C
EXP A TXN12	C75	0.22u4/X5R/6.3V/K	EXP A TXN12C
EXP A TXP13	C77	0.22u4/X5R/6.3V/K	EXP A TXP13C
EXP A TXN13	C78	0.22u4/X5R/6.3V/K	EXP A TXN13C
EXP A TXP14	C79	0.22u4/X5R/6.3V/K	EXP A TXP14C
EXP A TXN14	C80	0.22u4/X5R/6.3V/K	EXP A TXN14C
EXP A TXP15	C82	0.22u4/X5R/6.3V/K	EXP A TXP15C
EXP A TXN15	C83	0.22u4/X5R/6.3V/K	EXP A TXN15C

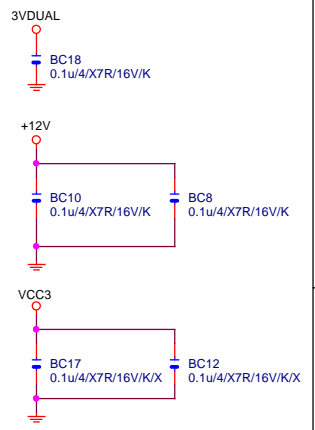
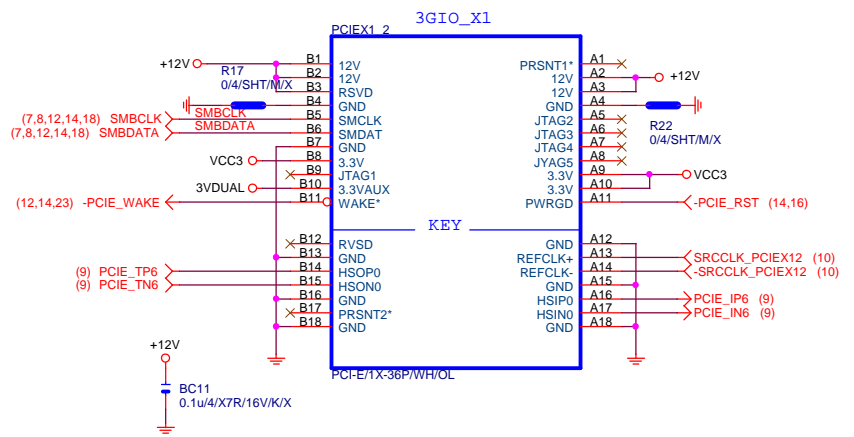
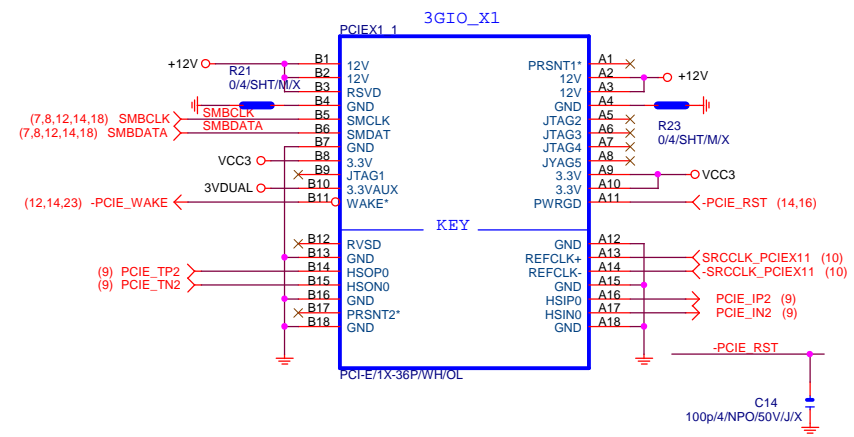


Gigabyte Technology

PCI EXPRESS * 16

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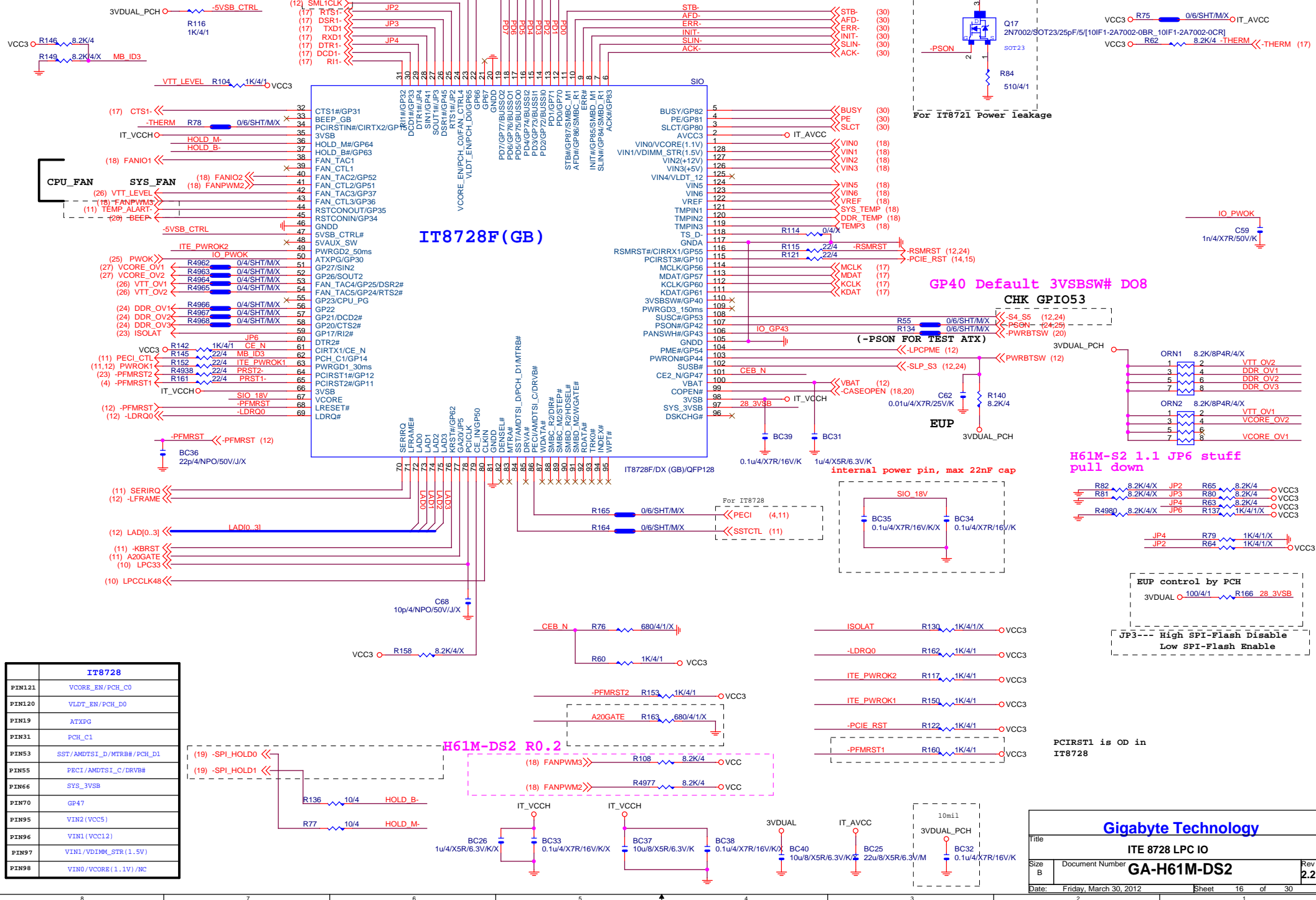
PCIE*1



CLK GEN

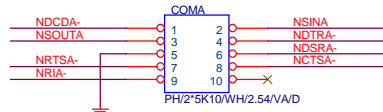
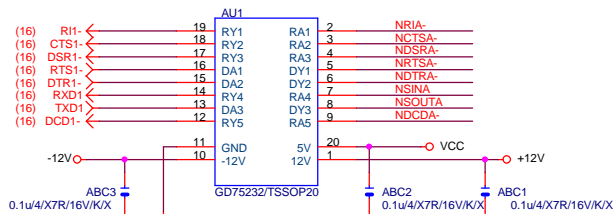
Gigabyte Technology			
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PCIEX1,X2/CLK GEN			
Size	Document Number	Rev	
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GP23 Default CPU_PG DOD8

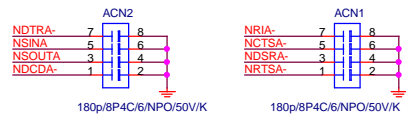


	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDTP_EN/PCH_D0
PIN19	ATXP0
PIN31	PCH_C1
PIN53	SST/AMDT_S1_D/MTRB#/PCH_D1
PIN55	PECI/AMDT_S1_C/DRV#
PIN66	SYS_3VSB
PIN70	GP#47
PIN95	VIN2 (VCC5)
PIN96	VIN1 (VCC12)
PIN97	VIN1_VDIMM_STR(1.5V)
PIN98	VIND/VCORE(1.3V)/NC

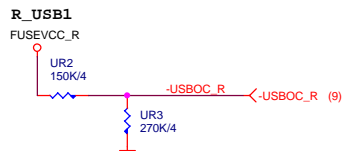
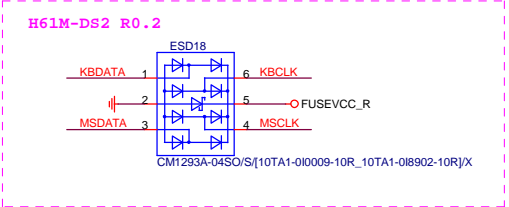
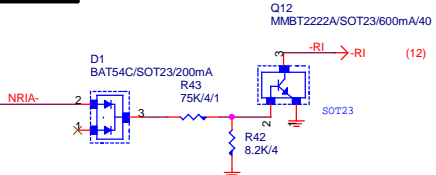
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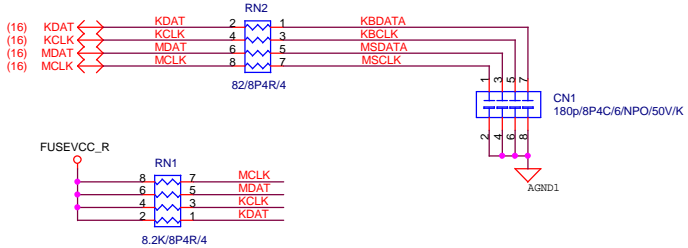
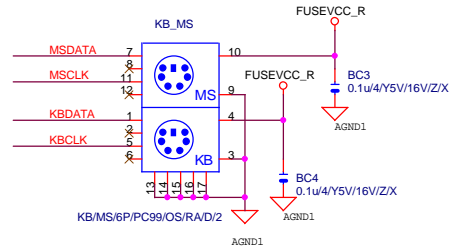
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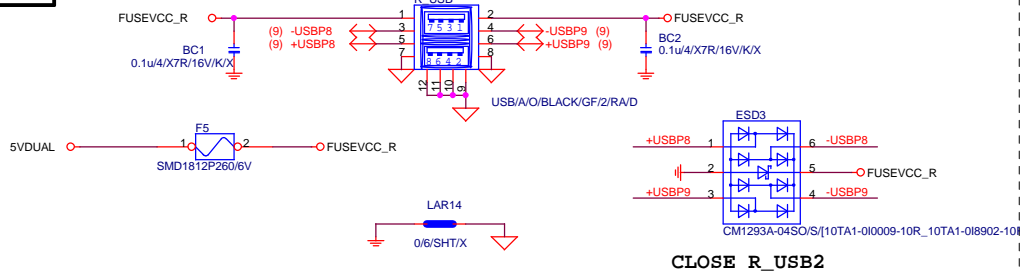
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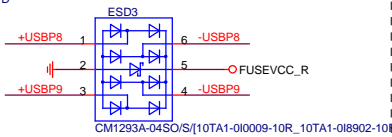
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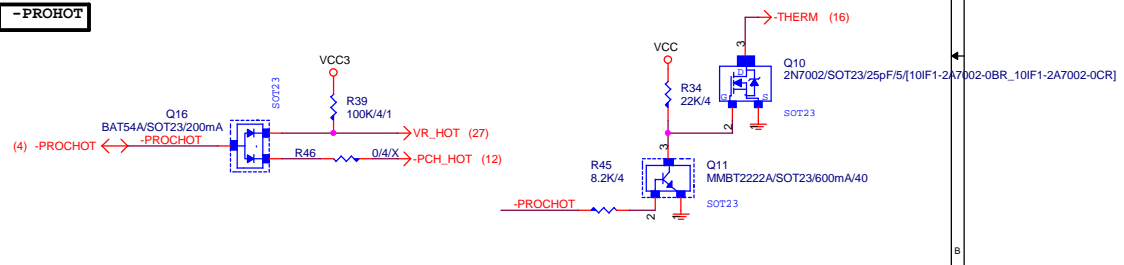
R_USB1



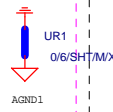
CLOSE R_USB2



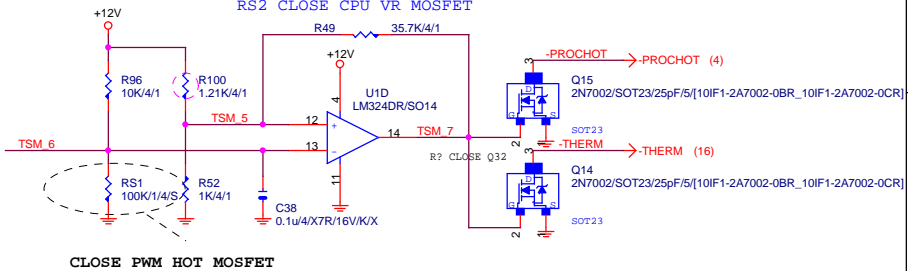
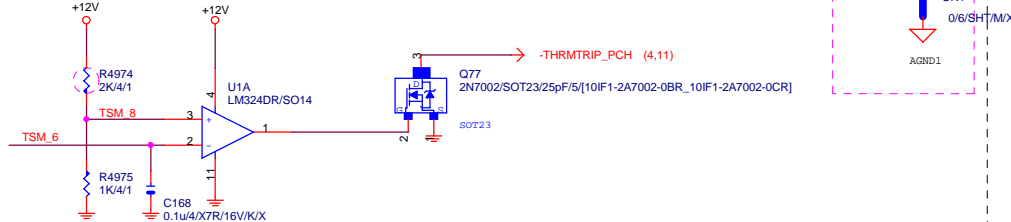
-PROHOT



EMI request



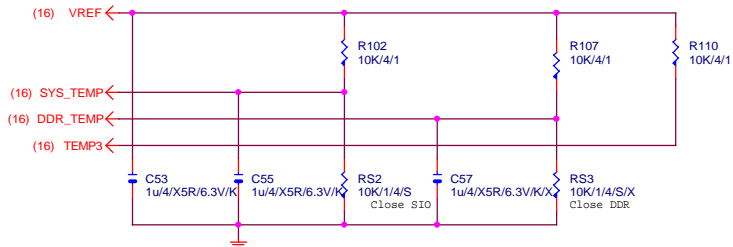
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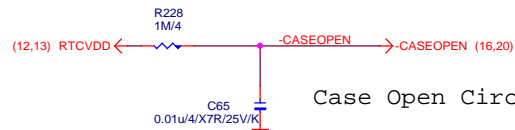
CLOSE PWM HOT MOSFET

Gigabyte Technology			
Title			
COM,-RI,KB_USB,USB_ESATA,-PROHOT			
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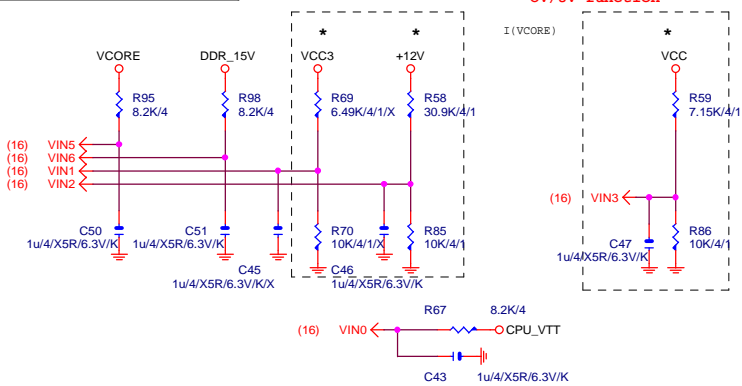
VOLTAGE-- H/W MONITOR



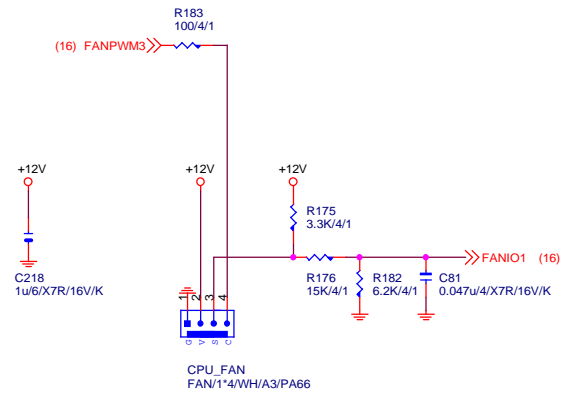
CASE OPEN



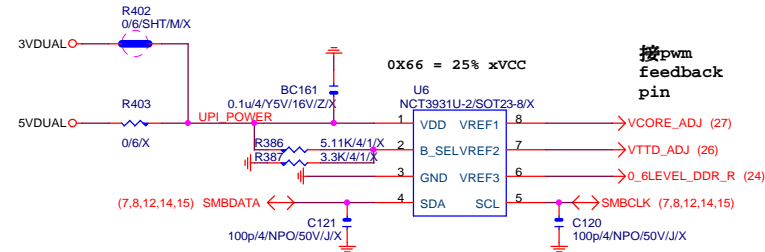
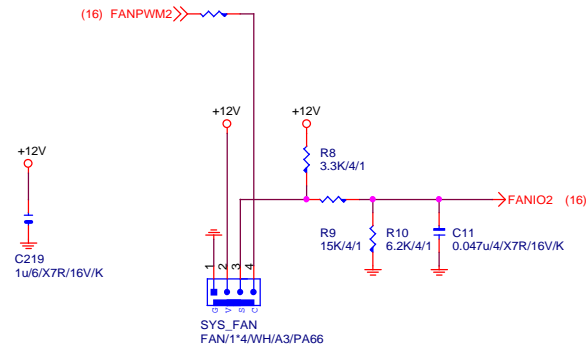
VOLTAGE-- H/W MONITOR



CPU SMART FAN



SYS SMART FAN

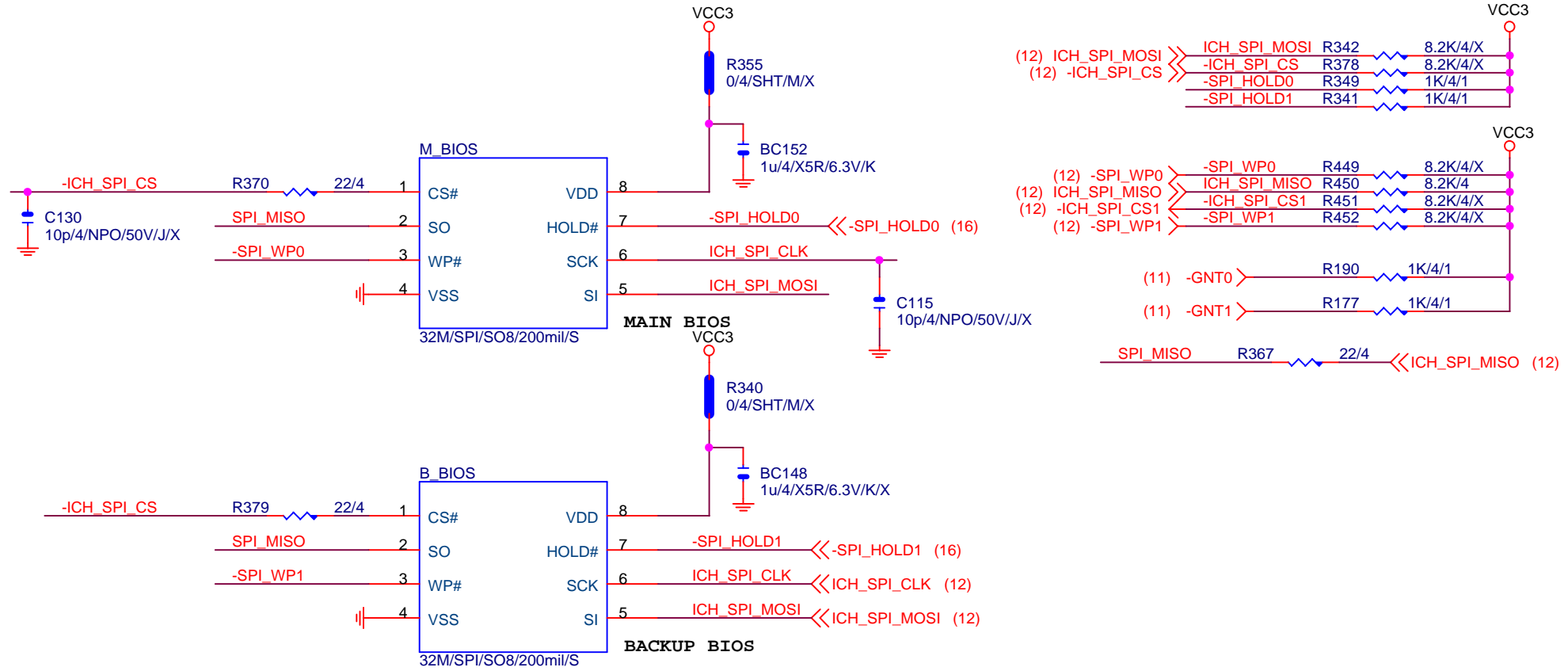


Gigabyte Technology

Title		HWM,FAN CTRL,OV
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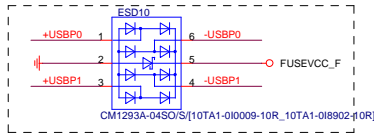
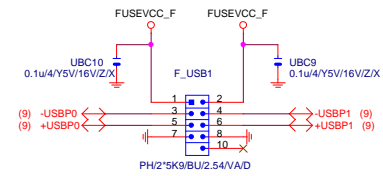
DUAL BIOS



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

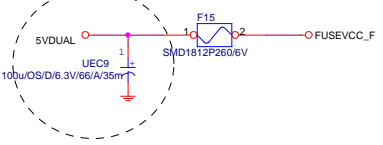
1 means floating
0 means PD 1K

FRONT USB1

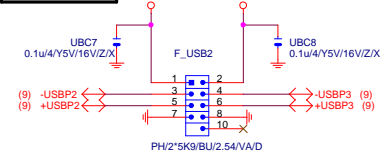


Close to connector

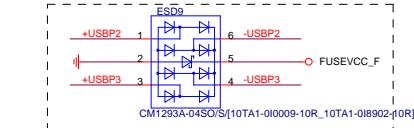
CLOSE F_USB1



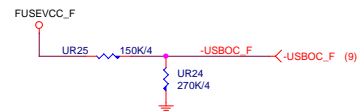
FRONT USB2



FRONT USB3



Close to connector

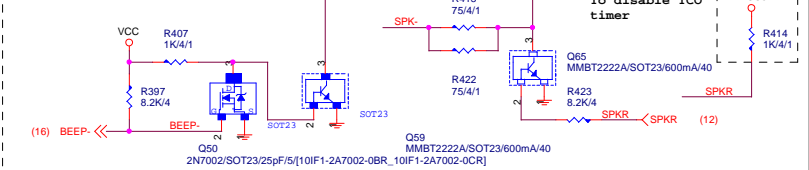


SATA LED

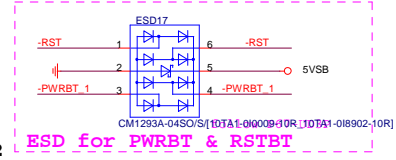


SPKR

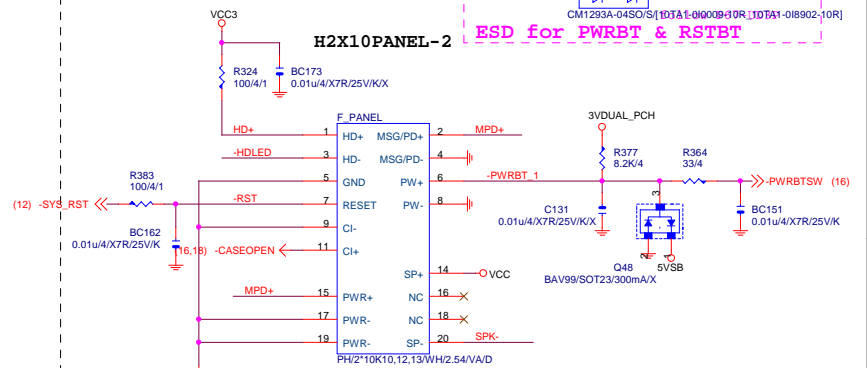
RESETCONIN DEFAULT LOW
4sec, 會發BEEP, 故改2N7002



INTEL FRONT PANEL

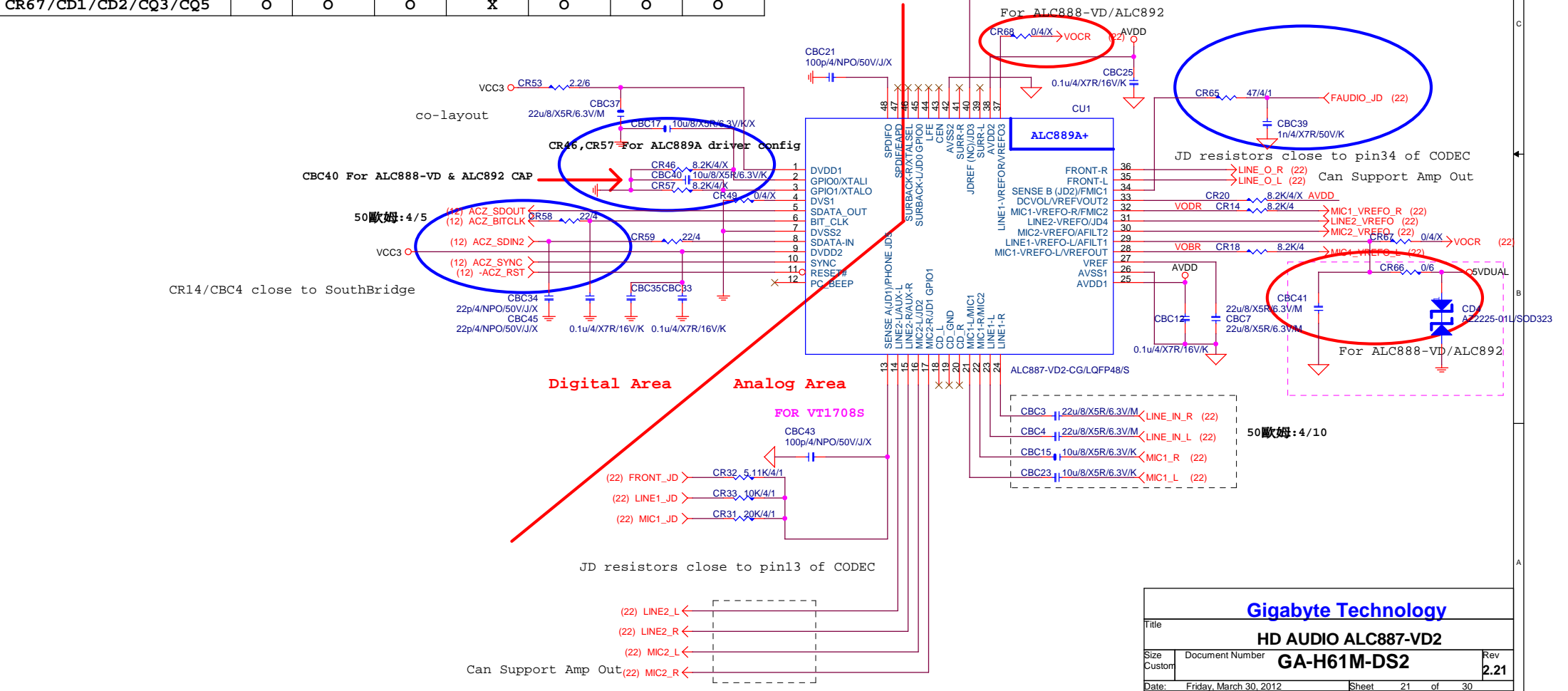


H2X10PANEL-2

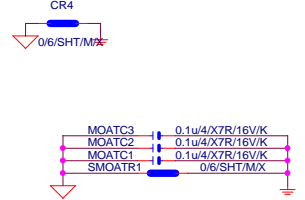
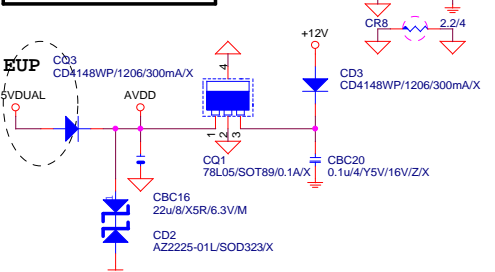


Gigabyte Technology			
Title	FP,F_USB,USB PWR,SPKR,SATA LED		
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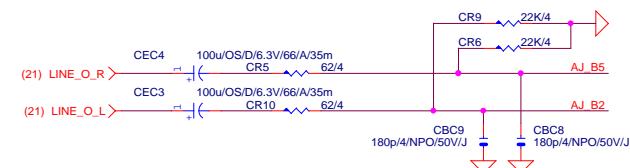
	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A
CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	O	X	O	O	X
CR48	O	O	X	O	X	X	O
CBC2/CBC4/CBC5/ CBC6/CBC10/CBC11	4.7uF /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/CD51/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



CODEC POWER/EMI PAD

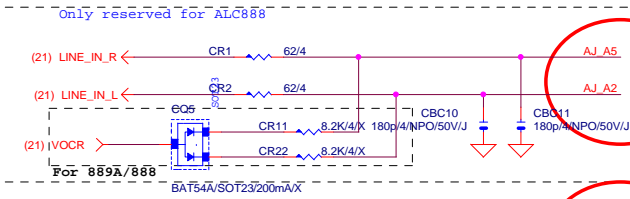


LINE-OUT

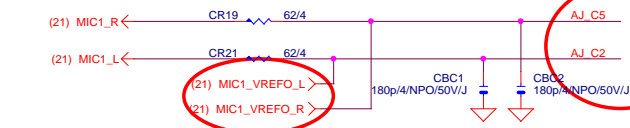


LINE-IN

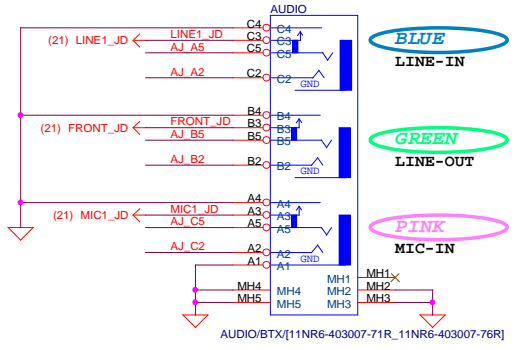
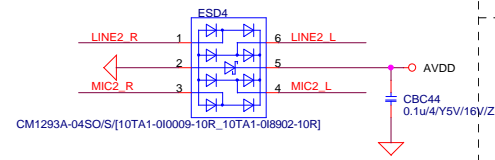
Verify MIC function
in LINE-in



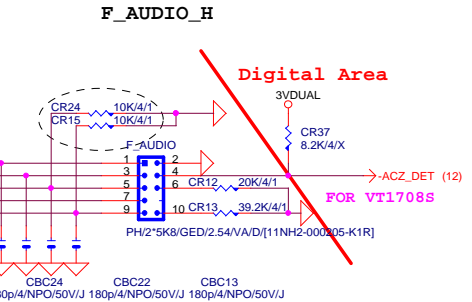
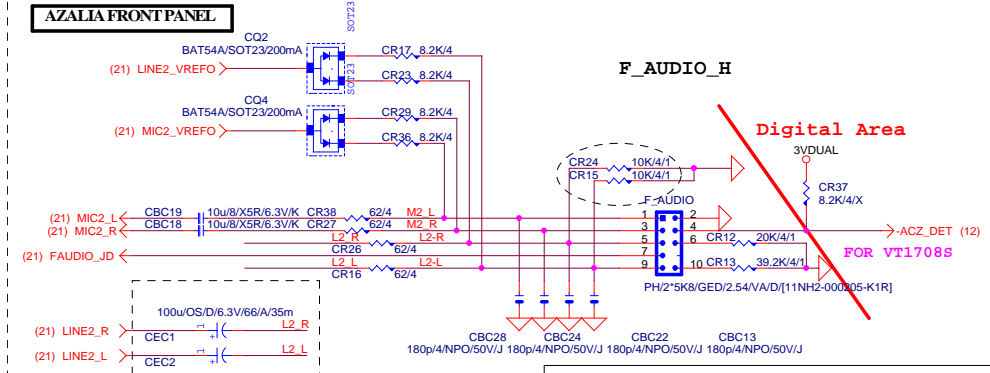
MIC-IN



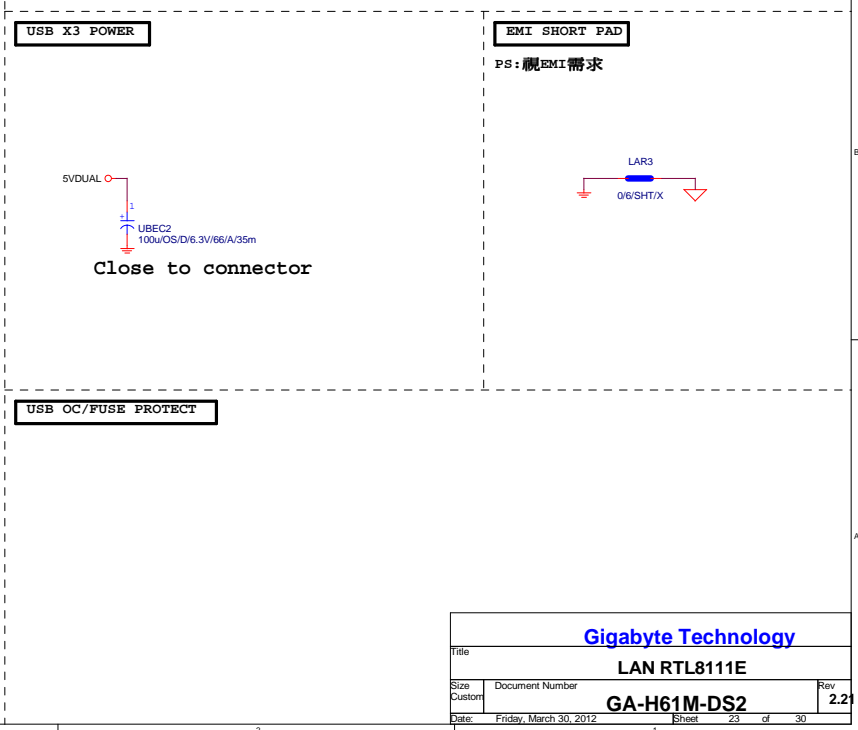
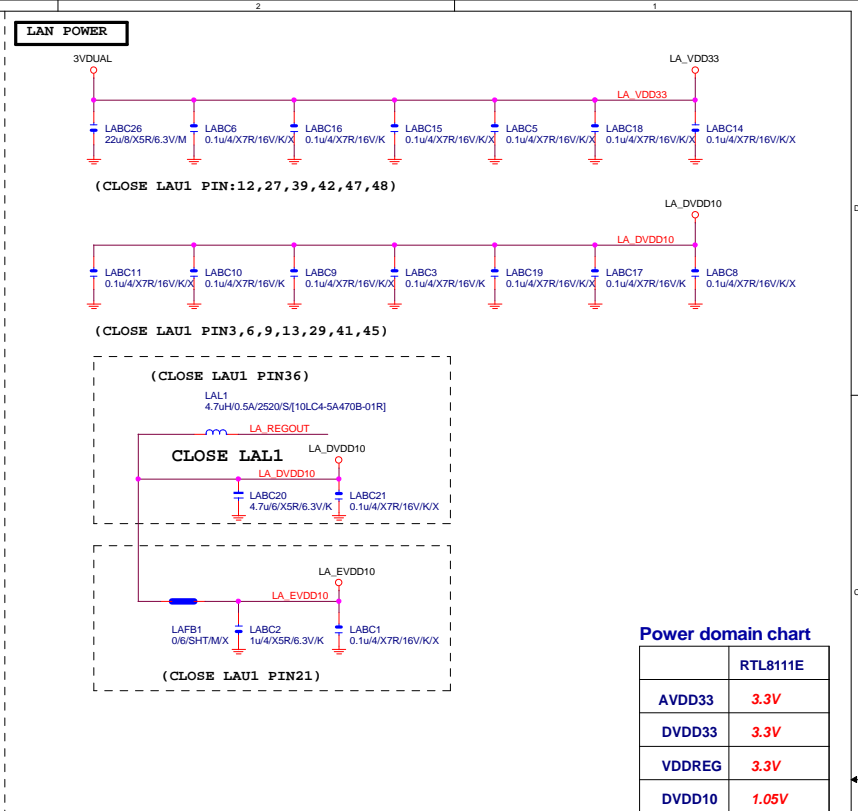
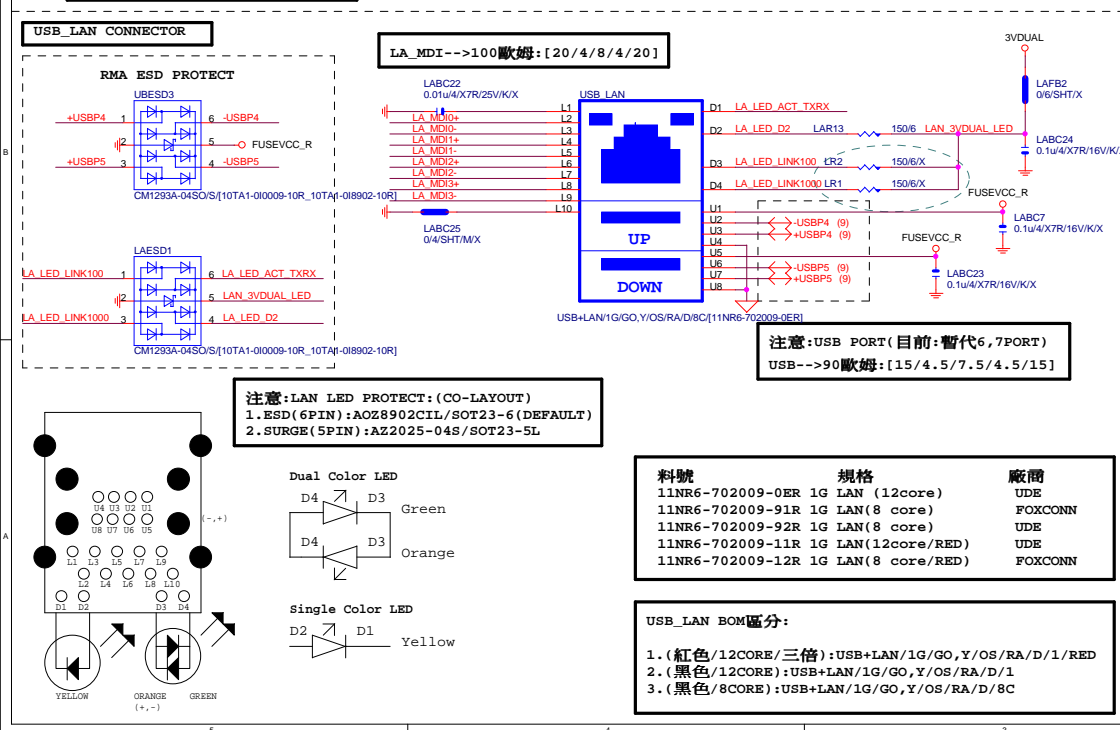
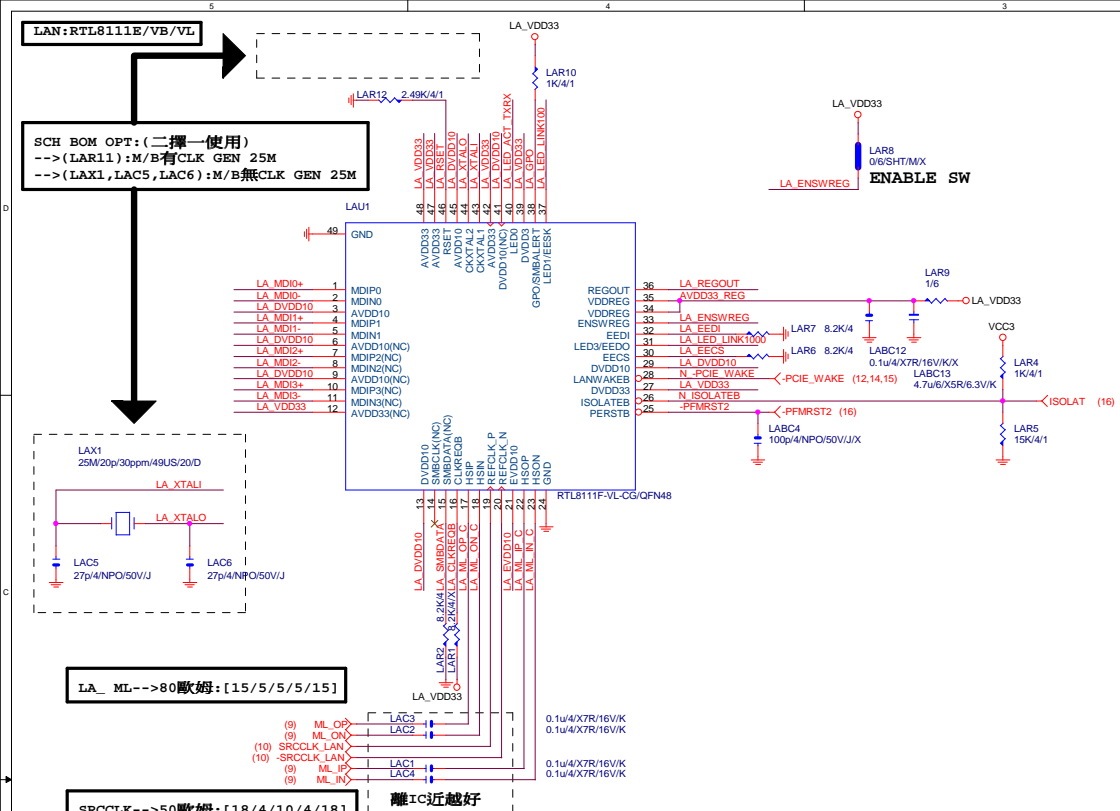
AZALIA JACK

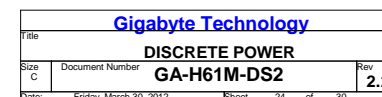


AZALIA FRONT PANEL

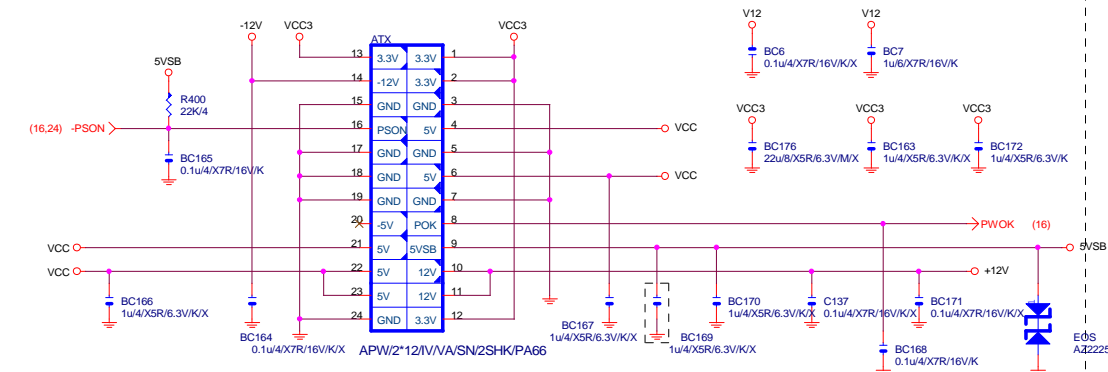


Gigabyte Technology			
Title			
AUDIO JACK			
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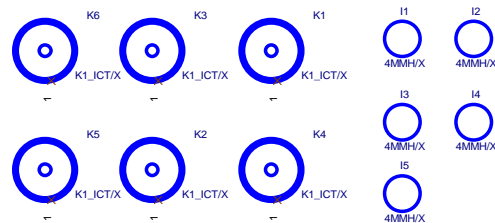
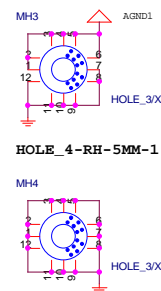
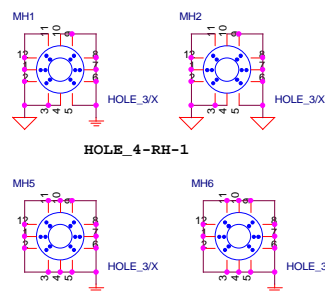
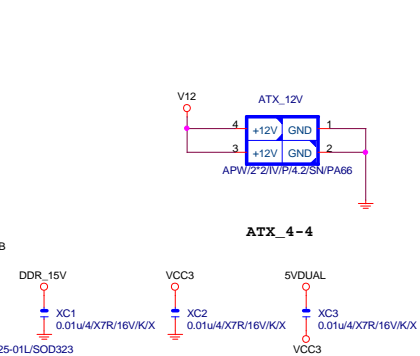




ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

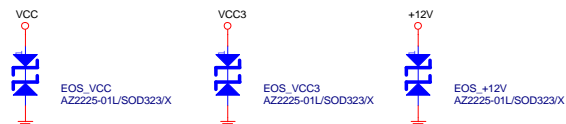


```
| To prevent the 5VSB
| under loading when
| boot
```

5VDUAL1(USB PORT/DDRIII POWER)
5VDUAL(3VDUAL/OTHER)

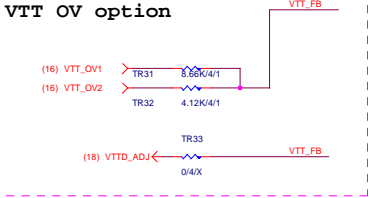
```
-S WARN-->5VDUAL1-->-S ACK(PCH)-->-DEPSLP/-RSMRST-->5VDUAL-->3VDUAL
```

HOLE 4-RH-5MM-1

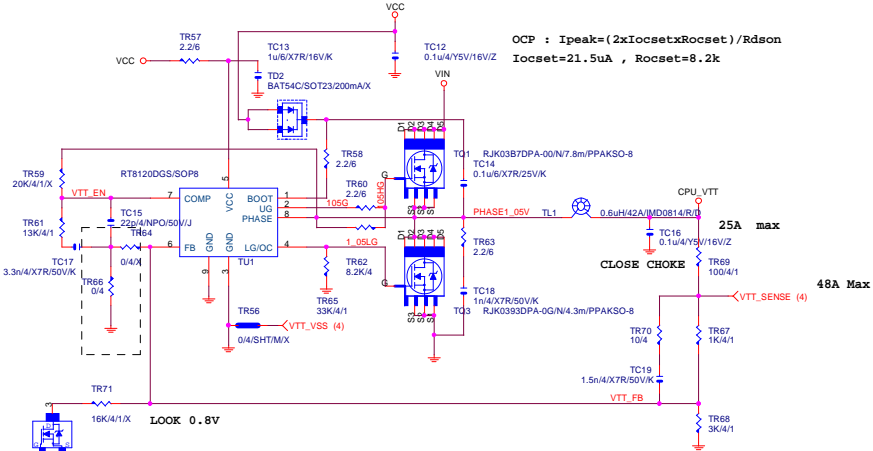


CPU_VTT

VTT OV option

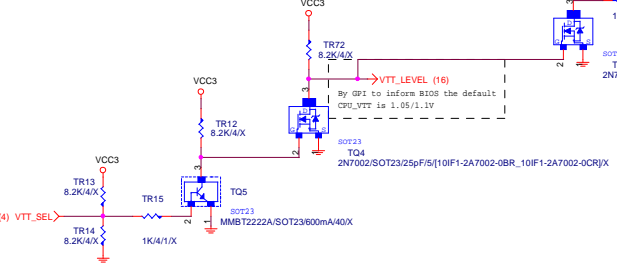
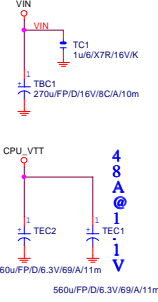


	VTT_EN
HI	ENABLE
LO	DISABLE



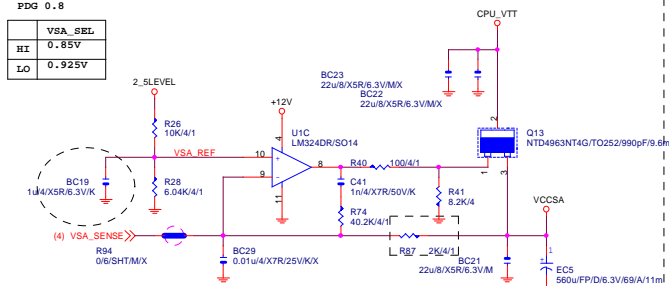
$$OCP : I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$$

$$I_{ocset} = 21.5\mu A, R_{ocset} = 8.2k$$

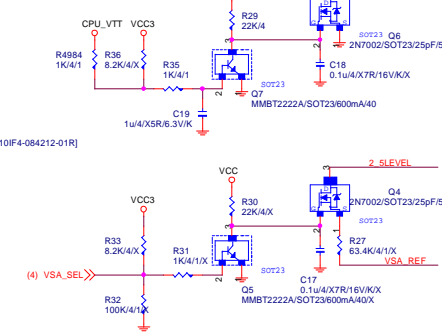


VCCSA

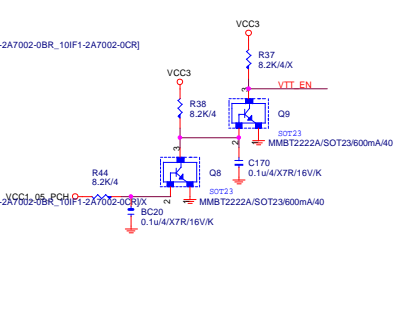
PDG	0.8
	VSA_SEL
HI	0.85V
LO	0.925V



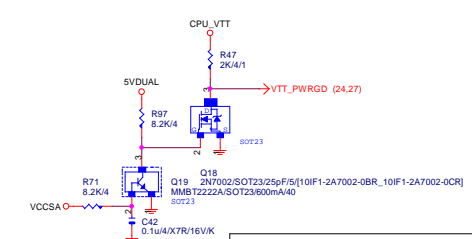
VCCSA PWR SEQ



CPU_VTT PWR SEQ



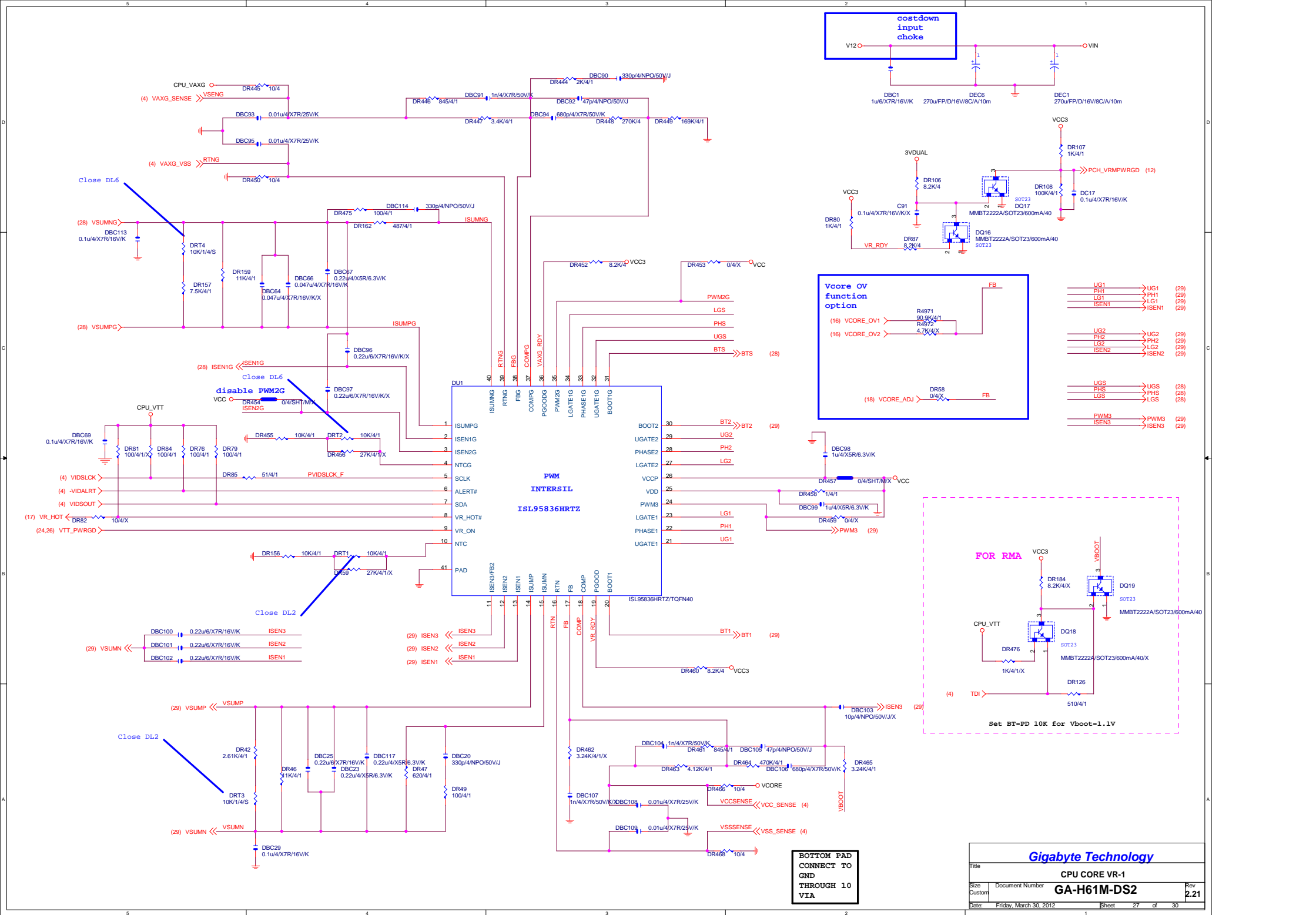
VTT_PWRGD



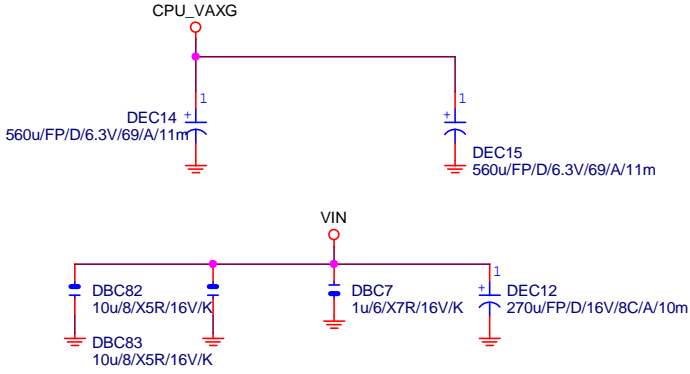
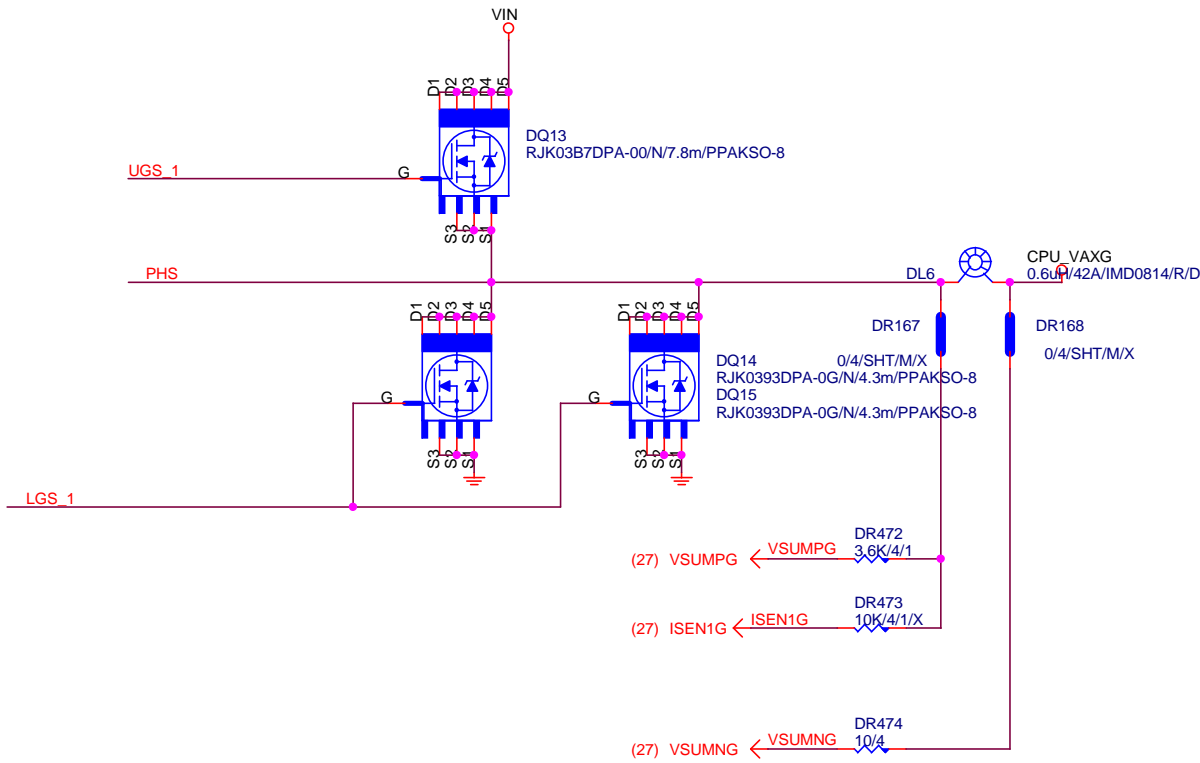
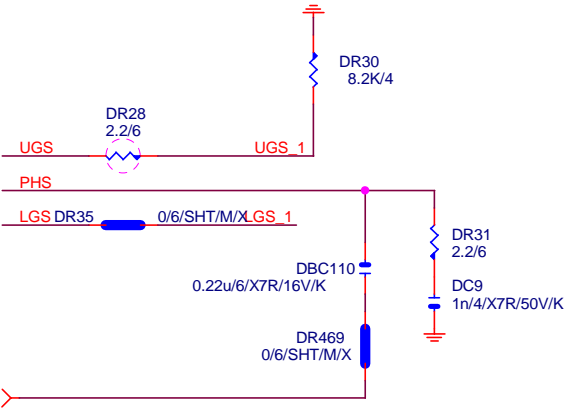
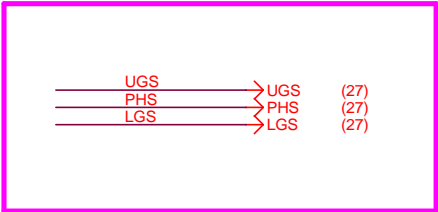
GIGABYTE™

File
CPU_VTT PWM_ISL95870CRZ
Size
Custom
Document Number
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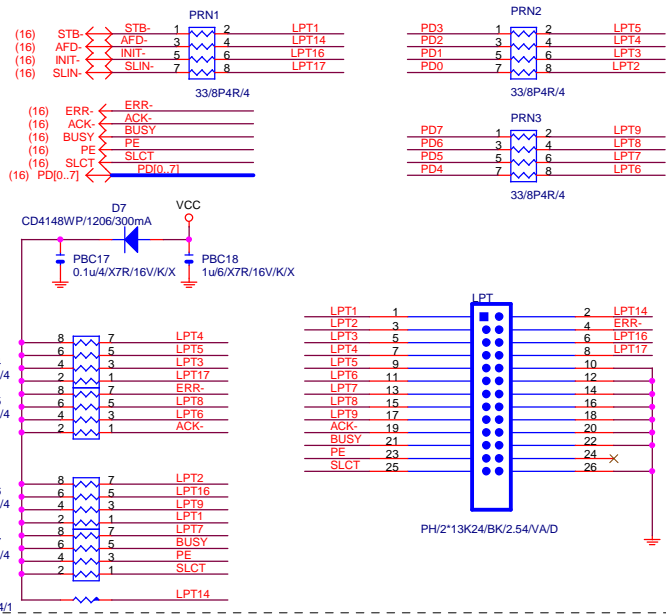
VAXG



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LPT PORT



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