

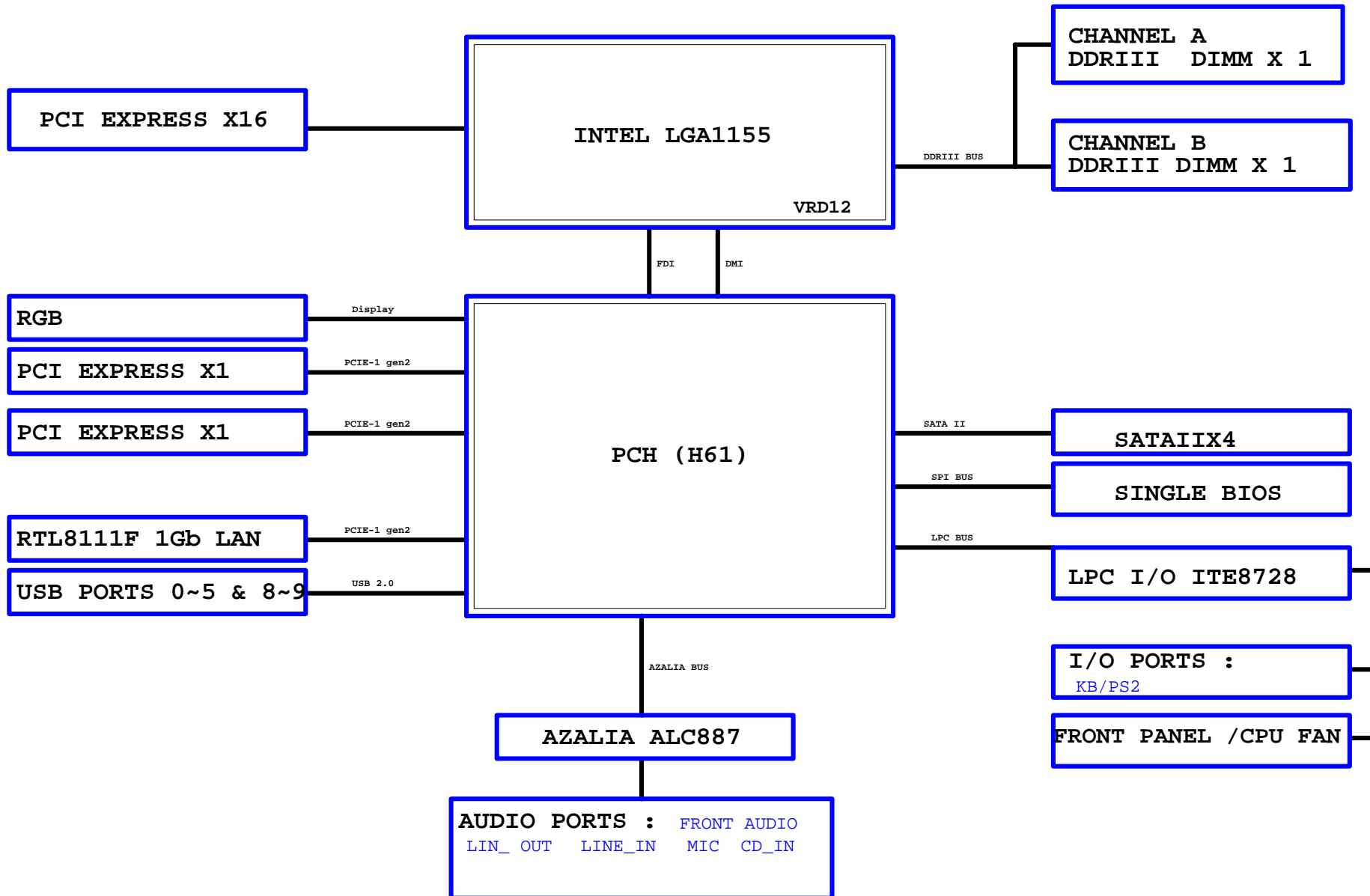
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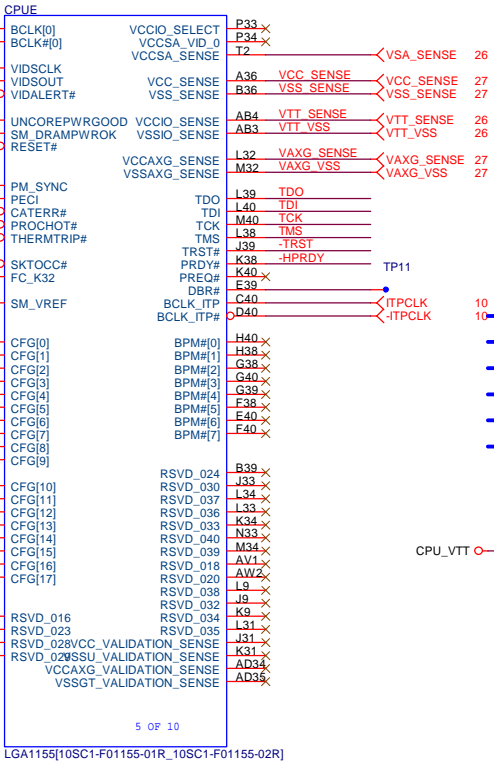
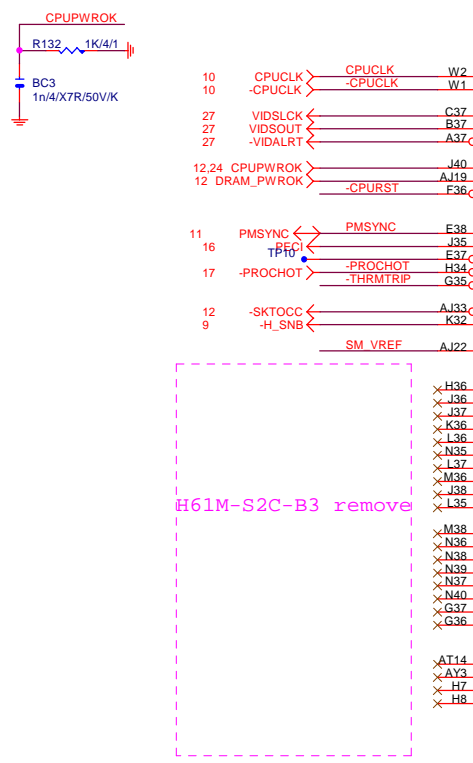
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*1x2 SLOT
16	ITE 8728 LPC IO
17	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

BLOCK DIAGRAM



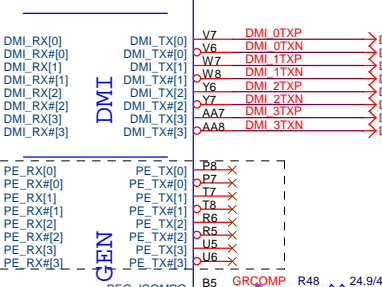
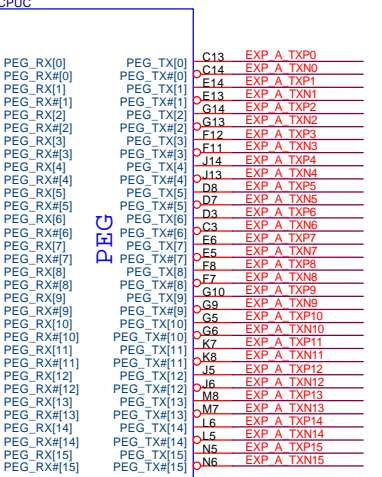
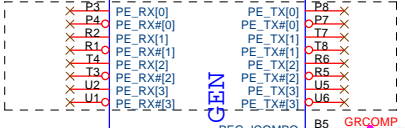
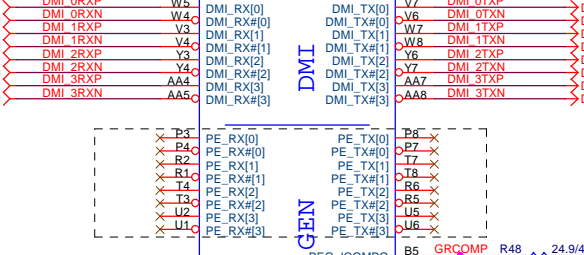
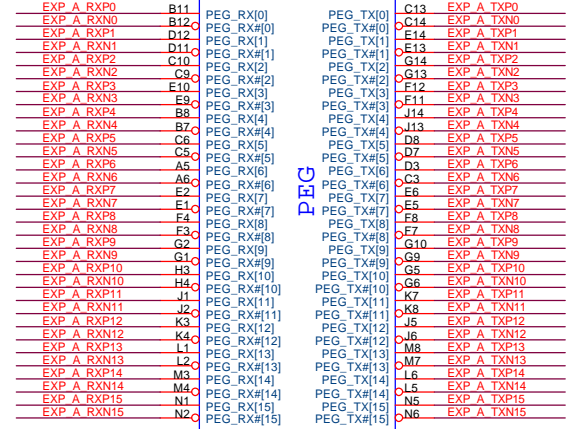
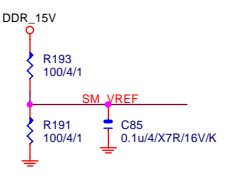
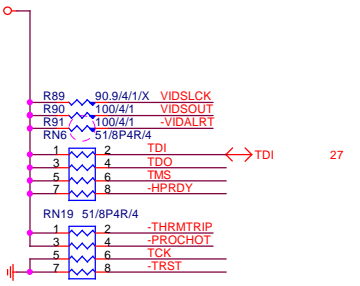
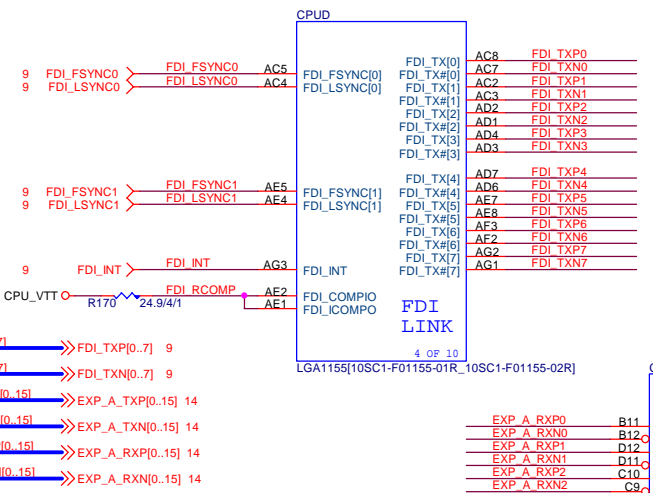
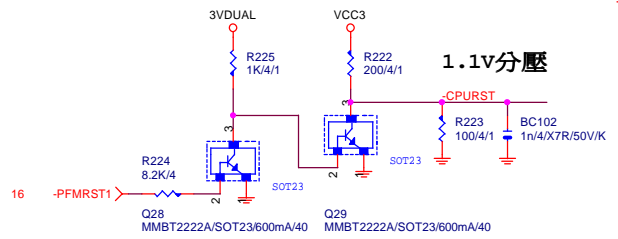
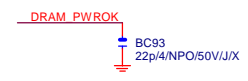


H61M-S2C-B3 remove

CFG	H	L	NOTE
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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



LGA1155[10SC1-F01155-01R_10SC1-F01155-02R]

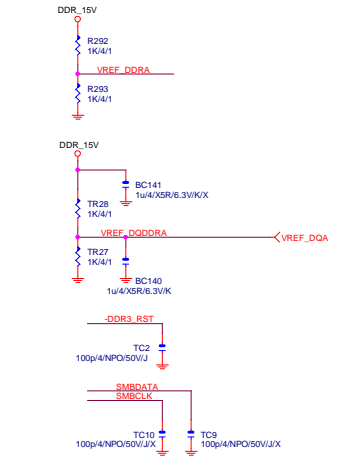
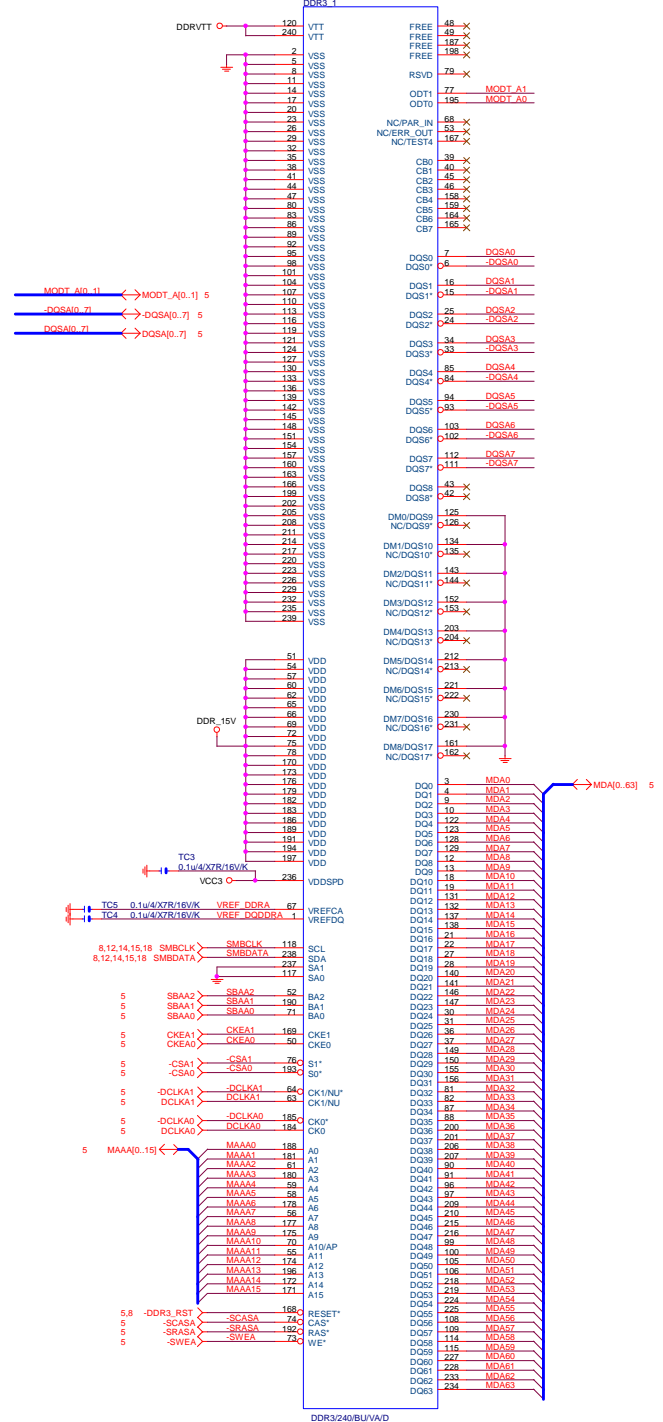
Gigabyte Technology

Title: **CPU LGA1155-A**

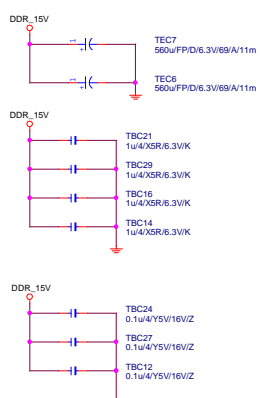
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Date: Tuesday, October 09, 2012 | Sheet: 4 of 30

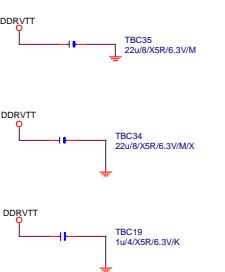
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MAAA3	AW23	SA_MA[3]	
MAAA4	AV23	SA_MA[4]	
MAAA5	AT24	SA_MA[5]	
MAAA6	AT23	SA_MA[6]	
MAAA7	AU22	SA_MA[7]	
MAAA8	AV22	SA_MA[8]	
MAAA9	AT22	SA_MA[9]	
MAAA10	AV28	SA_MA[10]	
MAAA11	AU21	SA_MA[11]	
MAAA12	AT21	SA_MA[12]	
MAAA13	AW32	SA_MA[13]	
MAAA14	AU20	SA_MA[14]	
MAAA15	AT20	SA_MA[15]	
7	-SWEA	-SCASA	AV30
7	-SRASA	-SRASA	AV28
7	SBA00	SBA00	AY29
7	SBA01	SBA01	AW28
7	SBA02	SBA02	AV20
7	-CSA0	-CSA0	AU29
7	-CSA1	-CSA1	AV32
7	-CSA1	-CSA1	AV30
7	-CSA1	-CSA1	AV33
7	CKEA0	CKEA0	AV19
7	CKEA1	CKEA1	AT19
7	CKEA1	CKEA1	AU18
7	CKEA1	CKEA1	AV18
	MODT_A0	MODT_A0	AV31
	MODT_A1	MODT_A1	AU32
	MODT_A1	MODT_A1	AU30
	MODT_A1	MODT_A1	AV33
7	DCLKA0	DCLKA0	AY25
7	-DCLKA0	-DCLKA0	AW25
7	-DCLKA0	-DCLKA0	AU24
7	-DCLKA1	-DCLKA1	AU25
7	-DCLKA1	-DCLKA1	AV27
7	-DCLKA1	-DCLKA1	AY27
7	-DCLKA1	-DCLKA1	AV26
7	-DCLKA1	-DCLKA1	AV28
7.8	-DDR3_RST		AW18
	C97		0.1u/4/X7R/16V/K/X
	R240		0/4/SHT/M/X
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	AV12	SA_DQS#8	
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	AU14	SA_ECC_CB[1]	
	AW13	SA_ECC_CB[2]	
	AY13	SA_ECC_CB[3]	
	AU11	SA_ECC_CB[4]	
	AY12	SA_ECC_CB[5]	
	AW12	SA_ECC_CB[6]	
	AW12	SA_ECC_CB[7]	
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	AN39	MDA46	
	AN40	MDA47	
	AK38	DQSA6	
	AK39	-DQSA6	
	AL40	MDA48	
	AL37	MDA49	
	AJ38	MDA50	
	AJ37	MDA51	
	AL39	MDA52	
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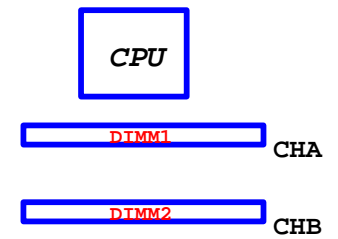
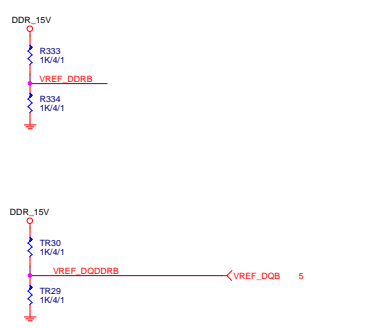
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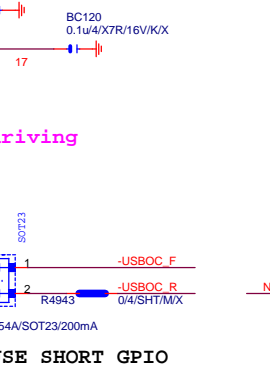
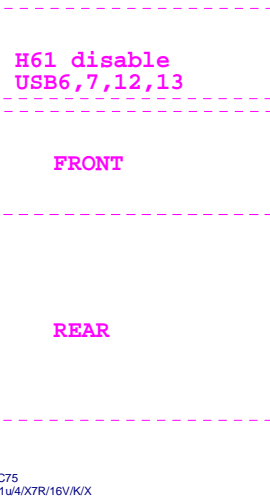
DDRVTT Decouple



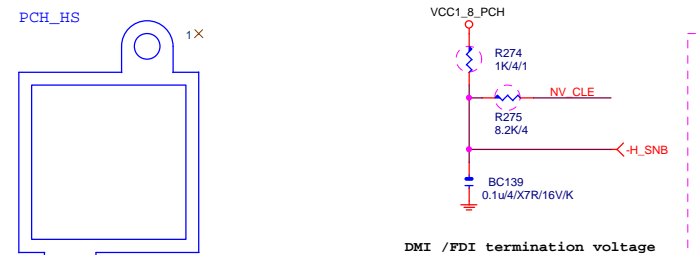
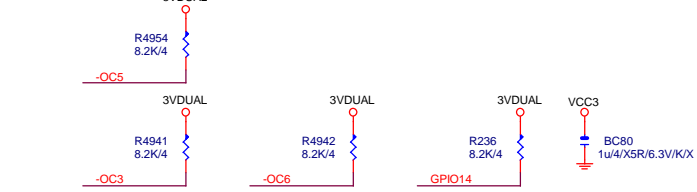
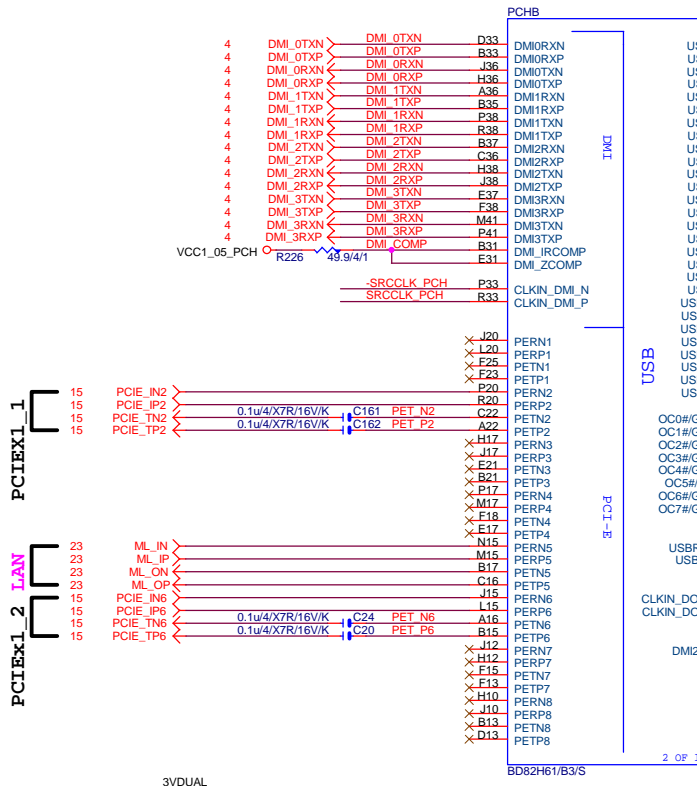
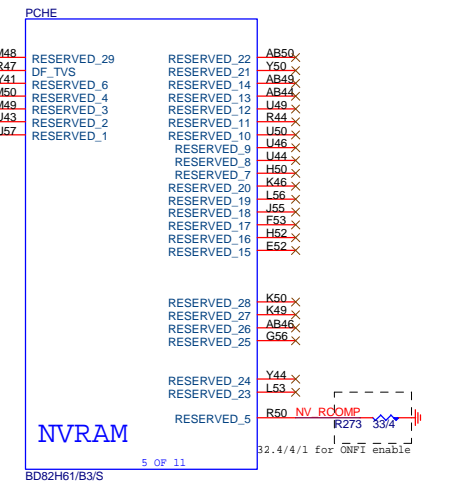
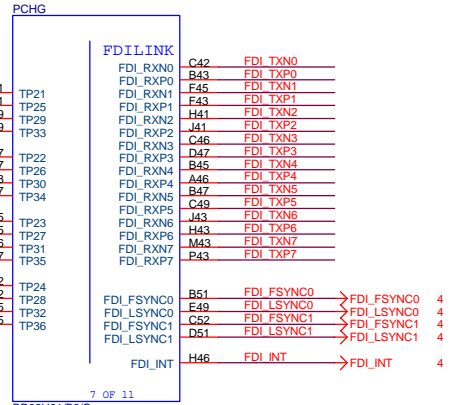
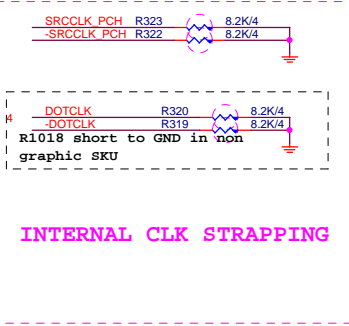
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Size Custom		Document Number GA-H61M-DS2	
Date:		Rev 3.0	
Sheet 7		of 30	



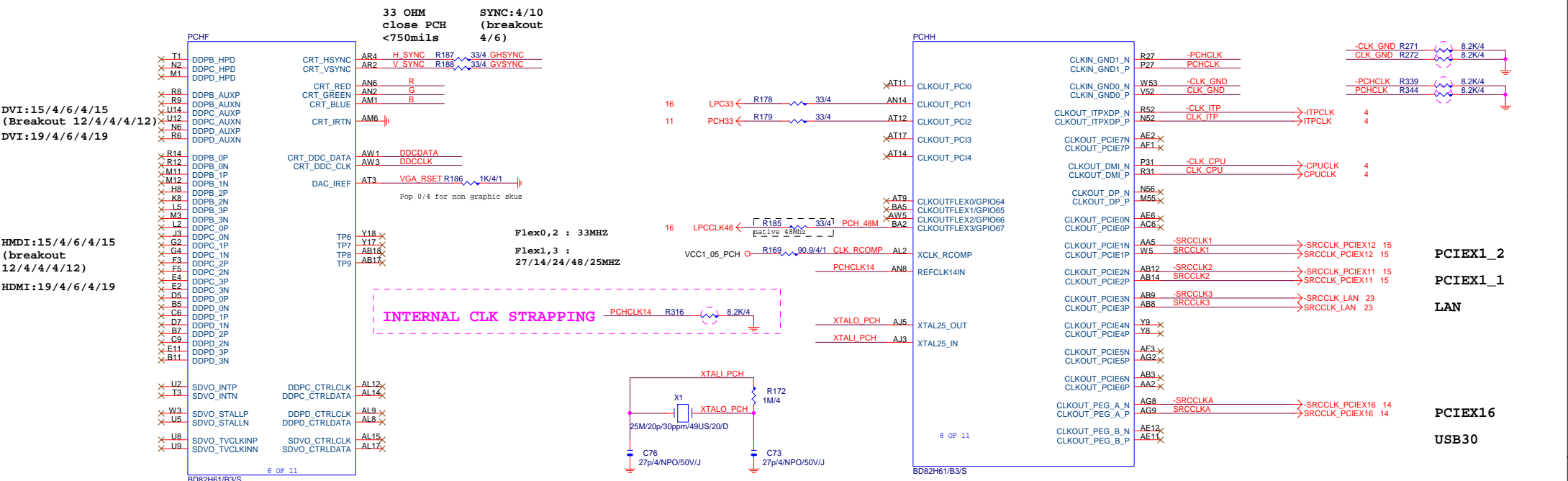
Gigabyte Technology		
Title: DDRIII CHANNEL B		
Size: Custom	Document Number: GA-H61M-DS2	Rev: B.0
Date:	Sheet: 8	of 30



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



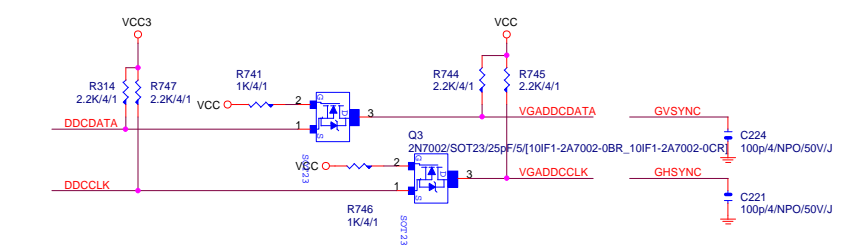
PCH_HS
SB_HS[12SP2-030005-42R_12SP2-030005-43R]



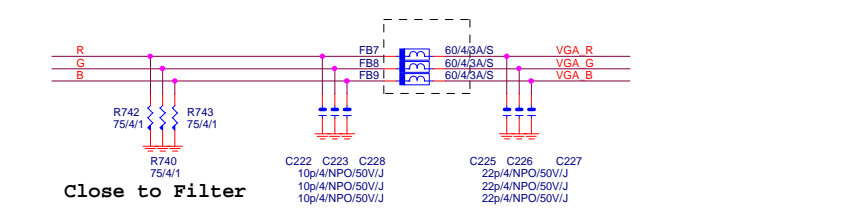
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(Breakout 12/4/4/4/12)
DVI:19/4/6/4/19

HDMI:15/4/6/4/15
(breakout 12/4/4/4/12)
HDMI:19/4/6/4/19

VGA DDC

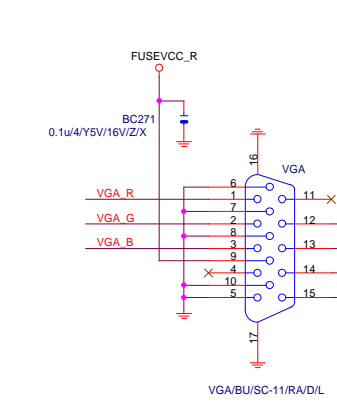


VGA DDC

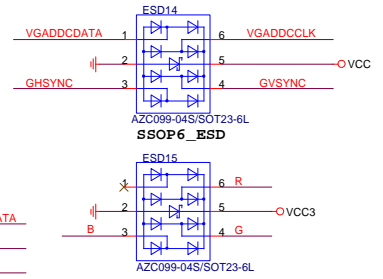


Close to Filter

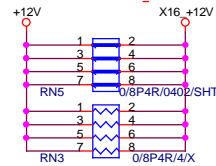
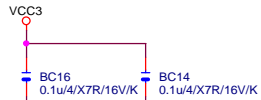
VGA CONNECTOR



VGA ESD

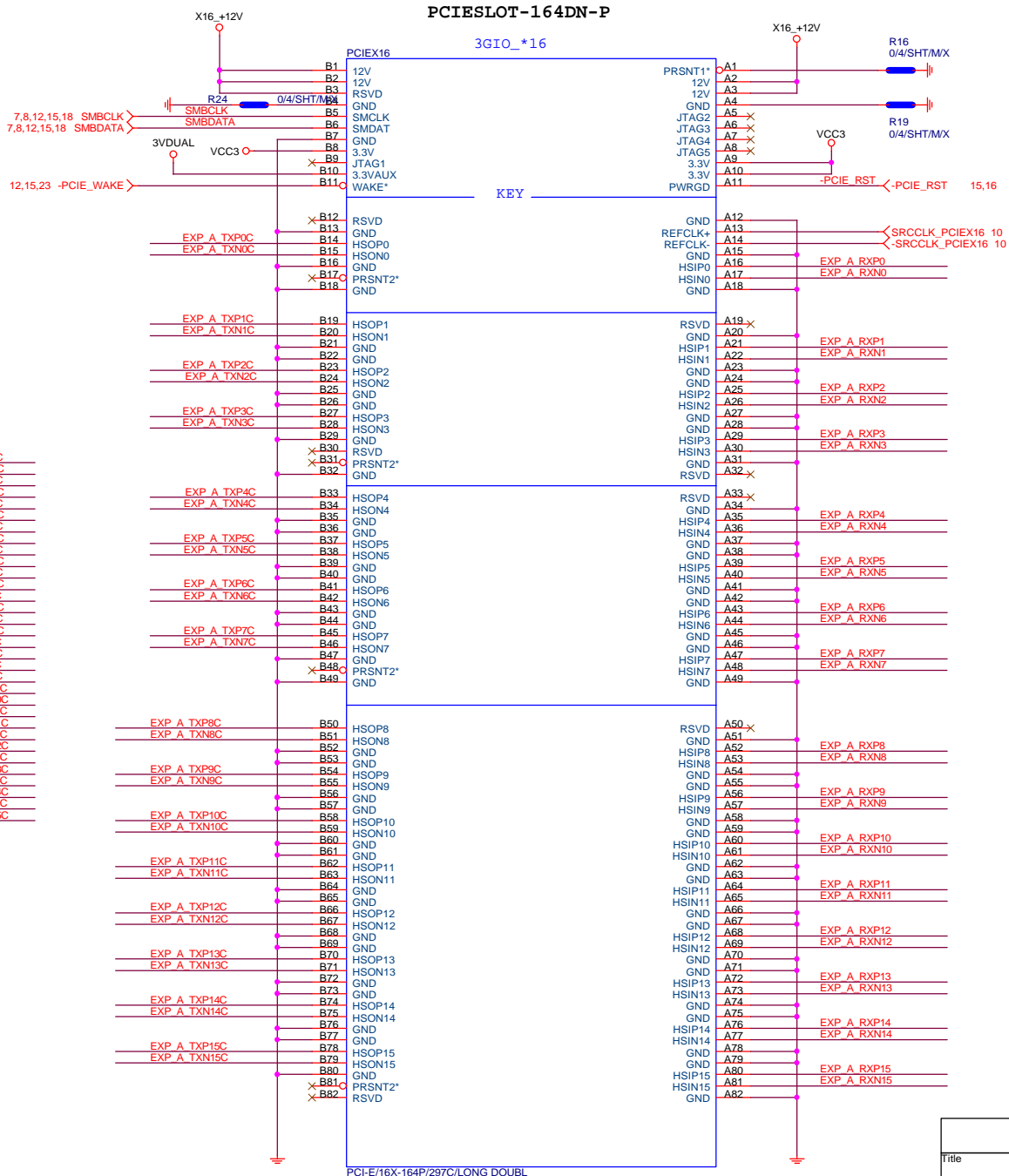


Gigabyte Technology		
Title PCH DISPLAY ,CLK BUFFER		
Size Custom	Document Number GA-H61M-DS2	Rev 3.0
Date: Tuesday, October 09, 2012	Sheet 10 of 30	



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

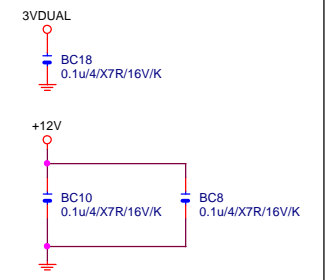
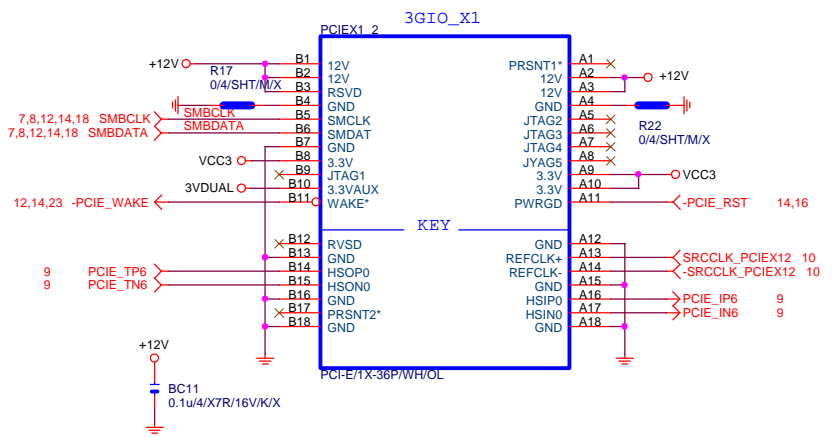
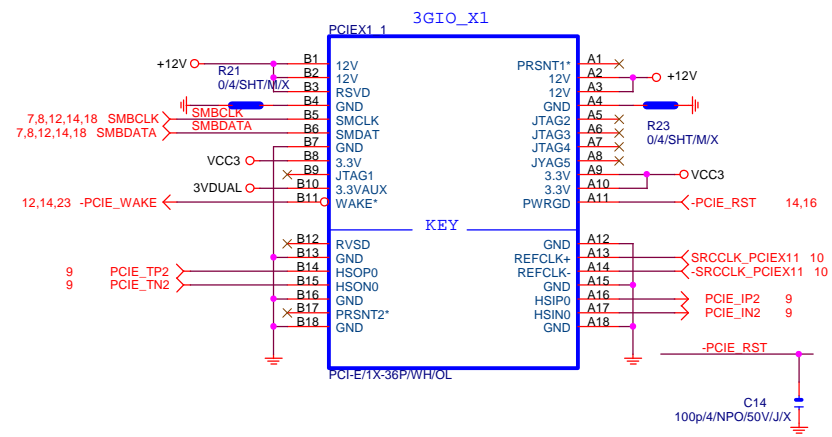
EXP A_TXP0	C22	0.22u/4/X5R/6.3V/K	EXP A_TXP0C
EXP A_TXN0	C26	0.22u/4/X5R/6.3V/K	EXP A_TXN0C
EXP A_TXP1	C29	0.22u/4/X5R/6.3V/K	EXP A_TXP1C
EXP A_TXN1	C31	0.22u/4/X5R/6.3V/K	EXP A_TXN1C
EXP A_TXP2	C33	0.22u/4/X5R/6.3V/K	EXP A_TXP2C
EXP A_TXN2	C35	0.22u/4/X5R/6.3V/K	EXP A_TXN2C
EXP A_TXP3	C37	0.22u/4/X5R/6.3V/K	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 DOUBL
 PCI-E/16X-164P/297C/LONG DOUBL

Gigabyte Technology		
Title PCI EXPRESS * 16		
Size Custom	Document Number GA-H61M-DS2	Rev 3.0
Date: Tuesday, October 09, 2012	Sheet 14	of 30

PCIE*1

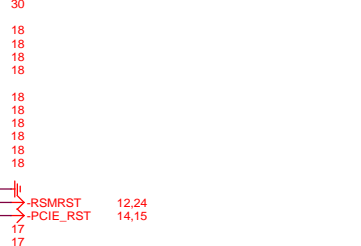
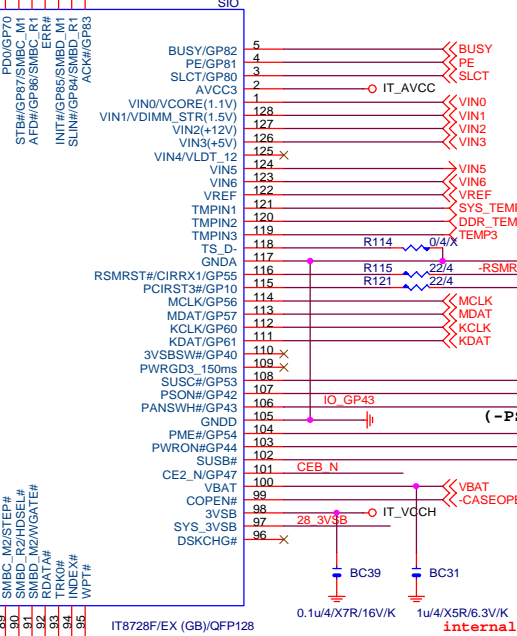
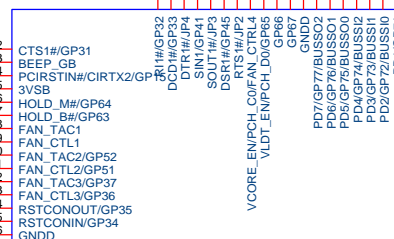
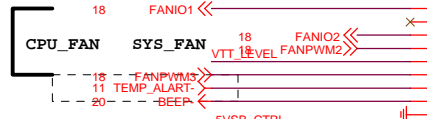
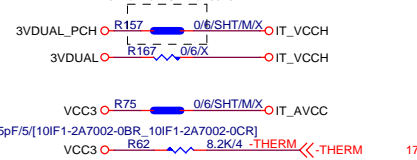
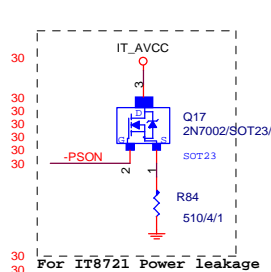
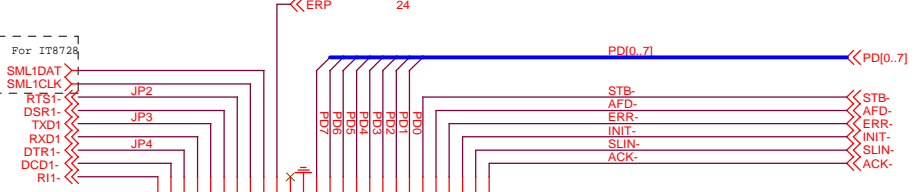
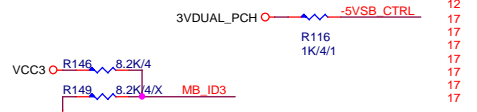


CLK GEN

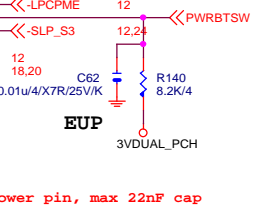
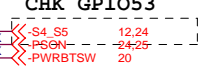
Gigabyte Technology			
PCIEX1,X2/CLK GEN			
Size Custom	Document Number	GA-H61M-DS2	
Date:	Tuesday, October 09, 2012	Sheet	15 of 30
	2		1
			Rev 3.0

GP22 Default GP22 DIODS

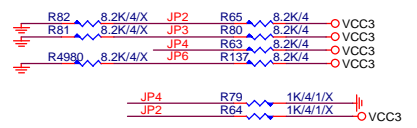
GP23 Default CPU_PG DOD8



GP40 Default 3VBSW# D08



JP6: N/A FOR 8728 DX
 JP6: PULL DOWN FOR 8728 EX
 anti-surge enable

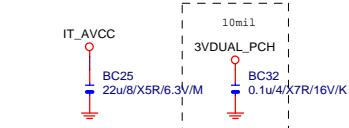
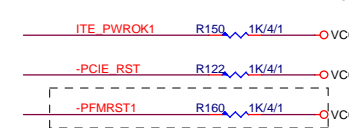
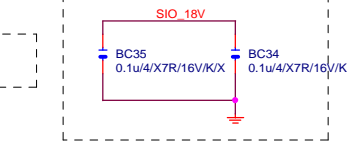
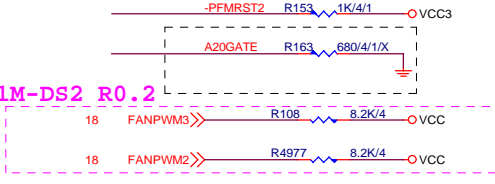
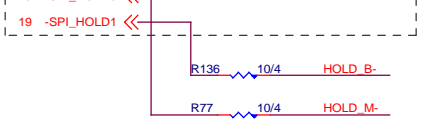


EUP control by PCH
 3VDUAL_PCH 100/4/1 R166 28_3VSB

JP3--- High SPI-Flash Disable
 Low SPI-Flash Enable

IT8728	
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXP
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PEC1/AMDTSI_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2 (VCC5)
PIN96	VIN1 (VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

H61M-DS2 R0.2

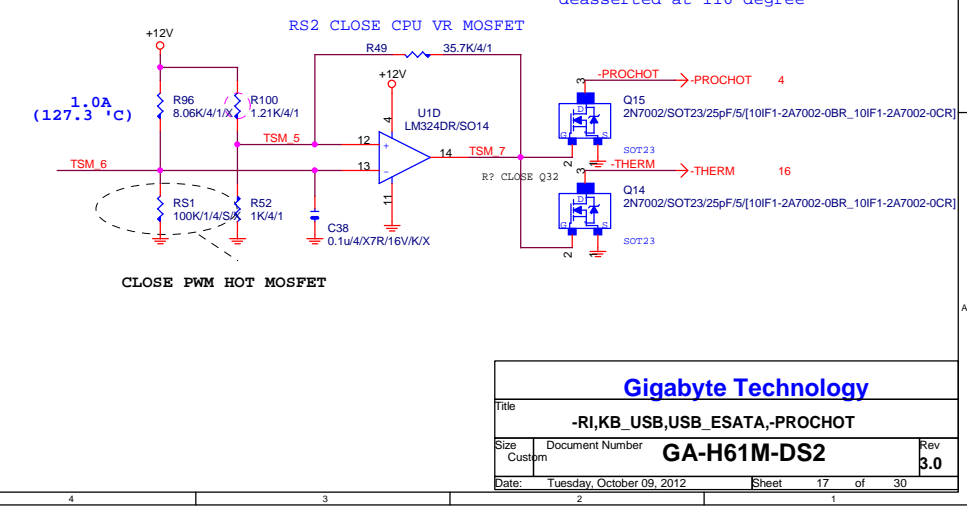
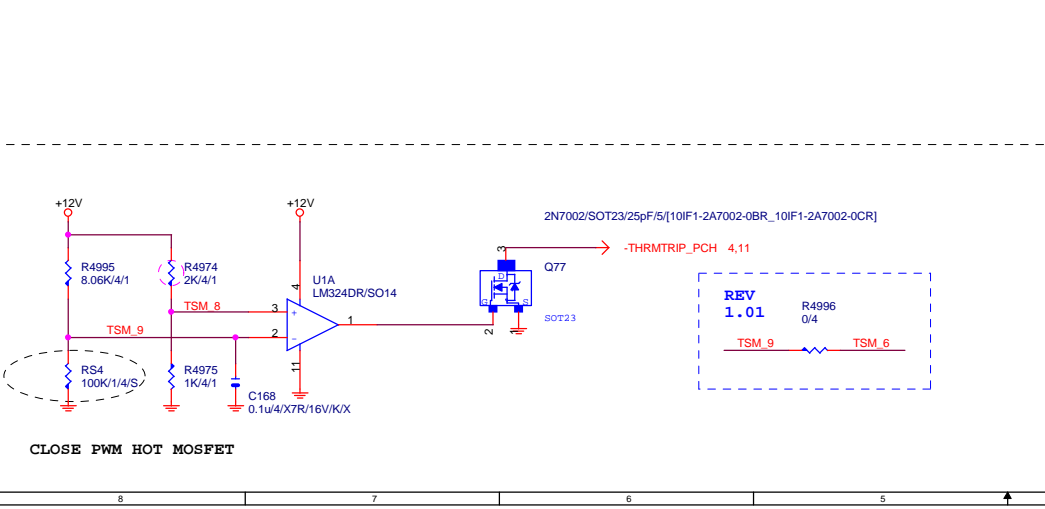
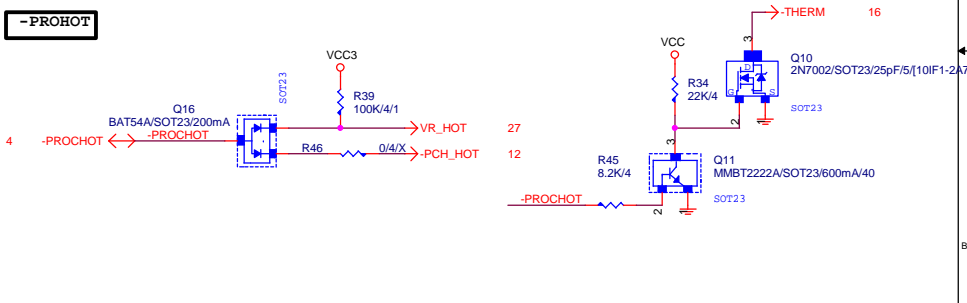
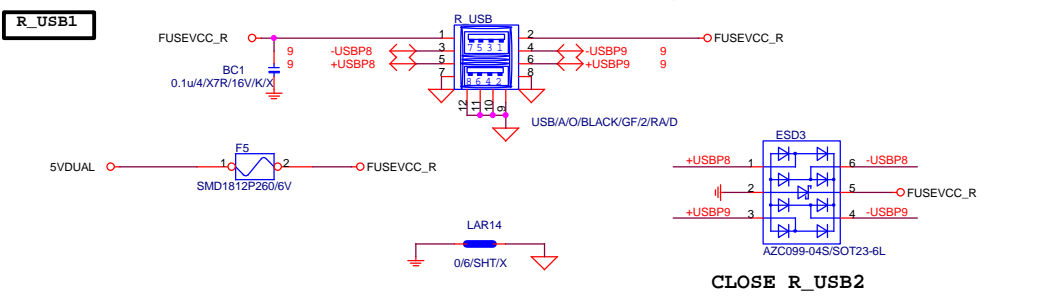
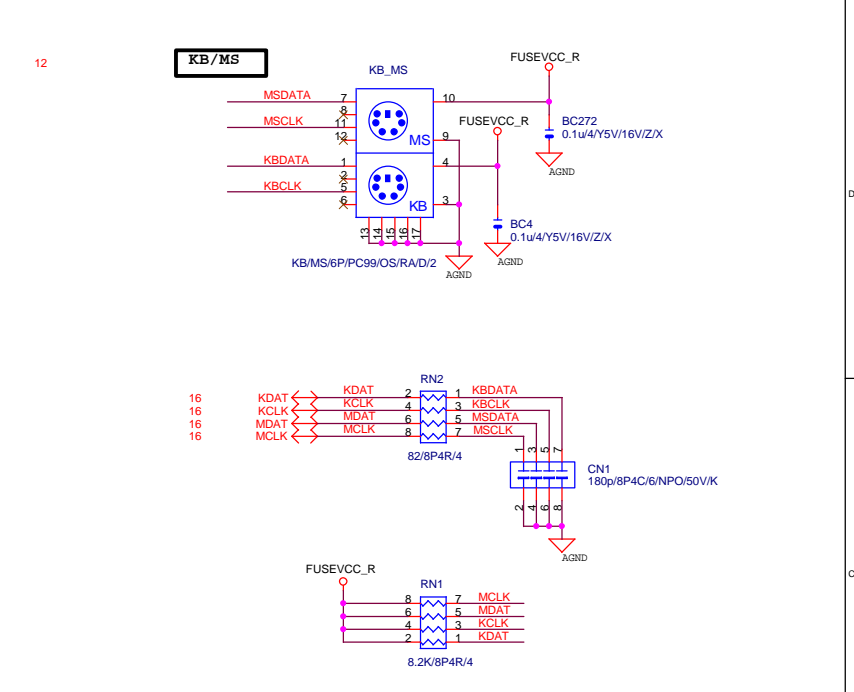
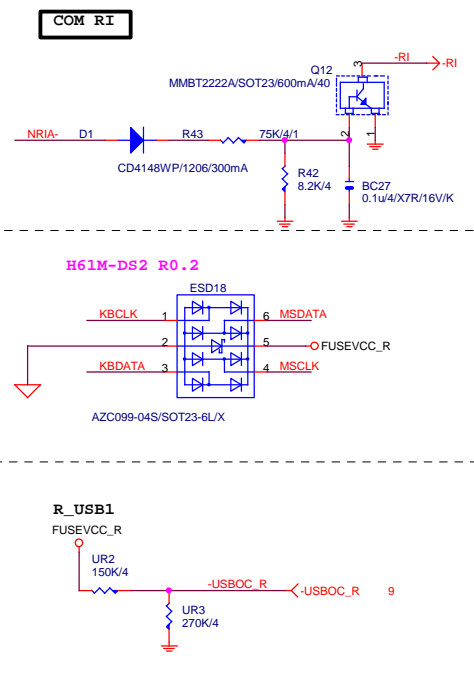
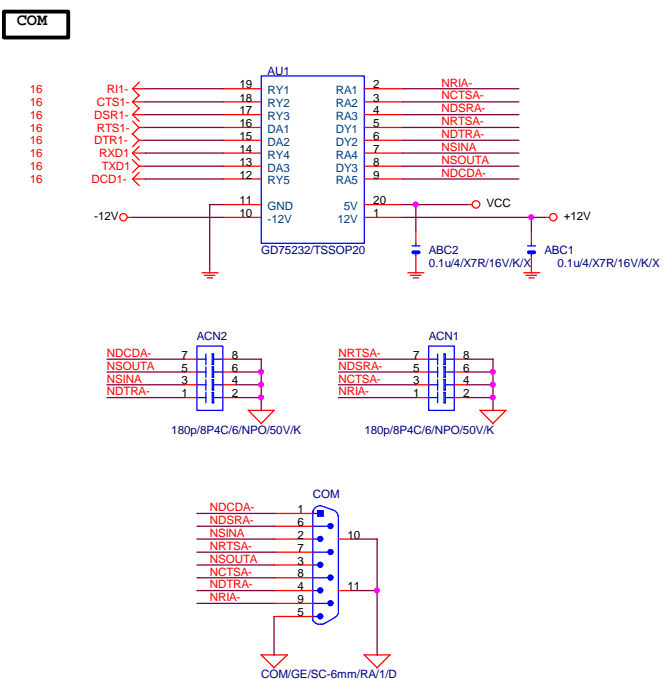


Gigabyte Technology

Title: ITE 8728 LPC IO

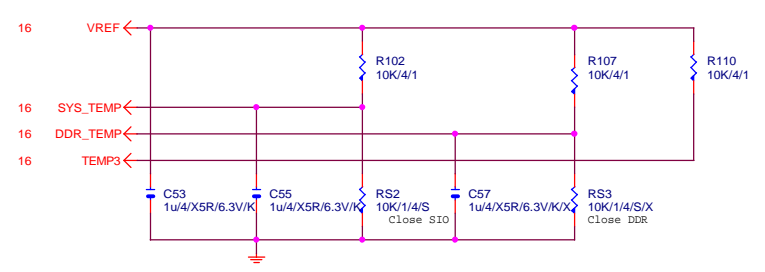
Size B | Document Number: **GA-H61M-DS2** | Rev 3.0

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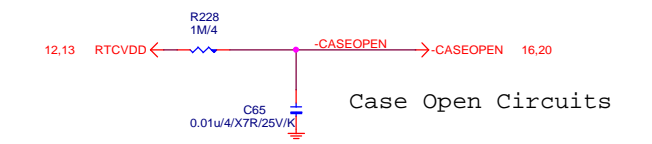


Gigabyte Technology		
Title -RI,KB_USB,USB_ESATA,-PROHOT		
Size Custom	Document Number GA-H61M-DS2	Rev 3.0
Date: Tuesday, October 09, 2012	Sheet 17	of 30

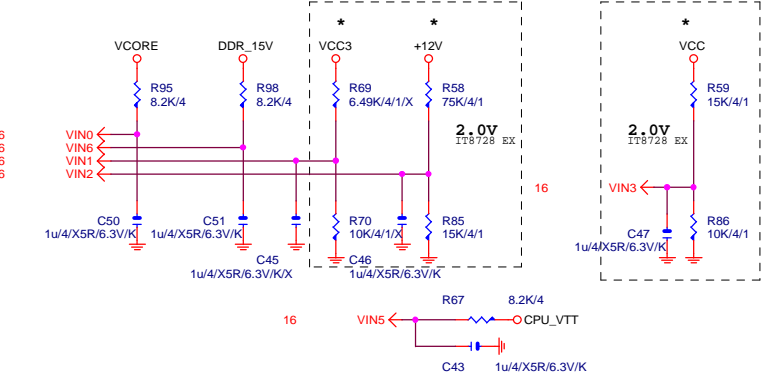
TEMP H/W MONITOR



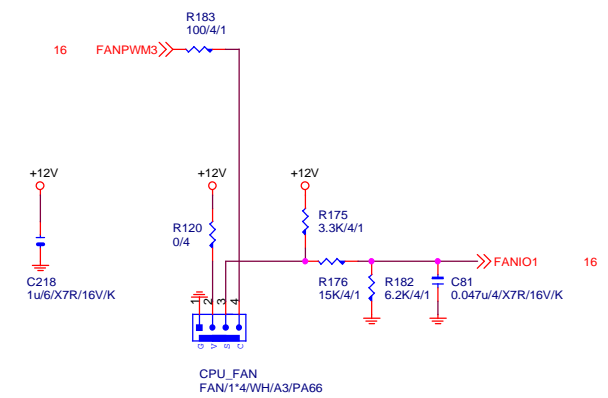
CASE OPEN



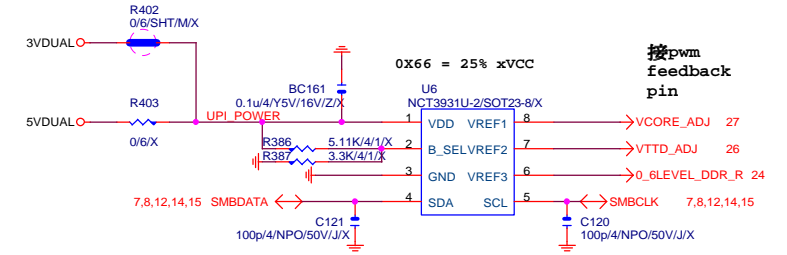
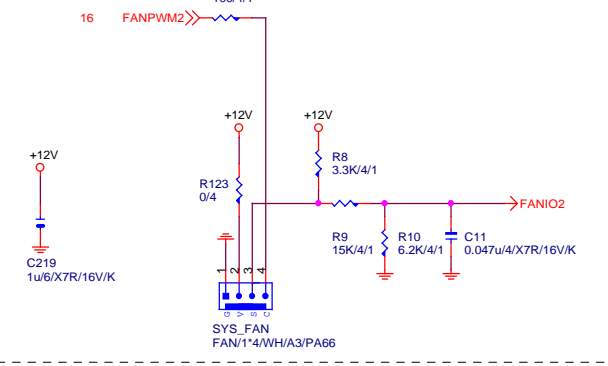
VOLTAGE-- H/W MONITOR



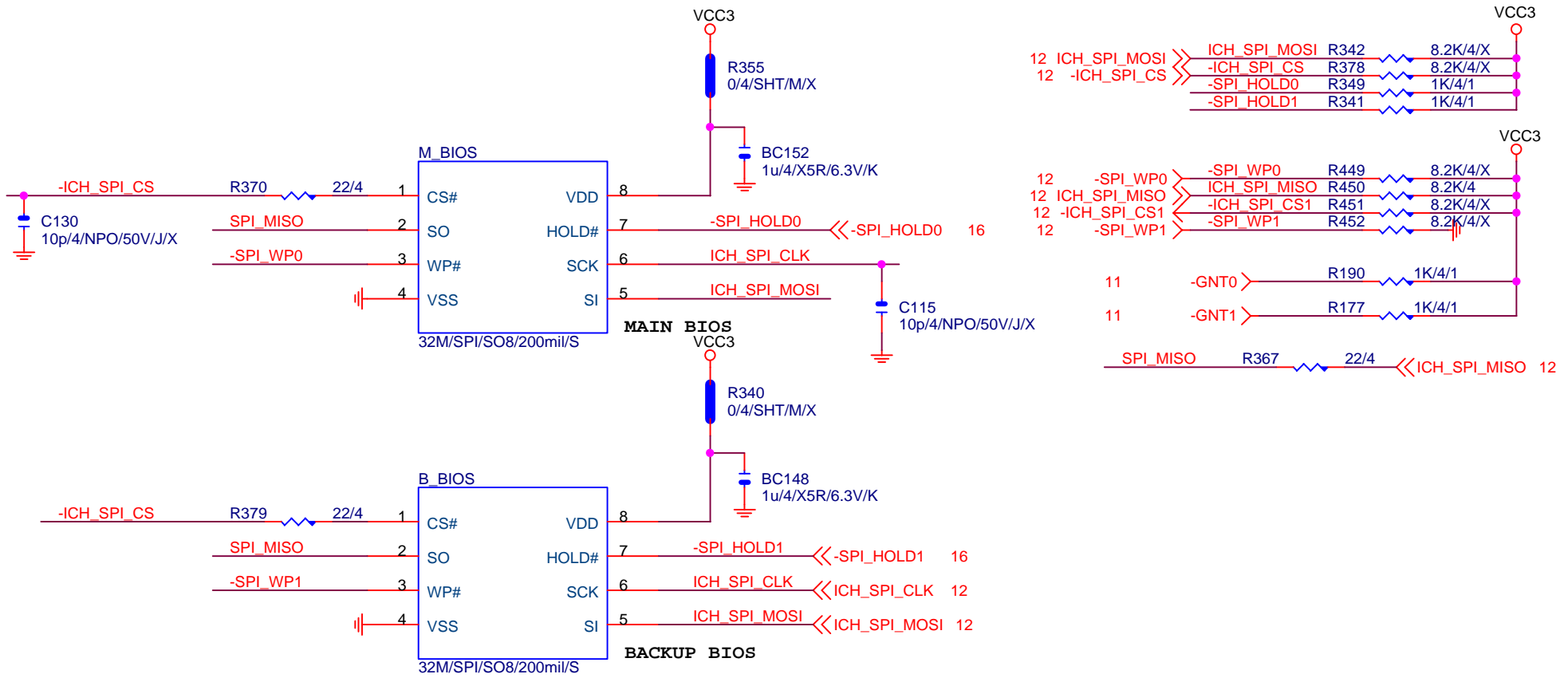
CPU SMART FAN



SYS SMART FAN



DUAL BIOS



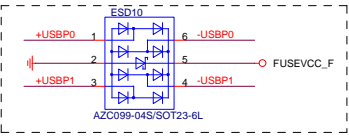
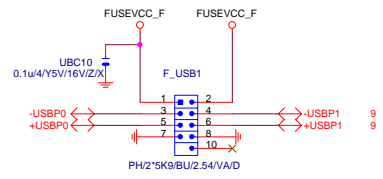
BOOT DEVICE	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1

1 means floating
0 means PD 1K

Gigabyte Technology

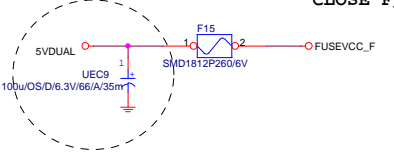
Title		
SINGLE BIOS		
Size A	Document Number	Rev
	GA-H61M-DS2	3.0
Date:	Tuesday, October 09, 2012	Sheet 19 of 30

FRONT USB1

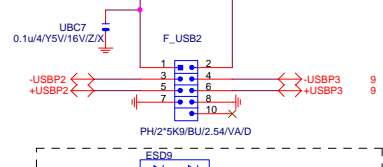


change to BLUE COLOR

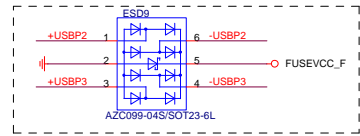
CLOSE F_USB1



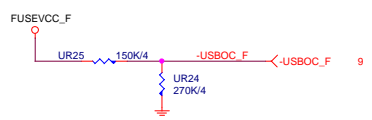
FRONT USB2



FRONT USB3



Close to connector

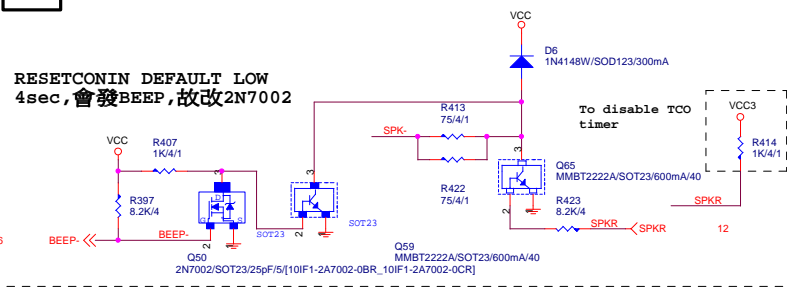


SATA LED

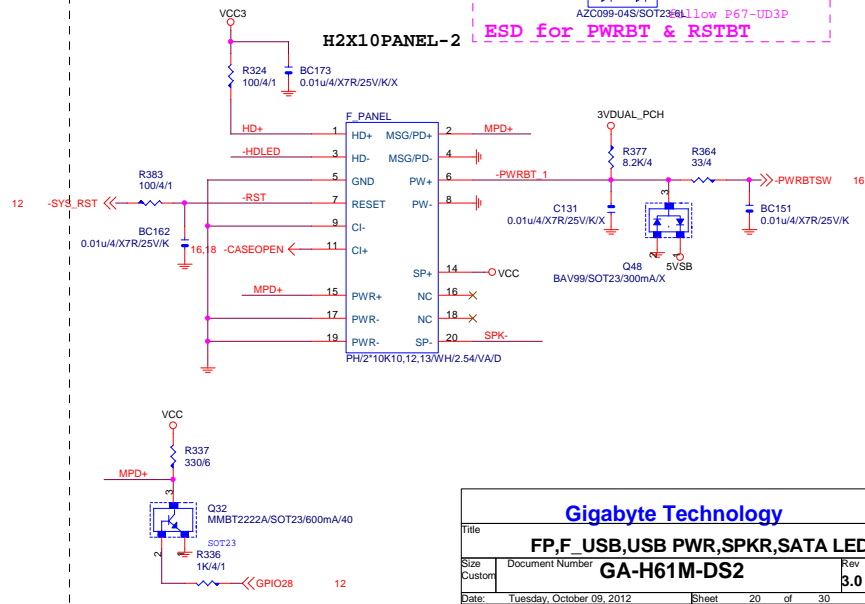
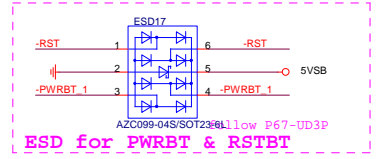


SPKR

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

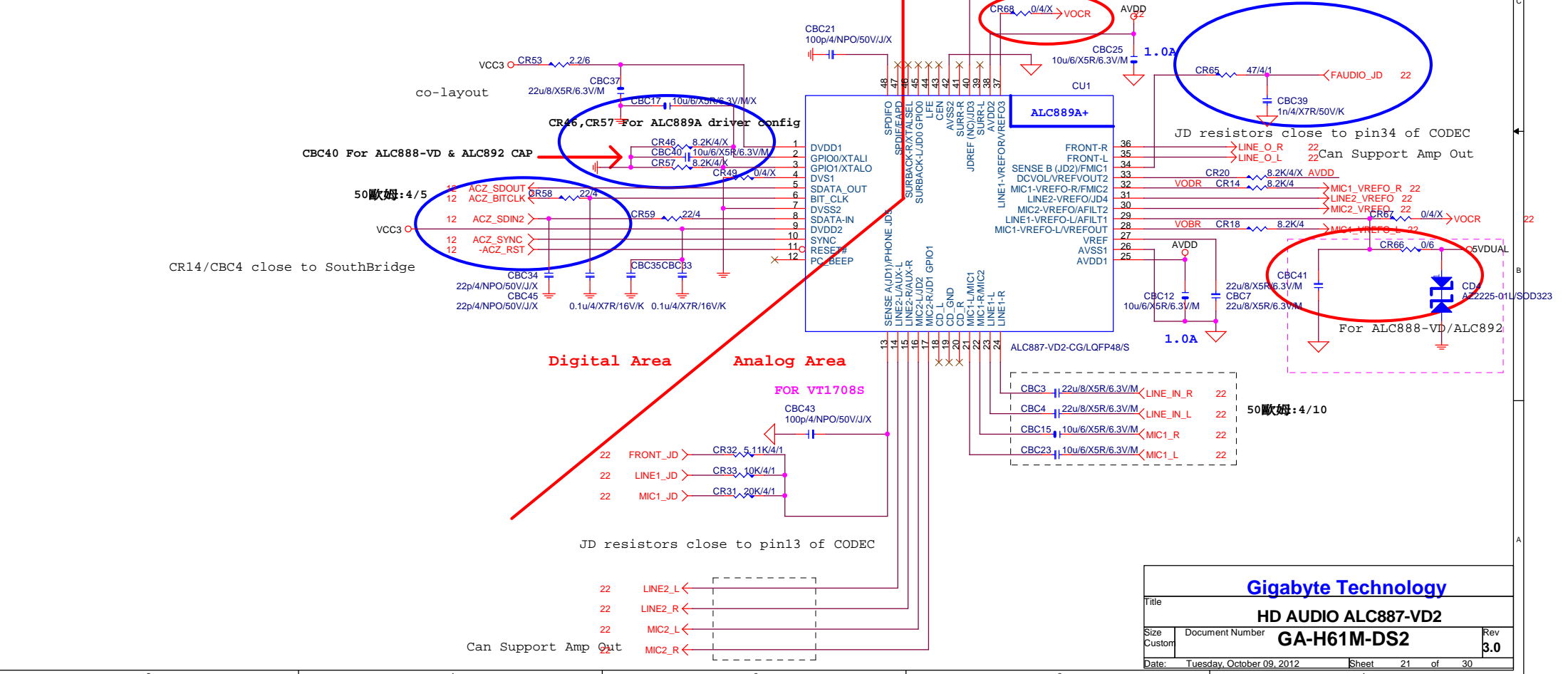


INTEL FRONT PANEL

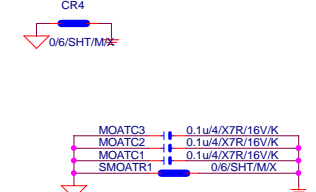
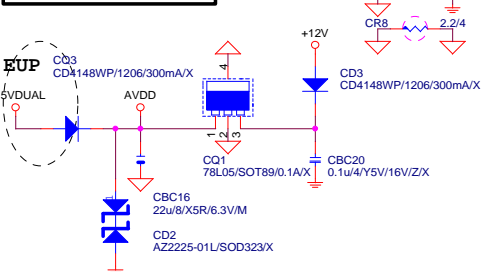


Gigabyte Technology			
Title	FP,F_USB,USB PWR,SPKR,SATA LED		
Size	Document Number	GA-H61M-DS2	
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Date:	Tuesday, October 09, 2012	Sheet	20 of 30

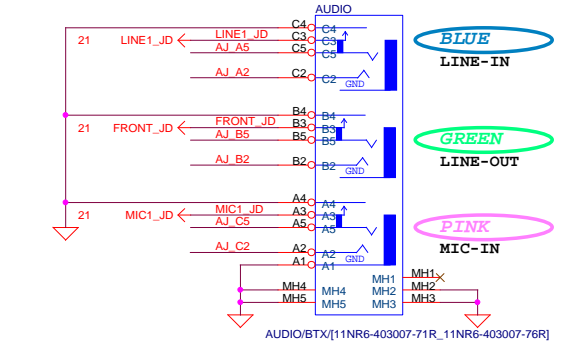
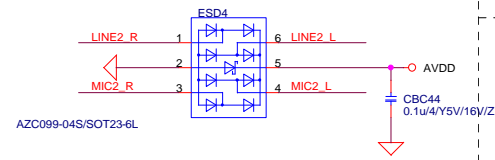
	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A
CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	O	X	O	O	X
CR48	O	O	X	O	X	X	O
CBC2/CBC4/CBC5/CBC6/CBC10/CBC11	4.7uF/X5R	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



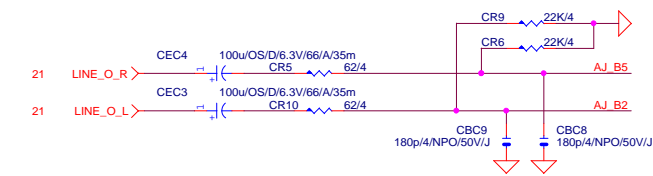
CODEC POWER/EMI PAD



AZALIA JACK

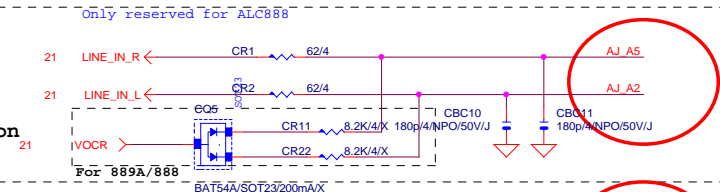


LINE-OUT

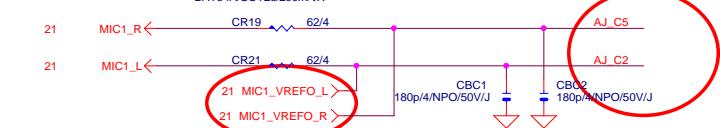


LINE-IN

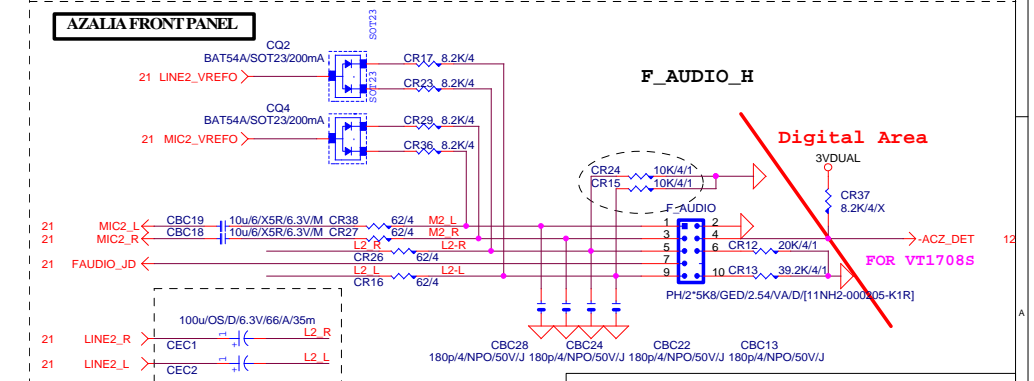
Verify MIC function in LINE-in



MIC-IN



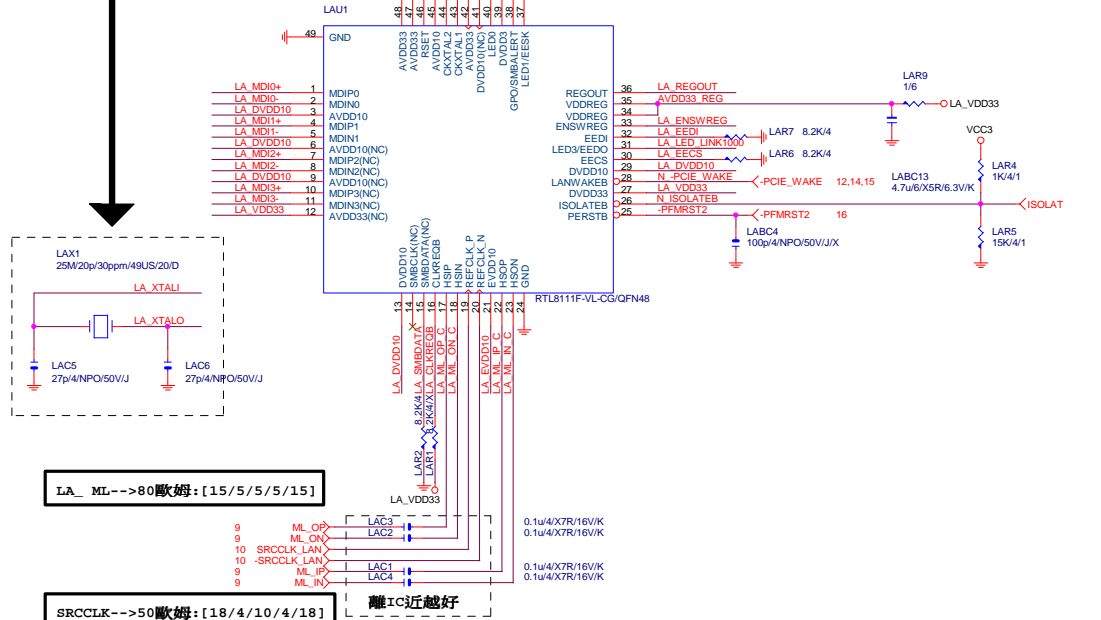
AZALIA FRONT PANEL



Gigabyte Technology		
Title AUDIO JACK		
Size Custom	Document Number GA-H61M-DS2	Rev 3.0
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LAN:RTL8111E/VB/VL

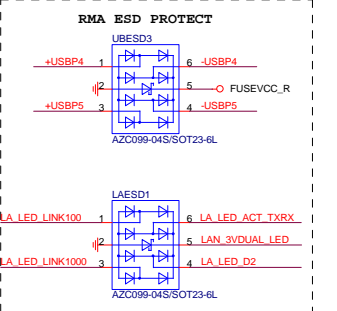
SCH BOM OPT: (二擇一使用)
 --> (LAR11) :M/B有CLK GEN 25M
 --> (LAX1, LAC5, LAC6) :M/B無CLK GEN 25M



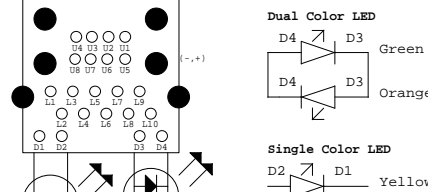
LA_ML-->80歐姆:[15/5/5/15]

SRCLK-->50歐姆:[18/4/10/4/18]

USB_LAN CONNECTOR



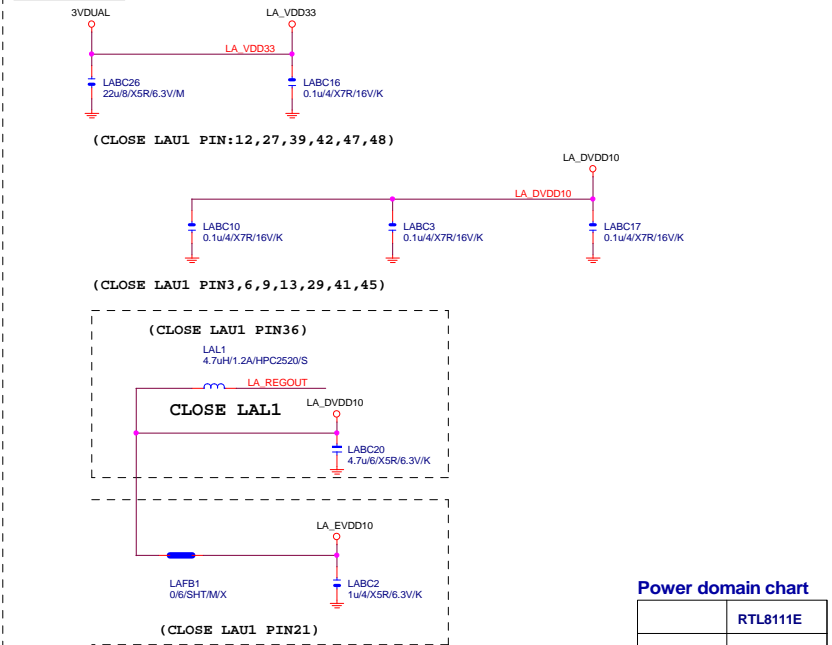
注意:LAN LED PROTECT:(CO-LAYOUT)
 1. ESD (6PIN):AOZ8902CIL/SOT23-6(DEFAULT)
 2. SURGE (5PIN):AZ2025-04S/SOT23-5L



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:
 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

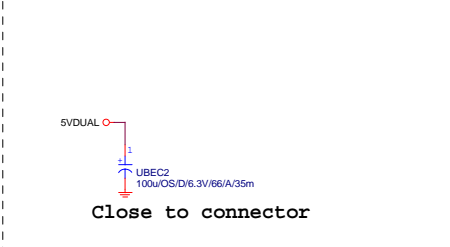
LAN POWER



Power domain chart

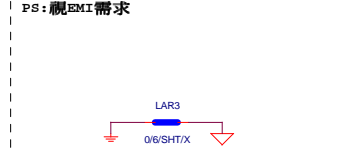
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

USB X3 POWER



USB OC/FUSE PROTECT

EMI SHORT PAD



Gigabyte Technology

File: LAN RTL8111F

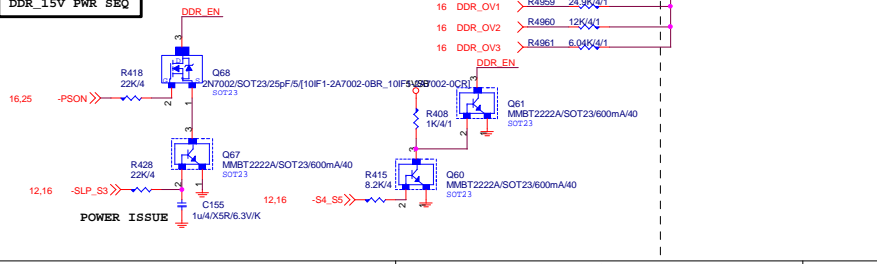
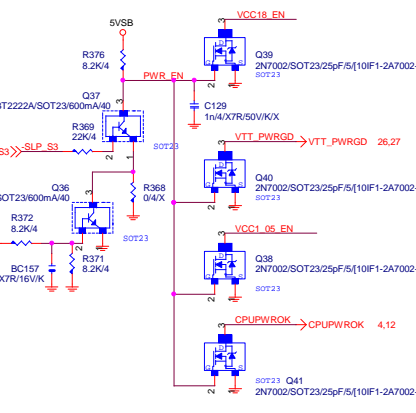
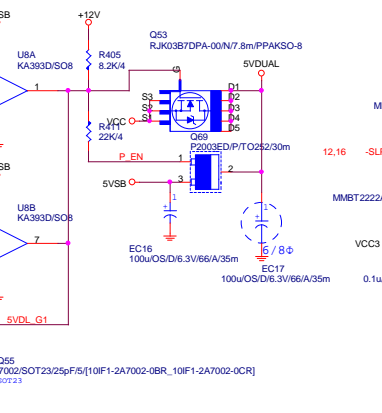
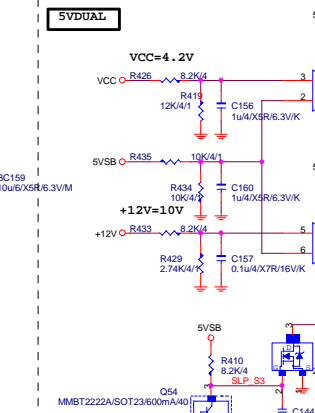
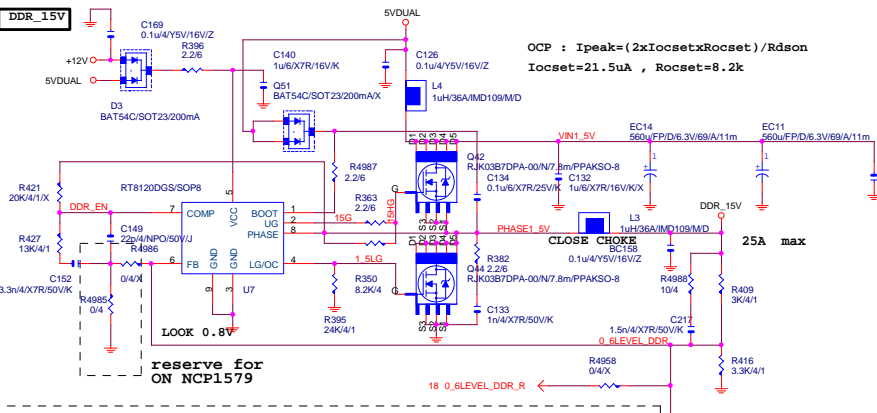
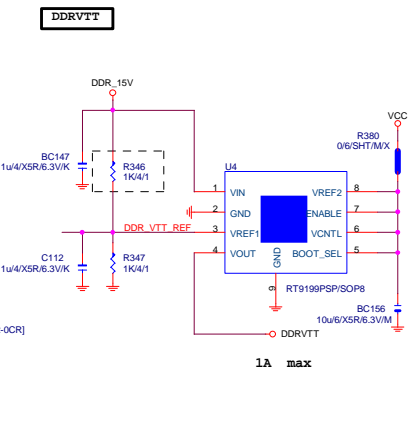
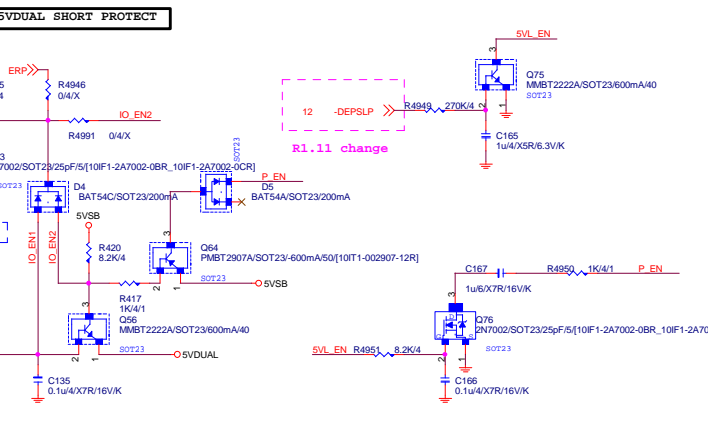
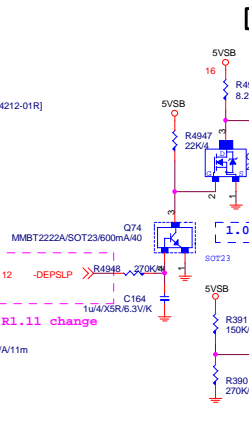
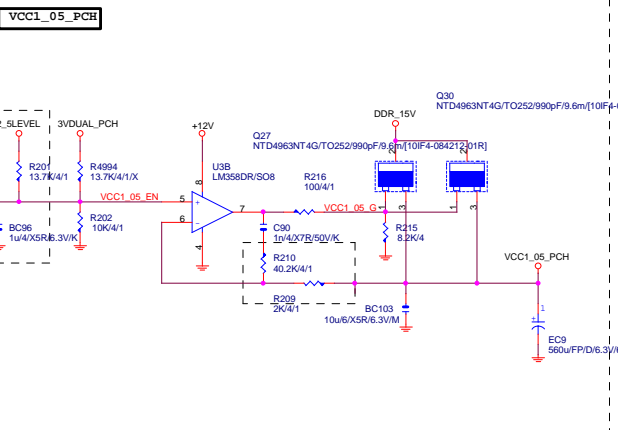
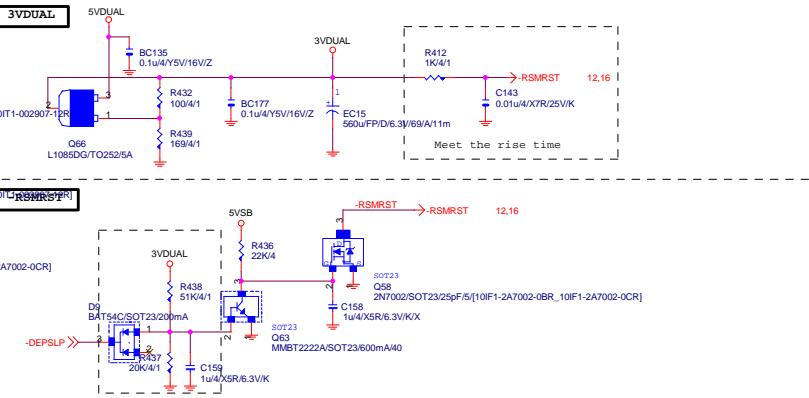
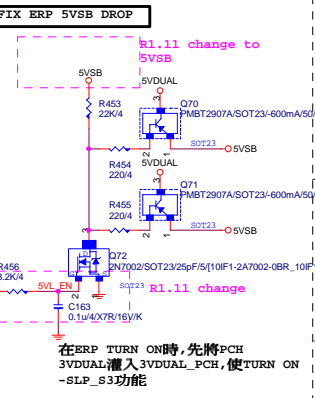
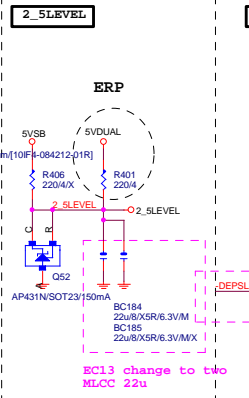
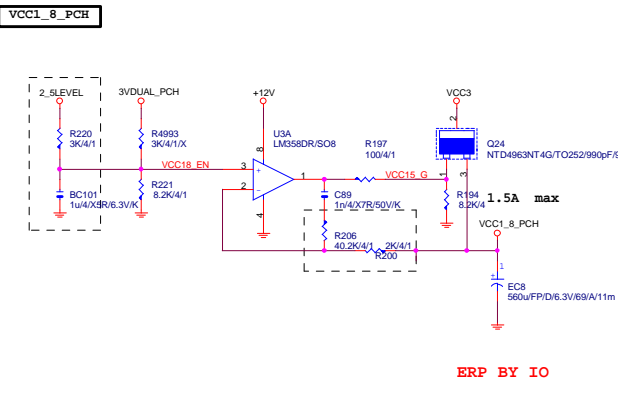
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Customer: GA-H61M-DS2

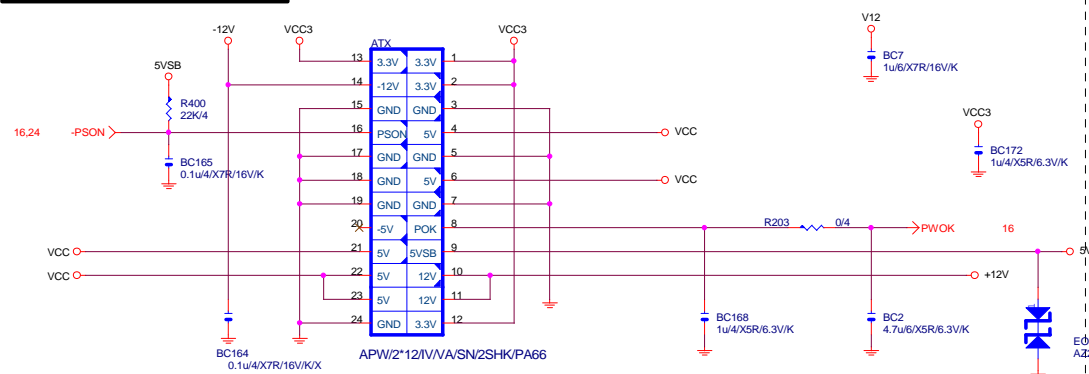
Date: Tuesday, October 09, 2012

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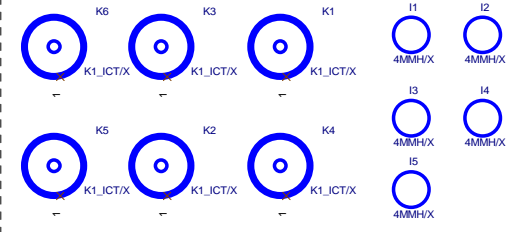
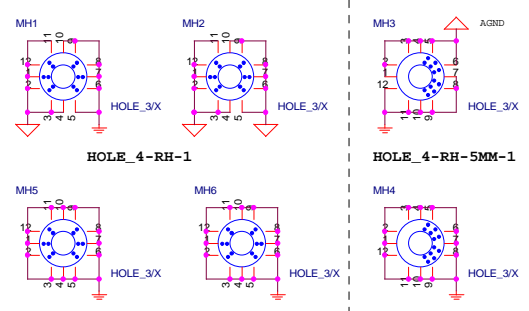
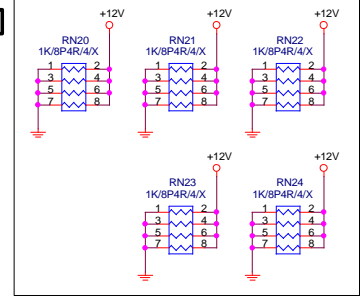
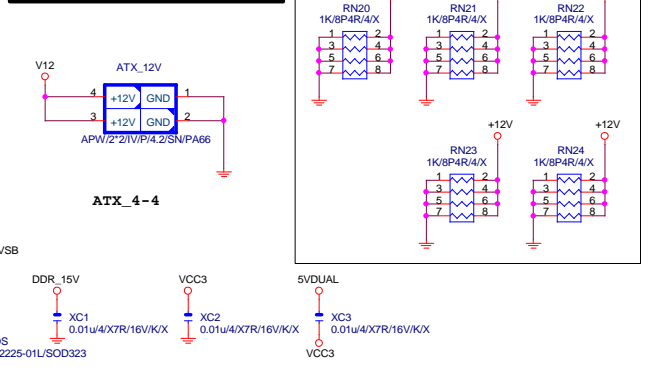
Rev: 3.0



ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

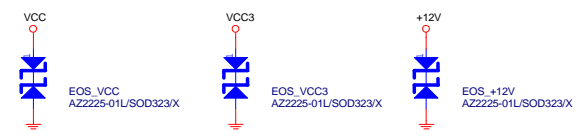


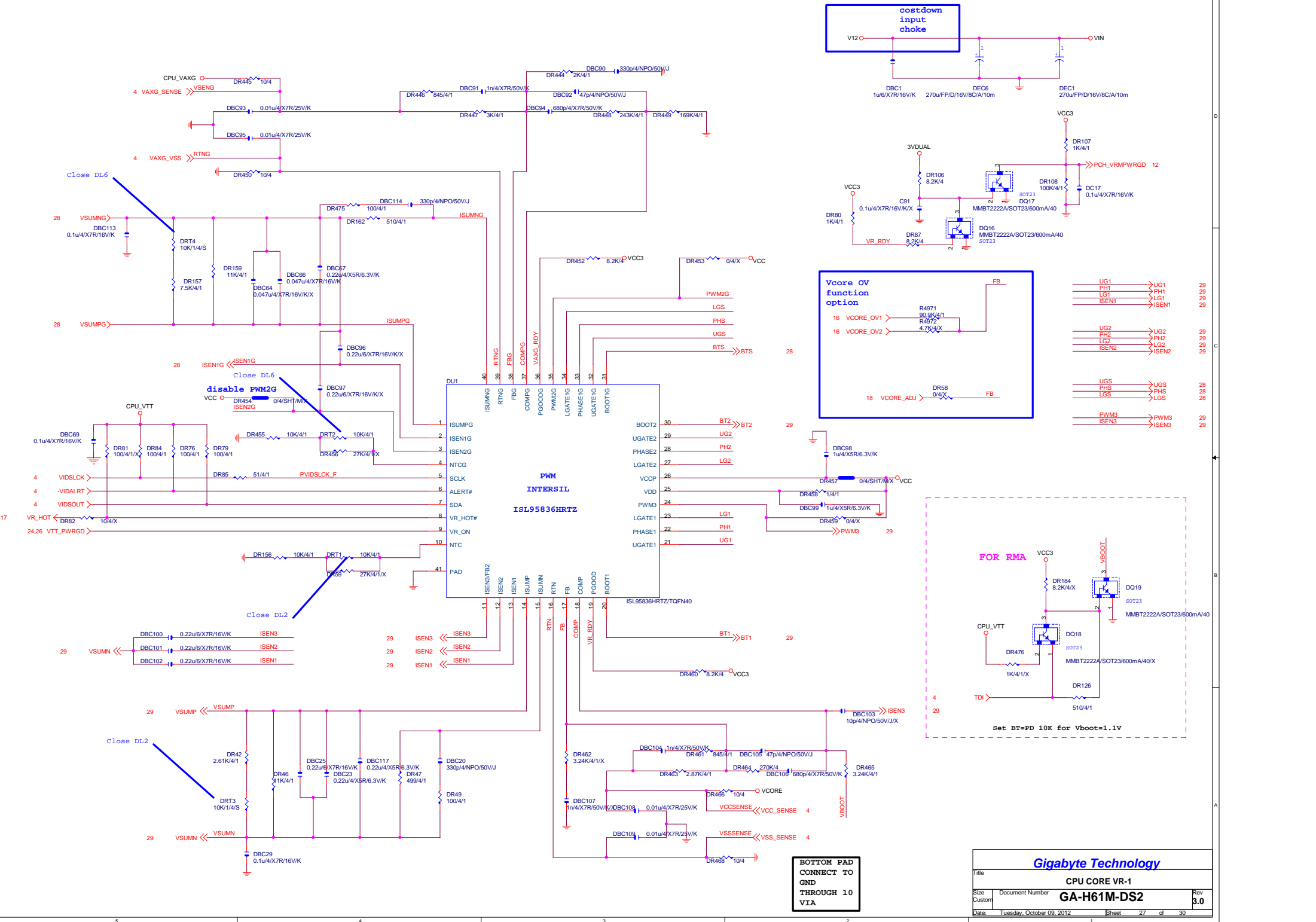
To prevent the 5VSB under loading when boot

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

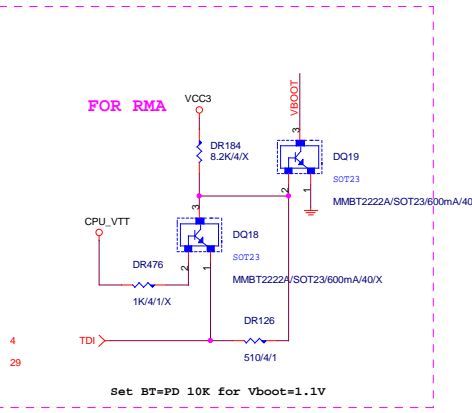
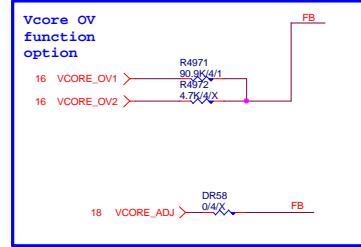
-S_WARN-->5VDUAL1-->-S_ACK (PCH)-->-DEPSLP/-RSMRST-->5VDUAL-->3VDUAL

HOLE_4-RH-5MM-1





costdown
input
choke



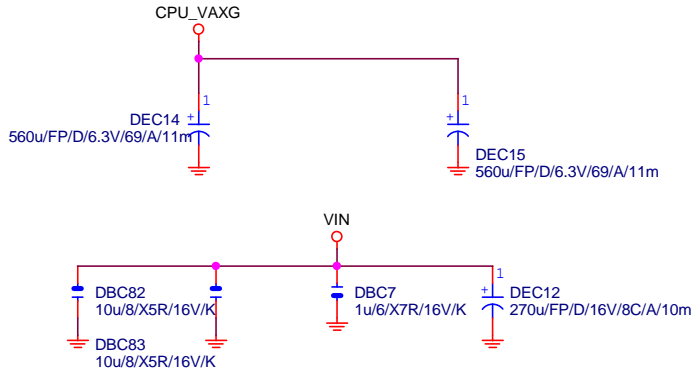
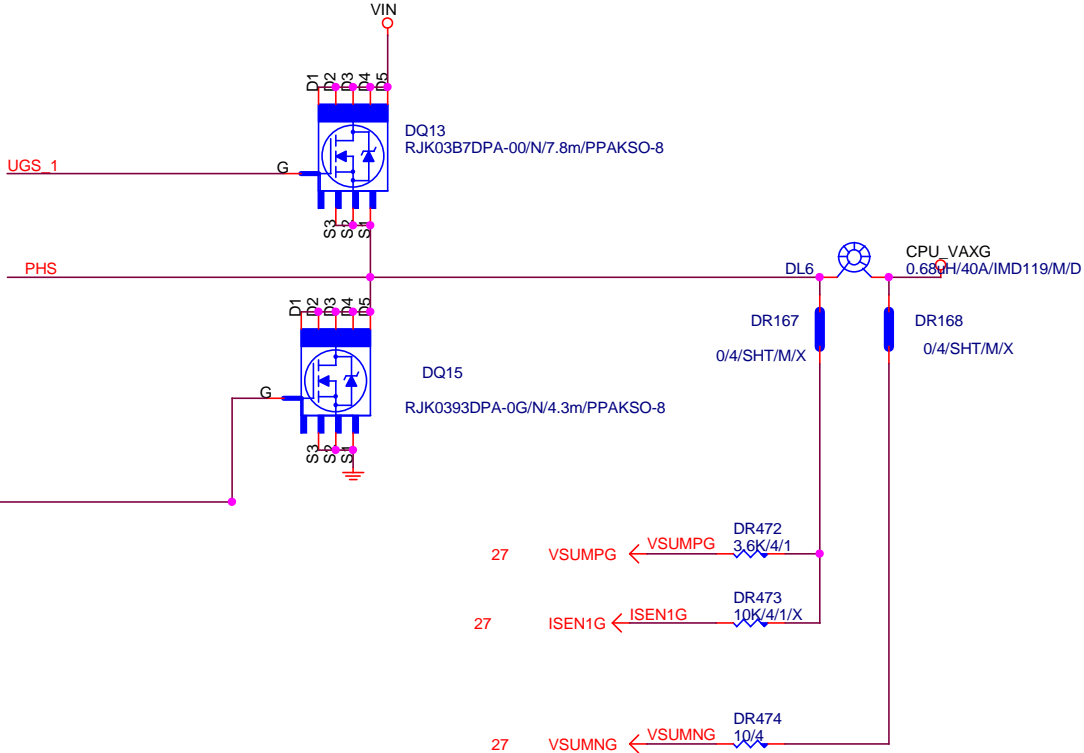
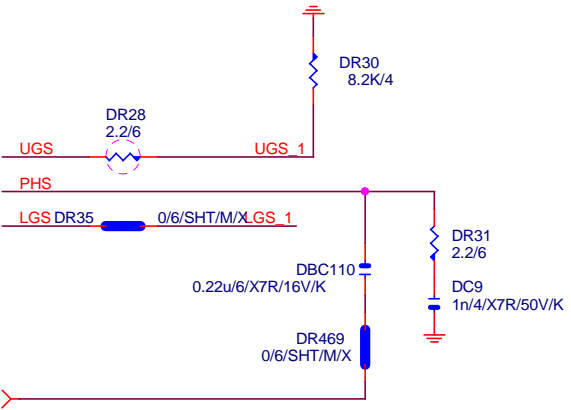
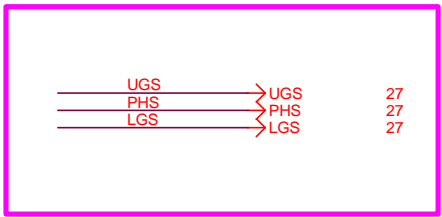
Gigabyte Technology		
Title	CPU CORE VR-1	
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Custom	GA-H61M-DS2	3.0
Date:	Tuesday, October 09, 2012	Sheet 27 of 30

**BOTTOM PAD
CONNECT TO
GND
THROUGH 10
VIA**

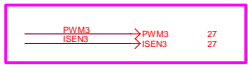
**PWM
INTERSIPL
ISL95836HRTZ**

Set BT=PD 10K for Vboot=1.1V

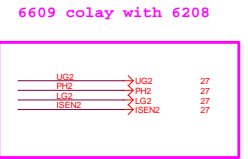
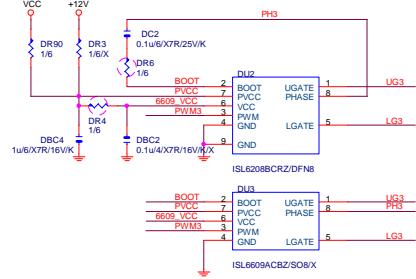
VAXG



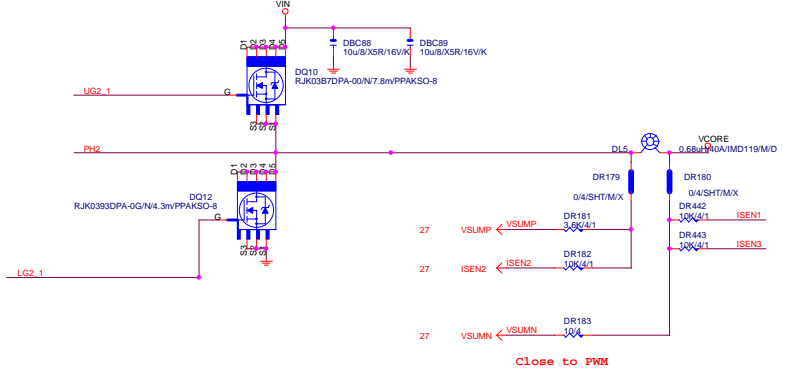
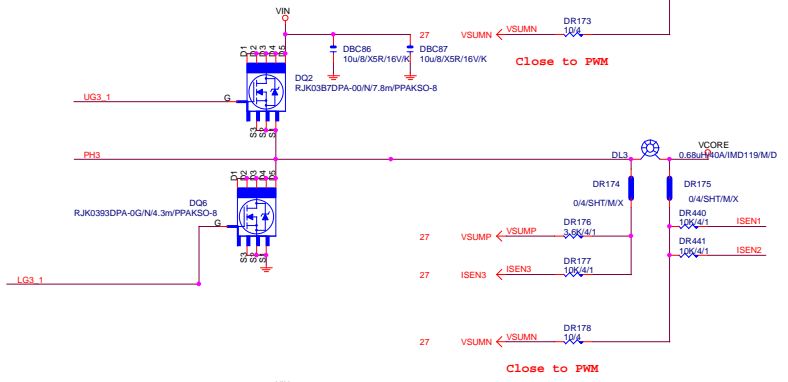
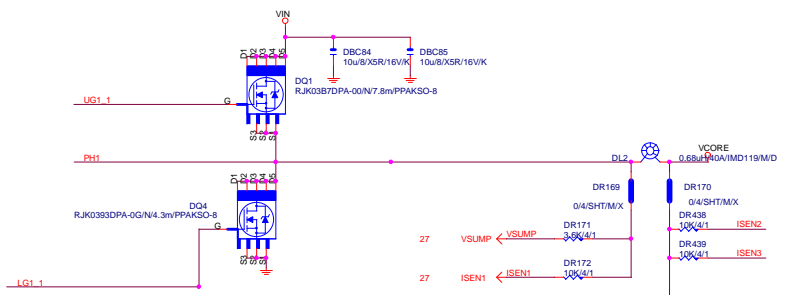
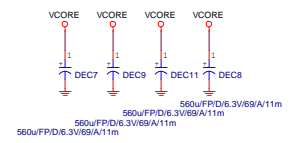
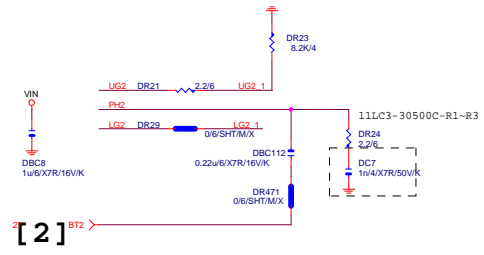
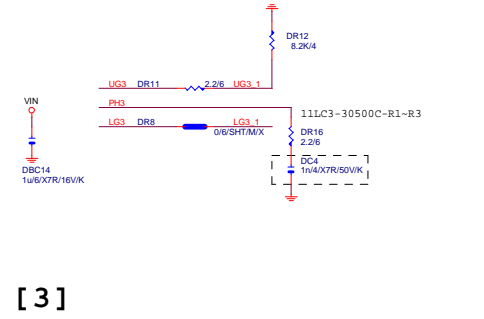
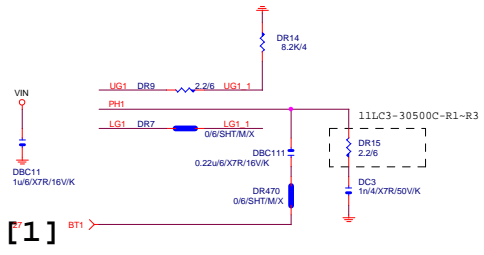
Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-H61M-DS2	Rev 3.0
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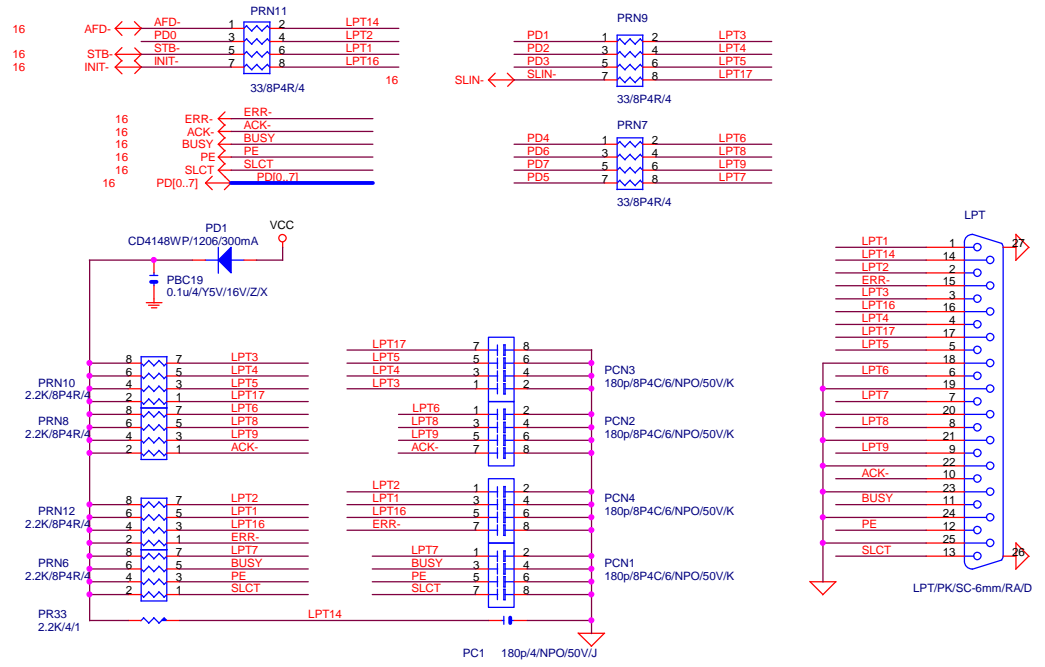
Pop 1S16625CB for PBT
[1S16625CBZ/908]



6609 colay with 6208



LPT PORT



Gigabyte Technology			
Title: LPT			
Size: Custom	Document Number: GA-H61M-DS2		Rev: 3.0
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