

Model Name: GA-B75M-D3V

Revision 1.0

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*1 X2 SLOT
16	PCI SLOT1
17	ITE 8728 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	ARTHEROS AR8161/AR8151
25	DISCRETE POWER
26	ATX, M3 POWER
27	RT8120_CPU_VTT

SHEET

TITLE

28	VCORE ISL95836_1
29	VCORE ISL95836_2
30	RT8120_DDR POWER
31	LPT
32	

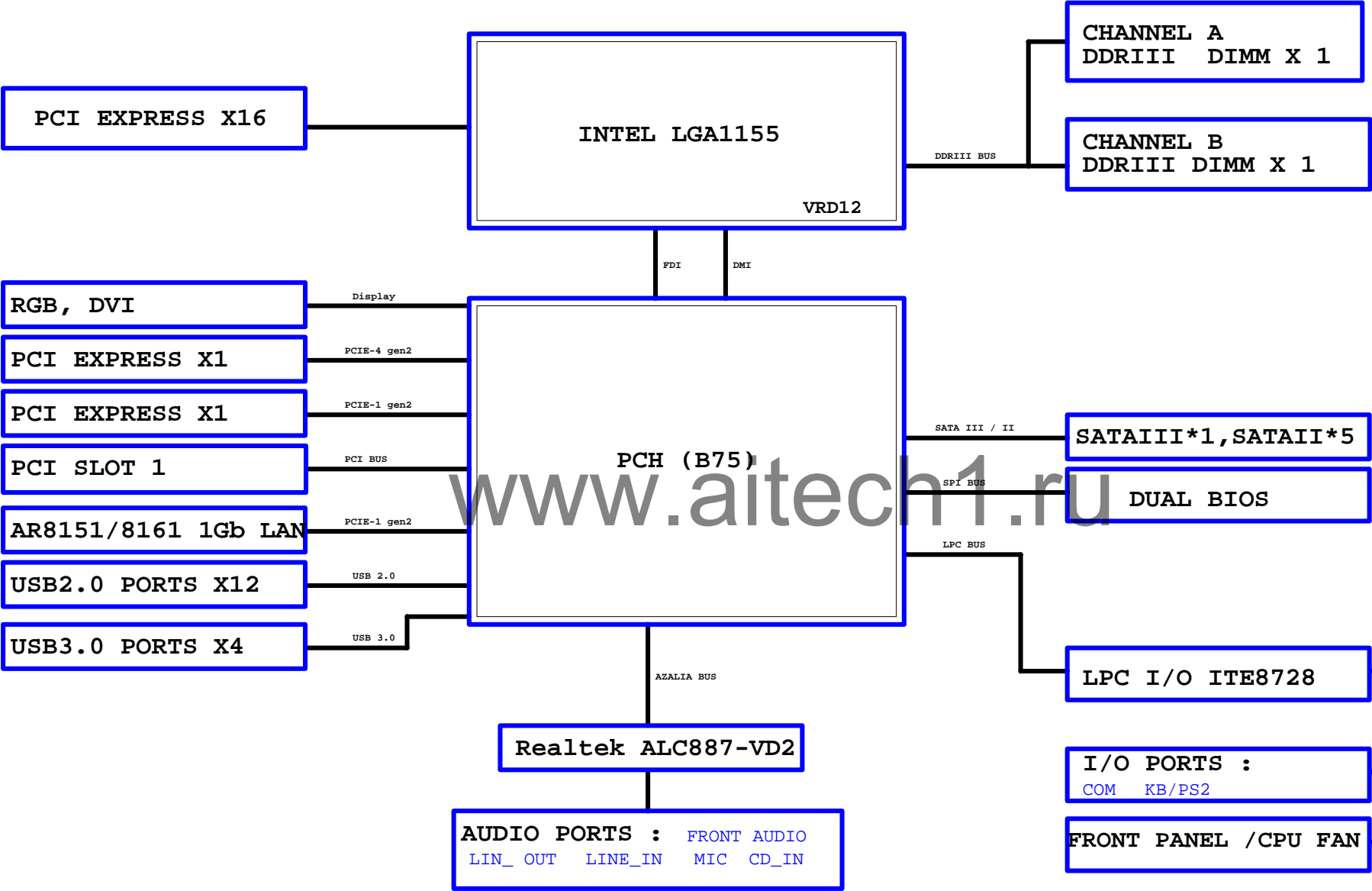
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Gigabyte Technology

Title			
Cover Sheet			
Size	Document Number	Rev	
Custom	GA-B75M-D3V	1.0	
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BLOCK DIAGRAM



LGA1155E



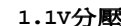
CFG 0-17 all internal PULL-UP



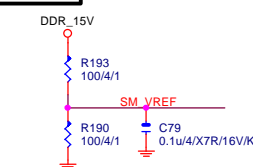
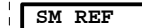
LGA1155D



(c)



## CPU SVID



## Gigabyte Technology

Title				CPU LGA1155-A			
Size	Custom	Document Number				Rev	
		GA-B75M-D3V				1.0	
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LGA1155A

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	MAAA3	AW23	SA_MA[3]			
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	MAAA5	AT24	SA_MA[5]	SA_DQ[1]	AJ4	MDA1
	MAAA6	AT23	SA_MA[6]	SA_DQ[2]	AJ3	MDA2
	MAAA7	AU22	SA_MA[7]	SA_DQ[3]	AL4	MDA3
	MAAA8	AV22	SA_MA[8]	SA_DQ[4]	AJ2	MDA4
	MAAA9	AT22	SA_MA[9]	SA_DQ[5]	AJ1	MDA5
	MAAA10	AU28	SA_MA[10]	SA_DQ[6]	AL2	MDA6
	MAAA11	AT21	SA_MA[11]	SA_DQ[7]	AL1	MDA7
	MAAA12	AT21	SA_MA[12]			
	MAAA13	AW32	SA_MA[13]	SA_DQS[1]	AP3	DQSA1
	MAAA14	AU20	SA_MA[14]	SA_DQS[1]	AP2	-DQSA1
	MAAA15	AT20	SA_MA[15]			
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[7]	-SCASA	AV30	SA_CAS#	SA_DQ[9]	AN4	MDA9
[7]	-SRASA	AU28	SA_RAS#	SA_DQ[10]	AR3	MDA10
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			SA_DQ[14]	SA_DQ[14]	AR2	MDA14
			SA_DQ[15]	SA_DQ[15]	AR1	MDA15
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		AU33	SA_CS#			
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		AU18	SA_CKE[2]	SA_DQ[18]	AV5	MDA18
		AV18	SA_CKE[3]	SA_DQ[19]	AW5	MDA19
				SA_DQ[20]	AU2	MDA20
				SA_DQ[21]	AU3	MDA21
				SA_DQ[22]	AU5	MDA22
				SA_DQ[23]	AY5	MDA23
				SA_DQS[3]	AV8	DQSA3
				SA_DQS[3]	AW8	-DQSA3
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[7]	DCLKA1	AU24	SA_CK[1]	SA_DQ[26]	AV9	MDA26
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		AW27	SA_CK[2]	SA_DQ[28]	AW7	MDA28
		AY27	SA_CK#	SA_DQ[29]	AW9	MDA29
		AV26	SA_CK[3]	SA_DQ[30]	AY9	MDA30
		AW26	SA_CK#			
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				SA_DQ[36]	AW35	MDA36
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				SA_DQS[5]	AP38	DQSA5
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				SA_DQ[46]	AN39	MDA46
				SA_DQ[47]	AN40	MDA47
				SA_DQS[6]	AK38	DQSA6
				SA_DQS[6]	AK39	-DQSA6
				SA_DQ[48]	AL40	MDA48
				SA_DQ[49]	AL37	MDA49
				SA_DQ[50]	AJ38	MDA50
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				SA_DQ[52]	AL39	MDA52
				SA_DQ[53]	AL38	MDA53
				SA_DQ[54]	AJ39	MDA54
				SA_DQ[55]	AL40	MDA55
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				SA_DQ[56]	AG40	MDA56
				SA_DQ[57]	AG37	MDA57
				SA_DQ[58]	AE38	MDA58
				SA_DQ[59]	AE37	MDA59
				SA_DQ[60]	AG39	MDA60
				SA_DQ[61]	AG38	MDA61
				SA_DQ[62]	AF39	MDA62
				SA_DQ[63]	AE40	MDA63

DDR\_0

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DDR\_0

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LGA1155(10SC1-F01155-21R\_10SC1-F01155-22R)

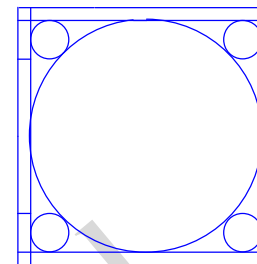
LGA1155B

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MAAB3	AK18	SB_MA[3]				
MAAB4	AP19	SB_MA[4]	SB_DQ[0]	AG7	MDB0	
MAAB5	AP18	SB_MA[5]	SB_DQ[1]	AG8	MDB1	
MAAB6	AM18	SB_MA[6]	SB_DQ[2]	AJ8	MDB2	
MAAB7	AL18	SB_MA[7]	SB_DQ[3]	AJ8	MDB3	
MAAB8	AM18	SB_MA[8]	SB_DQ[4]	AG5	MDB4	
MAAB9	AY17	SB_MA[9]	SB_DQ[5]	AG6	MDB5	
MAAB10	AV23	SB_MA[10]	SB_DQ[6]	AJ6	MDB6	
MAAB11	AU17	SB_MA[11]	SB_DQ[7]	AJ7	MDB7	
MAAB12	AT18	SB_MA[12]				
MAAB13	AR26	SB_MA[13]	SB_DQS[1]	AM8	DQSB1	
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[8] -SCASB	-SCASB	AK25	SB_CAS#	AM7	MDB9	
[8] -SRASB	-SRASB	AP24	SB_RAS#	AM10	MDB10	
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[8] SBAB2	SBAB2	AV17	SB_BS[2]	SB_DQ[12]	AM6	MDB13
			SB_DQ[14]	AL9	MDB14	
			SB_DQ[15]	AM9	MDB15	
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[8] -CSB1	-CSB1	AN26	SB_CS#	AP8	-DQSB2	
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		AT26	SB_CS#			
[8] CKEB0	CKEB0	AU16	SB_CKE[0]	AP7	MDB16	
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			SB_DQ[20]	AP6	MDB20	
			SB_DQ[21]	AR6	MDB21	
			SB_DQ[22]	AP9	MDB22	
			SB_DQ[23]	AR9	MDB23	
			SB_DQS[3]	AN13	DQSB3	
			SB_DQS#3	AN12	-DQSB3	
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[8] DCLKB1	DCLKB1	AL20	SB_CK[1]	AR13	MDB26	
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		AL23	SB_CK[2]	AL12	MDB28	
		AM22	SB_CK#	AL13	MDB29	
		AP21	SB_CK[3]	SB_DQ[29]	AP12	MDB30
		AN21	SB_CK#	SB_DQ[30]	AP12	MDB31
				SB_DQ[31]		
				SB_DQS[4]	AN23	DQSB4
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VREF_DQA	AH4	FG AH4				
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			SB_DQ[34]	AL28	MDB34	
			SB_DQ[35]	AL29	MDB35	
			SB_DQ[36]	AP28	MDB36	
			SB_DQ[37]	AP29	MDB37	
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			SB_DQ[61]	AJ34	MDB61	
			SB_DQ[62]	AF33	MDB62	
			SB_DQ[63]	AF35	MDB63	

DDR\_1

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LGA1155(10SC1-F01155-21R\_10SC1-F01155-22R)

CR  
CPU RETENTION/X

LGA1155\_P

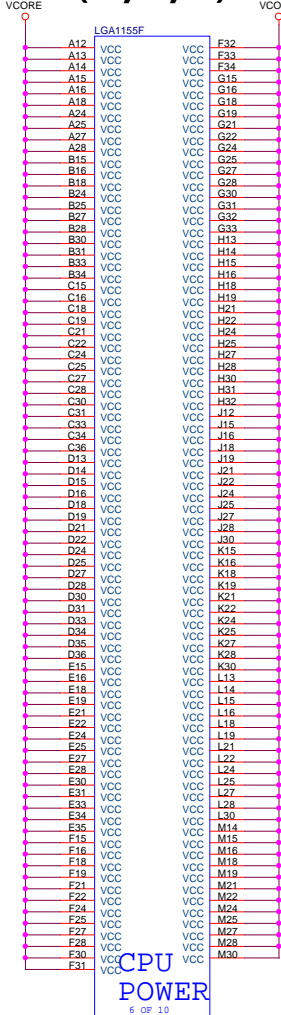
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Gigabyte Technology

Title			CPU LGA1156-B		
Size			Document Number		
Custom			GA-B75M-D3V		
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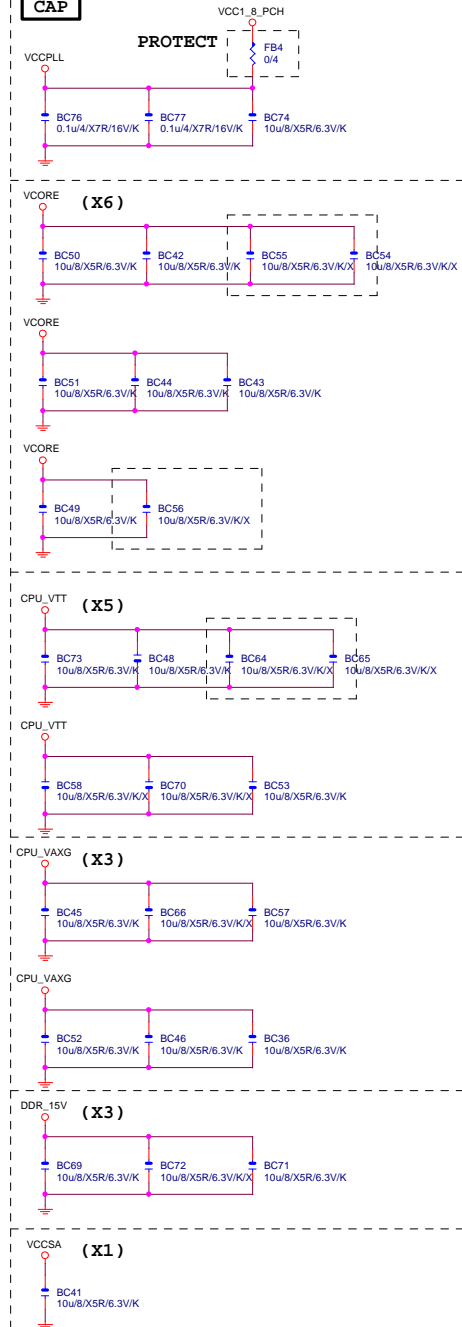
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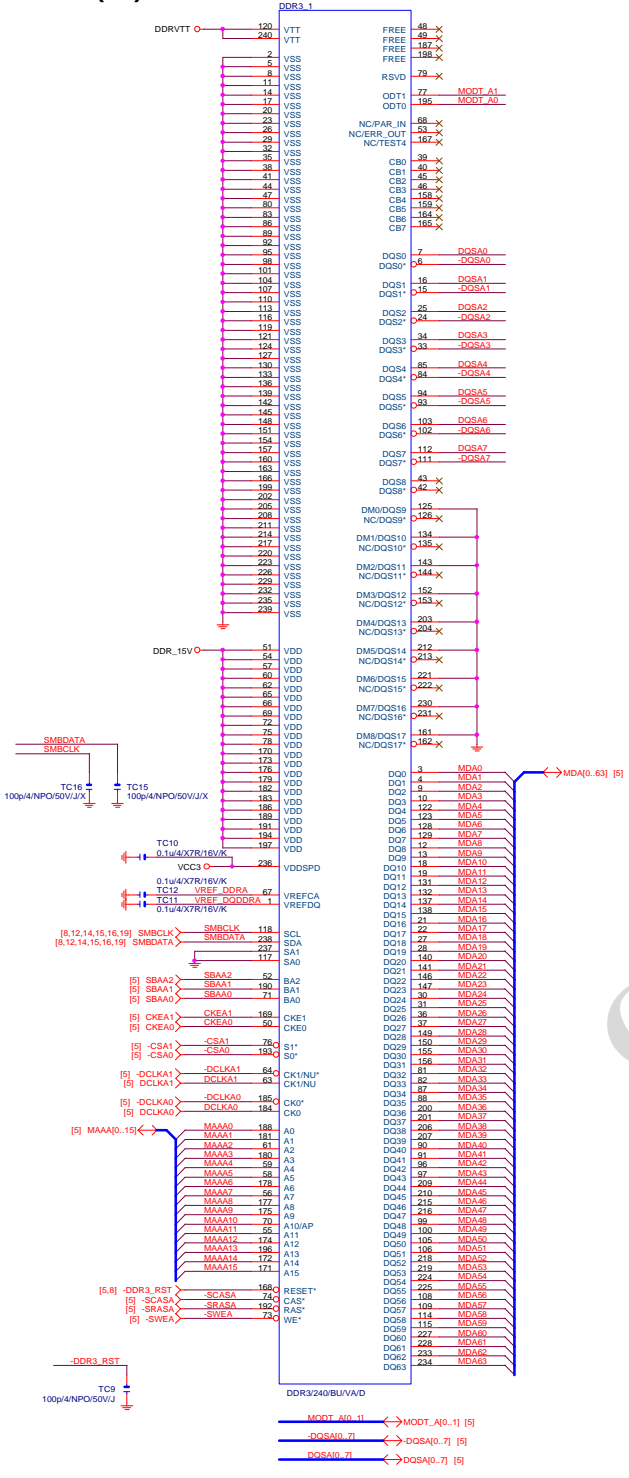
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Title				
<b>CPU LGA1156-C</b>				
Size	Document Number			Rev
Custom	<b>GA-B75M-D3V</b>			<b>1.0</b>
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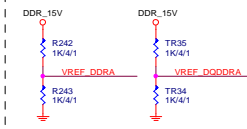
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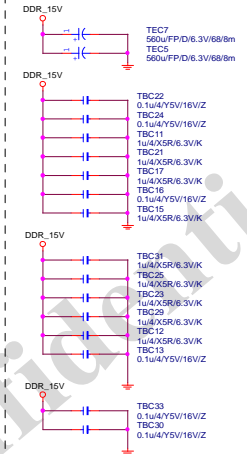


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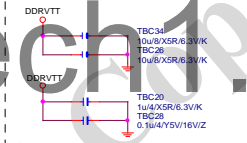
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DDR15V Decouple



DDRVTT Decouple



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**(B)**



(E)

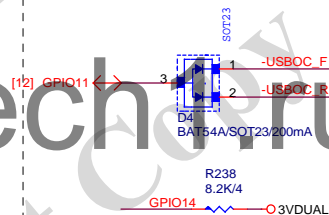
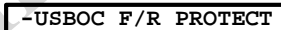
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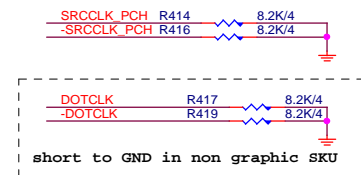
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K49 ✕  
AB46 ✕  
G56 ✕

Y44 ✗  
L53 ✗  
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R256 33/4  
32.4/4/1 for ONFI enable

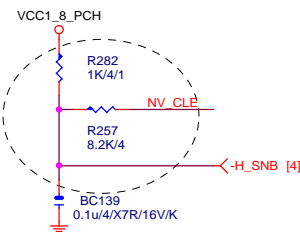
**(G)**



PCH CLK PD



## USB TABLE



USB OC#	Configure
OC0#	USB0,1(F_USB30)
OC1#	USB2,3(USB30_20)
OC2#	USB4,5(F_USB1)
OC3#	USB6,7(B75:N/A)
OC4#	USB8,9(F_USB2)
OC5#	USB10,11(USB_LAN)
OC6#	USB12,13(KB_USB)
OC7#	N/A

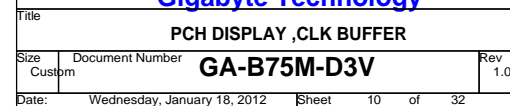
## Gigabyte Technology

Title	PCH FDI,DMI,USB ,PCIE,NVRAM
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Size Custom	Document Number <b>GA-B75M-D3V</b>	Rev 1.0
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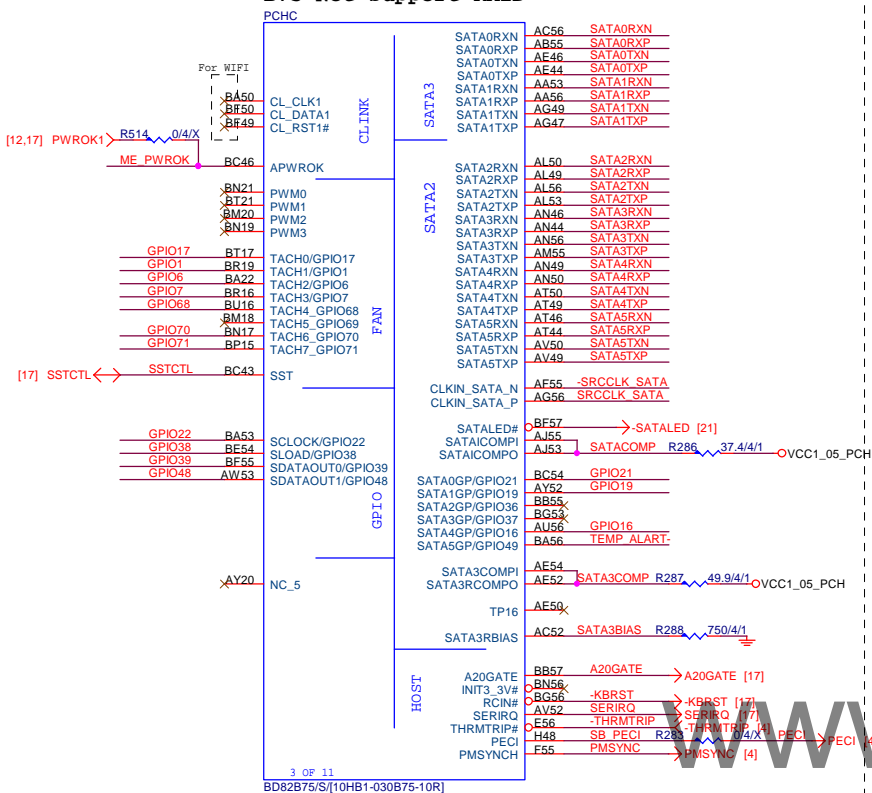
Date: Wednesday, January 18, 2012 Sheet 9 of 32

**(F)**

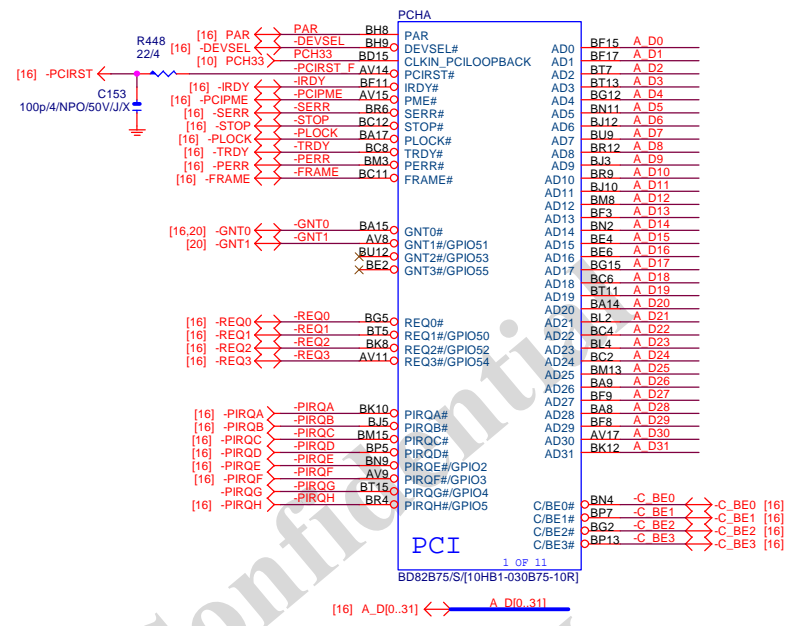


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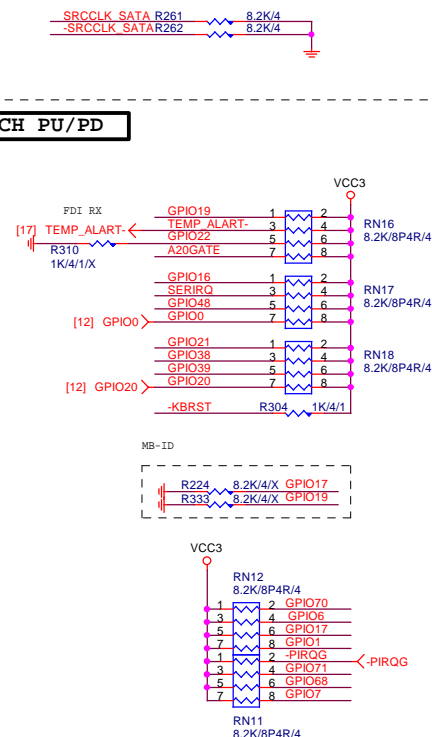
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B75 Not Support RAID



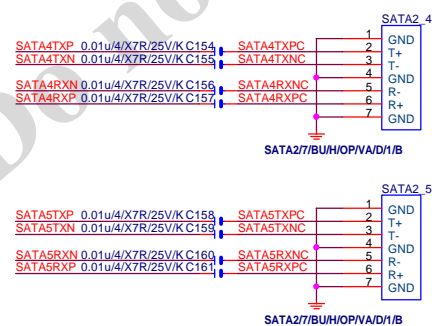
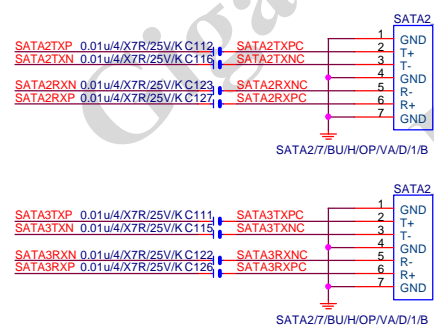
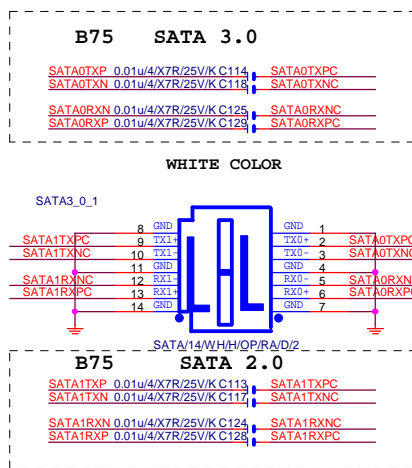
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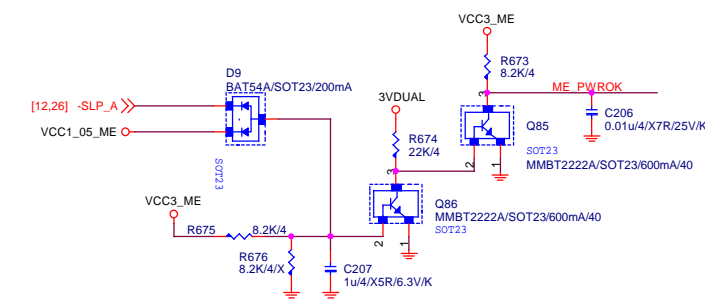
PCH	CLK	PD
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**SATA CONNECTOR** H1X7-SATA2-HS-MASK



ME PWROK

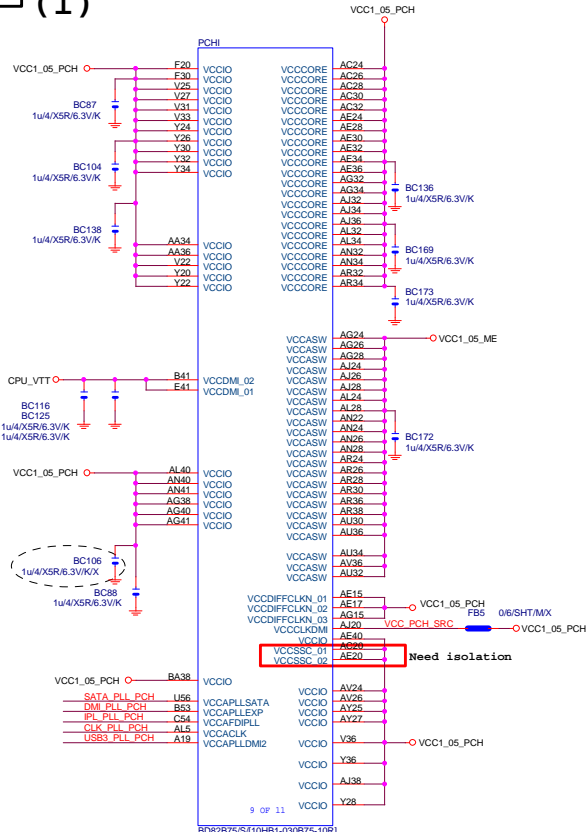


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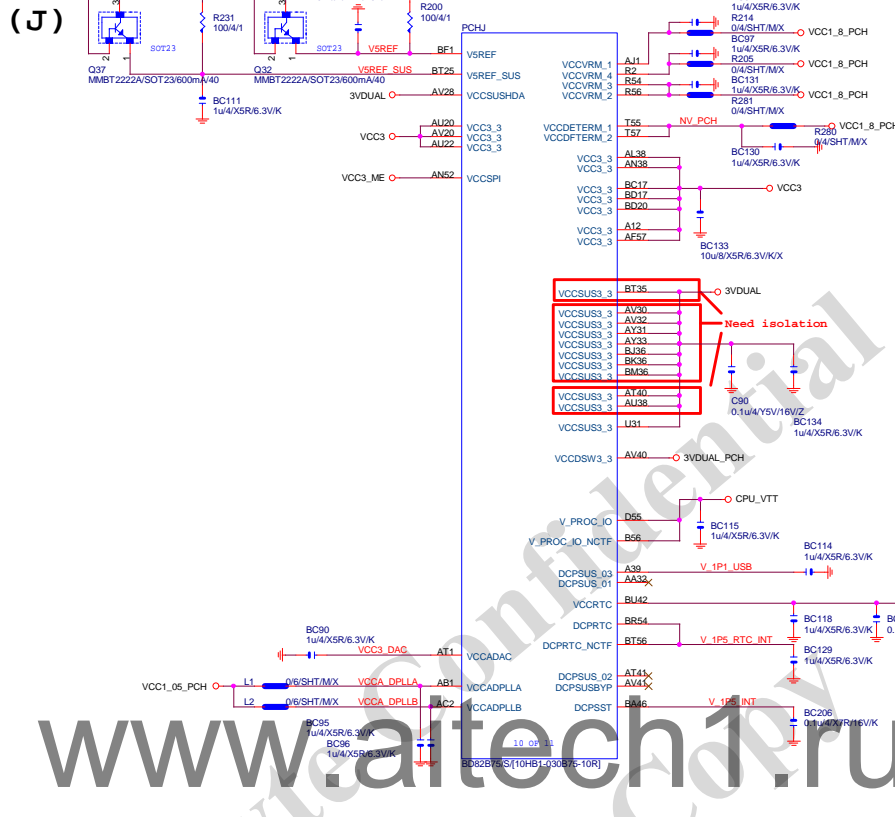


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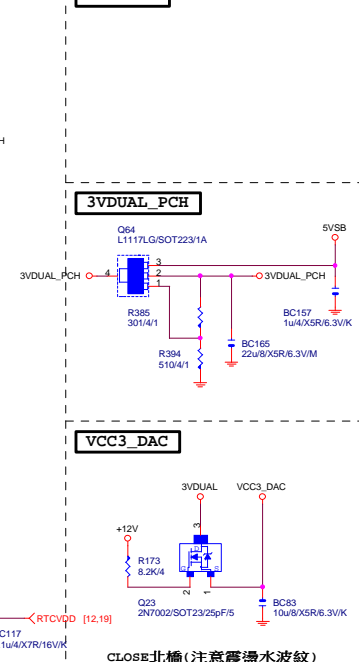
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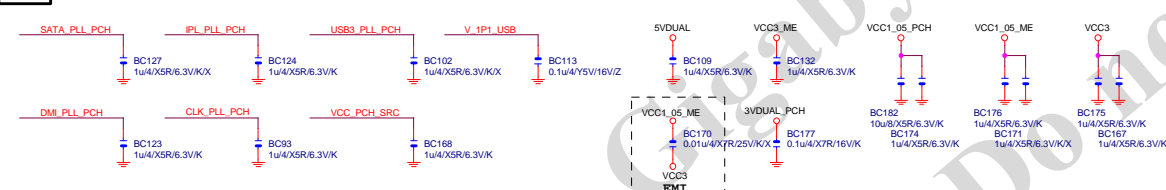
(J)



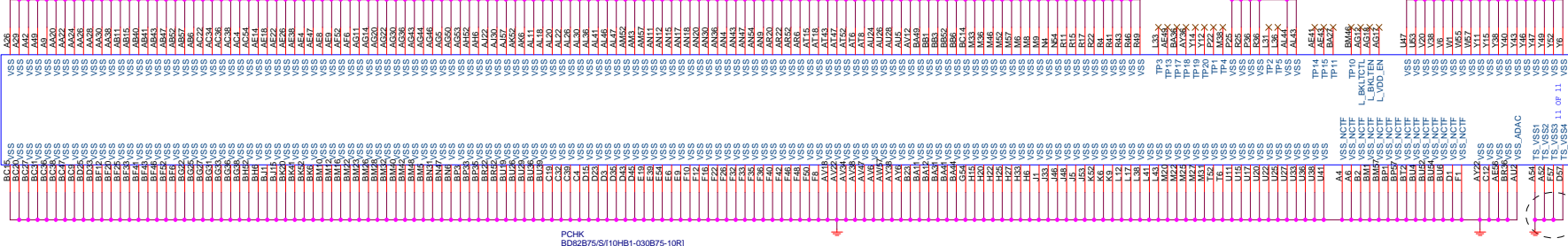
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## SA



(I)

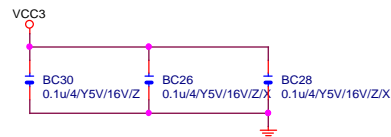




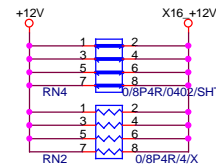
## PCIEX16 CAP

PCIEX16 SLOT

## PCIESLOT-164DN-P



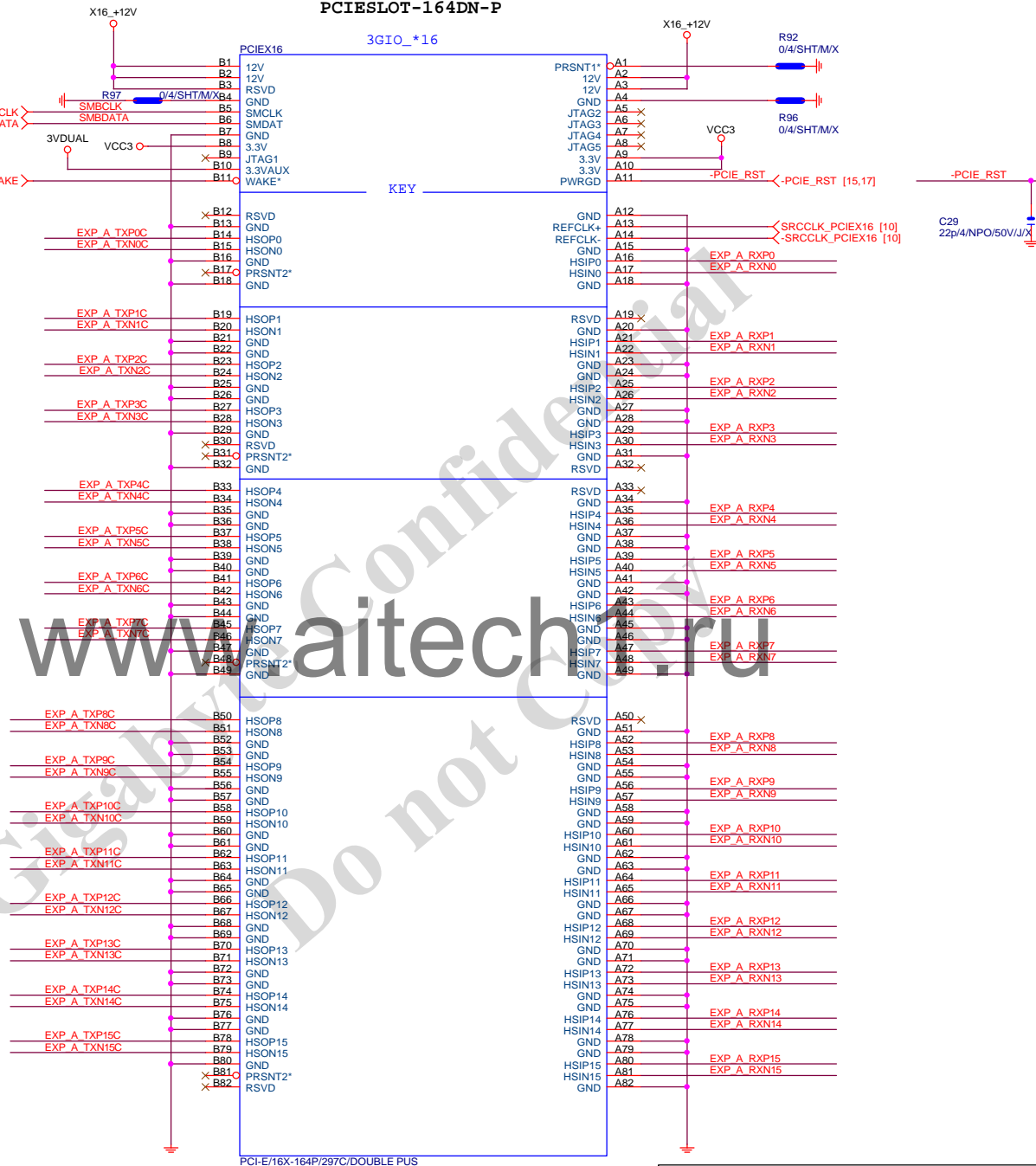
PCIEX16	PROTECT	SHT
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PCIEX16	AC	CAP
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EXP A TXP0	C32	0.22u4/X5R/6.3V/K	EXP A TXP0C
EXP A TXN0	C30	0.22u4/X5R/6.3V/K	EXP A TXN0C
EXP A TXP1	C35	0.22u4/X5R/6.3V/K	EXP A TXP1C
EXP A TXN1	C37	0.22u4/X5R/6.3V/K	EXP A TXN1C
EXP A TXP2	C39	0.22u4/X5R/6.3V/K	EXP A TXP2C
EXP A TXN2	C41	0.22u4/X5R/6.3V/K	EXP A TXN2C
EXP A TXP3	C43	0.22u4/X5R/6.3V/K	EXP A TXP3C
EXP A TXN3	C45	0.22u4/X5R/6.3V/K	EXP A TXN3C
EXP A TXP4	C46	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	C50	0.22u4/X5R/6.3V/K	EXP A TXP5C
EXP A TXN5	C51	0.22u4/X5R/6.3V/K	EXP A TXN5C
EXP A TXP6	C52	0.22u4/X5R/6.3V/K	EXP A TXP6C
EXP A TXN6	C54	0.22u4/X5R/6.3V/K	EXP A TXN6C
EXP A TXP7	C57	0.22u4/X5R/6.3V/K	EXP A TXP7C
EXP A TXN7	C58	0.22u4/X5R/6.3V/K	EXP A TXN7C
EXP A TXP8	C60	0.22u4/X5R/6.3V/K	EXP A TXP8C
EXP A TXN8	C61	0.22u4/X5R/6.3V/K	EXP A TXN8C
EXP A TXP9	C62	0.22u4/X5R/6.3V/K	EXP A TXP9C
EXP A TXN9	C63	0.22u4/X5R/6.3V/K	EXP A TXN9C
EXP A TXP10	C64	0.22u4/X5R/6.3V/K	EXP A TXP10C
EXP A TXN10	C65	0.22u4/X5R/6.3V/K	EXP A TXN10C
EXP A TXP11	C66	0.22u4/X5R/6.3V/K	EXP A TXP11C
EXP A TXN11	C67	0.22u4/X5R/6.3V/K	EXP A TXN11C
EXP A TXP12	C68	0.22u4/X5R/6.3V/K	EXP A TXP12C
EXP A TXN12	C70	0.22u4/X5R/6.3V/K	EXP A TXN12C
EXP A TXP13	C72	0.22u4/X5R/6.3V/K	EXP A TXP13C
EXP A TXN13	C73	0.22u4/X5R/6.3V/K	EXP A TXN13C
EXP A TXP14	C74	0.22u4/X5R/6.3V/K	EXP A TXP14C
EXP A TXN14	C75	0.22u4/X5R/6.3V/K	EXP A TXN14C
EXP A TXP15	C77	0.22u4/X5R/6.3V/K	EXP A TXP15C
EXP A TXN15	C78	0.22u4/X5R/6.3V/K	EXP A TXN15C

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]

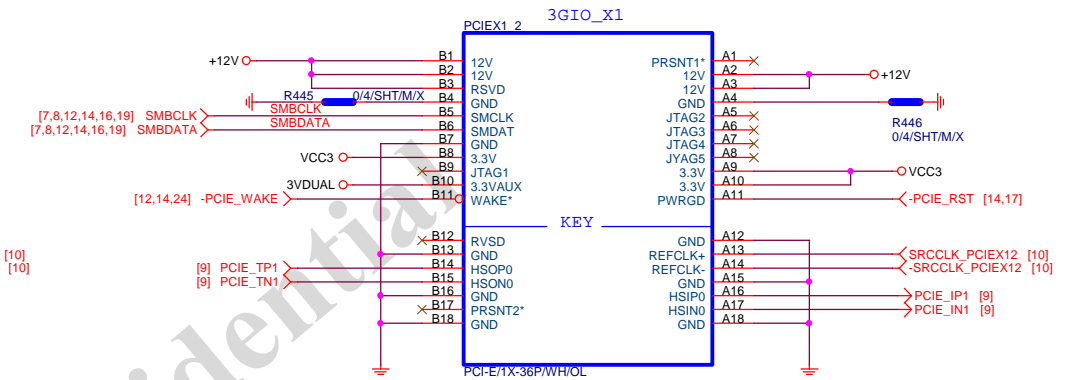


PCI-E/16X-164P/297C/DOUBLE PUS

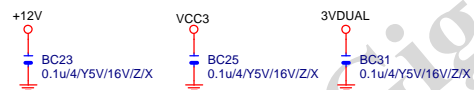
## Gigabyte Technology

Title			
PCI EXPRESS * 16			
Size Custom	Document Number	GA-B75M-D3V	Rev 1.0
Date:	Wednesday, January 18, 2012	Sheet 14 of 32	

## PCIEX1 CAP



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## Gigabyte Technology

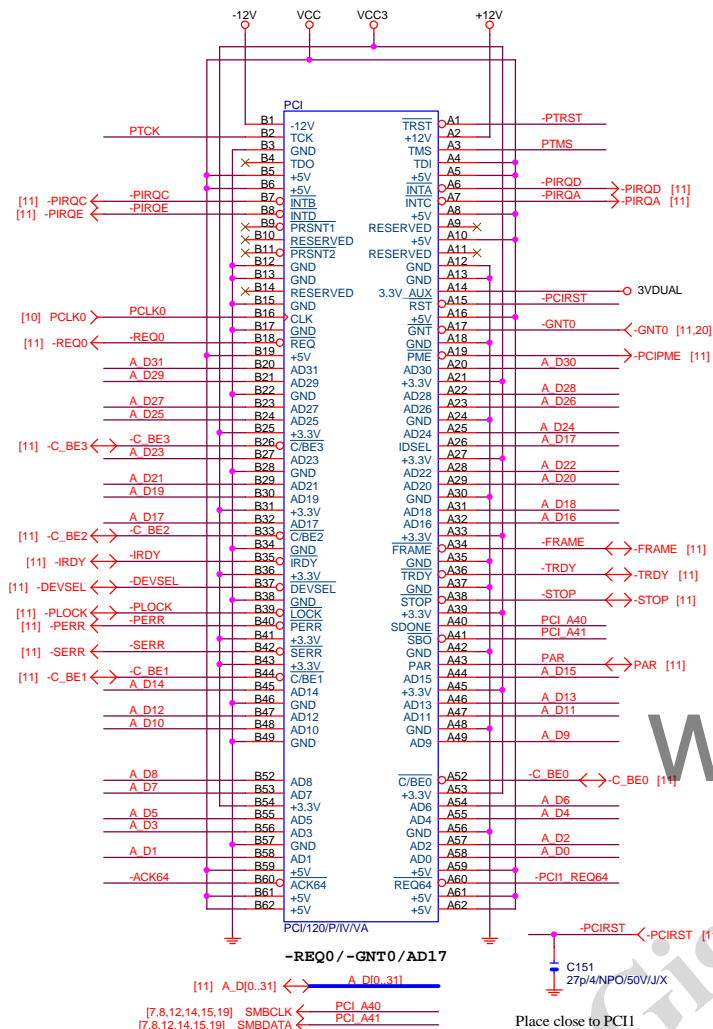
PCI EXPRESS X 1 PORT

Size Custom	Document Number <b>GA-B75M-D3V</b>	Rev <b>1.0</b>
Date:	Wednesday, January 18, 2012	Sheet 15 of 32

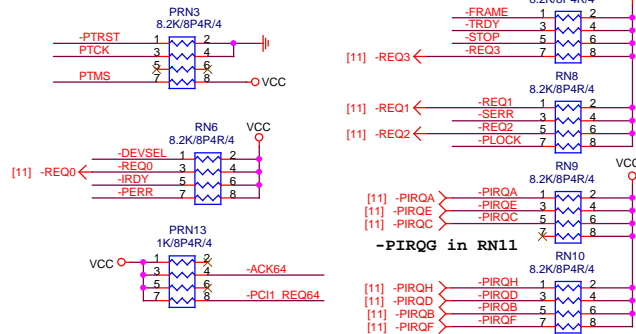
Date: Wednesday, January 18, 2012 Sheet 15 of 32



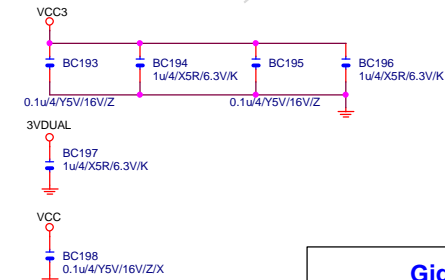
PCI SLOT



PCI	PU
-----	----



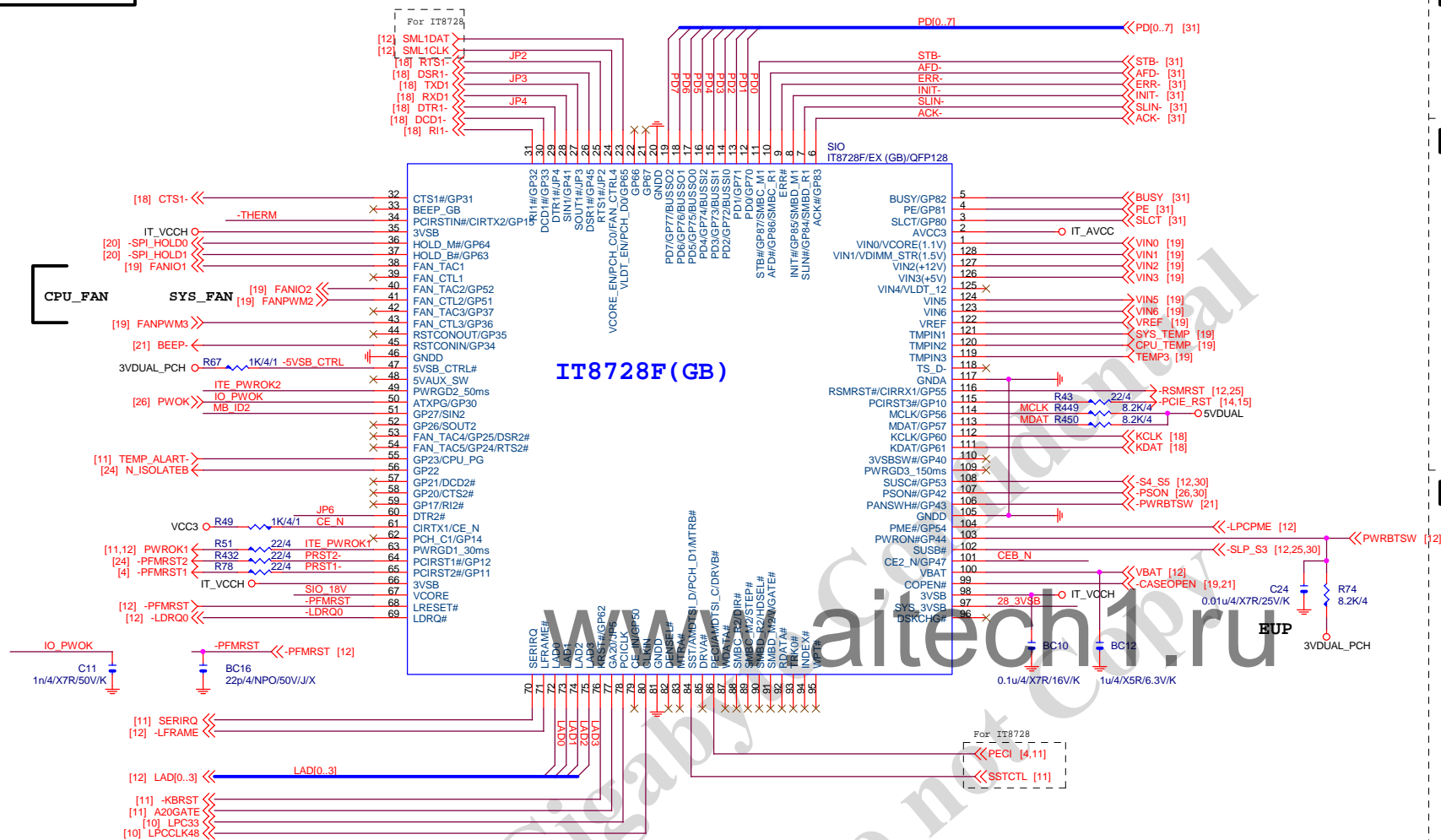
## PCI CAP



## Gigabyte Technology

Title			
PCI SLOT 1&2			
Size Custom	Document Number	GA-B75M-D3V	Rev 1.0
Date:	Wednesday, January 18, 2012	Sheet 16	of 32

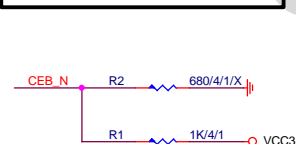
## SIO IT8728F



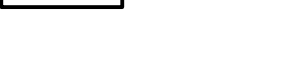
## IT8728F NOTE

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

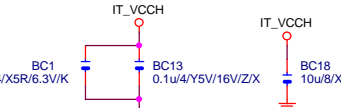
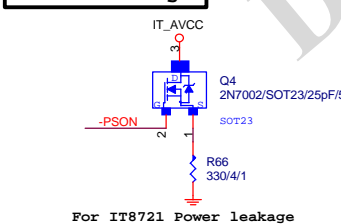
## DUAL BIOS OPT STRAP



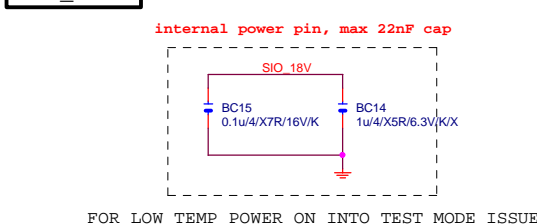
## SIO CAP



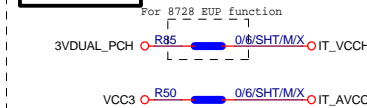
## Power leakage



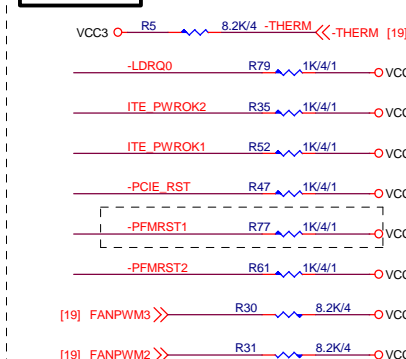
## SIO\_18V



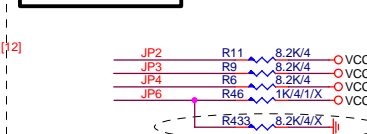
## PWR SHT



## SIO PU



## SIO STRAP

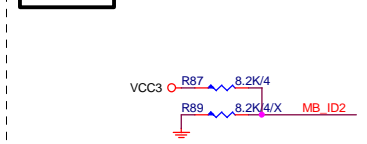


IT8728-EX  
PULL DOWN ENABLE OVP

EUP control by PCH  
3VDUAL 100/4/1 R83 28\_3VSB

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

## MB ID

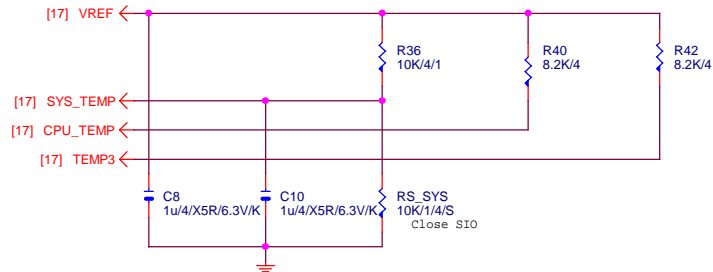


## Gigabyte Technology

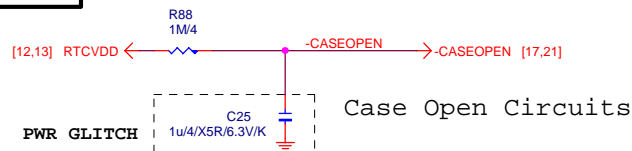
Title			ITE 8728 LPC IO
Size	Document Number	GA-B75M-D3V	
Custom			
Date:	Wednesday, January 18, 2012	Sheet	17 of 32



# TEMP H/W MONITOR

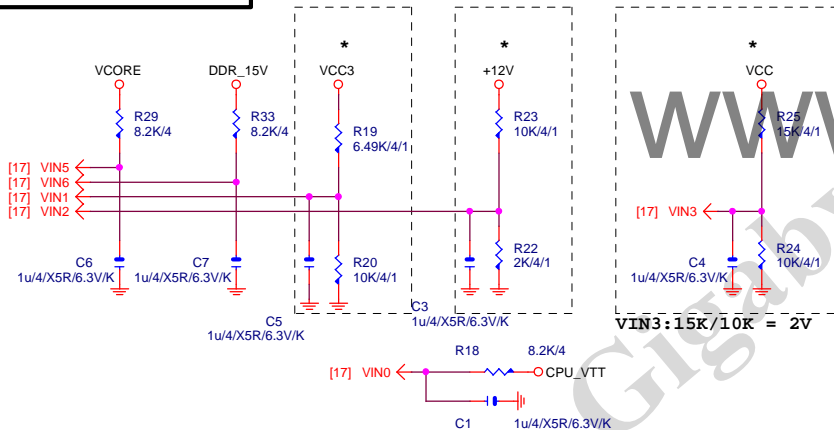


# CASE OPEN

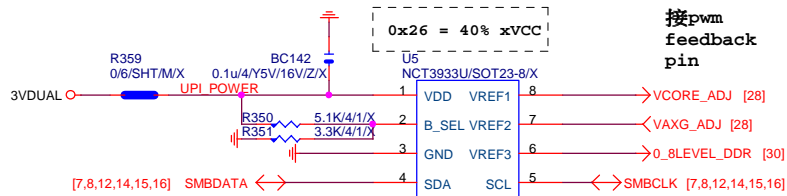


# VOLTAGE-- H/W MONITOR

VIN2:10K/2K = 2V

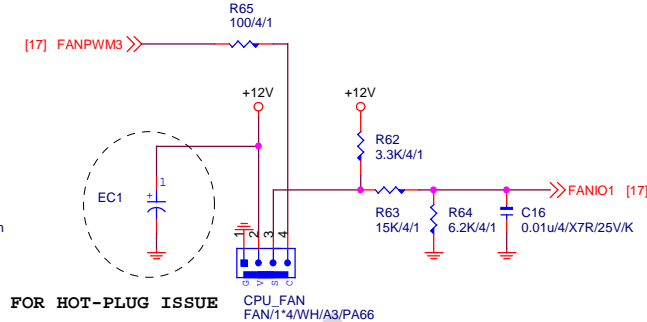


# OV NCT3933

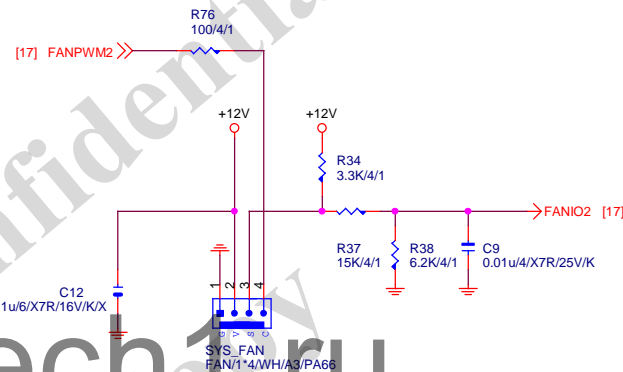


# CPU SMART FAN

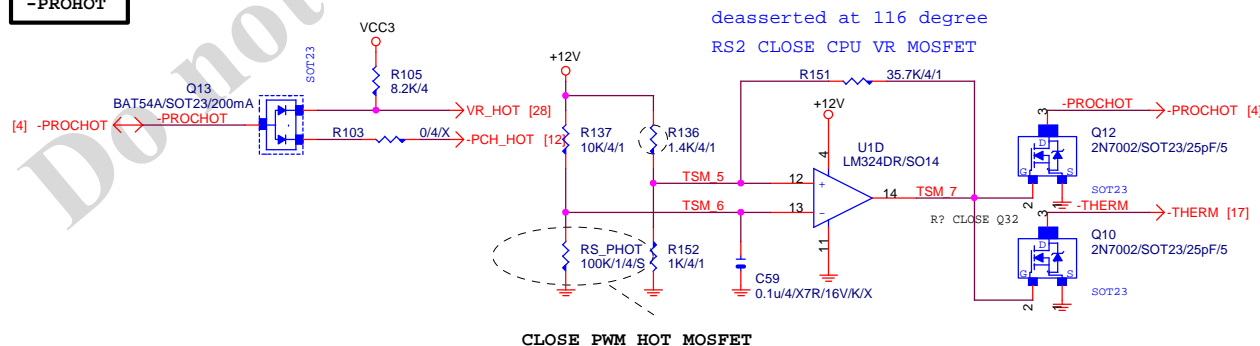
100u/OS/D/16V/66/30m



# SYS SMART FAN



# -PROHOT



Gigabyte Technology

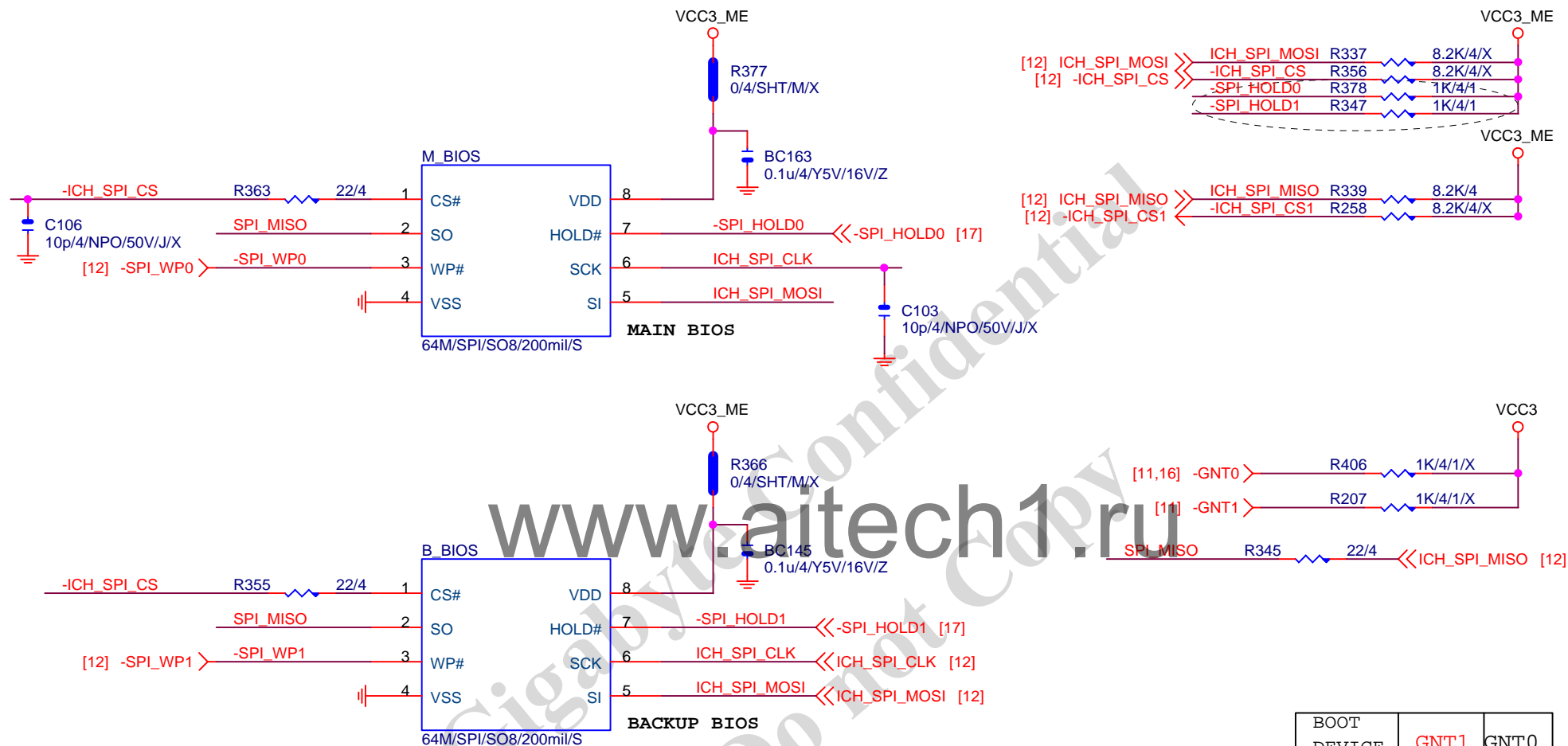
HWM,FAN CTRL,OV

GA-B75M-D3V

Rev 1.0

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# DUAL BIOS



B65使用64M BIOS

使用H67暫用32M

H61使用32M BIOS

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

1 means floating  
0 means PD 1K

**Gigabyte Technology**

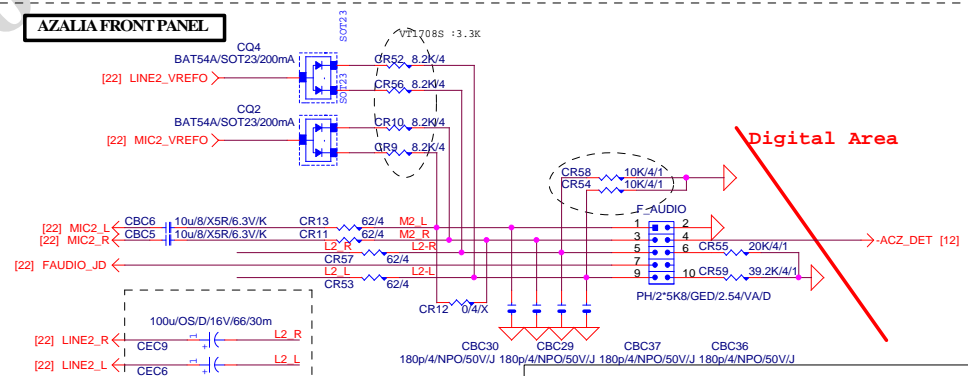
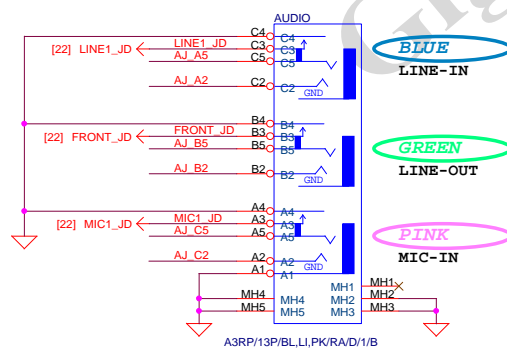
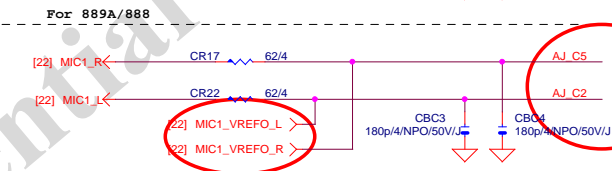
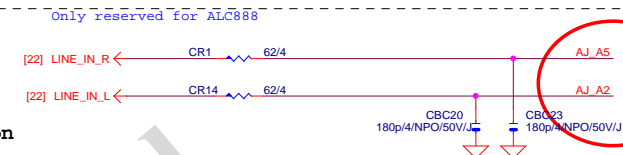
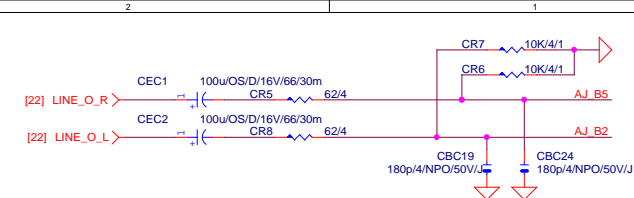
Title		
DUAL BIOS		
Size A	Document Number <b>GA-B75M-D3V</b>	Rev <b>1.0</b>
Date:	Wednesday, January 18, 2012	Sheet 20 of 32



```
CR34: 20K/4/1% @Realtek cdec
CR34: 5.1K/4/1 @VIA cdec
CBC39 100P @VIA codec
```

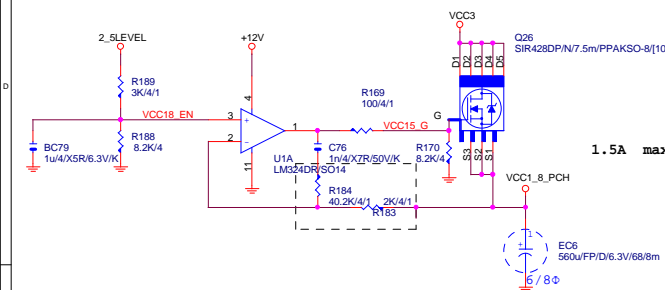




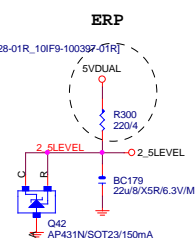




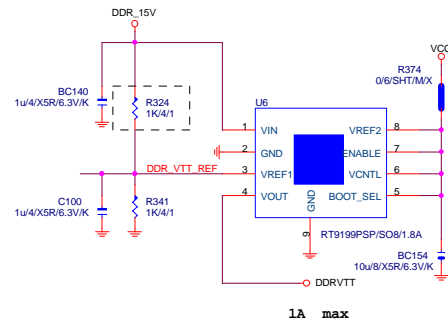
## VCC1\_8\_PCH



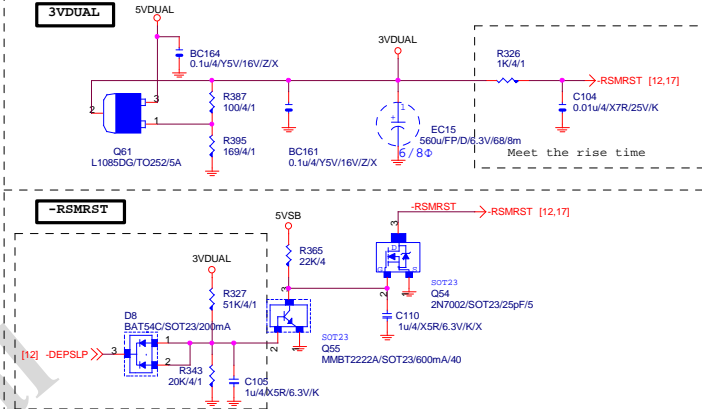
## 2\_5LEVEL



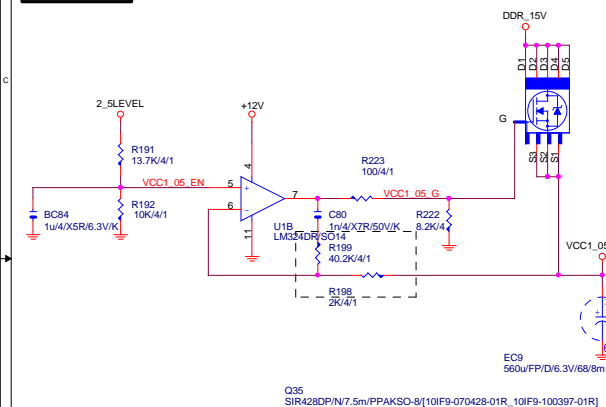
## DDRVTT



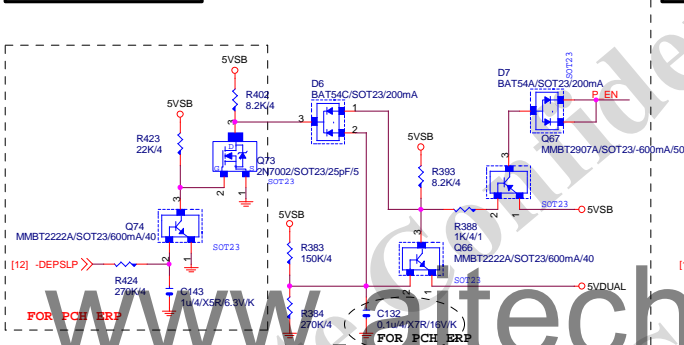
## 3VDUAL



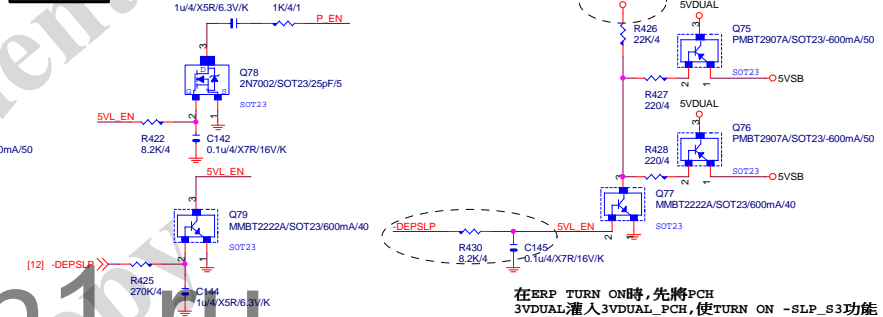
## VCC1\_05\_PCH



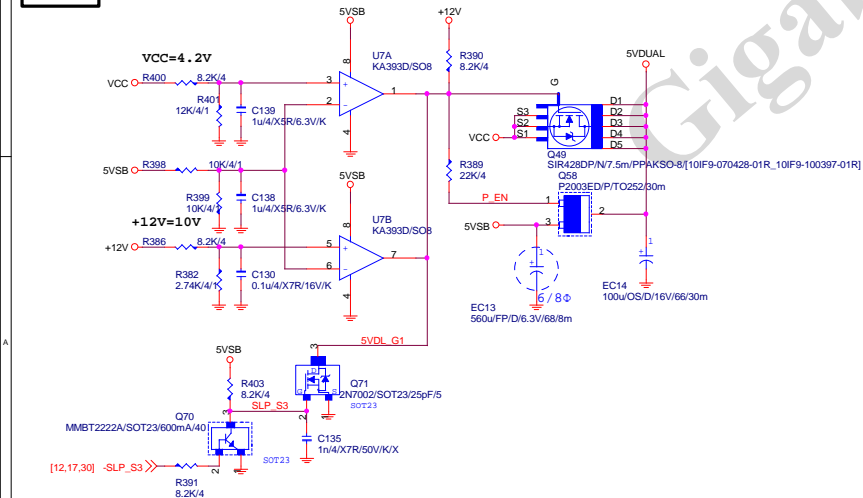
## 5VDUAL SHORT PROTECT



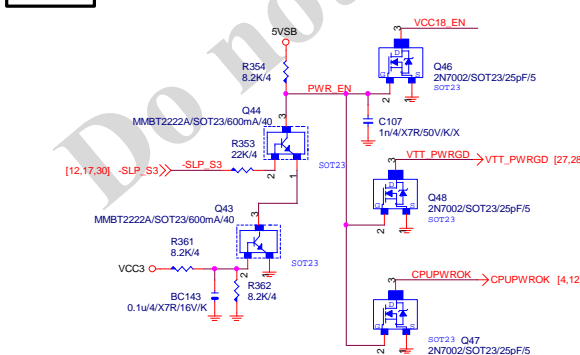
PCH ERP



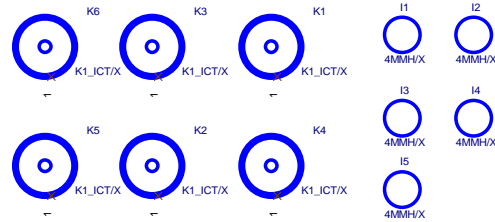
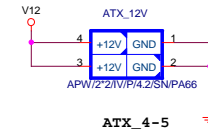
## 5VDUAL



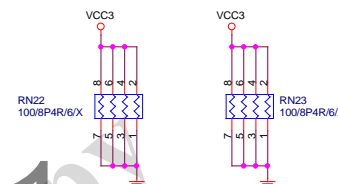
PWR SEQ



ATXX4 POWER CONNECTOR



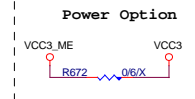
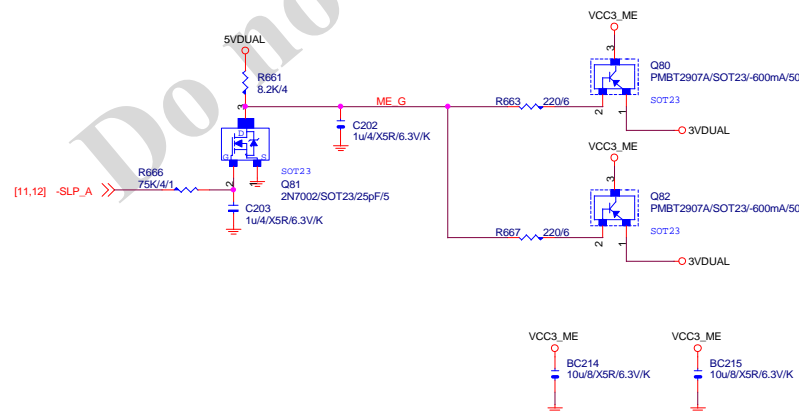
FIX PWR MINMUN LOAD



ing when

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## VCC3\_ME

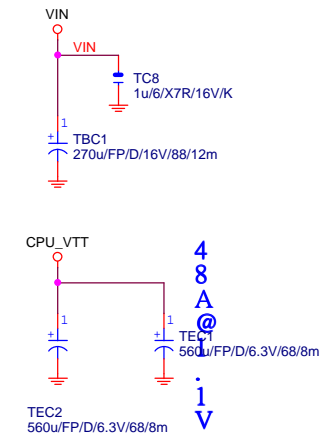
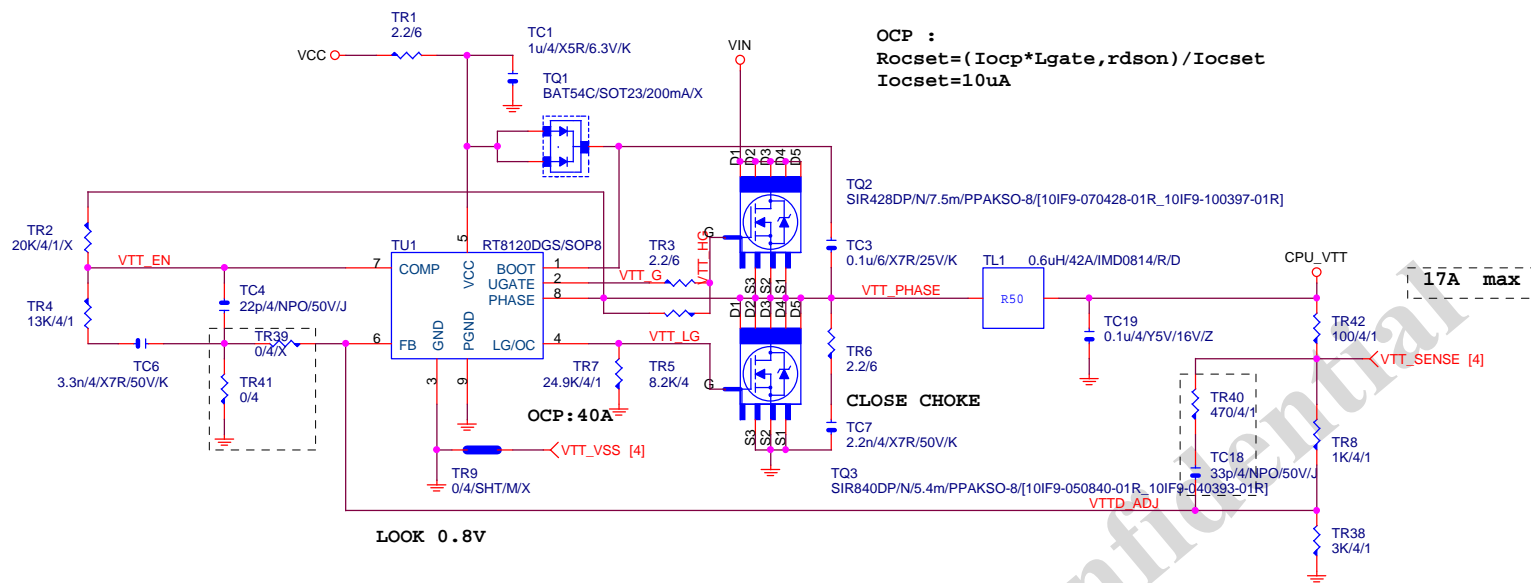


## ATX CONNECTOR

GA-B75M-D3V

1.0

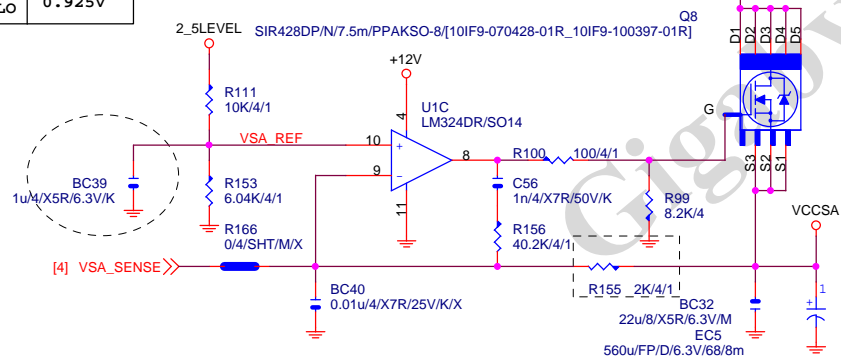
## CPU\_VTT



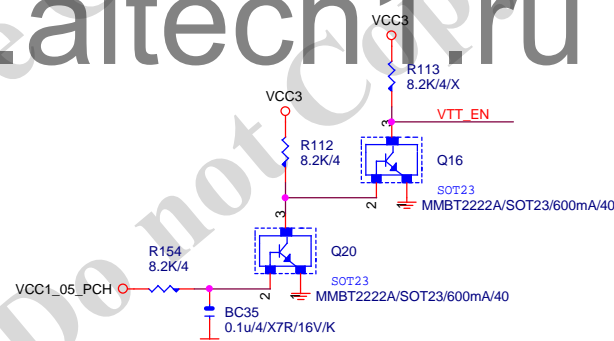
## VCCSA

PDG 0.8

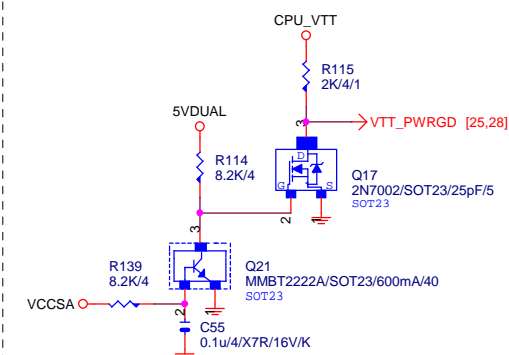
	VSA_SEL
HI	0.85V
LO	0.925V



CPU_VTT	PWR	SEQ
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0	0	2
0	0	3
0	0	4
0	0	5
0	0	6
0	0	7
0	0	8
0	0	9
0	0	10
0	0	11
0	0	12
0	0	13
0	0	14
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0	0	130
0	0	131
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0	0	137
0	0	1



## VTT\_PWRGD

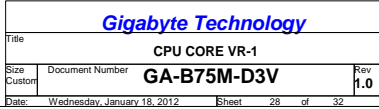
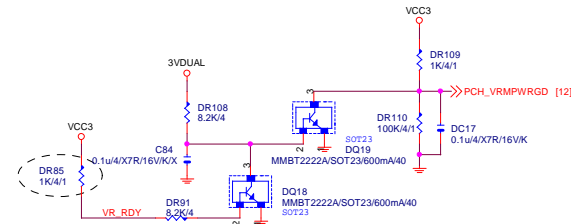
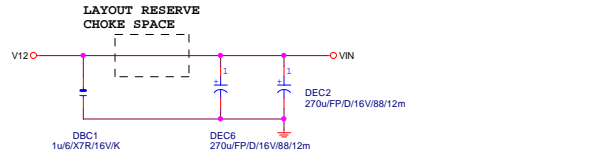


**GIGABYTE™**

Title	CPU_VTT_PWM_RT8120
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Size Custom	Document Number <b>GA-B75M-D3V</b>	Rev 1.0
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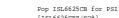
Date: Wednesday, January 18, 2012 Sheet 27 of 32



**PHASE 1**



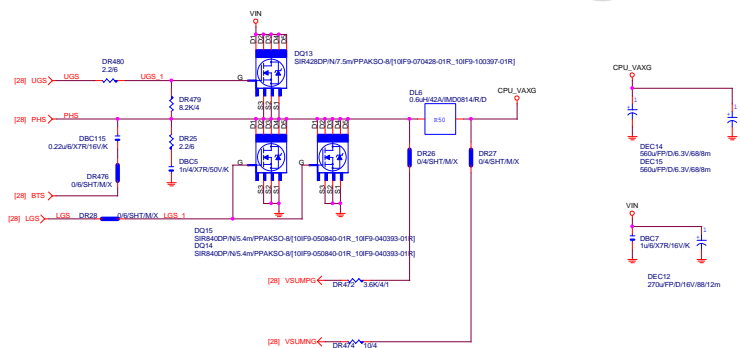
**PHASE 3**



**PHASE 2**

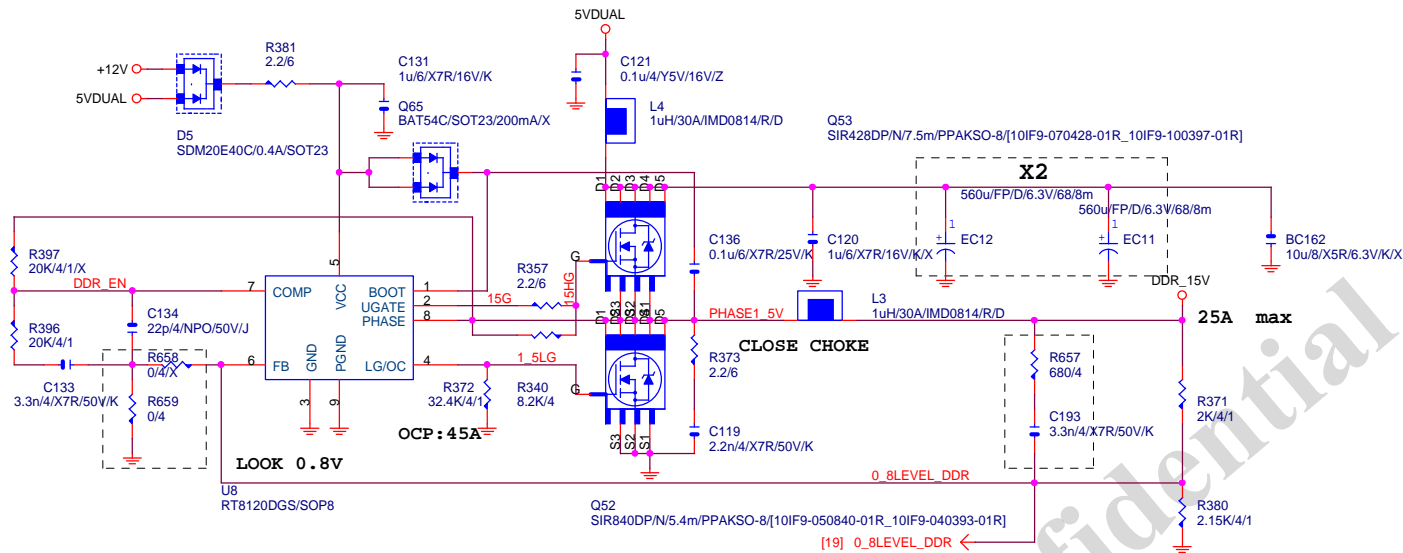


## VAXG

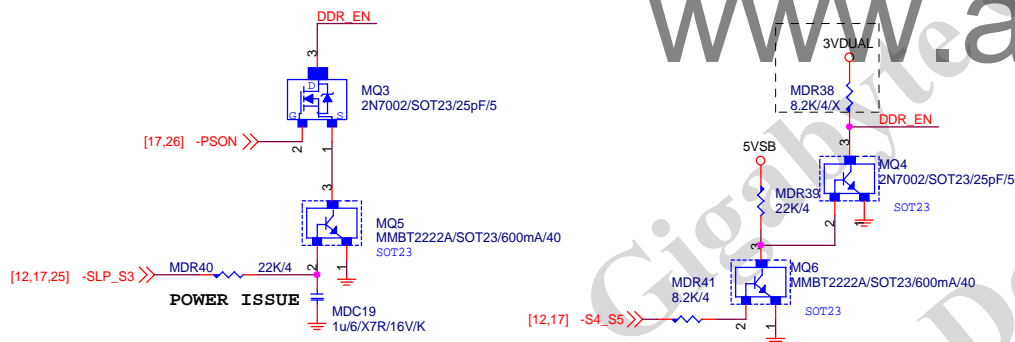




# DDR1.5V



# PWR\_SEQ



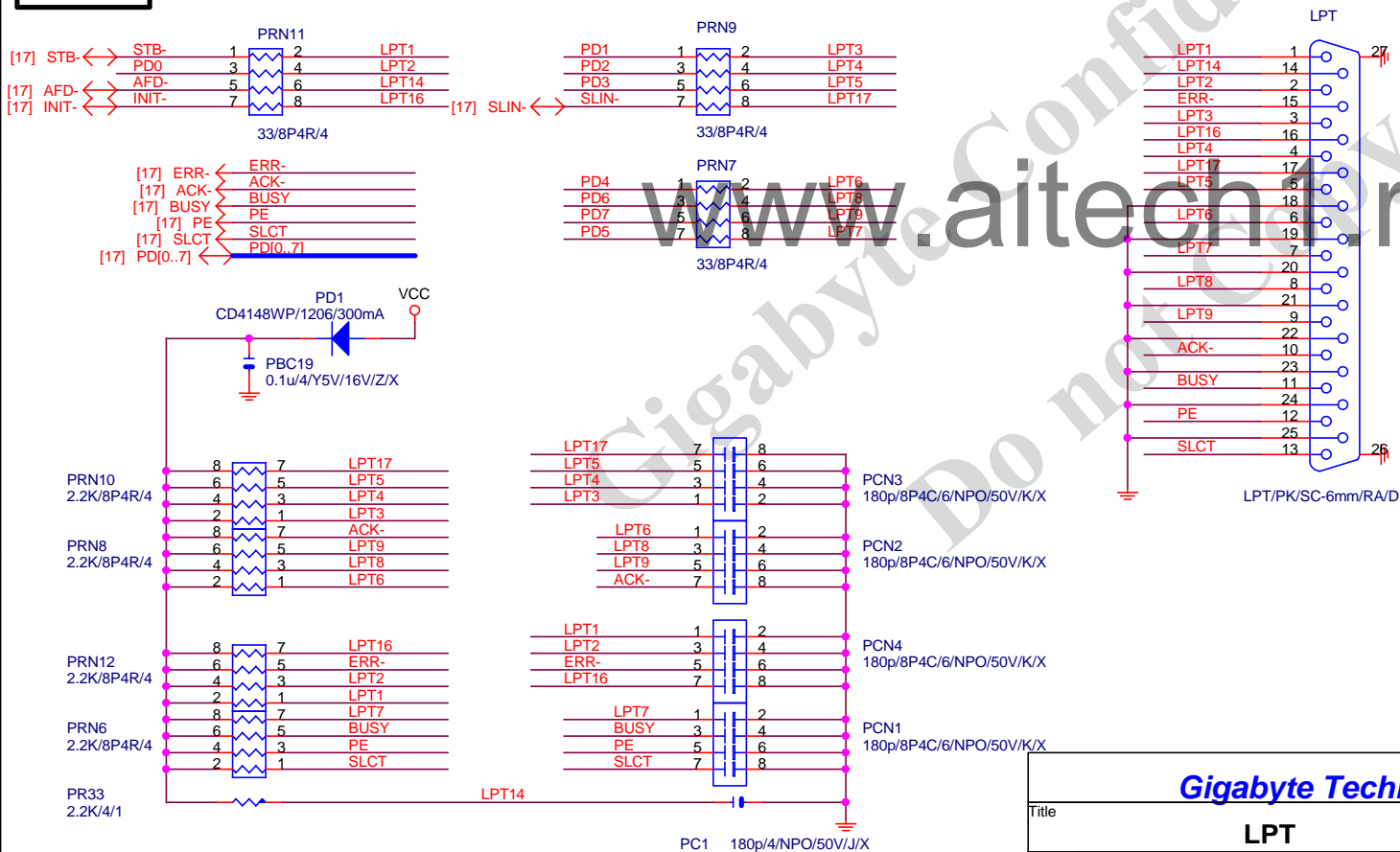
VIN=5V, VOUT=1.5V, IOU=25A, PHASE=1  
IRMS=11.45A  
560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
Coefficient=1.7(85°C), 1(105°C)  
VIN Ripple current=4.7X1.7=7.99A(85°C)  
-->故固態電容須2X7.99=15.98>11.45A

$Rocset = (Iocp * Lgate, rdson) / Iocset$   
 $Rocset = (45A * 6.7mOhm) / 10uA = 30K$   
 $Iocset = 10uA$

Gigabyte Technology

Title		
DDR POWER		
Size	Document Number	Rev
Custom	GA-B75M-D3V	1.0
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## LPT PORT



Gigabyte Technology

LPT

GA-B75M-D3V

Rev  
1.0

Title

Size  
Custom

Document Number

Date: Wednesday, January 18, 2012

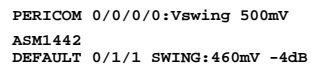
Sheet

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PI3DV411 0 0:3dB
ASM1442 1 1:3dB
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