

Model Name: GA-H77M-D3H

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 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*1 SLOT
16	PCI EXPRESS*4 SLOT
17	PCI SLOT1
18	ITE 8728 LPC IO
19	COM,KB_USB,R_USB30
20	HWM,FAN CTRL,OV,-PROCHOT
21	DUAL BIOS
22	FP,FUSB,SPK,SATALED
23	VIA VT2021
24	REAR AUDIO JACK
25	ARTHEROS AR8161/AR8151
26	DISCRETE POWER
27	ATX,CLK GEN

SHEET

TITLE

28	RT8120_CPU_VTT
29	VCORE ISL95836_1
30	VCORE ISL95836_2
31	RT8120_DDR POWER
32	LPT,TPM
33	HDMI/DVI
34	IT8892E

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Title Cover Sheet		
Size Custom	Document Number GA-H77M-D3H	Rev 1.0
Date: Monday, January 09, 2012	Sheet 1	of 34

C

B

A

D

C

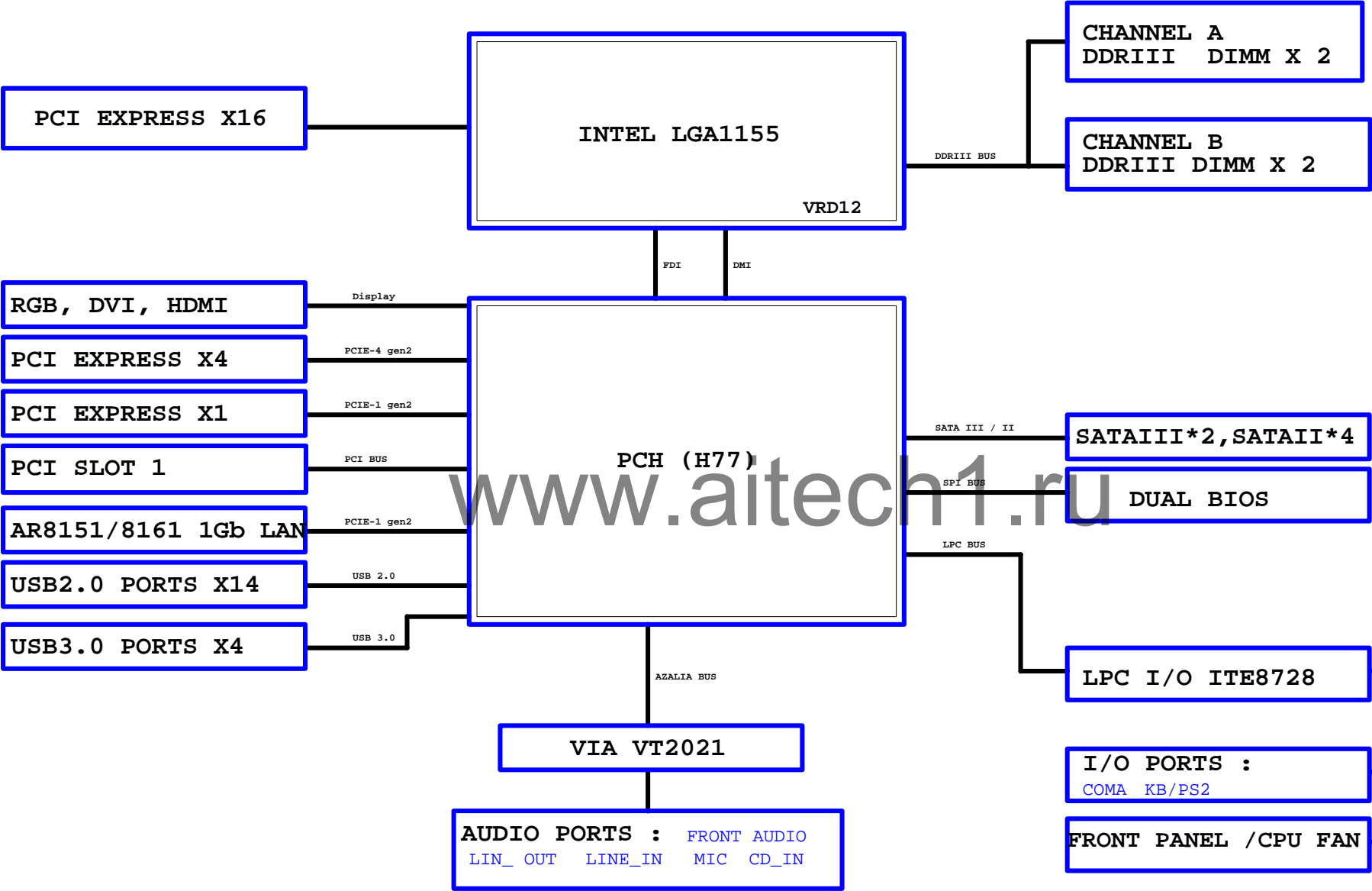
B

A

Rev
1.0

Sheet 2 of 34

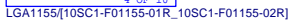
BLOCK DIAGRAM



LGA1155E



LGA1155D



LGA1155C



R218 1K/4/1 R215 200/4/1 1.1V分壓



CPU_VTT

R204 1K/4/1 -THRMTRIP
R120 1K/4/1 -PROCHOT
CPUPWROK
R146 1K/4/1

51/8P4R/4

CPU_VTT

1 2 TDI
3 4 TDO
5 6 TMS
7 8 -HPRDY

R165 51/4/1 TCK
R164 51/4/1 -TRST

SM_VREF

CPU_VTT

R116 90.9/4/1/X VIDSLO
R117 100/4/1 VIDSOL
R118 100/4/1 -VIDAL

BC180 1u4/X5R/6.3V/K

DDR_15V

R193 100/4/1

SM_VREF

R190 100/4/1

C79 0.1u4/X7R/16V/K

Title			
CPU LGA1155-A			
Size	Document Number		Rev
Custom	GA-H77M-D3H		1.0
Date:	Monday, January 09, 2012	Sheet	4 of 34

LGA1155A

MAAA0	AV27	SA_MA[0]
MAAA1	AY24	SA_MA[1]
MAAA2	AW24	SA_MA[2]
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	AU28	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	AW29	SA_WE#
[7]	-SCASA	AV30	SA_CAS#
[7]	-SRASA	AU28	SA_RAS#

[7]	SBA00	SBA01	SA_BS[0]
[7]	SBA01	AW28	SA_BS[1]
[7]	SBA02	AV20	SA_BS[2]

[7]	-CSA0	AU29	SA_CS#
[7]	-CSA1	AV20	SA_CS#
[7]	-CSA2	AW30	SA_CS#
[7]	-CSA3	AU33	SA_CS#

[7]	CKEA0	AV19	SA_CKE[0]
[7]	CKEA1	AT19	SA_CKE[1]
[7]	CKEA2	AU18	SA_CKE[2]
[7]	CKEA3	AV18	SA_CKE[3]

MODT_A0	AV31	SA_ODT[0]
MODT_A1	AU32	SA_ODT[1]
MODT_A2	AU30	SA_ODT[2]
MODT_A3	AW33	SA_ODT[3]

[7]	DCLKA0	AY25	SA_CK[0]
[7]	-DCLKA0	AU24	SA_CK#
[7]	DCLKA1	AU24	SA_CK[1]
[7]	-DCLKA1	AU25	SA_CK#
[7]	DCLKA2	AW27	SA_CK[2]
[7]	-DCLKA2	AY27	SA_CK#
[7]	DCLKA3	AW26	SA_CK[3]
[7]	-DCLKA3	AW26	SA_CK#

[7,8]	-DDR3_RST	AW18	SM_DRAMRST#
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AV13	SA_DQS[8]
AV12	SA_DQS#

AU12	SA_ECC_CB[0]
AU14	SA_ECC_CB[1]
AV13	SA_ECC_CB[2]
AV13	SA_ECC_CB[3]
AU13	SA_ECC_CB[4]
AU11	SA_ECC_CB[5]
AY12	SA_ECC_CB[6]
AV12	SA_ECC_CB[7]

DDR_0

1 OF 10

LGA1155(10SC1-F01155-01R_10SC1-F01155-02R)

LGA1155B

MAAB0	AK24	SB_MA[0]
MAAB1	AM20	SB_MA[1]
MAAB2	AM19	SB_MA[2]
MAAB3	AK18	SB_MA[3]
MAAB4	AP19	SB_MA[4]
MAAB5	AP18	SB_MA[5]
MAAB6	AM18	SB_MA[6]
MAAB7	AL18	SB_MA[7]
MAAB8	AM18	SB_MA[8]
MAAB9	AY17	SB_MA[9]
MAAB10	AV23	SB_MA[10]
MAAB11	AU17	SB_MA[11]
MAAB12	AT18	SB_MA[12]
MAAB13	AR26	SB_MA[13]
MAAB14	AY16	SB_MA[14]
MAAB15	AV16	SB_MA[15]

[8]	-SWEB	AR25	SB_WE#
[8]	-SCASB	AK25	SB_CAS#
[8]	-SRASB	AP24	SB_RAS#

[8]	SBA00	SBA01	SB_BS[0]
[8]	SBA01	AM24	SB_BS[1]
[8]	SBA02	AV17	SB_BS[2]

[8]	-CSB0	AN25	SB_CS#
[8]	-CSB1	AN26	SB_CS#
[8]	-CSB2	AL25	SB_CS#
[8]	-CSB3	AT26	SB_CS#

[8]	CKEB0	AU16	SB_CKE[0]
[8]	CKEB1	AV15	SB_CKE[1]
[8]	CKEB2	AW15	SB_CKE[2]
[8]	CKEB3	AK26	SB_CKE[3]

MODT_B0	AL26	SB_ODT[0]
MODT_B1	AP26	SB_ODT[1]
MODT_B2	AN26	SB_ODT[2]
MODT_B3	AK26	SB_ODT[3]

[8]	DCLKB0	AL21	SB_CK[0]
[8]	-DCLKB0	AL22	SB_CK#
[8]	DCLKB1	AL20	SB_CK[1]
[8]	-DCLKB1	AK20	SB_CK#
[8]	DCLKB2	AL23	SB_CK[2]
[8]	-DCLKB2	AP22	SB_CK#
[8]	DCLKB3	AK26	SB_CK[3]
[8]	-DCLKB3	AN21	SB_CK#

VREF_DQB	AH1	FC_AH1
VREF_DQA	AH4	FC_AH4

AU35	MDA32
AW37	MDA33
AU39	MDA34
SA_DQ[32]	MDA35
SA_DQ[33]	MDA36
SA_DQ[34]	MDA37
SA_DQ[35]	MDA38
SA_DQ[36]	MDA39

AP38	DQSA5
AP39	-DQSA5
AR40	MDA40
AR37	MDA41
AN38	MDA42
AN37	MDA43
AR39	MDA44
AR38	MDA45
AN39	MDA46
AN40	MDA47

AK38	DQSA6
AK39	-DQSA6
AL40	MDA48
AL37	MDA49
AJ38	MDA50
AJ37	MDA51
AL39	MDA52
AL38	MDA53
AJ39	MDA54
AL40	MDA55

AF38	DQSA7
AF39	-DQSA7
AG40	MDA56
AG37	MDA57
AE38	MDA58
AE37	MDA59
AG39	MDA60
AG38	MDA61
AE39	MDA62
AE40	MDA63

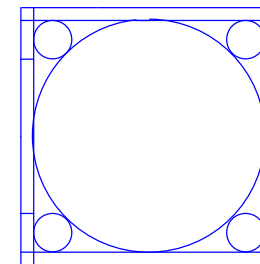
AG40	MDA56
AG37	MDA57
AE38	MDA58
AE37	MDA59
AG39	MDA60
AG38	MDA61
AE39	MDA62
AE40	MDA63

AG40	MDA56
AG37	MDA57
AE38	MDA58
AE37	MDA59
AG39	MDA60
AG38	MDA61
AE39	MDA62
AE40	MDA63

DDR_1

2 OF 10

LGA1155(10SC1-F01155-01R_10SC1-F01155-02R)

CR
CPU RETENTION/X

LGA1155_P



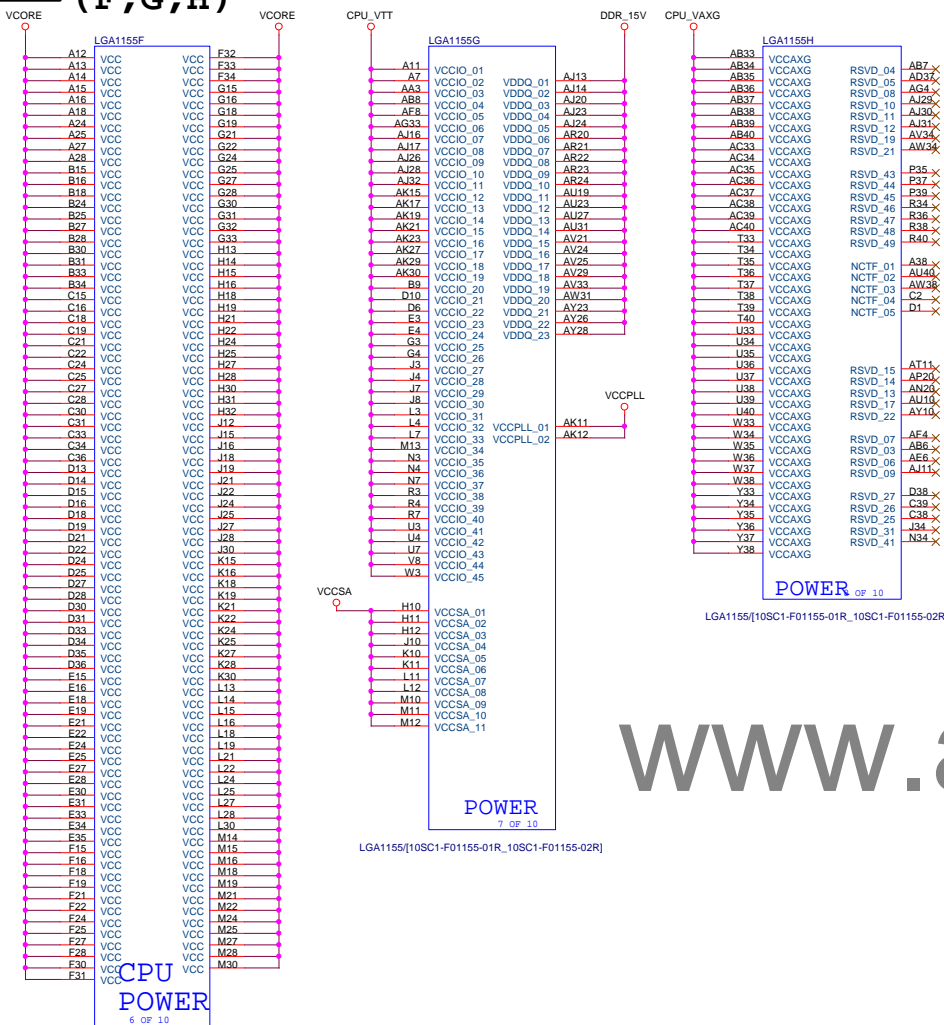
ILM_BP/1156/CSP/ILM_BP/1156/CSP(12KRC-0F0001-04R_12KRC-0F0001-05R)

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Title		
CPU LGA1156-B		
Size	Document Number	Rev
Custom	GA-H77M-D3H	1.0
Date:	Monday, January 09, 2012	Sheet 5 of 34

LGA1155

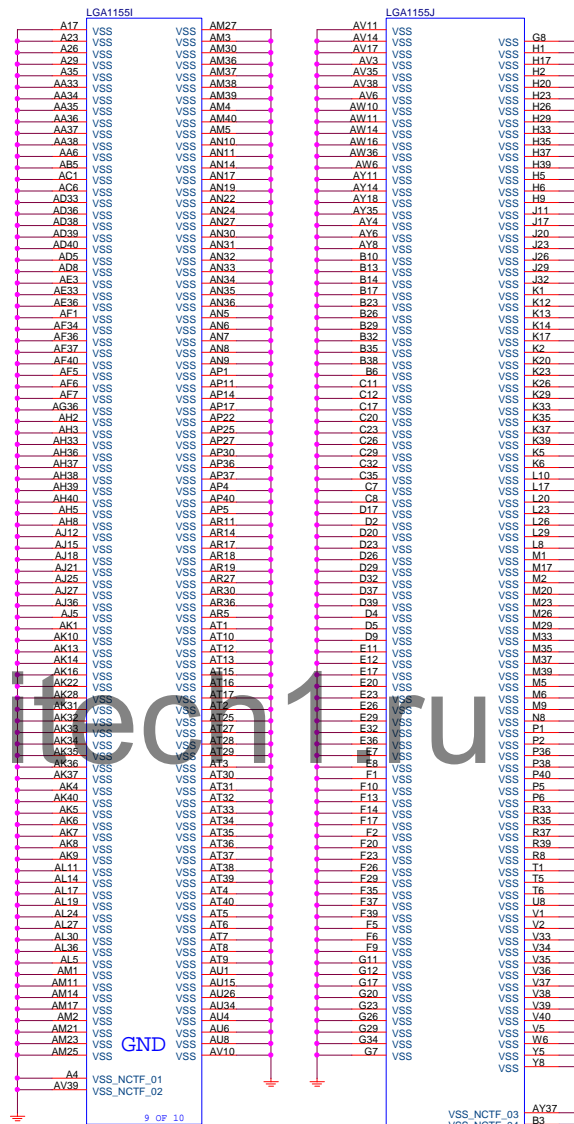
(F,G,H)



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

LGA1155

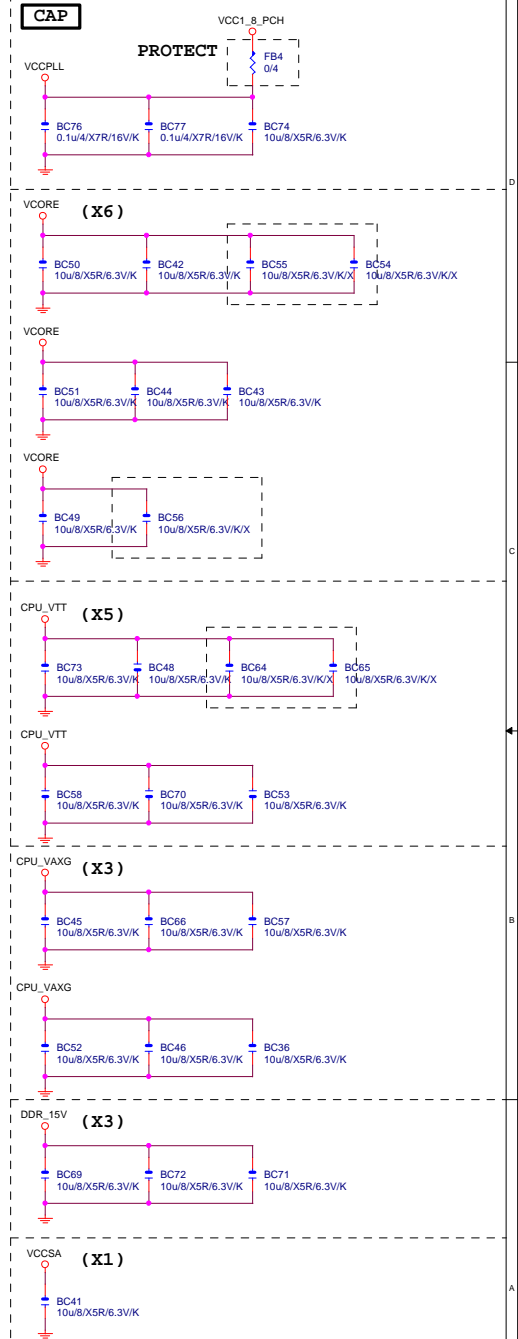
(I,J)



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

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

CAP



Gigabyte Technology

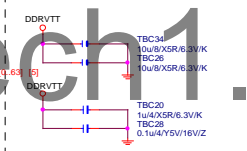
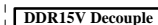
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Size	Document Number	GA-H77M-D3H	
Date:	Monday, January 09, 2012	Sheet	6 of 34

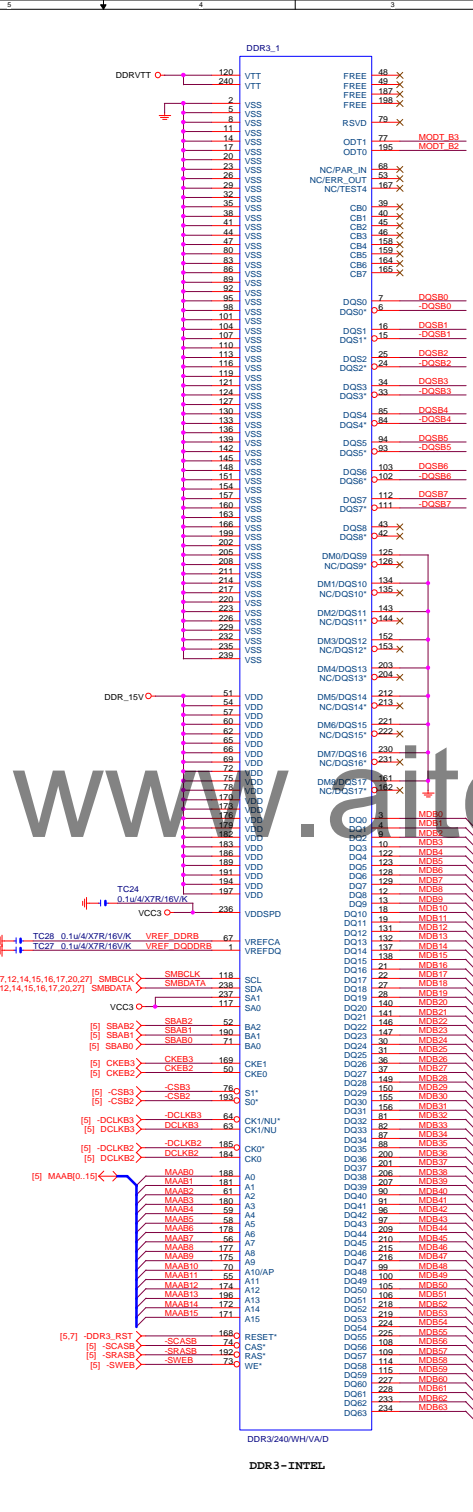
Rev 1.0

(A)



7





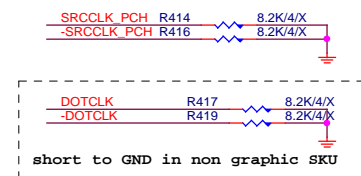
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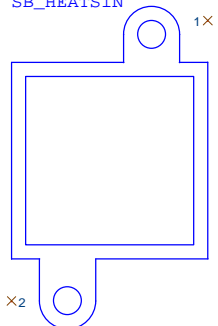
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PCH CLK PD



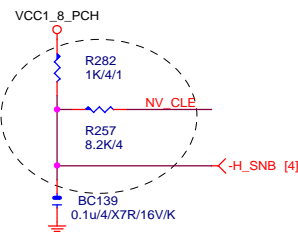
PCH H/S



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NVRAM PU



USB TABLE

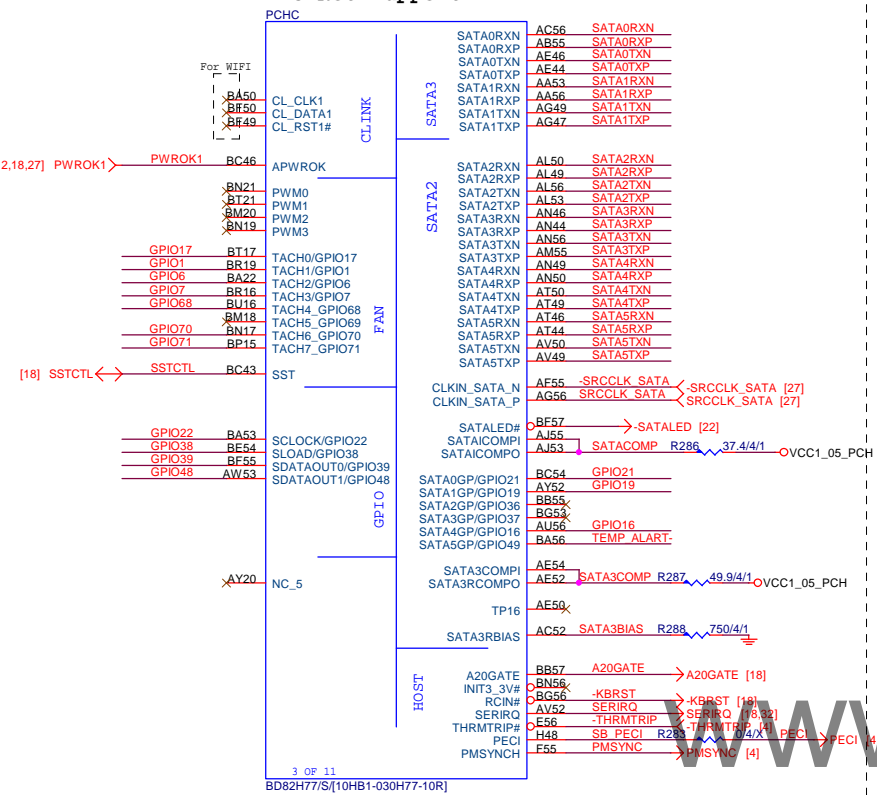
USB OC#	Configure
OC0#	USB0,1(F_USB30)
OC1#	USB2,3(USB30_20)
OC2#	USB4,5(F_USB1)
OC3#	USB6,7(B75:N/A)
OC4#	USB8,9(F_USB2)
OC5#	USB10,11(USB_LAN)
OC6#	USB12,13(KB_USB)
OC7#	N/A

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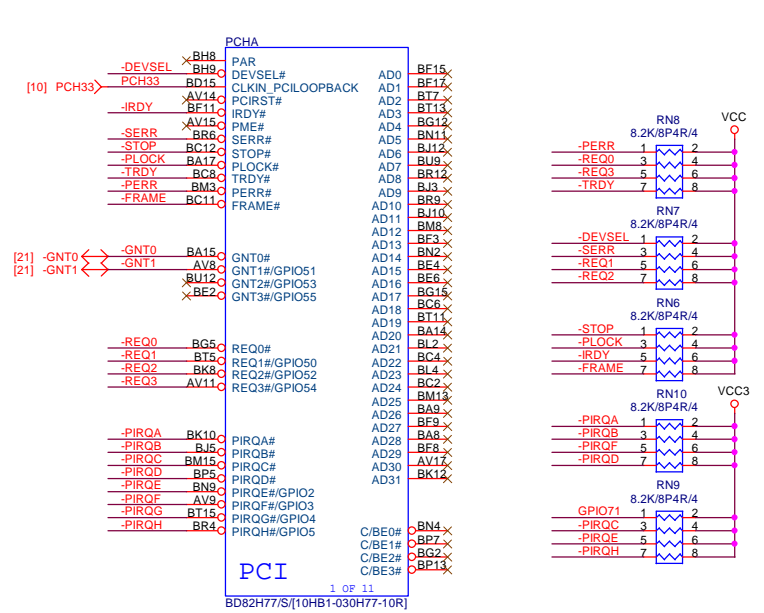
			
Title: PCH FDI,DMI,USB ,PCIE,NVRAM			
Size: Custom	Document Number: GA-H77M-D3H		Rev: 1.0
Date: Monday, January 09, 2012	Sheet	9	of 34

PCH (C)

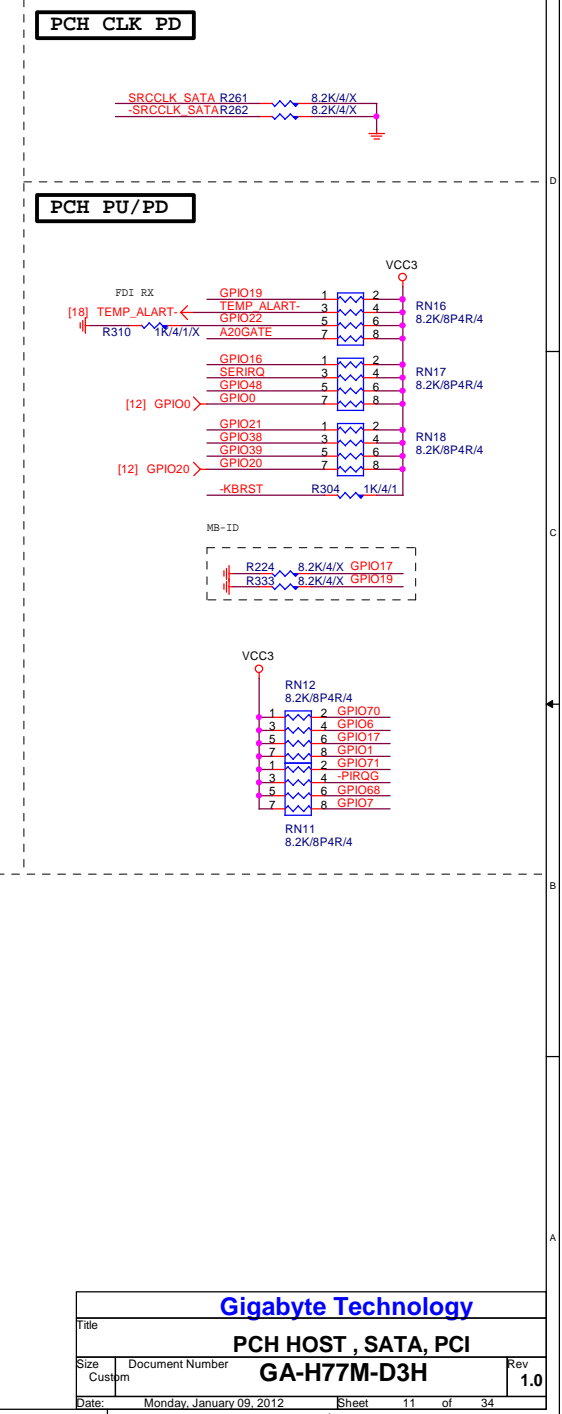
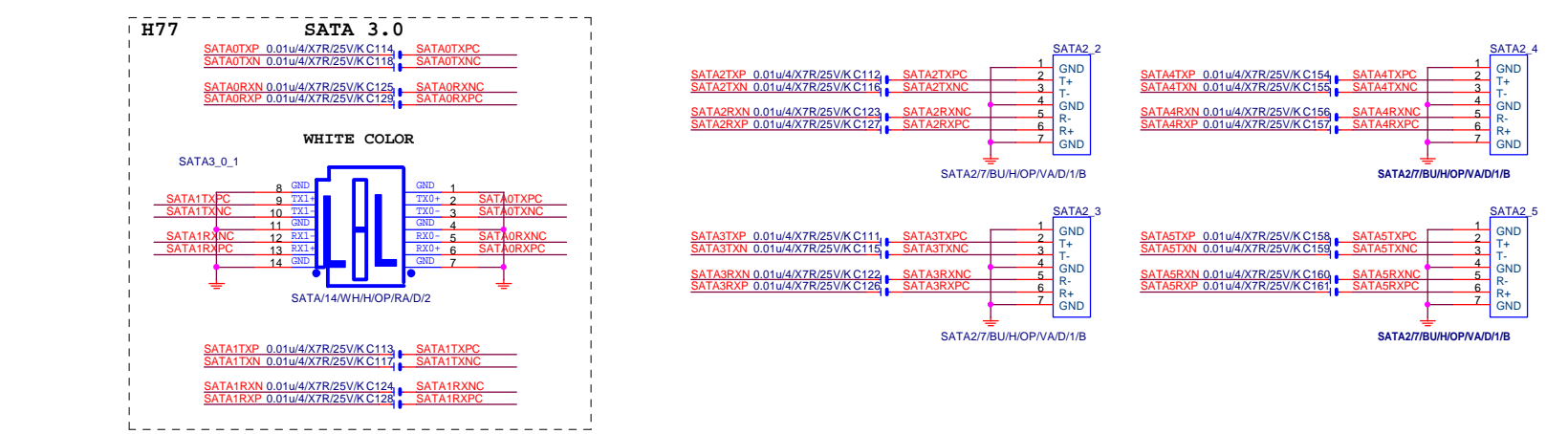
B75 SATA3.0 ONLY PORT0
B75 Not Support RAID



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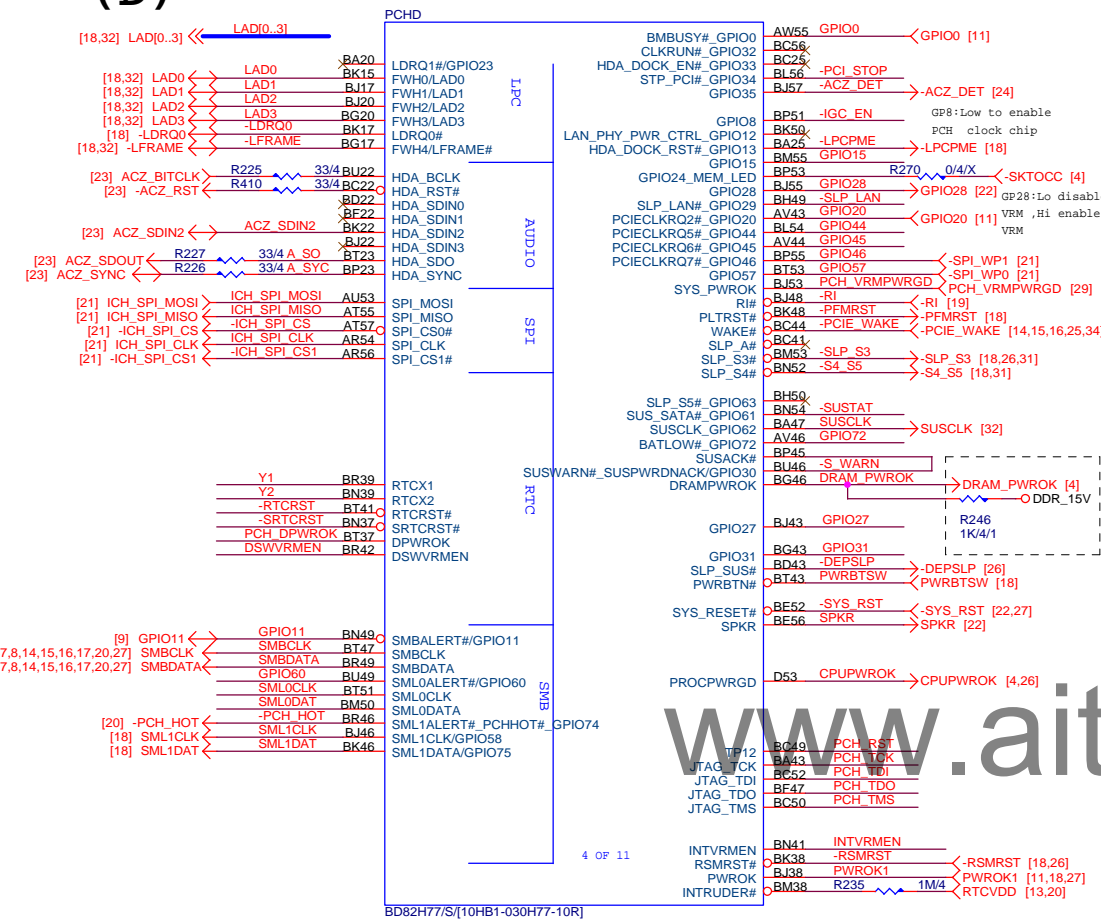


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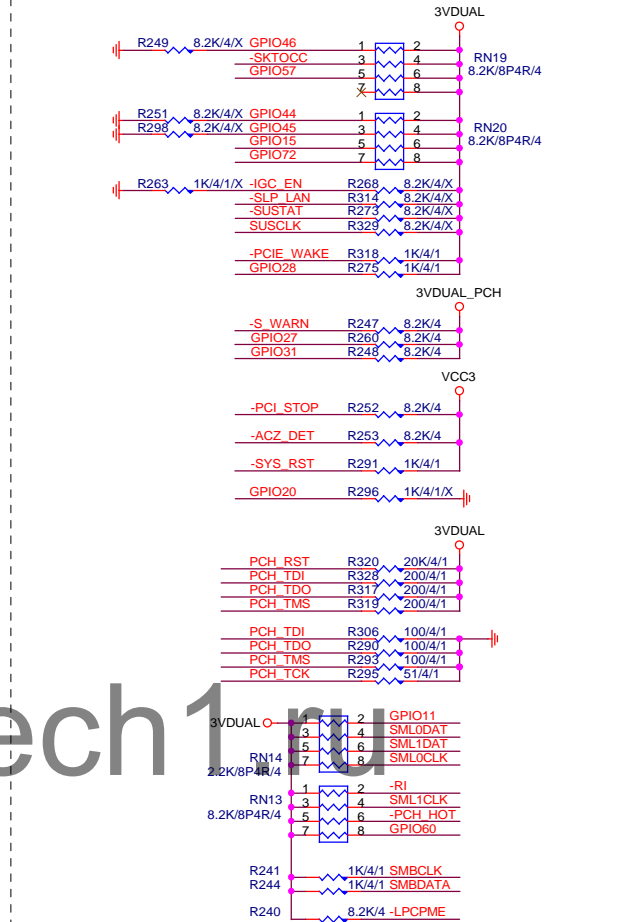


PCH

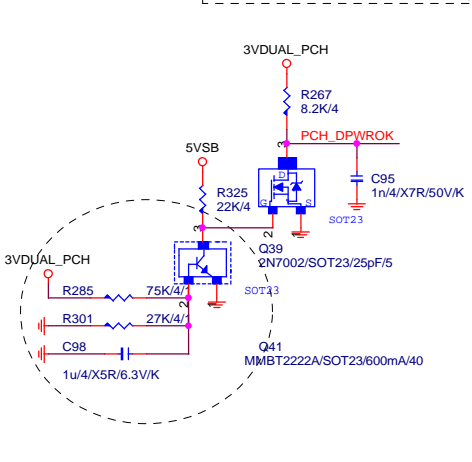
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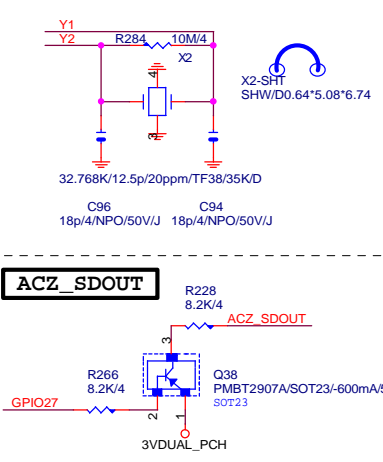
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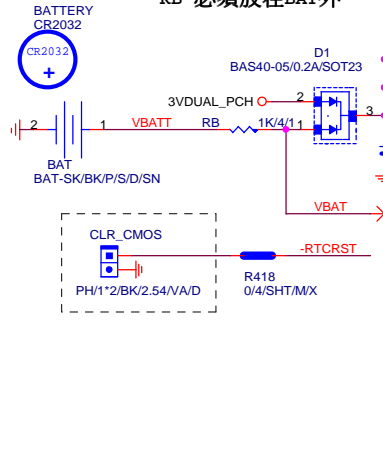
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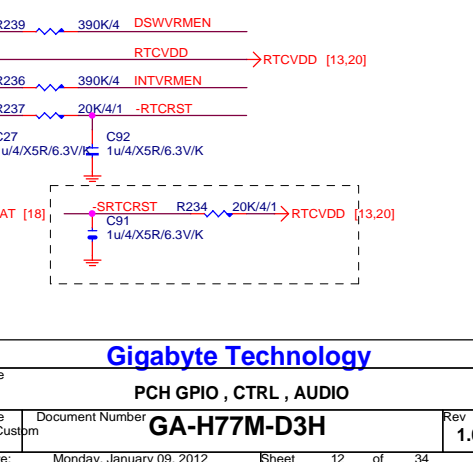
32.768KHZ



CLR_CMOS BATTERY-DUAL-4



ACZ_SDOUT



Gigabyte Technology		
Title PCH GPIO , CTRL , AUDIO		
Size	Document Number	Rev
Custpm	GA-H77M-D3H	1.0
Date:	Monday, January 09, 2012	Sheet 12 of 34

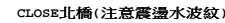
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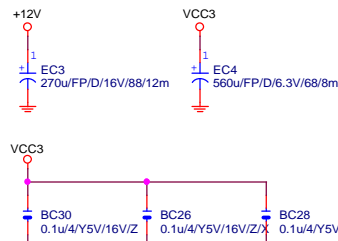
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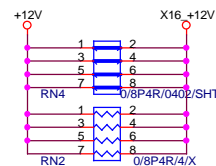
SHT PWR



PCIEX16 CAP



PCIEX16 PROTECT SHT

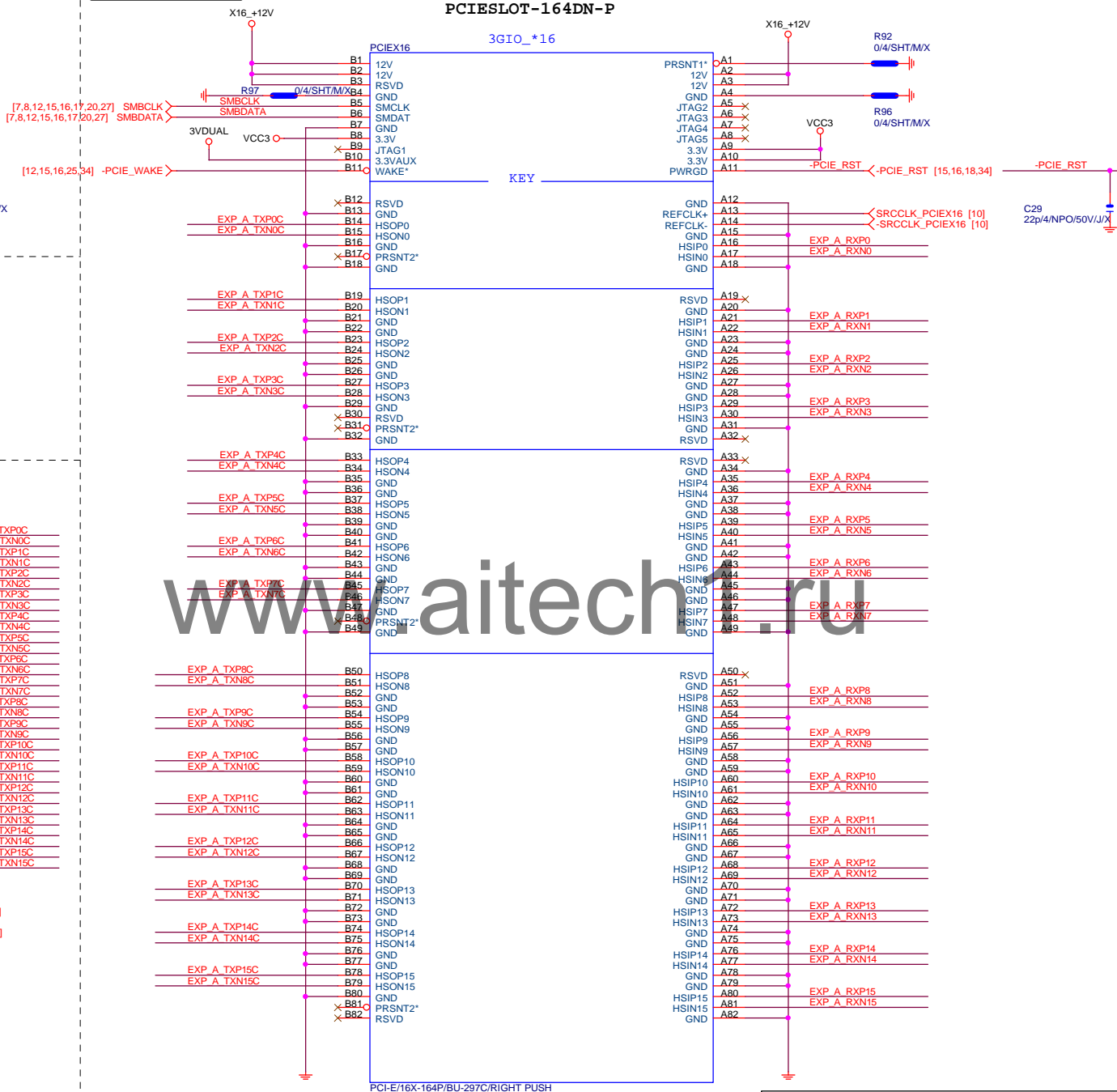


PCIEX16 AC CAP

EXP A TXP0	C32	0.22u/4/X5R/6.3V/K	EXP A TXP0C
EXP A TXN0	C30	0.22u/4/X5R/6.3V/K	EXP A TXN0C
EXP A TXP1	C35	0.22u/4/X5R/6.3V/K	EXP A TXP1C
EXP A TXN1	C37	0.22u/4/X5R/6.3V/K	EXP A TXN1C
EXP A TXP2	C39	0.22u/4/X5R/6.3V/K	EXP A TXP2C
EXP A TXN2	C41	0.22u/4/X5R/6.3V/K	EXP A TXN2C
EXP A TXP3	C43	0.22u/4/X5R/6.3V/K	EXP A TXP3C
EXP A TXN3	C45	0.22u/4/X5R/6.3V/K	EXP A TXN3C
EXP A TXP4	C46	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	C50	0.22u/4/X5R/6.3V/K	EXP A TXP5C
EXP A TXN5	C51	0.22u/4/X5R/6.3V/K	EXP A TXN5C
EXP A TXP6	C52	0.22u/4/X5R/6.3V/K	EXP A TXP6C
EXP A TXN6	C54	0.22u/4/X5R/6.3V/K	EXP A TXN6C
EXP A TXP7	C57	0.22u/4/X5R/6.3V/K	EXP A TXP7C
EXP A TXN7	C58	0.22u/4/X5R/6.3V/K	EXP A TXN7C
EXP A TXP8	C60	0.22u/4/X5R/6.3V/K	EXP A TXP8C
EXP A TXN8	C61	0.22u/4/X5R/6.3V/K	EXP A TXN8C
EXP A TXP9	C62	0.22u/4/X5R/6.3V/K	EXP A TXP9C
EXP A TXN9	C63	0.22u/4/X5R/6.3V/K	EXP A TXN9C
EXP A TXP10	C64	0.22u/4/X5R/6.3V/K	EXP A TXP10C
EXP A TXN10	C65	0.22u/4/X5R/6.3V/K	EXP A TXN10C
EXP A TXP11	C66	0.22u/4/X5R/6.3V/K	EXP A TXP11C
EXP A TXN11	C67	0.22u/4/X5R/6.3V/K	EXP A TXN11C
EXP A TXP12	C68	0.22u/4/X5R/6.3V/K	EXP A TXP12C
EXP A TXN12	C70	0.22u/4/X5R/6.3V/K	EXP A TXN12C
EXP A TXP13	C72	0.22u/4/X5R/6.3V/K	EXP A TXP13C
EXP A TXN13	C73	0.22u/4/X5R/6.3V/K	EXP A TXN13C
EXP A TXP14	C74	0.22u/4/X5R/6.3V/K	EXP A TXP14C
EXP A TXN14	C75	0.22u/4/X5R/6.3V/K	EXP A TXN14C
EXP A TXP15	C77	0.22u/4/X5R/6.3V/K	EXP A TXP15C
EXP A TXN15	C78	0.22u/4/X5R/6.3V/K	EXP A TXN15C

EXP A RXP0.15] >> EXP_A_RXP0.15] [4]
EXP A RXN0.15] >> EXP_A_RXN0.15] [4]
EXP A TXP0.15] >> EXP_A_TXP0.15] [4]
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PCIEX16 SLOT



Gigabyte Technology

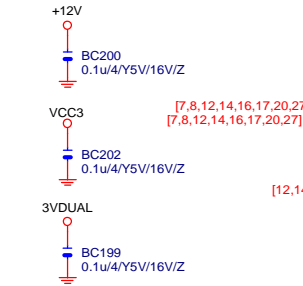
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Size	Document Number	Rev		
Custom	GA-H77M-D3H	1.0		
Date:	Monday, January 09, 2012	Sheet	14	of 34

PCIEX4 CAP

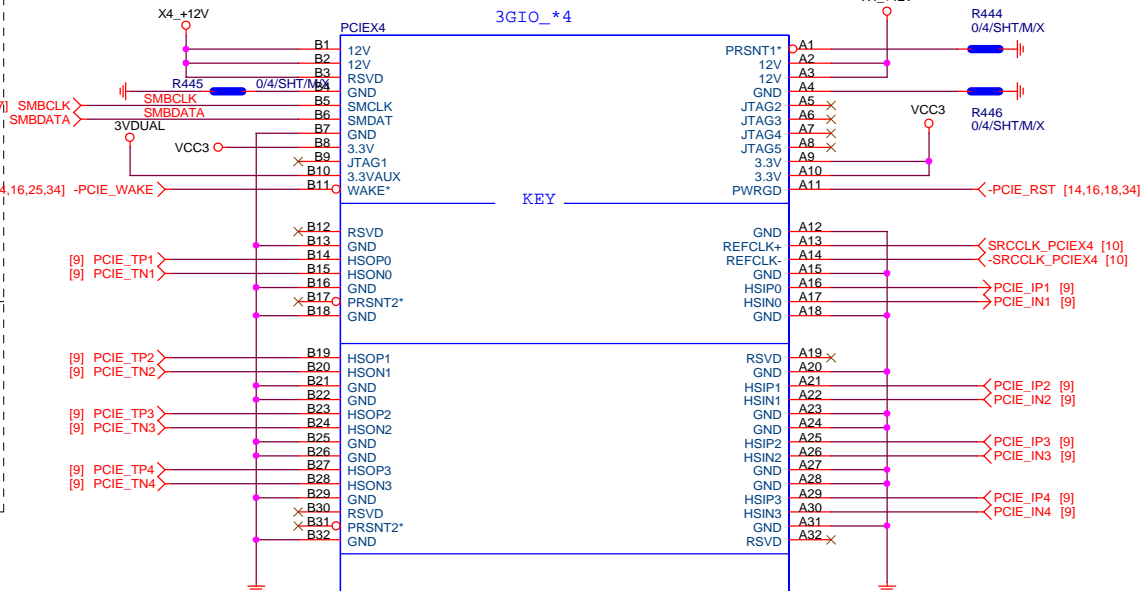
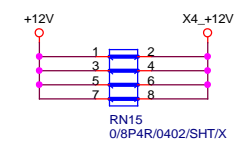
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PCIESLOT-64D-98D-P

3GIO_*4

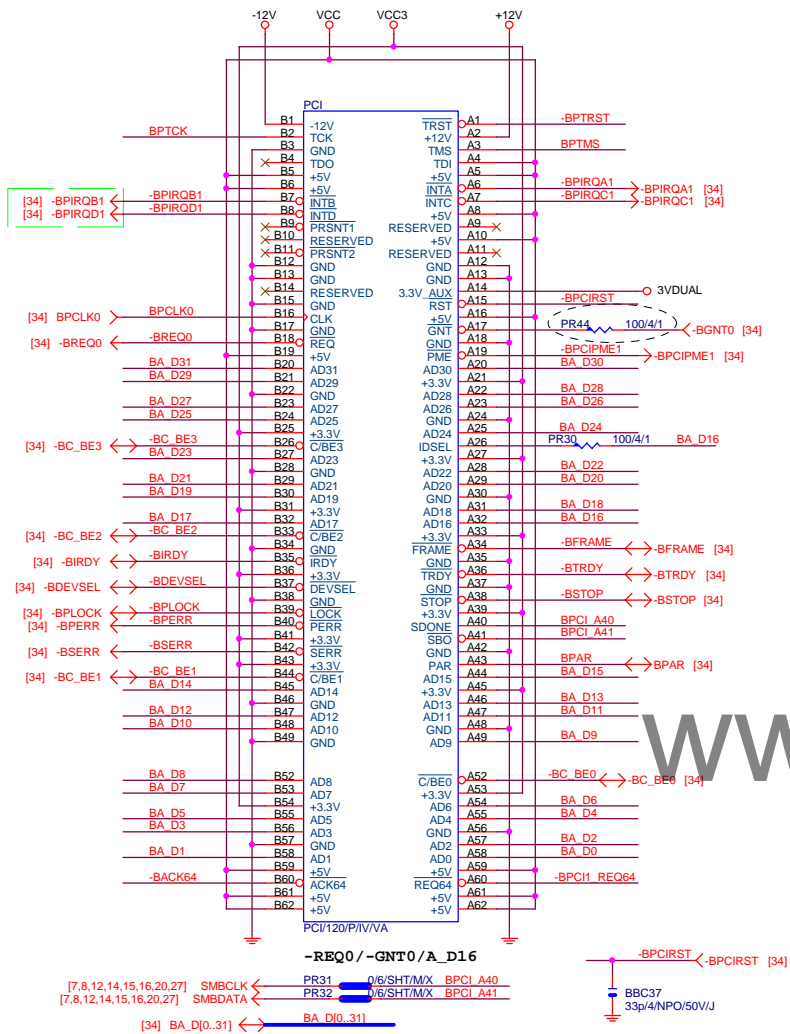


PCIEX16 PROTECT SHT

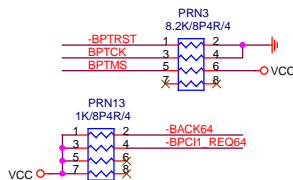


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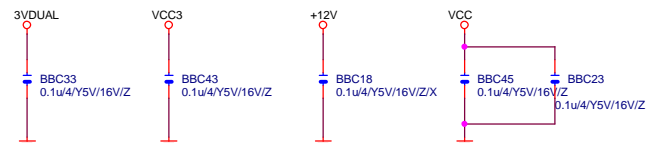
PCI SLOT



PCI	PU
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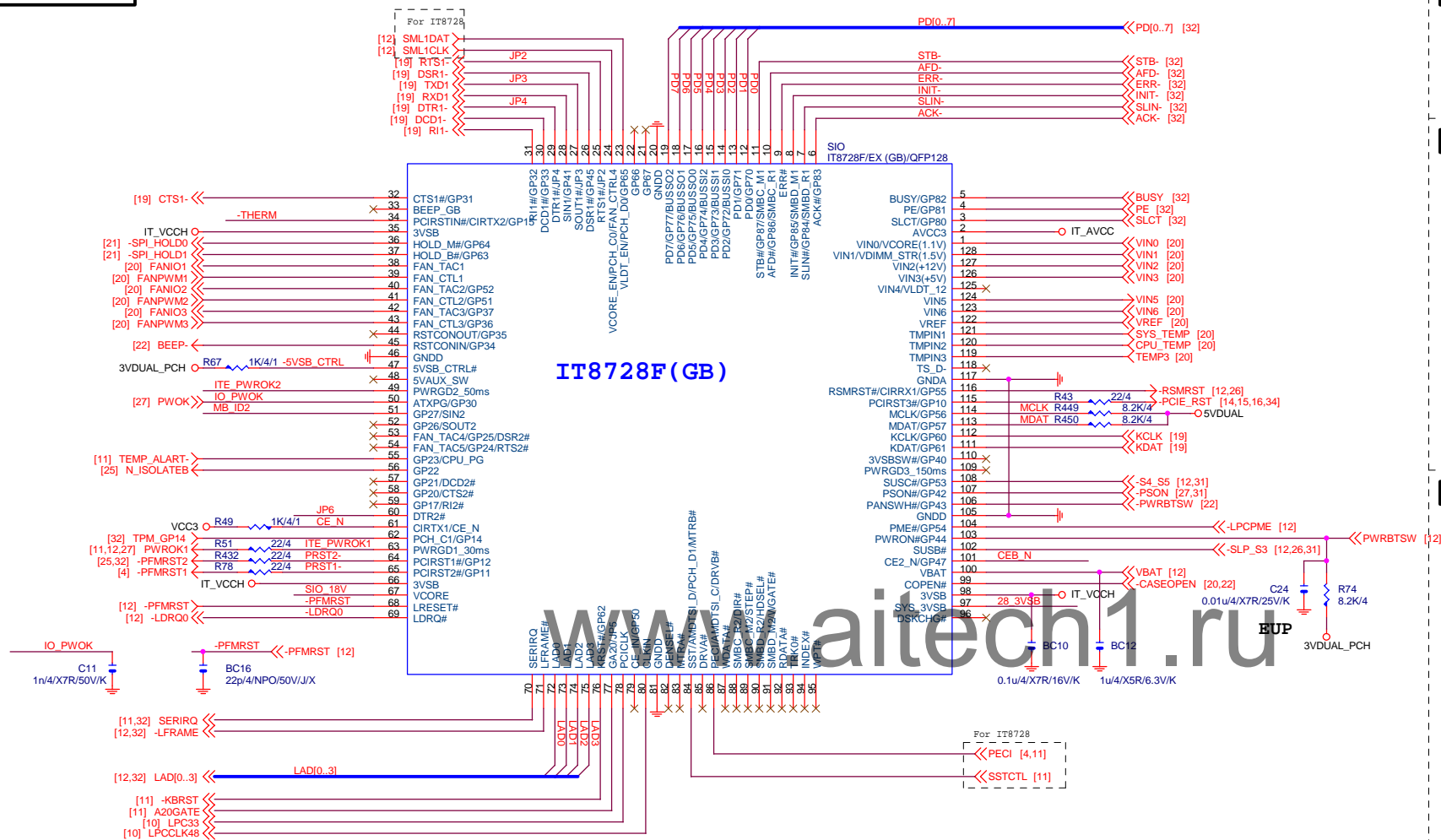
PCI CAP



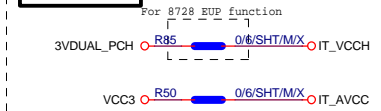
Gigabyte Technology

Title			
PCI SLOT 1&2			
Size Custom	Document Number	GA-H77M-D3H	Rev 1.0
Date:	Monday, January 09, 2012	Sheet 17 of 34	

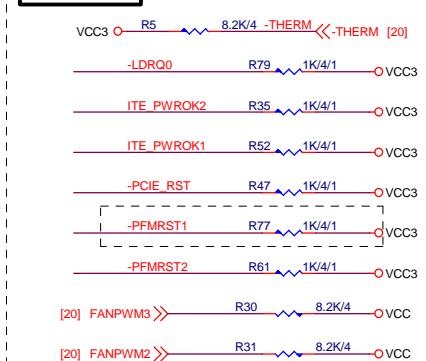
SIO IT8728F



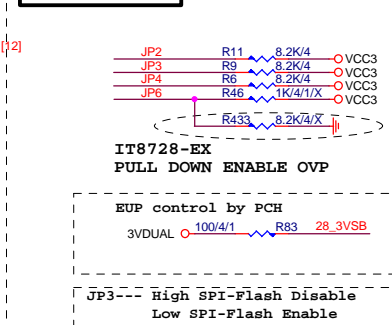
PWR	SHT
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SIO PU



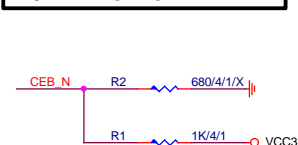
SIO STRAP



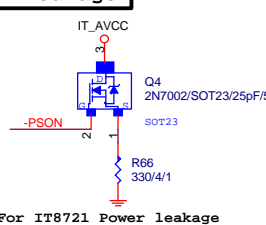
IT8728F NOTE

	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_3V5B
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

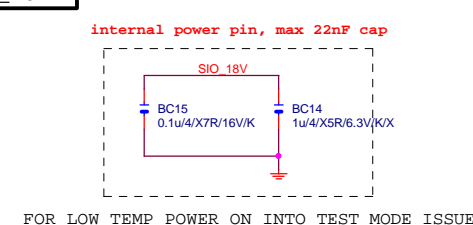
DUAL BIOS OPT STRAP



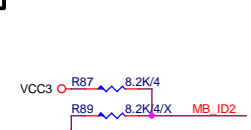
Power leakage



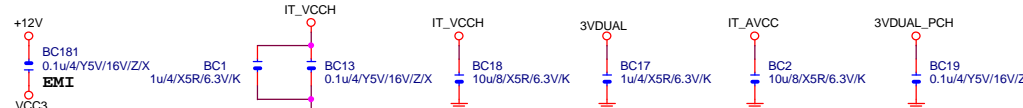
SIO 18V



MB ID



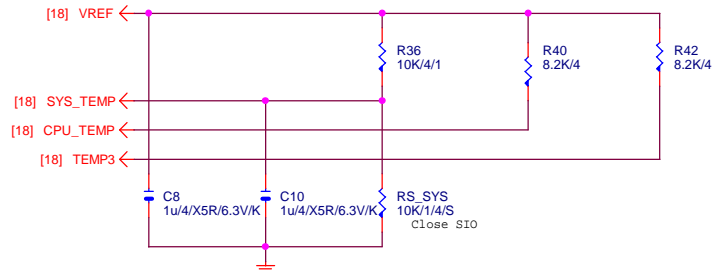
SIO CAP



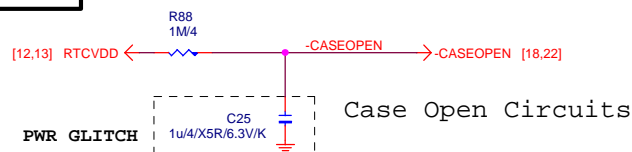
Gigabyte Technology

Title		ITE 8728 LPC IO	
Size Custom	Document Number	GA-H77M-D3H	Rev 1.0
Date:	Monday, January 09, 2012	Sheet	18 of 34

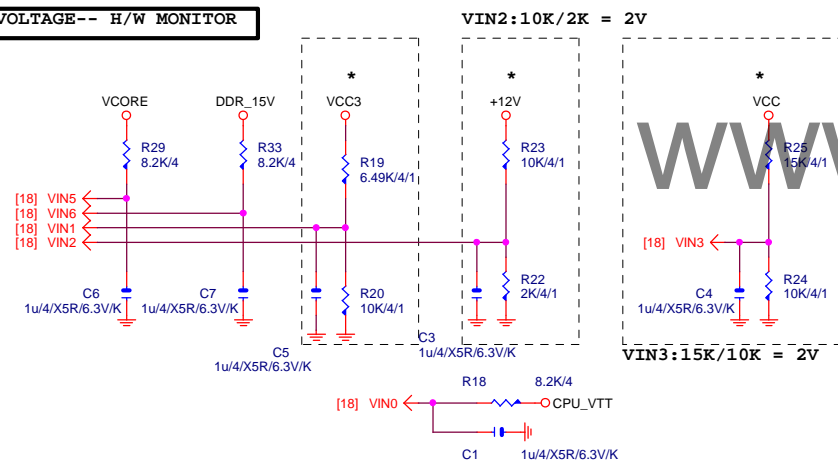
TEMP H/W MONITOR



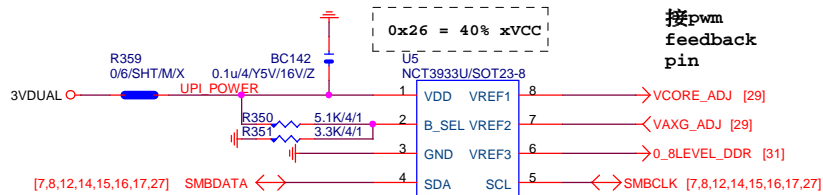
CASE OPEN



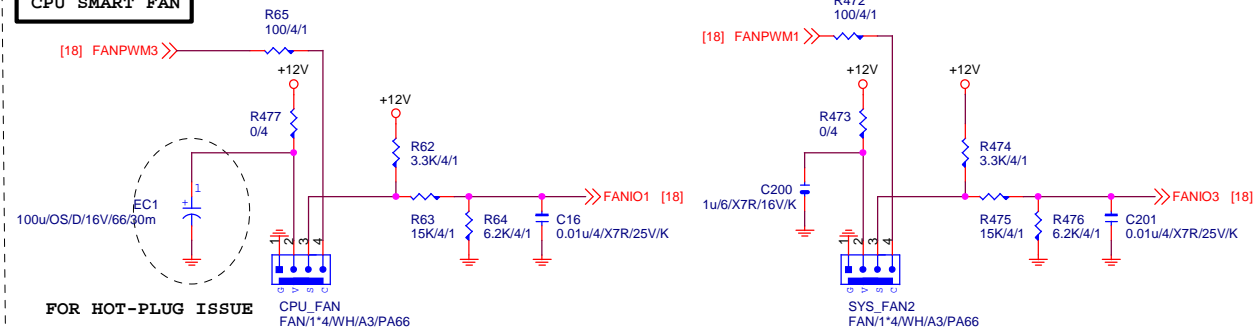
VOLTAGE-- H/W MONITOR



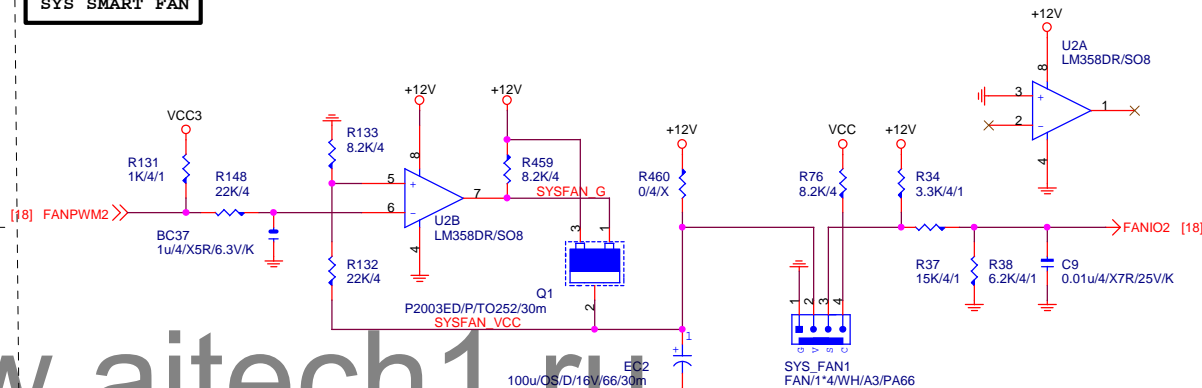
OV NCT3933



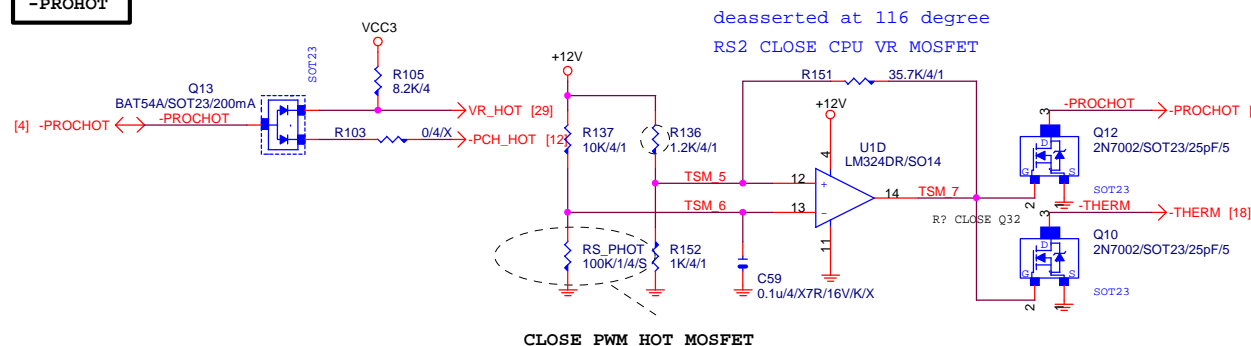
CPU SMART FAN



SYS SMART FAN



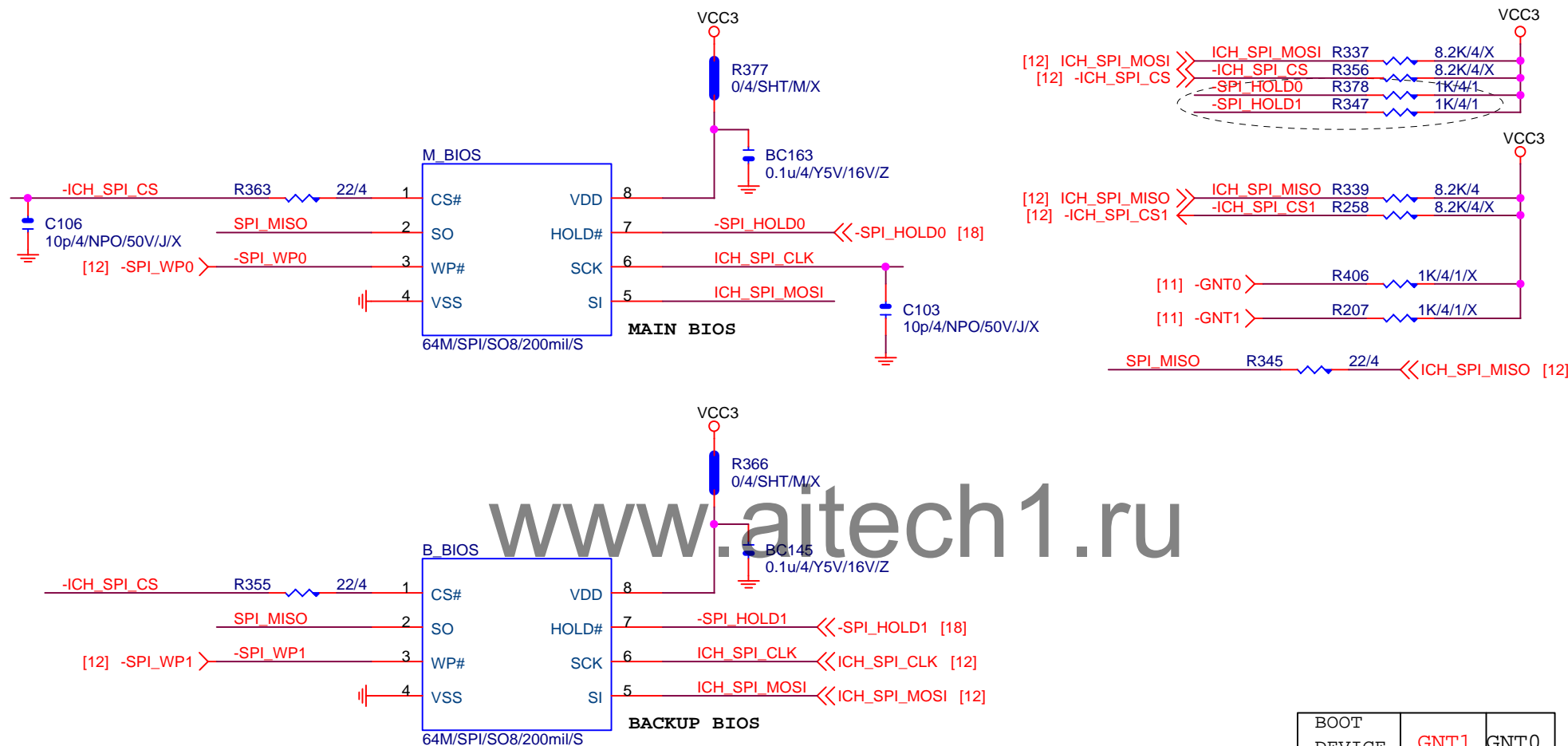
-PROHOT



Gigabyte Technology

Title			HWM,FAN CTRL,OV
Size	Document Number	GA-H77M-D3H	
Custom		Rev	1.0
Date:	Monday, January 09, 2012	Sheet	20 of 34

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

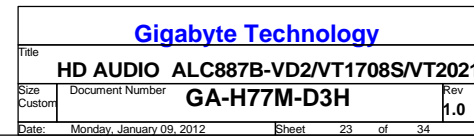
1 means floating
0 means PD 1K

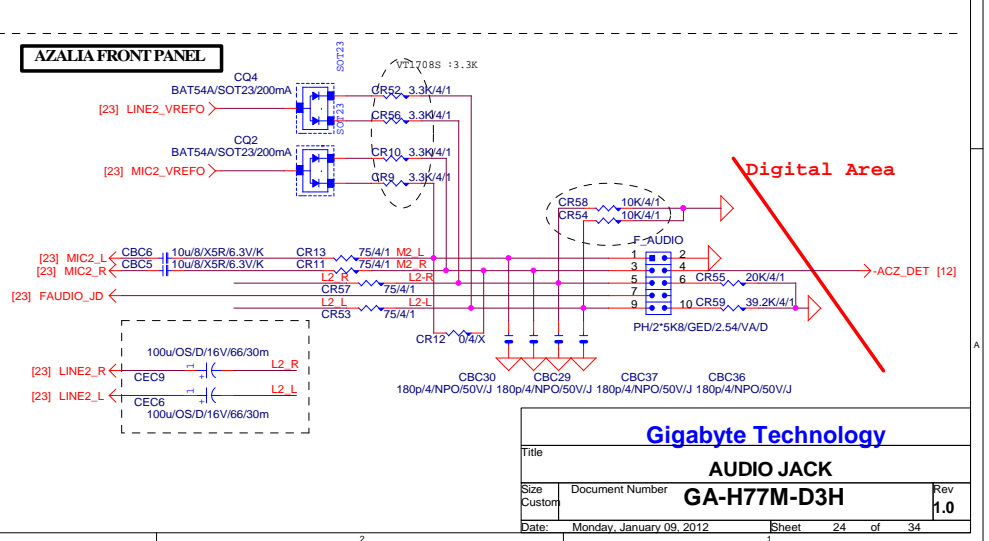
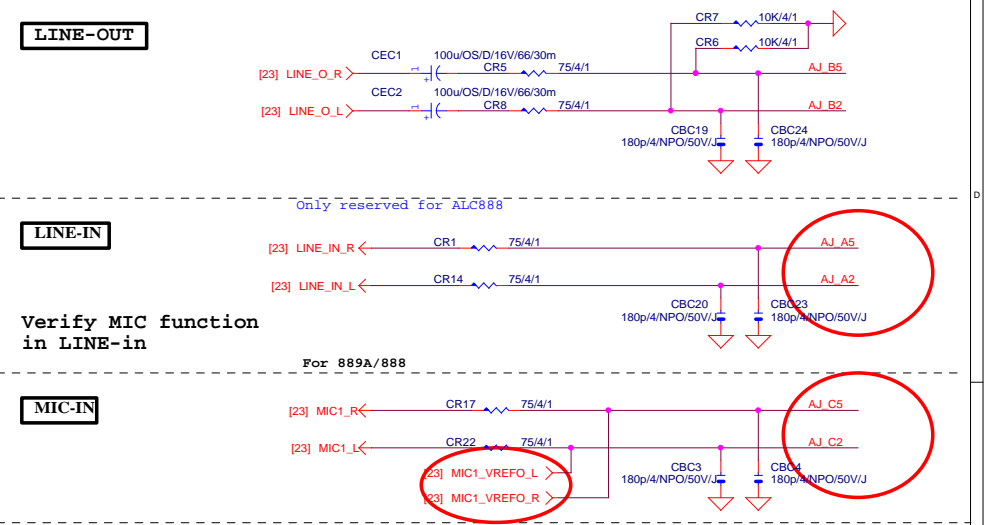
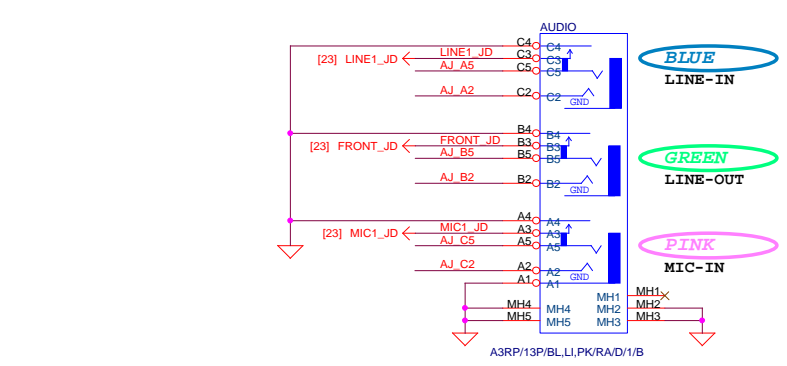
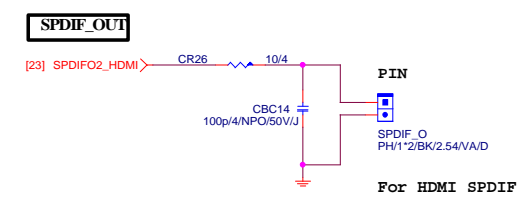
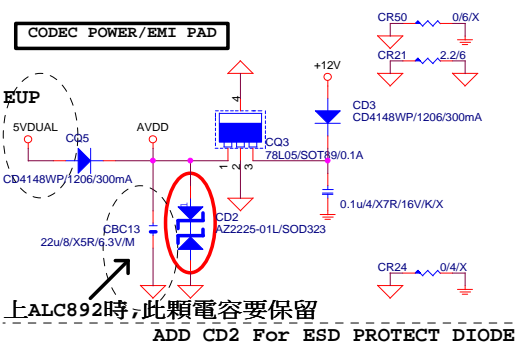
Gigabyte Technology

Title		
DUAL BIOS		
Size A	Document Number	Rev
	GA-H77M-D3H	1.0
Date:	Monday, January 09, 2012	Sheet 21 of 34

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

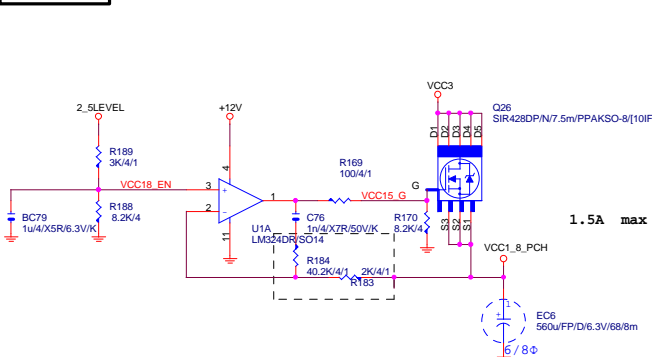
The diagram shows a circuit segment with two nodes. The top node is connected to a resistor labeled CR34 with a value of 5.1K/4/1%. The bottom node is connected to a capacitor labeled CBC39 with a value of 100pF/4/NPO/50V/J/X. The resistor and capacitor are connected in series between these two nodes.



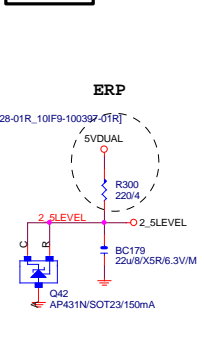


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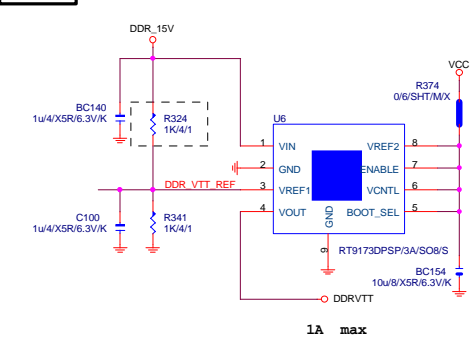
VCC1_8_PCH



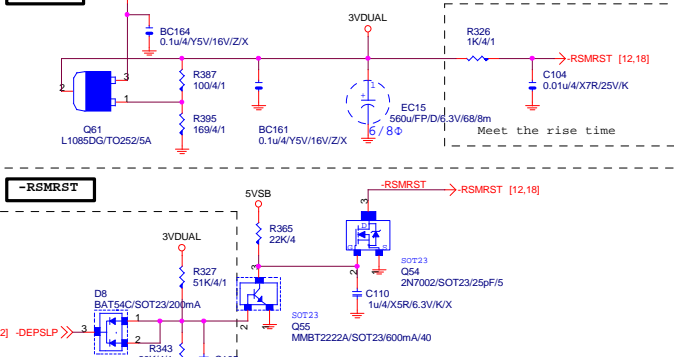
2_5LEVEL



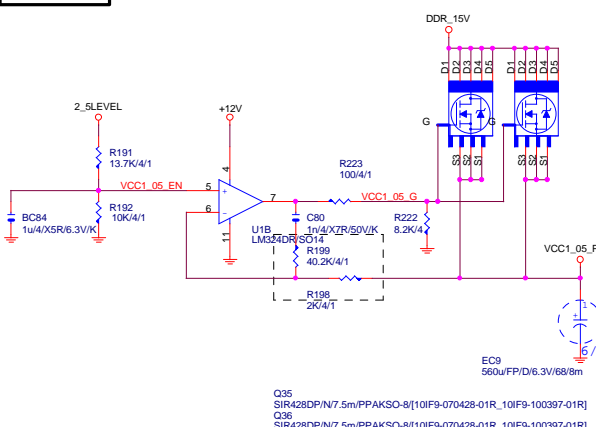
DDRVTT



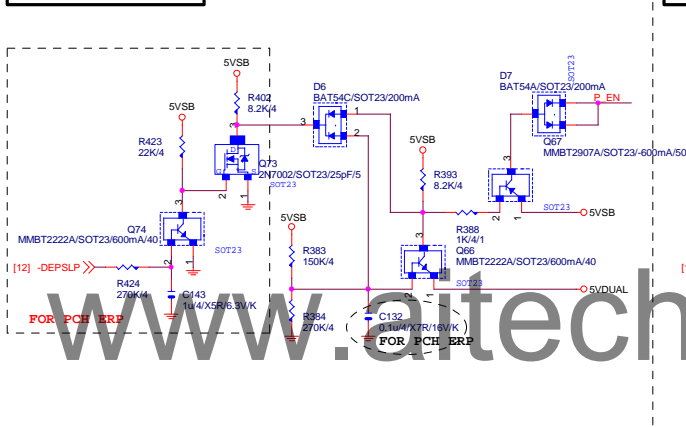
3VDUAL



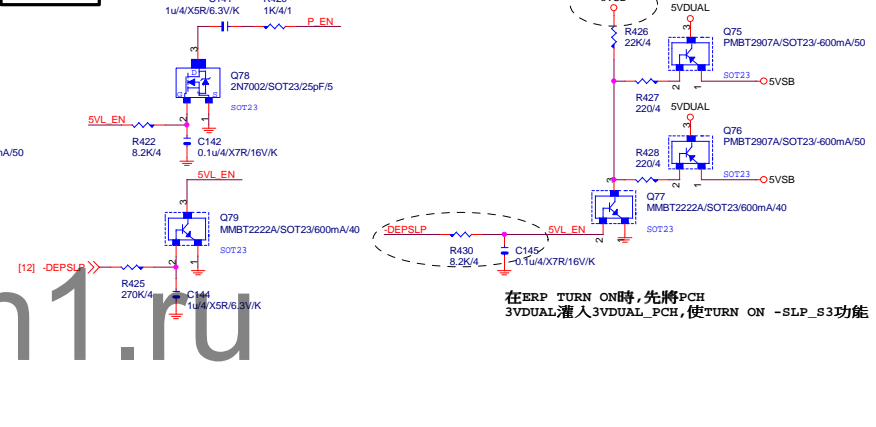
VCC1_05_PCH



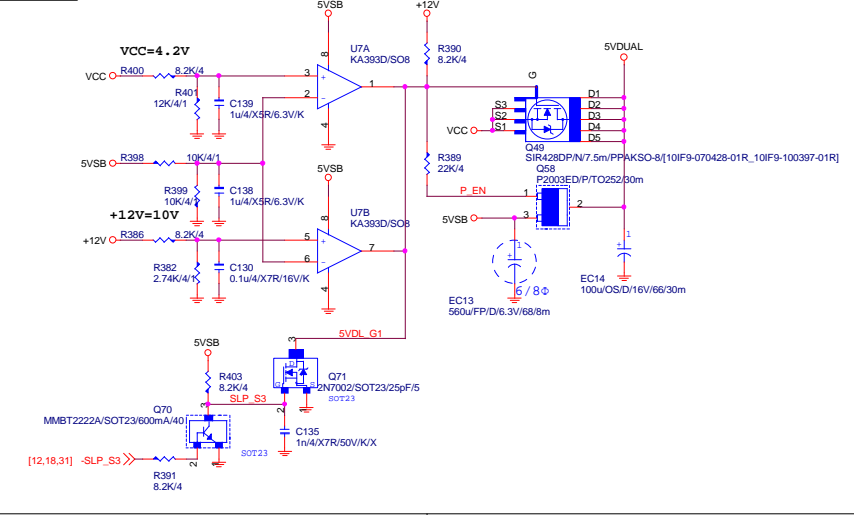
5VDUAL SHORT PROTECT



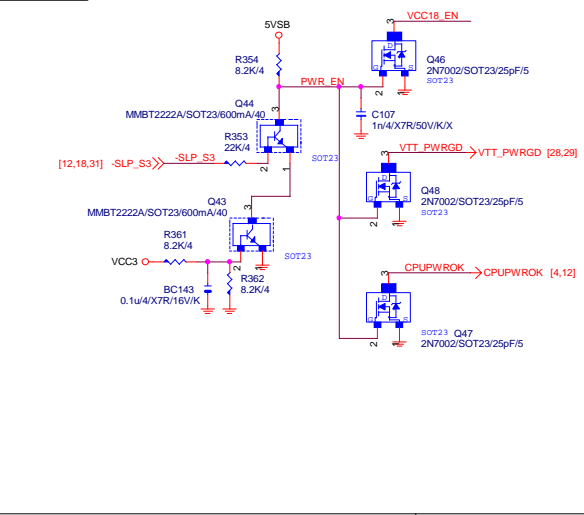
PCH ERP



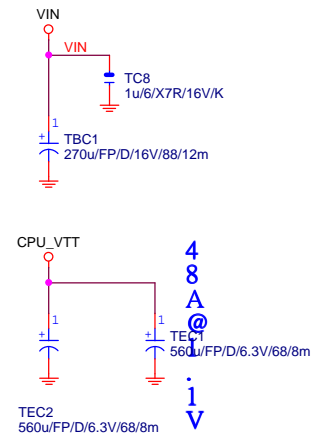
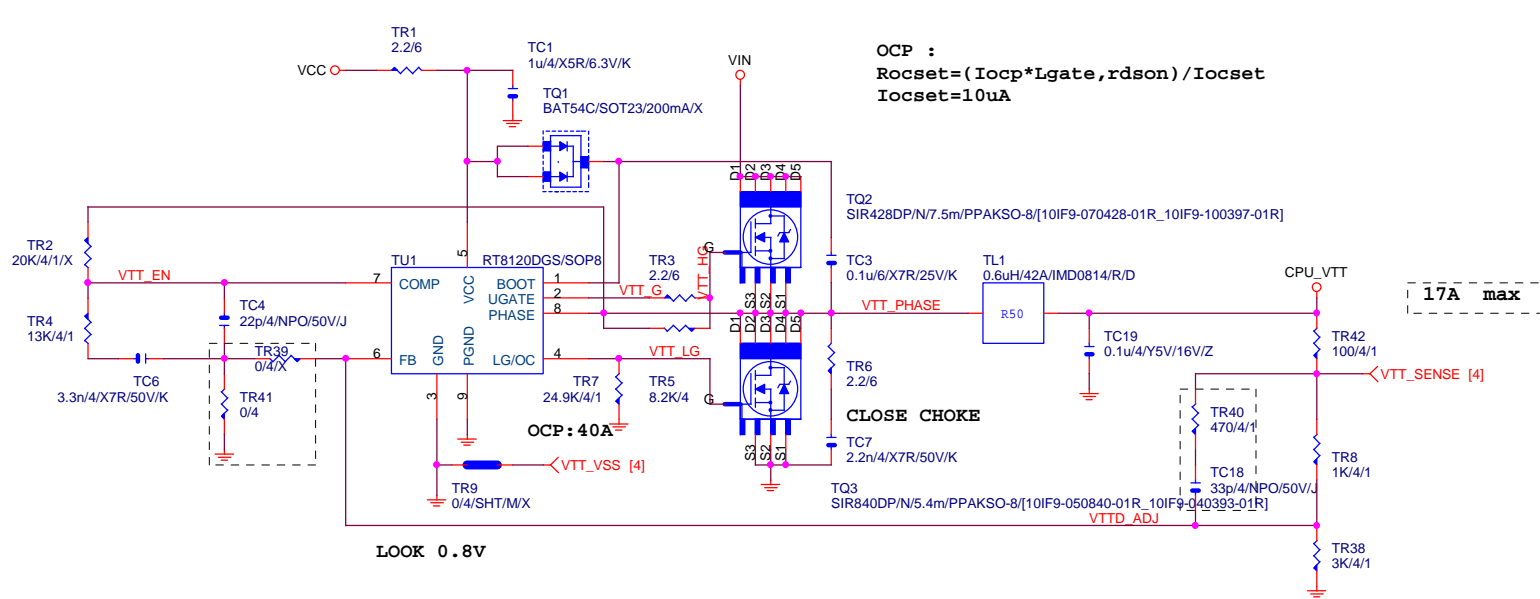
5VDUAL



PWR SEQ



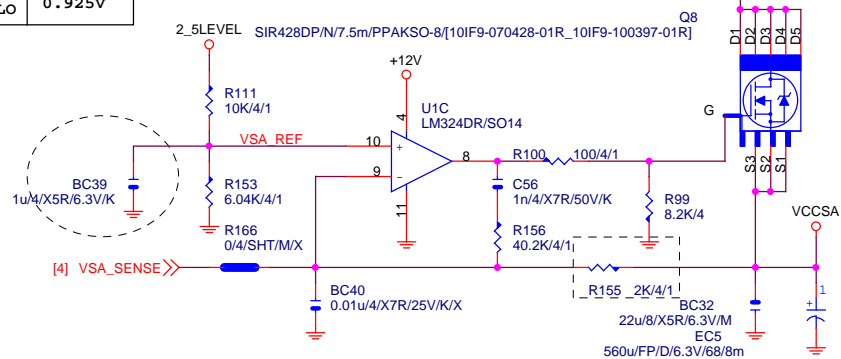
CPU_VTT



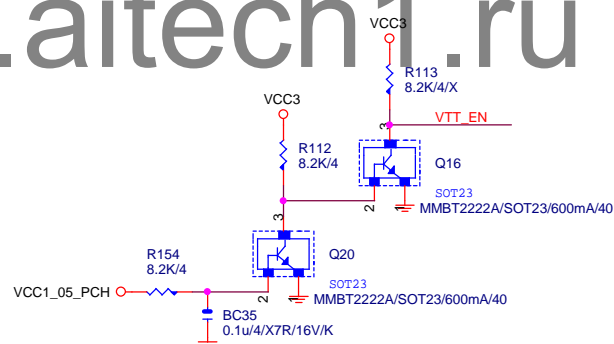
VCCSA

PDG 0.8

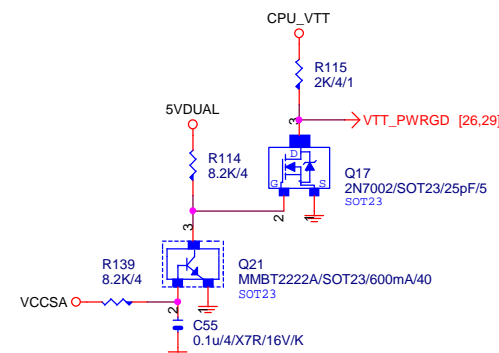
	VSA_SEL
HI	0.85V
LO	0.925V



CPU_VTT	PWR	SEQ
0.90	0.80	0.70
0.80	0.70	0.60
0.70	0.60	0.50
0.60	0.50	0.40
0.50	0.40	0.30
0.40	0.30	0.20
0.30	0.20	0.10
0.20	0.10	0.00
0.10	0.00	0.00
0.00	0.00	0.00



VTT_PWRGD

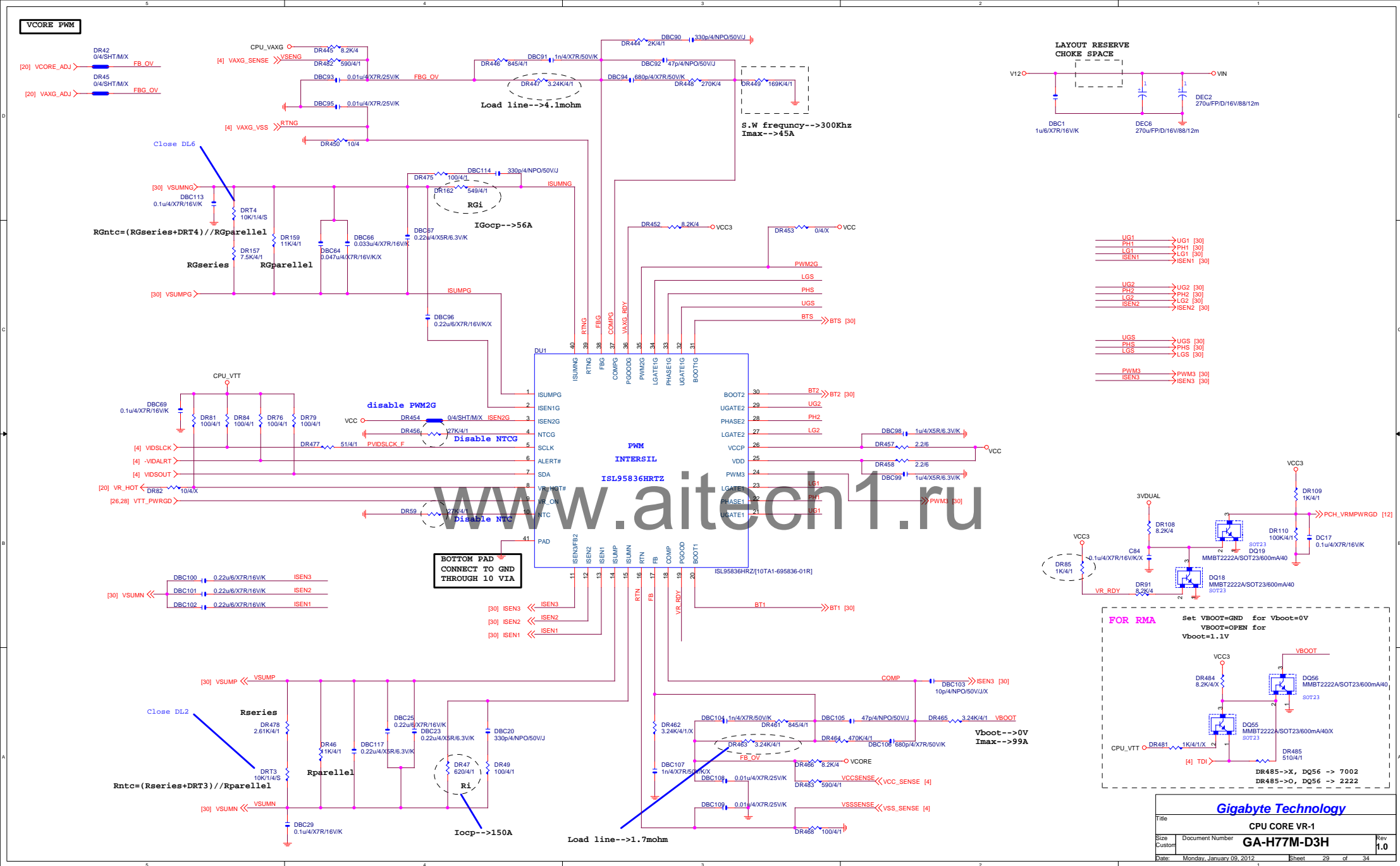


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Title	CPU_VTT_PWM_ISL95870CRZ
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Size Custom	Document Number GA-H77M-D3H	Rev 1.0
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Date: Monday, January 09, 2012 Sheet 28 of 34



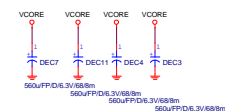
PHASE 1



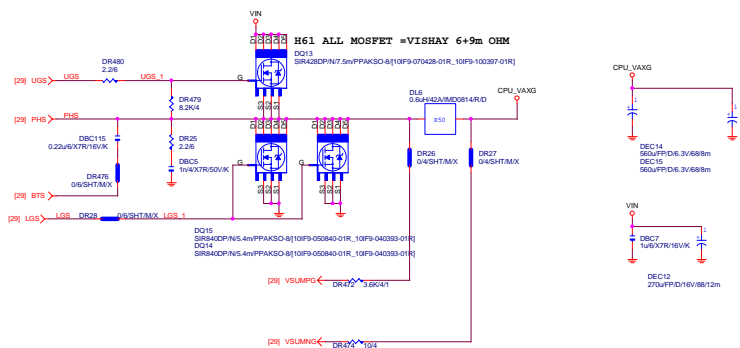
PHASE 3



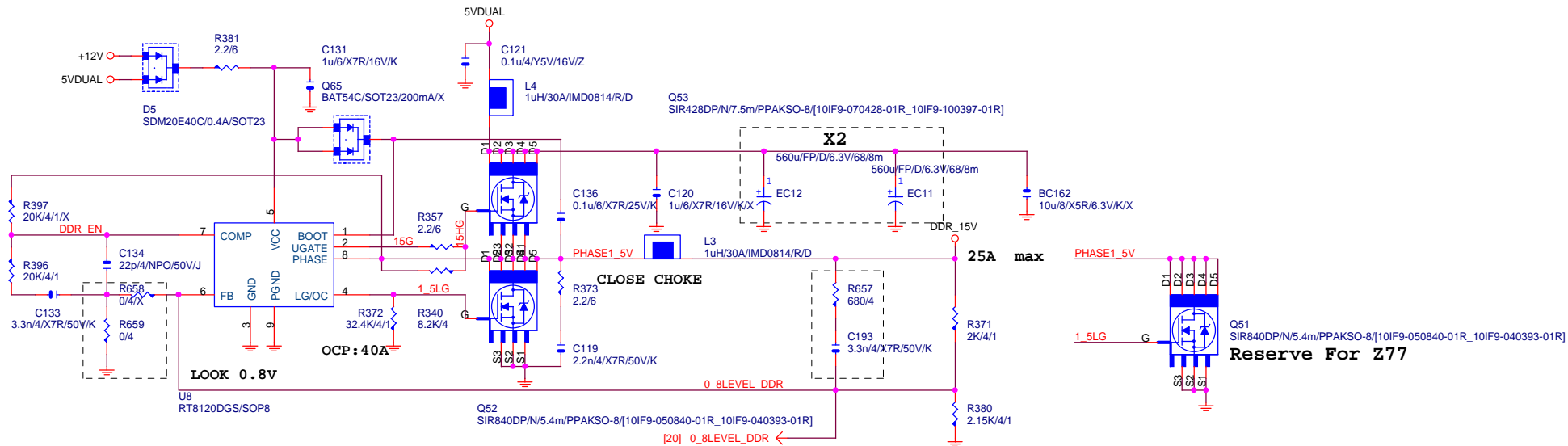
PHASE 2



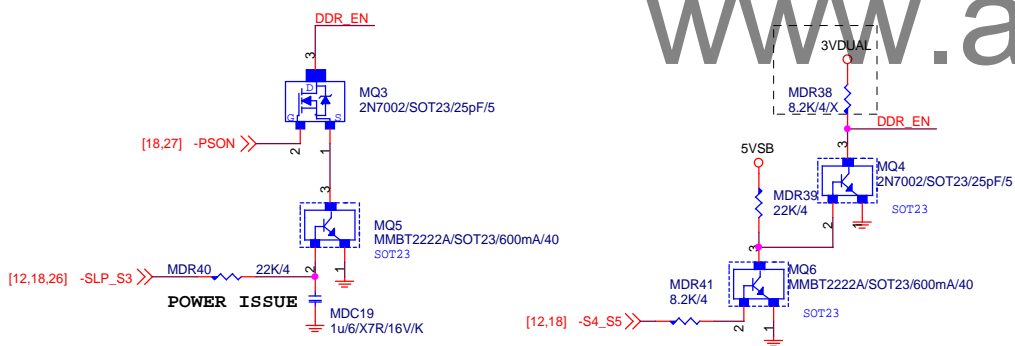
VAXG



DDR15V



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 $2 \times 7.99 = 15.98 > 11.45A$

OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
typ $I_{ocset} = 20\mu A$, $R_{ocset} = 4.7k$

$$\text{OCP} : 53.71\text{A} = (2 \times 20\text{uax}4.7\text{k}) / (7\text{m} // 7\text{m})$$

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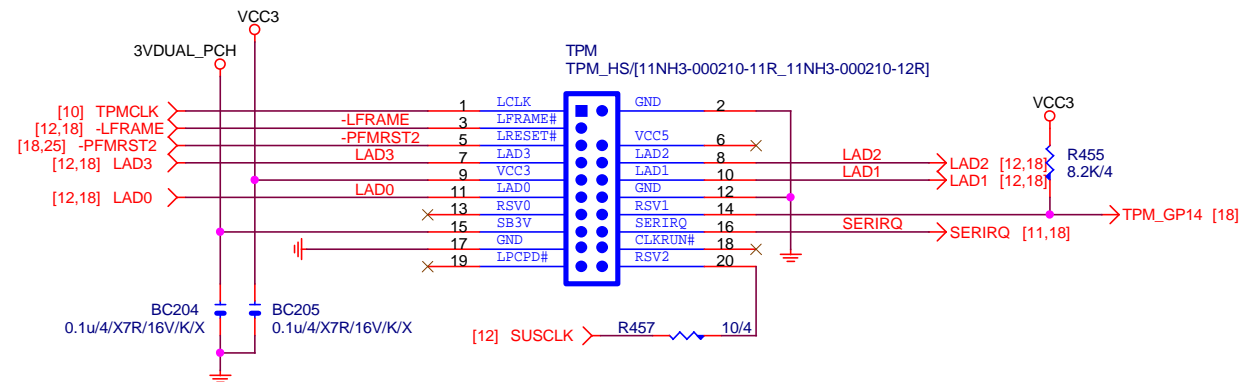
Title	DDR POWER
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Size Custom	Document Number GA-H77M-D3H
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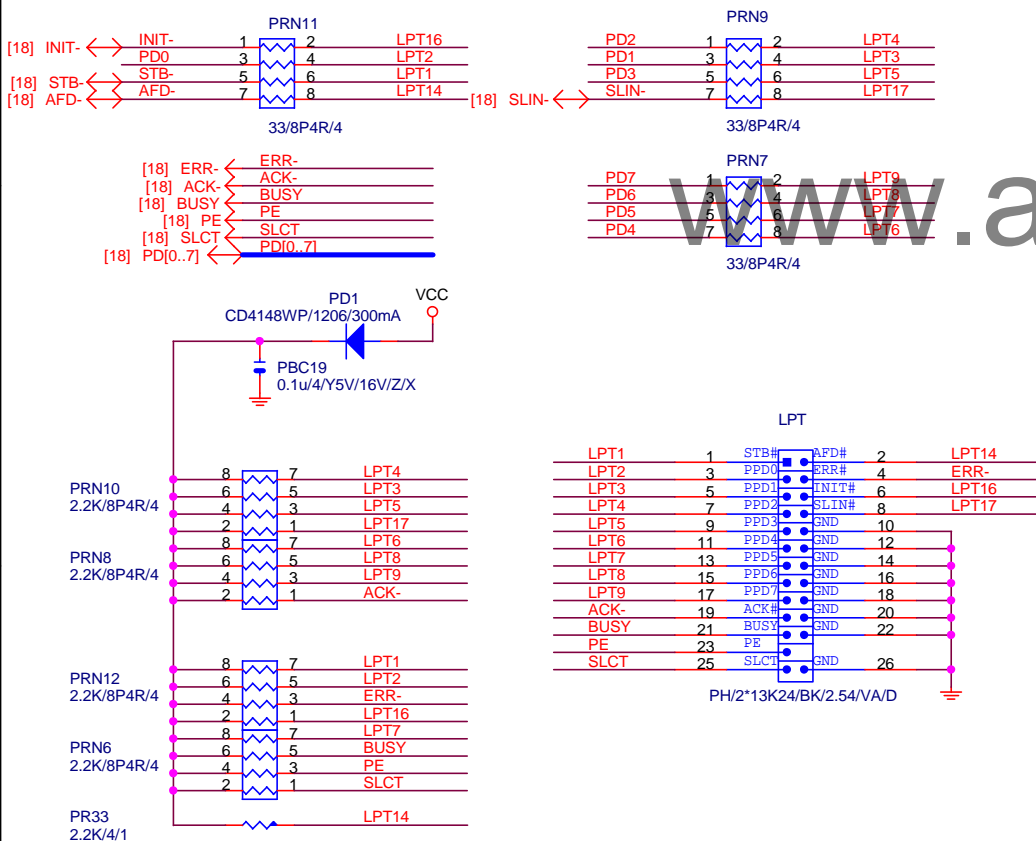
Date: Monday, January 09, 2012 Sheet 31 of 34

Rev	
1.0	

TPM



LPT PORT



Gigabyte Technology

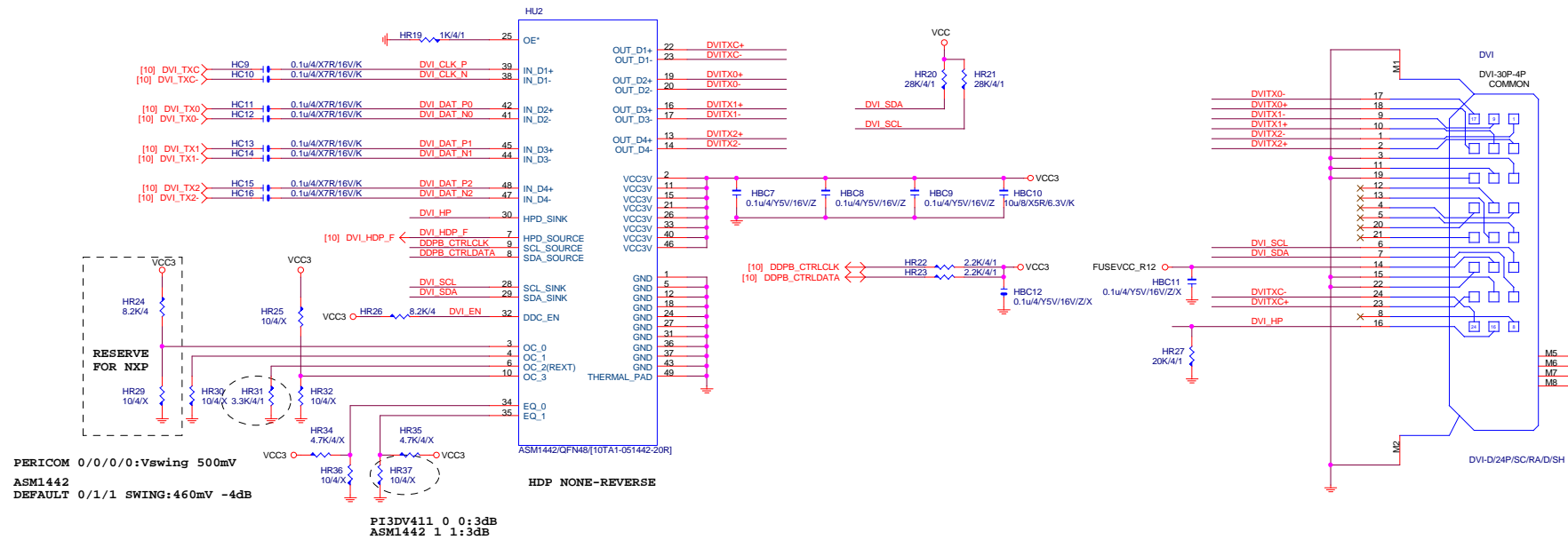
LPT

GA-H77M-D3H

Rev
1.0

Date: Monday, January 09, 2012 Sheet 32 of 34

DVI LEVEL SHIFT



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HDMI LEVEL SHIFT

