

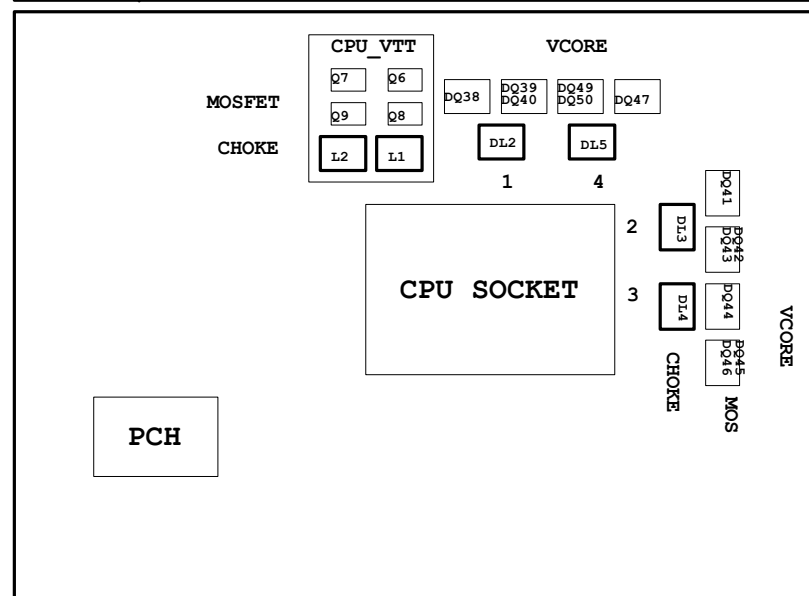
Model Name: GA-P67A-D3-B3 1.01

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 EXPRESSX4 SLOT / PCIE X1 SLOT
16	IT8892
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, LPT, TPM
20	Dual BIOS
21	ALC889
22	REAR AUDIO JACK
23	VCORE PWM ISL6364CRZ-1
24	VCORE PWM ISL6364CRZ-2
25	DISCRETE POWER
26	DDR 15V & VCC1 05 PCH PWM ISL6545CBZ
27	CPU VTT PWM ISL95870

SHEET TITLE

28	VCCSA POWER
29	F PANEL , F USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	ETRON 168A
34	
35	
36	
37	
38	
39	
40	



## GA-P67A-D3-B3

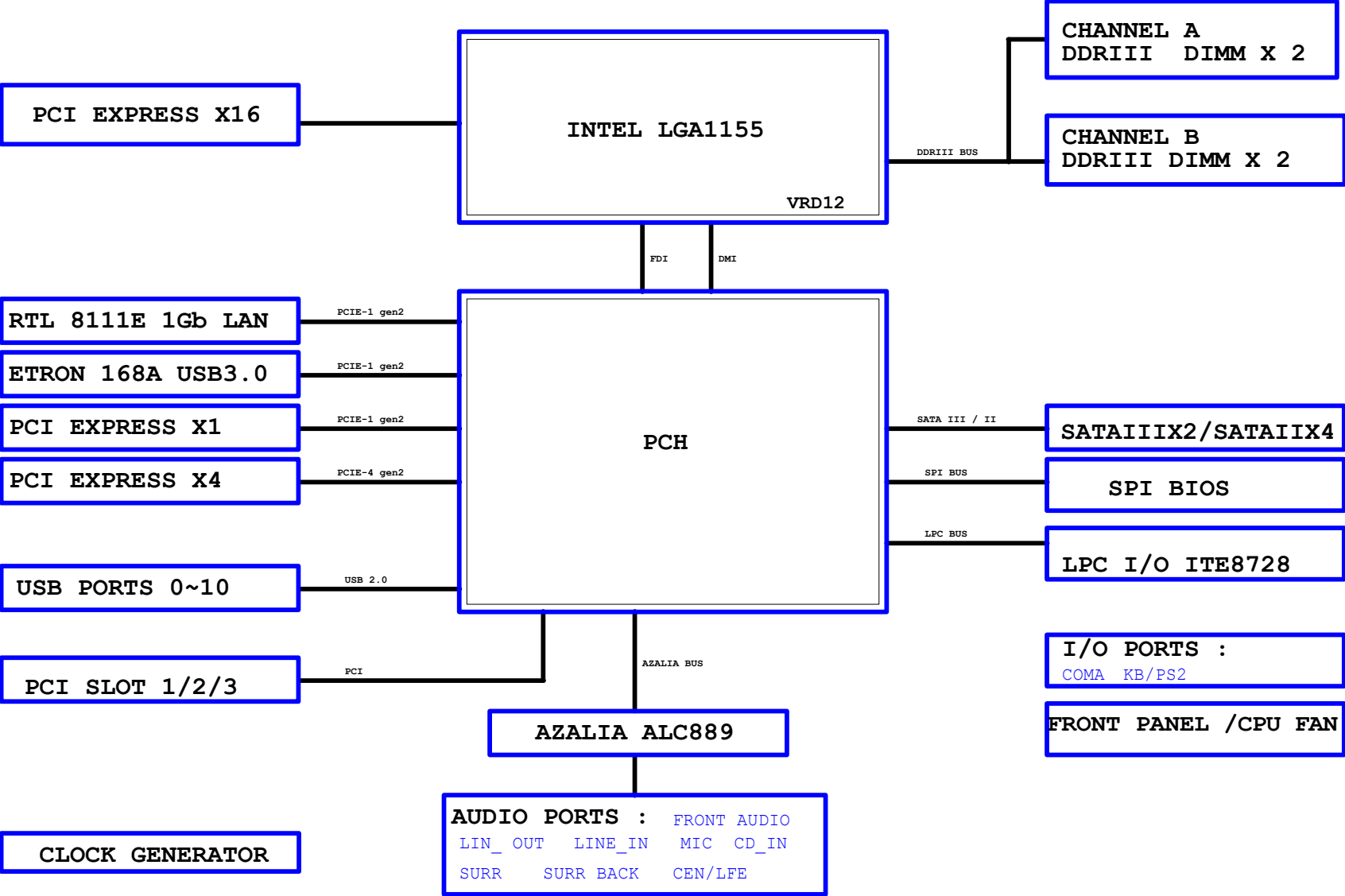
### Component value change history

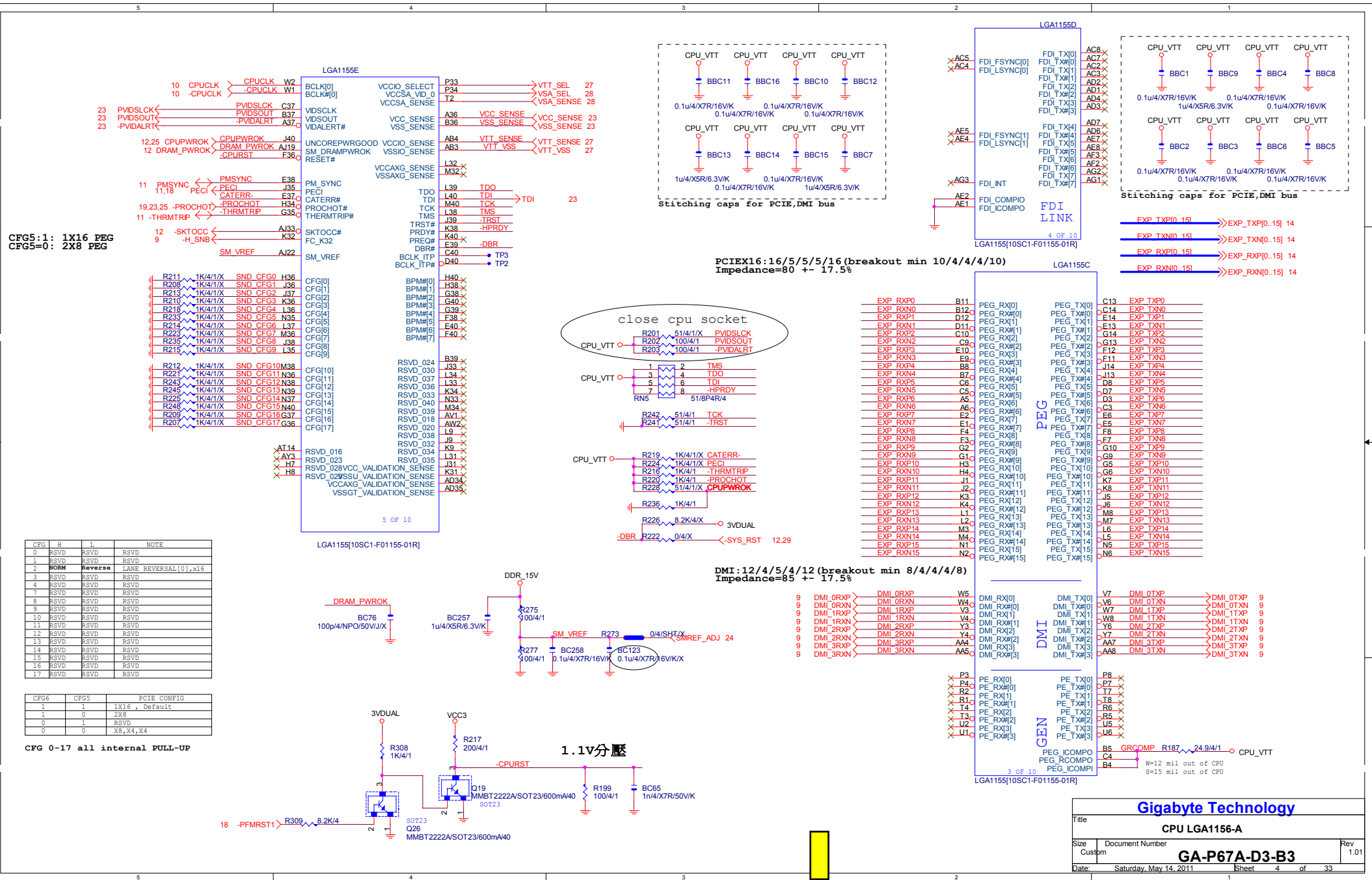
Data	Change Item	Reason
2010/11/11 EBOM:01	1. H61/P67 Mounting plan	
	2. ALC892 銅製程 & NEC Lo-power mounting plan	
	3. CHOKE mounting	
2010/11/11 EBOM:01	1. U8第一PIN標示與BC141重疊不易辨識	
	2. PCH_HS定位孔與RN9、RN10距離不足2mm	
PA65-D3-0.1	1. 注意改成電解電容時REC2應該是用100uF	
	2. Add RBC39 22u/8	
	3. MOSFET --> NEC+ON	
	4. Add 文字面 "108dB"	
	5. Add USB_LAN "11NR6-702009-93R"	
	6. VIN背板鋪銅移除	
	7. 文字面 "DES"移除	
	8. F_AUDIO Connect 改成綠色	
	9. REMOVE SE9172 SPI FLASH	
PA65-D3-1.0	1. LUI RTL8111E-VL	
	2. 文字面"Ultra Durable 2"	
	3. 0 OHM SHORT	
	DEL EC26,PEC3,EC10,DEC2	
2011/01/28 EBOM:02	e-bom for P67A-D3-0.2	
2011/02/10 EBOM:01	1.RENAME FOR P67A-D3-B3-0.1	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除	
	3.PCH VCC1_05 switch power----->linear power	
	4.PCH B2---->B3料號;R216 51 ---->1K	
2011/02/25 PBOM:10A	1.DR275 1K---->100K,R220 200 OHM---->1K 2.ADD TBC40,TBC41 FOR CPU VTT POWER RIPPLE	
2011/03/07 PBOM:10B	1.DEL R50 FOR 8278DX JP6 ISSUE	
	2.PCH HEATSINK換成有銘板清庫存	
2011/05/12 PBOM:10C	1.修改PCB料號	

## Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM





## LGA1155A

MAAA0	AV27	SA_MA[0]
MAAA1	AV24	SA_MA[1]
MAAA2	AW24	SA_MA[2]
MAAA3	AW23	SA_MA[3]
MAAA4	AV23	SA_MA[4]
MAAA5	AT23	SA_MA[5]
MAAA6	AT24	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	←	-SWEA	AW29	SA_WE#
7	-SCASA	←	-SCASA	AV30	SA_DQ[8]
7	-SRASA	←	-SRASA	AU28	SA_RAS#
7	SBA0	←	SBA0	AY29	SA_BS[0]
7	SBA1	←	SBA1	AW28	SA_BS[1]
7	SBA2	←	SBA2	AV20	SA_BS[2]
7	-CSA0	←	-CSA0	AU29	SA_CS#
7	-CSA1	←	-CSA1	AV32	SA_CS#
7	-CSA2	←	-CSA2	AW30	SA_CS#
7	-CSA3	←	-CSA3	AV33	SA_CS#
7	CKEA0	←	CKEA0	AV19	SA_CKE[0]
7	CKEA1	←	CKEA1	AT19	SA_CKE[1]
7	CKEA2	←	CKEA2	AU18	SA_CKE[2]
7	CKEA3	←	CKEA3	AV18	SA_CKE[3]
7	MODT_A0	←	MODT_A0	AV31	SA_ODT[0]
7	MODT_A1	←	MODT_A1	AU32	SA_ODT[1]
7	MODT_A2	←	MODT_A2	AU30	SA_ODT[2]
7	MODT_A3	←	MODT_A3	AW33	SA_ODT[3]

7	DCLKA0	←	DCLKA0	AY25	SA_CK[0]
7	-DCLKA0	←	-DCLKA0	AW25	SA_CK[0]
7	DCLKA1	←	DCLKA1	AU24	SA_CK[1]
7	-DCLKA1	←	-DCLKA1	AU25	SA_CK[1]
7	DCLKA2	←	DCLKA2	AW27	SA_CK[2]
7	-DCLKA2	←	-DCLKA2	AY27	SA_CK[2]
7	DCLKA3	←	DCLKA3	AV28	SA_CK[3]
7	-DCLKA3	←	-DCLKA3	AW28	SA_CK[3]

7,8 -DDR3\_RST ← TR1  
0.1u4/X7R/16V/K/K  
TBC9  
0.1u4/X7R/16V/K/K

AV13	SA_DQS[8]
AV12	SA_DQS#
AU12	SA_ECC_CB[0]
AU14	SA_ECC_CB[1]
AW13	SA_ECC_CB[2]
AY13	SA_ECC_CB[3]
AU13	SA_ECC_CB[4]
AW11	SA_ECC_CB[5]
AY12	SA_ECC_CB[6]
AW12	SA_ECC_CB[7]

DDR\_0

1 OF 10

LGA1155[10SC1-F01155-01R]

## LGA1155B

AK3	DQSA0
AK2	-DQSA0
AJ3	MDA0
AL3	MDA1
AL4	MDA2
AJ2	MDA3
AJ1	MDA4
AL2	MDA5
AL1	MDA6
AP3	DQSA1
AP2	-DQSA1
AN1	MDA8
AN4	MDA9
AR3	MDA10
AR4	MDA11
AN2	MDA12
AN3	MDA13
AR2	MDA14
AR1	MDA15
AW4	DQSA2
AV4	-DQSA2
AV2	MDA16
AW3	MDA17
AV5	MDA18
AW5	MDA19
AU2	MDA20
AU3	MDA21
AU5	MDA22
AY5	MDA23
AV8	DQSA3
AW8	-DQSA3
AU7	MDA24
AU7	MDA25
AV9	MDA26
AU9	MDA27
AV7	MDA28
AW7	MDA29
AW9	MDA30
AY9	MDA31
AV37	DQSA4
AV36	-DQSA4
AU35	MDA32
AW37	MDA33
AU39	MDA34
AU36	MDA35
AW35	MDA36
AY36	MDA37
AU38	MDA38
AU37	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
AJ40	MDA55
AF38	DQSA7
AF39	-DQSA7
AG40	MDA56
AG37	MDA57
AE38	MDA58
AE37	MDA59
AG39	MDA60
AG38	MDA61
AE39	MDA62
AE40	MDA63

MODT\_A[0..3] ← MODT\_A[0..3]

MODT\_B[0..3] ← MODT\_B[0..3]

MDA[0..63] ← MDA[0..63]

MDB[0..63] ← MDB[0..63]

DQSA[0..7] ← DQSA[0..7]

-DQSA[0..7] ← -DQSA[0..7]

MAAA[0..15] ← MAAA[0..15]

MAAB[0..15] ← MAAB[0..15]

DQSB[0..7] ← DQSB[0..7]

-DQSB[0..7] ← -DQSB[0..7]

## 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	AL18	SB_MA[6]
MAAB7	AL18	SB_MA[7]
MAAB8	AN18	SB_MA[8]
MAAB9	AY17	SB_MA[9]
MAAB10	AN23	SB_MA[10]
MAAB11	AU17	SB_MA[11]
MAAB12	AT18	SB_MA[12]
MAAB13	AR28	SB_MA[13]
MAAB14	AT18	SB_MA[14]
MAAB15	AV18	SB_MA[15]

8	-SWEB	←	-SWEB	AR29	SB_WE#
8	-SCASB	←	-SCASB	AK25	SB_CAS#
8	-SRASB	←	-SRASB	AP24	SB_RAS#
8	SBA0	←	SBA0	AP23	SB_BS[0]
8	SBA1	←	SBA1	AM24	SB_BS[1]
8	SBA2	←	SBA2	AW17	SB_BS[2]
8	-CSB0	←	-CSB0	AN25	SB_CS#
8	-CSB1	←	-CSB1	AN26	SB_CS#
8	-CSB2	←	-CSB2	AL25	SB_CS#
8	-CSB3	←	-CSB3	AT26	SB_CS#
8	CKEB0	←	CKEB0	AU18	SB_CKE[0]
8	CKEB1	←	CKEB1	AY15	SB_CKE[1]
8	CKEB2	←	CKEB2	AW15	SB_CKE[2]
8	CKEB3	←	CKEB3	AY15	SB_CKE[3]

MODT_B0	AL26	SB_ODT[0]
MODT_B1	AP28	SB_ODT[1]
MODT_B2	AM28	SB_ODT[2]
MODT_B3	AK28	SB_ODT[3]

8	DCLKB0	←	DCLKB0	AL21	SB_CK[0]
8	-DCLKB0	←	-DCLKB0	AL22	SB_CK[0]
8	DCLKB1	←	DCLKB1	AK20	SB_CK[1]
8	-DCLKB1	←	-DCLKB1	AK20	SB_CK[1]
8	DCLKB2	←	DCLKB2	AL23	SB_CK[2]
8	-DCLKB2	←	-DCLKB2	AM22	SB_CK[2]
8	DCLKB3	←	DCLKB3	AP21	SB_CK[3]
8	-DCLKB3	←	-DCLKB3	AN21	SB_CK[3]

8	VREF_DQB	←	AH1	FC_AH1
7	VREF_DQA	←	AH4	FC_AH4

AN16	SB_DQS[8]
AN15	SB_DQS#

AL16	SB_ECC_CB[0]
AL16	SB_ECC_CB[1]
AR16	SB_ECC_CB[2]
AL15	SB_ECC_CB[3]
AR15	SB_ECC_CB[4]
AP15	SB_ECC_CB[5]
AP15	SB_ECC_CB[6]
AP15	SB_ECC_CB[7]

DDR\_1

2 OF 10

LGA1155[10SC1-F01155-01R]

SB_DQS[0]	AH7	DQSB0
SB_DQS#	AH6	-DQSB0

SB_DQ[0]	AG7	MDB0
SB_DQ[1]	AG8	MDB1
SB_DQ[2]	AJ8	MDB2
SB_DQ[3]	AJ8	MDB3
SB_DQ[4]	AG6	MDB4
SB_DQ[5]	AG6	MDB5
SB_DQ[6]	AJ8	MDB6
SB_DQ[7]	AJ7	MDB7
SB_DQS[1]	AM8	DQSB1
SB_DQS#	AL8	-DQSB1

SB_DQ[8]	AL7	MDB8
SB_WE#	AM7	MDB9
SB_CAS#	AM10	MDB10
SB_DQ[10]	AL10	MDB11
SB_DQ[11]	AL6	MDB12
SB_DQ[12]	AL6	MDB13
SB_DQ[13]	AM6	MDB14
SB_DQ[14]	AM9	MDB15
SB_DQ[15]		

SB_DQS[2]	AR8	DQSB2
SB_DQS#	AP8	-DQSB2

SB_DQ[16]	AP7	MDB16
SB_DQ[17]	AR7	MDB17
SB_DQ[18]	AP10	MDB18
SB_DQ[19]	AR10	MDB19
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#	AN12	-DQSB3

SB_DQ[24]	AM12	MDB24
SB_DQ[25]	AM13	MDB25
SB_DQ[26]	AR13	MDB26
SB_DQ[27]	AP13	MDB27
SB_DQ[28]	AL12	MDB28
SB_DQ[29]	AL13	MDB29
SB_DQ[30]	AR12	MDB30
SB_DQ[31]	AP12	MDB31

SB_DQS[4]	AN29	DQSB4
SB_DQS#	AN28	-DQSB4

SB_DQ[32]	AR28	MDB32
SB_DQ[33]	AR29	MDB33
SB_DQ[34]	AL28	MDB34
SB_DQ[35]	AL29	MDB35
SB_DQ[36]	AP28	MDB36
SB_DQ[37]	AP29	MDB37
SB_DQ[38]	AM28	MDB38
SB_DQ[39]	AM29	MDB39

SB_DQS[5]	AP33	DQSB5
SB_DQS#	AR33	-DQSB5

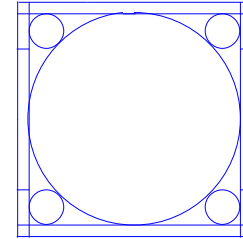
SB_DQ[40]	AP32	MDB40
SB_DQ[41]	AP31	MDB41
SB_DQ[42]	AP34	MDB42
SB_DQ[43]	AP34	MDB43
SB_DQ[44]	AR32	MDB44
SB_DQ[45]	AR31	MDB45
SB_DQ[46]	AR32	MDB46
SB_DQ[47]	AR34	MDB47

SB_DQS[6]	AL33	DQSB6
SB_DQS#	AM33	-DQSB6

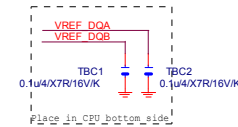
SB_DQ[48]	AN32	MDB48
SB_DQ[49]	AM31	MDB49
SB_DQ[50]	AL35	MDB50
SB_DQ[51]	AL32	MDB51
SB_DQ[52]	AM34	MDB52
SB_DQ[53]	AL31	MDB53
SB_DQ[54]	AM35	MDB54
SB_DQ[55]	AL34	MDB55

SB_DQS[7]	AG35	DQSB7
SB_DQS#	AG34	-DQSB7

SB_DQ[56]	AH35	MDB56
SB_DQ[57]	AH34	MDB57
SB_DQ[58]	AE34	MDB58
SB_DQ[59]	AE35	MDB59
SB_DQ[60]	AJ35	MDB60
SB_DQ[61]	AJ34	MDB61
SB_DQ[62]	AF33	MDB62
SB_DQ[63]	AF35	MDB63

LGA1155  
ILM\_BP/1155/CSP

Need check the new CPU ME

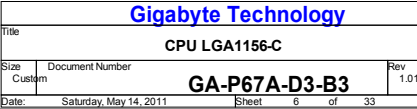


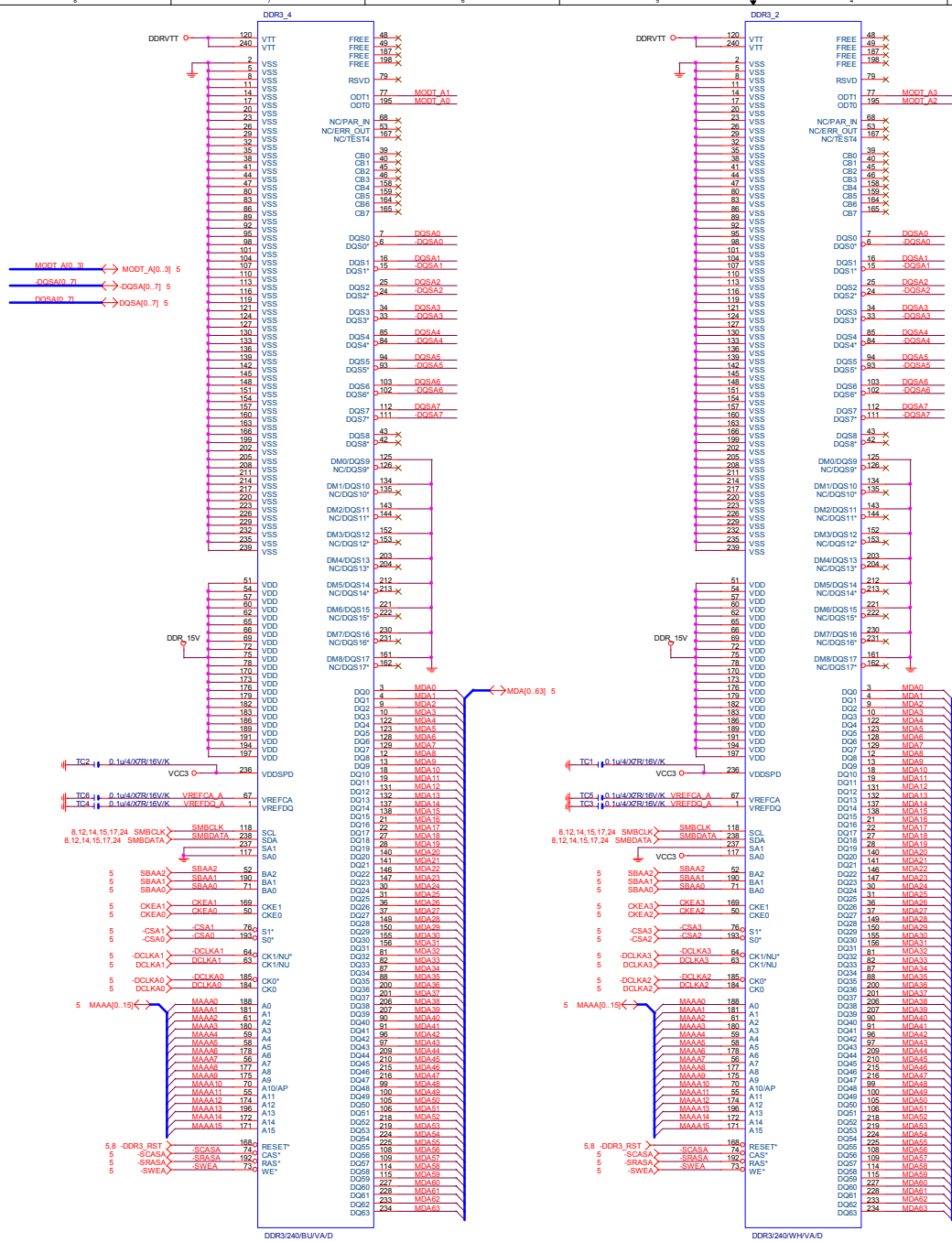
Gigabyte Technology

CPU LGA1156-B

Title	Document Number	Rev
Size	Custom	1.01
Date	Saturday, May 14, 2011	Sheet 5 of 33

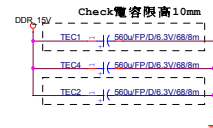
GA-P67A-D3-B3



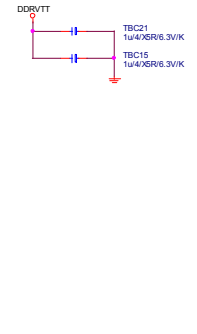
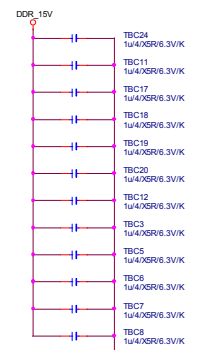
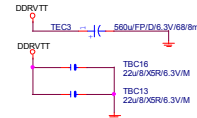


DDR TERMINATION  
CHANNEL A/B

DDR15V Decouple



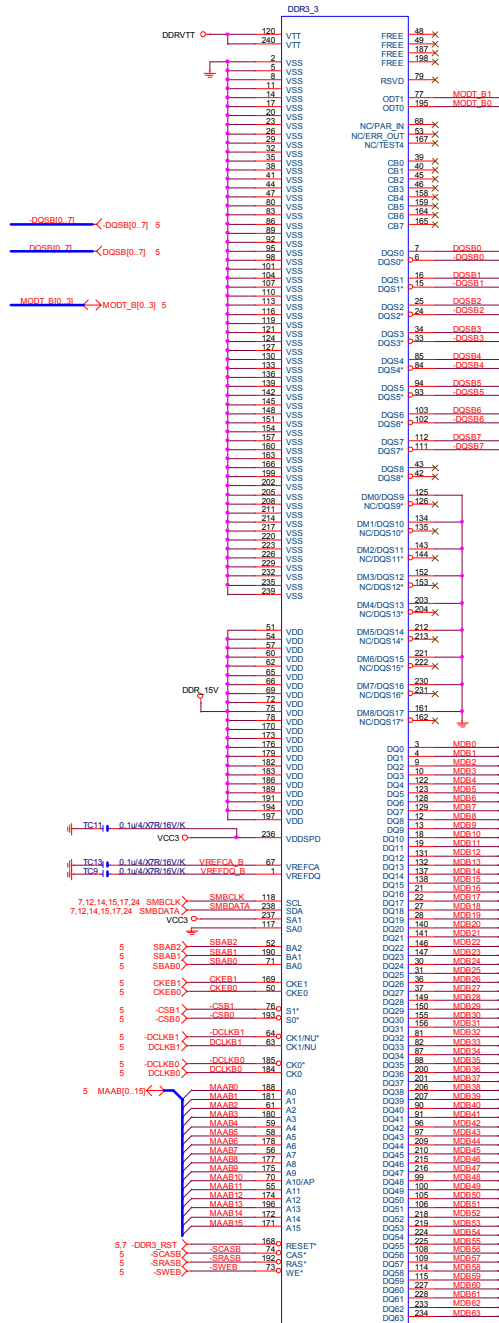
DDRVTT Decouple



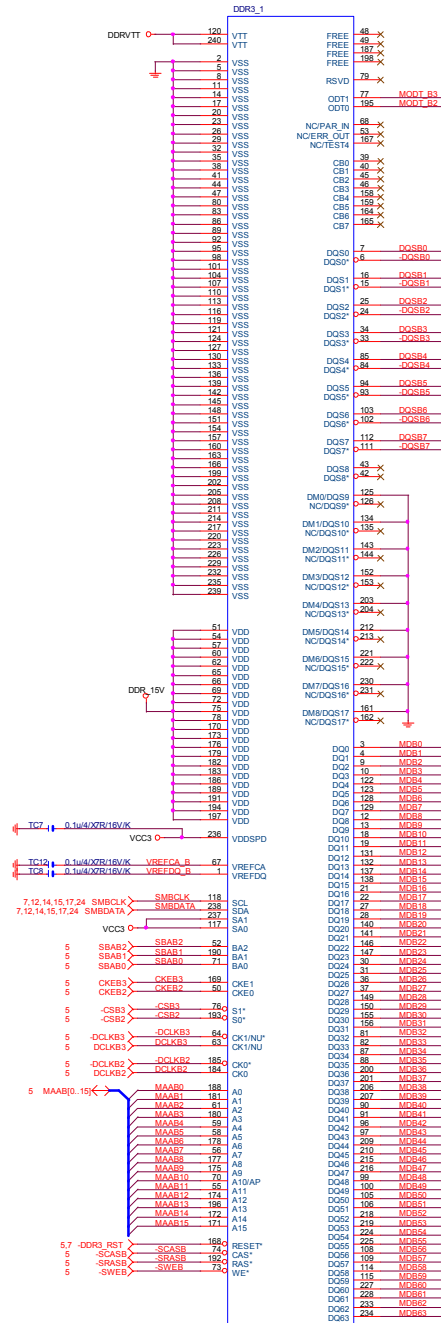
Gigabyte Technology

Title			DDRIII CHANNEL A
Size	Document Number	Rev	1.0
Column	GA-P67A-D3-B3		
Date	Sheet	7	of 33

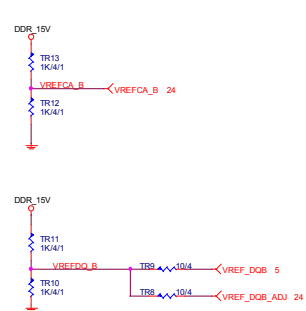




DDR3/240/BUVA/D



DDR3/240/WHVA/D

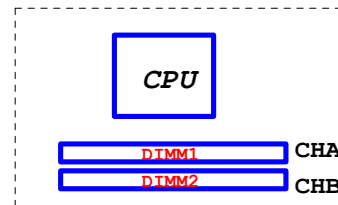
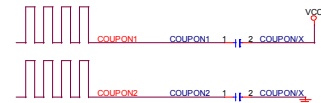


### DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ  
DDR3 clock=533MHZ  
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s  
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

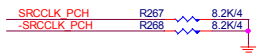
DDR3 1333MHZ  
DDR3 clock=667MHZ  
DDR3 single channel bandwidth=10.6GB/s  
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ  
DDR3 clock=800MHZ  
DDR3 single channel bandwidth=12.8GB/s  
DDR3 dual channel bandwidth=25.6GB/s

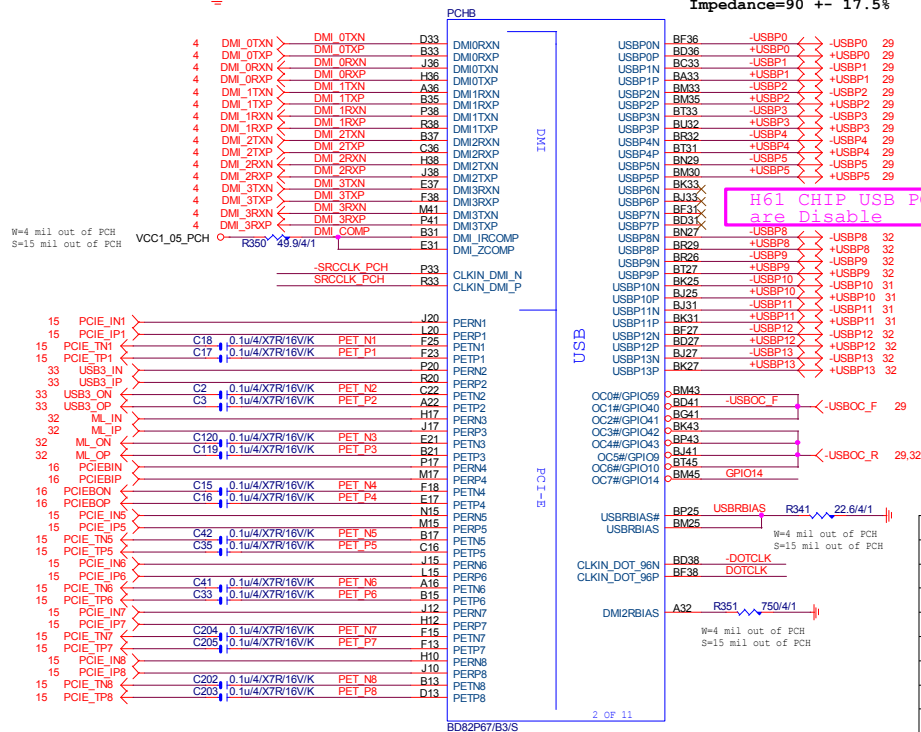


Gigabyte Technology			
DDRIII CHANNEL B			
Title	Document Number	Rev	
Size	GA-P67A-D3-B3	1.01	
Date	Enset	P	33

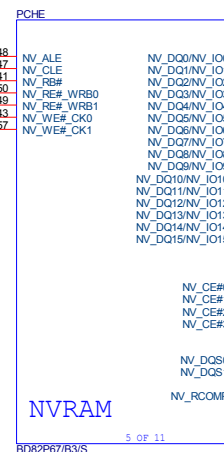
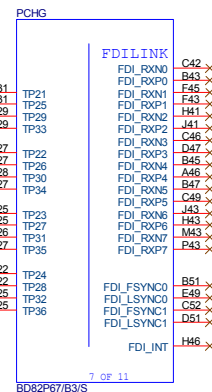




USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%

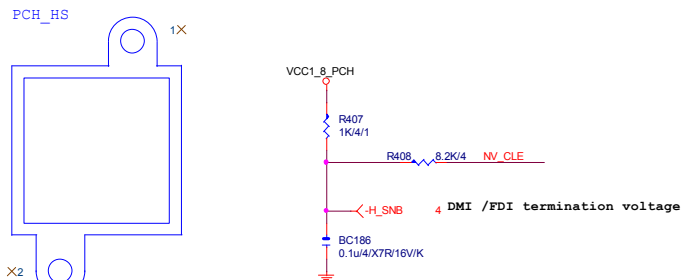


USB OC# Configure	
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

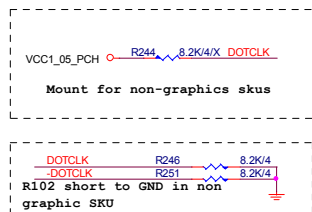


放靠近 Device & PCI-E Slot

PCIEX1:16/5/5/16 (breakout min 8/4/4/4/8)  
Impedance=80 +- 17.5%



HEAT SINK/H7MA-D2H/PCH/KW/GERI[12SP2-050072-01R\_12SP2-050072-02R\_12SP2-050072-03R]



Gigabyte Technology

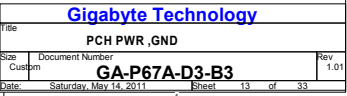
Title			PCH FDI,DMI,USB ,PCI-E
Size	Document Number	Rev	1.01
Custom	GA-P67A-D3-B3		
Date:	Saturday, May 14, 2011	Sheet	9 of 33

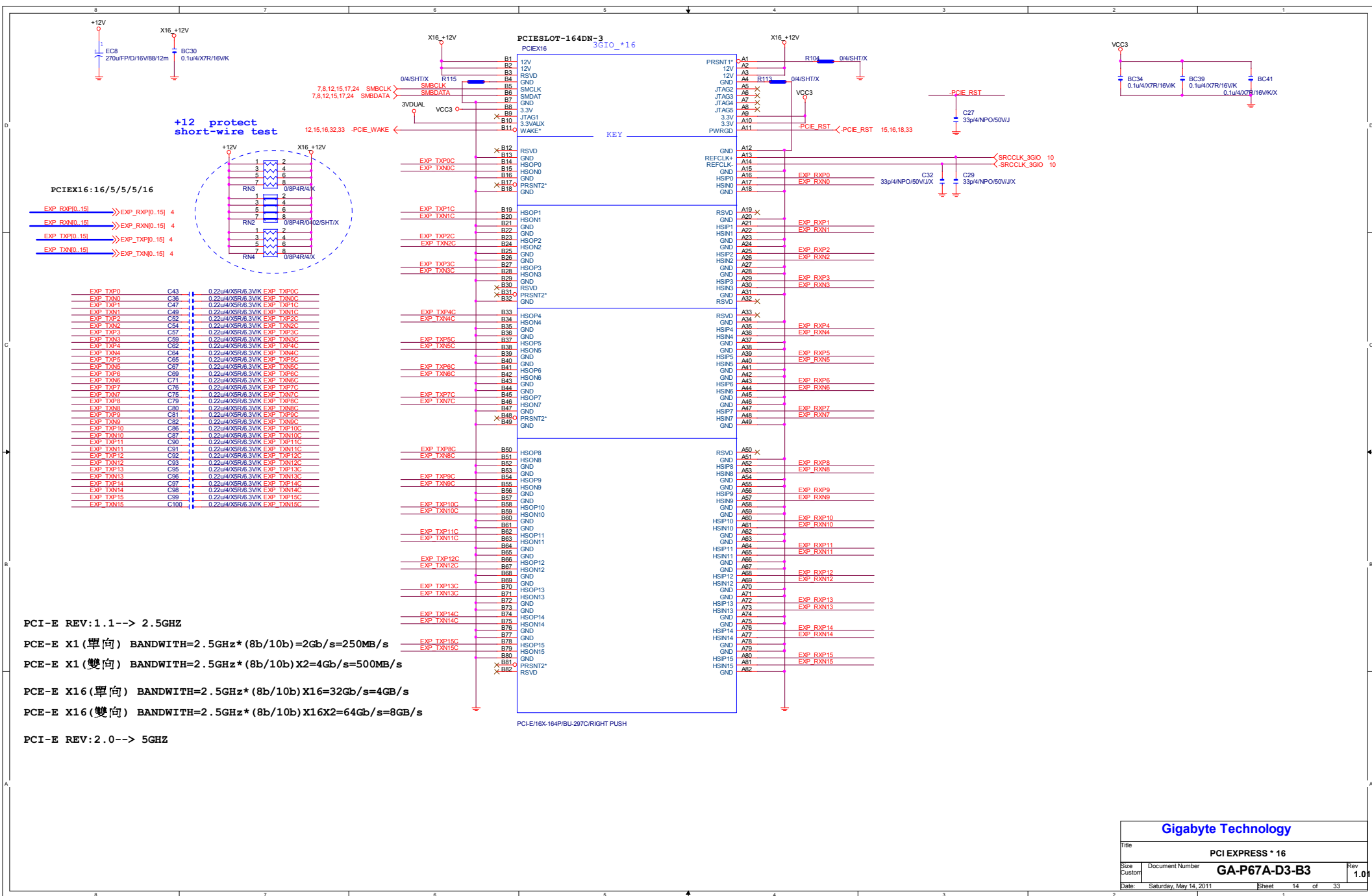


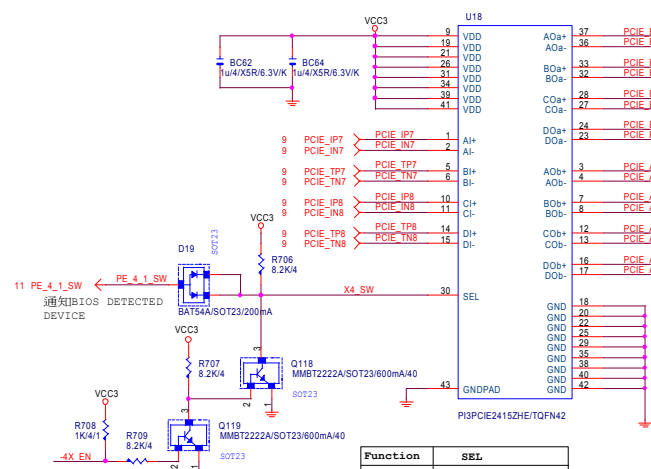
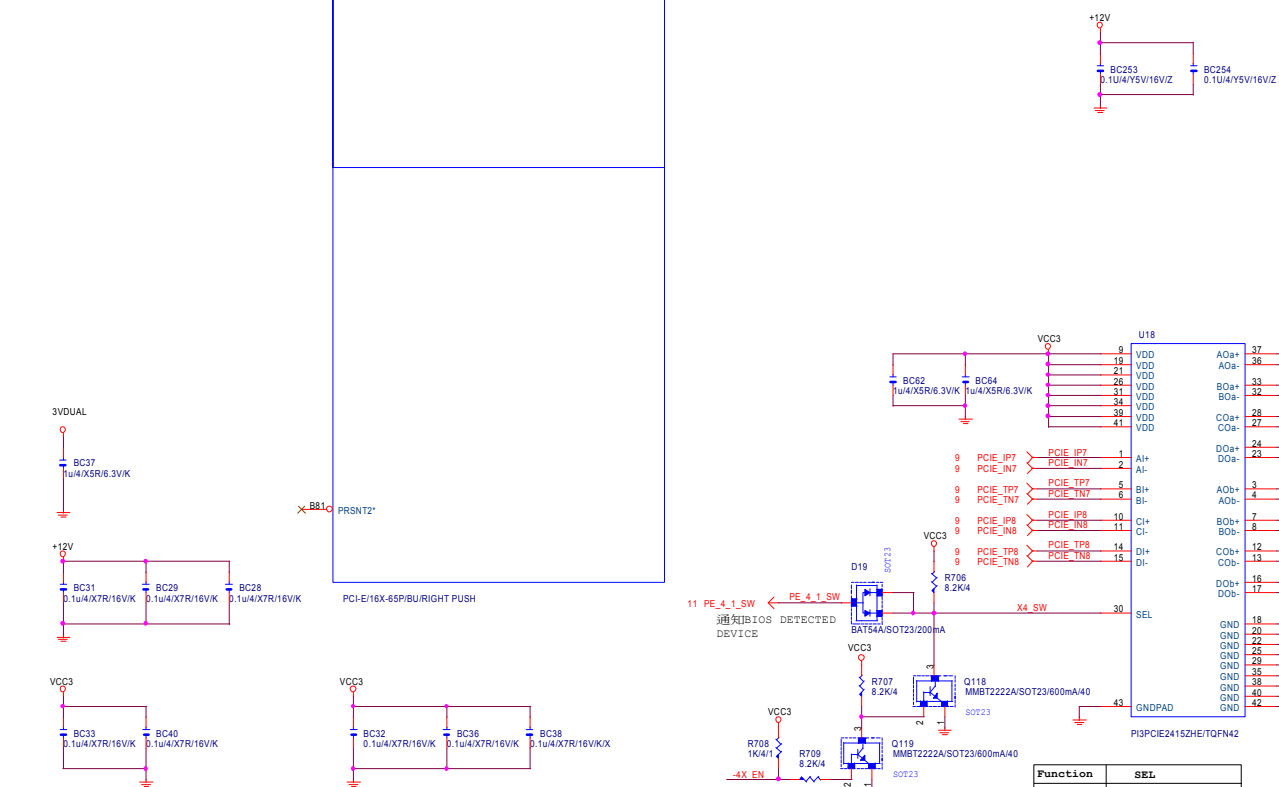
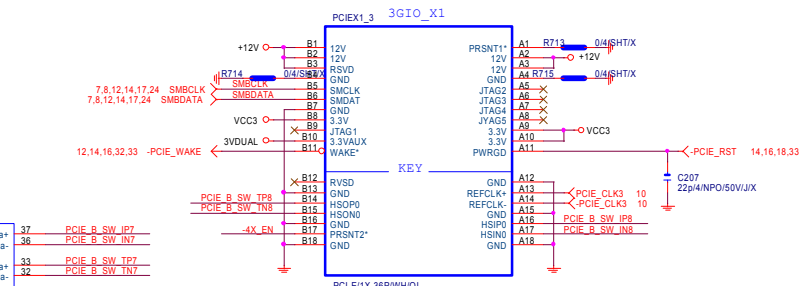
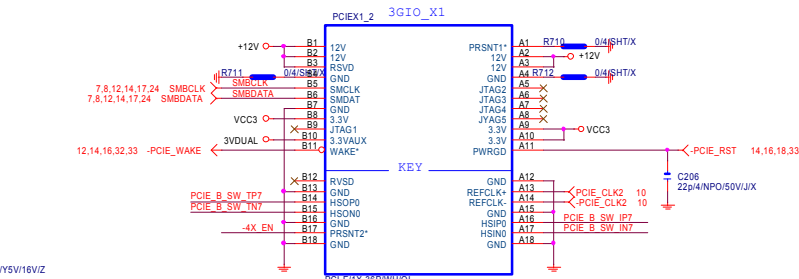
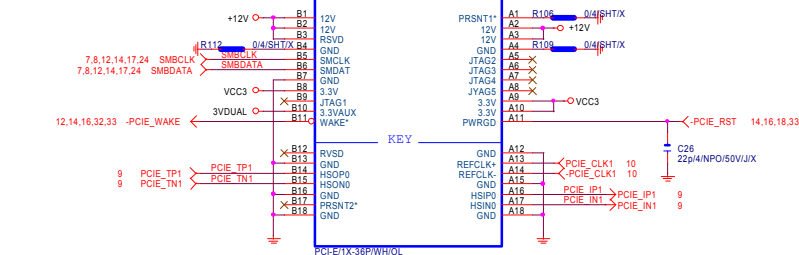
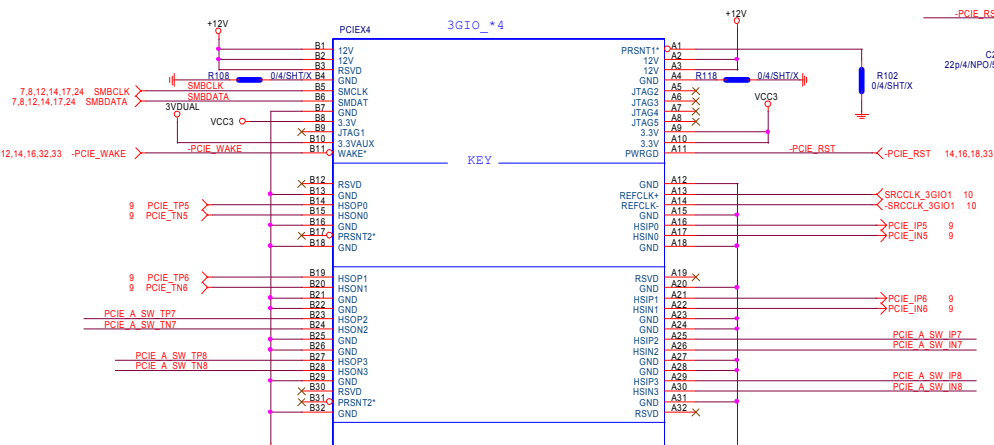


Title			
PCH HOST , SATA, PCI			
Size B	Document Number		Rev 1.01
GA-P67A-D3-B3			
Date:	Saturday, May 14, 2011	Sheet	11 of 33



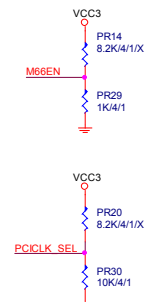
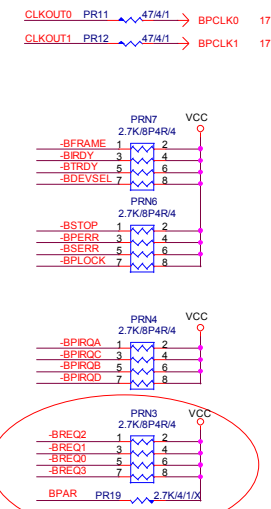
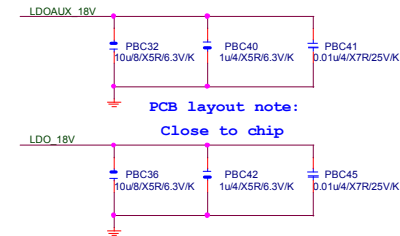
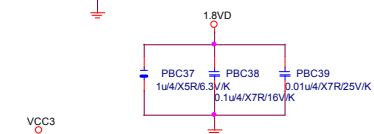
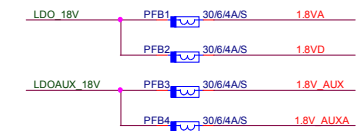






Function	SEL
xI--> xOa L;PCIEX4 SLOT-->X4	
xI--> xOb H;PCIEX4 SLOT-->X4	

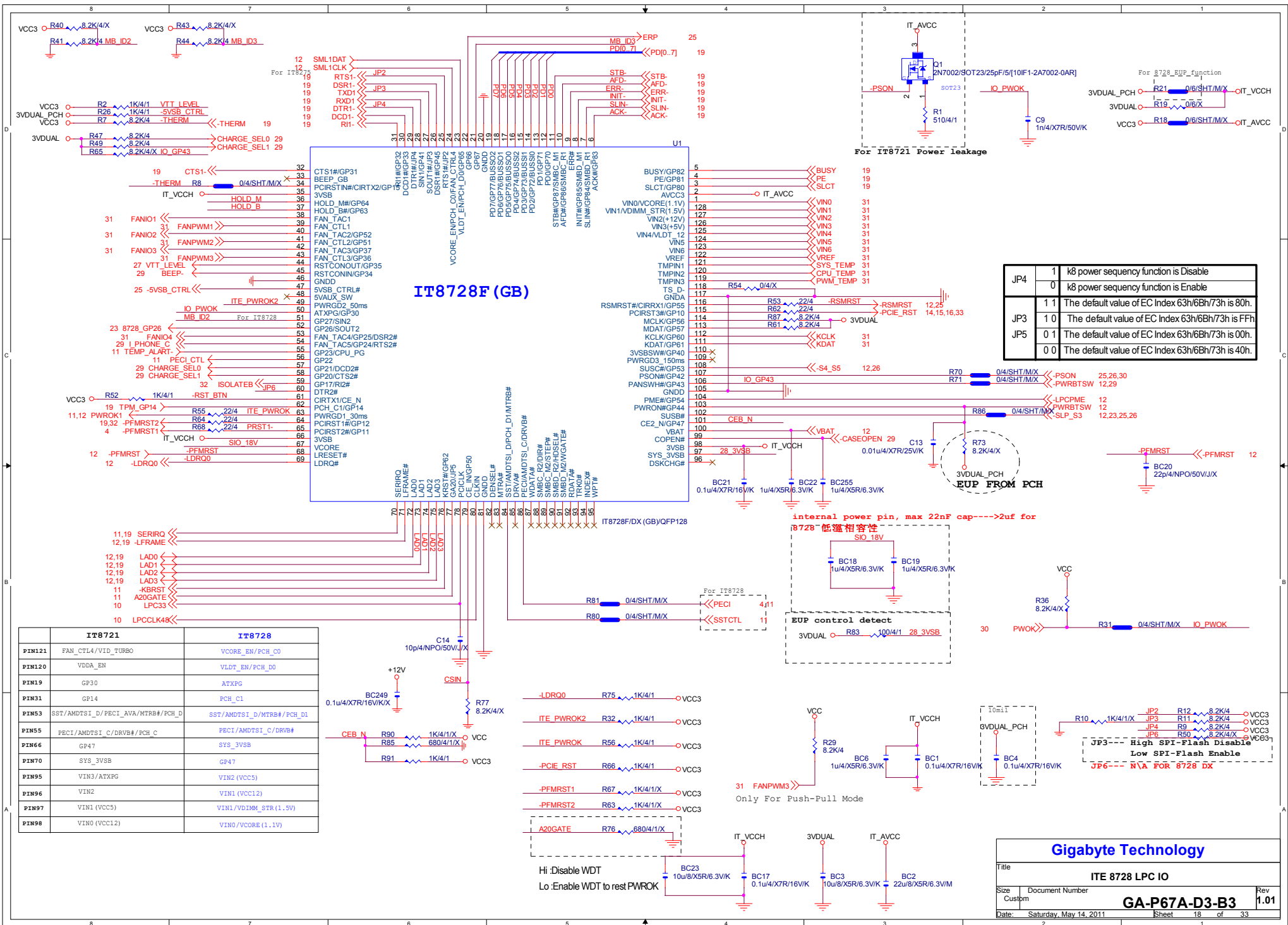




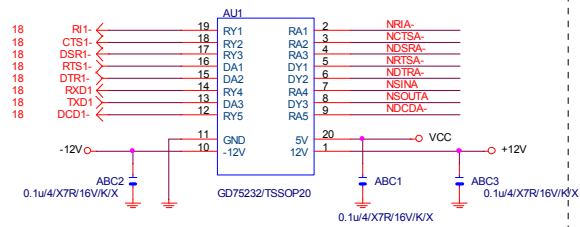
High: PCICLK INPUT form CLK Gen  
Low: PCICLK OUTPUT form IT8893 chip



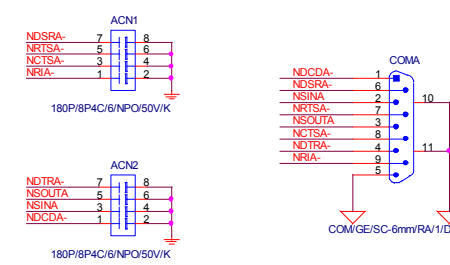
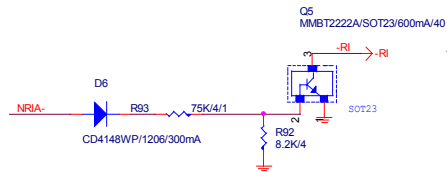




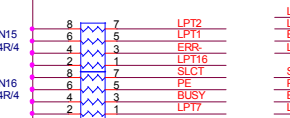
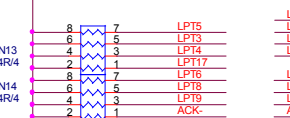
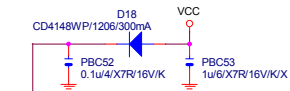
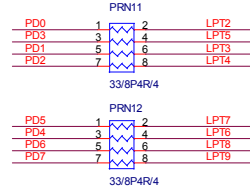
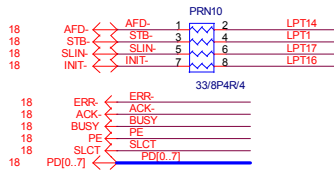
## COMA



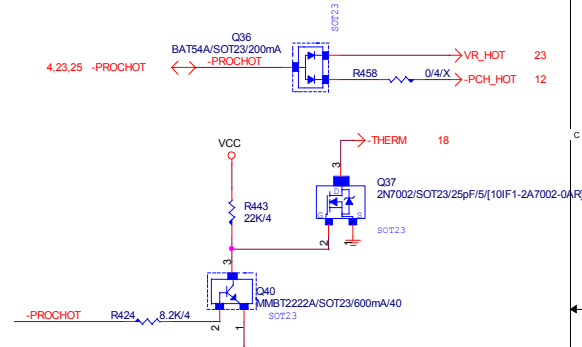
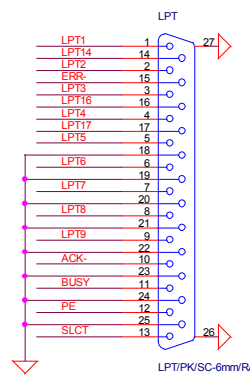
## COM RI



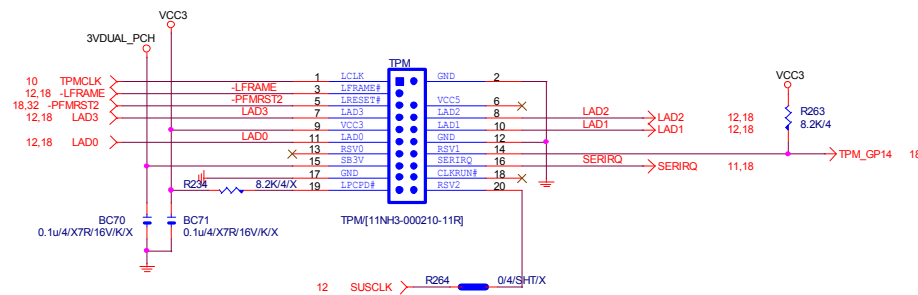
## LPT PORT

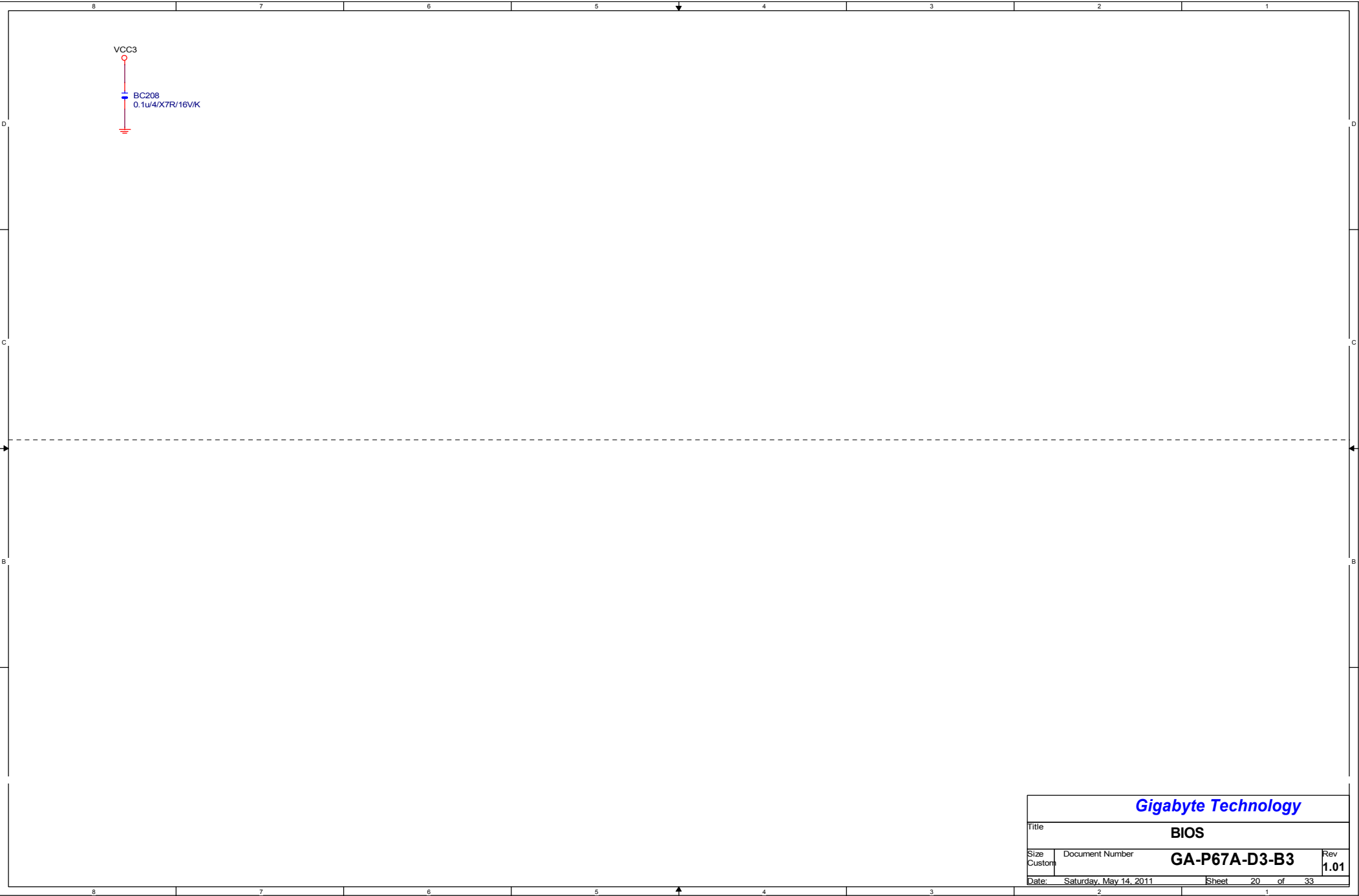


PC1 180p4/NPO/50V/J

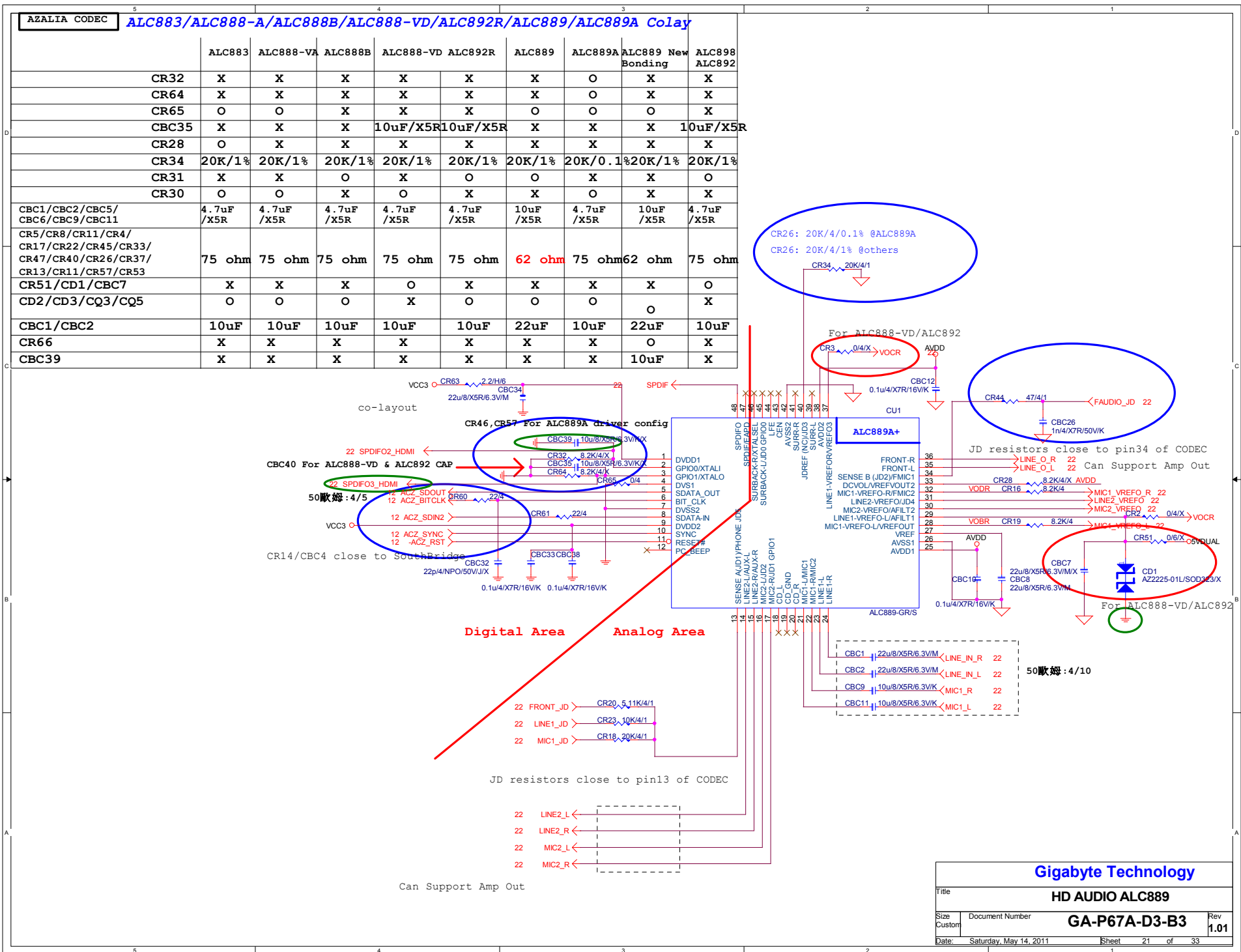


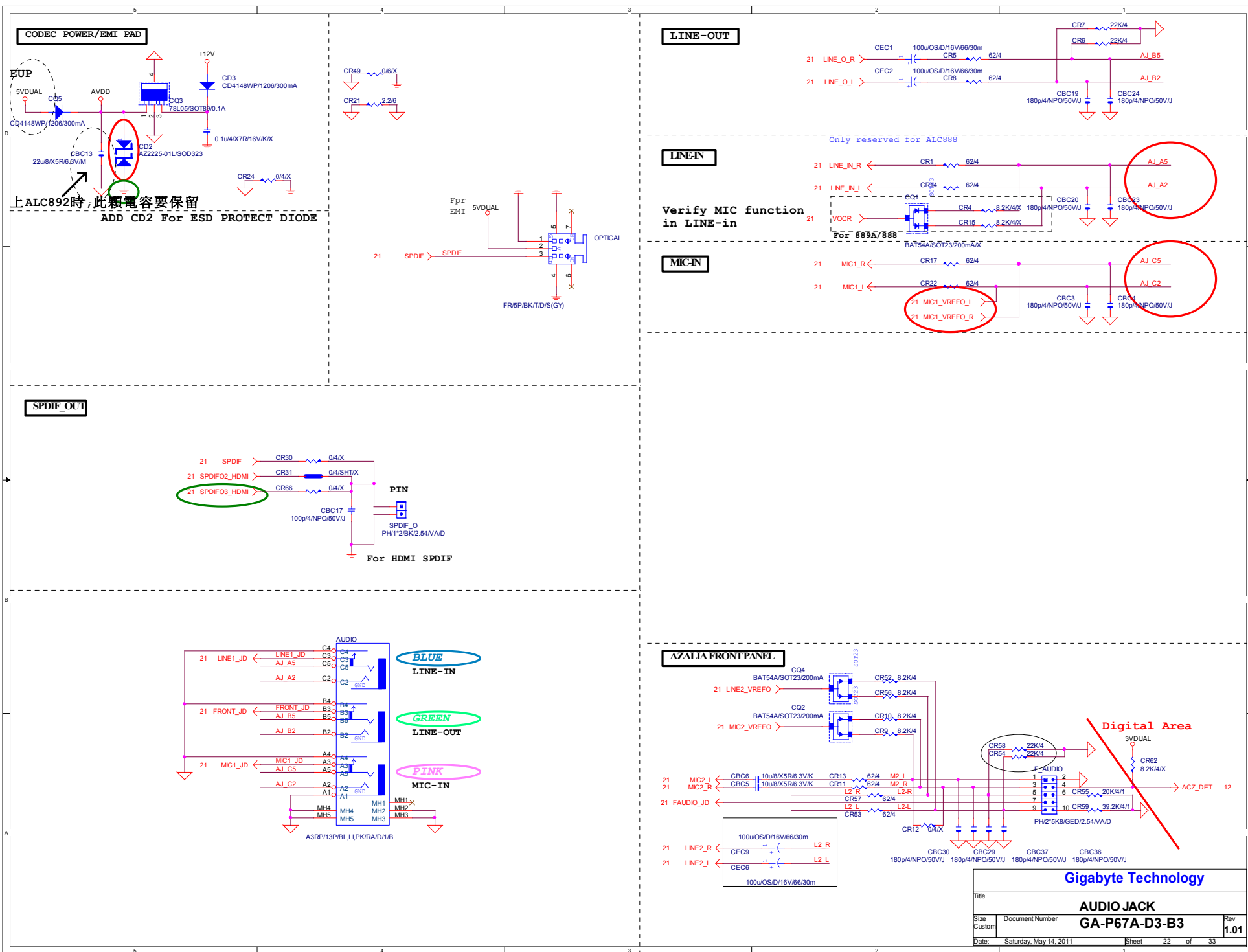
## TPM





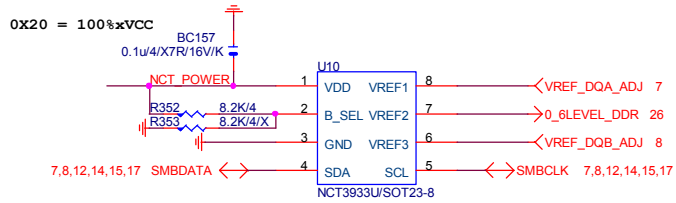
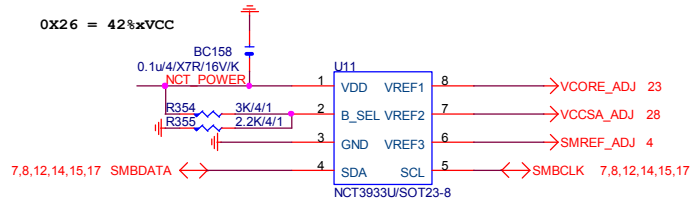
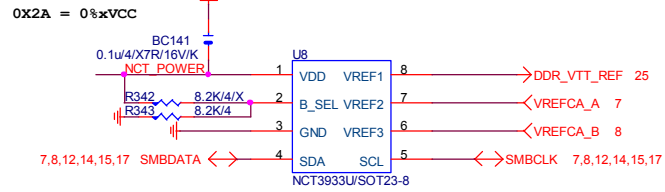
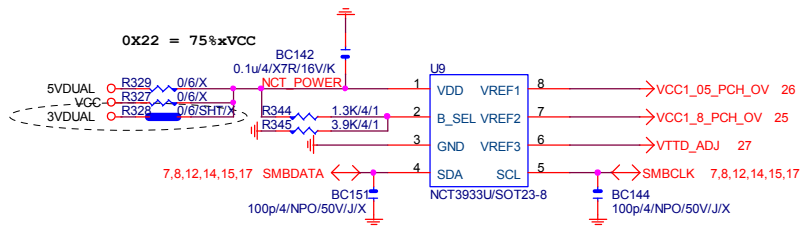
Gigabyte Technology			
Title		BIOS	
Size	Document Number	GA-P67A-D3-B3	Rev
Custom			1.01
Date:	Saturday, May 14, 2011	Sheet	20 of 33











up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAV	VREF_DDRB_DQ	CPU_VTT	SMREF

**Gigabyte Technology**

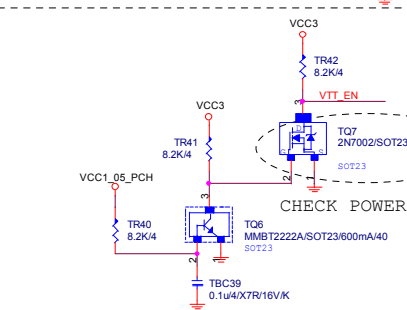
Title			CPU CORE VR-2	
Size	Document Number	GA-P67A-D3-B3		Rev
Custom				1.01
Date:	Saturday, May 14, 2011	Sheet	24	of 33



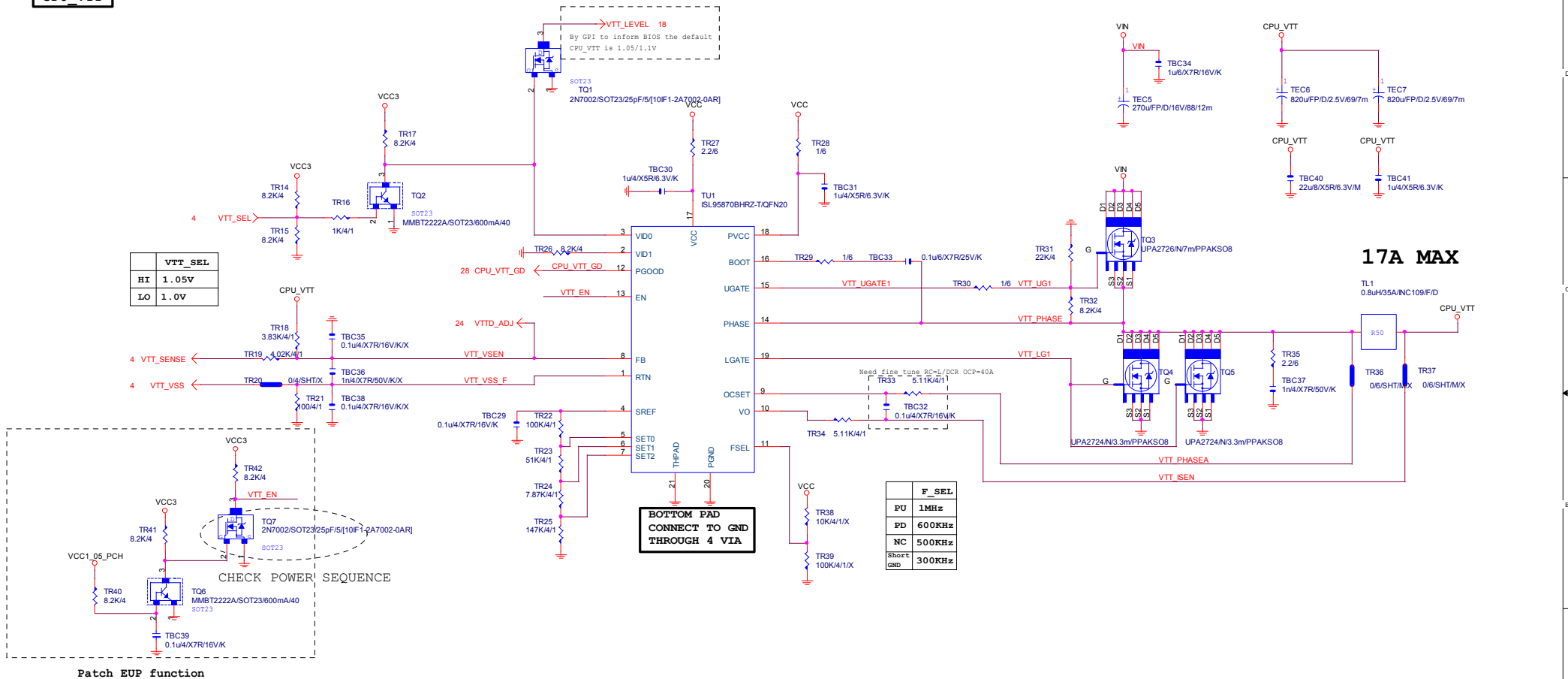


# CPU\_VTT

	VTT_SEL
HI	1.05V
LO	1.0V



Patch EUP function



**BOTTOM PAD  
CONNECT TO GND  
THROUGH 4 VIA**

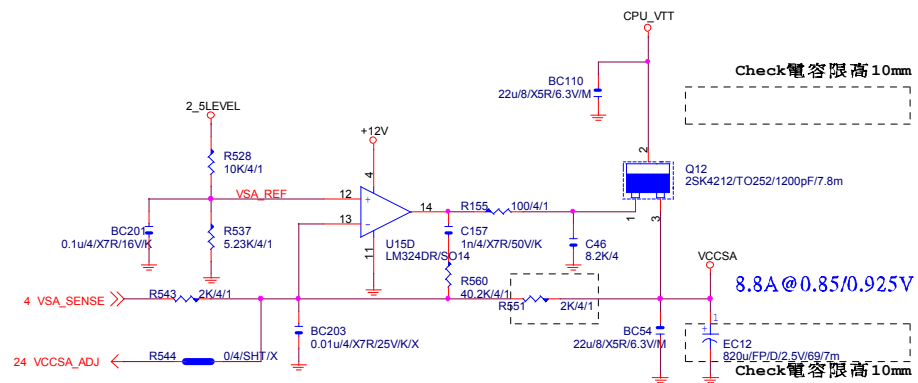
	F_SEL
PU	1MHz
PD	600KHz
NC	500KHz
Short GND	300KHz

**17A MAX**

**GIGABYTE**

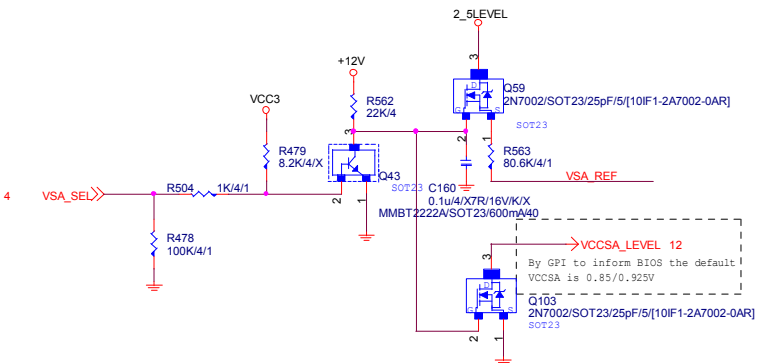
Title	CPU_VTT PWM_ISL95870		
Size	Custom	Document Number	GA-P67A-D3-B3
Date	Saturday, May 14, 2011	Rev	1.01
		Sheet	27 of 33

# VCC\_SA

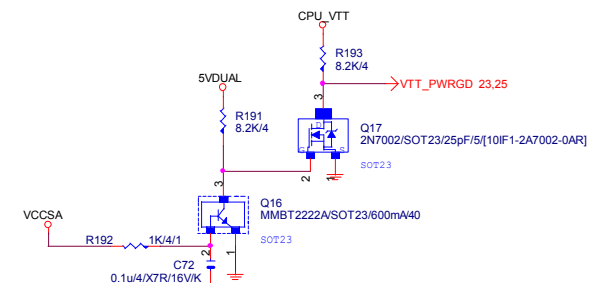
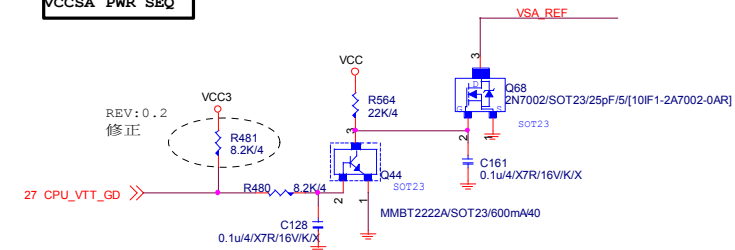


PDG 1.01

VSA_SEL	
HI	0.85V
LO	0.925V



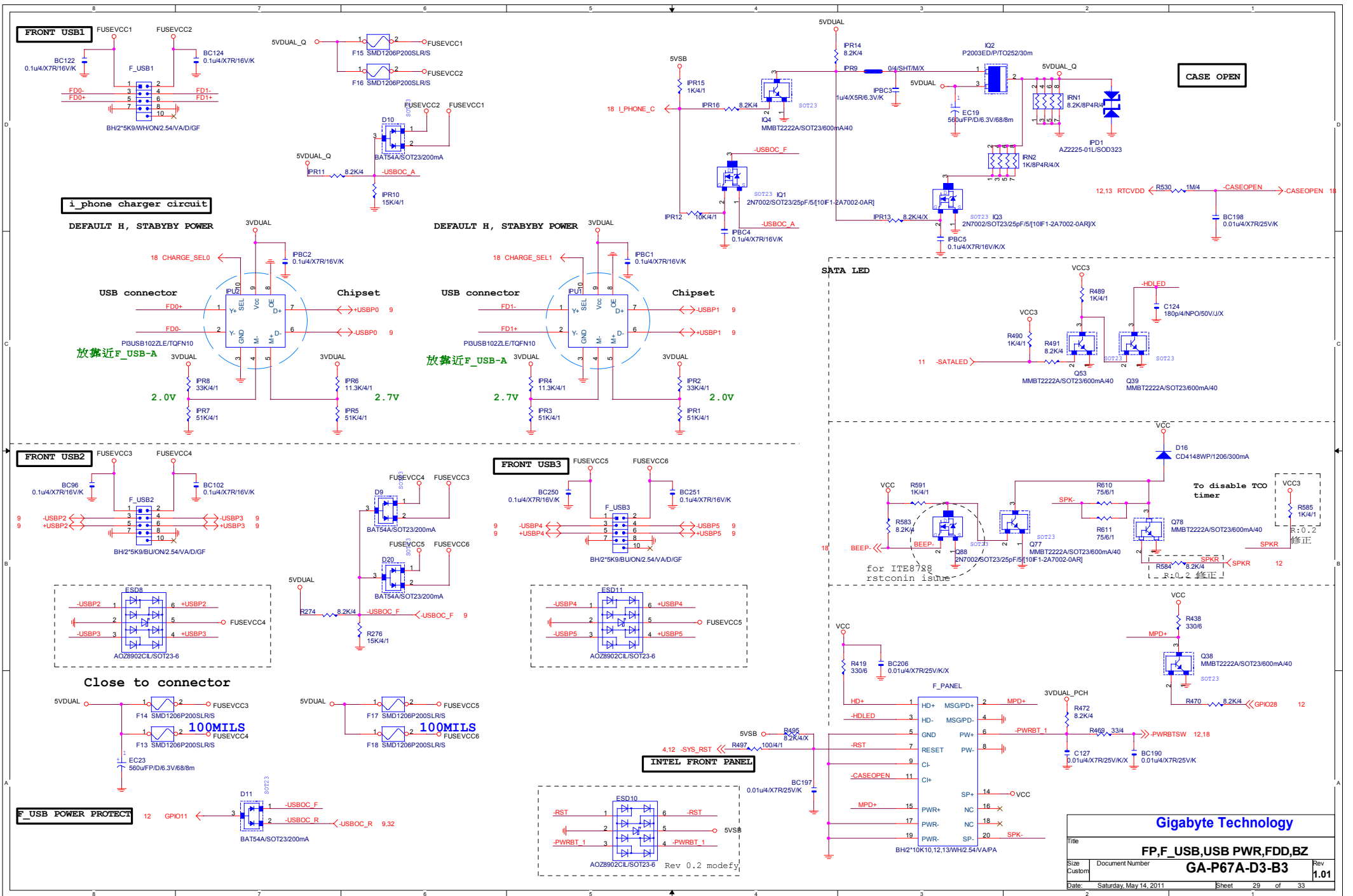
# VCCSA PWR SEQ



Gigabyte Technology

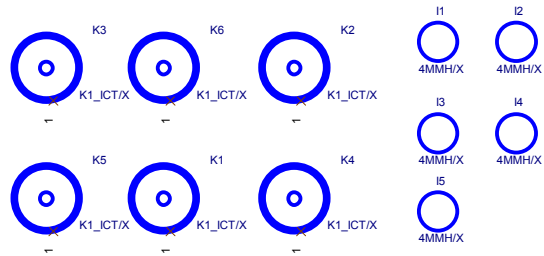
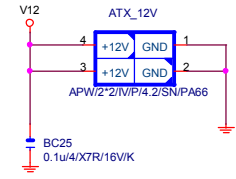
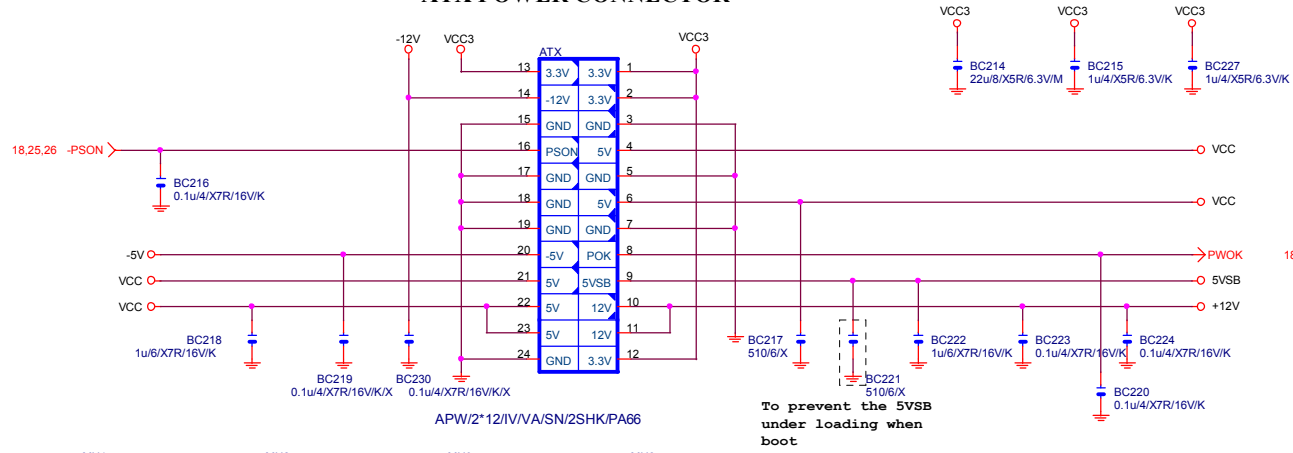
Title			CPU VTT PWM_ISL6312
Size	Document Number	GA-P67A-D3-B3	
Date:	Saturday, May 14, 2011	Sheet	28 of 33

Rev 1.01





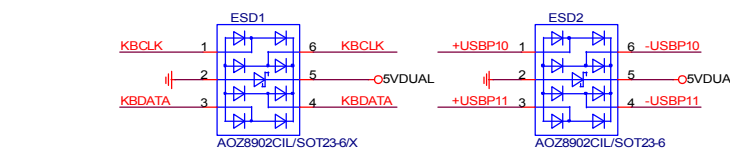
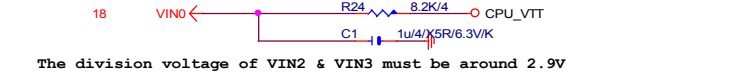
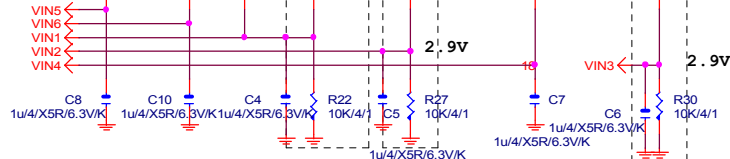
# ATX POWER CONNECTOR



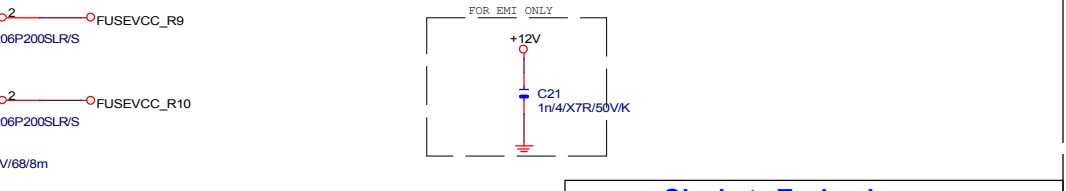
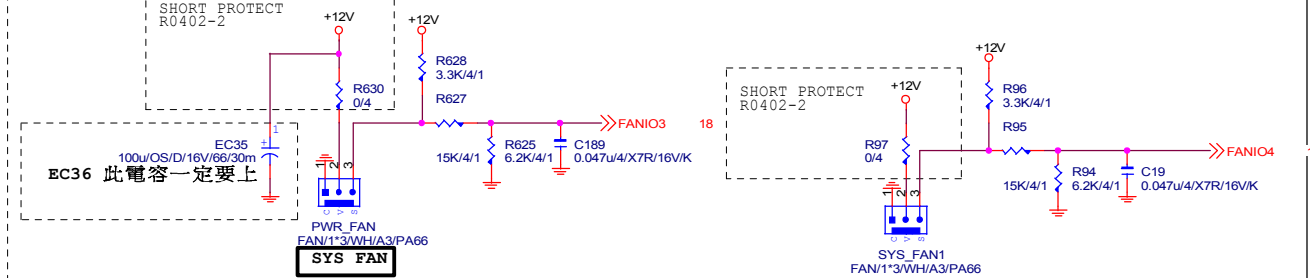
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-P67A-D3-B3	1.01
Date:	Saturday, May 14, 2011	Sheet 30 of 33

18  $V_{REF} \leftarrow$



## +12V



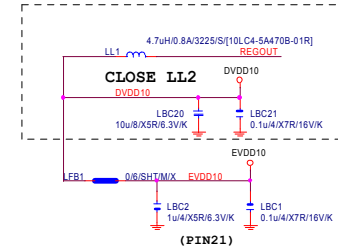
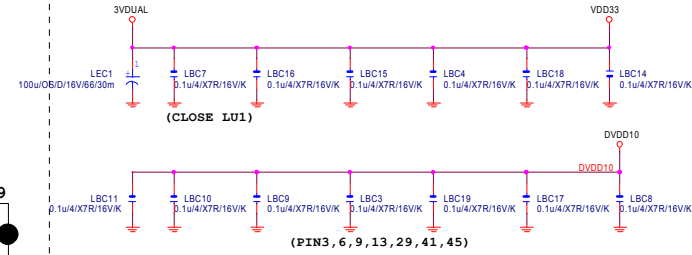
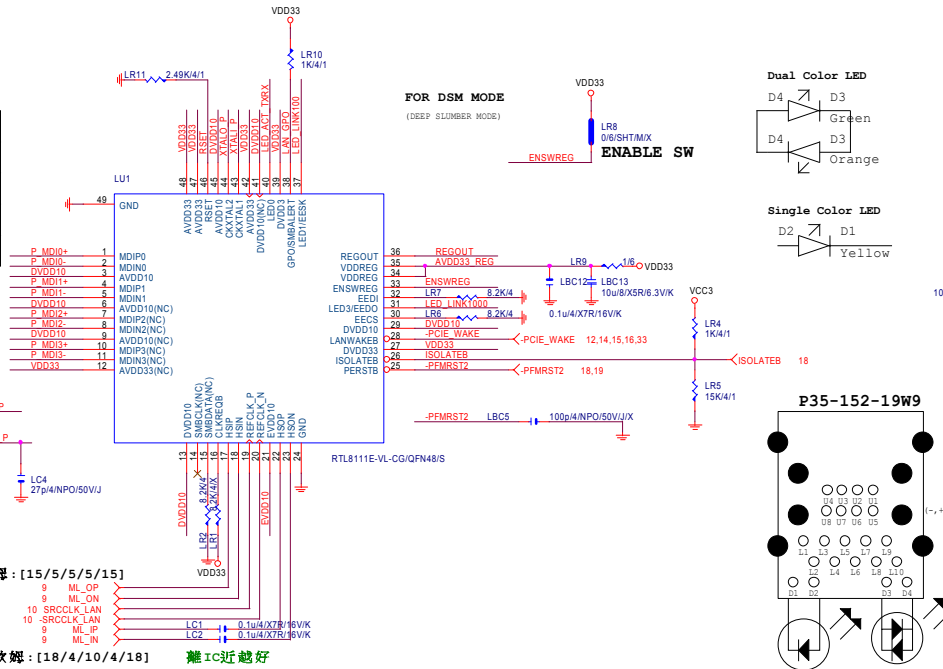
HWM,KB/MS, FAN CTRL

Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custpm	GA-P67A-D3-B3	1.01	
Date:	Saturday, May 14, 2011	Sheet	31 of 33

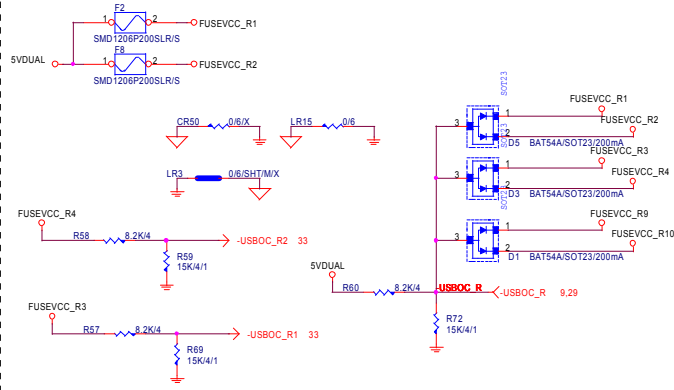
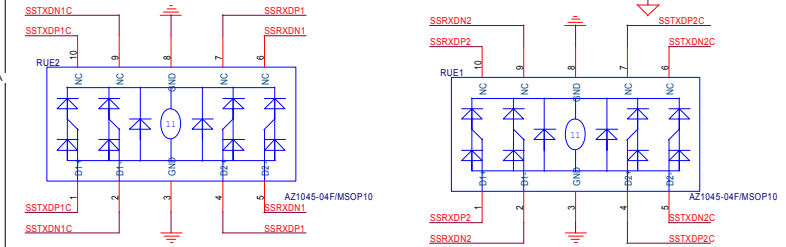
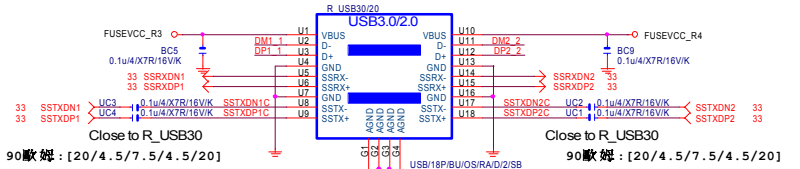
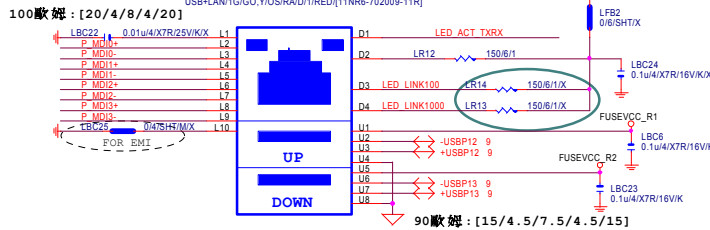
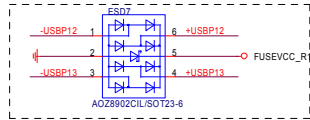
# PCIE-1G LAN

## Power domain chart

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



# USB30\_LAN CONNECTOR



# Close to connector

