

Model Name: GA-H57M-USB3

REV: 2.01

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU LGA1156-A
05	CPU LGA1156-B
06	CPU LGA1156-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	DDR III POWER CAP
10	PCH FDI,DMI,USB,PCIE,NVRAM
11	PCH DP,CLK BUFFER
12	PCH HOST,SATA,PCI
13	PCH GPIO,CTRL,AUDIO
14	PCH PWR,GND
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*4 SLOT
17	PCI SLOT 1,2
18	ITE 8720 LPC IO
19	Dual BIOS,PHOT,D-OC
20	ALC888B/889A
21	REAR AUDIO JACK
22	CLOCK GEN RTM885N-914-GR
23	DISCRETE POWER
24	DDR 15V,PWR SEQ
25	CPU VAXG PWM ISL6314CRZ
26	CPU VTT PWM ISL6322G
27	VCORE PWM ISL6334CRZ

SHEET

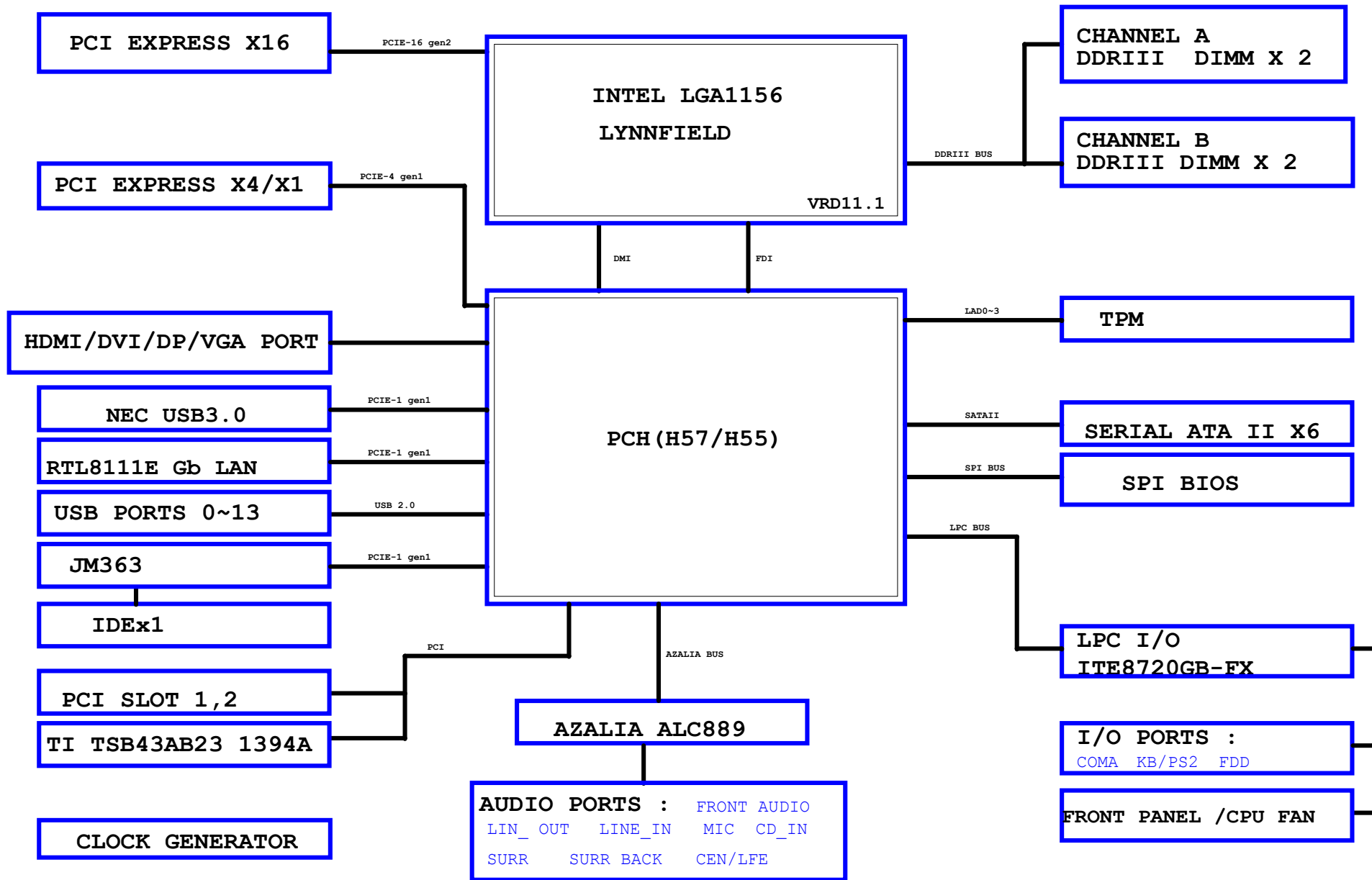
TITLE

28	F PANEL , F USB , FDD
29	ATX POWER,TPM
30	REALTEK RTL8111E
31	JMB363
32	TI TSB43AB23 1394
33	HDMI,DVI,DP
34	HWM,KB/MS , FAN CTRL
35	USB3.0 UP720200
36	TABLE LIST

Gigabyte Technology

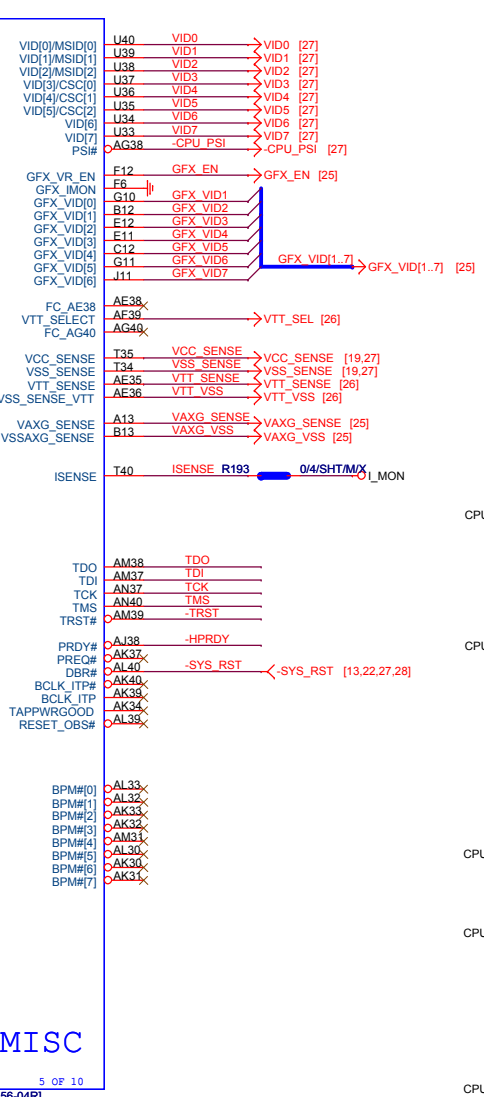
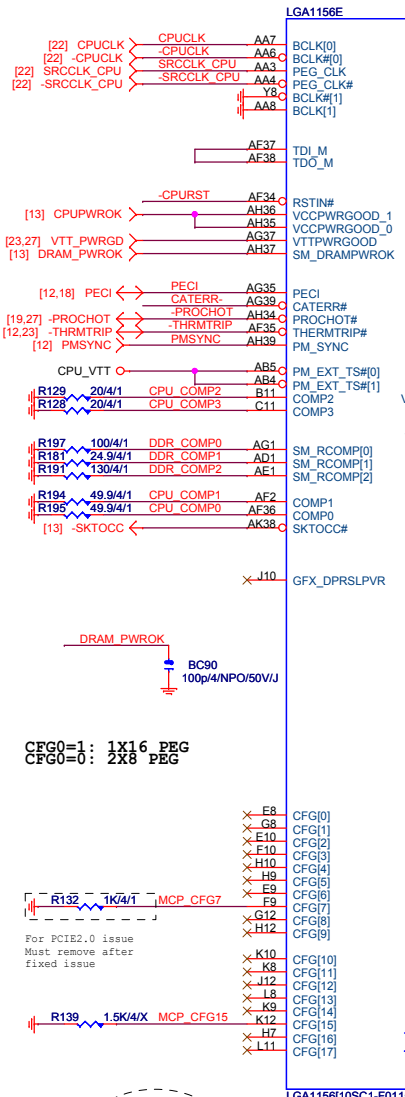
Title			
Cover Sheet			
Size Custom	Document Number	GA-H57M-USB3	Rev 2.01
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BLOCK DIAGRAM



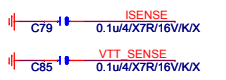
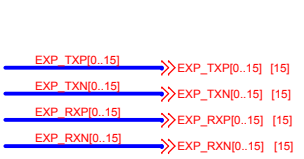
FDI : 16/5/5/16 (breakout min 8/4/5/4/8)

Impedance=80 +- 17.5%

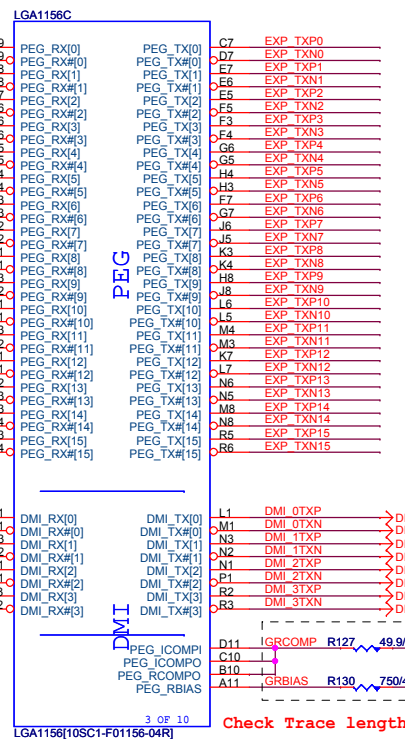
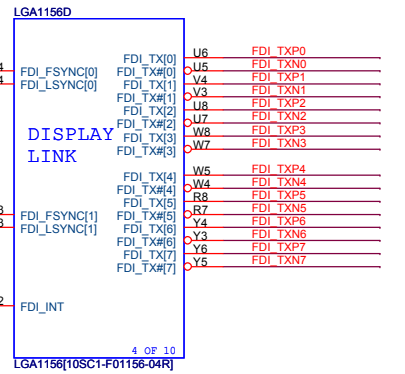
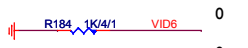
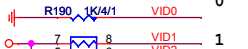
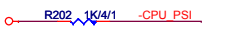


PCIEX16:16/5/5/16 (breakout min 8/4/5/4/8)

Impedance=80 +- 17.5%



DMI : 12/5/5/12 Impedance=80 +- 17.5%



FUNCTION	DEFAULT
VID0	MSI0 0
VID1	MSI1 1
VID2	MSI2 1
VID3	IMON CFG0 1
VID4	IMON CFG1 1
VID5	IMON CFG2 1
VID6	RSVD 0
VID7	VRD SEL 0
PSI#	RSVD

POWER ON CONFIG TABLE (Default=1.2250V)

CFG	H	L	NOTE
0			H:1X16, L:2X8
1	RSVD		
2	RSVD		
3	NORM	RSVD	LANE REVERSAL
4	DISABLE	ENABLE	DP PRESENCE
5	RSVD		
6	RSVD		
7	RSVD		ENGINEERING EXPERIMENT
15	RSVD		ENGINEERING EXPERIMENT

Gigabyte Technology

Title			CPU LGA1156-A	
Size	Document Number	GA-H57M-USB3		Rev
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Check Trace length/ width

LGA1156A

MAAA0 AW18	SA_MA[0]	AK3 DQSA0
MAAA1 AY15	SA_MA[1]	CAJ3 -DQSA0
MAAA2 AW15	SA_MA[2]	CAJ2 DMA0
MAAA3 AU15	SA_MA[3]	
MAAA4 AW14	SA_MA[4]	AH1 MDA0
MAAA5 AY13	SA_MA[5]	AJ4 MDA1
MAAA6 AV14	SA_MA[6]	AL2 MDA2
MAAA7 AW13	SA_MA[7]	AL1 MDA3
MAAA8 AU14	SA_MA[8]	AG2 MDA4
MAAA9 AW12	SA_MA[9]	AH2 MDA5
MAAA10 AT19	SA_MA[10]	AK1 MDA6
MAAA11 AU13	SA_MA[11]	AK2 MDA7
MAAA12 AU11	SA_MA[12]	
MAAA13 AU24	SA_MA[13]	AP2 DQSA1
MAAA14 AT11	SA_MA[14]	AP3 -DQSA1
MAAA15 AR10	SA_MA[15]	AN1 DMA1
[7] SWEA <-	SA_WE#	AN3 MDA8
[7] SCASA <-	SA_CAS#	AN2 MDA9
[7] SRASA <-	SA_RAS#	AR3 MDA10
[7] SBAA0 <-	SA_BS[0]	AR2 MDA11
[7] SBAA1 <-	SA_BS[1]	AM3 MDA12
[7] SBAA2 <-	SA_BS[2]	AM2 MDA13
[7] CSAA0 <-	SA_CS#0	AP1 MDA14
[7] CSAA1 <-	SA_CS#1	AR4 MDA15
[7] CSAA2 <-	SA_CS#2	ALU4 DQSA2
[7] CSAA3 <-	SA_CS#3	AU3 -DQSA2
[7] CKEA0 <-	SA_CKE[0]	AT4 MDA16
[7] CKEA1 <-	SA_CKE[1]	AU2 MDA17
[7] CKEA2 <-	SA_CKE[2]	AW3 MDA18
[7] CKEA3 <-	SA_CKE[3]	AW4 MDA19
MODT_A0 AV23	SA_ODT[0]	AT3 MDA20
MODT_A1 AV24	SA_ODT[1]	AT1 MDA21
MODT_A2 AW23	SA_ODT[2]	AV2 MDA22
MODT_A3 AY24	SA_ODT[3]	AV2 MDA23
[7] DCLKA0 <-	SA_CK[0]	AY6 DQSA3
[7] DCLKA1 <-	SA_CK[1]	AW6 -DQSA3
[7] DCLKA2 <-	SA_CK[2]	AW6 DMA3
[7] DCLKA3 <-	SA_CK[3]	AW5 MDA24
[7] DCLKK3 <-	SA_CK#3	AY5 MDA25
[7] DCLKK3 <-	SA_CK#3	AU8 MDA26
[7] DCLKK3 <-	SA_CK#3	AY8 MDA27
[7] DCLKK3 <-	SA_CK#3	AV5 MDA28
[7] DCLKK3 <-	SA_CK#3	AW6 MDA29
[7] DCLKK3 <-	SA_CK#3	AW7 MDA30
[7] DCLKK3 <-	SA_CK#3	AW7 MDA31
[7.8] DDR3_RST <-	SM_DRAMRST#	AR28 DQSA4
XAK22 <-	SA_CS#4	AT29 -DQSA4
XAM22 <-	SA_CS#5	AN29 DMA4
XL23 <-	SA_CS#6	
XAK23 <-	SA_CS#7	AN27 MDA32
XAL10 <-	SA_DQS[8]	AT28 MDA33
XAM10 <-	SA_DQS#8	AP28 MDA34
XAP10 <-	SA_ECC_CB[0]	AP30 MDA35
XAN10 <-	SA_ECC_CB[1]	AM26 MDA36
XAR11 <-	SA_ECC_CB[2]	AP27 MDA37
XAP11 <-	SA_ECC_CB[3]	AR29 MDA38
XAK9 <-	SA_ECC_CB[4]	AN30 MDA39
XAL9 <-	SA_ECC_CB[5]	
XAK11 <-	SA_ECC_CB[6]	AV32 DQSA5
XAM11 <-	SA_ECC_CB[7]	AW32 -DQSA5
		AW31 DMA5
		SA_DQS[5]
		SA_DQS#5
		SA_DM[5]
		SA_DQ[40]
		SA_DQ[41]
		SA_DQ[42]
		SA_DQ[43]
		SA_DQ[44]
		SA_DQ[45]
		SA_DQ[46]
		SA_DQ[47]
		AW36 DQSA6
		AV35 -DQSA6
		AW35 DMA6
		AW35 MDA48
		AY35 MDA49
		AV37 MDA50
		AU37 MDA51
		AY34 MDA52
		AW34 MDA53
		AV36 MDA54
		AW37 MDA55
		AR30 DQSA7
		AR38 -DQSA7
		AT38 DMA7
		AT39 MDA56
		AT40 MDA57
		AN38 MDA58
		AN39 MDA59
		AU38 MDA60
		AP39 MDA61
		AV39 MDA62
		AW39 MDA63

DDR_A

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LGA1156[10SC1-F01156-04R]

[7] DQSA[0..7] <-	DQSA[0..7]
[7] -DQSA[0..7] <-	-DQSA[0..7]
[8] DQS[0..7] <-	DQS[0..7]
[8] -DQS[0..7] <-	-DQS[0..7]
[7] MODT_A[0..3] <-	MODT_A[0..3]
[8] MODT_B[0..3] <-	MODT_B[0..3]
[7] MAAA[0..15] <-	MAAA[0..15]
[8] MAAB[0..15] <-	MAAB[0..15]
[7] DMA[0..7] <-	DMA[0..7]
[8] DMB[0..7] <-	DMB[0..7]
[7] MDA[0..63] <-	MDA[0..63]
[8] MDB[0..63] <-	MDB[0..63]

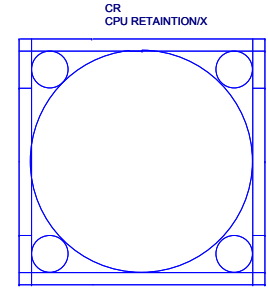
LGA1156B

MAAB0 AU20	SB_MA[0]	AF4 DQSB0
MAAB1 AU18	SB_MA[1]	AE5 -DQSB0
MAAB2 AV18	SB_MA[2]	AE4 DMB0
MAAB3 AU17	SB_MA[3]	
MAAB4 AY18	SB_MA[4]	AD7 MDB0
MAAB5 AV17	SB_MA[5]	AD6 MDB1
MAAB6 AW17	SB_MA[6]	AH8 MDB2
MAAB7 AU16	SB_MA[7]	AJ8 MDB3
MAAB8 AT17	SB_MA[8]	AC7 MDB4
MAAB9 AY16	SB_MA[9]	AD6 MDB5
MAAB10 AY25	SB_MA[10]	AF5 MDB6
MAAB11 AW16	SB_MA[11]	AE6 MDB7
MAAB12 AW15	SB_MA[12]	AH6 DQSB1
MAAB13 AT17	SB_MA[13]	AJ5 -DQSB1
MAAB14 AY12	SB_MA[14]	AH4 DMB1
MAAB15 AV11	SB_MA[15]	
[8] SWEB <-	SB_WE#	AG5 MDB8
[8] SCASB <-	SB_CAS#	AH7 MDB9
[8] SRASB <-	SB_RAS#	AK6 MDB10
[8] SBAB0 <-	SB_BS[0]	AL4 MDB11
[8] SBAB1 <-	SB_BS[1]	AG6 MDB12
[8] SBAB2 <-	SB_BS[2]	AC4 MDB13
[8] CSB0 <-	SB_CS#0	AJ7 MDB14
[8] CSB1 <-	SB_CS#1	AK7 MDB15
[8] CSB2 <-	SB_CS#2	
[8] CSB3 <-	SB_CS#3	AN6 DQSB2
[8] CKEB0 <-	SB_CKE[0]	AM6 -DQSB2
[8] CKEB1 <-	SB_CKE[1]	AM7 DMB2
[8] CKEB2 <-	SB_CKE[2]	AL6 MDB16
[8] CKEB3 <-	SB_CKE[3]	AN6 MDB17
		AP6 MDB18
		AR5 MDB19
		AL5 MDB20
		AM4 MDB21
		AN7 MDB22
		AP5 MDB23
		AR6 DQSB3
		AM8 -DQSB3
		AT7 DMB3
[8] DCLKB0 <-	SB_CK[0]	AT5 MDB24
[8] DCLKB0 <-	SB_CK#0	AR7 MDB25
[8] DCLKB1 <-	SB_CK[1]	AR9 MDB26
[8] DCLKB1 <-	SB_CK#1	AM8 MDB27
[8] DCLKB2 <-	SB_CK[2]	AN8 MDB28
[8] DCLKB2 <-	SB_CK#2	AR6 MDB29
[8] DCLKB3 <-	SB_CK[3]	AL8 MDB30
[8] DCLKB3 <-	SB_CK#3	AT9 MDB31
		SB_DQ[24]
		SB_DQ[25]
		SB_DQ[26]
		SB_DQ[27]
		SB_DQ[28]
		SB_DQ[29]
		SB_DQ[30]
		SB_DQ[31]
		AT25 MDB32
		AP23 MDB33
		AR25 MDB34
		AR26 MDB35
		AT23 MDB36
		AP22 MDB37
		AR25 MDB38
		AT26 MDB39
		AP32 DQSB5
		AR32 -DQSB5
		AN32 DMB5
		AT32 MDB40
		AP31 MDB41
		AR33 MDB42
		AM32 MDB43
		AT31 MDB44
		AR31 MDB45
		AR34 MDB46
		AT33 MDB47
		AR36 DQSB6
		AR37 -DQSB6
		AM33 DMB6
		AR35 MDB48
		AT36 MDB49
		AN33 MDB50
		AP36 MDB51
		AP34 MDB52
		AT35 MDB53
		AN34 MDB54
		AP37 MDB55
		AL37 DQSB7
		AM36 -DQSB7
		AK35 DMB7
		AL35 MDB56
		AM35 MDB57
		AJ36 MDB58
		AJ37 MDB59
		AN35 MDB60
		AM34 MDB61
		AJ35 MDB62
		AL36 MDB63

DDR_B

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LGA1156[10SC1-F01156-04R]



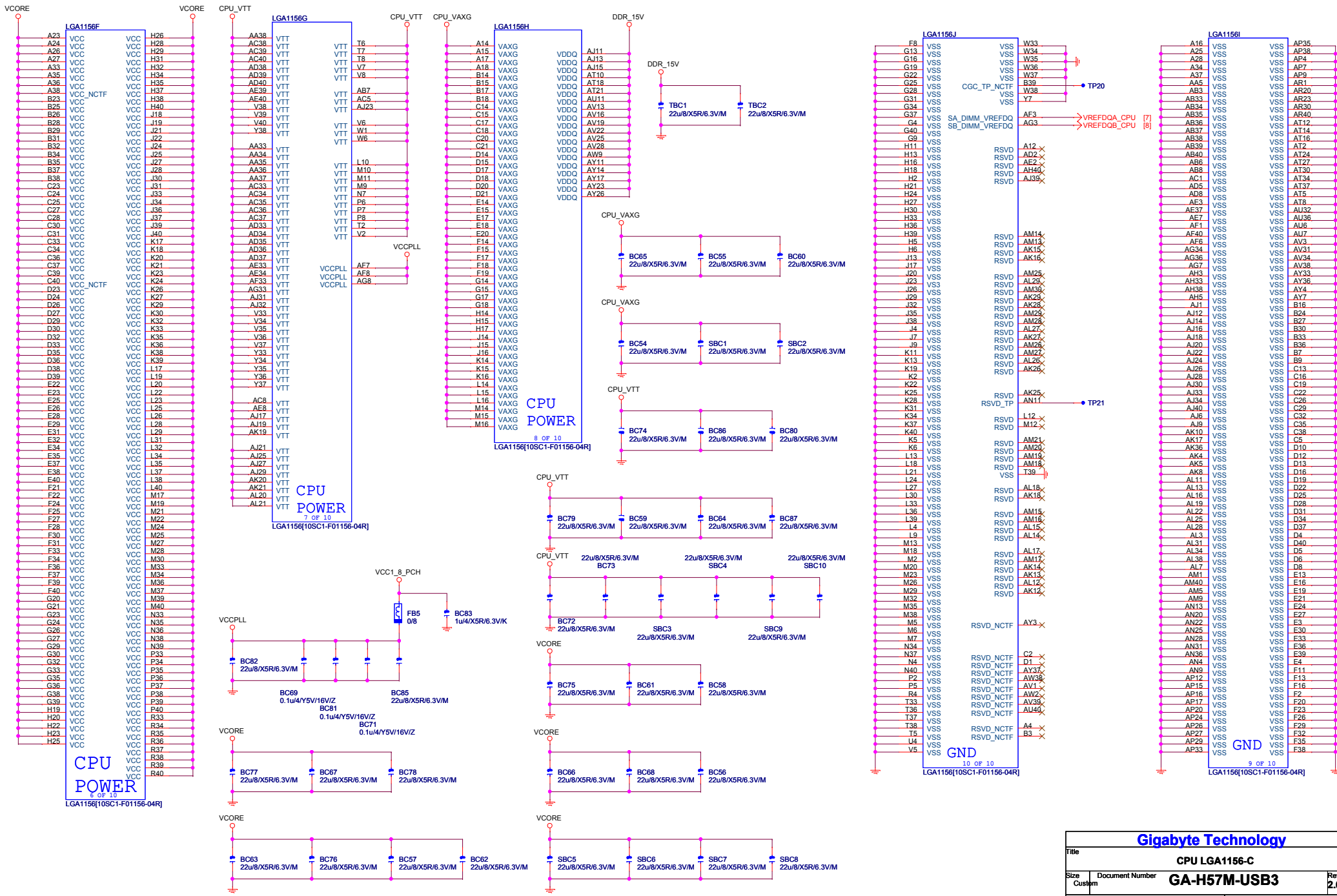
Need check the new CPU ME

LGA1156_P

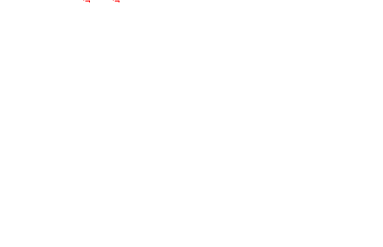
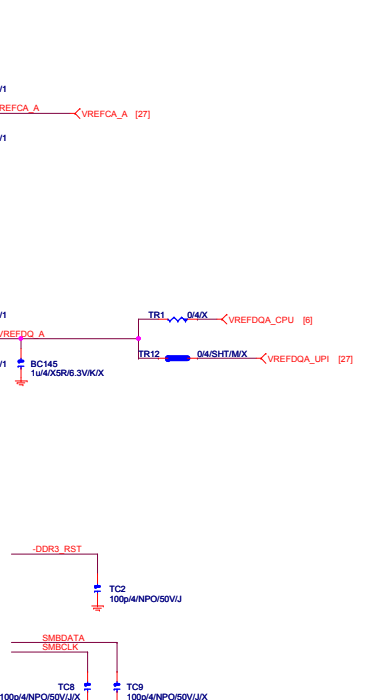
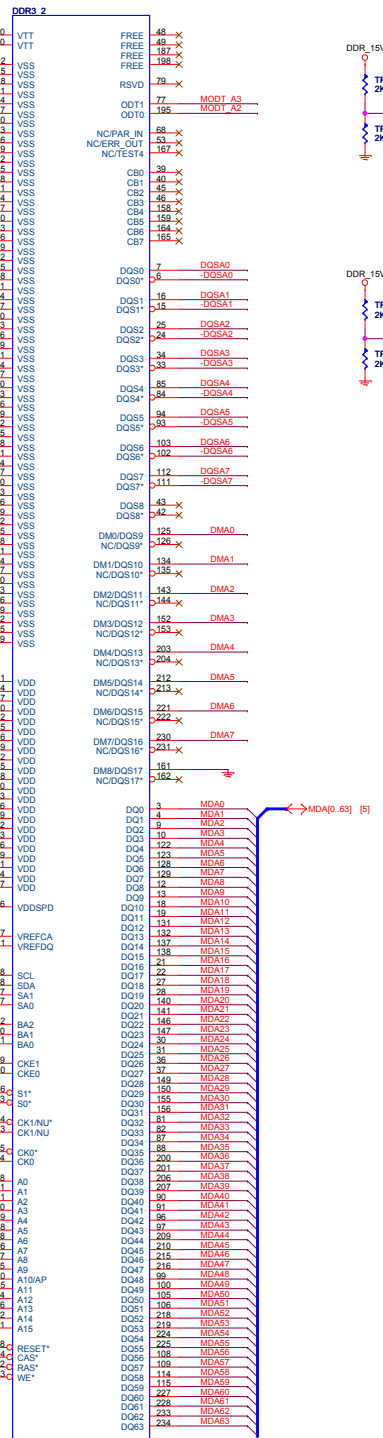
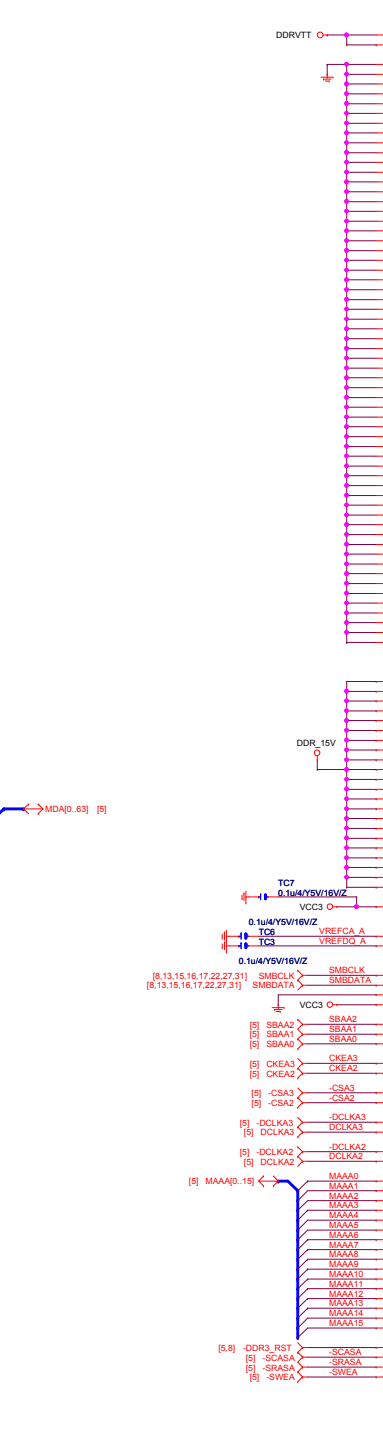
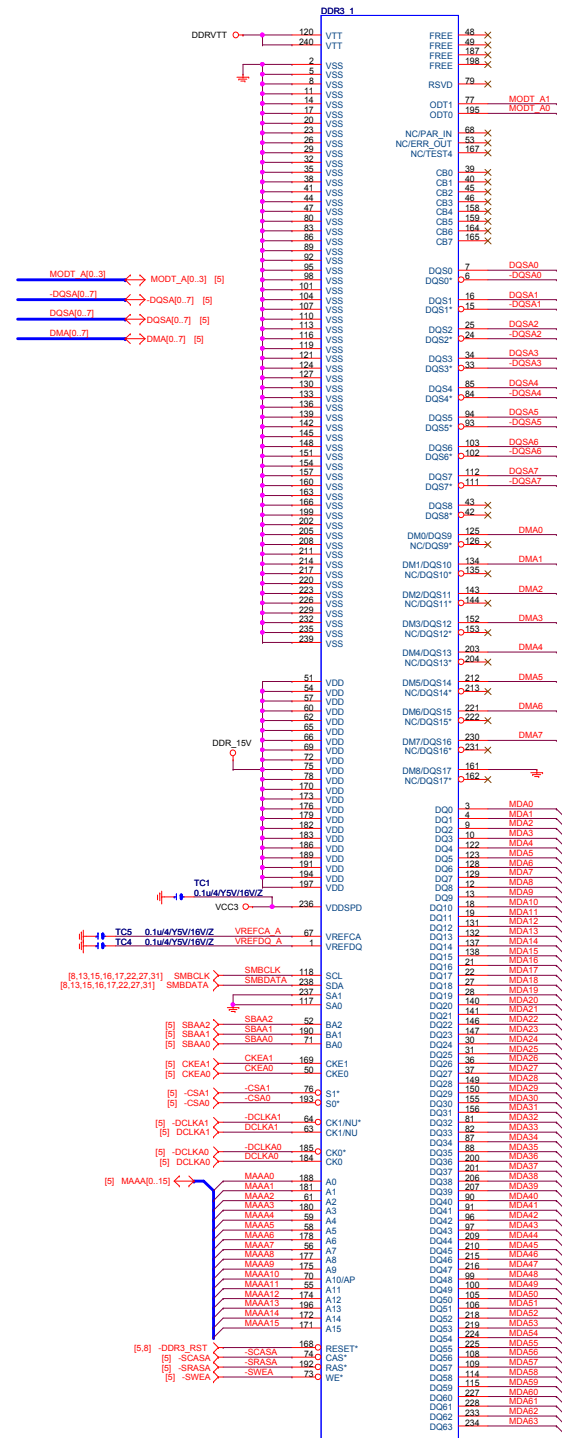


PLATE+HLM[12KRC-0F0001-04R]

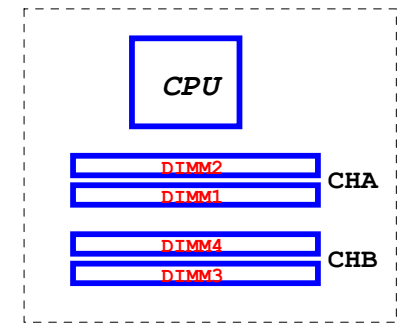
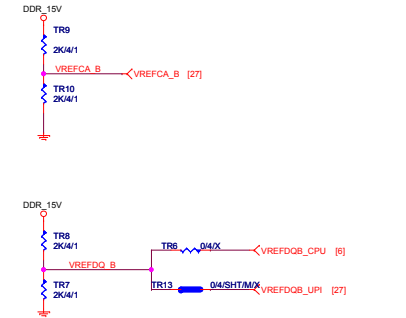
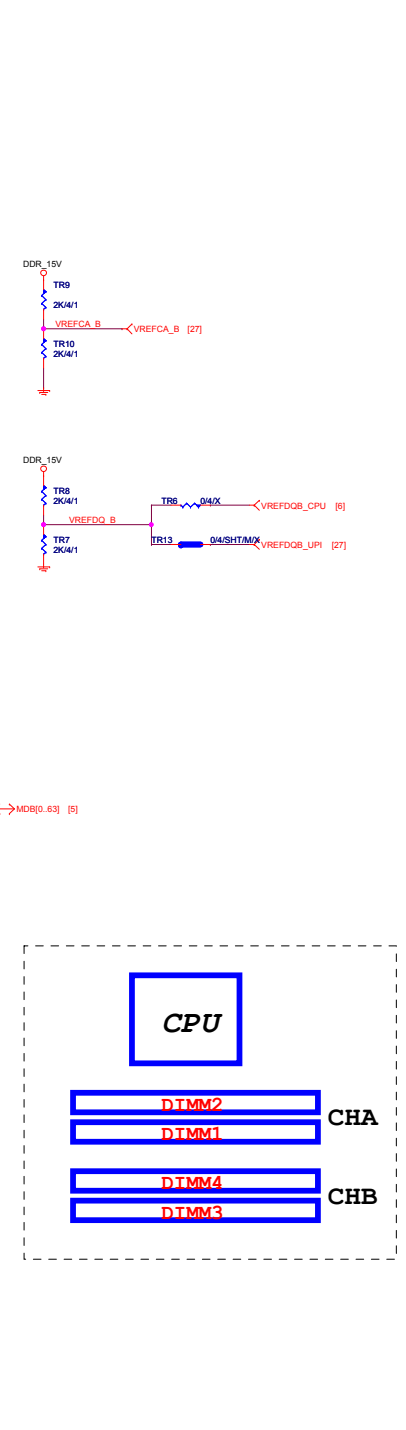
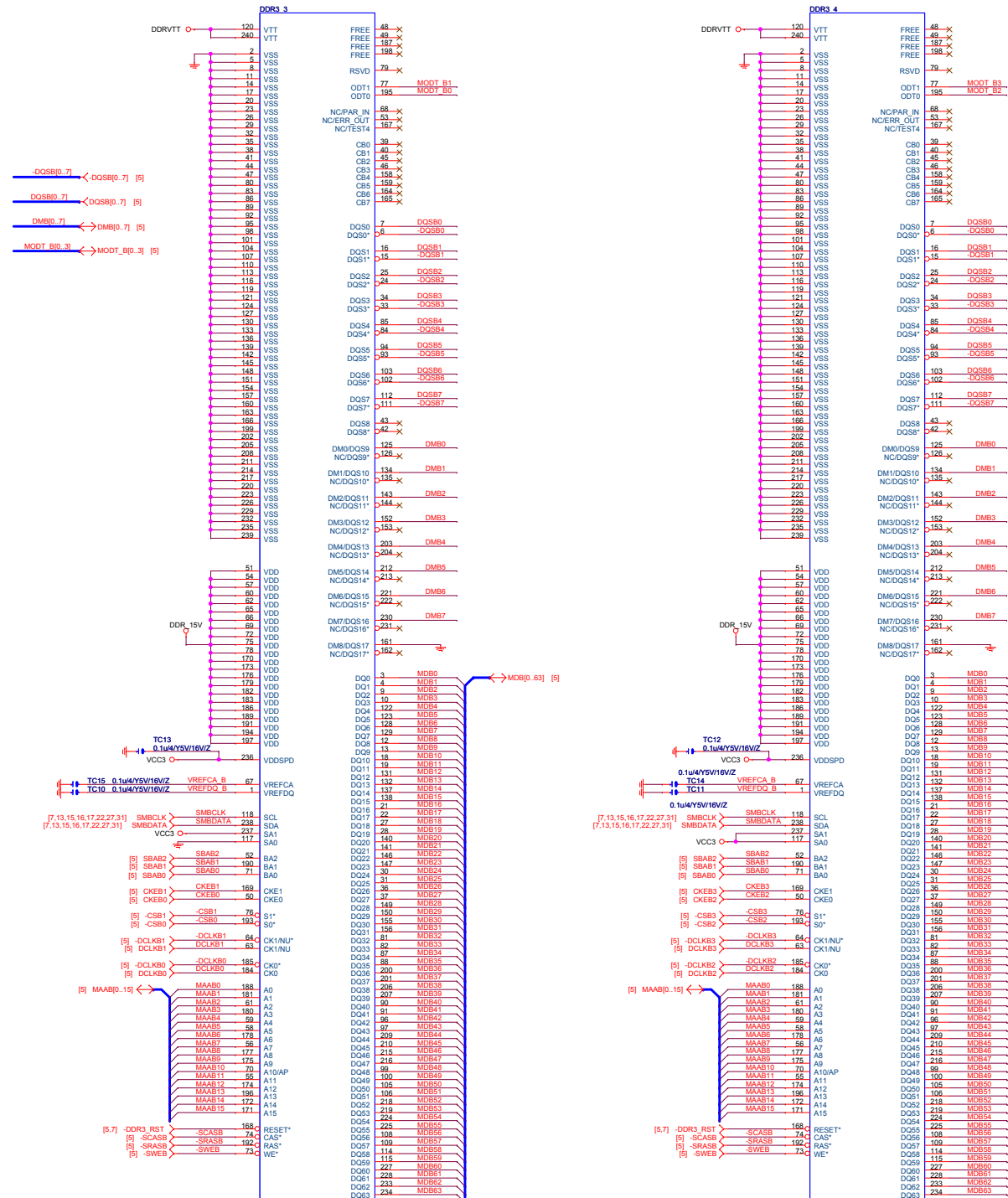
Gigabyte Technology			
Title			
CPU LGA1156-B			
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CPU LGA1156-C			
GA-H57M-USB3			
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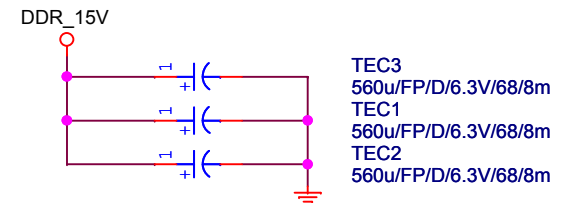
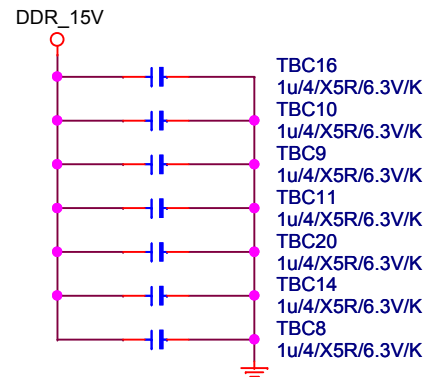
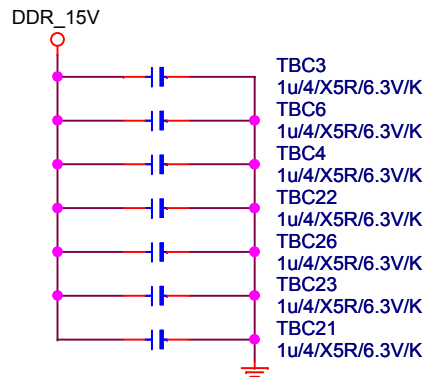
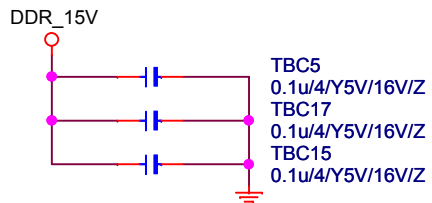


Gigabyte Technology	
File	DDR3 CHANNEL A
Size	Document Number
Custom	GA-H57M-USB3
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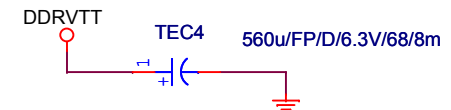
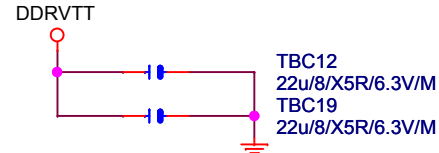
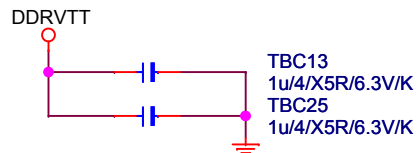
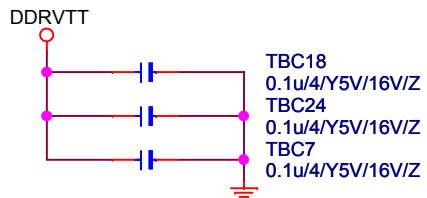


DDR TERMINATION CHANNEL A/B

DDR15V Decouple



DDRVTT Decouple

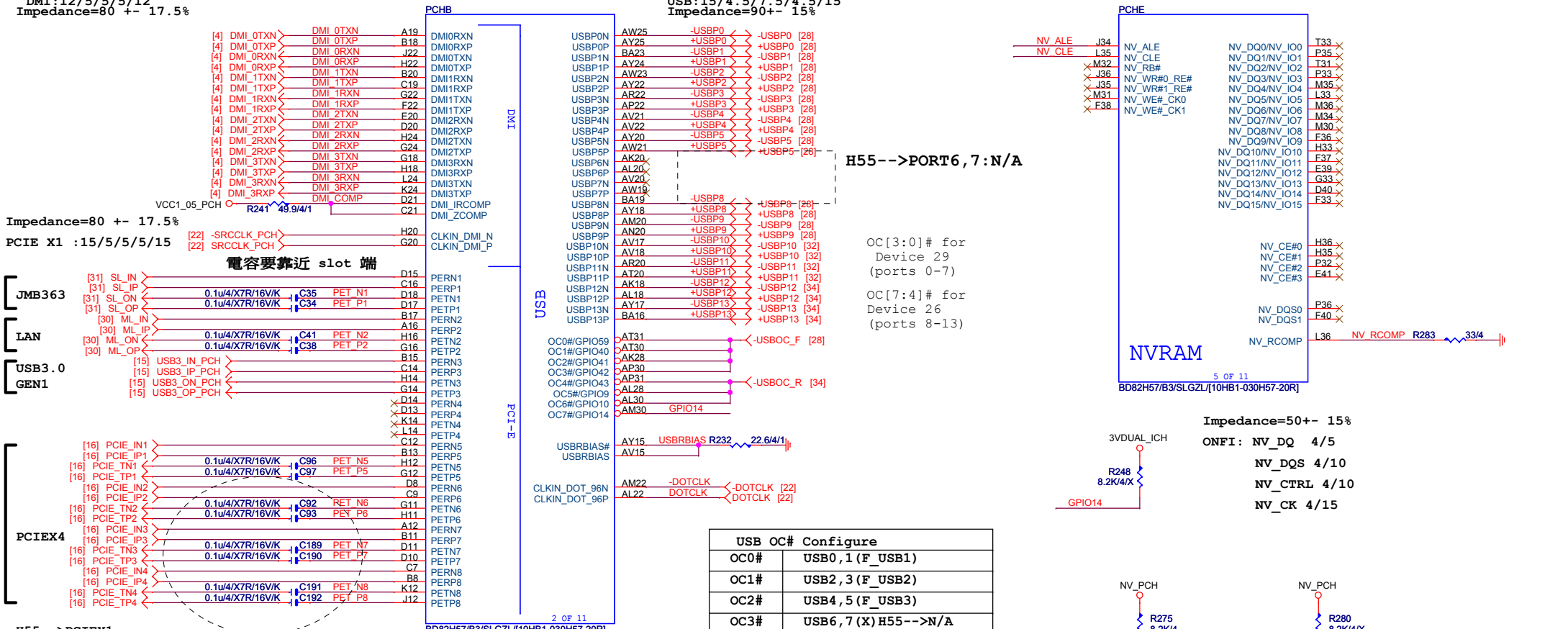


REF GND層GND, VCC層GND要塞孔

Gigabyte Technology		
Title DDRIII POWER CAP		
Size A	Document Number GA-H57M-USB3	Rev 2.01
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DMI:12/5/5/5/12
Impedance=80 +- 17.5%

USB:15/4.5/7.5/4.5/15
Impedance=90+- 15%

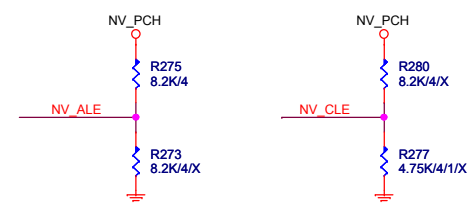


H55-->PORT6, 7 : N/A

OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC# Configure	
OC0#	USB0, 1 (F_USB1)
OC1#	USB2, 3 (F_USB2)
OC2#	USB4, 5 (F_USB3)
OC3#	USB6, 7 (X) H55-->N/A
OC4#	USB8, 9 (F_USB4)
OC5#	USB10~11 (USB_1394_ESATA)
OC6#	USB12~13 (KB_USB)
OC7#	GPIO14

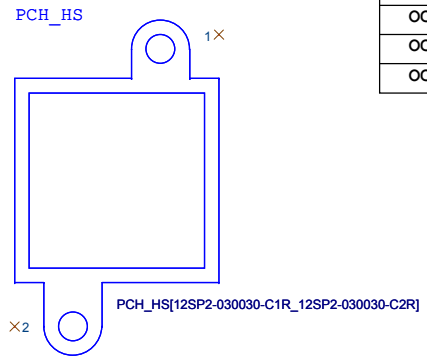
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ONFI : NV_DQ 4/5
NV_DQS 4/10
NV_CTRL 4/10
NV_CK 4/15



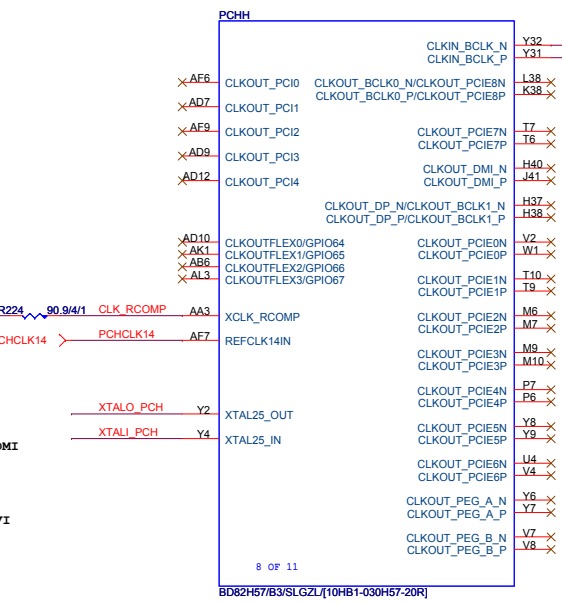
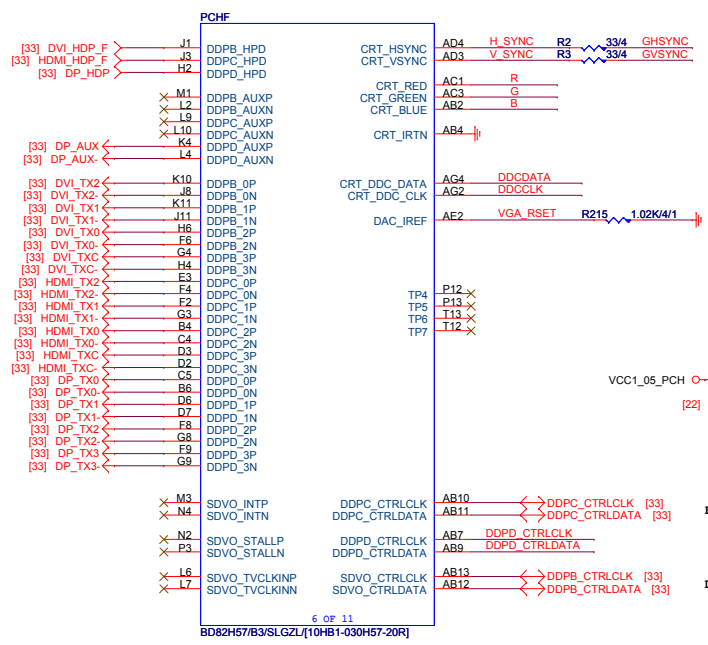
DMI Terminator voltage
HI : AC COUP : TX/RX TO VCC
LO : DC COUP : HALF SWING

NV_ALE	
Hi	Enable Danbury
Lo	Disable Danbury

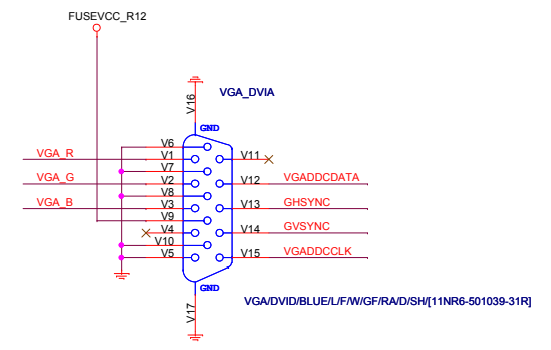
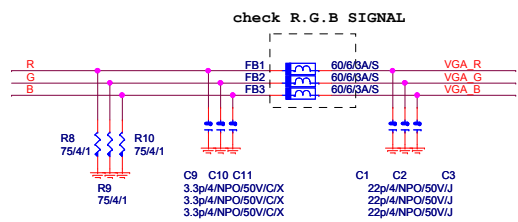
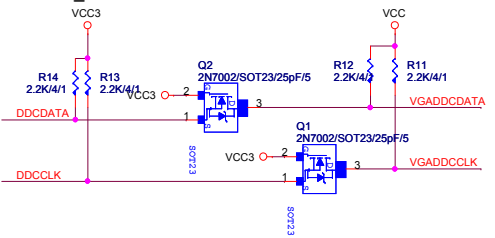
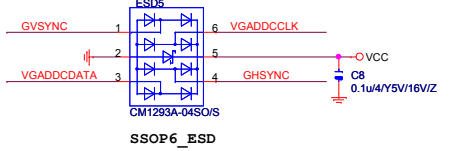
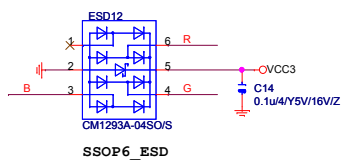
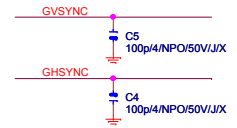
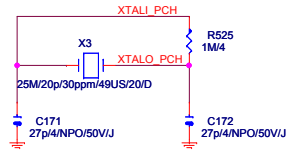
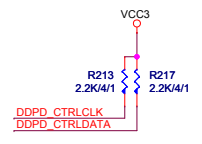
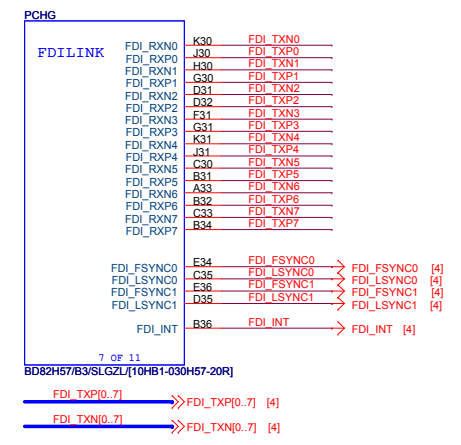
Intel anti theft technology



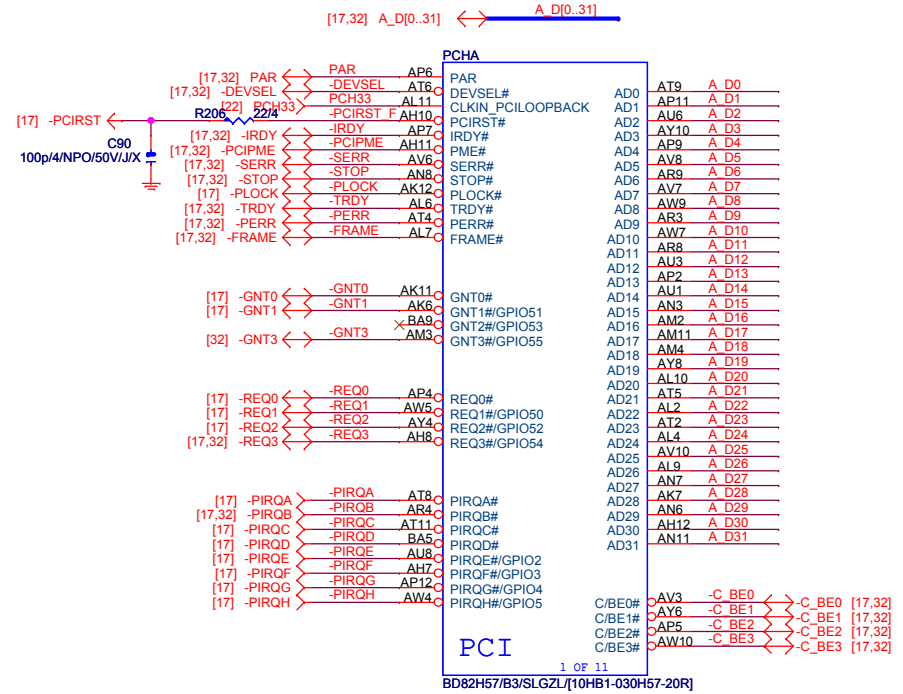
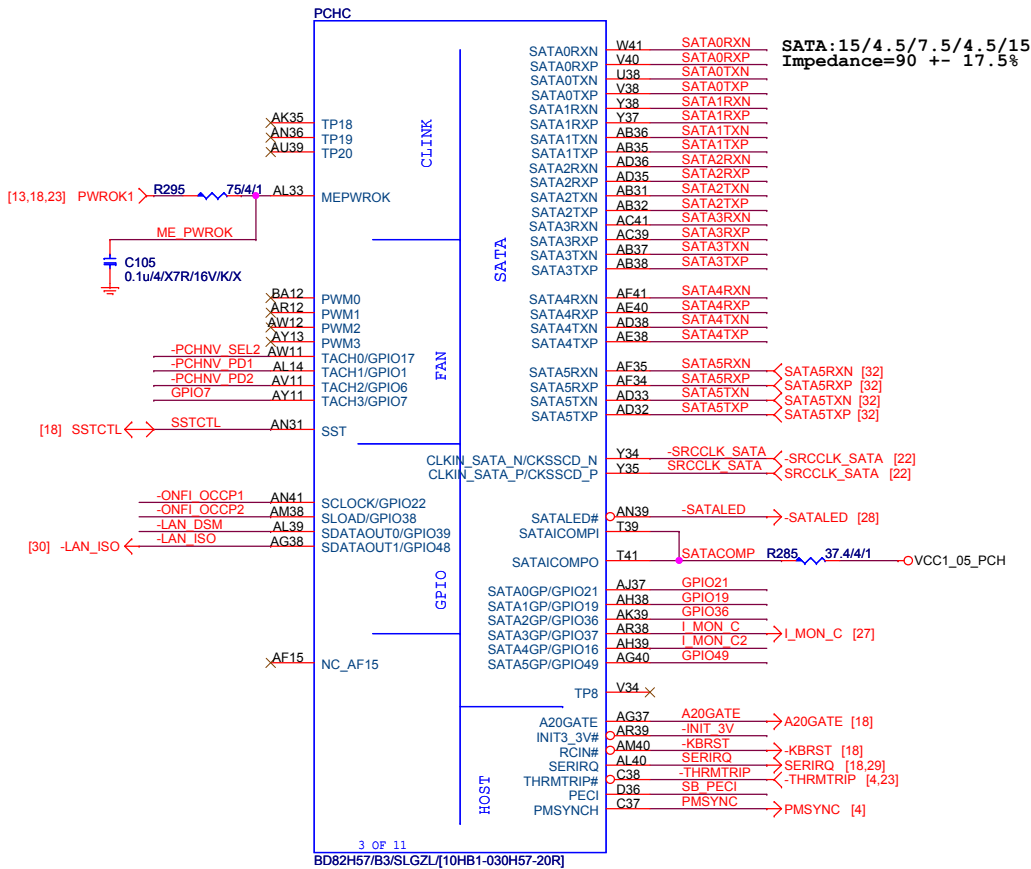
Gigabyte Technology		
Title PCH FDI,DMI,USB ,PCIE,NVRAM		
Size B	Document Number GA-H57M-USB3	Rev 2.01
Date: Thursday, April 29, 2010	Sheet 10	of 36



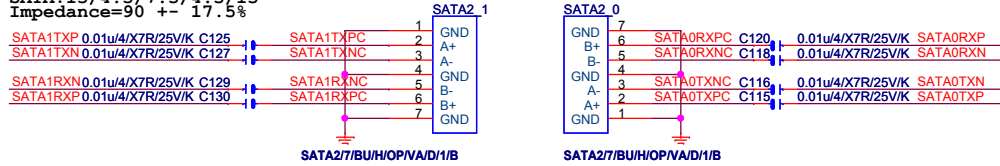
133MHz to CPU
100MHz to CPU
120MHz to CPU



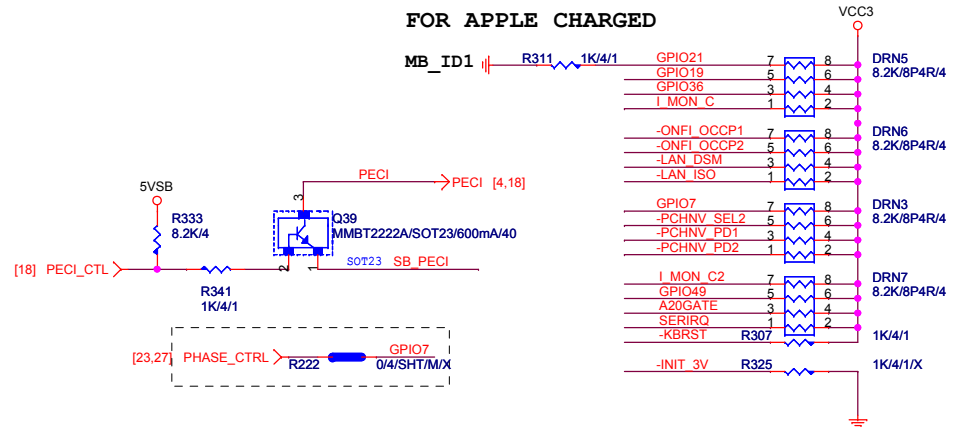
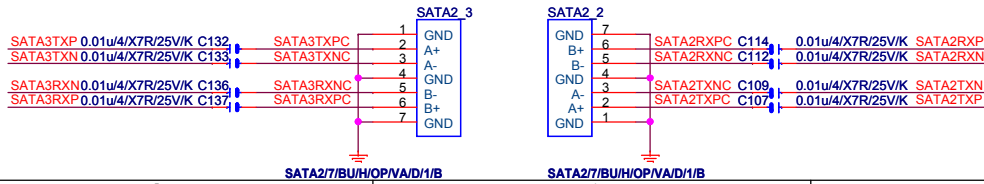
Gigabyte Technology			
PCH DISPLAY_CLK BUFFER			
Title		Rev 2.01	
Size Custom	Document Number	GA-H57M-USB3	
Date:	Thursday, April 29, 2010	Sheet	11 of 36



SATA: 15/4.5/7.5/4.5/15 Impedance=90 +/- 17.5%

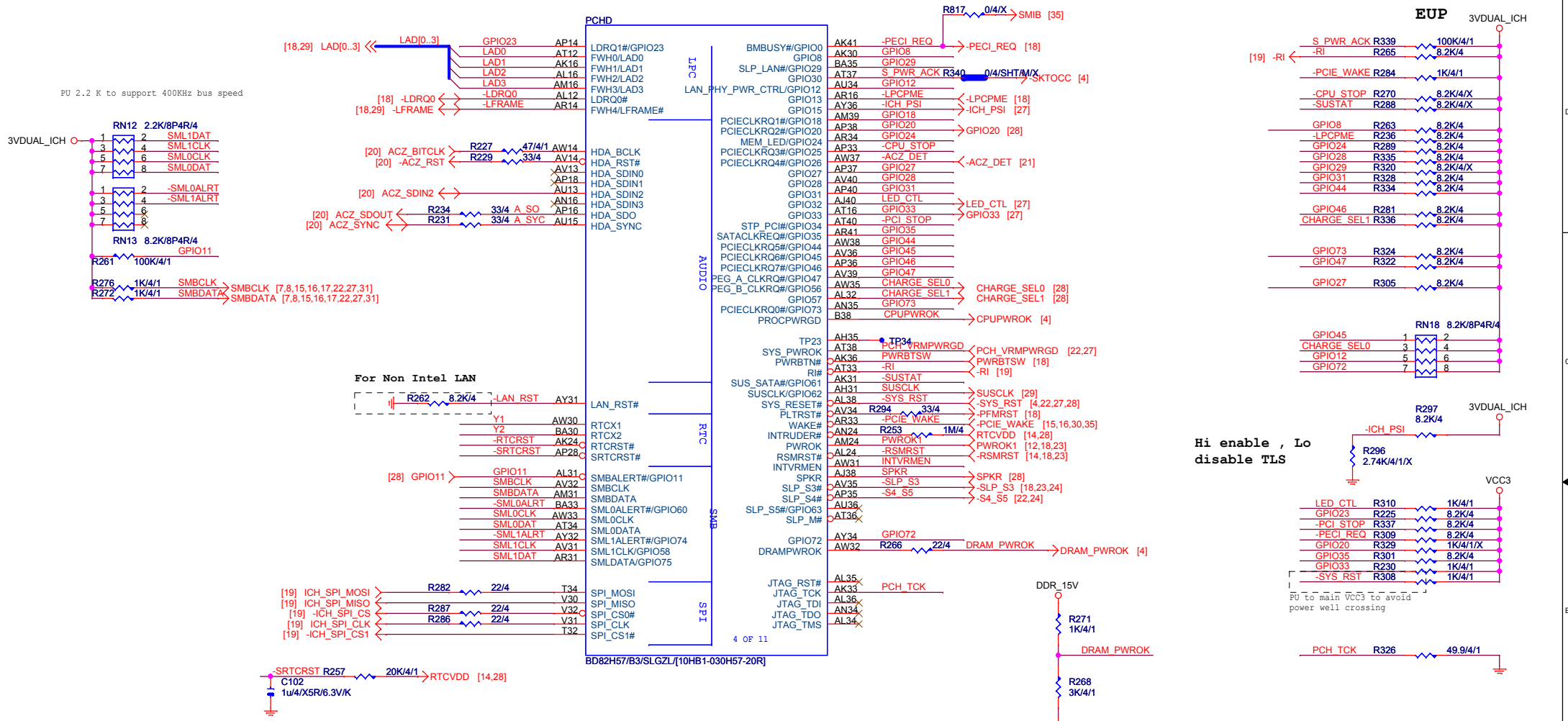


H1X7-SATA2-HS-MASK



Gigabyte Technology

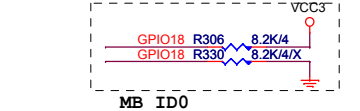
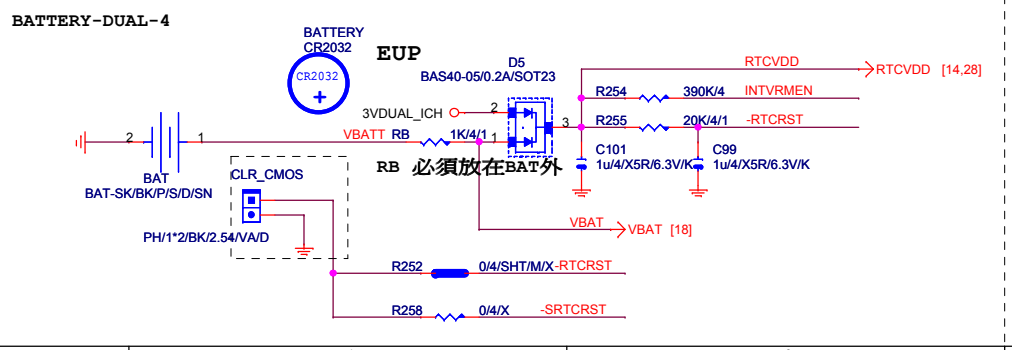
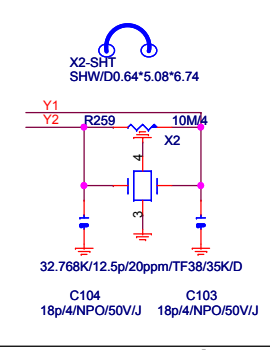
Title		PCH HOST , SATA, PCI	
Size	Document Number	GA-H57M-USB3	
B		Rev	2.01
Date:	Thursday, April 29, 2010	Sheet	12 of 36



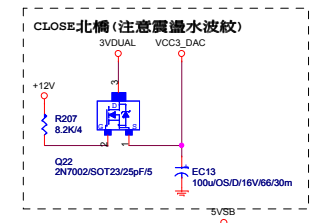
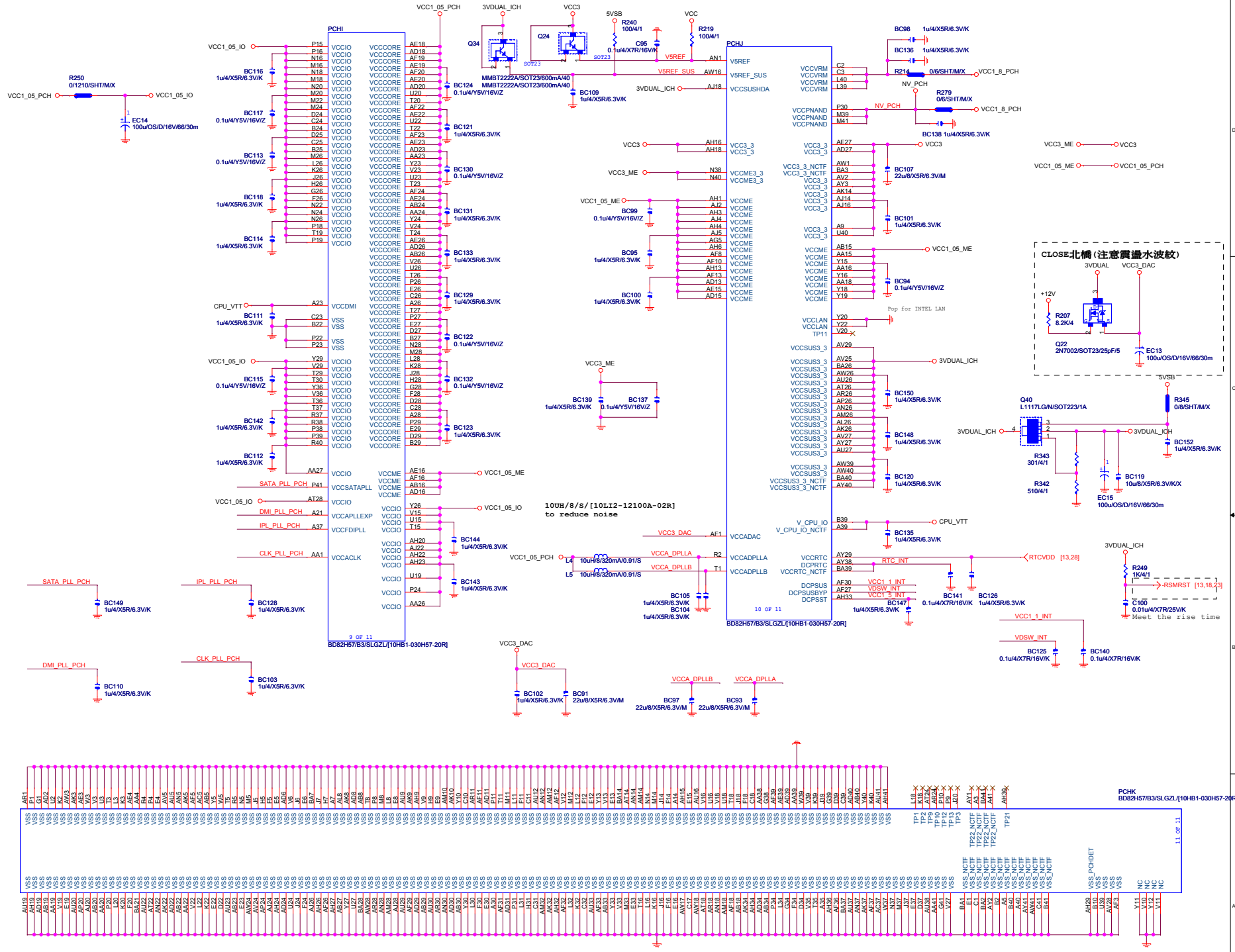
PU 2.2 K to support 400KHz bus speed

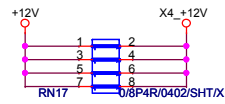
For Non Intel LAN

Hi enable , Lo disable TLS

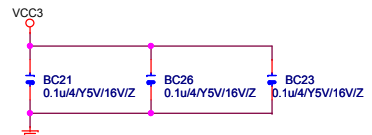
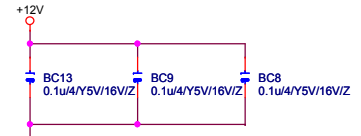
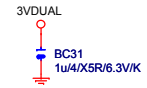
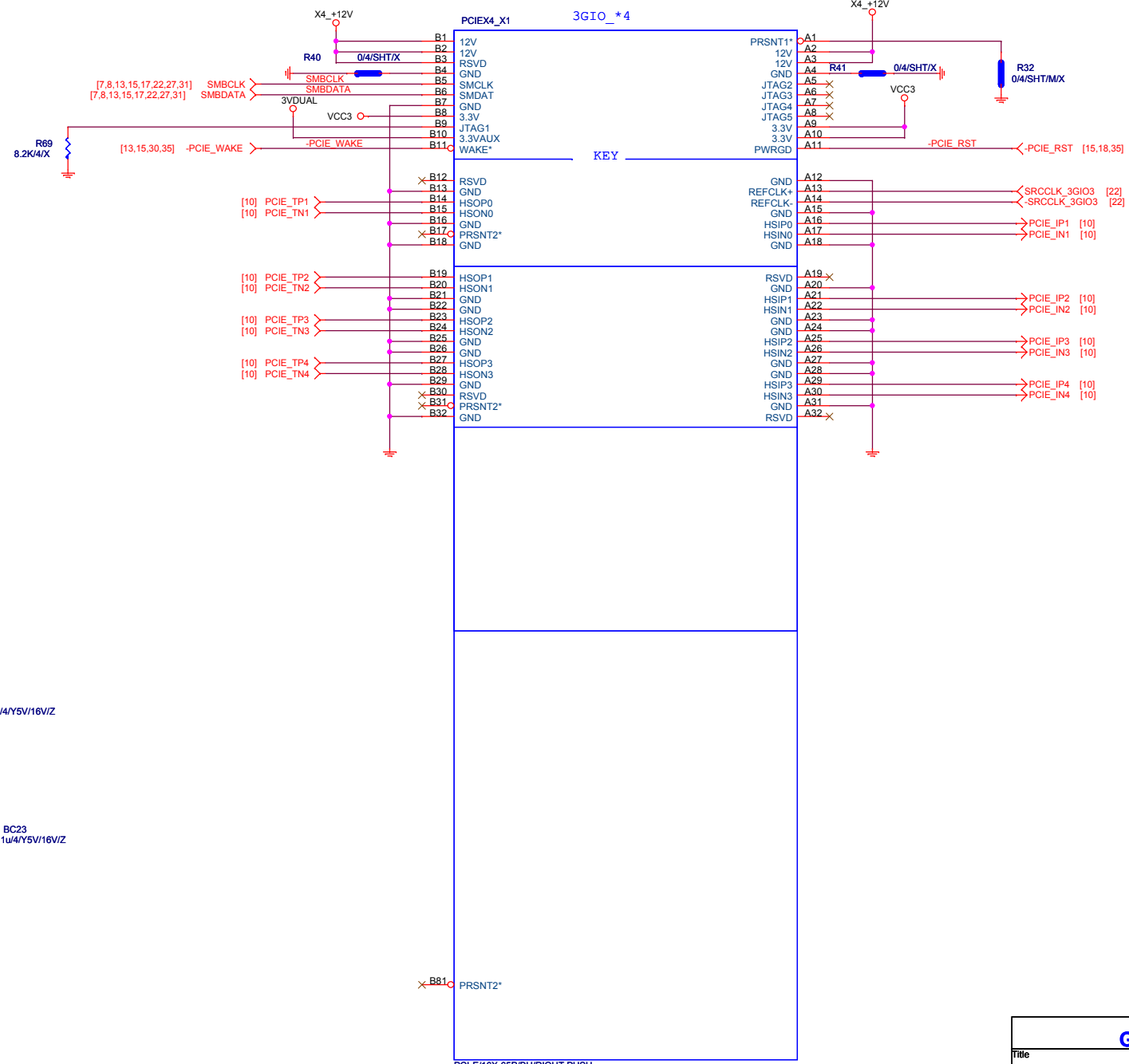


Gigabyte Technology			
PCH GPIO , CTRL , AUDIO			
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			Rev 2.01





PCIESLOT-64D-98D-1

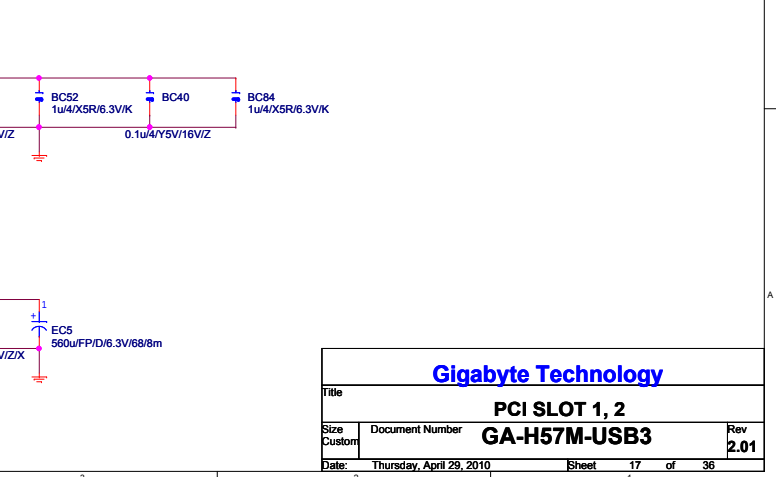
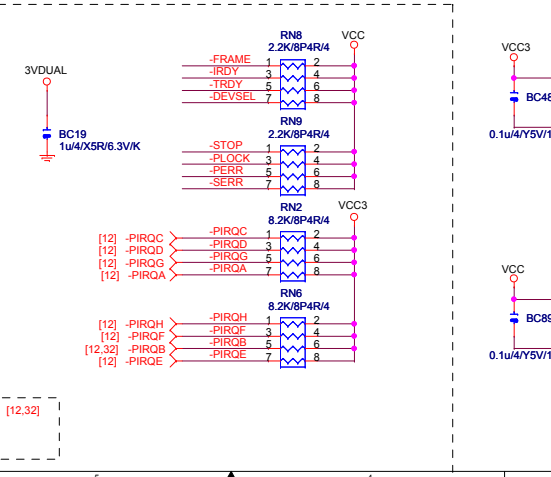
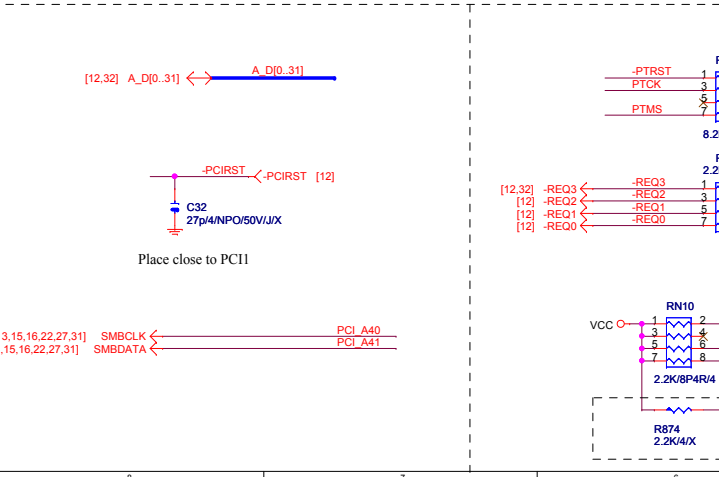
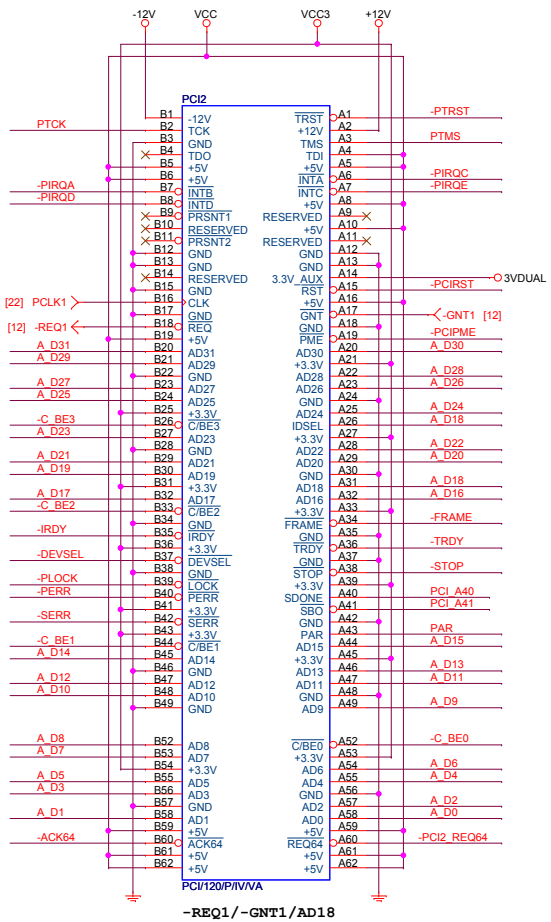
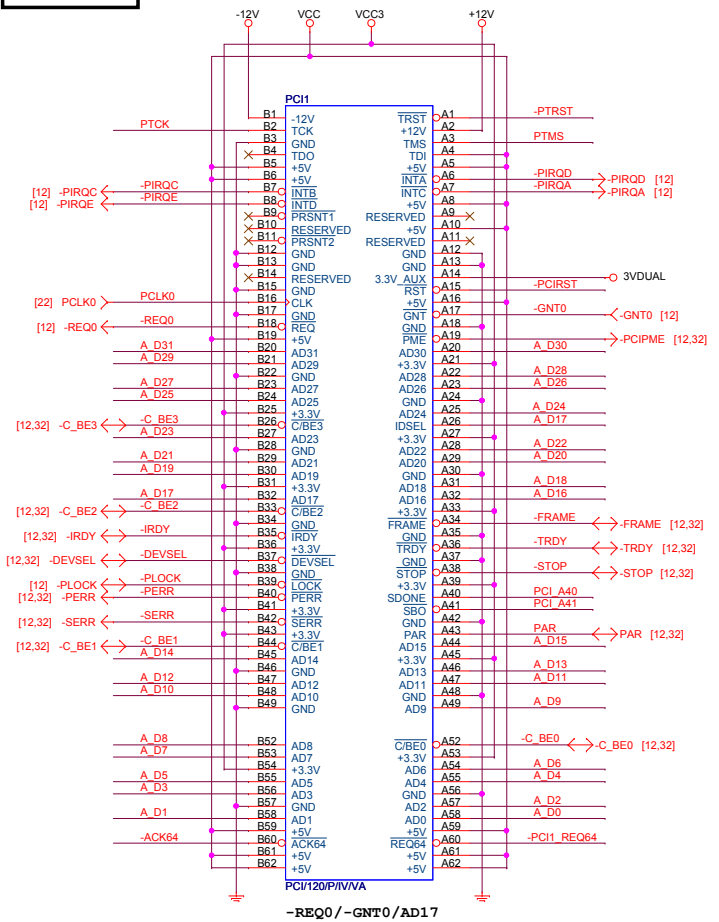


×B81 PRSNT2*

PCI-E/16X-65P/BU/RIGHT PUSH

Gigabyte Technology			
PCI EXPRESS X 4 PORT			
Size Custom	Document Number	GA-H57M-USB3	
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			Rev 2.01

PCI1_2 SLOT



Gigabyte Technology

PCI SLOT 1, 2

GA-H57M-USB3

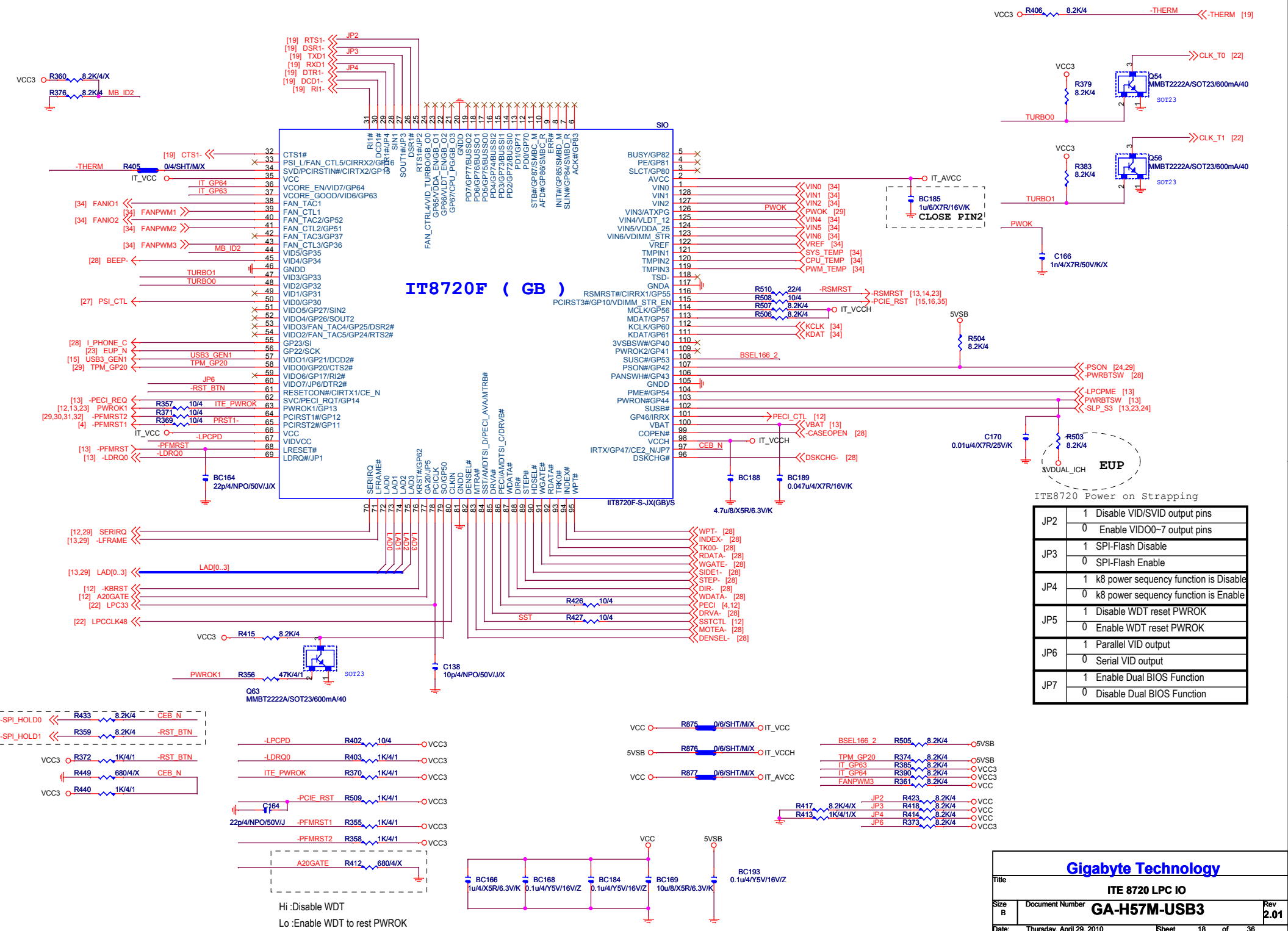
Rev 2.01

Document Number

Date: Thursday, April 29, 2010

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IT8720F (GB)



ITE8720 Power on Strapping

JP2	1	Disable VID5/VID output pins
JP3	0	Enable VID00-7 output pins
JP4	1	SPI-Flash Disable
JP4	0	SPI-Flash Enable
JP5	1	k8 power sequency function is Disable
JP5	0	k8 power sequency function is Enable
JP6	1	Disable WDT reset PWROK
JP6	0	Enable WDT reset PWROK
JP7	1	Parallel VID output
JP7	0	Serial VID output
JP7	1	Enable Dual BIOS Function
JP7	0	Disable Dual BIOS Function

Gigabyte Technology

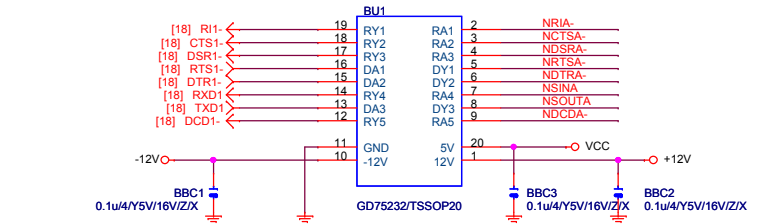
Title: **ITE 8720 LPC IO**

Size B: Document Number **GA-H57M-USB3** Rev **2.01**

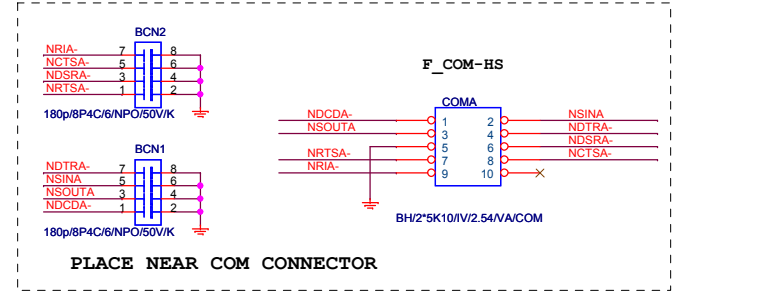
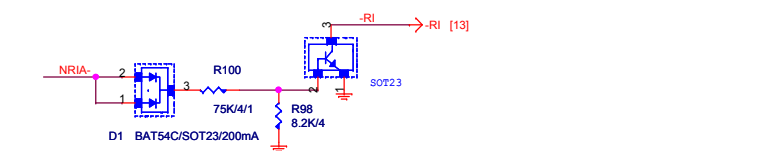
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Hi :Disable WDT
Lo :Enable WDT to rest PWROK

COMB

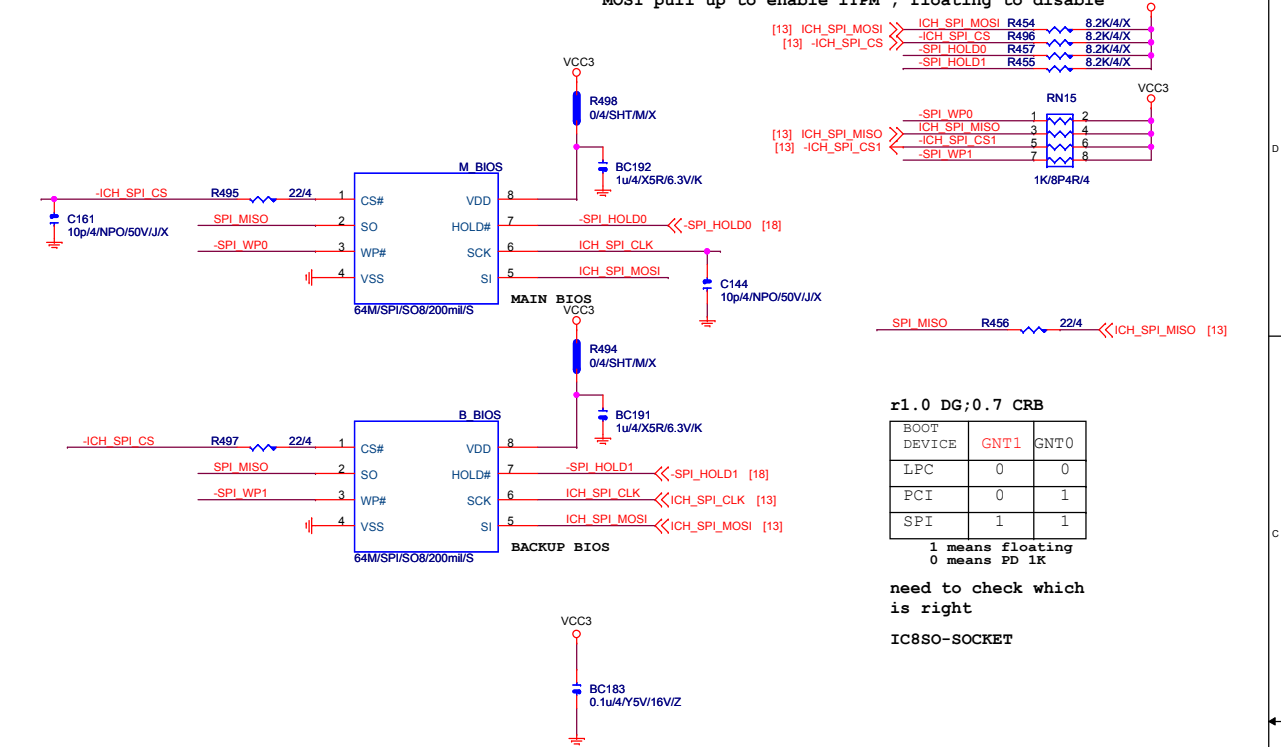


RING IN



PLACE NEAR COM CONNECTOR

DUAL BIOS



r1.0 DG;0.7 CRB

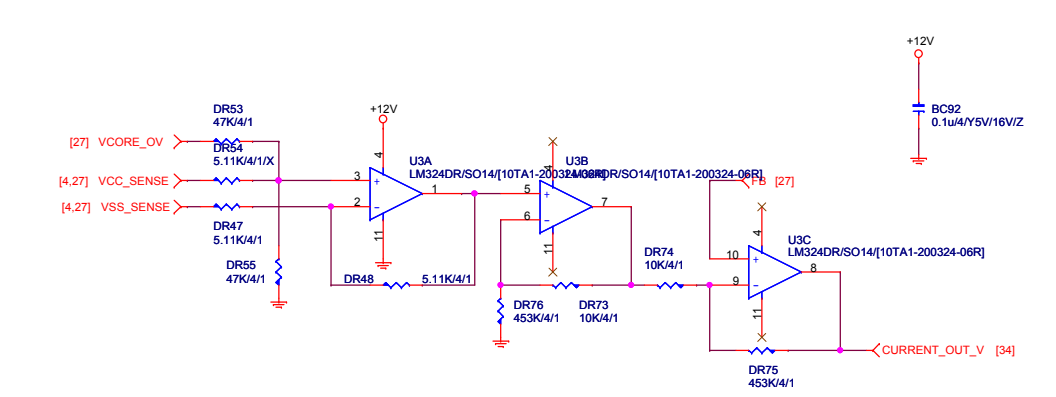
BOOT DEVICE	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1

1 means floating
0 means PD 1K

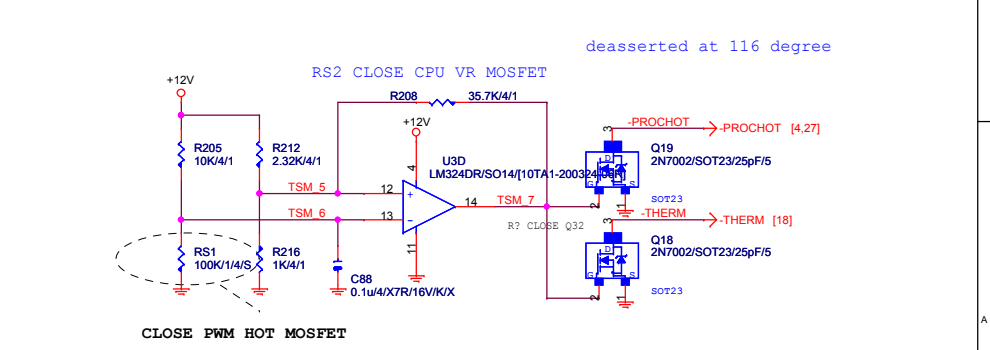
need to check which is right

IC8SO-SOCKET

DYNAMIC CURRENT OC



-PROHOT



Gigabyte Technology

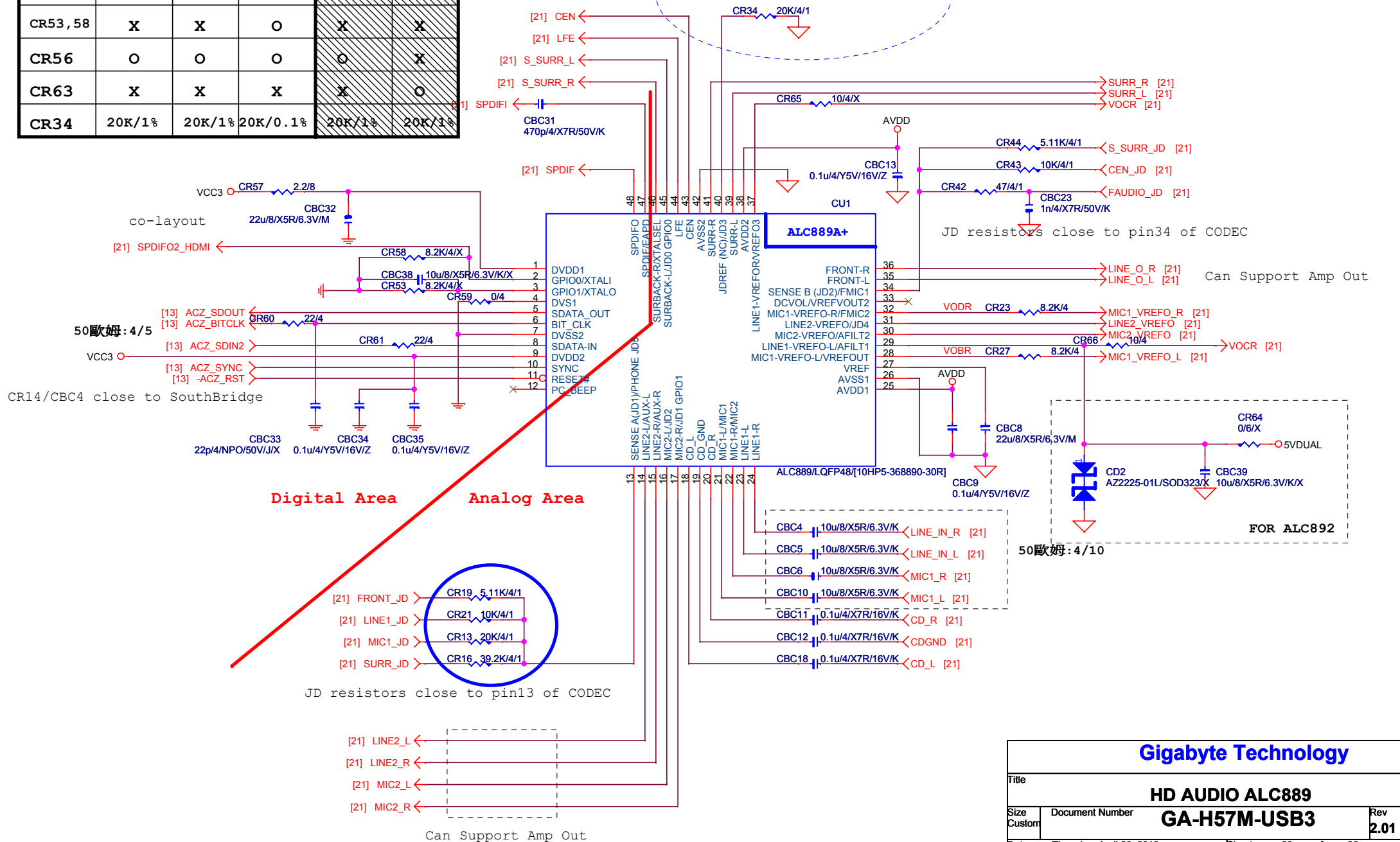
Title: **COM & PROHOT/Dynamic O.C.**

Size: Custom Document Number: **GA-H57M-USB3** Rev: **2.01**

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	ALC888B	ALC888 -VA	ALC889A	ALC888 -VD	ALC892
CR59	X	O	O	O	O
CR53, 58	X	X	O	X	X
CR56	O	O	O	O	X
CR63	X	X	X	X	O
CR34	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%

CR2: 20K/4/0.1% @ALC889A
 CR2: 20K/4/1% @ALC889A+/ALC888Vx



Digital Area Analog Area

JD resistors close to pin13 of CODEC

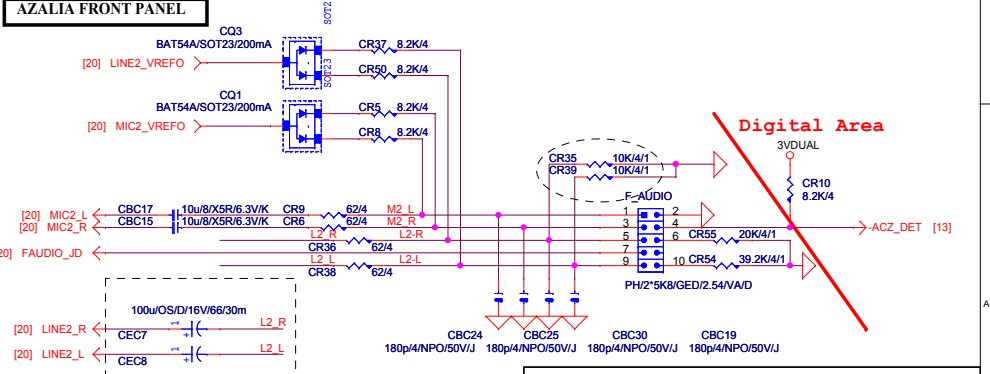
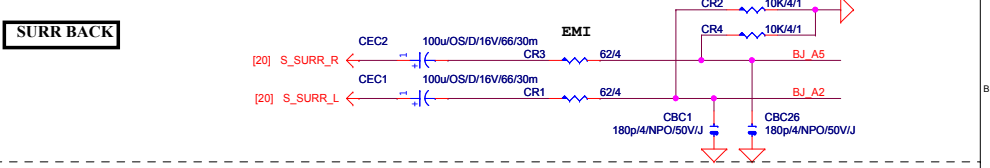
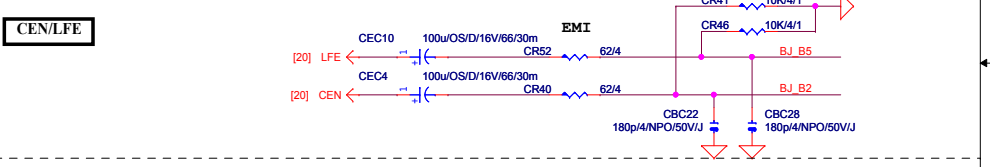
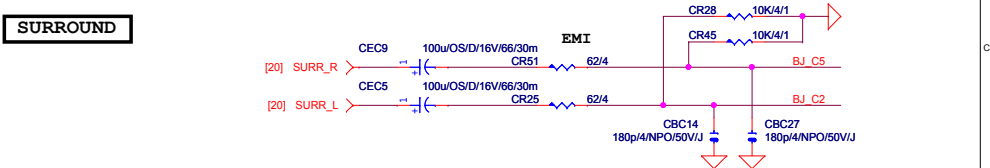
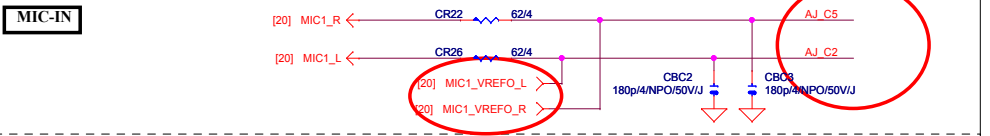
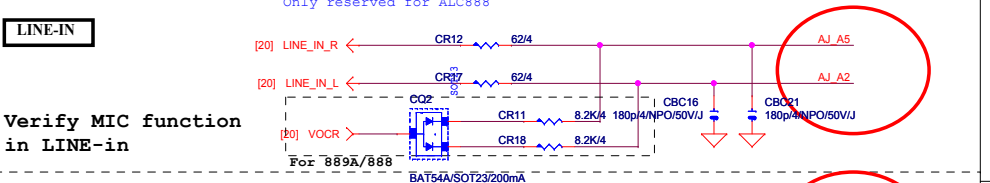
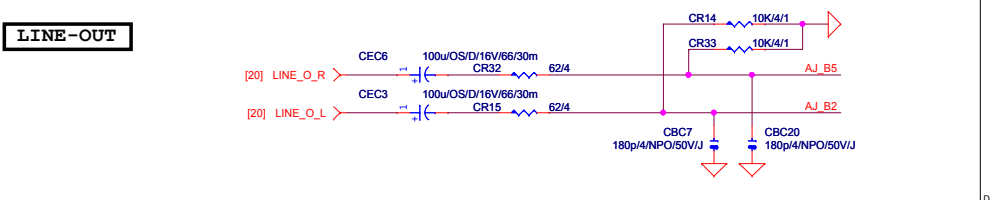
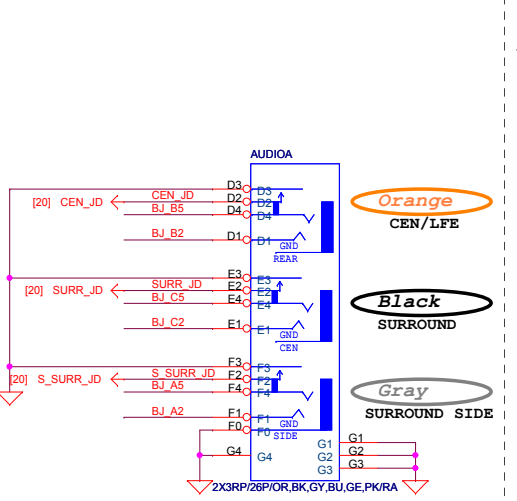
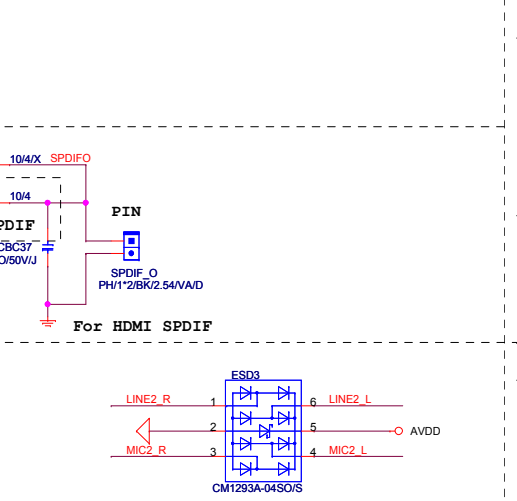
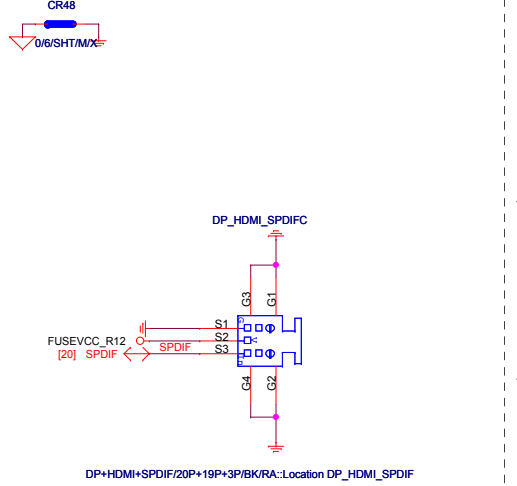
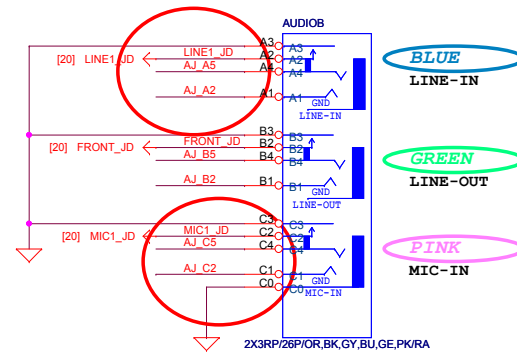
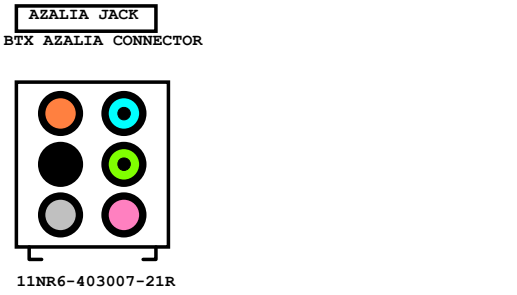
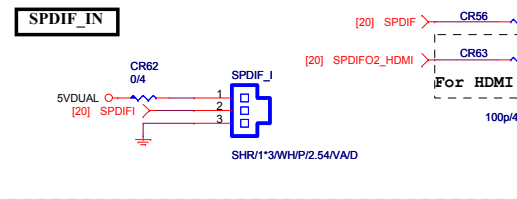
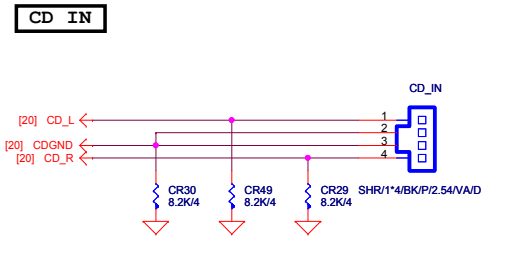
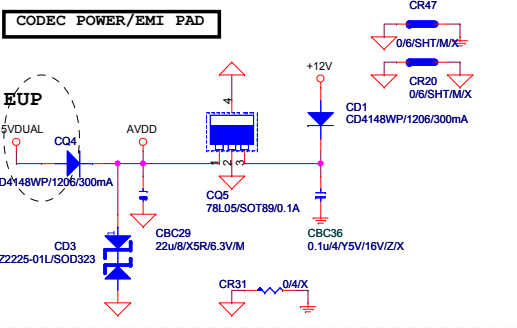
JD resistors close to pin34 of CODEC

Can Support Amp Out

Can Support Amp Out

Gigabyte Technology

Title		
HD AUDIO ALC889		
Size Custom	Document Number	GA-H57M-USB3
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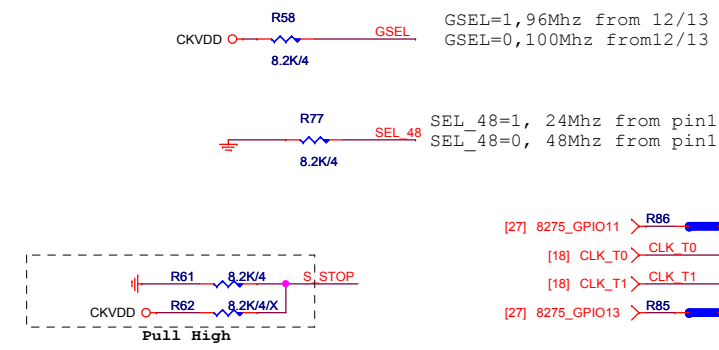
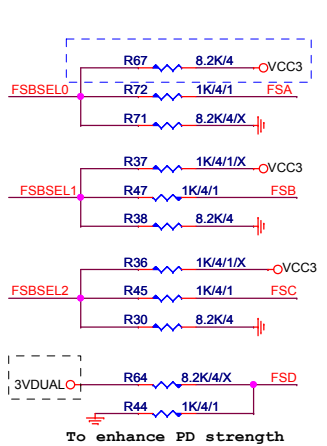
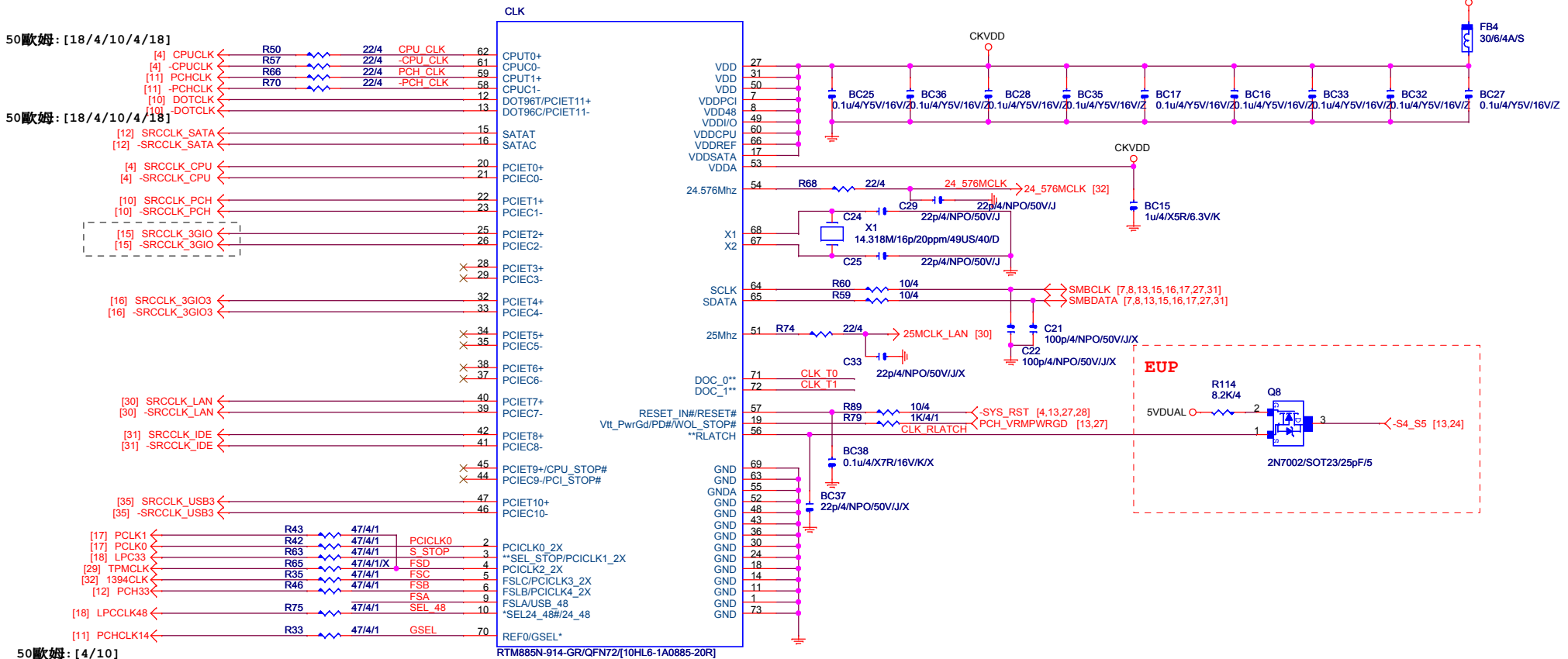


Gigabyte Technology		
Title		
AUDIO JACK		
Size Custom	Document Number	Rev
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Date:	Thursday, April 29, 2010	Sheet 21 of 36

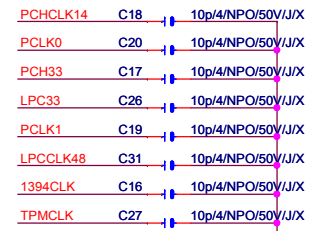
50歐姆: [18/4/10/4/18]

50歐姆: [18/4/10/4/18]

50歐姆: [4/10]



FSC	FSB	FSA	CPU
0	0	0	266MHz
0	0	1	133MHz
0	1	0	200MHz
0	1	1	166MHz
1	0	0	333MHz
1	1	0	400MHz



SEL_STOP: latched input to select pin functionality
 1 = Selects pin 44/45 to be PCI_STOP#/CPU_STOP#
 0 = Selects pin 44/45 to be PCIE outputs ;
 3.3V PCICLK output

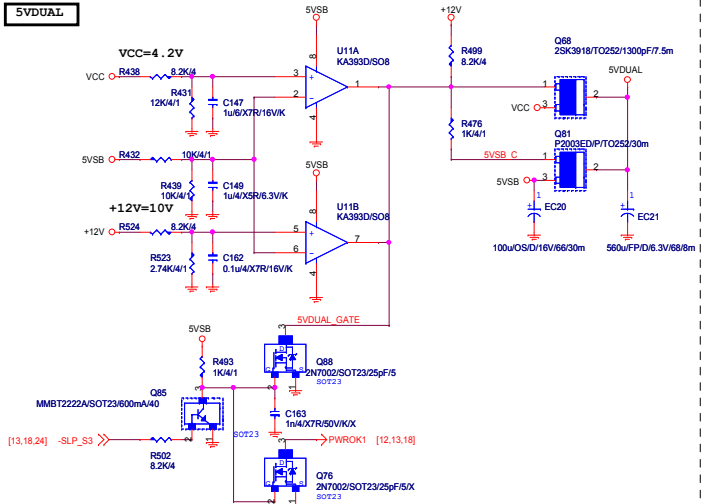
Gigabyte Technology

CK505 CLK GEN

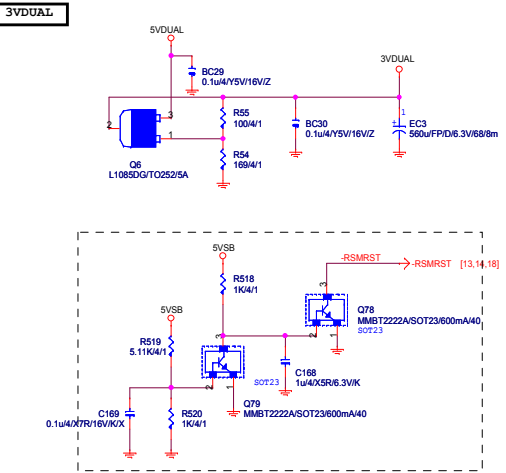
GA-H57M-USB3

Title: CK505 CLK GEN
 Document Number: GA-H57M-USB3
 Rev: 2.01
 Date: Thursday, April 29, 2010
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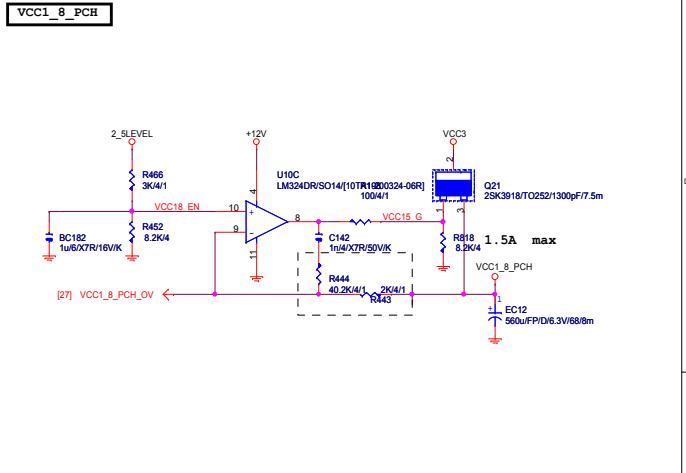
5VDUAL



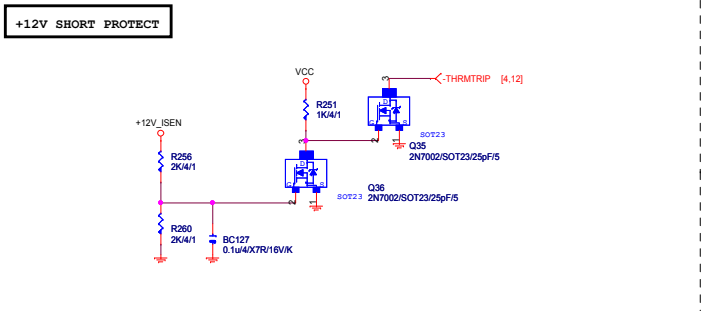
3VDUAL



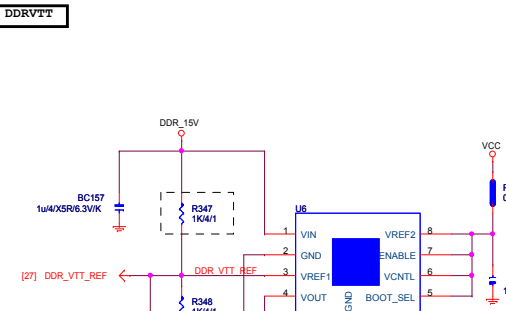
VCC1_8_PCH



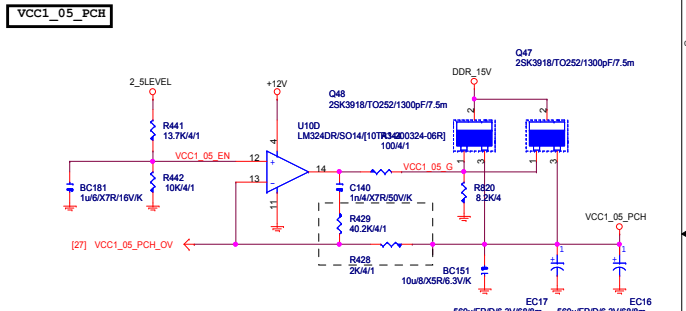
+12V SHORT PROTECT



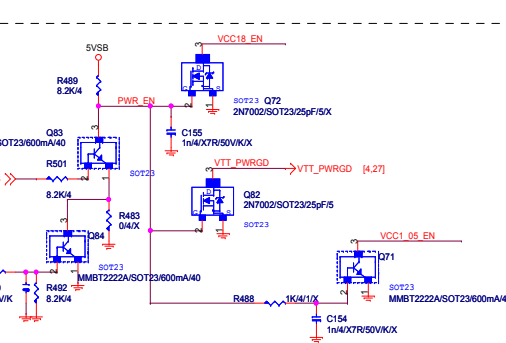
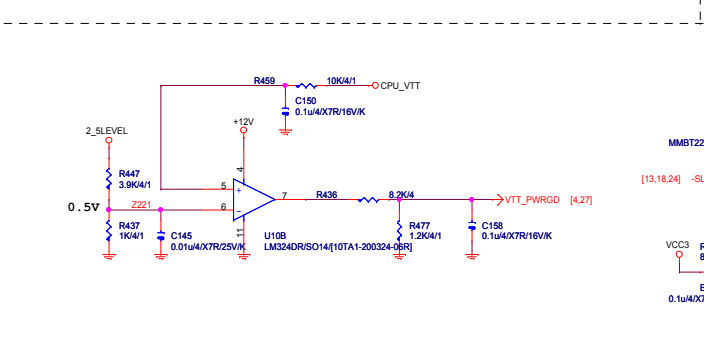
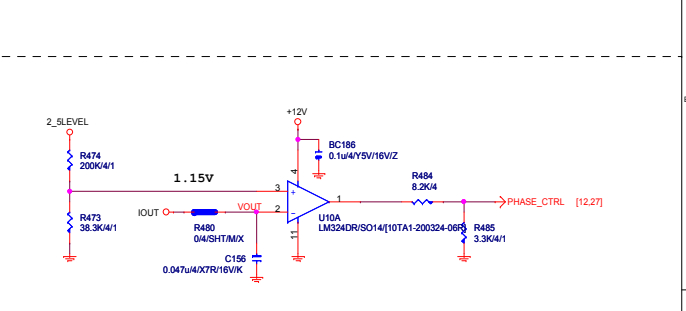
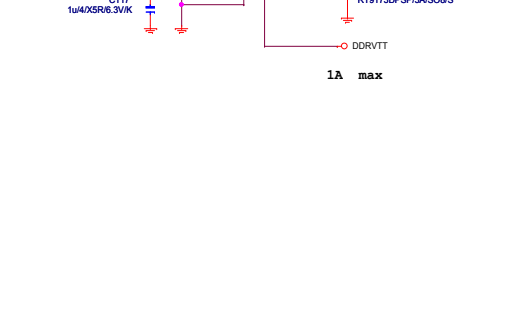
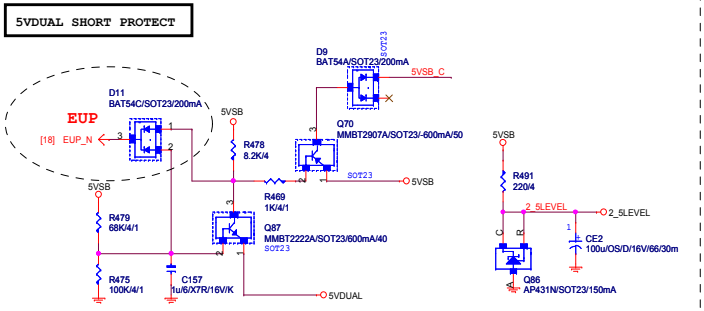
DDR_VTT



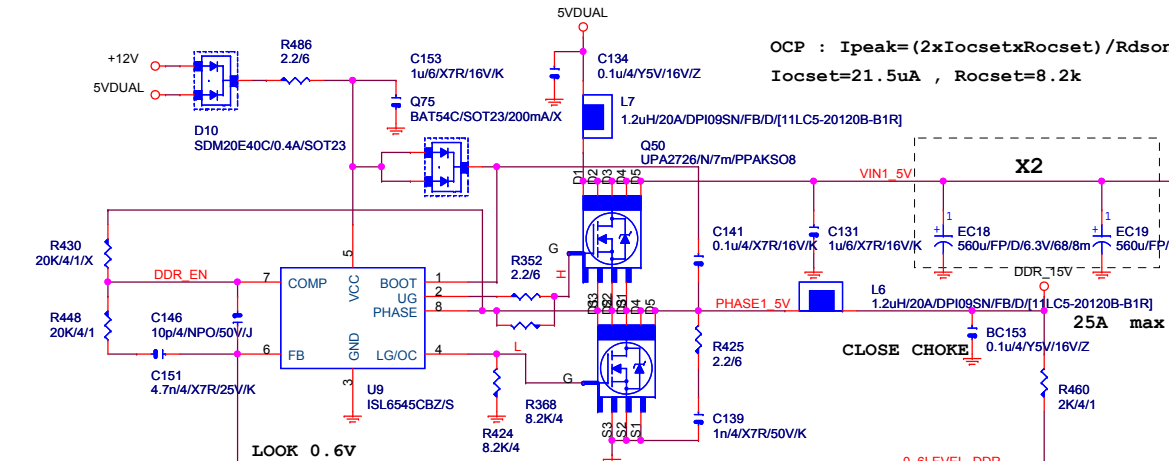
VCC1_05_PCH



5VDUAL SHORT PROTECT

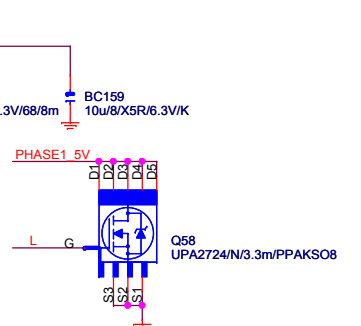
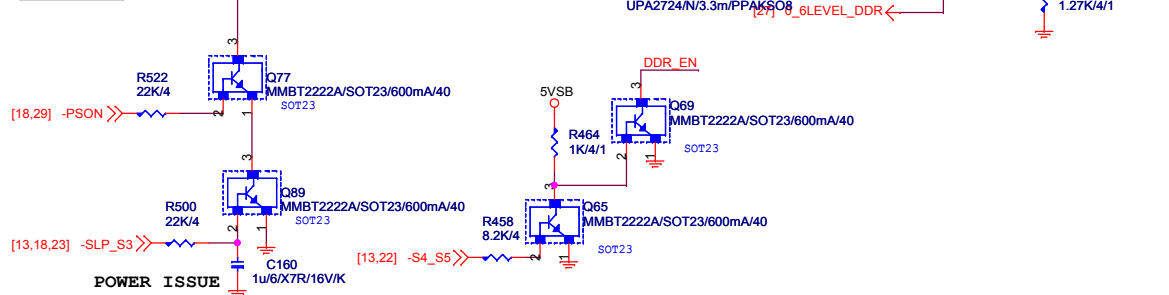


DDR1_5V



OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 $I_{ocset} = 21.5 \mu A$, $R_{ocset} = 8.2k$

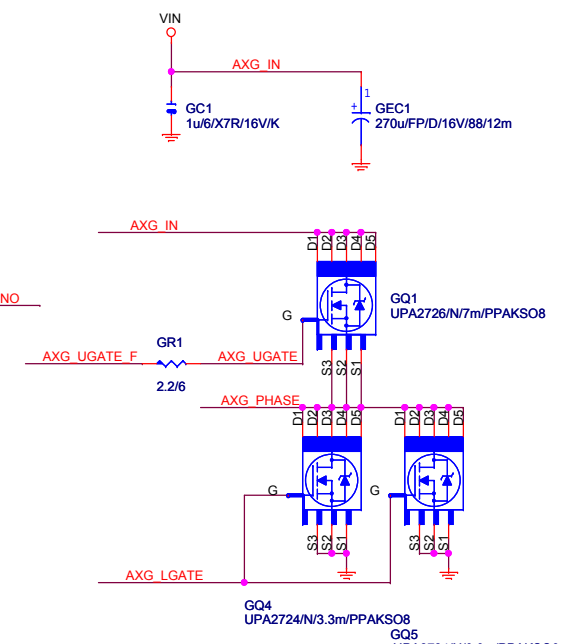
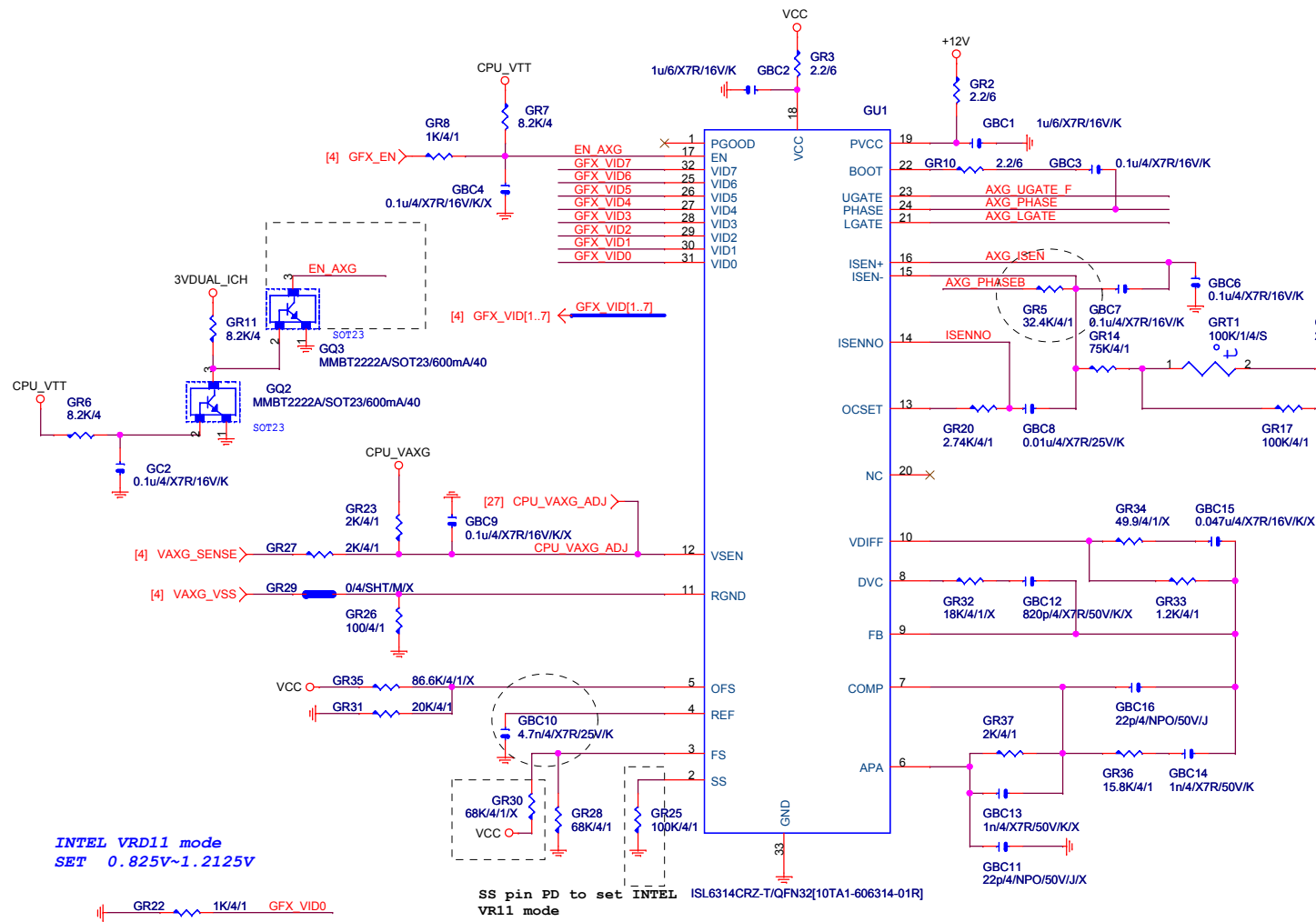
PWR_SEQ



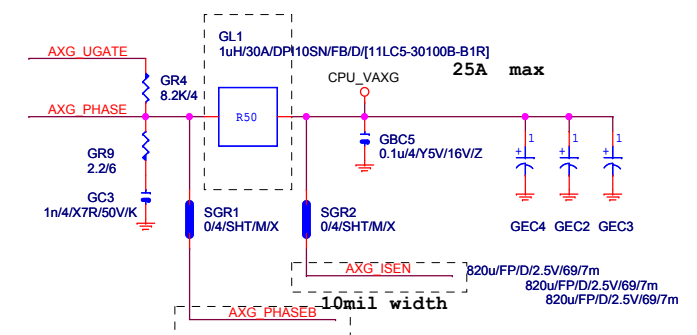
VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
 IRMS=11.46A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=5.6A
 Coefficient=1.7 (85°C), 1 (105°C)
 VIN Ripple current=5.6X1.7=9.52A (85°C)
 -->故固態電容須 $2 \times 9.52 = 19.04 > 11.46A$
 1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
 Coefficient=1.7 (85°C), 1 (105°C)
 VIN Ripple current=1.14X1.7=1.938A (85°C)
 -->故電解電容須 $6 \times 1.938 = 11.628 > 11.46A$

VIN=3V, VOUT=1.05V, IOUT=7.5A, PHASE=1
 IRMS=3.5A
 -->故固態電容須 $1 \times 9.52 = 9.52 > 3.5A$
 -->故電解電容須 $2 \times 1.938 = 3.876 > 3.5A$

Gigabyte Technology			
Title			
DDR_15V			
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IAXG for 2009A FMB (73W TDP SKU support): 20A
 IAXG for 2009B FMB (87W TDP SKU support): 25A



INTEL VRD11 mode
 SET 0.825V~1.2125V

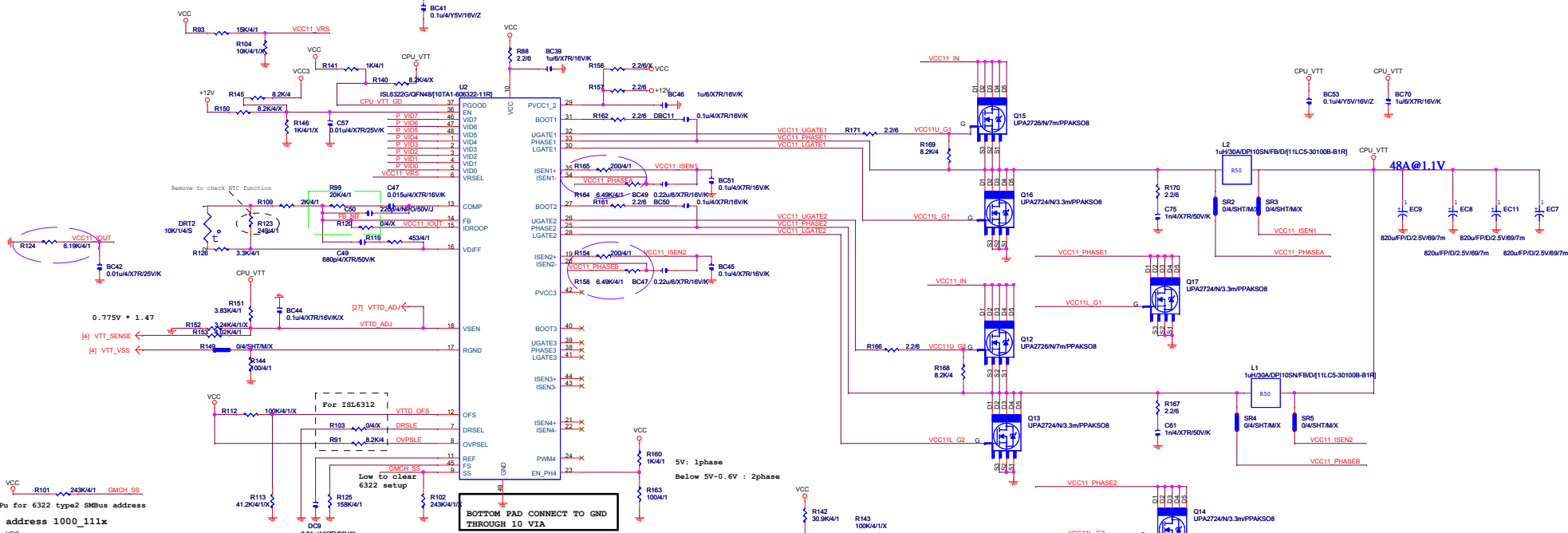
SS pin PD to set INTEL ISL6314CRZ-T/QFN32[10TA1-606314-01R] VR11 mode

OCP點做在49A
 $R_{ocset} = R_{136} = 2.74k$, $I_{sens} = 94\mu A$, $R_s = R_{127} = 8.25k$,
 $R_{comp} = R_{128} + [R_{135} / (DRT1 + R_{129})] = 78k$, $DCR = 0.78m\Omega$
 $I_{ocp} = (R_{ocset} * I_{sens} * R_s) / (R_{comp} + DCR)$
 $= (2.74k * 94\mu A * 8.25k) / (45k + 0.97m) = 49A$
 $R_t = 10^{(10.61 - [1.035 * \log(FS)])}$, $R_t = R_{151} = 68k\Omega$, $FS = 380KHz$
 $OVP = VDAC + 175mV$

PWM IC internal PU

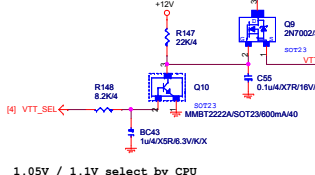
Gigabyte Technology		
CPU_VAXG_ISL6314CRZ		
Size B	Document Number	Rev
	GA-H57M-USB3	2.01
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5V : AMD mode
 0.6V-3V : VRD11 mode
 0V : VRD10 mode

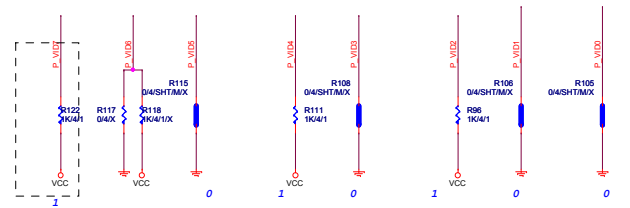


Remove to check JTC function
 Pu for 6322 type2 SMBus address
 address 1000_111x

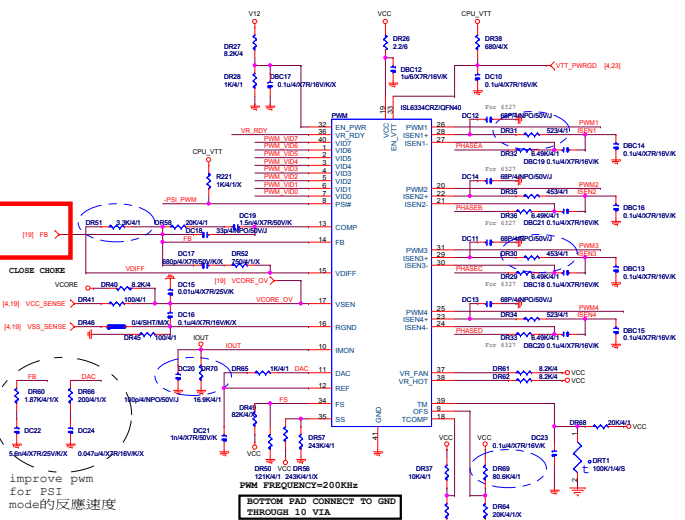
OCF點在146A
 Isens+ R270阻值在590ohm
 $I_{ocp} = (I_{sens} \times R_{IsensPhase}) / DCR$
 $= [(120\mu A \times 590\Omega) / 0.97] = 146A$
 $L / DCR = R + C$
 $L = 1\mu H$ $DCR = 0.97\text{ m}\Omega$ $1\mu H / 0.97\text{ m}\Omega = 4.7k\Omega$ $22\mu F$
 $R_{Isens} R260$ 阻值=4.7k ohm, $C_{Isen} BC75=0.22\mu$
 $Rt = 10^4 \cdot [10.61 - [1.035 \cdot \log(FS)]]$ $Rt = R301 = 158\text{ kohm}$, $FS = 170\text{ KHz}$
 $OVP = V_{DAC} + 225\text{mV}$



Bit 7 Pull High for AMD 6bit mode
 Remove Bit6 when use AMD mode
 AMD 6bit mode SET 1.05V [1x010100]



VIN=5V, VOUT=1.1V, IOUT=48A, PHASE=2
 IRMS=11.91A
 560uF/PP/D/6.3V/68/8m RIPPLE CURRENT=5.6A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=5.6X1.7=9.52A(85°C)
 -->故固態電容須2X9.52=19.04>11.91A
 1000uF/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=1.14X1.7=1.938A(85°C)
 -->故電解電容須7X1.938=13.566>11.91A



improve pwm for FSI 反應速度的反應速度

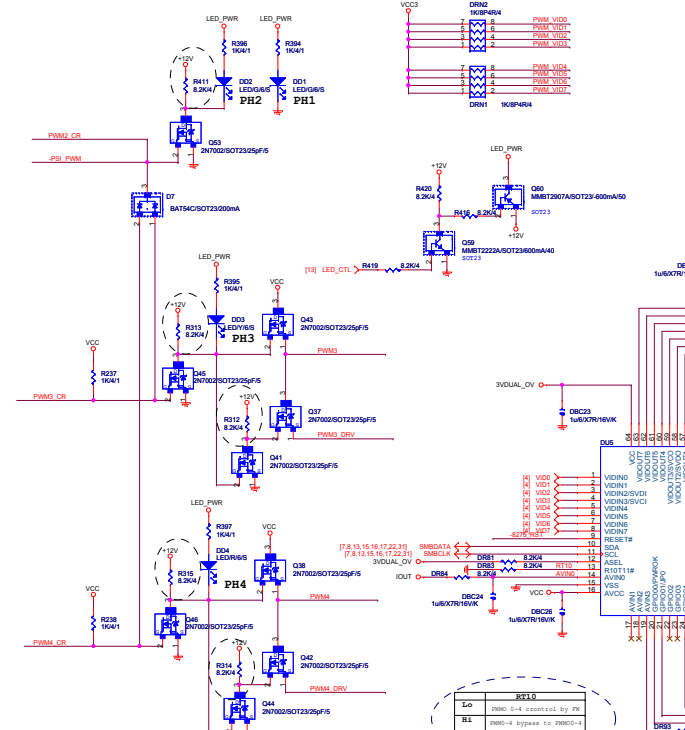
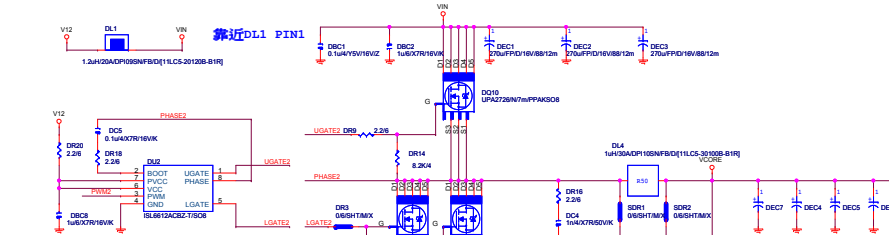
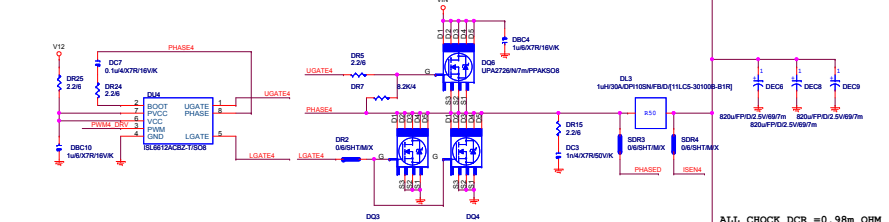


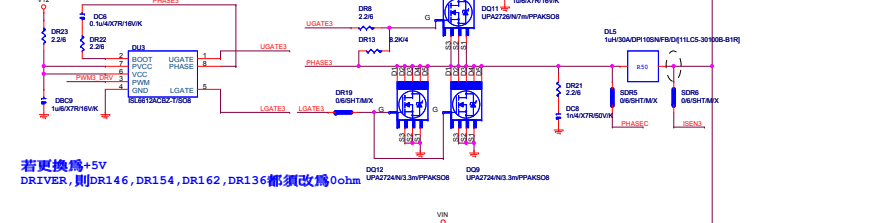
Table with 3 columns: PWR PHASE CONTROL, ITE8268 GPIO2, ITE8268 GPIO1, ITE8268 GPIO0. Rows 1-4 show phase control logic.



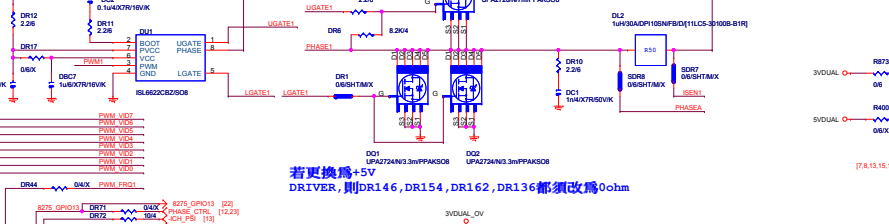
若更換為+5V DRIVER,則DR146,DR154,DR162,DR136都須改為0ohm



若更換為+5V DRIVER,則DR146,DR154,DR162,DR136都須改為0ohm



若更換為+5V DRIVER,則DR146,DR154,DR162,DR136都須改為0ohm



若更換為+5V DRIVER,則DR146,DR154,DR162,DR136都須改為0ohm

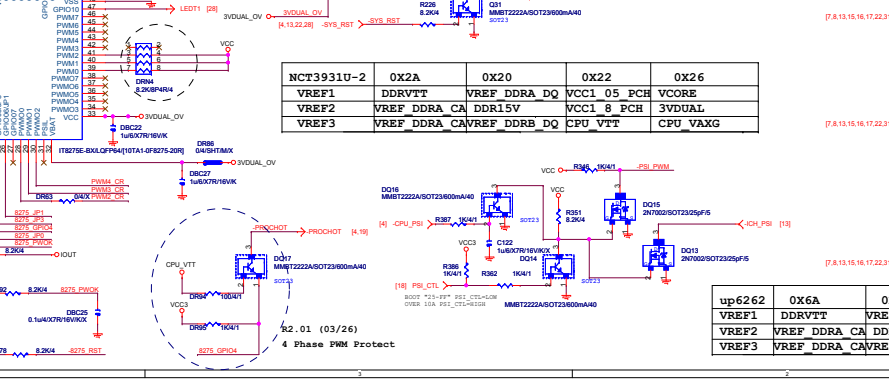
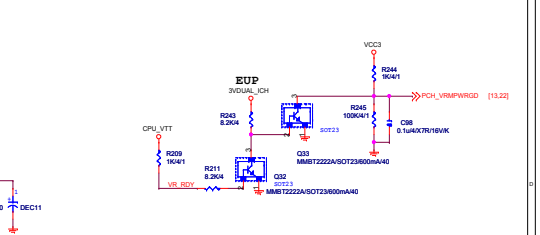
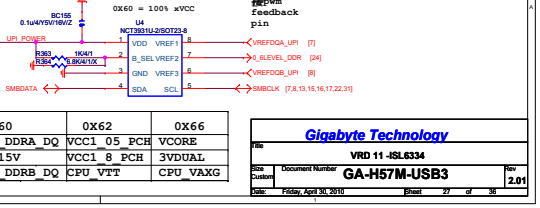
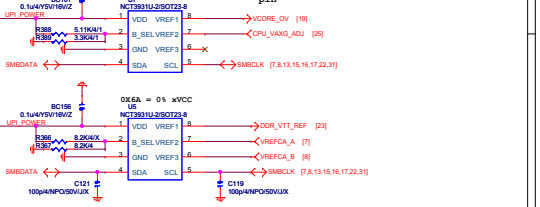
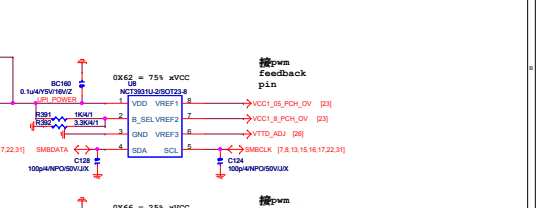
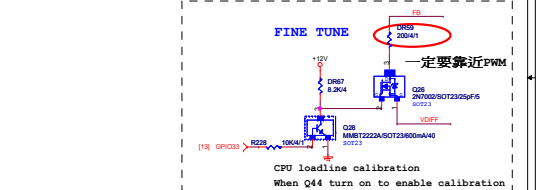
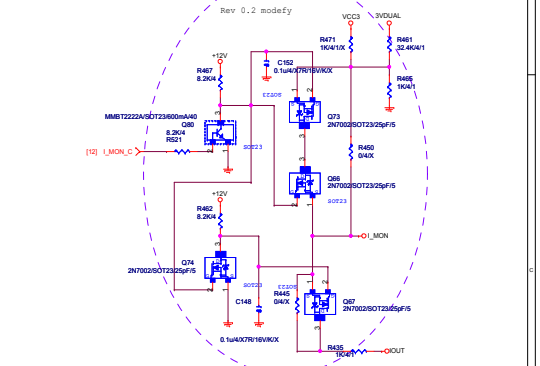


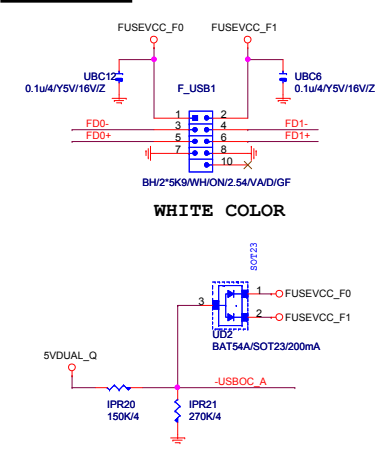
Table with 3 columns: NCT931U-2, 0X2A, 0X20, 0X22, 0X26. Rows VREF1-VREF3 show pin connections.



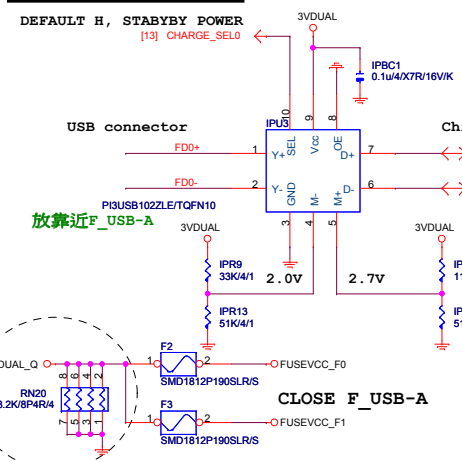
ALL CHECK DCR = 0.98m OBM



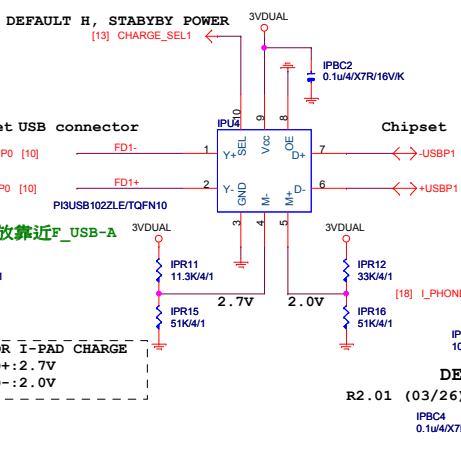
FRONT USB1



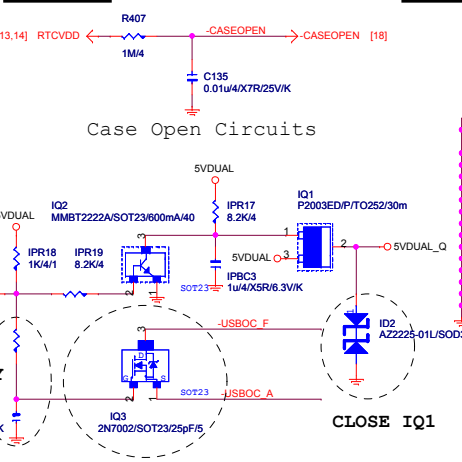
i_phone charger circuit



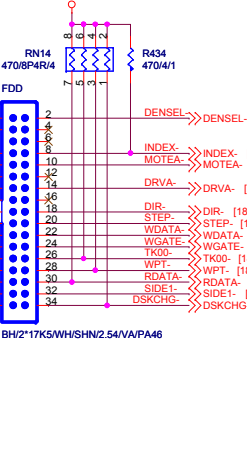
DEFAULT H, STABYBY POWER



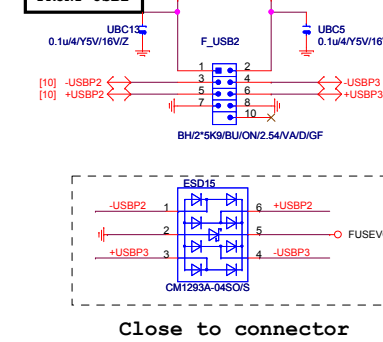
CASE OPEN



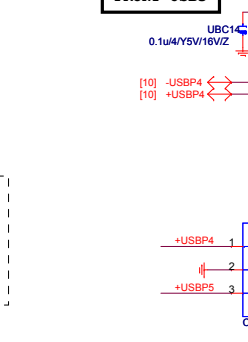
FLOPPY



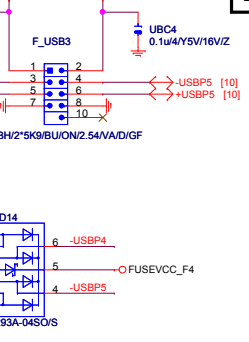
FRONT USB2



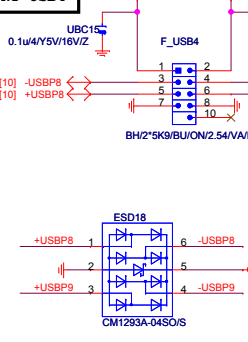
FRONT USB3



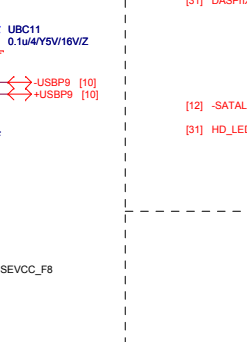
FRONT USB4



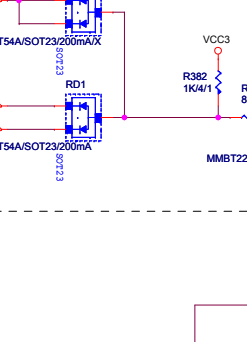
FRONT USB5



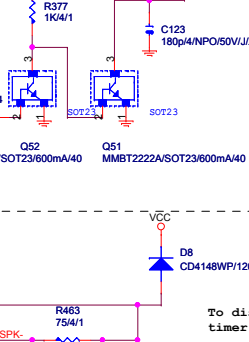
FRONT USB6



FRONT USB7



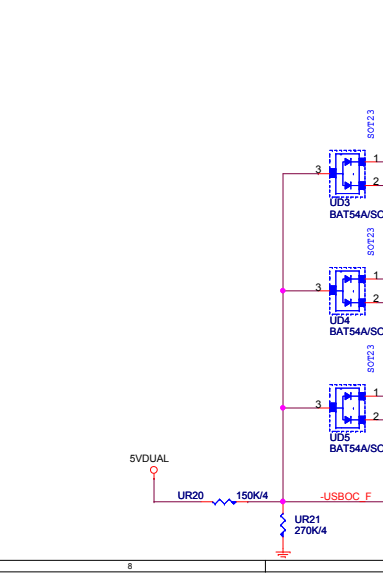
FRONT USB8



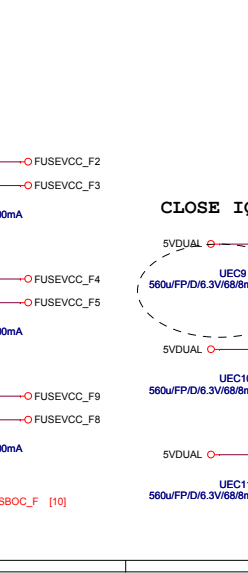
FRONT USB9



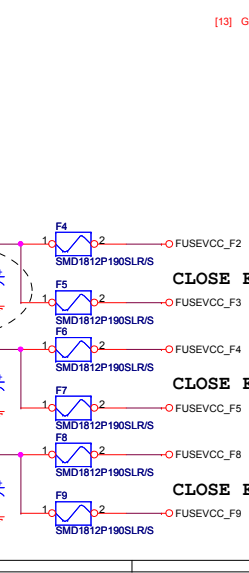
F USB & F 1394 POWER PROTECT



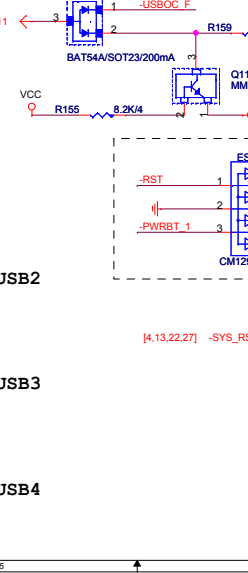
FRONT USB10



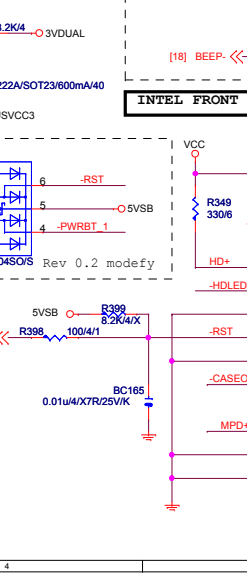
FRONT USB11



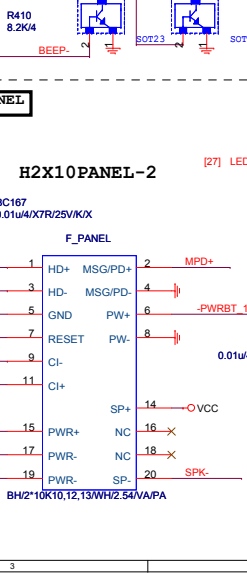
FRONT USB12



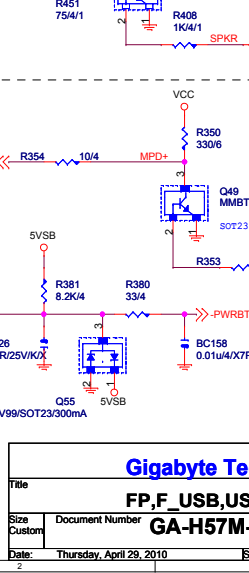
FRONT USB13



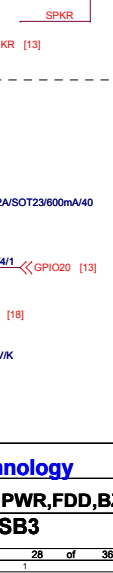
FRONT USB14



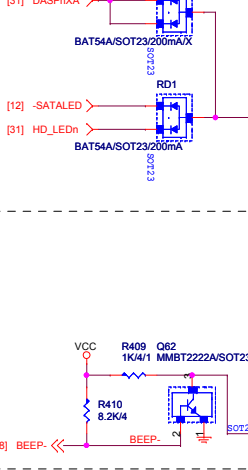
FRONT USB15



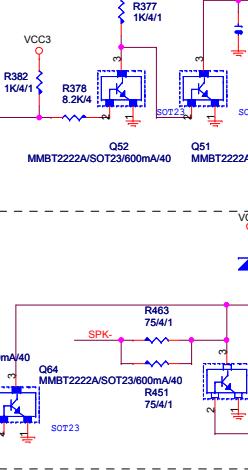
FRONT USB16



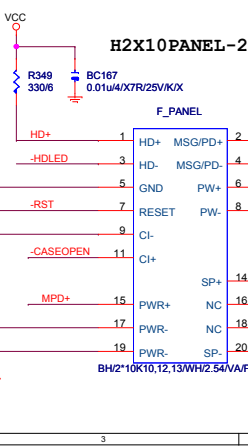
SATA LED



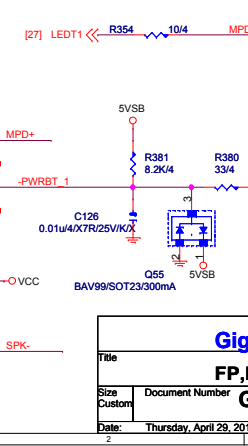
INTEL FRONT PANEL



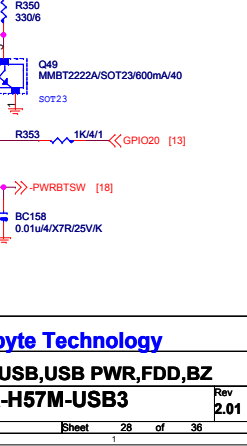
INTEL FRONT PANEL



H2X10PANEL-2



FRONT USB17



Gigabyte Technology

Title: **FP,F_USB,USB PWR,FDD,BZ**

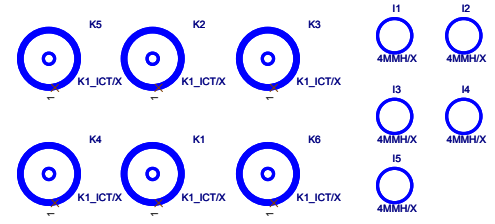
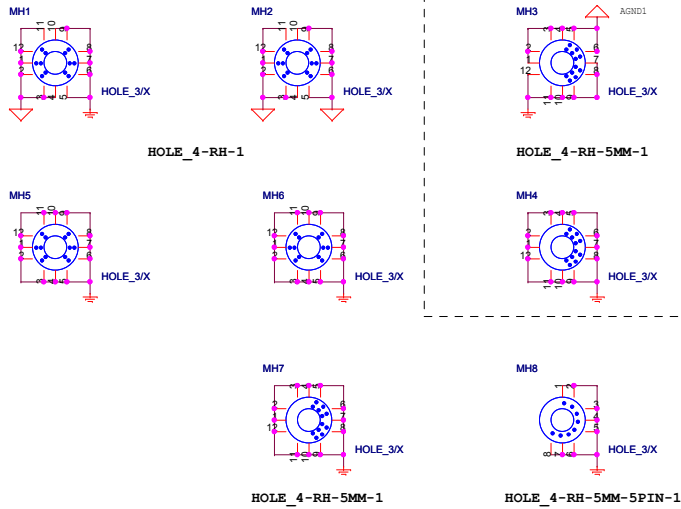
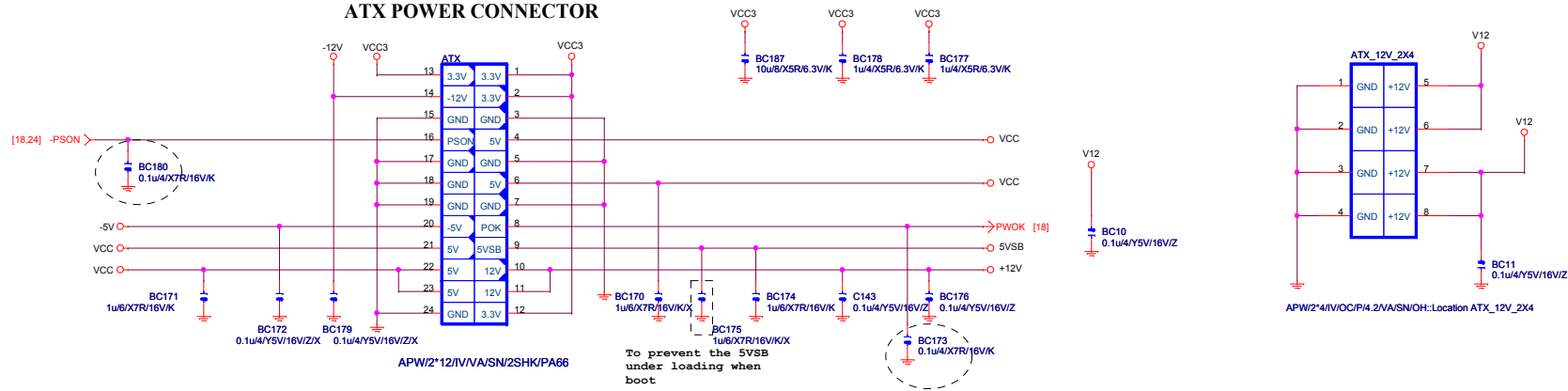
Document Number: **GA-H57M-USB3**

Rev: **2.01**

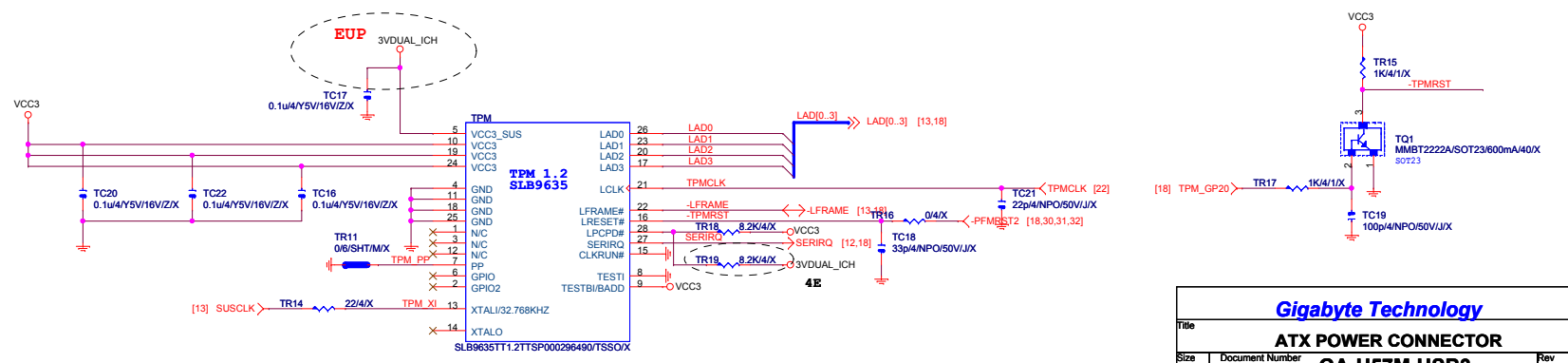
Date: Thursday, April 29, 2010

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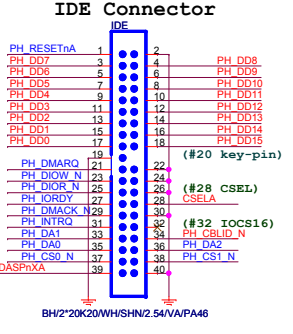
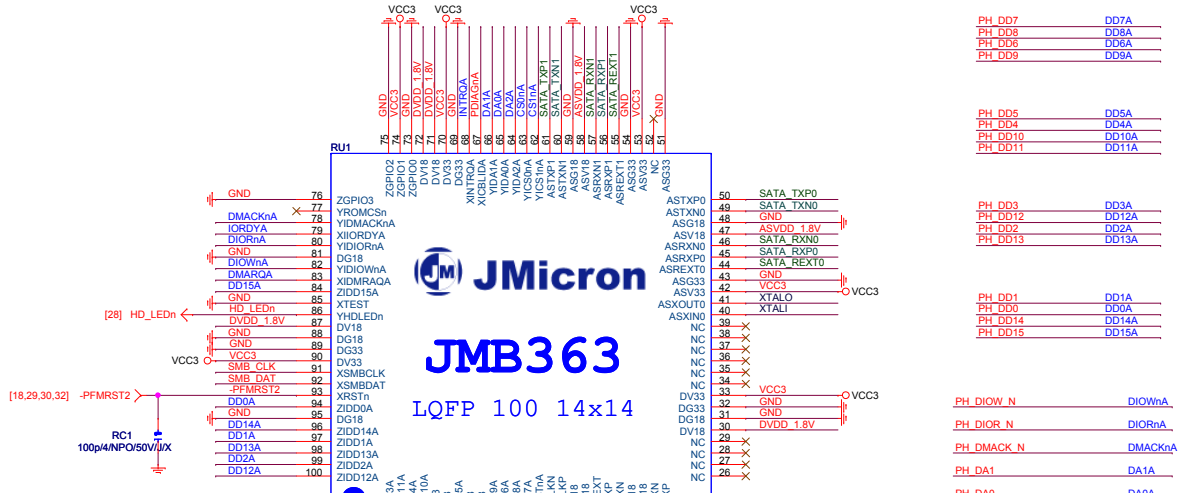
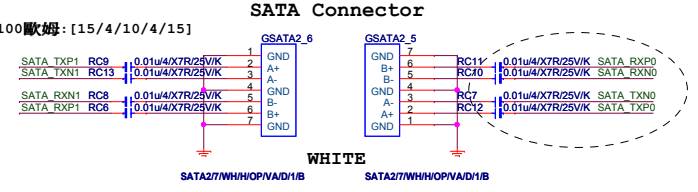
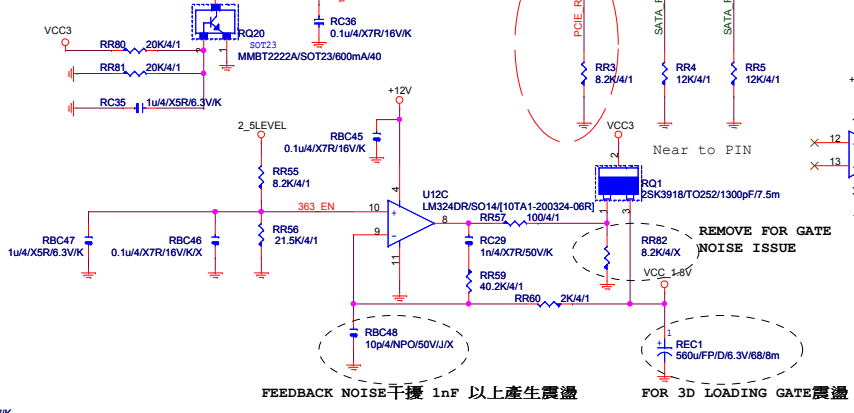
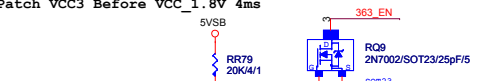
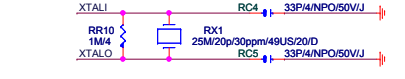
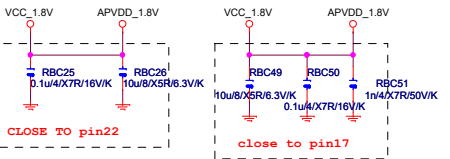
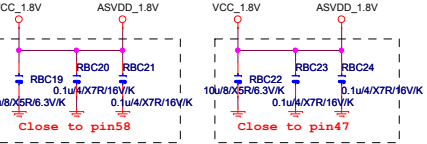
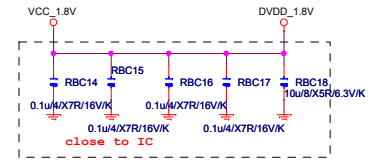
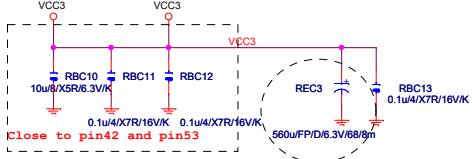
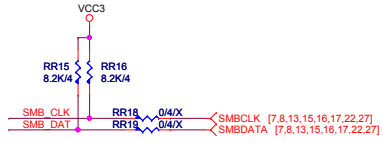
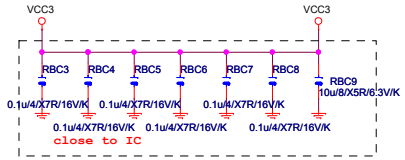
ATX POWER CONNECTOR

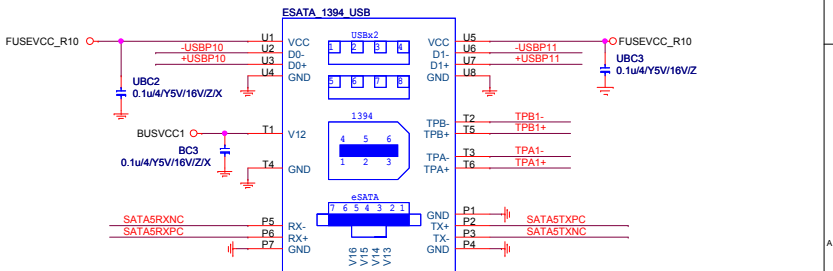
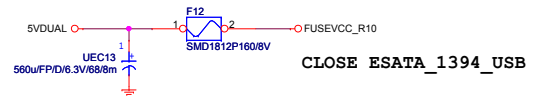
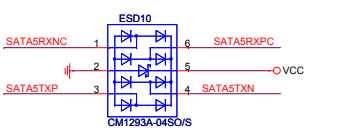
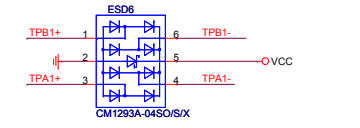
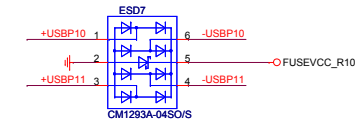
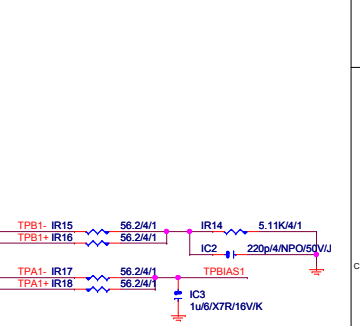
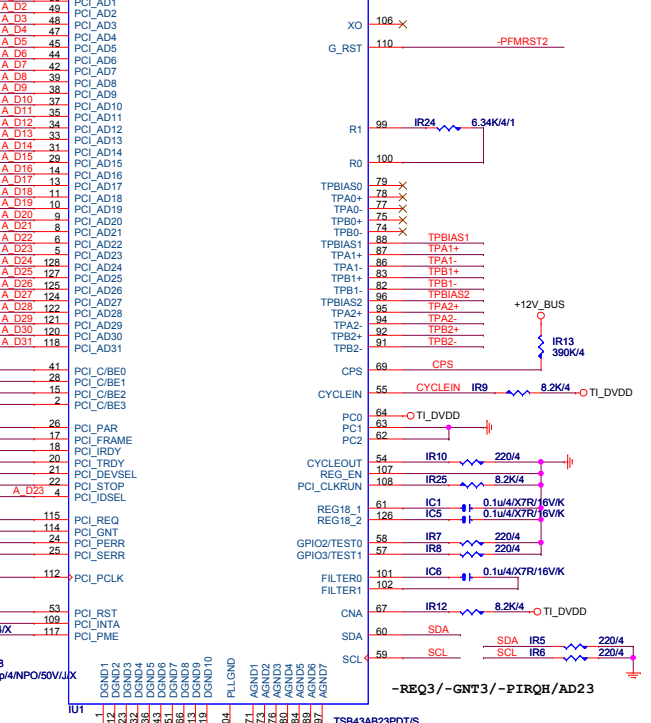
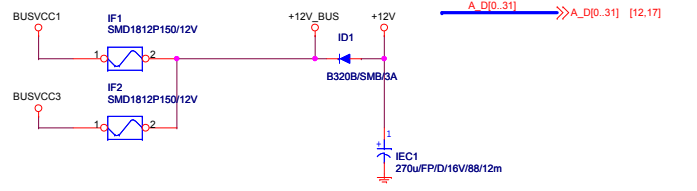
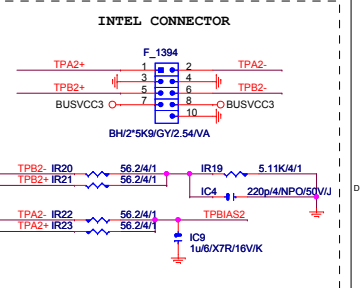
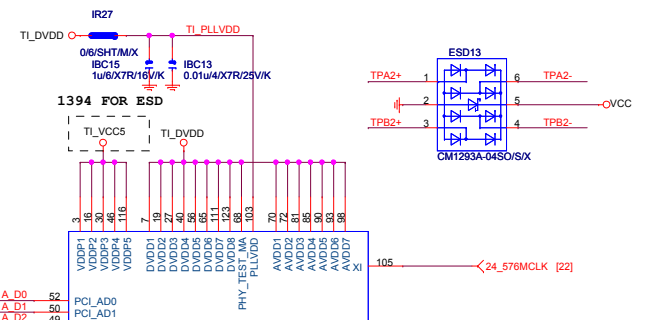
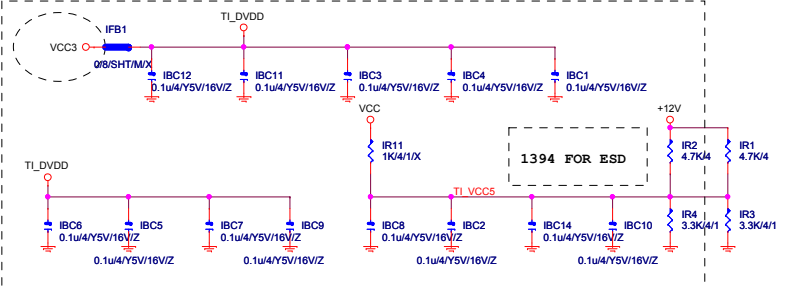


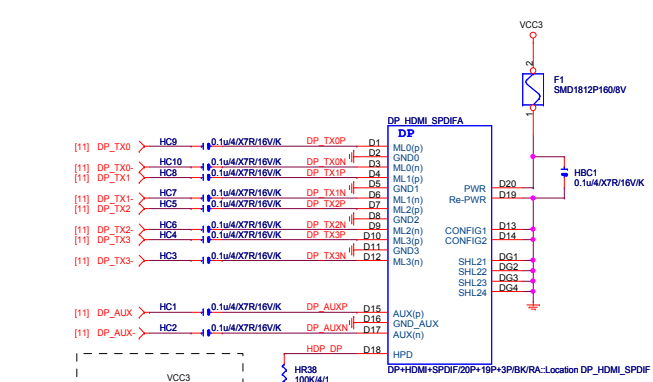
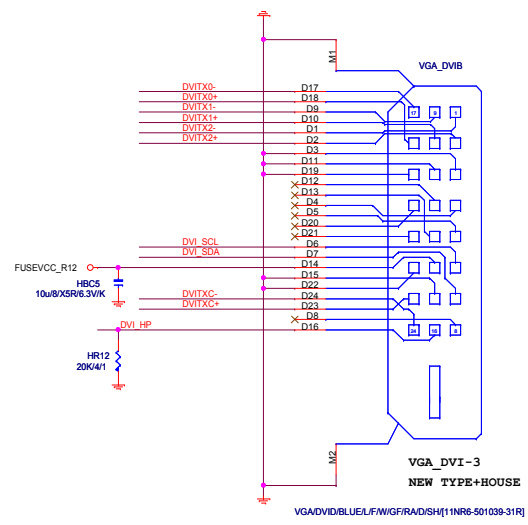
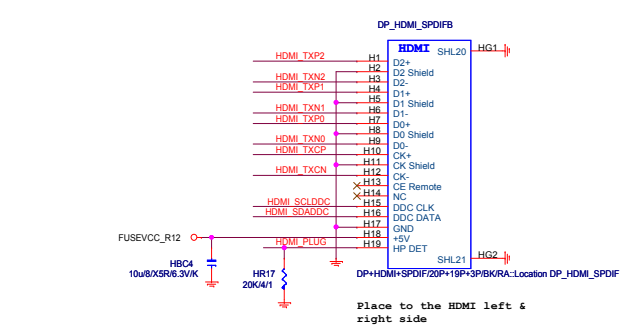
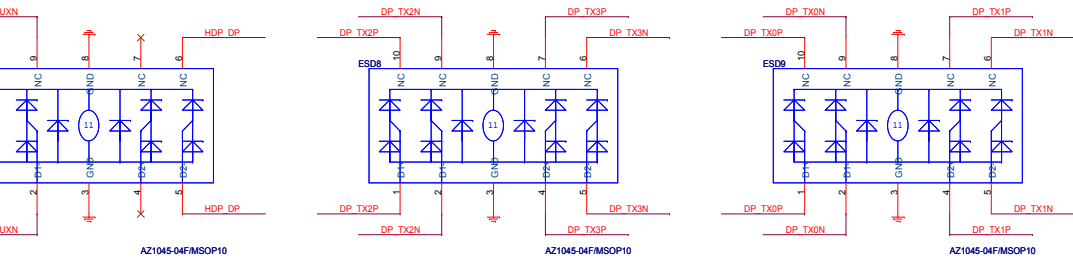
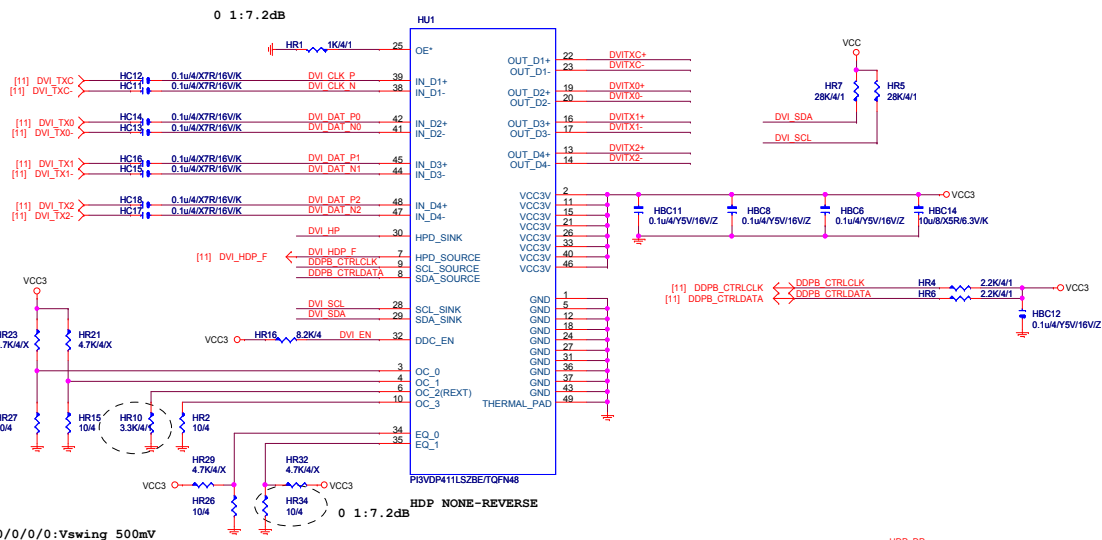
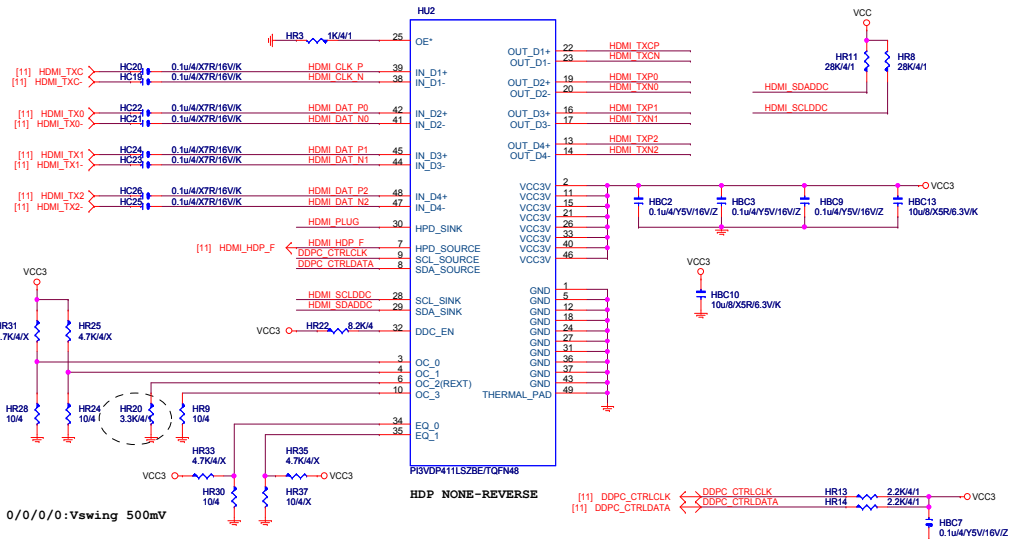
TPM



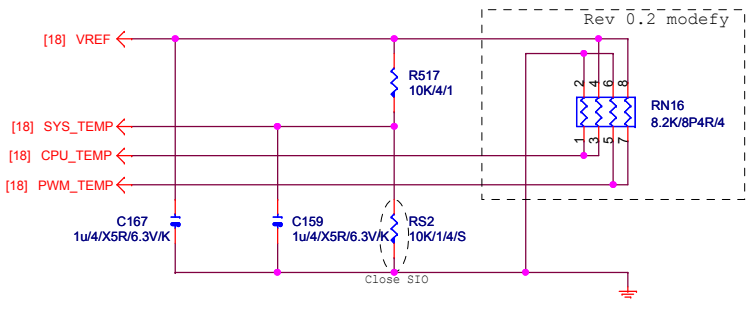
Gigabyte Technology		
ATX POWER CONNECTOR		
File	Document Number	Rev
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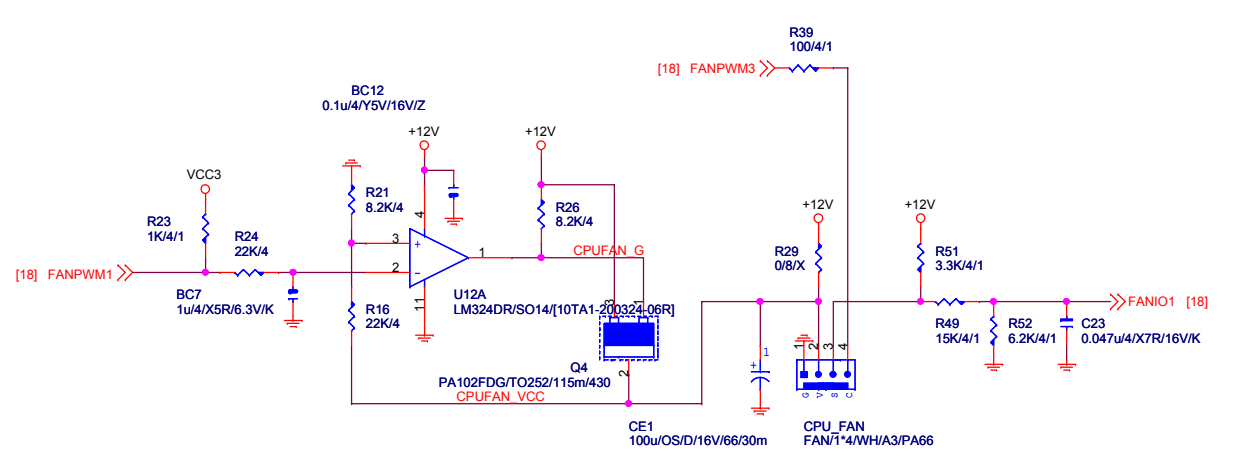




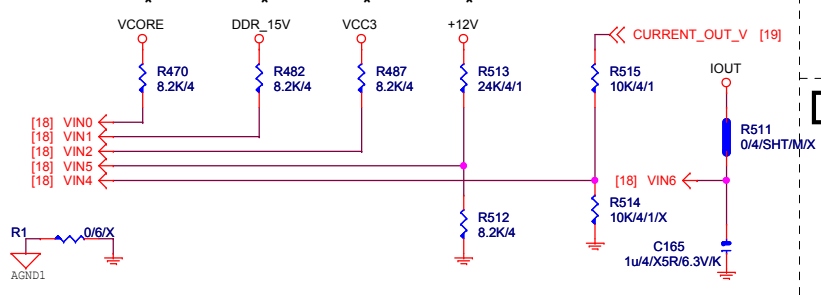
TEMP H/W MONITOR



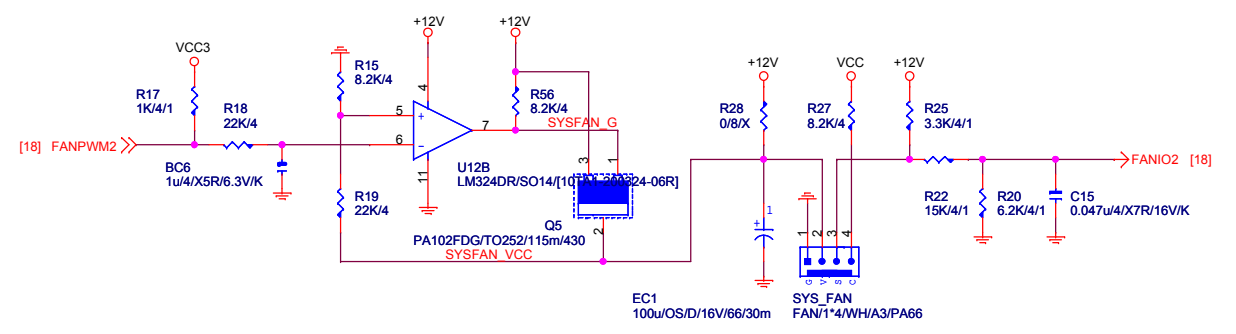
CPU SMART FAN



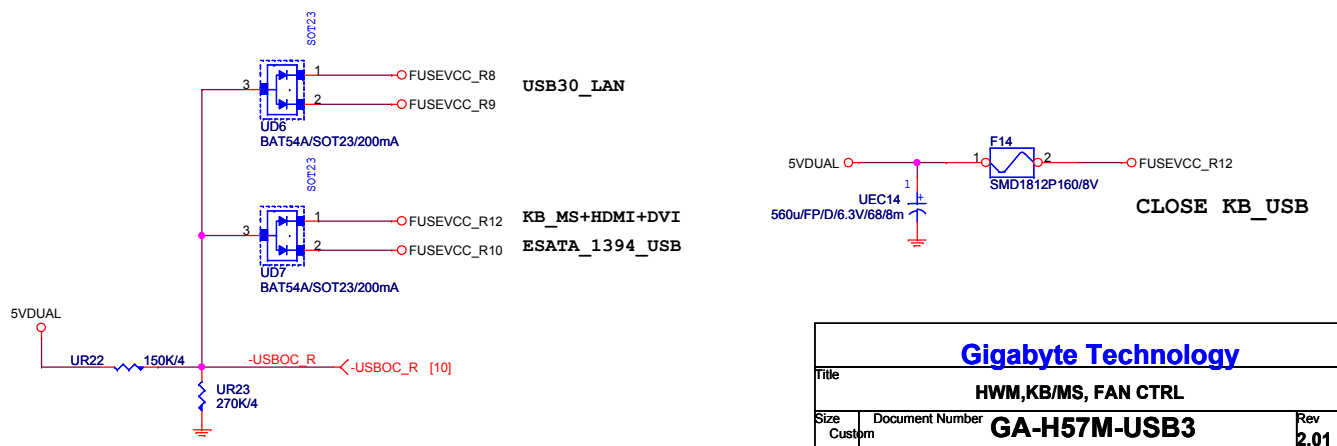
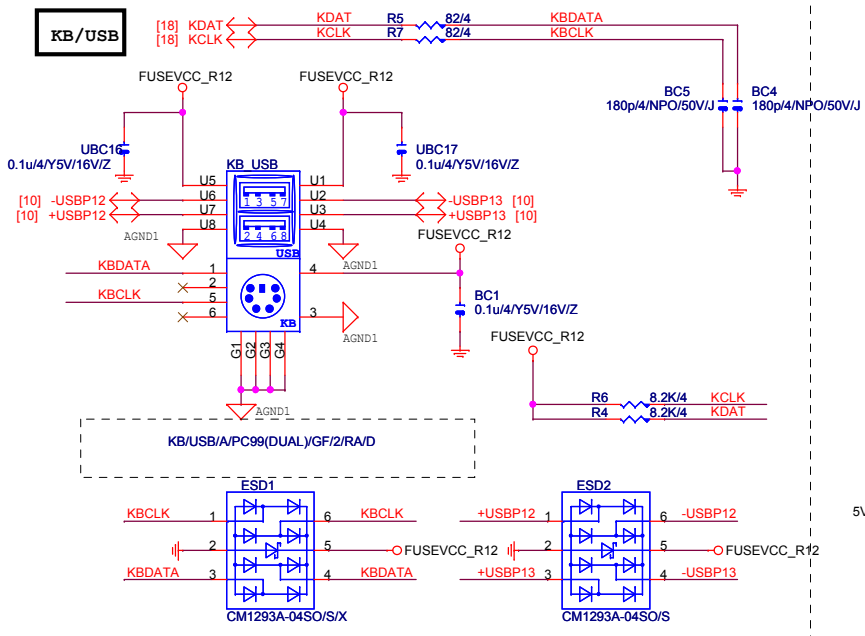
VOLTAGE-- H/W MONITOR



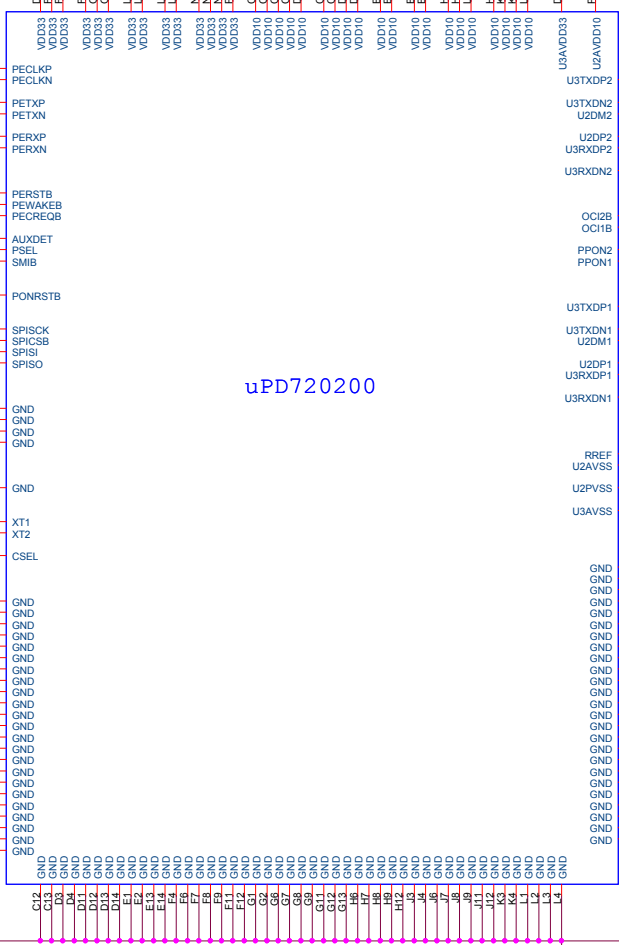
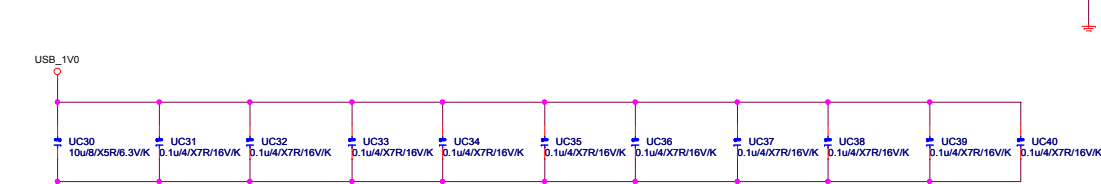
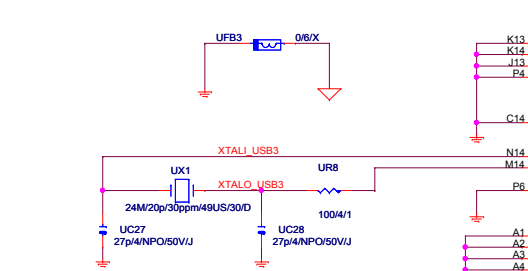
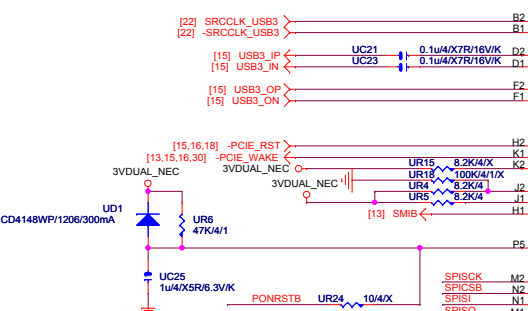
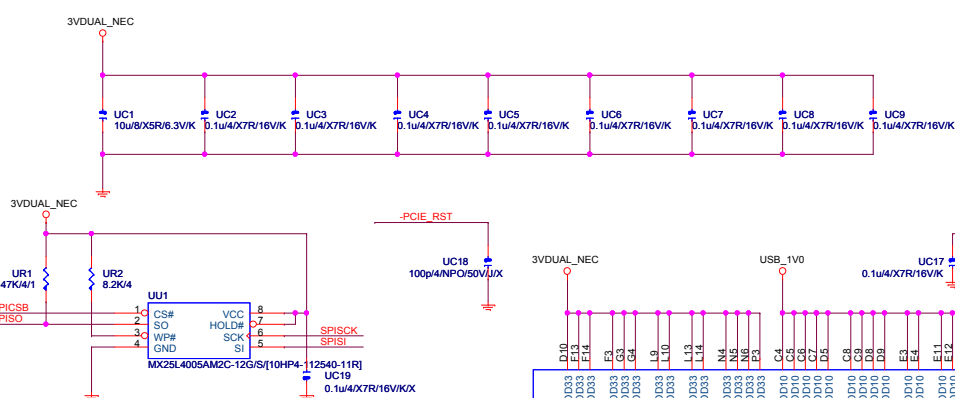
SYS SMART FAN Linear SYS_FAN



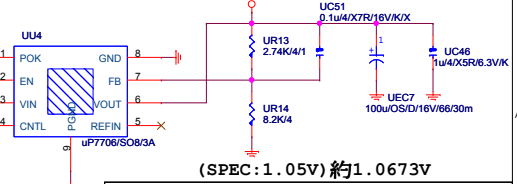
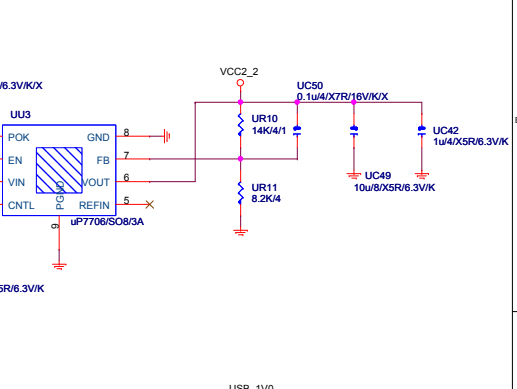
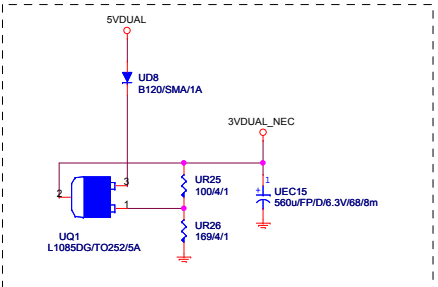
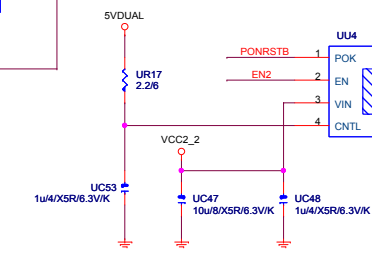
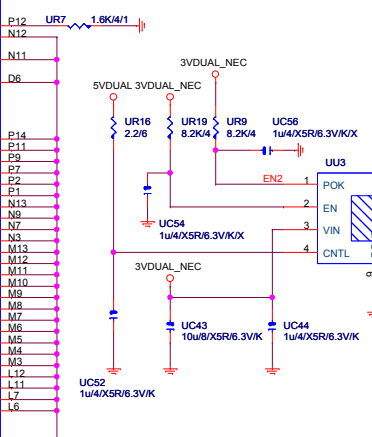
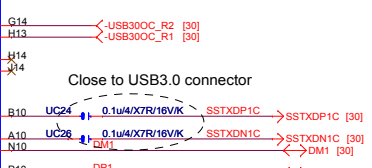
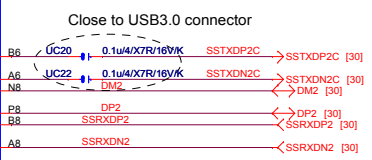
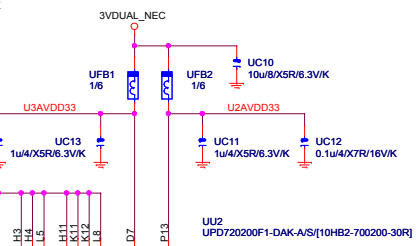
KB/USB



Gigabyte Technology			
HWM,KB/MS, FAN CTRL			
Title	Document Number	GA-H57M-USB3	
Size	Custom	Rev	2.01
Date:	Thursday, April 29, 2010	Sheet	34 of 36



uPD720200



(SPEC: 1.05V) 約1.0673V

GIGABYTE

File: **USB3.0 uPD720200**
 Size: Custom Document Number: **GA-H57M-USB3** Rev: **2.01**
 Date: Thursday, April 28, 2010 Sheet: 35 of 38

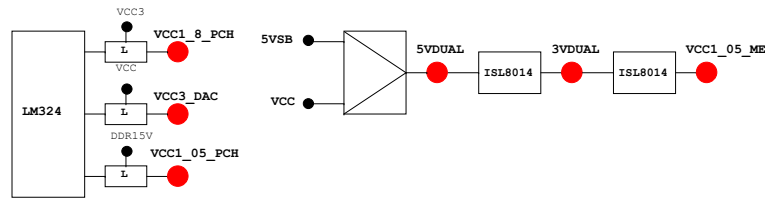
PCH GPIO LIST TABLE

PIN NAME	PWR	DEF	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#	N/A
GP10/OC6#	STBY		NATIVE	OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	OC7#	N/A
GP15	STBY	L	GPO	GPIO15	N/A
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL
GP26	STBY		NATIVE	-AC2_DET	P/U 8.2K 3VDUAL
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3
GP40	STBY		NATIVE	OC1#	N/A
GP41	STBY		NATIVE	OC2#	N/A
GP42	STBY		NATIVE	OC3#	N/A
GP43	STBY		NATIVE	OC4#	N/A
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	-LPCPME	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL
GP47	STBY		NATIVE	PSI_LED	P/U 8.2K 3VDUAL
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

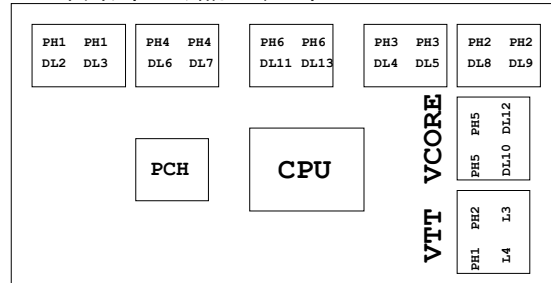
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDVA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C	SEC_PIN	FST_2X8
INIT#/GP85/SMB_D	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
FANSWH#/GP43	PWRBT5W	
KDAT/GP61	-PWRBT5W	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRST1N#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMB_D	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下:



BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVRTT	DRAM Termination
VREF_CA_AVREF_CA_B	DRAM Address Ref
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

散熱模組料號:

- 8IBP:
- 1.12SP2-01A001-Y1R/Y2R
- 2.12SP2-01A001-Z1R/Z2R
- (HIBRID模組)包材階

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH