Model Name: 965P-DS3

Revision 3.3

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	POWER MAP
05	P4_LGA775_A
06	P4_LGA775_B
07	P4_LGA775_C
08	P4_LGA775_D
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10	GMCH-BROADWATER_DDRII
11	GMCH-BROADWATER_PCI E, DMI
12	GMCH-BROADWATER_INT VGA
13	GMCH-BROADWATER_GND
14	GMCH-BROADWATER_PWR
15	DDRII CHANNEL A 1,2
16	DDRII CHANNEL B 1,2
17	DDRII TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH8 PCI, USB, DMI, LAN
20	ICH8 GPIO, CTRL
21	ICH8 SATA, FAN PWM
22	ICH8 VCC, GND
23	CLOCK GEN CK505
24	PCI EXPRESS*1 ,PCI SLOT 1,2
25	ITE8712GB,RESET DRIVE
26	COM,LPT
27	BIOS,CI,HWM,KB/MS

SHEET	TITLE
28	AZALIA ALC883
29	AUDIO JACK
30	VCORE PWM ISL6312
31	DISCRETE POWER
32	ATX POWER
33	IDE RAID IT8212
34	1394 TI TSB43AB23
35	LAN MARVELL 88E8053
36	FAN CONTROL
37	FRONT PANEL,FUSB,FDD

Gigabyte Technology

Title	Cover Sheet	
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Component value change history

Data	Change Item	Reason
1.1A	EVT release	
1.1B	1. ADD F_AUDIO HEADPHONE FOR VISTA CR103~CR106	
2.0A	1. DVT RELEASE	
2.0B	1. SB, N/B HEATSINK CHANGE	
	2. 包材修改	
	3. PWM 阻值修改	
	4. 電阻,電容種類統一化	
	5. EC174 560uF -- >100uF	
	6. U11 加替料 WINBOND 8M FLASH:10HP4-152580-11R	
	7. USB_LAN1 加替料 UDE:11NR6-702009-09R	
	8. U49替料移除:CLK GEN ICS9LPRS587BGLF-T	
2.0C	1. 1.2uH修改料號:1.2uH/20A/PMU109/W/D	
	2. N/B , S/B HEATSINK順序修改 (965P-DS3/965G-DS3 Silent-pipe , 965P-S3 New Heatsink)	
	3 .Q330,Q331 Q_SOT23 Remove to Q330 Q_TO252	
	4 .R1955~R1958 R0402-2-SHORT10 to R0402-2	
	5. R1970 1K/4 --> 100/4/1	
	6. ADD PECI CTRL CIRCUIT	
	7. F1,F2,F3 SMD FUSE 1.1A --> 1.6A	
	8. PCB REV2.01 --> REV2.02	
2.0C-PVT	1. 包材修改	
2.0D-DVT	1. PCB REV2.02 --> REV2.03	
2.0E	1. DL2~DL7 0.3uH --> 0.4uH	
	2. DR11 3.16K/4/1 --> 3.24K/4/1	
	3. PWM FS CHANGE 200KHz DR103 82K/4 --> 120K/4	
	4. DDRVTT CHANGE R1882 1.78K/6/1 REMOVE , ADD 1876 1K/6/1	
	5. DDR18V_OV3 4.02K/6/1 --> 3.01K/6/1	
2.0E-ECN	3. PWM FS CHANGE 200KHz DR103 120K/4 --> 82K/4	
2.0F	1. PCB REV2.02 --> REV2.03	
2.0G	1. 0.4uH修改料號	
	2. DR105 加替料10RC4-002433-23R	
	3. 主料10CM2-024704-51R,加替料10CM2-024704-53R	

Circuit or PCB layout change for next version

DATE	Change Item	Reason
1.02	EVT release	
2.0	1. PWM 3 PHASE --> 6 PHASE	
	2. SUPPORT VISTA FUNCTION	
	3. APPROVE POWER-ON SHUN DOWN ISSUE	
2.01	1. REMOVE CQ10,CR101,CR102	
	2. PWR_FAN R1814 VCC --> +12V	
	3. PWM 6 PHASE COPY FROM 946GZ-S3 Rev2.0	
	4. U11 FOOTPRINT IC8SO-SOCKET-1 --> IC8SO-SOCKET-2	
	5. EC174 EC10D8MM --> EC6D8MM,BC730 C0603 --> C0805	
2.02	1 .Q330,Q331 Q_SOT23 Remove a Q330 Q_TO252 FOR SYS_FAN POWER	
	2 .R1955~R1958 R0402-2-SHORT10 a R0402-2	
	3. ADD CPU PIN.E7=CPU_TP21	
	4. L15,L16 Footprint change to "CHOKE2U-20A-SQ-1"	
	5. CHANGE PECI CTRL CIRCUIT	
2.03	1. RU2 PIN40,41 NET CHANGE TO GND	
2.04	1. L13,L14 1.2uH Change Footprint "CHOKE08U-15A_1P-1"	
	2. L15,L15 2uH Change Footprint "CHOKE2U-20A-SQ-2"	
3.3	1. FOR FSB1333 CPU SUPPORT	
下板修改	1. 增加 CPU FSBSEL2 Pull uP 電阻	
BOM		
2.0H	1. PCB REV2.03 --> REV 2.04	
	2. 470uF/6.3V & 560uF/4V --> 560uF/6.3V(僅試產,量產版本要改回來)	
	3. D3,D9,CD1,CD2,PD1 10DS1-124148-04R/05R--> 10DS7-734148-01R/02R (僅試產,量產版本要改回來)	
	4. U54 M8056/A2 --> M8056/B0	
3.3A	1. FOR FSB1333 CPU SUPPORT	
	BOM要再建立9M965PS3-00-33A	
3.3B	1. VTT_GMCH Q329 AP40T03H/TO252/655pF/25m-->2SK3918/TO252	
	2. U51,U53 REMOVE LD7120	
3.3C	1. U54 8056 REV.A2 --> B0	
	2. CD DRIVER REV1.02 --> REV1.03	

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Title: BOM & PCB MODIFY HISTORY

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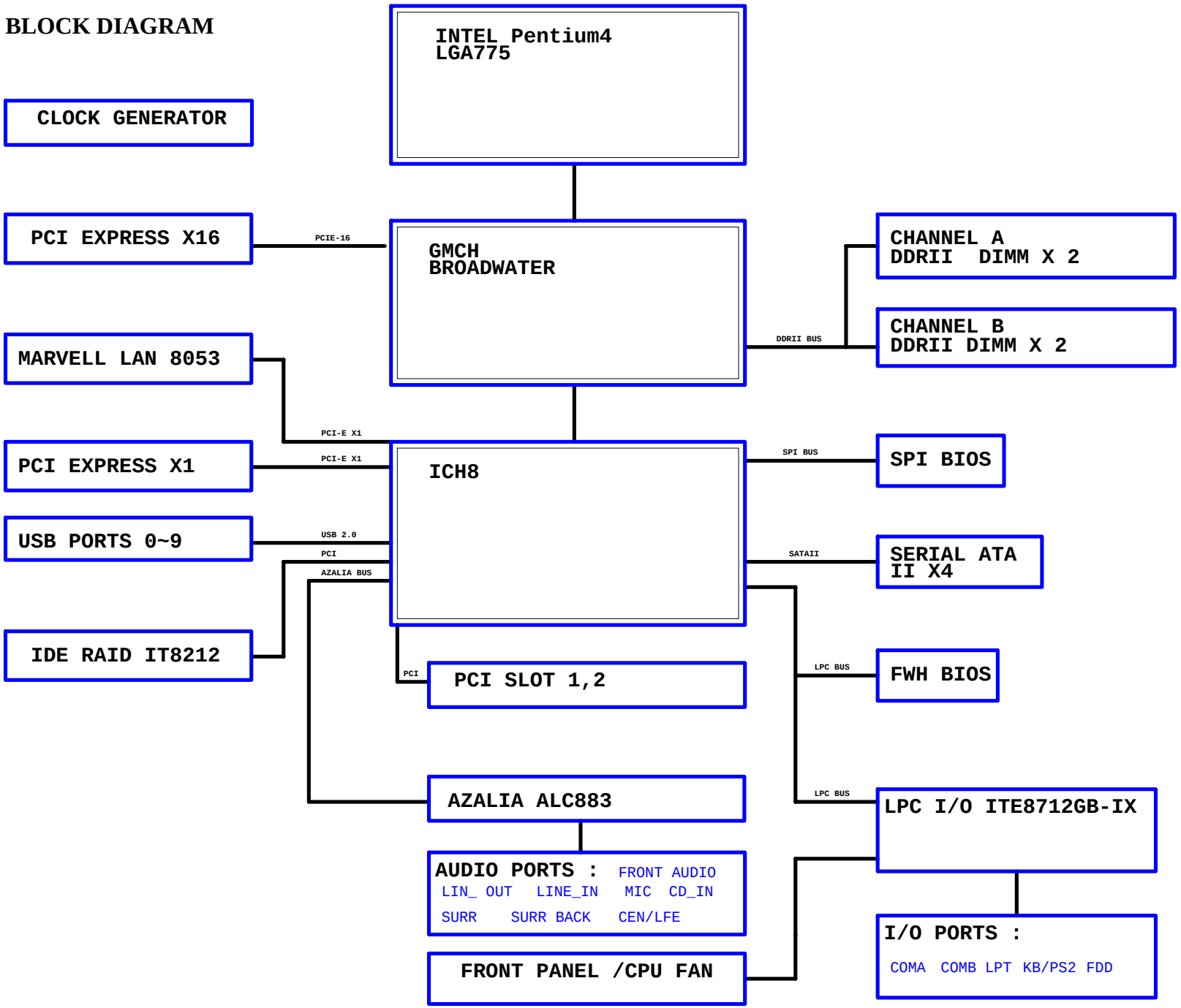
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
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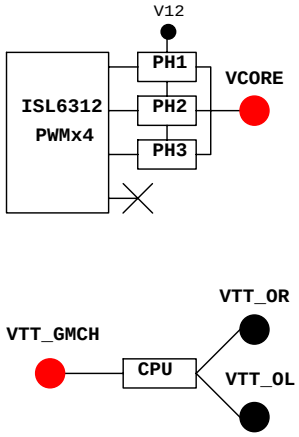
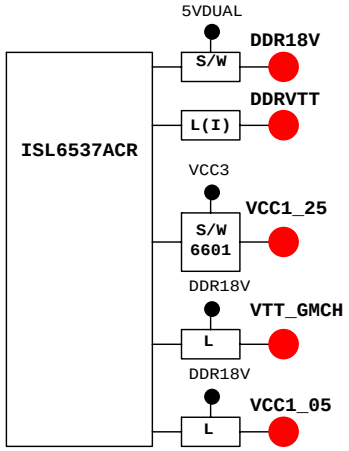
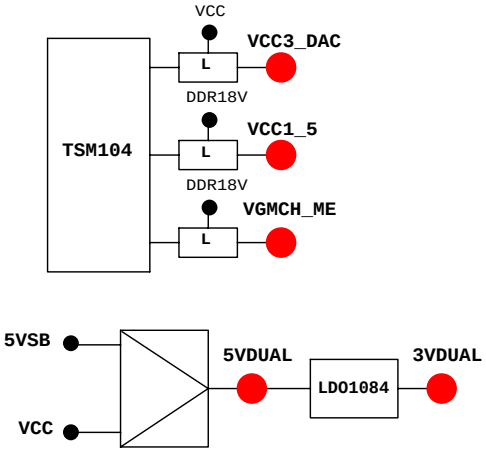
ICH8 GPIO LIST TABLE

PIN NAME	PWR WELL	AFTER/ PLTRST	USAGE	NOTE
GP0	MAIN	IN	-ACZ_DET	P/U 8.2K VCC3
GP1/TACH1	MAIN	IN	ICH_FAN_TACH1	P/U 8.2K VCC3
GP2/PIRQE#	MAIN	IN	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	IN	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	IN	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	IN	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	IN	ICH_FAN_TACH2	P/U 8.2K VCC3
GP7/TACH3	MAIN	IN	ICH_FAN_TACH3	P/U 8.2K VCC3
GP8	STBY	IN	GPIO8(DUALBIOS_INPUT)	P/U 8.2K 3VDUAL
GP9	STBY	OUT	WOL_ONLY	P/D 100K GND
GP10	STBY	IN	CLGPIO1	P/U 8.2K 3VDUAL
GP11/SMBALERT#	STBY	OUT	-SMBALRT	P/U 8.2K 3VDUAL
GP12	STBY	IN	MB_ID0	P/U 8.2K 3VDUAL
GP13	STBY	IN	-LPCPME	P/U 8.2K 3VDUAL
GP14	STBY	IN	CLGPIO2	P/U 8.2K 3VDUAL
GP15	STBY	OUT	LAN_DISABLE(STP_PCI-)	N/A
GP16	MAIN	OUT/LOW	RESET	N/A
GP17/TACH0	MAIN	IN	ICH_FAN_TACH0	P/U 8.2K VCC3
GP18	MAIN	OUT	MB_ID1	P/U 8.2K VCC3
GP19	MAIN	IN	SATA1GP	P/U 8.2K VCC3
GP20	MAIN	OUT	-SPI_WP0	P/U 1K 3VCL
GP21	MAIN	IN	SATA0GP	P/U 8.2K VCC3
GP22	MAIN	IN	SCLOCK	P/U 8.2K VCC3
GP23	MAIN	OUT	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	OUT	CLGPIO0	P/U 8.2K 3VDUAL
GP25	STBY	IN	MB_ID2(STP_CPU-)	P/U 8.2K 3VDUAL
GP26/S4_STATE#	STBY	OUT	S4_STATE#	P/U 8.2K 3VDUAL
GP27	STBY	OUT/LOW	GPIO27(EL_STATE0)	P/U 8.2K 3VDUAL
GP28	STBY	OUT/LOW	PWR_LED(EL_STATE1)	N/A
GP29/OC5#	STBY	IN	-USBOC_R	P/U FUSEVCC
GP30/OC6#	STBY	IN	-USBOC_R	P/U FUSEVCC
GP31/OC7#	STBY	IN	-USBOC_R	P/U FUSEVCC
GP32	MAIN	OUT	DUAL_BIOS	P/U 100K+1M VCC3
GP33	MAIN	OUT	DUAL_BIOS	P/U 8.2K VCC3
GP34	MAIN	OUT/LOW	GPIO34/SMB_RST	N/A
GP35	MAIN	OUT	SATACLKREQ#	N/A
GP36	MAIN	IN	SATA2GP	P/U 8.2K VCC3
GP37	MAIN	IN	SATA3GP	P/U 8.2K VCC3
GP38	MAIN	IN	SLOAD	P/U 8.2K VCC3
GP39	MAIN	IN	GPIO39	P/D 8.2K GND
GP48	MAIN	IN	GPIO48	P/U 8.2K VCC3
GP49	MAIN	IN	CPUPWROK	P/U 100 VTT_OL

VCORE:3 PHASE PWM--ISL6312







Gigabyte Technology			
Title: TABLE LIST			
Size: B	Document Number: 965P-DS3		Rev: 3.3
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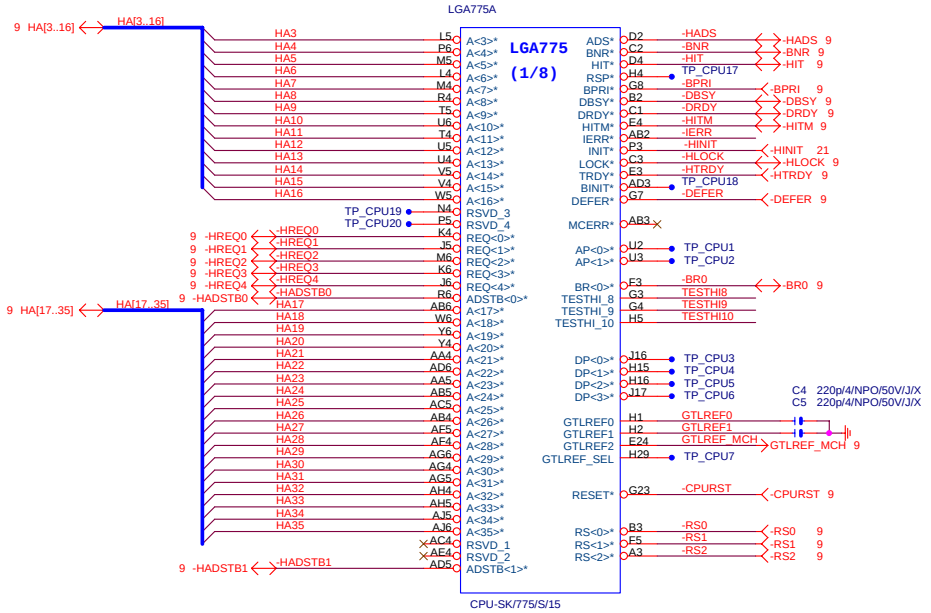
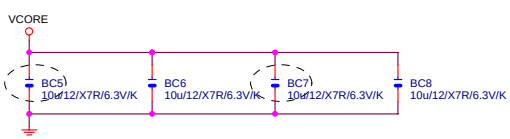
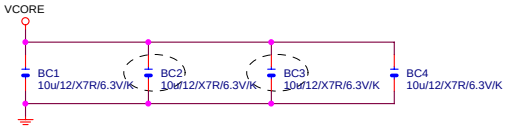
HA/REQ:4/14

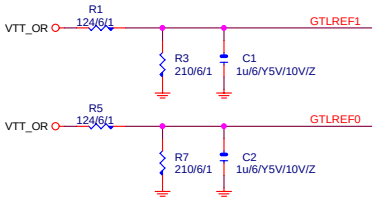
ADSTB:4/17

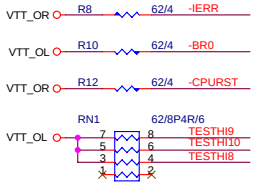


Impedance=50 +- 15% for 4 -layer

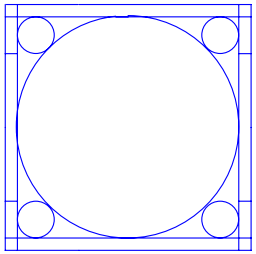








CR
CPU RETAINTION/X



Gigabyte Technology			
Title: P4_LGA775-A			
Size: Custom	Document Number: 965P-DS3		Rev: 3.3
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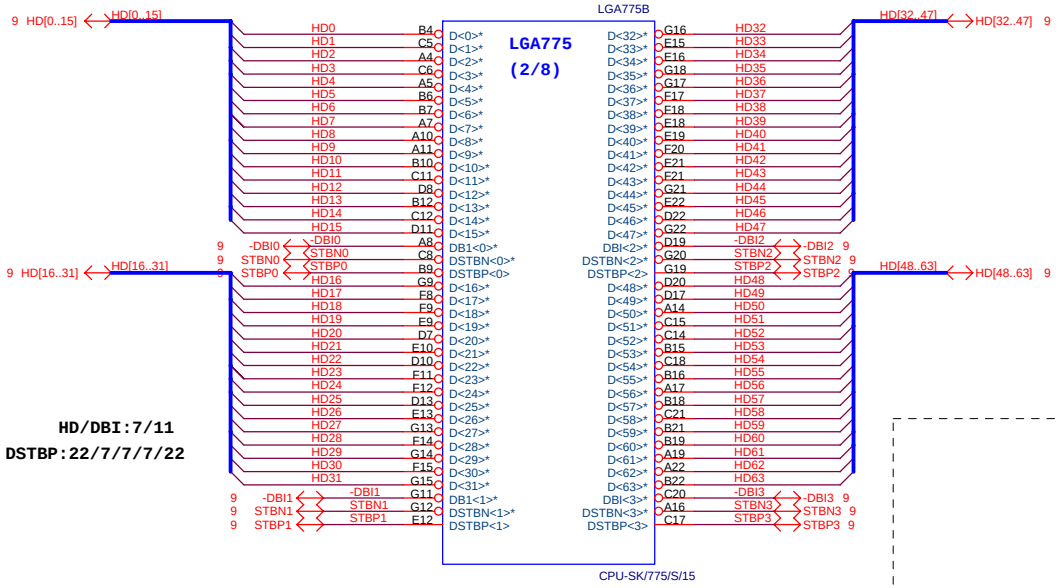

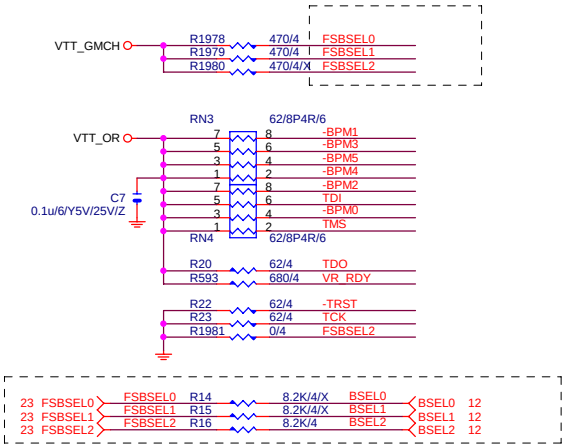

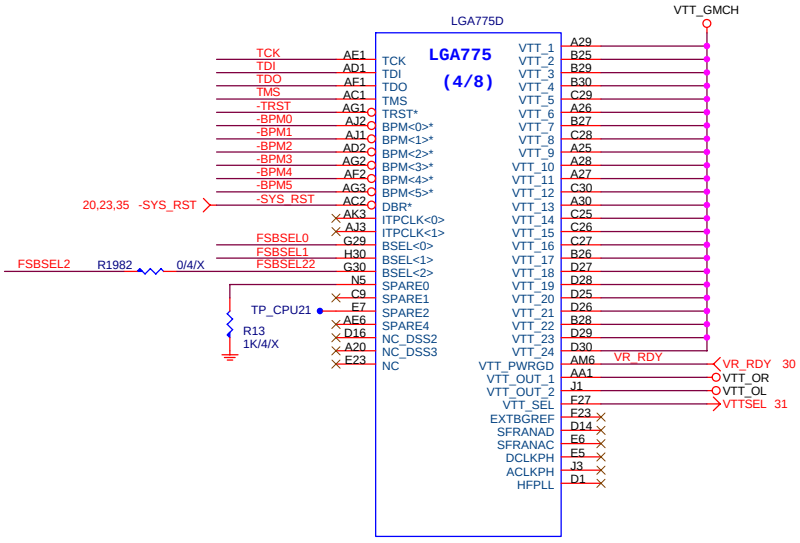

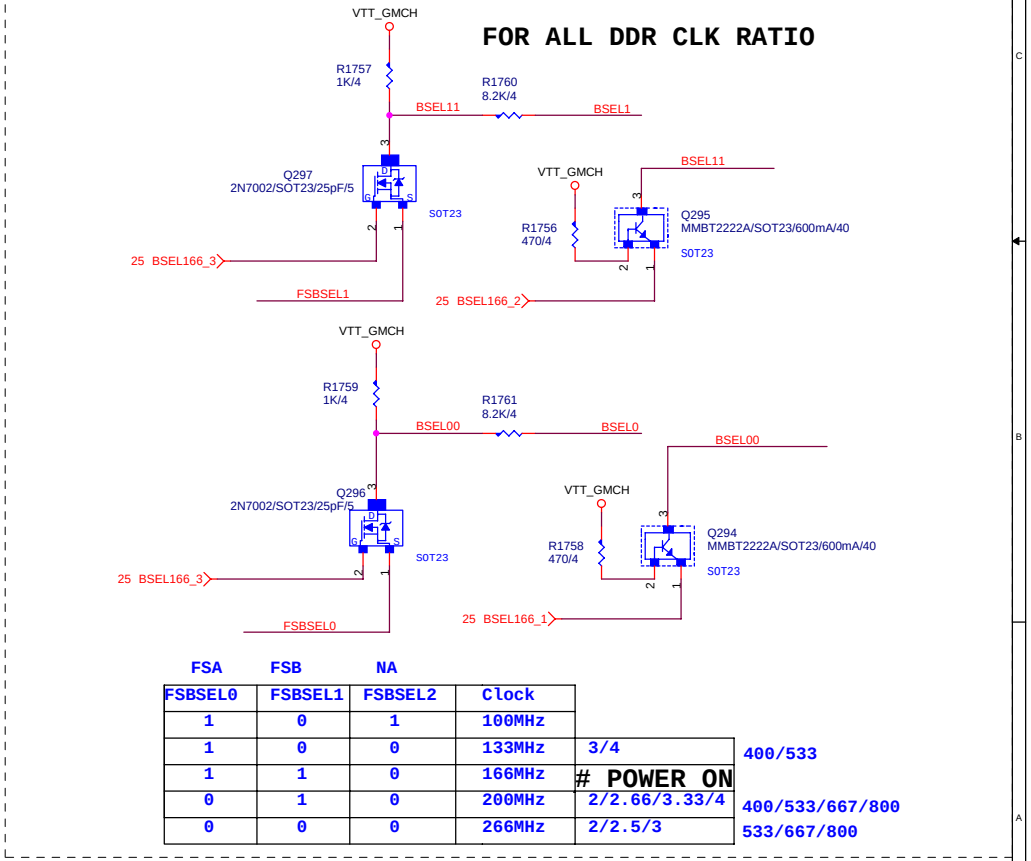

FSA	FSB	NA			
FSBSEL0	FSBSEL1	FSBSEL2	Clock		
1	0	1	100MHz		
1	0	0	133MHz	3/4	400/533
1	1	0	166MHz	# POWER ON	
0	1	0	200MHz	2/2.66/3.33/4	400/533/667/800
0	0	0	266MHz	2/2.5/3	533/667/800

Gigabyte Technology		
Title	P4_LGA775-B,D	
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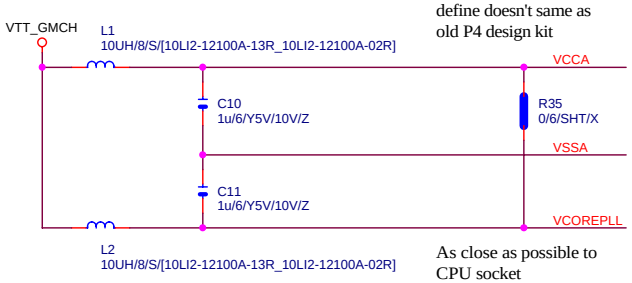
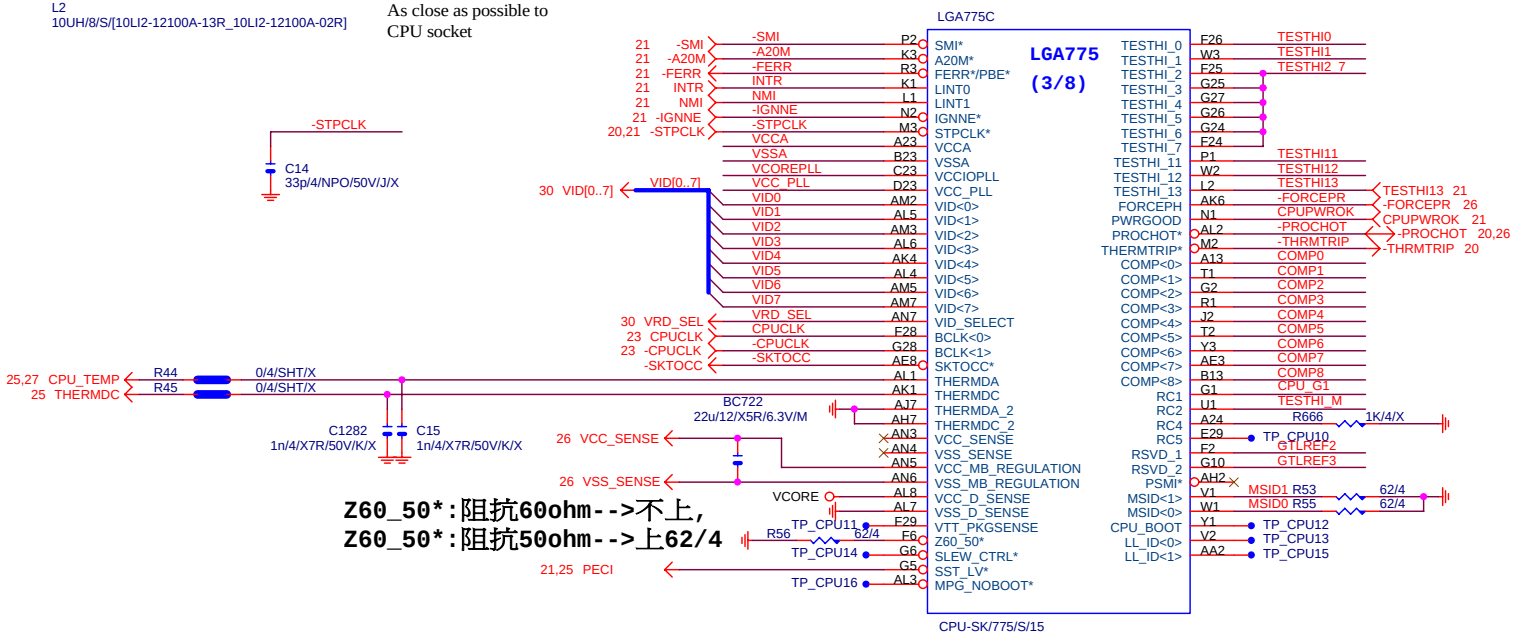
Note:

VCCA & VCOREPLL define doesn't same as old P4 design kit

Trace width doesn't less than 12 Mil

As close as possible to CPU socket

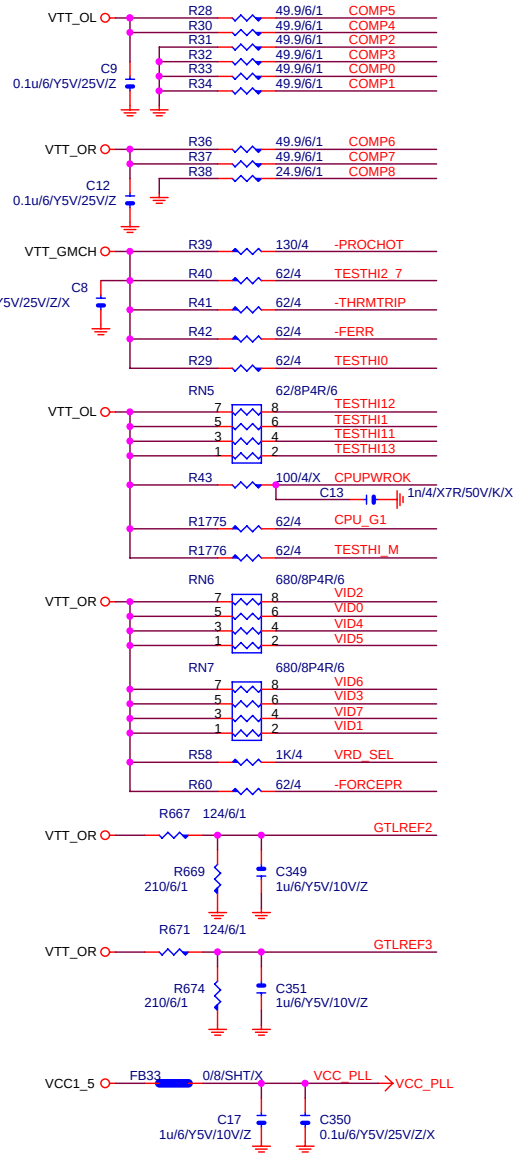




Z60_50*:阻抗60ohm-->不上,
Z60_50*:阻抗50ohm-->上62/4

PECI:Platform Environment Control Interface

Place outside of CPU socket



Gigabyte Technology		
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Size: B	Document Number: 965P-DS3	Rev: 3.3
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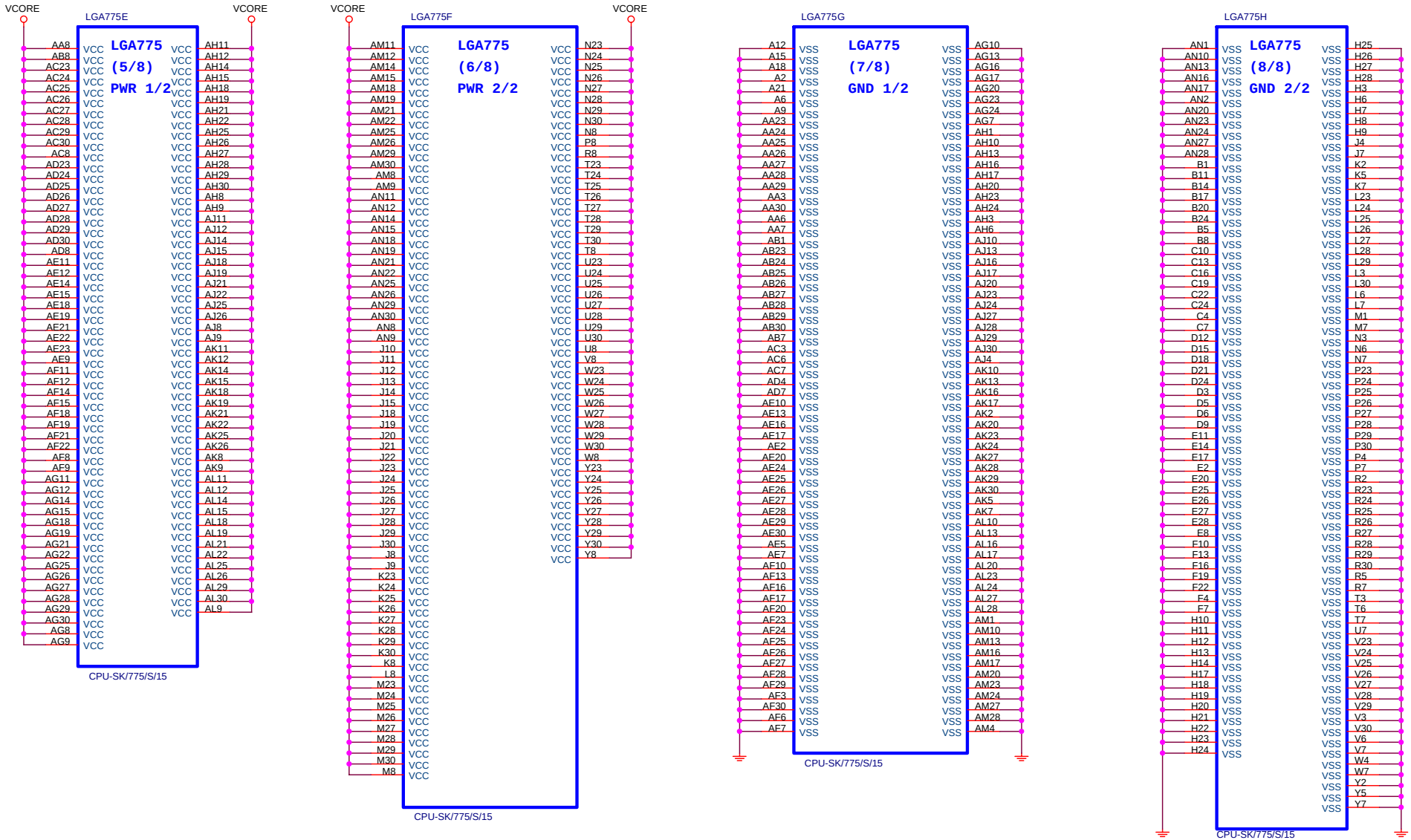

Gigabyte Technology			
Title	P4_LGA775-E,F,G,H		
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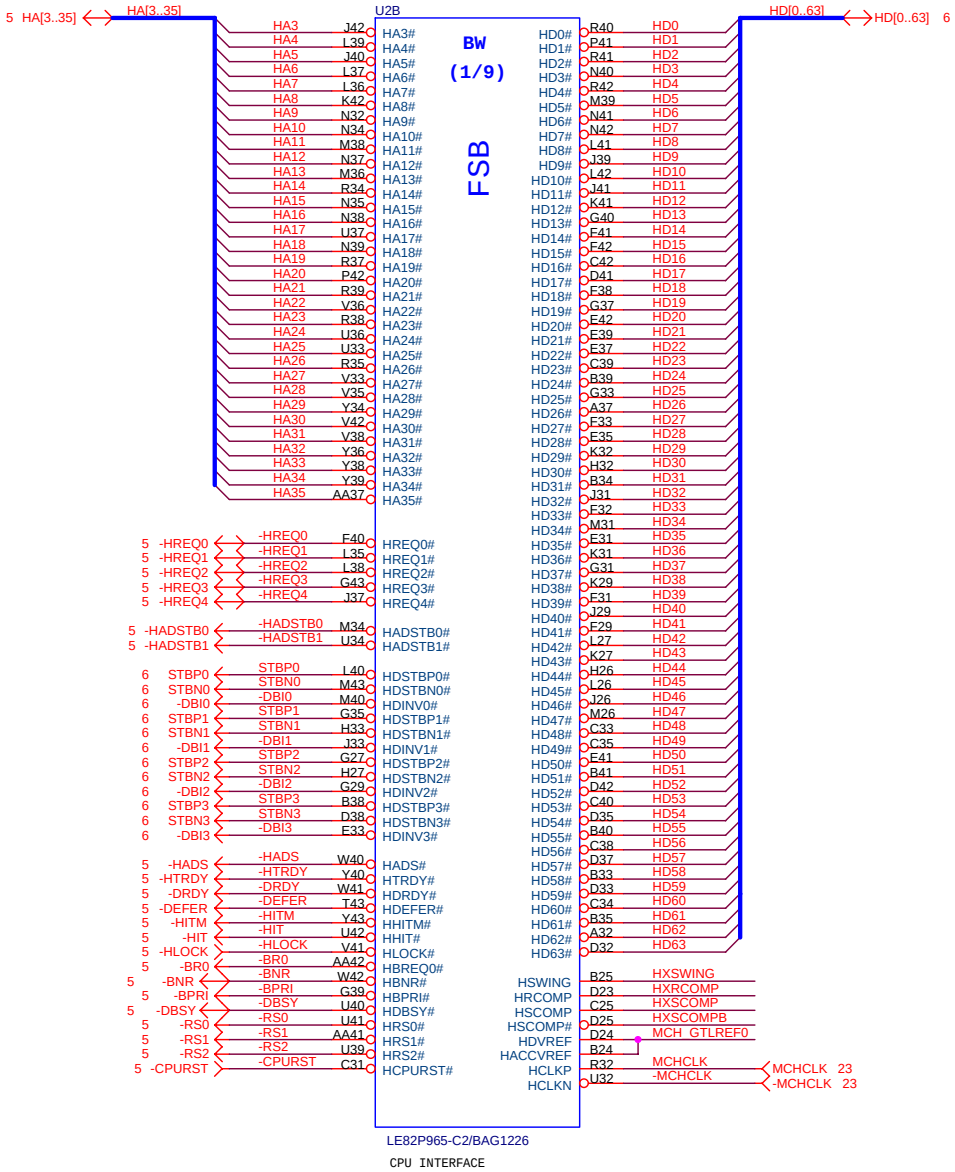

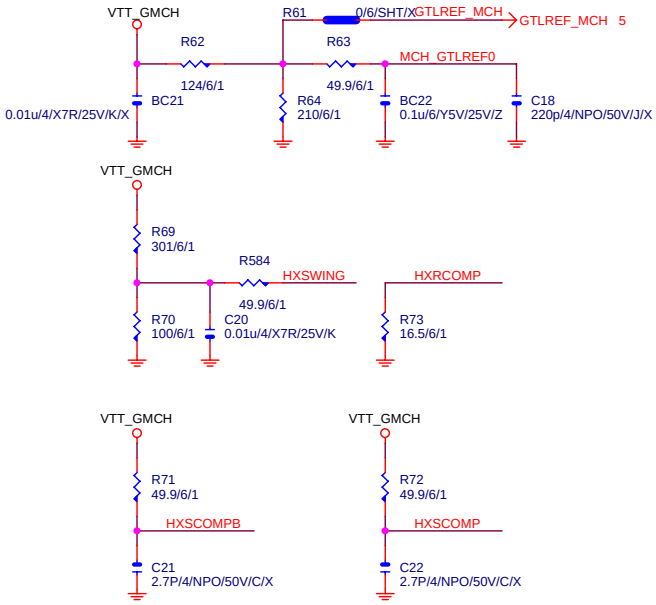

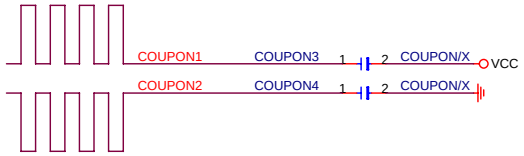

Gigabyte Technology		
Title: GMCH-HOST		
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U2C

BW (3/9)

DDR_0

LE82P965-C2/BAG1226

DDR INTERFACE

U2D

BW (4/9)

DDR_1

LE82P965-C2/BAG1226

NB_HEATSINK/[12SP2-04F004-71R_12SP2-04F004-72R_12SP2-04F004-73R_12SP2-04F004-74R]

Gigabyte Technology	
Title	GMCH-DDRII
Size: Custom	Document Number: 965P-DS3
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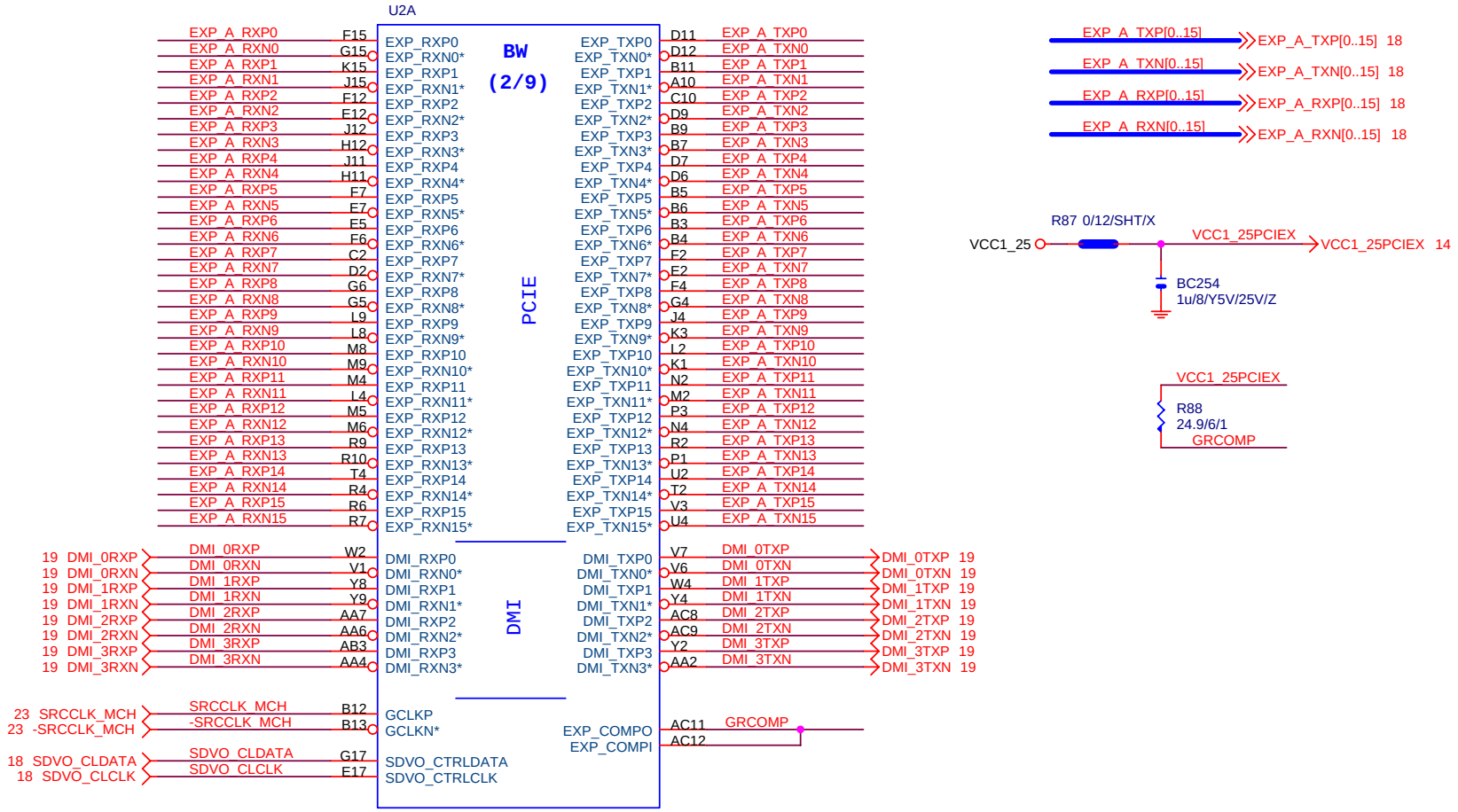

Gigabyte Technology		
Title: GMCH-PCI E & DMI		
Size: Custom	Document Number: 965P-DS3	Rev: 3.3
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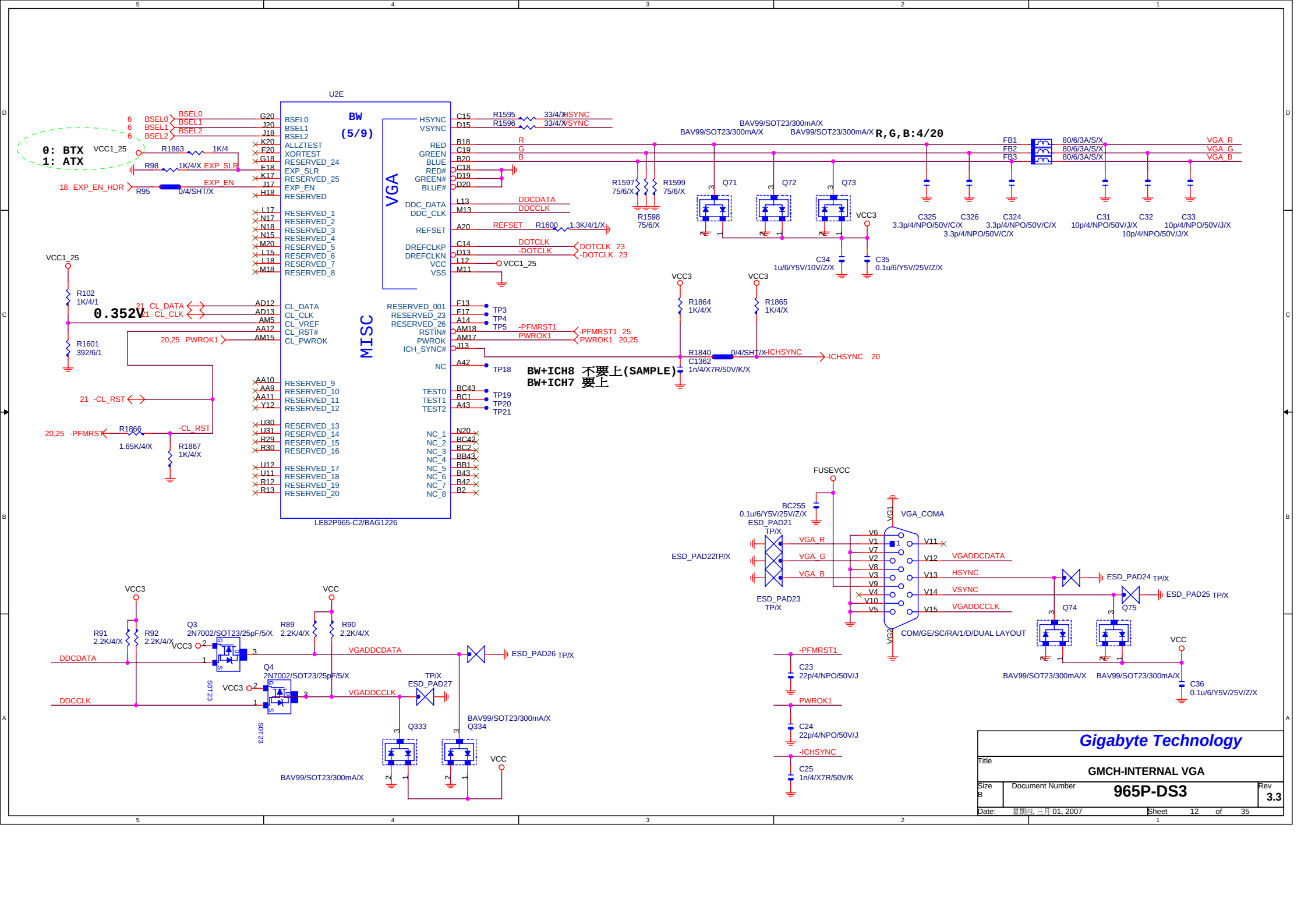
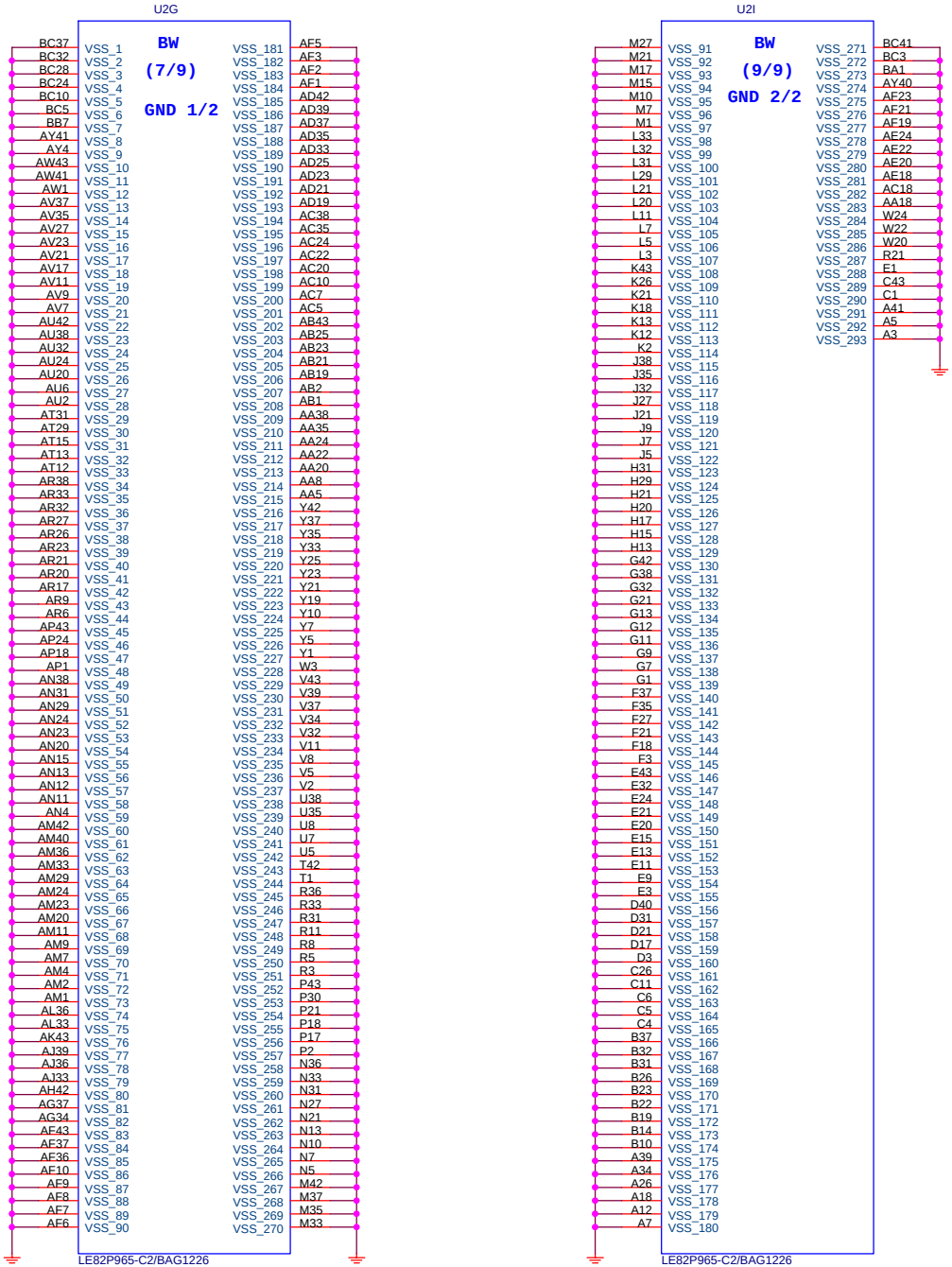
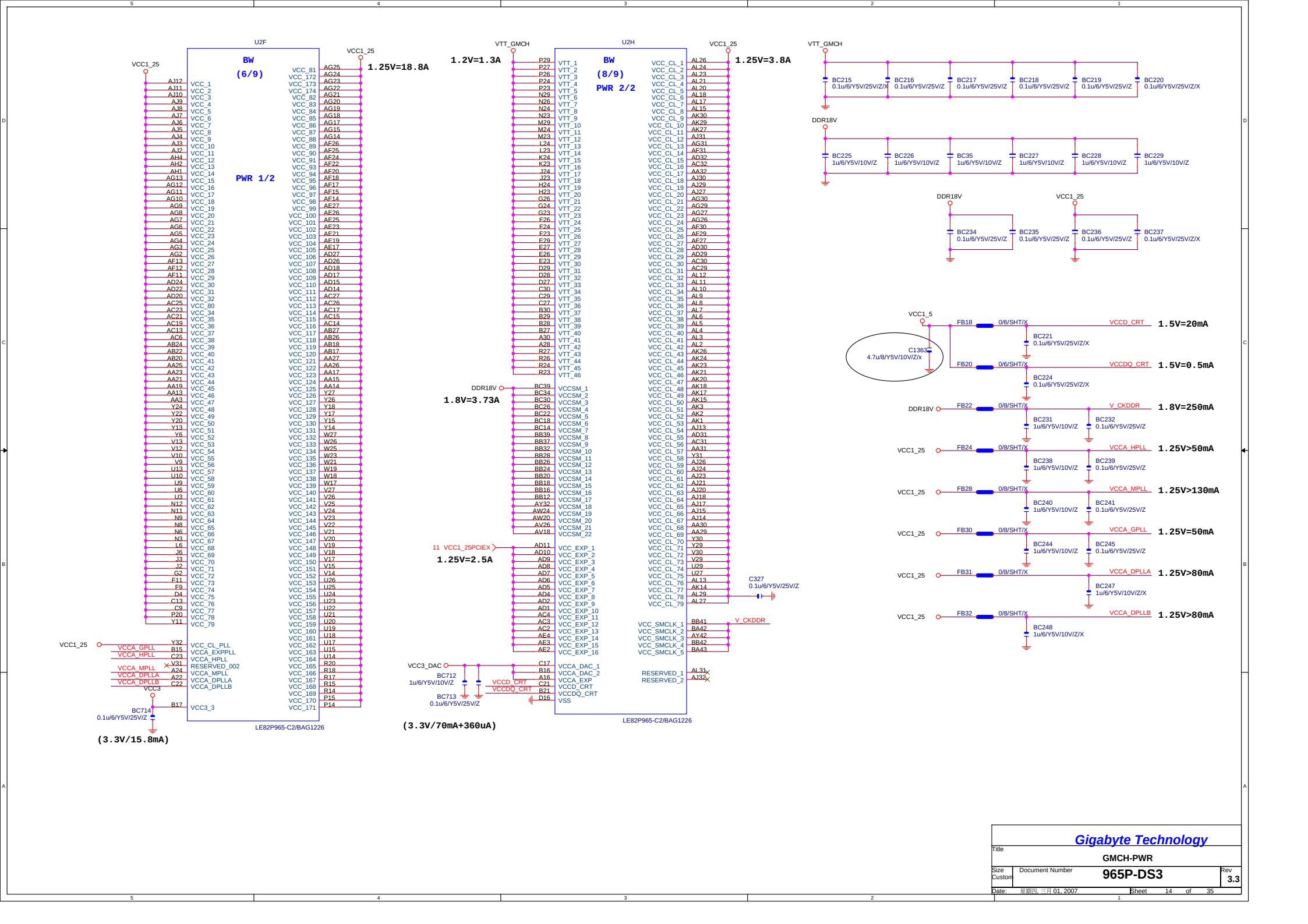

U2E
BW
(5/9)
VGA
MISC
LE82P965-C2/BAG1226
0: BTX
1: ATX
VCC1_25
R1863 1K/4
R98 1K/4/X EXP_SLR
R95 0/4/SHT/X EXP_EN
18 EXP_EN_HDR
BSEL0
BSEL1
BSEL2
ALLZTEST
XORTEST
RESERVED_24
EXP_SLR
RESERVED_25
EXP_EN
RESERVED
RESERVED_1
RESERVED_2
RESERVED_3
RESERVED_4
RESERVED_5
RESERVED_6
RESERVED_7
RESERVED_8
HSYNC
VSYNC
RED
GREEN
BLUE
RED#
GREEN#
BLUE#
DDC_DATA
DDC_CLK
REFSET
DREFCLKP
DREFCLKN
VCC
VSS
R1595 33/4/X HSYNC
R1596 33/4/X VSYNC
DDCDATA
DDCCLK
R1600 1.3K/4/1/X
DOTCLK 23
-DOTCLK 23
R102 1K/4/1
0.352V
R1601 392/6/1
21 CL_DATA
21 CL_CLK
20,25 PWROK1
CL_DATA
CL_CLK
CL_VREF
CL_RST#
CL_PWROK
21 -CL_RST
20,25 -PFMRST
R1866 1.65K/4/X
R1867 1K/4/X
-CL_RST
RESERVED_9
RESERVED_10
RESERVED_11
RESERVED_12
RESERVED_13
RESERVED_14
RESERVED_15
RESERVED_16
RESERVED_17
RESERVED_18
RESERVED_19
RESERVED_20
RESERVED_001
RESERVED_23
RESERVED_26
RSTIN#
PWROK
ICH_SYNC#
NC
TEST0
TEST1
TEST2
NC_1
NC_2
NC_3
NC_4
NC_5
NC_6
NC_7
NC_8
TP3
TP4
TP5
TP18
TP19
TP20
TP21
-PFMRST1
PWROK1
-PFMRST1 25
PWROK1 20,25
BW+ICH8 不要上(SAMPLE)
BW+ICH7 要上
R1864 1K/4/X
R1865 1K/4/X
R1840 0/4/SHT/X -ICHSYNC
C1362 1n/4/X7R/50V/K/X
-ICHSYNC 20
R1597 75/6/X
R1598 75/6/X
R1599 75/6/X
BAV99/SOT23/300mA/X
R,G,B:4/20
Q71
Q72
Q73
FB1
FB2
FB3
80/6/3A/S/X
VGA_R
VGA_G
VGA_B
C325 3.3p/4/NPO/50V/C/X
C326 3.3p/4/NPO/50V/C/X
C324 3.3p/4/NPO/50V/C/X
C31 10p/4/NPO/50V/J/X
C32 10p/4/NPO/50V/J/X
C33 10p/4/NPO/50V/J/X
C34 1u/6/Y5V/10V/Z/X
C35 0.1u/6/Y5V/25V/Z/X
FUSEVCC
BC255 0.1u/6/Y5V/25V/Z/X
ESD_PAD21 TP/X
ESD_PAD22TP/X
ESD_PAD23 TP/X
VGA_COMA
COM/GE/SC/RA/1/D/DUAL LAYOUT
VGADDCDATA
HSYNC
VSYNC
VGADDCCLK
ESD_PAD24 TP/X
ESD_PAD25 TP/X
Q74
Q75
C23 22p/4/NPO/50V/J
C24 22p/4/NPO/50V/J
C25 1n/4/X7R/50V/K
C36 0.1u/6/Y5V/25V/Z/X
R91 2.2K/4/X
R92 2.2K/4/X
Q3 2N7002/SOT23/25pF/5/X
R89 2.2K/4/X
R90 2.2K/4/X
DDCDATA
DDCCLK
Q4 2N7002/SOT23/25pF/5/X
VGADDCDATA
VGADDCCLK
ESD_PAD26 TP/X
ESD_PAD27 TP/X
Q333
Q334
BAV99/SOT23/300mA/X
SOT23
Gigabyte Technology
Title
GMCH-INTERNAL VGA
Size B
Document Number
965P-DS3
Rev 3.3
Date: 星期四, 三月 01, 2007
Sheet 12 of 35



Gigabyte Technology			
Title: **GMCH-GND**			
Size: Custom	Document Number: **965P-DS3**		Rev: **3.3**
Date: 星期四, 三月 01, 2007	Sheet 13 of 35		

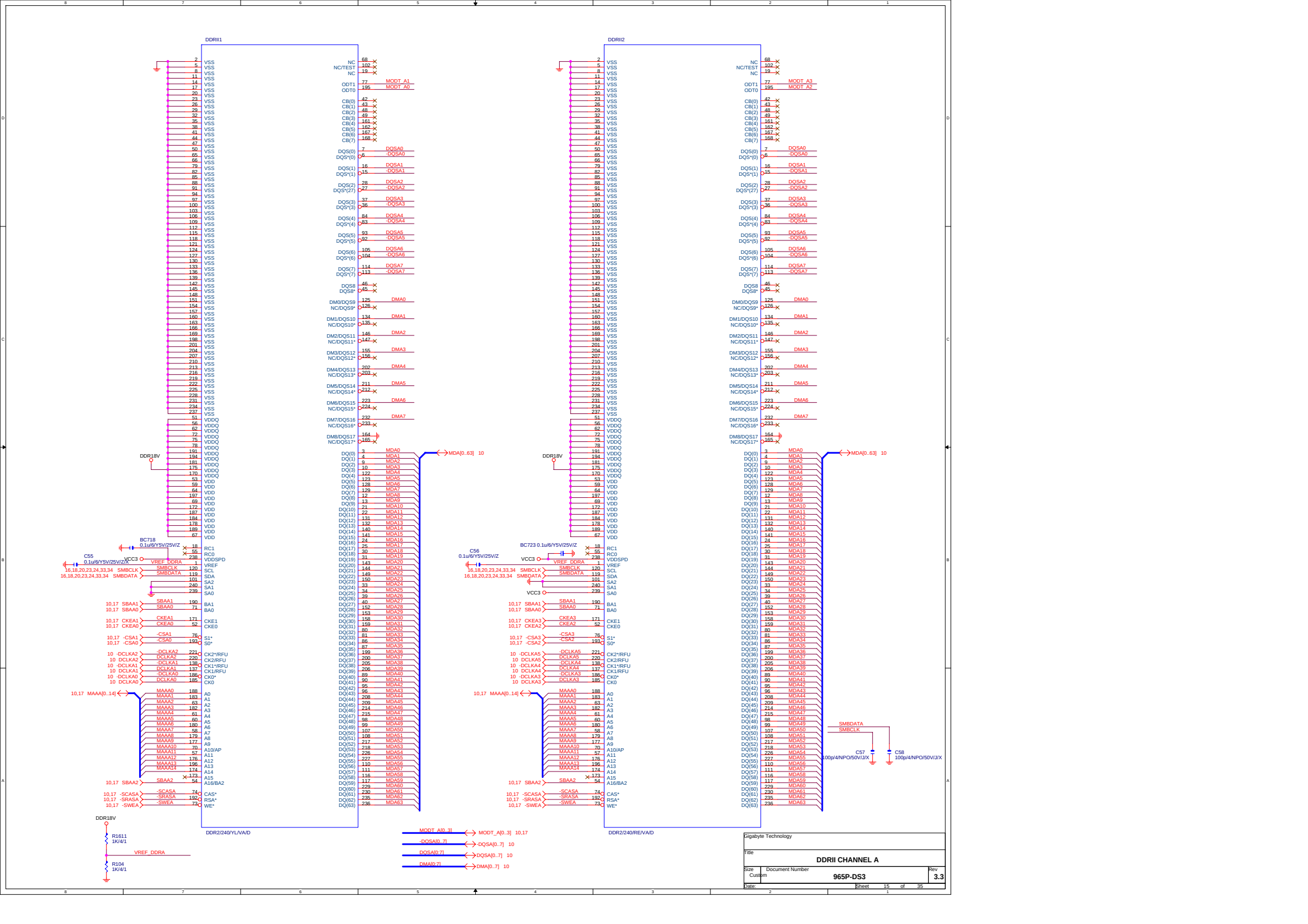


Gigabyte Technology

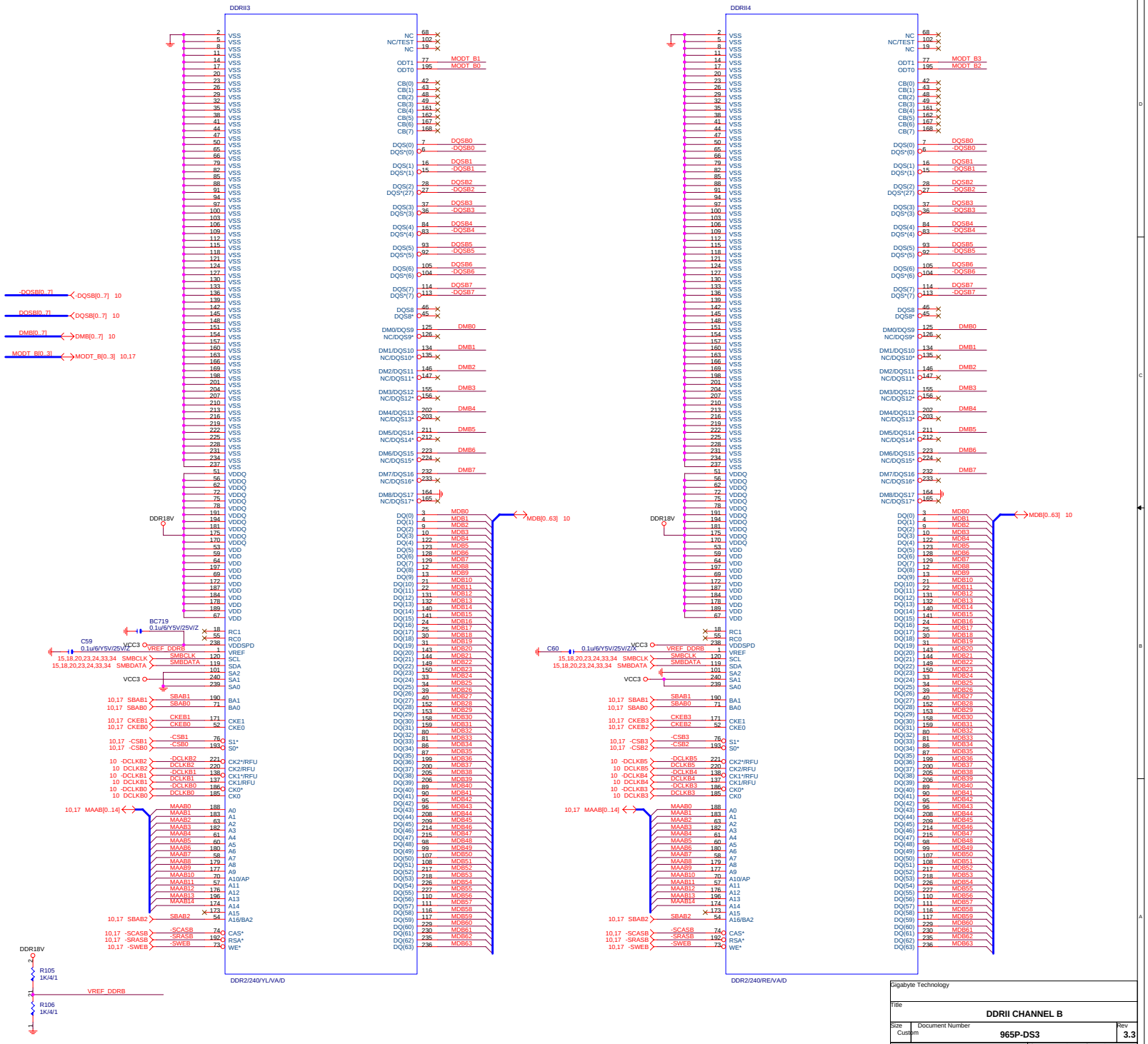
Title: GMCH-PWR

Size: Custom | Document Number: 965P-DS3 | Rev: 3.3

Date: 星期四, 三月 01, 2007 | Sheet 14 of 35



Gigabyte Technology	
Title	DDRII CHANNEL A
Size: Custom	Document Number: 965P-DS3
Rev	3.3
Date:	Sheet 15 of 35



Gigabyte Technology	
Title	DDRII CHANNEL B
Size: Custom	Document Number: 965P-DS3
Rev	3.3
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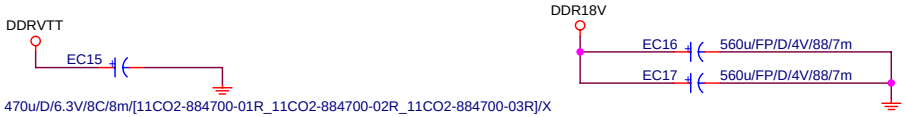
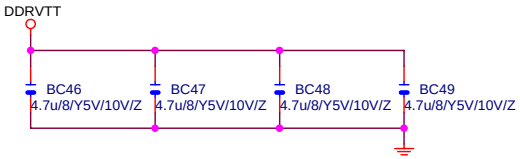
DDR TERMINATION CHANNEL A

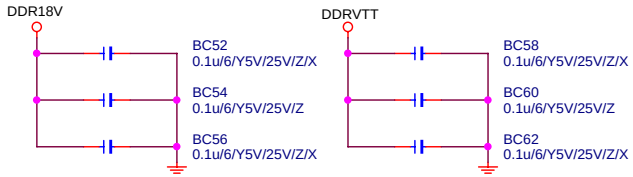
DDRVTT Decouple

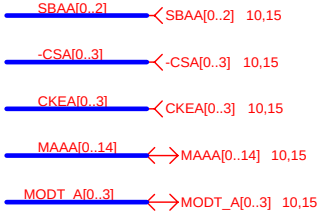


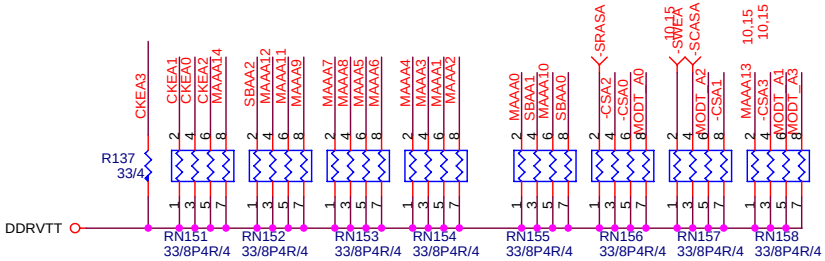


DDR18V Decouple

DDRVTT Decouple



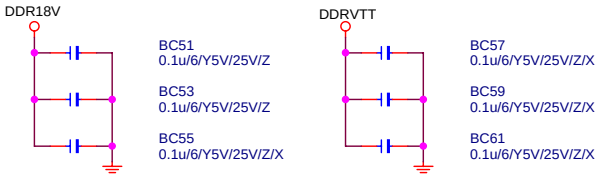


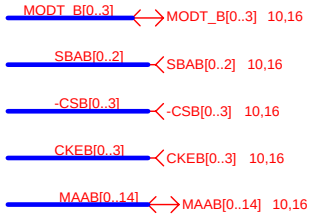


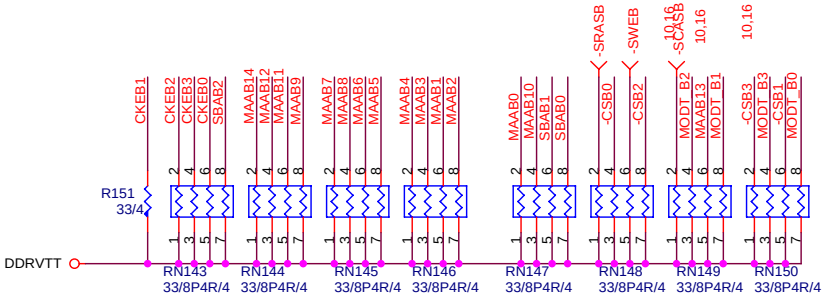
DDR TERMINATION CHANNEL B

DDR18V Decouple

DDRVTT Decouple





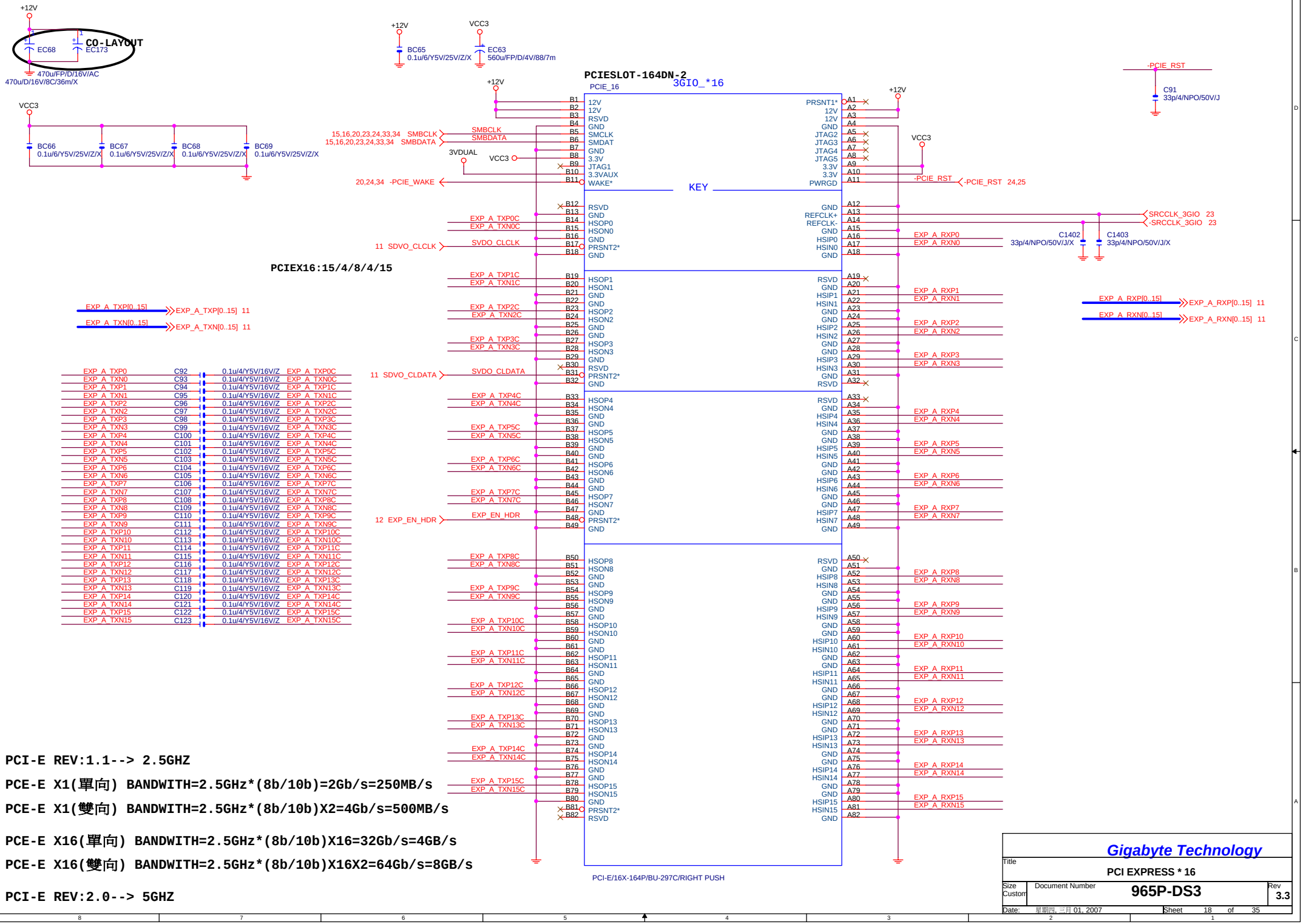


Gigabyte Technology

Title: DDRII TERMINATOR

Size: Custom | Document Number: 965P-DS3 | Rev: 3.3

Date: 星期四, 三月 01, 2007 | Sheet 17 of 35


+12V
EC68
EC173
CO-LAYOUT
470u/FP/D/16V/AC
470u/D/16V/8C/36m/X
VCC3
BC66
0.1u/6/Y5V/25V/Z/X
BC67
0.1u/6/Y5V/25V/Z/X
BC68
0.1u/6/Y5V/25V/Z/X
BC69
0.1u/6/Y5V/25V/Z/X
+12V
BC65
0.1u/6/Y5V/25V/Z/X
VCC3
EC63
560u/FP/D/4V/88/7m
PCIESLOT-164DN-2
PCIE_16
3GIO_*16
KEY
PCIEX16:15/4/8/4/15
-PCIE_RST
C91
33p/4/NPO/50V/J
SRCCLK_3GIO 23
-SRCCLK_3GIO 23
C1402
33p/4/NPO/50V/J/X
C1403
33p/4/NPO/50V/J/X
EXP_A_RXP[0..15] EXP_A_RXP[0..15] 11
EXP_A_RXN[0..15] EXP_A_RXN[0..15] 11
EXP_A_TXP[0..15] EXP_A_TXP[0..15] 11
EXP_A_TXN[0..15] EXP_A_TXN[0..15] 11
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s
PCI-E REV:2.0--> 5GHZ
PCI-E/16X-164P/BU-297C/RIGHT PUSH
Gigabyte Technology
Title
PCI EXPRESS * 16
Size
Custom
Document Number
965P-DS3
Rev
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Date:
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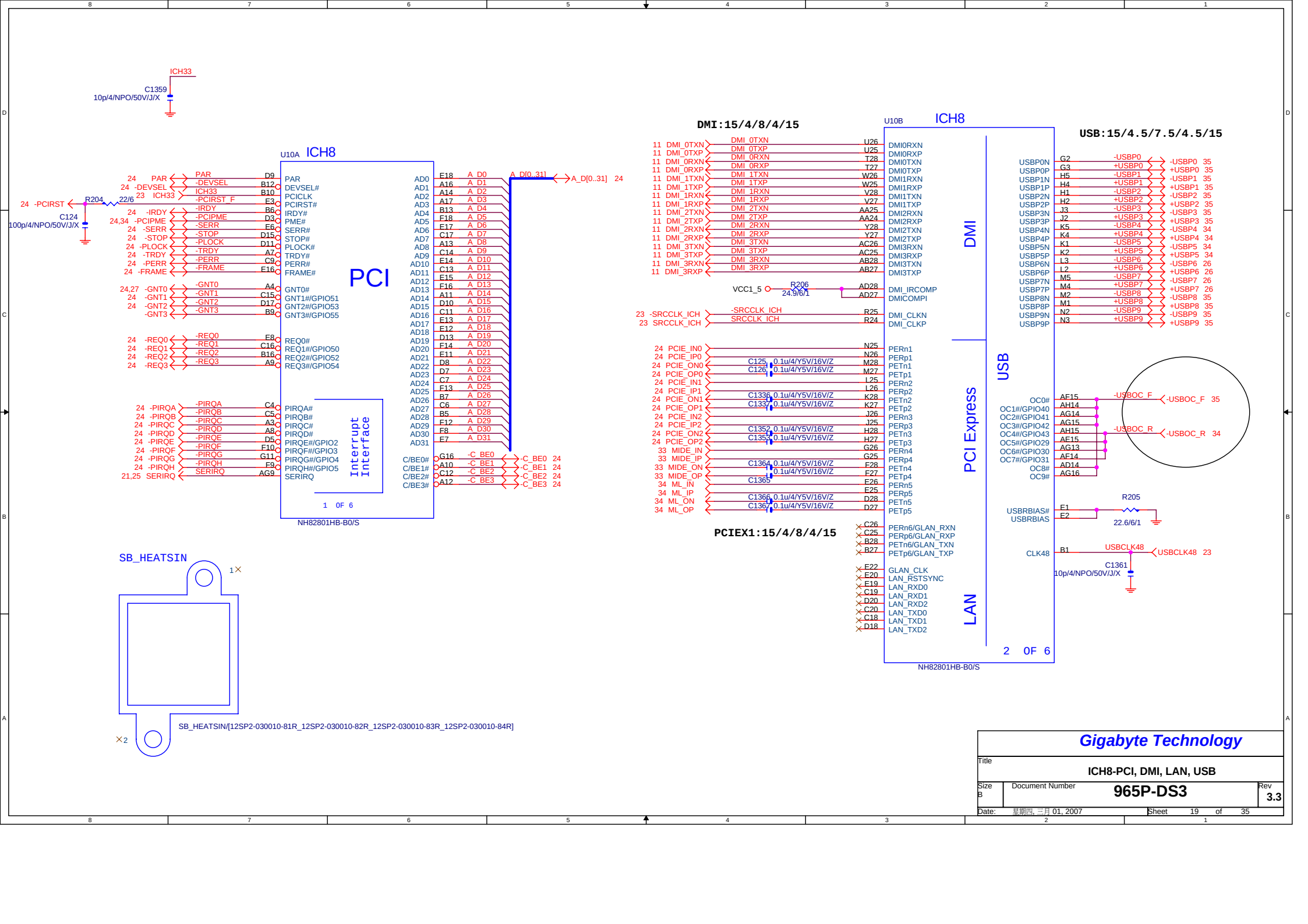

Gigabyte Technology		
Title: ICH8-PCI, DMI, LAN, USB		
Size: B	Document Number: 965P-DS3	Rev: 3.3
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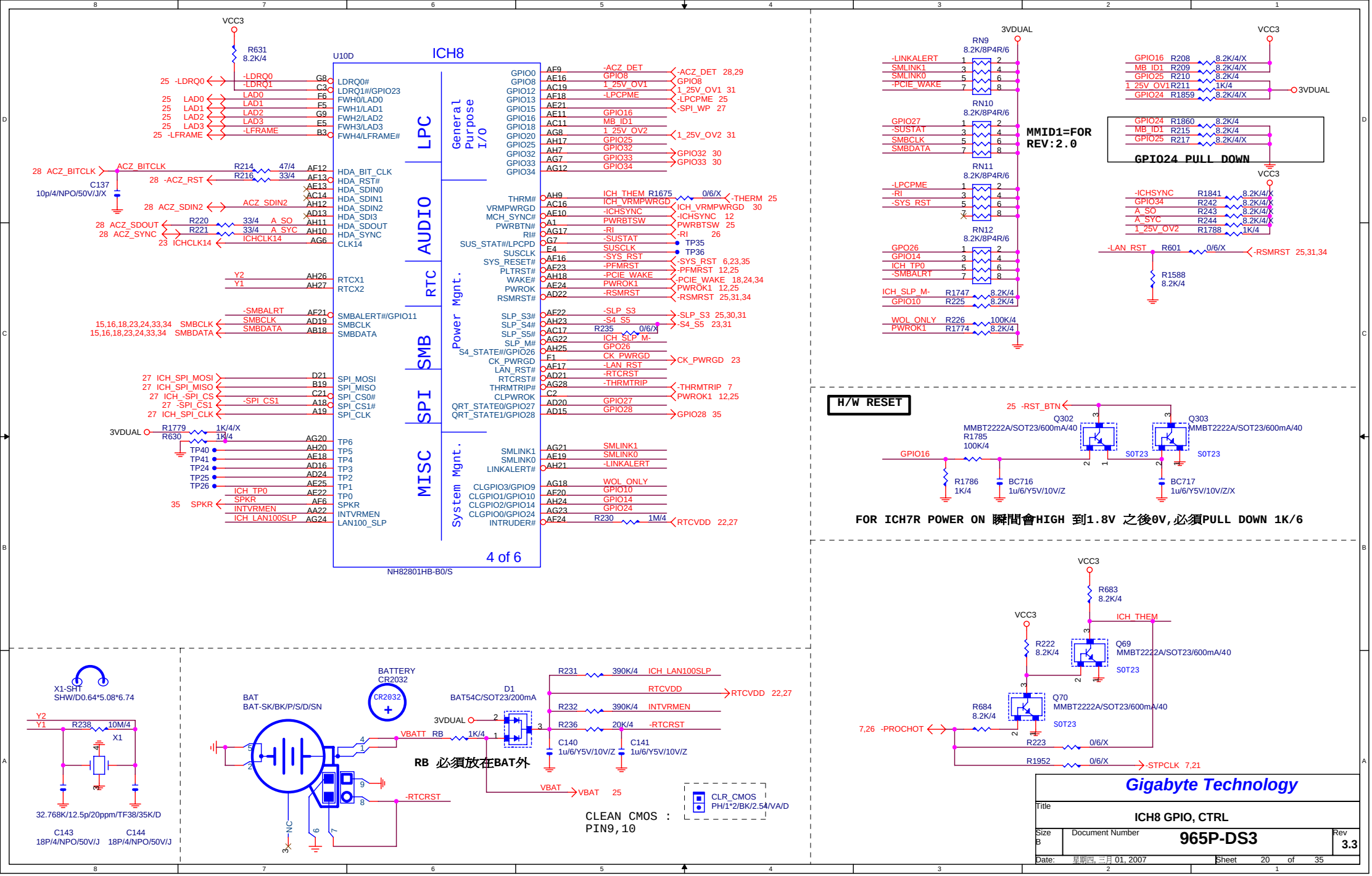
U10D
ICH8
LPC
AUDIO
RTC
SMB
SPI
MISC
General Purpose I/O
Power Mgnt.
System Mgnt.
NH82801HB-B0/S
4 of 6
MMID1=FOR REV:2.0
GPIO24 PULL DOWN
H/W RESET
FOR ICH7R POWER ON 瞬間會HIGH 到1.8V 之後0V,必須PULL DOWN 1K/6
RB 必須放在BAT外
CLEAN CMOS : PIN9,10
Gigabyte Technology
ICH8 GPIO, CTRL
965P-DS3
Rev 3.3
Size B
Date: 星期四, 三月 01, 2007
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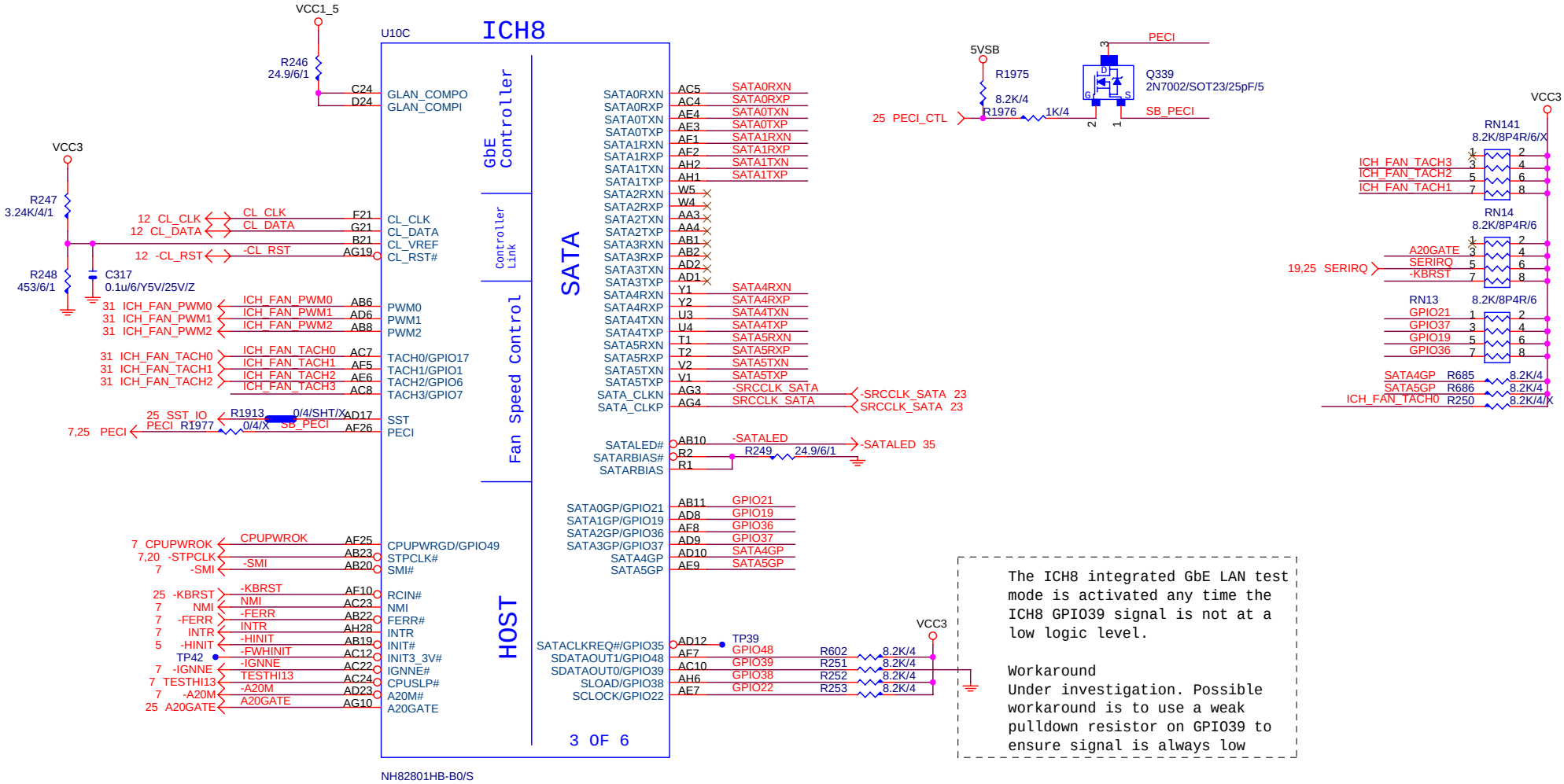
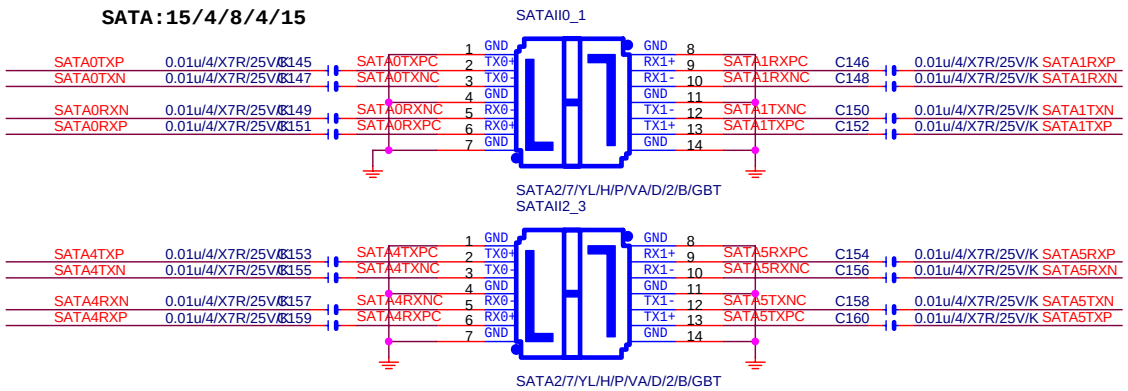
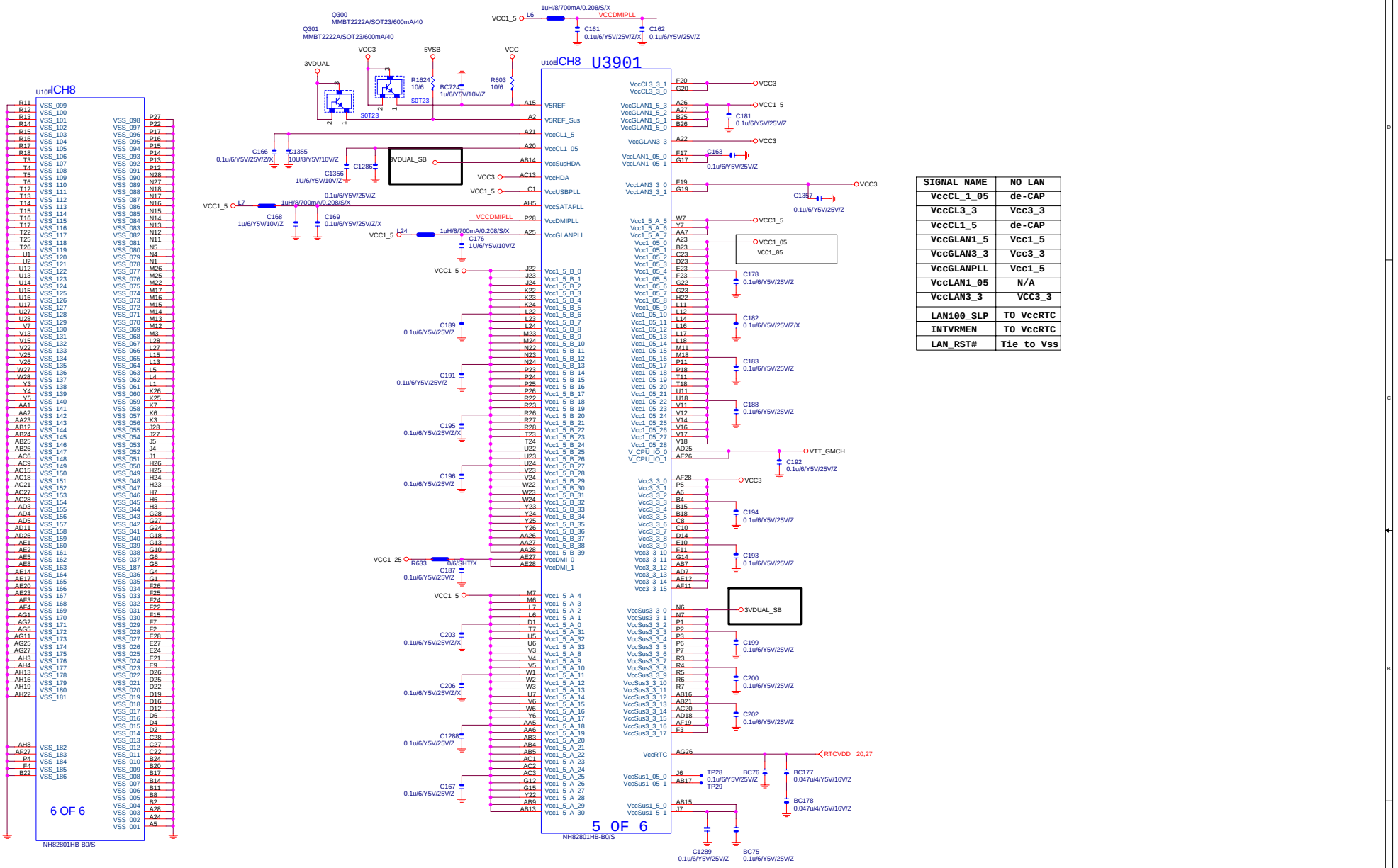




Gigabyte Technology		
Title: ICH6- SATA, FAN CTRL		
Size: Custom	Document Number: 965P-DS3	Rev: 3.3
Date: 星期四, 三月 01, 2007	Sheet 21 of 35	



SIGNAL NAME	NO LAN
VccCL_1_05	de-CAP
VccCL3_3	Vcc3_3
VccCL1_5	de-CAP
VccGLAN1_5	Vcc1_5
VccGLAN3_3	Vcc3_3
VccGLANPLL	Vcc1_5
VccLAN1_05	N/A
VccLAN3_3	VCC3_3
LAN100_SLP	TO VccRTC
INTVRMEN	TO VccRTC
LAN_RST#	Tie to Vss

Gigabyte Technology

Title: ICH6-PWR & GND

Size: C | Document Number: 965P-DS3 | Rev: 3.3

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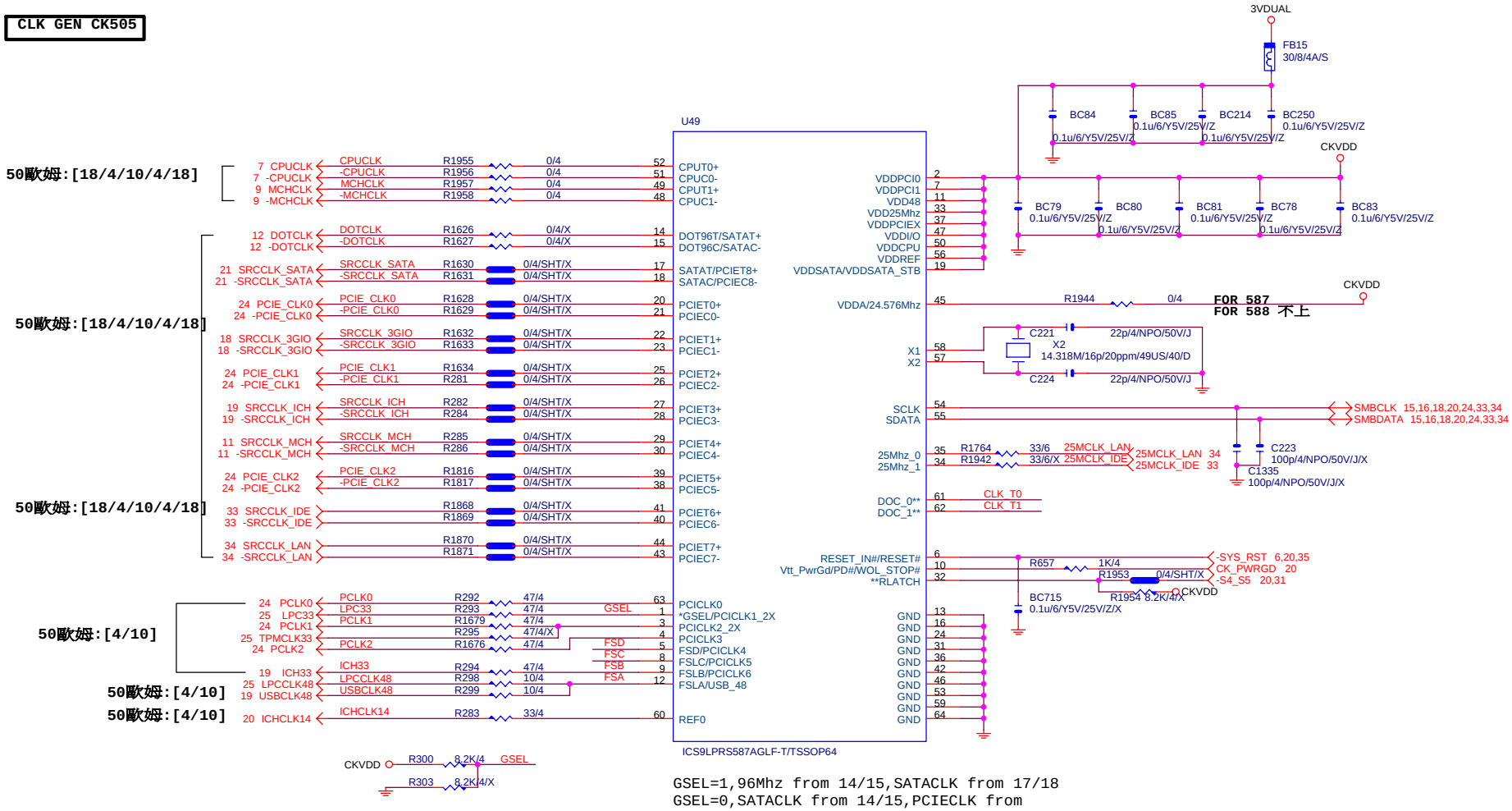
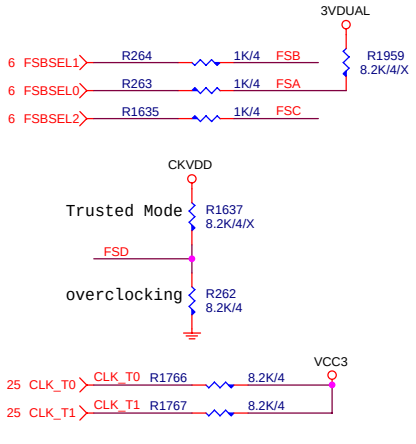
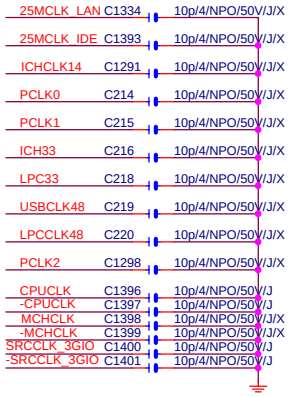
CLK GEN CK505



GSEL=1,96Mhz from 14/15,SATACLK from 17/18
GSEL=0,SATACLK from 14/15,PCIECLK from 17/18





Gigabyte Technology

Title	CK505 CLK GEN	
Size: Custom	Document Number: 965P-DS3	Rev: 3.3
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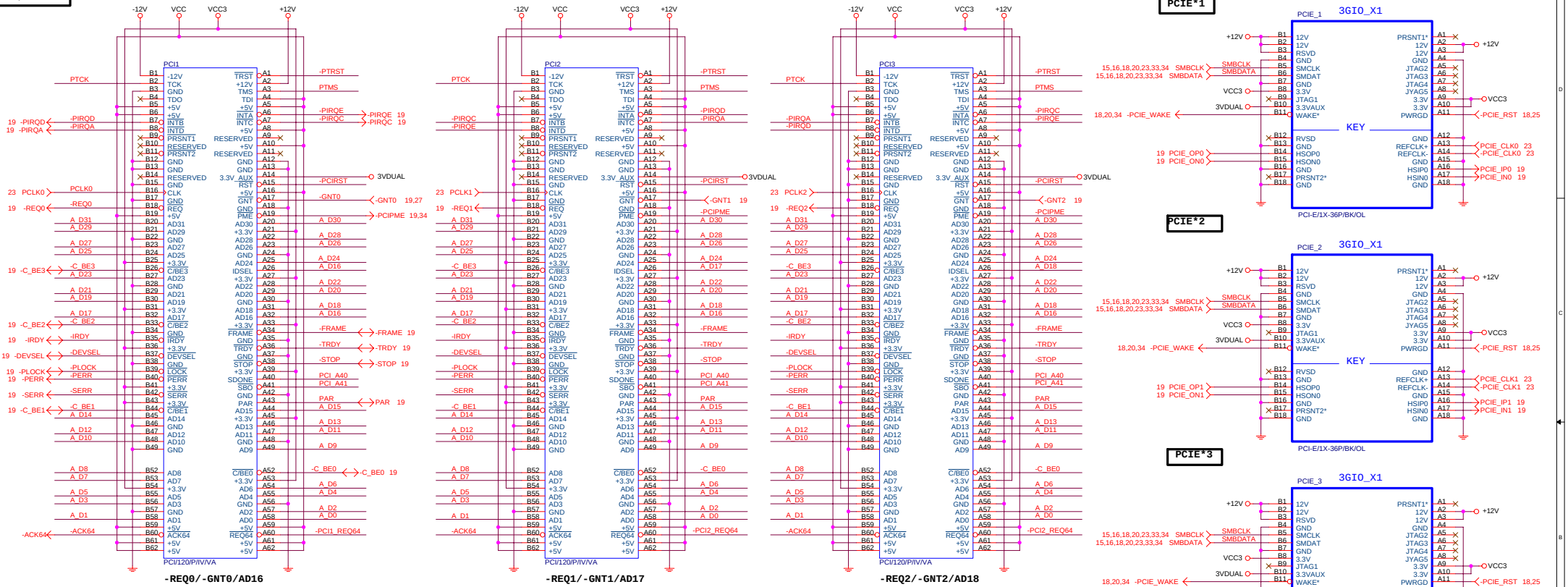
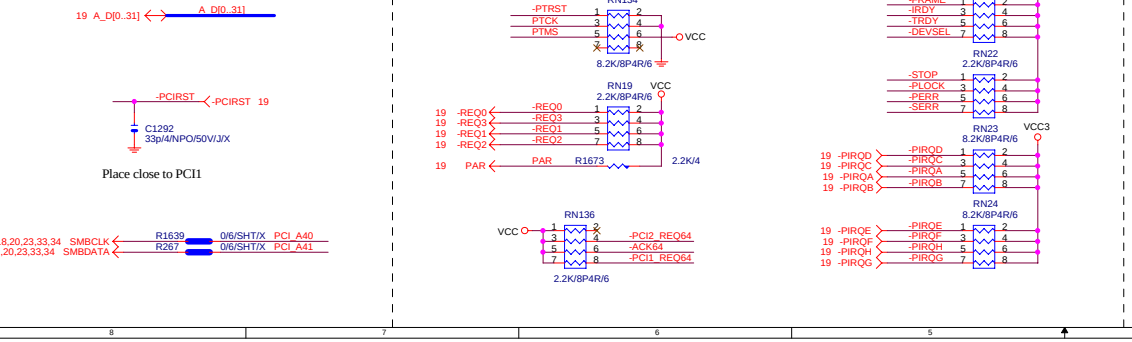
PCI1,2 SLOT

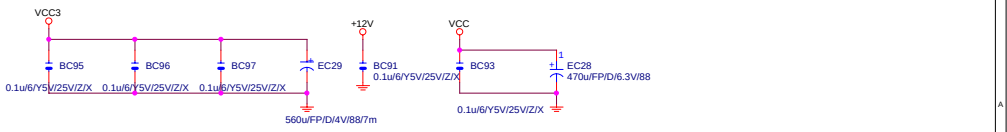


PCIE*1

PCIE*2

PCIE*3





Gigabyte Technology

Title: PCI SLOT 1, 2/PCIEX1

Size	Document Number	Rev
Custom	965P-DS3	3.3

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IT8712F LPC I/O

SOUT2	1	VID pins threshold voltage select: Vih / Vil : 2.0 / 0.8V
	0	VID pins threshold voltage select: Vih / Vil : 0.8 / 0.4V
DTR2-	1	Open Drain pin:Driving 較弱
	0	Push-pull Pin :Driving 較強
RTS2-	1	CPU FAN 100%
	0	CPU FAN 50%

U15 — IT8712F-S/EX(GB)-L/S

BC252 1u/6/Y5V/10V/Z **CLOSE PIN2**

C1280 180p/4/NPO/50V/J/X

C1281 100p/4/NPO/50V/J/X

BC118 1u/6/Y5V/10V/Z

BC119 0.047u/4/Y5V/16V/Z

BC121 100p/4/NPO/50V/J/X

C1360 10p/4/NPO/50V/J/X

C230 10p/4/NPO/50V/J/X

BC117 0.01u/4/X7R/25V/K/X

C229 1u/6/Y5V/10V/Z

JP7 : HIGH DUAL BIOS ENABLE
LOW DUAL BIOS DISABLE

RTS2- ==LOW CPU FAN 50%
==HIGH 100%

SOUT2	1	VID pins threshold voltage select: Vih / Vil : 2.0 / 0.8V
	0	VID pins threshold voltage select: Vih / Vil : 0.8 / 0.4V

如果BSEL0/1 直接拉TO N/B,R1768/R1769 不上

MMBT2222A/SOT23/600mA/40

FOR REV:BX/CX

FOR ITE8718

RN159 0/8P4R/SHT/X

1.2V or 3.3V tolerance select.
1.2V OUTPUT 接 VTT_GMCH
3.3V OUTPUT 接3.3V
LPCPD#=VIDVCC

VTT_GMCH/VCC3/VIDVCC 請走20~30

TPM

PH/2*10K4/BUD/2.54/VA/D/X

BC725 0.1u/6/Y5V/25V/Z/X

BC726 0.1u/6/Y5V/25V/Z/X

BC727 0.1u/6/Y5V/25V/Z/X

Gigabyte Technology

Title: **ITE 8712 LPC IO**

Size: B | Document Number: **965P-DS3** | Rev: **3.3**

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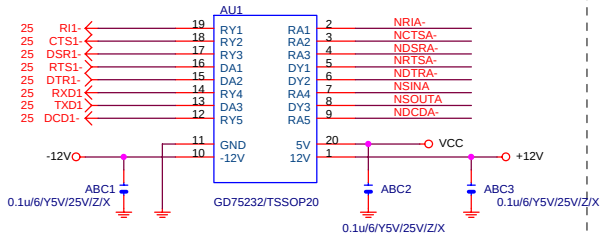
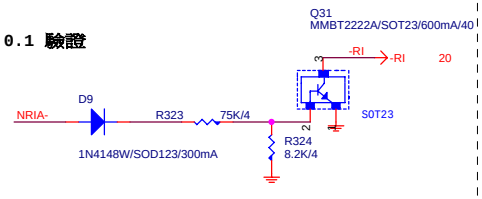
COMA

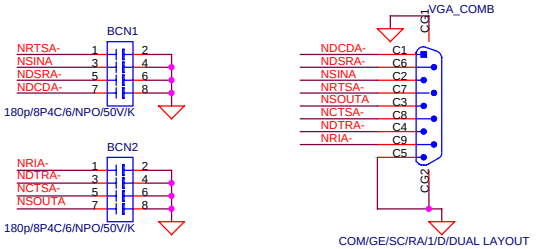


COM RI

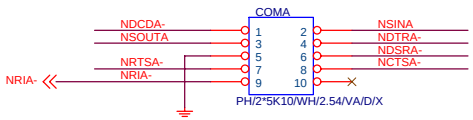
REV:0.1 驗證

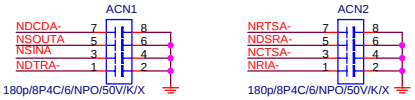


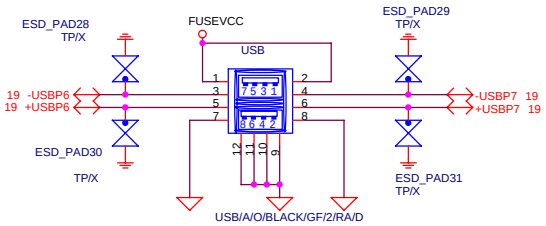
EXTERNAL COMB



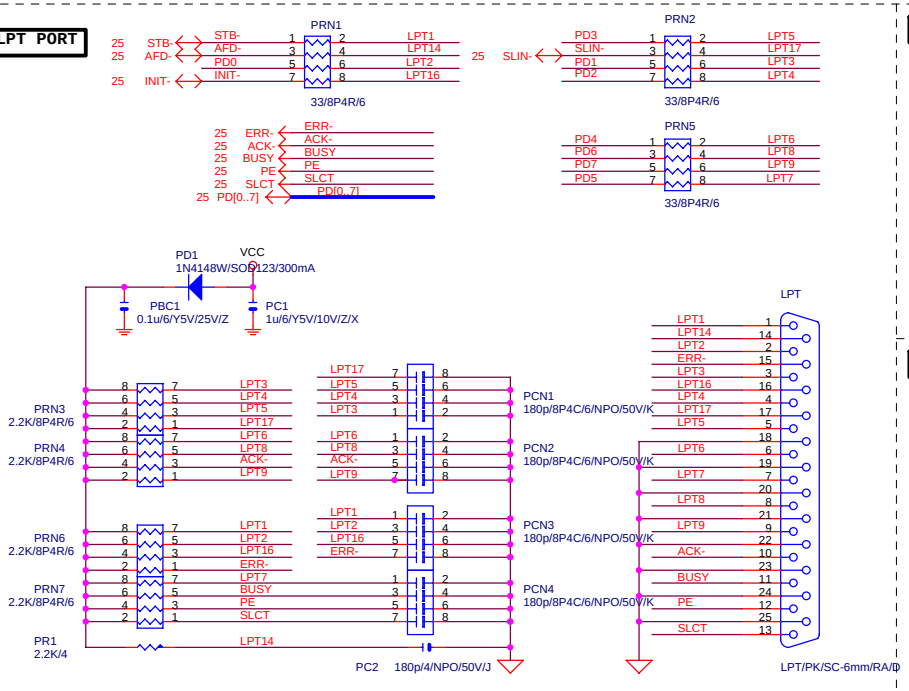
PLACE NEAR VGA_COM CONNECTOR



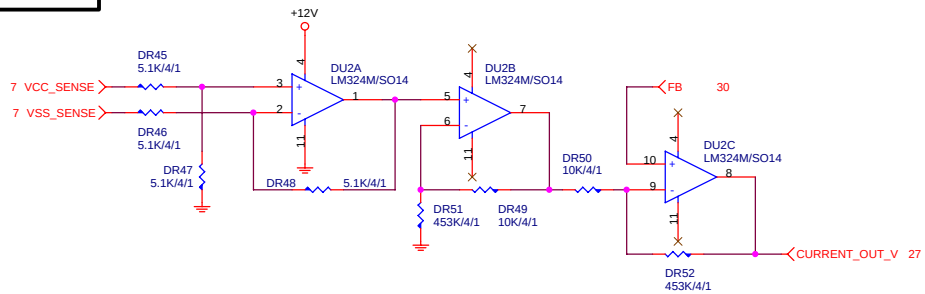




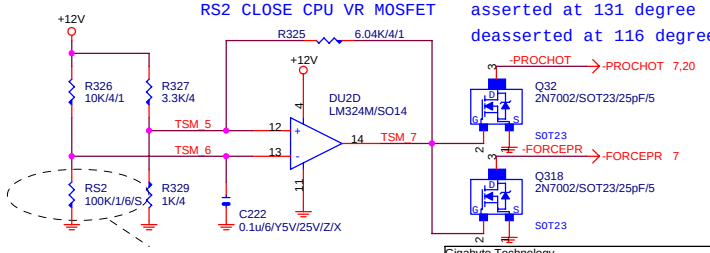
LPT PORT



DYNAMIC CURRENT OC



-PROHOT



RS2 CLOSE CPU VR MOSFET

asserted at 131 degree

deasserted at 116 degree

CLOSE PWM HOT MOSFET

Gigabyte Technology

Title	COM & LPT PORT	
Size: Custom	Document Number: 965P-DS3	Rev: 3.3
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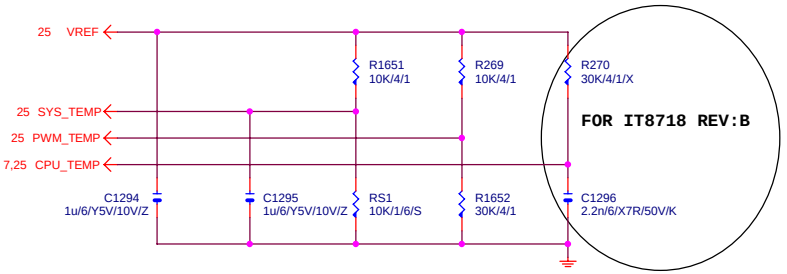
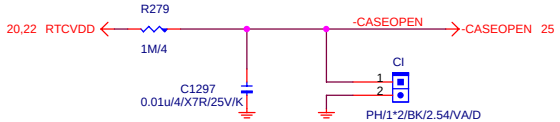
TEMP H/W MONITOR

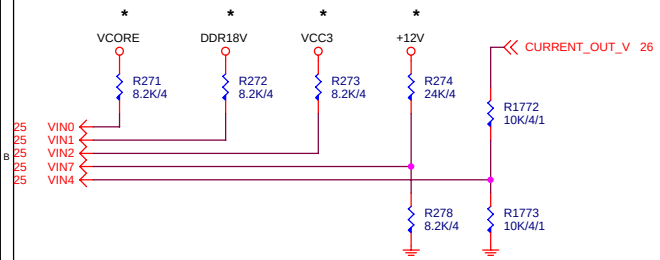


CASE OPEN

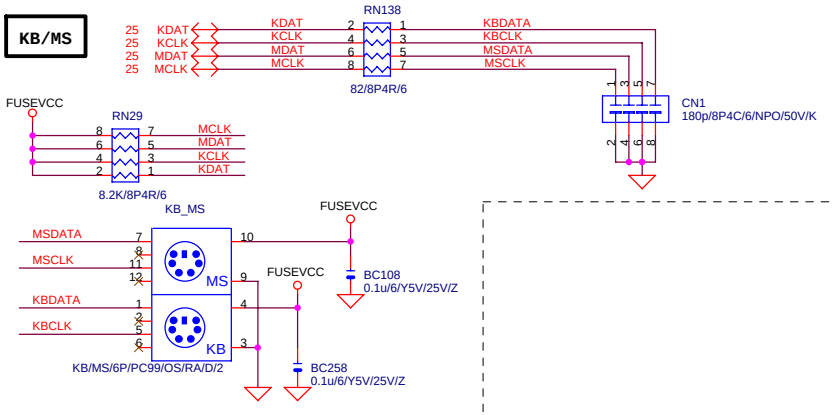


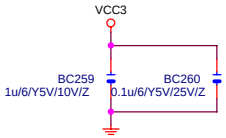
Case Open Circuits

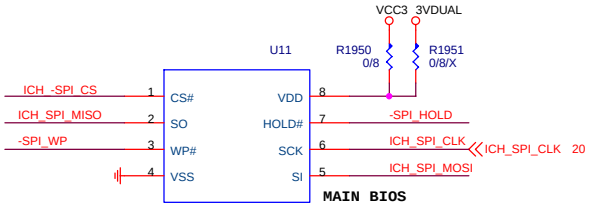
VOLTAGE-- H/W MONITOR



KB/MS



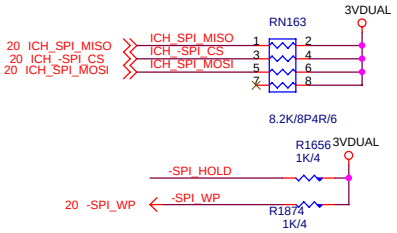


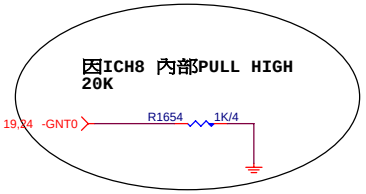


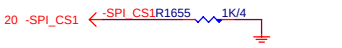
SST25VF080B-50-4C-S2AF/S/[10HP4-112580-11R_10HP4-172580-01R_10HP4-152580-11R]

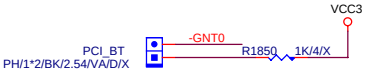
MXIC(4K)/SST(4K)

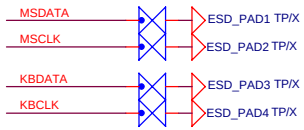
BOOT DEVICE	GNT0	CS1
SPI	0	X
PCI	1	0
FWH	1	1











Gigabyte Technology

Title: **BIOS/HW-MONITOR/CI/KB/MS**

Size	Document Number	Rev
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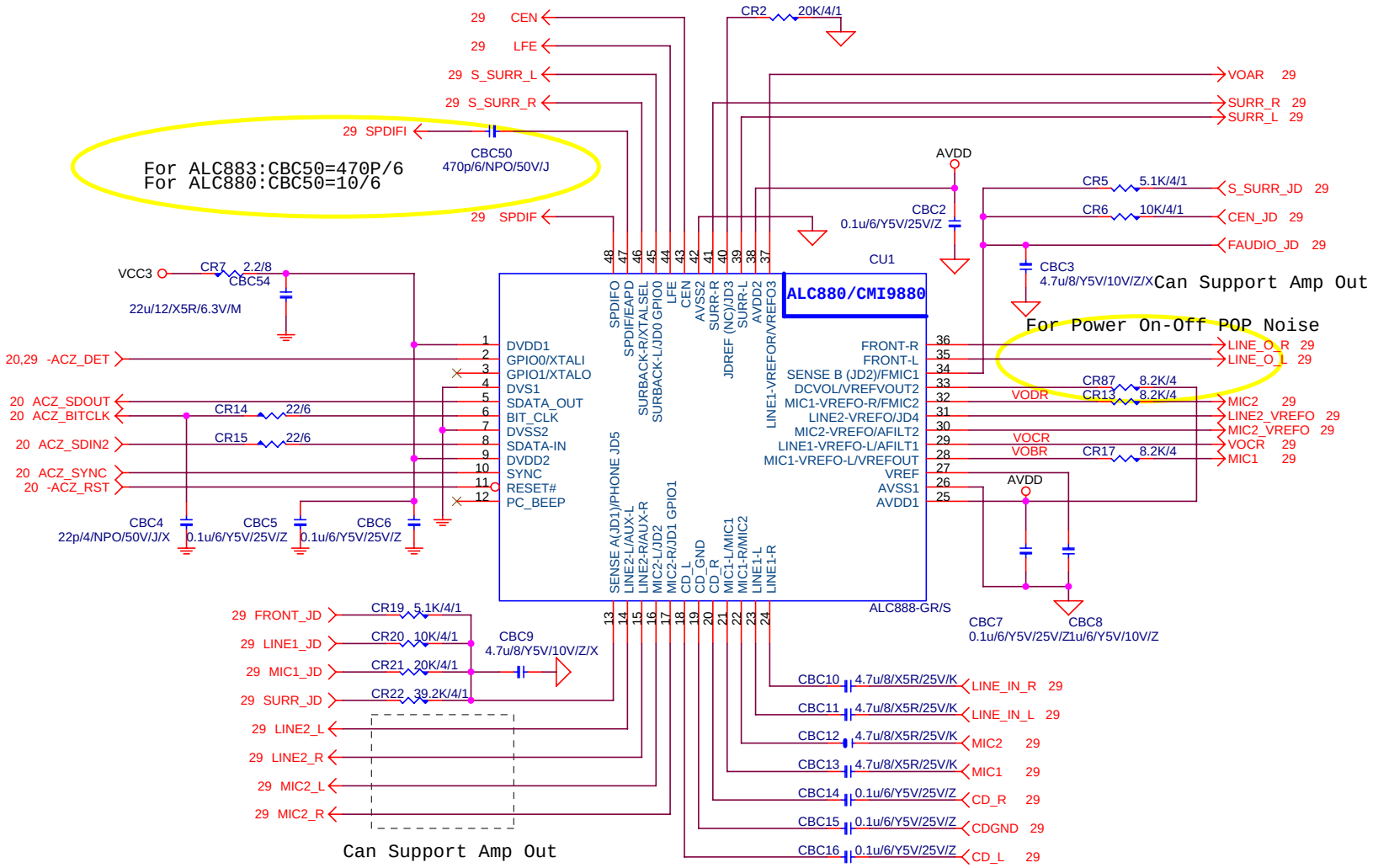
AZALIA CODEC



Gigabyte Technology		
Title: AC97 ALC658		
Size: Custom	Document Number: 965P-DS3	Rev: 3.3
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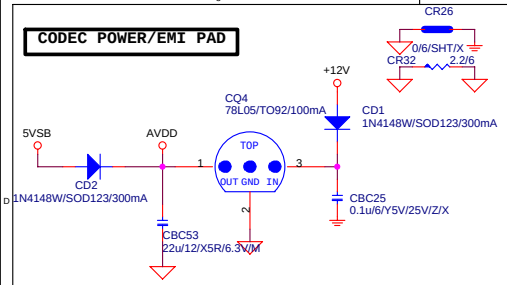
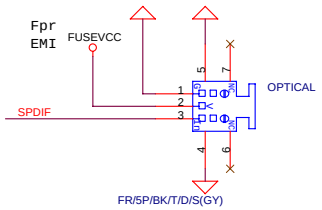
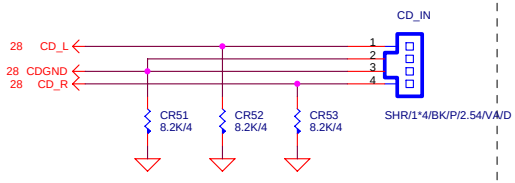
CODEC POWER/EMI PAD

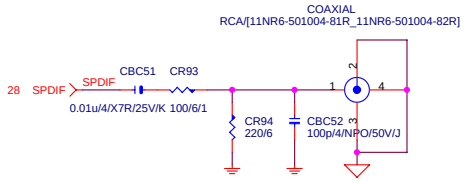


CO-LAYOUT

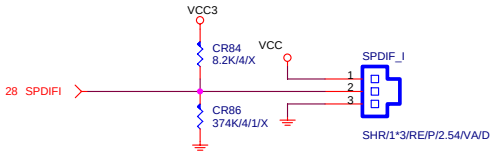


CD IN

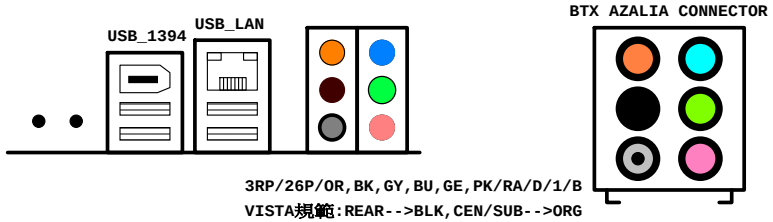


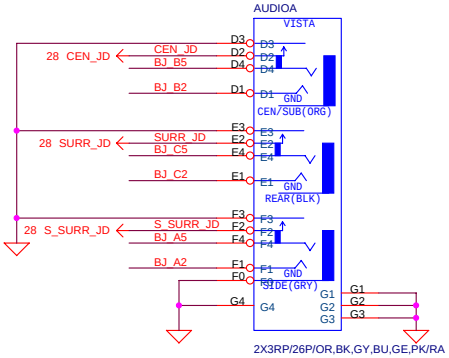


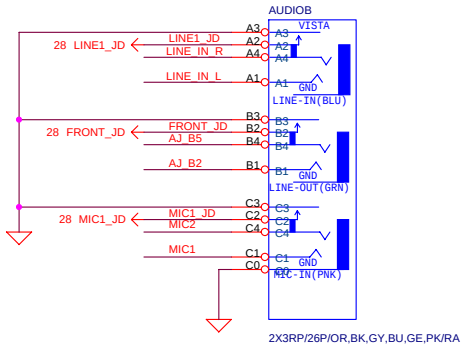
SPDIF



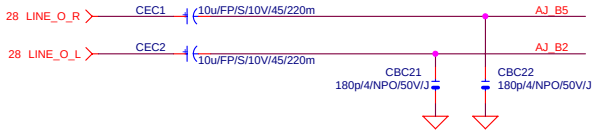
AZALIA JACK



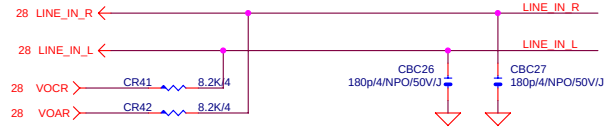




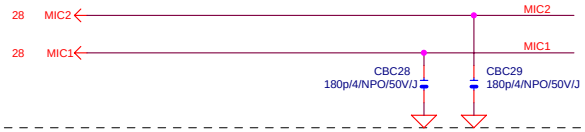
LINE-OUT



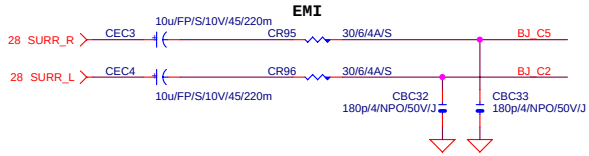
LINE-IN



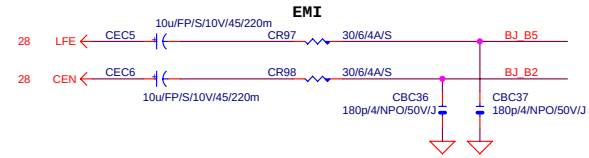
MIC-IN



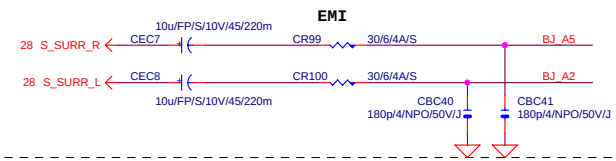
SURROUND



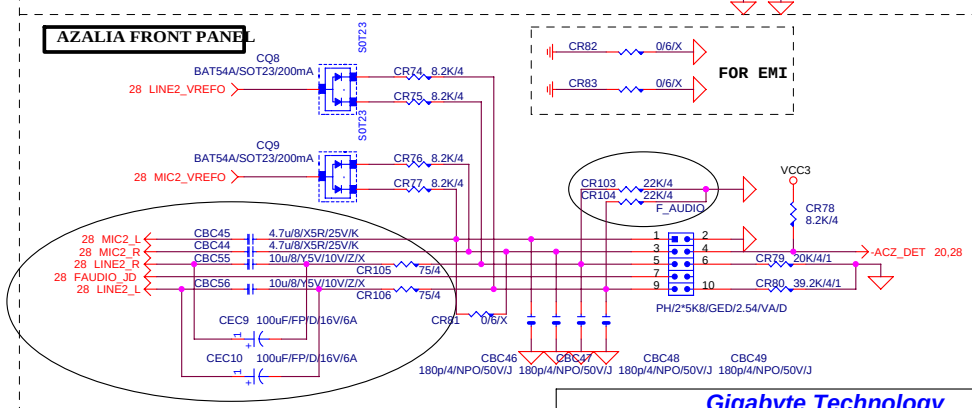
CEN/LFE



SURR BACK



AZALIA FRONT PANEL



Gigabyte Technology

Title: AUDIO JACK

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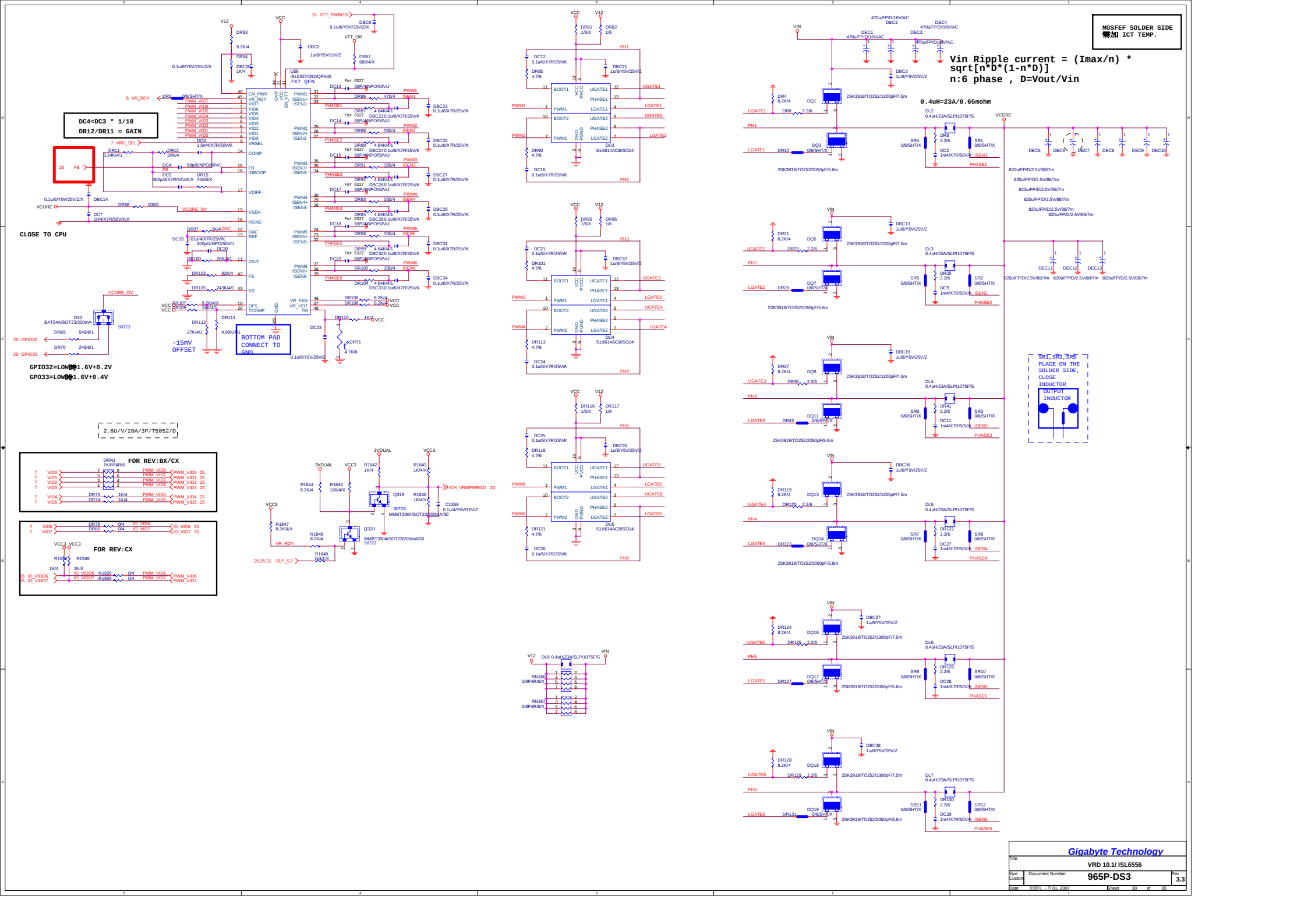
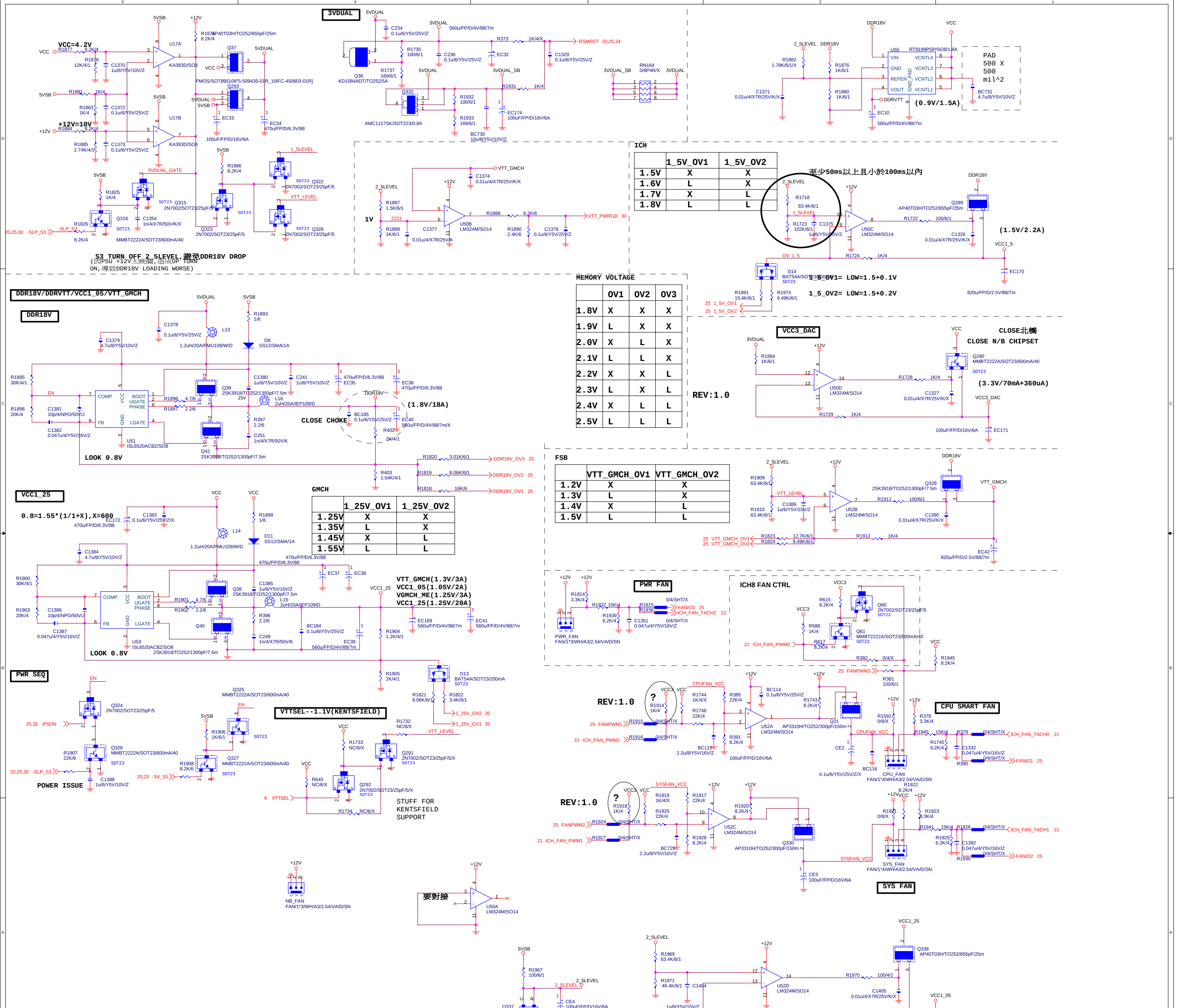

MOSFEF SOLDER SIDE
增加 ICT TEMP.
Vin Ripple current = (Imax/n) * sqrt[n*D*(1-n*D)]
n:6 phase , D=Vout/Vin
0.4uH=23A/0.65mohm
DC4<DC3 * 1/10
DR12/DR11 = GAIN
CLOSE TO CPU
GPIO32=LOW時1.6V+0.2V
GPO33=LOW時1.6V+0.4V
2.8U/V/20A/3P/T5052/D
FOR REV:BX/CX
FOR REV:CX
BOTTOM PAD CONNECT TO GND
~15mV OFFSET
SR1,SR3,SR5 PLACE ON THE SOLDER SIDE, CLOSE INDUCTOR
OUTPUT INDUCTOR
U56 ISL6327CRZ/QFN48 7X7 QFN
2SK3918/TO252/1300pF/7.5m
2SK3919/TO252/2050pF/5.6m
Gigabyte Technology
VRD 10.1/ ISL6556
965P-DS3
3.3



ICH

	1_5V_OV1	1_5V_OV2
1.5V	X	X
1.6V	L	X
1.7V	X	L
1.8V	L	L

MEMORY VOLTAGE

	OV1	OV2	OV3
1.8V	X	X	X
1.9V	L	X	X
2.0V	X	L	X
2.1V	L	L	X
2.2V	X	X	L
2.3V	L	X	L
2.4V	X	L	L
2.5V	L	L	L

FSB

	VTT_GMCH_OV1	VTT_GMCH_OV2
1.2V	X	X
1.3V	L	X
1.4V	X	L
1.5V	L	L

GMCH

	1_25V_OV1	1_25V_OV2
1.25V	X	X
1.35V	L	X
1.45V	X	L
1.55V	L	L

Gigabyte Technology

Title: DISCRETE POWER / FAN CTRL

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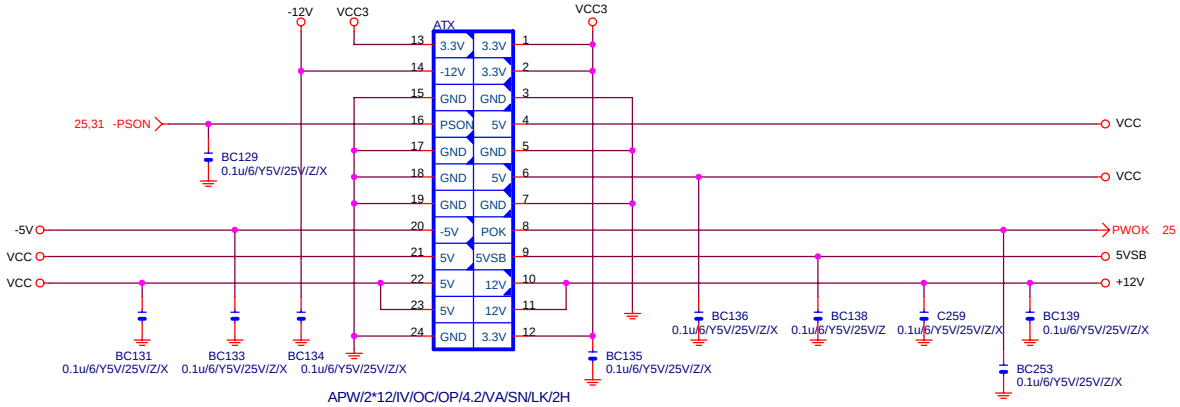
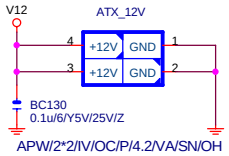
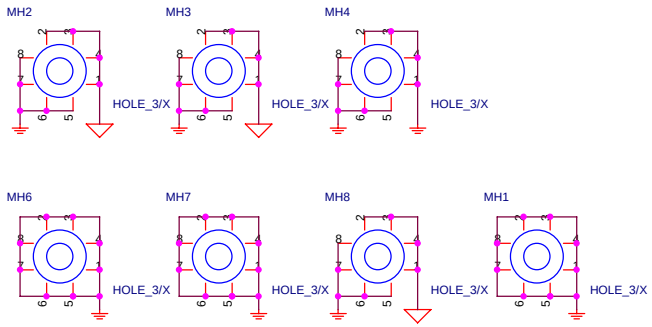
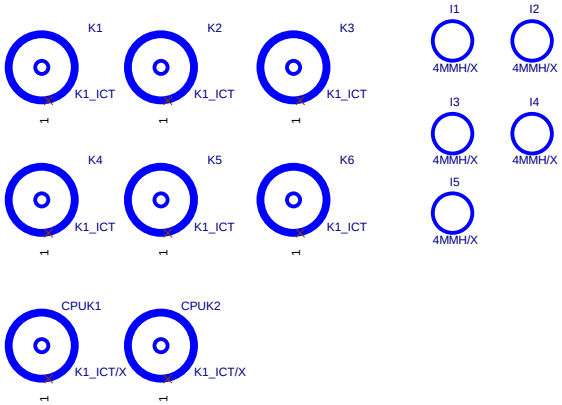
ATX POWER CONNECTOR





HOLE_3-2--->有鉛





Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: B	Document Number: 965P-DS3	Rev: 3.3
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3.3V to 1.8V Voltage Regulator

AMC1117SK/SOT223/0.8A

RQ1

VCC_1.8V

VCC3

RR21 100/4/1

RBC1 0.1u/4/Y5V/16V/Z

RR22 44.2/4/1

RBC2 10u/8/Y5V/10V/Z

REC1 100uF/FP/D/16V/6A

68/4/1 FOR JMB368
VCC1.8V=2.1V

JMB368

JM368/LQFP40/X

DMARQA 37 XIDMRAQA
DD15A 38 ZIDD15A
VCC3 39 DVI33
GND 40 XSMBCLK
GND 41 XSMBDAT
-PFMRST2 42 XRSTn
DD0A 43 ZIDD0A
DD14A 44 ZIDD14A
DD1A 45 ZIDD1A
DD13A 46 ZIDD13A
DD2A 47 ZIDD2A
DD12A 48 ZIDD12A

24 DD3A
23 DD11A
22 VCC3
21 DD4A
20 DD10A
19 DD5A
18 DD9A
17 DD8A
16 DD8A
15 DD7A
14 YROMCSn
13 GND
XTEST

DMACKnA 36
IORDYA 35
DIORnA 34
DIOWnA 33
DVDD_1.8V 32
INTRQA 31
PDIAGnA 30
DA1A 29
DA0A 28
DA2A 27
CS0nA 26
CS1nA 25

DGND33 1
ACPLKN 2
ACPLKP 3
APV18 4
APRST 5
APREXT 6
APRXP 7
APRXN 8
APVDD_1.8V 9
GND 10
APTXN 11
APTXP 12

GND SRCCLK_IDE PCIE_REXT1 SATA_REXT1 SATA_REXT0 PCIE_TXN PCIE_TXP

JMicron JMB363

LQFP 100 14x14

GBB363/3

RU1

GND 76
ZGPIO3 77
DMACKnA 78
IORDYA 79
DIORnA 80
GND 81
DIOWnA 82
DMARQA 83
DD15A 84
GND 85
HD_LEDn 86
DVDD_1.8V 87
GND 88
GND 89
VCC3 90
SMB_CLK 91
SMB_DAT 92
-PFMRST2 93
DD0A 94
GND 95
DD14A 96
DD1A 97
DD13A 98
DD2A 99
DD12A 100

ZGPIO2 ZGPIO1 ZGPIO0 DV18 DV18 DG18 DG33 DV33 XINTRQA XCBLIDA DA1A YDA2A YCS0nA YCS1nA ASTXP1 ASTXN1 ASV18 ASRXP1 ASRXN1 ASG18 ASG33 ASV33 NC ASI33

ASTXP0 50 SATA_TXP0
ASTXN0 49 SATA_TXN0
ASG18 48 GND
ASV18 47 ASVDD_1.8V
ASRXN0 46 SATA_RXN0
ASRXP0 45 SATA_RXP0
ASREXT0 44 SATA_REXT0
ASG33 43 GND
ASV33 42 VCC3
ASXOUT0 41 XTALO
ASXIN0 40 XTALI
NC 39
NC 38
NC 37
NC 36
NC 35
NC 34
DV33 33 VCC3
DG33 32 GND
DG18 31 GND
DV18 30 DVDD_1.8V
NC 29
NC 28
NC 27
NC 26

ZIDD3A 1
ZIDD11A 2
ZIDD11A 3
ZIDD4A 4
ZIDD10A 5
DG33 6
DV33 7
DV18 8
ZIDD5A 9
ZIDD6A 10
ZIDD8A 11
ZIDD7A 12
RESETnA 13
SRCCLK_IDE 14
SRCCLK_IDE 15
ACPLKP 16
ACPLKN 17
APVDD_1.8V 18
APRST 19
APREXT 20
APRXP 21
APRXN 22
APV18 23
APG18 24
APTXN 25
APTXP

DD3A DD11A DD4A DD10A VCC3 DD5A DVDD_1.8V DVDD_1.8V DD9A DD6A DD8A DD7A

GND SRCCLK_IDE SRCCLK_IDE APVDD_1.8V GND PCIE_REXT1 MS_ON APVDD_1.8V APV18 PCIE_TXN PCIE_TXP

RC5 0.1u/4/Y5V/16V/Z MIDE_IP 19
RC6 0.1u/4/Y5V/16V/Z MIDE_IN 19
MIDE_ON 19
MIDE_OP 19
SRCCLK_IDE 23
-SRCCLK_IDE 23

25,34 -PFMRST2
RC3 100P/4/N/50V/X

PH_DD7 DD7A
PH_DD8 DD8A
PH_DD6 DD6A
PH_DD9 DD9A

PH_DD5 DD5A
PH_DD4 DD4A
PH_DD10 DD10A
PH_DD11 DD11A

PH_DD3 DD3A
PH_DD12 DD12A
PH_DD2 DD2A
PH_DD13 DD13A

PH_DD1 DD1A
PH_DD0 DD0A
PH_DD14 DD14A
PH_DD15 DD15A

PH_DIOW_N DIOWnA
PH_DIOR_N DIORnA
PH_DMACK_N DMACKnA
PH_DA1 DA1A
PH_DA0 DA0A
PH_CS0_N CS0nA
PH_DA2 DA2A
PH_CS1_N CS1nA

PH_IORDY IORDYA
PH_DMARQ DMARQA
PH_INTRQ INTRQA
PH_CBLID_N PDIAGnA

VCC3
RBC3 RBC4 RBC5 RBC6 RBC7 RBC8 RBC9
0.1u/4/Y5V/16V/Z 10u/8/Y5V/10V/Z
close to IC

VCC3
RBC10 10u/8/Y5V/10V/Z
RBC11 0.1u/4/Y5V/16V/Z
RBC12 0.1u/4/Y5V/16V/Z
REC2 100uF/FP/D/16V/6A
RBC13 0.1u/4/Y5V/16V/Z
Close to pin42 and pin53

PCIE_REXT1 RR31 12K/4/1
SATA_REXT1 RR32 12K/4/1
SATA_REXT0 RR33 12K/4/1
Near to PIN

VCC_1.8V DVDD_1.8V
RBC14 RBC15 RBC16 RBC17 RBC18
0.1u/4/Y5V/16V/Z 10u/8/Y5V/10V/Z
close to IC

RR19 0/6/X 25MCLK_IDE 23
會漏電
XTALI RC1 33P/4/NPO/50V/J
RR20 1M/4 RX1 25M/20p/30ppm/49US/20/D XTALO RC2 33P/4/NPO/50V/J

VCC3
RR23 8.2K/4 RR24 8.2K/4
SMB_CLK RR25 0/4/X SMBCLK 15,16,18,20,23,24,34
SMB_DAT RR26 0/4/X SMBDATA 15,16,18,20,23,24,34

PH_IORDY RR29 1K/4 VCC3
CSELA RR30 0/4
PH_DMARQ RR34 8.2K/4
PH_INTRQ RR35 8.2K/4
DD7A RR36 8.2K/4

VCC_1.8V ASVDD_1.8V
RBC19 RBC20 RBC21
10u/8/Y5V/10V/Z 0.1u/4/Y5V/16V/Z
Close to pin58

VCC_1.8V ASVDD_1.8V
RBC22 RBC23 RBC24
10u/8/Y5V/10V/Z 0.1u/4/Y5V/16V/Z
Close to pin47

VCC_1.8V APVDD_1.8V
RBC25 RBC26
0.1u/4/Y5V/16V/Z 10u/8/Y5V/10V/Z
CLOSE TO pin22

VCC_1.8V APVDD_1.8V
RBC27 RBC28 RBC29
10u/8/Y5V/10V/Z 0.1u/4/Y5V/16V/Z 1n/4/X7R/50V/K
close to pin17

VCC3
MMBT2222A/SOT23/600mA/40
RR27 1K/4
DASPnXA
HD_LEDn
RD1
BAW56/SOT23/300mA
SOT23
RC4 180P/4/N/50V/X
RQ2
-HDLED
HDLED 35
RR28 0/4/X

IDE Connector

IDE1

PH_RESETnA 1 2
PH_DD7 3 4 PH_DD8
PH_DD6 5 6 PH_DD9
PH_DD5 7 8 PH_DD10
PH_DD4 9 10 PH_DD11
PH_DD3 11 12 PH_DD12
PH_DD2 13 14 PH_DD13
PH_DD1 15 16 PH_DD14
PH_DD0 17 18 PH_DD15
19 (#20 key-pin)
PH_DMARQ 21 22
PH_DIOW_N 23 24
PH_DIOR_N 25 26 (#28 CSEL)
PH_IORDY 27 28 CSELA
PH_DMACK_N 29 30
PH_INTRQ 31 32 (#32 IOCS16)
PH_DA1 33 34 PH_CBLID_N
PH_DA0 35 36 PH_DA2
PH_CS0_N 37 38 PH_CS1_N
DASPnXA 39 40

BH/2*20K20/GEL/N/2.54/VA/D/GF

VCC
RR37 1K/4
PH_RESETnA
VCC3
RR38 8.2K/4
RQ3 MMBT2222A/SOT23/600mA/40
S0T23
RESETnA
-PFMRST2 RR43 0/4/X
OLNY FOR JMB368

SATA Connector

SATA_TXP0 RC7 0.01u/4/X7R/25V/K
SATA_TXN0 RC9 0.01u/4/X7R/25V/K
SATA_RXN0 RC11 0.01u/4/X7R/25V/K
SATA_RXP0 RC13 0.01u/4/X7R/25V/K

1 GND
2 TX0+
3 TX0-
4 GND
5 RX0-
6 RX0+
7 GND

GND 8
RX1+ 9
RX1- 10
GND 11
TX1- 12
TX1+ 13
GND 14

RC8 0.01u/4/X7R/25V/K SATA_RXP1
RC10 0.01u/4/X7R/25V/K SATA_RXN1
RC12 0.01u/4/X7R/25V/K SATA_TXN1
RC14 0.01u/4/X7R/25V/K SATA_TXP1

GSATAII0_1
SATA2/7/PU/H/P/VA/D/2/B/GBT

JMB368 REMOVE

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PCIE-1G LAN

 # Layout Check 注意事項

1. LU1 PIN65 需下內層GND,打 12 VIA
2. 3VDUAL , VCC3 , VDD15_L , AVDD25_L 至少走20mil寬,並且電容擺設每兩pin至少放一顆Bypass Cap.
3. X'TAL 25MHz 兩訊號線,TRACE 愈短愈好,線寬12mil
4. MDI正負0~3,TRACE 8:7:8 , 每對之間保持 40mil

100歐姆:[20/5/7/5/20]

50歐姆:[18/4/10/4/18]

88E8056-B0-NNC/QFN64

USB_LAN CONNECTOR

LAN 100歐姆:[30/4/8/4/30] FOR B 製程

USB_LAN

UP

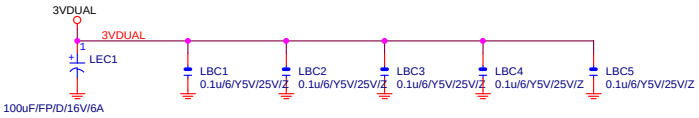
DOWN

USB+LAN/1G/GO,Y/OS/RA/D/1

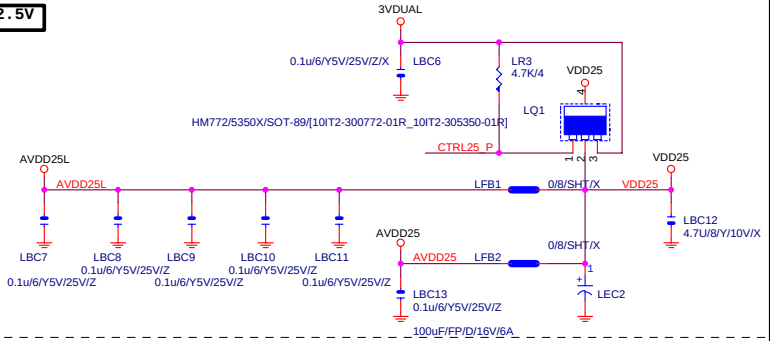
90歐姆:[15/4.5/7.5/4.5/15]

CLOSE LANCHIPSET

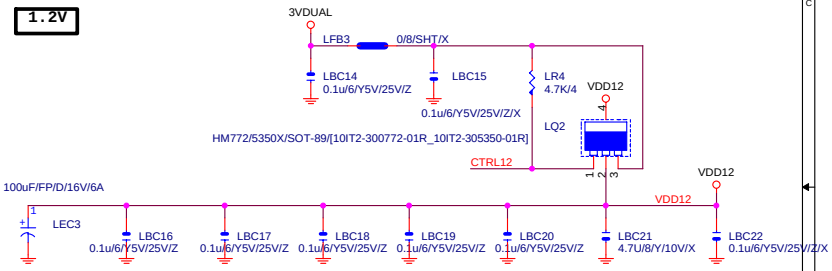
3VDUAL

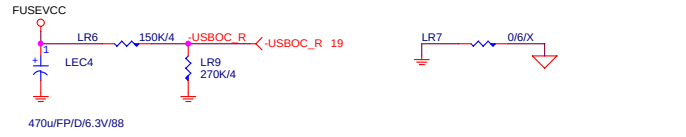


2.5V

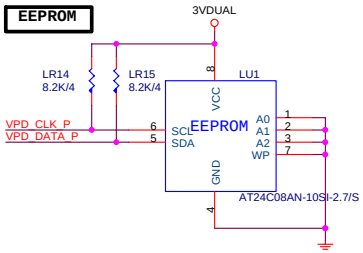


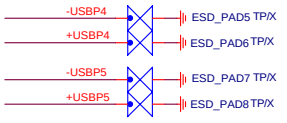
1.2V





EEPROM





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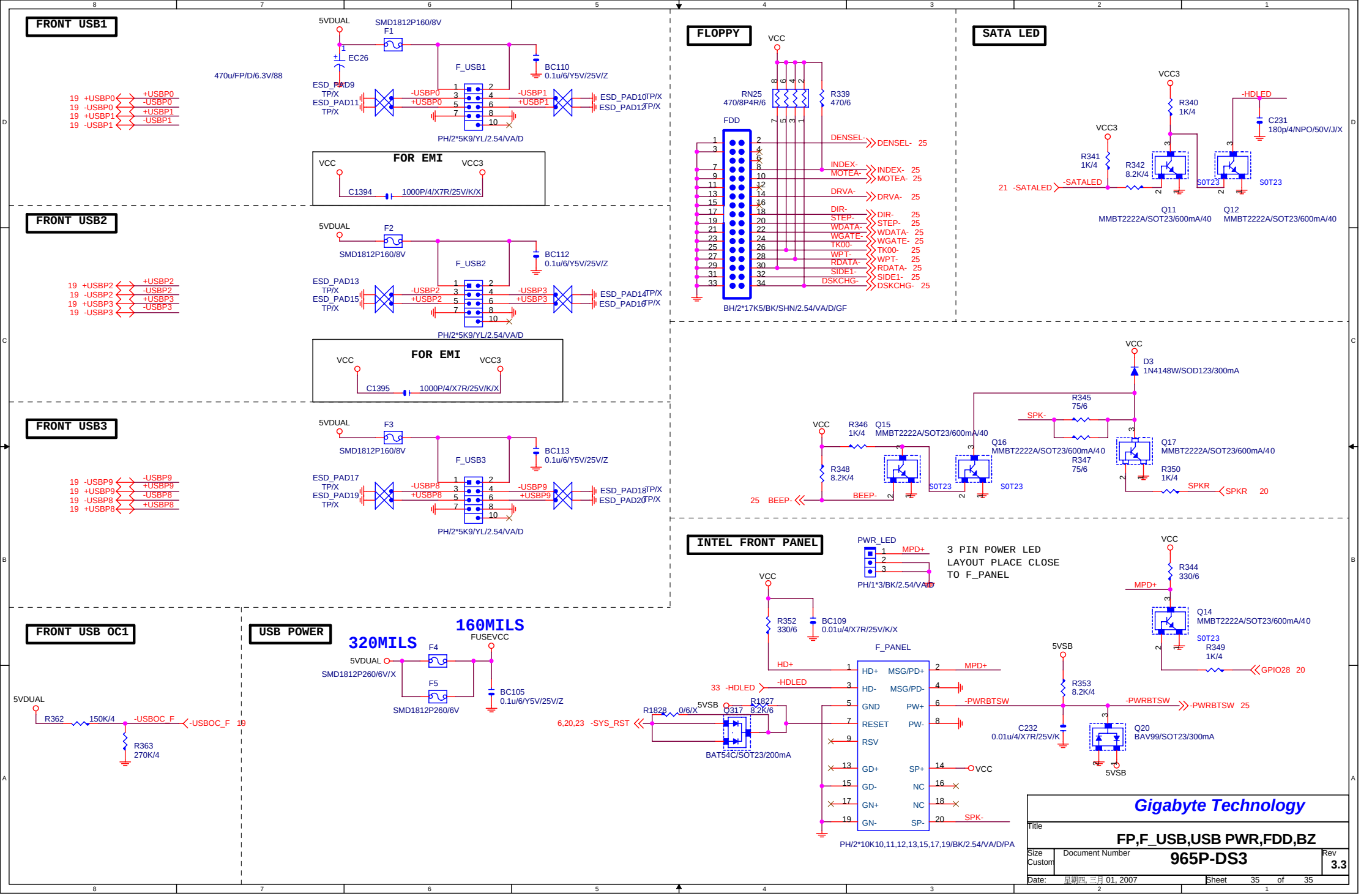
FRONT USB1
5VDUAL
SMD1812P160/8V
F1
EC26
470u/FP/D/6.3V/88
F_USB1
BC110
0.1u/6/Y5V/25V/Z
ESD_PAD9
ESD_PAD11
ESD_PAD10
ESD_PAD12
TP/X
PH/2*5K9/YL/2.54/VA/D
19 +USBP0
19 -USBP0
19 +USBP1
19 -USBP1
FOR EMI
VCC
VCC3
C1394
1000P/4/X7R/25V/K/X
FRONT USB2
F2
SMD1812P160/8V
BC112
ESD_PAD13
ESD_PAD15
ESD_PAD14
ESD_PAD16
C1395
FRONT USB3
F3
BC113
ESD_PAD17
ESD_PAD19
ESD_PAD18
ESD_PAD20
FRONT USB OC1
R362
150K/4
R363
270K/4
-USBOC_F
USB POWER
320MILS
160MILS
FUSEVCC
F4
F5
SMD1812P260/6V/X
SMD1812P260/6V
BC105
FLOPPY
RN25
470/8P4R/6
R339
470/6
FDD
DENSEL-
INDEX-
MOTEA-
DRVA-
DIR-
STEP-
WDATA-
WGATE-
TK00-
WPT-
RDATA-
SIDE1-
DSKCHG-
BH/2*17K5/BK/SHN/2.54/VA/D/GF
SATA LED
R340
1K/4
R341
1K/4
R342
8.2K/4
C231
180p/4/NPO/50V/J/X
-HDLED
-SATALED
S0T23
Q11
Q12
MMBT2222A/SOT23/600mA/40
D3
1N4148W/SOD123/300mA
R345
75/6
R346
1K/4
Q15
R348
8.2K/4
Q16
R347
75/6
Q17
R350
1K/4
SPK-
SPKR
BEEP-
INTEL FRONT PANEL
PWR_LED
MPD+
3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL
PH/1*3/BK/2.54/VA/D
R352
330/6
BC109
0.01u/4/X7R/25V/K/X
F_PANEL
HD+
HD-
GND
RESET
RSV
GD+
GD-
GN+
GN-
MSG/PD+
MSG/PD-
PW+
PW-
SP+
NC
SP-
-HDLED
-PWRBTSW
R1828
0/6/X
R1827
8.2K/6
Q317
BAT54C/SOT23/200mA
6,20,23 -SYS_RST
R353
8.2K/4
C232
0.01u/4/X7R/25V/K
Q20
BAV99/SOT23/300mA
R344
330/6
Q14
R349
1K/4
GPIO28
PH/2*10K10,11,12,13,15,17,19/BK/2.54/VA/D/PA
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