

Model Name: GA-EP45T-UD3LR REV 1.01

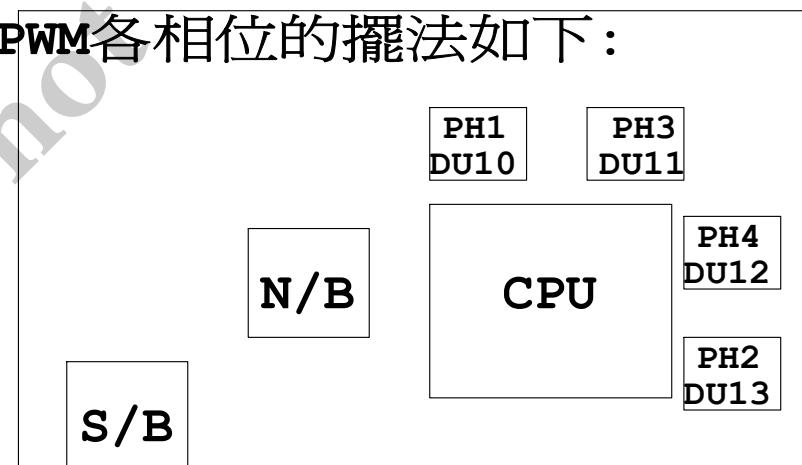
SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	TABLE LIST
05	P4 LGA775 A
06	P4 LGA775 B,D
07	P4 LGA775 C
08	P4 L775 E,F,G,H
09	GMCH-Eaglelake HOST
10	GMCH-Eaglelake DDRII
11	GMCH-Eaglelake PCI E, DMI
12	GMCH-Eaglelake INT VGA
13	GMCH-Eaglelake GND
14	GMCH-Eaglelake PWR
15	DDR3 CHANNEL A 1,2
16	DDR3 CHANNEL B 1,2
17	DDR3 TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH10 DMI, PCI, USB
20	ICH10 GPIO, CTRL
21	ICH10 SATA, FAN PWM
22	ICH10 VCC, GND
23	CLOCK-ICS9LPRS914
24	PCI SLOT 1, 2, PCIEX1 1~4
25	ITE8718/GB,RESET DRIVE
26	COM LPT, -PROHOT,DYNAMIC,RUSB
27	BIOS,CI,HWM,KB/MS

SHEET TITLE

28	AZALIA ALC888
29	AUDIO JACK
30	VCORE PWM ISL6334CRZ
31	DISCRETE1 POWER,FAN CTRL
32	ATX POWER
33	JMicron JMB368
34	LAN REALTEK RTL8111C
35	FRONT PANEL,FUSB,FDD
36	TPM I/F-1.2

PWM各相位的擺法如下：



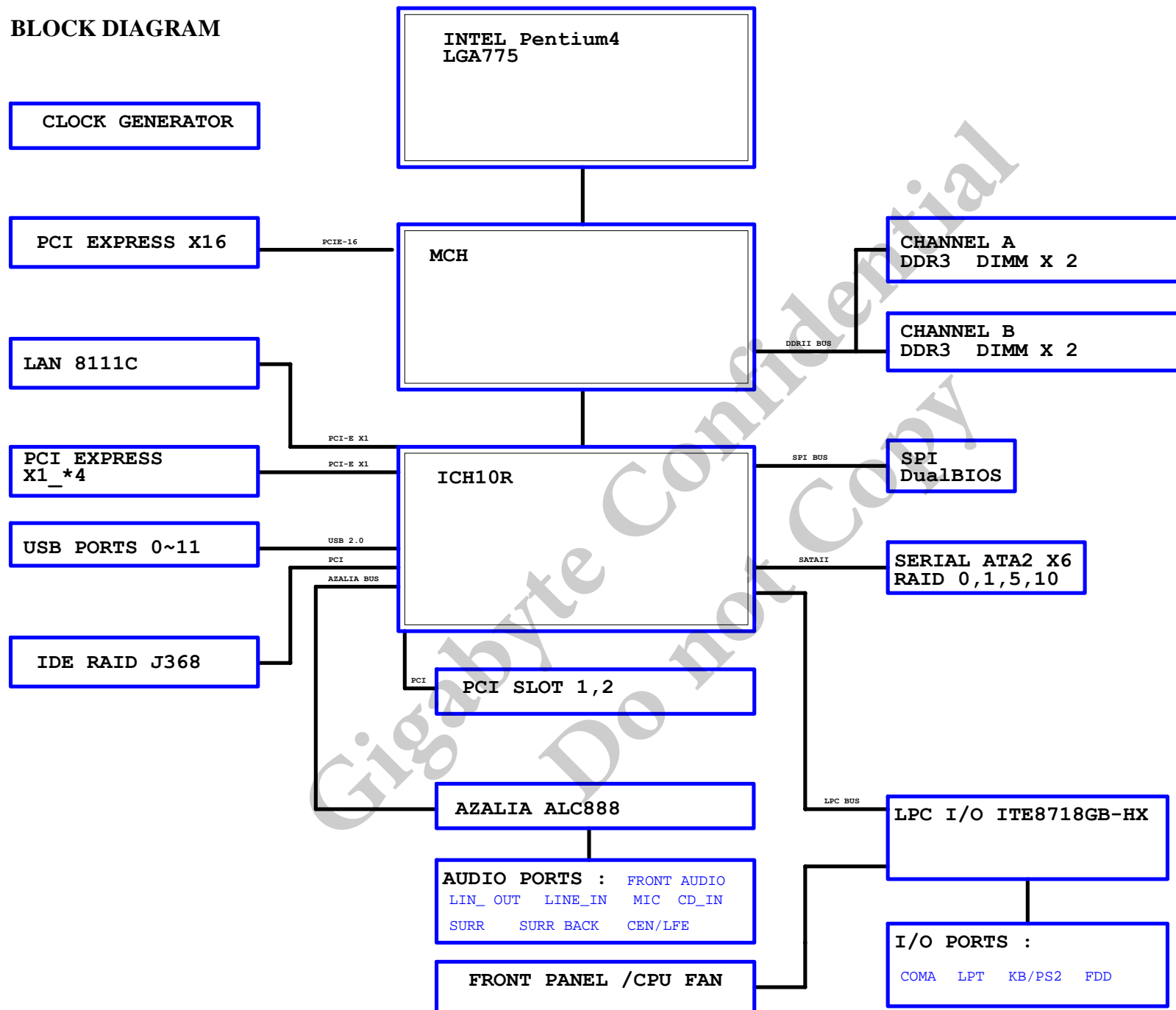
Component value change history

[illegible]

Circuit or PCB layout change
for next version

[illegible]

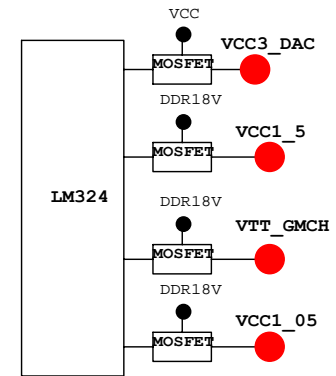
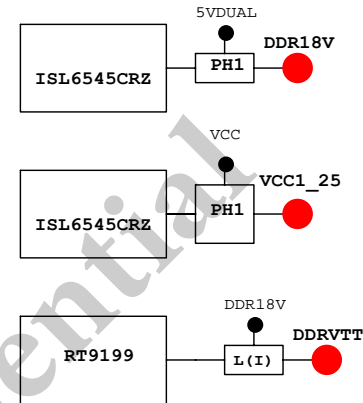
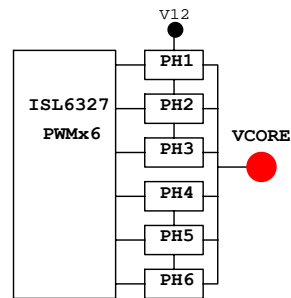
BLOCK DIAGRAM



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:6 PHASE PWM--ISL6327CRZ



Gigabyte Technology			
Title			
TABLE LIST			
Size B	Document Number	Rev	
	GA-EP45T-UD3LR	1.0	
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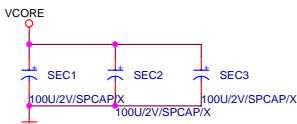
HA/REQ:50%
ADSTB:50%

LGA775A

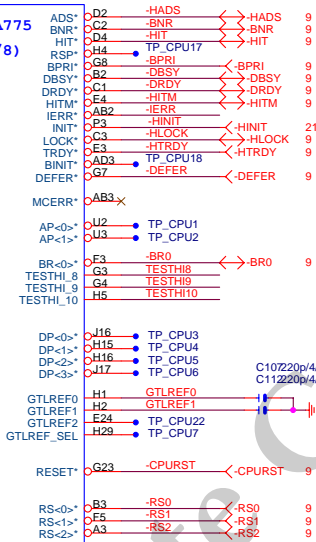
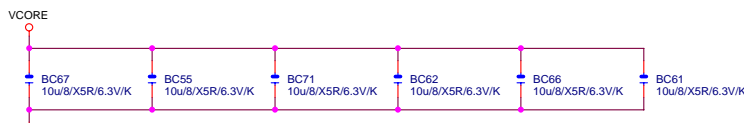
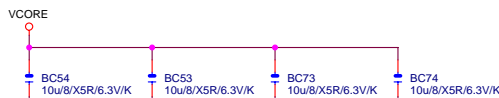
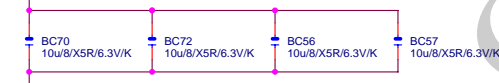
LGA775
(1/8)

CPU-SK/775/S/15

SP-CAP X 3PCS



Impedance=50 +- 15% for 4 -layer



C107220p4/NPO/50V/J/X
C112220p4/NPO/50V/J/X

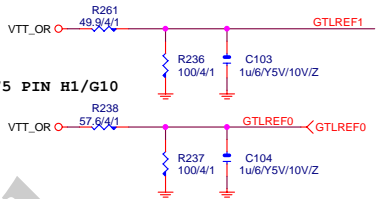
C14

1n4/X7R/50V/K/X

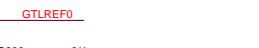
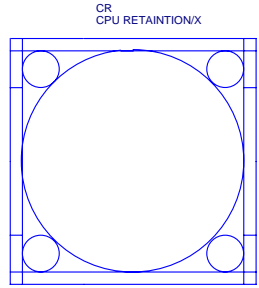
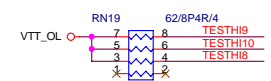
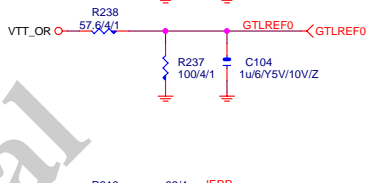
CPU GTLREF RATIO

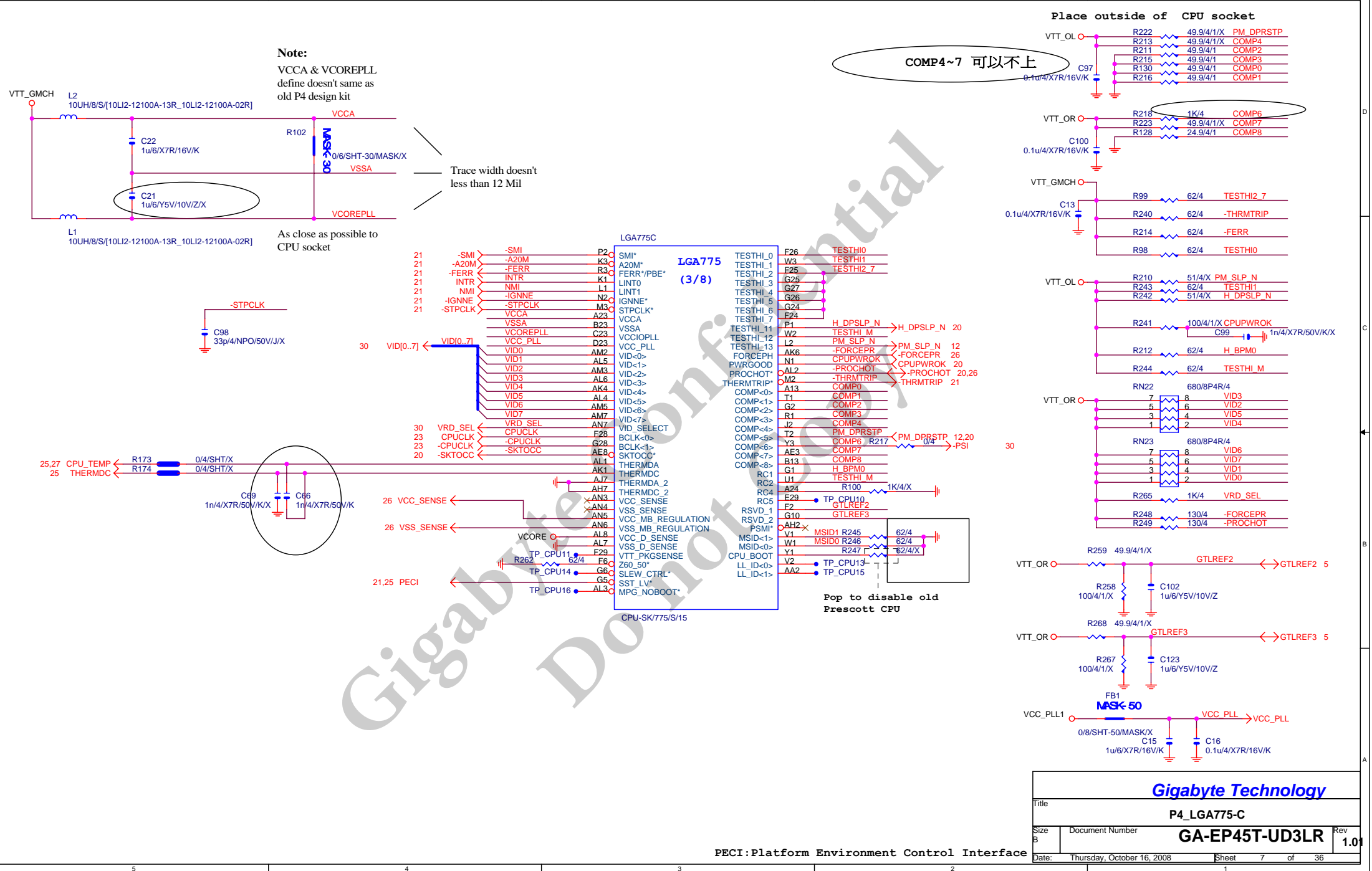
GTLREF_UV0	GTLREF_UV1	Ratio Set
HIGH	HIGH	0.67
LOW	HIGH	0.65
HIGH	LOW	0.63
LOW	LOW	0.615

0.667 X VTT FOR LGA775 PIN H2/F2



0.635 X VTT FOR LGA775 PIN H1/G10





Note:

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

COMP4~7 可以不上

Trace width doesn't
less than 12 Mil

As close as possible to
CPU socket

Pop to disable old
Prescott CPU

Place outside of CPU socket

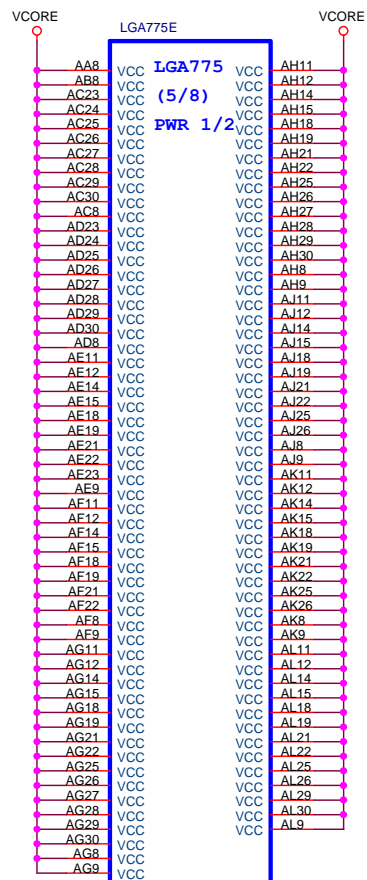
PECI:Platform Environment Control Interface

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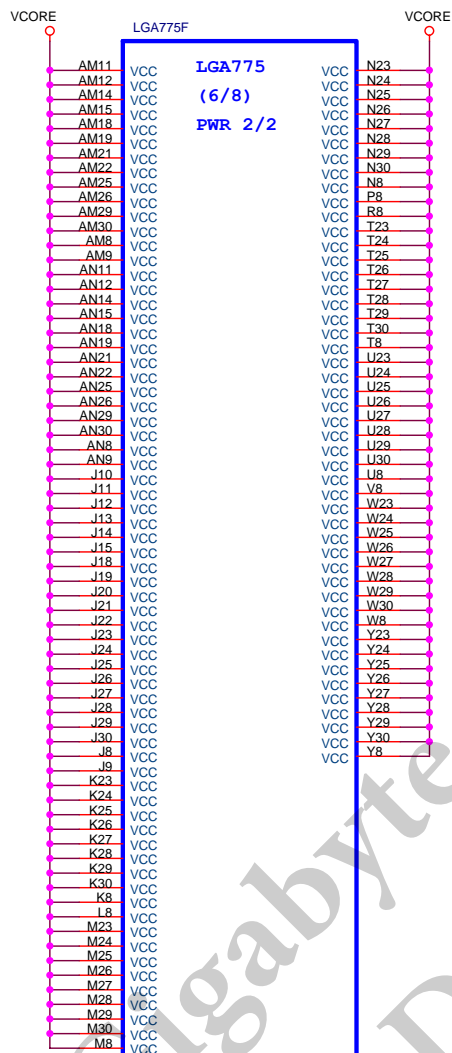
P4_LGA775-C

Size B Document Number **GA-EP45T-UD3LR** Rev 1.0

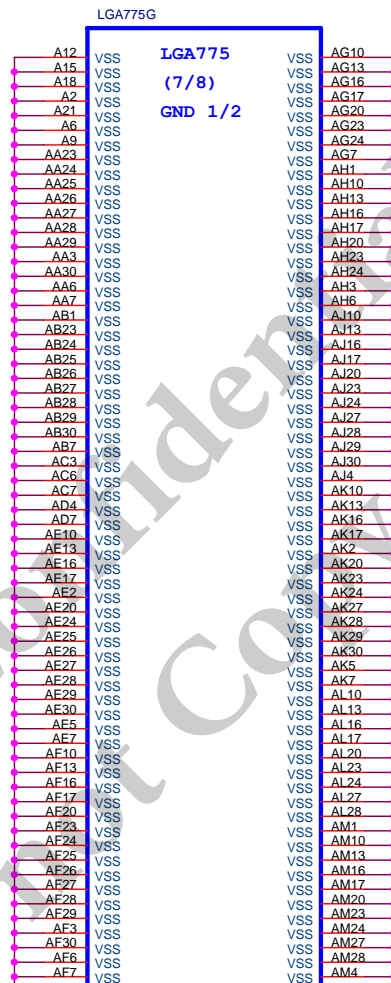
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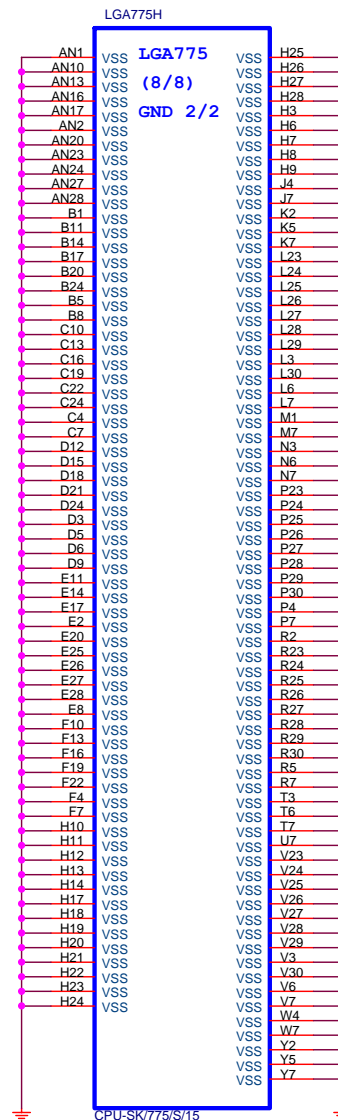
CPU-SK/775/S/15



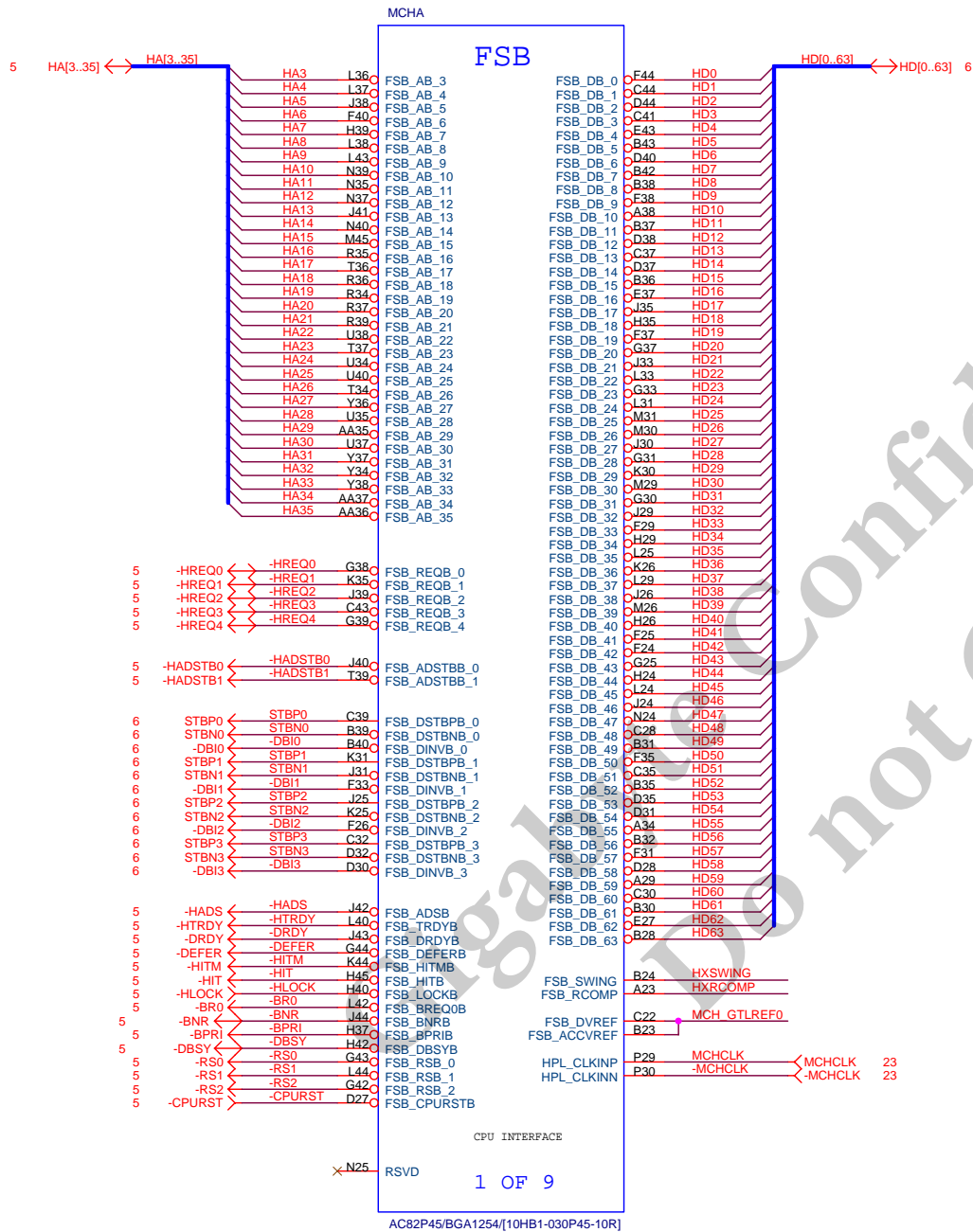
CPU-SK/775/S/15



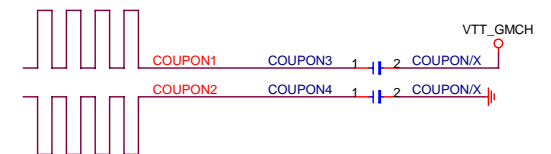
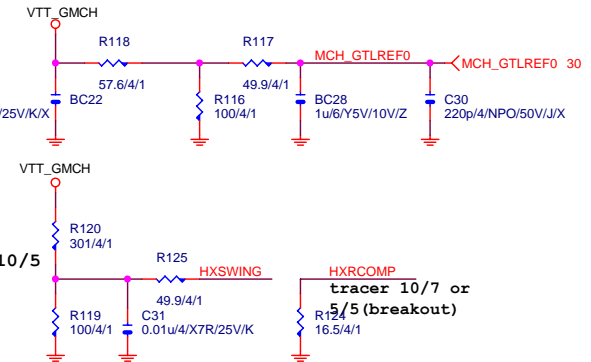
CPU-SK/775/S/15



CPU-SK/775/S/15



tracer min 10/10 or (10/5
breakout), L1<3"

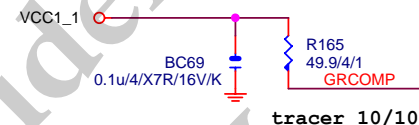
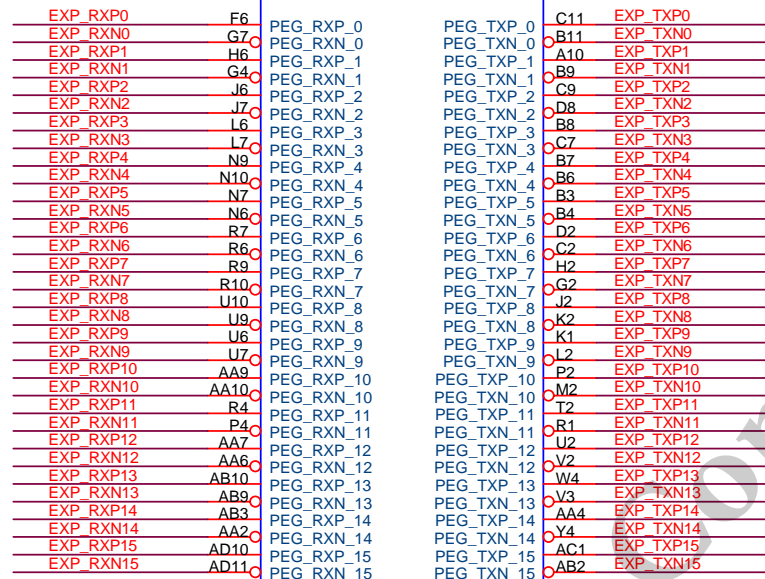


Gigabyte Technology

Title			
GMCH-HOST			
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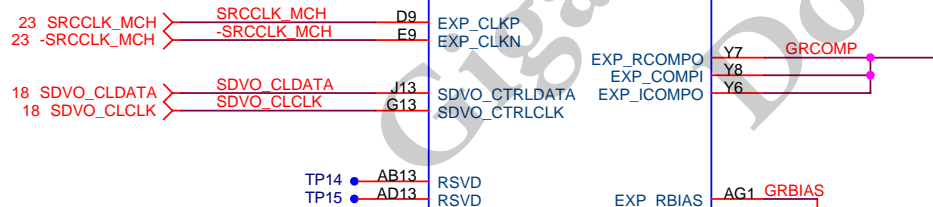
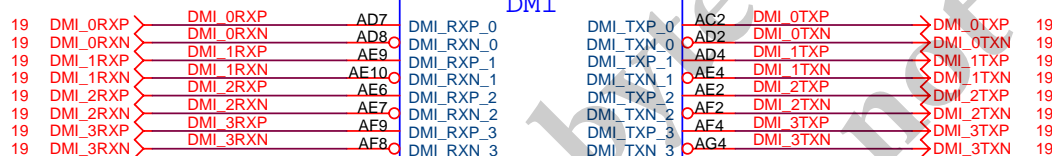
PCIEX16:16/5/5/5/16(breakout min 8/4/5/4/8)

Impedance=85 +- 17.5%



DMI:12/4/8/4/12

Impedance=95 +- 17.5%

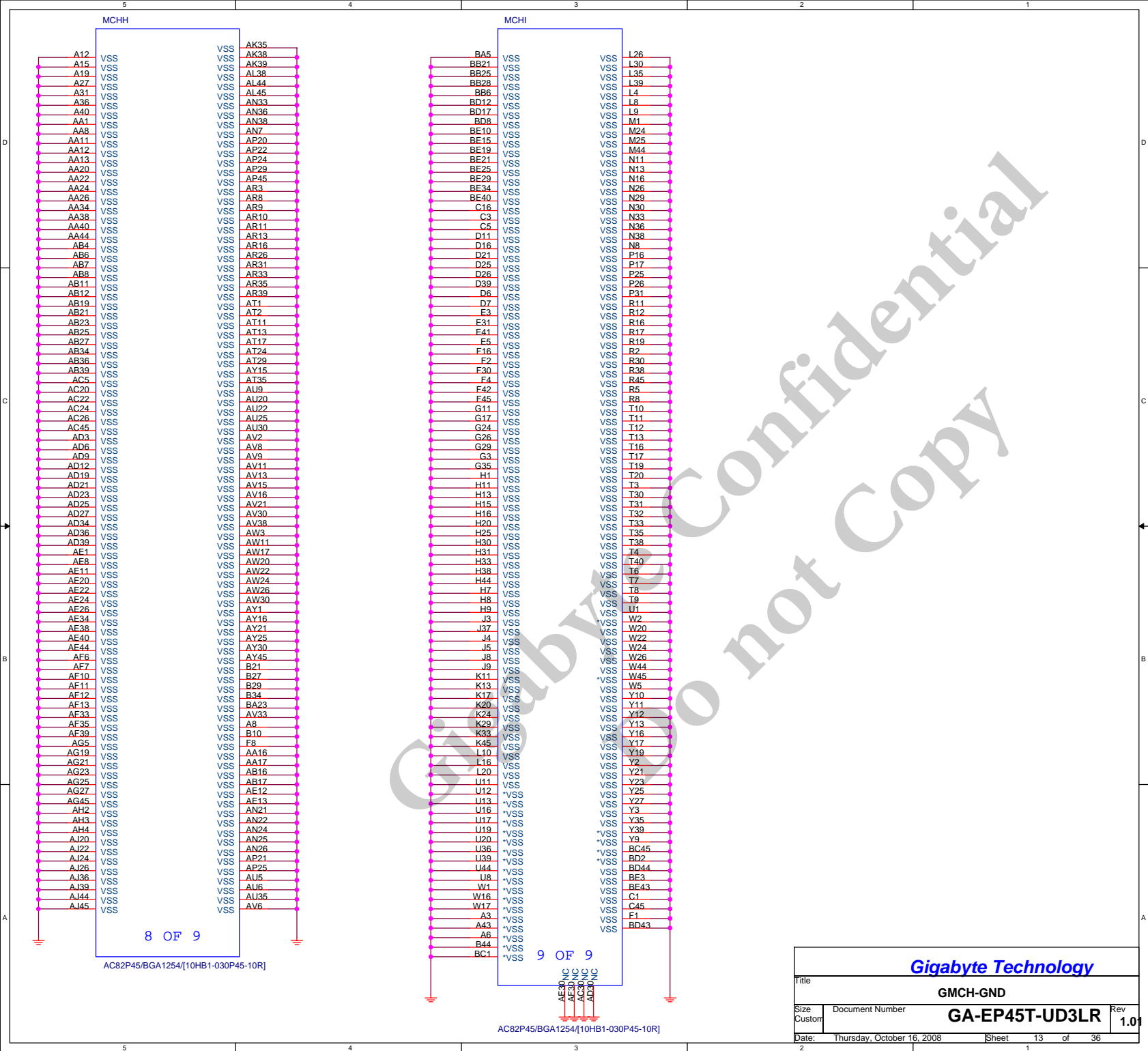


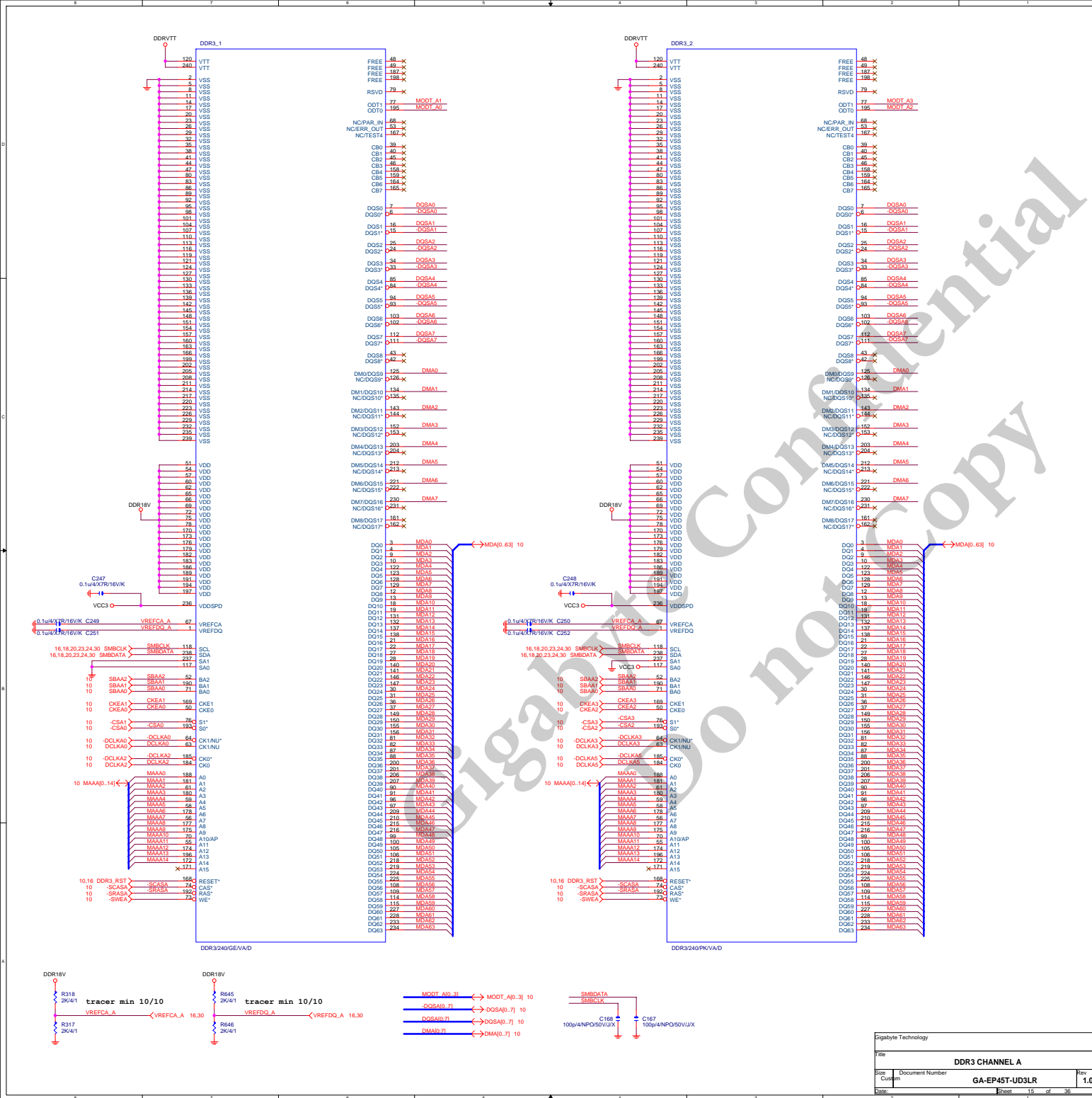
AC82P45/BGA1254/[10HB1-030P45-10R]

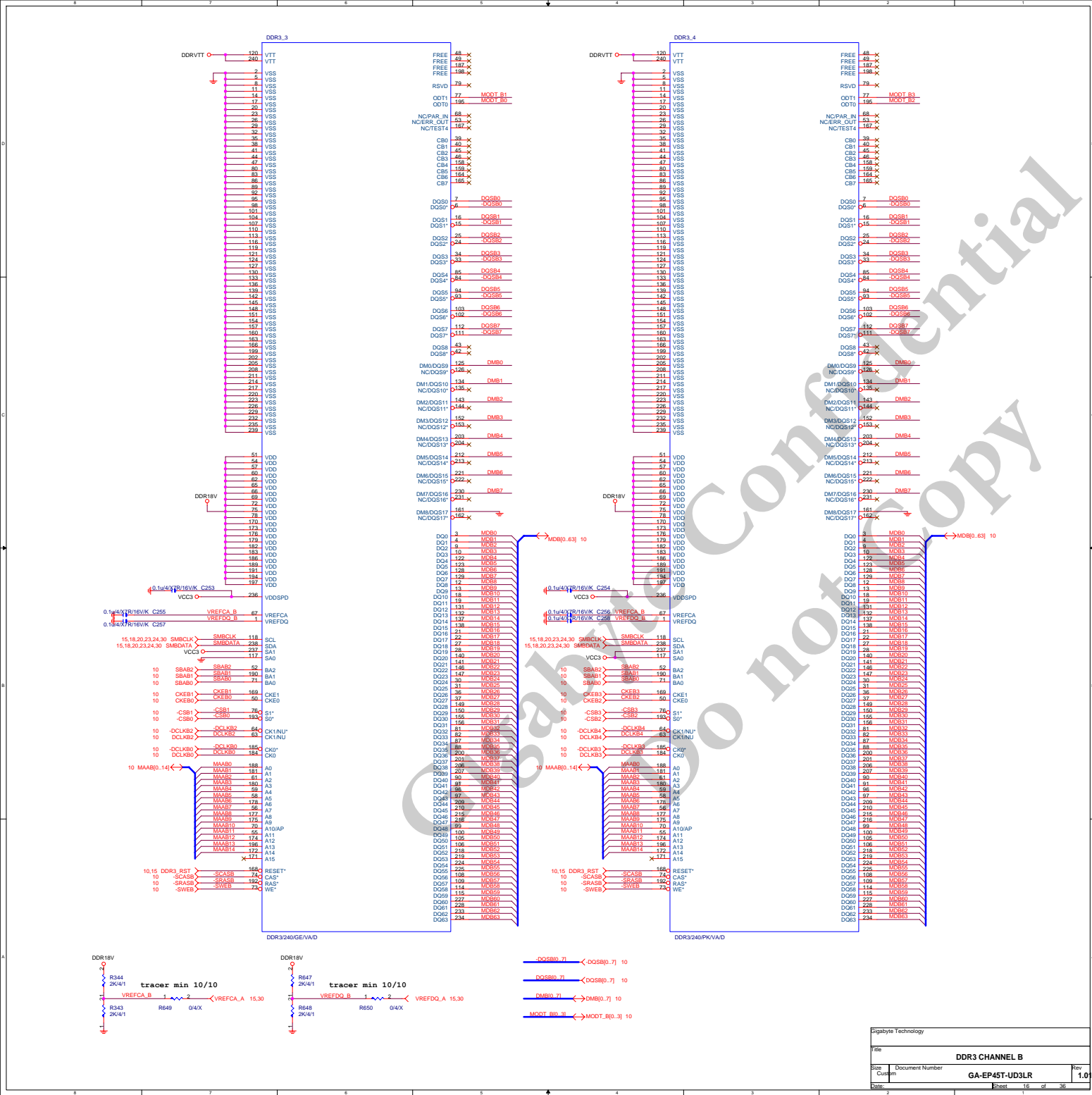
Gigabyte Technology

Title			
GMCH-PCI E & DMI			
Size	Document Number	GA-EP45T-UD3LR	
Custom		Rev	1.0
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Title			
GMCH-INTERNAL VGA			
Size Custom	Document Number	GA-EP45T-UD3LR	Rev 1.0
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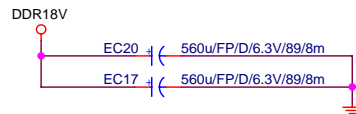
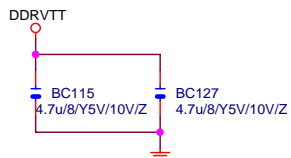




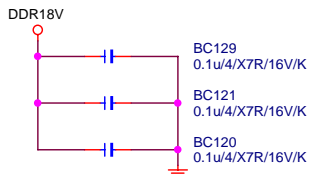


DDR TERMINATION CHANNEL A

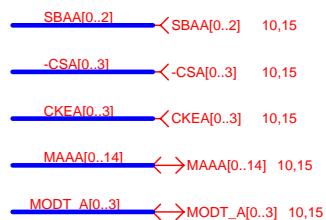
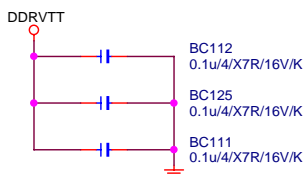
DDRVTT Decouple



DDR18V Decouple

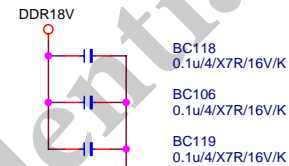


DDRVTT Decouple

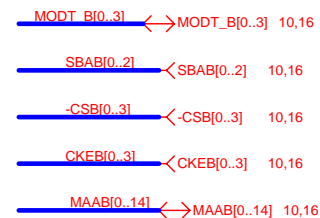
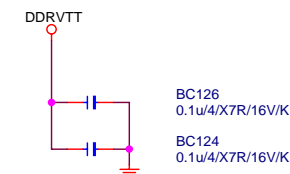


DDR TERMINATION CHANNEL B

DDR18V Decouple

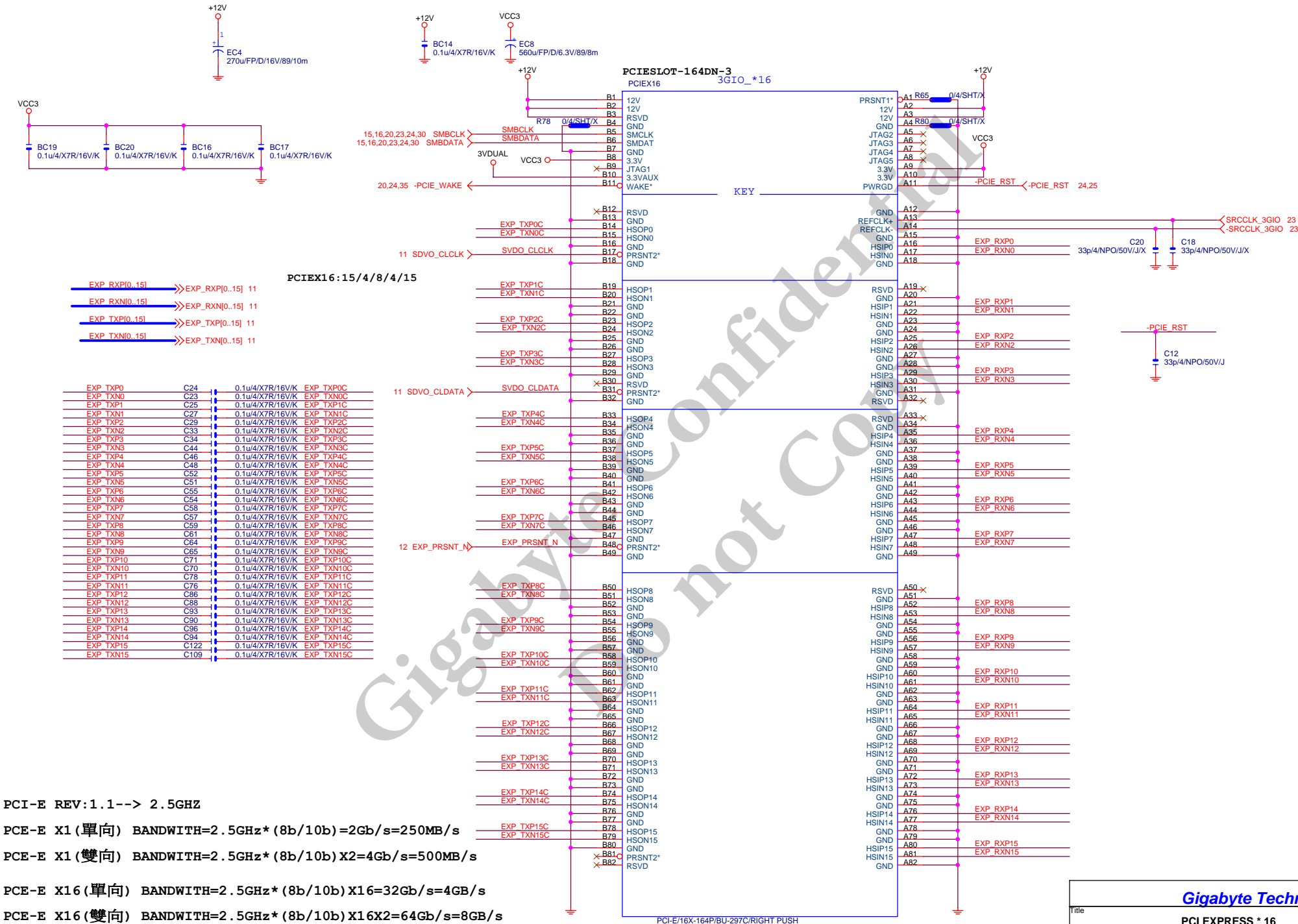


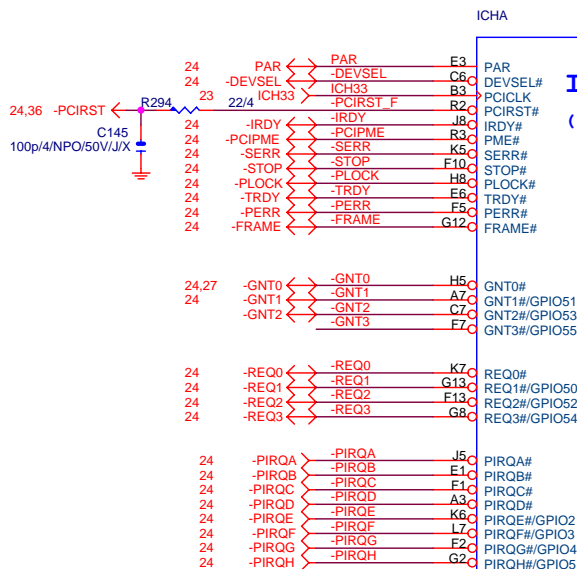
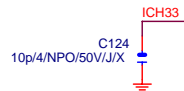
DDRVTT Decouple



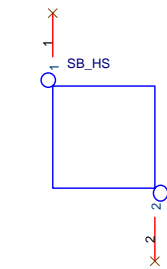
Gigabyte Technology

Title			DDR3 TERMINATOR		
Size	Document Number	GA-EP45T-UD3LR			Rev
Custom					1.01
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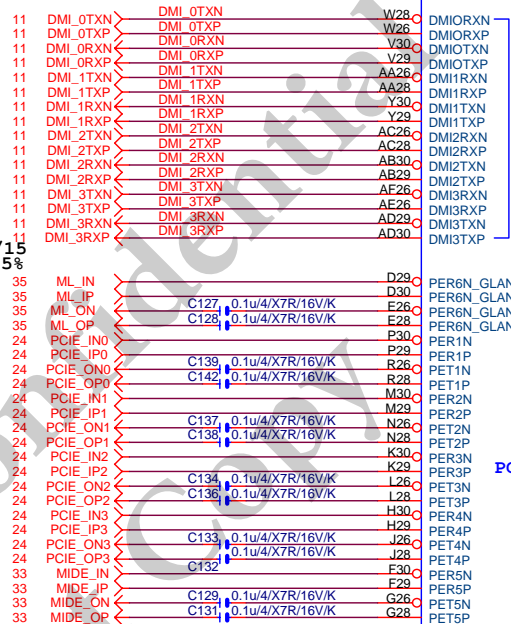
AF82801JR-A0/BGA676[10HB1-038280-F0R]



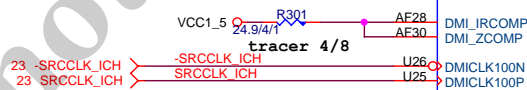
SB_HS[12SP2-030030-71R_12SP2-030030-72R_12SP2-030030-73R]

FOR DDR3専用SB heat sink

DMI:12/4/8/4/12
Impedance=95 +- 17.5%



PCI-E X1 :15/4/8/4/15
Impedance=95 +- 17.5%



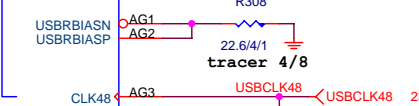
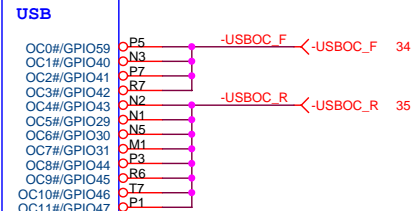
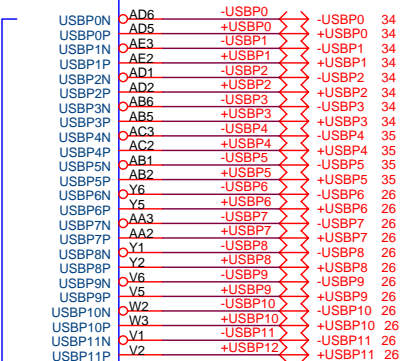
AF82801JR-A0/BGA676[10HB1-038280-F0R]

ICHB

ICH9
(2/6)

DMI

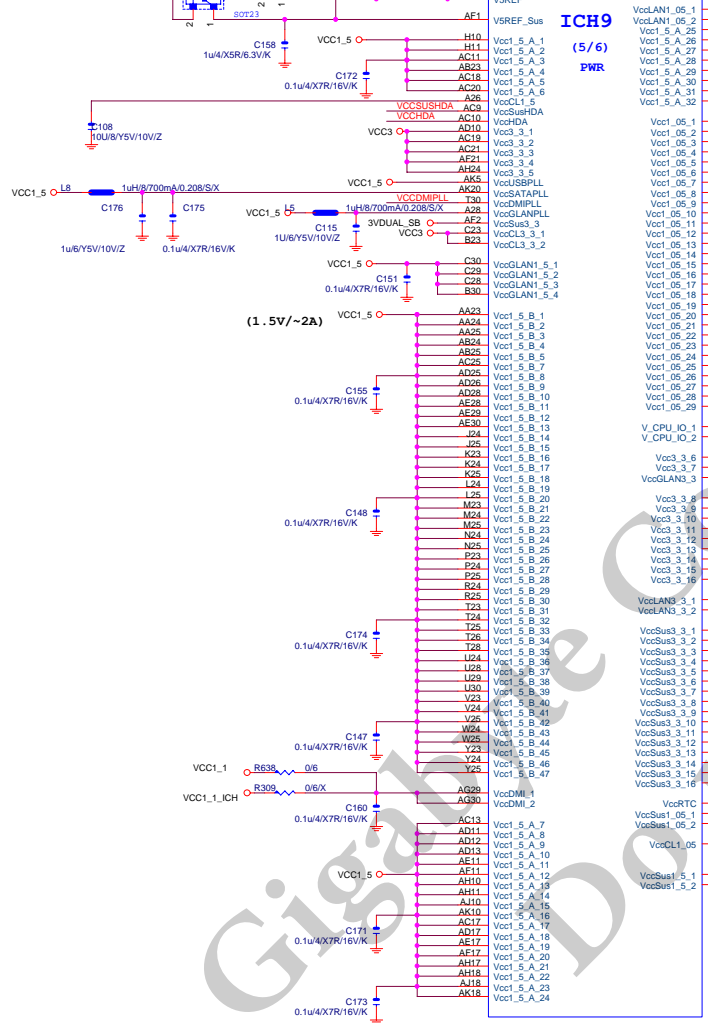
PCI-E



Gigabyte Technology

Title		ICH9-PCI, DMI, LAN, USB	
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ICH9		
(6/6)		
GND		
G30	VSS_100	H13
G29	VSS_101	H19
G28	VSS_102	H2
G16	VSS_103	H25
F9	VSS_104	H26
F28	VSS_105	H27
F26	VSS_106	H28
F12	VSS_107	H29
F21	VSS_108	H30
F12	VSS_109	H31
E30	VSS_110	H32
E22	VSS_111	H33
E18	VSS_112	H34
E15	VSS_113	H35
D28	VSS_114	H36
D8	VSS_115	H37
D5	VSS_116	H38
B5	VSS_117	H39
B28	VSS_118	H40
B25	VSS_119	H41
B22	VSS_120	H42
B2	VSS_121	H43
B19	VSS_122	H44
B17	VSS_123	H45
B14	VSS_124	H46
B11	VSS_125	H47
B5	VSS_126	H48
AK8	VSS_127	H49
AK30	VSS_128	H50
AK29	VSS_129	H51
AK2	VSS_130	H52
AK16	VSS_131	H53
AK14	VSS_132	H54
AK12	VSS_133	H55
A38	VSS_134	H56
A35	VSS_135	H57
A26	VSS_136	H58
A23	VSS_137	H59
A20	VSS_138	H60
A16	VSS_139	H61
A14	VSS_140	H62
A12	VSS_141	H63
AH6	VSS_142	H64
AH6	VSS_143	H65
AH20	VSS_144	H66
AH2	VSS_145	H67
AH19	VSS_146	H68
AH15	VSS_147	H69
AH13	VSS_148	H70
AG28	VSS_149	H71
AF9	VSS_150	H72
AF7	VSS_151	H73
AF29	VSS_152	H74
AF25	VSS_153	H75
AF23	VSS_154	H76
AF20	VSS_155	H77
AF15	VSS_156	H78
AF13	VSS_157	H79
AE9	VSS_158	H80
AE8	VSS_159	H81
AE6	VSS_160	H82
AE5	VSS_161	H83
AE25	VSS_162	H84
AE19	VSS_163	H85
AE18	VSS_164	H86
AE16	VSS_165	H87
AE15	VSS_166	H88
AE14	VSS_167	H89
AE13	VSS_168	H90
AE12	VSS_169	H91
AE10	VSS_170	H92
AE1	VSS_171	H93
AD9	VSS_172	H94
AD7	VSS_173	H95
AD3	VSS_174	H96
AD22	VSS_175	H97
AD19	VSS_176	H98
AD18	VSS_177	H99
AD16	VSS_178	H100
AD15	VSS_179	H101
AD14	VSS_180	H102
AC8	VSS_181	H103
AC6	VSS_182	H104
AC5	VSS_183	H105
AC40	VSS_184	H106
AC29	VSS_185	H107
AC24	VSS_186	H108
AC12	VSS_187	H109
AC1	VSS_188	H110
AB3	VSS_189	H111
AB28	VSS_190	H112
AB26	VSS_191	H113
AA6	VSS_192	H114
AA5	VSS_193	H115
AK27	VSS_194	H116
AH29	VSS_195	H117
A34	VSS_196	H118
AF3	VSS_197	H119
B27	VSS_198	H120



CLK GEN CK505

50歐姆: [18/4/10/4/18]

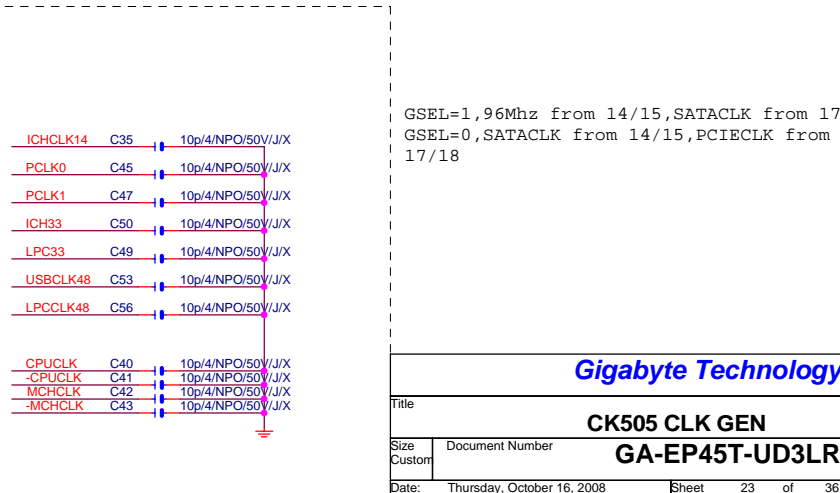
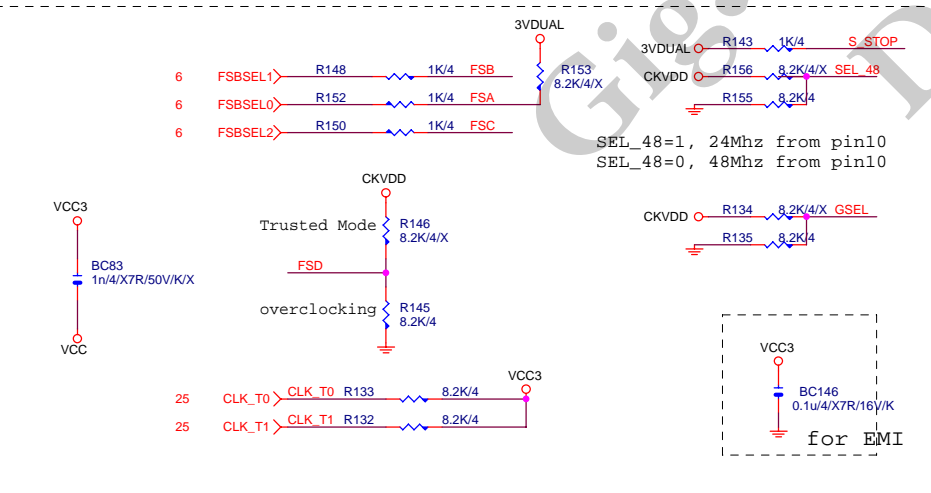
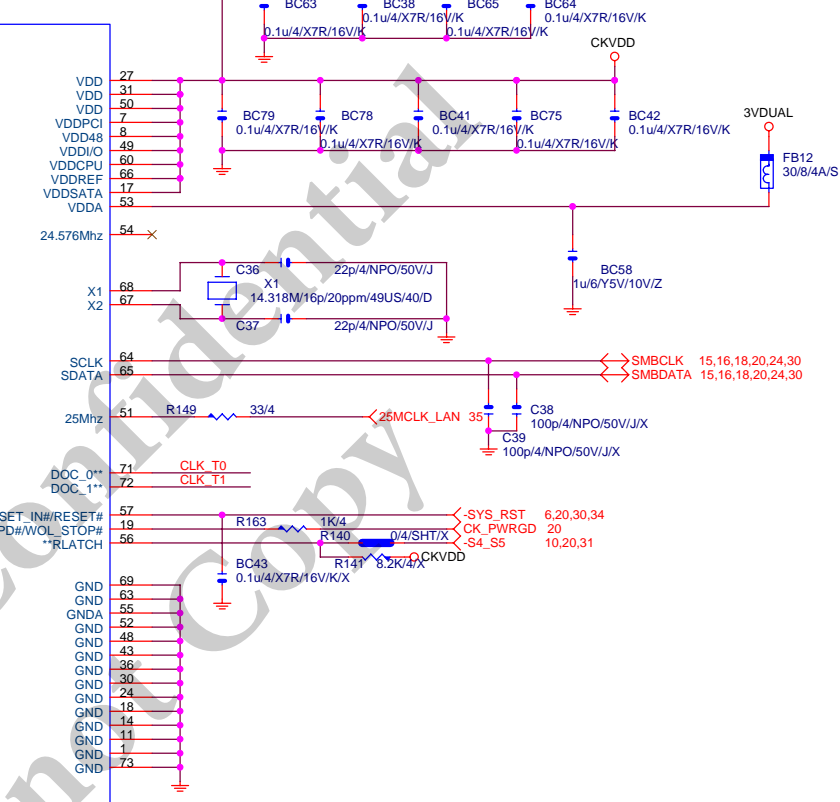
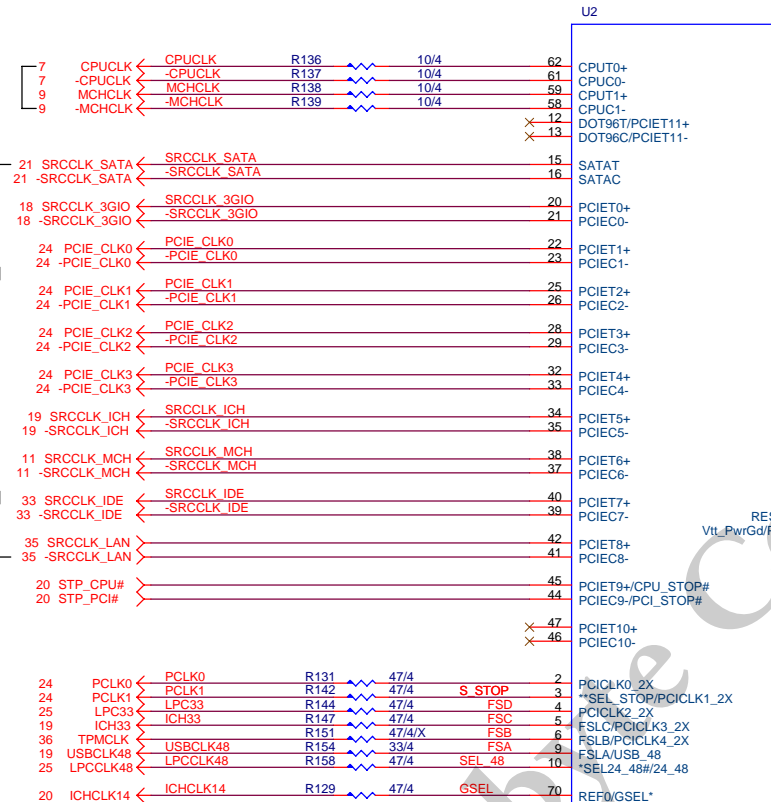
50歐姆: [18/4/10/4/18]

50歐姆: [18/4/10/4/18]

50歐姆: [4/10]

50歐姆: [4/10]

50歐姆: [4/10]



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

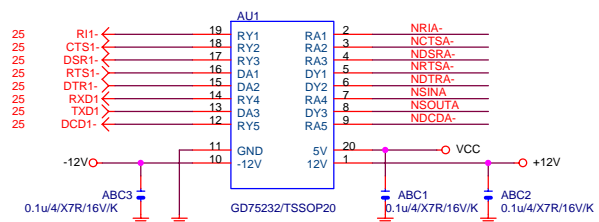
Gigabyte Technology

CK505 CLK GEN

GA-EP45T-UD3LR

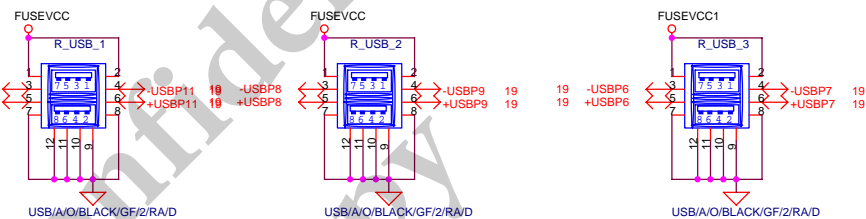
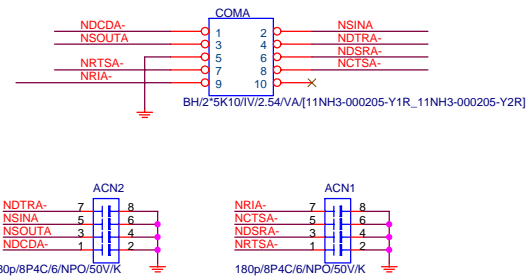
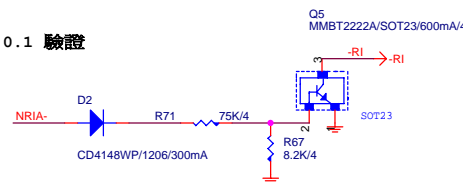
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Size	Document Number		
Custom			
Date:	Thursday, October 16, 2008	Sheet	23 of 36

COMA

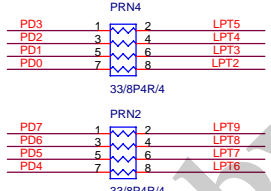
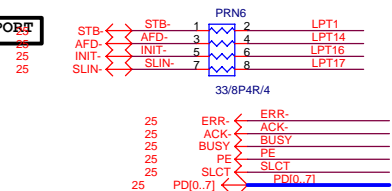


COM RI

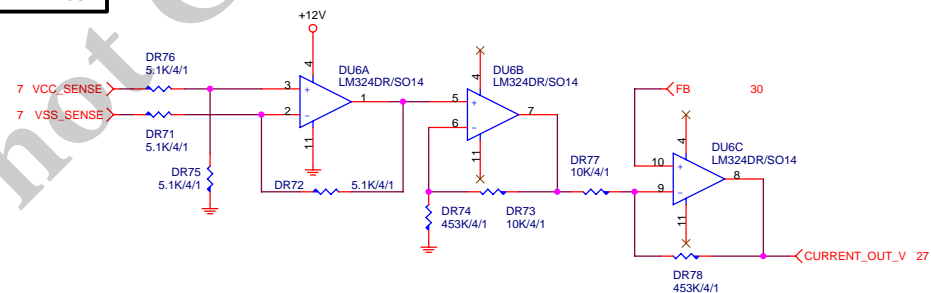
REV:0.1 驗證



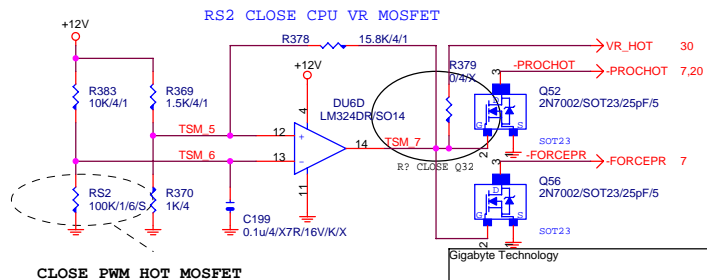
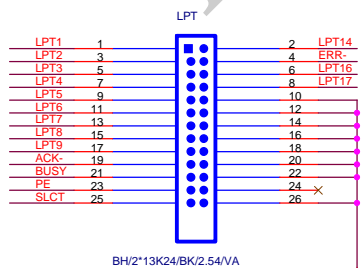
LPT PORT



DYNAMIC CURRENT OC



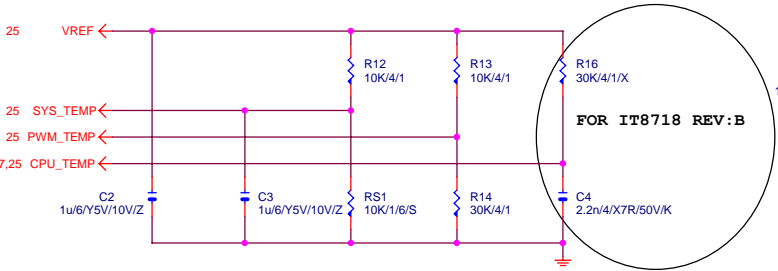
-PROHOT



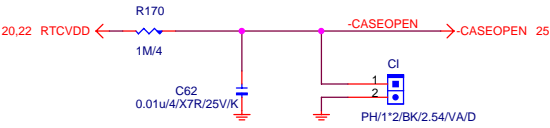
asserted at 131 degree
deasserted at 116 degree

Gigabyte Technology		
Title		
COM & LPT PORT		
Size	Document Number	Rev
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TEMP H/W MONITOR

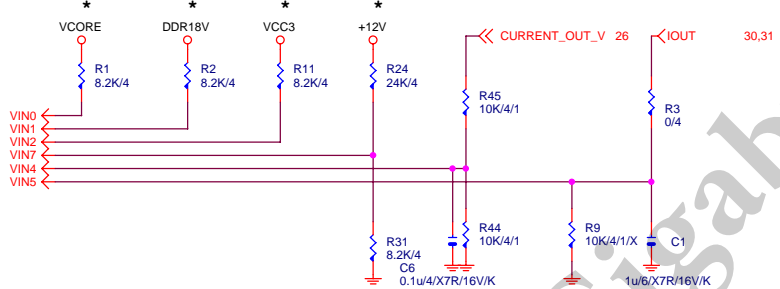


CASE OPEN

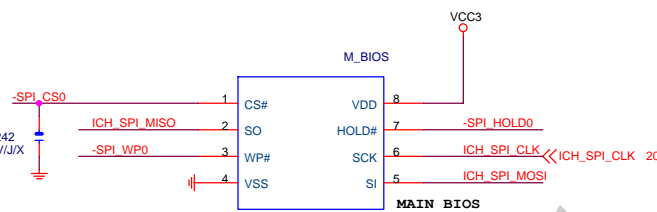
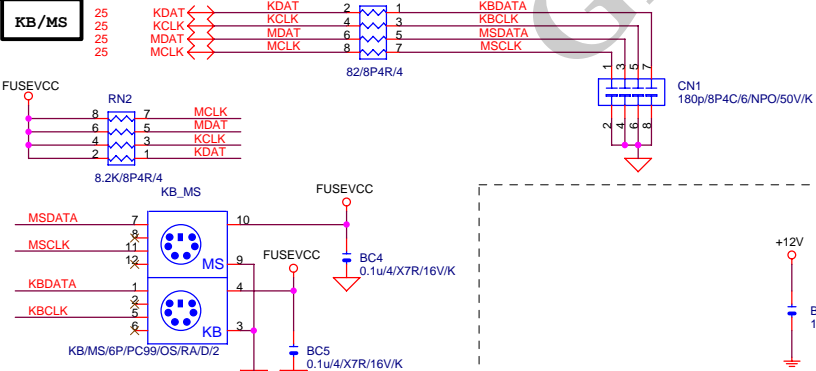


Case Open Circuits

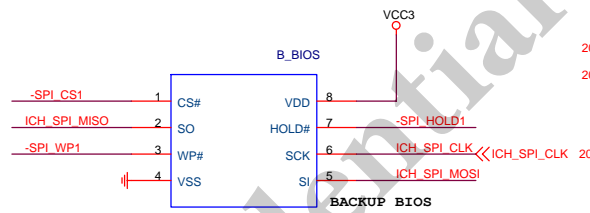
VOLTAGE-- H/W MONITOR



KB/MS

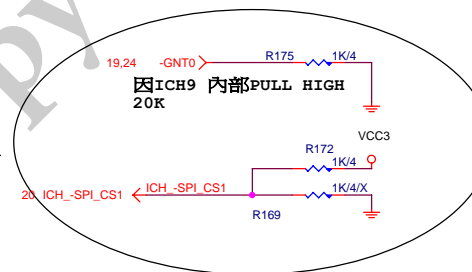


SST25VF080B-50-4C-S2AF/S/[10HP4-112580-11R_10HP4-172580-01R]
MXIC (4K) / SST (4K)



SST25VF080B-50-4C-S2AF/S/[10HP4-112580-11R_10HP4-172580-01R]
MXIC (4K) / SST (4K)

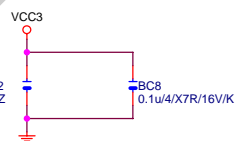
BOOT DEVICE	GNT0	CS1
SPI	0	1
PCI	1	0
FWH	1	1



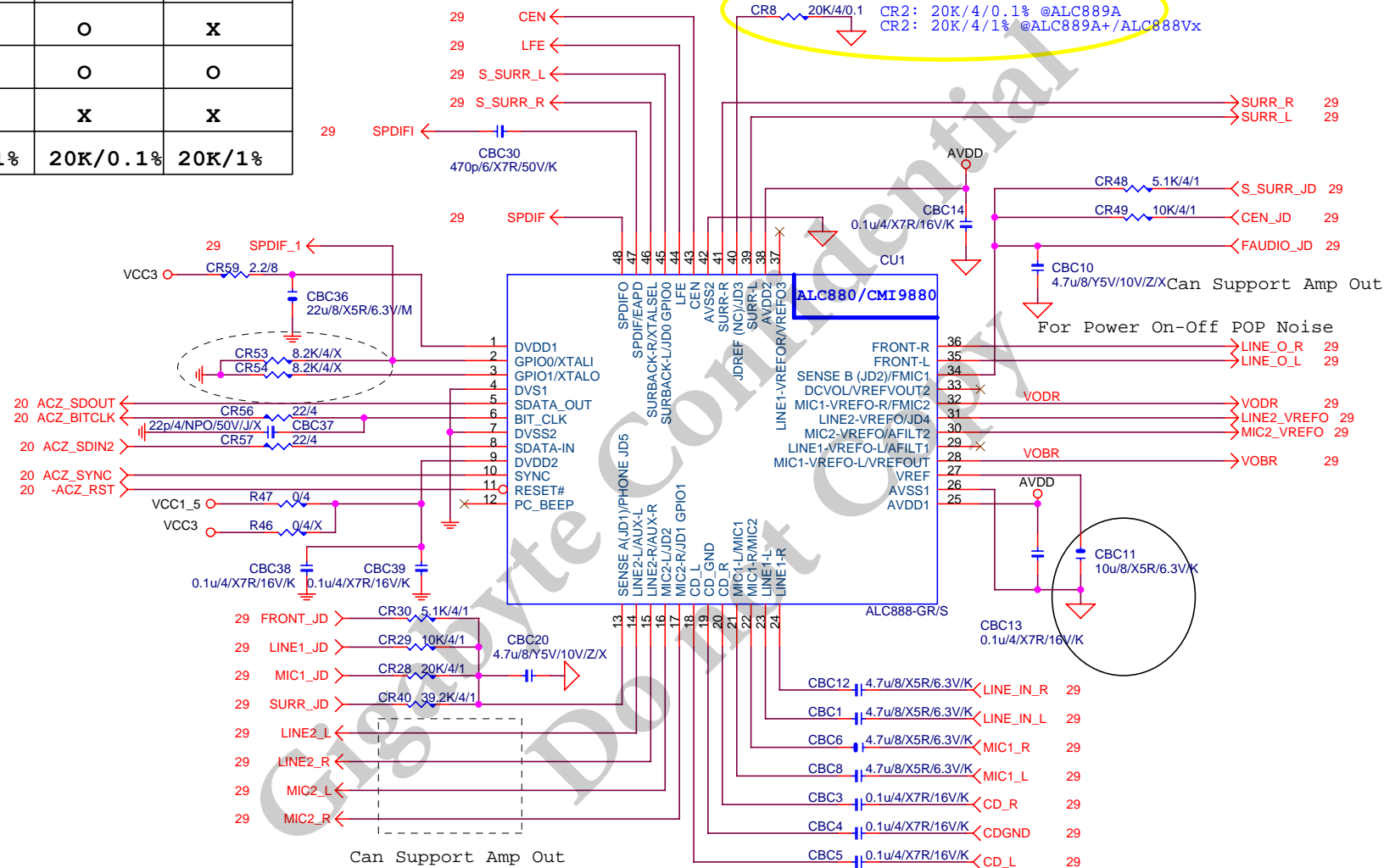
PCI_BT1



JP/1*2/BU/OH/O::[1-2]CLOSE/X



	ALC889A+	ALC889A	ALC888Vx
CR107	X	O	X
CR108	X	O	X
CR109	X	O	O
CR110	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%

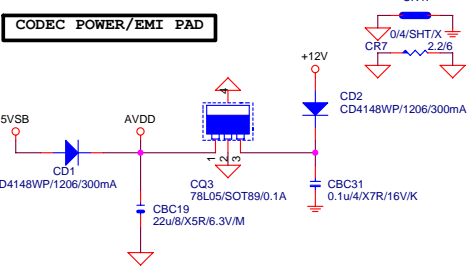


```

20 ACZ_SDOUT <=
20 ACZ_SYNC <=
20 -ACZ_RST <=
20 ACZ_BITCLK <=
20 ACZ_SDIN2 <=

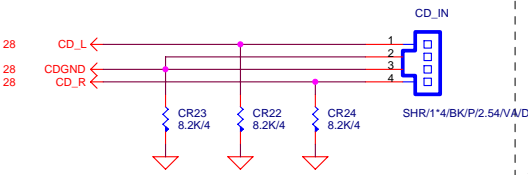
```

CODEC POWER/EMI PAD

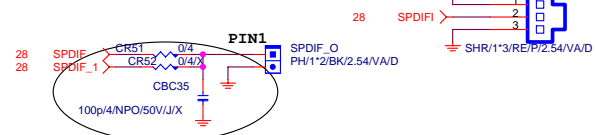


CO-LAYOUT

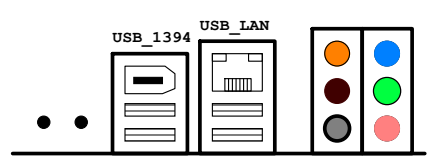
CD IN



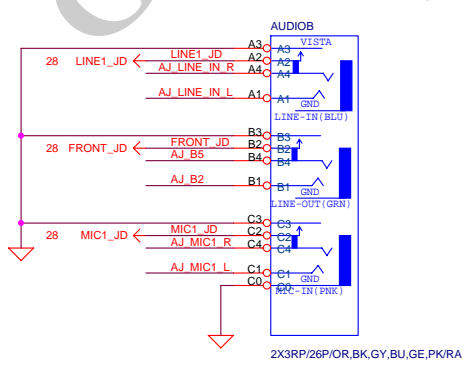
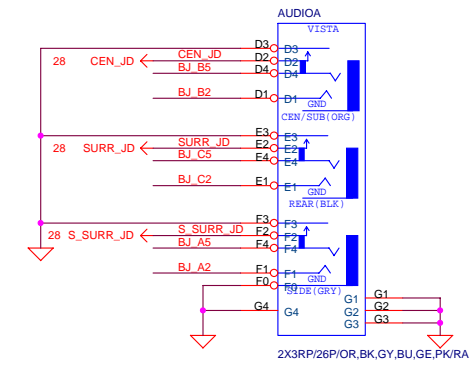
SPDIF



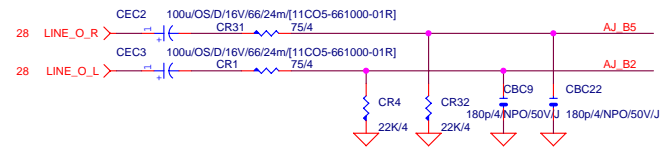
AZALIA JACK



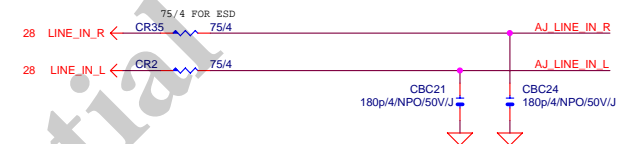
3RP/26P/OR,BK,GY,BU,GE,PK/RA/D/1/B
VISTA規範: REAR-->BLK, CEN/SUB-->ORG



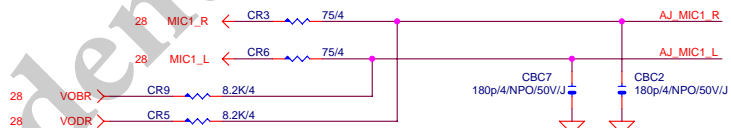
LINE-OUT



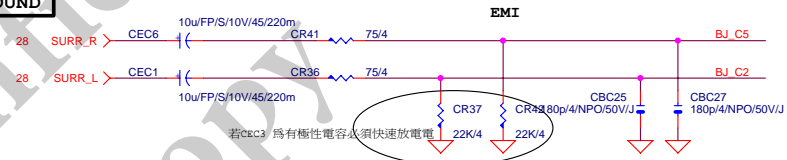
LINE-IN



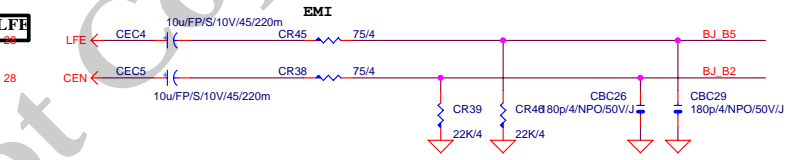
MIC-IN



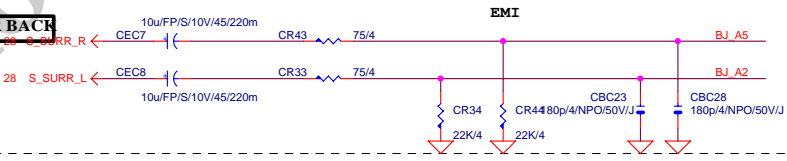
SURROUND



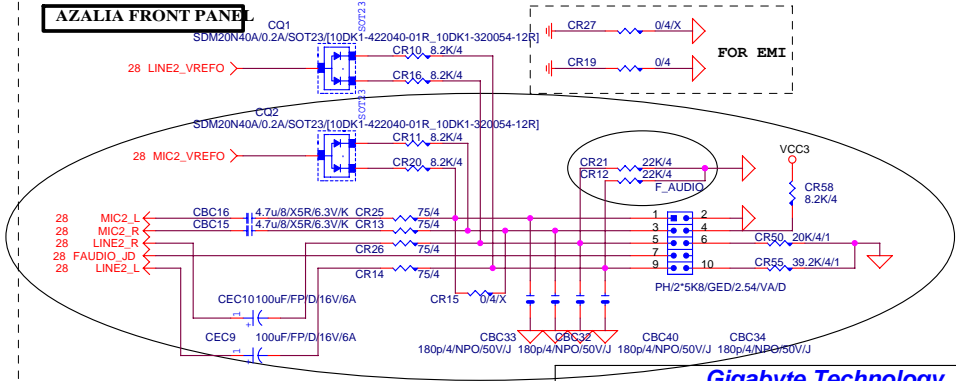
CEN/LFE



SURR BACK

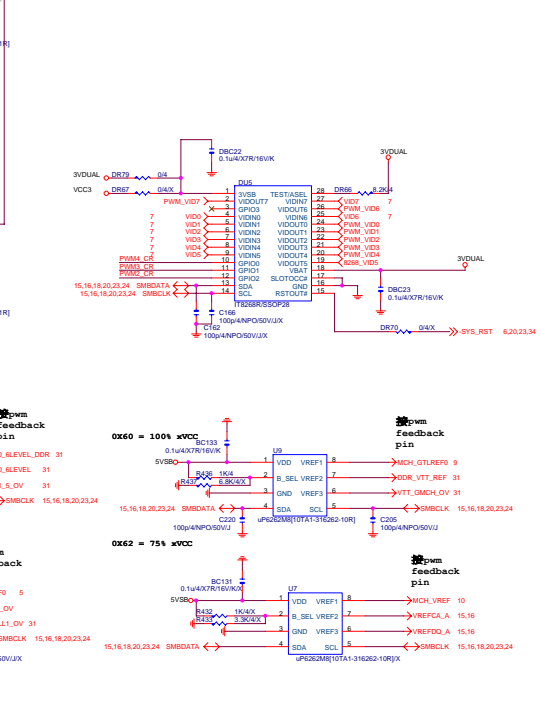
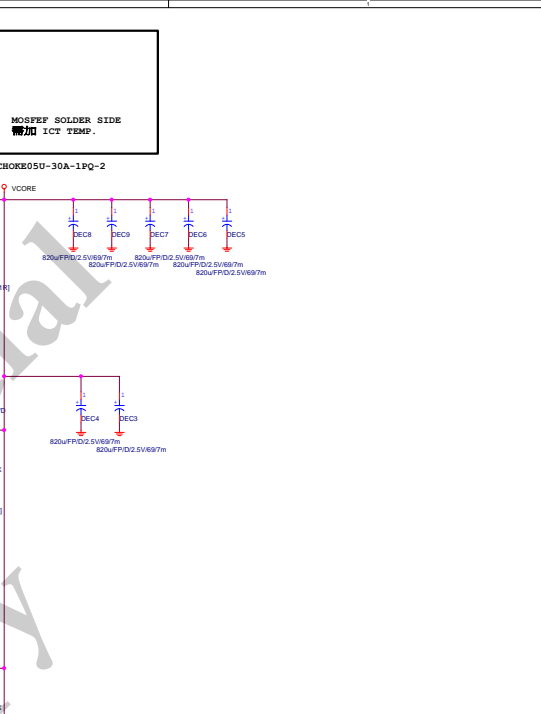


AZALIA FRONT PANEL

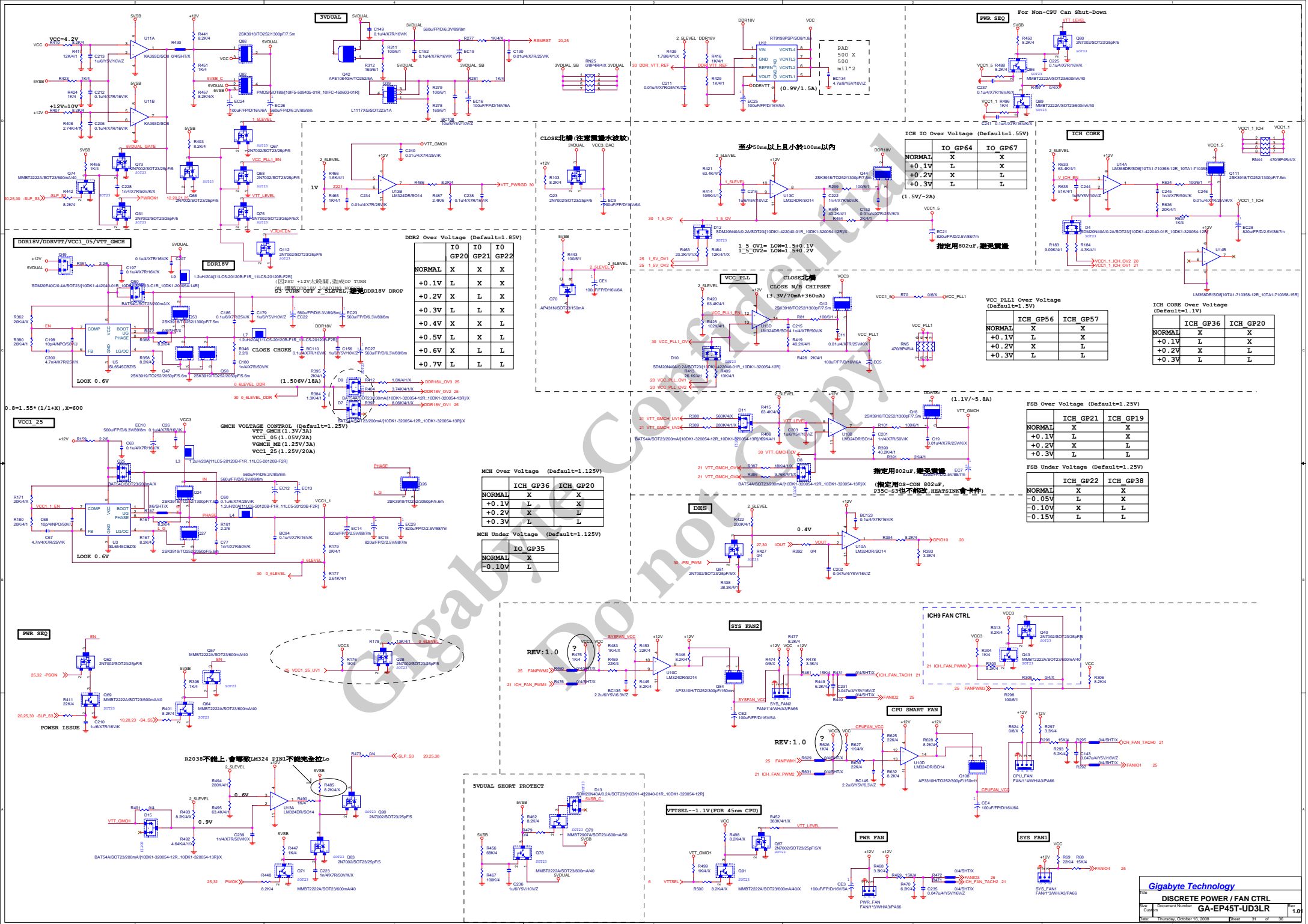


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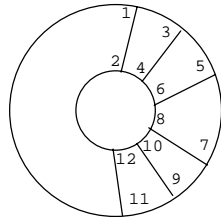
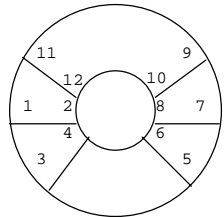
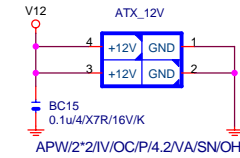
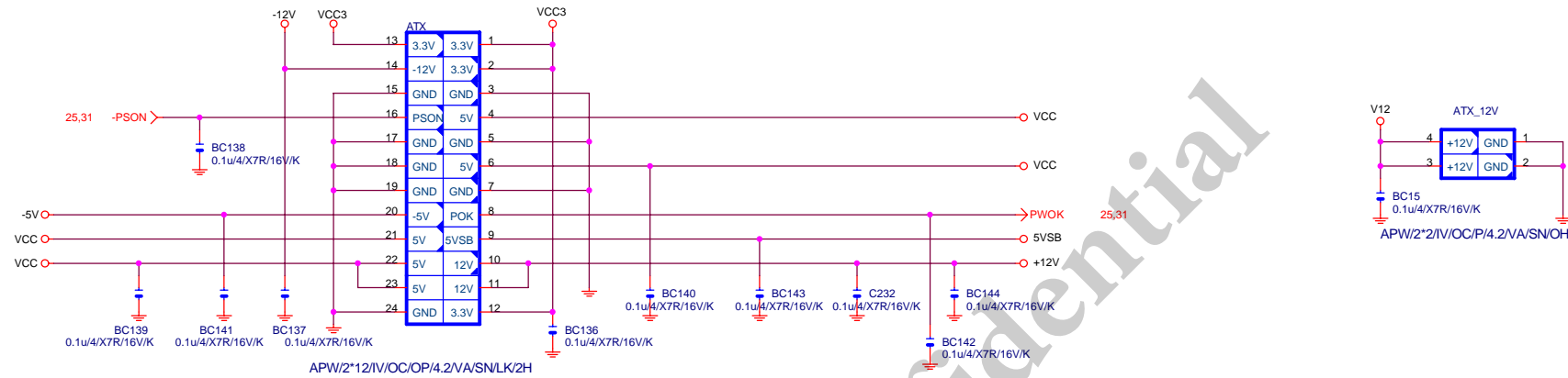
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GA-EP45T-UD3LR			
Size	Document Number	Rev	1.01
Custom			
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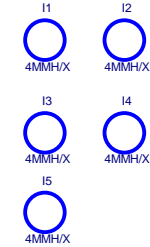
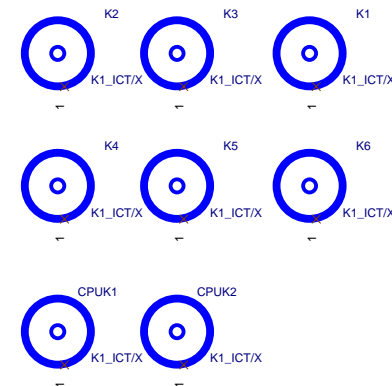
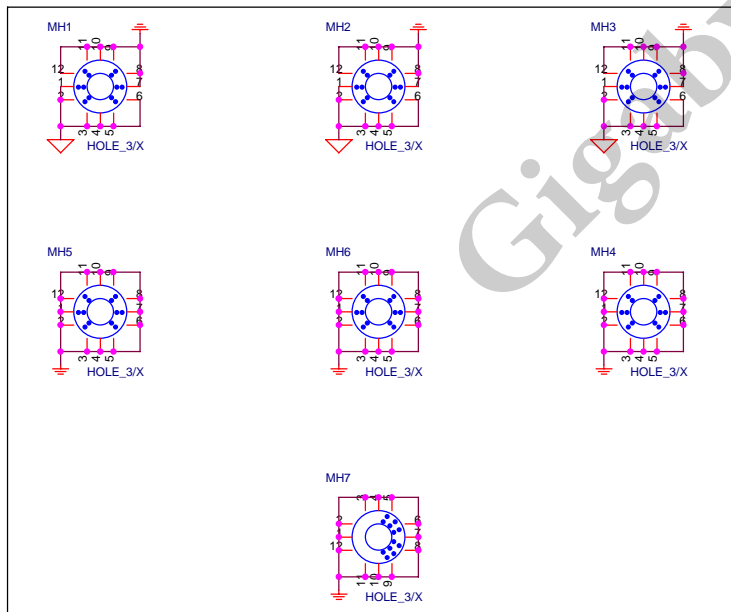
<i>Gigabyte Technology</i>			
File		VRD 11 -ISL6334	
Size	Document Number	GA-EP45T-UD3LR	Rev
Custom			1.0
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ATX POWER CONNECTOR



螺絲孔位置圖 (注意Footprint不同)

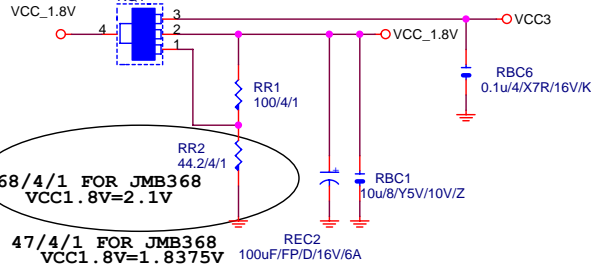


Gigabyte Technology

Title			
ATX POWER CONNECTOR			
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3.3V to 1.8V Voltage Regulator

L1117XG/SOT223/1A



25,35 -PFMRST2

RC1
100P/4/N/50V/X

DMARQA 37 XIDMRAQA 36 DMACKnA 36
DD15A 38 ZIDD15A 35 IORDYA 35
VCC3 39 DV33 34 DIORDYA 34
GND 40 XSMBCLK 33 DIOWnA 33
GND 41 XSMBDAT 32 DVDD_1.8V 32
-PFMRST2 42 XRSTn 31 XINTRQA 31
DD0A 43 ZIDD0A 30 XICBLIDA 30
DD14A 44 ZIDD14A 29 YIDA1A 29
DD1A 45 ZIDD1A 28 YIDA2A 28
DD13A 46 ZIDD13A 27 YIDA0A 27
DD2A 47 ZIDD2A 26 YICS0nA 26
DD12A 48 ZIDD12A 25 YICS1nA 25

JMB368

JM368/LQFP40

1 GND 2 -SRCCLK_IDE 3 -SRCCLK_IDE 4 APVDD_1.8V 5 APVDD_1.8V 6 GND 7 IDE_ON 8 IDE_ON 9 APVDD_1.8V 10 GND 11 PCIE_TXN 12 PCIE_TXP 13 GND 14 XTEST 15 DD7A 16 DD8A 17 DD6A 18 DD9A 19 DD5A 20 DD10A 21 DD4A 22 VCC3 23 DD11A 24 DD3A 25 ZIDD11A 26 ZIDD3A 27 ZIDD5A 28 ZIDD9A 29 ZIDD10A 30 ZIDD14A 31 ZIDD1A 32 ZIDD13A 33 ZIDD2A 34 ZIDD12A 35 ZIDD15A 36 DMACKnA 37 DMARQA 38 DD15A 39 VCC3 40 GND 41 GND 42 -PFMRST2 43 DD0A 44 DD14A 45 DD1A 46 DD13A 47 DD2A 48 DD12A

OLNY FOR JMB368

PH_IORDY RR4 1K/4
CSELA RR10 0/4/SHT/X
PH_DMARQ RR6 8.2K/4
PH_INTRQ RR5 8.2K/4
DD7A RR8 8.2K/4

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

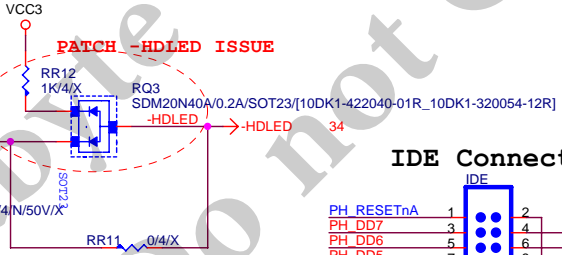
PH_IORDY IORDYA

PH_DMARQ DMARQA

PH_INTRQ INTRQA

PH_CBLID_N PDIAgNA

PATCH -HDLED ISSUE



IDE Connector

PH_RESETnA 1
PH_DD7 3
PH_DD6 5
PH_DD5 7
PH_DD4 9
PH_DD3 11
PH_DD2 13
PH_DD1 15
PH_DD0 17
PH_DMARQ 21
PH_DIOW_N 23
PH_DIOR_N 25
PH_IORDY 27
PH_DMACK_N 29
PH_INTRQ 31
PH_DA1 33
PH_DA0 35
PH_CS0_N 37
DASPnXA 39

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BH/2*20K20/GEL/SHN/2.54/V/A/D/G/[11NH3-010220-D1R_11NH3-010220-D3R]

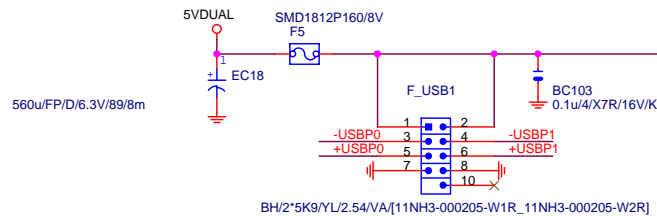
Gigabyte Technology

JMR363

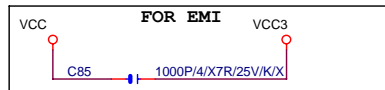
Size Custom Document Number GA-EP45T-UD3LR Rev 1.01
Date: Thursday, October 16, 2008 Sheet 33 of 36

FRONT USB1

19 +USBP0 <-> +USBP0
19 -USBP0 <-> -USBP0
19 +USBP1 <-> +USBP1
19 -USBP1 <-> -USBP1

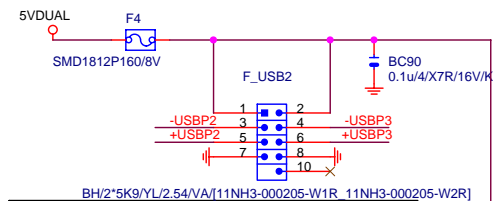


FOR EMI

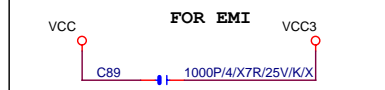


FRONT USB2

19 +USBP2 <-> +USBP2
19 -USBP2 <-> -USBP2
19 +USBP3 <-> +USBP3
19 -USBP3 <-> -USBP3



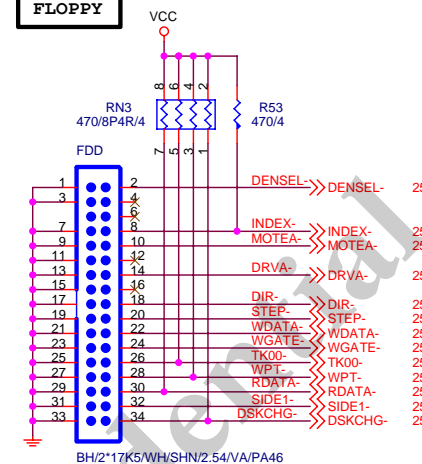
FOR EMI



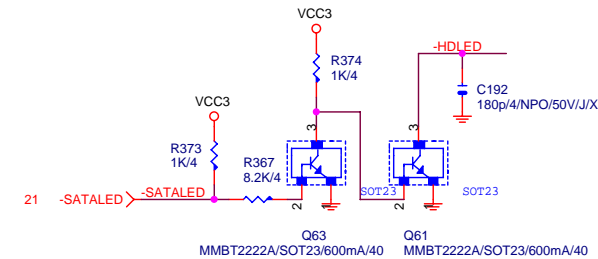
FRONT USB OC



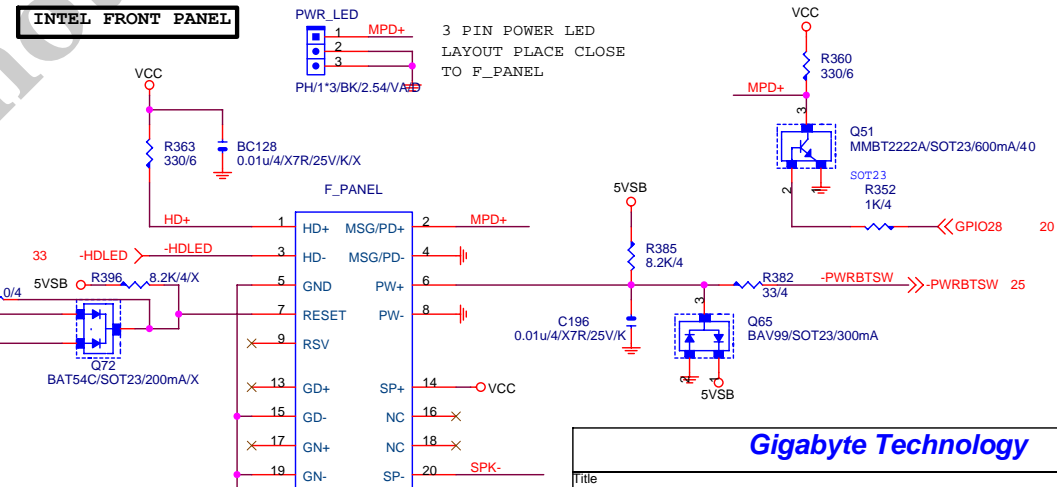
FLOPPY



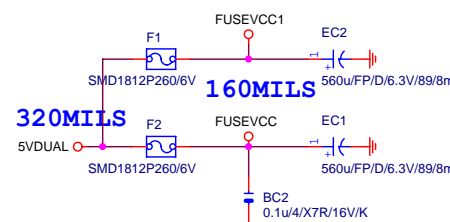
SATA LED



INTEL FRONT PANEL



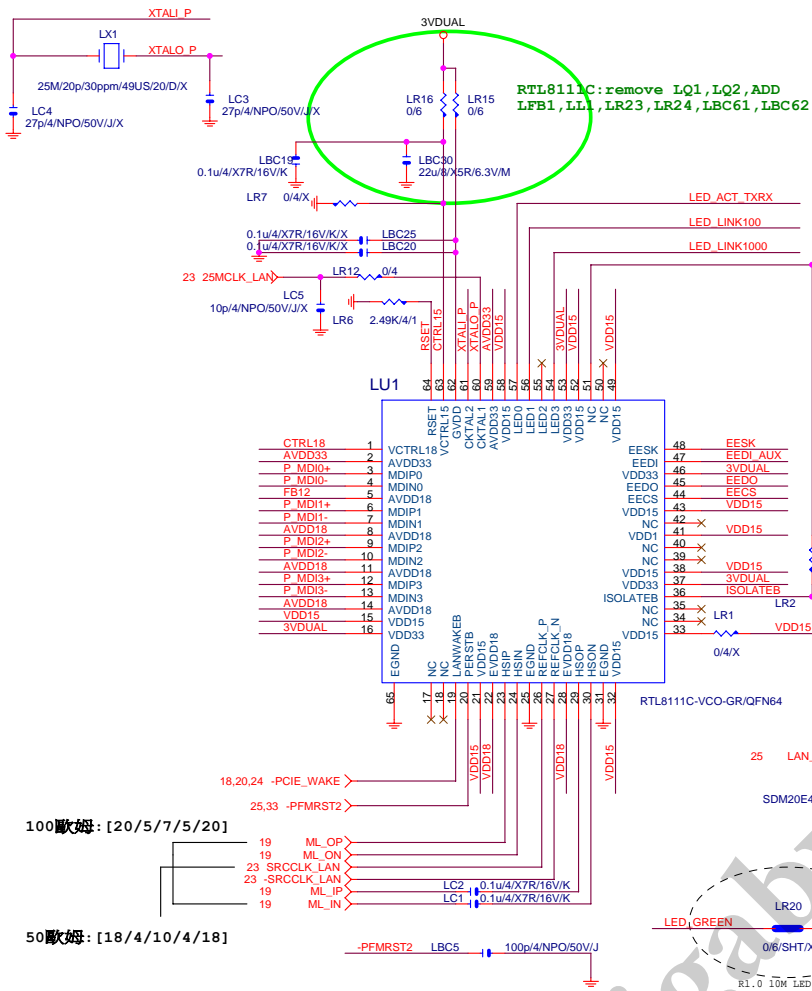
USB POWER



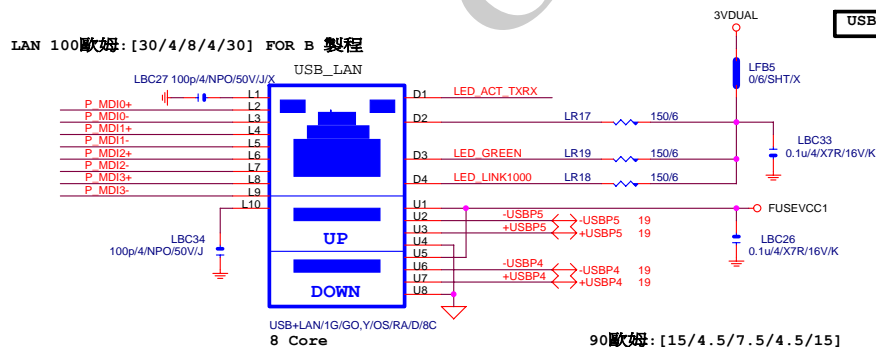
Gigabyte Technology

Gigabyte Technology			
FP,F_USB,USB PWR,FDD,BZ			
Size	Document Number	GA-EP45T-UD3LR	
Custom			Rev 1.01
Date:	Thursday, October 16, 2008	Sheet	34 of 36

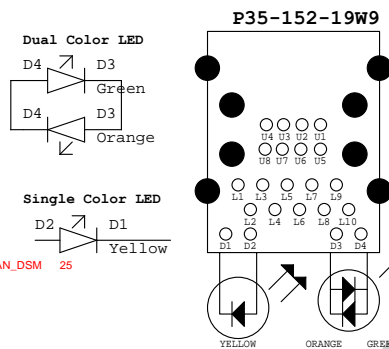
PCIE-1G LAN



USB_LAN CONNECTOR



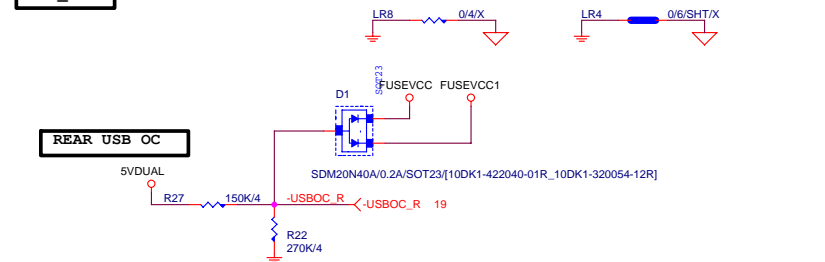
USB POWER



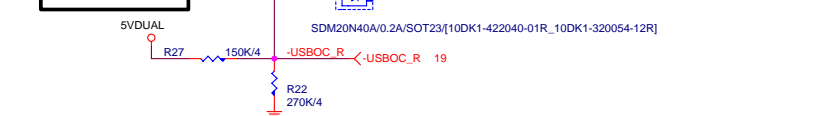
Power domain chart

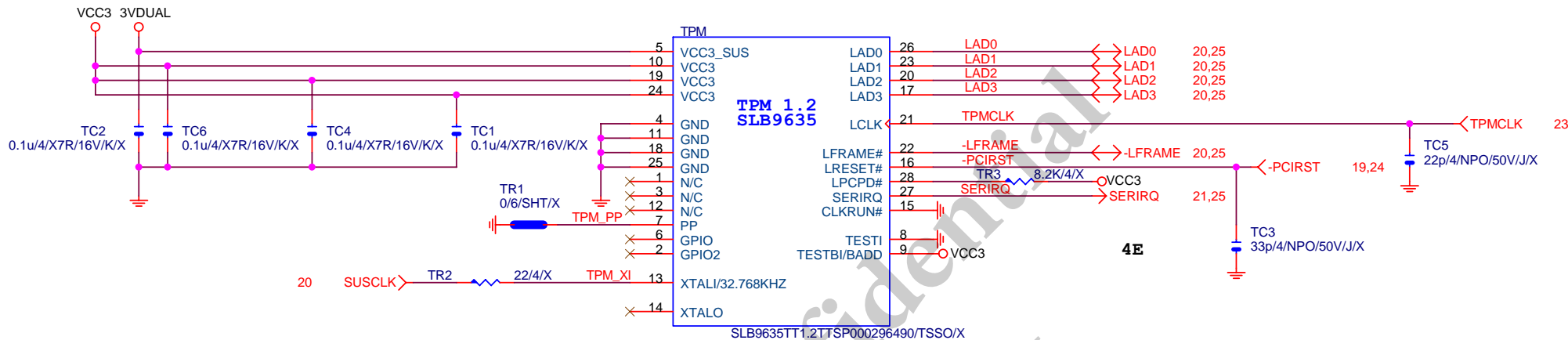
	RTL8111B / RTL8101E	RTL8111C	
AVDD33	3.3V	3.3V	
AVDD18	1.8V	1.2V	
EVDD18	1.8V	1.2V	
DVDD15	1.5V	1.2V	

USB_LAN



REAR USB OC





GIGABYTE THCHNOLOGIES			
Title		TPM I/F-SLB 9635 TT 1.2	
Size	Document Number	GA-EP45T-UD3LR	
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