Model Name: TG33MK-HP

Revision 1.1

SHEET	TITLE
01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	LGA775_A
05	LGA775_B
06	LGA775_C
07	LGA775_D
08	GMCH-HOST,PCIE,DMI
09	GMCH-DDRII
10	GMCH-VGA,MISC
11	GMCH-GND
12	GMCH-POWER
13	DDRII CHANNEL A
14	DDRII CHANNEL B
15	DDRII TERMINATION
16	PCIE SLOT X16,X1
17	ICH9-PCI,PCIE,USB,DMI
18	ICH9-HOST,HDA,LAN,RTC,SPI,LPC,SATA
19	ICH9-POWER,GND
20	CKG RTM875T-605
21	PCI SLOT
22	HW MONITOR,KB/MS,MECH HOLD
23	FRONT PANEL,BUZZER
24	FRONT USB
25	FAN CONTROL
26	DISCRETE POWER 1
27	DISCRETE POWER 2

SHEET	TITLE
28	SIO ITE8718F
29	COMA/B,FDD,LPT
30	JMB368 PATA CONTROLLER
31	PWM NCP5387MNR2G
32	LAN8111C/8101E
33	R_USB
34	ATX,SPI
35	HDA CODEC ALC883
36	HD AUDIO JACK
37	GPIO & RESET
38	
39	
40	
41	
42	

Example Fab Drawing Note

Trace Width (mils)	Differential Spacing (mils)	Impedance	Tolerance
4	NA	50 ohm, single-ended	15%
6.5	NA	40 ohm, single-ended	15%
7.5	NA	37 ohm, single-ended	15%
9.5	NA	32 ohm, single-ended	15%
4	8	95 ohm, differential	20%, reference only
4.5	7.5	90 ohm, differential	20%, reference only

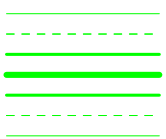
BEARLAKE Impedance Requirements by Interface

Interface	Impedance Required
FSB(ALL)	42 ohm, single-ended
DDR (DQ,DQS,DM,CLK,CLK#)	40 ohm, single-ended
DDR(Control)	37 ohm, single-ended
DDR(Command)	32 ohm, single-ended
PCIE & DMI	95 ohm, differential
VGA	37 ohm, single-ended at (G)MCH breakout, then 50 ohm single-ended to VGA connector.

ICH9 Impedance Requirements by Interface

Interface	Impedance Required
PCI	50 ohm, single-ended
Miscellaneous	50 ohm, single-ended
PCIE & DMI	95 ohm, differential
SATA	95 ohm, differential
USB	90 ohm, differential

4-layer stack-up total thickness=62mils



SIGNAL LAYER	1.9 MILS (Final thickness after plating)
PREPREG 1080HR	2.7 MILS
VCC Layer	1.2 MILS (1 OZ COPPER)
CORE	50 MILS +8/-5 mils
GND Layer	1.2 MILS (1 OZ COPPER)
PREPREG 1080HR	2.7 MILS
SIGNAL LAYER	1.9 MILS (Final thickness after plating)

GIGABYTE TEHCHNOLOGIES , INC.

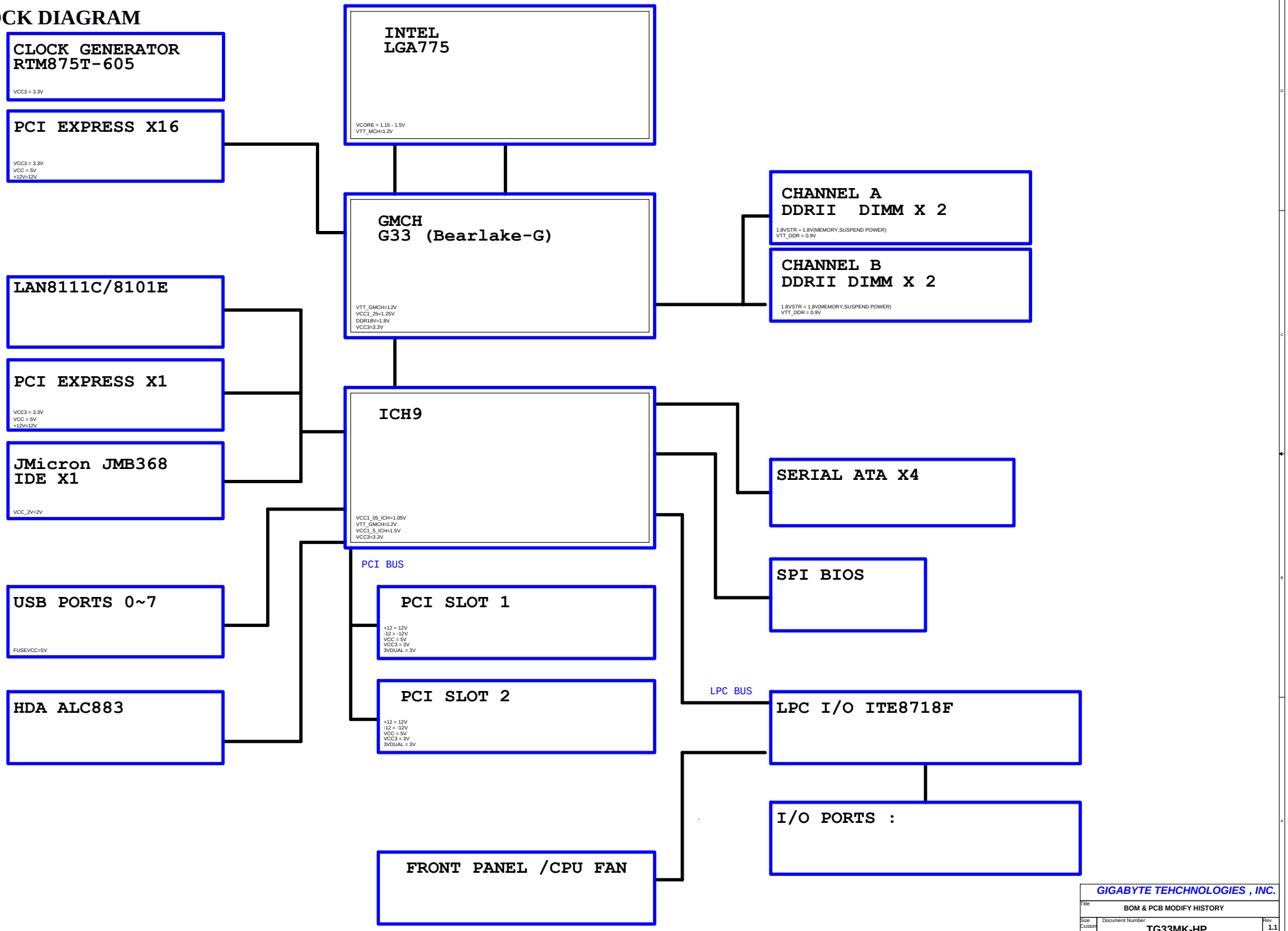
GIGABYTE

Title: Cover Sheet

Size: C | Document Number: TG33MK-HP | Rev: 1.1

Date: Wednesday, February 13, 2008 | Sheet 1 of 37

BLOCK DIAGRAM



GIGABYTE TEHCHNOLOGIES , INC.

Title	BOM & PCB MODIFY HISTORY	
Size: Custom	Document Number: TG33MK-HP	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 2 of 37	

Model Name: TG33MK-HP

Version:1.1

Component value change history

Data	Change Item	Reason
10/9	Modify SATA 4 & 5 sata connector for USB net	
11/15	Modify SATA 01,45 for ICH 9 base	
11/15	Modify FDD料號K3 & K5 pin	
12/12	Add CD_IN P/N	
1/10	remove Q1,Q25,R2,C36	modify S3 issue
2/1(11C BOM)	Add LBC48 100p/4 and C957 1000p/4	For EMI solution

Circuit or PCB layout change for next version

DATE	Change Item	Reason
12/12	Add C960 0.1u/4 for EMI solution	
12/13	Add Cap 0 1n/4 +12V to A-GND for EMI solution	
1/10	R264 short pad cut	

GIGABYTE TEHCHNOLOGIES , INC.

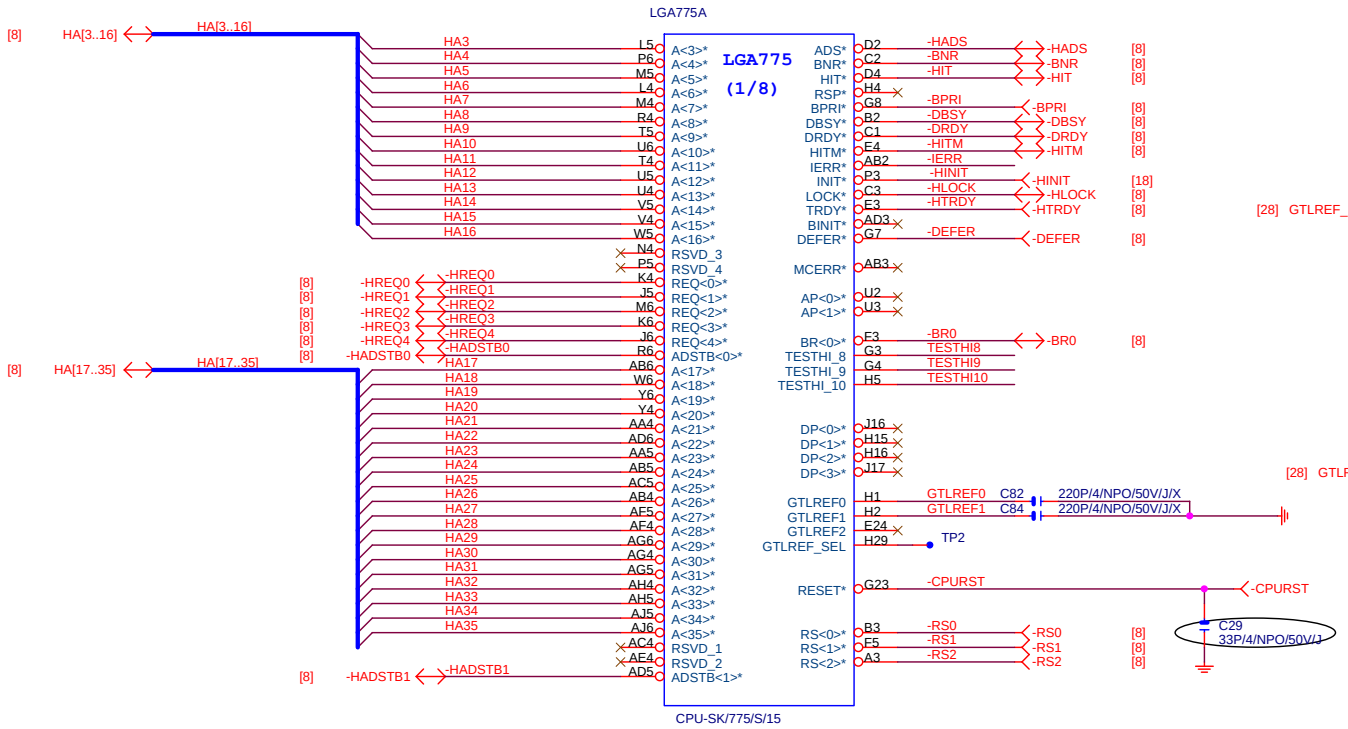
Title: BOM & PCB MODIFY HISTORY

Size: C | Document Number: TG33MK-HP | Rev: 1.1

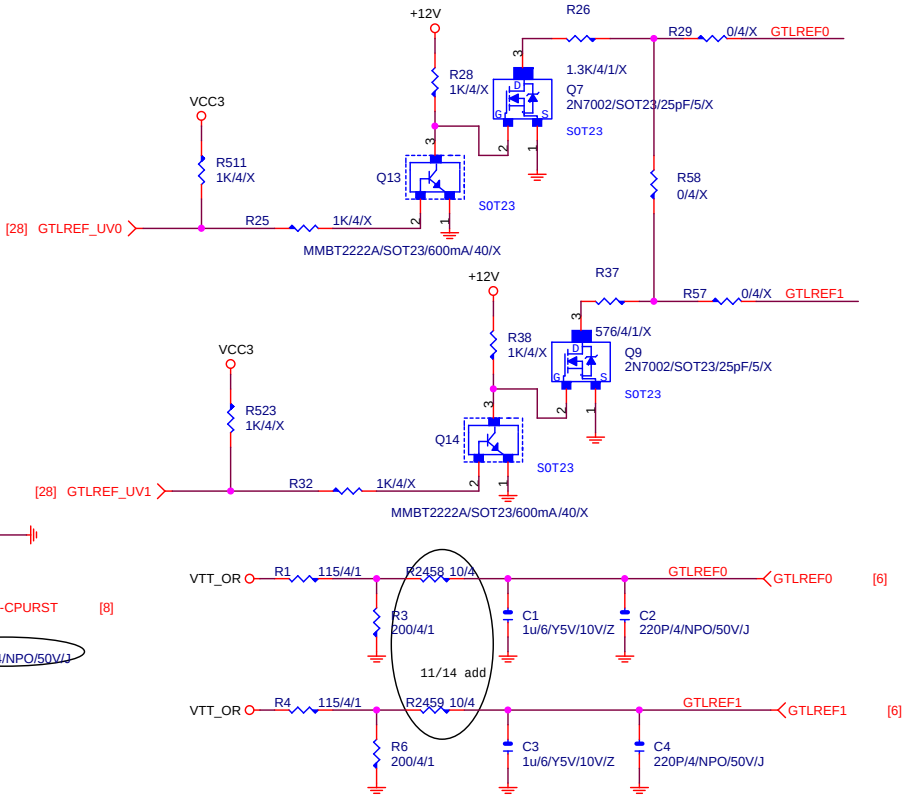
Date: Wednesday, February 13, 2008 | Sheet 3 of 37

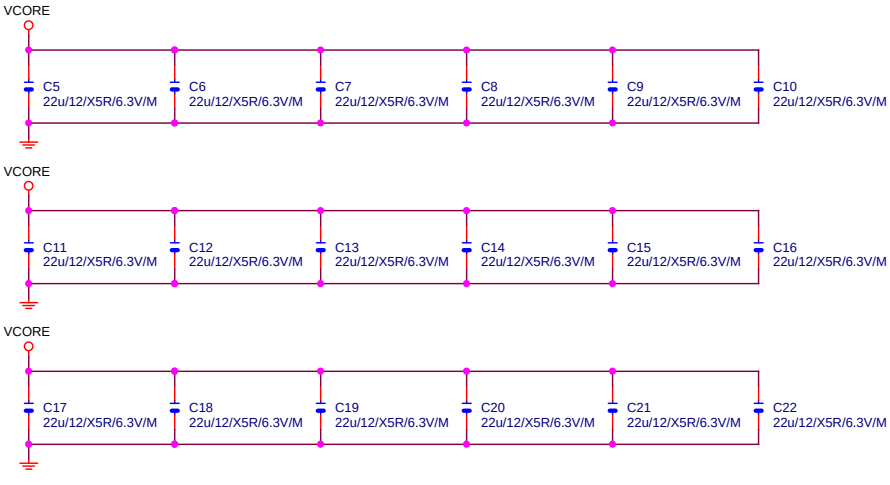
LGA775-D:FOOTPRINT

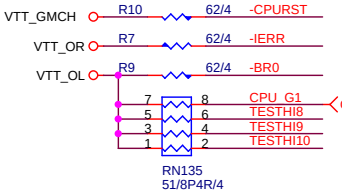
LGA775A



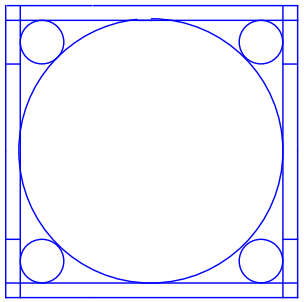
CPU GTLREF FOR 45nm CPU







CPU_RM
CPU RETAINTION/X

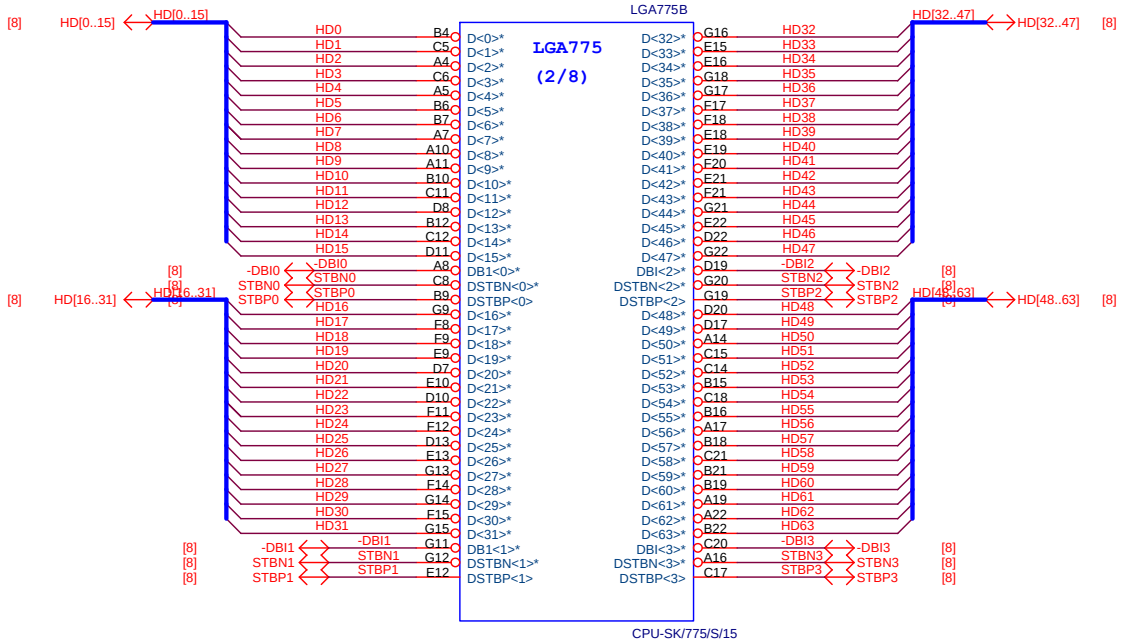


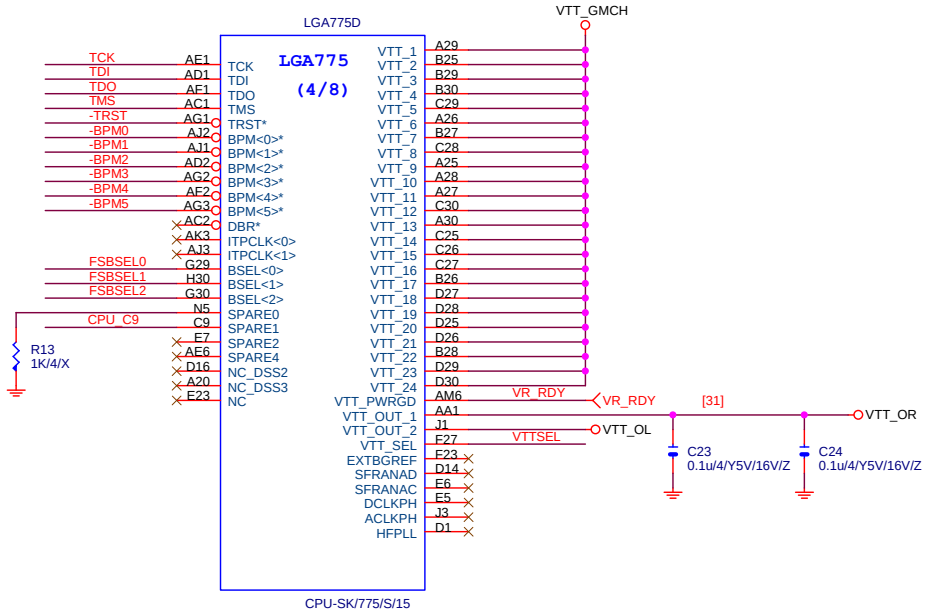
CPU GTLREF RATIO

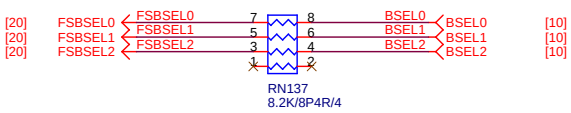
GTLREF_UV0	GTLREF_UV1	Ratio Set
HIGH	HIGH	0.67
LOW	HIGH	0.65
HIGH	LOW	0.63
LOW	LOW	0.615

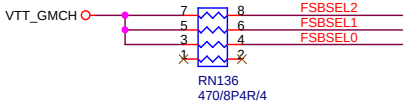
GIGABYTE TEHCHNOLOGIES , INC.

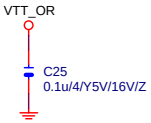
Title	P4_LGA775-A	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 4 of 37	

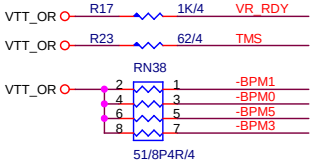


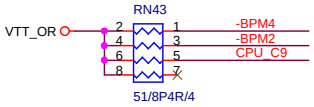


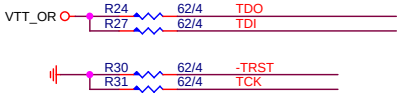






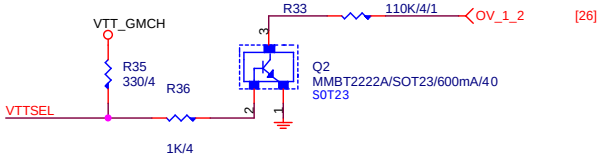






VTTSEL CIRCUIT

	VTT_GMCH
VTTSEL=0	1.2V
VTTSEL=1	1.1V



FSA	FSB	FSC	
FSBSEL0	FSBSEL1	FSBSEL2	Clock
1	0	1	100MHz
1	0	0	133MHz (4)
1	1	0	166MHz
0	1	0	200MHz 3.33/4(2.5/3)
0	0	0	266MHz 2.5/3(2/3.33/4)
0	0	1	333MHz 2/2.4(3/4)

GIGABYTE TEHCHNOLOGIES , INC.

Title	P4_LGA775-C	
Size B	Document Number TG33MK-HP	Rev 1.1
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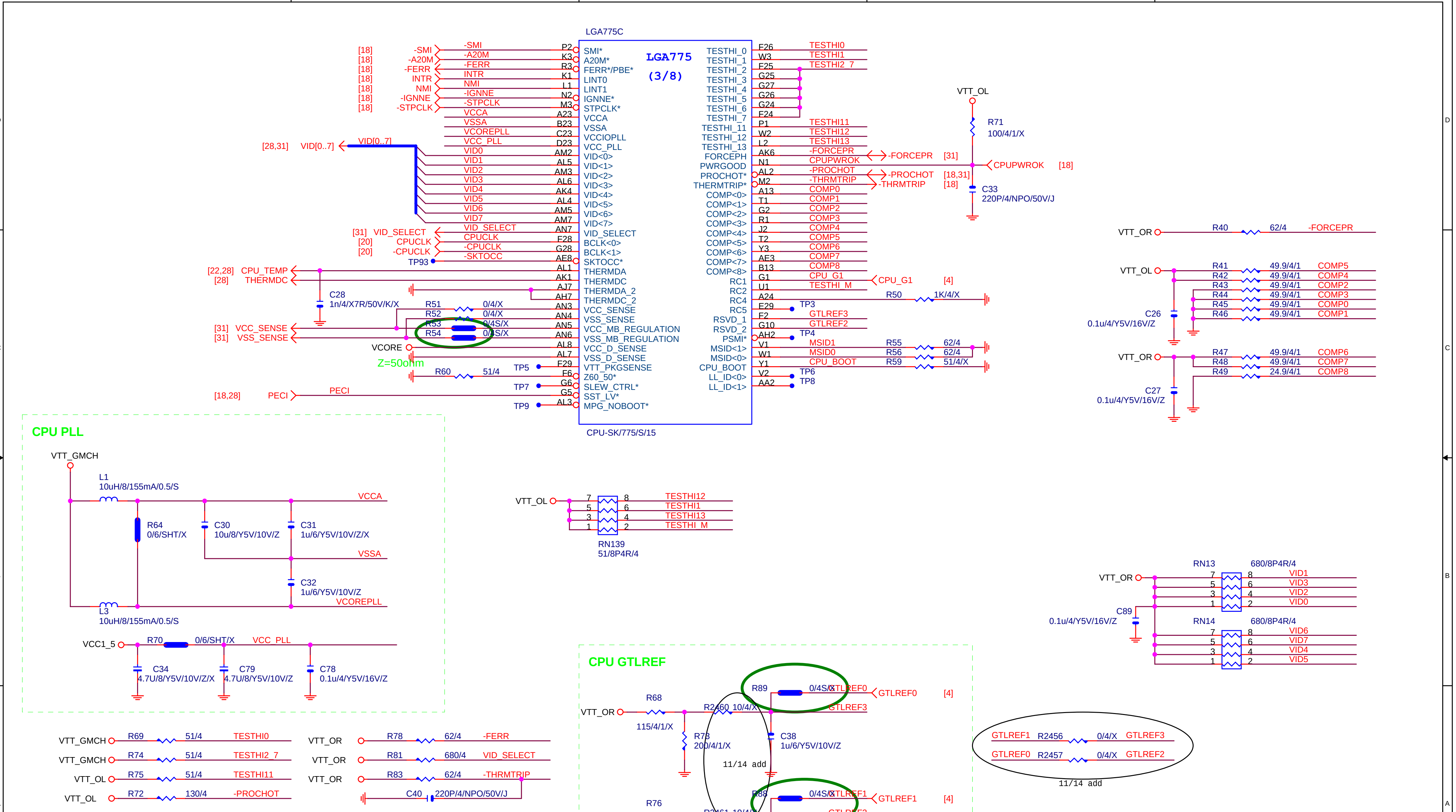

LGA775C
LGA775
(3/8)
CPU-SK/775/S/15
SMI*
A20M*
FERR*/PBE*
LINT0
LINT1
IGNNE*
STPCLK*
VCCA
VSSA
VCCIOPLL
VCC_PLL
VID<0>
VID<1>
VID<2>
VID<3>
VID<4>
VID<5>
VID<6>
VID<7>
VID_SELECT
BCLK<0>
BCLK<1>
SKTOCC*
THERMDA
THERMDC
THERMDA_2
THERMDC_2
VCC_SENSE
VSS_SENSE
VCC_MB_REGULATION
VSS_MB_REGULATION
VCC_D_SENSE
VSS_D_SENSE
VTT_PKGSENSE
Z60_50*
SLEW_CTRL*
SST_LV*
MPG_NOBOOT*
TESTHI_0
TESTHI_1
TESTHI_2
TESTHI_3
TESTHI_4
TESTHI_5
TESTHI_6
TESTHI_7
TESTHI_11
TESTHI_12
TESTHI_13
FORCEPH
PWRGOOD
PROCHOT*
THERMTRIP*
COMP<0>
COMP<1>
COMP<2>
COMP<3>
COMP<4>
COMP<5>
COMP<6>
COMP<7>
COMP<8>
RC1
RC2
RC4
RC5
RSVD_1
RSVD_2
PSMI*
MSID<1>
MSID<0>
CPU_BOOT
LL_ID<0>
LL_ID<1>
[18] -SMI
[18] -A20M
[18] -FERR
[18] INTR
[18] NMI
[18] -IGNNE
[18] -STPCLK
[28,31] VID[0..7]
[31] VID_SELECT
[20] CPUCLK
[20] -CPUCLK
TP93
[22,28] CPU_TEMP
[28] THERMDC
C28
1n/4/X7R/50V/K/X
R51 0/4/X
R52 0/4/X
R53 0/4S/X
R54 0/4S/X
[31] VCC_SENSE
[31] VSS_SENSE
VCORE
Z=50ohm
R60 51/4
TP5
TP7
TP9
[18,28] PECI
TESTHI0
TESTHI1
TESTHI2_7
TESTHI11
TESTHI12
TESTHI13
-FORCEPR
CPUPWROK
-PROCHOT
-THRMTRIP
-FORCEPR [31]
-PROCHOT [18,31]
-THRMTRIP [18]
CPU_G1
CPU_G1 [4]
TESTHI_M
R50 1K/4/X
TP3
GTLREF3
GTLREF2
TP4
MSID1
MSID0
CPU_BOOT
R55 62/4
R56 62/4
R59 51/4/X
TP6
TP8
VTT_OL
R71
100/4/1/X
CPUPWROK [18]
C33
220P/4/NPO/50V/J
VTT_OR
R40 62/4 -FORCEPR
VTT_OL
R41 49.9/4/1 COMP5
R42 49.9/4/1 COMP4
R43 49.9/4/1 COMP2
R44 49.9/4/1 COMP3
R45 49.9/4/1 COMP0
R46 49.9/4/1 COMP1
C26
0.1u/4/Y5V/16V/Z
VTT_OR
R47 49.9/4/1 COMP6
R48 49.9/4/1 COMP7
R49 24.9/4/1 COMP8
C27
0.1u/4/Y5V/16V/Z
CPU PLL
VTT_GMCH
L1
10uH/8/155mA/0.5/S
VCCA
R64
0/6/SHT/X
C30
10u/8/Y5V/10V/Z
C31
1u/6/Y5V/10V/Z/X
VSSA
C32
1u/6/Y5V/10V/Z
VCOREPLL
L3
10uH/8/155mA/0.5/S
VCC1_5
R70 0/6/SHT/X VCC_PLL
C34
4.7U/8/Y5V/10V/Z/X
C79
4.7U/8/Y5V/10V/Z
C78
0.1u/4/Y5V/16V/Z
VTT_OL
RN139
51/8P4R/4
TESTHI12
TESTHI1
TESTHI13
TESTHI_M
RN13 680/8P4R/4
VTT_OR
VID1
VID3
VID2
VID0
C89
0.1u/4/Y5V/16V/Z
RN14 680/8P4R/4
VID6
VID7
VID4
VID5
VTT_GMCH R69 51/4 TESTHI0
VTT_GMCH R74 51/4 TESTHI2_7
VTT_OL R75 51/4 TESTHI11
VTT_OL R72 130/4 -PROCHOT
VTT_OR R78 62/4 -FERR
VTT_OR R81 680/4 VID_SELECT
VTT_OR R83 62/4 -THRMTRIP
C40 220P/4/NPO/50V/J
CPU GTLREF
VTT_OR
R68
115/4/1/X
R2460 10/4/X
R73
200/4/1/X
R89 0/4S/X GTLREF0
GTLREF0 [4]
GTLREF3
C38
1u/6/Y5V/10V/Z
11/14 add
VTT_OR
R76
115/4/1/X
R2461 10/4/X
R80
200/4/1/X
R88 0/4S/X GTLREF1
GTLREF1 [4]
GTLREF2
C39
1u/6/Y5V/10V/Z
GTLREF1 R2456 0/4/X GTLREF3
GTLREF0 R2457 0/4/X GTLREF2
11/14 add

GIGABYTE TEHCHNOLOGIES , INC.

Title	P4_LGA775-B		
Size B	Document Number	TG33MK-HP	Rev 1.1
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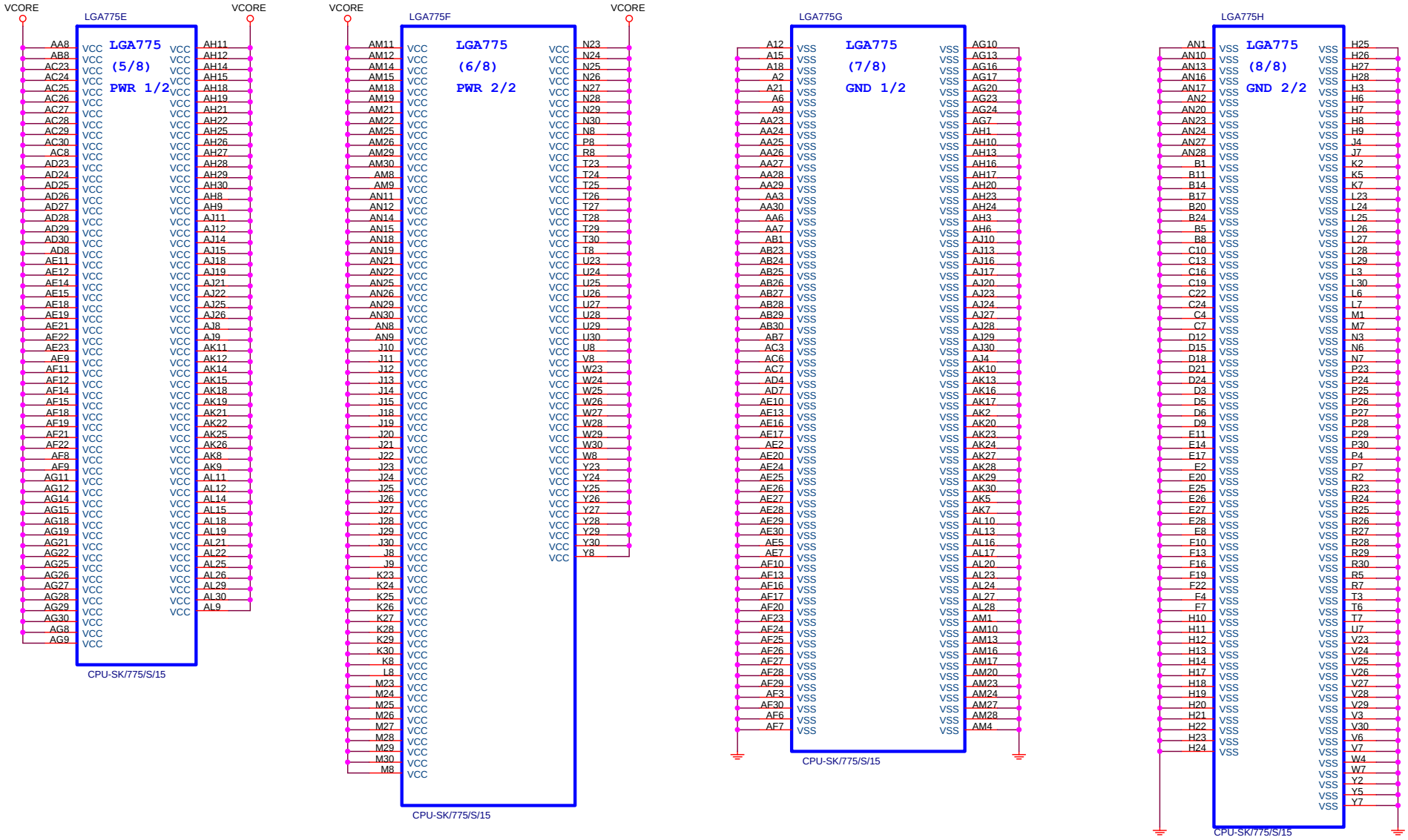
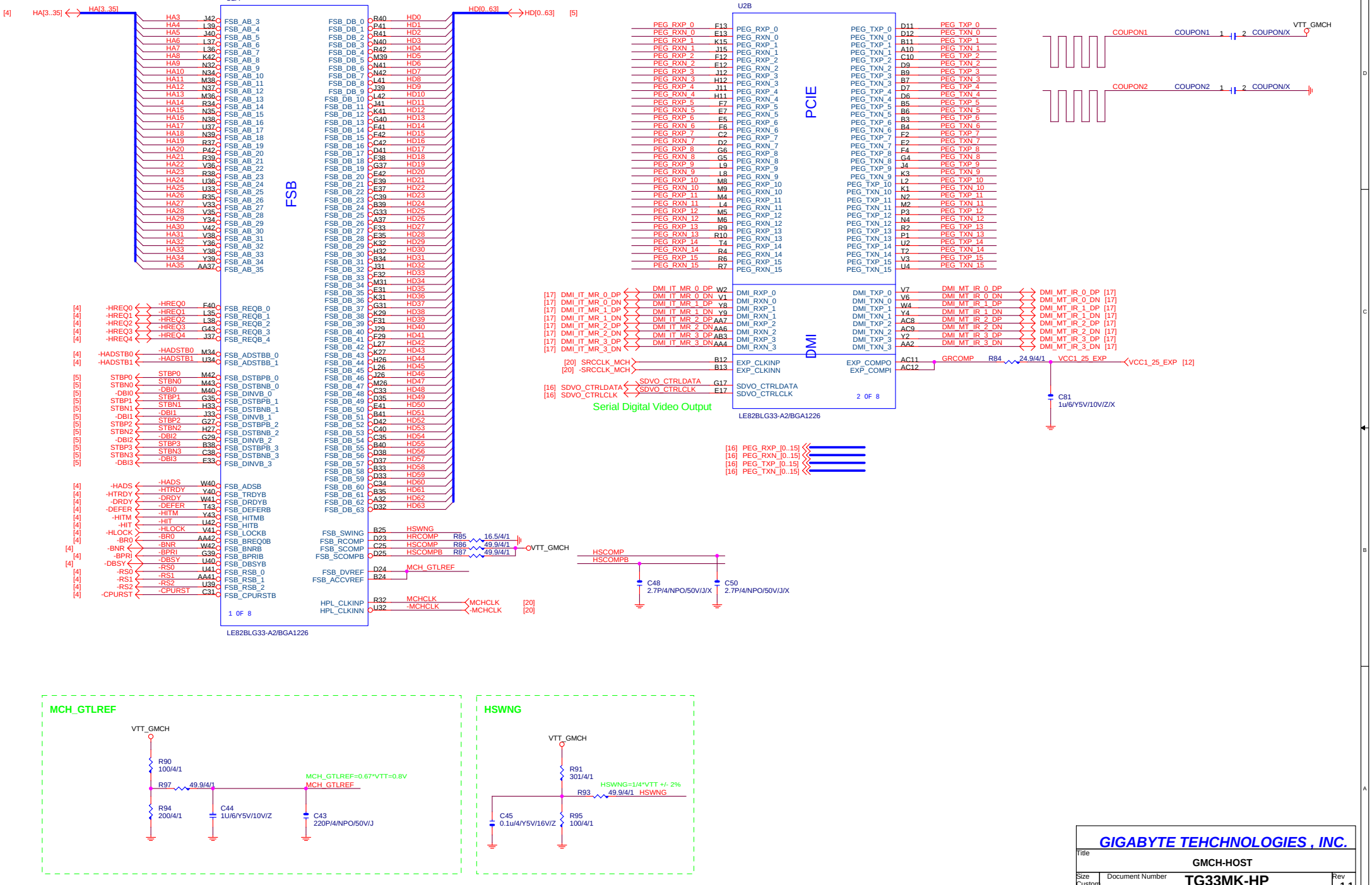


GIGABYTE TEHCHNOLOGIES , INC.

Title	P4_LGA775-D	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 7 of 37	



Company	GIGABYTE TEHCHNOLOGIES , INC.
Title	GMCH-HOST
Size	Custom
Document Number	TG33MK-HP
Rev	1.1
Date	Wednesday, February 13, 2008
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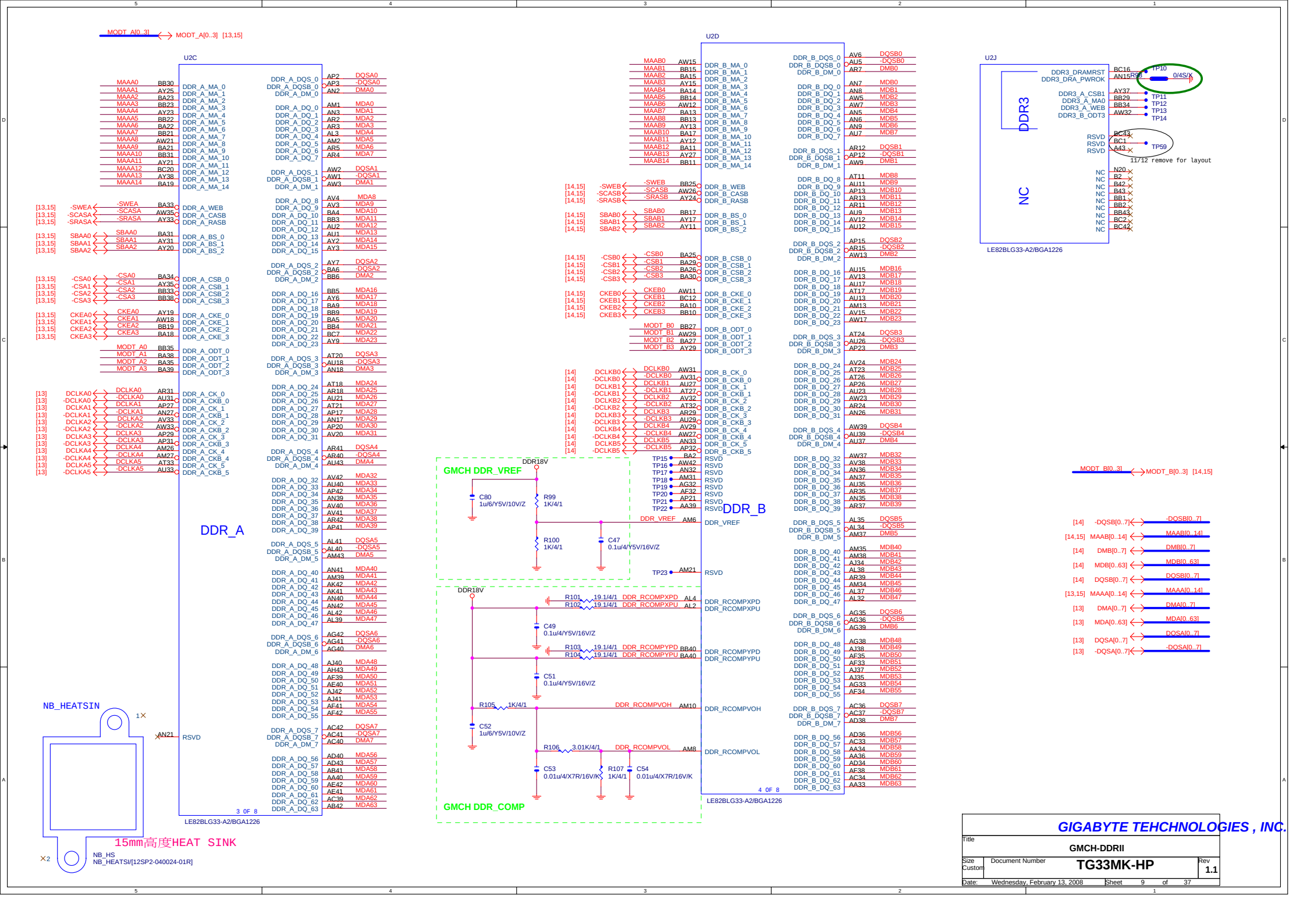
MODT_A[0..3]
MODT_A[0..3] [13,15]
U2C
DDR_A
3 OF 8
LE82BLG33-A2/BGA1226
U2D
DDR_B
4 OF 8
LE82BLG33-A2/BGA1226
GMCH DDR_VREF
DDR18V
C80 1u/6/Y5V/10V/Z
R99 1K/4/1
R100 1K/4/1
C47 0.1u/4/Y5V/16V/Z
DDR_VREF
GMCH DDR_COMP
R101 19.1/4/1 DDR_RCOMPXPD
R102 19.1/4/1 DDR_RCOMPXPU
C49 0.1u/4/Y5V/16V/Z
R103 19.1/4/1 DDR_RCOMPYPD
R104 19.1/4/1 DDR_RCOMPYPU
C51 0.1u/4/Y5V/16V/Z
R105 1K/4/1
DDR_RCOMPVOH
C52 1u/6/Y5V/10V/Z
R106 3.01K/4/1
DDR_RCOMPVOL
C53 0.01u/4/X7R/16V/K
R107 1K/4/1
C54 0.01u/4/X7R/16V/K
U2J
DDR3
NC
DDR3_DRAMRST
DDR3_DRA_PWROK
DDR3_A_CSB1
DDR3_A_MA0
DDR3_A_WEB
DDR3_B_ODT3
TP10
0/4S/J
TP11
TP12
TP13
TP14
TP59
11/12 remove for layout
LE82BLG33-A2/BGA1226
MODT_B[0..3]
MODT_B[0..3] [14,15]
NB_HEATSIN
15mm高度HEAT SINK
NB_HS
NB_HEATSI/[12SP2-040024-01R]
GIGABYTE TEHCHNOLOGIES , INC.
Title
GMCH-DDRII
Size Custom
Document Number
TG33MK-HP
Rev 1.1
Date: Wednesday, February 13, 2008
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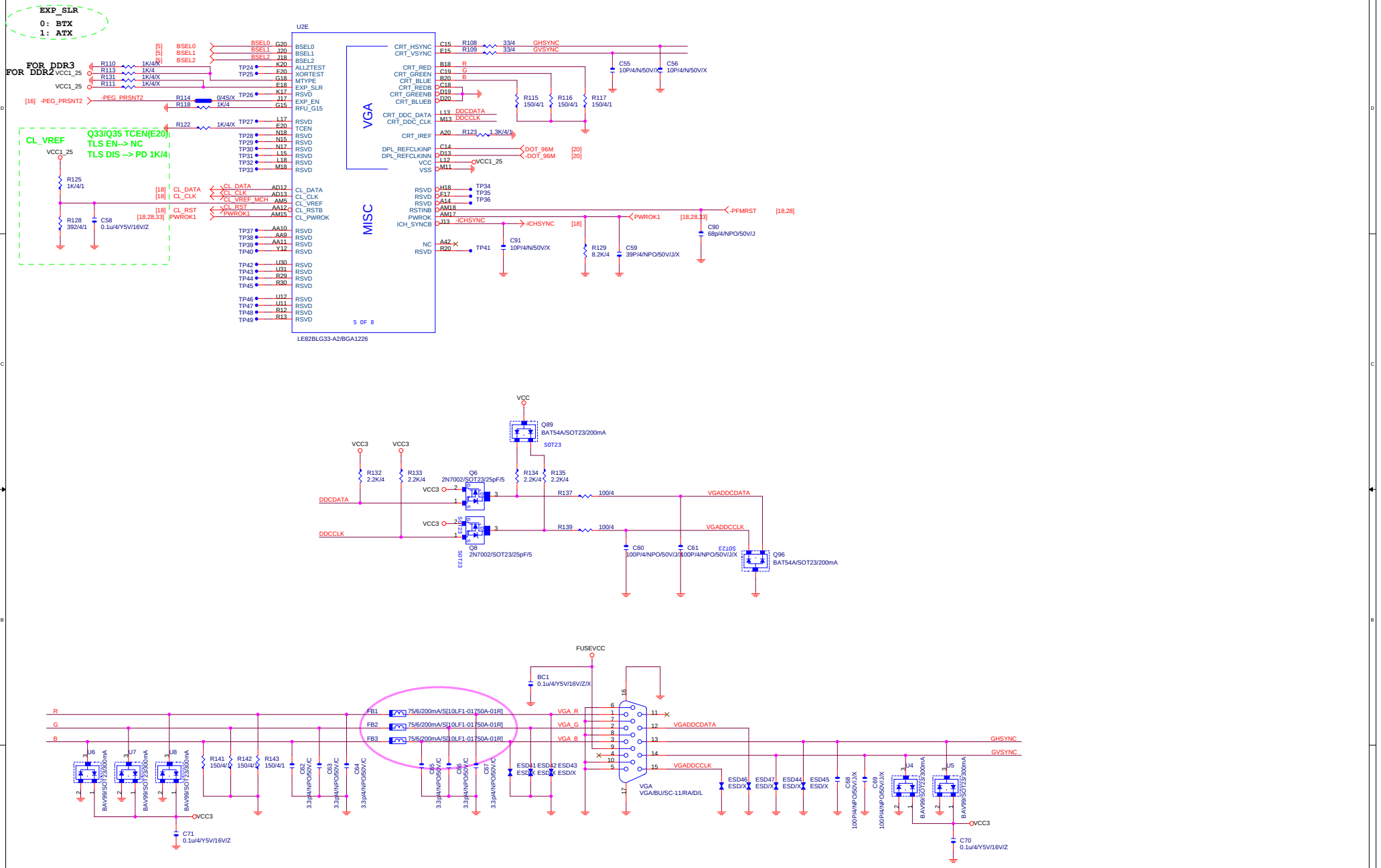
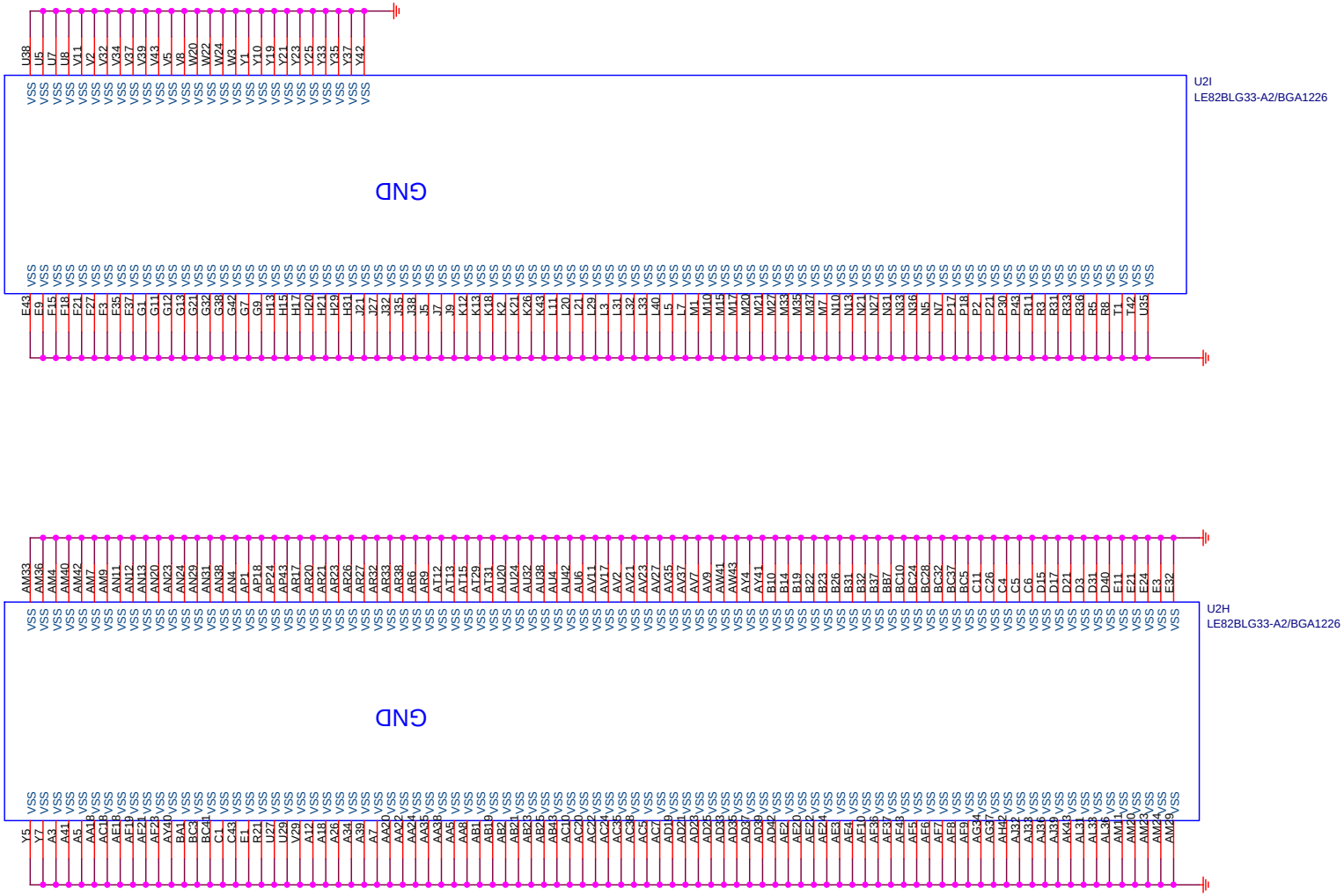
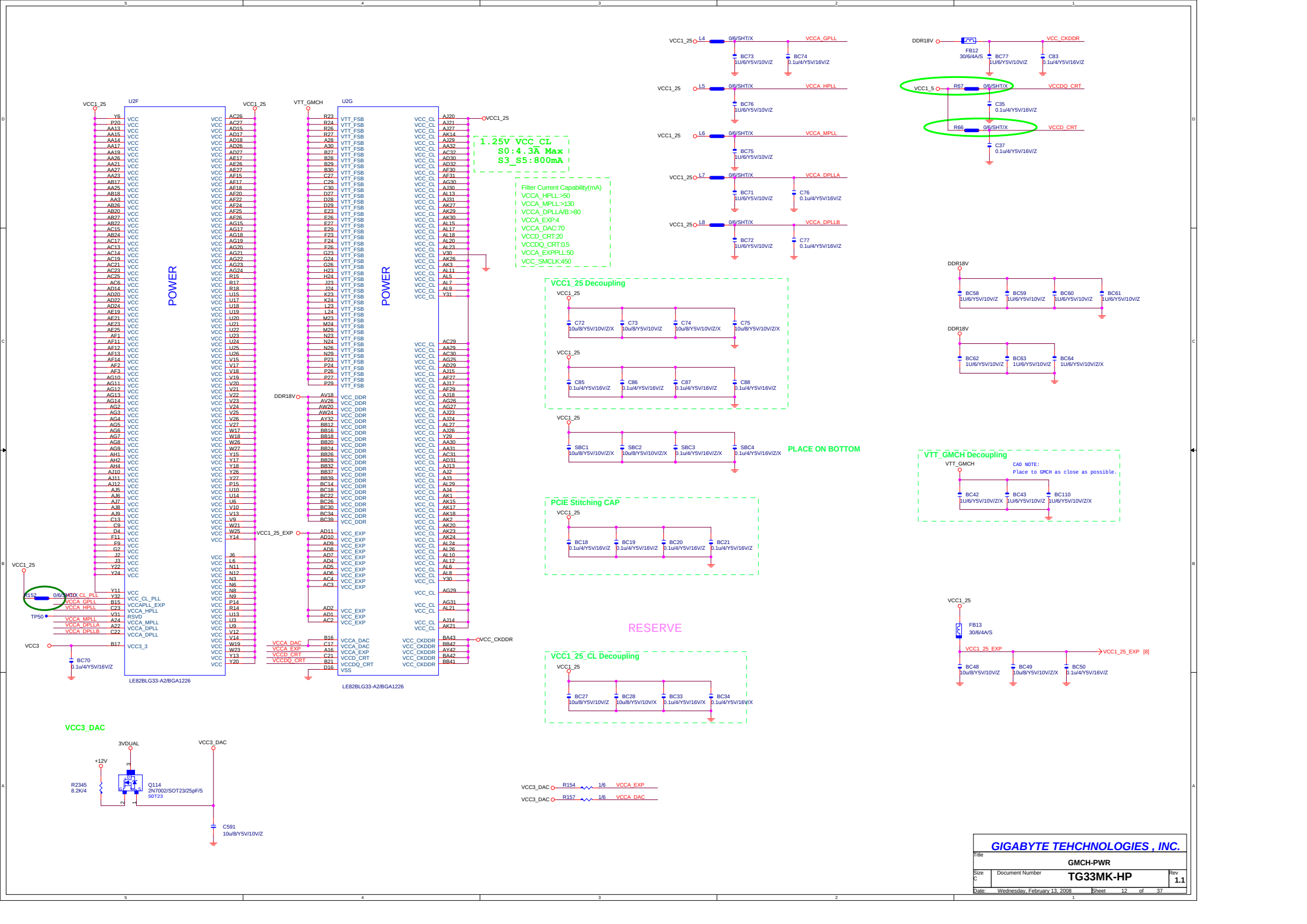


GIGABYTE TEHCHNOLOGIES , INC.		
Title	GMCH-INTERNAL VGA	
Size C	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 10 of 37	



GIGABYTE TEHCHNOLOGIES , INC.

Title	GMCH-GND	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 11 of 37	


U2F
POWER
LE82BLG33-A2/BGA1226
U2G
POWER
LE82BLG33-A2/BGA1226
1.25V VCC_CL
S0:4.3A Max
S3_S5:800mA
Filter Current Capability(mA)
VCCA_HPLL:>50
VCCA_MPLL:>130
VCCA_DPLLA/B:>80
VCCA_EXP:4
VCCA_DAC:70
VCCDQ_CRT:20
VCCDQ_CRT:0.5
VCCA_EXPPLL:50
VCC_SMCLK:450
VCC1_25 Decoupling
VCC1_25_CL Decoupling
PCIE Stitching CAP
PLACE ON BOTTOM
RESERVE
VTT_GMCH Decoupling
CAD NOTE:
Place to GMCH as close as possible.
VCC3_DAC
Q114
2N7002/SOT23/25pF/5
SOT23
GIGABYTE TEHCHNOLOGIES , INC.
GMCH-PWR
TG33MK-HP
1.1
Wednesday, February 13, 2008
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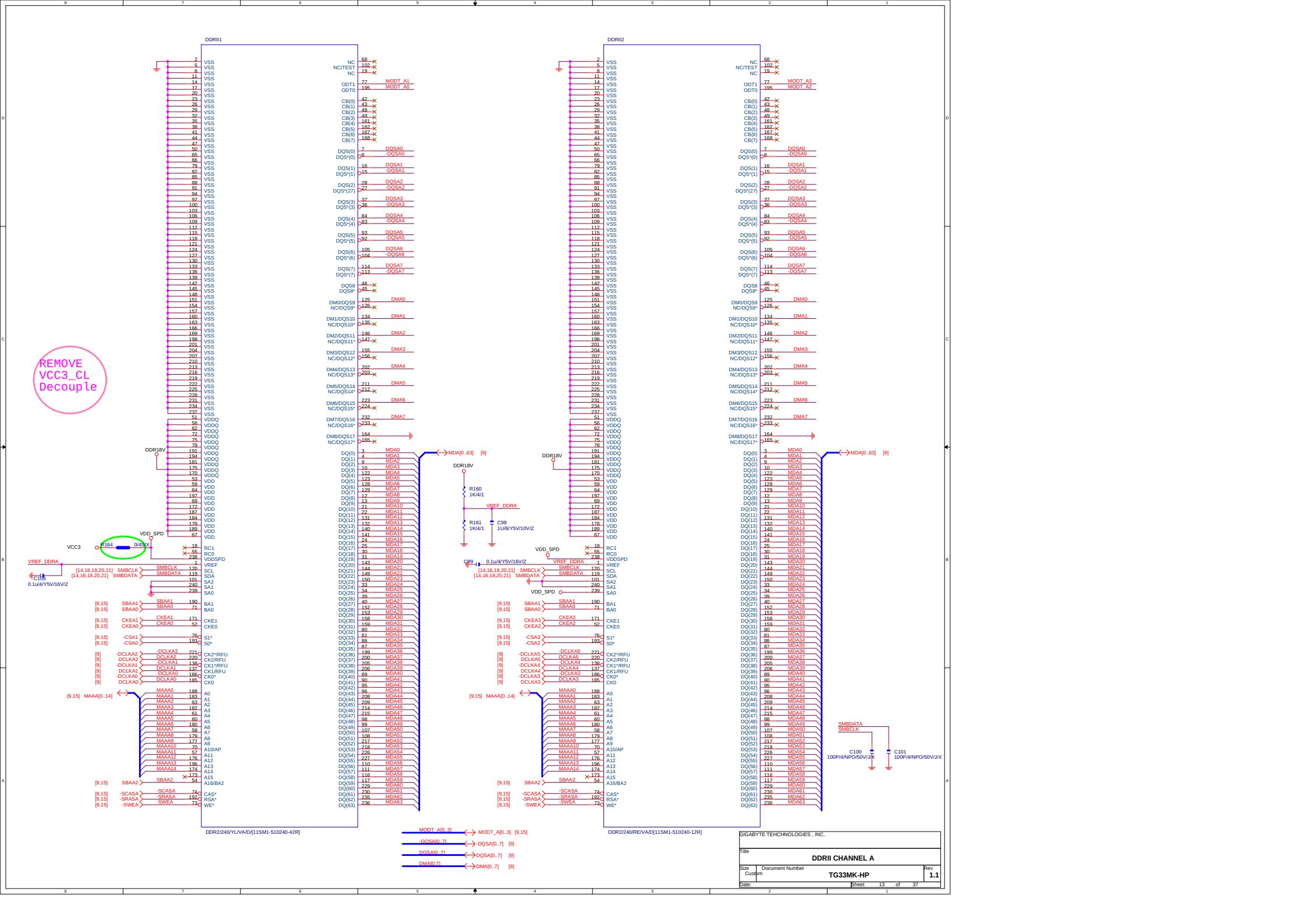
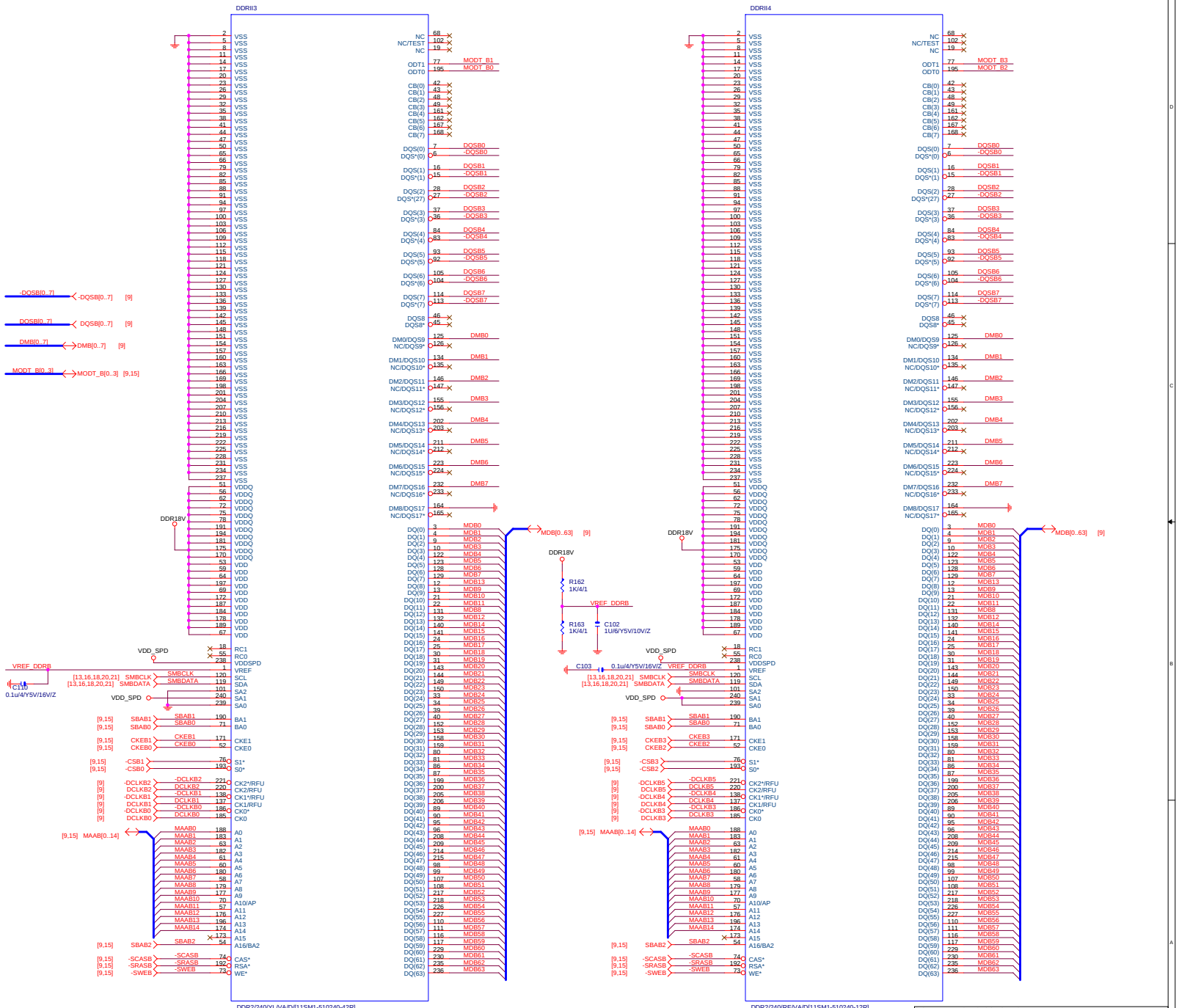

DDRII1
DDRII2
REMOVE
VCC3_CL
Decouple
DDR18V
VDD_SPD
VCC3
VREF_DDRA
SMBCLK
SMBDATA
MDA[0..63]
MODT_A[0..3]
DQSA[0..7]
DMA[0..7]
DDR2/240/YL/VA/D/[11SM1-510240-42R]
DDR2/240/RE/VA/D[11SM1-510240-12R]
GIGABYTE TEHCHNOLOGIES , INC.
DDRII CHANNEL A
TG33MK-HP
1.1
Sheet 13 of 37



GIGABYTE TEHCHNOLOGIES , INC.

Title: **DDRII CHANNEL B**

Size	Document Number	Rev
Custom	TG33MK-HP	1.1

Date: | Sheet 14 of 37

DDR TERMINATION
CHANNEL A

DDRVTT
EC1 1000U/D/6.3V/8C/36m/X

DDRVTT
BC78 4.7U/8/Y5V/10V/Z
BC79 4.7U/8/Y5V/10V/Z
BC80 4.7U/8/Y5V/10V/Z
BC81 4.7U/8/Y5V/10V/Z

DDRVTT Decouple

DDRVTT DDR18V
C125 0.1u/4/Y5V/16V/Z
C126 0.1u/4/Y5V/16V/Z
C127 0.1u/4/Y5V/16V/Z
C130 0.1u/4/Y5V/16V/Z
C136 0.1u/4/Y5V/16V/Z
C137 0.1u/4/Y5V/16V/Z
C138 0.1u/4/Y5V/16V/Z
C128 0.1u/4/Y5V/16V/Z
C131 0.1u/4/Y5V/16V/Z
C132 0.1u/4/Y5V/16V/Z
C133 0.1u/4/Y5V/16V/Z
C134 0.1u/4/Y5V/16V/Z
C135 0.1u/4/Y5V/16V/Z

DDRVTT

MAAA13	7	8		
-CSA3	5	6		
MODT_A1	3	4	URN1	
MODT_A3	1	2	33/8P4R/4	
MAAA14	7	8		
SBAA2	5	6		
MAAA12	3	4	URN2	
MAAA11	1	2	33/8P4R/4	
MAAA6	7	8		
MAAA4	5	6		
MAAA3	3	4	URN3	
MAAA2	1	2	33/8P4R/4	
MAAA0	7	8		
SBAA1	5	6		
MAAA10	3	4	URN4	
SBAA0	1	2	33/8P4R/4	
CKEA3	7	8		
CKEA1	5	6		
CKEA0	3	4	URN5	
CKEA2	1	2	33/8P4R/4	
[9,13] -SRASA	7	8		
[9,13] -SWEA	5	6		
[9,13] -SCASA	3	4	URN6	
MODT_A2	1	2	33/8P4R/4	
MAAA9	7	8		
MAAA7	5	6		
MAAA8	3	4	URN7	
MAAA5	1	2	33/8P4R/4	
-CSA2	7	8		
-CSA0	5	6		
MODT_A0	3	4	URN8	
-CSA1	1	2	33/8P4R/4	
MAAA1	R228	33/4		

DDR18V Decoupling

DDR18V
BC86 1U/6/Y5V/10V/Z
BC87 1U/6/Y5V/10V/Z
BC84 1U/6/Y5V/10V/Z
BC85 1U/6/Y5V/10V/Z

DDR18V
BC82 1U/6/Y5V/10V/Z
BC83 1U/6/Y5V/10V/Z
BC111 1U/6/Y5V/10V/Z
BC134 1U/6/Y5V/10V/Z

SBAA[0:2] SBAA[0:2] [9,13]
-CSA[0:3] -CSA[0:3] [9,13]
CKEA[0:3] CKEA[0:3] [9,13]
MAAA[0..14] MAAA[0..14] [9,13]
MODT_A[0..3] MODT_A[0..3] [9,13]

CHANNEL B

DDRVTT Decouple

DDRVTT DDR18V
C104 0.1u/4/Y5V/16V/Z
C105 0.1u/4/Y5V/16V/Z
C106 0.1u/4/Y5V/16V/Z
C107 0.1u/4/Y5V/16V/Z
C108 0.1u/4/Y5V/16V/Z
C111 0.1u/4/Y5V/16V/Z
C112 0.1u/4/Y5V/16V/Z
C116 0.1u/4/Y5V/16V/Z
C117 0.1u/4/Y5V/16V/Z
C118 0.1u/4/Y5V/16V/Z
C119 0.1u/4/Y5V/16V/Z
C120 0.1u/4/Y5V/16V/Z
C121 0.1u/4/Y5V/16V/Z

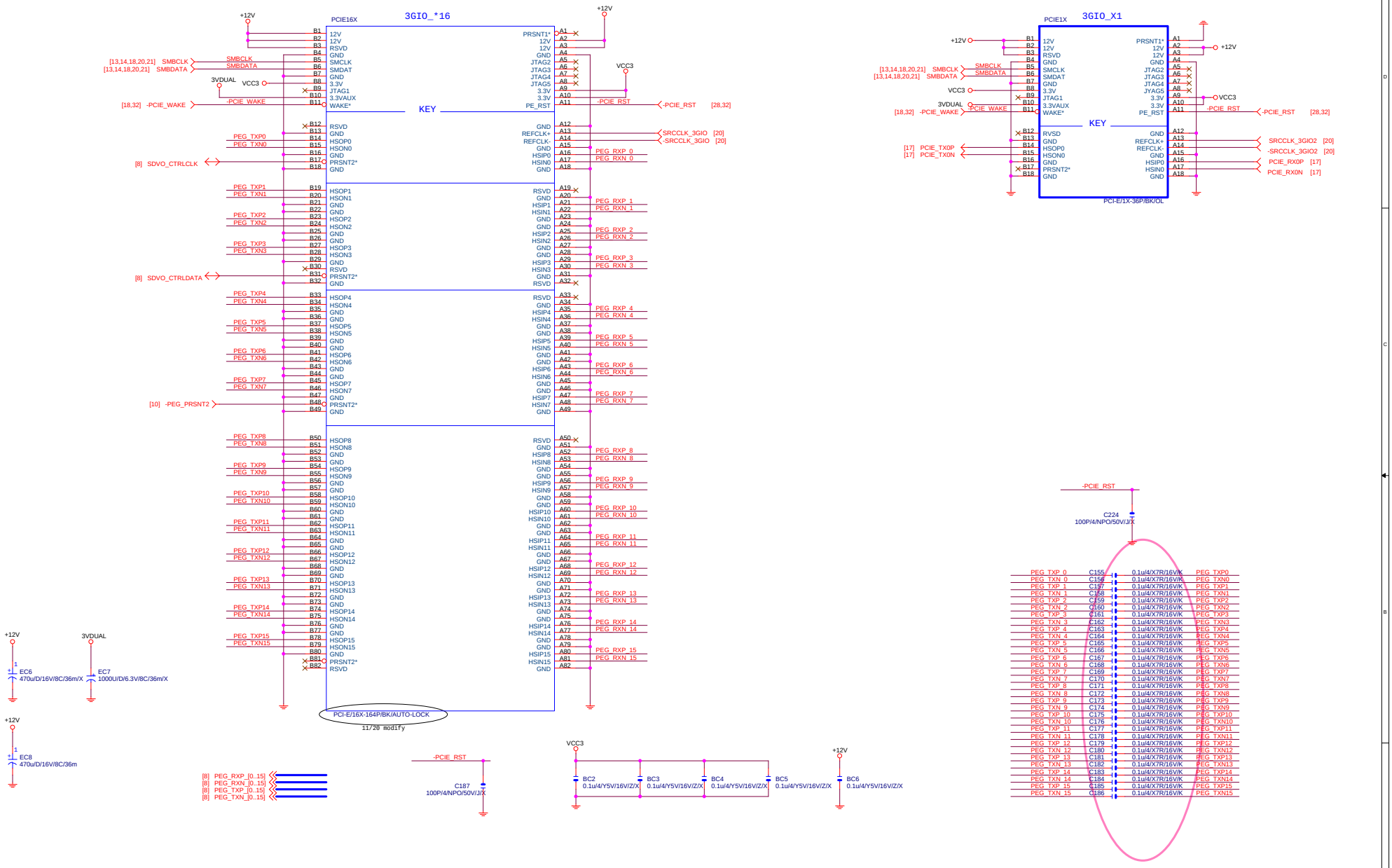
DDRVTT

MAAB7	7	8		
MAAB8	5	6		
MAAB6	3	4	URN15	
MAAB5	1	2	33/8P4R/4	
MAAB4	7	8		
MAAB3	5	6		
MAAB1	3	4	URN16	
MAAB2	1	2	33/8P4R/4	
MAAB12	7	8		
MAAB11	5	6		
CKEB1	3	4	URN9	
MAAB9	1	2	33/8P4R/4	
-CSB3	7	8		
MODT_B3	5	6		
MAAB13	3	4	URN10	
MODT_B1	1	2	33/8P4R/4	
MAAB0	7	8		
SBAB1	5	6		
MAAB10	3	4	URN11	
SBAB0	1	2	33/8P4R/4	
CKEB3	7	8		
CKEB0	5	6		
SBAB2	3	4	URN12	
MAAB14	1	2	33/8P4R/4	
[9,14] -SCASB	7	8		
MODT_B0	5	6		
MODT_B2	3	4	URN13	
-CSB1	1	2	33/8P4R/4	
[9,14] -SRASB	7	8		
-CSB0	5	6		
[9,14] -SWEB	3	4	URN14	
-CSB2	1	2	33/8P4R/4	
CKEB2	R229	33/4		

MODT_B[0..3] MODT_B[0..3] [9,14]
SBAB[0:2] SBAB[0:2] [9,14]
-CSB[0:3] -CSB[0:3] [9,14]
CKEB[0:3] CKEB[0:3] [9,14]
MAAB[0..14] MAAB[0..14] [9,14]

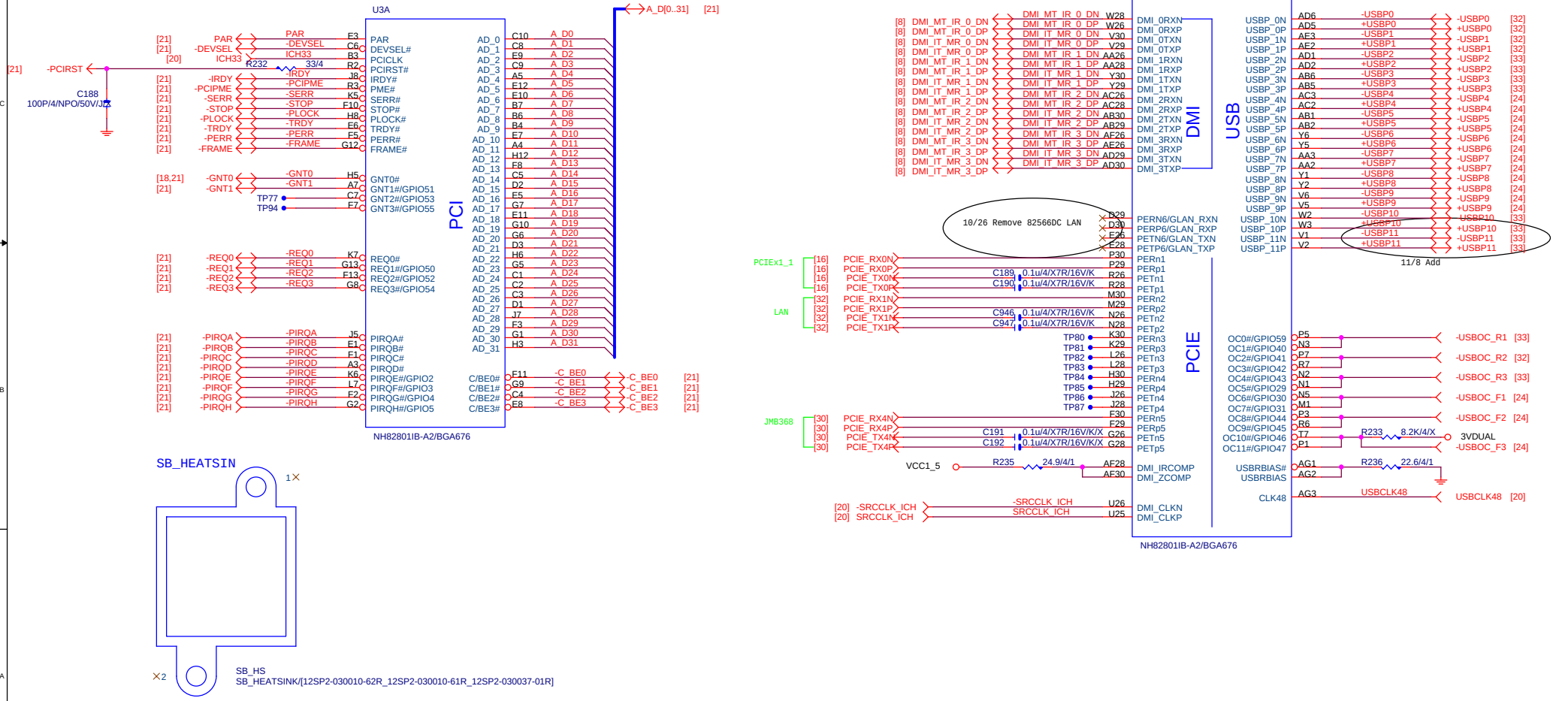
GIGABYTE TEHCHNOLOGIES , INC.

Title	DDRII TERMINATOR	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 15 of 37	

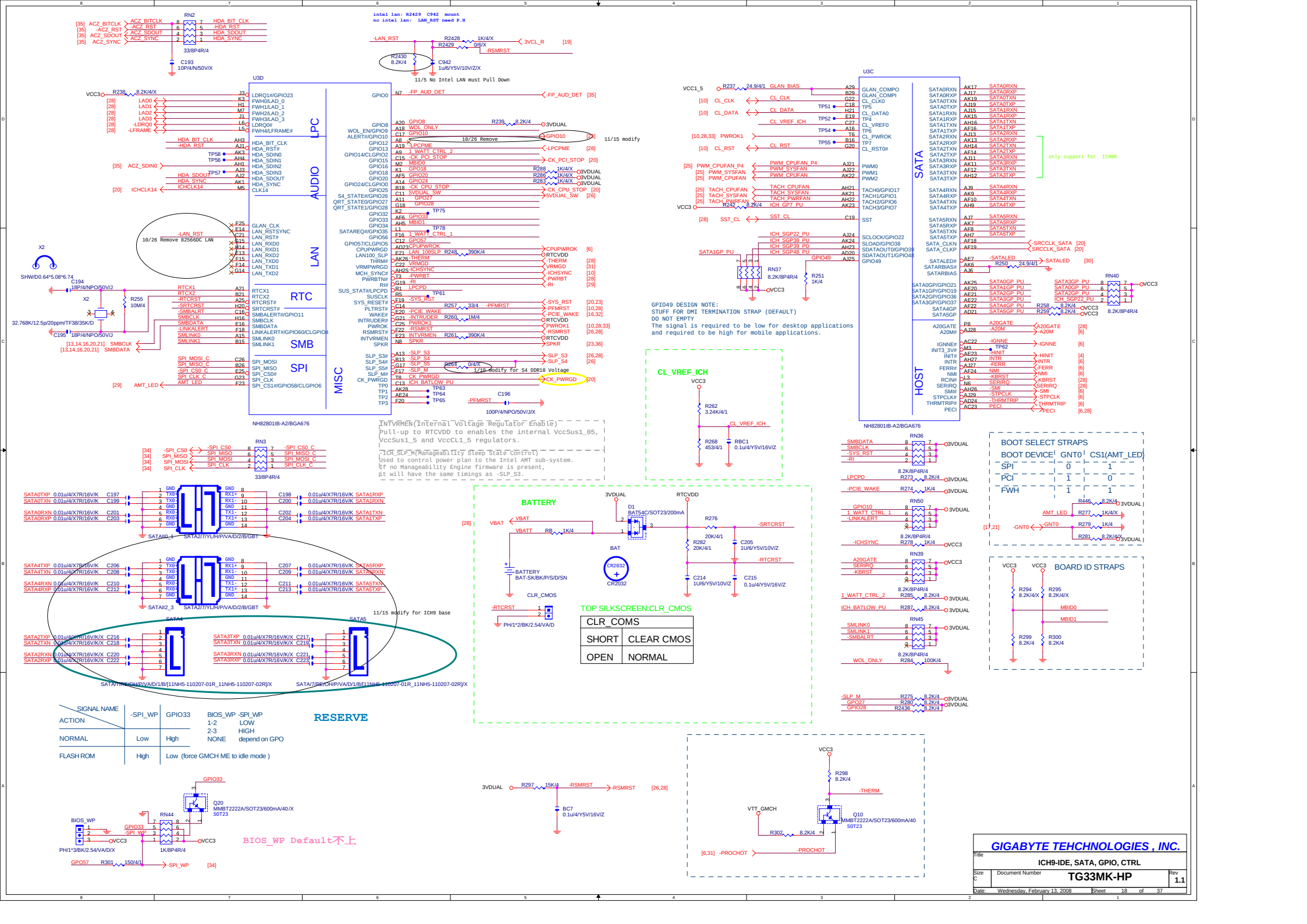


Title	PCI EXPRESS * 16_A
Size	C
Document Number	TG33MK-HP
Rev	1.1
Date:	Wednesday, February 13, 2008
Sheet	16 of 37

GIGABYTE TEHCHNOLOGIES , INC.



GIGABYTE TEHCHNOLOGIES , INC.			
Title	ICH9-PCI, DMI, LAN, USB		
Size B	Document Number TG33MK-HP		Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 17 of 37		


intel lan: R2429 C942 mount
no intel lan: LAN_RST need P.H
RN2
33/8P4R/4
C193
10P/4/N/50V/X
U3D
LPC
AUDIO
LAN
RTC
SMB
SPI
MISC
NH82801IB-A2/BGA676
11/5 No Intel LAN must Pull Down
10/26 Remove 82566DC LAN
11/15 modify
X2
SHW/D0.64*5.08*6.74
32.768K/12.5p/20ppm/TF38/35K/D
C194
18P/4/NPO/50V/J
C195
18P/4/NPO/50V/J
R255
10M/4
INTVRMEN(Internal Voltage Regulator Enable)
Pull-up to RTCVDD to enables the internal VccSus1_05,
VccSus1_5 and VccCL1_5 regulators.
_ICH_SLP_M(Manageability Sleep State control)
Used to control power plan to the Intel AMT sub-system.
If no Manageability Engine firmware is present,
it will have the same timings as -SLP_S3.
CL_VREF_ICH
BATTERY
BAT-SK/BK/P/S/D/SN
CLR_CMOS
PH/1*2/BK/2.54/VA/D
TOP SILKSCREEN:CLR_CMOS
CLR_COMS
SHORT
CLEAR CMOS
OPEN
NORMAL
U3C
SATA
HOST
NH82801IB-A2/BGA676
only support for ICH9R
GPIO49 DESIGN NOTE:
STUFF FOR DMI TERMINATION STRAP (DEFAULT)
DO NOT EMPTY
The signal is required to be low for desktop applications
and required to be high for mobile applications.
BOOT SELECT STRAPS
BOOT DEVICE GNT0 CS1(AMT_LED)
SPI 0 1
PCI 1 0
FWH 1 1
BOARD ID STRAPS
SATA4
SATA5
SATAII0_1
SATAII2_3
SATA7/BE/OH/P/VA/D/1/B/[11NH5-110207-01R_11NH5-110207-02R]/X
SATA/7/BE/OH/P/VA/D/1/B/[11NH5-110207-01R_11NH5-110207-02R]/X
11/15 modify for ICH9 base
SIGNAL NAME
ACTION
-SPI_WP
GPIO33
NORMAL
Low
High
FLASH ROM
High
Low (force GMCH ME to idle mode)
BIOS_WP -SPI_WP
1-2 LOW
2-3 HIGH
NONE depend on GPO
RESERVE
BIOS_WP Default不上
Q20
MMBT2222A/SOT23/600mA/40/X
SOT23
Q10
MMBT2222A/SOT23/600mA/40
SOT23
GIGABYTE TEHCHNOLOGIES , INC.
Title
ICH9-IDE, SATA, GPIO, CTRL
Size C
Document Number
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Rev 1.1
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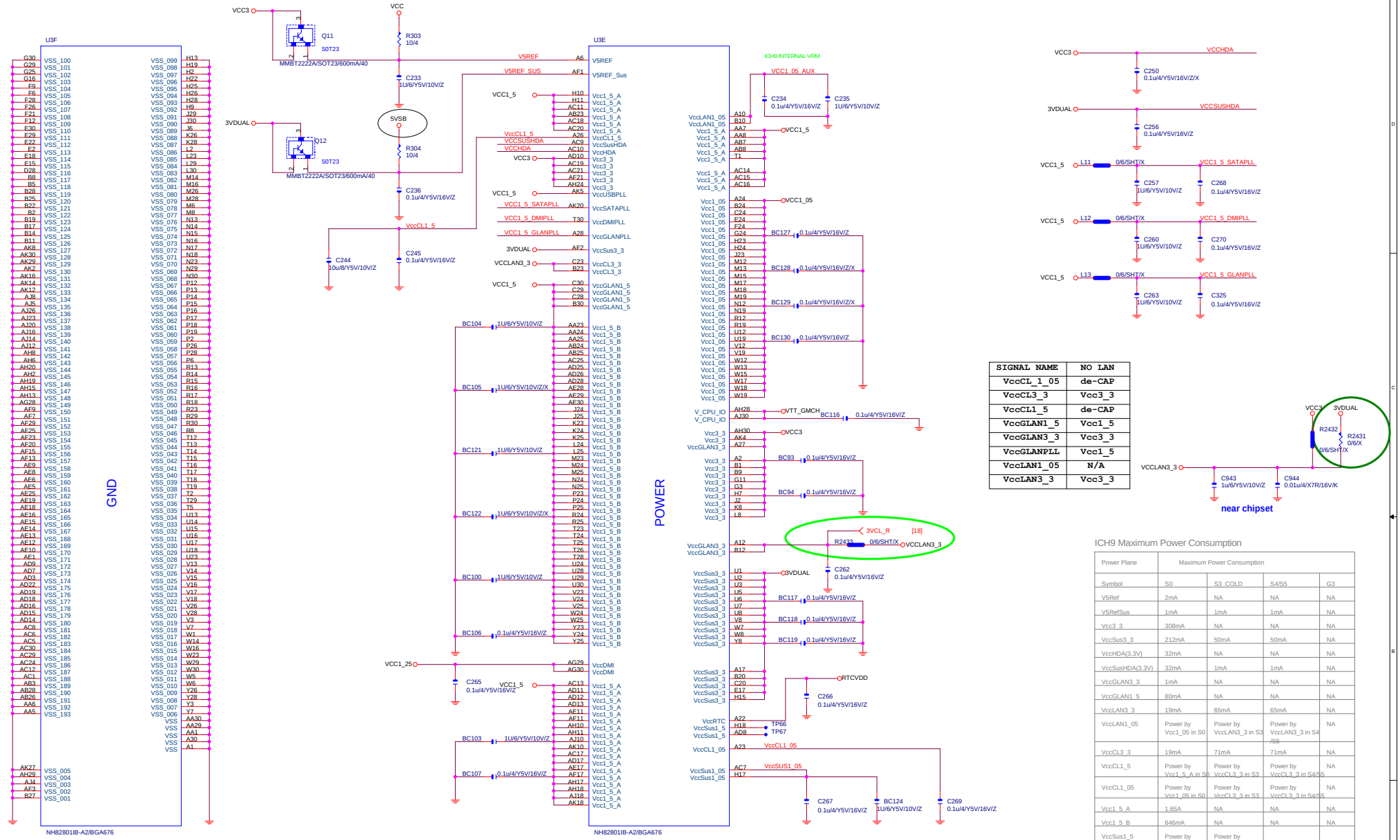

SIGNAL NAME	NO LAN
VccCL_1_05	de-CAP
VccCL3_3	Vcc3_3
VccCL1_5	de-CAP
VccGLAN1_5	Vcc1_5
VccGLAN3_3	Vcc3_3
VccGLANPLL	Vcc1_5
VccLAN1_05	N/A
VccLAN3_3	Vcc3_3

ICH9 Maximum Power Consumption

Power Plane	Maximum Power Consumption			
Symbol	S0	S3_COLD	S4/S5	G3
V5Ref	2mA	NA	NA	NA
V5RefSus	1mA	1mA	1mA	NA
Vcc3_3	308mA	NA	NA	NA
VccSus3_3	212mA	50mA	50mA	NA
VccHDA(3.3V)	32mA	NA	NA	NA
VccSusHDA(3.3V)	32mA	1mA	1mA	NA
VccGLAN3_3	1mA	NA	NA	NA
VccGLAN1_5	80mA	NA	NA	NA
VccLAN3_3	19mA	65mA	65mA	NA
VccLAN1_05	Power by Vcc1_05 in S0	Power by VccLAN3_3 in S3	Power by VccLAN3_3 in S4/S5	NA
VccCL3_3	19mA	71mA	71mA	NA
VccCL1_5	Power by Vcc1_5_A in S0	Power by VccCL3_3 in S3	Power by VccCL3_3 in S4/S5	NA
VccCL1_05	Power by Vcc1_05 in S0	Power by VccCL3_3 in S3	Power by VccCL3_3 in S4/S5	NA
Vcc1_5_A	1.65A	NA	NA	NA
Vcc1_5_B	646mA	NA	NA	NA
VccSus1_5	Power by Vcc1_5_A in S0	Power by VccSus3_3 in S3		
Vcc1_05	1.43A	NA	NA	NA
VccSus1_05	Power by Vcc1_05 in S0	Power by VccSus3_3 in S3	Power by VccSus3_3 in S4/S5	NA
VccRTC	NA	NA	NA	6uA
VccDMI	41mA	NA	NA	NA
V_CPU_IO	2mA	NA	NA	NA
VccGLANPLL	23mA	NA	NA	NA
VccUSBPLL	11mA	NA	NA	NA

GIGABYTE TEHCHNOLOGIES , INC.

Title: ICH9-PWR & GND

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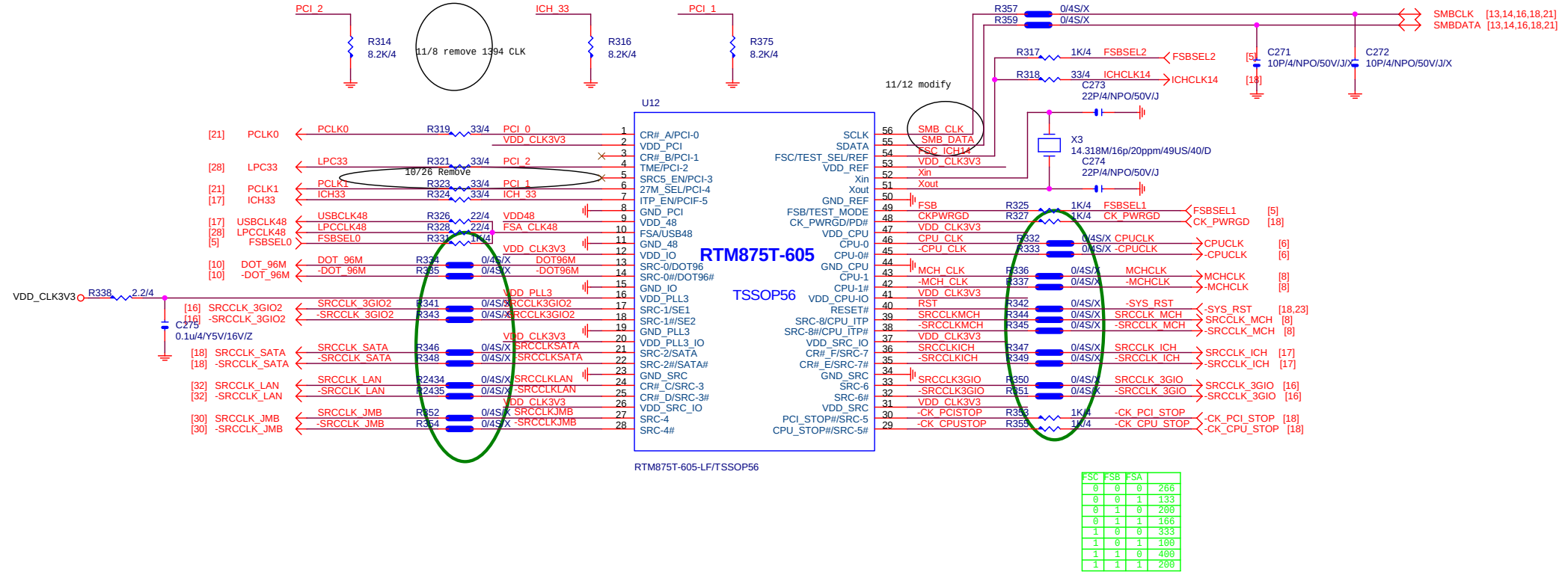
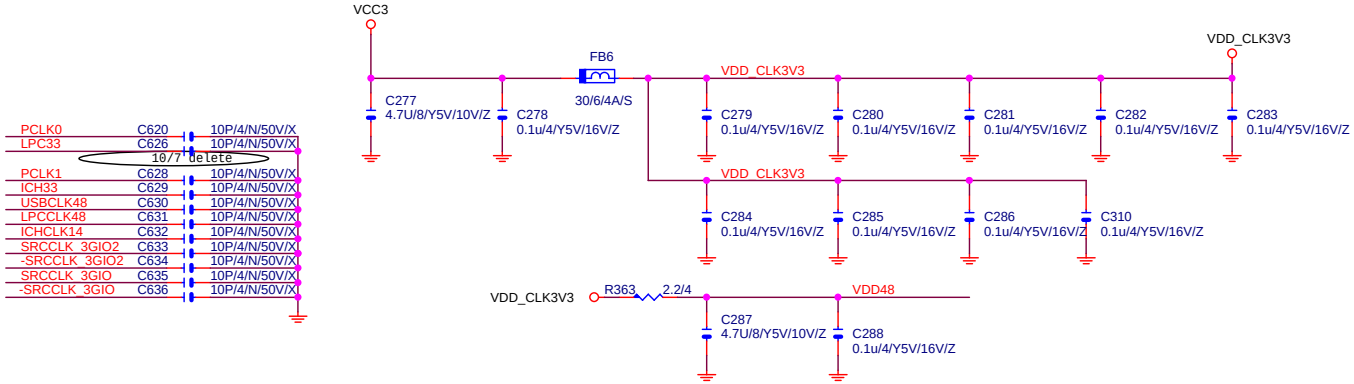
	PULL-UP	PULL-DOWN
TME/PCI-2	NO OVERCLOCKING	NORMAL RUN
SRC5_EN/PCI-3	PIN29/30 IS SRC5	PIN29/30 IS PCI_STOP/CPU_STOP
27M_SEL/PCI-4	PIN17/18 IS 27MHz	PIN17/18 IS SRC/DOT
ITP_EN/PCIF-5	PIN38/39 IS CPUITP	PIN38/39 IS SRC8

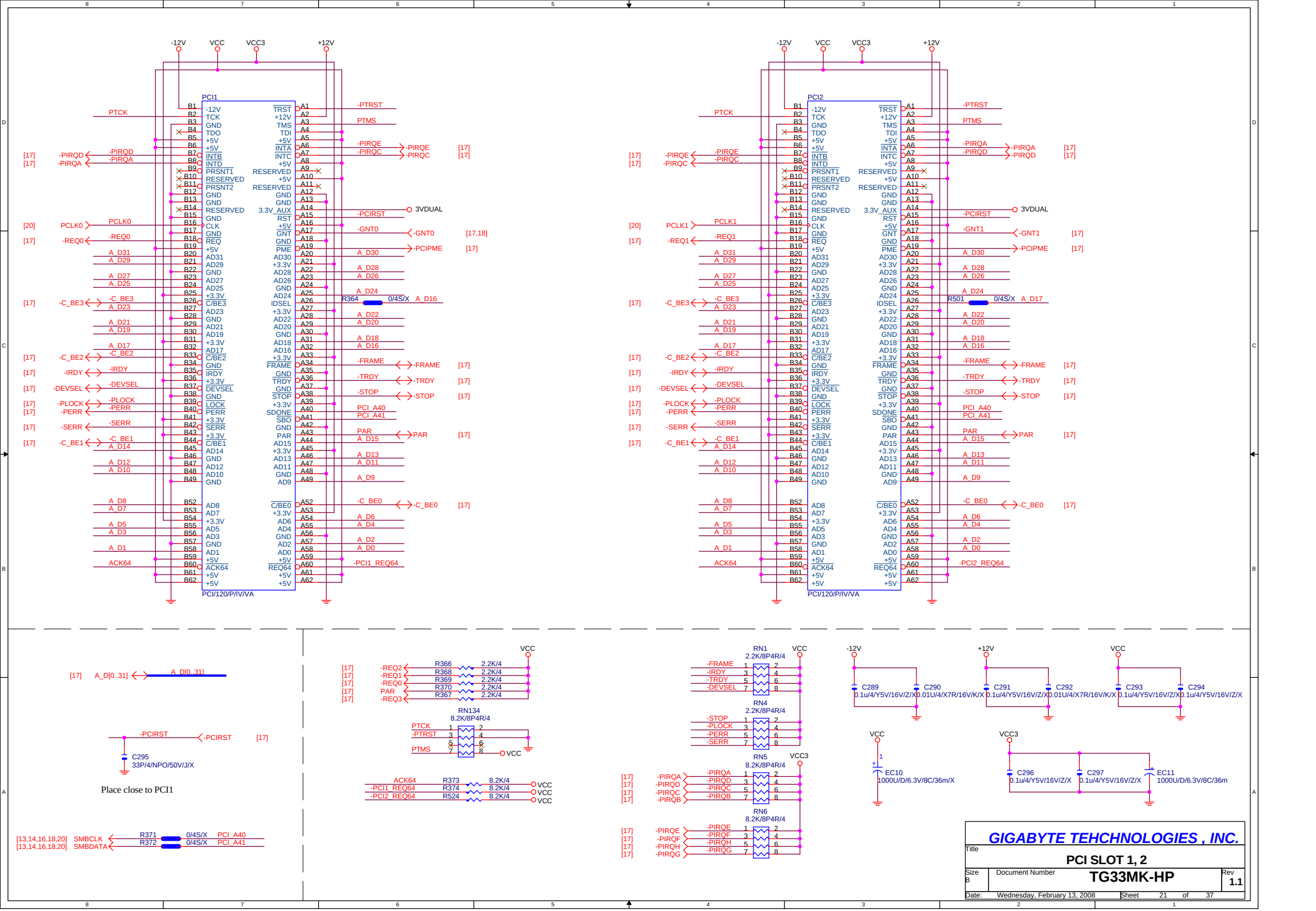


FSC	FSB	FSA	
0	0	0	266
0	0	1	133
0	1	0	200
0	1	1	166
1	0	0	333
1	0	1	100
1	1	0	400
1	1	1	200



GIGABYTE TEHCHNOLOGIES , INC.

Title	CK410M/GBT_CLK GEN	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 20 of 37	



Place close to PCI1

Title	PCI SLOT 1, 2
Size	B
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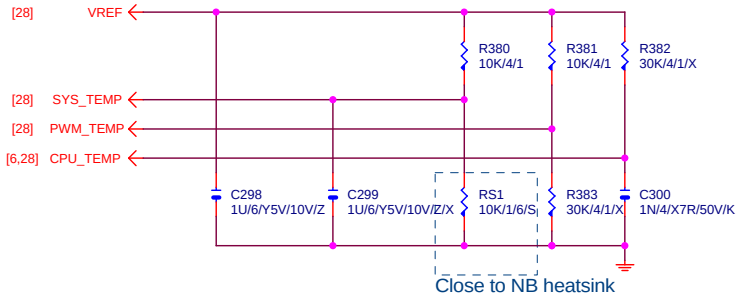
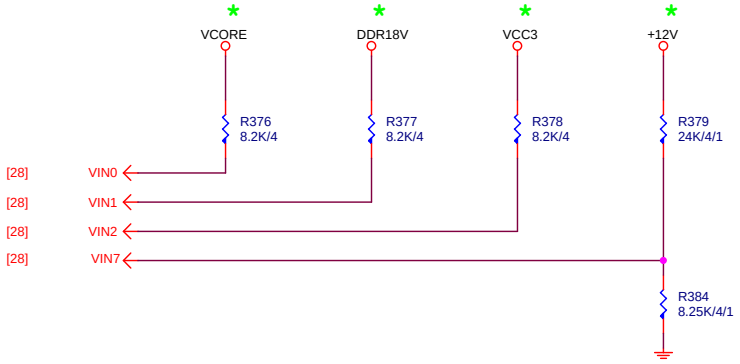
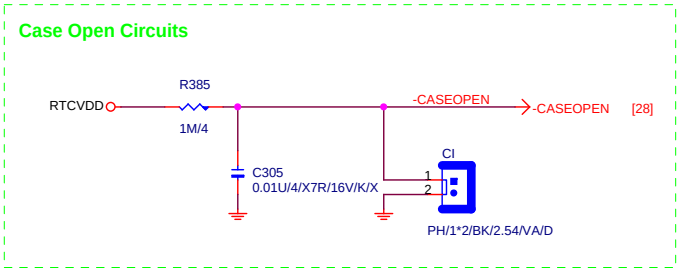
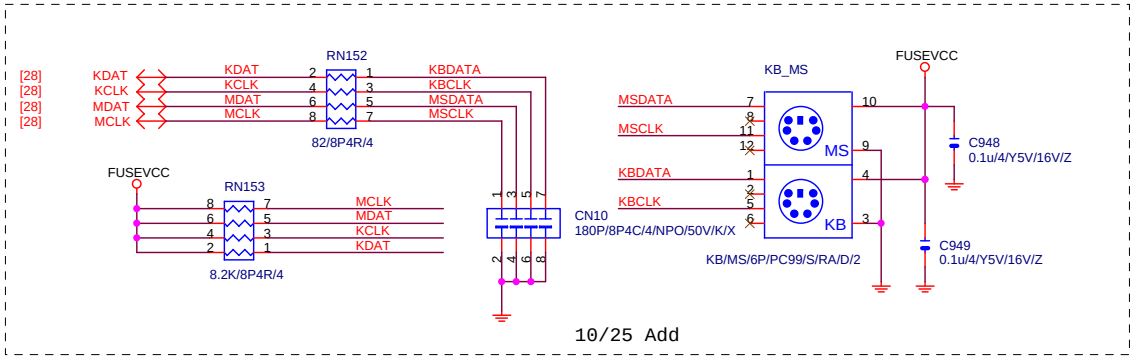
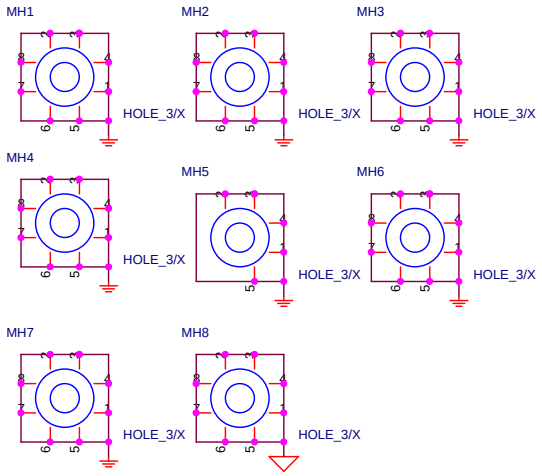
GIGABYTE TEHCHNOLOGIES , INC.

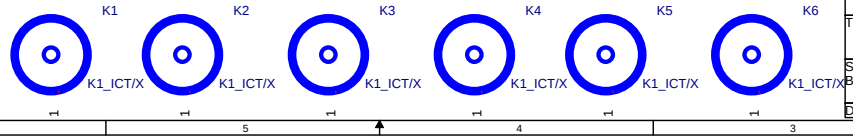












GIGABYTE TEHCHNOLOGIES , INC.

Title	HARDWARE MONITOR		
Size B	Document Number TG33MK-HP		Rev 1.1
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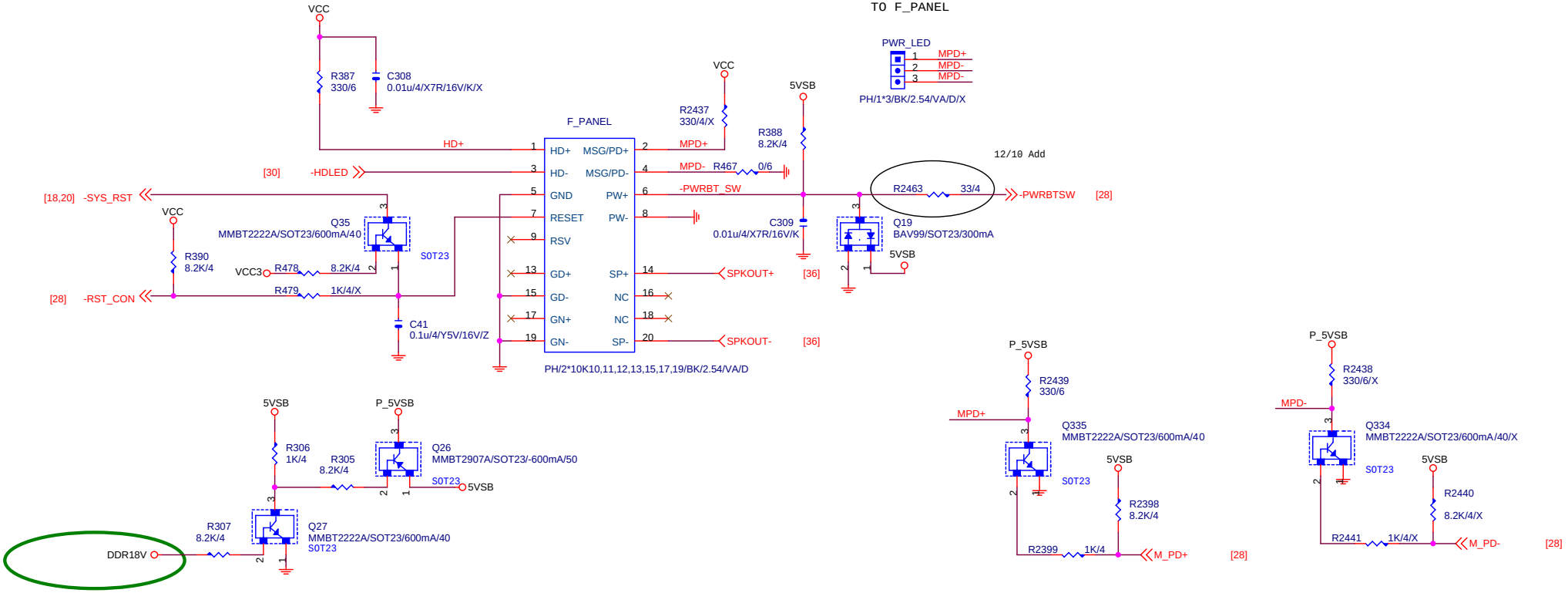
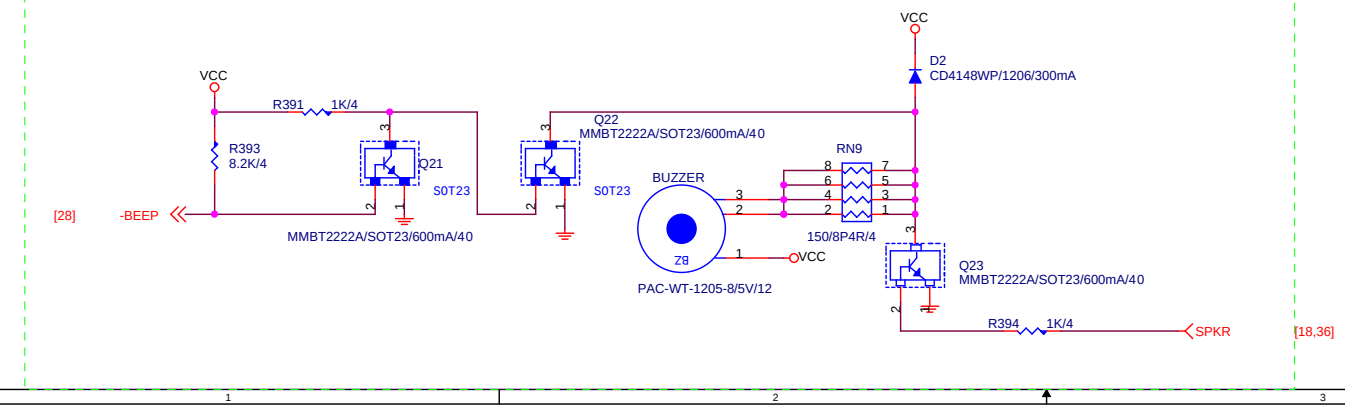
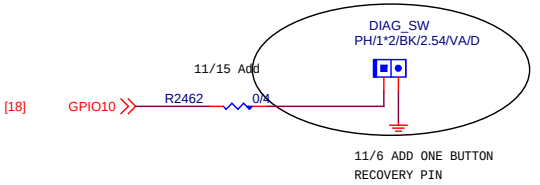
INTEL FRONT PANEL

3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL



BUZZER





GIGABYTE TEHCHNOLOGIES , INC.		
Title: FRONT PANEL		
Size: B	Document Number: TG33MK-HP	Rev: 1.1
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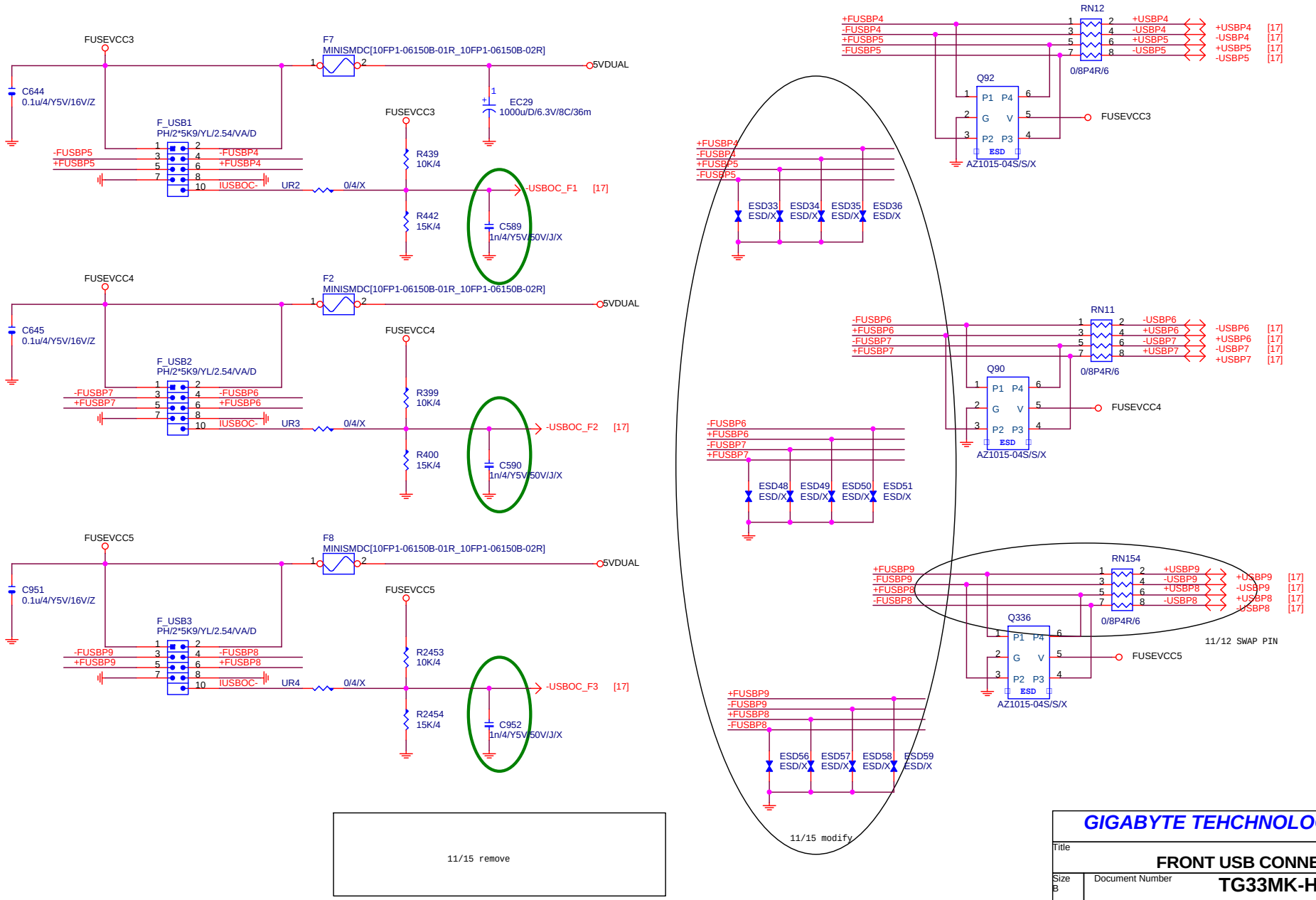
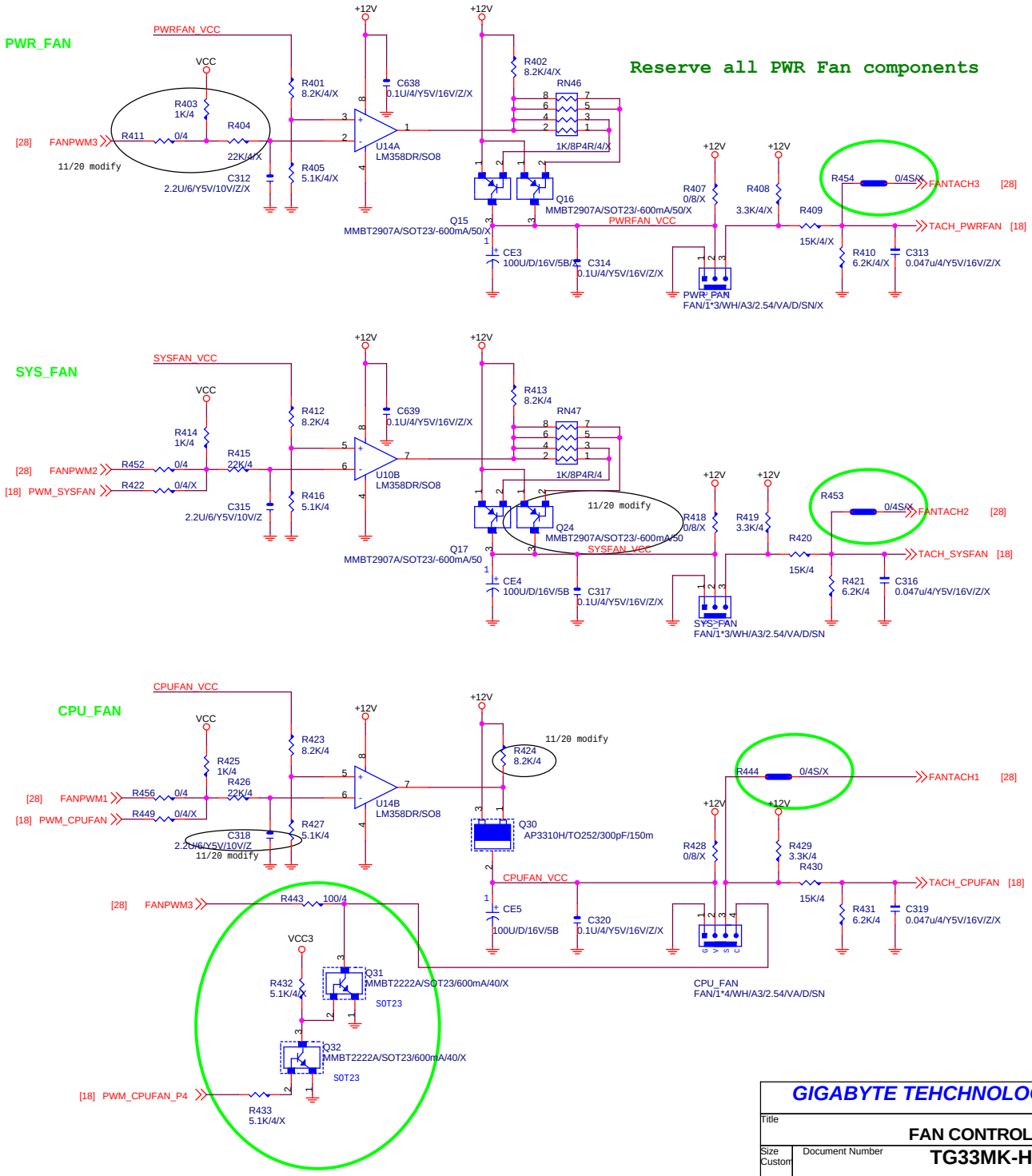


GIGABYTE TEHCHNOLOGIES , INC.

Title	FRONT USB CONNECTOR	
Size: B	Document Number: TG33MK-HP	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 24 of 37	



GIGABYTE TEHCHNOLOGIES , INC.		
Title: FAN CONTROL		
Size: Custom	Document Number: TG33MK-HP	Rev: 1.1
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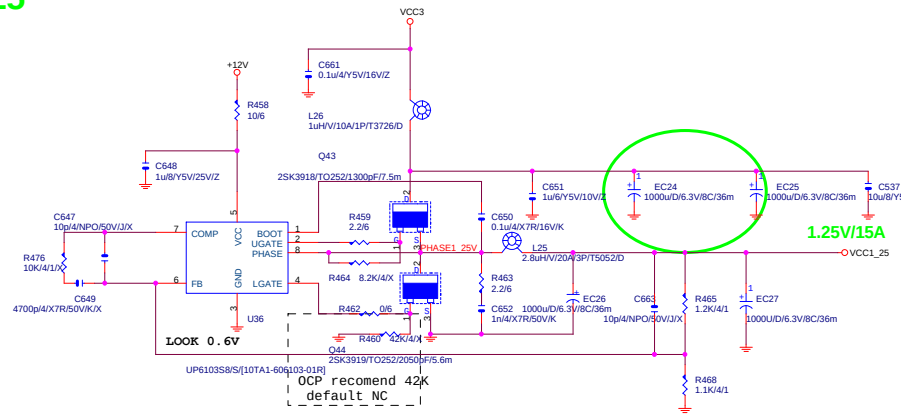
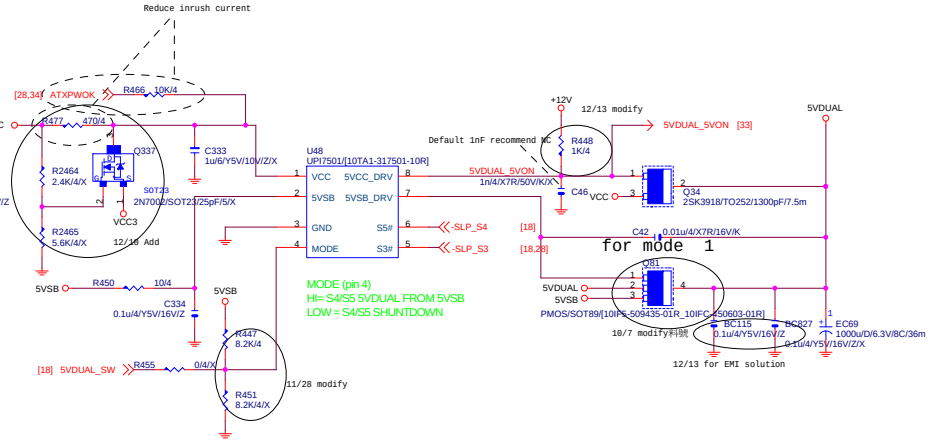
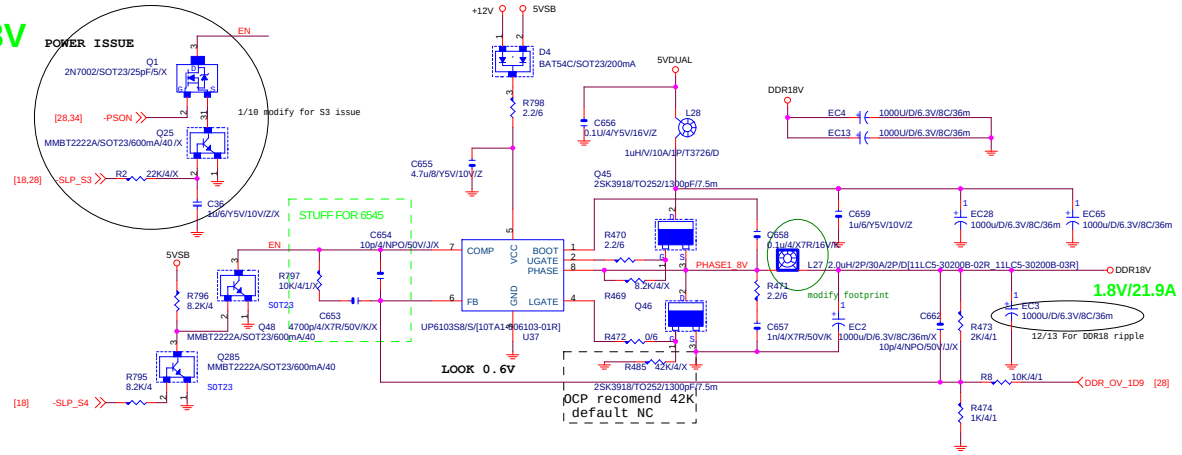
VCC1_25



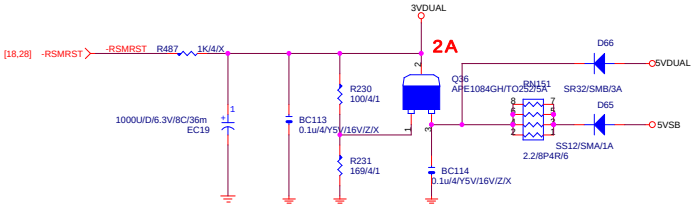
5VDUAL



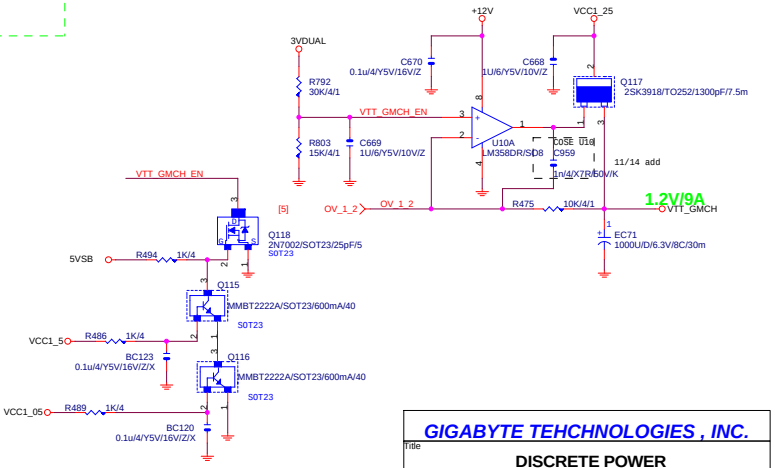
DDR18V



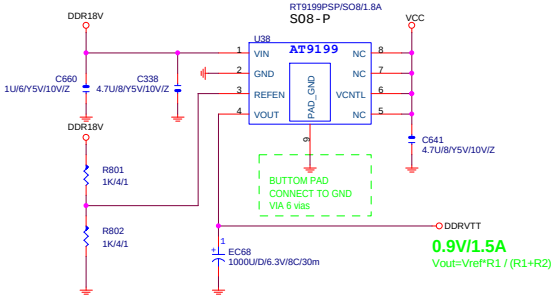
3VDUAL



VTT_GMCH

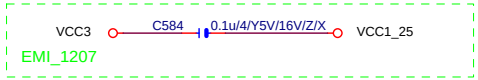


DDRVTT



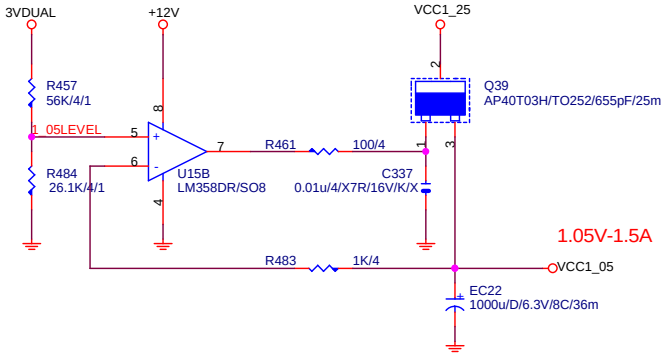
GIGABYTE TEHCHNOLOGIES , INC.			
Title: DISCRETE POWER			
Size: C	Document Number: TG33MK-HP		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 26 of 37		

VCC1_25_CL



REMOVE VCC1_25_CL

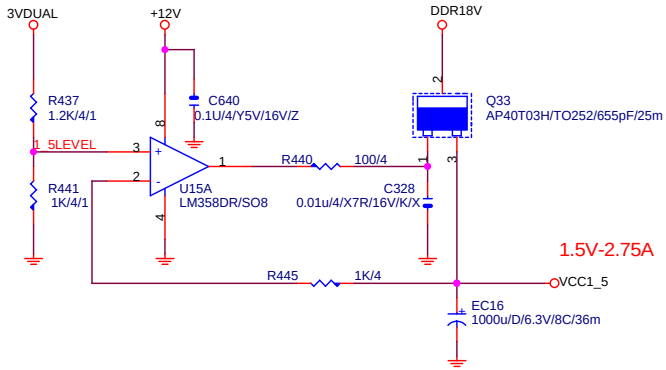
VCC1_05



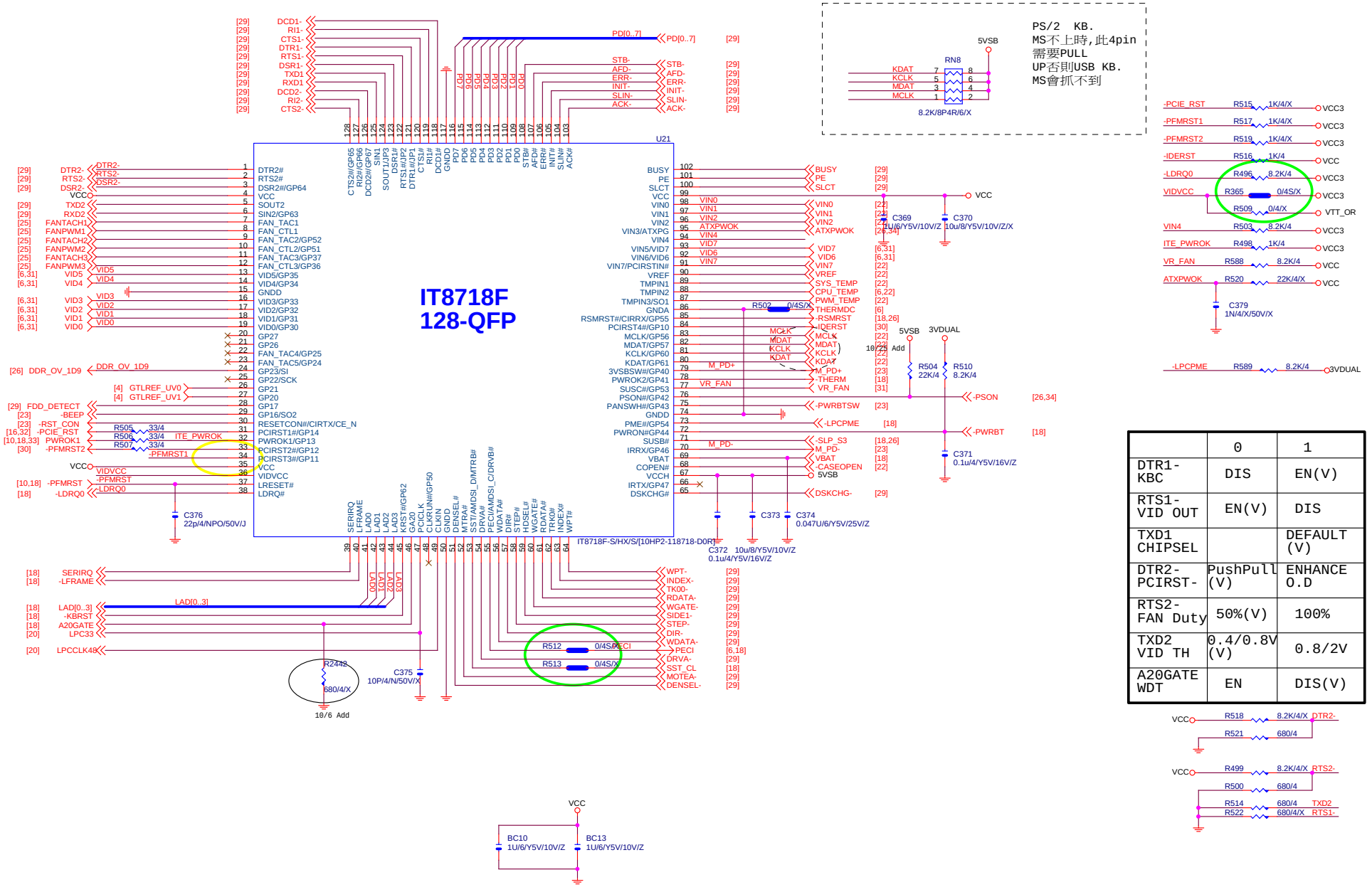
VCC3_CL

REMOVE VCC3_CL

VCC1_5

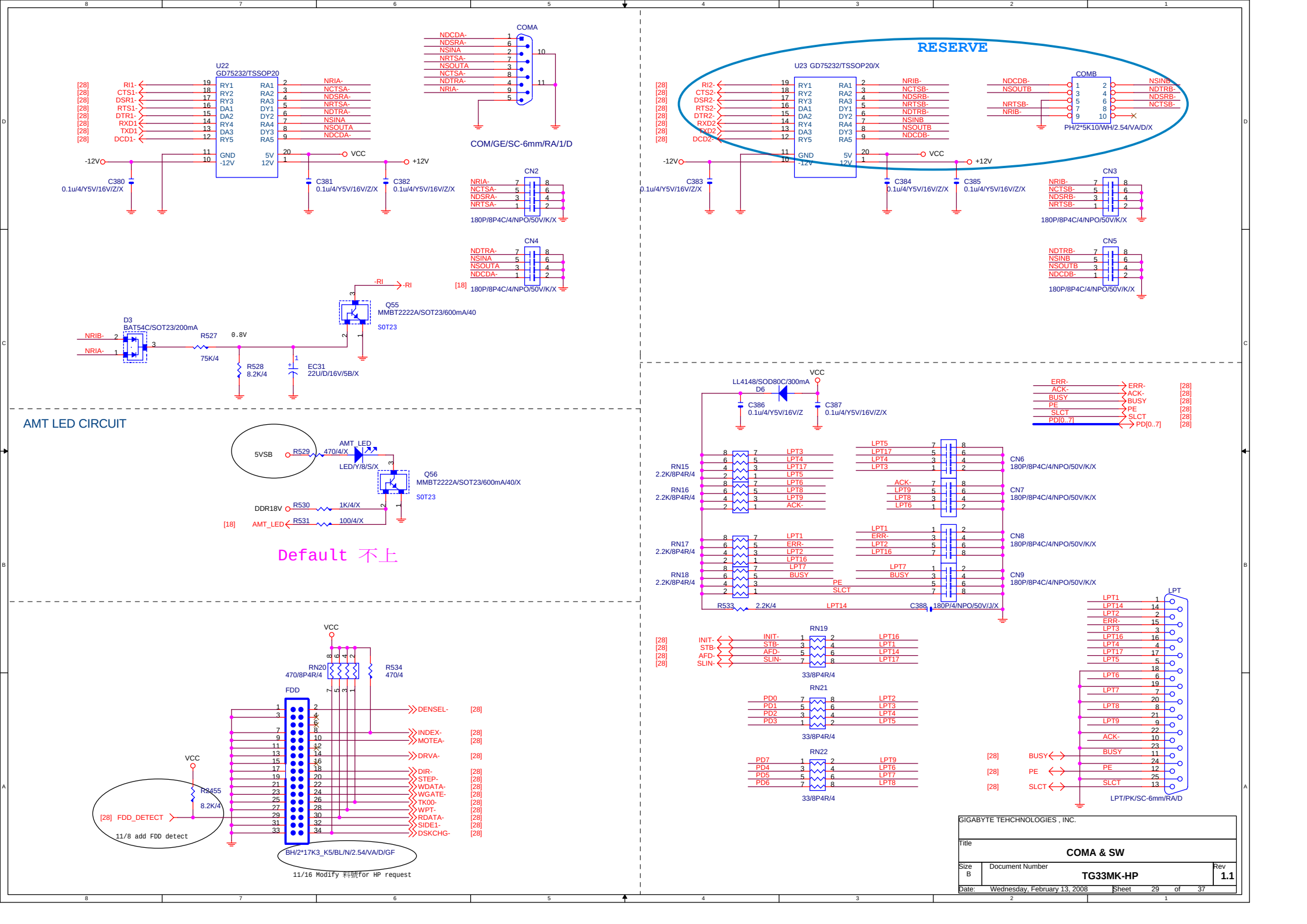


Title	<Title>	
Size B	Document Number TG33MK-HP	Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 27 of 37	



	0	1
DTR1-KBC	DIS	EN(V)
RTS1-VID OUT	EN(V)	DIS
TXD1 CHIPSEL		DEFAULT (V)
DTR2-PCIRST-	PushPull (V)	ENHANCE O.D
RTS2-FAN Duty	50%(V)	100%
TXD2 VID TH	0.4/0.8V (V)	0.8/2V
A20GATE WDT	EN	DIS(V)

GIGABYTE TEHCHNOLOGIES , INC.		
Title: ITE 8718F		
Size: Custom	Document Number: TG33MK-HP	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 28 of 37	


U22
GD75232/TSSOP20
COMA
COM/GE/SC-6mm/RA/1/D
RESERVE
U23 GD75232/TSSOP20/X
COMB
PH/2*5K10/WH/2.54/VA/D/X
CN2
CN3
CN4
CN5
180P/8P4C/4/NPO/50V/K/X
D3
BAT54C/SOT23/200mA
Q55
MMBT2222A/SOT23/600mA/40
S0T23
AMT LED CIRCUIT
Q56
MMBT2222A/SOT23/600mA/40/X
Default 不上
D6
LL4148/SOD80C/300mA
CN6
CN7
CN8
CN9
180P/4/NPO/50V/J/X
RN15
RN16
RN17
RN18
RN19
RN21
RN22
33/8P4R/4
LPT
LPT/PK/SC-6mm/RA/D
FDD
BH/2*17K3_K5/BL/N/2.54/VA/D/GF
11/8 add FDD detect
11/16 Modify 料號for HP request
GIGABYTE TEHCHNOLOGIES , INC.
COMA & SW
TG33MK-HP
1.1
Wednesday, February 13, 2008
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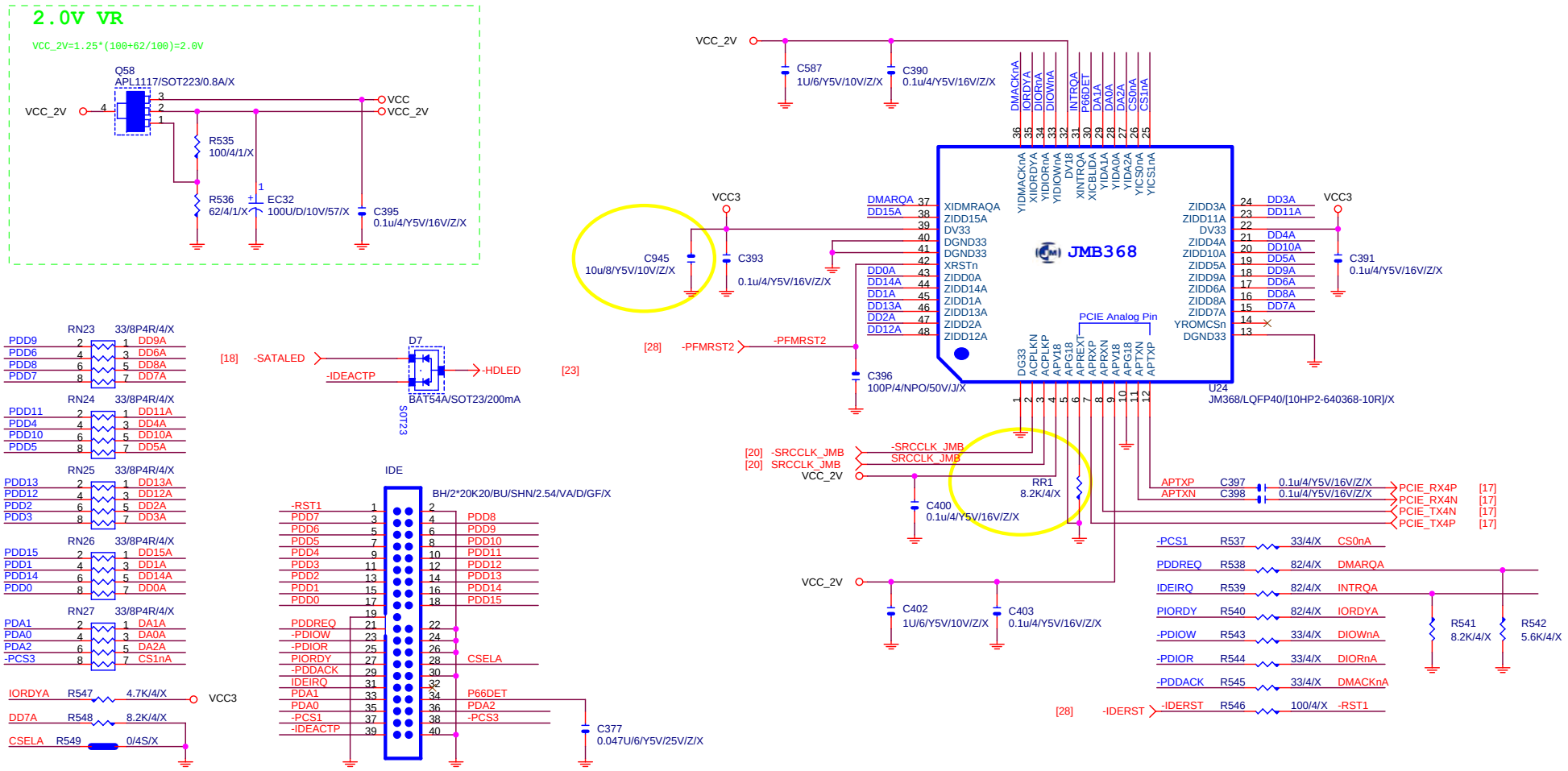
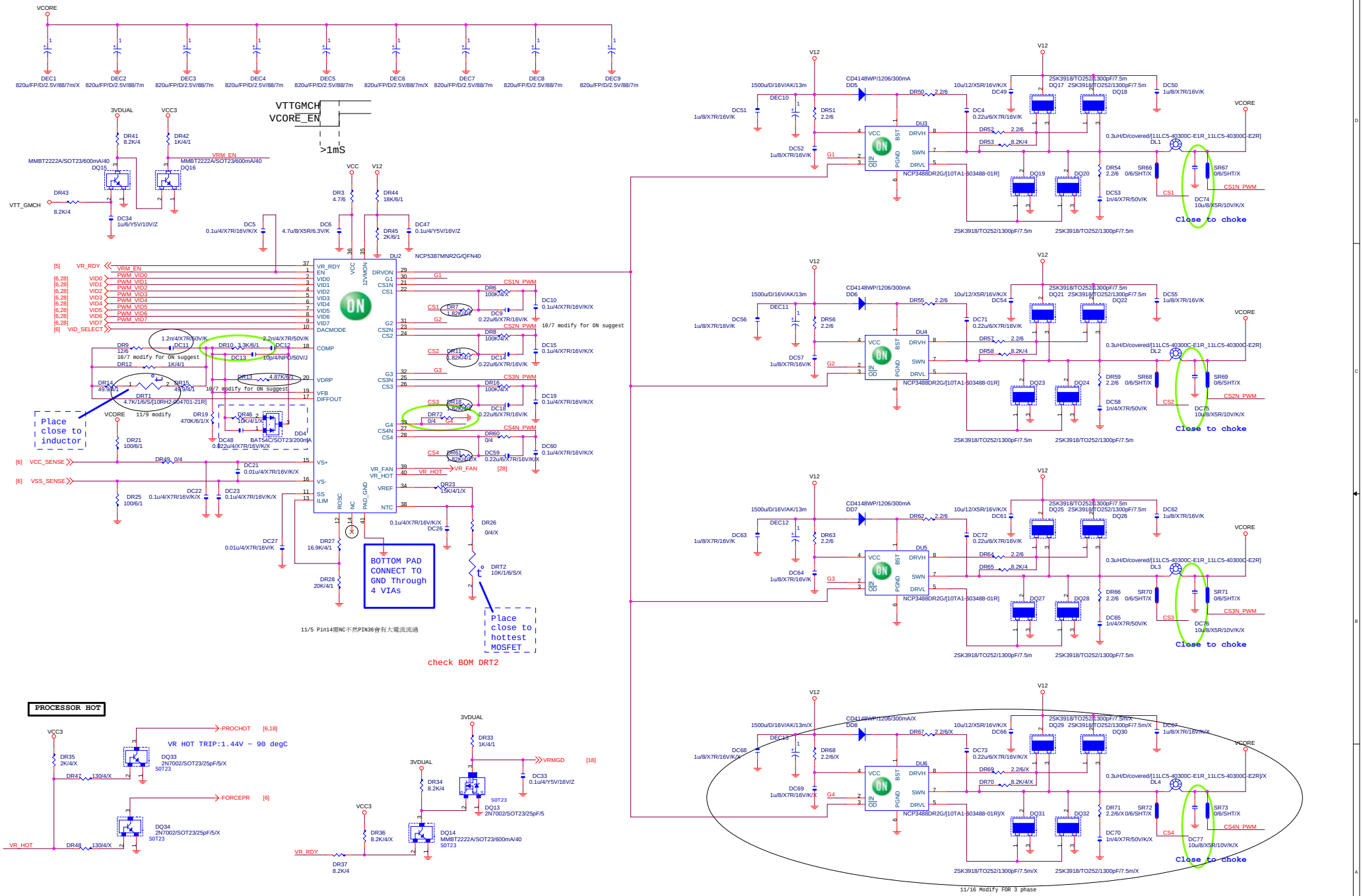


GIGABYTE TEHCHNOLOGIES , INC.			
Title	JMB368 SATA & PATA CONTROLLER		
Size B	Document Number TG33MK-HP		Rev 1.1
Date: Wednesday, February 13, 2008	Sheet 30 of 37		



GIGABYTE TEHCHNOLOGIES , INC.		
Title: PWM NCP5387MNR2G		
Size: Custom	Document Number: TG33MK-HP	Rev: 1.1
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PCIE-1G LAN

For 8101E

For RT8111C(P)

LR9 0/4 3VDUAL

1U/4/Y5V/16V/Z/X LBC5
0.1u/4/Y5V/16V/Z/X LBC10

11/14 remove

LED_ACT
LED_LINK100
LED_LINK1000

For 8111C 2.49K/4/1
For 8101E 2K/4/1

LR12 2.49K/4/1

close to chipset pin64

XTALI_P
XTALO_P
LX1
25M/20p/30ppm/49US/20/D
LC2 27p/4/NPO/50V/J
LC1 27p/4/NPO/50V/J

LU2 For 8111C 10HP2-408111-30R
For 8101E 10HP2-408101-30R
RTL8111C-GR/QFN64/OC

CTRL18 VCTRL18 AVDD33 MDIP0 MDIN0 AVDD18 MDIP1 MDIN1 AVDD18 MDIP2 MDIN2 AVDD18 MDIP3 MDIN3 AVDD18 VDD15 3VDUAL
P_MDI0+ P_MDI0- AVDD18 P_MDI1+ P_MDI1- AVDD18 P_MDI2+ P_MDI2- AVDD18 P_MDI3+ P_MDI3- AVDD18
EGND RSET VCTRL15 XTALI XTALO CKTAL2 CKTAL1 AVDD33 VDD15 LED0 LED1 LED2 LED3 VDD33 VDD15 NC VDD15
EESK EEDI VDD33 EEDO EECS VDD15 NC VDD1 NC NC VDD15 VDD15 ISOLATEB NC NC VDD15
3VDUAL EEDI_AUX 3VDUAL EEDO EECS VDD15 VDD15_TMS VDD15 3VDUAL ISOLATEB
NC NC PEWAKEB PERSTB VDD15 EVDD18 HSIP HSIN HSOP HSON REFCLK_P REFCLK_N EVDD18 HSOP HSON VDD15

VCC3
LR15 1K/4
LR16 15K/4

LR8 0/4/X VDD15
8111C unmount
8101E mount

8101E MOUNT
CTRL15 LR13 0/6/X VDD15
LR14 0/6 3VDUAL
8111C MOUNT
LBC15 0.1u/4/Y5V/16V/Z
LEC3 100u/D/10V/5B/580m/X
LBC16 10U/8/Y5V/10V/Z
LBC17 10U/8/Y5V/10V/Z

8111C unmount
8101E mount
VDD15_TMS LR17 0/4//X VDD15

[16,18] -PCIE_WAKE
[16,28] -PCIE_RST

[17] PCIE_TX1P
[17] PCIE_TX1N
[20] SRCCLK_LAN
[20] -SRCCLK_LAN
[17] PCIE_RX1P
[17] PCIE_RX1N

LBC30 0.1u/4/X7R/16V/K
LBC31 0.1u/4/X7R/16V/K

Layout close to chipset

LED_LINK1000 LR20 0/4 LED_GREEN
8101E unmount
8111C mount

11/5 Remove

-PCIE_RST LBC40 100P/4/NPO/50V/J/X
ADJ RESET

3VDUAL
EECS
EESK
EEDI_AUX
EEDO
LU1 CS SK DI DO VCC DC ORG GND
AT93C46-10SU-2.7/S
LBC1 0.1u/4/Y5V/16V/Z
LR10 3.6K/4 3VDUAL

3VDUAL
LEC1 100u/D/10V/5B/580m
LBC6 0.1u/4/Y5V/16V/Z/X
LBC7 10U/8/Y5V/10V/Z/X
LBC8 0.1u/4/Y5V/16V/Z
LBC9 0.1u/4/Y5V/16V/Z
LBC2 0.1u/4/Y5V/16V/Z/X
LBC3 1N/4/X7R/50V/K
LBC4 0.1u/4/Y5V/16V/Z/X

VDD15 LR11 0/6 AVDD18
8111C MOUNT

VDD15
8101E MOUNT
if LEC2 100uF is ok
LEC2 and remove LBC20、19
LEC2 100u/D/10V/5B/580m/X
LBC12 10U/8/Y5V/10V/Z/X
LBC11 10U/8/Y5V/10V/Z/X
LBC13 0.1u/4/Y5V/16V/Z
LBC14 0.1u/4/Y5V/16V/Z

VDD15
LBC18 1N/4/X7R/50V/K
LBC19 0.1u/4/Y5V/16V/Z
LBC20 0.1u/4/Y5V/16V/Z
LBC21 0.1u/4/Y5V/16V/Z
LBC22 0.1u/4/Y5V/16V/Z
LBC23 1N/4/X7R/50V/K
LBC24 0.1u/4/Y5V/16V/Z
LBC25 0.1u/4/Y5V/16V/Z/X

8111C MOUNT
LL1 4.7uH/0.9A/2520/S/[10LC3-5A470B-02R]
CTRL18
LR19 0/6/X
8101E MOUNT
LBC26 0.1u/4/Y5V/16V/Z/X

LR9 & LEC4 Very near pin1 within 0.5 cm
8101E MOUNT
if LEC4 100uF is ok
LEC4 and remove LBC27、28 co-lay
LEC4 100u/D/10V/5B/580m/X
LBC27 10U/8/Y5V/10V/Z
LBC28 10U/8/Y5V/10V/Z
LBC29 0.1u/4/Y5V/16V/Z

Add 0.1u before each power pin
5,8,11,14

VDD18
8111C use Bead
8101E use 0 ohm
LFB1 30/6/3A/S

LBC32 0.1u/4/Y5V/16V/Z
LBC33 0.1u/4/Y5V/16V/Z
LBC34 0.1u/4/Y5V/16V/Z
LBC35 0.1u/4/Y5V/16V/Z
LBC39 0.1u/4/Y5V/16V/Z
LBC36 0.1u/4/Y5V/16V/Z
LBC38 0.1u/4/Y5V/16V/Z
LBC37 0.1u/4/Y5V/16V/Z

USB_LAN CONNECTOR

AVDD18
8101E mount
8111C unmount
LR22 0/6/X
2/1 add LBC48 for EMI solution
LBC48 100P/4/NPO/50V/J

LAN 100歐姆:[4/10]

P_MDI0+ P_MDI0- P_MDI1+ P_MDI1- P_MDI2+ P_MDI2- P_MDI3+ P_MDI3-
SLR1 49.9/4/1/X
SLR2 49.9/4/1/X
SLR3 49.9/4/1/X
SLR4 49.9/4/1/X
SLBC1 0.01u/4/X7R/16V/K/X
SLBC2 0.01u/4/X7R/16V/K/X

Close to chipset
8101E mount
8111C unmount

AVDD18 LR26 0/6/X
reserved for 8101E
LR27 0/6
8101E/8102E use 0.01u

USB_LAN
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10
UP
DOWN
USB+LAN/1G/GO,Y/OS/RA/D/LE

D1 LED_ACT
D2
D3 LED_LINK100
D4 LED_GREEN
U1 U2 U3 U4 U5 U6 U7 U8

3VDUAL
LBC41 150P/4/NPO/50V/J/X
LFB2 0/6/SHT/X
LR23 220/4
8101E unmount
LR24 220/4
LR25 220/4
LBC42 0.1u/4/Y5V/16V/Z/X
USB_POWER3
11/20 modify
LF1 MINISMDC[10FP1-06150B-01R_10FP1-06150B-02R]
5VDUAL

-P1
+P1
USB_POWER3
+P0
LQ1
P1 P4 G V P2 P3 ESD
AZ1015-04S/S/X
11/12 SWAP PIN

LRN1 0/8P4R/6
-USBP1 [17]
+USBP1 [17]
-USBP0 [17]
+USBP0 [17]

LBC43 0.1u/4/Y5V/16V/Z/X
LBC44 0.1u/4/Y5V/16V/Z/X
LBC45 0.1u/4/Y5V/16V/Z/X

ESD_PAD1 TP/X
ESD_PAD3 TP/X
ESD_PAD5 TP/X
ESD_PAD7 TP/X
P_MDI0+
P_MDI0-
P_MDI1+
P_MDI1-
ESD_PAD2 TP/X
ESD_PAD4 TP/X
ESD_PAD6 TP/X
ESD_PAD8 TP/X
P_MDI2+
P_MDI2-
P_MDI3+
P_MDI3-

USB_POWER3
LBC49 0.1u/4/Y5V/16V/Z/X
LBC47 10u/8/Y5V/10V/Z/X
LR28 10K/4
-USBOC_R2
LR29 15K/4
C962 1n/4/X7R/50V/K
USBOC_R2 [17]

12/26 add for EMI solution
12/13 For EMI solution

P35-152-19W9
U4 U3 U2 U1
U8 U7 U6 U5
L1 L3 L5 L7 L9
L2 L4 L6 L8 L10
D1 D2 D3 D4
YELLOW
ORANGE (+,-)
GREEN (-,+)

Dual Color LED
D4 D3 Green
D4 D3 Orange

Single Color LED
D2 D1 Yellow

LEDS1-0	00	01	10	11
LED0	Tx/Rx	Tx/Rx	Tx	LINK10/ACT
LED1	LINK1000	LINK10/100/1000	LINK	LINK100/ACT
LED2	LINK10	LINK10/100	Rx	FULL
LED3	LINK1000	LINK1000	FULL	LINK1000/ACT

*LEDS1-0 Default 11,use 93C46 to change it to 00
*During power down mode,LED signal are logic high

GIGABYTE TEHCHNOLOGIES , INC.

Title: LAN 8111C/ 8101E
Size: Custom
Document Number: TG33MK-HP
Rev: 1.1
Date: Wednesday, February 13, 2008
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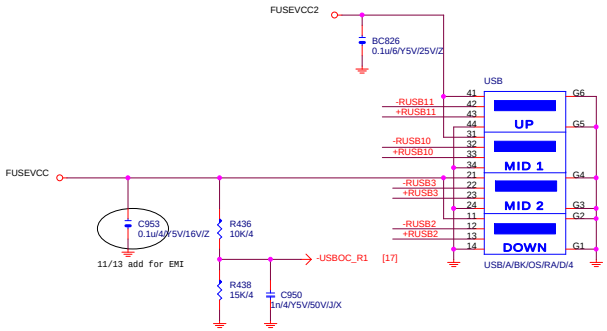

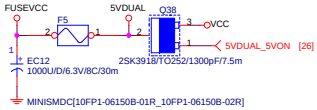

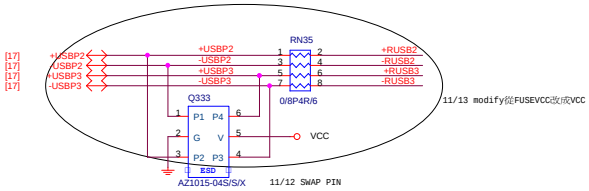

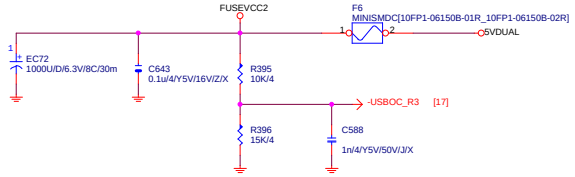

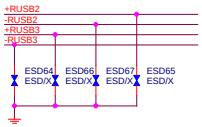

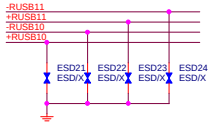

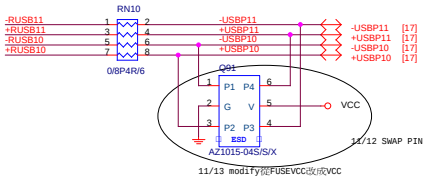

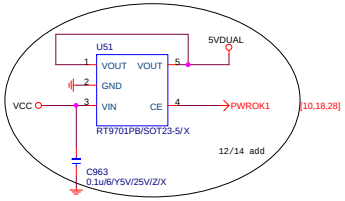

GIGABYTE TEHCHNOLOGIES , INC.		
Title: R_USB		
Size: C	Document Number: TG33MK-HP	Rev: 1.1
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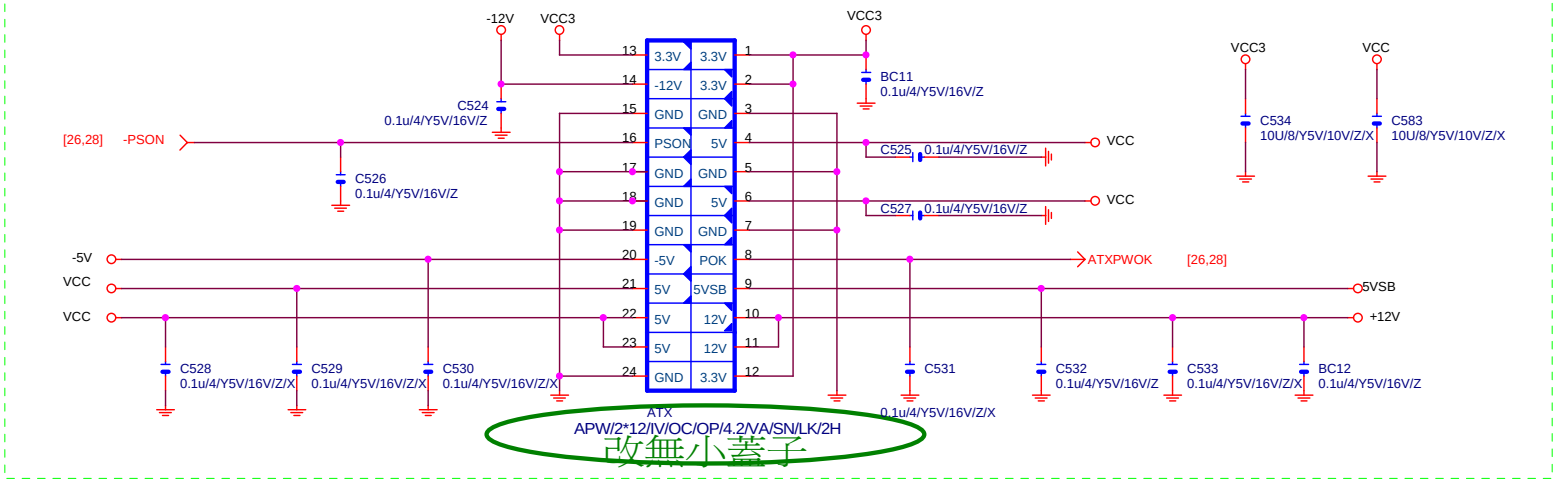
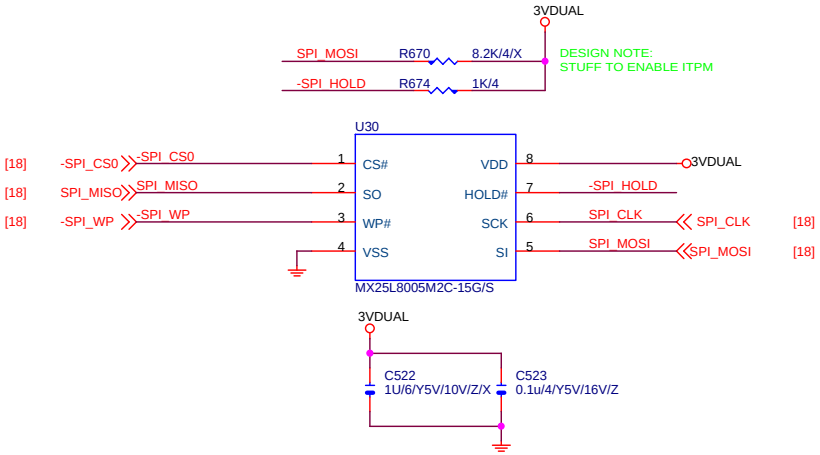
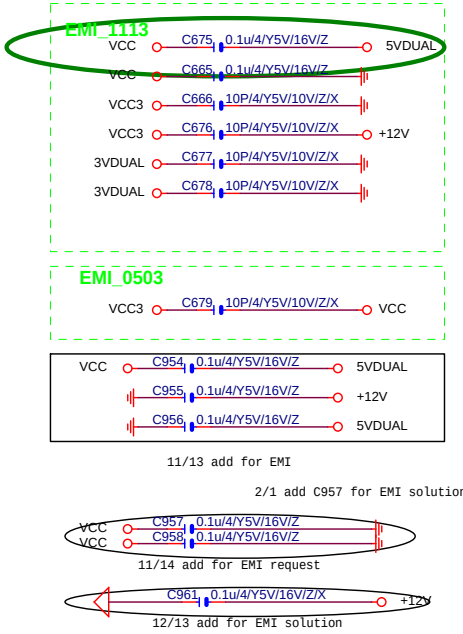
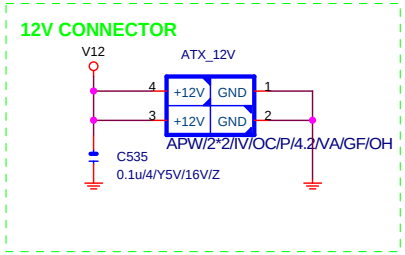
ATX POWER CONNECTOR



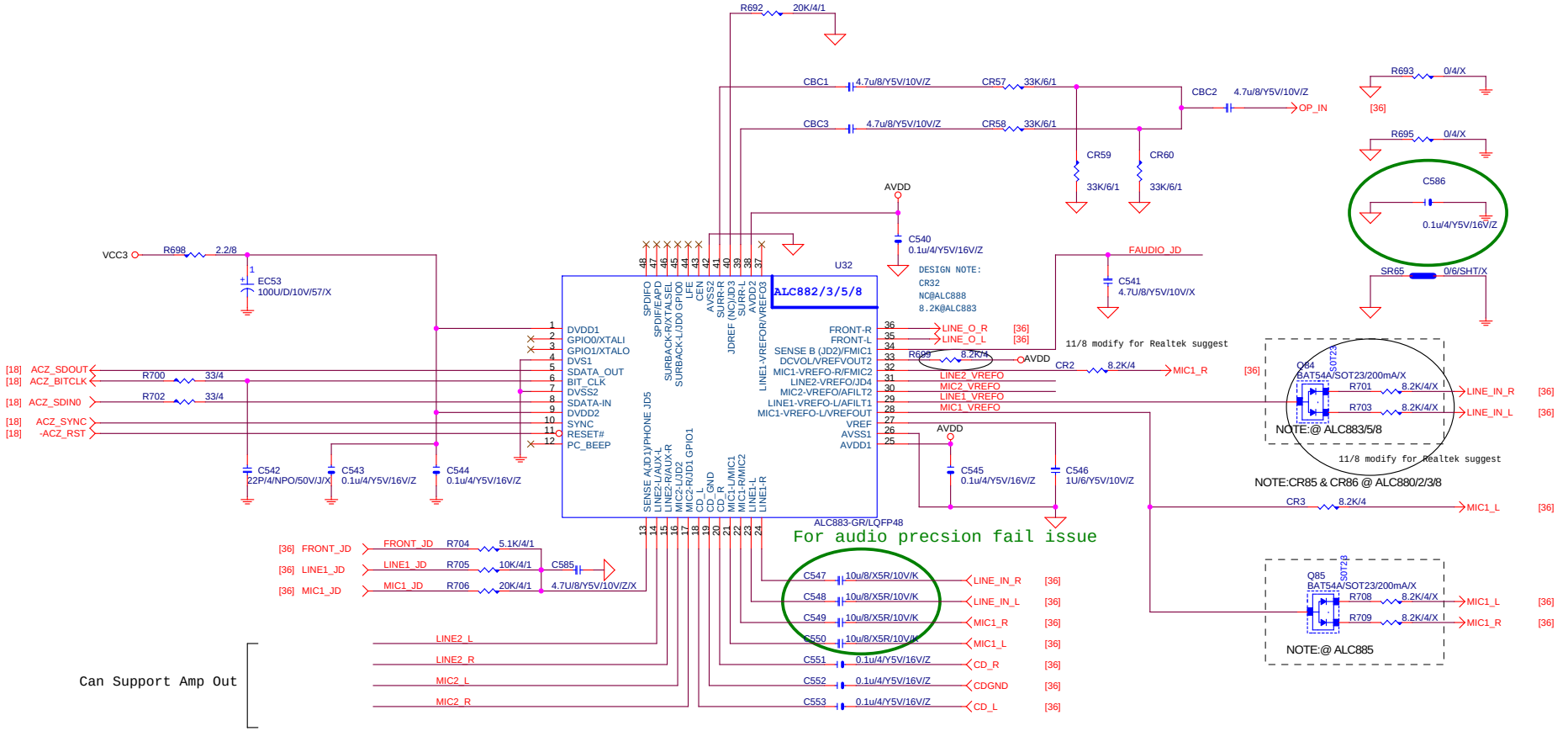




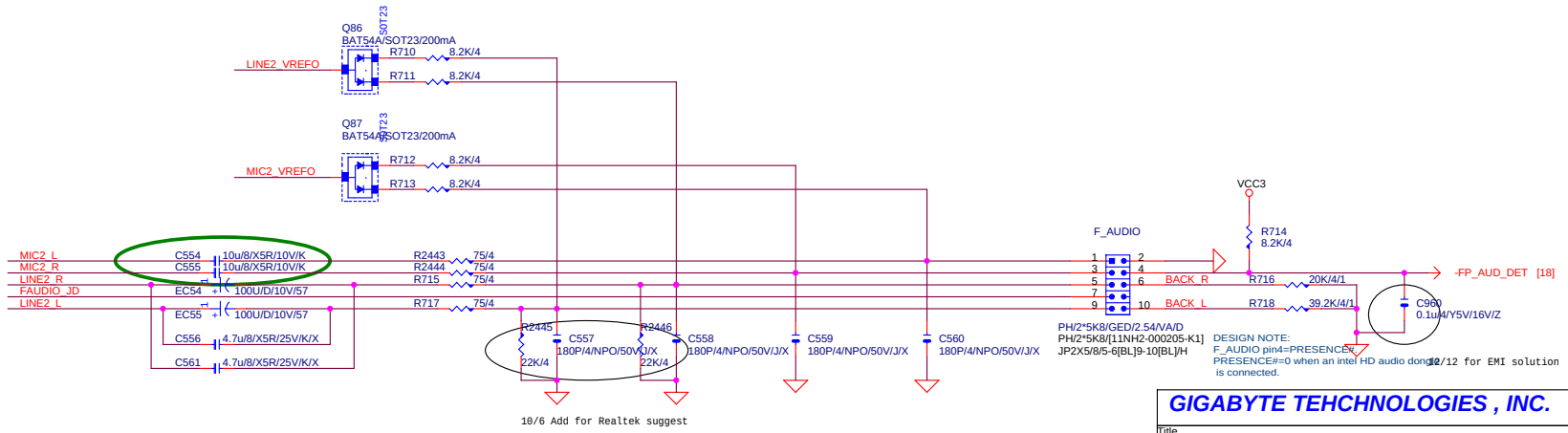


GIGABYTE TEHCHNOLOGIES , INC.		
Title: ATX / TPM / OTHERS POWER		
Size: B	Document Number: TG33MK-HP	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 34 of 37	

HD AUDIO CODEC

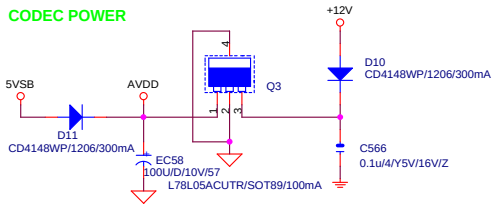


HD AUDIO FRONT PANEL



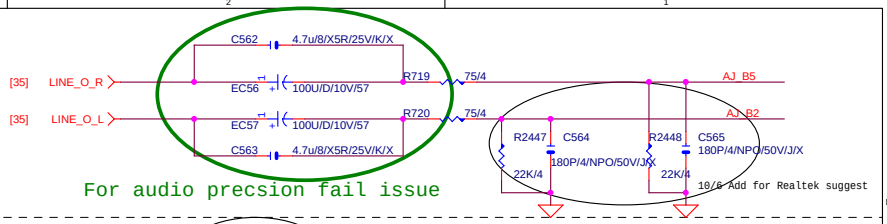
GIGABYTE TEHCHNOLOGIES , INC.			
Title: ALC883			
Size: Custom	Document Number: TG33MK-HP		Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 35 of 37		

CODEC POWER



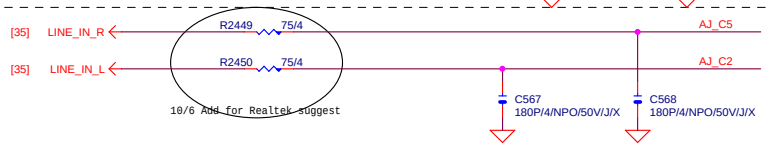
11/13 remove

LINE OUT

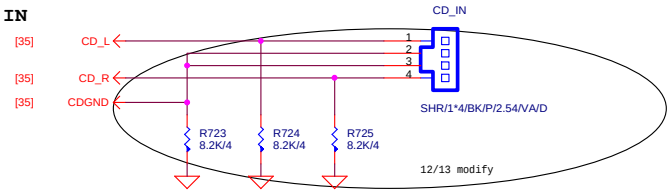


For audio precsion fail issue

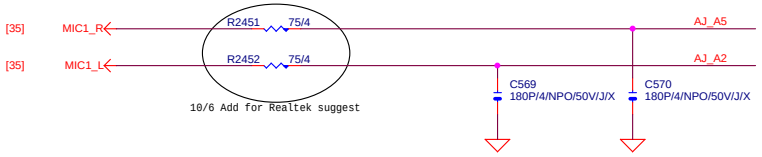
LINE-IN



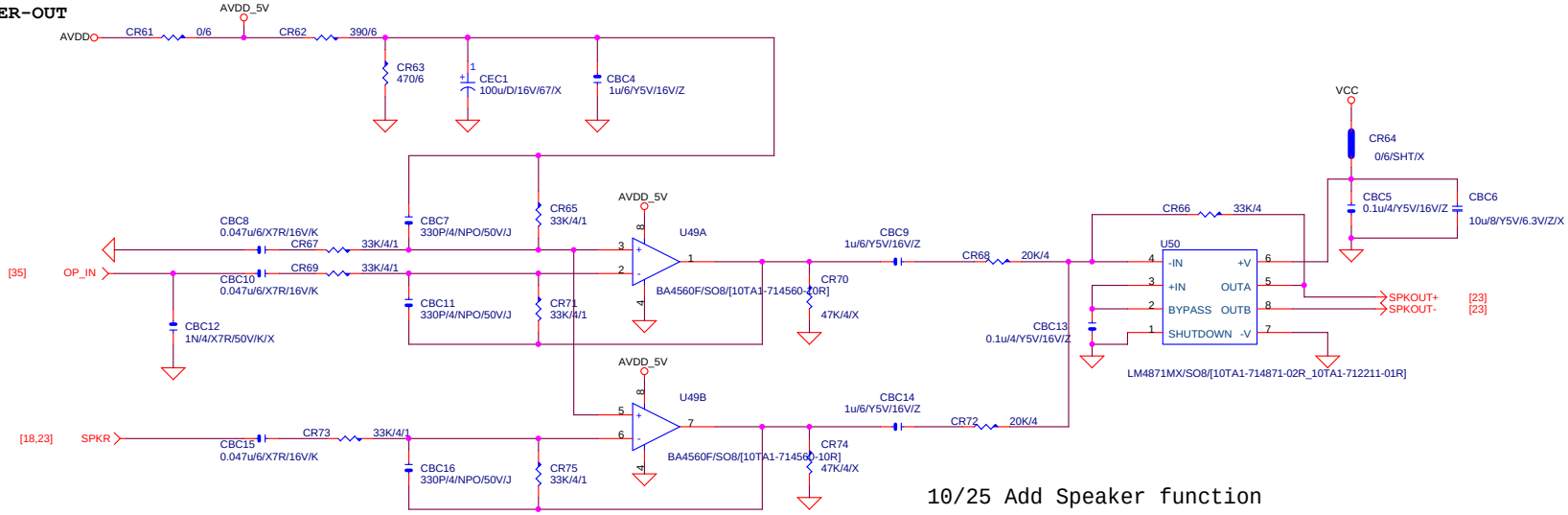
CD IN



MIC-IN

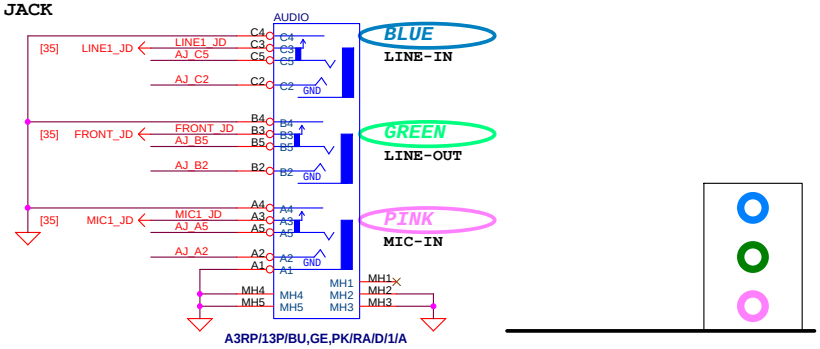


SPEAKER-OUT



10/25 Add Speaker function

HDA JACK



GIGABYTE TEHCHNOLOGIES , INC.		
Title: AUDIO JACK		
Size: Custom	Document Number: TG33MK-HP	Rev: 1.1
Date: Wednesday, February 13, 2008	Sheet 36 of 37	

ICH9 GPIO TABLE

GPIO	Signal Name
GPIO_0	-FP_AUD_DET
GPIO_1	TACH_SYSFAN
GPIO_2	-PIRQE
GPIO_3	-PIRQF
GPIO_4	-PIRQG
GPIO_5	-PIRQH
GPIO_6	TACH_PWRFAN
GPIO_7	N/C
GPIO_8	N/C
GPIO_9	N/C
GPIO_10	WOL_ONLY
GPIO_11	-SMBALRT
GPIO_12	LAN_DISABLE
GPIO_13	N/C
GPIO_14	N/C
GPIO_15	-CK_PCI_STOP
GPIO_16	BOARDID0
GPIO_17	TACH_CPUFAN
GPIO_18	BOARDID0
GPIO_19	N/C
GPIO_20	-LPCPME
GPIO_21	N/C
GPIO_22	N/C
GPIO_23	N/C
GPIO_24	GPIO_VSM_AMT_LED
GPIO_25	-CK_CPU_STOP
GPIO_26	N/C
GPIO_27	N/C
GPIO_28	N/C
GPIO_29	-USBOC_F1
GPIO_30	-USBOC_F2
GPIO_31	-USBOC_F2
GPIO_32	-PWRLED_CTRL
GPIO_33	-GD_CTRL
GPIO_34	-SLP_BTN
GPIO_35	N/C
GPIO_36	N/C
GPIO_37	N/C
GPIO_38	N/C
GPIO_39	N/C
GPIO_40	-USBOC_R1
GPIO_41	-USBOC_R2
GPIO_42	-USBOC_R2
GPIO_43	-USBOC_F1
GPIO_44	-USBOC_F3
GPIO_45	-USBOC_F3

GPIO	Signal Name
GPIO_46	N/C
GPIO_47	N/C
GPIO_48	N/C
GPIO_49	N/C
GPIO_50	-REQ1
GPIO_51	N/C
GPIO_52	-REQ2
GPIO_53	N/C
GPIO_54	-REQ3
GPIO_55	-GNT3
GPIO_56	1_WATT_CTRL_1
GPIO_57	-SPI_WP
GPIO_58	N/C
GPIO_59	-USBOC_R1
GPIO_60	-LINKALERT

IT8718 GPIO TABLE

GPIO	Signal Name
GPIO_10	-FP_AUD_DET
GPIO_11	TACH_SYSFAN
GPIO_12	-PIRQE
GPIO_13	-PIRQF
GPIO_14	-PIRQG
GPIO_17	-PIRQH
GPIO_21	TACH_PWRFAN
GPIO_23	N/C
GPIO_24	N/C
GPIO_25	N/C
GPIO_10	WOL_ONLY
GPIO_11	-SMBALRT
GPIO_12	LAN_DISABLE
GPIO_13	N/C
GPIO_14	N/C
GPIO_15	-CK_PCI_STOP
GPIO_16	BOARDID0
GPIO_17	TACH_CPUFAN
GPIO_18	BOARDID0
GPIO_19	N/C
GPIO_20	-LPCPME
GPIO_21	N/C
GPIO_22	N/C
GPIO_23	N/C
GPIO_24	GPIO_VSM_AMT_LED
GPIO_25	-CK_CPU_STOP
GPIO_26	N/C
GPIO_27	N/C
GPIO_28	N/C
GPIO_29	-USBOC_F1
GPIO_30	-USBOC_F2
GPIO_31	-USBOC_F2
GPIO_32	-PWRLED_CTRL
GPIO_33	-GD_CTRL
GPIO_34	-SLP_BTN
GPIO_35	N/C
GPIO_36	N/C
GPIO_37	N/C
GPIO_38	N/C
GPIO_39	N/C
GPIO_40	-USBOC_R1
GPIO_41	-USBOC_R2
GPIO_42	-USBOC_R2
GPIO_43	-USBOC_F1
GPIO_44	-USBOC_F3
GPIO_45	-USBOC_F3

PWROK/RESET Table:

ITE8716KX	NET NAME	TARGET
PIN62/PCIRST1#(O)	-EXT_RST	TPM, EXT_DUAL_BIOS
PIN64/PCIRST2#(O)	-BIOSRST	LPC ROM
PIN65/PCIRST3#(O)	NC	NC
PIN115/PCIRST4#(O)	-THRMO	MCP51
PIN68/LRESET#(I)	-LPCRST	ITE8716KX
PIN63/PWROK	PWOK1	FRONT USB PWR(VCC) CONTROL
PIN109/PWROK2	PWOK2	1. THERM SHUTDOWN CIRCUIT 2. PWRGD DELAY 3. REAR USB PWR(VCC) CONTROL

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