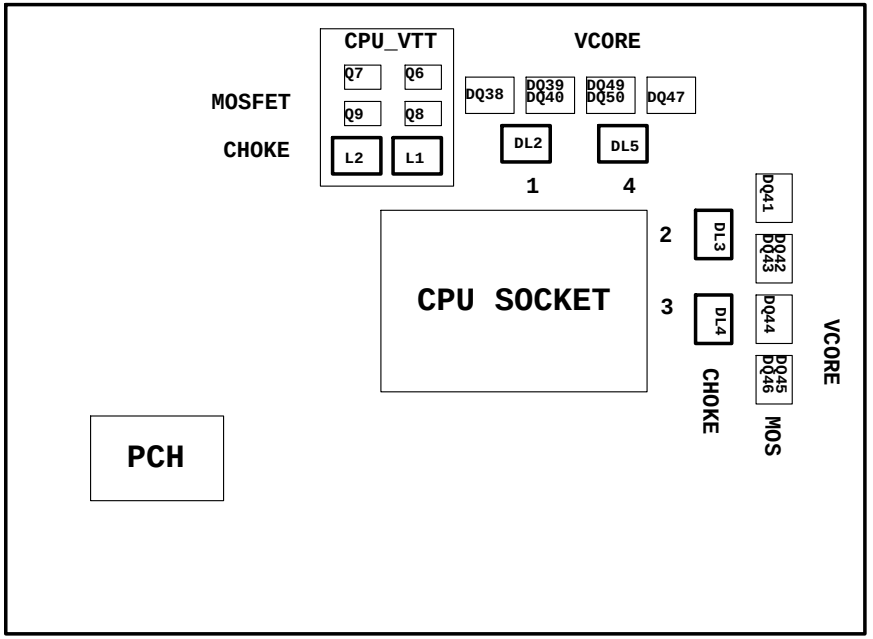
Model Name: GA-P61A-D3 2.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
16	PCI EXPRESS*1 SLOTs X2
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, -PROHOT, ESATA CONNECT
20	Dual BIOS
21	ALC892
22	REAR AUDIO JACK
23	VCORE PWM_ISL6364CRZ-1
24	VCORE PWM_ISL6364CRZ-2
25	DISCRETE POWER
26	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
27	CPU_VTT PWM_ISL6322G

SHEET	TITLE
28	VCCSA POWER
29	F_PANEL , F_USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	NEC USB3.0
34	TABLE LIST
35	
36	
37	
38	
39	
40	



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Title	Cover Sheet	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 1 of 34	

GA-P61A-D3
Component value change history

Data	Change Item	Reason
2011/05/11 BOM:01	1. E-BOM	
2011/05/19 BOM:10A	1. 修改load-line & prochot	
	2. load-line DR345 8.2K --> 20K ,DR347 24.9K--> 62K	
	3. PROCHOT DR418 1.6k--> 845	
2011/06/27 BOM:10B	1. Load-line change DR303 1.27K/4/1 --> 4.3K/4/1 , DR294 12.7K/4/1 --> 52.3K/4/1	
	2. MB_ID Change Remove R40=8.2K/4, Add R41=8.2K/4	
H61-S3		
2011/07/18 BOM:01	1.EVT BOM	
2011/06/27 BOM:10A	1. Add R28 For FANPWM2 P.UP	
P61-S3P		
2011/08/17 BOM:01	1.EVT BOM	
	2. LAN AR8151 --> RTL8111E-VL	
2011/09/16 BOM:10A	1. P-BOM	
	2. PCB只能先下"精成"	
P61-U3S6	1. P-BOM	
	2. PCIEX16 SLOT CHANGE COST DOWN	
P61A-D3-01	1. CHECK MOSFET用料	
P61A-D3-2.0	1. U13 RT9173 --> RT9199	
	2. 確認MOSFET用料	
	3. PCIEX16 & COM & PCI 料號確認	
	4. PCB改Rev2.0	
20B-1219	1. F_AUDIO Change 料號	
20C-1221	1. ITE8728 Rev.D --> E	

Circuit or PCB layout change

DATE	Change Item	Reason
P61-S3-B3	從P61-DS3-B3修改	
2011/05/11 PCB:0.1	1. Rear panel remove LPT , SPDIF 2. Remove CLK-Buffer for non over clocking	
	3. Remove 3x power 4. Vcore power 4 phase ' 3 phase (Iron choke)	
	5. Audio ALC889 ' VIA VT1708S 6. LAN RTL8111E-VL ' Atheros AR8151	
	7. Over voltage (Vcore , DDDR_VTT ,DDR15V)	
2011/05/19 PCB:1.0	1. 修改文字面: P61-S3-B3 REV0.1 --> P61-S3-B3 REV1.0	
P61-S3P		
2011/08/17 PCB:0.2	1. Add MOS_HS Co-lay	
	2. LAN AR8151 --> RTL8111E-VL	
2011/09/15 PCB:1.0	1. 文字面增加: Dynamic energy saver	
	2. MOS_HS1/2文字面要對應	
2011/09/27 P61-S3-B3 1.2	1. 文字面移除: Dynamic energy saver 2. Remove ITE8275 3. SLOT & CHIP多餘電容移除 4. Remove背板電容	
P61-U3S6 Rev 0.1	1. EVT	
P61A-D3 Rev 0.2	1. CPU FAN 100uF移除 2. PCIEX16 270uF移除,改上22uF 3. CPU SOCKET內圈電容LAYOUT? 4. M_BIOS/B_BIOS 文字面要加	
P61A-D3 Rev 1.0	1. R348 NET加粗	
	2. PCI/PCIEX1 SLOT電容移除	
	3. PBC39過電容	
	4. TR56 0-SHORT	
	5. CODEC 2.2/6 --> SHORT PAD	

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Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-P61A-D3 | Rev: 2.0

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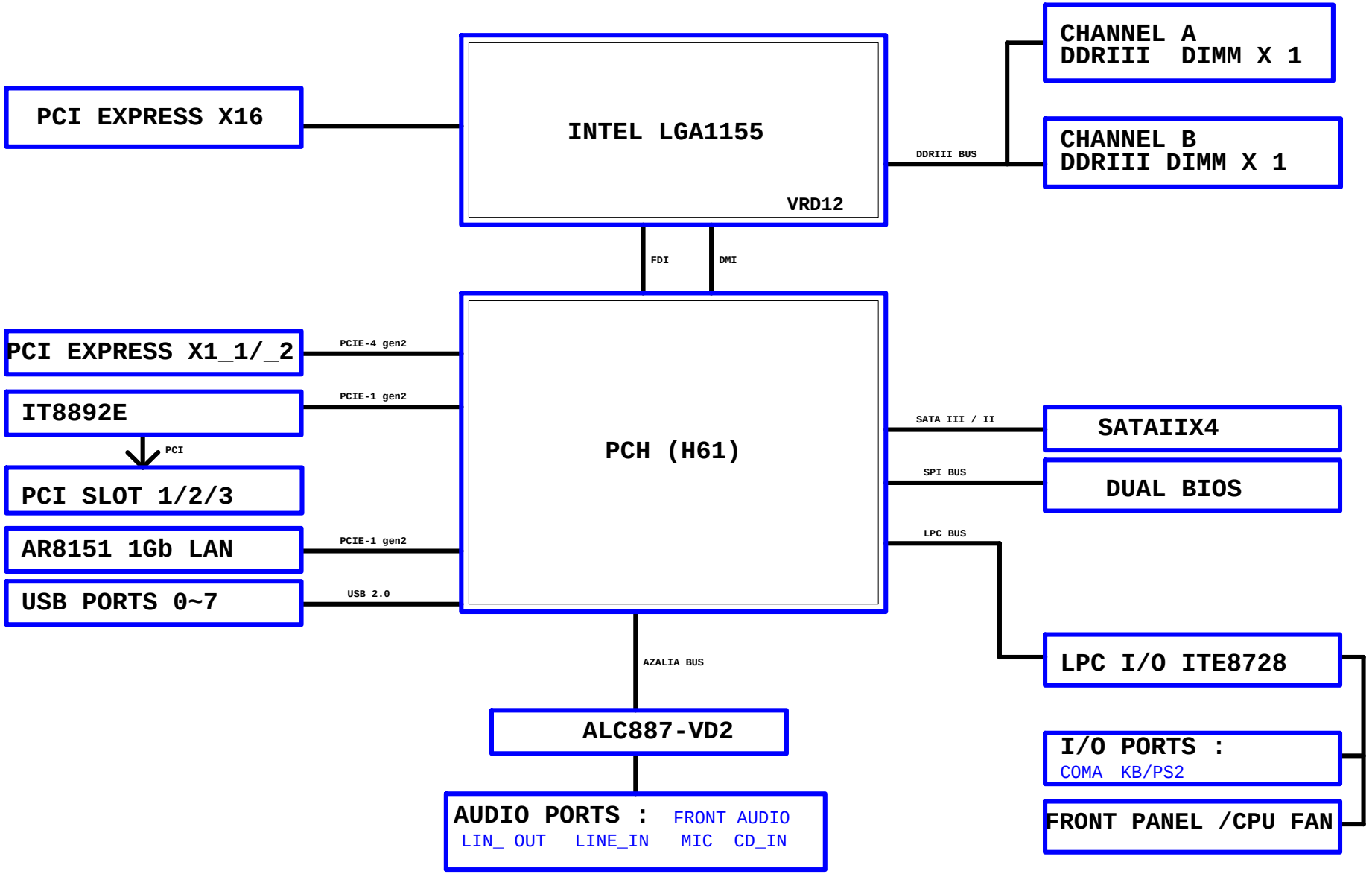
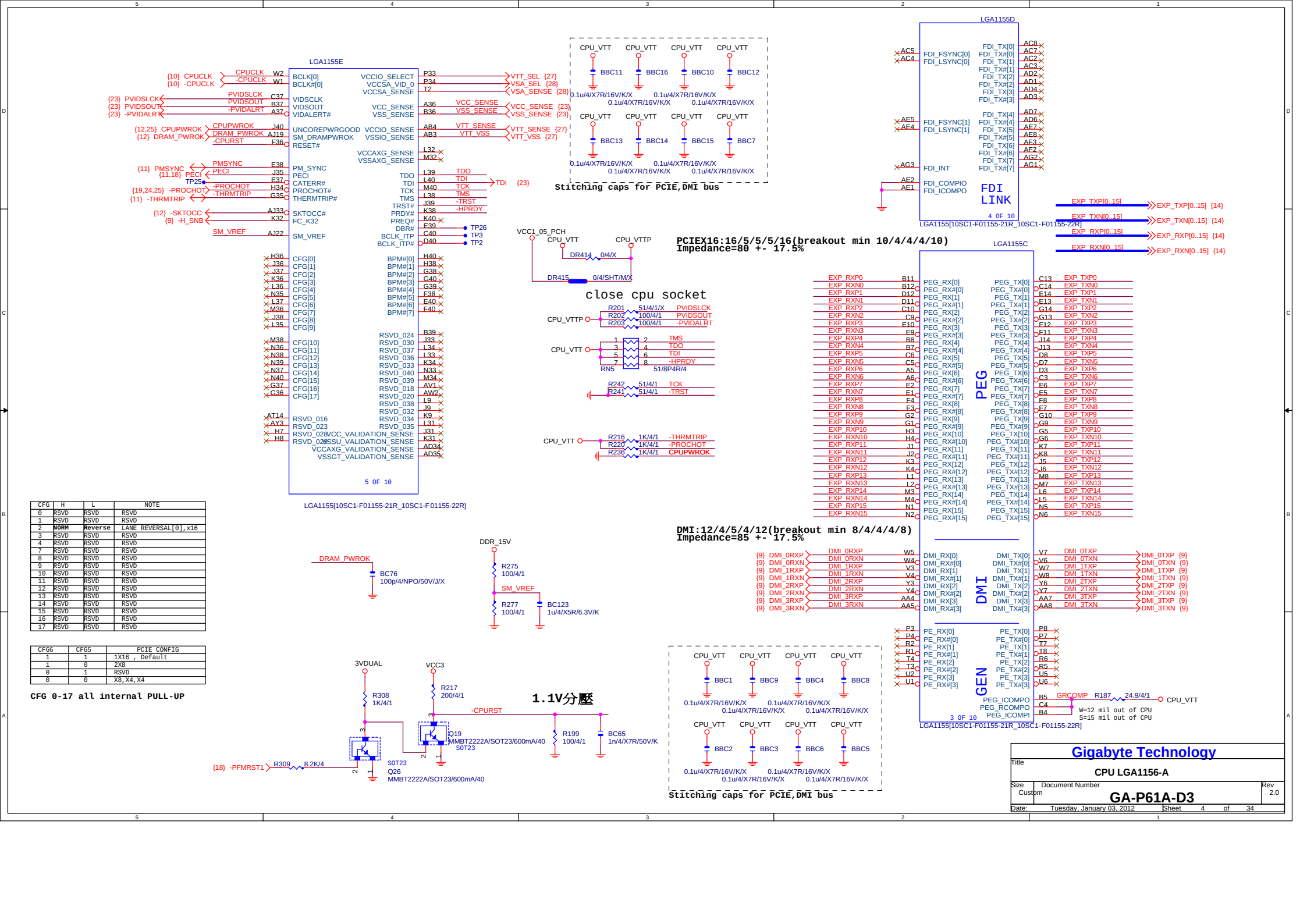
BLOCK DIAGRAM



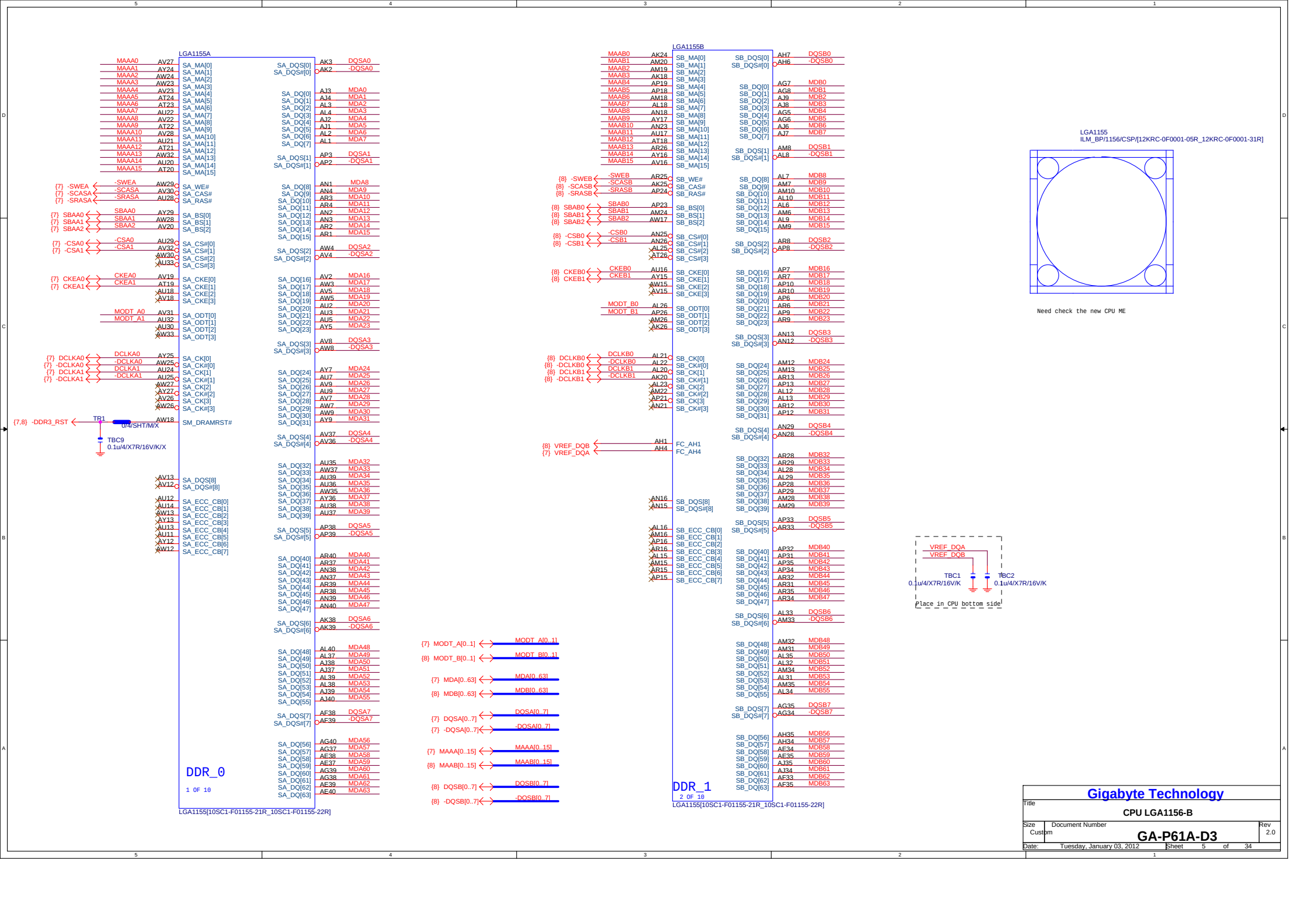
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-P61A-D3	Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 3 of 34	



CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

Size	Document Number	Rev
Custom	GA-P61A-D3	2.0
Date: Tuesday, January 03, 2012	Sheet 4 of 34	


LGA1155A
DDR_0
1 OF 10
LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]
LGA1155B
DDR_1
2 OF 10
LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]
LGA1155
ILM_BP/1156/CSP/[12KRC-0F0001-05R_12KRC-0F0001-31R]
Need check the new CPU ME
Place in CPU bottom side
TBC1
0.1u/4/X7R/16V/K
TBC2
0.1u/4/X7R/16V/K
TBC9
0.1u/4/X7R/16V/K/X
0/4/SHT/M/X
VREF_DQA
VREF_DQB
Gigabyte Technology
CPU LGA1156-B
GA-P61A-D3
Rev 2.0
Tuesday, January 03, 2012
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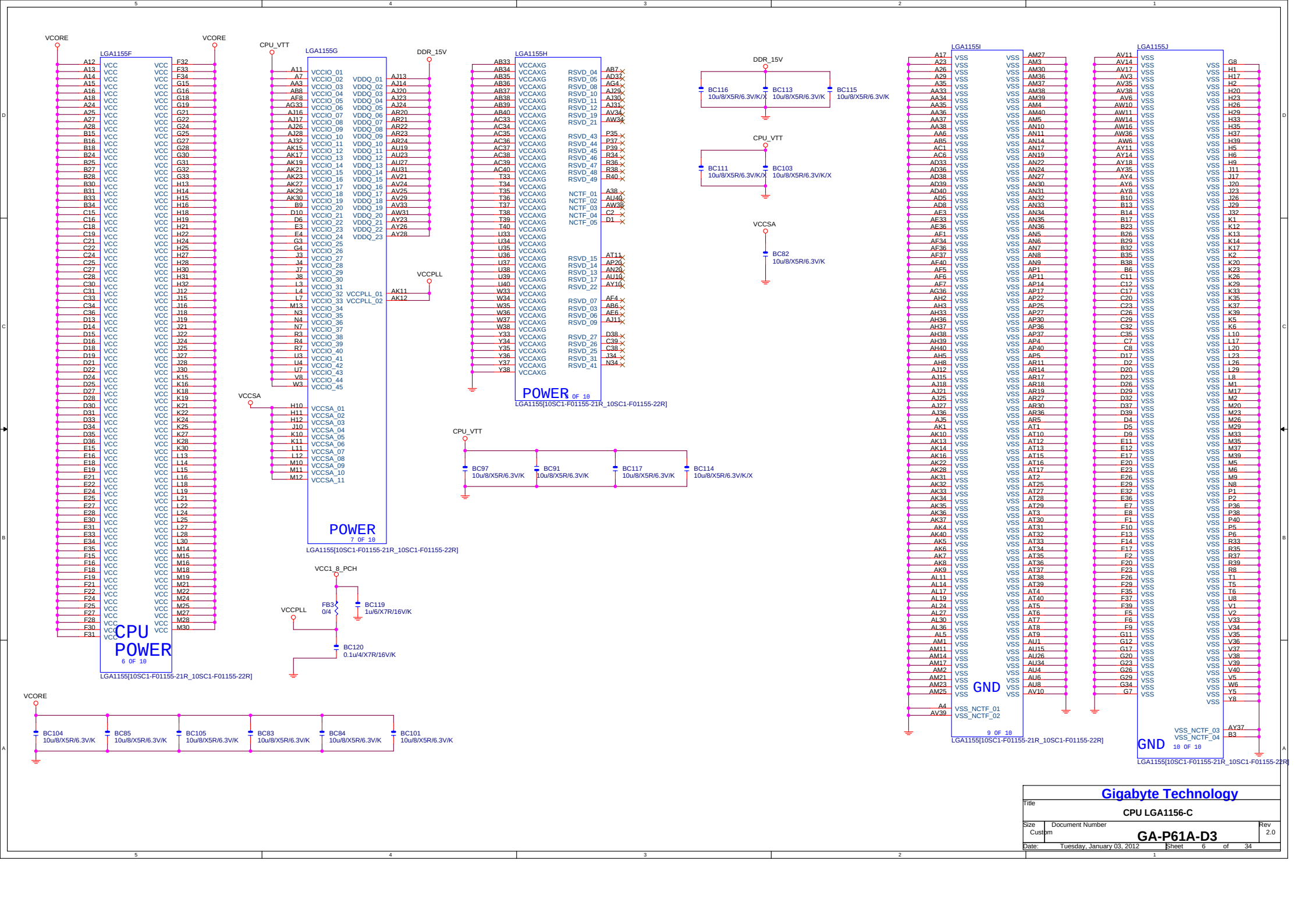
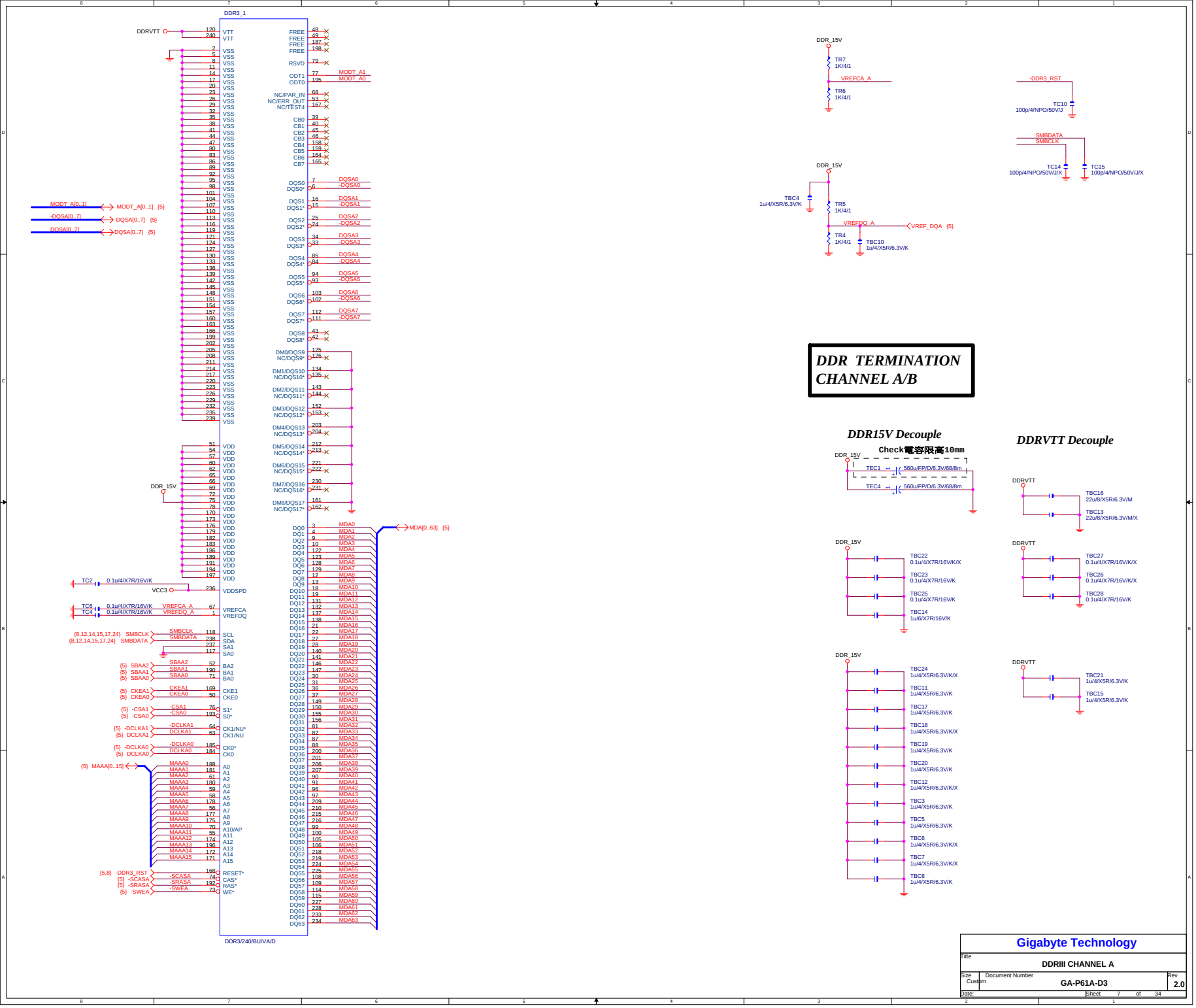
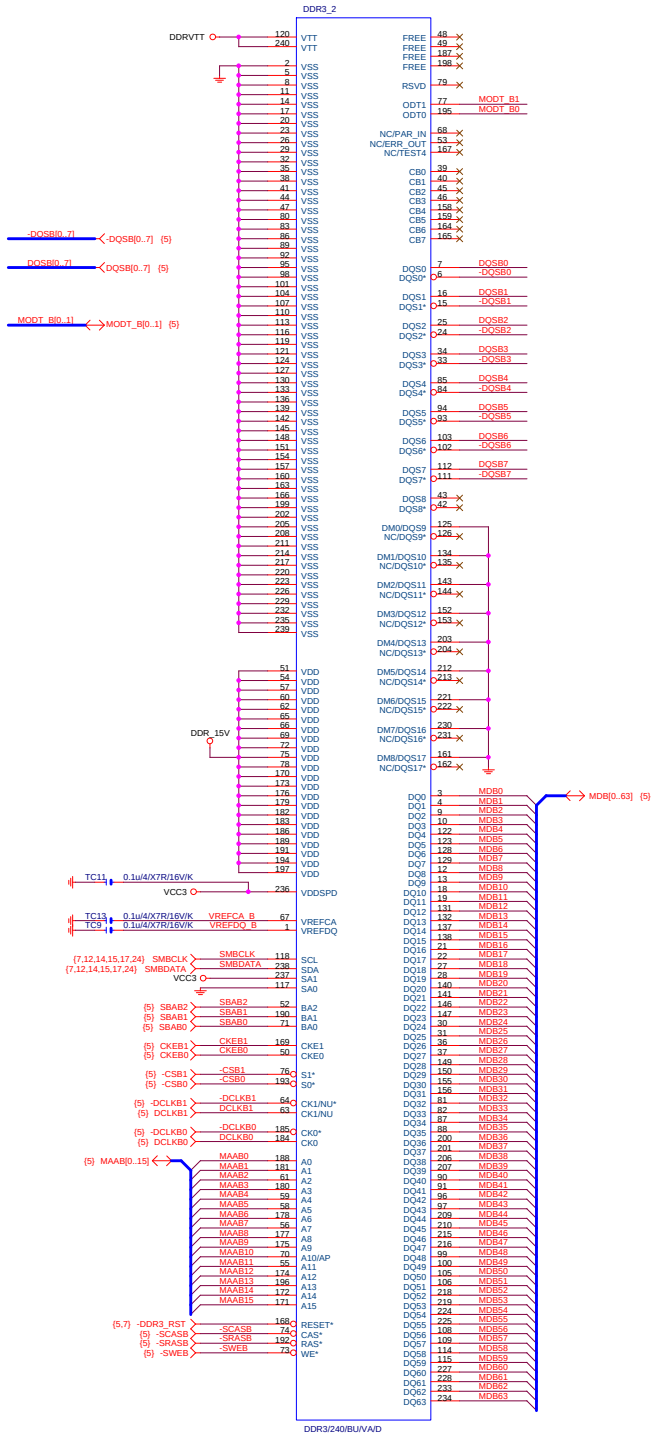
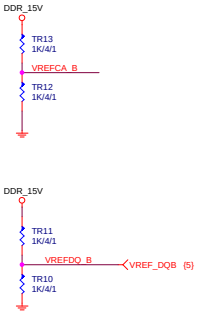


Gigabyte Technology		
Title: CPU LGA1156-C		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 6 of 34	


DDR3_1
DDRVTT
DDR_15V
MODT_A[0..1] {5}
-DQSA[0..7] {5}
DQSA[0..7] {5}
MDA[0..63] {5}
MODT_A1
MODT_A0
TC2 0.1u/4/X7R/16V/K
VCC3
VDDSPD
TC6 0.1u/4/X7R/16V/K
TC4 0.1u/4/X7R/16V/K
VREFCA_A
VREFDQ_A
VREFCA
VREFDQ
{8,12,14,15,17,24} SMBCLK
{8,12,14,15,17,24} SMBDATA
SMBCLK
SMBDATA
SCL
SDA
SA1
SA0
{5} SBAA2
{5} SBAA1
{5} SBAA0
BA2
BA1
BA0
{5} CKEA1
{5} CKEA0
CKE1
CKE0
{5} -CSA1
{5} -CSA0
S1*
S0*
{5} -DCLKA1
{5} DCLKA1
CK1/NU*
CK1/NU
{5} -DCLKA0
{5} DCLKA0
CK0*
CK0
{5} MAAA[0..15]
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15
{5,8} -DDR3_RST
{5} -SCASA
{5} -SRASA
{5} -SWEA
RESET*
CAS*
RAS*
WE*
DDR3/240/BU/VA/D
DDR_15V
TR7 1K/4/1
VREFCA_A
TR6 1K/4/1
-DDR3_RST
TC10 100p/4/NPO/50V/J
SMBDATA
SMBCLK
TC14 100p/4/NPO/50V/J/X
TC15 100p/4/NPO/50V/J/X
DDR_15V
TBC4 1u/4/X5R/6.3V/K
TR5 1K/4/1
VREFDQ_A
VREF_DQA {5}
TR4 1K/4/1
TBC10 1u/4/X5R/6.3V/K
DDR TERMINATION
CHANNEL A/B
DDR15V Decouple
Check電容限高10mm
DDR_15V
TEC1 560u/FP/D/6.3V/68/8m
TEC4 560u/FP/D/6.3V/68/8m
DDR_15V
TBC22 0.1u/4/X7R/16V/K/X
TBC23 0.1u/4/X7R/16V/K
TBC25 0.1u/4/X7R/16V/K
TBC14 1u/6/X7R/16V/K
DDR_15V
TBC24 1u/4/X5R/6.3V/K/X
TBC11 1u/4/X5R/6.3V/K
TBC17 1u/4/X5R/6.3V/K
TBC18 1u/4/X5R/6.3V/K/X
TBC19 1u/4/X5R/6.3V/K
TBC20 1u/4/X5R/6.3V/K
TBC12 1u/4/X5R/6.3V/K/X
TBC3 1u/4/X5R/6.3V/K
TBC5 1u/4/X5R/6.3V/K
TBC6 1u/4/X5R/6.3V/K/X
TBC7 1u/4/X5R/6.3V/K/X
TBC8 1u/4/X5R/6.3V/K
DDRVTT Decouple
DDRVTT
TBC16 22u/8/X5R/6.3V/M
TBC13 22u/8/X5R/6.3V/M/X
DDRVTT
TBC27 0.1u/4/X7R/16V/K/X
TBC26 0.1u/4/X7R/16V/K/X
TBC28 0.1u/4/X7R/16V/K
DDRVTT
TBC21 1u/4/X5R/6.3V/K
TBC15 1u/4/X5R/6.3V/K
Gigabyte Technology
Title
DDRIII CHANNEL A
Size Custom
Document Number GA-P61A-D3
Rev 2.0
Date:
Sheet 7 of 34



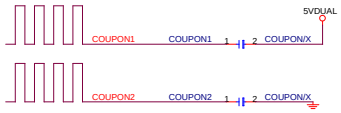


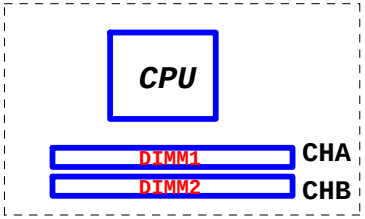
DDR3 1066,1333,1600MHZ BANDWIDTH

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

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

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





Gigabyte Technology		
Title: DDRIII CHANNEL B		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.0
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USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHB

DMI0RXN DMI0RXP DMI0TXP DMI0TXN DMI1RXN DMI1RXP DMI1TXN DMI1TXP DMI2RXN DMI2RXP DMI2TXN DMI2TXP DMI3RXN DMI3RXP DMI3TXN DMI3TXP DMI_IRCOMP DMI_ZCOMP

{4} DMI_0TXN — DMI_0TXN — D33
{4} DMI_0TXP — DMI_0TXP — B33
{4} DMI_0RXN — DMI_0RXN — J36
{4} DMI_0RXP — DMI_0RXP — H36
{4} DMI_1TXN — DMI_1TXN — A36
{4} DMI_1TXP — DMI_1TXP — B35
{4} DMI_1RXN — DMI_1RXN — P38
{4} DMI_1RXP — DMI_1RXP — R38
{4} DMI_2TXN — DMI_2TXN — B37
{4} DMI_2TXP — DMI_2TXP — C36
{4} DMI_2RXN — DMI_2RXN — H38
{4} DMI_2RXP — DMI_2RXP — J38
{4} DMI_3TXN — DMI_3TXN — E37
{4} DMI_3TXP — DMI_3TXP — E38
{4} DMI_3RXN — DMI_3RXN — M41
{4} DMI_3RXP — DMI_3RXP — P41
DMI_COMP — B31
E31

W=4 mil out of PCH
S=15 mil out of PCH
VCC1_05_PCH — R350 49.9/4/1

-SRCCLK_PCH — P33
SRCCLK_PCH — R33
CLKIN_DMI_N
CLKIN_DMI_P

DMI

USB

USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P

BF36 -USBP0 — -USBP0 {29}
BD36 +USBP0 — +USBP0 {29}
BC33 -USBP1 — -USBP1 {29}
BA33 +USBP1 — +USBP1 {29}
BM33 -USBP2 — -USBP2 {29}
BM35 +USBP2 — +USBP2 {29}
BT33 -USBP3 — -USBP3 {29}
BU32 +USBP3 — +USBP3 {29}
BR32 -USBP4 — -USBP4 {32}
BT31 +USBP4 — +USBP4 {32}
BN29 -USBP5 — -USBP5 {32}
BM30 +USBP5 — +USBP5 {32}

H61 CHIP USB PORT 6/7 are Disable

H61 CHIP USB PORT 12/13 are Disable

OC0#/GPIO59 OC1#/GPIO40 OC2#/GPIO41 OC3#/GPIO42 OC4#/GPIO43 OC5#/GPIO9 OC6#/GPIO10 OC7#/GPIO14

BM43 BD41 -USBOC_F — -USBOC_F {29}
BG41 BK43 BP43 BJ41 -USBOC_R — -USBOC_R {29,32}
BT45 GPIO14

OC[3:0]# for Device 29 (ports 0-7)

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

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

USBRBIAS# USBRBIAS
BP25 USBRBIAS — R341 22.6/4/1
BM25
W=4 mil out of PCH
S=15 mil out of PCH

CLKIN_DOT_96N CLKIN_DOT_96P
BD38 -DOTCLK
BF38 DOTCLK

DMI2RBIAS
A32 — R351 750/4/1
W=4 mil out of PCH
S=15 mil out of PCH

PCI-E

{15} PCIE_IN1 — J20
{15} PCIE_IP1 — L20
C18 0.1u/4/X7R/16V/K — {15} PCIE_TN1 — PET_N1 — F25
C17 0.1u/4/X7R/16V/K — {15} PCIE_TP1 — PET_P1 — F23
{15} PCIE_IN2 — P20
{15} PCIE_IP2 — R20
C2 0.1u/4/X7R/16V/K — {15} PCIE_TN2 — PET_N2 — C22
C3 0.1u/4/X7R/16V/K — {15} PCIE_TP2 — PET_P2 — A22
{34} RA_SL_IN — H17
{34} RA_SL_IP — J17
{34} RA_SL_ON — E21
{34} RA_SL_OP — B21
{16} PCIEBIN — P17
{16} PCIEBIP — M17
C15 0.1u/4/X7R/16V/K — {16} PCIEBON — PET_N4 — F18
C16 0.1u/4/X7R/16V/K — {16} PCIEBOP — PET_P4 — E17
{33} USB3_IN — N15
{33} USB3_IP — M15
C42 0.1u/4/X7R/16V/K — {33} USB3_ON — PET_N5 — B17
C35 0.1u/4/X7R/16V/K — {33} USB3_OP — PET_P5 — C16
{32} ML_IN — J15
{32} ML_IP — L15
C41 0.1u/4/X7R/16V/K — {32} ML_ON — PET_N6 — A16
C33 0.1u/4/X7R/16V/K — {32} ML_OP — PET_P6 — B15

PERN1 PERP1 PETN1 PETP1 PERN2 PERP2 PETN2 PETP2 PERN3 PERP3 PETN3 PETP3 PERN4 PERP4 PETN4 PETP4 PERN5 PERP5 PETN5 PETP5 PERN6 PERP6 PETN6 PETP6 PERN7 PERP7 PETN7 PETP7 PERN8 PERP8 PETN8 PETP8

J12 H12 F15 F13 H10 J10 B13 D13

H61 CHIP PCIE PORT 7/8 are Disable

2 OF 11
BD82H61/B3/S

放靠近 Device & PCI-E Slot

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

PCHG

FDILINK

FDI_RXN0 FDI_RXP0 FDI_RXN1 FDI_RXP1 FDI_RXN2 FDI_RXP2 FDI_RXN3 FDI_RXP3 FDI_RXN4 FDI_RXP4 FDI_RXN5 FDI_RXP5 FDI_RXN6 FDI_RXP6 FDI_RXN7 FDI_RXP7

C42 B43 F45 F43 H41 J41 C46 D47 B45 A46 B47 C49 J43 H43 M43 P43

H31 J31 C29 E29 — TP21 TP25 TP29 TP33
J27 L27 F28 E27 — TP22 TP26 TP30 TP34
J25 L25 C26 B27 — TP23 TP27 TP31 TP35
L22 J22 B25 D25 — TP24 TP28 TP32 TP36

FDI_FSYNC0 FDI_LSYNC0 FDI_FSYNC1 FDI_LSYNC1
B51 E49 C52 D51

FDI_INT — H46

7 OF 11
BD82H61/B3/S

PCHE

NV_CLE — M48 R47 Y41 M50 M49 U43 J57

NV_ALE NV_CLE NV_RB# NV_RE#_WRB0 NV_RE#_WRB1 NV_WE#_CK0 NV_WE#_CK1

NV_DQ0/NV_IO0 NV_DQ1/NV_IO1 NV_DQ2/NV_IO2 NV_DQ3/NV_IO3 NV_DQ4/NV_IO4 NV_DQ5/NV_IO5 NV_DQ6/NV_IO6 NV_DQ7/NV_IO7 NV_DQ8/NV_IO8 NV_DQ9/NV_IO9 NV_DQ10/NV_IO10 NV_DQ11/NV_IO11 NV_DQ12/NV_IO12 NV_DQ13/NV_IO13 NV_DQ14/NV_IO14 NV_DQ15/NV_IO15

AB50 Y50 AB49 AB44 U49 R44 U50 U46 U44 H50 K46 L56 J55 F53 H52 E52

NV_CE#0 NV_CE#1 NV_CE#2 NV_CE#3
K50 K49 AB46 G56

NV_DQS0 NV_DQS1
Y44 L53

NV_RCOMP — R50 — NV_RCOMP — R422 33/4

NVRAM

5 OF 11
BD82H61/B3/S

VCC3 — BC178 1u/4/X5R/6.3V/K

-USBOC_F — BC168 0.1u/4/X7R/16V/K
-USBOC_R — BC170 0.1u/4/X7R/16V/K

3VDUAL — R371 8.2K/4 — GPIO14

VCC1_05_PCH — R244 8.2K/4/X DOTCLK
Mount for non-graphics skus

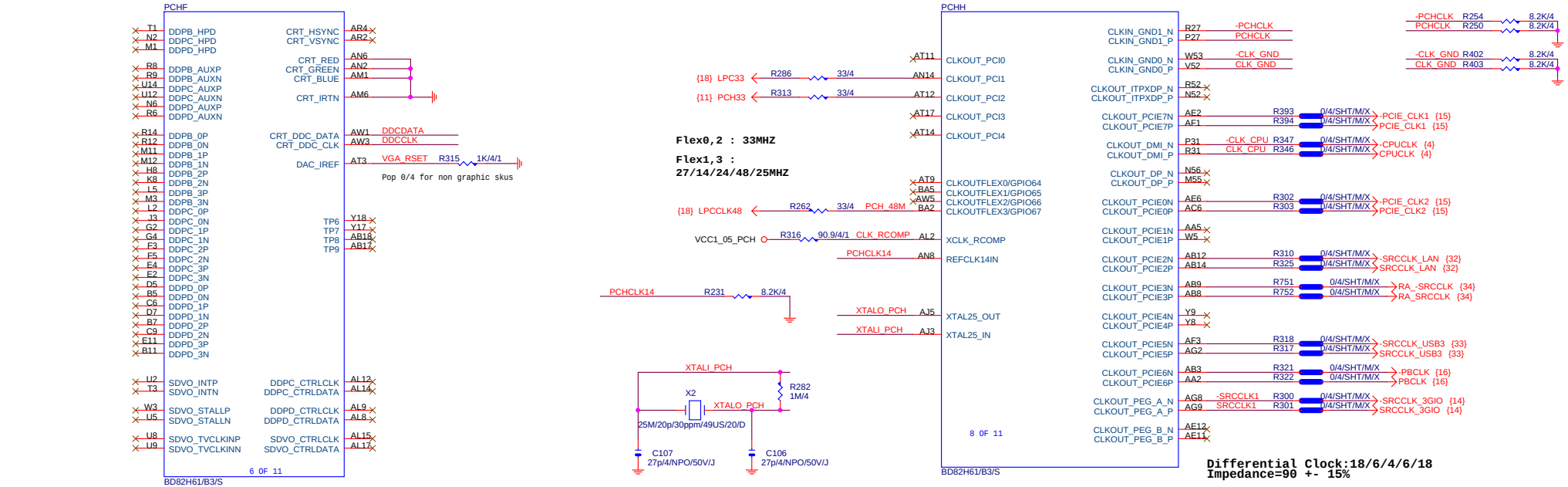
DOTCLK — R246 8.2K/4
-DOTCLK — R251 8.2K/4
R102 short to GND in non graphic SKU
SRCCLK_PCH — R267 8.2K/4
-SRCCLK_PCH — R268 8.2K/4

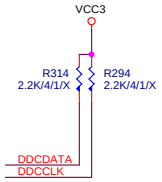
PCH_HS
1
2
SB_HS/[12SP2-030005-42R_12SP2-030005-43R]

VCC1_8_PCH — R407 1K/4/1
R408 8.2K/4 NV_CLE
-H_SNB {4}
BC186 0.1u/4/X7R/16V/K

DMI /FDI termination voltage

Gigabyte Technology			
Title: PCH FDI,DMI,USB ,PCIE			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 9 of 34		





Check if NC for P67 non graphic chip

Gigabyte Technology			
Title: PCH DISPLAY ,CLK BUFFER			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 10 of 34		

SATA:20/4.5/7.5/4.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHC

CLINK: CL_CLK1, CL_DATA1, CL_RST1#
SATA3: SATA0RXN/RXP, SATA0TXN/TXP, SATA1RXN/RXP, SATA1TXN/TXP
SATA2: SATA2RXN/RXP, SATA2TXN/TXP, SATA3RXN/RXP, SATA3TXN/TXP, SATA4RXN/RXP, SATA4TXN/TXP, SATA5RXN/RXP, SATA5TXN/TXP
FAN: TACH0/GPIO17, TACH1/GPIO1, TACH2/GPIO6, TACH3/GPIO7, TACH4_GPIO68, TACH5_GPIO69, TACH6_GPIO70, TACH7_GPIO71
GPIO: SCLOCK/GPIO22, SLOAD/GPIO38, SDATAOUT0/GPIO39, SDATAOUT1/GPIO48
HOST: A20GATE, INIT3_3V#, RCIN#, SERIRQ, THRMTRIP#, PECI, PMSYNCH

For WIFI
{12,18} PWROK1 — R547 0/4/SHT/M/X — ME_PWROK — BC46 APWROK
C123 0.01u/4/X7R/25V/K/X
TP4 TP6 TP5 TP7 — BN21 PWM0, BT21 PWM1, BM20 PWM2, BN19 PWM3
{18} SSTCTL — BC43 SST
AY20 NC_5
CLKIN_SATA_N, CLKIN_SATA_P — AF55 -SRCCLK_SATA, AG56 SRCCLK_SATA
SATALED# — BF57 -SATALED {29}
SATAICOMPI — AJ55
SATAICOMPO — AJ53 SATACOMP R390 37.4/4/1 VCC1_05_PCH
SATA0GP/GPIO21 — BC54 GPIO21
SATA1GP/GPIO19 — AY52 GPIO19
SATA2GP/GPIO36 — BB55 GPIO36
SATA3GP/GPIO37 — BG53 GPIO37
SATA4GP/GPIO16 — AU56 GPIO16
SATA5GP/GPIO49 — BA56 TEMP_ALART-
W=4 mil out of PCH S=15 mil out of PCH
SATA3COMPI — AE54
SATA3RCOMPO — AE52 SATA3COMP R391 49.9/4/1 VCC1_05_PCH
TP16 — AE50
W=4 mil out of PCH S=15 mil out of PCH
SATA3RBIAS — AC52 SATA3BIAS R392 750/4/1
BB57 A20GATE — A20GATE {18}
BN56 -INIT_3V — -KBRST {18}
BG56 -KBRST — SERIRQ {18}
AV52 SERIRQ — THRMTRIP {4}
E56 -THRMTRIP — R377 0/4/X — PECI {4,18}
H48 SB_PECI
F55 PMSYNCH — PMSYNC {4}
3 0F 11
BD82H61/B3/S

SRCCLK_SATA R265 8.2K/4
-SRCCLK_SATA R266 8.2K/4

MB-ID
R331 8.2K/4/X GPIO17
R468 8.2K/4/X GPIO19
R436 1K/4/1/X GPIO22

H61 PORT2.3 Disable

VCC3
GPIO21 R455 8.2K/4
GPIO36 R439 8.2K/4/X
GPIO37 R433 8.2K/4/X
R434 8.2K/4/X FDI RX
GPIO38 R435 8.2K/4
GPIO39 R452 8.2K/4
-GNT3 R312 8.2K/4

VCC3
A20GATE R453 8.2K/4
-KBRST R401 1K/4/1
-INIT_3V R398 1K/4/1/X
-GNT2 R311 1K/4/1/X
-GNT3 R293 1K/4/1/X

VCC3
R337 1K/4/1/X GPIO69 R333 8.2K/4/X

PCHA

PAR, DEVSEL#, CLKIN_PCILOOPBACK, PCIRST#, IRDY#, PME#, SERR#, STOP#, PLOCK#, TRDY#, PERR#, FRAME#
AD0–AD31
{10} PCH33 — PCH33
-DEVSEL, -IRDY, -SERR, -STOP, -PLOCK, -TRDY, -PERR, -FRAME
TP11
{20} -GNT0 {20} -GNT1 — GNT0#, GNT1#/GPIO51, GNT2#/GPIO53, GNT3#/GPIO55
REQ0#, REQ1#/GPIO50, REQ2#/GPIO52, REQ3#/GPIO54
-REQ0, -REQ1, -REQ2, -REQ3
PIRQA#, PIRQB#, PIRQC#, PIRQD#, PIRQE#/GPIO2, PIRQF#/GPIO3, PIRQG#/GPIO4, PIRQH#/GPIO5
-PIRQA, -PIRQB, -PIRQC, -PIRQD, -PIRQE, -PIRQF, -PIRQG, -PIRQH
C/BE0# C/BE1# C/BE2# C/BE3#
PCI
1 0F 11
BD82H61/B3/S

RN10 8.2K/8P4R/4 — -DEVSEL, -REQ3, -REQ0, -TRDY
RN11 8.2K/8P4R/4 — -PIRQF, -IRDY, -FRAME, -STOP
RN9 8.2K/8P4R/4 — -REQ1, -REQ2, -PIRQH, -PERR
RN8 8.2K/8P4R/4 — -PIRQD, -PIRQC, -PIRQB, -PIRQA
RN7 8.2K/8P4R/4 — -PIRQG, -PLOCK, -PIRQE, -SERR

VCC3
RN13 8.2K/8P4R/4 — GPIO70, GPIO6, GPIO17, GPIO1, GPIO71, GPIO68, GPIO7
RN12 8.2K/8P4R/4

5VSB
R335 8.2K/4/X
PECI
Q27 MMBT2222A/SOT23/600mA/40/X
S0T23
{18} PECI_CTL — R334 1K/4/1/X — SB_PECI
To prevent PCH PECI crosstalk to CPU when disable PCH PECI

SATA2_0
SATA0TXP 0.01u/4/X7R/25V/K C148 — SATA0TXPC
SATA0TXN 0.01u/4/X7R/25V/K C145 — SATA0TXNC
SATA0RXN 0.01u/4/X7R/25V/K C140 — SATA0RXNC
SATA0RXP 0.01u/4/X7R/25V/K C136 — SATA0RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_2
SATA4TXP 0.01u/4/X7R/25V/K C146 — SATA4TXPC
SATA4TXN 0.01u/4/X7R/25V/K C143 — SATA4TXNC
SATA4RXN 0.01u/4/X7R/25V/K C138 — SATA4RXNC
SATA4RXP 0.01u/4/X7R/25V/K C134 — SATA4RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B

RN17 8.2K/8P4R/4
VCC3 — GPIO0 {12}, GPIO48, SERIRQ, GPIO16, GPIO22, TEMP_ALART- {18}, GPIO19
RN18 8.2K/8P4R/4

SATA2_1
SATA1TXP 0.01u/4/X7R/25V/K C188 — SATA1TXPC
SATA1TXN 0.01u/4/X7R/25V/K C186 — SATA1TXNC
SATA1RXN 0.01u/4/X7R/25V/K C184 — SATA1RXNC
SATA1RXP 0.01u/4/X7R/25V/K C182 — SATA1RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_3
SATA5TXP 0.01u/4/X7R/25V/K C183 — SATA5TXPC
SATA5TXN 0.01u/4/X7R/25V/K C179 — SATA5TXNC
SATA5RXN 0.01u/4/X7R/25V/K C176 — SATA5RXNC
SATA5RXP 0.01u/4/X7R/25V/K C173 — SATA5RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B

Gigabyte Technology

Title	PCH HOST , SATA, PCI	
Size B	Document Number GA-P61A-D3	Rev 2.0
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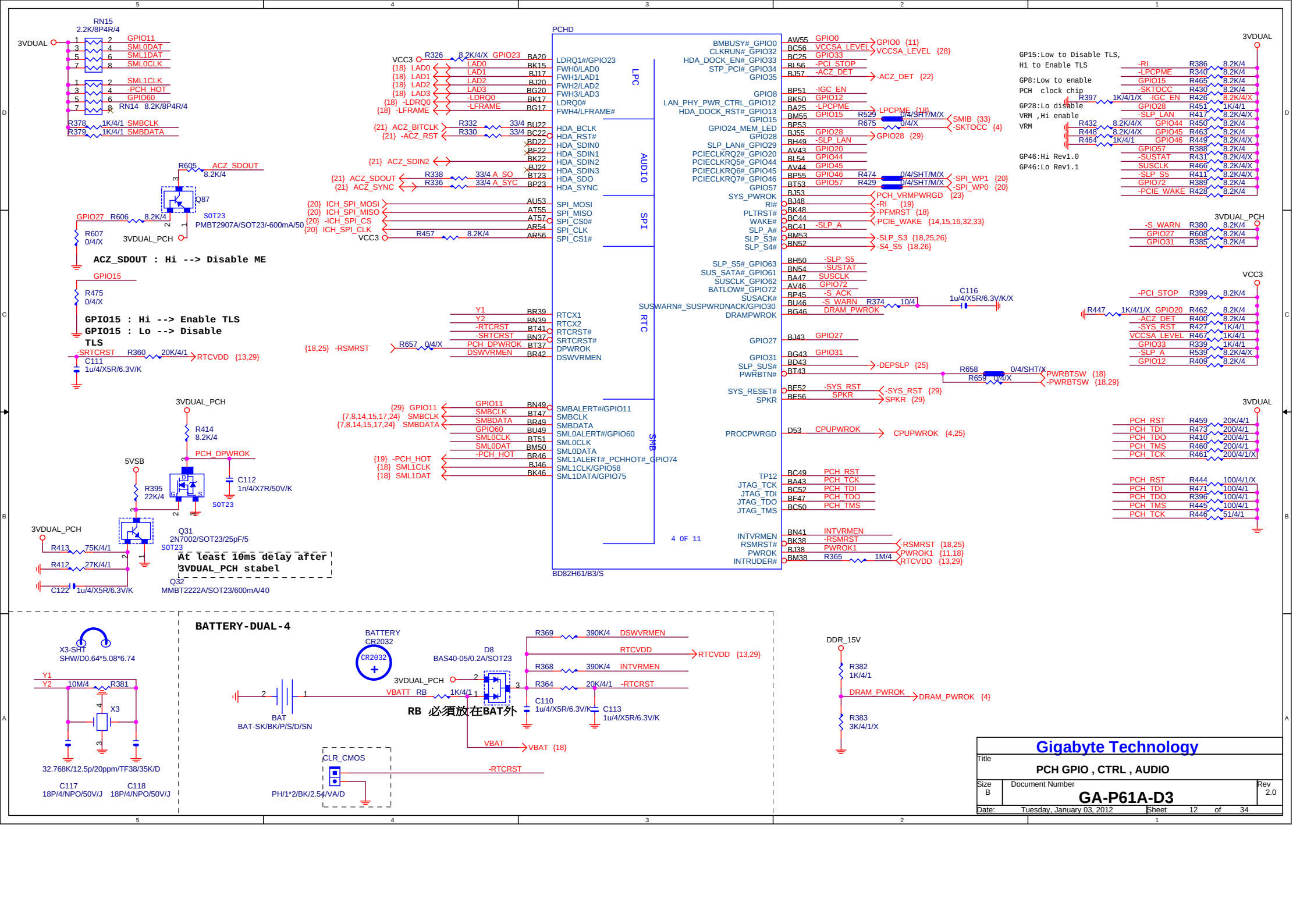
RN15
2.2K/8P4R/4
3VDUAL
GPIO11
SML0DAT
SML1DAT
SML0CLK
SML1CLK
-PCH_HOT
GPIO60
RN14 8.2K/8P4R/4
R378 1K/4/1 SMBCLK
R379 1K/4/1 SMBDATA
PCHD
LPC
AUDIO
SPI
RTC
SMB
LDRQ1#/GPIO23
FWH0/LAD0
FWH1/LAD1
FWH2/LAD2
FWH3/LAD3
LDRQ0#
FWH4/LFRAME#
HDA_BCLK
HDA_RST#
HDA_SDIN0
HDA_SDIN1
HDA_SDIN2
HDA_SDIN3
HDA_SDO
HDA_SYNC
SPI_MOSI
SPI_MISO
SPI_CS0#
SPI_CLK
SPI_CS1#
RTCX1
RTCX2
RTCRST#
SRTCRST#
DPWROK
DSWVRMEN
SMBALERT#/GPIO11
SMBCLK
SMBDATA
SML0ALERT#/GPIO60
SML0CLK
SML0DATA
SML1ALERT#_PCHHOT#_GPIO74
SML1CLK/GPIO58
SML1DATA/GPIO75
4 OF 11
BD82H61/B3/S
BMBUSY#_GPIO0
CLKRUN#_GPIO32
HDA_DOCK_EN#_GPIO33
STP_PCI#_GPIO34
GPIO35
GPIO8
LAN_PHY_PWR_CTRL_GPIO12
HDA_DOCK_RST#_GPIO13
GPIO15
GPIO24_MEM_LED
GPIO28
SLP_LAN#_GPIO29
PCIECLKRQ2#_GPIO20
PCIECLKRQ5#_GPIO44
PCIECLKRQ6#_GPIO45
PCIECLKRQ7#_GPIO46
GPIO57
SYS_PWROK
RI#
PLTRST#
WAKE#
SLP_A#
SLP_S3#
SLP_S4#
SLP_S5#_GPIO63
SUS_SATA#_GPIO61
SUSCLK_GPIO62
BATLOW#_GPIO72
SUSACK#
SUSWARN#_SUSPWRDNACK/GPIO30
DRAMPWROK
GPIO27
GPIO31
SLP_SUS#
PWRBTN#
SYS_RESET#
SPKR
PROCPWRGD
TP12
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
INTVRMEN
RSMRST#
PWROK
INTRUDER#
GPIO0 {11}
VCCSA_LEVEL {28}
-PCI_STOP
-ACZ_DET {22}
-IGC_EN
-LPCPME {18}
SMIB {33}
-SKTOCC {4}
GPIO28 {29}
-SLP_LAN
GPIO20
GPIO44
GPIO45
GPIO46
GPIO57
GPIO72
-SUSTAT
SUSCLK
-SLP_S5
-SLP_WP1 {20}
-SLP_WP0 {20}
PCH_VRMPWRGD {23}
-RI {19}
-PFMRST {18}
-PCIE_WAKE {14,15,16,32,33}
-SLP_A
-SLP_S3 {18,25,26}
-S4_S5 {18,26}
-SLP_S5
-SUSTAT
-SUSCLK
-S_ACK
-S_WARN
DRAM_PWROK
-DEPSLP {25}
PWRBTSW {18}
-PWRBTSW {18,29}
-SYS_RST
SPKR
CPUPWROK {4,25}
PCH_RST
PCH_TCK
PCH_TDI
PCH_TDO
PCH_TMS
INTVRMEN
-RSMRST
PWROK1
RTCVDD {13,29}
3VDUAL
GP15:Low to Disable TLS,
Hi to Enable TLS
GP8:Low to enable
PCH clock chip
GP28:Lo disable
VRM ,Hi enable
GP46:Hi Rev1.0
GP46:Lo Rev1.1
-RI
-LPCPME
-SKTOCC
-SLP_LAN
-SUSTAT
SUSCLK
-SLP_S5
-SLP_WP1
-SLP_WP0
-PCIE_WAKE
3VDUAL_PCH
-S_WARN
GPIO27
GPIO31
VCC3
-PCI_STOP
-ACZ_DET
-SYS_RST
-SLP_A
GPIO12
GPIO33
VCCSA_LEVEL
R605 ACZ_SDOUT 8.2K/4
Q87
S0T23
PMBT2907A/SOT23/-600mA/50
R606 8.2K/4
R607 0/4/X
ACZ_SDOUT : Hi --> Disable ME
GPIO15 : Hi --> Enable TLS
GPIO15 : Lo --> Disable TLS
R475 0/4/X
SRTCRST R360 20K/4/1 RTCVDD {13,29}
C111 1u/4/X5R/6.3V/K
R326 8.2K/4/X GPIO23
LAD0
LAD1
LAD2
LAD3
-LDRQ0
-LFRAME
R332 33/4
R330 33/4
ACZ_BITCLK
-ACZ_RST
ACZ_SDIN2
R338 33/4 A_SO
R336 33/4 A_SYC
ACZ_SDOUT
ACZ_SYNC
ICH_SPI_MOSI
ICH_SPI_MISO
-ICH_SPI_CS
ICH_SPI_CLK
R457 8.2K/4
Y1
Y2
-RTCRST
-SRTCRST
PCH_DPWROK
DSWVRMEN
-RSMRST
R657 0/4/X
C116 1u/4/X5R/6.3V/K/X
R374 10/4
R447 1K/4/1/X GPIO20
R658 0/4/SHT/X
R659 0/4/X
R414 8.2K/4
PCH_DPWROK
5VSB
R395 22K/4
C112 1n/4/X7R/50V/K
S0T23
Q31
2N7002/SOT23/25pF/5
R413 75K/4/1
R412 27K/4/1
C122 1u/4/X5R/6.3V/K
Q32
MMBT2222A/SOT23/600mA/40
At least 10ms delay after
3VDUAL_PCH stabel
GPIO11
SMBCLK
SMBDATA
GPIO60
SML0CLK
SML0DAT
-PCH_HOT
SML1CLK
SML1DAT
R459 20K/4/1
R473 200/4/1
R410 200/4/1
R460 200/4/1
R461 200/4/1/X
R444 100/4/1/X
R471 100/4/1
R396 100/4/1
R445 100/4/1
R446 51/4/1
BATTERY-DUAL-4
X3-SHT
SHW/D0.64*5.08*6.74
Y1
Y2
10M/4
R381
X3
32.768K/12.5p/20ppm/TF38/35K/D
C117 18P/4/NPO/50V/J
C118 18P/4/NPO/50V/J
BATTERY
CR2032
BAT
BAT-SK/BK/P/S/D/SN
D8
BAS40-05/0.2A/SOT23
VBATT
RB
1K/4/1
RB 必須放在BAT外
R369 390K/4 DSWVRMEN
R368 390K/4 INTVRMEN
R364 20K/4/1 -RTCRST
C110 1u/4/X5R/6.3V/K
C113 1u/4/X5R/6.3V/K
VBAT {18}
CLR_CMOS
PH/1*2/BK/2.54/VA/D
DDR_15V
R382 1K/4/1
R383 3K/4/1/X
DRAM_PWROK {4}
Gigabyte Technology
Title
PCH GPIO , CTRL , AUDIO
Size B
Document Number
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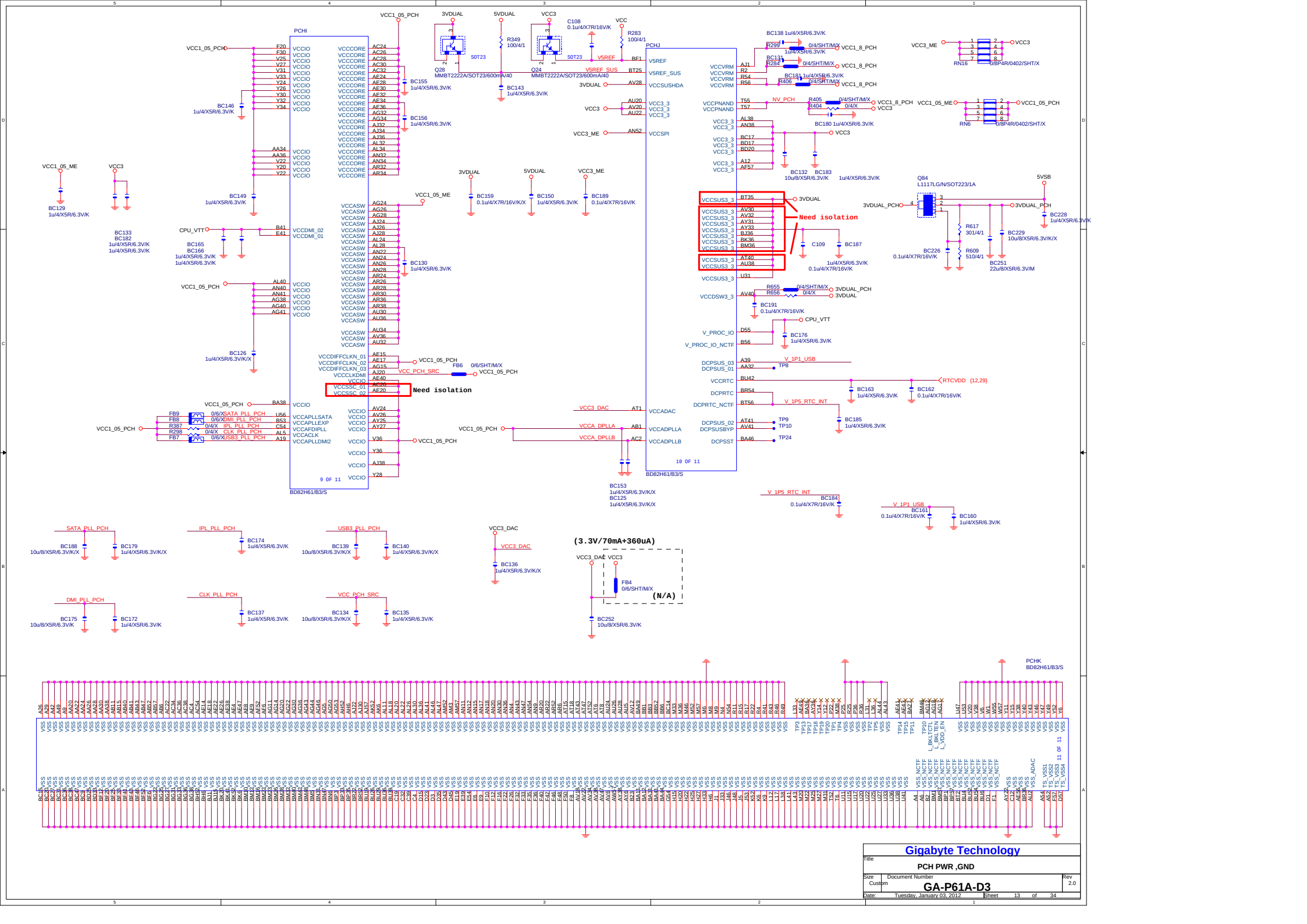
PCHI
PCHJ
PCHK
BD82H61/B3/S
9 OF 11
10 OF 11
11 OF 11
Need isolation
Need isolation
(3.3V/70mA+360uA)
(N/A)
SATA_PLL_PCH
IPL_PLL_PCH
USB3_PLL_PCH
DMI_PLL_PCH
CLK_PLL_PCH
VCC_PCH_SRC
Gigabyte Technology
PCH PWR ,GND
GA-P61A-D3
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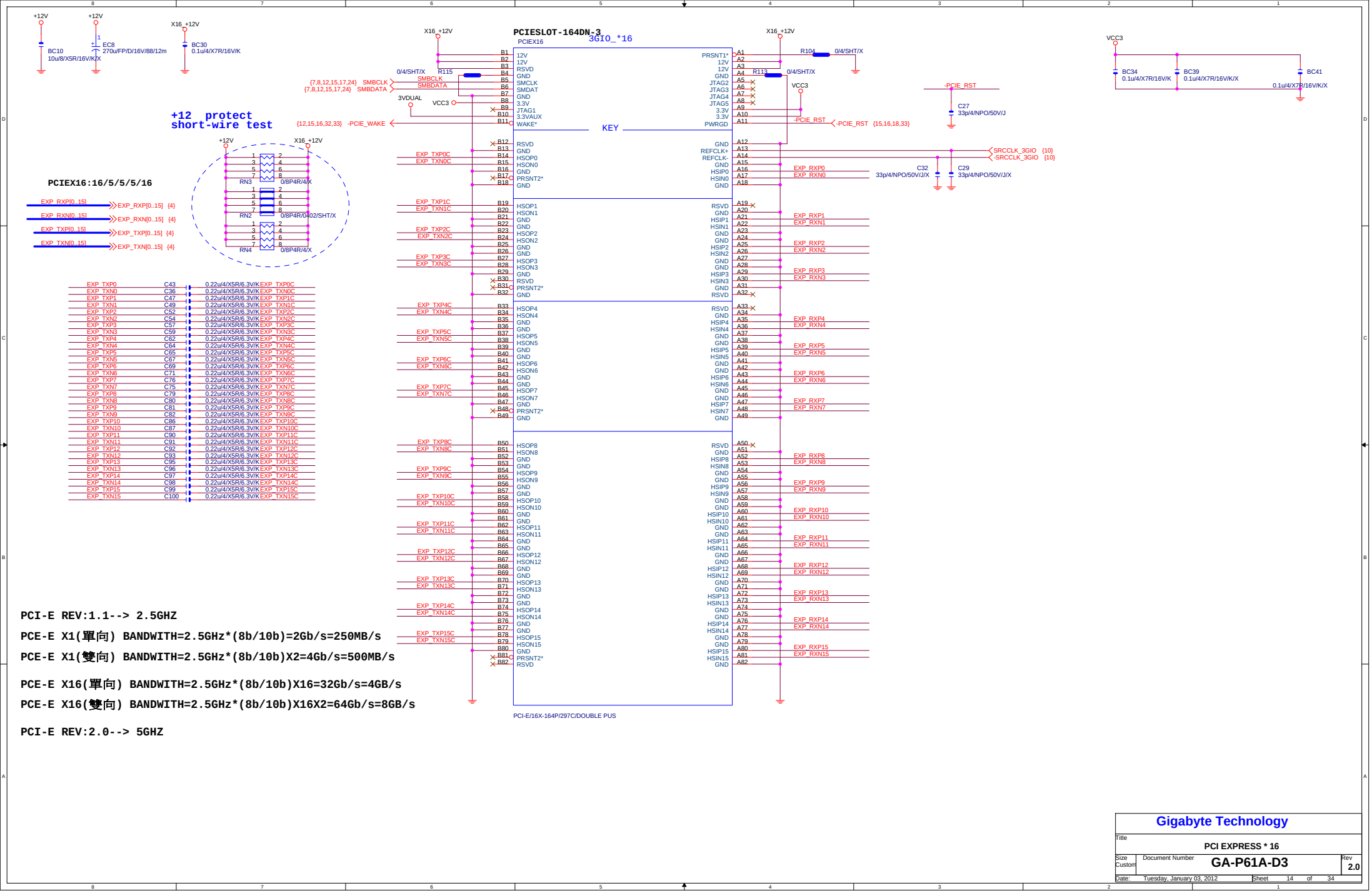
PCIESLOT-164DN-3
PCIEX16
3GIO_*16
+12 protect
short-wire test
PCIEX16:16/5/5/5/16
KEY
PCI-E/16X-164P/297C/DOUBLE PUS
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s
PCI-E REV:2.0--> 5GHZ
Gigabyte Technology
PCI EXPRESS * 16
GA-P61A-D3
2.0
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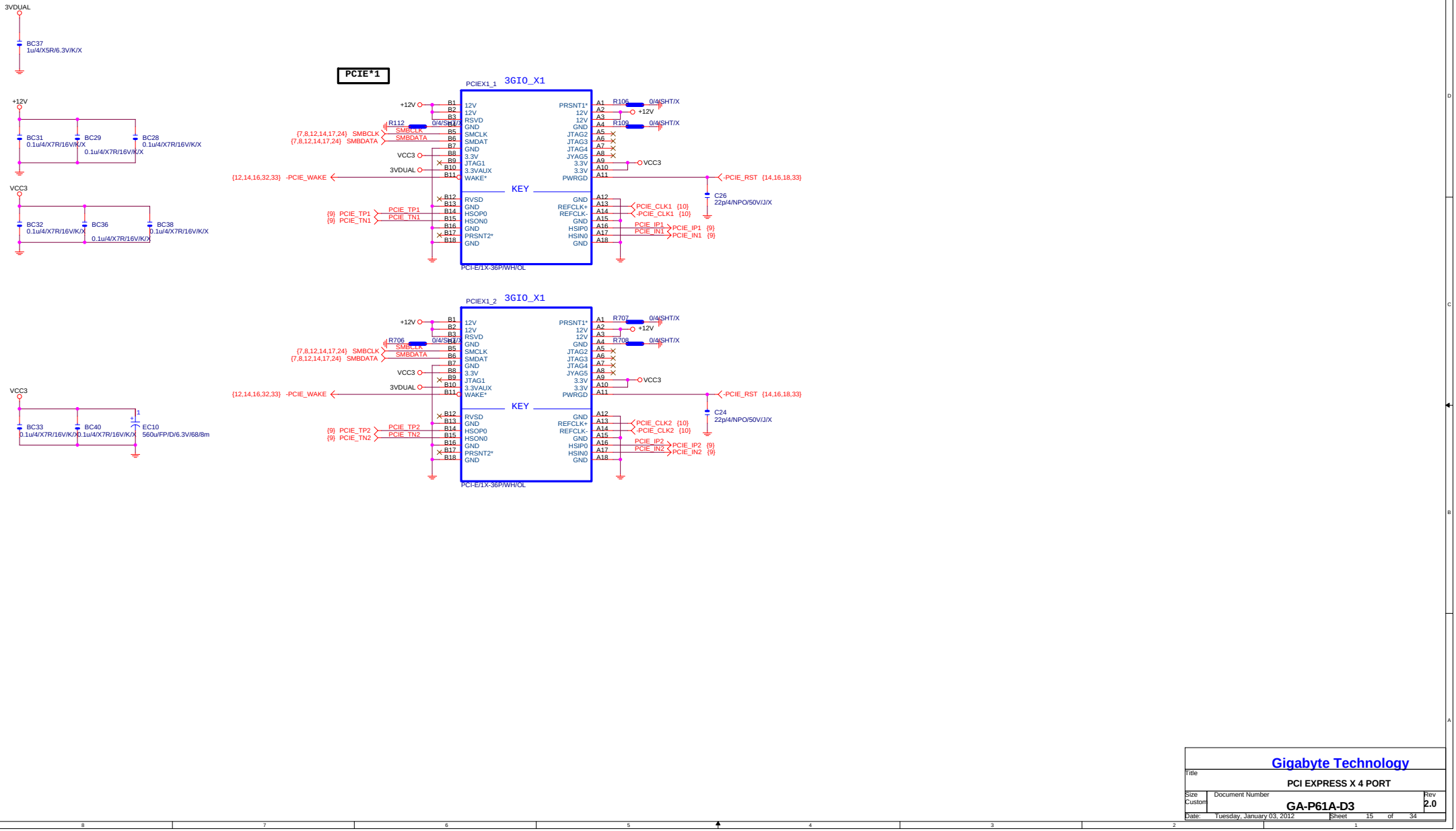
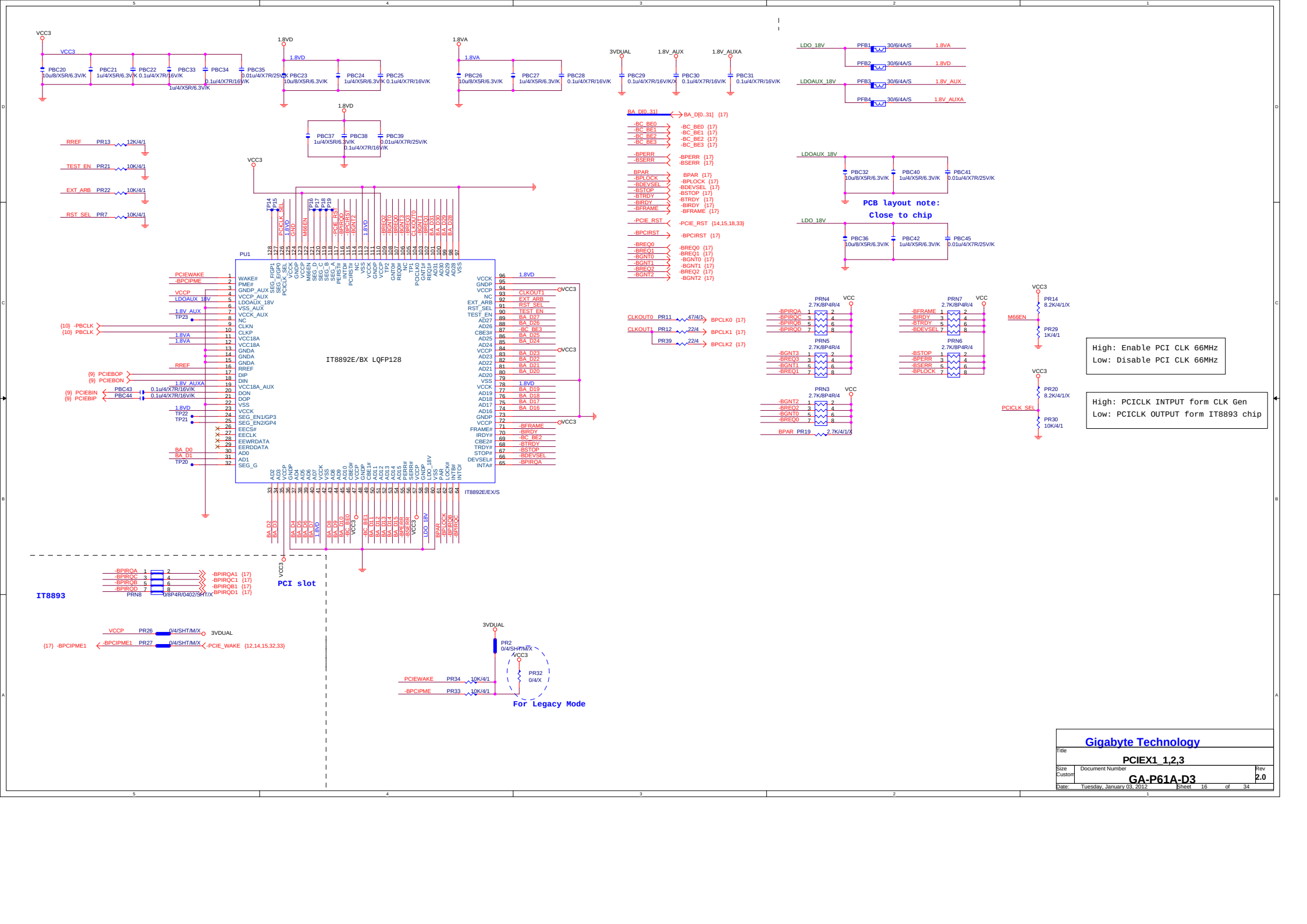
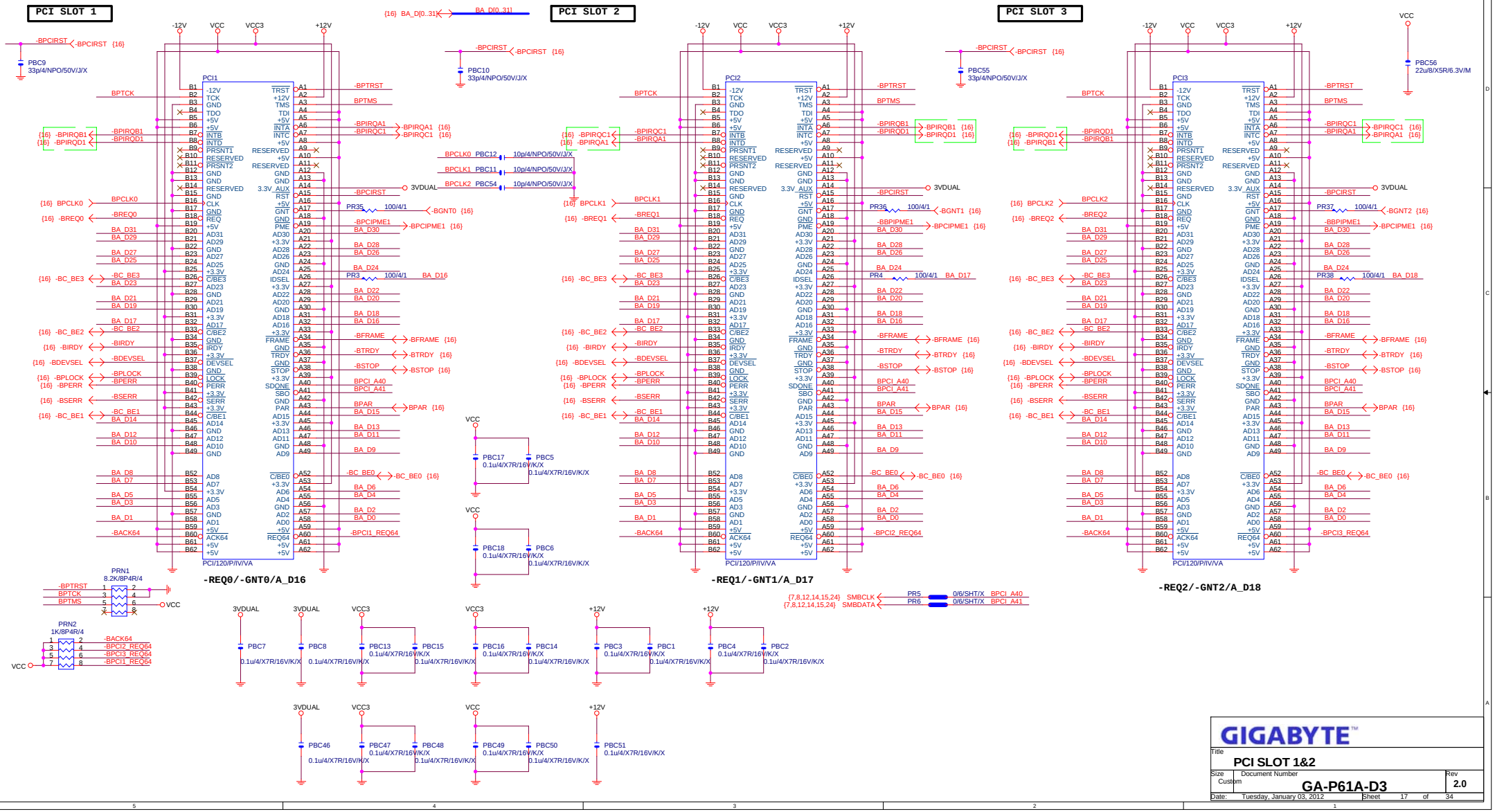


Title	Gigabyte Technology	
	PCI EXPRESS X 4 PORT	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 15 of 34	


IT8892E/BX LQFP128
IT8892E/EX/S
PU1
PCI slot
IT8893
For Legacy Mode
PCB layout note:
Close to chip
High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz
High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip
Gigabyte Technology
PCIEX1_1,2,3
GA-P61A-D3
Tuesday, January 03, 2012


PCI SLOT 1
PCI SLOT 2
PCI SLOT 3
PCI1
PCI2
PCI3
PCI120/P/IV/VA
-REQ0/-GNT0/A_D16
-REQ1/-GNT1/A_D17
-REQ2/-GNT2/A_D18
PRN1
8.2K/8P4R/4
PRN2
1K/8P4R/4
PBC9
33p/4/NPO/50V/J/X
PBC10
33p/4/NPO/50V/J/X
PBC55
33p/4/NPO/50V/J/X
PBC56
22u/8/X5R/6.3V/M
PBC12
PBC11
PBC54
10p/4/NPO/50V/J/X
PR35
PR36
PR37
PR3
PR4
PR38
100/4/1
PR5
PR6
0/6/SHT/X
PBC17
PBC5
PBC18
PBC6
PBC7
PBC8
PBC13
PBC15
PBC16
PBC14
PBC3
PBC1
PBC4
PBC2
PBC46
PBC47
PBC48
PBC49
PBC50
PBC51
0.1u/4/X7R/16V/K/X
GIGABYTE
Title
PCI SLOT 1&2
Size
Custom
Document Number
GA-P61A-D3
Rev
2.0
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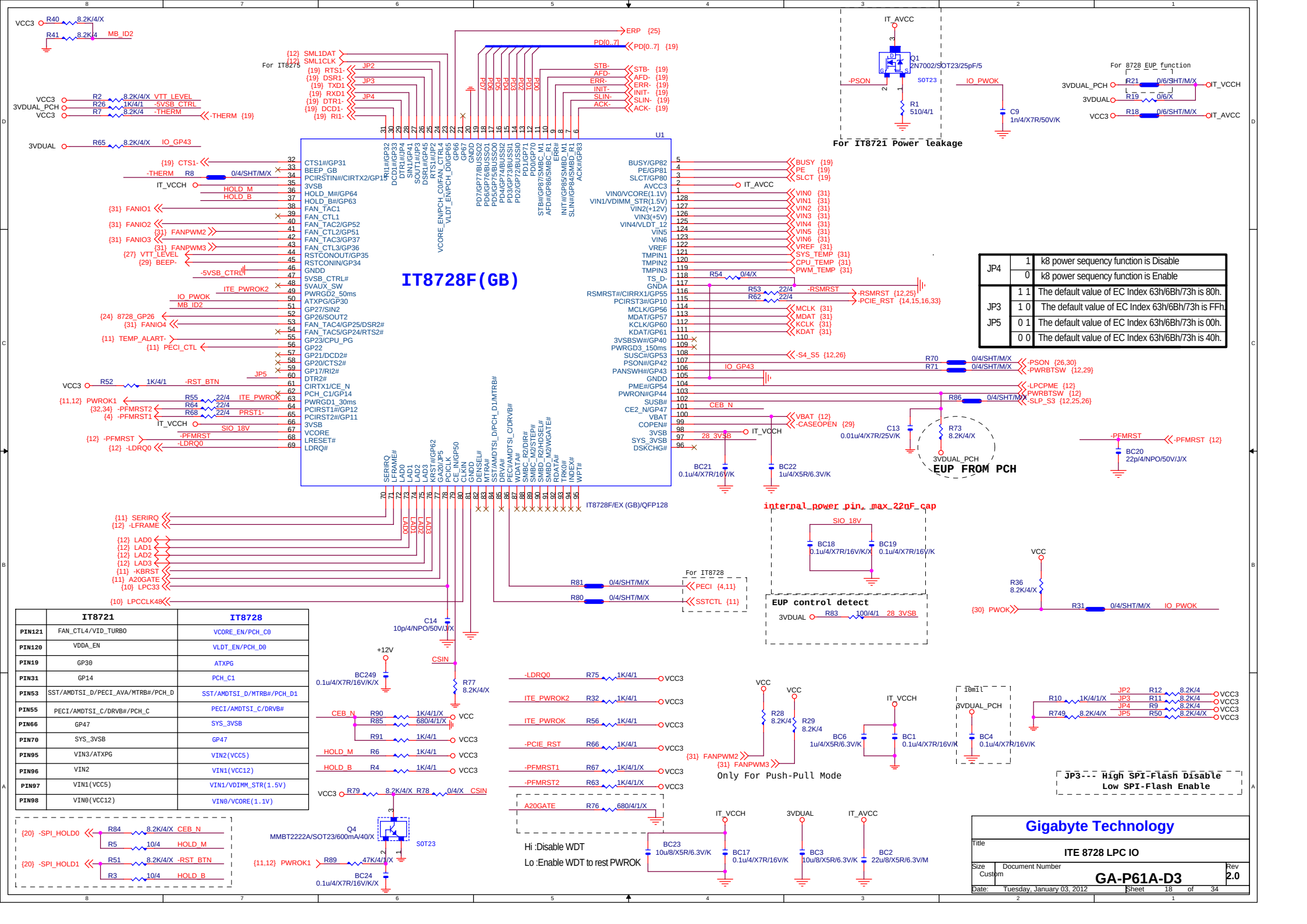

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2(VCC5)
PIN96	VIN2	VIN1(VCC12)
PIN97	VIN1(VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0(VCC12)	VIN0/VCORE(1.1V)

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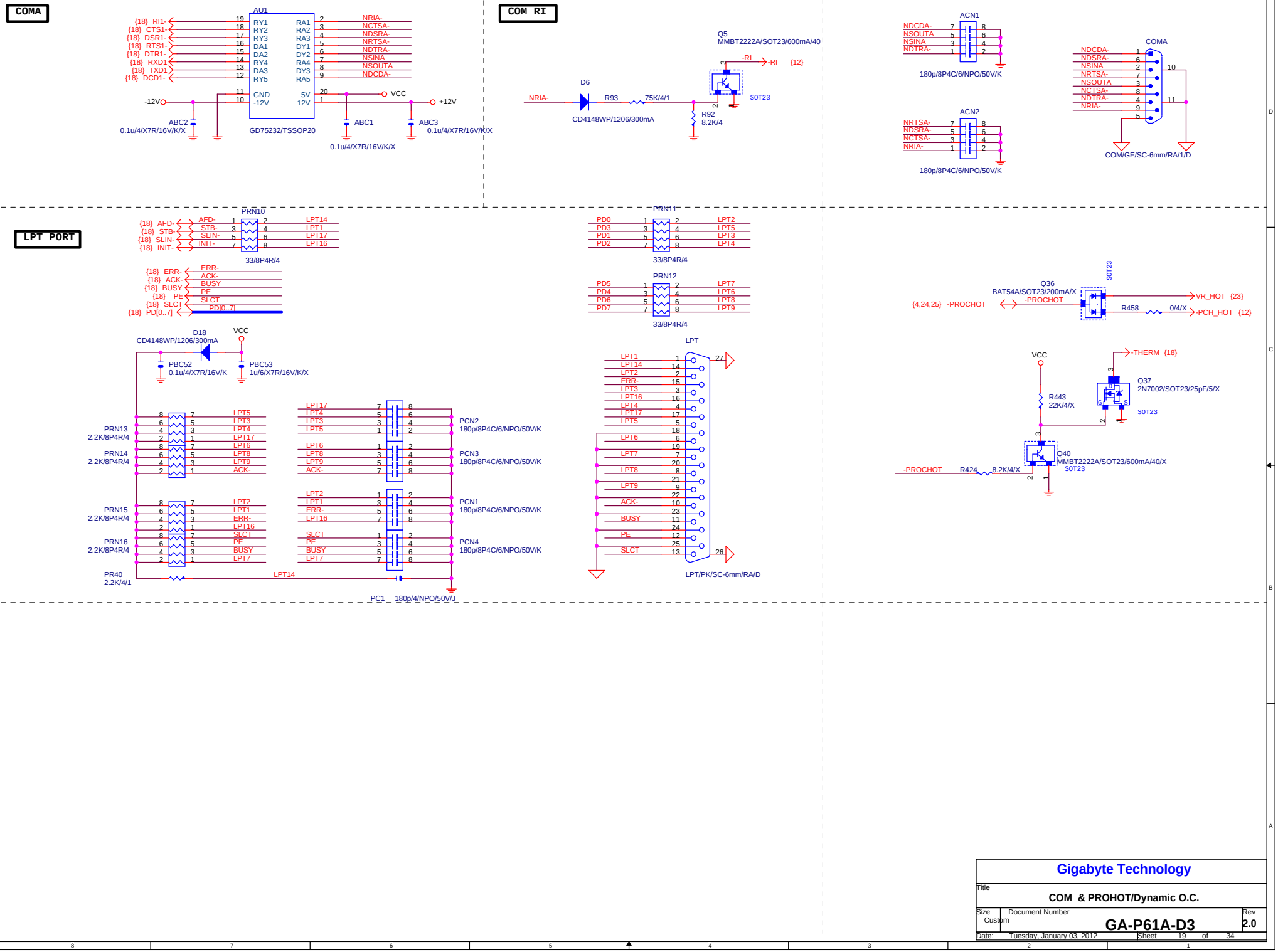
COMA
AU1
{18} RI1-
{18} CTS1-
{18} DSR1-
{18} RTS1-
{18} DTR1-
{18} RXD1
{18} TXD1
{18} DCD1-
RY1
RY2
RY3
DA1
DA2
RY4
DA3
RY5
GND
-12V
RA1
RA2
RA3
DY1
DY2
RA4
DY3
RA5
5V
12V
NRIA-
NCTSA-
NDSRA-
NRTSA-
NDTRA-
NSINA
NSOUTA
NDCDA-
VCC
+12V
-12V
ABC2
0.1u/4/X7R/16V/K/X
GD75232/TSSOP20
ABC1
0.1u/4/X7R/16V/K/X
ABC3
0.1u/4/X7R/16V/K/X
COM RI
Q5
MMBT2222A/SOT23/600mA/40
-RI
{12}
D6
NRIA-
R93
75K/4/1
CD4148WP/1206/300mA
S0T23
R92
8.2K/4
ACN1
NDCDA-
NSOUTA
NSINA
NDTRA-
180p/8P4C/6/NPO/50V/K
ACN2
NRTSA-
NDSRA-
NCTSA-
NRIA-
180p/8P4C/6/NPO/50V/K
COMA
NDCDA-
NDSRA-
NSINA
NRTSA-
NSOUTA
NCTSA-
NDTRA-
NRIA-
COM/GE/SC-6mm/RA/1/D
LPT PORT
PRN10
{18} AFD-
{18} STB-
{18} SLIN-
{18} INIT-
AFD-
STB-
SLIN-
INIT-
LPT14
LPT1
LPT17
LPT16
33/8P4R/4
{18} ERR-
{18} ACK-
{18} BUSY
{18} PE
{18} SLCT
{18} PD[0..7]
ERR-
ACK-
BUSY
PE
SLCT
PD[0..7]
PRN11
PD0
PD3
PD1
PD2
LPT2
LPT5
LPT3
LPT4
33/8P4R/4
PRN12
PD5
PD4
PD6
PD7
LPT7
LPT6
LPT8
LPT9
33/8P4R/4
D18
CD4148WP/1206/300mA
VCC
PBC52
0.1u/4/X7R/16V/K
PBC53
1u/6/X7R/16V/K/X
PRN13
2.2K/8P4R/4
PRN14
2.2K/8P4R/4
PRN15
2.2K/8P4R/4
PRN16
2.2K/8P4R/4
LPT5
LPT4
LPT17
LPT6
LPT8
LPT9
ACK-
LPT2
LPT1
ERR-
LPT16
SLCT
PE
BUSY
LPT7
PCN2
180p/8P4C/6/NPO/50V/K
PCN3
180p/8P4C/6/NPO/50V/K
PCN1
180p/8P4C/6/NPO/50V/K
PCN4
180p/8P4C/6/NPO/50V/K
PR40
2.2K/4/1
LPT14
PC1
180p/4/NPO/50V/J
LPT
LPT1
LPT14
LPT2
ERR-
LPT3
LPT16
LPT4
LPT17
LPT5
LPT6
LPT7
LPT8
LPT9
ACK-
BUSY
PE
SLCT
27
26
LPT/PK/SC-6mm/RA/D
Q36
BAT54A/SOT23/200mA/X
-PROCHOT
{4,24,25} -PROCHOT
S0T23
VR_HOT {23}
R458
0/4/X
-PCH_HOT {12}
VCC
-THERM {18}
R443
22K/4/X
Q37
2N7002/SOT23/25pF/5/X
S0T23
Q40
MMBT2222A/SOT23/600mA/40/X
S0T23
-PROCHOT
R424
8.2K/4/X
Gigabyte Technology
Title
COM & PROHOT/Dynamic O.C.
Size
Custom
Document Number
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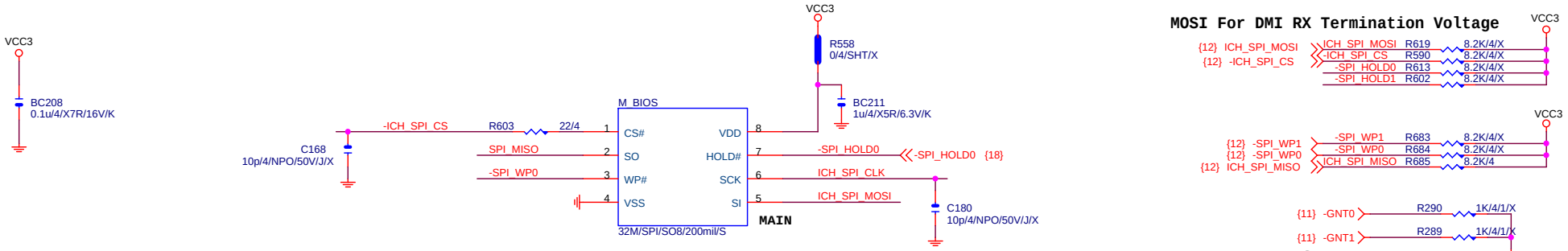
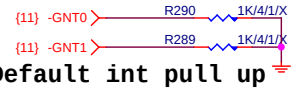


MOSI For DMI RX Termination Voltage



Default int pull up

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

1 means floating
0 means PD 1K

Gigabyte Technology		
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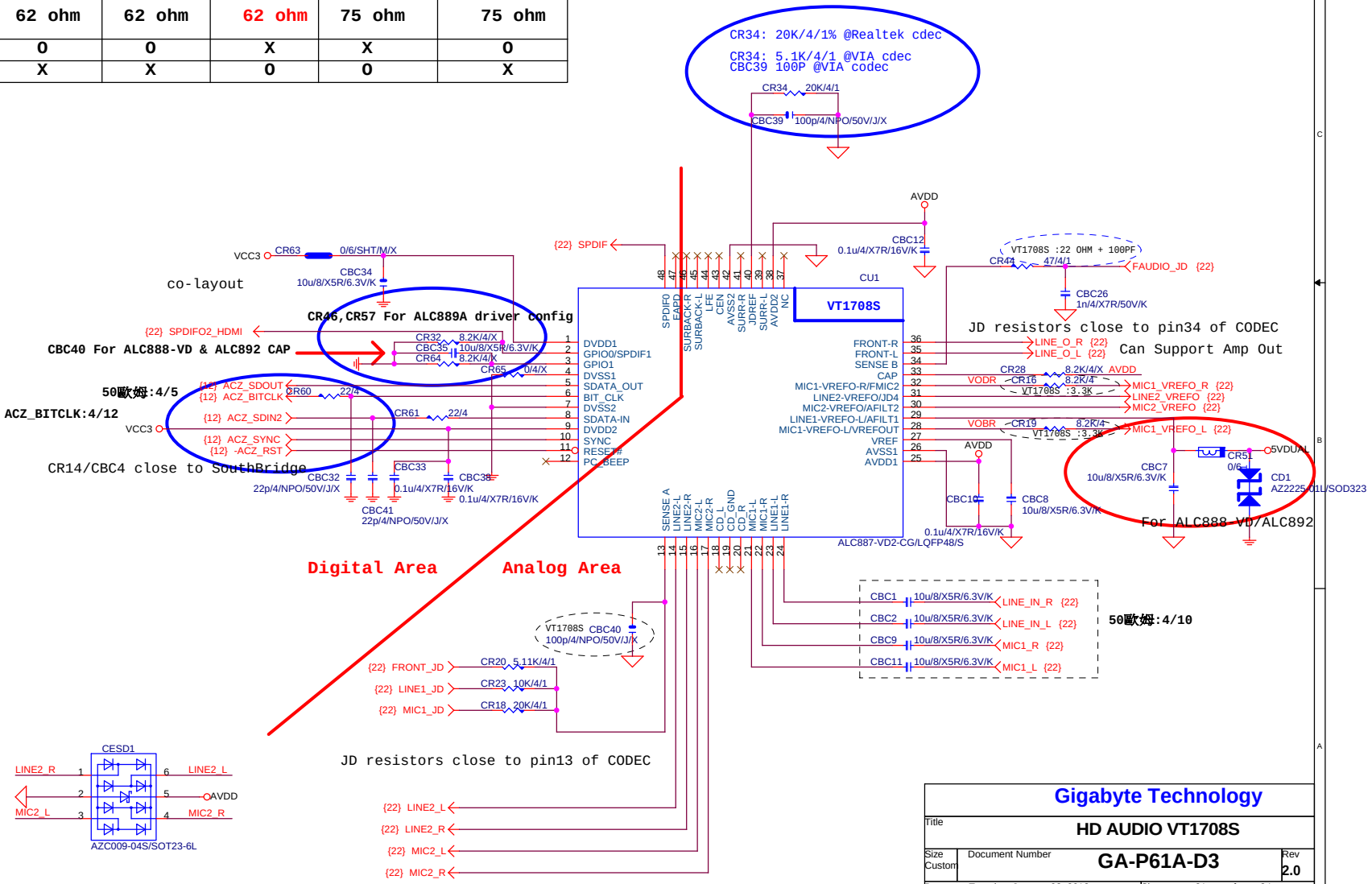
AZALIA CODEC ***ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay***

	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE
CR65	X	X	O	O	X
CR64	X	X	X	X	0.1u/4
CBC35	O	O	X	X	O
CR44/CBC6	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR31	X	O	O	O	O
CR30	O	X	X	X	X
CR20	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR34	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC39/CBC40	N/A	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	22K/4	10K/4	10K/4
CR1/CR14/CR17/CR22	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	O	X	X	O
CD2/CD3/CQ3/CQ5	X	X	O	O	X



Gigabyte Technology		
Title	HD AUDIO VT1708S	
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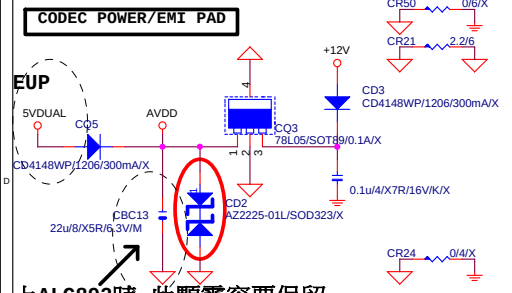
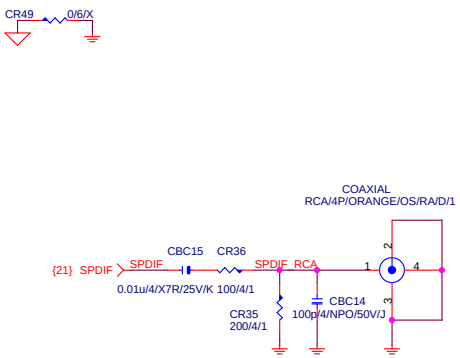
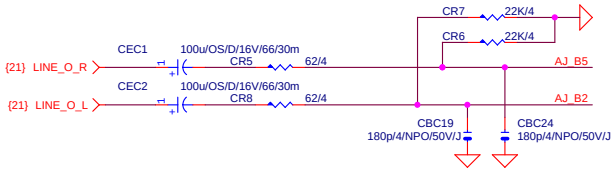
CODEC POWER/EMI PAD



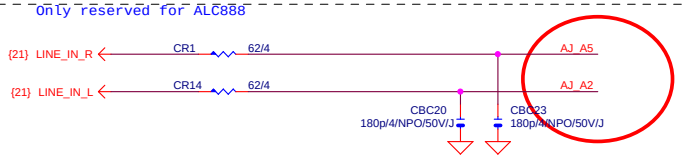


LINE-OUT



Only reserved for ALC888

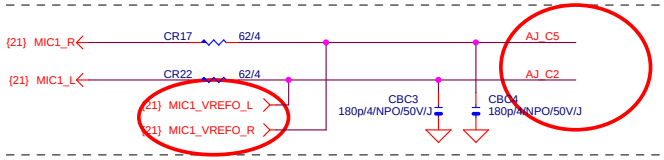
LINE-IN



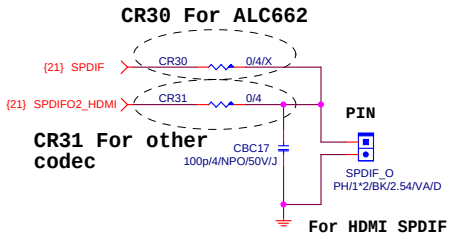
Verify MIC function in LINE-in

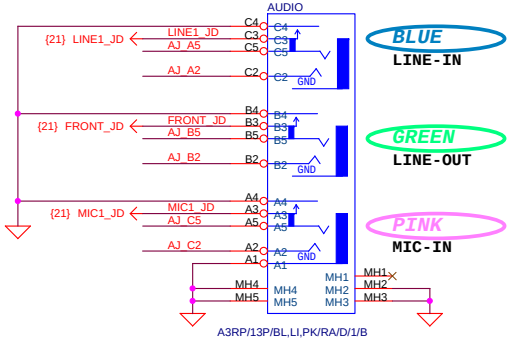
For 889A/888

MIC-IN

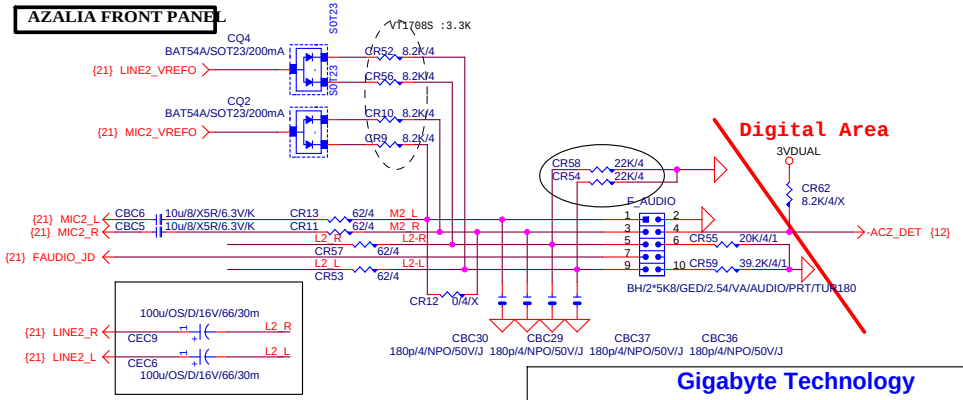


SPDIF_OUT





AZALIA FRONT PANEL



Gigabyte Technology			
Title: AUDIO JACK			
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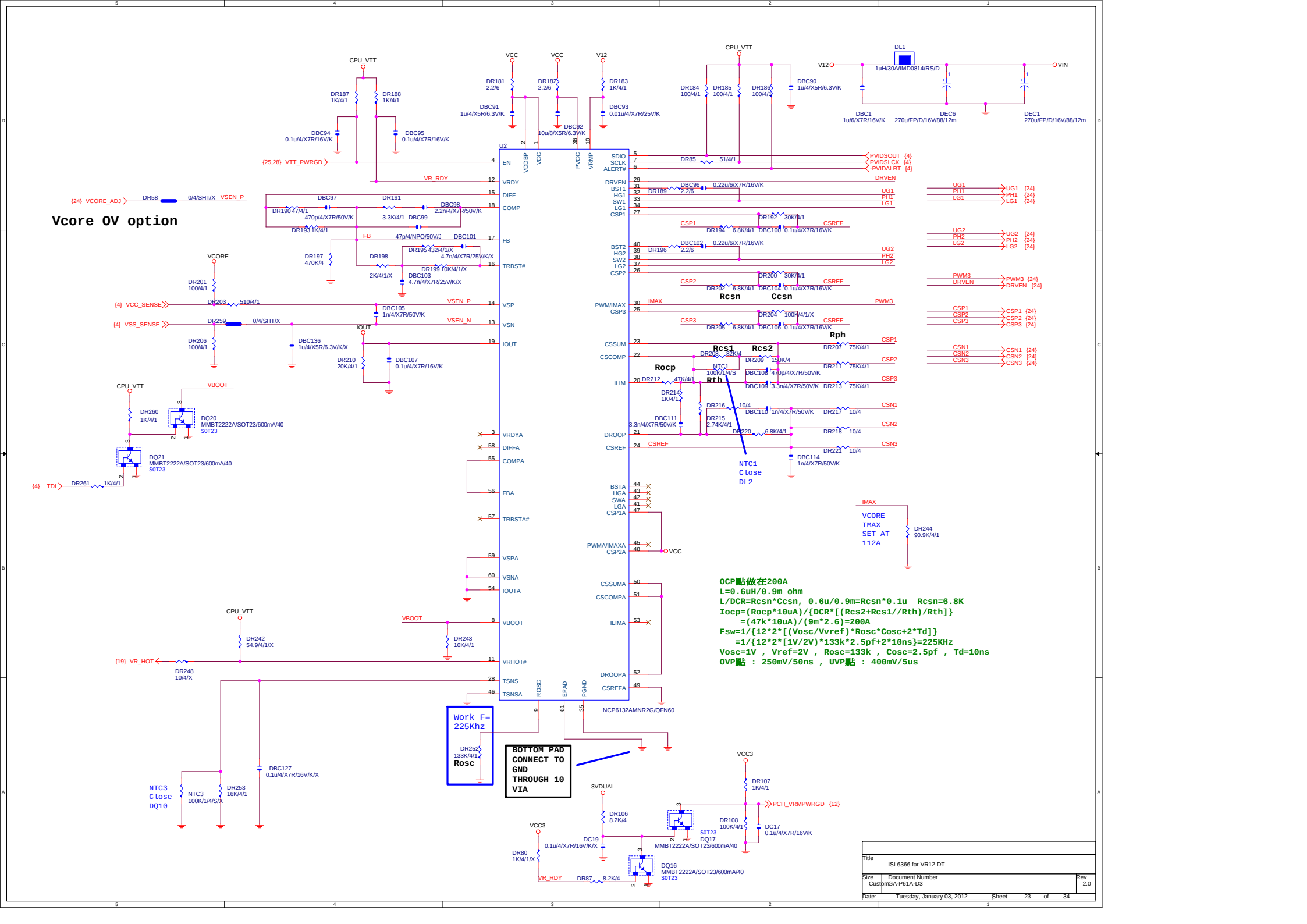
Vcore OV option
U2
NCP6132AMNR2G/QFN60
CPU_VTT
VCC
V12
VIN
VCORE
VBOOT
IOUT
IMAX
Rcsn
Ccsn
Rcs1
Rcs2
Rph
Rocp
Rth
NTC1
Close
DL2
VCORE
IMAX
SET AT
112A
Work F=
225Khz
Rosc
BOTTOM PAD
CONNECT TO
GND
THROUGH 10
VIA
NTC3
Close
DQ10
3VDUAL
VCC3
OCP點做在200A
L=0.6uH/0.9m ohm
L/DCR=Rcsn*Ccsn, 0.6u/0.9m=Rcsn*0.1u Rcsn=6.8K
Iocp=(Rocp*10uA)/{DCR*[(Rcs2+Rcs1//Rth)/Rth]}
=(47k*10uA)/(9m*2.6)=200A
Fsw=1/{12*2*[(Vosc/Vvref)*Rosc*Cosc+2*Td]}
=1/{12*2*[1V/2V)*133k*2.5pf+2*10ns}=225KHz
Vosc=1V , Vref=2V , Rosc=133k , Cosc=2.5pf , Td=10ns
OVP點 : 250mV/50ns , UVP點 : 400mV/5us
Title
ISL6366 for VR12 DT
Size
Document Number
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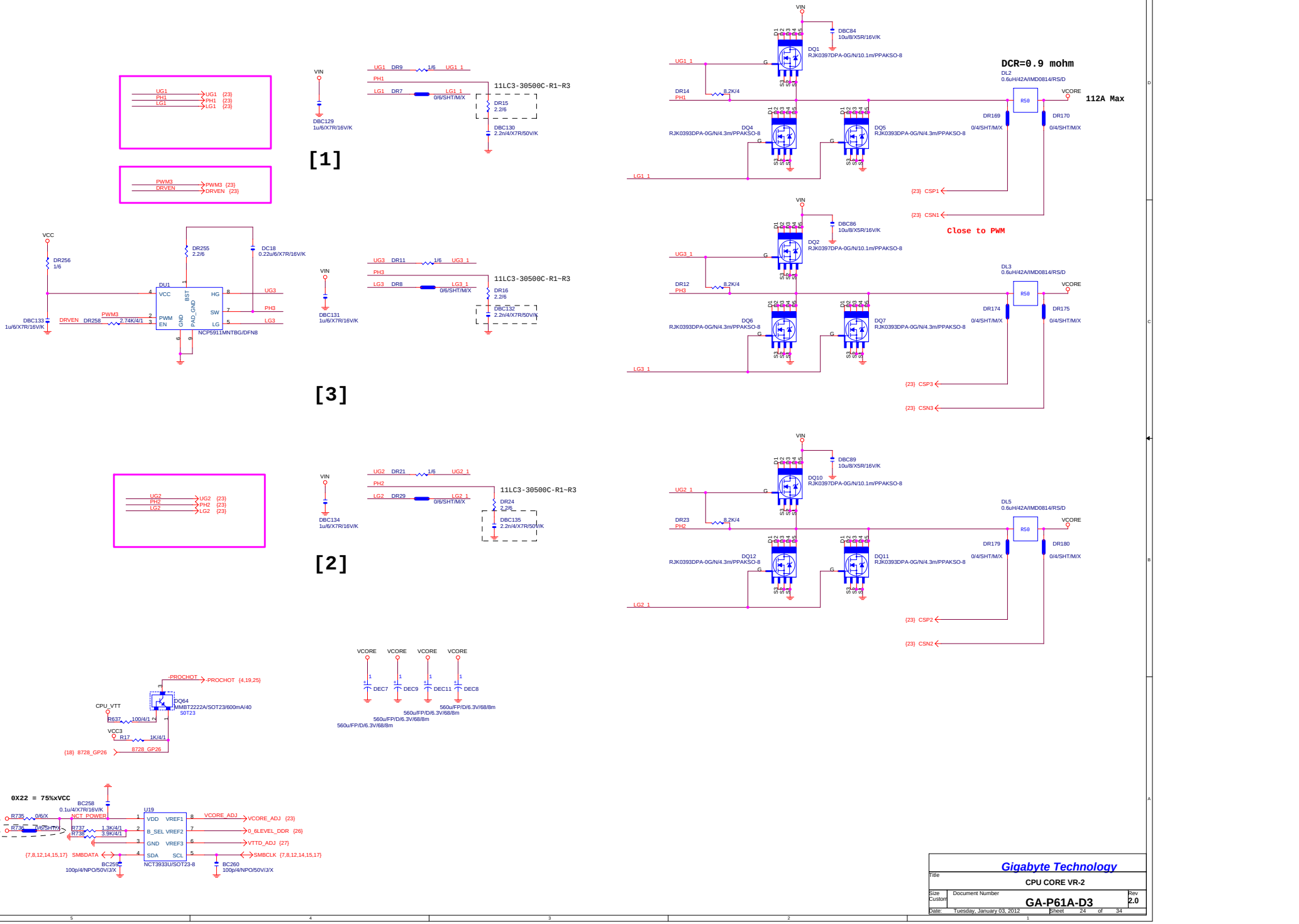
UG1
PH1
LG1
UG1 {23}
PH1 {23}
LG1 {23}
PWM3
DRVEN
PWM3 {23}
DRVEN {23}
[1]
VIN
DBC129
1u/6/X7R/16V/K
UG1 DR9 1/6 UG1_1
PH1
LG1 DR7 LG1_1
0/6/SHT/M/X
11LC3-30500C-R1~R3
DR15
2.2/6
DBC130
2.2n/4/X7R/50V/K
VCC
DR256
1/6
DR255
2.2/6
DC18
0.22u/6/X7R/16V/K
DU1
VCC
BST
HG
SW
LG
PWM
EN
GND
PAD_GND
UG3
PH3
LG3
DBC133
1u/6/X7R/16V/K
DRVEN
DR258
2.74K/4/1
PWM3
NCP5911MNTBG/DFN8
[3]
VIN
DBC131
1u/6/X7R/16V/K
UG3 DR11 1/6 UG3_1
PH3
LG3 DR8 LG3_1
0/6/SHT/M/X
11LC3-30500C-R1~R3
DR16
2.2/6
DBC132
2.2n/4/X7R/50V/K
VIN
DBC84
10u/8/X5R/16V/K
DQ1
RJK0397DPA-0G/N/10.1m/PPAKSO-8
UG1_1
DR14
8.2K/4
PH1
DQ4
RJK0393DPA-0G/N/4.3m/PPAKSO-8
DQ5
RJK0393DPA-0G/N/4.3m/PPAKSO-8
LG1_1
DCR=0.9 mohm
DL2
0.6uH/42A/IMD0814/RS/D
VCORE
112A Max
DR169
0/4/SHT/M/X
DR170
0/4/SHT/M/X
{23} CSP1
{23} CSN1
Close to PWM
VIN
DBC86
10u/8/X5R/16V/K
DQ2
RJK0397DPA-0G/N/10.1m/PPAKSO-8
UG3_1
DR12
8.2K/4
PH3
DQ6
RJK0393DPA-0G/N/4.3m/PPAKSO-8
DQ7
RJK0393DPA-0G/N/4.3m/PPAKSO-8
LG3_1
DL3
0.6uH/42A/IMD0814/RS/D
VCORE
DR174
0/4/SHT/M/X
DR175
0/4/SHT/M/X
{23} CSP3
{23} CSN3
[2]
VIN
DBC134
1u/6/X7R/16V/K
UG2 DR21 1/6 UG2_1
PH2
LG2 DR29 LG2_1
0/6/SHT/M/X
11LC3-30500C-R1~R3
DR24
2.2/6
DBC135
2.2n/4/X7R/50V/K
VIN
DBC89
10u/8/X5R/16V/K
DQ10
RJK0397DPA-0G/N/10.1m/PPAKSO-8
UG2_1
DR23
8.2K/4
PH2
DQ12
RJK0393DPA-0G/N/4.3m/PPAKSO-8
DQ11
RJK0393DPA-0G/N/4.3m/PPAKSO-8
LG2_1
DL5
0.6uH/42A/IMD0814/RS/D
VCORE
DR179
0/4/SHT/M/X
DR180
0/4/SHT/M/X
{23} CSP2
{23} CSN2
VCORE
VCORE
VCORE
VCORE
DEC7
DEC9
DEC11
DEC8
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
PROCHOT
PROCHOT {4,19,25}
DQ64
MMBT2222A/SOT23/600mA/40
SOT23
CPU_VTT
R637
100/4/1
VCC3
R17
1K/4/1
{18} 8728_GP26
8728_GP26
0X22 = 75%xVCC
BC258
0.1u/4/X7R/16V/K
5VDUAL
3VDUAL
R735
0/6/X
R736
0/6/SHT/X
NCT_POWER
R737
1.3K/4/1
R738
3.9K/4/1
U19
VDD
B_SEL
GND
SDA
VREF1
VREF2
VREF3
SCL
VCORE_ADJ
VCORE_ADJ {23}
0_6LEVEL_DDR {26}
VTTD_ADJ {27}
{7,8,12,14,15,17} SMBDATA
SMBCLK {7,8,12,14,15,17}
NCT3933U/SOT23-8
BC259
100p/4/NPO/50V/J/X
BC260
100p/4/NPO/50V/J/X
Gigabyte Technology
Title
CPU CORE VR-2
Size
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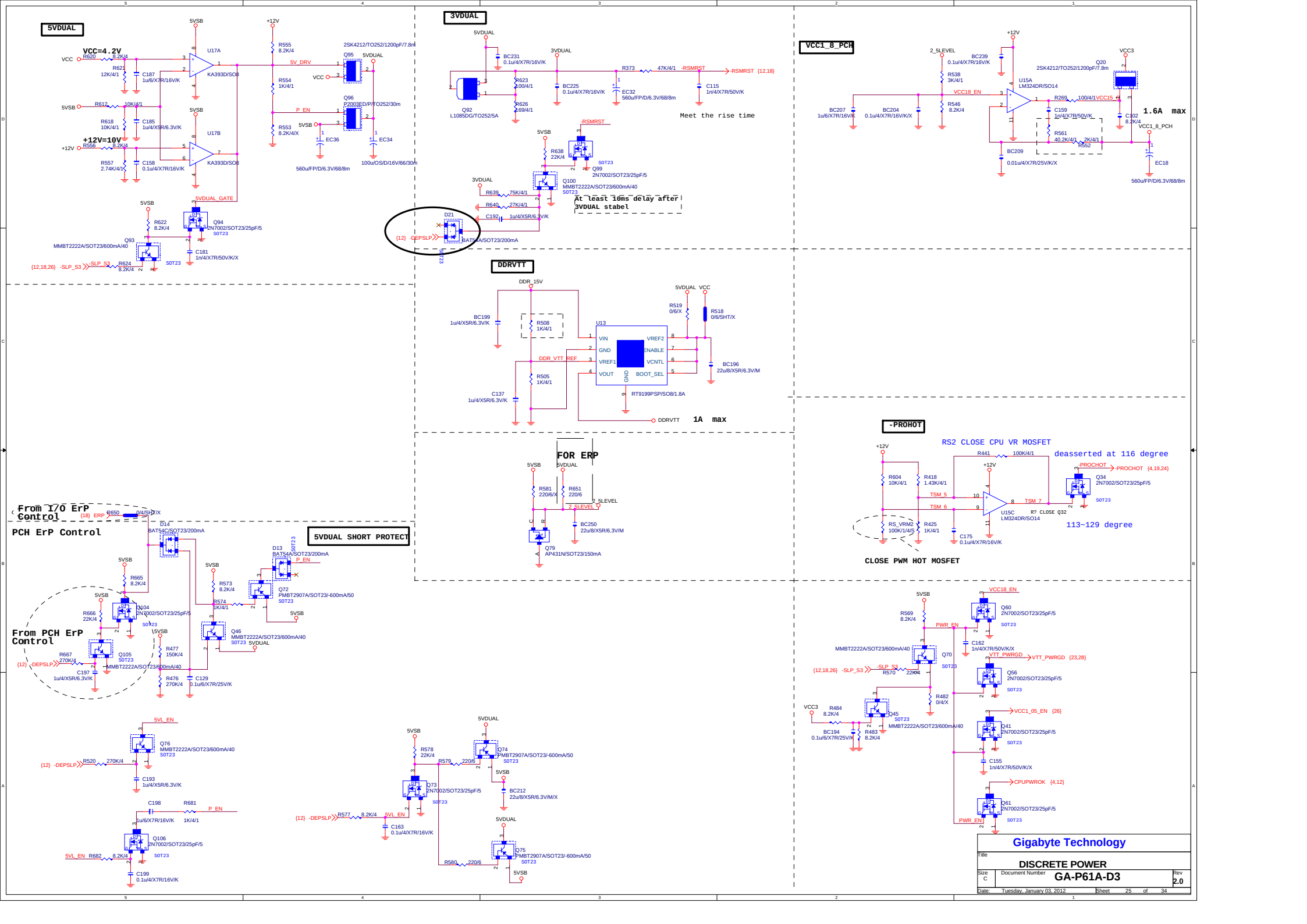
5VDUAL
VCC=4.2V
+12V=10V
U17A
U17B
KA393D/SO8
2SK4212/TO252/1200pF/7.8m
P2003ED/P/TO252/30m
5V_DRV
P_EN
560u/FP/D/6.3V/68/8m
100u/OS/D/16V/66/30m
5VDUAL_GATE
MMBT2222A/SOT23/600mA/40
2N7002/SOT23/25pF/5
-SLP_S3
SLP_S3
3VDUAL
BAT54A/SOT23/200mA
-RSMRST
Meet the rise time
-DEPSLP
At least 10ms delay after
3VDUAL stabel
DDRVTT
DDR_15V
DDR_VTT_REF
RT9199PSP/SO8/1.8A
1A max
VCC1_8_PCH
1.6A max
-PROHOT
RS2 CLOSE CPU VR MOSFET
deasserted at 116 degree
113~129 degree
CLOSE PWM HOT MOSFET
FOR ERP
From I/O ErP Control
PCH ErP Control
From PCH ErP Control
5VDUAL SHORT PROTECT
5VL_EN
VCC18_EN
PWR_EN
VTT_PWRGD
CPUPWROK
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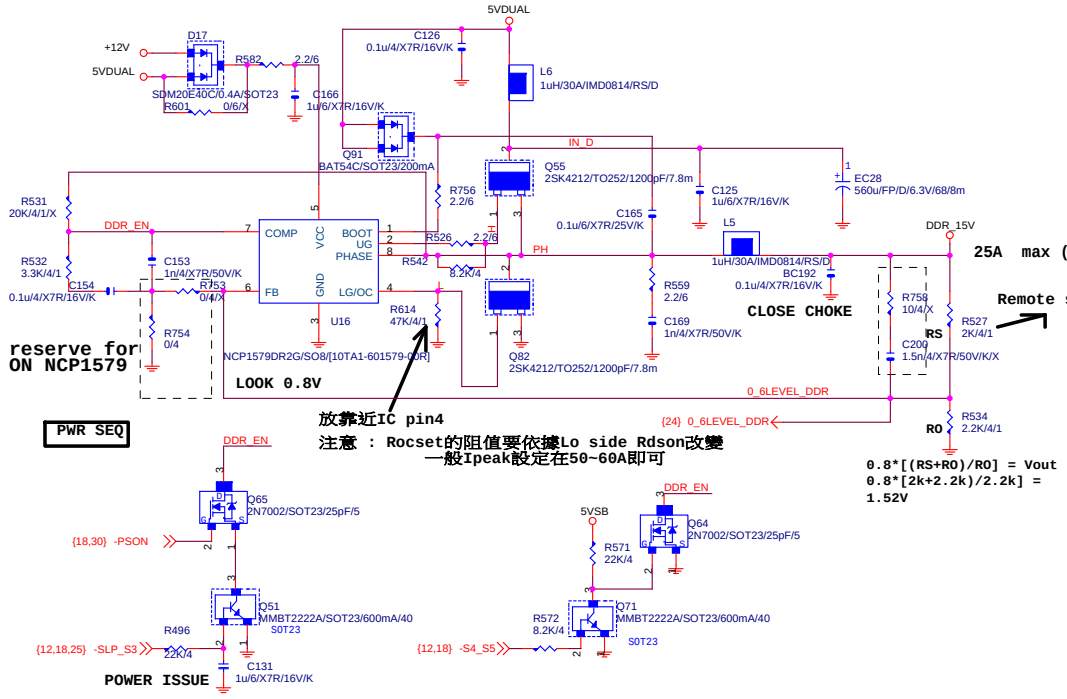
DDR18V



VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)

VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

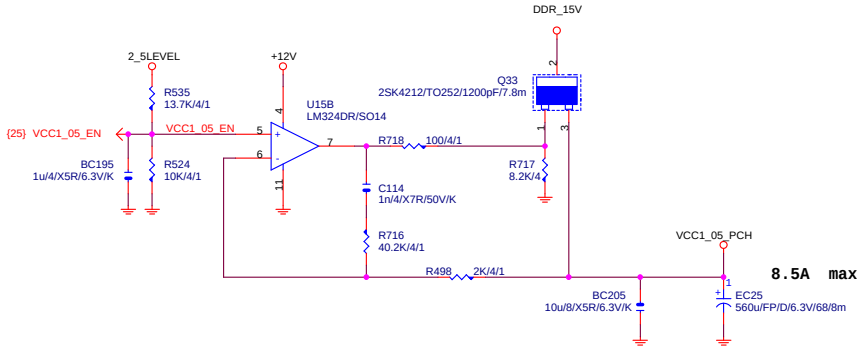
OCP : Ipeak=(IocsetxRocset)/Rdson
typ Iocset=10uA , Rocset=33k

OCP : 40A=(10uAx47k)/(7.8m)/1.5

UVLO : Under Voltage Lock Out : 370mV

PWR SEQ

VCC1_05_PCH



VIN=3.3V,VOUT=1.05V,IOUT=7.5A,PHASE=1
IRMS=3.4875A

1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
Coefficient=1.7(85℃),1(105℃)

VIN Ripple current=1.14X1.7=1.938A(85℃)

-->故電解電容須2X1.938=3.876>3.4875A

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=8.2k

OCP :58.57A=(2x20uax8.2k)/5.6m

Gigabyte Technology		
Title: DDR_15V		
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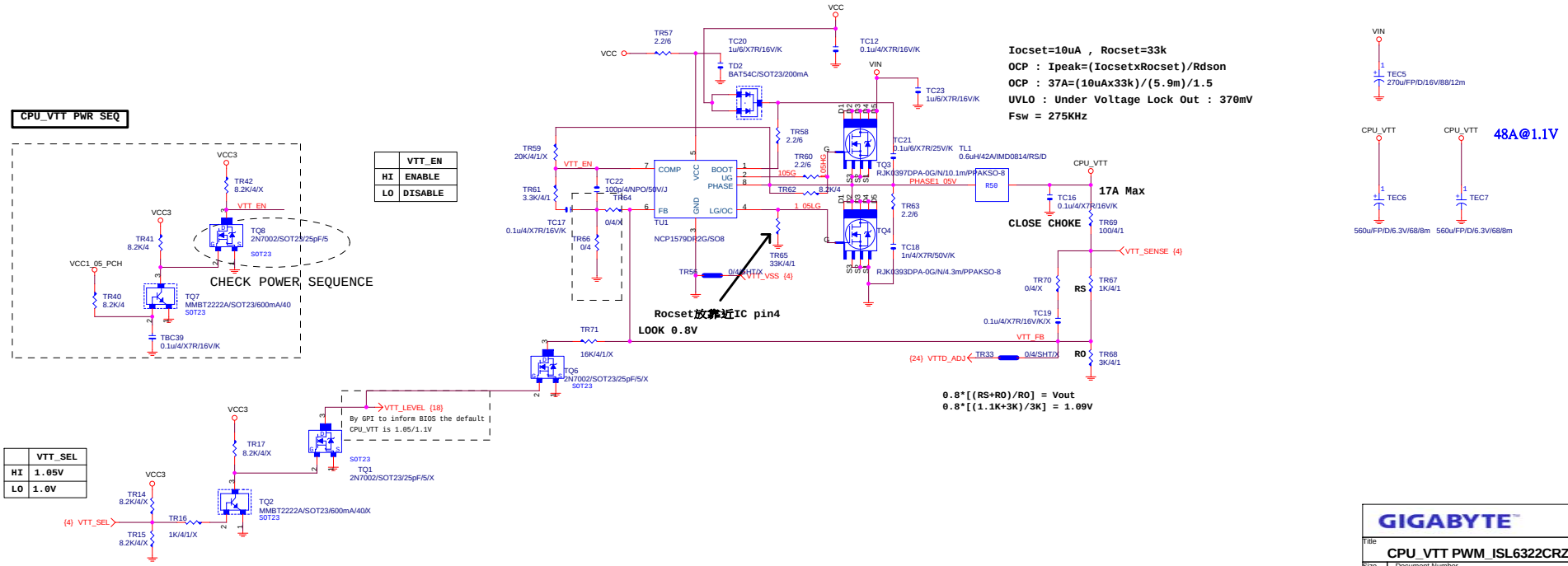
CPU_VTT



Title			
CPU_VTT PWM_ISL6322CRZ			
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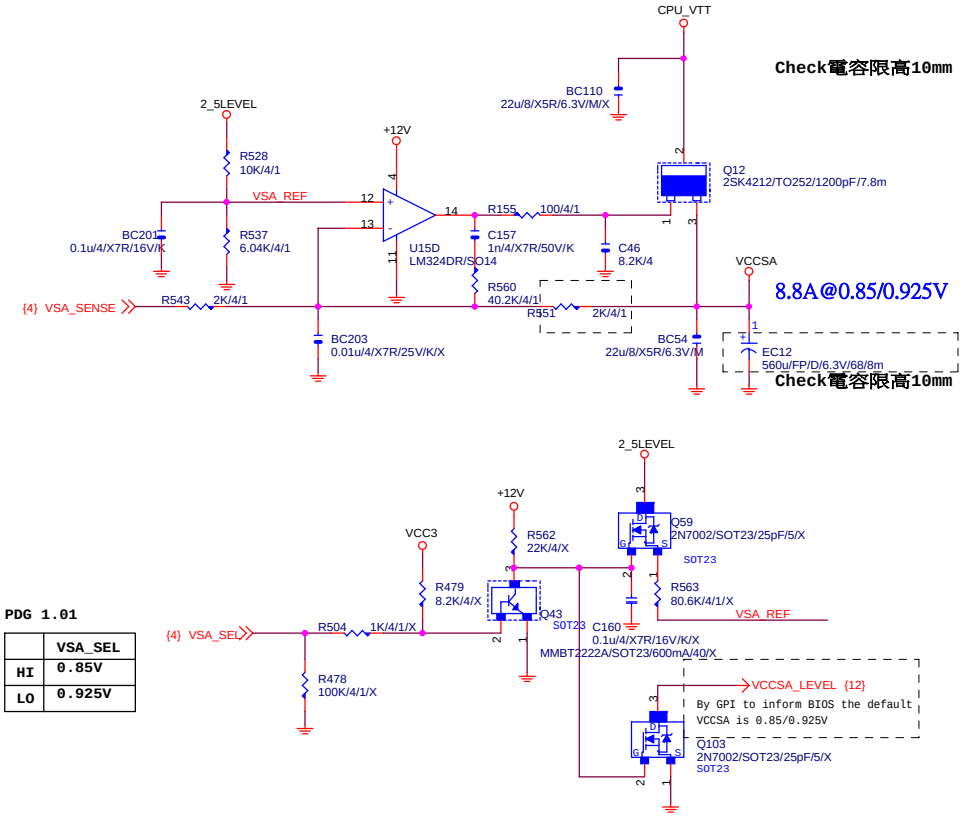
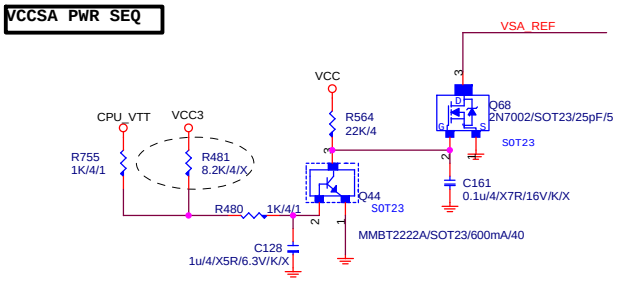
VCC_SA

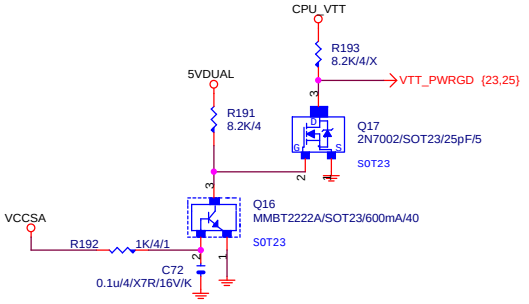


PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

VCCSA PWR SEQ





Gigabyte Technology

Title: CPU VTT PWM_ISL6312

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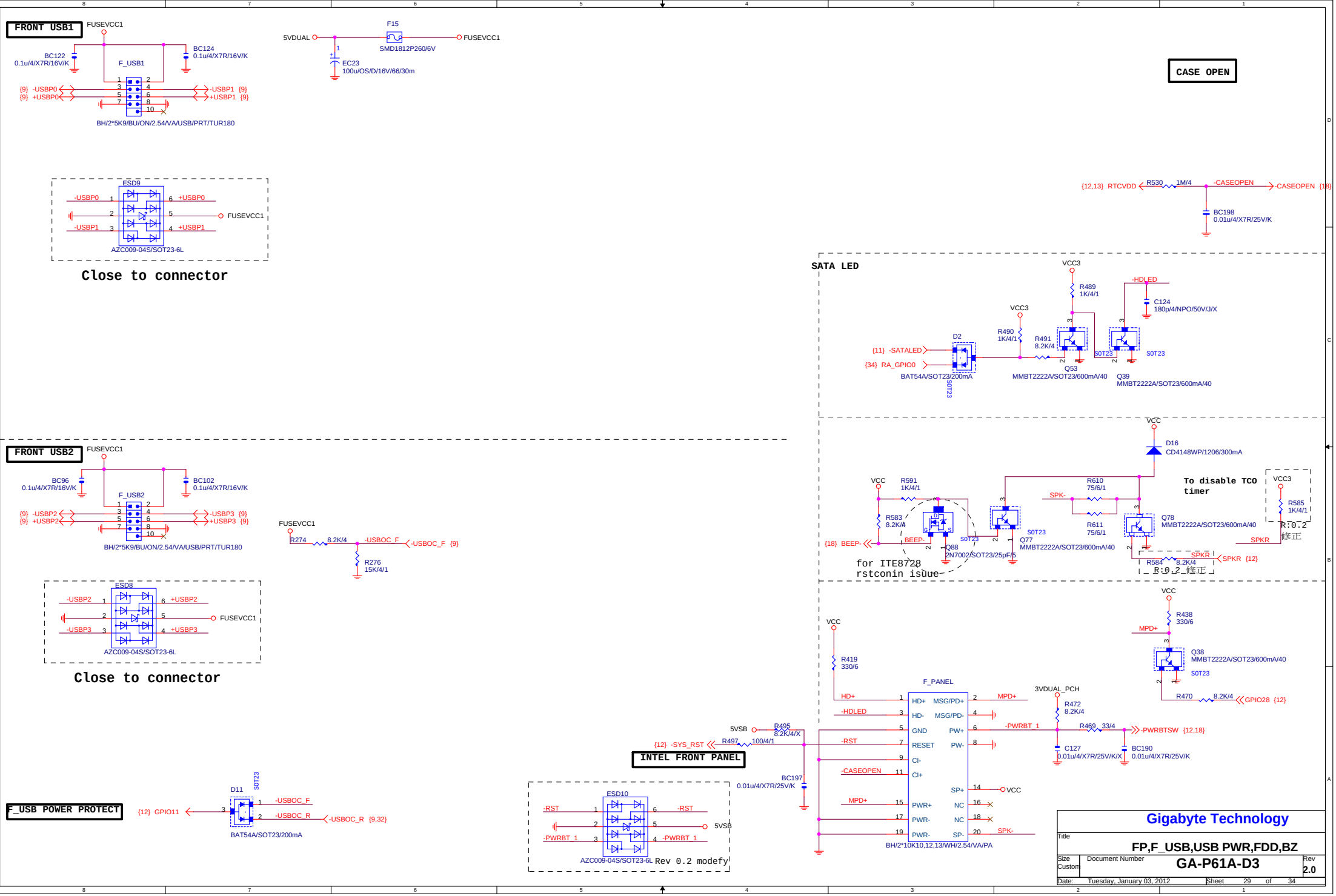
FRONT USB1
FUSEVCC1
BC122
0.1u/4/X7R/16V/K
F_USB1
BC124
0.1u/4/X7R/16V/K
{9} -USBP0
{9} +USBP0
-USBP1 {9}
+USBP1 {9}
BH/2*5K9/BU/ON/2.54/VA/USB/PRT/TUR180
5VDUAL
F15
SMD1812P260/6V
FUSEVCC1
EC23
100u/OS/D/16V/66/30m
CASE OPEN
ESD9
-USBP0
+USBP0
FUSEVCC1
-USBP1
+USBP1
AZC009-04S/SOT23-6L
Close to connector
{12,13} RTCVDD
R530
1M/4
-CASEOPEN
-CASEOPEN {18}
BC198
0.01u/4/X7R/25V/K
SATA LED
VCC3
R489
1K/4/1
-HDLED
C124
180p/4/NPO/50V/J/X
R490
1K/4/1
R491
8.2K/4
{11} -SATALED
{34} RA_GPIO0
D2
BAT54A/SOT23/200mA
SOT23
Q53
MMBT2222A/SOT23/600mA/40
Q39
MMBT2222A/SOT23/600mA/40
FRONT USB2
FUSEVCC1
BC96
0.1u/4/X7R/16V/K
F_USB2
BC102
0.1u/4/X7R/16V/K
{9} -USBP2
{9} +USBP2
-USBP3 {9}
+USBP3 {9}
BH/2*5K9/BU/ON/2.54/VA/USB/PRT/TUR180
FUSEVCC1
R274
8.2K/4
-USBOC_F
-USBOC_F {9}
R276
15K/4/1
ESD8
-USBP2
+USBP2
FUSEVCC1
-USBP3
+USBP3
AZC009-04S/SOT23-6L
Close to connector
VCC
D16
CD4148WP/1206/300mA
R591
1K/4/1
R583
8.2K/4
R610
75/6/1
SPK-
R611
75/6/1
To disable TCO timer
VCC3
R585
1K/4/1
R:0.2
修正
{18} BEEP-
BEEP-
Q88
2N7002/SOT23/25pF/5
Q77
MMBT2222A/SOT23/600mA/40
Q78
MMBT2222A/SOT23/600mA/40
SPKR
R584
8.2K/4
SPKR {12}
R:0.2_修正
for ITE8728
rstconin issue
VCC
R438
330/6
MPD+
Q38
MMBT2222A/SOT23/600mA/40
R470
8.2K/4
GPIO28 {12}
VCC
R419
330/6
F_PANEL
HD+
-HDLED
-RST
-CASEOPEN
MPD+
-PWRBT_1
HD+
HD-
GND
RESET
CI-
CI+
PWR+
PWR-
PWR-
MSG/PD+
MSG/PD-
PW+
PW-
SP+
NC
NC
SP-
MPD+
-PWRBT_1
-RST
SPK-
VCC
3VDUAL_PCH
R472
8.2K/4
R469
33/4
-PWRBTSW {12,18}
C127
0.01u/4/X7R/25V/K/X
BC190
0.01u/4/X7R/25V/K
BH/2*10K10,12,13/WH/2.54/VA/PA
5VSB
R495
8.2K/4/X
R497
100/4/1
{12} -SYS_RST
INTEL FRONT PANEL
BC197
0.01u/4/X7R/25V/K
F_USB POWER PROTECT
D11
SOT23
{12} GPIO11
-USBOC_F
-USBOC_R
-USBOC_R {9,32}
BAT54A/SOT23/200mA
ESD10
-RST
-PWRBT_1
5VSB
AZC009-04S/SOT23-6L
Rev 0.2 modefy
Gigabyte Technology
Title
FP,F_USB,USB PWR,FDD,BZ
Size
Custom
Document Number
GA-P61A-D3
Rev
2.0
Date:
Tuesday, January 03, 2012
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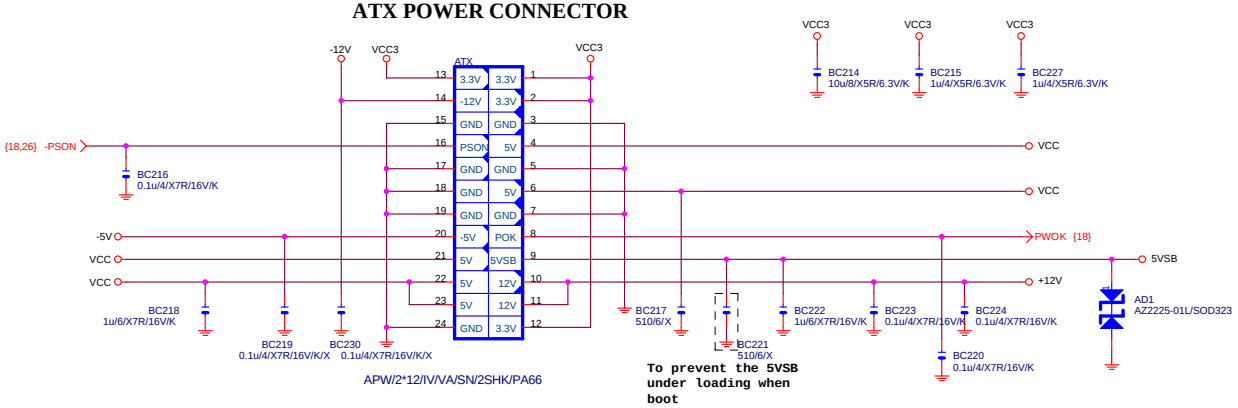
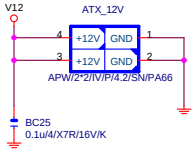
29
of
34

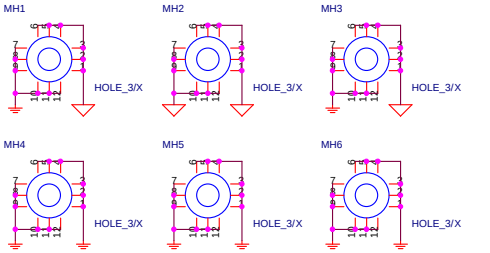
ATX POWER CONNECTOR

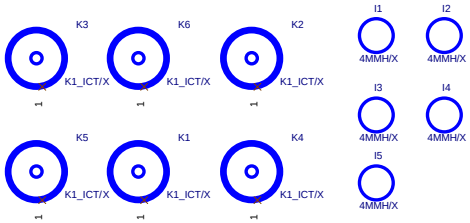


APW/2*12/IV/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

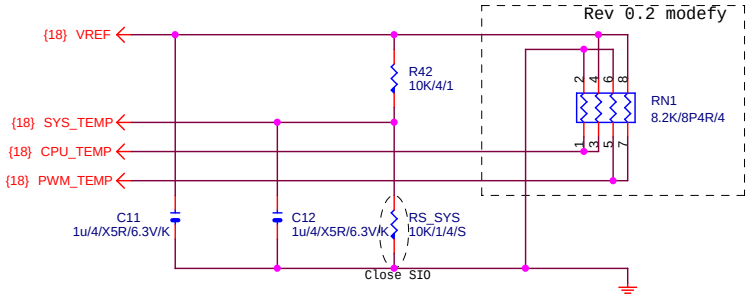




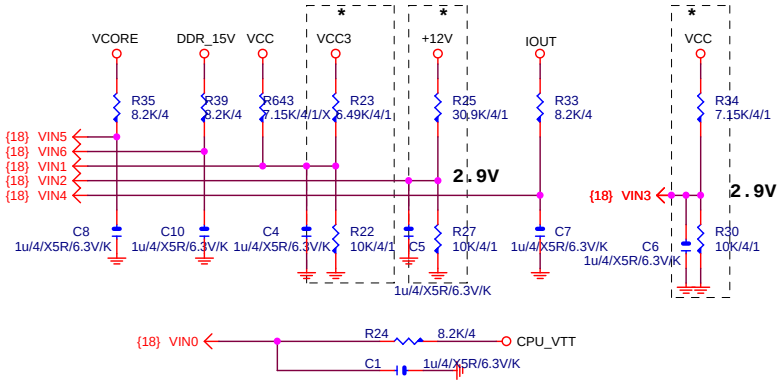


Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 30 of 34		

TEMP H/W MONITOR

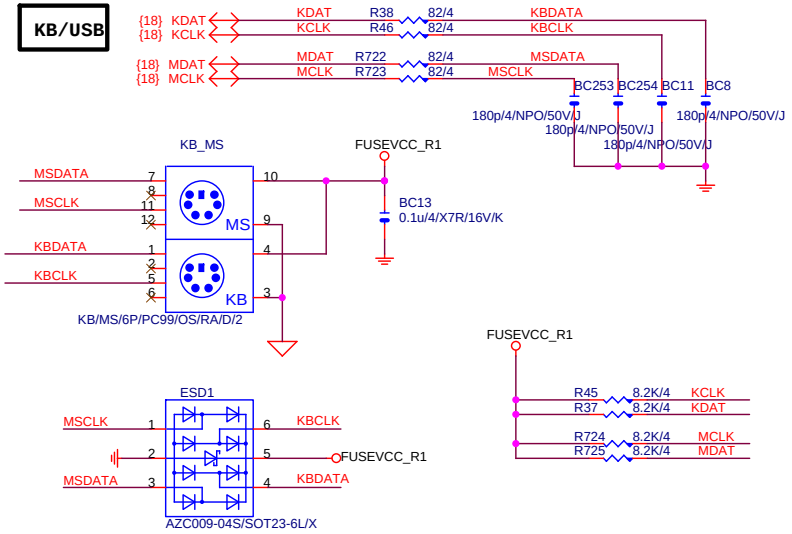


VOLTAGE-- H/W MONITOR

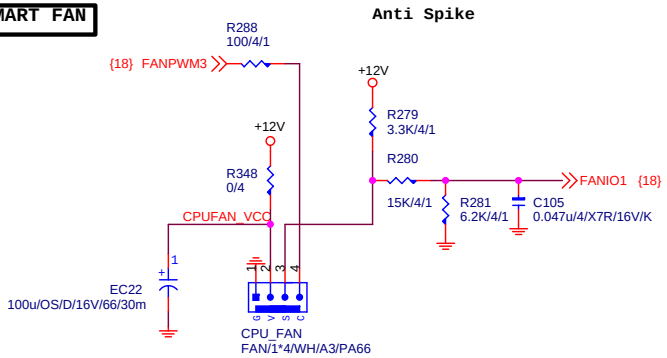


The division voltage of VIN2 & VIN3 must be around 2.9V

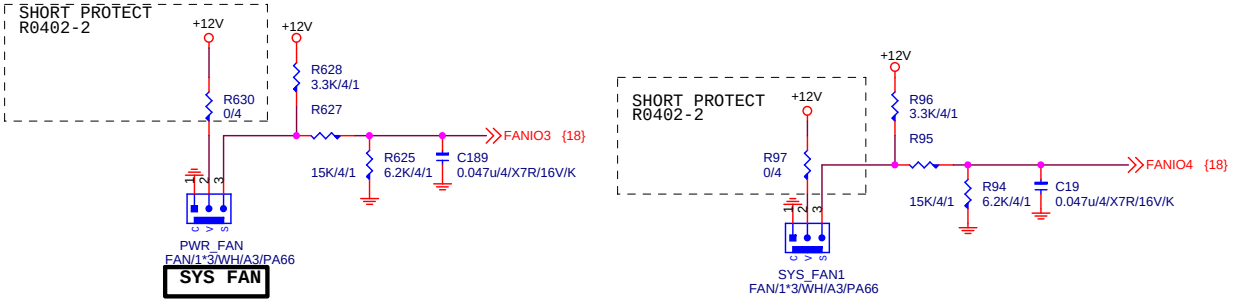
KB/USB

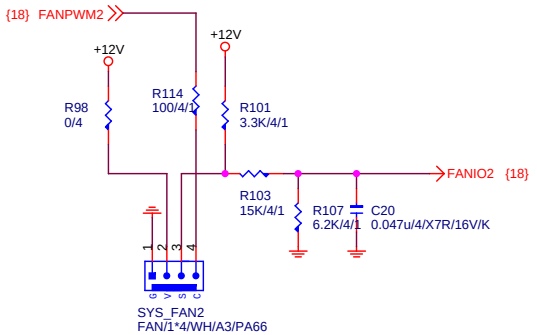


CPU SMART FAN



SYS FAN





R20 0/6/SHT/M/X

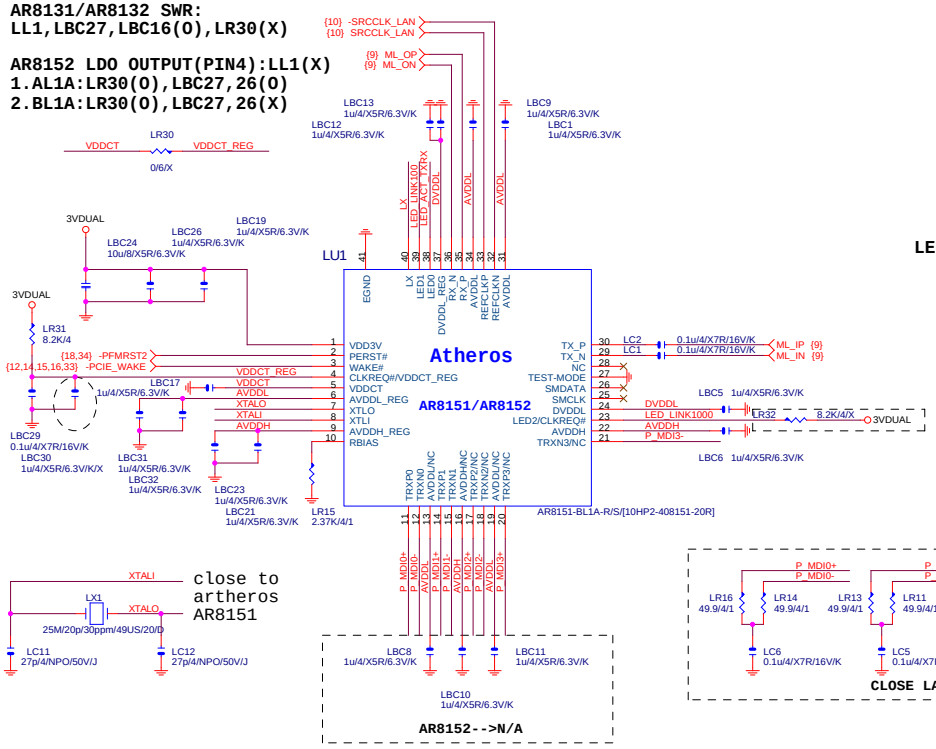
FOR EMI ONLY
+12V
C21 1n/4/X7R/50V/K/X

Gigabyte Technology		
Title: **HWM,KB/MS, FAN CTRL**		
Size: Custom	Document Number: **GA-P61A-D3**	Rev: **2.0**
Date: Tuesday, January 03, 2012	Sheet 31 of 34	

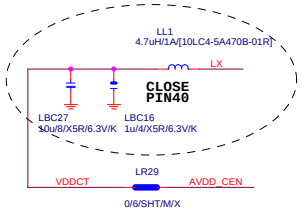
PCIE-1G LAN

AR8131/AR8132 SWR:
LL1,LBC27,LBC16(O),LR30(X)

AR8152 LDO OUTPUT(PIN4):LL1(X)
1.AL1A:LR30(O),LBC27,26(O)
2.BL1A:LR30(O),LBC27,26(O)

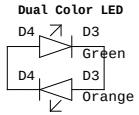


CHOKE4U7-500MA-1

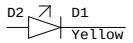


LED0(ACT) LED1(LINK) LED2(LINK1G)

Dual Color LED

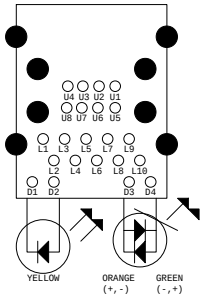


Single Color LED

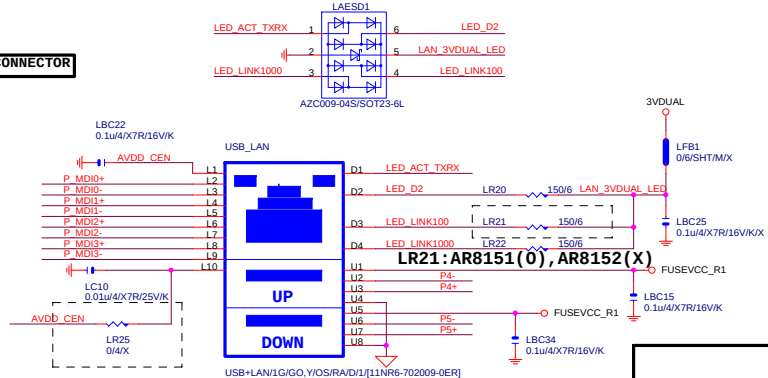


CLKREQ# PULL-UP FOR EFUSE:
1.AR8151:LR31(O),LR32(X)
2.AR8152:LR31(X),LR32(O)

P35-152-19W9

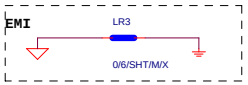


USB_LAN CONNECTOR

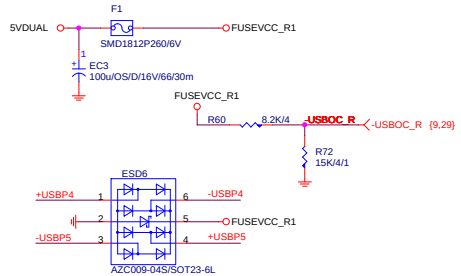


USB_LAN

EMI

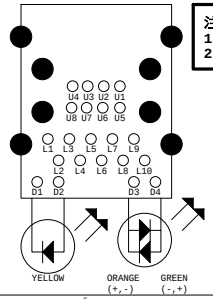


CLOSE USB_LAN

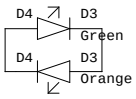


USB-->90歐姆:[15/4.5/7.5/4.5/15]

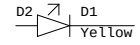
注意:LAN LED PROTECT:(CO-LAYOUT)
1.ESD(6PIN):AOZ8902CIL/SOT23-6(DEFAULT)
2.SURGE(5PIN):AZ2025-04S/SOT23-5L



Dual Color LED



Single Color LED



料號	規格	廠商
11NR6-702009-0ER 1G	LAN (12core)	UDE
11NR6-702009-91R 1G	LAN(8 core)	FOXCONN
11NR6-702009-92R 1G	LAN(8 core)	UDE
11NR6-702009-11R 1G	LAN(12core/RED)	UDE
11NR6-702009-12R 1G	LAN(8 core/RED)	FOXCONN

USB_LAN BOM區分:

1.(紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2.(黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3.(黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

Title: ARTHEROS AR8151/AR8161

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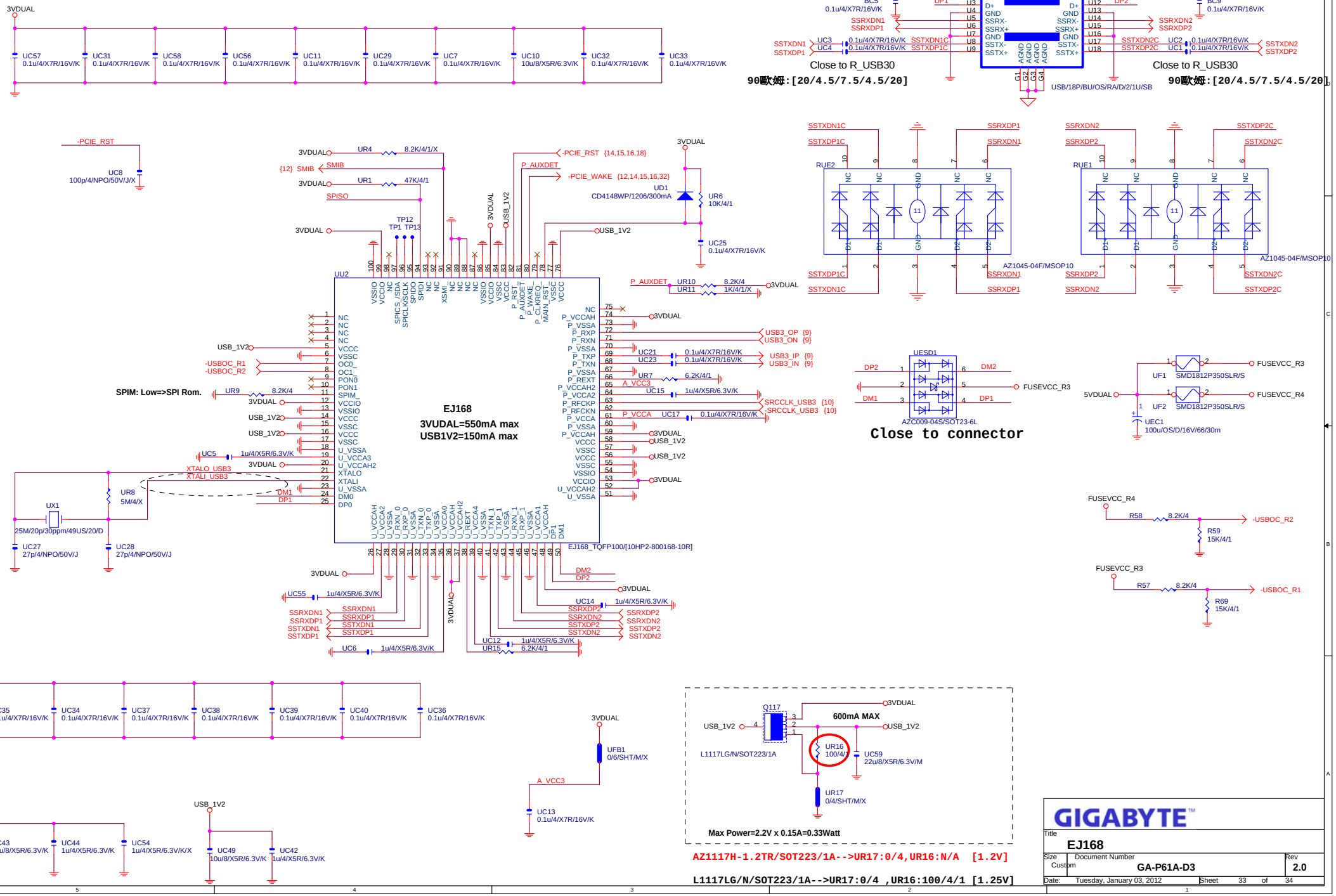
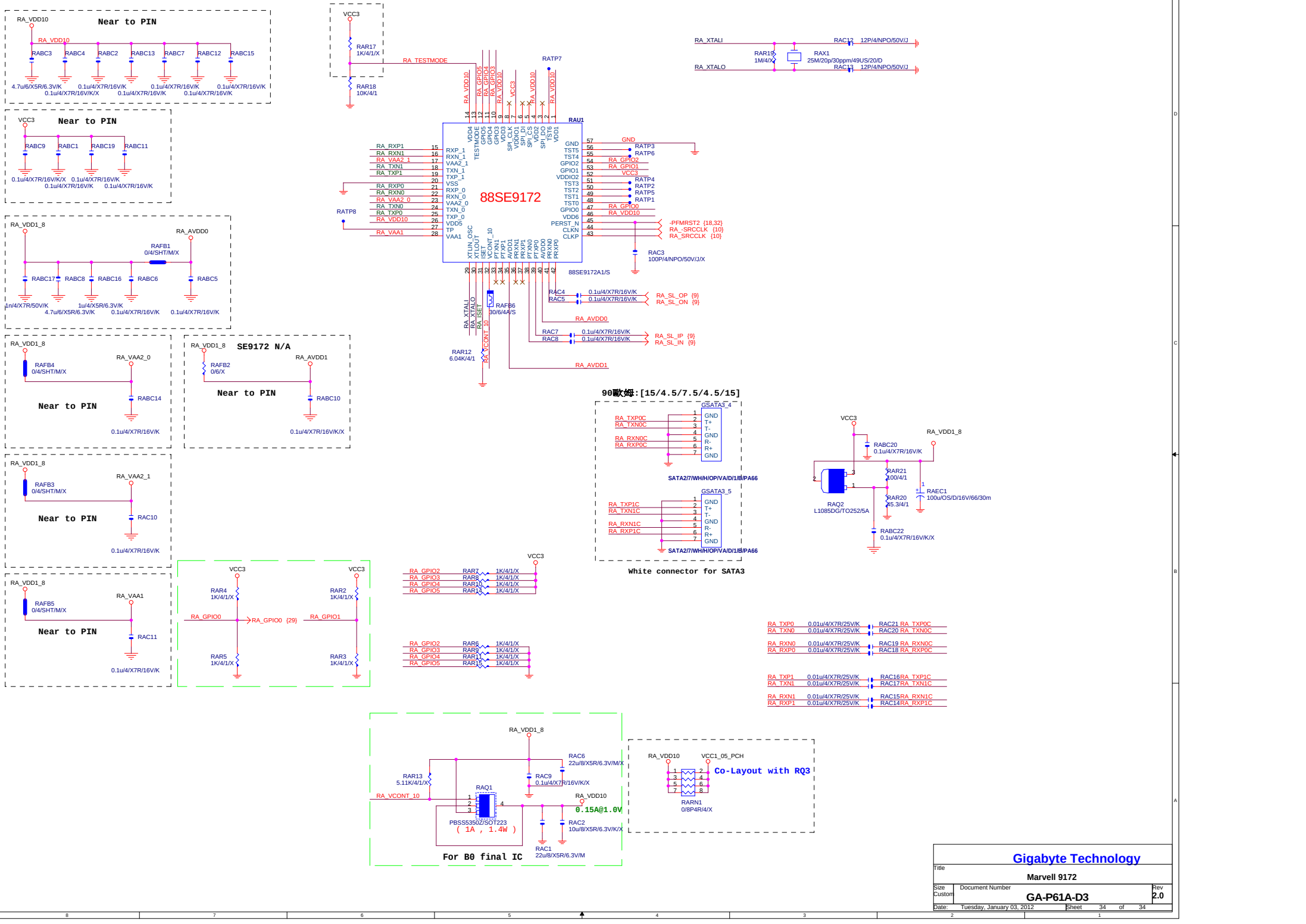


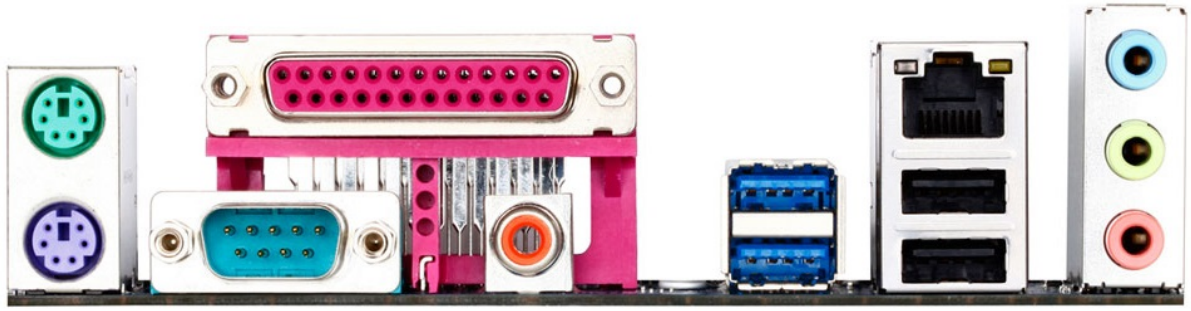
GIGABYTE™

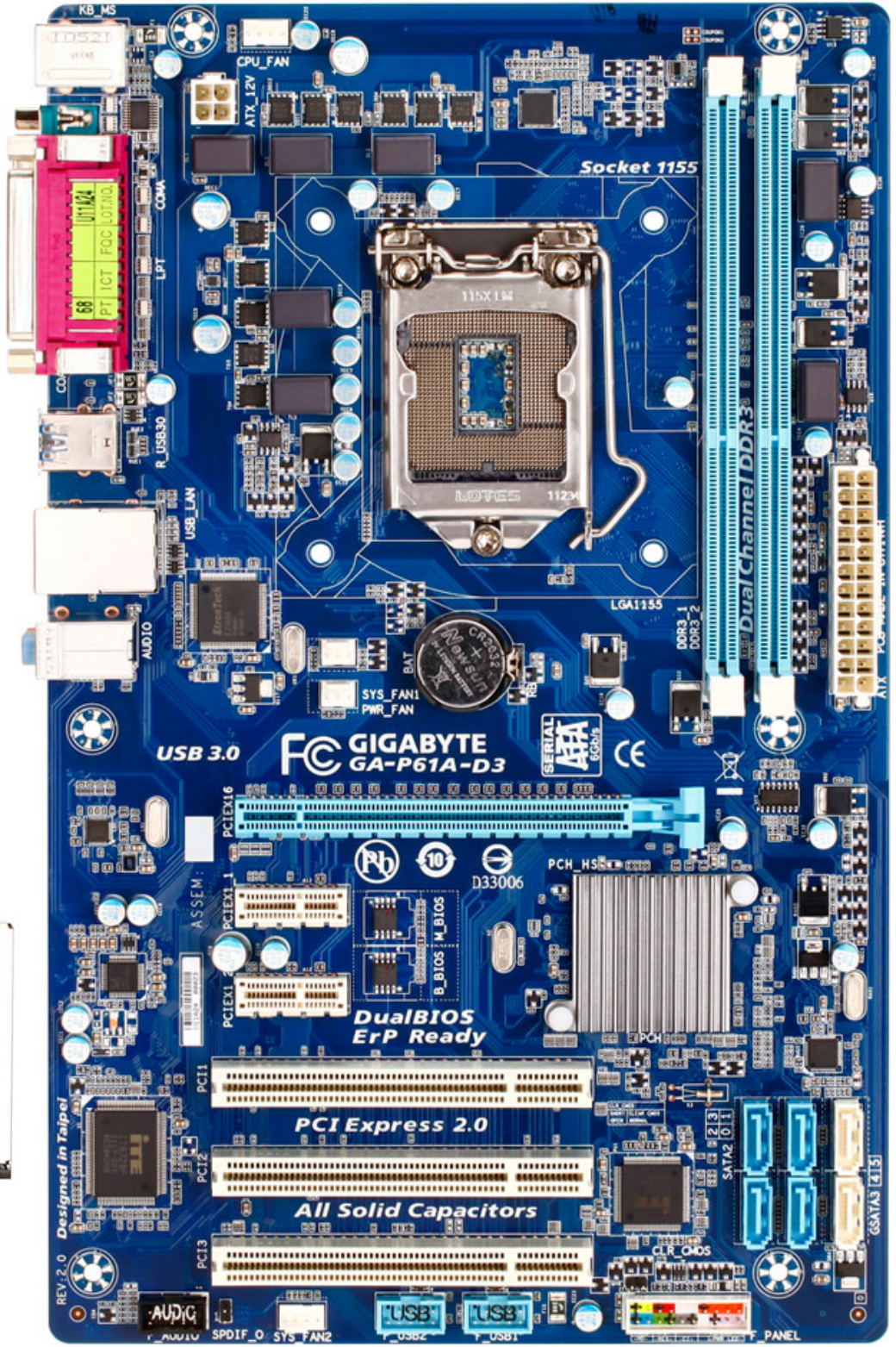
Title: EJ168		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 33 of 34	



Gigabyte Technology			
Title: Marvell 9172			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.0
Date: Tuesday, January 03, 2012	Sheet 34 of 34		


GIGABYTE
Ultra Durable 4 CLASSIC
Humidity Protection
Electrostatic Protection
Power Failure Protection
High Temperature Protection
Dual UEFI BIOS
Ultra Durable Motherboard
P61A-D3
PCIe Gen 3
3x USB Power
USB 3.0
SATA 3.0
New Glass Fabric PCB




Socket 1155
LGA1155
Dual Channel DDR3
GIGABYTE
GA-P61A-D3
USB 3.0
DualBIOS
ErP Ready
PCI Express 2.0
All Solid Capacitors
Designed in Taipei
PCH
CPU_FAN
ATX_12V
SYS_FAN1
PWR_FAN
CLR_CMOS
F_PANEL