Model Name: GA-H61M-S1

Revision 2.1

Model Name: GA-H61M-S1

Revision 2.1

Component value change history

2011/09/14

Data	Change Item	Reason
2011.07.05	9MH61MDS2-00-01	first release
	add R4977	fix SYS_FAN smart fan issue
	add R4980	ite 8728 JP6 function
	DR125 pull high change to +12V	RMA use
	add ESD18 for PS/2 KB_MS	follow super Anti 4 function
	PWM change to 6364	
	CODEC change to ALC887-VD2	
2011.07.15	9MH61MDS2-00-10A	
	fix VRM non-balance issue	
2011.08.22	9MH61MDS2-00-10B	
	some CAP change to Japan's os-con & adjust loadline	
2011.08.19	9MH61MDS2-00-10C	
	remove BC35 & BC34 change to 0.1u fix SIO 8728 factory issue	
2011.08.26	9MH61MDS2-00-10D	
	VRM & DDR Choke change to Ferrite Choke	
	Atheros 8151B change to Realtek 8111E	
2011.08.22	9MH61MDS2-00-12A	H61M-DS2 R1.2 BOM first release
	remove BC35 & BC34 change to 0.1u fix SIO 8728 factory issue	
	some CAP change to Japan's os-con & adjust loadline	
	add second source ON-MOSFET for VRM	
2011.09.08	9MH61MDS2-00-12B	

Circuit or PCB layout change

DATE	Change Item	Reason
2011.07.01	H61M-DS2 R0.1 gerber out	
	add R4977	fix SYS_FAN smart fan issue
	add R4980	ite 8728 JP6 function
	DR125 pull high change to +12V	RMA use
	add ESD18 for PS/2 KB_MS	follow super Anti 4 function
	PWM change to 6364	
2011.07.15	H61M-DS2 R1.0 gerber out	
	VRM & DDR Choke change to Ferrite Choke	
	Atheros 8151B change to Realtek 8111E	
2011.08.16	H61M-DS2 R1.2 gerber out	
	add LAR14 shortpin short R_USB AGND & DGND	
2011.09.07	H61M-DS2 R1.21 gerber out	

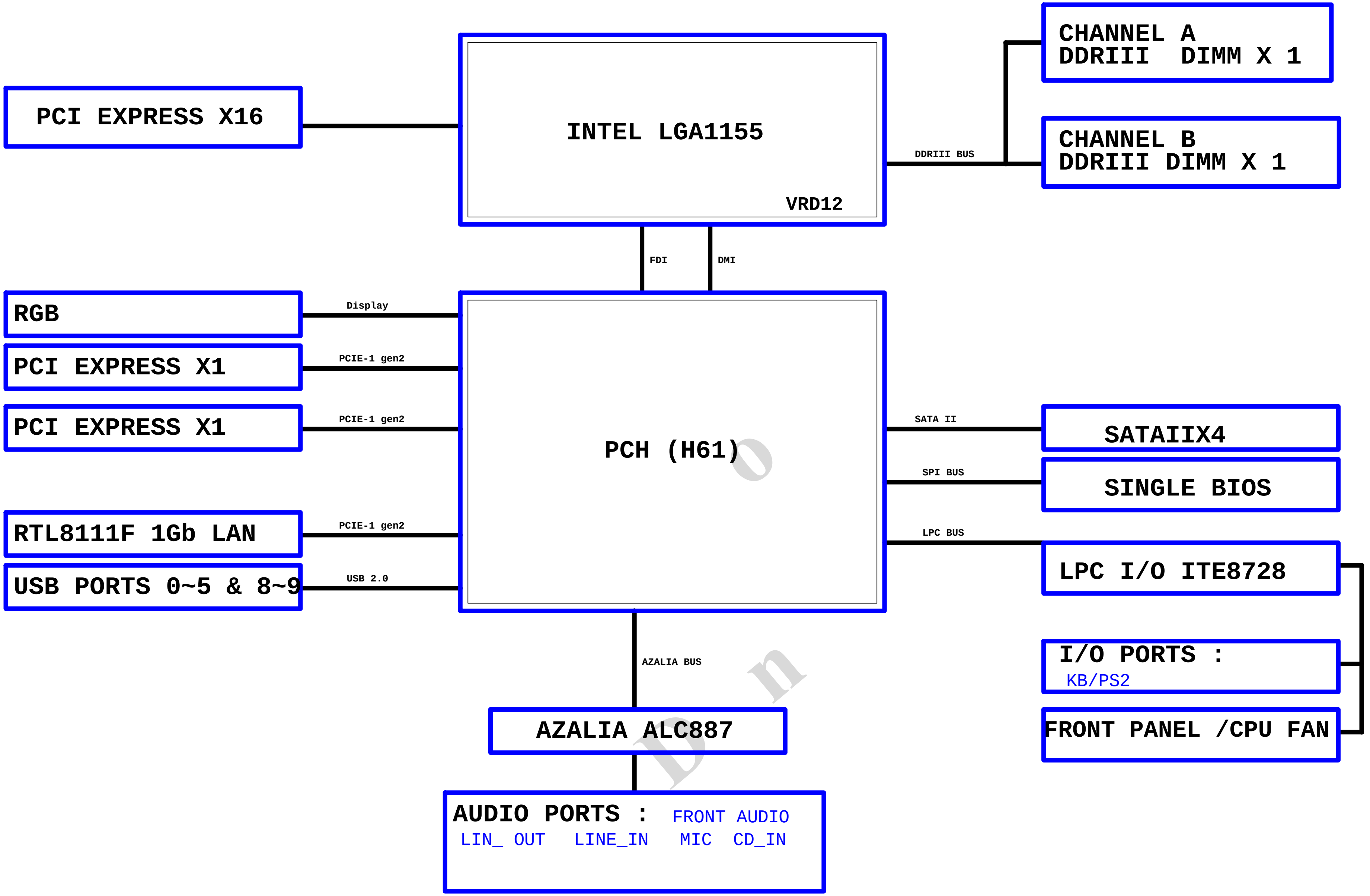
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

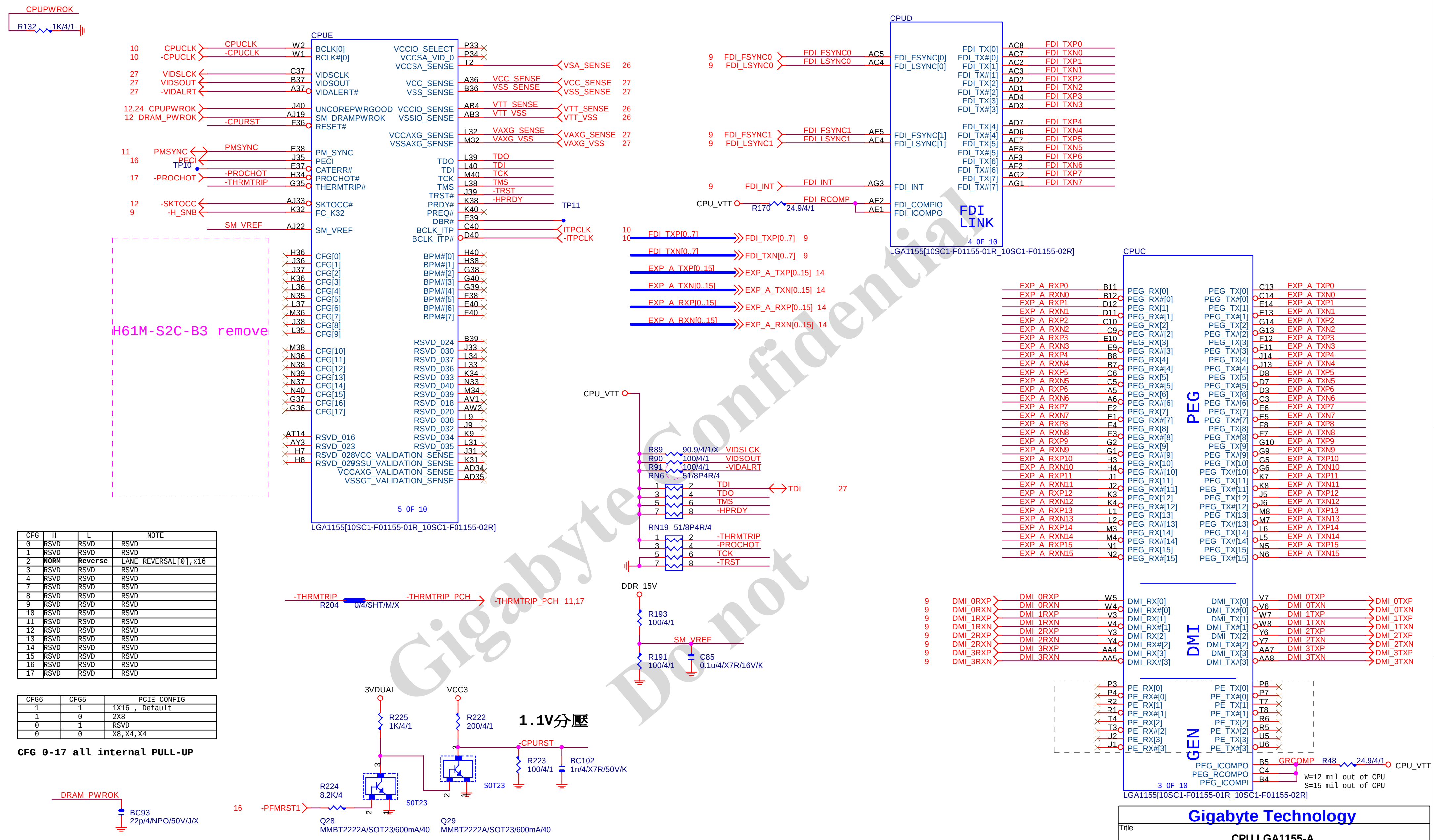
Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 2 of 29

BLOCK DIAGRAM



Gigabyte Technology	
Title	BLOCK DIAGRAM
Size: C	Document Number: GA-H61M-S1 — Rev: 2.1
Date: Thursday, February 16, 2012	Sheet 3 of 29



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

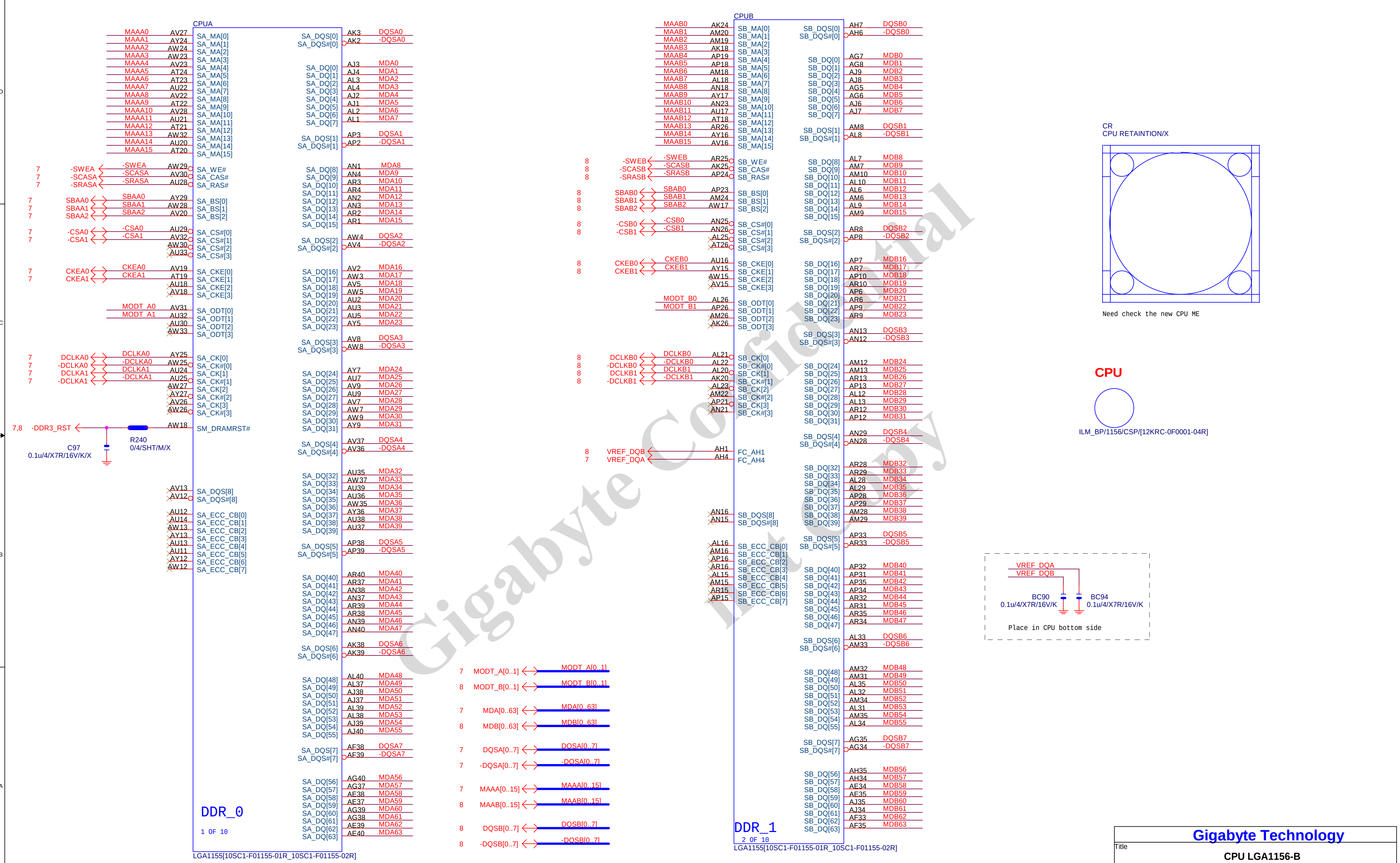
CFG 0-17 all internal PULL-UP

Gigabyte Technology

Title: CPU LGA1155-A

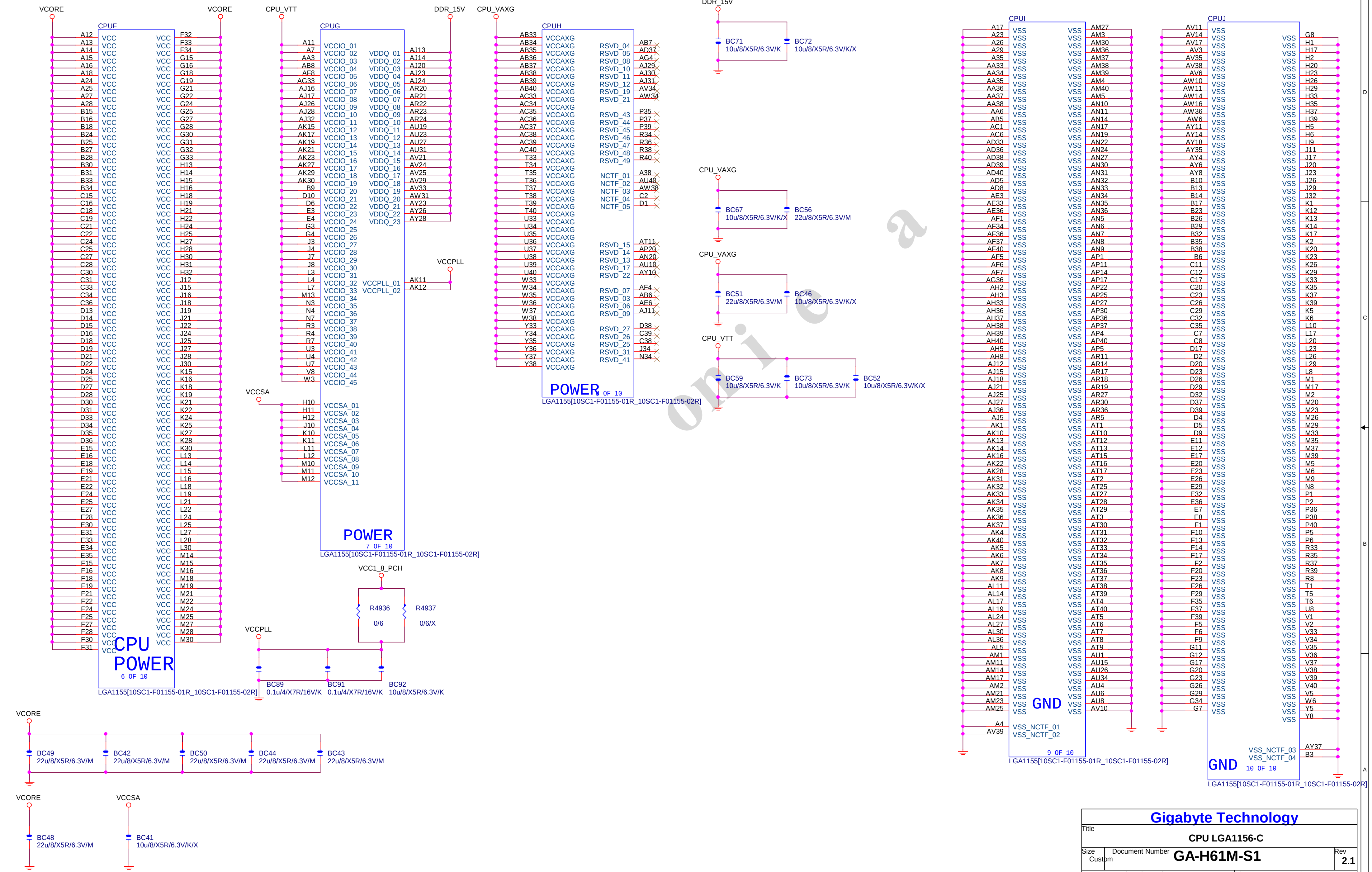
Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 4 of 29



Gigabyte Technology

Title	CPU LGA1156-B
Size	Custom
Document Number	GA-H61M-S1
Rev	2.1
Date:	Thursday, February 16, 2012
Sheet	5 of 29

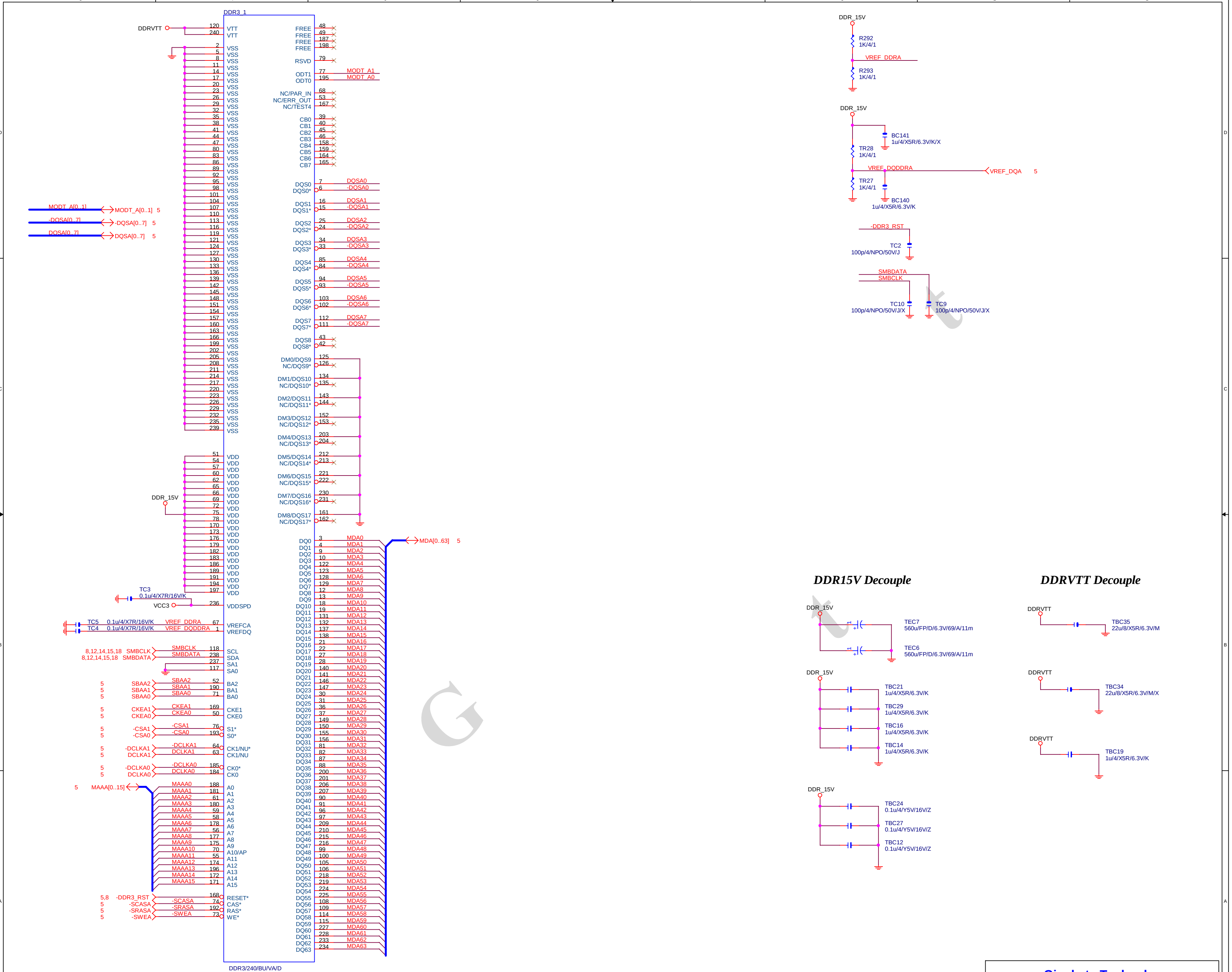


Gigabyte Technology

Title: CPU LGA1156-C

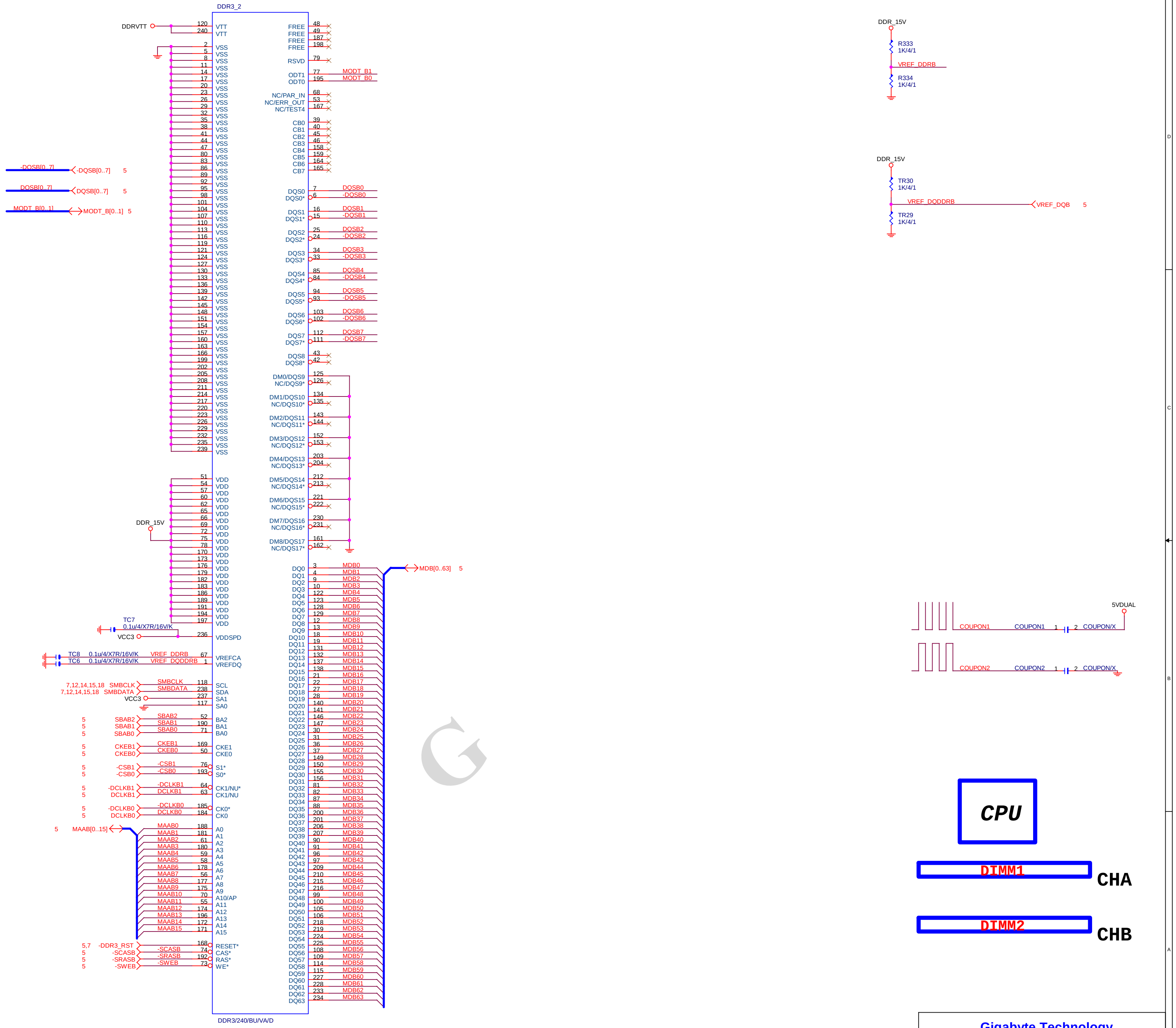
Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 6 of 29



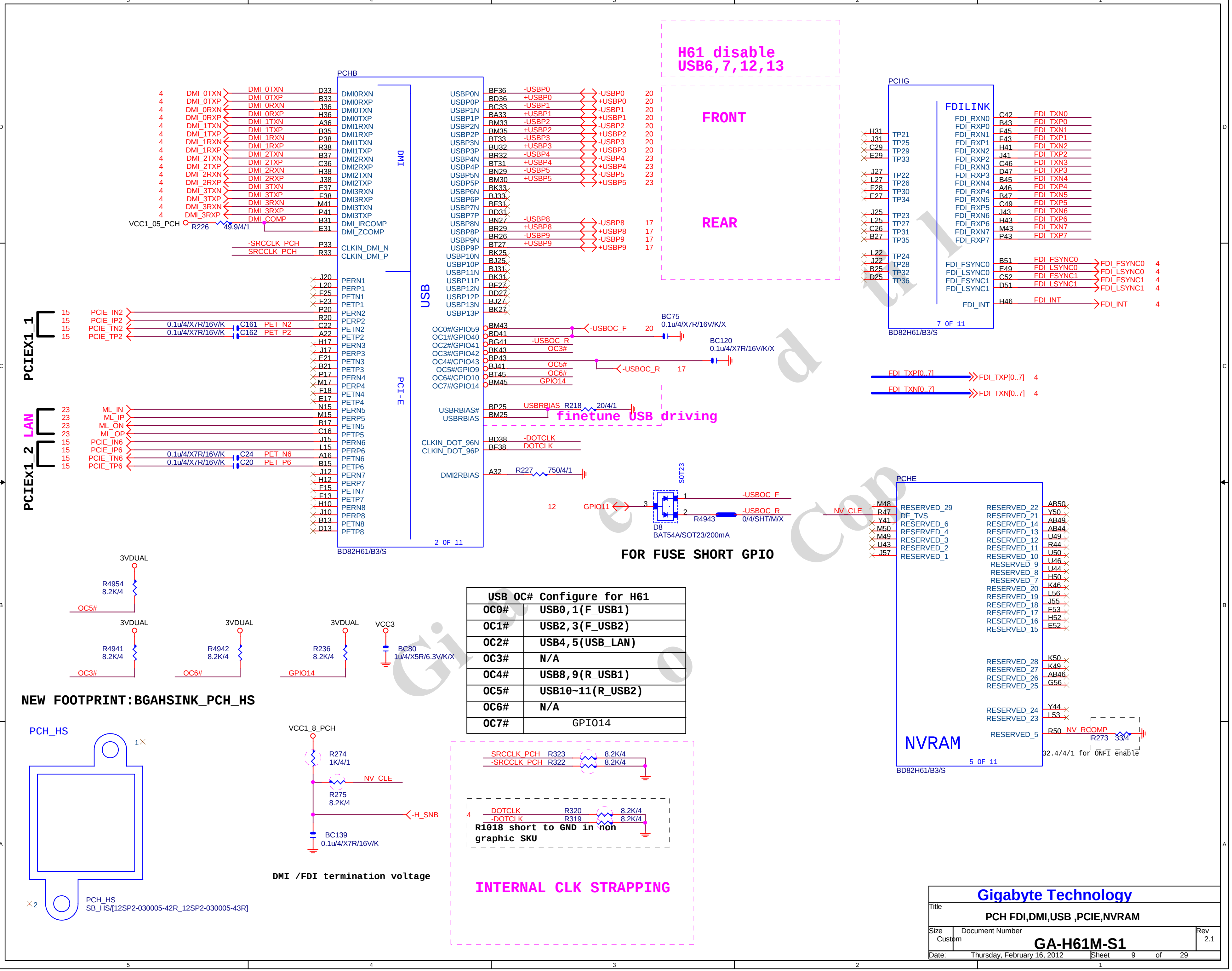
Gigabyte Technology

Title	DDRIII CHANNEL A	
Size: Custom	Document Number: GA-H61M-S1	Rev: 2.1
Date:	Sheet 7 of 29	



Gigabyte Technology

Title	DDRIII CHANNEL B	
Size Custom	Document Number GA-H61M-S1	Rev 2.1
Date:	Sheet 8 of 29	



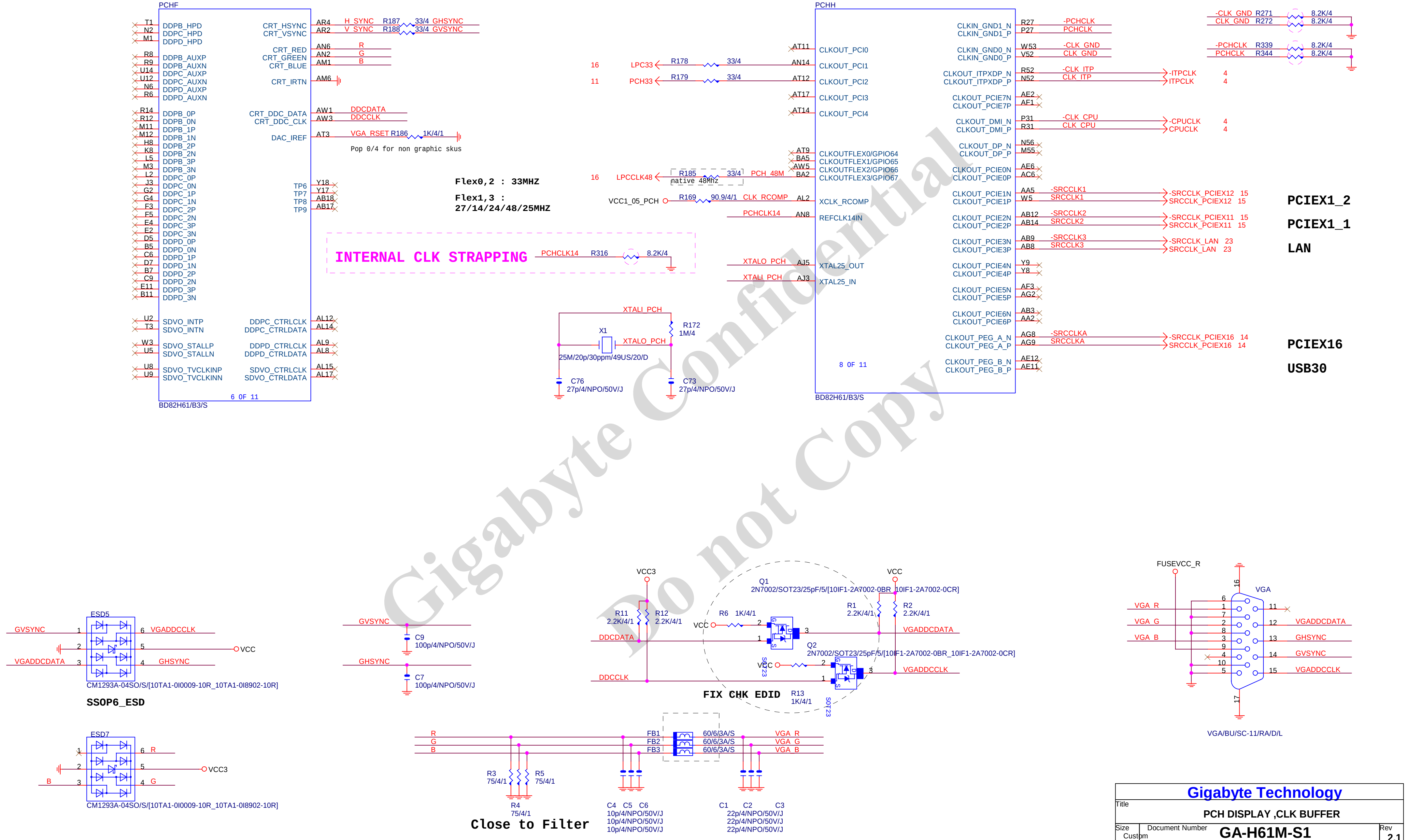
USB OC# Configure for H61	
OC0#	USB0,1(F_USB1)
OC1#	USB2,3(F_USB2)
OC2#	USB4,5(USB_LAN)
OC3#	N/A
OC4#	USB8,9(R_USB1)
OC5#	USB10~11(R_USB2)
OC6#	N/A
OC7#	GPIO14

Gigabyte Technology

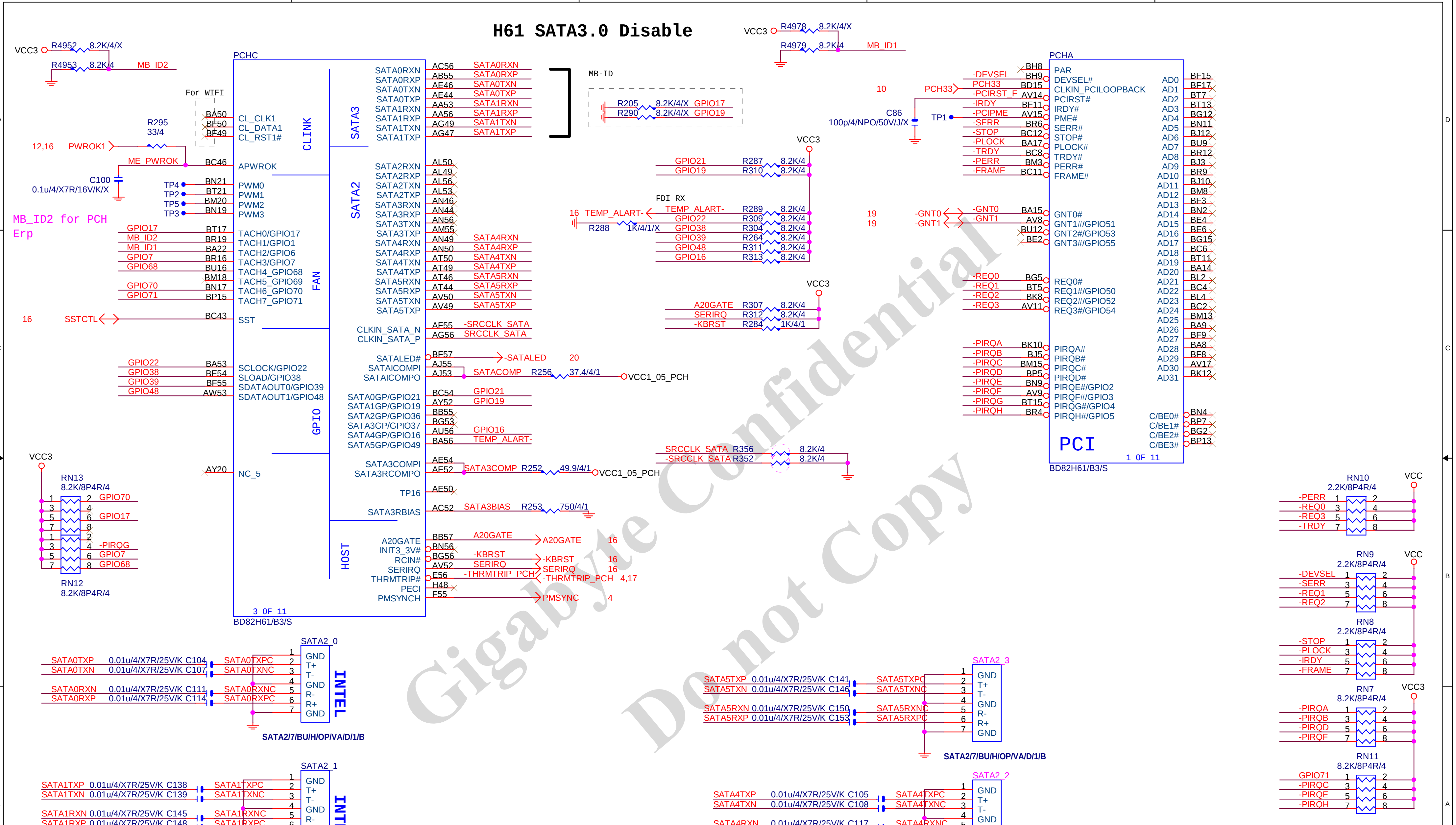
Title: PCH FDI,DMI,USB ,PCIE,NVRAM

Size: Custom
Document Number: GA-H61M-S1
Rev: 2.1

Date: Thursday, February 16, 2012 — Sheet 9 of 29

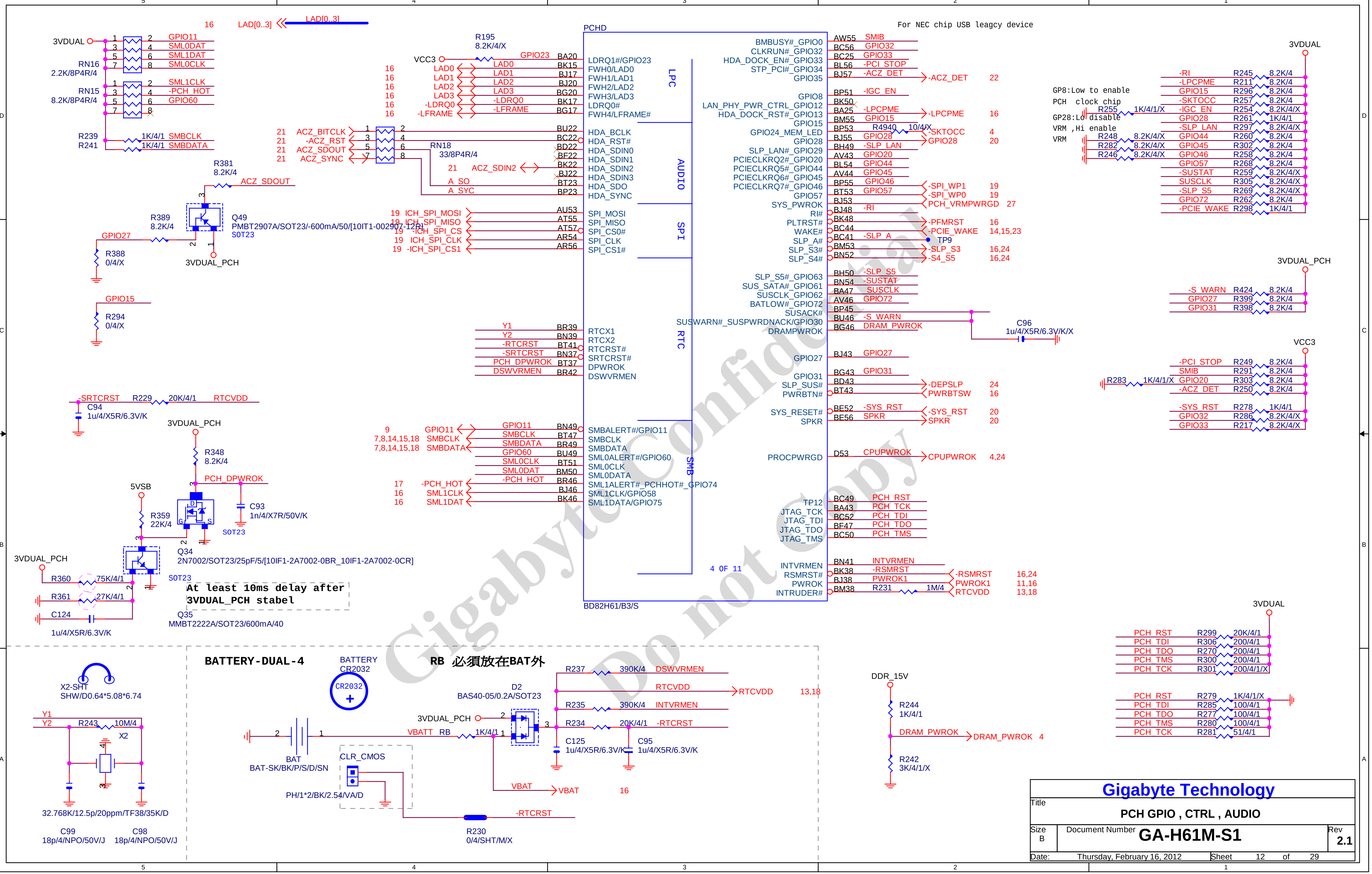


	Gigabyte Technology
Title	PCH DISPLAY ,CLK BUFFER
Size: Custom	Document Number: GA-H61M-S1 — Rev 2.1
Date: Thursday, February 16, 2012	Sheet 10 of 29



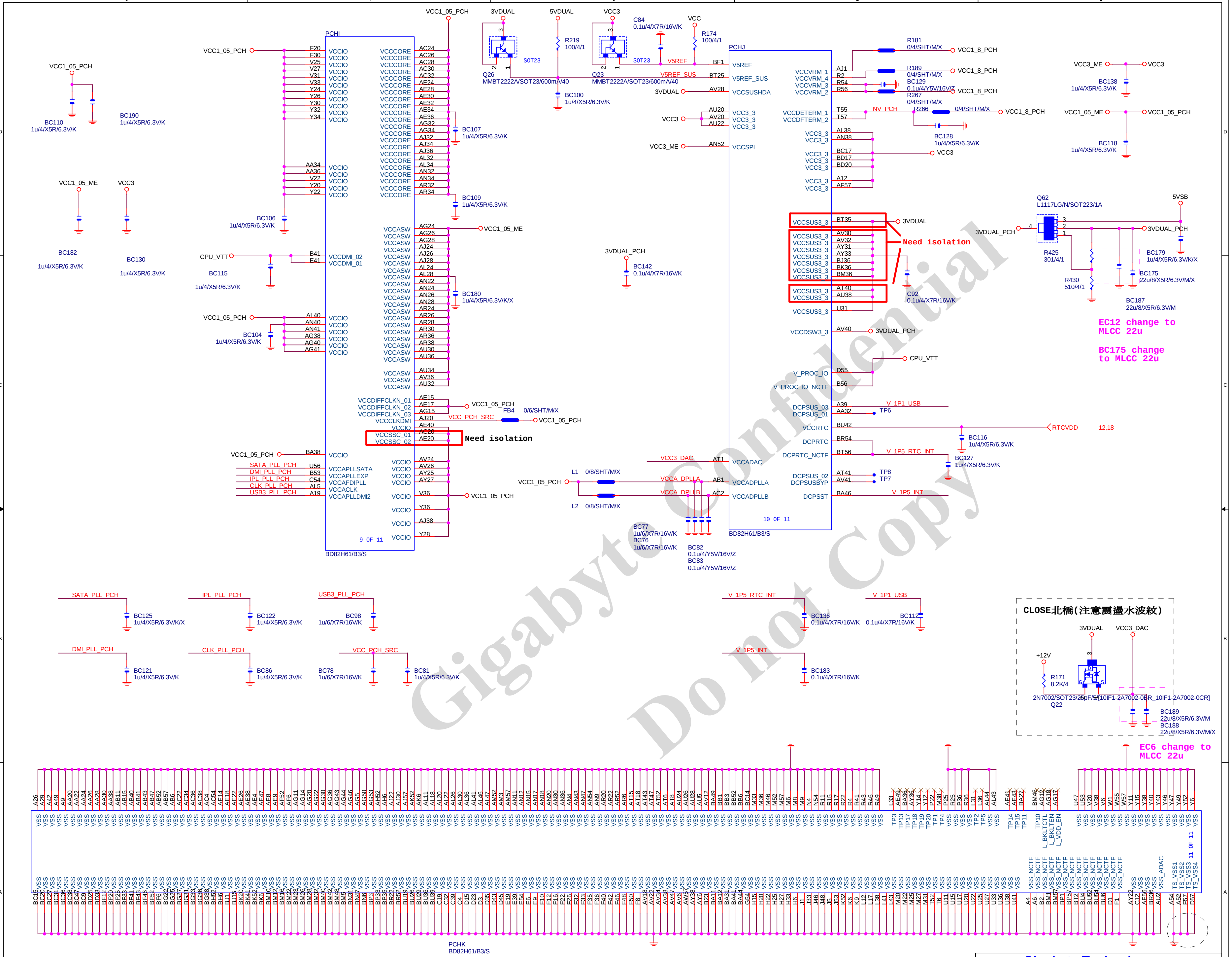
Gigabyte Technology

Title	PCH HOST , SATA, PCI
Size B	Document Number GA-H61M-S1 — Rev 2.1
Date: Thursday, February 16, 2012	Sheet 11 of 29



Gigabyte Technology

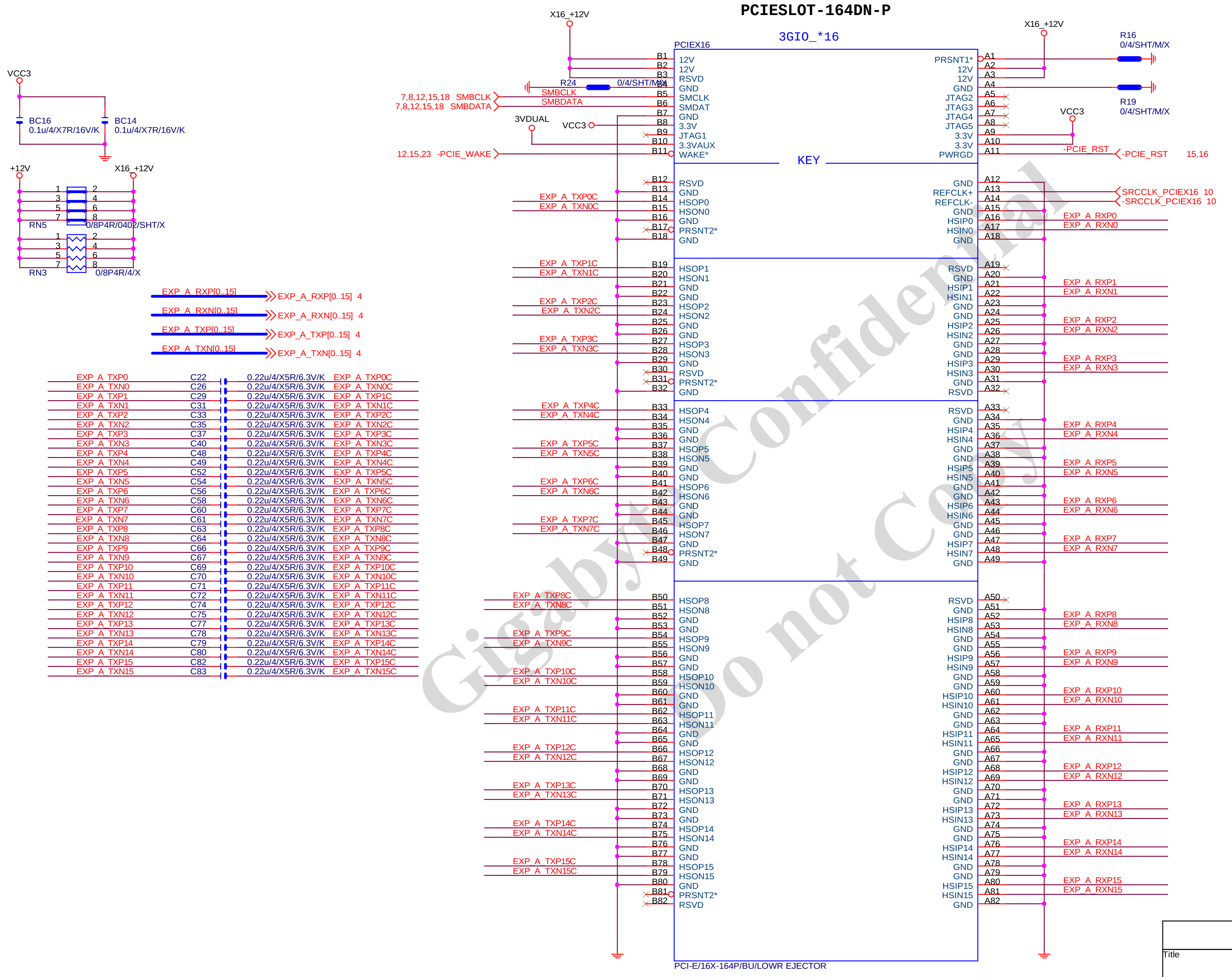
Title	PCH GPIO , CTRL , AUDIO
Size B	Document Number GA-H61M-S1 — Rev 2.1
Date: Thursday, February 16, 2012	Sheet 12 of 29



Gigabyte Technology

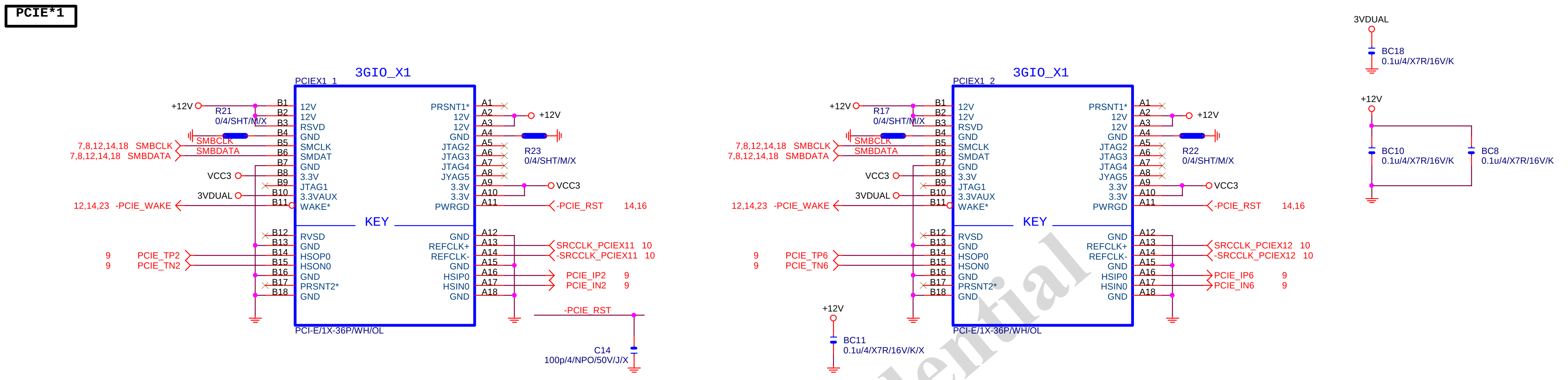
Title	PCH PWR ,GND		
Size: Custom	Document Number: GA-H61M-S1		Rev: 2.1
Date: Thursday, February 16, 2012	Sheet 13 of 29		

EC6D_8D10MM-RH



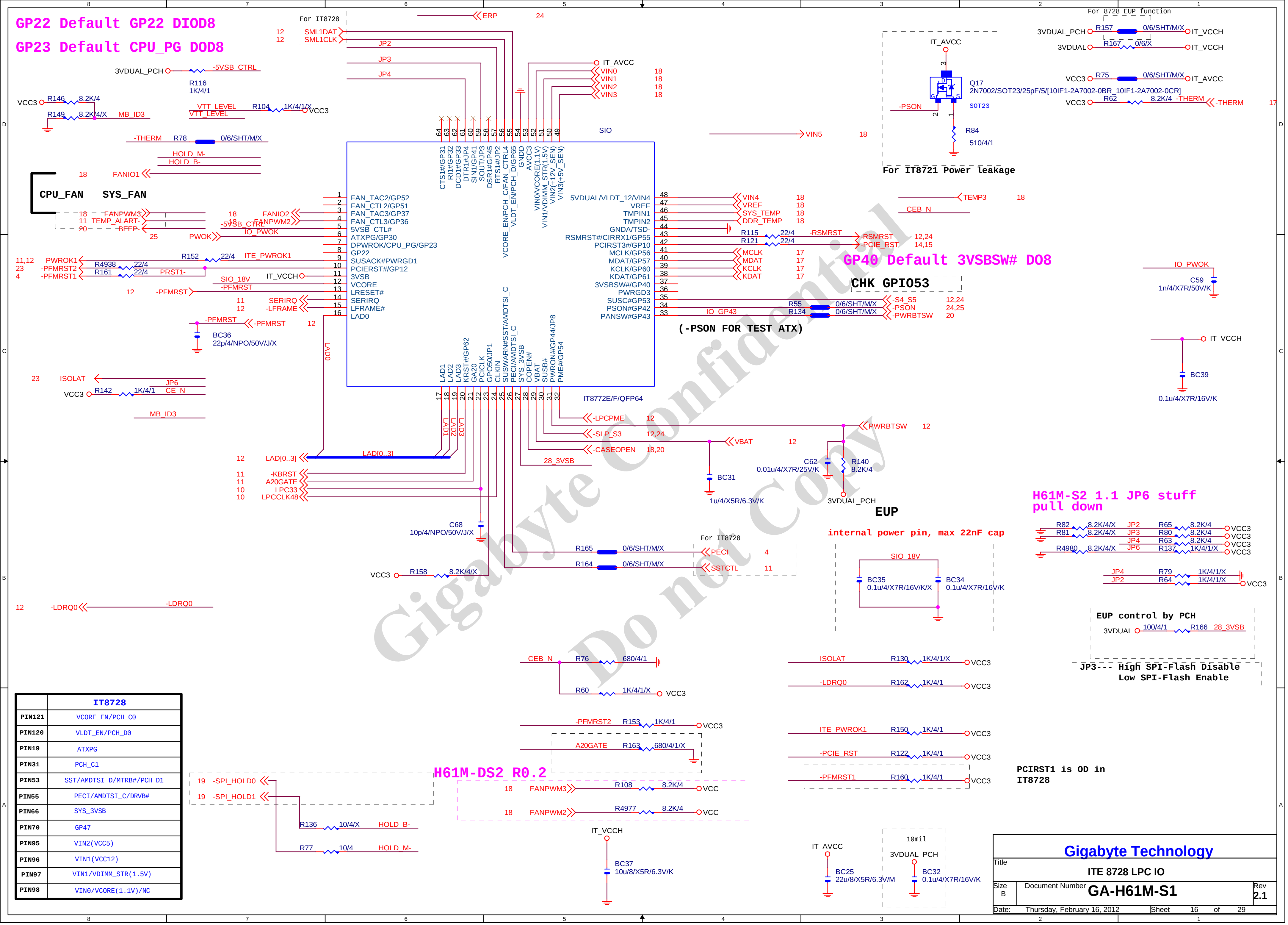
Gigabyte Technology

Title	PCI EXPRESS * 16
Size: Custom	Document Number: GA-H61M-S1
Rev	2.1
Date:	Thursday, February 16, 2012
Sheet	14 of 29



CLK GEN

Gigabyte Technology			
Title	PCIEX1,X2/CLK GEN		
Size Custom	Document Number	GA-H61M-S1	Rev 2.1
Date: Thursday, February 16, 2012		Sheet 15 of 29	



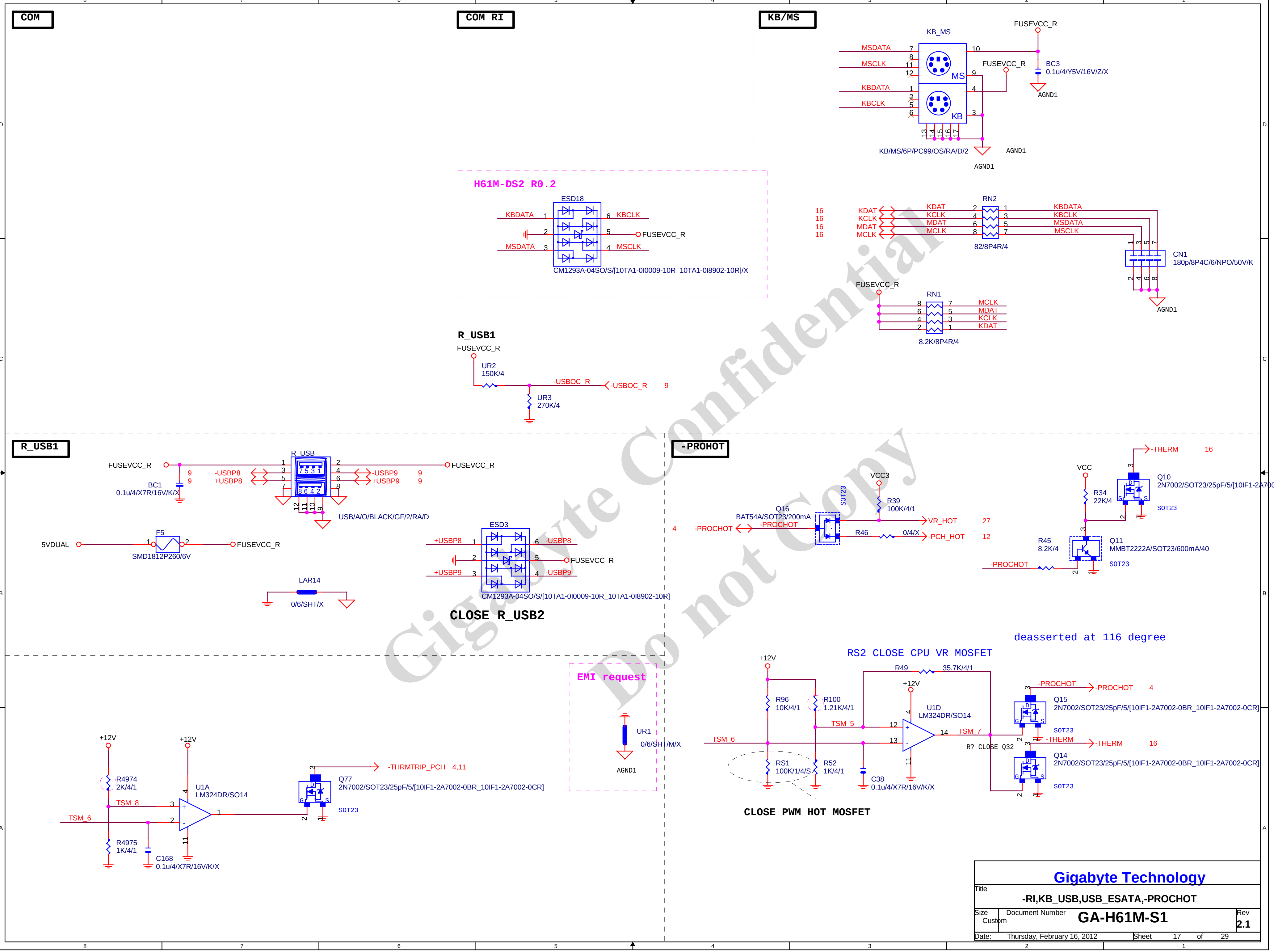
IT8728	
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

Gigabyte Technology

Title: ITE 8728 LPC IO

Size: B | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 16 of 29

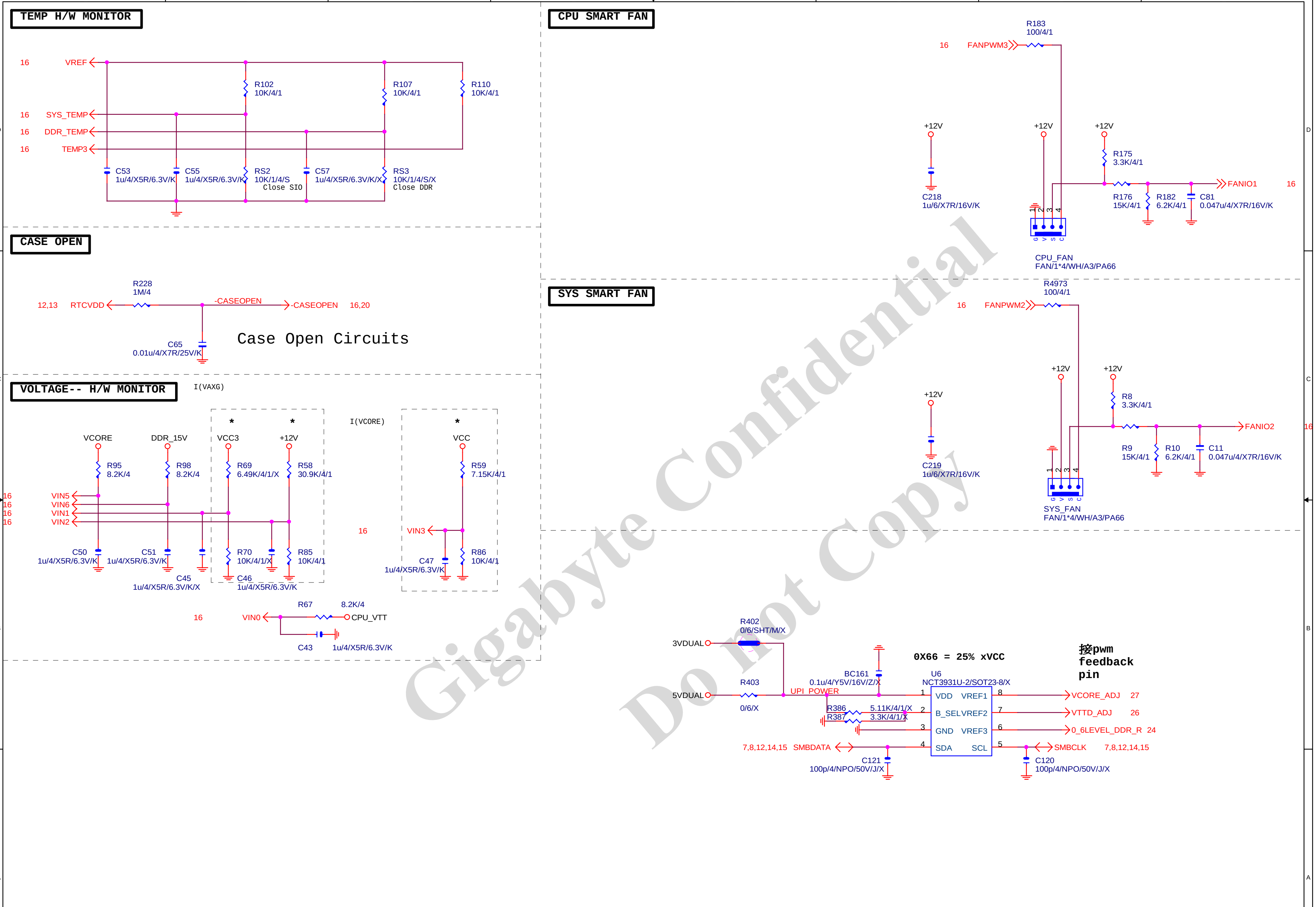


Gigabyte Technology

Title: -RI,KB_USB,USB_ESATA,-PROCHOT

Size	Document Number	Rev
Custom	GA-H61M-S1	2.1

Date: Thursday, February 16, 2012 Sheet 17 of 29



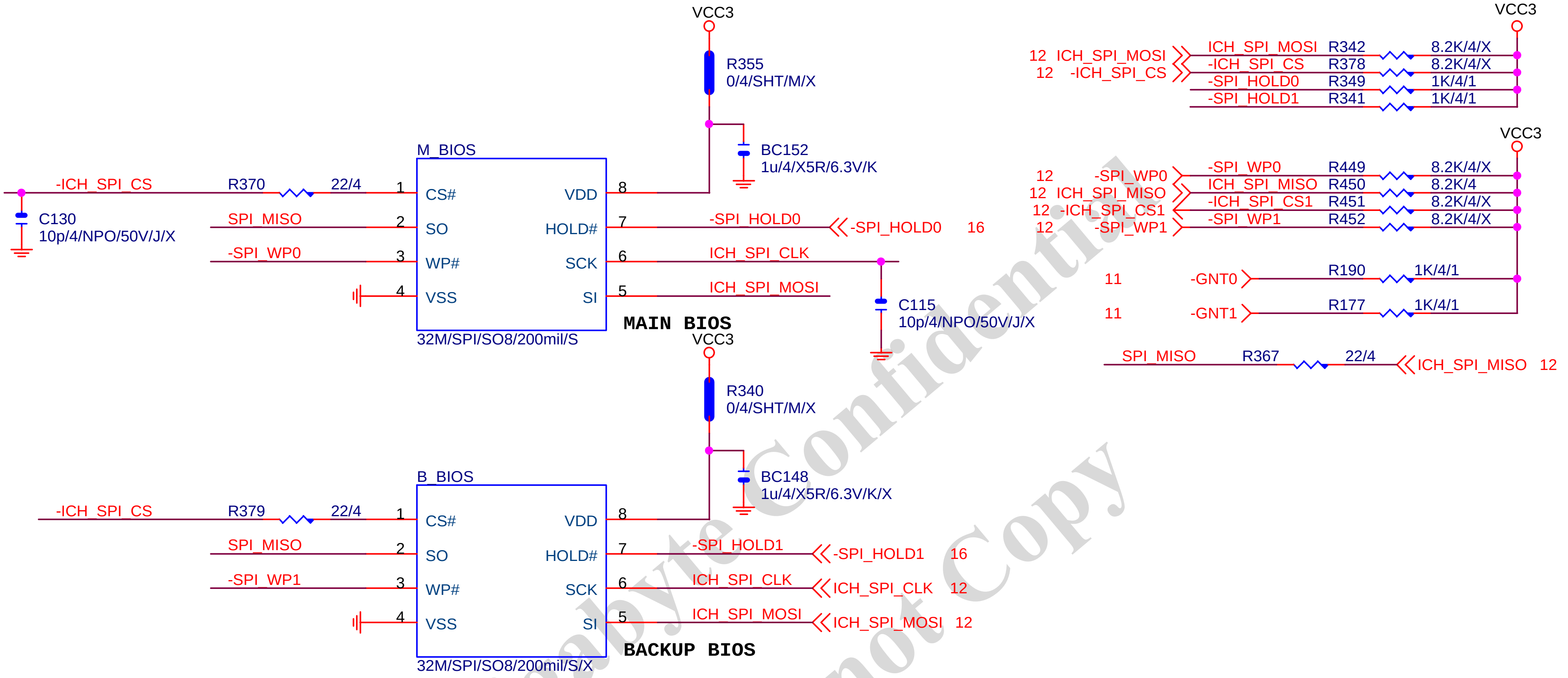
Gigabyte Technology

Title: HWM,FAN CTRL,OV

Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 18 of 29

DUAL BIOS



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

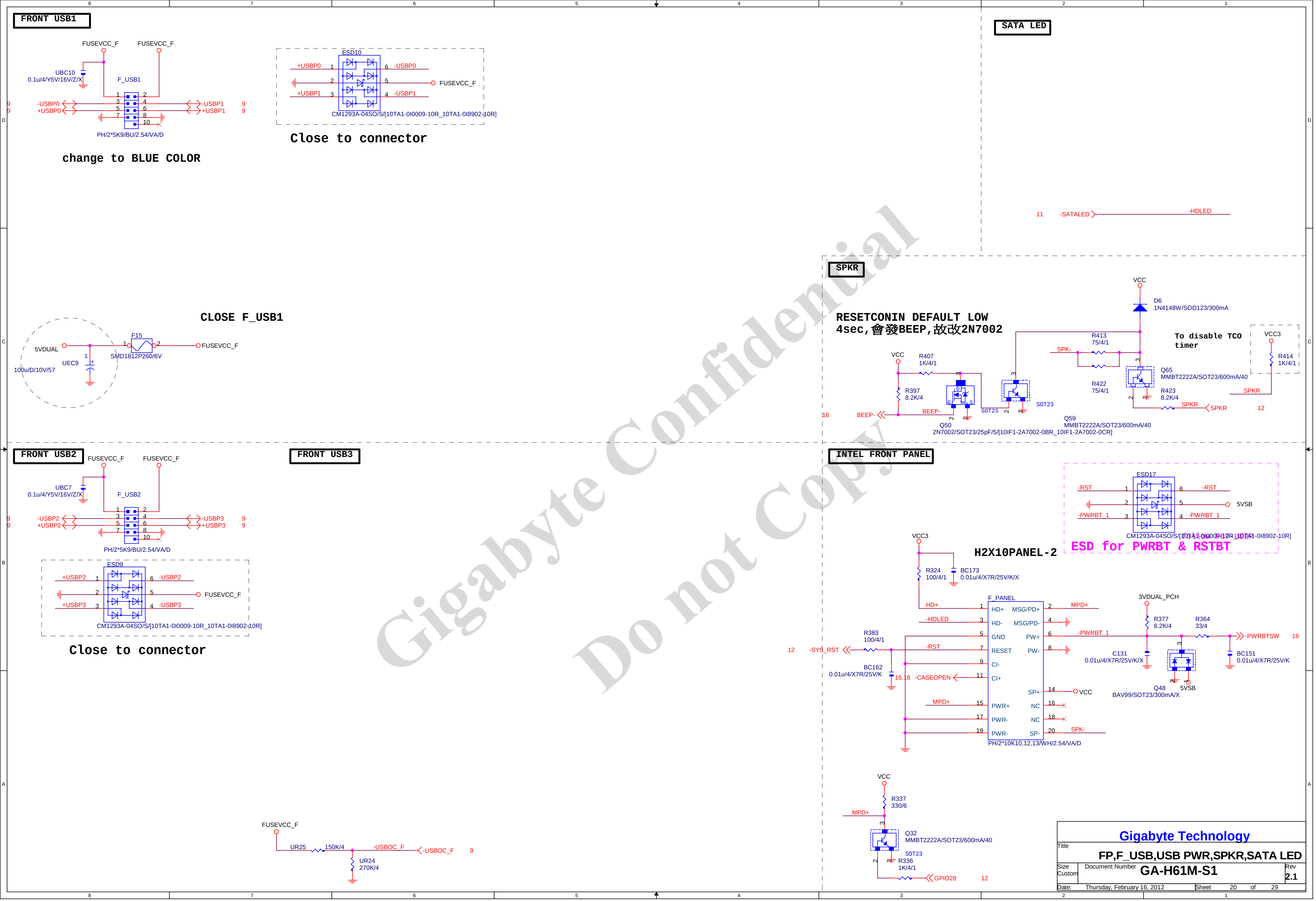
1 means floating
0 means PD 1K

Gigabyte Technology

Title: SINGLE BIOS

Size: A | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 19 of 29



FRONT USB1
FUSEVCC_F
UBC10
0.1u/4/Y5V/16V/Z/X
F_USB1
-USBP0
+USBP0
-USBP1
+USBP1
PH/2*5K9/BU/2.54/VA/D
change to BLUE COLOR
ESD10
CM1293A-04SO/S/[10TA1-0I0009-10R_10TA1-0I8902-10R]
Close to connector
CLOSE F_USB1
5VDUAL
F15
SMD1812P260/6V
UEC9
100u/D/10V/57
SATA LED
-SATALED
-HDLED
SPKR
RESETCONIN DEFAULT LOW
4sec,會發BEEP,故改2N7002
VCC
D6
1N4148W/SOD123/300mA
R413
75/4/1
R422
75/4/1
To disable TCO timer
VCC3
R414
1K/4/1
R407
1K/4/1
R397
8.2K/4
BEEP-
SPK-
Q65
MMBT2222A/SOT23/600mA/40
R423
8.2K/4
Q50
2N7002/SOT23/25pF/5/[10IF1-2A7002-0BR_10IF1-2A7002-0CR]
Q59
MMBT2222A/SOT23/600mA/40
FRONT USB2
UBC7
0.1u/4/Y5V/16V/Z/X
F_USB2
-USBP2
+USBP2
-USBP3
+USBP3
ESD9
FRONT USB3
INTEL FRONT PANEL
ESD17
-RST
-PWRBT_1
5VSB
ESD for PWRBT & RSTBT
H2X10PANEL-2
R324
100/4/1
BC173
0.01u/4/X7R/25V/K/X
F_PANEL
HD+ MSG/PD+
HD- MSG/PD-
GND PW+
RESET PW-
CI-
CI+ SP+
PWR+ NC
PWR- NC
PWR- SP-
MPD+
3VDUAL_PCH
R377
8.2K/4
R364
33/4
-PWRBTSW
R383
100/4/1
-SYS_RST
BC162
0.01u/4/X7R/25V/K
-CASEOPEN
C131
0.01u/4/X7R/25V/K/X
BC151
0.01u/4/X7R/25V/K
Q48
BAV99/SOT23/300mA/X
PH/2*10K10,12,13/WH/2.54/VA/D
R337
330/6
Q32
MMBT2222A/SOT23/600mA/40
R336
1K/4/1
GPIO28
FUSEVCC_F
UR25
150K/4
-USBOC_F
UR24
270K/4
Gigabyte Technology
Title
FP,F_USB,USB PWR,SPKR,SATA LED
Size Custom
Document Number
GA-H61M-S1
Rev 2.1
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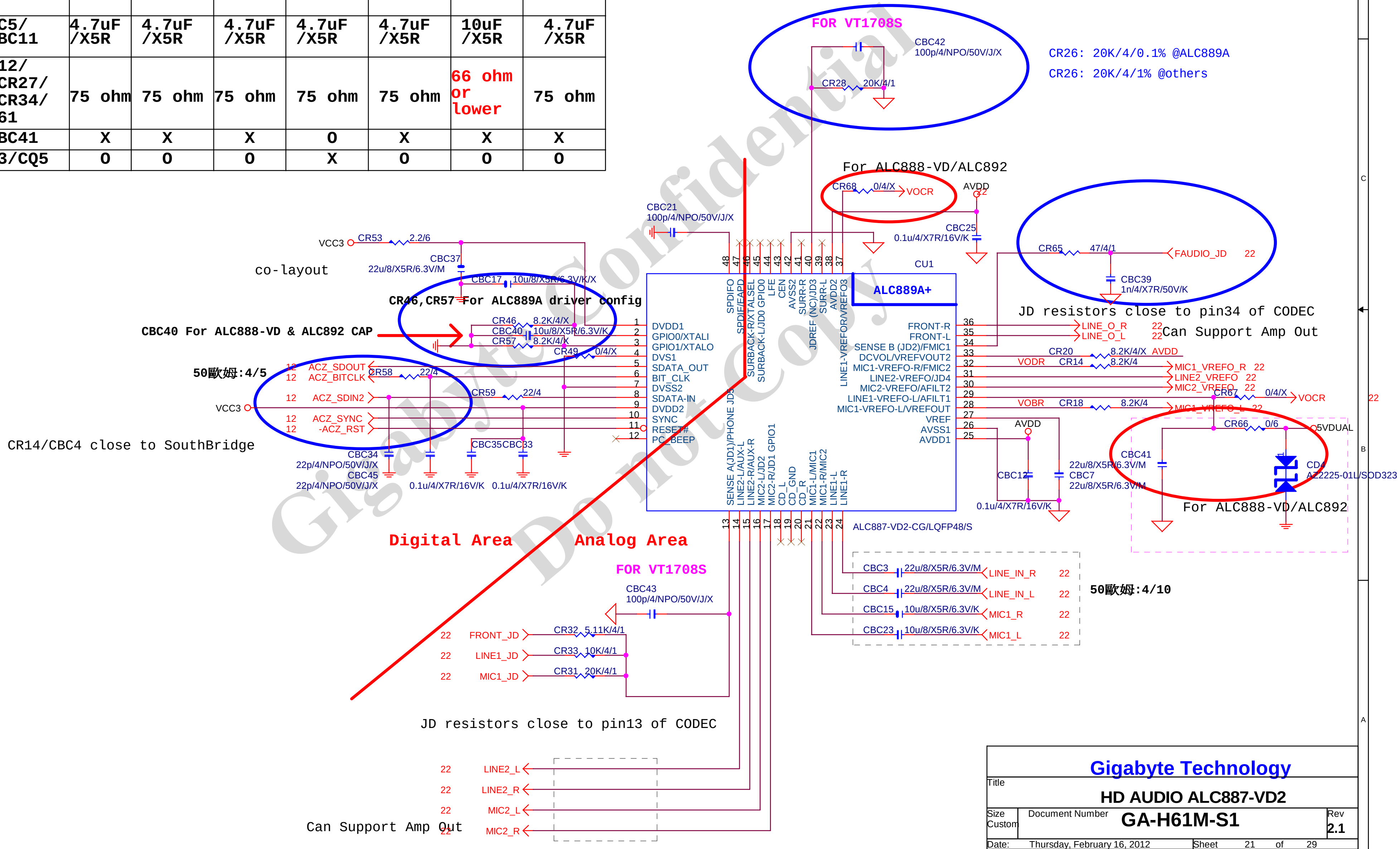
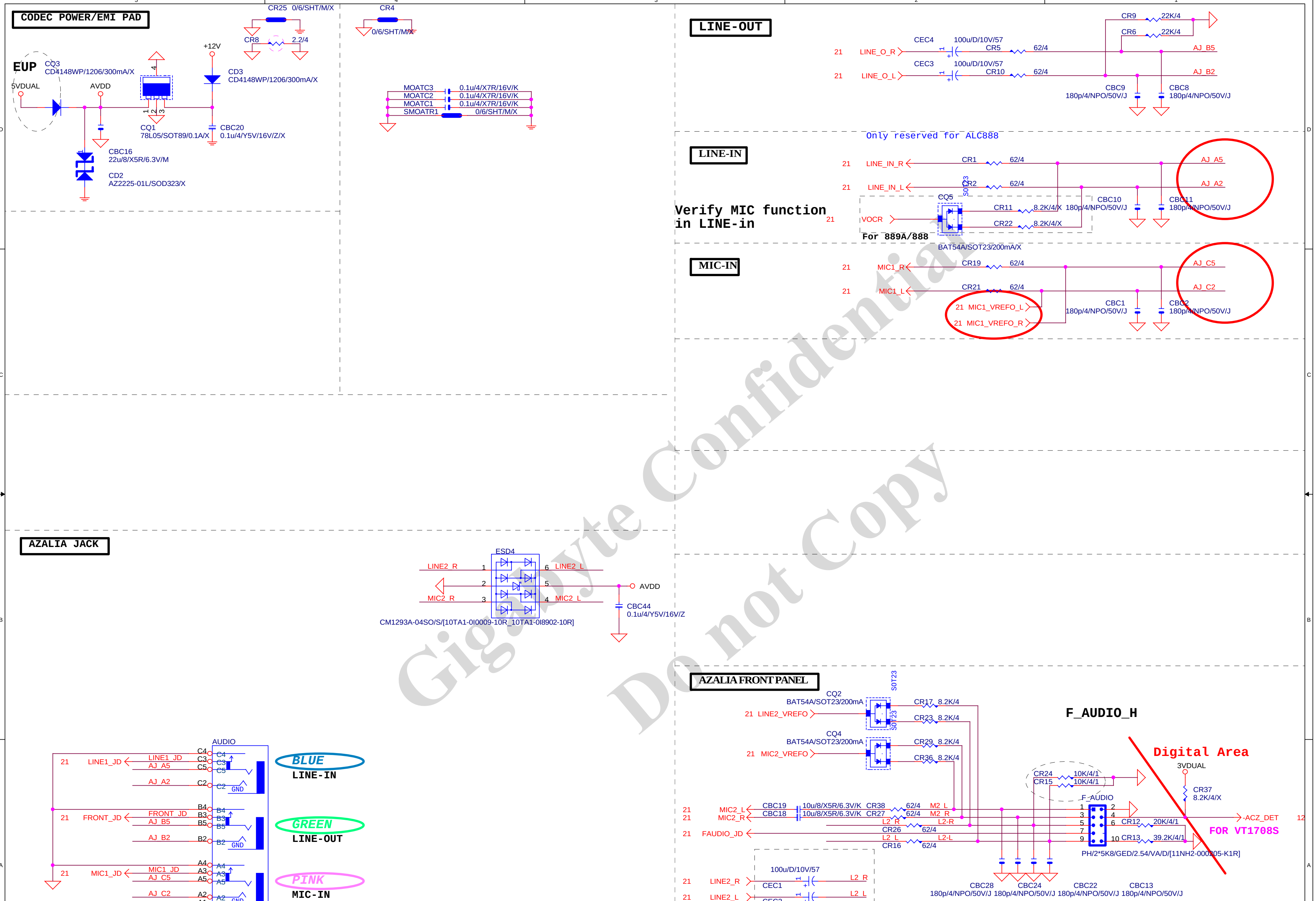
AZALIA CODEC ALC883/ALC888-A/ALC888B/ALC888-VD/ALC892R/ALC889/ALC889A Colay

	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A
CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	O	X	O	O	X
CR48	O	O	X	O	X	X	O
CBC2/CBC4/CBC5/ CBC6/CBC10/CBC11	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	10uF /X5R	4.7uF /X5R
CR1/CR3/CR10/CR12/ CR15/CR19/CR56/CR27/ CR55/CR37/CR28/CR34/ CR6/CR9/CR51/CR61	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	66 ohm or lower	75 ohm
CR66/CR68/CD3/CBC41	X	X	X	O	X	X	X
CR67/CD1/CD2/CQ3/CQ5	O	O	O	X	O	O	O

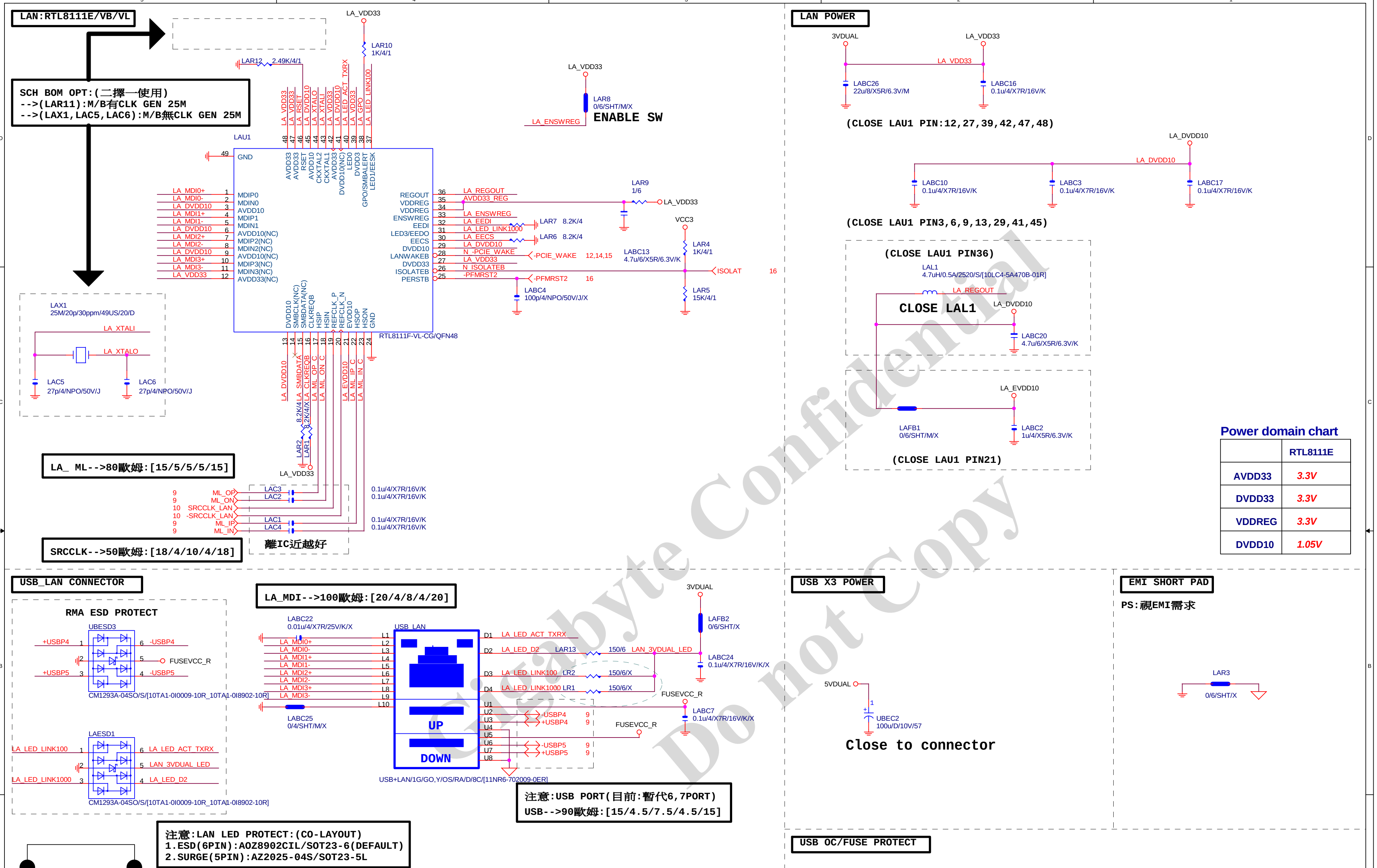


Gigabyte Technology			
Title	HD AUDIO ALC887-VD2		
Size Custom	Document Number	GA-H61M-S1	Rev 2.1
Date: Thursday, February 16, 2012		Sheet 21 of 29	



Gigabyte Technology

Title	AUDIO JACK	
Size: Custom	Document Number: GA-H61M-S1	Rev: 2.1
Date: Thursday, February 16, 2012	Sheet 22 of 29	



Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

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

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:

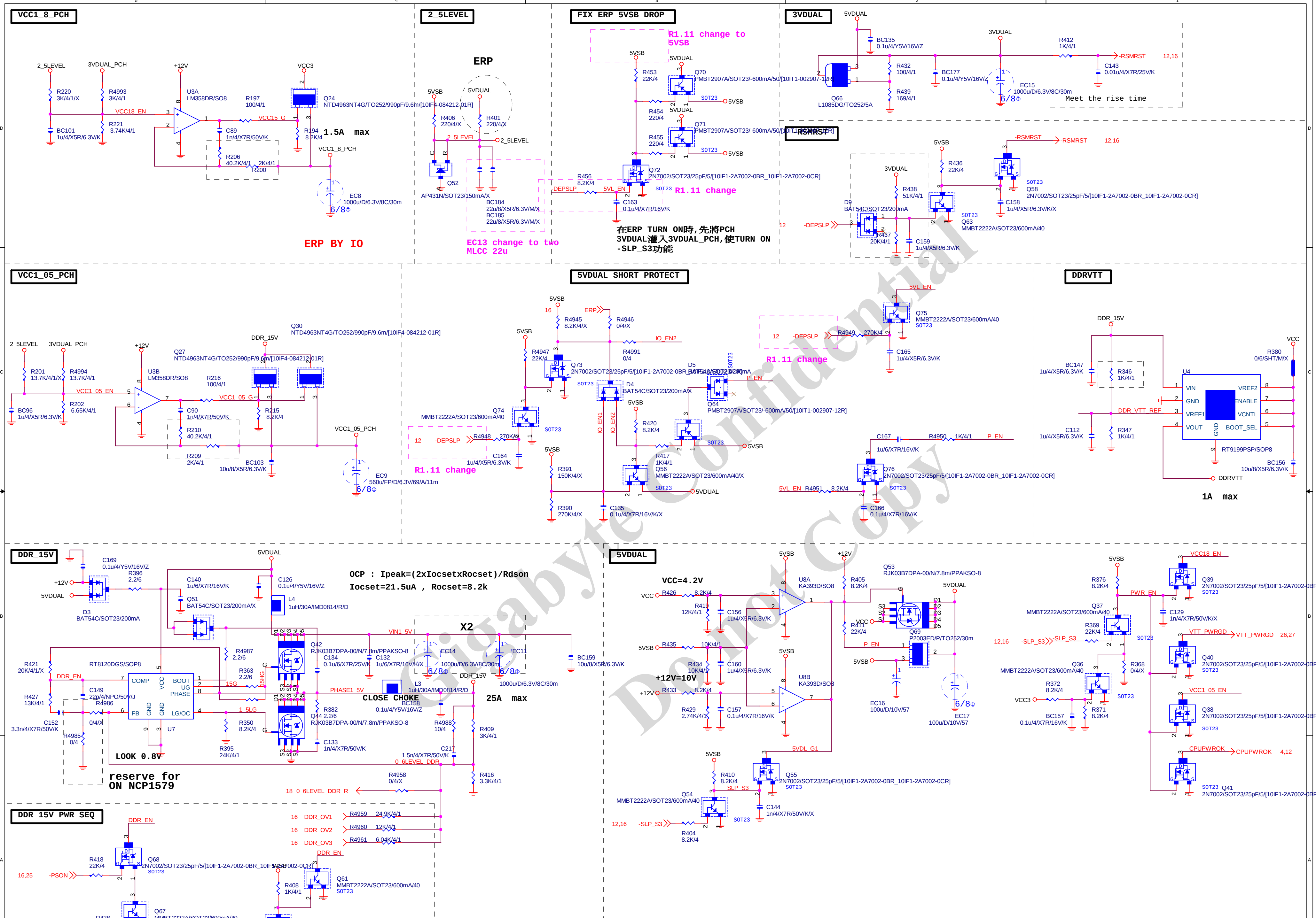
1.(紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2.(黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3.(黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

Title: LAN RTL8111F

Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 23 of 29

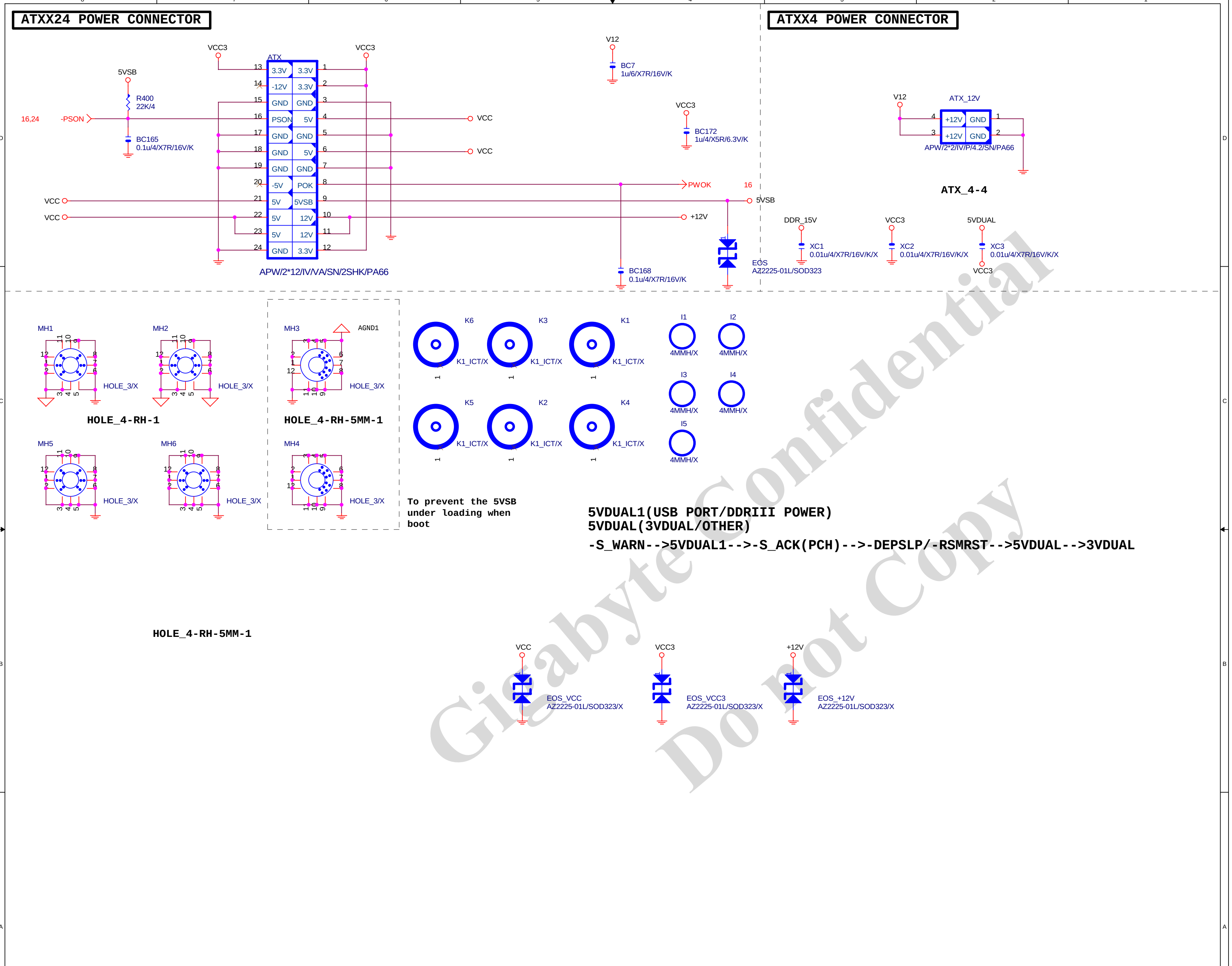


Gigabyte Technology

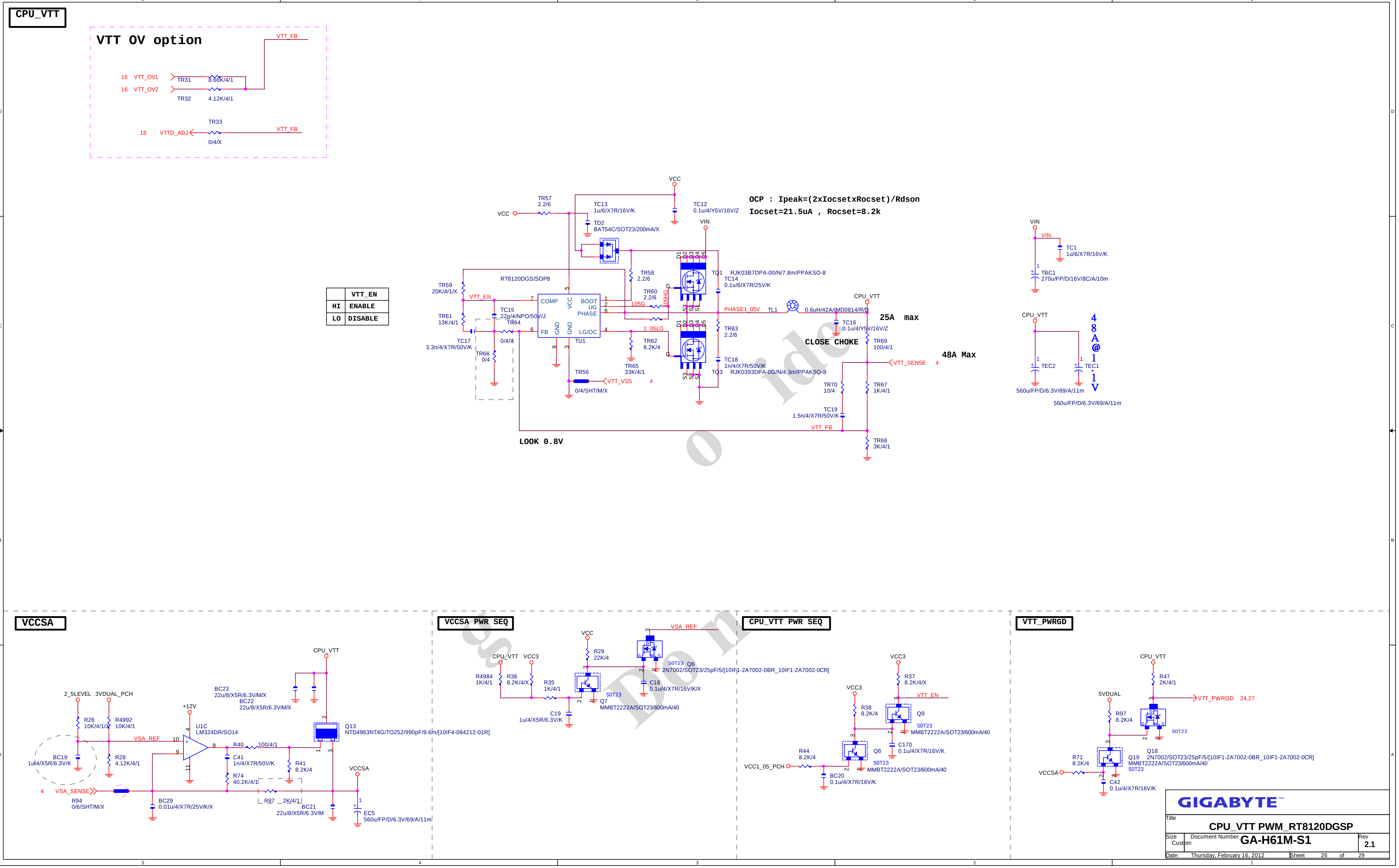
Title: DISCRETE POWER

Size	Document Number	Rev
C	GA-H61M-S1	2.1

Date: Thursday, February 16, 2012 Sheet 24 of 29



Gigabyte Technology		
Title: ATX CONNECTOR		
Size: Custom	Document Number: GA-H61M-S1	Rev: 2.1
Date: Thursday, February 16, 2012	Sheet 25 of 29	



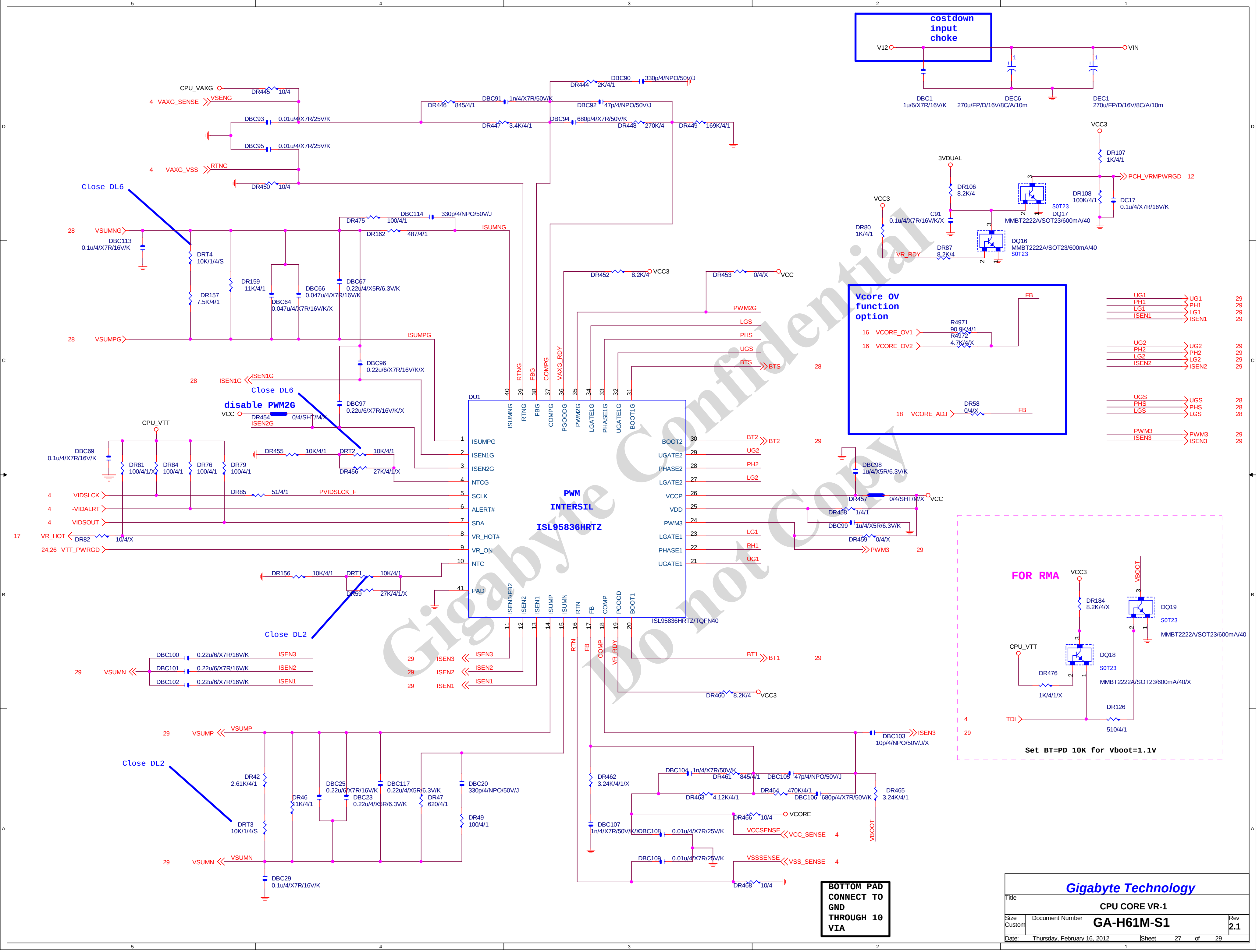
	VTT_EN
HI	ENABLE
LO	DISABLE

GIGABYTE™

Title: CPU_VTT PWM_RT8120DGSP

Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

Date: Thursday, February 16, 2012 | Sheet 26 of 29



costdown input choke
V12
VIN
DBC1 1u/6/X7R/16V/K
DEC6 270u/FP/D/16V/8C/A/10m
DEC1 270u/FP/D/16V/8C/A/10m
CPU_VAXG
DR445 10/4
4 VAXG_SENSE
VSENG
DBC93 0.01u/4/X7R/25V/K
DBC95 0.01u/4/X7R/25V/K
4 VAXG_VSS
RTNG
DR450 10/4
DR446 845/4/1
DBC91 1n/4/X7R/50V/K
DR444 2K/4/1
DBC90 330p/4/NPO/50V/J
DBC92 47p/4/NPO/50V/J
DR447 3.4K/4/1
DBC94 680p/4/X7R/50V/K
DR448 270K/4
DR449 169K/4/1
Close DL6
28 VSUMNG
DBC113 0.1u/4/X7R/16V/K
DRT4 10K/1/4/S
DR157 7.5K/4/1
DR159 11K/4/1
DBC64 0.047u/4/X7R/16V/K/X
DBC66 0.047u/4/X7R/16V/K
DBC67 0.22u/4/X5R/6.3V/K
DR475 100/4/1
DBC114 330p/4/NPO/50V/J
DR162 487/4/1
ISUMNG
28 VSUMPG
ISUMPG
DBC96 0.22u/6/X7R/16V/K/X
28 ISEN1G
Close DL6
disable PWM2G
VCC
DR454 0/4/SHT/M/X
ISEN2G
DBC97 0.22u/6/X7R/16V/K/X
CPU_VTT
DBC69 0.1u/4/X7R/16V/K
DR81 100/4/1/X
DR84 100/4/1
DR76 100/4/1
DR79 100/4/1
DR455 10K/4/1
DRT2 10K/4/1
DR456 27K/4/1/X
4 VIDSCLK
4 -VIDALRT
4 VIDSOUT
17 VR_HOT
DR82 10/4/X
24,26 VTT_PWRGD
DR85 51/4/1
PVIDSLCK_F
DR156 10K/4/1
DRT1 10K/4/1
DR59 27K/4/1/X
Close DL2
DU1
PWM
INTERSIL
ISL95836HRTZ
ISL95836HRTZ/TQFN40
1 ISUMPG
2 ISEN1G
3 ISEN2G
4 NTCG
5 SCLK
6 ALERT#
7 SDA
8 VR_HOT#
9 VR_ON
10 NTC
41 PAD
40 ISUMNG
39 RTNG
38 FBG
37 COMPG
36 PGOODG
35 PWM2G
34 LGATE1G
33 PHASE1G
32 UGATE1G
31 BOOT1G
30 BOOT2
29 UGATE2
28 PHASE2
27 LGATE2
26 VCCP
25 VDD
24 PWM3
23 LGATE1
22 PHASE1
21 UGATE1
11 ISEN3/FB2
12 ISEN2
13 ISEN1
14 ISUMP
15 ISUMN
16 RTN
17 FB
18 COMP
19 PGOOD
20 BOOT1
RTNG
FBG
COMPG
VAXG_RDY
DR452 8.2K/4 VCC3
DR453 0/4/X VCC
PWM2G
LGS
PHS
UGS
BTS
BTS 28
BT2 29
UG2
PH2
LG2
DBC98 1u/4/X5R/6.3V/K
DR457 0/4/SHT/M/X VCC
DR458 1/4/1
DBC99 1u/4/X5R/6.3V/K
DR459 0/4/X
PWM3 29
LG1
PH1
UG1
DBC100 0.22u/6/X7R/16V/K
DBC101 0.22u/6/X7R/16V/K
DBC102 0.22u/6/X7R/16V/K
29 VSUMN
ISEN3
ISEN2
ISEN1
29 ISEN3
29 ISEN2
29 ISEN1
RTN
FB
COMP
VR_RDY
BT1 29
DR460 8.2K/4 VCC3
29 VSUMP
Close DL2
DR42 2.61K/4/1
DRT3 10K/1/4/S
DR46 11K/4/1
DBC25 0.22u/6/X7R/16V/K
DBC23 0.22u/4/X5R/6.3V/K
DBC117 0.22u/4/X5R/6.3V/K
DR47 620/4/1
DBC20 330p/4/NPO/50V/J
DR49 100/4/1
29 VSUMN
DBC29 0.1u/4/X7R/16V/K
DBC103 10p/4/NPO/50V/J/X
ISEN3 29
DR462 3.24K/4/1/X
DBC104 1n/4/X7R/50V/K
DR461 845/4/1
DBC105 47p/4/NPO/50V/J
DR463 4.12K/4/1
DR464 470K/4/1
DBC106 680p/4/X7R/50V/K
DR465 3.24K/4/1
DR466 10/4 VCORE
DBC107 1n/4/X7R/50V/K/X
DBC108 0.01u/4/X7R/25V/K
VCCSENSE VCC_SENSE 4
DBC109 0.01u/4/X7R/25V/K
VSSSENSE VSS_SENSE 4
VBOOT
DR468 10/4
BOTTOM PAD CONNECT TO GND THROUGH 10 VIA
3VDUAL
VCC3
DR106 8.2K/4
DR107 1K/4/1
DR108 100K/4/1
DC17 0.1u/4/X7R/16V/K
PCH_VRMPWRGD 12
C91 0.1u/4/X7R/16V/K/X
DQ17 MMBT2222A/SOT23/600mA/40
DR80 1K/4/1
DR87 8.2K/4
VR_RDY
DQ16 MMBT2222A/SOT23/600mA/40
SOT23
Vcore OV function option
FB
16 VCORE_OV1
16 VCORE_OV2
R4971 90.9K/4/1
R4972 4.7K/4/X
18 VCORE_ADJ
DR58 0/4/X
UG1 PH1 LG1 ISEN1 29
UG2 PH2 LG2 ISEN2 29
UGS PHS LGS 28
PWM3 ISEN3 29
FOR RMA
VCC3
DR184 8.2K/4/X
DQ19 MMBT2222A/SOT23/600mA/40
CPU_VTT
DQ18 MMBT2222A/SOT23/600mA/40/X
DR476 1K/4/1/X
DR126 510/4/1
4 TDI
29
Set BT=PD 10K for Vboot=1.1V
Gigabyte Technology
Title
CPU CORE VR-1
Size Custom
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GA-H61M-S1
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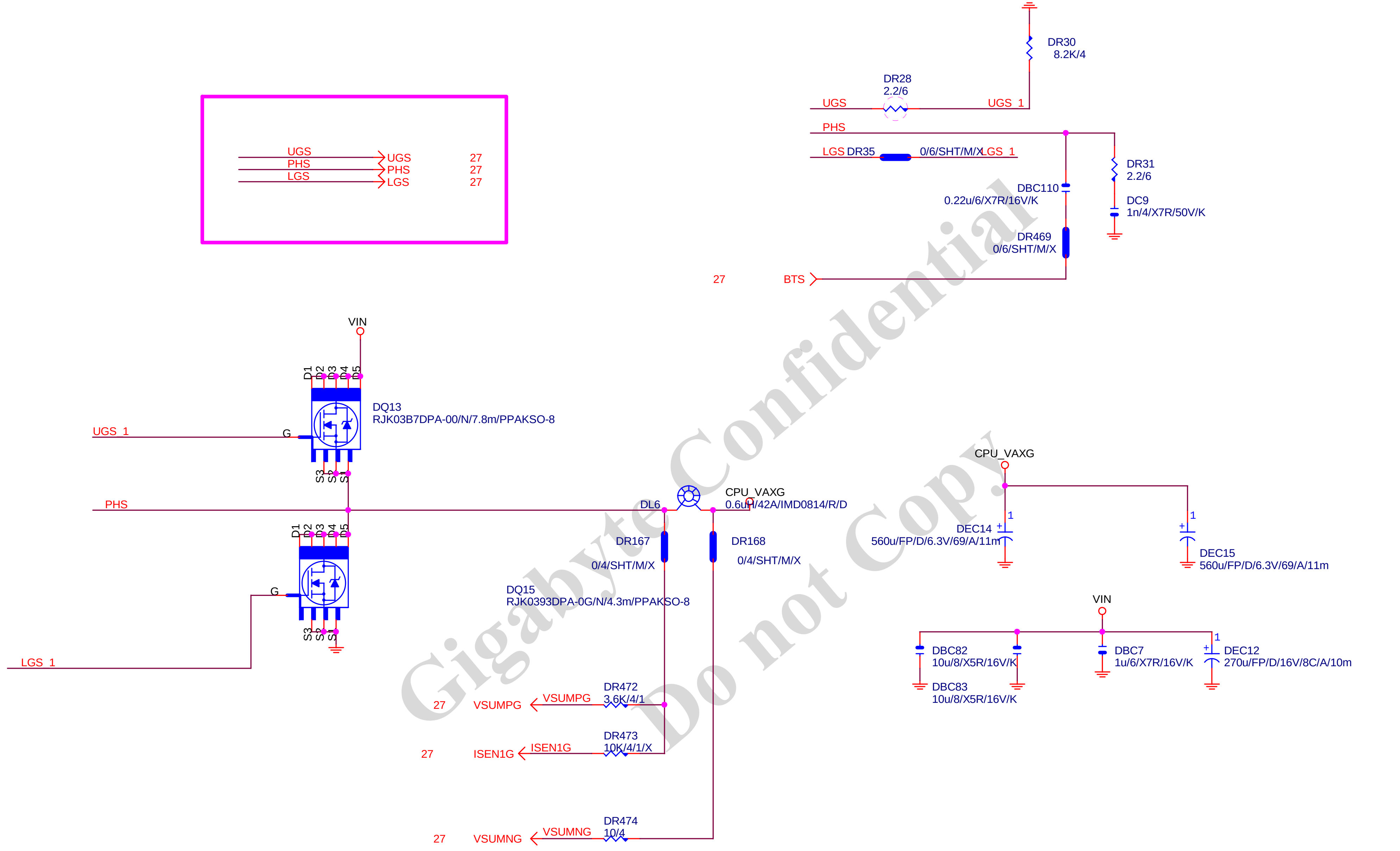
VAXG



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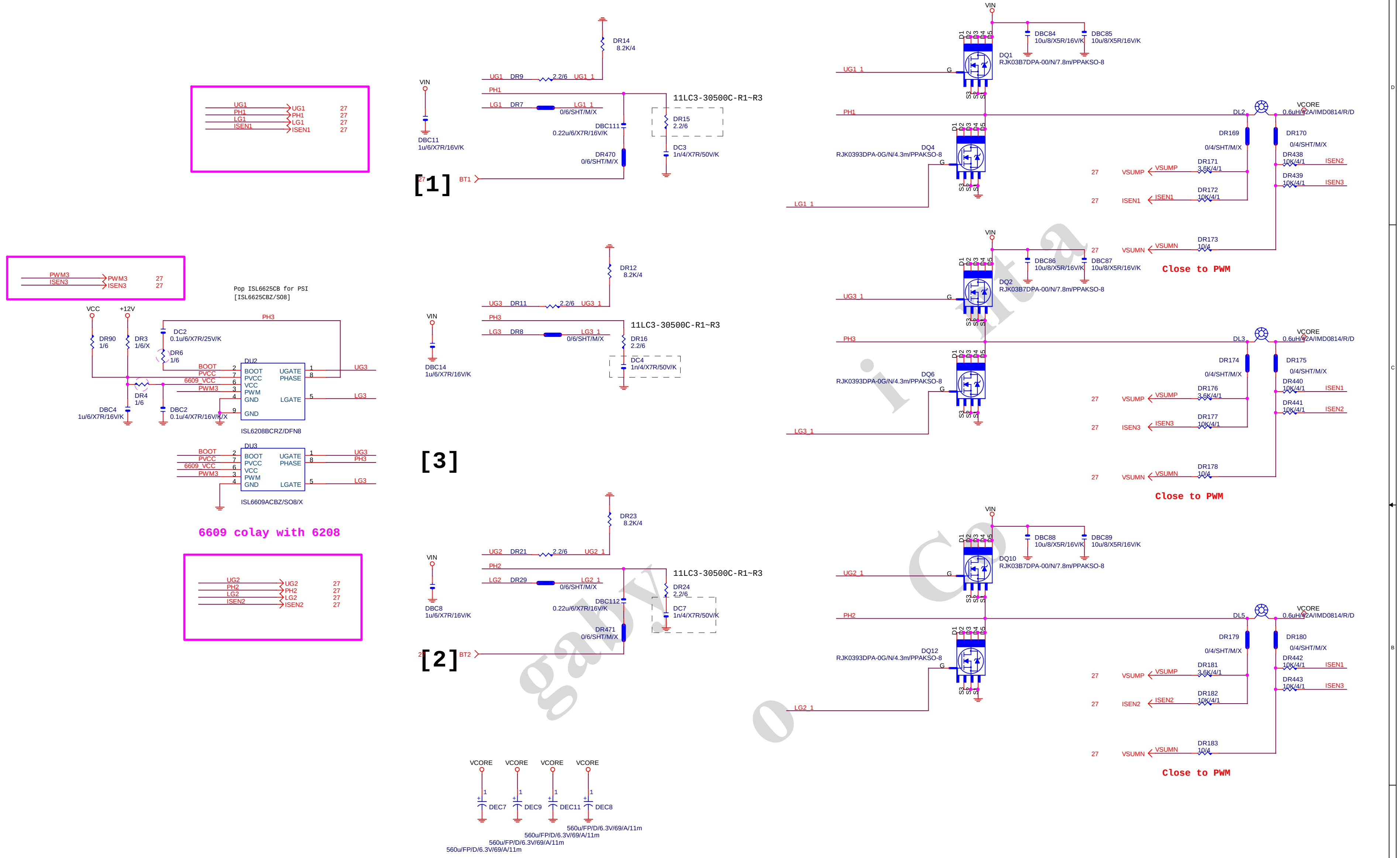

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Size: Custom | Document Number: GA-H61M-S1 | Rev: 2.1

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