Model Name: GA-X58A-UD9

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04-05	LGA1366-A CPU_DDRA_B_C
06	LGA1366-C CPU_CSI
07	LGA1366-D CPU_GND
08	LGA1366-E CPU_PER
09-11	DDRIII CHANNEL A_B_C
12	IOH_CSI
13-14	IOH_PCIEx16 / PCIEx4
15-16	IOH_MISC_SRRAP
17-19	IOH_PWR_GND
21-29	PCIEX16_1,2,3,4 ; PCIEX8_1,2,3
30	ICH10 DMI, PCI, USB
31	ICH10 GPIO, CTRL
32	ICH10 SATA, FAN PWM
33	ICH10 VCC, GND
34	MARVELL 9128 SATAIII
35	NEC UP720200 USB3.0
36	JMB363 SATA+PATA
37	ESATA JMB362
38-39	DUAL REALTEK RTL8111E_1_2
40	TI TSB43AB23 1394
41	ITE 8720 JX(GB)
42	80 PORT
43	DUAL BIOS,TPM
44	FP,FUSB,FDD
45	HWM,KB/MS, FAN CTRL
46	COM, -PROHOT,DYNAMIC OC ,+12V PROTECT

SHEET	TITLE
47-48	CODEC & AUDIO JACK
49	ATX,OTHERS POWER
50-55	VCORE PWM_ISL6336ACRZ
56-57	DISCRETE POWER
58	ISL6312_VTTD
59	ISL6322_DDRIII
60	ISL6322_IOH_CORE
61-64	BR04 BRIDGE
65	ICS9LPRS914
66	CLOCK BUFFER
67-68	LED & OV CONTROL

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Title: Cover Sheet

Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

Date: Thursday, April 29, 2010 | Sheet 1 of 68

GA-X58A-UD9

Component value change history

Data	Change Item	Reason
2010-04-06	Build 10A BOM for PVT	
2010-04-19	Change the PCIE_12V_2 to 11NR4-020004-B1R	Fot the right pin define

Circuit or PCB layout change for next version

DATE	Change Item	Reason
2010-02-04	0.1 PCB ready	
2010-02-12	Update to 0.11 ,change the Vcore choke .	
2010-03-15	Update to 0.2	
2010-03-24	Update to 0.3 ,change the VTT & NF200 power source	
2010-04-03	Rename to X58A-UD9 1.0 , fine tune the USB protect circuit	

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Title: BOM & PCB MODIFY HISTORY2

Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

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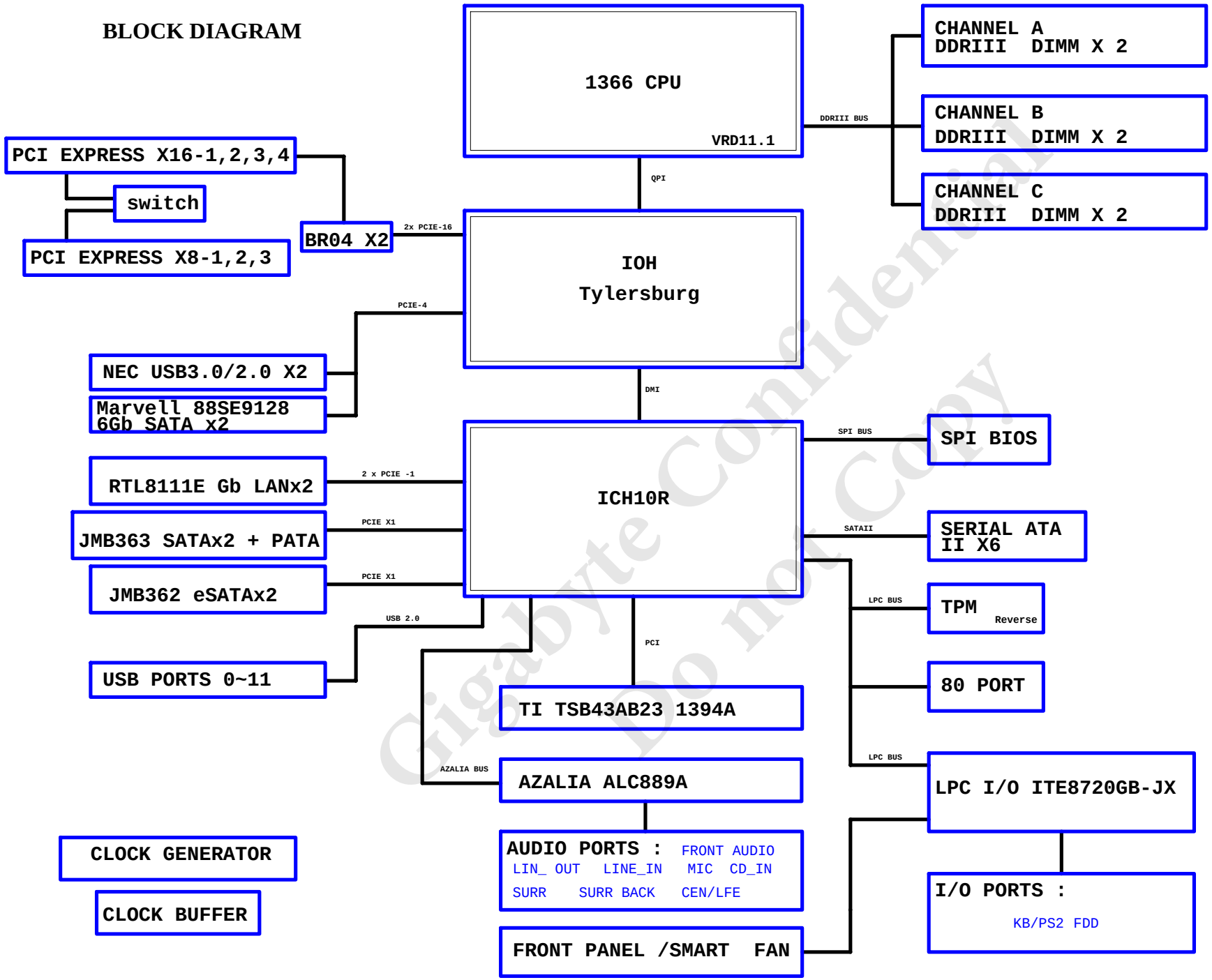
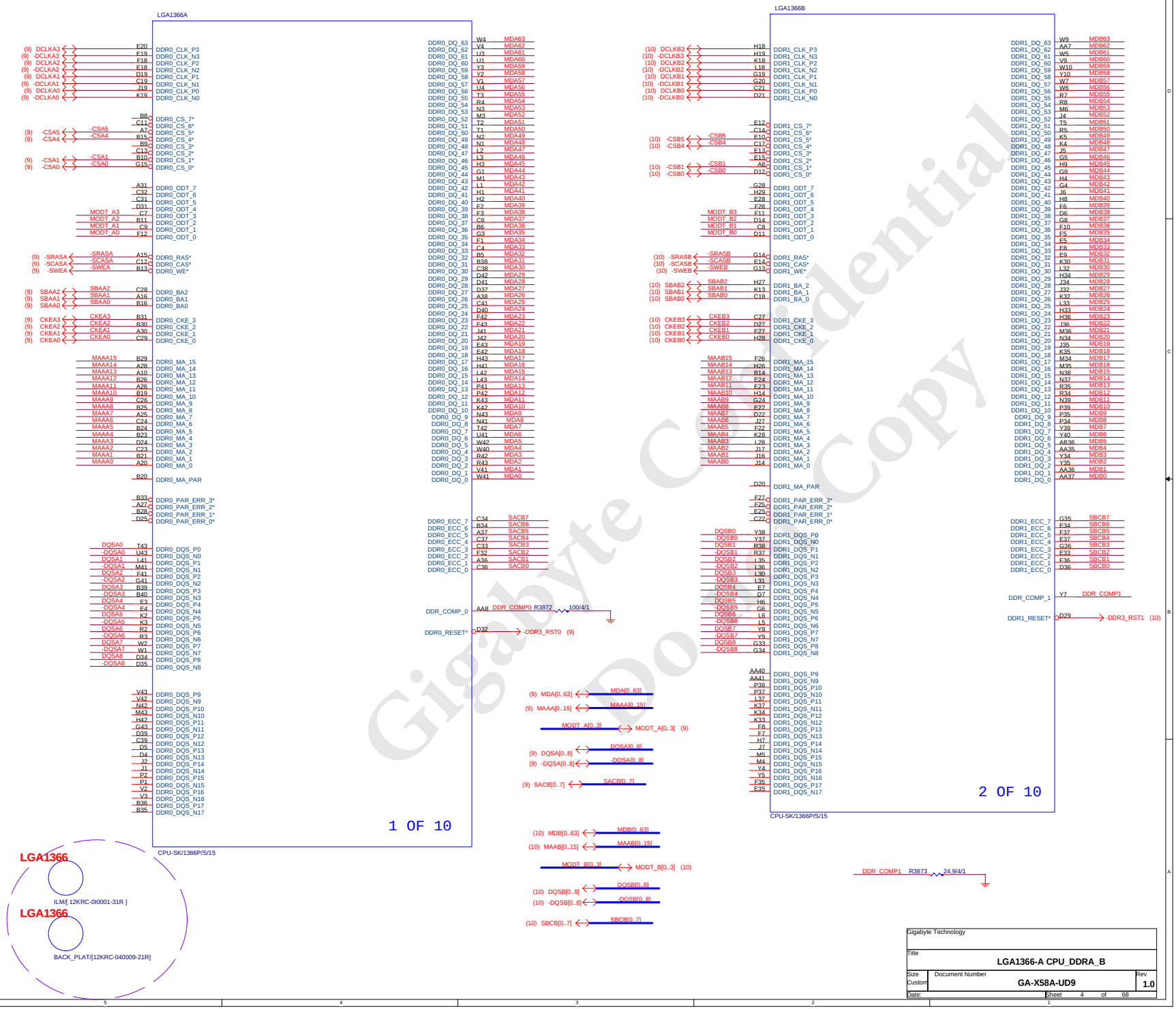
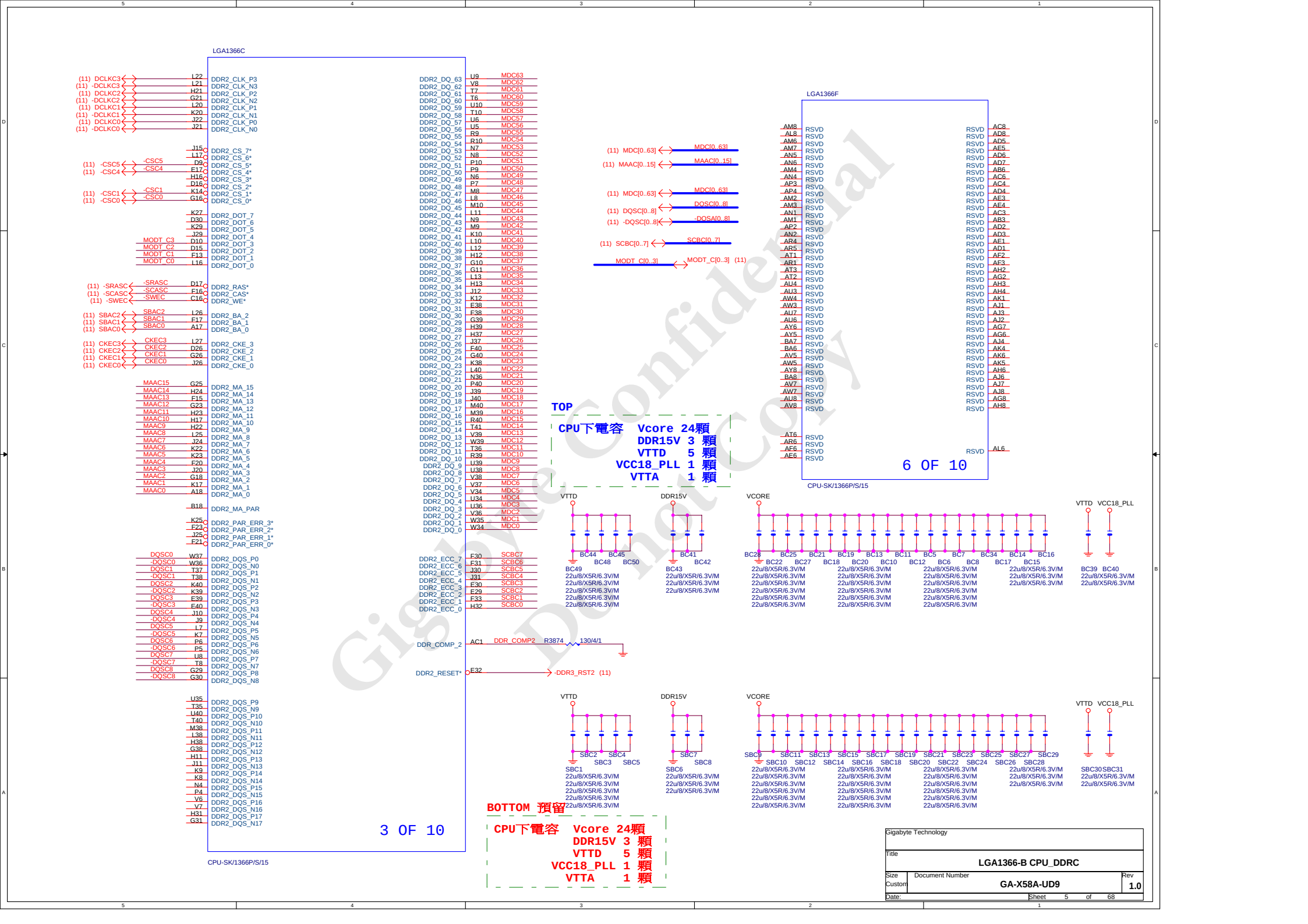
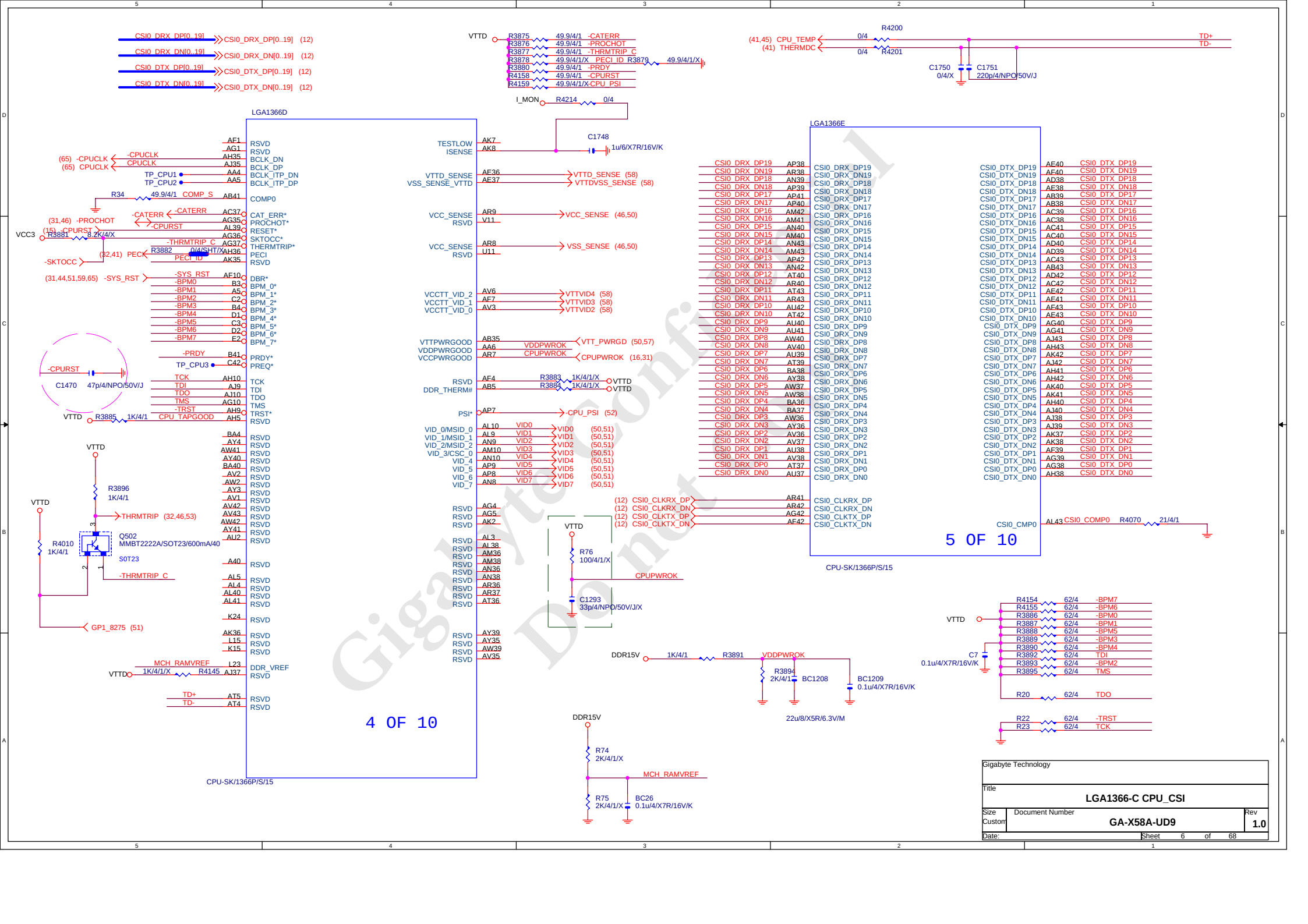
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 3 of 68	






CSI0_DRX_DP[0..19] CSI0_DRX_DP[0..19] (12)
CSI0_DRX_DN[0..19] CSI0_DRX_DN[0..19] (12)
CSI0_DTX_DP[0..19] CSI0_DTX_DP[0..19] (12)
CSI0_DTX_DN[0..19] CSI0_DTX_DN[0..19] (12)
LGA1366D
CPU-SK/1366P/S/15
4 OF 10
LGA1366E
CPU-SK/1366P/S/15
5 OF 10
R4200
C1750 0/4/X
C1751 220p/4/NPO/50V/J
C1748 1u/6/X7R/16V/K
R4214 0/4
I_MON
R3875 49.9/4/1 -CATERR
R3876 49.9/4/1 -PROCHOT
R3877 49.9/4/1 -THRMTRIP_C
R3878 49.9/4/1/X PECI_ID R3879 49.9/4/1/X
R3880 49.9/4/1 -PRDY
R4158 49.9/4/1 -CPURST
R4159 49.9/4/1/X CPU_PSI
R34 49.9/4/1 COMP_S
R3881 8.2K/4/X
R3882 0/4/SHT/X
R3883 1K/4/1/X
R3884 1K/4/1/X
R3885 1K/4/1 CPU_TAPGOOD
C1470 47p/4/NPO/50V/J
R3896 1K/4/1
R4010 1K/4/1
Q502 MMBT2222A/SOT23/600mA/40
S0T23
R76 100/4/1/X
C1293 33p/4/NPO/50V/J/X
R4145 1K/4/1/X
R3891 1K/4/1
R3894 2K/4/1
BC1208 22u/8/X5R/6.3V/M
BC1209 0.1u/4/X7R/16V/K
R74 2K/4/1/X
R75 2K/4/1/X
BC26 0.1u/4/X7R/16V/K
C7 0.1u/4/X7R/16V/K
R4154 62/4 -BPM7
R4155 62/4 -BPM6
R3886 62/4 -BPM0
R3887 62/4 -BPM1
R3888 62/4 -BPM5
R3889 62/4 -BPM3
R3890 62/4 -BPM4
R3892 62/4 TDI
R3893 62/4 -BPM2
R3895 62/4 TMS
R20 62/4 TDO
R22 62/4 -TRST
R23 62/4 TCK
R4070 21/4/1
VTTD
VCC3
DDR15V
MCH_RAMVREF
CPUPWROK
THRMTRIP (32,46,53)
GP1_8275 (51)
-THRMTRIP_C
-SKTOCC
-SYS_RST
-PRDY
TP_CPU1
TP_CPU2
TP_CPU3
TD+
TD-
Gigabyte Technology
Title
LGA1366-C CPU_CSI
Size Custom
Document Number
GA-X58A-UD9
Rev 1.0
Date:
Sheet 6 of 68
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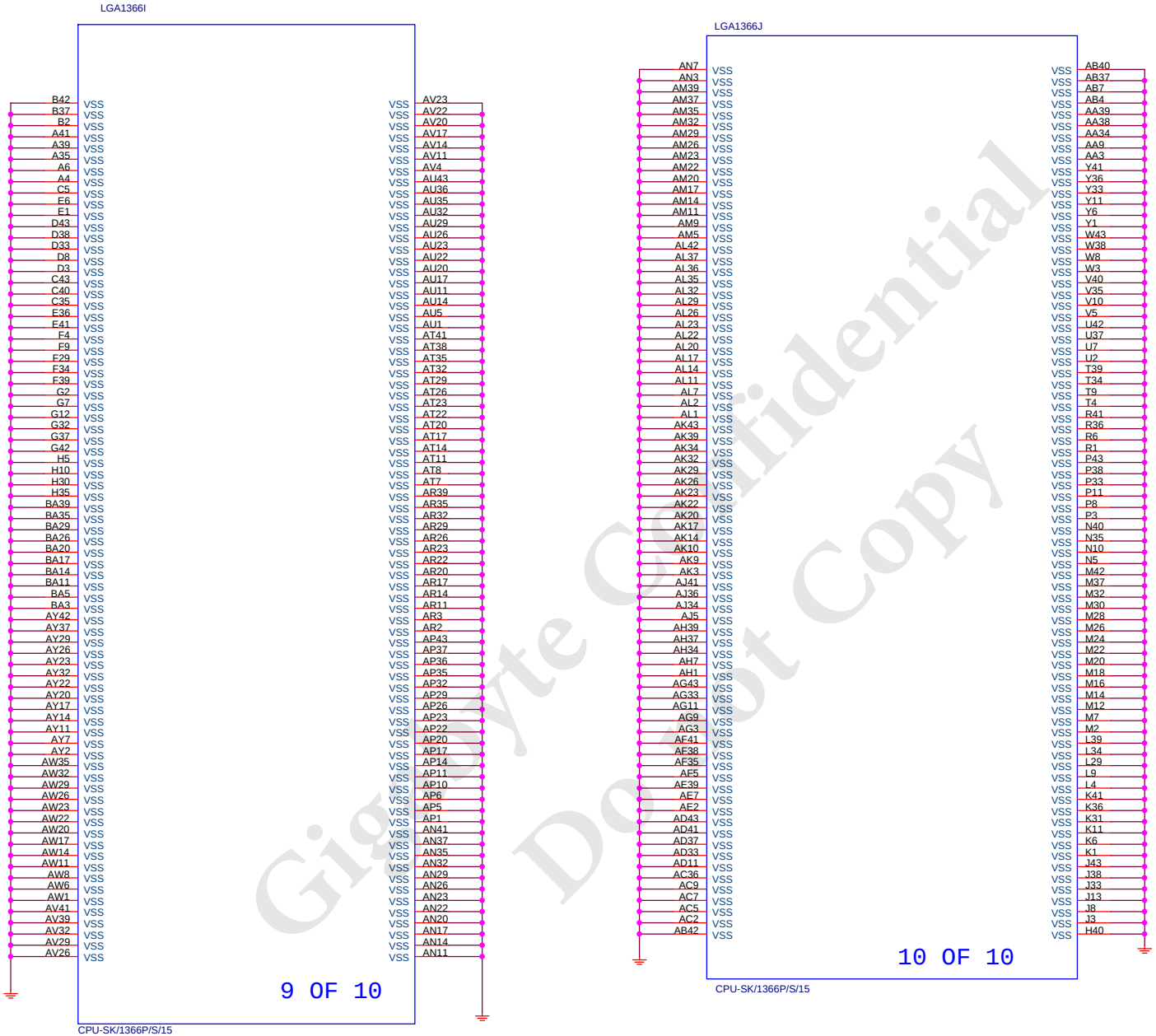

Gigabyte Technology		
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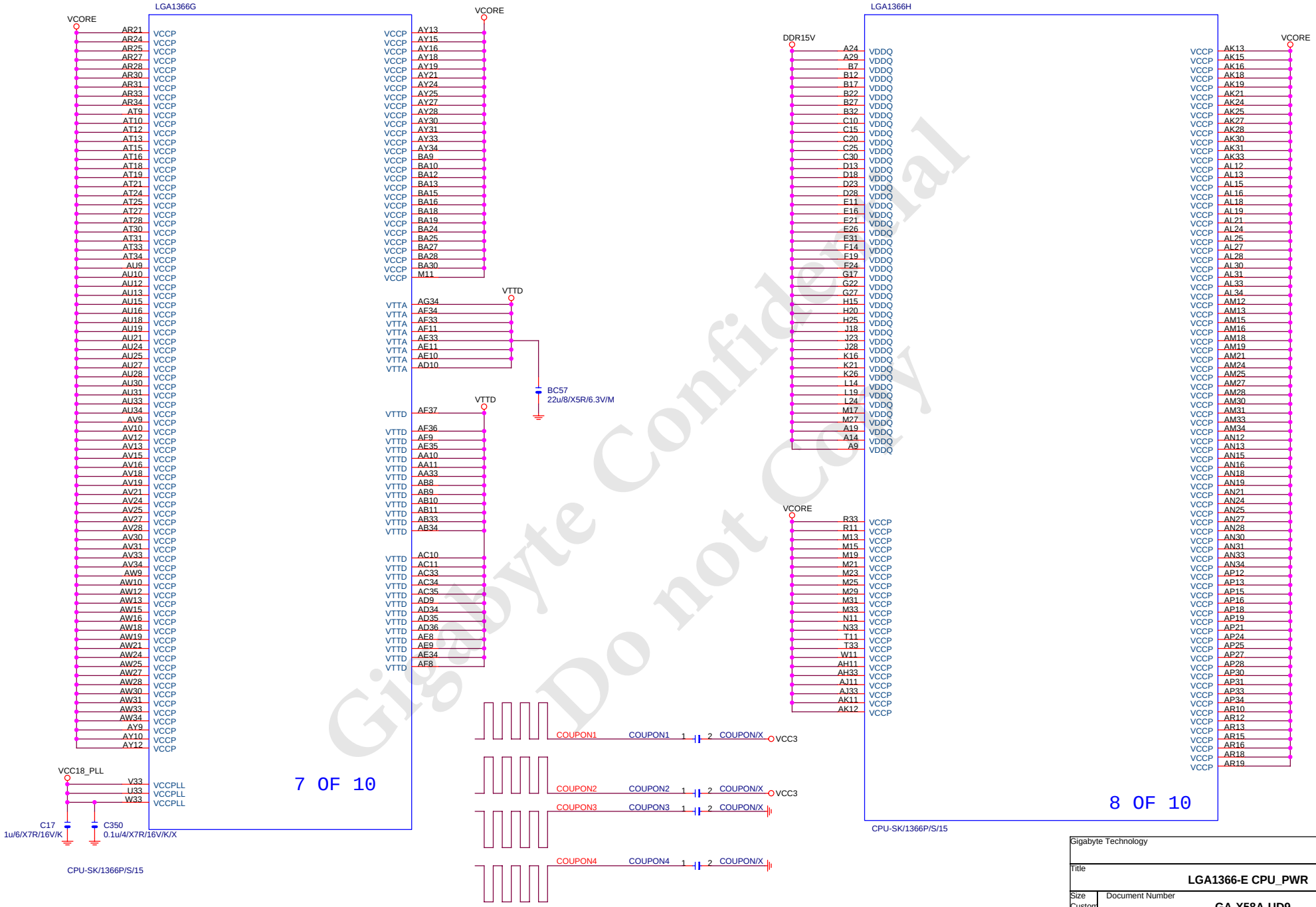
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 7 of 68	



Gigabyte Technology		
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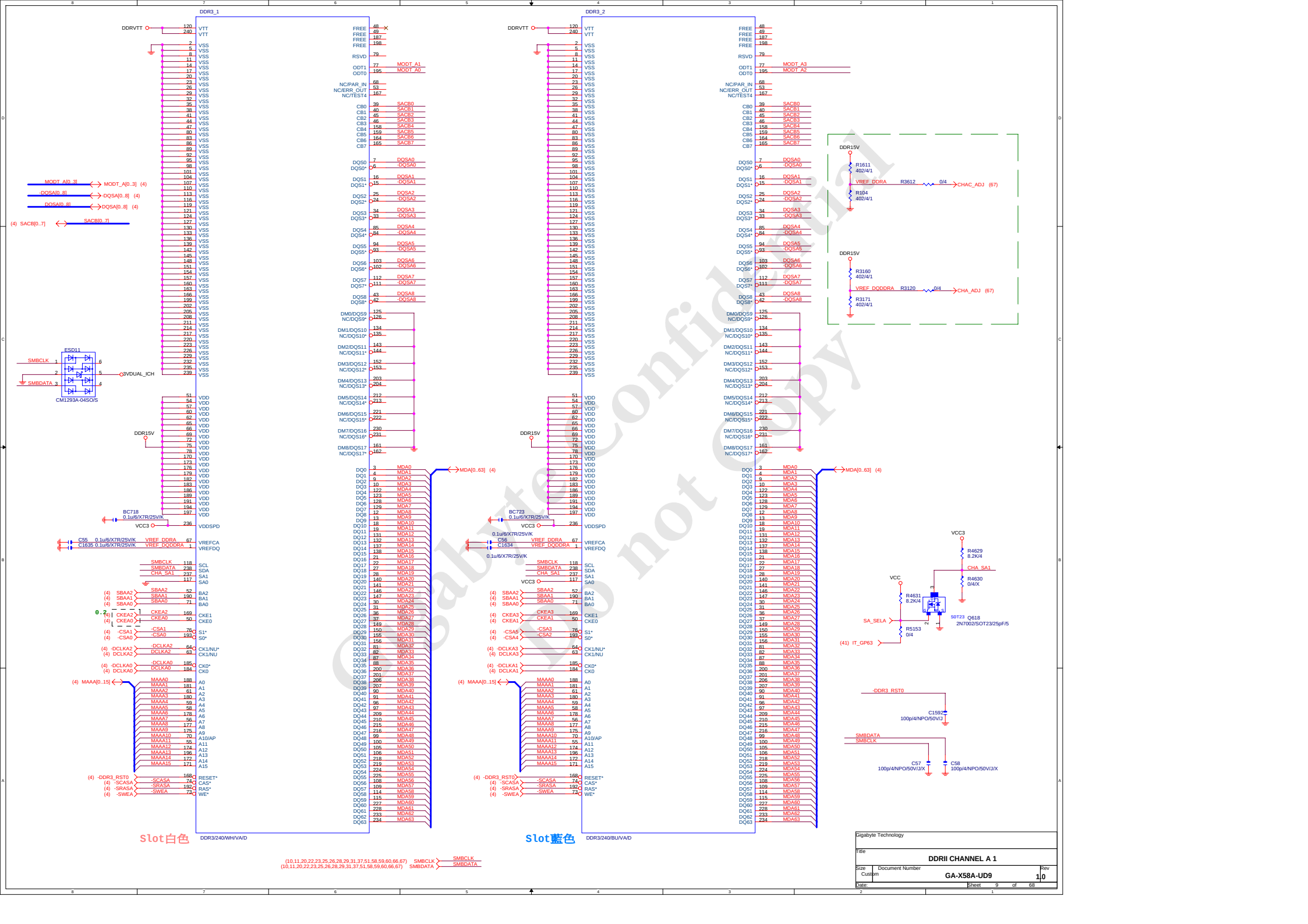
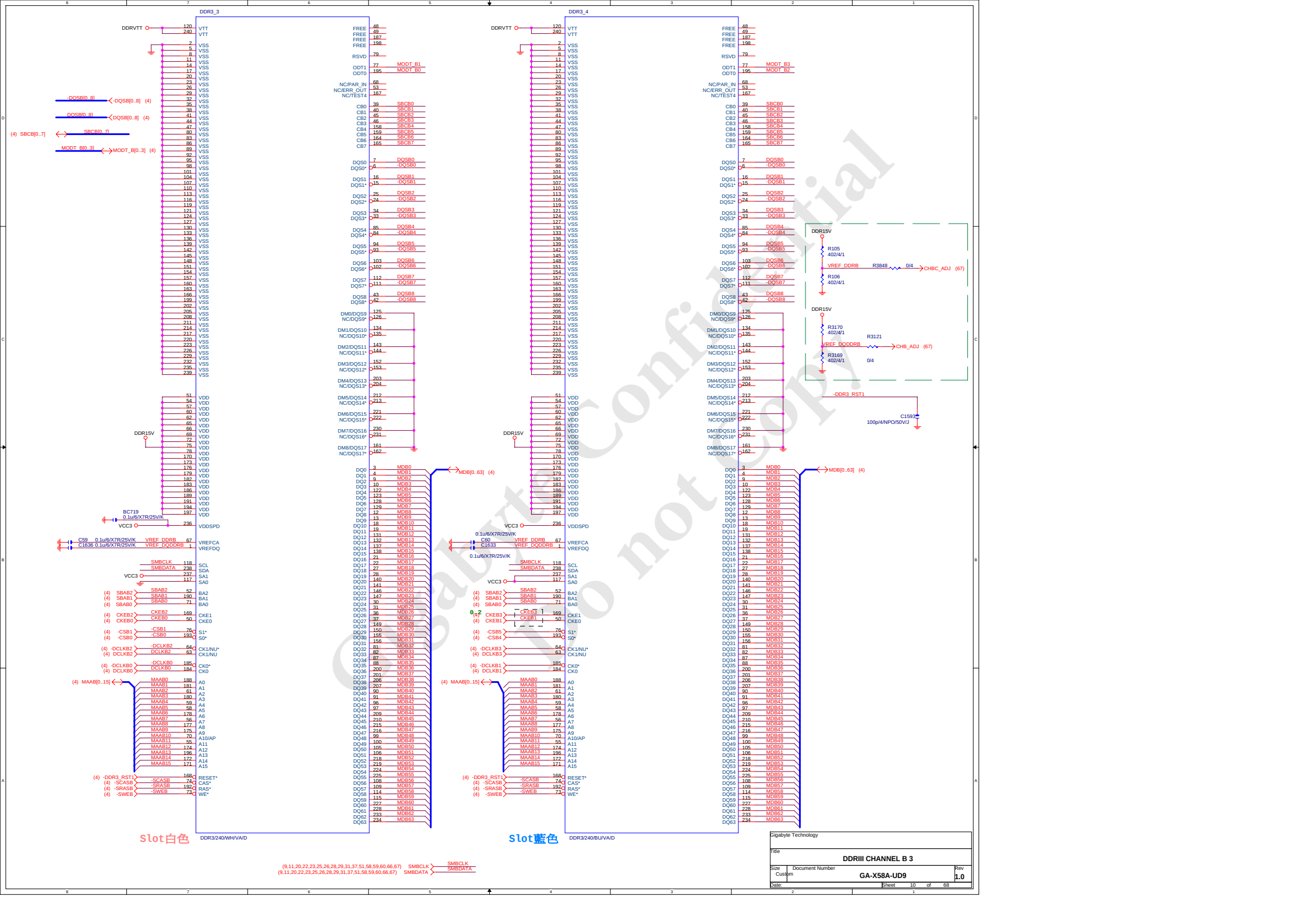
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 8 of 68	




DDR3_3
DDR3_4
DDRVTT
DDR15V
VCC3
VTT
VSS
VDD
VDDSPD
VREFCA
VREFDQ
SCL
SDA
SA0
SA1
RESET*
CAS*
RAS*
WE*
BA0
BA1
BA2
CKE0
CKE1
S0*
S1*
CK0
CK1
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15
MODT_B0
MODT_B1
SBCB0
SBCB1
SBCB2
SBCB3
SBCB4
SBCB5
SBCB6
SBCB7
DQSB0
DQSB1
DQSB2
DQSB3
DQSB4
DQSB5
DQSB6
DQSB7
DQSB8
MDB0
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
MDB8
MDB9
MDB10
MDB11
MDB12
MDB13
MDB14
MDB15
MDB16
MDB17
MDB18
MDB19
MDB20
MDB21
MDB22
MDB23
MDB24
MDB25
MDB26
MDB27
MDB28
MDB29
MDB30
MDB31
MDB32
MDB33
MDB34
MDB35
MDB36
MDB37
MDB38
MDB39
MDB40
MDB41
MDB42
MDB43
MDB44
MDB45
MDB46
MDB47
MDB48
MDB49
MDB50
MDB51
MDB52
MDB53
MDB54
MDB55
MDB56
MDB57
MDB58
MDB59
MDB60
MDB61
MDB62
MDB63
DDR3/240/WH/VA/D
DDR3/240/BU/VA/D
Slot白色
Slot藍色
R105 402/4/1
R106 402/4/1
R3170 402/4/1
R3169 402/4/1
R3121
R3848
VREF_DDRB
VREF_DQDDRB
CHBC_ADJ (67)
CHB_ADJ (67)
-DDR3_RST1
C1592 100p/4/NPO/50V/J
BC719 0.1u/6/X7R/25V/K
C59 0.1u/6/X7R/25V/K
C1636 0.1u/6/X7R/25V/K
C60 0.1u/6/X7R/25V/K
C1633 0.1u/6/X7R/25V/K
SMBCLK
SMBDATA
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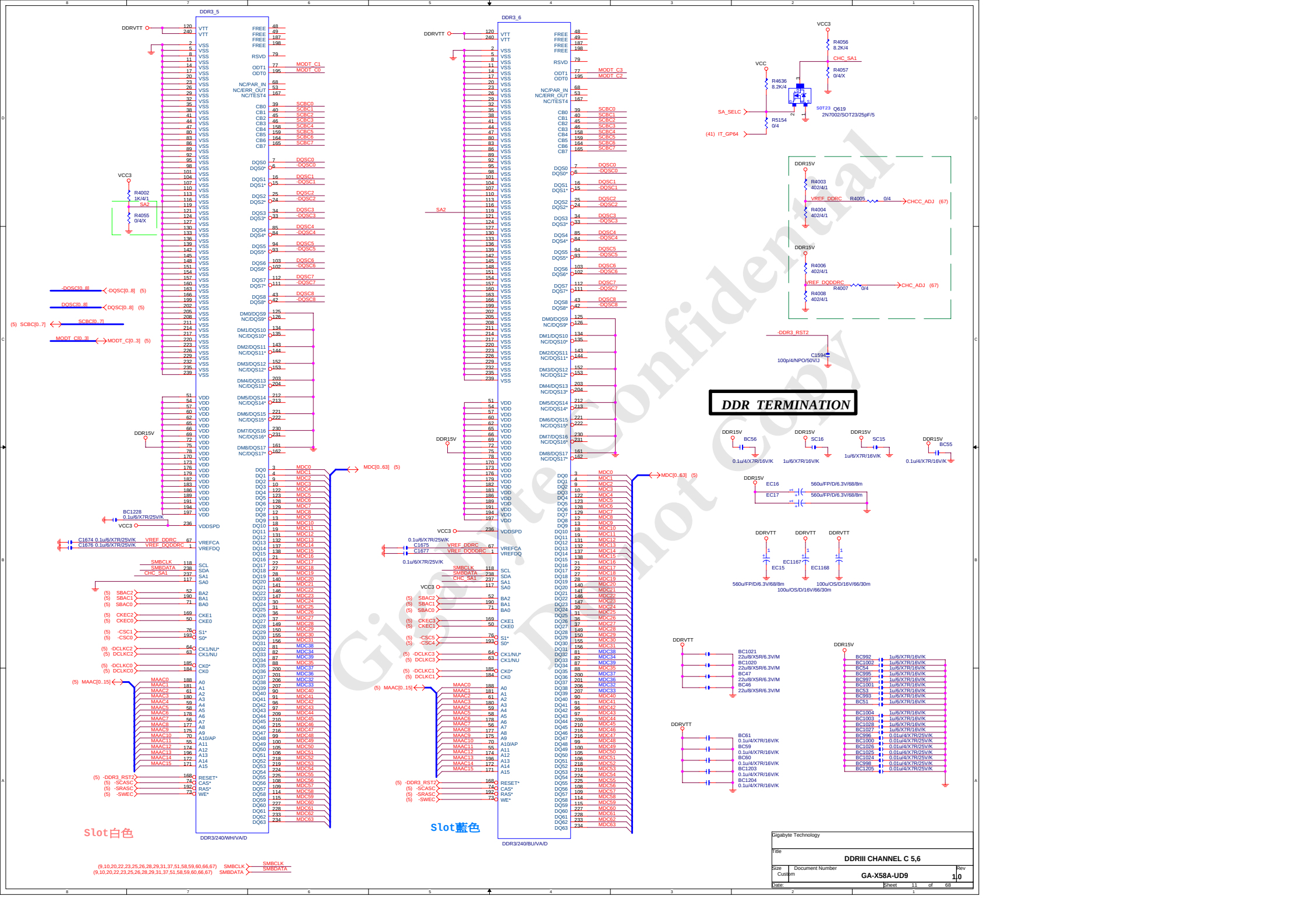
DDRIII CHANNEL B 3
GA-X58A-UD9
Custom
1.0
Sheet 10 of 68


DDR3_5
DDR3_6
DDR3_5 DDR3_6
DDRVTT
VCC3
DDR15V
SA2
SA_SELC
(41) IT_GP64
R4056 8.2K/4
R4057 0/4/X
R4636 8.2K/4
R5154 0/4
Q619 2N7002/SOT23/25pF/5
R4002 1K/4/1
R4055 0/4/X
R4003 402/4/1
R4004 402/4/1
R4005 0/4
R4006 402/4/1
R4007 0/4
R4008 402/4/1
VREF_DDRC
VREF_DQDDRC
CHCC_ADJ (67)
CHC_ADJ (67)
-DDR3_RST2
C1594 100p/4/NPO/50V/J
DDR TERMINATION
BC56 0.1u/4/X7R/16V/K
SC16 1u/6/X7R/16V/K
SC15 1u/6/X7R/16V/K
BC55 0.1u/4/X7R/16V/K
EC16 560u/FP/D/6.3V/68/8m
EC17 560u/FP/D/6.3V/68/8m
EC15 560u/FP/D/6.3V/68/8m
EC1167
EC1168 100u/OS/D/16V/66/30m
100u/OS/D/16V/66/30m
BC1228 0.1u/6/X7R/25V/K
C1674 0.1u/6/X7R/25V/K
C1676 0.1u/6/X7R/25V/K
C1675
C1677
0.1u/6/X7R/25V/K
VREF_DDRC
VREF_DQDDRC
VREFCA
VREFDQ
VDDSPD
SMBCLK
SMBDATA
CHC_SA1
SCL
SDA
SA1
SA0
BA2
BA1
BA0
CKE1
CKE0
S1*
S0*
CK1/NU*
CK1/NU
CK0*
CK0
RESET*
CAS*
RAS*
WE*
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15
MDC[0..63] (5)
MAAC[0..15] (5)
-DQSC[0..8] (5)
DQSC[0..8] (5)
SCBC[0..7] (5)
MODT_C[0..3] (5)
(5) -DDR3_RST2
(5) -SCASC
(5) -SRASC
(5) -SWEC
(5) SBAC2
(5) SBAC1
(5) SBAC0
(5) CKEC2
(5) CKEC0
(5) -CSC1
(5) -CSC0
(5) -DCLKC2
(5) DCLKC2
(5) -DCLKC0
(5) DCLKC0
DDRVTT
BC1021 22u/8X5R/6.3V/M
BC1020 22u/8X5R/6.3V/M
BC47 22u/8X5R/6.3V/M
BC46 22u/8X5R/6.3V/M
BC61 0.1u/4/X7R/16V/K
BC59 0.1u/4/X7R/16V/K
BC60 0.1u/4/X7R/16V/K
BC1203 0.1u/4/X7R/16V/K
BC1204 0.1u/4/X7R/16V/K
BC992 1u/6/X7R/16V/K
BC1002 1u/6/X7R/16V/K
BC54 1u/6/X7R/16V/K
BC995 1u/6/X7R/16V/K
BC997 1u/6/X7R/16V/K
BC1001 1u/6/X7R/16V/K
BC53 1u/6/X7R/16V/K
BC993 1u/6/X7R/16V/K
BC51 1u/6/X7R/16V/K
BC1004 1u/6/X7R/16V/K
BC1003 1u/6/X7R/16V/K
BC1028 1u/6/X7R/16V/K
BC1027 1u/6/X7R/16V/K
BC996 0.01u/4/X7R/25V/K
BC1000 0.01u/4/X7R/25V/K
BC1026 0.01u/4/X7R/25V/K
BC1025 0.01u/4/X7R/25V/K
BC1024 0.01u/4/X7R/25V/K
BC998 0.01u/4/X7R/25V/K
BC1205 0.01u/4/X7R/25V/K
(9,10,20,22,23,25,26,28,29,31,37,51,58,59,60,66,67)
(9,10,20,22,23,25,26,28,29,31,37,51,58,59,60,66,67)
SMBCLK
SMBDATA
Slot白色
Slot藍色
DDR3/240/WH/VA/D
DDR3/240/BU/VA/D
Gigabyte Technology
DDRIII CHANNEL C 5,6
GA-X58A-UD9
Rev 1.0
Size Custom
Document Number
Sheet 11 of 68
Date:
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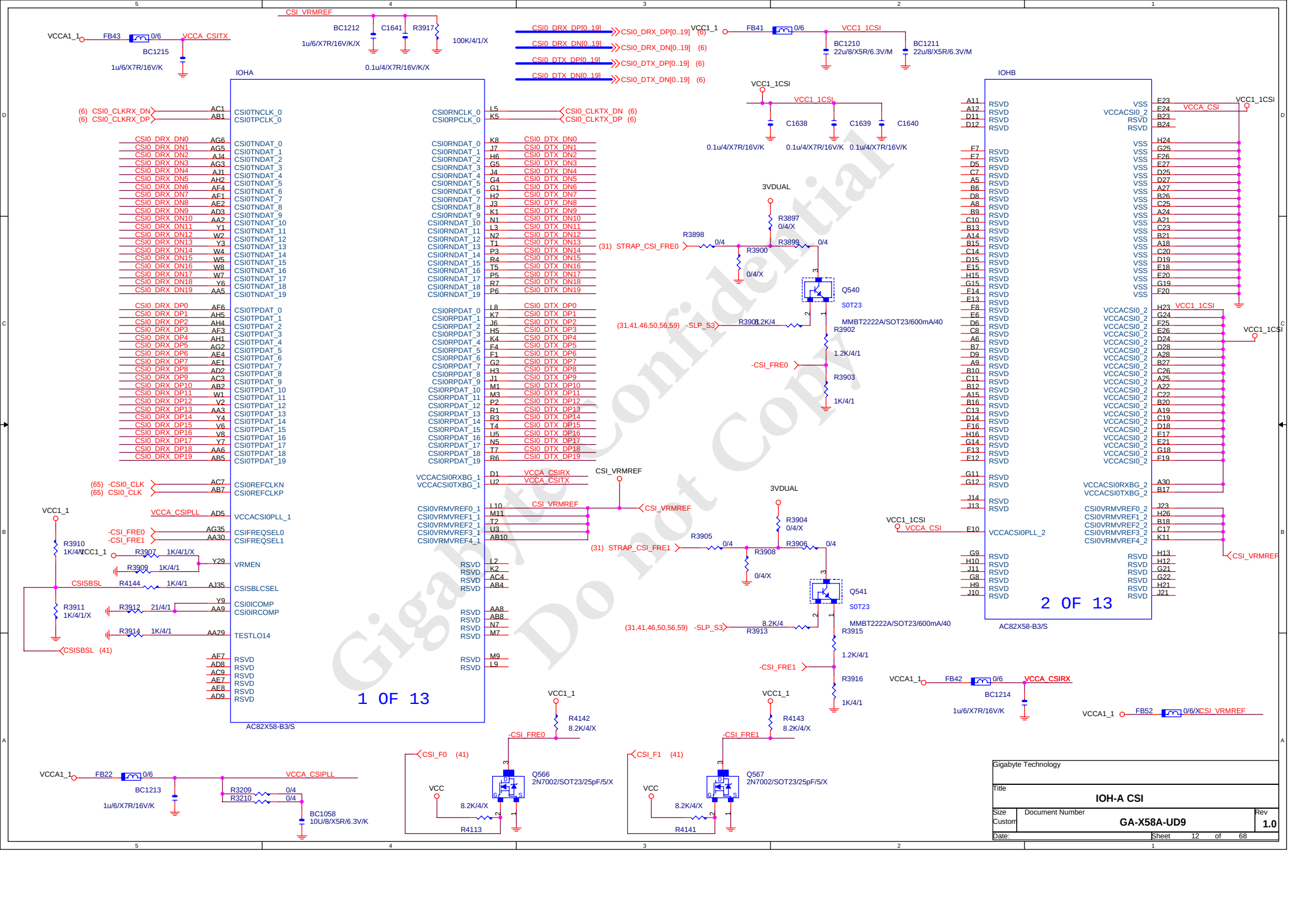

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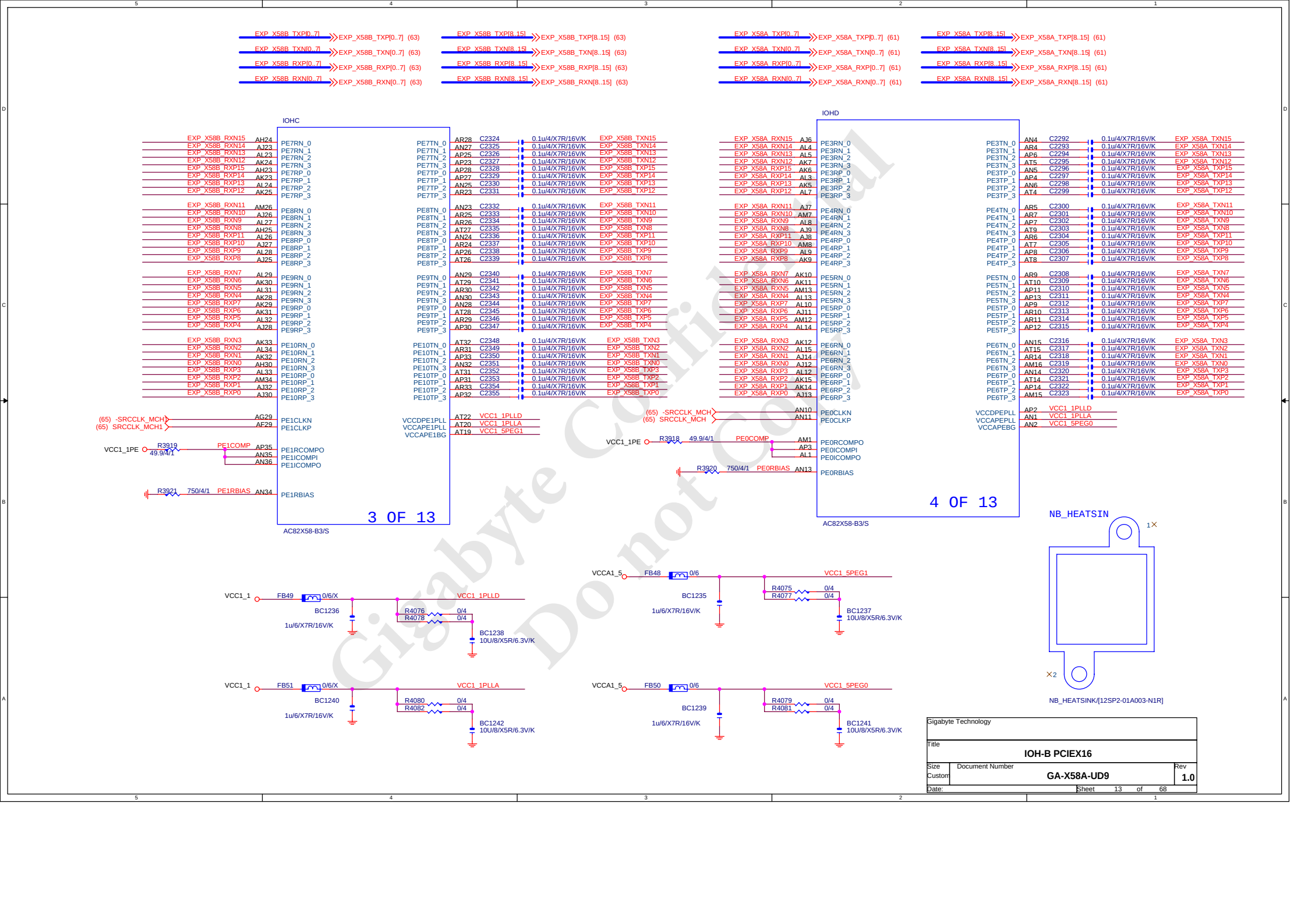
Rev	1.0
Date:	Sheet 12 of 68


EXP_X58B_TXP[0..7] EXP_X58B_TXP[0..7] (63)
EXP_X58B_TXN[0..7] EXP_X58B_TXN[0..7] (63)
EXP_X58B_RXP[0..7] EXP_X58B_RXP[0..7] (63)
EXP_X58B_RXN[0..7] EXP_X58B_RXN[0..7] (63)
EXP_X58B_TXP[8..15] EXP_X58B_TXP[8..15] (63)
EXP_X58B_TXN[8..15] EXP_X58B_TXN[8..15] (63)
EXP_X58B_RXP[8..15] EXP_X58B_RXP[8..15] (63)
EXP_X58B_RXN[8..15] EXP_X58B_RXN[8..15] (63)
EXP_X58A_TXP[0..7] EXP_X58A_TXP[0..7] (61)
EXP_X58A_TXN[0..7] EXP_X58A_TXN[0..7] (61)
EXP_X58A_RXP[0..7] EXP_X58A_RXP[0..7] (61)
EXP_X58A_RXN[0..7] EXP_X58A_RXN[0..7] (61)
EXP_X58A_TXP[8..15] EXP_X58A_TXP[8..15] (61)
EXP_X58A_TXN[8..15] EXP_X58A_TXN[8..15] (61)
EXP_X58A_RXP[8..15] EXP_X58A_RXP[8..15] (61)
EXP_X58A_RXN[8..15] EXP_X58A_RXN[8..15] (61)
IOHC
PE7RN_0 PE7RN_1 PE7RN_2 PE7RN_3 PE7RP_0 PE7RP_1 PE7RP_2 PE7RP_3
PE8RN_0 PE8RN_1 PE8RN_2 PE8RN_3 PE8RP_0 PE8RP_1 PE8RP_2 PE8RP_3
PE9RN_0 PE9RN_1 PE9RN_2 PE9RN_3 PE9RP_0 PE9RP_1 PE9RP_2 PE9RP_3
PE10RN_0 PE10RN_1 PE10RN_2 PE10RN_3 PE10RP_0 PE10RP_1 PE10RP_2 PE10RP_3
PE1CLKN PE1CLKP
PE1RCOMPO PE1ICOMPI PE1ICOMPO
PE1RBIAS
PE7TN_0 PE7TN_1 PE7TN_2 PE7TN_3 PE7TP_0 PE7TP_1 PE7TP_2 PE7TP_3
PE8TN_0 PE8TN_1 PE8TN_2 PE8TN_3 PE8TP_0 PE8TP_1 PE8TP_2 PE8TP_3
PE9TN_0 PE9TN_1 PE9TN_2 PE9TN_3 PE9TP_0 PE9TP_1 PE9TP_2 PE9TP_3
PE10TN_0 PE10TN_1 PE10TN_2 PE10TN_3 PE10TP_0 PE10TP_1 PE10TP_2 PE10TP_3
VCCDPE1PLL VCCAPE1PLL VCCAPE1BG
3 OF 13
AC82X58-B3/S
(65) -SRCCLK_MCH
(65) SRCCLK_MCH1
VCC1_1PE
R3919 49.9/4/1
PE1COMP
R3921 750/4/1 PE1RBIAS
IOHD
PE3RN_0 PE3RN_1 PE3RN_2 PE3RN_3 PE3RP_0 PE3RP_1 PE3RP_2 PE3RP_3
PE4RN_0 PE4RN_1 PE4RN_2 PE4RN_3 PE4RP_0 PE4RP_1 PE4RP_2 PE4RP_3
PE5RN_0 PE5RN_1 PE5RN_2 PE5RN_3 PE5RP_0 PE5RP_1 PE5RP_2 PE5RP_3
PE6RN_0 PE6RN_1 PE6RN_2 PE6RN_3 PE6RP_0 PE6RP_1 PE6RP_2 PE6RP_3
PE0CLKN PE0CLKP
PE0RCOMPO PE0ICOMPI PE0ICOMPO
PE0RBIAS
PE3TN_0 PE3TN_1 PE3TN_2 PE3TN_3 PE3TP_0 PE3TP_1 PE3TP_2 PE3TP_3
PE4TN_0 PE4TN_1 PE4TN_2 PE4TN_3 PE4TP_0 PE4TP_1 PE4TP_2 PE4TP_3
PE5TN_0 PE5TN_1 PE5TN_2 PE5TN_3 PE5TP_0 PE5TP_1 PE5TP_2 PE5TP_3
PE6TN_0 PE6TN_1 PE6TN_2 PE6TN_3 PE6TP_0 PE6TP_1 PE6TP_2 PE6TP_3
VCCDPEPLL VCCAPEPLL VCCAPEBG
4 OF 13
AC82X58-B3/S
(65) -SRCCLK_MCH
(65) SRCCLK_MCH
VCC1_1PE
R3918 49.9/4/1
PE0COMP
R3920 750/4/1 PE0RBIAS
VCC1_1 FB49 0/6/X BC1236 1u/6/X7R/16V/K R4076 0/4 R4078 0/4 VCC1_1PLLD BC1238 10U/8/X5R/6.3V/K
VCC1_1 FB51 0/6/X BC1240 1u/6/X7R/16V/K R4080 0/4 R4082 0/4 VCC1_1PLLA BC1242 10U/8/X5R/6.3V/K
VCCA1_5 FB48 0/6 BC1235 1u/6/X7R/16V/K R4075 0/4 R4077 0/4 VCC1_5PEG1 BC1237 10U/8/X5R/6.3V/K
VCCA1_5 FB50 0/6 BC1239 1u/6/X7R/16V/K R4079 0/4 R4081 0/4 VCC1_5PEG0 BC1241 10U/8/X5R/6.3V/K
NB_HEATSIN
1X
2X
NB_HEATSINK/[12SP2-01A003-N1R]
Gigabyte Technology
Title
IOH-B PCIEX16
Size Custom
Document Number
GA-X58A-UD9
Rev 1.0
Date:
Sheet 13 of 68
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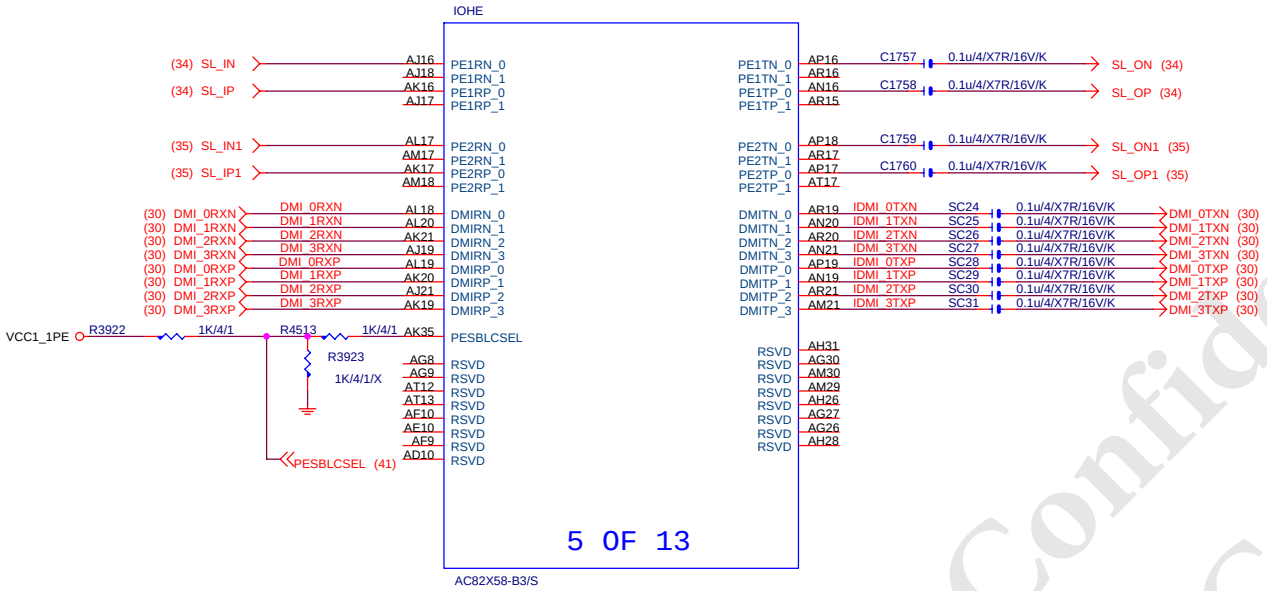
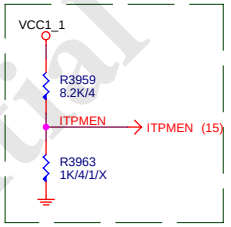
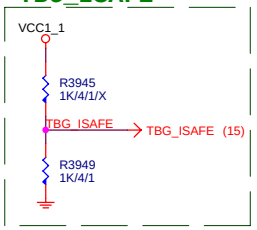


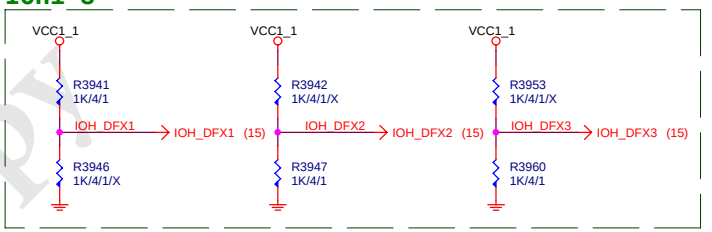
ITPMEN



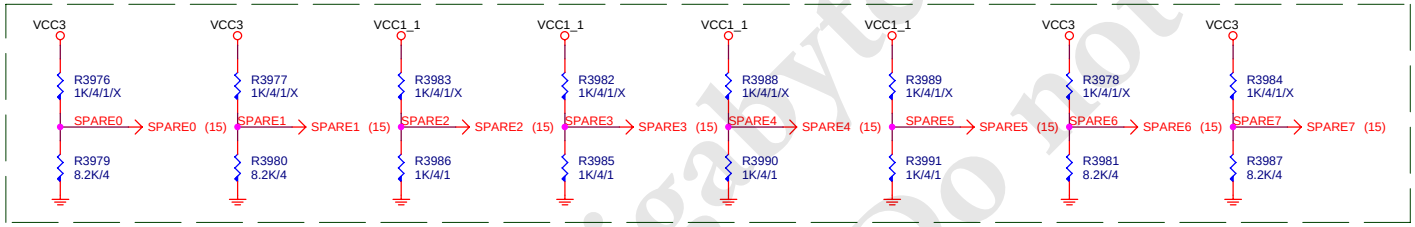
TBG_ISAFE



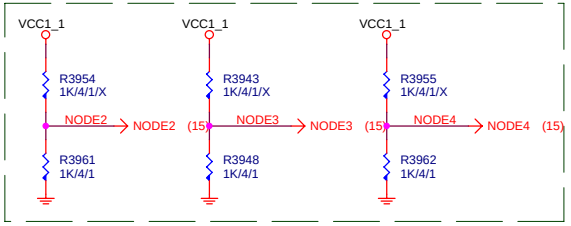
IOH1~3



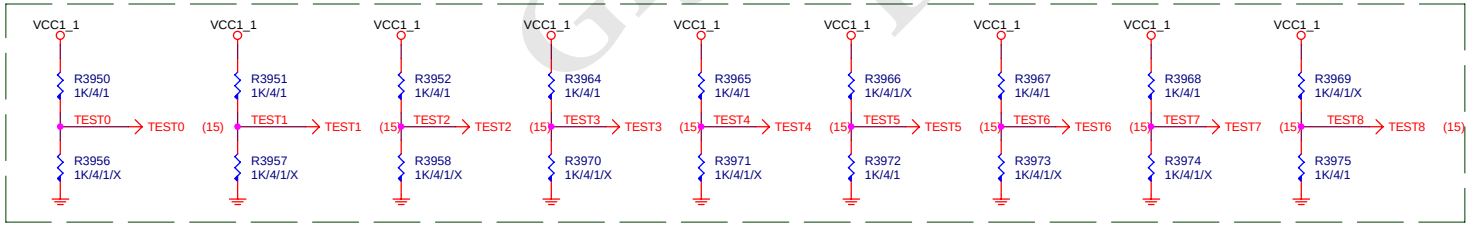
SPARE0~7



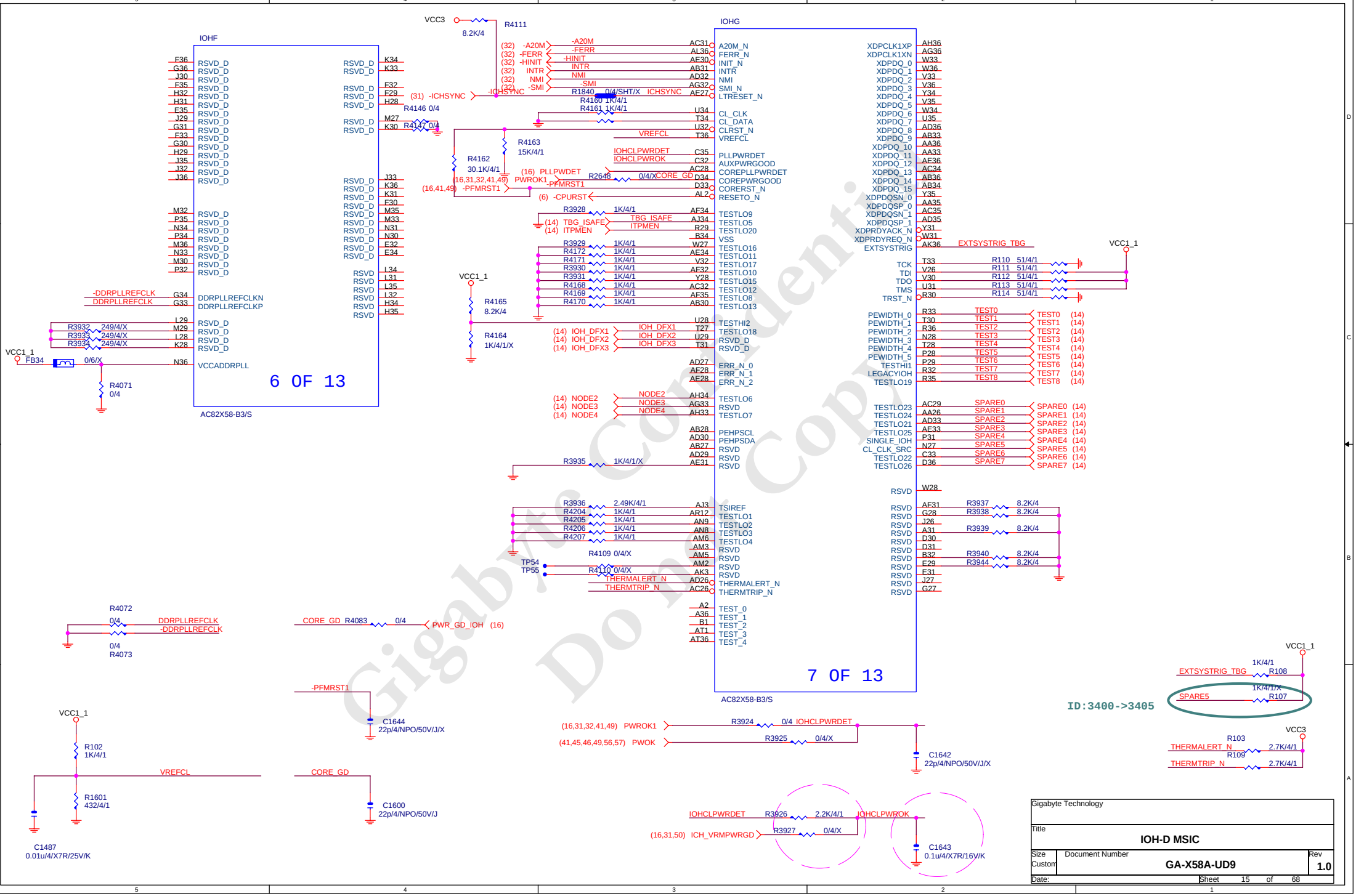
NOD2~3



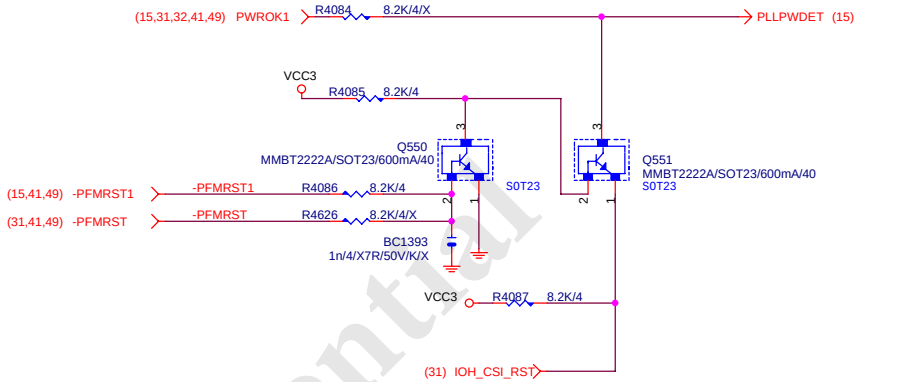
TEST0~8

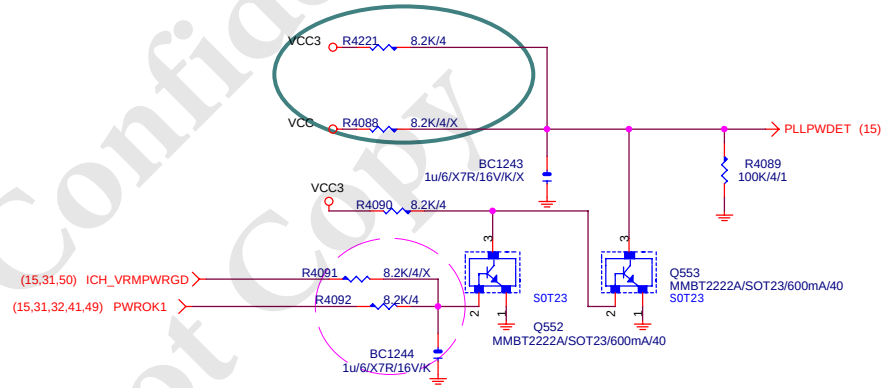


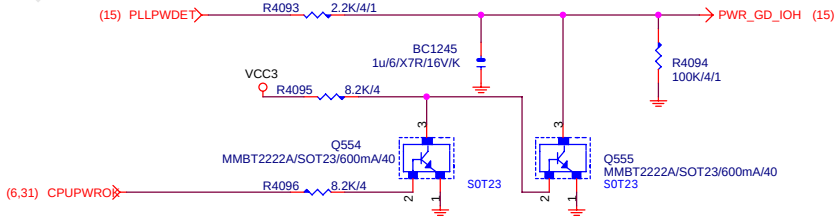
Gigabyte Technology		
Title: IOH-C PCIEX4		
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 14 of 68	



Gigabyte Technology		
Title: IOH-D MSIC		
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 15 of 68	







Gigabyte Technology		
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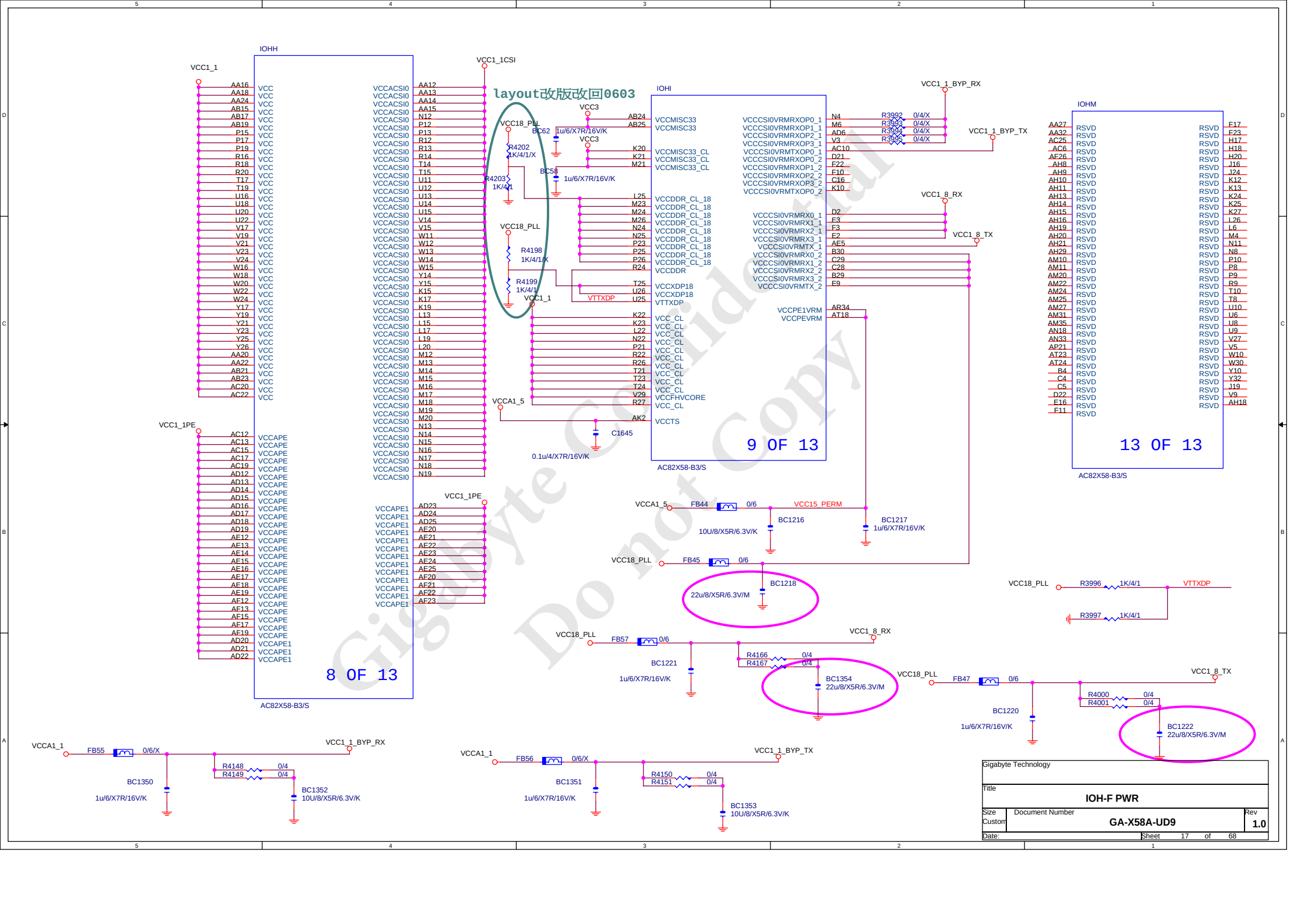
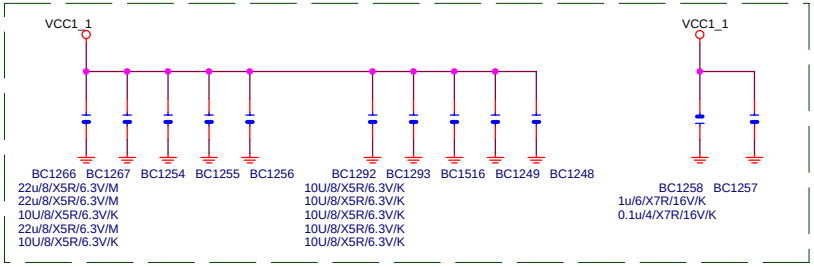
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 16 of 68	

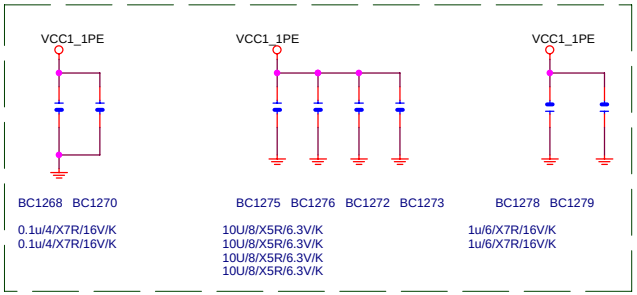


TOP Side

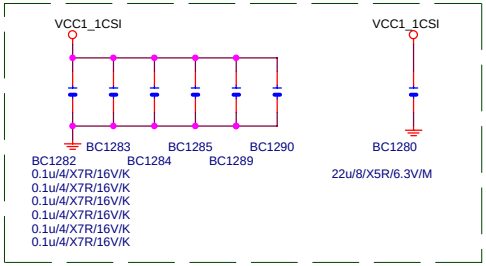
VCC1_1

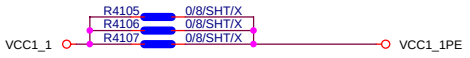


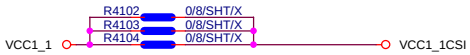
VCC1_1PE



VCC1_1CSI

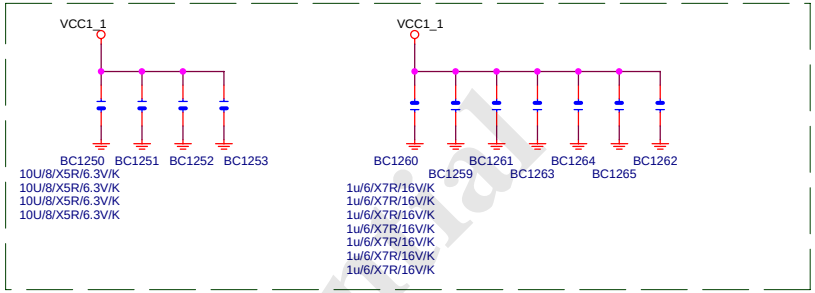






Bottom Side

VCC1_1



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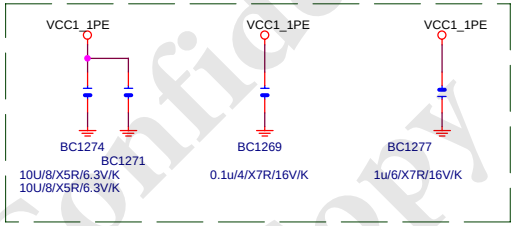

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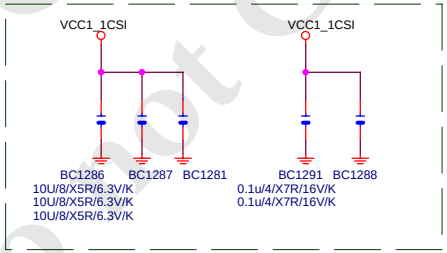

Gigabyte Technology		
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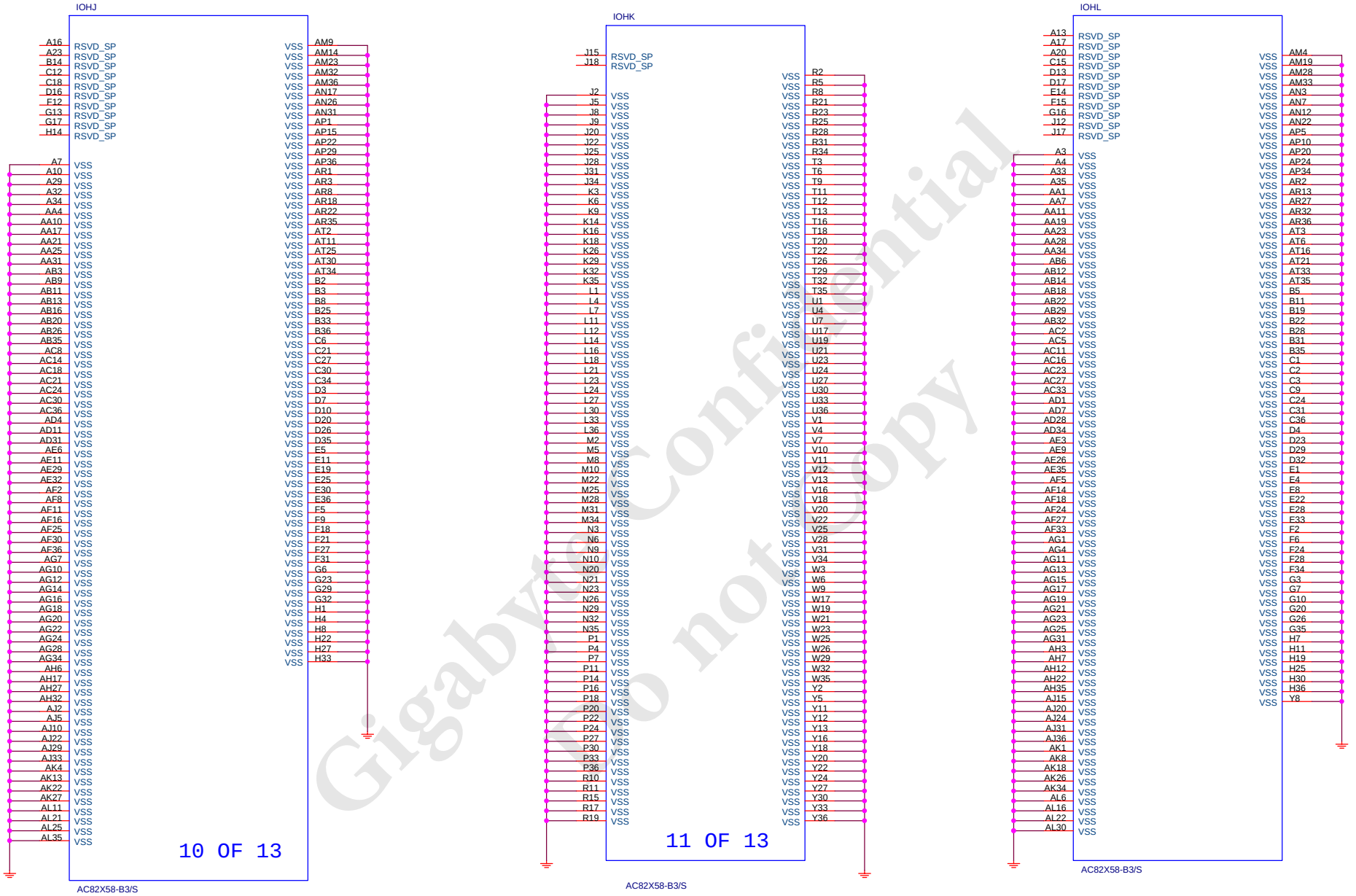
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date:	Sheet 18 of 68	



Gigabyte Technology		
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Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
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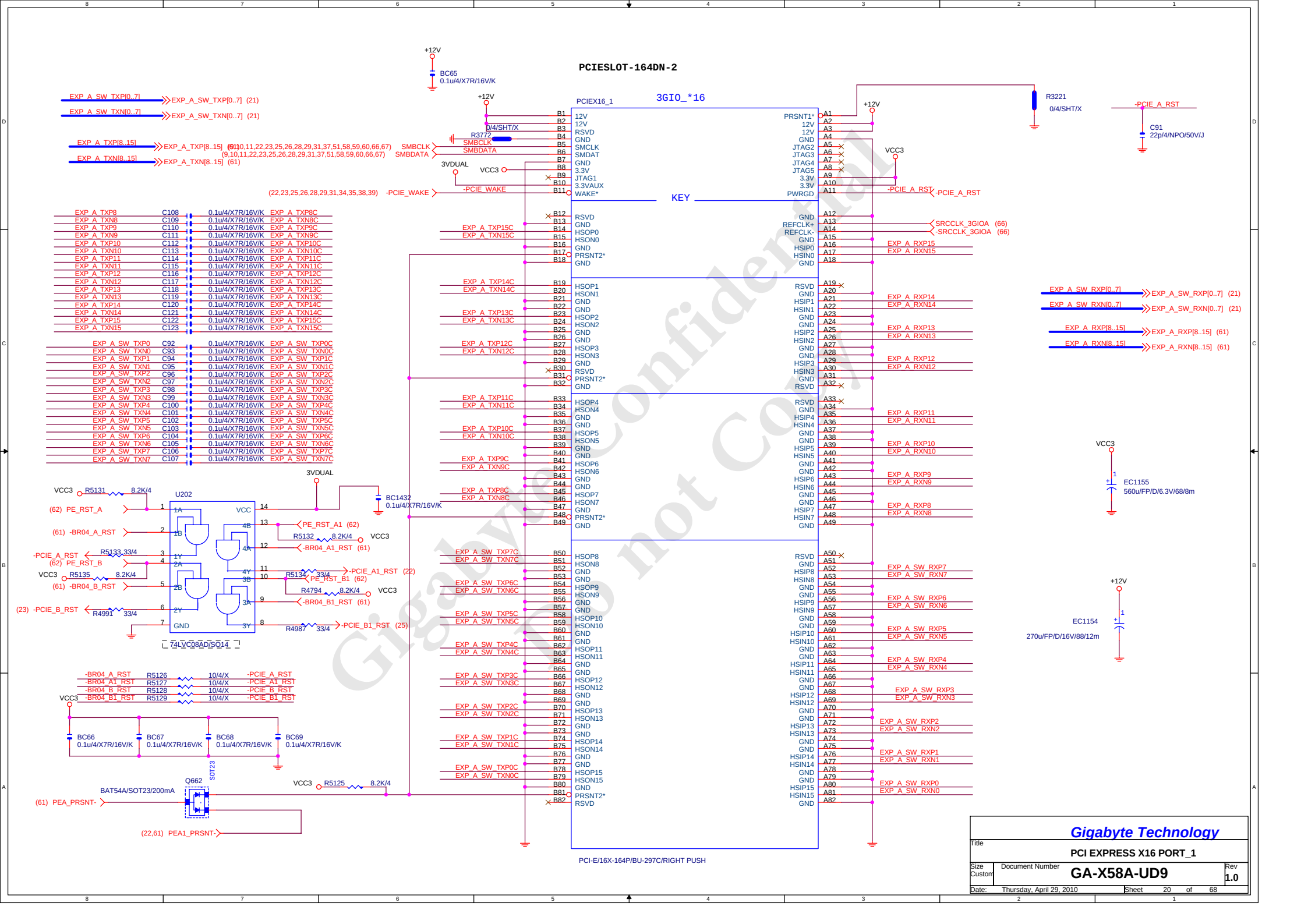
PCIESLOT-164DN-2
3GIO_*16
PCIEX16_1
KEY
PCI-E/16X-164P/BU-297C/RIGHT PUSH
Gigabyte Technology
PCI EXPRESS X16 PORT_1
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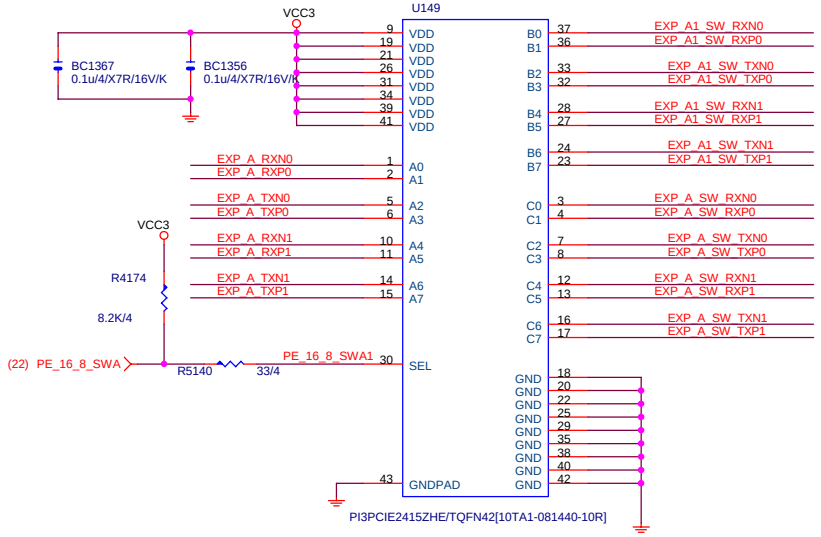
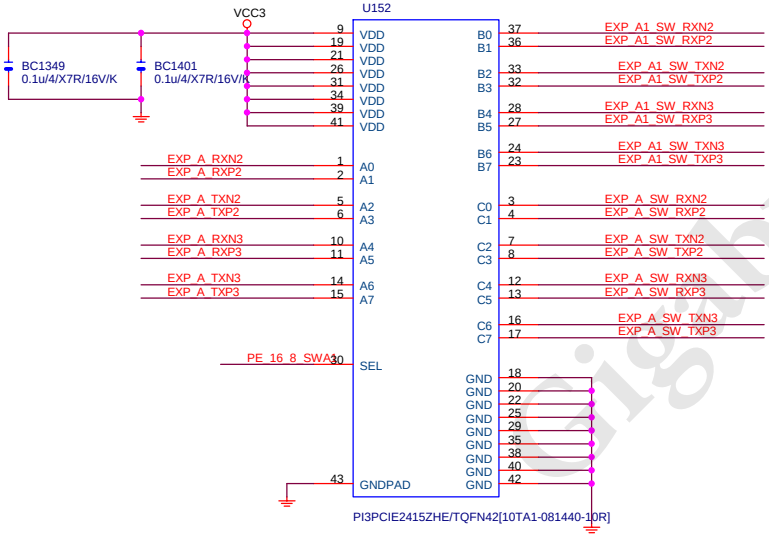
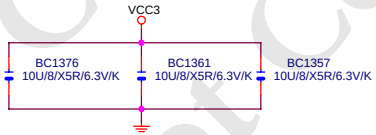
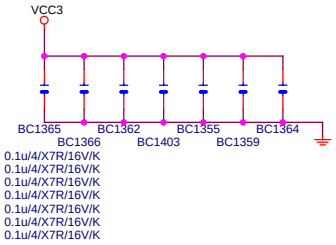
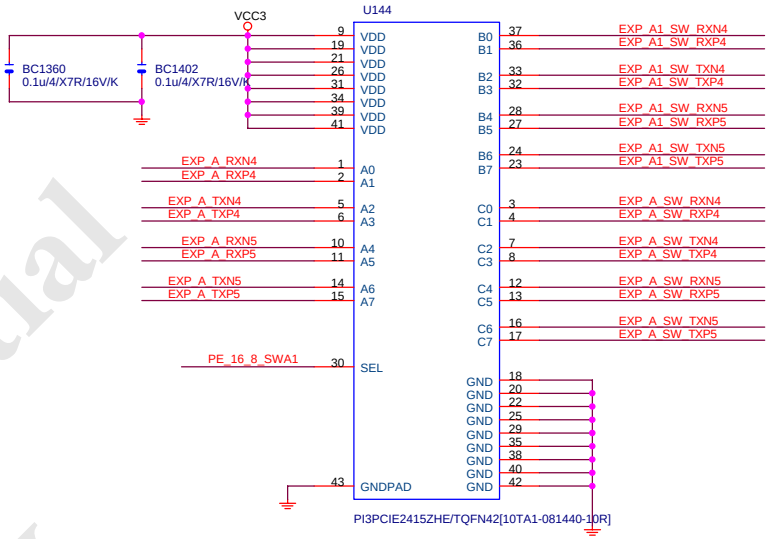


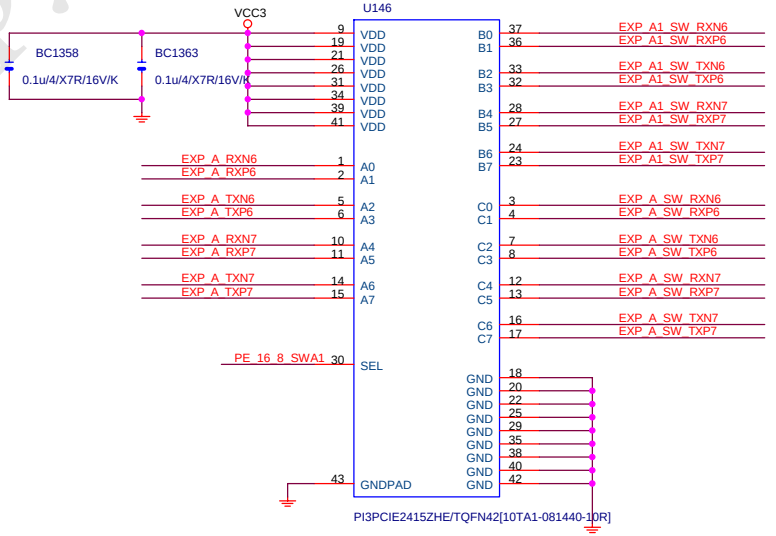
Function	SEL
A--> B	L
A--> C	H











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Title: PCI EXPRESS X16 SWITCH_2

Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

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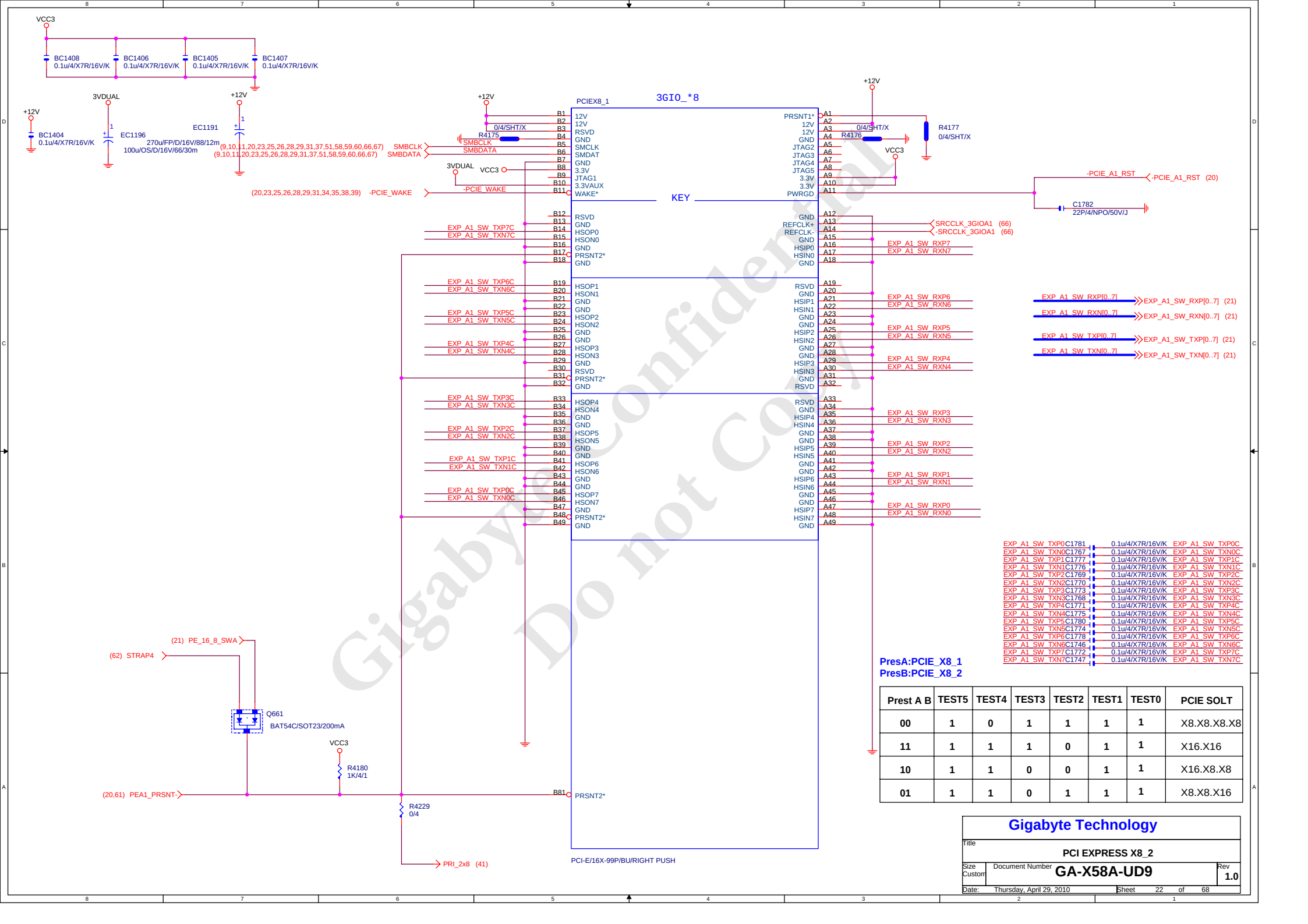

Prest A B	TEST5	TEST4	TEST3	TEST2	TEST1	TEST0	PCIE SOLT
00	1	0	1	1	1	1	X8.X8.X8.X8
11	1	1	1	0	1	1	X16.X16
10	1	1	0	0	1	1	X16.X8.X8
01	1	1	0	1	1	1	X8.X8.X16

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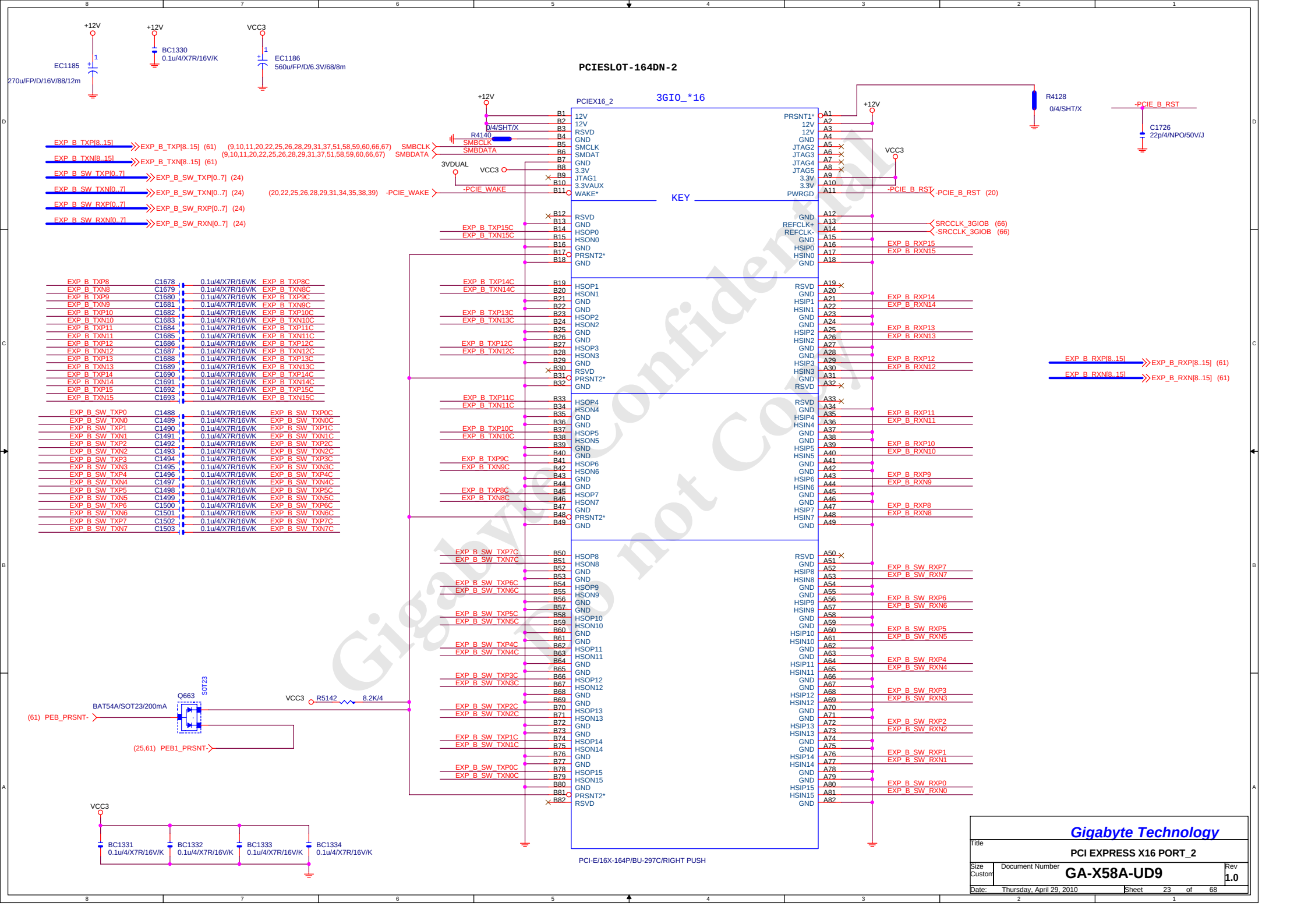
Title	PCI EXPRESS X8_2	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 22 of 68	


PCIESLOT-164DN-2
PCIEX16_2
3GIO_*16
KEY
+12V
VCC3
3VDUAL
EC1185
270u/FP/D/16V/88/12m
BC1330
0.1u/4/X7R/16V/K
EC1186
560u/FP/D/6.3V/68/8m
R4128
0/4/SHT/X
C1726
22p/4/NPO/50V/J
-PCIE_B_RST
R4140
SMBCLK
SMBDATA
-PCIE_WAKE
R5142
8.2K/4
Q663
BAT54A/SOT23/200mA
SOT23
PEB_PRSNT-
PEB1_PRSNT-
BC1331
BC1332
BC1333
BC1334
0.1u/4/X7R/16V/K
PCI-E/16X-164P/BU-297C/RIGHT PUSH
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PCI EXPRESS X16 PORT_2
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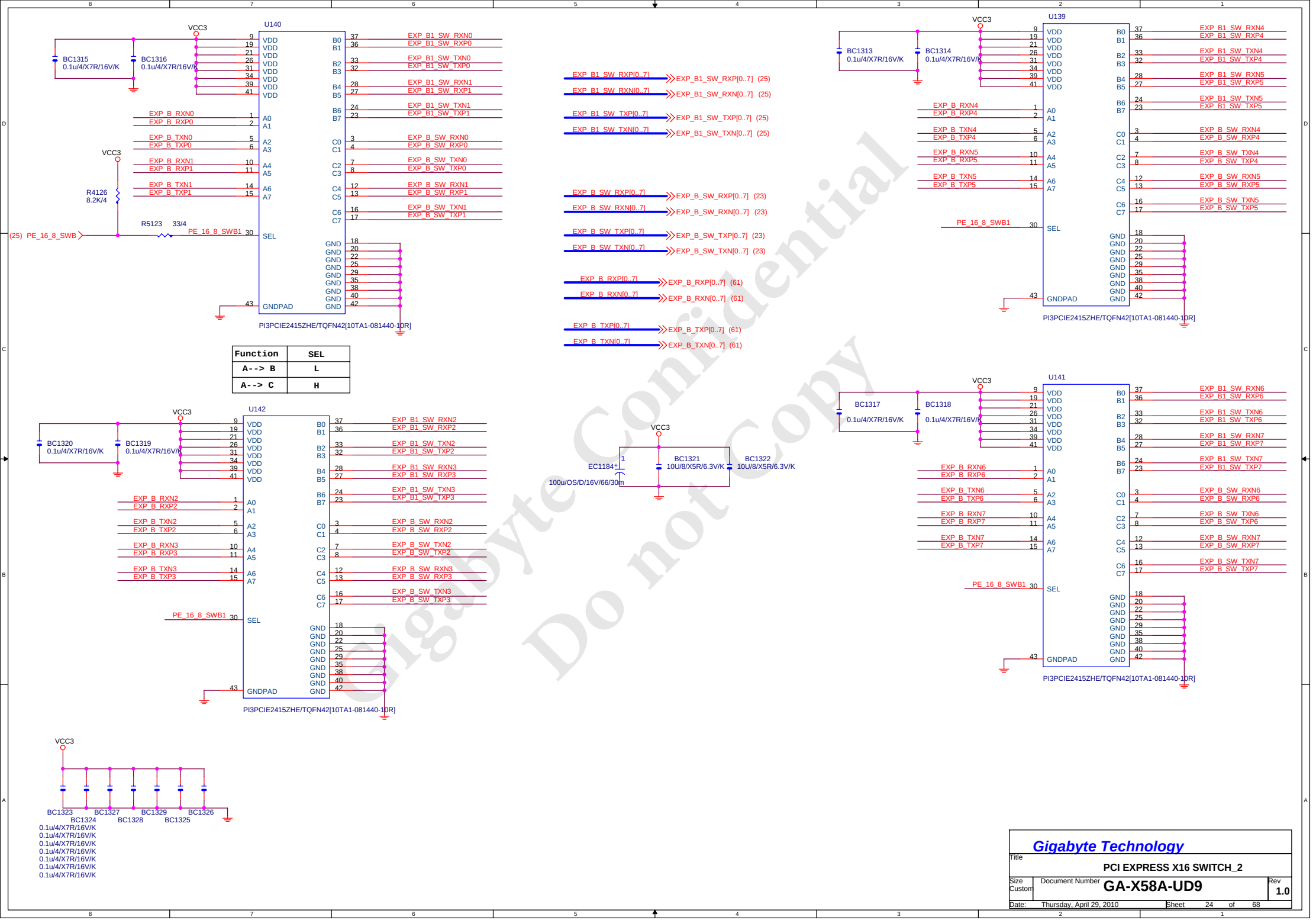

Function	SEL
A--> B	L
A--> C	H

Title	PCI EXPRESS X16 SWITCH_2
Size: Custom	Document Number: GA-X58A-UD9
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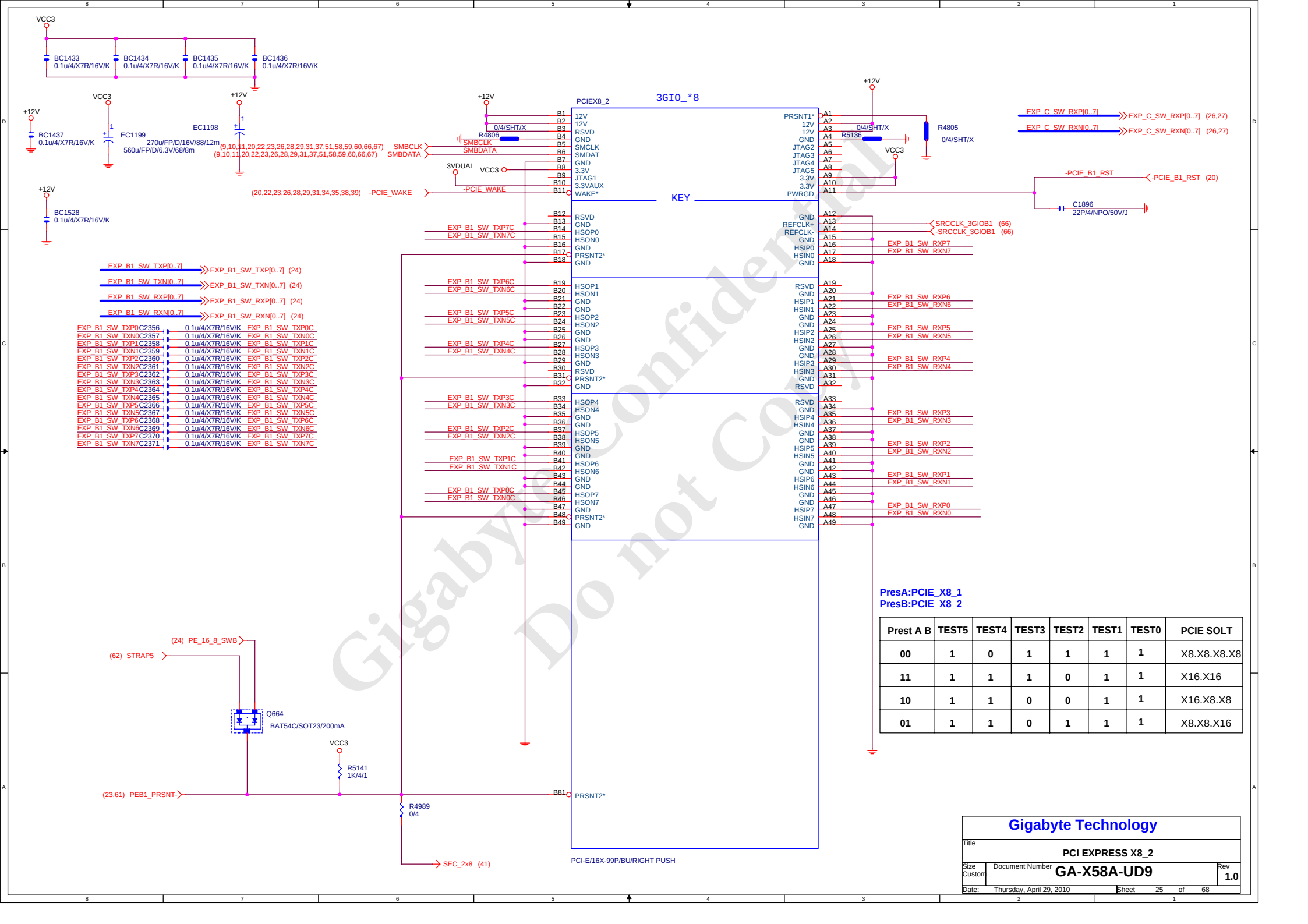

PresA:PCIE_X8_1
PresB:PCIE_X8_2

Prest A B	TEST5	TEST4	TEST3	TEST2	TEST1	TEST0	PCIE SOLT
00	1	0	1	1	1	1	X8.X8.X8.X8
11	1	1	1	0	1	1	X16.X16
10	1	1	0	0	1	1	X16.X8.X8
01	1	1	0	1	1	1	X8.X8.X16

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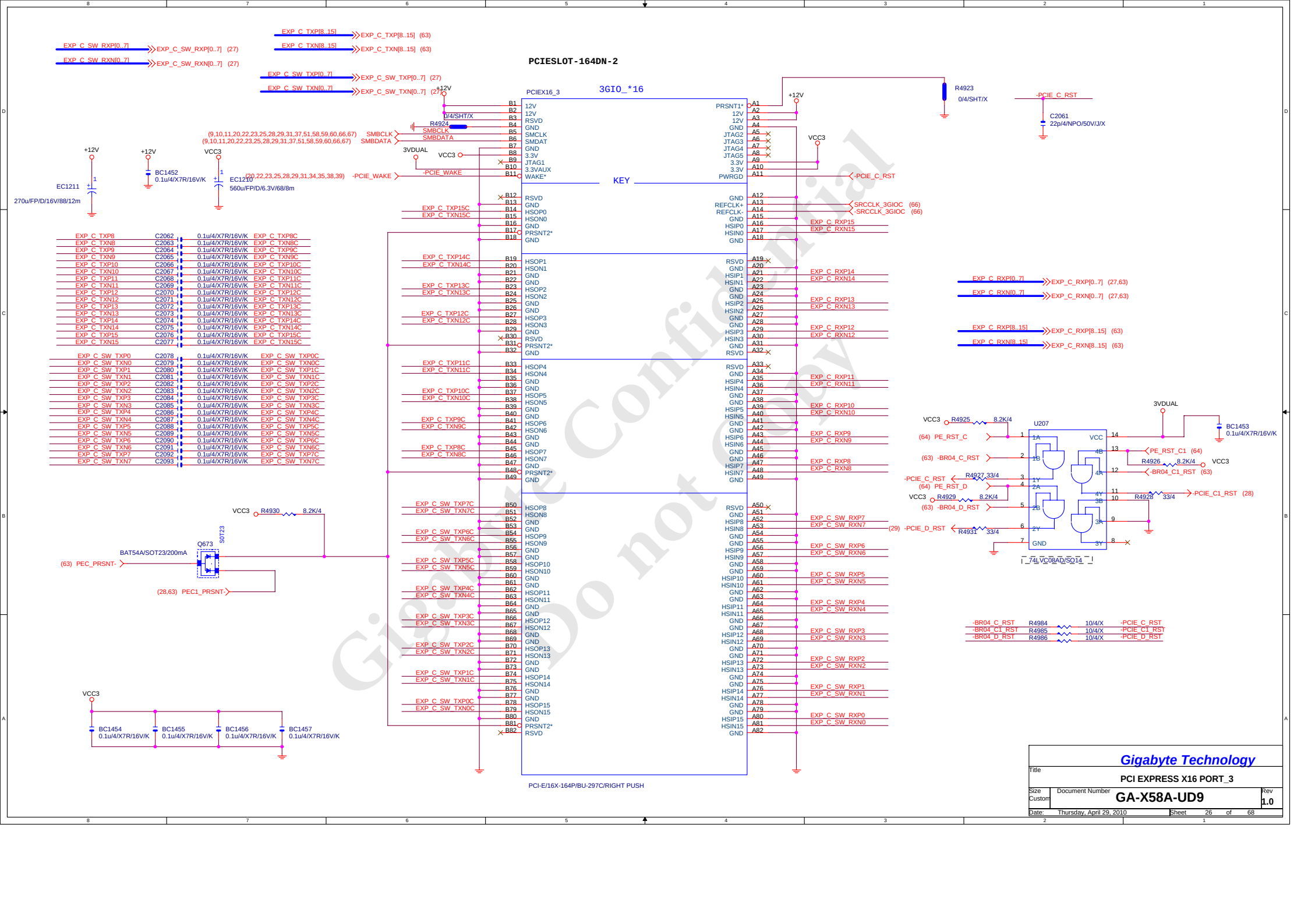
Title	PCI EXPRESS X8_2	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 25 of 68	


PCIESLOT-164DN-2
PCIEX16_3
3GIO_*16
KEY
PCI-E/16X-164P/BU-297C/RIGHT PUSH
EXP_C_SW_RXP[0..7] EXP_C_SW_RXP[0..7] (27)
EXP_C_SW_RXN[0..7] EXP_C_SW_RXN[0..7] (27)
EXP_C_TXP[8..15] EXP_C_TXP[8..15] (63)
EXP_C_TXN[8..15] EXP_C_TXN[8..15] (63)
EXP_C_SW_TXP[0..7] EXP_C_SW_TXP[0..7] (27)
EXP_C_SW_TXN[0..7] EXP_C_SW_TXN[0..7] (27)
+12V
VCC3
3VDUAL
SMBCLK
SMBDATA
-PCIE_WAKE
-PCIE_C_RST
R4923 0/4/SHT/X
R4924 0/4/SHT/X
C2061 22p/4/NPO/50V/J/X
EC1211 270u/FP/D/16V/88/12m
BC1452 0.1u/4/X7R/16V/K
EC1210 560u/FP/D/6.3V/68/8m
BC1453 0.1u/4/X7R/16V/K
R4925 8.2K/4
R4926 8.2K/4
R4927 33/4
R4928 33/4
R4929 8.2K/4
R4931 33/4
U207
74LVC08AD/SO14
R4930 8.2K/4
Q673 BAT54A/SOT23/200mA SOT23
BC1454 0.1u/4/X7R/16V/K
BC1455 0.1u/4/X7R/16V/K
BC1456 0.1u/4/X7R/16V/K
BC1457 0.1u/4/X7R/16V/K
R4984 10/4/X
R4985 10/4/X
R4986 10/4/X
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PCI EXPRESS X16 PORT_3
GA-X58A-UD9
Size Custom
Document Number
Rev 1.0
Date: Thursday, April 29, 2010
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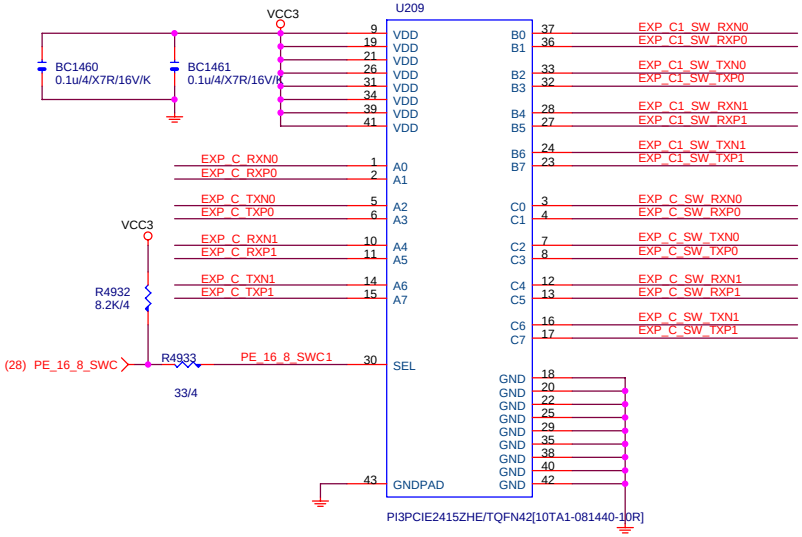
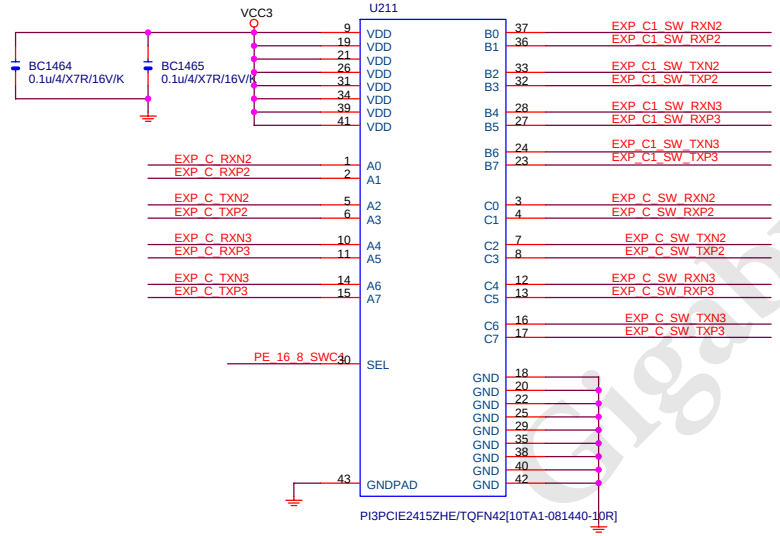
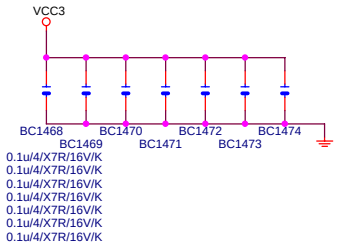
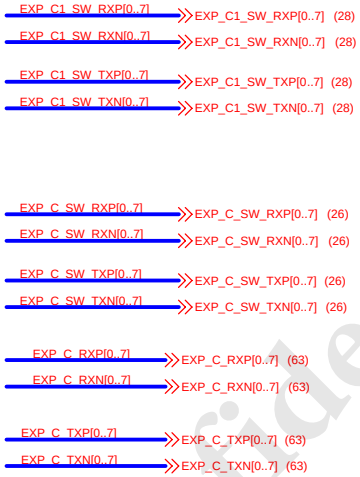
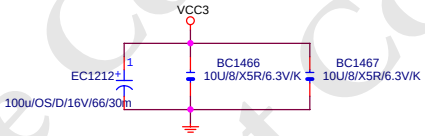


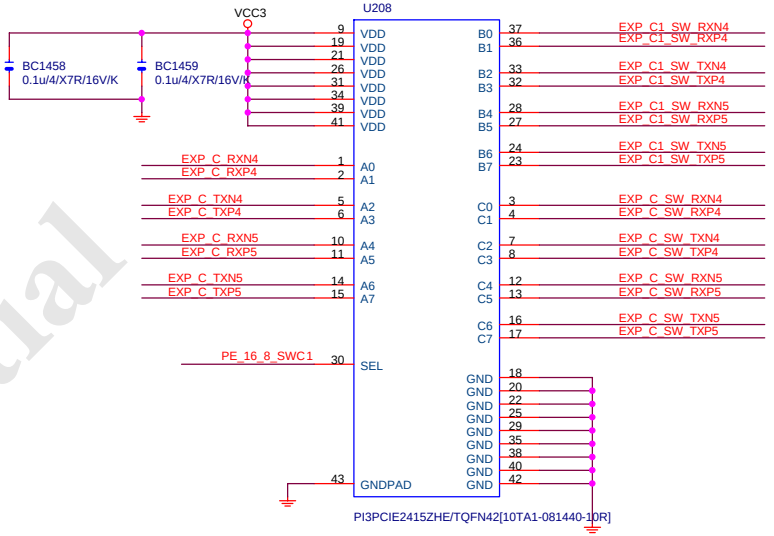
Function	SEL
A--> B	L
A--> C	H

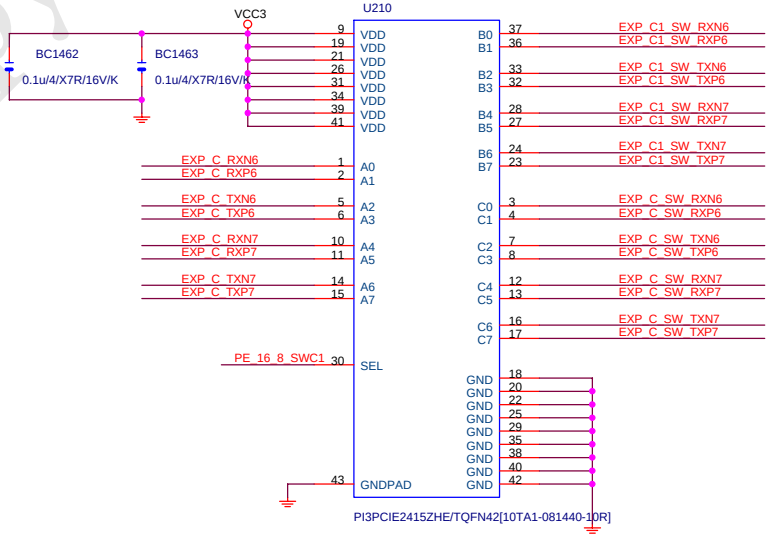












Gigabyte Technology

Title: PCI EXPRESS X16 SWITCH_2

Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

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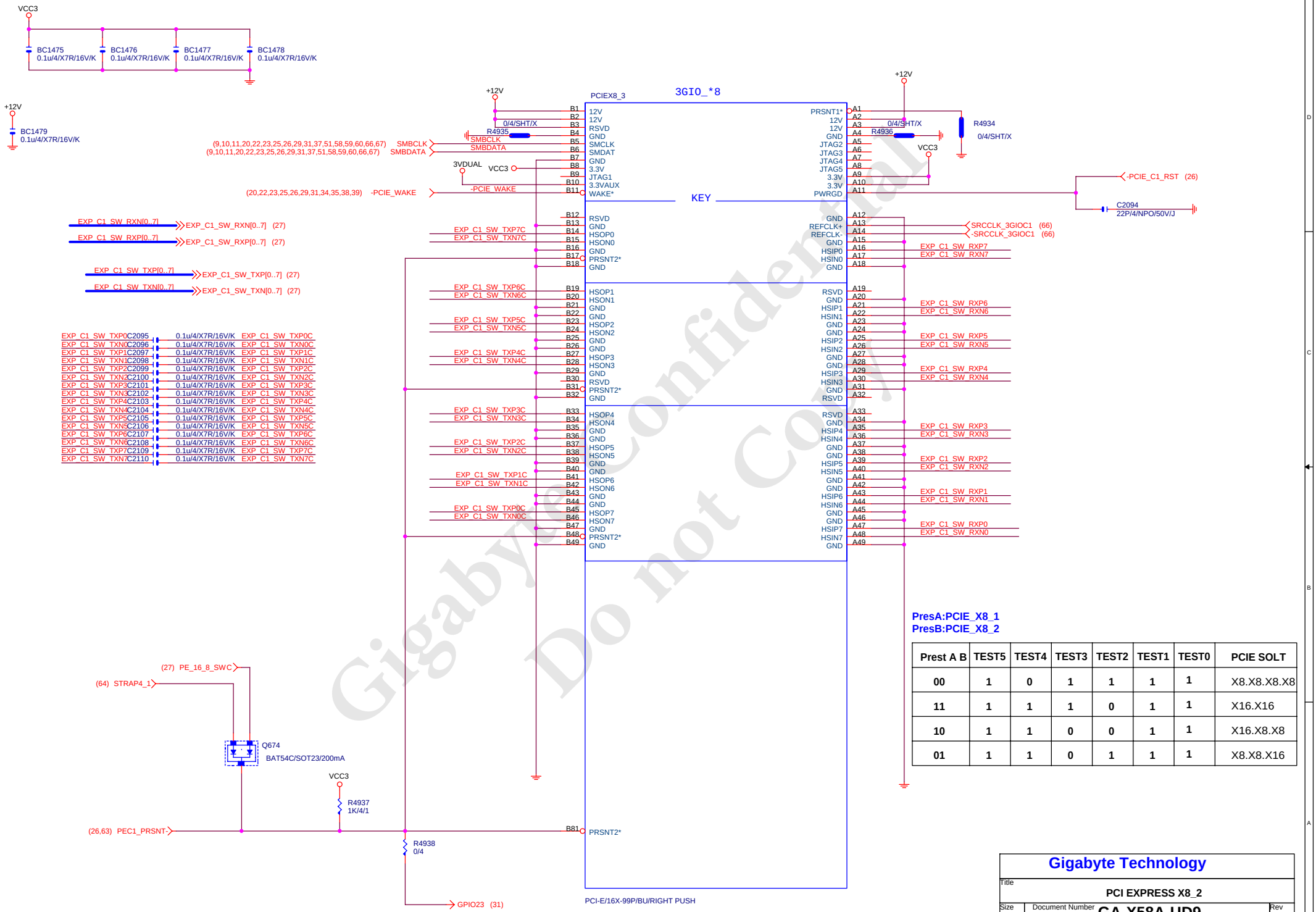
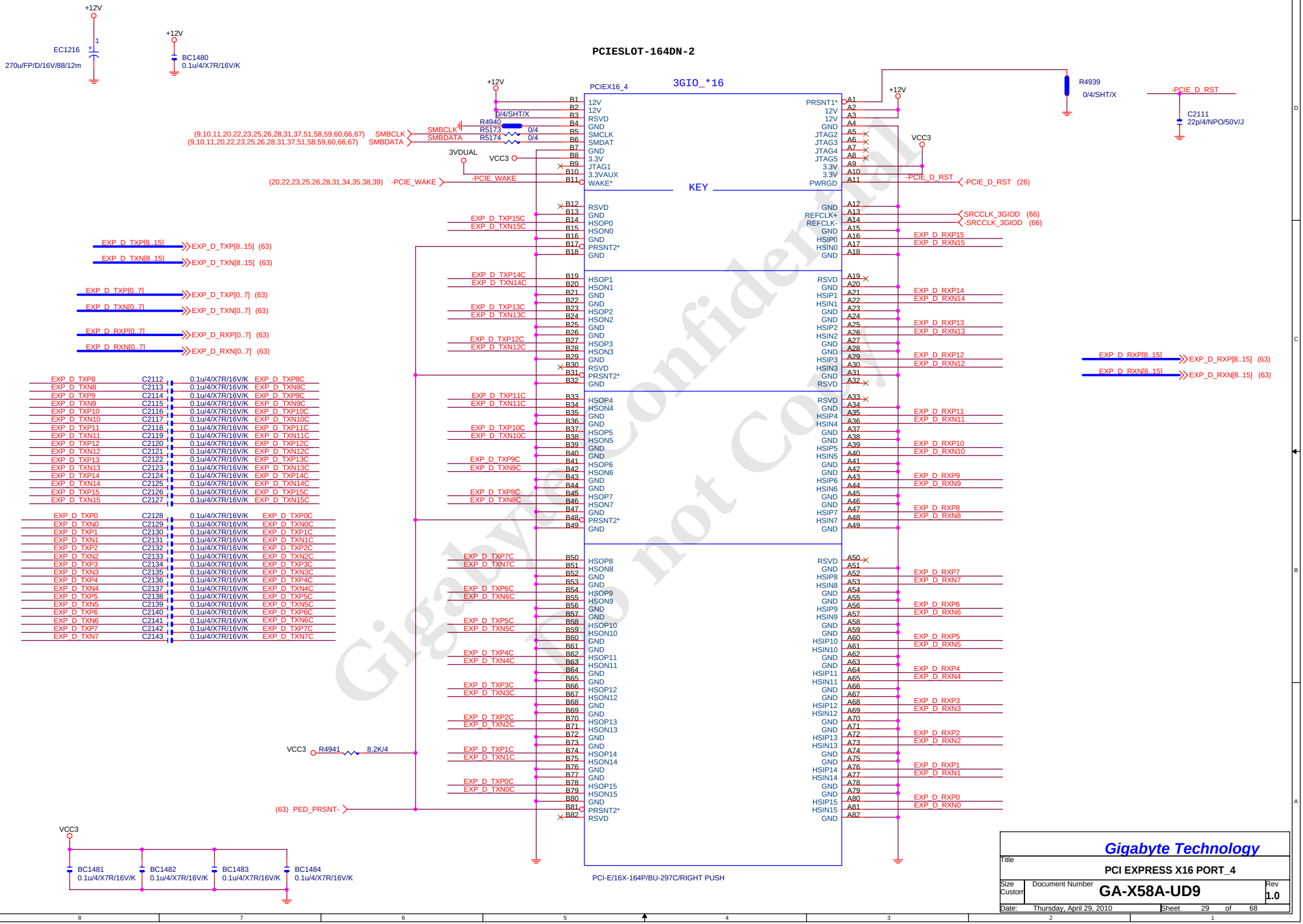


PresA:PCIE_X8_1
PresB:PCIE_X8_2

Prest A B	TEST5	TEST4	TEST3	TEST2	TEST1	TEST0	PCIE SOLT
00	1	0	1	1	1	1	X8.X8.X8.X8
11	1	1	1	0	1	1	X16.X16
10	1	1	0	0	1	1	X16.X8.X8
01	1	1	0	1	1	1	X8.X8.X16

Gigabyte Technology			
Title: PCI EXPRESS X8_2			
Size: Custom	Document Number: GA-X58A-UD9		Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 28 of 68		


PCIESLOT-164DN-2
3GIO_*16
PCIEX16_4
KEY
+12V
3VDUAL
VCC3
EC1216
270u/FP/D/16V/88/12m
BC1480
0.1u/4/X7R/16V/K
R4939
0/4/SHT/X
-PCIE_D_RST
C2111
22p/4/NPO/50V/J
R4940
R5173
R5174
0/4
SMBCLK
SMBDATA
-PCIE_WAKE
R4941
8.2K/4
PED_PRSNT-
SRCCLK_3GIOD (66)
-SRCCLK_3GIOD (66)
-PCIE_D_RST (26)
PCI-E/16X-164P/BU-297C/RIGHT PUSH
BC1481
BC1482
BC1483
BC1484
0.1u/4/X7R/16V/K
Gigabyte Technology
PCI EXPRESS X16 PORT_4
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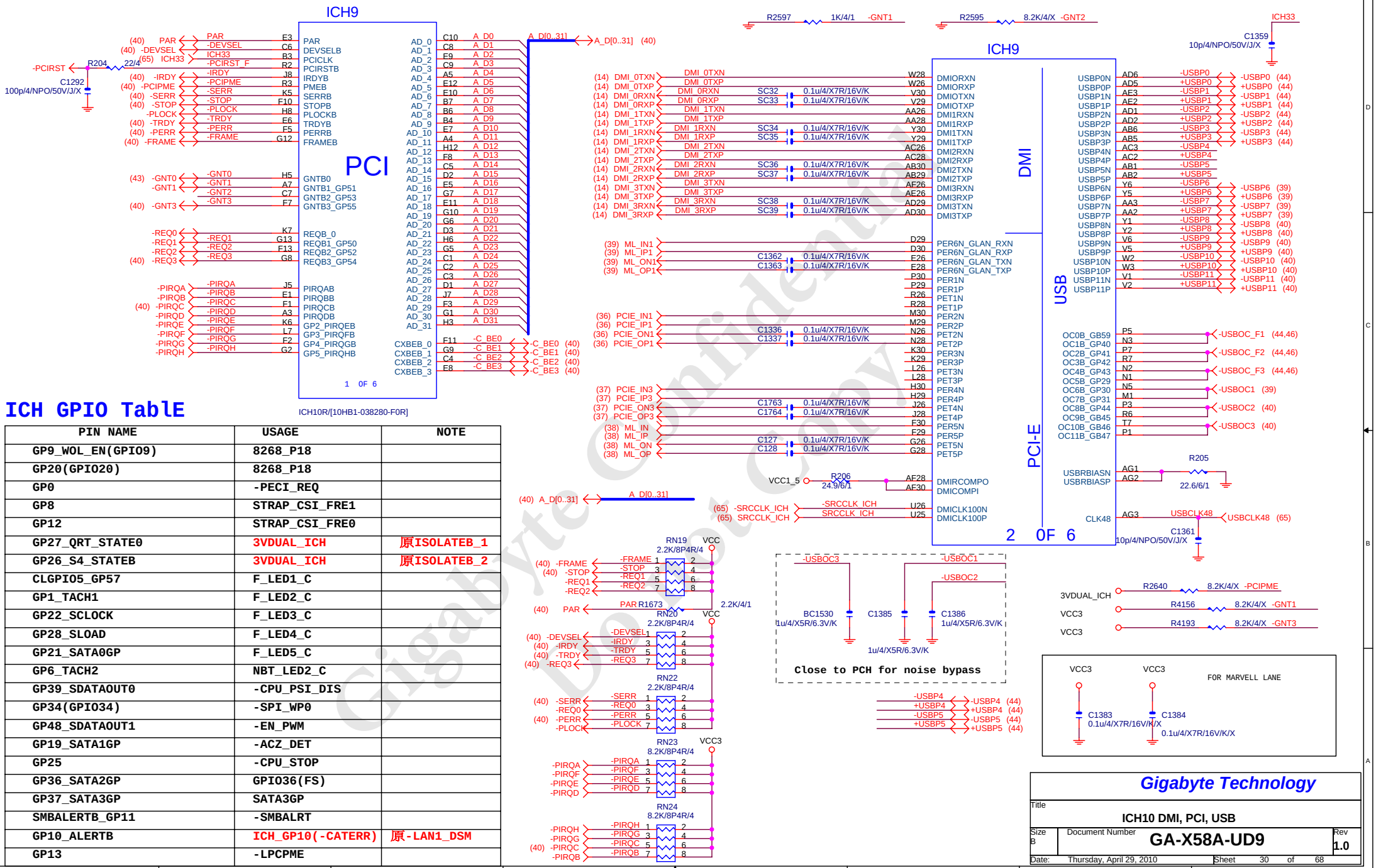


ICH GPIO TablE

PIN NAME	USAGE	NOTE
GP9_WOL_EN(GPIO9)	8268_P18	
GP20(GPIO20)	8268_P18	
GP0	-PECI_REQ	
GP8	STRAP_CSI_FRE1	
GP12	STRAP_CSI_FRE0	
GP27_QRT_STATE0	3VDUAL_ICH	原ISOLATEB_1
GP26_S4_STATEB	3VDUAL_ICH	原ISOLATEB_2
CLGPIO5_GP57	F_LED1_C	
GP1_TACH1	F_LED2_C	
GP22_SCLOCK	F_LED3_C	
GP28_SLOAD	F_LED4_C	
GP21_SATA0GP	F_LED5_C	
GP6_TACH2	NBT_LED2_C	
GP39_SDATAOUT0	-CPU_PSI_DIS	
GP34(GPIO34)	-SPI_WP0	
GP48_SDATAOUT1	-EN_PWM	
GP19_SATA1GP	-ACZ_DET	
GP25	-CPU_STOP	
GP36_SATA2GP	GPIO36(FS)	
GP37_SATA3GP	SATA3GP	
SMBALERTB_GP11	-SMBALRT	
GP10_ALERTB	ICH_GP10(-CATERR)	原-LAN1_DSM
GP13	-LPCPME	

Gigabyte Technology	
Title	ICH10 DMI, PCI, USB
Size B	Document Number GA-X58A-UD9 Rev 1.0
Date: Thursday, April 29, 2010	Sheet 30 of 68

ICH9

LPC
AUDIO
LAN
RTC
SMB
SPI
MISC

4 of 6

for page35 CSICBSL線路

FOR PCIEX4 才需PULL-UP

DEFAULT ENABLE (TLS)

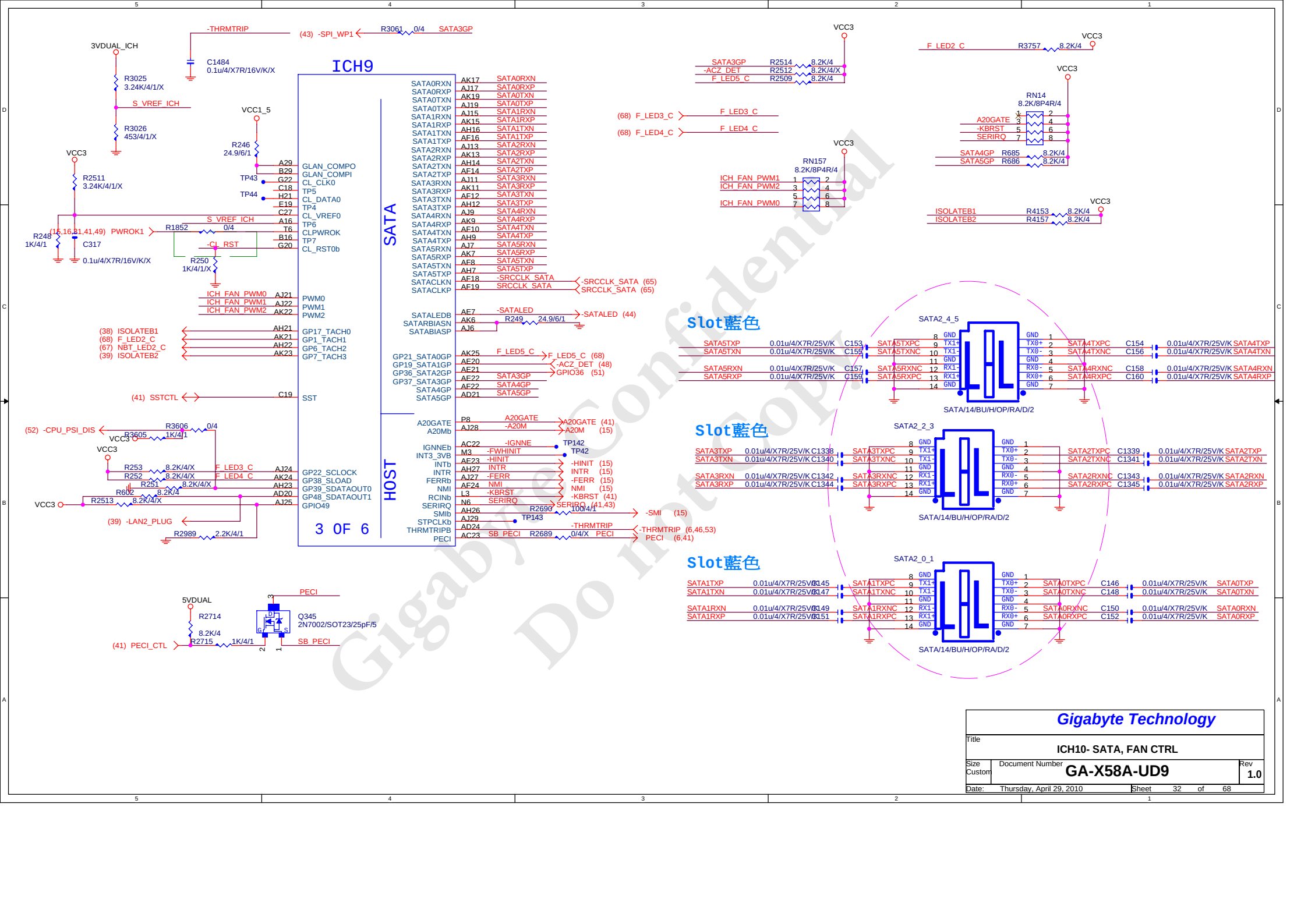
MB_ID

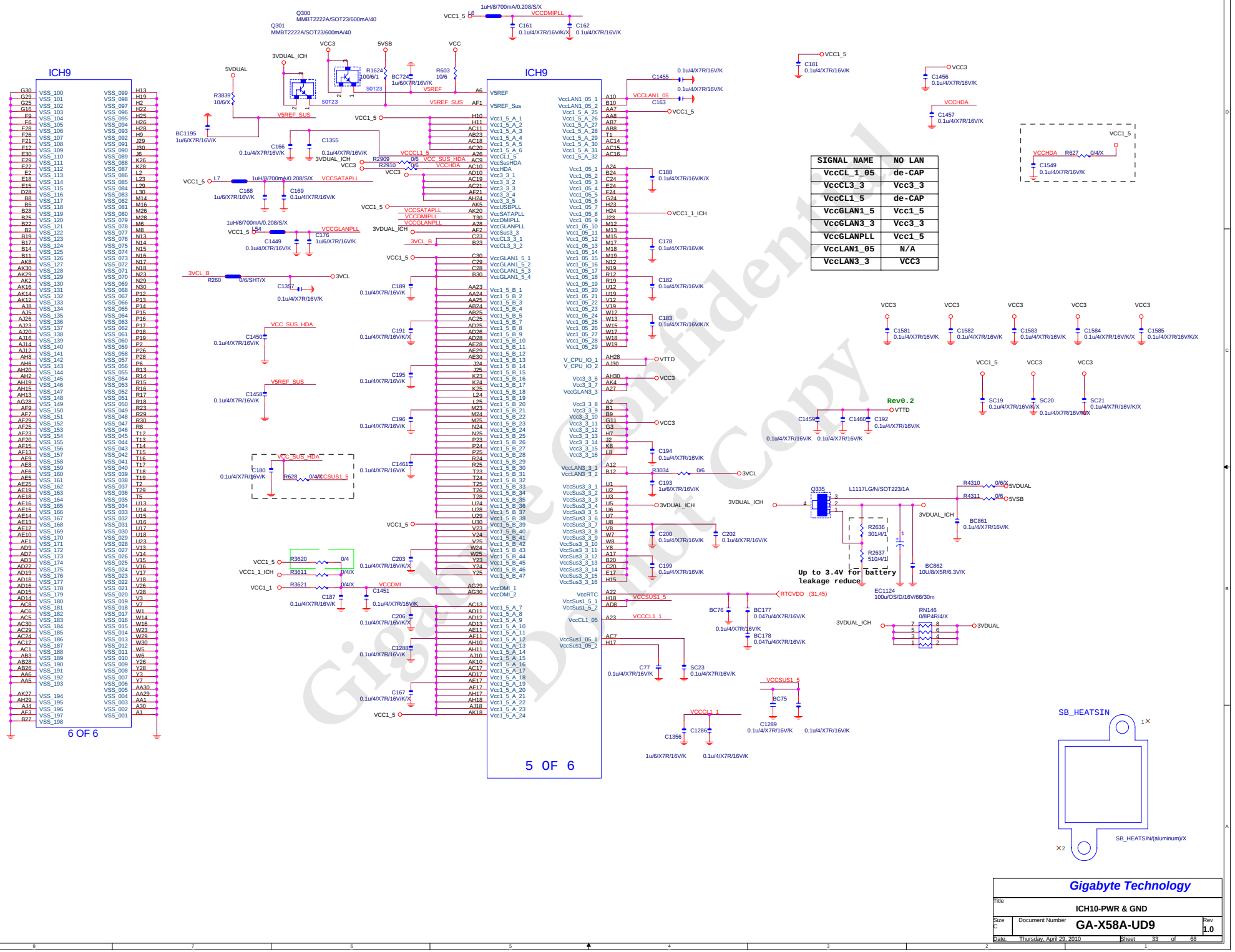
MB_ID1 for Media (媒體 P-H)

BATTERY-DUAL-4

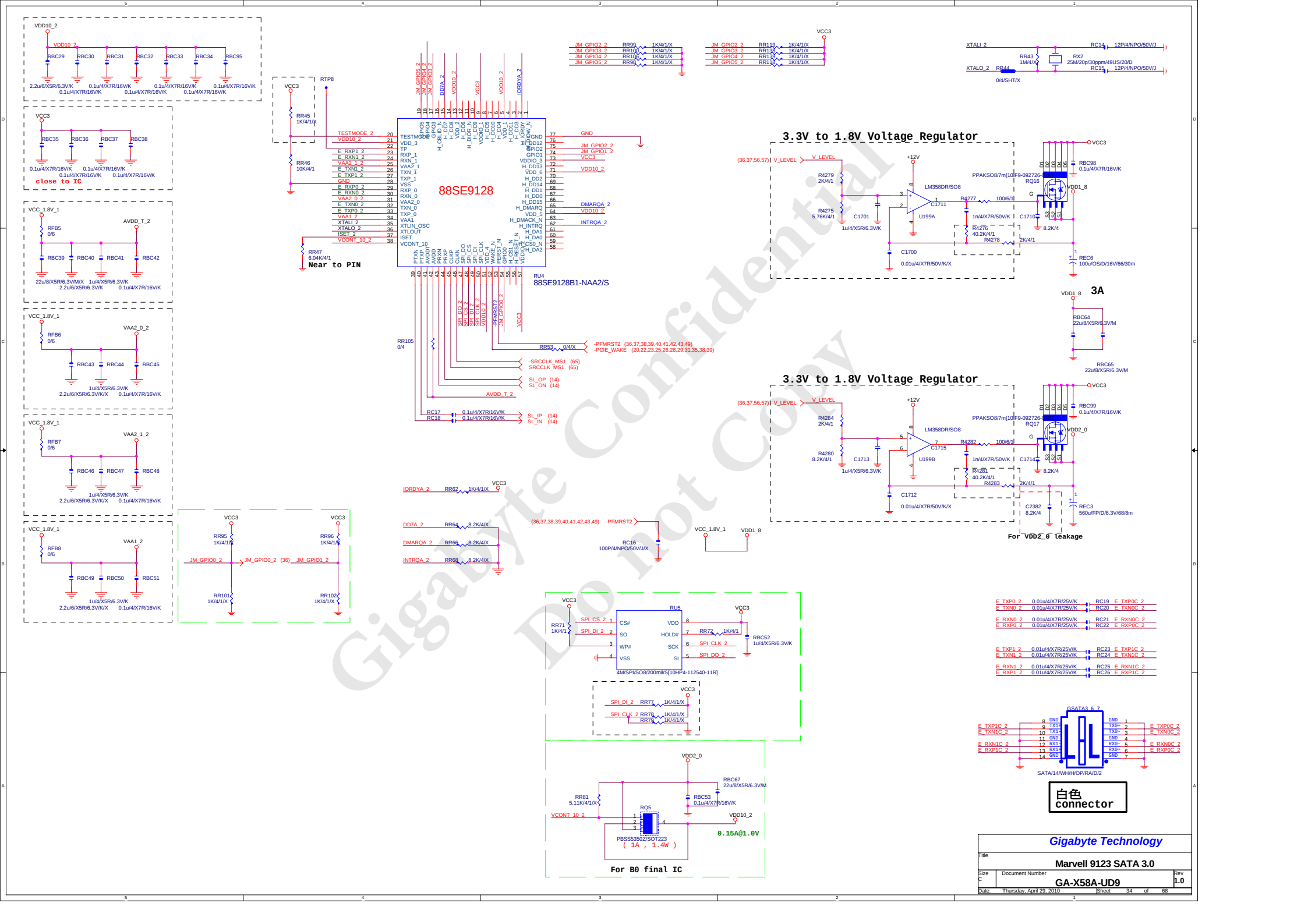
RB 必須放在BAT外

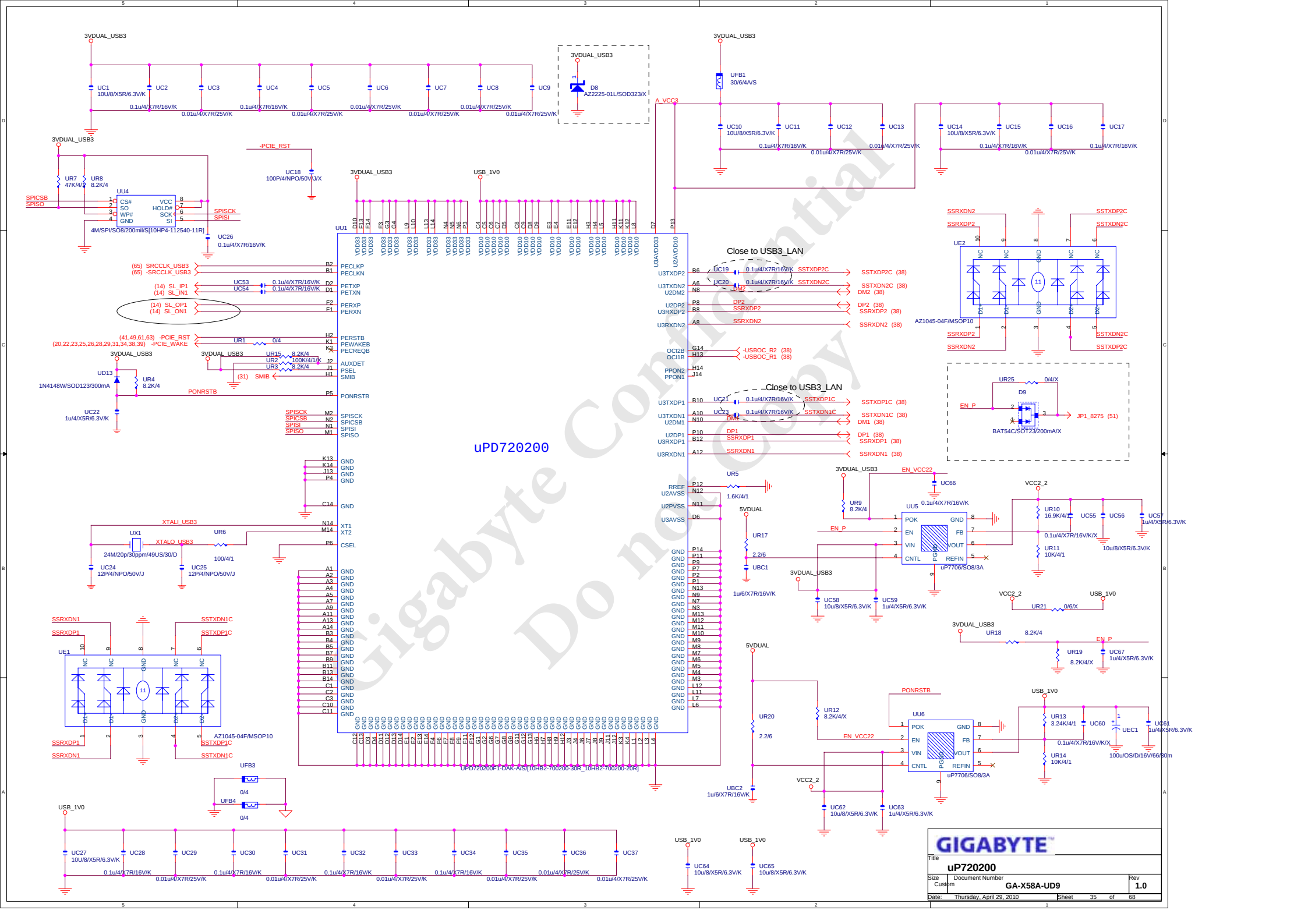
Gigabyte Technology			
Title: ICH10 GPIO, CTRL			
Size: B	Document Number: GA-X58A-UD9		Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 31 of 68		


ICH9
SATA
HOST
3 OF 6
Slot藍色
SATA2_4_5
SATA2_2_3
SATA2_0_1
SATA/14/BU/H/OP/RA/D/2
Gigabyte Technology
ICH10- SATA, FAN CTRL
GA-X58A-UD9
Rev 1.0
Thursday, April 29, 2010
Sheet 32 of 68
Gigabyte Confidential
Do not Copy



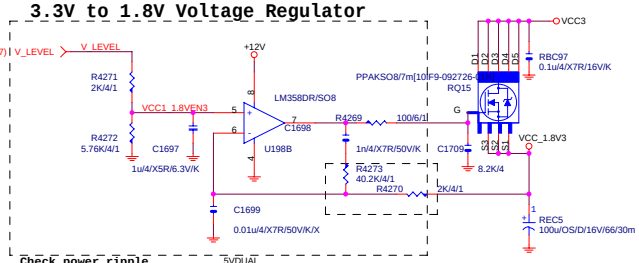
Gigabyte Technology	
Title	ICH10-PWR & GND
Size C	Document Number GA-X58A-UD9
Rev	1.0
Date:	Thursday, April 29, 2010
Sheet	33 of 68

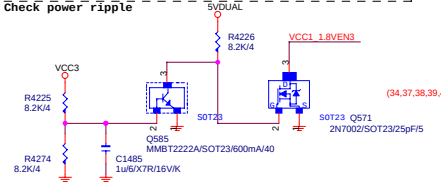

88SE9128
RU4
88SE9128B1-NAA2/S
3.3V to 1.8V Voltage Regulator
3A
3.3V to 1.8V Voltage Regulator
For VDD2_0 leakage
close to IC
Near to PIN
For B0 final IC
白色 connector
Gigabyte Technology
Marvell 9123 SATA 3.0
GA-X58A-UD9
Rev 1.0
Thursday, April 29, 2010
Sheet 34 of 68
Gigabyte Confidential
Do not Copy

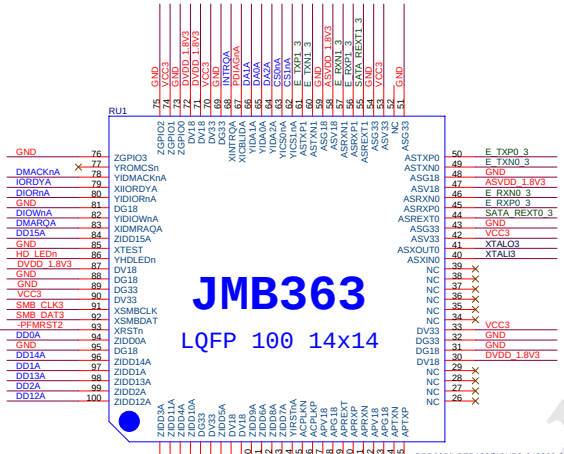


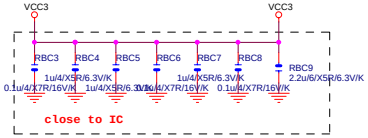
Title	uP720200
Size	Custom
Document Number	GA-X58A-UD9
Rev	1.0
Date:	Thursday, April 29, 2010
Sheet	35 of 68

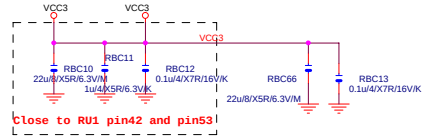
3.3V to 1.8V Voltage Regulator

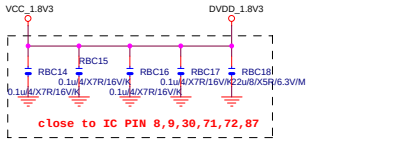


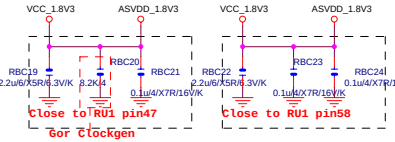


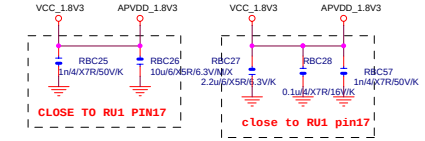


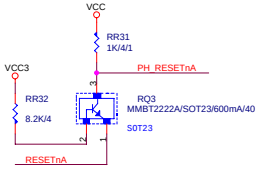


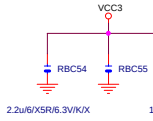


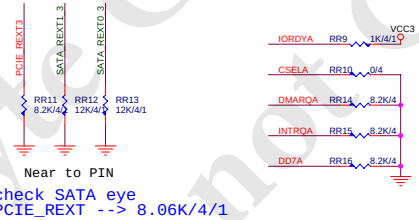


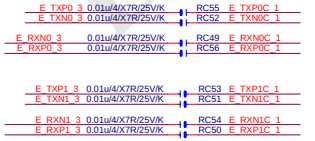


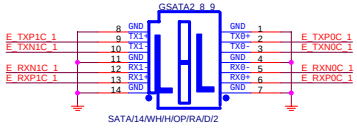




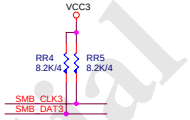


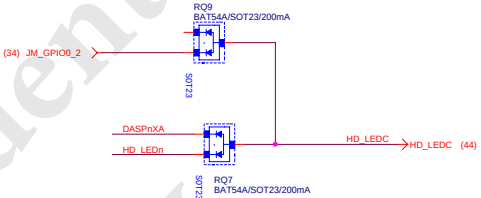


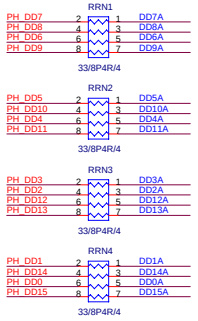


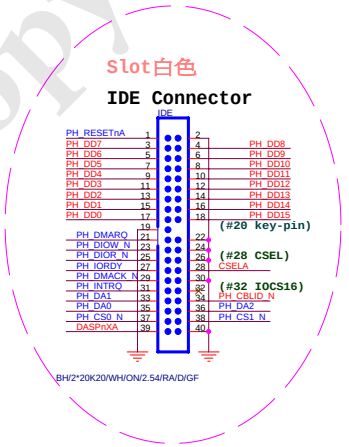


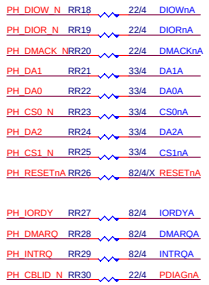
白色 connector





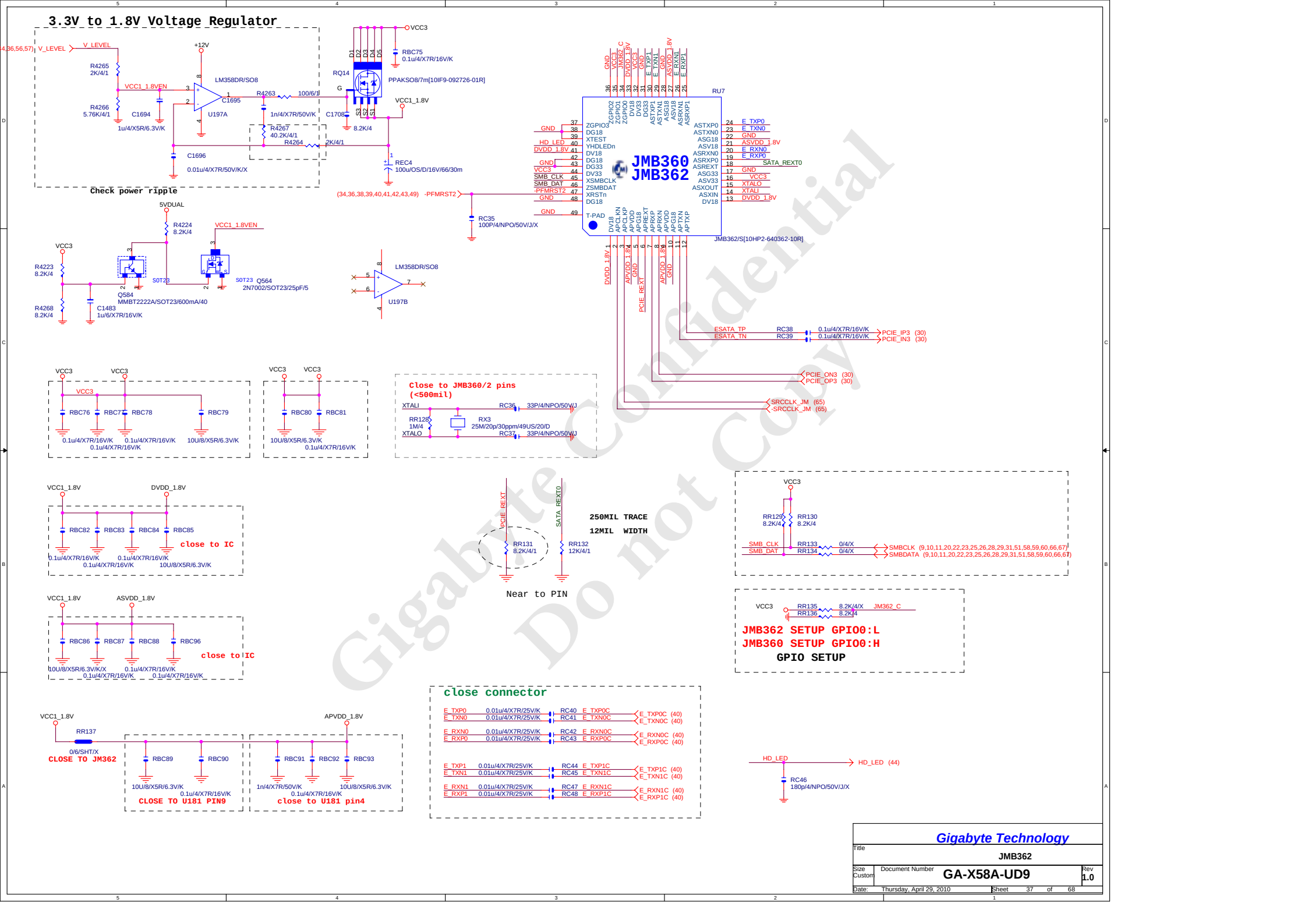






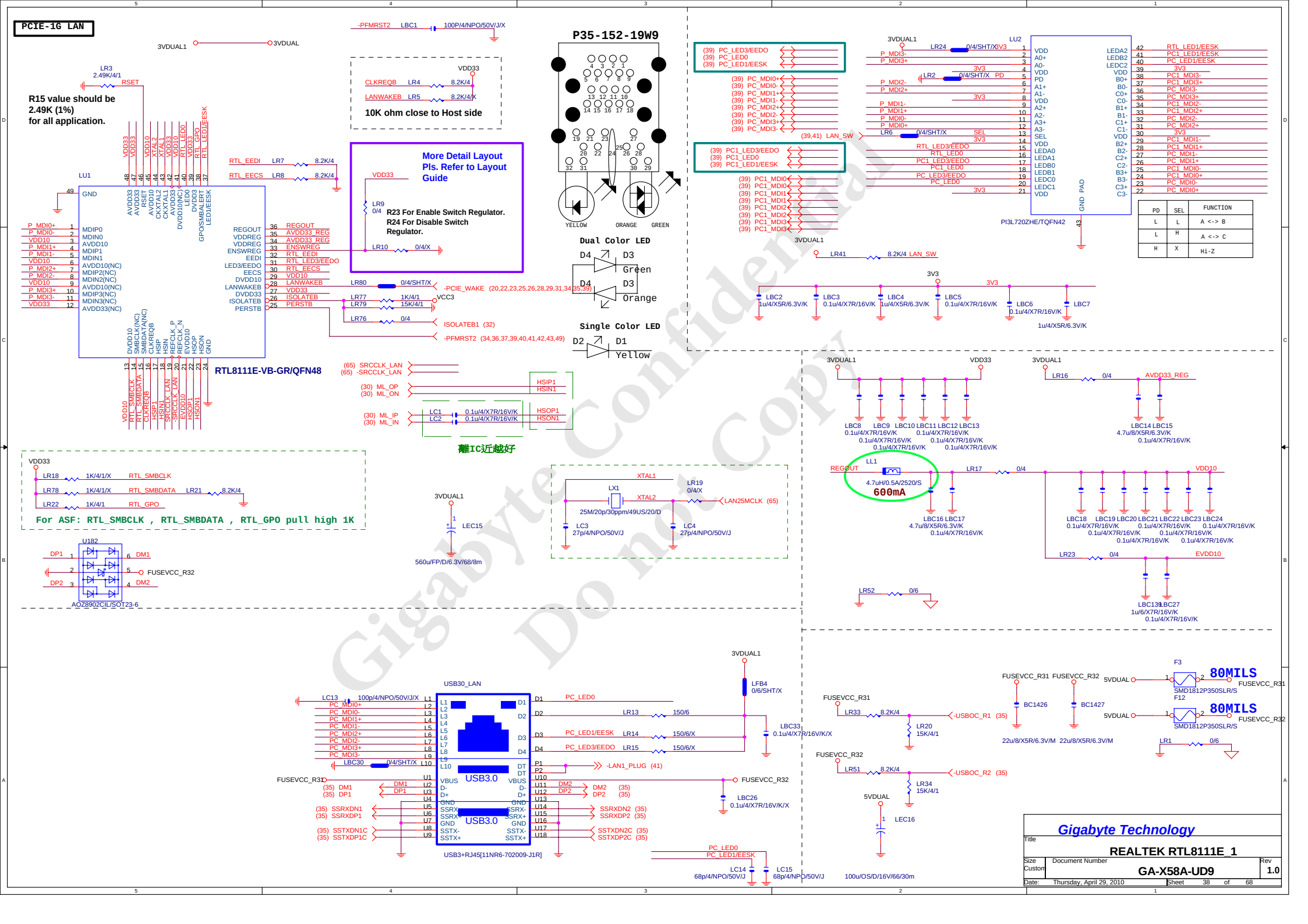
Gigabyte Technology		
Title: JMB363		
Size: C	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 36 of 68	

3.3V to 1.8V Voltage Regulator



Gigabyte Technology			
Title: JMB362			
Size: Custom	Document Number: GA-X58A-UD9		Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 37 of 68		

PCIE-1G LAN



Gigabyte Technology		
Title	REALTEK RTL8111E_1	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 38 of 68	

PCIE-1G LAN

R15 value should be 2.49K (1%) for all application.

LR55 2.49K/4/1 RSET_1

LU3 RTL8111E-VB-GR/QFN48

More Detail Layout Pls. Refer to Layout Guide

R23 For Enable Switch Regulator.
R24 For Disable Switch Regulator.

10K ohm close to Host side

P35-152-19W9

Dual Color LED

Single Color LED

PI3L720HE/TQFN42

PD	SEL	FUNCTION
L	L	A <-> B
L	H	A <-> C
H	X	Hi-Z

離IC近越好

For ASF: RTL_SMBCLK , RTL_SMBDATA , RTL_GPO pull high 1K

USB_LAN CONNECTOR

LAN 100歐姆:[20/7/8/7/20]

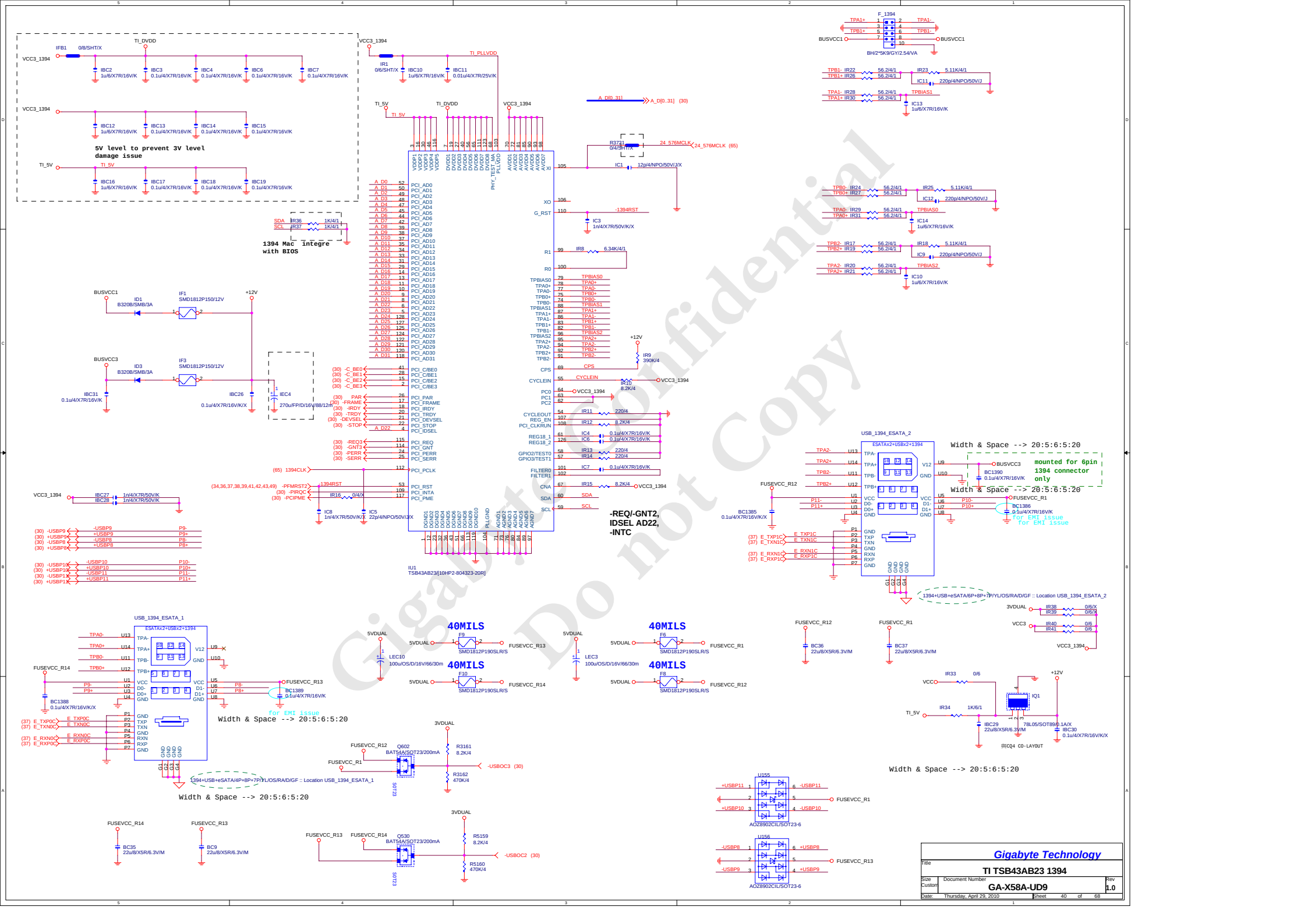
90歐姆:[15/4.5/7.5/4.5/15]

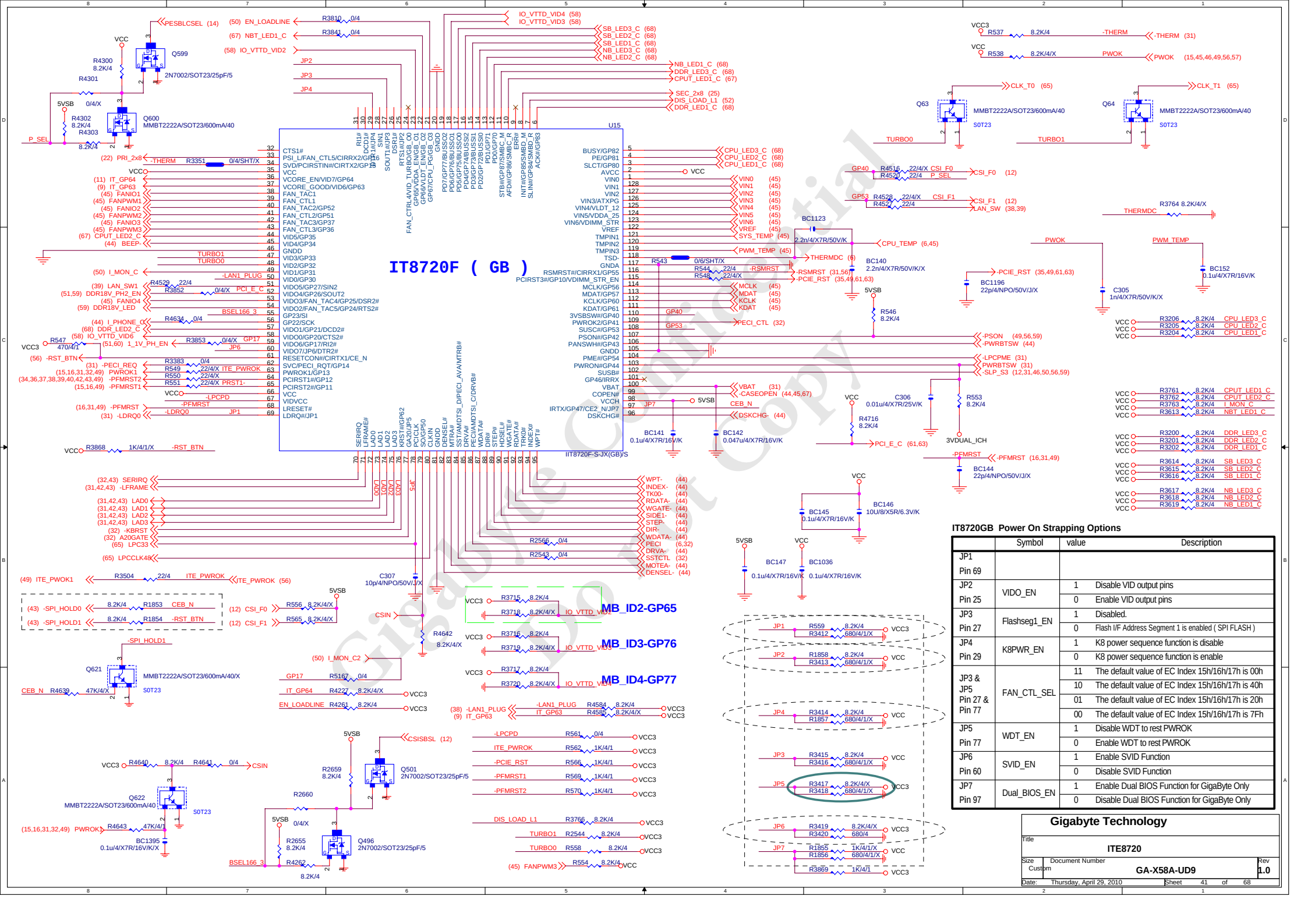
Close to connector

AOZ8902CIL/SOT23-6

USB+LAN/1G/GO,Y/OS/RA/D/1[11NR6-702009-F1R]

Gigabyte Technology	
Title	REALTEK RTL8111C/D_1
Size / Custom	Document Number: GA-X58A-UD9
Rev	1.0
Date:	Thursday, April 29, 2010
Sheet	39 of 68


5V level to prevent 3V level damage issue
1394 Mac integre with BIOS
-REQ/-GNT2, IDSEL AD22, -INTC
IU1 TSB43AB23/(10HP2-804323-20R)
Width & Space --> 20:5:6:5:20
mounted for 6pin 1394 connector only
for EMI issue
40MILS
1394+USB+eSATA/4P+8P+7P/YL/OS/RA/D/GF :: Location USB_1394_ESATA_1
1394+USB+eSATA/6P+8P+7P/YL/OS/RA/D/GF :: Location USB_1394_ESATA_2
Gigabyte Technology
TI TSB43AB23 1394
GA-X58A-UD9
Rev 1.0
Thursday, April 29, 2010
Sheet 40 of 68
Gigabyte Confidential
Do not Copy



IT8720GB Power On Strapping Options

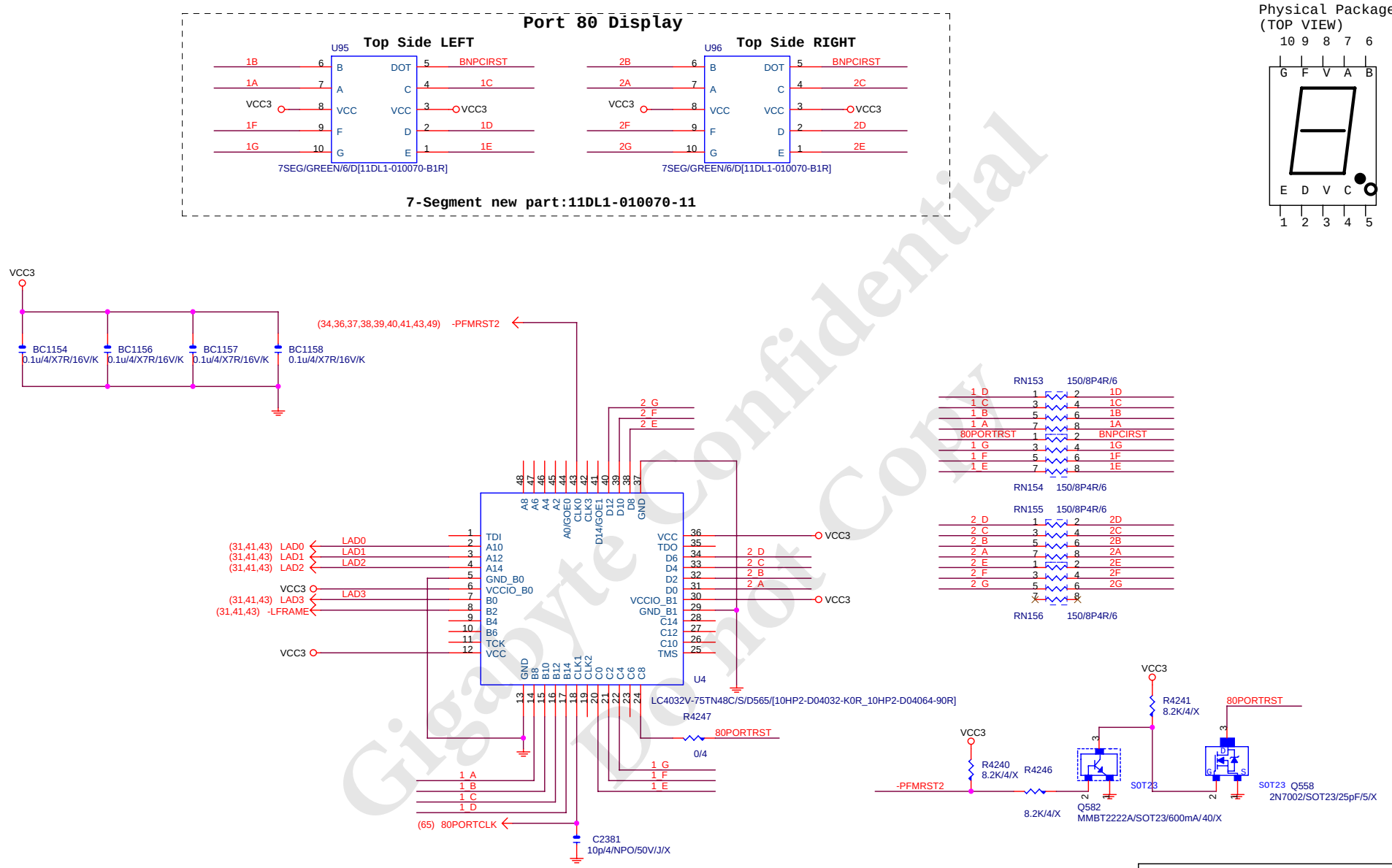
	Symbol	value	Description
JP1 Pin 69			
JP2 Pin 25	VIDO_EN	1	Disable VID output pins
		0	Enable VID output pins
JP3 Pin 27	Flashseg1_EN	1	Disabled.
		0	Flash I/F Address Segment 1 is enabled (SPI FLASH)
JP4 Pin 29	K8PWR_EN	1	K8 power sequence function is disable
		0	K8 power sequence function is enable
JP3 & JP5 Pin 27 & Pin 77	FAN_CTL_SEL	11	The default value of EC Index 15h/16h/17h is 00h
		10	The default value of EC Index 15h/16h/17h is 40h
		01	The default value of EC Index 15h/16h/17h is 20h
		00	The default value of EC Index 15h/16h/17h is 7Fh
JP5 Pin 77	WDT_EN	1	Disable WDT to rest PWROK
		0	Enable WDT to rest PWROK
JP6 Pin 60	SVID_EN	1	Enable SVID Function
		0	Disable SVID Function
JP7 Pin 97	Dual_BIOS_EN	1	Enable Dual BIOS Function for GigaByte Only
		0	Disable Dual BIOS Function for GigaByte Only

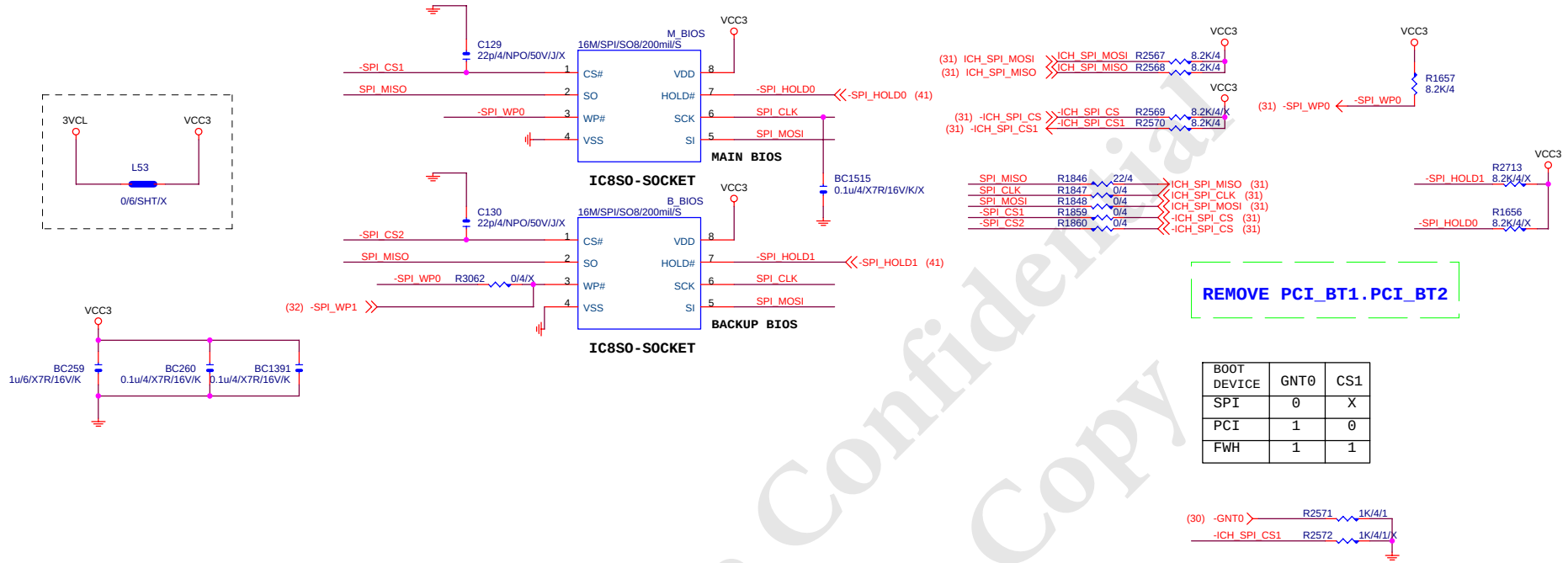
Gigabyte Technology

Title: ITE8720

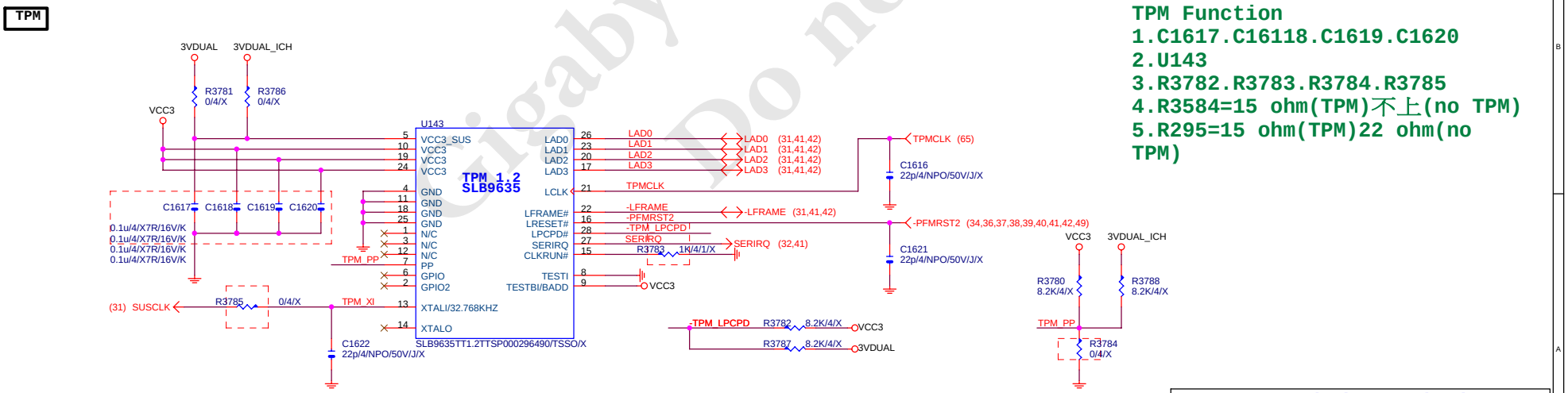
Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

Date: Thursday, April 29, 2010 | Sheet 41 of 68



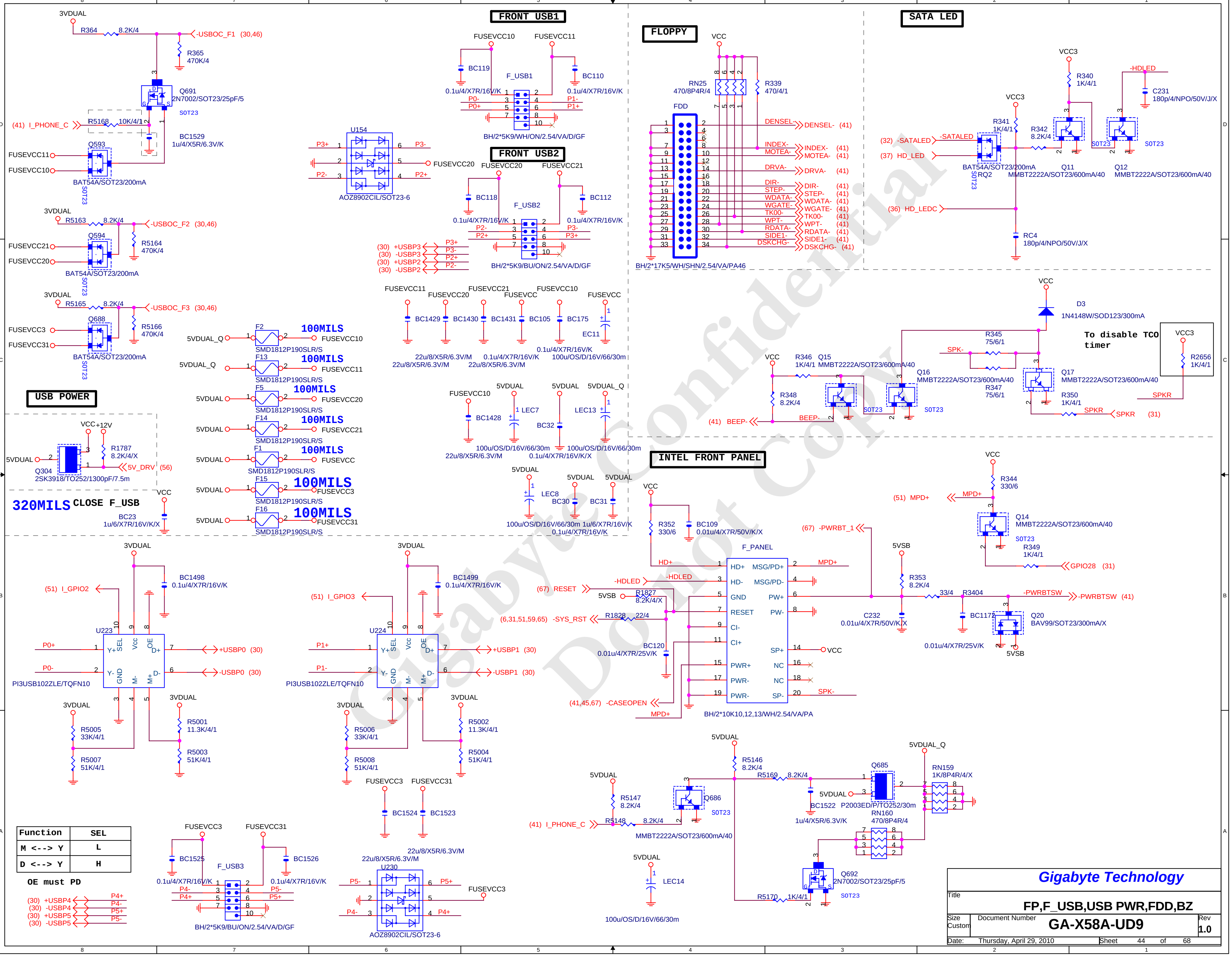


BOOT DEVICE	GNT0	CS1
SPI	0	X
PCI	1	0
FWH	1	1



TPM Function
1.C1617.C16118.C1619.C1620
2.U143
3.R3782.R3783.R3784.R3785
4.R3584=15 ohm(TPM)不上(no TPM)
5.R295=15 ohm(TPM)22 ohm(no TPM)

Gigabyte Technology		
Title: DUAL BIOS TPM		
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 43 of 68	



Function	SEL
M <--> Y	L
D <--> Y	H

OE must PD

Gigabyte Technology

Title: FP,F_USB,USB PWR,FDD,BZ

Size: Custom | Document Number: GA-X58A-UD9 | Rev: 1.0

Date: Thursday, April 29, 2010 | Sheet 44 of 68

TEMP H/W MONITOR

(41) VREF
(41) SYS_TEMP
(41) PWM_TEMP
(6,41) CPU_TEMP
R1651 10K/4/1
R269 10K/4/1
R270 30K/4/1/X
C1294 1u/6/X7R/16V/K
C1295 1u/6/X7R/16V/K
RS1 10K/1/4/S
RS5 10K/1/4/S
C1296 1n/4/X7R/50V/K/X

CPU SMART FAN

+12V
C1468 1n/4/X7R/50V/K
FOR EMI ONLY

+12V
BC1114 0.1u/4/X7R/16V/K/X
SYS_FAN3
FAN/1*3/WH/A3/PA66

+12V
R4638 0/6/SHT/X
BC1115 0.1u/4/X7R/16V/K/X
NB_FAN
FAN/1*3/WH/A3/PA66

Q62 BAV99/SOT23/300mA/X
Anti Spike
VCC

CASE OPEN

(31,33) RTCVDD
R279 1M/4
-CASEOPEN
-CASEOPEN (41,44,67)
C1297 0.01u/4/X7R/25V/K

Case Open Circuits

+12V
VCC3 VCC
CPUFAN_VCC
R2601 1K/4/1
R1744 1K/4/1/X
R1746 22K/4
R385 22K/4
BC114 0.1u/4/X7R/16V/K
R1743 8.2K/4
U89B
LM358DR/SO8
(41) FANPWM1
R2604 0/4S/X
BC115 1u/6/X7R/16V/K
R391 8.2K/4
Q21
PA102FDG/TO252/115m/430
CPUFAN_VCC
CE2 100u/OS/D/16V/66/30m
(41) FANPWM3
R381 100/6/1
R1592 0/6/X
CPU_FAN
FAN/1*4/WH/A3/PA66
R378 3.3K/4/1
R379 15K/4/1
R390 0/4S/X
R1745 6.2K/4/1
C1331 0.047u/4/X7R/16V/K
FANIO1 (41)

VOLTAGE-- H/W MONITOR

VCORE DDR15V VCC3 +12V
VCC11_IOUT (51,60)
DDR_IOUT (51,59)
CURRENT_OUT_V (46)
CUR_DETECT
R366 8.2K/4
R367 8.2K/4
R3797 8.2K/4/X
R368 8.2K/4
R3798 8.2K/4/X
R369 24K/4/1
R370 10K/4/1
R2922 10K/4/1
(41) VIN0
(41) VIN1
(41) VIN2
(41) VIN5
(41) VIN4
(41) VIN6
C1623 1u/6/X7R/16V/K
C1624 1u/6/X7R/16V/K
R2576 8.2K/4
C1637
C1476 1u/6/X7R/16V/K

SYS FAN

+12V
R1814 3.3K/4/1
R1815 0/4S/X
FANIO3 (41)
R2639
15K/4/1
R2624 6.2K/4/1
C1351 0.047u/4/X7R/16V/K
PWR_FAN
FAN/1*3/WH/A3/PA66

+12V
R3039 3.3K/4/1
R3041
R3040 0/4S/X
FANIO4 (41)
SYS_FAN1
15K/4/1
R3043 6.2K/4/1
C1454 0.047u/4/X7R/16V/K
FAN/1*3/WH/A3/PA66

Linear SYS_FAN

SYSFAN_VCC
VCC VCC3
R2494 1K/4/1/X
R2599 1K/4/1
R2491 22K/4
R2498 8.2K/4
U89A
LM358DR/SO8
SFAN_OP+
R2600 22K/4
R2603
(41) FANPWM2
0/4S/X
BC726 1u/6/X7R/16V/K
R2670 8.2K/4
Q344
PA102FDG/TO252/115m/430
SYSFAN_VCC
100u/OS/D/16V/66/30m
EC173
VCC
R2625 8.2K/4
R2489 0/6/X
R2488 3.3K/4/1
R2626 0/4S/X
R2490 15K/4/1
R2493 6.2K/4/1
C1364 0.047u/4/X7R/16V/K
FANIO2 (41)
SYS_FAN2
FAN/1*4/WH/A3/PA66

KB/MS

(41) MCLK
(41) MDAT
(41) KCLK
(41) KDAT
RN138
MCLK MDAT KCLK KDAT
MSCLK MSDATA KBCLK KBDATA
82/8P4R/6
CN1
MSDATA KBCLK KBDATA MSCLK
180P/8P4C/6/NPO/50V/K
For EMI

FUSEVCC
RN29
KDAT KCLK MDAT MCLK
8.2K/8P4R/4

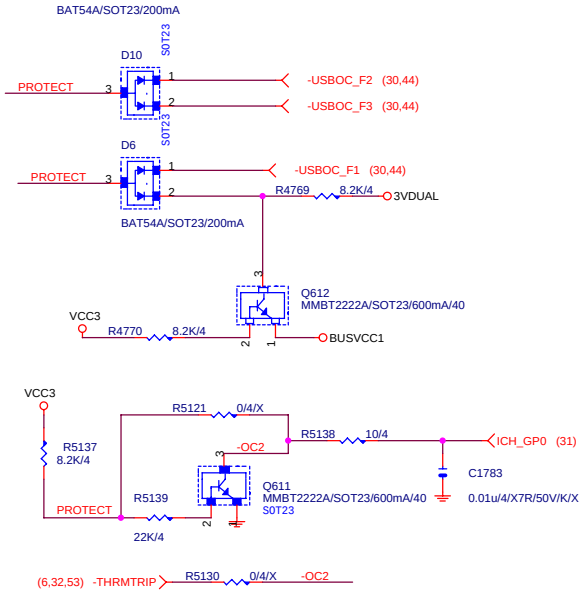
KB_MS
MSDATA MSCLK KBDATA KBCLK
MS KB
KB/MS/6P/PC99/OS/RA/D/2
FUSEVCC
BC108 0.1u/4/X7R/16V/K
BC258 0.1u/4/X7R/16V/K

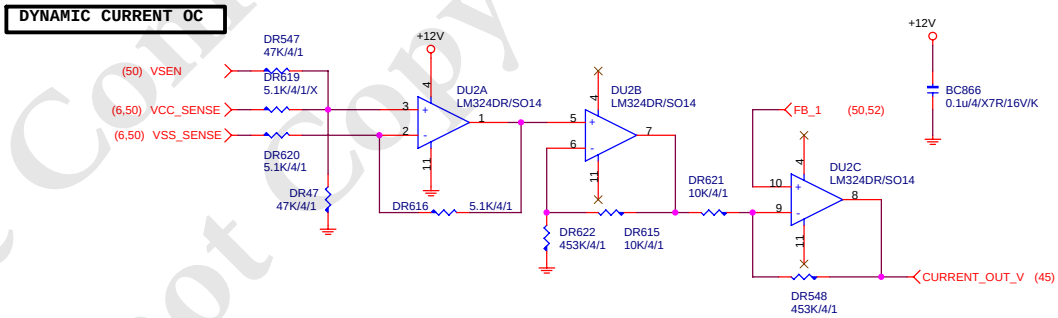
U180
KBDATA KBCLK MSCLK MSDATA
FUSEVCC
AOZ8902CIL/SOT23-6/X

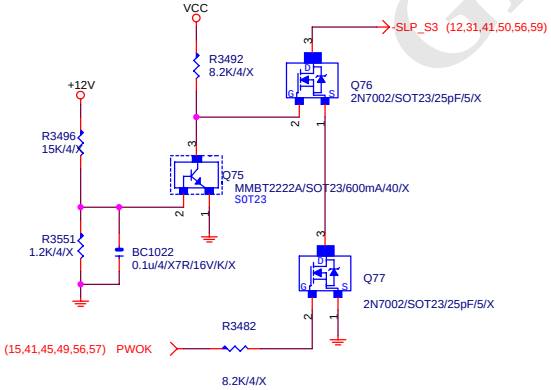
R3799 0/4
PWOK (15,41,46,49,56,57)
VCC3
R3800 8.2K/4/X
SOT23
(41) VIN3
VIN3
Q532
BAT54A/SOT23/200mA/X
PWOK (15,41,46,49,56,57)

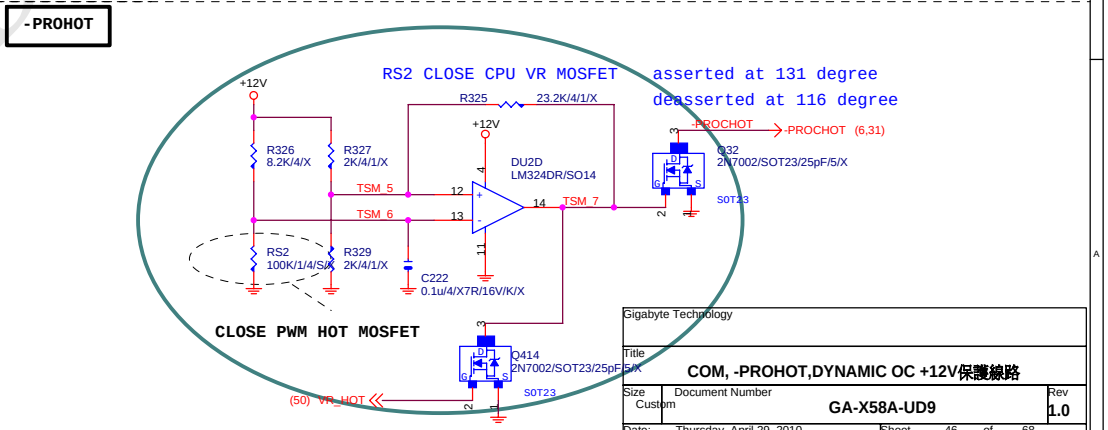
R4257 0/4S/X

Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 45 of 68	









Gigabyte Technology		
Title	COM, -PROHOT,DYNAMIC OC +12V保護線路	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
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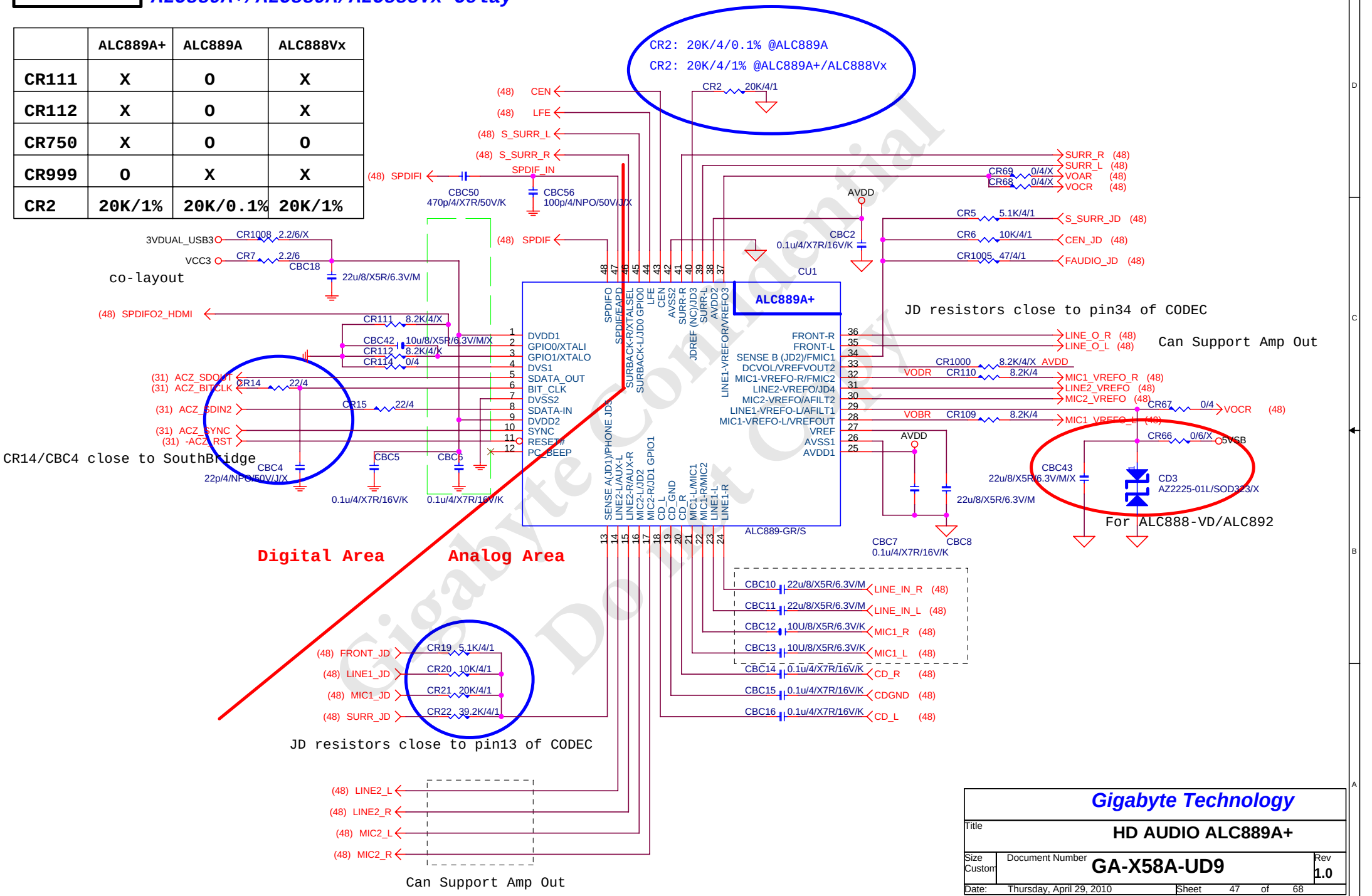
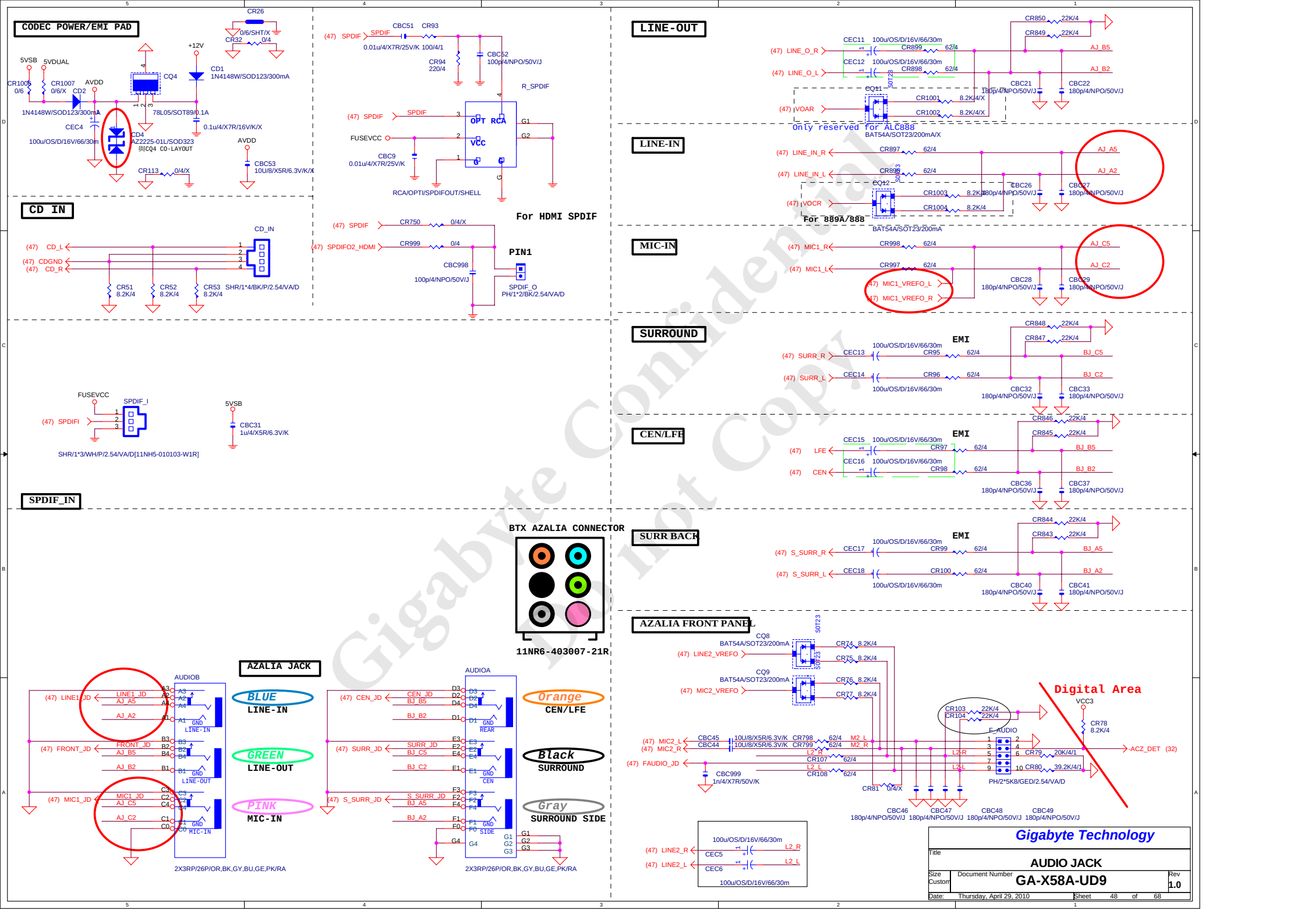
AZALIA CODEC *ALC889A+/ALC889A/ALC888Vx Colay*

	ALC889A+	ALC889A	ALC888Vx
CR111	X	O	X
CR112	X	O	X
CR750	X	O	O
CR999	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%



Gigabyte Technology		
Title	HD AUDIO ALC889A+	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 47 of 68	


CODEC POWER/EMI PAD
CD IN
SPDIF_IN
LINE-OUT
LINE-IN
MIC-IN
SURROUND
CEN/LFE
SURR BACK
AZALIA FRONT PANEL
AZALIA JACK
BTX AZALIA CONNECTOR
11NR6-403007-21R
For HDMI SPDIF
PIN1
Only reserved for ALC888
For 889A/888
EMI
Digital Area
BLUE
LINE-IN
GREEN
LINE-OUT
PINK
MIC-IN
Orange
CEN/LFE
Black
SURROUND
Gray
SURROUND SIDE
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA
Gigabyte Technology
AUDIO JACK
GA-X58A-UD9
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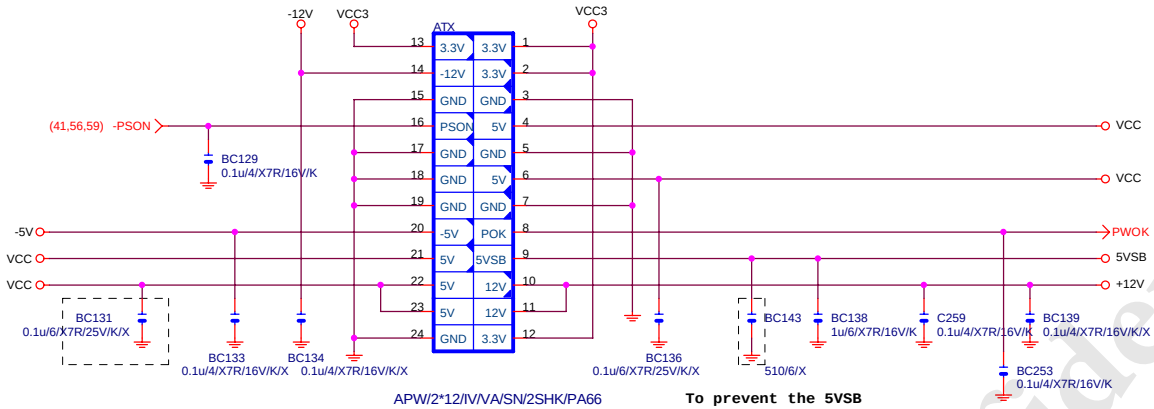
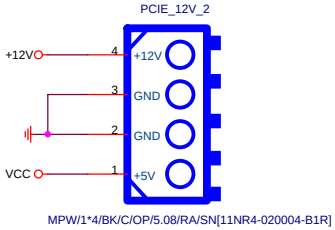
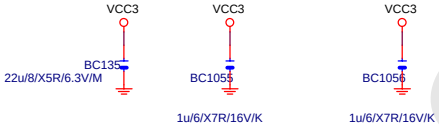
ATX POWER CONNECTOR

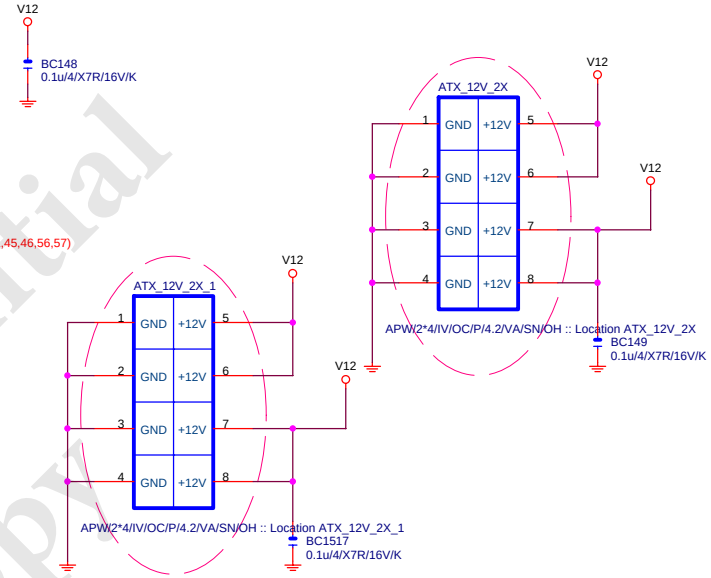


To prevent the 5VSB under loading when boot

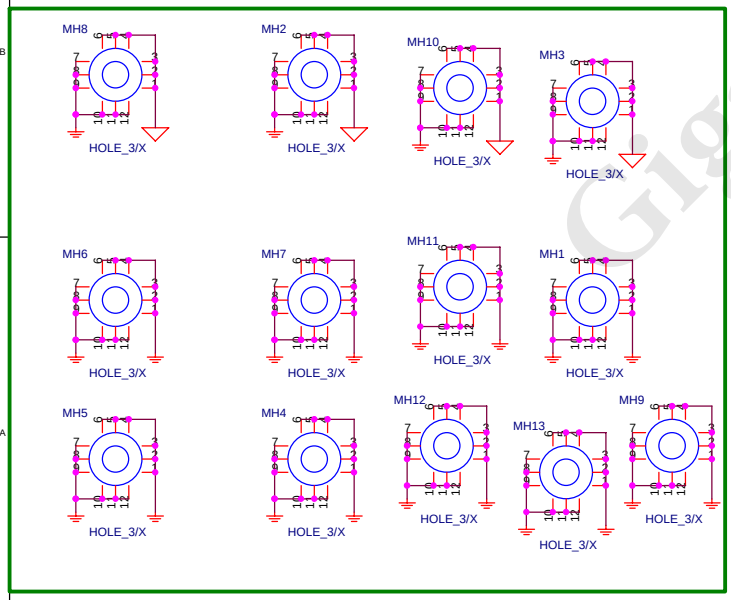


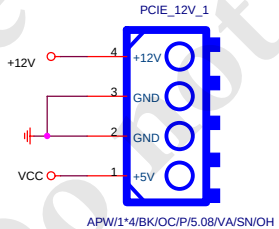
轉90度

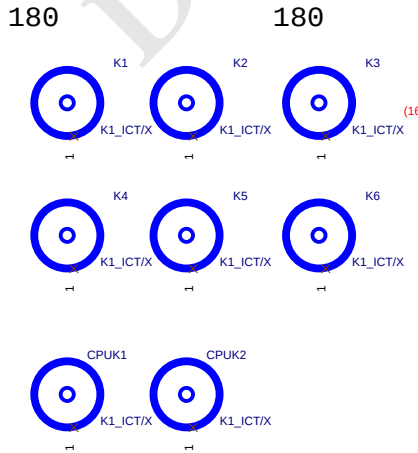


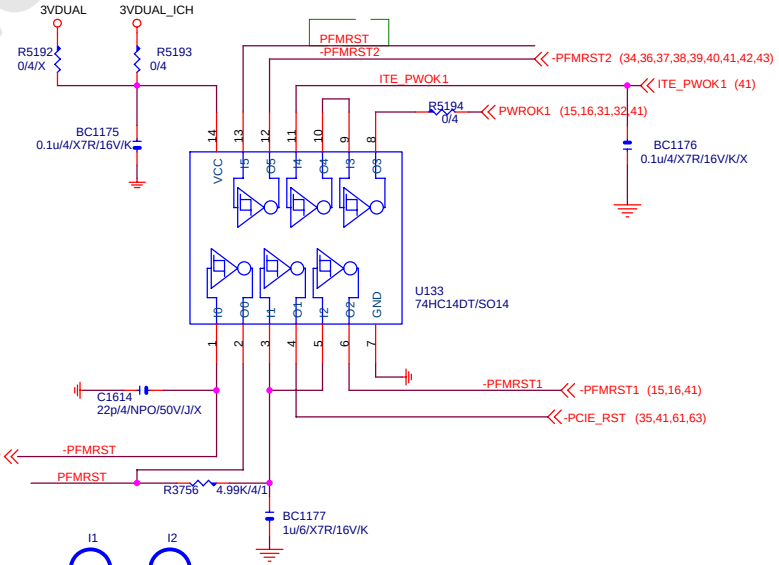


PCB 螺絲孔位置(Footprint不同)

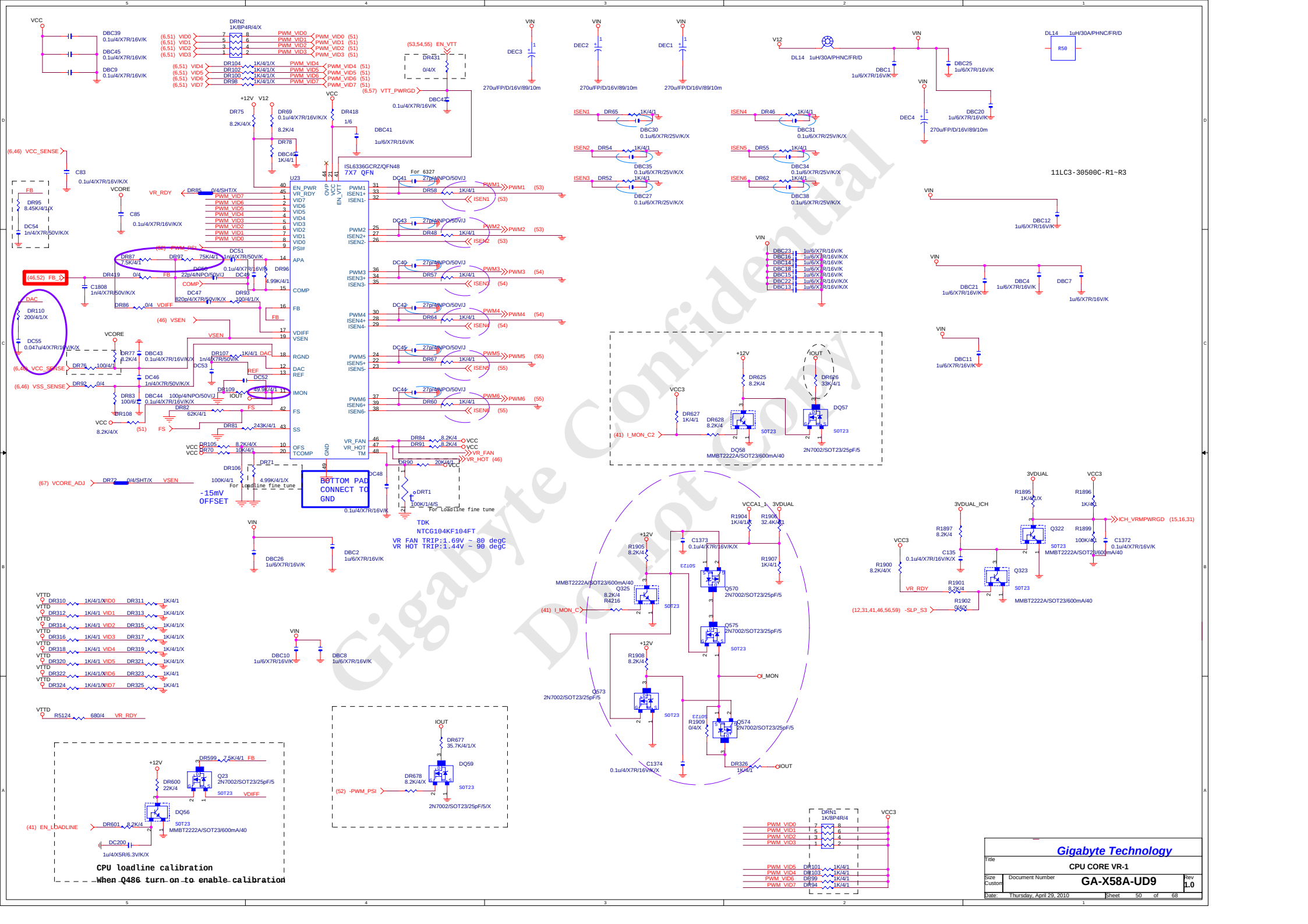








Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: B	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 49 of 68	


U23
ISL6336GCRZ/QFN48
7X7 QFN
BOTTOM PAD
CONNECT TO
GND
-15mV
OFFSET
TDK
NTCG104KF104FT
VR FAN TRIP:1.69V ~ 80 degC
VR HOT TRIP:1.44V ~ 90 degC
CPU loadline calibration
When Q486 turn on to enable calibration
11LC3-30500C-R1~R3
Gigabyte Technology
CPU CORE VR-1
GA-X58A-UD9
Rev 1.0
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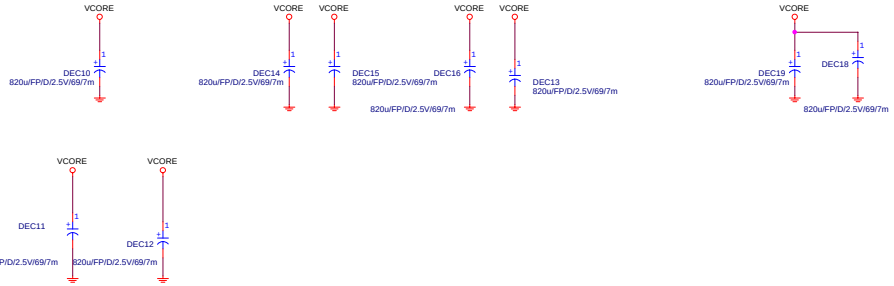
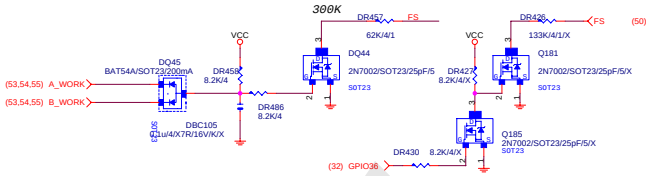
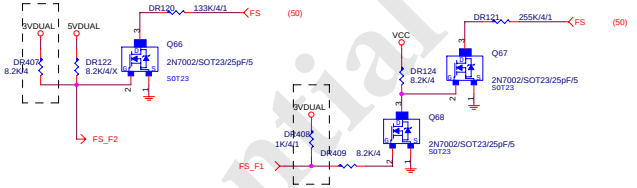
IT8275



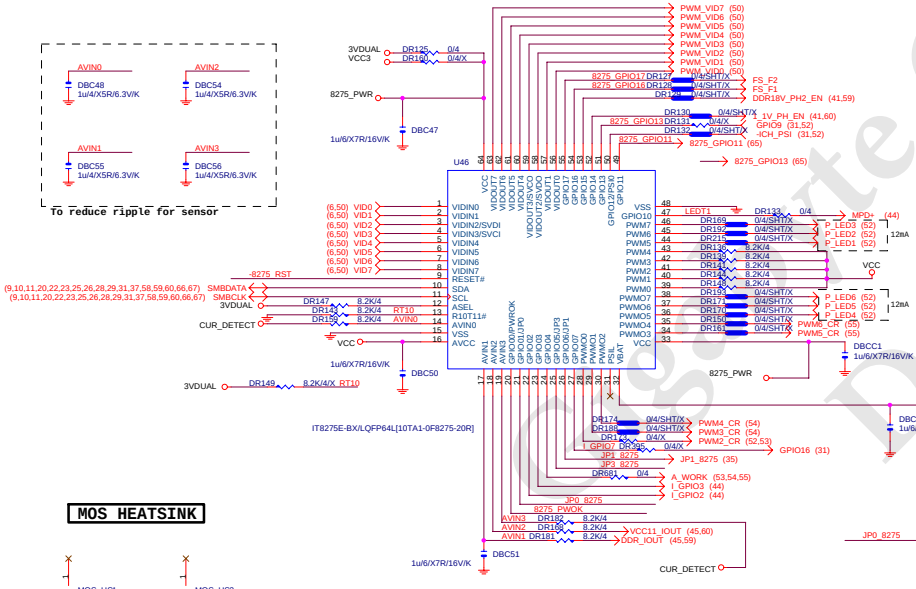


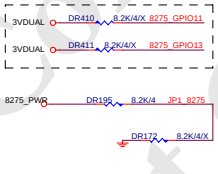


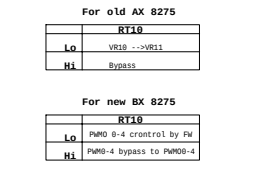
PWM FREQUENCY (400K~1MHz)

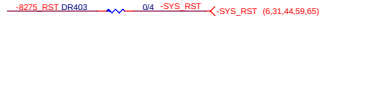
	IT8275 GP17	IT8275 GP16	ICH GP36
400K	L	X	X
500K	L	L	X
600K	X	X	X
700K	X	L	X
1MHz	X	L	L

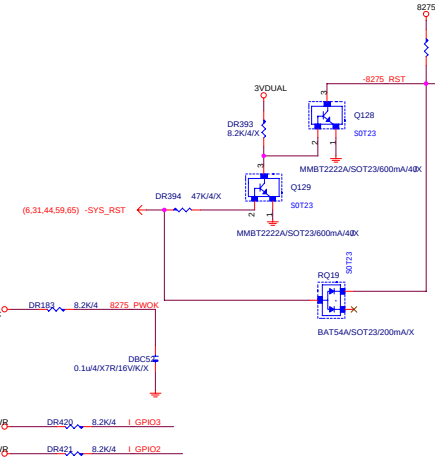
Default

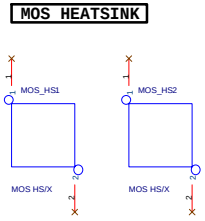












I_GPIO7 DR4 0/4 B_WORK (53,54,55)

(65) 8275_GPIO11 DR672 0/4/X A_WORK (53,54,55)

(65) 8275_GPIO13 DR680 0/4/X B_WORK (53,54,55)

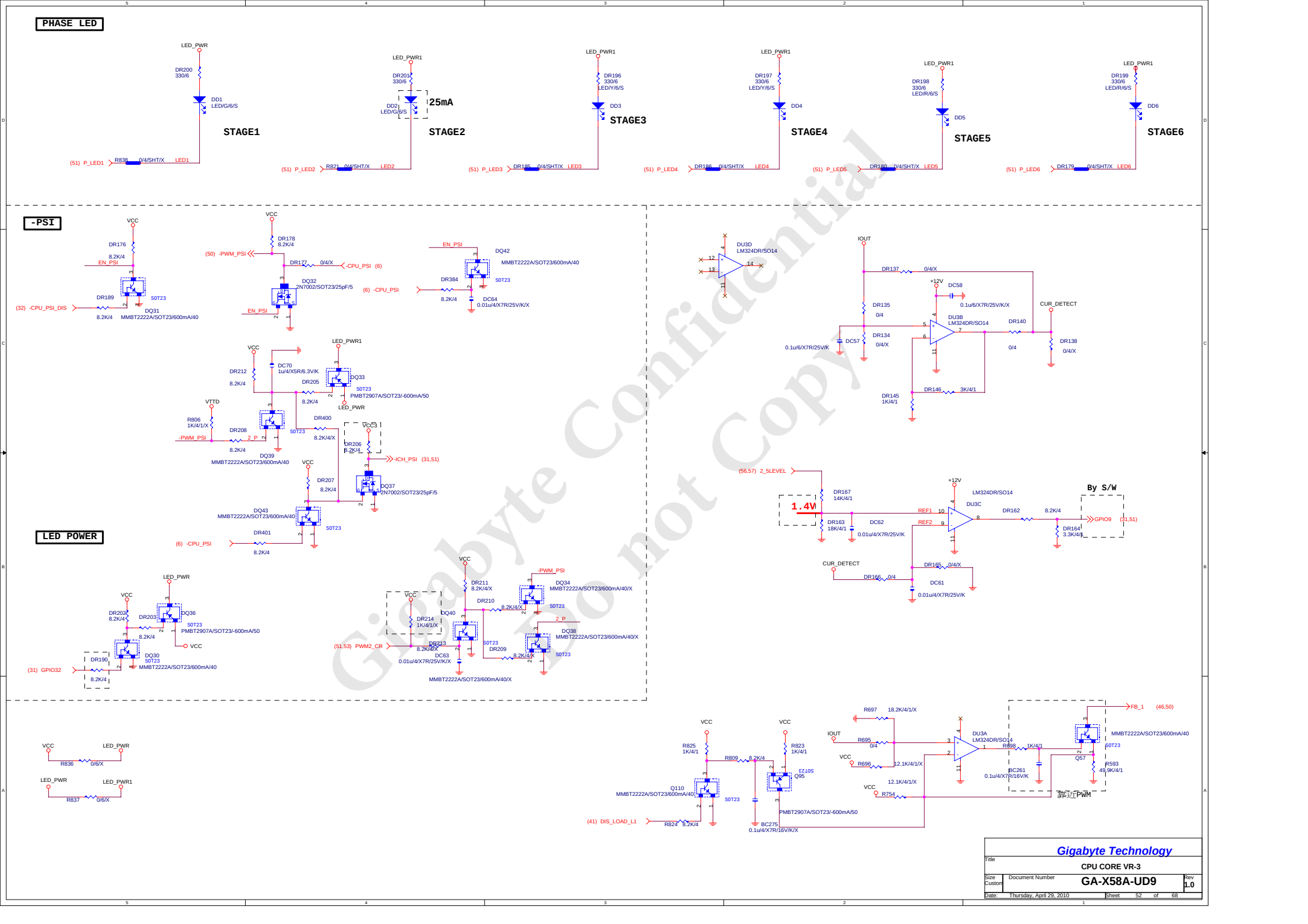
For old AX 8275

	RT10
Lo	VR10 -->VR11
Hi	Bypass

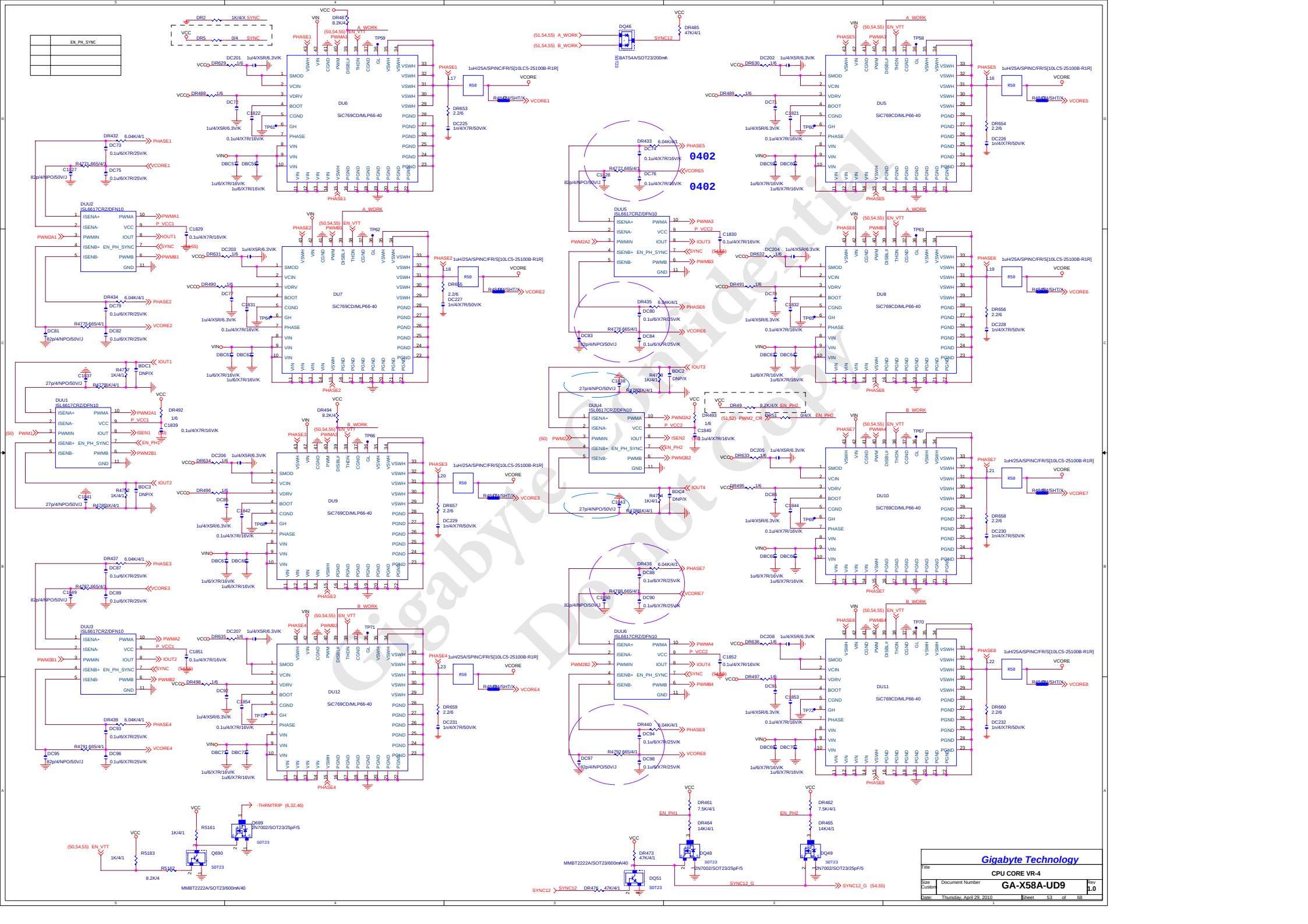
For new BX 8275

	RT10
Lo	PWM0 0-4 crontrol by FW
Hi	PWM0-4 bypass to PWM00-4

Gigabyte Technology			
Title: CPU CORE VR-2			
Size: Custom	Document Number: GA-X58A-UD9		Rev: 1.0
Date: Thursday, April 29, 2010		Sheet 51 of 68	



Gigabyte Technology		
Title	CPU CORE VR-3	
Size: Custom	Document Number: GA-X58A-UD9	Rev: 1.0
Date: Thursday, April 29, 2010	Sheet 52 of 68	


EN_PH_SYNC
DU6 SiC769CD/MLP66-40
DU5 SiC769CD/MLP66-40
DU7 SiC769CD/MLP66-40
DU8 SiC769CD/MLP66-40
DU9 SiC769CD/MLP66-40
DU10 SiC769CD/MLP66-40
DU11 SiC769CD/MLP66-40
DU12 SiC769CD/MLP66-40
DUU1 ISL6617CRZ/DFN10
DUU2 ISL6617CRZ/DFN10
DUU3 ISL6617CRZ/DFN10
DUU4 ISL6617CRZ/DFN10
DUU5 ISL6617CRZ/DFN10
DUU6 ISL6617CRZ/DFN10
0402
0402
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Gigabyte Technology
CPU CORE VR-4
GA-X58A-UD9
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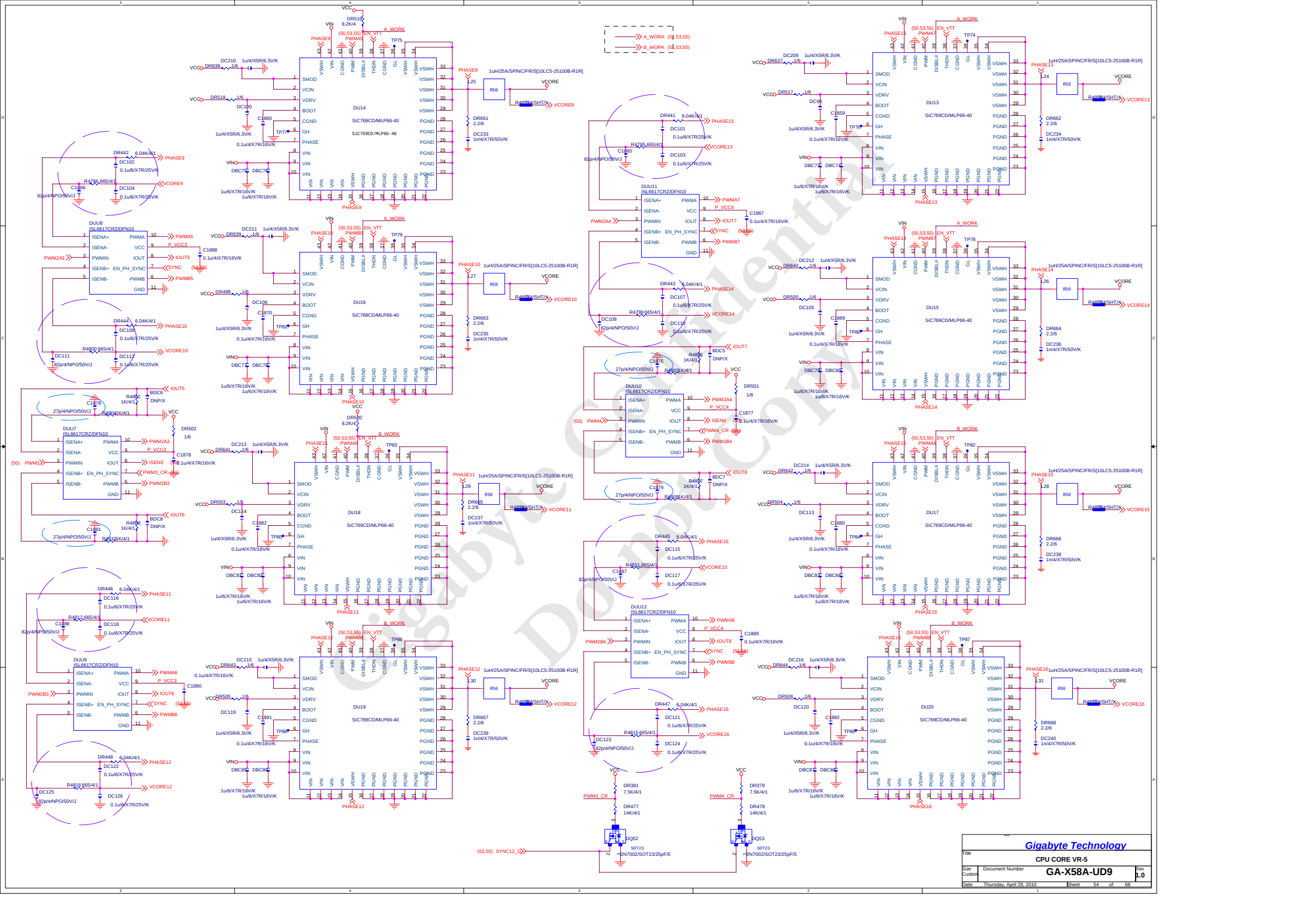
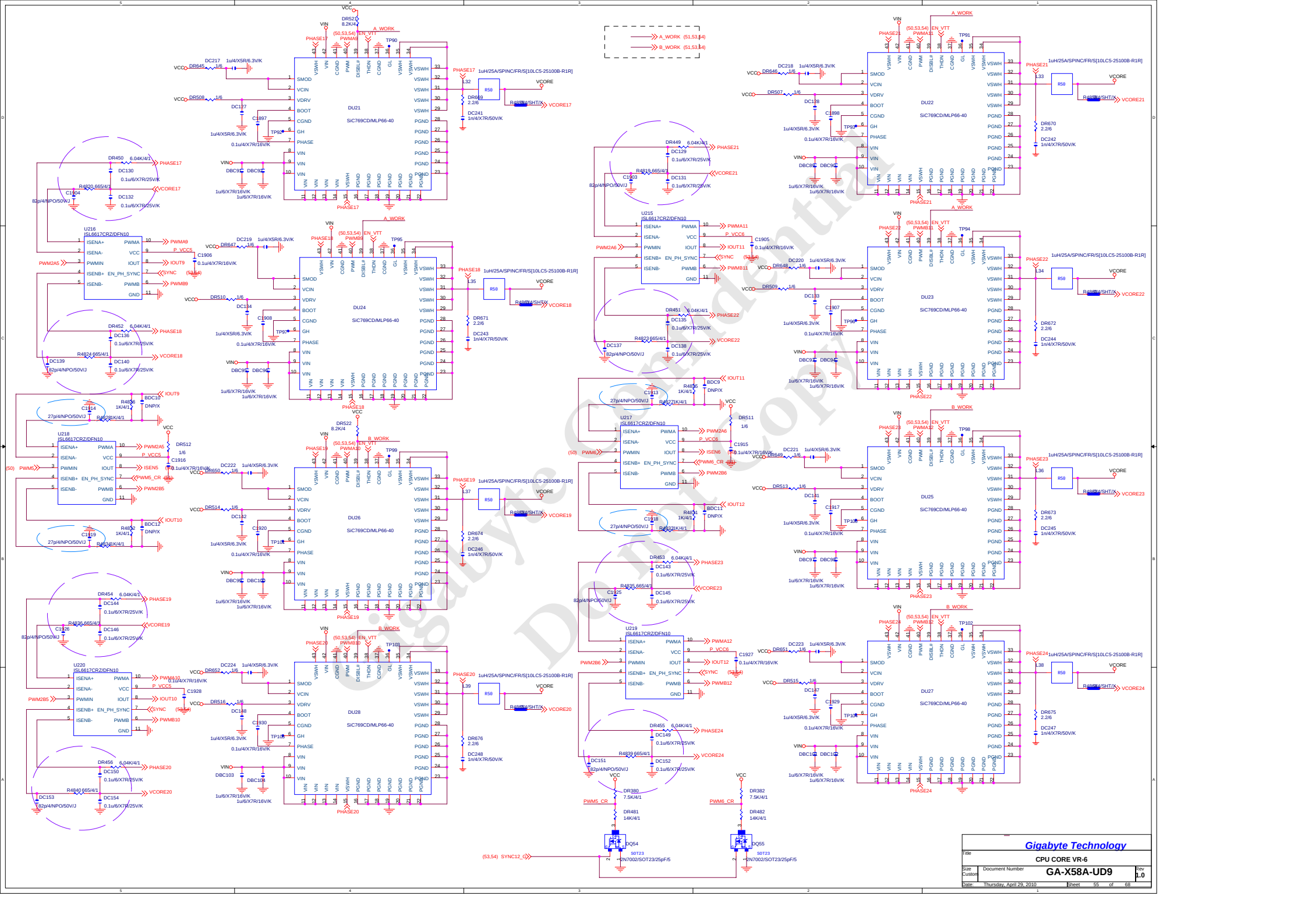
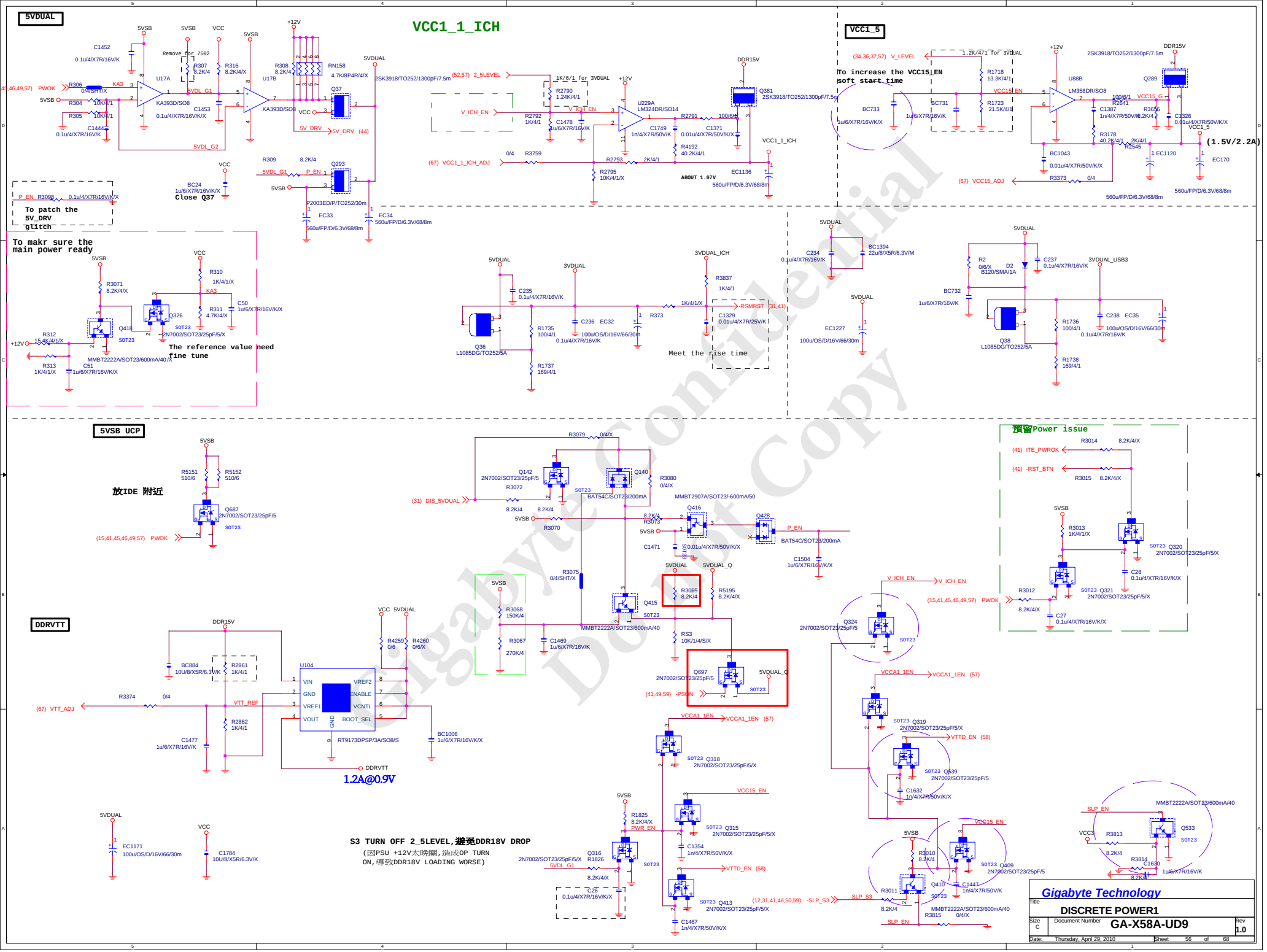




Gigabyte Technology	
Title	CPU CORE VR-6
Size: Custom	Document Number: GA-X58A-UD9
Rev	1.0
Date: Thursday, April 29, 2010	Sheet 55 of 68


5VDUAL
VCC1_1_ICH
VCC1_5
To increase the VCC15 EN soft start time
(1.5V/2.2A)
To patch the 5V_DRV glitch
Close Q37
To makr sure the main power ready
The reference value need fine tune
Meet the rise time
5VSB UCP
放IDE 附近
DDRVTT
1.2A@0.9V
S3 TURN OFF 2_5LEVEL,避免DDR18V DROP
(因PSU +12V太晚關,造成OP TURN ON,導致DDR18V LOADING WORSE)
預留Power issue
Gigabyte Technology
DISCRETE POWER1
GA-X58A-UD9
Rev 1.0
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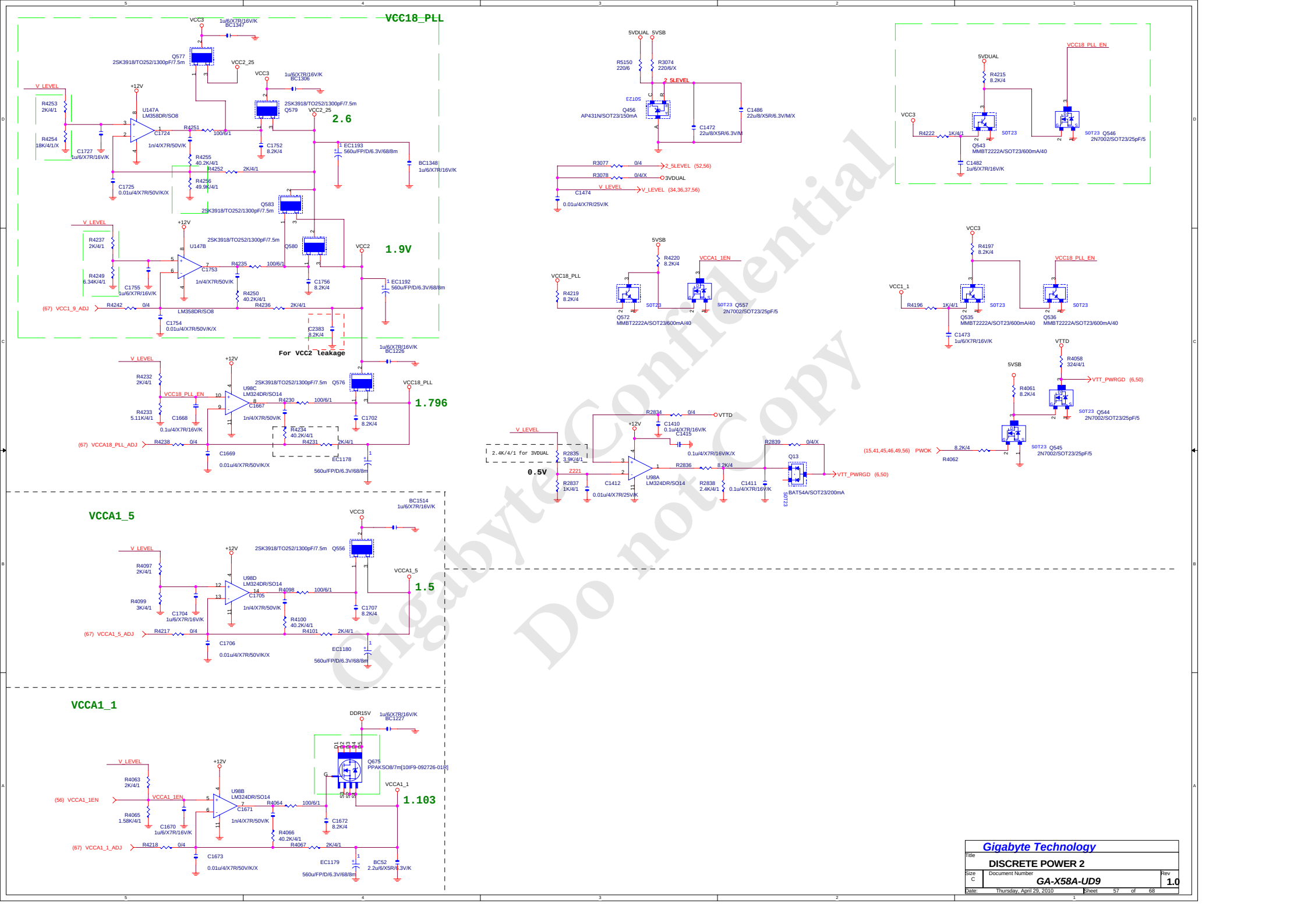
VCC18_PLL
VCCA1_5
VCCA1_1
For VCC2 leakage
2.6
1.9V
1.796
1.5
1.103
0.5V
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Gigabyte Technology
DISCRETE POWER 2
GA-X58A-UD9
1.0
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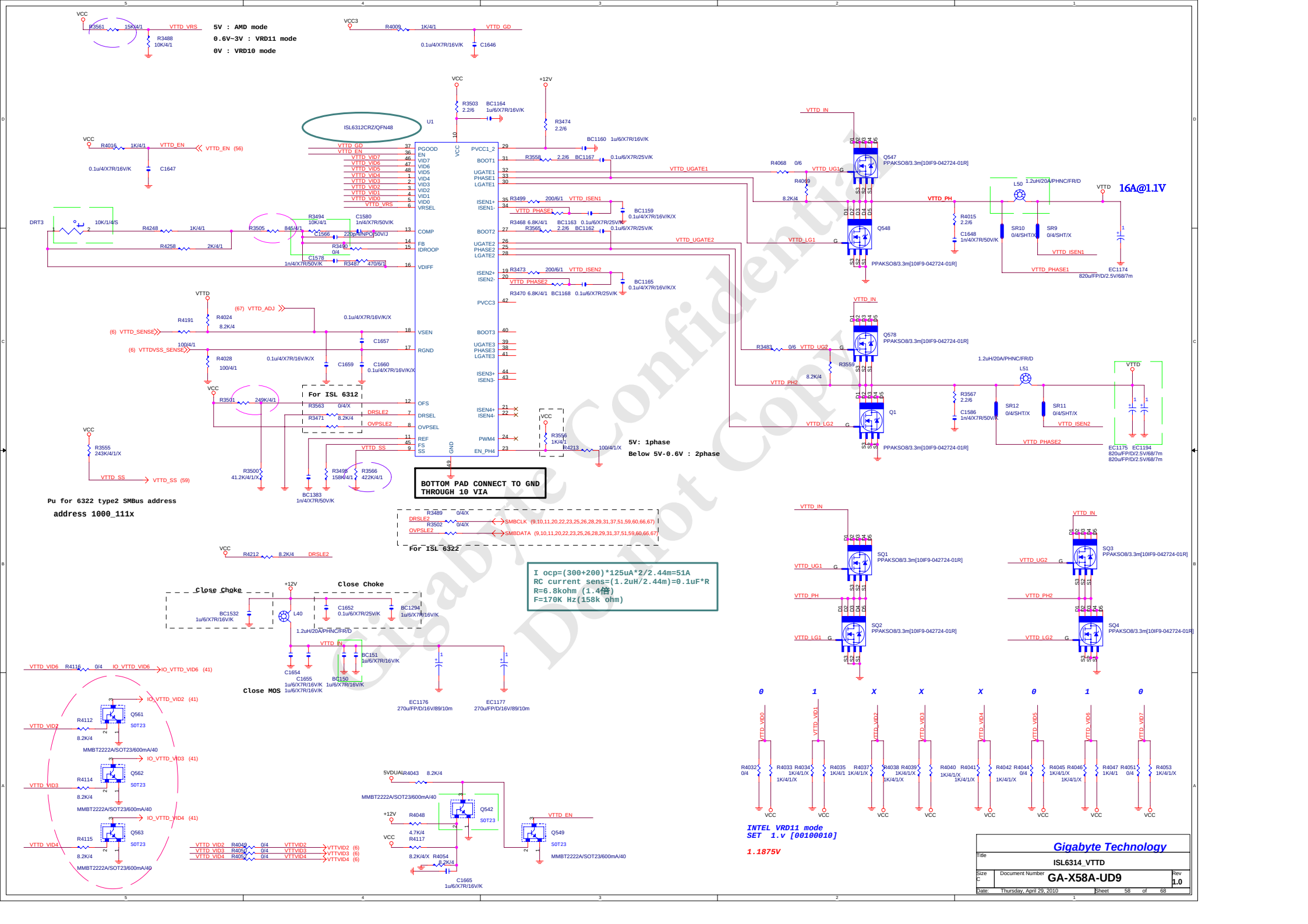
5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode
ISL6312CRZ/QFN48
U1
For ISL 6312
For ISL 6322
5V: 1phase
Below 5V-0.6V : 2phase
BOTTOM PAD CONNECT TO GND THROUGH 10 VIA
Pu for 6322 type2 SMBus address
address 1000_111x
I ocp=(300+200)*125uA*2/2.44m=51A
RC current sens=(1.2uH/2.44m)=0.1uF*R
R=6.8kohm (1.4倍)
F=170K Hz(158k ohm)
Close Choke
Close Choke
Close MOS
INTEL VRD11 mode
SET 1.v [00100010]
1.1875V
16A@1.1V
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Gigabyte Technology
ISL6314_VTTD
GA-X58A-UD9
Rev 1.0
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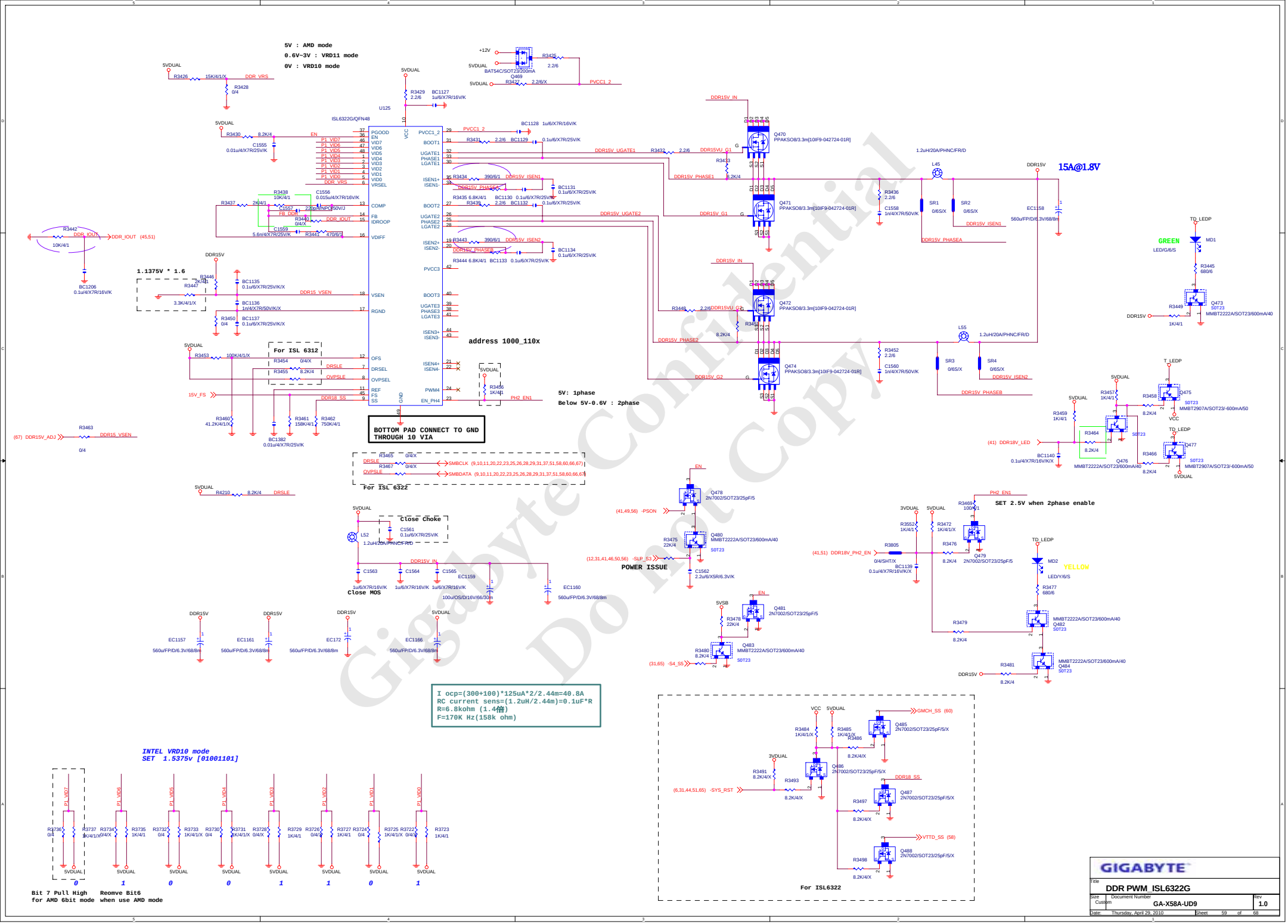
5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode
ISL6322G/QFN48
U125
address 1000_110x
5V: 1phase
Below 5V-0.6V : 2phase
BOTTOM PAD CONNECT TO GND
THROUGH 10 VIA
For ISL 6312
For ISL 6322
1.1375V * 1.6
Close Choke
Close MOS
POWER ISSUE
SET 2.5V when 2phase enable
15A@1.8V
I ocp=(300+100)*125uA*2/2.44m=40.8A
RC current sens=(1.2uH/2.44m)=0.1uF*R
R=6.8kohm (1.4%)
F=170K Hz(158k ohm)
INTEL VRD10 mode
SET 1.5375v [01001101]
Bit 7 Pull High
for AMD 6bit mode
Reomve Bit6
when use AMD mode
For ISL6322
GIGABYTE
DDR PWM_ISL6322G
GA-X58A-UD9
1.0
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68
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5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode

ISL6322G/QFN48

0.775v * 1.47

Increase the gain to reduce the VCC3 ripple & VCC1_25 choke noise 12/19

Low to clear 6322 setup

For ISL6312

BOTTOM PAD CONNECT TO GND THROUGH 10 VIA

5V: 1phase
Below 5V-0.6V : 2phase

30A@1.1V

GREEN

Pu for 6322 type2 SMBus address
address 1000_111x

For ISL6322

SET 2.5V when 2phase enable

YELLOW

I ocp=(300+100)*125uA*2/2.44m=40.8A
RC current sens=(1.2uH/2.44m)=0.1uF*R
R=6.8kohm (1.4倍)
F=170K Hz(158k ohm)

Close Choke

VRD10 7bit mode Rev1.02
SET 1.15v [X1111100]

Bit 7 Pull High for AMD 6bit mode
Reomve Bit6 when use AMD mode

X 1 1 1 1 1 0 0

GIGABYTE

Title: GMCH PWM_ISL6322G
Size: Custom
Document Number: GA-X58A-UD9
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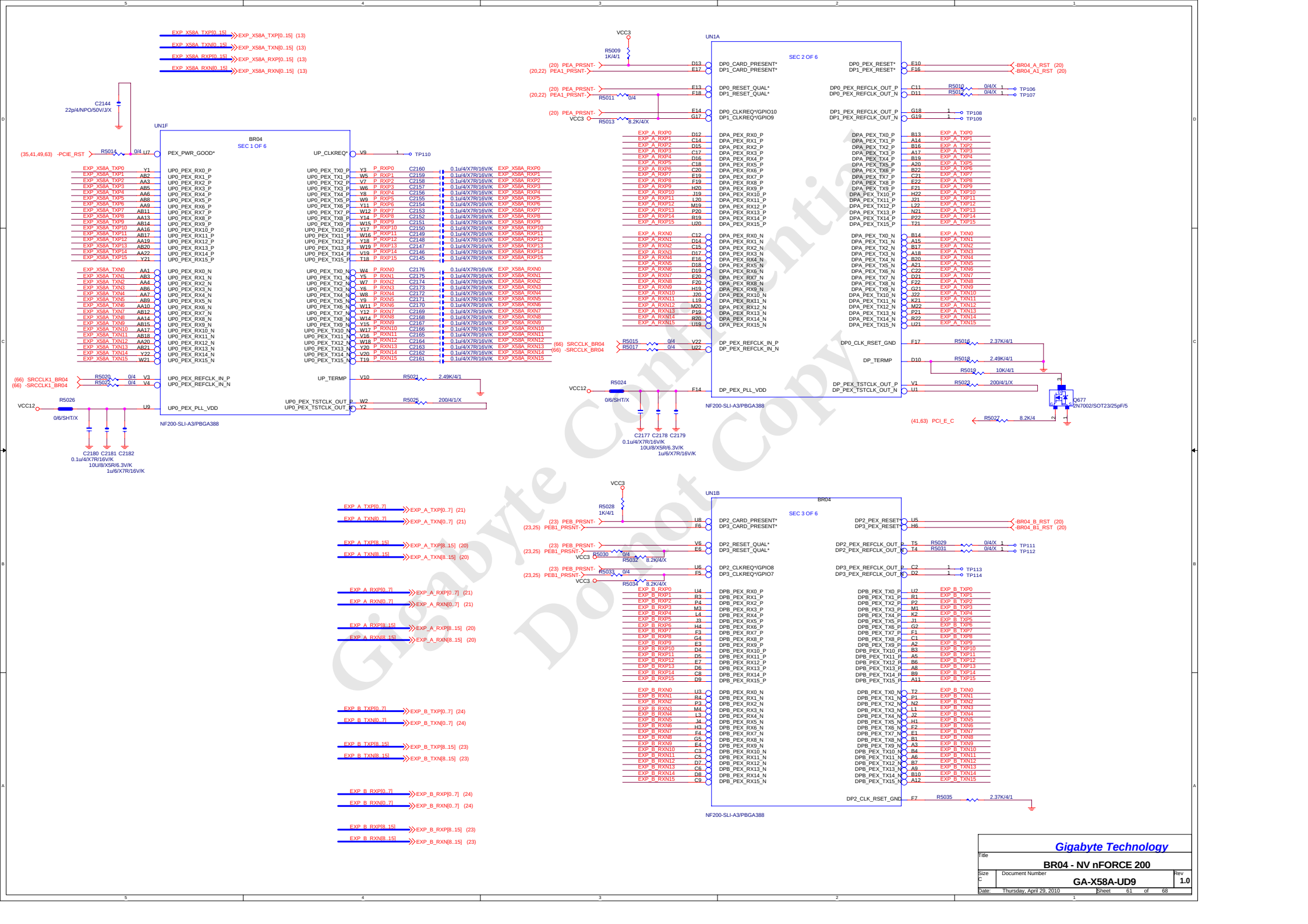
EXP_X58A_TXP[0..15] EXP_X58A_TXP[0..15] (13)
EXP_X58A_TXN[0..15] EXP_X58A_TXN[0..15] (13)
EXP_X58A_RXP[0..15] EXP_X58A_RXP[0..15] (13)
EXP_X58A_RXN[0..15] EXP_X58A_RXN[0..15] (13)
C2144
22p/4/NPO/50V/J/X
UN1F
BR04
SEC 1 OF 6
(35,41,49,63) -PCIE_RST
R5014
0/4
U7
PEX_PWR_GOOD*
UP_CLKREQ*
V9
1
TP110
EXP_X58A_TXP0 Y1
EXP_X58A_TXP1 AB2
EXP_X58A_TXP2 AA3
EXP_X58A_TXP3 AB5
EXP_X58A_TXP4 AA6
EXP_X58A_TXP5 AB8
EXP_X58A_TXP6 AA9
EXP_X58A_TXP7 AB11
EXP_X58A_TXP8 AA13
EXP_X58A_TXP9 AB14
EXP_X58A_TXP10 AA16
EXP_X58A_TXP11 AB17
EXP_X58A_TXP12 AA19
EXP_X58A_TXP13 AB20
EXP_X58A_TXP14 AA22
EXP_X58A_TXP15 Y21
UP0_PEX_RX0_P
UP0_PEX_RX1_P
UP0_PEX_RX2_P
UP0_PEX_RX3_P
UP0_PEX_RX4_P
UP0_PEX_RX5_P
UP0_PEX_RX6_P
UP0_PEX_RX7_P
UP0_PEX_RX8_P
UP0_PEX_RX9_P
UP0_PEX_RX10_P
UP0_PEX_RX11_P
UP0_PEX_RX12_P
UP0_PEX_RX13_P
UP0_PEX_RX14_P
UP0_PEX_RX15_P
UP0_PEX_TX0_P Y3 P_RXP0 C2160 0.1u/4/X7R/16V/K EXP_X58A_RXP0
UP0_PEX_TX1_P W5 P_RXP1 C2159 0.1u/4/X7R/16V/K EXP_X58A_RXP1
UP0_PEX_TX2_P V7 P_RXP2 C2158 0.1u/4/X7R/16V/K EXP_X58A_RXP2
UP0_PEX_TX3_P W6 P_RXP3 C2157 0.1u/4/X7R/16V/K EXP_X58A_RXP3
UP0_PEX_TX4_P Y8 P_RXP4 C2156 0.1u/4/X7R/16V/K EXP_X58A_RXP4
UP0_PEX_TX5_P W9 P_RXP5 C2155 0.1u/4/X7R/16V/K EXP_X58A_RXP5
UP0_PEX_TX6_P Y11 P_RXP6 C2154 0.1u/4/X7R/16V/K EXP_X58A_RXP6
UP0_PEX_TX7_P W12 P_RXP7 C2153 0.1u/4/X7R/16V/K EXP_X58A_RXP7
UP0_PEX_TX8_P Y14 P_RXP8 C2152 0.1u/4/X7R/16V/K EXP_X58A_RXP8
UP0_PEX_TX9_P W15 P_RXP9 C2151 0.1u/4/X7R/16V/K EXP_X58A_RXP9
UP0_PEX_TX10_P Y17 P_RXP10 C2150 0.1u/4/X7R/16V/K EXP_X58A_RXP10
UP0_PEX_TX11_P W16 P_RXP11 C2149 0.1u/4/X7R/16V/K EXP_X58A_RXP11
UP0_PEX_TX12_P Y18 P_RXP12 C2148 0.1u/4/X7R/16V/K EXP_X58A_RXP12
UP0_PEX_TX13_P W19 P_RXP13 C2147 0.1u/4/X7R/16V/K EXP_X58A_RXP13
UP0_PEX_TX14_P V19 P_RXP14 C2146 0.1u/4/X7R/16V/K EXP_X58A_RXP14
UP0_PEX_TX15_P T18 P_RXP15 C2145 0.1u/4/X7R/16V/K EXP_X58A_RXP15
EXP_X58A_TXN0 AA1
EXP_X58A_TXN1 AB3
EXP_X58A_TXN2 AA4
EXP_X58A_TXN3 AB6
EXP_X58A_TXN4 AA7
EXP_X58A_TXN5 AB9
EXP_X58A_TXN6 AA10
EXP_X58A_TXN7 AB12
EXP_X58A_TXN8 AA14
EXP_X58A_TXN9 AB15
EXP_X58A_TXN10 AA17
EXP_X58A_TXN11 AB18
EXP_X58A_TXN12 AA20
EXP_X58A_TXN13 AB21
EXP_X58A_TXN14 Y22
EXP_X58A_TXN15 W21
UP0_PEX_RX0_N
UP0_PEX_RX1_N
UP0_PEX_RX2_N
UP0_PEX_RX3_N
UP0_PEX_RX4_N
UP0_PEX_RX5_N
UP0_PEX_RX6_N
UP0_PEX_RX7_N
UP0_PEX_RX8_N
UP0_PEX_RX9_N
UP0_PEX_RX10_N
UP0_PEX_RX11_N
UP0_PEX_RX12_N
UP0_PEX_RX13_N
UP0_PEX_RX14_N
UP0_PEX_RX15_N
UP0_PEX_TX0_N W4 P_RXN0 C2176 0.1u/4/X7R/16V/K EXP_X58A_RXN0
UP0_PEX_TX1_N V5 P_RXN1 C2175 0.1u/4/X7R/16V/K EXP_X58A_RXN1
UP0_PEX_TX2_N W7 P_RXN2 C2174 0.1u/4/X7R/16V/K EXP_X58A_RXN2
UP0_PEX_TX3_N Y6 P_RXN3 C2173 0.1u/4/X7R/16V/K EXP_X58A_RXN3
UP0_PEX_TX4_N W8 P_RXN4 C2172 0.1u/4/X7R/16V/K EXP_X58A_RXN4
UP0_PEX_TX5_N Y9 P_RXN5 C2171 0.1u/4/X7R/16V/K EXP_X58A_RXN5
UP0_PEX_TX6_N W11 P_RXN6 C2170 0.1u/4/X7R/16V/K EXP_X58A_RXN6
UP0_PEX_TX7_N Y12 P_RXN7 C2169 0.1u/4/X7R/16V/K EXP_X58A_RXN7
UP0_PEX_TX8_N W14 P_RXN8 C2168 0.1u/4/X7R/16V/K EXP_X58A_RXN8
UP0_PEX_TX9_N Y15 P_RXN9 C2167 0.1u/4/X7R/16V/K EXP_X58A_RXN9
UP0_PEX_TX10_N W17 P_RXN10 C2166 0.1u/4/X7R/16V/K EXP_X58A_RXN10
UP0_PEX_TX11_N V16 P_RXN11 C2165 0.1u/4/X7R/16V/K EXP_X58A_RXN11
UP0_PEX_TX12_N W18 P_RXN12 C2164 0.1u/4/X7R/16V/K EXP_X58A_RXN12
UP0_PEX_TX13_N Y20 P_RXN13 C2163 0.1u/4/X7R/16V/K EXP_X58A_RXN13
UP0_PEX_TX14_N V20 P_RXN14 C2162 0.1u/4/X7R/16V/K EXP_X58A_RXN14
UP0_PEX_TX15_N T19 P_RXN15 C2161 0.1u/4/X7R/16V/K EXP_X58A_RXN15
(66) SRCCLK1_BR04
(66) -SRCCLK1_BR04
R5020 0/4 V3
R5022 0/4 V4
UP0_PEX_REFCLK_IN_P
UP0_PEX_REFCLK_IN_N
UP_TERMP
V10
R5021
2.49K/4/1
VCC12
R5026
0/6/SHT/X
U9
UP0_PEX_PLL_VDD
UP0_PEX_TSTCLK_OUT_P W2
UP0_PEX_TSTCLK_OUT_N Y2
R5025
200/4/1/X
C2180 C2181 C2182
0.1u/4/X7R/16V/K
10U/8/X5R/6.3V/K
1u/6/X7R/16V/K
NF200-SLI-A3/PBGA388
VCC3
R5009
1K/4/1
UN1A
SEC 2 OF 6
(20) PEA_PRSNT-
(20,22) PEA1_PRSNT-
D13 DP0_CARD_PRESENT*
E17 DP1_CARD_PRESENT*
DP0_PEX_RESET* E10 BR04_A_RST (20)
DP1_PEX_RESET* F16 BR04_A1_RST (20)
(20) PEA_PRSNT-
(20,22) PEA1_PRSNT-
R5011 0/4
E13 DP0_RESET_QUAL*
E18 DP1_RESET_QUAL*
DP0_PEX_REFCLK_OUT_P C11 R5010 0/4/X 1 TP106
DP0_PEX_REFCLK_OUT_N D11 R5012 0/4/X 1 TP107
(20) PEA_PRSNT-
VCC3
R5013 8.2K/4/X
E14 DP0_CLKREQ*/GPIO10
G17 DP1_CLKREQ*/GPIO9
DP1_PEX_REFCLK_OUT_P G18 1 TP108
DP1_PEX_REFCLK_OUT_N G19 1 TP109
EXP_A_RXP0 D12
EXP_A_RXP1 C14
EXP_A_RXP2 D15
EXP_A_RXP3 C17
EXP_A_RXP4 D16
EXP_A_RXP5 C18
EXP_A_RXP6 C20
EXP_A_RXP7 E19
EXP_A_RXP8 F19
EXP_A_RXP9 H20
EXP_A_RXP10 J19
EXP_A_RXP11 L20
EXP_A_RXP12 M19
EXP_A_RXP13 P20
EXP_A_RXP14 R19
EXP_A_RXP15 U20
DPA_PEX_RX0_P
DPA_PEX_RX1_P
DPA_PEX_RX2_P
DPA_PEX_RX3_P
DPA_PEX_RX4_P
DPA_PEX_RX5_P
DPA_PEX_RX6_P
DPA_PEX_RX7_P
DPA_PEX_RX8_P
DPA_PEX_RX9_P
DPA_PEX_RX10_P
DPA_PEX_RX11_P
DPA_PEX_RX12_P
DPA_PEX_RX13_P
DPA_PEX_RX14_P
DPA_PEX_RX15_P
DPA_PEX_TX0_P B13 EXP_A_TXP0
DPA_PEX_TX1_P A14 EXP_A_TXP1
DPA_PEX_TX2_P B16 EXP_A_TXP2
DPA_PEX_TX3_P A17 EXP_A_TXP3
DPA_PEX_TX4_P B19 EXP_A_TXP4
DPA_PEX_TX5_P A20 EXP_A_TXP5
DPA_PEX_TX6_P B22 EXP_A_TXP6
DPA_PEX_TX7_P C21 EXP_A_TXP7
DPA_PEX_TX8_P E22 EXP_A_TXP8
DPA_PEX_TX9_P F21 EXP_A_TXP9
DPA_PEX_TX10_P H22 EXP_A_TXP10
DPA_PEX_TX11_P J21 EXP_A_TXP11
DPA_PEX_TX12_P L22 EXP_A_TXP12
DPA_PEX_TX13_P N21 EXP_A_TXP13
DPA_PEX_TX14_P P22 EXP_A_TXP14
DPA_PEX_TX15_P T21 EXP_A_TXP15
EXP_A_RXN0 C12
EXP_A_RXN1 D14
EXP_A_RXN2 C15
EXP_A_RXN3 D17
EXP_A_RXN4 E16
EXP_A_RXN5 D18
EXP_A_RXN6 D19
EXP_A_RXN7 E20
EXP_A_RXN8 F20
EXP_A_RXN9 H19
EXP_A_RXN10 J20
EXP_A_RXN11 L19
EXP_A_RXN12 M20
EXP_A_RXN13 P19
EXP_A_RXN14 R20
EXP_A_RXN15 U19
DPA_PEX_RX0_N
DPA_PEX_RX1_N
DPA_PEX_RX2_N
DPA_PEX_RX3_N
DPA_PEX_RX4_N
DPA_PEX_RX5_N
DPA_PEX_RX6_N
DPA_PEX_RX7_N
DPA_PEX_RX8_N
DPA_PEX_RX9_N
DPA_PEX_RX10_N
DPA_PEX_RX11_N
DPA_PEX_RX12_N
DPA_PEX_RX13_N
DPA_PEX_RX14_N
DPA_PEX_RX15_N
DPA_PEX_TX0_N B14 EXP_A_TXN0
DPA_PEX_TX1_N A15 EXP_A_TXN1
DPA_PEX_TX2_N B17 EXP_A_TXN2
DPA_PEX_TX3_N A18 EXP_A_TXN3
DPA_PEX_TX4_N B20 EXP_A_TXN4
DPA_PEX_TX5_N A21 EXP_A_TXN5
DPA_PEX_TX6_N C22 EXP_A_TXN6
DPA_PEX_TX7_N D21 EXP_A_TXN7
DPA_PEX_TX8_N F22 EXP_A_TXN8
DPA_PEX_TX9_N G21 EXP_A_TXN9
DPA_PEX_TX10_N J22 EXP_A_TXN10
DPA_PEX_TX11_N K21 EXP_A_TXN11
DPA_PEX_TX12_N M22 EXP_A_TXN12
DPA_PEX_TX13_N P21 EXP_A_TXN13
DPA_PEX_TX14_N R22 EXP_A_TXN14
DPA_PEX_TX15_N U21 EXP_A_TXN15
(66) SRCCLK_BR04
(66) -SRCCLK_BR04
R5015 0/4 V22
R5017 0/4 U22
DP_PEX_REFCLK_IN_P
DP_PEX_REFCLK_IN_N
DP0_CLK_RSET_GND F17 R5016 2.37K/4/1
DP_TERMP D10 R5018 2.49K/4/1
R5019 10K/4/1
VCC12
R5024
0/6/SHT/X
F14 DP_PEX_PLL_VDD
DP_PEX_TSTCLK_OUT_P V1 R5023 200/4/1/X
DP_PEX_TSTCLK_OUT_N U1
C2177 C2178 C2179
0.1u/4/X7R/16V/K
10U/8/X5R/6.3V/K
1u/6/X7R/16V/K
NF200-SLI-A3/PBGA388
Q677
2N7002/SOT23/25pF/5
(41,63) PCI_E_C
R5027 8.2K/4
EXP_A_TXP[0..7] EXP_A_TXP[0..7] (21)
EXP_A_TXN[0..7] EXP_A_TXN[0..7] (21)
EXP_A_TXP[8..15] EXP_A_TXP[8..15] (20)
EXP_A_TXN[8..15] EXP_A_TXN[8..15] (20)
EXP_A_RXP[0..7] EXP_A_RXP[0..7] (21)
EXP_A_RXN[0..7] EXP_A_RXN[0..7] (21)
EXP_A_RXP[8..15] EXP_A_RXP[8..15] (20)
EXP_A_RXN[8..15] EXP_A_RXN[8..15] (20)
EXP_B_TXP[0..7] EXP_B_TXP[0..7] (24)
EXP_B_TXN[0..7] EXP_B_TXN[0..7] (24)
EXP_B_TXP[8..15] EXP_B_TXP[8..15] (23)
EXP_B_TXN[8..15] EXP_B_TXN[8..15] (23)
EXP_B_RXP[0..7] EXP_B_RXP[0..7] (24)
EXP_B_RXN[0..7] EXP_B_RXN[0..7] (24)
EXP_B_RXP[8..15] EXP_B_RXP[8..15] (23)
EXP_B_RXN[8..15] EXP_B_RXN[8..15] (23)
VCC3
R5028
1K/4/1
UN1B
BR04
SEC 3 OF 6
(23) PEB_PRSNT-
(23,25) PEB1_PRSNT-
U8 DP2_CARD_PRESENT*
E6 DP3_CARD_PRESENT*
DP2_PEX_RESET* U5 BR04_B_RST (20)
DP3_PEX_RESET* H6 BR04_B1_RST (20)
(23) PEB_PRSNT-
(23,25) PEB1_PRSNT-
R5030 0/4
VCC3
R5032 8.2K/4/X
V6 DP2_RESET_QUAL*
E6 DP3_RESET_QUAL*
DP2_PEX_REFCLK_OUT_P T5 R5029 0/4/X 1 TP111
DP2_PEX_REFCLK_OUT_N T4 R5031 0/4/X 1 TP112
(23) PEB_PRSNT-
(23,25) PEB1_PRSNT-
R5033 0/4
VCC3
R5034 8.2K/4/X
U6 DP2_CLKREQ*/GPIO8
F5 DP3_CLKREQ*/GPIO7
DP3_PEX_REFCLK_OUT_P C2 1 TP113
DP3_PEX_REFCLK_OUT_N D2 1 TP114
EXP_B_RXP0 U4
EXP_B_RXP1 R3
EXP_B_RXP2 P4
EXP_B_RXP3 M3
EXP_B_RXP4 L4
EXP_B_RXP5 J3
EXP_B_RXP6 H4
EXP_B_RXP7 F3
EXP_B_RXP8 G4
EXP_B_RXP9 E3
EXP_B_RXP10 D4
EXP_B_RXP11 D5
EXP_B_RXP12 E7
EXP_B_RXP13 D6
EXP_B_RXP14 C8
EXP_B_RXP15 D9
DPB_PEX_RX0_P
DPB_PEX_RX1_P
DPB_PEX_RX2_P
DPB_PEX_RX3_P
DPB_PEX_RX4_P
DPB_PEX_RX5_P
DPB_PEX_RX6_P
DPB_PEX_RX7_P
DPB_PEX_RX8_P
DPB_PEX_RX9_P
DPB_PEX_RX10_P
DPB_PEX_RX11_P
DPB_PEX_RX12_P
DPB_PEX_RX13_P
DPB_PEX_RX14_P
DPB_PEX_RX15_P
DPB_PEX_TX0_P U2 EXP_B_TXP0
DPB_PEX_TX1_P R1 EXP_B_TXP1
DPB_PEX_TX2_P P2 EXP_B_TXP2
DPB_PEX_TX3_P M1 EXP_B_TXP3
DPB_PEX_TX4_P K2 EXP_B_TXP4
DPB_PEX_TX5_P J1 EXP_B_TXP5
DPB_PEX_TX6_P G2 EXP_B_TXP6
DPB_PEX_TX7_P F1 EXP_B_TXP7
DPB_PEX_TX8_P C1 EXP_B_TXP8
DPB_PEX_TX9_P A2 EXP_B_TXP9
DPB_PEX_TX10_P B3 EXP_B_TXP10
DPB_PEX_TX11_P A5 EXP_B_TXP11
DPB_PEX_TX12_P B6 EXP_B_TXP12
DPB_PEX_TX13_P A8 EXP_B_TXP13
DPB_PEX_TX14_P B9 EXP_B_TXP14
DPB_PEX_TX15_P A11 EXP_B_TXP15
EXP_B_RXN0 U3
EXP_B_RXN1 R4
EXP_B_RXN2 P3
EXP_B_RXN3 M4
EXP_B_RXN4 L3
EXP_B_RXN5 J4
EXP_B_RXN6 H3
EXP_B_RXN7 F4
EXP_B_RXN8 G5
EXP_B_RXN9 E4
EXP_B_RXN10 C3
EXP_B_RXN11 C5
EXP_B_RXN12 D7
EXP_B_RXN13 C6
EXP_B_RXN14 D8
EXP_B_RXN15 C9
DPB_PEX_RX0_N
DPB_PEX_RX1_N
DPB_PEX_RX2_N
DPB_PEX_RX3_N
DPB_PEX_RX4_N
DPB_PEX_RX5_N
DPB_PEX_RX6_N
DPB_PEX_RX7_N
DPB_PEX_RX8_N
DPB_PEX_RX9_N
DPB_PEX_RX10_N
DPB_PEX_RX11_N
DPB_PEX_RX12_N
DPB_PEX_RX13_N
DPB_PEX_RX14_N
DPB_PEX_RX15_N
DPB_PEX_TX0_N T2 EXP_B_TXN0
DPB_PEX_TX1_N P1 EXP_B_TXN1
DPB_PEX_TX2_N N2 EXP_B_TXN2
DPB_PEX_TX3_N L1 EXP_B_TXN3
DPB_PEX_TX4_N J2 EXP_B_TXN4
DPB_PEX_TX5_N H1 EXP_B_TXN5
DPB_PEX_TX6_N E2 EXP_B_TXN6
DPB_PEX_TX7_N E1 EXP_B_TXN7
DPB_PEX_TX8_N B1 EXP_B_TXN8
DPB_PEX_TX9_N A3 EXP_B_TXN9
DPB_PEX_TX10_N B4 EXP_B_TXN10
DPB_PEX_TX11_N A6 EXP_B_TXN11
DPB_PEX_TX12_N B7 EXP_B_TXN12
DPB_PEX_TX13_N A9 EXP_B_TXN13
DPB_PEX_TX14_N B10 EXP_B_TXN14
DPB_PEX_TX15_N A12 EXP_B_TXN15
DP2_CLK_RSET_GND F7 R5035 2.37K/4/1
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Title
BR04 - NV nFORCE 200
Size C
Document Number GA-X58A-UD9
Rev 1.0
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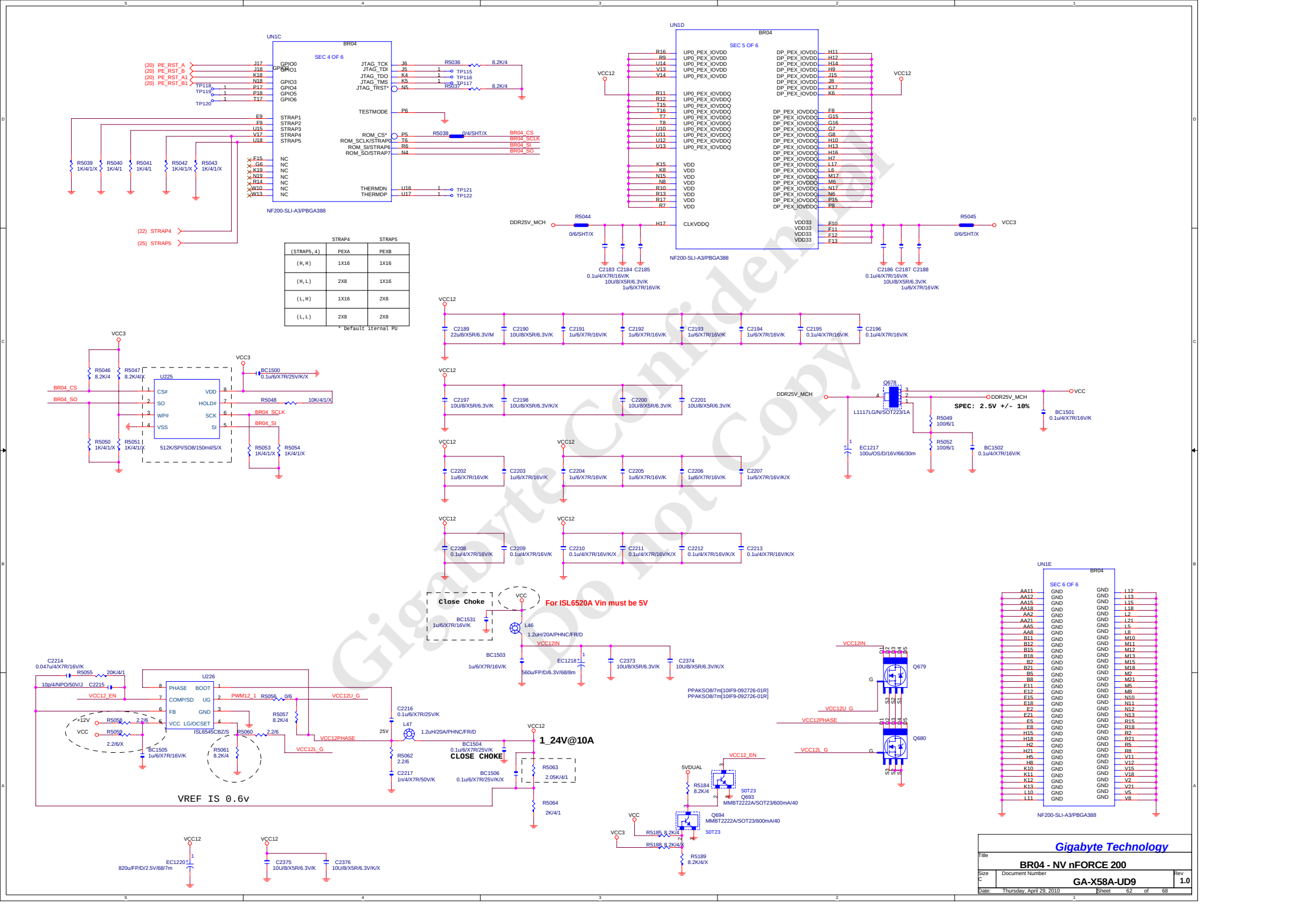
UN1C
BR04
SEC 4 OF 6
NF200-SLI-A3/PBGA388
UN1D
SEC 5 OF 6
VCC12
VCC3
DDR25V_MCH
R5044
R5045
0/6/SHT/X
C2183 C2184 C2185
0.1u/4/X7R/16V/K
10U/8/X5R/6.3V/K
1u/6/X7R/16V/K
C2186 C2187 C2188
C2189 22u/8/X5R/6.3V/M
C2190 10U/8/X5R/6.3V/K
C2191 1u/6/X7R/16V/K
C2192 1u/6/X7R/16V/K
C2193 1u/6/X7R/16V/K
C2194 1u/6/X7R/16V/K
C2195 0.1u/4/X7R/16V/K
C2196 0.1u/4/X7R/16V/K
C2197 10U/8/X5R/6.3V/K
C2198 10U/8/X5R/6.3V/K/X
C2200 10U/8/X5R/6.3V/K
C2201 10U/8/X5R/6.3V/K
C2202 1u/6/X7R/16V/K
C2203 1u/6/X7R/16V/K
C2204 1u/6/X7R/16V/K
C2205 1u/6/X7R/16V/K
C2206 1u/6/X7R/16V/K
C2207 1u/6/X7R/16V/K/X
C2208 0.1u/4/X7R/16V/K
C2209 0.1u/4/X7R/16V/K
C2210 0.1u/4/X7R/16V/K/X
C2211 0.1u/4/X7R/16V/K/X
C2212 0.1u/4/X7R/16V/K/X
C2213 0.1u/4/X7R/16V/K/X
Q678
L1117LG/NI/SOT223/1A
DDR25V_MCH
VCC
SPEC: 2.5V +/- 10%
R5049 100/6/1
R5052 100/6/1
BC1501 0.1u/4/X7R/16V/K
BC1502 0.1u/4/X7R/16V/K
EC1217 100u/OS/D/16V/66/30m
U225
512K/SPI/SO8/150mil/S/X
R5046 8.2K/4
R5047 8.2K/4/X
R5048 10K/4/1/X
R5050 1K/4/1/X
R5051 1K/4/1/X
R5053 1K/4/1/X
R5054 1K/4/1/X
BC1500 0.1u/6/X7R/25V/K/X
BR04_CS
BR04_SO
BR04_SCLK
BR04_SI
Close Choke
BC1531 1u/6/X7R/16V/K
L46 1.2uH/20A/PHNC/FR/D
For ISL6520A Vin must be 5V
VCC12IN
BC1503 1u/6/X7R/16V/K
EC1218 560u/FP/D/6.3V/68/8m
C2373 10U/8/X5R/6.3V/K
C2374 10U/8/X5R/6.3V/K/X
PPAKSO8/7m[10IF9-092726-01R]
PPAKSO8/7m[10IF9-092726-01R]
Q679
Q680
VCC12U_G
VCC12PHASE
VCC12L_G
U226
ISL6545CBZ/S
PHASE BOOT UG GND
COMP/SD FB VCC LG/OCSET
PWM12_1
VCC12_EN
R5055 20K/4/1
C2214 0.047u/4/X7R/16V/K
10p/4/NPO/50V/J C2215
R5056 0/6
R5057 8.2K/4
R5058 2.2/6
R5059 2.2/6/X
R5060 2.2/6
R5061 8.2K/4
BC1505 1u/6/X7R/16V/K
C2216 0.1u/6/X7R/25V/K
L47 1.2uH/20A/PHNC/FR/D
R5062 2.2/6
C2217 1n/4/X7R/50V/K
BC1504 0.1u/6/X7R/25V/K
CLOSE CHOKE
BC1506 0.1u/6/X7R/25V/K/X
R5063 2.05K/4/1
R5064 2K/4/1
1_24V@10A
VREF IS 0.6v
5VDUAL
R5184 8.2K/4
Q693 MMBT2222A/SOT23/600mA/40
Q694 MMBT2222A/SOT23/600mA/40
S0T23
R5185 8.2K/4
R5188 8.2K/4/X
R5189 8.2K/4/X
EC1220 820u/FP/D/2.5V/68/7m
C2375 10U/8/X5R/6.3V/K
C2376 10U/8/X5R/6.3V/K/X
UN1E
SEC 6 OF 6
NF200-SLI-A3/PBGA388
STRAP4
STRAP5
(STRAP5,4) PEXA PEXB
(H,H) 1X16 1X16
(H,L) 2X8 1X16
(L,H) 1X16 2X8
(L,L) 2X8 2X8
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BR04 - NV nFORCE 200
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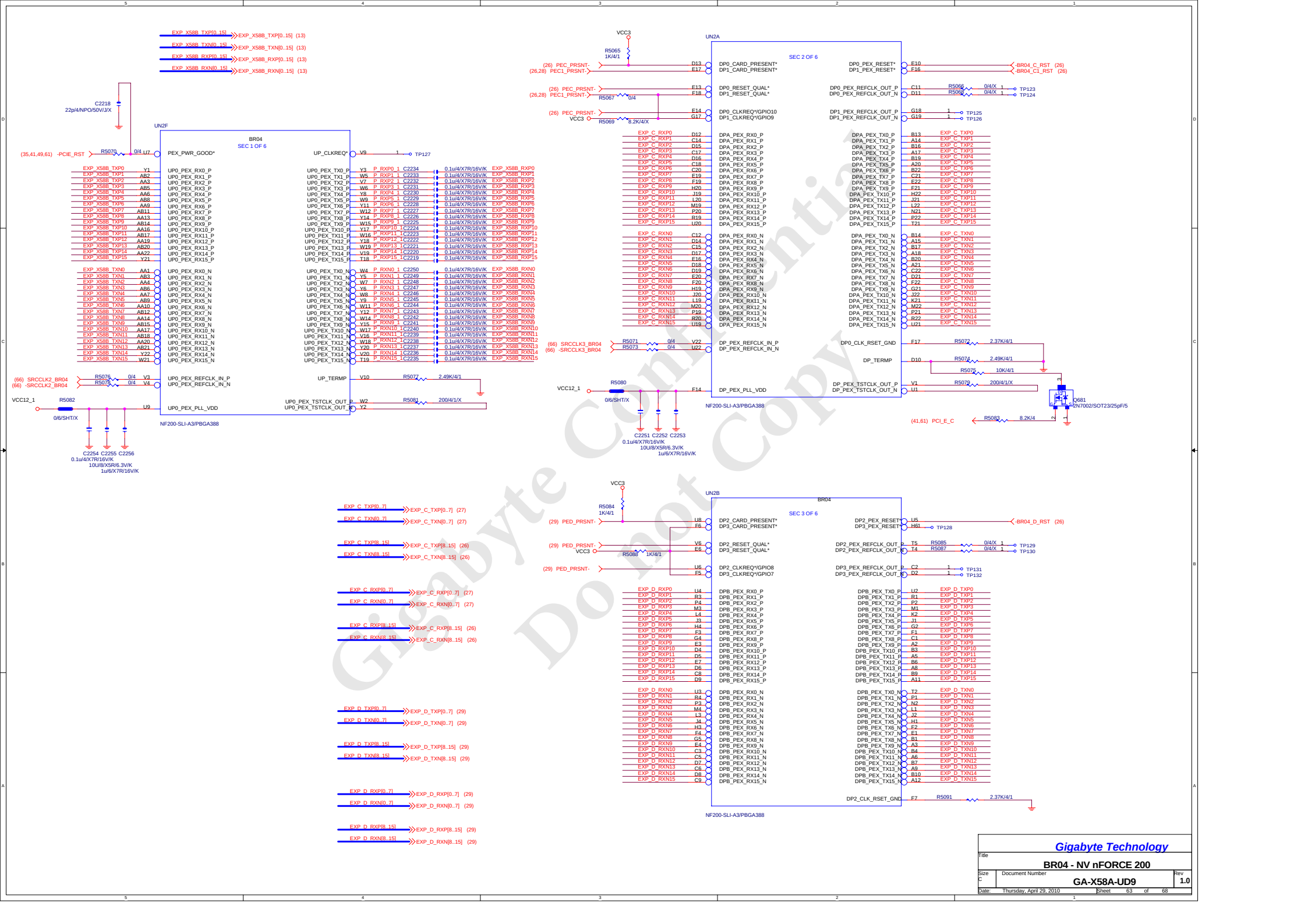
EXP_X58B_TXP[0..15]
EXP_X58B_TXP[0..15] (13)
EXP_X58B_TXN[0..15]
EXP_X58B_TXN[0..15] (13)
EXP_X58B_RXP[0..15]
EXP_X58B_RXP[0..15] (13)
EXP_X58B_RXN[0..15]
EXP_X58B_RXN[0..15] (13)
C2218
22p/4/NPO/50V/J/X
UN2F
BR04
SEC 1 OF 6
(35,41,49,61) -PCIE_RST
R5070
0/4
U7
PEX_PWR_GOOD*
UP_CLKREQ*
V9
TP127
EXP_X58B_TXP0 Y1
EXP_X58B_TXP1 AB2
EXP_X58B_TXP2 AA3
EXP_X58B_TXP3 AB5
EXP_X58B_TXP4 AA6
EXP_X58B_TXP5 AB8
EXP_X58B_TXP6 AA9
EXP_X58B_TXP7 AB11
EXP_X58B_TXP8 AA13
EXP_X58B_TXP9 AB14
EXP_X58B_TXP10 AA16
EXP_X58B_TXP11 AB17
EXP_X58B_TXP12 AA19
EXP_X58B_TXP13 AB20
EXP_X58B_TXP14 AA22
EXP_X58B_TXP15 Y21
UP0_PEX_RX0_P
UP0_PEX_RX1_P
UP0_PEX_RX2_P
UP0_PEX_RX3_P
UP0_PEX_RX4_P
UP0_PEX_RX5_P
UP0_PEX_RX6_P
UP0_PEX_RX7_P
UP0_PEX_RX8_P
UP0_PEX_RX9_P
UP0_PEX_RX10_P
UP0_PEX_RX11_P
UP0_PEX_RX12_P
UP0_PEX_RX13_P
UP0_PEX_RX14_P
UP0_PEX_RX15_P
UP0_PEX_TX0_P Y3 P_RXP0_1 C2234 0.1u/4/X7R/16V/K EXP_X58B_RXP0
UP0_PEX_TX1_P W5 P_RXP1_1 C2233 0.1u/4/X7R/16V/K EXP_X58B_RXP1
UP0_PEX_TX2_P V7 P_RXP2_1 C2232 0.1u/4/X7R/16V/K EXP_X58B_RXP2
UP0_PEX_TX3_P W6 P_RXP3_1 C2231 0.1u/4/X7R/16V/K EXP_X58B_RXP3
UP0_PEX_TX4_P Y8 P_RXP4_1 C2230 0.1u/4/X7R/16V/K EXP_X58B_RXP4
UP0_PEX_TX5_P W9 P_RXP5_1 C2229 0.1u/4/X7R/16V/K EXP_X58B_RXP5
UP0_PEX_TX6_P Y11 P_RXP6_1 C2228 0.1u/4/X7R/16V/K EXP_X58B_RXP6
UP0_PEX_TX7_P W12 P_RXP7_1 C2227 0.1u/4/X7R/16V/K EXP_X58B_RXP7
UP0_PEX_TX8_P Y14 P_RXP8_1 C2226 0.1u/4/X7R/16V/K EXP_X58B_RXP8
UP0_PEX_TX9_P W15 P_RXP9_1 C2225 0.1u/4/X7R/16V/K EXP_X58B_RXP9
UP0_PEX_TX10_P Y17 P_RXP10_1 C2224 0.1u/4/X7R/16V/K EXP_X58B_RXP10
UP0_PEX_TX11_P W16 P_RXP11_1 C2223 0.1u/4/X7R/16V/K EXP_X58B_RXP11
UP0_PEX_TX12_P Y18 P_RXP12_1 C2222 0.1u/4/X7R/16V/K EXP_X58B_RXP12
UP0_PEX_TX13_P W19 P_RXP13_1 C2221 0.1u/4/X7R/16V/K EXP_X58B_RXP13
UP0_PEX_TX14_P V19 P_RXP14_1 C2220 0.1u/4/X7R/16V/K EXP_X58B_RXP14
UP0_PEX_TX15_P T18 P_RXP15_1 C2219 0.1u/4/X7R/16V/K EXP_X58B_RXP15
EXP_X58B_TXN0 AA1
EXP_X58B_TXN1 AB3
EXP_X58B_TXN2 AA4
EXP_X58B_TXN3 AB6
EXP_X58B_TXN4 AA7
EXP_X58B_TXN5 AB9
EXP_X58B_TXN6 AA10
EXP_X58B_TXN7 AB12
EXP_X58B_TXN8 AA14
EXP_X58B_TXN9 AB15
EXP_X58B_TXN10 AA17
EXP_X58B_TXN11 AB18
EXP_X58B_TXN12 AA20
EXP_X58B_TXN13 AB21
EXP_X58B_TXN14 Y22
EXP_X58B_TXN15 W21
UP0_PEX_RX0_N
UP0_PEX_RX1_N
UP0_PEX_RX2_N
UP0_PEX_RX3_N
UP0_PEX_RX4_N
UP0_PEX_RX5_N
UP0_PEX_RX6_N
UP0_PEX_RX7_N
UP0_PEX_RX8_N
UP0_PEX_RX9_N
UP0_PEX_RX10_N
UP0_PEX_RX11_N
UP0_PEX_RX12_N
UP0_PEX_RX13_N
UP0_PEX_RX14_N
UP0_PEX_RX15_N
UP0_PEX_TX0_N W4 P_RXN0_1 C2250 0.1u/4/X7R/16V/K EXP_X58B_RXN0
UP0_PEX_TX1_N Y5 P_RXN1_1 C2249 0.1u/4/X7R/16V/K EXP_X58B_RXN1
UP0_PEX_TX2_N W7 P_RXN2_1 C2248 0.1u/4/X7R/16V/K EXP_X58B_RXN2
UP0_PEX_TX3_N Y6 P_RXN3_1 C2247 0.1u/4/X7R/16V/K EXP_X58B_RXN3
UP0_PEX_TX4_N W8 P_RXN4_1 C2246 0.1u/4/X7R/16V/K EXP_X58B_RXN4
UP0_PEX_TX5_N Y9 P_RXN5_1 C2245 0.1u/4/X7R/16V/K EXP_X58B_RXN5
UP0_PEX_TX6_N W11 P_RXN6_1 C2244 0.1u/4/X7R/16V/K EXP_X58B_RXN6
UP0_PEX_TX7_N Y12 P_RXN7_1 C2243 0.1u/4/X7R/16V/K EXP_X58B_RXN7
UP0_PEX_TX8_N W14 P_RXN8_1 C2242 0.1u/4/X7R/16V/K EXP_X58B_RXN8
UP0_PEX_TX9_N Y15 P_RXN9_1 C2241 0.1u/4/X7R/16V/K EXP_X58B_RXN9
UP0_PEX_TX10_N W17 P_RXN10_1 C2240 0.1u/4/X7R/16V/K EXP_X58B_RXN10
UP0_PEX_TX11_N V16 P_RXN11_1 C2239 0.1u/4/X7R/16V/K EXP_X58B_RXN11
UP0_PEX_TX12_N W18 P_RXN12_1 C2238 0.1u/4/X7R/16V/K EXP_X58B_RXN12
UP0_PEX_TX13_N Y20 P_RXN13_1 C2237 0.1u/4/X7R/16V/K EXP_X58B_RXN13
UP0_PEX_TX14_N V20 P_RXN14_1 C2236 0.1u/4/X7R/16V/K EXP_X58B_RXN14
UP0_PEX_TX15_N T19 P_RXN15_1 C2235 0.1u/4/X7R/16V/K EXP_X58B_RXN15
(66) SRCCLK2_BR04
(66) -SRCCLK2_BR04
R5075 0/4 V3
R5076 0/4 V4
UP0_PEX_REFCLK_IN_P
UP0_PEX_REFCLK_IN_N
UP_TERMP
V10
R5077
2.49K/4/1
VCC12_1
R5082
0/6/SHT/X
U9
UP0_PEX_PLL_VDD
UP0_PEX_TSTCLK_OUT_P W2 R5081 200/4/1/X
UP0_PEX_TSTCLK_OUT_N Y2
NF200-SLI-A3/PBGA388
C2254 C2255 C2256
0.1u/4/X7R/16V/K
10U/8/X5R/6.3V/K
1u/6/X7R/16V/K
VCC3
R5065
1K/4/1
(26) PEC_PRSNT-
(26,28) PEC1_PRSNT-
UN2A
SEC 2 OF 6
D13 DP0_CARD_PRESENT*
E17 DP1_CARD_PRESENT*
E13 DP0_RESET_QUAL*
E18 DP1_RESET_QUAL*
R5067 0/4
E14 DP0_CLKREQ*/GPIO10
G17 DP1_CLKREQ*/GPIO9
R5069 8.2K/4/X
EXP_C_RXP0 D12
EXP_C_RXP1 C14
EXP_C_RXP2 D15
EXP_C_RXP3 C17
EXP_C_RXP4 D16
EXP_C_RXP5 C18
EXP_C_RXP6 C20
EXP_C_RXP7 E19
EXP_C_RXP8 F19
EXP_C_RXP9 H20
EXP_C_RXP10 J19
EXP_C_RXP11 L20
EXP_C_RXP12 M19
EXP_C_RXP13 P20
EXP_C_RXP14 R19
EXP_C_RXP15 U20
DPA_PEX_RX0_P
DPA_PEX_RX1_P
DPA_PEX_RX2_P
DPA_PEX_RX3_P
DPA_PEX_RX4_P
DPA_PEX_RX5_P
DPA_PEX_RX6_P
DPA_PEX_RX7_P
DPA_PEX_RX8_P
DPA_PEX_RX9_P
DPA_PEX_RX10_P
DPA_PEX_RX11_P
DPA_PEX_RX12_P
DPA_PEX_RX13_P
DPA_PEX_RX14_P
DPA_PEX_RX15_P
EXP_C_RXN0 C12
EXP_C_RXN1 D14
EXP_C_RXN2 C15
EXP_C_RXN3 D17
EXP_C_RXN4 E16
EXP_C_RXN5 D18
EXP_C_RXN6 D19
EXP_C_RXN7 E20
EXP_C_RXN8 F20
EXP_C_RXN9 H19
EXP_C_RXN10 J20
EXP_C_RXN11 L19
EXP_C_RXN12 M20
EXP_C_RXN13 P19
EXP_C_RXN14 R20
EXP_C_RXN15 U19
DPA_PEX_RX0_N
DPA_PEX_RX1_N
DPA_PEX_RX2_N
DPA_PEX_RX3_N
DPA_PEX_RX4_N
DPA_PEX_RX5_N
DPA_PEX_RX6_N
DPA_PEX_RX7_N
DPA_PEX_RX8_N
DPA_PEX_RX9_N
DPA_PEX_RX10_N
DPA_PEX_RX11_N
DPA_PEX_RX12_N
DPA_PEX_RX13_N
DPA_PEX_RX14_N
DPA_PEX_RX15_N
(66) SRCCLK3_BR04
(66) -SRCCLK3_BR04
R5071 0/4 V22
R5073 0/4 U22
DP_PEX_REFCLK_IN_P
DP_PEX_REFCLK_IN_N
VCC12_1
R5080
0/6/SHT/X
F14 DP_PEX_PLL_VDD
C2251 C2252 C2253
0.1u/4/X7R/16V/K
10U/8/X5R/6.3V/K
1u/6/X7R/16V/K
NF200-SLI-A3/PBGA388
DP0_PEX_RESET* E10
DP1_PEX_RESET* F16
BR04_C_RST (26)
BR04_C1_RST (26)
DP0_PEX_REFCLK_OUT_P C11 R5066 0/4/X TP123
DP0_PEX_REFCLK_OUT_N D11 R5067 0/4/X TP124
DP1_PEX_REFCLK_OUT_P G18 TP125
DP1_PEX_REFCLK_OUT_N G19 TP126
DPA_PEX_TX0_P B13 EXP_C_TXP0
DPA_PEX_TX1_P A14 EXP_C_TXP1
DPA_PEX_TX2_P B16 EXP_C_TXP2
DPA_PEX_TX3_P A17 EXP_C_TXP3
DPA_PEX_TX4_P B19 EXP_C_TXP4
DPA_PEX_TX5_P A20 EXP_C_TXP5
DPA_PEX_TX6_P B22 EXP_C_TXP6
DPA_PEX_TX7_P C21 EXP_C_TXP7
DPA_PEX_TX8_P E22 EXP_C_TXP8
DPA_PEX_TX9_P F21 EXP_C_TXP9
DPA_PEX_TX10_P H22 EXP_C_TXP10
DPA_PEX_TX11_P J21 EXP_C_TXP11
DPA_PEX_TX12_P L22 EXP_C_TXP12
DPA_PEX_TX13_P N21 EXP_C_TXP13
DPA_PEX_TX14_P P22 EXP_C_TXP14
DPA_PEX_TX15_P T21 EXP_C_TXP15
DPA_PEX_TX0_N B14 EXP_C_TXN0
DPA_PEX_TX1_N A15 EXP_C_TXN1
DPA_PEX_TX2_N B17 EXP_C_TXN2
DPA_PEX_TX3_N A18 EXP_C_TXN3
DPA_PEX_TX4_N B20 EXP_C_TXN4
DPA_PEX_TX5_N A21 EXP_C_TXN5
DPA_PEX_TX6_N C22 EXP_C_TXN6
DPA_PEX_TX7_N D21 EXP_C_TXN7
DPA_PEX_TX8_N F22 EXP_C_TXN8
DPA_PEX_TX9_N G21 EXP_C_TXN9
DPA_PEX_TX10_N J22 EXP_C_TXN10
DPA_PEX_TX11_N K21 EXP_C_TXN11
DPA_PEX_TX12_N M22 EXP_C_TXN12
DPA_PEX_TX13_N P21 EXP_C_TXN13
DPA_PEX_TX14_N R22 EXP_C_TXN14
DPA_PEX_TX15_N U21 EXP_C_TXN15
DP0_CLK_RSET_GND F17 R5072 2.37K/4/1
DP_TERMP D10 R5074 2.49K/4/1
R5075 10K/4/1
DP_PEX_TSTCLK_OUT_P V1 R5079 200/4/1/X
DP_PEX_TSTCLK_OUT_N U1
Q681
2N7002/SOT23/25pF/5
(41,61) PCI_E_C
R5083 8.2K/4
EXP_C_TXP[0..7]
EXP_C_TXP[0..7] (27)
EXP_C_TXN[0..7]
EXP_C_TXN[0..7] (27)
EXP_C_TXP[8..15]
EXP_C_TXP[8..15] (26)
EXP_C_TXN[8..15]
EXP_C_TXN[8..15] (26)
EXP_C_RXP[0..7]
EXP_C_RXP[0..7] (27)
EXP_C_RXN[0..7]
EXP_C_RXN[0..7] (27)
EXP_C_RXP[8..15]
EXP_C_RXP[8..15] (26)
EXP_C_RXN[8..15]
EXP_C_RXN[8..15] (26)
EXP_D_TXP[0..7]
EXP_D_TXP[0..7] (29)
EXP_D_TXN[0..7]
EXP_D_TXN[0..7] (29)
EXP_D_TXP[8..15]
EXP_D_TXP[8..15] (29)
EXP_D_TXN[8..15]
EXP_D_TXN[8..15] (29)
EXP_D_RXP[0..7]
EXP_D_RXP[0..7] (29)
EXP_D_RXN[0..7]
EXP_D_RXN[0..7] (29)
EXP_D_RXP[8..15]
EXP_D_RXP[8..15] (29)
EXP_D_RXN[8..15]
EXP_D_RXN[8..15] (29)
VCC3
R5084
1K/4/1
(29) PED_PRSNT-
UN2B
BR04
SEC 3 OF 6
U8 DP2_CARD_PRESENT*
E6 DP3_CARD_PRESENT*
V6 DP2_RESET_QUAL*
E6 DP3_RESET_QUAL*
R5088 1K/4/1
U6 DP2_CLKREQ*/GPIO8
F5 DP3_CLKREQ*/GPIO7
EXP_D_RXP0 U4
EXP_D_RXP1 R3
EXP_D_RXP2 P4
EXP_D_RXP3 M3
EXP_D_RXP4 L4
EXP_D_RXP5 J3
EXP_D_RXP6 H4
EXP_D_RXP7 F3
EXP_D_RXP8 G4
EXP_D_RXP9 E3
EXP_D_RXP10 D4
EXP_D_RXP11 D5
EXP_D_RXP12 E7
EXP_D_RXP13 D6
EXP_D_RXP14 C8
EXP_D_RXP15 D9
DPB_PEX_RX0_P
DPB_PEX_RX1_P
DPB_PEX_RX2_P
DPB_PEX_RX3_P
DPB_PEX_RX4_P
DPB_PEX_RX5_P
DPB_PEX_RX6_P
DPB_PEX_RX7_P
DPB_PEX_RX8_P
DPB_PEX_RX9_P
DPB_PEX_RX10_P
DPB_PEX_RX11_P
DPB_PEX_RX12_P
DPB_PEX_RX13_P
DPB_PEX_RX14_P
DPB_PEX_RX15_P
EXP_D_RXN0 U3
EXP_D_RXN1 R4
EXP_D_RXN2 P3
EXP_D_RXN3 M4
EXP_D_RXN4 L3
EXP_D_RXN5 J4
EXP_D_RXN6 H3
EXP_D_RXN7 F4
EXP_D_RXN8 G5
EXP_D_RXN9 E4
EXP_D_RXN10 C3
EXP_D_RXN11 C5
EXP_D_RXN12 D7
EXP_D_RXN13 C6
EXP_D_RXN14 D8
EXP_D_RXN15 C9
DPB_PEX_RX0_N
DPB_PEX_RX1_N
DPB_PEX_RX2_N
DPB_PEX_RX3_N
DPB_PEX_RX4_N
DPB_PEX_RX5_N
DPB_PEX_RX6_N
DPB_PEX_RX7_N
DPB_PEX_RX8_N
DPB_PEX_RX9_N
DPB_PEX_RX10_N
DPB_PEX_RX11_N
DPB_PEX_RX12_N
DPB_PEX_RX13_N
DPB_PEX_RX14_N
DPB_PEX_RX15_N
DP2_PEX_RESET* U5
DP3_PEX_RESET* H61 TP128
-BR04_D_RST (26)
DP2_PEX_REFCLK_OUT_P T5 R5085 0/4/X TP129
DP2_PEX_REFCLK_OUT_N T4 R5087 0/4/X TP130
DP3_PEX_REFCLK_OUT_P C2 TP131
DP3_PEX_REFCLK_OUT_N D2 TP132
DPB_PEX_TX0_P U2 EXP_D_TXP0
DPB_PEX_TX1_P R1 EXP_D_TXP1
DPB_PEX_TX2_P P2 EXP_D_TXP2
DPB_PEX_TX3_P M1 EXP_D_TXP3
DPB_PEX_TX4_P K2 EXP_D_TXP4
DPB_PEX_TX5_P J1 EXP_D_TXP5
DPB_PEX_TX6_P G2 EXP_D_TXP6
DPB_PEX_TX7_P F1 EXP_D_TXP7
DPB_PEX_TX8_P C1 EXP_D_TXP8
DPB_PEX_TX9_P A2 EXP_D_TXP9
DPB_PEX_TX10_P B3 EXP_D_TXP10
DPB_PEX_TX11_P A5 EXP_D_TXP11
DPB_PEX_TX12_P B6 EXP_D_TXP12
DPB_PEX_TX13_P A8 EXP_D_TXP13
DPB_PEX_TX14_P B9 EXP_D_TXP14
DPB_PEX_TX15_P A11 EXP_D_TXP15
DPB_PEX_TX0_N T2 EXP_D_TXN0
DPB_PEX_TX1_N P1 EXP_D_TXN1
DPB_PEX_TX2_N N2 EXP_D_TXN2
DPB_PEX_TX3_N L1 EXP_D_TXN3
DPB_PEX_TX4_N J2 EXP_D_TXN4
DPB_PEX_TX5_N H1 EXP_D_TXN5
DPB_PEX_TX6_N E2 EXP_D_TXN6
DPB_PEX_TX7_N E1 EXP_D_TXN7
DPB_PEX_TX8_N B1 EXP_D_TXN8
DPB_PEX_TX9_N A3 EXP_D_TXN9
DPB_PEX_TX10_N B4 EXP_D_TXN10
DPB_PEX_TX11_N A6 EXP_D_TXN11
DPB_PEX_TX12_N B7 EXP_D_TXN12
DPB_PEX_TX13_N A9 EXP_D_TXN13
DPB_PEX_TX14_N B10 EXP_D_TXN14
DPB_PEX_TX15_N A12 EXP_D_TXN15
DP2_CLK_RSET_GND F7 R5091 2.37K/4/1
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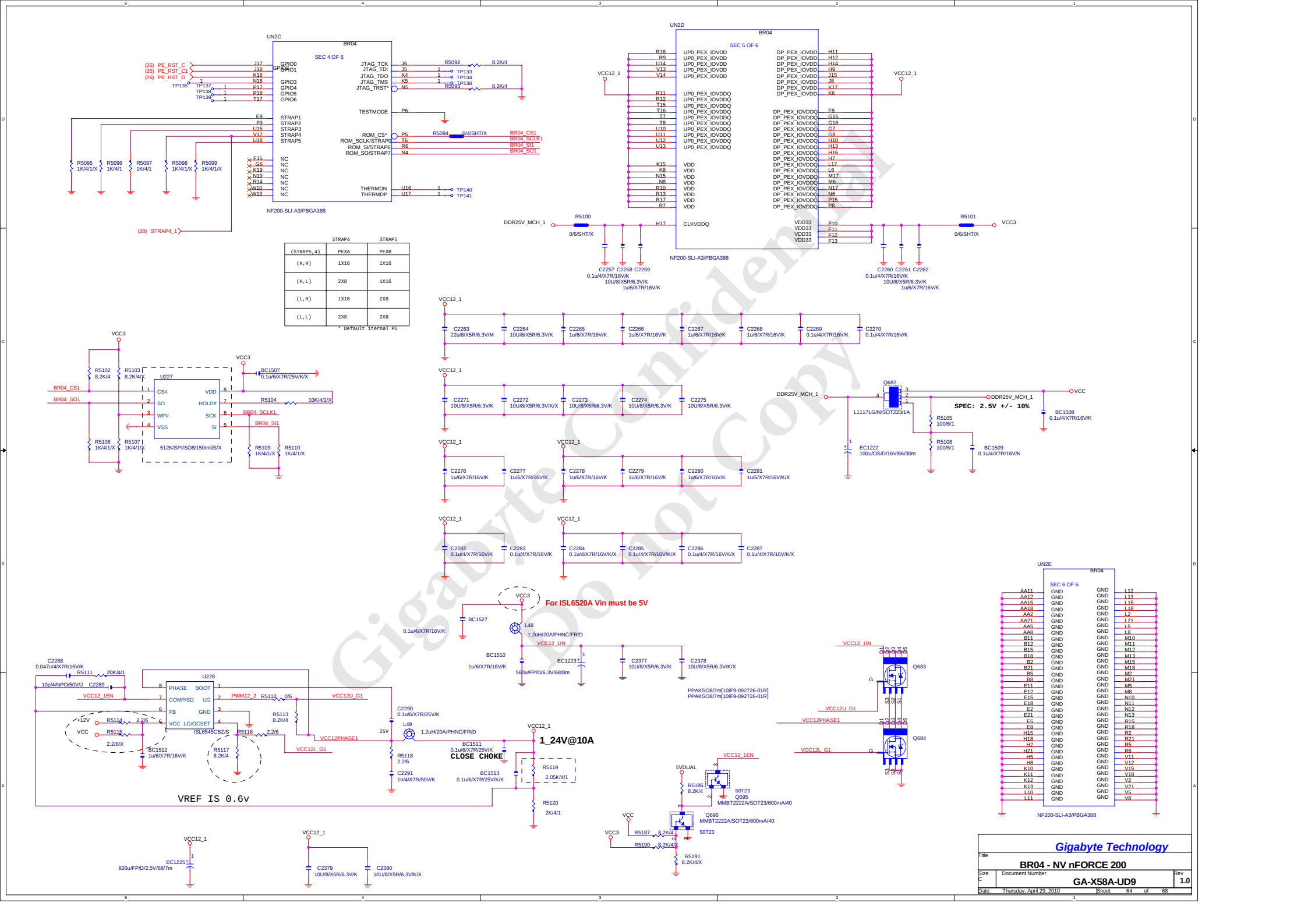
Gigabyte Technology
Title
BR04 - NV nFORCE 200
Size C
Document Number
GA-X58A-UD9
Rev 1.0
Date: Thursday, April 29, 2010
Sheet 63 of 68


UN2C
BR04
SEC 4 OF 6
NF200-SLI-A3/PBGA388
UN2D
SEC 5 OF 6
NF200-SLI-A3/PBGA388
STRAP4
STRAP5
(STRAP5,4)
PEXA
PEXB
(H,H) 1X16 1X16
(H,L) 2X8 1X16
(L,H) 1X16 2X8
(L,L) 2X8 2X8
* Default 1ternal PU
U227
512K/SPI/SO8/150mil/S/X
U228
ISL6545CBZ/S
For ISL6520A Vin must be 5V
1_24V@10A
CLOSE CHOKE
VREF IS 0.6v
UN2E
SEC 6 OF 6
NF200-SLI-A3/PBGA388
Gigabyte Technology
BR04 - NV nFORCE 200
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1.0
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CLK GEN CK505

For EMI

U49

9LPRS914HKLF/MLF72

To 1st LAN (lane5)
To ICH (Always on)
To clock buffer (Always on)
To JMB362(LANE3)
To 2nd LAN (lane6)
To clock buffer (Always on)
To 9128(IOH x4 0)
To ICH (Always on)
To IOH (Always on)
To IOH (Always on)
To clock buffer (Always on)
To JMB363(LANE2)
To USB3(IOH x4 2)

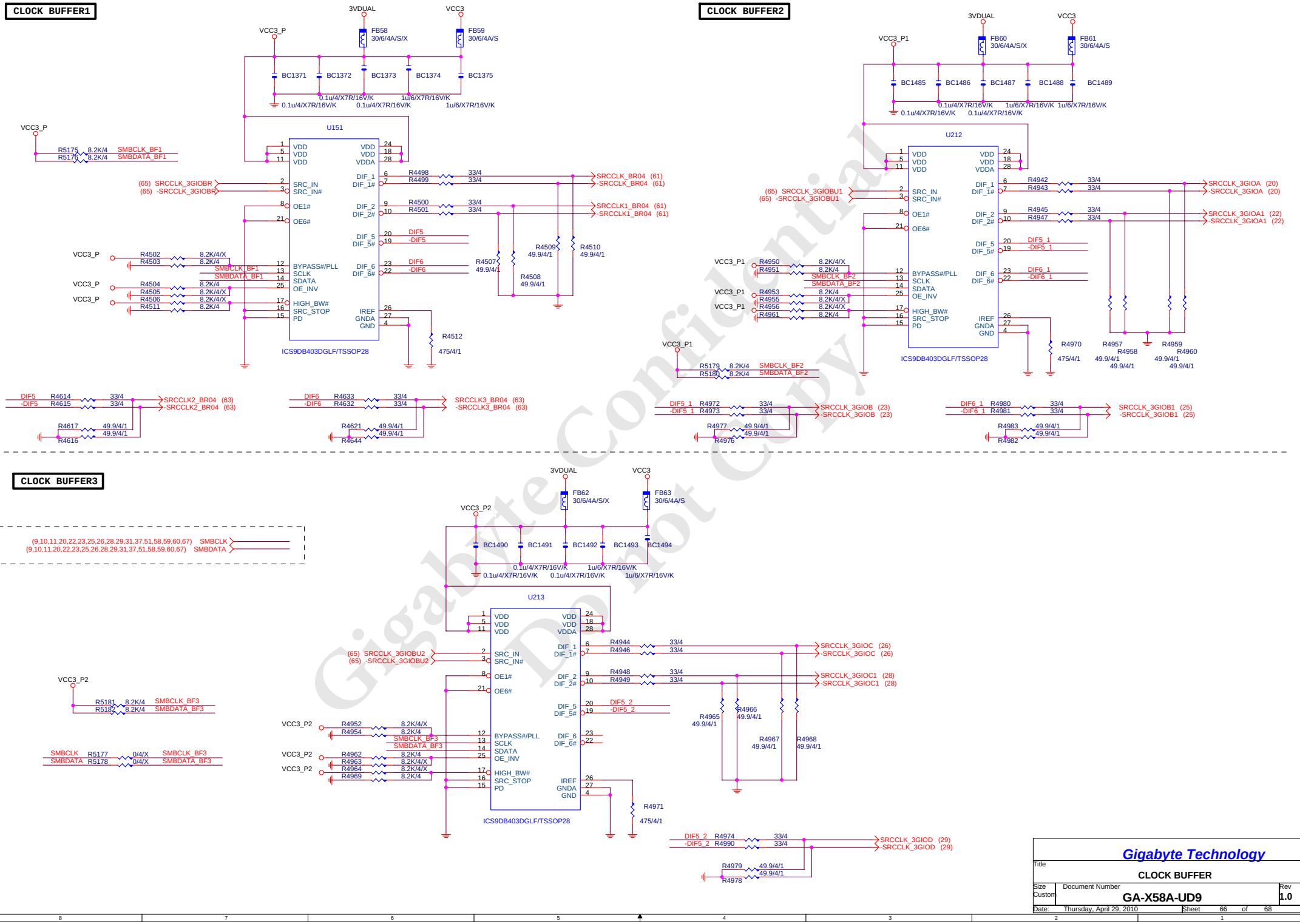
Close to clock gen
For Clockgen pair10 clock leakage issue

GSEL=1 , DOTCLK 96Mhz from 12/13
GSEL=0 , PCIECLK11 from 12/13

SEL_48= 1 , 24Mhz from pin10
SEL_48= 0 , 48Mhz from pin10

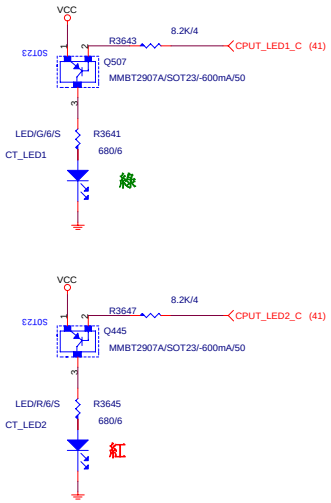
SEL_STOP: latched input to select pin functionality
1 = Selects pin 44/45 to be PCI_STOP#/CPU_STOP#
0 = Selects pin 44/45 to be PCIEX outputs ;
3.3V PCICLK output

Gigabyte Technology	
Title	ICS9LPRS914
Size: Custom	Document Number: GA-X58A-UD9
Rev	1.0
Date: Thursday, April 29, 2010	Sheet 65 of 68



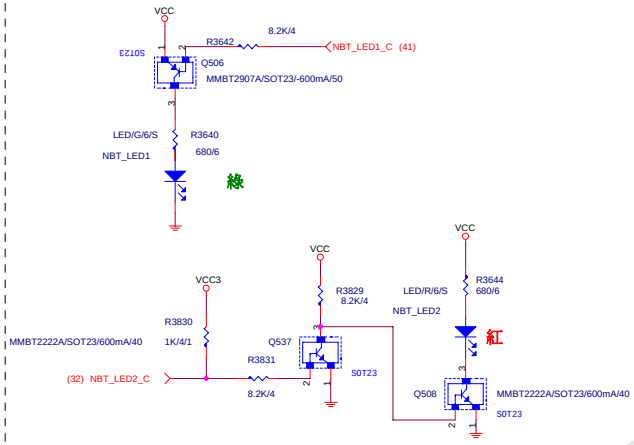
CPU溫度顯示

	I/O	Thermal
CPUT_LED1	GP63	60℃以上
CPUT_LED2	GP35	70℃以上



北橋(MCH)溫度顯示

	I/O	Thermal
NBT_LED1	GP30	60℃以上
NBT_LED2	GP31	70℃以上



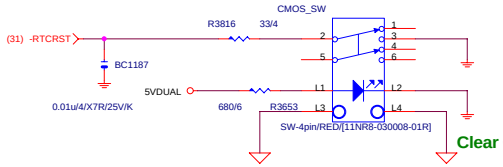
Switch 部分

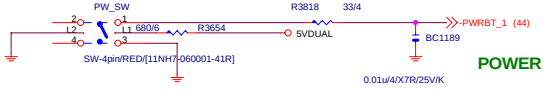
Clear CMOS 90℃料號:11NR8-030008-01R.

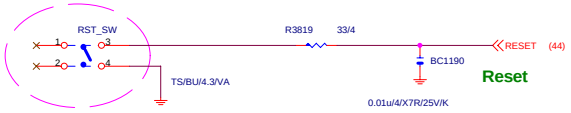
Clear CMOS 180℃料號:11NH7-060001-11R.

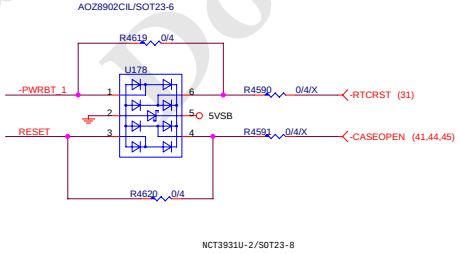
Power 180℃料號:11NH7-030001-21R.

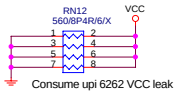
Reset 180℃料號:11NH7-060001-51R.

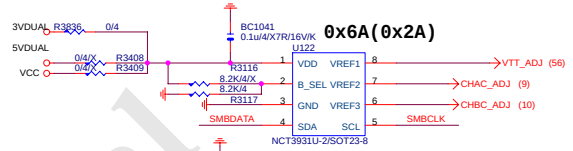


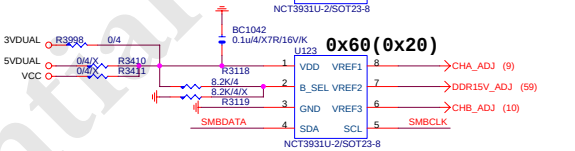


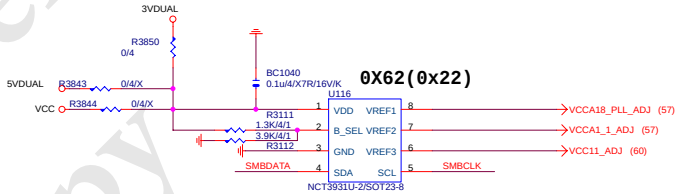


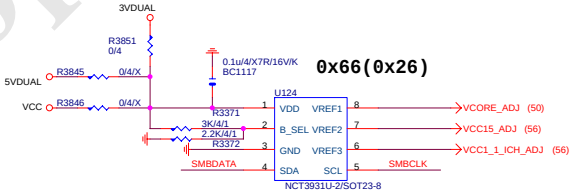


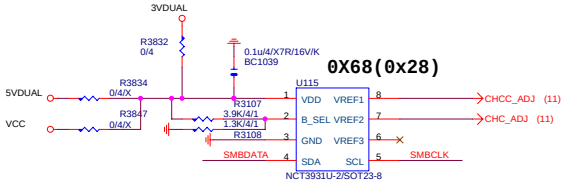


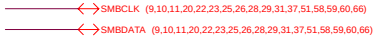


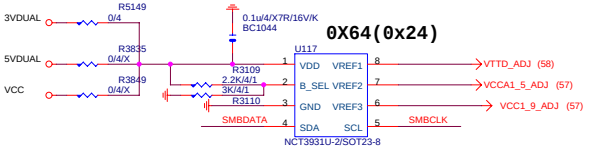












UPI6262(NCT393) Table

up6262(NCT393)	0X60(0x20)U123	0X62(0x22)U116	0X6A(0x2A)U122	0X66(0x26)U124	0X68(0x28)U115	0X64(0x24)U117
VREF1	CHA_ADJ	VCCA18_PLL_ADJ	VTT_ADJ	VCORE_ADJ	CHCC_ADJ	VTTD_ADJ
VREF2	DDR18V_ADJ	VCCA1_1_ADJ	CHAC_ADJ	VCC15_ADJ	CHC_ADJ	VCC1_1_ICH_ADJ
VREF3	CHB_ADJ	VCC11_ADJ	CHBC_ADJ	VCCA1_5_ADJ	MCH_RAMVREF_ADJ	VCC1_9_ADJ

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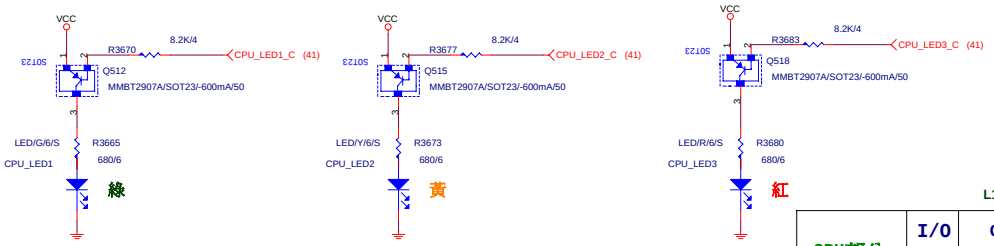
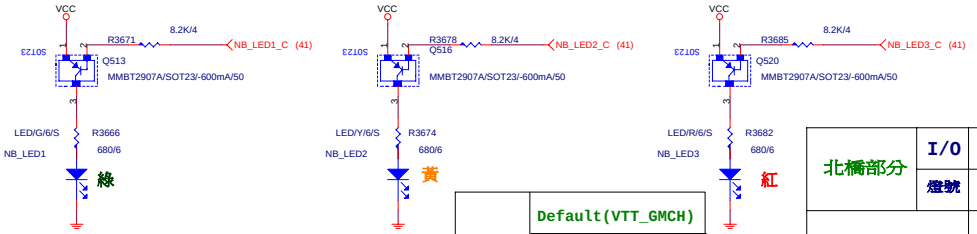
CPU Voltage



CPU_LED 選擇
Default(Vcore)
CPU PLL
VTTD

		L1	L2	L3
CPU部分	I/O	GP80	GP81	GP82
	燈號	CPU_LED1_C	CPU_LED1_C	CPU_LED1_C
CPU Vcore電壓		1.45V~1.54372V	1.55V ~1.59375V	1.6V以上
VTTD		1.25~1.4V	1.42~1.55V	1.56V以上

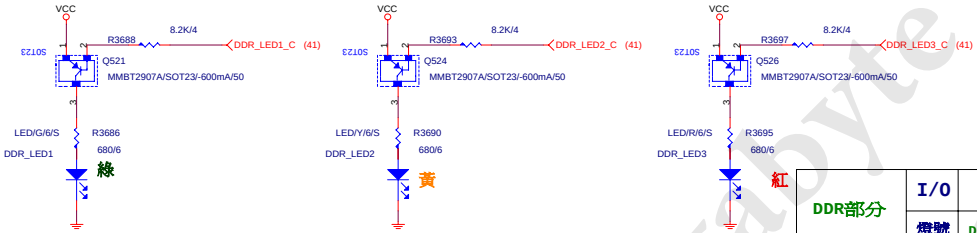
IOH Voltage



NB_LED 選擇
Default(VTT_GMCH)
VCC1_1

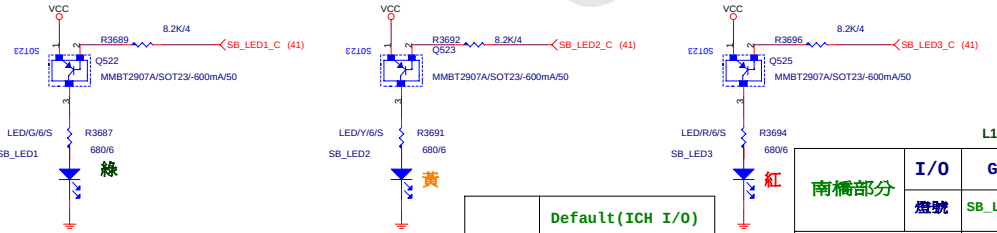
		L1	L2	L3
北橋部分	I/O	GP70	GP71	GP72
	燈號	NB_LED1_C	NB_LED2_C	NB_LED3_C
VCC1_1		1.18V~1.3V	1.32~1.5V	1.52V以上

DDR Voltage



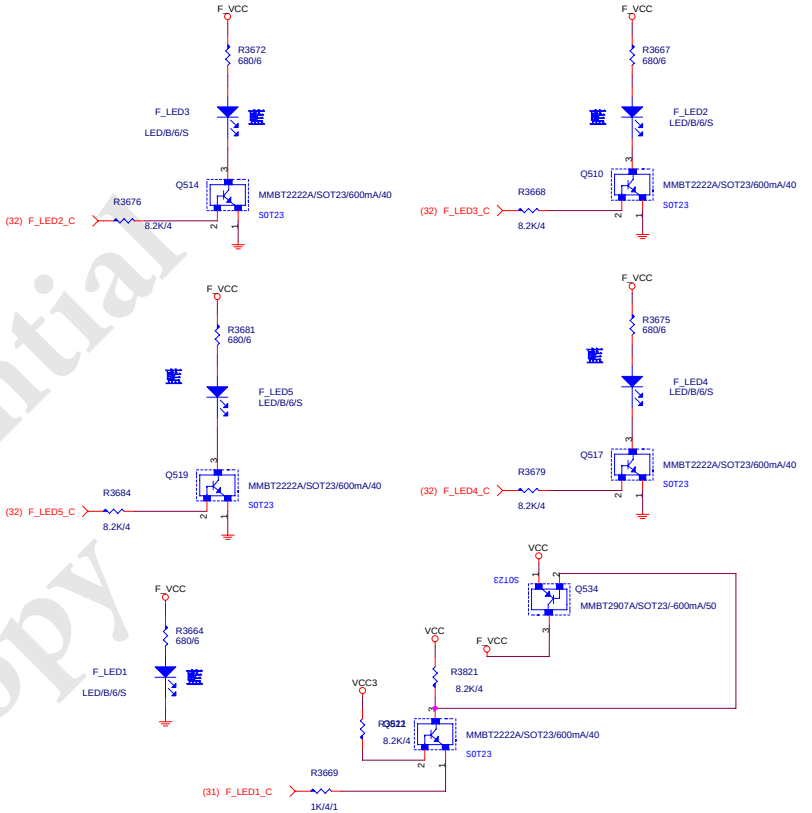
		L1	L2	L3
DDR部分	I/O	GP83	GP21	GP87
	燈號	DDR_LED1_C	DDR_LED2_C	DDR_LED3_C
DDR3電壓		1.55~1.65V	1.68~1.74V	1.76V以上

ICH Voltage



SB_LED 選擇
Default(ICH I/O)
VCC1_5
VCC1_1_ICH

		L1	L2	L3
南橋部分	I/O	GP73	GP74	GP64
	燈號	SB_LED1_C	SB_LED2_C	SB_LED3_C
VCC1_5		1.56~1.68V	1.68~1.86V	1.88V以上
VCC1_1_ICH		1.18V~1.3V	1.32~1.5V	1.52V以上



FSB LED	OFF	L1	L2	L3	L4	L5
GPIO		ICH GP57	ICH GP56	ICH GP22	ICH GP38	ICH GP21
CPU 133		145~	155~	165~	175~	185~

燈號表示方式

	L1 (LED1)	L2(LED2)	L3 (LED3)
CPU/DDR NB/SB	綠	黃	紅

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