

## rev 2.0

SHEET	TITLE
-------	-------

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	TABLE LIST
04	BLOCK DIAGRAM
05-06	LGA1366-A CPU_DDRA_B_C
07	LGA1366-C CPU_CSI
08	LGA1366-D CPU_GND
09	LGA1366-E CPU_PER
10	IOH_CSI
11-12	IOH_PCIEx16 / PCIe4
13-14	IOH_MISC_SRRAP
15-17	IOH_PWR_GND
18-20	DDRIII CHANNEL A_B_C
21	DDRIII TERMINATION
22-23	PCI EXPRESS X16 PORT_1
24	PCI EXPRESS X8_1
25-26	PCI EXPRESS X16 PORT_2
27	PCI EXPRESS X8_2
28	ICH10 DMI, PCI, USB
29	ICH10 GPIO, CTRL
30	ICH10 SATA, FAN PWM
31	ICH10 VCC, GND
32	ISL6312_VTTD
33	ICS9LPRS914
34	PCI EXPRESS x1 SLOTS
35	PCI SLOT 1,2
36	ITE 8720 (GB)
37	80 PORT
38	-PROHOT,DYNAMIC OC +12V保護線路

**TITLE**

[illegible]

**Gigabyte Technology**

Title			
Cover Sheet			
Size	Document Number		Rev
Custom	GA-X58A-UD5		2.0
Date:	Friday, April 23, 2010	Sheet	1 of 62

[illegible][illegible][illegible][illegible][illegible]

ICH9 GPIO LIST TABLE

PIN NAME	PWR WELL	AFTER/ PLTRST	USAGE	NOTE
GP50	MAIN	IN	REQ1#	
GP51	MAIN	IN	GNT1#	P/U 8.2K VCC3
GP52	MAIN	IN	REQ2#	P/U 8.2K VCC3
GP53	MAIN	IN	GNT2#	P/U 8.2K VCC3
GP54	MAIN	IN	REQ3#	P/U 8.2K VCC3
GP55	MAIN	IN	GNT3#	P/U 8.2K VCC3
GP56	STBY	IN	VCORE_OV5	
GP57	STBY	IN	VCORE_OV4	
GP58	STBY	IN	SPI_CS1#	
GP59	STBY		-USBOC_R	
GP60	STBY		LINKALRT#	

## Super I/O GPIO Table

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VBSB5W#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	20 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
FANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	SB_LED3_C	

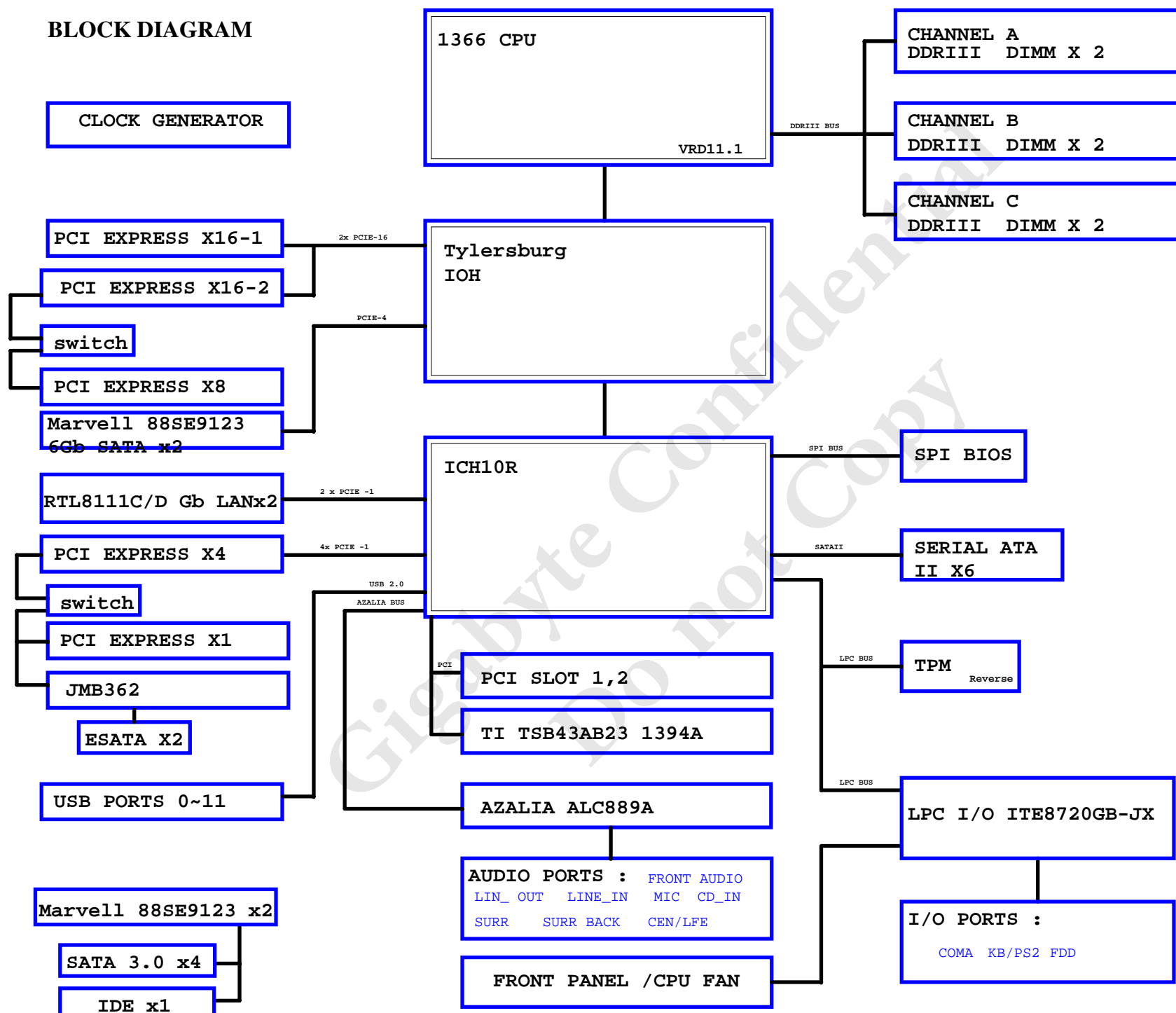


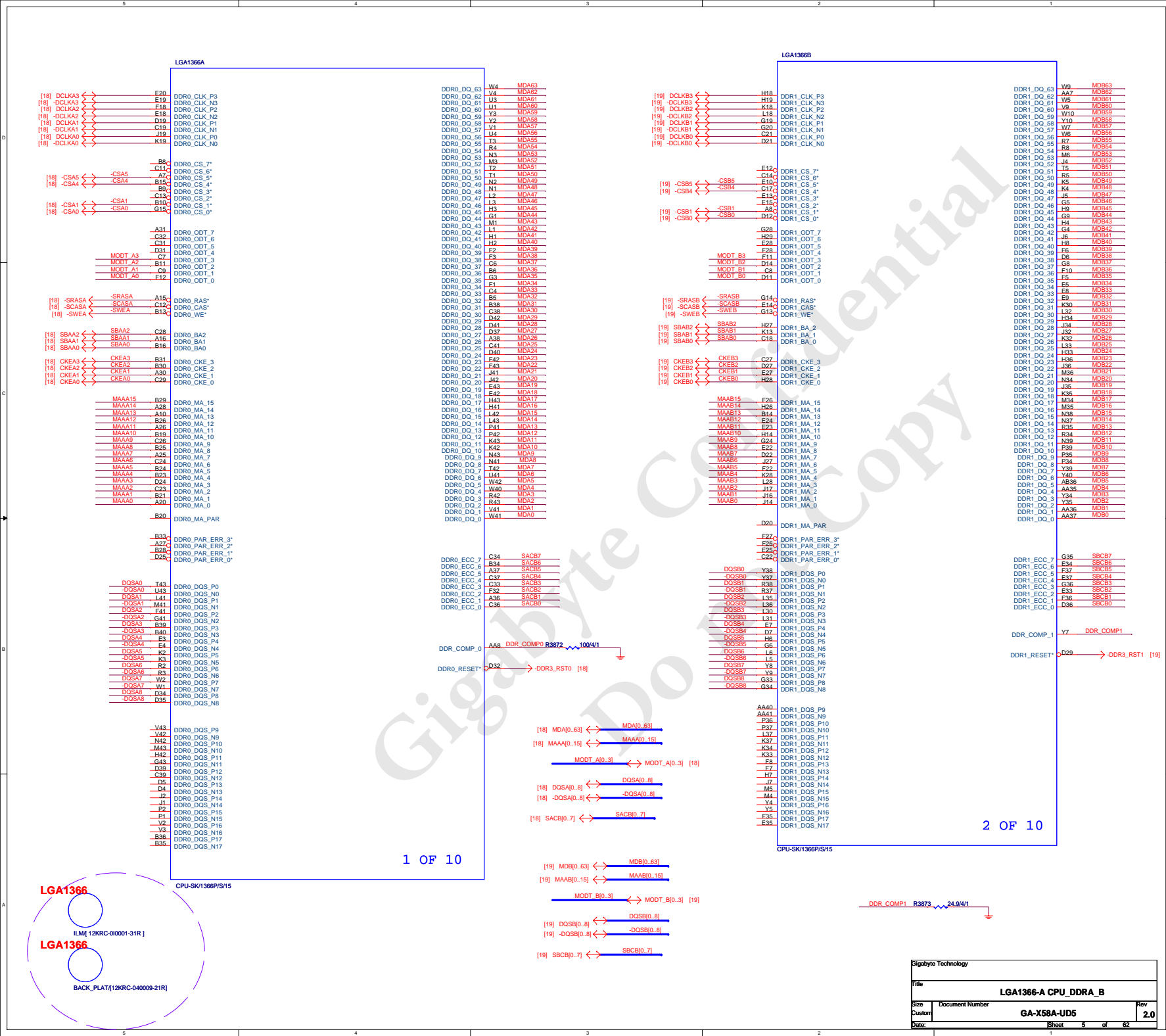
**散熱模組料號：**

EX58-UD4&UD4P(TPM Function差異):  
12SP2-01A001-U1R/U2R

<b><i>Gigabyte Technology</i></b>			
Title			
<b>TABLE LIST</b>			
Size C	Document Number <b>GA-X58A-UD5</b>		Rev <b>2.0</b>
Date:	Friday, April 23, 2010	Sheet	3 of 62

## BLOCK DIAGRAM





LGA1366C

[20] DCLKC3 ↔ L22 DDR2\_CLK\_P3  
[20] -DCLKC3 ↔ L21 DDR2\_CLK\_N3  
[20] DCLKC2 ↔ G21 DDR2\_CLK\_P2  
[20] -DCLKC2 ↔ L20 DDR2\_CLK\_N2  
[20] DCLKC1 ↔ K20 DDR2\_CLK\_P1  
[20] -DCLKC1 ↔ J22 DDR2\_CLK\_N1  
[20] DCLKC0 ↔ J21 DDR2\_CLK\_P0  
[20] -DCLKC0 ↔ L21 DDR2\_CLK\_N0

-H15C DDR2\_CS\_7\*  
-L17C DDR2\_CS\_6\*  
-D9C DDR2\_CS\_5\*  
[20] -CSC5 ↔ -CSC5 E17C DDR2\_CS\_4\*  
[20] -CSC4 ↔ -CSC4 H16C DDR2\_CS\_3\*  
-D18C DDR2\_CS\_2\*  
[20] -CSC1 ↔ -CSC1 K14C DDR2\_CS\_1\*  
[20] -CSC0 ↔ -CSC0 G16C DDR2\_CS\_0\*

K27 DDR2\_DOT\_7  
D30 DDR2\_DOT\_6  
K23 DDR2\_DOT\_5  
J29 DDR2\_DOT\_4  
MODT\_C3 D10 DDR2\_DOT\_3  
MODT\_C2 D15 DDR2\_DOT\_2  
MODT\_C1 F13 DDR2\_DOT\_1  
MODT\_C0 L16 DDR2\_DOT\_0

[20] -SRASC ↔ -SRASC D17C DDR2\_RAS\*  
[20] -SCASC ↔ -SCASC E16C DDR2\_CAS\*  
[20] -SWEC ↔ -SWEC C16C DDR2\_WE\*

[20] SBAC2 ↔ SBAC2 L26 DDR2\_BA\_2  
[20] SBAC1 ↔ SBAC1 E17 DDR2\_BA\_1  
[20] SBAC0 ↔ SBAC0 A17 DDR2\_BA\_0

[20] CKEC3 ↔ CKEC3 L27 DDR2\_CKE\_3  
[20] CKEC2 ↔ CKEC2 D26 DDR2\_CKE\_2  
[20] CKEC1 ↔ CKEC1 G26 DDR2\_CKE\_1  
[20] CKEC0 ↔ CKEC0 J26 DDR2\_CKE\_0

MAAC15 G25 DDR2\_MA\_15  
MAAC14 H24 DDR2\_MA\_14  
MAAC13 F15 DDR2\_MA\_13  
MAAC12 G23 DDR2\_MA\_12  
MAAC11 H23 DDR2\_MA\_11  
MAAC10 H17 DDR2\_MA\_10  
MAAC9 H22 DDR2\_MA\_9  
MAAC8 L25 DDR2\_MA\_8  
MAAC7 J24 DDR2\_MA\_7  
MAAC6 K22 DDR2\_MA\_6  
MAAC5 K23 DDR2\_MA\_5  
MAAC4 F20 DDR2\_MA\_4  
MAAC3 J20 DDR2\_MA\_3  
MAAC2 G18 DDR2\_MA\_2  
MAAC1 K17 DDR2\_MA\_1  
MAAC0 A18 DDR2\_MA\_0

B18 DDR2\_MA\_PAR

K25C DDR2\_PAR\_ERR\_3\*  
F23C DDR2\_PAR\_ERR\_2\*  
J25C DDR2\_PAR\_ERR\_1\*  
F21C DDR2\_PAR\_ERR\_0\*

-DQSC0 W37 DDR2\_DQS\_P0  
-DQSC0 W36 DDR2\_DQS\_N0  
-DQSC1 T37 DDR2\_DQS\_P1  
-DQSC1 T38 DDR2\_DQS\_N1  
-DQSC2 K40 DDR2\_DQS\_P2  
-DQSC2 K39 DDR2\_DQS\_N2  
-DQSC3 F38 DDR2\_DQS\_P3  
-DQSC3 F39 DDR2\_DQS\_N3  
-DQSC4 E40 DDR2\_DQS\_P4  
-DQSC4 J10 DDR2\_DQS\_N4  
-DQSC5 J9 DDR2\_DQS\_P5  
-DQSC5 L7 DDR2\_DQS\_N5  
-DQSC6 K7 DDR2\_DQS\_P6  
-DQSC6 P6 DDR2\_DQS\_N6  
-DQSC7 P5 DDR2\_DQS\_P7  
-DQSC7 T8 DDR2\_DQS\_N7  
-DQSC8 G29 DDR2\_DQS\_P8  
-DQSC8 G30 DDR2\_DQS\_N8

U35 DDR2\_DQS\_P9  
T35 DDR2\_DQS\_N9  
U40 DDR2\_DQS\_P10  
T40 DDR2\_DQS\_N10  
L38 DDR2\_DQS\_P11  
H38 DDR2\_DQS\_N11  
G38 DDR2\_DQS\_P12  
H11 DDR2\_DQS\_N12  
K9 DDR2\_DQS\_P13  
M38 DDR2\_DQS\_N13  
L38 DDR2\_DQS\_P14  
H38 DDR2\_DQS\_N14  
N4 DDR2\_DQS\_P15  
F4 DDR2\_DQS\_N15  
V6 DDR2\_DQS\_P16  
V7 DDR2\_DQS\_N16  
H31 DDR2\_DQS\_P17  
G31 DDR2\_DQS\_N17

DDR2\_DQ\_63 U9 MDC63  
DDR2\_DQ\_62 V8 MDC62  
DDR2\_DQ\_61 T7 MDC61  
DDR2\_DQ\_60 T6 MDC60  
DDR2\_DQ\_59 U10 MDC59  
DDR2\_DQ\_58 T10 MDC58  
DDR2\_DQ\_57 U6 MDC57  
DDR2\_DQ\_56 U5 MDC56  
DDR2\_DQ\_55 R9 MDC55  
DDR2\_DQ\_54 R10 MDC54  
DDR2\_DQ\_53 N7 MDC53  
DDR2\_DQ\_52 N8 MDC52  
DDR2\_DQ\_51 P10 MDC51  
DDR2\_DQ\_50 P9 MDC50  
DDR2\_DQ\_49 N6 MDC49  
DDR2\_DQ\_48 P7 MDC48  
DDR2\_DQ\_47 M8 MDC47  
DDR2\_DQ\_46 L8 MDC46  
DDR2\_DQ\_45 M10 MDC45  
DDR2\_DQ\_44 L11 MDC44  
DDR2\_DQ\_43 N9 MDC43  
DDR2\_DQ\_42 K10 MDC42  
DDR2\_DQ\_41 L10 MDC41  
DDR2\_DQ\_40 L12 MDC39  
DDR2\_DQ\_39 H12 MDC38  
DDR2\_DQ\_38 G10 MDC37  
DDR2\_DQ\_37 G11 MDC36  
DDR2\_DQ\_36 L13 MDC35  
DDR2\_DQ\_35 H13 MDC34  
DDR2\_DQ\_34 K12 MDC33  
DDR2\_DQ\_33 E38 MDC32  
DDR2\_DQ\_32 F38 MDC30  
DDR2\_DQ\_31 G39 MDC29  
DDR2\_DQ\_30 H39 MDC28  
DDR2\_DQ\_29 H37 MDC27  
DDR2\_DQ\_28 J37 MDC26  
DDR2\_DQ\_27 F40 MDC25  
DDR2\_DQ\_26 G40 MDC24  
DDR2\_DQ\_25 K38 MDC23  
DDR2\_DQ\_24 L40 MDC22  
DDR2\_DQ\_23 N36 MDC21  
DDR2\_DQ\_22 P40 MDC20  
DDR2\_DQ\_21 J39 MDC19  
DDR2\_DQ\_20 J40 MDC18  
DDR2\_DQ\_19 M40 MDC17  
DDR2\_DQ\_18 M39 MDC16  
DDR2\_DQ\_17 R40 MDC14  
DDR2\_DQ\_16 T41 MDC13  
DDR2\_DQ\_15 V39 MDC12  
DDR2\_DQ\_14 W39 MDC11  
DDR2\_DQ\_13 T36 MDC10  
DDR2\_DQ\_12 R39 MDC9  
DDR2\_DQ\_11 U38 MDC8  
DDR2\_DQ\_10 V38 MDC7  
DDR2\_DQ\_9 V37 MDC6  
DDR2\_DQ\_8 V34 MDC5  
DDR2\_DQ\_7 U34 MDC4  
DDR2\_DQ\_6 U36 MDC3  
DDR2\_DQ\_5 V36 MDC2  
DDR2\_DQ\_4 W35 MDC1  
DDR2\_DQ\_3 W34 MDC0

DDR2\_ECC\_7 F30 SCBC7  
DDR2\_ECC\_6 F31 SCBC6  
DDR2\_ECC\_5 J30 SCBC5  
DDR2\_ECC\_4 J31 SCBC4  
DDR2\_ECC\_3 E30 SCBC3  
DDR2\_ECC\_2 E29 SCBC2  
DDR2\_ECC\_1 F33 SCBC1  
DDR2\_ECC\_0 H32 SCBC0

DDR2\_COMP\_2 AC1 DDR\_COMP2 R3874 130/4/1

DDR2\_RESET E32 → -DDR3\_RST2 [20]

DDR2\_DQS\_P9 U35  
DDR2\_DQS\_N9 T35  
DDR2\_DQS\_P10 U40  
DDR2\_DQS\_N10 T40  
DDR2\_DQS\_P11 L38  
DDR2\_DQS\_N11 H38  
DDR2\_DQS\_P12 G38  
DDR2\_DQS\_N12 H11  
DDR2\_DQS\_P13 K9  
DDR2\_DQS\_N13 M38  
DDR2\_DQS\_P14 L38  
DDR2\_DQS\_N14 H38  
DDR2\_DQS\_P15 N4  
DDR2\_DQS\_N15 F4  
DDR2\_DQS\_P16 V6  
DDR2\_DQS\_N16 V7  
DDR2\_DQS\_P17 H31  
DDR2\_DQS\_N17 G31

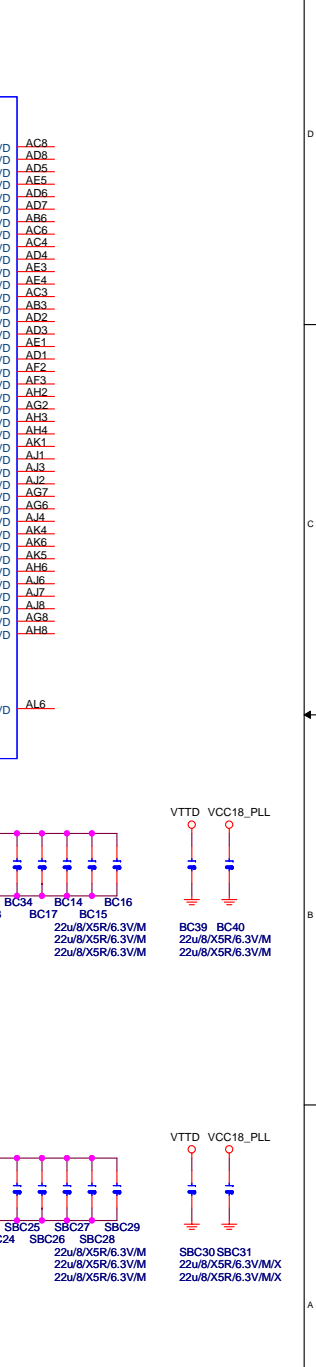
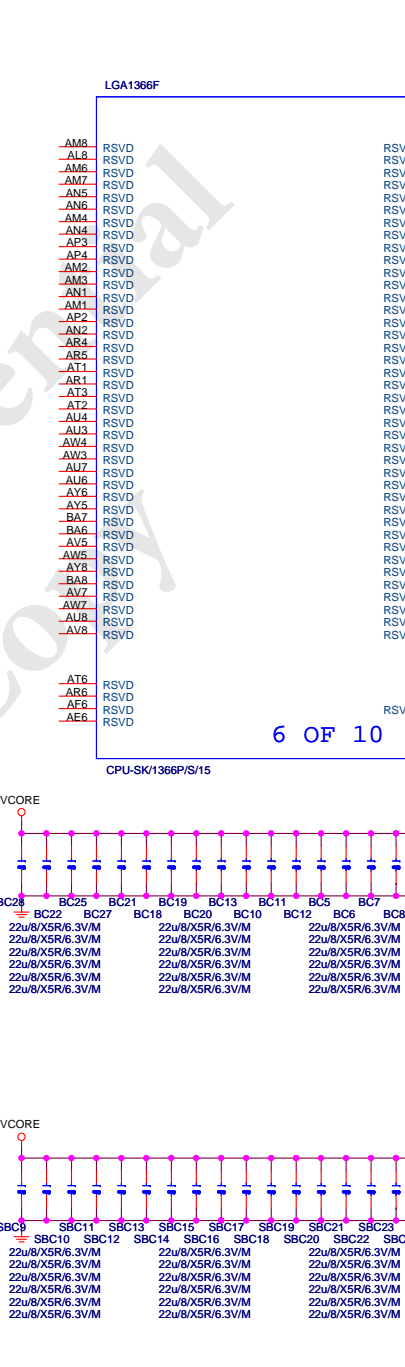
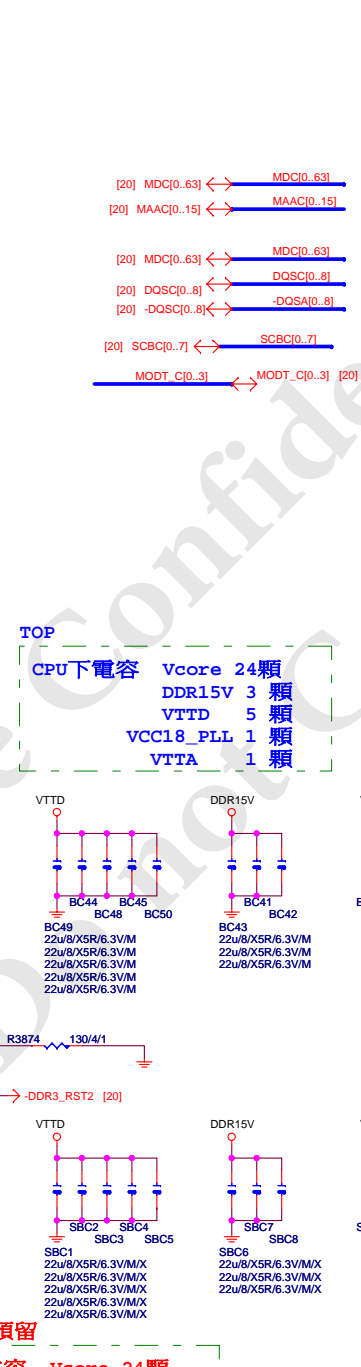
U9 MDC63  
V8 MDC62  
T7 MDC61  
T6 MDC60  
U10 MDC59  
T10 MDC58  
U6 MDC57  
U5 MDC56  
R9 MDC55  
R10 MDC54  
N7 MDC53  
N8 MDC52  
P10 MDC51  
P9 MDC50  
N6 MDC49  
P7 MDC48  
M8 MDC47  
L8 MDC46  
M10 MDC45  
L11 MDC44  
N9 MDC43  
K10 MDC42  
L10 MDC41  
L12 MDC39  
H12 MDC38  
G10 MDC37  
G11 MDC36  
L13 MDC35  
H13 MDC34  
K12 MDC33  
E38 MDC32  
F38 MDC30  
G39 MDC29  
H39 MDC28  
H37 MDC27  
J37 MDC26  
F40 MDC25  
G40 MDC24  
K38 MDC23  
L40 MDC22  
N36 MDC21  
P40 MDC20  
J39 MDC19  
J40 MDC18  
M40 MDC17  
M39 MDC16  
R40 MDC14  
T41 MDC13  
V39 MDC12  
W39 MDC11  
T36 MDC10  
R39 MDC9  
U38 MDC8  
V38 MDC7  
V37 MDC6  
V34 MDC5  
U34 MDC4  
U36 MDC3  
V36 MDC2  
W35 MDC1  
W34 MDC0

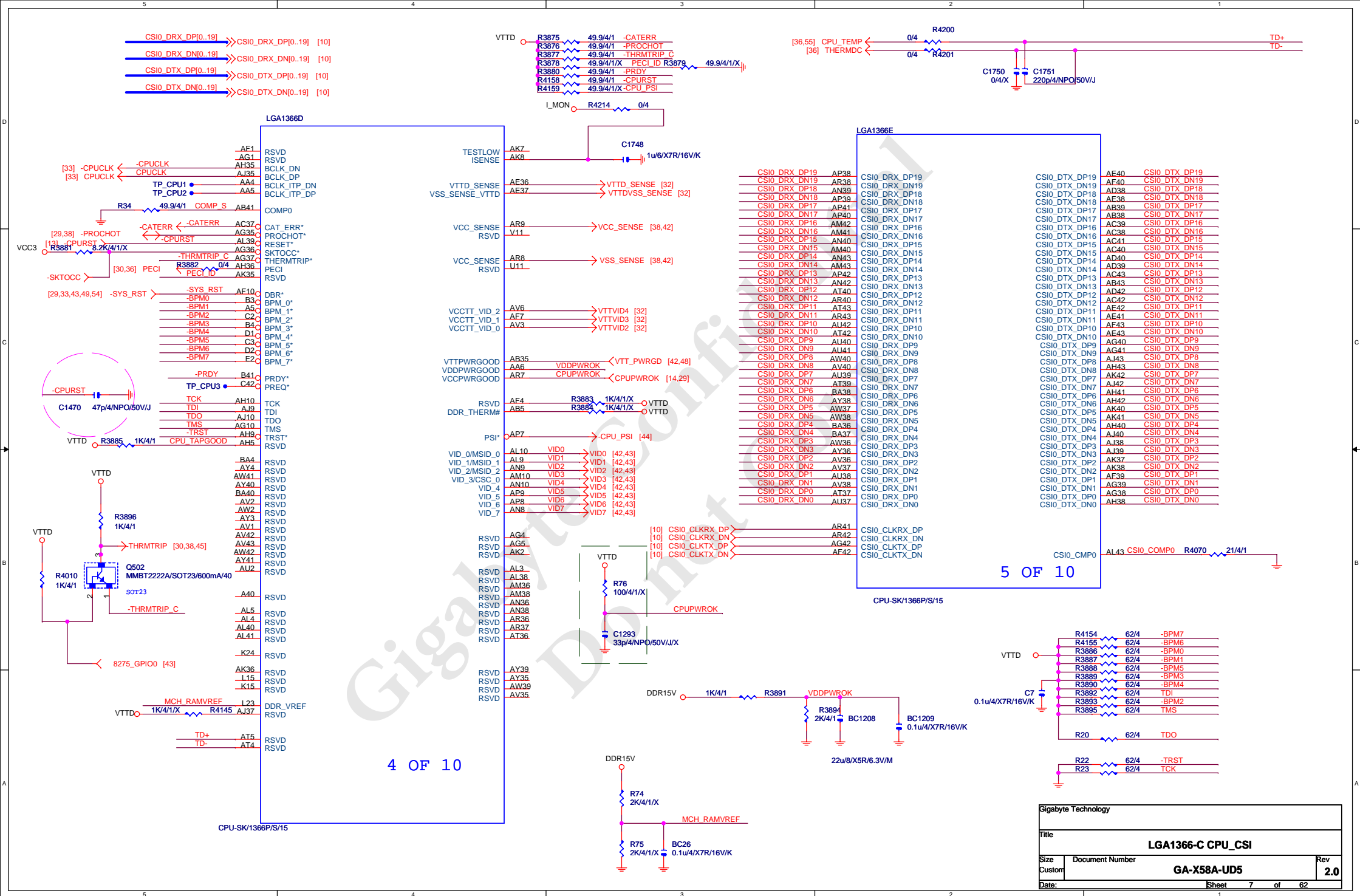
F30 SCBC7  
F31 SCBC6  
J30 SCBC5  
J31 SCBC4  
E30 SCBC3  
E29 SCBC2  
F33 SCBC1  
H32 SCBC0

AC1 DDR\_COMP2 R3874 130/4/1

E32 → -DDR3\_RST2 [20]

U35 DDR2\_DQS\_P9  
T35 DDR2\_DQS\_N9  
U40 DDR2\_DQS\_P10  
T40 DDR2\_DQS\_N10  
L38 DDR2\_DQS\_P11  
H38 DDR2\_DQS\_N11  
G38 DDR2\_DQS\_P12  
H11 DDR2\_DQS\_N12  
K9 DDR2\_DQS\_P13  
M38 DDR2\_DQS\_N13  
L38 DDR2\_DQS\_P14  
H38 DDR2\_DQS\_N14  
N4 DDR2\_DQS\_P15  
F4 DDR2\_DQS\_N15  
V6 DDR2\_DQS\_P16  
V7 DDR2\_DQS\_N16  
H31 DDR2\_DQS\_P17  
G31 DDR2\_DQS\_N17





LGA1366I

B42 VSS  
B37 VSS  
B2 VSS  
A41 VSS  
A39 VSS  
A35 VSS  
A6 VSS  
A4 VSS  
C5 VSS  
E6 VSS  
E1 VSS  
D43 VSS  
D38 VSS  
D33 VSS  
D8 VSS  
D3 VSS  
C43 VSS  
C40 VSS  
C35 VSS  
E36 VSS  
E41 VSS  
F4 VSS  
F9 VSS  
F29 VSS  
F34 VSS  
F39 VSS  
G2 VSS  
G7 VSS  
G12 VSS  
G32 VSS  
G37 VSS  
G42 VSS  
H5 VSS  
H10 VSS  
H30 VSS  
H35 VSS  
BA39 VSS  
BA35 VSS  
BA29 VSS  
BA26 VSS  
BA20 VSS  
BA17 VSS  
BA14 VSS  
BA11 VSS  
BA5 VSS  
BA3 VSS  
AY42 VSS  
AY37 VSS  
AY29 VSS  
AY26 VSS  
AY23 VSS  
AY32 VSS  
AY22 VSS  
AY20 VSS  
AY17 VSS  
AY14 VSS  
AY11 VSS  
AY7 VSS  
AY2 VSS  
AW35 VSS  
AW32 VSS  
AW29 VSS  
AW26 VSS  
AW23 VSS  
AW22 VSS  
AW20 VSS  
AW17 VSS  
AW14 VSS  
AW11 VSS  
AW8 VSS  
AW6 VSS  
AW1 VSS  
AV41 VSS  
AV39 VSS  
AV32 VSS  
AV29 VSS  
AV26 VSS

VSS AV23  
VSS AV22  
VSS AV20  
VSS AV17  
VSS AV14  
VSS AV11  
VSS AV4  
VSS AU43  
VSS AU36  
VSS AU35  
VSS AU32  
VSS AU29  
VSS AU26  
VSS AU23  
VSS AU22  
VSS AU20  
VSS AU17  
VSS AU11  
VSS AU14  
VSS AU5  
VSS AU1  
VSS AT41  
VSS AT38  
VSS AT35  
VSS AT32  
VSS AT29  
VSS AT26  
VSS AT23  
VSS AT22  
VSS AT20  
VSS AT17  
VSS AT14  
VSS AT11  
VSS AT8  
VSS AT7  
VSS AR39  
VSS AR35  
VSS AR32  
VSS AR29  
VSS AR26  
VSS AR23  
VSS AR22  
VSS AR20  
VSS AR17  
VSS AR14  
VSS AR11  
VSS AR3  
VSS AR2  
VSS AP43  
VSS AP37  
VSS AP36  
VSS AP35  
VSS AP32  
VSS AP29  
VSS AP26  
VSS AP23  
VSS AP22  
VSS AP20  
VSS AP17  
VSS AP14  
VSS AP11  
VSS AP10  
VSS AP6  
VSS AP5  
VSS AP1  
VSS AN41  
VSS AN37  
VSS AN35  
VSS AN32  
VSS AN29  
VSS AN23  
VSS AN22  
VSS AN20  
VSS AN17  
VSS AN14  
VSS AN11

9 OF 10

CPU-SK/1366P/S/15

LGA1366J

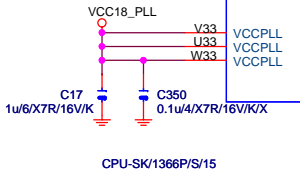
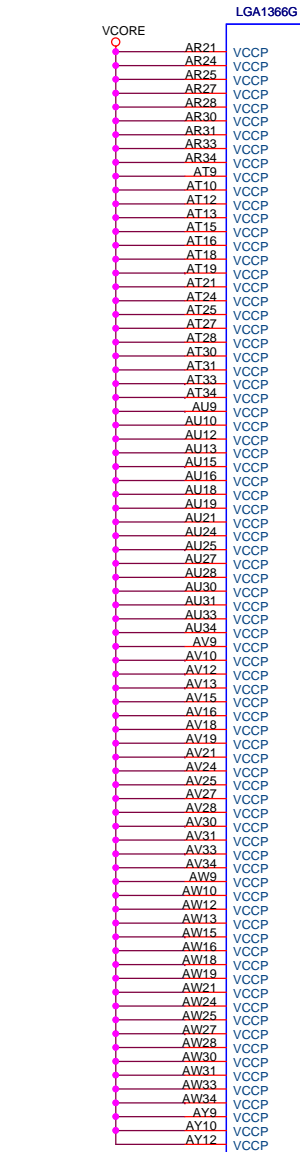
AN7 VSS  
AN3 VSS  
AM39 VSS  
AM37 VSS  
AM35 VSS  
AM32 VSS  
AM29 VSS  
AM26 VSS  
AM23 VSS  
AM22 VSS  
AM20 VSS  
AM17 VSS  
AM14 VSS  
AM11 VSS  
AM9 VSS  
AM5 VSS  
AL42 VSS  
AL37 VSS  
AL36 VSS  
AL35 VSS  
AL32 VSS  
AL29 VSS  
AL26 VSS  
AL23 VSS  
AL22 VSS  
AL20 VSS  
AL17 VSS  
AL14 VSS  
AL11 VSS  
AL7 VSS  
AL2 VSS  
AL1 VSS  
AK43 VSS  
AK39 VSS  
AK34 VSS  
AK32 VSS  
AK29 VSS  
AK26 VSS  
AK23 VSS  
AK22 VSS  
AK20 VSS  
AK17 VSS  
AK14 VSS  
AK10 VSS  
AK9 VSS  
AK3 VSS  
AJ41 VSS  
AJ36 VSS  
AJ34 VSS  
AJ5 VSS  
AH39 VSS  
AH37 VSS  
AH34 VSS  
AH7 VSS  
AH1 VSS  
AG43 VSS  
AG33 VSS  
AG11 VSS  
AG8 VSS  
AG3 VSS  
AF41 VSS  
AF38 VSS  
AF35 VSS  
AF9 VSS  
AE39 VSS  
AE7 VSS  
AE2 VSS  
AD43 VSS  
AD41 VSS  
AD37 VSS  
AD33 VSS  
AD11 VSS  
AC36 VSS  
AC9 VSS  
AC7 VSS  
AC5 VSS  
AC2 VSS  
AB42 VSS

VSS AB40  
VSS AB37  
VSS AB7  
VSS AB4  
VSS AA39  
VSS AA38  
VSS AA34  
VSS AA9  
VSS AA3  
VSS Y41  
VSS Y36  
VSS Y33  
VSS Y11  
VSS Y6  
VSS Y1  
VSS W43  
VSS W38  
VSS W8  
VSS W3  
VSS V40  
VSS V35  
VSS V10  
VSS V5  
VSS U42  
VSS U37  
VSS U7  
VSS U2  
VSS T39  
VSS T34  
VSS T9  
VSS T4  
VSS R41  
VSS R36  
VSS R6  
VSS R1  
VSS P43  
VSS P38  
VSS P33  
VSS P11  
VSS P8  
VSS P3  
VSS N40  
VSS N35  
VSS N10  
VSS N5  
VSS M42  
VSS M37  
VSS M32  
VSS M30  
VSS M28  
VSS M26  
VSS M24  
VSS M22  
VSS M20  
VSS M18  
VSS M16  
VSS M14  
VSS M12  
VSS M7  
VSS M2  
VSS L39  
VSS L34  
VSS L29  
VSS L9  
VSS L4  
VSS K41  
VSS K36  
VSS K31  
VSS K11  
VSS K6  
VSS K1  
VSS J43  
VSS J38  
VSS J33  
VSS J13  
VSS J8  
VSS J3  
VSS H40

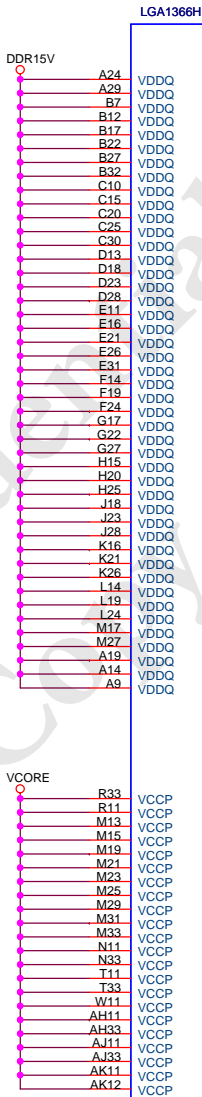
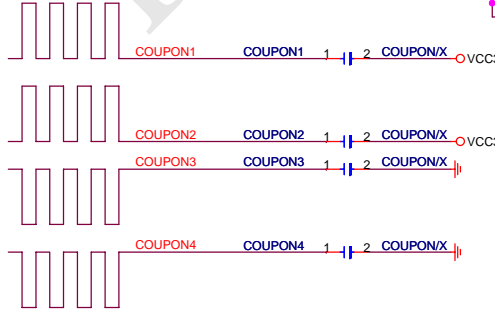
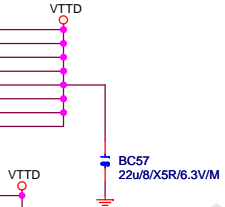
10 OF 10

CPU-SK/1366P/S/15

Gigabyte Technology		
Title		
LGA1366-D GND		
Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Sheet 8 of 62	

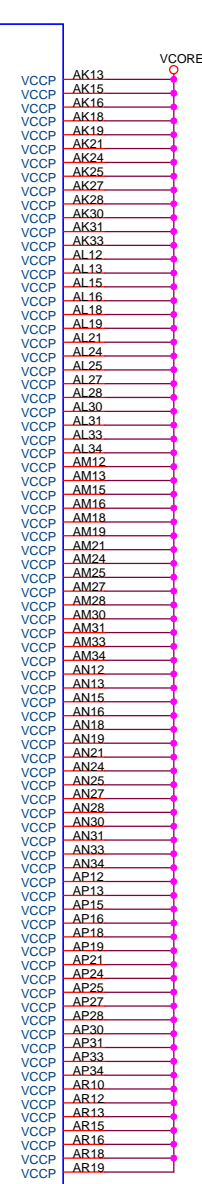


7 OF 10

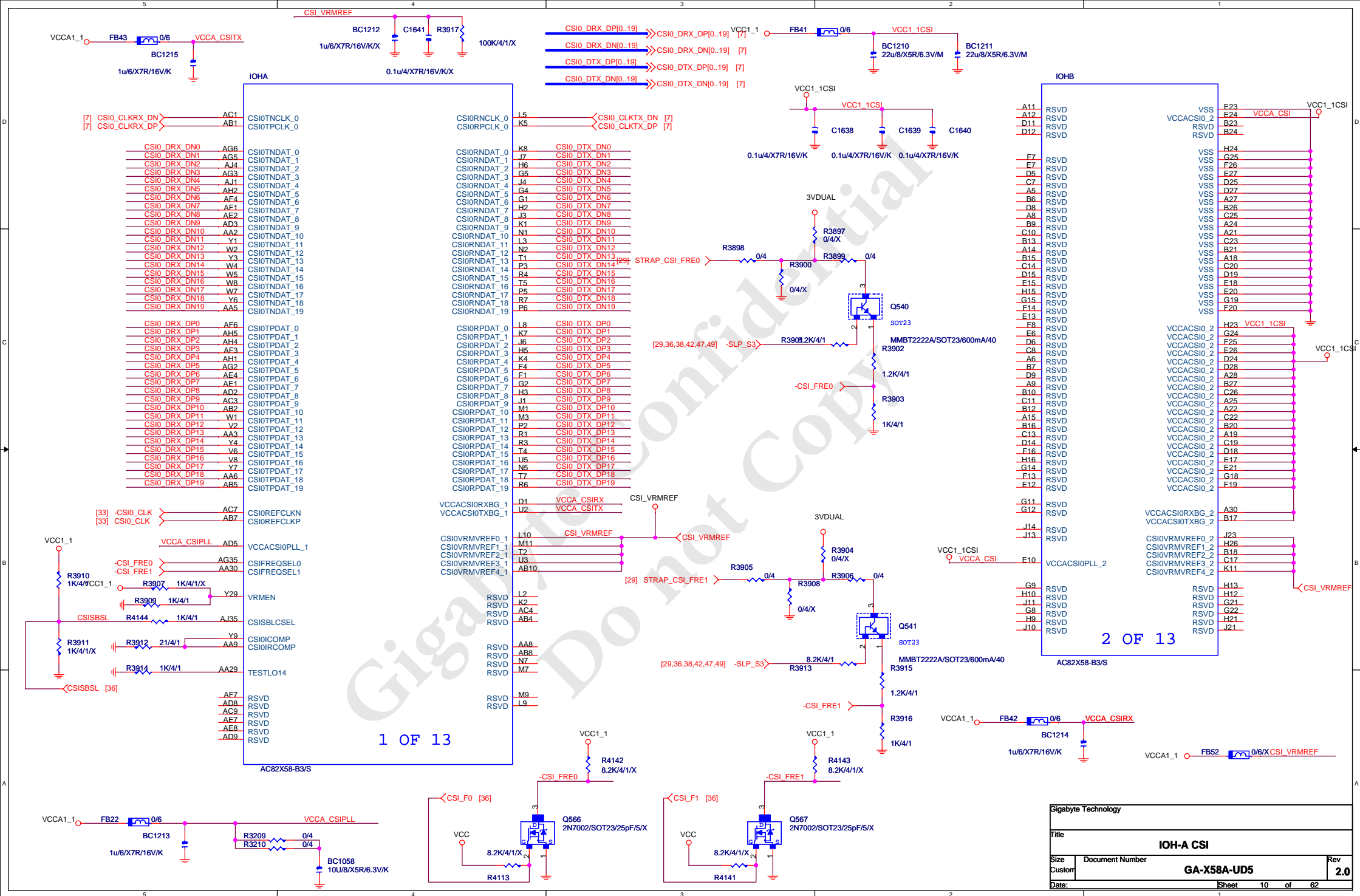


8 OF 10

CPU-SK/1366P/S/15



Gigabyte Technology	
Title	
LGA1366-E CPU_PWR	
Size	Document Number
Custom	GA-X58A-UD5
Date:	Rev 2.0
Sheet 9 of 62	

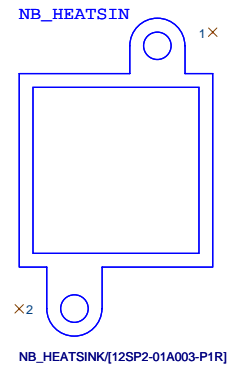
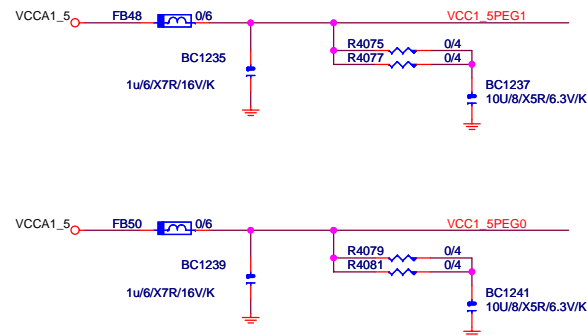
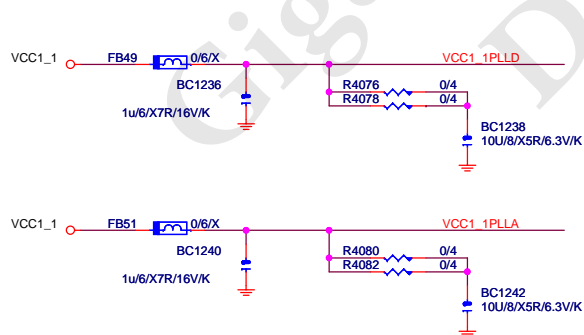
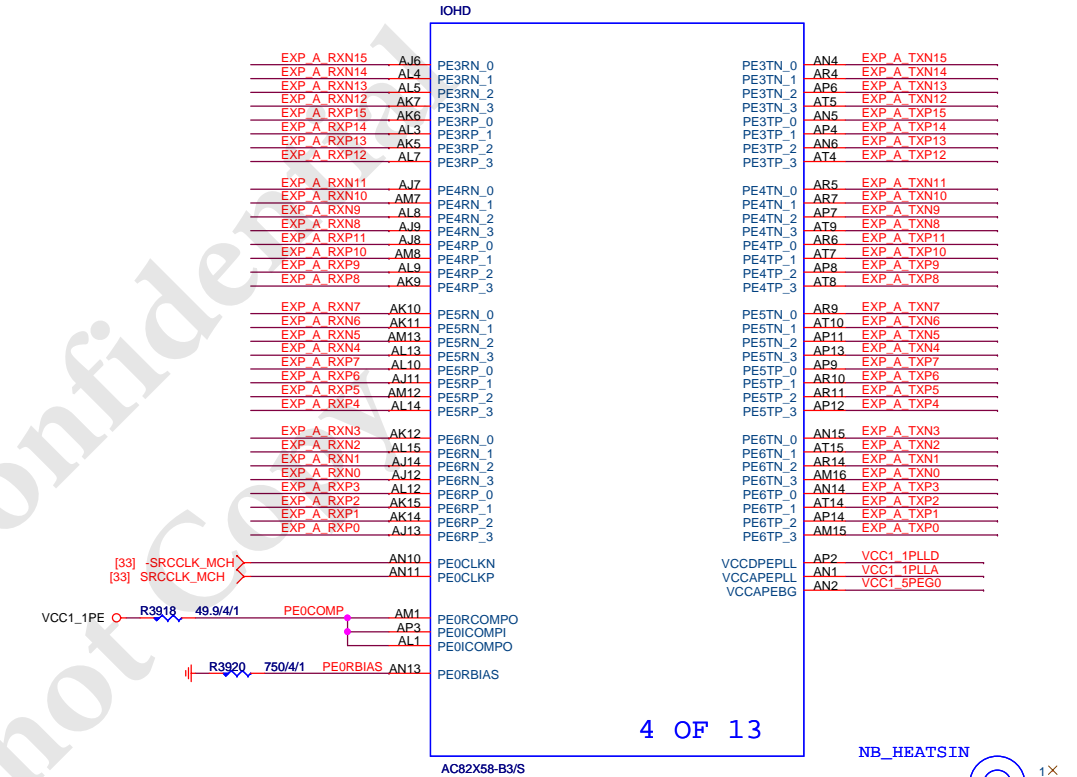
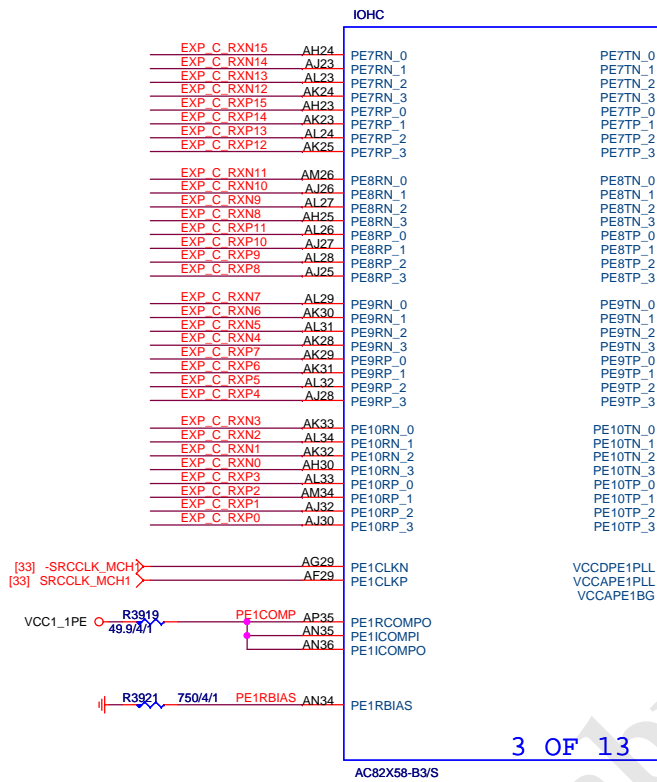


EXP\_A\_TXP[0..7] >> EXP\_A\_TXP[0..7] [23]  
EXP\_A\_TXN[0..7] >> EXP\_A\_TXN[0..7] [23]  
EXP\_A\_RXP[0..7] >> EXP\_A\_RXP[0..7] [23]  
EXP\_A\_RXN[0..7] >> EXP\_A\_RXN[0..7] [23]

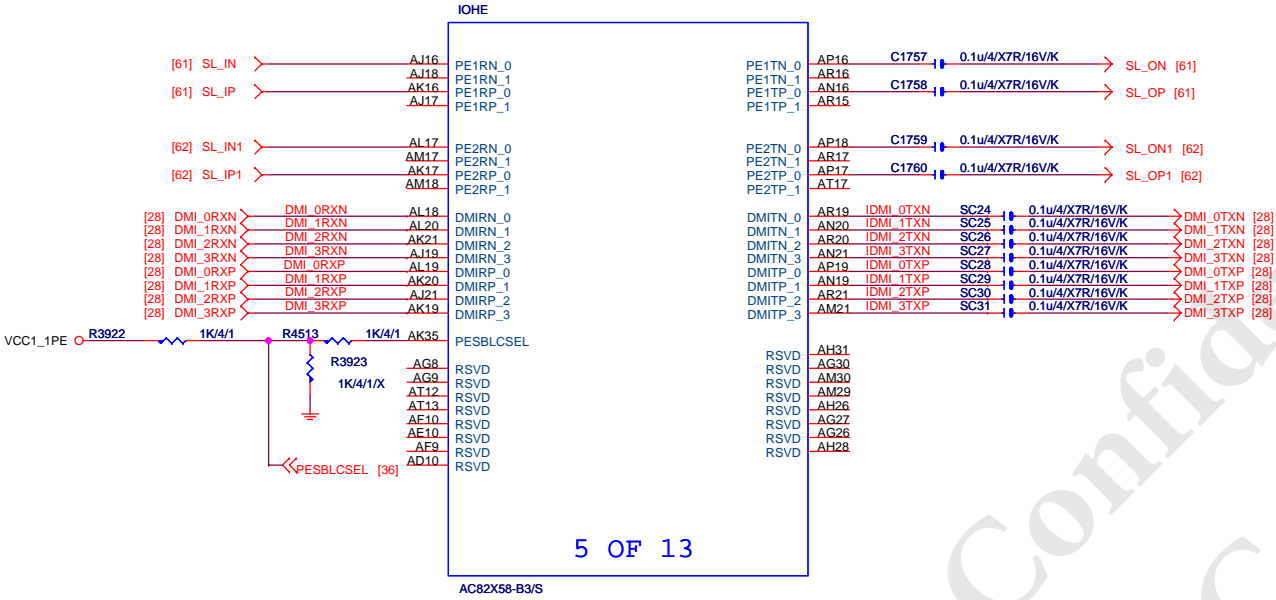
EXP\_A\_TXP[8..15] >> EXP\_A\_TXP[8..15] [22]  
EXP\_A\_TXN[8..15] >> EXP\_A\_TXN[8..15] [22]  
EXP\_A\_RXP[8..15] >> EXP\_A\_RXP[8..15] [22]  
EXP\_A\_RXN[8..15] >> EXP\_A\_RXN[8..15] [22]

EXP\_C\_TXP[0..7] >> EXP\_C\_TXP[0..7] [26]  
EXP\_C\_TXN[0..7] >> EXP\_C\_TXN[0..7] [26]  
EXP\_C\_RXP[0..7] >> EXP\_C\_RXP[0..7] [26]  
EXP\_C\_RXN[0..7] >> EXP\_C\_RXN[0..7] [26]

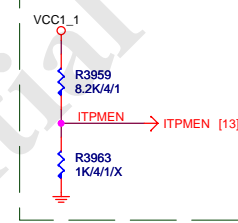
EXP\_C\_TXP[8..15] >> EXP\_C\_TXP[8..15] [25]  
EXP\_C\_TXN[8..15] >> EXP\_C\_TXN[8..15] [25]  
EXP\_C\_RXP[8..15] >> EXP\_C\_RXP[8..15] [25]  
EXP\_C\_RXN[8..15] >> EXP\_C\_RXN[8..15] [25]



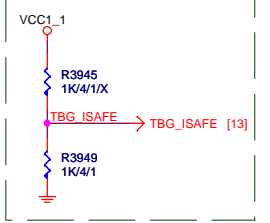
Gigabyte Technology		
Title		
IOH-B PCIEX16		
Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Sheet	11 of 62



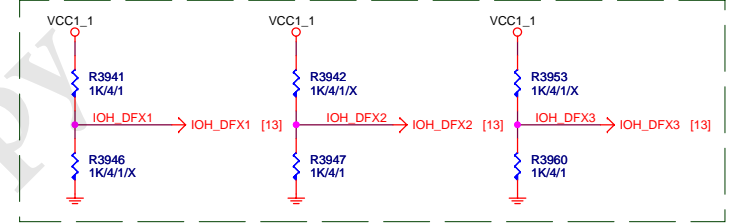
### ITPMEN



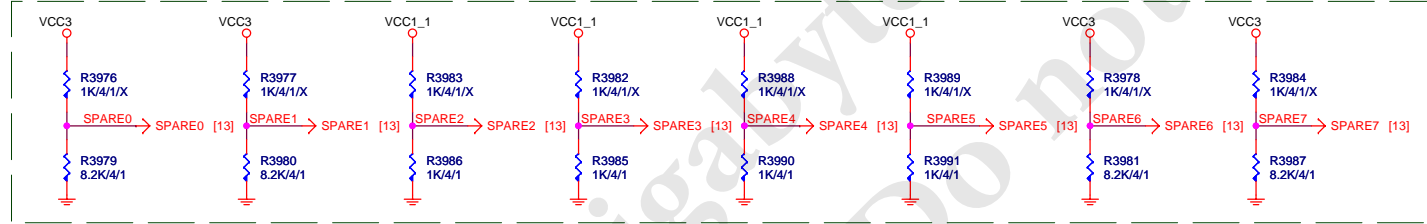
### TBG\_ISAFE



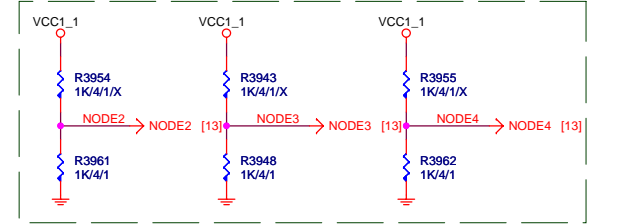
### IOH1~3



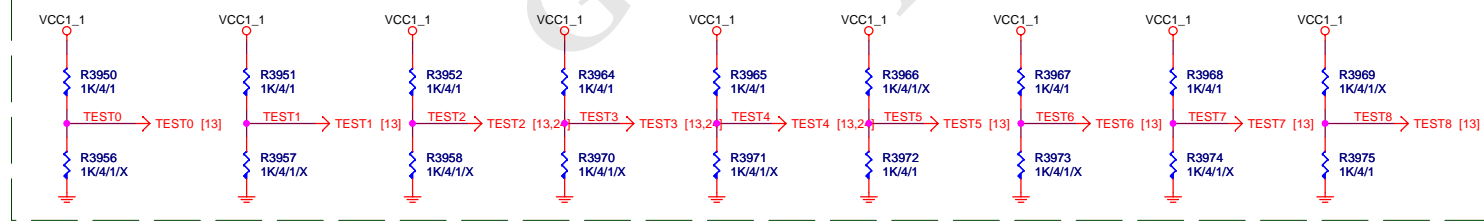
### SPARE0~7



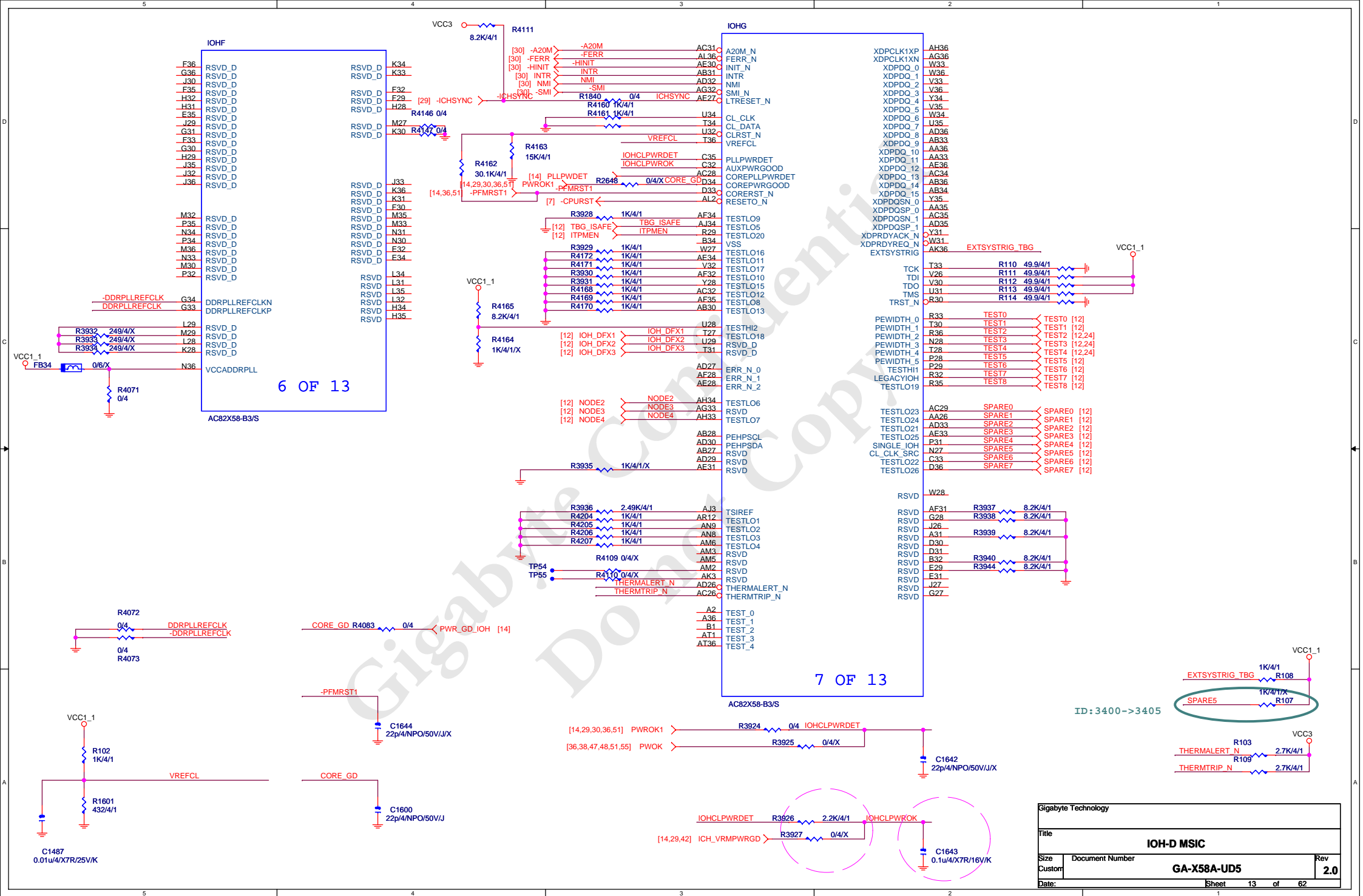
### NOD2~3



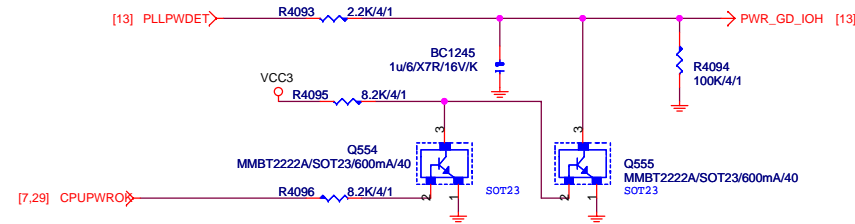
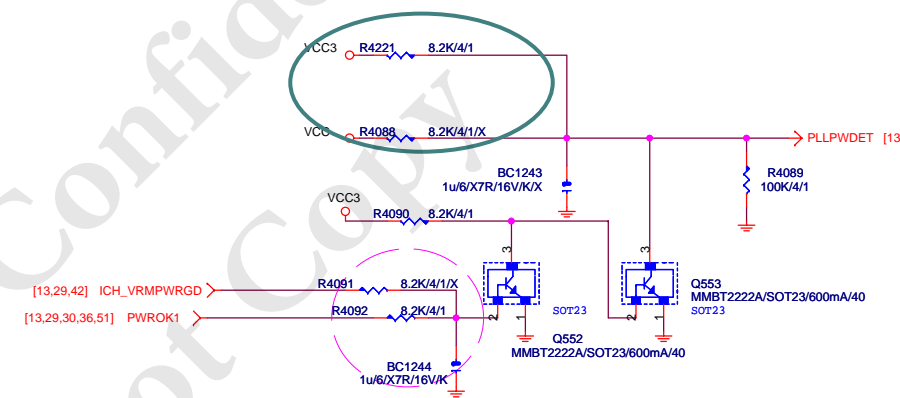
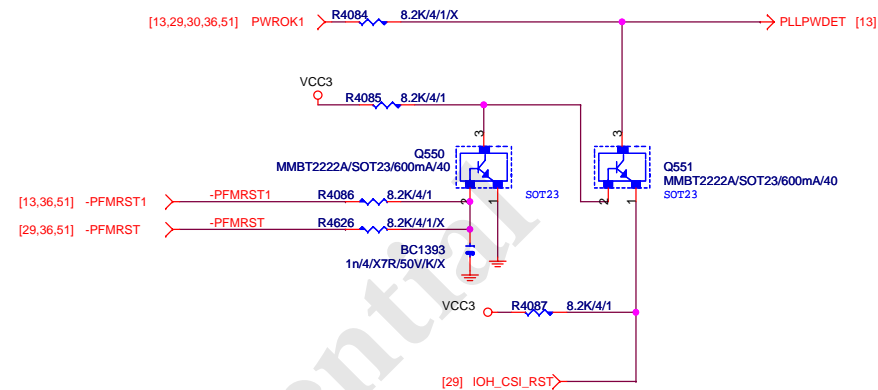
### TEST0~8



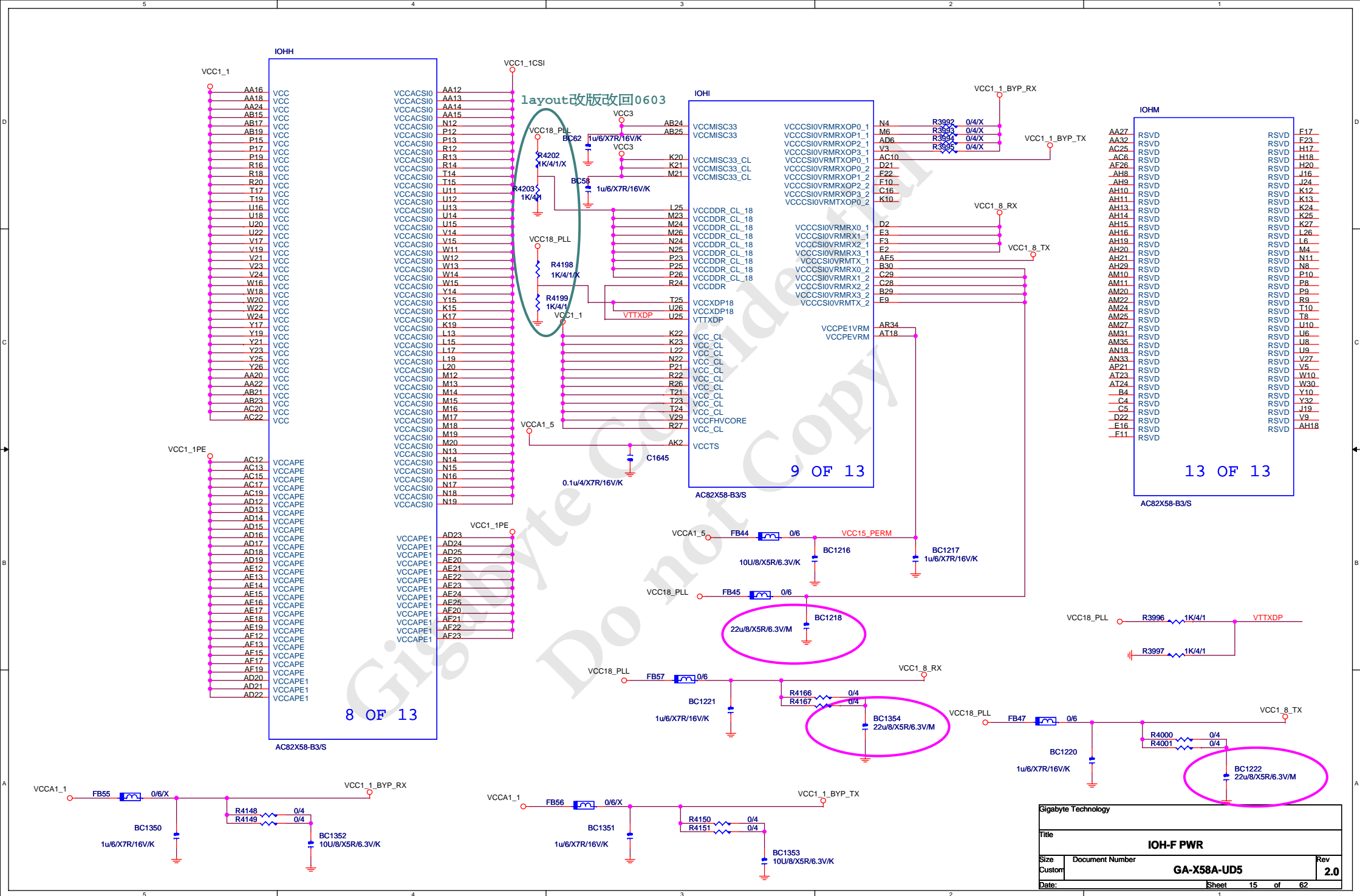
Gigabyte Technology			
Title			
IOH-C PCIEX4			
Size Custom	Document Number		Rev 2.0
GA-X58A-UD5			
Date:		Sheet 12 of 62	



Gigabyte Technology			
Title			
IOH-D MSIC			
Size	Document Number		Rev
Custom	GA-X58A-UD5		2.0
Date:	Sheet 13 of 62		

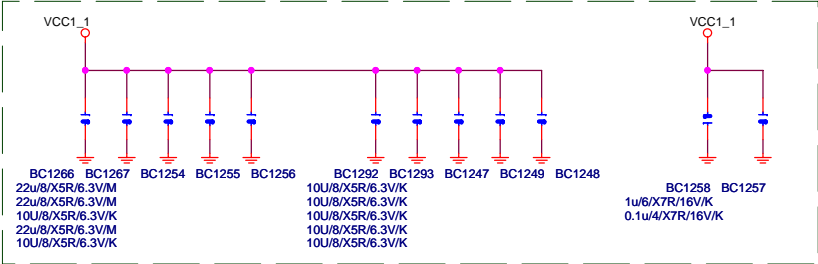


Gigabyte Technology			
Title			
IOH-E_MISC_STRAP			
Size	Document Number	GA-X58A-UD5	Rev
Custom			2.0
Date:		Sheet	14 of 62

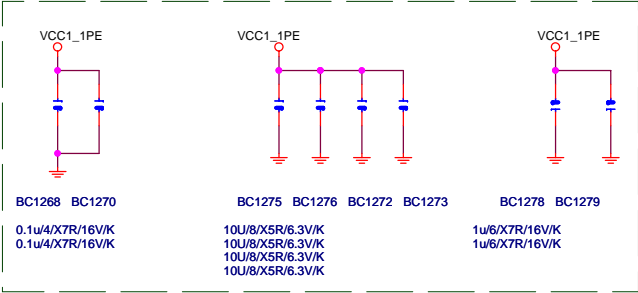


TOP side

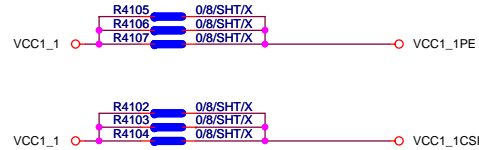
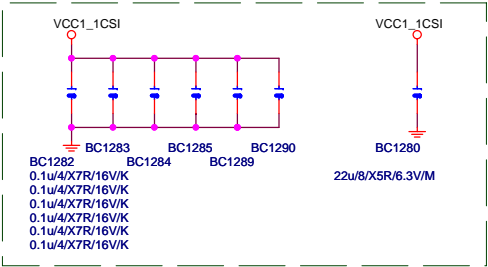
VCC1\_1



VCC1\_1PE

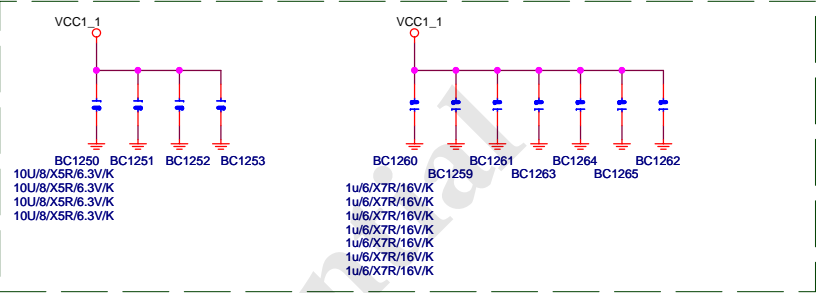


VCC1\_1CSI

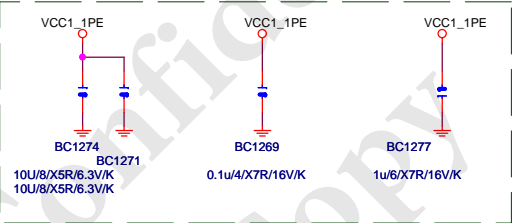


Bottom Side

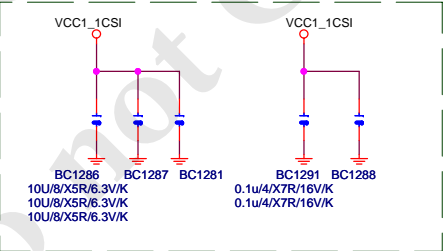
VCC1\_1



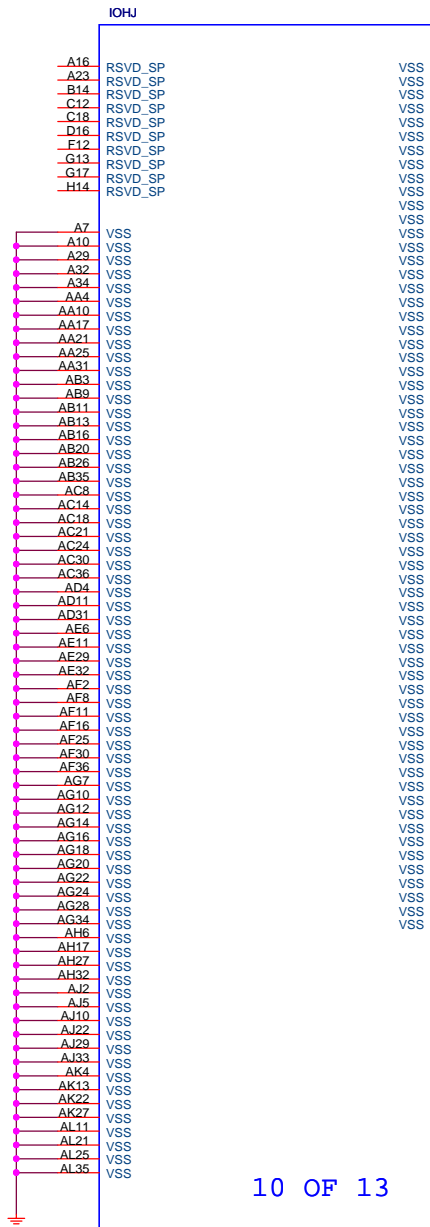
VCC1\_1PE



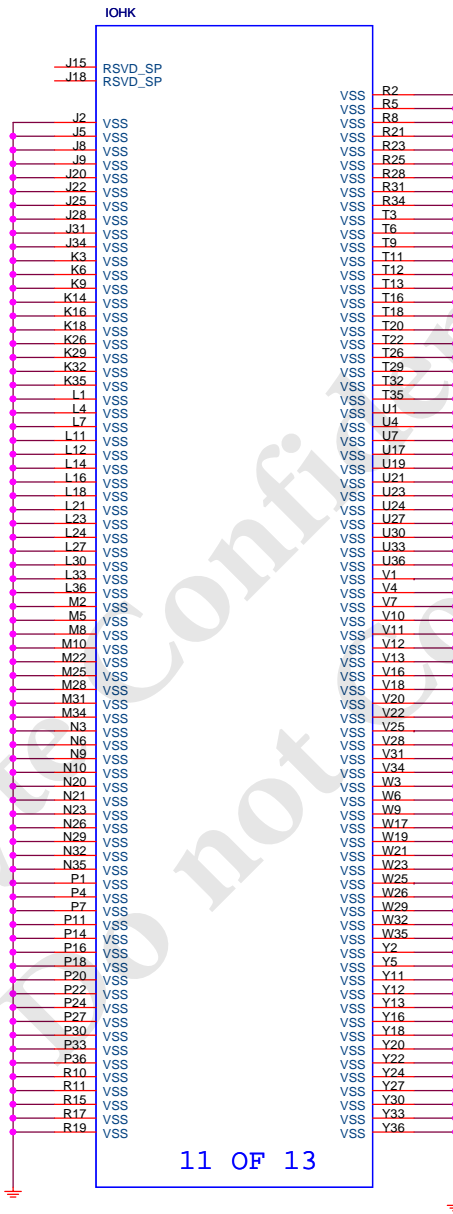
VCC1\_1CSI



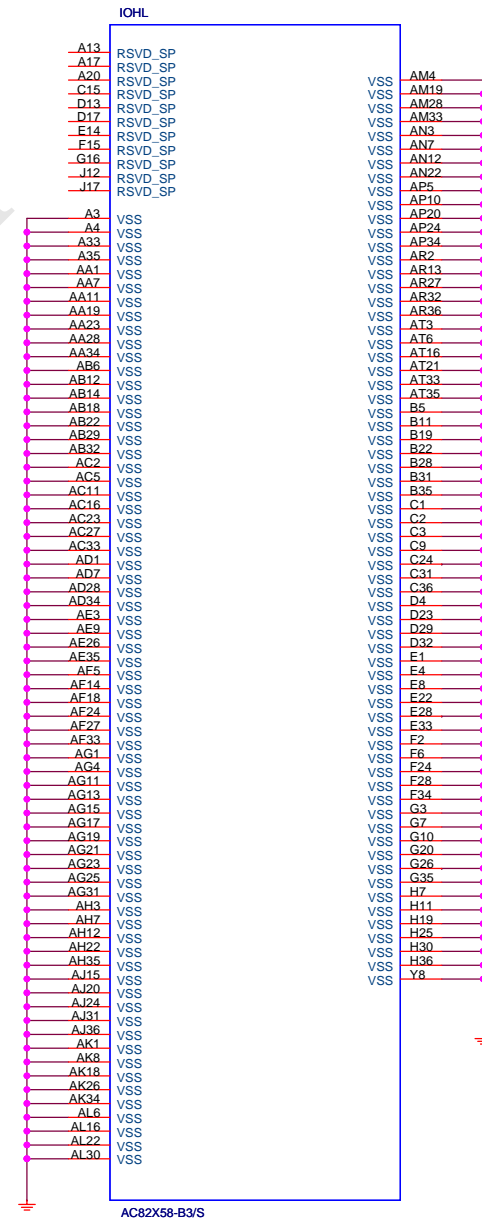
Gigabyte Technology			
Title			
IOH-G PWR_1			
Size	Document Number		Rev
Custom:	GA-X58A-UD5		2.0
Date:	Sheet 16 of 62		



AC82X58-B3/S

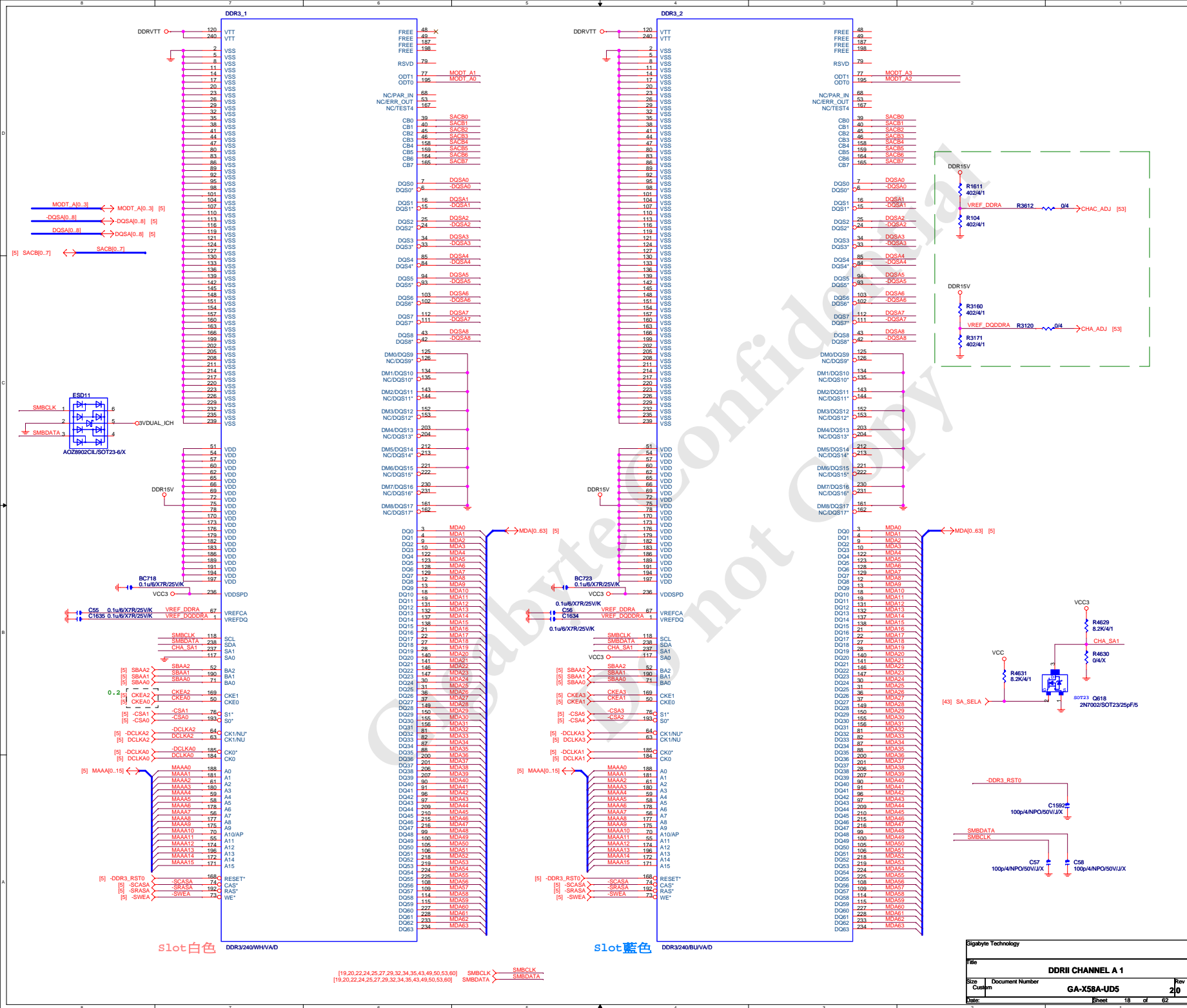


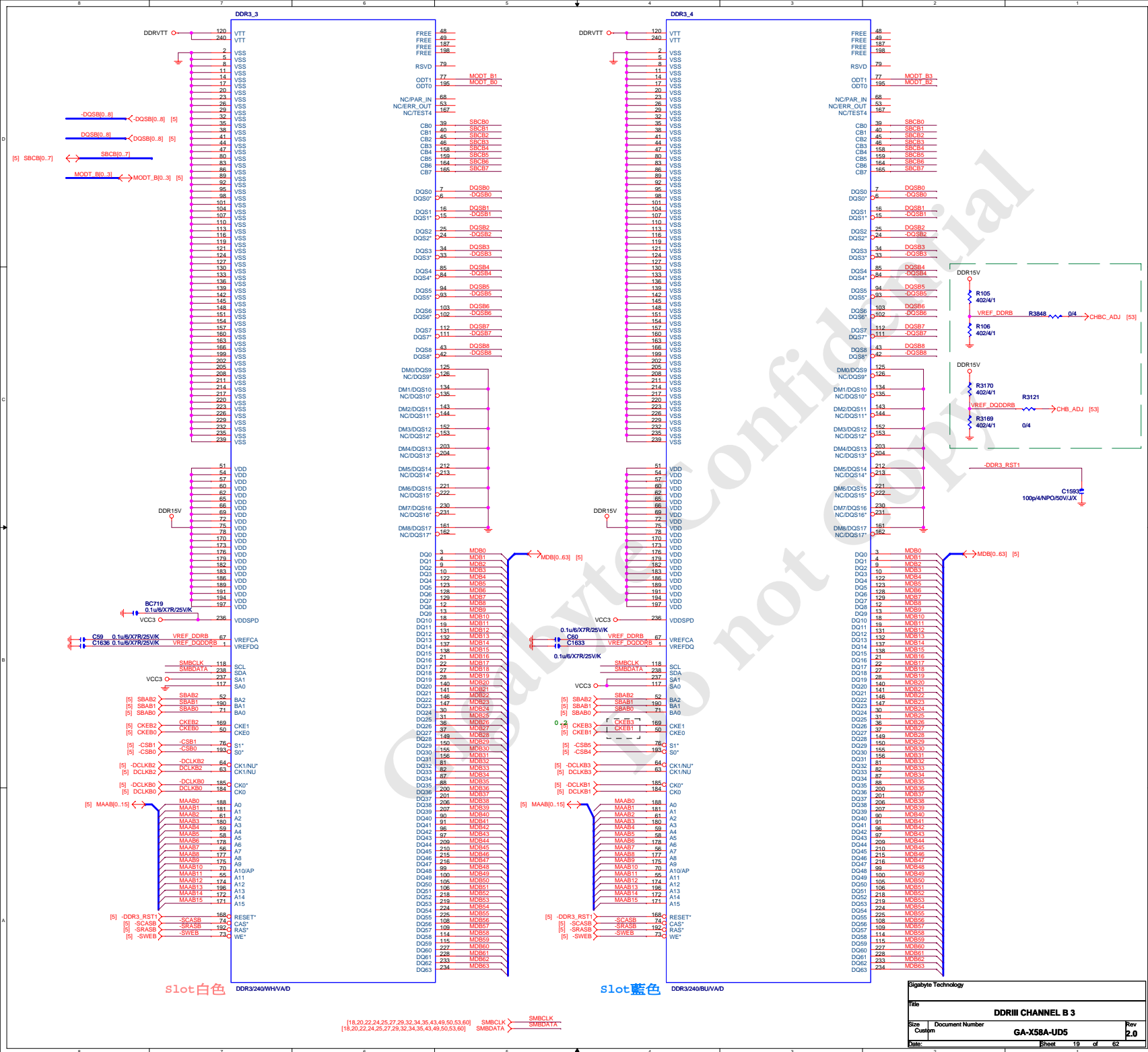
AC82X58-B3/S

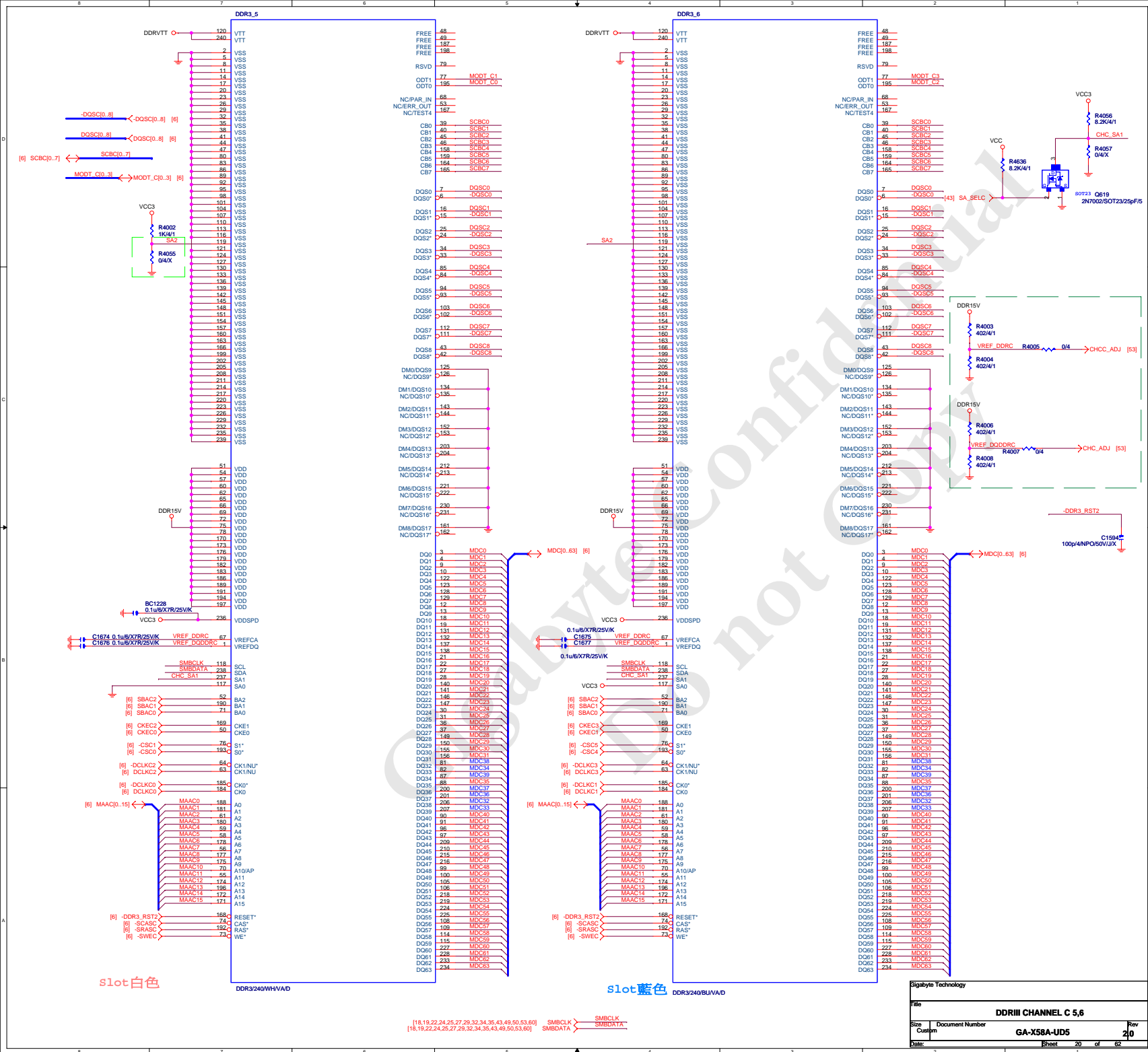


AC82X58-B3/S

Gigabyte Technology		
Title		
IOH-H GND		
Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Sheet 17 of 62	

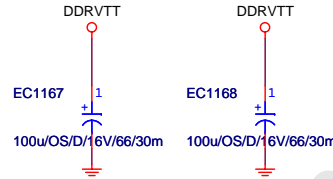
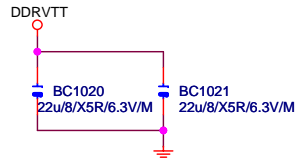
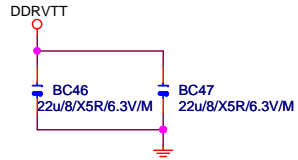
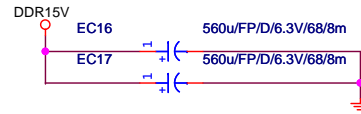
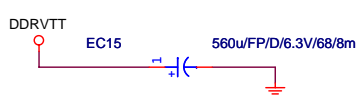




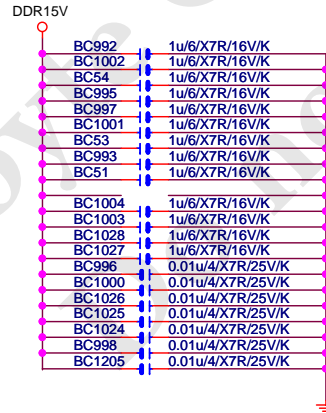
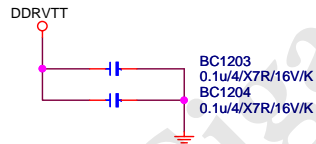
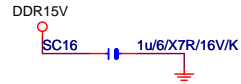
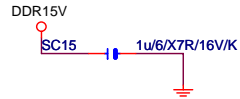
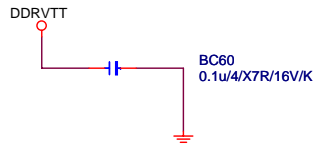
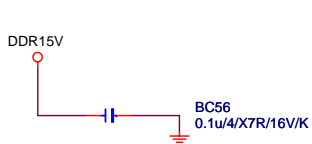


# DDR TERMINATION CHANNEL A

## DDRVTT Decouple



## DDR18V Decouple

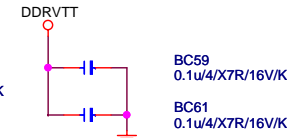


# DDR TERMINATION CHANNEL B

## DDR18V Decouple



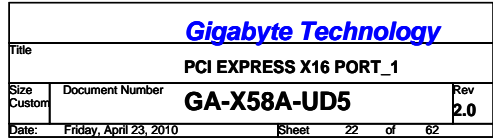
## DDRVTT Decouple

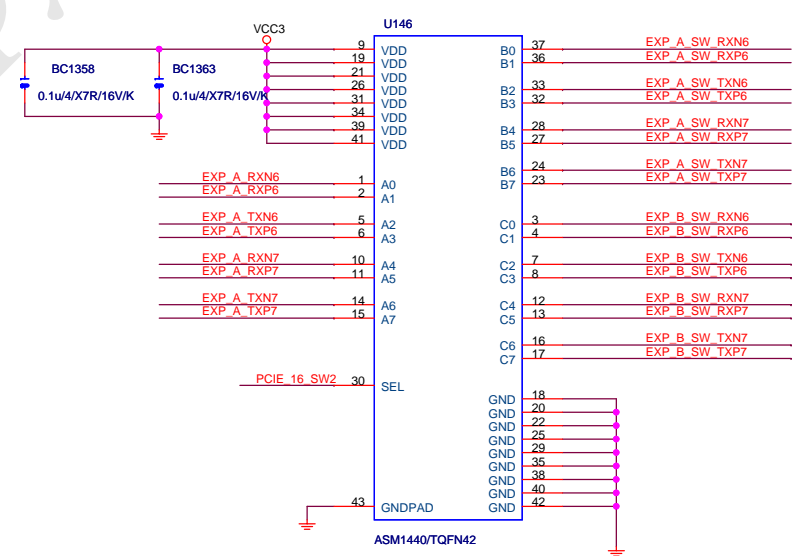
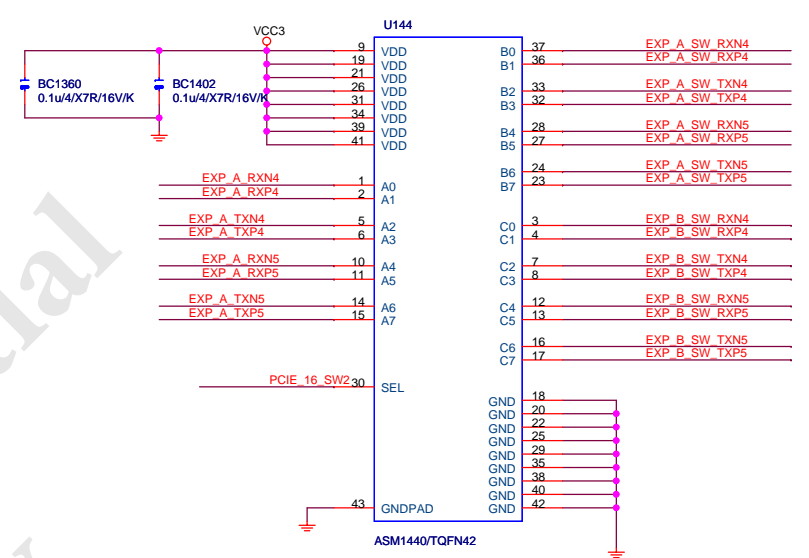
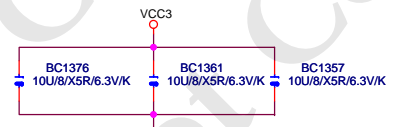
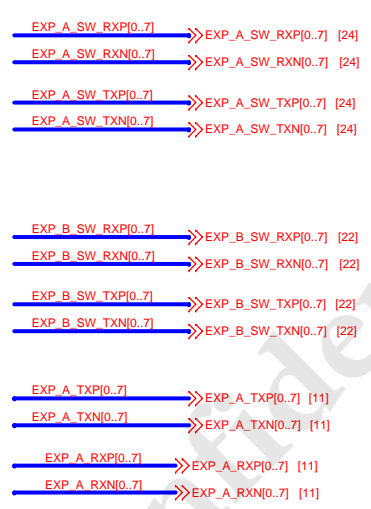
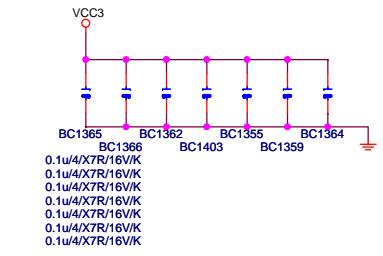
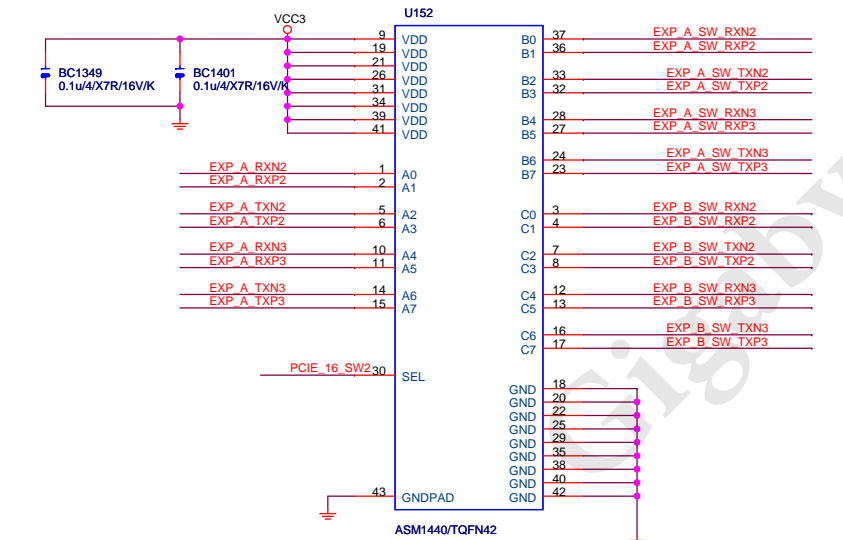
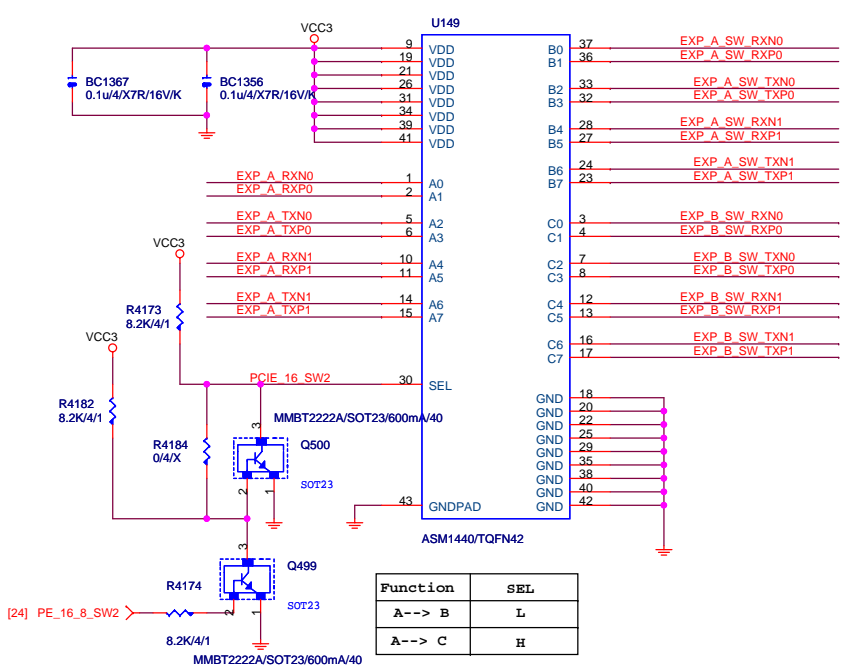


Gigabyte Technology

DDR II TERMINATOR

Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Friday, April 23, 2010	Sheet 21 of 62





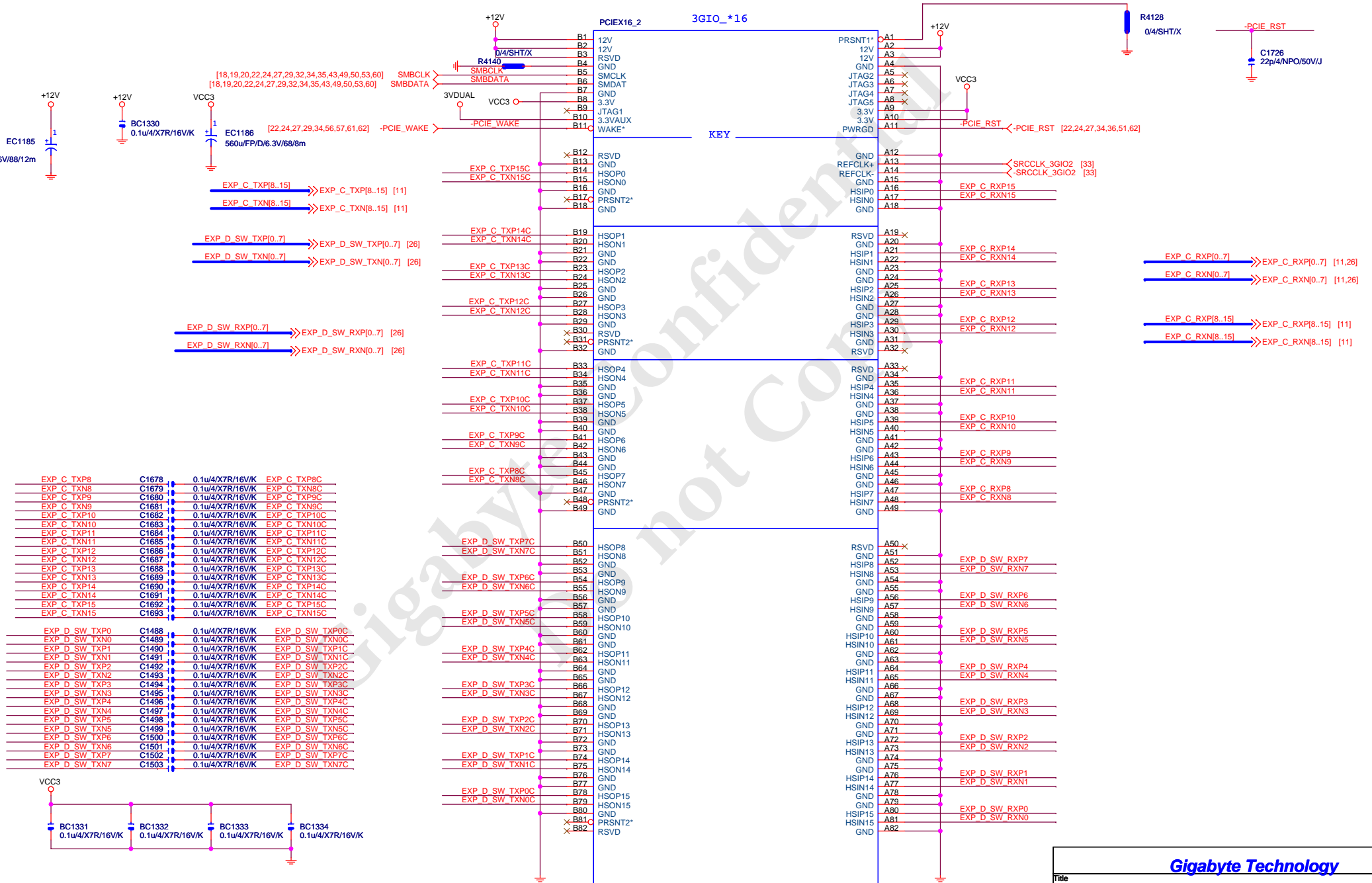


## PCIESLOT-164DN-2

PCIE16\_2 3GIO\_\*16

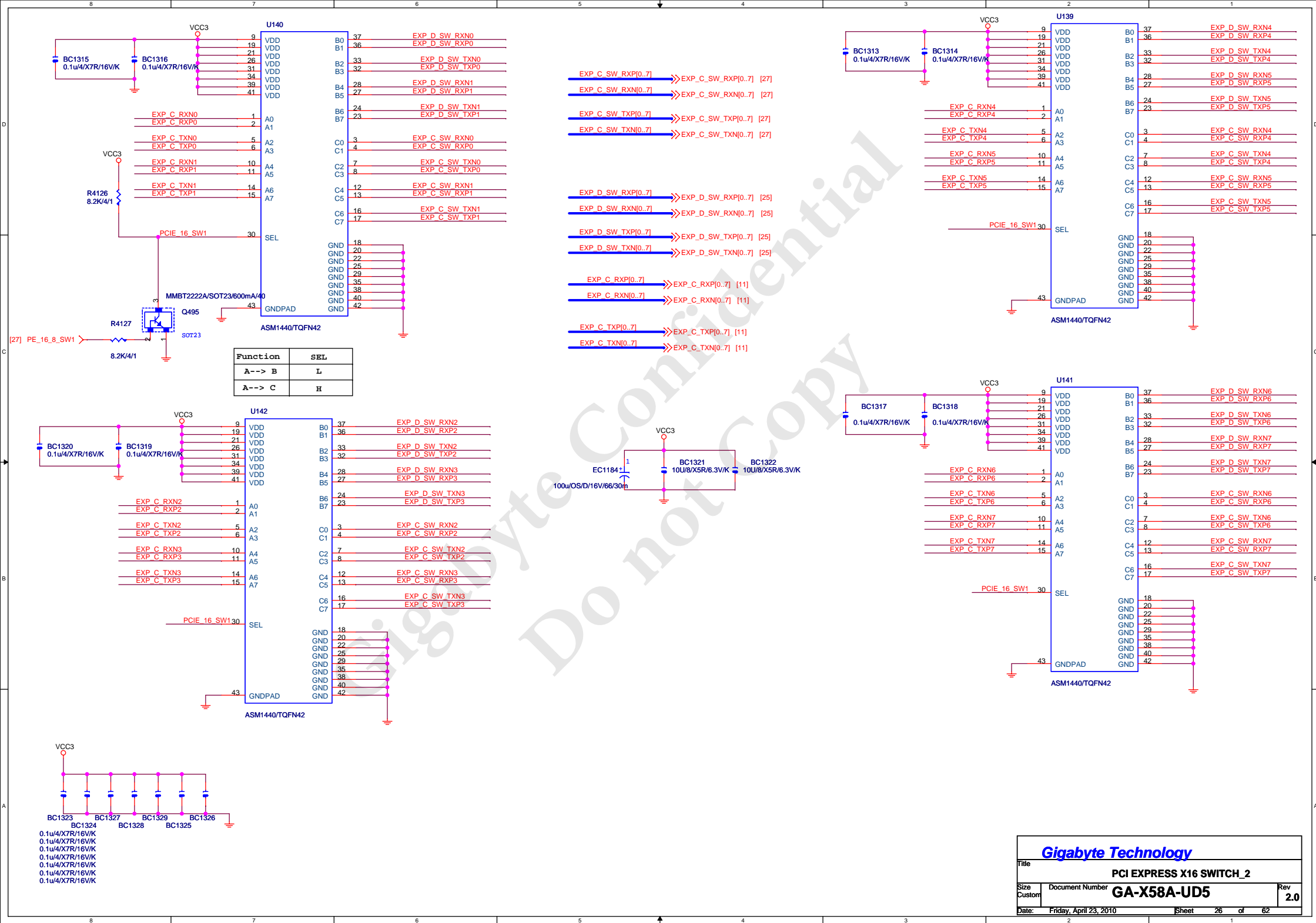
KEY

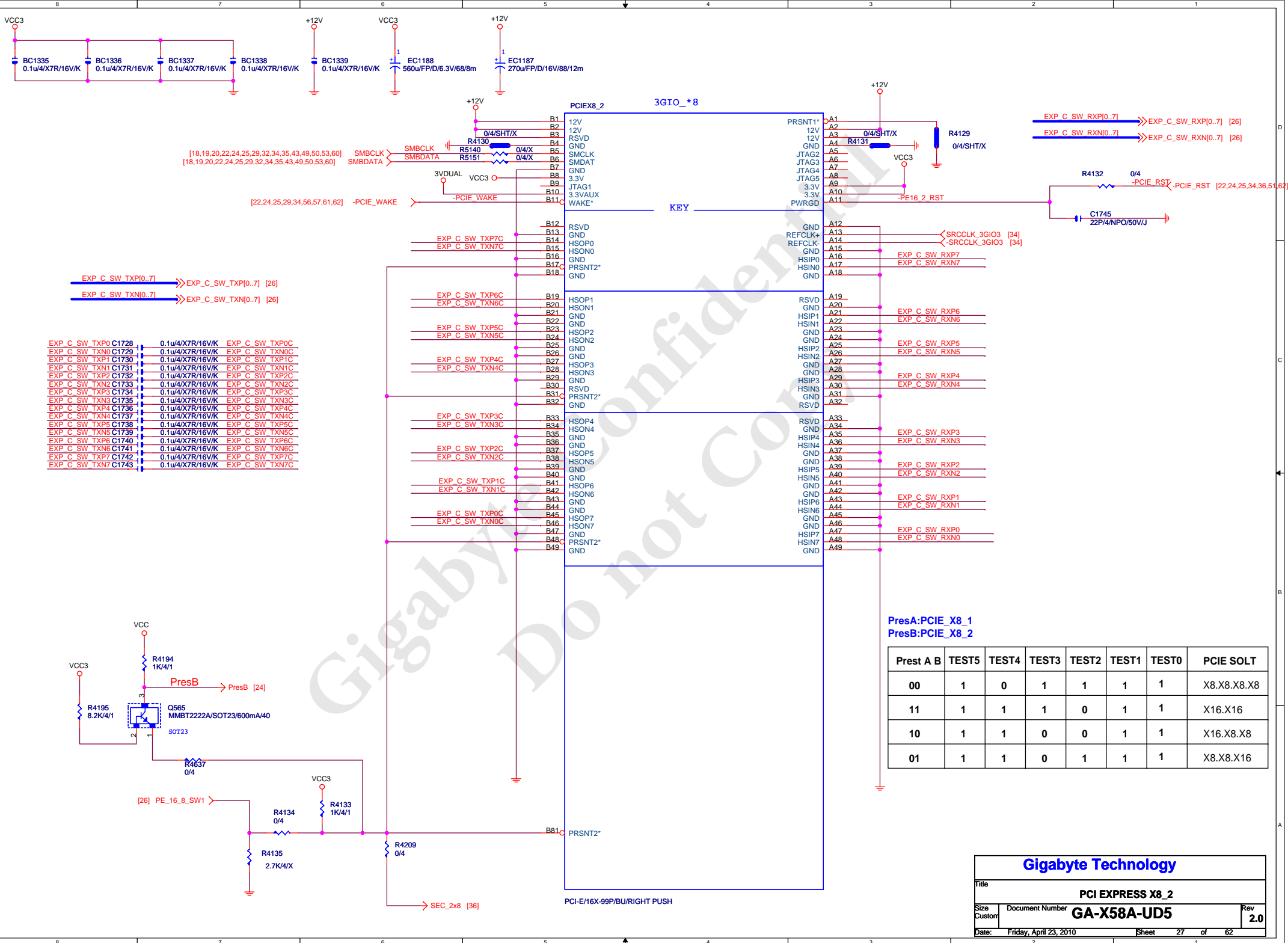
PCI-E16X-164P/BU-297C/RIGHT PUSH

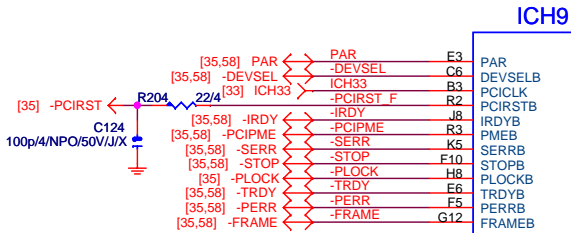


Gigabyte Technology

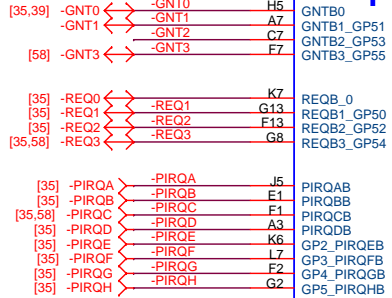
Title		PCI EXPRESS X16 PORT_2	
Size	Document Number	GA-X58A-UD5	
Custom		Rev 2.0	
Date:	Friday, April 23, 2010	Sheet	25 of 62







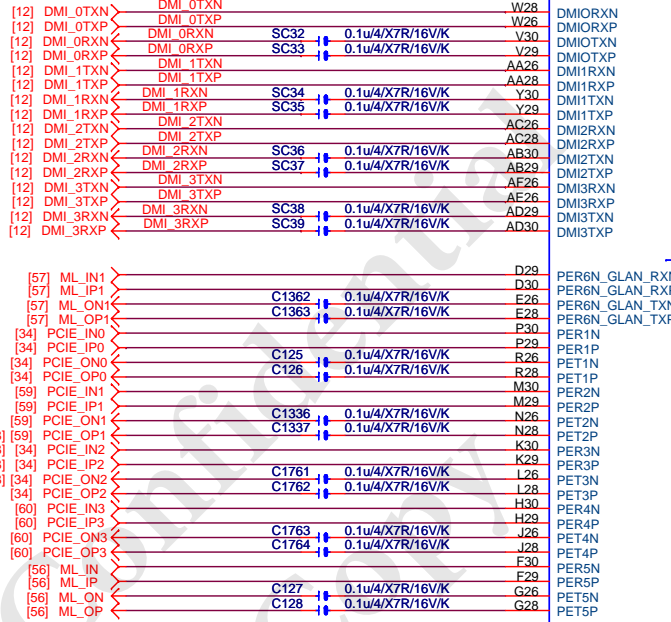
## PCI



ICH10R[10HB1-038280-F0R]

## 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	



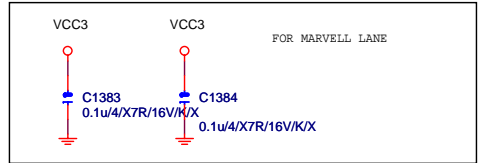
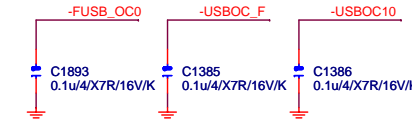
## ICH9

## DMI

## USB

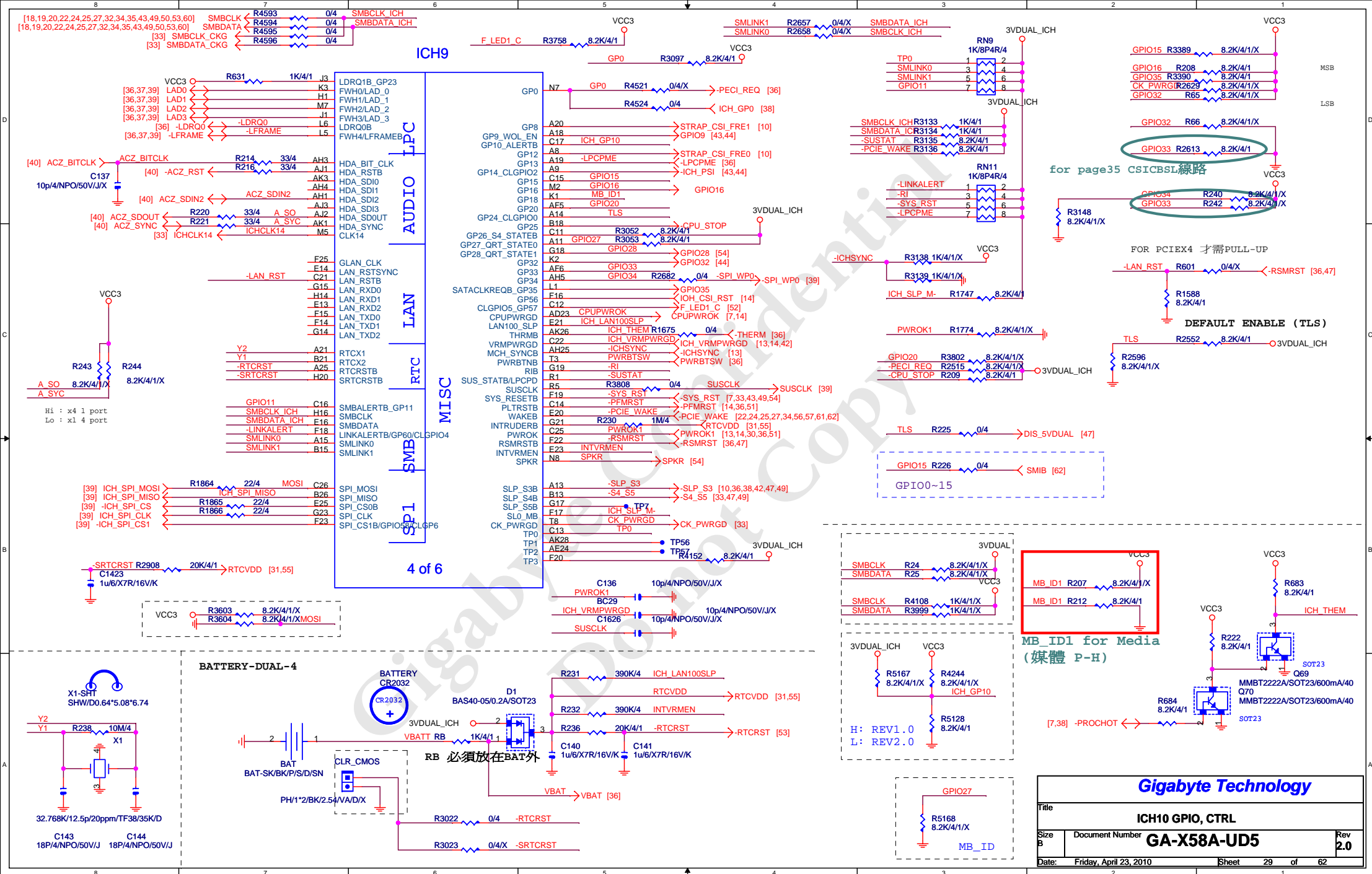
## PCI-E

2 OF 6



## Gigabyte Technology

Title			ICH10 DMI, PCI, USB
Size	Document Number	GA-X58A-UD5	
B			Rev 2.0
Date:	Friday, April 23, 2010	Sheet	28 of 62



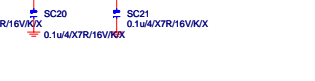
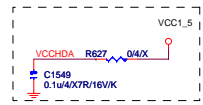


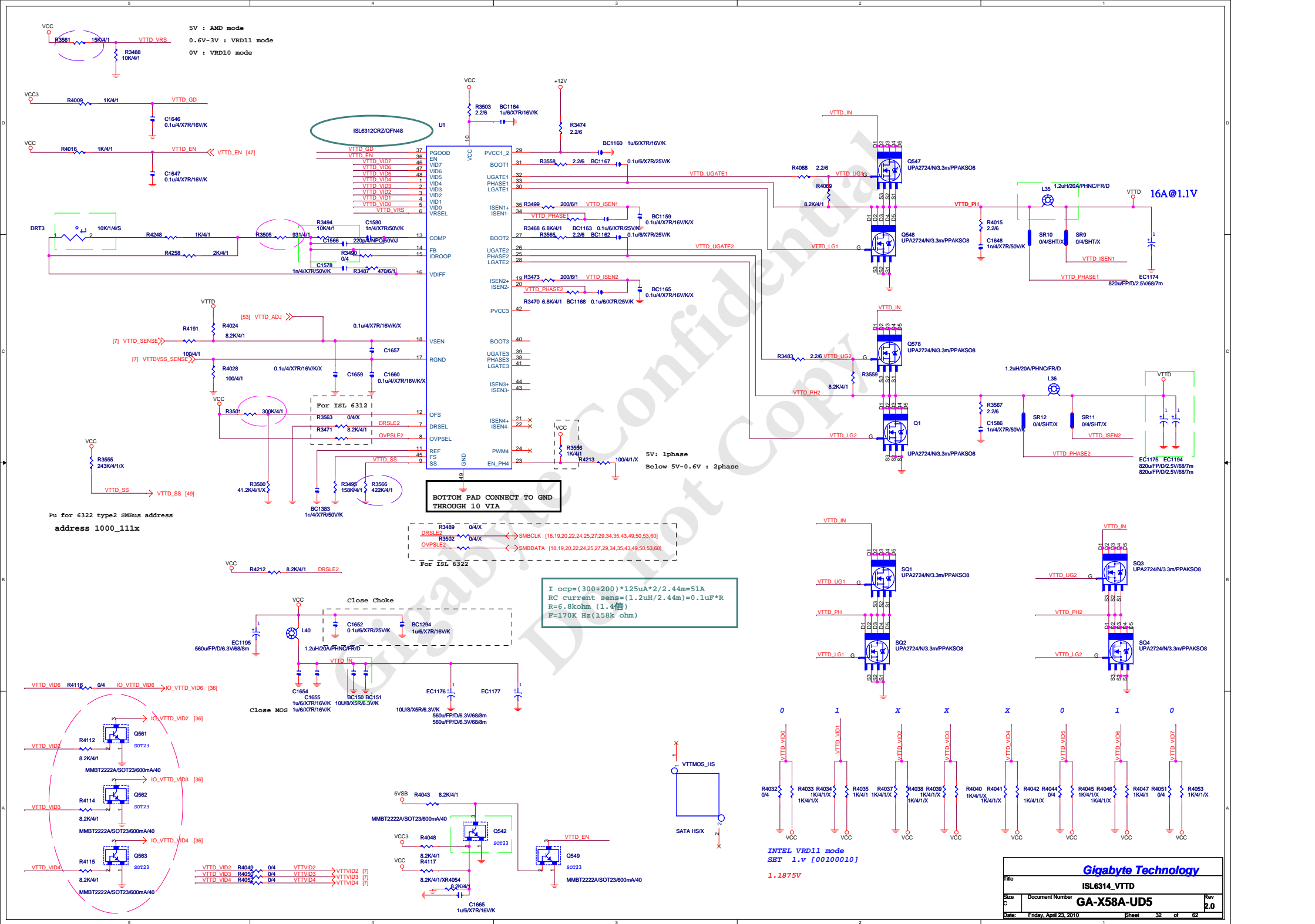
G30	VSS_100	H13
G29	VSS_101	H19
G25	VSS_102	H22
G16	VSS_103	H25
F9	VSS_104	H26
F8	VSS_105	H28
F28	VSS_106	H29
F26	VSS_107	H9
F21	VSS_108	J29
F12	VSS_109	J30
E30	VSS_110	J6
E22	VSS_111	J28
E18	VSS_112	M28
E2	VSS_113	M6
E15	VSS_114	L29
D28	VSS_115	L30
B5	VSS_116	M14
B28	VSS_117	M16
B25	VSS_118	M26
B22	VSS_119	M6
B2	VSS_120	M28
B19	VSS_121	M14
B17	VSS_122	M16
B14	VSS_123	M18
B11	VSS_124	M19
AK8	VSS_125	N13
AK29	VSS_126	N14
AK2	VSS_127	N15
AK16	VSS_128	N16
AK14	VSS_129	N17
AK12	VSS_130	N18
AJ8	VSS_131	N20
AJ5	VSS_132	P12
AJ26	VSS_133	P13
AJ3	VSS_134	P14
AJ16	VSS_135	P15
AJ14	VSS_136	P16
AH6	VSS_137	P17
AH20	VSS_138	P18
AH2	VSS_139	P19
AH19	VSS_140	P2
AH15	VSS_141	P26
AH13	VSS_142	P28
AH10	VSS_143	P8
AH9	VSS_144	R13
AH8	VSS_145	R14
AH7	VSS_146	R15
AH6	VSS_147	R16
AH5	VSS_148	R17
AH4	VSS_149	R18
AH3	VSS_150	R23
AH2	VSS_151	R29
AH1	VSS_152	R30
AF9	VSS_153	R8
AF7	VSS_154	R12
AF20	VSS_155	T13
AF25	VSS_156	T14
AF23	VSS_157	T15
AF20	VSS_158	T16
AF15	VSS_159	T17
AF13	VSS_160	T18
AF9	VSS_161	T29
AE8	VSS_162	T2
AE5	VSS_163	T5
AE19	VSS_164	U14
AE18	VSS_165	U15
AE15	VSS_166	U16
AE14	VSS_167	U17
AE13	VSS_168	U18
AE12	VSS_169	U19
AE10	VSS_170	U20
AE1	VSS_171	V13
AD9	VSS_172	V14
AD7	VSS_173	V15
AD3	VSS_174	V16
AD22	VSS_175	V17
AD19	VSS_176	V18
AD16	VSS_177	V19
AD15	VSS_178	V20
AD14	VSS_179	V21
AD13	VSS_180	V22
AC8	VSS_181	V23
AC5	VSS_182	V24
AC3	VSS_183	V25
AC30	VSS_184	V26
AC29	VSS_185	V27
AC24	VSS_186	V28
AC12	VSS_187	V29
AC1	VSS_188	V30
AB3	VSS_189	W8
AB28	VSS_190	Y26
AB26	VSS_191	Y28
AA6	VSS_192	Y2
AA5	VSS_193	Y7
AK27	VSS_194	AA30
AH29	VSS_195	AA29
AA4	VSS_196	AA1
AF3	VSS_197	AA30
B27	VSS_198	AA1

6 OF 6

5 OF 6

SIGNAL NAME	NO	LAN
VccCL_1_05	de-CAP	
VccCL3_3	Vcc3_3	
VccCL1_5	de-CAP	
VccGLAN1_5	Vcc1_5	
VccGLAN3_3	Vcc3_3	
VccGLANPLL	Vcc1_5	
VccLAN1_05	N/A	
VccLAN3_3	VCC3	

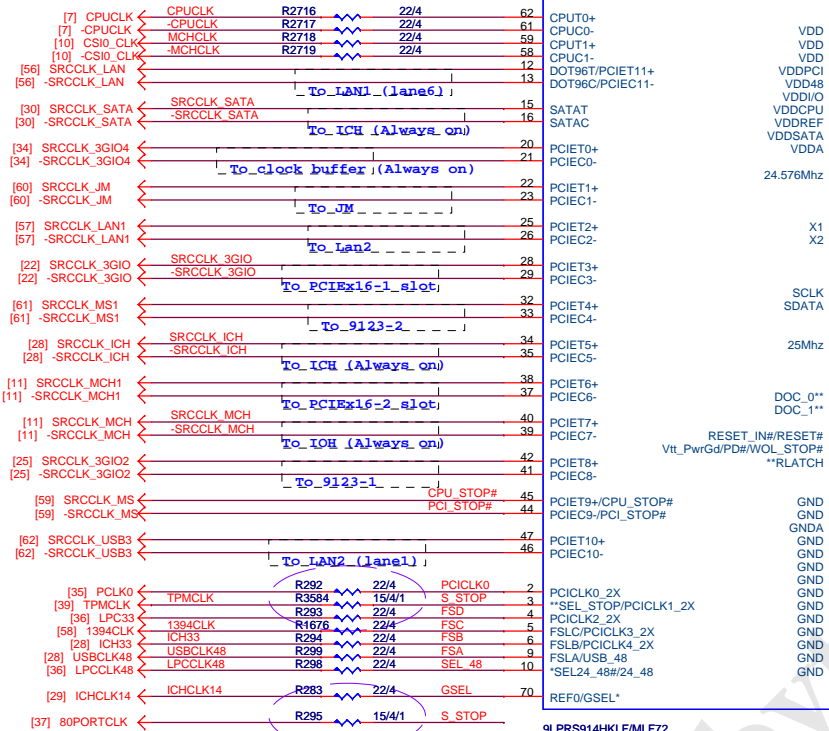




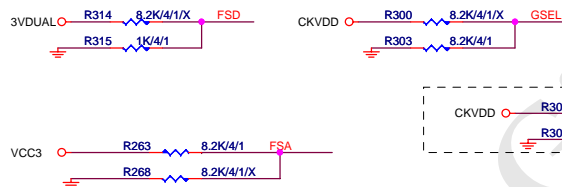
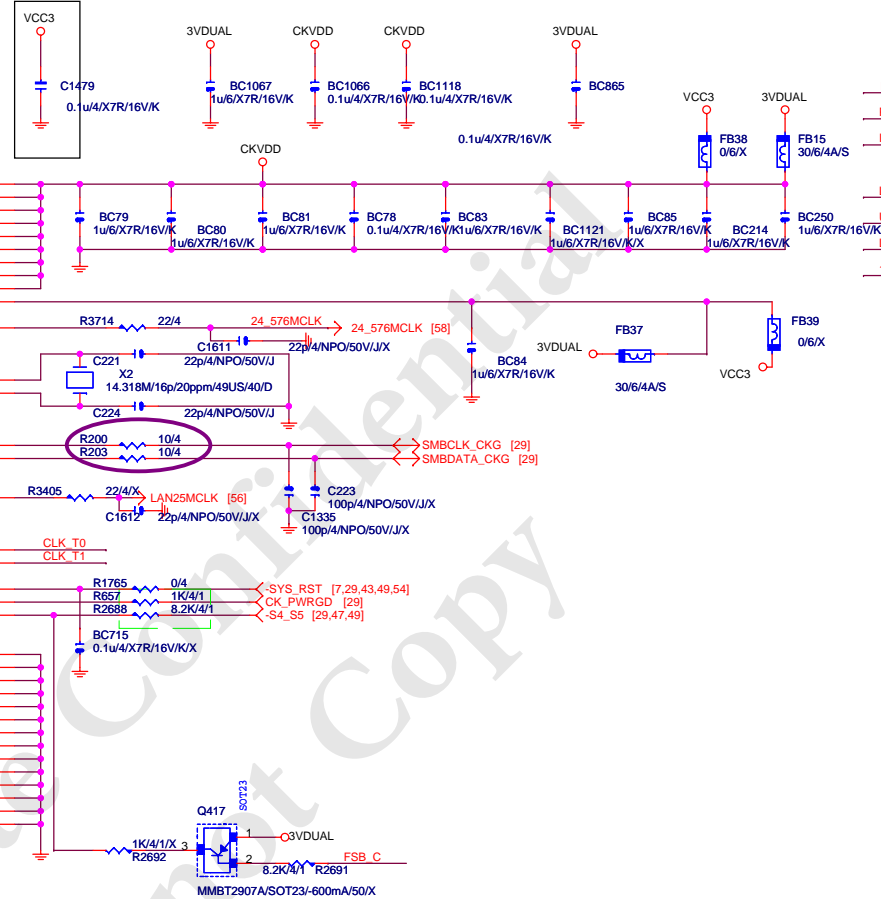
# CLK GEN CK505

→ SRCCLK\_JM [60]  
→ SRCCLK\_JM [60]

→ SRCCLK\_LAN1 [57]  
→ SRCCLK\_LAN1 [57]



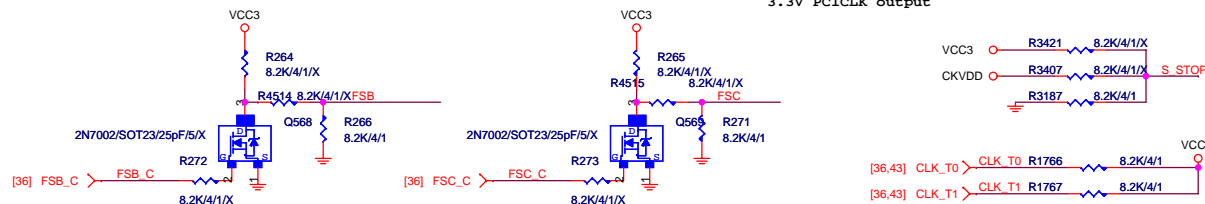
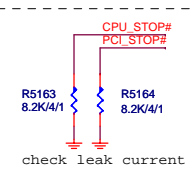
For EMI



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

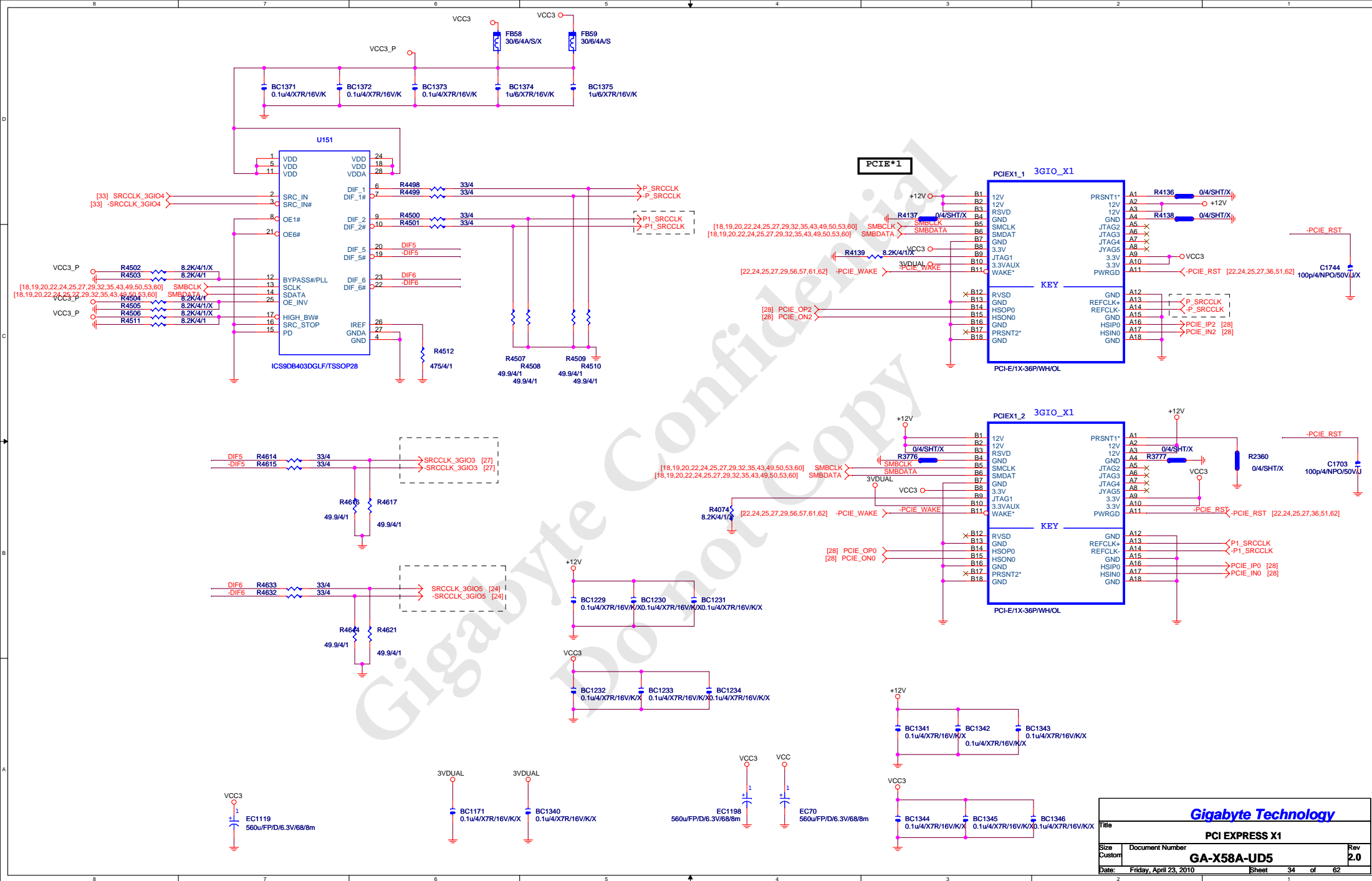
SEL\_48= 1, 24Mhz from pin10  
SEL\_48= 0, 48Mhz from pin10

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 PCIE outputs ;  
3.3V PCICLK output

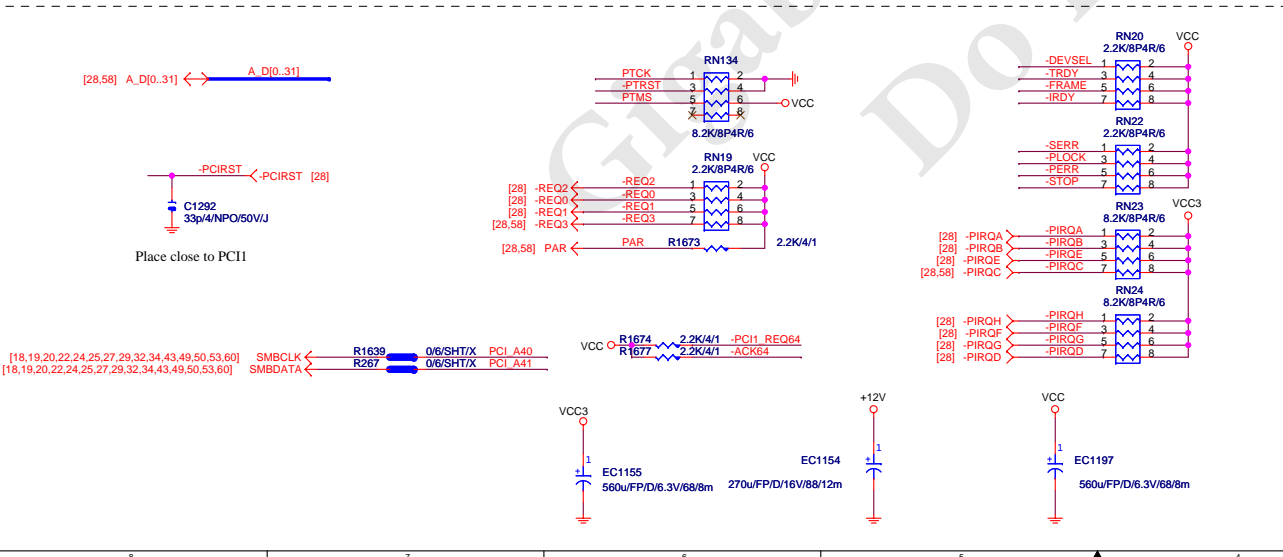
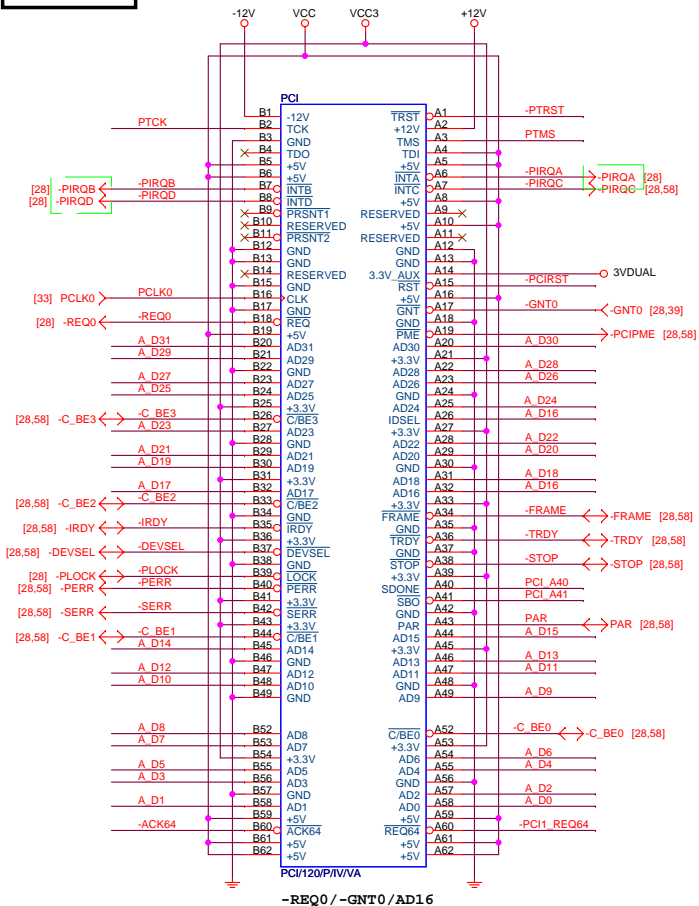


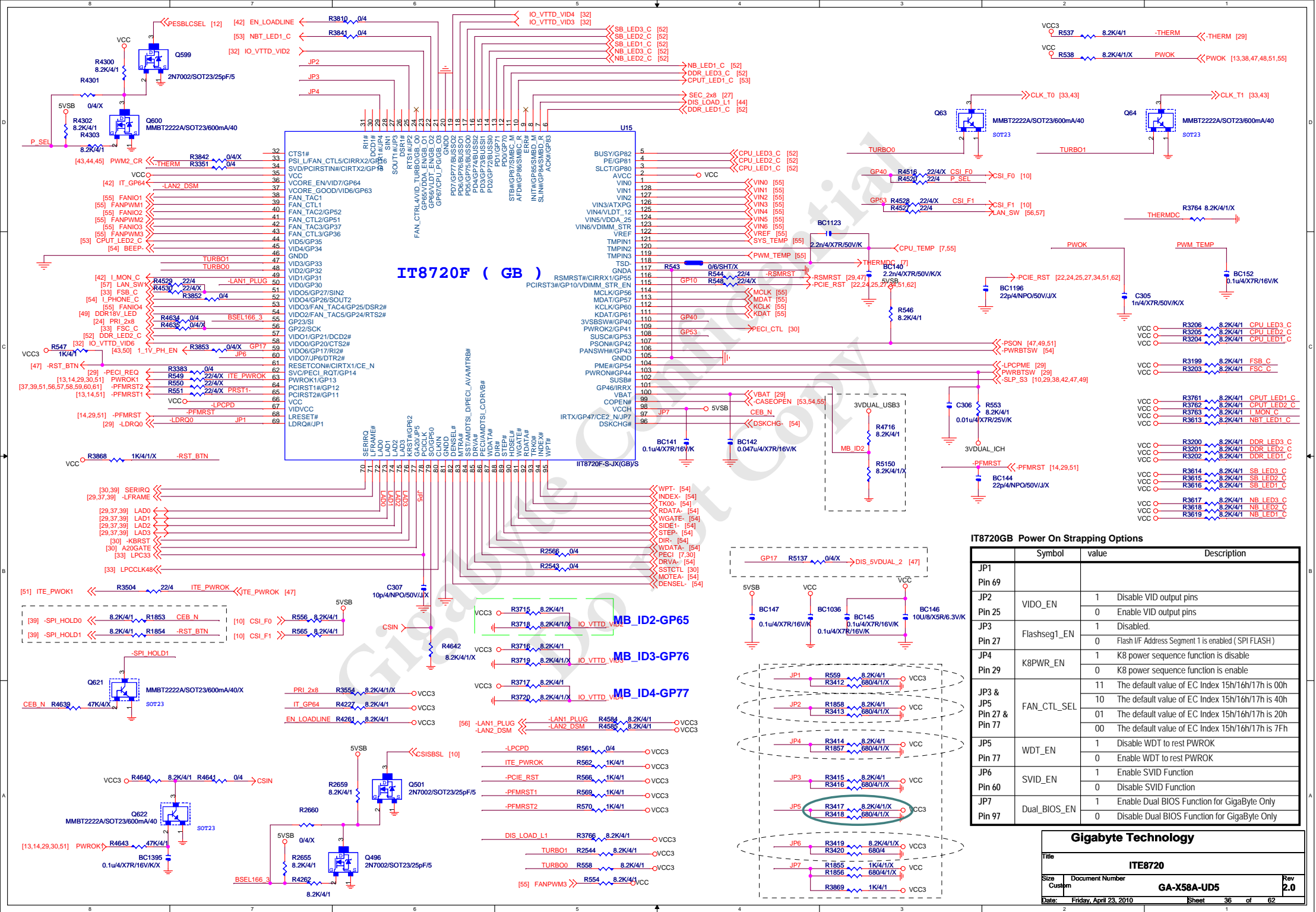
Gigabyte Technology

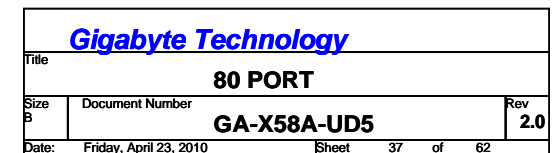
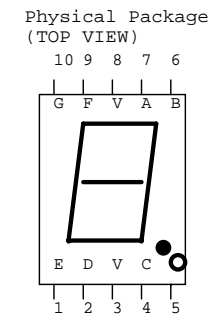
Title			ICS9LPRS914
Size	Document Number	GA-X58A-UD5	
Custom		Rev	2.0
Date:	Friday, April 23, 2010	Sheet	33 of 62

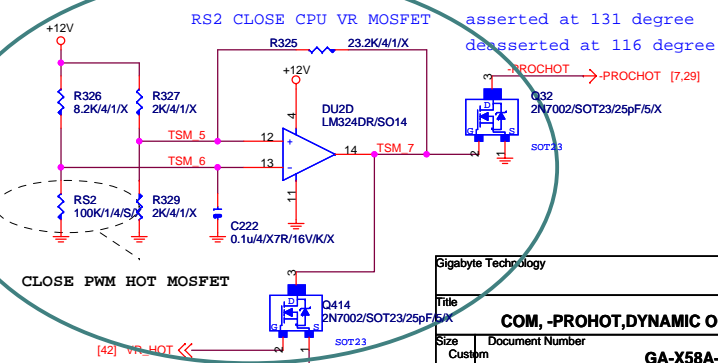


# PCI1,2 SLOT

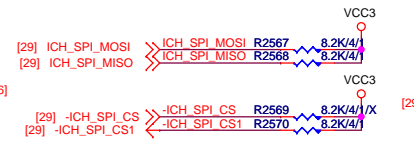
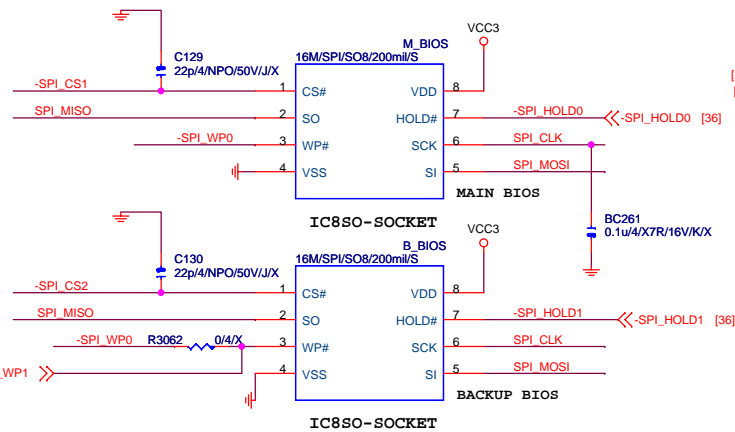
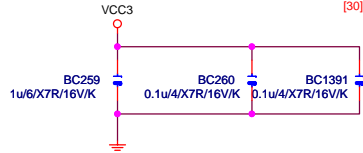
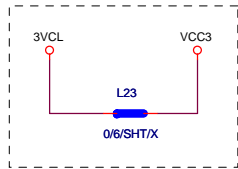






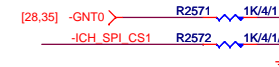


Gigabyte Technology			
Title <b>COM, -PROHOT,DYNAMIC OC +12V保護線路</b>			
Size Custom	Document Number <b>GA-X58A-UD5</b>		Rev <b>2.0</b>
Date:	Friday, April 23, 2010	Sheet 38 of 62	



REMOVE PCI\_BT1.PCI\_BT2

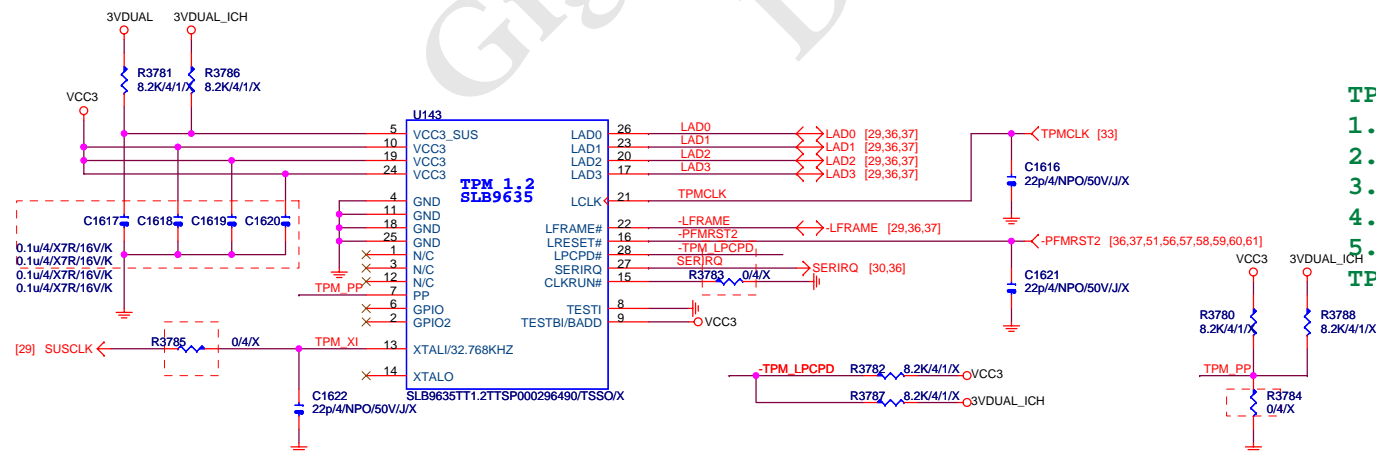
BOOT DEVICE	GNT0	CS1
SPI	0	X
PCI	1	0
F'WH	1	1



TPM

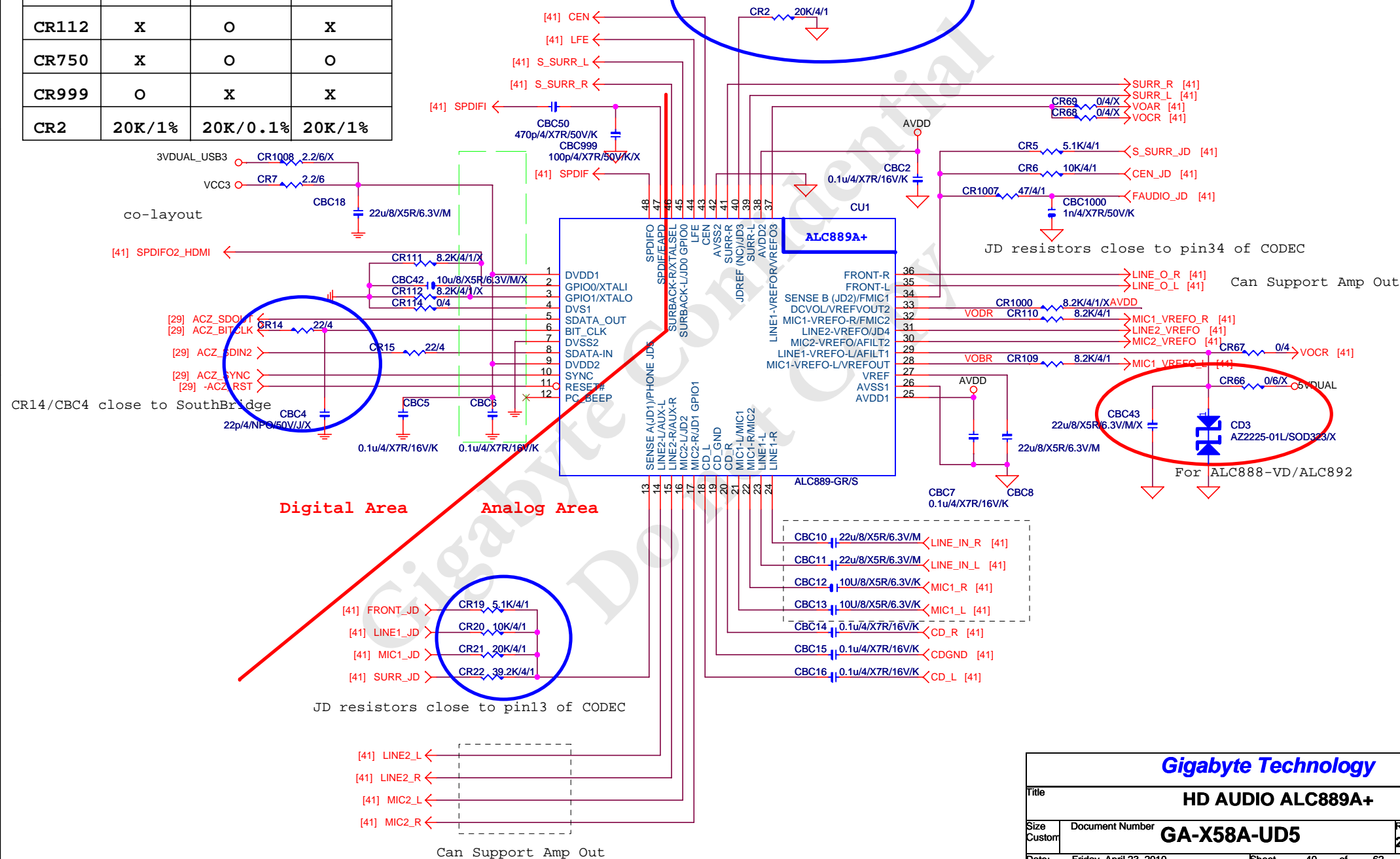
### TPM Function

- 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	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Friday, April 23, 2010	Sheet 39 of 62

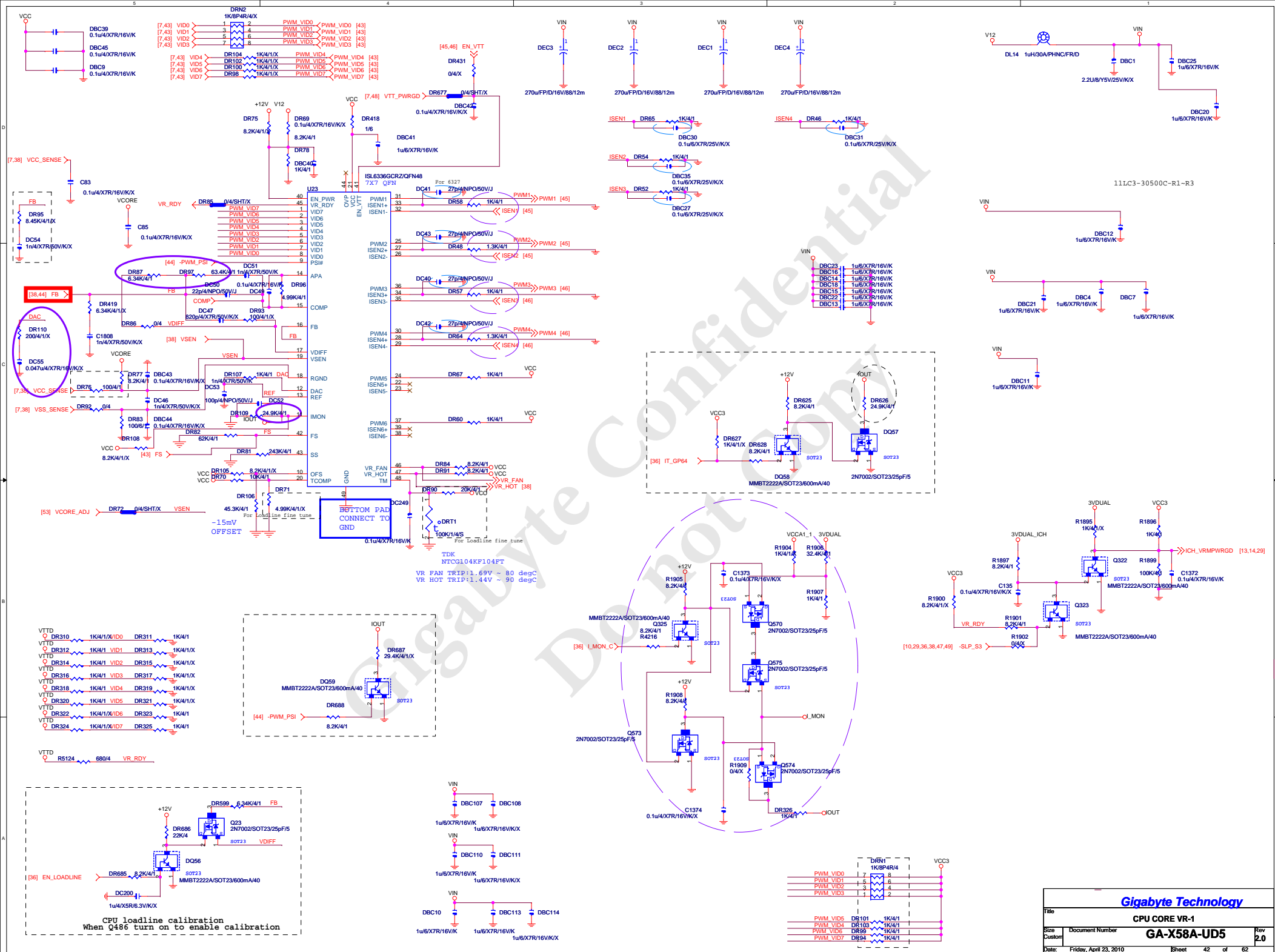
	ALC889A+	ALC889A	ALC888Vx
CR111	X	O	X
CR112	X	O	X
CR750	X	O	O
CR999	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%

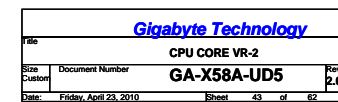
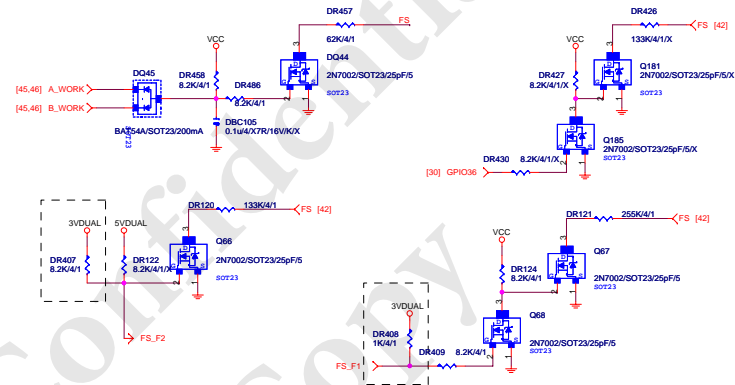
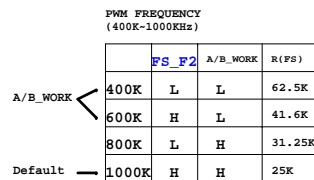
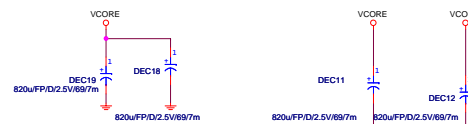


Gigabyte Technology

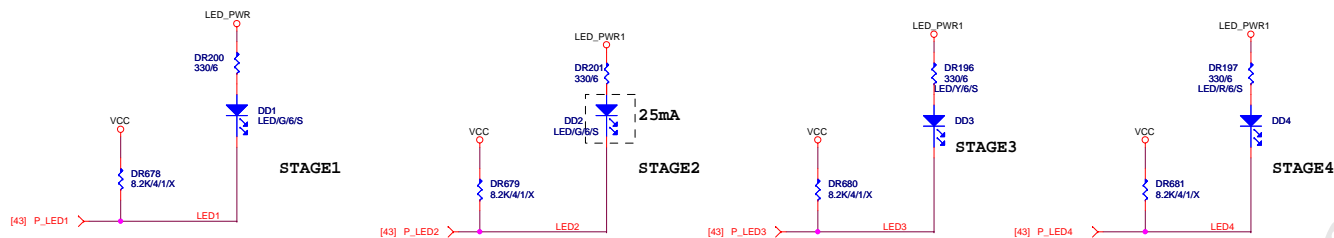
Title			HD AUDIO ALC889A+
Size	Document Number	GA-X58A-UD5	
Custom			Rev 2.0
Date:	Friday, April 23, 2010	Sheet	40 of 62



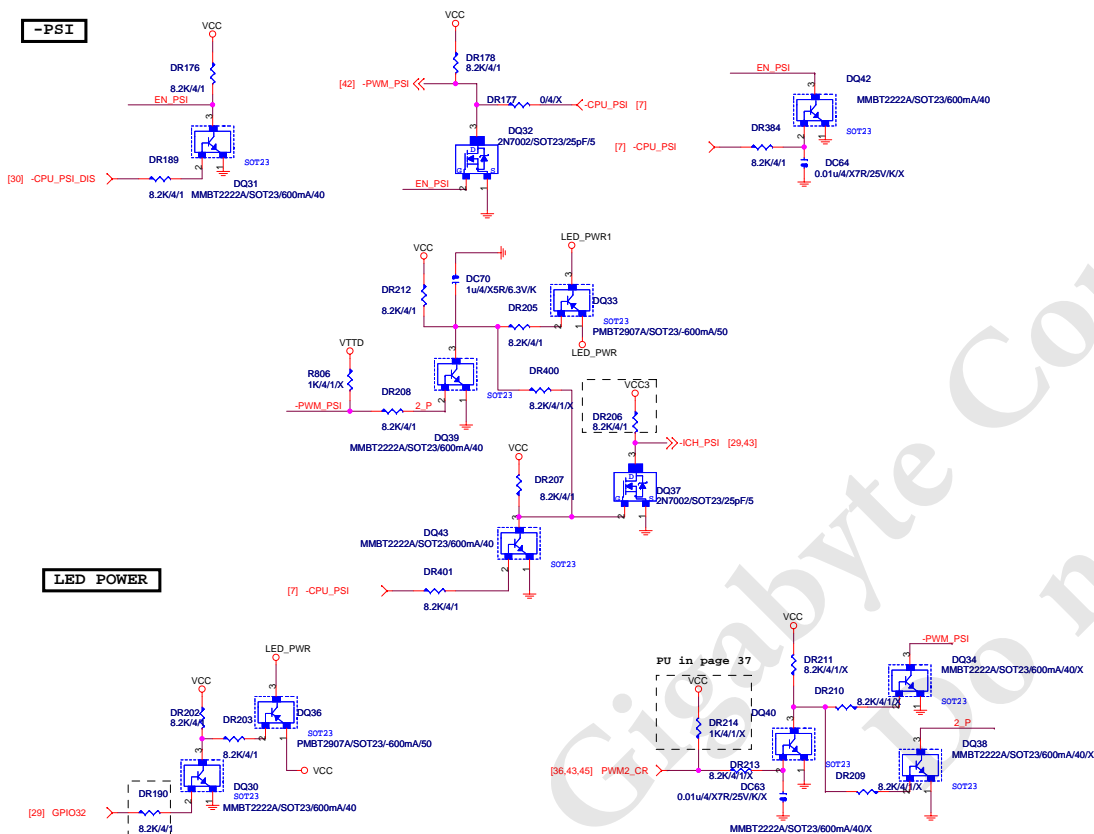




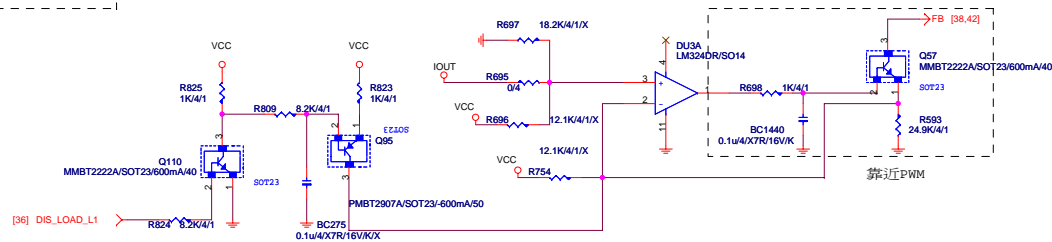
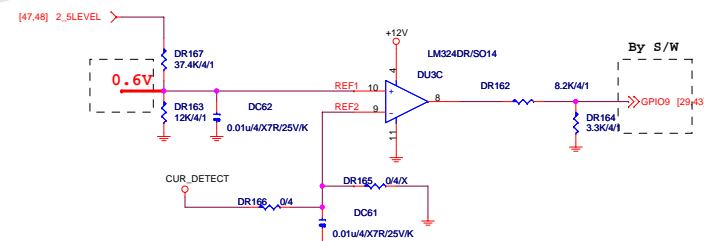
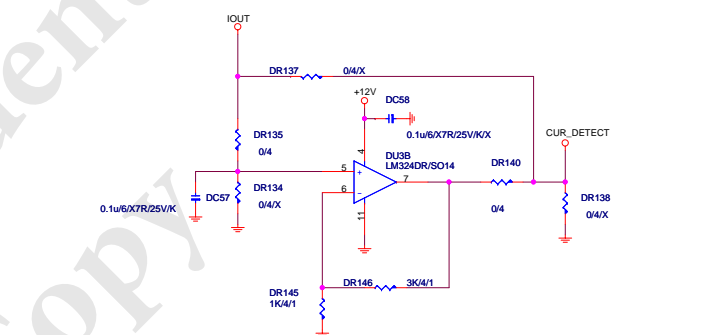
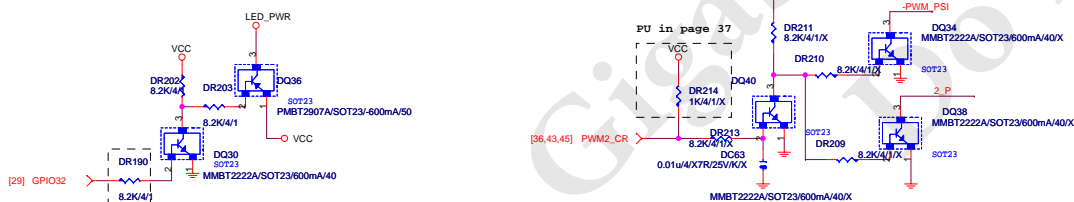
PHASE LED



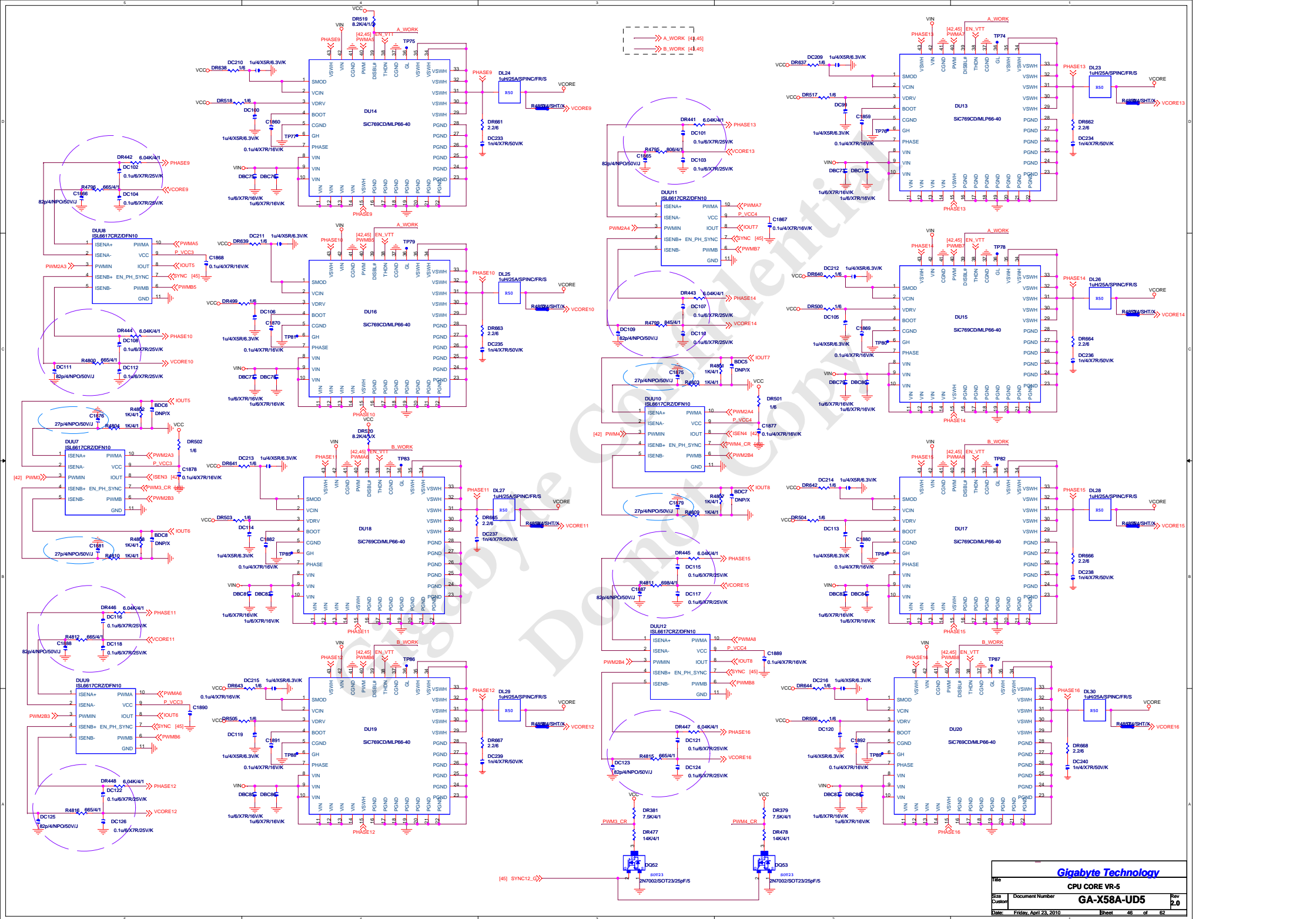
**-PSI**

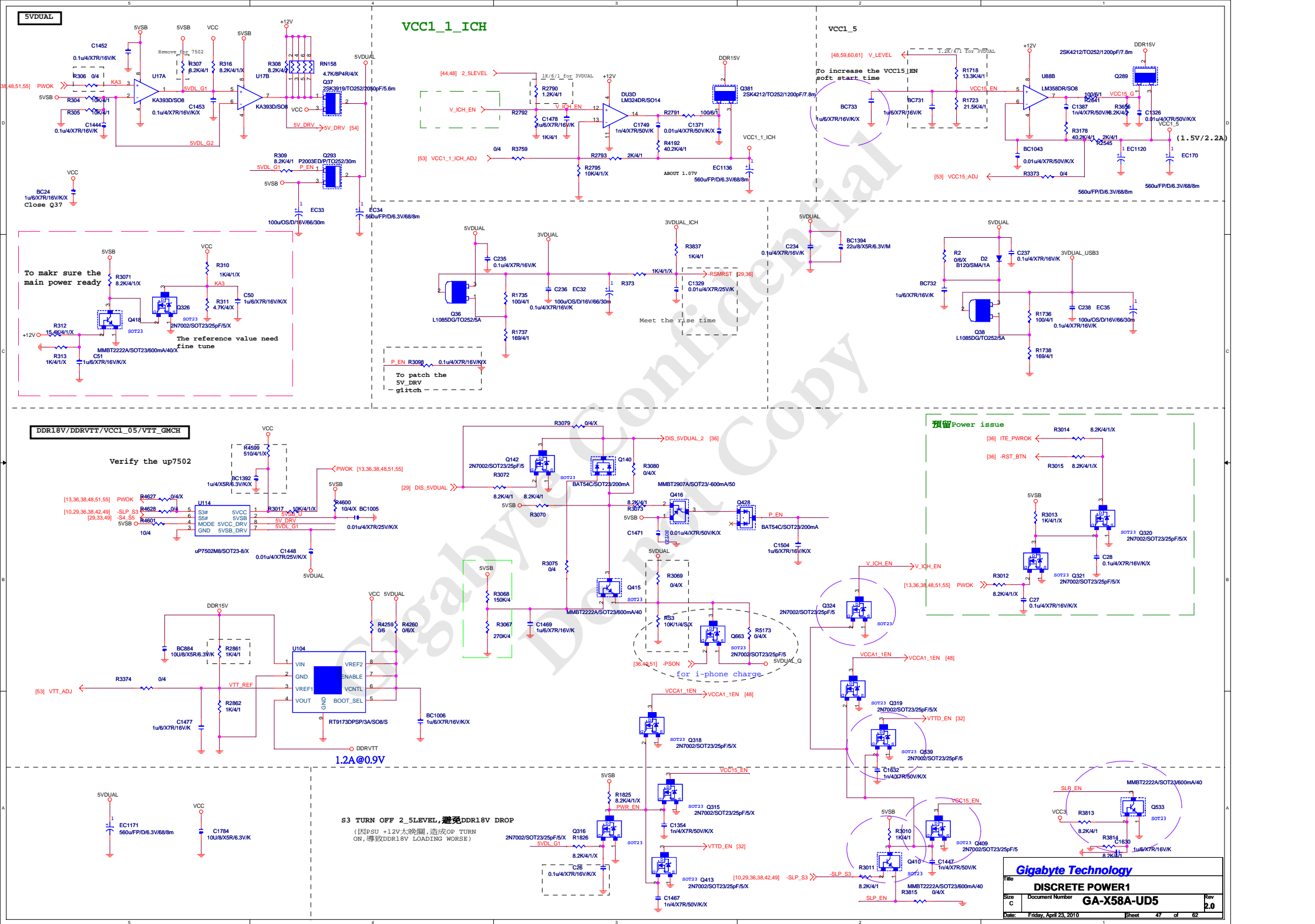


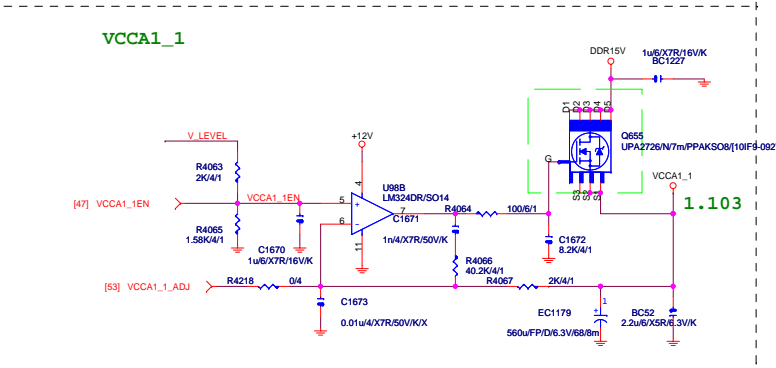
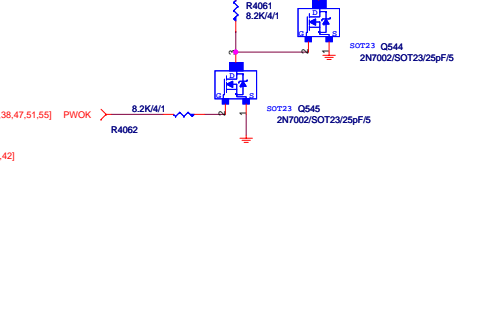
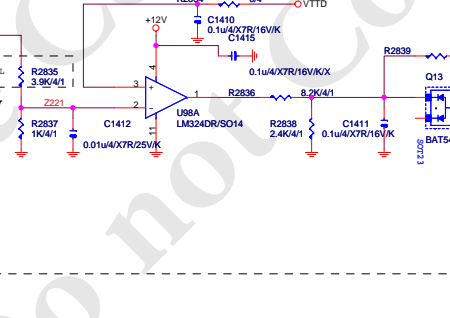
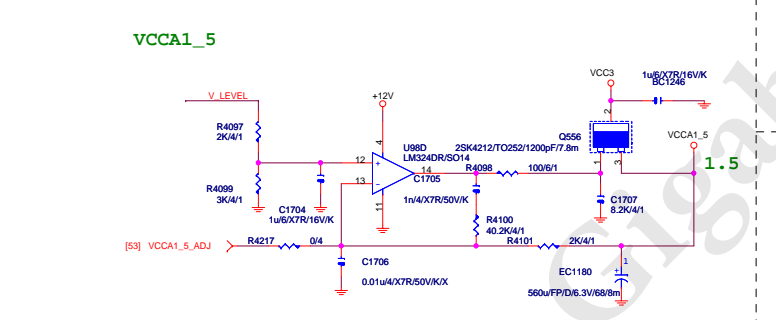
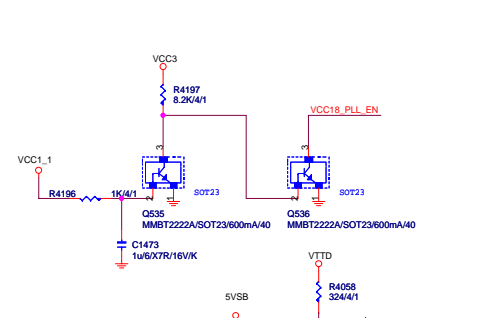
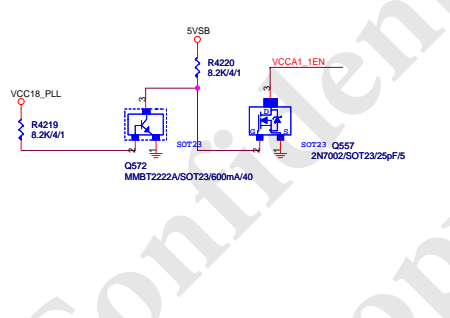
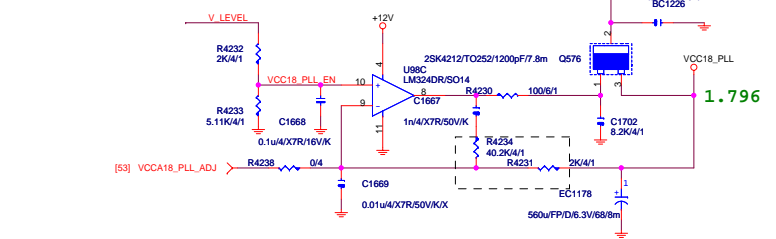
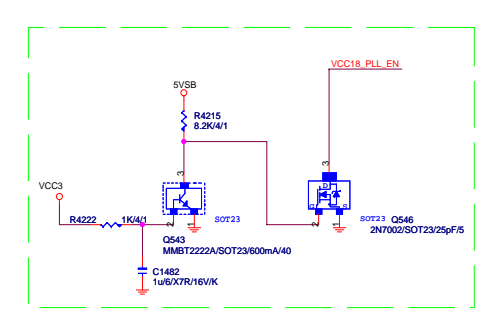
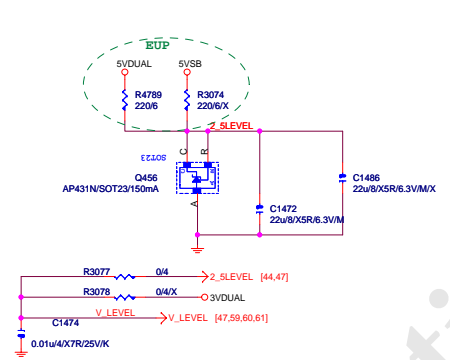
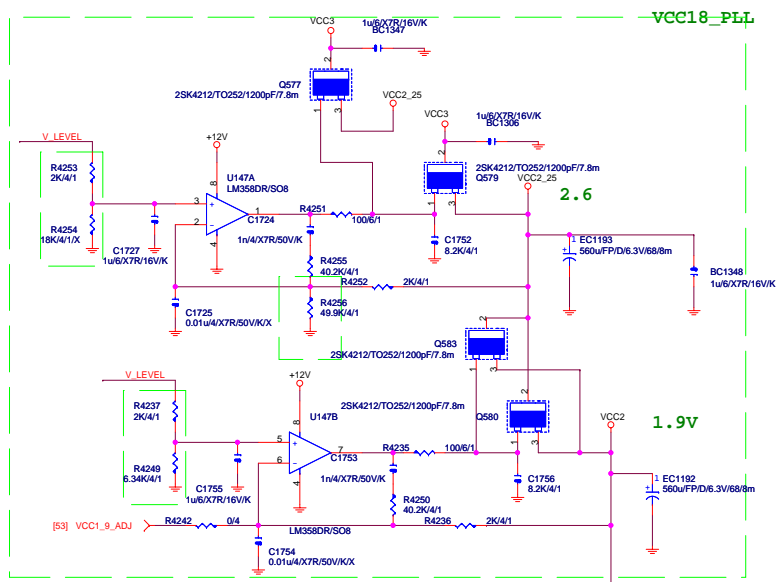
LED POWER

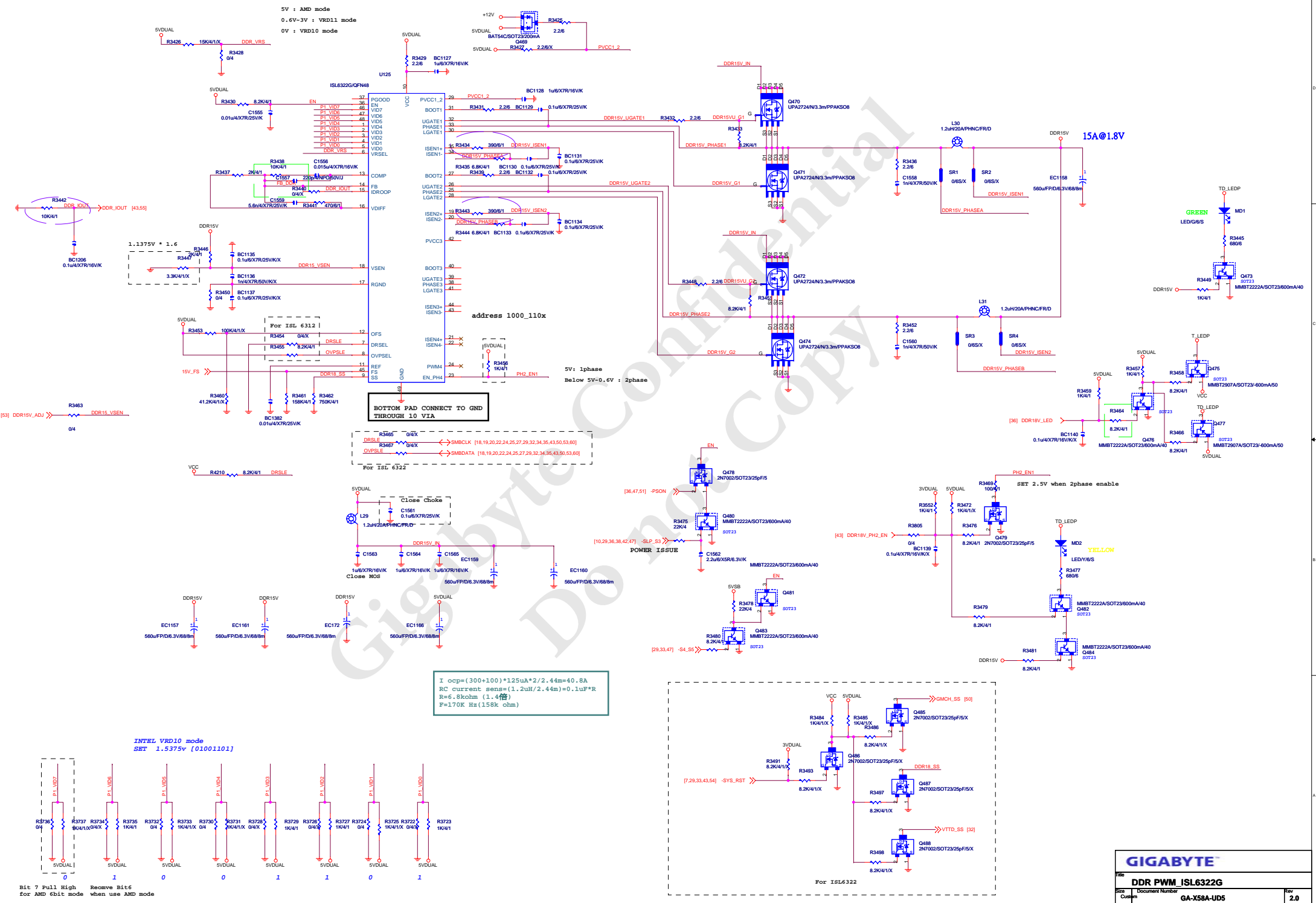












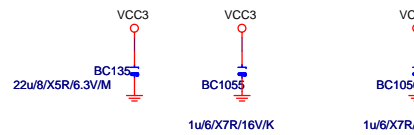
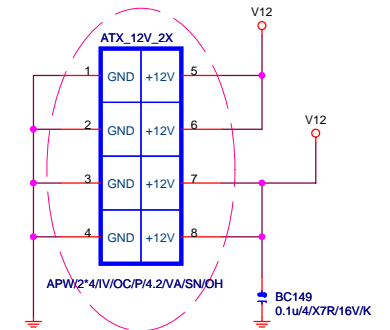
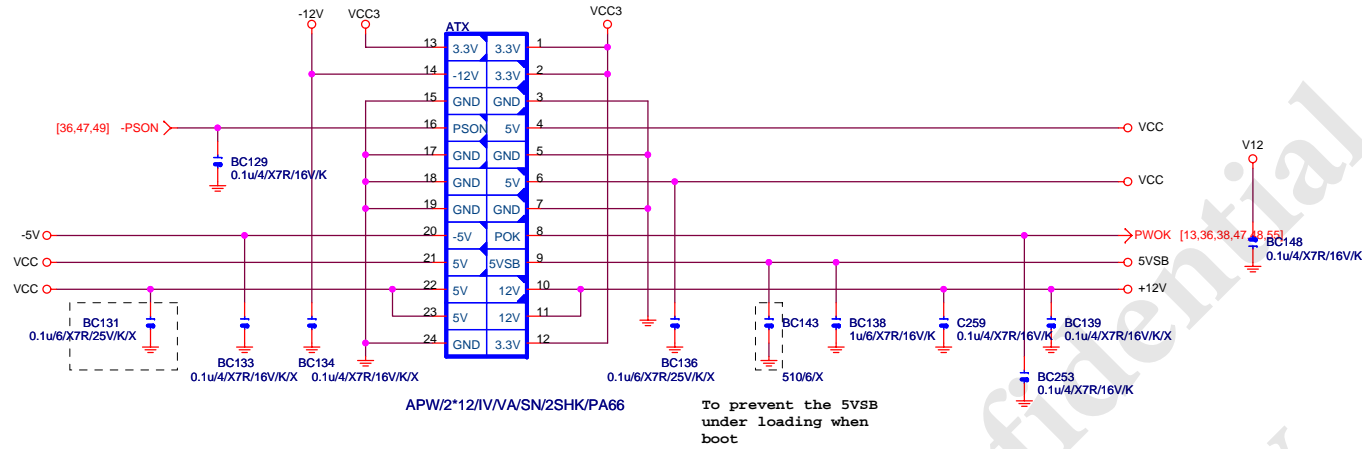
Bit 7 Pull High for AMD 6bit mode  
Receive Bit6 when use AMD mode

$$I_{ocp} = (300 + 100) \times 125 \mu A \times 2 / 2.44 m = 40.8 A$$
$$RC \text{ current sense} = (1.2 \mu H / 2.44 m) = 0.1 \mu s \times R$$
$$R = 6.8 k\Omega \text{ (1.4倍)}$$
$$F = 170 K \text{ Hz (158k ohm)}$$

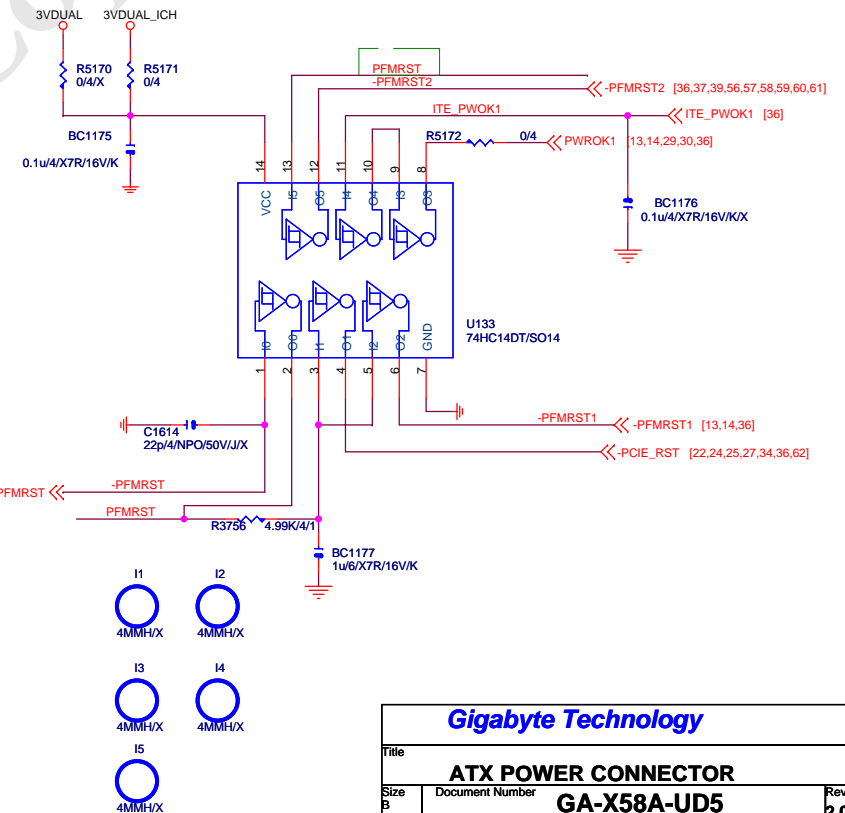
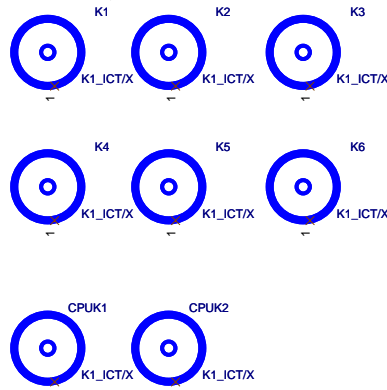
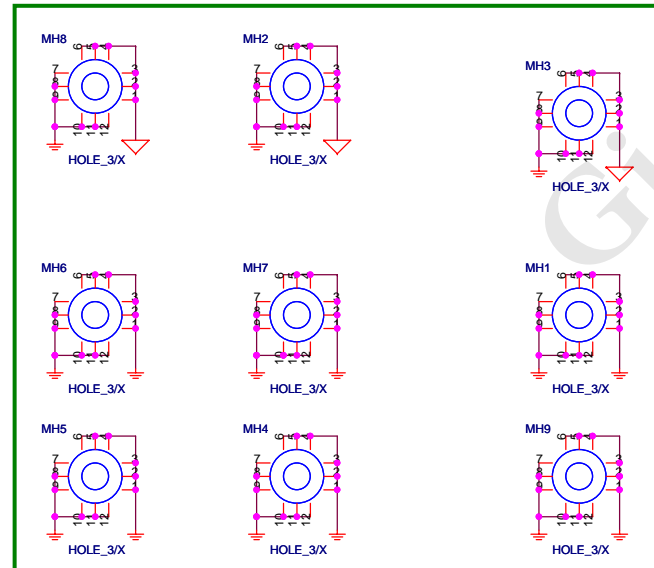
GIGABYTE			
File	DDR PWM ISL6322G		
Size	Document Number	Rev	2.0
Custom	GA-X58A-UD5		
Date	Friday, April 23, 2010	Sheet	48 of 62



# ATX POWER CONNECTOR

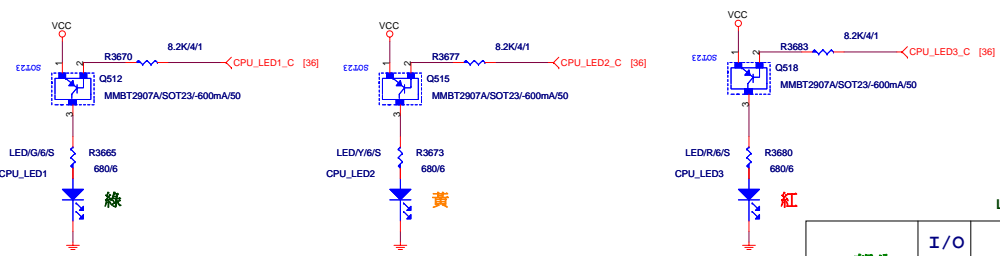


## PCB 螺絲孔位置(Footprint不同)



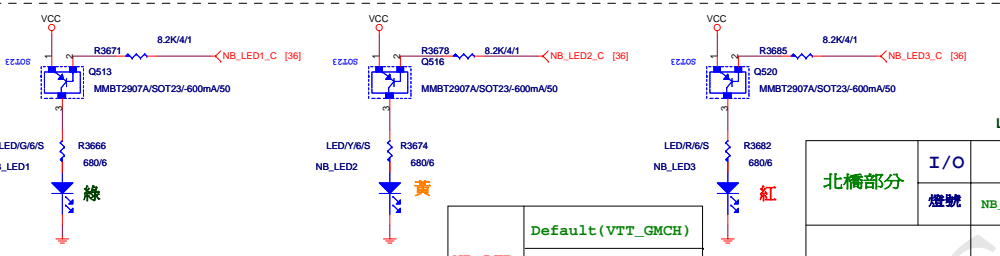
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size B	Document Number	Rev
	GA-X58A-UD5	2.0
Date:	Friday, April 23, 2010	Sheet 51 of 62



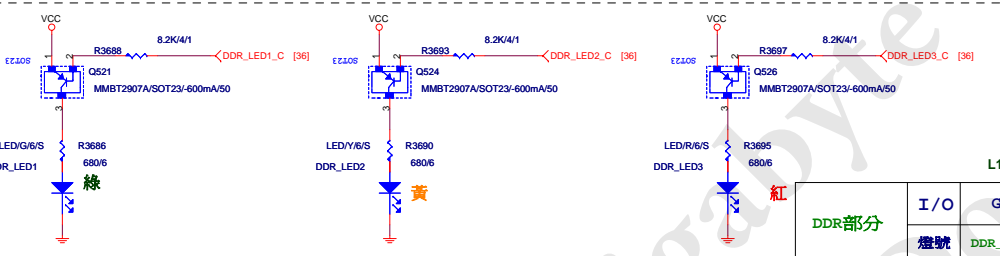
CPU LED 選擇	Default(Vcore)
	CPU PLL
	VTTD

	L1	L2	L3
CPU部分	I/O	GP80	GP81
	燈號	GP82	GP82
CPU Vcore電壓	GP80	GP81	GP82
	GP82	GP82	GP82
VTTD	GP82	GP82	GP82

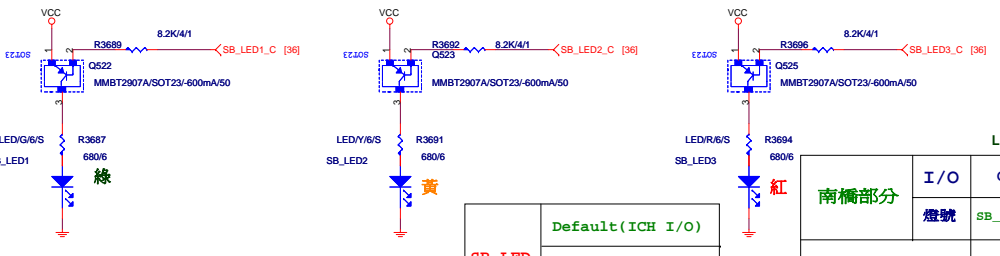


NB LED 選擇	Default(VTT_GMCH)
	VCC1_1

	L1	L2	L3
北橋部分	I/O	GP70	GP71
	燈號	GP72	GP72
NB_LED1_C	GP70	GP71	GP72
	GP72	GP72	GP72
VCC1_1	GP72	GP72	GP72



	L1	L2	L3
DDR部分	I/O	GP83	GP21
	燈號	GP87	GP87
DDR3電壓	GP83	GP21	GP87
	GP87	GP87	GP87
VTTD	GP87	GP87	GP87



SB LED 選擇	Default(ICH I/O)
	VCC1_5
	VCC1_1_ICH

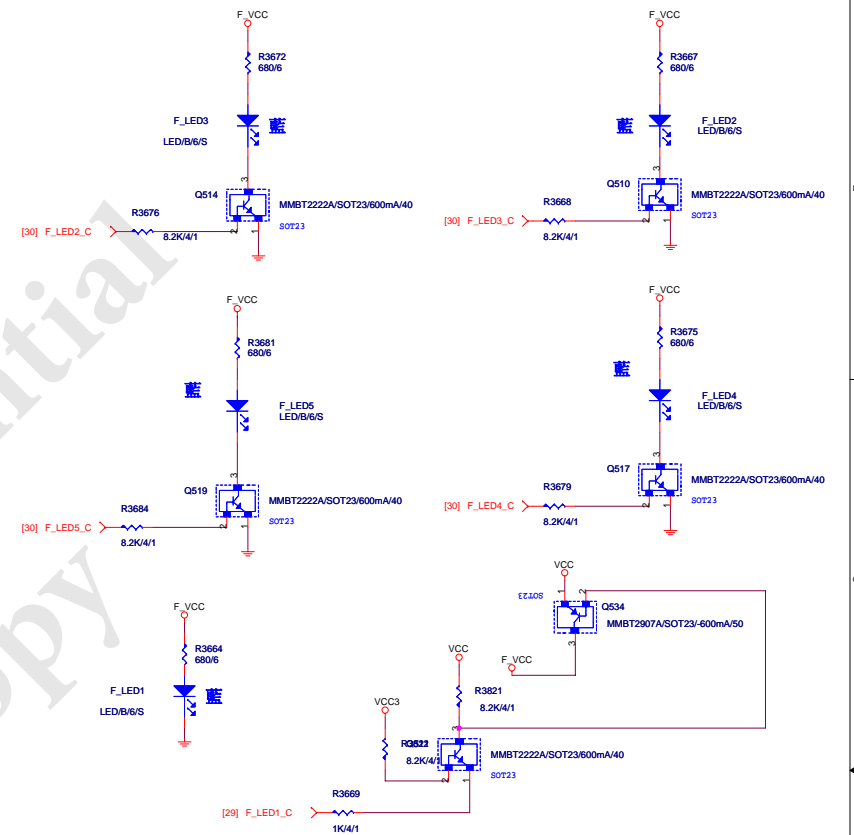
	L1	L2	L3
南橋部分	I/O	GP73	GP74
	燈號	GP64	GP64
VCC1_5	GP73	GP74	GP64
	GP64	GP64	GP64
VCC1_1_ICH	GP64	GP64	GP64

### CPU Voltage

### IOH Voltage

### DDR Voltage

### ICH Voltage



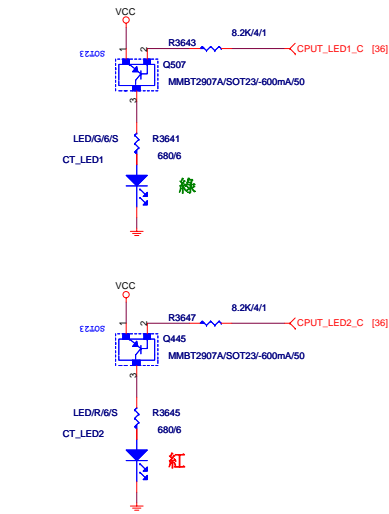
FSB LED	OFF	L1	L2	L3	L4	L5
GPIO		ICH GP57	ICH GP56	ICH GP22	ICH GP38	ICH GP21
CPU 133		145~	155~	165~	175~	185~

### 燈號表示方式

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

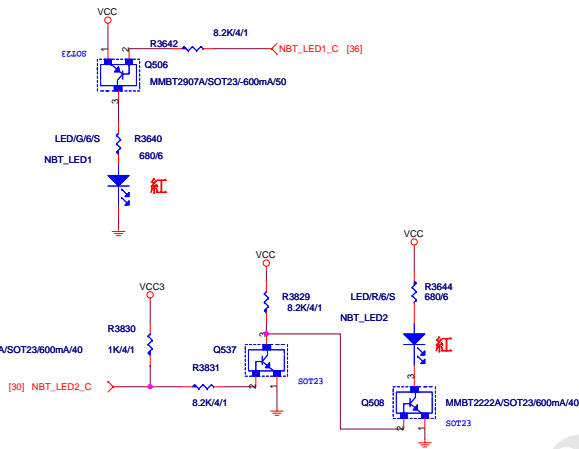
CPU溫度顯示

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



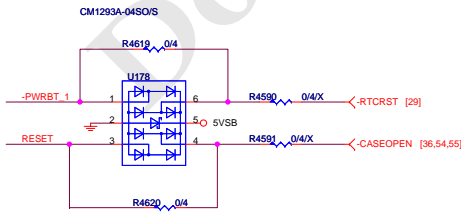
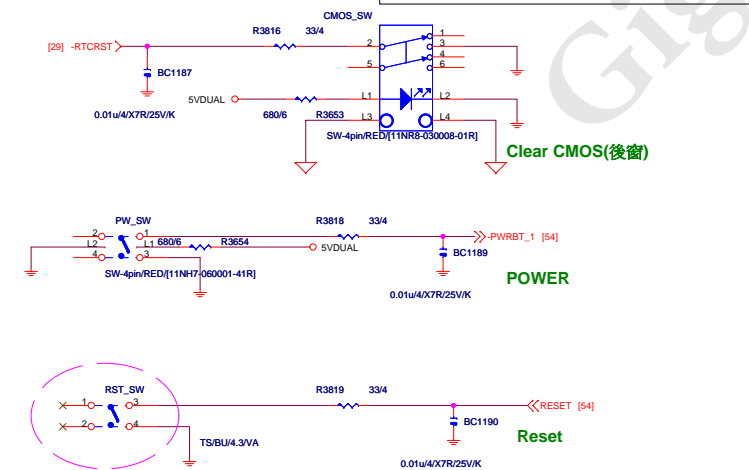
北橋(MCH)溫度顯示

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



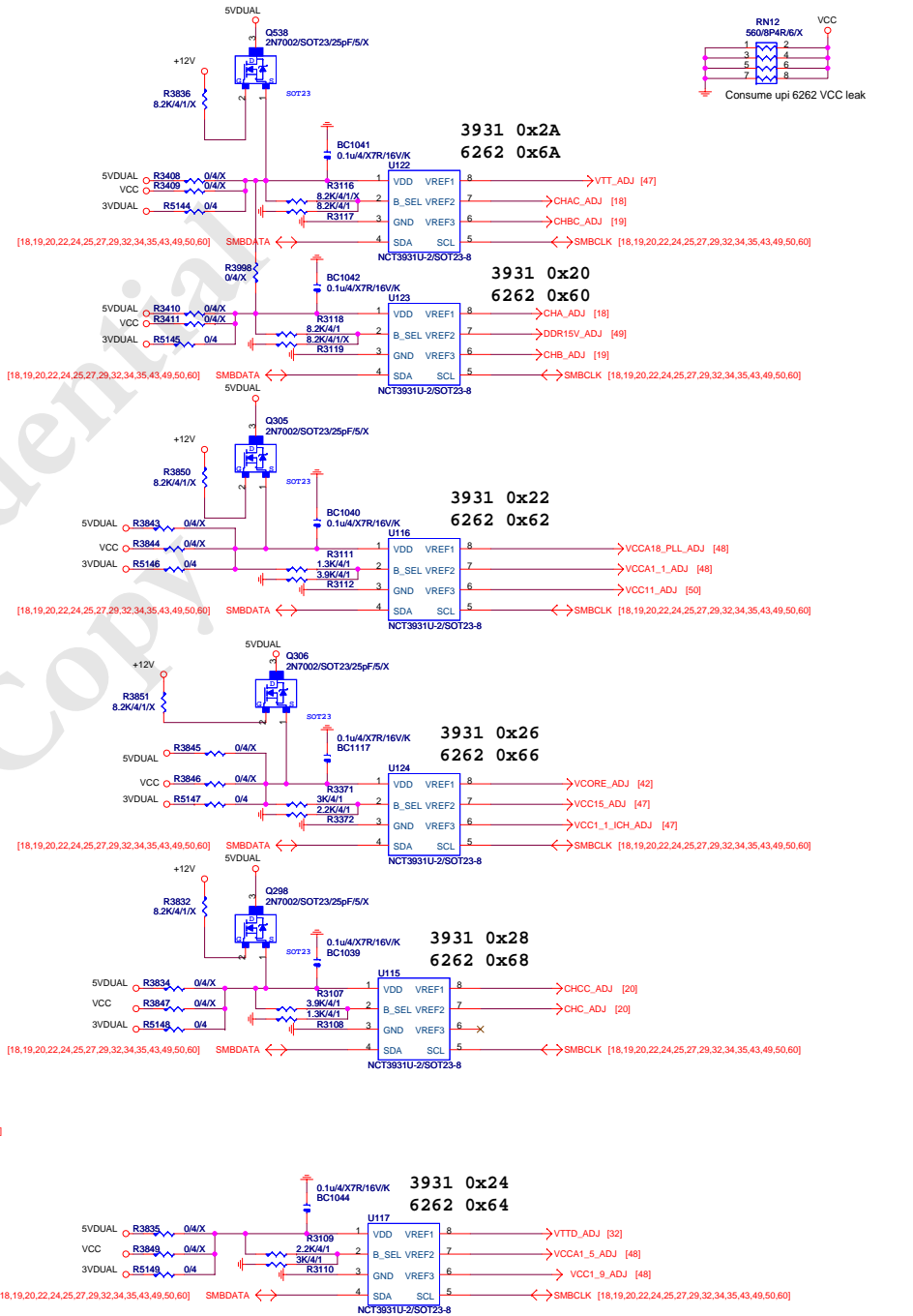
Switch 部分

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.



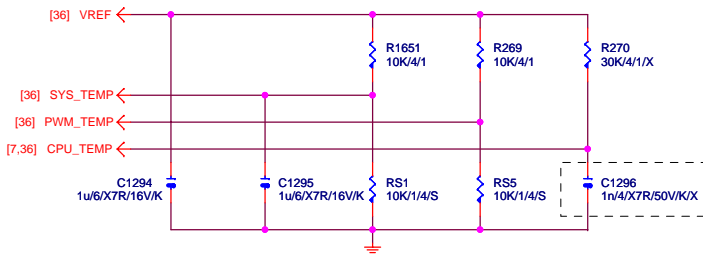
UPI6262 Table

	0X60-U123 (5VDUAL)	0X62-U116 (5VDUAL)	0X6A-U122 (5VDUAL)	0X66-U124 (5VDUAL)	0X68-U115 (5VDUAL)	0X64-U117 (5VDUAL)
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

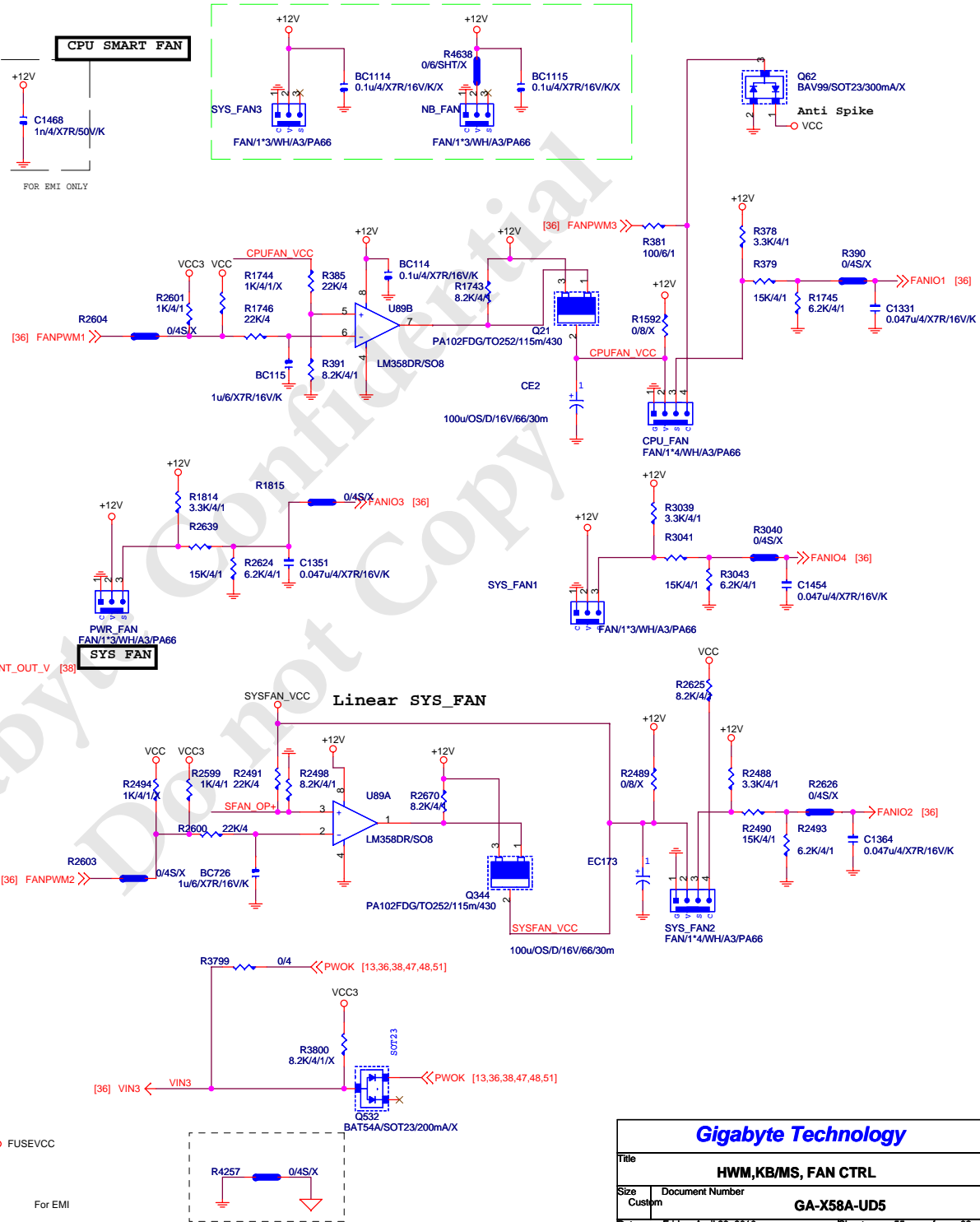
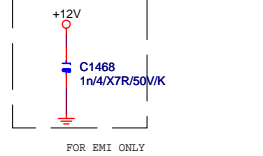
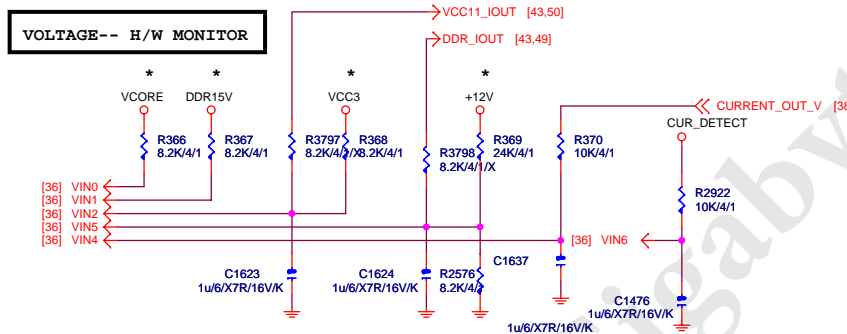




## CASE OPEN



VOLTAGE-- H/W MONITOR



**Gigabyte Technology**

Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number		Rev
Custom	GA-X58A-UD5		2.0
Date:	Friday, April 23, 2010	Sheet	55 of 62

# PCIE-1G LAN

XTAL2:外部CLK IN

RSET需LAYOUT GND GUARD

FOR DSM MODE  
(DEEP SLEEP MODE)

ENABLE SW

RTL8111E-VB-GR/QFN48

P35-152-19W9

Dual Color LED  
D4 D3  
Green  
Orange  
Single Color LED  
D2 D1  
Yellow

USB3\_0 LAN

USB3.0

USB3+R4J5[11NR6-702009-J1R]

Gigabyte Technology

REALTEK RTL8111E\_1

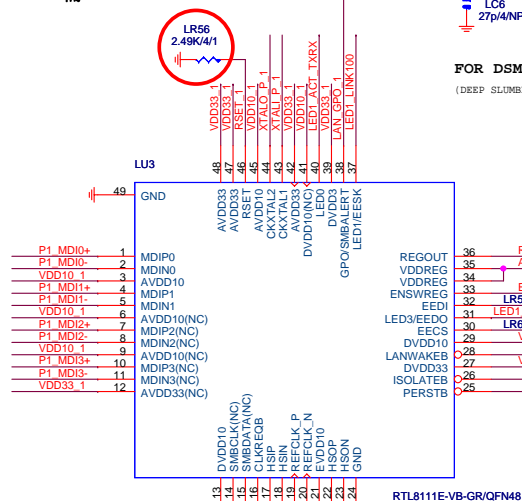
GA-X58A-UD5

2.0

Friday, April 23, 2010 Sheet 56 of 62

# PCIE-1G LAN

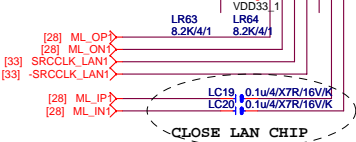
RSET LAYOUT GND GUARD



FOR DSM MODE  
(DEEP SLEEP MODE)

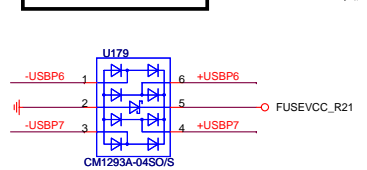
ENABLE SW  
ENSUREG 1

RTL8111E-VB-GR/QFN48

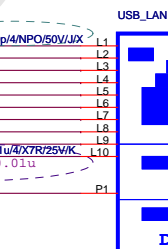
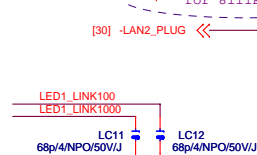


# USB LAN CONNECTOR

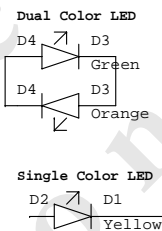
LAN 100 欧姆: [20/7/8/7/20]



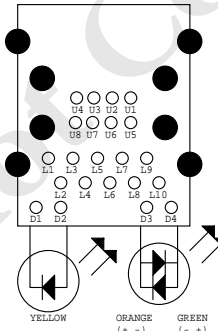
Close to connector



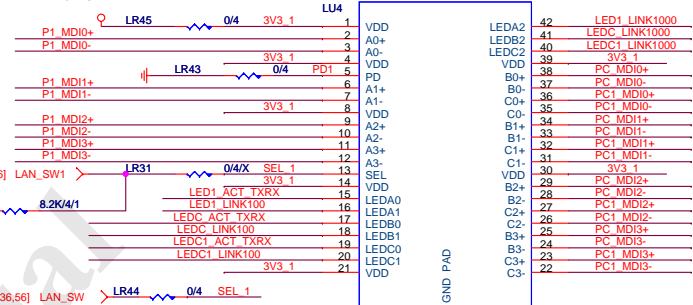
USB+LAN1G/GI, YOS/RA/D1[11NR6-702009-F1R]



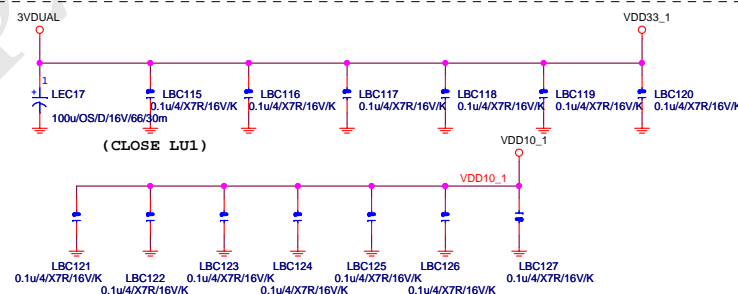
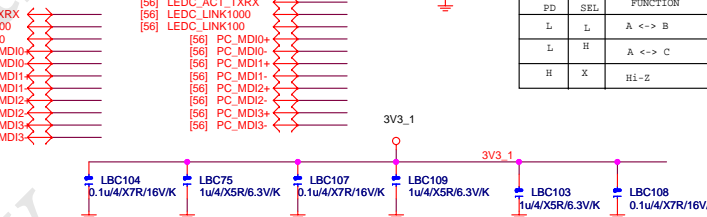
# P35-152-19W9



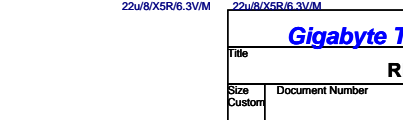
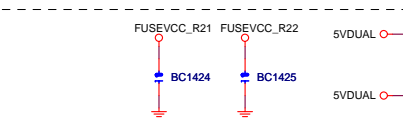
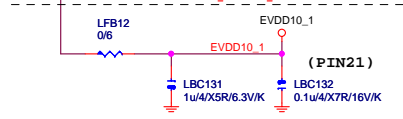
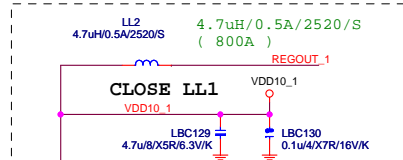
3VDUAL1



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

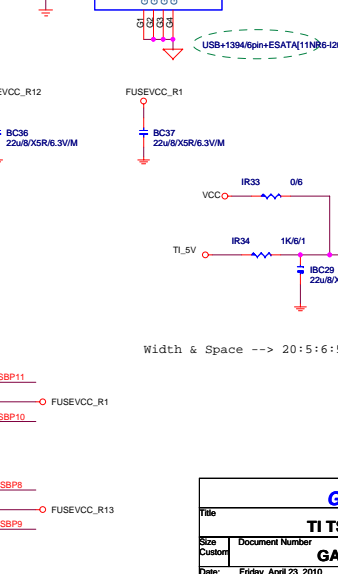
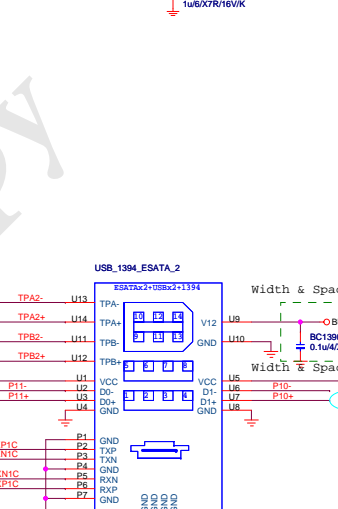
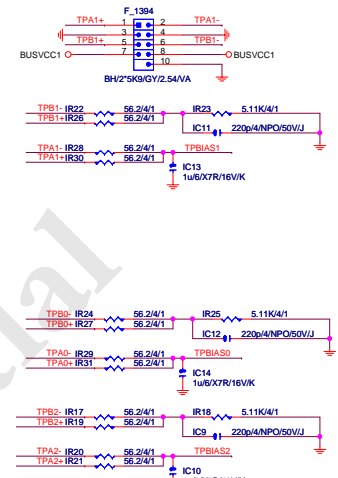
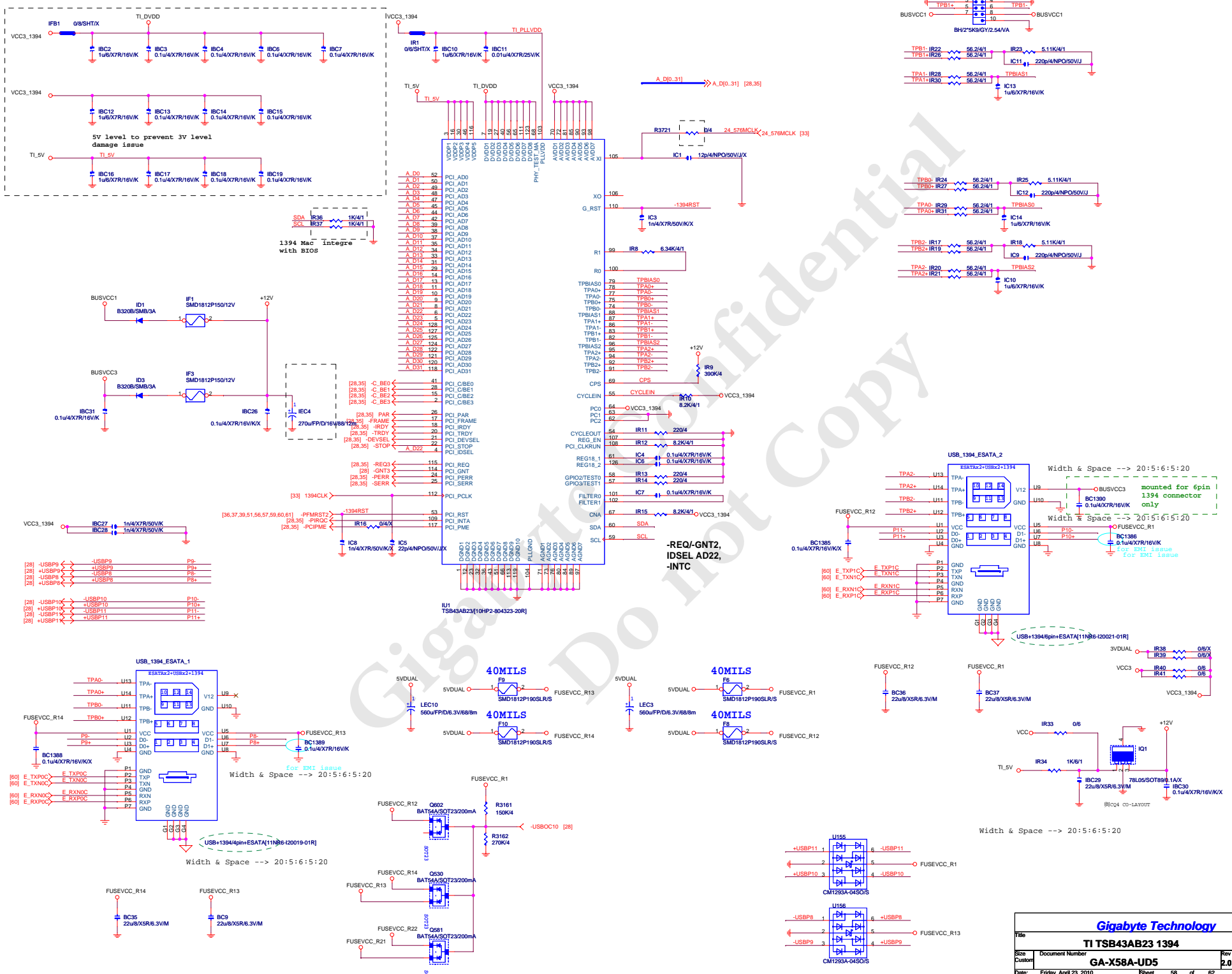


(PIN3, 6, 9, 13, 29, 41, 45)



Gigabyte Technology

REALTEK RTL8111E_2		
Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date	Friday, April 23, 2010	Sheet 57 of 62



Gigabyte Technology		
TI TS843AB23 1394		
Size	Document Number	Rev
Custom	GA-X58A-UD5	2.0
Date:	Friday, April 23, 2010	Sheet 58 of 62



# 3.3V to 1.8V Voltage Regulator

