Model Name: GA-X79-UP4 Rev 1.1

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA2011-DDR
05	CPU_LGA2011-CTRL_PCIE_DMI
06	CPU_LGA2011-PWR
07-08	DDR III CHANNEL A/B
09-10	DDR III CHANNEL C/D
11	PCH_SATA_GPIO_AUDIO
12	PCH_DMI_USB_PCIE_PCI
13	PCH_PWR_GND
14	PCI EXPRESS X16 SLOT_1
15	PCI EXPRESS X16 SLOT 2
16-18	PCI EXPRESS X8 SLOT 1/2
19	PCI EXPRESS X1 & PCI SLOT
20	ITE 8728 SIO
21	DUAL BIOS , TPM
22	-PROHOT,KB/MS,RUSB,COMA
23-25	VCORE IR3567
26-28	DDR CH A/B & CPUVTT IR3570*2
29	PBG CORE POWER RT8120
30-31	DISCRETE POWER
32	FP ,FUSB
33	ATX , OC
34-35	ALC898 & AUDIO JACK
36	HWM ,FAN CTRL
37	CLOCK GEN & BUFFER

SHEET	TITLE
38	F_USB3_FL1009
39	R_USB3_FL1009
40	Gb LAN-INTEL 82579V
41-42	Marvell 9172 SATA 3.0-A/B
43	Marvell 9172 eSATA
44	PCH GPIO LIST

Gigabyte Technology

Title	Cover Sheet	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 1 of 44	

GA-X79-UP4

Component value change history

Data	Change Item	Reason
2013/01/30	1. Change from 9MX79UP4-00-10C 2. Add WR58 1K/4 for support IVP-EP server CPU 3. Add SYS_FAN1 0ohm 防燒	9MX79UP4-00-11A

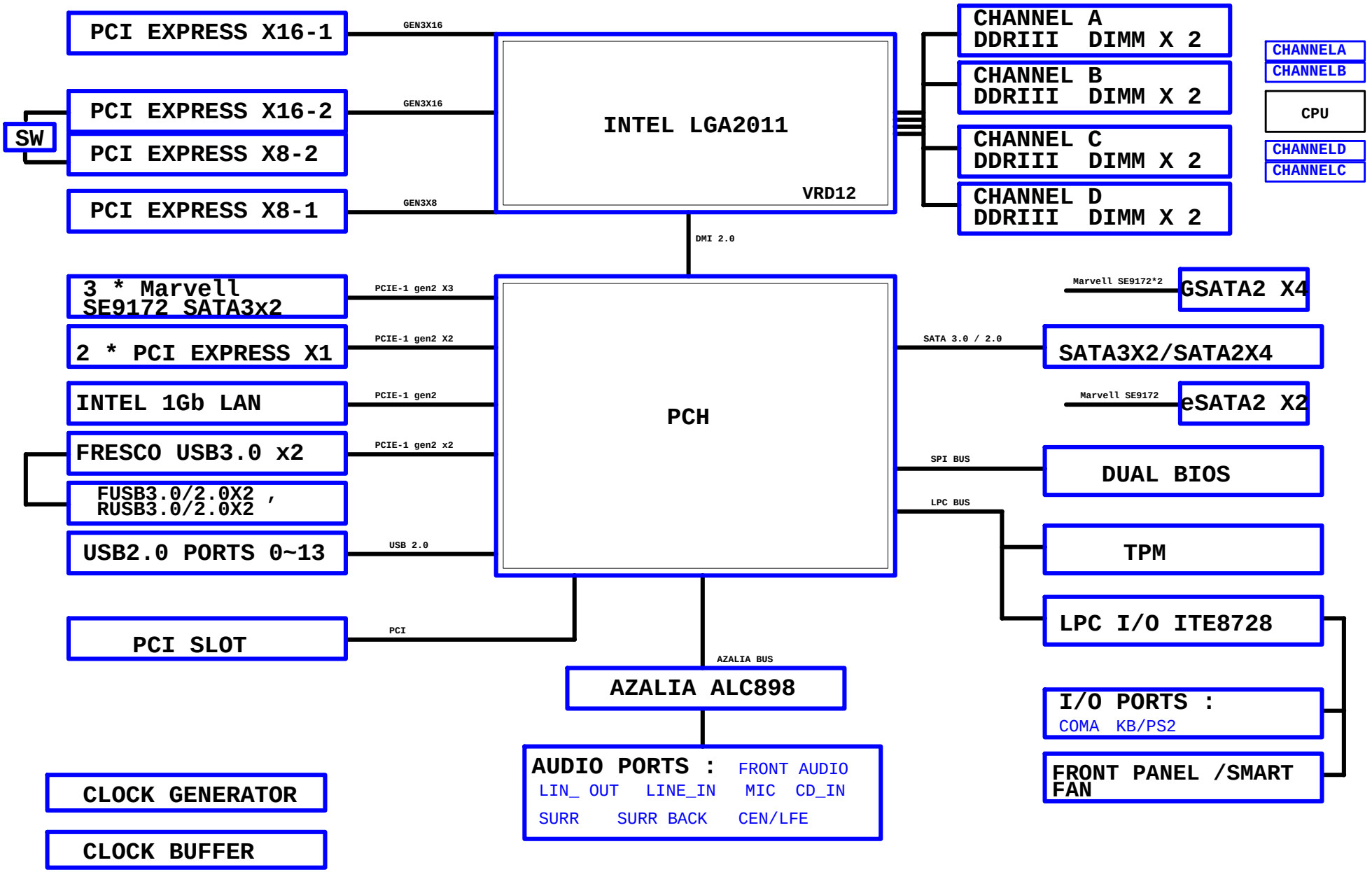
Circuit or PCB layout change

DATE	Change Item	Reason
2012-01-30	Build X79-UD4 0.1 from X79-UD3 1.03 for spec request	
2012-03-14	Build X79-UD3R 0.1 from X79-UD4 0.1 for spec request	
2012-04-05	Build X79-UP3 0.1 from X79-UD3R 0.1 for model nam change	
2012-04-xx	Build X79-UP4 0.2 from X79-UP3 0.1 for model nam change	
2012-07-06	1.VCORE power 修改 2.DDR power ok layout 修改 3.Add MAC1,MBC7 for DDR power ok ripple 4.Remove VIN protect circuit 5.Add R1,BC1 for ATX PWOK 6.Mask CEC20 7.對調VIN0 跟VIN5 8.R3933,R189 change to 0 ohm	Rev 1.01
2013/01/30	1. Add SYS_FAN1 0ohm 防燒 2. F_FANEL footprint from -1 change to -3	Rev 1.1

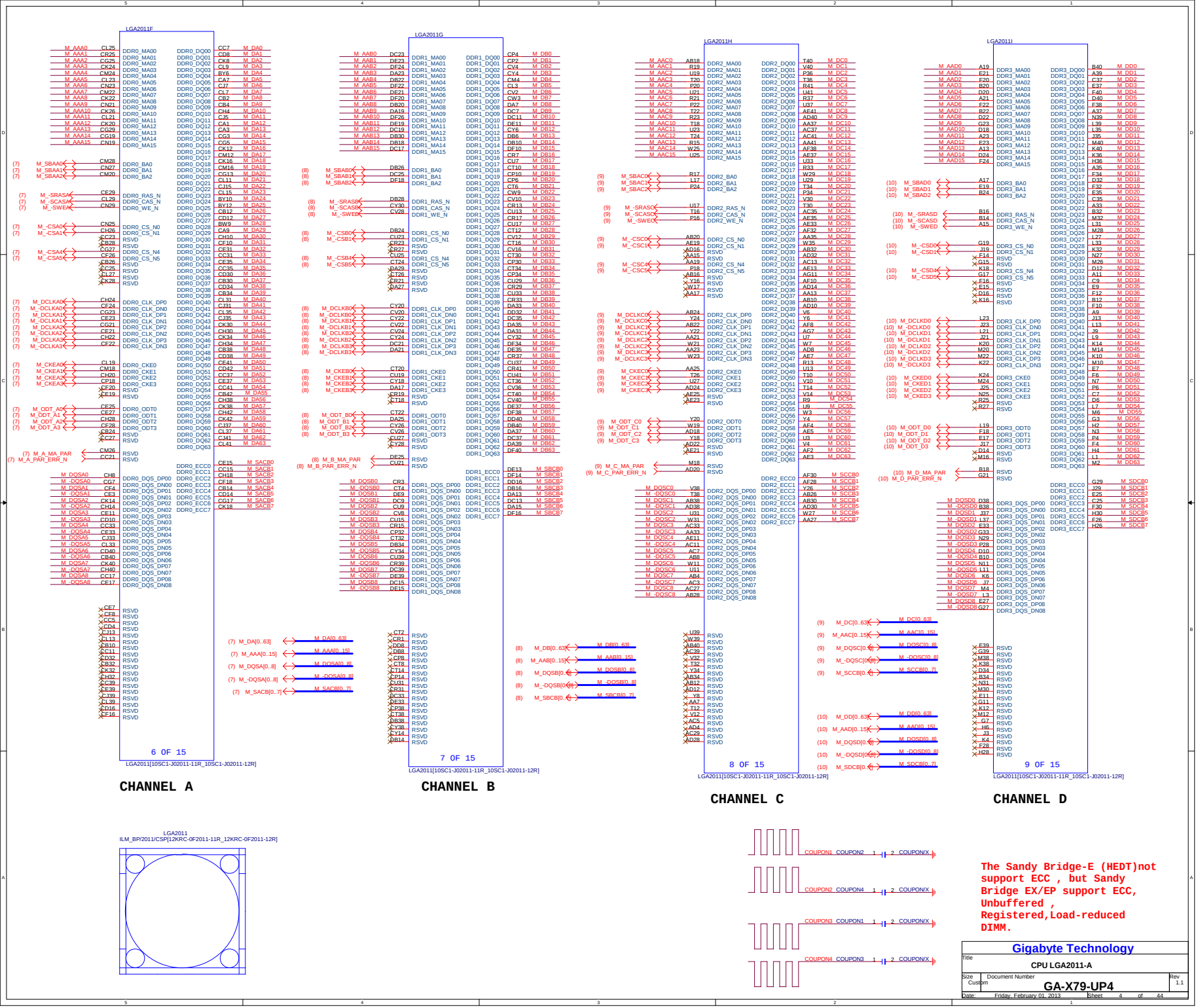
Gigabyte Technology

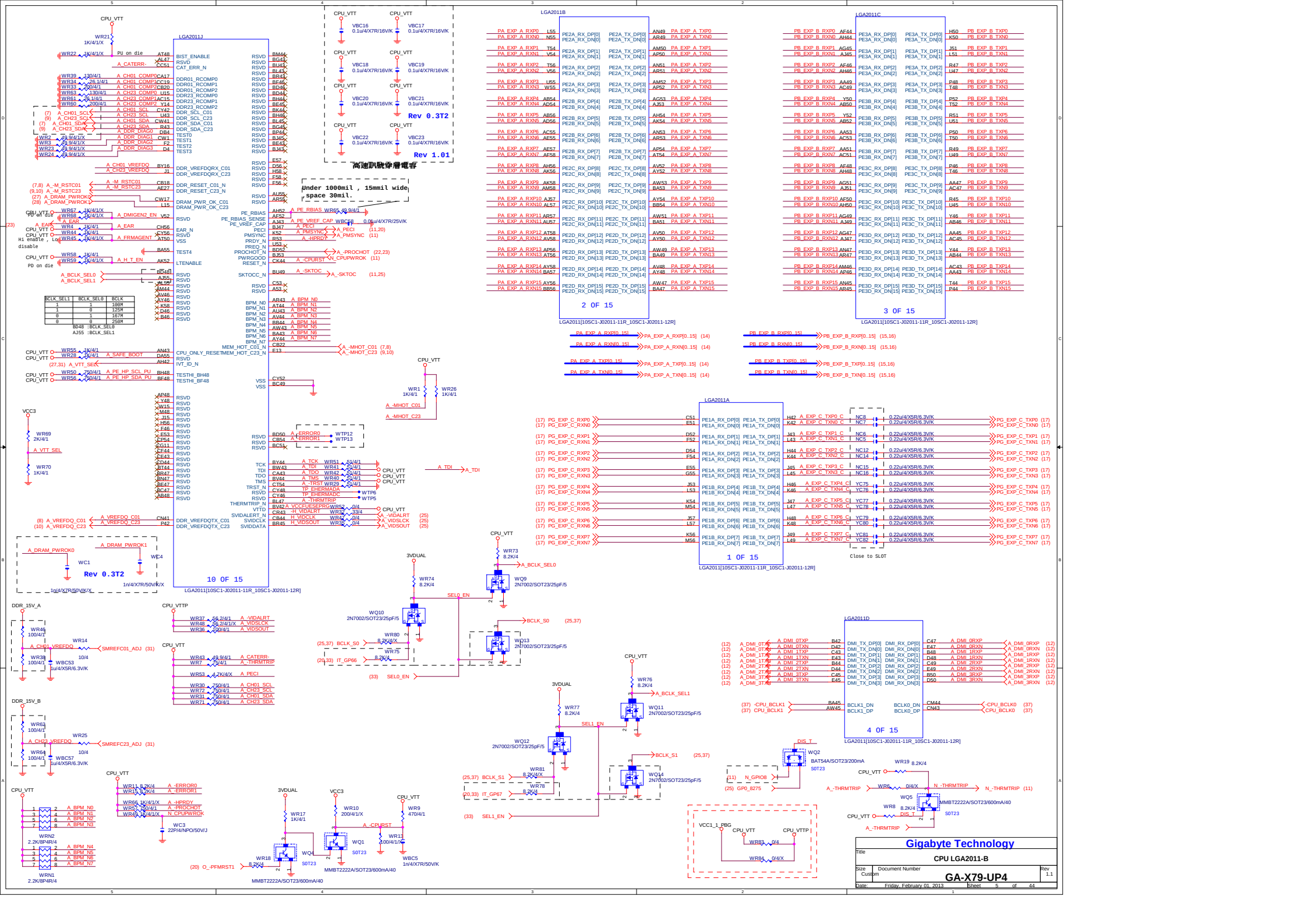
Title	BOM & PCB MODIFY HISTORY		
Size: Custom	Document Number: GA-X79-UP4		Rev: 1.1
Date: Friday, February 01, 2013	Sheet 2 of 44		

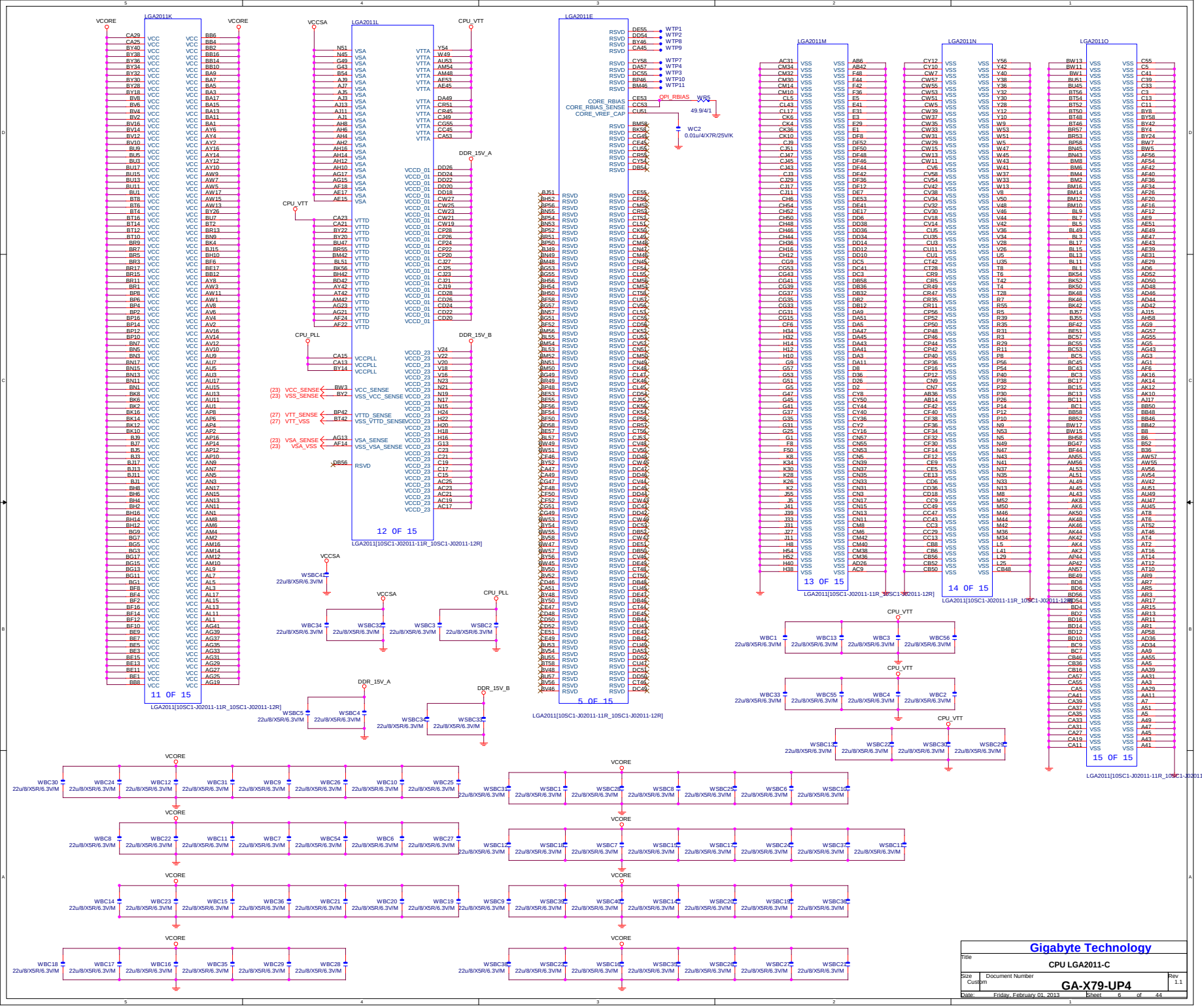
BLOCK DIAGRAM



Gigabyte Technology			
Title: BLOCK DIAGRAM			
Size: C	Document Number: GA-X79-UP4		Rev: 1.1
Date: Friday, February 01, 2013	Sheet 3 of 44		

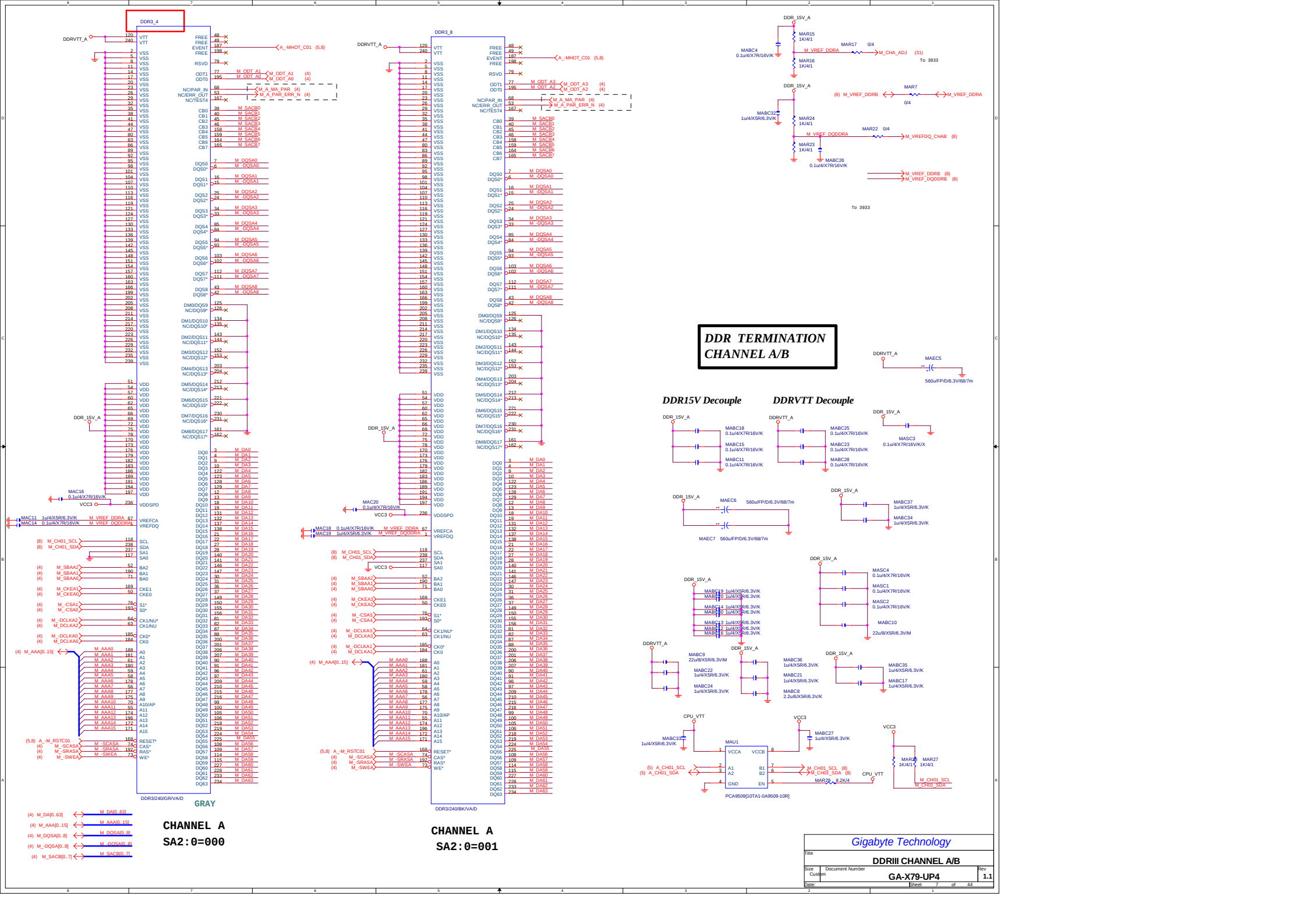

LGA2011F
LGA2011G
LGA2011H
LGA2011I
6 OF 15
7 OF 15
8 OF 15
9 OF 15
LGA2011[10SC1-J02011-11R_10SC1-J02011-12R]
CHANNEL A
CHANNEL B
CHANNEL C
CHANNEL D
LGA2011
ILM_BP/2011/CSP[12KRC-0F2011-11R_12KRC-0F2011-12R]
The Sandy Bridge-E (HEDT)not support ECC , but Sandy Bridge EX/EP support ECC, Unbuffered , Registered,Load-reduced DIMM.
Gigabyte Technology
CPU LGA2011-A
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 4 of 44

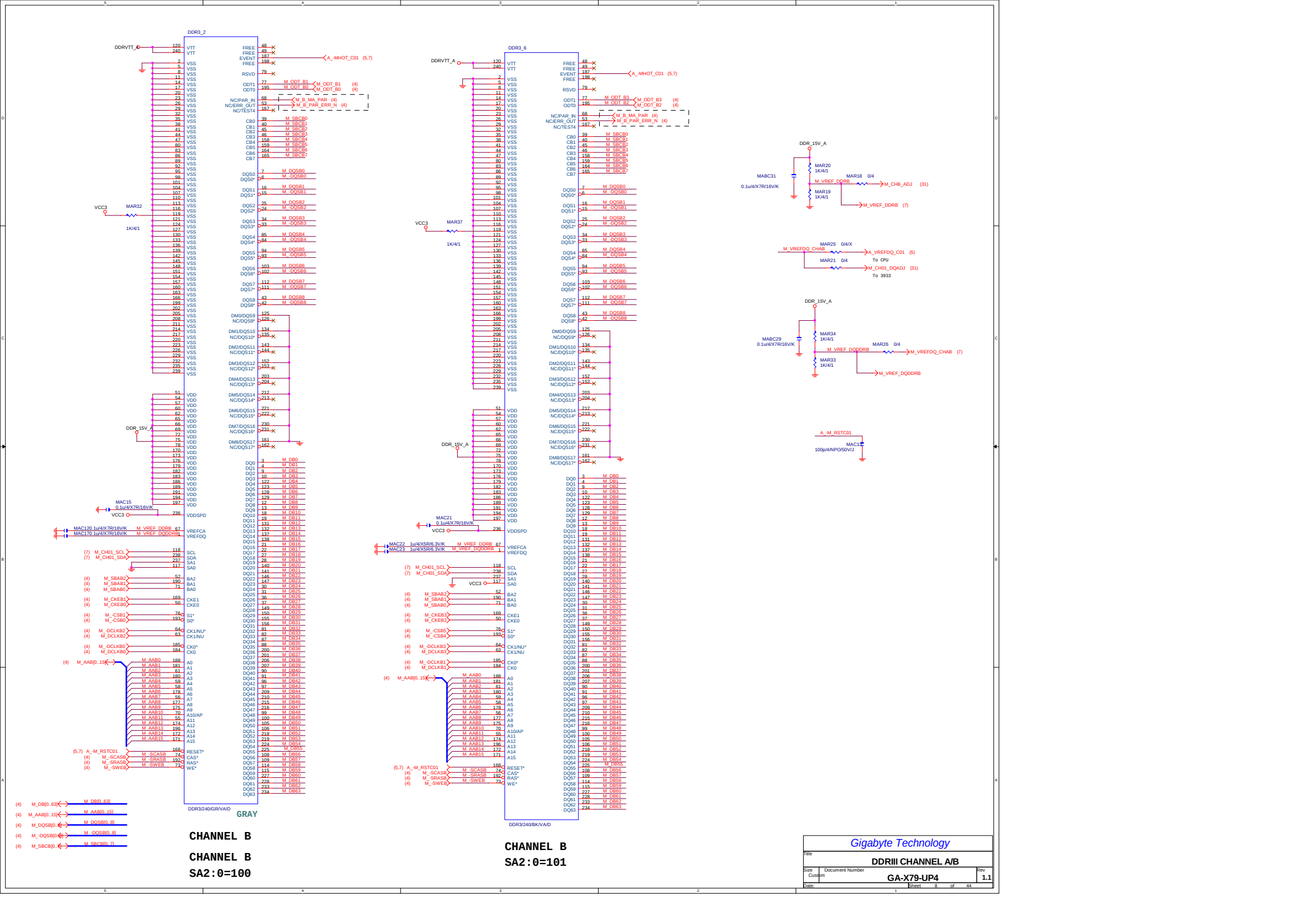

LGA2011J
LGA2011B
LGA2011C
LGA2011A
LGA2011D
10 OF 15
2 OF 15
3 OF 15
1 OF 15
4 OF 15
Rev 0.3T2
Rev 1.01
高速訊號章層電容
Under 1000mil , 15mmil wide space 30mil.
Close to SLOT
Gigabyte Technology
CPU LGA2011-B
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013



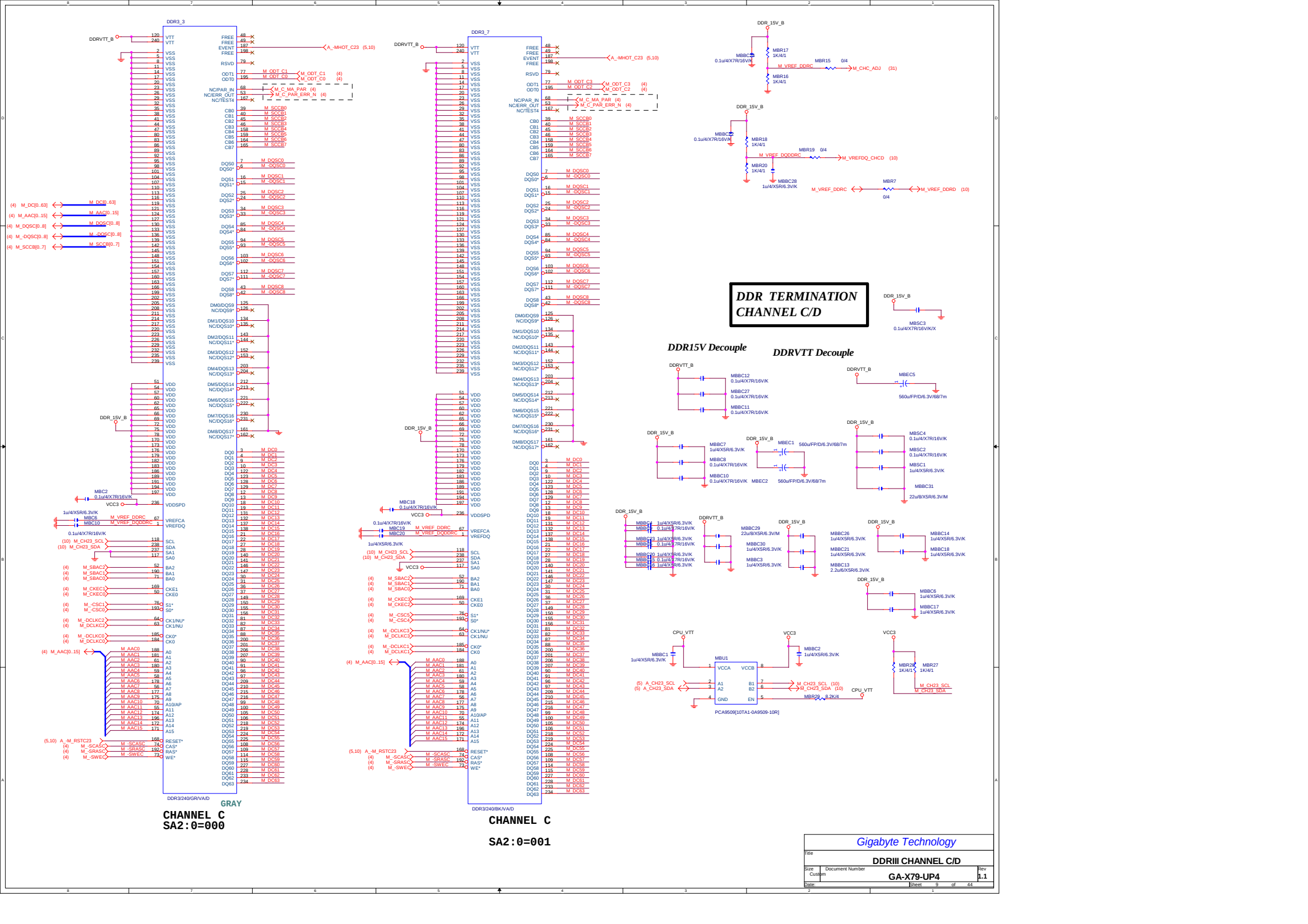
Title	CPU LGA2011-C
Size	Custom
Document Number	GA-X79-UP4
Rev	1.1
Date:	Friday, February 01, 2013
Sheet	6 of 44

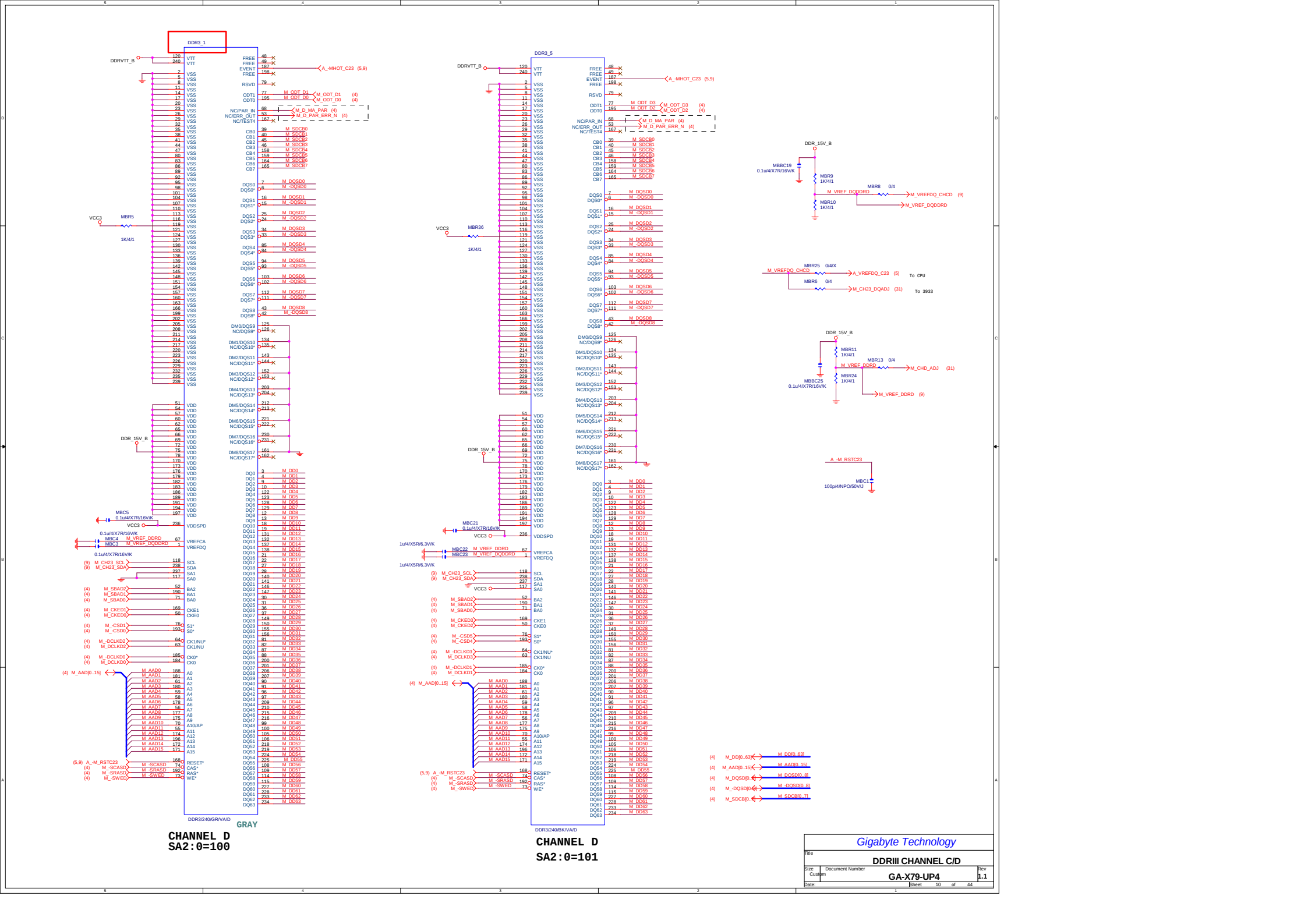
Gigabyte Technology


DDR3_4
DDR3/240/GR/VA/D
GRAY
CHANNEL A
SA2:0=000
DDR3_8
DDR3/240/BK/VA/D
CHANNEL A
SA2:0=001
DDR TERMINATION
CHANNEL A/B
DDR15V Decouple
DDRVTT Decouple
DDR_15V_A
DDRVTT_A
VCC3
CPU_VTT
VDDSPD
MAU1
PCA9509[10TA1-0A9509-10R]
To 3933
Gigabyte Technology
DDRIII CHANNEL A/B
GA-X79-UP4
Rev 1.1



Gigabyte Technology			
Title: DDRIII CHANNEL A/B			
Size: Custom	Document Number: GA-X79-UP4		Rev: 1.1
Date:		Sheet 8 of 44	


DDR3_3
DDR3_7
DDRVTT_B
DDR_15V_B
DDR3/240/GR/VA/D
DDR3/240/BK/VA/D
GRAY
CHANNEL C
SA2:0=000
CHANNEL C
SA2:0=001
DDR TERMINATION
CHANNEL C/D
DDR15V Decouple
DDRVTT Decouple
PCA9509[10TA1-0A9509-10R]
Gigabyte Technology
DDRIII CHANNEL C/D
GA-X79-UP4
Size
Custom
Document Number
Rev
1.1
Date:
Sheet 9 of 44


DDR3_1
DDR3_5
DDRVTT_B
VCC3
DDR_15V_B
MBR5
MBR36
1K/4/1
MBC5
MBC21
MBC4
MBC3
MBC22
MBC23
0.1u/4/X7R/16V/K
1u/4/X5R/6.3V/K
M_VREF_DDRD
M_VREF_DQDDRD
VDDSPD
VREFCA
VREFDQ
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
DDR3/240/GR/VA/D
DDR3/240/BK/VA/D
GRAY
CHANNEL D
SA2:0=100
CHANNEL D
SA2:0=101
MBBC19
MBR9
MBR10
MBR8
MBR25
MBR6
MBBC25
MBR11
MBR24
MBR13
MBC1
M_VREFDQ_CHCD
M_CH23_DQADJ
M_CHD_ADJ
To CPU
To 3933
Gigabyte Technology
DDRIII CHANNEL C/D
GA-X79-UP4
Rev 1.1
Sheet 10 of 44

PBGC

PM_SYNC
PM_SYNC2
APWROK
PWM0
PWM1
PWM2
PWM3
TACH0/GPIO17
TACH1/GPIO1
TACH2/GPIO6
TACH3/GIOP7
TACH4/GPIO68
TACH5/GPIO69
TACH6/GPIO70
TACH7/GPIO71
SST
SCLOCK/GPIO22
SLOAD/GPIO38
SDATAOUT0/GPIO39
SDATAOUT1/GPIO48
NC_1
SATA3
SATA2
GPIO
FAN
SATA_RXN_0
SATA_RXP_0
SATA_TXN_0
SATA_TXP_0
SATA_RXN_1
SATA_RXP_1
SATA_TXN_1
SATA_TXP_1
SATA_RXN_2
SATA_RXP_2
SATA_TXN_2
SATA_TXP_2
SATA_RXN_3
SATA_RXP_3
SATA_TXN_3
SATA_TXP_3
SATA_RXN_4
SATA_RXP_4
SATA_TXN_4
SATA_TXP_4
SATA_RXN_5
SATA_RXP_5
SATA_TXN_5
SATA_TXP_5
CLKIN_SATA_N
CLKIN_SATA_P
SATALEDB
SATAICOMPI
SATAICOMPO
SATA0GP/GPIO21
SATA1GP/GPIO19
SATA2GP/GPIO36
SATA3GP/GPIO37
SATA4GP/GPIO16
SATA5GP/GPIO49
SATA3COMPI
SATA3COMPO
TP22
SATA3RBIAS
A20GATE
INIT3_3VB
RCINB
SERIRQ
THRMTRIPB
PECI
ADR_COMPLETE
HOST
3 OF 10
PCH[10HB1-030X79-20R]

PBGF

PEG0_RXP_0
PEG0_RXN_0
PEG0_RXP_1
PEG0_RXN_1
PEG0_RXP_2
PEG0_RXN_2
PEG0_RXP_3
PEG0_RXN_3
PEG0_TXP_0
PEG0_TXN_0
PEG0_TXP_1
PEG0_TXN_1
PEG0_TXP_2
PEG0_TXN_2
PEG0_TXP_3
PEG0_TXN_3
PEG0_RBIASP
PEG0_RBIASN
CLKIN_SPCIE0P
CLKIN_SPCIE0N
CLKIN_SAS0P
CLKIN_SAS0N
SAS_RBIASP_0
SAS_RBIASN_0
SAS_RBIASP_1
SAS_RBIASN_1
SASSMBCLK0
SASSMBDATA0
SASSMBCLK1
SASSMBDATA1
SASSMBCLK2
SASSMBDATA2
SAS_TXP_0
SAS_TXN_0
SAS_TXP_1
SAS_TXN_1
SAS_TXP_2
SAS_TXN_2
SAS_TXP_3
SAS_TXN_3
SAS_TXP_4
SAS_TXN_4
SAS_TXP_5
SAS_TXN_5
SAS_TXP_6
SAS_TXN_6
SAS_TXP_7
SAS_TXN_7
SAS_RXP_0
SAS_RXN_0
SAS_RXP_1
SAS_RXN_1
SAS_RXP_2
SAS_RXN_2
SAS_RXP_3
SAS_RXN_3
SAS_RXP_4
SAS_RXN_4
SAS_RXP_5
SAS_RXN_5
SAS_RXP_6
SAS_RXN_6
SAS_RXP_7
SAS_RXN_7
SAS_LEDB
6 OF 10
PCH[10HB1-030X79-20R]

PBGD

LDRQ1B/GPIO23
LAD_0
LAD_1
LAD_2
LAD_3
LDRQ0B
LFRAMEB
HDA_BCLK
HDA_RSTB
HDA_SDIN_0
HDA_SDIN_1
HDA_SDIN_2
HDA_SDIN_3
HDA_SDO
HDA_SYNC
SPI_CLK
SPI_CS0B
SPI_CS1B
SPI_MISO
SPI_MOSI
RTCX1
RTCX2
RESETB
SRTCRSTB
SMBCLK
SMBDATA
SML0ALERTB/GPIO60
SML0CLK
SML0DATA
SML1ALERTB/GPIO74
SML1CLK/GPIO58
SML1DATA/GPIO75
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
REFCLK14IN
SAS_CLOCK1
SAS_LOAD1
SAS_DATAIN1
SAS_DATAOUT1
SAS_CLOCK2
SAS_LOAD2
SAS_DATAIN2
SAS_DATAOUT2
GPIO24
SUSWARNB/SUSPWRDNACK/GPIO30
GPIO31/MGPIO2
SLP_LANB/GPIO29
GPIO57
GPIO27
GPIO28
BMBUSYB/GPIO0
GPIO8
SMBALERTB/GPIO11
LAN_PHY_PWR_CTRL/GPIO12
GPIO13
GPIO15
GPIO18
SMIB/GPIO20
GPIO25
GPIO26
GPIO32
GPIO33
GPIO34
NMIB/GPIO35
GPIO44
GPIO45
GPIO46
GPIO47
GPIO56
GPIO61
SUS_STATB/GPIO61
SUSCLK/GPIO62
GPIO64
GPIO65
GPIO66
GPIO67
GPIO73
SLP_AB
SLP_S3B
SLP_S4B
SLP_S5B/GPIO63
SLP_SUSB
GPIO72
WAKEB
RIB
SPKR
INTRUDERB
SUSACKB
SYS_PWROK
SYS_RESETB
RSMRSTB
PCH_PWROK
PROCPWRGD
DPWROK
DRAMPWROK
PLTRSTB
TP12
PWRBTNB
DSWODVREN
INTVRMEN
4 OF 10
PCH[10HB1-030X79-20R]

SATA3_0_1
SATA/14/WH/H/OP/RA/D/2

SATA2_2_3
SATA/14/BK/H/OP/RA/D/2

SATA2_4_5
SATA/14/BK/H/OP/RA/D/2

For long routing drive strength

GP28 int PU to enable on DIE VRM

GP15 low to disable TLS , high to enable TLS

Close PCH

GP36 is strapping ?

For PCH漏電，改版本漏腳部

Default int PD , int VRM supply by 1.8V
Ext Pu , int VRM supply by 1.5V

32.768K/12.5p/20ppm/TF38/35K/D

close to NR34

MMBT2222A/SOT23/600mA/40/X

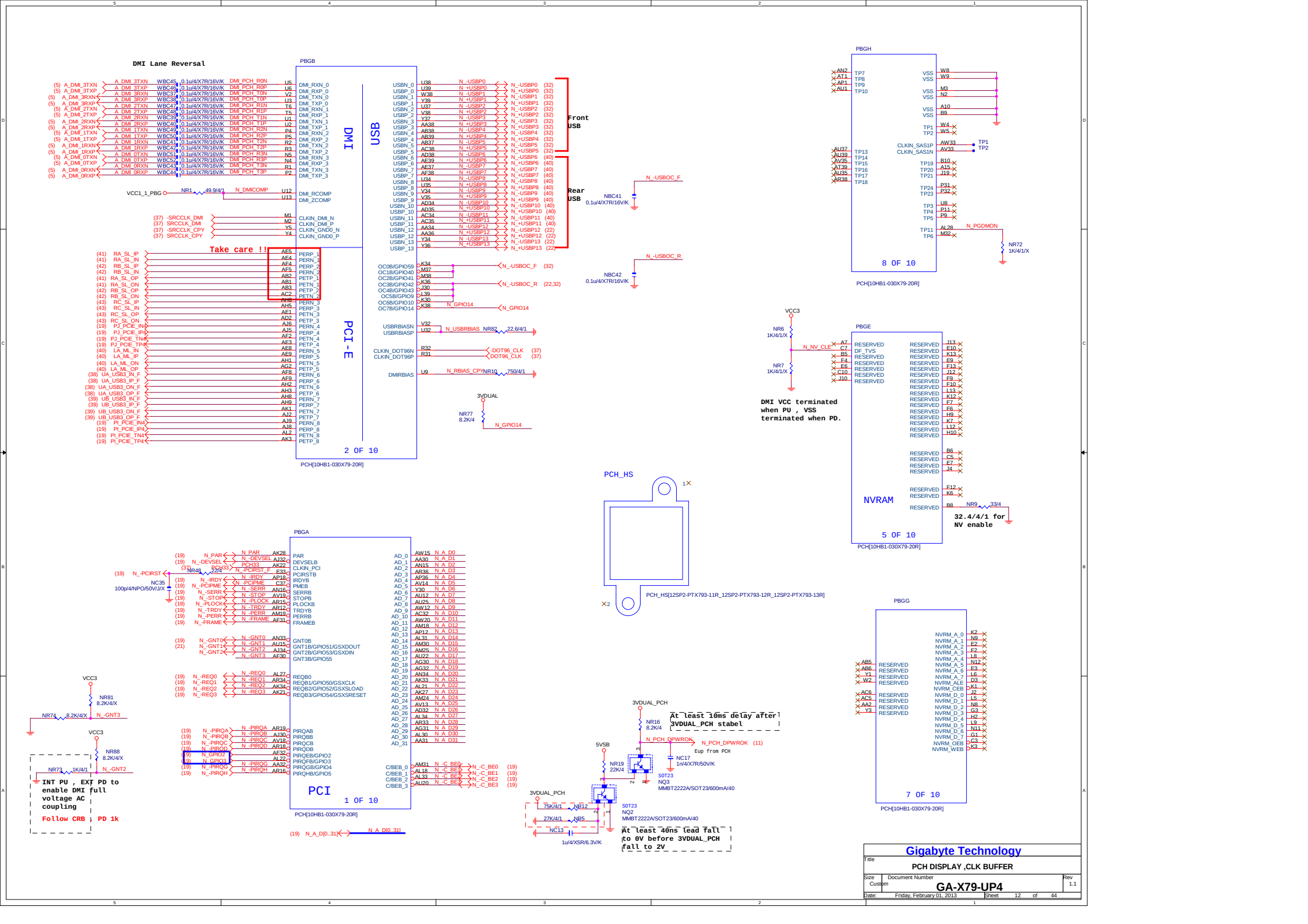
To prevent PCH PECI crosstalk to CPU when disable PCH PECI

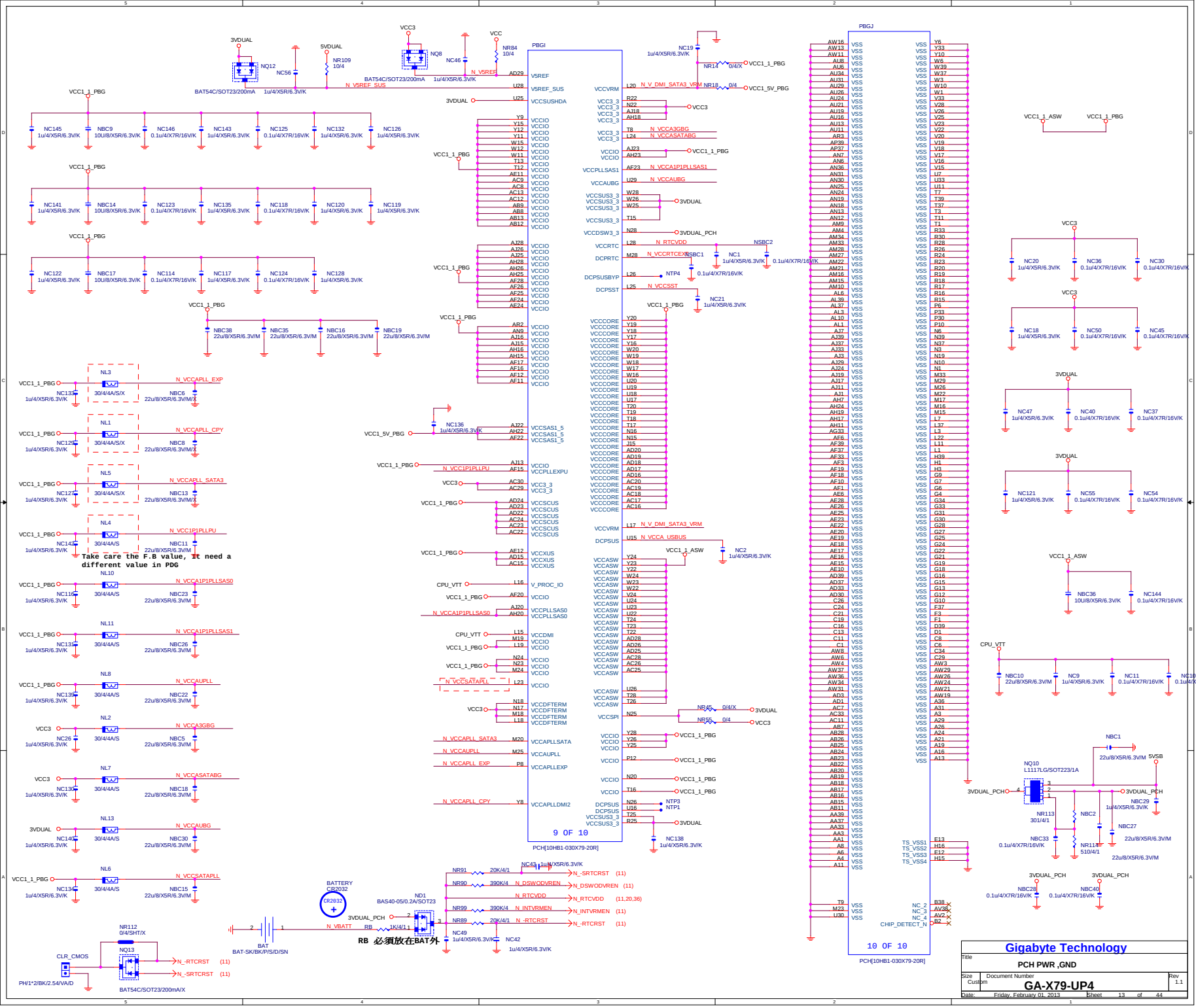
Gigabyte Technology

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

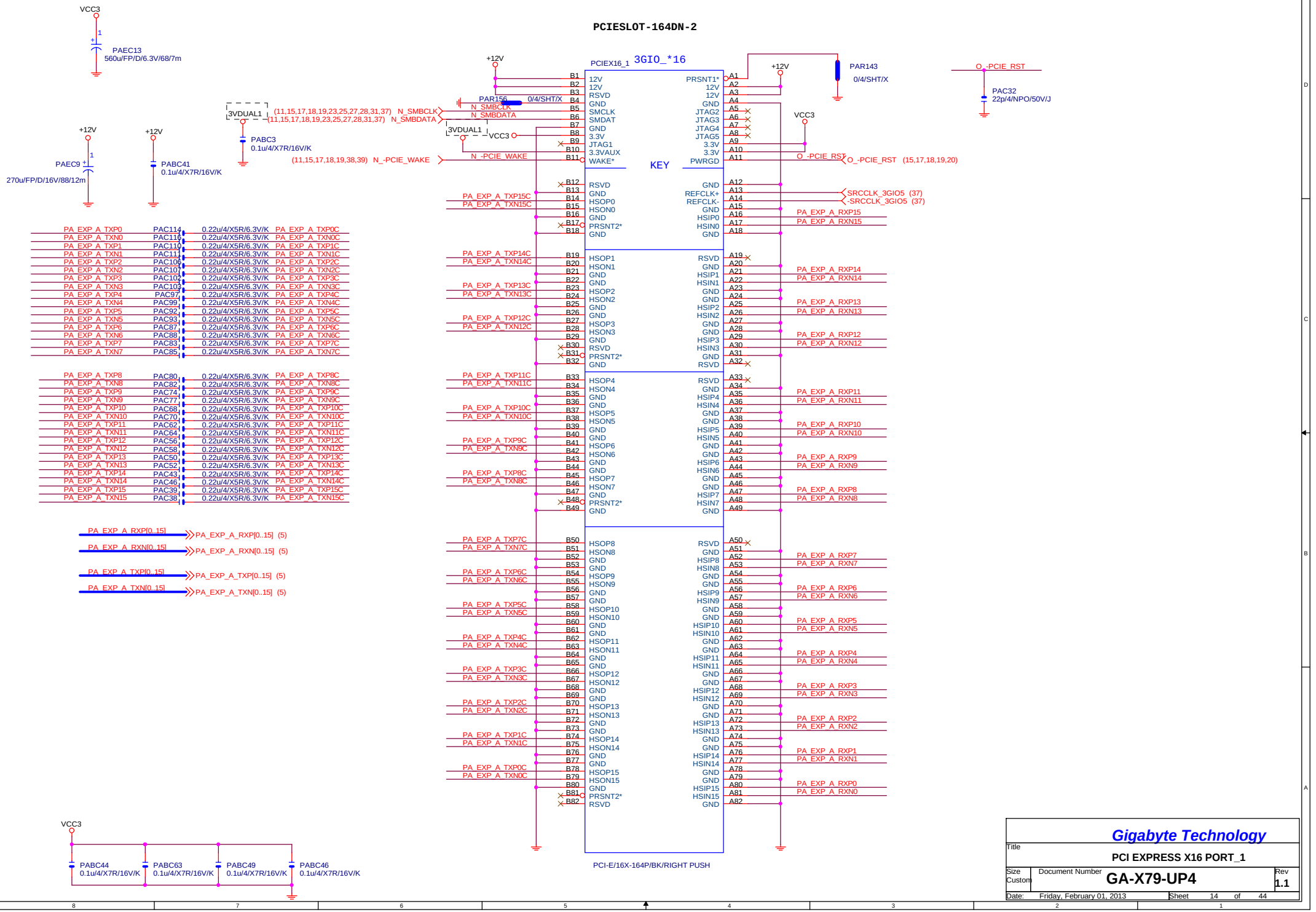
Size: Custom | Document Number: GA-X79-UP4 | Rev: 1.1

Date: Friday, February 01, 2013 | Sheet 11 of 44


DMI Lane Reversal
PBGB
DMI
USB
PCI-E
Front USB
Rear USB
Take care !!
2 OF 10
PCH[10HB1-030X79-20R]
PBGH
8 OF 10
PCH[10HB1-030X79-20R]
PBGE
NVRAM
5 OF 10
PCH[10HB1-030X79-20R]
DMI VCC terminated when PU , VSS terminated when PD.
32.4/4/1 for NV enable
PCH_HS
PCH_HS[12SP2-PTX793-11R_12SP2-PTX793-12R_12SP2-PTX793-13R]
PBGA
PCI
1 OF 10
PCH[10HB1-030X79-20R]
INT PU , EXT PD to enable DMI full voltage AC coupling
Follow CRB : PD 1k
PBGG
7 OF 10
PCH[10HB1-030X79-20R]
At least 10ms delay after 3VDUAL_PCH stabel
At least 40ns lead fall to 0V before 3VDUAL_PCH fall to 2V
Gigabyte Technology
PCH DISPLAY ,CLK BUFFER
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 12 of 44


Take care the F.B value, it need a different value in PDG
RB 必须放在BAT外
9 OF 10
10 OF 10
PCH[10HB1-030X79-20R]
Gigabyte Technology
PCH PWR ,GND
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 13 of 44

PCIESLOT-164DN-2



PA_EXP_A_TXP0	PAC114	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP0C
PA_EXP_A_TXN0	PAC116	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN0C
PA_EXP_A_TXP1	PAC110	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP1C
PA_EXP_A_TXN1	PAC111	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN1C
PA_EXP_A_TXP2	PAC106	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP2C
PA_EXP_A_TXN2	PAC107	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN2C
PA_EXP_A_TXP3	PAC102	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP3C
PA_EXP_A_TXN3	PAC103	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN3C
PA_EXP_A_TXP4	PAC97	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP4C
PA_EXP_A_TXN4	PAC99	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN4C
PA_EXP_A_TXP5	PAC92	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP5C
PA_EXP_A_TXN5	PAC93	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN5C
PA_EXP_A_TXP6	PAC87	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP6C
PA_EXP_A_TXN6	PAC88	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN6C
PA_EXP_A_TXP7	PAC83	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP7C
PA_EXP_A_TXN7	PAC85	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN7C
PA_EXP_A_TXP8	PAC80	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP8C
PA_EXP_A_TXN8	PAC82	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN8C
PA_EXP_A_TXP9	PAC74	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP9C
PA_EXP_A_TXN9	PAC77	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN9C
PA_EXP_A_TXP10	PAC68	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP10C
PA_EXP_A_TXN10	PAC70	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN10C
PA_EXP_A_TXP11	PAC62	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP11C
PA_EXP_A_TXN11	PAC64	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN11C
PA_EXP_A_TXP12	PAC56	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP12C
PA_EXP_A_TXN12	PAC58	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN12C
PA_EXP_A_TXP13	PAC50	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP13C
PA_EXP_A_TXN13	PAC52	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN13C
PA_EXP_A_TXP14	PAC43	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP14C
PA_EXP_A_TXN14	PAC46	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN14C
PA_EXP_A_TXP15	PAC39	0.22u/4/X5R/6.3V/K PA_EXP_A_TXP15C
PA_EXP_A_TXN15	PAC38	0.22u/4/X5R/6.3V/K PA_EXP_A_TXN15C

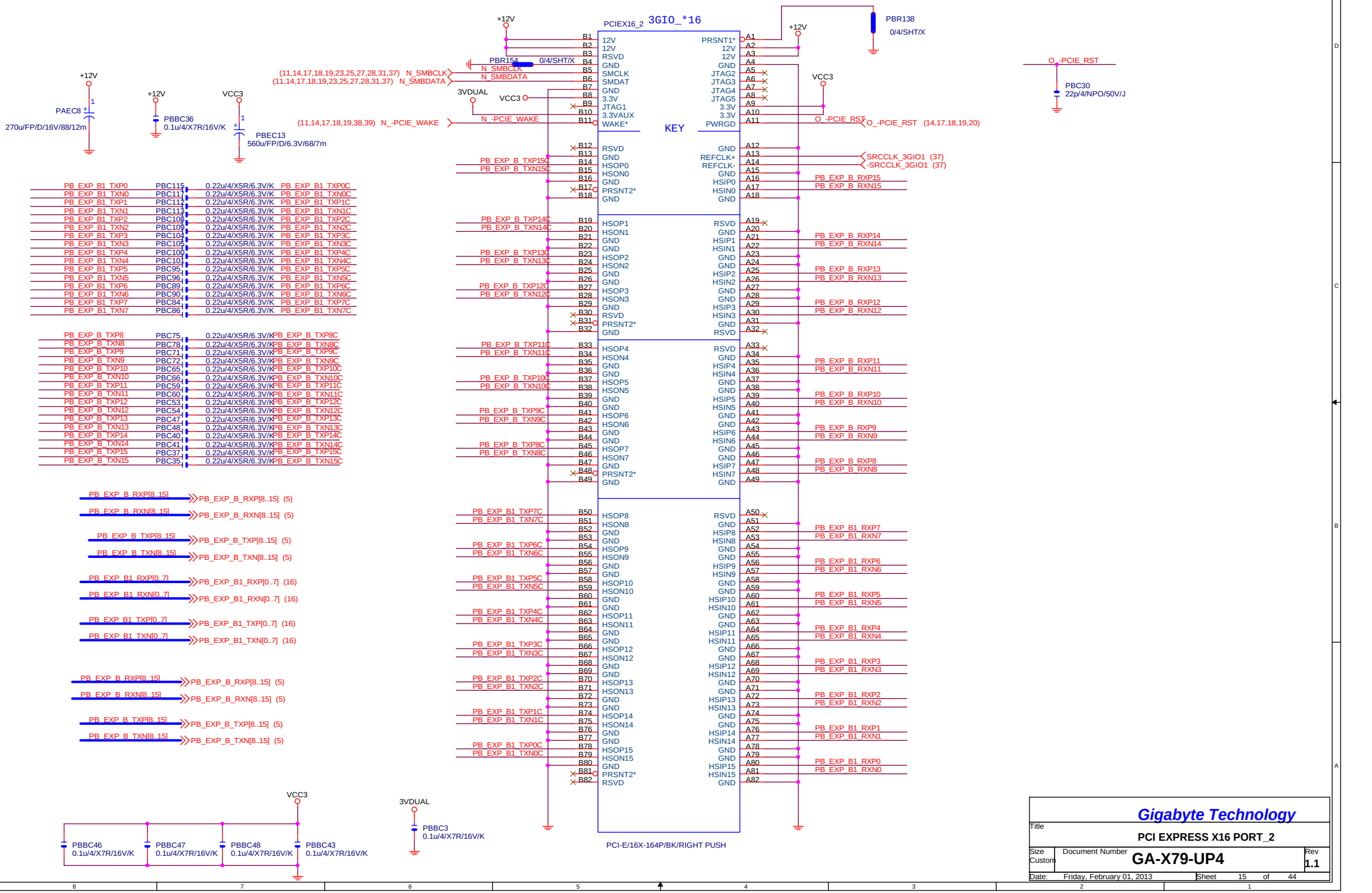
B1	12V	PRSNT1*	A1		
B2	12V	12V	A2	+12V	
B3	RSVD	12V	A3		
B4	GND	GND	A4		
B5	SMCLK	JTAG2	A5		
B6	SMDAT	JTAG3	A6		
B7	GND	JTAG4	A7		
B8	3.3V	JTAG5	A8		
B9	JTAG1	3.3V	A9	VCC3	
B10	3.3VAUX	3.3V	A10		
B11	WAKE*	PWRGD	A11	O_-PCIE_RST	
B12	RSVD	GND	A12		
B13	GND	REFCLK+	A13	SRCCLK_3GIO5 (37)	
B14	HSOP0	REFCLK-	A14	-SRCCLK_3GIO5 (37)	
B15	HSON0	GND	A15		
B16	GND	HSIP0	A16	PA_EXP_A_RXP15	
B17	PRSNT2*	HSIN0	A17	PA_EXP_A_RXN15	
B18	GND	GND	A18		
B19	HSOP1	RSVD	A19		
B20	HSON1	GND	A20		
B21	GND	HSIP1	A21	PA_EXP_A_RXP14	
B22	GND	HSIN1	A22	PA_EXP_A_RXN14	
B23	HSOP2	GND	A23		
B24	HSON2	GND	A24		
B25	GND	HSIP2	A25	PA_EXP_A_RXP13	
B26	GND	HSIN2	A26	PA_EXP_A_RXN13	
B27	HSOP3	GND	A27		
B28	HSON3	GND	A28		
B29	GND	HSIP3	A29	PA_EXP_A_RXP12	
B30	RSVD	HSIN3	A30	PA_EXP_A_RXN12	
B31	PRSNT2*	GND	A31		
B32	GND	RSVD	A32		
B33	HSOP4	RSVD	A33		
B34	HSON4	GND	A34		
B35	GND	HSIP4	A35	PA_EXP_A_RXP11	
B36	GND	HSIN4	A36	PA_EXP_A_RXN11	
B37	HSOP5	GND	A37		
B38	HSON5	GND	A38		
B39	GND	HSIP5	A39	PA_EXP_A_RXP10	
B40	GND	HSIN5	A40	PA_EXP_A_RXN10	
B41	HSOP6	GND	A41		
B42	HSON6	GND	A42		
B43	GND	HSIP6	A43	PA_EXP_A_RXP9	
B44	GND	HSIN6	A44	PA_EXP_A_RXN9	
B45	HSOP7	GND	A45		
B46	HSON7	GND	A46		
B47	GND	HSIP7	A47	PA_EXP_A_RXP8	
B48	PRSNT2*	HSIN7	A48	PA_EXP_A_RXN8	
B49	GND	GND	A49		
B50	HSOP8	RSVD	A50		
B51	HSON8	GND	A51		
B52	GND	HSIP8	A52	PA_EXP_A_RXP7	
B53	GND	HSIN8	A53	PA_EXP_A_RXN7	
B54	HSOP9	GND	A54		
B55	HSON9	GND	A55		
B56	GND	HSIP9	A56	PA_EXP_A_RXP6	
B57	GND	HSIN9	A57	PA_EXP_A_RXN6	
B58	HSOP10	GND	A58		
B59	HSON10	GND	A59		
B60	GND	HSIP10	A60	PA_EXP_A_RXP5	
B61	GND	HSIN10	A61	PA_EXP_A_RXN5	
B62	HSOP11	GND	A62		
B63	HSON11	GND	A63		
B64	GND	HSIP11	A64	PA_EXP_A_RXP4	
B65	GND	HSIN11	A65	PA_EXP_A_RXN4	
B66	HSOP12	GND	A66		
B67	HSON12	GND	A67		
B68	GND	HSIP12	A68	PA_EXP_A_RXP3	
B69	GND	HSIN12	A69	PA_EXP_A_RXN3	
B70	HSOP13	GND	A70		
B71	HSON13	GND	A71		
B72	GND	HSIP13	A72	PA_EXP_A_RXP2	
B73	GND	HSIN13	A73	PA_EXP_A_RXN2	
B74	HSOP14	GND	A74		
B75	HSON14	GND	A75		
B76	GND	HSIP14	A76	PA_EXP_A_RXP1	
B77	GND	HSIN14	A77	PA_EXP_A_RXN1	
B78	HSOP15	GND	A78		
B79	HSON15	GND	A79		
B80	GND	HSIP15	A80	PA_EXP_A_RXP0	
B81	PRSNT2*	HSIN15	A81	PA_EXP_A_RXN0	
B82	RSVD	GND	A82		

PA_EXP_A_TXP15C	PA_EXP_A_TXN15C	PA_EXP_A_TXP14C	PA_EXP_A_TXN14C	PA_EXP_A_TXP13C	PA_EXP_A_TXN13C
PA_EXP_A_TXP12C	PA_EXP_A_TXN12C	PA_EXP_A_TXP11C	PA_EXP_A_TXN11C	PA_EXP_A_TXP10C	PA_EXP_A_TXN10C
PA_EXP_A_TXP9C	PA_EXP_A_TXN9C	PA_EXP_A_TXP8C	PA_EXP_A_TXN8C	PA_EXP_A_TXP7C	PA_EXP_A_TXN7C
PA_EXP_A_TXP6C	PA_EXP_A_TXN6C	PA_EXP_A_TXP5C	PA_EXP_A_TXN5C	PA_EXP_A_TXP4C	PA_EXP_A_TXN4C
PA_EXP_A_TXP3C	PA_EXP_A_TXN3C	PA_EXP_A_TXP2C	PA_EXP_A_TXN2C	PA_EXP_A_TXP1C	PA_EXP_A_TXN1C
PA_EXP_A_TXP0C	PA_EXP_A_TXN0C				

Gigabyte Technology

Title	PCI EXPRESS X16 PORT_1		
Size: Custom	Document Number: GA-X79-UP4		Rev: 1.1
Date: Friday, February 01, 2013	Sheet 14 of 44		

PCIESLOT-164DN-2



PB_EXP_B1_TXP0	PBC115	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP0C	
PB_EXP_B1_TXN0	PBC117	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN0C	
PB_EXP_B1_TXP1	PBC112	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP1C	
PB_EXP_B1_TXN1	PBC113	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN1C	
PB_EXP_B1_TXP2	PBC108	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP2C	
PB_EXP_B1_TXN2	PBC109	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN2C	
PB_EXP_B1_TXP3	PBC104	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP3C	
PB_EXP_B1_TXN3	PBC105	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN3C	
PB_EXP_B1_TXP4	PBC100	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP4C	
PB_EXP_B1_TXN4	PBC101	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN4C	
PB_EXP_B1_TXP5	PBC95	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP5C	
PB_EXP_B1_TXN5	PBC96	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN5C	
PB_EXP_B1_TXP6	PBC89	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP6C	
PB_EXP_B1_TXN6	PBC90	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN6C	
PB_EXP_B1_TXP7	PBC84	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXP7C	
PB_EXP_B1_TXN7	PBC86	0.22u/4/X5R/6.3V/K	PB_EXP_B1_TXN7C	

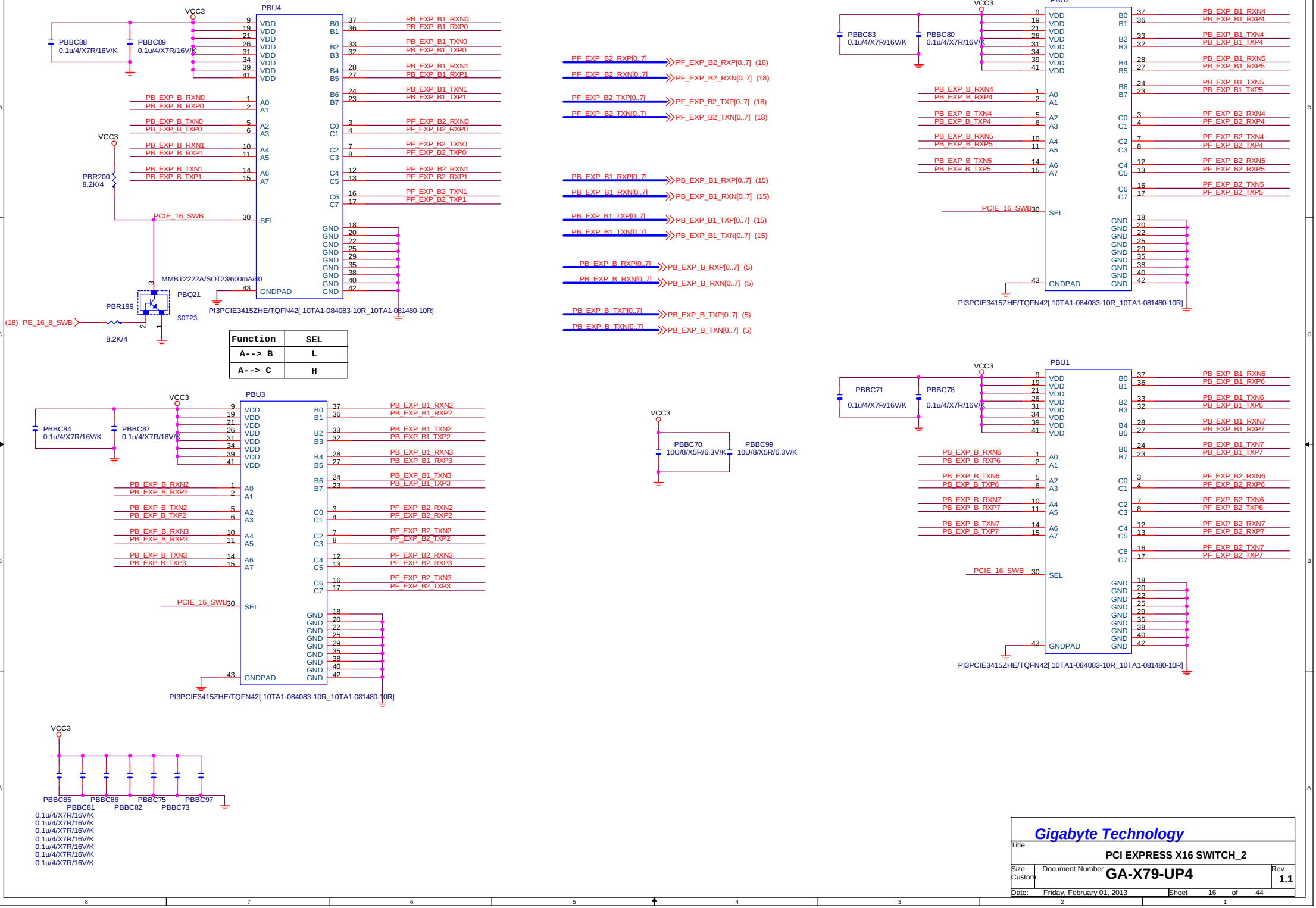
PB_EXP_B_TXP8	PBC75	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP8C
PB_EXP_B_TXN8	PBC78	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN8C
PB_EXP_B_TXP9	PBC71	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP9C
PB_EXP_B_TXN9	PBC72	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN9C
PB_EXP_B_TXP10	PBC65	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP10C
PB_EXP_B_TXN10	PBC66	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN10C
PB_EXP_B_TXP11	PBC59	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP11C
PB_EXP_B_TXN11	PBC60	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN11C
PB_EXP_B_TXP12	PBC53	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP12C
PB_EXP_B_TXN12	PBC54	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN12C
PB_EXP_B_TXP13	PBC47	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP13C
PB_EXP_B_TXN13	PBC48	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN13C
PB_EXP_B_TXP14	PBC40	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP14C
PB_EXP_B_TXN14	PBC41	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN14C
PB_EXP_B_TXP15	PBC37	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXP15C
PB_EXP_B_TXN15	PBC35	0.22u/4/X5R/6.3V/K	PB_EXP_B_TXN15C

PB_EXP_B_RXP[8..15] >> PB_EXP_B_RXP[8..15] (5)
PB_EXP_B_RXN[8..15] >> PB_EXP_B_RXN[8..15] (5)
PB_EXP_B_TXP[8..15] >> PB_EXP_B_TXP[8..15] (5)
PB_EXP_B_TXN[8..15] >> PB_EXP_B_TXN[8..15] (5)
PB_EXP_B1_RXP[0..7] >> PB_EXP_B1_RXP[0..7] (16)
PB_EXP_B1_RXN[0..7] >> PB_EXP_B1_RXN[0..7] (16)
PB_EXP_B1_TXP[0..7] >> PB_EXP_B1_TXP[0..7] (16)
PB_EXP_B1_TXN[0..7] >> PB_EXP_B1_TXN[0..7] (16)

PB_EXP_B_RXP[8..15] >> PB_EXP_B_RXP[8..15] (5)
PB_EXP_B_RXN[8..15] >> PB_EXP_B_RXN[8..15] (5)
PB_EXP_B_TXP[8..15] >> PB_EXP_B_TXP[8..15] (5)
PB_EXP_B_TXN[8..15] >> PB_EXP_B_TXN[8..15] (5)

B1	12V	PRSNT1*	A1				
B2	12V	12V	A2				
B3	RSVD	12V	A3				
B4	GND	GND	A4				
B5	SMCLK	JTAG2	A5				
B6	SMDAT	JTAG3	A6				
B7	GND	JTAG4	A7				
B8	3.3V	JTAG5	A8				
B9	JTAG1	3.3V	A9				
B10	3.3VAUX	3.3V	A10				
B11	WAKE*	PWRGD	A11				
B12	RSVD	GND	A12				
B13	GND	REFCLK+	A13				
B14	HSOP0	REFCLK-	A14				
B15	HSON0	GND	A15				
B16	GND	HSIP0	A16	PB_EXP_B_TXP15C	PB_EXP_B_RXP15		
B17	PRSNT2*	HSIN0	A17	PB_EXP_B_TXN15C	PB_EXP_B_RXN15		
B18	GND	GND	A18				
B19	HSOP1	RSVD	A19	PB_EXP_B_TXP14C			
B20	HSON1	GND	A20	PB_EXP_B_TXN14C			
B21	GND	HSIP1	A21		PB_EXP_B_RXP14		
B22	GND	HSIN1	A22		PB_EXP_B_RXN14		
B23	HSOP2	GND	A23	PB_EXP_B_TXP13C			
B24	HSON2	GND	A24	PB_EXP_B_TXN13C			
B25	GND	HSIP2	A25		PB_EXP_B_RXP13		
B26	GND	HSIN2	A26		PB_EXP_B_RXN13		
B27	HSOP3	GND	A27	PB_EXP_B_TXP12C			
B28	HSON3	GND	A28	PB_EXP_B_TXN12C			
B29	GND	HSIP3	A29		PB_EXP_B_RXP12		
B30	RSVD	HSIN3	A30		PB_EXP_B_RXN12		
B31	PRSNT2*	GND	A31				
B32	GND	RSVD	A32				
B33	HSOP4	RSVD	A33	PB_EXP_B_TXP11C			
B34	HSON4	GND	A34	PB_EXP_B_TXN11C			
B35	GND	HSIP4	A35		PB_EXP_B_RXP11		
B36	GND	HSIN4	A36		PB_EXP_B_RXN11		
B37	HSOP5	GND	A37	PB_EXP_B_TXP10C			
B38	HSON5	GND	A38	PB_EXP_B_TXN10C			
B39	GND	HSIP5	A39		PB_EXP_B_RXP10		
B40	GND	HSIN5	A40		PB_EXP_B_RXN10		
B41	HSOP6	GND	A41	PB_EXP_B_TXP9C			
B42	HSON6	GND	A42	PB_EXP_B_TXN9C			
B43	GND	HSIP6	A43		PB_EXP_B_RXP9		
B44	GND	HSIN6	A44		PB_EXP_B_RXN9		
B45	HSOP7	GND	A45	PB_EXP_B_TXP8C			
B46	HSON7	GND	A46	PB_EXP_B_TXN8C			
B47	GND	HSIP7	A47		PB_EXP_B_RXP8		
B48	PRSNT2*	HSIN7	A48		PB_EXP_B_RXN8		
B49	GND	GND	A49				
B50	HSOP8	RSVD	A50	PB_EXP_B1_TXP7C			
B51	HSON8	GND	A51	PB_EXP_B1_TXN7C			
B52	GND	HSIP8	A52		PB_EXP_B1_RXP7		
B53	GND	HSIN8	A53		PB_EXP_B1_RXN7		
B54	HSOP9	GND	A54	PB_EXP_B1_TXP6C			
B55	HSON9	GND	A55	PB_EXP_B1_TXN6C			
B56	GND	HSIP9	A56		PB_EXP_B1_RXP6		
B57	GND	HSIN9	A57		PB_EXP_B1_RXN6		
B58	HSOP10	GND	A58	PB_EXP_B1_TXP5C			
B59	HSON10	GND	A59	PB_EXP_B1_TXN5C			
B60	GND	HSIP10	A60		PB_EXP_B1_RXP5		
B61	GND	HSIN10	A61		PB_EXP_B1_RXN5		
B62	HSOP11	GND	A62	PB_EXP_B1_TXP4C			
B63	HSON11	GND	A63	PB_EXP_B1_TXN4C			
B64	GND	HSIP11	A64		PB_EXP_B1_RXP4		
B65	GND	HSIN11	A65		PB_EXP_B1_RXN4		
B66	HSOP12	GND	A66	PB_EXP_B1_TXP3C			
B67	HSON12	GND	A67	PB_EXP_B1_TXN3C			
B68	GND	HSIP12	A68		PB_EXP_B1_RXP3		
B69	GND	HSIN12	A69		PB_EXP_B1_RXN3		
B70	HSOP13	GND	A70	PB_EXP_B1_TXP2C			
B71	HSON13	GND	A71	PB_EXP_B1_TXN2C			
B72	GND	HSIP13	A72		PB_EXP_B1_RXP2		
B73	GND	HSIN13	A73		PB_EXP_B1_RXN2		
B74	HSOP14	GND	A74	PB_EXP_B1_TXP1C			
B75	HSON14	GND	A75	PB_EXP_B1_TXN1C			
B76	GND	HSIP14	A76		PB_EXP_B1_RXP1		
B77	GND	HSIN14	A77		PB_EXP_B1_RXN1		
B78	HSOP15	GND	A78	PB_EXP_B1_TXP0C			
B79	HSON15	GND	A79	PB_EXP_B1_TXN0C			
B80	GND	HSIP15	A80		PB_EXP_B1_RXP0		
B81	PRSNT2*	HSIN15	A81		PB_EXP_B1_RXN0		
B82	RSVD	GND	A82				

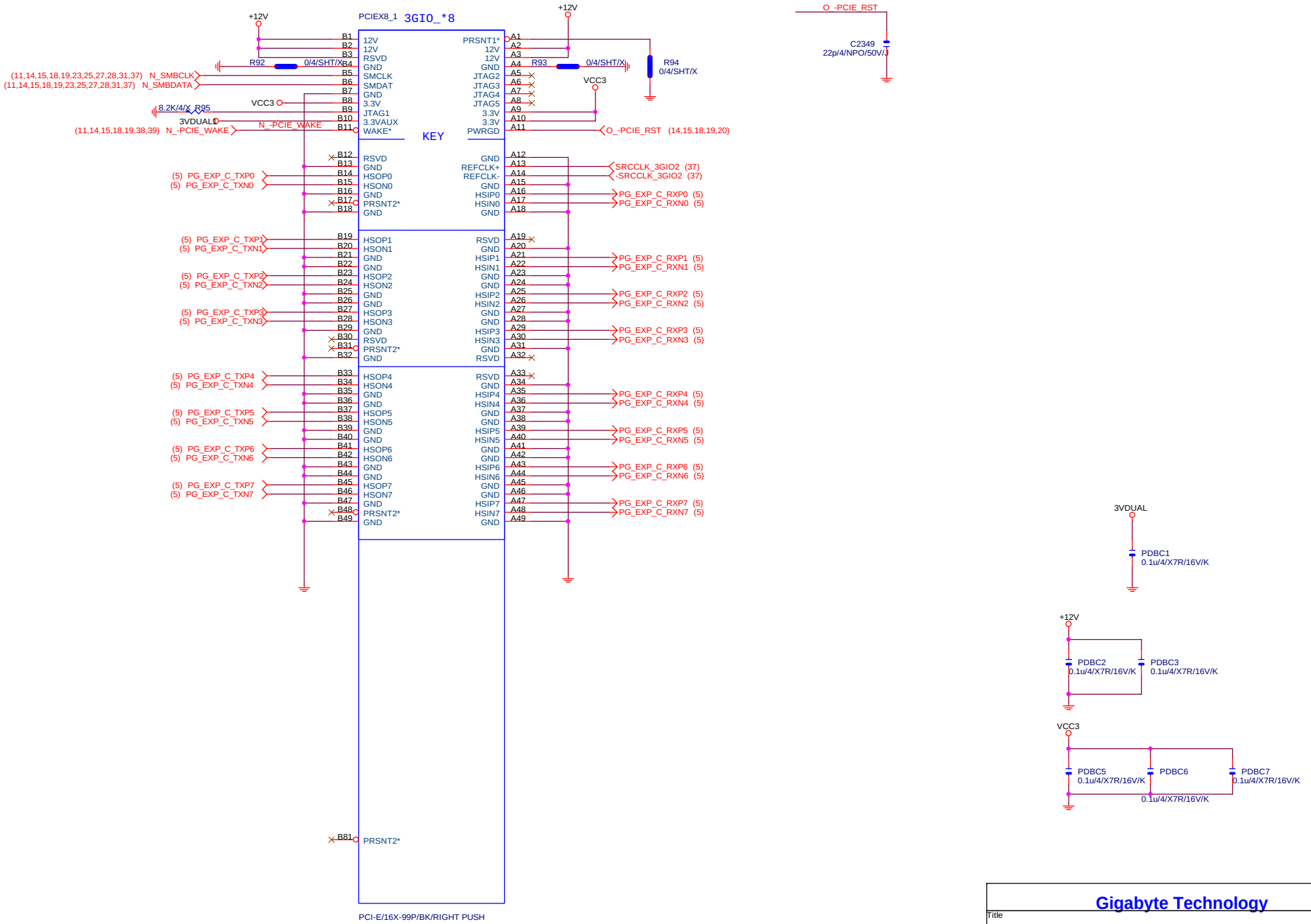
Gigabyte Technology				
Title	PCI EXPRESS X16 PORT_2			
Size Custom	Document Number GA-X79-UP4			Rev 1.1
Date: Friday, February 01, 2013	Sheet 15 of 44			



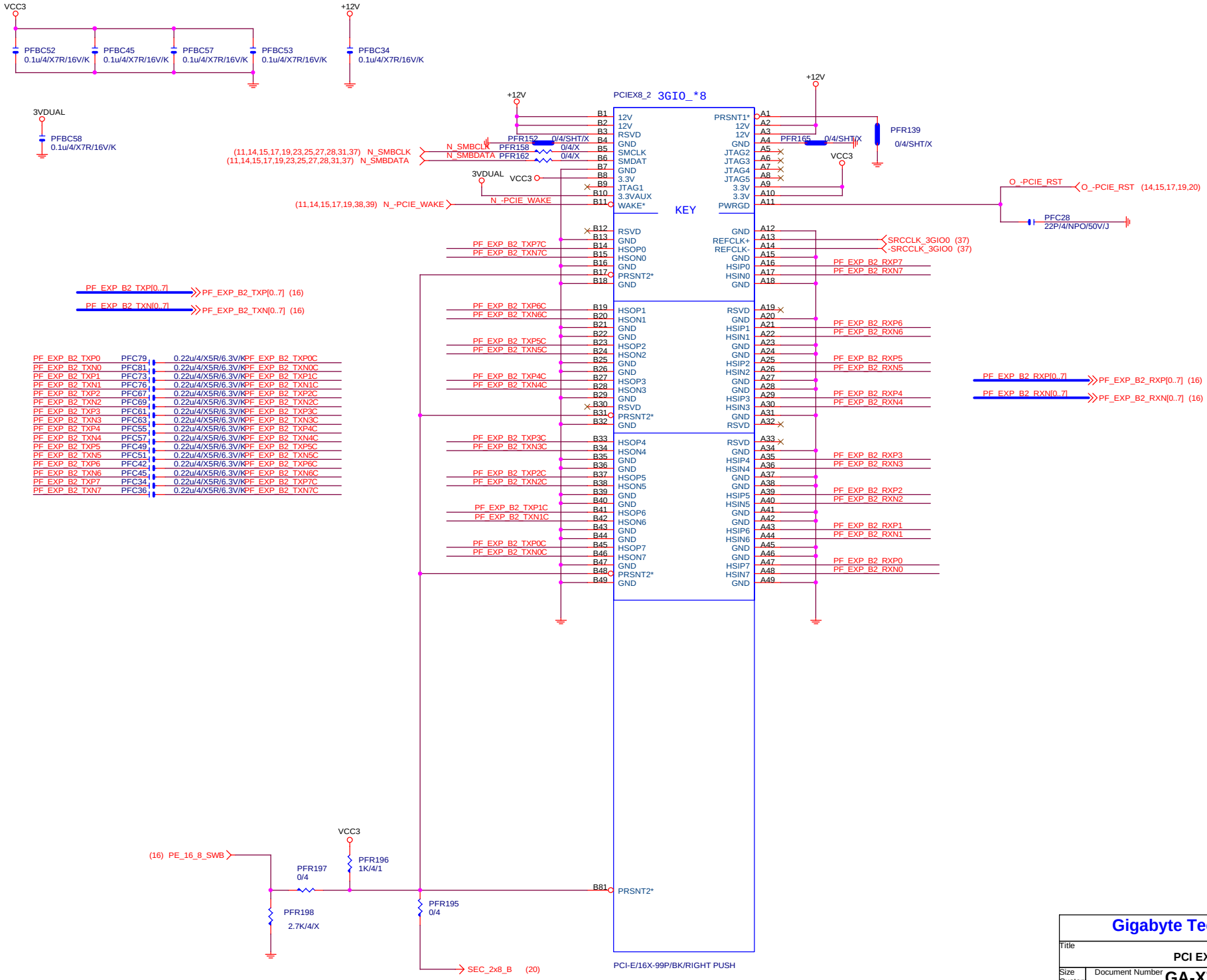
Function	SEL
A--> B	L
A--> C	H

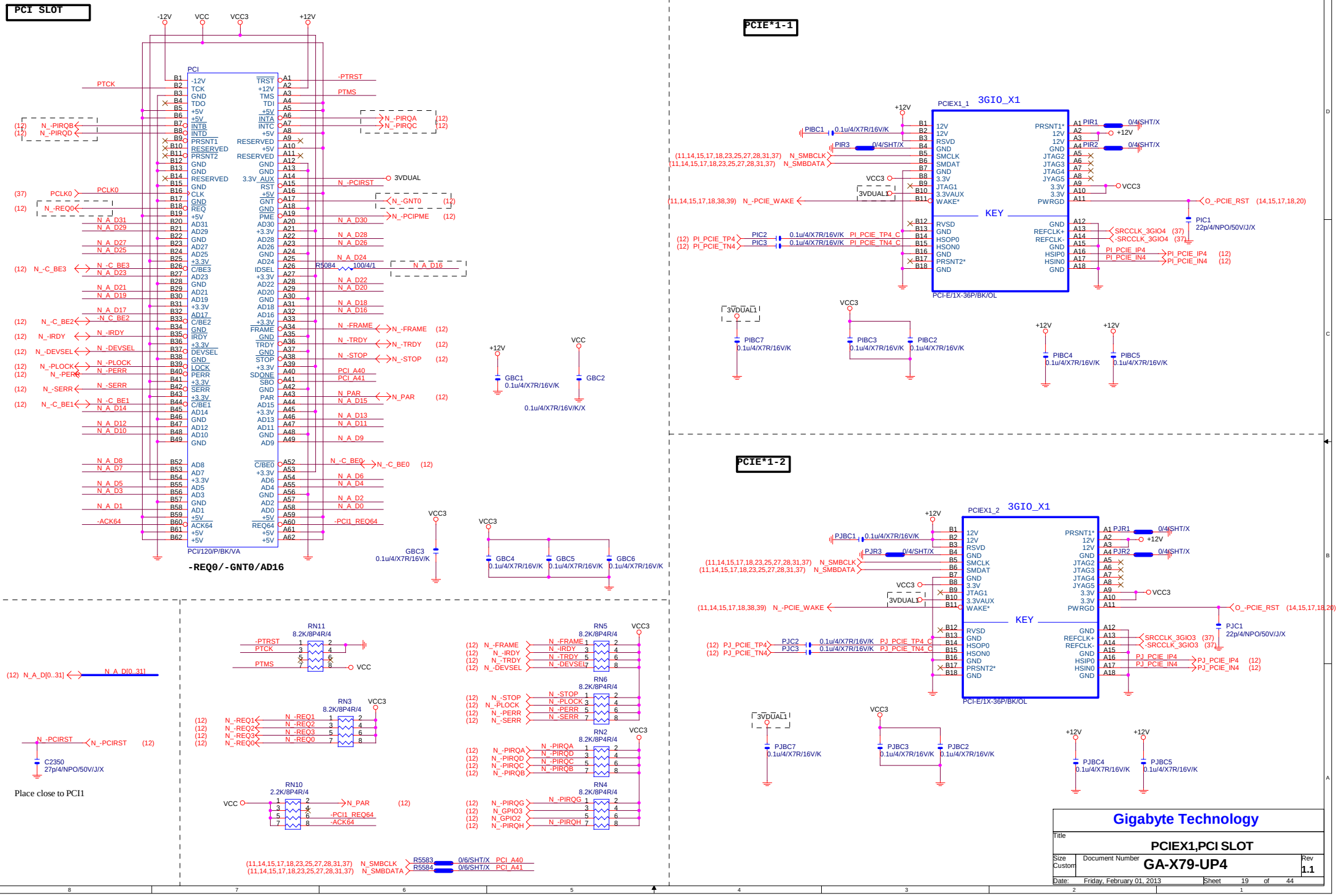
Gigabyte Technology

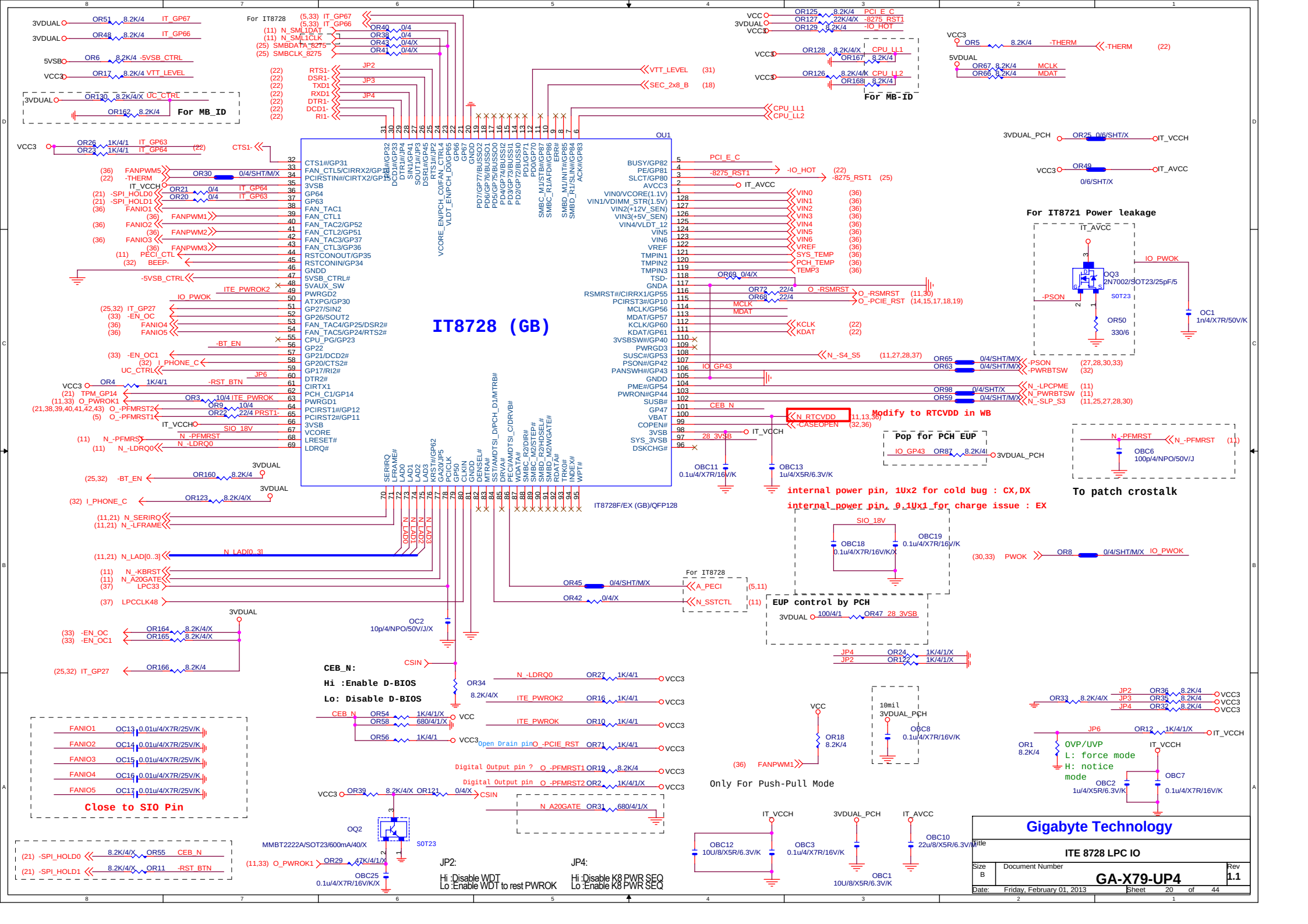
Title	PCI EXPRESS X16 SWITCH_2	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 16 of 44	

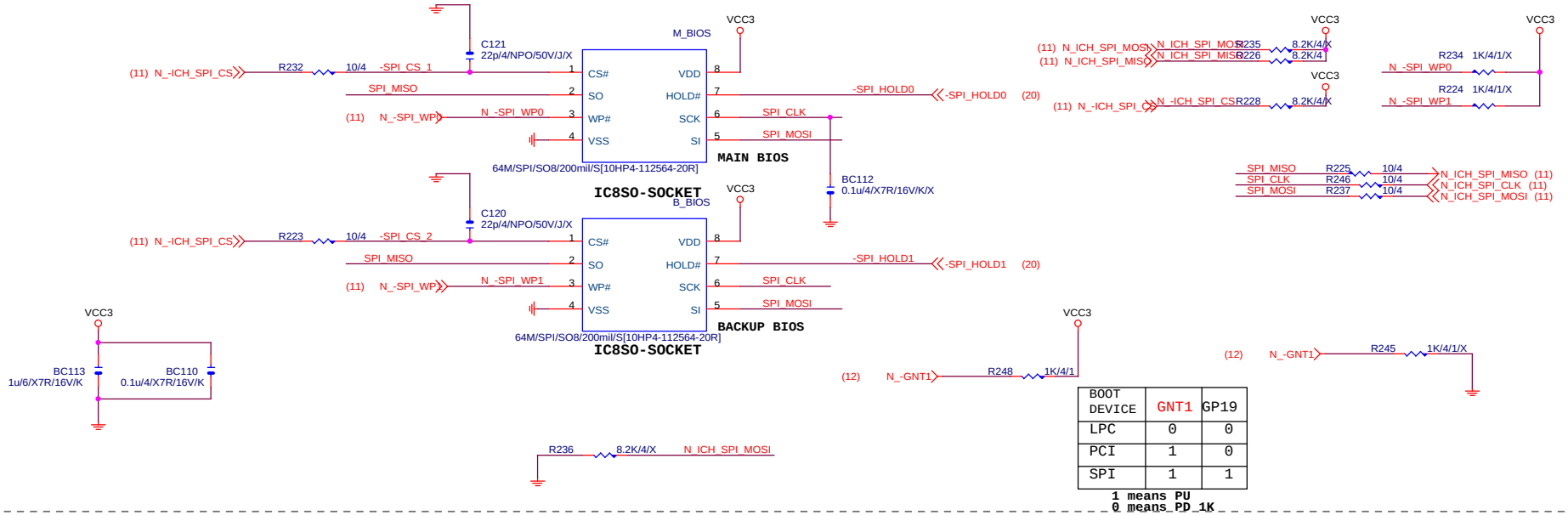


Gigabyte Technology		
Title	PCI EXPRESS X 8 PORT	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 17 of 44	


VCC3
PFBC52 0.1u/4/X7R/16V/K
PFBC45 0.1u/4/X7R/16V/K
PFBC57 0.1u/4/X7R/16V/K
PFBC53 0.1u/4/X7R/16V/K
+12V
PFBC34 0.1u/4/X7R/16V/K
3VDUAL
PFBC58 0.1u/4/X7R/16V/K
PCIEX8_2 3GIO_*8
KEY
PFR152 0/4/SHT/X
PFR158 0/4/X
PFR162 0/4/X
PFR165 0/4/SHT/X
PFR139 0/4/SHT/X
N_SMBCLK
N_SMBDATA
N_-PCIE_WAKE
O_-PCIE_RST
PFC28 22P/4/NPO/50V/J
SRCCLK_3GIO0 (37)
-SRCCLK_3GIO0 (37)
PF_EXP_B2_TXP[0..7]
PF_EXP_B2_TXN[0..7]
PF_EXP_B2_RXP[0..7]
PF_EXP_B2_RXN[0..7]
PFC79 0.22u/4/X5R/6.3V/K
PFC81 0.22u/4/X5R/6.3V/K
PFC73 0.22u/4/X5R/6.3V/K
PFC76 0.22u/4/X5R/6.3V/K
PFC67 0.22u/4/X5R/6.3V/K
PFC69 0.22u/4/X5R/6.3V/K
PFC61 0.22u/4/X5R/6.3V/K
PFC63 0.22u/4/X5R/6.3V/K
PFC55 0.22u/4/X5R/6.3V/K
PFC57 0.22u/4/X5R/6.3V/K
PFC49 0.22u/4/X5R/6.3V/K
PFC51 0.22u/4/X5R/6.3V/K
PFC42 0.22u/4/X5R/6.3V/K
PFC45 0.22u/4/X5R/6.3V/K
PFC34 0.22u/4/X5R/6.3V/K
PFC36 0.22u/4/X5R/6.3V/K
(16) PE_16_8_SWB
PFR197 0/4
PFR196 1K/4/1
PFR198 2.7K/4/X
PFR195 0/4
SEC_2x8_B (20)
PCI-E/16X-99P/BK/RIGHT PUSH
Gigabyte Technology
PCI EXPRESS X8_2
GA-X79-UP4
Size Custom
Rev 1.1
Date: Friday, February 01, 2013
Sheet 18 of 44

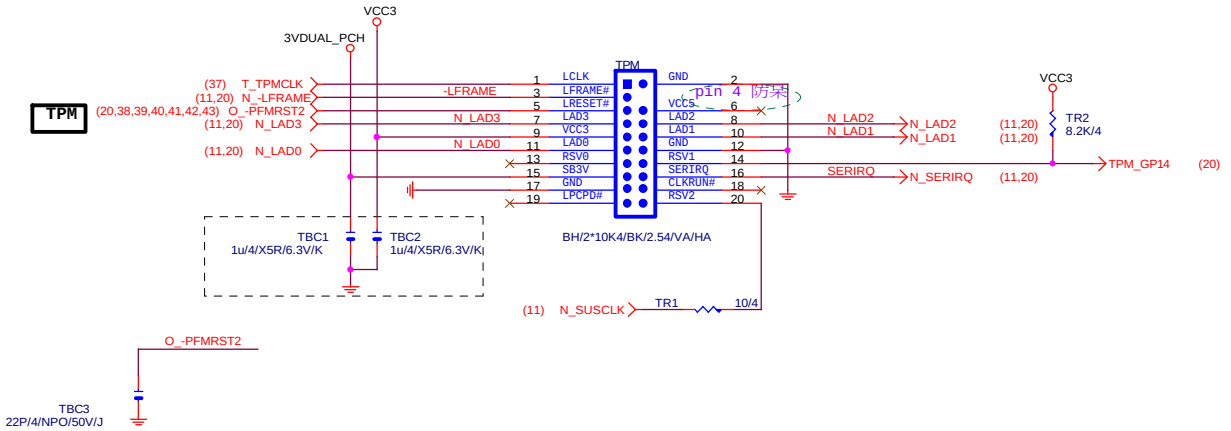

PCI SLOT
PCIE*1-1
PCIE*1-2
-REQ0/-GNT0/AD16
PCI
PCI120/P/BK/VA
PCIEX1_1
PCIEX1_2
3GIO_X1
KEY
PCI-E/1X-36P/BK/OL
Place close to PCI1
C2350
27p/4/NPO/50V/J/X
Gigabyte Technology
PCIEX1,PCI SLOT
GA-X79-UP4
1.1
Friday, February 01, 2013
19 of 44


IT8728 (GB)
IT8728F/EX (GB)/QFP128
For MB-ID
For IT8728 Power leakage
Pop for PCH EUP
EUP control by PCH
Modify to RTCVDD in WB
internal power pin, 1Ux2 for cold bug : CX,DX
internal power pin, 0.1Ux1 for charge issue : EX
To patch crostalk
Only For Push-Pull Mode
Close to SIO Pin
CEB_N:
Hi :Enable D-BIOS
Lo: Disable D-BIOS
JP2:
Hi :Disable WDT
Lo :Enable WDT to rest PWROK
JP4:
Hi :Disable K8 PWR SEQ
Lo :Enable K8 PWR SEQ
OVP/UVP
L: force mode
H: notice mode
Gigabyte Technology
ITE 8728 LPC IO
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 20 of 44



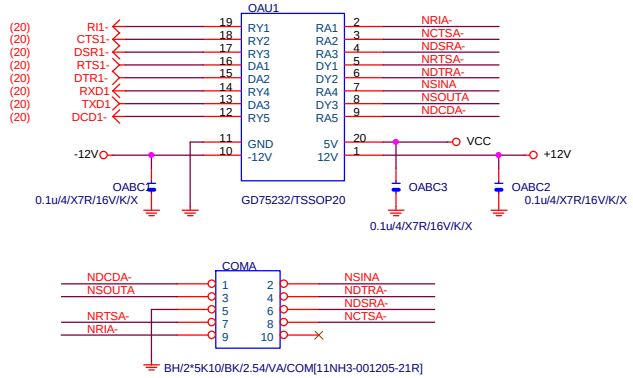
BOOT DEVICE	GNT1	GP19
LPC	0	0
PCI	1	0
SPI	1	1

1 means PU
0 means PD 1K



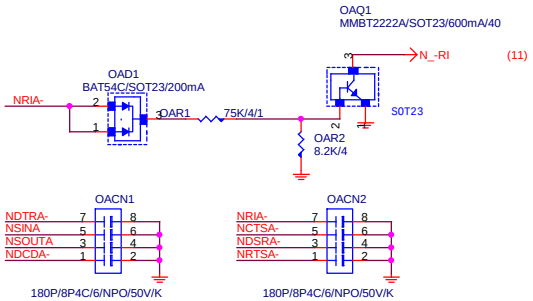
	Gigabyte Technology	
Title	DUAL BIOS TPM	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 21 of 44	

COMA

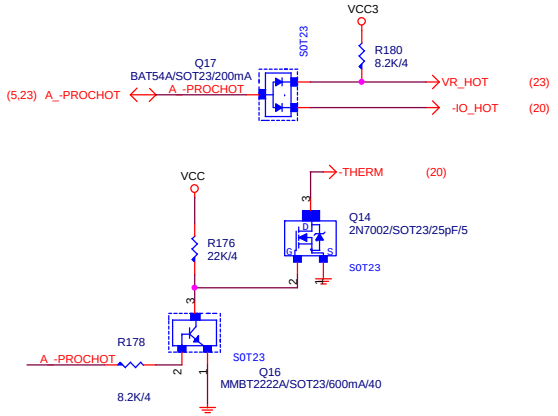


11NH3-000205-Y1R/Y2R

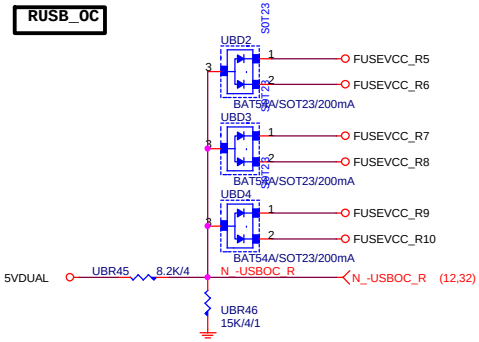
COM RI



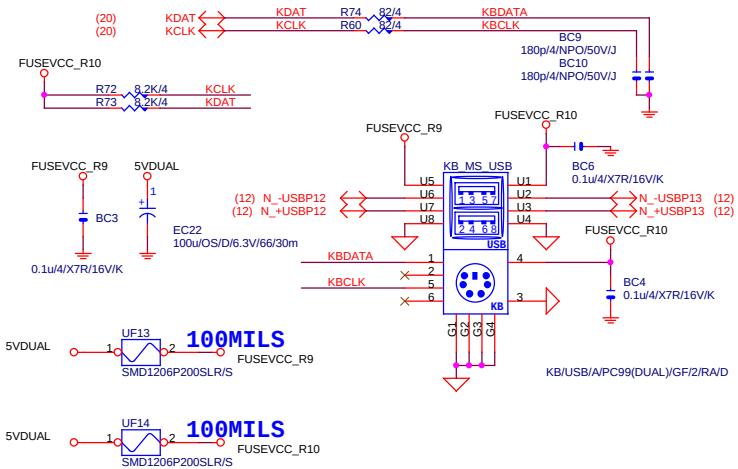
-PROHOT

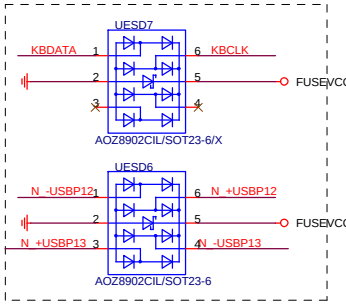


RUSB_OC

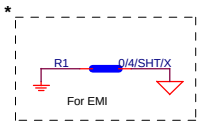


KB/MS

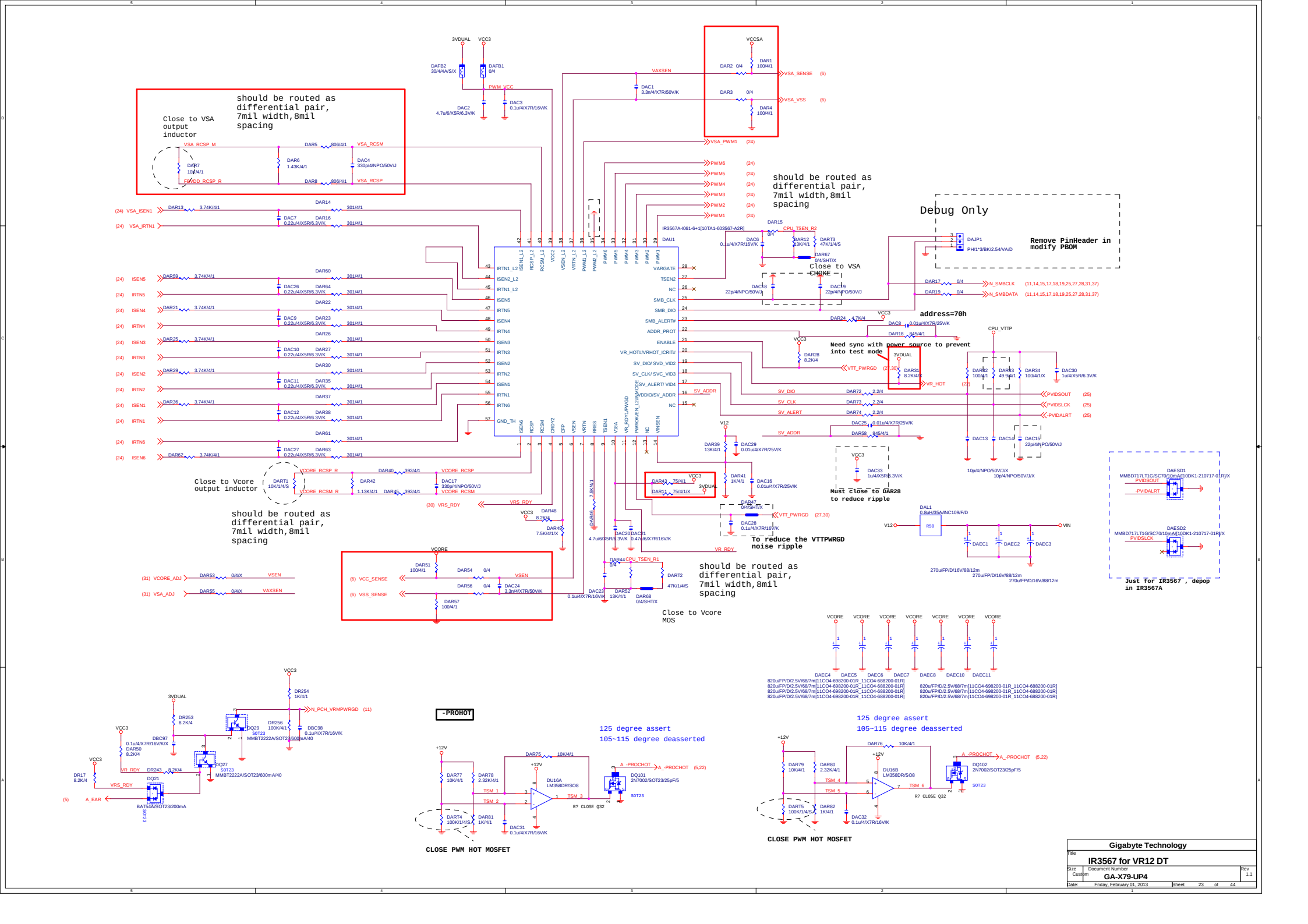




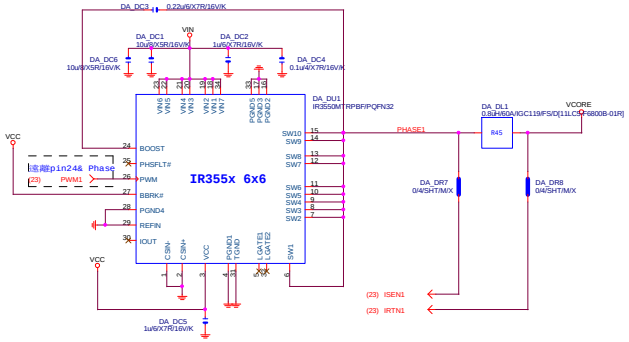
Close to connector



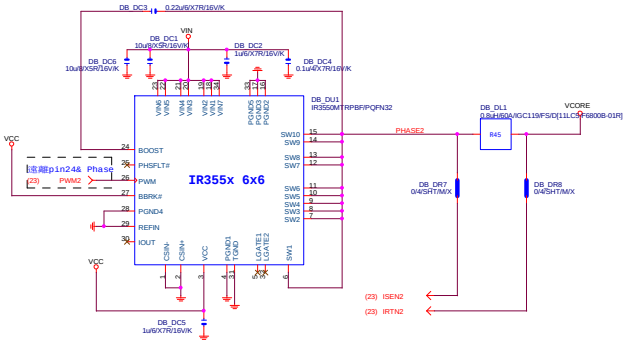
Gigabyte Technology		
Title: COM & PROHOT/Dynamic O.C.		
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 22 of 44	


should be routed as differential pair, 7mil width,8mil spacing
Close to VSA output inductor
should be routed as differential pair, 7mil width,8mil spacing
Debug Only
Remove PinHeader in modify PBOM
Close to VSA CHOKE
address=70h
Need sync with power source to prevent into test mode
Close to Vcore output inductor
should be routed as differential pair, 7mil width,8mil spacing
Must close to DAR28 to reduce ripple
To reduce the VTTPWRGD noise ripple
should be routed as differential pair, 7mil width,8mil spacing
Close to Vcore MOS
Just for IR3567 , depop in IR3567A
-PROHOT
125 degree assert
105~115 degree deasserted
CLOSE PWM HOT MOSFET
125 degree assert
105~115 degree deasserted
CLOSE PWM HOT MOSFET
Gigabyte Technology
IR3567 for VR12 DT
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 23 of 44

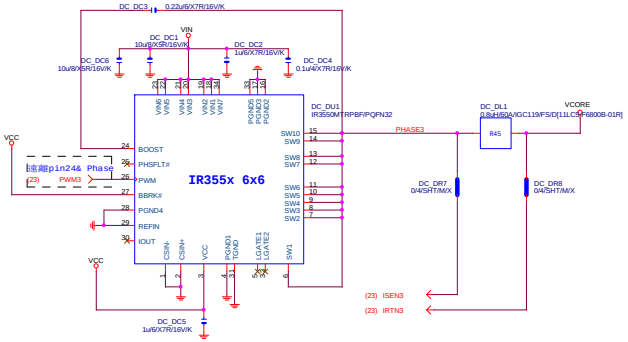
VCORE-PHASE1



VCORE-PHASE2

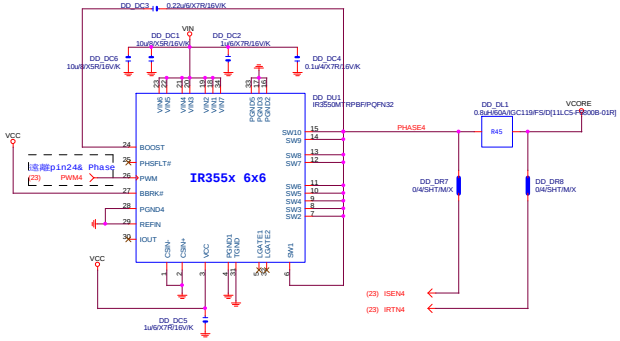


VCORE-PHASE3

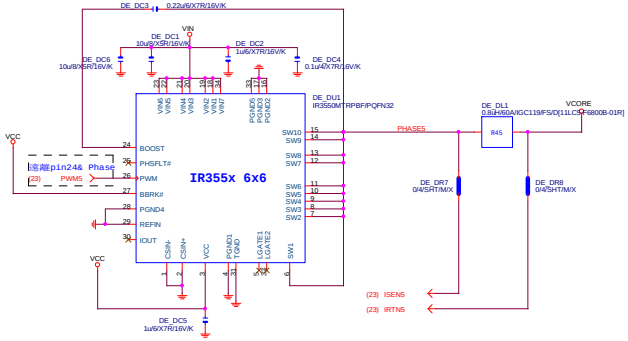


Choke need change to correct parts : 0.8u/60A

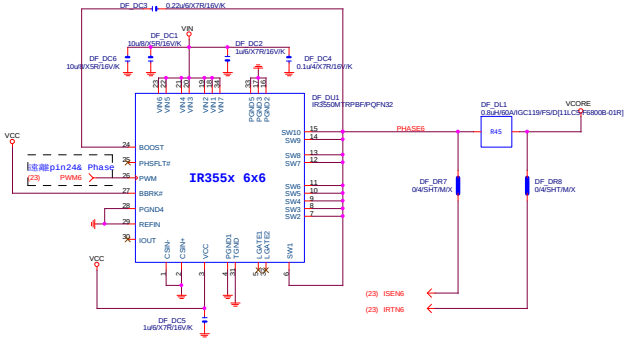
VCORE-PHASE4



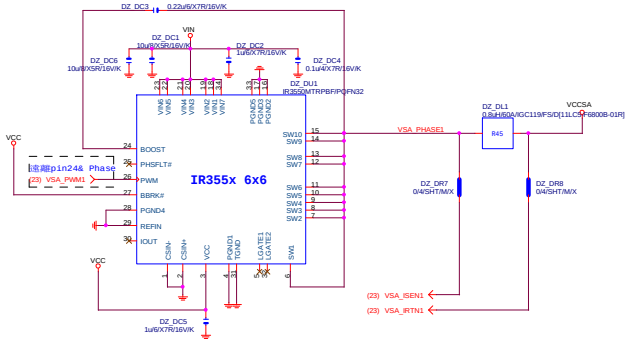
VCORE-PHASE5

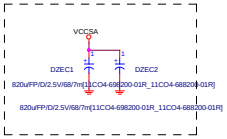


VCORE-PHASE6

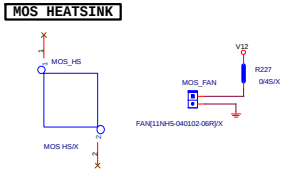


VSA-PHASE

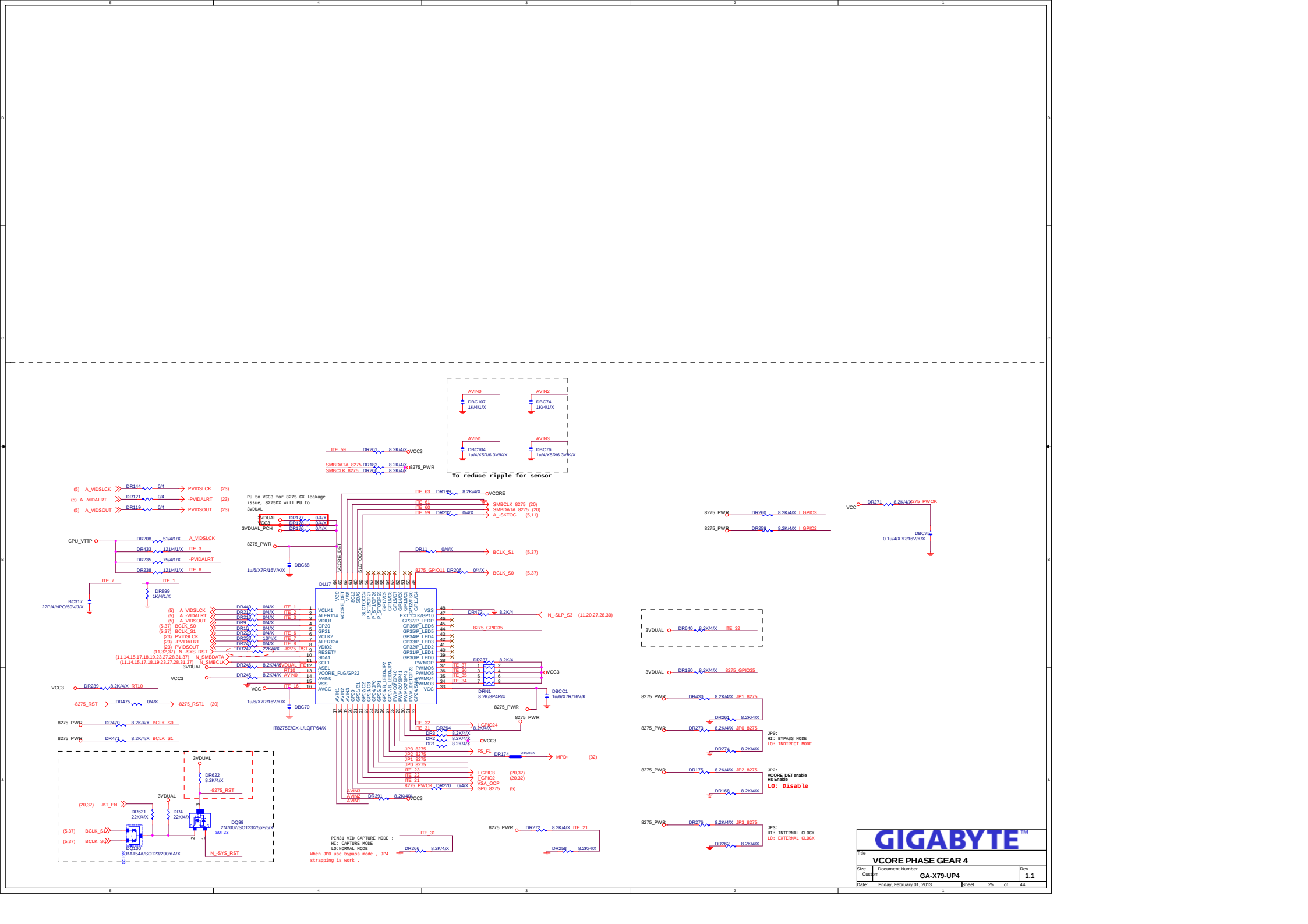


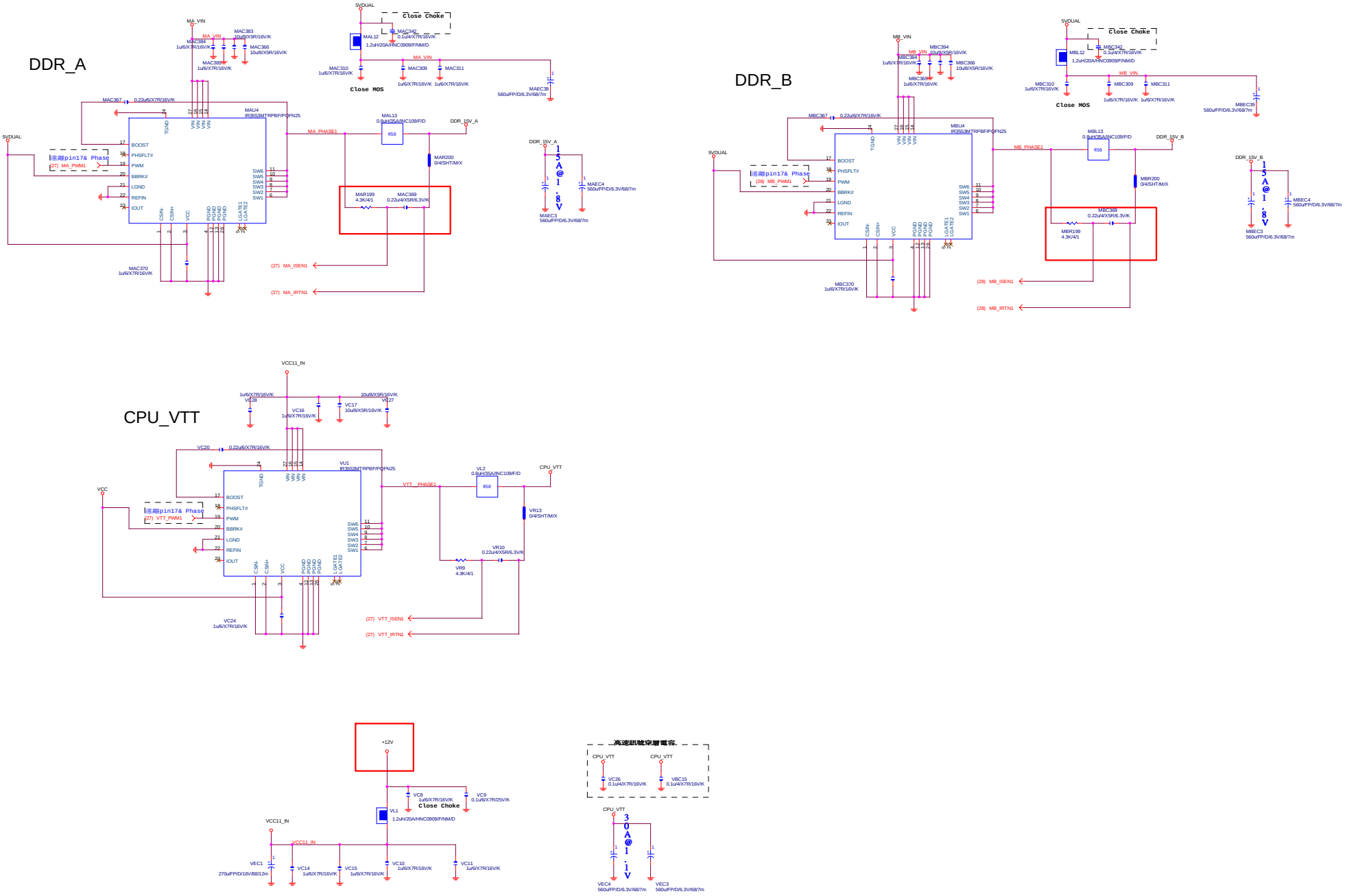


MOS HEATSINK

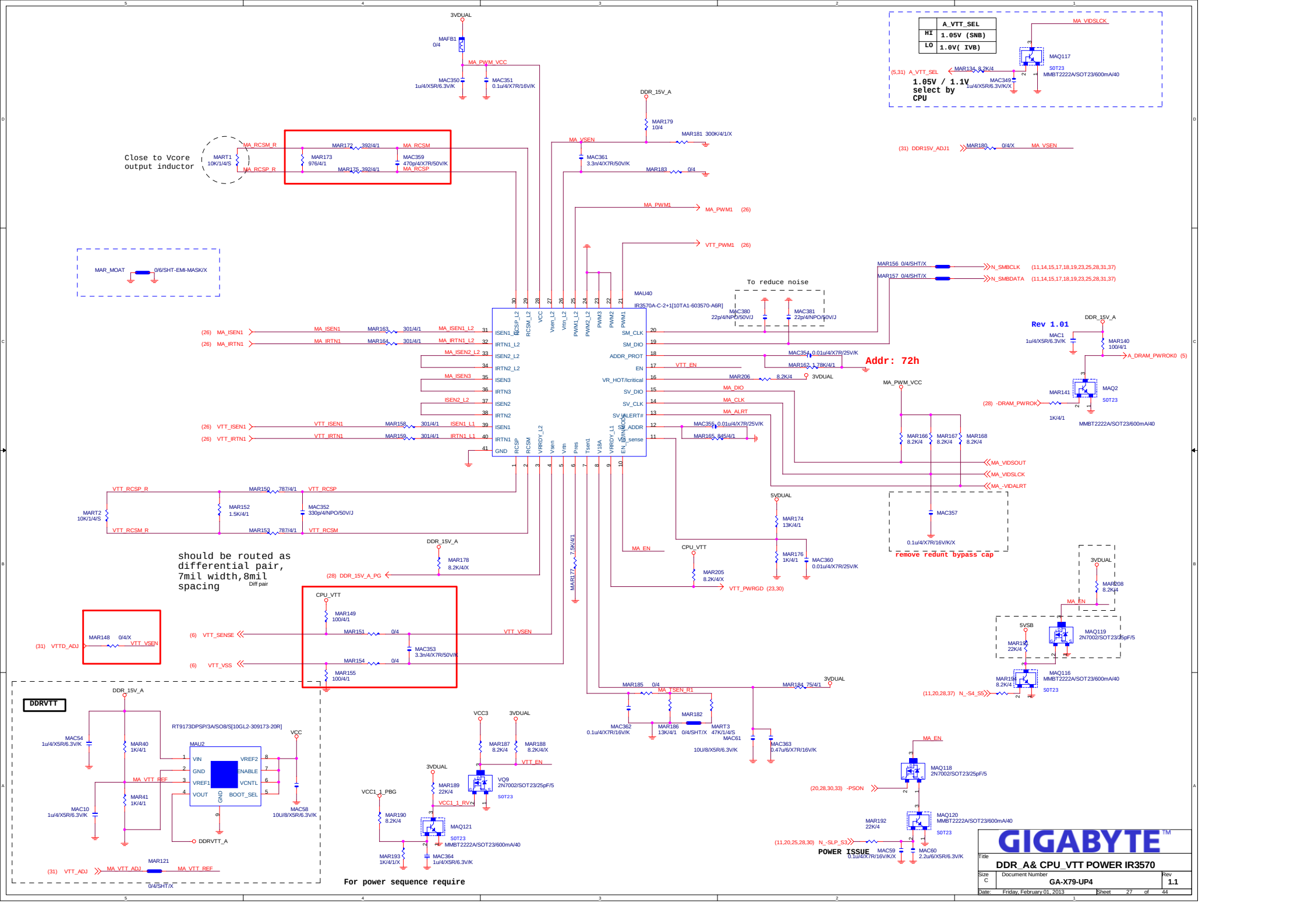


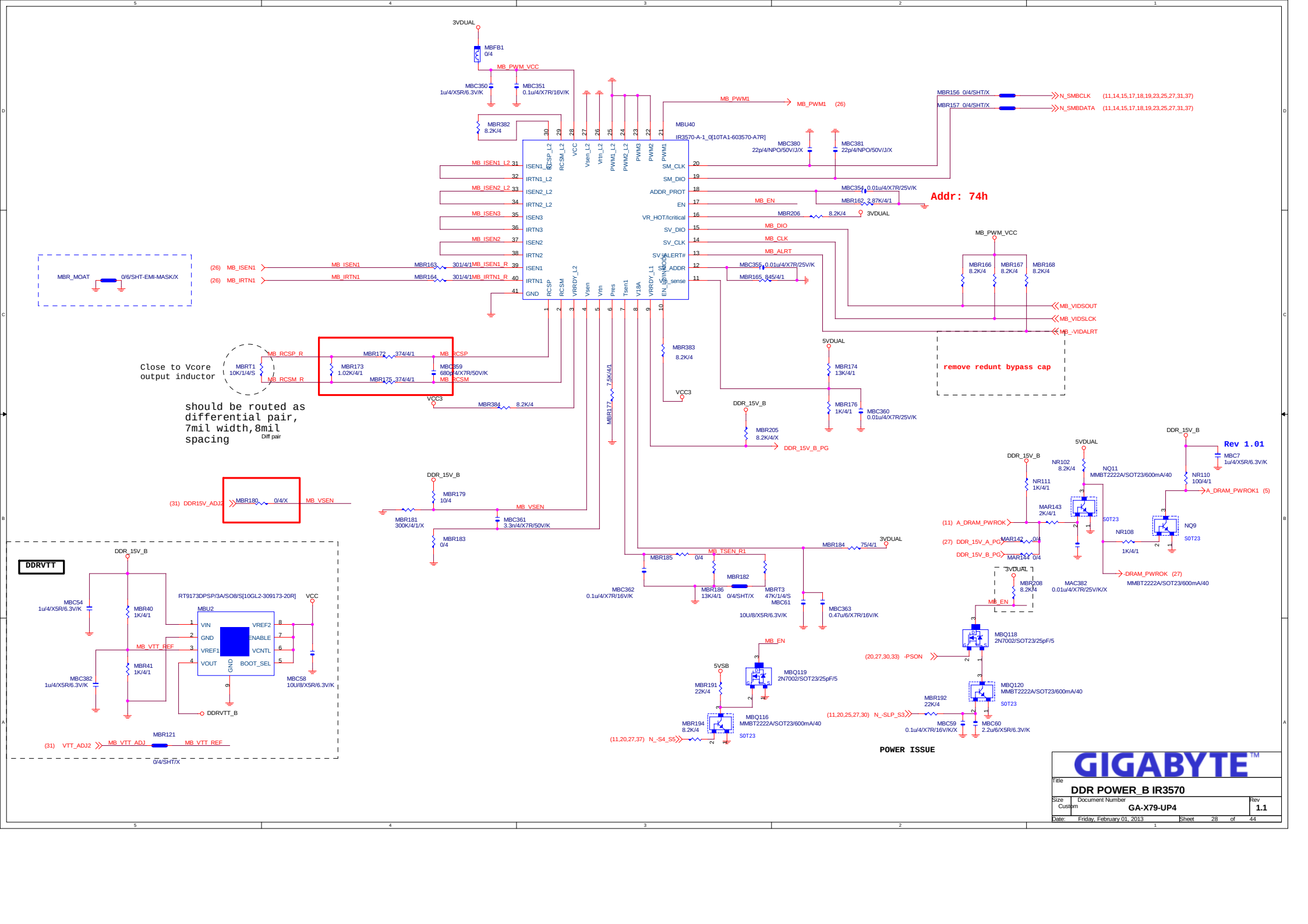
Gigabyte Technology		
Title: CPU CORE VR		
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 24 of 44	


To reduce ripple for sensor
PU to VCC3 for 8275 CX leakage issue, 8275DX will PU to 3VDUAL
When JP8 use bypass mode , JP4 strapping is work .
PIN31 VID CAPTURE MODE :
HI: CAPTURE MODE
LO:NORMAL MODE
JP0: HI: BYPASS MODE LO: INDIRECT MODE
JP2: VCORE_DET enable Hi: Enable LO: Disable
JP3: HI: INTERNAL CLOCK LO: EXTERNAL CLOCK
ITE8275E/GX-L/LQFP64/X
DU17
DQ99 2N7002/SOT23/25pF/5/X
DQ100 BAT54A/SOT23/200mA/X
GIGABYTE
Title VCORE PHASE GEAR 4
Size Custom
Document Number GA-X79-UP4
Rev 1.1
Date: Friday, February 01, 2013
Sheet 25 of 44

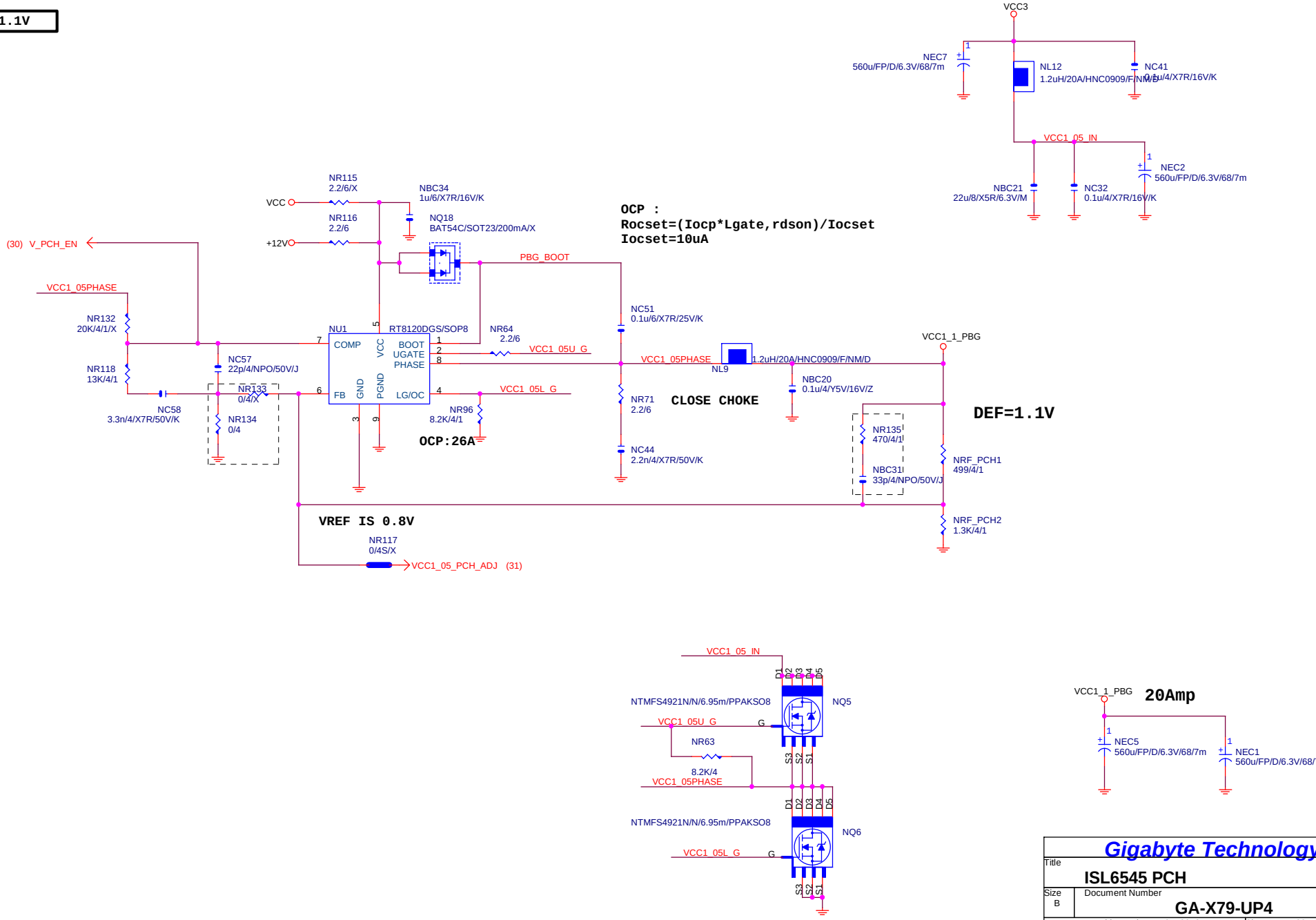


Title	ISL6322 CPUVTT	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 26 of 44	

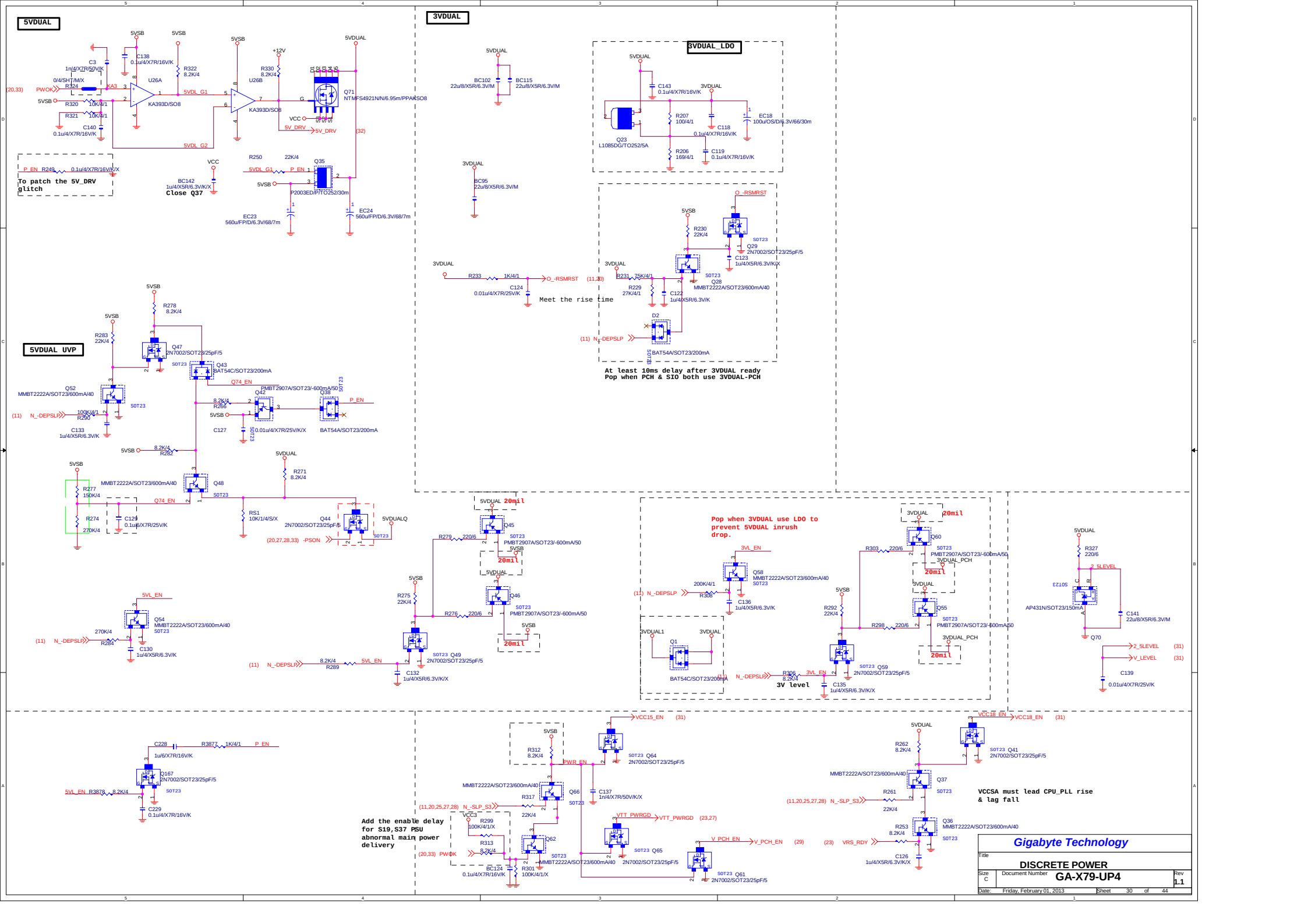

A_VTT_SEL
HI 1.05V (SNB)
LO 1.0V(IVB)
1.05V / 1.1V select by CPU
Close to Vcore output inductor
To reduce noise
Addr: 72h
Rev 1.01
should be routed as differential pair, 7mil width,8mil spacing
Diff pair
remove redunt bypass cap
DDRVTT
POWER ISSUE
For power sequence require
GIGABYTE
DDR_A& CPU_VTT POWER IR3570
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 27 of 44

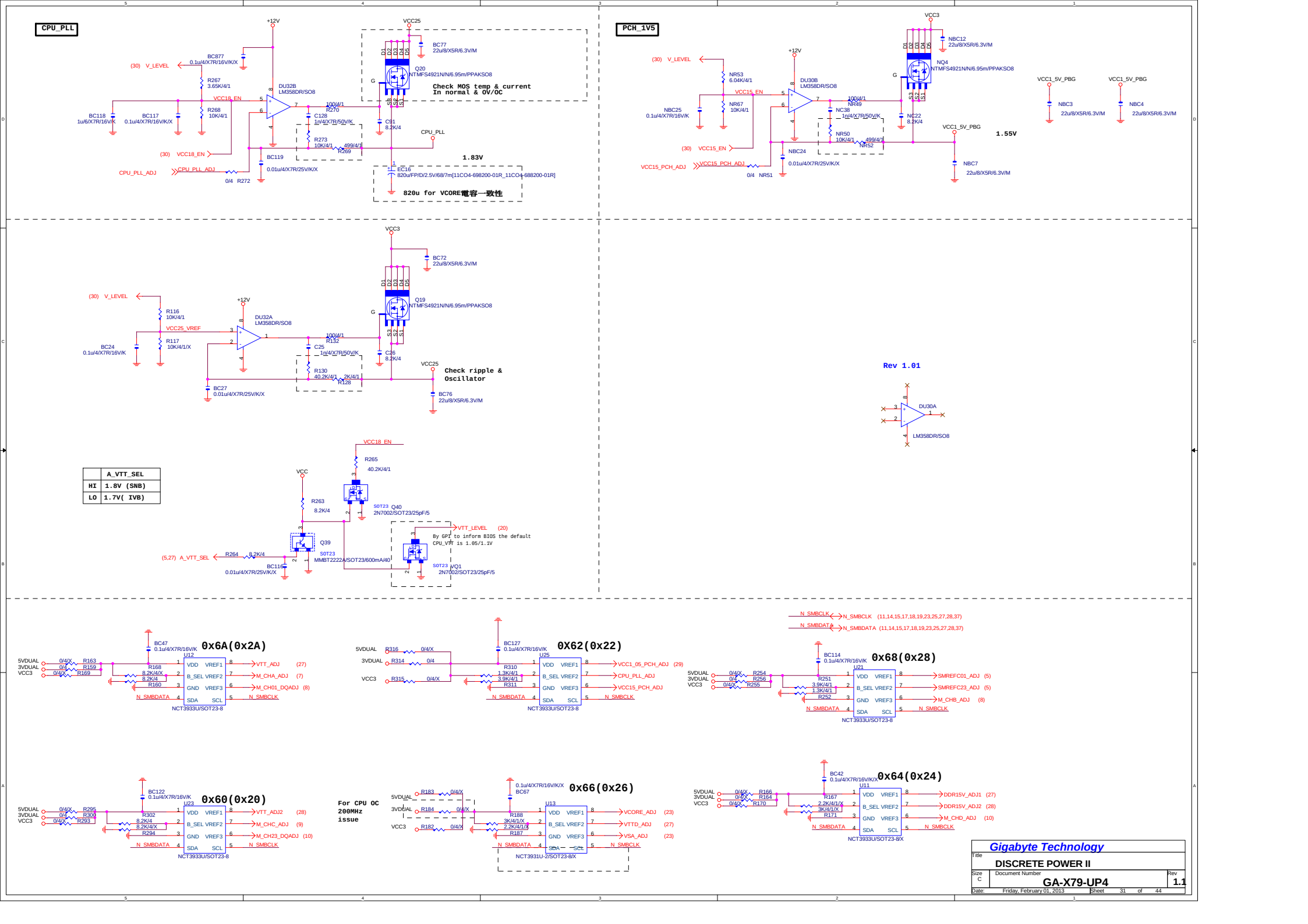

3VDUAL
MBFB1
0/4
MB_PWM_VCC
MBC350
1u/4/X5R/6.3V/K
MBC351
0.1u/4/X7R/16V/K
MBR382
8.2K/4
MBU40
IR3570-A-1_0[10TA1-603570-A7R]
MB_PWM1
MB_PWM1 (26)
MBC380
22p/4/NPO/50V/J/X
MBC381
22p/4/NPO/50V/J/X
MBR156 0/4/SHT/X
MBR157 0/4/SHT/X
N_SMBCLK (11,14,15,17,18,19,23,25,27,31,37)
N_SMBDATA (11,14,15,17,18,19,23,25,27,31,37)
MB_ISEN1_L2
MB_ISEN2_L2
MB_ISEN3
MB_ISEN2
MB_ISEN1
MB_IRTN1
ISEN1_L2
IRTN1_L2
ISEN2_L2
IRTN2_L2
ISEN3
IRTN3
ISEN2
IRTN2
ISEN1
IRTN1
GND
RCSP_L2
RCSM_L2
VCC
Vsen_L2
Vrtn_L2
PWM1_L2
PWM2_L2
PWM3
PWM2
PWM1
SM_CLK
SM_DIO
ADDR_PROT
EN
VR_HOT/Icritical
SV_DIO
SV_CLK
SV_ALERT#
SV_ADDR
Vin_sense
RCSP
RCSM
VRRDY_L2
Vsen
Vrtn
Pres
Tsen1
V18A
VRRDY_L1
EN_PWMVID
MBC354 0.01u/4/X7R/25V/K
MBR162 2.87K/4/1
Addr: 74h
MB_EN
MBR206 8.2K/4
3VDUAL
MB_DIO
MB_CLK
MB_ALRT
MBC355 0.01u/4/X7R/25V/K
MBR165 845/4/1
MB_PWM_VCC
MBR166 8.2K/4
MBR167 8.2K/4
MBR168 8.2K/4
MB_VIDSOUT
MB_VIDSLCK
MB_-VIDALRT
remove redunt bypass cap
MBR_MOAT
0/6/SHT-EMI-MASK/X
(26) MB_ISEN1
(26) MB_IRTN1
MBR163 301/4/1
MBR164 301/4/1
MB_ISEN1_R
MB_IRTN1_R
MBR383 8.2K/4
5VDUAL
MBR174 13K/4/1
MBR176 1K/4/1
MBC360 0.01u/4/X7R/25V/K
DDR_15V_B
MBR205 8.2K/4/X
DDR_15V_B_PG
VCC3
MBR384 8.2K/4
MBR177 7.5K/4/1
Close to Vcore
output inductor
MBRT1
10K/1/4/S
MB_RCSP_R
MB_RCSM_R
MBR172 374/4/1
MBR175 374/4/1
MBR173
1.02K/4/1
MB_RCSP
MB_RCSM
MBC359
680p/4/X7R/50V/K
should be routed as
differential pair,
7mil width,8mil
spacing
Diff pair
(31) DDR15V_ADJ2
MBR180 0/4/X
MB_VSEN
DDR_15V_B
MBR179
10/4
MBR181
300K/4/1/X
MBC361
3.3n/4/X7R/50V/K
MBR183
0/4
MBR184 75/4/1
3VDUAL
MB_TSEN_R1
MBR185 0/4
MBR182
MBR186
13K/4/1
0/4/SHT/X
MBR3
47K/1/4/S
MBC61
10U/8/X5R/6.3V/K
MBC362
0.1u/4/X7R/16V/K
MBC363
0.47u/6/X7R/16V/K
DDRVTT
DDR_15V_B
MBC54
1u/4/X5R/6.3V/K
MBR40
1K/4/1
MB_VTT_REF
MBR41
1K/4/1
MBC382
1u/4/X5R/6.3V/K
RT9173DPSP/3A/SO8/S[10GL2-309173-20R]
MBU2
VIN
GND
VREF1
VOUT
VREF2
ENABLE
VCNTL
BOOT_SEL
VCC
MBC58
10U/8/X5R/6.3V/K
DDRVTT_B
MBR121
0/4/SHT/X
(31) VTT_ADJ2
MB_VTT_ADJ
MB_VTT_REF
MB_EN
5VSB
MBR191
22K/4
MBQ119
2N7002/SOT23/25pF/5
MBR194
8.2K/4
MBQ116
MMBT2222A/SOT23/600mA/40
S0T23
(11,20,27,37) N_S4_S5
DDR_15V_B
NR102
8.2K/4
NR111
1K/4/1
5VDUAL
NQ11
MMBT2222A/SOT23/600mA/40
NR110
100/4/1
A_DRAM_PWROK1 (5)
MAR143
2K/4/1
(11) A_DRAM_PWROK
S0T23
NR108
1K/4/1
NQ9
S0T23
MAR142 0/4
(27) DDR_15V_A_PG
DDR_15V_B_PG
MAR144 0/4
-DRAM_PWROK (27)
MMBT2222A/SOT23/600mA/40
MAC382
0.01u/4/X7R/25V/K/X
3VDUAL
MBR208
8.2K/4
MB_EN
MBQ118
2N7002/SOT23/25pF/5
(20,27,30,33) -PSON
MBQ120
MMBT2222A/SOT23/600mA/40
S0T23
MBR192
22K/4
(11,20,25,27,30) N_-SLP_S3
MBC59
0.1u/4/X7R/16V/K/X
MBC60
2.2u/6/X5R/6.3V/K
POWER ISSUE
DDR_15V_B
Rev 1.01
MBC7
1u/4/X5R/6.3V/K
GIGABYTE
Title
DDR POWER_B IR3570
Size
Custom
Document Number
GA-X79-UP4
Rev
1.1
Date: Friday, February 01, 2013
Sheet 28 of 44

PBG_1.1V



Gigabyte Technology		
Title: ISL6545 PCH		
Size: B	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 29 of 44	


5VDUAL
3VDUAL
3VDUAL_LDO
5VDUAL_UVP
To patch the 5V_DRV glitch
Close Q37
Meet the rise time
At least 10ms delay after 3VDUAL ready
Pop when PCH & SIO both use 3VDUAL-PCH
Pop when 3VDUAL use LDO to prevent 5VDUAL inrush drop.
3V level
Add the enable delay for S19,S37 PSU abnormal main power delivery
VCCSA must lead CPU_PLL rise & lag fall
Gigabyte Technology
DISCRETE POWER
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 30 of 44


CPU_PLL
+12V
VCC25
BC877 0.1u/4/X7R/16V/K/X
(30) V_LEVEL
R267 3.65K/4/1
VCC18_EN
R268 10K/4/1
BC118 1u/6/X7R/16V/K
BC117 0.1u/4/X7R/16V/K/X
DU32B LM358DR/SO8
100/4/1 R270
C128 1n/4/X7R/50V/K
R273 10K/4/1
499/4/1 R269
(30) VCC18_EN
CPU_PLL_ADJ
0/4 R272
BC119 0.01u/4/X7R/25V/K/X
BC77 22u/8/X5R/6.3V/M
Q20 NTMFS4921N/N/6.95m/PPAKSO8
Check MOS temp & current
In normal & OV/OC
C91 8.2K/4
CPU_PLL
1.83V
EC16 820u/FP/D/2.5V/68/7m[11CO4-698200-01R_11CO4-688200-01R]
820u for VCORE電容一致性
PCH_1V5
VCC3
NBC12 22u/8/X5R/6.3V/M
NQ4 NTMFS4921N/N/6.95m/PPAKSO8
(30) V_LEVEL
NR53 6.04K/4/1
VCC15_EN
NR67 10K/4/1
NBC25 0.1u/4/X7R/16V/K
DU30B LM358DR/SO8
100/4/1 NR49
NC38 1n/4/X7R/50V/K
NC22 8.2K/4
NR50 10K/4/1
499/4/1 NR52
(30) VCC15_EN
VCC15_PCH_ADJ
0/4 NR51
NBC24 0.01u/4/X7R/25V/K/X
VCC1_5V_PBG
1.55V
NBC7 22u/8/X5R/6.3V/M
NBC3 22u/8/X5R/6.3V/M
NBC4 22u/8/X5R/6.3V/M
BC72 22u/8/X5R/6.3V/M
Q19 NTMFS4921N/N/6.95m/PPAKSO8
(30) V_LEVEL
R116 10K/4/1
VCC25_VREF
R117 10K/4/1/X
BC24 0.1u/4/X7R/16V/K
DU32A LM358DR/SO8
100/4/1 R132
C25 1n/4/X7R/50V/K
C26 8.2K/4
R130 40.2K/4/1
2K/4/1 R128
BC27 0.01u/4/X7R/25V/K/X
Check ripple & Oscillator
BC76 22u/8/X5R/6.3V/M
Rev 1.01
DU30A
LM358DR/SO8
A_VTT_SEL
HI 1.8V (SNB)
LO 1.7V(IVB)
VCC18_EN
R265 40.2K/4/1
VCC
R263 8.2K/4
Q40 2N7002/SOT23/25pF/5
Q39 MMBT2222A/SOT23/600mA/40
(5,27) A_VTT_SEL
R264 8.2K/4
BC116 0.01u/4/X7R/25V/K/X
VTT_LEVEL (20)
By GPI to inform BIOS the default CPU_VTT is 1.05/1.1V
VQ1 2N7002/SOT23/25pF/5
0x6A(0x2A)
BC47 0.1u/4/X7R/16V/K
5VDUAL
3VDUAL
VCC3
R163
R159
R169
R168 8.2K/4/X
8.2K/4
R160
U12
VDD VREF1
B_SEL VREF2
GND VREF3
SDA SCL
N_SMBDATA
N_SMBCLK
VTT_ADJ (27)
M_CHA_ADJ (7)
M_CH01_DQADJ (8)
NCT3933U/SOT23-8
0X62(0x22)
R316
R314
R315
BC127 0.1u/4/X7R/16V/K
R310 1.3K/4/1
3.9K/4/1
R311
U25
VCC1_05_PCH_ADJ (29)
CPU_PLL_ADJ
VCC15_PCH_ADJ
0x68(0x28)
N_SMBCLK (11,14,15,17,18,19,23,25,27,28,37)
N_SMBDATA (11,14,15,17,18,19,23,25,27,28,37)
BC114 0.1u/4/X7R/16V/K
R254
R256
R255
R251 3.9K/4/1
1.3K/4/1
R252
U21
SMREFC01_ADJ (5)
SMREFC23_ADJ (5)
M_CHB_ADJ (8)
0x60(0x20)
BC122 0.1u/4/X7R/16V/K
R295
R300
R293
R302 8.2K/4
8.2K/4/X
R294
U23
VTT_ADJ2 (28)
M_CHC_ADJ (9)
M_CH23_DQADJ (10)
For CPU OC 200MHz issue
0x66(0x26)
BC67 0.1u/4/X7R/16V/K/X
R183
R184
R182
R188 3K/4/1/X
2.2K/4/1/X
R187
U13
VCORE_ADJ (23)
VTTD_ADJ (27)
VSA_ADJ (23)
NCT3931U-2/SOT23-8/X
0x64(0x24)
BC42 0.1u/4/X7R/16V/K/X
R166
R164
R170
R167 2.2K/4/1/X
3K/4/1/X
R171
U11
DDR15V_ADJ1 (27)
DDR15V_ADJ2 (28)
M_CHD_ADJ (10)
NCT3933U/SOT23-8/X
Gigabyte Technology
Title
DISCRETE POWER II
Size C
Document Number
GA-X79-UP4
Rev 1.1
Date: Friday, February 01, 2013
Sheet 31 of 44

FRONT USB1

FUSEVCC_F1 FUSEVCC_F2

BC103 0.1u/4/X7R/16V/K

F_USB1

BC104 0.1u/4/X7R/16V/K

P0- P1-
P0+ P1+

BH/2*5K9/BK/ON/2.54/VA/D/GF/LRE/TUR180

FRONT USB2

FUSEVCC_F3 FUSEVCC_F4

BC93 0.1u/4/X7R/16V/K

F_USB2

BC92 0.1u/4/X7R/16V/K

(12) N_-USBP2 N_-USBP3 (12)
(12) N_+USBP2 N_+USBP3 (12)

BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180

UESD1

N_-USBP3 N_+USBP3
N_-USBP2 N_+USBP2

FUSEVCC_F3

AOZ8902CIL/SOT23-6

Close to connector

FRONT USB3

FUSEVCC_F5 FUSEVCC_F6

BC884 0.1u/4/X7R/16V/K

F_USB3

BC885 0.1u/4/X7R/16V/K

(12) N_-USBP4 N_-USBP5 (12)
(12) N_+USBP4 N_+USBP5 (12)

BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180

UESD2

N_-USBP5 N_+USBP5
N_-USBP4 N_+USBP4

FUSEVCC_F5

AOZ8902CIL/SOT23-6

Close to connector

FUSB_OC

FUSEVCC_F3 FUSEVCC_F4

UAD1 SOT23

BAT54A/SOT23/200mA

FUSEVCC_F5 FUSEVCC_F6

UAD2 SOT23

BAT54A/SOT23/200mA

5VDUAL UAR46 8.2K/4 N_-USBOC_F (12)

UAR47 15K/4/1

USB_OC PROTECT

(11,38,39) N_GPIO11

UAD3 SOT23

N_-USBOC_F
N_-USBOC_R (12,22)

BAT54A/SOT23/200mA

SPKR

VCC

FPD1 1N4148W/SOD123/300mA

To disable TCO timer

VCC3

FPR16 8.2K/4

FPR13 75/6/1

SPK-

FPR17 1K/4/1 FPQ7 MMBT2222A/SOT23/600mA/40

FPQ5 MMBT2222A/SOT23/600mA/40

FPR14 75/6/1

FPQ6 MMBT2222A/SOT23/600mA/40

FPR18 8.2K/4

FPR15 1K/4/1

N_SPKR (11)

(20) BEEP-

F_USB_POWER

5VDUAL

BC14 22u/8/X5R/6.3V/M

BC11 1u/4/X5R/6.3V/K

BC12 1u/4/X7R/50V/K

To reduce the ripple crosstalk from Vin

5VDUALQ UF2 100MILS SMD1206P200SLR/S FUSEVCC_F2

5VDUAL UF4 100MILS SMD1206P200SLR/S FUSEVCC_F4

5VDUAL UF6 100MILS SMD1206P200SLR/S FUSEVCC_F6

5VDUALQ UF1 100MILS SMD1206P200SLR/S FUSEVCC_F1

5VDUAL UF3 100MILS SMD1206P200SLR/S FUSEVCC_F3

5VDUAL UF5 100MILS SMD1206P200SLR/S FUSEVCC_F5

Q2 NTMFS4921N/N/6.95m/PPAKSO8

400MILS

D5 D4 D3 D2 D1 S1 S2 S3

CLOSE R_USB

5V_DRV (30)

BC891 0.1u/4/X7R/16V/K/X

VCC

BC5 0.1u/4/X7R/16V/K

F_USB signal cross moat cap

5VDUALQ 5VDUAL

EC21 100u/OS/D/6.3V/66/30m

EC19 100u/OS/D/6.3V/66/30m

5VDUAL

EC29 100u/OS/D/6.3V/66/30m

INTEL FRONT PANEL

VCC

FPR2 330/6

(25) MPD+

FPQ2 MMBT2222A/SOT23/600mA/40

FPR7 8.2K/4

N_GPIO28 (11)

FPR1 330/6

FPBC1 0.01u/4/X7R/25V/K/X

F_PANEL

(33) RESET

-HDLED

(11,25,37) N_-SYS_RST

FPR5 100/4/1

RESET

FPBC2 0.01u/4/X7R/25V/K

(20,36) -CASEOPEN

MPD+

HD+ HD- GND RESET CI- CI+ PWR+ PWR- MSG/PD+ MSG/PD- PW+ PW- SP+ NC NC SP-

-PWRBT_1

FPR9 33/4

-PWRBTSW (20)

FPBC3 0.01U/4/X7R/25V/K/X

SPK-

BH/2*10K10,12,13/BK/2.54/VA/PA

SATA LED

VCC3

FPR10 1K/4/1

-HDLED

FPC2 180pi/4/NPO/50V/J/X

FPD2 BAT54A/SOT23/200mA

FPR12 1K/4/1

FPR11 8.2K/4

FPQ1 MMBT2222A/SOT23/600mA/40

FPQ4 MMBT2222A/SOT23/600mA/40

(11) N_-SATALED

(41) RA_GPIO0

(42) RB_GPIO0

(43) RC_GPIO0

FPD3 BAT54A/SOT23/200mA

-PWRBT_1

FPESD1 AOZ8902CIL/SOT23-6

5VSB

RESET (33)

M+ 2.0V

M- 2.7V

(20,25) IT_GP27

(20,25) I_GPIO2

(20,25) -BT_EN

(20,25) I_GPIO3

3VDUAL

BC101 0.1u/4/X7R/16V/K

BC100 0.1u/4/X7R/16V/K

U20 PI3USB102ZLE/TQFN10

U19 PI3USB102ZLE/TQFN10

P0+ P0-

N_+USBP0 (12)
N_-USBP0 (12)

P1+ P1-

N_+USBP1 (12)
N_-USBP1 (12)

R215 33K/4/1
R214 51K/4/1
R213 11.3K/4/1
R212 51K/4/1

R211 33K/4/1
R210 51K/4/1
R209 11.3K/4/1
R208 51K/4/1

5VSB

R221 8.2K/4

R222 8.2K/4

(20) I_PHONE_C

Q27 MMBT2222A/SOT23/600mA/40

R218 8.2K/4

R219 8.2K/4

5VDUAL

BC105 1u/4/X5R/6.3V/K

Q25 P2003ED/PTTO252/30m

5VDUALQ

RN8 1K/8P4R/4/X

RN9 470/8P4R/4

Q26 2N7002/SOT23/25pF/5

EC20 100u/OS/D/6.3V/66/30m

R220 1K/4/1

5VDUALQ

Q24 BAT54A/SOT23/200mA

FUSEVCC_F1
FUSEVCC_F2

R216 8.2K/4

-USBA_OC

R217 15K/4/1

Q34 2N7002/SOT23/25pF/5

R241 39.2K/4/1

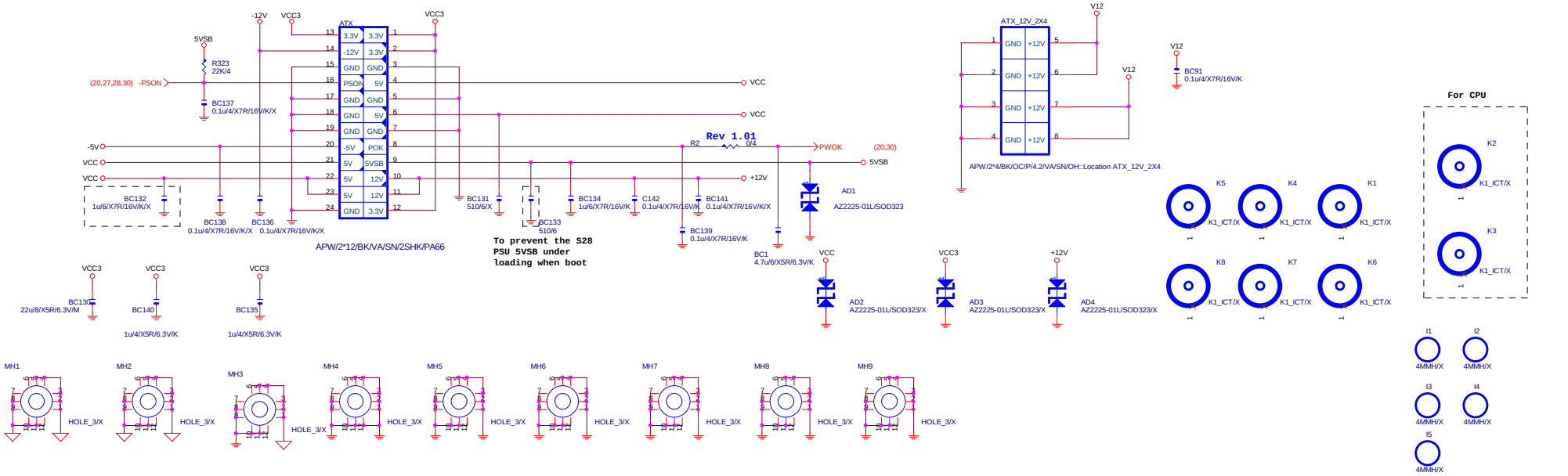
(20) I_PHONE_C

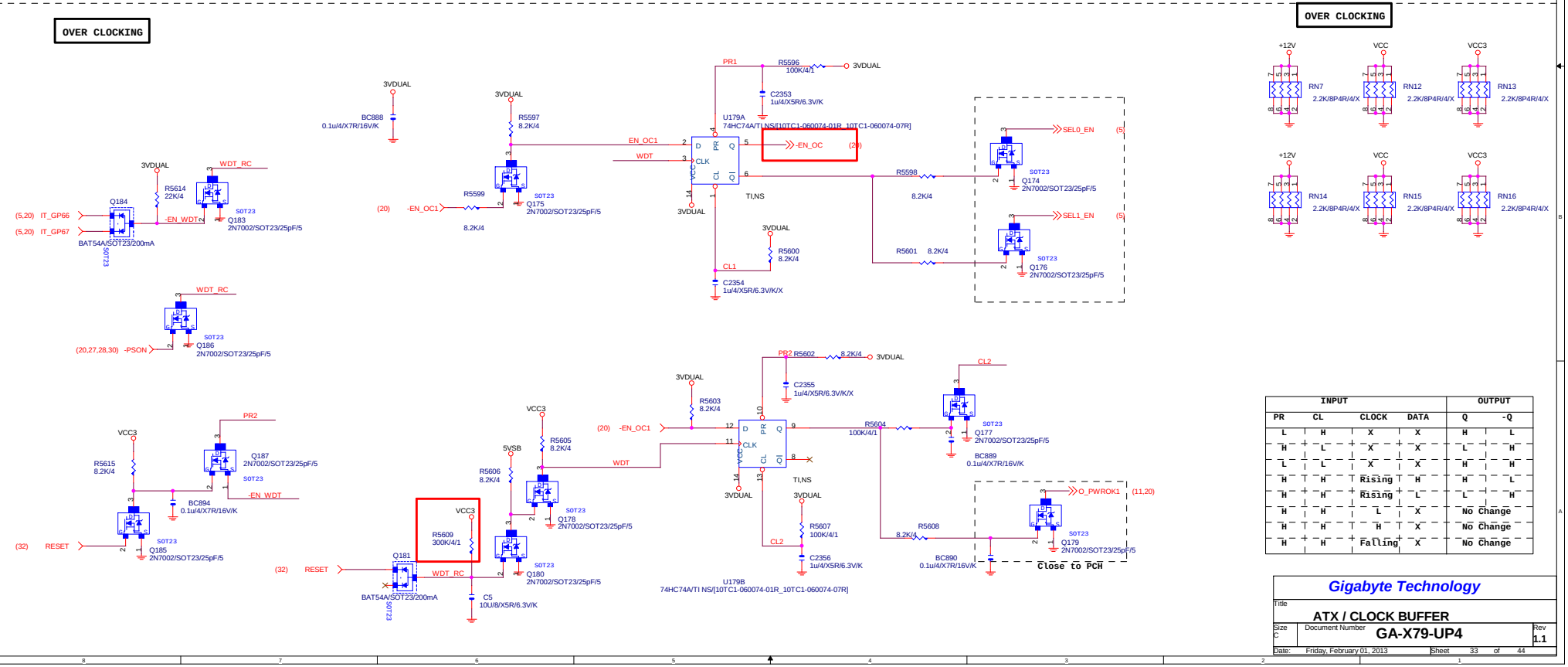
BC111 1u/4/X5R/6.3V/K

N_-USBOC_F (12)

-USBA_OC

ATX POWER CONNECTOR





INPUT				OUTPUT	
PR	CL	CLOCK	DATA	Q	-Q
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	Rising	H	H	L
H	H	Rising	L	L	H
H	H	L	X	No Change	
H	H	H	X	No Change	
H	H	Falling	X	No Change	

Gigabyte Technology

Title: ATX / CLOCK BUFFER

Size: C | Document Number: GA-X79-UP4 | Rev: 1.1

Date: Friday, February 01, 2013 | Sheet 33 of 44

AZALIA CODEC

ALC889/ALC892/ALC898 Colay

	ALC889	ALC892	ALC898
CBC35	X	10uF/X5R	10uF/X5R
CFB1/CD1/CBC3	X	O	O
CD2/CD3/CD4/CQ5,CR26	O	X	X
CEC20	X	X	100uF
CR58	O	X	X
CR20,CR40	62ohm	62ohm	33ohm

CR2: 20K/4/0.1% @ALC889A

CR2: 20K/4/1% @ALC889A+/ALC888Vx

CR25 20K/4/1

(35) CEN

(35) LFE

(35) S_SURR_L

(35) S_SURR_R

SURR_R (35)

SURR_L (35)

CEC20 100u/OS/D/6.3V/66/30m/X

AVDD

JD resistors close to pin34 of CODEC

CR69 5.1K/4/1 S_SURR_JD (35)

CR47 10K/4/1 CEN_JD (35)

CR37 47/4/1 FAUDIO_JD (35)

CBC9 0.1u/4/X7R/16V/K

(35) SPDIF

VCC3 CR61 2.2/6 CBC34 22u/8/X5R/6.3V/M

co-layout

(35) SPDIFO2_HDMI

CU1

ALC889A+

CBC35 10U/8/X5R/6.3V/K

CR58 0/4/X

(11) C_ACZ_SDOUT

(11) C_ACZ_BITCLK

CR65 22/4

(11) C_ACZ_SDIN2

CR59 22/4

(11) C_ACZ_SYNC

(11) C_ACZ_RST

CR14/CBC4 close to SouthBridge

CBC31 22p/4/NPO/50V/J/X

CBC30 0.1u/4/X7R/16V/K

CBC32 0.1u/4/X7R/16V/K

DVDD1 GPIO0/XTALI GPIO1/XTALO DVS1 SDATA_OUT BIT_CLK DVSS2 SDATA-IN DVDD2 SYNC RESET# PC_BEEP

SPDIFO SPDIF/EAPD SURBACK-R/XTASEL SURBACK-L/JD0 GPIO0 LFE CEN AVSS2 SURR-R JDREF (NC)/JD3 SURR-L AVDD2 LINE1-VREFO/VREFO3

FRONT-R FRONT-L SENSE B (JD2)/FMIC1 DCVOL/VREFVOUT2 MIC1-VREFO-R/FMIC2 LINE2-VREFO/JD4 MIC2-VREFO/AFILT2 LINE1-VREFO-L/AFILT1 MIC1-VREFO-L/VREFOUT VREF AVSS1 AVDD1

SENSE A(JD1)/PHONE JD1 LINE2-L/AUX-L LINE2-R/AUX-R MIC2-L/JD2 MIC2-R/JD1 GPIO1 CD_L CD_GND CD_R MIC1-L/MIC1 MIC1-R/MIC2 LINE1-L LINE1-R

LINE_O_R (35)

LINE_O_L (35) Can Support Amp Out

CR12 8.2K/4/X AVDD

VODR CR13 8.2K/4

MIC1_VREFO_R (35)

LINE2_VREFO (35)

MIC2_VREFO (35)

VOBR CR4 8.2K/4

MIC1_VREFO_L (35)

AVDD

22u/8/X5R/6.3V/M CBC6

22u/8/X5R/6.3V/M

CBC4

CFB1 5VSB

30/4/4A/S

CBC3 22u/8/X5R/6.3V/M

CD1 AZ2225-01L/SOD323

For ALC892 /ALC898

Digital Area

Analog Area

ALC892-GR/LQFP48[10HP5-368920-21R]

LINE1_R CBC8 22u/8/X5R/6.3V/M LINE_IN_R (35)

LINE1_L CBC10 22u/8/X5R/6.3V/M LINE_IN_L (35)

MIC1_RR CBC14 10U/8/X5R/6.3V/K MIC1_R (35)

MIC1_LL CBC18 10U/8/X5R/6.3V/K MIC1_L (35)

(35) FRONT_JD CR7 5.1K/4/1

(35) LINE1_JD CR34 10K/4/1

(35) MIC1_JD CR5 20K/4/1

(35) SURR_JD CR43 39.2K/4/1

JD resistors close to pin13 of CODEC

SMOATR2 0/6/X

0/6/X For AGND/GND moat under Codec Body

CESD1

LINE2_R 1

2

MIC2_L 3

6 LINE2_L

5 AVDD

4 MIC2_R

AOZ8902CIL/SOT23-6/X

(35) LINE2_L

(35) LINE2_R

(35) MIC2_L

(35) MIC2_R

Can Support Amp Out

CESD2

MIC1_RR 1

2

LINE1_L 3

6 MIC1_LL

5 AVDD

4 LINE1_R

AOZ8902CIL/SOT23-6/X

Gigabyte Technology

Title: HD AUDIO ALC889

Size: Custom | Document Number: GA-X79-UP4 | Rev: 1.1

Date: Friday, February 01, 2013 | Sheet 34 of 44

CODEC POWER/EMI PAD

5VSB 5VDUAL +12V
CR27 0/6/X CR26 0/6/X AVDD CD3
CQ5
CD4 1N4148W/SOD123/300mA/X
1N4148W/SOD123/300mA/X 78L05/SOT89 0.1A/X
CBC7 22u/8/X5R/6.3V/M/X
CD2 AZ2225-01L/SOD323/X 與CQ4 CO-LAYOUT
0.1u/4/X7R/16V/K/X

5VSB
CBC16 1u/4/X5R/6.3V/K

(34) SPDIF SPDIF CBC40 0.01u/4/X7R/25V/K CR70 100/4/1
CR71 220/4
CBC41 100p/4/NPO/50V/J
R_SPDIF
(34) SPDIF SPDIF
OPT RCA
VCC
FUSEVCC_R9
CBC42 0.01u/4/X7R/25V/K
G1 G2
RCA/OPTI/SPDIFOUT/SHELL

For HDMI SPDIF

(34) SPDIF CR39 0/4/X
(34) SPDIFO2_HDMI CR68 0/4
CBC39 100p/4/NPO/50V/J
PIN1
SPDIF_O PH/1*2/BK/2.54/VA/D

跨MOAT CAP.

MOATC1 0/4 F_AUDIO
MOATC3 0/4/x AUDIO JACK
MOATC4 0/4/X AUDIO JACK to USB
MOATC2 0/4 Codec to AUDIO JACK
SMOATR1 0/6/SHT/X
SMOATR3 0/6
AUDIO JACK to USB

For HDMI SPDIF

AZALIA CONNECTOR

11NR6-403007-21R

AUDIOB
(34) LINE1_JD LINE1_JD AJ_A5 AJ_A2 LINE-IN BLUE LINE-IN
(34) FRONT_JD FRONT_JD AJ_B5 AJ_B2 LINE-OUT GREEN LINE-OUT
(34) MIC1_JD MIC1_JD AJ_C5 AJ_C2 MIC-IN PINK MIC-IN
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

AUDIOA
(34) CEN_JD CEN_JD BJ_B5 BJ_B2 REAR Orange CEN/LFE
(34) SURR_JD SURR_JD BJ_C5 BJ_C2 CEN Black SURROUND
(34) S_SURR_JD S_SURR_JD BJ_A5 BJ_A2 F0 SIDE Gray SURROUND SIDE
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

LINE-OUT

(34) LINE_O_R CEC1 100u/OS/D/6.3V/66/30m CR15 62/4
(34) LINE_O_L CEC2 100u/OS/D/6.3V/66/30m CR19 62/4
CR17 22K/4 CR21 22K/4 AJ_B5 AJ_B2
CBC5 180p/4/NPO/50V/J CBC11 180p/4/NPO/50V/J

LINE-IN

Only reserved for ALC888

(34) LINE_IN_R CR18 62/4
(34) LINE_IN_L CR22 62/4
AJ_A5 AJ_A2
CBC20 180p/4/NPO/50V/J CBC23 180p/4/NPO/50V/J

For 889A/888

MIC-IN

(34) MIC1_R CR24 62/4
(34) MIC1_L CR28 62/4
(34) MIC1_VREFO_L
(34) MIC1_VREFO_R
AJ_C5 AJ_C2
CBC2 180p/4/NPO/50V/J CBC1 180p/4/NPO/50V/J

SURROUND

EMI
(34) SURR_R CEC4 100u/OS/D/6.3V/66/30m CR48 62/4
(34) SURR_L CEC3 100u/OS/D/6.3V/66/30m CR41 62/4
CR42 22K/4 CR49 22K/4 BJ_C5 BJ_C2
CBC25 180p/4/NPO/50V/J CBC27 180p/4/NPO/50V/J

CEN/LFE

EMI
(34) LFE CEC10 100u/OS/D/6.3V/66/30m CR52 62/4
(34) CEN CEC9 100u/OS/D/6.3V/66/30m CR44 62/4
CR45 22K/4 CR53 22K/4 BJ_B5 BJ_B2
CBC26 180p/4/NPO/50V/J CBC29 180p/4/NPO/50V/J

SURR BACK

EMI
(34) S_SURR_R CEC5 100u/OS/D/6.3V/66/30m CR29 62/4
(34) S_SURR_L CEC6 100u/OS/D/6.3V/66/30m CR30 62/4
CR32 22K/4 CR6 22K/4 BJ_A5 BJ_A2
CBC13 180p/4/NPO/50V/J CBC12 180p/4/NPO/50V/J
NICHICON low leakge current

AZALIA FRONT PANEL

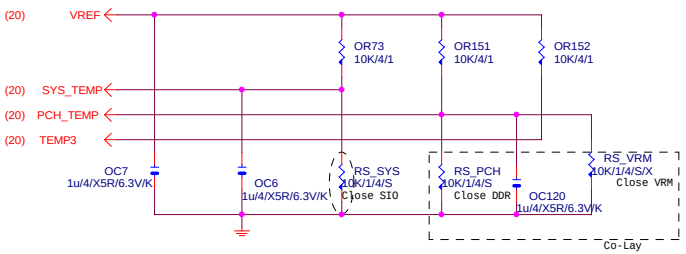
CQ4 BAT54A/SOT23/200mA SOT23
(34) LINE2_VREFO CR57 8.2K/4 CR23 8.2K/4
CQ1 BAT54A/SOT23/200mA
(34) MIC2_VREFO CR66 8.2K/4 CR8 8.2K/4
(34) MIC2_L (34) MIC2_R CBC21 CBC22 10U/8/X5R/6.3V/K CR36 CR31 62/4 M2_L M2_R
(34) FAUDIO_JD CBC33 1n/4/X7R/50V/K
L2_R L2_L CR20 CR40 62/4 CR14 0/4/X
CR62 CR56 22K/4
F_AUDIO
CR67 8.2K/4 CR60 20K/4/1 CR38 39.2K/4/1
bh/2*5k8/bk/2.54/va/[11NH3-001205-31R]
C_-ACZ_DET (11)
Digital Area
CBC38 CBC37 CBC36 CBC24 180p/4/NPO/50V/J
募板邊，注意料號與footprint

(34) LINE2_R CEC7 100u/OS/D/6.3V/66/30m L2_R
(34) LINE2_L CEC8 100u/OS/D/6.3V/66/30m L2_L

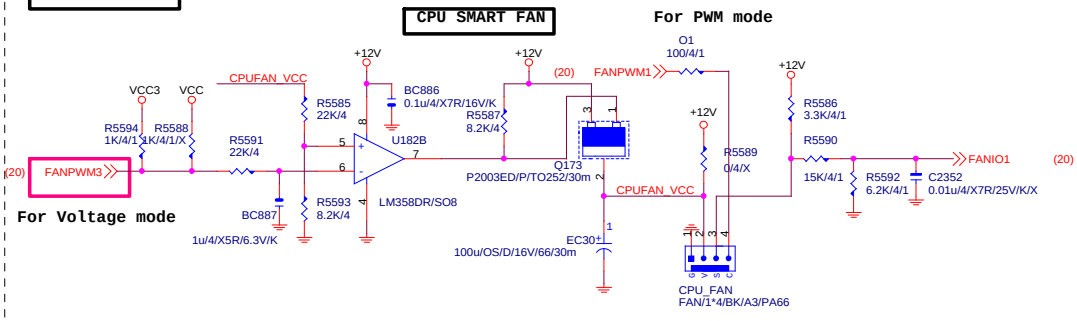
Gigabyte Technology

Title: AUDIO JACK
Size: Custom
Document Number: GA-X79-UP4
Rev: 1.1
Date: Friday, February 01, 2013
Sheet 35 of 44

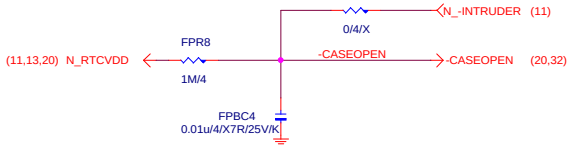
TEMP H/W MONITOR



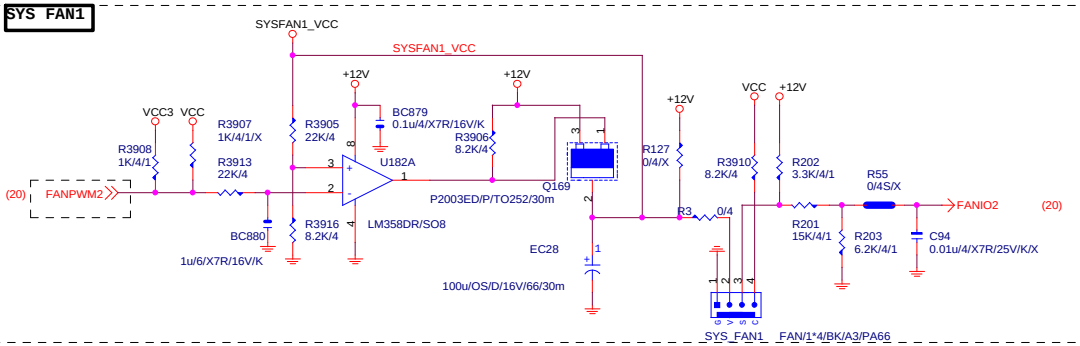
CPU SMART FAN



CASE OPEN

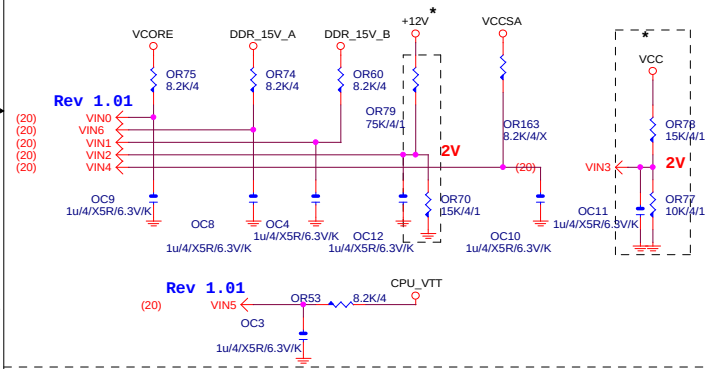


SYS FAN1

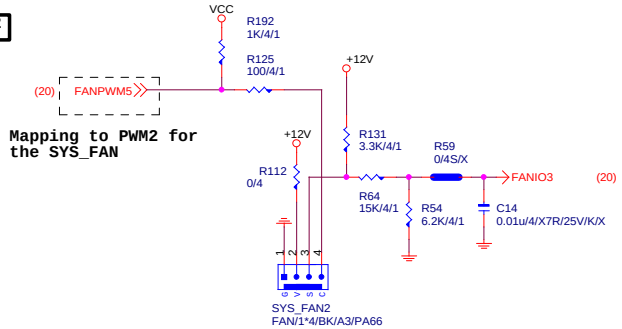


VOLTAGE-- H/W MONITOR

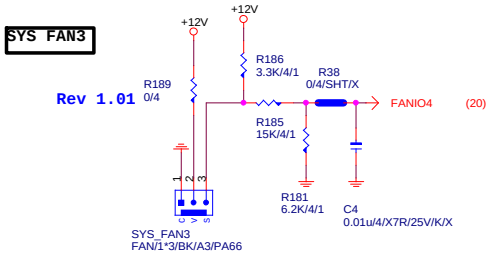
VIN2 must +12V input
VIN3 must VCC input



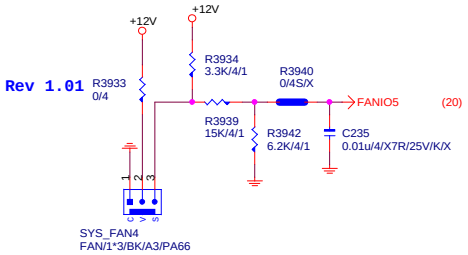
SYS FAN2



SYS FAN3

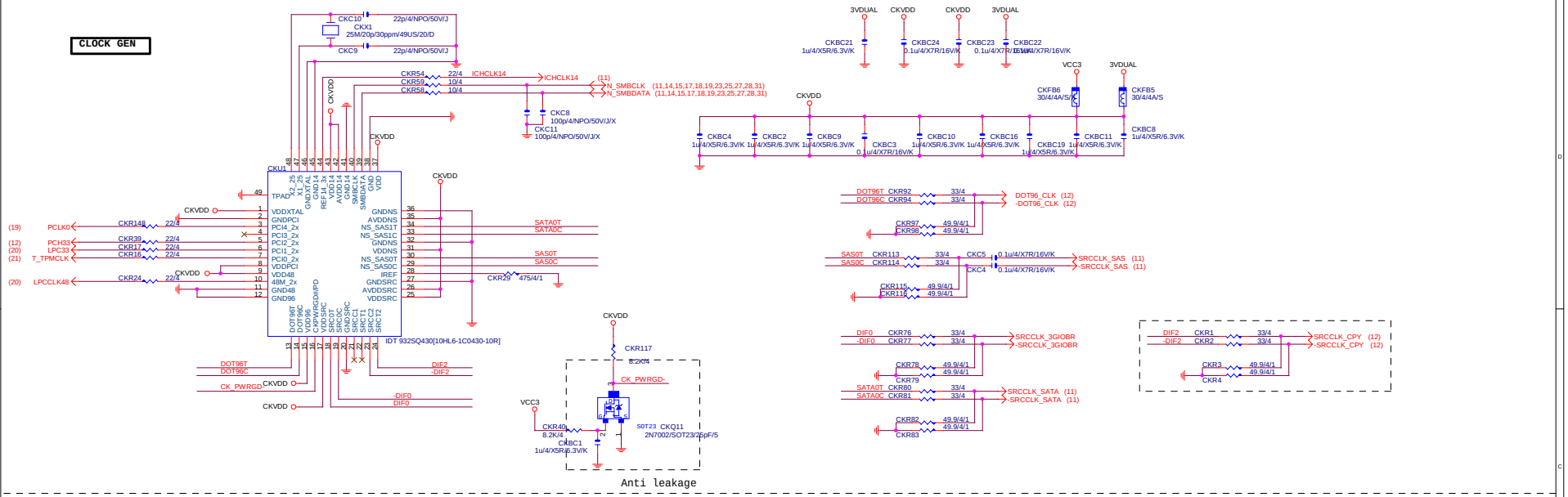


SYS FAN4

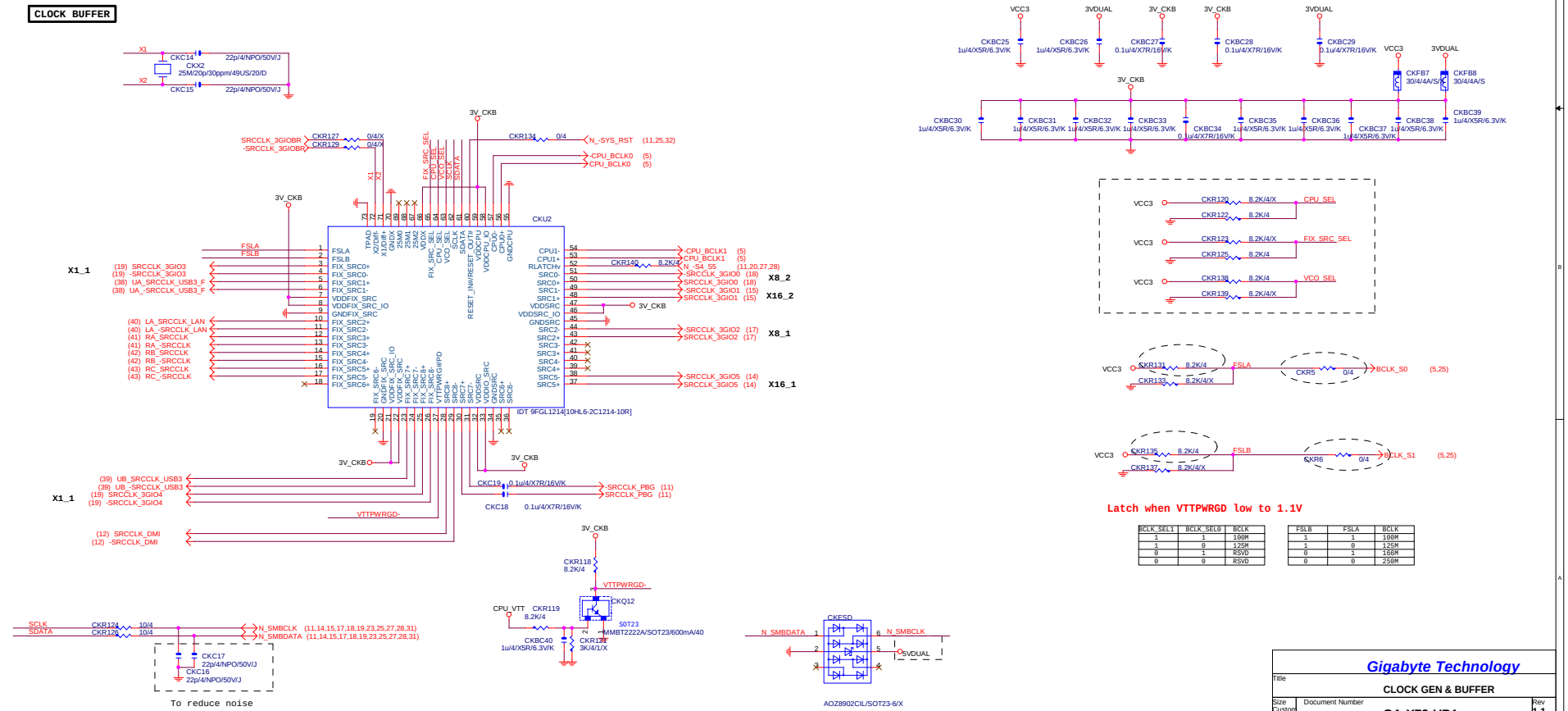


Gigabyte Technology		
Title: HWM,FAN CTRL		
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 36 of 44	

CLOCK GEN



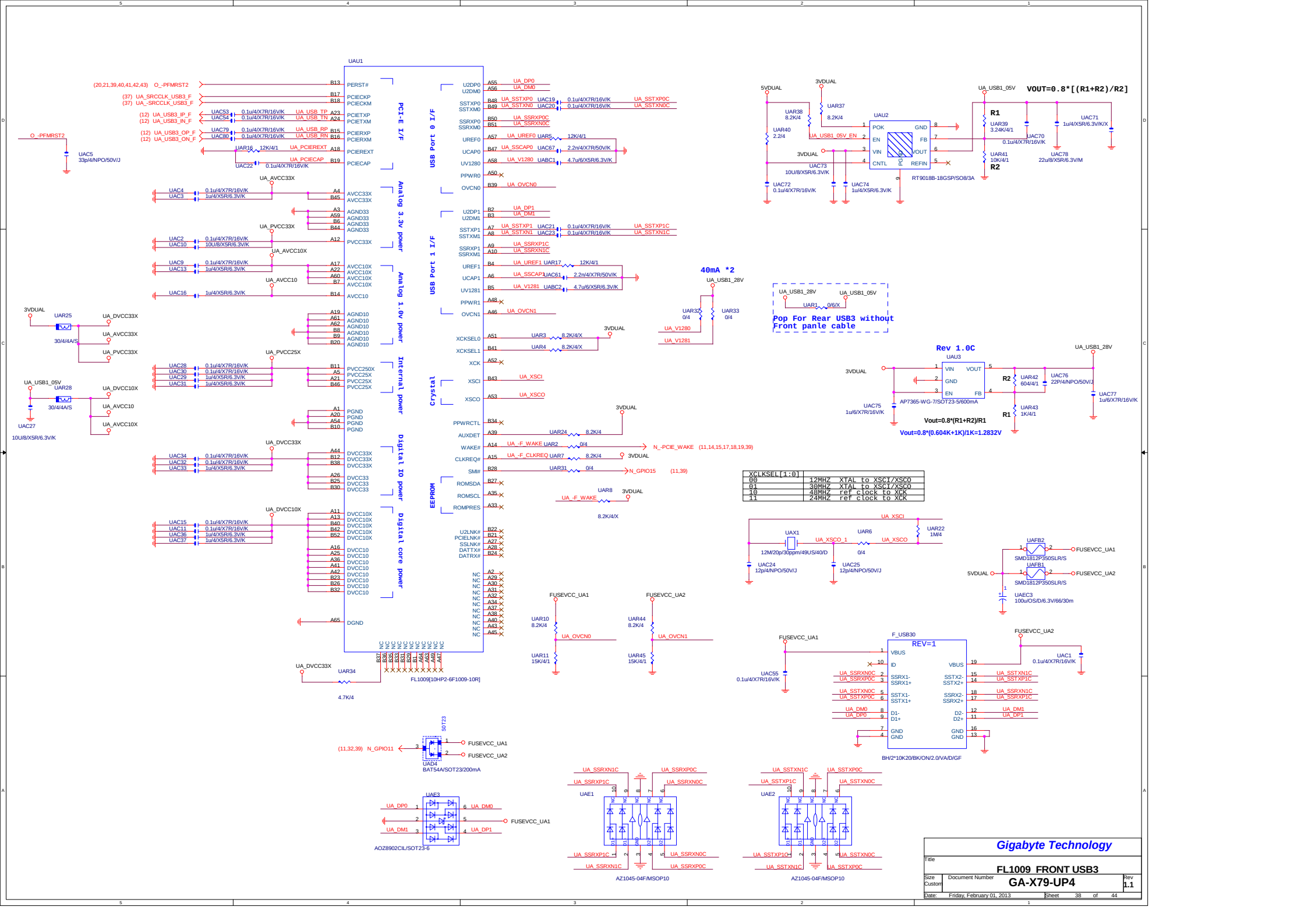
CLOCK BUFFER

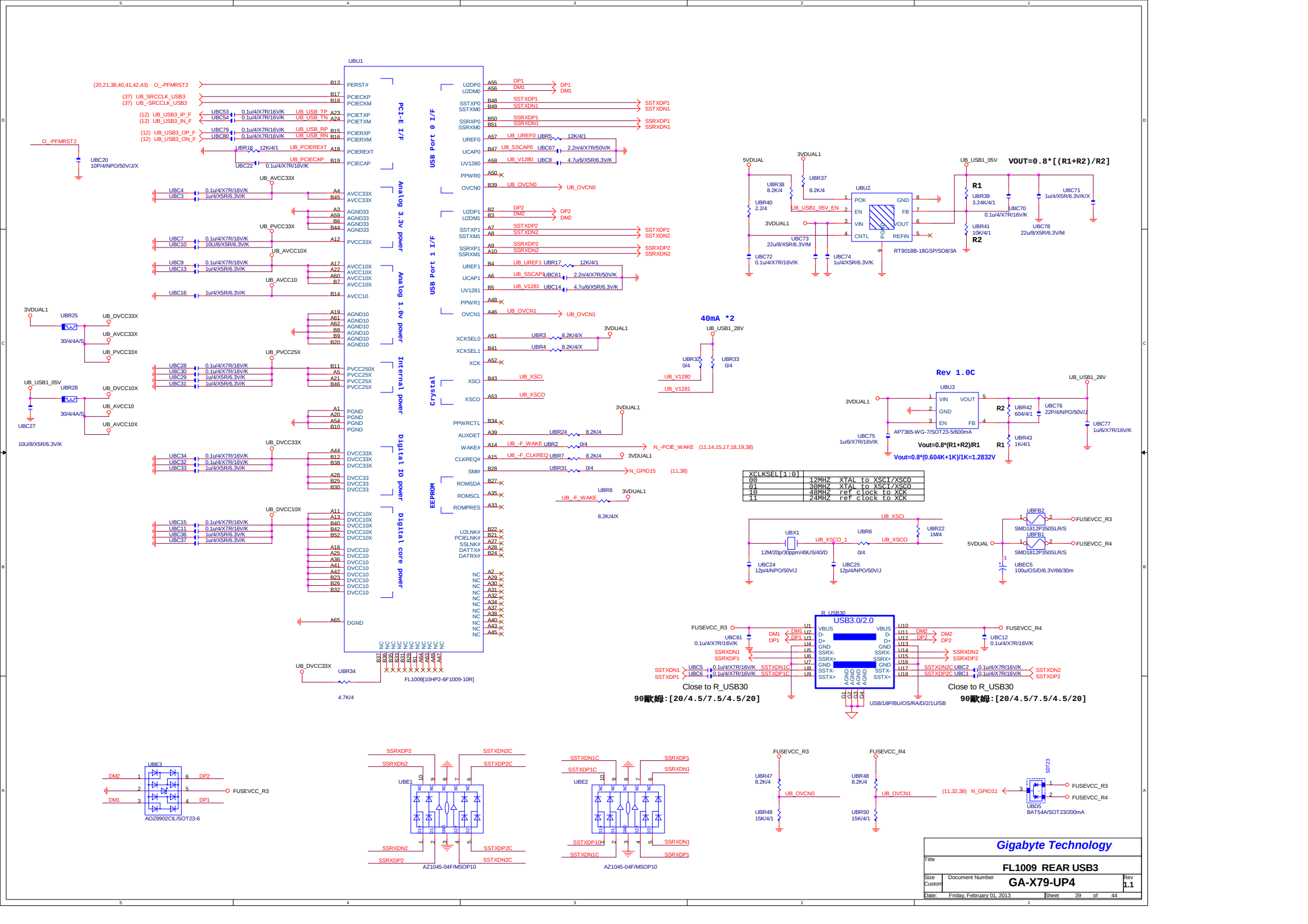


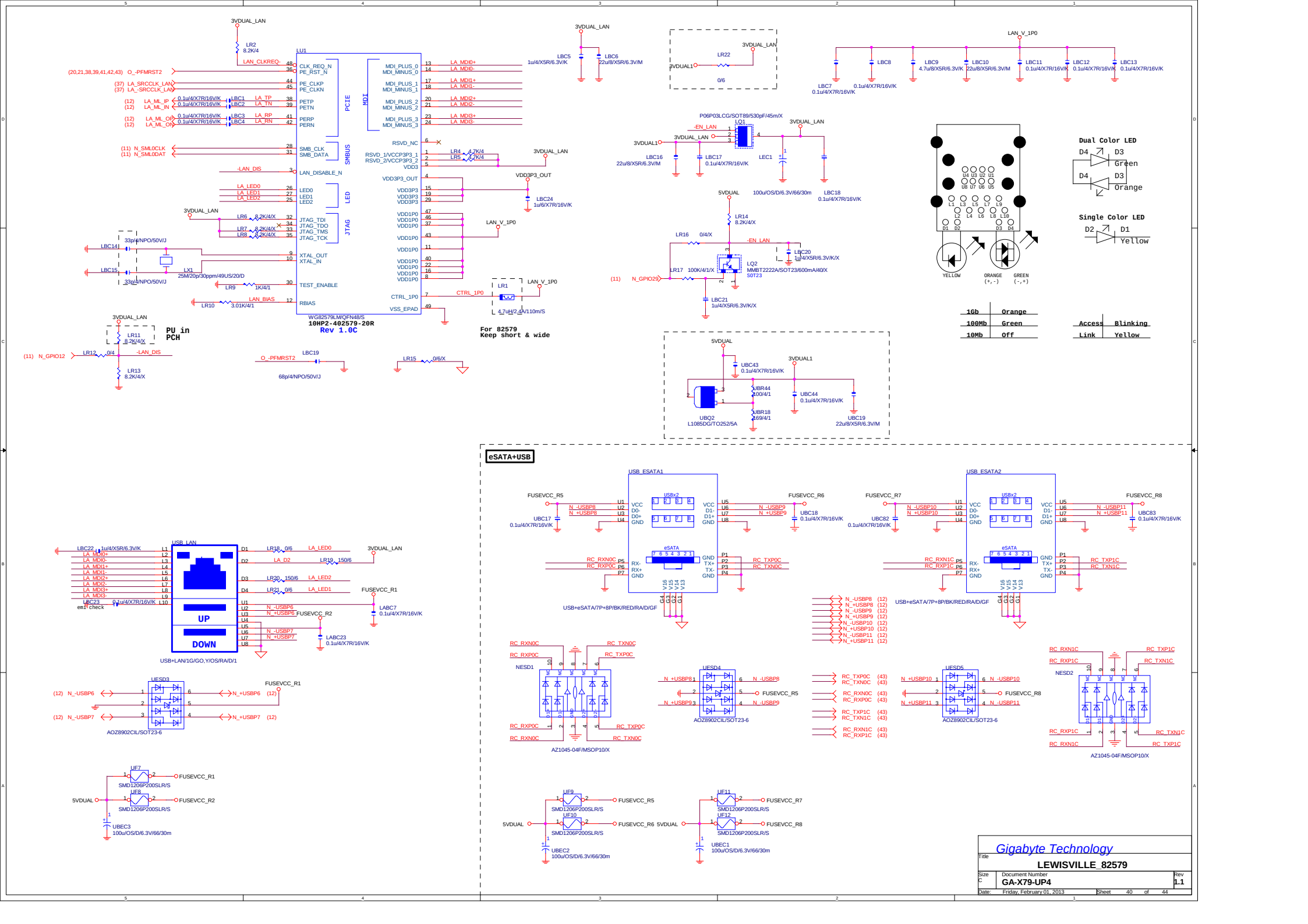
BCLK_SEL1	BCLK_SEL0	BCLK
1	1	100M
1	0	125M
0	1	RSVD
0	0	RSVD

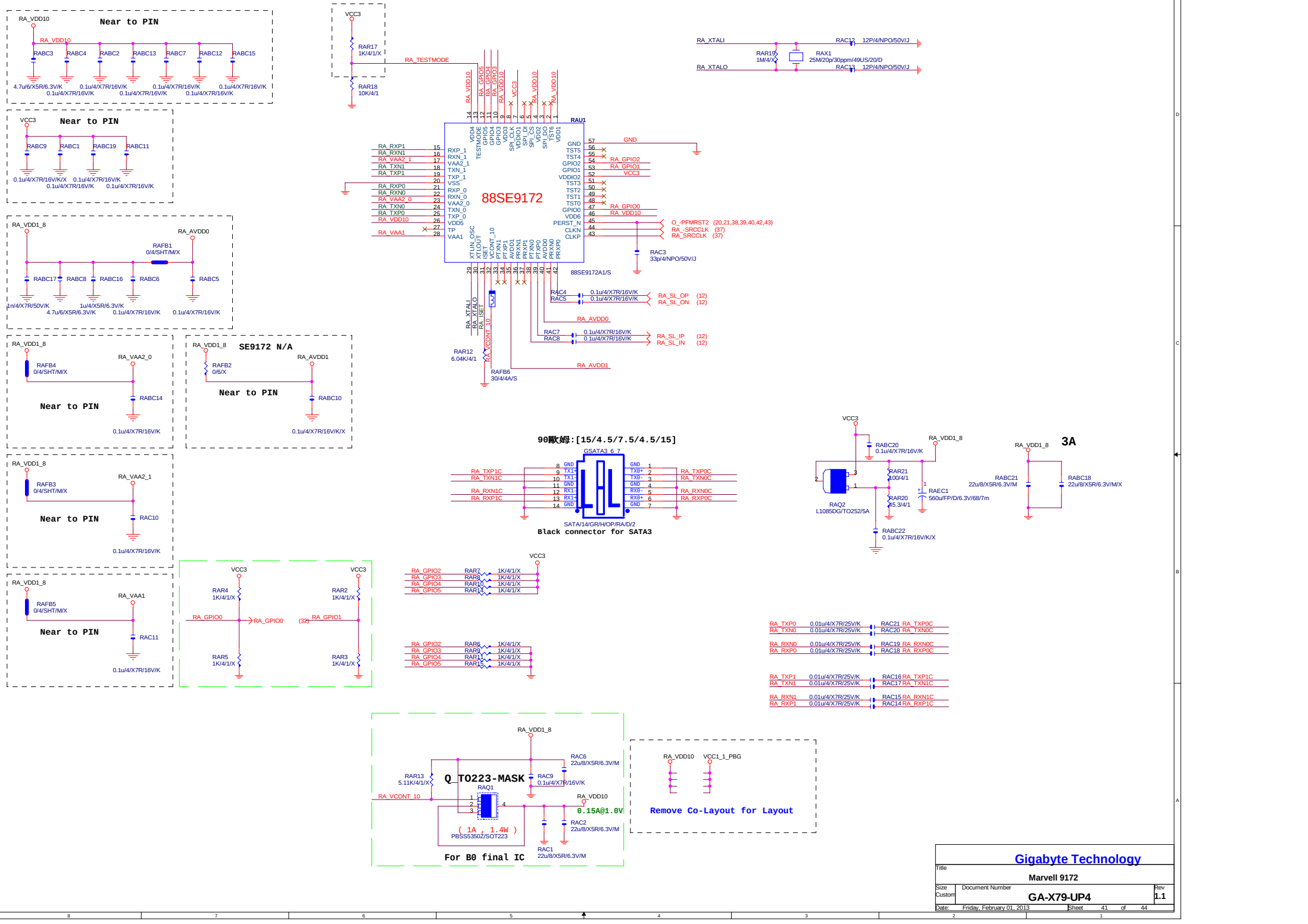
FSLB	FSLA	BCLK
1	1	100M
1	0	125M
0	1	166M
0	0	250M

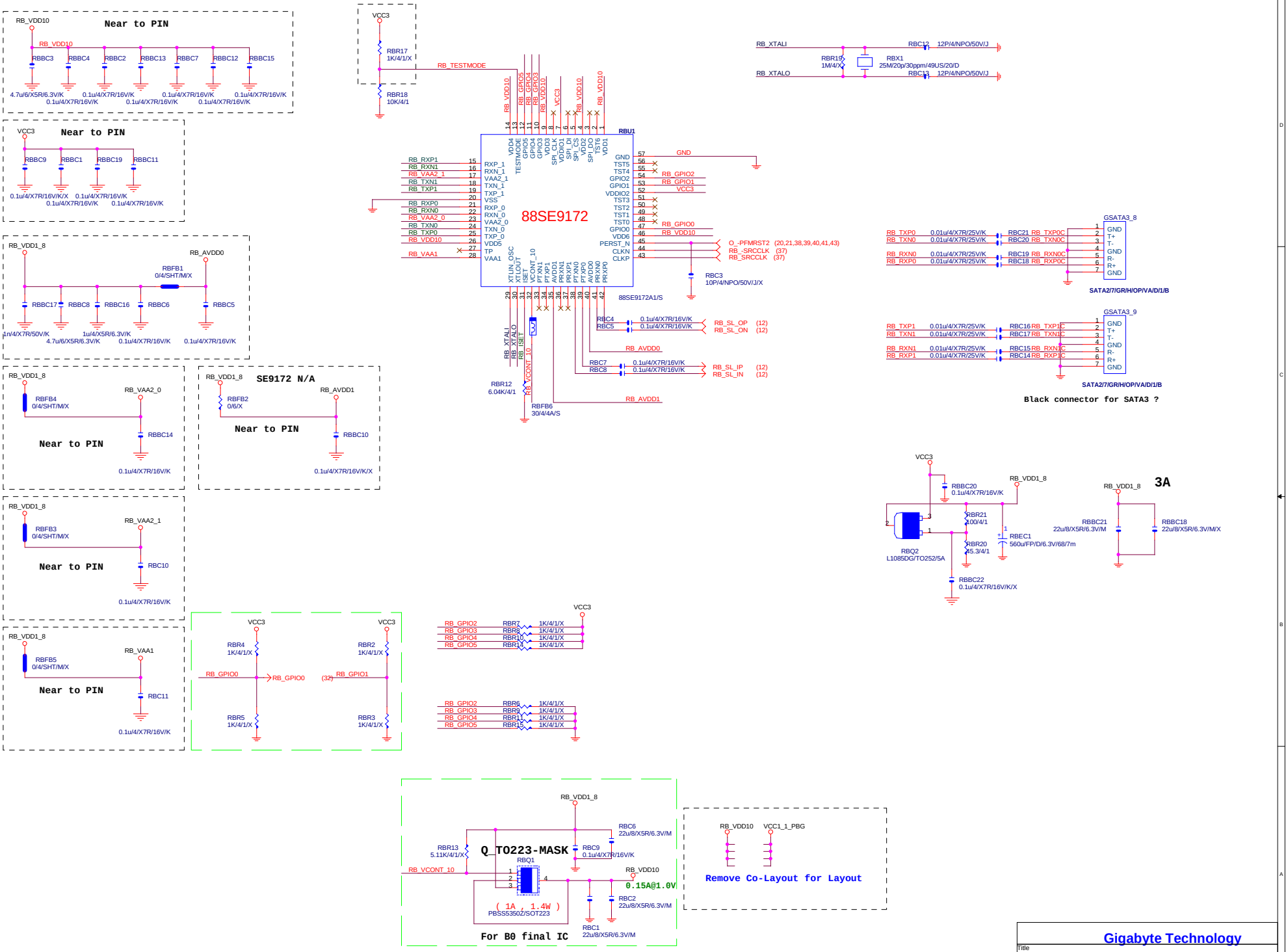
Gigabyte Technology	
Title	CLOCK GEN & BUFFER
Size: Custom	Document Number: GA-X79-UP4
Rev	1.1
Date: Friday, February 01, 2013	Sheet 37 of 44


UAU1
PCI-E I/F
USB Port 0 I/F
Analog 3.3v power
USB Port 1 I/F
Analog 1.0v power
Internal power
Crystal
Digital IO power
EEPROM
Digital core power
PERST#
PCIECKP
PCIECKM
PCIETXP
PCIETXM
PCIERXP
PCIERXM
PCIEREXT
PCIECAP
U2DP0
U2DM0
SSTXP0
SSTXM0
SSRXP0
SSRXM0
UREF0
UCAP0
UV1280
PPWR0
OVCN0
U2DP1
U2DM1
SSTXP1
SSTXM1
SSRXP1
SSRXM1
UREF1
UCAP1
UV1281
PPWR1
OVCN1
XCKSEL0
XCKSEL1
XCK
XSCI
XSCO
PPWRCTL
AUXDET
WAKE#
CLKREQ#
SMI#
ROMSDA
ROMSCL
ROMPRES
U2LNK#
PCIELNK#
SSLNK#
DATTX#
DATRX#
AVCC33X
AGND33
PVCC33X
AVCC10X
AVCC10
DGND
PGND
PVCC250X
PVCC25X
PVCC25X
PVCC25X
DVCC33X
DVCC33
DVCC10X
DVCC10
NC
FL1009[10HP2-6F1009-10R]
(20,21,39,40,41,42,43) O_-PFMRST2
(37) UA_SRCCLK_USB3_F
(37) UA_-SRCCLK_USB3_F
(12) UA_USB3_IP_F
(12) UA_USB3_IN_F
(12) UA_USB3_OP_F
(12) UA_USB3_ON_F
UA_USB_TP
UA_USB_TN
UA_USB_RP
UA_USB_RN
UA_PCIEREXT
UA_PCIECAP
UA_DP0
UA_DM0
UA_SSTXP0
UA_SSTXN0
UA_SSRXP0C
UA_SSRXN0C
UA_UREF0
UA_SSCAP0
UA_V1280
UA_OVCN0
UA_DP1
UA_DM1
UA_SSTXP1
UA_SSTXN1
UA_SSRXP1C
UA_SSRXN1C
UA_UREF1
UA_SSCAP1
UA_V1281
UA_OVCN1
UA_XSCI
UA_XSCO
UA_-F_WAKE
UA_-F_CLKREQ
N_-PCIE_WAKE (11,14,15,17,18,19,39)
N_GPIO15 (11,39)
UA_DVCC33X
UA_AVCC33X
UA_PVCC33X
UA_AVCC10X
UA_AVCC10
UA_PVCC25X
UA_DVCC10X
UA_AVCC10X
3VDUAL
5VDUAL
UA_USB1_05V
UA_USB1_28V
O_-PFMRST2
UAC5 33p/4/NPO/50V/J
UAC22 0.1u/4/X7R/16V/K
UAR16 12K/4/1
UAC4 0.1u/4/X7R/16V/K
UAC3 1u/4/X5R/6.3V/K
UAC2 0.1u/4/X7R/16V/K
UAC10 10U/8/X5R/6.3V/K
UAC9 0.1u/4/X7R/16V/K
UAC13 1u/4/X5R/6.3V/K
UAC16 1u/4/X5R/6.3V/K
UAR25 30/4/4A/S
UAR28 30/4/4A/S
UAC27 10U/8/X5R/6.3V/K
UAC28 0.1u/4/X7R/16V/K
UAC30 0.1u/4/X7R/16V/K
UAC29 1u/4/X5R/6.3V/K
UAC31 1u/4/X5R/6.3V/K
UAC34 0.1u/4/X7R/16V/K
UAC32 0.1u/4/X7R/16V/K
UAC33 1u/4/X5R/6.3V/K
UAC15 0.1u/4/X7R/16V/K
UAC11 0.1u/4/X7R/16V/K
UAC36 1u/4/X5R/6.3V/K
UAC37 1u/4/X5R/6.3V/K
UAR34 4.7K/4
UAR3 8.2K/4/X
UAR4 8.2K/4/X
UAR24 8.2K/4
UAR2 0/4
UAR7 8.2K/4
UAR31 0/4
UAR8 8.2K/4/X
UAC19 0.1u/4/X7R/16V/K
UAC20 0.1u/4/X7R/16V/K
UAC21 0.1u/4/X7R/16V/K
UAC23 0.1u/4/X7R/16V/K
UAR5 12K/4/1
UAC67 2.2n/4/X7R/50V/K
UABC1 4.7u/6/X5R/6.3V/K
UAR17 12K/4/1
UAC61 2.2n/4/X7R/50V/K
UABC2 4.7u/6/X5R/6.3V/K
UAR32 0/4
UAR33 0/4
40mA *2
Pop For Rear USB3 without Front panle cable
UAR1 0/6/X
UAU2
RT9018B-18GSP/SO8/3A
UAR38 8.2K/4
UAR37 8.2K/4
UAR40 2.2/4
UAR39 3.24K/4/1
UAR41 10K/4/1
UAC72 0.1u/4/X7R/16V/K
UAC73 10U/8/X5R/6.3V/K
UAC74 1u/4/X5R/6.3V/K
UAC70 0.1u/4/X7R/16V/K
UAC71 1u/4/X5R/6.3V/K/X
UAC78 22u/8/X5R/6.3V/M
R1
R2
VOUT=0.8*[(R1+R2)/R2]
Rev 1.0C
UAU3
AP7365-WG-7/SOT23-5/600mA
UAR42 604/4/1
UAR43 1K/4/1
UAC75 1u/6/X7R/16V/K
UAC76 22P/4/NPO/50V/J
UAC77 1u/6/X7R/16V/K
Vout=0.8*(R1+R2)/R1
Vout=0.8*(0.604K+1K)/1K=1.2832V
XCLKSEL[1:0]
00 12MHZ XTAL to XSCI/XSCO
01 30MHZ XTAL to XSCI/XSCO
10 48MHZ ref clock to XCK
11 24MHZ ref clock to XCK
UAX1 12M/20p/30ppm/49US/40/D
UAR6 0/4
UAR22 1M/4
UAC24 12p/4/NPO/50V/J
UAC25 12p/4/NPO/50V/J
UAFB2 SMD1812P350SLR/S
UAFB1 SMD1812P350SLR/S
UAEC3 100u/OS/D/6.3V/66/30m
FUSEVCC_UA1
FUSEVCC_UA2
UAR10 8.2K/4
UAR11 15K/4/1
UAR44 8.2K/4
UAR45 15K/4/1
UAC55 0.1u/4/X7R/16V/K
UAC1 0.1u/4/X7R/16V/K
F_USB30
REV=1
BH/2*10K20/BK/ON/2.0/VA/D/GF
UAD4 BAT54A/SOT23/200mA
UAE3 AOZ8902CIL/SOT23-6
UAE1
UAE2
AZ1045-04F/MSOP10
Gigabyte Technology
FL1009 FRONT USB3
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 38 of 44

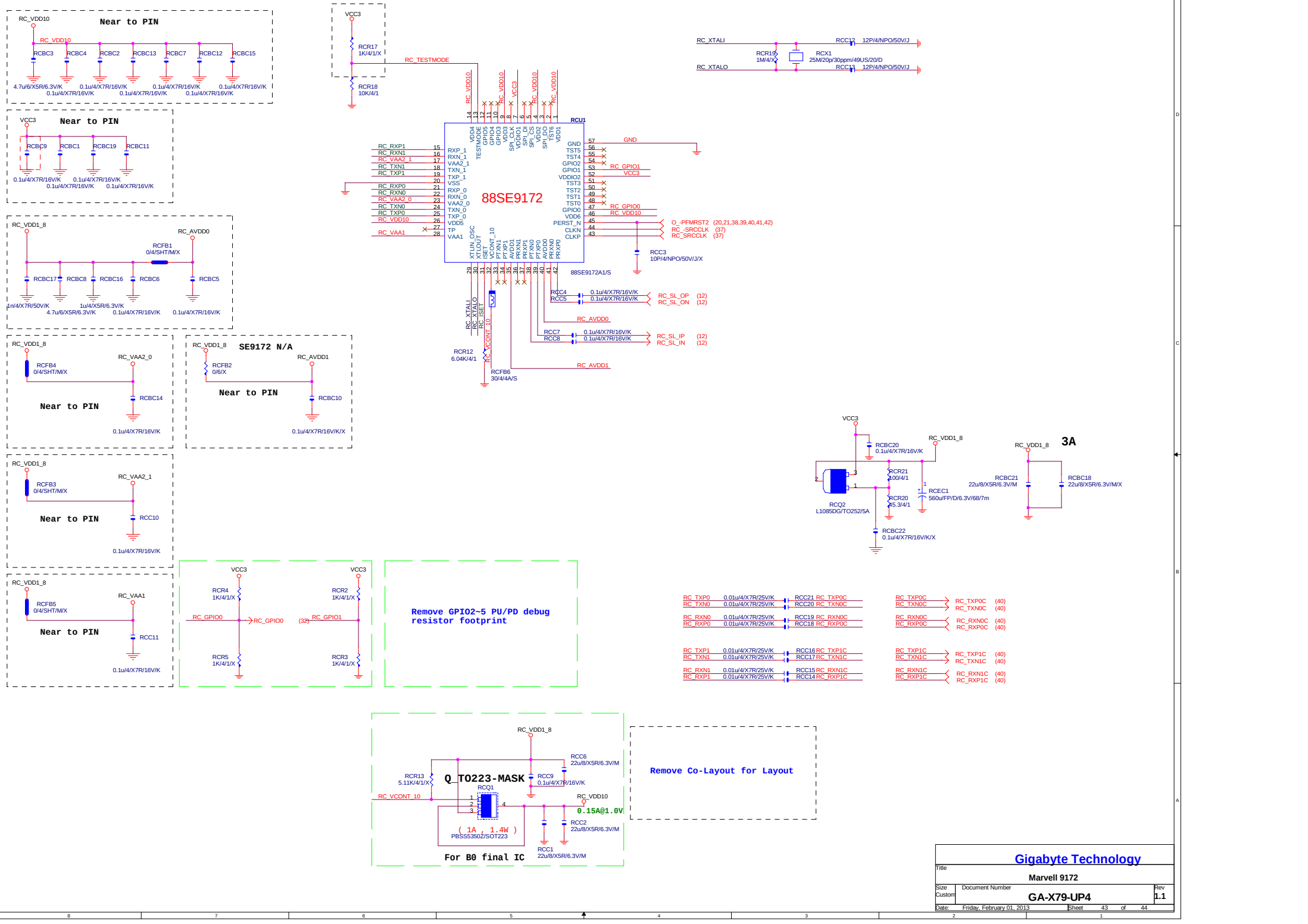

UBU1
PCI-E I/F
USB Port 0 I/F
Analog 3.3v power
USB Port 1 I/F
Analog 1.0v power
Internal power
Crystal
Digital IO power
EEPROM
Digital core power
PERST#
PCIECKP
PCIECKM
PCIETXP
PCIETXM
PCIERXP
PCIERXM
PCIEREXT
PCIECAP
U2DP0
U2DM0
SSTXP0
SSTXM0
SSRXP0
SSRXM0
UREF0
UCAP0
UV1280
PPWR0
OVCN0
U2DP1
U2DM1
SSTXP1
SSTXM1
SSRXP1
SSRXM1
UREF1
UCAP1
UV1281
PPWR1
OVCN1
XCKSEL0
XCKSEL1
XCK
XSCI
XSCO
PPWRCTL
AUXDET
WAKE#
CLKREQ#
SMI#
ROMSDA
ROMSCL
ROMPRES
U2LNK#
PCIELNK#
SSLNK#
DATTX#
DATRX#
AVCC33X
AGND33
PVCC33X
AVCC10X
AVCC10
AGND10
PGND
PVCC250X
PVCC25X
DVCC33X
DVCC33
DVCC10X
DVCC10
DGND
NC
FL1009[10HP2-6F1009-10R]
UB_AVCC33X
UB_PVCC33X
UB_AVCC10X
UB_AVCC10
UB_PVCC25X
UB_DVCC33X
UB_DVCC10X
UB_SSCAP0
UB_SSCAP1
UB_V1280
UB_V1281
UB_UREF0
UB_UREF1
UB_OVCN0
UB_OVCN1
UB_XSCI
UB_XSCO
UB_F_WAKE
UB_F_CLKREQ
UB_PCIEREXT
UB_PCIECAP
UB_USB_TP
UB_USB_TN
UB_USB_RP
UB_USB_RN
N_-PCIE_WAKE (11,14,15,17,18,19,38)
N_GPIO15 (11,38)
O_-PFMRST2
UB_SRCCLK_USB3
UB_-SRCCLK_USB3
UB_USB3_IP_F
UB_USB3_IN_F
UB_USB3_OP_F
UB_USB3_ON_F
DP1
DM1
DP2
DM2
SSTXDP1
SSTXDN1
SSRXDP1
SSRXDN1
SSTXDP2
SSTXDN2
SSRXDP2
SSRXDN2
3VDUAL1
UBR25
UBR28
UBC27
10U/8/X5R/6.3V/K
30/4/4A/S
UB_DVCC33X
UB_AVCC33X
UB_PVCC33X
UB_DVCC10X
UB_AVCC10
UB_AVCC10X
UBR3 8.2K/4/X
UBR4 8.2K/4/X
UBR24 8.2K/4
UBR7 8.2K/4
UBR31 0/4
UBR8 8.2K/4/X
UBR2 0/4
UBR34 4.7K/4
UBC20 10P/4/NPO/50V/J/X
UBC22 0.1u/4/X7R/16V/K
UBR16 12K/4/1
UBR5 12K/4/1
UBC67 2.2n/4/X7R/50V/K
UBC8 4.7u/6/X5R/6.3V/K
UBC61 2.2n/4/X7R/50V/K
UBC14 4.7u/6/X5R/6.3V/K
UBC4 0.1u/4/X7R/16V/K
UBC3 1u/4/X5R/6.3V/K
UBC7 0.1u/4/X7R/16V/K
UBC10 10U/8/X5R/6.3V/K
UBC9 0.1u/4/X7R/16V/K
UBC13 1u/4/X5R/6.3V/K
UBC16 1u/4/X5R/6.3V/K
UBC28 0.1u/4/X7R/16V/K
UBC30 0.1u/4/X7R/16V/K
UBC29 1u/4/X5R/6.3V/K
UBC31 1u/4/X5R/6.3V/K
UBC34 0.1u/4/X7R/16V/K
UBC32 0.1u/4/X7R/16V/K
UBC33 1u/4/X5R/6.3V/K
UBC15 0.1u/4/X7R/16V/K
UBC11 0.1u/4/X7R/16V/K
UBC36 1u/4/X5R/6.3V/K
UBC37 1u/4/X5R/6.3V/K
UBC53 0.1u/4/X7R/16V/K
UBC54 0.1u/4/X7R/16V/K
UBC79 0.1u/4/X7R/16V/K
UBC80 0.1u/4/X7R/16V/K
40mA *2
UB_USB1_28V
UBR32 0/4
UBR33 0/4
Rev 1.0C
UBU3
AP7365-WG-7/SOT23-5/600mA
UBR42 604/4/1
UBR43 1K/4/1
UBC75 1u/6/X7R/16V/K
UBC76 22P/4/NPO/50V/J
UBC77 1u/6/X7R/16V/K
Vout=0.8*(R1+R2)/R1
Vout=0.8*(0.604K+1K)/1K=1.2832V
XCLKSEL[1:0]
00 12MHZ XTAL to XSCI/XSCO
01 30MHZ XTAL to XSCI/XSCO
10 48MHZ ref clock to XCK
11 24MHZ ref clock to XCK
UBX1
12M/20p/30ppm/49US/40/D
UBR6 0/4
UBR22 1M/4
UBC24 12p/4/NPO/50V/J
UBC25 12p/4/NPO/50V/J
UBFB2
UBFB1
SMD1812P350SLR/S
UBEC5 100u/OS/D/6.3V/66/30m
5VDUAL
FUSEVCC_R3
FUSEVCC_R4
R_USB30
USB3.0/2.0
UBC81 0.1u/4/X7/16V/K
UBC12 0.1u/4/X7/16V/K
UBC5 0.1u/4/X7R/16V/K
UBC6 0.1u/4/X7R/16V/K
USB/18P/BU/OS/RA/D/2/1U/SB
Close to R_USB30
90歐姆:[20/4.5/7.5/4.5/20]
UBE3
AOZ8902CIL/SOT23-6
UBE1
UBE2
AZ1045-04F/MSOP10
UBR47 8.2K/4
UBR48 8.2K/4
UBR49 15K/4/1
UBR50 15K/4/1
UB_OVCN0
UB_OVCN1
UBD5
BAT54A/SOT23/200mA
UBR37 8.2K/4
UBR38 8.2K/4
UBR40 2.2/4
UBR39 3.24K/4/1
UBR41 10K/4/1
UBC72 0.1u/4/X7R/16V/K
UBC73 22u/8/X5R/6.3V/M
UBC74 1u/4/X5R/6.3V/K
UBC70 0.1u/4/X7R/16V/K
UBC71 1u/4/X5R/6.3V/K/X
UBC78 22u/8/X5R/6.3V/M
UB_USB1_05V_EN
UB_USB1_05V
VOUT=0.8*[(R1+R2)/R2]
R1
R2
RT9018B-18GSP/SO8/3A
POK
EN
VIN
CNTL
GND
FB
VOUT
REFIN
PAD
Gigabyte Technology
FL1009 REAR USB3
GA-X79-UP4
Size Custom
Document Number
Rev 1.1
Date: Friday, February 01, 2013
Sheet 39 of 44


LU1
WG82579LM/QFN48/S
10HP2-402579-20R
Rev 1.0C
PCIE
MDI
SMBUS
LED
JTAG
PU in PCH
For 82579 Keep short & wide
eSATA+USB
USB_ESATA1
USB_ESATA2
USB_LAN
USB+LAN/1G/GO,Y/OS/RA/D/1
USB+eSATA/7P+8P/BK/RED/RA/D/GF
AZ1045-04F/MSOP10/X
AOZ8902CIL/SOT23-6
SMD1206P200SLR/S
Dual Color LED
Single Color LED
1Gb Orange
100Mb Green
10Mb Off
Access Blinking
Link Yellow
Gigabyte Technology
LEWISVILLE_82579
GA-X79-UP4
Rev 1.1
Friday, February 01, 2013
Sheet 40 of 44


Near to PIN
RA_VDD10
RABC3
RABC4
RABC2
RABC13
RABC7
RABC12
RABC15
4.7u/6/X5R/6.3V/K
0.1u/4/X7R/16V/K
VCC3
RAR17
1K/4/1/X
RA_TESTMODE
RAR18
10K/4/1
RA_XTALI
RA_XTALO
RAR19
1M/4/X
RAX1
25M/20p/30ppm/49US/20/D
RAC12
RAC13
12P/4/NPO/50V/J
88SE9172
RAU1
RA_RXP1
RA_RXN1
RA_VAA2_1
RA_TXN1
RA_TXP1
RA_RXP0
RA_RXN0
RA_VAA2_0
RA_TXN0
RA_TXP0
RA_VDD10
RA_VAA1
GND
RA_GPIO2
RA_GPIO1
RA_GPIO0
O_-PFMRST2 (20,21,38,39,40,42,43)
RA_-SRCCLK (37)
RA_SRCCLK (37)
RAC3
33p/4/NPO/50V/J
88SE9172A1/S
RAC4
RAC5
RA_SL_OP (12)
RA_SL_ON (12)
RAC7
RAC8
RA_SL_IP (12)
RA_SL_IN (12)
RA_AVDD0
RA_AVDD1
RAR12
6.04K/4/1
RAFB6
30/4/4A/S
RA_XTALI
RA_XTALO
RA_ISET
RA_VCONT_10
RAFB1
0/4/SHT/M/X
RABC17
RABC8
RABC16
RABC6
RABC5
1n/4/X7R/50V/K
1u/4/X5R/6.3V/K
RAFB4
RAFB2
0/6/X
SE9172 N/A
RABC14
RABC10
RAFB3
RAC10
RAFB5
RAC11
90歐姆:[15/4.5/7.5/4.5/15]
GSATA3_6_7
RA_TXP1C
RA_TXN1C
RA_RXN1C
RA_RXP1C
RA_TXP0C
RA_TXN0C
RA_RXN0C
RA_RXP0C
SATA/14/GR/H/OP/RA/D/2
Black connector for SATA3
RABC20
0.1u/4/X7R/16V/K
RAR21
100/4/1
RAR20
15.3/4/1
RAEC1
560u/FP/D/6.3V/68/7m
RAQ2
L1085DG/TO252/5A
RABC22
0.1u/4/X7R/16V/K/X
3A
RABC21
22u/8/X5R/6.3V/M
RABC18
22u/8/X5R/6.3V/M/X
RAR4
RAR5
RAR2
RAR3
RA_GPIO0
RA_GPIO1
(32)
RAR7
RAR8
RAR10
RAR11
RAR6
RAR9
RAR12
RAR15
RA_TXP0
RA_TXN0
RA_RXN0
RA_RXP0
RA_TXP1
RA_TXN1
RA_RXN1
RA_RXP1
0.01u/4/X7R/25V/K
RAC21
RAC20
RAC19
RAC18
RAC16
RAC17
RAC15
RAC14
Q_TO223-MASK
RAQ1
RAR13
5.11K/4/1/X
RAC6
22u/8/X5R/6.3V/M
RAC9
0.1u/4/X7R/16V/K
RAC2
RAC1
0.15A@1.0V
(1A , 1.4W)
PBSS5350Z/SOT223
For B0 final IC
VCC1_1_PBG
Remove Co-Layout for Layout
Gigabyte Technology
Title
Marvell 9172
Size
Custom
Document Number
GA-X79-UP4
Rev
1.1
Date:
Friday, February 01, 2013
Sheet
41
of
44



Gigabyte Technology		
Title	Marvell 9172	
Size: Custom	Document Number: GA-X79-UP4	Rev: 1.1
Date: Friday, February 01, 2013	Sheet 42 of 44	


Near to PIN
RC_VDD10
RCBC3
RCBC4
RCBC2
RCBC13
RCBC7
RCBC12
RCBC15
4.7u/6/X5R/6.3V/K
0.1u/4/X7R/16V/K
VCC3
RCR17
1K/4/1/X
RC_TESTMODE
RCR18
10K/4/1
RC_XTALI
RC_XTALO
RCR19
1M/4/X
RCX1
25M/20p/30ppm/49US/20/D
RCC12
12P/4/NPO/50V/J
RCC13
12P/4/NPO/50V/J
RCBC9
RCBC1
RCBC19
RCBC11
RC_VDD1_8
RC_AVDD0
RCFB1
0/4/SHT/M/X
RCBC17
RCBC8
RCBC16
RCBC6
RCBC5
1n/4/X7R/50V/K
1u/4/X5R/6.3V/K
RCU1
88SE9172
88SE9172A1/S
RC_RXP1
RC_RXN1
RC_VAA2_1
RC_TXN1
RC_TXP1
RC_RXP0
RC_RXN0
RC_VAA2_0
RC_TXN0
RC_TXP0
RC_VDD10
RC_VAA1
GND
RC_GPIO1
VCC3
RC_GPIO0
RC_VDD10
O_-PFMRST2 (20,21,38,39,40,41,42)
RC_-SRCCLK (37)
RC_SRCCLK (37)
RCC3
10P/4/NPO/50V/J/X
RCC4
RCC5
0.1u/4/X7R/16V/K
RC_SL_OP (12)
RC_SL_ON (12)
RC_AVDD0
RCC7
RCC8
RC_SL_IP (12)
RC_SL_IN (12)
RCR12
6.04K/4/1
RC_AVDD1
RCFB6
30/4/4A/S
RC_VCONT_10
RC_ISET
RC_XTALO
RC_XTALI
RC_VDD1_8
RCFB4
0/4/SHT/M/X
RC_VAA2_0
RCBC14
0.1u/4/X7R/16V/K
SE9172 N/A
RCFB2
0/6/X
RCBC10
0.1u/4/X7R/16V/K/X
RCFB3
0/4/SHT/M/X
RC_VAA2_1
RCC10
RCFB5
0/4/SHT/M/X
RC_VAA1
RCC11
RCR4
1K/4/1/X
RCR2
1K/4/1/X
RCR5
1K/4/1/X
RCR3
1K/4/1/X
RC_GPIO0
RC_GPIO1
(32)
Remove GPIO2~5 PU/PD debug resistor footprint
VCC3
RCBC20
0.1u/4/X7R/16V/K
RC_VDD1_8
RCR21
100/4/1
RCR20
5.3/4/1
RCEC1
560u/FP/D/6.3V/68/7m
RCQ2
L1085DG/TO252/5A
RCBC22
0.1u/4/X7R/16V/K/X
RC_VDD1_8
3A
RCBC21
22u/8/X5R/6.3V/M
RCBC18
22u/8/X5R/6.3V/M/X
RC_TXP0
RC_TXN0
RC_RXN0
RC_RXP0
RC_TXP1
RC_TXN1
RC_RXN1
RC_RXP1
0.01u/4/X7R/25V/K
RCC21 RC_TXP0C
RCC20 RC_TXN0C
RCC19 RC_RXN0C
RCC18 RC_RXP0C
RCC16 RC_TXP1C
RCC17 RC_TXN1C
RCC15 RC_RXN1C
RCC14 RC_RXP1C
RC_TXP0C (40)
RC_TXN0C (40)
RC_RXN0C (40)
RC_RXP0C (40)
RC_TXP1C (40)
RC_TXN1C (40)
RC_RXN1C (40)
RC_RXP1C (40)
RC_VDD1_8
RCC6
22u/8/X5R/6.3V/M
RCR13
5.11K/4/1/X
Q_TO223-MASK
RCC9
0.1u/4/X7R/16V/K
RCQ1
RC_VCONT_10
RC_VDD10
0.15A@1.0V
RCC2
22u/8/X5R/6.3V/M
(1A , 1.4W)
PBSS5350Z/SOT223
RCC1
22u/8/X5R/6.3V/M
For B0 final IC
Remove Co-Layout for Layout
Gigabyte Technology
Title
Marvell 9172
Size
Custom
Document Number
GA-X79-UP4
Rev
1.1
Date:
Friday, February 01, 2013
Sheet
43
of
44

PCH GPIO

PIN NAME	POWER WELL	USAGE	AFTER PLTRST	S3/S5	NOTES
GP[0]	VCC3	-ICH_PSI	IN		8.2K P/U TO VCC3
GP[1]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[2]	VCC3	-PIRQE	IN		8.2K P/U TO VCC3
GP[3]	VCC3	-PIRQF	IN		8.2K P/U TO VCC3
GP[4]	VCC3	-PIRQG	IN		8.2K P/U TO VCC3
GP[5]	VCC3	-PIRQH	IN		8.2K P/U TO VCC3
GP[6]	VCC3	GPIO6	IN		8.2K P/U TO VCC3
GP[7]	VCC3	GPIO7	IN		8.2K P/U TO VCC3
GP[8]	3VDUAL	GPIO8	OUT		8.2K P/U TO 3VDUAL
GP[9]	3VDUAL	-USBOC5	IN		USB OVER-CURRENT
GP[10]	3VDUAL	-USBOC6	IN		USB OVER-CURRENT
GP[11]	3VDUAL	GPIO11	IN		8.2K P/U TO 3VDUAL
GP[12]	3VDUAL	GPIO12	OUT		8.2K P/U TO 3VDUAL
GP[13]	3VDUAL	-LPCPME	IN		8.2K P/U TO 3VDUAL
GP[14]	3VDUAL	GPIO14	IN		8.2K P/U TO 3VDUAL
GP[15]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL (N/A)
GP[16]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[17]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[18]	VCC3	-SPI_WP0	OUT		8.2K P/U TO VCC3
GP[19]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[20]	VCC3	-SPI_WP1	OUT		8.2K P/U TO VCC3
GP[21]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[22]	VCC3	SPARE	IN		1K P/U TO VCC3
GP[23]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[24]	3VDUAL	-SKTOC	IN		8.2K P/U TO 3VDUAL (N/A)
GP[25]	3VDUAL	GPIO25	OUT		8.2K P/U TO 3VDUAL
GP[26]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL
GP[27]	3VDUAL_PCH	SPARE	OUT		8.2K P/U TO 3VDUAL_PCH
GP[28]	3VDUAL	GPIO28	OUT		8.2K P/U TO 3VDUAL
GP[29]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL (N/A)
GP[30]	3VDUAL	-S_WARN	OUT		CONNECT TO -S_ACK
GP[31]	3VDUAL_PCH	SPARE	IN		8.2K P/U TO 3VDUAL_PCH(N/A)
GP[32]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[33]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[34]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[35]	VCC3	-ACZ_DET	OUT		8.2K P/U TO VCC3
GP[36]	VCC3	SPARE	IN		8.2K P/U TO VCC3(N/A)
GP[37]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[38]	VCC3	SPARE	IN		1K P/U TO VCC3

PIN NAME	POWER WELL	USAGE	AFTER PLTRST	S3/S5	NOTES
GP[39]	VCC3	SPARE	IN		1K P/U TO VCC3
GP[40]	3VDUAL	-USBOC1	IN		USB OVER-CURRENT
GP[41]	3VDUAL	-USBOC2	IN		USB OVER-CURRENT
GP[42]	3VDUAL	-USBOC3	IN		USB OVER-CURRENT
GP[43]	3VDUAL	-USBOC4	IN		USB OVER-CURRENT
GP[44]	3VDUAL	SPARE	IN		1K P/U TO 3VDUAL
GP[45]	3VDUAL	SPARE	IN		1K P/U TO 3VDUAL
GP[46]	3VDUAL	SPARE	IN		1K P/U TO 3VDUAL
GP[47]	3VDUAL	SPARE	IN		1K P/U TO 3VDUAL
GP[48]	VCC3	SPARE	IN		1K P/U TO VCC3
GP[49]	VCC3	SPARE	IN		8.2K P/U TO VCC3
GP[50]	VCC3	-REQ1	OUT		8.2K P/U TO VCC3
GP[51]	VCC3	-GNT1	OUT		1K P/U TO VCC3
GP[52]	VCC3	-REQ2	OUT		8.2K P/U TO VCC3
GP[53]	VCC3	-GNT2	IN		8.2K P/U TO VCC3(N/A)
GP[54]	VCC3	-REQ3	IN		8.2K P/U TO VCC3
GP[55]	VCC3	-GNT3	IN		8.2K P/U TO VCC3(N/A)
GP[56]	3VDUAL	SPARE	IN		8.2K P/U TO 3VDUAL
GP[57]	3VDUAL	SPARE	IN		8.2K P/U TO 3VDUAL
GP[58]	3VDUAL	SML1CLK	OUT		8.2K P/U TO 3VDUAL
GP[59]	3VDUAL	-USBOC0	IN		USB OVER-CURRENT
GP[60]	3VDUAL	SML0ART	OUT		1K P/U TO 3VDUAL
GP[61]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL
GP[62]	3VDUAL	SUSCLK	OUT		8.2K P/U TO 3VDUAL(N/A)
GP[63]	3VDUAL	-SLP_S5	OUT		8.2K P/U TO 3VDUAL(N/A)
GP[64]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[65]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[66]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[67]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[68]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[69]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[70]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[71]	VCC3	SPARE	OUT		8.2K P/U TO VCC3
GP[72]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL
GP[73]	3VDUAL	SPARE	OUT		8.2K P/U TO 3VDUAL
GP[74]	3VDUAL	SML1ART	OUT		1K P/U TO 3VDUAL
GP[75]	3VDUAL	SML1DAT	IN/OUT		8.2K P/U TO 3VDUAL

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Title: PCH GPIO LIST

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Date: Friday, February 01, 2013 | Sheet 44 of 44