Model Name: GA-X99-UD4

Rev 1.01

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04-06	CPU_LGA2011-DDR
07	CPU_LGA2011-CTRL
08	CPU_LGA2011-PCIE_DMI
09-10	CPU_LGA2011-PWR
11	PCH_SATA
12	PCH_GPIO_AUDIO
13	PCH_DMI_USB_PCIE
14-15	PCH_PWR_GND
16-17	DDR III CHANNEL A/B
18-19	DDR III CHANNEL C/D
20	PCI EXPRESS X16 SLOT 2
21	PCI EXPRESS X16 SLOT 1
22	PCI EXPRESSX16_X8 SWITCH
23	PCI EXPRESS X8 SLOT 2
24	PCI EXPRESS X8 SLOT 1
25	PCI EXPRESS X1
26	ITE 8620 SIO
27	DUAL BIOS
28-29	VCORE IR3580+3553
30	DDR CH A/B & CH C/D IR3553
31	VPP25 CH A/B & CH C/D IR3553
32	DDR CH A/B & VPP25 IR3570A
33	DDR CH C/D & VPP25 IR3570A
34	VCC1_05_WBG RT8120

SHEET	TITLE
35-36	DISCRETE POWER
37	ATX power
38	HWM ,FAN CTRL , EC FAN CTRL
39	PCIE CLK BUFFER
40	CPU CLK BUFFER
41	IT8791 EC
42	IT8951
43	M2 SLOT
44	M2 WIFI SLOT
45-47	AL1150 & AMP
48	INTEL LAN I218
49	LAN & AUDIO Connector
50-51	HUB & POWER (A)
52	R_USB30/R_USB Connector
53	PS2/USB & HS
54	F_USB30 & F_USB20
55	Front Panel,TPM
56	Sound Level
57	PCH GPIO LIST
58	POSITION

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 1 of 58

GA-X99-UD4

Component value change history

Data	Change Item	Reason
2014/05/09	9MX99UD3-00-01	
2014/05/09 X99-UD3-0.1	1. 注意SLOT配色 2. DAR7=6.49K/4/1 , DAR3=10K/4/1 3. AUDIO connect change to "11NR6-403025-A2R" 4. WIFI天線:12AC2-000001-31R	
2014/07/07 X99-UD4-0.1	1. UPDATE HEATSINK 料號	
2014/07/18 X99-UD4-1.0	1. REMOVE DAJP1 2. REMOVE IT_PH pin header 3. REMOVE BIOS_PH , M_BIOS SOCKET 4. Add NR305=1K/4/1,NR190=1K/4/1 , REMOVE R202=8.2K/4	
2014/07/24 1.0B	1. Remove CKFB8 , 改上 CKFB7=30/4/4A/S 2. MAR6 0/4 --> 2.2/4	
2014/08/04 1.0C	1. Remove ECBR9,ECBR10=8.2K/4	
2014/08/25 1.0D	1. Remove M2 GPIO73 pull-up NR57=8.2K/4 2. NR97 1M/4 --> 10M/4 , BAT放電後, 開機延遲問題	

Circuit or PCB layout change

DATE	Change Item	Reason
2014-05-16 X99-UD3-0.1	X99-ROG Rev0.2 --> X99-UD3 Rev0.1 1. LAN E2201-->i218 (COPY X99-SOC-Force_01B) 2. AUDIO Creativer -->ALC1150 (COPY X99-SOC-Force_01B) 3. Add TPM Connect 4. Remove USB_DAC power	
2014-07-07 X99-UD4-0.1	1. IT8951 的PIN7 & PIN8留測試點方便debug 2. Modify IR3556 FAULT control circuit 3. Remove "BAT" to PCIE8_2 右邊 4. DDR_LED mapping DDR SLOT 5. Add OC panel 6. Remove MAF1,MAF2,MBF1,MBF2 7. Add SATA/SATA EXPRESS/M2 change to 0 OHM SHORT AD 8. Add EC power diable control in S3 MODE 9. ALL 0 ohm --> 0 ohm short pad	
2014-07-18 X99-UD4-1.0	1. 鏤空GIGABYTE logo移除 2. SATA EXPRESS 文字面確認 3. BIOS_PH mask 4. IT_PH,IT1_PH,ITB_PH,ITB_PH2 --> R0603-RH 4. Add CD2 for AC OFF POP-NOISE 5. EC POWER DISABLE IO_GP95 --> IO_GP67 6. Add ECR35 7. Add N_GPIO53 pull-down "NR305" 8. Add ECR150 For IT8792 ERP Function 9. NRN10 changt to short pad 10. DDR4 SLOT NAME CHANGE "DDR4_1_1A~DDR4_8_2D 11. PCIE SLOT NAME CHANGE "PCIE_1~PCIE_7 12. LED NAME CHANGE "PE2_LED~PE4_LED" 13. ECR142,ECR143 short pad change to "R0402-2"	
2014-07-21 X99-UD4-1.01	1. NR292,NR293,WR60,WR61,WR63,WR65 change to "R0402-2"	
UPDATE	1. NX2 update footprint "XTALS-RH-N"	

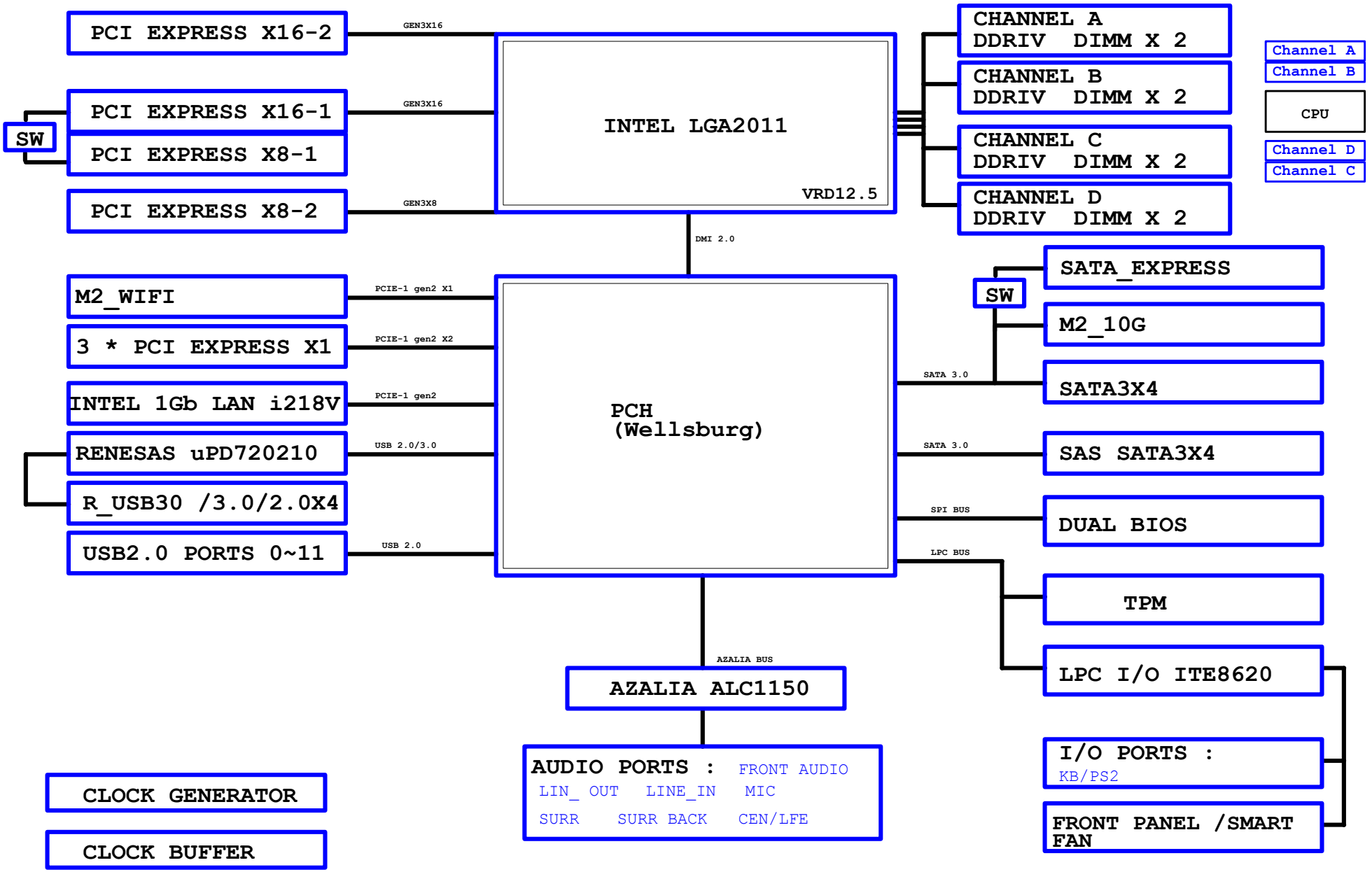
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

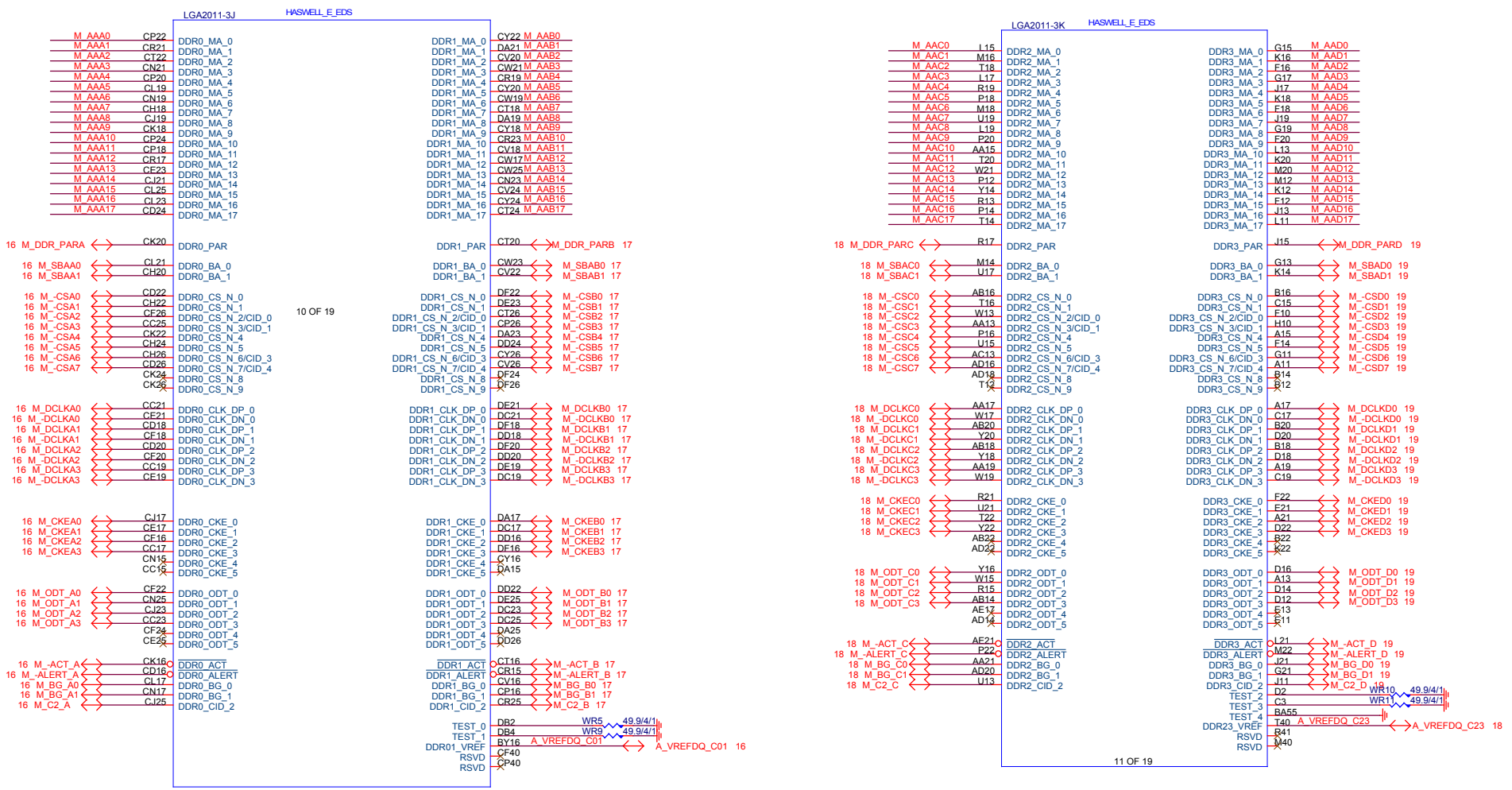
Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

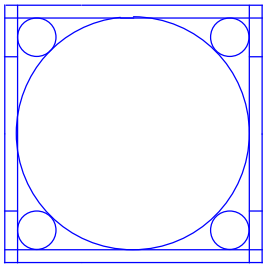
Date: Monday, August 25, 2014 | Sheet 2 of 58

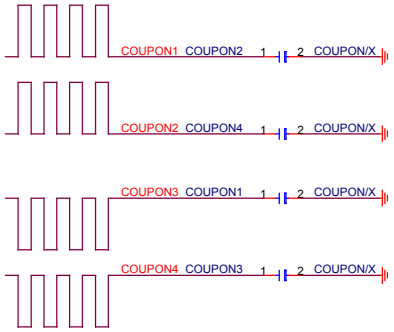
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 3 of 58	







Gigabyte Technology			
Title: CPU LGA2011-A			
Size: Custom	Document Number: GA-X99-UD4		Rev: 1.01
Date: Monday, August 25, 2014	Sheet 4 of 58		

CHANNEL A

LGA2011-3F

HASWELL_E_EDS

M_DA0	BU7	DDR0_DQ_0	DDR0_DQS_DP_0	BY6	M_DQSA0
M_DA1	BT6	DDR0_DQ_1	DDR0_DQS_DN_0	BY6	M_-DQSA0
M_DA2	CA9	DDR0_DQ_2			
M_DA3	CB8	DDR0_DQ_3	DDR0_DQS_DP_1	BV12	M_DQSA1
M_DA4	BT8	DDR0_DQ_4	DDR0_DQS_DN_1	BW11	M_-DQSA1
M_DA5	BU9	DDR0_DQ_5			
M_DA6	CA7	DDR0_DQ_6	DDR0_DQS_DP_2	CH10	M_DQSA2
M_DA7	CB6	DDR0_DQ_7	DDR0_DQS_DN_2	CG11	M_-DQSA2
M_DA8	BT12	DDR0_DQ_8			
M_DA9	BU11	DDR0_DQ_9	DDR0_DQS_DP_3	CK14	M_DQSA3
M_DA10	BW13	DDR0_DQ_10	DDR0_DQS_DN_3	CJ13	M_-DQSA3
M_DA11	BY14	DDR0_DQ_11			
M_DA12	BT14	DDR0_DQ_12	DDR0_DQS_DP_4	CK30	M_DQSA4
M_DA13	BU15	DDR0_DQ_13	DDR0_DQS_DN_4	CM30	M_-DQSA4
M_DA14	CA11	DDR0_DQ_14			
M_DA15	BY12	DDR0_DQ_15	DDR0_DQS_DP_5	CD30	M_DQSA5
M_DA16	CE9	DDR0_DQ_16	DDR0_DQS_DN_5	CF30	M_-DQSA5
M_DA17	CF8	DDR0_DQ_17			
M_DA18	CK10	DDR0_DQ_18	DDR0_DQS_DP_6	CC37	M_DQSA6
M_DA19	CJ11	DDR0_DQ_19	DDR0_DQS_DN_6	CE37	M_-DQSA6
M_DA20	CD10	DDR0_DQ_20			
M_DA21	CE11	DDR0_DQ_21	DDR0_DQS_DP_7	CJ37	M_DQSA7
M_DA22	CK8	DDR0_DQ_22	DDR0_DQS_DN_7	CL37	M_-DQSA7
M_DA23	CJ9	DDR0_DQ_23			
M_DA24	CE13	DDR0_DQ_24	DDR0_DQS_DP_8	CV10	
M_DA25	CG15	DDR0_DQ_25	DDR0_DQS_DN_8	CT10	
M_DA26	CM14	DDR0_DQ_26			
M_DA27	CH14	DDR0_DQ_27	DDR0_DQS_DP_9	BV8	
M_DA28	CC13	DDR0_DQ_28	DDR0_DQS_DN_9	BW9	
M_DA29	CD14	DDR0_DQ_29			
M_DA30	CM12	DDR0_DQ_30	DDR0_DQS_DP_10	BU13	
M_DA31	CL13	DDR0_DQ_31	DDR0_DQS_DN_10	BV14	
M_DA32	CK28	DDR0_DQ_32			
M_DA33	CH28	DDR0_DQ_33	DDR0_DQS_DP_11	CG9	
M_DA34	CK32	DDR0_DQ_34	DDR0_DQS_DN_11	CH8	
M_DA35	CH32	DDR0_DQ_35			
M_DA36	CL27	DDR0_DQ_36	DDR0_DQS_DP_12	CG13	
M_DA37	CJ27	DDR0_DQ_37	DDR0_DQS_DN_12	CF14	
M_DA38	CL31	DDR0_DQ_38			
M_DA39	CJ31	DDR0_DQ_39	DDR0_DQS_DP_13	CL29	
M_DA40	CD28	DDR0_DQ_40	DDR0_DQS_DN_13	CJ29	
M_DA41	CB28	DDR0_DQ_41			
M_DA42	CD32	DDR0_DQ_42	DDR0_DQS_DP_14	CE29	
M_DA43	CB32	DDR0_DQ_43	DDR0_DQS_DN_14	CC29	
M_DA44	CE27	DDR0_DQ_44			
M_DA45	CC27	DDR0_DQ_45	DDR0_DQS_DP_15	CF36	
M_DA46	CE31	DDR0_DQ_46	DDR0_DQS_DN_15	CD36	
M_DA47	CC31	DDR0_DQ_47			
M_DA48	CE35	DDR0_DQ_48	DDR0_DQS_DP_16	CM36	
M_DA49	CC35	DDR0_DQ_49	DDR0_DQS_DN_16	CK36	
M_DA50	CE39	DDR0_DQ_50			
M_DA51	CC39	DDR0_DQ_51	DDR0_DQS_DP_17	CU9	
M_DA52	CF34	DDR0_DQ_52	DDR0_DQS_DN_17	CW9	
M_DA53	CD34	DDR0_DQ_53			
M_DA54	CF38	DDR0_DQ_54			
M_DA55	CD38	DDR0_DQ_55			
M_DA56	CL35	DDR0_DQ_56			
M_DA57	CJ35	DDR0_DQ_57			
M_DA58	CL39	DDR0_DQ_58			
M_DA59	CJ39	DDR0_DQ_59			
M_DA60	CM34	DDR0_DQ_60			
M_DA61	CK34	DDR0_DQ_61			
M_DA62	CM38	DDR0_DQ_62			
M_DA63	CK38	DDR0_DQ_63			

CT8	DDR0_ECC_0	
CV8	DDR0_ECC_1	
CW11	DDR0_ECC_2	
CU11	DDR0_ECC_3	
CP8	DDR0_ECC_4	
CN9	DDR0_ECC_5	
CP10	DDR0_ECC_6	
CR11	DDR0_ECC_7	

6 OF 19

CHANNEL B

LGA2011-3G

HASWELL_E_EDS

M_DB0	BV4	DDR1_DQ_0	DDR1_DQS_DP_0	BY4	M_DQSB0
M_DB1	BU1	DDR1_DQ_1	DDR1_DQS_DN_0	BW3	M_-DQSB0
M_DB2	CA3	DDR1_DQ_2			
M_DB3	CB4	DDR1_DQ_3	DDR1_DQS_DP_1	CJ5	M_DQSB1
M_DB4	BT4	DDR1_DQ_4	DDR1_DQS_DN_1	CH6	M_-DQSB1
M_DB5	BT2	DDR1_DQ_5			
M_DB6	CA1	DDR1_DQ_6	DDR1_DQS_DP_2	CT4	M_DQSB2
M_DB7	BY2	DDR1_DQ_7	DDR1_DQS_DN_2	CV4	M_-DQSB2
M_DB8	CE3	DDR1_DQ_8			
M_DB9	CF4	DDR1_DQ_9	DDR1_DQS_DP_3	DB10	M_DQSB3
M_DB10	CL5	DDR1_DQ_10	DDR1_DQS_DN_3	DC9	M_-DQSB3
M_DB11	CM4	DDR1_DQ_11			
M_DB12	CE5	DDR1_DQ_12	DDR1_DQS_DP_4	CT30	M_DQSB4
M_DB13	CF6	DDR1_DQ_13	DDR1_DQS_DN_4	CV30	M_-DQSB4
M_DB14	CK6	DDR1_DQ_14			
M_DB15	CL3	DDR1_DQ_15	DDR1_DQS_DP_5	DD32	M_DQSB5
M_DB16	CR3	DDR1_DQ_16	DDR1_DQS_DN_5	DB32	M_-DQSB5
M_DB17	CV2	DDR1_DQ_17			
M_DB18	CT6	DDR1_DQ_18	DDR1_DQS_DP_6	CR37	M_DQSB6
M_DB19	CP6	DDR1_DQ_19	DDR1_DQS_DN_6	CU37	M_-DQSB6
M_DB20	CR1	DDR1_DQ_20			
M_DB21	CP2	DDR1_DQ_21	DDR1_DQS_DP_7	DB38	M_DQSB7
M_DB22	CU5	DDR1_DQ_22	DDR1_DQS_DN_7	DA37	M_-DQSB7
M_DB23	CR5	DDR1_DQ_23			
M_DB24	DA7	DDR1_DQ_24	DDR1_DQS_DP_8	DB14	
M_DB25	DB8	DDR1_DQ_25	DDR1_DQS_DN_8	DA13	
M_DB26	DE11	DDR1_DQ_26			
M_DB27	DC11	DDR1_DQ_27	DDR1_DQS_DP_9	BV2	
M_DB28	DA5	DDR1_DQ_28	DDR1_DQS_DN_9	BW1	
M_DB29	CY6	DDR1_DQ_29			
M_DB30	DE9	DDR1_DQ_30	DDR1_DQS_DP_10	CH4	
M_DB31	DF10	DDR1_DQ_31	DDR1_DQS_DN_10	CG3	
M_DB32	CT28	DDR1_DQ_32			
M_DB33	CP28	DDR1_DQ_33	DDR1_DQS_DP_11	CW3	
M_DB34	CT32	DDR1_DQ_34	DDR1_DQS_DN_11	CU3	
M_DB35	CP32	DDR1_DQ_35			
M_DB36	CU27	DDR1_DQ_36	DDR1_DQS_DP_12	DC7	
M_DB37	CR27	DDR1_DQ_37	DDR1_DQS_DN_12	DD8	
M_DB38	CU31	DDR1_DQ_38			
M_DB39	CR31	DDR1_DQ_39	DDR1_DQS_DP_13	CU29	
M_DB40	DA29	DDR1_DQ_40	DDR1_DQS_DN_13	CR29	
M_DB41	DB30	DDR1_DQ_41			
M_DB42	DC33	DDR1_DQ_42	DDR1_DQS_DP_14	DA31	
M_DB43	DF34	DDR1_DQ_43	DDR1_DQS_DN_14	CY32	
M_DB44	DB28	DDR1_DQ_44			
M_DB45	CY28	DDR1_DQ_45	DDR1_DQS_DP_15	CV36	
M_DB46	DA33	DDR1_DQ_46	DDR1_DQS_DN_15	CT36	
M_DB47	DE33	DDR1_DQ_47			
M_DB48	CU35	DDR1_DQ_48	DDR1_DQS_DP_16	DD36	
M_DB49	CR35	DDR1_DQ_49	DDR1_DQS_DN_16	DE37	
M_DB50	CU39	DDR1_DQ_50			
M_DB51	CR39	DDR1_DQ_51	DDR1_DQS_DP_17	CW13	
M_DB52	CV34	DDR1_DQ_52	DDR1_DQS_DN_17	CY14	
M_DB53	CT34	DDR1_DQ_53			
M_DB54	CV38	DDR1_DQ_54			
M_DB55	CT38	DDR1_DQ_55			
M_DB56	DC37	DDR1_DQ_56			
M_DB57	DF36	DDR1_DQ_57			
M_DB58	DC39	DDR1_DQ_58			
M_DB59	DA39	DDR1_DQ_59			
M_DB60	DC35	DDR1_DQ_60			
M_DB61	DB36	DDR1_DQ_61			
M_DB62	DF38	DDR1_DQ_62			
M_DB63	DE39	DDR1_DQ_63			

CU13	DDR1_ECC_0	
CV14	DDR1_ECC_1	
DD14	DDR1_ECC_2	
DF14	DDR1_ECC_3	
CR13	DDR1_ECC_4	
CT14	DDR1_ECC_5	
DC13	DDR1_ECC_6	
DE13	DDR1_ECC_7	

7 OF 19

16 M_DA[0..63] ↔ M_DA[0..63]

16 M_DQSA[0..7] ↔ M_DQSA[0..7]

16 M_-DQSA[0..7] ↔ M_-DQSA[0..7]

17 M_DB[0..63] ↔ M_DB[0..63]

17 M_DQSB[0..7] ↔ M_DQSB[0..7]

17 M_-DQSB[0..7] ↔ M_-DQSB[0..7]

Gigabyte Technology			
Title: CPU LGA2011-A			
Size: Custom	Document Number: GA-X99-UD4		Rev: 1.01
Date: Monday, August 25, 2014	Sheet 5 of 58		

CHANNEL C

LGA2011-3H HASWELL_E_EDS

M_DC0	AD38	DDR2_DQ_0	DDR2_DQS_DP_0	V38	M_DQSC0
M_DC1	AA37	DDR2_DQ_1	DDR2_DQS_DN_0	W37	M_-DQSC0
M_DC2	R37	DDR2_DQ_2			
M_DC3	Y38	DDR2_DQ_3	DDR2_DQS_DP_1	U31	M_DQSC1
M_DC4	AE37	DDR2_DQ_4	DDR2_DQS_DN_1	V32	M_-DQSC1
M_DC5	AC39	DDR2_DQ_5			
M_DC6	T38	DDR2_DQ_6	DDR2_DQS_DP_2	AB32	M_DQSC2
M_DC7	U37	DDR2_DQ_7	DDR2_DQS_DN_2	AD32	M_-DQSC2
M_DC8	V34	DDR2_DQ_8			
M_DC9	U33	DDR2_DQ_9	DDR2_DQS_DP_3	U25	M_DQSC3
M_DC10	V30	DDR2_DQ_10	DDR2_DQS_DN_3	W25	M_-DQSC3
M_DC11	T30	DDR2_DQ_11			
M_DC12	U35	DDR2_DQ_12	DDR2_DQS_DP_4	N7	M_DQSC4
M_DC13	R35	DDR2_DQ_13	DDR2_DQS_DN_4	P8	M_-DQSC4
M_DC14	T32	DDR2_DQ_14			
M_DC15	W31	DDR2_DQ_15	DDR2_DQS_DP_5	AB10	M_DQSC5
M_DC16	AD34	DDR2_DQ_16	DDR2_DQS_DN_5	Y10	M_-DQSC5
M_DC17	AB34	DDR2_DQ_17			
M_DC18	AD30	DDR2_DQ_18	DDR2_DQS_DP_6	AH12	M_DQSC6
M_DC19	AB30	DDR2_DQ_19	DDR2_DQS_DN_6	AJ13	M_-DQSC6
M_DC20	AC35	DDR2_DQ_20			
M_DC21	AA35	DDR2_DQ_21	DDR2_DQS_DP_7	AJ7	M_DQSC7
M_DC22	AE31	DDR2_DQ_22	DDR2_DQS_DN_7	AH8	M_-DQSC7
M_DC23	AC31	DDR2_DQ_23			
M_DC24	U27	DDR2_DQ_24	DDR2_DQS_DP_8	AC25	
M_DC25	R27	DDR2_DQ_25	DDR2_DQS_DN_8	AE25	
M_DC26	U23	DDR2_DQ_26			
M_DC27	R23	DDR2_DQ_27	DDR2_DQS_DP_9	AB38	
M_DC28	V28	DDR2_DQ_28	DDR2_DQS_DN_9	AC37	
M_DC29	T28	DDR2_DQ_29			
M_DC30	V24	DDR2_DQ_30	DDR2_DQS_DP_10	T34	
M_DC31	T24	DDR2_DQ_31	DDR2_DQS_DN_10	R33	
M_DC32	N9	DDR2_DQ_32			
M_DC33	K8	DDR2_DQ_33	DDR2_DQS_DP_11	AC33	
M_DC34	R7	DDR2_DQ_34	DDR2_DQS_DN_11	AA33	
M_DC35	P6	DDR2_DQ_35			
M_DC36	J9	DDR2_DQ_36	DDR2_DQS_DP_12	V26	
M_DC37	L9	DDR2_DQ_37	DDR2_DQS_DN_12	T26	
M_DC38	K6	DDR2_DQ_38			
M_DC39	M6	DDR2_DQ_39	DDR2_DQS_DP_13	M8	
M_DC40	U9	DDR2_DQ_40	DDR2_DQS_DN_13	L7	
M_DC41	W11	DDR2_DQ_41			
M_DC42	AA11	DDR2_DQ_42	DDR2_DQS_DP_14	V8	
M_DC43	AB8	DDR2_DQ_43	DDR2_DQS_DN_14	W9	
M_DC44	T10	DDR2_DQ_44			
M_DC45	U11	DDR2_DQ_45	DDR2_DQS_DP_15	AH16	
M_DC46	AA9	DDR2_DQ_46	DDR2_DQS_DN_15	AJ15	
M_DC47	Y8	DDR2_DQ_47			
M_DC48	AE11	DDR2_DQ_48	DDR2_DQS_DP_16	AH10	
M_DC49	AF12	DDR2_DQ_49	DDR2_DQS_DN_16	AJ9	
M_DC50	AK12	DDR2_DQ_50			
M_DC51	AL13	DDR2_DQ_51	DDR2_DQS_DP_17	AD26	
M_DC52	AG15	DDR2_DQ_52	DDR2_DQS_DN_17	AB26	
M_DC53	AF14	DDR2_DQ_53			
M_DC54	AK14	DDR2_DQ_54			
M_DC55	AL15	DDR2_DQ_55			
M_DC56	AG9	DDR2_DQ_56			
M_DC57	AG7	DDR2_DQ_57			
M_DC58	AK10	DDR2_DQ_58			
M_DC59	AL9	DDR2_DQ_59			
M_DC60	AE7	DDR2_DQ_60			
M_DC61	AF9	DDR2_DQ_61			
M_DC62	AK8	DDR2_DQ_62			
M_DC63	AL7	DDR2_DQ_63			
	AC27				
	AA27	DDR2_ECC_0			
	AC23	DDR2_ECC_1			
	AA23	DDR2_ECC_2			
	AD28	DDR2_ECC_3			
	AB28	DDR2_ECC_4			
	AD24	DDR2_ECC_5			
	AB24	DDR2_ECC_6			
		DDR2_ECC_7			

8 OF 19

18 M_DC[0..63] → M_DC[0..63]

18 M_DQSC[0..7] → M_DQSC[0..7]

18 M_-DQSC[0..7] → M_-DQSC[0..7]

CHANNEL D

LGA2011-3I HASWELL_E_EDS

M_DD0	D38	DDR3_DQ_0	DDR3_DQS_DP_0	E37	M_DQSD0
M_DD1	B38	DDR3_DQ_1	DDR3_DQS_DN_0	C37	M_-DQSD0
M_DD2	L37	DDR3_DQ_2			
M_DD3	M38	DDR3_DQ_3	DDR3_DQS_DP_1	B32	M_DQSD1
M_DD4	C39	DDR3_DQ_4	DDR3_DQS_DN_1	A33	M_-DQSD1
M_DD5	J39	DDR3_DQ_5			
M_DD6	G37	DDR3_DQ_6	DDR3_DQS_DP_2	M32	M_DQSD2
M_DD7	K38	DDR3_DQ_7	DDR3_DQS_DN_2	K32	M_-DQSD2
M_DD8	A35	DDR3_DQ_8			
M_DD9	B34	DDR3_DQ_9	DDR3_DQS_DP_3	E25	M_DQSD3
M_DD10	G31	DDR3_DQ_10	DDR3_DQS_DN_3	G25	M_-DQSD3
M_DD11	E31	DDR3_DQ_11			
M_DD12	F34	DDR3_DQ_12	DDR3_DQS_DP_4	H2	M_DQSD4
M_DD13	E35	DDR3_DQ_13	DDR3_DQS_DN_4	G3	M_-DQSD4
M_DD14	D32	DDR3_DQ_14			
M_DD15	E33	DDR3_DQ_15	DDR3_DQS_DP_5	E7	M_DQSD5
M_DD16	K34	DDR3_DQ_16	DDR3_DQS_DN_5	C7	M_-DQSD5
M_DD17	M34	DDR3_DQ_17			
M_DD18	K30	DDR3_DQ_18	DDR3_DQS_DP_6	AK2	M_DQSD6
M_DD19	M30	DDR3_DQ_19	DDR3_DQS_DN_6	AJ1	M_-DQSD6
M_DD20	J35	DDR3_DQ_20			
M_DD21	L35	DDR3_DQ_21	DDR3_DQS_DP_7	AB4	M_DQSD7
M_DD22	L31	DDR3_DQ_22	DDR3_DQS_DN_7	AA5	M_-DQSD7
M_DD23	N31	DDR3_DQ_23			
M_DD24	F28	DDR3_DQ_24	DDR3_DQS_DP_8	L25	
M_DD25	F27	DDR3_DQ_25	DDR3_DQS_DN_8	N25	
M_DD26	F24	DDR3_DQ_26			
M_DD27	E23	DDR3_DQ_27	DDR3_DQS_DP_9	E38	
M_DD28	G29	DDR3_DQ_28	DDR3_DQS_DN_9	H38	
M_DD29	F29	DDR3_DQ_29			
M_DD30	C25	DDR3_DQ_30	DDR3_DQS_DP_10	C35	
M_DD31	B24	DDR3_DQ_31	DDR3_DQS_DN_10	D34	
M_DD32	K4	DDR3_DQ_32			
M_DD33	H4	DDR3_DQ_33	DDR3_DQS_DP_11	J33	
M_DD34	J1	DDR3_DQ_34	DDR3_DQS_DN_11	L33	
M_DD35	L1	DDR3_DQ_35			
M_DD36	P4	DDR3_DQ_36	DDR3_DQS_DP_12	F26	
M_DD37	N3	DDR3_DQ_37	DDR3_DQS_DN_12	D26	
M_DD38	K2	DDR3_DQ_38			
M_DD39	R3	DDR3_DQ_39	DDR3_DQS_DP_13	M4	
M_DD40	F9	DDR3_DQ_40	DDR3_DQS_DN_13	L3	
M_DD41	F8	DDR3_DQ_41			
M_DD42	E5	DDR3_DQ_42	DDR3_DQS_DP_14	B8	
M_DD43	F6	DDR3_DQ_43	DDR3_DQS_DN_14	D8	
M_DD44	C9	DDR3_DQ_44			
M_DD45	A9	DDR3_DQ_45	DDR3_DQS_DP_15	AH4	
M_DD46	D6	DDR3_DQ_46	DDR3_DQS_DN_15	AJ5	
M_DD47	G7	DDR3_DQ_47			
M_DD48	AG3	DDR3_DQ_48	DDR3_DQS_DP_16	Y6	
M_DD49	AG1	DDR3_DQ_49	DDR3_DQS_DN_16	W5	
M_DD50	AL3	DDR3_DQ_50			
M_DD51	AL5	DDR3_DQ_51	DDR3_DQS_DP_17	M26	
M_DD52	AG5	DDR3_DQ_52	DDR3_DQS_DN_17	K26	
M_DD53	AF3	DDR3_DQ_53			
M_DD54	AJ3	DDR3_DQ_54			
M_DD55	AL1	DDR3_DQ_55			
M_DD56	V4	DDR3_DQ_56			
M_DD57	W3	DDR3_DQ_57			
M_DD58	AC5	DDR3_DQ_58			
M_DD59	AE5	DDR3_DQ_59			
M_DD60	U5	DDR3_DQ_60			
M_DD61	V6	DDR3_DQ_61			
M_DD62	AC3	DDR3_DQ_62			
M_DD63	AB6	DDR3_DQ_63			
	L27				
	J27	DDR3_ECC_0			
	L23	DDR3_ECC_1			
	J23	DDR3_ECC_2			
	K28	DDR3_ECC_3			
	M28	DDR3_ECC_4			
	M24	DDR3_ECC_5			
	K24	DDR3_ECC_6			
		DDR3_ECC_7			

9 OF 19

19 M_DD[0..63] → M_DD[0..63]

19 M_DQSD[0..7] → M_DQSD[0..7]

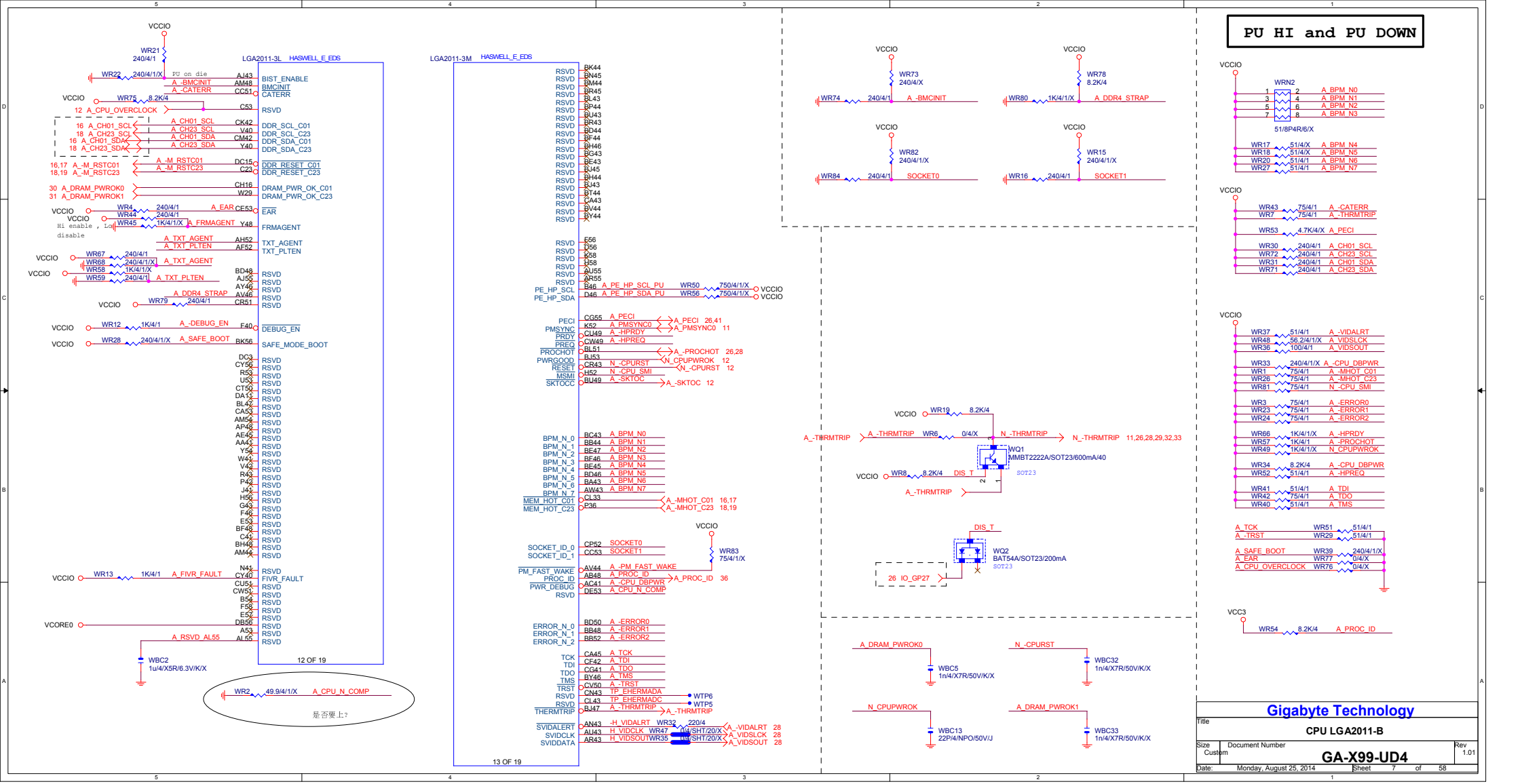
19 M_-DQSD[0..7] → M_-DQSD[0..7]

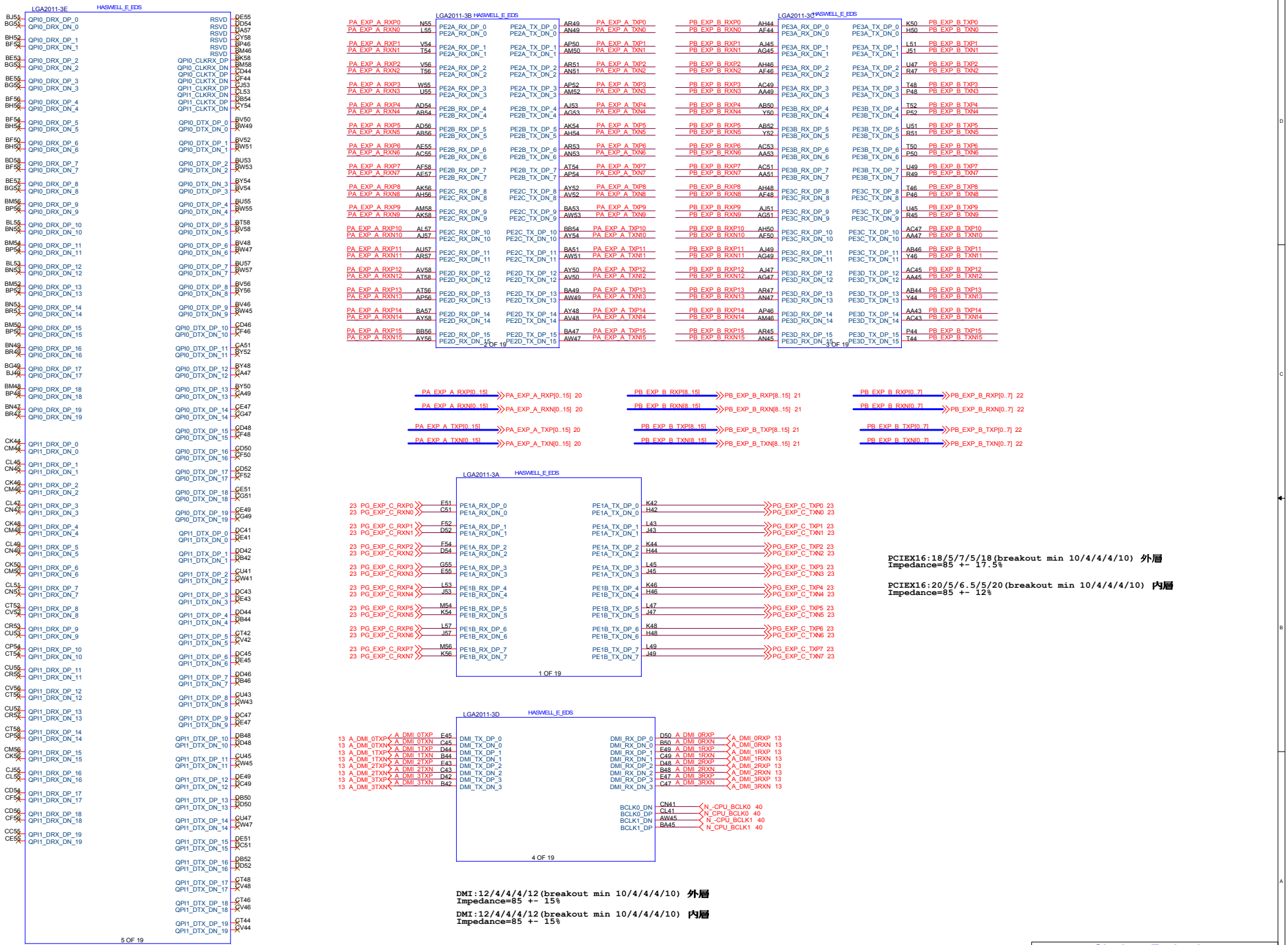
Gigabyte Technology

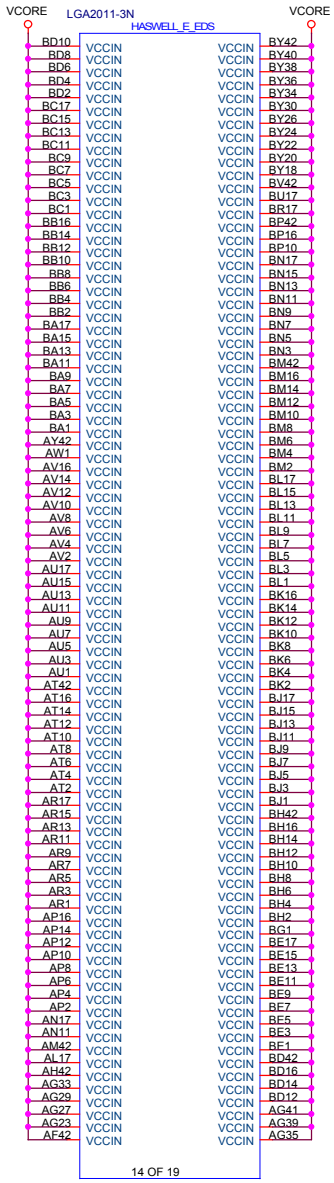
Title: **CPU LGA2011-A**

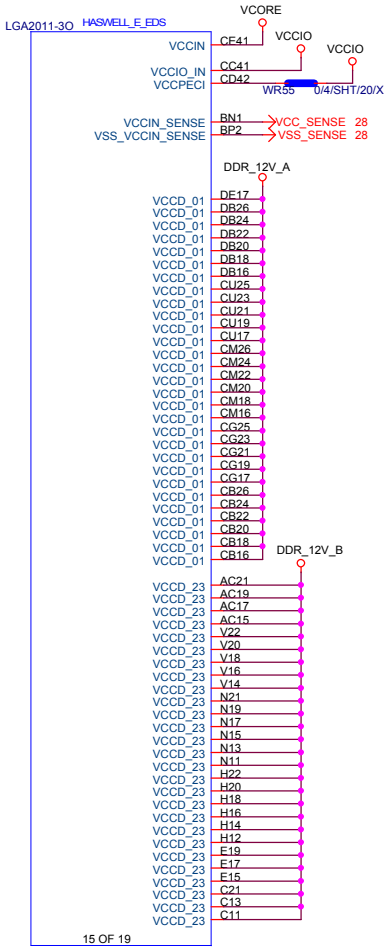
Size: Custom | Document Number: **GA-X99-UD4** | Rev: 1.01

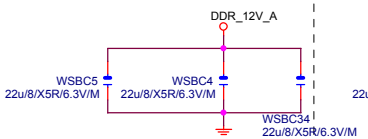
Date: Monday, August 25, 2014 | Sheet 6 of 58

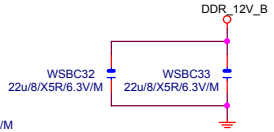

PU HI and PU DOWN
LGA2011-3L HASWELL_E_EDS
LGA2011-3M HASWELL_E_EDS
12 OF 19
13 OF 19
是否要上?
Gigabyte Technology
Title
CPU LGA2011-B
Size Custom
Document Number
GA-X99-UD4
Rev 1.01
Date: Monday, August 25, 2014
Sheet 7 of 58

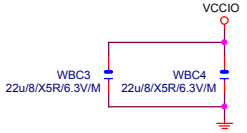

LGA2011-3E
HASWELL_E_EDS
5 OF 19
LGA2011-3B
HASWELL_E_EDS
2 OF 19
LGA2011-3C
HASWELL_E_EDS
3 OF 19
LGA2011-3A
HASWELL_E_EDS
1 OF 19
LGA2011-3D
HASWELL_E_EDS
4 OF 19
PCIEX16:18/5/7/5/18(breakout min 10/4/4/4/10) 外層
Impedance=85 +- 17.5%
PCIEX16:20/5/6.5/5/20(breakout min 10/4/4/4/10) 內層
Impedance=85 +- 12%
DMI:12/4/4/4/12(breakout min 10/4/4/4/10) 外層
Impedance=85 +- 15%
DMI:12/4/4/4/12(breakout min 10/4/4/4/10) 內層
Impedance=85 +- 15%
Gigabyte Technology
Title
CPU LGA2011-B
Size
Custom
Document Number
GA-X99-UD4
Rev
1.01
Date:
Monday, August 25, 2014
Sheet
8
of
58









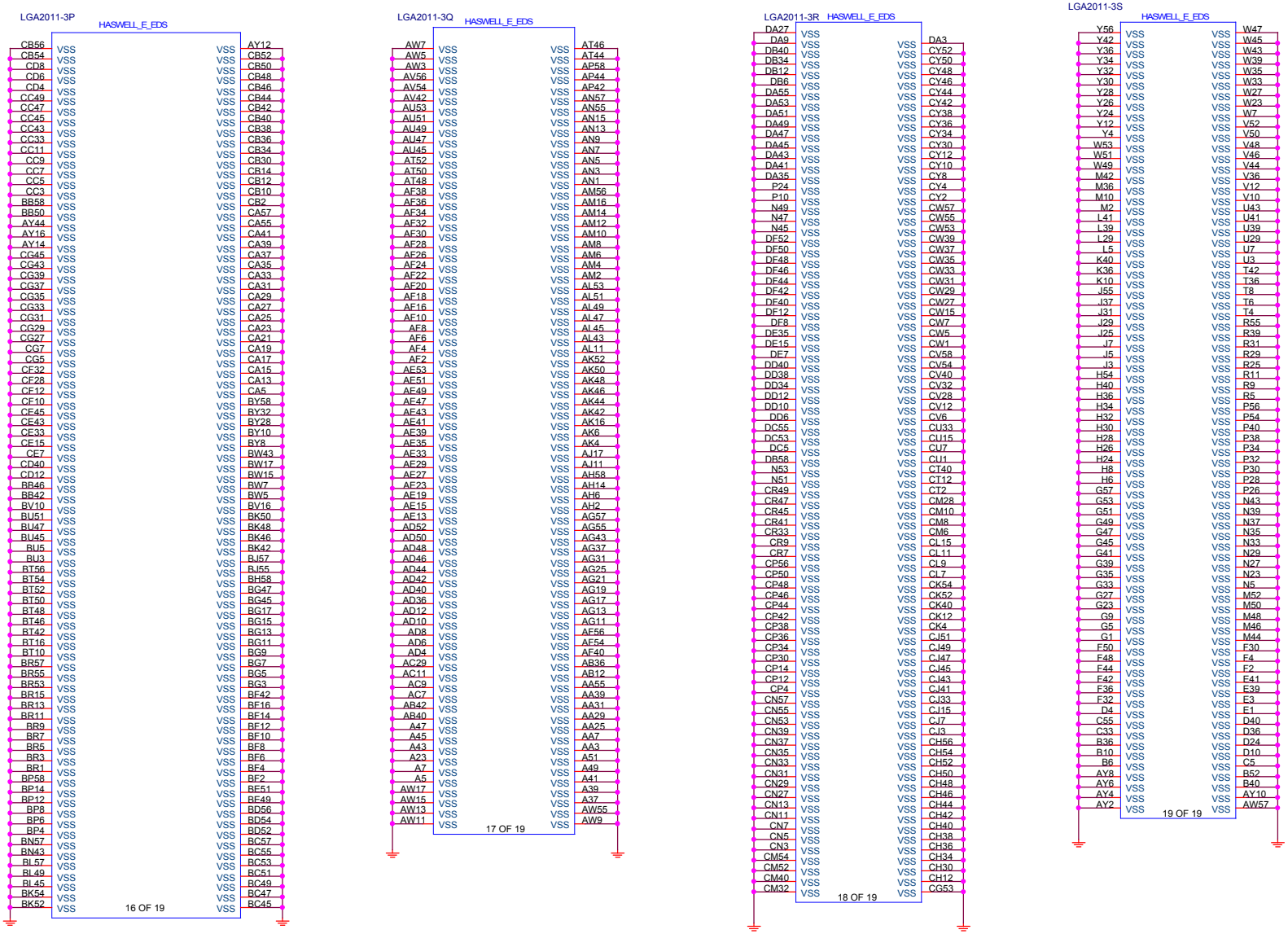


Gigabyte Technology

Title: CPU LGA2011-C

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 9 of 58



Gigabyte Technology		
Title: CPU LGA2011-C		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 10 of 58	

Remove SATA3_2_3，Combine to SATA Express

SATA6G:20/5/7/5/20(breakout min 4/4/4/4/4) 外層
Impedance=85 +- 17.5%

SATA6G:20/5/6.5/5/20(breakout min 4/4/4/4/4) 內層
Impedance=85 +- 12%

SATA2 port5

DIMM_DET

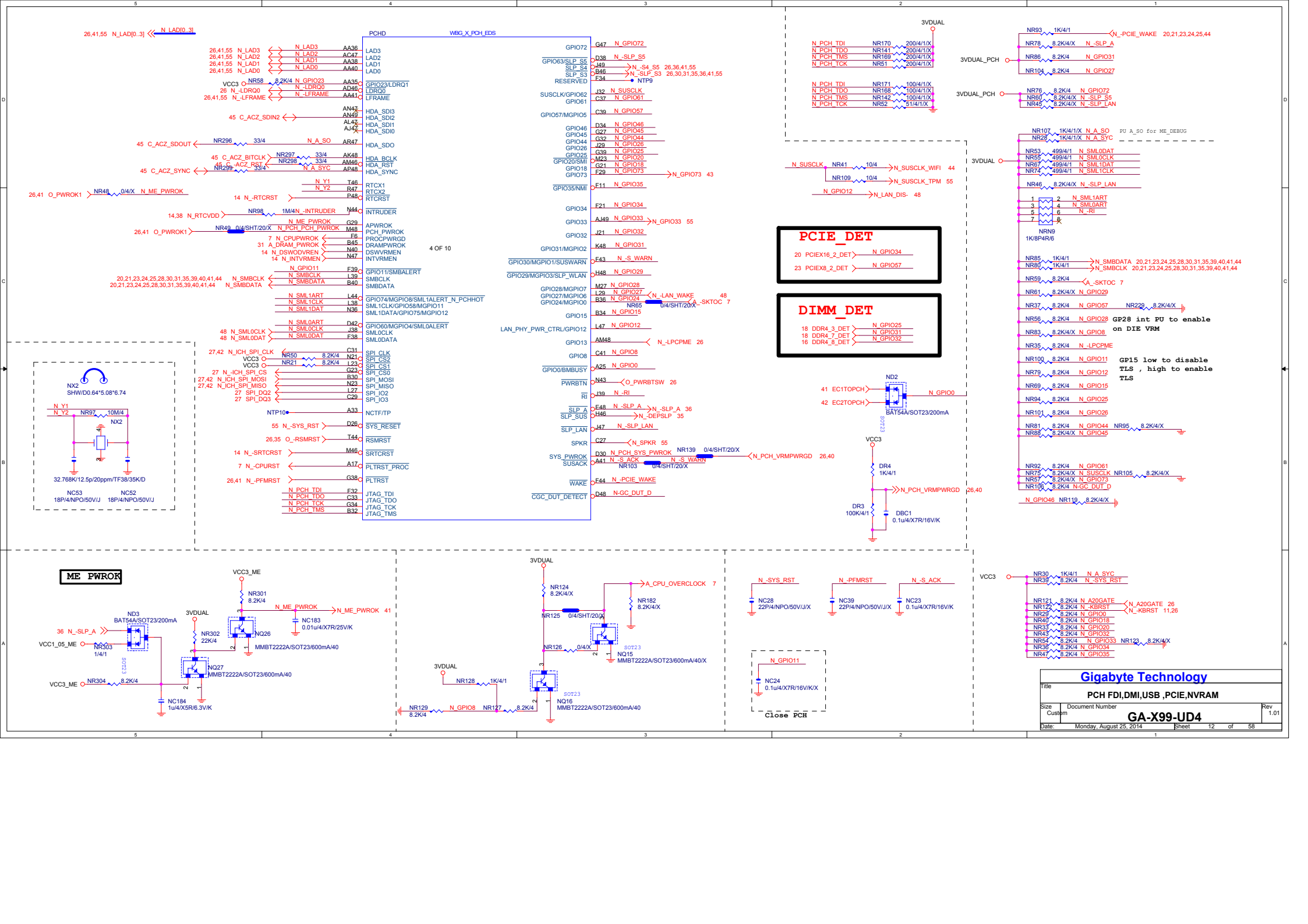
PCIE_DET

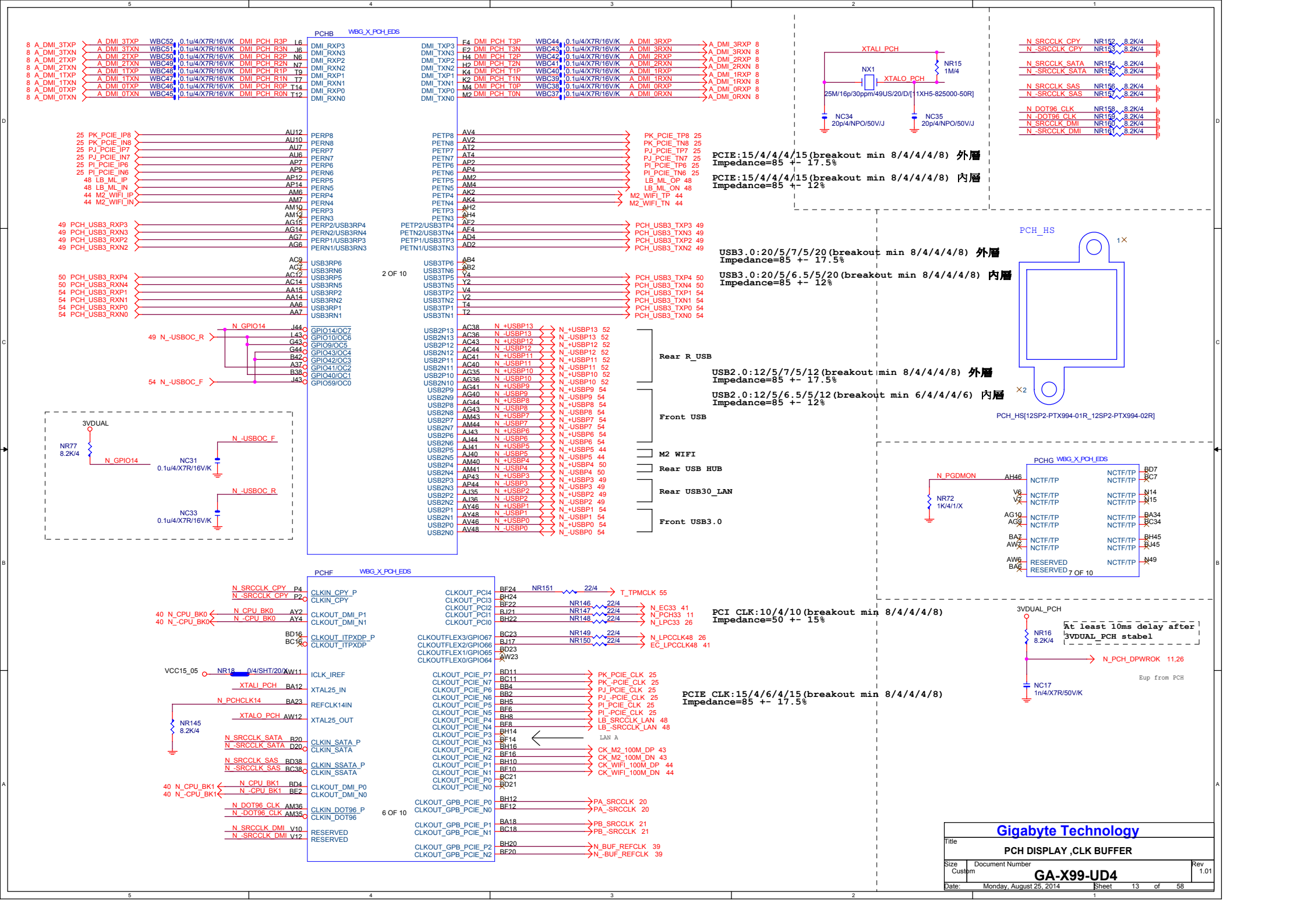
Rev 2.0

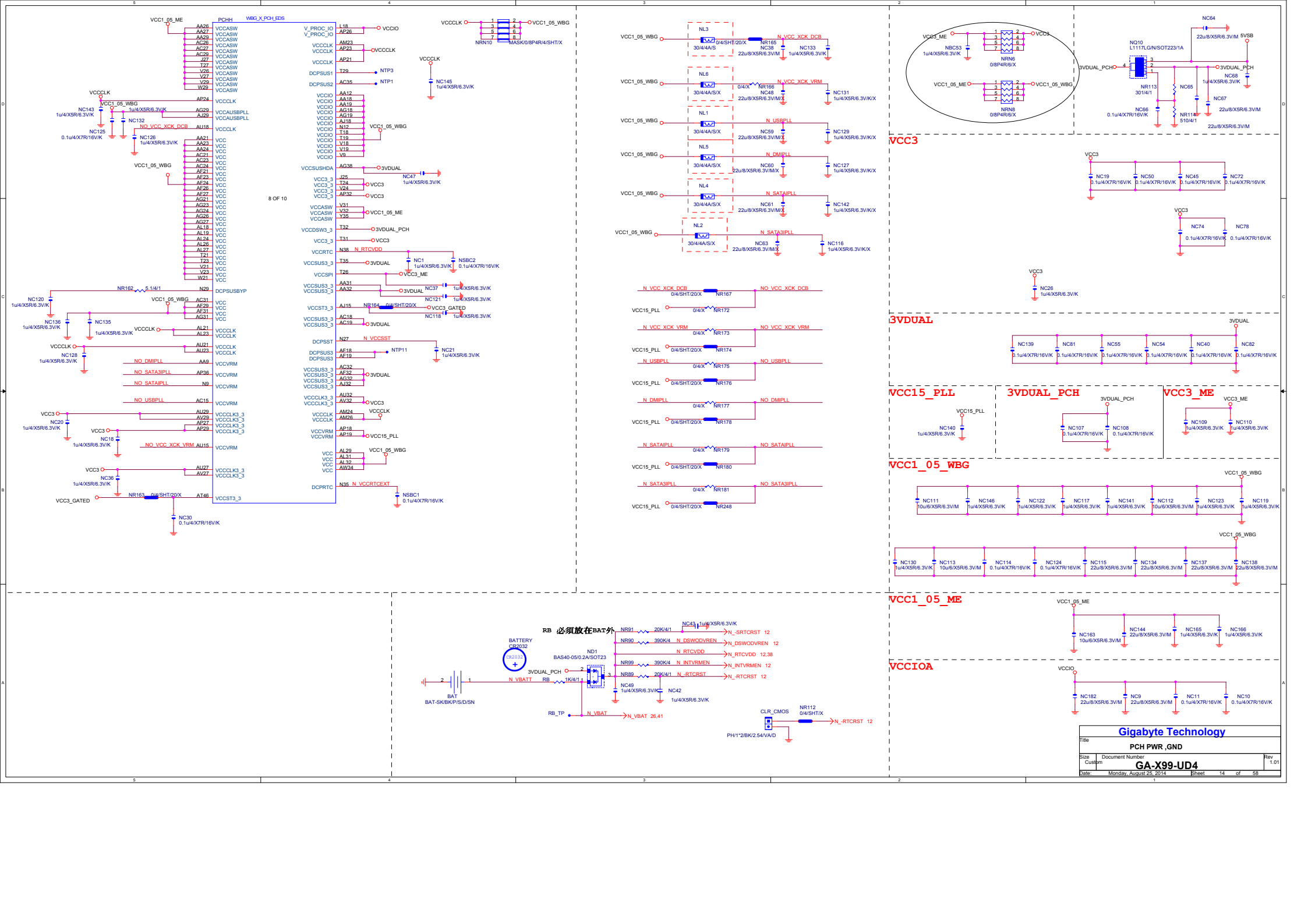
GP36 is strapping ?

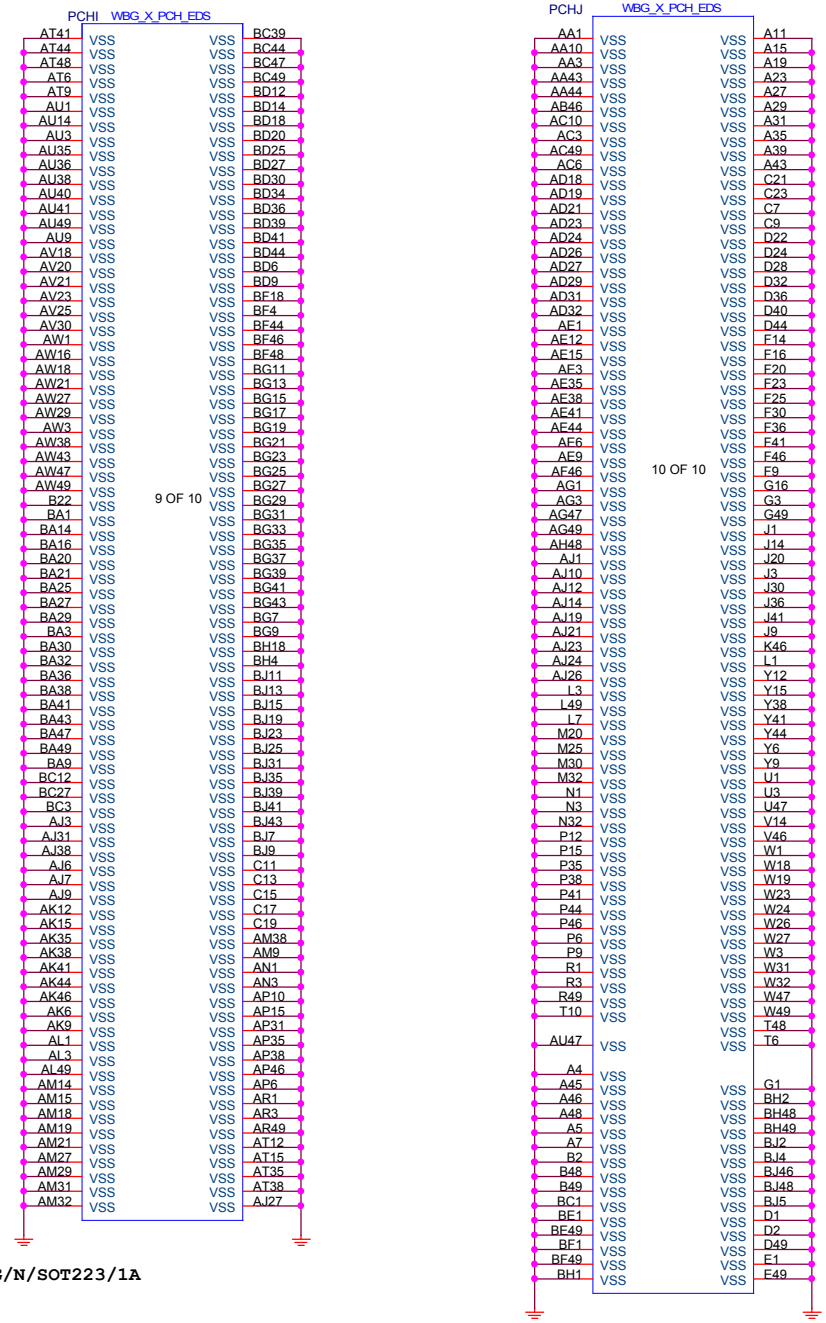
Title	PCH FDI,DMI,USB ,PCIE,NVRAM
Size	Custom
Document Number	GA-X99-UD4
Rev	1.01
Date:	Monday, August 25, 2014
Sheet	11 of 58

Gigabyte Technology


PCHD
WBG_X_PCH_EDS
4 OF 10
PCIE_DET
DIMM_DET
ME_PWROK
Close PCH
Gigabyte Technology
PCH FDI,DMI,USB ,PCIE,NVRAM
GA-X99-UD4
Monday, August 25, 2014
GP28 int PU to enable on DIE VRM
GP15 low to disable TLS , high to enable TLS
PU A_SO for ME_DEBUG

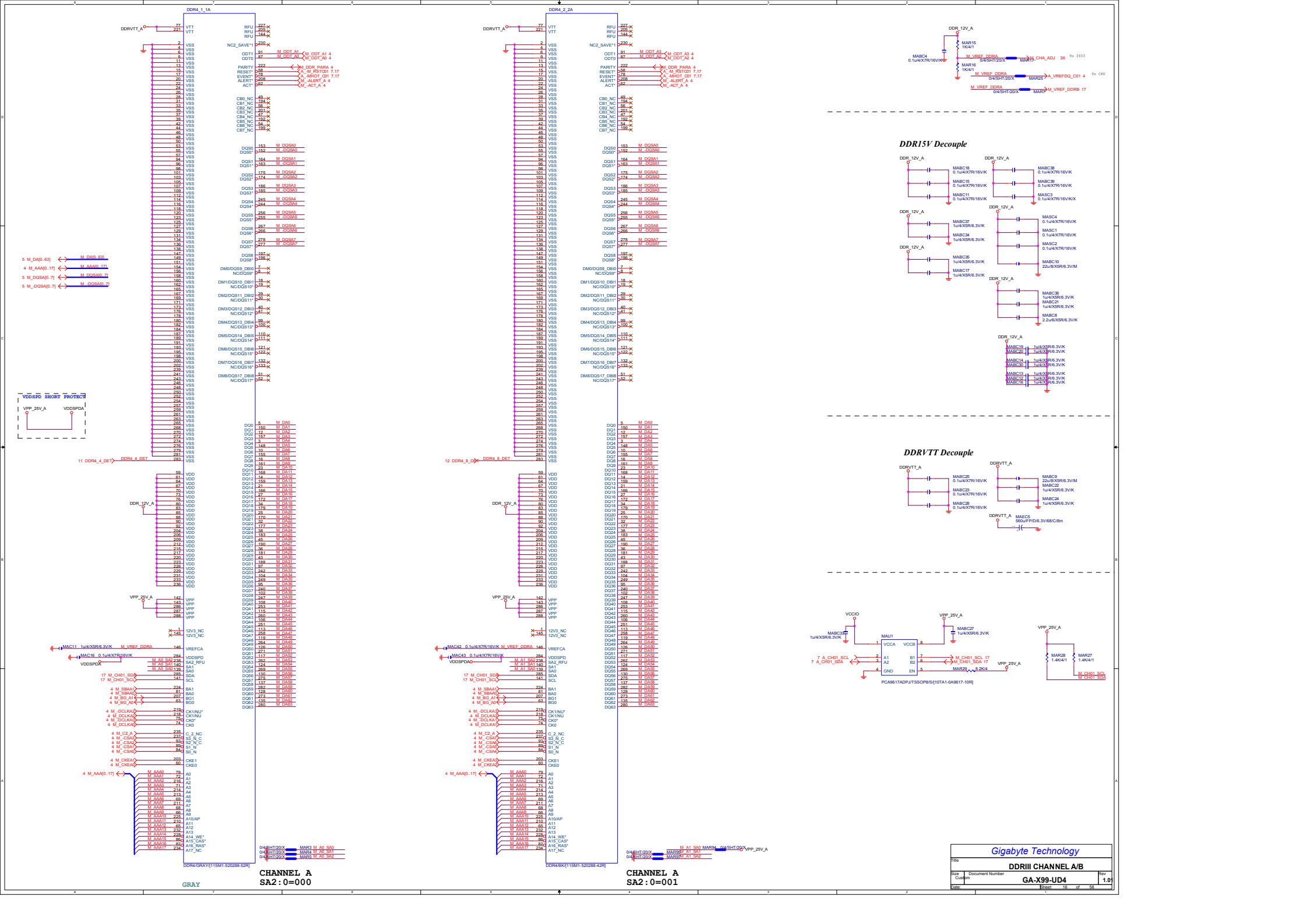

PCHB
WBG_X_PCH_EDS
A_DMI_3TXP
A_DMI_3TXN
A_DMI_2TXP
A_DMI_2TXN
A_DMI_1TXP
A_DMI_1TXN
A_DMI_0TXP
A_DMI_0TXN
DMI_PCH_R3P
DMI_PCH_R3N
DMI_PCH_R2P
DMI_PCH_R2N
DMI_PCH_R1P
DMI_PCH_R1N
DMI_PCH_R0P
DMI_PCH_R0N
DMI_RXP3
DMI_RXN3
DMI_RXP2
DMI_RXN2
DMI_RXP1
DMI_RXN1
DMI_RXP0
DMI_RXN0
DMI_TXP3
DMI_TXN3
DMI_TXP2
DMI_TXN2
DMI_TXP1
DMI_TXN1
DMI_TXP0
DMI_TXN0
DMI_PCH_T3P
DMI_PCH_T3N
DMI_PCH_T2P
DMI_PCH_T2N
DMI_PCH_T1P
DMI_PCH_T1N
DMI_PCH_T0P
DMI_PCH_T0N
A_DMI_3RXP
A_DMI_3RXN
A_DMI_2RXP
A_DMI_2RXN
A_DMI_1RXP
A_DMI_1RXN
A_DMI_0RXP
A_DMI_0RXN
0.1u/4/X7R/16V/K
XTALI_PCH
XTALO_PCH
NX1
NR15 1M/4
25M/16p/30ppm/49US/20/D/[11XH5-825000-50R]
NC34 20p/4NPO/50V/J
NC35 20p/4NPO/50V/J
N_SRCCLK_CPY
N_-SRCCLK_CPY
N_SRCCLK_SATA
N_-SRCCLK_SATA
N_SRCCLK_SAS
N_-SRCCLK_SAS
N_DOT96_CLK
N_-DOT96_CLK
N_SRCCLK_DMI
N_-SRCCLK_DMI
8.2K/4
PCIE:15/4/4/4/15(breakout min 8/4/4/4/8) 外層
Impedance=85 +- 17.5%
PCIE:15/4/4/4/15(breakout min 8/4/4/4/8) 內層
Impedance=85 +- 12%
PK_PCIE_IP8
PK_PCIE_IN8
PJ_PCIE_IP7
PJ_PCIE_IN7
PI_PCIE_IP6
PI_PCIE_IN6
LB_ML_IP
LB_ML_IN
M2_WIFI_IP
M2_WIFI_IN
PERP8
PERN8
PERP7
PERN7
PERP6
PERN6
PERP5
PERN5
PERP4
PERN4
PERP3
PERN3
PETP8
PETN8
PETP7
PETN7
PETP6
PETN6
PETP5
PETN5
PETP4
PETN4
PETP3
PETN3
PK_PCIE_TP8
PK_PCIE_TN8
PJ_PCIE_TP7
PJ_PCIE_TN7
PI_PCIE_TP6
PI_PCIE_TN6
LB_ML_OP
LB_ML_ON
M2_WIFI_TP
M2_WIFI_TN
PCH_USB3_RXP3
PCH_USB3_RXN3
PCH_USB3_RXP2
PCH_USB3_RXN2
PERP2/USB3RP4
PERN2/USB3RN4
PERP1/USB3RP3
PERN1/USB3RN3
PETP2/USB3TP4
PETN2/USB3TN4
PETP1/USB3TP3
PETN1/USB3TN3
PCH_USB3_TXP3
PCH_USB3_TXN3
PCH_USB3_TXP2
PCH_USB3_TXN2
USB3.0:20/5/7/5/20(breakout min 8/4/4/4/8) 外層
Impedance=85 +- 17.5%
USB3.0:20/5/6.5/5/20(breakout min 8/4/4/4/8) 內層
Impedance=85 +- 12%
PCH_HS
PCH_HS[12SP2-PTX994-01R_12SP2-PTX994-02R]
PCH_USB3_RXP4
PCH_USB3_RXN4
PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXP0
PCH_USB3_RXN0
USB3RP6
USB3RN6
USB3RP5
USB3RN5
USB3RP2
USB3RN2
USB3RP1
USB3RN1
USB3TP6
USB3TN6
USB3TP5
USB3TN5
USB3TP2
USB3TN2
USB3TP1
USB3TN1
PCH_USB3_TXP4
PCH_USB3_TXN4
PCH_USB3_TXP1
PCH_USB3_TXN1
PCH_USB3_TXP0
PCH_USB3_TXN0
2 OF 10
N_GPIO14
N_-USBOC_R
N_-USBOC_F
GPIO14/OC7
GPIO10/OC6
GPIO9/OC5
GPIO43/OC4
GPIO42/OC3
GPIO41/OC2
GPIO40/OC1
GPIO59/OC0
USB2P13
USB2N13
USB2P12
USB2N12
USB2P11
USB2N11
USB2P10
USB2N10
USB2P9
USB2N9
USB2P8
USB2N8
USB2P7
USB2N7
USB2P6
USB2N6
USB2P5
USB2N5
USB2P4
USB2N4
USB2P3
USB2N3
USB2P2
USB2N2
USB2P1
USB2N1
USB2P0
USB2N0
N_+USBP13
N_-USBP13
N_+USBP12
N_-USBP12
N_+USBP11
N_-USBP11
N_+USBP10
N_-USBP10
N_+USBP9
N_-USBP9
N_+USBP8
N_-USBP8
N_+USBP7
N_-USBP7
N_+USBP6
N_-USBP6
N_+USBP5
N_-USBP5
N_+USBP4
N_-USBP4
N_+USBP3
N_-USBP3
N_+USBP2
N_-USBP2
N_+USBP1
N_-USBP1
N_+USBP0
N_-USBP0
Rear R_USB
USB2.0:12/5/7/5/12(breakout min 8/4/4/4/8) 外層
Impedance=85 +- 17.5%
USB2.0:12/5/6.5/5/12(breakout min 6/4/4/4/6) 內層
Impedance=85 +- 12%
Front USB
M2 WIFI
Rear USB HUB
Rear USB30_LAN
Front USB3.0
3VDUAL
NR77 8.2K/4
NC31 0.1u/4/X7R/16V/K
NC33 0.1u/4/X7R/16V/K
PCHG
WBG_X_PCH_EDS
N_PGDMON
NR72 1K/4/1/X
NCTF/TP
RESERVED
7 OF 10
PCHF
WBG_X_PCH_EDS
N_SRCCLK_CPY
N_-SRCCLK_CPY
CLKIN_CPY_P
CLKIN_CPY
N_CPU_BK0
N_-CPU_BK0
CLKOUT_DMI_P1
CLKOUT_DMI_N1
CLKOUT_ITPXDP_P
CLKOUT_ITPXDP
VCC15_05
NR18 0/4/SHT/20/X
ICLK_IREF
XTALI_PCH
XTAL25_IN
N_PCHCLK14
REFCLK14IN
XTALO_PCH
XTAL25_OUT
NR145 8.2K/4
N_SRCCLK_SATA
N_-SRCCLK_SATA
CLKIN_SATA_P
CLKIN_SATA
N_SRCCLK_SAS
N_-SRCCLK_SAS
CLKIN_SSATA_P
CLKIN_SSATA
N_CPU_BK1
N_-CPU_BK1
CLKOUT_DMI_P0
CLKOUT_DMI_N0
N_DOT96_CLK
N_-DOT96_CLK
CLKIN_DOT96_P
CLKIN_DOT96
N_SRCCLK_DMI
N_-SRCCLK_DMI
RESERVED
6 OF 10
CLKOUT_PCIE7
CLKOUT_PCIE6
CLKOUT_PCIE5
CLKOUT_PCIE4
CLKOUT_PCIE3
CLKOUT_PCIE2
CLKOUT_PCIE1
CLKOUT_PCIE0
CLKOUT_GPB_PCIE_P0
CLKOUT_GPB_PCIE_N0
CLKOUT_GPB_PCIE_P1
CLKOUT_GPB_PCIE_N1
CLKOUT_GPB_PCIE_P2
CLKOUT_GPB_PCIE_N2
CLKOUTFLEX3/GPIO67
CLKOUTFLEX2/GPIO66
CLKOUTFLEX1/GPIO65
CLKOUTFLEX0/GPIO64
NR151 22/4
NR146 22/4
NR147 22/4
NR148 22/4
NR149 22/4
NR150 22/4
T_TPMCLK
N_EC33
N_PCH33
N_LPC33
N_LPCCLK48
EC_LPCCLK48
PCI CLK:10/4/10(breakout min 8/4/4/4/8)
Impedance=50 +- 15%
PK_PCIE_CLK
PK_-PCIE_CLK
PJ_PCIE_CLK
PJ_-PCIE_CLK
PI_PCIE_CLK
PI_-PCIE_CLK
LB_SRCCLK_LAN
LB_-SRCCLK_LAN
LAN A
CK_M2_100M_DP
CK_M2_100M_DN
CK_WIFI_100M_DP
CK_WIFI_100M_DN
PCIE CLK:15/4/6/4/15(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%
PA_SRCCLK
PA_-SRCCLK
PB_SRCCLK
PB_-SRCCLK
N_BUF_REFCLK
N_-BUF_REFCLK
3VDUAL_PCH
NR16 8.2K/4
NC17 1n/4/X7R/50V/K
At least 10ms delay after 3VDUAL_PCH stabel
N_PCH_DPWROK
Eup from PCH
Gigabyte Technology
Title
PCH DISPLAY ,CLK BUFFER
Size Custom
Document Number
GA-X99-UD4
Rev 1.01
Date: Monday, August 25, 2014
Sheet 13 of 58

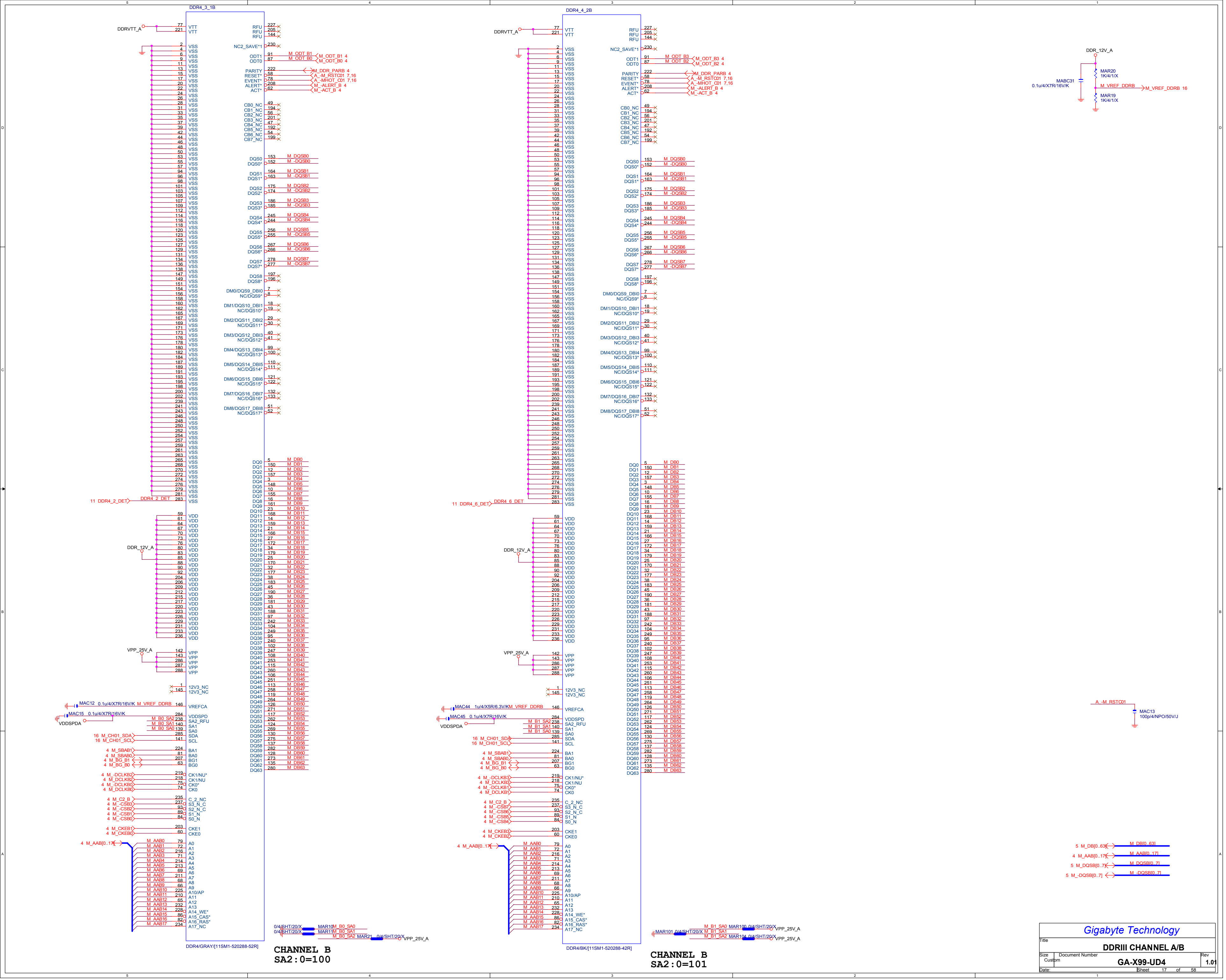

PCHH
WBG_X_PCH_EDS
8 OF 10
VCC1_05_ME
VCCCLK
VCC1_05_WBG
VCC3
3VDUAL
3VDUAL_PCH
VCC3_ME
VCC15_PLL
VCC1_05_WBG
VCC1_05_ME
VCCIOA
RB 必须放在BAT外
BATTERY
CR2032
BAT
BAT-SK/BK/P/S/D/SN
ND1
BAS40-05/0.2A/SOT23
CLR_CMOS
PH/1*2/BK/2.54/VA/D
Gigabyte Technology
PCH PWR ,GND
GA-X99-UD4
Rev 1.01
Monday, August 25, 2014
Sheet 14 of 58



L1117LG/N/SOT223/1A

Gigabyte Technology		
Title: PCH PWR ,GND		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 15 of 58	


DDR4_1_1A
DDR4_2_2A
DDRVTT_A
DDR_12V_A
VPP_25V_A
VDDSPD_SHORT_PROTECT
VPP_25V_A
VDDSPDA
DDR4_4_DET
DDR4_8_DET
M_DA[0..63]
M_AAA[0..17]
M_DQSA[0..7]
M_DQSA[0..7]
DDR4/GRAY/[11SM1-520288-52R]
DDR4/BK/[11SM1-520288-42R]
CHANNEL A
SA2:0=000
CHANNEL A
SA2:0=001
GRAY
DDR15V Decouple
DDRVTT Decouple
Gigabyte Technology
DDRIII CHANNEL A/B
GA-X99-UD4
1.01
Sheet 18 of 58

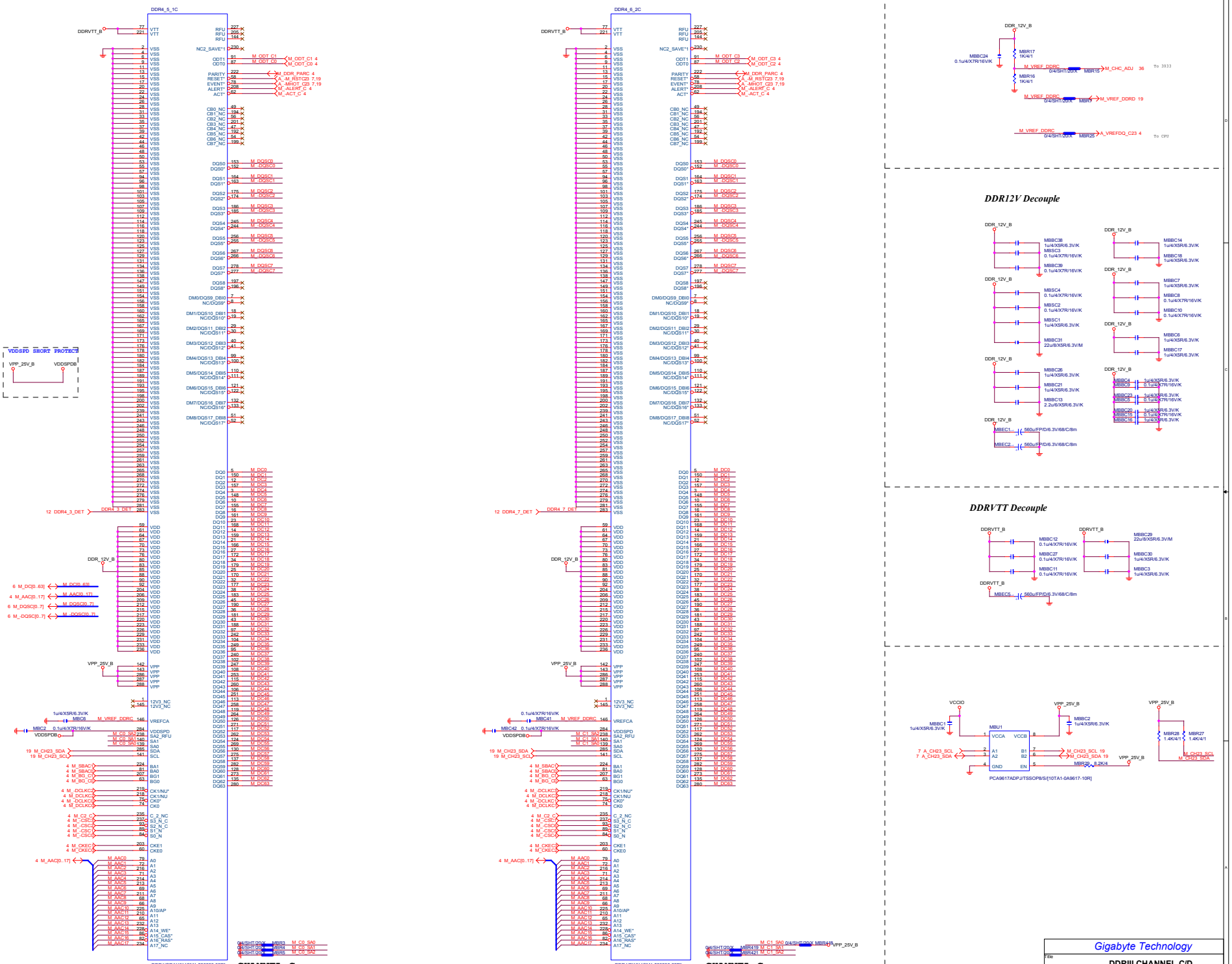


Gigabyte Technology

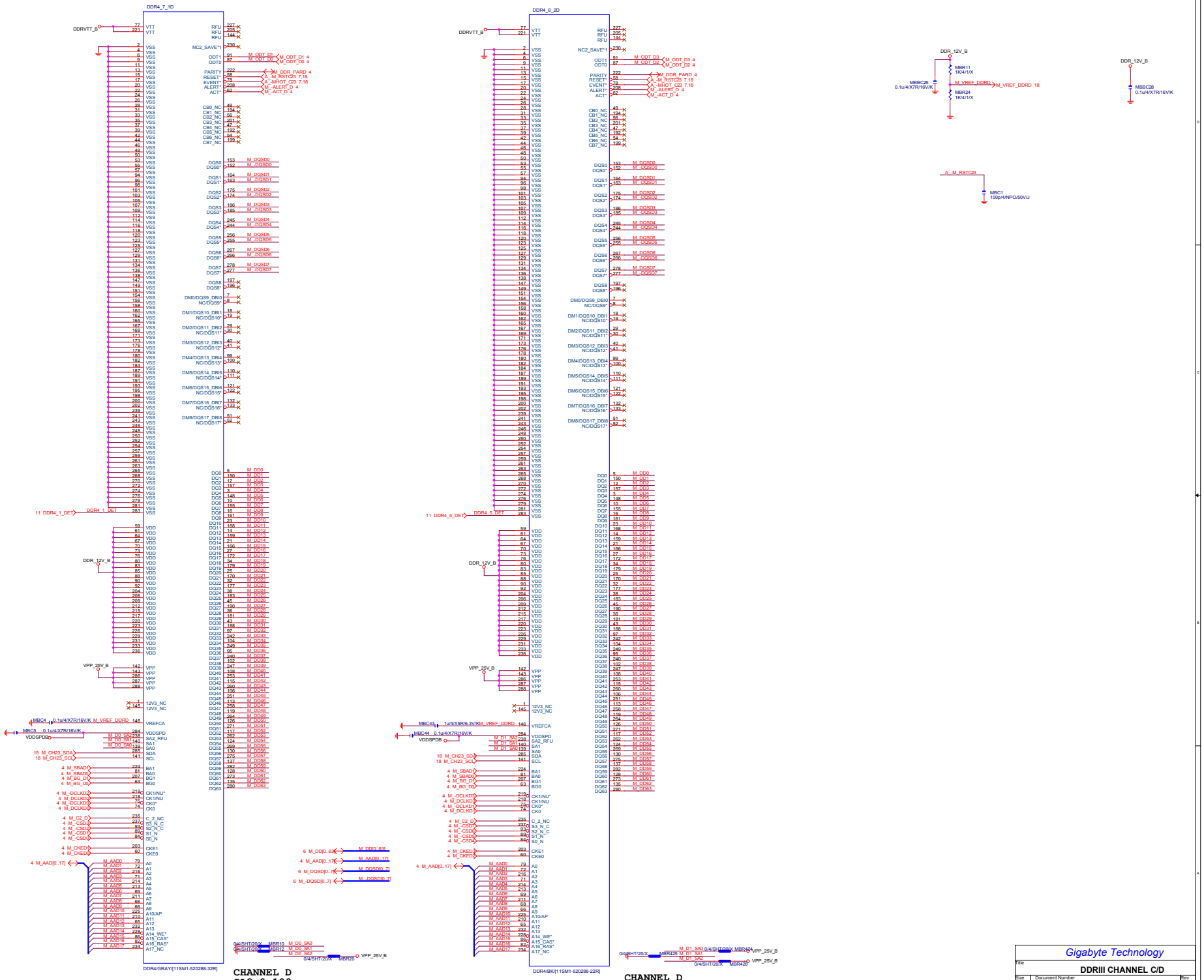
Title: DDRIII CHANNEL A/B

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: | Sheet 17 of 58

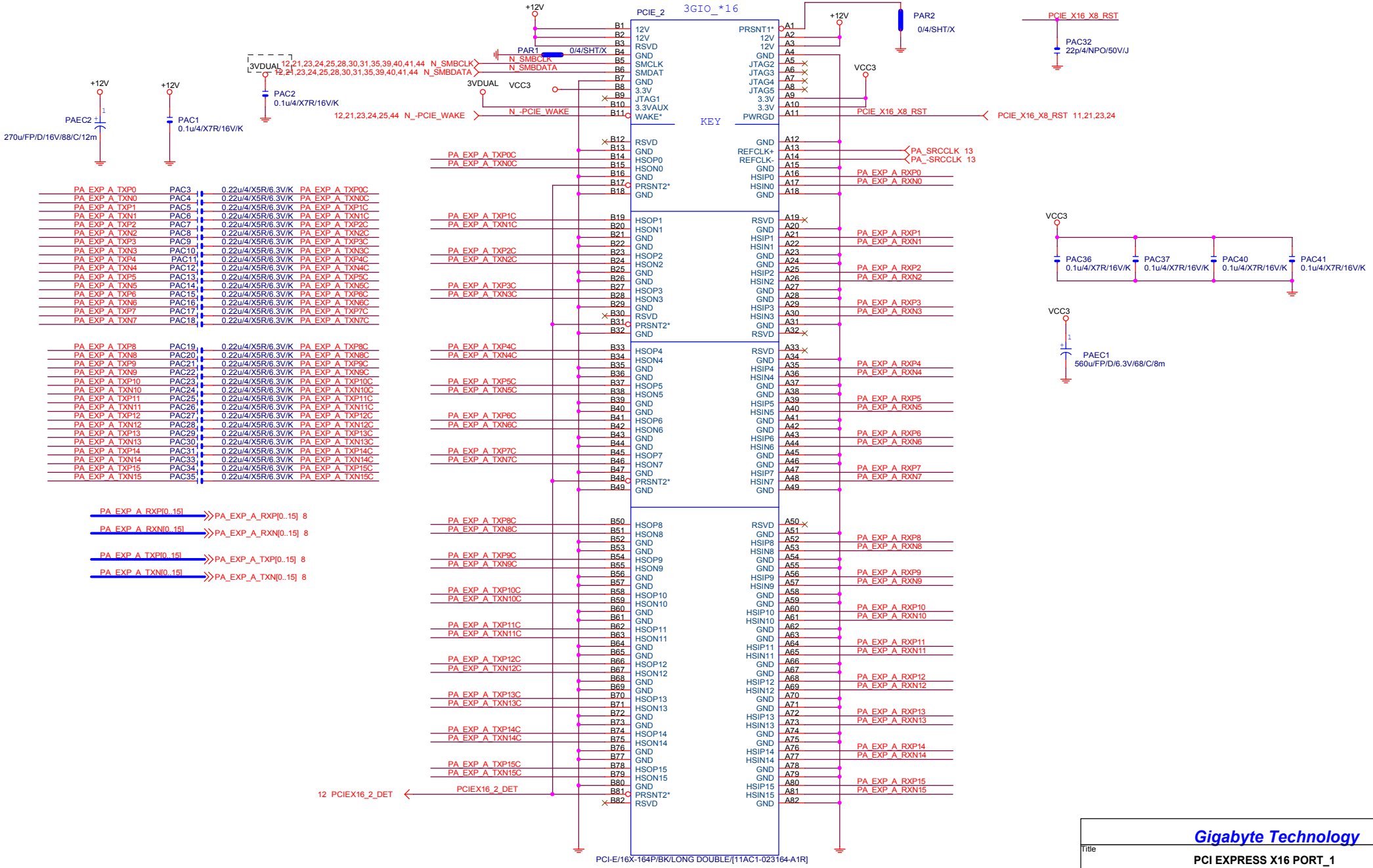


Gigabyte Technology	
Title	DDRIII CHANNEL C/D
Size: Custom	Document Number: GA-X99-UD4
Rev	1.01
Date:	Sheet 18 of 58



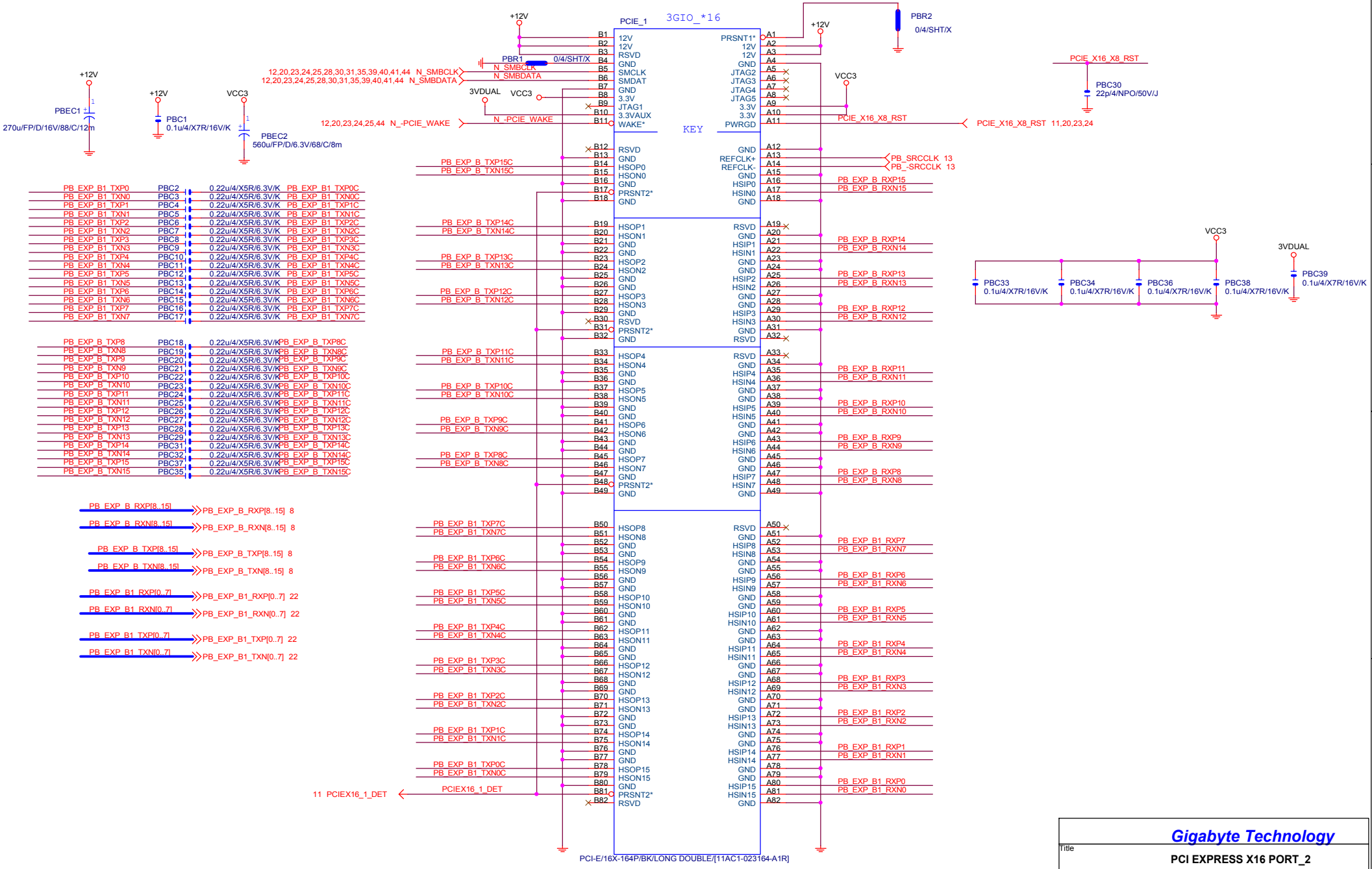
Gigabyte Technology	
Title	DDRIII CHANNEL C/D
Size: Custom	Document Number: GA-X99-UD4
Rev	1.01
Date	Sheet 19 of 58

PCIESLOT-164DN-2



Gigabyte Technology		
Title	PCI EXPRESS X16 PORT_1	
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 20 of 58	

PCIESLOT-164DN-2

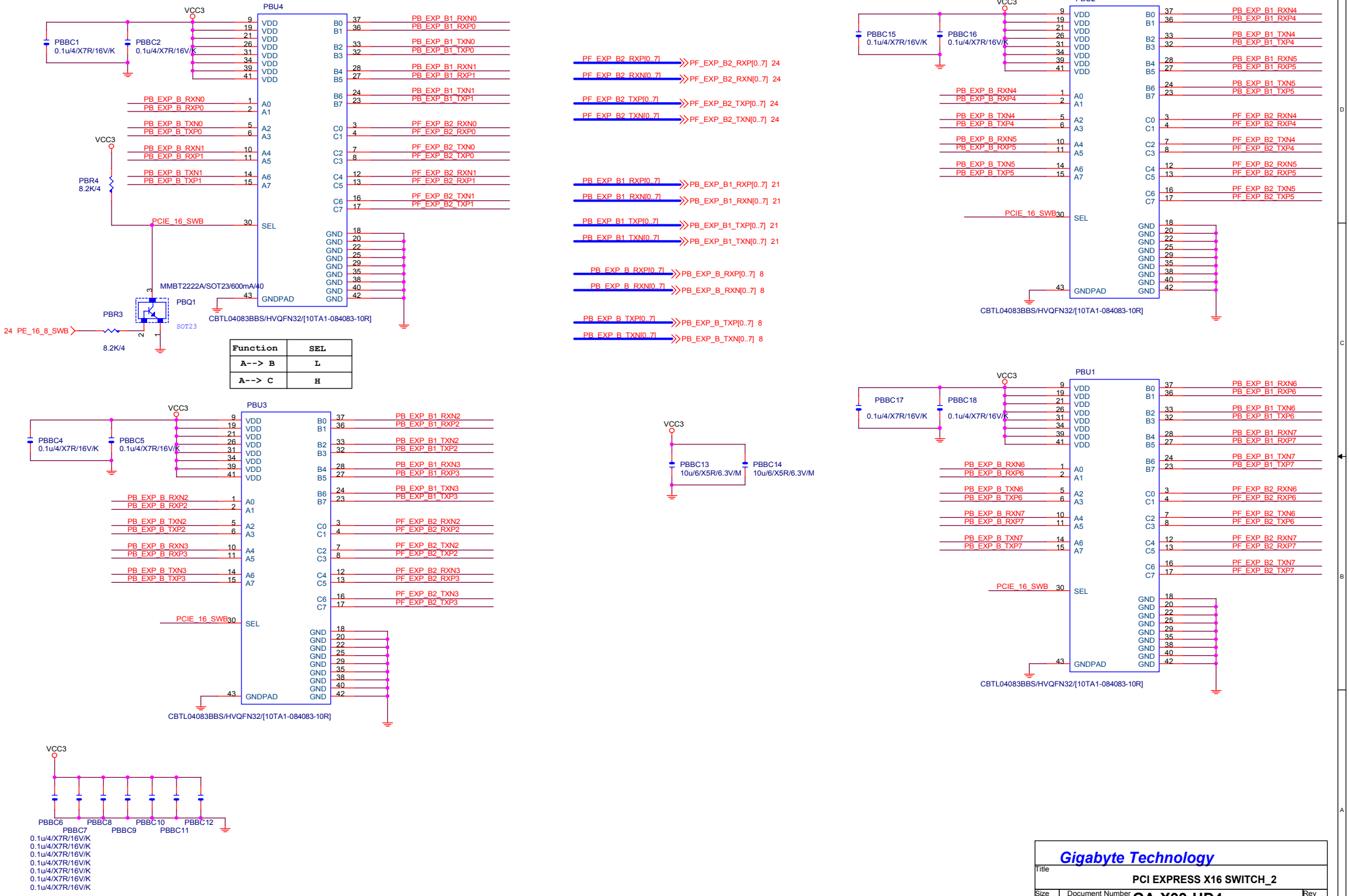


Gigabyte Technology

Title: PCI EXPRESS X16 PORT_2

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 21 of 58



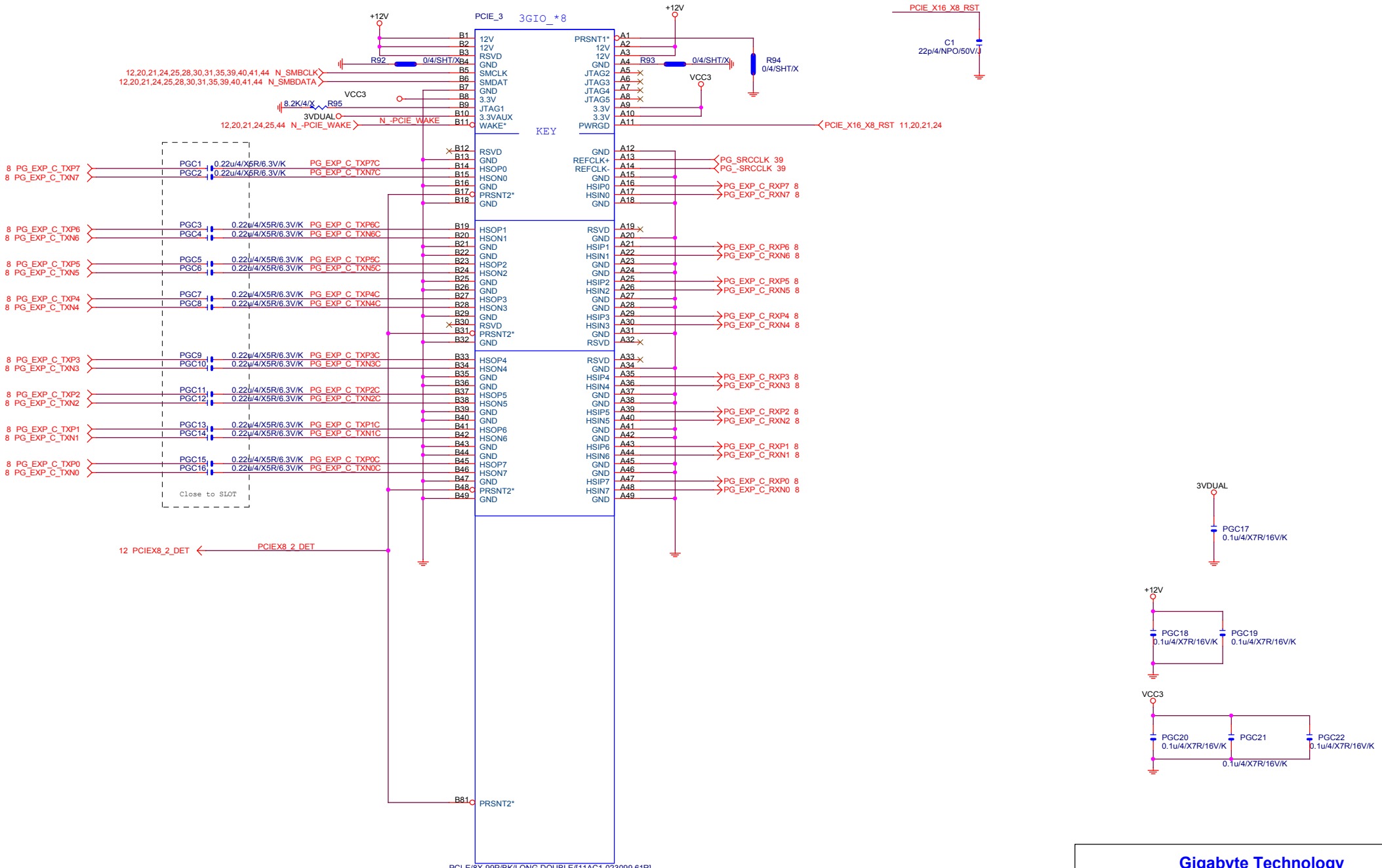
Function	SEL
A--> B	L
A--> C	H

Gigabyte Technology

Title: PCI EXPRESS X16 SWITCH_2

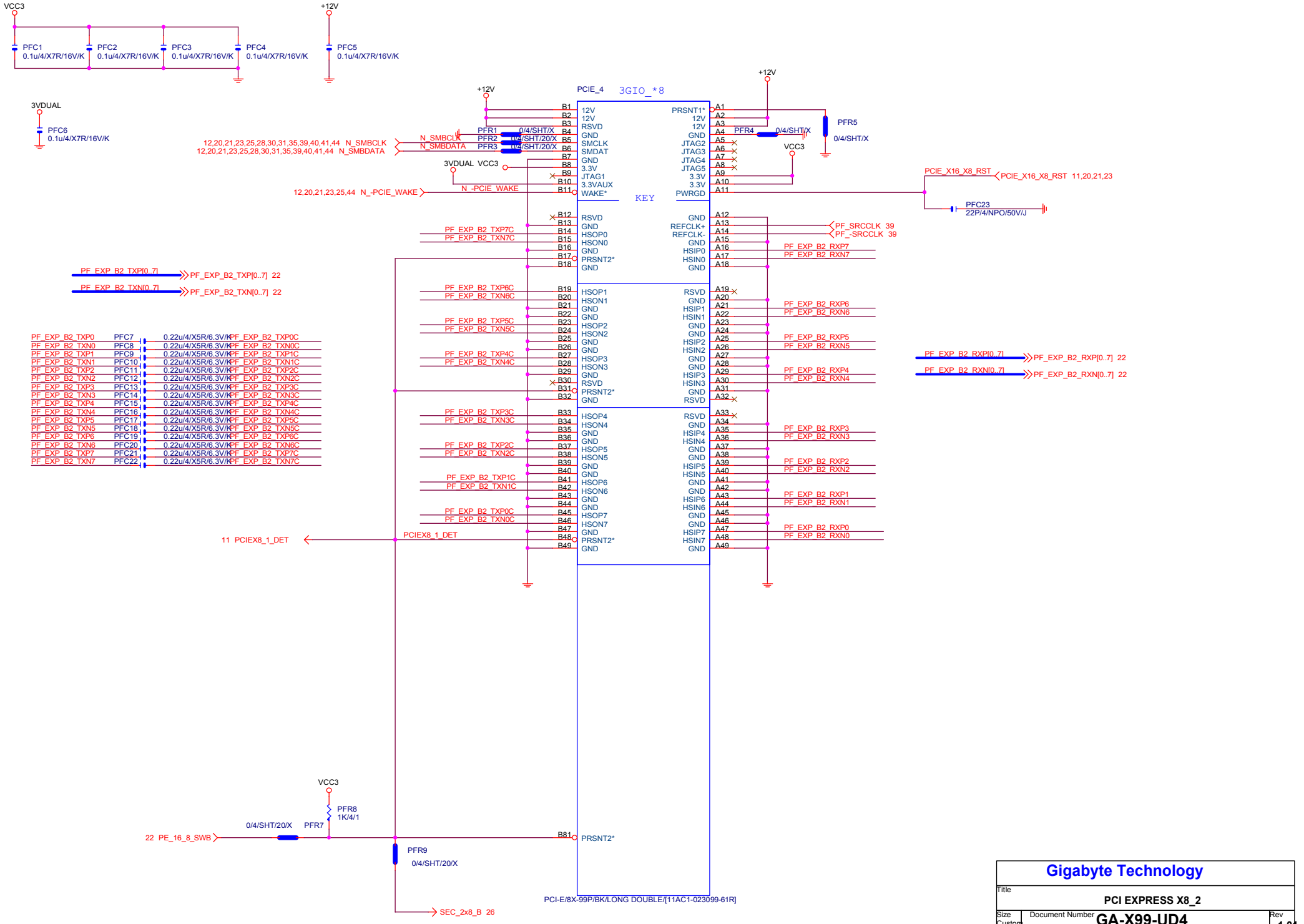
Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 22 of 58



Title	PCI EXPRESS X 8 PORT
Size: Custom	Document Number: GA-X99-UD4
Rev	1.01
Date:	Monday, August 25, 2014
Sheet	23 of 58

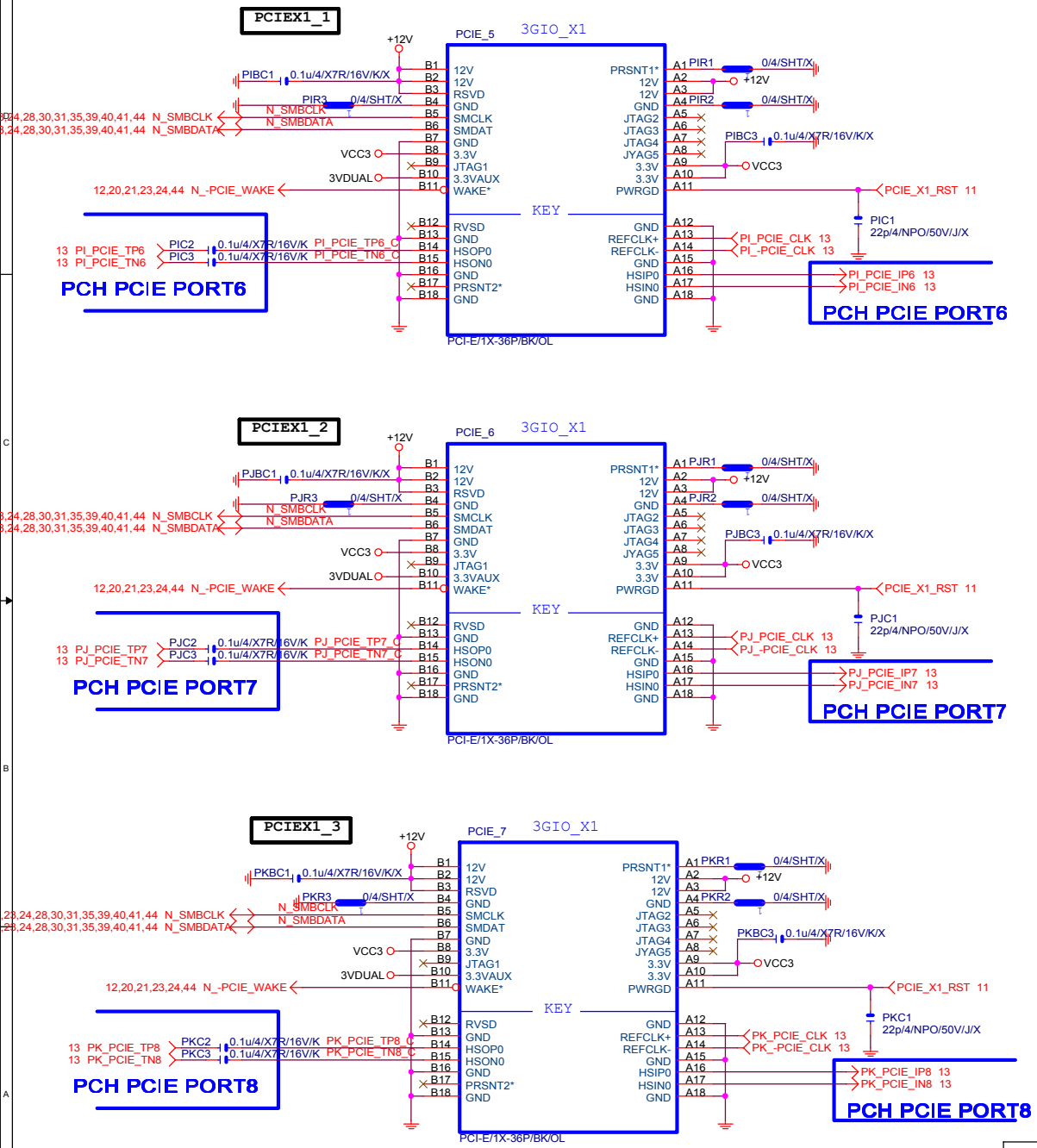
Gigabyte Technology



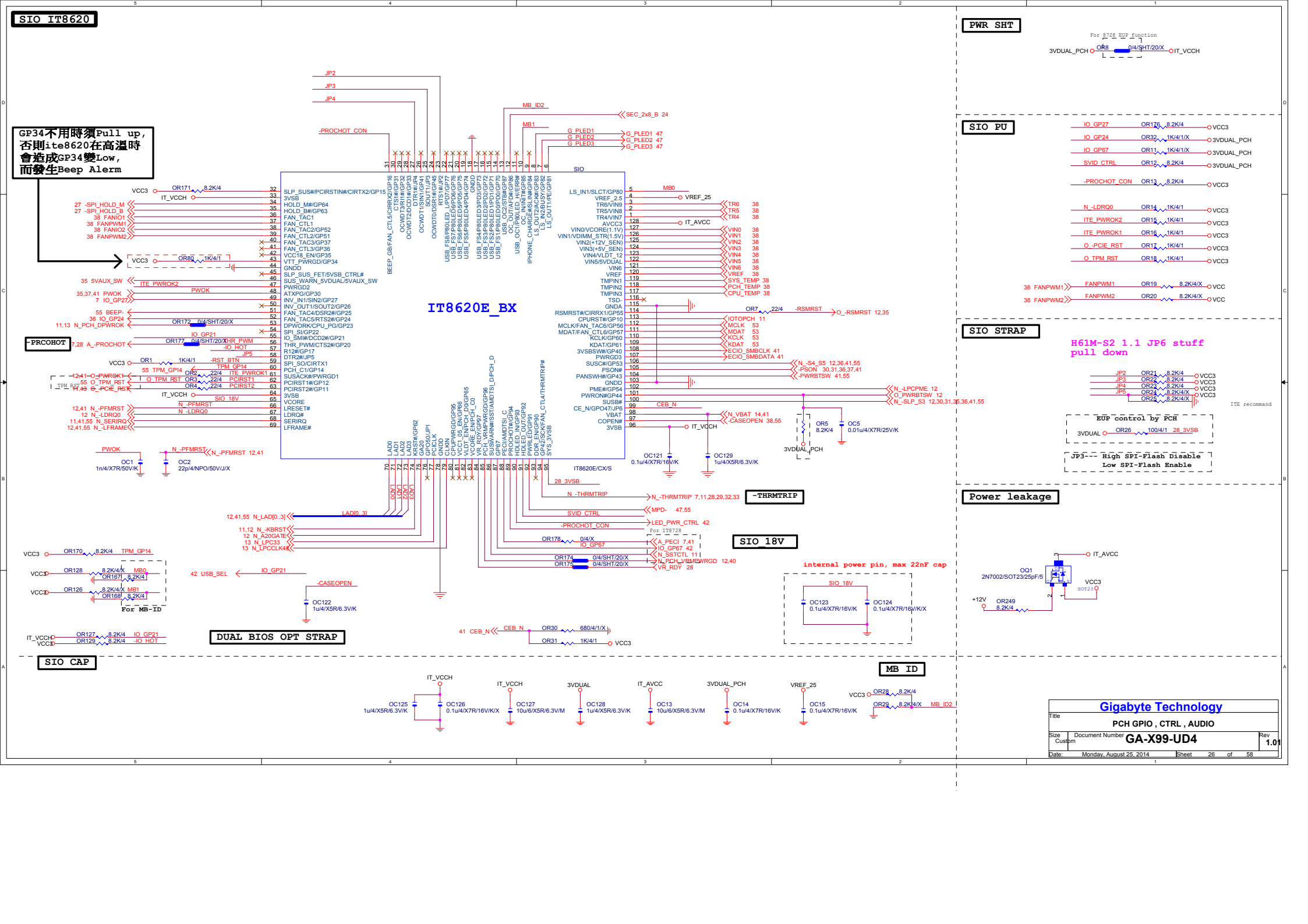
Title	PCI EXPRESS X8_2
Size	Custom
Document Number	GA-X99-UD4
Rev	1.01
Date:	Monday, August 25, 2014
Sheet	24 of 58

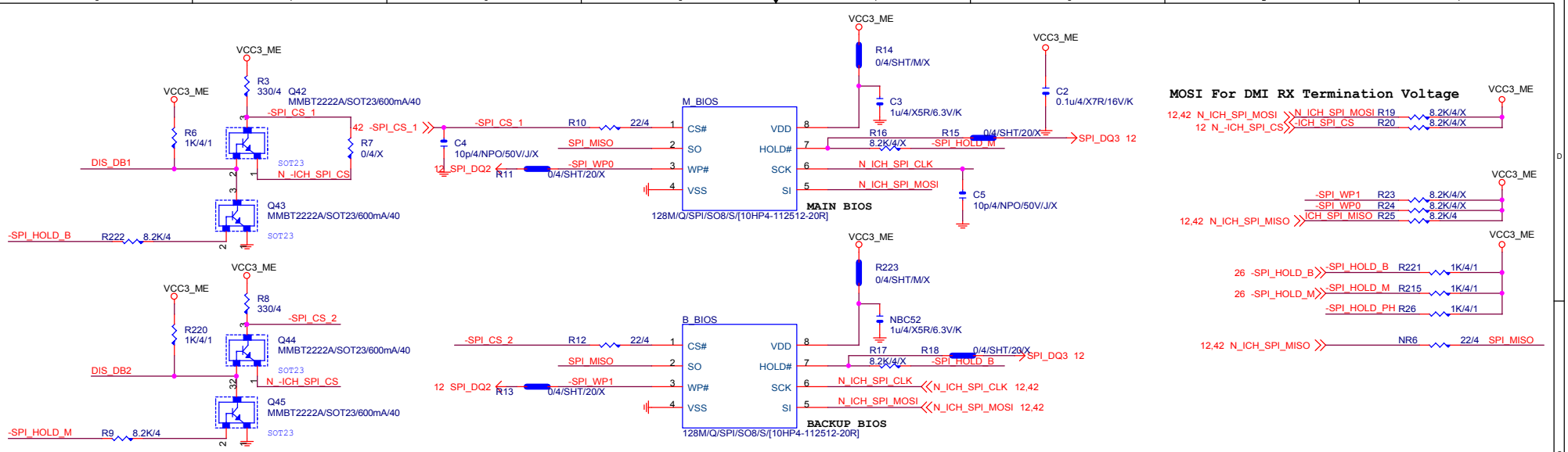
Gigabyte Technology

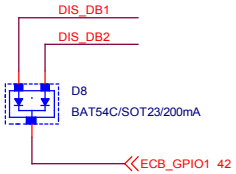
PCIEX1 SLOT



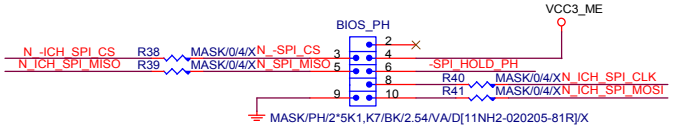
Gigabyte Technology		
Title: PCIE_X1 1,2,3		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 25 of 58	

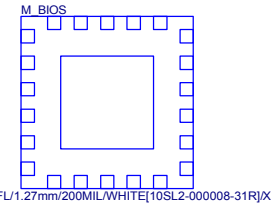

SIO IT8620
GP34不用時須Pull up,
否則ite8620在高溫時
會造成GP34變Low,
而發生Beep Alerm
IT8620E_BX
IT8620E/CX/S
SIO
-PRCOHOT
-THRMTRIP
SIO_18V
DUAL BIOS OPT STRAP
For MB-ID
SIO CAP
MB ID
PWR SHT
SIO PU
SIO STRAP
H61M-S2 1.1 JP6 stuff
pull down
EUP control by PCH
JP3--- High SPI-Flash Disable
Low SPI-Flash Enable
Power leakage
internal power pin, max 22nF cap
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-X99-UD4
Monday, August 25, 2014



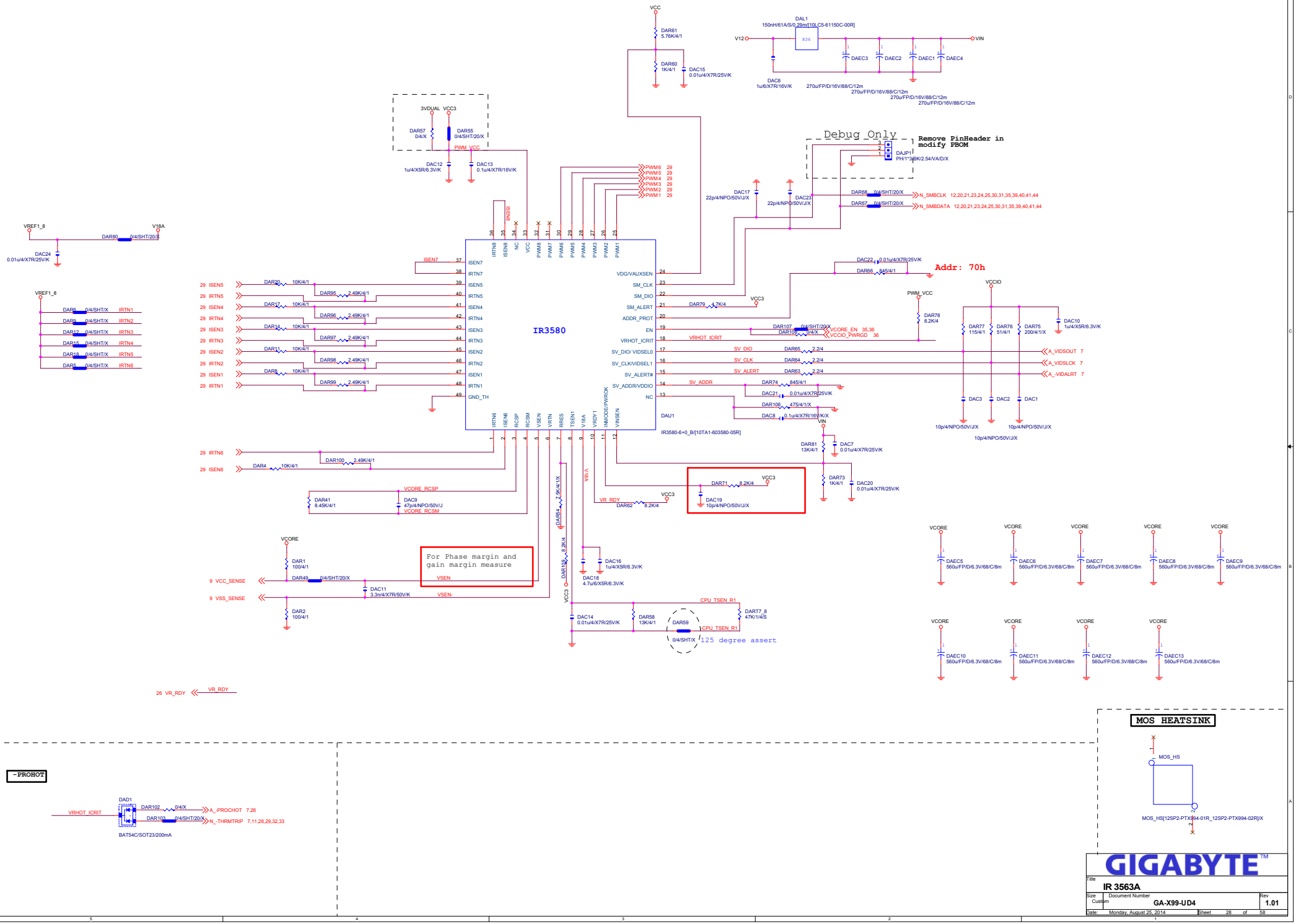


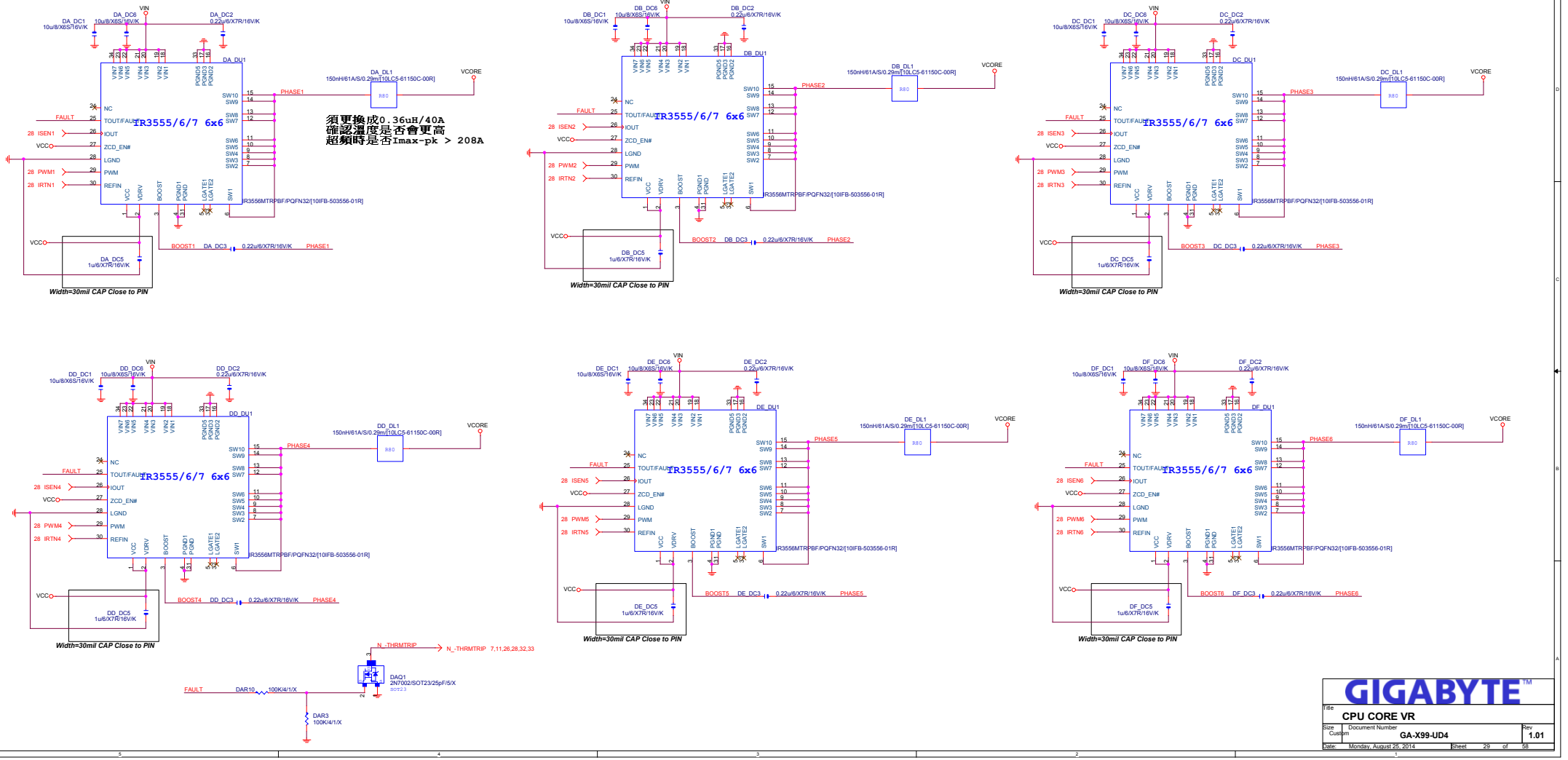
BIOS_PH

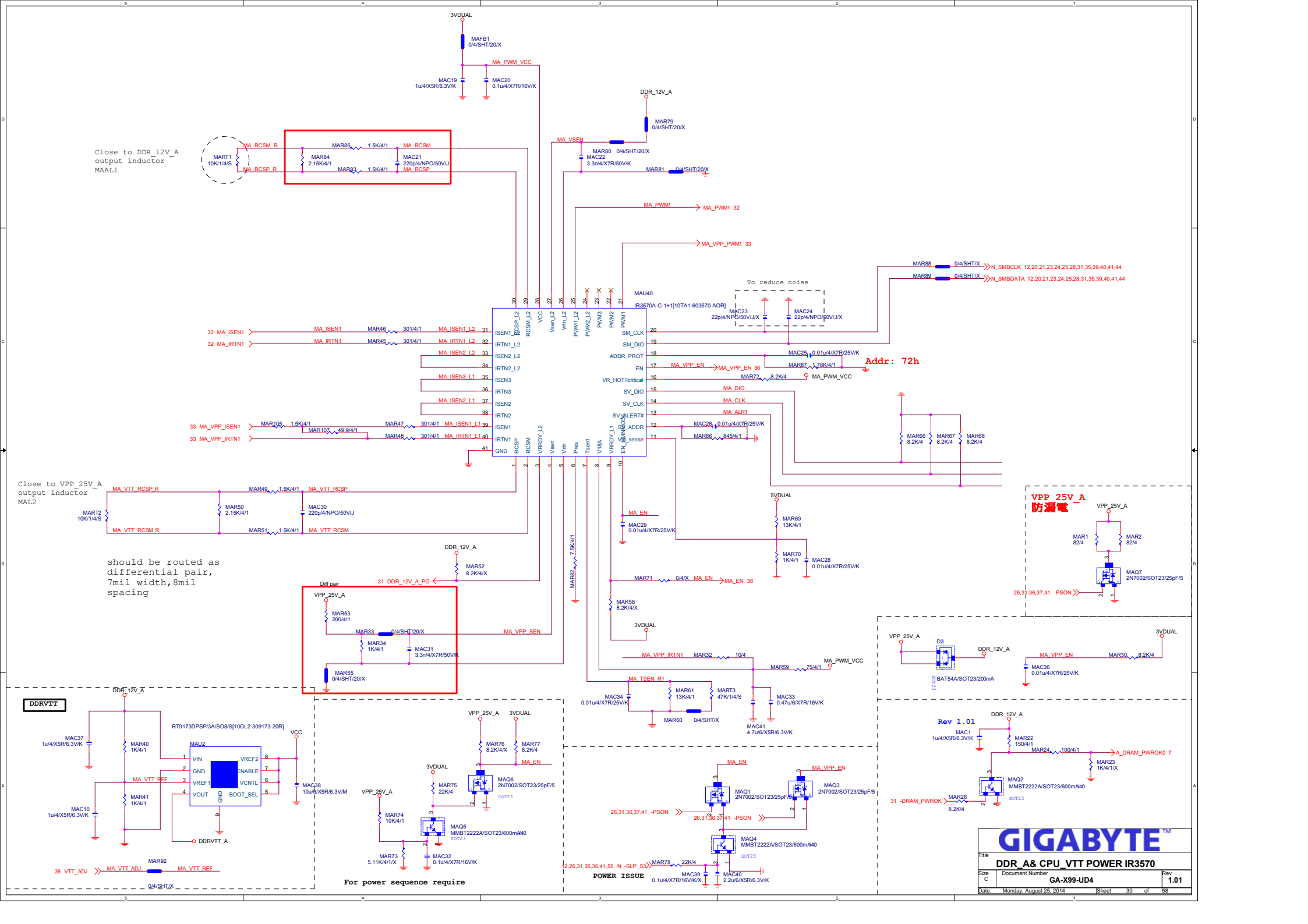


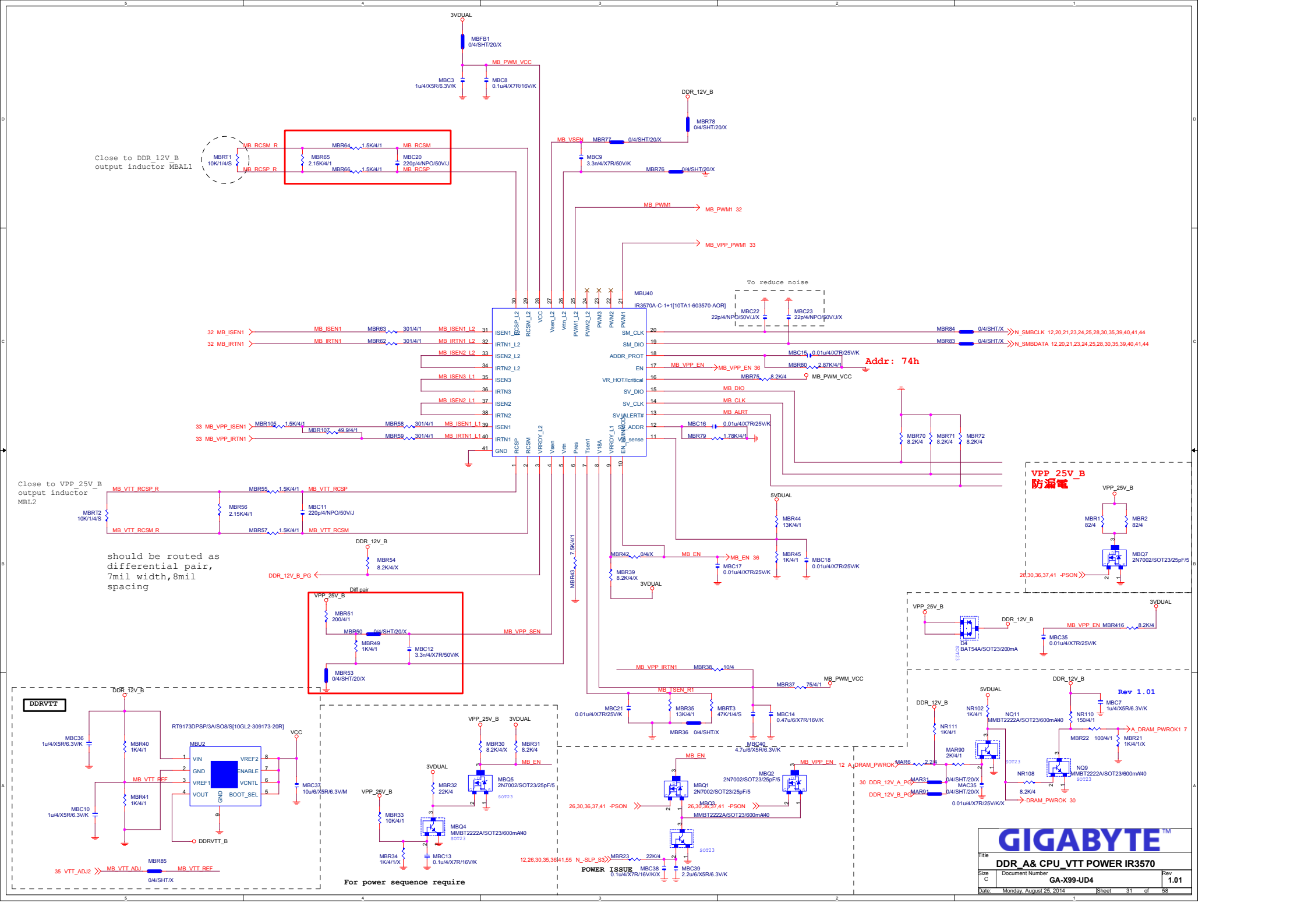


Gigabyte Technology		
Title: DUAL BIOS TPM		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 27 of 58	


IR3580
IR3580-6+0_B/[10TA1-603580-05R]
Debug Only
Remove PinHeader in modify PBOM
Addr: 70h
For Phase margin and gain margin measure
125 degree assert
-PROHOT
MOS HEATSINK
GIGABYTE
IR 3563A
GA-X99-UD4
Monday, August 25, 2014

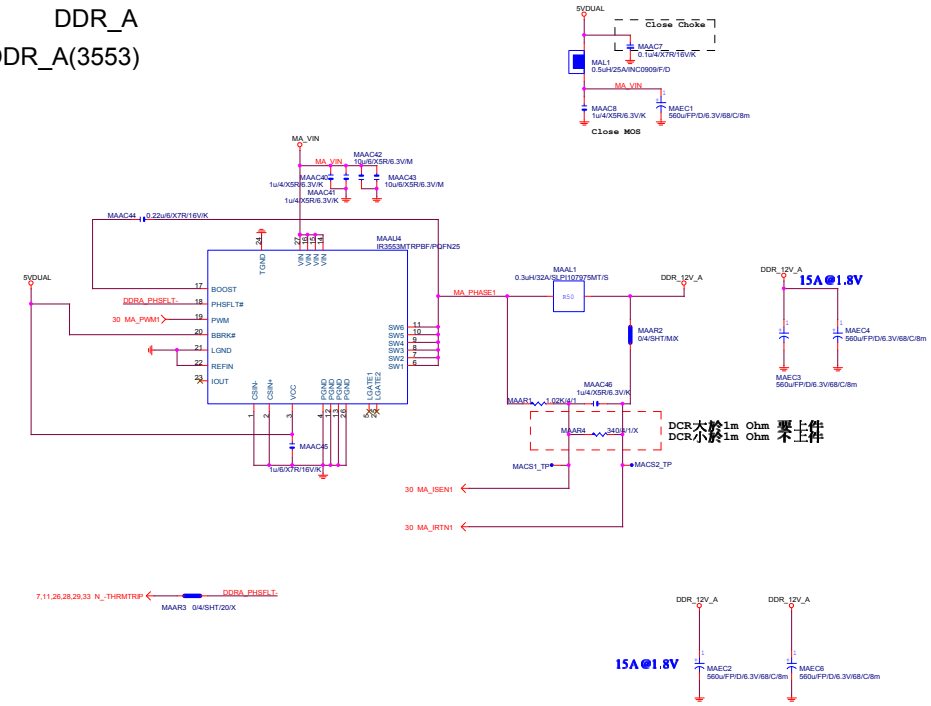

須更換成0.36uH/40A
確認溫度是否會更高
超頻時是否Imax-pk > 208A
IR3555/6/7 6x6
R3556MTRPBF/PQFN32[10IFB-503556-01R]
Width=30mil CAP Close to PIN
DAR3
100K/4/1/X
DAQ1
2N7002/SOT23/25pF/5/X
GIGABYTE
CPU CORE VR
GA-X99-UD4
1.01
Monday, August 25, 2014


3VDUAL
MAFB1
0/4/SHT/20/X
MA_PWM_VCC
MAC19
1u/4/X5R/6.3V/K
MAC20
0.1u/4/X7R/16V/K
DDR_12V_A
MAR79
0/4/SHT/20/X
MA_VSEN
MAR80 0/4/SHT/20/X
MAC22
3.3n/4/X7R/50V/K
MAR81 0/4/SHT/20/X
Close to DDR_12V_A
output inductor
MAAL1
MART1
10K/1/4/S
MA_RCSM_R
MA_RCSP_R
MAR85 1.5K/4/1
MA_RCSM
MAR84
2.15K/4/1
MAC21
220p/4/NPO/50V/J
MAR83 1.5K/4/1
MA_RCSP
MA_PWM1
MA_PWM1 32
MA_VPP_PWM1 33
MAU40
IR3570A-C-1+1[10TA1-603570-AOR]
To reduce noise
MAC23
22p/4/NPO/50V/J/X
MAC24
22p/4/NPO/50V/J/X
MAR88 0/4/SHT/X
N_SMBCLK 12,20,21,23,24,25,28,31,35,39,40,41,44
MAR89 0/4/SHT/X
N_SMBDATA 12,20,21,23,24,25,28,31,35,39,40,41,44
32 MA_ISEN1
32 MA_IRTN1
MA_ISEN1
MAR46 301/4/1
MA_ISEN1_L2
MA_IRTN1
MAR45 301/4/1
MA_IRTN1_L2
MA_ISEN2_L2
MA_ISEN3_L1
MA_ISEN2_L1
33 MA_VPP_ISEN1
33 MA_VPP_IRTN1
MAR105 1.5K/4/1
MAR107 49.9/4/1
MAR47 301/4/1
MA_ISEN1_L1
MAR48 301/4/1
MA_IRTN1_L1
ISEN1_L2
IRTN1_L2
ISEN2_L2
IRTN2_L2
ISEN3
IRTN3
ISEN2
IRTN2
ISEN1
IRTN1
GND
RCSP
RCSM
VRRDY_L2
Vsen
Vrtn
Pres
Tsen1
V18A
VRRDY_L1
EN_ISHARE
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
SVALERT#
ADDR
Isense
MA_VPP_EN
MA_VPP_EN 36
MAR72 8.2K/4
MA_PWM_VCC
MAC25 0.01u/4/X7R/25V/K
MAR87 1.78K/4/1
Addr: 72h
MA_DIO
MA_CLK
MA_ALRT
MAC26 0.01u/4/X7R/25V/K
MAR86 845/4/1
MAR66 8.2K/4
MAR67 8.2K/4
MAR68 8.2K/4
Close to VPP_25V_A
output inductor
MAL2
MART2
10K/1/4/S
MA_VTT_RCSP_R
MA_VTT_RCSM_R
MAR49 1.5K/4/1
MA_VTT_RCSP
MAR50
2.15K/4/1
MAC30
220p/4/NPO/50V/J
MAR51 1.5K/4/1
MA_VTT_RCSM
should be routed as
differential pair,
7mil width,8mil
spacing
DDR_12V_A
MAR52
8.2K/4/X
31 DDR_12V_A_PG
Diff pair
VPP_25V_A
MAR53
200/4/1
MAR33 0/4/SHT/20/X
MA_VPP_SEN
MAR34
1K/4/1
MAC31
3.3n/4/X7R/50V/K
MAR55
0/4/SHT/20/X
MAR82 7.5K/4/1
5VDUAL
MAR69
13K/4/1
MAR70
1K/4/1
MAC28
0.01u/4/X7R/25V/K
MA_EN
MAC29
0.01u/4/X7R/25V/K
MAR71 0/4/X MA_EN
MA_EN 36
MAR58
8.2K/4/X
3VDUAL
MA_VPP_IRTN1
MAR32 10/4
MAR59 75/4/1
MA_PWM_VCC
MA_TSEN_R1
MAC34
0.01u/4/X7R/25V/K
MAR61
13K/4/1
MAR3
47K/1/4/S
MAR60 0/4/SHT/X
MAC33
0.47u/6/X7R/16V/K
MAC41
4.7u/6/X5R/6.3V/K
VPP_25V_A
防漏電
MAR1
82/4
MAR2
82/4
MAQ7
2N7002/SOT23/25pF/5
26,37,36,37,41 -PSON
VPP_25V_A
D3
DDR_12V_A
BAT54A/SOT23/200mA
3VDUAL
MA_VPP_EN
MAR30 8.2K/4
MAC36
0.01u/4/X7R/25V/K
DDRVTT
DDR_12V_A
RT9173DPSP/3A/SO8/S[10GL2-309173-20R]
MAU2
VIN
GND
VREF1
VOUT
VREF2
ENABLE
VCNTL
BOOT_SEL
VCC
MAC37
1u/4/X5R/6.3V/K
MAR40
1K/4/1
MA_VTT_REF
MAR41
1K/4/1
MAC10
1u/4/X5R/6.3V/K
MAC38
10u/6/X5R/6.3V/M
DDRVTT_A
35 VTT_ADJ
MA_VTT_ADJ
MAR92
MA_VTT_REF
0/4/SHT/X
VPP_25V_A
3VDUAL
MAR76
8.2K/4/X
MAR77
8.2K/4
MA_EN
MAQ6
2N7002/SOT23/25pF/5
3VDUAL
MAR75
22K/4
VPP_25V_A
MAR74
10K/4/1
MAQ5
MMBT2222A/SOT23/600mA40
MAR73
5.11K/4/1/X
MAC32
0.1u/4/X7R/16V/K
For power sequence require
MA_EN
MA_VPP_EN
MAQ1
2N7002/SOT23/25pF/5
MAQ3
2N7002/SOT23/25pF/5
26,31,36,37,41 -PSON
26,31,36,37,41 -PSON
MAQ4
MMBT2222A/SOT23/600mA40
12,26,31,35,36,41,55 N_-SLP_S3
MAR78 22K/4
MAC39
0.1u/4/X7R/16V/K/X
MAC40
2.2u/6/X5R/6.3V/K
POWER ISSUE
DDR_12V_A
Rev 1.01
MAC1
1u/4/X5R/6.3V/K
MAR22
150/4/1
MAR24 100/4/1
A_DRAM_PWROK0 7
MAR23
1K/4/1/X
MAQ2
MMBT2222A/SOT23/600mA40
31 -DRAM_PWROK
MAR26
8.2K/4
GIGABYTE
Title
DDR_A& CPU_VTT POWER IR3570
Size C
Document Number
GA-X99-UD4
Rev 1.01
Date: Monday, August 25, 2014
Sheet 30 of 58


3VDUAL
MBFB1
0/4/SHT/20/X
MB_PWM_VCC
MBC3
1u/4/X5R/6.3V/K
MBC8
0.1u/4/X7R/16V/K
DDR_12V_B
MBR78
0/4/SHT/20/X
Close to DDR_12V_B
output inductor MBAL1
MBRT1
10K/1/4/S
MB_RCSM_R
MB_RCSP_R
MBR64
1.5K/4/1
MBR65
2.15K/4/1
MBR66
1.5K/4/1
MB_RCSM
MB_RCSP
MBC20
220p/4/NPO/50V/J
MB_VSEN
MBR77
0/4/SHT/20/X
MBC9
3.3n/4/X7R/50V/K
MBR76
0/4/SHT/20/X
MB_PWM1
MB_PWM1 32
MB_VPP_PWM1 33
To reduce noise
MBU40
IR3570A-C-1+1[10TA1-603570-AOR]
MBC22
22p/4/NPO/50V/J/X
MBC23
22p/4/NPO/50V/J/X
32 MB_ISEN1
32 MB_IRTN1
MB_ISEN1
MB_IRTN1
MBR63
301/4/1
MBR62
301/4/1
MB_ISEN1_L2
MB_IRTN1_L2
MB_ISEN2_L2
MB_ISEN3_L1
MB_ISEN2_L1
MB_IRTN1_L1
33 MB_VPP_ISEN1
33 MB_VPP_IRTN1
MBR105
1.5K/4/1
MBR107
49.9/4/1
MBR58
301/4/1
MBR59
301/4/1
SM_CLK
SM_DIO
ADDR_PROT
EN
VR_HOT/Icritical
SV_DIO
SV_CLK
SVALERT#
ADDR
EN_sense
MBR84
0/4/SHT/X
MBR83
0/4/SHT/X
N_SMBCLK 12,20,21,23,24,25,28,30,35,39,40,41,44
N_SMBDATA 12,20,21,23,24,25,28,30,35,39,40,41,44
MBC15
0.01u/4/X7R/25V/K
MB_VPP_EN
MB_VPP_EN 36
MBR80
2.87K/4/1
MBR75
8.2K/4
MB_PWM_VCC
Addr: 74h
MB_DIO
MB_CLK
MB_ALRT
MBC16
0.01u/4/X7R/25V/K
MBR79
1.78K/4/1
MBR70
8.2K/4
MBR71
8.2K/4
MBR72
8.2K/4
VPP_25V_B
防漏電
MBR1
82/4
MBR2
82/4
MBQ7
2N7002/SOT23/25pF/5
26,30,36,37,41 -PSON
Close to VPP_25V_B
output inductor
MBL2
MBRT2
10K/1/4/S
MB_VTT_RCSP_R
MB_VTT_RCSM_R
MBR55
1.5K/4/1
MBR56
2.15K/4/1
MBR57
1.5K/4/1
MB_VTT_RCSP
MB_VTT_RCSM
MBC11
220p/4/NPO/50V/J
should be routed as
differential pair,
7mil width,8mil
spacing
DDR_12V_B
MBR54
8.2K/4/X
DDR_12V_B_PG
5VDUAL
MBR44
13K/4/1
MBR42
0/4/X
MB_EN
MB_EN 36
MBR45
1K/4/1
MBC18
0.01u/4/X7R/25V/K
MBC17
0.01u/4/X7R/25V/K
MBR39
8.2K/4/X
3VDUAL
MBR43
7.5K/4/1
Diff pair
VPP_25V_B
MBR51
200/4/1
MBR50
0/4/SHT/20/X
MB_VPP_SEN
MBR49
1K/4/1
MBC12
3.3n/4/X7R/50V/K
MBR53
0/4/SHT/20/X
MB_VPP_IRTN1
MBR38
10/4
MBR37
75/4/1
MB_PWM_VCC
MB_TSEN_R1
MBC21
0.01u/4/X7R/25V/K
MBR35
13K/4/1
MBR3
47K/1/4/S
MBC14
0.47u/6/X7R/16V/K
MBR36
0/4/SHT/X
MBC40
4.7u/6/X5R/6.3V/K
VPP_25V_B
DDR_12V_B
D4
BAT54A/SOT23/200mA
MB_VPP_EN MBR416
8.2K/4
MBC35
0.01u/4/X7R/25V/K
3VDUAL
DDRVTT
DDR_12V_B
RT9173DPSP/3A/SO8/S[10GL2-309173-20R]
MBU2
VIN
GND
VREF1
VOUT
VREF2
ENABLE
VCNTL
BOOT_SEL
VCC
MBC36
1u/4/X5R/6.3V/K
MBR40
1K/4/1
MB_VTT_REF
MBR41
1K/4/1
MBC10
1u/4/X5R/6.3V/K
MBC37
10u/6/X5R/6.3V/M
DDRVTT_B
35 VTT_ADJ2
MB_VTT_ADJ
MBR85
0/4/SHT/X
MB_VTT_REF
For power sequence require
VPP_25V_B
3VDUAL
MBR30
8.2K/4/X
MBR31
8.2K/4
MB_EN
MBQ5
2N7002/SOT23/25pF/5
MBR32
22K/4
MBR33
10K/4/1
MBQ4
MMBT2222A/SOT23/600mA40
MBR34
1K/4/1/X
MBC13
0.1u/4/X7R/16V/K
MB_EN
MB_VPP_EN
12 A_DRAM_PWROK
MBQ1
2N7002/SOT23/25pF/5
MBQ2
2N7002/SOT23/25pF/5
MBQ3
MMBT2222A/SOT23/600mA40
26,30,36,37,41 -PSON
12,26,30,35,36,41,55 N_-SLP_S3
MBR23
22K/4
MBC38
0.1u/4/X7R/16V/K/X
MBC39
2.2u/6/X5R/6.3V/K
POWER ISSUE
DDR_12V_B
5VDUAL
NR102
1K/4/1
NQ11
MMBT2222A/SOT23/600mA40
NR111
1K/4/1
MAR90
2K/4/1
MAR6
2.2/4
MAR31
0/4/SHT/20/X
MAR91
0/4/SHT/20/X
MAC35
0.01u/4/X7R/25V/K/X
30 DDR_12V_A_PG
DDR_12V_B_PG
DDR_12V_B
Rev 1.01
MBC7
1u/4/X5R/6.3V/K
NR110
150/4/1
MBR22
100/4/1
MBR21
1K/4/1/X
A_DRAM_PWROK1 7
NQ9
MMBT2222A/SOT23/600mA40
NR108
8.2K/4
-DRAM_PWROK 30
GIGABYTE
Title
DDR_A& CPU_VTT POWER IR3570
Size
C
Document Number
GA-X99-UD4
Rev
1.01
Date:
Monday, August 25, 2014
Sheet
31
of
58

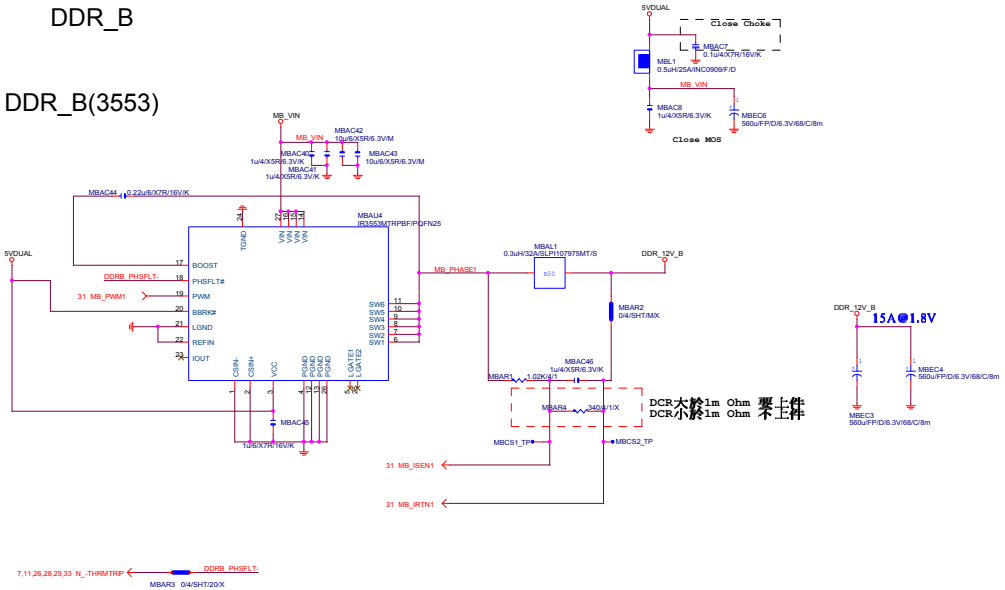
DDR_A

DDR_A(3553)



DDR_B

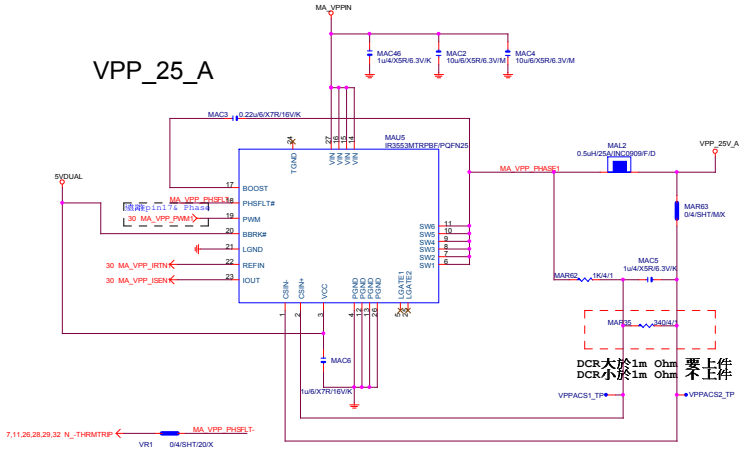
DDR_B(3553)



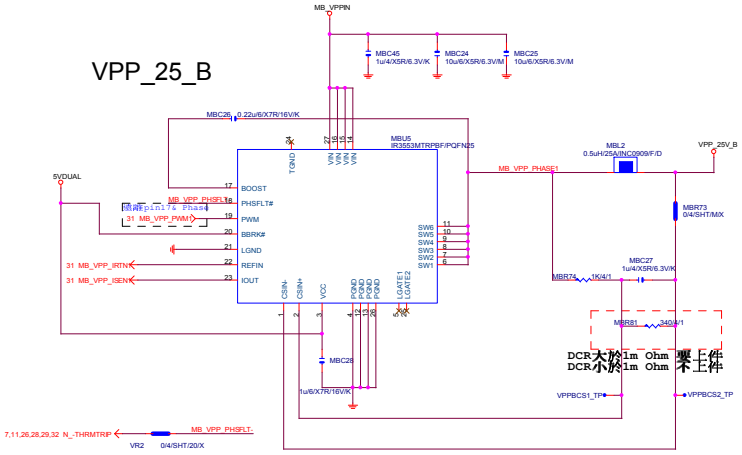
GIGABYTE

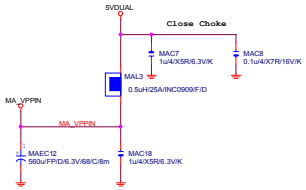
Title	ISL6322 CPUVTT	
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 32 of 58	

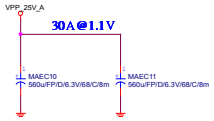
VPP_25_A

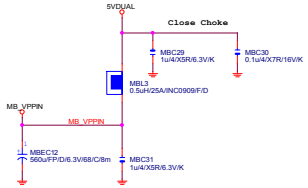


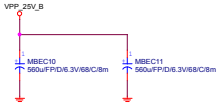
VPP_25_B



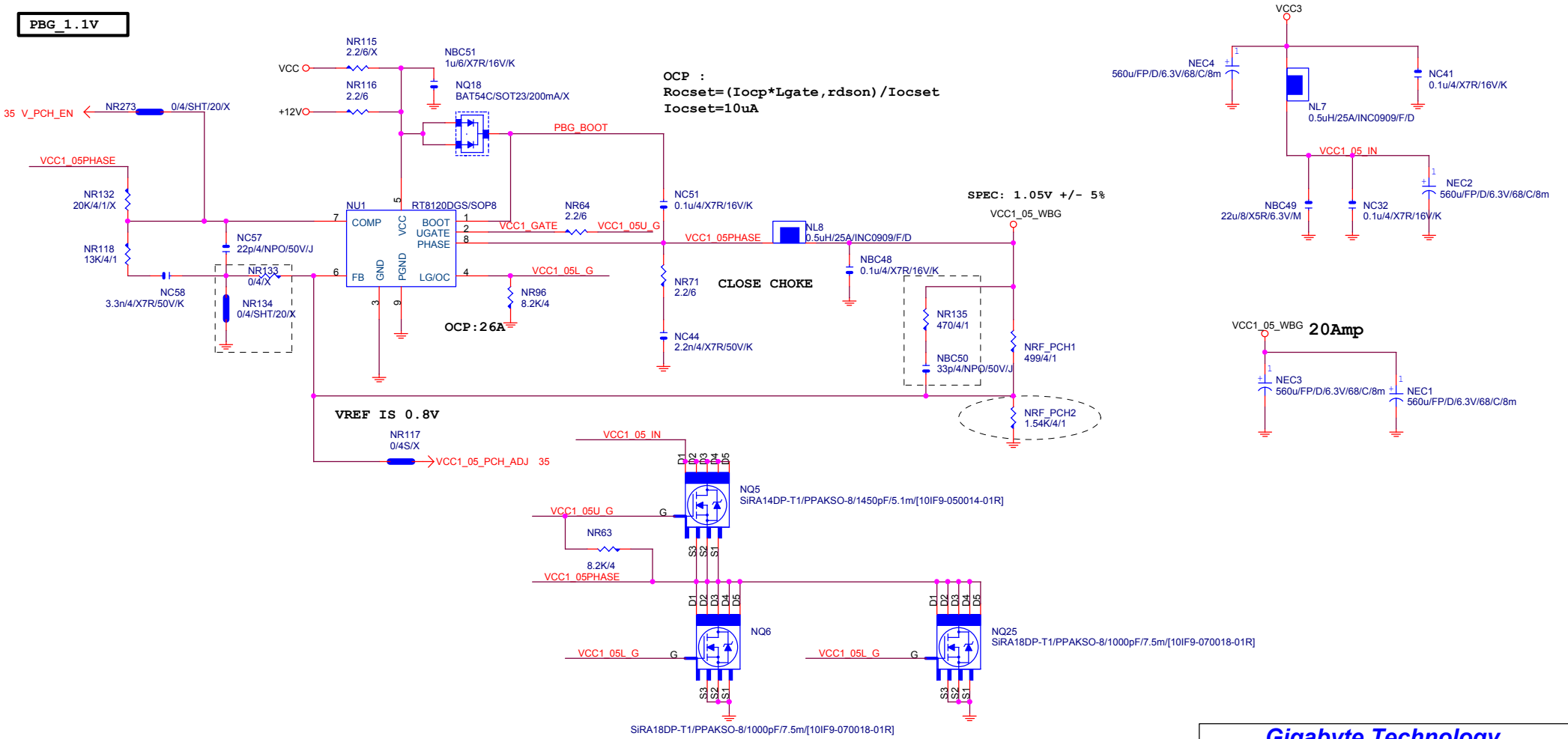




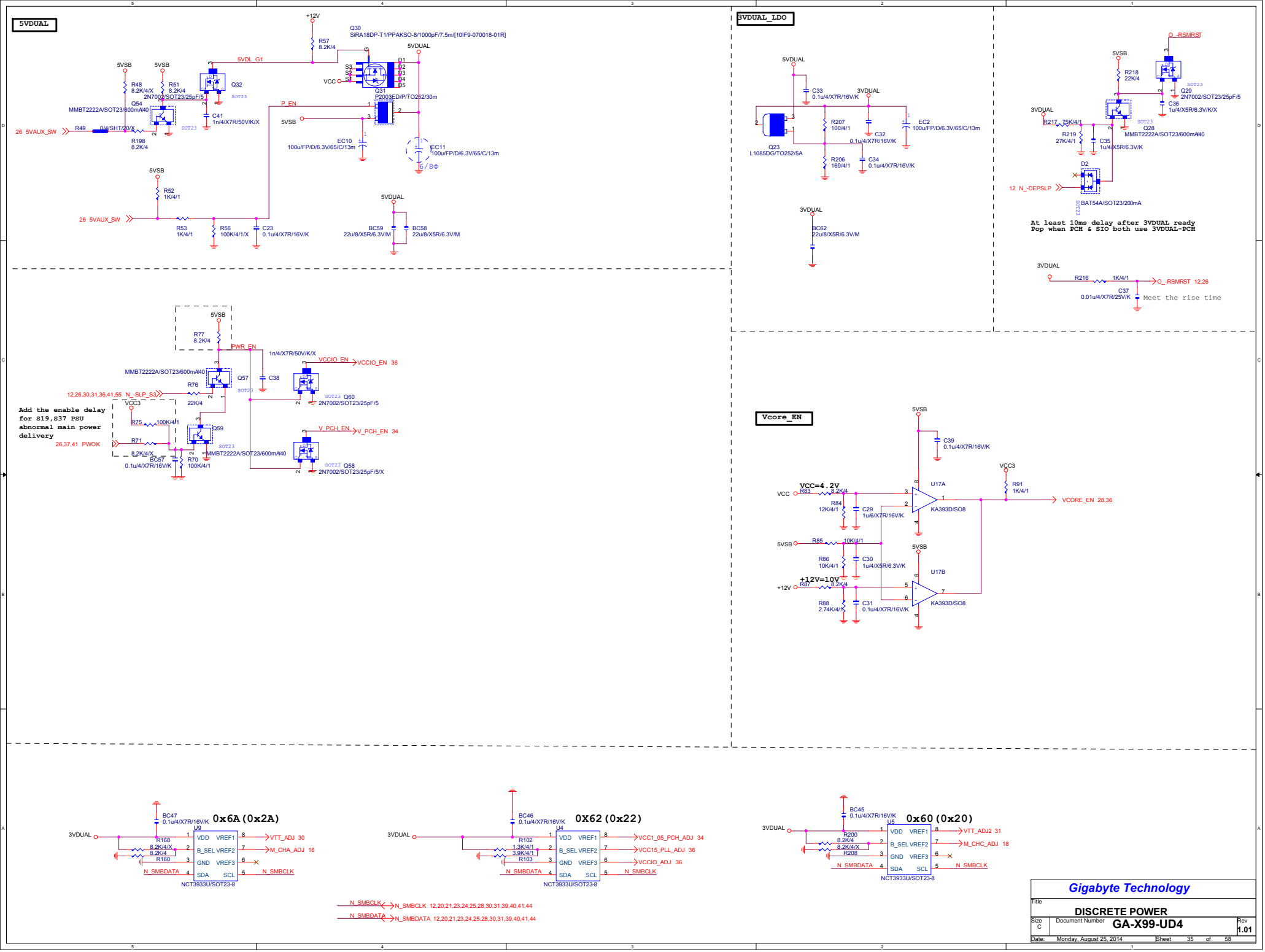




Title	<Title>		
Size	Document Number		Rev
Custom	DA-X99-UD4		1.01
Date:	Monday, August 25, 2014	Sheet 33 of 58	



Gigabyte Technology		
Title: ISL6545 PCH		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 34 of 58	

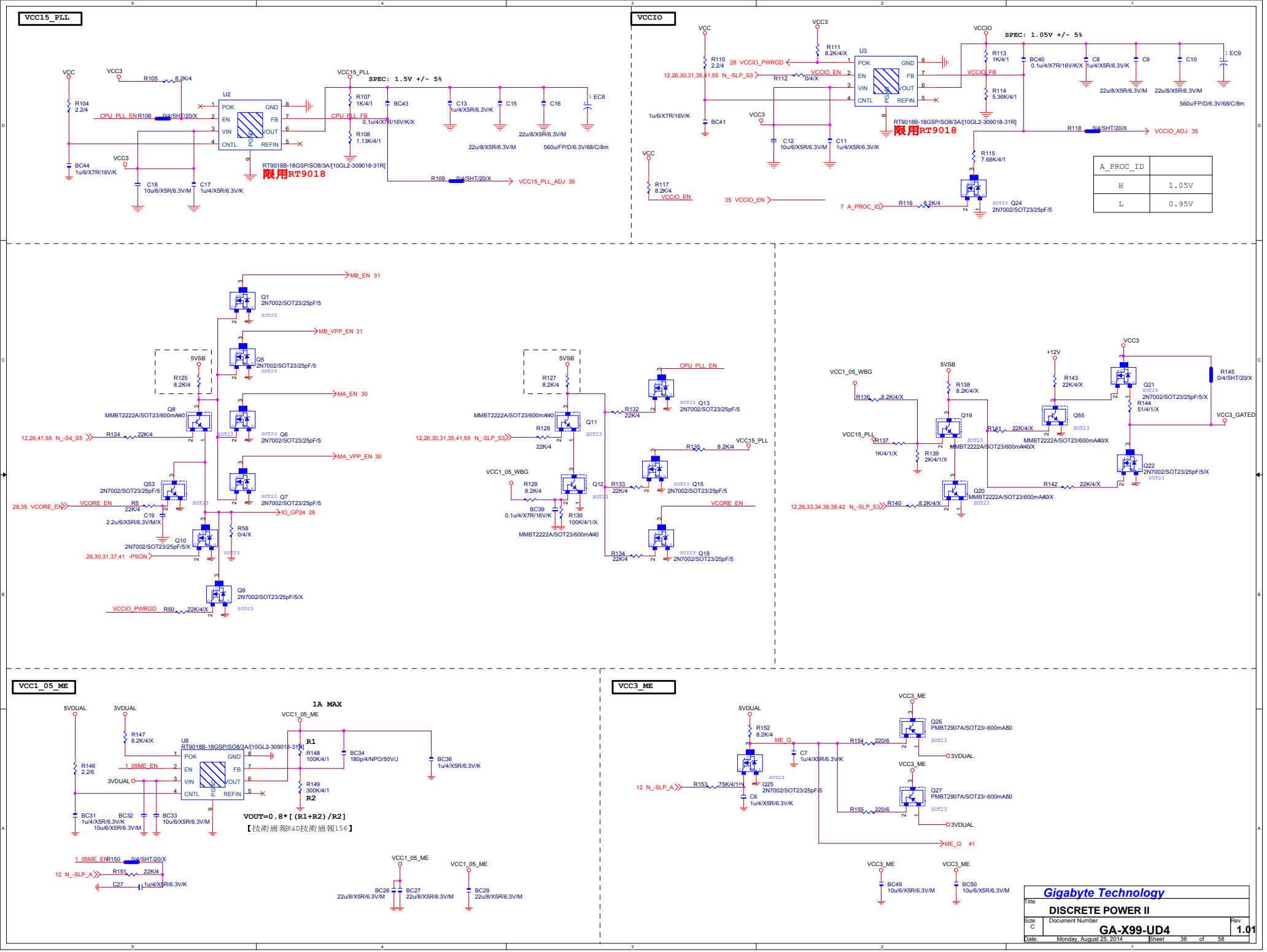


Gigabyte Technology

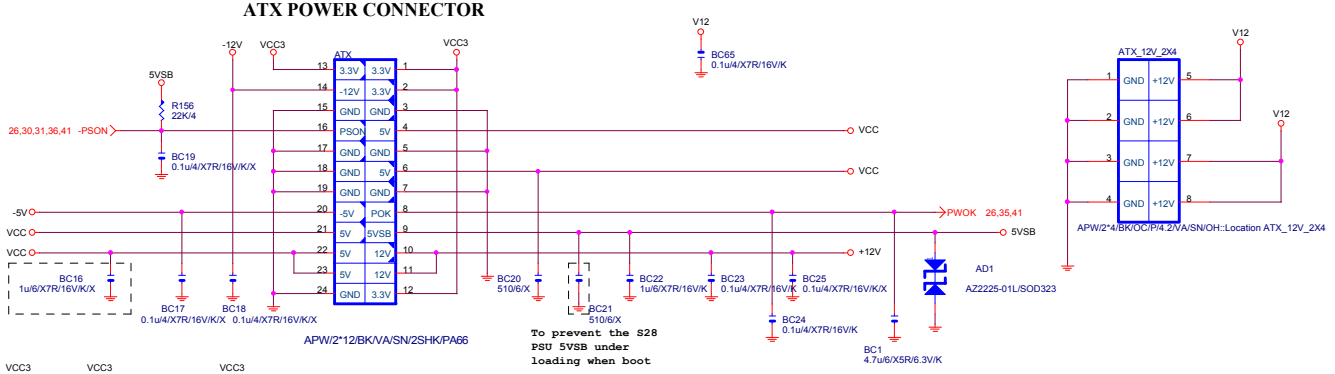
Title: **DISCRETE POWER**

Size	Document Number	Rev
C	GA-X99-UD4	1.01

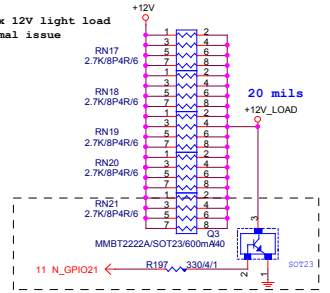
Date: Monday, August 25, 2014 Sheet 35 of 58

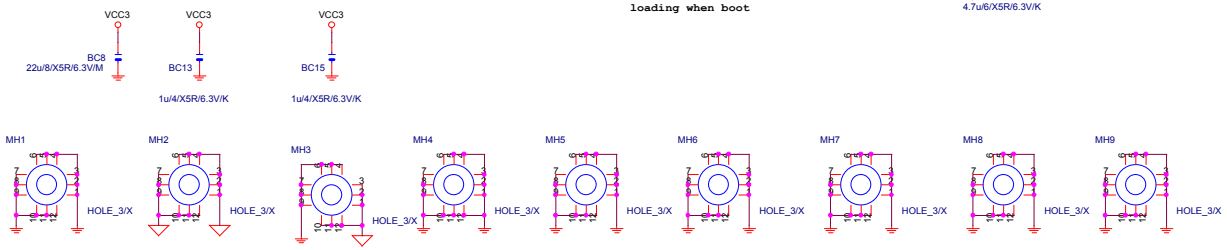

VCC15_PLL
SPEC: 1.5V +/- 5%
RT9018B-18GSP/SO8/3A/[10GL2-309018-31R]
限用RT9018
VCCIO
SPEC: 1.05V +/- 5%
RT9018B-18GSP/SO8/3A/[10GL2-309018-31R]
限用RT9018
A_PROC_ID
H 1.05V
L 0.95V
VCC1_05_ME
1A MAX
VOUT=0.8*[(R1+R2)/R2]
【技術通報&D技術通報156】
VCC3_ME
Gigabyte Technology
DISCRETE POWER II
GA-X99-UD4
1.01
Monday, August 25, 2014
Sheet 36 of 58

ATX POWER CONNECTOR

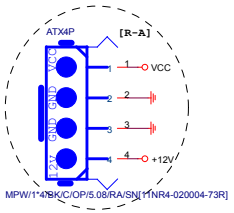


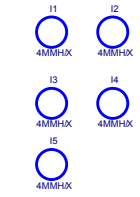
To fix 12V light load abnromal issue



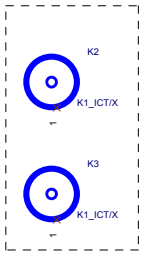


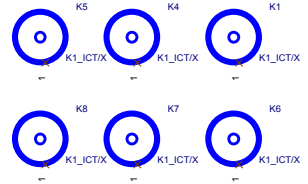
OVER CLOCKING





For CPU





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	

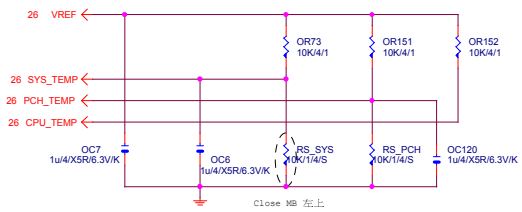
Gigabyte Technology

Title: ATX / CLOCK BUFFER

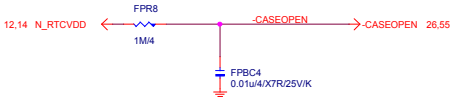
Size: C | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 37 of 58

TEMP H/W MONITOR

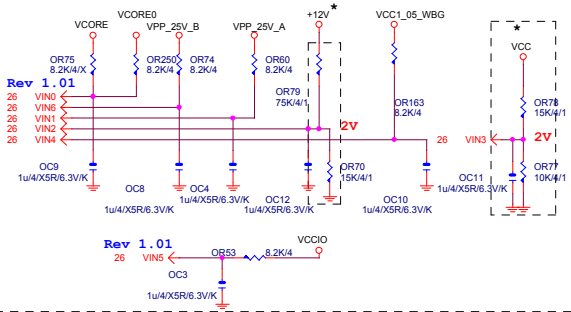


CASE OPEN

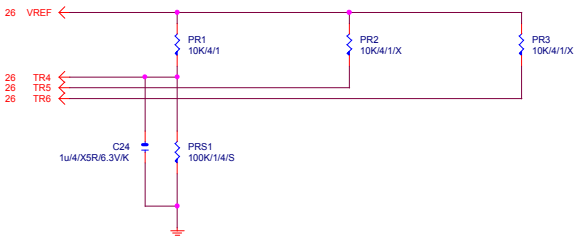


VOLTAGE-- H/W MONITOR

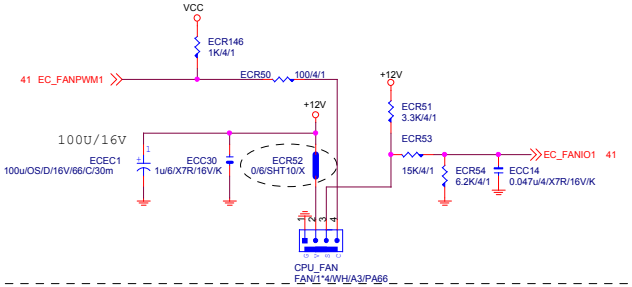
VIN2 must +12V input
VIN3 must VCC input



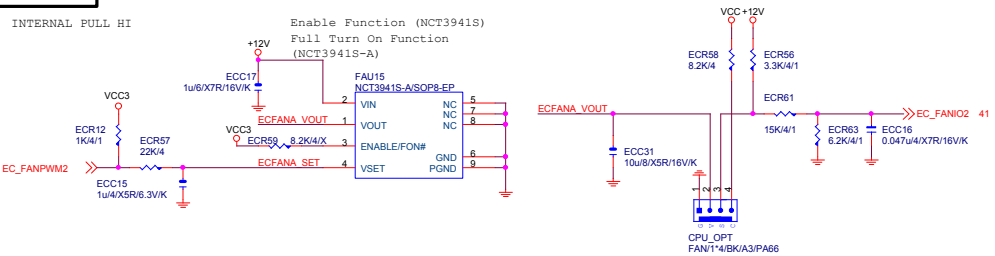
8620 PROCHOT



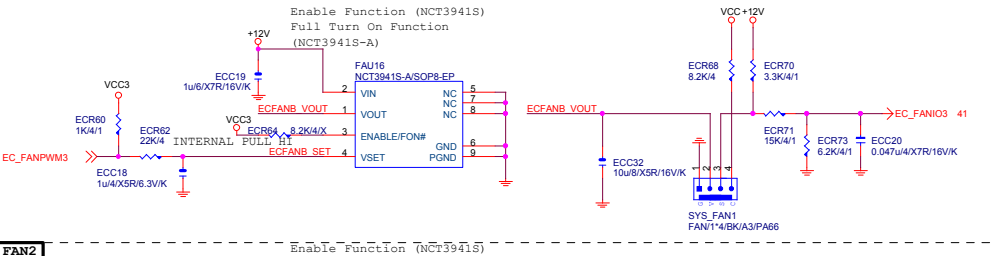
CPU SMART FAN



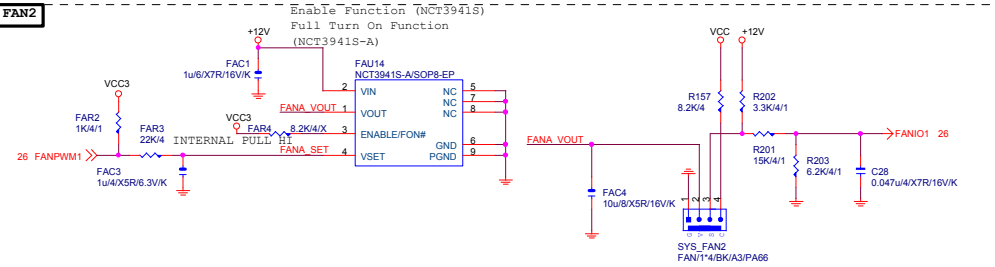
CPUOPT FAN



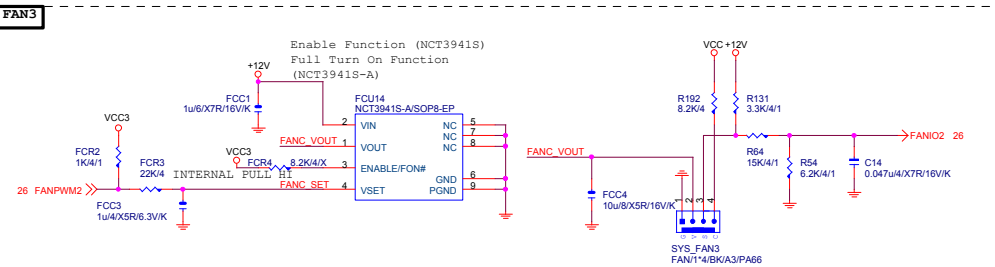
SYS FAN1



SYS FAN2

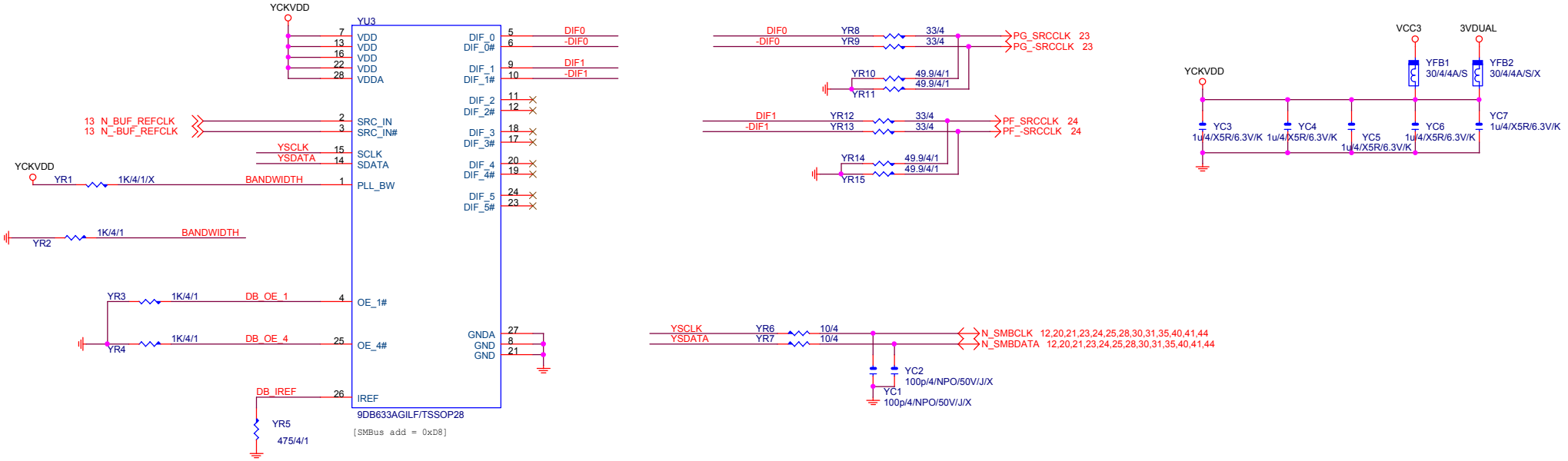


SYS FAN3



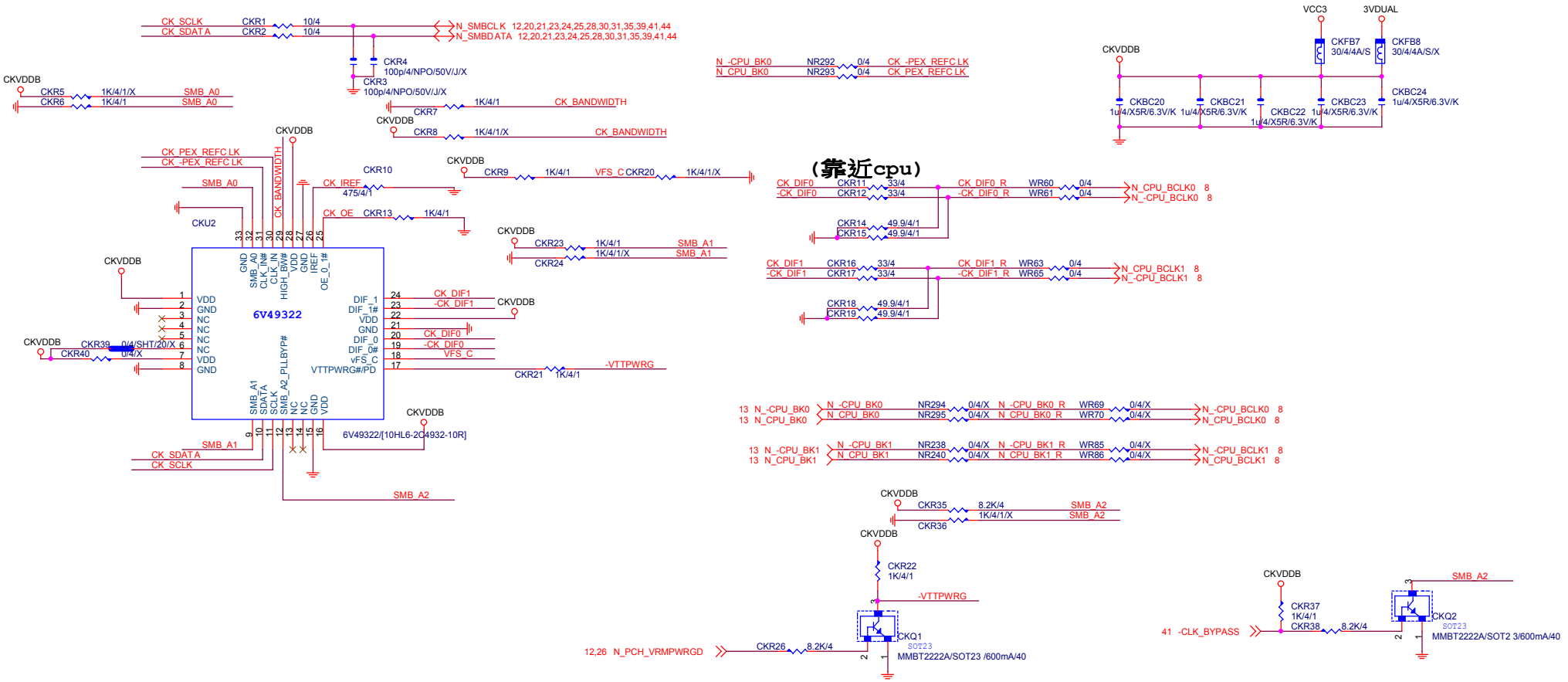
Gigabyte Technology

Title	HWM,FAN CTRL	
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 38 of 58	



GIGABYTE™

Title: REFCLK		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 39 of 58	

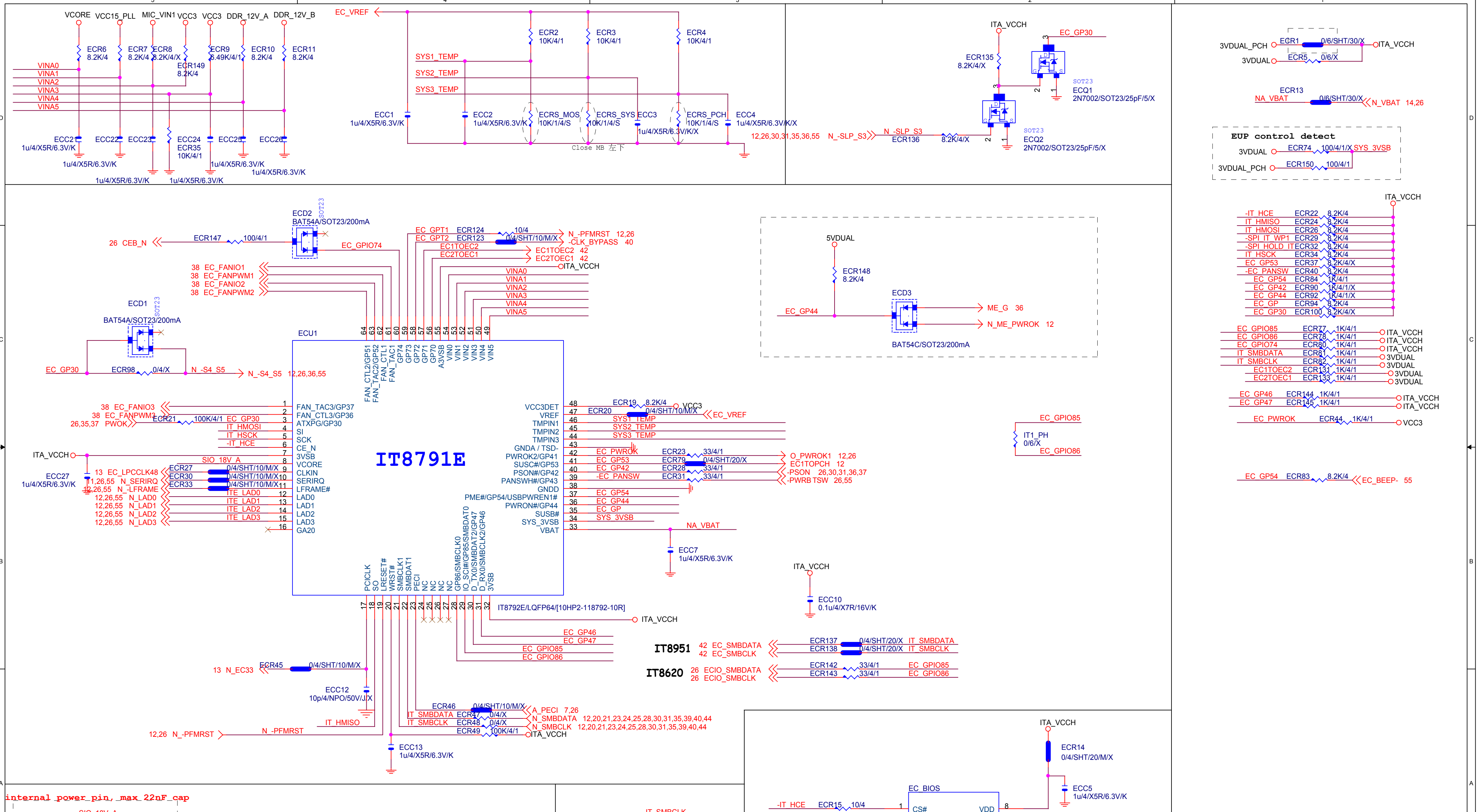


GIGABYTE™

Title: PCH DISPLAY ,CLK BUFFER

Size	Document Number	Rev
Custom	GA-X99-UD4	1.01

Date: Monday, August 25, 2014 Sheet 40 of 58


IT8791E
ECU1
IT8792E/LQFP64/[10HP2-118792-10R]
EUP control detect
IT8951
IT8620
EC_BIOS
4M/SPI/SO8/200mil/S/[10HP4-112540-30R]
internal power pin, max 22nF cap
Close MB 左下
ECD1 BAT54A/SOT23/200mA
ECD2 BAT54A/SOT23/200mA
ECD3 BAT54C/SOT23/200mA
ECQ1 2N7002/SOT23/25pF/5/X
ECQ2 2N7002/SOT23/25pF/5/X
VCORE VCC15_PLL MIC_VIN1 VCC3 VCC3 DDR_12V_A DDR_12V_B
EC_VREF
SYS1_TEMP
SYS2_TEMP
SYS3_TEMP
ITA_VCCH
3VDUAL_PCH
3VDUAL
5VDUAL
N_VBAT
NA_VBAT
SYS_3VSB
EC_GP30
EC_GP44
ME_G 36
N_ME_PWROK 12
N_-S4_S5 12,26,36,55
N_-SLP_S3
N_-PFMRST 12,26
CEB_N
EC_FANIO1
EC_FANPWM1
EC_FANIO2
EC_FANPWM2
EC_FANIO3
EC_FANPWM3
PWOK
N_EC33
A_PECI 7,26
N_SMBDATA
N_SMBCLK
EC_SMBDATA
EC_SMBCLK
ECIO_SMBDATA
ECIO_SMBCLK
EC_GPIO85
EC_GPIO86
EC_BEEP- 55
O_PWROK1 12,26
EC1TOPCH 12
-PSON 26,30,31,36,37
-PWRBTSW 26,55

Title: IT8790

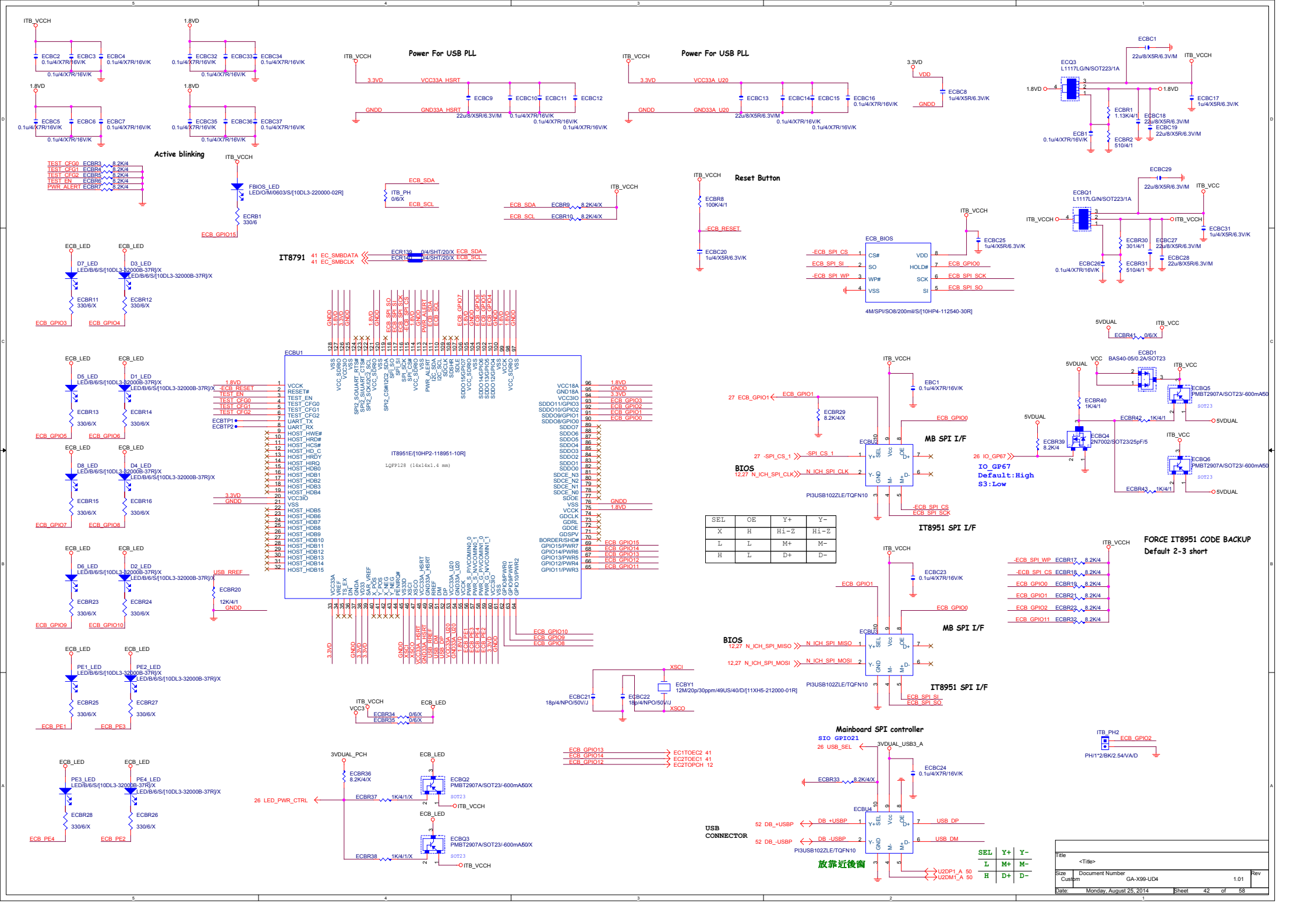
Size: Custom

Document Number: GA-X99-UD4

Rev: 1.01

Date: Monday, August 25, 2014

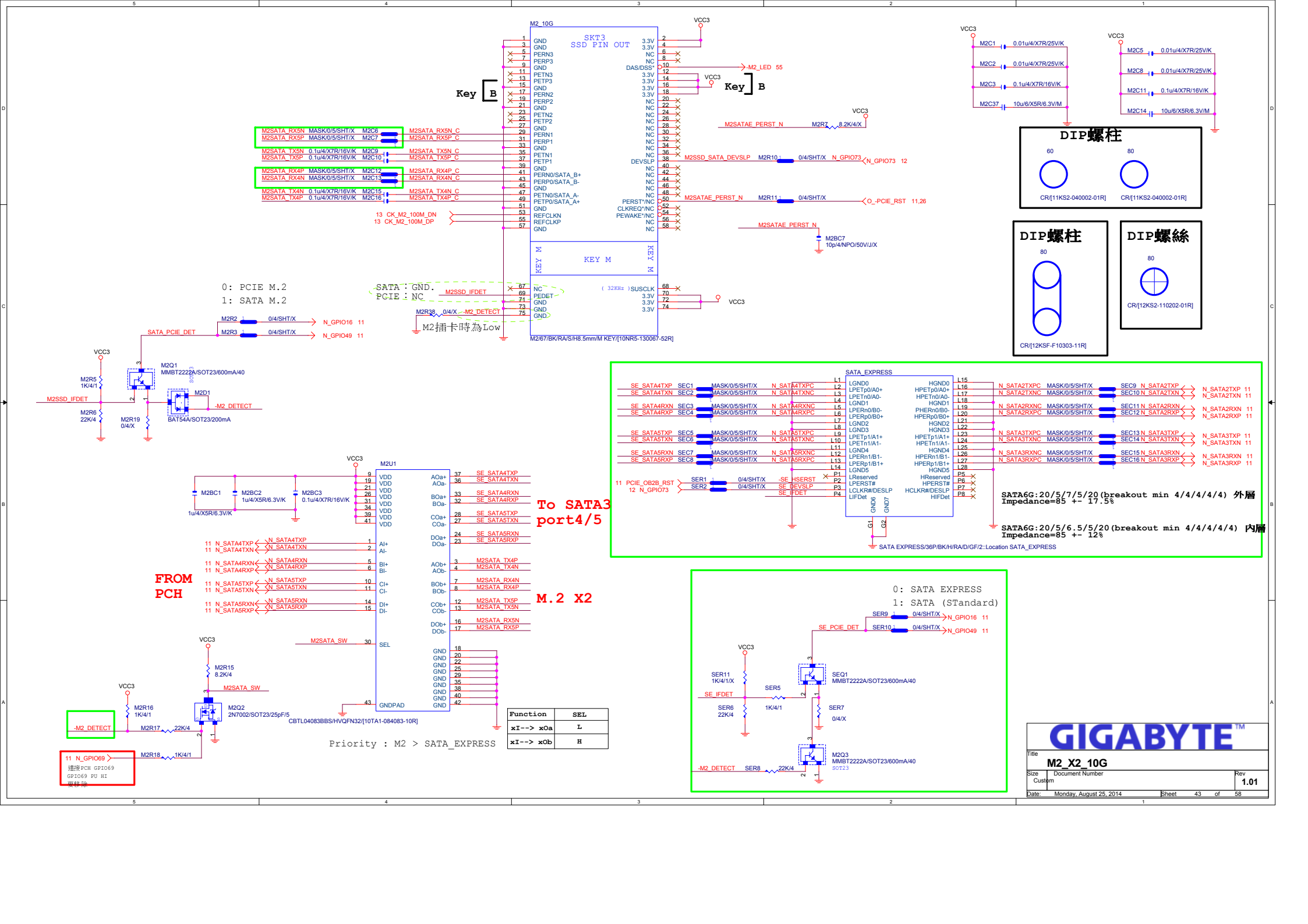
Sheet 41 of 58

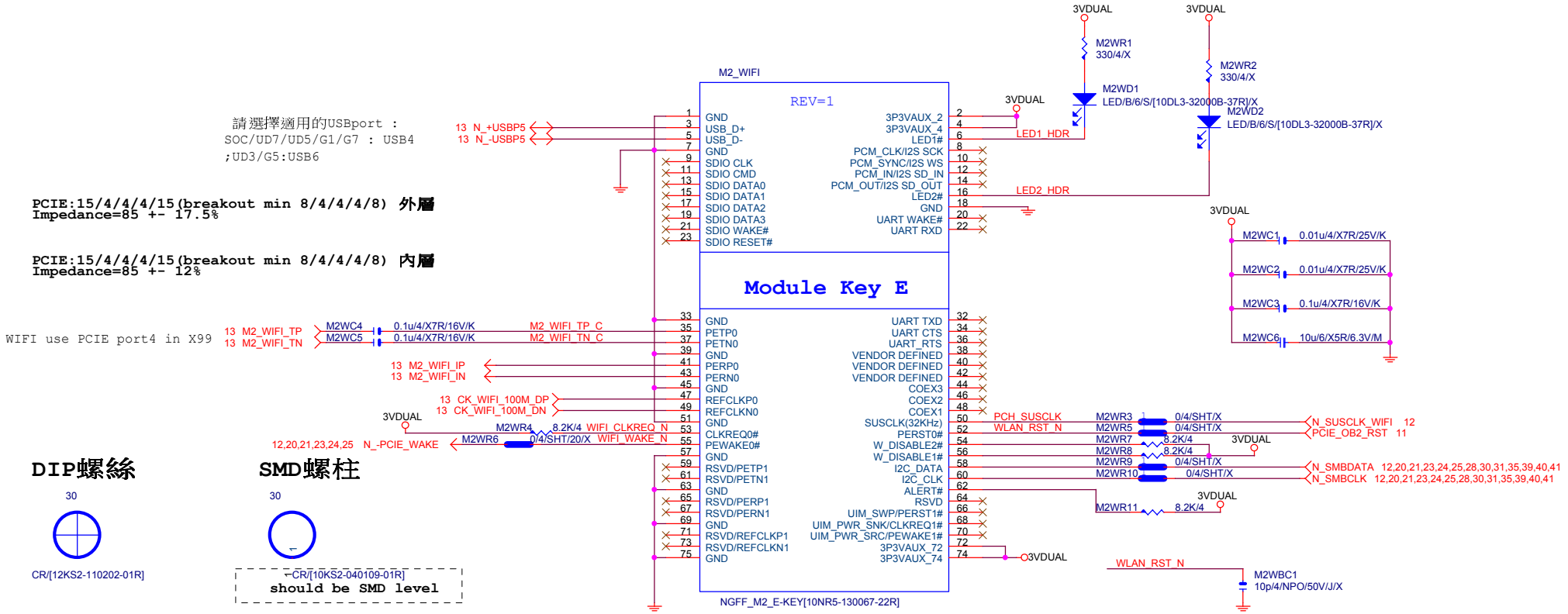


SEL	OE	Y+	Y-
X	H	Hi-Z	Hi-Z
L	L	M+	M-
H	L	D+	D-

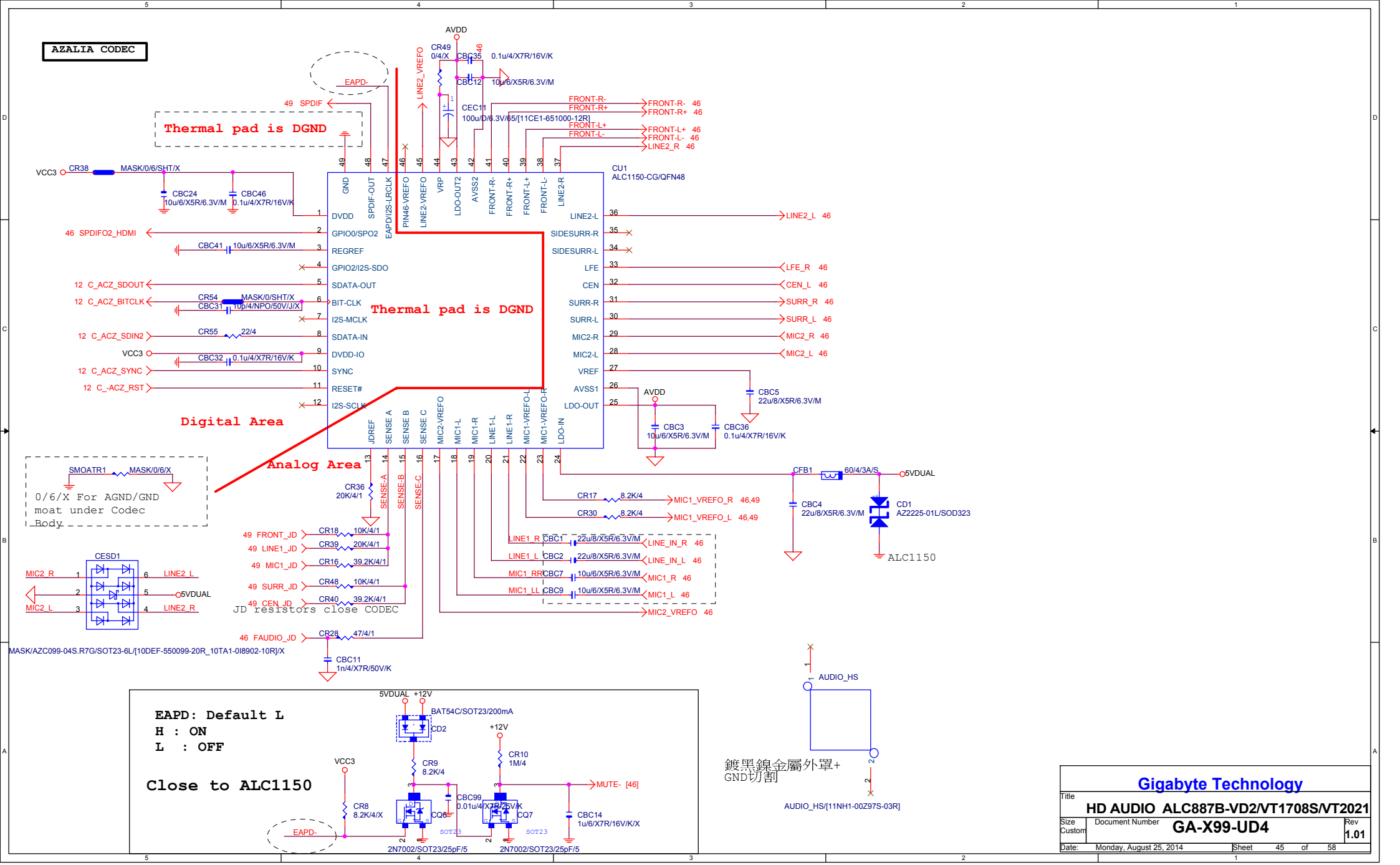
SEL	Y+	Y-
L	M+	M-
H	D+	D-

Title: <Title>
Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01
Date: Monday, August 25, 2014 | Sheet 42 of 58


M2_10G
SKT3
SSD PIN OUT
Key B
KEY M
M2/67/BK/RA/S/H8.5mm/M KEY/[10NR5-130067-52R]
0: PCIE M.2
1: SATA M.2
SATA : GND.
PCIE : NC
M2插卡時為Low
M2Q1
MMBT2222A/SOT23/600mA/40
M2D1
BAT54A/SOT23/200mA
M2U1
CBTL04083BBS/HVQFN32/[10TA1-084083-10R]
FROM PCH
To SATA3 port4/5
M.2 X2
Priority : M2 > SATA_EXPRESS
Function | SEL
xI--> xOa | L
xI--> xOb | H
SATA_EXPRESS
SATA6G:20/5/7/5/20(breakout min 4/4/4/4/4) 外層
Impedance=85 +- 17.5%
SATA6G:20/5/6.5/5/20(breakout min 4/4/4/4/4) 內層
Impedance=85 +- 12%
SATA EXPRESS/36P/BK/H/RA/D/GF/2::Location SATA_EXPRESS
0: SATA EXPRESS
1: SATA (STandard)
DIP螺柱
CR/[11KS2-040002-01R]
DIP螺柱
CR/[12KSF-F10303-11R]
DIP螺絲
CR/[12KS2-110202-01R]
GIGABYTE
Title
M2_X2_10G
Size
Custom
Document Number
Rev
1.01
Date: Monday, August 25, 2014
Sheet 43 of 58



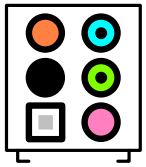
Title	M2_WIFI		
Size B	Document Number		Rev 1.01
Date: Monday, August 25, 2014		Sheet 44 of 58	



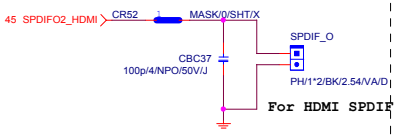
Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021
Size	Custom
Document Number	GA-X99-UD4
Rev	1.01
Date:	Monday, August 25, 2014
Sheet	45 of 58

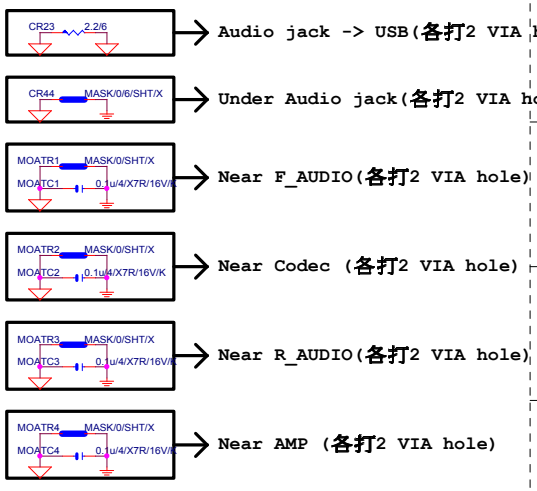
Gigabyte Technology

AZALIA JACK

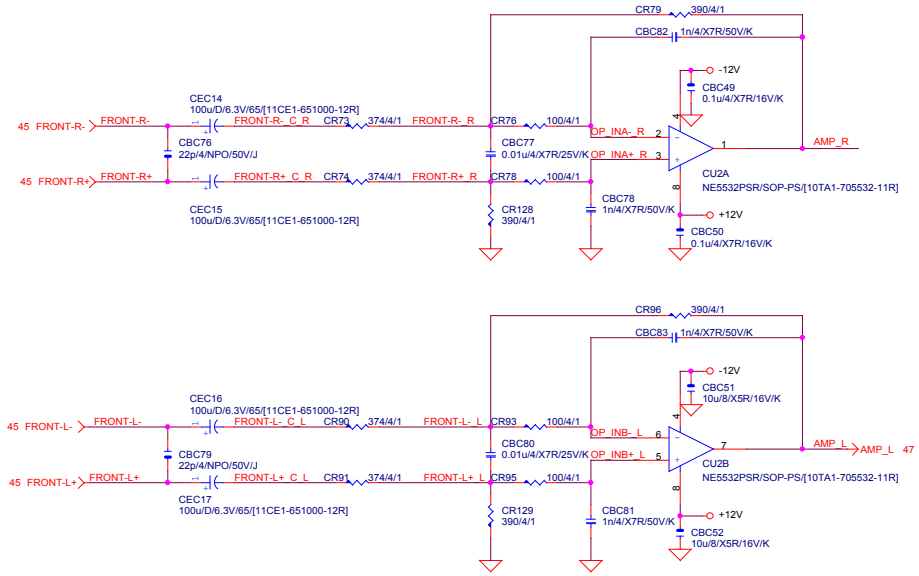


SPDIF_OUT

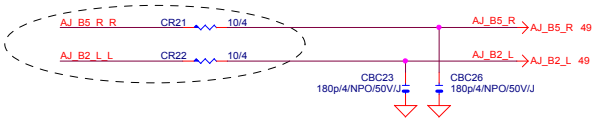




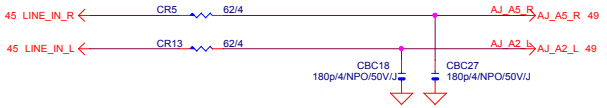
Differential to Single-End AMPLIFIED



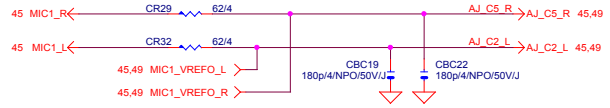
LINE-OUT



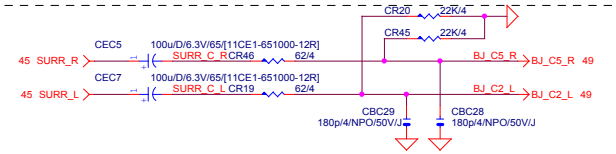
LINE-IN



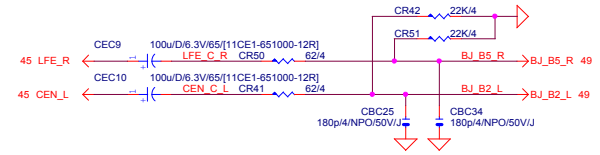
MIC-IN

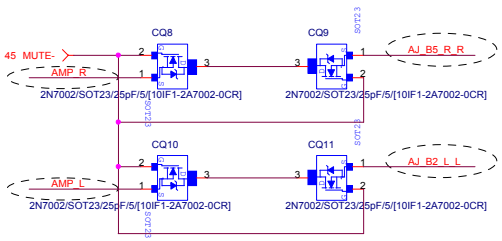


SURROUND

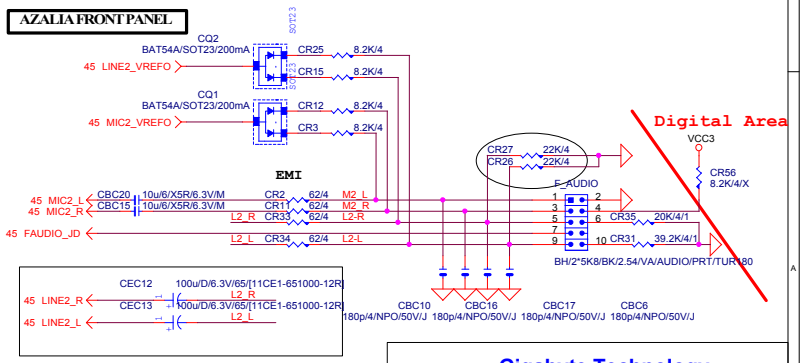


CEN/LFE



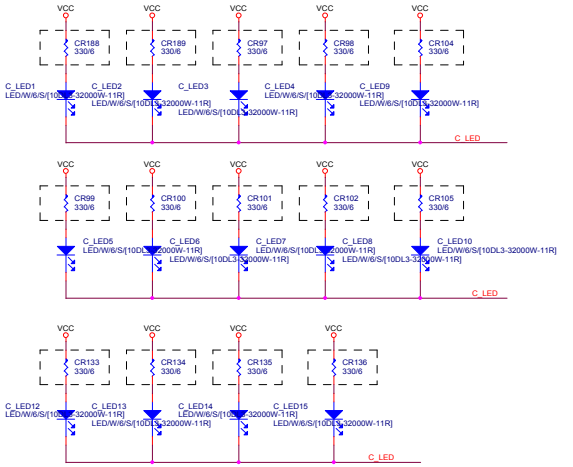


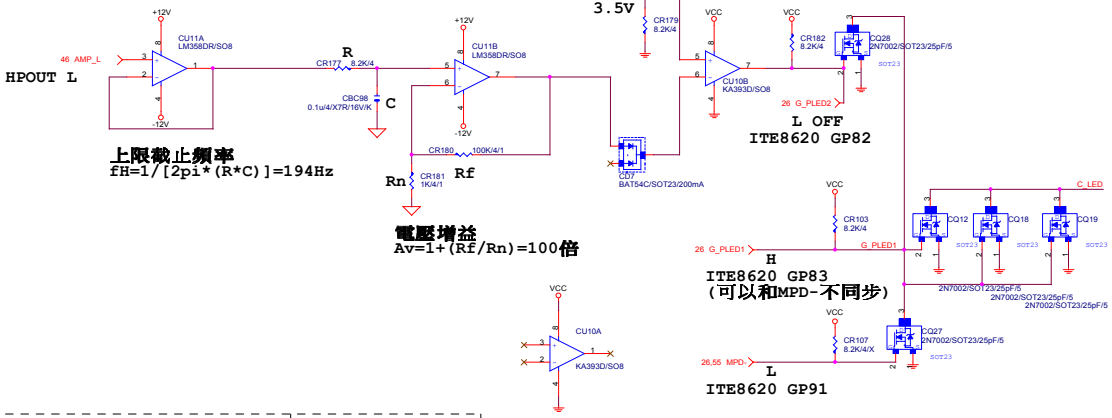
AZALIA FRONT PANEL

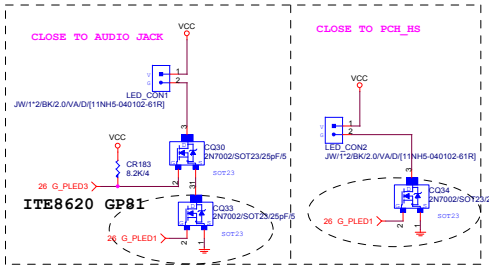


Gigabyte Technology

Title	AUDIO JACK	
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 46 of 58	







AUDIO LED Control

	IO_GP82	IO_GP83	IO_GP91
LED ON	L	H	PWR_LED
LED OFF	L	L	PWR_LED
LED BREATH	L	H	BREATH
LED TEMPO	INPUT	H	PWR_LED

Rear Panel LED ON/OFF

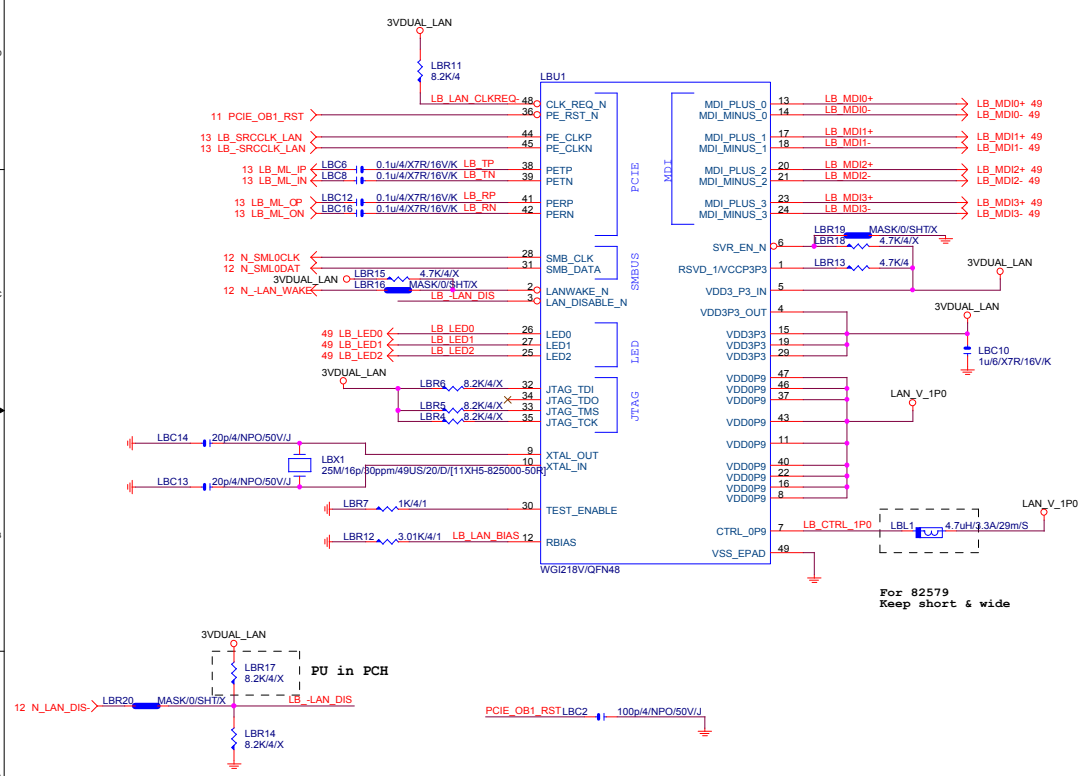
	IO_GP81
REAR LED ON	H
REAR LED OFF	L

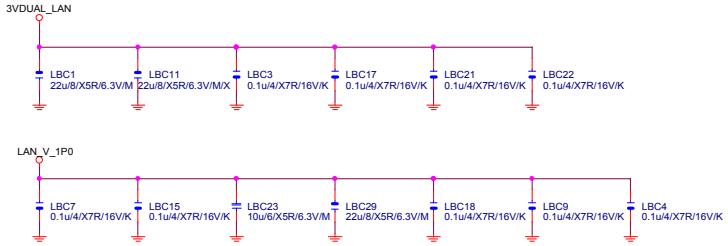
GIGABYTE™

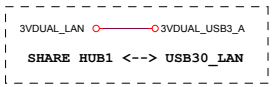
Title: Creative Sound3Di

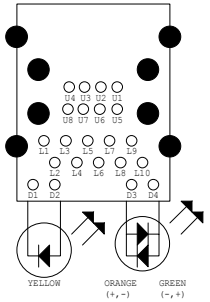
Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

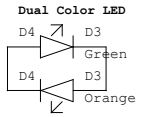
Date: Monday, August 25, 2014 | Sheet 47 of 58

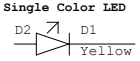












1Gb	Orange
100Mb	Green
10Mb	Off

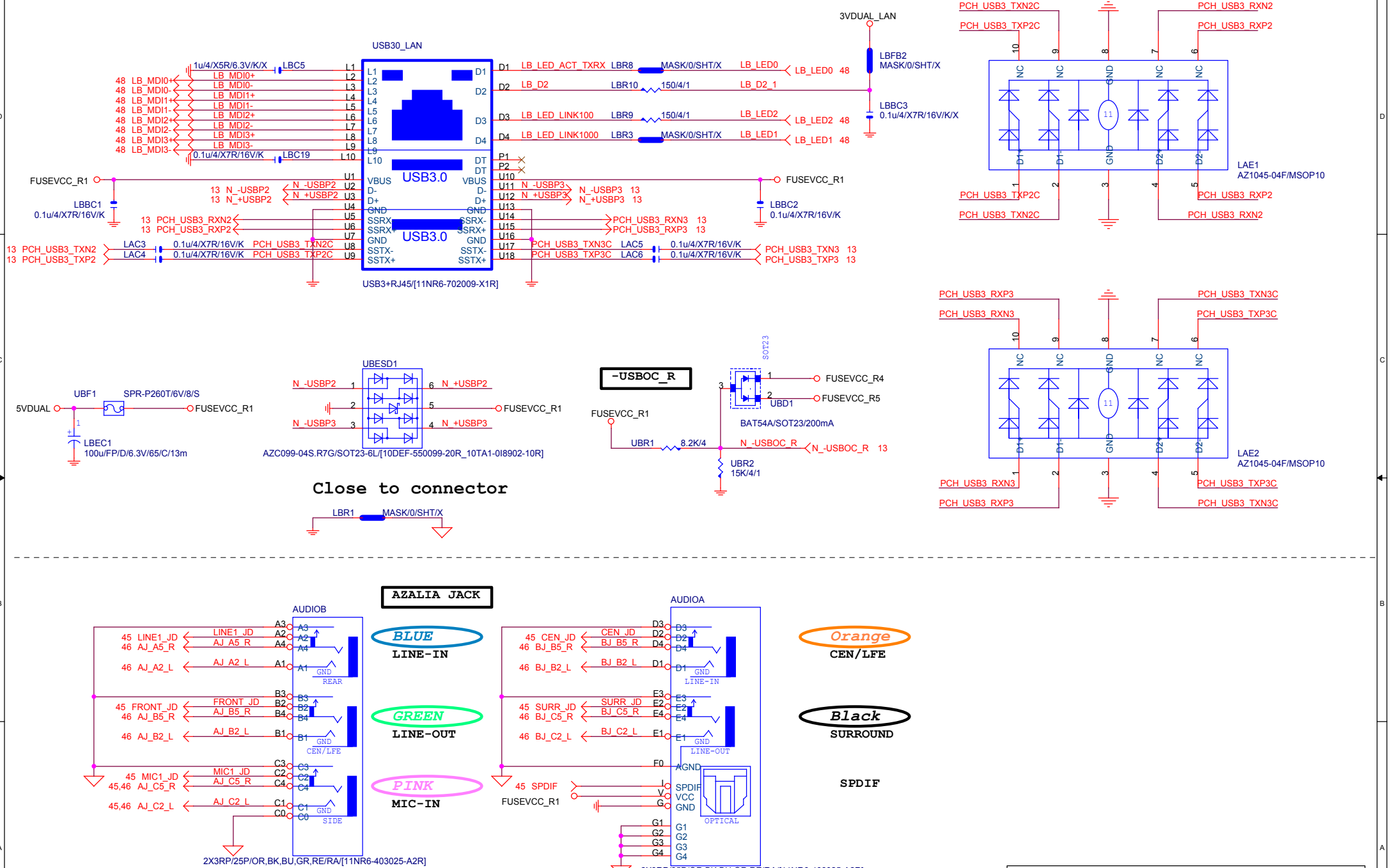
Access	Blinking
Link	Yellow

Gigabyte Technology

Title: INTEL LAN 2 - i218V

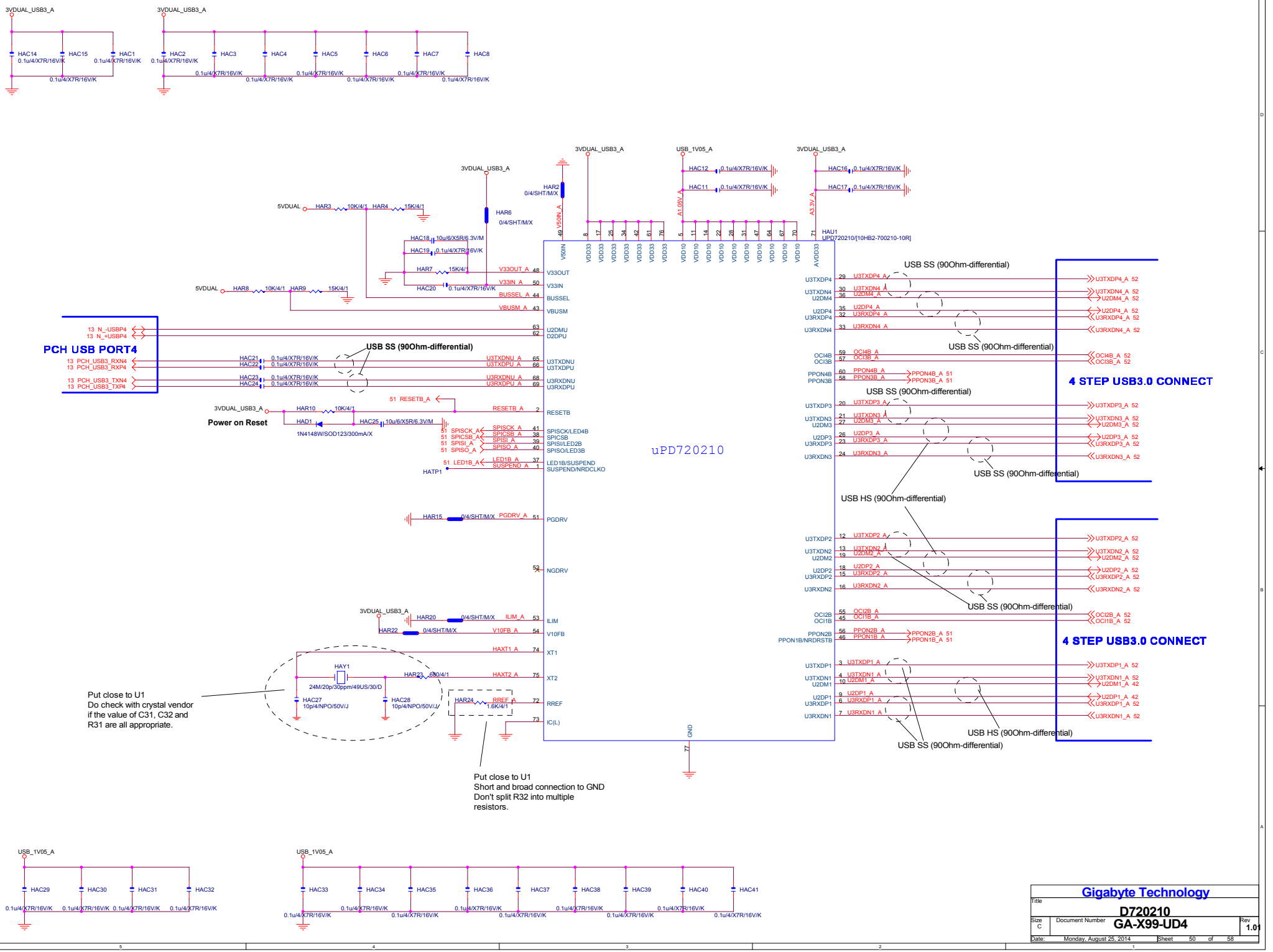
Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 48 of 58

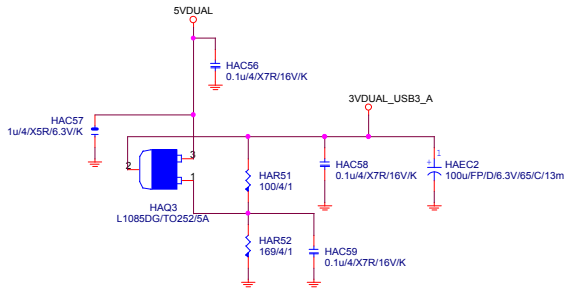


Title	LAN , AUDIO CONNECT
Size / Custom	Document Number: GA-X99-UD4
Rev	1.01
Date:	Monday, August 25, 2014
Sheet	49 of 58

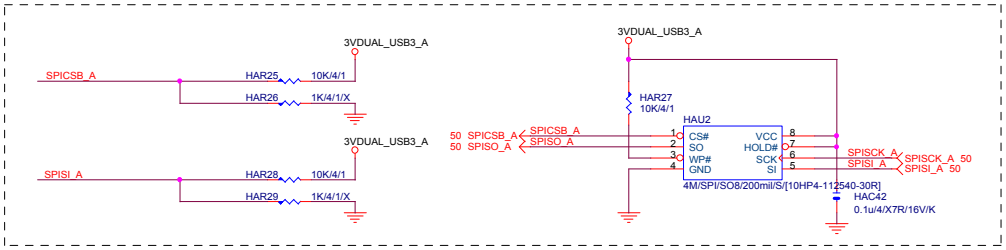
Gigabyte Technology


PCH USB PORT4
uPD720210
Power on Reset
USB SS (90Ohm-differential)
USB HS (90Ohm-differential)
4 STEP USB3.0 CONNECT
4 STEP USB3.0 CONNECT
Put close to U1
Do check with crystal vendor
if the value of C31, C32 and
R31 are all appropriate.
Put close to U1
Short and broad connection to GND
Don't split R32 into multiple
resistors.
Gigabyte Technology
D720210
GA-X99-UD4
Monday, August 25, 2014

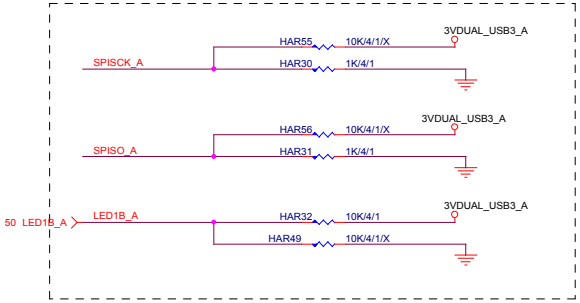
3VDUAL_USB_1

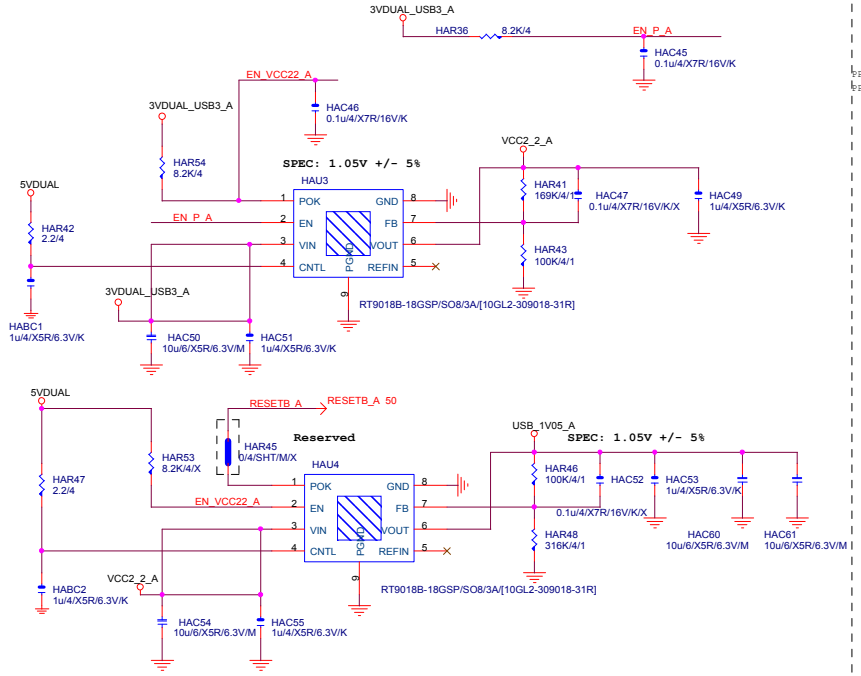


 # External SPI ROM ; SPI ROM attached mode



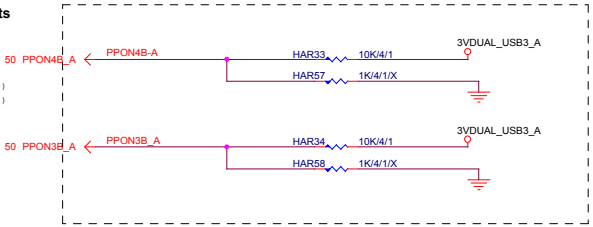
 # Battery Charging



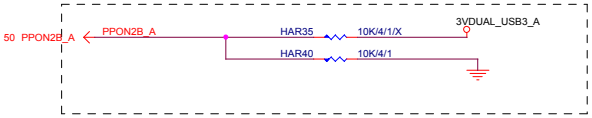


 # Number of Ports ; 4Ports mode

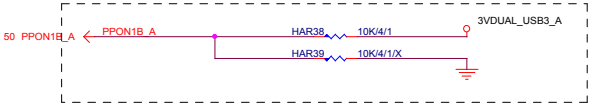
PPON3B / PPON4B : H / H (4 port)
PPON3B / PPON4B : L / L (2 port)



#5 VBUS Power Control ; Individual mode

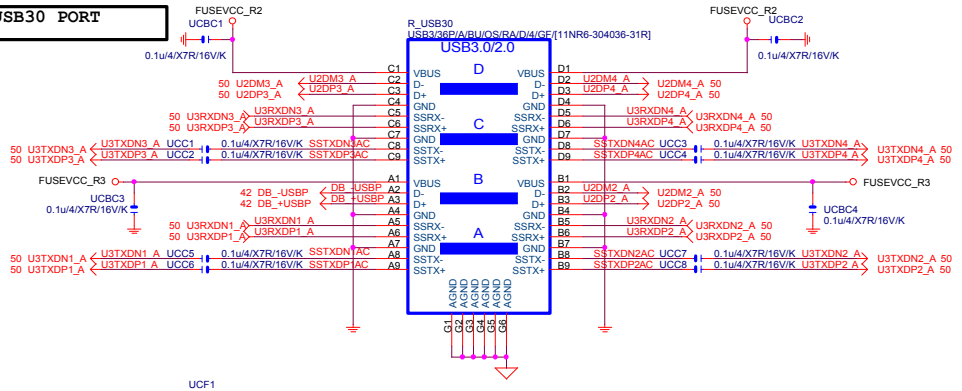


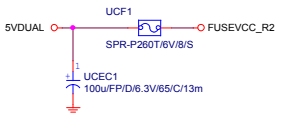
 # PPON1B Pin Function ; Port1 PPONB mode

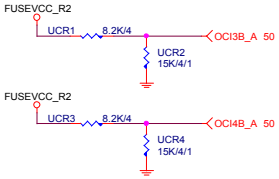


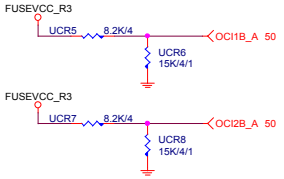
Gigabyte Technology		
Title: D720210		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 51 of 58	

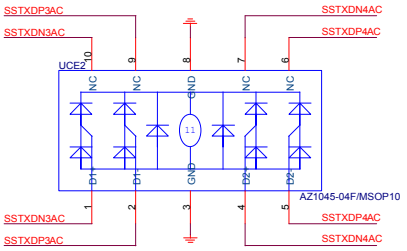
R_USB30 PORT

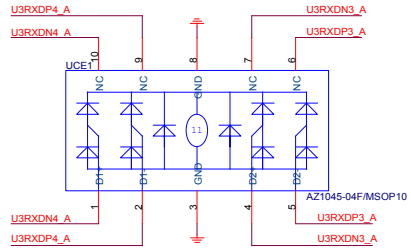


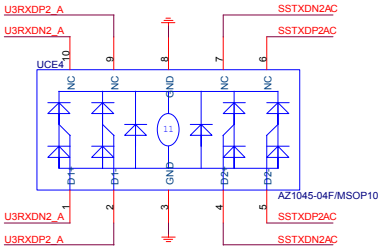


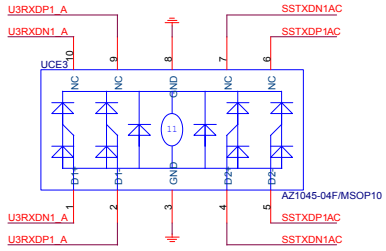


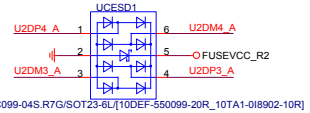




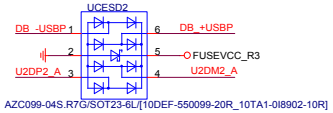






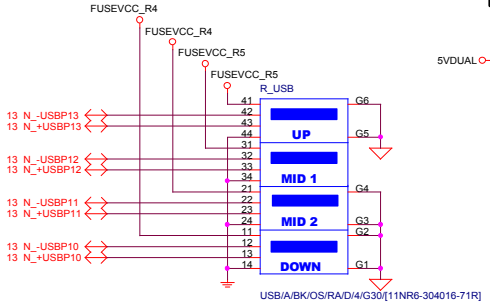


Close to connector

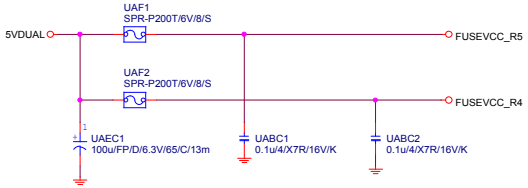


Close to connector

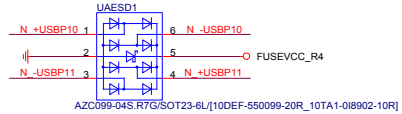
R_USB

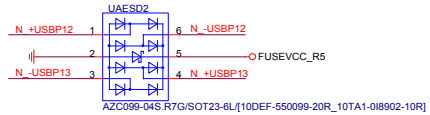


USB20 FUSE



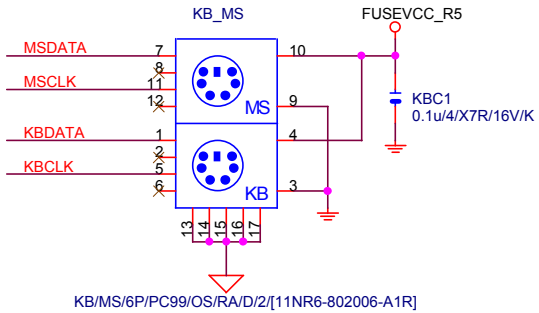
USB20 ESD PROCTECT



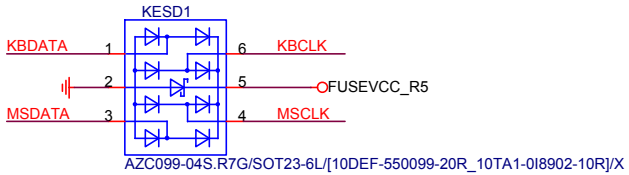


Gigabyte Technology

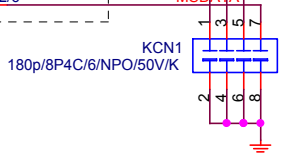
Title	R_USB30 , R_USB3	
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 52 of 58	

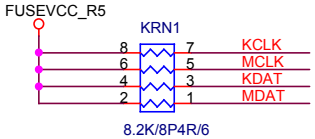


KB/MS/6P/PC99/OS/RA/D/2/[11NR6-802006-A1R]

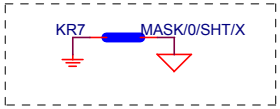


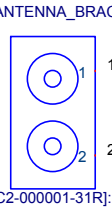
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]/X





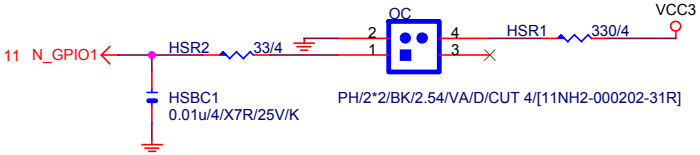
8.2K/8P4R/6





WIFI-BRACKET_Vertical/[12AC2-000001-31R]::Location ANTENNA_BRACKET

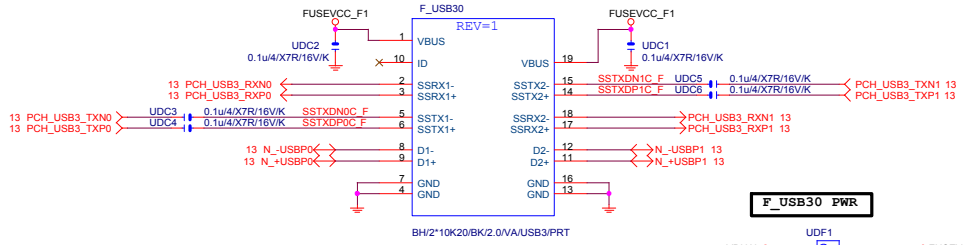
4GHz



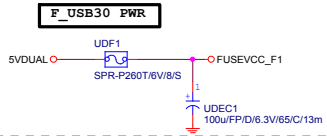
PH/2*2/BK/2.54/VA/D/CUT 4/[11NH2-000202-31R]

Gigabyte Technology		
Title: USB DAC-UP , PS2 ,WIFI		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 53 of 58	

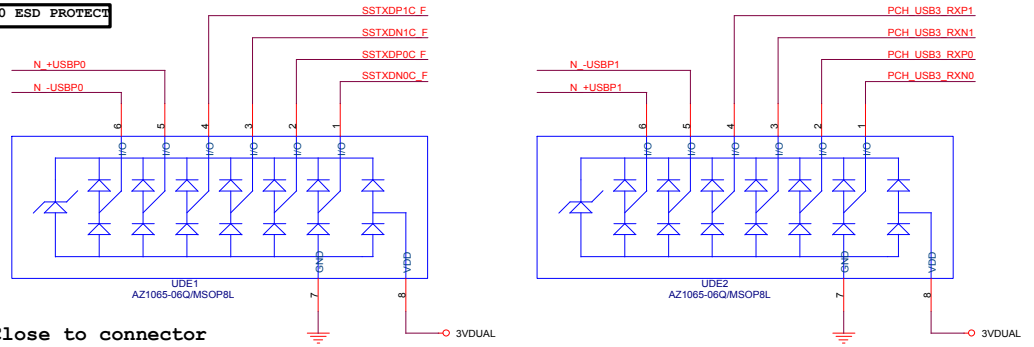
Front USB3.0



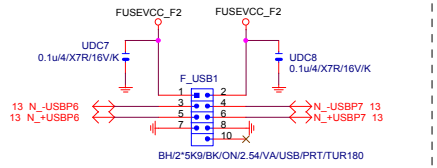
F_USB30 PWR

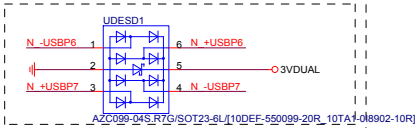


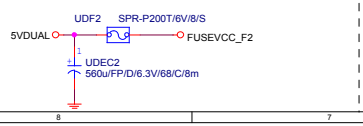
F_USB30 ESD PROTECT



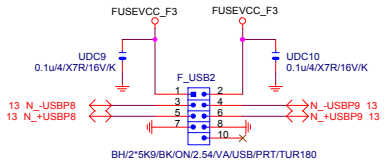
FRONT USB1

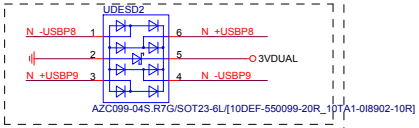


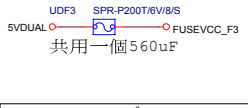




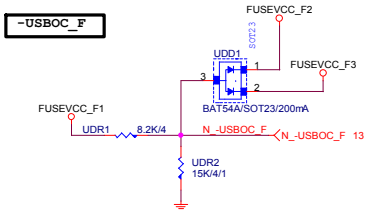
FRONT USB2





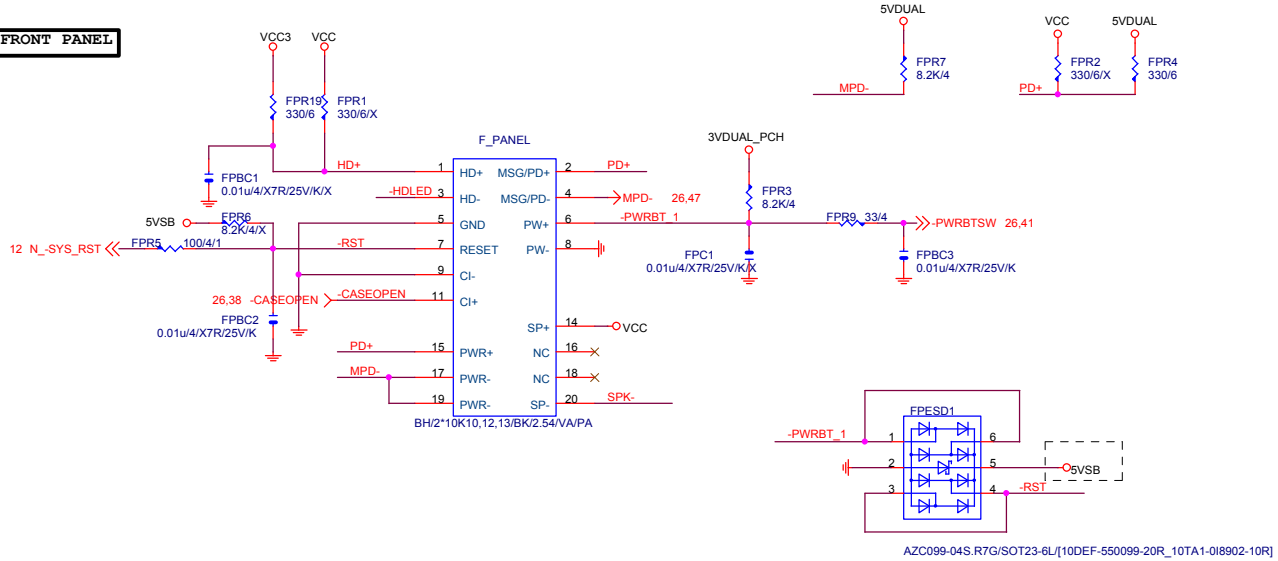


-USBOC_F

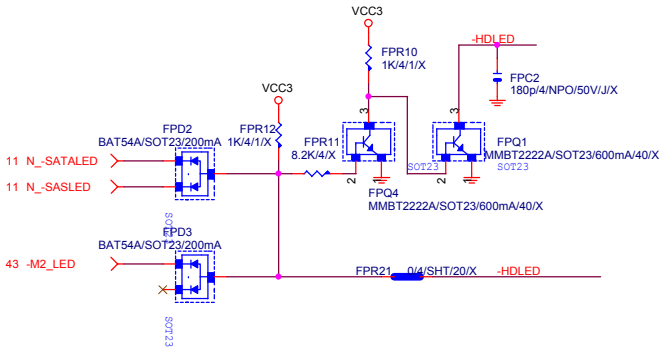


Gigabyte Technology		
Title: F_USB		
Size: Custom	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 54 of 58	

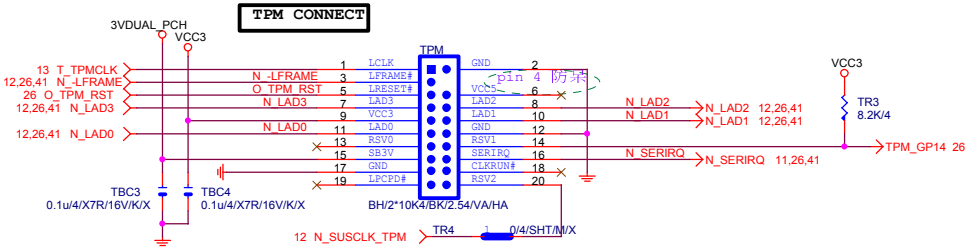
INTEL FRONT PANEL



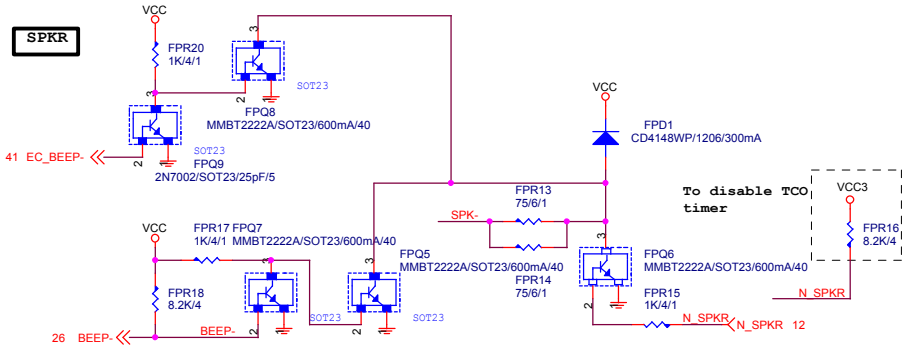
SATA LED



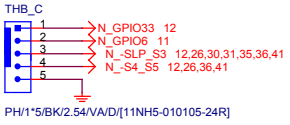
TPM CONNECT



SPKR



Thunderbolt



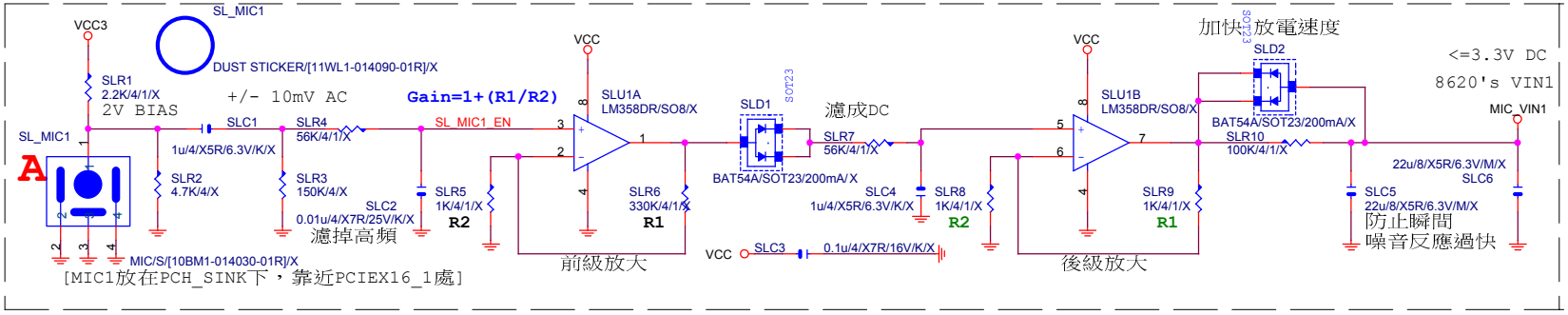
Gigabyte Technology

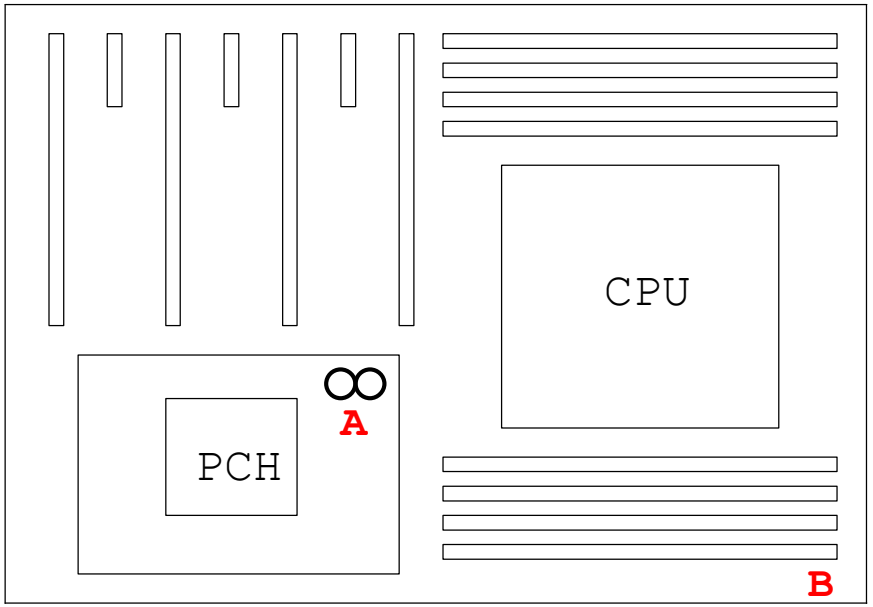
Title: FP,F_USB,USB PWR,BZ

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 55 of 58

Sound Level (dB-->DC Level)

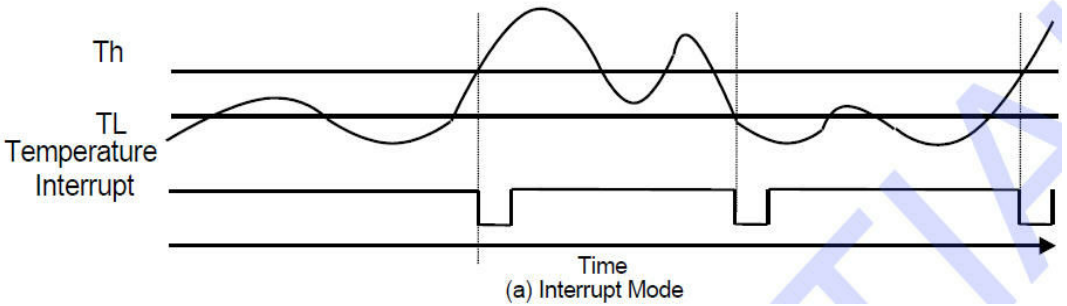




BIOS & S/W Notice:

1. 假設User設定系統噪音要低於45dB(即VINx=1.75V)，當VINx高於1.75V，8620會把PCH的GPI7拉Low一次。
2. 當噪音降低到VINx低於1.65V(即1.75V-0.1V)時，8620會再把PCH的GPI7拉Low一次。
3. 超過Th時，將CPU & VGA降頻或Throttle。低於Tl時，則回復正常頻率運作。

Figure 9-5. Temperature Interrupt Response Diagram



H/W Notice:

1. 麥克風不可被CPU_FAN & VGA_FAN吹到，用DIP電容擋住顯卡的風。
2. 麥克風需和OP-AMP越靠近越好，<1000mil。
3. IT8620偵測到dB值超過user設定值，通知PCH的GPI7發SMI。
4. 麥克風料號為：[10BM1-014030-01R]

dB	VINx
30	1.30V
35	1.45V
40	1.60V
45	1.75V
50	1.90V
55	2.05V
60	2.20V
65	2.35V
70	2.50V
75	2.65V
80	2.80V
85	2.95V
90	3.10V
95	3.25V
100	3.33V

此Table只是假設值， 需至無響室測試後確認。

Gigabyte Technology		
Title: Sound Level		
Size: B	Document Number: GA-X99-UD4	Rev: 1.01
Date: Monday, August 25, 2014	Sheet 56 of 58	

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

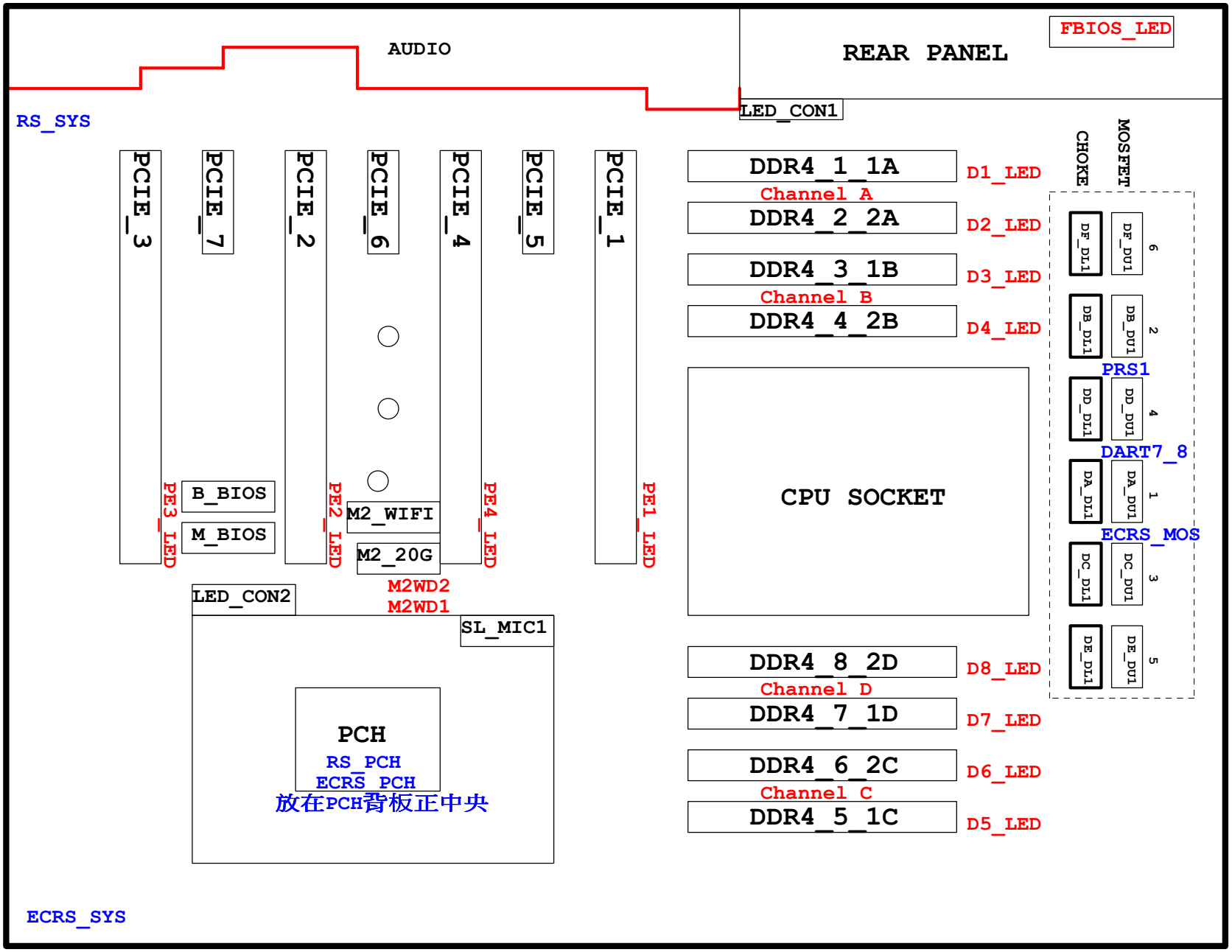
PIN NAME	POWER WELL	USAGE	AFTER PLTRST	S3/S5	NOTES
GP[39]	VCC3	SPARE	IN		1K P/U TO VCC3
GP[40]	3VDUAL	-USBOC1	IN		USB OVER-CURRENT
GP[41]	3VDUAL	-USBOC2	IN		USB OVER-CURRENT
GP[42]	3VDUAL	-USBOC3	IN		USB OVER-CURRENT
GP[43]	3VDUAL	-USBOC4	IN		USB OVER-CURRENT
GP[44]	3VDUAL	SPARE	IN		1K P/U TO 3VDUAL
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

Gigabyte Technology

Title: PCH GPIO LIST

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 57 of 58



Gigabyte Technology

Title: FRONT PANEL

Size: Custom | Document Number: GA-X99-UD4 | Rev: 1.01

Date: Monday, August 25, 2014 | Sheet 58 of 58