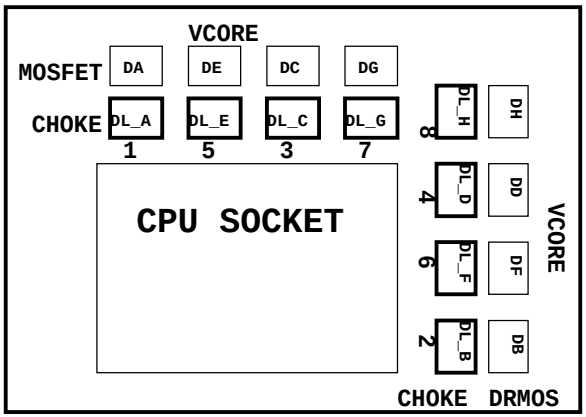
Model Name: GA-Z87X-UD3H

Rev 1.1

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCH HDMI/DP
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*8 SLOT
17	PCI EXPRESS*16/*8 SWITCH
18	PCI EXPRESS*1 SLOTs X3
19	PCI EXPRESS*4 SLOT
20	ITE 8892
21	PCI SLOT 1
22	Dual BIOS
23	ALC898
24	REAR AUDIO JACK
25	AMPLIFIER
26	IR3563A PWM
27	IR3550-VCORE

SHEET	TITLE
28	IR3570-DDR PWM
29	IR3598-DDR POWER
30	5VDUAL, 3VDAUL, ERP
31	PCH1.05V, PCH1.5V, VCC3_DAC
32	I/O ITE8728
33	USB3_ESATA,KB/USB3
34	F_PANEL , F_USB , PHOT
35	F_USB 2.0
36	F_USB 3.0
37	ATX POWER, CLOCK GEN
38	HWM, FAN CTRL
39	INTEL I217
40	Marvell 9172
41	SATA SWITCH
42	RST, PWR, CLR_CMOS
43	USB 3.0 uPD720201
44	USB 3.0 uPD720201 POWER
45	TABLE LIST
46	



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Title: Cover Sheet		
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GA-Z87X-UD3H

Component value change history

Data	Change Item	Reason
2012/10/22	0.1 BOM to be check items ATX power connector P/N Heaksine P/N PWM firmware & P/N	First Release

Circuit or PCB layout change

DATE	Change Item	Reason
2012/11/12	REV0.1 Z87X-UD3H 0.1 gerber out	
2012/11/30	REV0.2	
2013/03/27	REV1.02 Modify from Z87X-UD3H 7.0 所有的FAN都加一顆0.1u/4/X7R/16V/K ATX4P 統一命名為OC_PEG VIO統一更名為VIOD F_USB30_2 rename F_USB30_1 F_USB30_1 rename F_USB30_2 Add NC62 靠近PCH 新增MOS防燒線路 PHSFLT-串電阻改接到N_-THRMTRIP	
2013/04/01	USB3.0 HUB	

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Title: BOM & PCB MODIFY HISTORY

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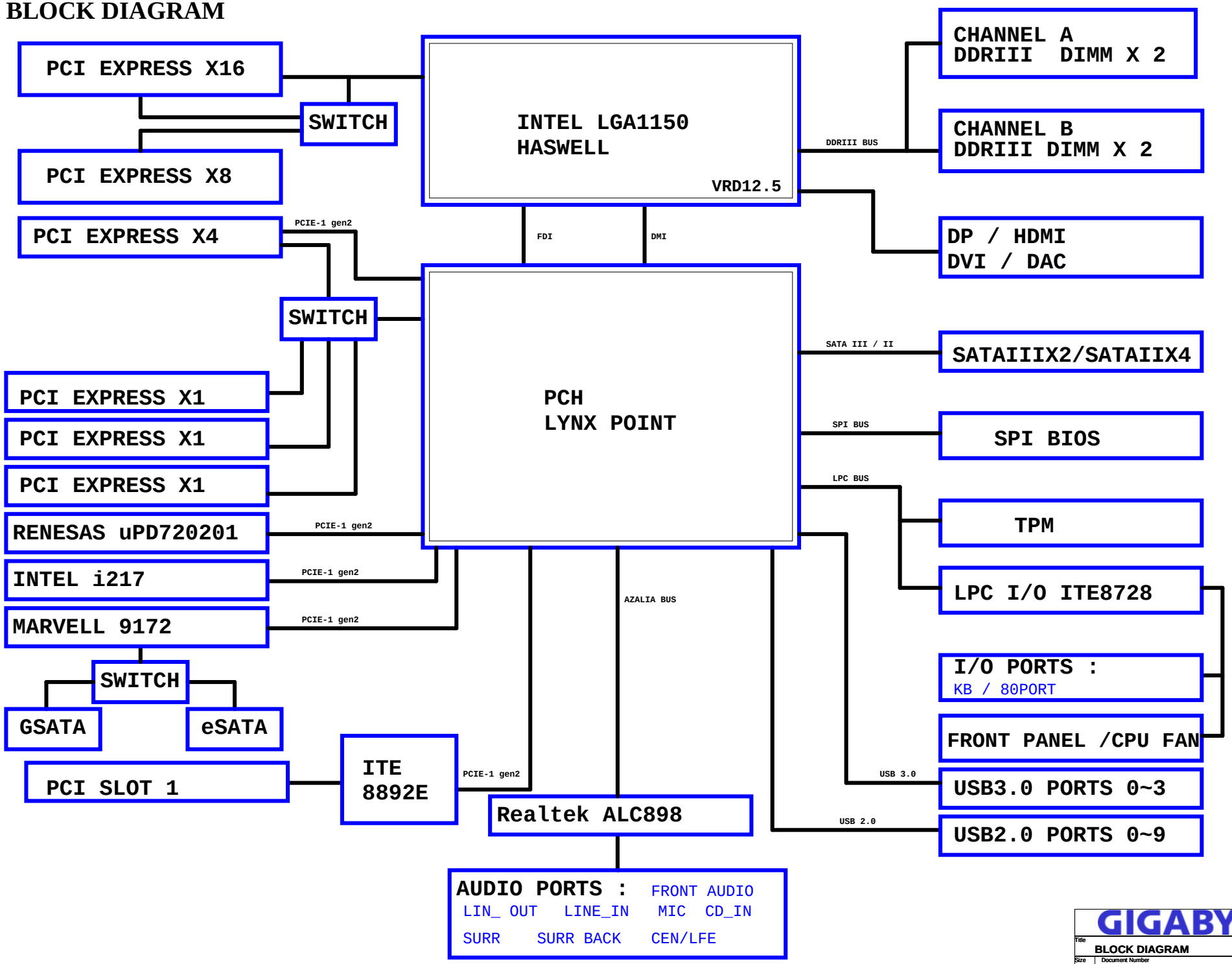
BLOCK DIAGRAM



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Title	BLOCK DIAGRAM	
Size C	Document Number GA-Z87X-UD3H	Rev 1.1
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LGA1150 (E)

LGA1150E

{10} N_-CPUCLK — N_-CPUCLK V4
{10} N_CPUCLK — N_CPUCLK V5
{26} PVIDSLCK — WR7 0/4 — C38
{26} PVIDSOUT — WR1 0/4 — C37
{26} PVIDALRT — WR5 44.2/4/1 — B37
WR6 100/4/X
{12,28} N_DRAM_PWROK — AK21
{12,31} N_CPUPWROK — AB35
{11} A_-CPURST — M39
{11} A_PMSYNC — P36
{11,32} A_PECI — N37
A_CATERR- — M36
{26,34} A_-PROCHOT — K38
A_-THRMTRIP — F37
{12} A_-SKTOCC — D38
N_DRAM_PWROK — WBC2 — 1n/4/X7R/50V/K
A_SM_VREF — AB38
N_CPUPWROK — WBC47 — 1n/4/X7R/50V/K
{32} SVID_CTRL
{12} A_HSW_STRAP13
{16} -8X_EN — WR37 0/4 — HSW_CFG5

BCLK* BCLK_P VIDSCLK VIDSOUT VIDALERT* DRAM_PWR_OK PWRGOOD RESET* PMSYNC PECI CATERR* PROCHOT* THERMTRIP* SKTOCC* DDR_VREF_CA

CFG0 CFG1 CFG2 CFG3 CFG4 CFG5 CFG6 CFG7 CFG8 CFG9 CFG10 CFG11 CFG12 CFG13 CFG14 CFG15 CFG16 CFG17 CFG18 CFG19

WR53 1K/4/1/X HSW_CFG0 AA37
WR49 1K/4/1/X HSW_CFG1 Y38
WR54 1K/4/1/X HSW_CFG2 AA36
WR50 1K/4/1/X HSW_CFG3 W38
WR47 1K/4/1/X HSW_CFG4 V39
WR36 1K/4/1/X HSW_CFG5 U39
WR43 1K/4/1/X HSW_CFG6 U40
WR46 1K/4/1/X HSW_CFG7 V38
WR40 1K/4/1/X HSW_CFG8 T40
WR57 1K/4/1 HSW_CFG9 Y35
WR58 1K/4/1/X HSW_CFG10 AA34
WR42 1K/4/1/X HSW_CFG11 V37
WR38 1K/4/1/X HSW_CFG12 Y34
WR39 1K/4/1 HSW_CFG13 U38
WR32 1K/4/1/X HSW_CFG14 W34
WR35 1K/4/1/X HSW_CFG15 V35
WR52 1K/4/1/X A_HSW_STBP0 Y36
WR51 1K/4/1/X A_HSW_STBN0 Y37
WR44 1K/4/1/X A_HSW_STBP1 V36
WR48 1K/4/1/X A_HSW_STBN1 W36

A_TCK D39
A_TDI F38
A_TDO F39
A_TMS E39
A_-TRST E37
A_-HPRDY L39
A_-DBR L37 G40
A_TESTLOW_2 N5 K8 J10

TCK TDI TDO TMS TRST* PRDY* PREQ* DBR* TESTLOW RSVD RSVD

BPM_N0 BPM_N1 BPM_N2 BPM_N3 BPM_N4 BPM_N5 BPM_N6 BPM_N7 RSVD RSVD TESTLOW RSVD RSVD RSVD RSVD VCC RSVD RSVD RSVD PWR_DEBUG VSS RSVD RSVD RSVD_TP RSVD_TP DDR_RCOMP0 DDR_RCOMP1 DDR_RCOMP2 RSVD RSVD_TP RSVD_TP RSVD VCOMP_OUT RSVD RSVD VSS RSVD RSVD RSVD RSVD RSVD RSVD VCC_SENSE VSS VSS VSS VSS VSS_SENSE RSVD DPLL_REF_CLKN DPLL_REF_CLKP CFG_RCOMP

G39 J39 G38 H37 H38 J38 K39 K37 T35 M38 P6 K9 H15 J9 H14 M8 AV2 J16 H16 N40 N39 V7 AB6 K13 J8 R1 P1 R2 AB36 AW2 AV1 AC8 P4 U8 AB33 T8 Y8 M10 L10 M11 L12 W8 R33 P33 E40 N33 J11 M9 J7 F40 N35 W6 W5 H40

A_TESTLOW_1 — VCCST — VCORE — A_PWR_DEBUG — A_DDR_COMP0 — A_DDR_COMP1 — A_DDR_COMP2 — VIO — VCCIOA_L — VRING — VCCSA — VCORE0 — VCORE1 — VCORE2 — VCORE3 — CPU_VAXG — VCC_SENSE {26} — VSS_SENSE {26} — N_-CK_DPCLK {10} — N_CK_DPCLK {10} — A_HSW_CFG_RCOMP

HASWELL/[10SC1-F01150-01R]

CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE_REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

LGA1150 (D)

LGA1150D

{9} FDI_CSYNC — FDI_CSYNC D16
{9} FDI_INT — FDI_INT D18
VCCIOA_L — WR23 24.9/4/1 — FDI_RCOMP — R4
{10} N_-DP_CLK — U5
{10} N_DP_CLK — U6
E16
K11 J12
FDI_TXN0 B14
FDI_TXP0 A14
FDI_TXN1 C13
FDI_TXP1 B13

FDI_CSYNC FDI_INT DP_RCOMP SSC_DPCLKN SSC_DPCLKP EDP_DISP_UTIL RSVD_TP RSVD_TP FDI_EDP_TXN0 FDI_EDP_TXP0 FDI_EDP_TXN1 FDI_EDP_TXP1

DDI1_TXP0 DDI1_TXN0 DDI1_TXP1 DDI1_TXN1 DDI1_TXP2 DDI1_TXN2 DDI1_TXP3 DDI1_TXN3 DDI2_TXP0 DDI2_TXN0 DDI2_TXP1 DDI2_TXN1 DDI2_TXP2 DDI2_TXN2 DDI2_TXP3 DDI2_TXN3 DDI3_TXP0 DDI3_TXN0 DDI3_TXP1 DDI3_TXN1 DDI3_TXP2 DDI3_TXN2 DDI3_TXP3 DDI3_TXN3

F17 F17 F18 G18 G19 H19 F20 G20 D19 E19 C20 D20 D21 F21 C22 D22 B15 C15 A16 B16 B17 C17 A18 B18

DVI_TX2 {14} — DVI_TX2- {14} — DVI_TX1 {14} — DVI_TX1- {14} — DVI_TX0 {14} — DVI_TX0- {14} — DVI_TXC {14} — DVI_TXC- {14} — HDMI_TX2 {14} — HDMI_TX2- {14} — HDMI_TX1 {14} — HDMI_TX1- {14} — HDMI_TX0 {14} — HDMI_TX0- {14} — HDMI_TXC {14} — HDMI_TXC- {14} — DP_TX0 {14} — DP_TX0- {14} — DP_TX1 {14} — DP_TX1- {14} — DP_TX2 {14} — DP_TX2- {14} — DP_TX3 {14} — DP_TX3- {14}

FDI_TXP[0..1] >> FDI_TXP[0..1] {9}
FDI_TXN[0..1] >> FDI_TXN[0..1] {9}

LGA1150 (C)

LGA1150C

PA_EXP_RXP0 E15 — PA_EXP_RXN0 F15 — PEG_RXP0 PEG_RXN0 — PEG_TXP0 PEG_TXN0 — A12 PA_EXP_TXP0 — B12 PA_EXP_TXN0
PA_EXP_RXP1 D14 — PA_EXP_RXN1 E14 — PEG_RXP1 PEG_RXN1 — PEG_TXP1 PEG_TXN1 — B11 PA_EXP_TXP1 — C11 PA_EXP_TXN1
PA_EXP_RXP2 F13 — PA_EXP_RXN2 F13 — PEG_RXP2 PEG_RXN2 — PEG_TXP2 PEG_TXN2 — C10 PA_EXP_TXP2 — D10 PA_EXP_TXN2
PA_EXP_RXP3 D12 — PA_EXP_RXN3 E12 — PEG_RXP3 PEG_RXN3 — PEG_TXP3 PEG_TXN3 — B9 PA_EXP_TXP3 — C9 PA_EXP_TXN3
PA_EXP_RXP4 E11 — PA_EXP_RXN4 F11 — PEG_RXP4 PEG_RXN4 — PEG_TXP4 PEG_TXN4 — C8 PA_EXP_TXP4 — D8 PA_EXP_TXN4
PA_EXP_RXP5 F10 — PA_EXP_RXN5 G10 — PEG_RXP5 PEG_RXN5 — PEG_TXP5 PEG_TXN5 — B7 PA_EXP_TXP5 — C7 PA_EXP_TXN5
PA_EXP_RXP6 E9 — PA_EXP_RXN6 F9 — PEG_RXP6 PEG_RXN6 — PEG_TXP6 PEG_TXN6 — A6 PA_EXP_TXP6 — B6 PA_EXP_TXN6
PA_EXP_RXP7 F8 — PA_EXP_RXN7 G8 — PEG_RXP7 PEG_RXN7 — PEG_TXP7 PEG_TXN7 — B5 PA_EXP_TXP7 — C5 PA_EXP_TXN7
PA_EXP_RXP8 D3 — PA_EXP_RXN8 D4 — PEG_RXP8 PEG_RXN8 — PEG_TXP8 PEG_TXN8 — E1 PA_EXP_TXP8 — E2 PA_EXP_TXN8
PA_EXP_RXP9 E4 — PA_EXP_RXN9 E5 — PEG_RXP9 PEG_RXN9 — PEG_TXP9 PEG_TXN9 — F2 PA_EXP_TXP9 — F3 PA_EXP_TXN9
PA_EXP_RXP10 F5 — PA_EXP_RXN10 F6 — PEG_RXP10 PEG_RXN10 — PEG_TXP10 PEG_TXN10 — G1 PA_EXP_TXP10 — G2 PA_EXP_TXN10
PA_EXP_RXP11 G4 — PA_EXP_RXN11 G5 — PEG_RXP11 PEG_RXN11 — PEG_TXP11 PEG_TXN11 — H2 PA_EXP_TXP11 — H3 PA_EXP_TXN11
PA_EXP_RXP12 H5 — PA_EXP_RXN12 H6 — PEG_RXP12 PEG_RXN12 — PEG_TXP12 PEG_TXN12 — J1 PA_EXP_TXP12 — J2 PA_EXP_TXN12
PA_EXP_RXP13 J4 — PA_EXP_RXN13 J5 — PEG_RXP13 PEG_RXN13 — PEG_TXP13 PEG_TXN13 — K2 PA_EXP_TXP13 — K3 PA_EXP_TXN13
PA_EXP_RXP14 K5 — PA_EXP_RXN14 K6 — PEG_RXP14 PEG_RXN14 — PEG_TXP14 PEG_TXN14 — M2 PA_EXP_TXP14 — M3 PA_EXP_TXN14
PA_EXP_RXP15 L4 — PA_EXP_RXN15 L5 — PEG_RXP15 PEG_RXN15 — PEG_TXP15 PEG_TXN15 — L1 PA_EXP_TXP15 — L2 PA_EXP_TXN15

{9} A_DMI_0RXP — A_DMI_0RXP U3 — DMI_RXP0 — DMI_TXP0 — AA4 A_DMI_0TXP — A_DMI_0TXP {9}
{9} A_DMI_0RXN — A_DMI_0RXN T3 — DMI_RXN0 — DMI_TXN0 — AA5 A_DMI_0TXN — A_DMI_0TXN {9}
{9} A_DMI_1RXP — A_DMI_1RXP U1 — DMI_RXP1 — DMI_TXP1 — AB3 A_DMI_1TXP — A_DMI_1TXP {9}
{9} A_DMI_1RXN — A_DMI_1RXN V1 — DMI_RXN1 — DMI_TXN1 — AB4 A_DMI_1TXN — A_DMI_1TXN {9}
{9} A_DMI_2RXP — A_DMI_2RXP W2 — DMI_RXP2 — DMI_TXP2 — AC5 A_DMI_2TXP — A_DMI_2TXP {9}
{9} A_DMI_2RXN — A_DMI_2RXN V2 — DMI_RXN2 — DMI_TXN2 — AC4 A_DMI_2TXN — A_DMI_2TXN {9}
{9} A_DMI_3RXP — A_DMI_3RXP Y3 — DMI_RXP3 — DMI_TXP3 — AC1 A_DMI_3TXP — A_DMI_3TXP {9}
{9} A_DMI_3RXN — A_DMI_3RXN W3 — DMI_RXN3 — DMI_TXN3 — AC2 A_DMI_3TXN — A_DMI_3TXN {9}

D1 RSVD_TP — C2 RSVD_TP — B3 RSVD_TP — A4 RSVD_TP
VCCIOA_L — WR15 24.9/4/1 — GRCOMP — P3 — PEG_RCOMP

W=12 mil out of CPU
S=15 mil out of CPU

PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] {15,17}
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] {15,17}
PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] {15,17}
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] {15,17}

-CPURST

3VDUAL — WR27 1K/4/1/X — WQ2 MMBT2222A/SOT23/600mA/40/X — WR45 8.2K/4/X — {32} O_-PFMRST1
VCC3 — WR26 200/4/1/X — A_-CPURST — WQ1 MMBT2222A/SOT23/600mA/40/X — WR31 100/4/1/X — WBC3 1n/4/X7R/50V/K

THRMTRIP DISABLE

VCC1_05_PCH — WR8 1K/4/1 — WQ5 MMBT2222A/SOT23/600mA/40 — WR72 510/4/1 — VCC1_05_PCH
A_-THRMTRIP — WR71 0/4/X — N_-THRMTRIP — N_-THRMTRIP {11,26}
A_-THRMTRIP
{12} DIS_T — DIS_T

CPU SVID

CPU_VTT_OR — WR3 90.9/4/1/X PVIDSLCK — WR2 115/4/1 PVIDSOUT — WR4 75/4/1 -PVIDALRT

CPU PU/PD

CPU_VTT_OR — WR30 51/4/1 A_-HPRDY — WR16 51/4/1/X A_TDO — WR17 51/4/1/X A_TDI — WR14 51/4/1/X A_TMS — TDI EMPTY?
CPU_VTT_OR — WR10 1K/4/1/X A_CATERR- — WR29 1K/4/1/X A_PECI — WR25 1K/4/1 A_-PROCHOT — WR56 49.9/4/1/X N_CPUPWROK — WR55 1K/4/1/X

A_TCK WR11 51/4/1
A_-TRST WR9 51/4/1
A_HSW_CFG_RCOMP WR24 49.9/4/1
A_TESTLOW_2 WR12 49.9/4/1
A_DDR_COMP0 WR28 100/4/1
A_DDR_COMP1 WR19 75/4/1
A_DDR_COMP2 WR22 100/4/1
A_TESTLOW_1 WR18 49.9/4/1

VCC1_05_PCH — WR34 150/4/1 — A_PWR_DEBUG — WR33 10K/4/X
VCC1_05_PCH — WR70 1K/4/1 — A_-THRMTRIP
3VDUAL — WR21 8.2K/4/X — A_-DBR — WR20 0/4/X — N_-SYS_RST {12,34,37}

SM REF

DDR_15V — WR62 100/4/1 — WR60 100/4/1 — A_SM_VREF — WR59 0/4 — A_SMREF_ADJ {42}
WC3 0.1u/4/X7R/16V/K — WC2 0.1u/4/X7R/16V/K/X

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Title	CPU LGA1150-A	
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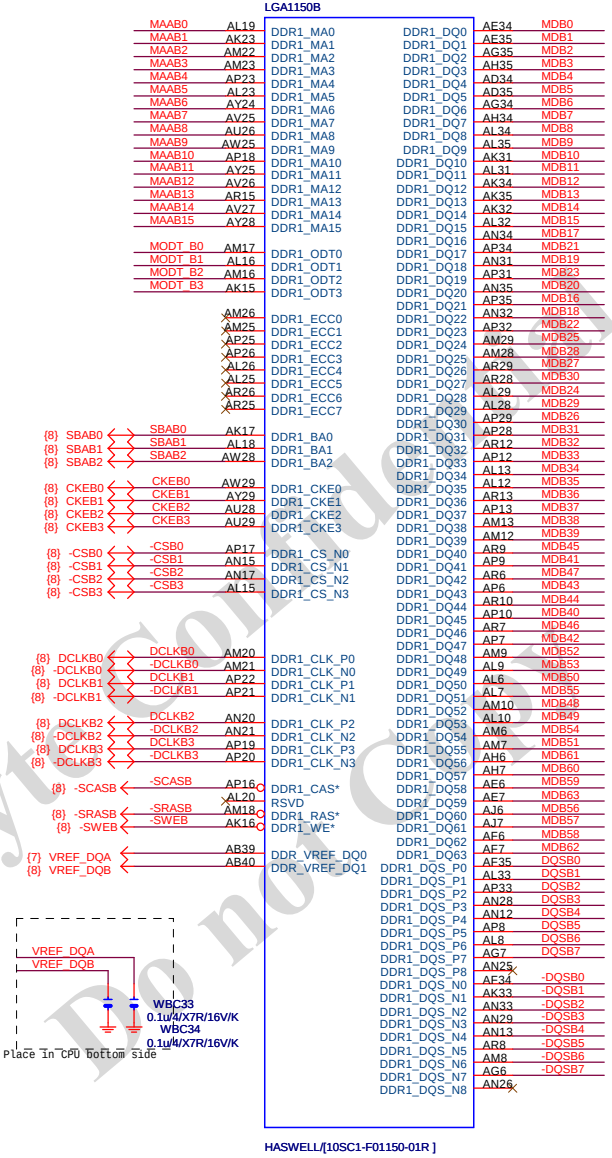
LGA1150 (A)

LGA1150A

HASWELL/[10SC1-F01150-01R]

LGA1150 (B)

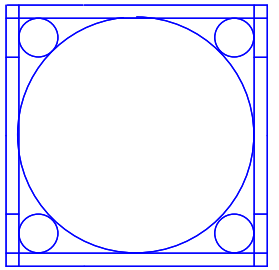
LGA1150B



HASWELL/[10SC1-F01150-01R]

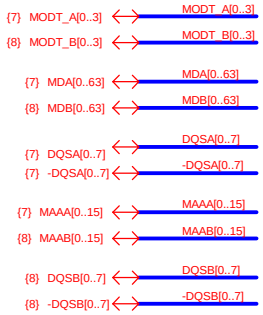
LGA1150 (CR)

CPU
ILM_BP/1156/CSP/[12KRC-0F0001-61R]



Need check the new CPU ME

DDR BUS



GIGABYTE™

Title	CPU LGA1150-B	
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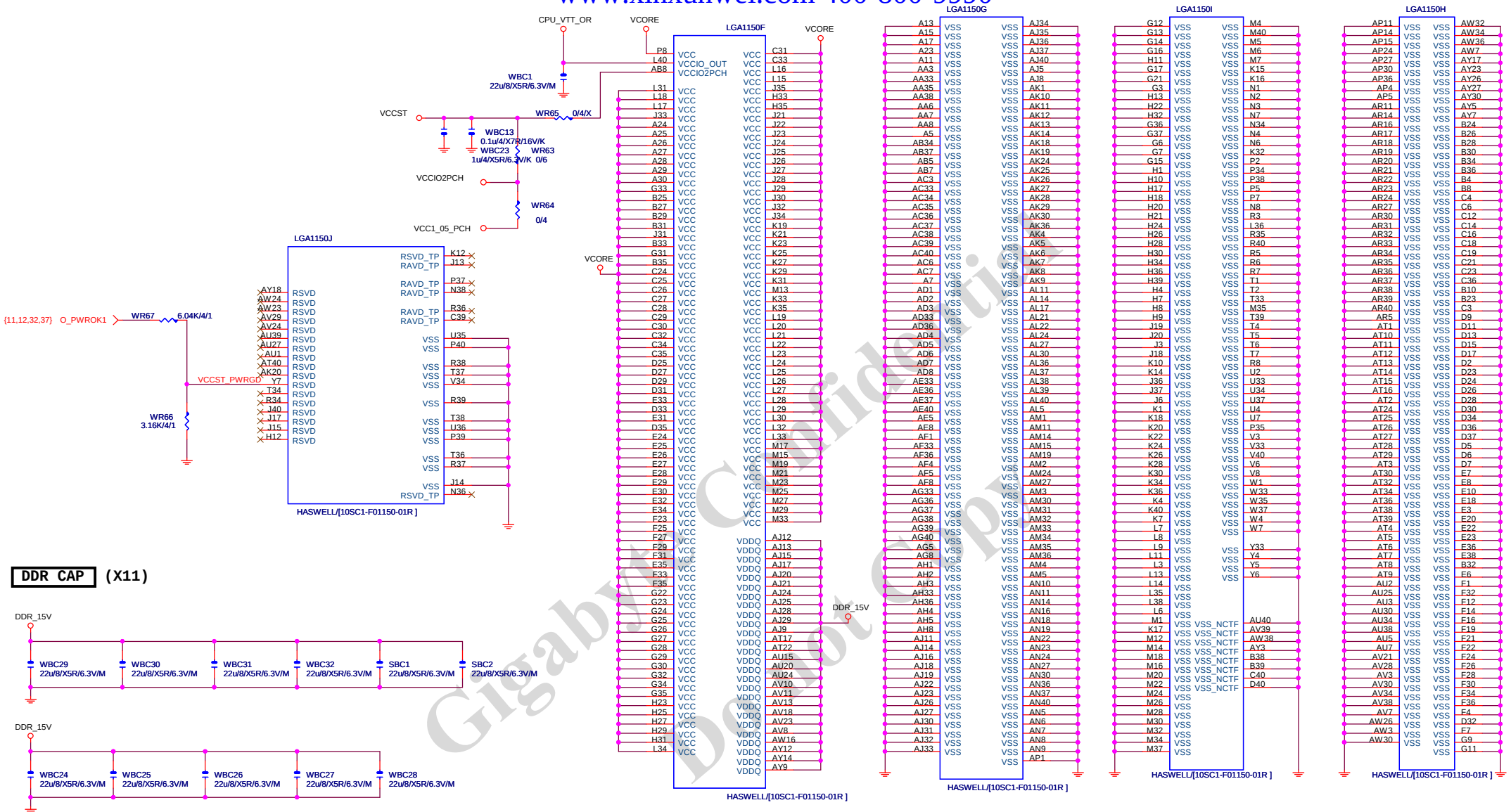
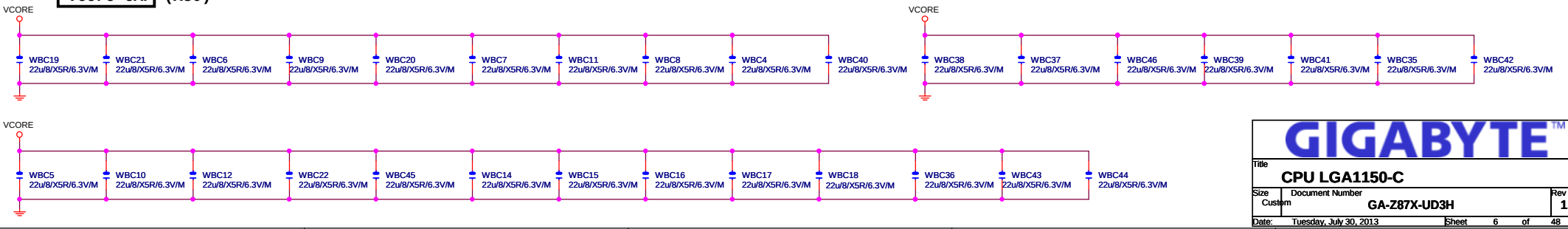


DDR CAP (X11)

VCore CAP (X30)



GIGABYTE™

Title	CPU LGA1150-C	
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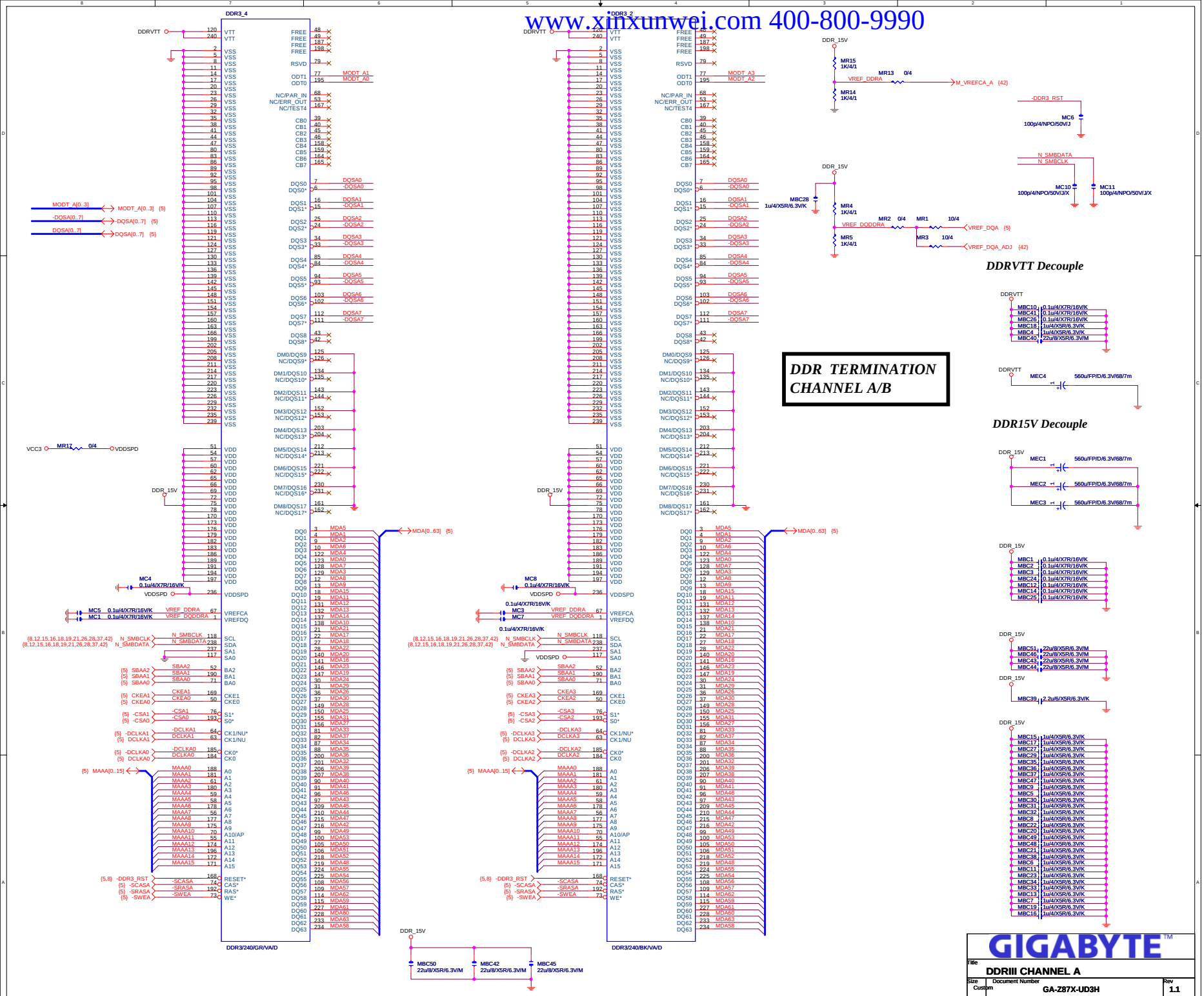

DDR TERMINATION CHANNEL A/B

GIGABYTE™

Title	DDRIII CHANNEL A	
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
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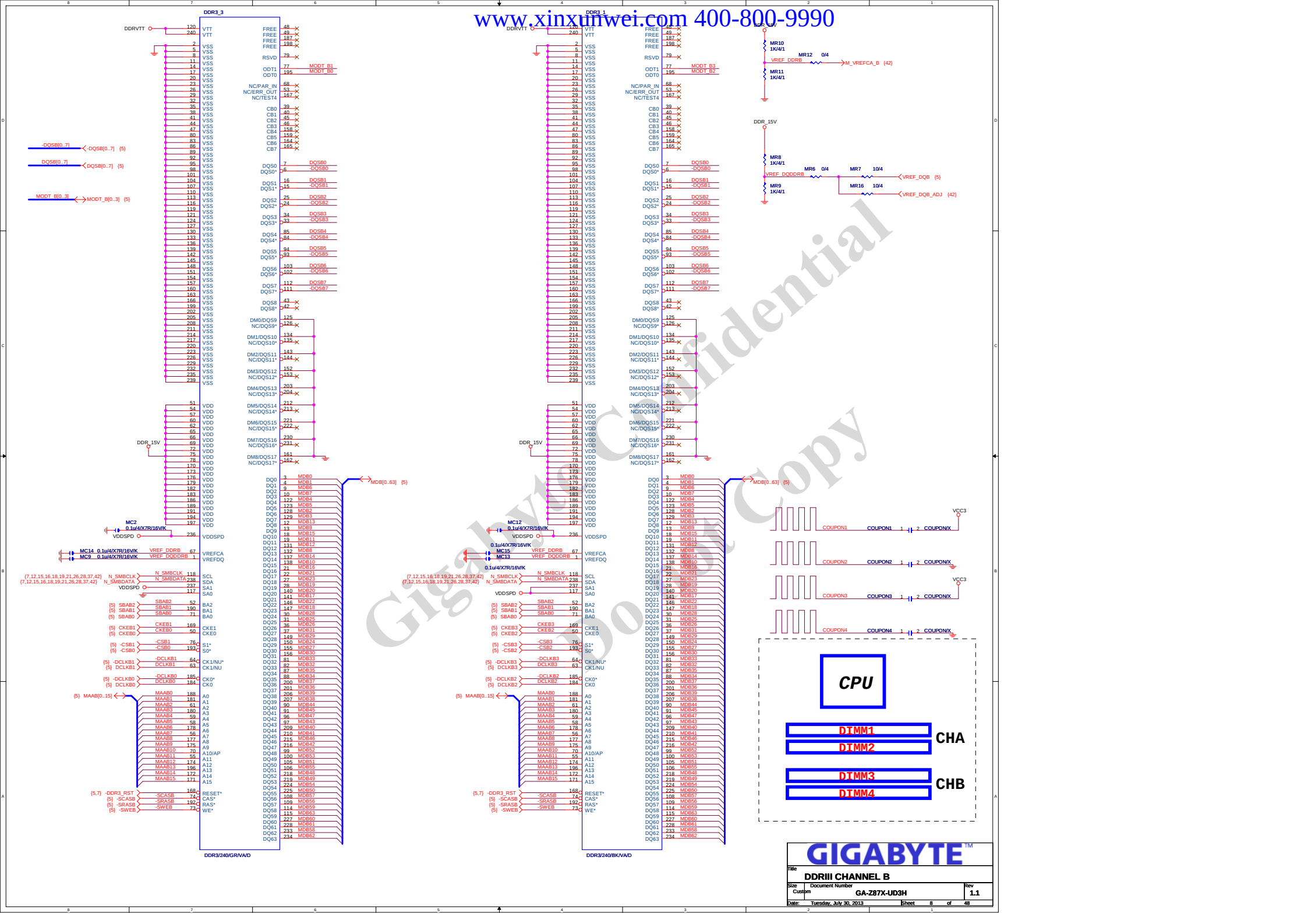

GIGABYTE			
Title: DDRIII CHANNEL B			
Size: Custom	Document Number: GA-Z87X-UD3H		Rev: 1.1
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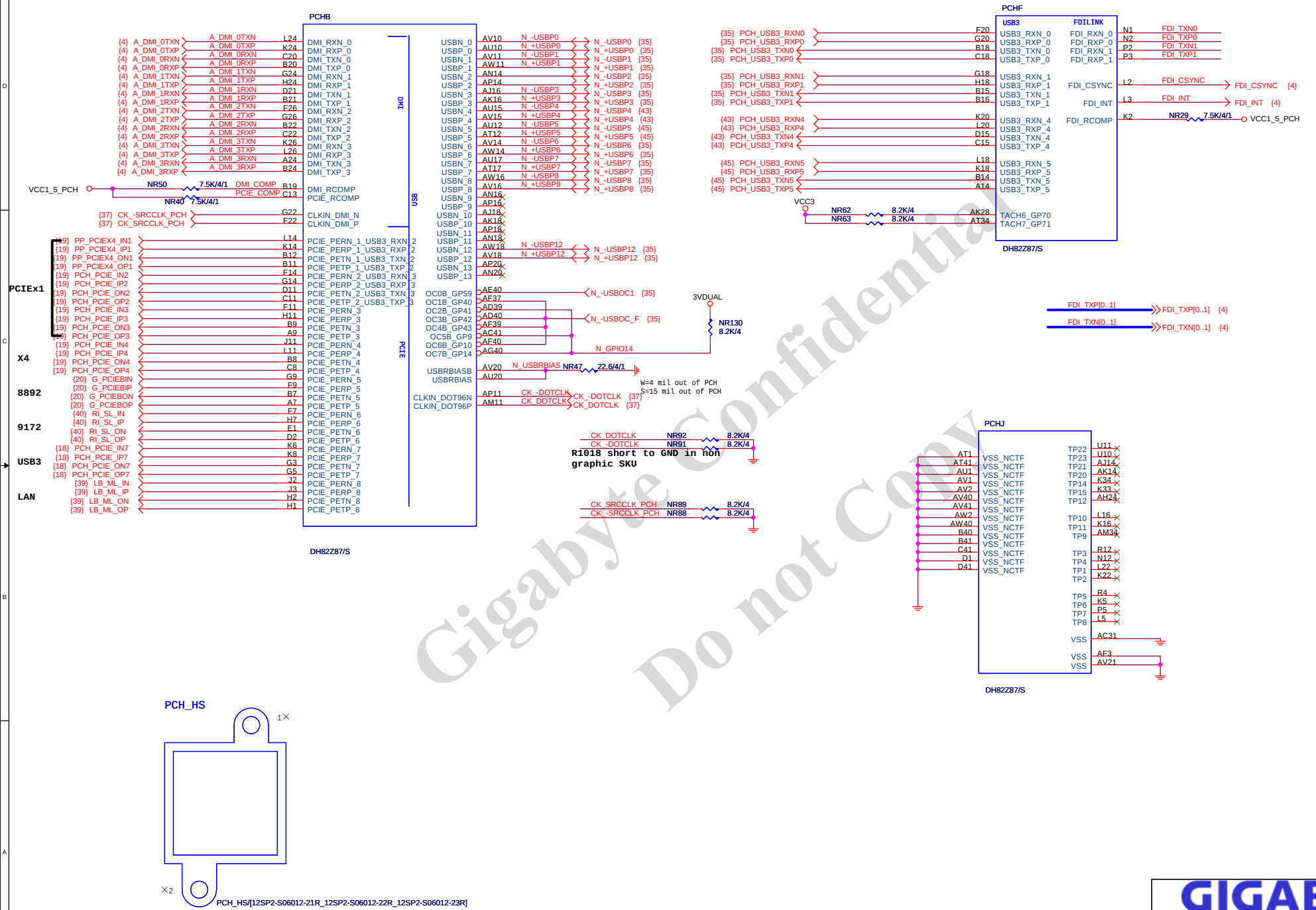

GIGABYTE™

Title	PCH FDI,DMI,USB ,PCIE,NVRAM	
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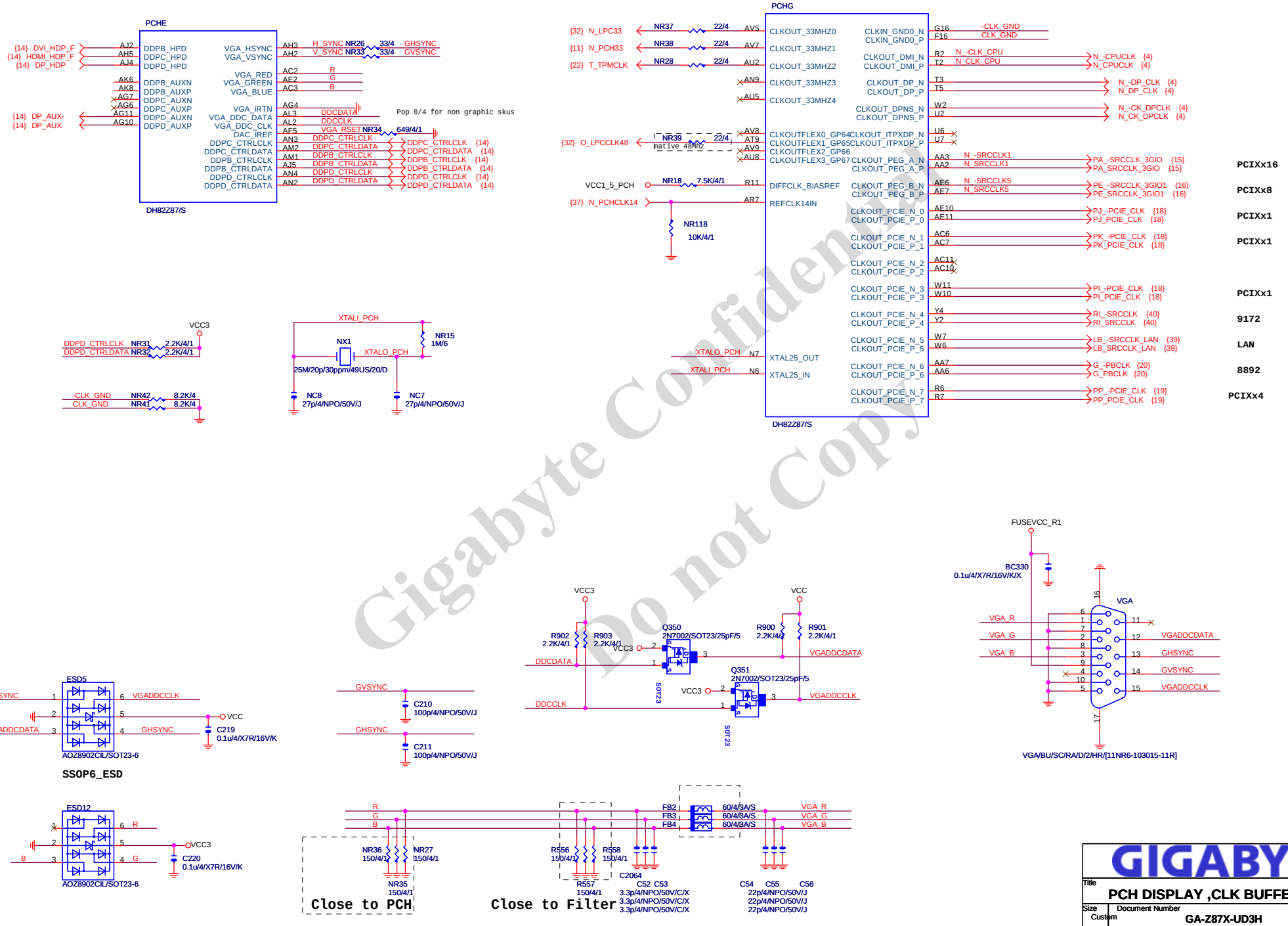

Title	PCH DISPLAY ,CLK BUFFER
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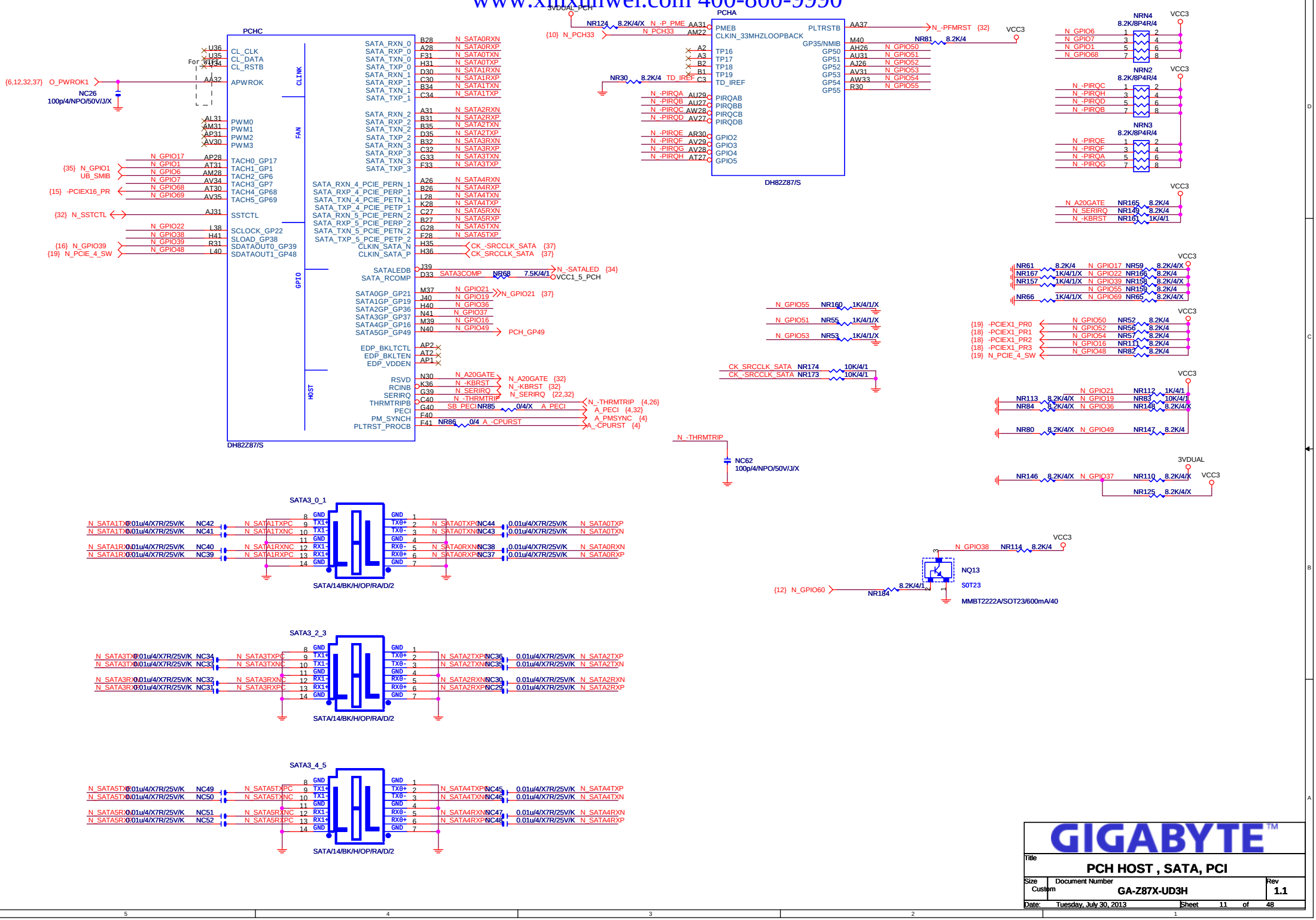

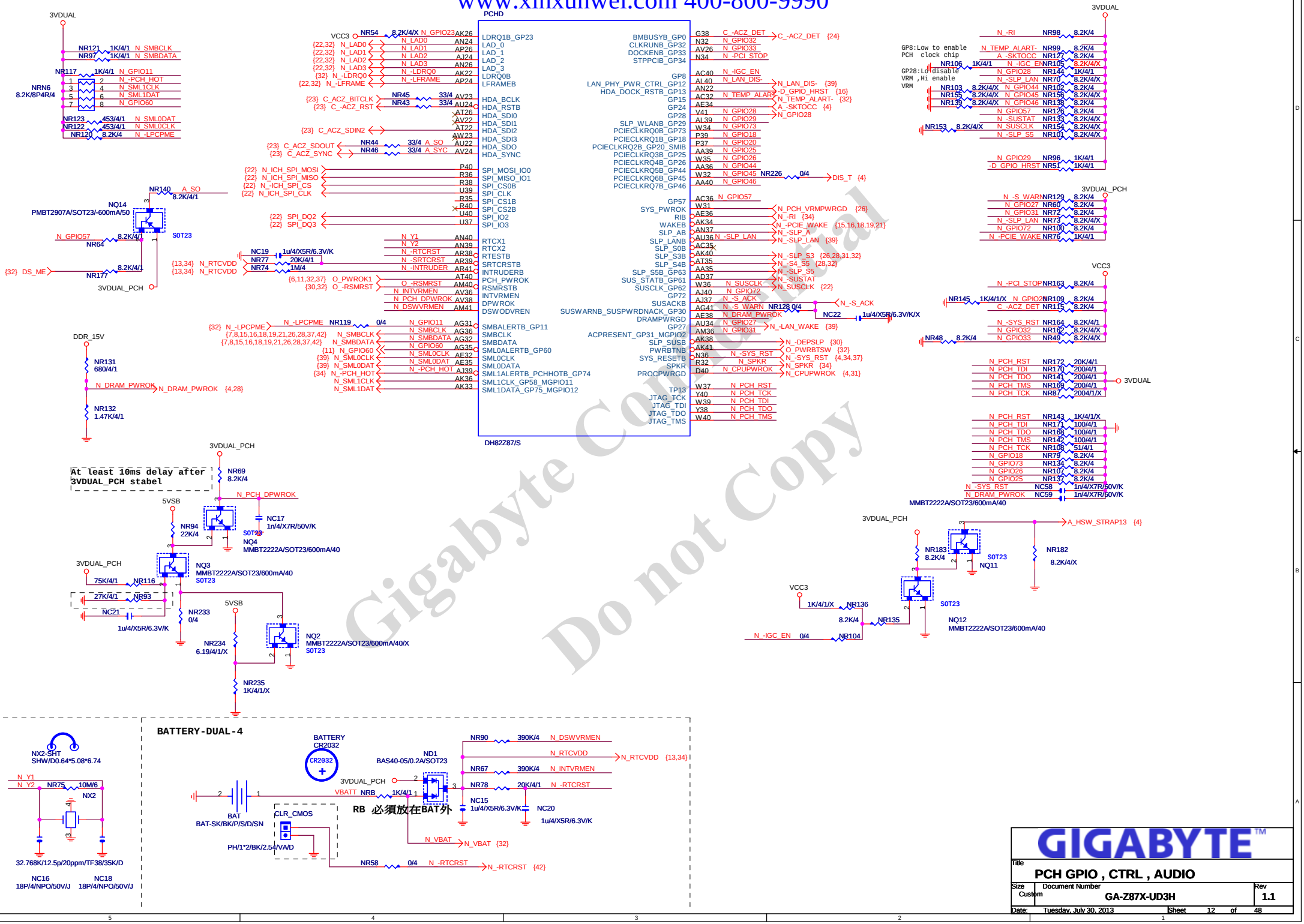

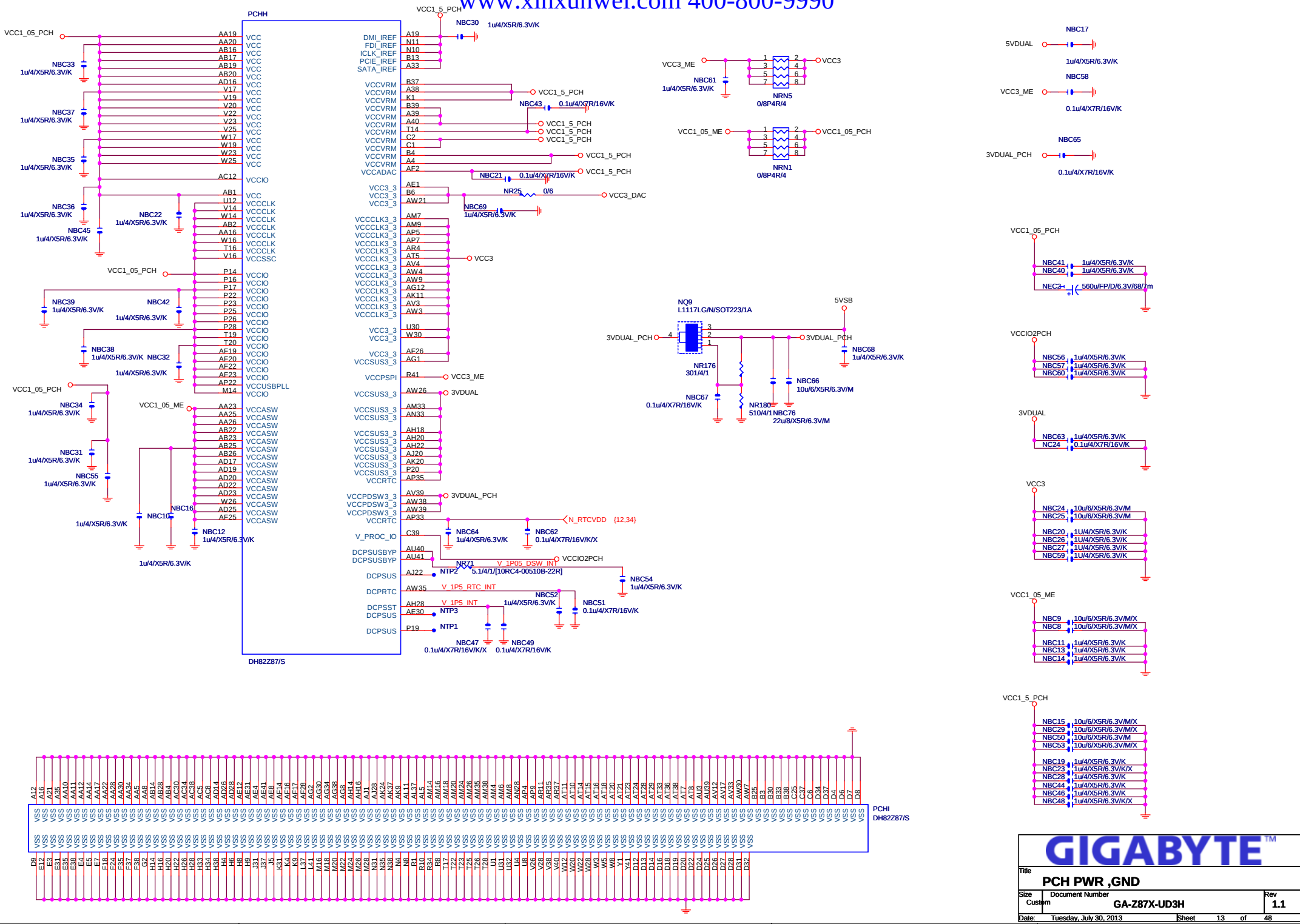

HU2

PTN3360DBS/HVQFN48

0/0/0/0:Vswing 500mV

0 1:7.2dB

HU1

ASM1442/QFN48/[10TA1-051442-20R]

0/0/0/0:Vswing 500mV

0 1:7.2dB

DP_HDMI_SPDIFB

DP+HDMI+SPDIF/20P+19P+3P/BK/RA :: Location DP_HDMI_SPDIF

DVI

DVI-D/24P/SC/RA/D/SH

DVI-30P-4P COMMON

DP_HDMI_SPDIFA

DP+HDMI+SPDIF/20P+19P+3P/BK/RA :: Location DP_HDMI_SPDIF

AZ1045-04F/MSOP10/[10DE2-501045-10R]

AZ1045-04F/MSOP10/[10DE2-501045-10R]

AZ1045-04F/MSOP10/[10DE2-501045-10R]

Q356 MMBT2222A/SOT23/600mA/40

Q1 MMBT2222A/SOT23/600mA/40

Q325 2N7002/SOT23/25pF/5

Q7 2N7002/SOT23/25pF/5

Q8 2N7002/SOT23/25pF/5

Q357 2N7002/SOT23/25pF/5

Q358 2N7002/SOT23/25pF/5

SPR-P200T/6V/8/S

SPR-P200T/6V/8/S

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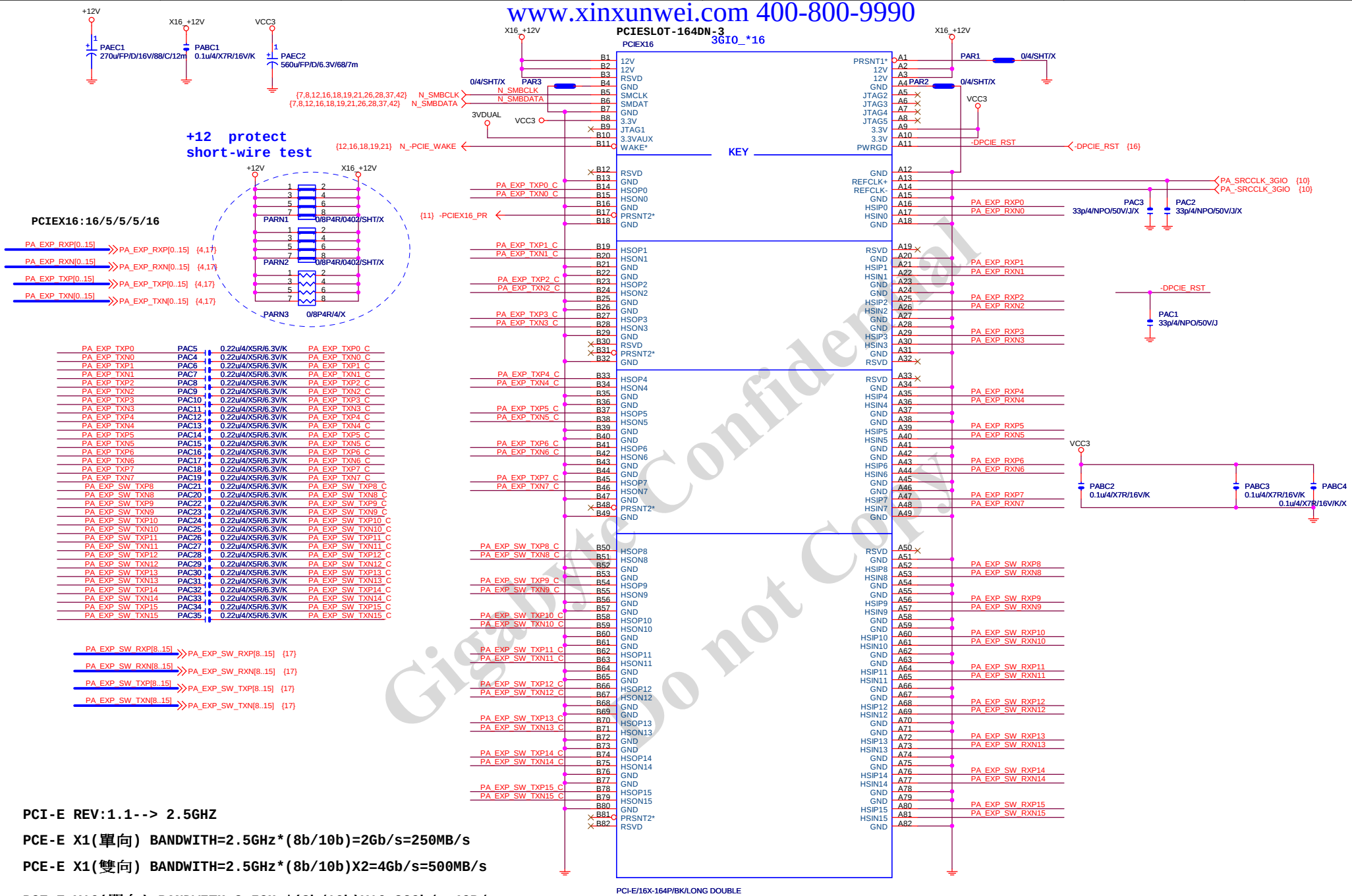
Title	HDMI / DVI/DP	
Size C	Document Number GA-Z87X-UD3H	Rev 1.1
Date: Tuesday, July 30, 2013	Sheet 14 of 48	



PCI-E REV:1.1--> 2.5GHZ

PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

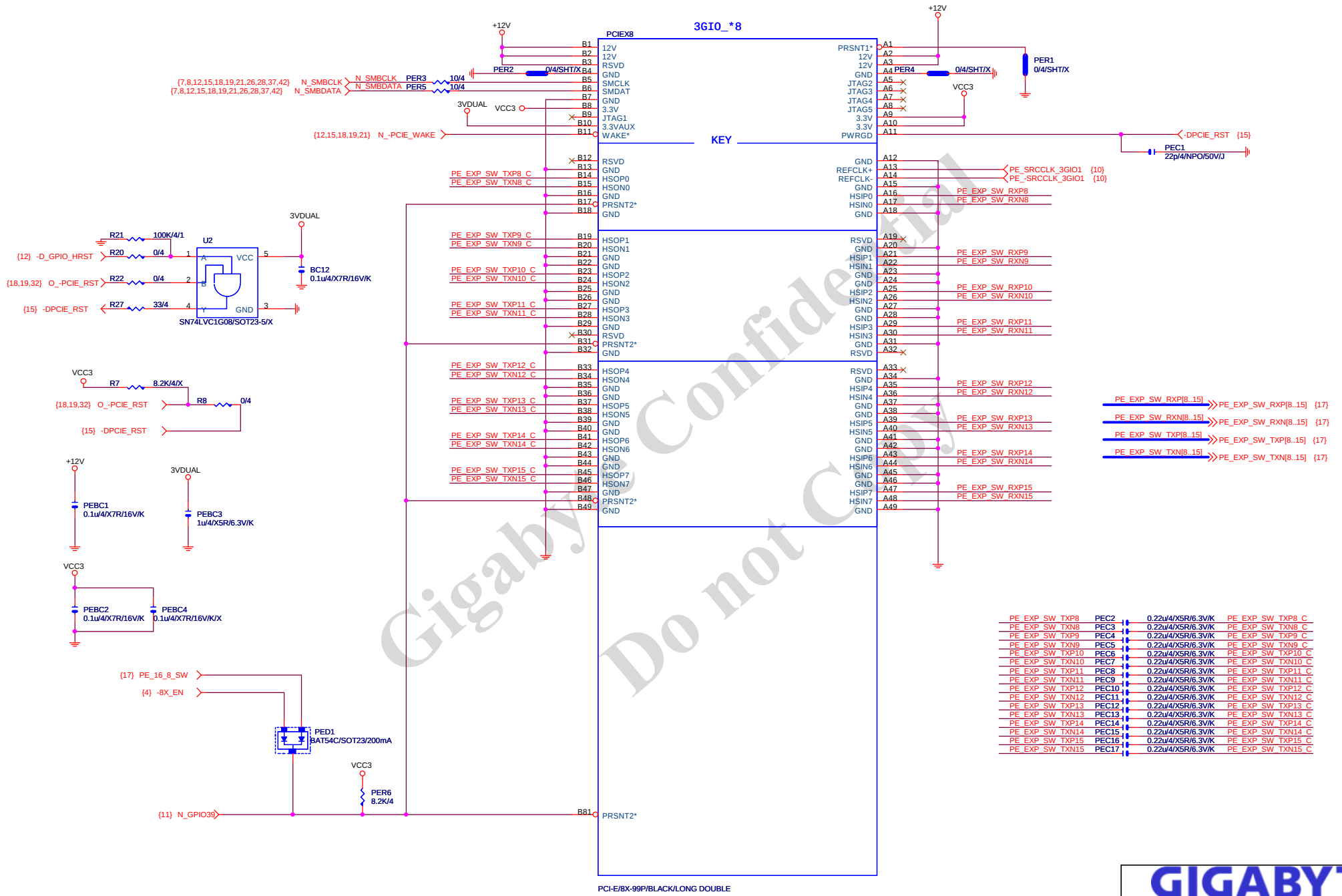
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

GIGABYTE™

Title	PCI EXPRESS * 16	
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
Date: Tuesday, July 30, 2013	Sheet 15 of 48	



PE_EXP_SW_TXP8	PEC2	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP8_C
PE_EXP_SW_TXN8	PEC3	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN8_C
PE_EXP_SW_TXP9	PEC4	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP9_C
PE_EXP_SW_TXN9	PEC5	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN9_C
PE_EXP_SW_TXP10	PEC6	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP10_C
PE_EXP_SW_TXN10	PEC7	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN10_C
PE_EXP_SW_TXP11	PEC8	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP11_C
PE_EXP_SW_TXN11	PEC9	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN11_C
PE_EXP_SW_TXP12	PEC10	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP12_C
PE_EXP_SW_TXN12	PEC11	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN12_C
PE_EXP_SW_TXP13	PEC12	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP13_C
PE_EXP_SW_TXN13	PEC13	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN13_C
PE_EXP_SW_TXP14	PEC14	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP14_C
PE_EXP_SW_TXN14	PEC15	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN14_C
PE_EXP_SW_TXP15	PEC16	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP15_C
PE_EXP_SW_TXN15	PEC17	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN15_C

GIGABYTE™

Title: PCI EXPRESS X 8

Size	Document Number	Rev
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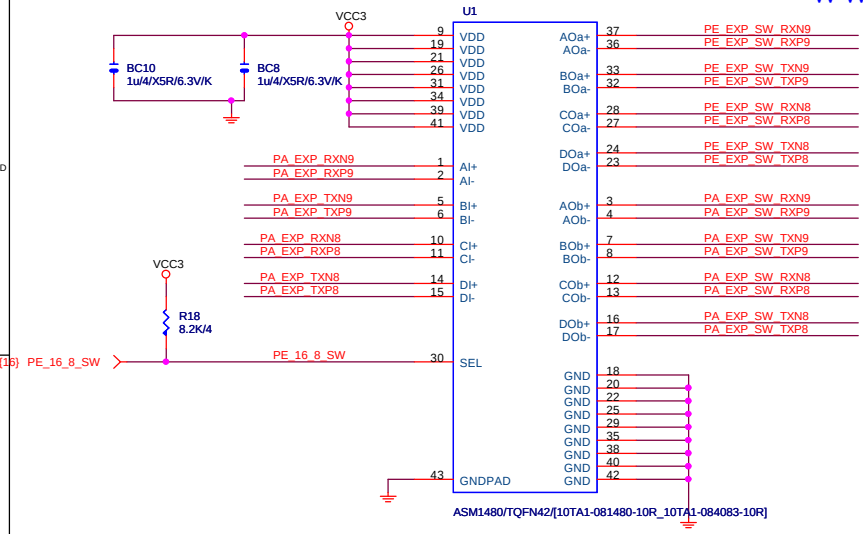
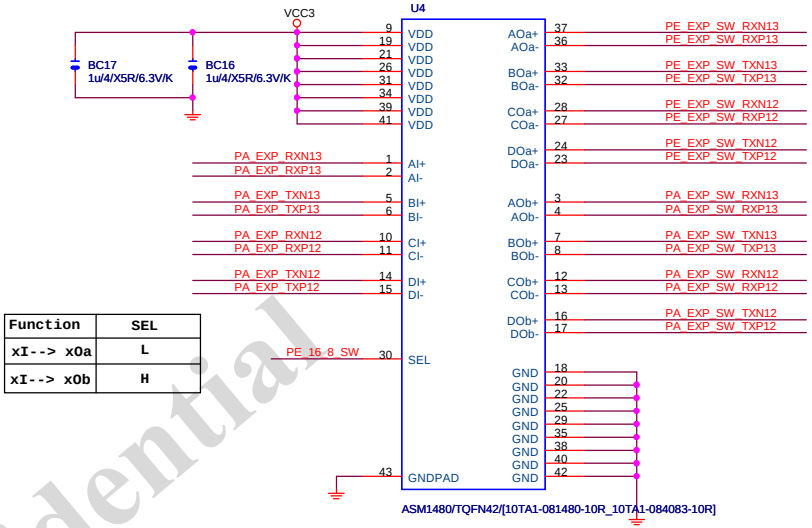
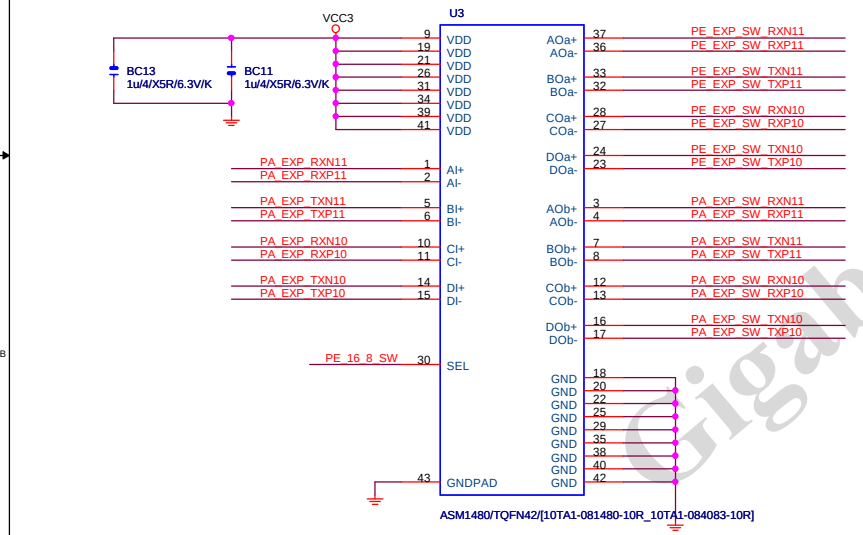
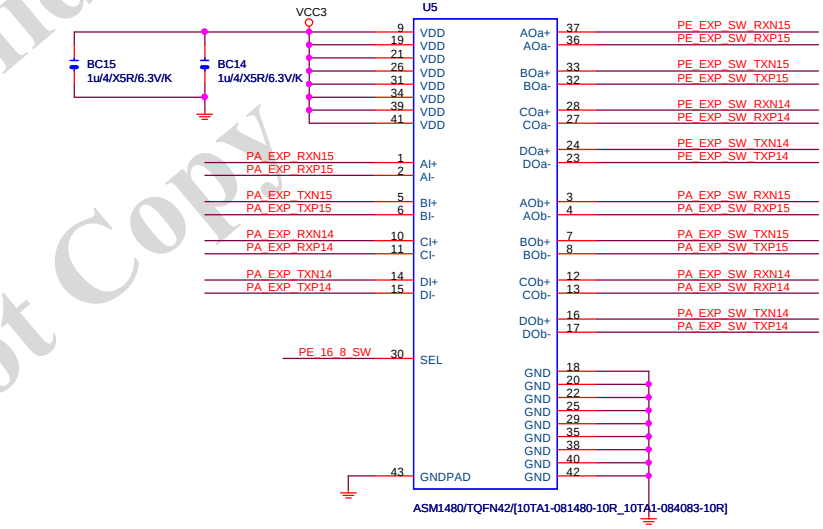




Function	SEL
xI--> x0a	L
xI--> x0b	H





PA_EXP_SW_RXP[8..15] >> PA_EXP_SW_RXP[8..15] {15}
PA_EXP_SW_RXN[8..15] >> PA_EXP_SW_RXN[8..15] {15}
PA_EXP_SW_TXP[8..15] >> PA_EXP_SW_TXP[8..15] {15}
PA_EXP_SW_TXN[8..15] >> PA_EXP_SW_TXN[8..15] {15}
PE_EXP_SW_RXP[8..15] >> PE_EXP_SW_RXP[8..15] {16}
PE_EXP_SW_RXN[8..15] >> PE_EXP_SW_RXN[8..15] {16}
PE_EXP_SW_TXP[8..15] >> PE_EXP_SW_TXP[8..15] {16}
PE_EXP_SW_TXN[8..15] >> PE_EXP_SW_TXN[8..15] {16}
PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] {4,15}
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] {4,15}
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] {4,15}
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] {4,15}

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Title: PCI EXPRESS X16 SWITCH

Size	Document Number	Rev
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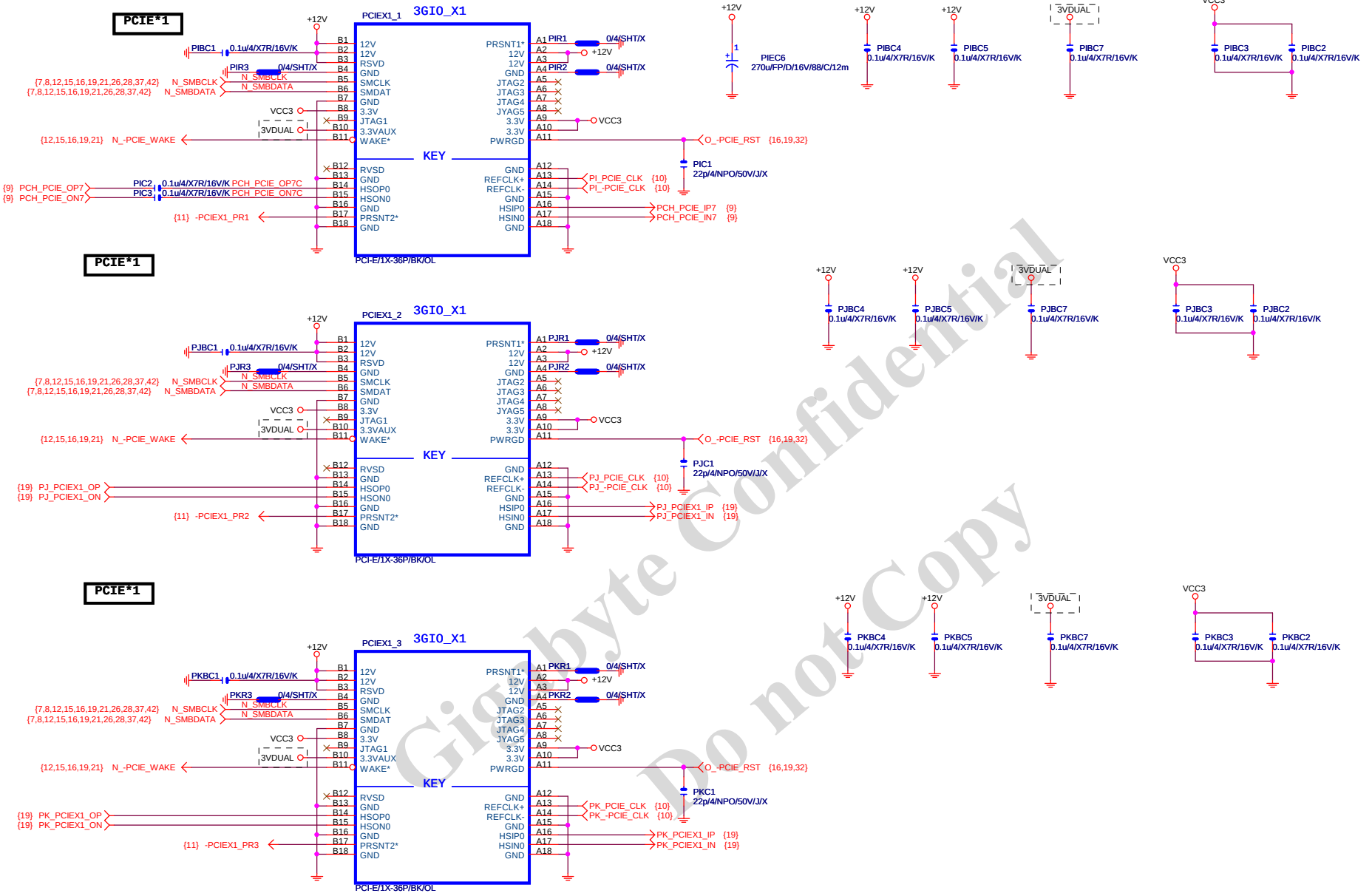

GIGABYTE		
Title: PCIE_X1 1,2,3		
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
Date: Tuesday, July 30, 2013	Sheet 18 of 48	

PCIE*4

PCIEX4

3GIO_*4

KEY

PCI-E/4X-65P/BK/LONG DOUBLE

通知BIOS DETECTED DEVICE

PPU1 ASM1440/TQFN42/{10TA1-081440-10R}

PPQ1 MMBT2222A/SOT23/600mA/40 SOT23

Function	SEL
xI--> xOa	L;PCIEX4 SLOT-->X1
xI--> xOb	H;PCIEX4 SLOT-->X4

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Title: PCIE_X4

Size: Custom | Document Number: GA-Z87X-UD3H | Rev: 1.1

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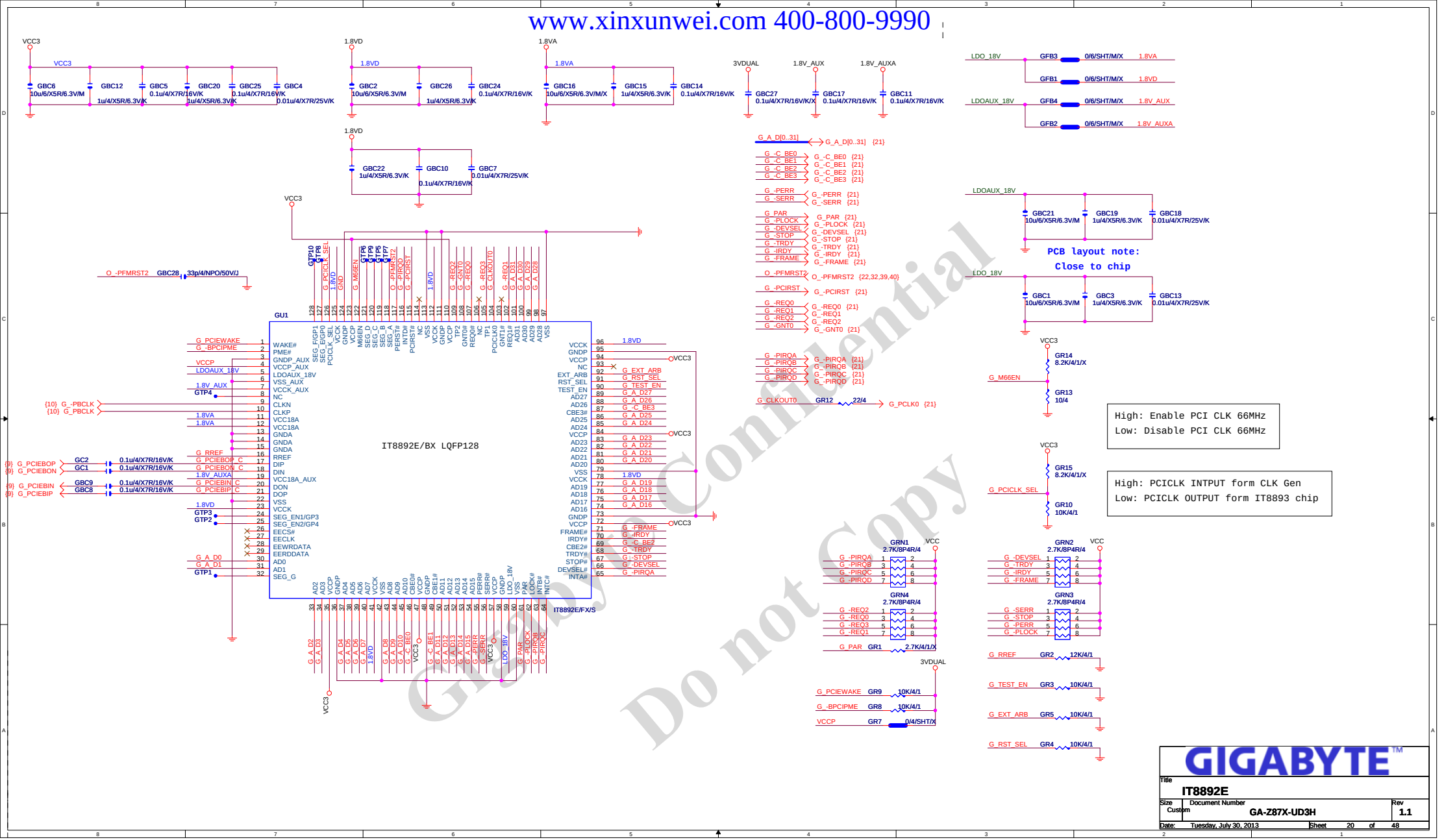
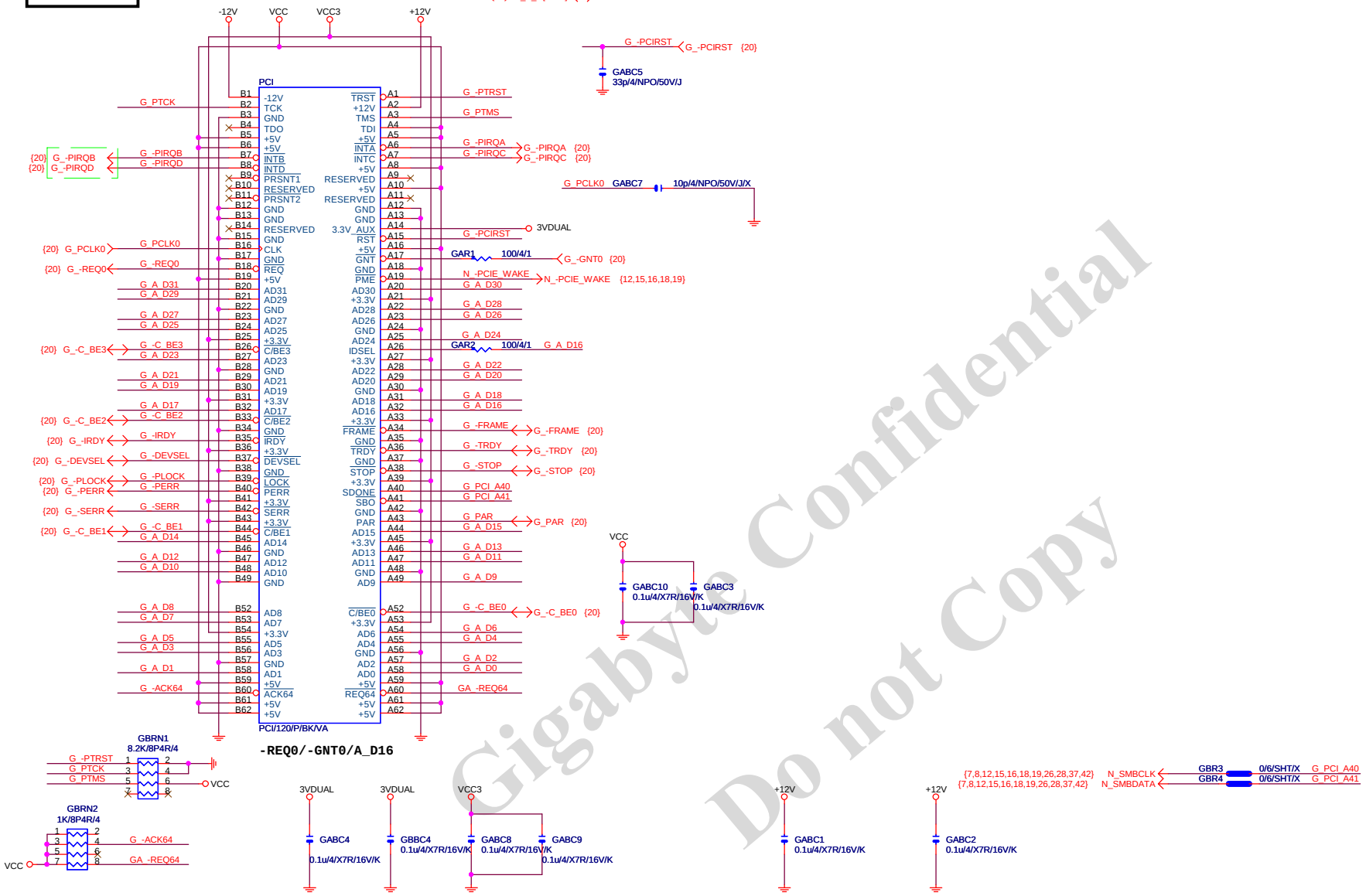
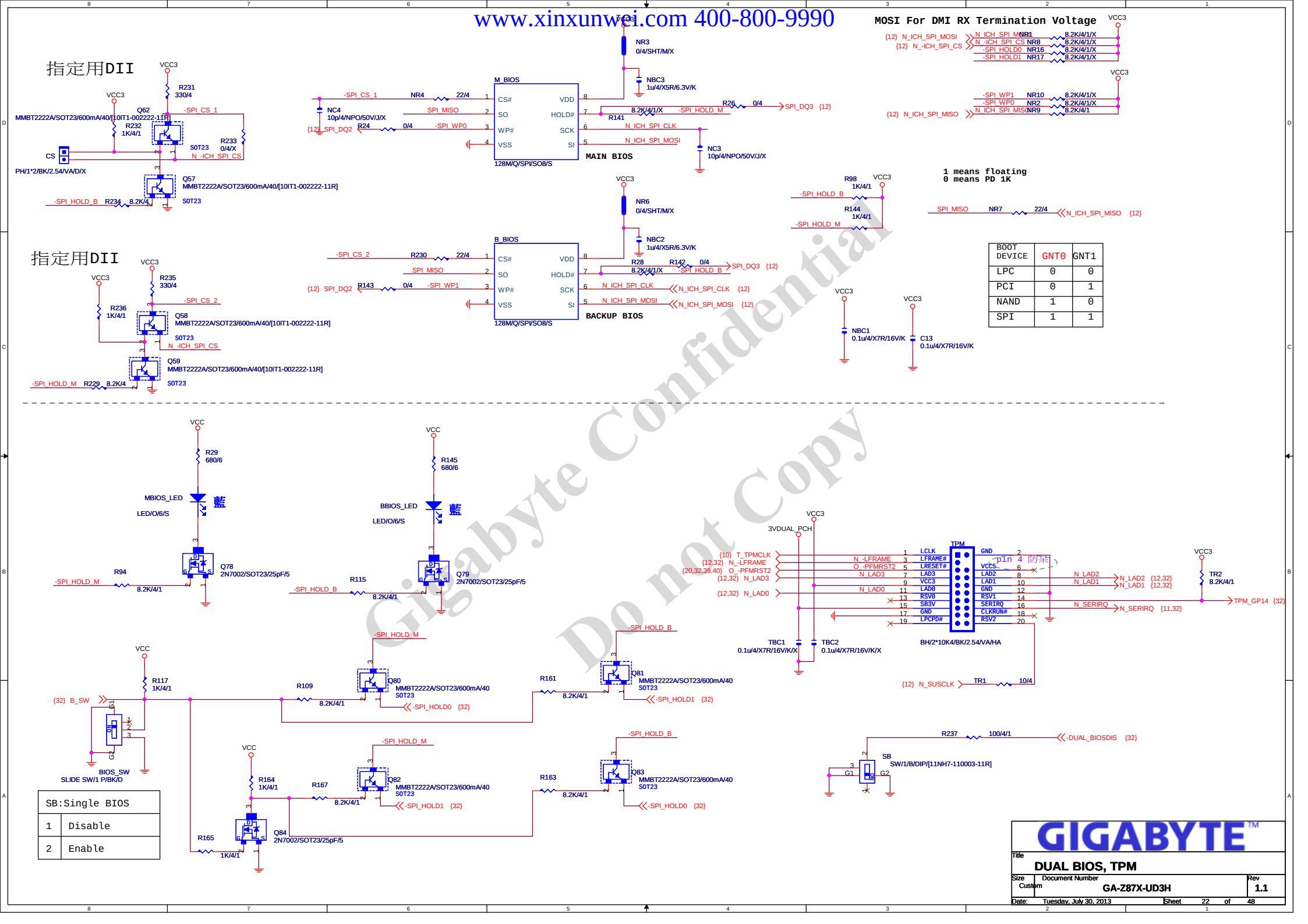


PCI SLOT 1

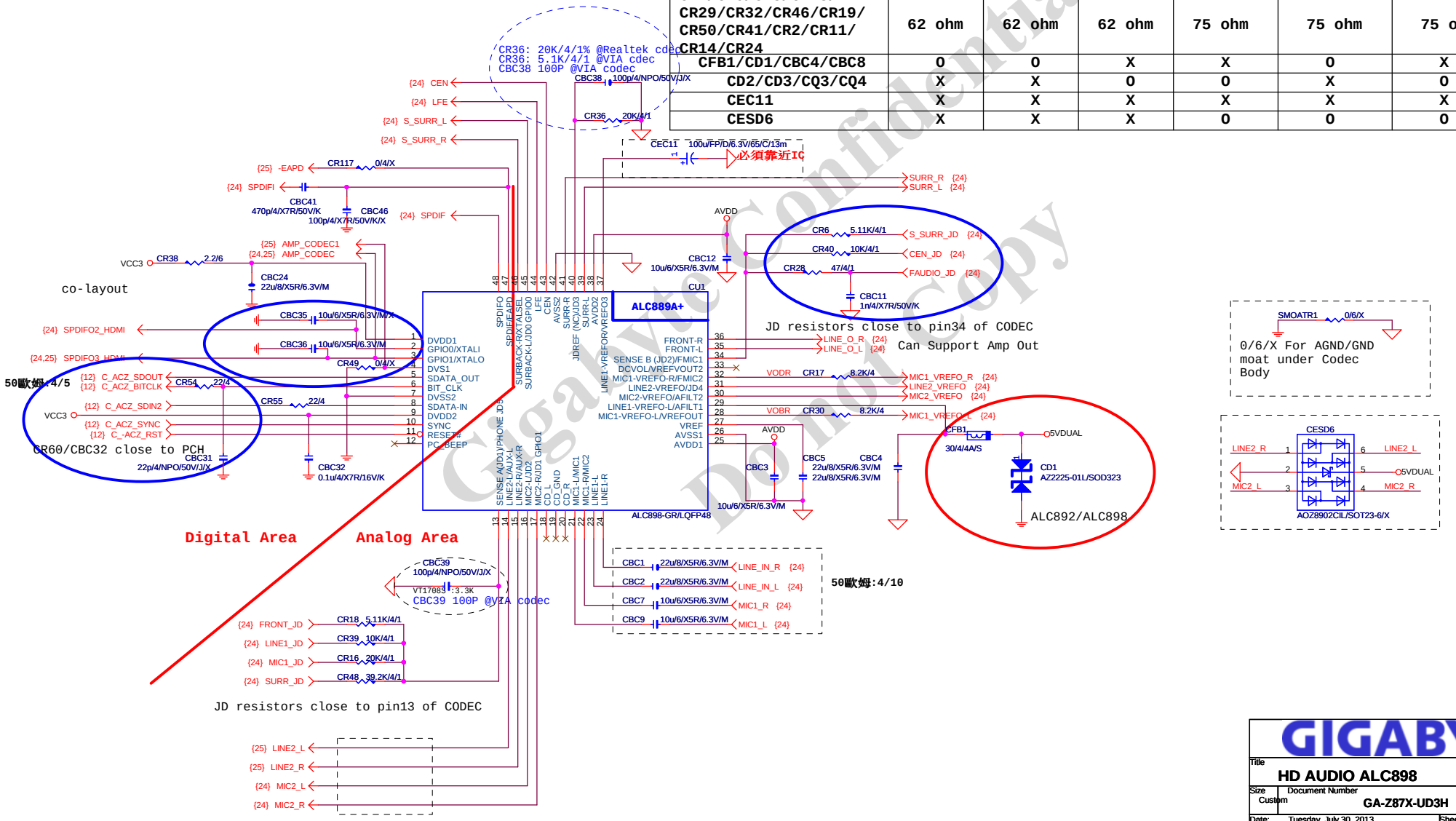


Title	PCI SLOT 1	
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
Date: Tuesday, July 30, 2013	Sheet 21 of 48	



AZALIA CODEC : ALC662/ALC887-VD2/ALC889/VT1708S-CD/VT1708S-CE/VT2021 Colay

	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC892
CR49	X	X	0	0	X	0	X
CBC36	0	0	X	X	0	X	0
CR28/CBC11	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P	47ohm+1nF	47ohm+1nF
CR52	X	0	0	0	0	0	0
CR57	0	X	X	X	X	X	X
CBC1/CBC2	10uF/X5R	10uF/X5R	22uF/X5R	10uF/X5R	10uF/X5R	10uF/X5R	22uF/X5R
CR36	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CR17/CR30/ CR25/CR15/CR12/CR3/	8.2K/4	8.2K/4	8.2K/4	3.3K/4/1	3.3K/4/1	3.3K/4/1	8.2K/4
CBC38/CBC39	X	X	X	100P/4	100P/4	X	X
CR10/CR8/CR20/CR45/ CR42/CR51/CR27/CR26	22K/4	22K/4	22K/4	10K/4/1	10K/4/1	10K/4/1	22K/4
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR2/CR11/ CR14/CR24	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm	75 ohm	62 ohm
CFB1/CD1/CBC4/CBC8	0	0	X	X	0	X	0
CD2/CD3/CQ3/CQ4	X	X	0	0	X	0	X
CEC11	X	X	X	X	X	X	0
CESD6	X	X	X	0	0	0	X



GIGABYTE

Title: HD AUDIO ALC898

Size: Custom | Document Number: GA-Z87X-UD3H | Rev: 1.1

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CR23 2.2/4
CR44 0/6

Audio jack --> USB

MOATC1 0/4 → Near Audio jack left

MOATC2 0/4 → Codec --> Audio jack

MOATC3 0.1u/4/X7R/16V/K → F_AUDIO

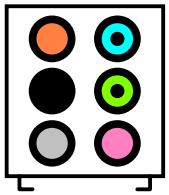
CR4 0/6/SHT/X

VCC3
CR104 8.2K/4/X
{23} SPDIFI
CR105 374K/4/1/X
5VDUAL
CR103 0/4
SPDIF_IN
PH/1*3/BK/2.54/VA/D

DP_HDMI_SPDIFC
FUSEVCC_R1
{23} SPDIF
S1 S2 S3
G1 G2 G3 G4
DP+HDMI+SPDIF/20P+19P+3P/BK/RA :: Location DP_HDMI_SPDIF

{23,25} SPDIFO3_HDMI CR53 0/4/X
{23} SPDIFO2_HDMI CR52 0/4
{23} SPDIF CR57 0/4/X
SPDIFO_HDMI
CBC37 100p/4/NPO/50V/J
PIN
SPDIF_O
PH/1*2/BK/2.54/VA/D
For HDMI SPDIF

AZALIA JACK
BTX AZALIA CONNECTOR



11NR6-403007-21R

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

AUDIOA
{23} CEN_JD
CEN_JD
BJ_B5
BJ_B2
GND REAR
Orange
CEN/LFE
{23} SURR_JD
SURR_JD
BJ_C5
BJ_C2
GND CEN
Black
SURROUND
{23} S_SURR_JD
S_SURR_JD
BJ_A5
BJ_A2
GND SIDE
Gray
SURROUND SIDE
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

LINE-OUT
{23} LINE_O_R CEC2 100u/FP/D/6.3V/65/C/13m CR7 62/4
{23} LINE_O_L CEC3 100u/FP/D/6.3V/65/C/13m CR9 62/4
CR10 22K/4
CR8 22K/4
AJ_B5
AJ_B2
CBC23 180p/4/NPO/50V/J
CBC26 180p/4/NPO/50V/J

LINE-IN
{23} LINE_IN_R CR5 62/4
{23} LINE_IN_L CR13 62/4
AJ_A5
AJ_A2
CBC18 180p/4/NPO/50V/J
CBC27 180p/4/NPO/50V/J

MIC-IN
{23} MIC1_R CR29 62/4
{23} MIC1_L CR32 62/4
{23} MIC1_VREFO_L
{23} MIC1_VREFO_R
AJ_C5
AJ_C2
CBC19 180p/4/NPO/50V/J
CBC22 180p/4/NPO/50V/J

SURROUND
{23} SURR_R CEC5 100u/FP/D/6.3V/65/C/13m CR46 62/4
{23} SURR_L CEC7 100u/FP/D/6.3V/65/C/13m CR19 62/4
EMI
CR20 22K/4
CR45 22K/4
BJ_C5
BJ_C2
CBC29 180p/4/NPO/50V/J
CBC28 180p/4/NPO/50V/J

CEN/LFE
{23} LFE CEC9 100u/FP/D/6.3V/65/C/13m CR50 62/4
{23} CEN CEC10 100u/FP/D/6.3V/65/C/13m CR41 62/4
EMI
CR42 22K/4
CR51 22K/4
BJ_B5
BJ_B2
CBC25 180p/4/NPO/50V/J
CBC34 180p/4/NPO/50V/J

SURR BACK
{23} S_SURR_R CEC8 100u/FP/D/6.3V/65/C/13m CR21 62/4
{23} S_SURR_L CEC4 100u/FP/D/6.3V/65/C/13m CR47 62/4
EMI
CR43 22K/4
CR22 22K/4
BJ_A5
BJ_A2
CBC33 180p/4/NPO/50V/J
CBC30 180p/4/NPO/50V/J

AZALIA FRONT PANEL
CQ2 BAT54A/SOT23/200mA
{23} LINE2_VREFO
CR25 8.2K/4/1/X
CR15 8.2K/4/1/X
CQ1 BAT54A/SOT23/200mA
{23} MIC2_VREFO
CR12 8.2K/4/1
CR3 8.2K/4/1
SOT23
EMI
{23} MIC2_L
{23} MIC2_R
{25} LINE2_OUT_R
{23} FAUDIO_JD
{25} LINE2_OUT_L
CBC20 10u/6/X5R/6.3V/M
CBC15 10u/6/X5R/6.3V/M
CR33 62/4
CR34 62/4
CR2 62/4 M2_L
CR11 62/4 M2_R
L2-R
L2-L
CR1 0/4/X
CBC10 180p/4/NPO/50V/J
CBC16 180p/4/NPO/50V/J
CBC17 180p/4/NPO/50V/J
CBC6 180p/4/NPO/50V/J
CR27 22K/4
CR26 22K/4
F_AUDIO
3VDUAL
CR56 8.2K/4/X
CR35 20K/4/1
CR31 39.2K/4/1
C_-ACZ_DET {12}
BH/2*5K8/BK/2.54/VA/AUDIO/PRT/TUR180/11NH3-001205-31RI
Digital Area

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Title: AUDIO JACK		
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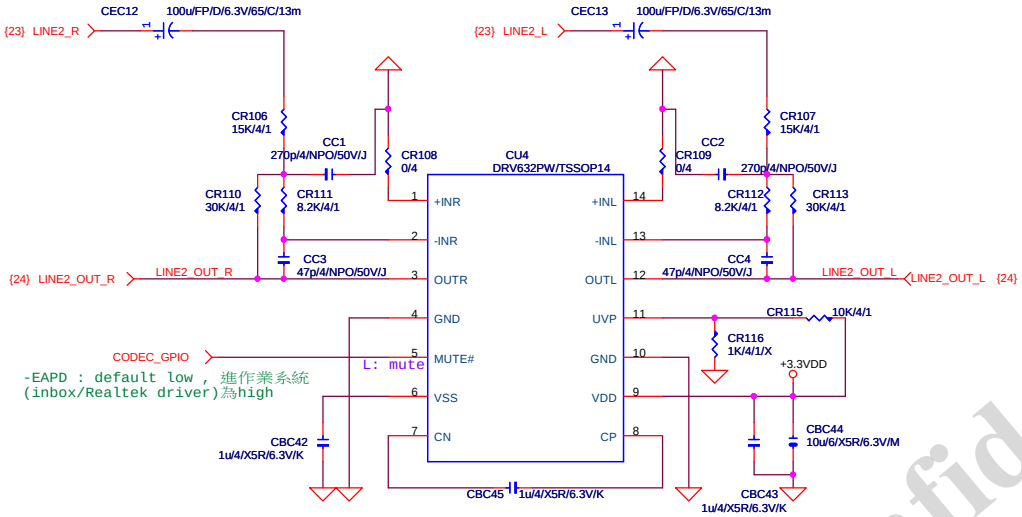
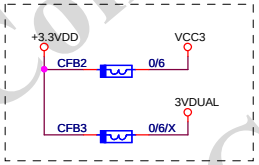
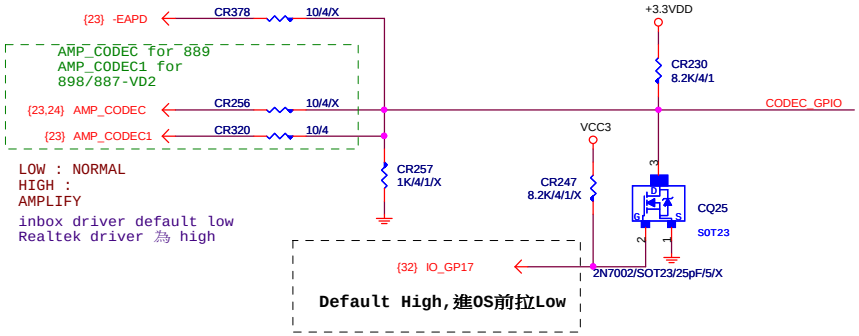
HEADPHONE



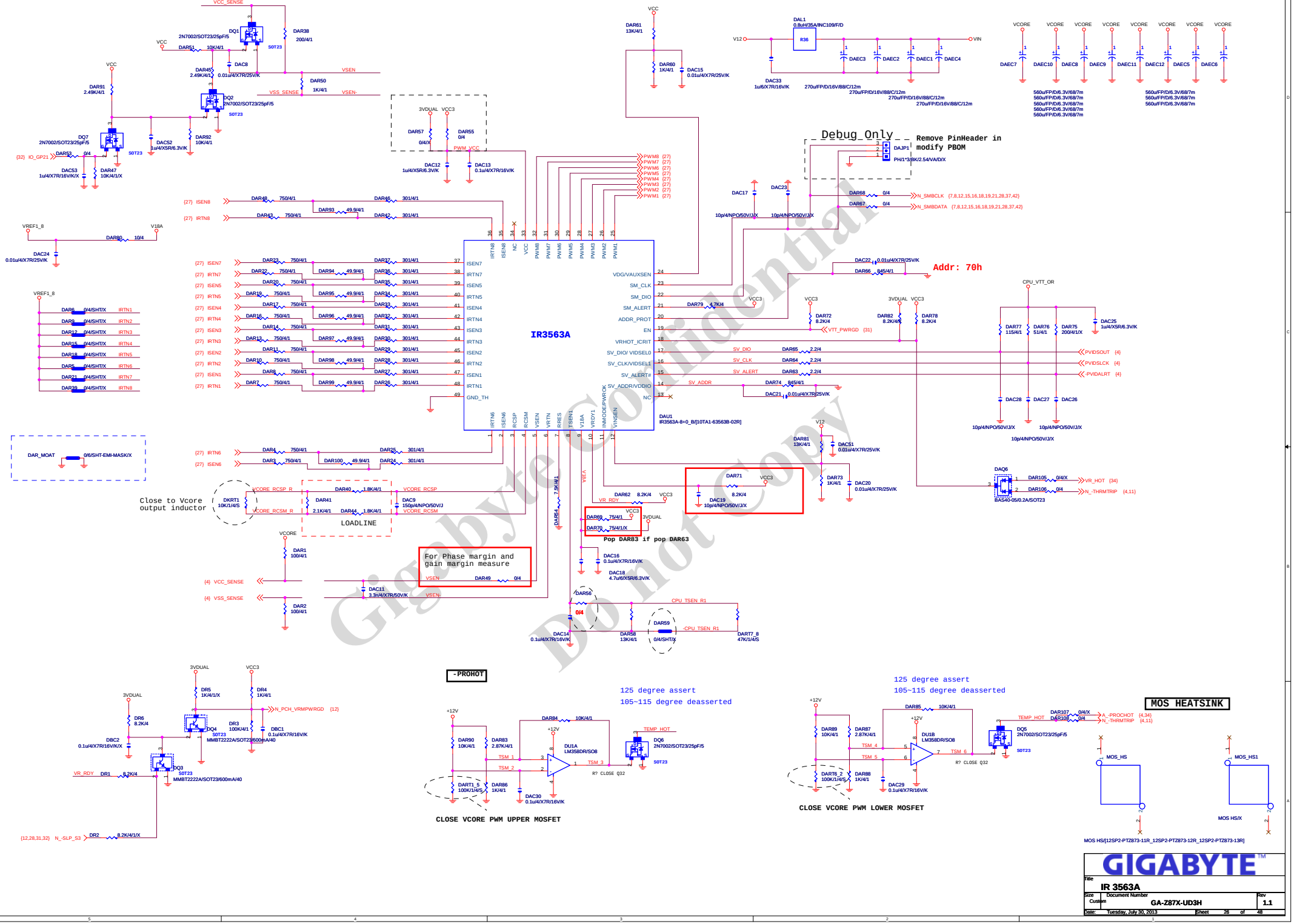


HEADPHONE



GIGABYTE™

Title: Audio Amplifier		
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
Date: Tuesday, July 30, 2013	Sheet 25 of 48	



Title	IR 3563A
Size	Custom
Document Number	GA-Z87X-UD3H
Rev	1.1
Date	Tuesday, July 30, 2013
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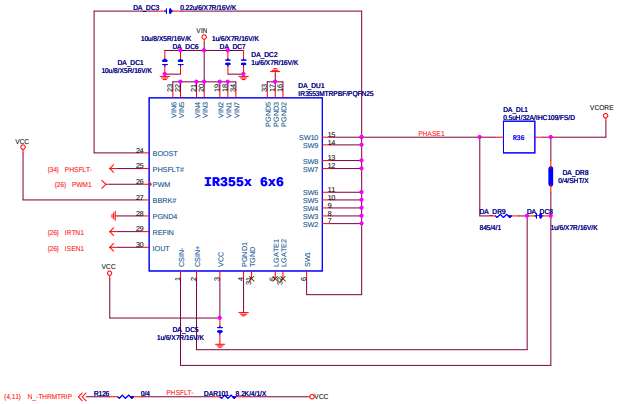
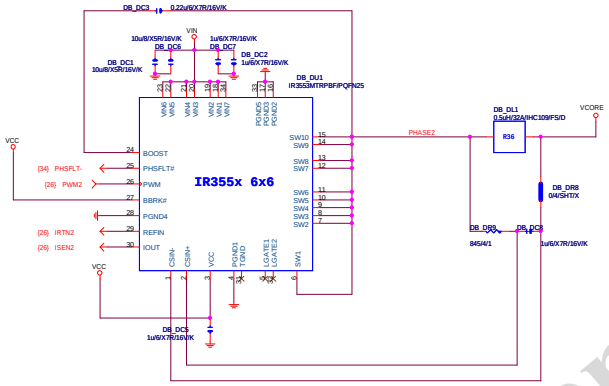
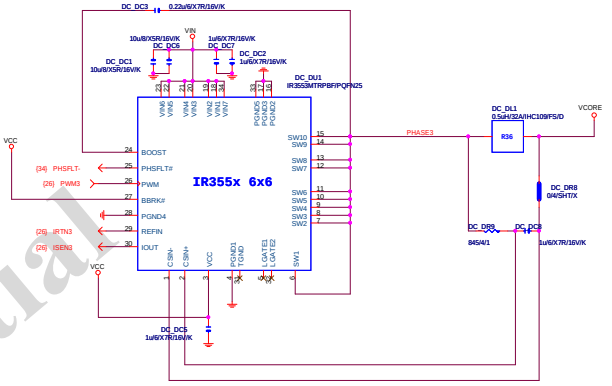
VCORE-PHASE1



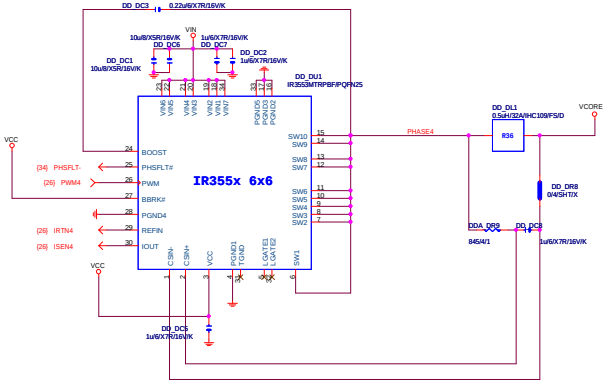
VCORE-PHASE2



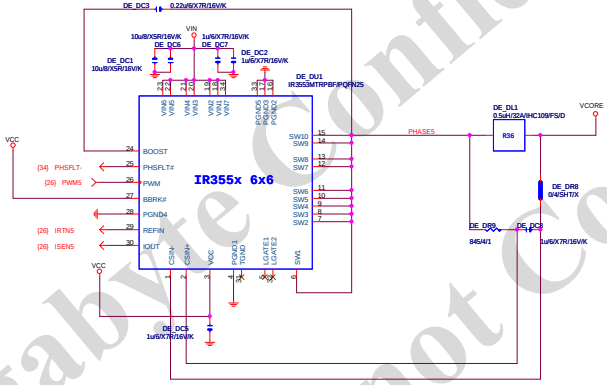
VCORE-PHASE3



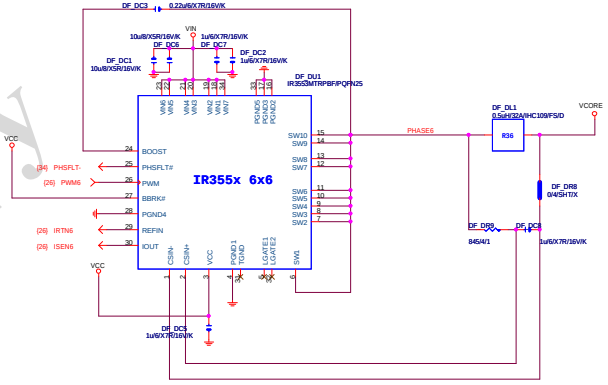
VCORE-PHASE4



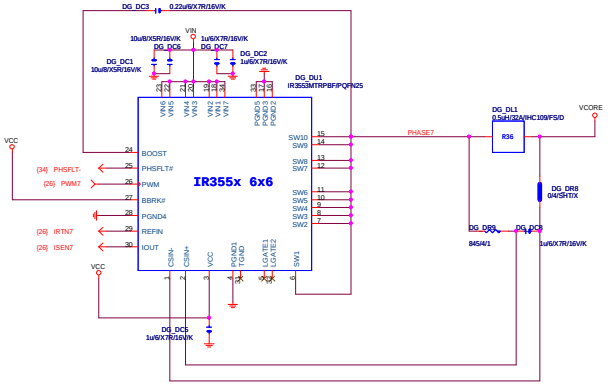
VCORE-PHASE5



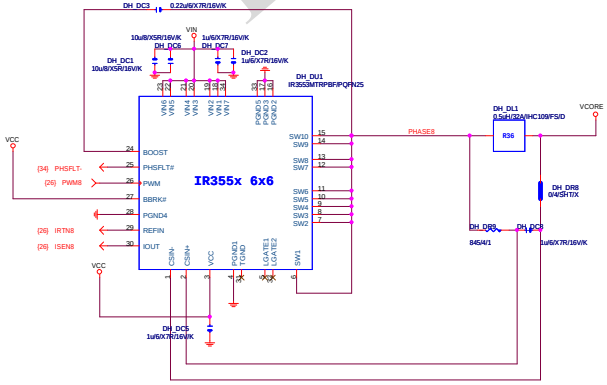
VCORE-PHASE6



VCORE-PHASE7



VCORE-PHASE8



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Title	CPU CORE VR	
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MAR_MOAT 0/6/SHT-EMI-MASK/X

3VDUAL VCC3 MAR26 0/4 MAR27 0/4/X MA_PWM_VCC MAC10 1u/4/X5R/6.3V/K MAC8 0.1u/4/X7R/16V/K

MA_PWM2 {29}
MA_PWM1 {29}

MAR20 10K/4/1 MA_RCSM_L2
MA_RCSP_L2

MAU2 IR3570-2+0[10TA1-603570-AGR]

IR3570

30	RCSP_L2	1	RCSP
29	RCSM_L2	2	RCSM
28	VCC	3	VRRDY_L2
27	Vsen_L2	4	Vsen
26	Vtn_L2	5	Vtn
25	PWM1_L2	6	Pes
24	PWM2_L2	7	Tsen1
23	PWM3	8	VSA
22	PWM2	9	VRRDY_L1
21	PWM1	10	EN_SINKOC
31	ISEN1_L2	20	SM_CLK
32	IRTN1_L2	19	SM_DIO
33	ISEN2_L2	18	ADDR_PROT
34	IRTN2_L2	17	EN
35	ISEN3	16	VR_HOT/Icritical
36	IRTN3	15	SV_DIO
37	ISEN2	14	SV_CLK
38	IRTN2	13	SV_ALERT#
39	ISEN1	12	SV_ADDR
40	IRTN1	11	Io_sense
41	GND		

MAC11 22p/4/NPO/50V/J/X MAC16 22p/4/NPO/50V/J/X
MAR24 0/4/SHT/X MAR41 0/4/SHT/X
N_SMBCLK {7,8,12,15,16,18,19,21,26,37,42}
N_SMBDATA {7,8,12,15,16,18,19,21,26,37,42}
Link to system SMBUS

MAC15 0.01u/4/X7R/25V/K MAR40 1.78K/4/1 Addr: 72h
MA_EN MAR39 8.2K/4/1 3VDUAL

MA_PWM_VCC
MA_VR_HOT {34}
MAR31 8.2K/4/1 MAR38 8.2K/4/1 MAR30 8.2K/4/1
MA_VIDSLCK
MAC20 0.1u/4/X7R/16V/K/X

MAC14 0.01u/4/X7R/25V/K MAR37 845/4/1

{29} MA_ISEN2 MAR7 2.4K/4/1 MAR9 620/4/1 MAC4 1u/6/X7R/16V/K MAR15 301/4/1 MA_ISEN2_L1
{29} MA_IRTN2 {29} MA_ISEN1 MAR6 2.4K/4/1 MAR8 620/4/1 MAC3 1u/6/X7R/16V/K MAR14 301/4/1 MA_IRTN2_L1 MAR13 301/4/1 MA_ISEN1_L1
{29} MA_IRTN1 MAR12 301/4/1 MA_IRTN1_L1

Value need check with Vendor

Close to DDR output inductor
MAKRT1 10K/1/4/S
MA_RCSM_R MAR16 806/4/1 MA_RCSM
MA_RCSP_R MAR11 1.43K/4/1 MAC5 330p/4/NPO/50V/J MAR10 806/4/1 MA_RCSP

should be routed as differential pair, 7mil width,8mil spacing

3VDUAL MAR18 8.2K/4/1/X
MAR22 7.5K/4/1

5VDUAL MAR36 13K/4/1
3VDUAL MAR28 8.2K/4/1/X
DDR_15V MAR29 1K/4/1 MAC19 0.01u/4/X7R/25V/K
Link to PCH pin B646
MAR35 8.2K/4/1/X
N_DRAM_PWROK {4,12}
Pull up in PCH side

DDR_15V MAR2 10/4 MA_VSEN MAR17 0/4 MA_VSEN_R MAC6 3.3n/4/X7R/50V/K
MAR1 0/4 MA_VTTN

VCC3 MAR33 100/4/1/X
3VDUAL MAR34 100/4/1
MAR21 0/4 MB_TSEN_R1 MART1 47K/1/4/S
MAR25 0/4/SHT/X MAR23 13K/4/1 MAC9 0.1u/4/X7R/16V/K MAC18 4.7u/6/X5R/6.3V/K MAC12 0.47u/6/X7R/16V/K

3VDUAL MAR22 8.2K/4/1
MA_EN
5VSB MAR42 22K/4 MAQ2 2N7002/SOT23/25pF/5
MAR44 8.2K/4/1 MAQ4 MMBT2222A/SOT23/600mA/40 SOT23
{12,32} N_S4_S5

MA_EN
MAQ1 2N7002/SOT23/25pF/5
{32,37} -PSON
MAR43 22K/4 MAQ3 MMBT2222A/SOT23/600mA/40 SOT23
{12,26,31,32} N_SLP_S3
POWER ISSUE MAC23 0.1u/4/X7R/16V/K/X MAC24 2.2u/6/X5R/6.3V/K

DDRVTT
DDR_15V
RT9173DPSP/3A/SO8/S[10GL2-309173-20R]
MAU1
MAC2 1u/4/X5R/6.3V/K MAR5 1K/4/1 MAC1 1u/4/X5R/6.3V/K MAR4 1K/4/1
MA_VTT_REF
VCC MAC7 10u/6/X5R/6.3V/M
DDRVTT
{42} VTT_ADJ MA_VTT_REF 0/4 MAR3

DDR_15V MAR45 82/4 MAR19 82/4 MAQ5 2N7002/SOT23/25pF/5
{32,37} -PSON
防DDR15V IR3570漏電線路

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Title	DDR POWER IR3570		
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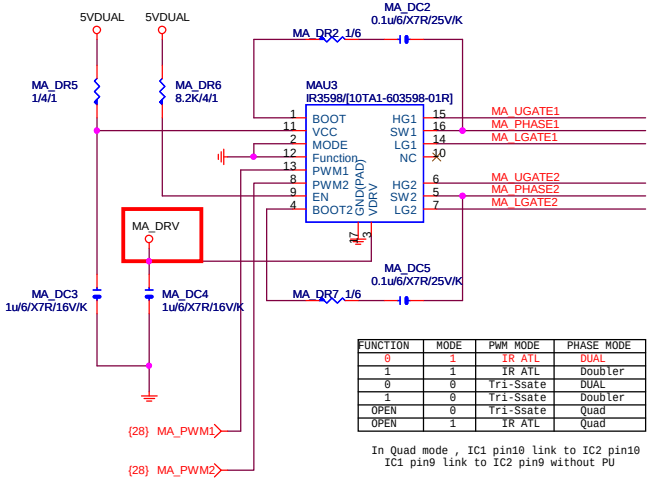
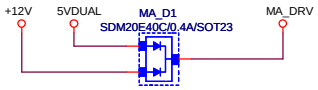
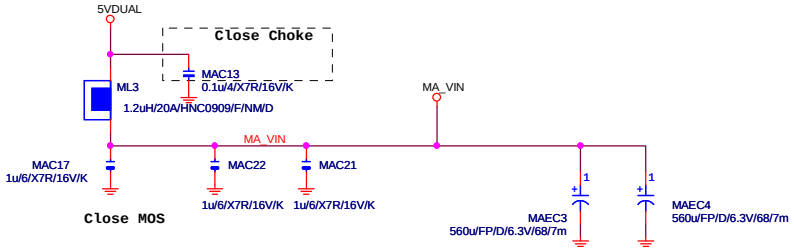
DDR_15V

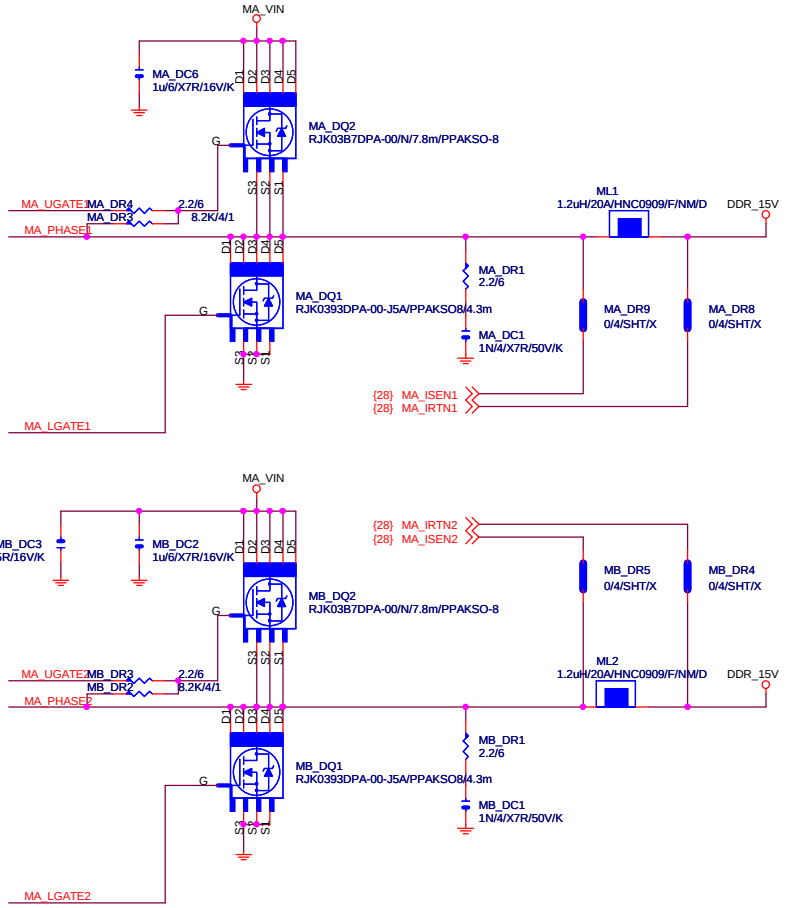


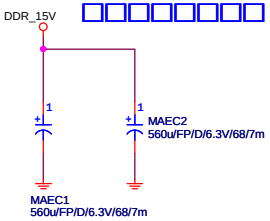
FUNCTION	MODE	PWM MODE	PHASE MODE
0	1	IR ATL	DUAL
1	1	IR ATL	Doubler
0	0	Tri-Ssate	DUAL
1	0	Tri-Ssate	Doubler
OPEN	0	Tri-Ssate	Quad
OPEN	1	IR ATL	Quad

In Quad mode , IC1 pin10 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PU









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Title: IR3570		
Size: Custom	Document Number: GA-Z87X-UD3H	Rev: 1.1
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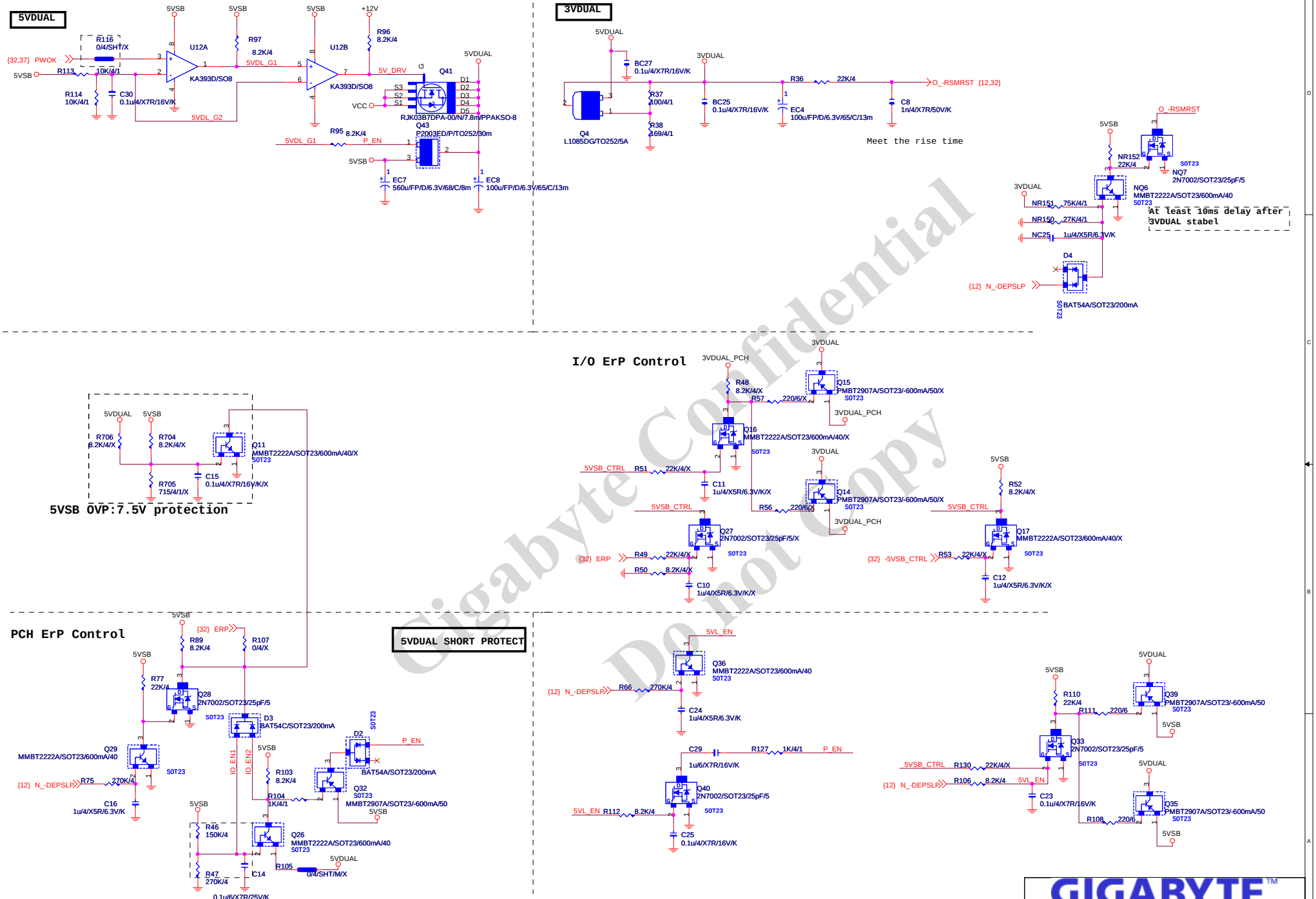

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Title	5VDUAL, 3VDAUL, ERP	
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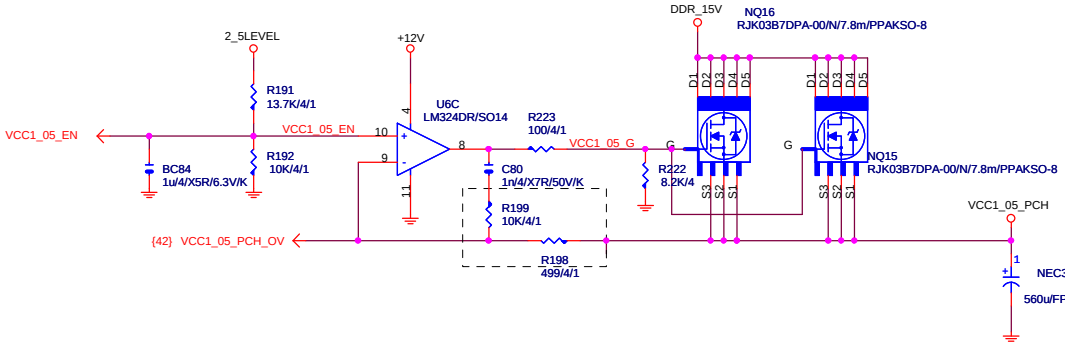
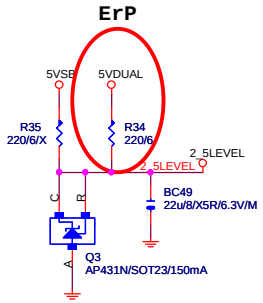
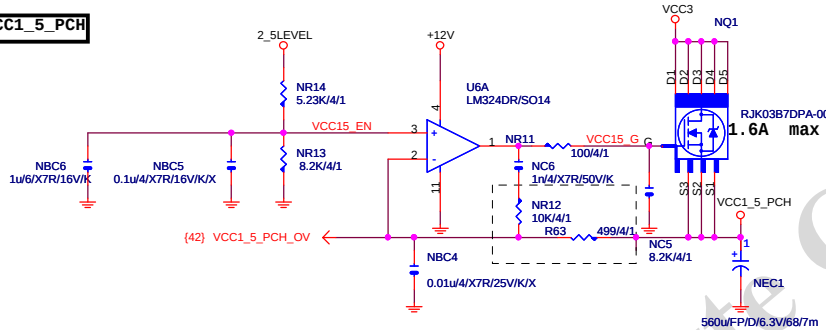
VCC1_05_PCH





VCC1_5_PCH



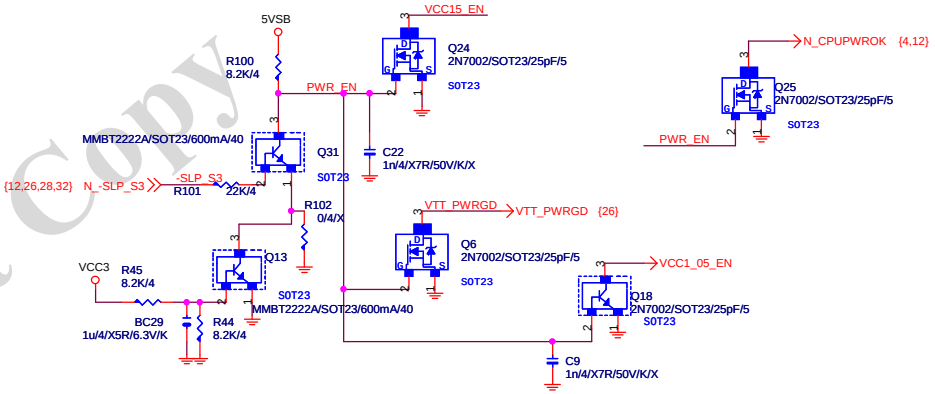
Rise/Fall max 50us

Rise:20% - 80%

Fall :2V- 0.8V

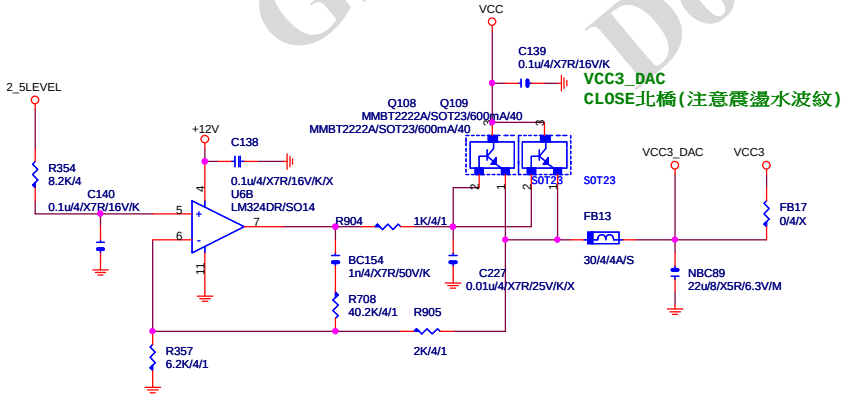
At least 10ms delay after 3VDUAL ready

Pop when PCH & SIO both use 3VDUAL-PCH



VCC3_DAC

(3.3V/70mA+360uA)



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Title	VCC 1.05 PCH, VCC1.5 PCH, CC3 DAC	
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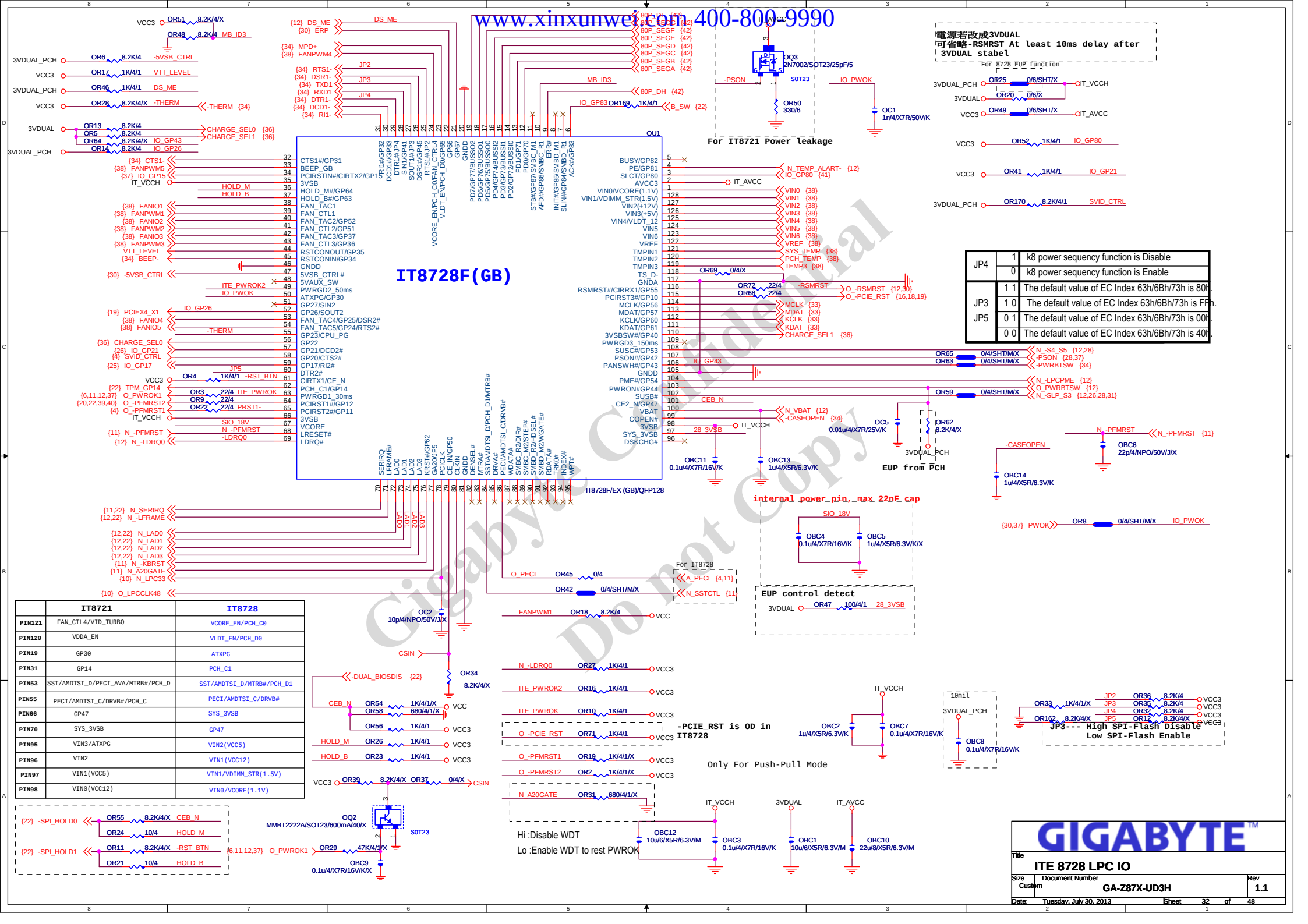

	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2(VCC5)
PIN96	VIN2	VIN1(VCC12)
PIN97	VIN1(VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0(VCC12)	VIN0/VCORE(1.1V)

Title		
ITE 8728 LPC IO		
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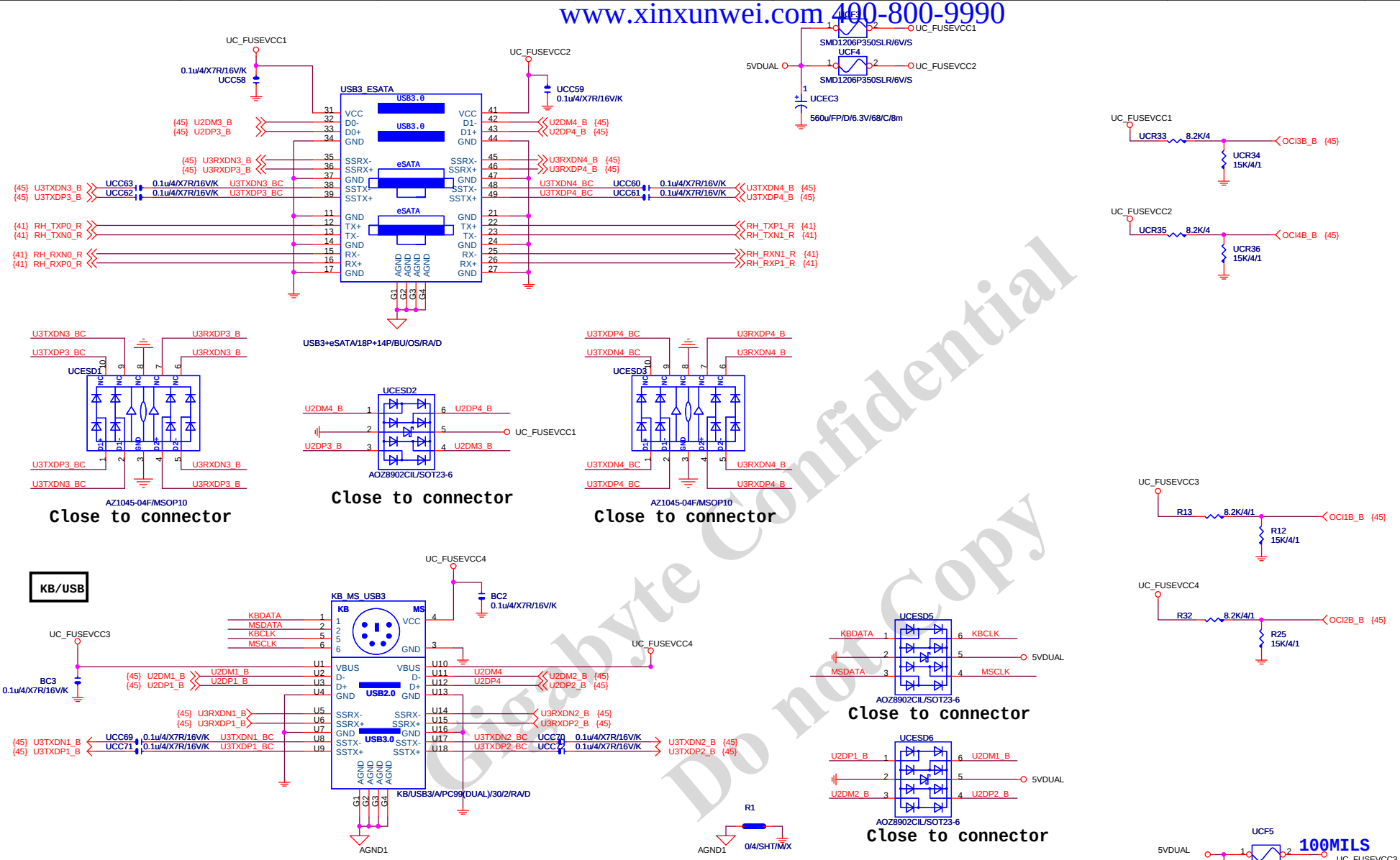
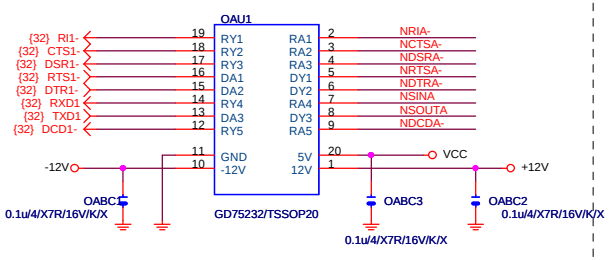
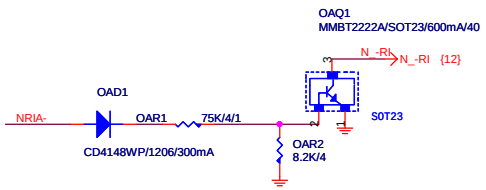
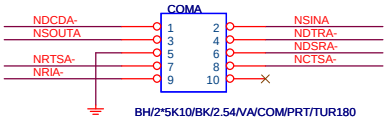


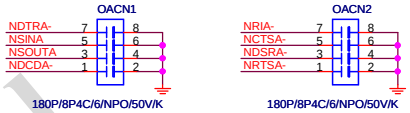
COMA

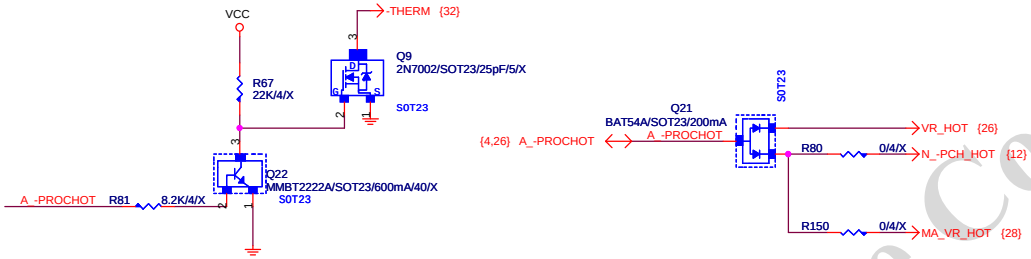


COM RI

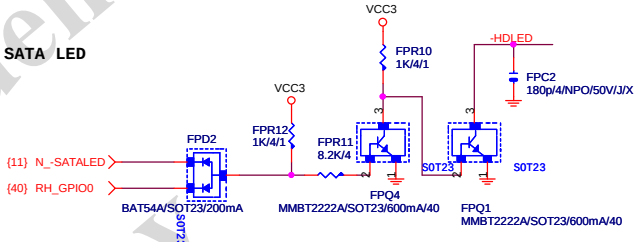


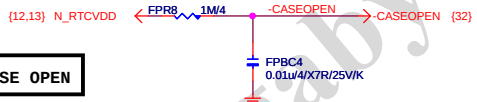




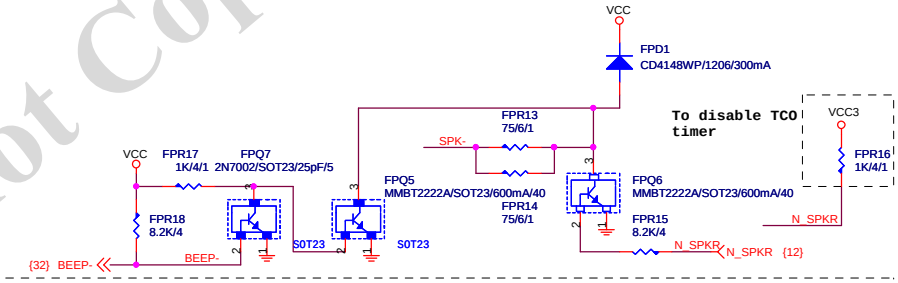


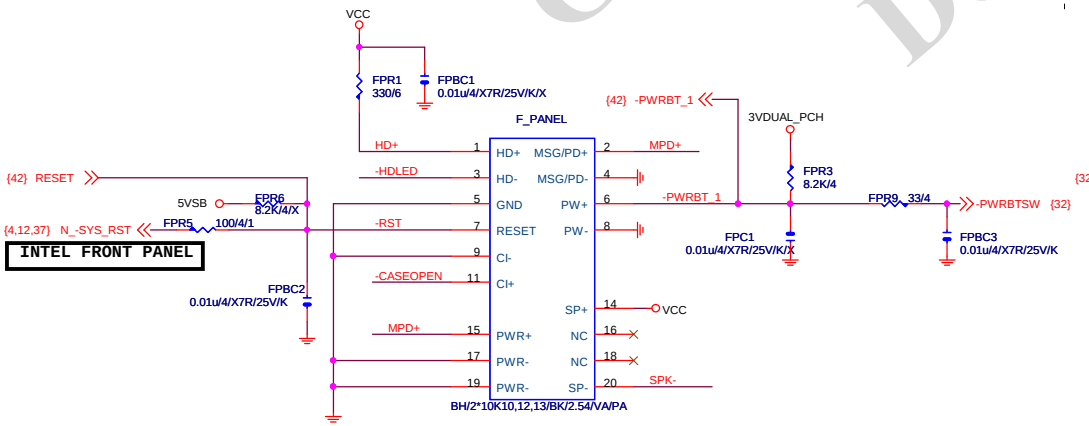
SATA LED

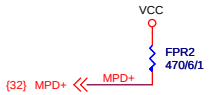


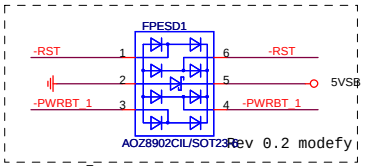


CASE OPEN









Close to connector

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Title	FP, COM, -PHOT	
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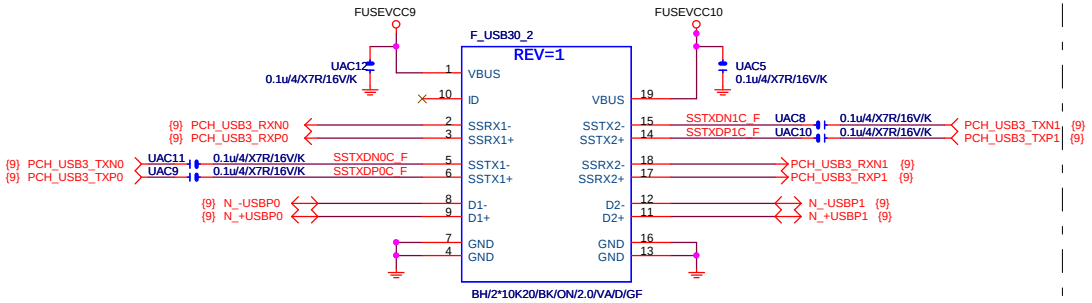
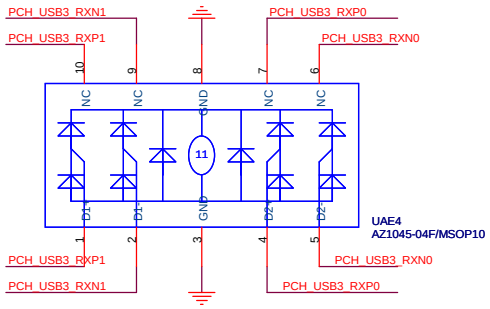
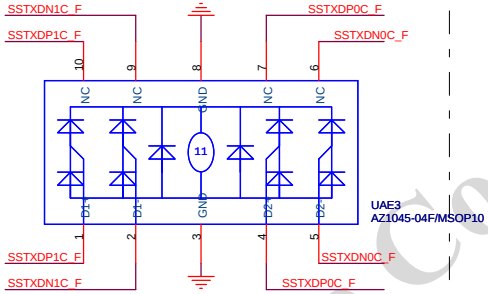
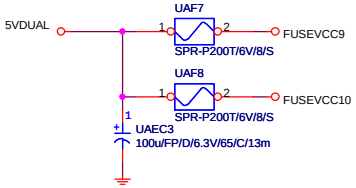
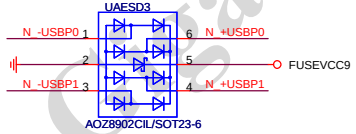
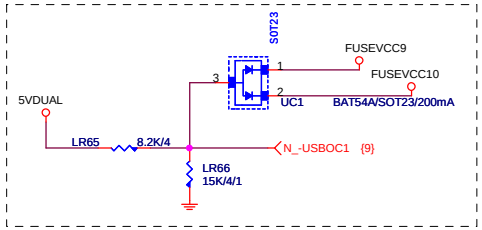


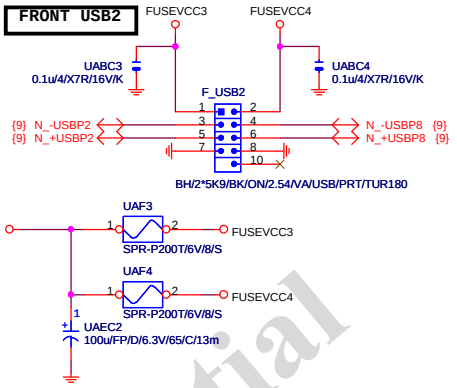


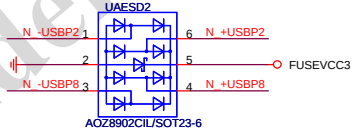




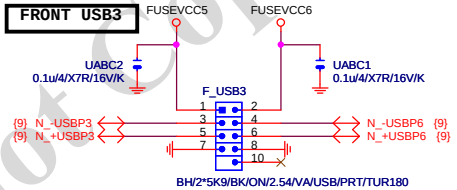


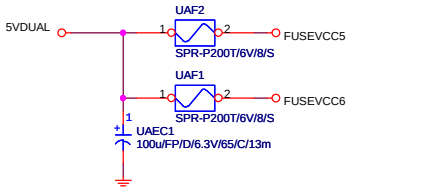


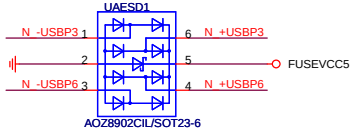




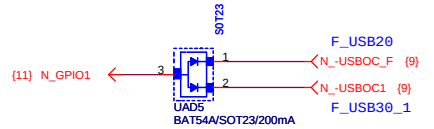
Close to connector

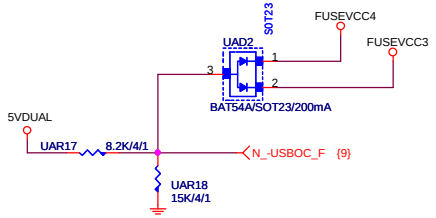


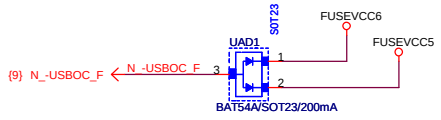


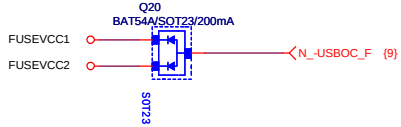


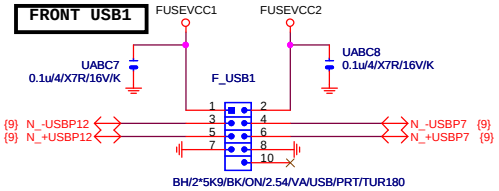
Close to connector

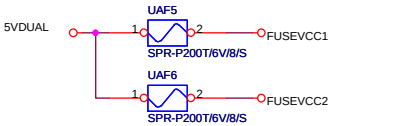


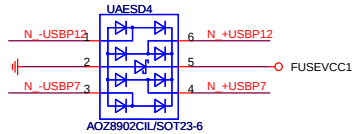












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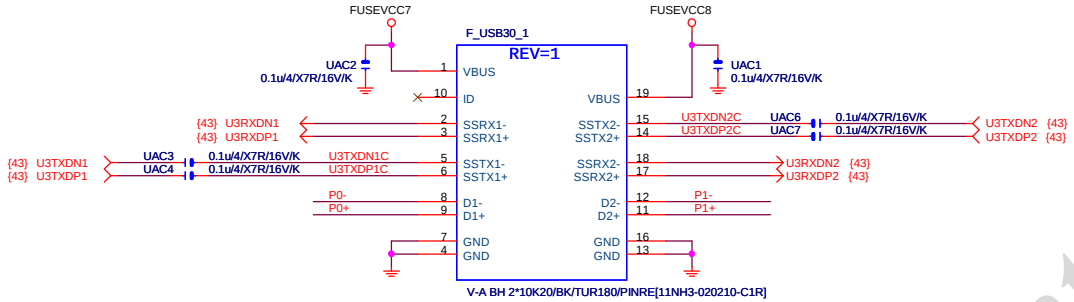

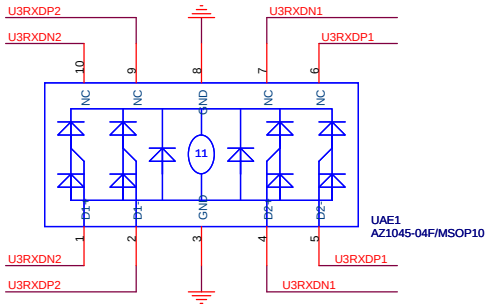

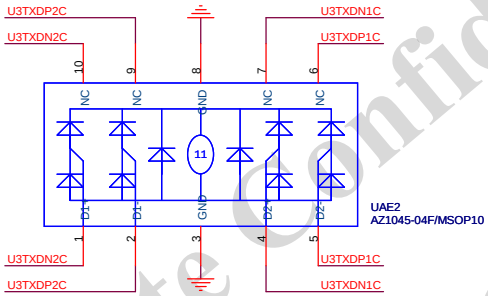

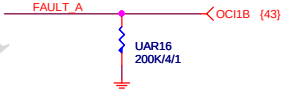

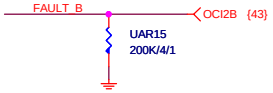

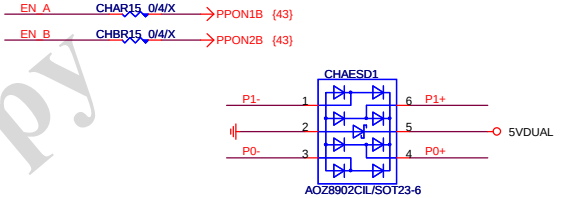

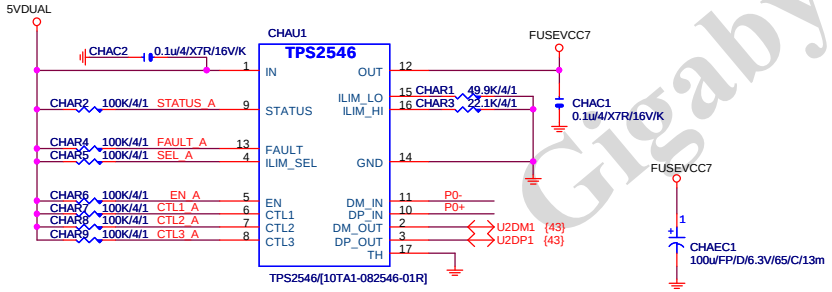

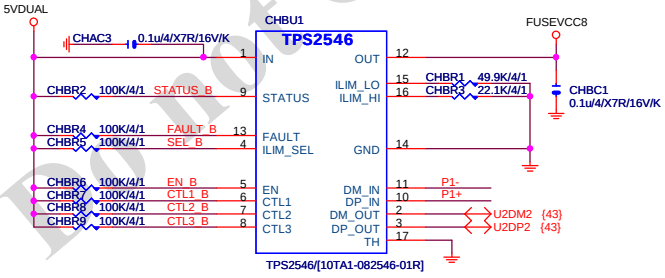

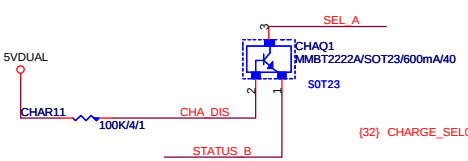

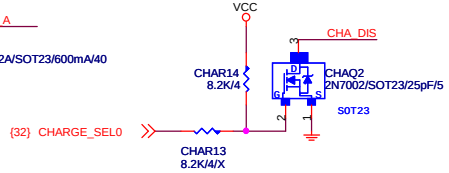

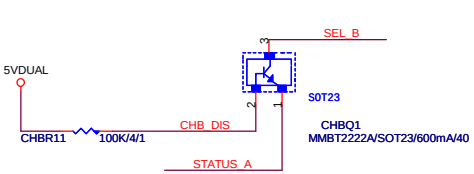

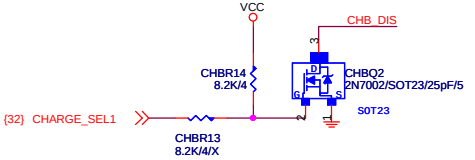

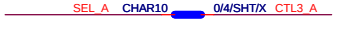

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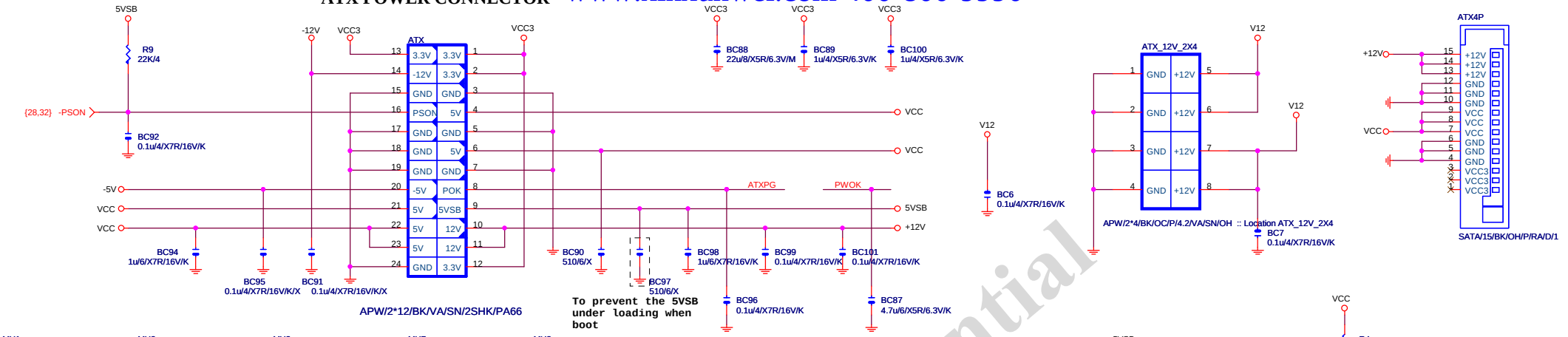
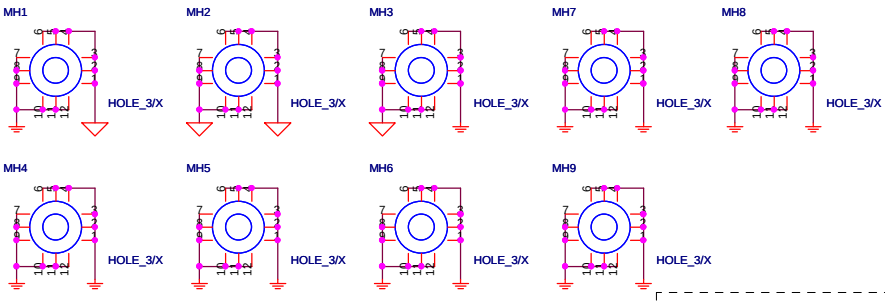
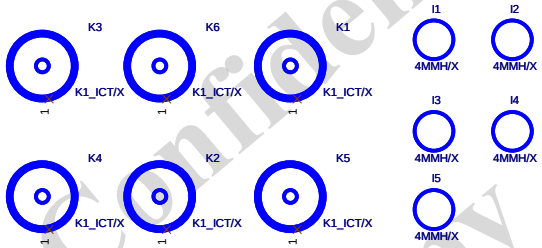
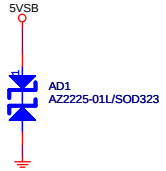
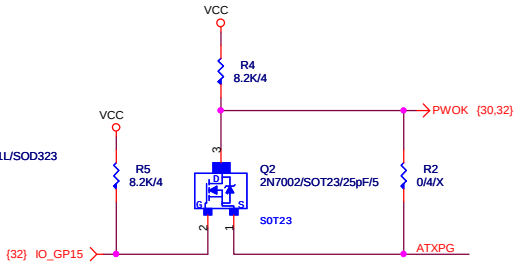
ATX POWER CONNECTOR

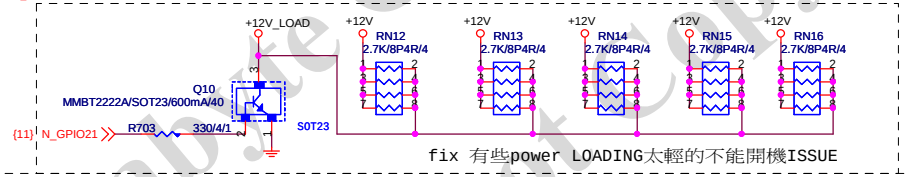


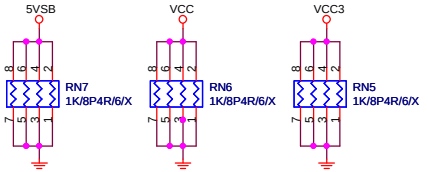








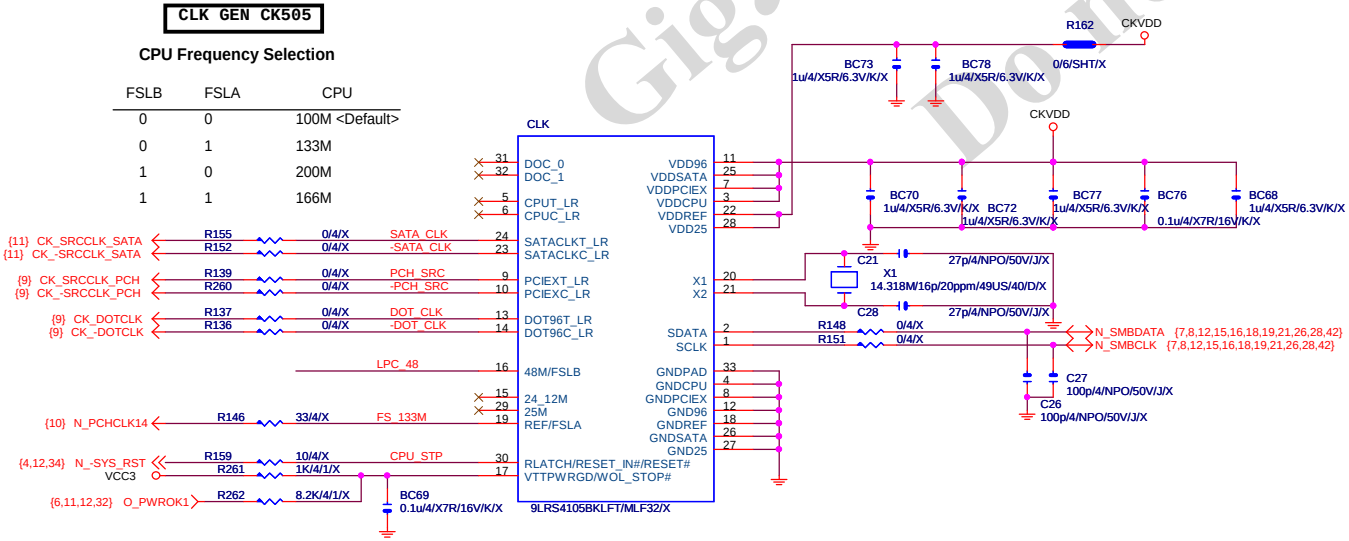


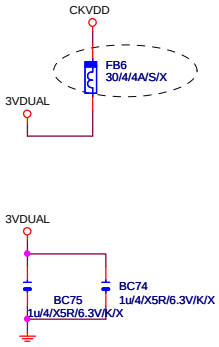


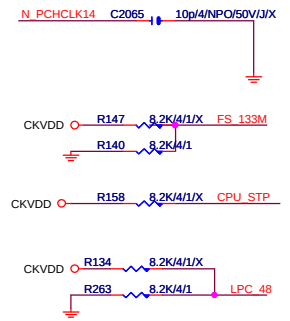
CLK GEN CK505

CPU Frequency Selection

FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M







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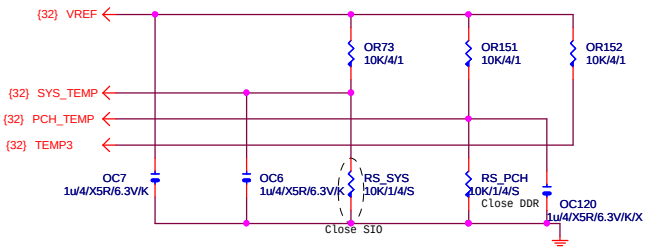
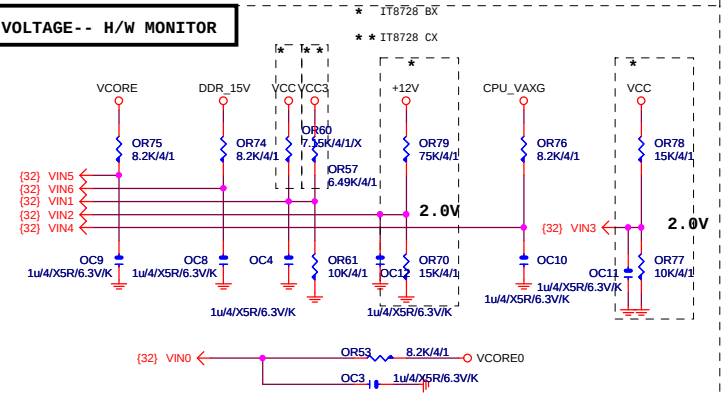
TEMP H/W MONITOR

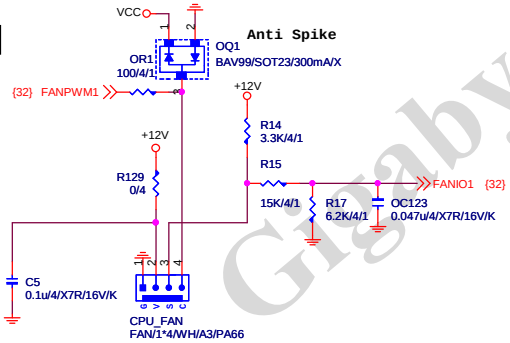


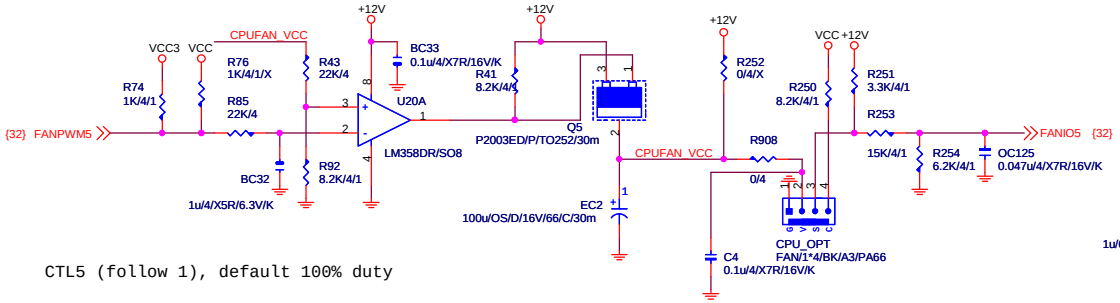
VOLTAGE-- H/W MONITOR



The division voltage of VIN2 & VIN3 must be around 2.9V

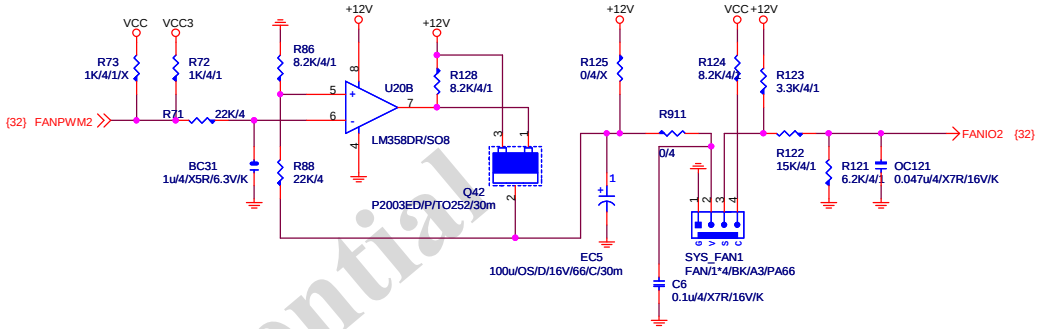
CPU SMART FAN



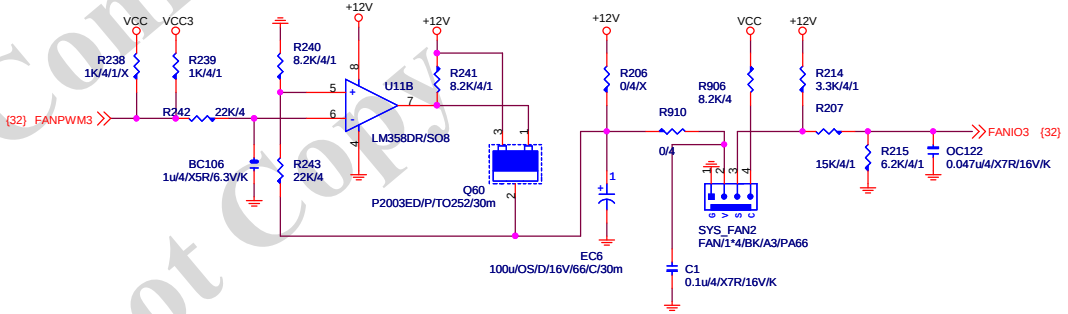


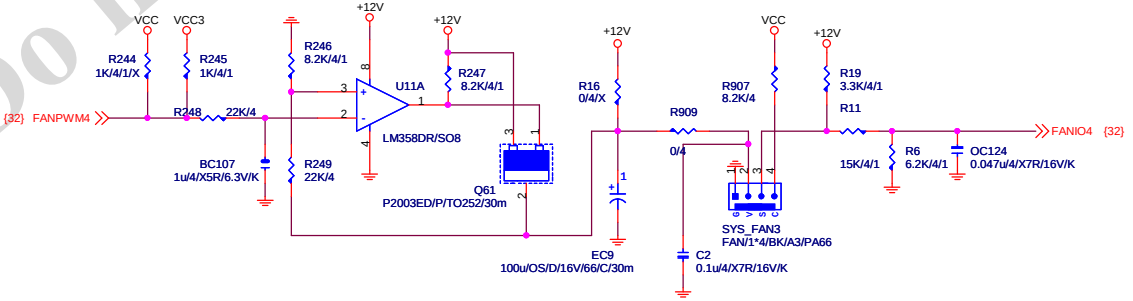
CTL5 (follow 1), default 100% duty

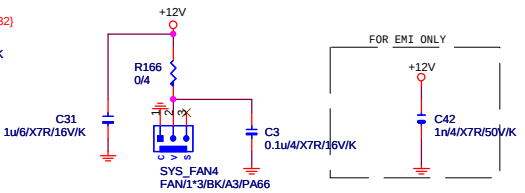
Linear SYS_FAN



Linear SYS_FAN







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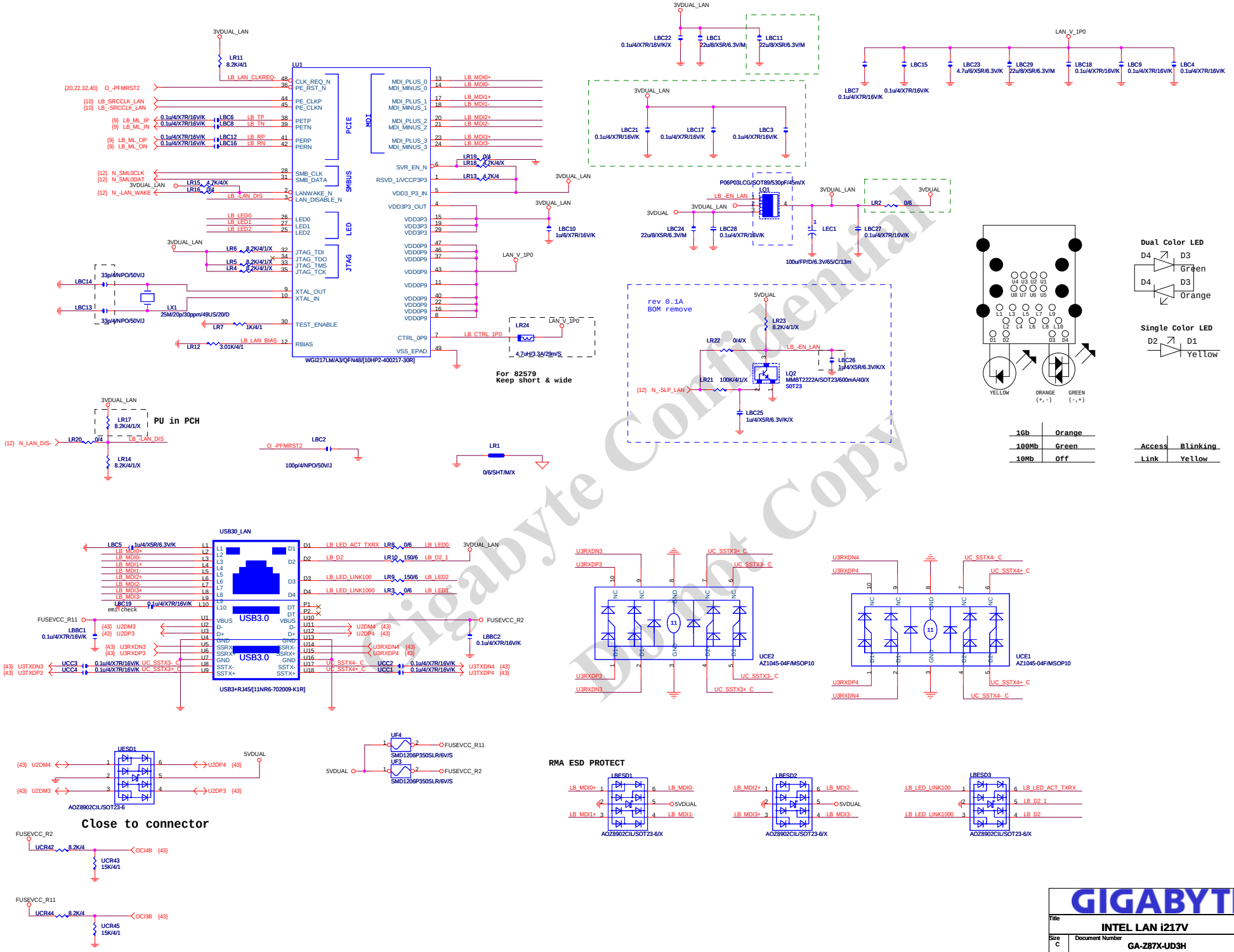

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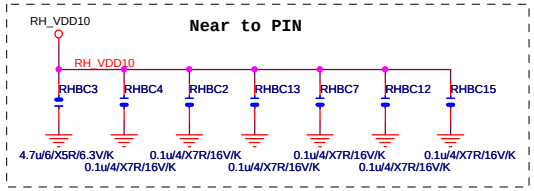

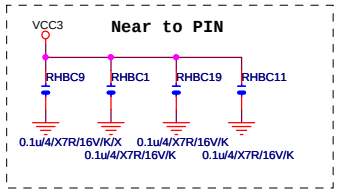

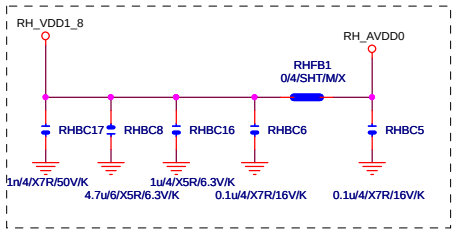

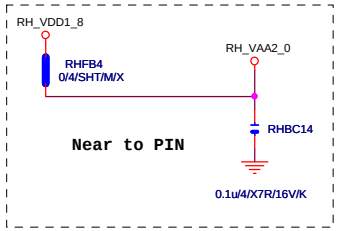

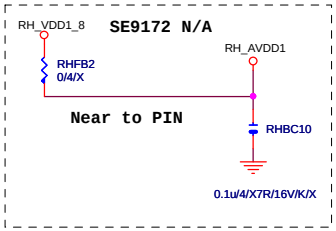

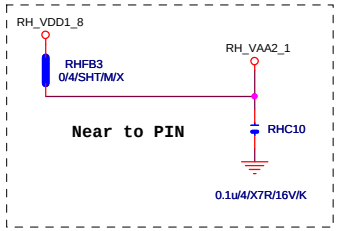

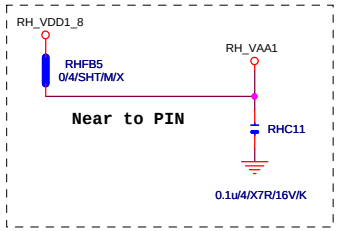

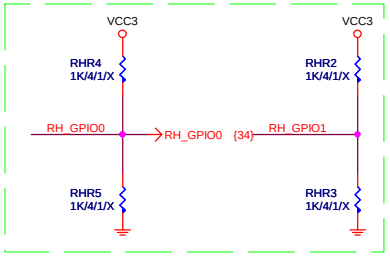

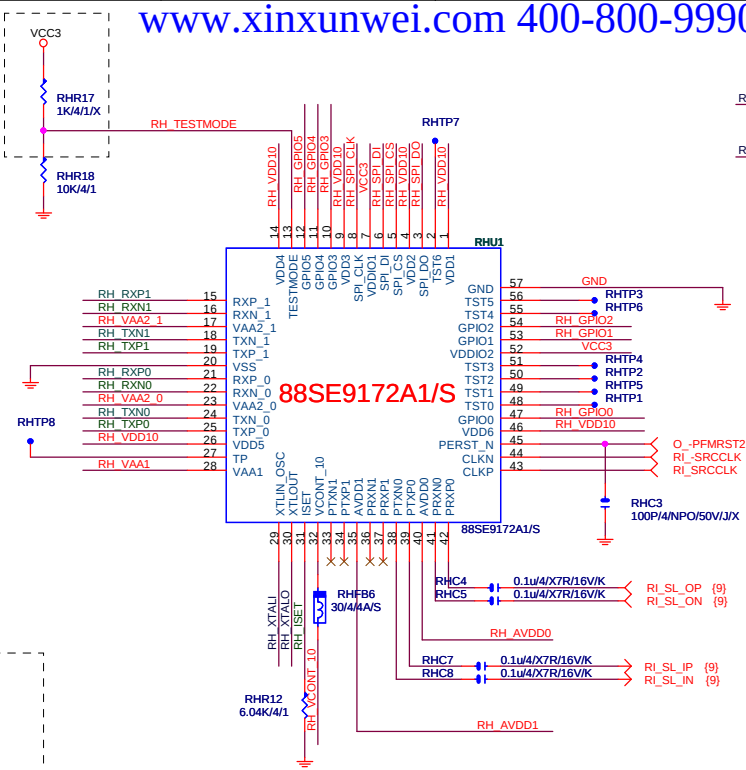

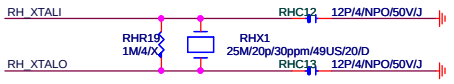

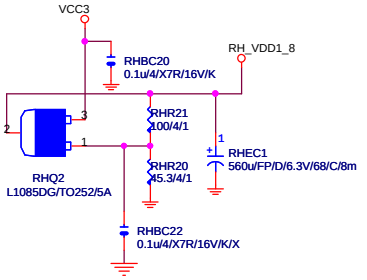

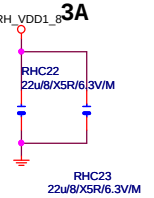

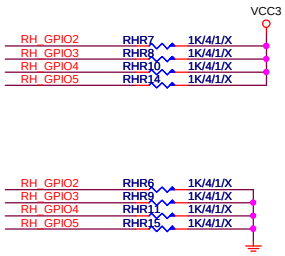

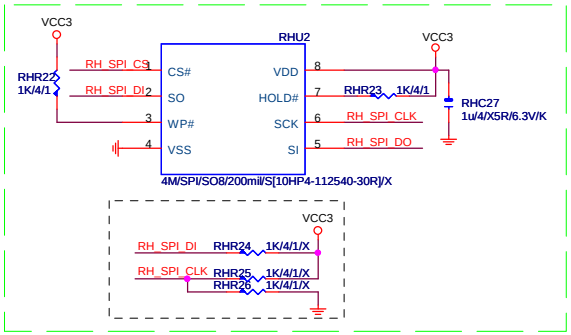

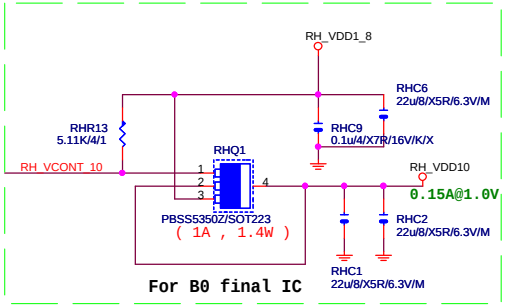

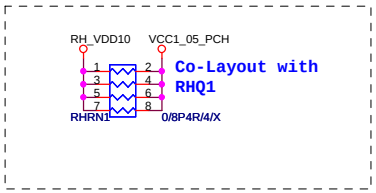

Marvell 9172 Power Requirements
Analog 1.8V 230mA
Core 1.0V 900mA
I/O 3.3V 50mA

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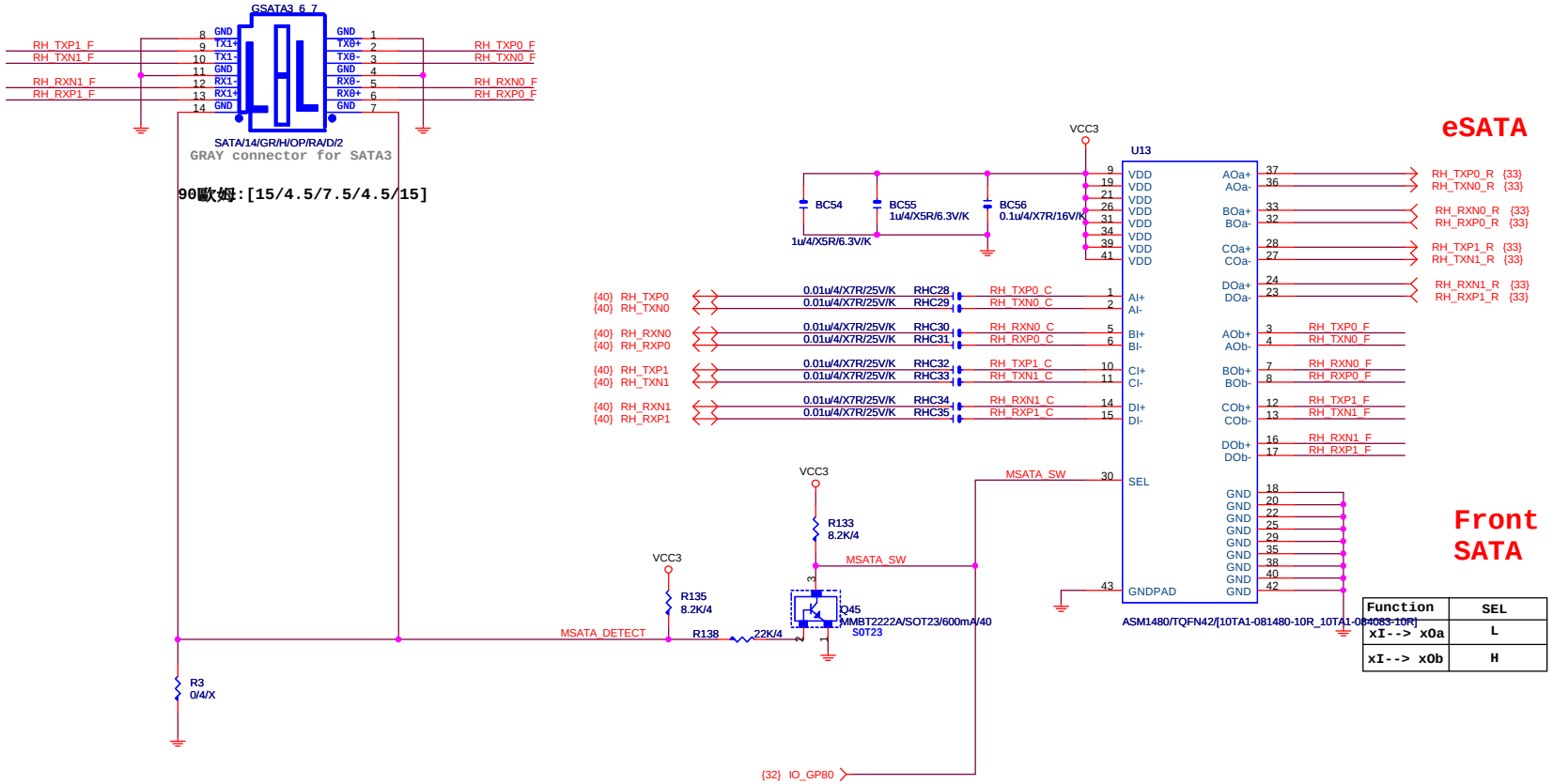

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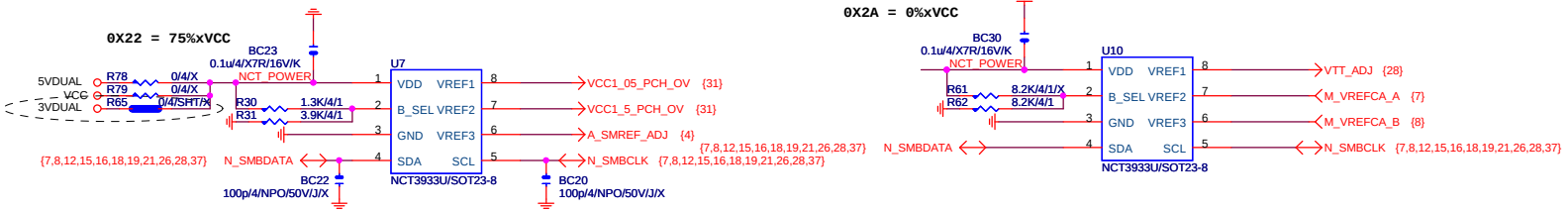
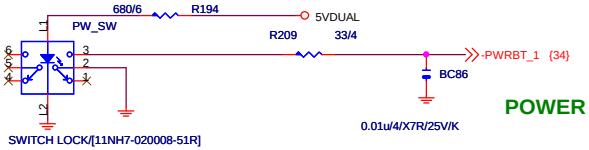
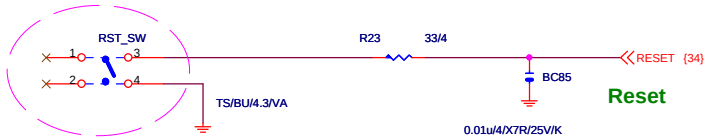
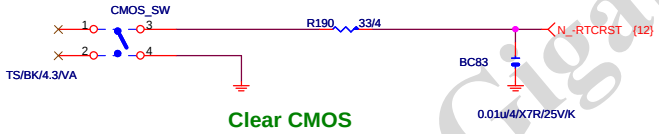
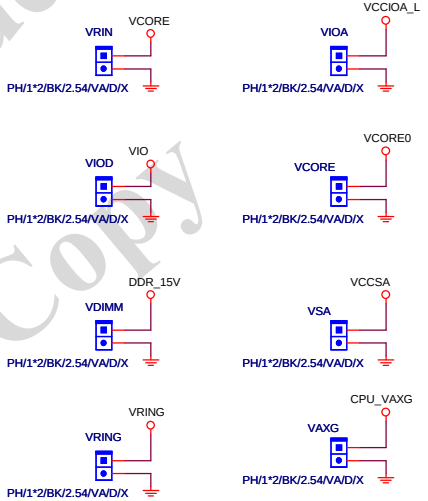


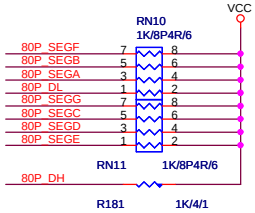


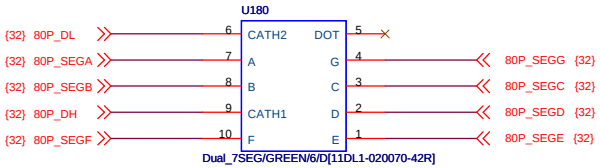




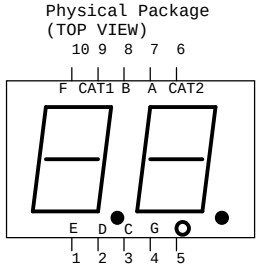


80 PORT





COMMON CATHODE



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Title: RST, PWR, CLR_CMOS, OV		
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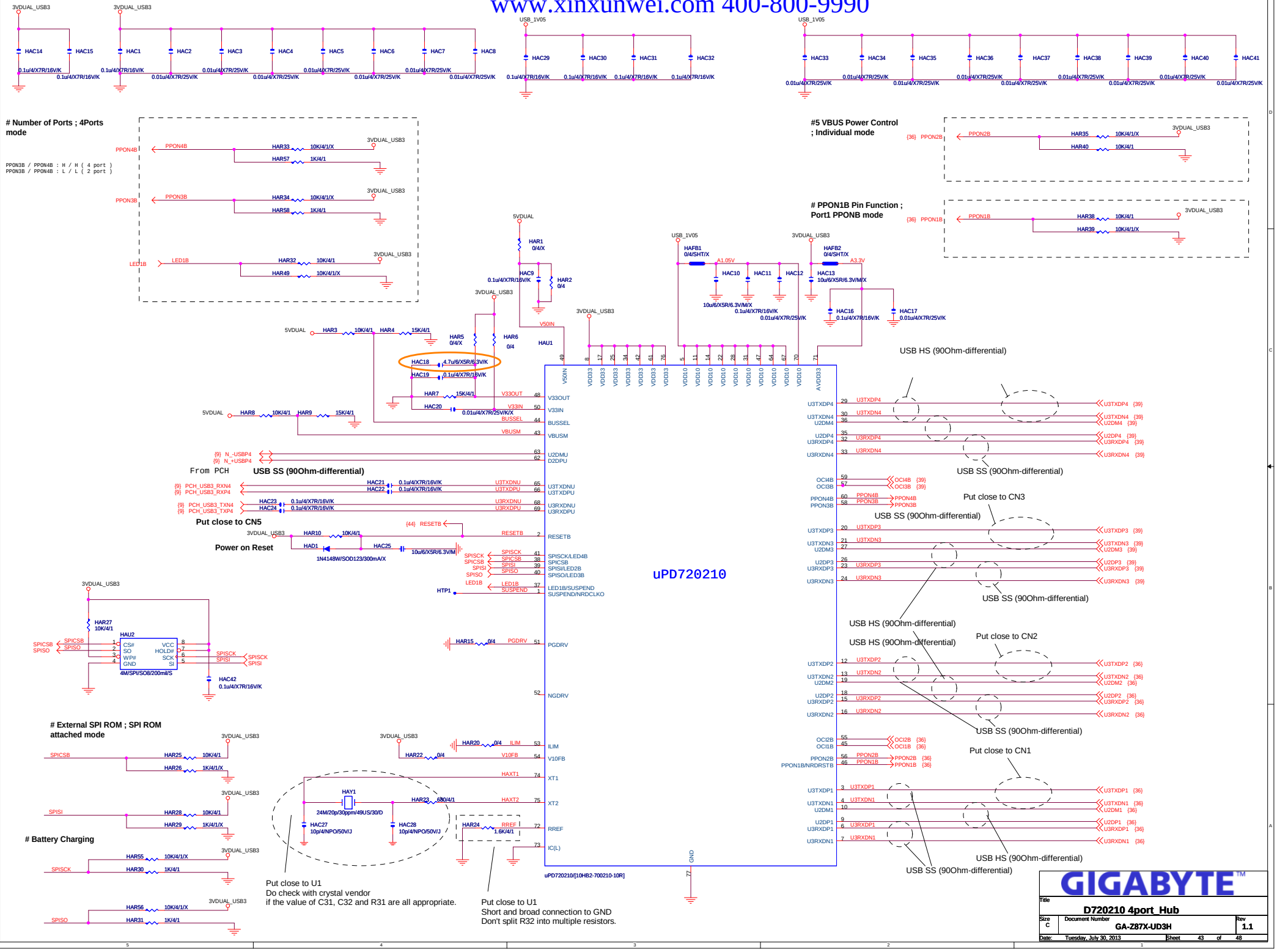
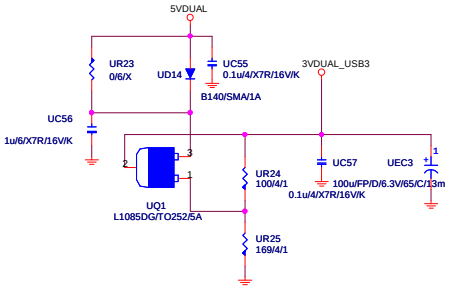
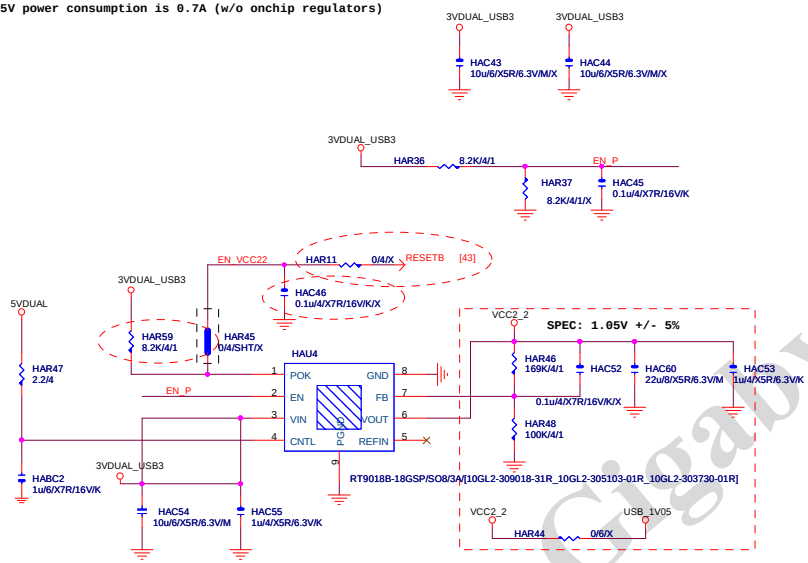
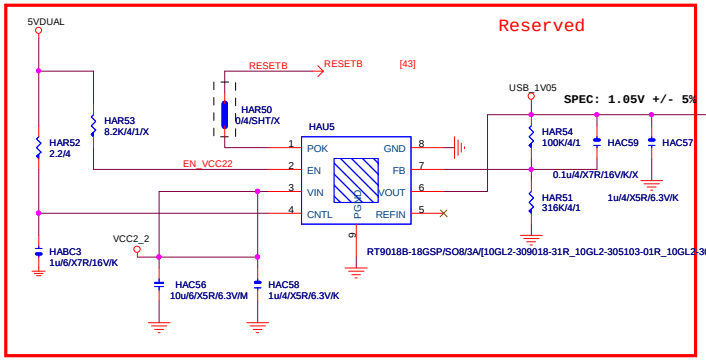




USB1_05V power consumption is 0.7A (w/o onchip regulators)





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Title	D720210 4port_Hub	
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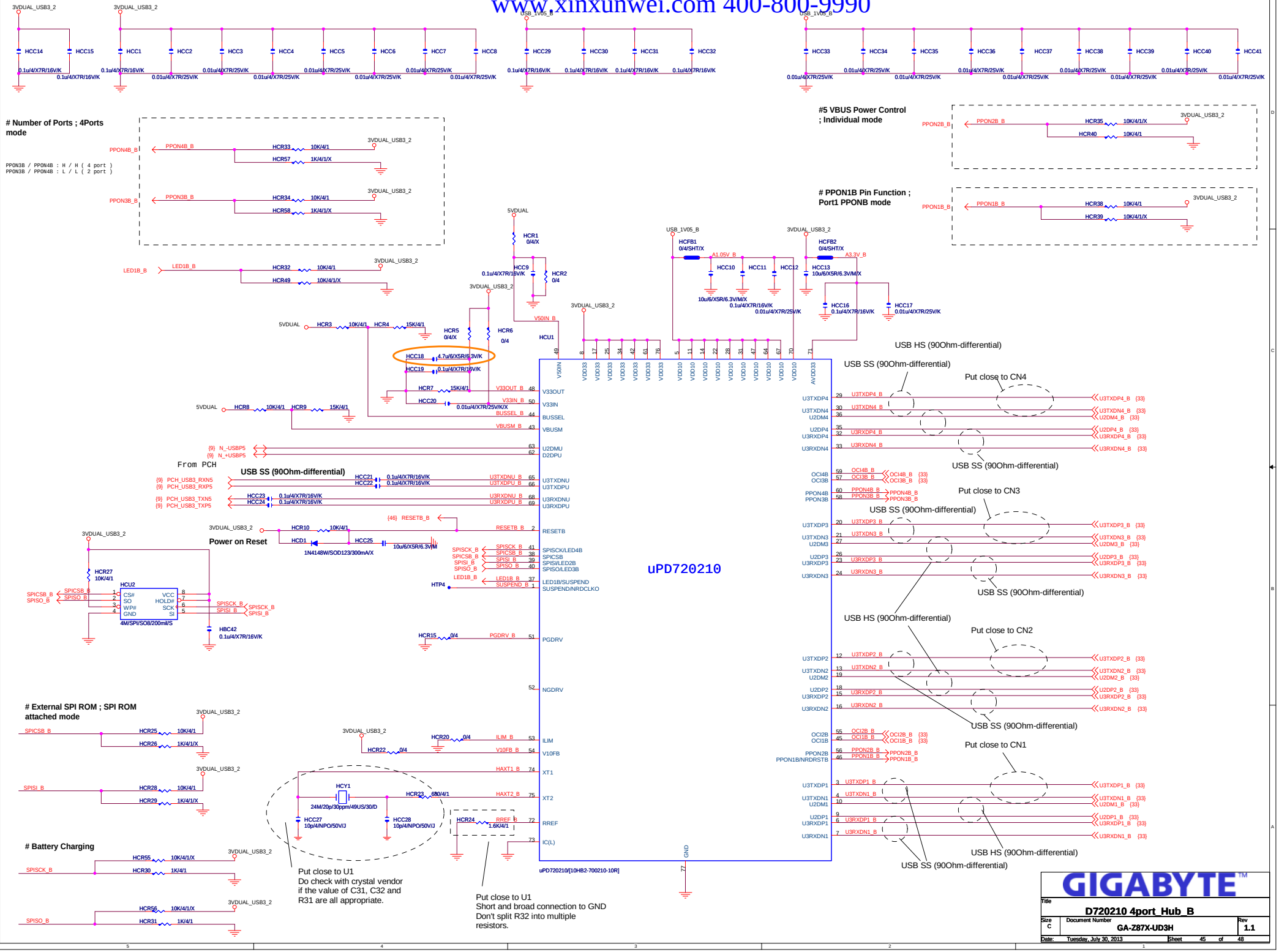
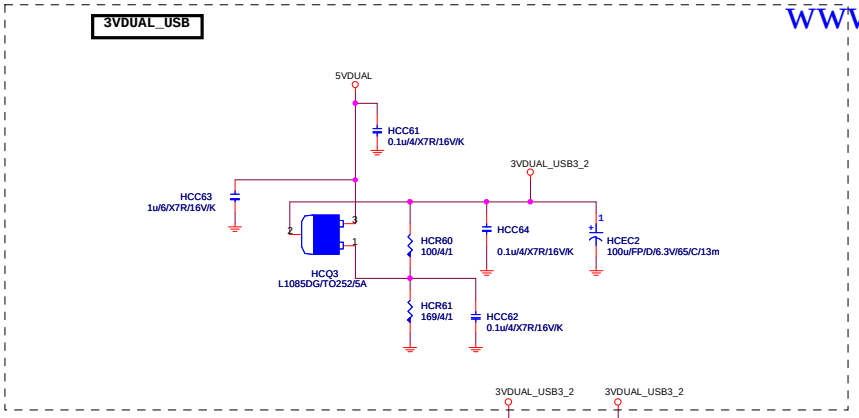
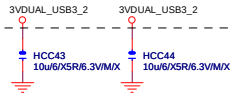
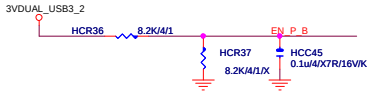
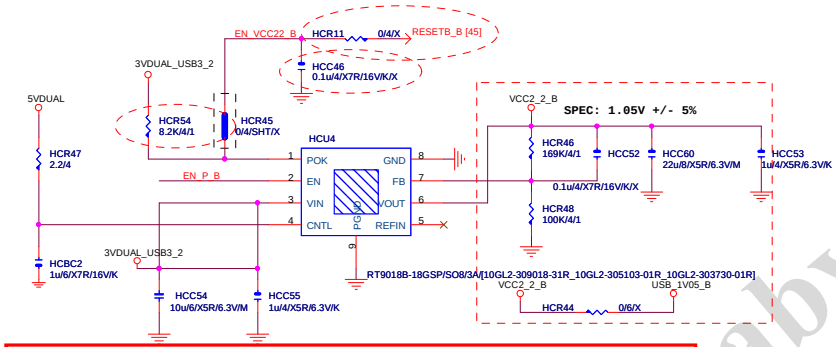


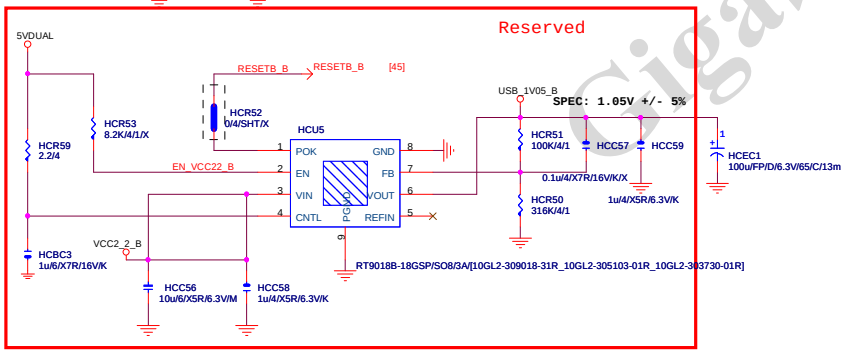




USB1_05V power consumption is 0.7A (w/o onchip regulators)







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Title	D720210 4port_Hub_B	
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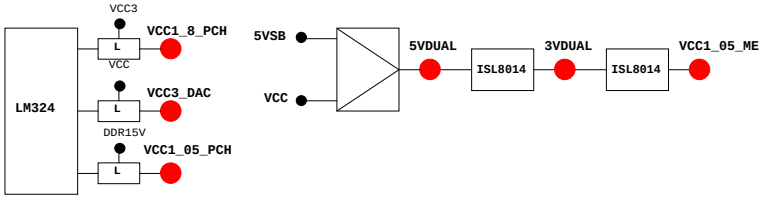
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#	N/A
GP10/OC6#	STBY		NATIVE	OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	OC7#	N/A
GP15	STBY	L	GPO	GPIO15	N/A
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL
GP26	STBY		NATIVE	-ACZ_DET	P/U 8.2K 3VDUAL
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3
GP40	STBY		NATIVE	OC1#	N/A
GP41	STBY		NATIVE	OC2#	N/A
GP42	STBY		NATIVE	OC3#	N/A
GP43	STBY		NATIVE	OC4#	N/A
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	-LPCPME	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL
GP47	STBY		NATIVE	PSI LED	P/U 8.2K 3VDUAL
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

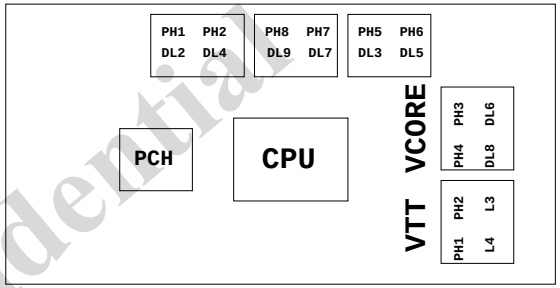
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	N/A	

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



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

8IBP:
1.12SP2-01A001-Y1R/Y2R
2.12SP2-01A001-Z1R/Z2R
(HIBRID模組)包材階

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

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Title: TABLE LIST

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RESET TABLE

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