

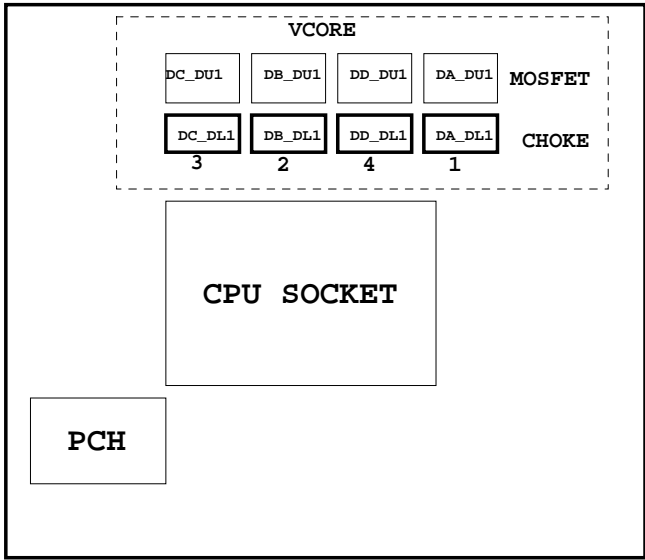
Model Name: GA-H87-HD3

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC892 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

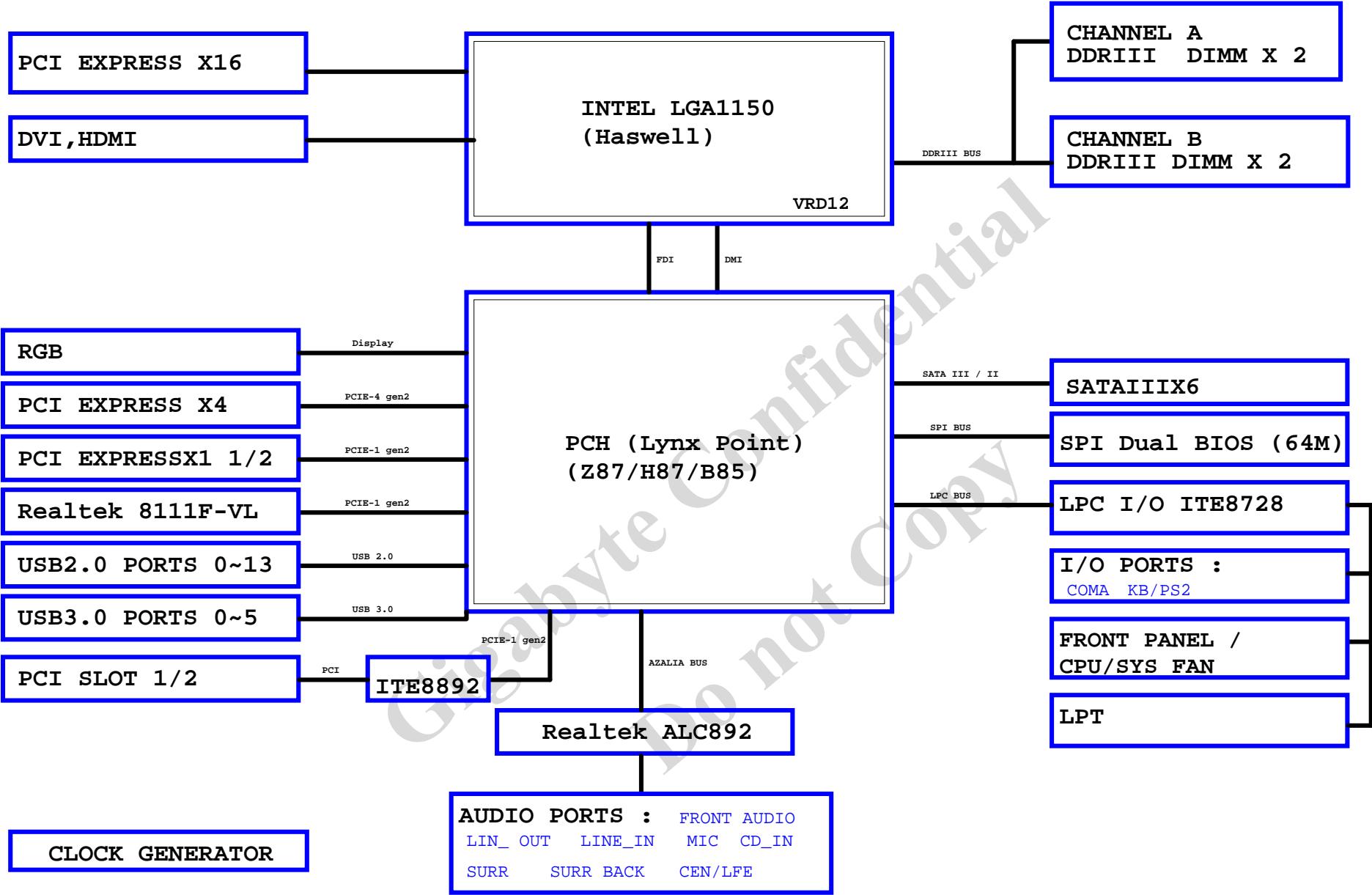
SHEET TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
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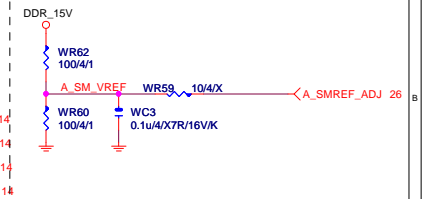




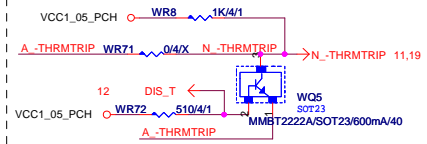
BLOCK DIAGRAM



## SM REF



## -CPURST



LGA1150

(A)

LGA1150

(B)

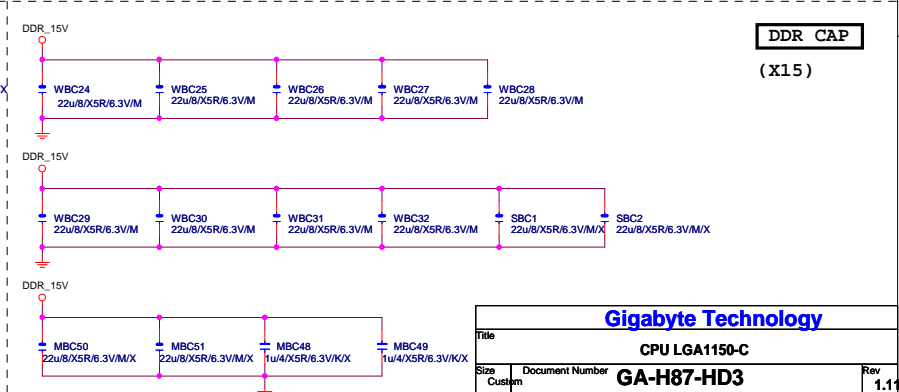
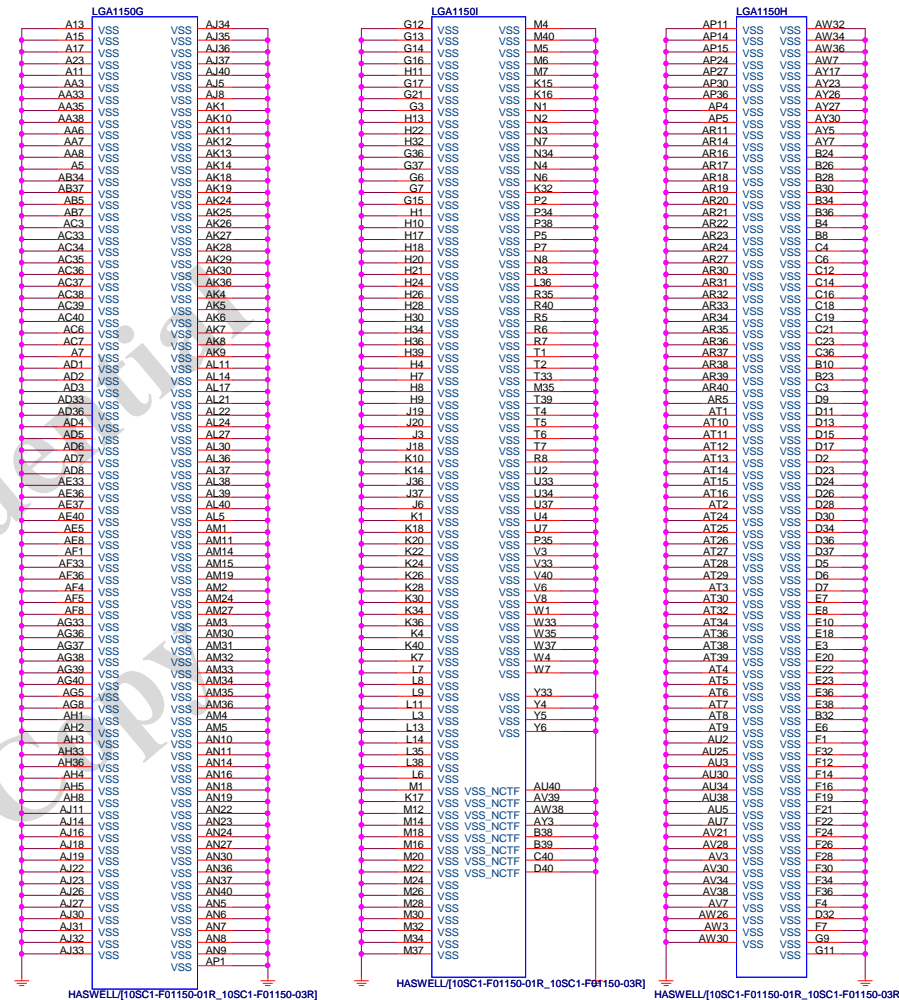
LGA1150

(CR)

LGA1150A			
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MAAA3	AW17	DDR0_MA3	DDR0_D03
MAAA4	AU17	DDR0_MA4	DDR0_D04
MAAA5	AW18	DDR0_MA5	DDR0_D05
MAAA6	AV17	DDR0_MA6	DDR0_D06
MAAA7	AT18	DDR0_MA7	DDR0_D07
MAAA8	AU18	DDR0_MA8	DDR0_D08
MAAA9	AT19	DDR0_MA9	DDR0_D09
MAAA10	AW11	DDR0_MA10	DDR0_D10
MAAA11	AV19	DDR0_MA11	DDR0_D11
MAAA12	AU19	DDR0_MA12	DDR0_D12
MAAA13	AT20	DDR0_MA13	DDR0_D13
MAAA14	AW21	DDR0_MA14	DDR0_D14
MAAA15	AU21	DDR0_MA15	DDR0_D15
MODT_A0	AW10	DDR0_ODT0	DDR0_D16
MODT_A1	AV8	DDR0_ODT1	DDR0_D17
MODT_A2	AW9	DDR0_ODT2	DDR0_D18
MODT_A3	AU8	DDR0_ODT3	DDR0_D19
AW33		DDR0_D20	DDR0_D21
AV33		DDR0_D22	DDR0_D23
AU31		DDR0_D24	DDR0_D25
AV31		DDR0_D26	DDR0_D27
AT33		DDR0_D28	DDR0_D29
AU33		DDR0_D30	DDR0_D31
AT31		DDR0_D32	DDR0_D33
AW31		DDR0_D34	DDR0_D35
SBA00	SBA01	DDR0_BA0	DDR0_BA1
SBA01	SBA02	DDR0_BA1	DDR0_BA2
CKEA0	CKEA1	DDR0_CKE0	DDR0_CKE1
CKEA1	CKEA2	DDR0_CKE2	DDR0_CKE3
CKEA2	CKEA3	DDR0_CKE3	DDR0_CKE4
CSA0	CSA1	DDR0_CS_N0	DDR0_CS_N1
CSA1	CSA2	DDR0_CS_N2	DDR0_CS_N3
CSA2	CSA3	DDR0_CS_N3	DDR0_CS_N4
DCLKA0	DCLKA1	DDR0_CLK_P0	DDR0_CLK_P1
DCLKA1	DCLKA2	DDR0_CLK_P2	DDR0_CLK_P3
DCLKA2	DCLKA3	DDR0_CLK_P3	DDR0_CLK_P4
DCLKA3	DCLKA4	DDR0_CLK_P4	DDR0_CLK_P5
RSVD		DDR0_RSVD	DDR0_RSVD
SRASA	SRASA	DDR0_RAS*	DDR0_RAS*
SWEA	SWEA	DDR0_WE*	DDR0_WE*
SCASA	SCASA	DDR0_CAS*	DDR0_CAS*
WR61	WR61	DDR0_RESET	DDR0_RESET
WC4	WC4	DDR0_RESET	DDR0_RESET
0.1u4/X7R/16V/KX	0.1u4/X7R/16V/KX	DDR0_RESET	DDR0_RESET

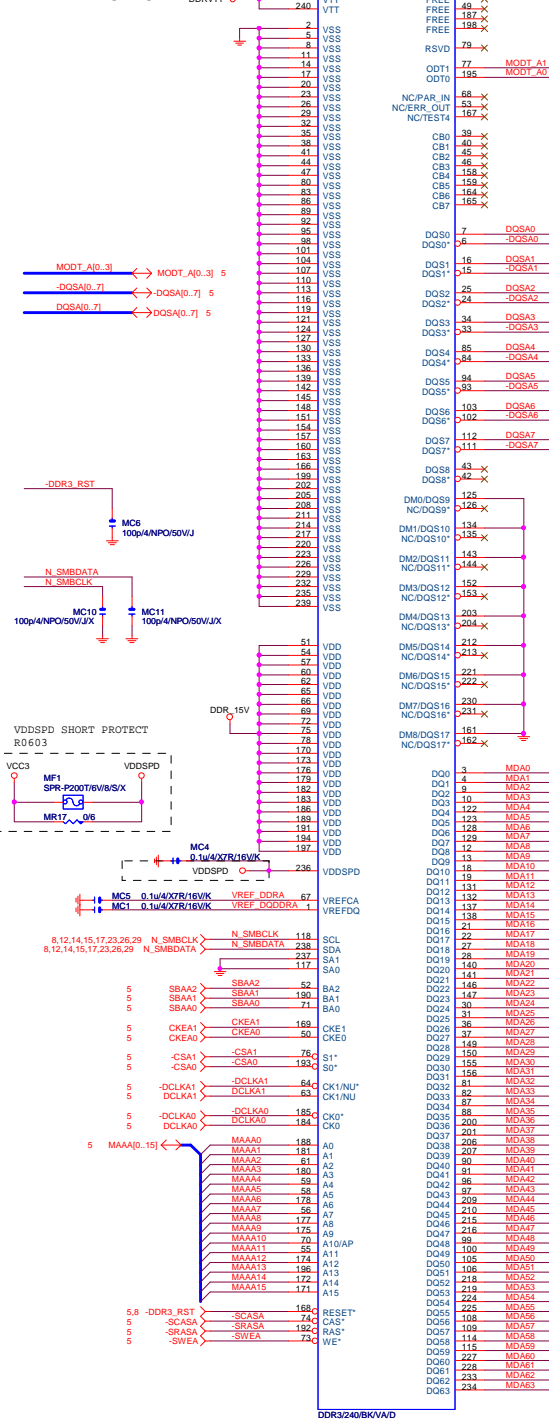
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MAAB2	AM23	DDR1_MA2	DDR1_D02
MAAB3	AM23	DDR1_MA3	DDR1_D03
MAAB4	AP23	DDR1_MA4	DDR1_D04
MAAB5	AL23	DDR1_MA5	DDR1_D05
MAAB6	AV24	DDR1_MA6	DDR1_D06
MAAB7	AV25	DDR1_MA7	DDR1_D07
MAAB8	AU26	DDR1_MA8	DDR1_D08
MAAB9	AV25	DDR1_MA9	DDR1_D09
MAAB10	AP18	DDR1_MA10	DDR1_D10
MAAB11	AV25	DDR1_MA11	DDR1_D11
MAAB12	AV26	DDR1_MA12	DDR1_D12
MAAB13	AR15	DDR1_MA13	DDR1_D13
MAAB14	AV27	DDR1_MA14	DDR1_D14
MAAB15	AV28	DDR1_MA15	DDR1_D15
MODT_B0	AM17	DDR1_ODT0	DDR1_ODT1
MODT_B1	AL16	DDR1_ODT2	DDR1_ODT3
MODT_B2	AM16	DDR1_ODT4	DDR1_ODT5
MODT_B3	AK15	DDR1_ODT6	DDR1_ODT7
AM26		DDR1_ECC0	DDR1_ECC1
AM25		DDR1_ECC2	DDR1_ECC3
AP25		DDR1_ECC4	DDR1_ECC5
AP26		DDR1_ECC6	DDR1_ECC7
AL26		DDR1_ECC8	DDR1_ECC9
AL25		DDR1_ECC10	DDR1_ECC11
AR26		DDR1_ECC12	DDR1_ECC13
AK15		DDR1_ECC14	DDR1_ECC15
SBA00	SBA01	DDR1_BA0	DDR1_BA1
SBA01	SBA02	DDR1_BA1	DDR1_BA2
CKEB0	CKEB1	DDR1_CKE0	DDR1_CKE1
CKEB1	CKEB2	DDR1_CKE2	DDR1_CKE3
CKEB2	CKEB3	DDR1_CKE3	DDR1_CKE4
CSB0	CSB1	DDR1_CS_N0	DDR1_CS_N1
CSB1	CSB2	DDR1_CS_N2	DDR1_CS_N3
CSB2	CSB3	DDR1_CS_N3	DDR1_CS_N4
CSB3	CSB4	DDR1_CS_N4	DDR1_CS_N5
DCLKB0	DCLKB1	DDR1_CLK_P0	DDR1_CLK_P1
DCLKB1	DCLKB2	DDR1_CLK_P2	DDR1_CLK_P3
DCLKB2	DCLKB3	DDR1_CLK_P4	DDR1_CLK_P5
DCLKB3	DCLKB4	DDR1_CLK_P6	DDR1_CLK_P7
SCASB	SCASB	DDR1_CAS*	DDR1_CAS*
SRASB	SRASB	DDR1_RAS*	DDR1_RAS*
SWEB	SWEB	DDR1_WE*	DDR1_WE*
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DQSA149	DQSA150	DDR1_DQS_P298	DDR1_DQS_P299
DQSA150	DQSA151	DDR1_DQS_P300	DDR1_DQS_P301
DQSA151	DQSA152	DDR1_DQS_P302	DDR1_DQS_P303
DQSA152	DQSA153	DDR1_DQS_P304	DDR1_DQS_P305
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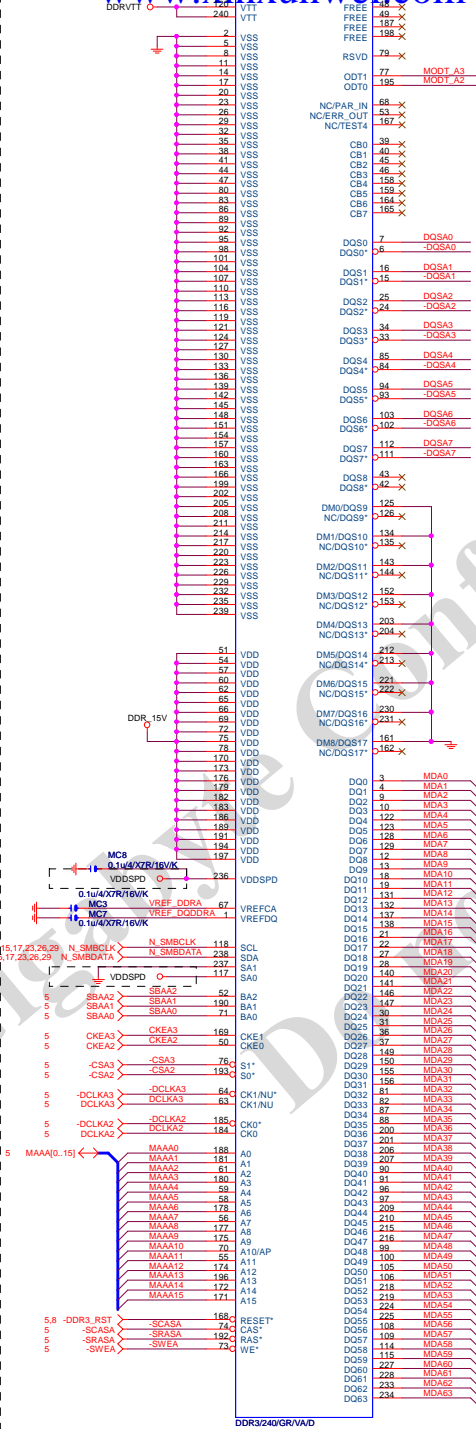




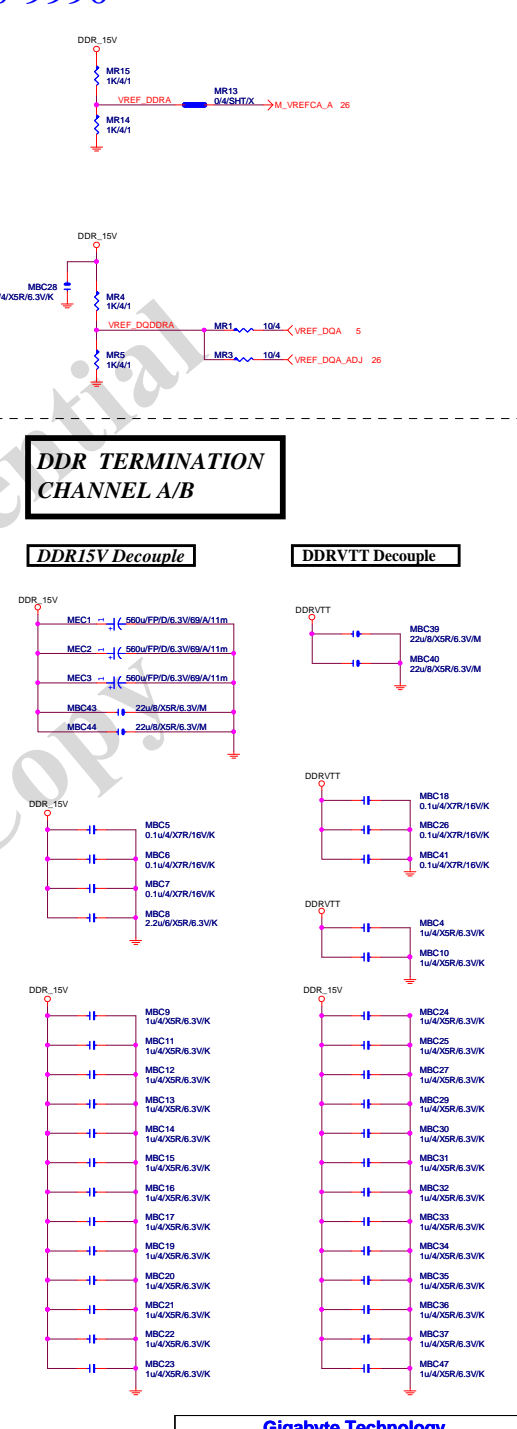
DDR3 (A)



DDR3

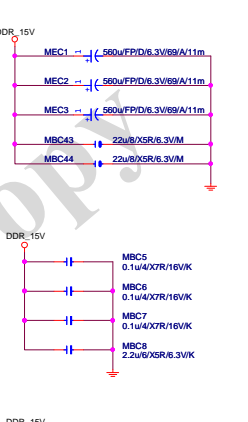


DDR3 VREF

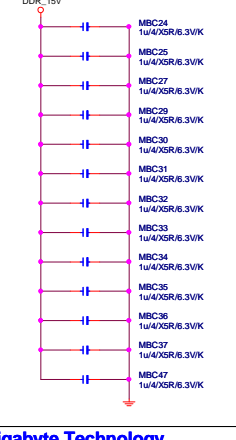
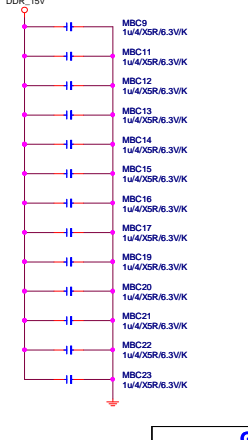
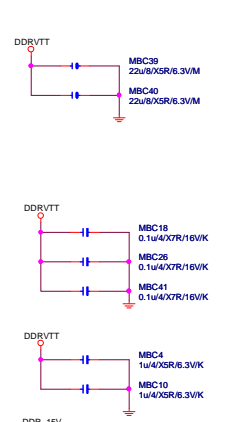


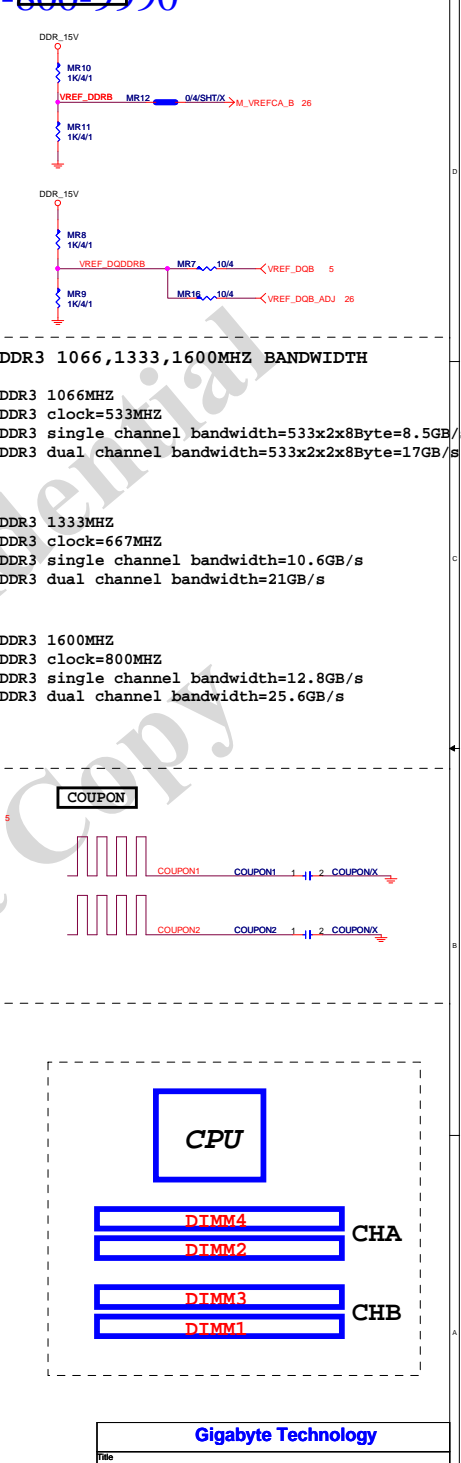
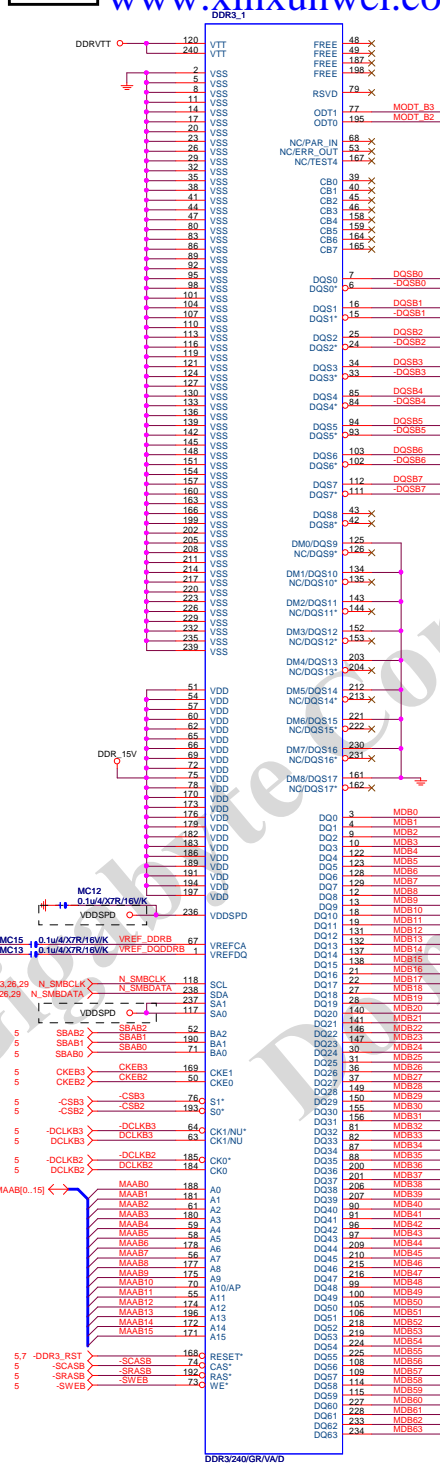
DDR TERMINATION CHANNEL A/B

DDR15V Decouple



DDRVTT Decouple



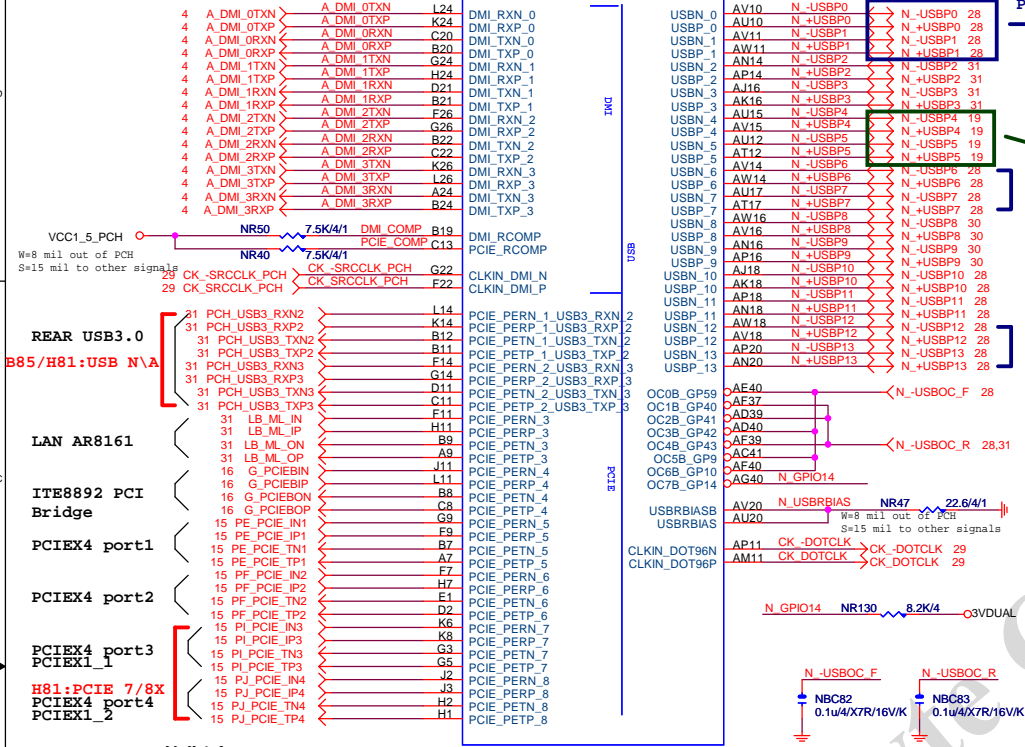




PCH (B)

DMI:12/4/4/12(breakout min 8/4/4/4/8)  
Impedance=85 +- 17.5%USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)  
Impedance=85 +- 15%

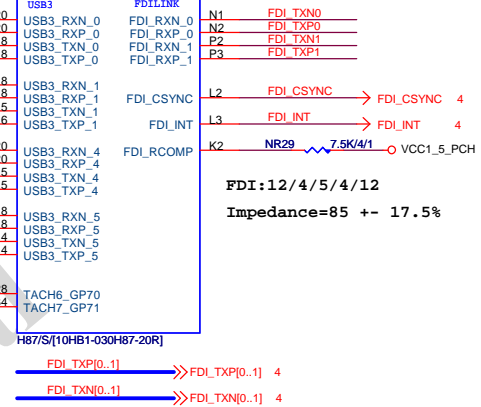
PCH (F)



PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

usb2.0 5/7/5//12  
usb3.0 5/7/5//20 Impedance=85 +- 15%Port要對應  
B85/H81: 5/7 N/A  
H81:USB3.0 N/A

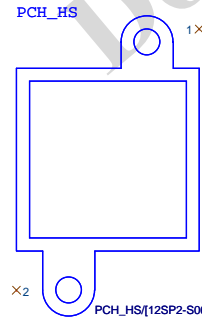
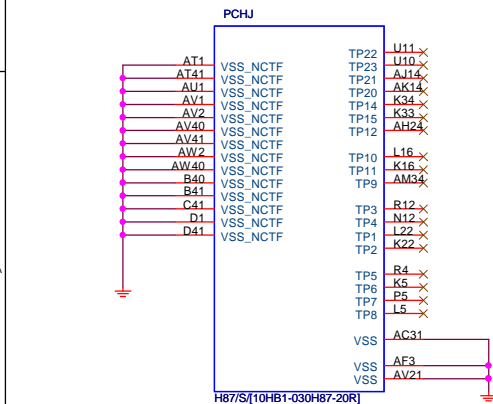
PCHF



PCH (J)

PCH H/S

USB TABLE

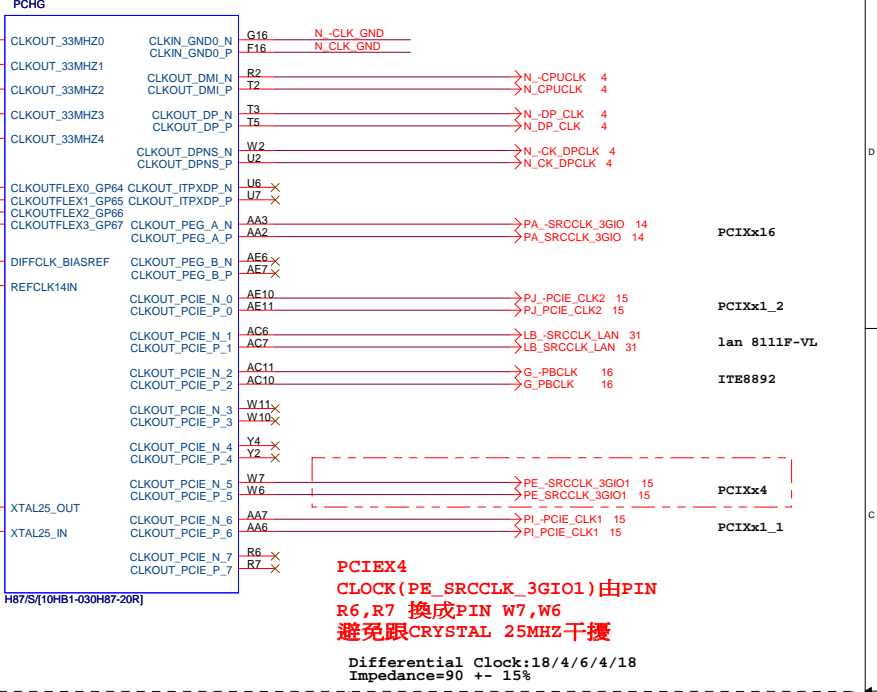
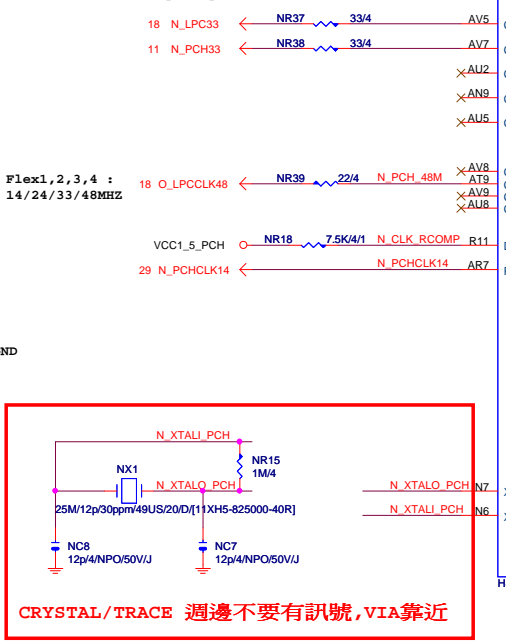
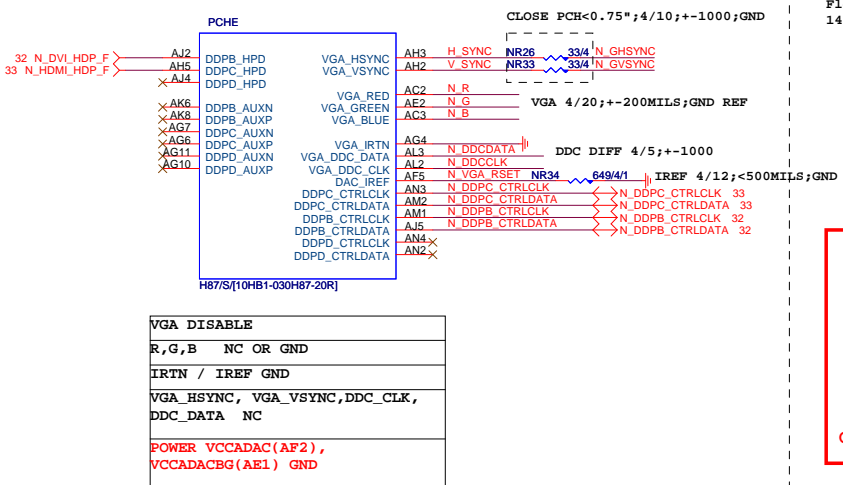
OC[3:0]# for Device 29 (ports 0-7)  
OC[7:4]# for Device 26 (ports 8-13)

USB OC# Configure	
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

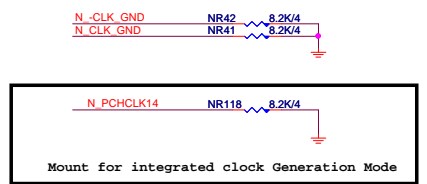
Gigabyte Technology

Title PCH FDI,DMI,USB ,PCIE		
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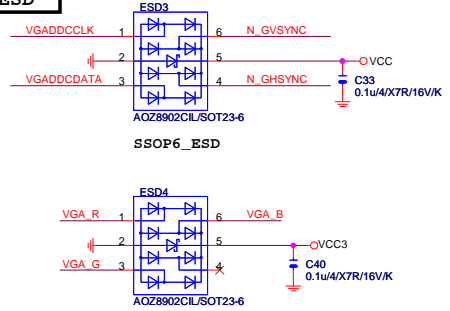
PCH (E)



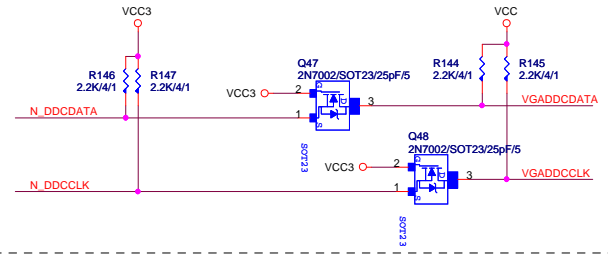
PCH CLK PD



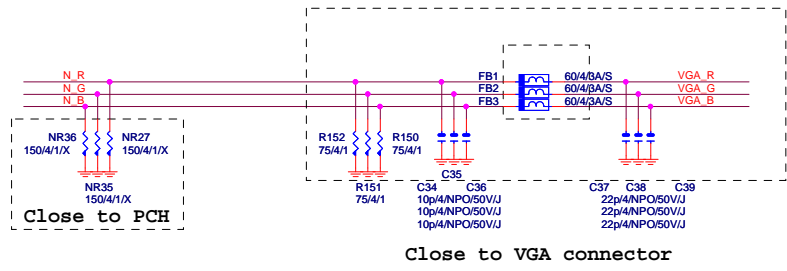
VGA ESD



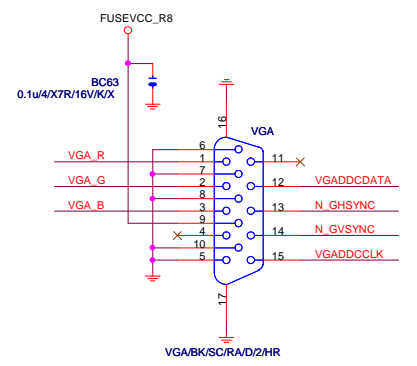
VGA DDC

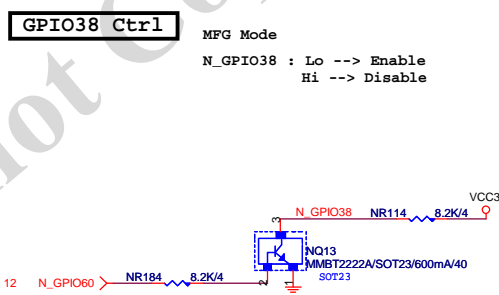
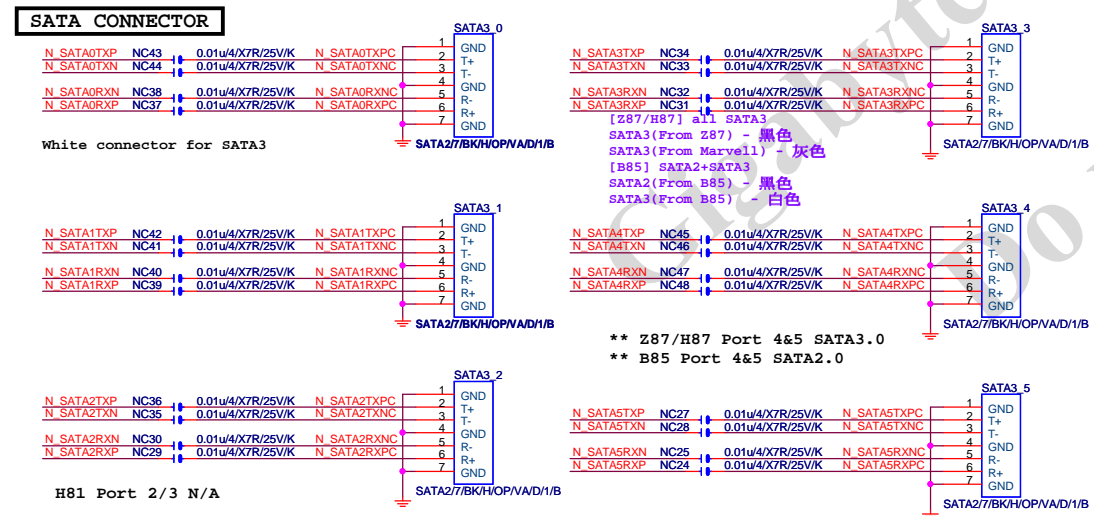
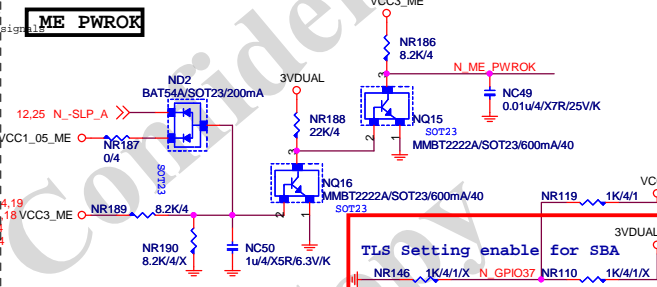
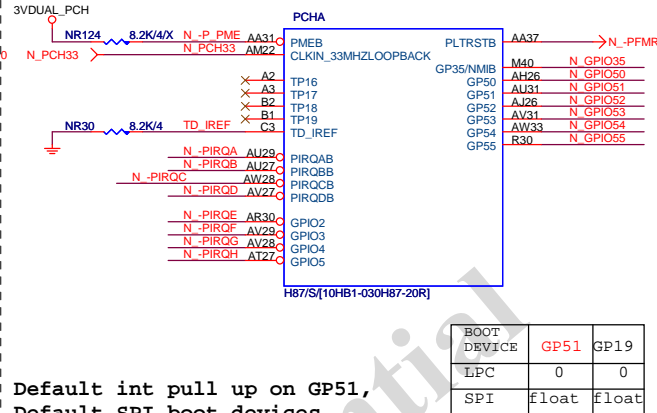
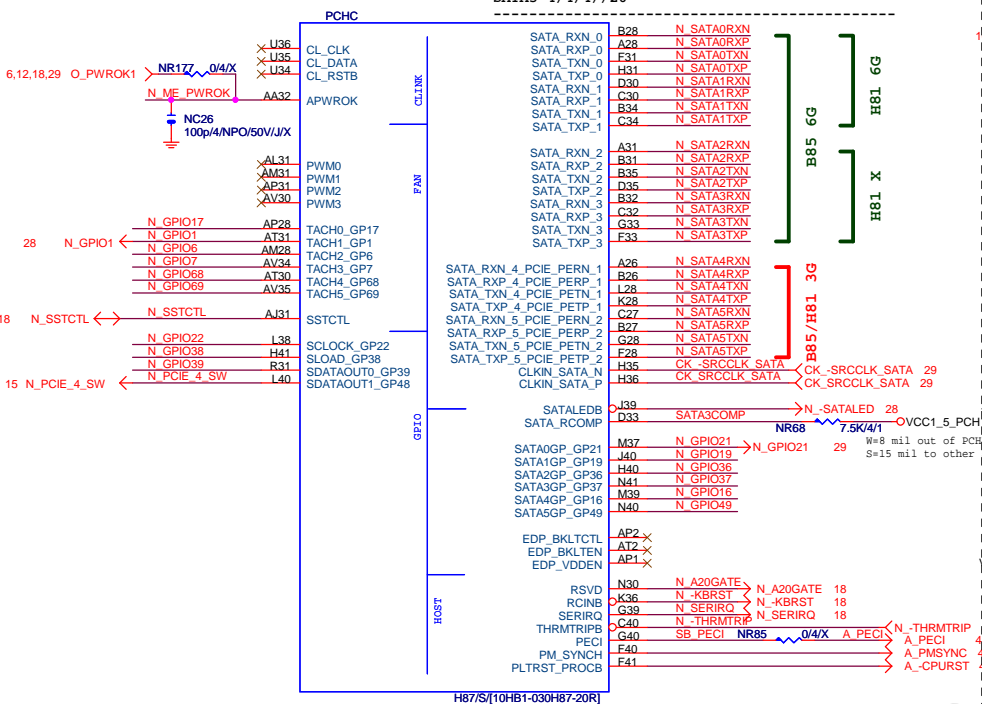
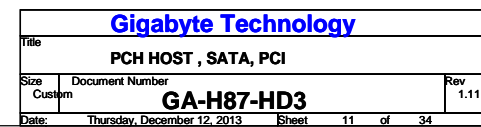
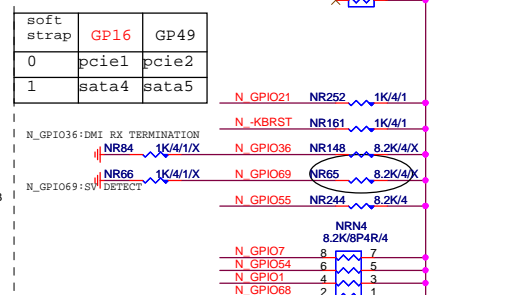
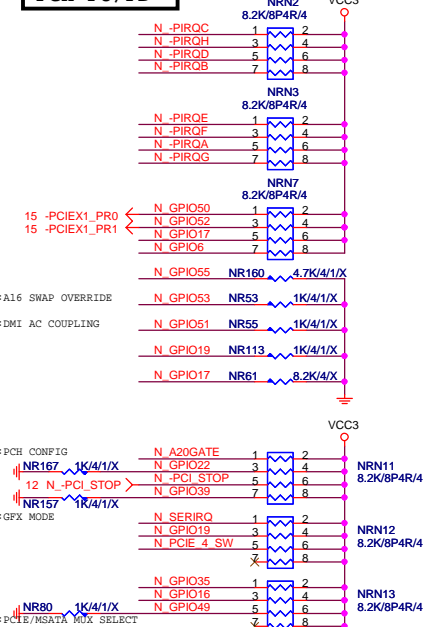
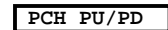
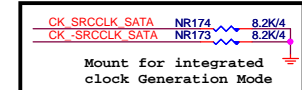


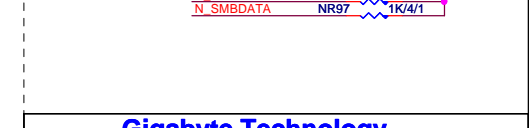
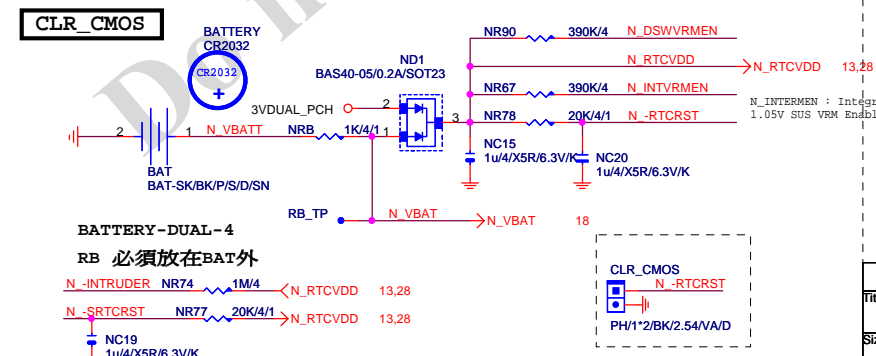
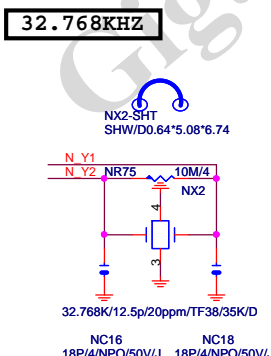
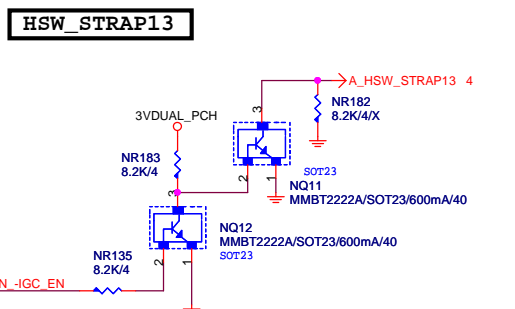
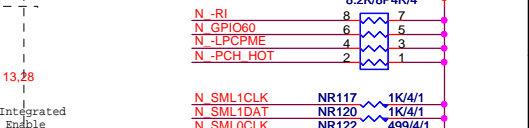
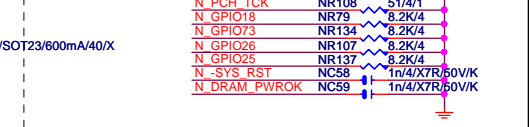
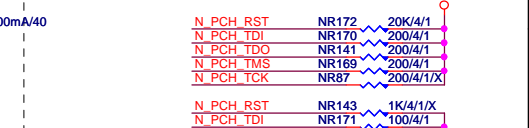
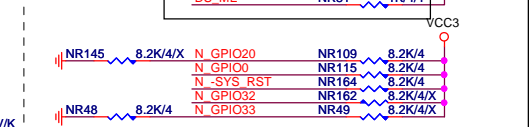
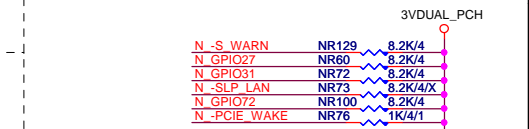
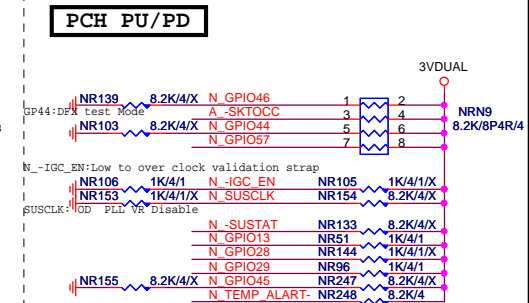
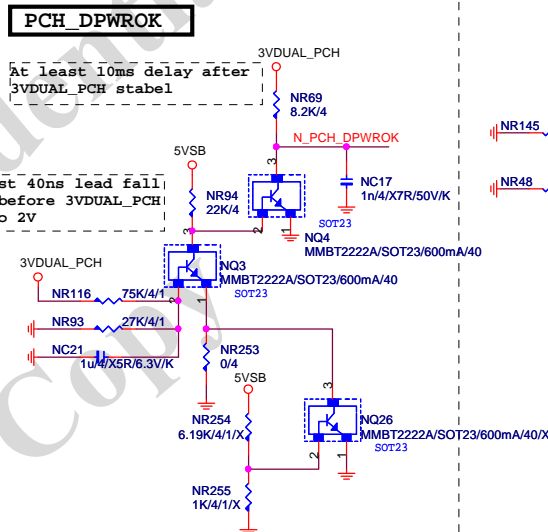
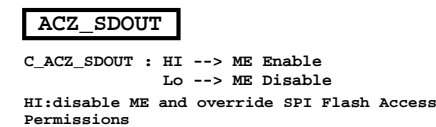
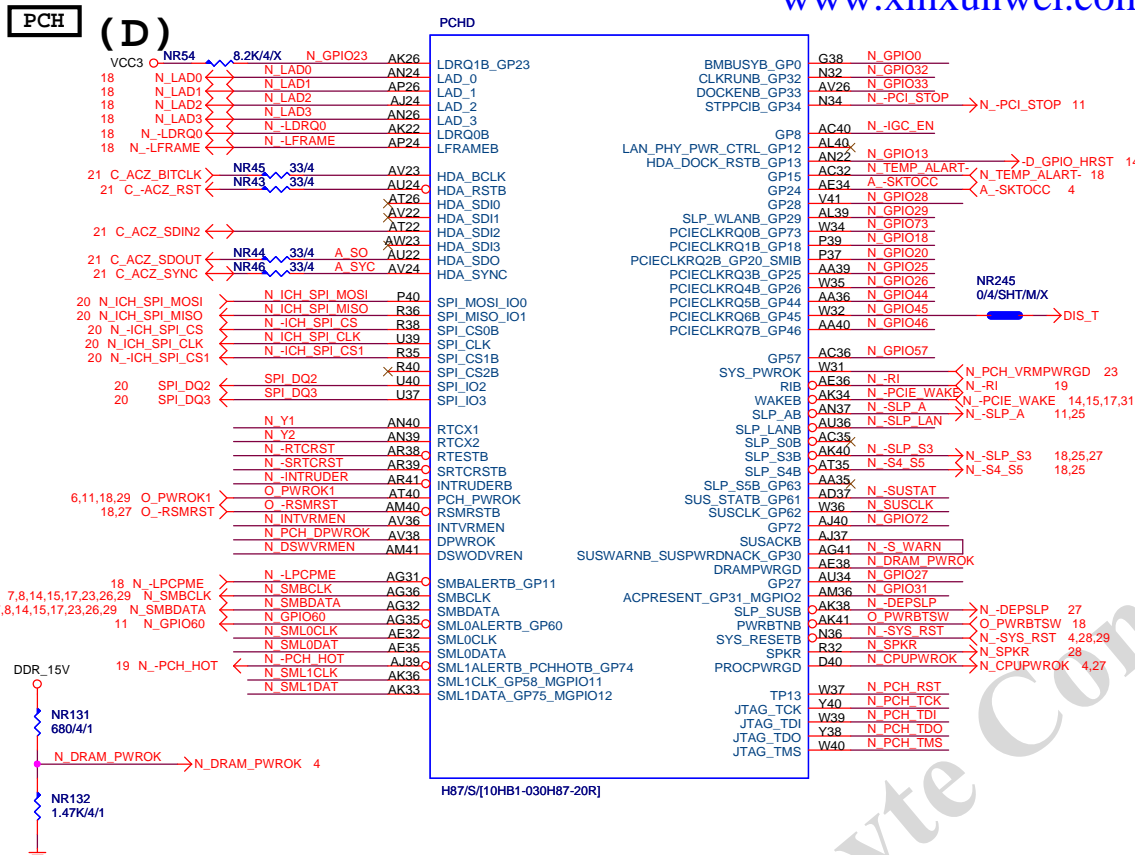
VGA DDC

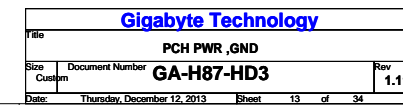


VGA CONNECTOR



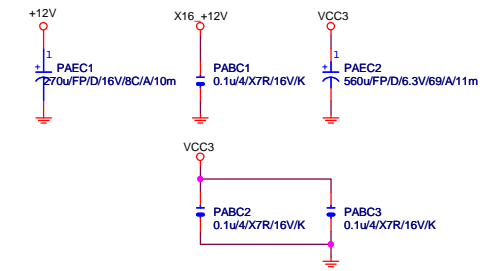






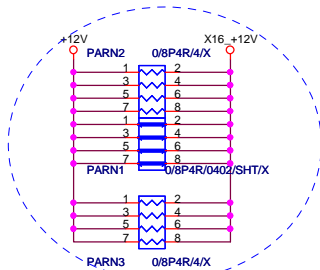


# PCIEX16 CAP



# PCIEX16 PROTECT SHT

+12 protect short-wire test



# PCIEX16 AC CAP

PA EXP TXP0 C	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0 C	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1 C	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1 C	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2 C	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2 C	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3 C	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3 C	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4 C	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4 C	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5 C	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5 C	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6 C	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6 C	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7 C	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7 C	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8 C	PAC20	0.22u/4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8 C	PAC21	0.22u/4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9 C	PAC22	0.22u/4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9 C	PAC23	0.22u/4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10 C	PAC24	0.22u/4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10 C	PAC25	0.22u/4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11 C	PAC26	0.22u/4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11 C	PAC27	0.22u/4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12 C	PAC28	0.22u/4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12 C	PAC29	0.22u/4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13 C	PAC30	0.22u/4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13 C	PAC31	0.22u/4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14 C	PAC32	0.22u/4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14 C	PAC33	0.22u/4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15 C	PAC34	0.22u/4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15 C	PAC35	0.22u/4/X5R/6.3V/K	PA EXP TXN15 C

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

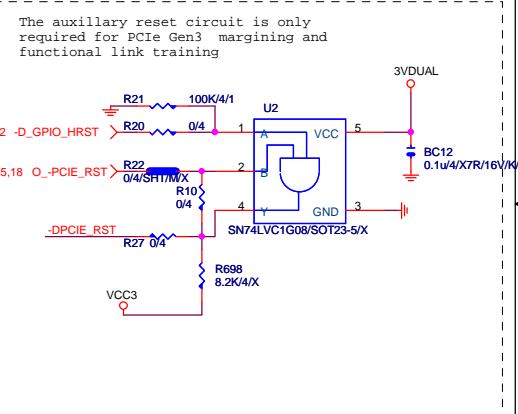
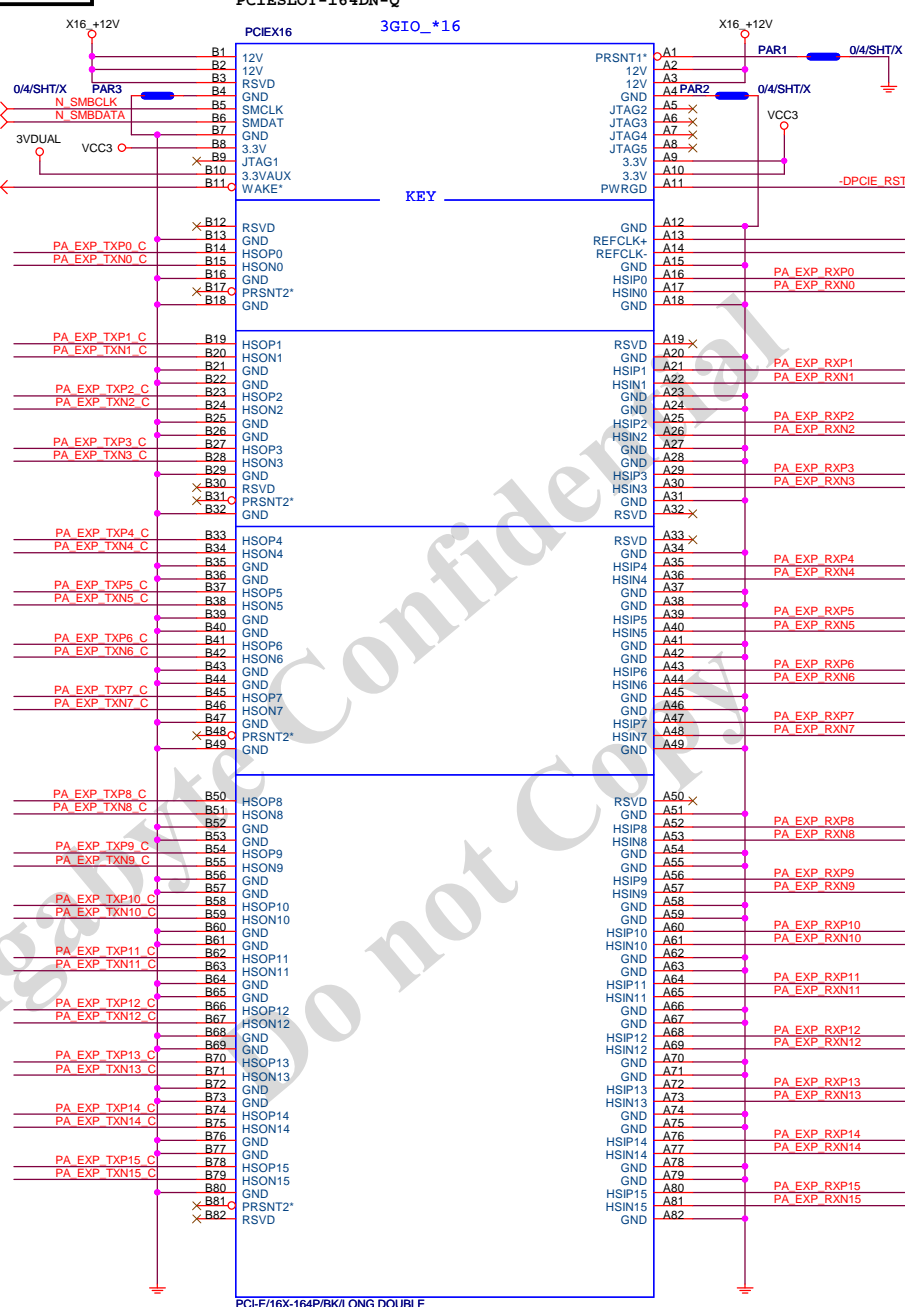
PCE-E X16(雙向) BANDWITH=2.5GHz\*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

# PCIEX16 SLOT

7,8,12,15,17,23,26,29 N\_SMBCLK  
7,8,12,15,17,23,26,29 N\_SMBDATA

12,15,17,31 N\_-PCIE\_WAKE



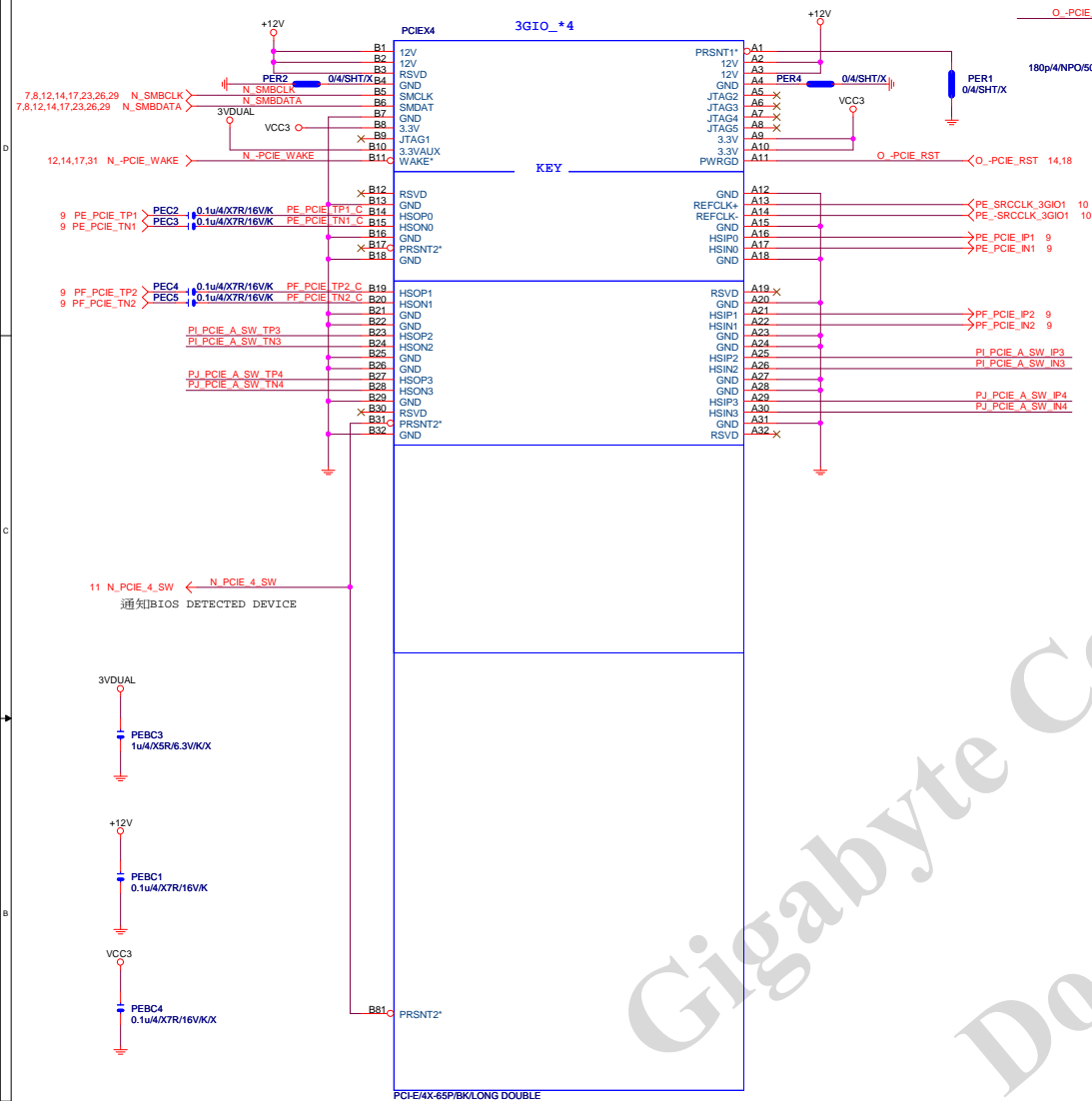
PCIEX16:16/5/5/5/16

PA EXP RXP0[0..15]	>>>PA_EXP_RXP[0..15]	4
PA EXP RXN0[0..15]	>>>PA_EXP_RXN[0..15]	4
PA EXP TXP0[0..15]	>>>PA_EXP_TXP[0..15]	4
PA EXP TXN0[0..15]	>>>PA_EXP_TXN[0..15]	4

Gigabyte Technology			
PCI EXPRESS * 16			
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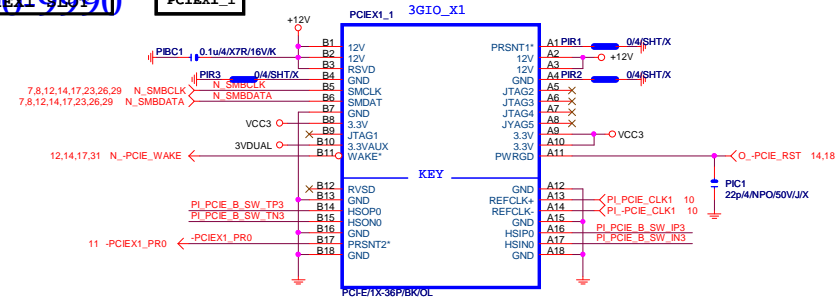


## PCIEX4 SLOT

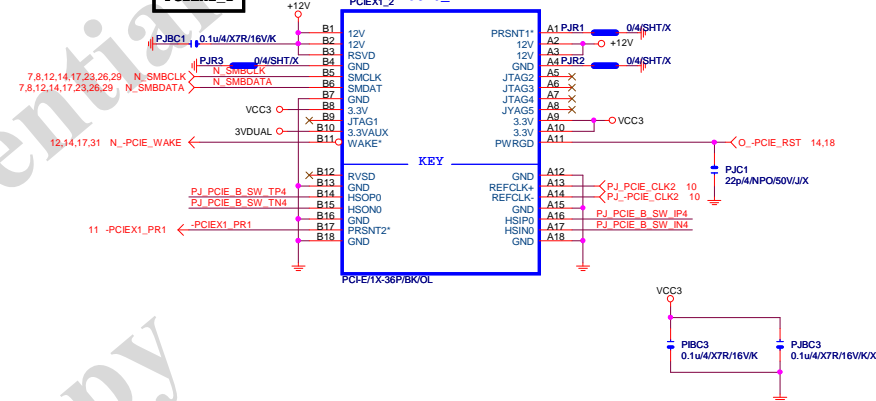


	N_PCIE_4_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4 No devices	H	H
PCIEX4 -> X1	H	H
PCIEX4 Have devices	L	L
PCIEX4 -> X4	L	L
PCIEX1_1/2 -> N/A		

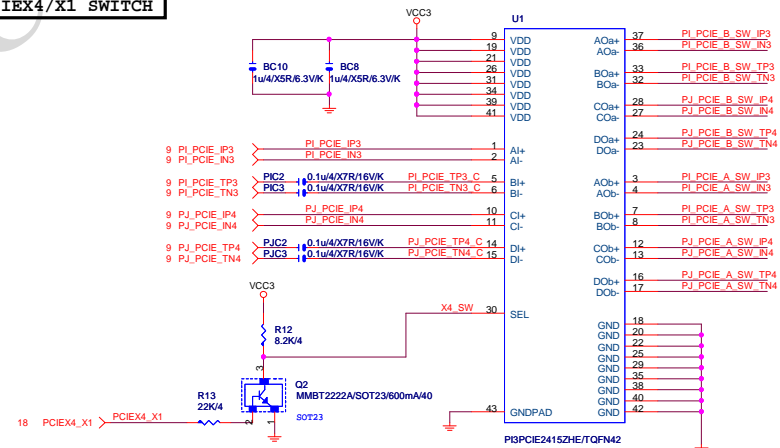
## PCIEX1\_1



## PCIEX1\_2



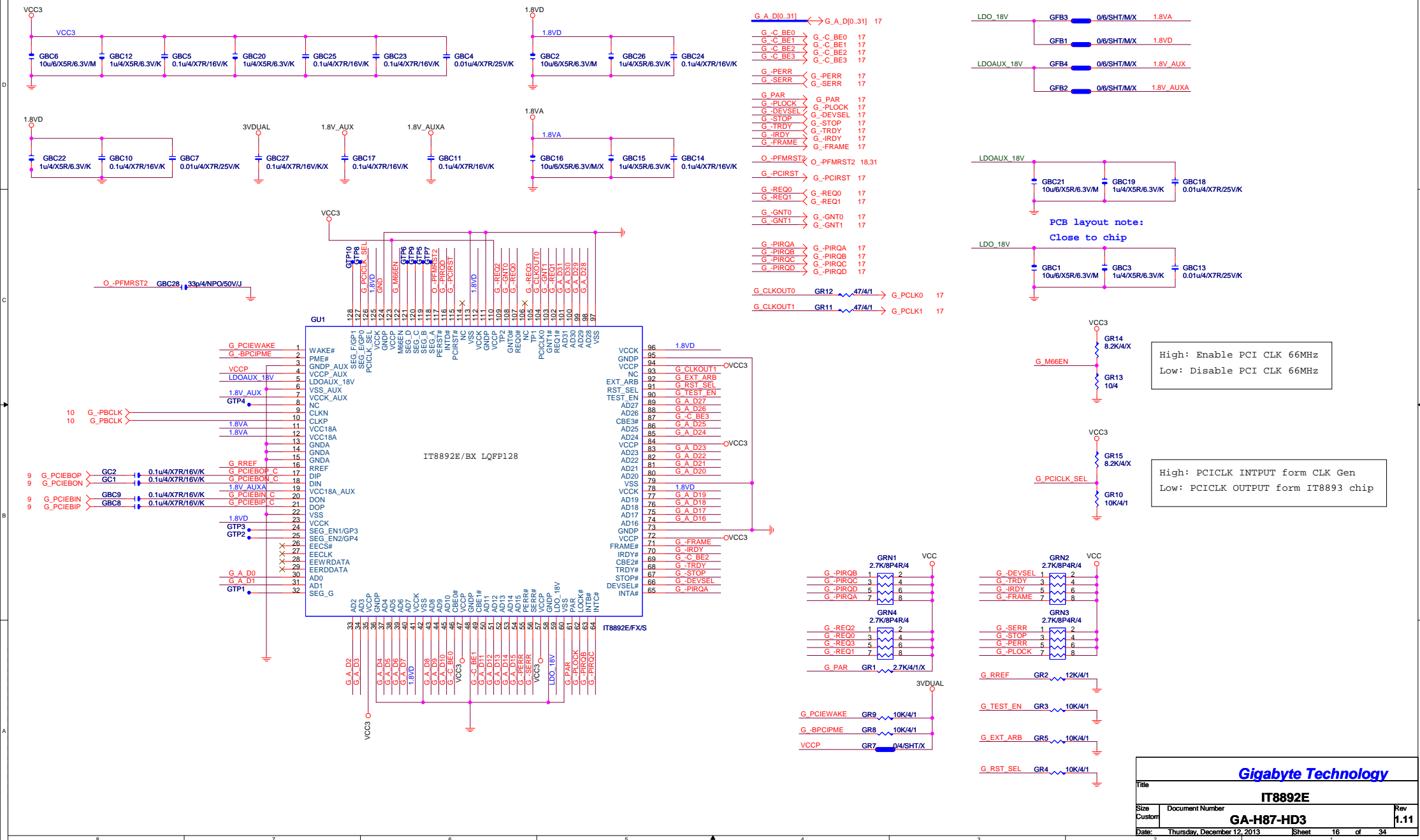
## PCIEX4/X1 SWITCH



Function	SEL
xI--> x0a	L;PCIEX4 SLOT-->X1
xI--> x0b	H;PCIEX4 SLOT-->X4

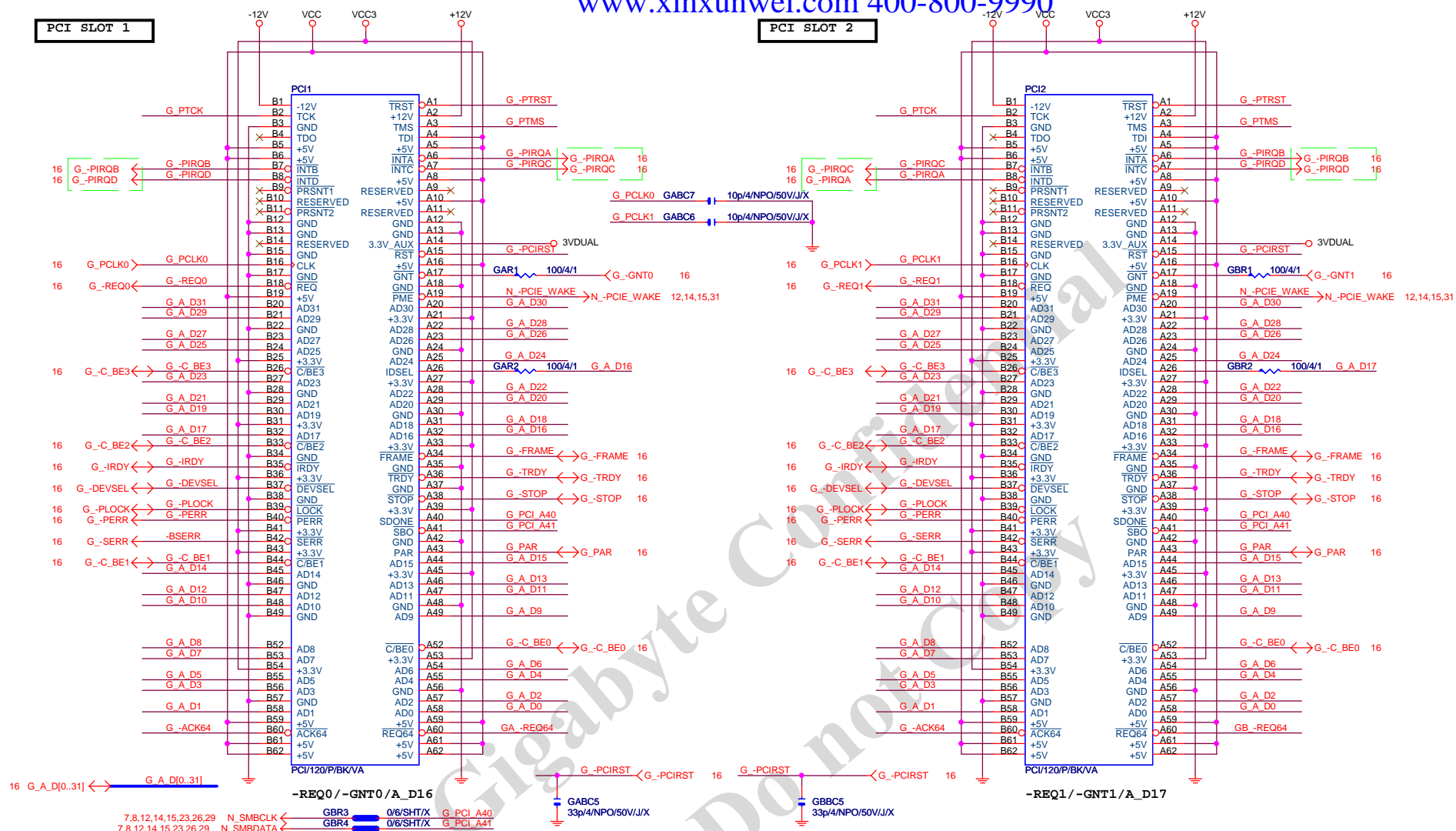
## Gigabyte Technology

Title	PCIE X1 1,2	
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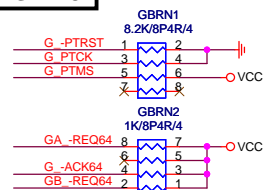
PCI SLOT 1

PCI SLOT 2

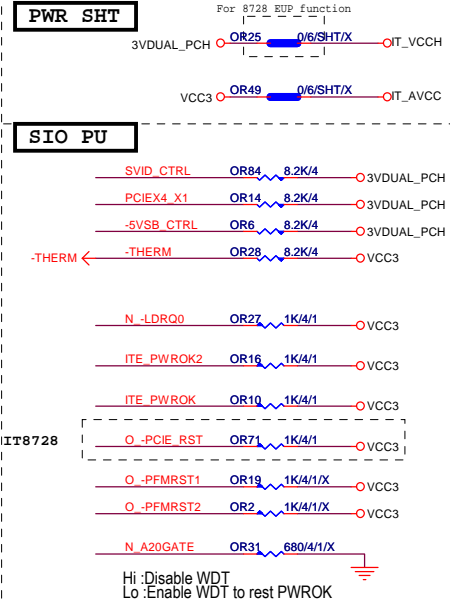


PCI PU

PCI CAP

**GIGABYTE™****PCI SLOT 1&2**

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12  
12.25.27

JP3--- High SPI-Flash Disable  
Low SPI-Flash Enable

JP2 OR36 8.2K/4 VCC3  
JP3 OR35 8.2K/4 VCC3  
JP4 OR34 8.2K/4 VCC3  
JP5 OR32 8.2K/4 VCC3

OR33 1K/4/1X  
OR8Q 8.2K/4/1X

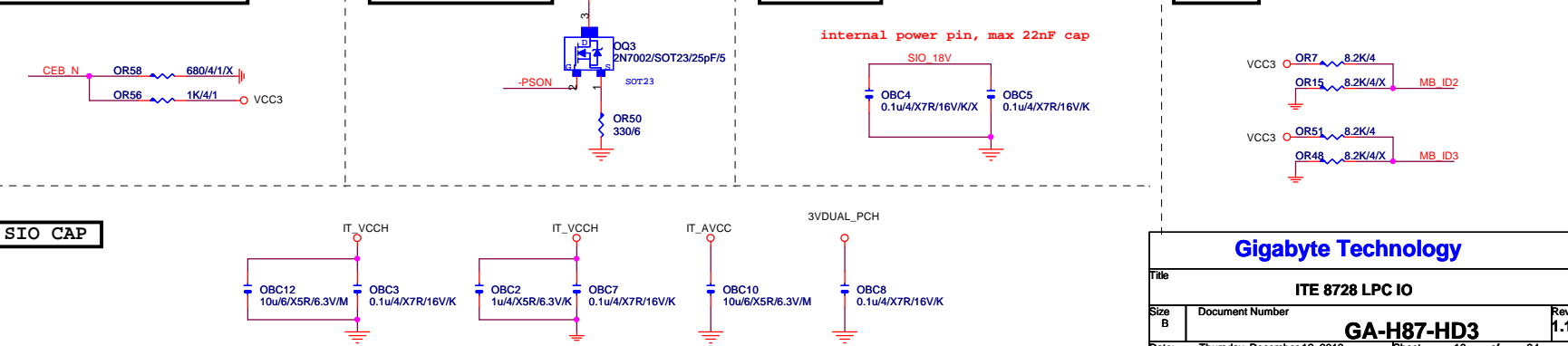
JP5:N/A for 8728 DX  
JP5:PULL DOWN for 8728 EX  
anti-surge enable

EUP control detect

3VDUAL OR47 100/4/1 28\_3VSB

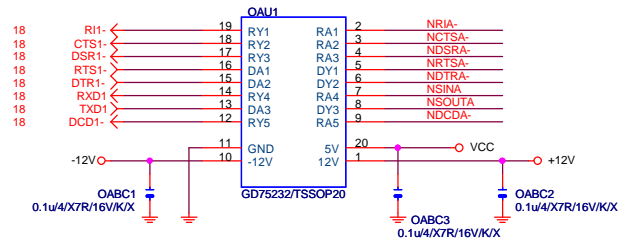
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h
	0 0	The default value of EC Index 63h/6Bh/73h is 00h

## MB ID

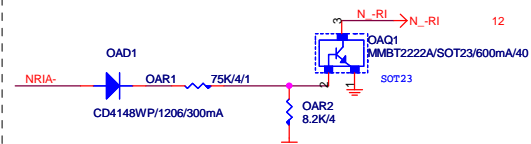


ITE 8728 LPC IO			
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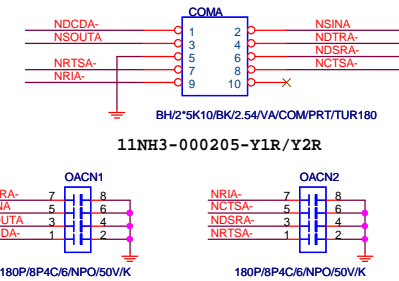
## COMA



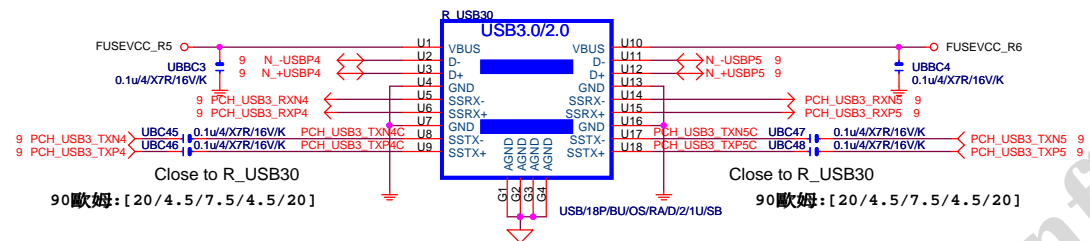
## COM RI



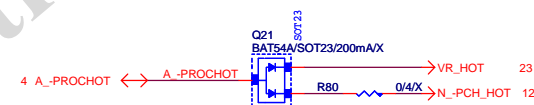
## COM BUFFER



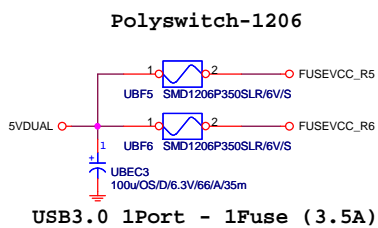
## USB30\_20 CONNECT



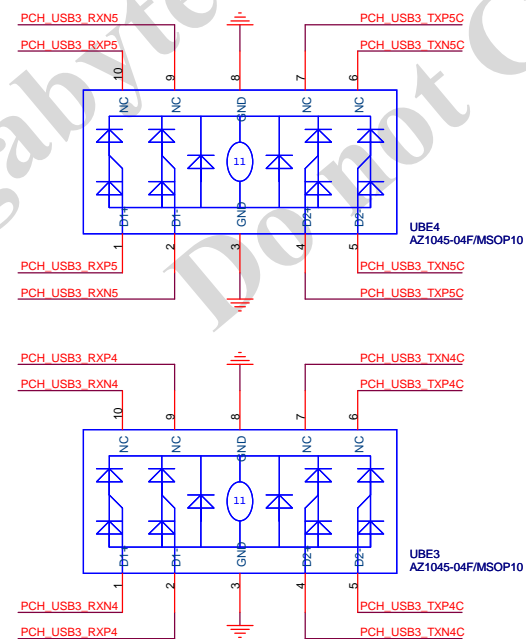
## -PROHOT



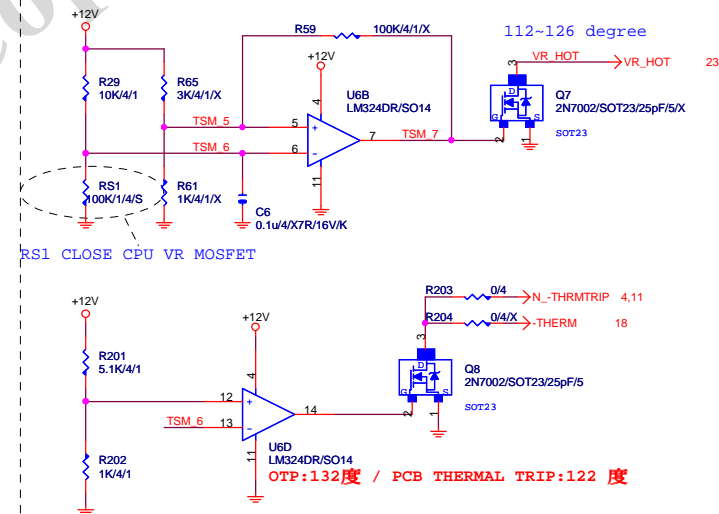
## USB30 PWR



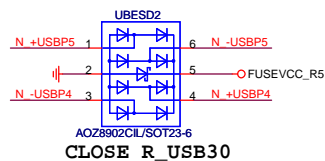
## USB30 ESD PROTECT



## -PROHOT



## USB20 ESD PROTECT



Gigabyte Technology

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12 N\_ICH\_SPI\_MOSI < N\_ICH\_SPI\_MOSI NR10 8.2K/4/X  
12 N\_ICH\_SPI\_CS < N\_ICH\_SPI\_CS NR9 8.2K/4/X  
12 N\_ICH\_SPI\_CS1 < N\_ICH\_SPI\_CS1 NR246 8.2K/4/X  
18 -SPL\_HOLD\_M < -SPL\_HOLD\_M NR3 1K/4/1  
18 -SPL\_HOLD\_B < -SPL\_HOLD\_B NR11 1K/4/1

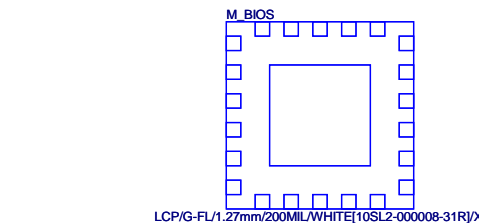
N\_ICH\_SPI\_WP1 NR2 8.2K/4/X  
N\_ICH\_SPI\_WP0 NR5 8.2K/4/X  
N\_ICH\_SPI\_MISO NR246 8.2K/4/X  
-HOLD0 NR235 1K/4/1/X  
-HOLD1 NR236 1K/4/1/X

18 -SPL\_HOLD\_M < -SPL\_HOLD\_M NR237 1K/4/1/X  
18 -SPL\_HOLD\_B < -SPL\_HOLD\_B NR238 1K/4/1/X  
12 N\_ICH\_SPI\_MISO < NR6 22/4 SPI\_MISO

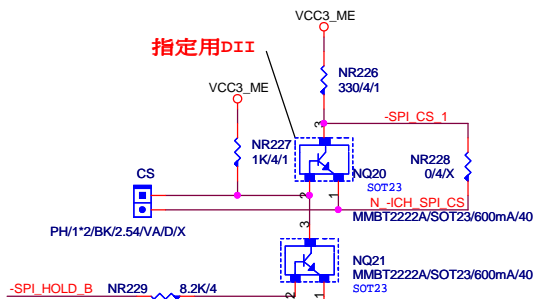
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating  
0 means PD 1K

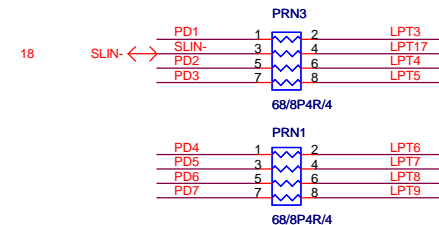
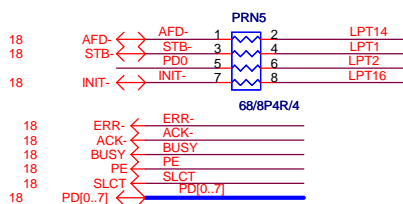
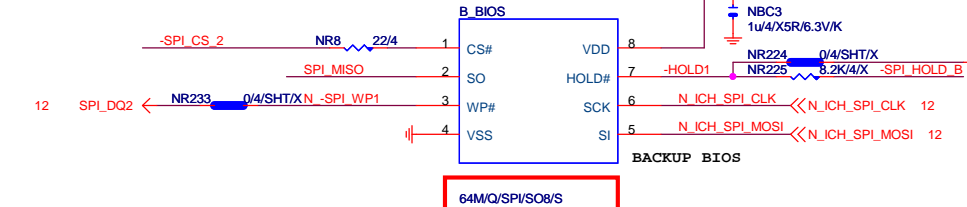
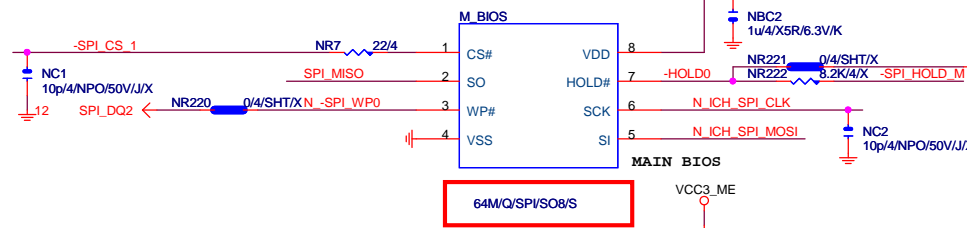
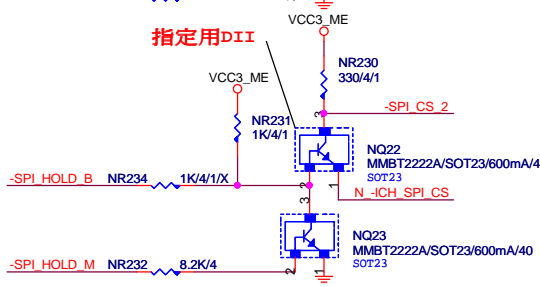
VCC3\_ME  
NBC4  
0.1u/4/X7R/16V/K



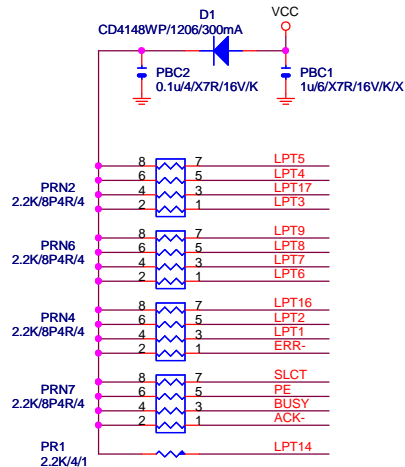
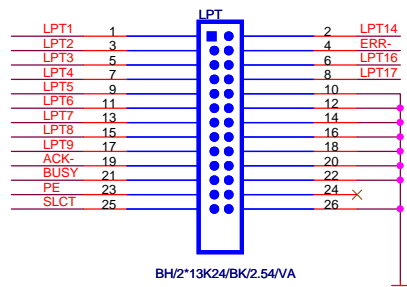
指定用DII



指定用DII



R&D技術通報151 有使用PRINT PORT的  
MODEL，需使用新料號：10HP2-118728-72R。(CHIP IT8728F/EX (GP) ITE/SMD  
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。

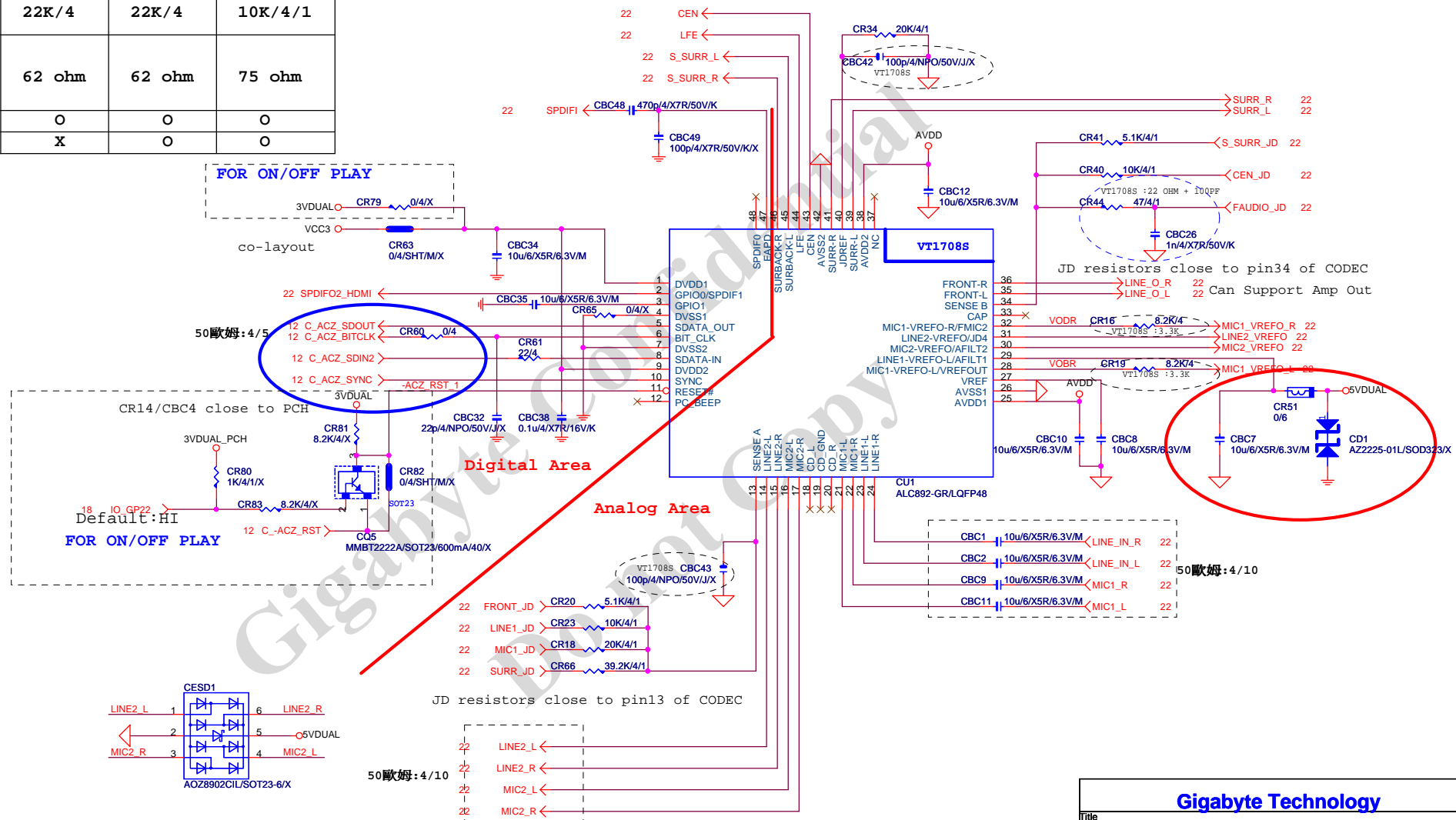


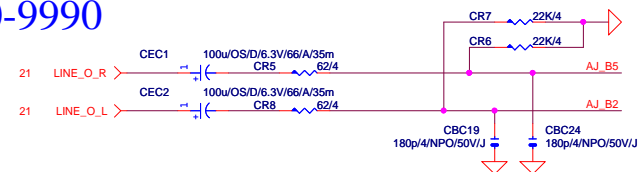
Gigabyte Technology

BIOS			
Title	BIOS		
Size	Document Number	GA-H87-HD3	Rev 1.11
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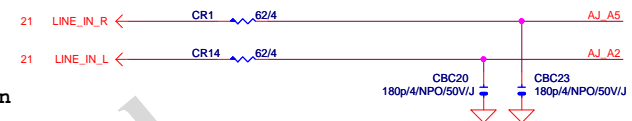


	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	X	O	O





Only reserved for ALC888



For 889A/888

21 MIC1\_R ← CR17 62/4

21 MIC1\_L ← CR22 62/4

21 MIC1\_VREF\_O\_L

21 MIC1\_VREF\_O\_R

CBC3 180pF/4NPO/50V/J

CBC4 180pF/4NPO/50V/J

AJ\_C5

AJ\_C2

21 Surr\_R

CEC10 100u/OS/D/6.3V/66/A/35m CR73 62/4

21 Surr\_L

CEC11 100u/OS/D/6.3V/66/A/35m CR74 62/4

CR67 22K/4

CR68 22K/4

CBC44 180p/4/NPO/50V/J

CBC45 180p/4/NPO/50V/J

B.J. C5

B.J. C2

[illegible]

**AZALIA FRONT PANEL**

Diagram illustrating the AZALIA FRONT PANEL circuit, showing connections for various components and signals.

**Components and Connections:**

- Diodes:** CQ4, CQ2 (BAT54A/SOT23/200mA), CBC5 (10u6/BXSR/6.3V/M).
- Resistors:** CR52, CR56, CR10, CR9, CR13, CR11, CR57, CR12, CR78, CR58, CR54.
- Capacitors:** CEC9 (100u/OS/D/6.3V/66/A/35m).
- Connectors:** F\_AUDIO (2x2 pin header), BH/2\*5K/BK/2.54/A/AUDIO/PRT/TUR/180.
- Signals:** LINE2\_VREFO, MIC2\_VREFO, MIC2\_L, MIC2\_R, AUDIO\_JD, LINE2\_R, LINE2\_L.
- Other Labels:** VTI708S 13.3K, CR55 (20K/4/1), CR59 (39.2K/4/1), CEC9 (100u/OS/D/6.3V/66/A/35m), CBC30, CBC29, CBC37, CBC36.

Title			
AUDIO JACK			
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21 SPDIF02\_HDMI

CR26

0/4/SHT/M/X

CBC14

100p4/NPO/50V/J

SPDIF\_O

PH1\*2/BK/2.54/VA/D

For HDMI SPDIF

21

SPDIF\_IN

3

2

1

SPDIF\_IN

5V DUAL

CR77

0/4

PH\*1\*3/BK/2.54V/A/D

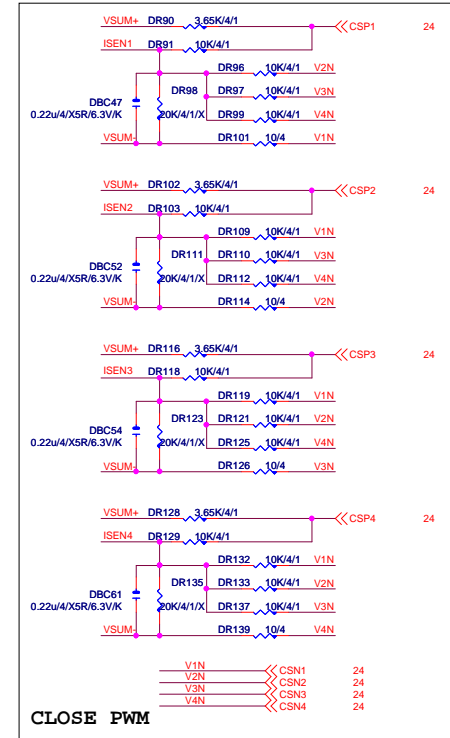
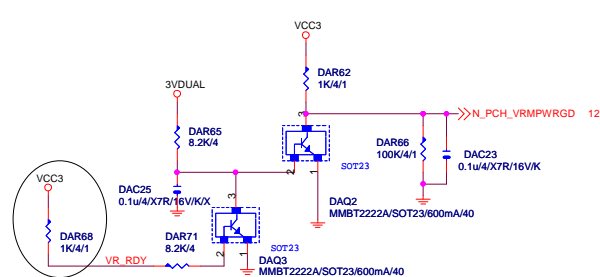
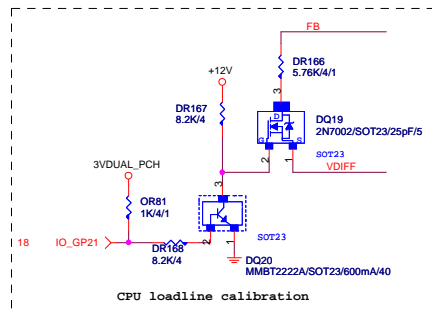
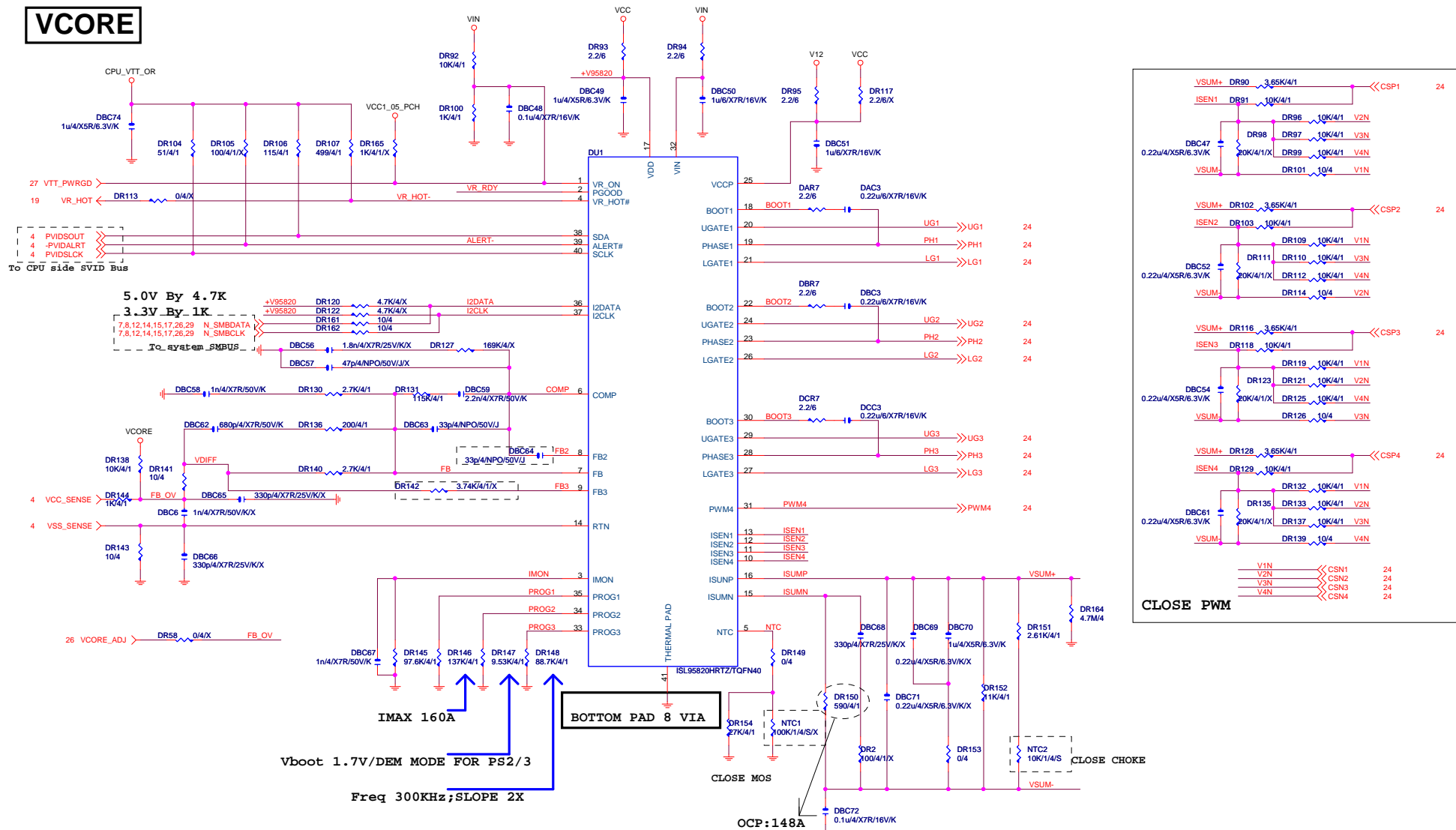
The diagram shows the 2X3RP/26P/OR/BK,GY,BU,GE,PK/RA connector with the following connections:

- LINE-IN (BLUE):**
  - LINE1\_JD (Pin 21) to A3
  - AJ\_A2 (Pin 21) to A2
  - AJ\_A5 (Pin 21) to A4
  - AJ\_A2 (Pin 21) to A1
  - LINE-IN (Pin 7A1) to GND
- LINE-OUT (GREEN):**
  - FRONT\_JD (Pin 21) to B3
  - AJ\_B5 (Pin 21) to B2
  - AJ\_B2 (Pin 21) to B4
  - B1 to GND
  - LINE-OUT (Pin B1)
- MIC-IN (PINK):**
  - MIC1\_JD (Pin 21) to C3
  - AJ\_C5 (Pin 21) to C2
  - AJ\_C2 (Pin 21) to C4
  - C1 to GND
  - C0 to MIC-IN

2X3RP/26P/OR/BK,GY,BU,GE,PK/RA

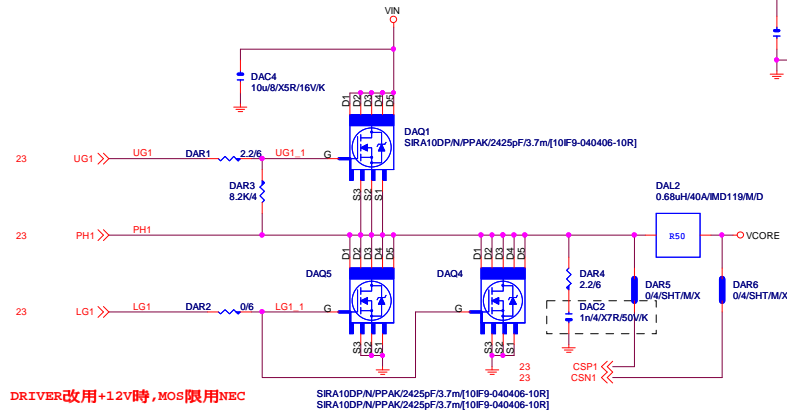
[illegible]

## VCORE

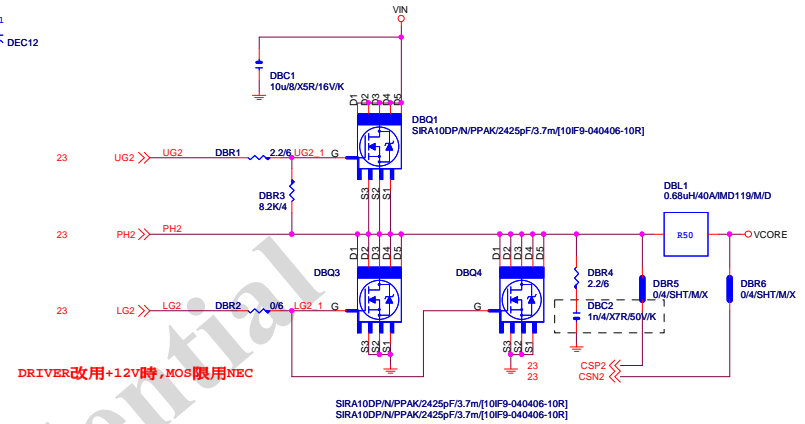


## VCORE

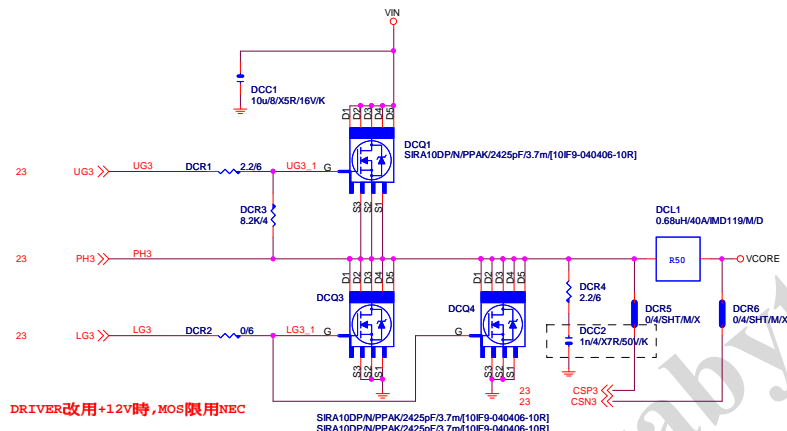
[1]



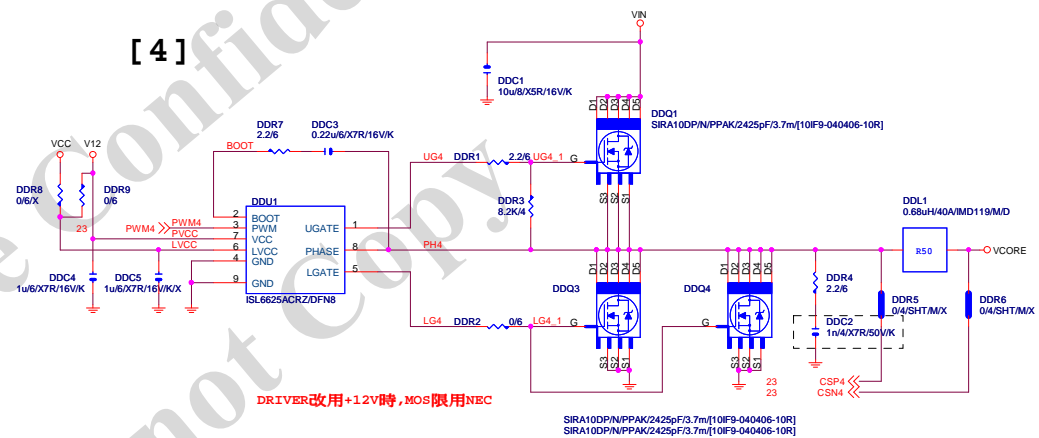
[2]



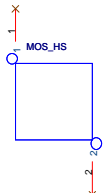
[3]



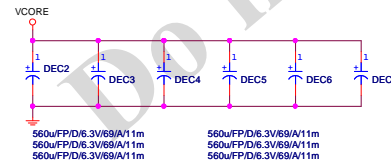
[4]



## MOSFET HEATSINK

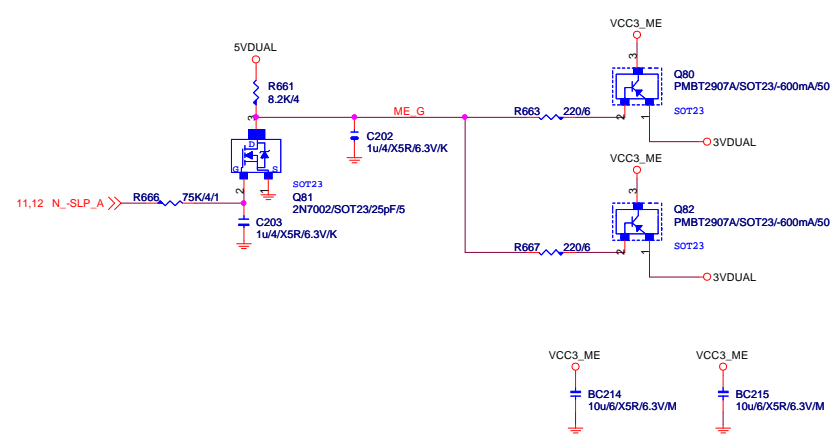


MOS HS[12SP2-S08824-71R\_12SP2-S08824-72R\_12SP2-S08824-73R]

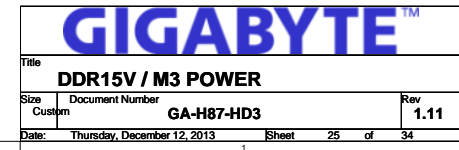


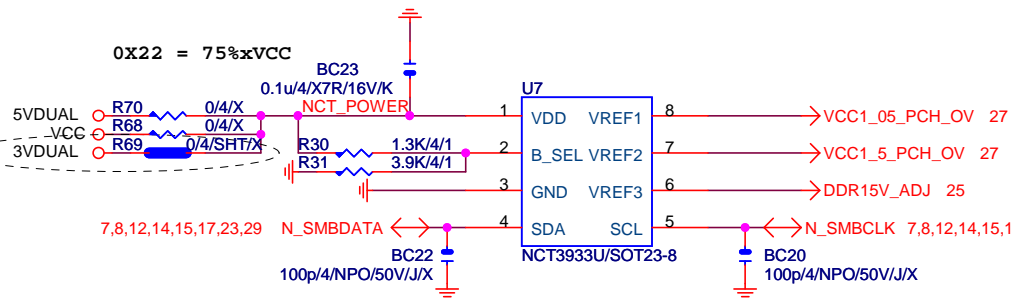
Gigabyte Technology

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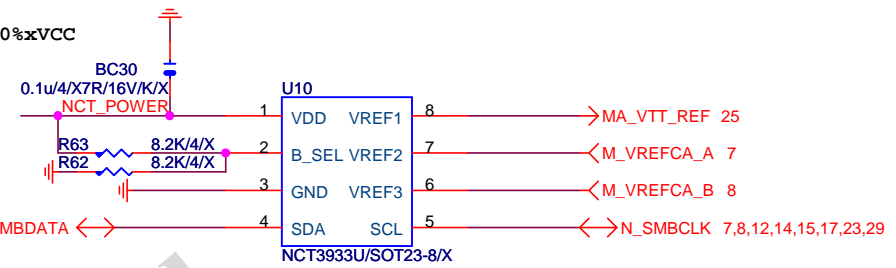


DDRVTT

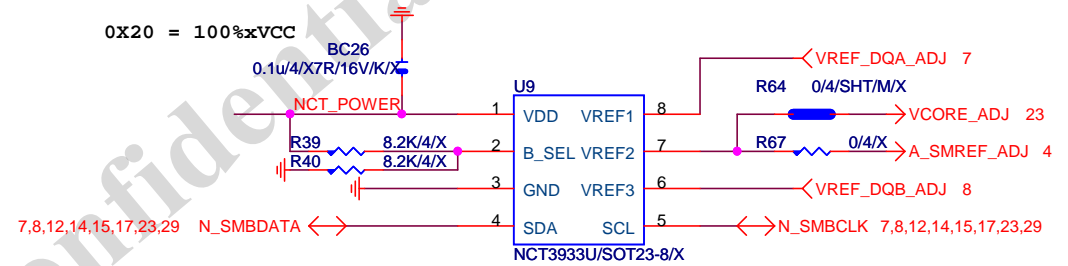


**OVER VOLTAGE**

0X2A = 0%xVCC



0X20 = 100%xVCC

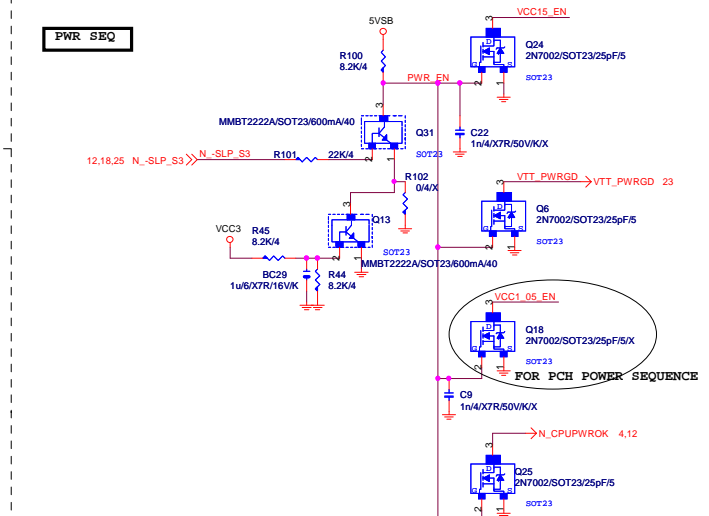
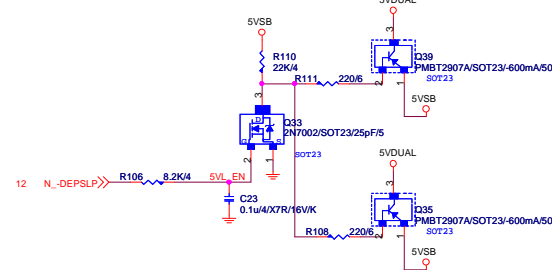
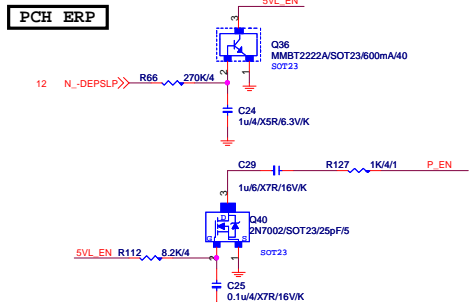
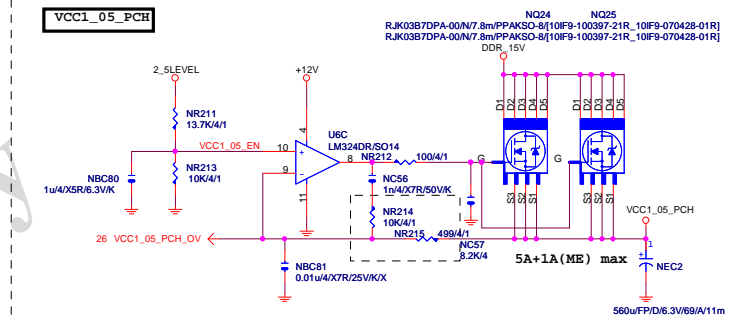
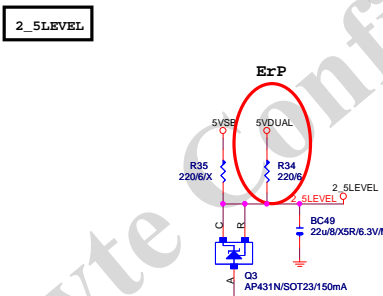
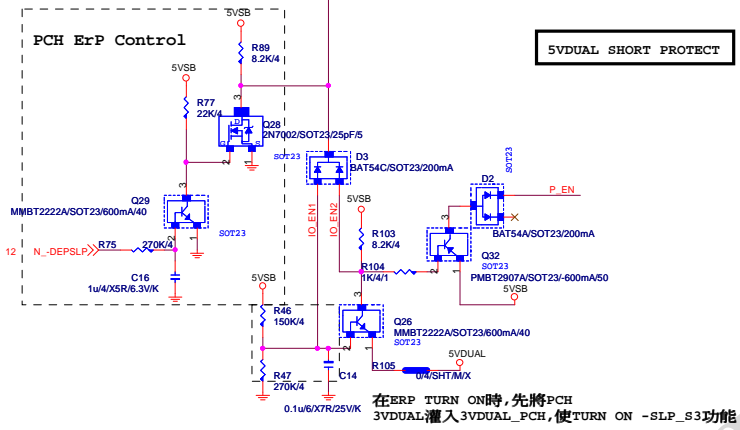
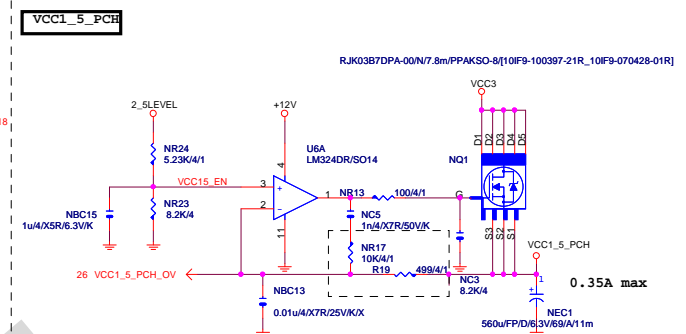
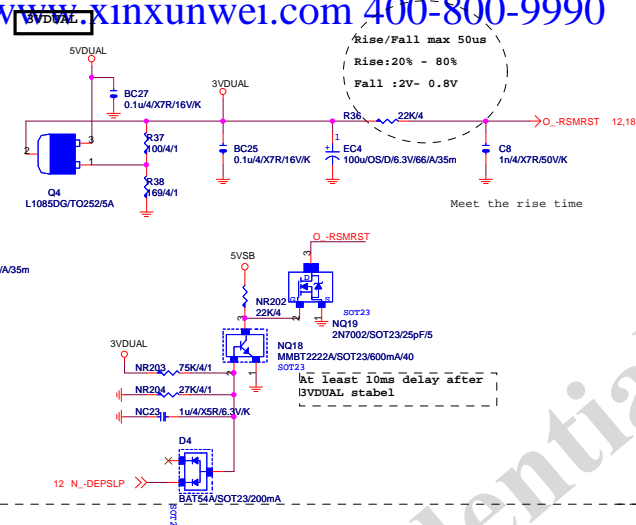
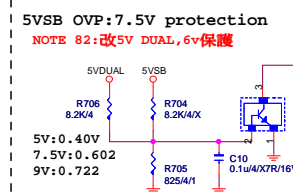
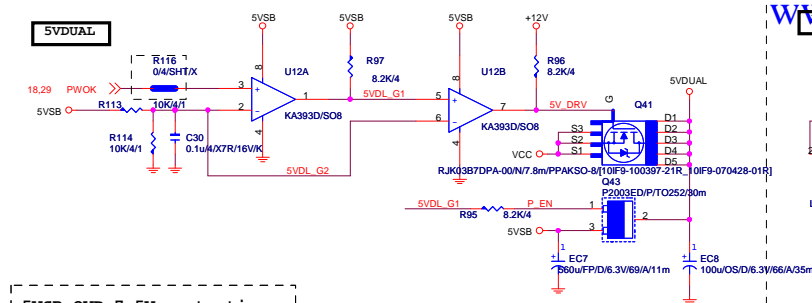


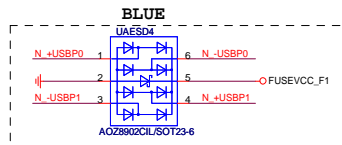
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

**Gigabyte Technology**

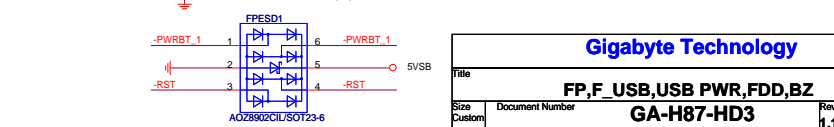
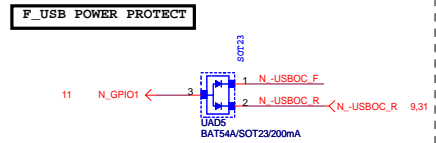
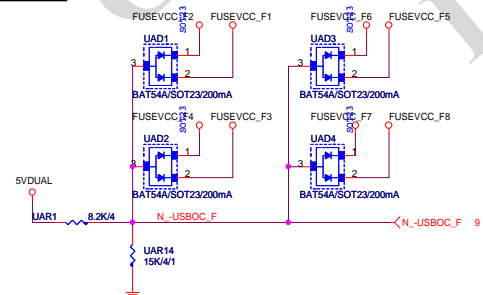
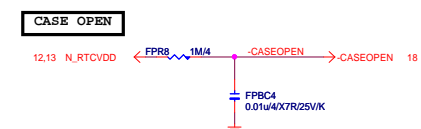
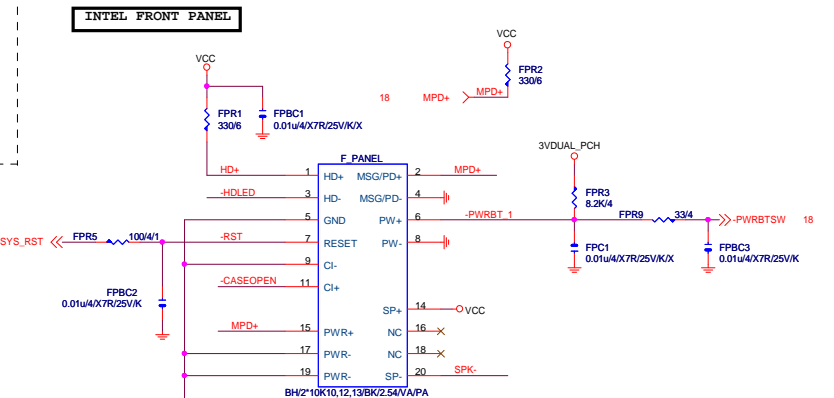
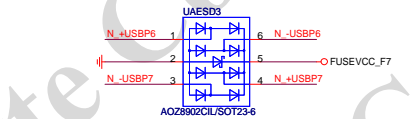
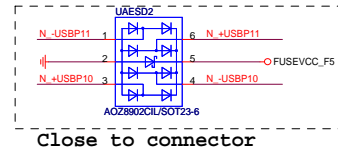
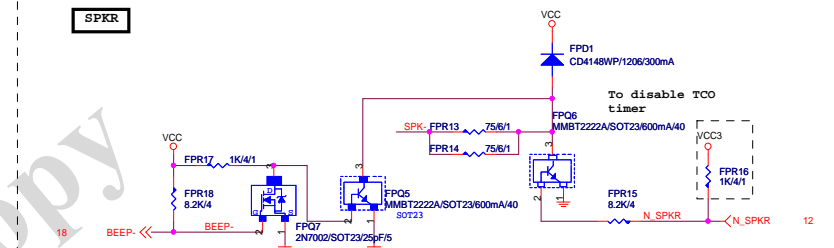
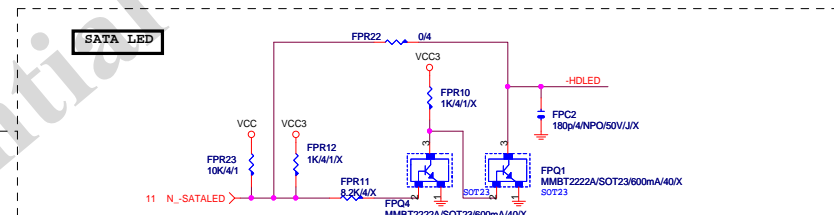
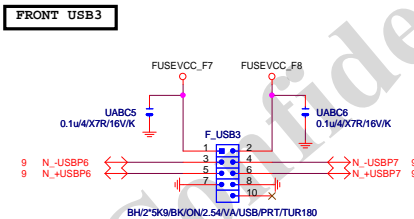
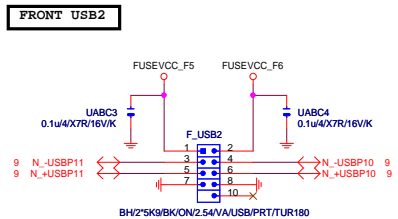
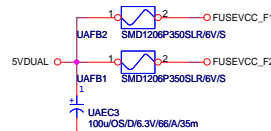
Title		
CPU CORE VR-2		
Size	Document Number	Rev
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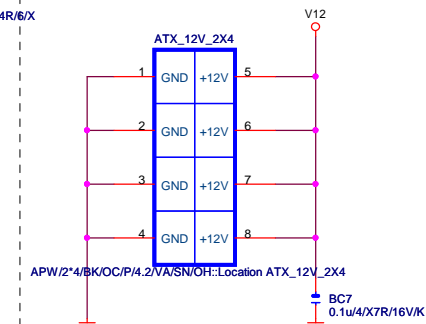
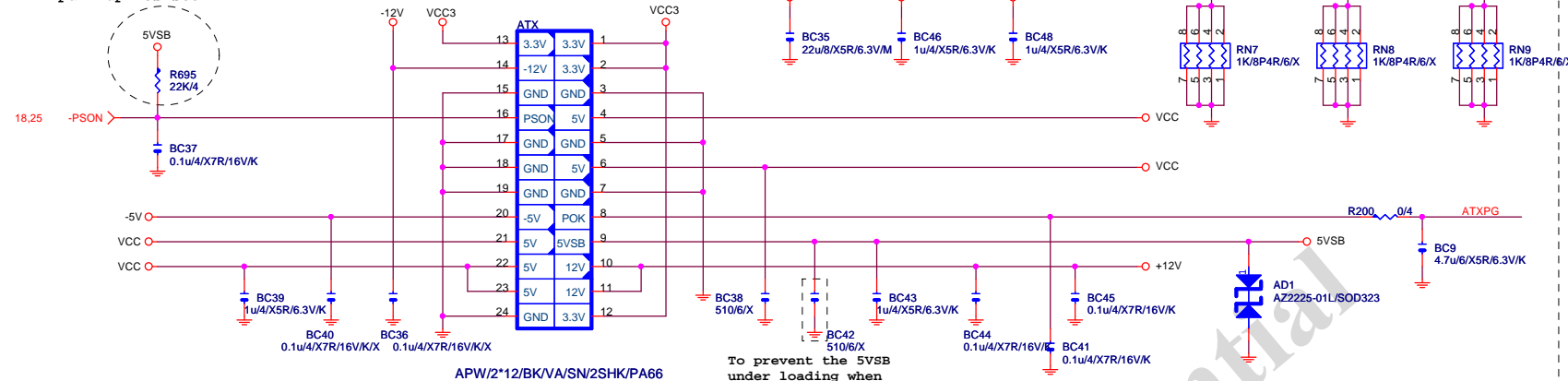


F\_USB30 PWR



ATXX4 POWER CONNECTOR

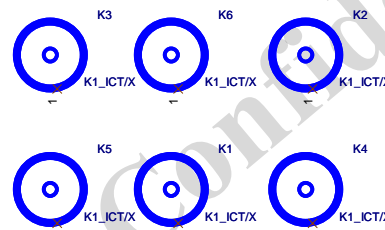
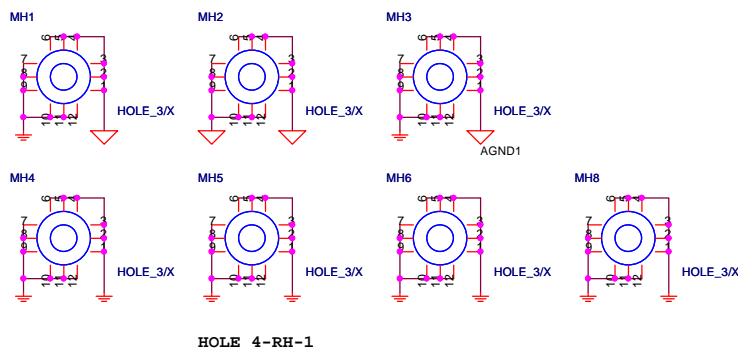
Patch some PSU no internal  
pull up resistor



```

To prevent the 5VSB
under loading when
- boot - - - - -

```

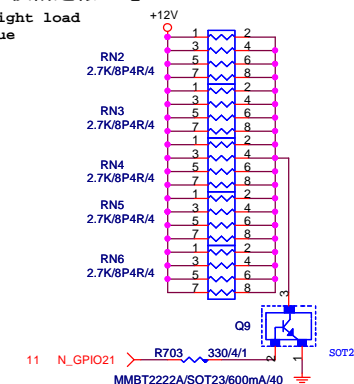


K1-ICT

4 MME

【技術通報R&amp;D技術通報153】

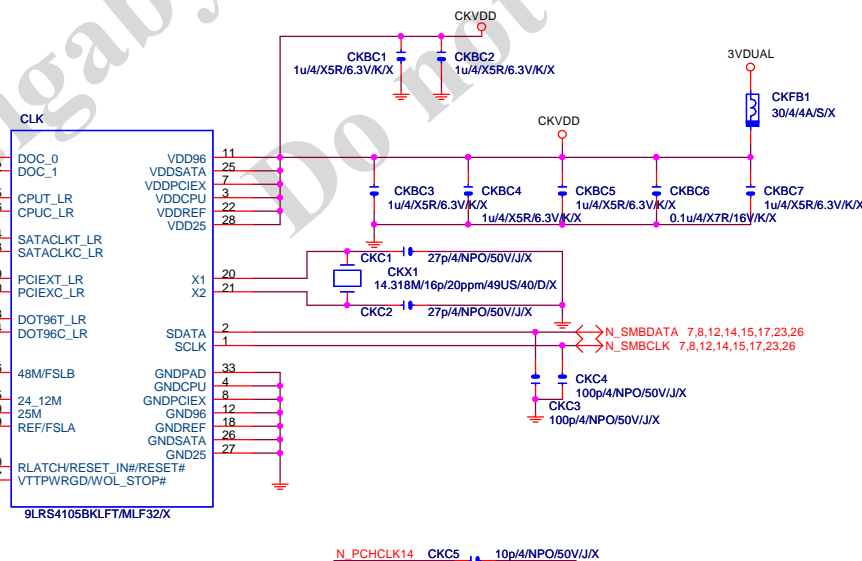
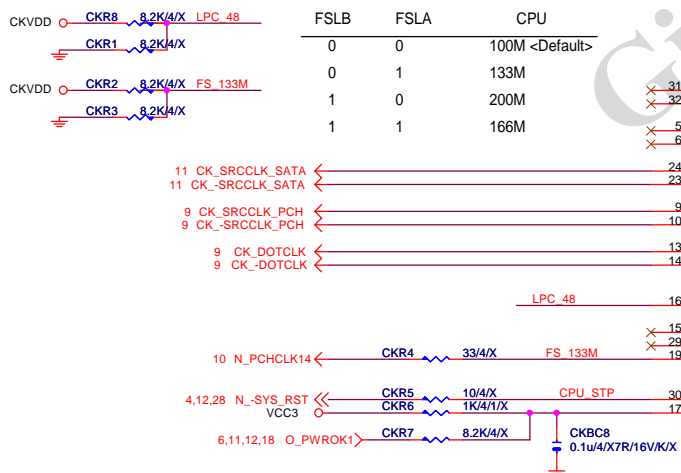
To fix 12V light load  
abnromal issue



CLK GEN
---------

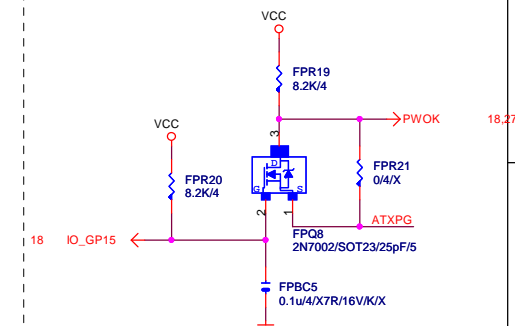
### CPU Frequency Selection

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

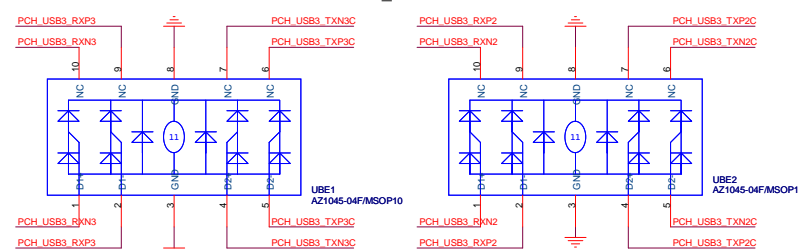
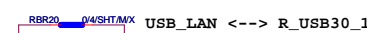
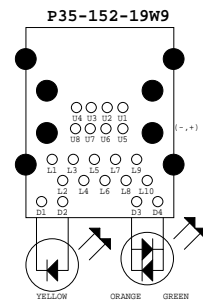
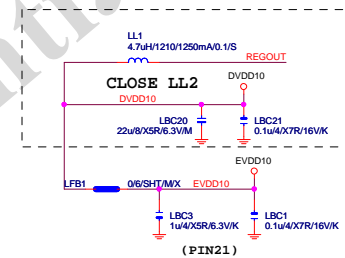


## PWOK PATCH

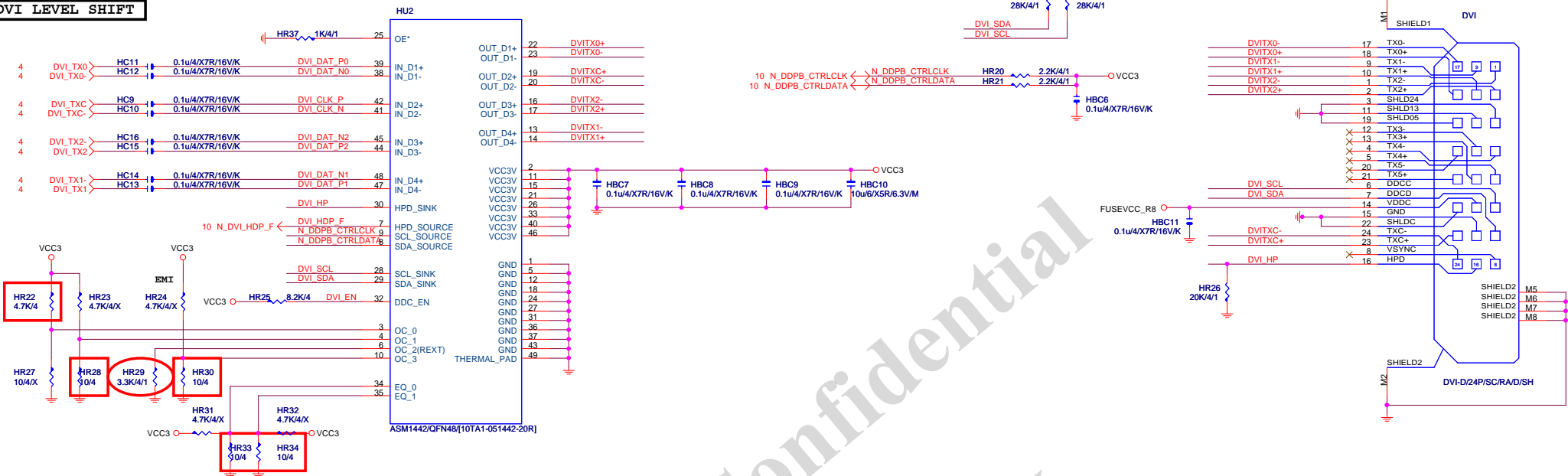
【技術通報R&amp;D技術通報154】







## DVI LEVEL SHIFT

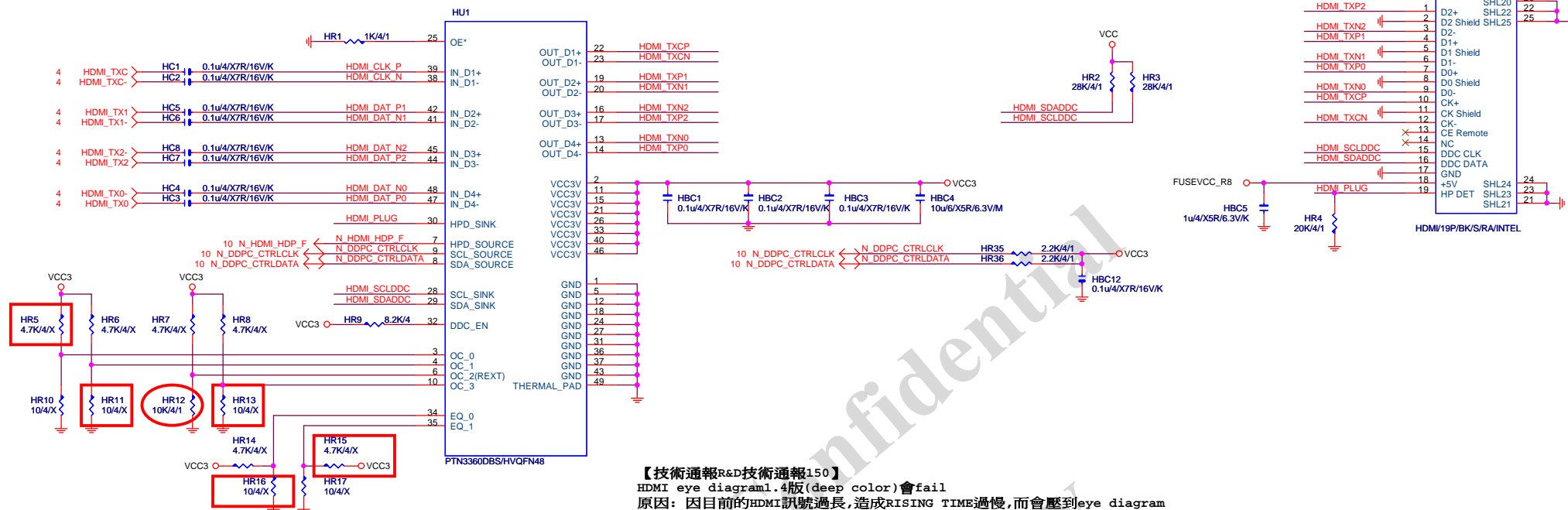


PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR29:10K

ASM1442:紅色框要上,HR29:3.3K

Gigabyte Technology			
Title			
TI TSB43AB23 1394			
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## 【技術通報R&amp;D技術通報150】

HDMI eye diagram1.4版(deep color)會fail

原因：因目前的HDMI訊號過長，造成RISING TIME過慢，而會壓到eye diagram

改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K

ASM1442:紅色框要上,HR12:3.16K

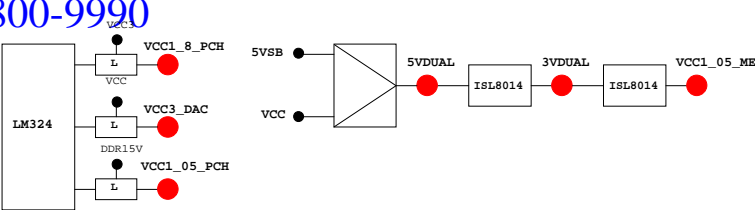
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPIO0	N/A
GP1/TACH1	MAIN	GPI	GPIO1	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	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN	MAIN	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPIO8	N/A
GP9/OC5#	STBY	NATIVE	USB OC5#	N/A
GP10/OC6#	STBY	NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY	NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12
GP13	STBY	L	GPI	LPCPME#
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)
GP16	MAIN	MAIN	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN	MAIN	GPIO17	P/U 8.2K VCC3
GP18	MAIN	MAIN	GPIO18	Mobile Only
GP19	MAIN	MAIN	GPIO19	P/U 8.2K VCC3
GP20	MAIN	MAIN	GPIO20	P/U 8.2K VCC3
GP21	MAIN	MAIN	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPIO22	P/U 8.2K VCC3
GP23	MAIN	MAIN	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	PWR LED
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP
GP35	MAIN	L	GPO	-ACZ_DET
GP36	MAIN	MAIN	GPIO	N/A
GP37	MAIN	MAIN	GPIO	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect
GP39	MAIN	H-Z	GPI	GPIO39
GP40	STBY	NATIVE	USB OC1#	N/A
GP41	STBY	NATIVE	USB OC2#	N/A
GP42	STBY	NATIVE	USB OC3#	N/A
GP43	STBY	NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44
GP45	STBY	NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48
GP49	MAIN	H-Z	IN	GPIO49
GP50	MAIN	NATIVE	NATIVE	-REQ1
GP51	MAIN	H	NATIVE	-GNT1
GP52	MAIN	NATIVE	NATIVE	-REQ2
GP53	MAIN	H	NATIVE	-GNT2
GP54	MAIN	NATIVE	NATIVE	-REQ3
GP55	MAIN	H	NATIVE	-GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	-SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

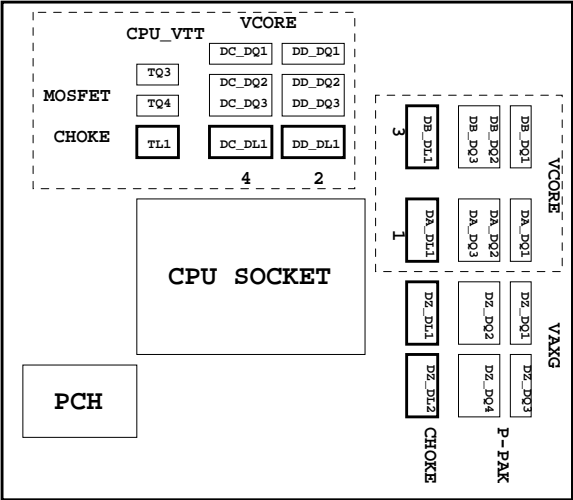
Super I/O ITE8720 GPIO Table

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/BUSS00	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/BUSS11	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	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/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/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	2X PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_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#/CIRT2/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/BUSS00	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 Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

	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

Gigabyte Technology			
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