

Model Name: GA-H81M-DS2V

Revision 1.02

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,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS X1 *3 SLOT
16	PCI SLOT ( NA )
17	ITE 8620 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95812_1

SHEET

TITLE

28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	LPT
31	DVI
32	IT8892E ( NA )
33	USB3 VL805

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**Gigabyte Technology**

Cover Sheet

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**Model Name:**  
**GA-H81M-DS2V**

## Component value change history

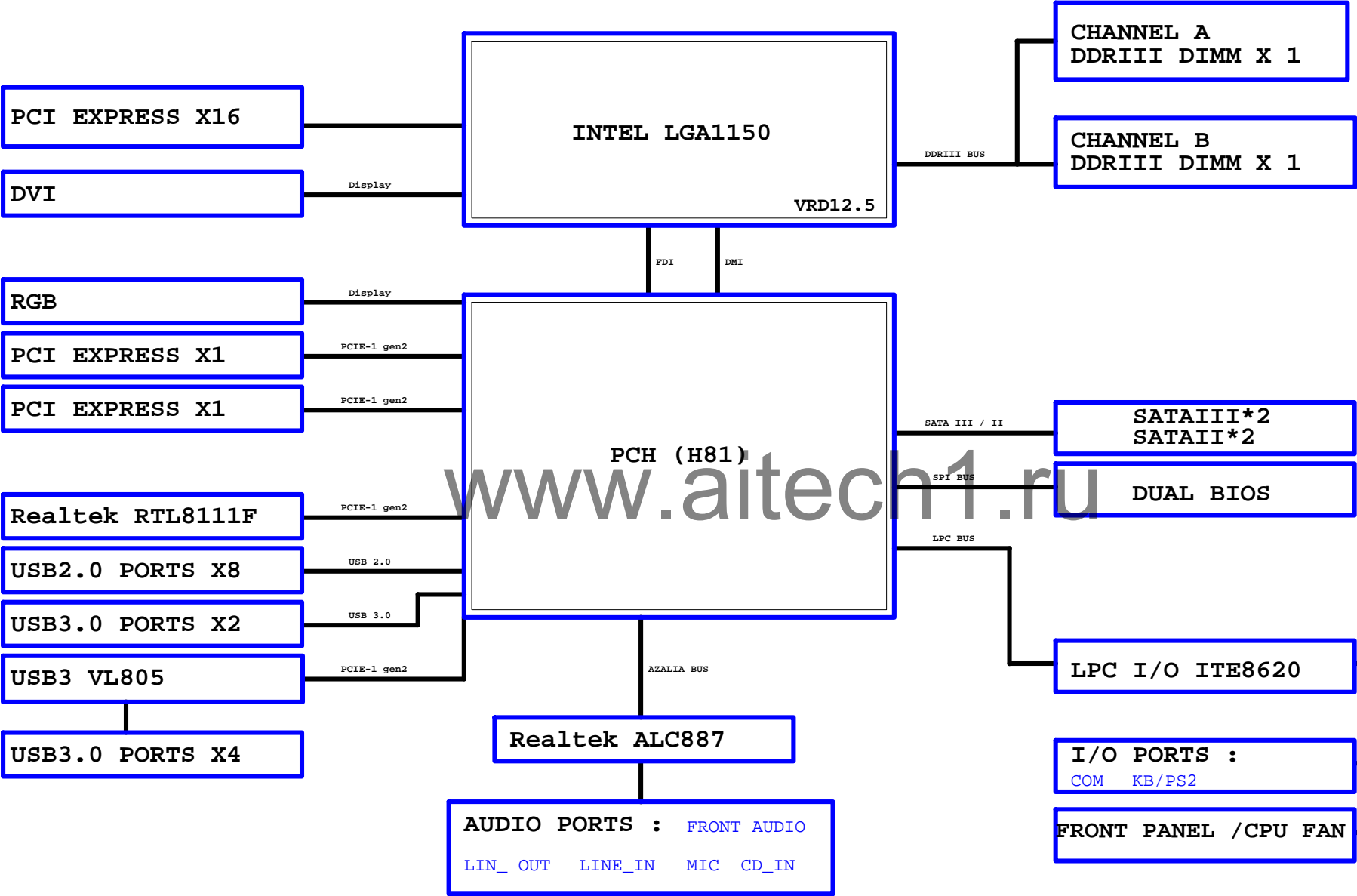
2013/05/17

[illegible]

## Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM



[illegible]

Timing diagram for FDI signals. The diagram shows various FDI signals (FDI\_CS[0:1], FDI\_INT, FDI\_RCOMP, FDI\_TX[0:1], FDI\_TXP[0:1]) and their connections to hardware components (VCCIOA\_L, WR23, FDI\_CS[0:1], FDI\_INT, FDI\_RCOMP, FDI\_TX[0:1], FDI\_TXP[0:1]). It also shows the timing of these signals relative to a clock signal (N\_DP\_CLK) and a data signal (D16, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31). The diagram is labeled "HWSWELL[10SC1-F01150-1R\_10SC1-F01150-12R]".

FDI:12/4/5/4/12(breakout min 6/4/4/4/6)  
 Impedance=85 +- 17.5%

[illegible]

1.1V分壓

VCC3

WR26  
2K4/1X

WR31  
1K4/1X

A\_CPURST

BC102  
1n4/X7R/50V/K

A\_CPURST (11,17)

For IT8620 Ctrl

CPU\_VTT\_OR

Signal	Value
WR3	90.9/4/1/X
WR2	115/4/1
WR4	75/4/1

PVIDSLCK  
PVIDSOUT  
-PVIDALRT

Figure 10 illustrates the pinmux configuration for the CPU\_VTT\_OR pin. The diagram shows the CPU\_VTT\_OR pin connected to various peripheral signals through multiplexers. The top section shows the CPU\_VTT\_OR pin connected to WR14, WR16, WR17, and WR30, which are multiplexed to A\_TMS, A\_TDO, A\_TDI, and A\_HPRDY respectively. The bottom section shows the CPU\_VTT\_OR pin connected to WR29, WR10, WR25, WR56, and WR55, which are multiplexed to A\_PECI, A\_CATERR-, A\_PROCHOT, and N\_CPUWRCK respectively. The diagram also shows the connection of A\_THRMTRIP, A\_PWR\_DEBUG, A\_DBR, and A\_DDR\_COMP0 to A\_DDR\_COMP1, A\_DDR\_COMP2, A\_TESTLOW\_1, A\_TESTLOW\_2, and A\_HSW\_CFG\_RCOMP to A\_DDR\_COMP2.

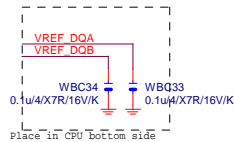
# LGA1150 (A)

LGA1150A		DDR0_MA0	DDR0_DQ0	AD38	MDA0
MAAA0	AU13	DDR0_MA1	DDR0_DQ1	AD39	MDA1
MAAA1	AV16	DDR0_MA2	DDR0_DQ2	AF38	MDA2
MAAA2	AU16	DDR0_MA3	DDR0_DQ3	AF39	MDA3
MAAA3	AW17	DDR0_MA4	DDR0_DQ4	AD37	MDA4
MAAA4	AU17	DDR0_MA5	DDR0_DQ5	AD40	MDA5
MAAA5	AW18	DDR0_MA6	DDR0_DQ6	AE37	MDA6
MAAA6	AT18	DDR0_MA7	DDR0_DQ7	AF40	MDA7
MAAA7	AU18	DDR0_MA8	DDR0_DQ8	AH40	MDA9
MAAA8	AT19	DDR0_MA9	DDR0_DQ9	AH39	MDA10
MAAA9	AW19	DDR0_MA10	DDR0_DQ10	AK38	MDA11
MAAA10	AT19	DDR0_MA11	DDR0_DQ11	AK39	MDA12
MAAA11	AW19	DDR0_MA12	DDR0_DQ12	AH37	MDA12
MAAA12	AU19	DDR0_MA13	DDR0_DQ13	AH38	MDA14
MAAA13	AT20	DDR0_MA14	DDR0_DQ14	AK40	MDA15
MAAA14	AW21	DDR0_MA15	DDR0_DQ15	AK40	MDA17
MAAA15	AU21	DDR0_ODT0	DDR0_ODT0	AM39	MDA21
MODT_A0	AW10	DDR0_ODT1	DDR0_ODT1	AP38	MDA18
MODT_A1	AY8	DDR0_ODT2	DDR0_ODT2	AP39	MDA19
	AW9	DDR0_ODT3	DDR0_ODT3	AM37	MDA20
	AW8			AM38	MDA16
	AW33	DDR0_ECC0	DDR0_ECC0	AP37	MDA22
	AW33	DDR0_ECC1	DDR0_ECC1	AP40	MDA23
	AU31	DDR0_ECC2	DDR0_ECC2	AW37	MDA29
	AW31	DDR0_ECC3	DDR0_ECC3	AU35	MDA26
	AU33	DDR0_ECC4	DDR0_ECC4	AW35	MDA27
	AT31	DDR0_ECC5	DDR0_ECC5	AT37	MDA28
	AW31	DDR0_ECC6	DDR0_ECC6	AU37	MDA24
	AW31	DDR0_ECC7	DDR0_ECC7	AT35	MDA30
		DDR0_BA0	DDR0_DQ31	AW35	MDA31
(7) SBAA0	SBAA0	DDR0_BA1	DDR0_DQ32	AY6	MDA33
(7) SBAA1	SBAA1	DDR0_BA2	DDR0_DQ33	AU6	MDA37
(7) SBAA2	SBAA2	DDR0_BA3	DDR0_DQ34	AV4	MDA34
		DDR0_DQ35	DDR0_DQ35	AU4	MDA35
(7) CKEA0	CKEA0	DDR0_DQ36	DDR0_DQ36	AW6	MDA32
(7) CKEA1	CKEA1	DDR0_DQ37	DDR0_DQ37	AW4	MDA38
		DDR0_DQ38	DDR0_DQ38	AY4	MDA39
		DDR0_DQ39	DDR0_DQ39	AR1	MDA41
(7) -CSA0	-CSA0	DDR0_DQ40	DDR0_DQ40	AR4	MDA45
(7) -CSA1	-CSA1	DDR0_CS_N0	DDR0_DQ41	AN3	MDA42
		DDR0_CS_N1	DDR0_DQ42	AN4	MDA43
		DDR0_CS_N2	DDR0_DQ43	AR2	MDA44
		DDR0_CS_N3	DDR0_DQ44	AR3	MDA40
(7) DCLKA0	DCLKA0	DDR0_DQ45	DDR0_DQ45	AN2	MDA46
(7) DCLKA0	DCLKA0	DDR0_DQ46	DDR0_DQ46	AN1	MDA47
(7) DCLKA1	DCLKA1	DDR0_DQ47	DDR0_DQ47	AL1	MDA49
(7) DCLKA1	DCLKA1	DDR0_DQ48	DDR0_DQ48	AL4	MDA53
		DDR0_DQ49	DDR0_DQ49	AL4	MDA50
		DDR0_DQ50	DDR0_DQ50	AJ4	MDA51
		DDR0_DQ51	DDR0_DQ51	AL2	MDA52
		DDR0_DQ52	DDR0_DQ52	AJ2	MDA48
		DDR0_DQ53	DDR0_DQ53	AJ2	MDA54
		DDR0_DQ54	DDR0_DQ54	AJ1	MDA55
		DDR0_DQ55	DDR0_DQ55	AG1	MDA57
		DDR0_DQ56	DDR0_DQ56	AG4	MDA61
		DDR0_DQ57	DDR0_DQ57	AE3	MDA58
		DDR0_DQ58	DDR0_DQ58	AE4	MDA59
		DDR0_DQ59	DDR0_DQ59	AG2	MDA60
		DDR0_DQ60	DDR0_DQ60	AG3	MDA56
(7) -SRASA	-SRASA	DDR0_DQ61	DDR0_DQ61	AE2	MDA62
(7) -SWEA	-SWEA	DDR0_DQ62	DDR0_DQ62	AE1	MDA63
		DDR0_DQ63	DDR0_DQ63	AE39	DQSA0
		DDR0_DQ64	DDR0_DQ64	AJ39	DQSA1
		DDR0_DQ65	DDR0_DQ65	AN39	DQSA2
		DDR0_DQ66	DDR0_DQ66	AV36	DQSA3
		DDR0_DQ67	DDR0_DQ67	AV5	DQSA4
		DDR0_DQ68	DDR0_DQ68	AP3	DQSA5
		DDR0_DQ69	DDR0_DQ69	AK3	DQSA6
		DDR0_DQ70	DDR0_DQ70	AF3	DQSA7
		DDR0_DQ71	DDR0_DQ71	AV32	DQSA0
		DDR0_DQ72	DDR0_DQ72	AE38	DQSA1
		DDR0_DQ73	DDR0_DQ73	AJ38	DQSA2
		DDR0_DQ74	DDR0_DQ74	AN38	DQSA3
		DDR0_DQ75	DDR0_DQ75	AJ36	DQSA4
		DDR0_DQ76	DDR0_DQ76	AW5	DQSA5
		DDR0_DQ77	DDR0_DQ77	AP2	DQSA6
		DDR0_DQ78	DDR0_DQ78	AK2	DQSA7
		DDR0_DQ79	DDR0_DQ79	AF2	DQSA7
		DDR0_DQ80	DDR0_DQ80	AU32	

HASWELL[10SC1-F01150-11R\_10SC1-F01150-12R]

# LGA1150 (B)

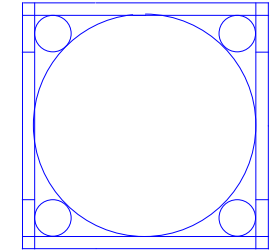
LGA1150B		DDR1_MA0	DDR1_DQ0	AE34	MDB0
MAAB0	AL19	DDR1_MA1	DDR1_DQ1	AE35	MDB1
MAAB1	AK23	DDR1_MA2	DDR1_DQ2	AG35	MDB2
MAAB2	AM23	DDR1_MA3	DDR1_DQ3	AH35	MDB3
MAAB3	AP23	DDR1_MA4	DDR1_DQ4	AD34	MDB4
MAAB4	AL23	DDR1_MA5	DDR1_DQ5	AD35	MDB5
MAAB5	AY24	DDR1_MA6	DDR1_DQ6	AG34	MDB6
MAAB6	AY25	DDR1_MA7	DDR1_DQ7	AH34	MDB7
MAAB7	AU26	DDR1_MA8	DDR1_DQ8	AL34	MDB8
MAAB8	AW26	DDR1_MA9	DDR1_DQ9	AL35	MDB9
MAAB9	AP18	DDR1_MA10	DDR1_DQ10	AL31	MDB11
MAAB10	AY25	DDR1_MA11	DDR1_DQ11	AK34	MDB12
MAAB11	AY26	DDR1_MA12	DDR1_DQ12	AK35	MDB13
MAAB12	AY28	DDR1_MA13	DDR1_DQ13	AK32	MDB14
MAAB13	AR15	DDR1_MA14	DDR1_DQ14	AL32	MDB15
MAAB14	AV27	DDR1_MA15	DDR1_DQ15	AL34	MDB17
MAAB15	AY28		DDR1_DQ16	AP34	MDB21
MODT_B0	AM17	DDR1_ODT0	DDR1_ODT0	AN31	MDB19
MODT_B1	AL16	DDR1_ODT1	DDR1_ODT1	AP31	MDB23
	AM16	DDR1_ODT2	DDR1_ODT2	AP35	MDB20
	AK15	DDR1_ODT3	DDR1_ODT3	AP35	MDB16
	AM26	DDR1_ECC0	DDR1_ECC0	AN32	MDB18
	AM25	DDR1_ECC1	DDR1_ECC1	AP32	MDB22
	AP25	DDR1_ECC2	DDR1_ECC2	AM29	MDB25
	AP26	DDR1_ECC3	DDR1_ECC3	AM28	MDB28
	AL26	DDR1_ECC4	DDR1_ECC4	AR29	MDB27
	AL25	DDR1_ECC5	DDR1_ECC5	AR28	MDB30
	AR26	DDR1_ECC6	DDR1_ECC6	AL28	MDB24
	AR25	DDR1_ECC7	DDR1_ECC7	AL28	MDB29
		DDR1_BA0	DDR1_DQ31	AP29	MDB26
		DDR1_BA1	DDR1_DQ32	AP28	MDB31
		DDR1_BA2	DDR1_DQ33	AR12	MDB32
(8) SBAB0	SBAB0	DDR1_DQ34	DDR1_DQ34	AL12	MDB35
(8) SBAB1	SBAB1	DDR1_DQ35	DDR1_DQ35	AR13	MDB36
(8) SBAB2	SBAB2	DDR1_DQ36	DDR1_DQ36	AP13	MDB37
(8) CKEB0	CKEB0	DDR1_DQ37	DDR1_DQ37	AM13	MDB38
(8) CKEB1	CKEB1	DDR1_DQ38	DDR1_DQ38	AM12	MDB39
		DDR1_DQ39	DDR1_DQ39	AR9	MDB45
		DDR1_DQ40	DDR1_DQ40	AP9	MDB41
(8) -CSB0	-CSB0	DDR1_DQ41	DDR1_DQ41	AR6	MDB47
(8) -CSB1	-CSB1	DDR1_DQ42	DDR1_DQ42	AP6	MDB43
		DDR1_DQ43	DDR1_DQ43	AR10	MDB44
		DDR1_DQ44	DDR1_DQ44	AP10	MDB40
		DDR1_DQ45	DDR1_DQ45	AR7	MDB46
		DDR1_DQ46	DDR1_DQ46	AP7	MDB42
		DDR1_DQ47	DDR1_DQ47	AM9	MDB52
		DDR1_DQ48	DDR1_DQ48	AL9	MDB53
		DDR1_DQ49	DDR1_DQ49	AL6	MDB50
		DDR1_DQ50	DDR1_DQ50	AL7	MDB55
		DDR1_DQ51	DDR1_DQ51	AM10	MDB48
		DDR1_DQ52	DDR1_DQ52	AL10	MDB49
		DDR1_DQ53	DDR1_DQ53	AM6	MDB54
		DDR1_DQ54	DDR1_DQ54	AM7	MDB51
		DDR1_DQ55	DDR1_DQ55	AH6	MDB61
		DDR1_DQ56	DDR1_DQ56	AH7	MDB60
		DDR1_DQ57	DDR1_DQ57	AE6	MDB59
		DDR1_DQ58	DDR1_DQ58	AE7	MDB63
		DDR1_DQ59	DDR1_DQ59	AJ6	MDB56
		DDR1_DQ60	DDR1_DQ60	AJ7	MDB57
		DDR1_DQ61	DDR1_DQ61	AG6	MDB58
		DDR1_DQ62	DDR1_DQ62	AF7	MDB62
		DDR1_DQ63	DDR1_DQ63	AF35	DQSB0
		DDR1_DQ64	DDR1_DQ64	AL33	DQSB1
		DDR1_DQ65	DDR1_DQ65	AP33	DQSB2
		DDR1_DQ66	DDR1_DQ66	AN28	DQSB3
		DDR1_DQ67	DDR1_DQ67	AN12	DQSB4
		DDR1_DQ68	DDR1_DQ68	AP8	DQSB5
		DDR1_DQ69	DDR1_DQ69	AL8	DQSB6
		DDR1_DQ70	DDR1_DQ70	AG7	DQSB7
		DDR1_DQ71	DDR1_DQ71	AN25	DQSB0
		DDR1_DQ72	DDR1_DQ72	AE34	DQSB1
		DDR1_DQ73	DDR1_DQ73	AK33	DQSB2
		DDR1_DQ74	DDR1_DQ74	AN33	DQSB3
		DDR1_DQ75	DDR1_DQ75	AN29	DQSB4
		DDR1_DQ76	DDR1_DQ76	AL13	DQSB4
		DDR1_DQ77	DDR1_DQ77	AR8	DQSB5
		DDR1_DQ78	DDR1_DQ78	AM8	DQSB6
		DDR1_DQ79	DDR1_DQ79	AG6	DQSB7
		DDR1_DQ80	DDR1_DQ80	AN26	



HASWELL[10SC1-F01150-11R\_10SC1-F01150-12R]

# LGA1150 (CR)

CR  
CPU RETENTION/X



LGA1150



ILM\_BP/1156/CSP/ILM\_BP/1156/CSP/[12KRC-0F0001-52R\_12KRC-0F0001-51R]

DDR BUS

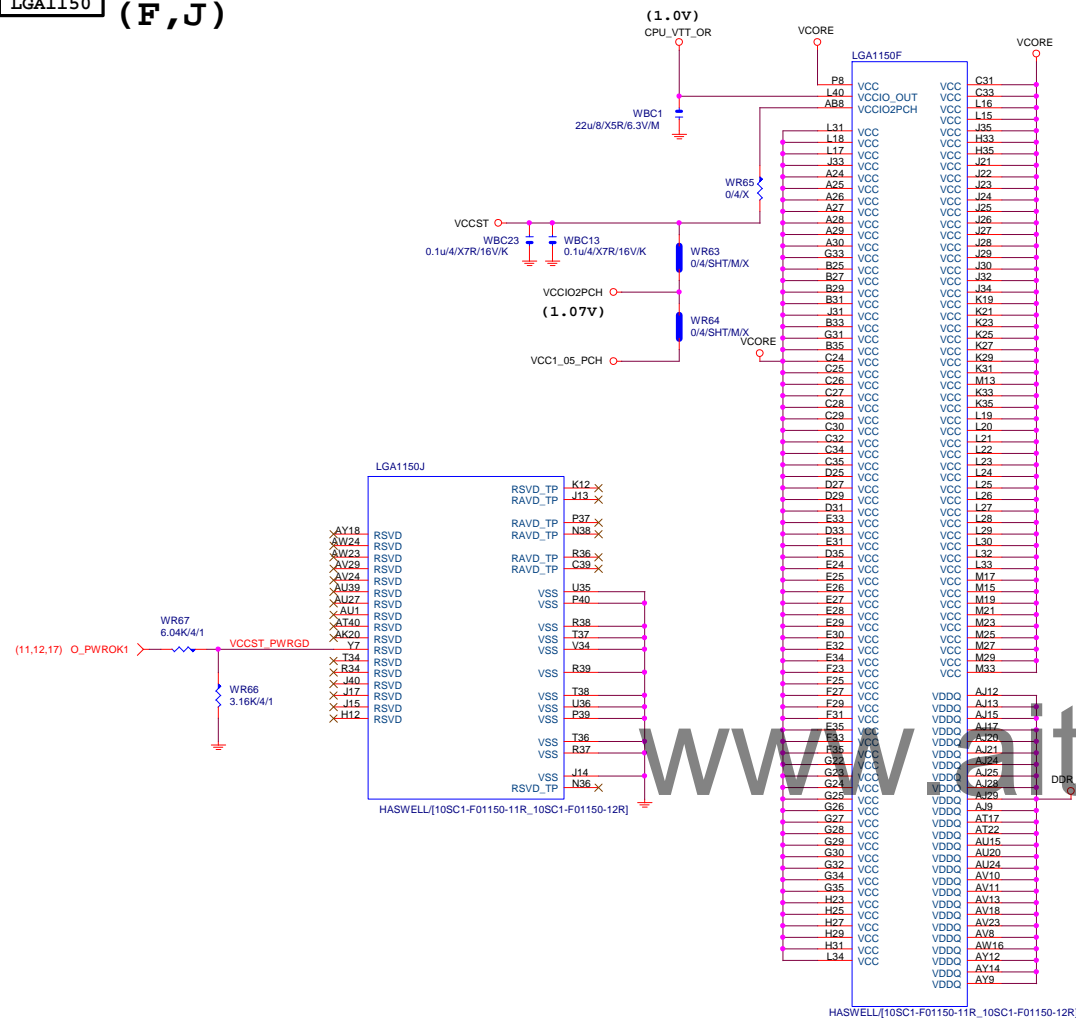
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(7) MDA[0..63]	MDA0..63
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(7) DQSA[0..7]	DQSA0..7
(7) -DQSA[0..7]	-DQSA0..7
(7) MAA[0..15]	MAA0..15
(8) MAB[0..15]	MAB0..15
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Gigabyte Technology

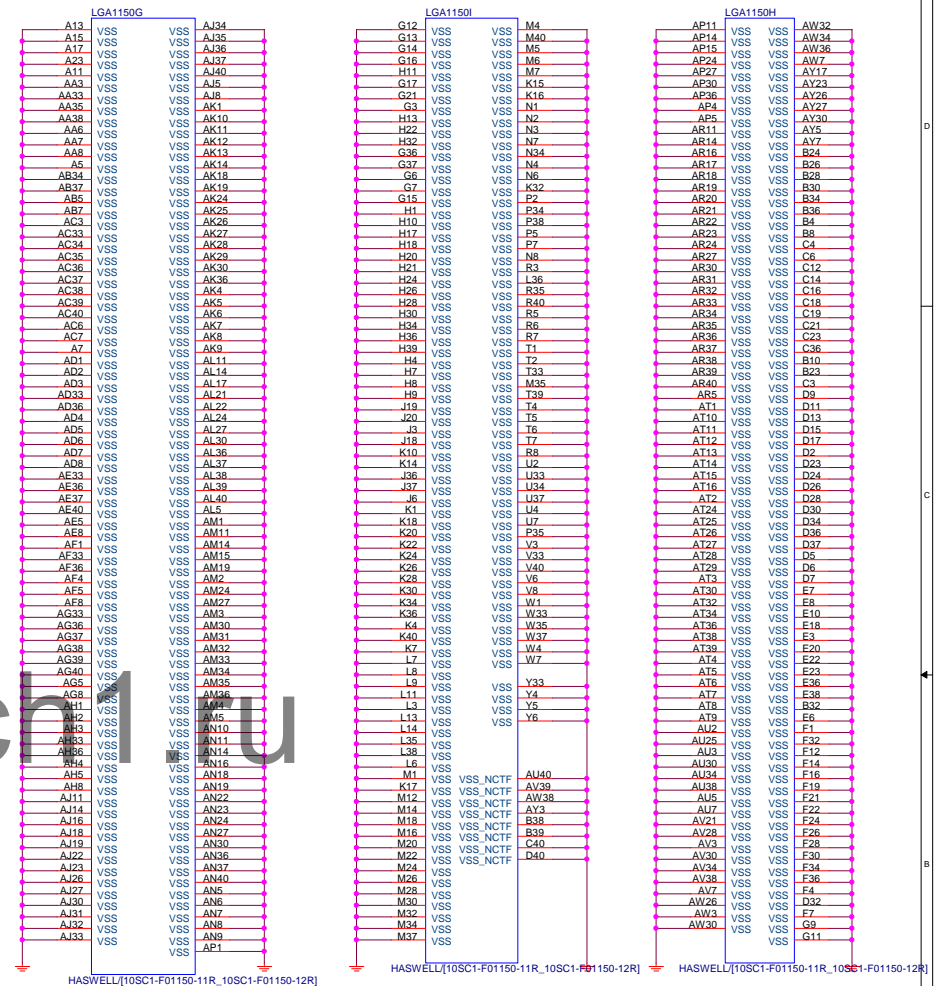
CPU LGA1150-B

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**LGA1150 (F,J)**

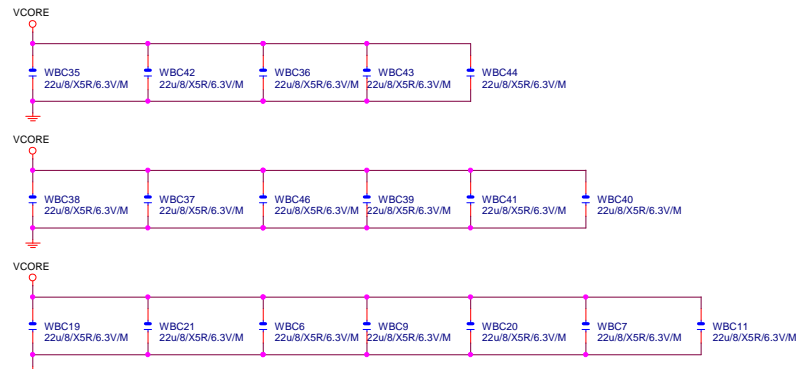


LGA1155 (G,H,I)



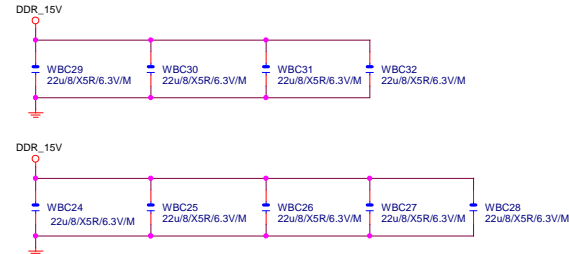
## VCore CAP

(X18)



## DDR CAP

(x9)



## Gigabyte Technology

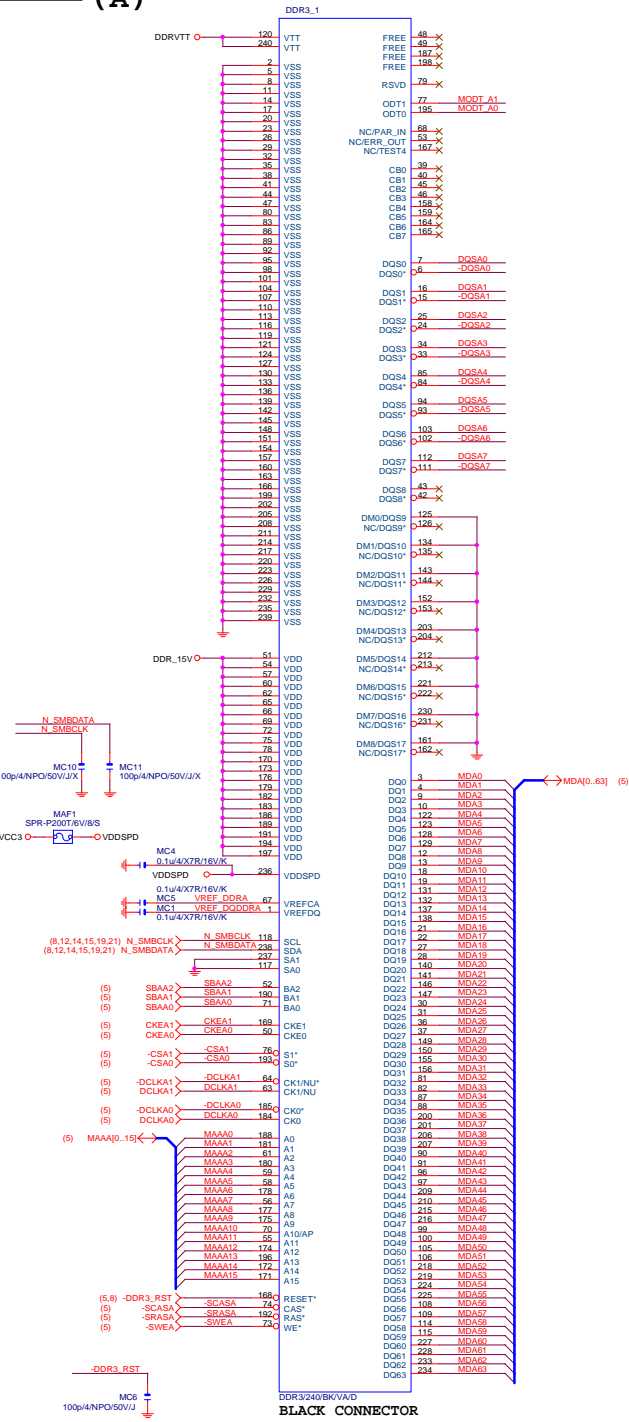
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DDR3

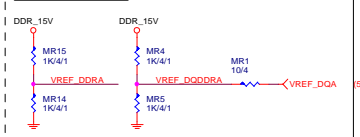
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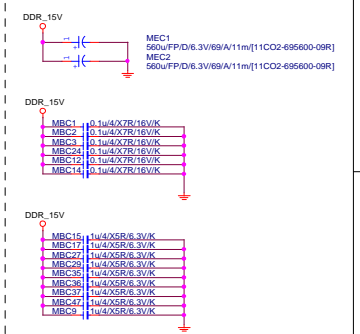
BLACK CONNECTOR

MODT\_A0[0..1] (5)  
DQSA0[0..7] (5)  
DQSA0[7] (5)

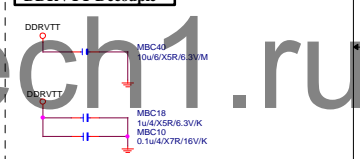
DDR3 VREF



DDR15V Decouple



DDRVT Decouple



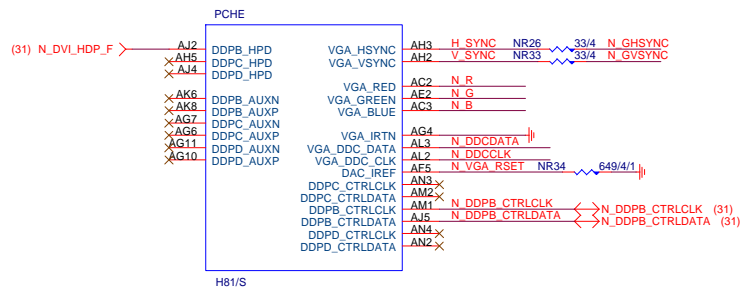
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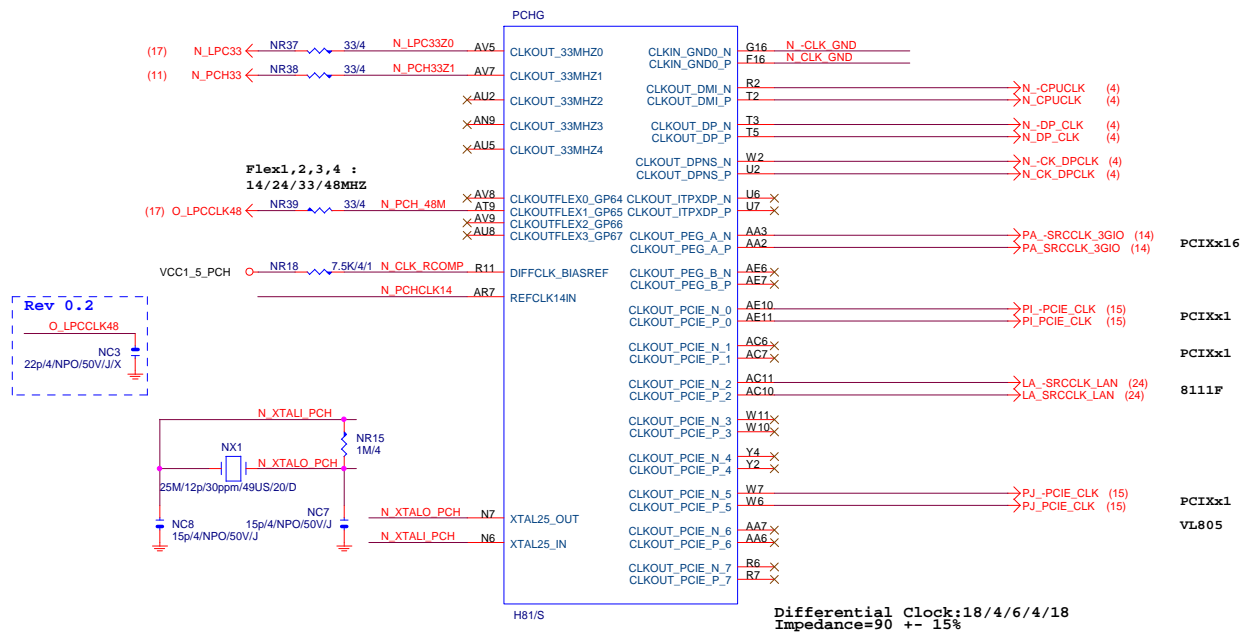




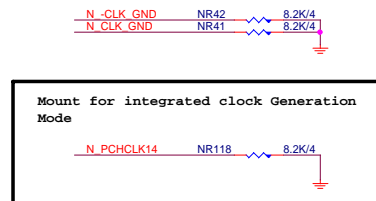
**PCH (E)**



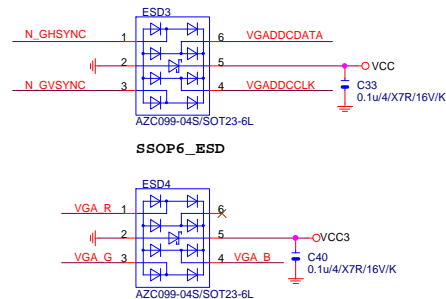
**PCH (G)**



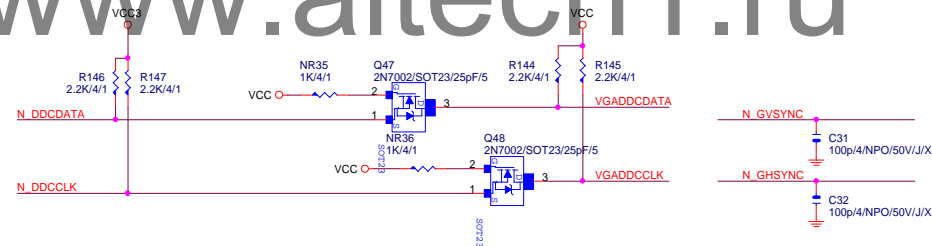
PCH CLK PD
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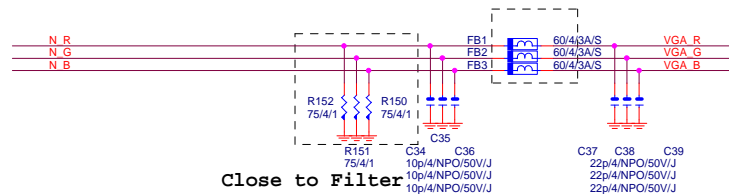
## VGA ESD



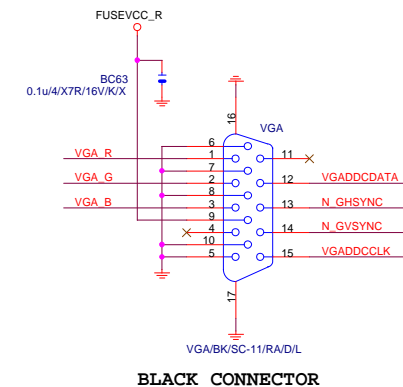
## VGA DDC



## VGA DDC



## VGA CONNECTOR



## Gigabyte Technology

### PCH DISPLAY ,CLK BUFFER

**GA-H81M-DS2V**

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SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%  
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%

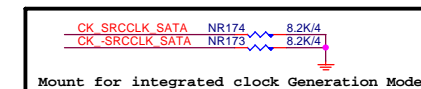


Figure 1 shows the pin connections for three different components: 82K8B/P4R4, 82K8B/P4R4, and 82K8B/P4R4. The connections are as follows:

- 82K8B/P4R4 (NRN2):**
  - N-PIRQC to Pin 1
  - N-PIRQH to Pin 2
  - N-PIROD to Pin 5
  - N-PIRQB to Pin 7
  - VCC3 to Pin 4
- 82K8B/P4R4 (NRN3):**
  - N-PIRQE to Pin 1
  - N-PIROF to Pin 2
  - N-PIROA to Pin 5
  - N-PIRQG to Pin 7
  - VCC3 to Pin 4
- 82K8B/P4R4 (NRN7):**
  - N-GPIO6 to Pin 1
  - N-GPIO17 to Pin 2
  - N-GPIO52 to Pin 5
  - N-GPIO50 to Pin 7
  - VCC3 to Pin 4
- NR160:**
  - N-GPIO55 to Pin 1
  - 1K/4/1/X resistor to Pin 1
- NR55:**
  - N-GPIO51 to Pin 1
  - 1K/4/1/X resistor to Pin 1
- NR53:**
  - N-GPIO53 to Pin 1
  - 1K/4/1/X resistor to Pin 1

**SATA3\_0**  
**SATA2/7/WH/H/OP/VA/D/1/B/PA66**  
**WHITE CONNECTOR**

**SATA3\_1**  
**SATA2/7/WH/H/OP/VA/D/1/B/PA66**  
**WHITE CONNECTOR**

The diagram shows two identical pinout configurations for SATA2\_2 and SATA2\_3 connectors. Each connector has 7 pins:

- SATA2\_2 / SATA2\_7 BK/H/OP/V/A/D/I/B:**
  - NC45: 0.01uW/4X7R/25V/K
  - NC46: 0.01uW/4X7R/25V/K
  - NC47: 0.01uW/4X7R/25V/K
  - NC48: 0.01uW/4X7R/25V/K
  - N SATA4TXP: Pin 1
  - N SATA4TXN: Pin 2
  - N SATA4RXN: Pin 3
  - N SATA4RXP: Pin 4
  - GND: Pin 5
  - T+: Pin 6
  - R+: Pin 7
- SATA2\_3 / SATA2\_7 BK/H/OP/V/A/D/I/B:**
  - NC57: 0.01uW/4X7R/25V/K
  - NC56: 0.01uW/4X7R/25V/K
  - NC55: 0.01uW/4X7R/25V/K
  - NC54: 0.01uW/4X7R/25V/K
  - N SATA5TXP: Pin 1
  - N SATA5TXN: Pin 2
  - N SATA5RXN: Pin 3
  - N SATA5RXP: Pin 4
  - GND: Pin 5
  - T+: Pin 6
  - R+: Pin 7

(4) N\_GPIO38 NR114 8.2K/4/X

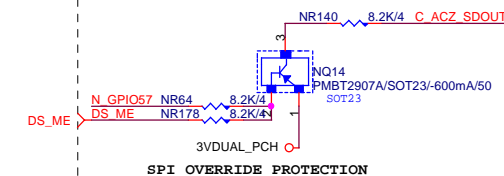
# PCH (D)

(17) N\_LAD[0..3] <- N\_LAD[0..3]

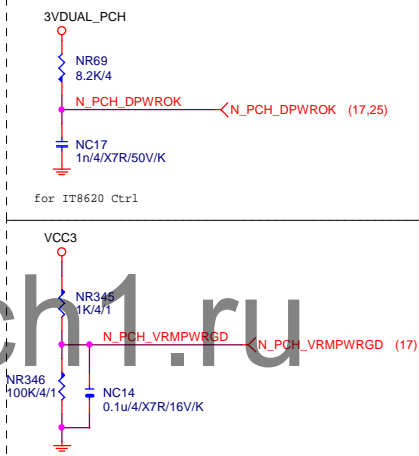
PCHD



## ACZ\_SDOUT



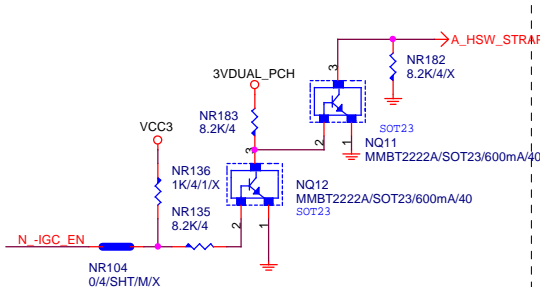
## PCH\_DPWROK



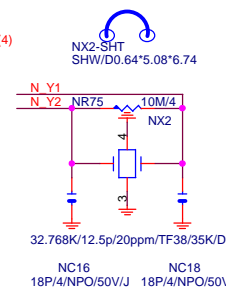
## PCH PU/PD



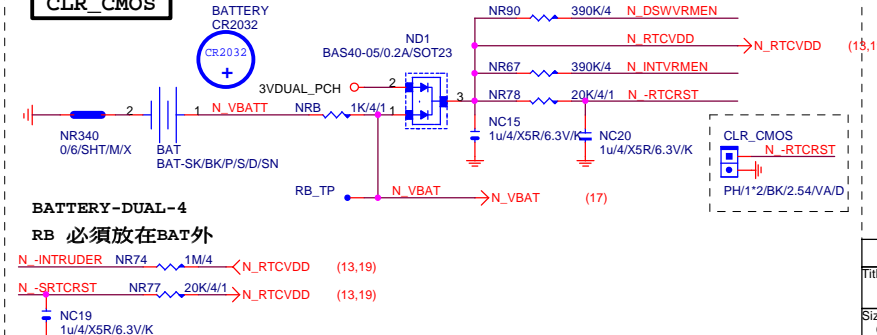
## HSW\_STRAP13



## 32.768KHZ



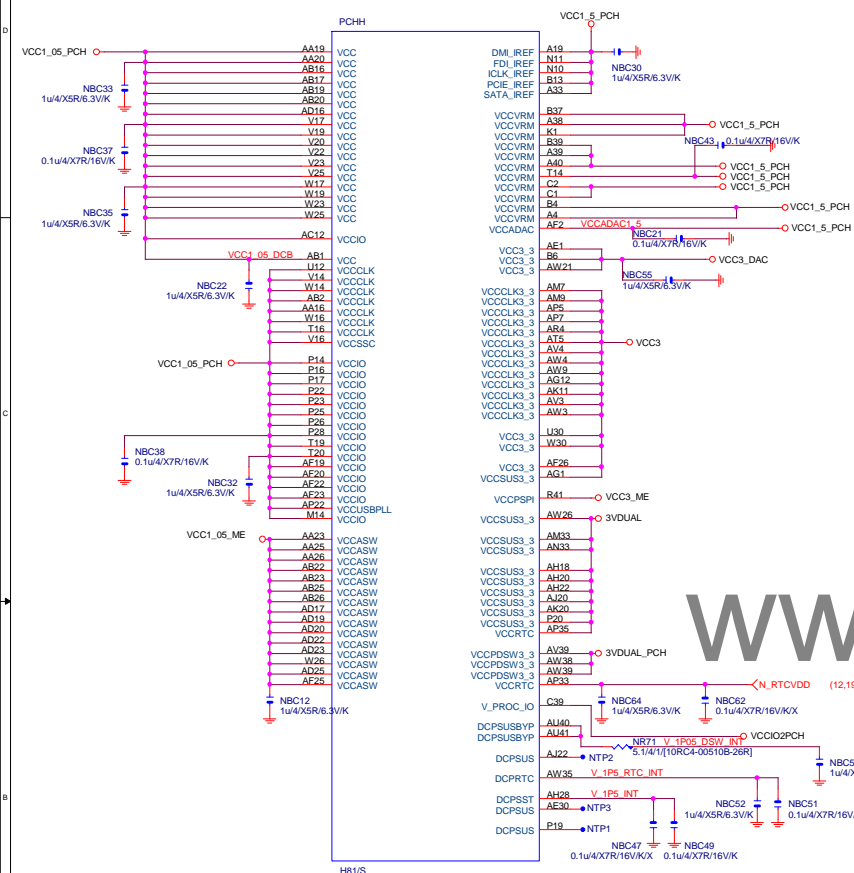
## CLR\_CMOS



## Gigabyte Technology

Title			
PCH GPIO , CTRL , AUDIO			
Size	Document Number	Rev	
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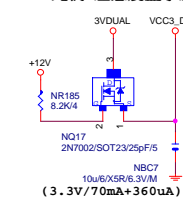
**PCH (H)**



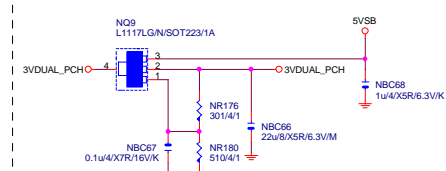
**PCH (I)**



## VCC3\_DAC



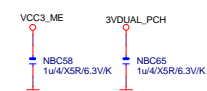
## 3VDUAL\_PCH



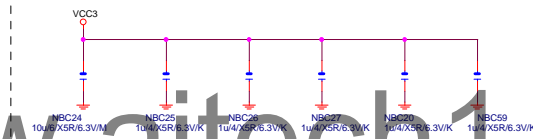
SHT PWR



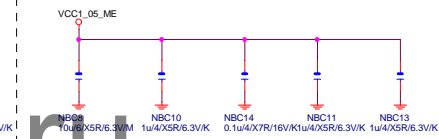
## CAP



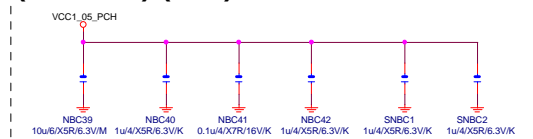
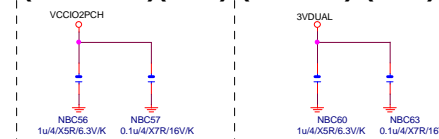
( 3.3V ) ( X6 )



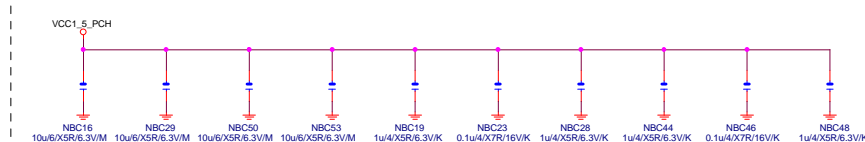
(1.05V) (x5)



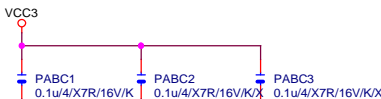
(1.05V)(x6)


$$(1.05V)(x_2) - (3.3V)(x_2)$$


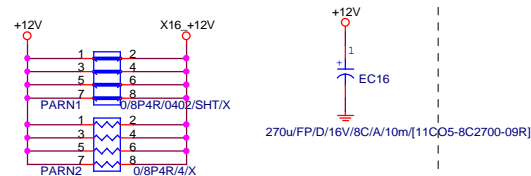
**(1.05V) (x10)**



## PCIEX16 CAP



PCIEX16	PROTECT	SHT
---------	---------	-----



PCIEX16	AC	CAP
---------	----	-----

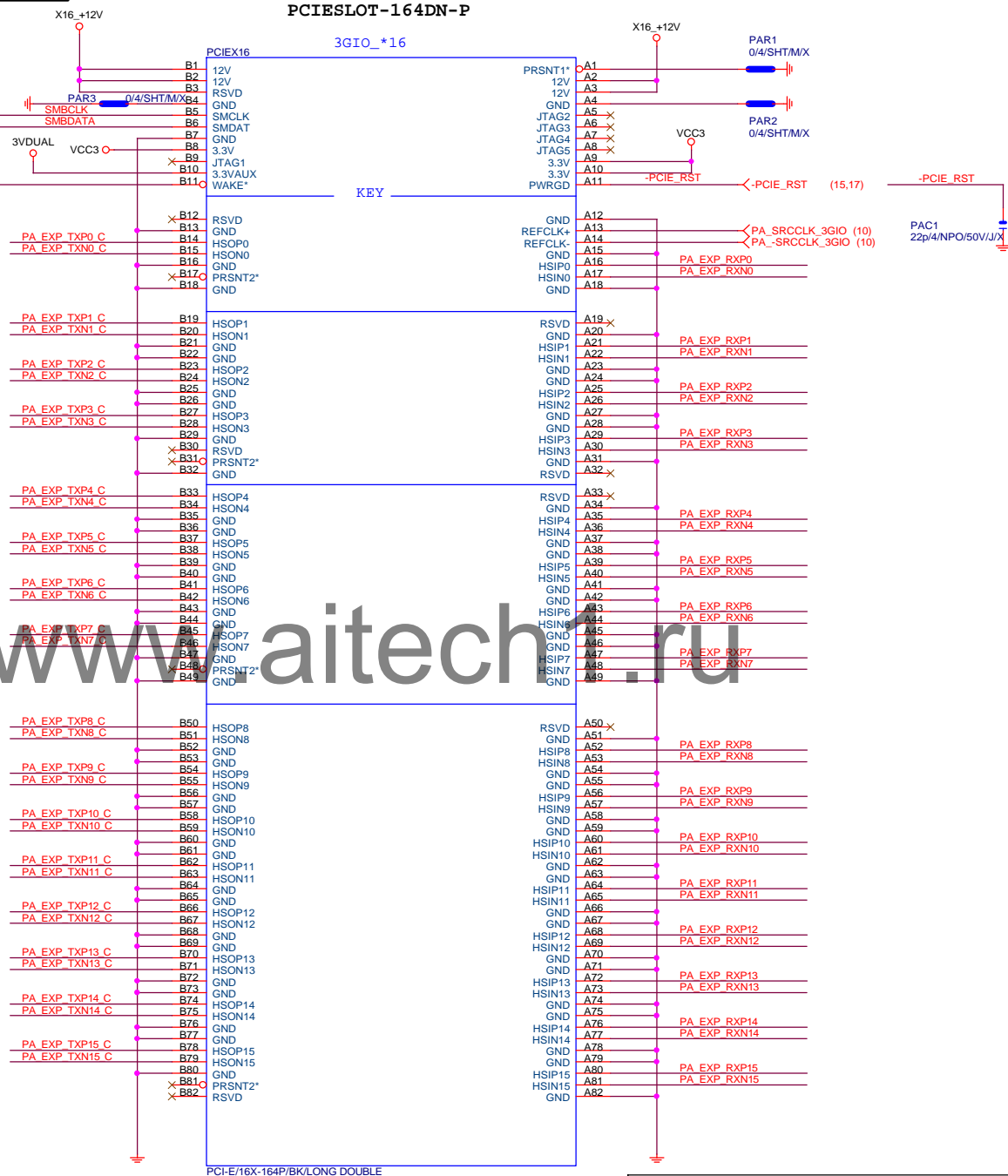
PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXN15 C

PA\_EXP\_RXP[0..15] >> PA\_EXP\_RXP[0..15] (4)  
PA\_EXP\_RXN[0..15] >> PA\_EXP\_RXN[0..15] (4)  
PA\_EXP\_TXP[0..15] >> PA\_EXP\_TXP[0..15] (4)  
PA\_EXP\_TXN[0..15] >> PA\_EXP\_TXN[0..15] (4)

The auxillary reset circuit is only required for PCIe Gen3 margining and functional link training

## PCIEX16 SLOT

## PCIESLOT-164DN-P



PCI-E/16X-164P/BK/LONG DOUBLE

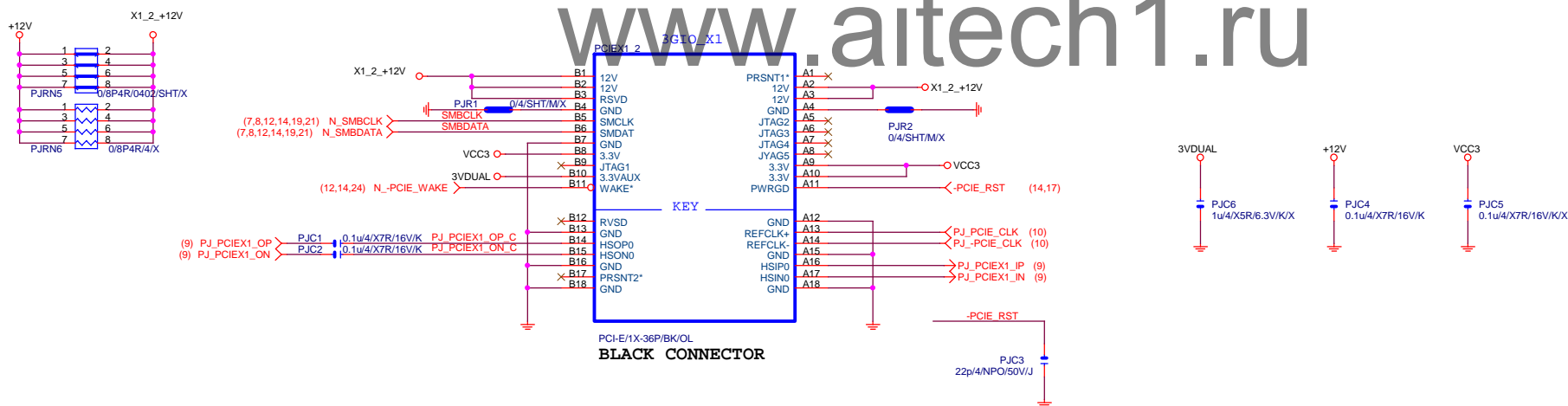
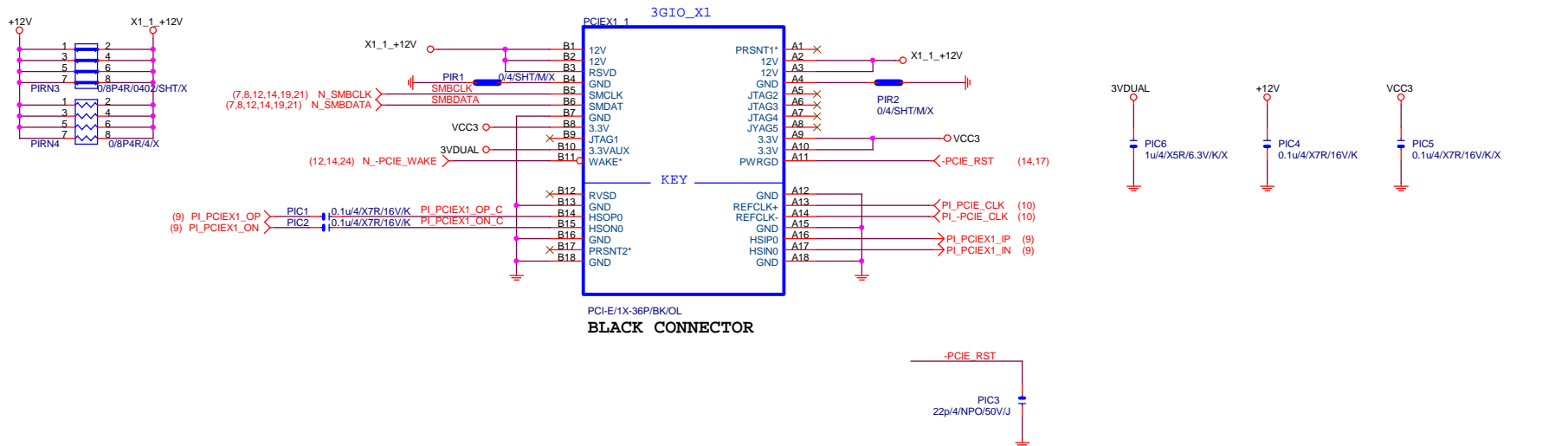
**BLACK CONNECTOR**

## Gigabyte Technology

Title			
PCI EXPRESS * 16			
Size	Document Number		Rev
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# PCIEX1 SLOT



**Gigabyte Technology**

Title		
PCI EXPRESS X 1 PORT		
Size	Document Number	Rev
Custom	GA-H81M-DS2V	1.02
Date:	Thursday, December 19, 2013	Sheet 15 of 33

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Gigabyte Technology			
Title			
PCI SLOT 1&2			
Size	Document Number		Rev
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COM

COM RI

USB30\_20

USB30\_20 PWR

KB/MS



## USB3.0 ESD

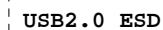
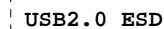
## USB2.0 PWR

FUSE-0805

KB MS USB 2-Port 2.0A



KB/MS ESD



USB POWER PROTECT

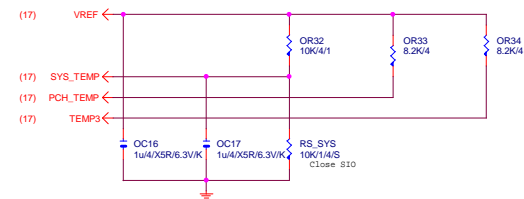


Title	COM,-RI,KB_USB,USB_ESATA,-PROCHOT
-------	-----------------------------------

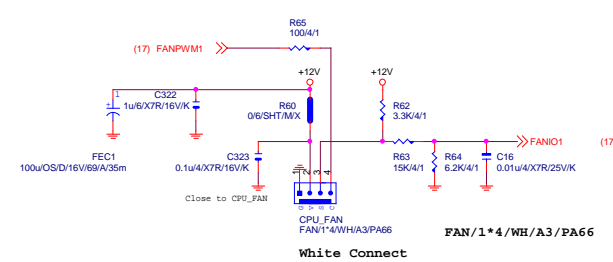
Size	Document Number	GA-H81M-DS2V	Rev
Custom			1.02

Date: Thursday, December 19, 2013 Sheet 18 of 33

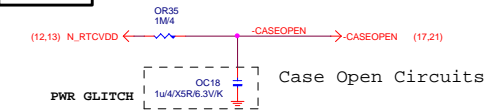
## TEMP H/W MONITOR



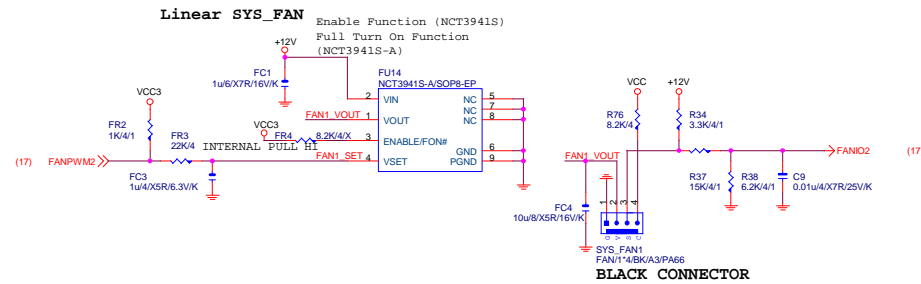
## CPU SMART FAN



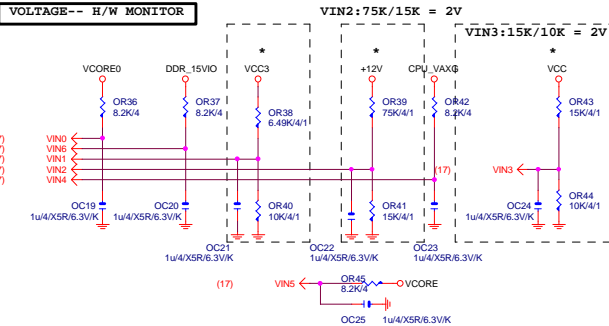
## CASE OPEN



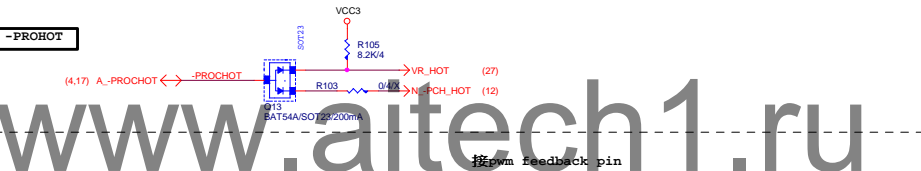
## SYS SMART FAN



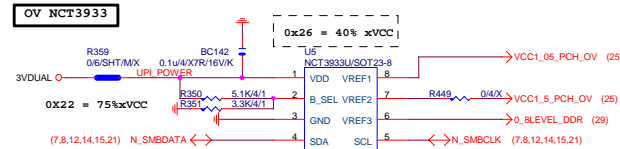
VOLTAGE-- H/W MONITOR



-PROHOT

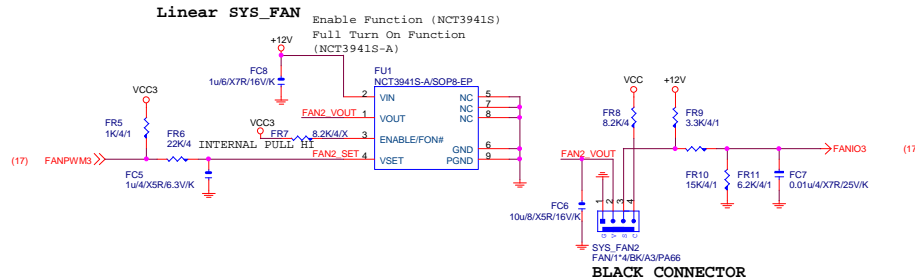


OV NCT3933



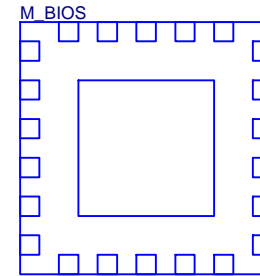
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Linear SYS\_FAN



## Gigabyte Technology

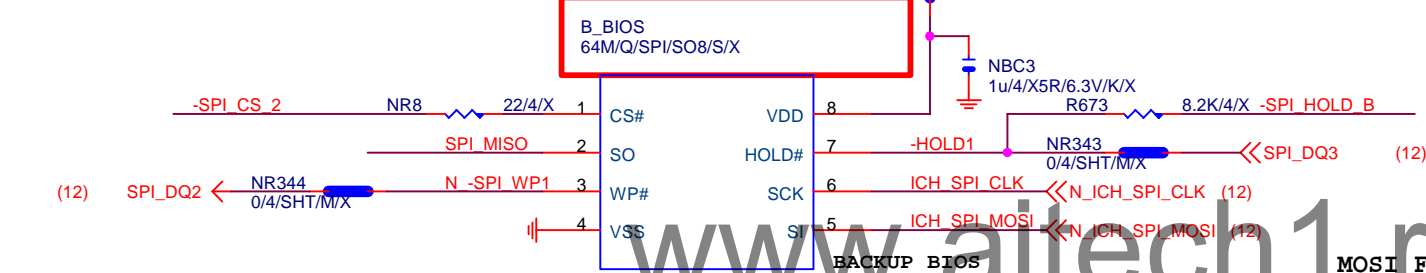
Title			
HWM,FAN CTRL,OV			
Size	Document Number		Rev
Custom	GA-H81M-DS2V		1.0
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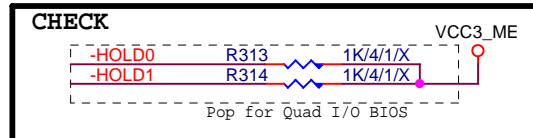
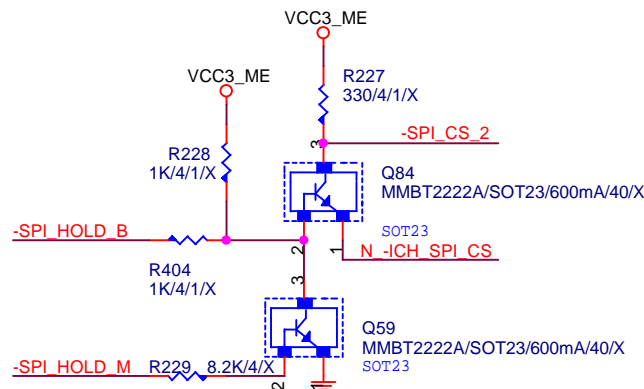
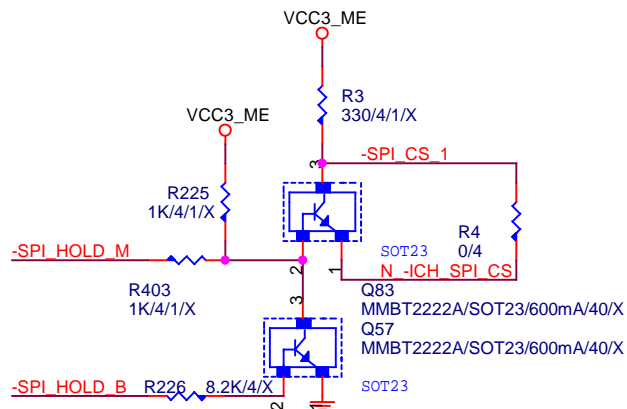
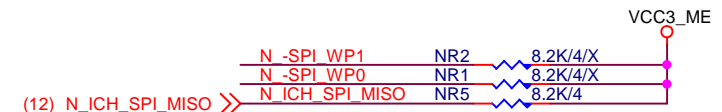
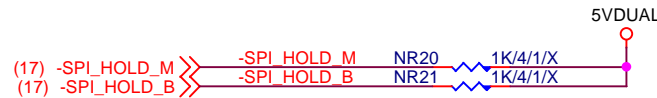
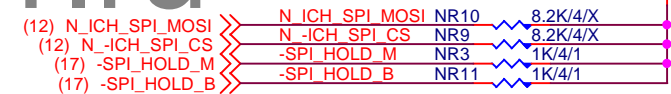
LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X

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

1 means floating  
0 means PD 1K



MOSI For DMI RX Termination Voltage



Gigabyte Technology

DUAL BIOS

GA-H81M-DS2V

Rev  
1.02

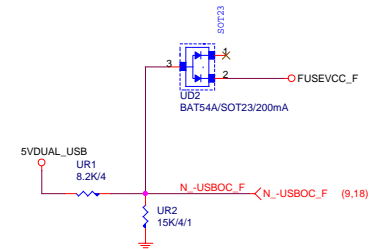
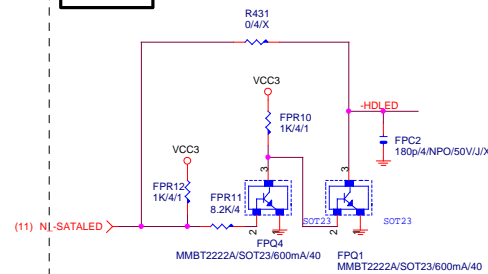
Title	GA-H81M-DS2V		Rev
Size	Document Number	GA-H81M-DS2V	1.02
Custom	Thursday, December 19, 2013		Sheet 20 of 33

## F\_USB30

## F\_USB30 PWR

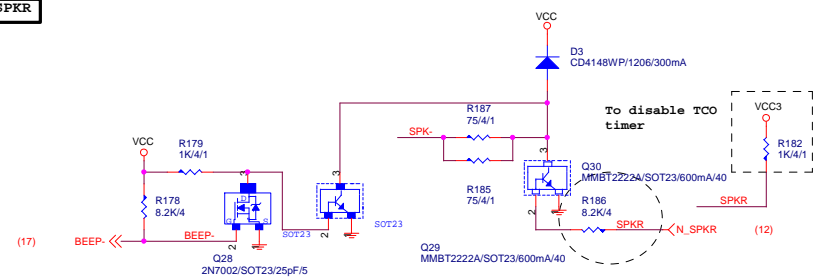
## SATA LED

## -USB0C\_F



## F\_USB30 ESD PROTECT

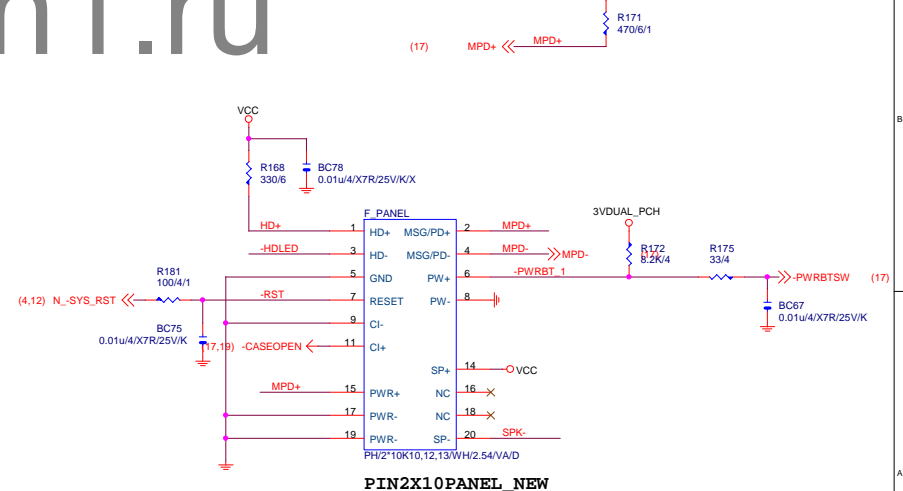
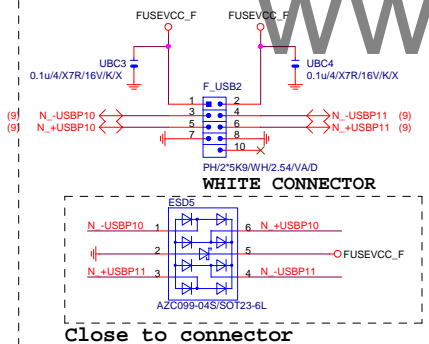
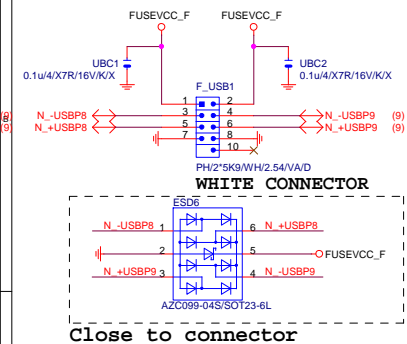
## SPKR



## FRONT USB1

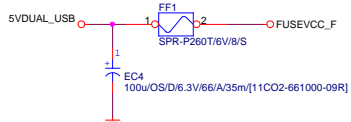
## FRONT USB2

## INTEL FRONT PANEL



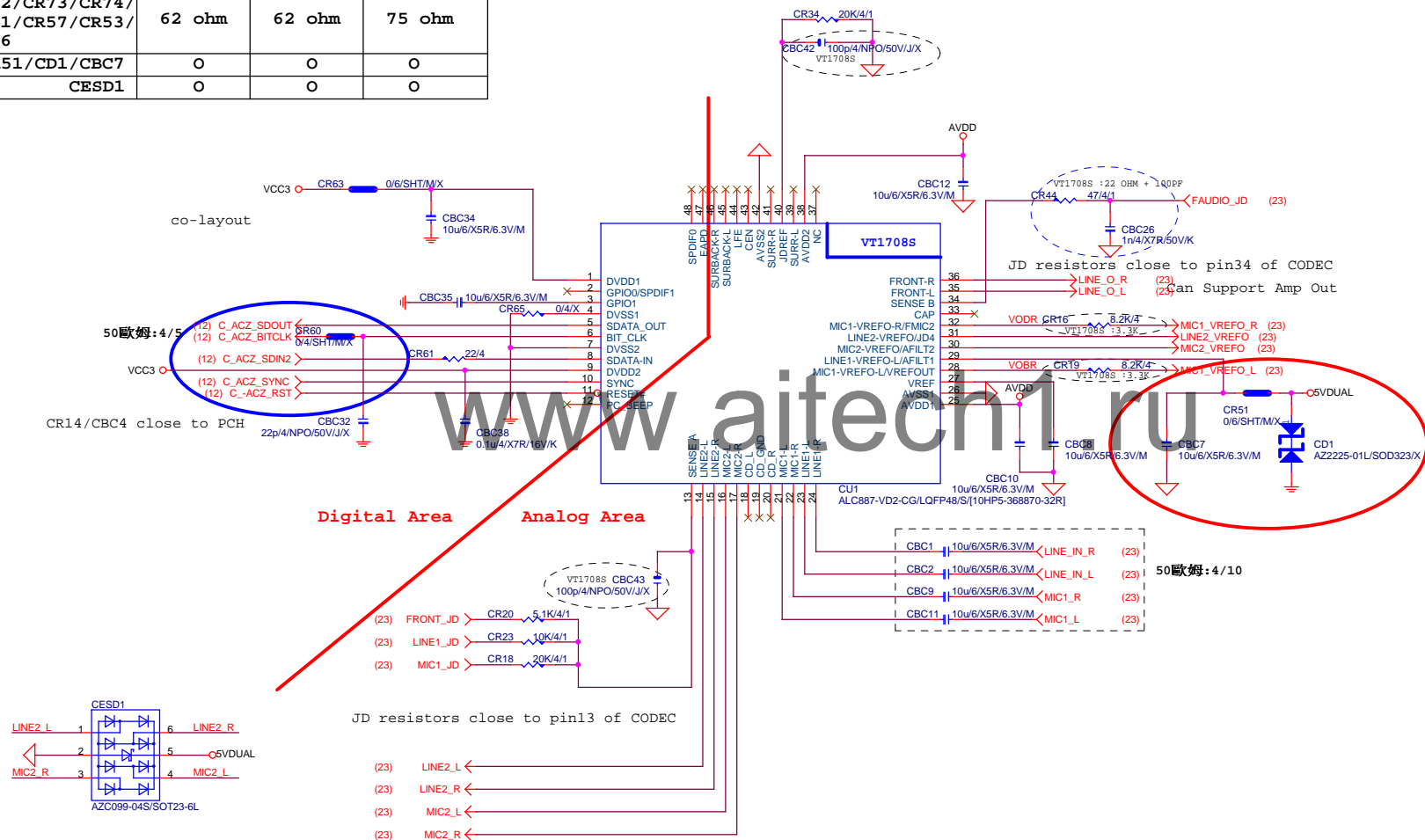
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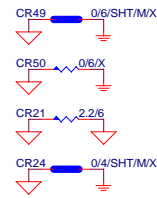
**FUSE-0805**  
**F\_USB1, F\_USB2 4-Port 2.6A**



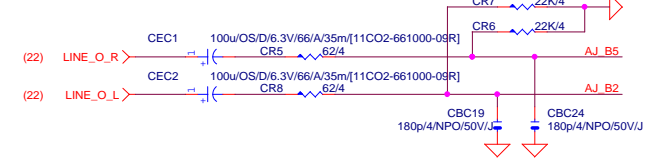
Gigabyte Technology			
FP,F_USB,USB PWR,SPKR,SATA LED			
Size	Document Number	GA-H81M-DS2V	
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	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	O	O	O





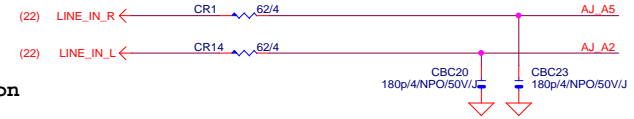
## LINE-OUT



## LINE-IN

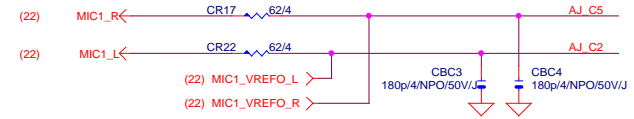
Verify MIC function  
in LINE-in

Only reserved for ALC888



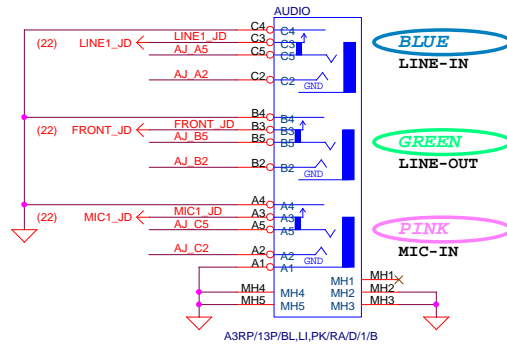
For 889A/888

## MIC-IN

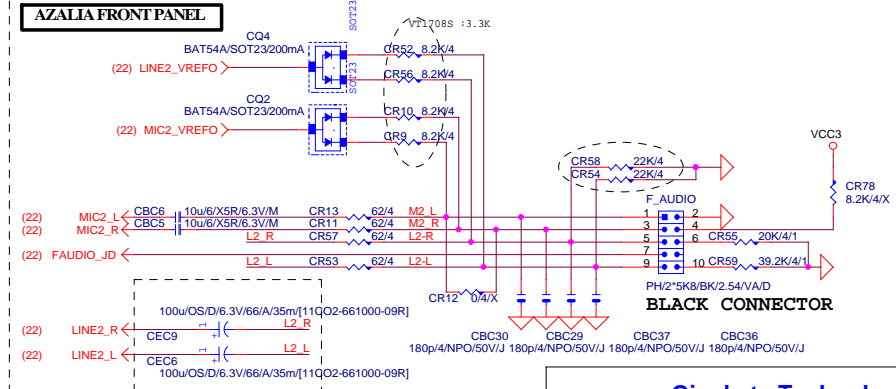


## SPDIF\_OUT

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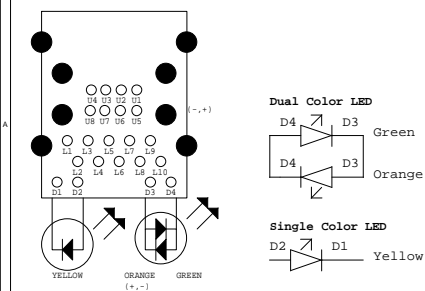
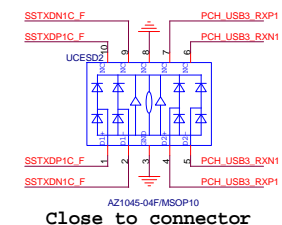
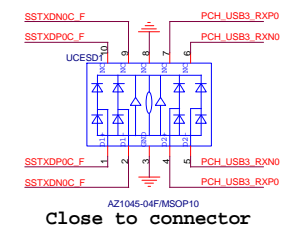
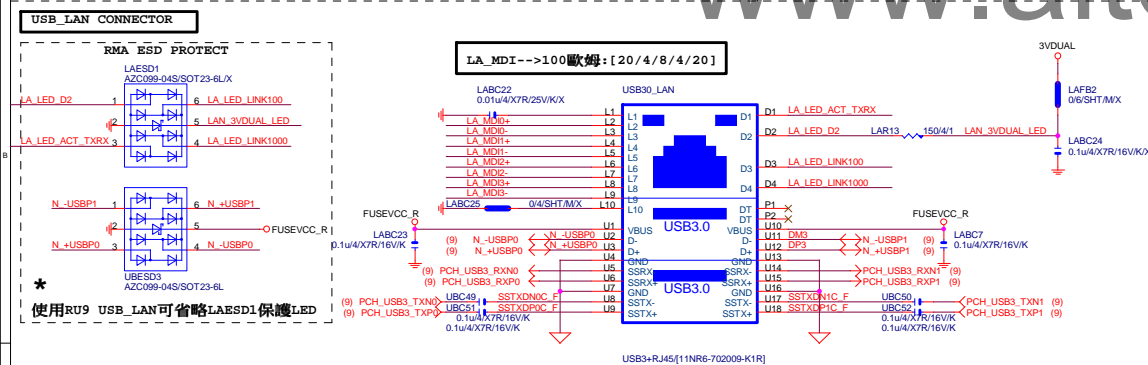
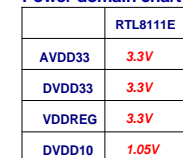
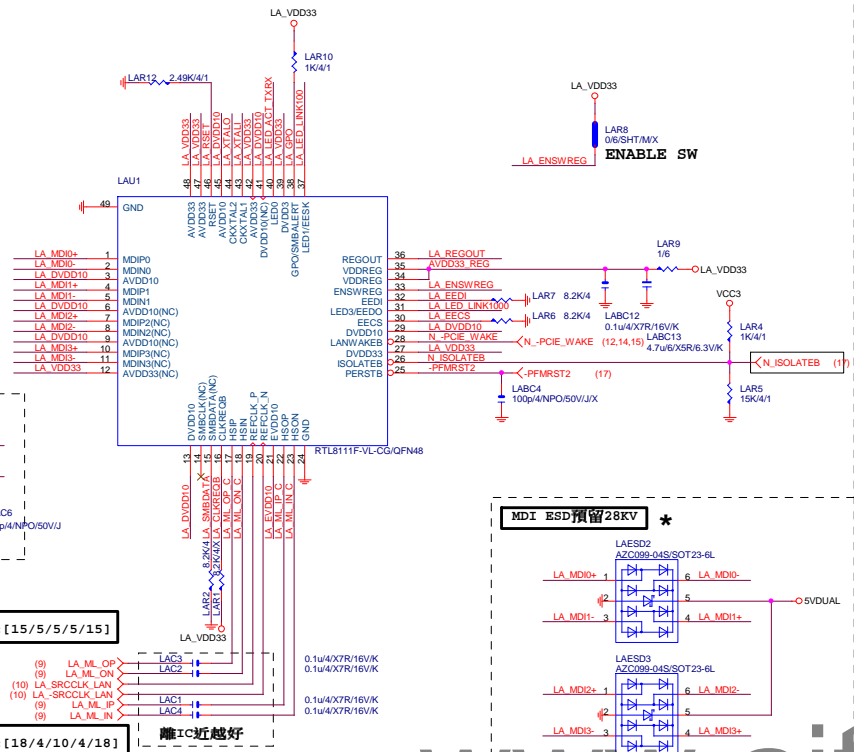


## AZALIA FRONT PANEL



Gigabyte Technology

Title			
AUDIO JACK			
Size	Document Number	GA-H81M-DS2V	
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注意:USB PORT(目前:暫代6,7PORT)  
USB-->90歐姆:[15/4.5/7.5/4.5/15]


BOM NOTICE \*

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)
[LED獨立走線,可省略外加AZC099料件LAESD1]		

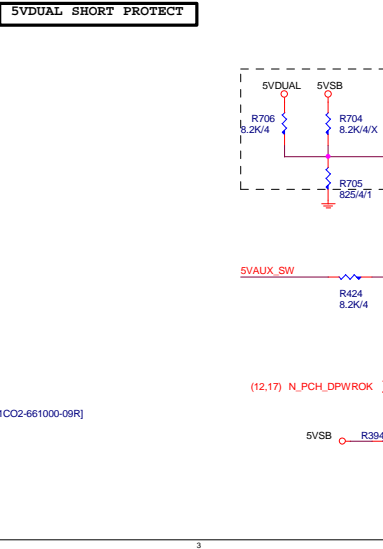
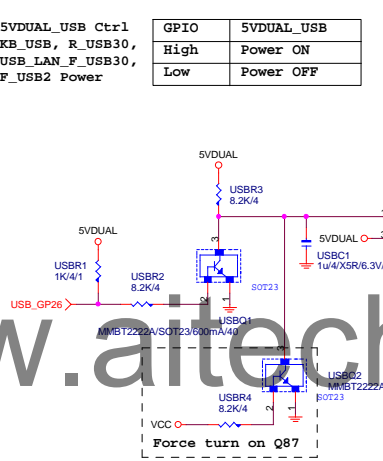
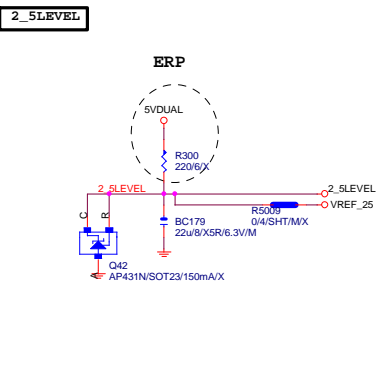
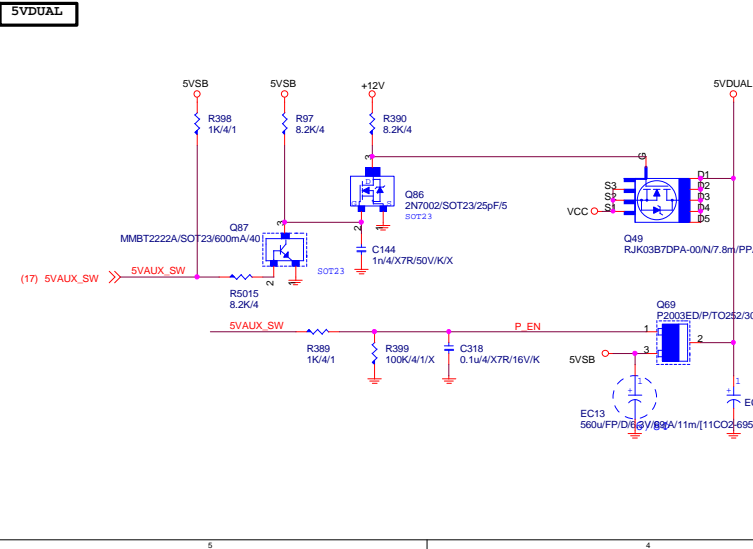
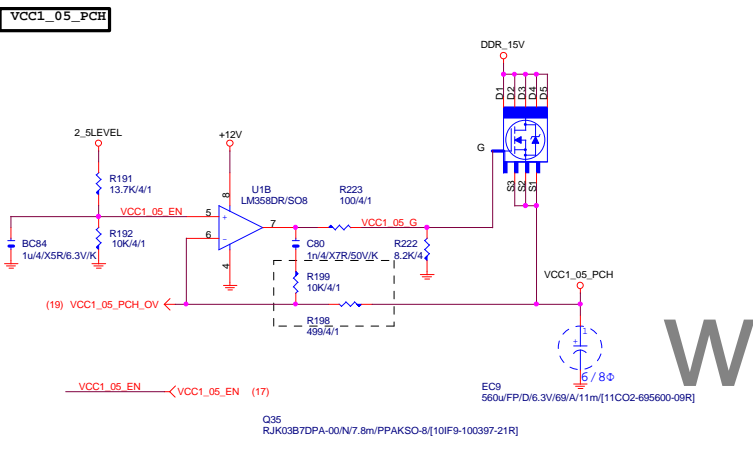
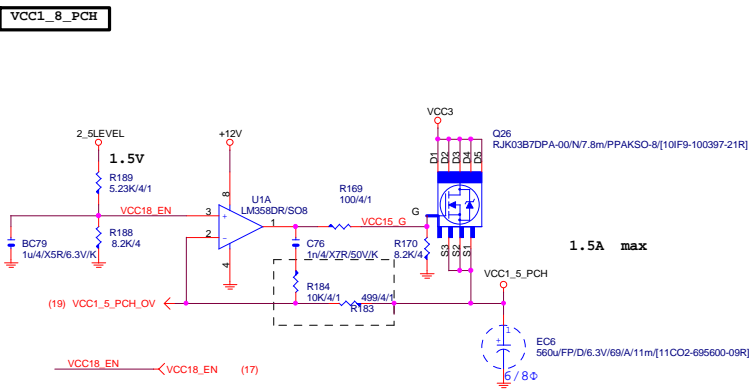
1. 9KV ESD BOM:  
USB\_LAN (RU9):11NR6-702009-96R

2. 28KV ESD BOM:  
USB\_LAN (RU9):11NR6-702009-96R  
LAESD2, LAESD3: 上件:AZC398-04S

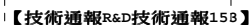
## Gigabyte Technology

			
Title			
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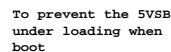




## 【技術通報R&amp;D技術通報155】

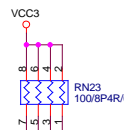


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## 【技術通報R&amp;D技術通報154】



## Gigabyte Technology

## ATX CONNECTOR

GA-H81M-DS2V

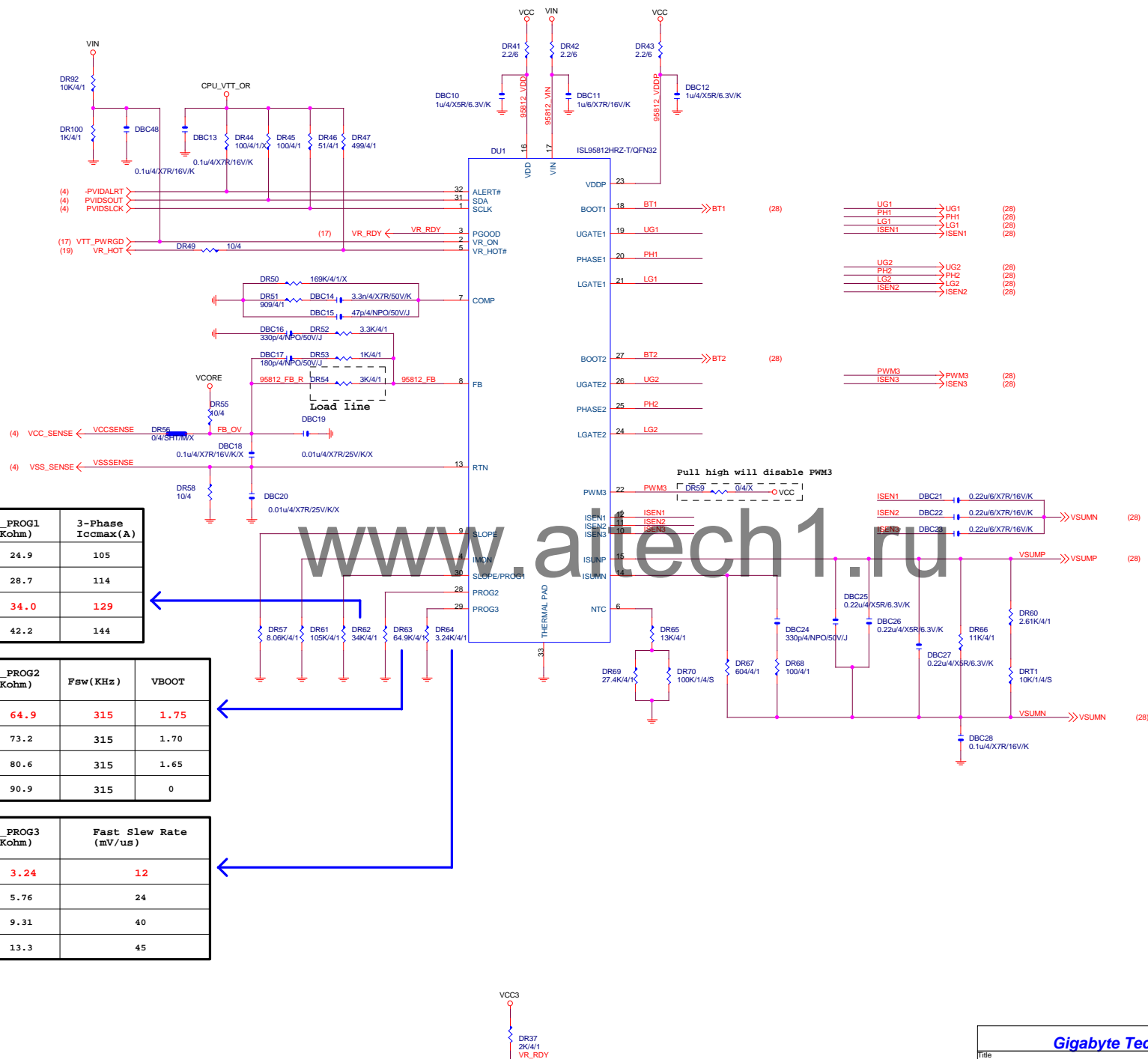
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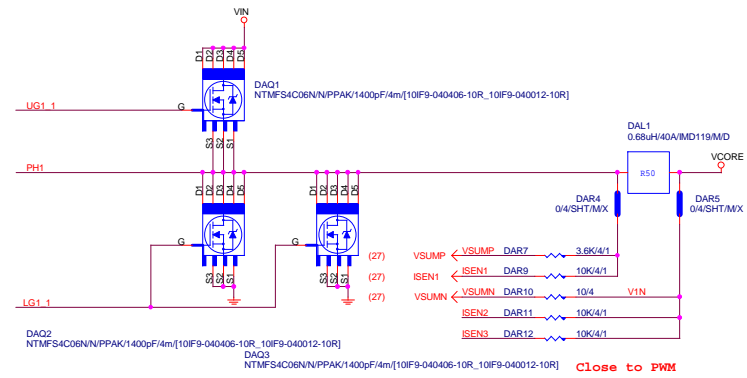
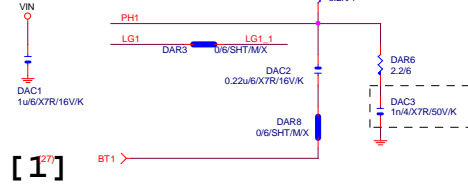
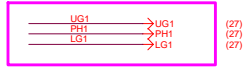
R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

R_PROG2 (Kohm)	Fsw(KHz)	VBOOT
64.9	315	1.75
73.2	315	1.70
80.6	315	1.65
90.9	315	0

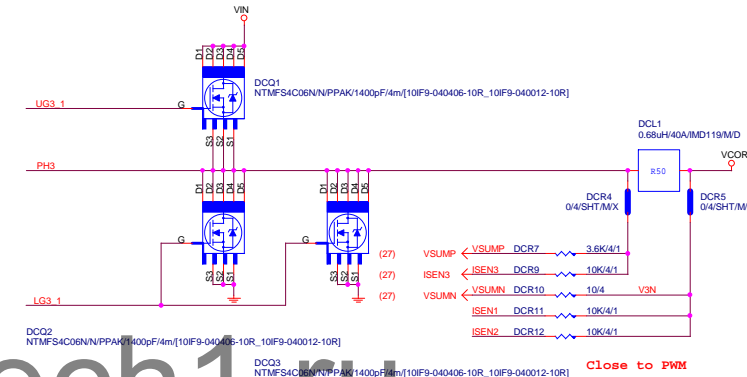
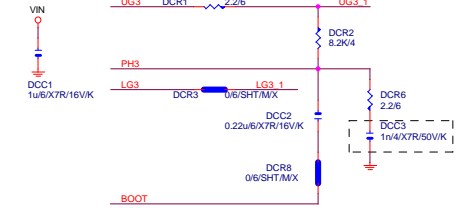
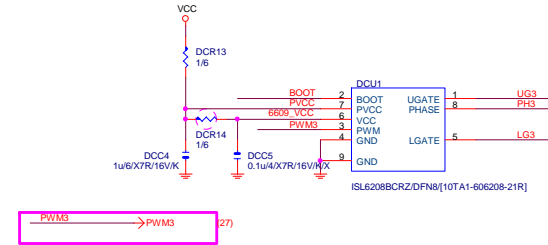
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45



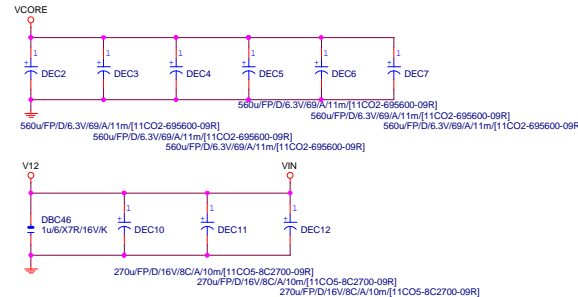
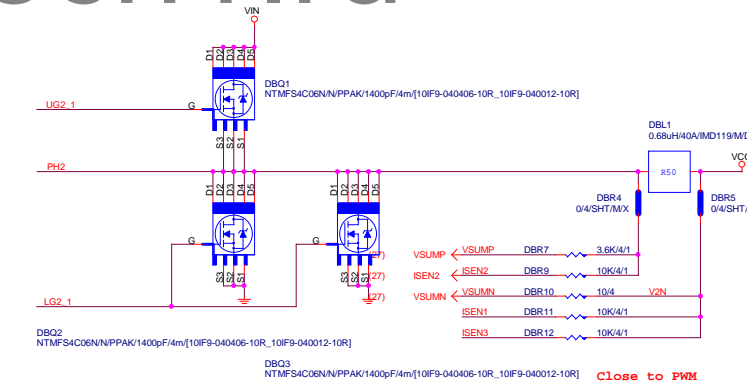
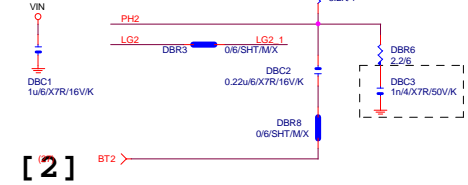
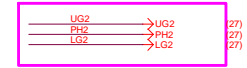
# PHASE 1



# PHASE 3



# PHASE 2



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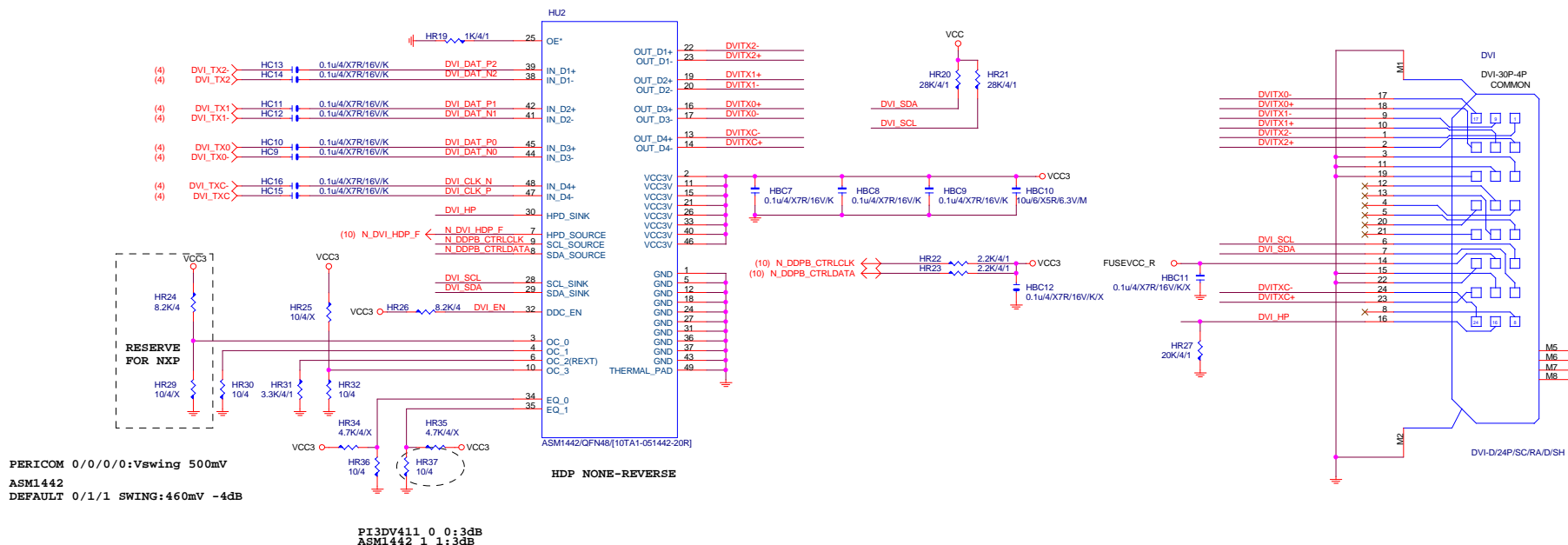
【技術通報R&D技術通報156】  
(RICHTEK), (NUVOTON), (EMC)做共用  
PIN7分壓阻值須做修改為100K以上電阻值

VCC3\_ME

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## DVI LEVEL SHIFT



## HDMI LEVEL SHIFT

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