

Model Name: GA-B85M-DASH

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,Reserved
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS X16 SLOT
15	PCI EXPRESS X4 / X1 SLOT
16	PCI SLOT
17	ITE 8728 LPC IO
18	KB_MS_USB, R_USB3.0
19	HWM,FAN CTRL,-PROCHOT
20	BIOS,TPM
21	FP,FUSB,SPK,SATALED
22	REALTEK CODEC ALC887
23	REAR AUDIO JACK
24	Realtek LAN RTL8111EP/8111F-VL
25	DISCRETE POWER
26	ATX, M3 POWER
27	VCORE ISL95812_1

SHEET TITLE

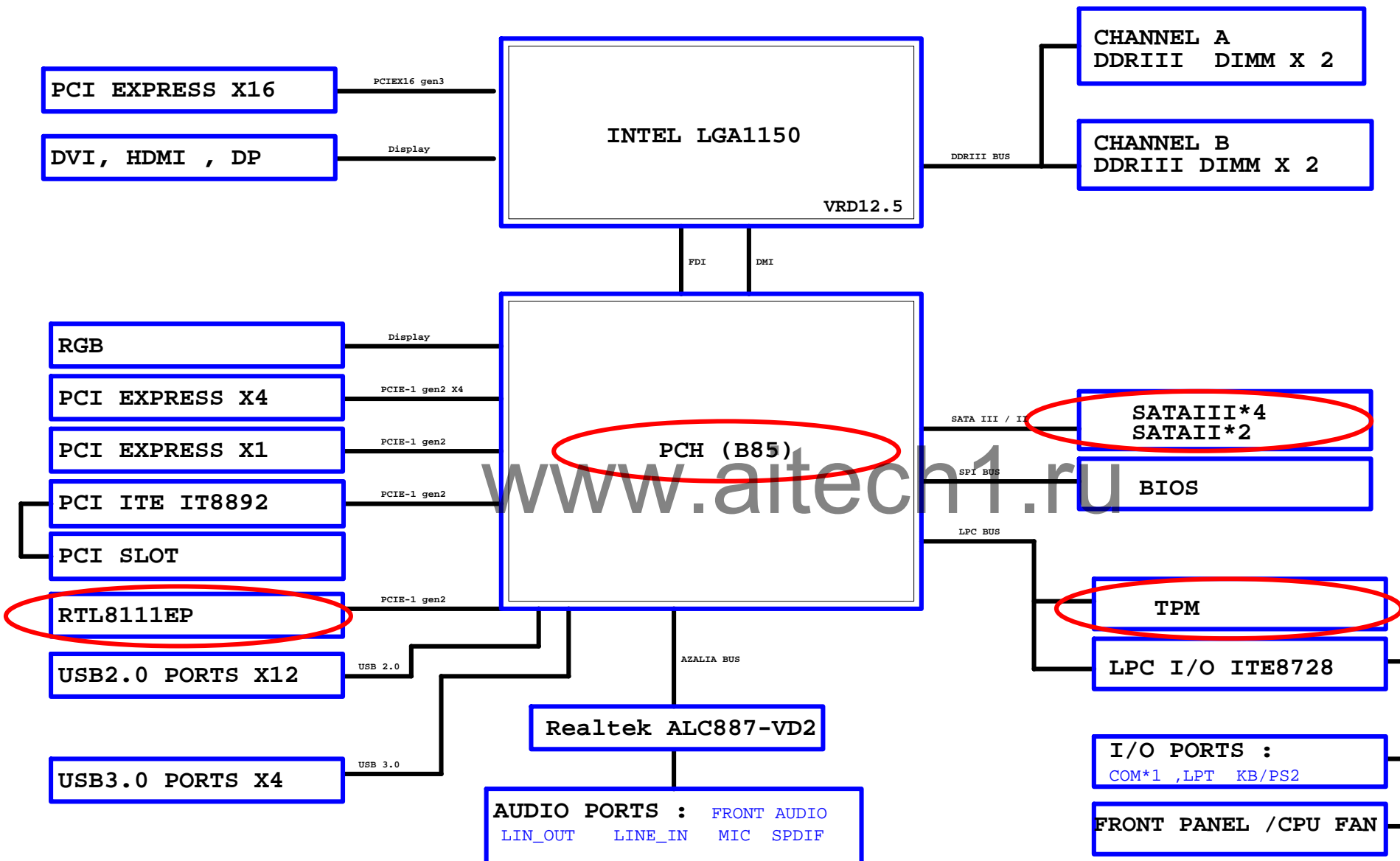
28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	COM A , LPT
31	DVI, HDMI ,DP
32	IT8892E PCI BRIDGE
33	INTEL i217LM PHY

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Gigabyte Technology		
Cover Sheet		
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GA-B85M-DASH		
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BLOCK DIAGRAM





LGA1150A

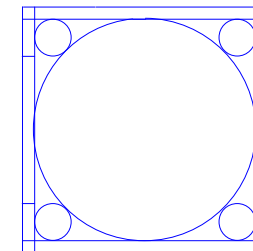
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MAAA4	AU17	DDR0_MA3	DDR0_DQ3	AD37	MDA4
MAAA5	AW18	DDR0_MA4	DDR0_DQ4	AD40	MDA5
MAAA6	AV17	DDR0_MA5	DDR0_DQ5	AF37	MDA6
MAAA7	AT18	DDR0_MA6	DDR0_DQ6	AF40	MDA7
MAAA8	AU18	DDR0_MA7	DDR0_DQ7	AF40	MDA9
MAAA9	AT19	DDR0_MA8	DDR0_DQ8	AH39	MDA13
MAAA10	AW11	DDR0_MA10	DDR0_DQ10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_DQ11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_DQ12	AH37	MDA12
MAAA13	AY10	DDR0_MA13	DDR0_DQ13	AH38	MDA8
MAAA14	AT20	DDR0_MA14	DDR0_DQ14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_DQ15	AK40	MDA15
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MODT_A1	AY8	DDR0_ODT1	DDR0_DQ17	AP38	MDA18
MODT_A2	AW9	DDR0_ODT2	DDR0_DQ18	AP39	MDA19
MODT_A3	AU8	DDR0_ODT3	DDR0_DQ19	AP37	MDA20
			DDR0_DQ20	AM38	MDA16
			DDR0_DQ21	AP37	MDA22
			DDR0_DQ22	AP40	MDA23
			DDR0_DQ23	AV37	MDA25
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			DDR0_DQ26	AV35	MDA27
			DDR0_DQ27	AT37	MDA28
			DDR0_DQ28	U37	MDA24
			DDR0_DQ29	AT35	MDA30
			DDR0_DQ30	AW35	MDA31
			DDR0_DQ31	AY6	MDA33
			DDR0_DQ32	AU6	MDA37
			DDR0_DQ33	AY4	MDA34
			DDR0_DQ34	AU4	MDA35
			DDR0_DQ35	AW6	MDA36
			DDR0_DQ36	AV6	MDA32
			DDR0_DQ37	AV4	MDA38
			DDR0_DQ38	AY4	MDA39
			DDR0_DQ39	AR1	MDA41
			DDR0_DQ40	AR4	MDA45
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			DDR0_DQ42	AN4	MDA43
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			DDR0_DQ44	AR3	MDA46
			DDR0_DQ45	AN2	MDA47
			DDR0_DQ46	AL1	MDA49
			DDR0_DQ47	AL4	MDA53
			DDR0_DQ48	AJ3	MDA50
			DDR0_DQ49	AJ4	MDA51
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			DDR0_DQ57	AE4	MDA59
			DDR0_DQ58	AG2	MDA60
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HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150B

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MAAB3	AM23	DDR1_MA3	DDR1_DQ3	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_DQ4	AD34	MDB4
MAAB5	AL23	DDR1_MA5	DDR1_DQ5	AD35	MDB5
MAAB6	AY24	DDR1_MA6	DDR1_DQ6	AG34	MDB6
MAAB7	AV25	DDR1_MA7	DDR1_DQ7	AH34	MDB7
MAAB8	AU26	DDR1_MA8	DDR1_DQ8	AL34	MDB8
MAAB9	AW26	DDR1_MA9	DDR1_DQ9	AL35	MDB9
MAAB10	AP18	DDR1_MA10	DDR1_DQ10	AK31	MDB10
MAAB11	AY25	DDR1_MA11	DDR1_DQ11	AL31	MDB11
MAAB12	AV26	DDR1_MA12	DDR1_DQ12	AK34	MDB12
MAAB13	AR15	DDR1_MA13	DDR1_DQ13	AK35	MDB13
MAAB14	AV27	DDR1_MA14	DDR1_DQ14	AK32	MDB14
MAAB15	AY28	DDR1_MA15	DDR1_DQ15	AL32	MDB15
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			DDR1_DQ21	AP35	MDB16
			DDR1_DQ22	AN32	MDB18
			DDR1_DQ23	AP32	MDB22
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			DDR1_DQ28	AL29	MDB24
			DDR1_DQ29	AL28	MDB29
			DDR1_DQ30	AP29	MDB28
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			DDR1_DQ33	AP12	MDB33
			DDR1_DQ34	AL13	MDB34
			DDR1_DQ35	AL12	MDB35
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			DDR1_DQ46	AR7	MDB46
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			DDR1_DQ74	AN33	DQSB2
			DDR1_DQ75	AN29	DQSB3
			DDR1_DQ76	AN13	DQSB4
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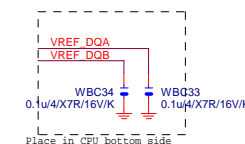
CR
CPU RETAINTION/X

LGA1150



ILM_BP/1156/CSP/ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

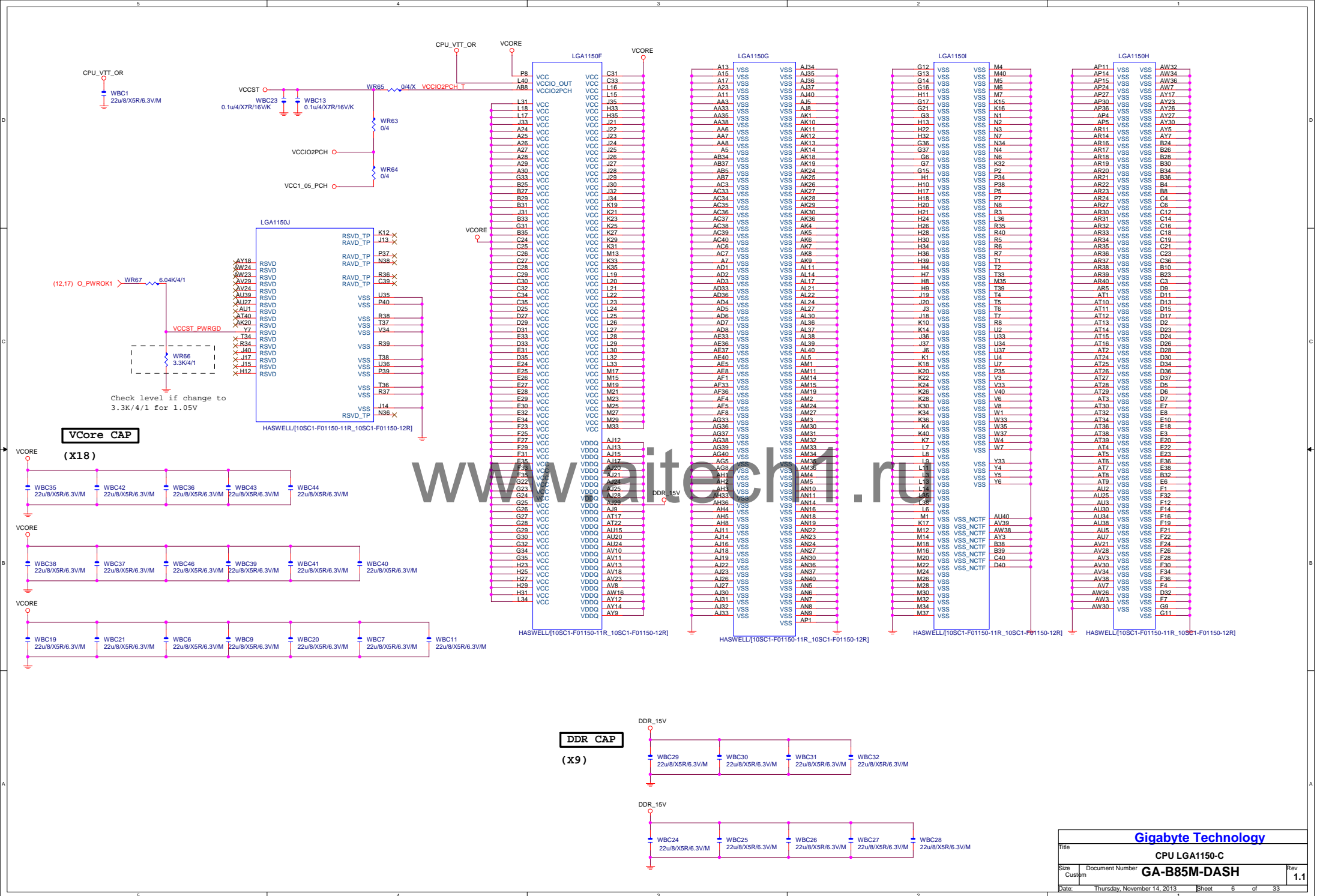
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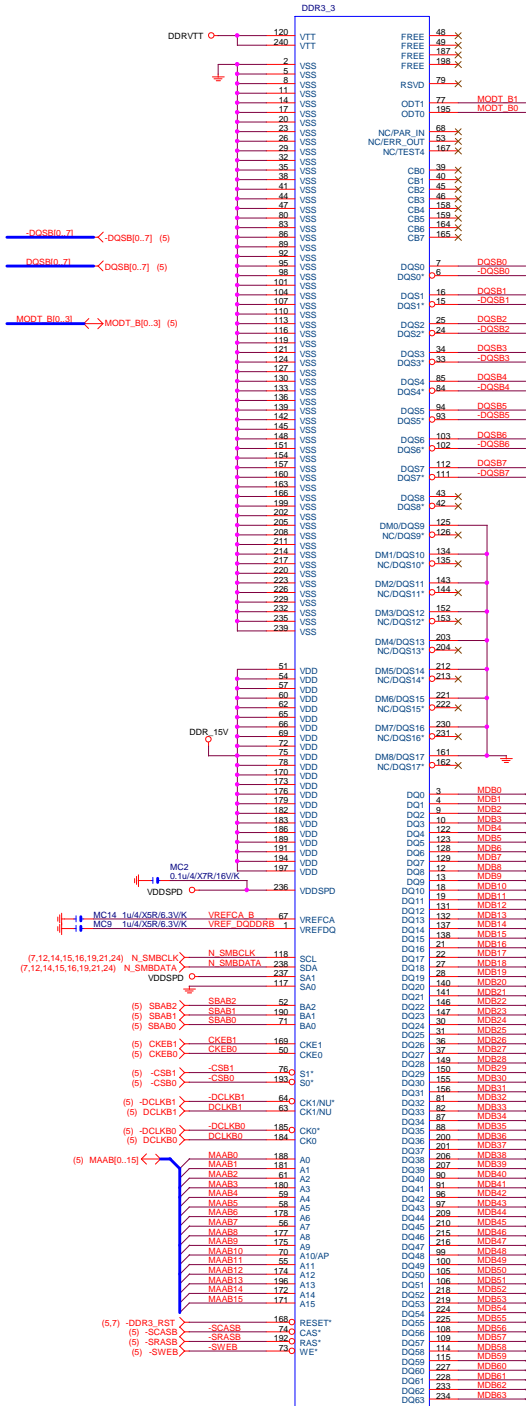
Gigabyte Technology

CPU LGA1150-B

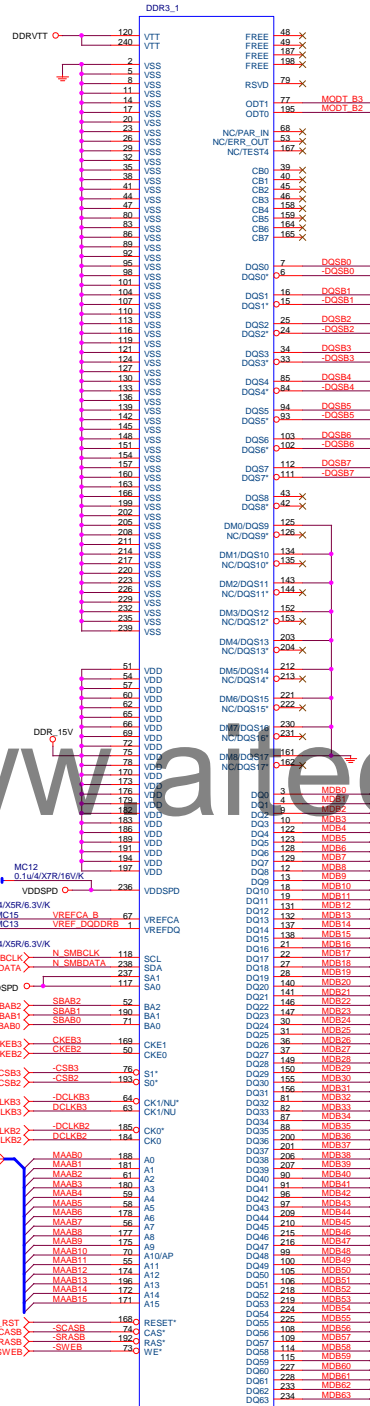
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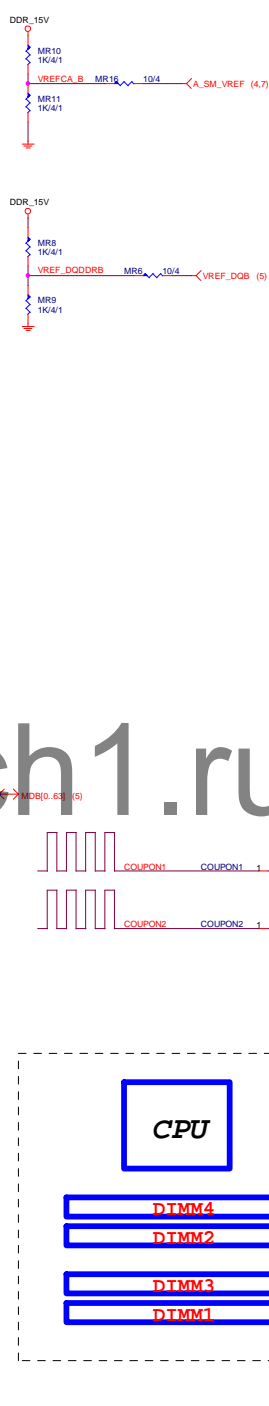




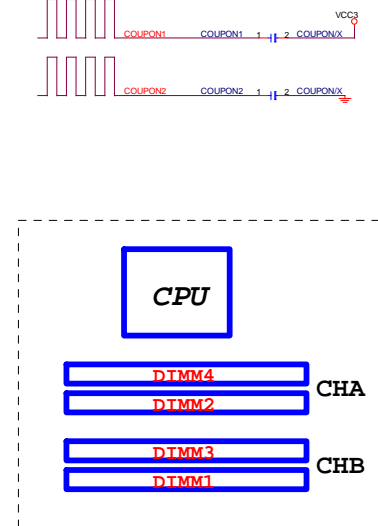
DDR3/240/BAV/D



DDR3/240/BAV/D



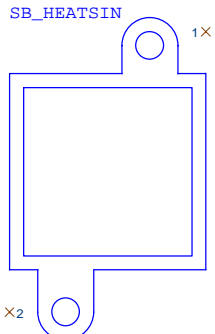
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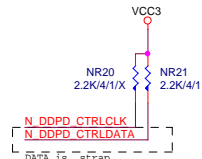
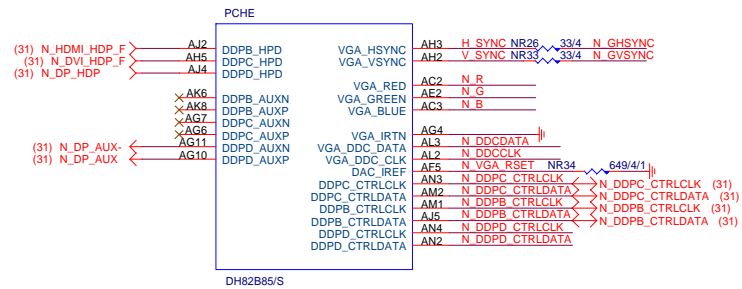
Gigabyte Technology

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Size	Custom	Document Number	GA-B85M-DASH	
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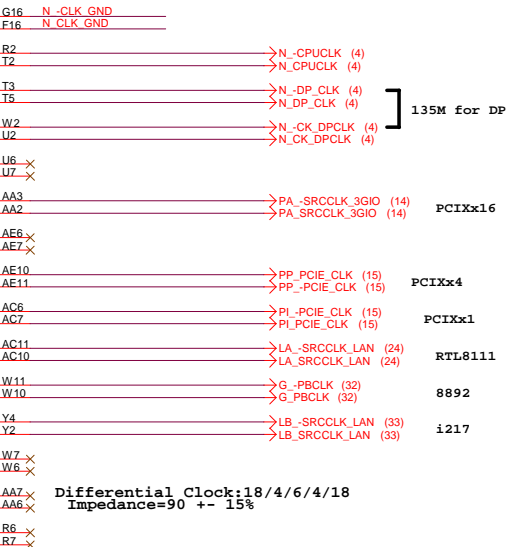
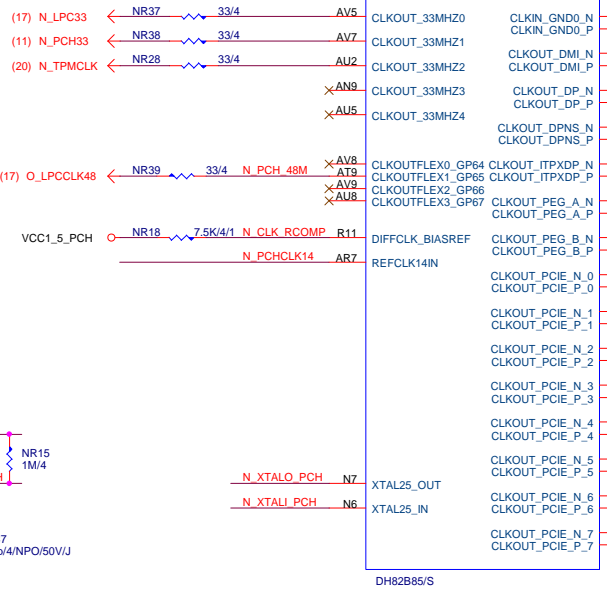
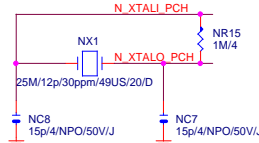
USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



PCH_HS
PCH_HS[12SP2-030005-41R_12SP2-030005-42R_12SP2-030005-43R]

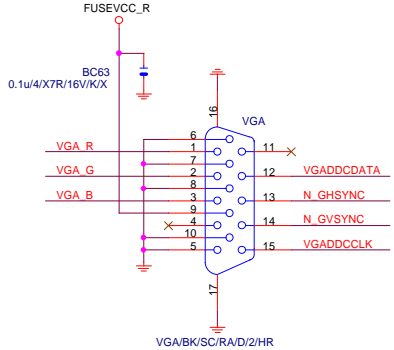
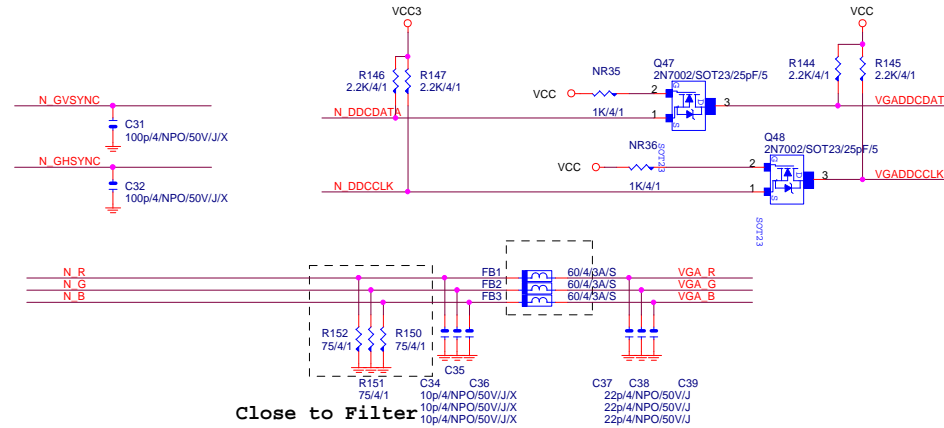
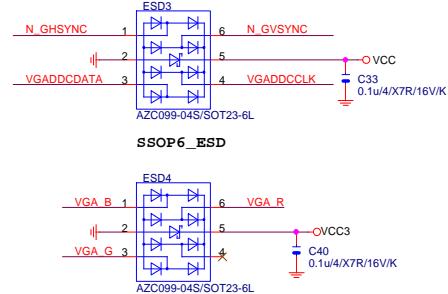


Flex1,2,3,4 : (17) O_LPCCLK48
14/24/33/48MHZ



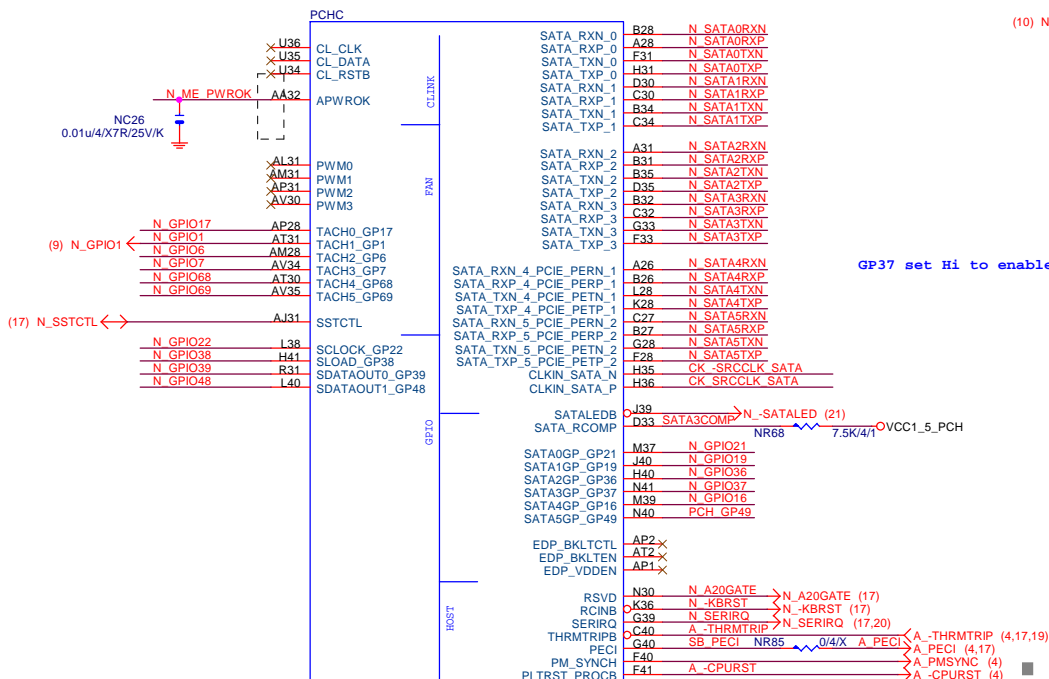
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Mount for integrated clock Generation Mode

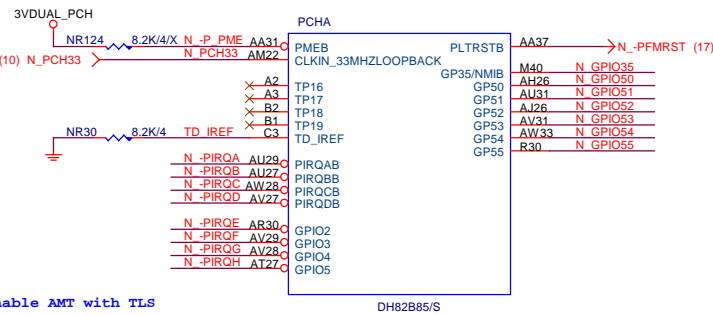
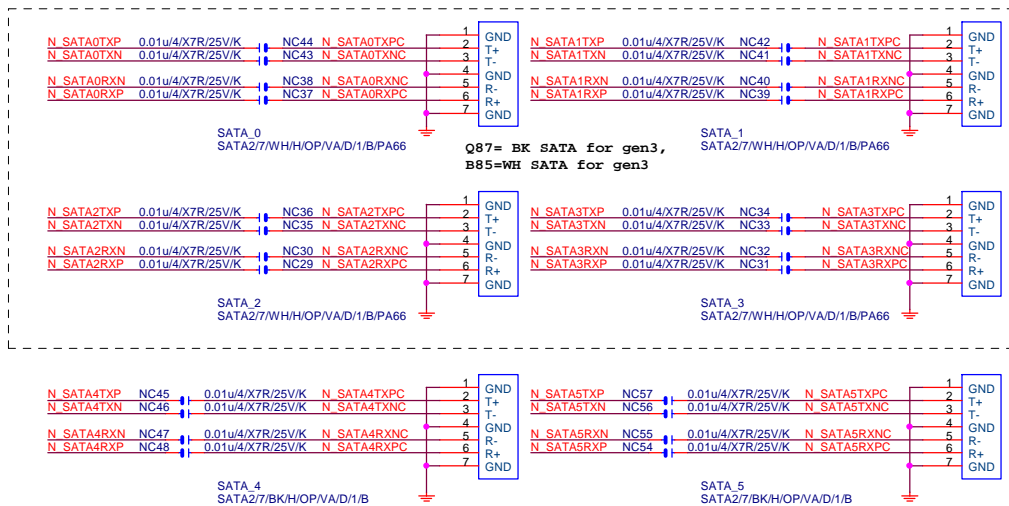


Gigabyte Technology			
Title PCH DISPLAY_CLK BUFFER			
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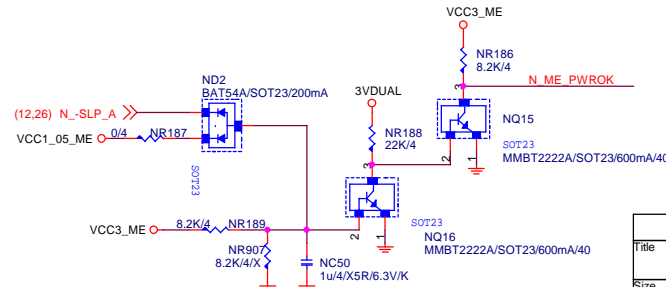
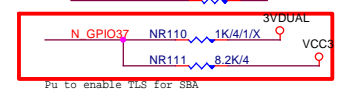
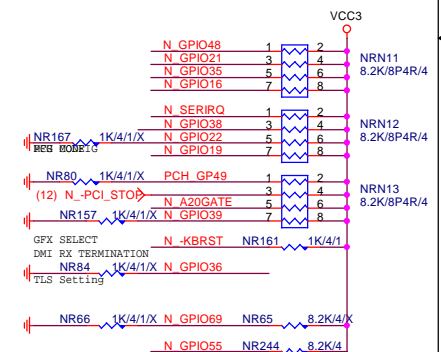
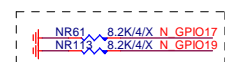
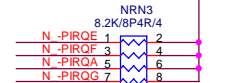
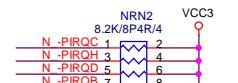
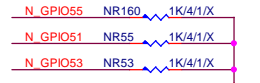
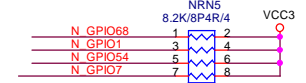
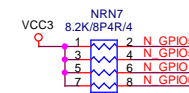
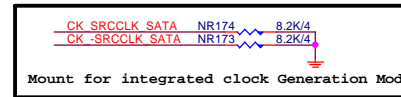
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SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
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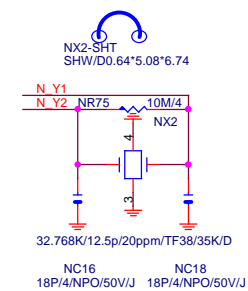
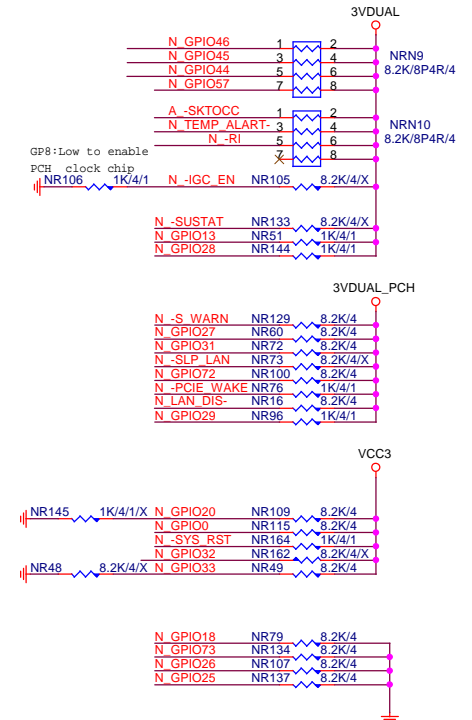
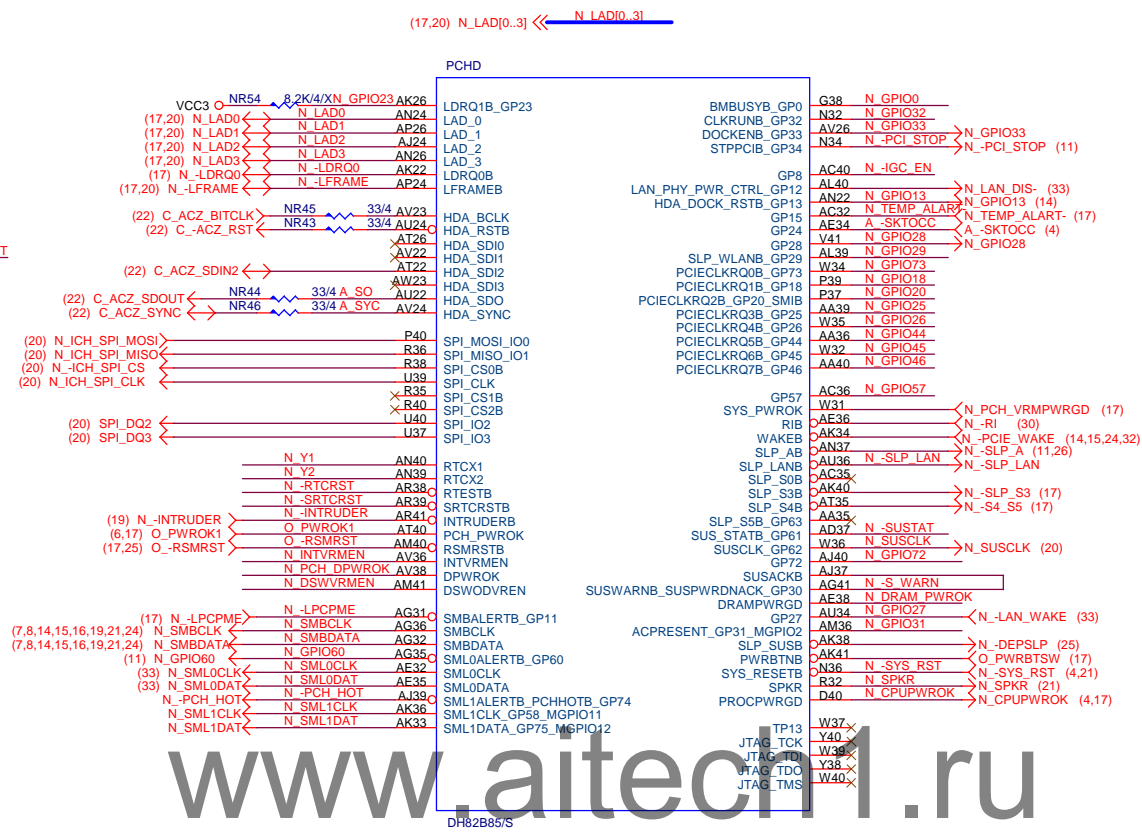
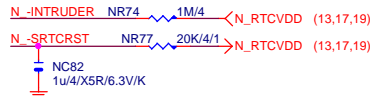
Final need change to
B85 real P/N



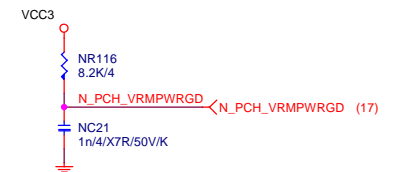
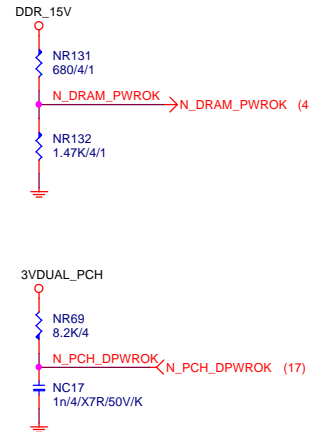
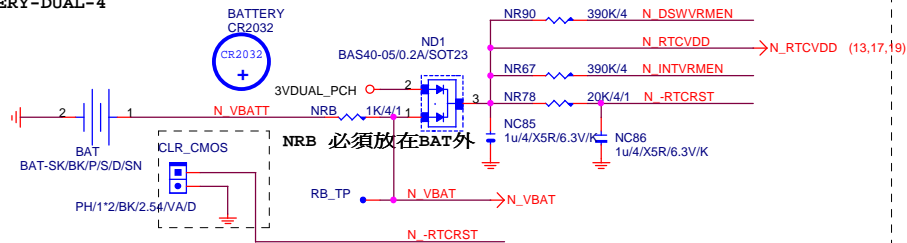
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GP37 set Hi to enable AMT with TLS
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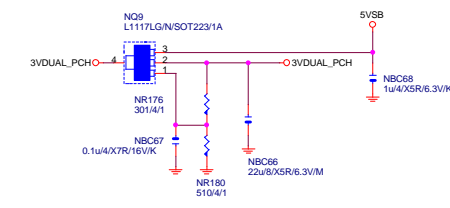
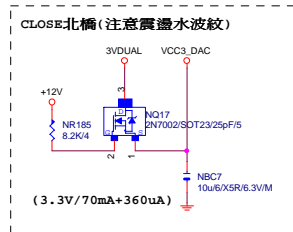
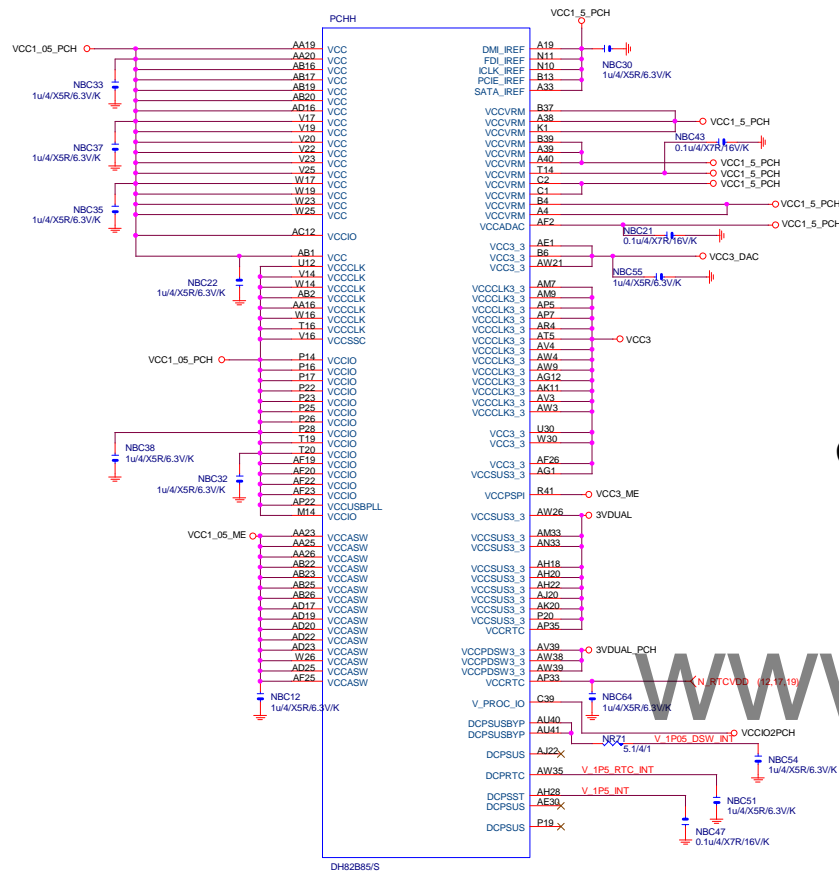


Gigabyte Technology			
Title			
PCH HOST , SATA, PCI			
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BATTERY-DUAL-4





(3.3V) (X6)

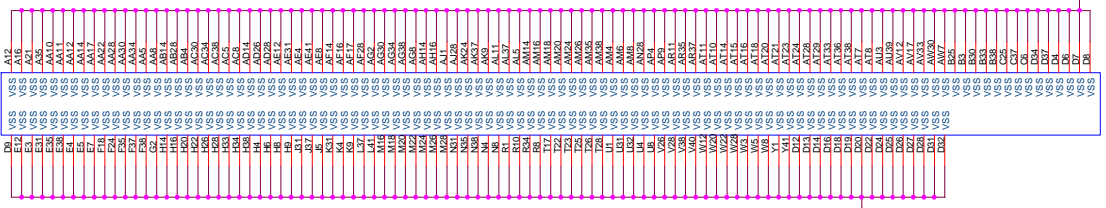
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(1.05V) (X6)

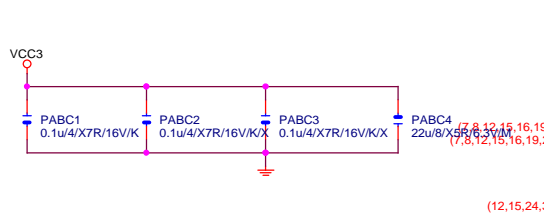
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(1.05V) (X2)

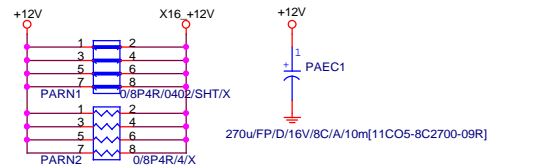
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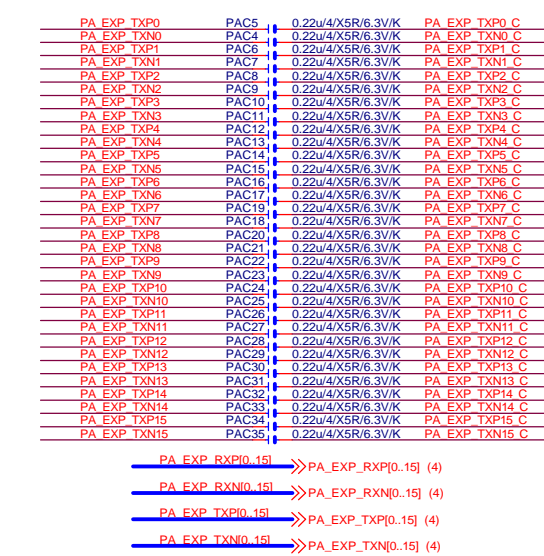
PCIEX16 CAP



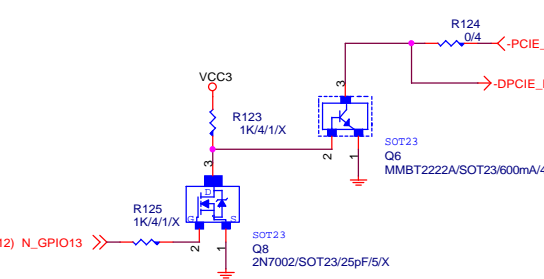
PCIEX16 PROTECT SHT



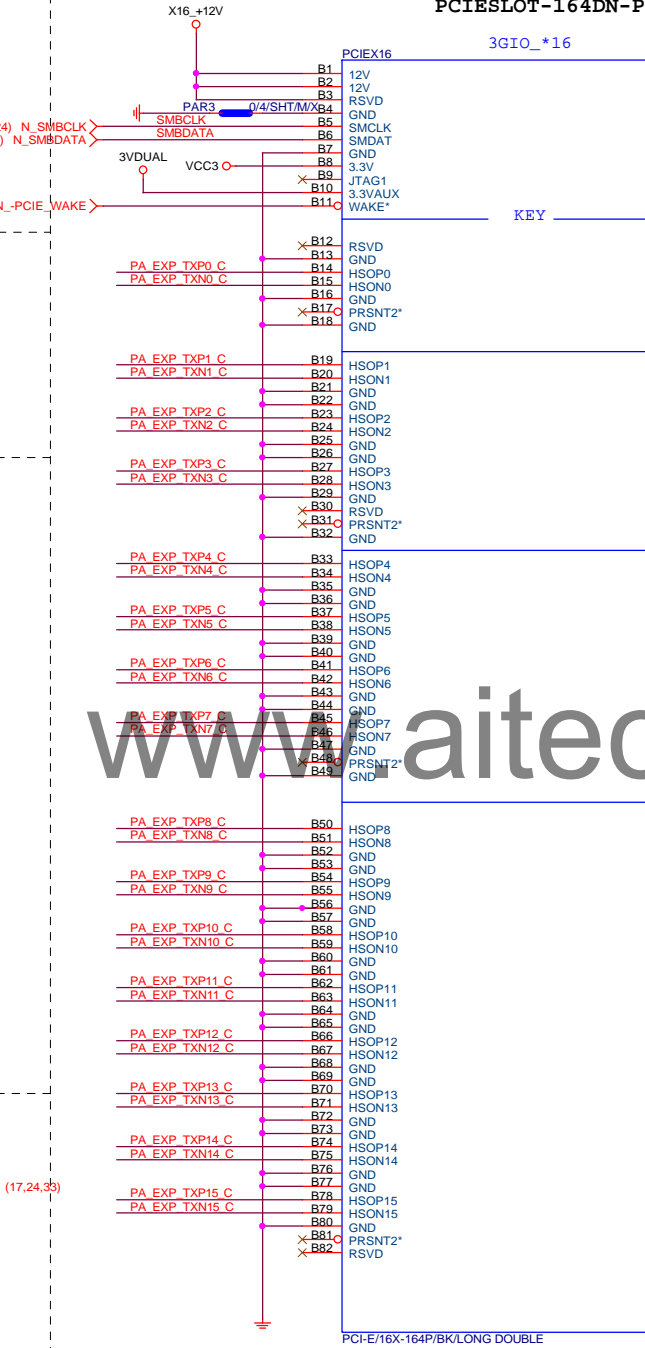
PCIEX16 AC CAP



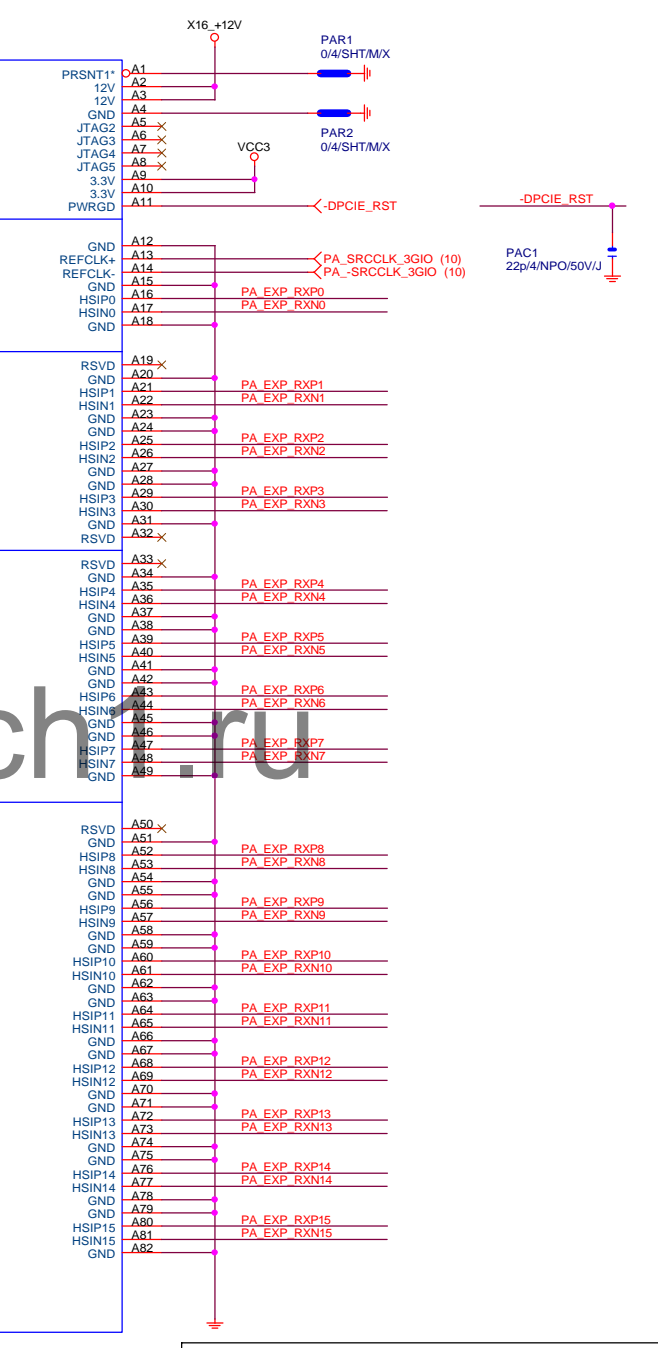
PCIEX16 SOFT RESET



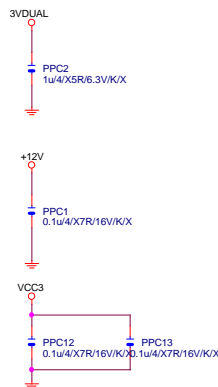
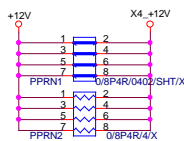
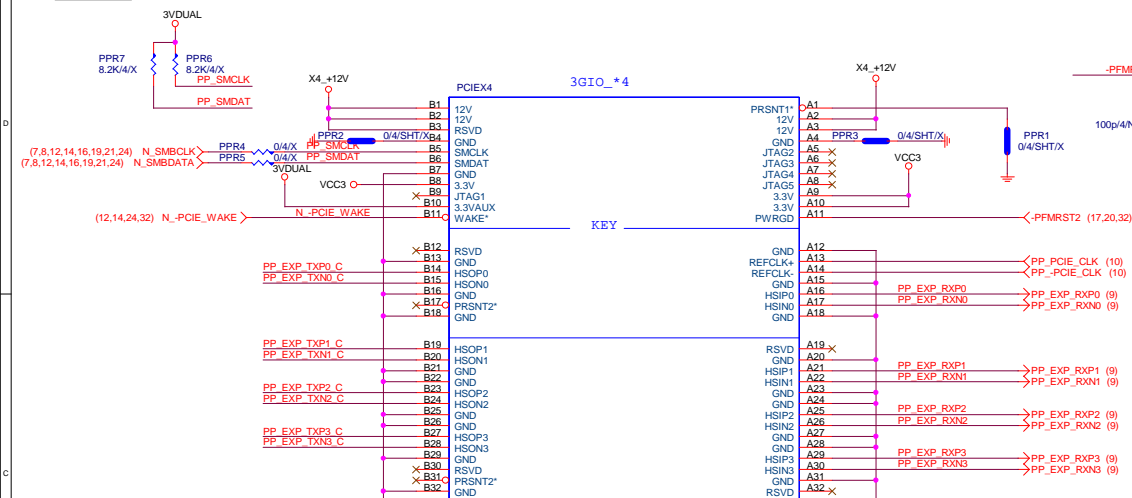
PCIEX16 SLOT



PCIESLOT-164DN-P



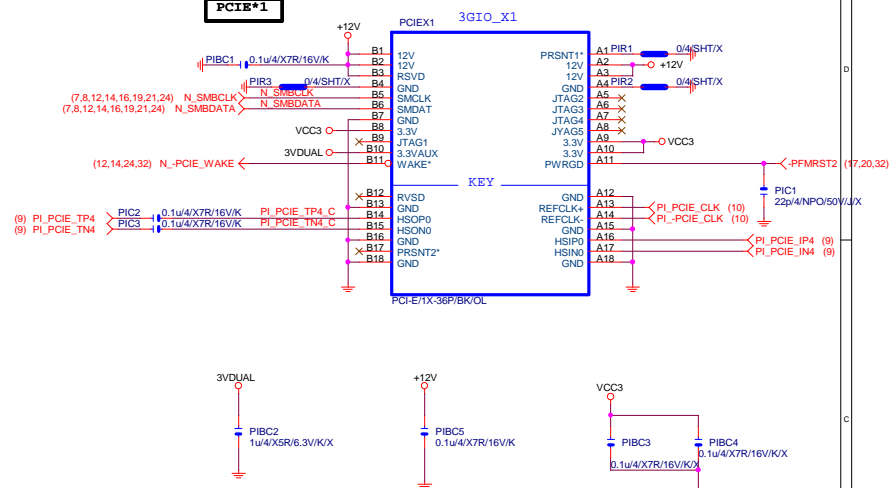
PCIE*4



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

(9) PP_EXP_TXP0 > PP_EXP_TXP0 PPC4 0.22u4/X5R/6.3V/K PP_EXP_TXP0 C
(9) PP_EXP_TXN0 > PP_EXP_TXN0 PPC5 0.22u4/X5R/6.3V/K PP_EXP_TXN0 C
(9) PP_EXP_TXP1 > PP_EXP_TXP1 PPC6 0.22u4/X5R/6.3V/K PP_EXP_TXP1 C
(9) PP_EXP_TXN1 > PP_EXP_TXN1 PPC7 0.22u4/X5R/6.3V/K PP_EXP_TXN1 C
(9) PP_EXP_TXP2 > PP_EXP_TXP2 PPC8 0.22u4/X5R/6.3V/K PP_EXP_TXP2 C
(9) PP_EXP_TXN2 > PP_EXP_TXN2 PPC9 0.22u4/X5R/6.3V/K PP_EXP_TXN2 C
(9) PP_EXP_TXP3 > PP_EXP_TXP3 PPC10 0.22u4/X5R/6.3V/K PP_EXP_TXP3 C
(9) PP_EXP_TXN3 > PP_EXP_TXN3 PPC11 0.22u4/X5R/6.3V/K PP_EXP_TXN3 C

PCIE*1

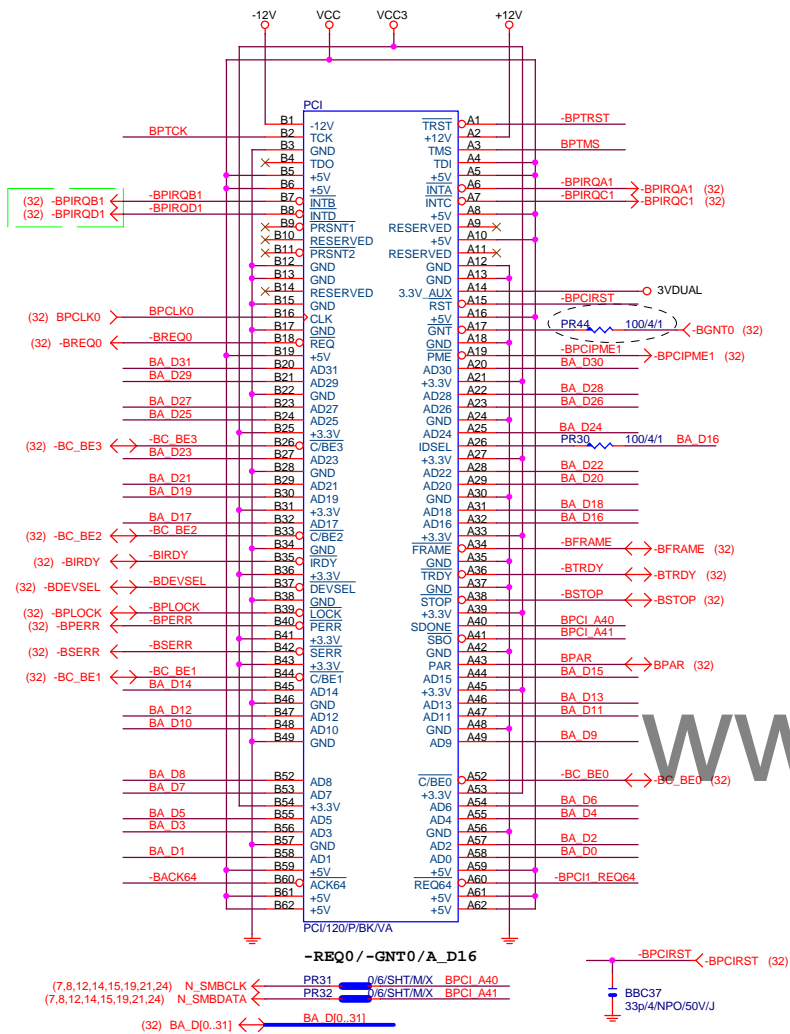


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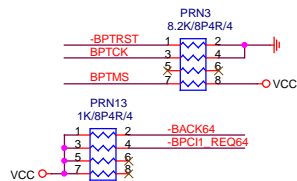
Gigabyte Technology

Title			PCI EXPRESS X 1 PORT
Size	Document Number	Rev	
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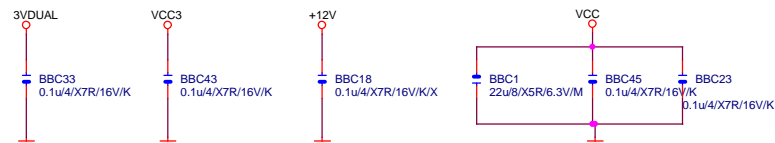
PCI SLOT



PCI PU



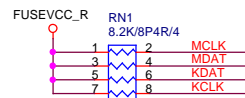
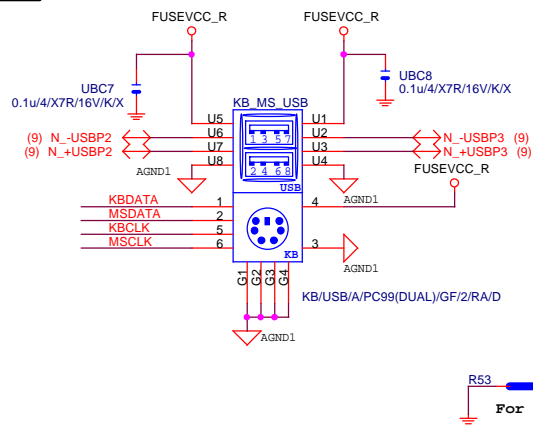
PCI CAP



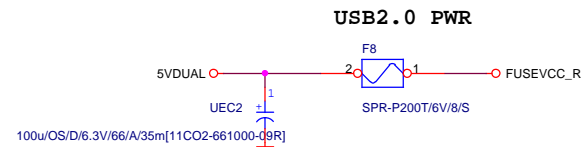
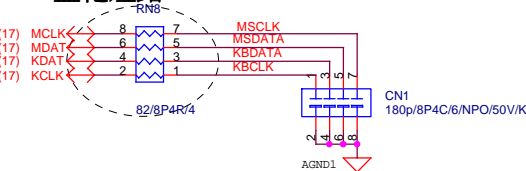
Gigabyte Technology

Title			
PCI SLOT 1&2			
Size Custom	Document Number	GA-B85M-DASH	Rev 1.1
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KB/MS



FOR 強化短路

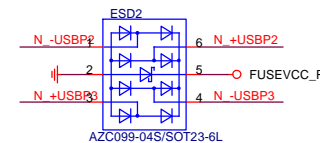


Close to USB connector

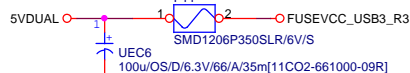
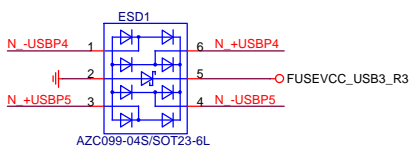
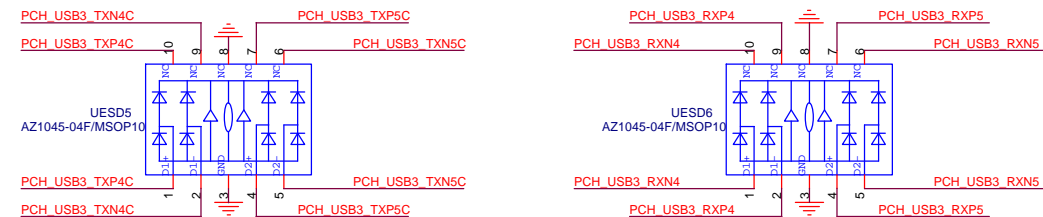
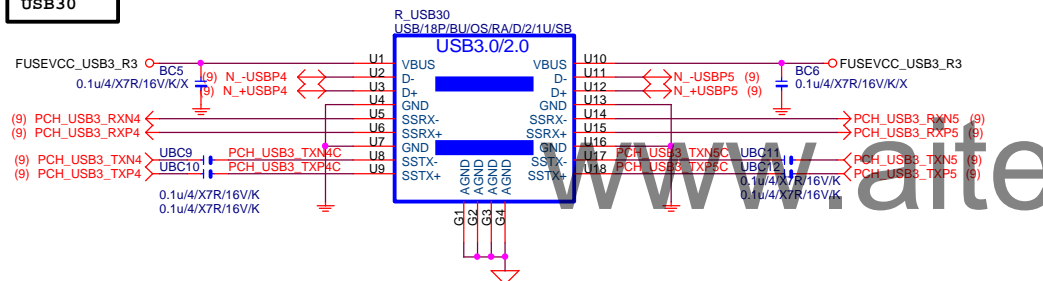
USB2.0 PWR

KB/MS PWR

USB2.0 ESD



USB30

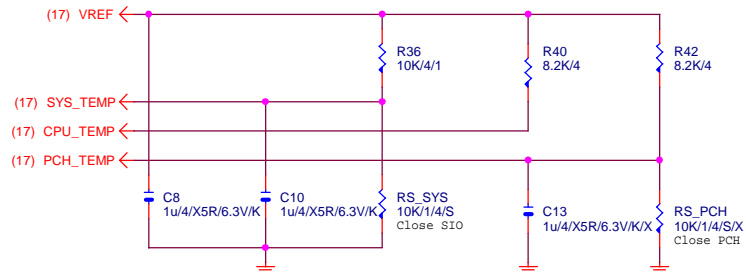


Polyswitch-1206 USB3.0 1Port - 1Fuse (3.5A)

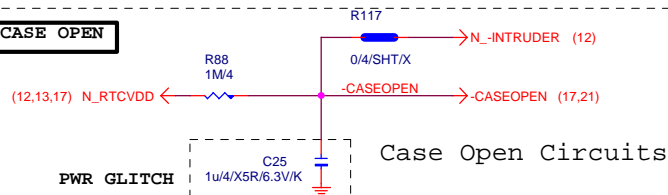
Gigabyte Technology

Title		
KB/MS,RUSB		
Size	Document Number	Rev
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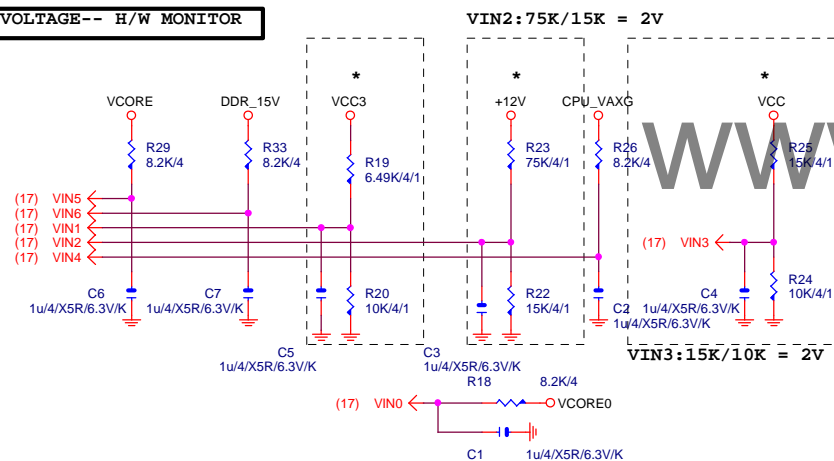
TEMP H/W MONITOR



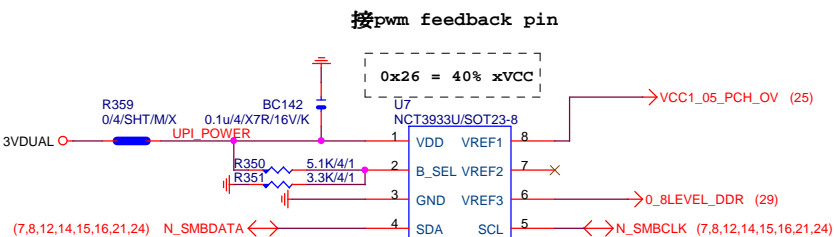
CASE OPEN



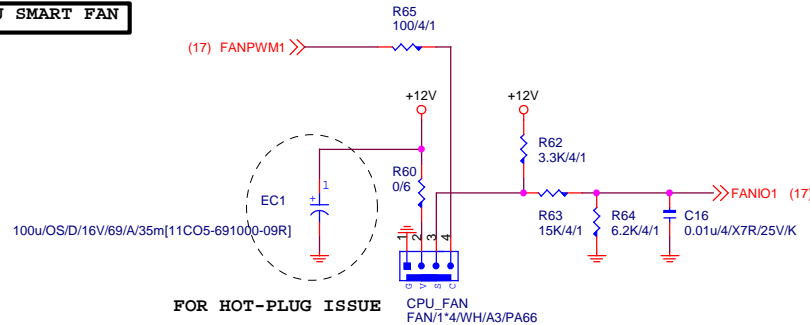
VOLTAGE-- H/W MONITOR



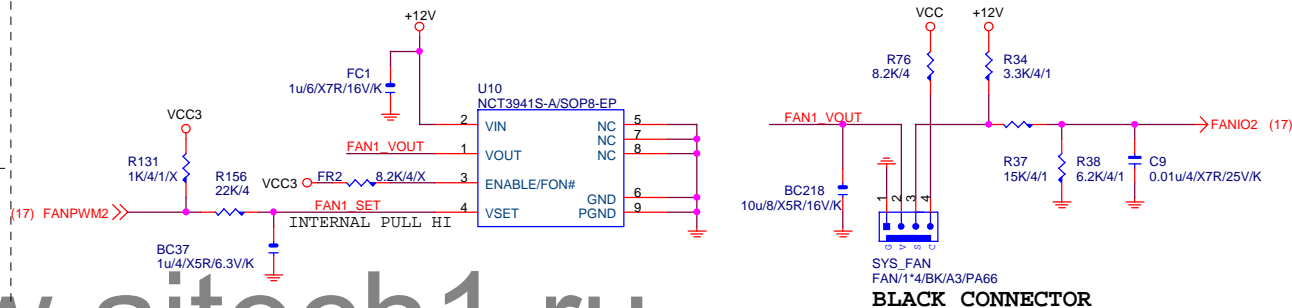
OV NCT3933



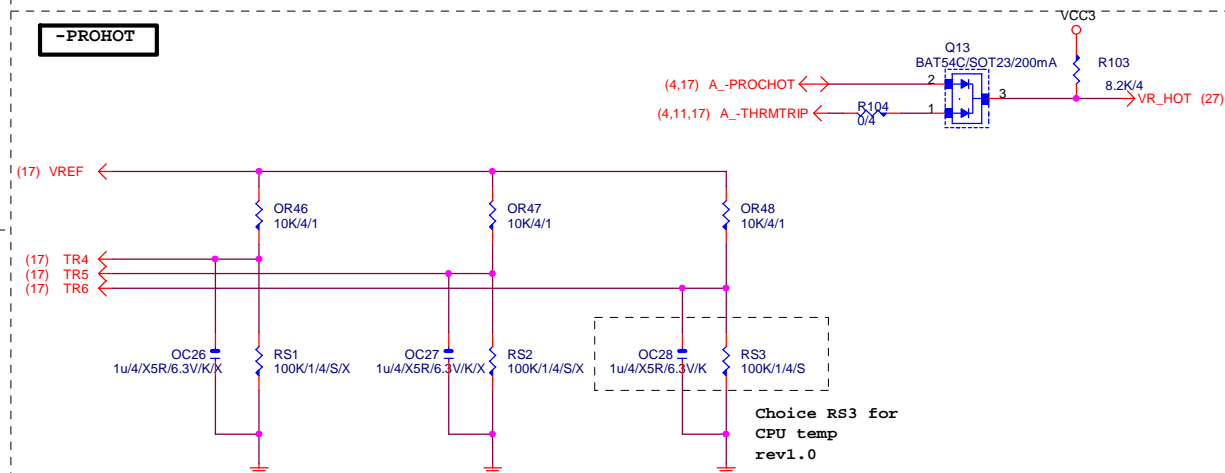
CPU SMART FAN



SYS SMART FAN



-PROHOT

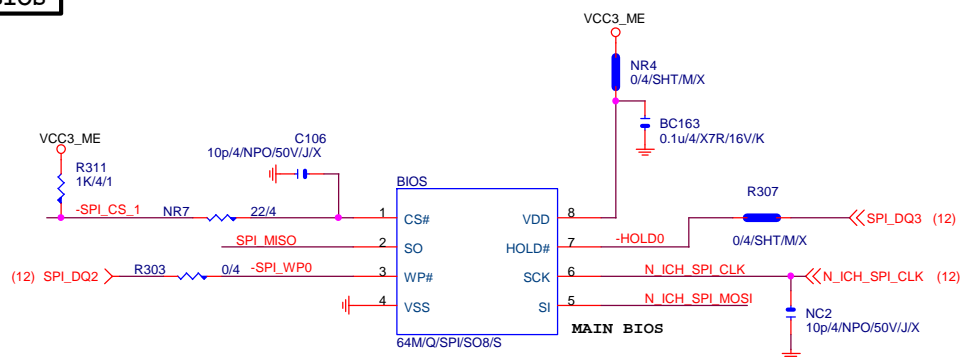


RS1、RS2、RS3 CLOSE CPU
VR MOSFET
Select the Hottest point
to setup

Gigabyte Technology

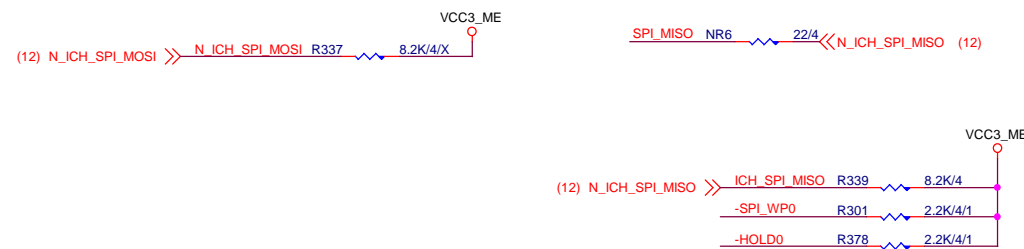
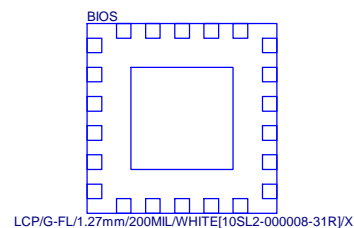
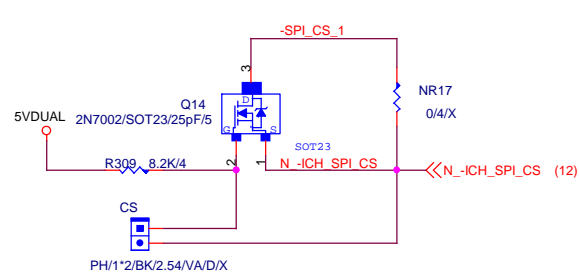
Title					HWM,FAN CTRL,OV				
Size	Custom	Document Number			GA-B85M-DASH				Rev
									1.1
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BIOS



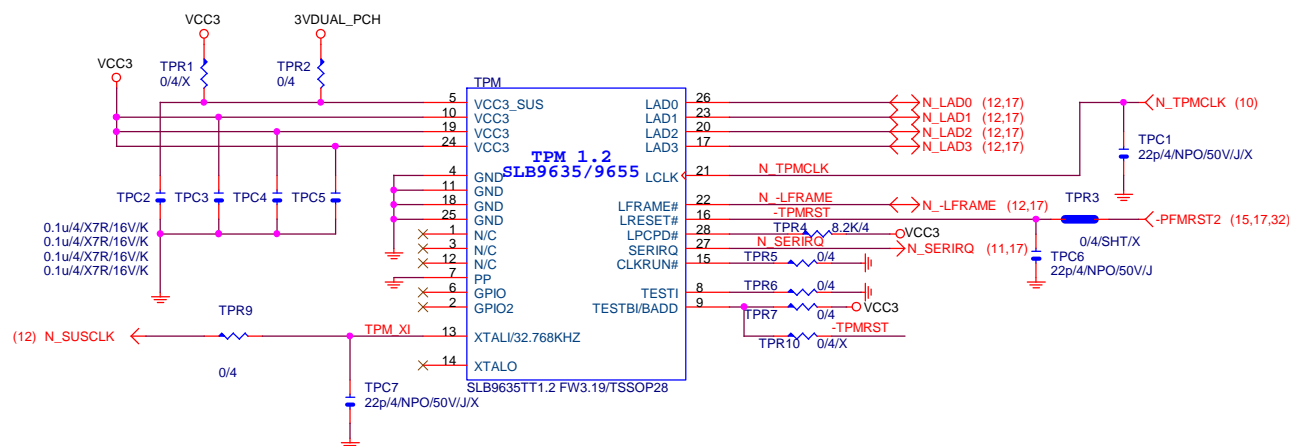
BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	1	1

1	means	internal	PU
0	means	PD	1K



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TPM

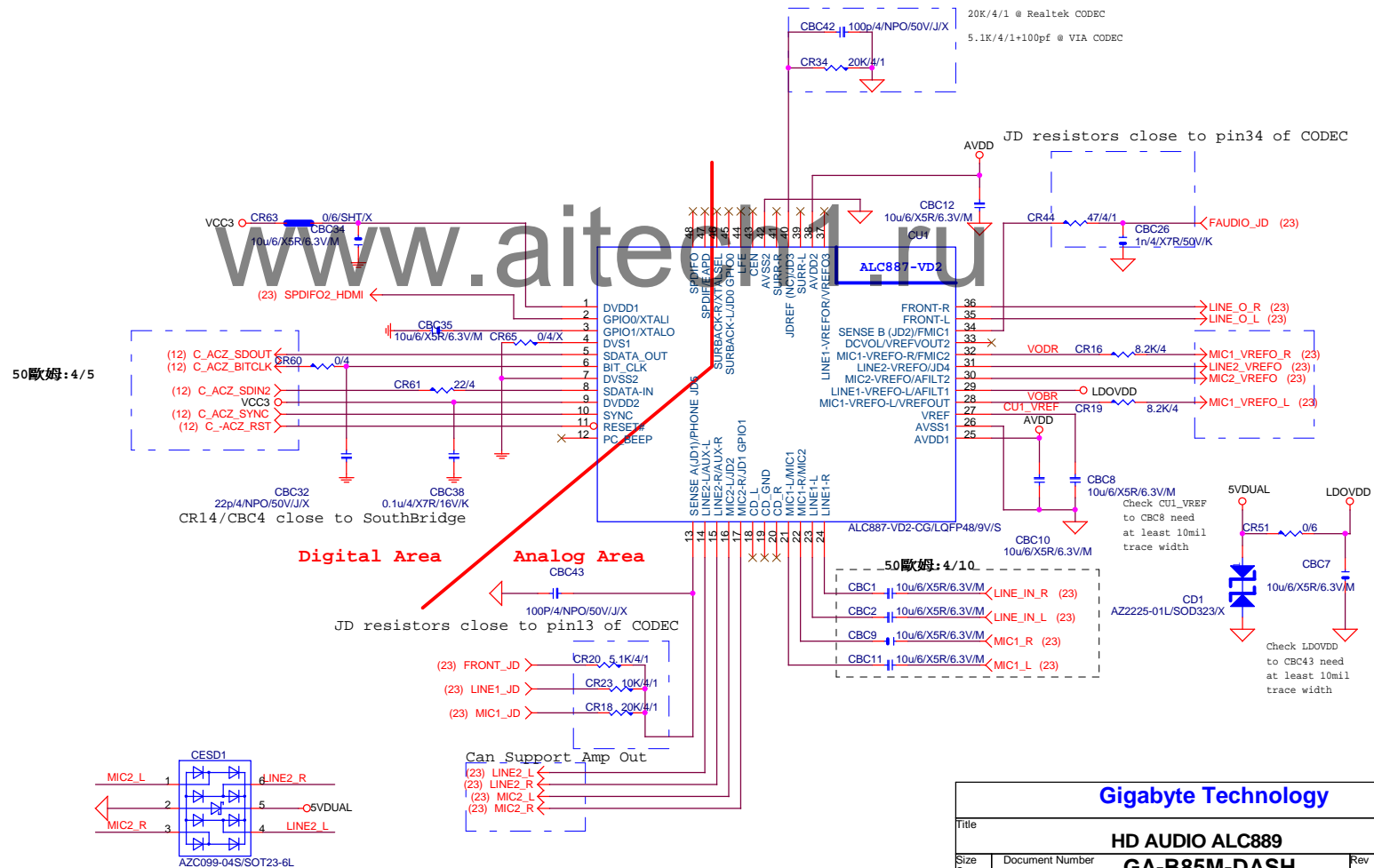


	SLB9635	SLB965
TPR2, TPR4, TPR5, TPR6, TPR7, TPR9	MOUNT	N/A
TPR1, TPR10	N/A	MOUNT

Gigabyte Technology

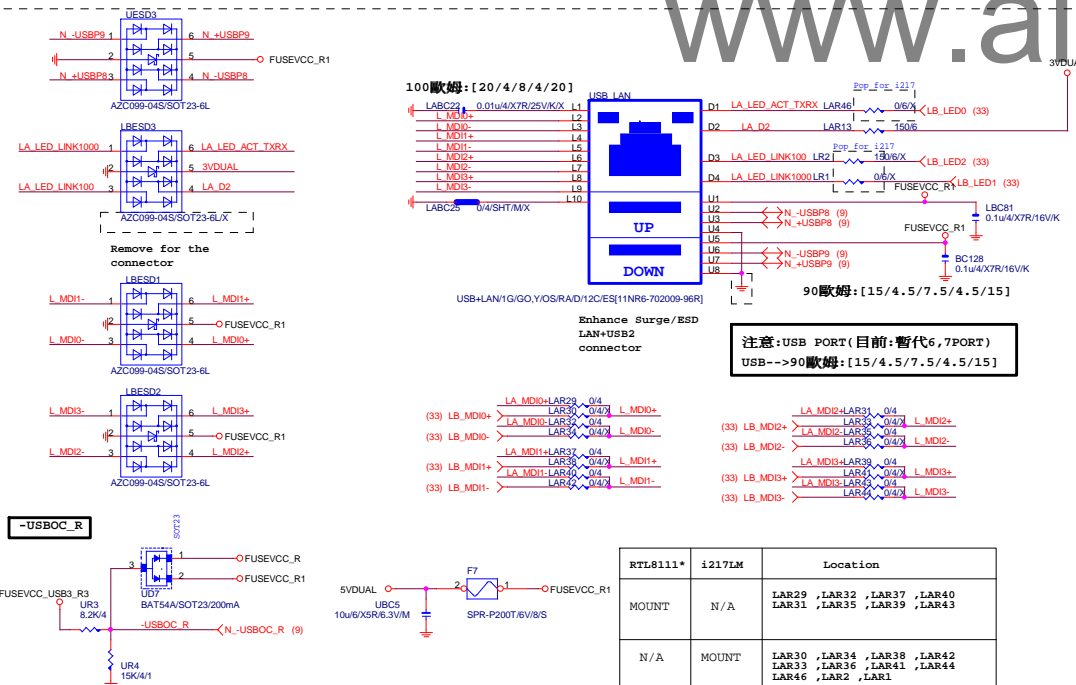
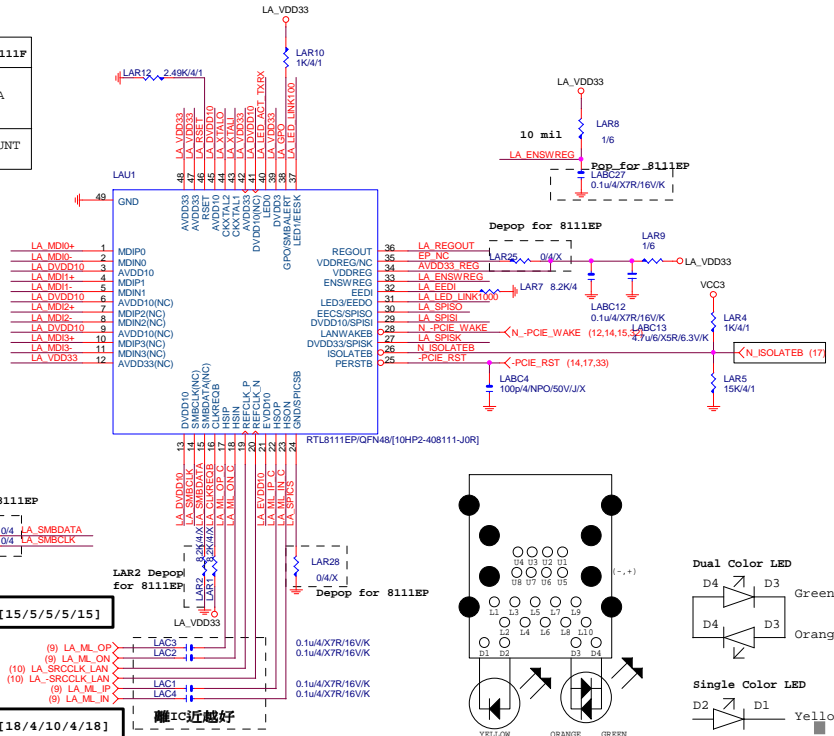
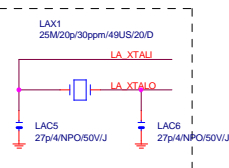
Title			
DUAL BIOS			
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	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70/ CR2/CR4	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76/CR27/CR29	62 ohm	62 ohm	75 ohm
CR16/CR19	8.2K/4	8.2K/4	3.3K/4
CESD1	O	O	O

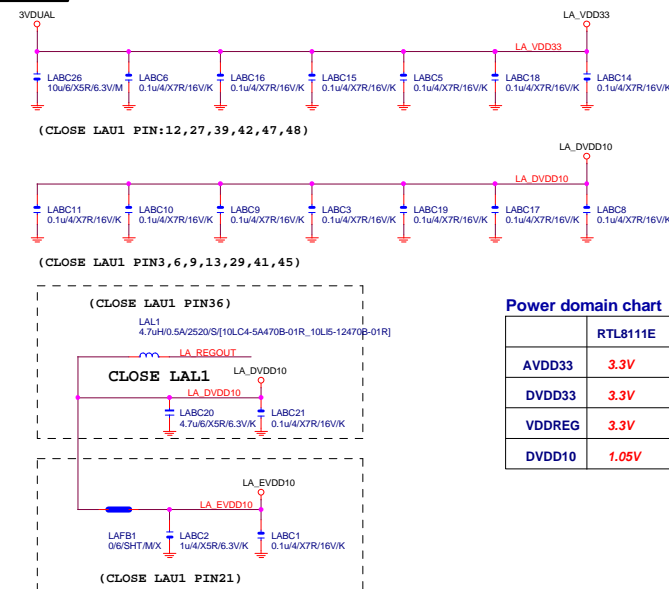


LAN:RTL8111F/VB/VL

	RTL8111EP	RTL8111E
	MOUNT	N/A
	N/A	MOUNT

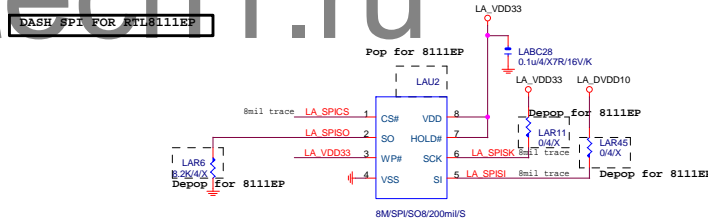


LAN POWER



Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



RTL8111EP	RTL8111F-VL	Location
MOUNT	N/A	LAR26 ,LAR27 ,LABC27 ,LAU2
N/A	MOUNT	LAR25 ,LAR6 ,LAR11 ,LAR45 ,LAR28,LAR2

RTL8111*	i217LM	Location
MOUNT	N/A	LAR29 ,LAR32 ,LAR37 ,LAR40 LAR31 ,LAR35 ,LAR39 ,LAR43
N/A	MOUNT	LAR30 ,LAR34 ,LAR38 ,LAR42 LAR33 ,LAR36 ,LAR41 ,LAR44 LAR46 ,LAR2 ,LARI

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

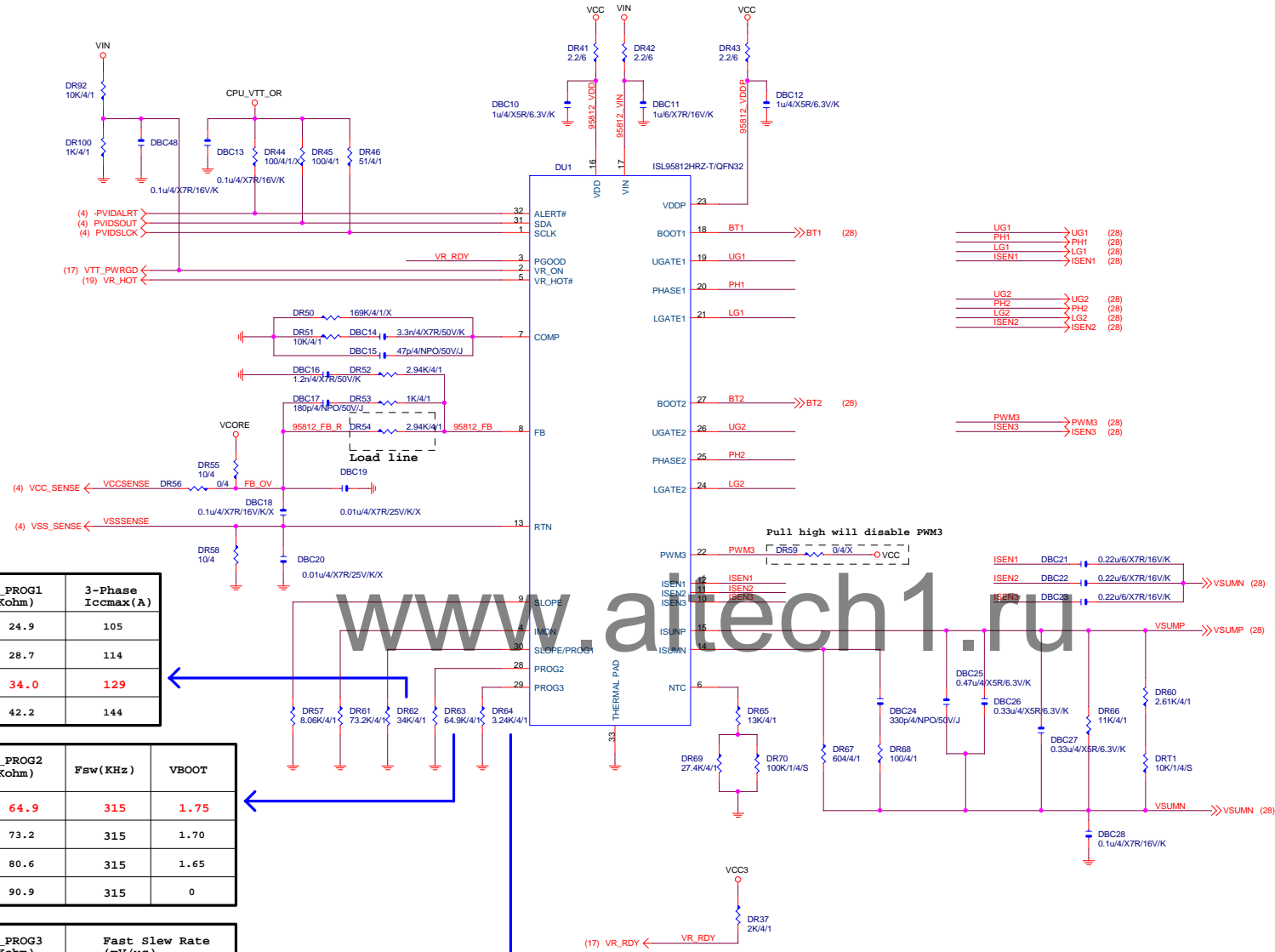
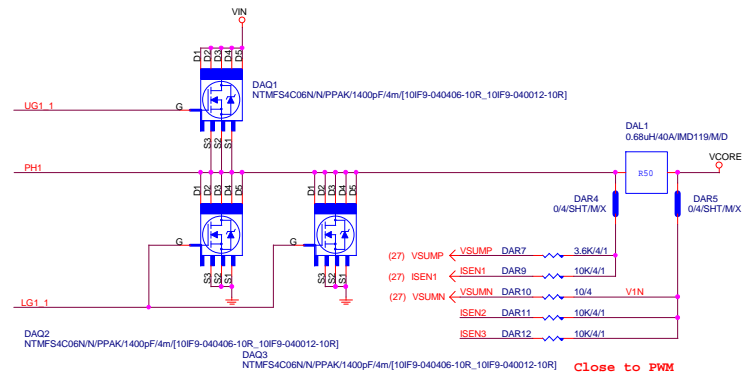
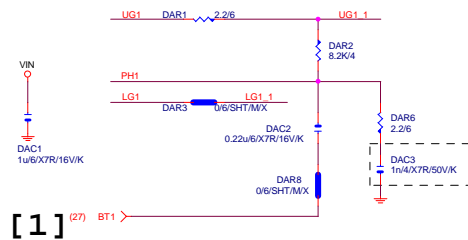


Diagram illustrating the mapping of input variables to output variables:

- UG1 (27)
- PH1 (27)
- LG1 (27)



DCU1

1 UGATE PHASE

2 BOOT

3 VCC

4 PWM GND

5 GND

6 6609 VCC

7 DCR13

8 DCR14

9 GND

ISL6208BCR2/DFN8[10TA1-606208-21R]

VCC

DCR13

1/6

DCD4

10u6/X5R/6.3V/N

DCD5

0.1u4/X7R/16V/K

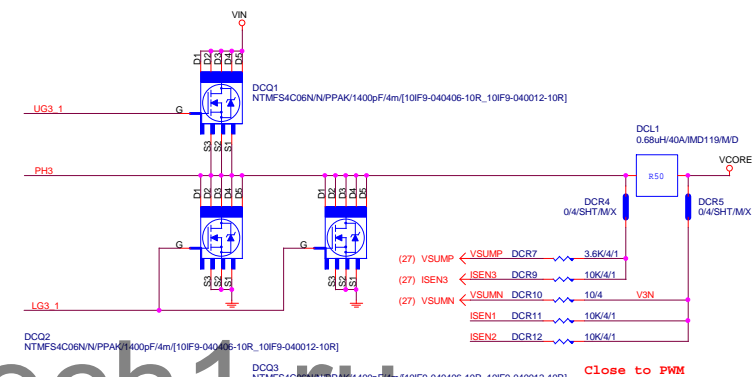
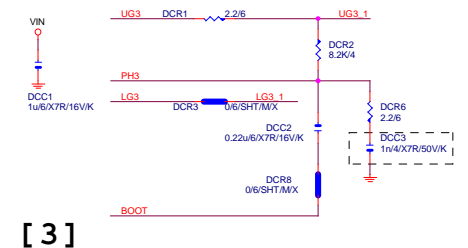
UG3

PH3

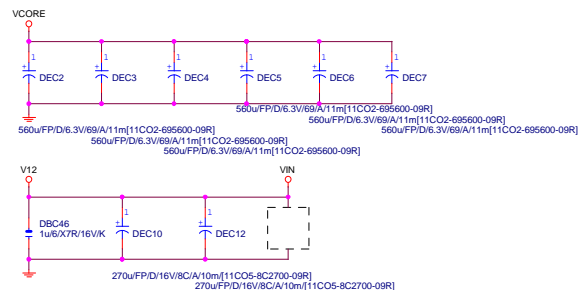
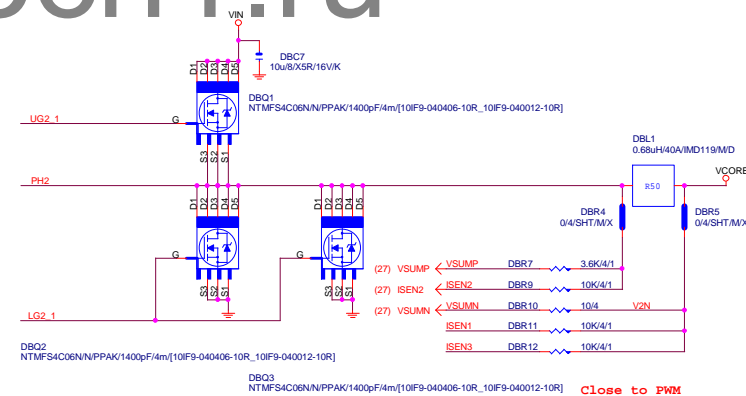
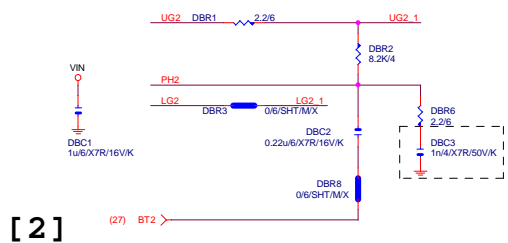
LG3

PWM3


→ PWM3 (27)



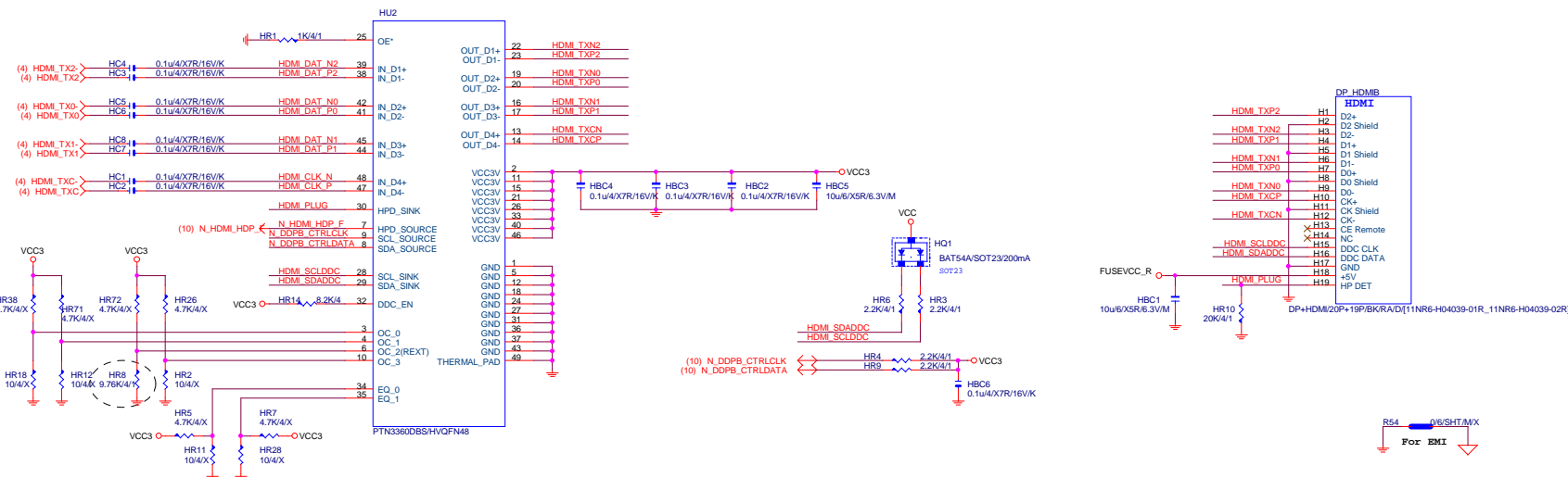
UG2 (27)
PH2 (27)
LG2 (27)



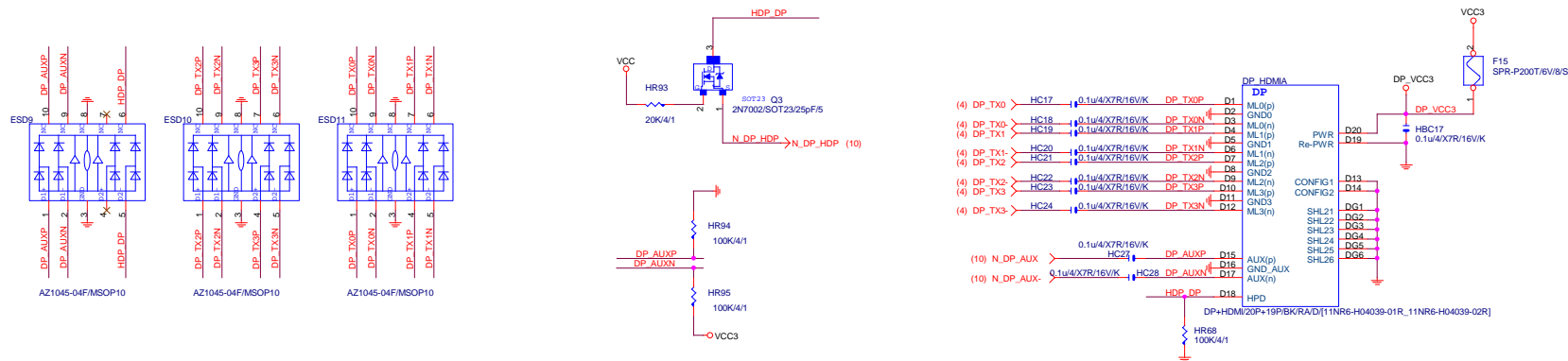
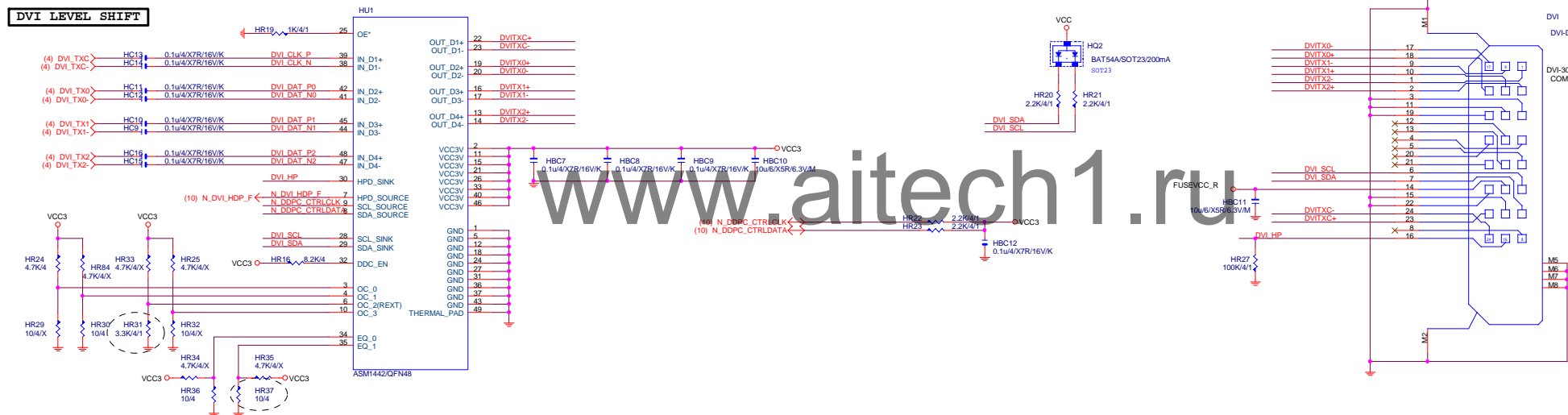
```
Rocset=(Iocp*Lgate,rdson)/Iocset
Rocset=(45A*6.7mOhm)/10uA = 30K
Iocset=10uA
```

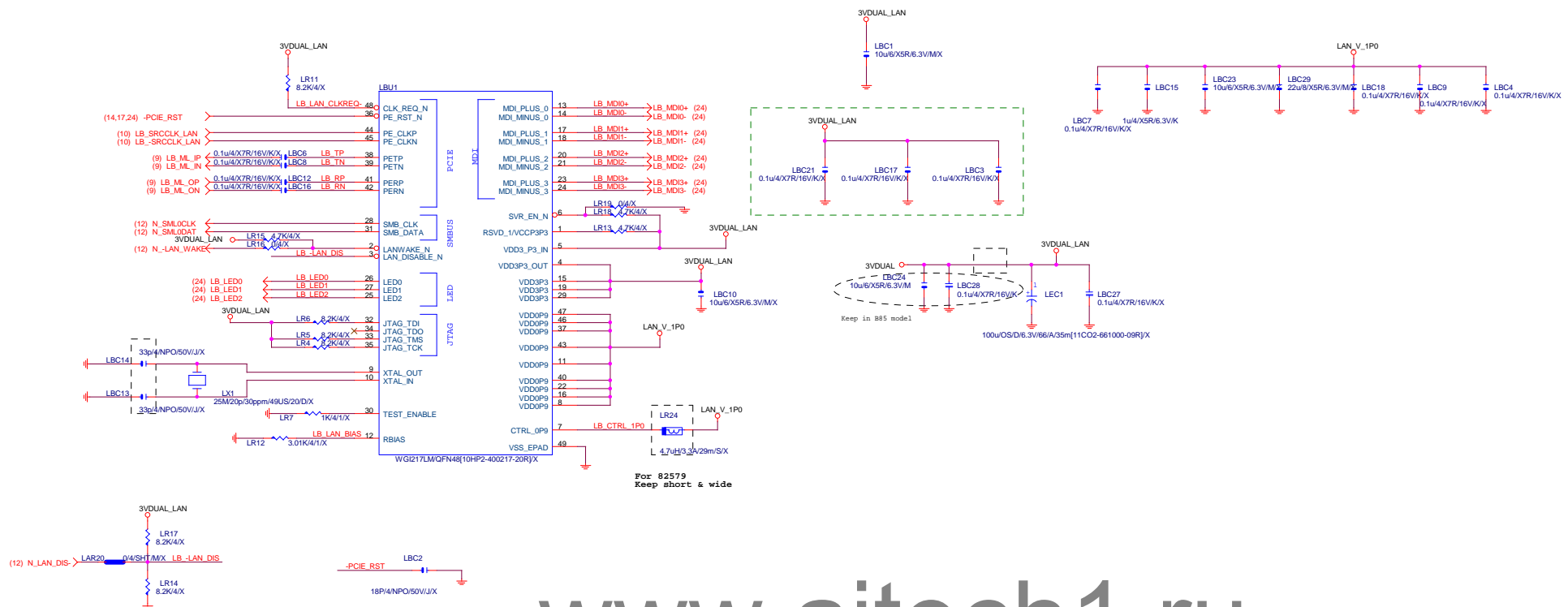
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Title			
DDR POWER			
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HDMI LEVEL SHIFT



DVI LEVEL SHIFT





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