

Model Name: GA-P85-D3T

1.1

SHEET

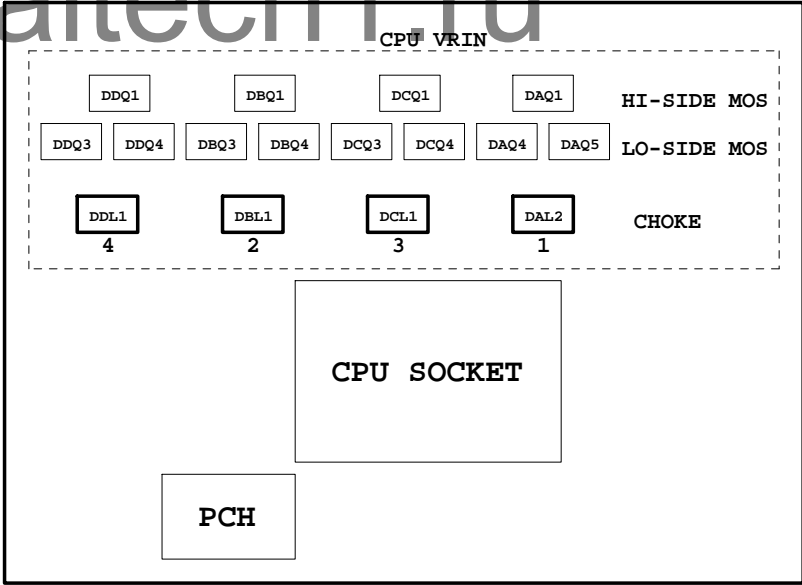
TITLE

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

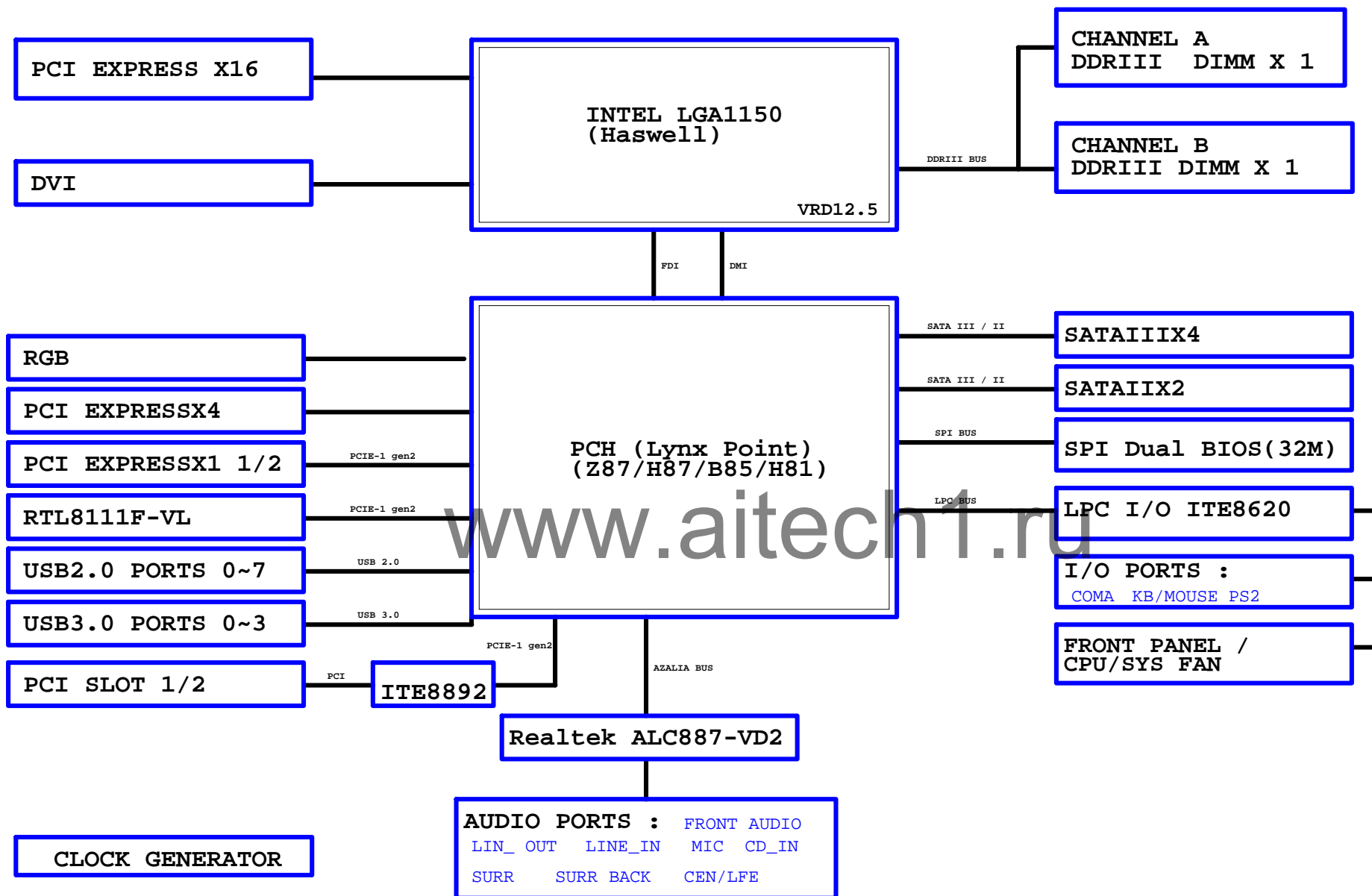
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
37	
38	
39	
40	



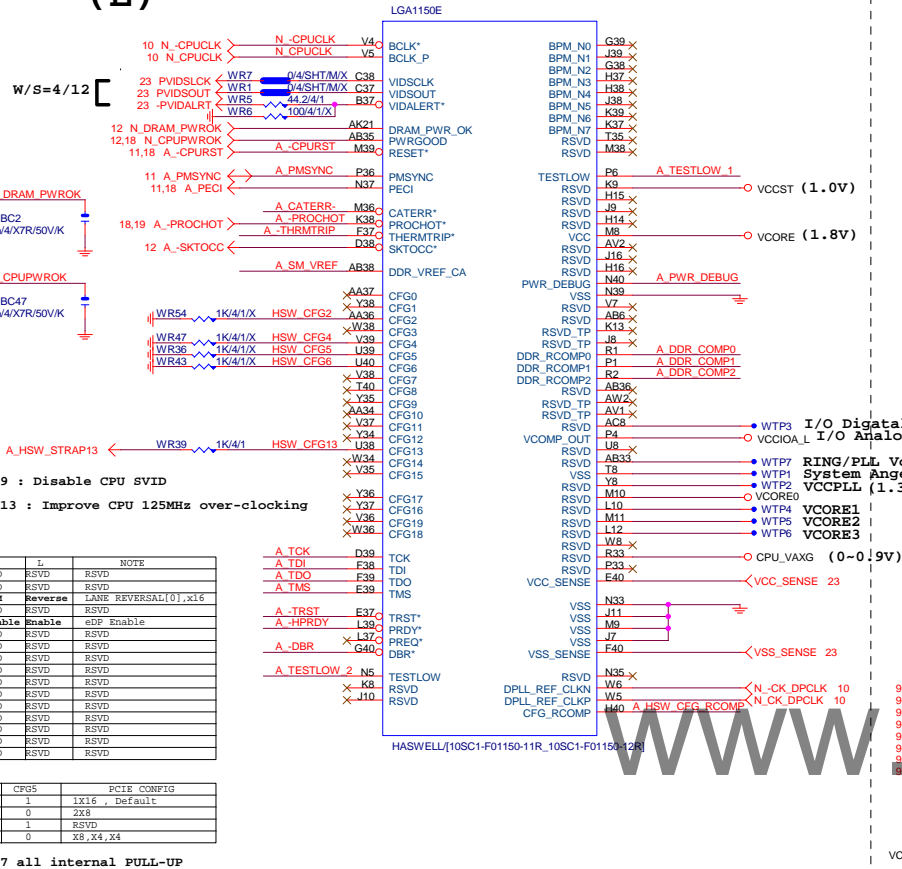
Component value change history

[illegible][illegible]

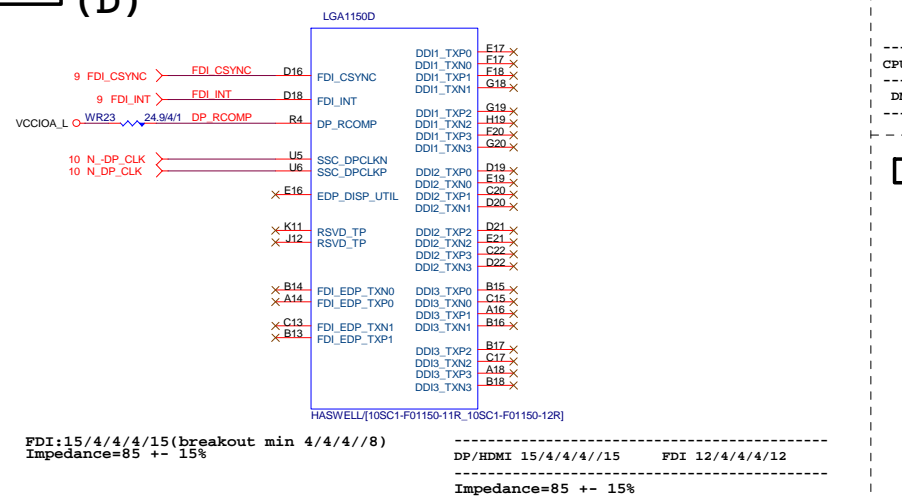
BLOCK DIAGRAM



LGA1150 (E)



LGA1150 (D)



LGA1155 (C)



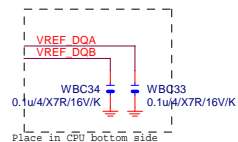
LGA1150 (A)

LGA1150A		DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA0	AU13	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA1	AV16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA2	AU16	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA3	AW17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA4	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA5	AW17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA6	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA7	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA8	AT19	DDR0_MA9	DDR0_D09	AH39	MDA13
MAAA9	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA10	AW19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA11	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA12	AY10	DDR0_MA13	DDR0_D13	AH38	MDA14
MAAA13	AT20	DDR0_MA14	DDR0_D14	AK40	MDA15
MAAA14	AU21	DDR0_MA15	DDR0_D15	AM40	MDA17
MAAA15			DDR0_D16	AM39	MDA21
MODT_A0	AW10	DDR0_ODT0	DDR0_D17	AP38	MDA18
MODT_A1	AY8	DDR0_ODT1	DDR0_D18	AP39	MDA19
	AW9	DDR0_ODT2	DDR0_D19	AM37	MDA20
	AW8	DDR0_ODT3	DDR0_D20	AM38	MDA16
			DDR0_D21	AM37	MDA22
			DDR0_D22	AP40	MDA23
			DDR0_D23	AV37	MDA25
			DDR0_D24	AW37	MDA29
			DDR0_D25	AU35	MDA26
			DDR0_D26	AV35	MDA27
			DDR0_D27	AT37	MDA28
			DDR0_D28	AU37	MDA24
			DDR0_D29	AT35	MDA30
			DDR0_D30	AW35	MDA31
			DDR0_D31	AY6	MDA33
			DDR0_D32	AU6	MDA37
			DDR0_D33	AV4	MDA34
			DDR0_D34	AW6	MDA35
			DDR0_D35	AW6	MDA32
			DDR0_D36	AW4	MDA38
			DDR0_D37	AR1	MDA39
			DDR0_D38	AR4	MDA45
			DDR0_D39	AN3	MDA42
			DDR0_D40	AN4	MDA43
			DDR0_D41	AR2	MDA44
			DDR0_D42	AR3	MDA40
			DDR0_D43	AN2	MDA46
			DDR0_D44	AN1	MDA47
			DDR0_D45	AL1	MDA49
			DDR0_D46	AL4	MDA53
			DDR0_D47	AL4	MDA50
			DDR0_D48	AJ4	MDA51
			DDR0_D49	AL2	MDA52
			DDR0_D50	AL3	MDA48
			DDR0_D51	AJ2	MDA54
			DDR0_D52	AJ1	MDA55
			DDR0_D53	AG1	MDA57
			DDR0_D54	AG4	MDA61
			DDR0_D55	AE3	MDA58
			DDR0_D56	AE4	MDA59
			DDR0_D57	AG2	MDA60
			DDR0_D58	AG3	MDA56
			DDR0_D59	AE2	MDA63
			DDR0_D60	AE1	MDA62
			DDR0_D61	AE39	DQSA0
			DDR0_D62	AJ39	DQSA1
			DDR0_D63	AN39	DQSA2
			DDR0_D64	AV36	DQSA3
			DDR0_D65	AV5	DQSA4
			DDR0_D66	AP3	DQSA5
			DDR0_D67	AK3	DQSA6
			DDR0_D68	AF3	DQSA7
			DDR0_D69	AV32	
			DDR0_D70	AE38	-DQSA0
			DDR0_D71	AJ38	-DQSA1
			DDR0_D72	AN38	-DQSA2
			DDR0_D73	AJ36	-DQSA3
			DDR0_D74	AW5	-DQSA4
			DDR0_D75	AP2	-DQSA5
			DDR0_D76	AK2	-DQSA6
			DDR0_D77	AF2	-DQSA7
			DDR0_D78	AU32	

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

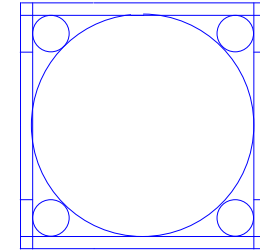
LGA1150 (B)

LGA1150B		DDR1_MA0	DDR1_D00	AE34	MDB0
MAAB0	AL19	DDR1_MA1	DDR1_D01	AE35	MDB1
MAAB1	AK23	DDR1_MA2	DDR1_D02	AG35	MDB2
MAAB2	AM23	DDR1_MA3	DDR1_D03	AH35	MDB3
MAAB3	AP23	DDR1_MA4	DDR1_D04	AD34	MDB4
MAAB4	AL23	DDR1_MA5	DDR1_D05	AD35	MDB5
MAAB5	AY24	DDR1_MA6	DDR1_D06	AG34	MDB6
MAAB6	AY25	DDR1_MA7	DDR1_D07	AH34	MDB7
MAAB7	AU26	DDR1_MA8	DDR1_D08	AL34	MDB8
MAAB8	AW25	DDR1_MA9	DDR1_D09	AL35	MDB9
MAAB9	AP18	DDR1_MA10	DDR1_D10	AK31	MDB10
MAAB10	AY25	DDR1_MA11	DDR1_D11	AL31	MDB11
MAAB11	AY26	DDR1_MA12	DDR1_D12	AK34	MDB12
MAAB12	AR15	DDR1_MA13	DDR1_D13	AK35	MDB13
MAAB13	AV27	DDR1_MA14	DDR1_D14	AK32	MDB14
MAAB14	AY28	DDR1_MA15	DDR1_D15	AL32	MDB15
MODT_B0	AM17	DDR1_ODT0	DDR1_D16	AP34	MDB17
MODT_B1	AL16	DDR1_ODT1	DDR1_D17	AK31	MDB19
	AM16	DDR1_ODT2	DDR1_D18	AP31	MDB23
	AK15	DDR1_ODT3	DDR1_D19	AP35	MDB20
			DDR1_D20	AP35	MDB16
			DDR1_D21	AN32	MDB18
			DDR1_D22	AP32	MDB22
			DDR1_D23	AM29	MDB25
			DDR1_D24	AM28	MDB28
			DDR1_D25	AR29	MDB27
			DDR1_D26	AR28	MDB30
			DDR1_D27	AL28	MDB24
			DDR1_D28	AL28	MDB29
			DDR1_D29	AP29	MDB26
			DDR1_D30	AP28	MDB31
			DDR1_D31	AR12	MDB32
			DDR1_D32	AL12	MDB35
			DDR1_D33	AR13	MDB36
			DDR1_D34	AP13	MDB37
			DDR1_D35	AM13	MDB38
			DDR1_D36	AM12	MDB39
			DDR1_D37	AR9	MDB45
			DDR1_D38	AP9	MDB41
			DDR1_D39	AR6	MDB47
			DDR1_D40	AP6	MDB43
			DDR1_D41	AR10	MDB44
			DDR1_D42	AP10	MDB40
			DDR1_D43	AR7	MDB46
			DDR1_D44	AP7	MDB42
			DDR1_D45	AM9	MDB52
			DDR1_D46	AL9	MDB53
			DDR1_D47	AL6	MDB50
			DDR1_D48	AL7	MDB55
			DDR1_D49	AM10	MDB48
			DDR1_D50	AL10	MDB49
			DDR1_D51	AM6	MDB54
			DDR1_D52	AM7	MDB51
			DDR1_D53	AH6	MDB61
			DDR1_D54	AH7	MDB60
			DDR1_D55	AE6	MDB59
			DDR1_D56	AE7	MDB63
			DDR1_D57	AJ6	MDB56
			DDR1_D58	AJ7	MDB57
			DDR1_D59	AF6	MDB58
			DDR1_D60	MDB62	
			DDR1_D61	AF3	DQSB0
			DDR1_D62	AL33	DQSB1
			DDR1_D63	AP33	DQSB2
			DDR1_D64	AN28	DQSB3
			DDR1_D65	AN12	DQSB4
			DDR1_D66	AP8	DQSB5
			DDR1_D67	AL8	DQSB6
			DDR1_D68	AG7	DQSB7
			DDR1_D69	AN25	
			DDR1_D70	AE34	-DQSB0
			DDR1_D71	AK33	-DQSB1
			DDR1_D72	AN33	-DQSB2
			DDR1_D73	AN29	-DQSB3
			DDR1_D74	AN13	-DQSB4
			DDR1_D75	AR8	-DQSB5
			DDR1_D76	AM8	-DQSB6
			DDR1_D77	AG6	-DQSB7
			DDR1_D78	AN26	



HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150 (CR)

LGA1150
ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

DDR BUS

7 MODT_A[0..1]	MODT_A0..1
8 MODT_B[0..1]	MODT_B0..1
7 MDA[0..63]	MDA0..63
8 MDB[0..63]	MDB0..63
7 DQSA[0..7]	DQSA0..7
7 -DQSA[0..7]	-DQSA0..7
7 MAA[0..15]	MAA0..15
8 MAB[0..15]	MAB0..15
8 DQSB[0..7]	DQSB0..7
8 -DQSB[0..7]	-DQSB0..7

Gigabyte Technology

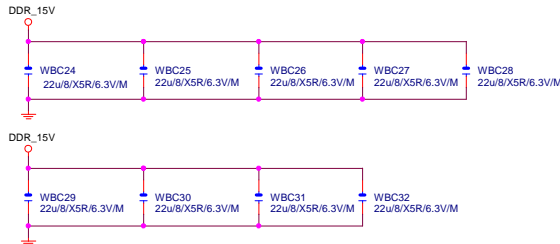
Title		CPU LGA1150-B	
Size	Document Number	GA-P85-D3T	
Custom			Rev 1.1
Date:	Monday, April 21, 2014	Sheet	5 of 34

LGA1150 (G,H,I)



DDR CAP

(x9)



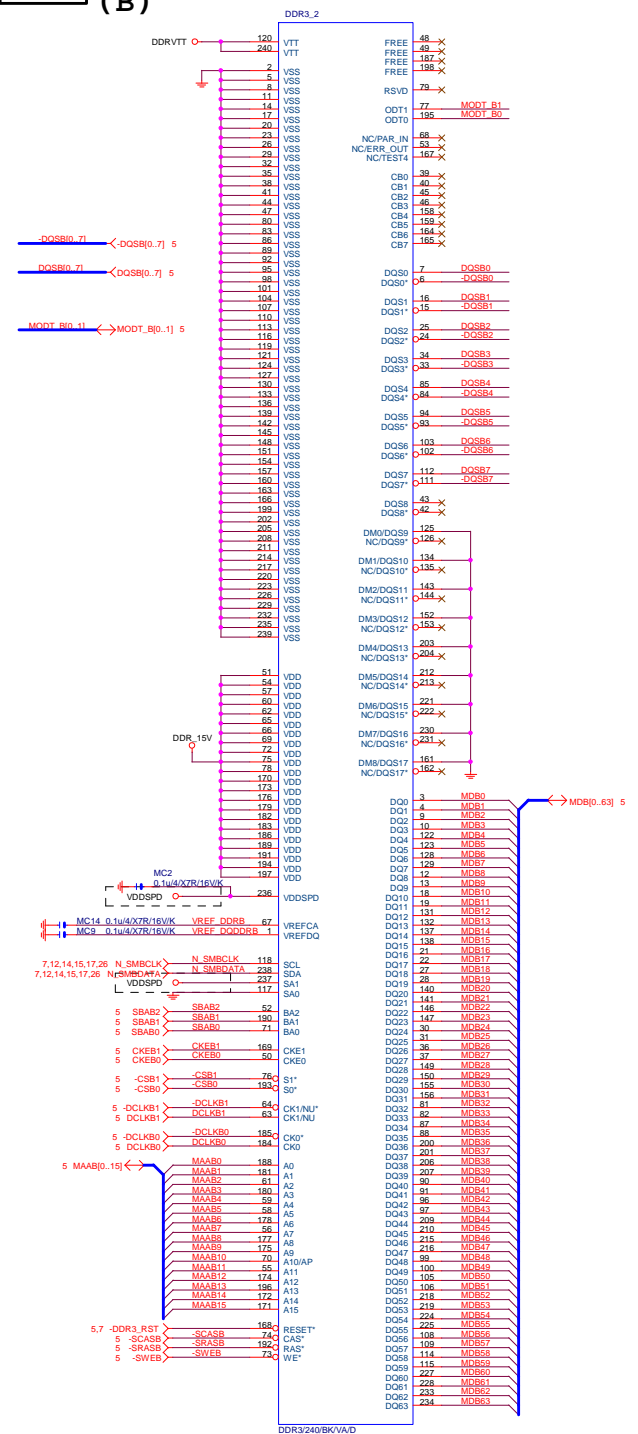
C0805-MASK

Title			
CPU LGA1150-C			
Size	Document Number		Rev
Custom	GA-P85-D3T		1.1
Date:	Monday, April 21, 2014	Sheet	6 of 34

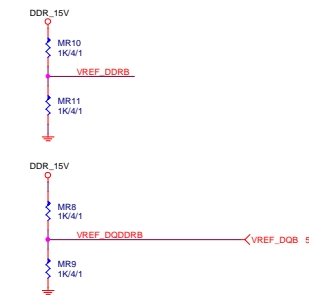


DDR3

(B)



DDR3 VREF



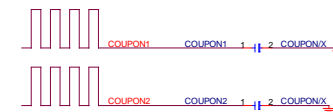
DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

COUPON



CPU

DIMM1 (黑色) CHA

DIMM2 (黑色) CHB

Gigabyte Technology

Title			DDR3 CHANNEL B
Size	Document Number	Rev	1.1
Custom	GA-P85-D3T		
Date:		Sheet	8 of 34

PCH

(B)

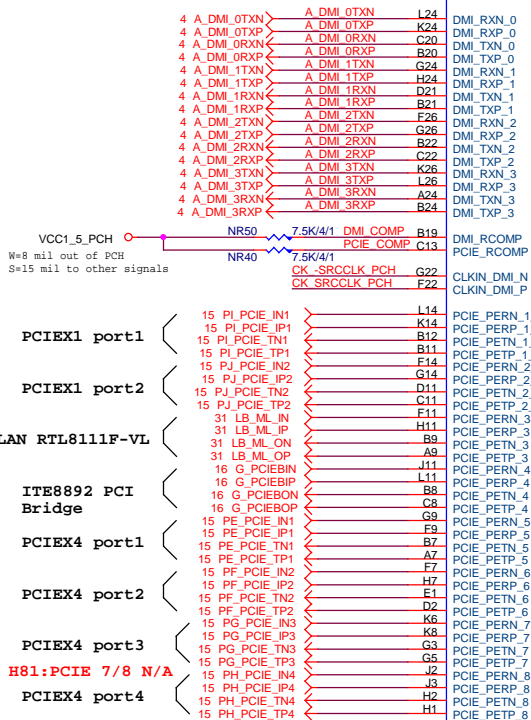
DMI:12/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

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

PCHB

B85: Port 6/7 N/A

H81: Port 6/7/12/13 N/A



放靠近 Device & PCI-E Slot

DH82B85/S[10HB1-030B85-20R]

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

usb2.0 12/5/7/5/12

Impedance=85 +- 15%

usb3.0 20/5/7/5/20

PCH

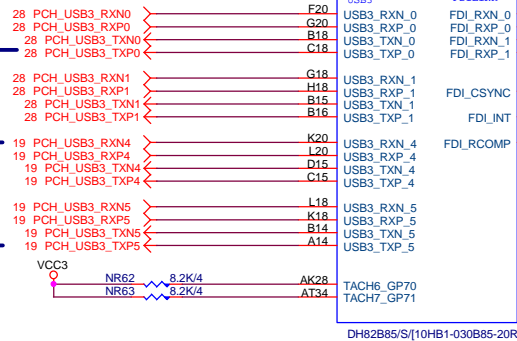
(F)

Port要對應

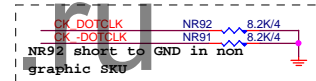
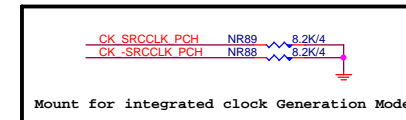
H81:USB3.0 N/A

B85/H81: 9/7 N/A

H81:12/13 N/A

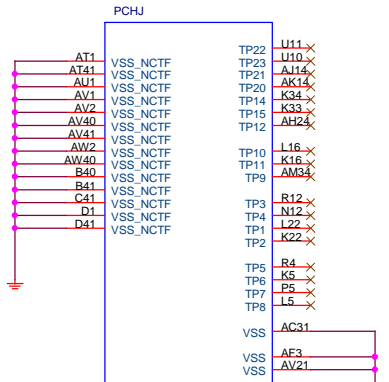


USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS



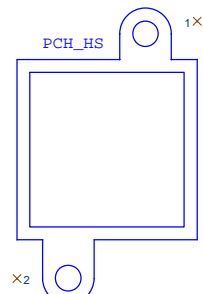
PCH

(J)



PCH H/S

LOW COST PCH HEATSINK



NEW H81 MODEL
Footprint: BGAHSINK-75;
3mm孔径

HEAT SINK/N-BG/GBT MK/Z87/KWOG[12SP2-S04208-61R_12SP2-S04208-62R_12SP2-S04208-63R]

USB TABLE

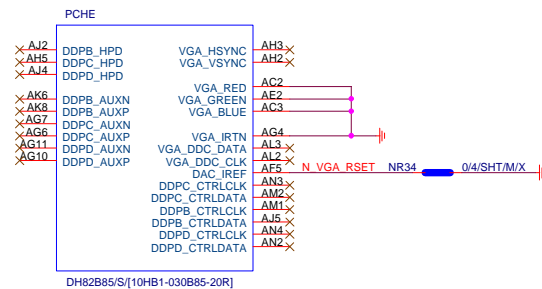
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

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

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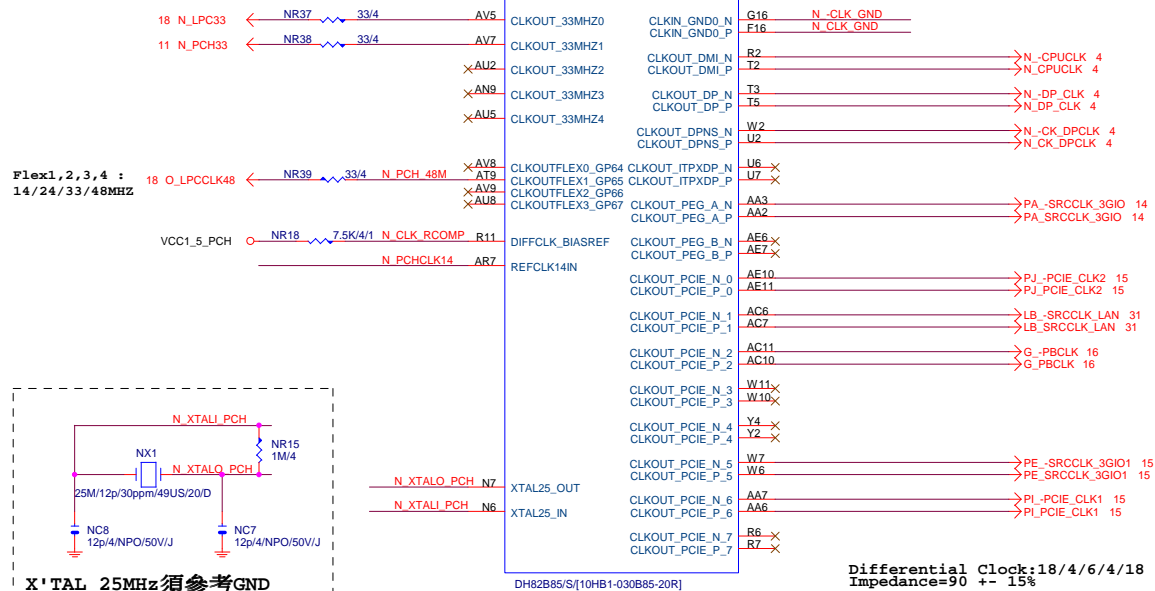
Title PCH FDI,DMI,USB,PCIE		
Size Custom	Document Number GA-P85-D3T	Rev 1.1
Date Monday, April 21, 2014	Sheet 9	of 34

PCH (E)



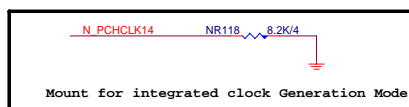
VGA_DISABLE
R,G,B NC OR GND
IRTN / IREF GND
VGA_HSYNC, VGA_VSYNC, DDC_CLK, DDC_DATA NC
POWER VCCADAC(AF2), VCCADACBG(AE1) GND

PCH (G)



X'TAL 25MHz 須參考GND
避免造成RGB noise
走線遠離其他40mil以上

PCH CLK PD



VGA DDC

VGA ESD

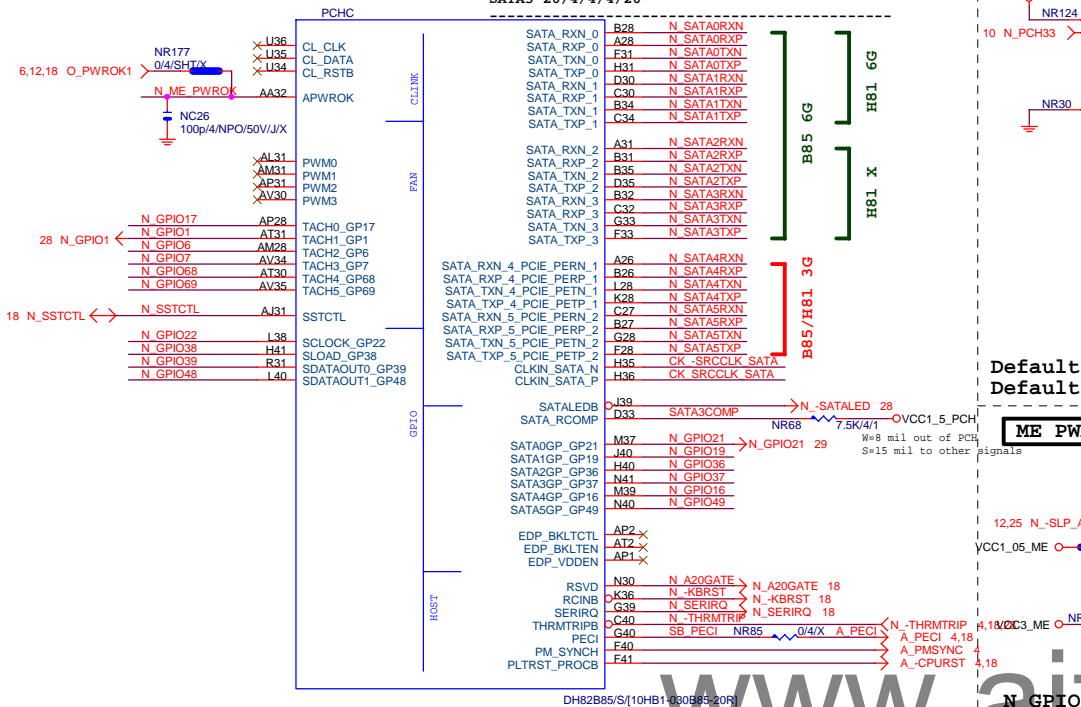
VGA DDC

VGA CONNECTOR

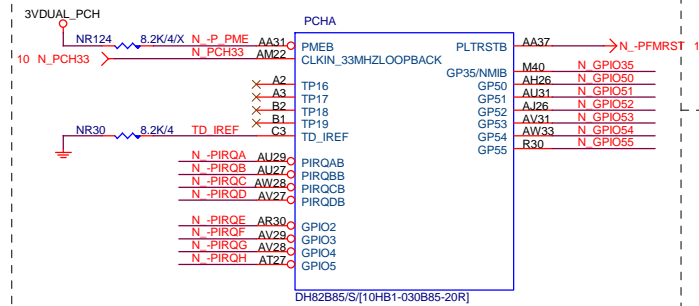
PCH (C)

SATA3 : 20/4/4/4/20 (breakout min 8/4/4/4/8)

```
SATA2 15/4/4/4/15
SATA3 20/4/4/4/20
```



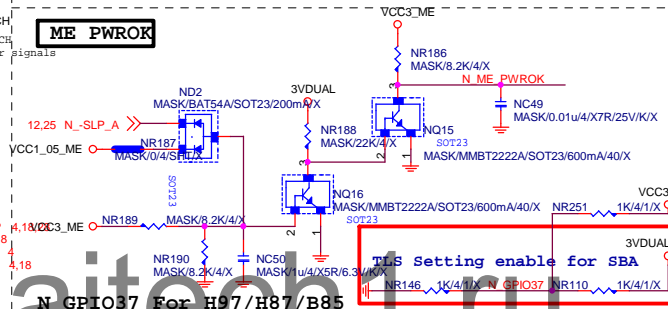
PCH (A)



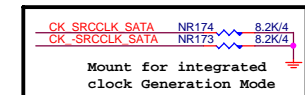
```
Default int pull up on GP51,
Default SPI boot devices
```

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

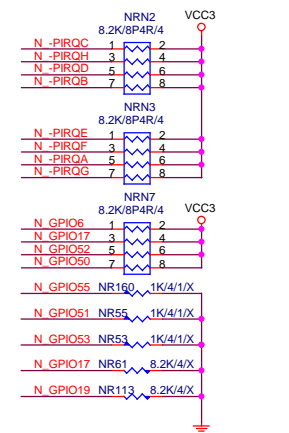
ME PWROK



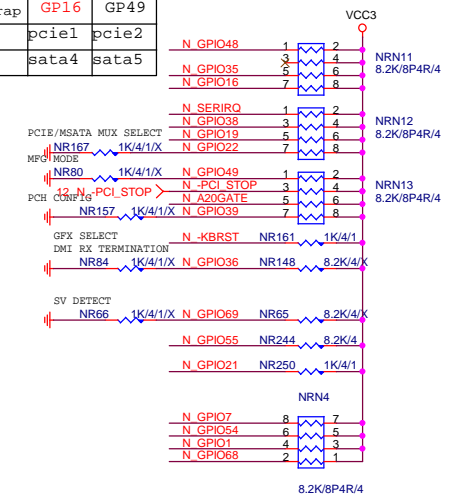
PCH CLK PD



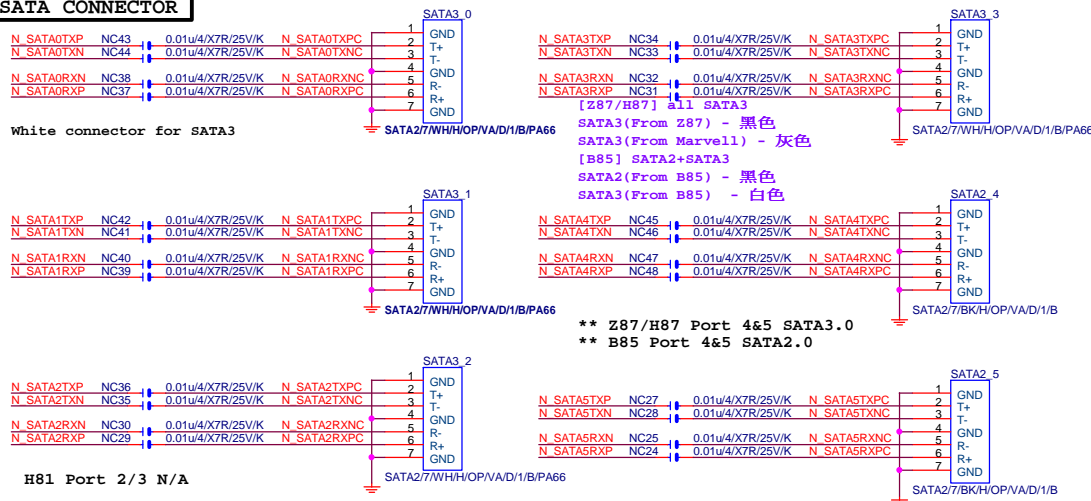
PCH	PU/PD
-----	-------



soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5



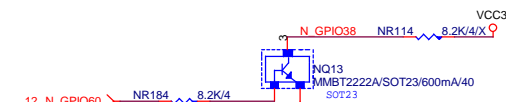
SATA CONNECTOR



GPIO38 Ctrl

MFG Mode

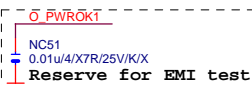
```
N_GPIO38 : Lo --> Enable
           Hi --> Disable
```



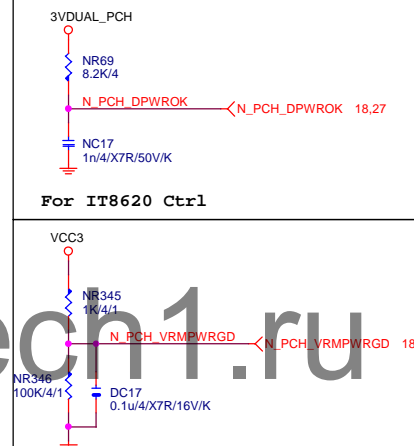
Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-P85-D3T		1.1
Date:	Monday, April 21, 2014	Sheet	11 of 34

(D)



Hi-Disable ME and Override SPI Flash Access Permissions



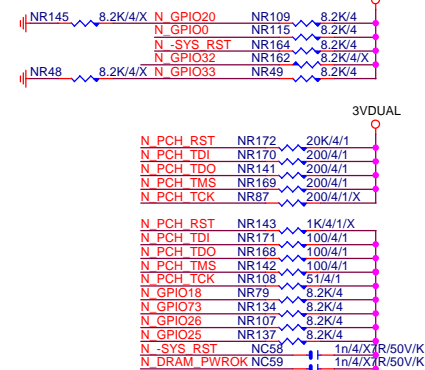
Pinmux Diagram for NXP i.MX8M Mini (8K/8P/4R)

Legend:

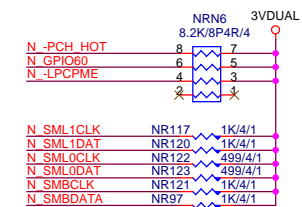
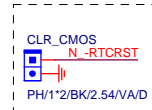
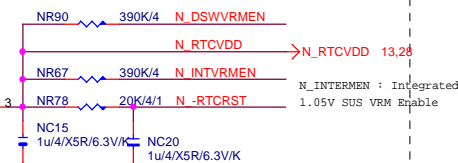
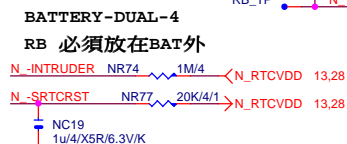
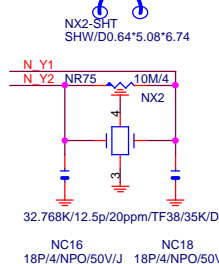
- 8.2K/4/X (Blue)
- 8.2K/8P/4R (Purple)
- 8.2K/4/X (Pink)

Pinmux Table:

Peripheral	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
NR139	8.2K/4/X	N_GPIO46	1	2				
NR155	8.2K/4/X	N_GPIO45	3	4				NRN9
NR103	8.2K/4/X	N_GPIO44	5	6				8.2K/8P/4R/4
	N_GPIO57	7	8					
A -SKTOCC	1	2						
N_TEMP_ALARM-	3	4						NRN10
N -RI	5	6						8.2K/8P/4R/4
	X	8						
GPB:Low to enable								
PCH clock chip								
NR106	1K/4/1	N -IGC_EN	NR105	8.2K/4/X				
NR153	1K/4/1/X	N_SUSCLK	NR154	8.2K/4/X				
SUSCLK:Low to OD								
PLL VR								
	N -SUSTAT	NR133	8.2K/4/X					
GP28:Lo to disable	-D_GPIO_HRST	NR51	1K/4/1					
VRM_Hi enable	N_GPIO28	NR57	1K/4/1					
	N_GPIO29	NR96	1K/4/1					
VRM								3V/DUAL_PCH
	N -S_WARN	NR129	8.2K/4					
	N_GPIO27	NR60	8.2K/4					
	N_GPIO31	NR72	8.2K/4					
	N -SLP_LAN	NR75	8.2K/4/X					
	N_GPIO72	NR100	8.2K/4					
	N -PCIE_WAKE	NR76	1K/4/1					
	N_GPIO29	NR95	1K/4/1/X					



32.768KHZ



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PCH GPIO , CTRL , AUDIO

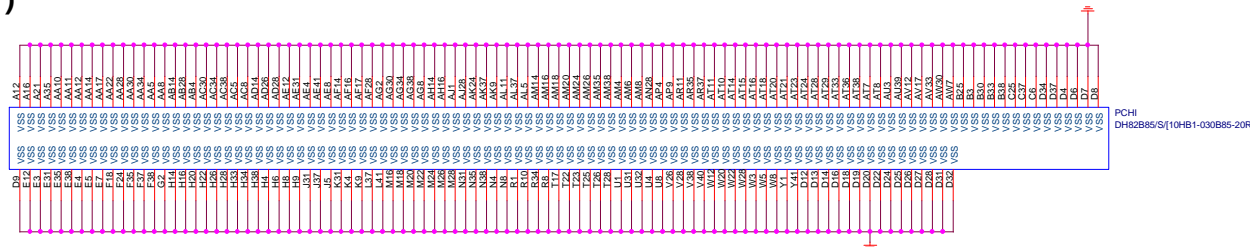
Size	Document Number	Rev
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GA-P85-D3T

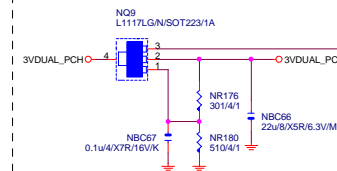
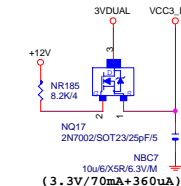
Date: Monday, April 21, 2014 Sheet 12 of 34

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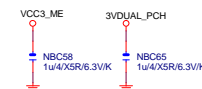
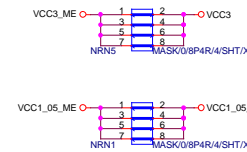
PCH (I)



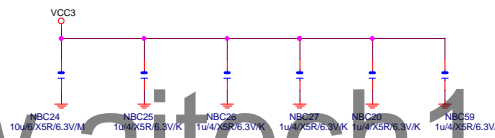
3VDUAL_PCH



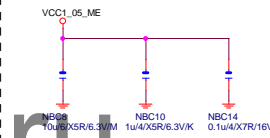
Gigabyte Technology



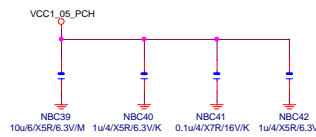
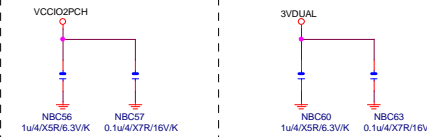
(3.3V) (X6)



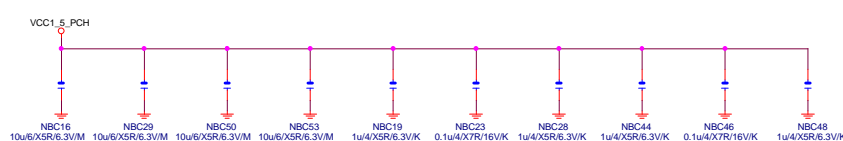
(1.05V) (x5)



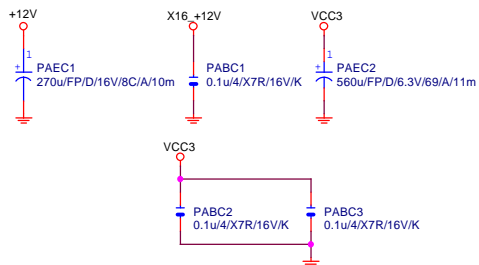
(1.05V)(x6)


$$(1.05V)(x2)(3.3V)(x2)$$


(1.5V) (x10)

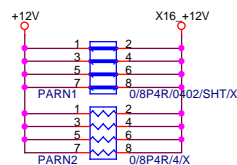


PCIEX16 CAP



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

```
+12  protect
short-wire test
```



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

PA EXP TXP0	PA C5	0.22u4/X5R6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PA C4	0.22u4/X5R6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PA C6	0.22u4/X5R6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PA C7	0.22u4/X5R6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PA C8	0.22u4/X5R6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PA C9	0.22u4/X5R6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PA C10	0.22u4/X5R6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PA C11	0.22u4/X5R6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PA C12	0.22u4/X5R6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PA C13	0.22u4/X5R6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PA C14	0.22u4/X5R6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PA C15	0.22u4/X5R6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PA C16	0.22u4/X5R6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PA C17	0.22u4/X5R6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PA C19	0.22u4/X5R6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PA C18	0.22u4/X5R6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PA C20	0.22u4/X5R6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PA C21	0.22u4/X5R6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PA C22	0.22u4/X5R6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PA C23	0.22u4/X5R6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PA C24	0.22u4/X5R6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PA C25	0.22u4/X5R6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PA C26	0.22u4/X5R6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PA C27	0.22u4/X5R6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PA C28	0.22u4/X5R6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PA C29	0.22u4/X5R6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PA C30	0.22u4/X5R6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PA C31	0.22u4/X5R6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PA C32	0.22u4/X5R6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PA C33	0.22u4/X5R6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PA C34	0.22u4/X5R6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PA C35	0.22u4/X5R6.3V/K	PA EXP TXN15 C

PCI-E REV:1.1--> 2.5GHZ

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

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

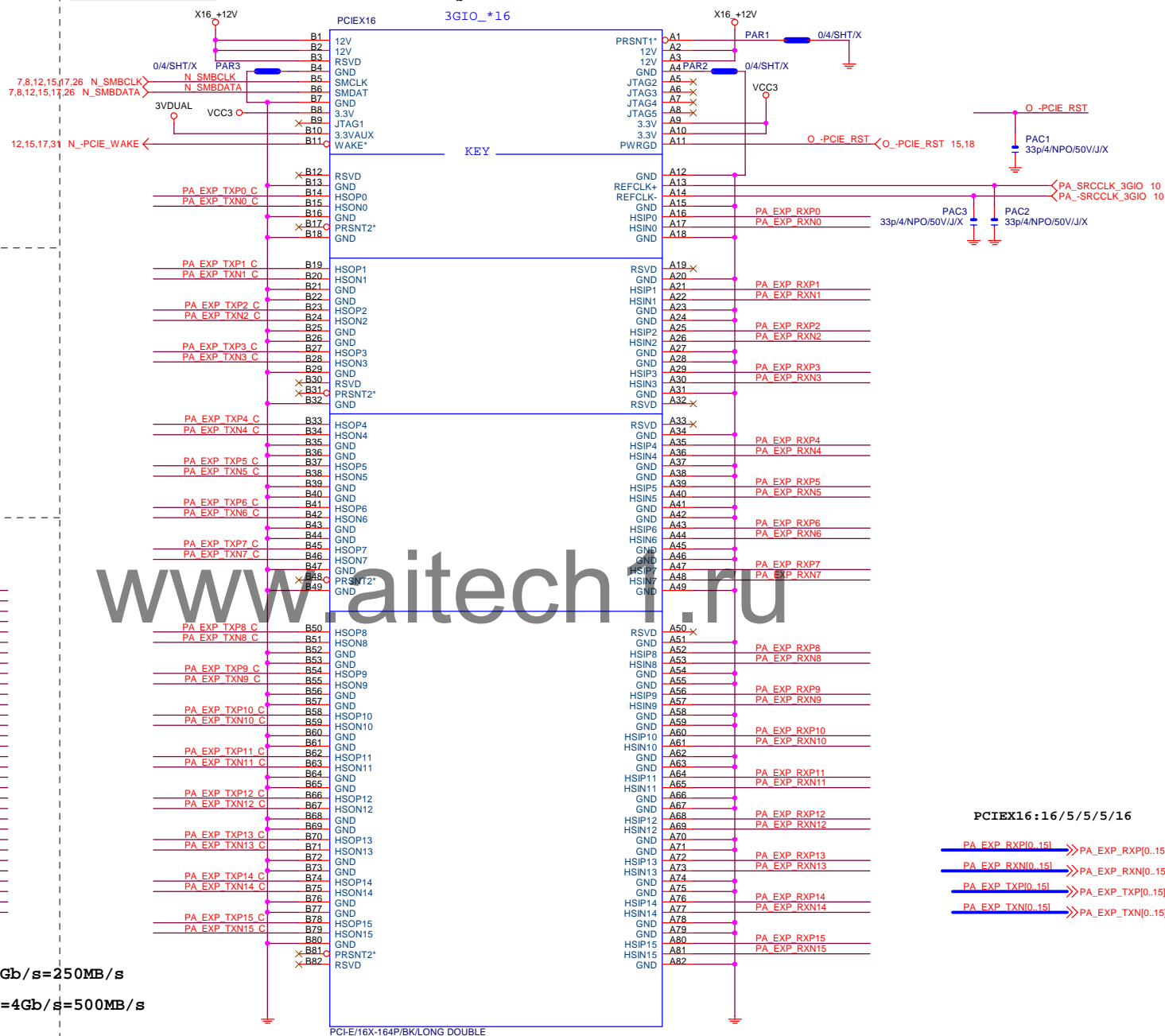
PCE-E X16(單向) BANDWIDTH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

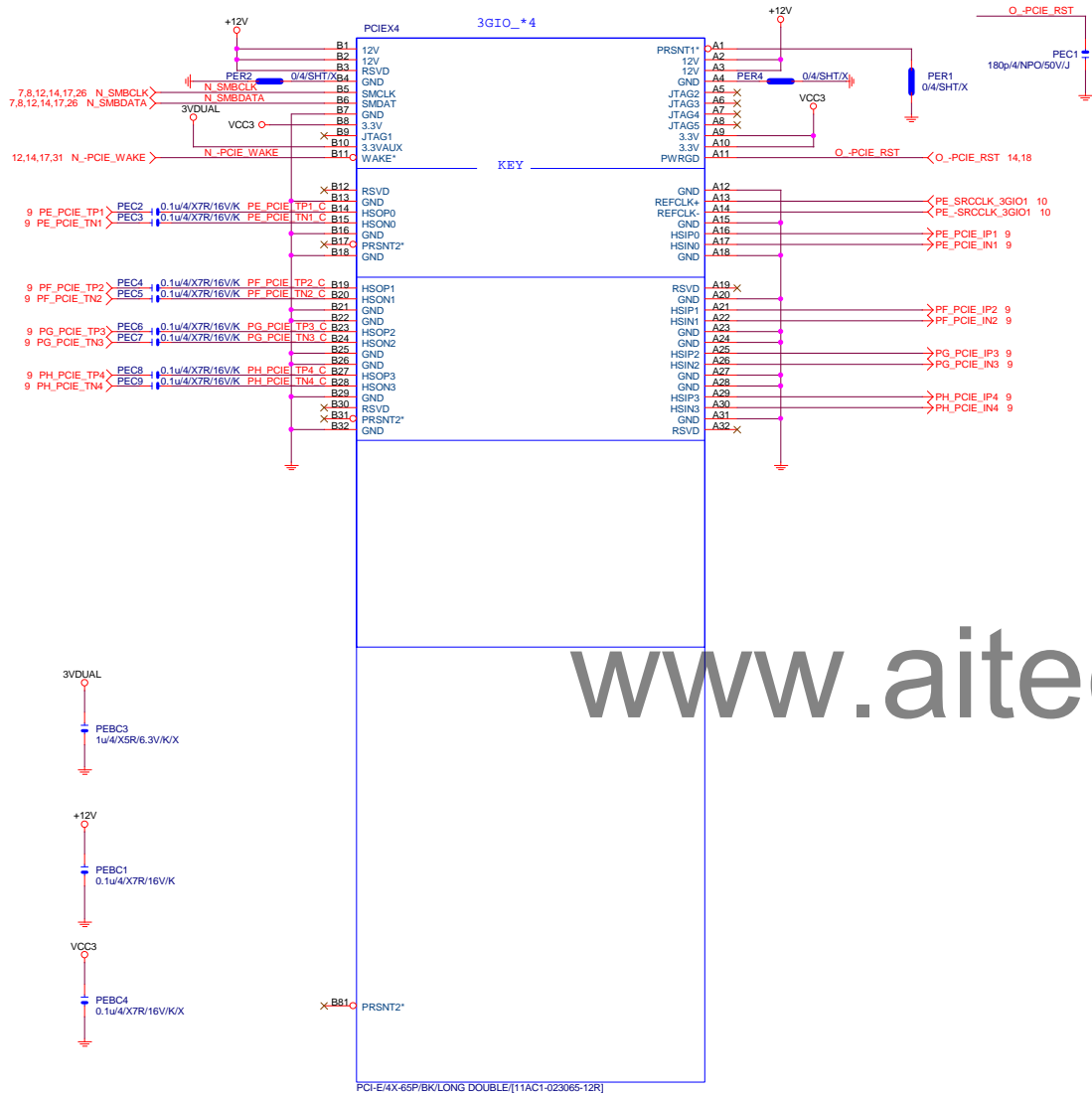
PCIESLOT-164DN-Q



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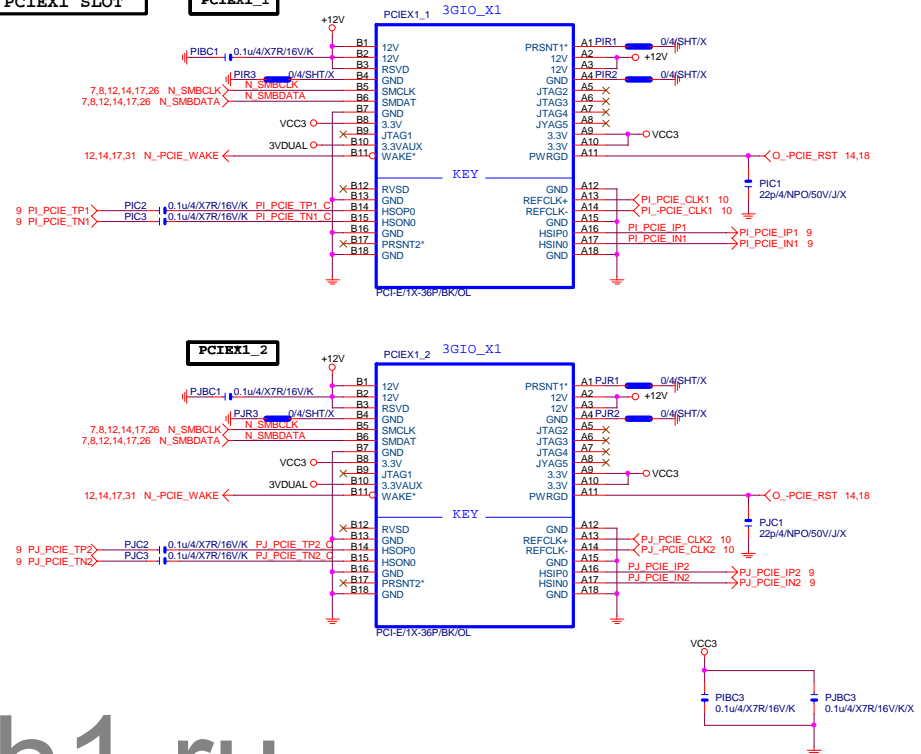
Gigabyte Technology			
Title PCI EXPRESS * 16			
Size Custom	Document Number GA-P85-D3T	Rev 1.1	
Date:	Monday, April 21, 2014	Sheet	14 of 34

PCIEX4 SLOT

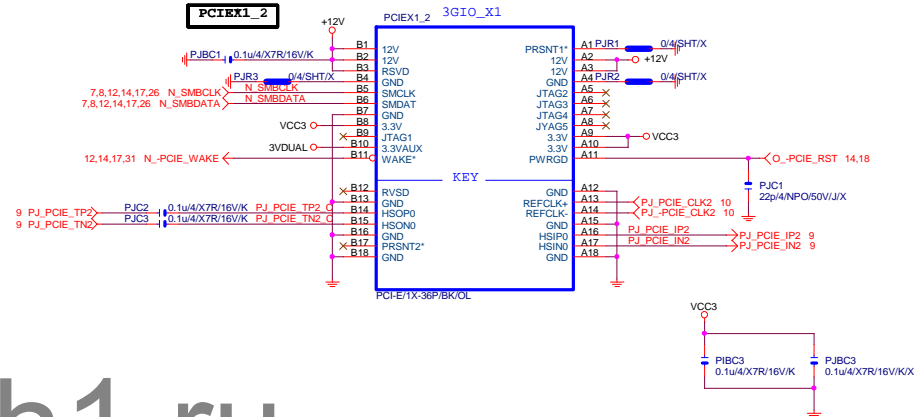


PCIEX1 SLOT

PCIEX1_1



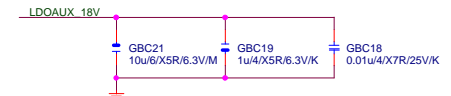
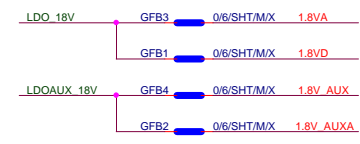
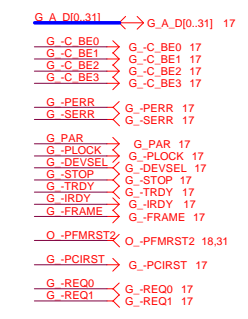
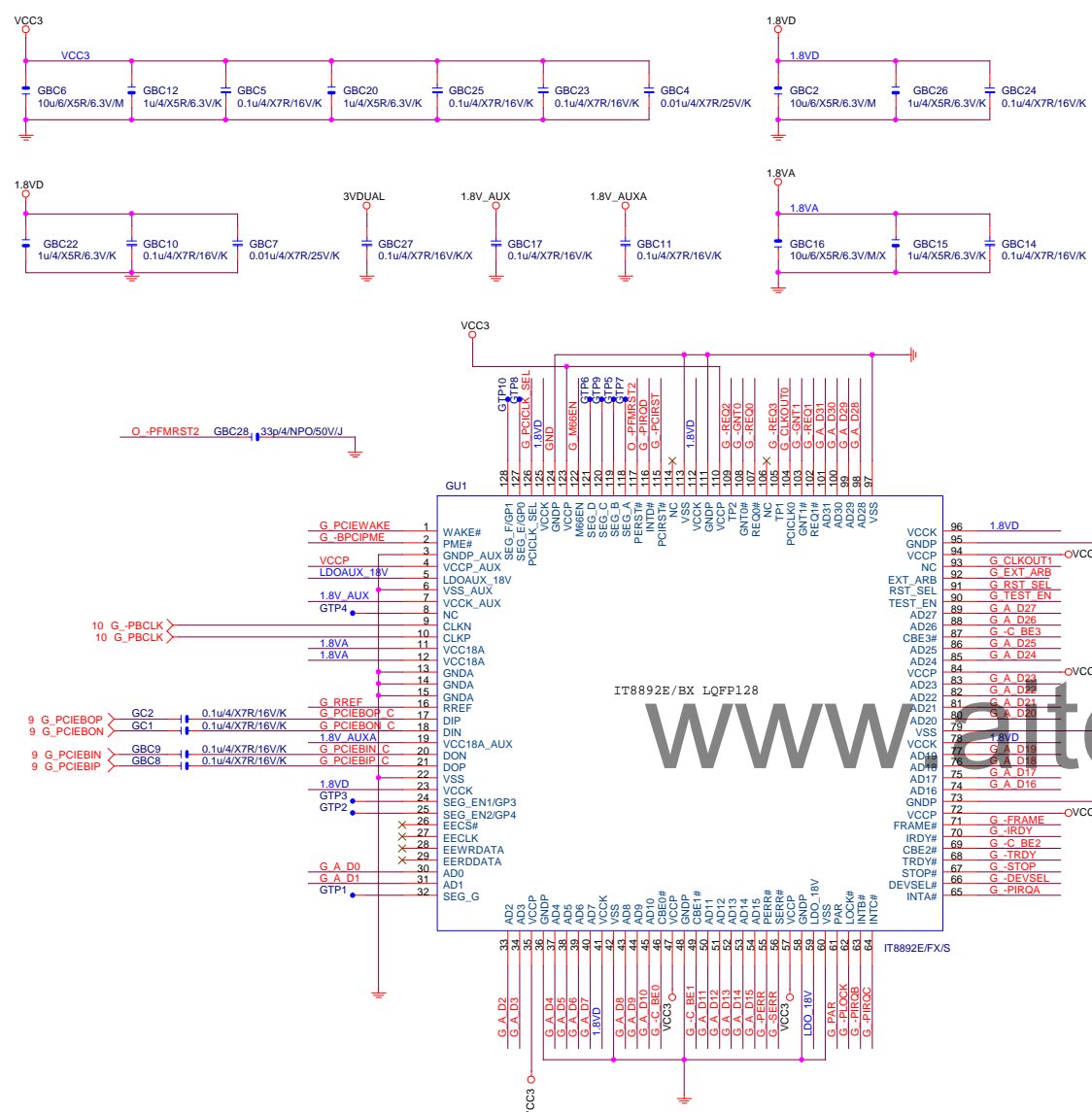
PCIEX1_2



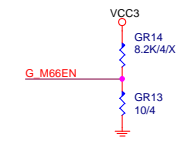
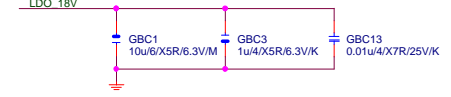
www.aitech1.ru

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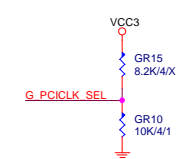
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Size	Document Number	Rev	
Custom	GA-P85-D3T	1.1	
Date:	Monday, April 21, 2014	Sheet	15 of 34



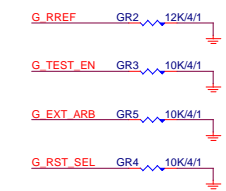
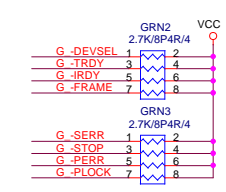
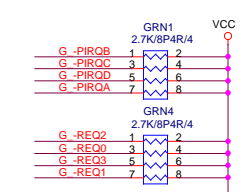
PCB layout note:
Close to chip



High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

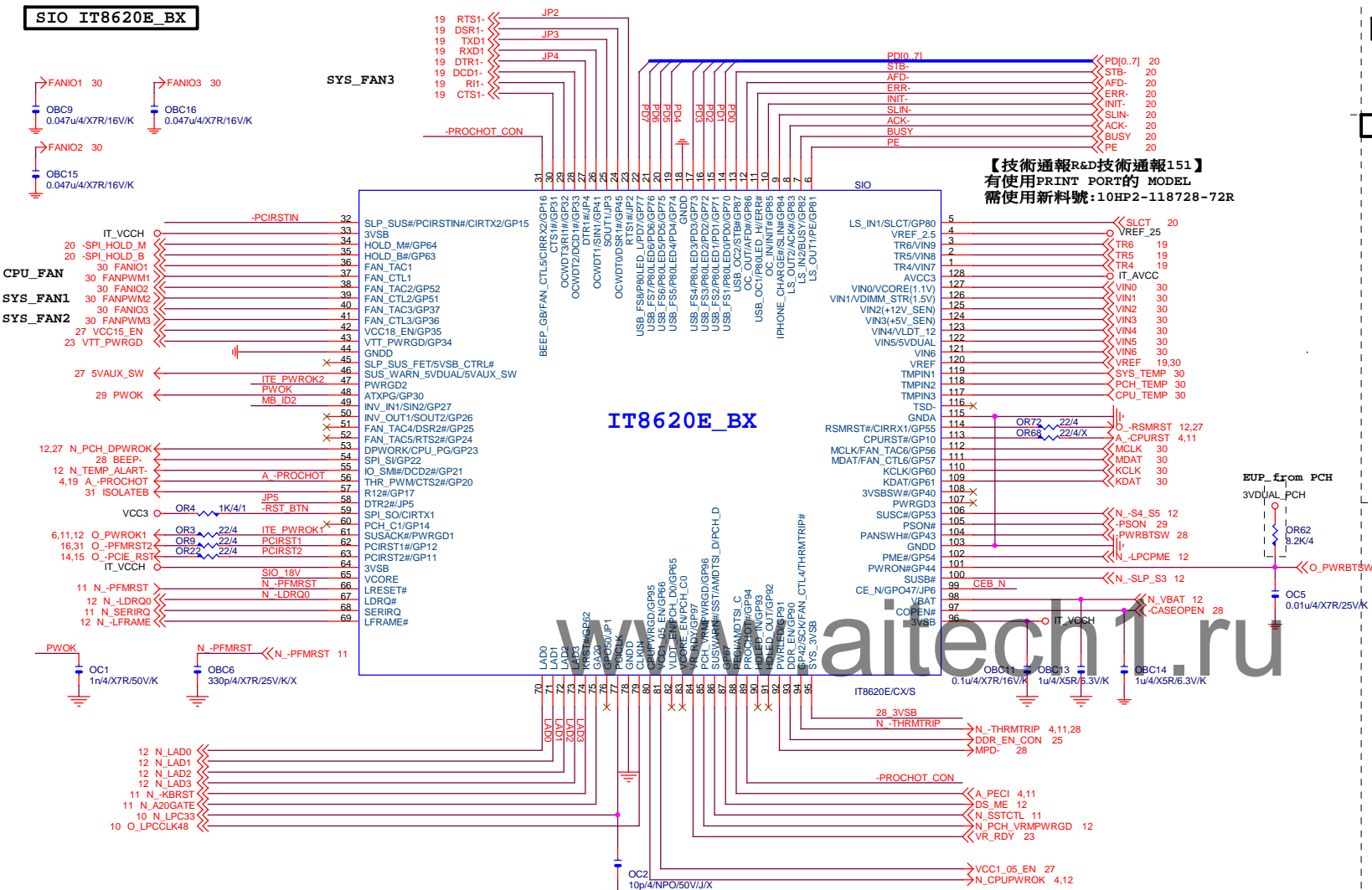


High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip



Gigabyte Technology			
IT8892E			
Title	Document Number	Rev	
	GA-P85-D3T	1.1	
Date:	Monday, April 21, 2014	Sheet	16 of 34

SIO IT8620E BX



PWR SHT

SIO PU

SIO STRAP

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 40h.

IT8620E GPIO問題匯整

PIN 50	第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾

DUAL BIOS OPT STRAP

Power leakage

SIO_18V

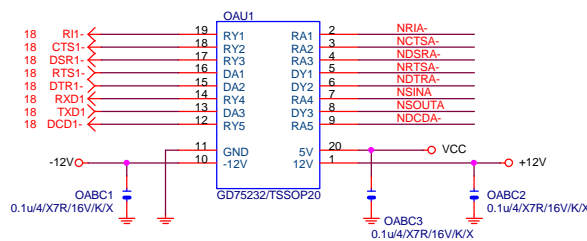
MB ID

Power leakage

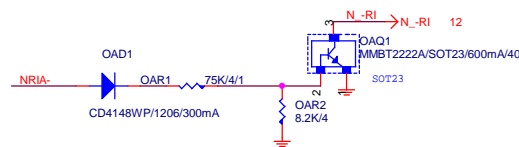
Gigabyte Technology

Title			ITE 8728 LPC IO		
Size	Document Number	GA-P85-D3T			Rev 1.1
Date: Monday, April 21, 2014			Sheet 18	of 34	

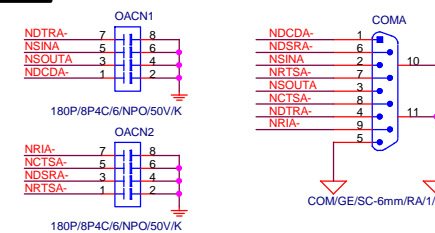
COMA



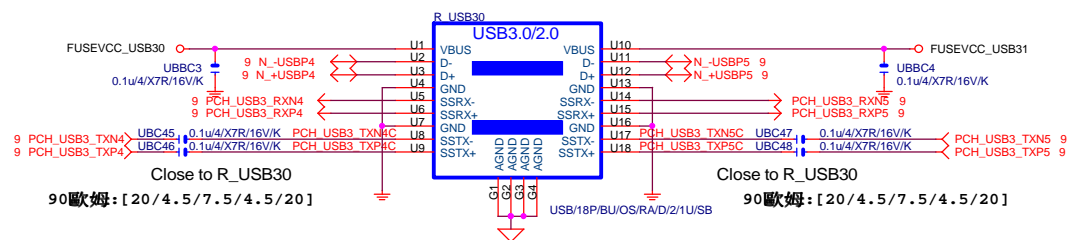
COM RI



COM BUFFER



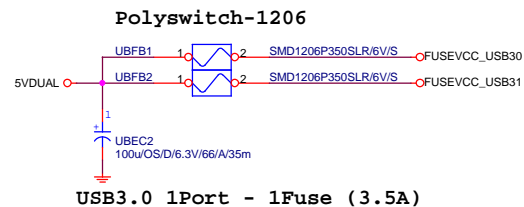
USB3_20 CONNECT



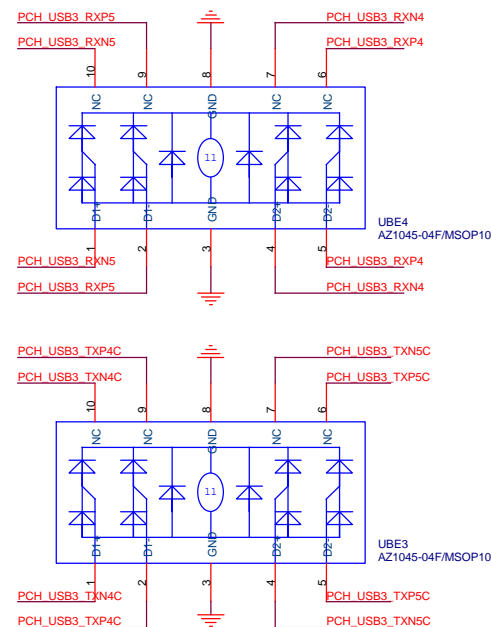
-PROHOT



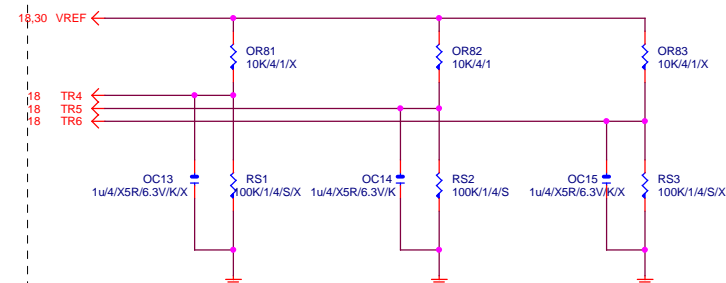
USB30 PWR



USB30 ESD PROTECT

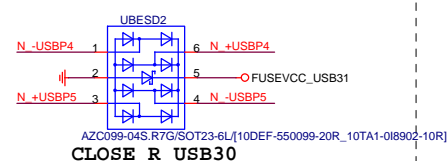


-PROHOT



RS1 close DBQ1、
RS2 close DDQ1、
RS3 close DAQ1、
Others close SIO

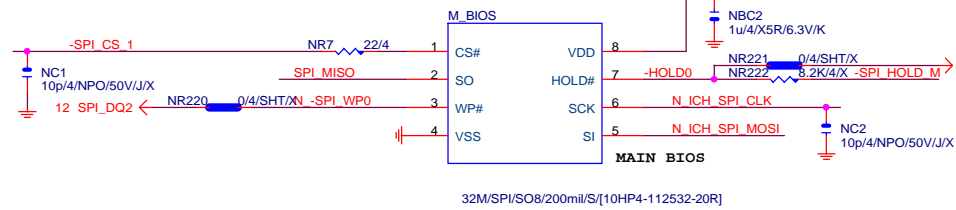
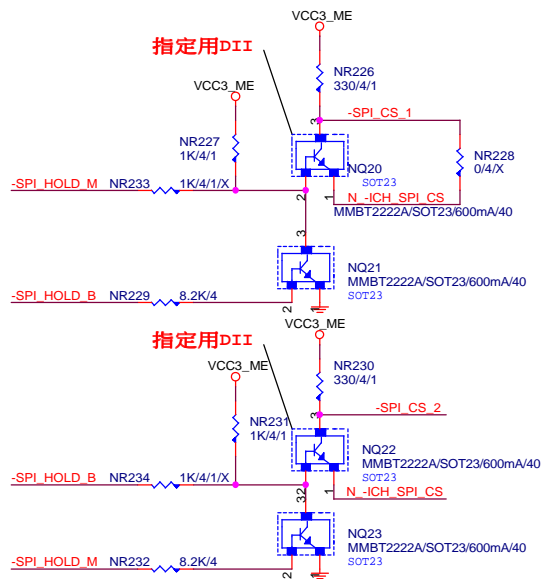
USB20 ESD PROTECT



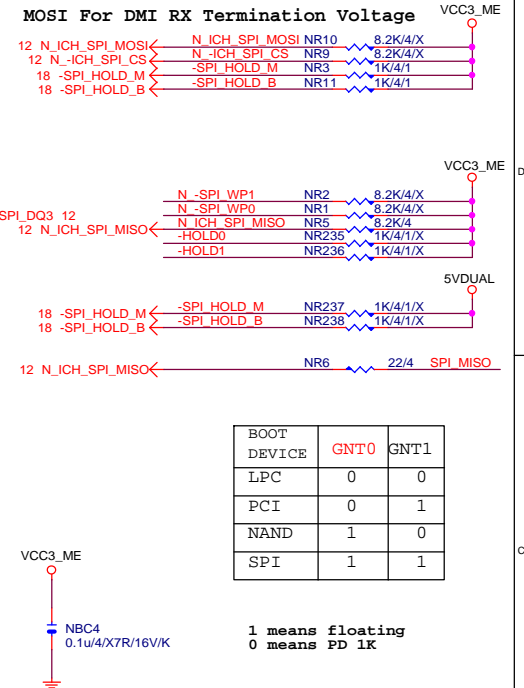
Gigabyte Technology

Title			COM & PROHOT/Dynamic O.C.
Size	Document Number	Custom	GA-P85-D3T
Date:	Monday, April 21, 2014	Sheet	19 of 34

DUAL BIOS



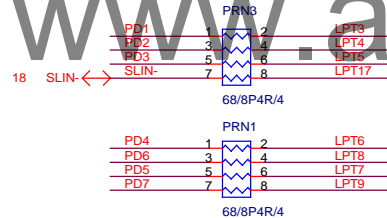
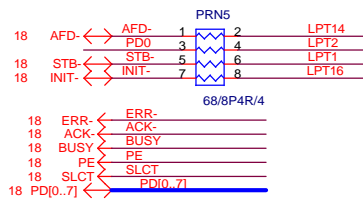
MOSI For DMI RX Termination Voltage



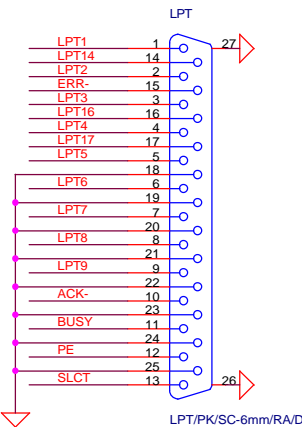
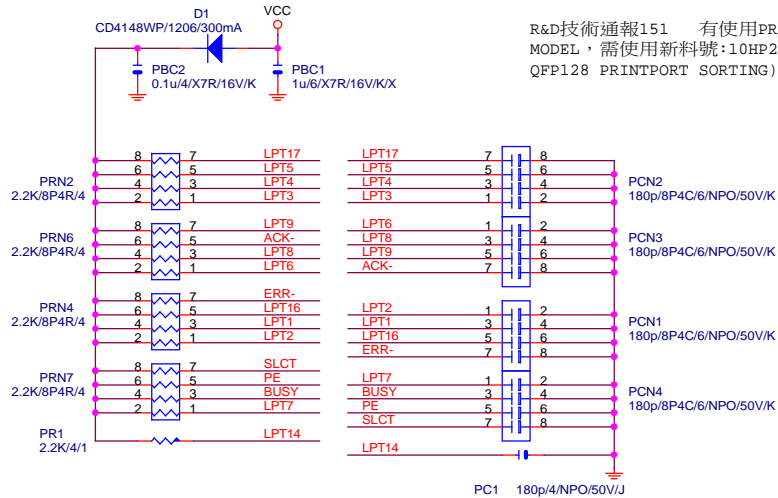
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

```
1 means floating
0 means PD 1K
```

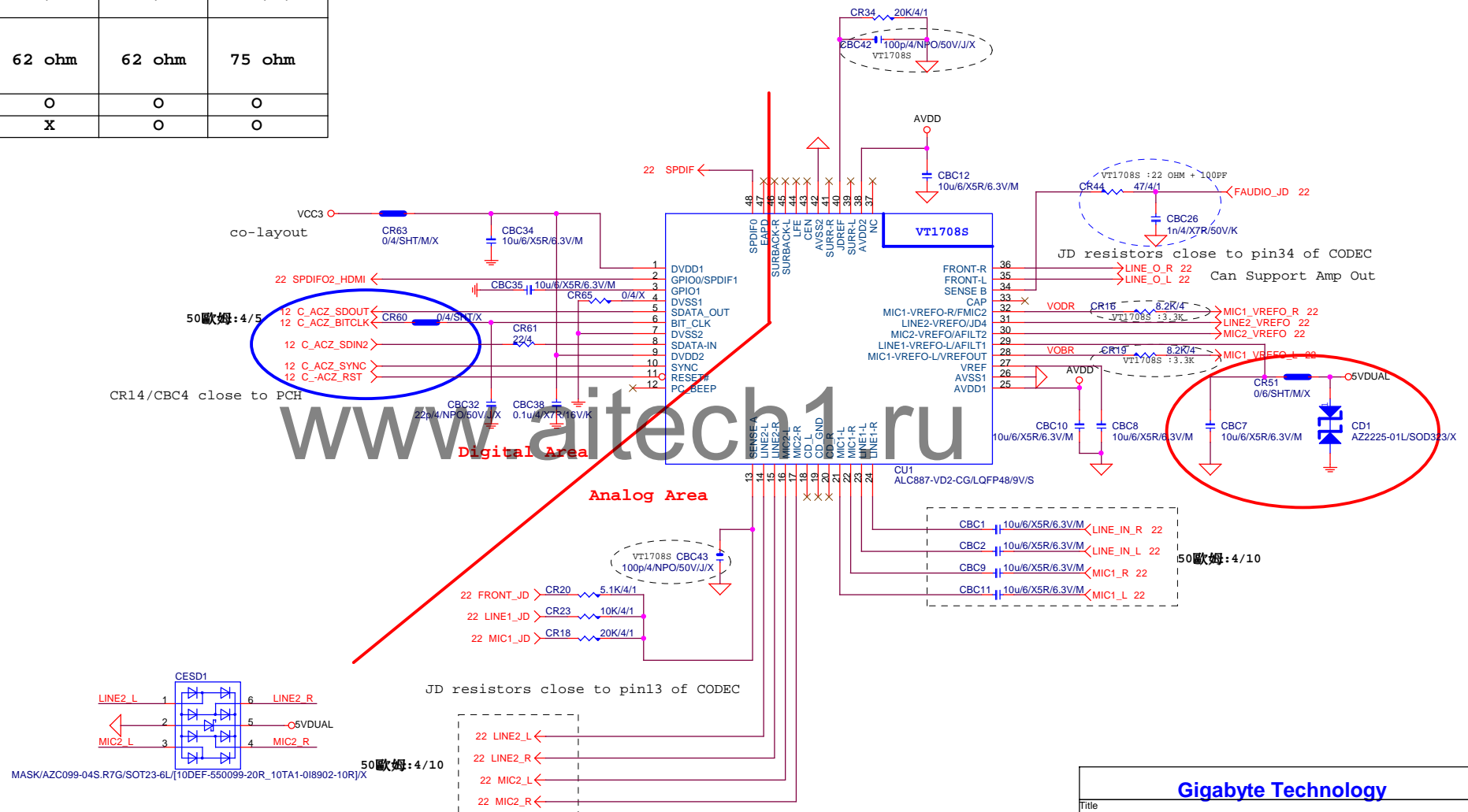
LPT PORT

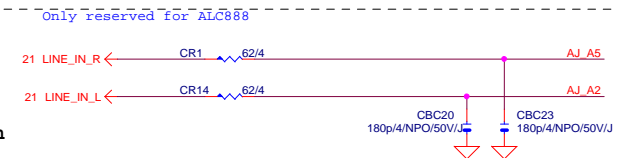
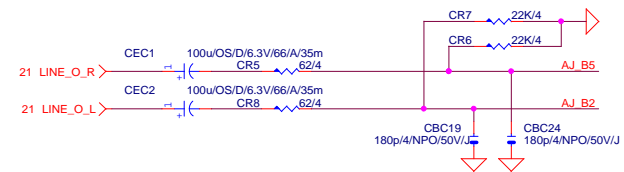
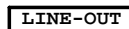
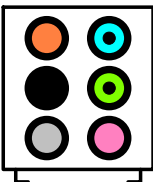
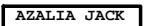
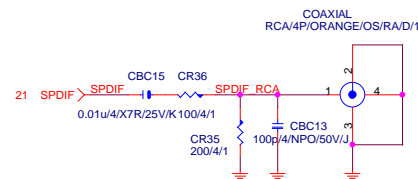


R&D技術通報151 有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。

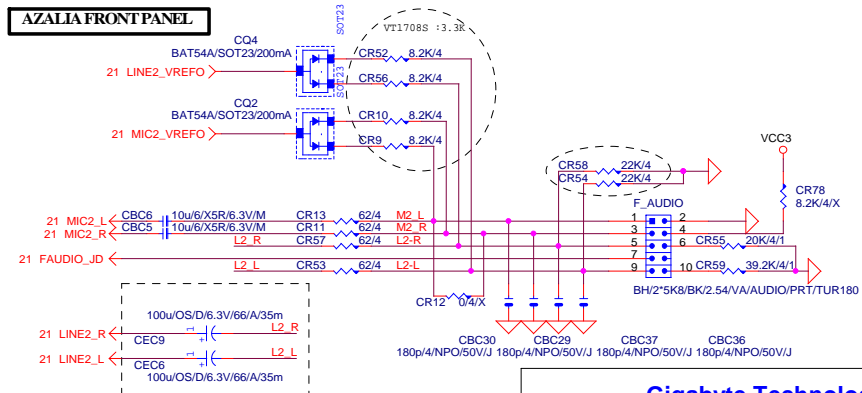
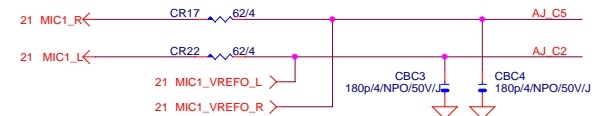


	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7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





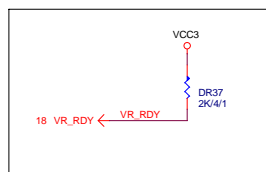
For 889A/888



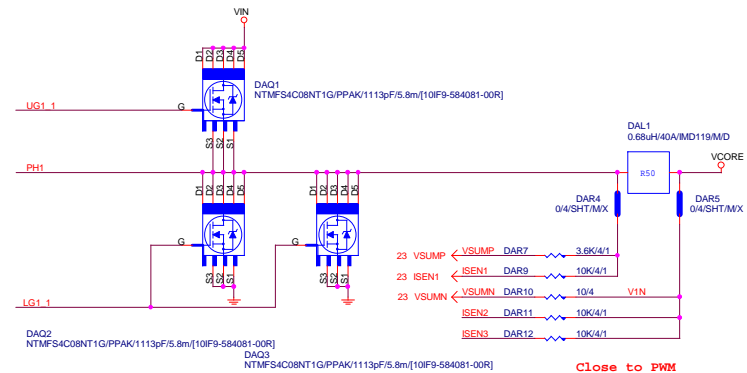
R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

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

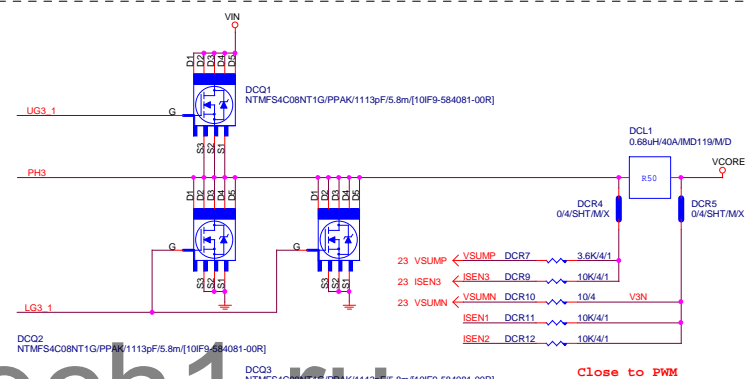
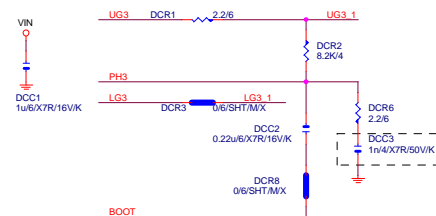
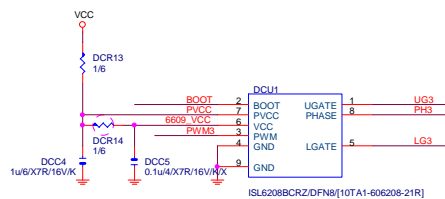
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45



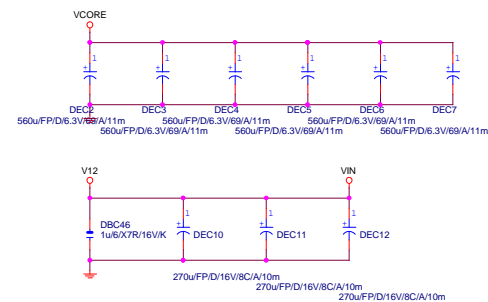
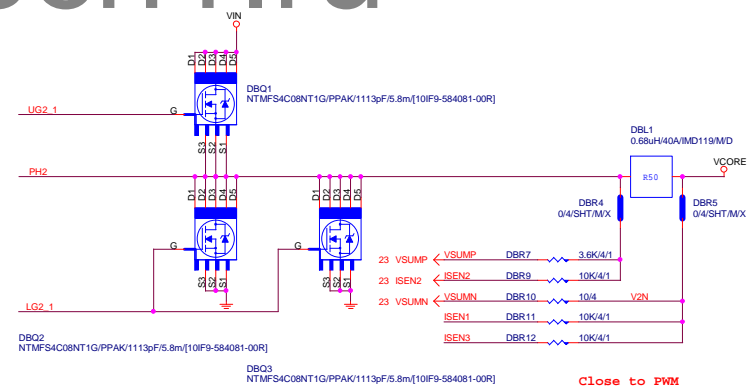
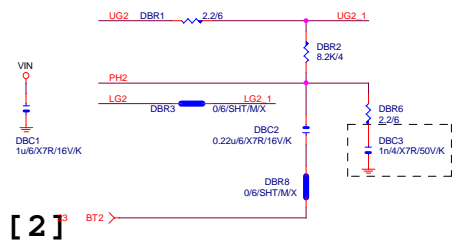
UG1	UG1	23
PH1	PH1	23
LG1	LG1	23



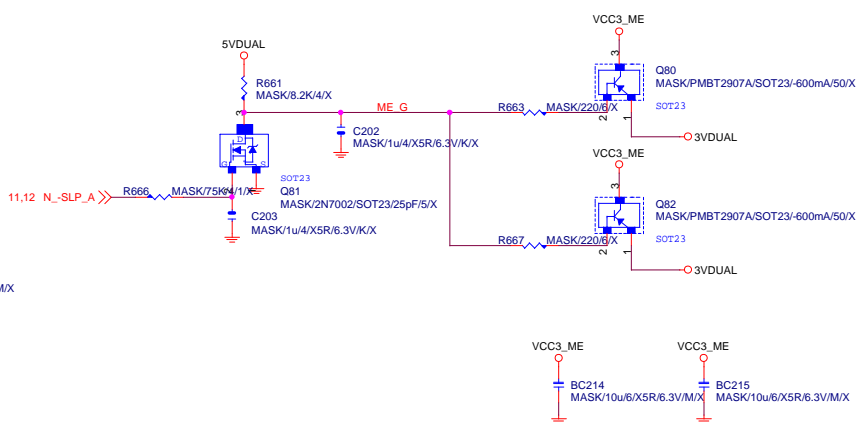
PWM3 → PWM3 23



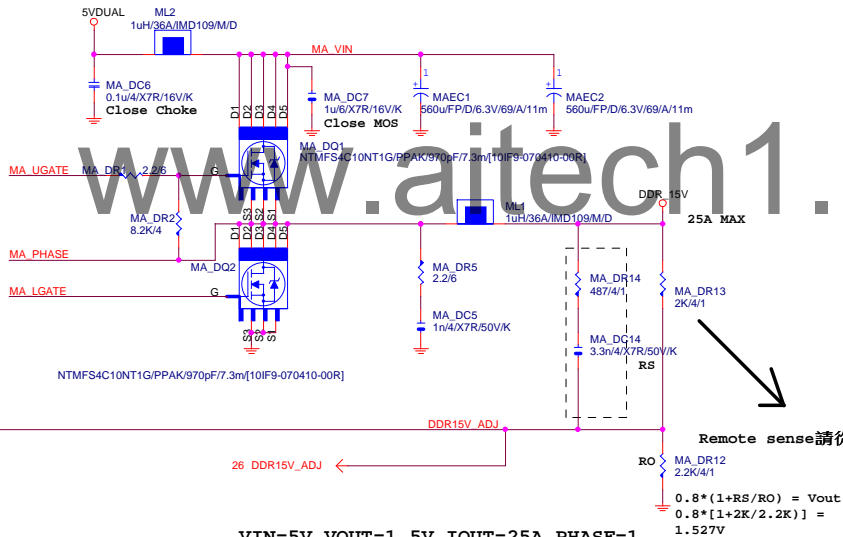
MOSFET HEATSINK



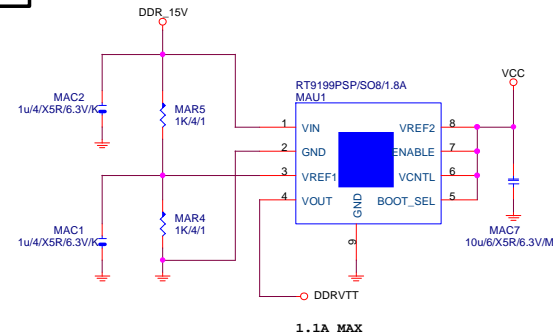
VCC3_ME	
---------	--



DDRVTT



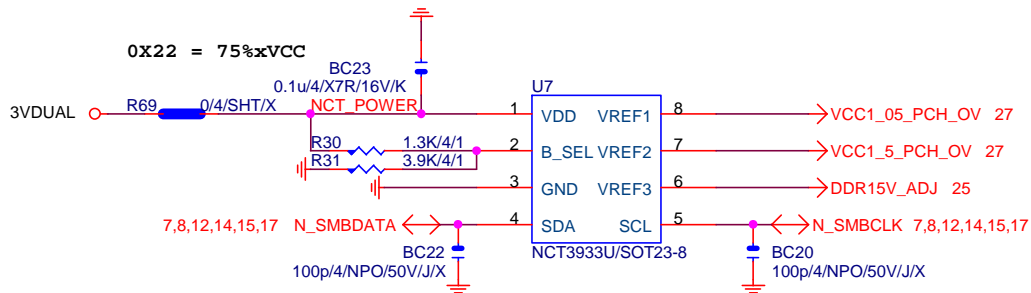
```
OCP:35.82A for Rds=6.7m for vishay@4.5V
OCP:72.727A for Rds=3.3m for renesas@10V
OCP:48A=Roset*Iocset / Rds(on)
      =12K*10uA / [5/5]
```



Remote sense請從最重的負載端點拉回

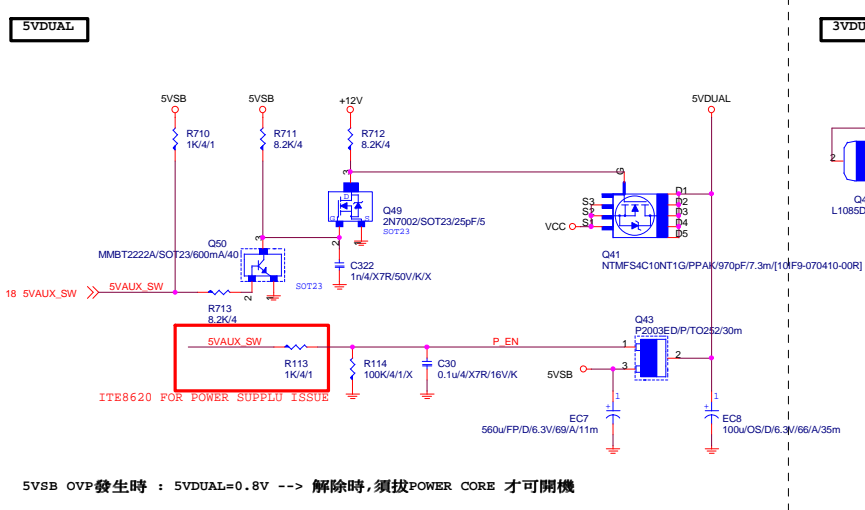
$$\begin{aligned} 0.8 \cdot (1 + R_S/R_O) &= V_{out} \\ 0.8 \cdot [1 + 2K/2.2K] &= \\ 1.527V \end{aligned}$$

OVER VOLTAGE



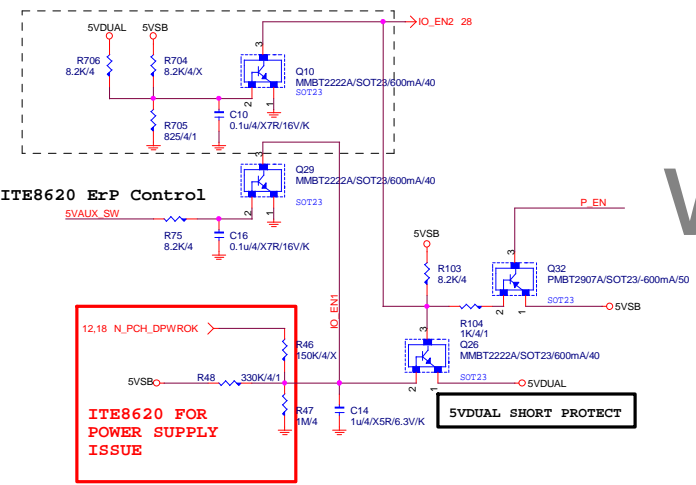
NCT3933	0X2A	0X20	0X22
VREF1	DDRVT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology		
CPU CORE VR-2		
Title	Document Number	Rev
	GA-P85-D3T	1.1
Date:	Monday, April 21, 2014	Sheet 26 of 34

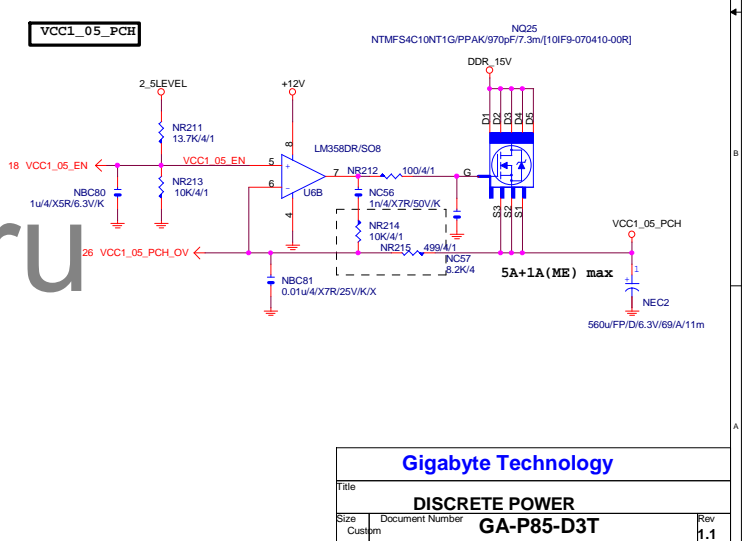
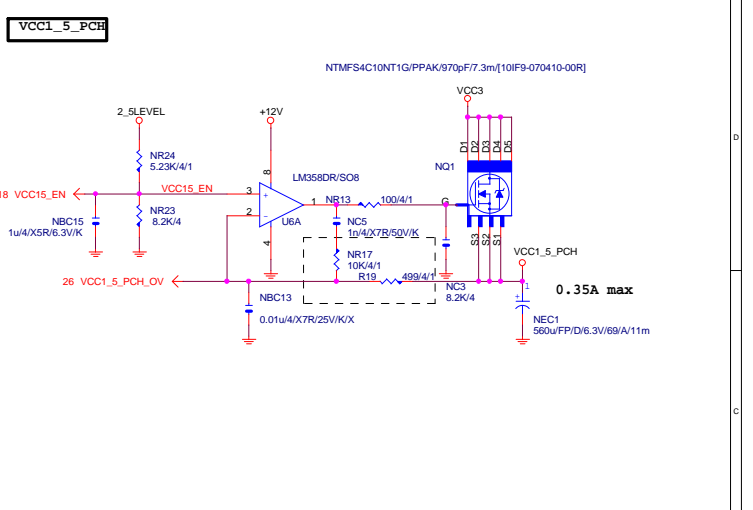
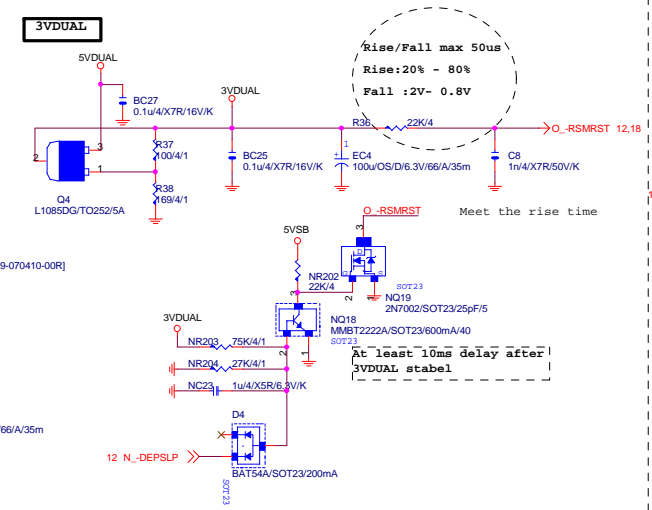


5VSB OVP發生時 : 5VDUAL=0.8V --> 解除時,須拔POWER CORE 才可開機

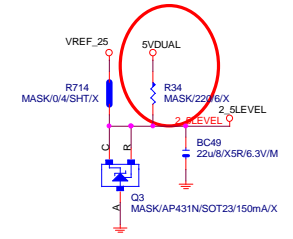
5VDUAL OVP : 6V protection
5VDUAL OVP發生時 : 5VDUAL keep 6V --> 解除時則恢復正常



ITE8620 FOR POWER SUPPLY ISSUE

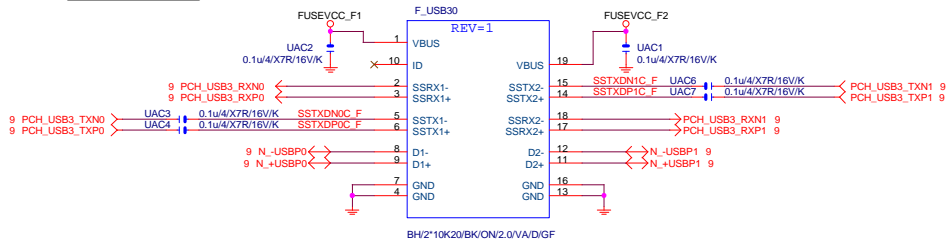


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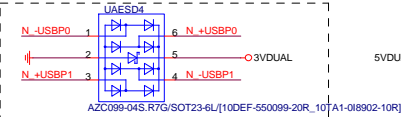


Gigabyte Technology			
Title			
DISCRETE POWER			
Size	Document Number	Rev	
Custom	GA-P85-D3T	1.1	
Date	Monday, April 21, 2014	Sheet	27 of 34

Front USB3.0

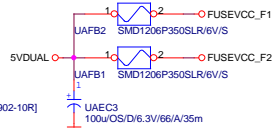


BLUE

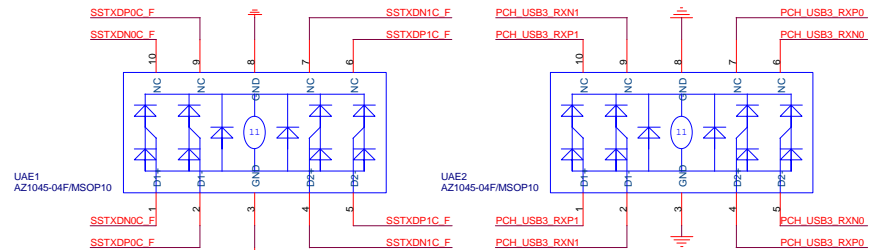


Close to connector

F_USB30_PWR



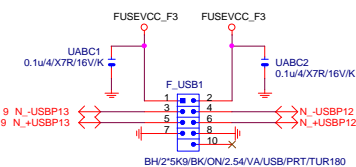
F_USB30 ESD PROTECT



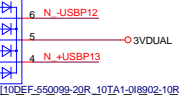
SATA LED

11 N_SATALED -> -HLED

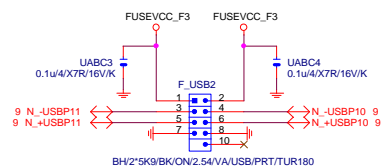
FRONT USB1



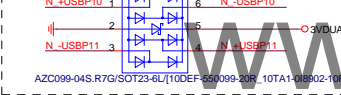
Close to connector



FRONT USB2

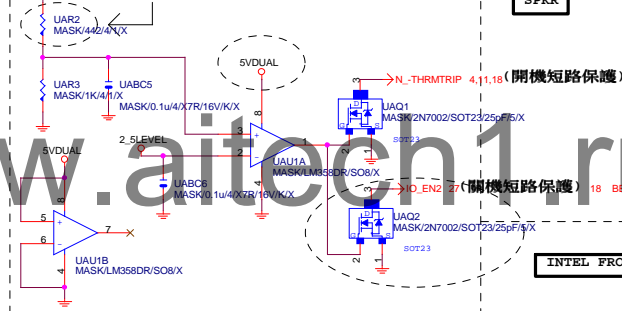


Close to connector

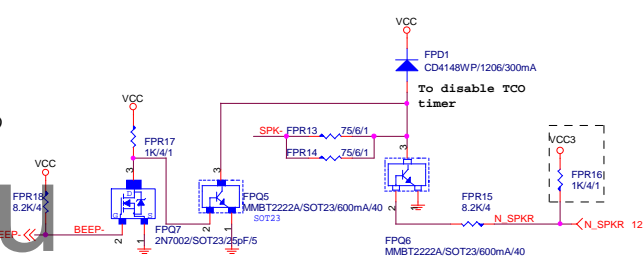


USB2.0 Signal & power short protection

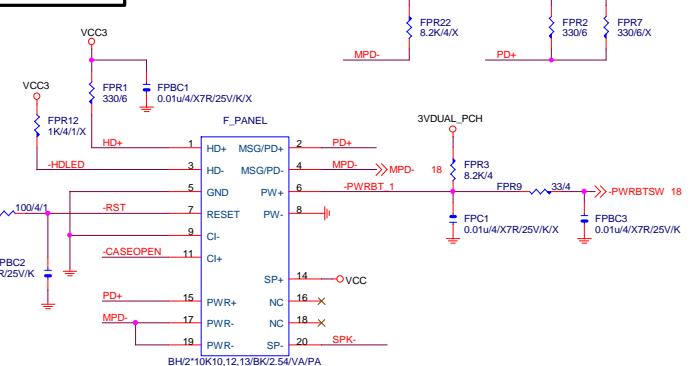
USB2.0 Signal > 4.9V
Enable --> 3VDUAL=3.6V



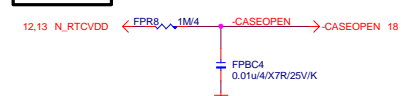
SPKR



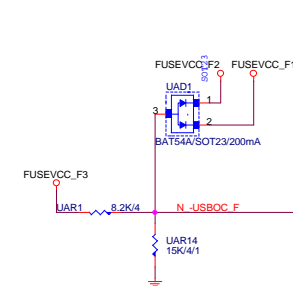
INTEL FRONT PANEL



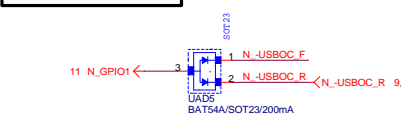
CASE OPEN



-USBOC_F



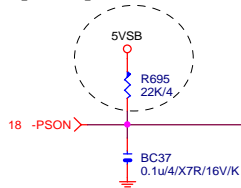
F_USB POWER PROTECT



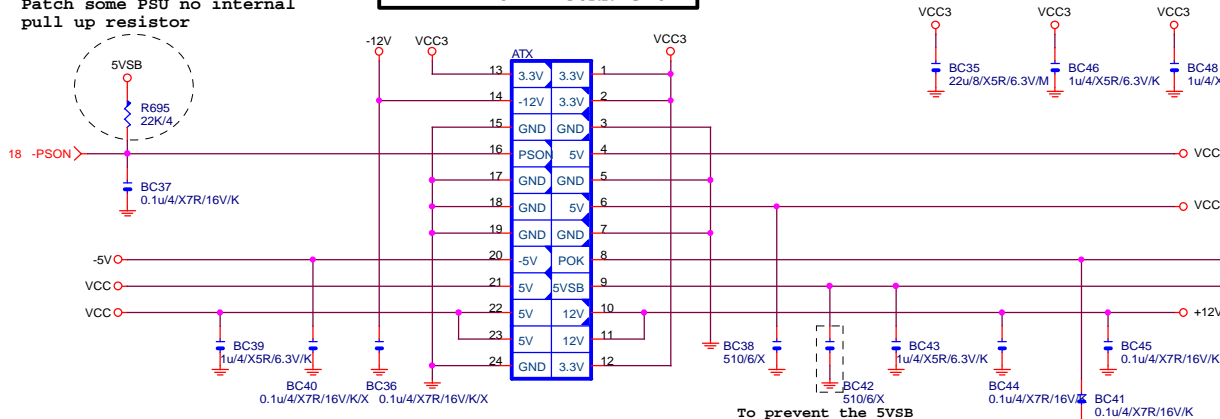
Gigabyte Technology

FP,F_USB,USB PWR,FDD,BZ			
Title		Rev	
Size		1.1	
Document Number		GA-P85-D3T	
Date:		Monday, April 21, 2014	
Sheet		28 of 34	

Patch some PSU no internal pull up resistor



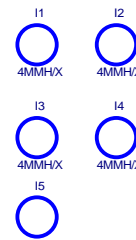
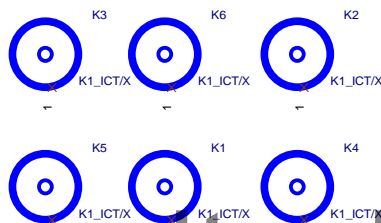
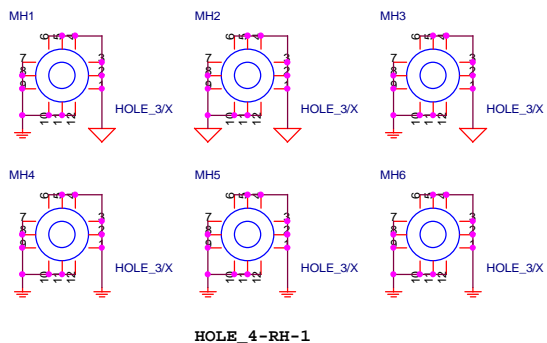
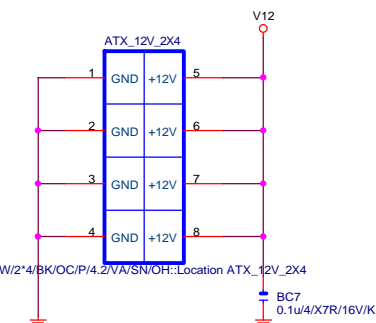
ATXX24 POWER CONNECTOR



APW/2*12/BK/VA/SN/2SHK/PA66

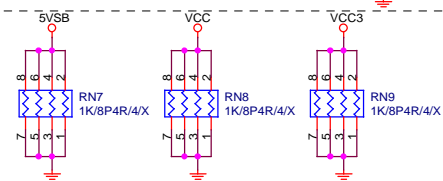
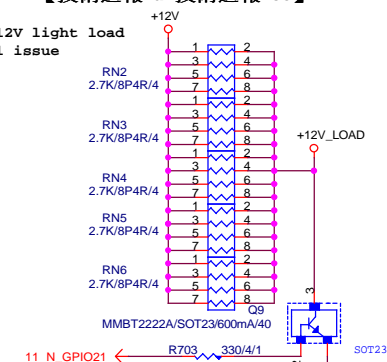
To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR



【技術通報R&D技術通報153】

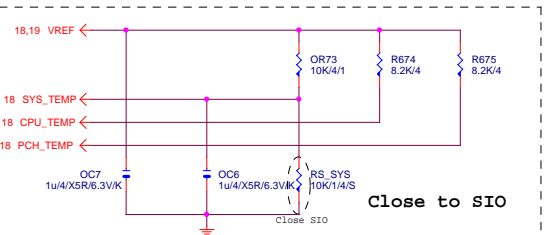
To fix 12V light load abnormal issue



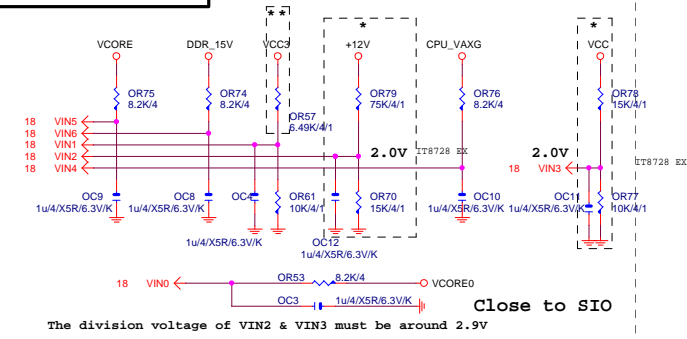
Gigabyte Technology

Title			ATX POWER CONNECTOR
Size	Document Number	Rev	
Custom	GA-P85-D3T	1.1	
Date:	Monday, April 21, 2014	Sheet	29 of 34

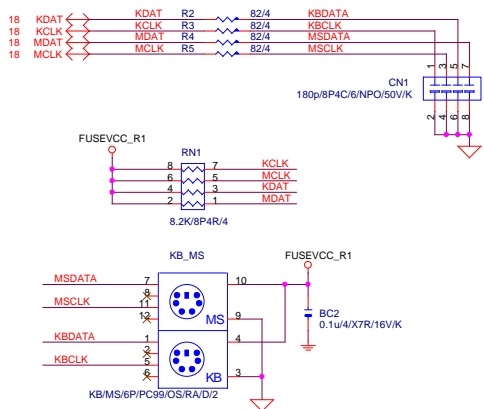
TEMP H/W MONITOR



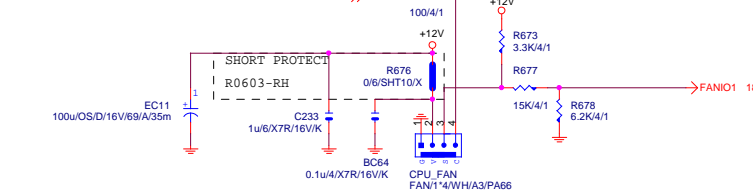
VOLTAGE-- H/W MONITOR



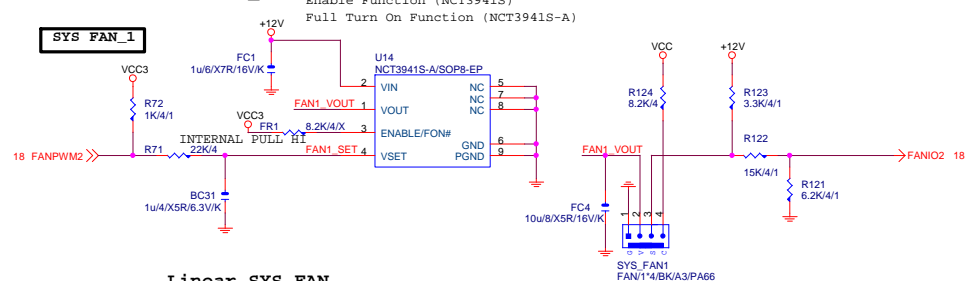
KB/USB



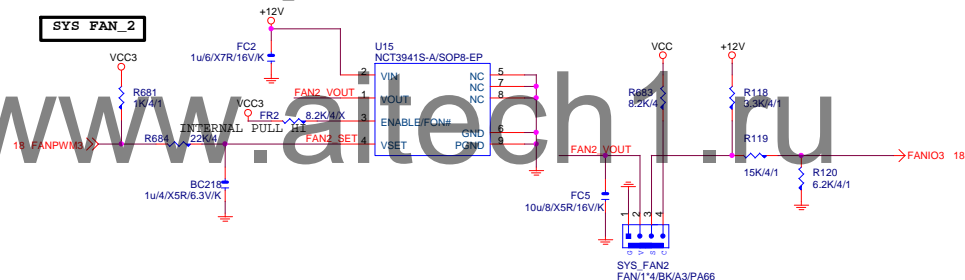
CPU SMART FAN



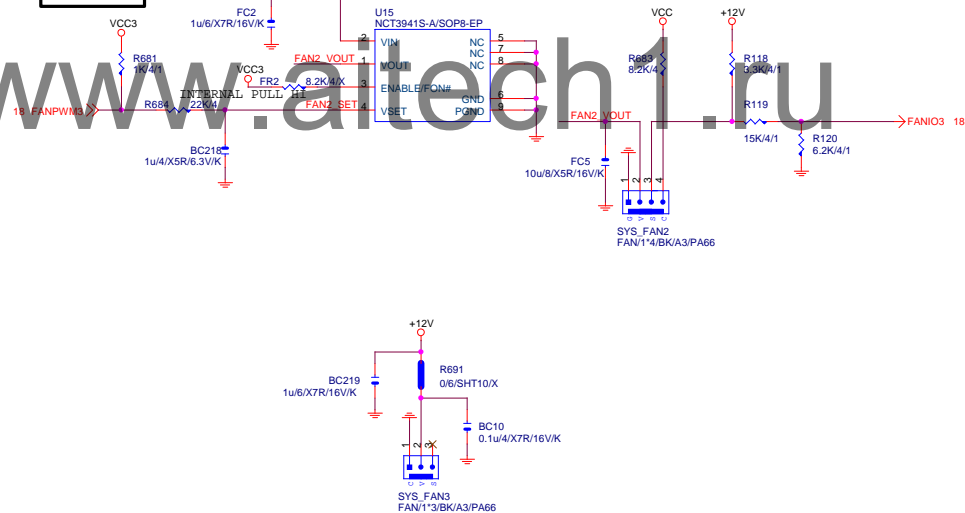
Linear SYS_FAN



Linear SYS_FAN



SYS_FAN_2

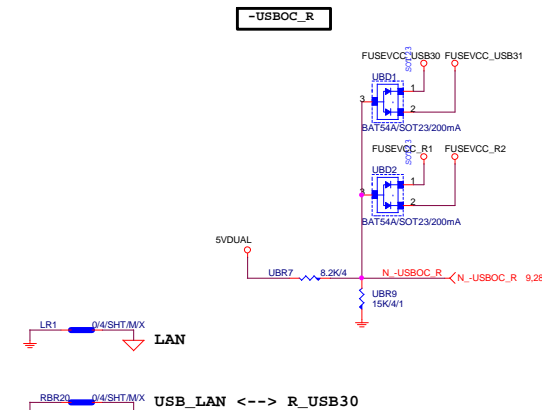
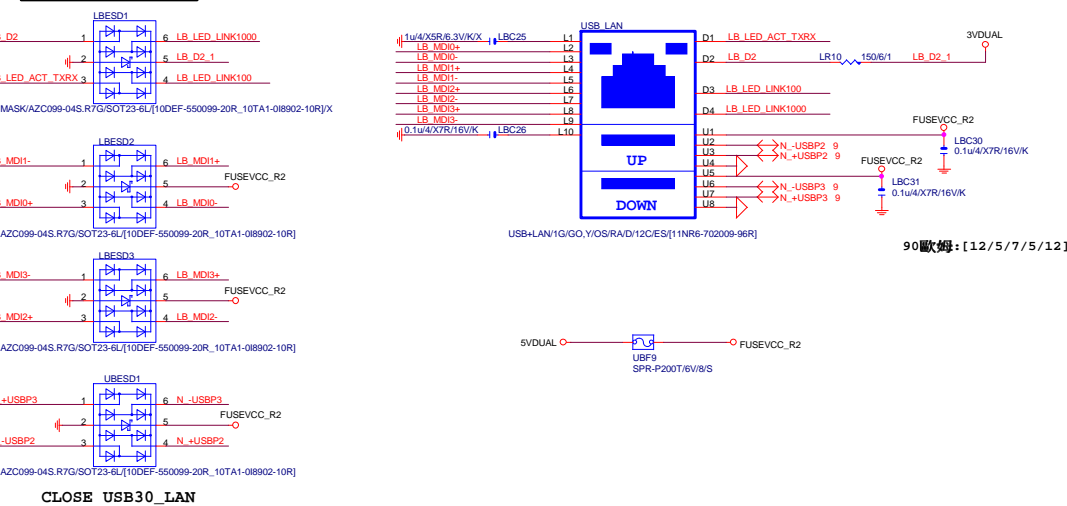
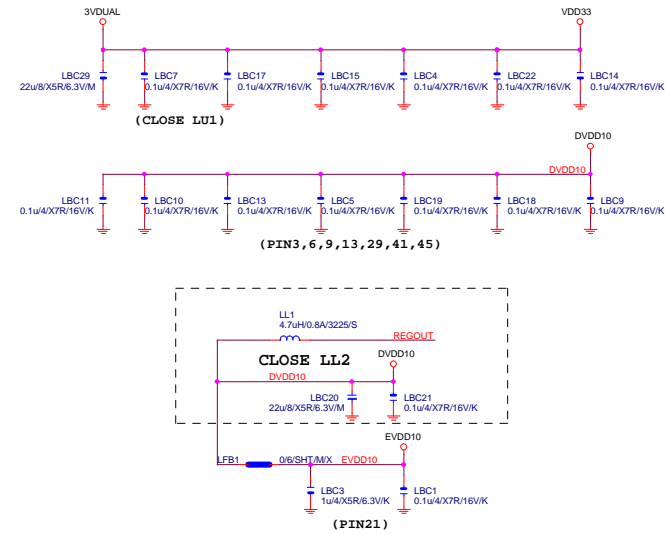
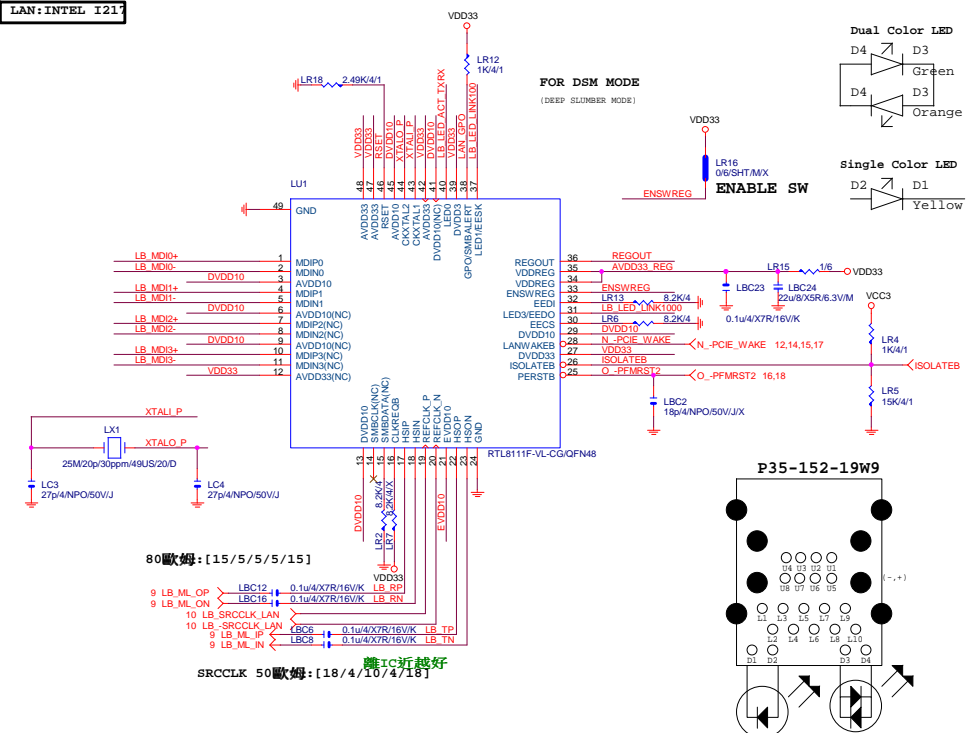


FOR FAN1 ONLY



Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL
Size	Document Number	Rev	
Custom	GA-P85-D3T	1.1	
Date:	Monday, April 21, 2014	Sheet	30 of 34



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Gigabyte Technology			
Title			
N/A			
Size	Document Number		Rev
Custom	GA-P85-D3T		1.1
Date:	Monday, April 21, 2014	Sheet	32 of 34

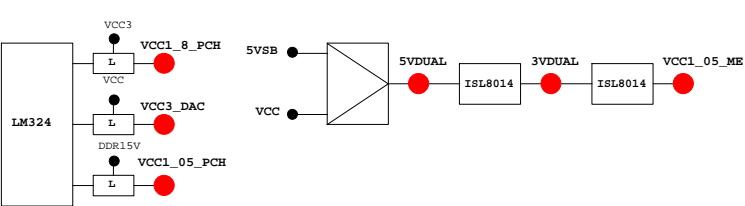
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Gigabyte Technology			
Title			
VL805 USB3.0			
Size	Document Number		Rev
Custom	GA-P85-D3T		1.1
Date:	Monday, April 21, 2014		Sheet 33 of 34

PIN	NAME	PWR	AFTER S4-726	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	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		GPI	GPIO7		P/U 8.2K VCC3
GP8	STBY	H	GPI	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		N/A
GP13	STBY	L	GPI	LPCPM#		P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#		N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)		P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16		P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17		P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only		N/A
GP19	MAIN		GPI	GPIO19		P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20		P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21		P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22		P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23		N/A
GP24	STBY	L	GPI	SKTOCC#		N/A
GP25	STBY			Mobile Only		N/A
GP26	STBY			Mobile Only		N/A
GP27	STBY	H	GPO	GPIO27		P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED		P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29		N/A
GP30	STBY	H-Z	GPI	Mobile Only		N/A
GP31	STBY	H-Z	GPI	Mobile Only		N/A
GP32	MAIN	H	GPO	N/A		N/A
GP33	MAIN	H	GPO	N/A		N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP		P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET		P/U 8.2K VCC3
GP36	MAIN		GPI	N/A		N/A
GP37	MAIN		GPI	N/A		N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect		P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39		P/U 8.2K VCC3
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		P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45		P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46		P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only		N/A
GP48	MAIN	H-Z	IN	GPIO48		P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49		P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1		P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1		N/A
GP52	MAIN		NATIVE	-REQ2		P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2		N/A
GP54	MAIN		NATIVE	-REQ3		P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3		N/A
GP56	STBY		NATIVE	Mobile Only		N/A
GP57	STBY	H-Z	IN	VCORE_OV1		P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC		P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#		N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)		P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT		N/A
GP62	STBY	L	NATIVE	SUSCLK		N/A
GP63	STBY	L	NATIVE	GPIO63		N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0		N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1		N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2		N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3		N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4		P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only		N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2		P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)		P/U 8.2K 3VDUAL

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/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	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/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PS1_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	

[illegible]

散熱模組料號:

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

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	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