

Model Name: G1.Sniper B6

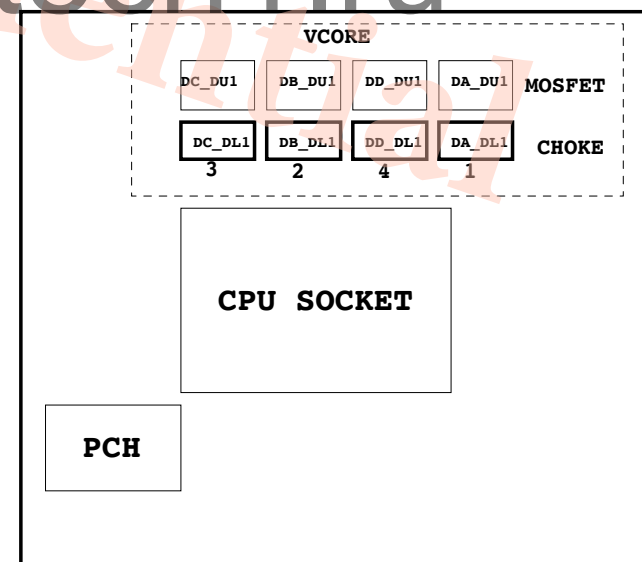
1.0

SHEET TITLE

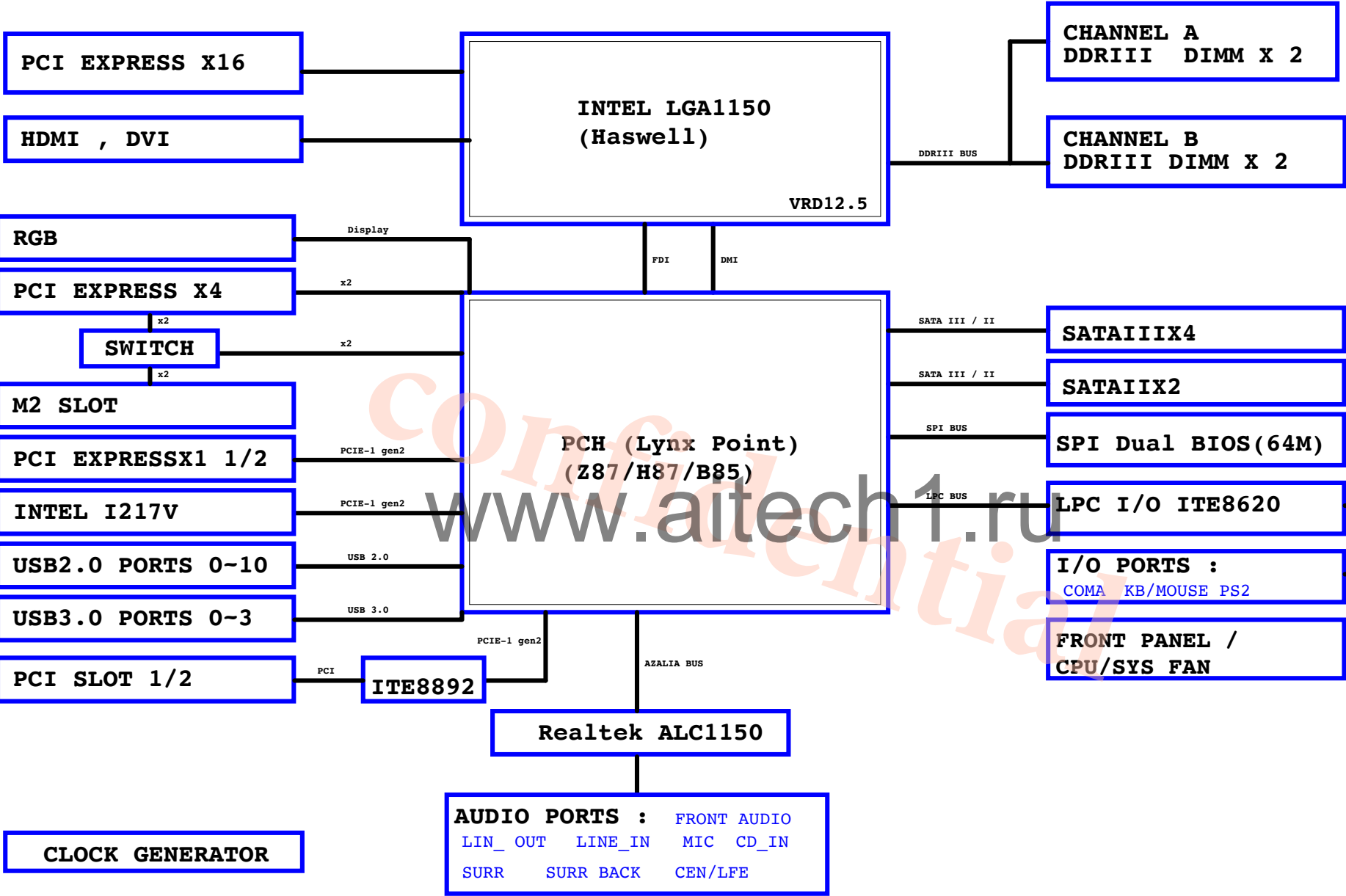
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8620
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC1150 CODEC
22	REAR AUDIO JACK
23	AUDIO POWER
24	VCORE_ ISL95820_1
25	VCORE_ ISL95820_2
26	DDR15V / M3 POWER
27	USB DAC-UP , PS2

SHEET TITLE

28	DISCRETE POWER
29	F_PANEL , F_USB2.0/3.0
30	ATX POWER, CLOCK GEN
31	HWM,FAN CTRL
32	Intel i217
33	HDMI
34	DVI
35	M.2 slot
36	PCB LED
37	TABLE LIST
38	
39	
40	



BLOCK DIAGRAM



H

(E)



CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

(D)



FDI:4/4/4//15(breakout min 4/4/4//8)
Impedance=85 +/- 15%

DP/HDMI 15/4/4/4//15 FDI 12/4/4/4/12

Impedance=85 +- 15%

(C)



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

CPUI PEG 20/5/4/5/20 Impedance=80 +- 15%

DMI 12/4/4/4//12 Impedance=85 +- 15%

DMI 12/4/4/4//12 Impedance=85 +- 15%

-CPURST



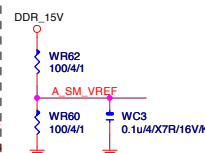
CPU SVID



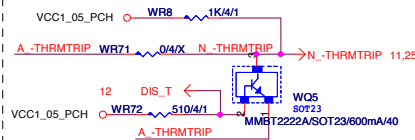
CPU PU/PD



SM REF



THRMTRIP DISABLE FOR Z87 OVERCLOCK



LGA1150A

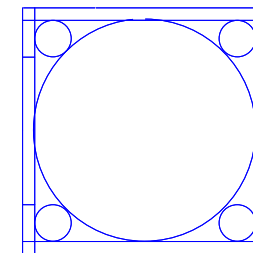
MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA13	AT20	DDR0_MA13	DDR0_D13	AH38	MDA14
MAAA14	AW21	DDR0_MA14	DDR0_D14	AK40	MDA15
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_ODT0	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_ODT1	AP38	MDA18
MODT_A2	AW9	DDR0_ODT2	DDR0_ODT2	AP39	MDA19
MODT_A3	AU8	DDR0_ODT3	DDR0_ODT3	AM37	MDA20
				AM38	MDA16
				AP37	MDA22
				AP40	MDA23
				AV37	MDA25
				AW37	MDA29
				AU35	MDA26
				AT33	MDA27
				AU33	MDA28
				AT31	MDA24
				AW31	MDA30
				AW35	MDA31
				AY6	MDA33
				AU6	MDA37
				AV4	MDA34
				AW8	MDA36
				AW6	MDA32
				AW4	MDA38
				AY4	MDA39
				AB1	MDA41
				AB4	MDA45
				AN3	MDA42
				AN4	MDA43
				AR2	MDA44
				AR3	MDA40
				AN2	MDA46
				AN1	MDA47
				AL1	MDA49
				AL4	MDA53
				AL3	MDA50
				AJ4	MDA51
				AL2	MDA52
				AJ2	MDA48
				AJ1	MDA54
				AG1	MDA57
				AG4	MDA61
				AE3	MDA58
				E4	MDA59
				AG2	MDA60
				AG3	MDA56
				AE2	MDA62
				AE1	MDA63
				AE39	DOSA0
				AJ39	DOSA1
				AN39	DOSA2
				AV36	DOSA3
				AV5	DOSA4
				AP3	DOSA5
				AK3	DOSA6
				AF3	DOSA7
				AV32	DOSA8
				AE38	DOSA9
				AJ38	DOSA1
				AN38	DOSA2
				AU36	DOSA3
				AW5	DOSA4
				AP2	DOSA5
				AK2	DOSA6
				AF2	DOSA7
				AU32	DOSA8

HASWELL[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150B

MAAB0	AL19	DDR1_MA0	DDR1_D00	AE34	MDB0
MAAB1	AK23	DDR1_MA1	DDR1_D01	AE35	MDB1
MAAB2	AM22	DDR1_MA2	DDR1_D02	AG35	MDB2
MAAB3	AM23	DDR1_MA3	DDR1_D03	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_D04	AD34	MDB4
MAAB5	AY24	DDR1_MA5	DDR1_D05	AG35	MDB5
MAAB6	AY25	DDR1_MA6	DDR1_D06	AH34	MDB7
MAAB7	AY26	DDR1_MA7	DDR1_D07	AL34	MDB8
MAAB8	AU26	DDR1_MA8	DDR1_D08	AL35	MDB9
MAAB9	AW25	DDR1_MA9	DDR1_D09	AK31	MDB10
MAAB10	AE18	DDR1_MA10	DDR1_D10	AL31	MDB11
MAAB11	AY25	DDR1_MA11	DDR1_D11	AK34	MDB12
MAAB12	AY26	DDR1_MA12	DDR1_D12	AK35	MDB13
MAAB13	AR15	DDR1_MA13	DDR1_D13	AK32	MDB14
MAAB14	AV27	DDR1_MA14	DDR1_D14	AL32	MDB15
MAAB15	AY28	DDR1_MA15	DDR1_D15	AL34	MDB17
			DDR1_D16	AP34	MDB21
			DDR1_D17	AN31	MDB19
			DDR1_D18	AP31	MDB23
			DDR1_D19	AN35	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	AP12	MDB33
			DDR1_D33	AL13	MDB34
			DDR1_D34	AL12	MDB35
			DDR1_D35	AR13	MDB36
			DDR1_D36	AP13	MDB37
			DDR1_D37	AM13	MDB38
			DDR1_D38	AM12	MDB39
			DDR1_D39	AR9	MDB45
			DDR1_D40	AP9	MDB41
			DDR1_D41	AR6	MDB47
			DDR1_D42	AP6	MDB43
			DDR1_D43	AR10	MDB44
			DDR1_D44	AP10	MDB40
			DDR1_D45	AR7	MDB46
			DDR1_D46	AP7	MDB42
			DDR1_D47	AM9	MDB52
			DDR1_D48	AL9	MDB53
			DDR1_D49	AL6	MDB50
			DDR1_D50	AL7	MDB55
			DDR1_D51	AM10	MDB48
			DDR1_D52	AL10	MDB49
			DDR1_D53	AM6	MDB54
			DDR1_D54	AM7	MDB51
			DDR1_D55	AM6	MDB61
			DDR1_D56	AH7	MDB60
			DDR1_D57	AE6	MDB59
			DDR1_D58	AE7	MDB63
			DDR1_D59	AJ6	MDB56
			DDR1_D60	AJ7	MDB57
			DDR1_D61	AF6	MDB58
			DDR1_D62	AF7	MDB62
			DDR1_D63	AF35	DOSB0
			DDR1_D64	AL33	DOSB1
			DDR1_D65	AN28	DOSB2
			DDR1_D66	AN28	DOSB3
			DDR1_D67	AN12	DOSB4
			DDR1_D68	AP8	DOSB5
			DDR1_D69	AL8	DOSB6
			DDR1_D70	AG7	DOSB7
			DDR1_D71	AN25	DOSB8
			DDR1_D72	AE34	DOSB9
			DDR1_D73	AK33	DOSB1
			DDR1_D74	AN33	DOSB2
			DDR1_D75	AN29	DOSB3
			DDR1_D76	AL13	DOSB4
			DDR1_D77	AR8	DOSB5
			DDR1_D78	AM8	DOSB6
			DDR1_D79	AG6	DOSB7
			DDR1_D80	AN26	DOSB8

HASWELL[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150
ILM_BP/1156/BKNI/12KRC-0F0001-61R_12KRC-0F0001-62R]

DDR BUS

7	MODT_A[0..3]	MODT_A[0..3]
8	MODT_B[0..3]	MODT_B[0..3]
7	MDA[0..63]	MDA[0..63]
8	MDB[0..63]	MDB[0..63]
7	DOSA[0..7]	DOSA[0..7]
7	DOSA[0..7]	-DOSA[0..7]
7	MAAA[0..15]	MAAA[0..15]
8	MAAB[0..15]	MAAB[0..15]
8	DOSB[0..7]	DOSB[0..7]
8	-DOSB[0..7]	-DOSB[0..7]

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Title				CPU LGA1150-B	
Size				G1.Sniper B6	
Date				Rev 1.0	
Monday, August 25, 2014				Sheet 5 of 37	

(F, J)

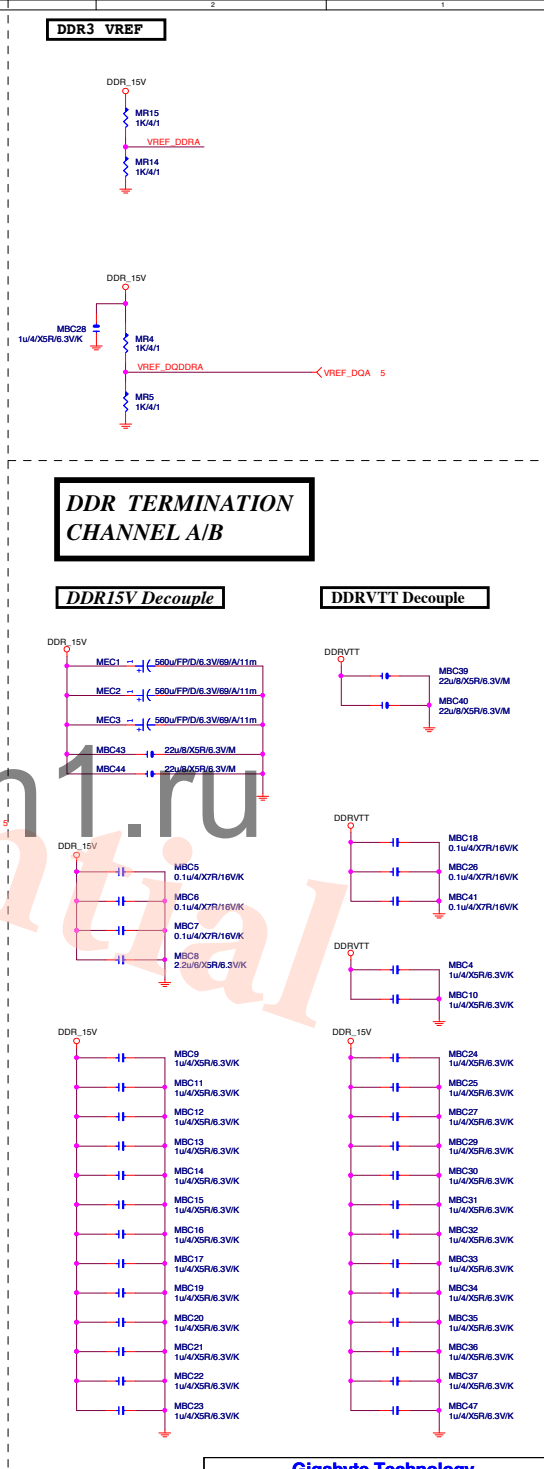
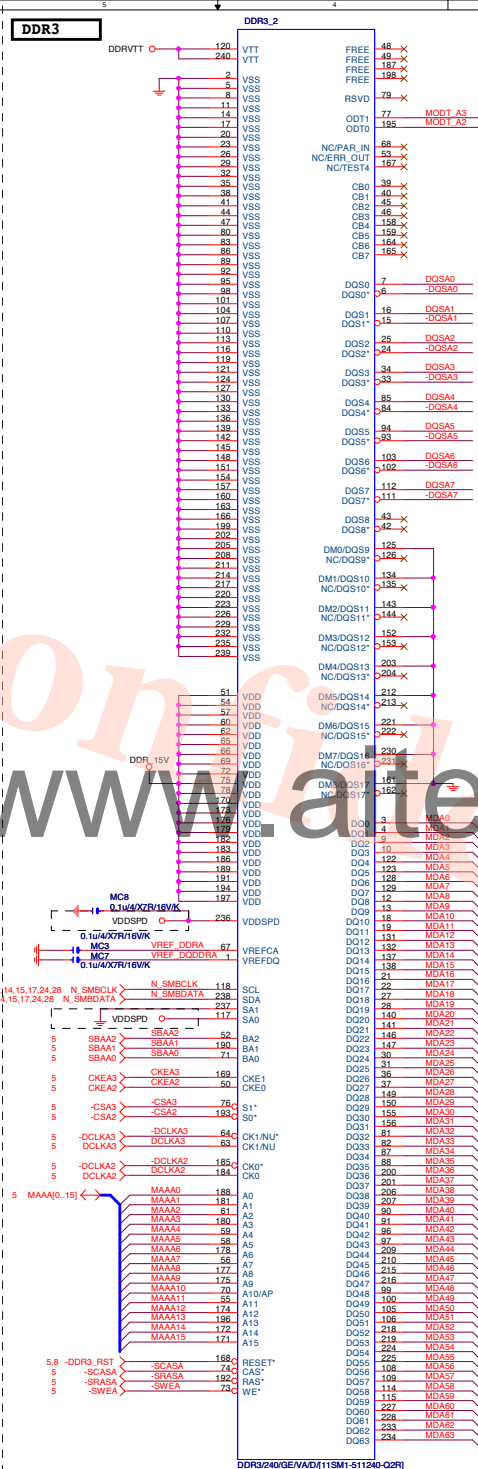
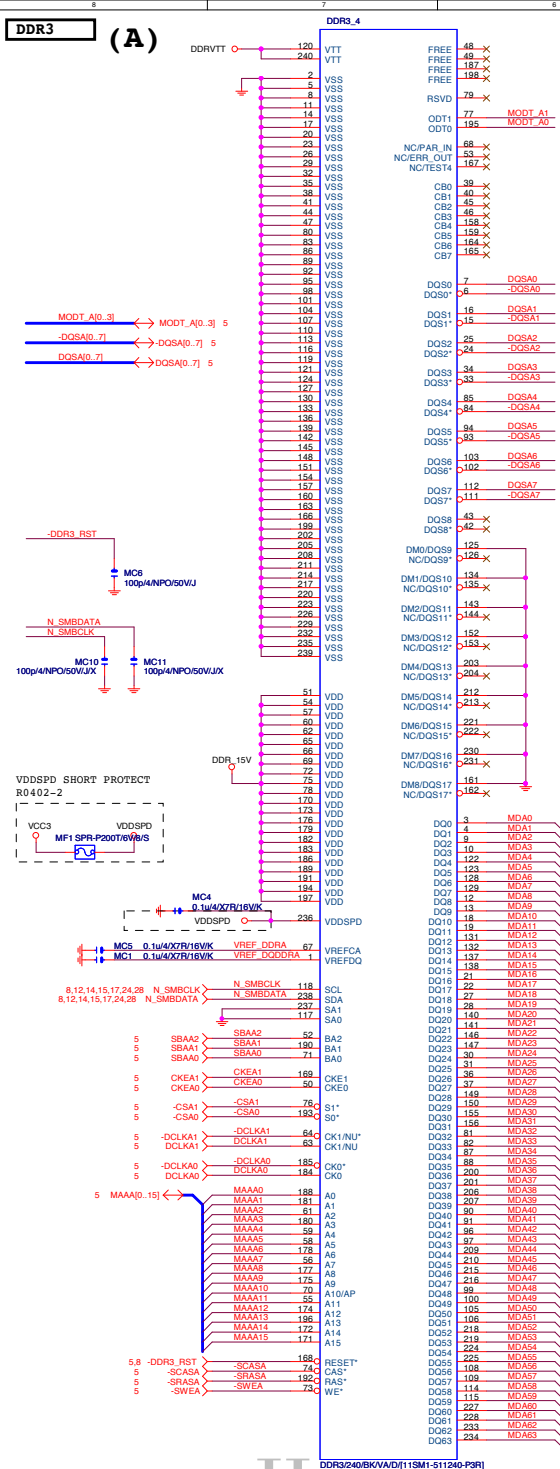


(G, H, I)



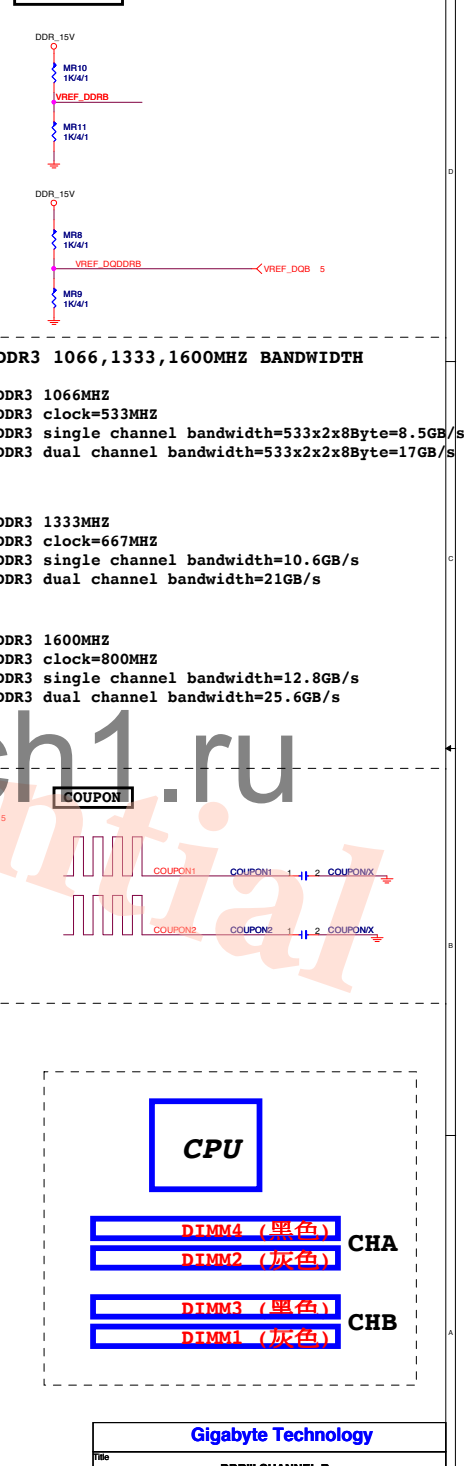
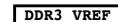
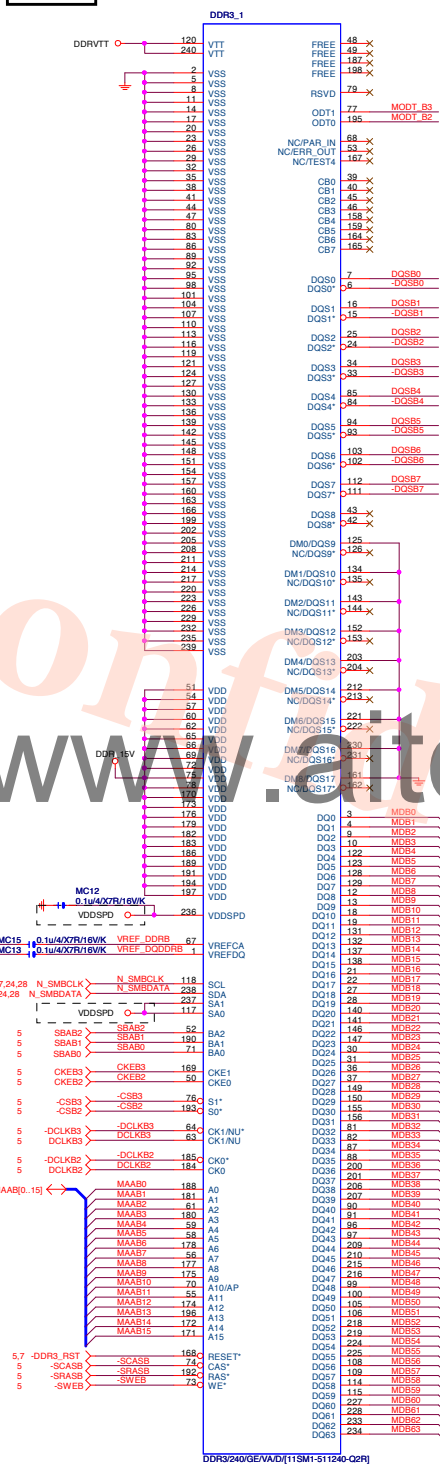
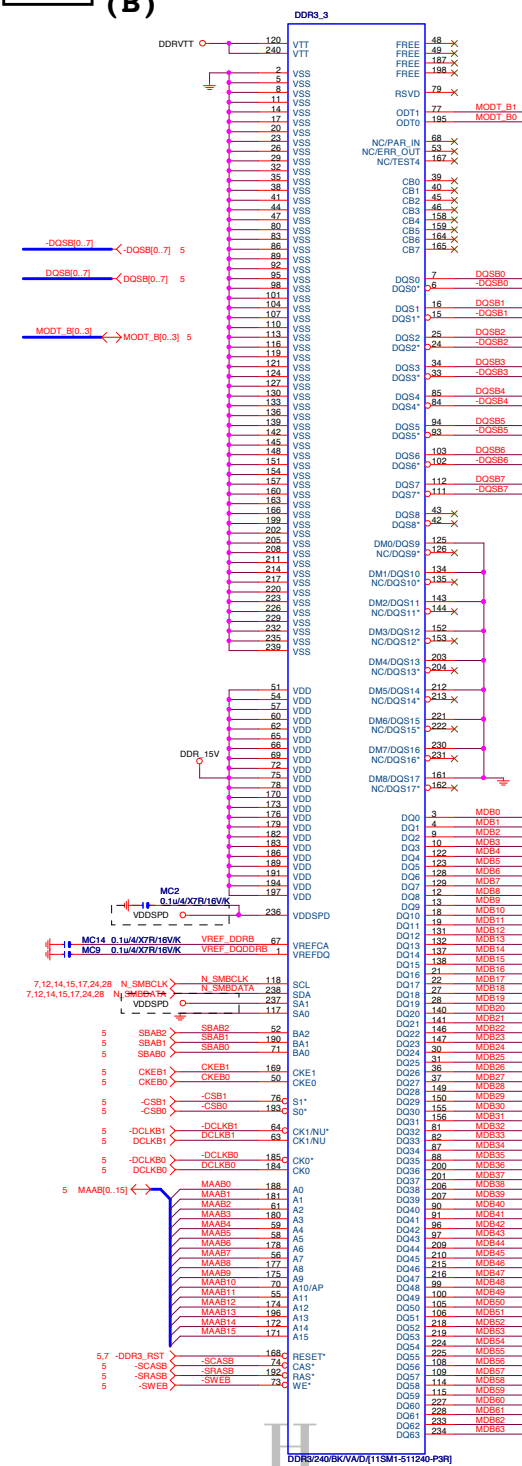
(X30)

(X15)





(B)



DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ

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

DIMM4 (黑色)

DIMM2 (灰色)

DIMM3 (黒色)

DIMM1 (灰色)

CHA

CHB

Gigabyte Technology

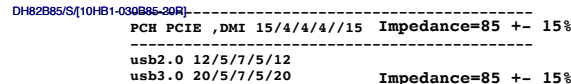
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Size	Document Number						Rev
Custom	G1.Sniper B6						1.0
Date:				Sheet	8 of 37		

G1.Sniper B6

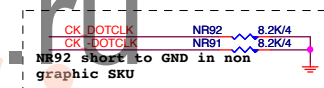
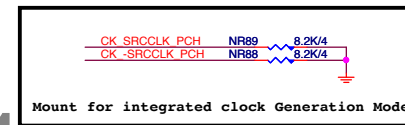
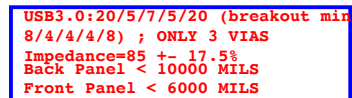
Rev
1.0

DMI:12/4/4/4/12(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%



29 PCH_USB3_RXN0 >



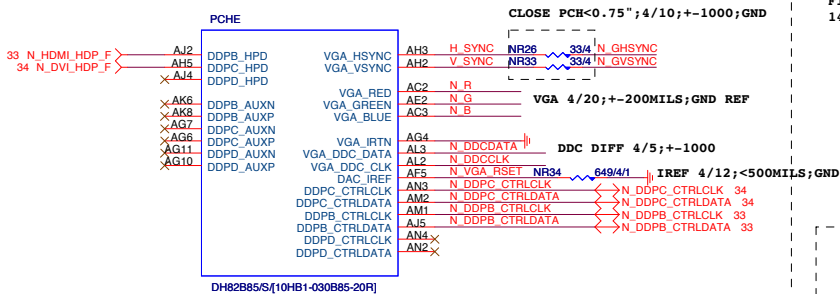


1

2

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

PCH (E)

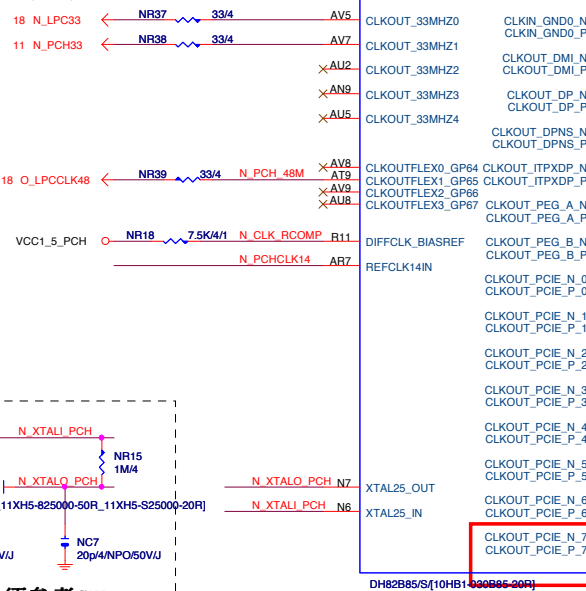
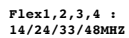


VGA DAC Disabling Guidelines

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

FDI Disabling Guidelines

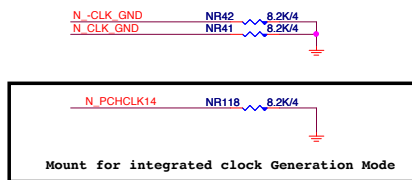
PCH_FDI_RXP[0:1]	NC
PCH_FDI_RXN[0:1]	NC
CPU_FDI_TXP[0:1]	NC
CPU_FDI_TXN[0:1]	NC
FDI_RCOMP	NC
FDI_IREF	(N11)



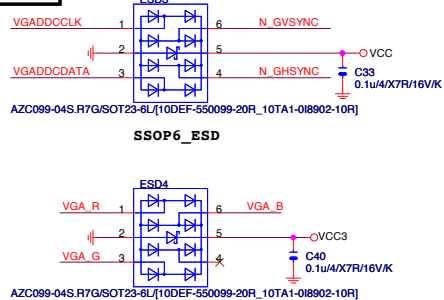
X'TAL 25MHz 須參考GND
避免造成RGB noise
走線遠離其他40mil以上

禁用此 2 PIN, 避免訊號被25MHz干擾
Differential Clock:18/4/6/4/18
Impedance=90 +/- 15%

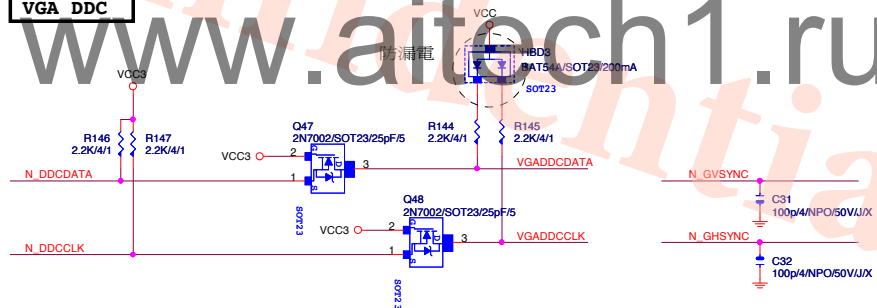
PCH CLK PD



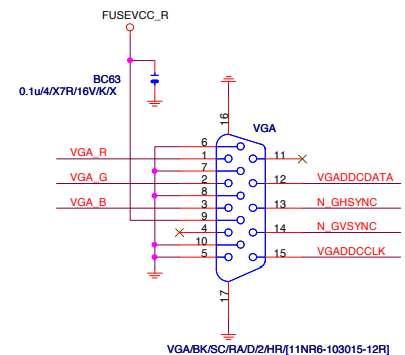
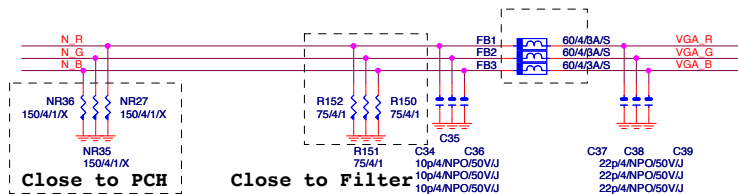
VGA ESD



VGA DDC



VGA DDC



Gigabyte Technology

PCH DISPLAY ,CLK BUFFER

G1.Sniper B6

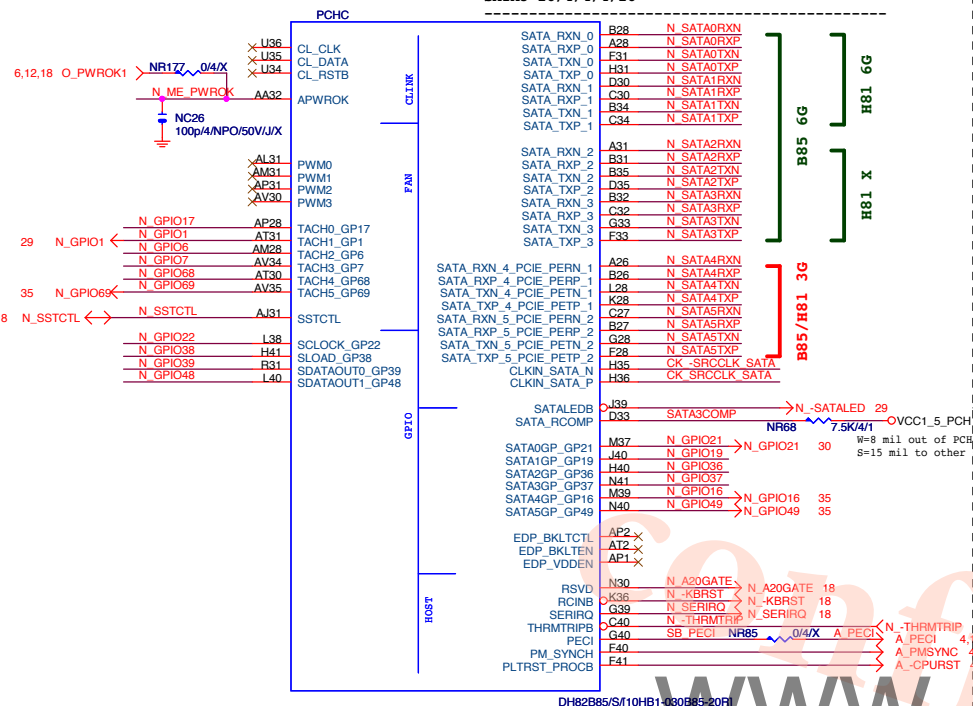
Size Custom	Document Number G1.Sniper B6	Rev 1.0
Date: Monday, August 25, 2014	Sheet 10 of 37	

(C)

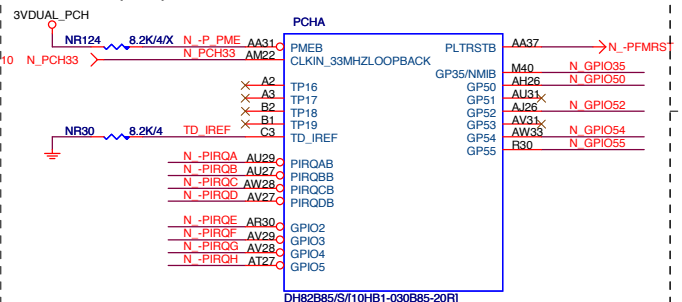
Impedance=85 +/- 17.5%

SATA2 15/4/4/4/15

SATA3 20/4/4/4/20



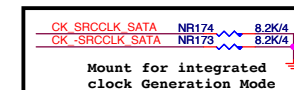
(A)



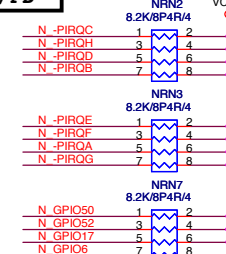
Default int pull up on GP51,
Default SPI boot devices

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

PCH	CLK	PI
-----	-----	----



PCH PU/PD



N.CDIOFF.M16 SWAP OVERRIDE

```
| N GPIO53:DMI AC COUPLING
```

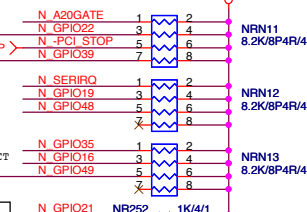
```
| N GPIO22:PCH_CONFIG
```

```

1 N GPIO39:GFX MOD

```

N GPIO49:PCIE/MSATA MUX SELECT



soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

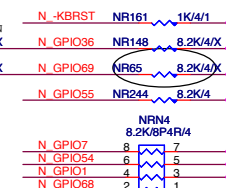
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|
| N GPIO36:DMT RX TERMINATION

```

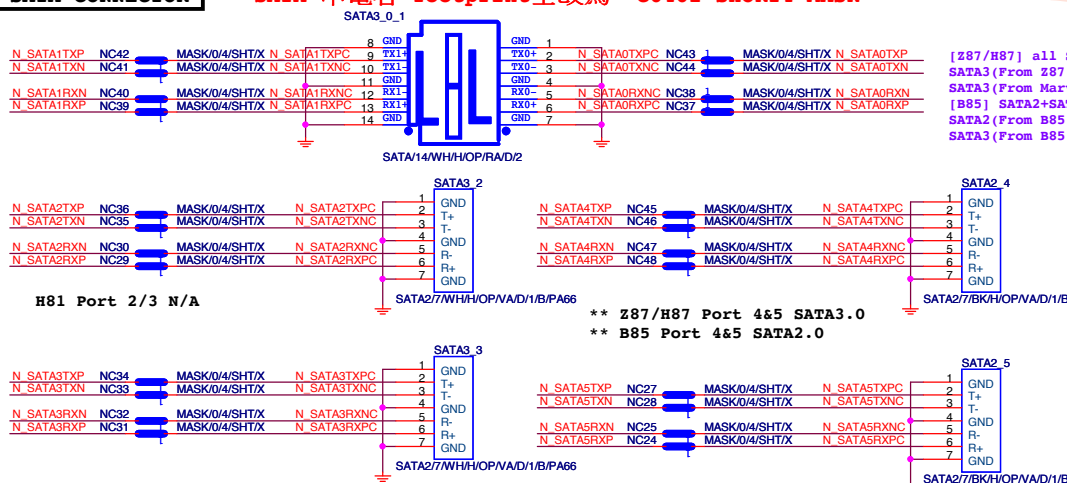
NR66 1K/4/1/X

1



SATA CONNECTOR

SATA 串電容 footprint全改爲 "C0402-SHORT4-MASK"

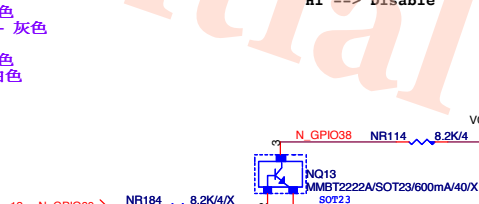


GPI038 Ctr

MFG Mode

```
N_GPI038 : Lo --> Enable
```

Hi ==> Disable



Gigabyte Technology

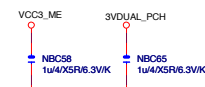
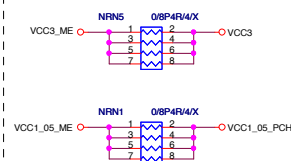
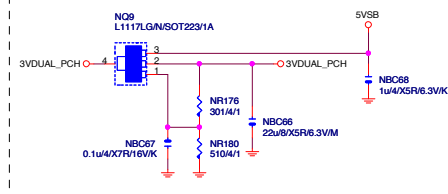
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PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	G1.Sniper B6	1.0	
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PCH (I)

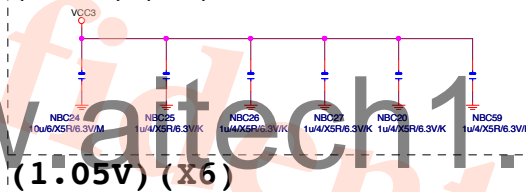


SHT PWR

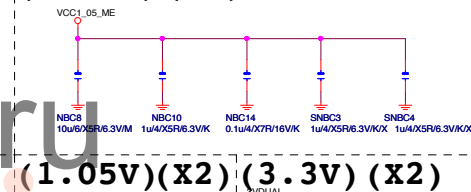
CAP



(3.3V) (X6)



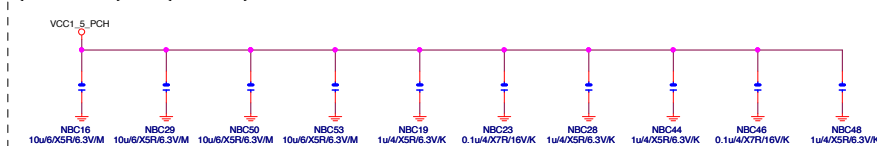
(1.05V) (x5)



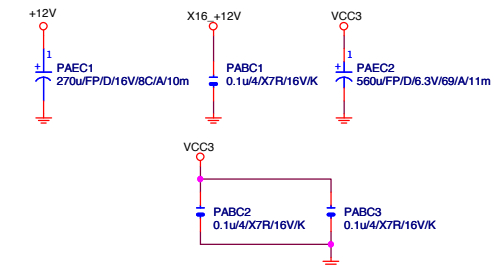
(1.05V) (x6)

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

(1.5V) (x10)

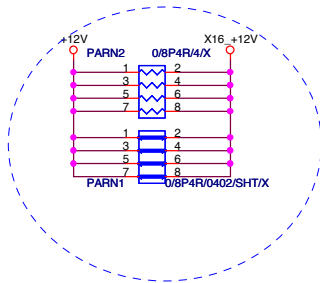


PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

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

PCI-E REV:1.1--> 2.5GHZ

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

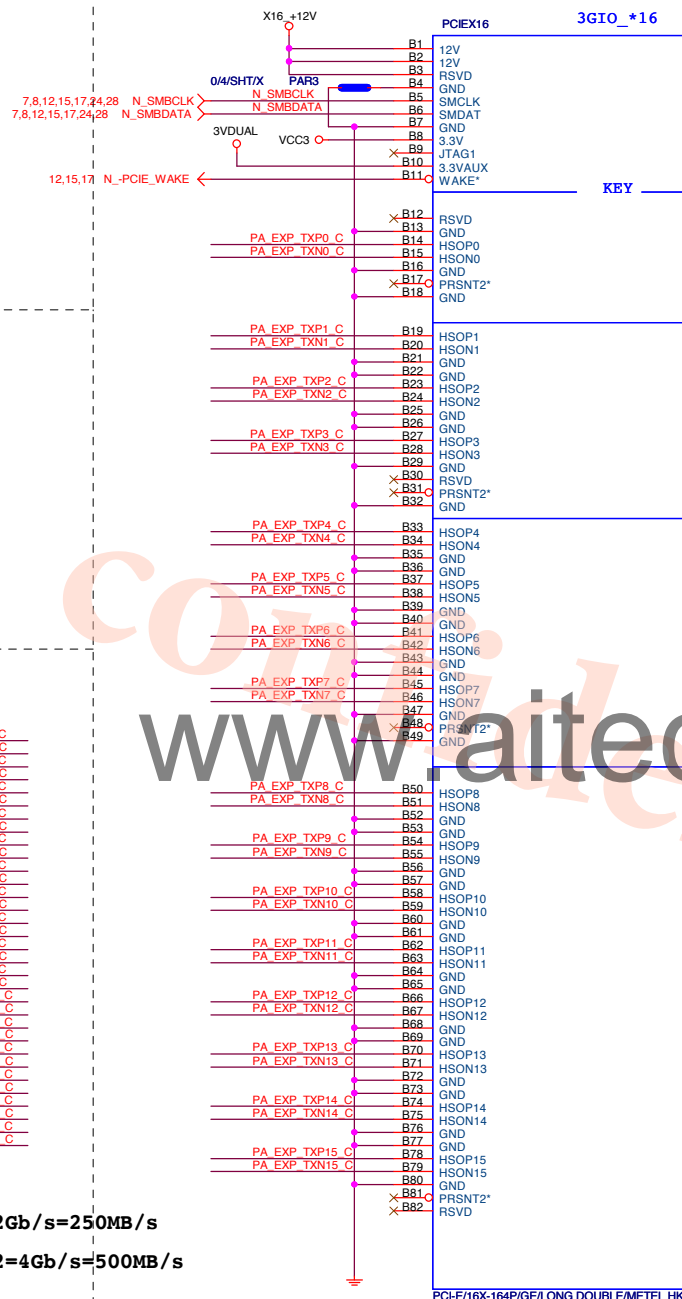
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

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

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

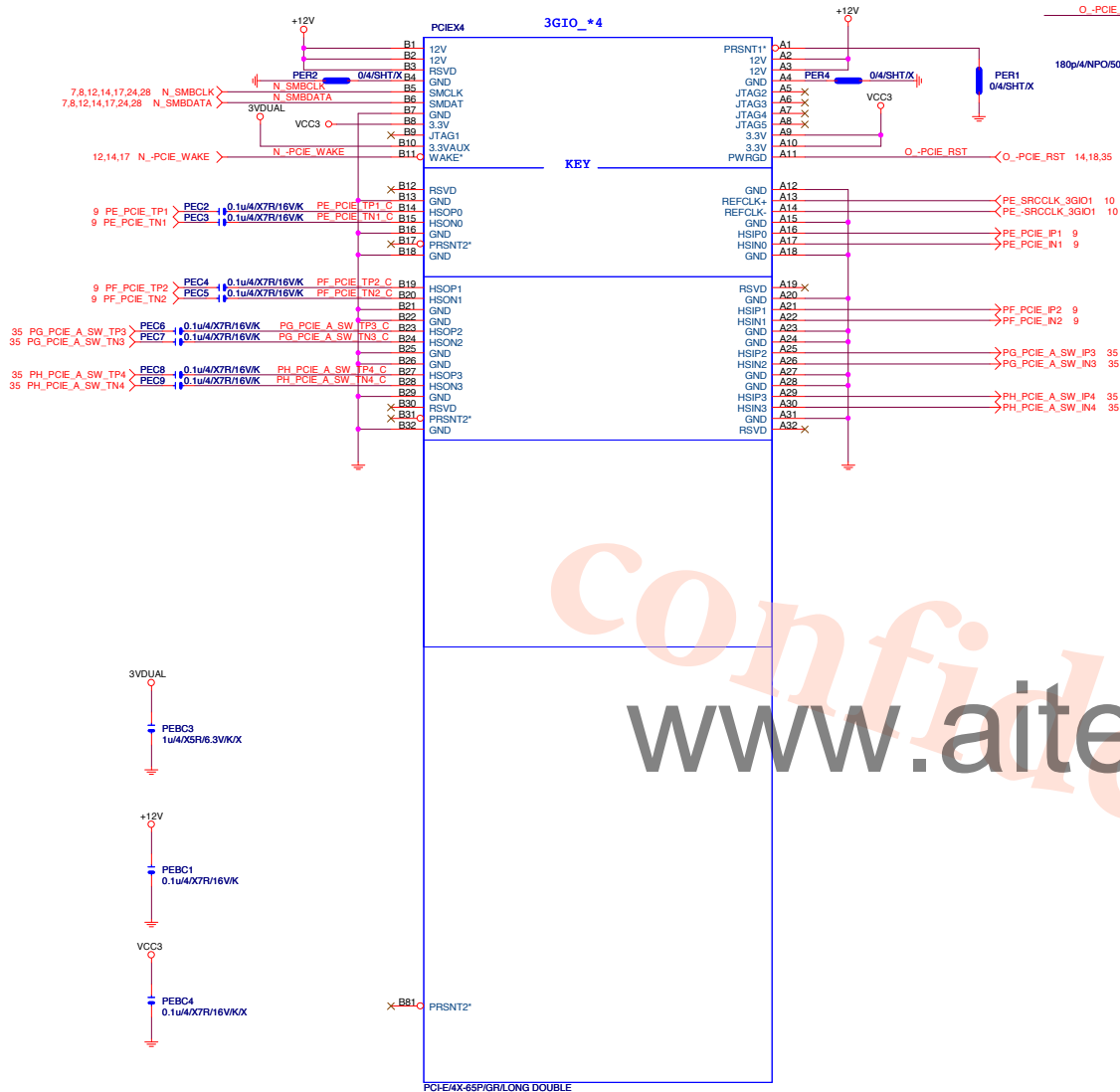


PCI-E/164P/GE/LONG DOUBLE/METEL HK

Gigabyte Technology

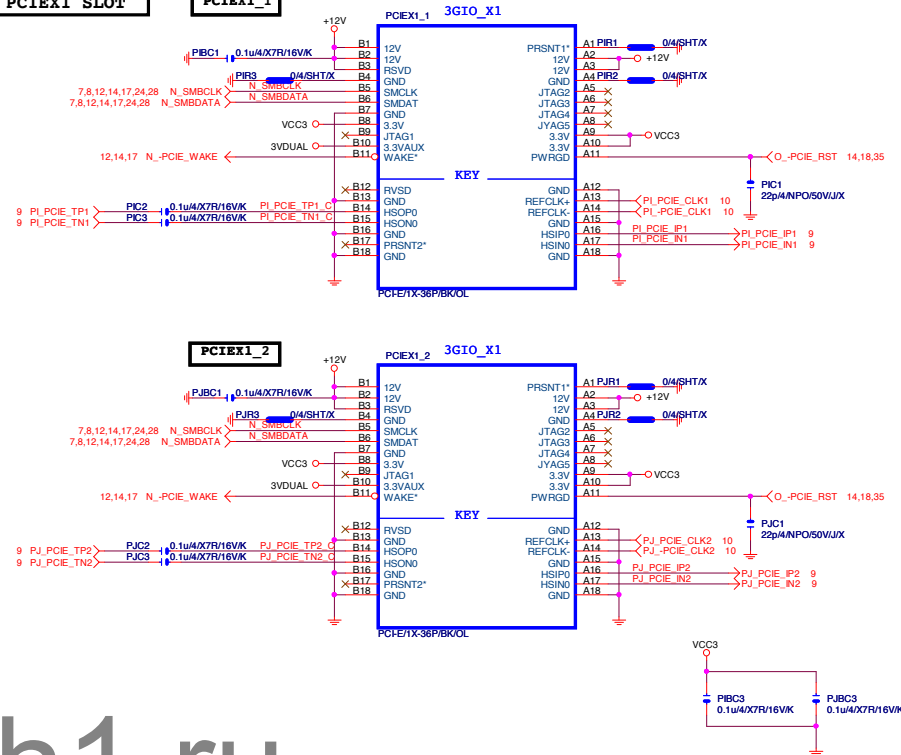
PCI EXPRESS * 16			
Size Custom		Document Number	Rev
		G1.Sniper B6	1.0
Date:	Monday, August 25, 2014	Sheet	14 of 37

PCIEX4 SLOT



PCIEX1 SLOT

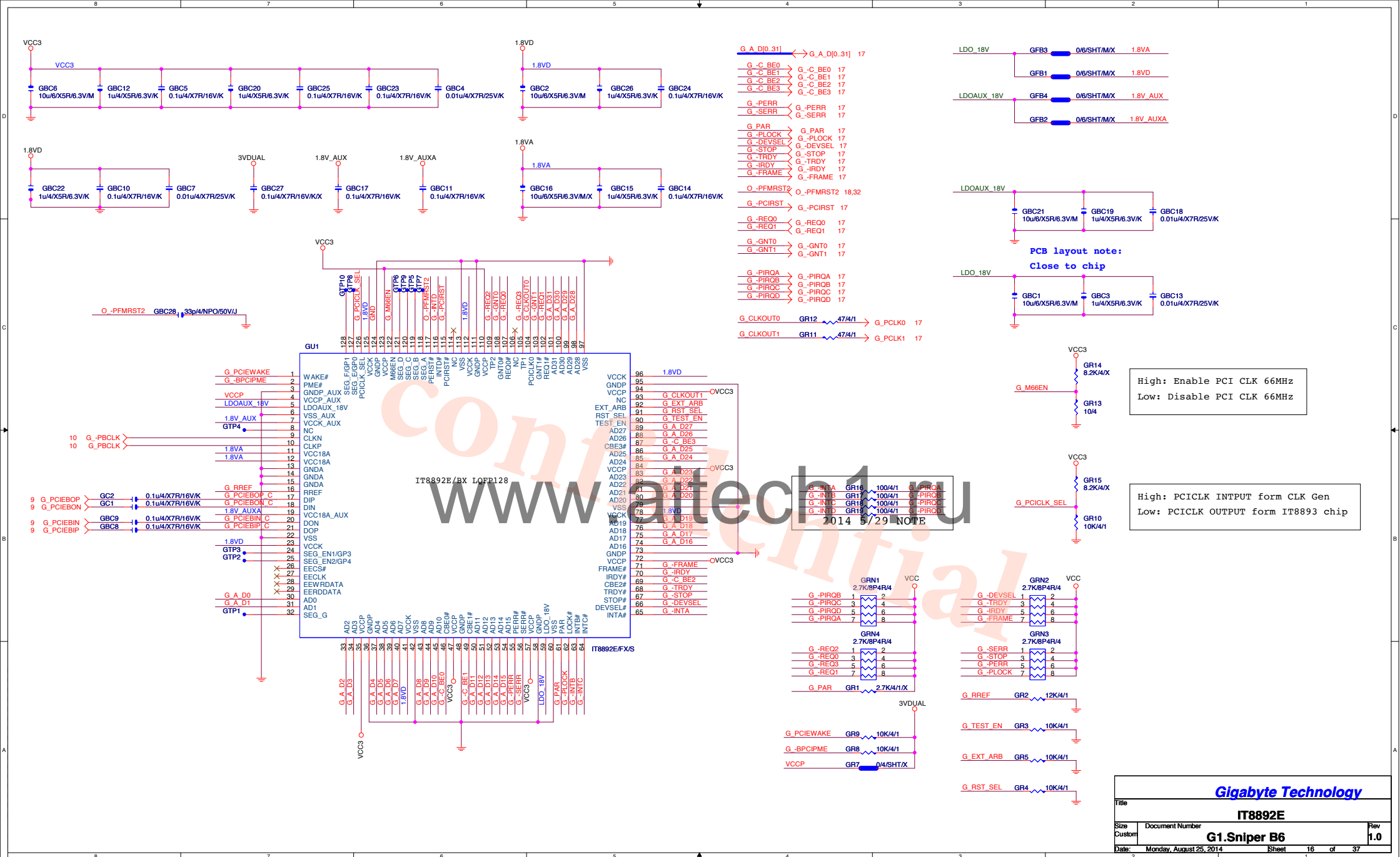
PCIEX1_1



www.aitech1.ru

Gigabyte Technology

Title			
PCIE_X1 1,2			
Size	Document Number		Rev
Custom	G1.Sniper B6		1.0
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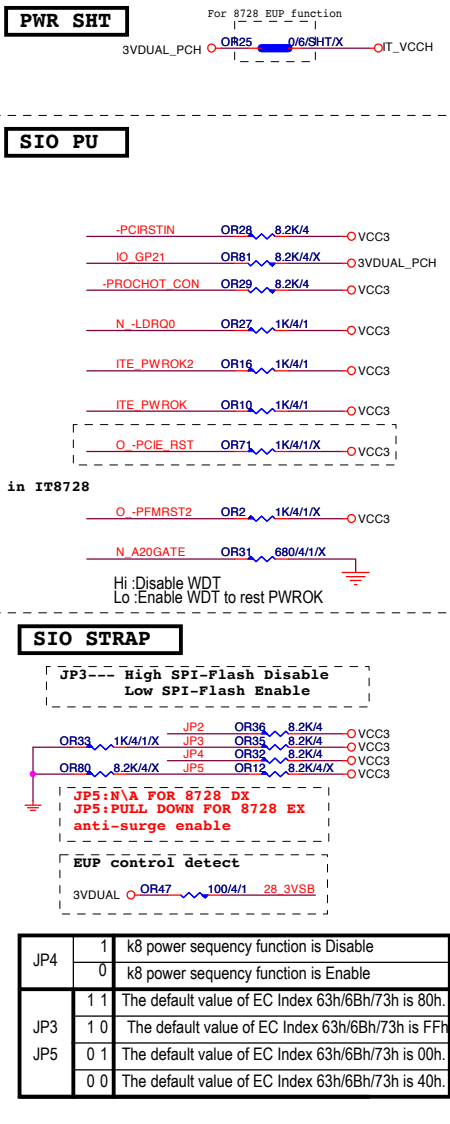
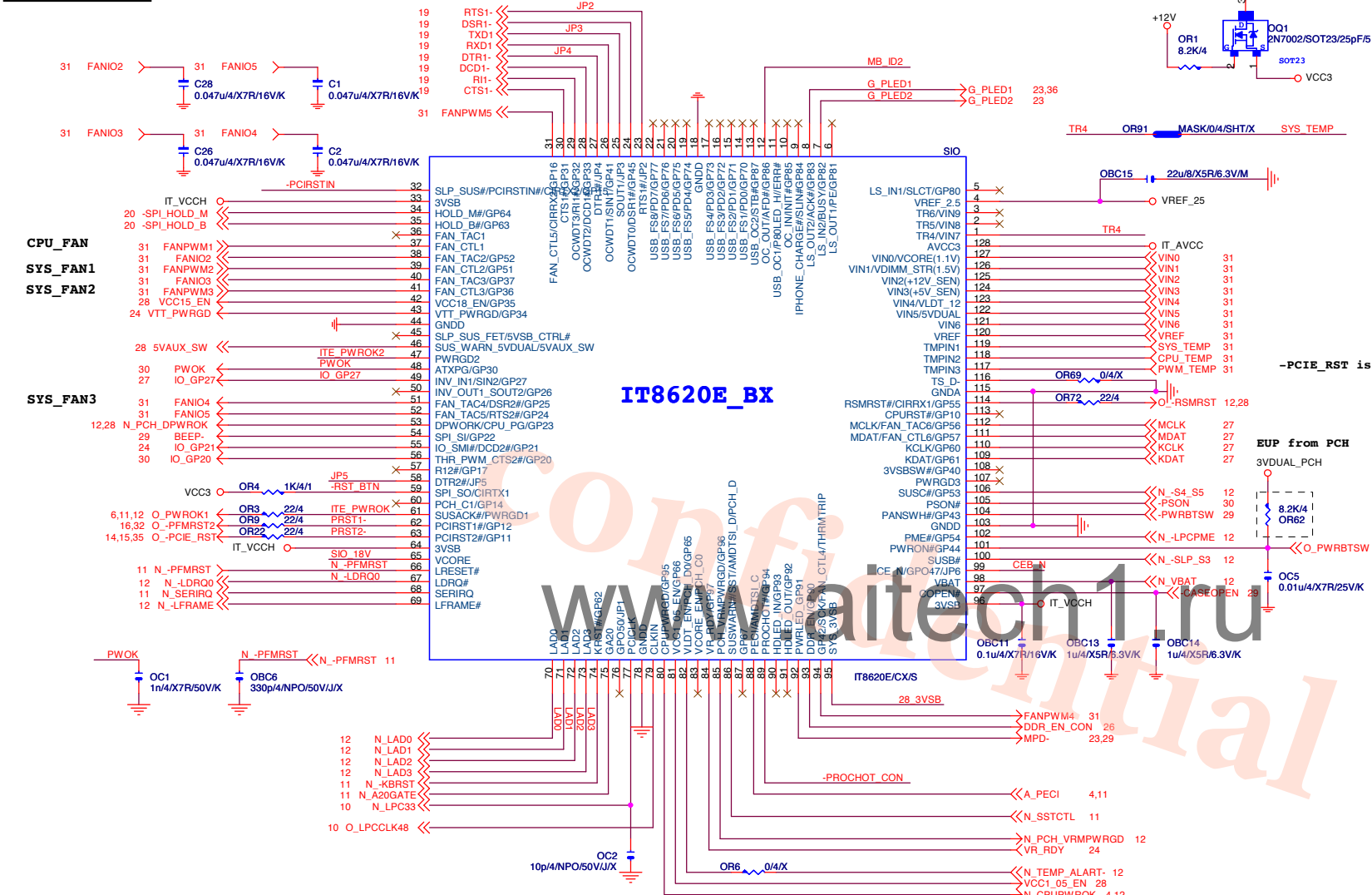


SIO IT8728F

Power leakage

PWR SHT

SIO PU



IT8620E GPIO問題隨整	
PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉Lo(ITE BUG)
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

SIO_18V

MB ID

SIO CAP

Gigabyte Technology

Title

ITE 8620 LPC IO

Size B

Document Number

G1 Sniper B6

Date: Monday, August 25, 2014

Sheet

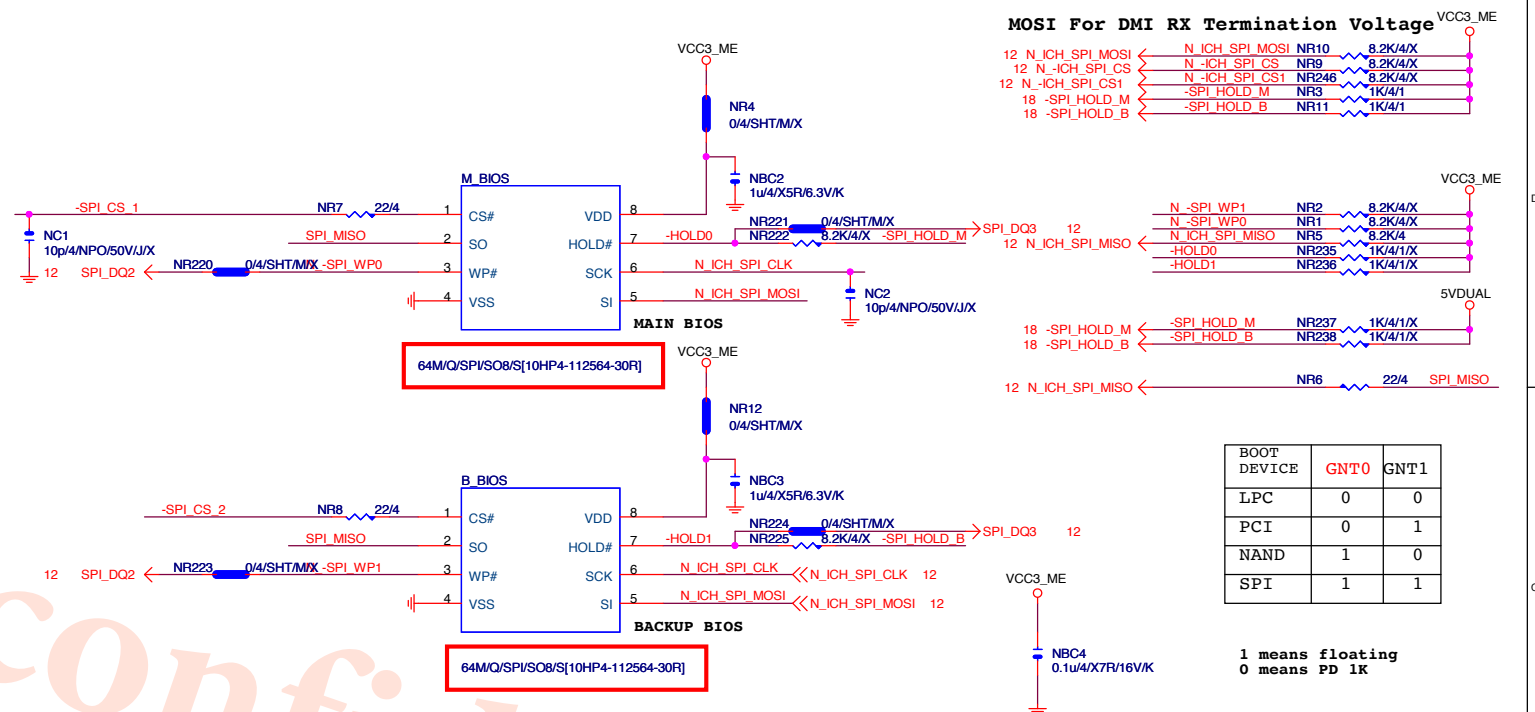
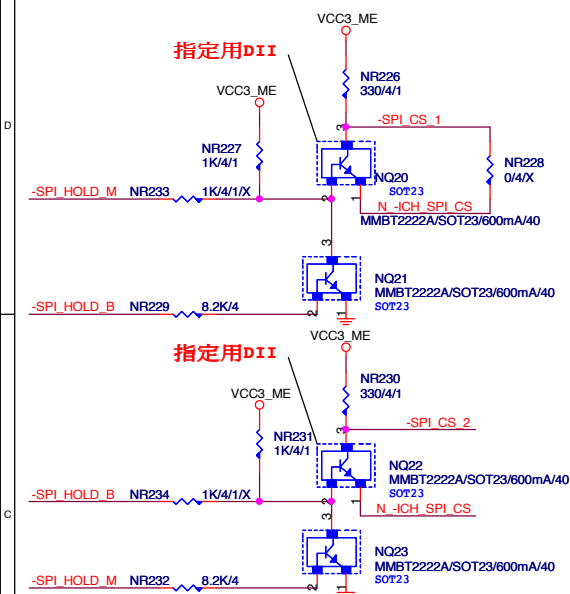
18

of

37

Rev 1.0

DUAL BIOS



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

1 means floating
0 means PD 1K

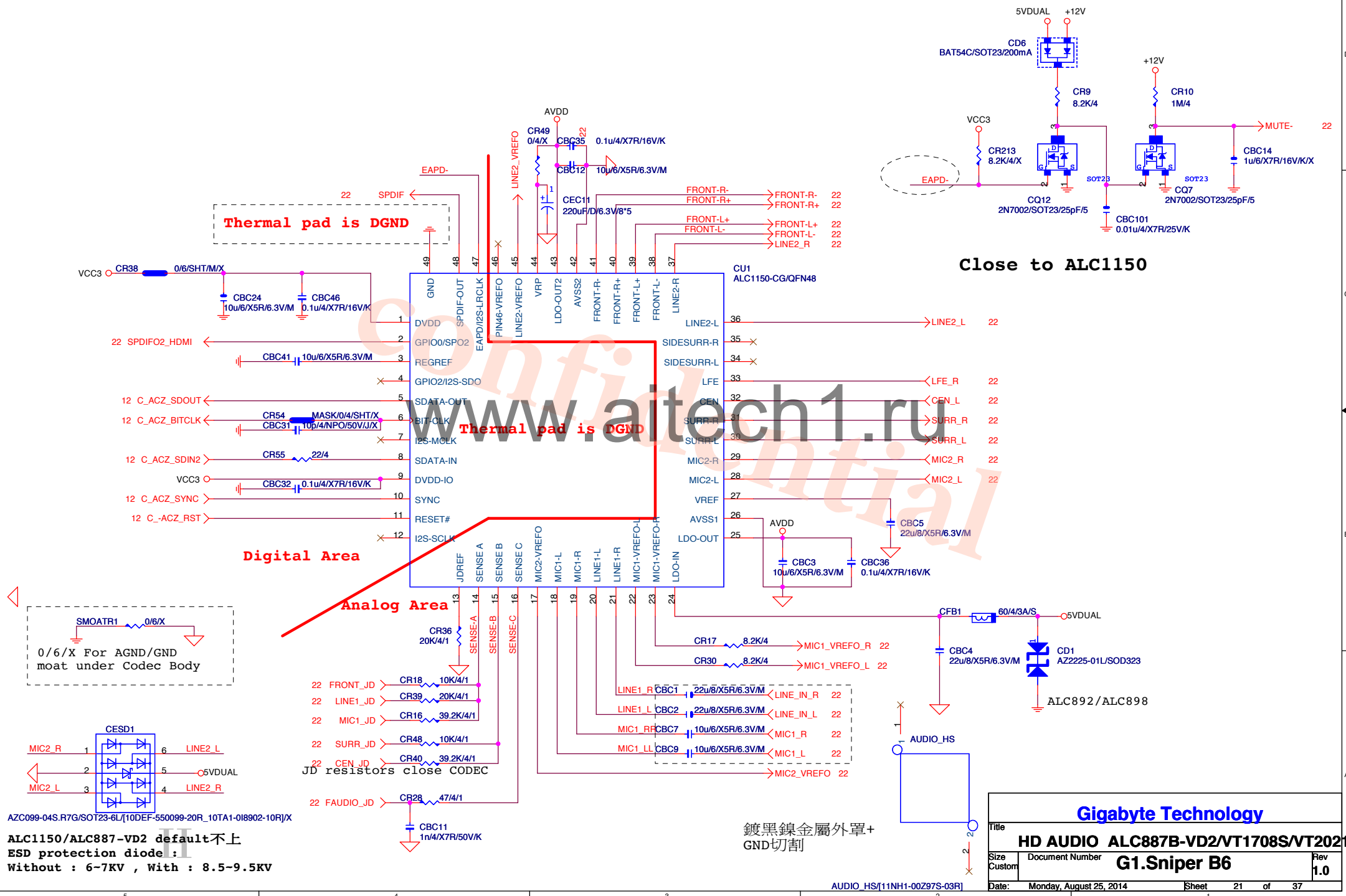
www.aitech1.ru

Gigabyte Technology

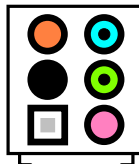
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Size Custom	Document Number	G1.Sniper B6
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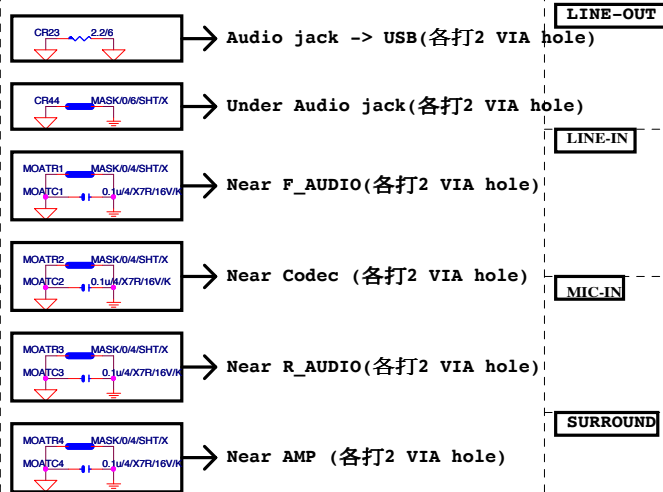
Date: Monday, August 25, 2014 Sheet 20 of 37



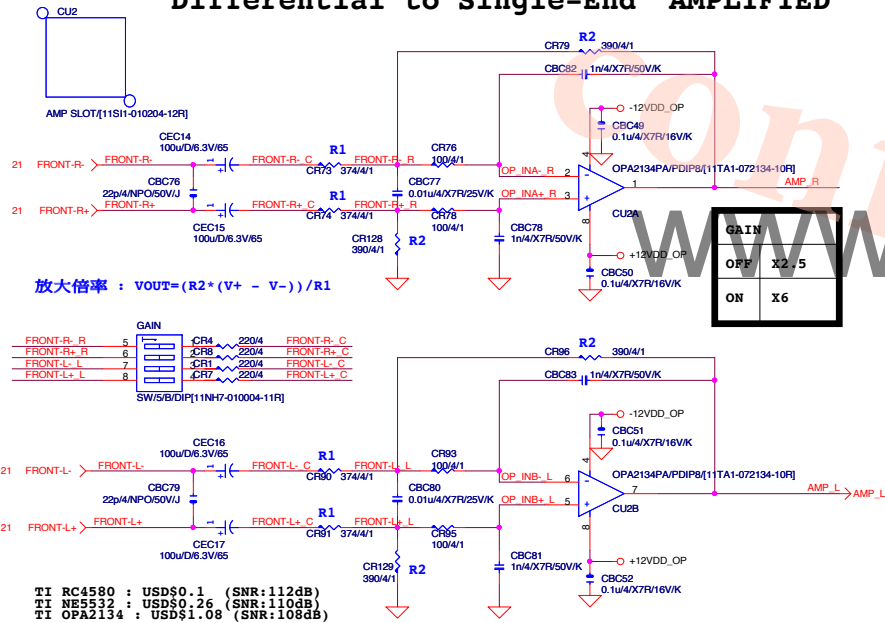
AZALIA JACK



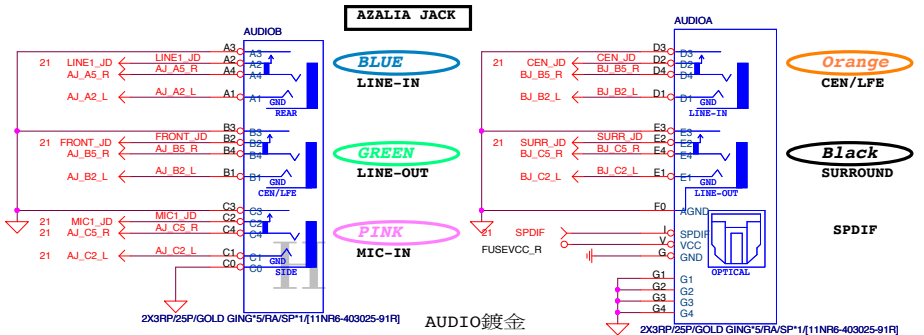
SPDIF_OUT



Differential to Single-End AMPLIFIED



ANALOG AREA



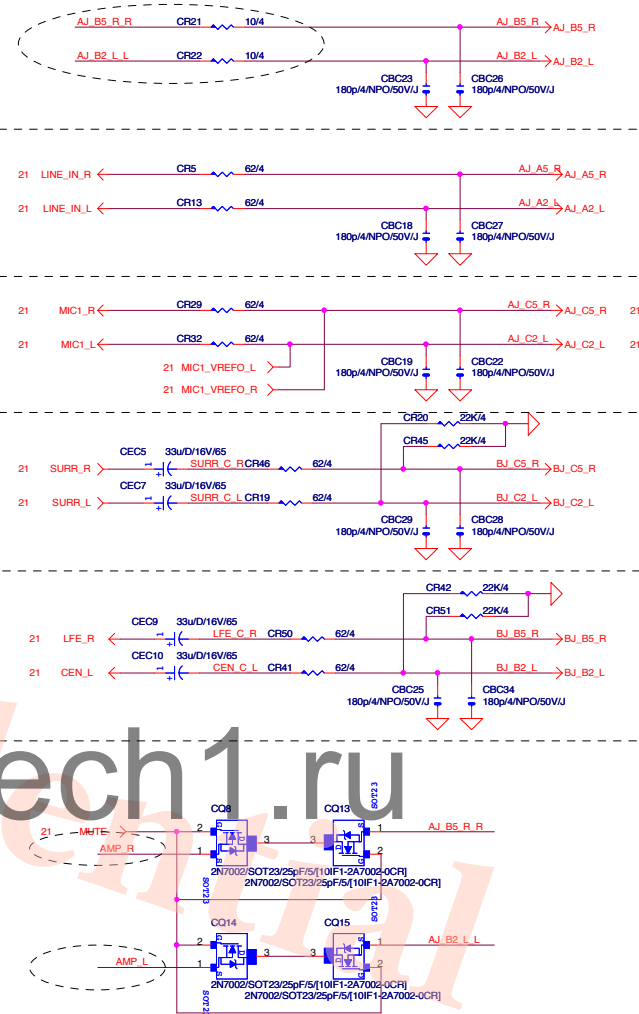
LINE-OUT

LINE-IN

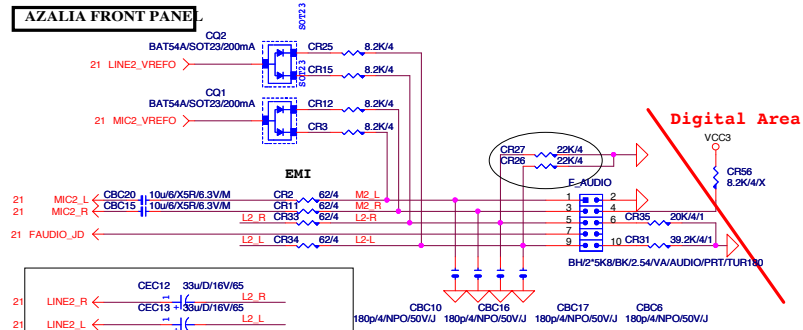
MIC-IN

SURROUND

CEN/LFE

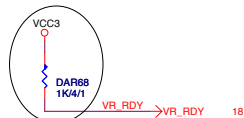
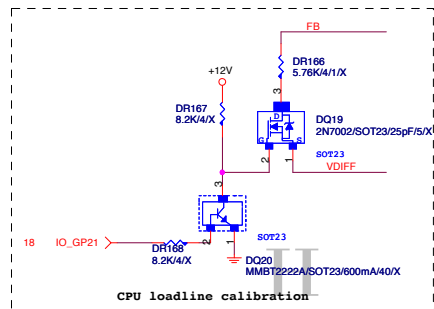
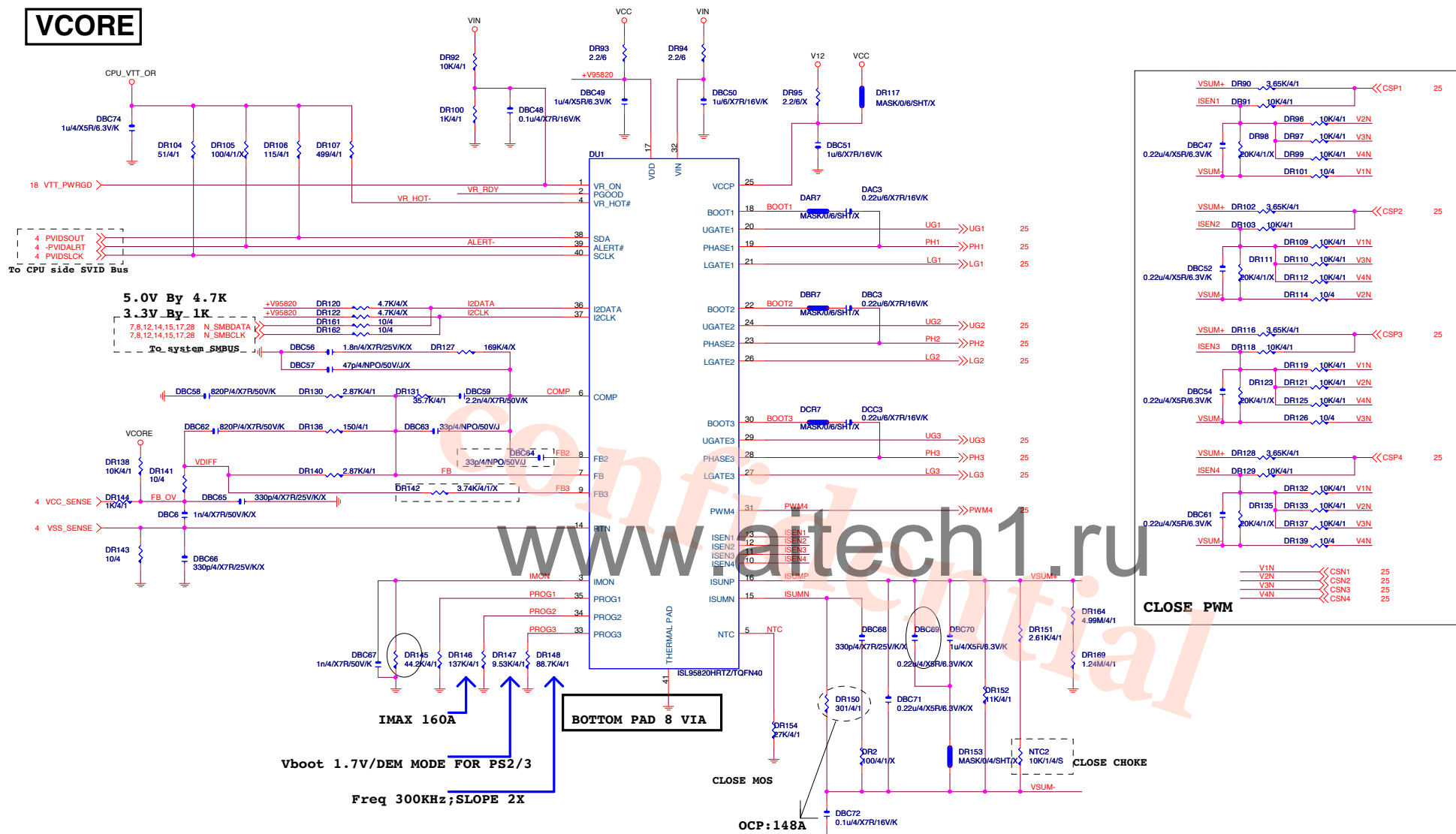


AZALIA FRONT PANEL



Gigabyte Technology

AUDIO JACK		
G1.Sniper B6		
File	Document Number	Rev
Size	Custom	1.0
Date:	Monday, August 25, 2014	Sheet 22 of 37

VCORE

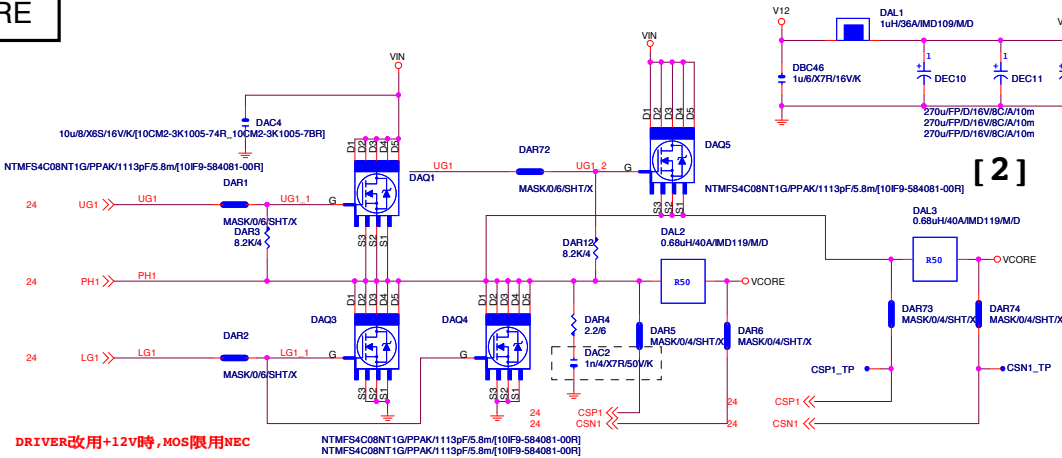
VCORE各層切割

第一層:VCCORE
第二層:VCCORE
第三層:GND
第四層:VCCORE

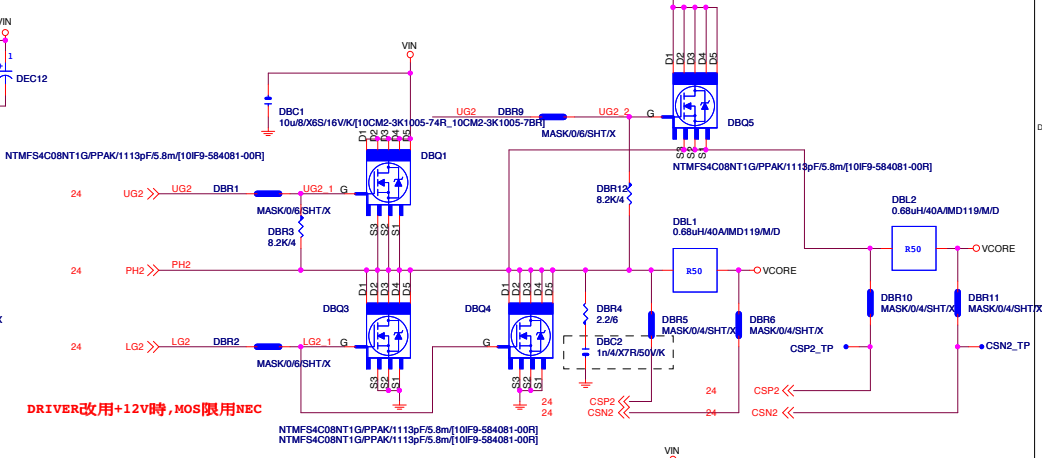
Gigabyte Technology				
Title VCORE_ISL95820				
Size	Document Number			Rev
Custom	G1.Sniper B6			1
Date:	Monday, August 25, 2014	Sheet	24	of 37

VCORE

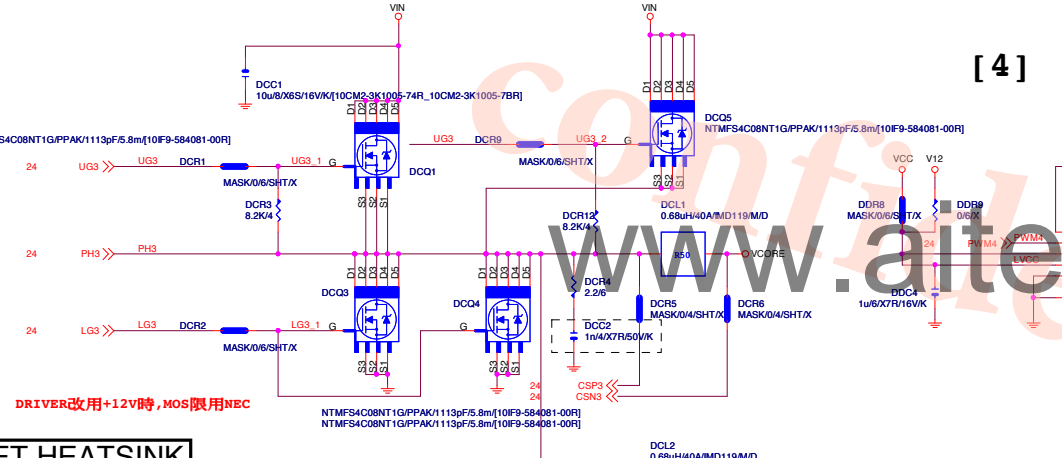
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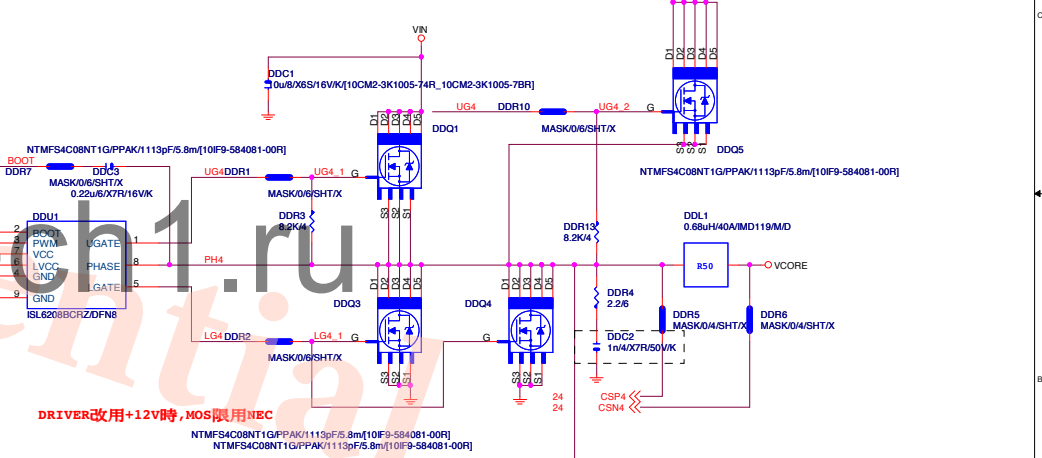
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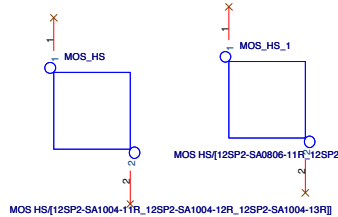
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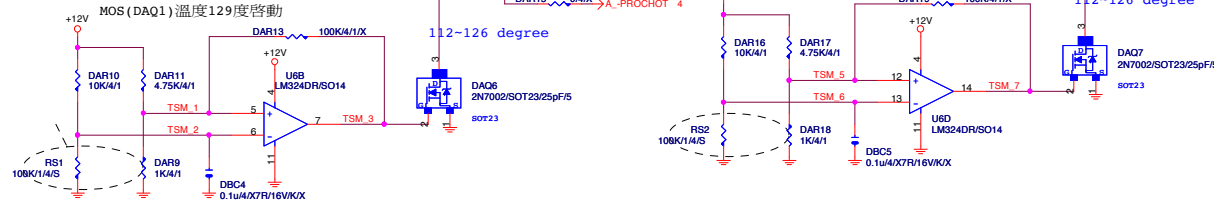
[4]



MOSFET HEATSINK



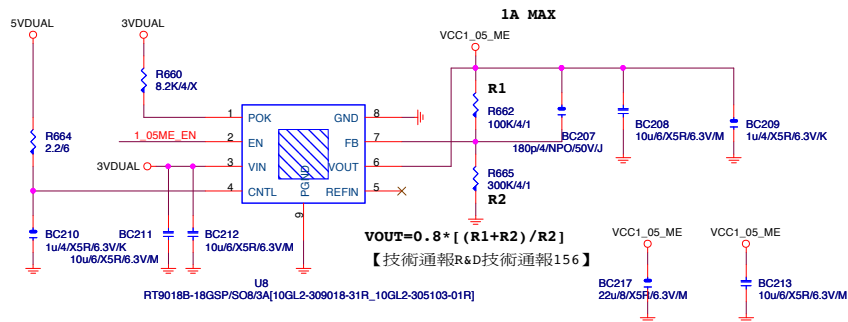
PROHOT



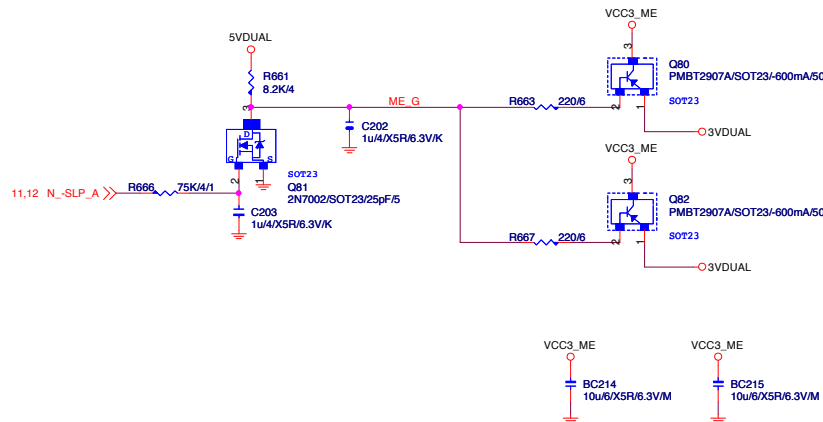
Gigabyte Technology		
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Size	Document Number	G1.Sniper B6
Custom		Rev 1.0
Date	Monday, August 25, 2014	Sheet 25 of 37

VCC1_05_ME

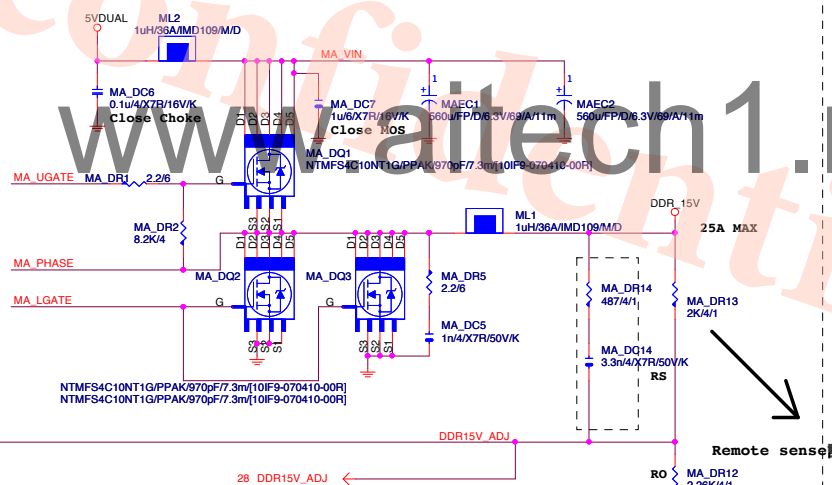
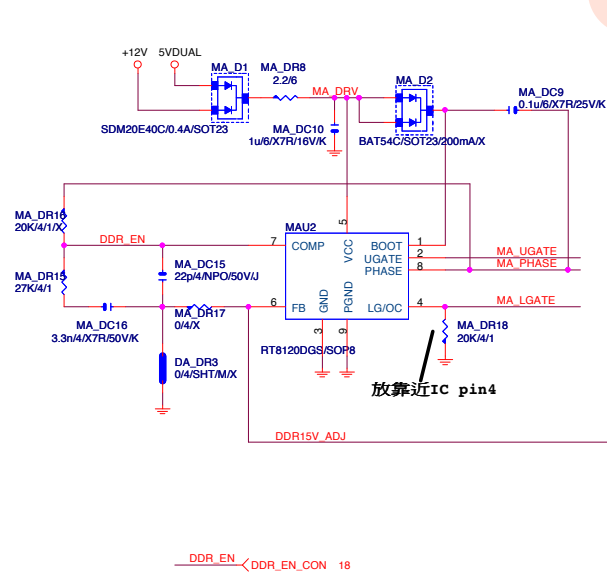
【技術通報R&D技術通報156】
(RICHTER), (NUVOTON), (EMC)做共用
PIN7分壓阻值須做修改為100K以上電阻值



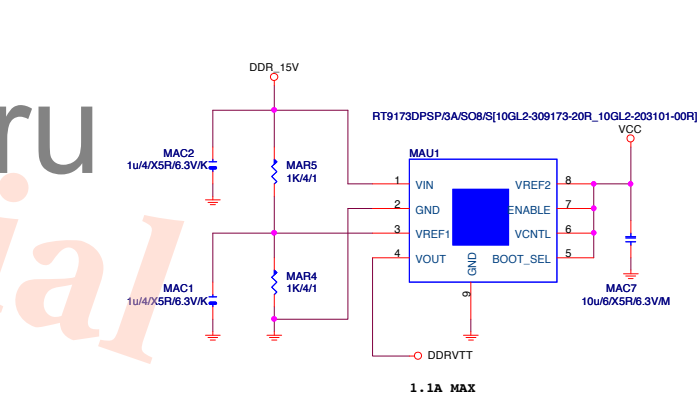
VCC3_ME



DDR_15V



DDRVTT



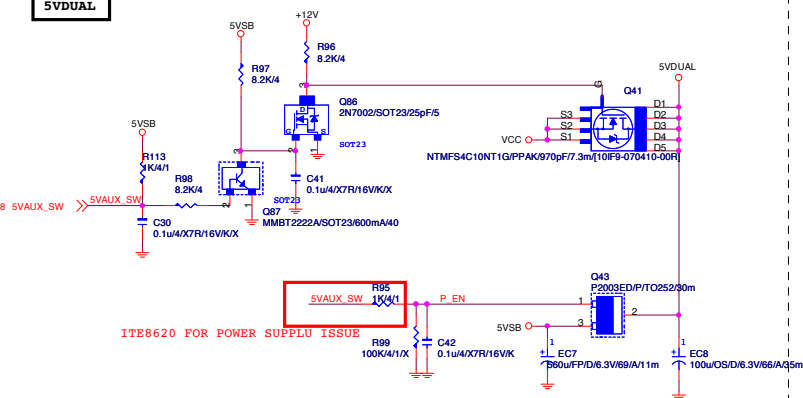
VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃), 1(105℃)
VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

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]

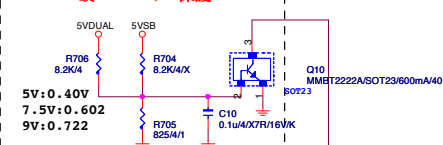
GIGABYTE™			
Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
Custom	G1.Sniper B6	1.0	
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5VDUAL

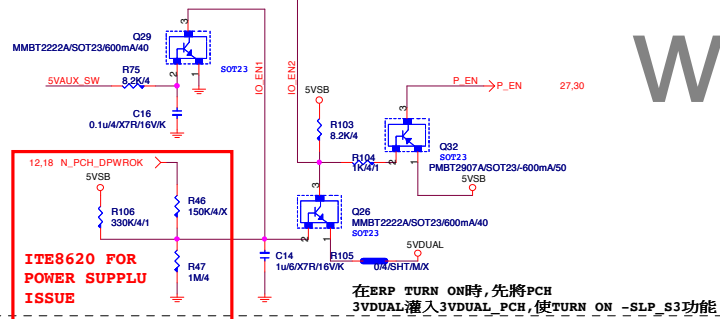


5VSB OVP:7.5V protection

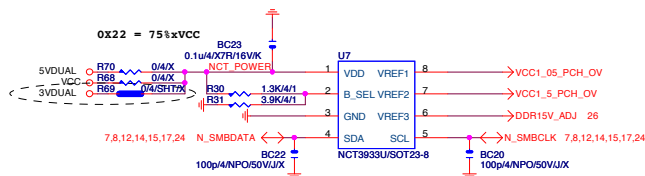
NOTE 82:改5V DUAL, 6V保護



5VDUAL SHORT PROTECT

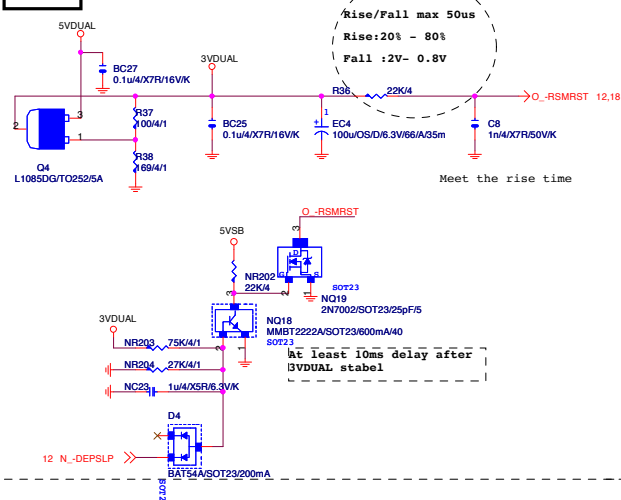


OVER VOLTAGE

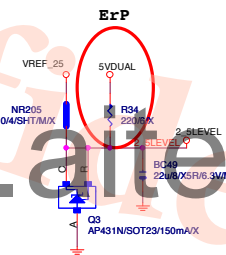


NCT3933	OX2A	OX20	OX22
VREF1	DDRVT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

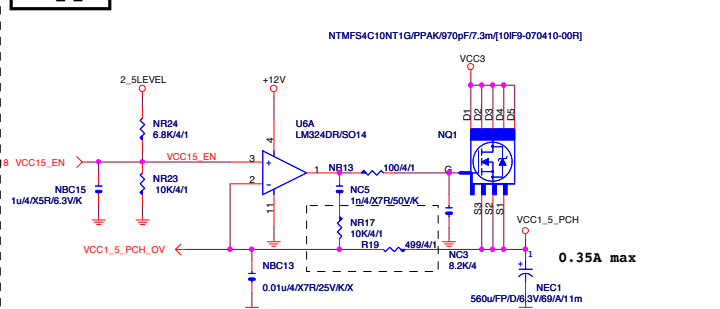
3VDUAL



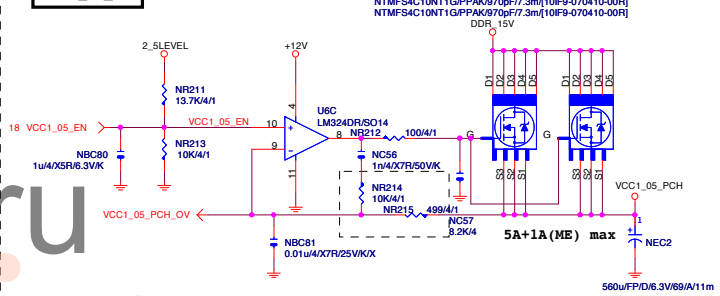
2_5LEVEL



VCC1_5_PCH



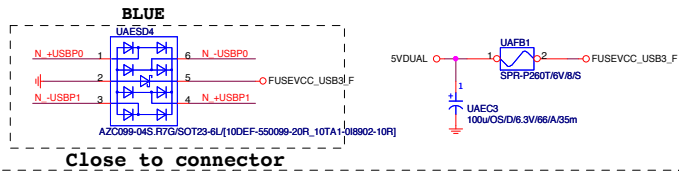
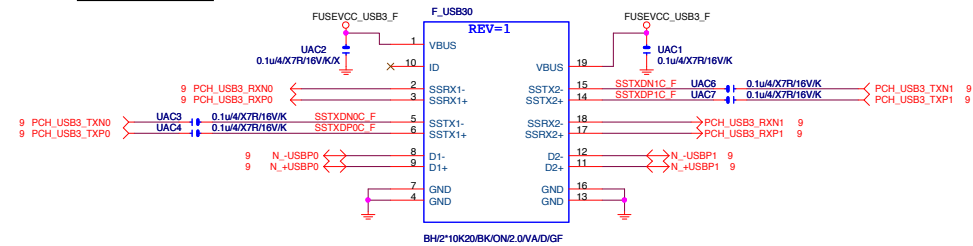
VCC1_05_PCH



Gigabyte Technology

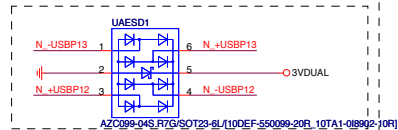
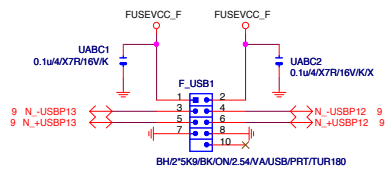
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DISCRETE POWER			
Size	Document Number	G1.Sniper B6	
Custom		Rev 1.0	
Date	Monday, August 25, 2014	Sheet	28 of 37

Front USB3.0

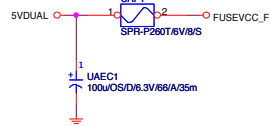


Close to connector

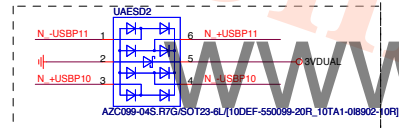
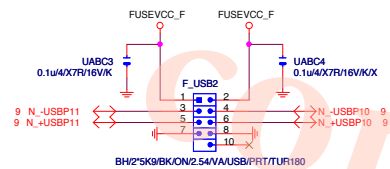
FRONT USB1



Close to connector

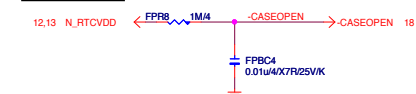
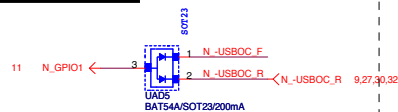


FRONT USB2

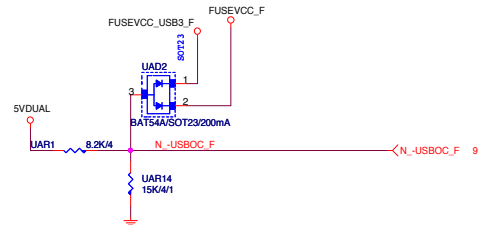


Close to connector

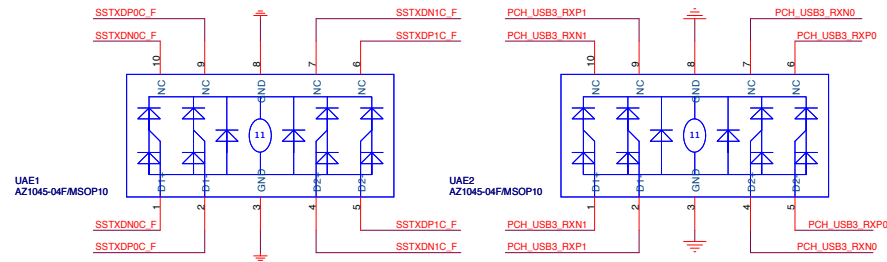
CASE OPEN

**F_USB POWER PROTECT**

-USB0C_F

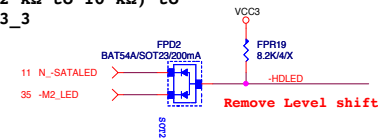


F_USB30 ESD PROTECT

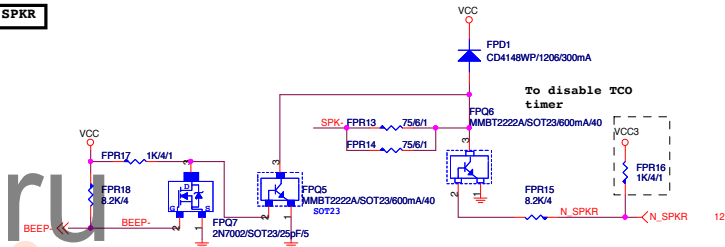


SATA LED

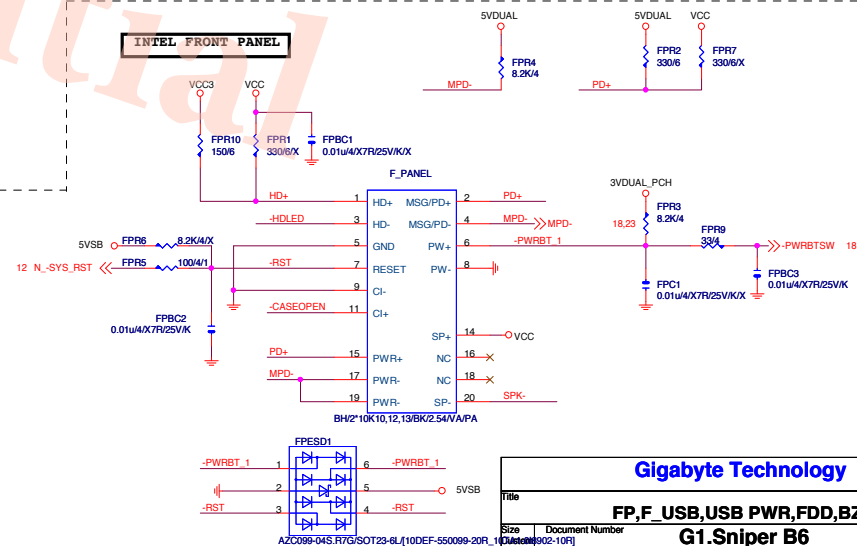
SATALED# signal
open-collector, pull-up
(8.2 kΩ to 10 kΩ) to
Vcc3_3



SPKR



INTEL FRONT PANEL



Gigabyte Technology

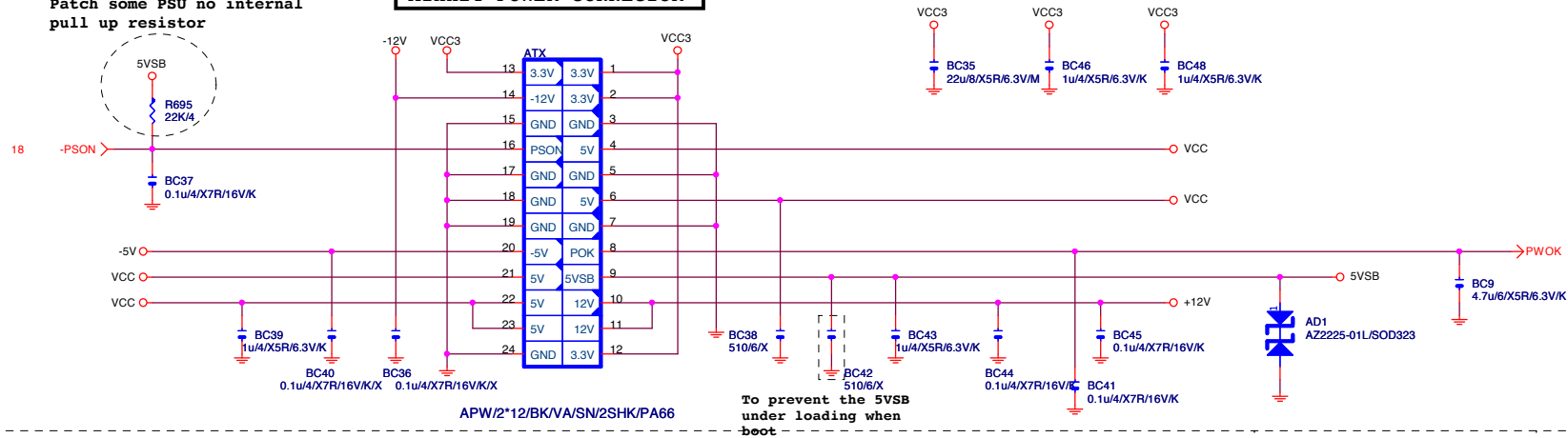
FP,F_USB,USB PWR,FDD,B

Size	Document Number	Rev
Custom [902-10R]	G1.Sniper B6	1.0

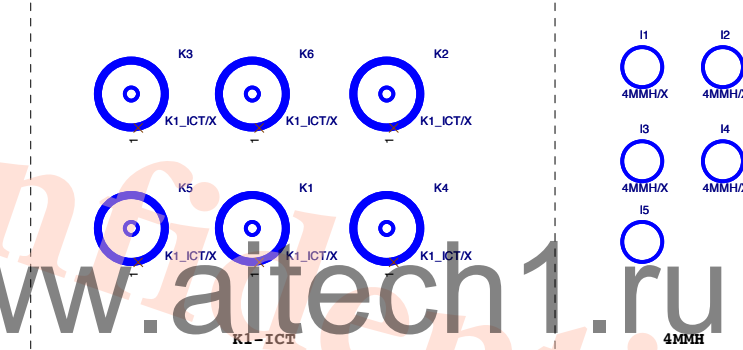
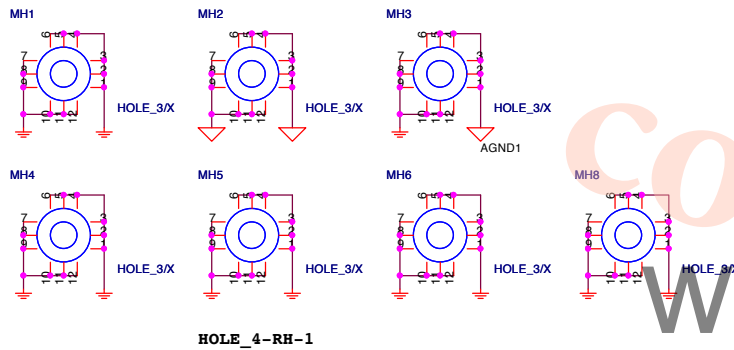
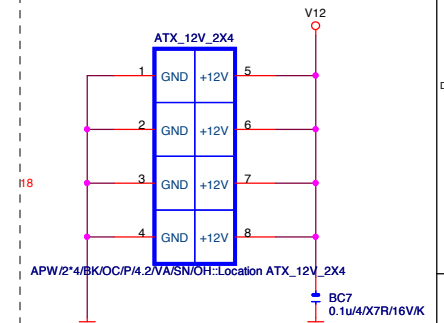
Date: Monday, August 25, 2014 Sheet 29 of 37

Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

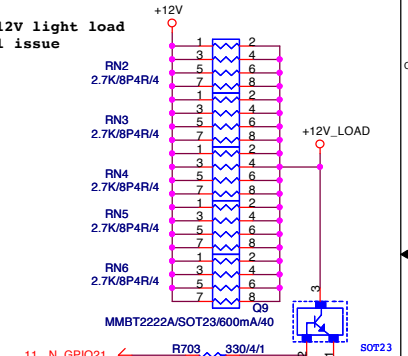


ATXX4 POWER CONNECTOR

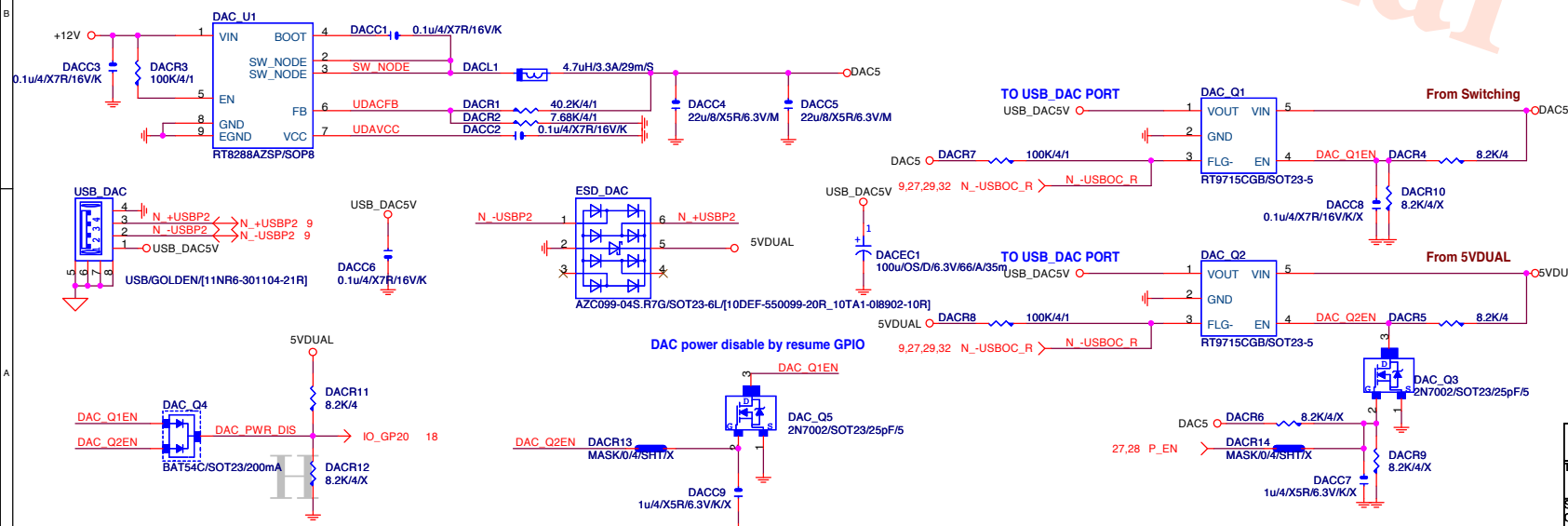


【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



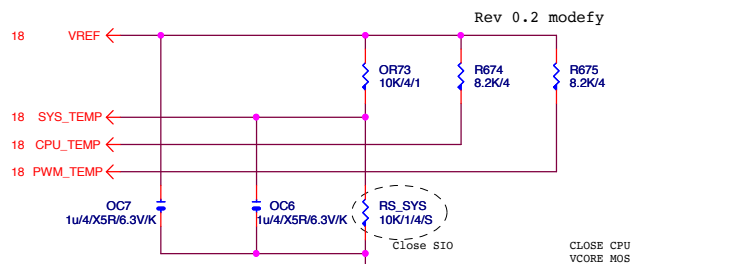
USB_DAC



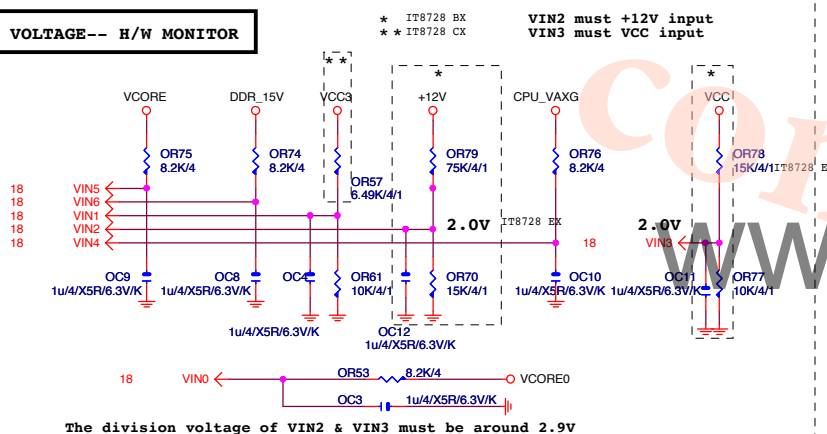
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ATX POWER CONNECTOR		
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TEMP H/W MONITOR



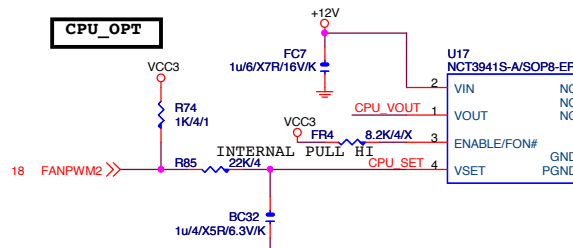
VOLTAGE-- H/W MONITOR



Linear CPU_FAN

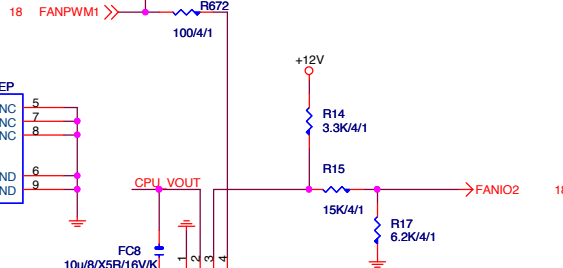
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

CPU_OPT



PWM CPU_FAN

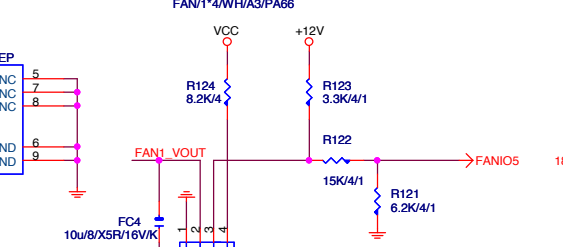
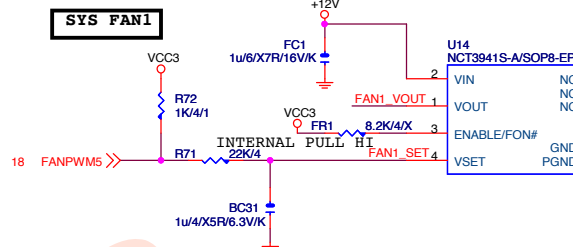
VCC R696 8.2K/4



Linear SYS_FAN

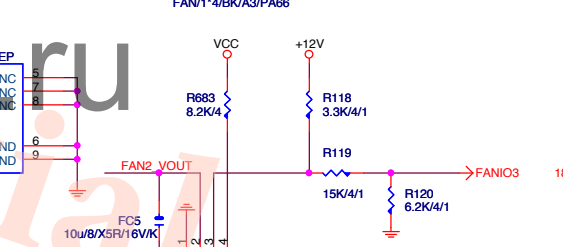
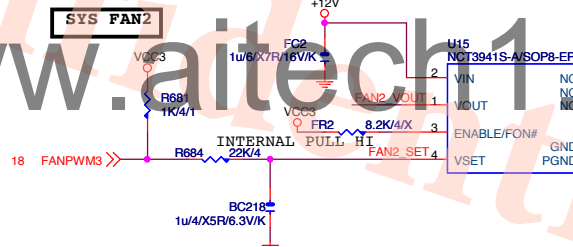
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

SYS FAN1



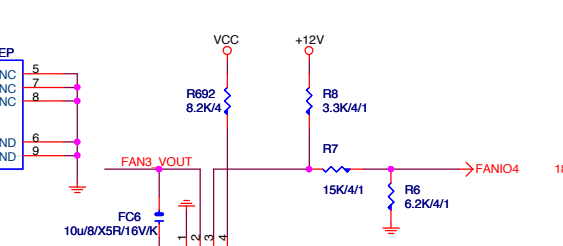
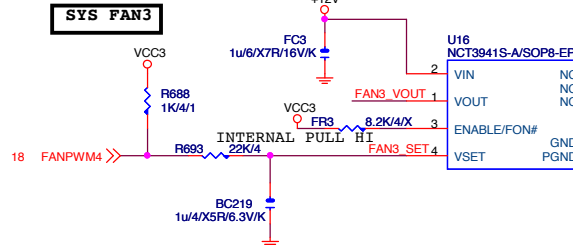
Linear SYS_FAN

SYS FAN2



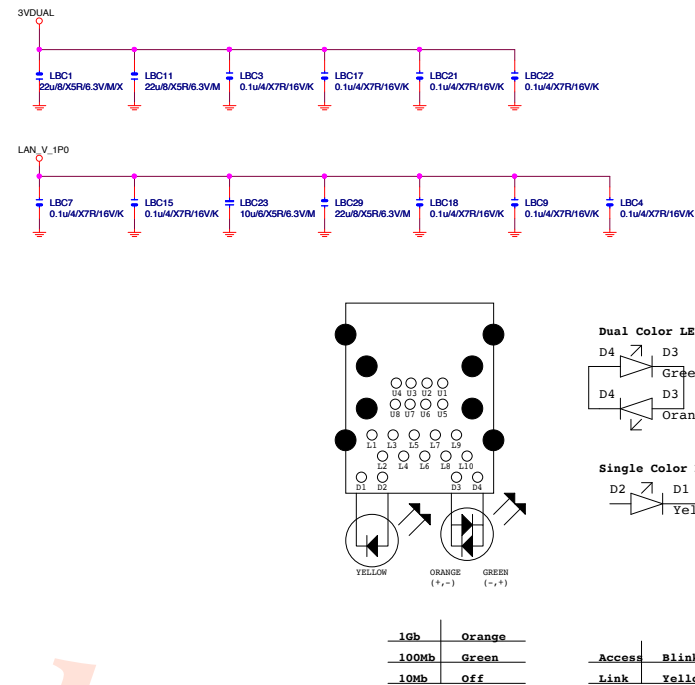
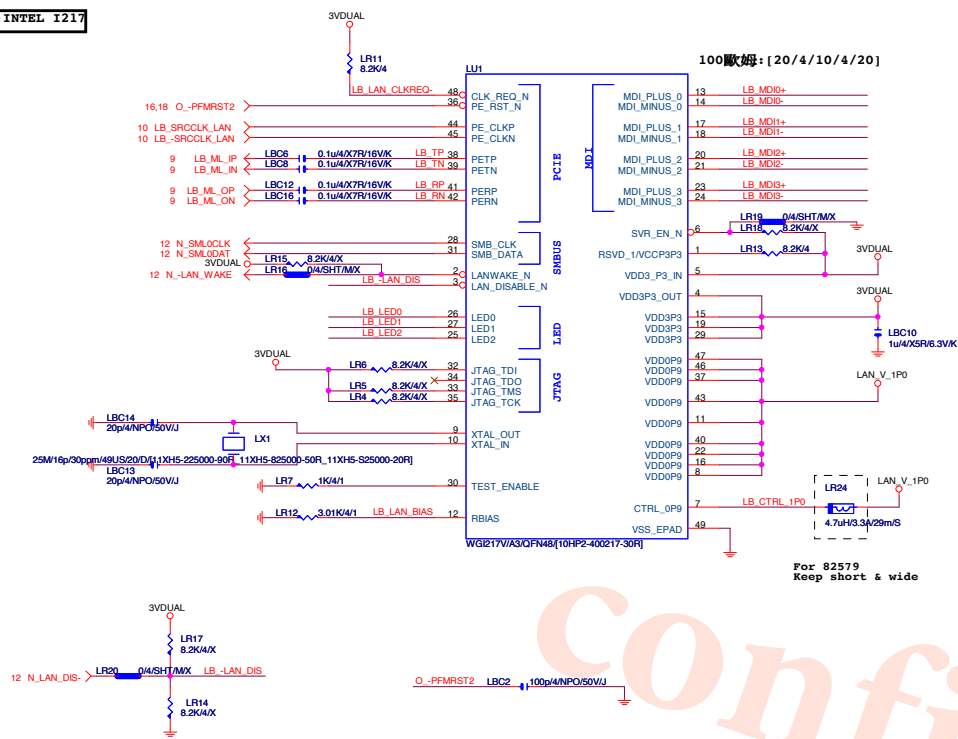
Linear SYS_FAN

SYS FAN3

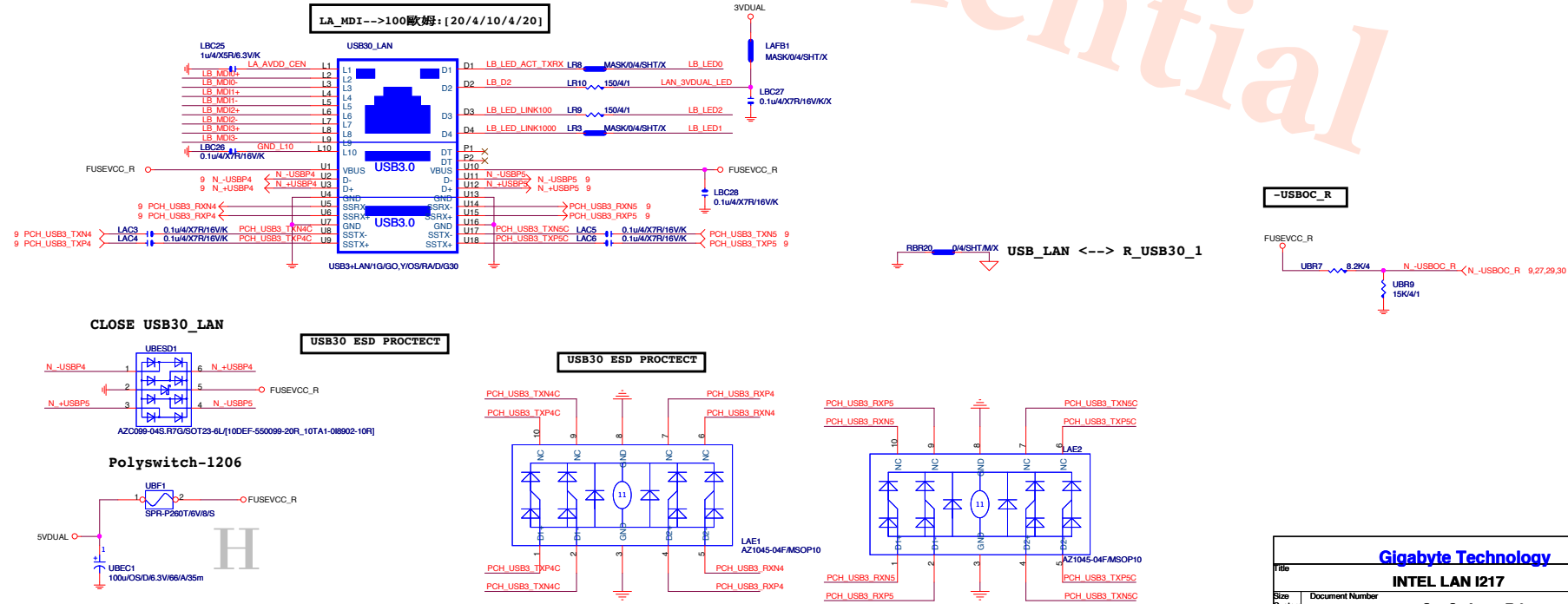


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Title		HWM,FAN CTRL	
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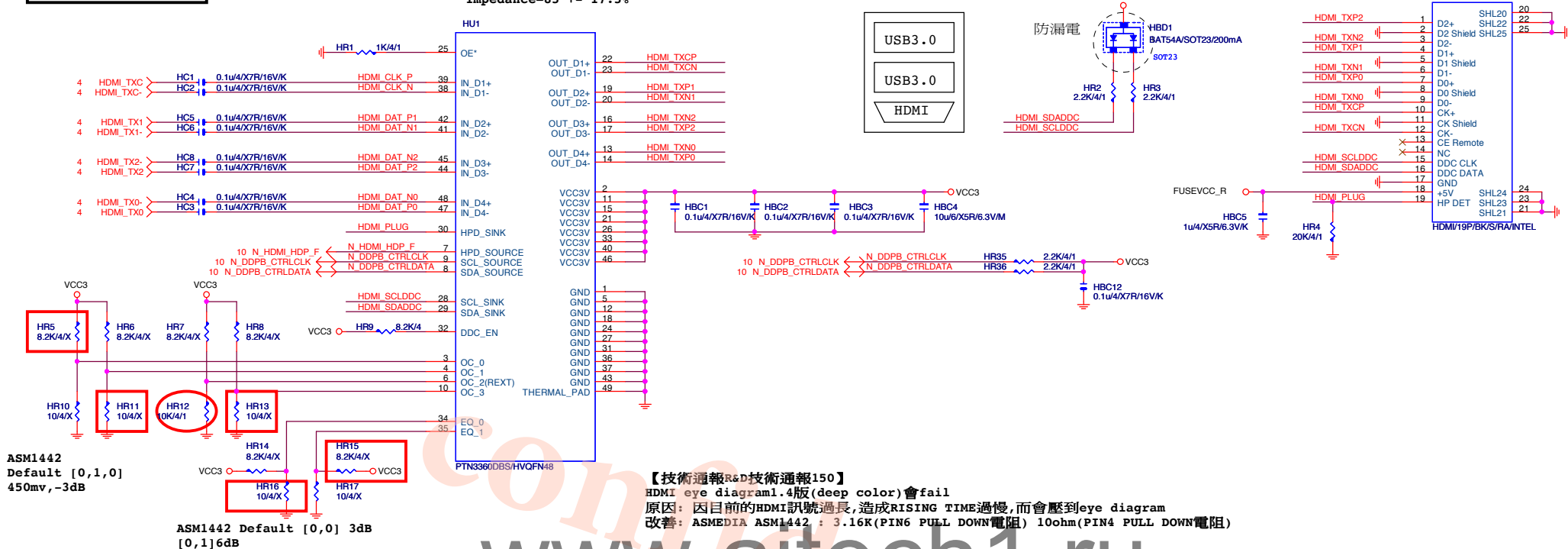


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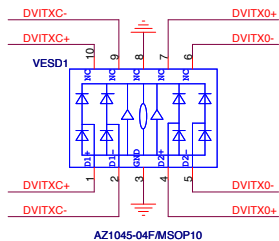
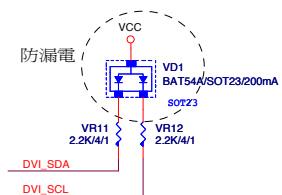
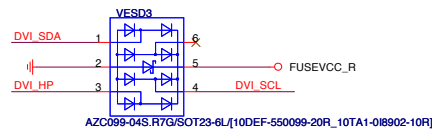
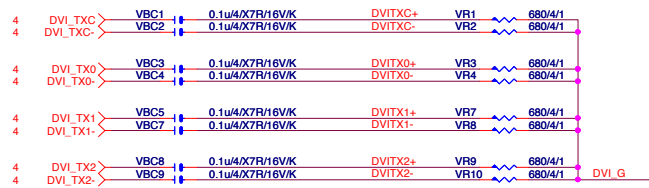
HDMI LEVEL SHIFT

HDMI:20/4/6/4/20
Impedance=85 +- 17.5%

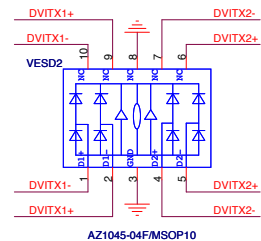


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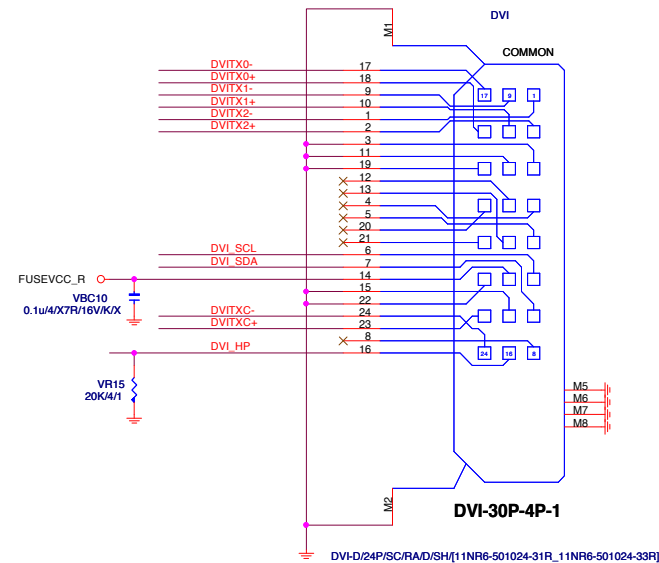
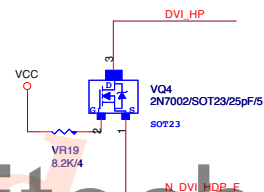
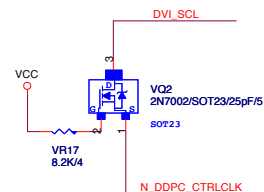
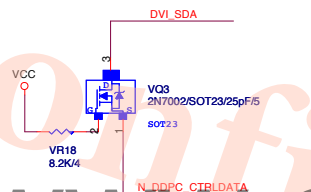
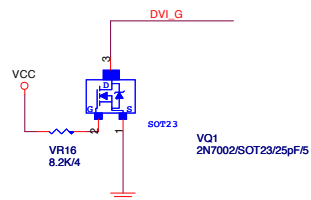
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HDMI			
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Close to connector



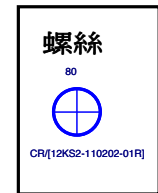
Close to connector




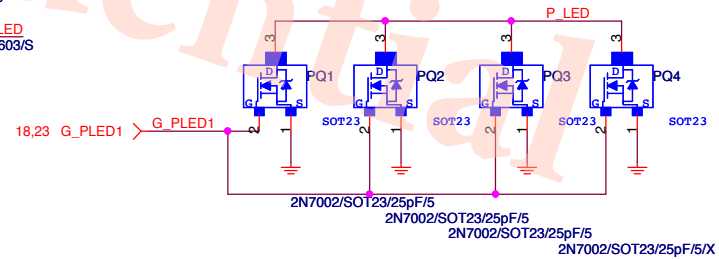
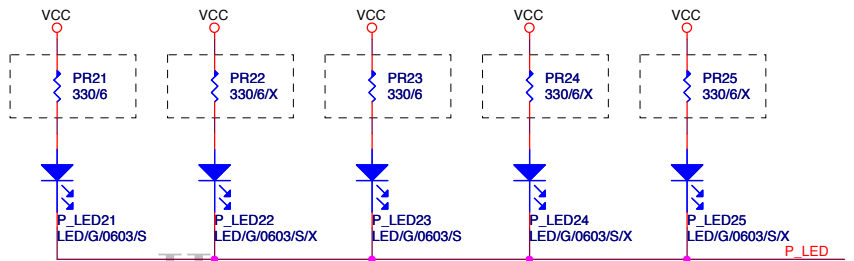
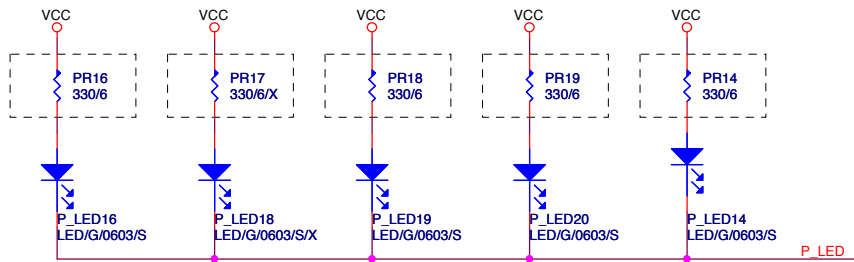
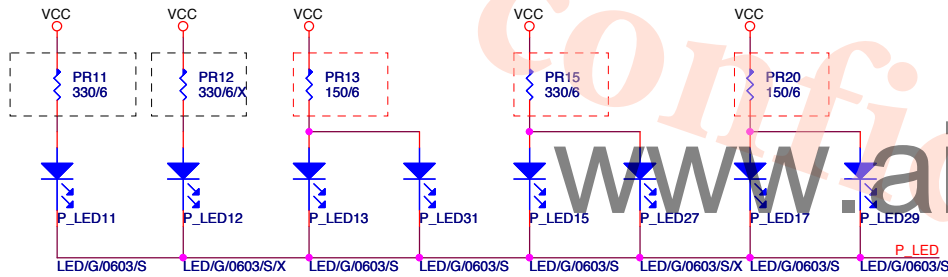
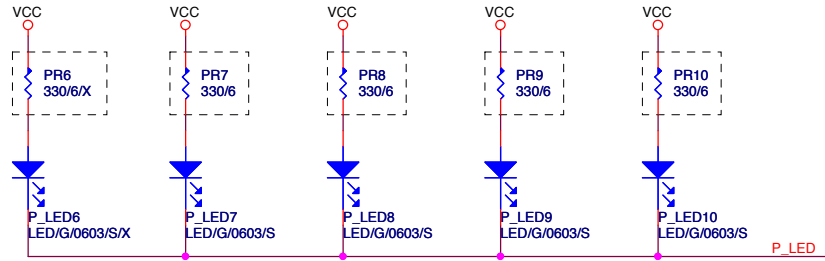
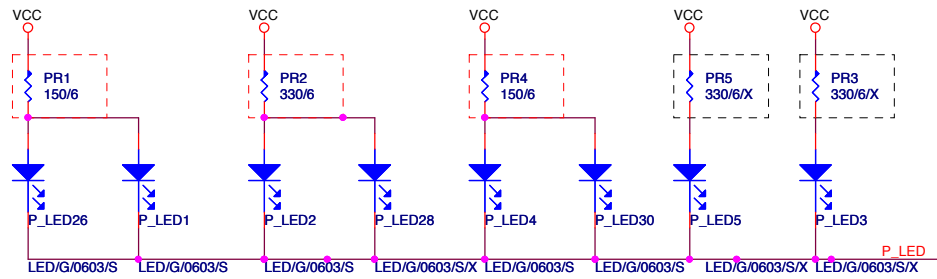
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M2_SLOT			
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GIGABYTE™			
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MODEL NAME LED			
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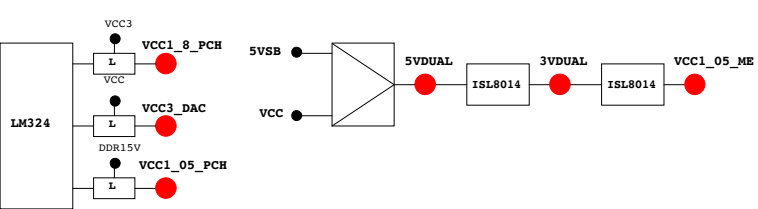
PCB GPIO LIST TABLE

PIN NAME	PWR	AFTER/ PLURST	Default	USAG	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	LPCPME#	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_OCO#	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

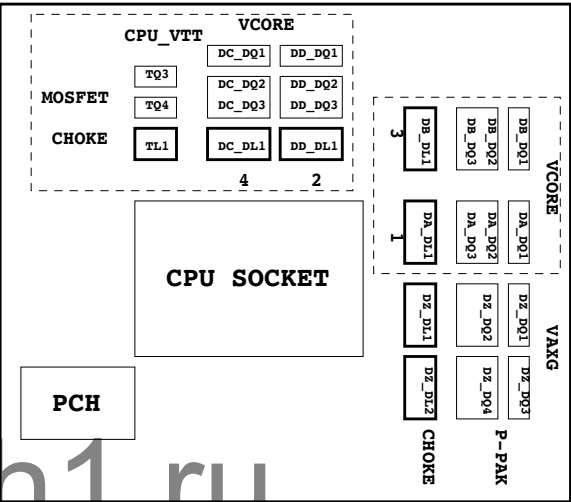
Super I/O ITE8720 GPIO Table

PIN NAME	USAG	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	USAG	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/SEC	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSSBW#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWROK#/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#/CIRTX2/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

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

散熱模組料號：

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