

Model Name: G1.Sniper B5

1.1

SHEET

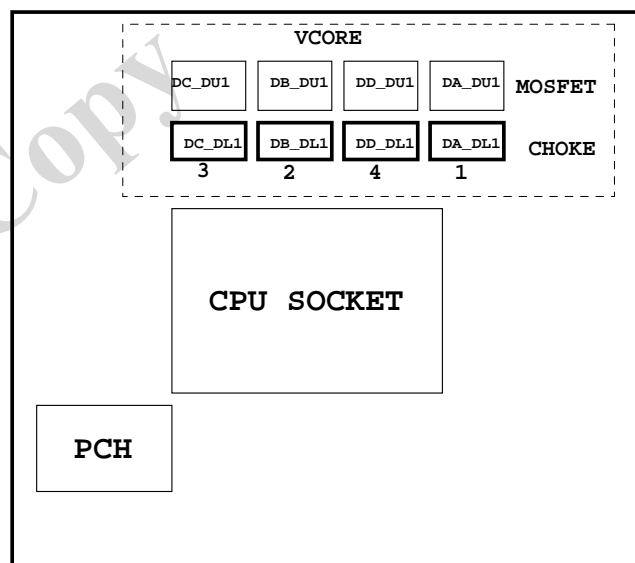
TITLE

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
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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	
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40	

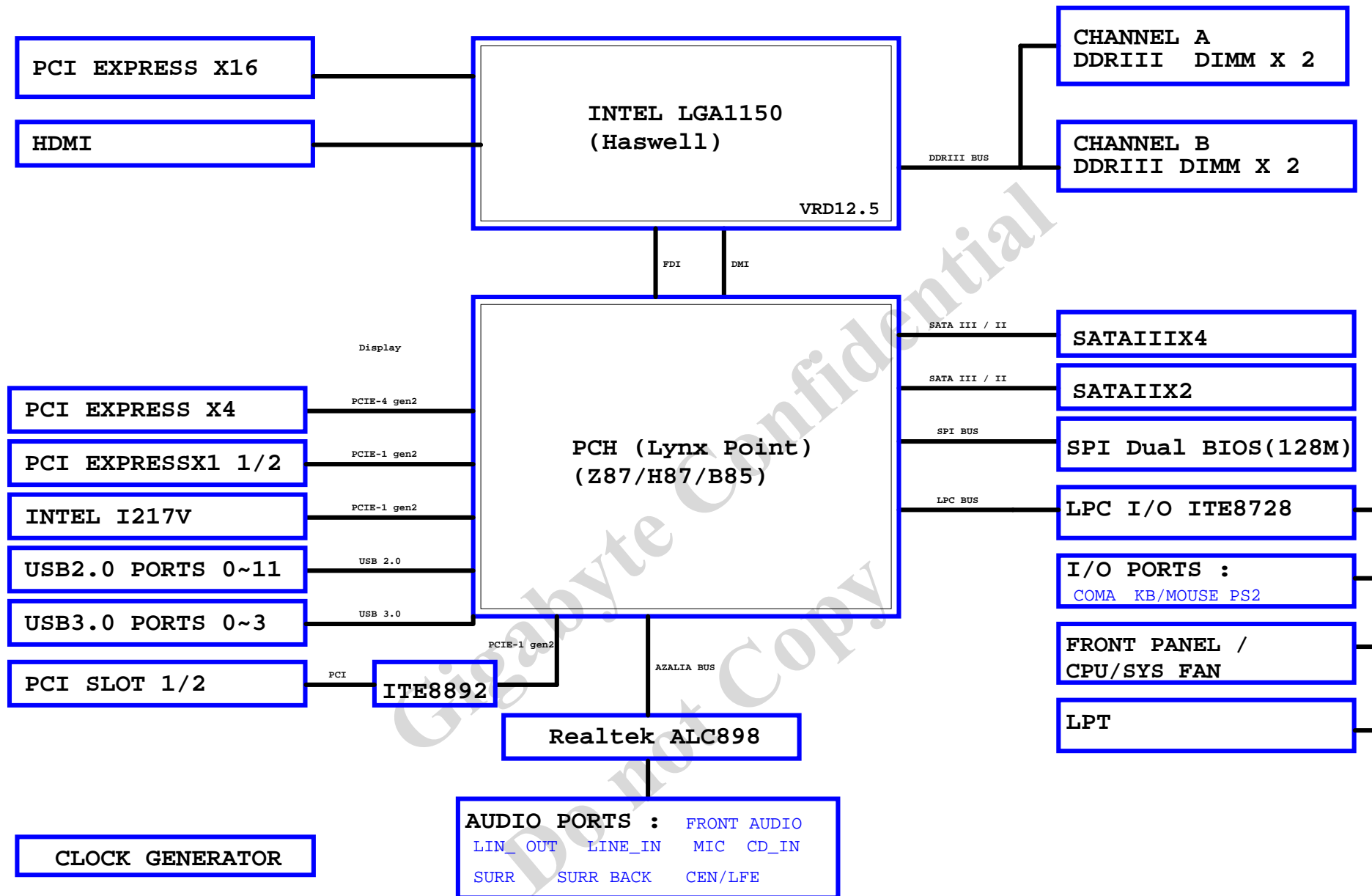


Gigabyte Technology

Title			
Cover Sheet			
Size	Document Number	G1.Sniper B5	Rev
Custom			1.1
Date:	Thursday, June 27, 2013	Sheet	1 of 34

BLOCK DIAGRAM

www.xinxunwei.com 400-800-9990



LGA1150 (A)

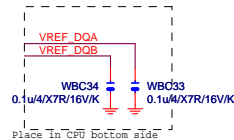
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MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	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	AW20	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	AV2	DDR0_ODT1	DDR0_ODT1	AP39	MDA19
MODT_A2	AW9	DDR0_ODT2	DDR0_ODT2	AM37	MDA20
MODT_A3	AU8	DDR0_ODT3	DDR0_ODT3	AM38	MDA16
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AW33		DDR0_ECC1	DDR0_DQ24	AP40	MDA23
AU31		DDR0_ECC2	DDR0_DQ25	AV37	MDA25
AW31		DDR0_ECC3	DDR0_DQ26	AU35	MDA26
AU33		DDR0_ECC4	DDR0_DQ27	AV35	MDA27
AT31		DDR0_ECC5	DDR0_DQ28	AT37	MDA28
AW31		DDR0_ECC6	DDR0_DQ29	AU37	MDA24
AW31		DDR0_ECC7	DDR0_DQ30	AT35	MDA30
SBAA0	SBAA0	DDR0_BA0	DDR0_DQ31	AW35	MDA31
SBAA1	SBAA1	DDR0_BA1	DDR0_DQ32	AV6	MDA33
SBAA2	SBAA2	DDR0_BA2	DDR0_DQ33	AU6	MDA37
CKEA0	CKEA0	DDR0_CKE0	DDR0_DQ34	AV4	MDA34
CKEA1	CKEA1	DDR0_CKE1	DDR0_DQ35	AU4	MDA35
CKEA2	CKEA2	DDR0_CKE2	DDR0_DQ36	AW6	MDA32
CKEA3	CKEA3	DDR0_CKE3	DDR0_DQ37	AW4	MDA38
CSA0	CSA0	DDR0_CS_N0	DDR0_DQ38	AV4	MDA39
CSA1	CSA1	DDR0_CS_N1	DDR0_DQ39	AR1	MDA41
CSA2	CSA2	DDR0_CS_N2	DDR0_DQ40	AR4	MDA45
CSA3	CSA3	DDR0_CS_N3	DDR0_DQ41	AN3	MDA42
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DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_DQ43	AR2	MDA44
DCLKA2	DCLKA2	DDR0_CLK_P2	DDR0_DQ44	AR3	MDA40
DCLKA3	DCLKA3	DDR0_CLK_P3	DDR0_DQ45	AN2	MDA46
DCLKA3	DCLKA3	DDR0_CLK_N3	DDR0_DQ46	AN1	MDA47
RSVD	RSVD	DDR0_DQ47	DDR0_DQ48	AL1	MDA49
RSVD	RSVD	DDR0_DQ49	DDR0_DQ50	AL4	MDA53
RSVD	RSVD	DDR0_DQ51	DDR0_DQ52	AJ3	MDA50
RSVD	RSVD	DDR0_DQ53	DDR0_DQ54	AJ4	MDA51
RSVD	RSVD	DDR0_DQ55	DDR0_DQ56	AL2	MDA52
RSVD	RSVD	DDR0_DQ57	DDR0_DQ58	AJ2	MDA54
RSVD	RSVD	DDR0_DQ59	DDR0_DQ60	AJ1	MDA55
RSVD	RSVD	DDR0_DQ61	DDR0_DQ62	AG1	MDA57
RSVD	RSVD	DDR0_DQ63	DDR0_DQ64	AG4	MDA61
RSVD	RSVD	DDR0_DQ65	DDR0_DQ66	AE3	MDA58
RSVD	RSVD	DDR0_DQ67	DDR0_DQ68	AE4	MDA59
RSVD	RSVD	DDR0_DQ69	DDR0_DQ70	AG2	MDA60
RSVD	RSVD	DDR0_DQ71	DDR0_DQ72	AG3	MDA56
RSVD	RSVD	DDR0_DQ73	DDR0_DQ74	AE2	MDA62
RSVD	RSVD	DDR0_DQ75	DDR0_DQ76	AE1	MDA63
RSVD	RSVD	DDR0_DQ77	DDR0_DQ78	AE39	DQSA0
RSVD	RSVD	DDR0_DQ79	DDR0_DQ80	AJ39	DQSA1
RSVD	RSVD	DDR0_DQ81	DDR0_DQ82	AN39	DQSA2
RSVD	RSVD	DDR0_DQ83	DDR0_DQ84	AV36	DQSA3
RSVD	RSVD	DDR0_DQ85	DDR0_DQ86	AV5	DQSA4
RSVD	RSVD	DDR0_DQ87	DDR0_DQ88	AP3	DQSA5
RSVD	RSVD	DDR0_DQ89	DDR0_DQ90	AK3	DQSA6
RSVD	RSVD	DDR0_DQ91	DDR0_DQ92	AF3	DQSA7
RSVD	RSVD	DDR0_DQ93	DDR0_DQ94	AV32	DQSA0
RSVD	RSVD	DDR0_DQ95	DDR0_DQ96	AE38	DQSA1
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RSVD	RSVD	DDR0_DQ99	DDR0_DQ100	AN38	DQSA3
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RSVD	RSVD	DDR0_DQ103	DDR0_DQ104	AW5	DQSA5
RSVD	RSVD	DDR0_DQ105	DDR0_DQ106	AP2	DQSA6
RSVD	RSVD	DDR0_DQ107	DDR0_DQ108	AK2	DQSA7
RSVD	RSVD	DDR0_DQ109	DDR0_DQ110	AF2	DQSA7
RSVD	RSVD	DDR0_DQ111	DDR0_DQ112	AU32	DQSA7

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

LGA1150 (B)

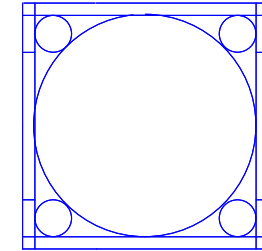
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MAAB3	AM23	DDR1_MA3	AH35	MD83
MAAB4	AP23	DDR1_MA4	AD34	MD84
MAAB5	AL23	DDR1_MA5	AD35	MD85
MAAB6	AY24	DDR1_MA6	AG34	MD86
MAAB7	AY25	DDR1_MA7	AH34	MD87
MAAB8	AU26	DDR1_MA8	AL34	MD88
MAAB9	AW25	DDR1_MA9	AL35	MD89
MAAB10	AF18	DDR1_MA10	AK31	MD810
MAAB11	AY25	DDR1_MA11	AL31	MD811
MAAB12	AY26	DDR1_MA12	AK34	MD812
MAAB13	AR15	DDR1_MA13	AK35	MD813
MAAB14	AV27	DDR1_MA14	AK32	MD814
MAAB15	AY28	DDR1_MA15	AL32	MD815
MODT_B0	AM17	DDR1_ODT0	AP34	MD817
MODT_B1	AL16	DDR1_ODT1	AN31	MD819
MODT_B2	AM16	DDR1_ODT2	AP31	MD823
MODT_B3	AK15	DDR1_ODT3	AP35	MD820
AM26		DDR1_ECC0	AP35	MD816
AM25		DDR1_ECC1	AN32	MD818
AP25		DDR1_ECC2	AP32	MD822
AP26		DDR1_ECC3	AM29	MD825
AL26		DDR1_ECC4	AM28	MD828
AL25		DDR1_ECC5	AR29	MD827
AR26		DDR1_ECC6	AR28	MD830
AR25		DDR1_ECC7	AR29	MD824
SBAB0	AK17	DDR1_BA0	AP29	MD826
SBAB1	AL18	DDR1_BA1	AP28	MD831
SBAB2	AW28	DDR1_BA2	AR12	MD832
CKEB0	AW29	DDR1_CKE0	AP12	MD833
CKEB1	AY29	DDR1_CKE1	AL13	MD834
CKEB2	AU28	DDR1_CKE2	AL12	MD835
CKEB3	AU29	DDR1_CKE3	AR13	MD836
CSB0	AP17	DDR1_CS_N0	AP13	MD837
CSB1	AN15	DDR1_CS_N1	AM12	MD838
CSB2	AN17	DDR1_CS_N2	AR9	MD845
CSB3	AL15	DDR1_CS_N3	AP9	MD841
DCLKB0	AM20	DDR1_CLK_P0	AR6	MD847
DCLKB1	AM21	DDR1_CLK_P1	AP6	MD843
DCLKB1	AP21	DDR1_CLK_N1	AR10	MD844
DCLKB2	AN20	DDR1_CLK_P2	AP10	MD846
DCLKB2	AN21	DDR1_CLK_N2	AR7	MD842
DCLKB3	AP19	DDR1_CLK_P3	AP7	MD842
DCLKB3	AP20	DDR1_CLK_N3	AM9	MD852
SCASB	AP16	DDR1_CAS*	AL9	MD853
SRASB	AM18	DDR1_RAS*	AL6	MD850
SWEB	AK16	DDR1_WE*	AL7	MD855
VREF_DQA	AB39	DDR_VREF_DQ0	AM10	MD848
VREF_DQB	AB40	DDR_VREF_DQ1	AL10	MD849
DQSB0		DDR1_DQS_P0	AM7	MD854
DQSB1		DDR1_DQS_P1	AH6	MD861
DQSB2		DDR1_DQS_P2	AH7	MD860
DQSB3		DDR1_DQS_P3	AE6	MD859
DQSB4		DDR1_DQS_P4	AE7	MD863
DQSB5		DDR1_DQS_P5	AJ7	MD857
DQSB6		DDR1_DQS_P6	AF6	MD858
DQSB7		DDR1_DQS_P7	AF7	MD862
DQSB8		DDR1_DQS_P8	AF35	DQSB0
DQSB9		DDR1_DQS_P9	AL33	DQSB1
DQSB10		DDR1_DQS_P10	AN28	DQSB2
DQSB11		DDR1_DQS_P11	AN12	DQSB4
DQSB12		DDR1_DQS_P12	AP8	DQSB5
DQSB13		DDR1_DQS_P13	AL8	DQSB6
DQSB14		DDR1_DQS_P14	AG7	DQSB7
DQSB15		DDR1_DQS_P15	AN24	DQSB0
DQSB16		DDR1_DQS_P16	AK33	DQSB1
DQSB17		DDR1_DQS_P17	AK33	DQSB2
DQSB18		DDR1_DQS_P18	AN29	DQSB4
DQSB19		DDR1_DQS_P19	AR8	DQSB5
DQSB20		DDR1_DQS_P20	AM8	DQSB6
DQSB21		DDR1_DQS_P21	AG6	DQSB7
DQSB22		DDR1_DQS_P22	AN25	DQSB7

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



LGA1150 (CR)

LGA1150
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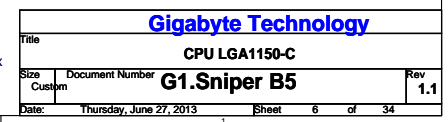
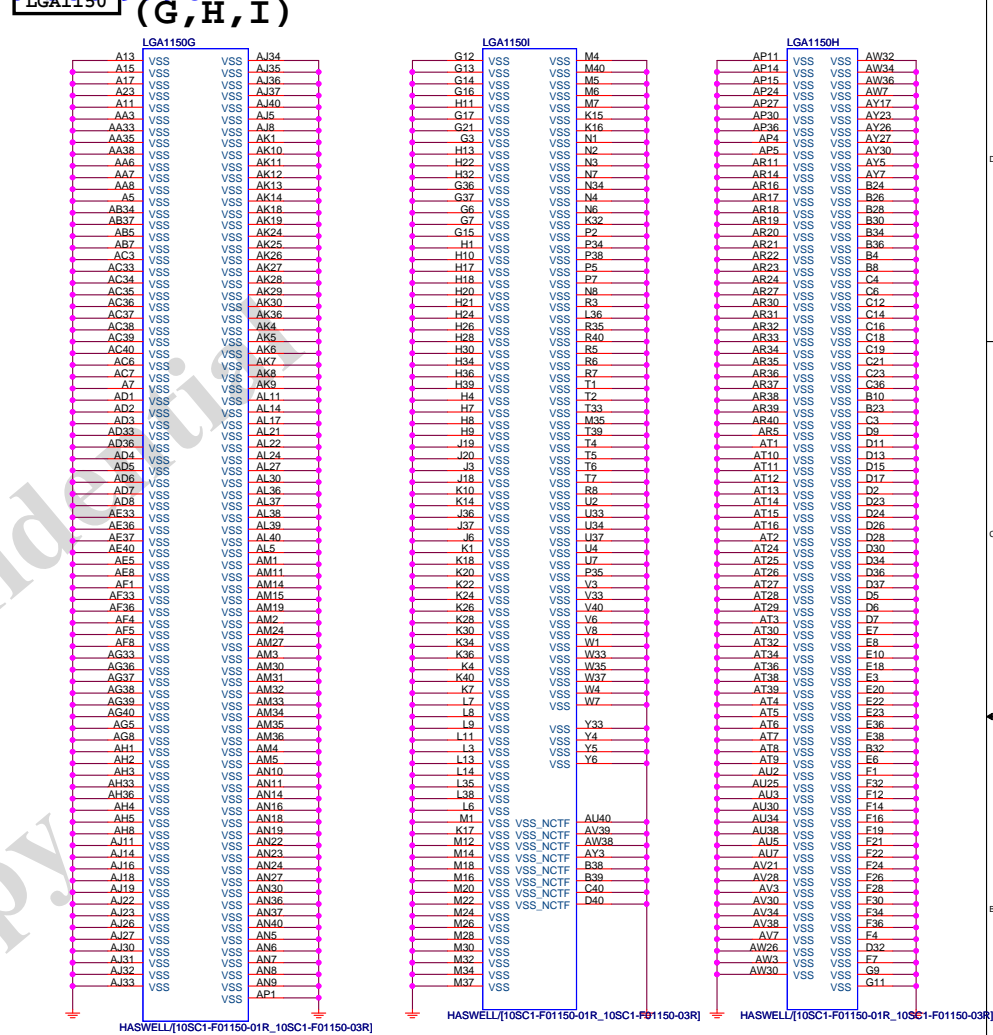


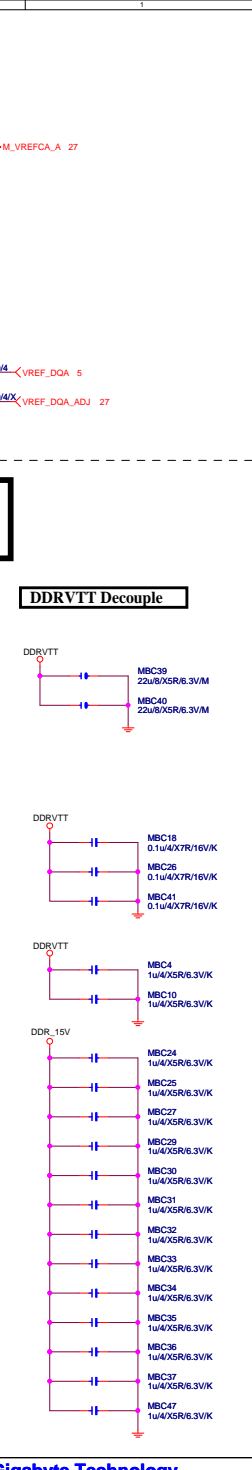
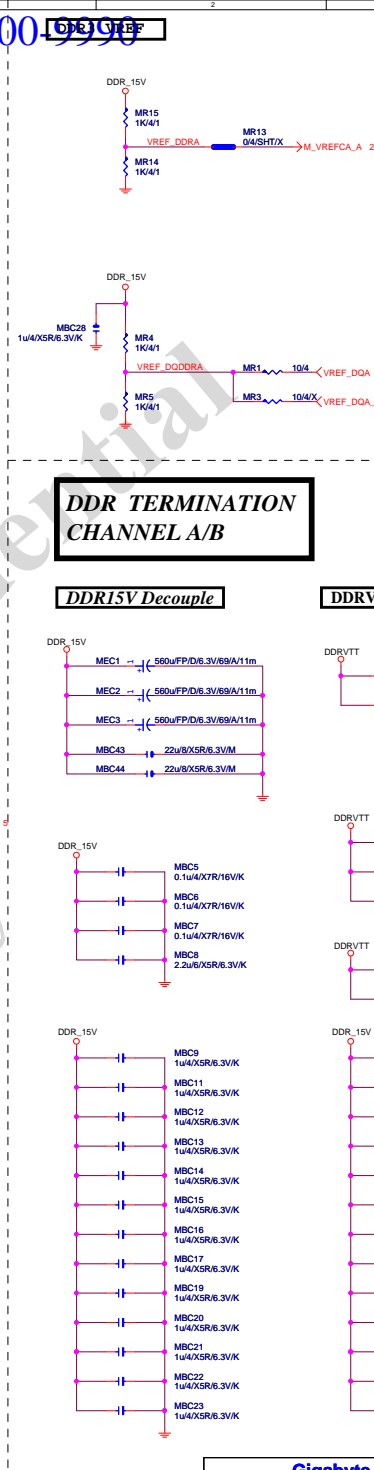
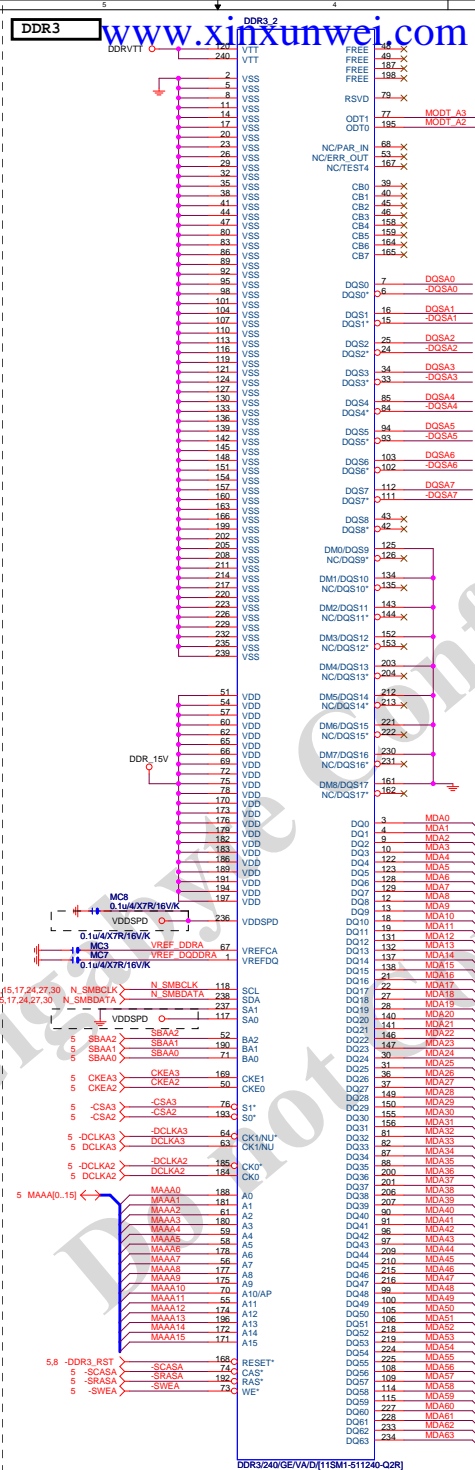
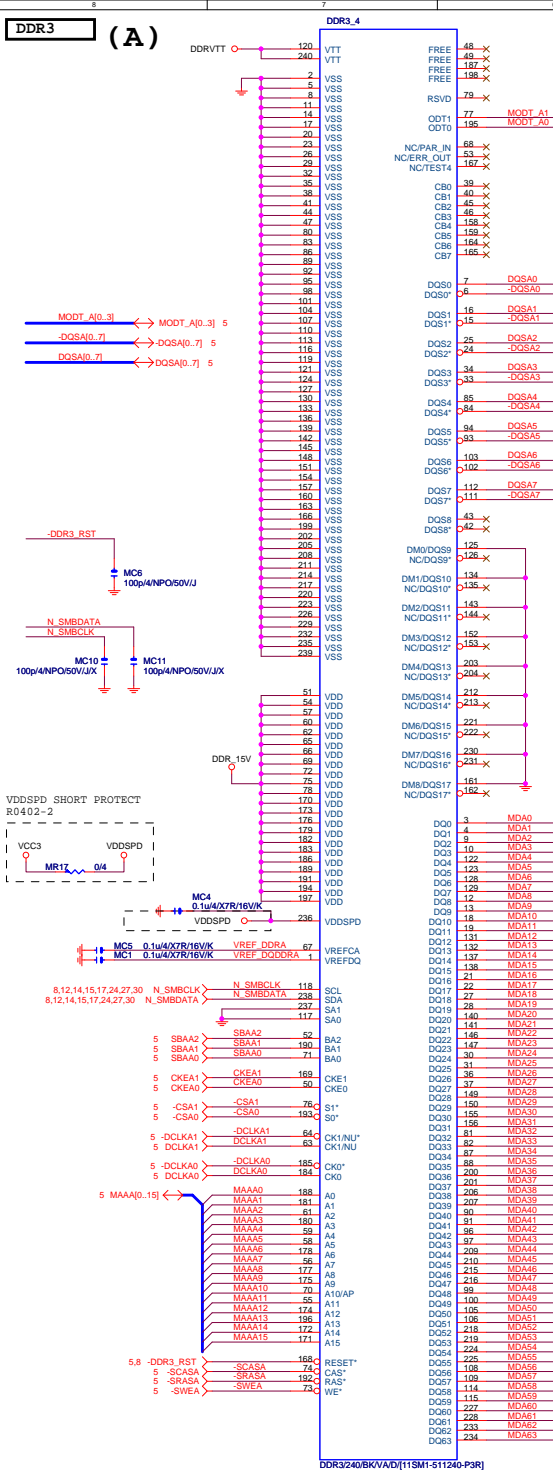
DDR BUS

MODT_A[0..3]	MODT_A[0..3]
MODT_B[0..3]	MODT_B[0..3]
MDA[0..63]	MDA[0..63]
MDB[0..63]	MDB[0..63]
DQSA[0..7]	DQSA[0..7]
DQSA[0..7]	DQSA[0..7]
MAAA[0..15]	MAAA[0..15]
MAAB[0..15]	MAAB[0..15]
DQSB[0..7]	DQSB[0..7]
DQSB[0..7]	DQSB[0..7]

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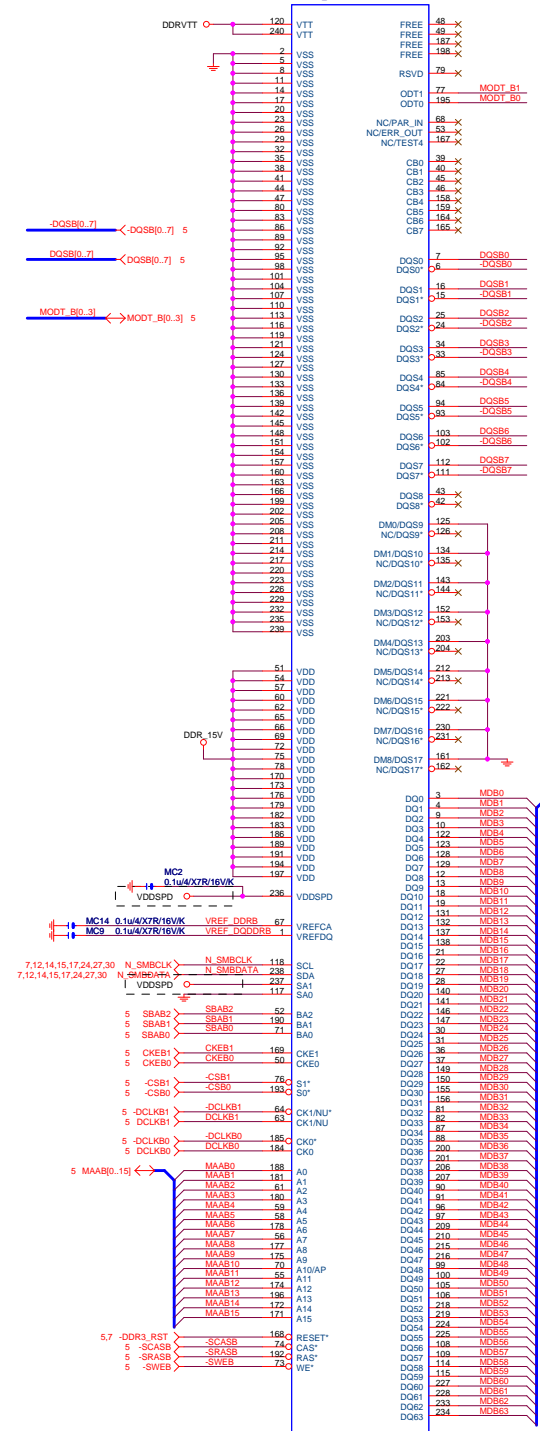
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Size				G1.Sniper B5	
Date				Thursday, June 27, 2013	
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Rev				1.1	





DDR3

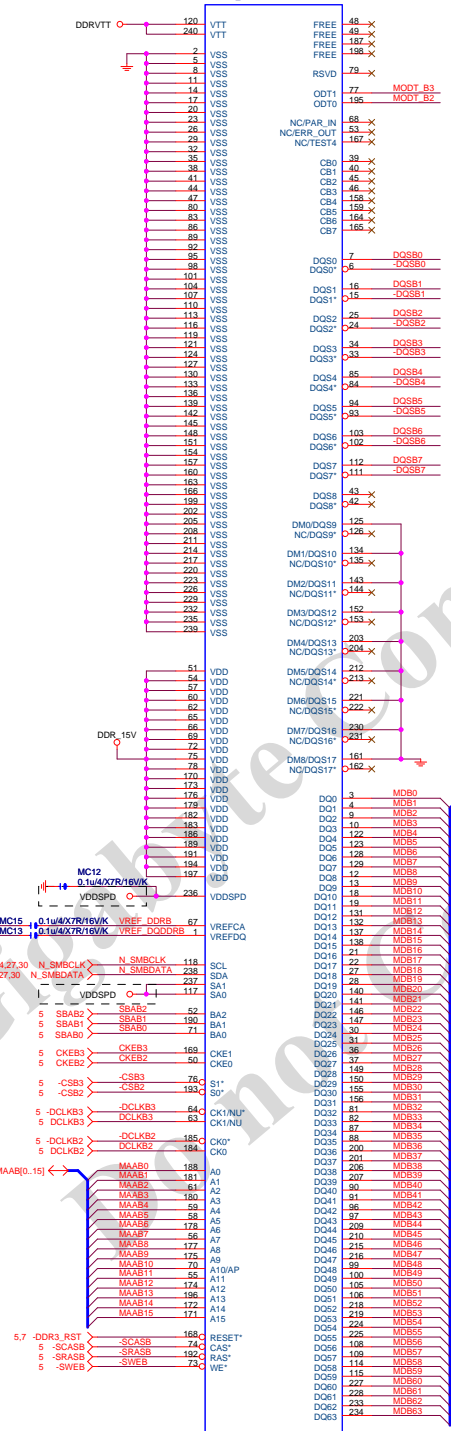
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DDR3240B0/VA/D(1TSMT-511240-P3R)

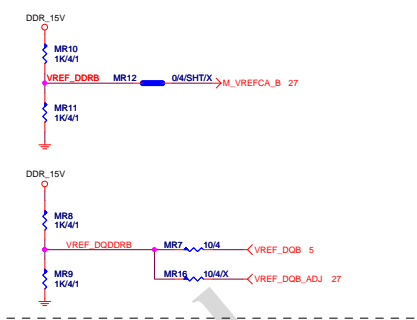
DDR3

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DDR3240G0E/VA/D(1TSMT-511240-Q2R)

DDR3



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

DIMM4 (黑色)

DIMM2 (灰色)

CHA

DIMM3 (黑色)

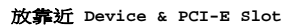
DIMM1 (灰色)

CHB

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File		DDR3 CHANNEL B		Rev	
Size		Document Number		G1.Sniper B5	
Custom		Date:		Sheet 8 of 34	

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



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%

Pin connection diagram for DH82B85/S connector. The diagram shows a vertical connector with 16 pins. The pins are labeled on the left: AT1, AT41, AU1, AV1, AV2, AV40, AV41, AW2, AW40, B40, B41, C41, D1, and D41. The pins are connected to various signals on the right: VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, VSS_NCTF, and VSS_NCTF. A ground symbol is connected to the bottom pin (D41). The connector is labeled 'PCHJ' at the top and 'DH82B85/S' at the bottom.

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

PCH_HS

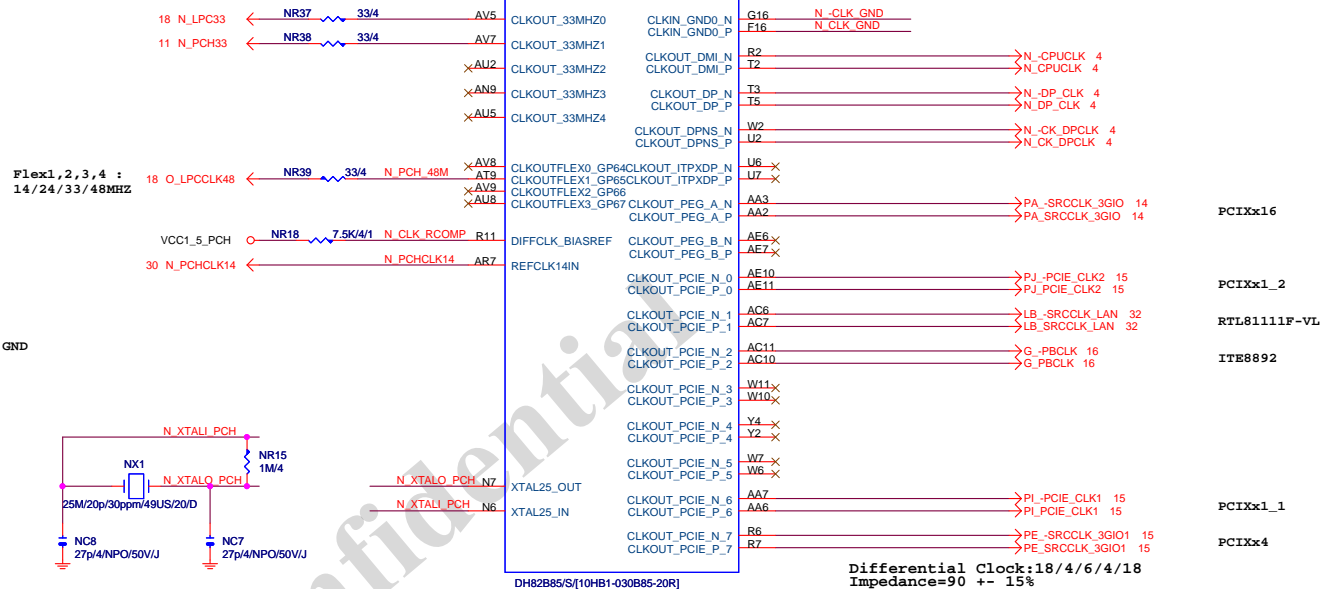


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OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

Gigabyte Technology

Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number	Rev	
Custom	G1.Sniper B5	1.1	
Date:	Thursday, June 27, 2013	Sheet	9 of 34

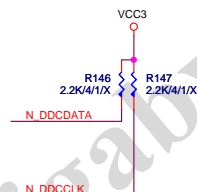
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FDI Disabling Guidelines

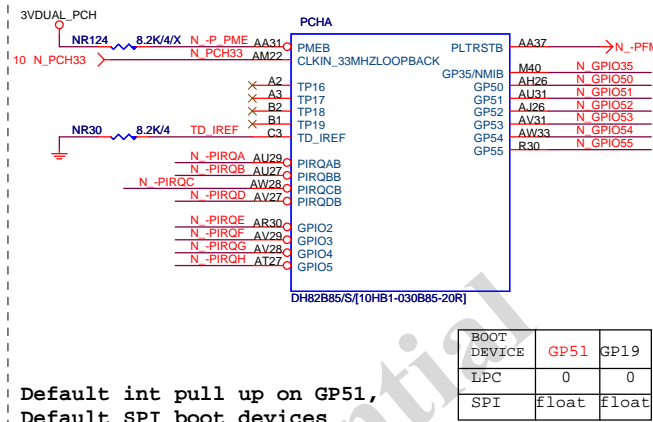
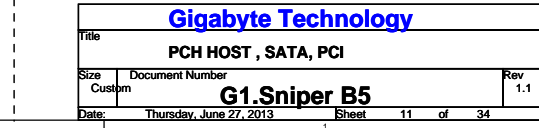
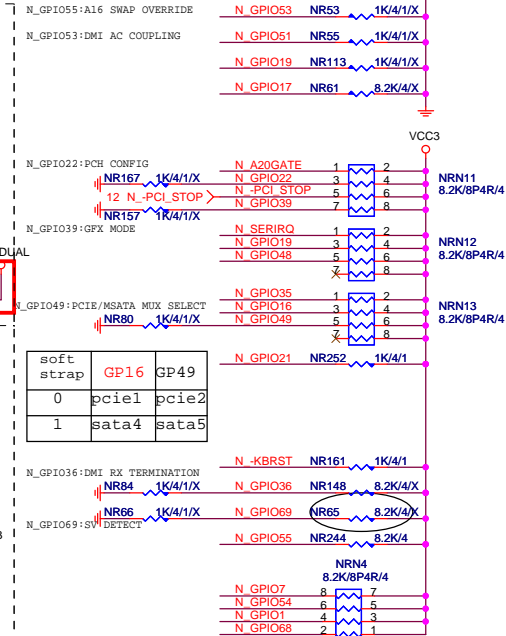
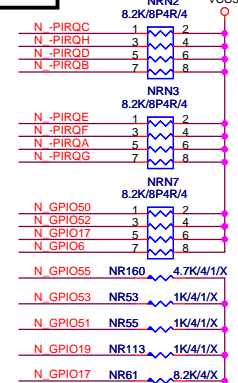
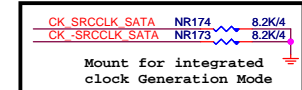
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PCH FDI_RXN[0:1] NC
CPU FDI_TXP[0:1] NC
CPU FDI_TXN[0:1] NC
FDI_RCOMP NC
FDI_IREF (N11)

VGA DDC

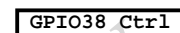
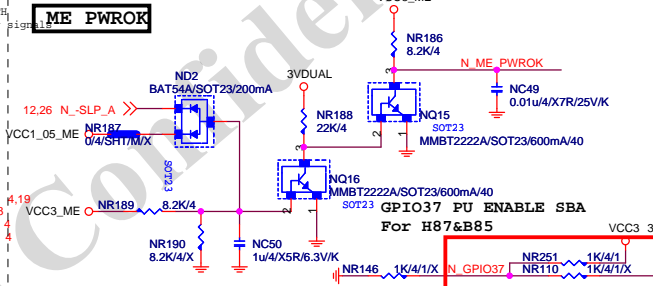


VGA DDC

VGA CONNECTOR

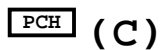
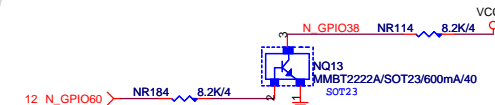


```
| Default int pull up on GP51  
| Default SPI boot devices
```



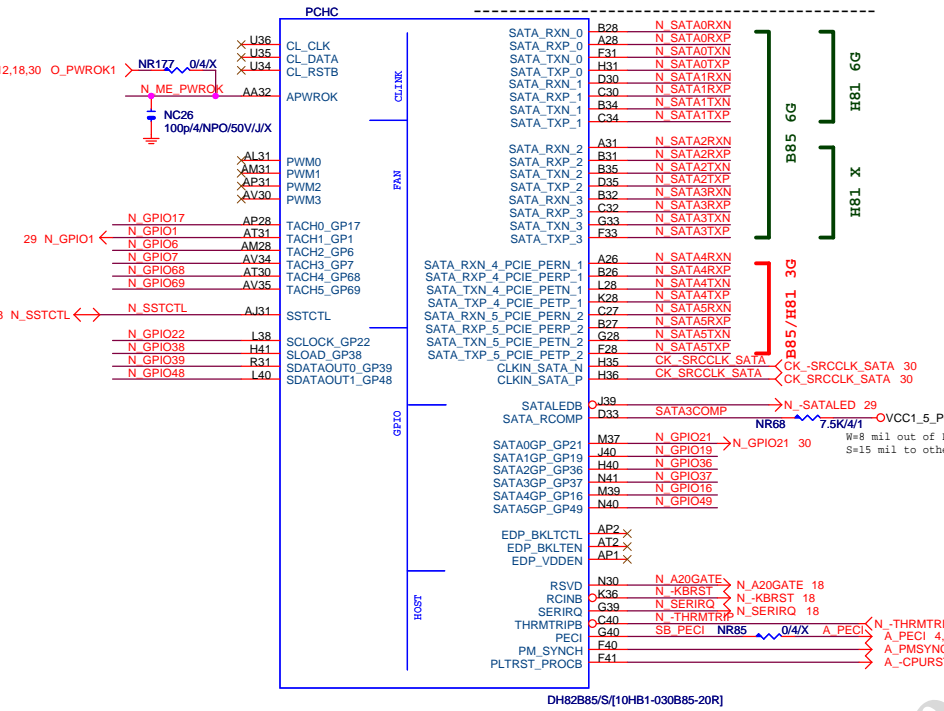
MFG Mode

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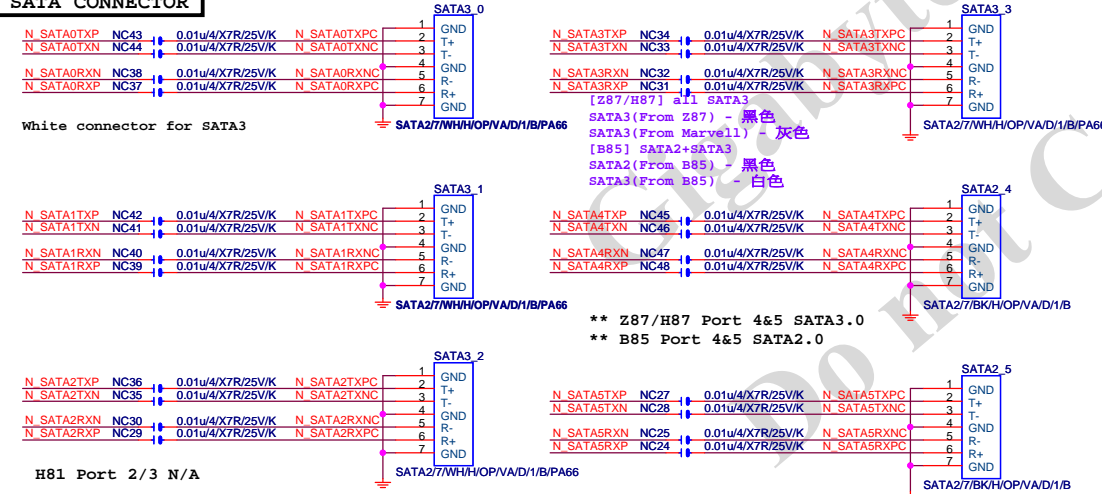


SATA3 : 20/4/4/4/20 (breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

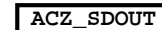
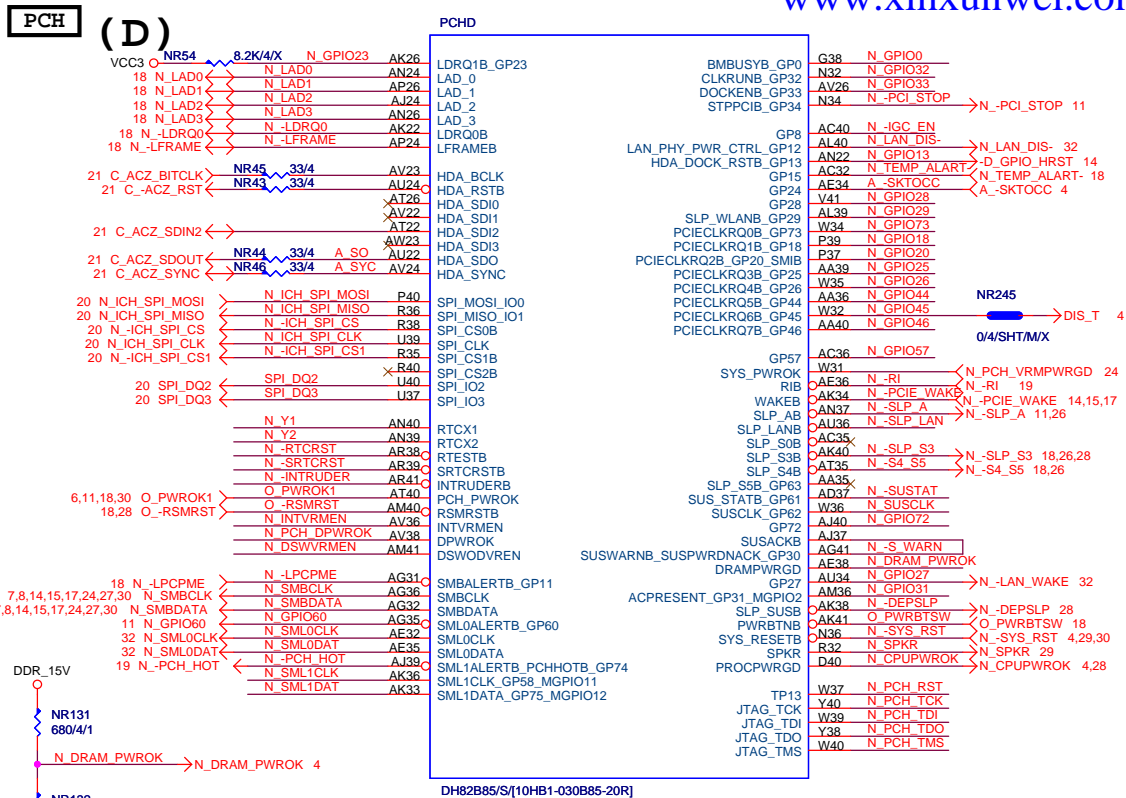
```
SATA2 15/4/4/4/15
SATA3 20/4/4/4/20
```



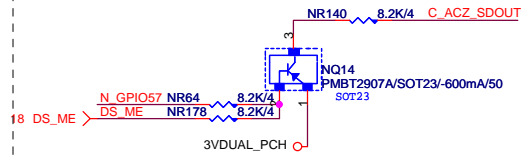
SATA CONNECTOR



```
** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0
```

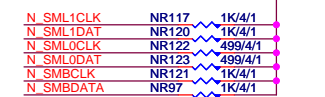
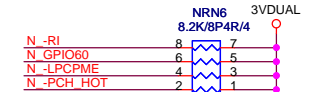
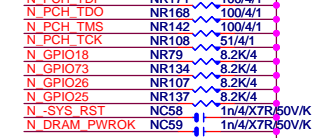
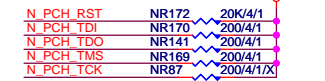
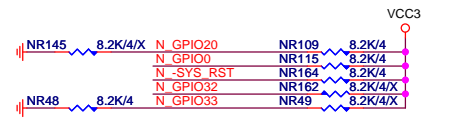
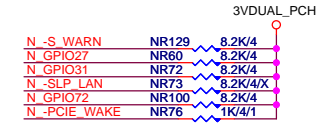
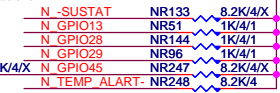
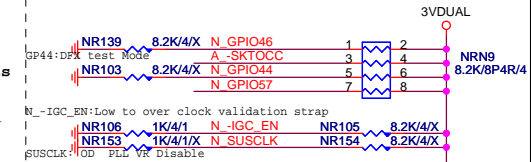
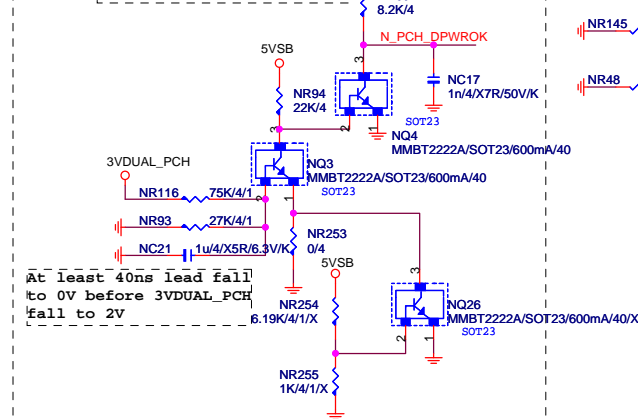


```
C_ACZ_SDOUT : HI --> ME Enable
              Lo --> ME Disable
HI:disable ME and override SPI Flash Access
Permissions
```

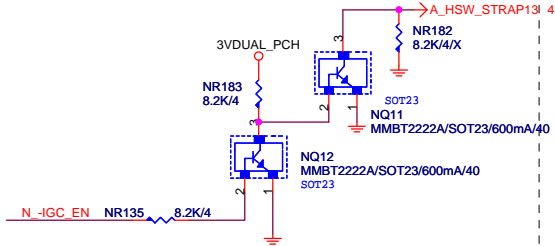


PCH_DPWROK

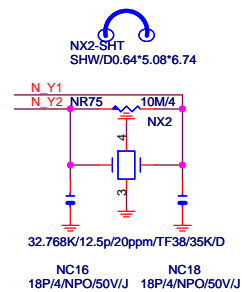
```
At least 10ms delay after
3VDUAL_PCH stabel
```



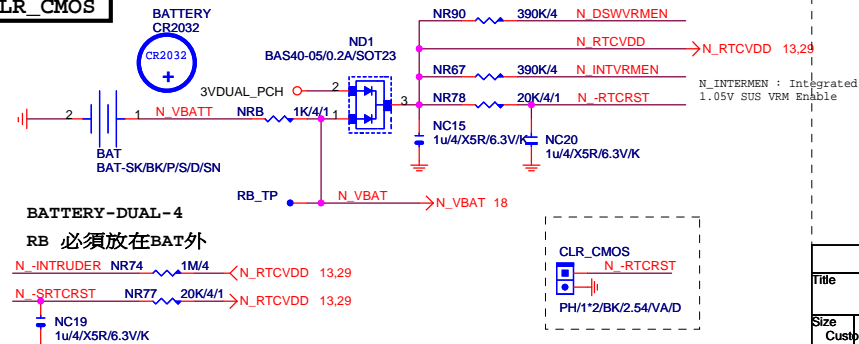
HSW_STRAP13



32.768KHZ



CLR_CMOS

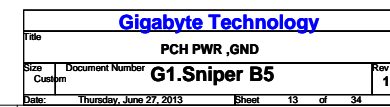


Gigabyte Technology

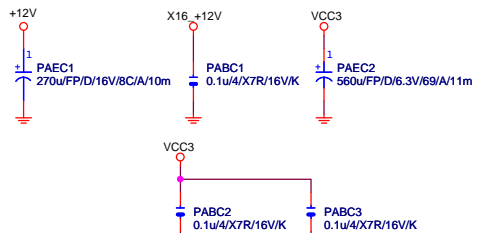
PCH GPIO , CTRL , AUDIO

G1.Sniper B5

Title			
PCH GPIO , CTRL , AUDIO			
Size	Document Number		Rev
Custom	G1.Sniper B5		1.1
Date:	Thursday, June 27, 2013	Sheet	12 of 34

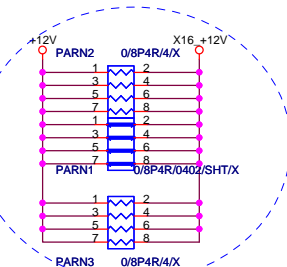


PCIEX16 CAP



PCIEX16 PROTECT SHT

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



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

PA EXP TXP0	PAC5	0.22u4/X5R6/3V/K	PA EXP TXP9 C
PA EXP TXN0	PAC4	0.22u4/X5R6/3V/K	PA EXP TXN9 C
PA EXP TXP1	PAC8	0.22u4/X5R6/3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R6/3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R6/3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R6/3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R6/3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R6/3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R6/3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R6/3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R6/3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R6/3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R6/3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R6/3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R6/3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R6/3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R6/3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R6/3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R6/3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R6/3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R6/3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R6/3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R6/3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R6/3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R6/3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R6/3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R6/3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R6/3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R6/3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R6/3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R6/3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R6/3V/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) BANDWIDTH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

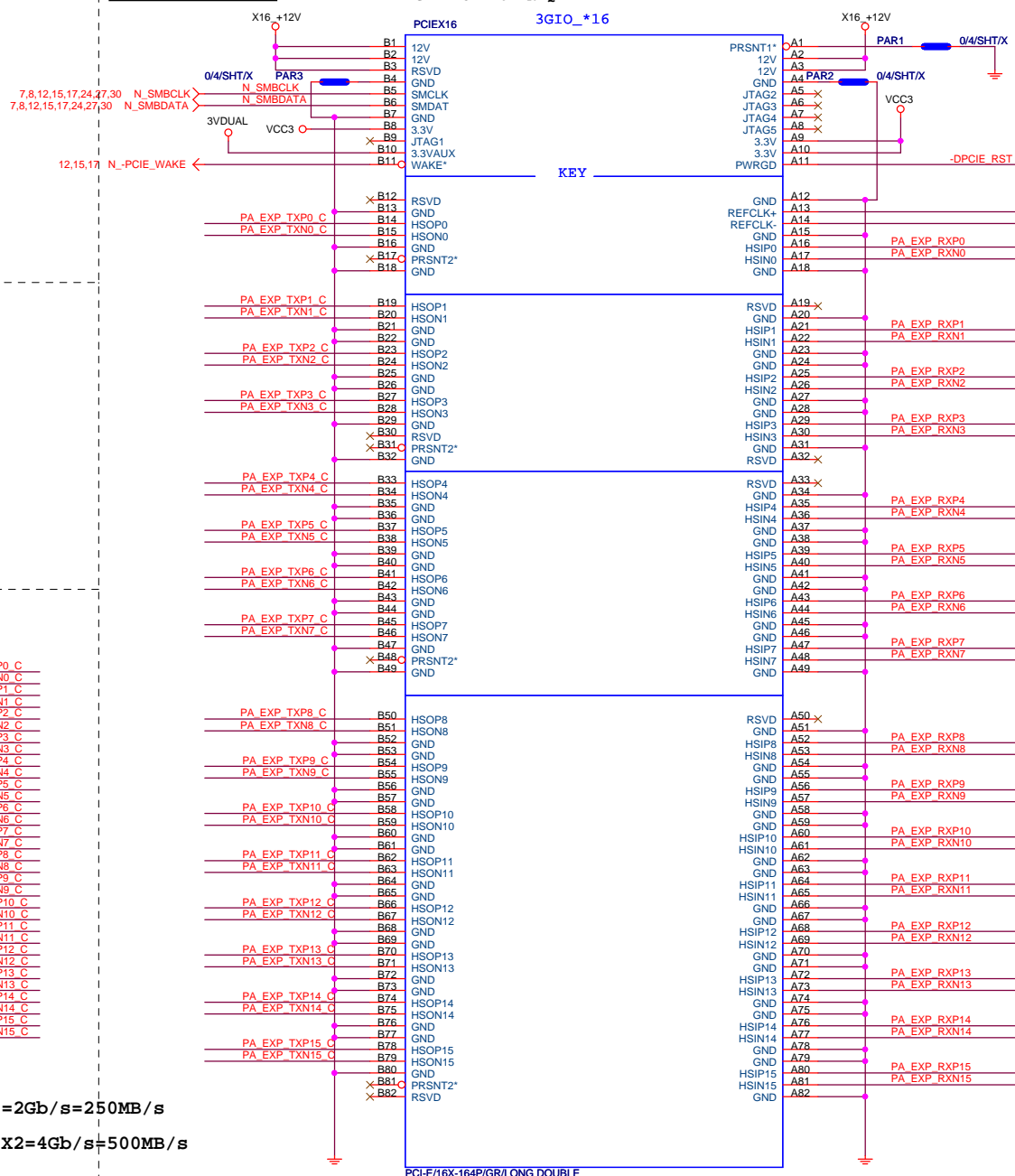
PCE-E X16(單向) BANDWIDTH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

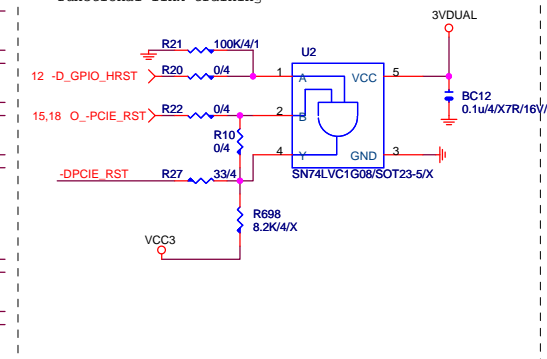
PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

www.xinxunwei.com 400-800-9990



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

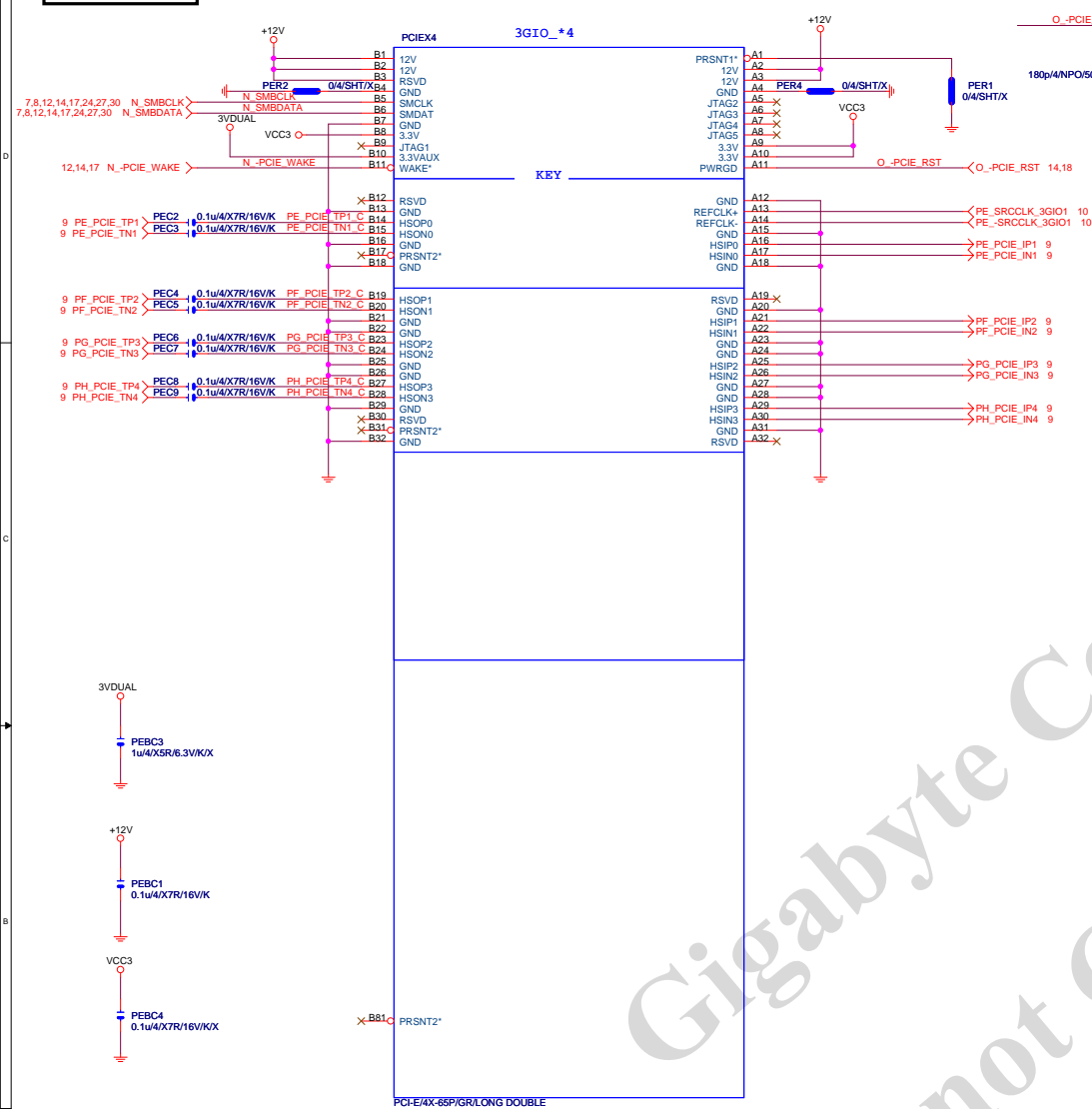


PCIEX16:16/5/5/5/16

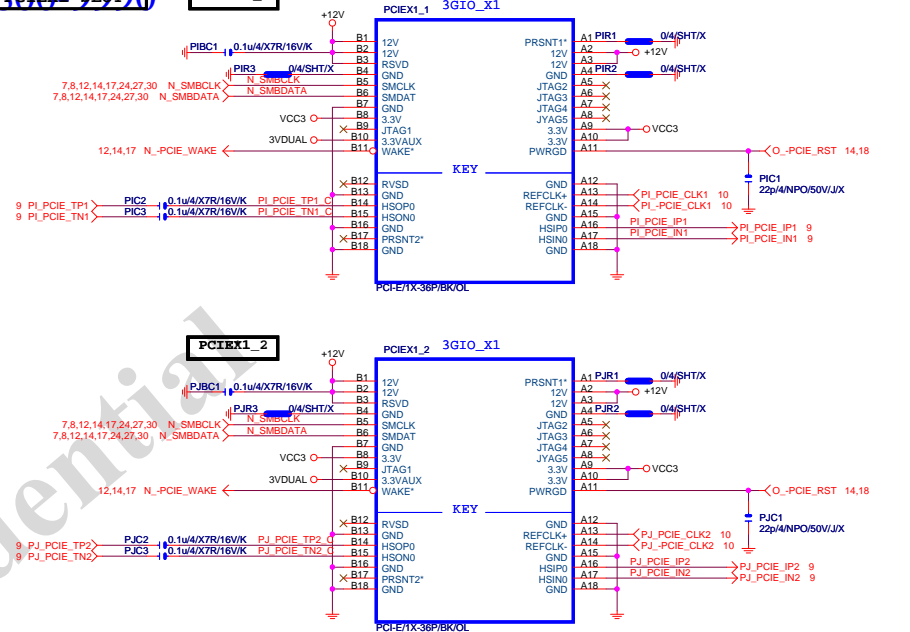
PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] 4
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] 4
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] 4
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] 4

Gigabyte Technology				
Title				
PCI EXPRESS * 16				
Size Custom	Document Number	G1.Sniper B5		Rev 1
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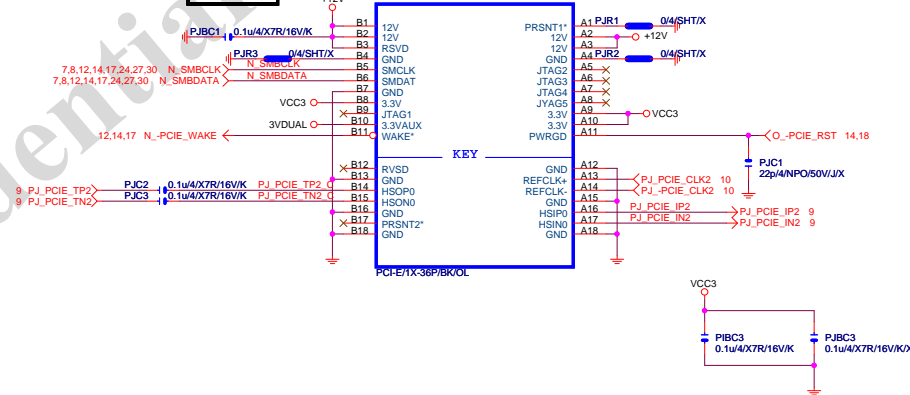
PCIEX4 SLOT



PCIEX1_1

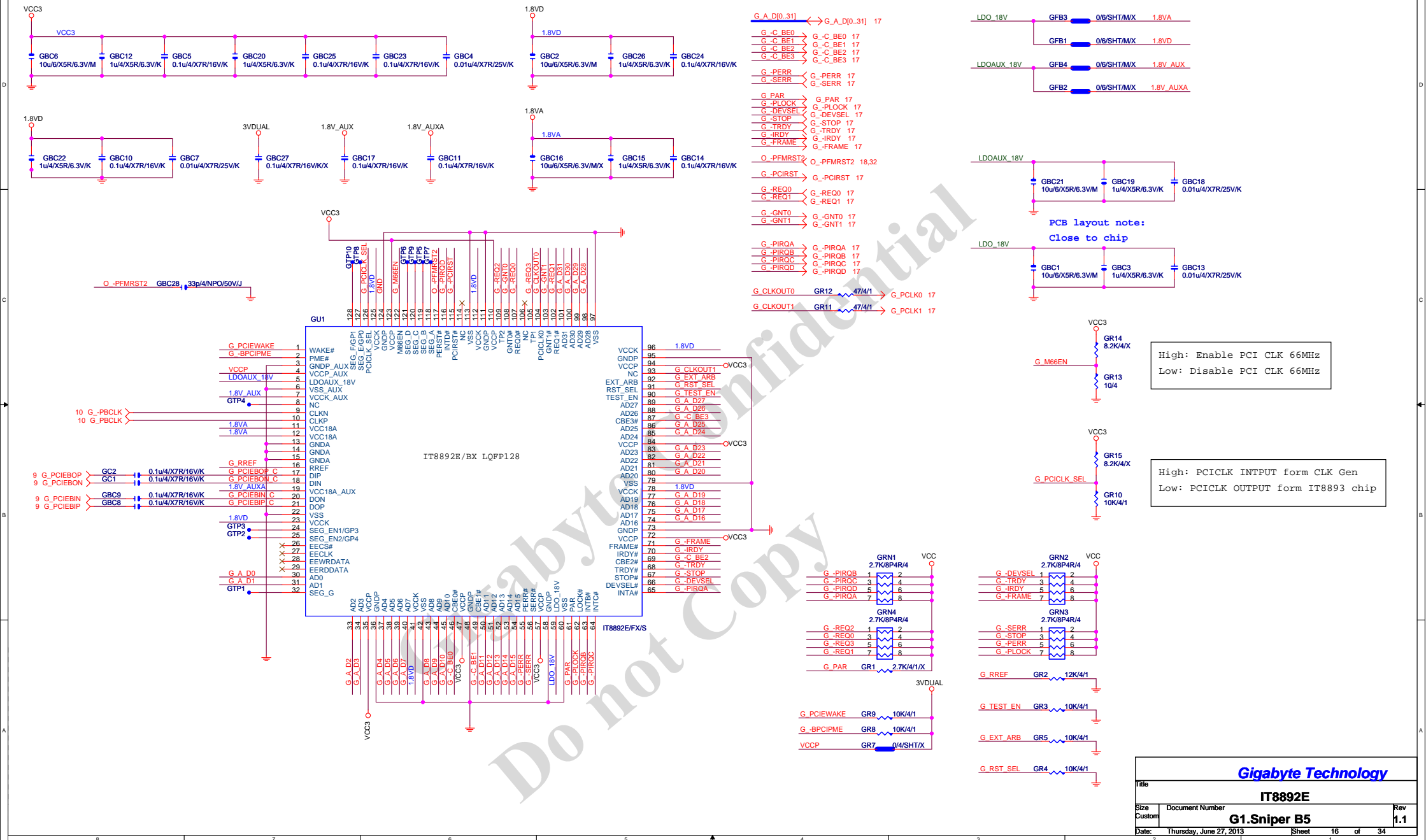


PCIEX1_2



Gigabyte Technology

Title			PCIE_X1 1,2
Size	Document Number	Rev	
Custom		G1.Sniper B5	
Date:	Thursday, June 27, 2013	Sheet	15 of 34

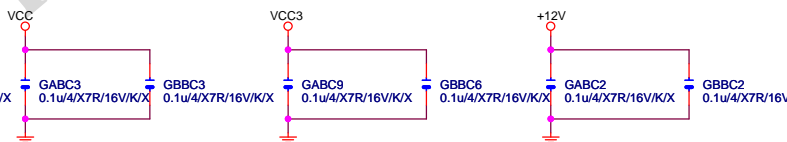
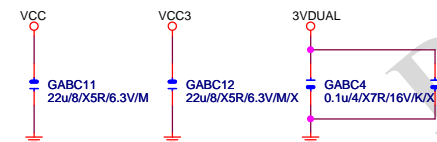
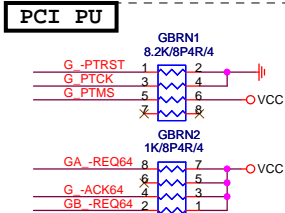


High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

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

Gigabyte Technology

Title		
IT8892E		
Size	Document Number	Rev
Custom	G1.Sniper B5	1.1
Date:	Thursday, June 27, 2013	Sheet 16 of 34



GIGABYTE™			
PCI SLOT 1&2			
Size	Document Number	Rev	
Custom	G1.Sniper B5	1.1	
Date:	Thursday, June 27, 2013	Sheet	17 of 34

SIO IT8728F

SYS_FAN3

12 DS_ME
31 FANPWM4
19 RTS1-
19 DSR1-
19 TXD1
19 RXD1
19 DTR1
19 DCD1-
19 RI1

CPU_FAN

SYS_FAN1

SYS_FAN2

IT8728F (GB)

【技術通報R&D技術通報151】
有使用PRINT PORT的 MODEL
需使用新料號:10HP2-118728-72R

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。

PWR SHT

For 8728_EUP function

3VDUAL_PCH OR25 0/6/SHT/X IT_VCCH
VCC3 OR49 0/6/SHT/X IT_AVCC

SIO PU

DS_ME OR46 1K/4/1 3VDUAL_PCH
SVID_CTRL OR84 8.2K/4 3VDUAL_PCH
-5VSB_CTRL OR6 8.2K/4 3VDUAL_PCH
IO_GP27 OR82 8.2K/4 3VDUAL_PCH
G_PLED OR83 8.2K/4 VCC3
-THERM OR28 8.2K/4 VCC3
N_LDRQ0 OR27 1K/4/1 VCC3
ITE_PWROK2 OR16 1K/4/1 VCC3
ITE_PWROK OR10 1K/4/1 VCC3
O_PCIE_RST OR71 1K/4/1 VCC3
O_PFMST1 OR19 1K/4/1 VCC3
O_PFMST2 OR2 1K/4/1 VCC3
N_A20GATE OR31 680/4/1 X

Hi :Disable WDT
Lo :Enable WDT to rest PWROK

SIO STRAP

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

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

EUP control detect

3VDUAL OR47 100/4/1 28 3VSB

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	0 1	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	1 0	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

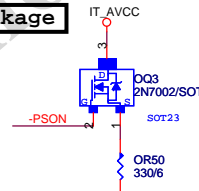
IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSL_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSL_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

DUAL BIOS OPT STRAP

CEB_N OR58 680/4/1/X
OR56 1K/4/1 VCC3

Power leakage

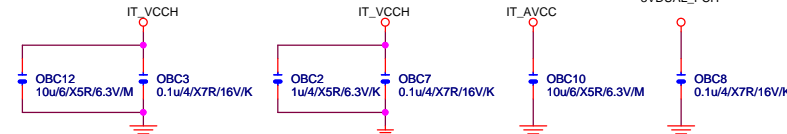


SIO_18V

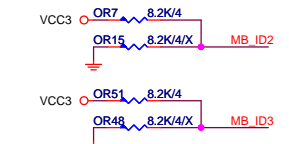
internal power pin, max 22nF cap



SIO CAP



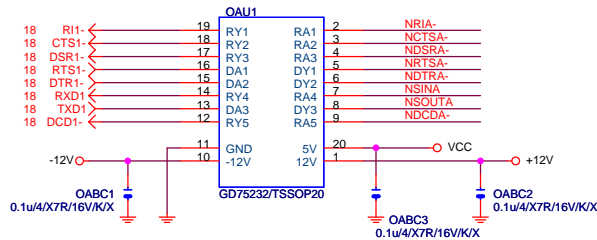
MB ID



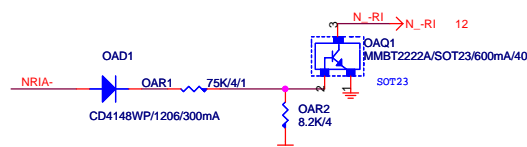
Gigabyte Technology

Title			ITE 8728 LPC IO
Size B	Document Number		G1.Sniper B5
Date:	Monday, July 01, 2013	Sheet	18 of 34
Rev			1.1

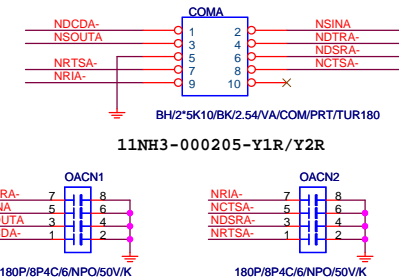
COMA



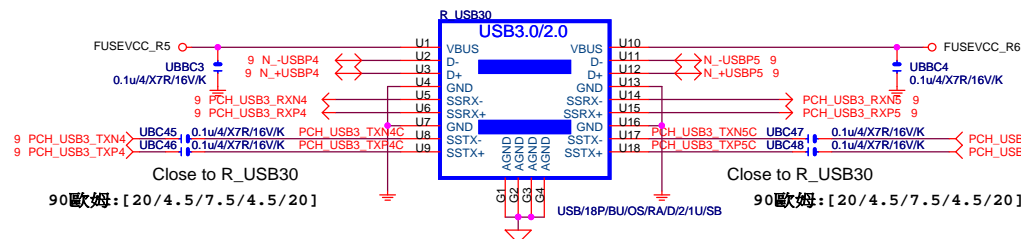
COM RI



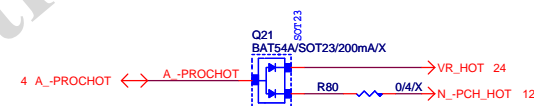
COM BUFFER



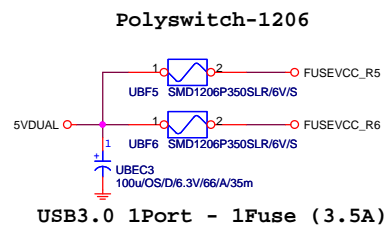
USB30_20 CONNECT



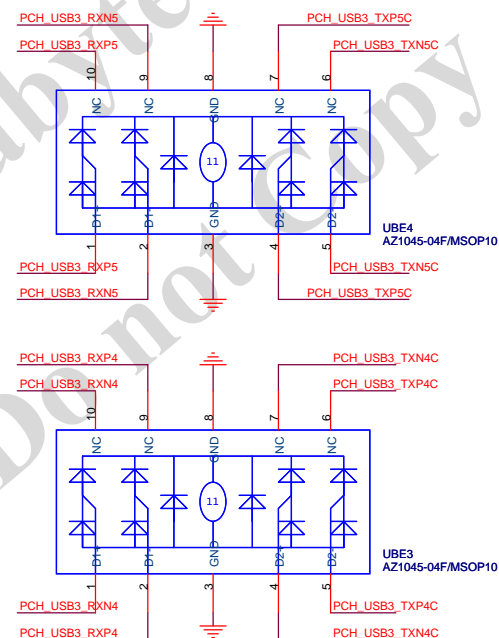
-PROHOT



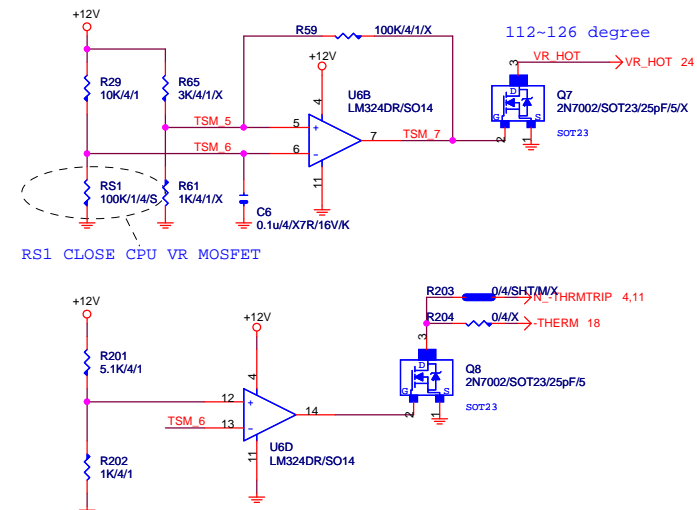
USB30_PWR



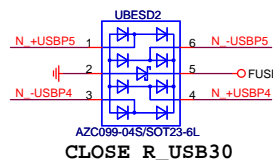
USB30 ESD PROTECT



-PROHOT



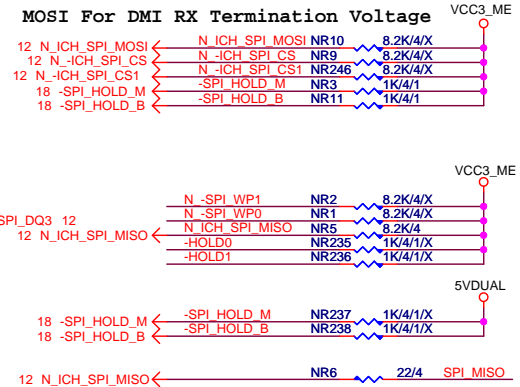
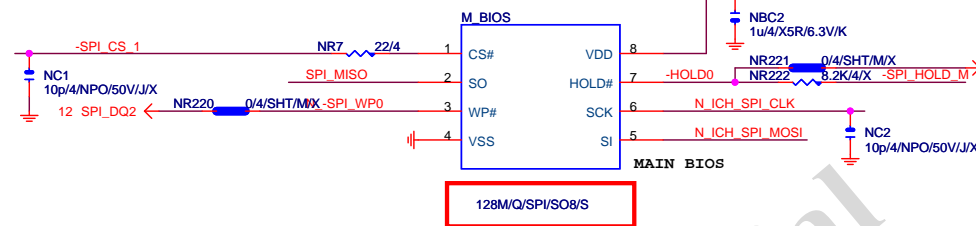
USB20 ESD PROTECT



Gigabyte Technology

Title			
COM & PROHOT/Dynamic O.C.			
Size	Document Number	Rev	
Custom	G1.Sniper B5	1.1	
Date:	Thursday, June 27, 2013	Sheet	19 of 34

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
```

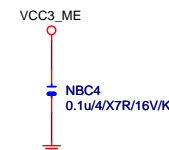
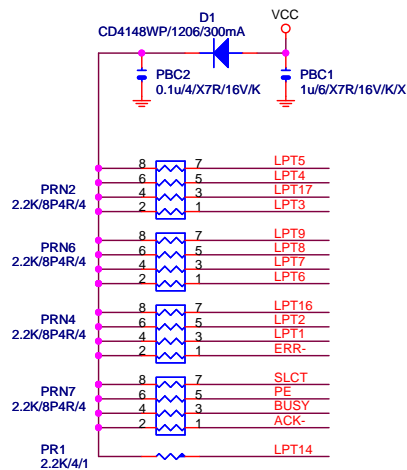
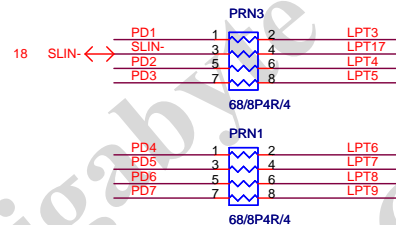
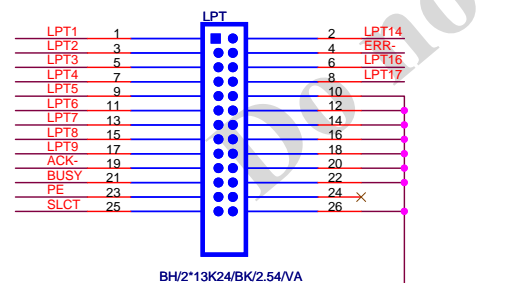


Figure 10 shows the pin connections for the 68B44. The top section shows connections for the 68B44 chip (labeled PRN5). The bottom section shows connections for the 68B44R/4 chip. The connections are as follows:

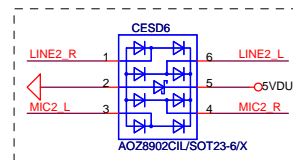
Pin	Signal	Chip
18	AFD-	68B44 (PRN5)
18	STB-	68B44 (PRN5)
18	PD0	68B44 (PRN5)
18	INIT-	68B44 (PRN5)
18	ERR-	68B44R/4
18	ACK-	68B44R/4
18	BUSY	68B44R/4
18	PE	68B44R/4
18	SLCT	68B44R/4
18	PD0[..7]	68B44R/4



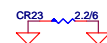
R&D技術通報151 有使用PRINT PORT的
MODEL, 需使用新料號: 10HP2-118728-72R。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。



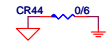
	X	O
--	---	---



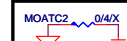
LINE-OUT



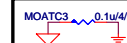
Audio jack --> USB



Near Audio jack left

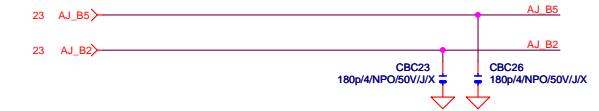


Codec --> Audio jack

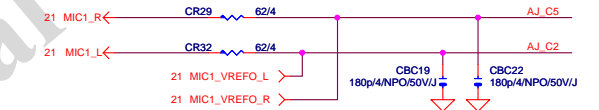


F_AUDIO

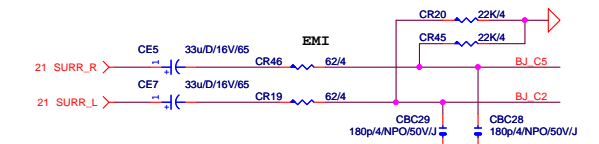
LINE-IN



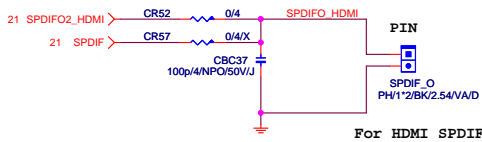
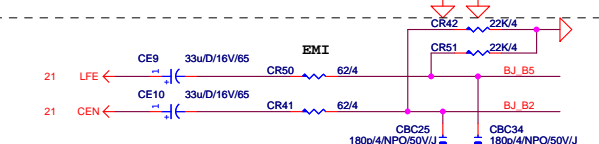
MIC-IN



SURROUND



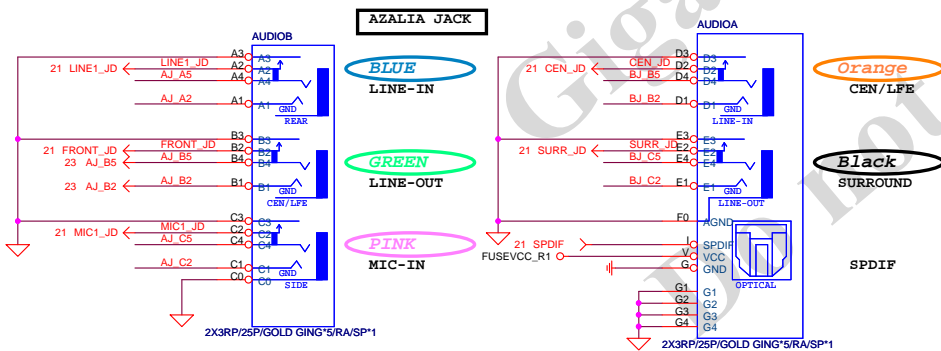
CEN/LFE



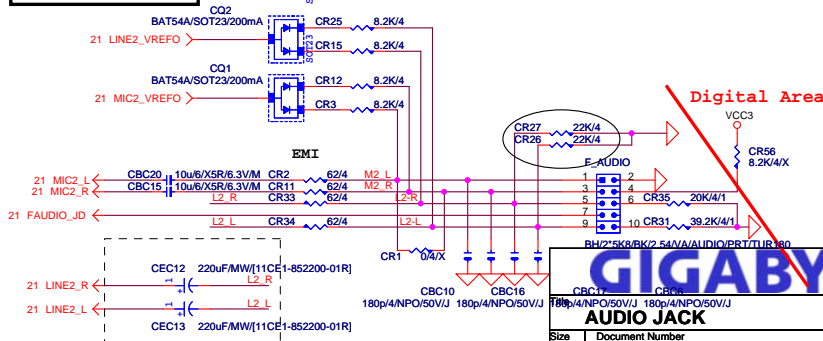
For HDMI SPDIF

AZALIA JACK

BTX AZALIA CONNECTOR



AZALIA FRONT PANEL



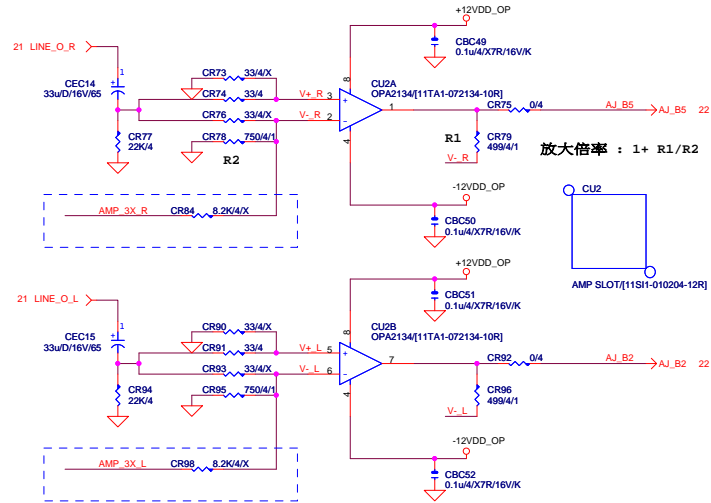
GIGABYTE

AUDIO JACK

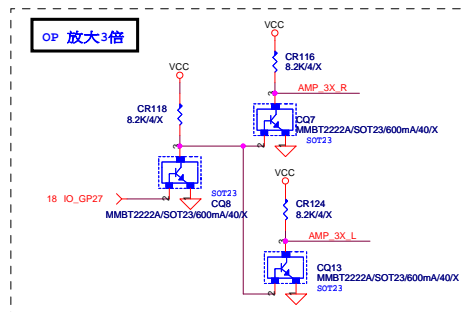
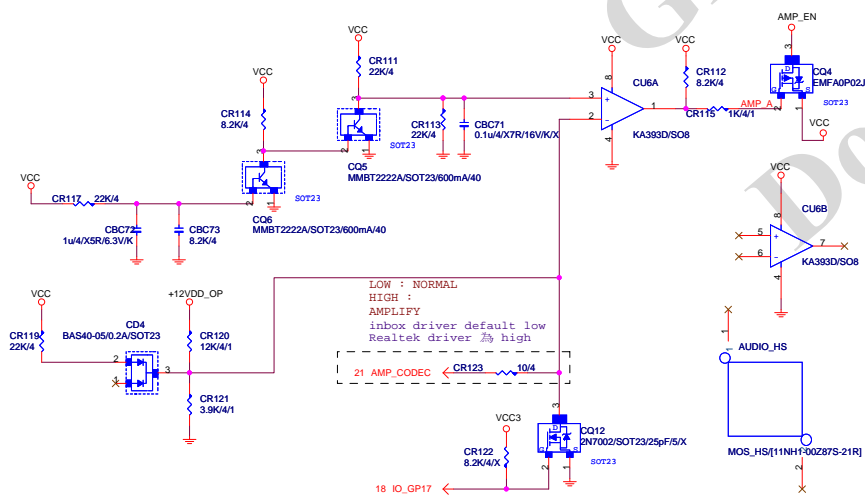
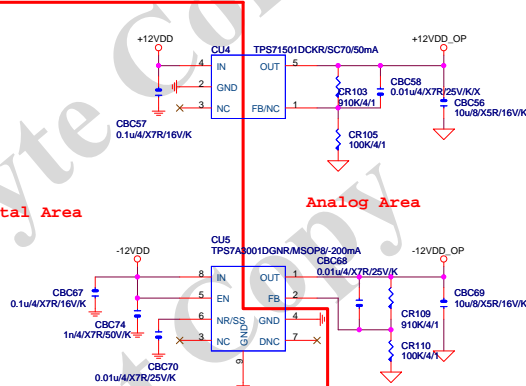
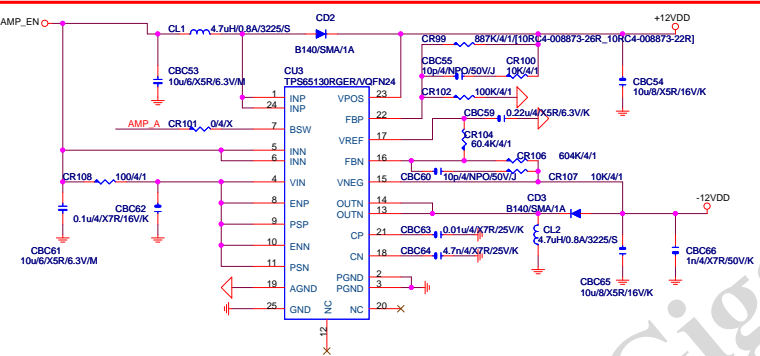
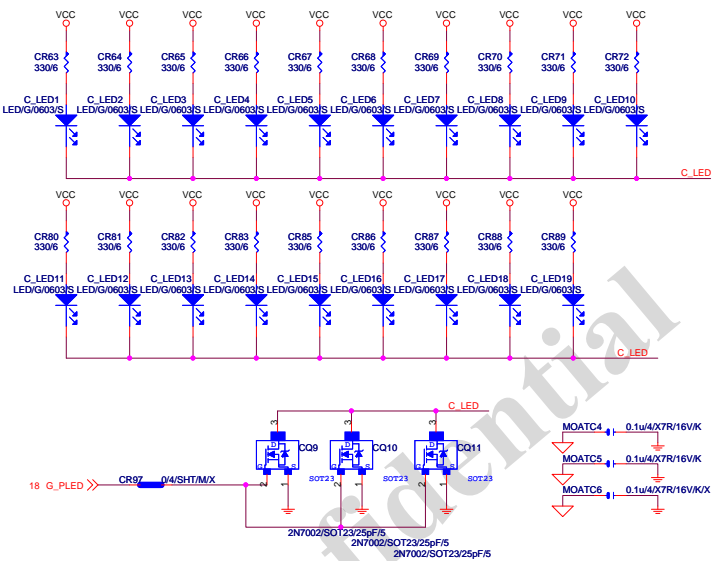
Size: Custom Document Number: G1.Sniper B5 Rev: 1.1

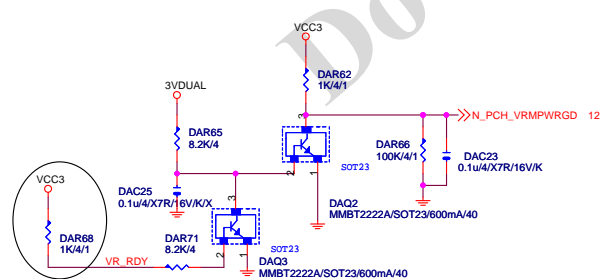
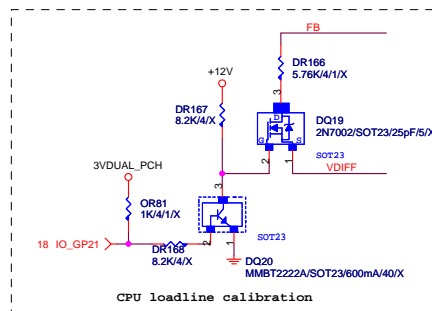
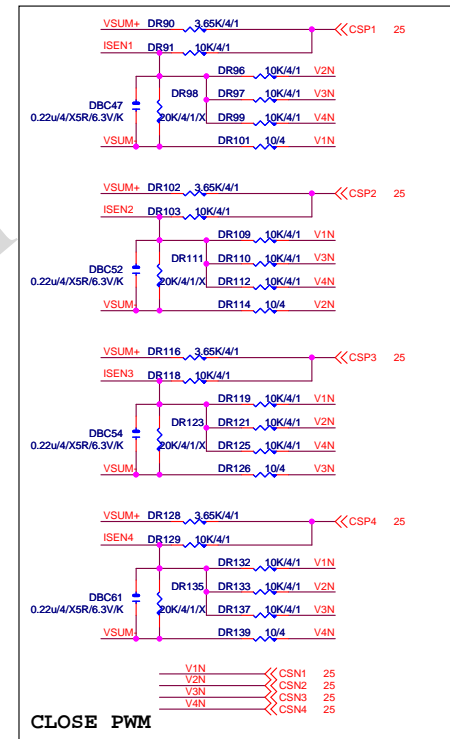
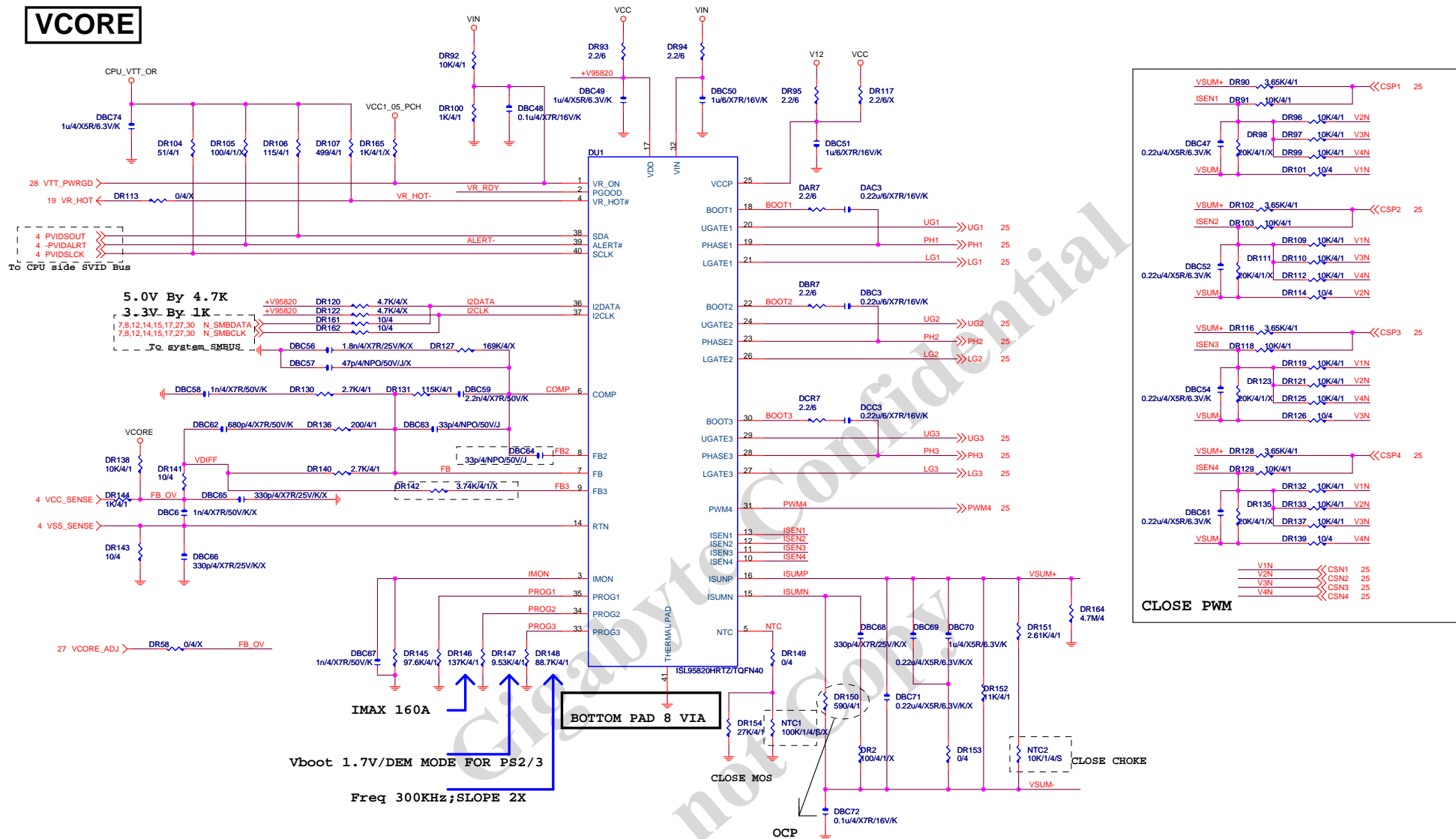
Date: Thursday, June 27, 2013 Sheet: 22 of 34

AMPLIFIED



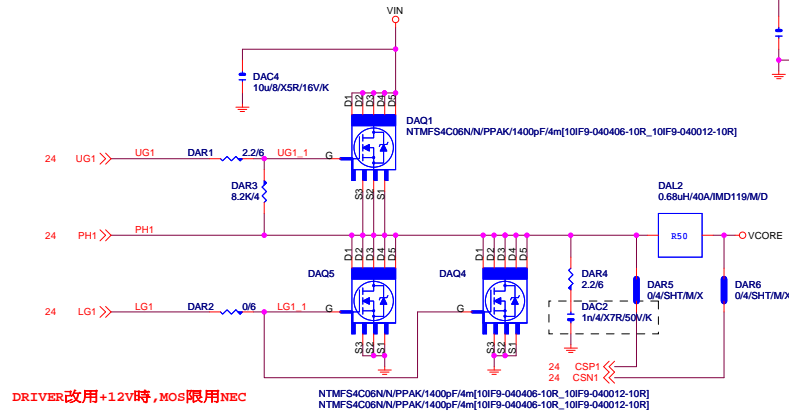
Analog Area



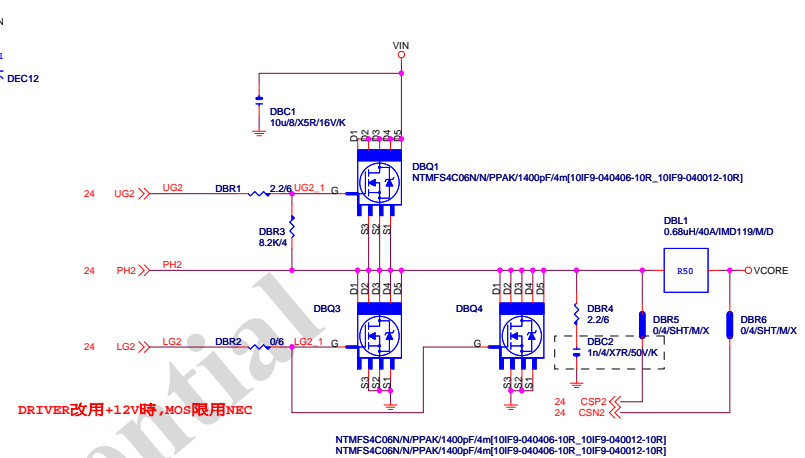
VCORE

VCORE

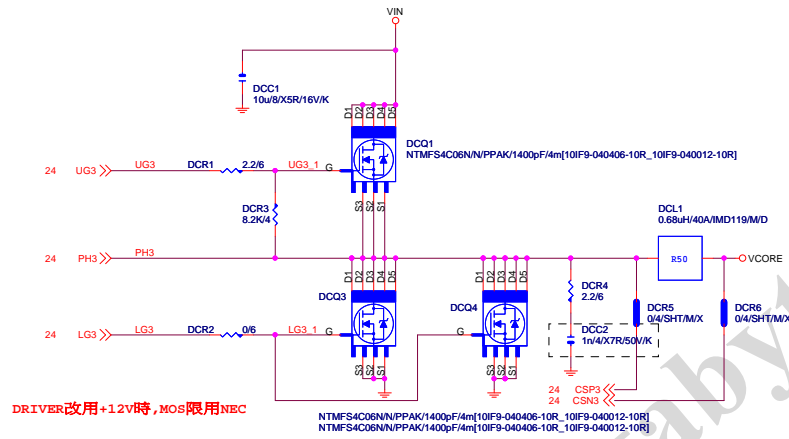
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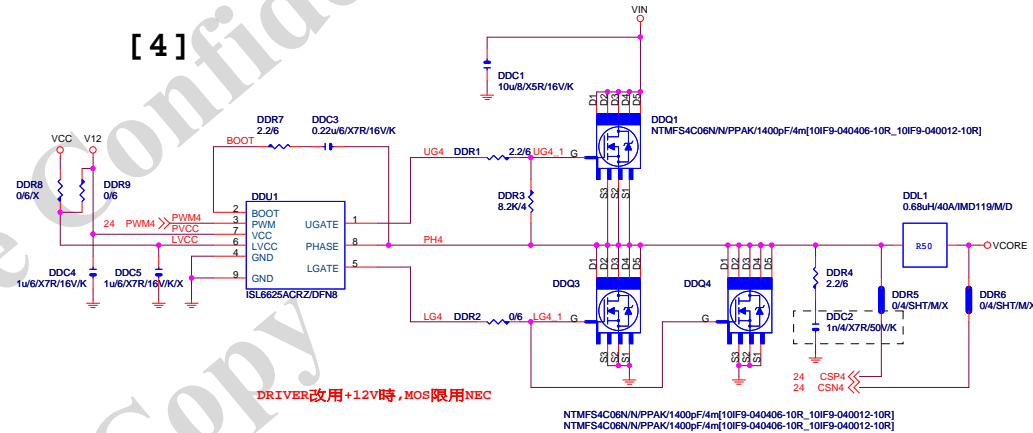
[2]



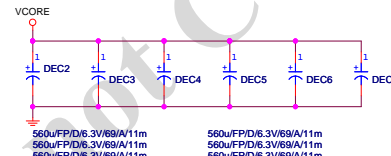
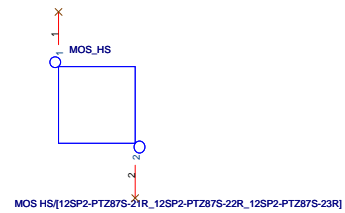
[3]



[4]



MOSFET HEATSINK



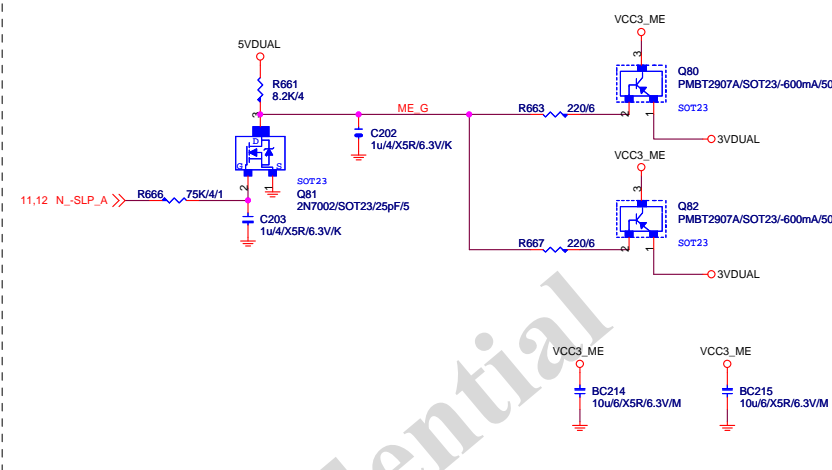
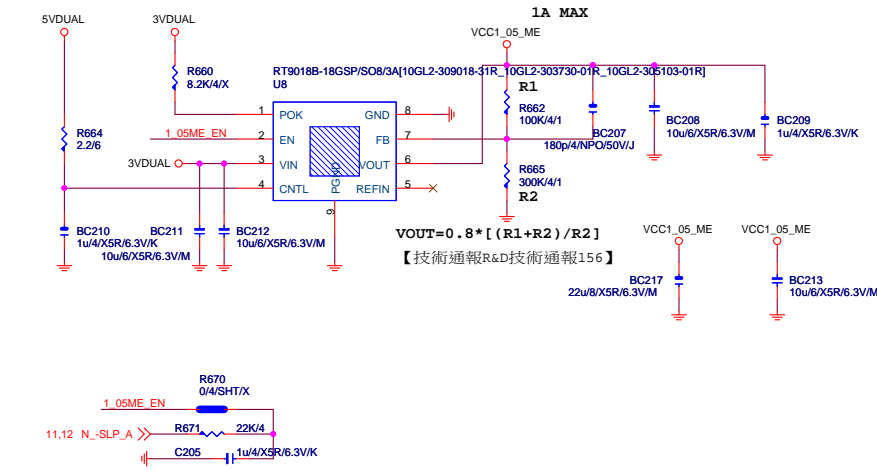
Gigabyte Technology

Title			ISL95820_2
Size	Document Number	G1.Sniper B5	
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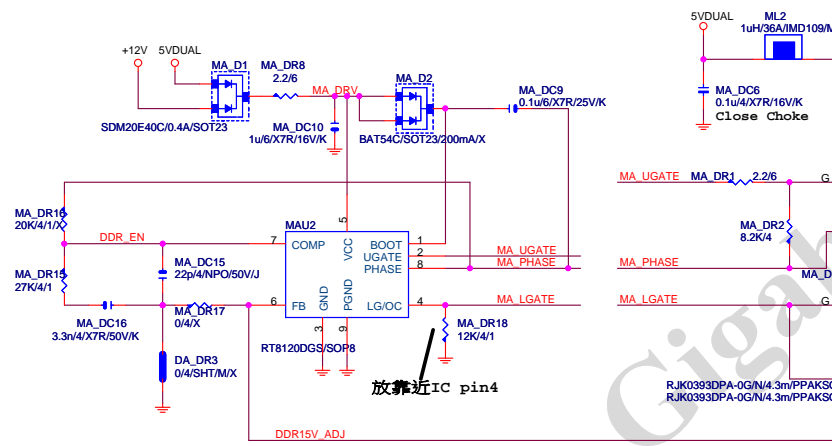
VCC1_05_ME

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

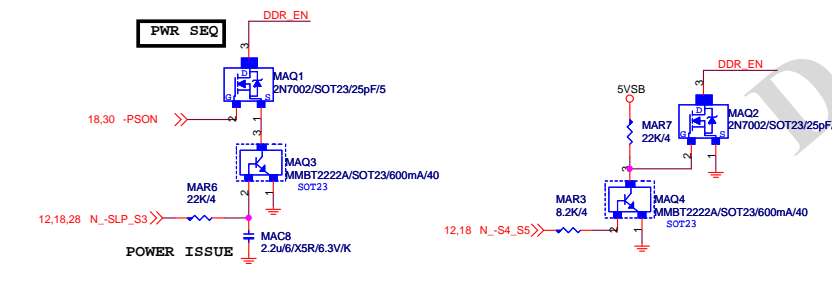
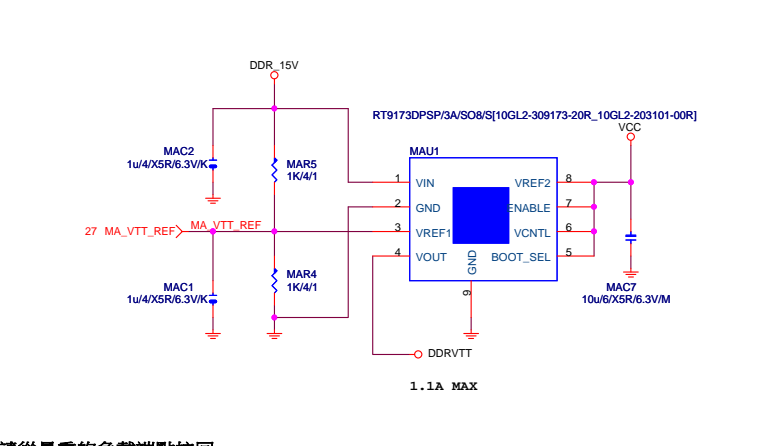
www.xinwei.com 400-800-9990



DDR_15V

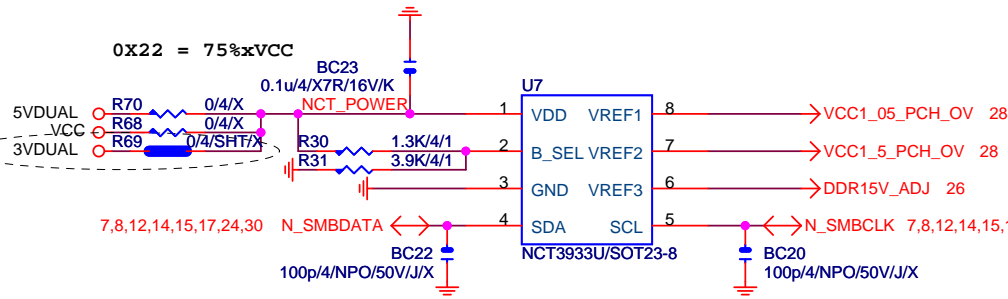


DDRVTT

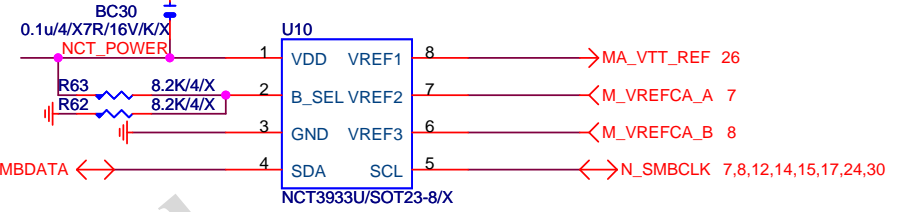


VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
IRMS=11.45A
560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85°C), 1(105°C)
VIN Ripple current=4.7X1.7=7.99A(85°C)
-->故固態電容須2X7.99=15.98>11.45A
OCP:35.82A for Rds=6.7m for vishay@4.5V
OCP:72.727A for Rds=3.3m for renesas@10V
OCP:48A=Roset*Iocset / Rds(on)
=12K*10uA / [5//5]

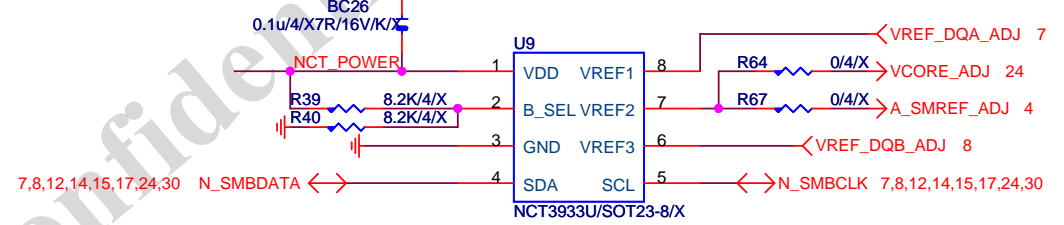
GIGABYTE™			
File			
DDR15V / M3 POWER			
Size	Document Number	Rev	
Custom	G1.Sniper B5	1.1	
Date:	Thursday, June 27, 2013	Sheet	26 of 34

OVER VOLTAGE

0X2A = 0%xVCC



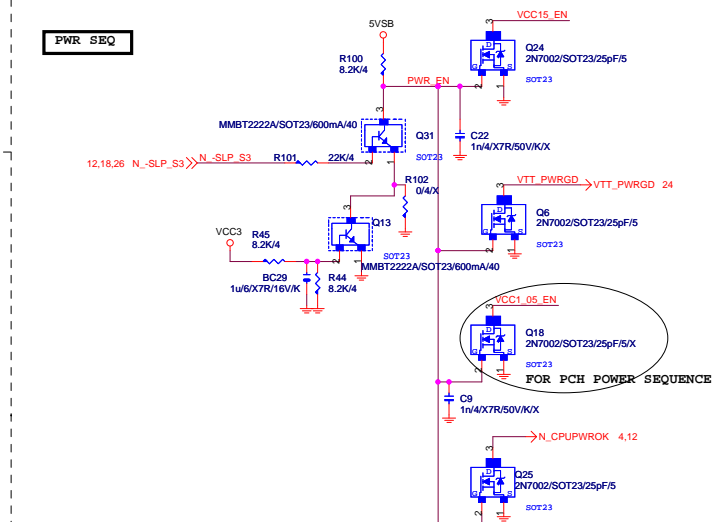
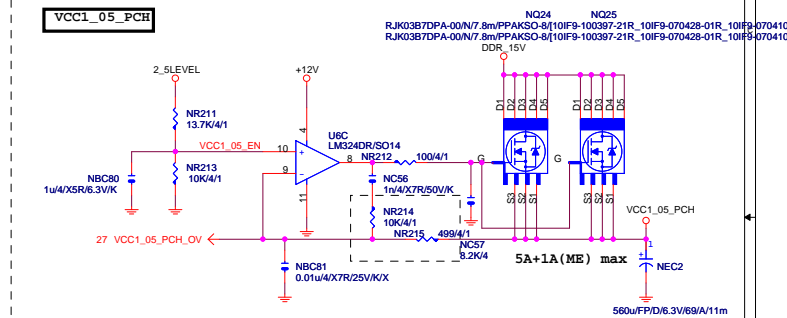
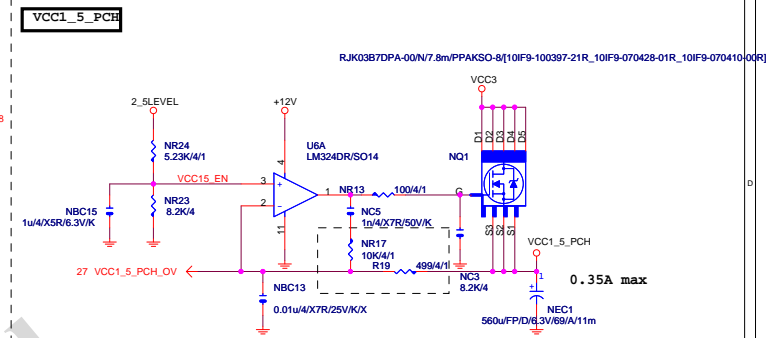
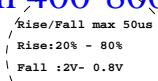
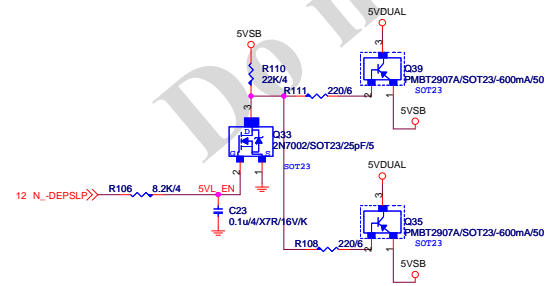
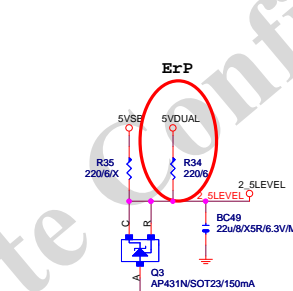
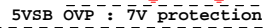
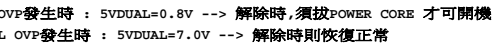
0X20 = 100%xVCC



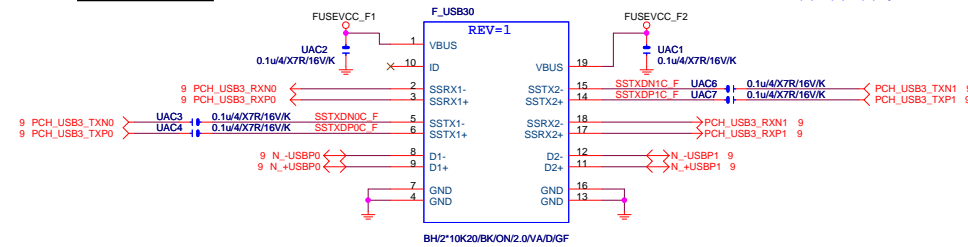
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

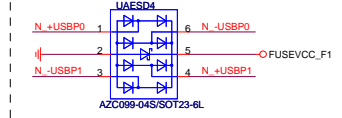
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CPU CORE VR-2		
Size	Document Number	Rev
Custom	G1.Sniper B5	1.1
Date:	Thursday, June 27, 2013	Sheet 27 of 34



Front USB3.0

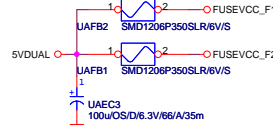


BLUE

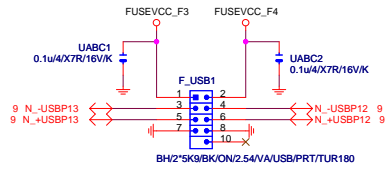


Close to connector

F_USB30 PWR

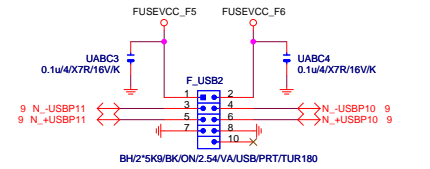


FRONT USB1

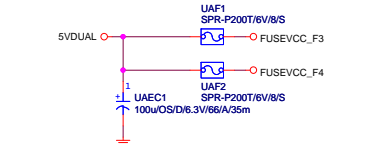


Close to connector

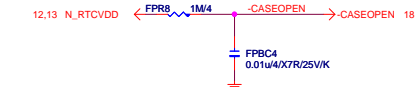
FRONT USB2



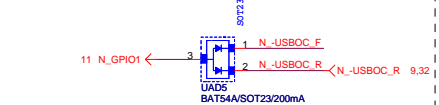
Close to connector



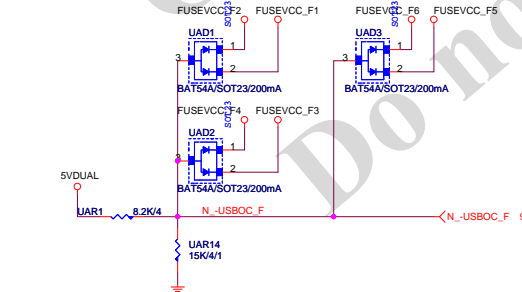
CASE OPEN



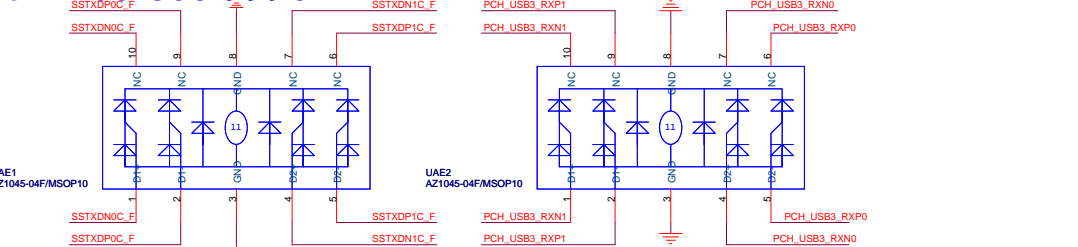
F_USB POWER PROTECT



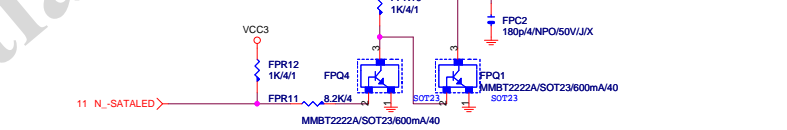
-USBOC_F



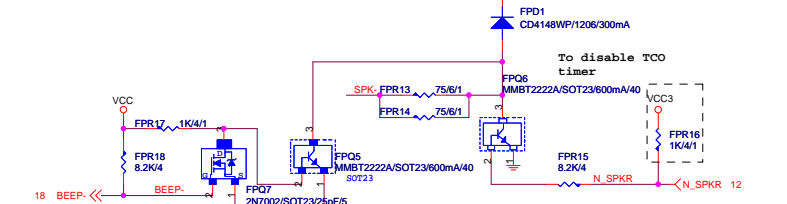
F_USB30 SPD PROTECT



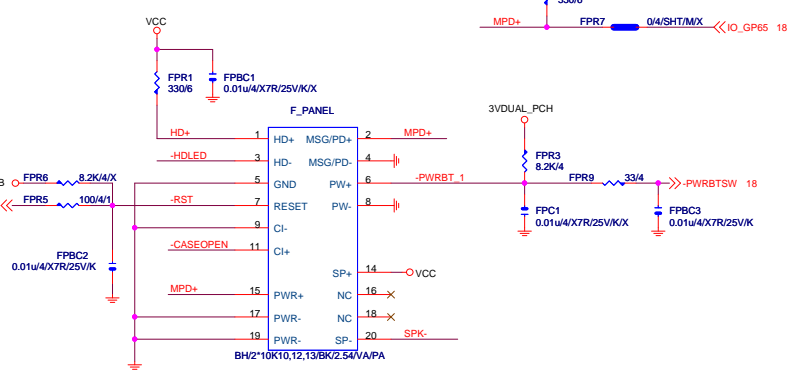
SATA LED



SPKR



INTEL FRONT PANEL

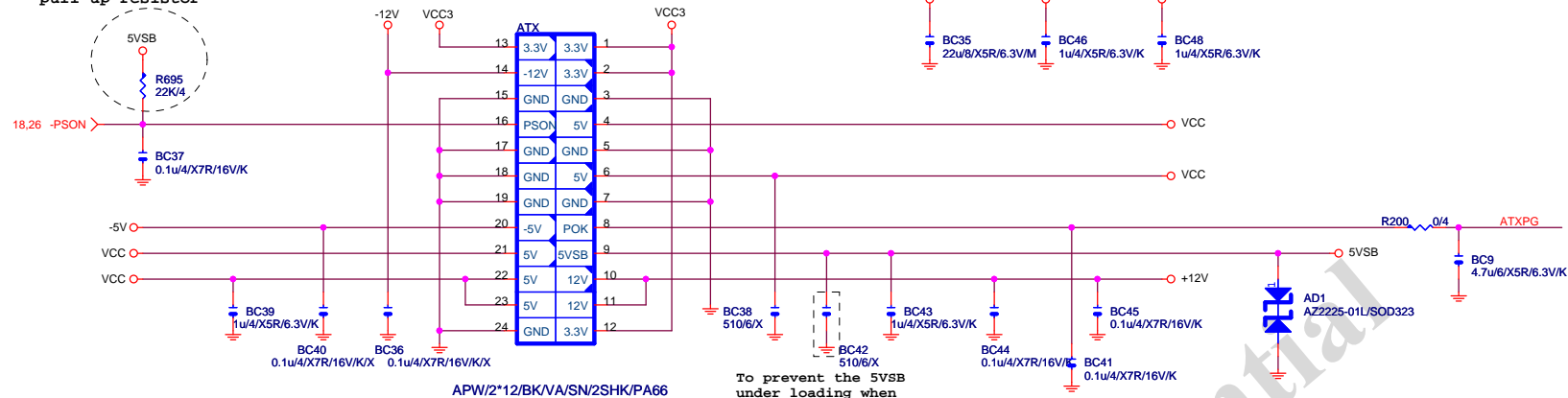


Gigabyte Technology

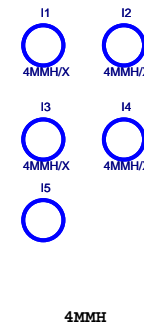
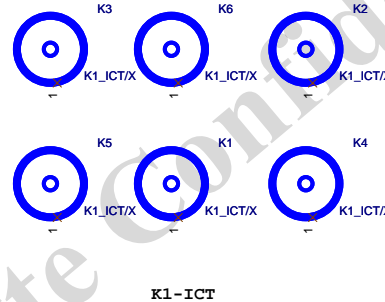
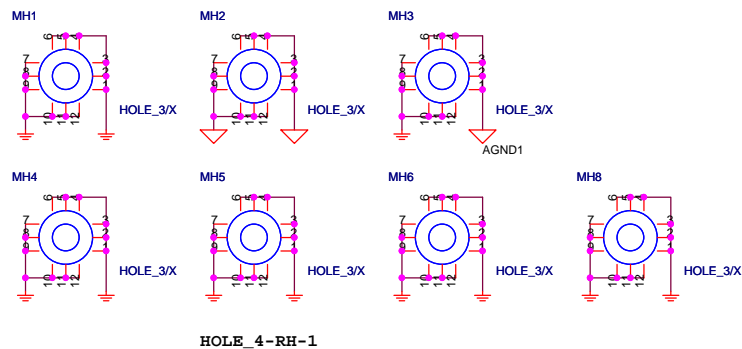
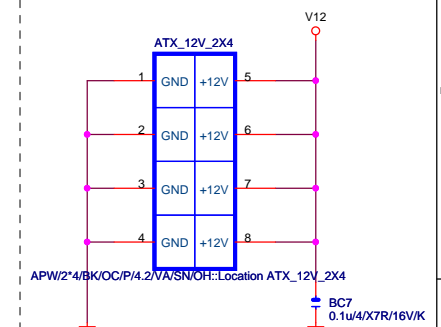
FP,F_USB,USB PWR,FDD,BZ			
File	Document Number	G1.Sniper B5	Rev 1.1
Size	Custom		
Date:	Thursday, June 27, 2013	Sheet	29 of 34

ATXX24 POWER CONNECTOR

Patch some PSU no internal pull up resistor

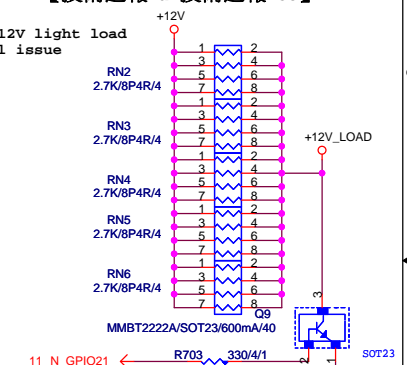


ATXX4 POWER CONNECTOR



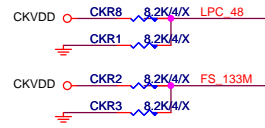
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

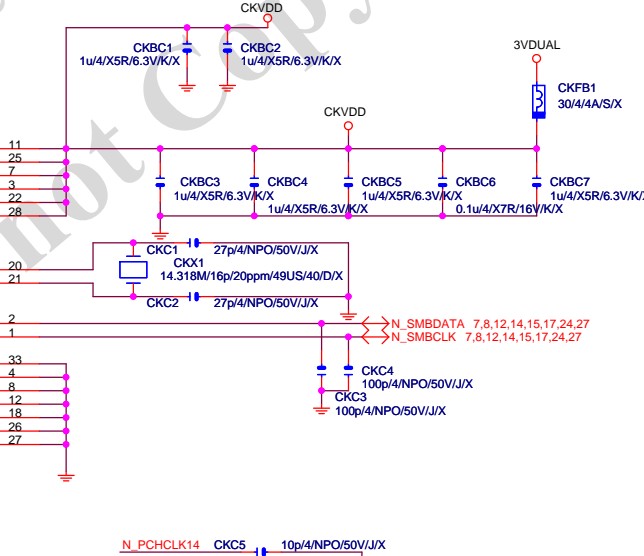
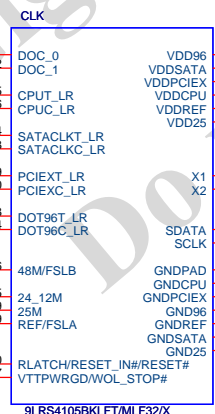
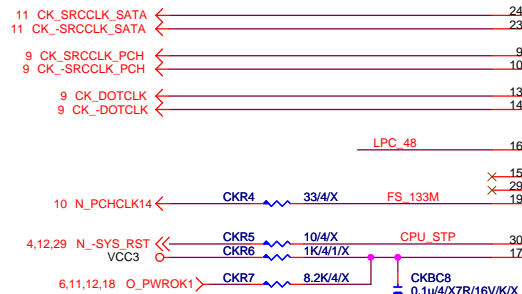


CLK GEN

CPU Frequency Selection

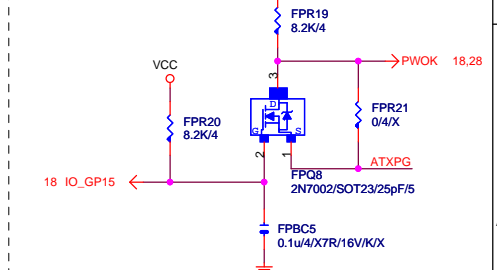


FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



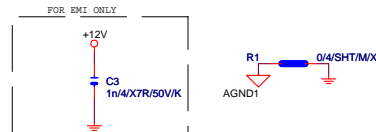
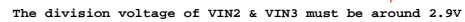
PWOK PATCH

【技術通報R&D技術通報154】

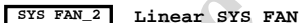


Gigabyte Technology

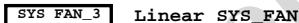
Title			ATX POWER CONNECTOR		
Size	Document Number	G1.Sniper B5			Rev
Custom					1.1
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Linear SYS_FAN₂



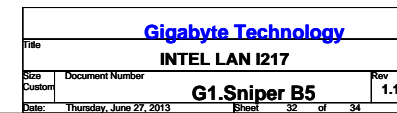
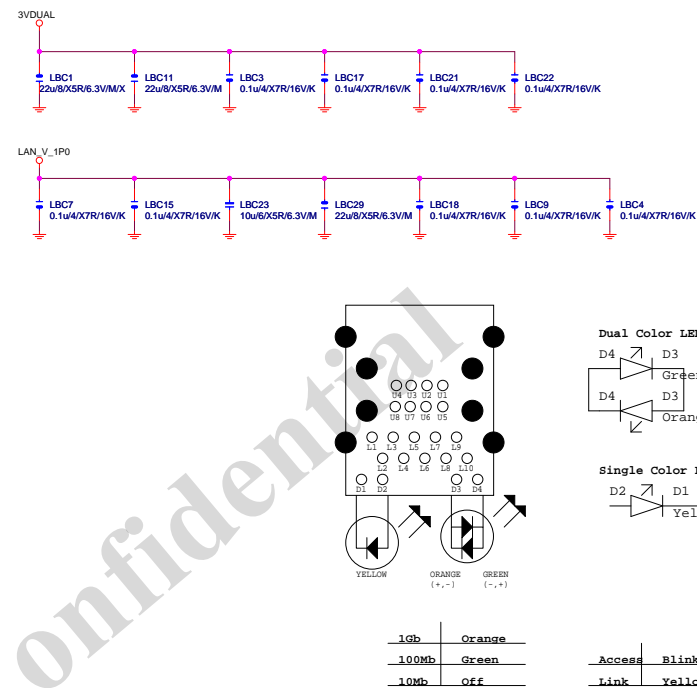
Linear SYS FAN



Linear SYS_FAN



Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	G1.Sniper B5	1.1	
Date:	Thursday, June 27, 2013	Sheet	31 of 34



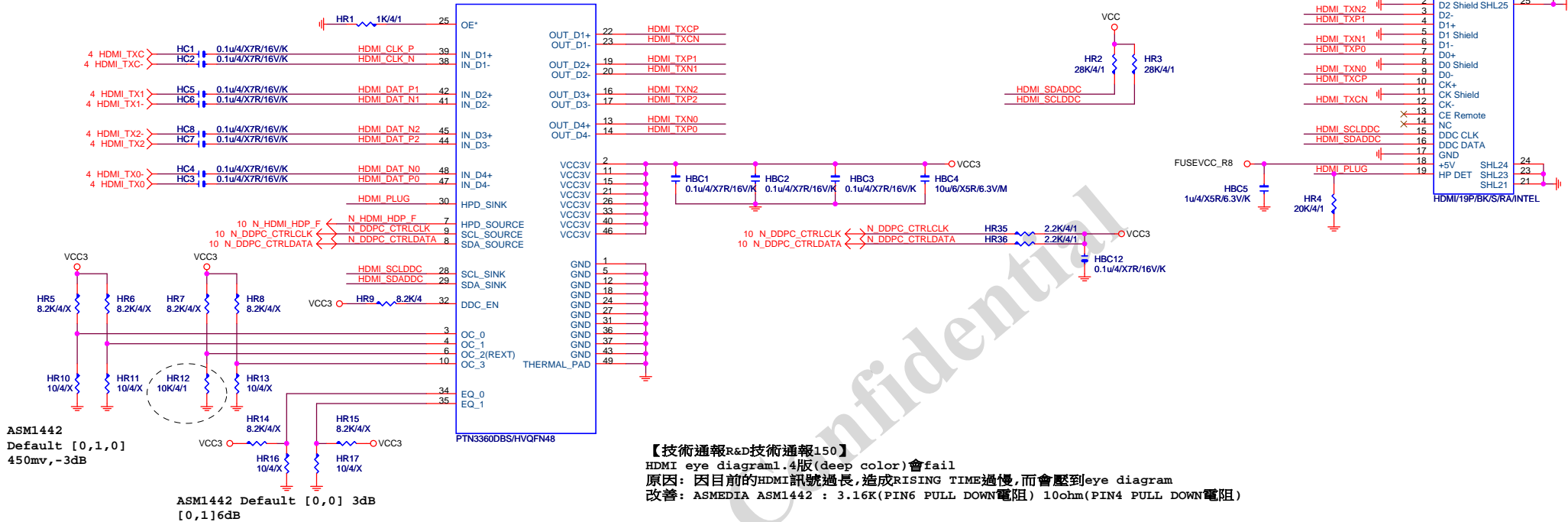
HDMI LEVEL SHIFT

HDMI:20/4/6/4/20

www.xinxunwei.com 400-800-9990

Impedance=85 +/- 17.5%

HU1



【技術通報R&D技術通報150】

HDMI eye diagram1.4版(deep color)會fail

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

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

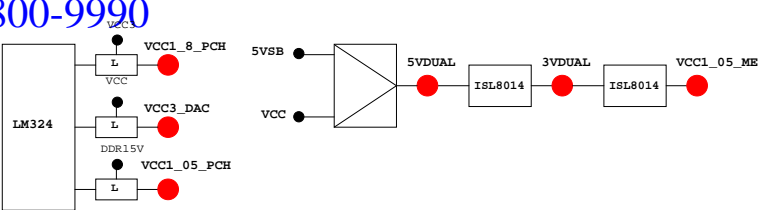
GIGABYTE™

HDMI			
File	Document Number	Rev	
Size	Custom	1.1	
G1.Sniper B5			
Date:	Thursday, June 27, 2013	Sheet	33 of 34

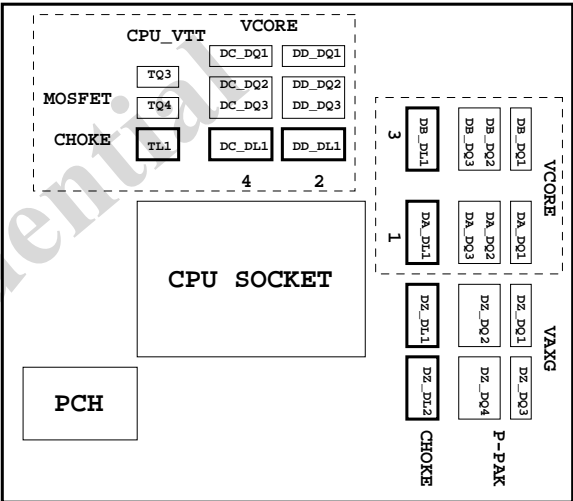
PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI00	N/A	
GP1/TACH1	MAIN	GPI	GPI01	N/A	
GP2/PIRQE#	MAIN	GPI	~PIRQE	P/U 8.2K VCC3	
GP3/PIRQF#	MAIN	GPI	~PIRQF	P/U 8.2K VCC3	
GP4/PIRQG#	MAIN	GPI	~PIRQG	P/U 8.2K VCC3	
GP5/PIRQH#	MAIN	GPI	~PIRQH	P/U 8.2K VCC3	
GP6/TACH2	MAIN	GPI	PCIEX1 Detect	P/U 8.2K VCC3	
GP7/TACH3	MAIN	GPI	GPI07	P/U 8.2K VCC3	
GP8	STBY	H	GPI08	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	GPI012	N/A	
GP13	STBY	L	LPCPME#	P/U 8.2K 3VDUAL	
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A	
GP15	STBY	L	GPI015(TLS Enable)	P/U 8.2K 3VDUAL	
GP16	MAIN	GPI	GPI016	P/U 8.2K VCC3	
GP17/TACH0	MAIN	GPI	GPI017	P/U 8.2K VCC3	
GP18	MAIN	GPI	Mobile Only	N/A	
GP19	MAIN	GPI	GPI019	P/U 8.2K VCC3	
GP20	MAIN	GPI	GPI020	P/U 8.2K VCC3	
GP21	MAIN	GPI	GPI021	P/U 8.2K VCC3	
GP22	MAIN	H-Z	GPI022	P/U 8.2K VCC3	
GP23	MAIN	GPI	GPI023	N/A	
GP24	STBY	L	SKTOCC#	N/A	
GP25	STBY		Mobile Only	N/A	
GP26	STBY		Mobile Only	N/A	
GP27	STBY	H	GPO	P/U 8.2K 3VDUAL	
GP28	STBY	H	GPO	P/U 8.2K 3VDUAL	
GP29	STBY	L	GPI029	N/A	
GP30	STBY	H-Z	GPI	N/A	
GP31	STBY	H-Z	GPI	N/A	
GP32	MAIN	H	GPO	N/A	
GP33	MAIN	H	GPO	N/A	
GP34	MAIN	H-Z	GPI	P/U 8.2K VCC3	
GP35	MAIN	L	GPO	P/U 8.2K VCC3	
GP36	MAIN	GPI	N/A	N/A	
GP37	MAIN	GPI	N/A	N/A	
GP38	MAIN	H-Z	GPI	P/U 8.2K VCC3	
GP39	MAIN	H-Z	GPI	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	P/U 8.2K 3VDUAL	
GP45	STBY	NATIVE	GPI045	P/U 8.2K 3VDUAL	
GP46	STBY	L	NATIVE	P/U 8.2K 3VDUAL	
GP47	STBY		Mobile Only	N/A	
GP48	MAIN	H-Z	IN	P/U 8.2K 3VDUAL	
GP49	MAIN	H-Z	IN	P/U 8.2K 3VDUAL	
GP50	MAIN	NATIVE	~REQ1	P/U 2.2K VCC	
GP51	MAIN	H	NATIVE	N/A	
GP52	MAIN	NATIVE	~REQ2	P/U 2.2K VCC	
GP53	MAIN	H	NATIVE	N/A	
GP54	MAIN	NATIVE	~REQ3	P/U 2.2K VCC	
GP55	MAIN	H	NATIVE	N/A	
GP56	STBY	NATIVE	Mobile Only	N/A	
GP57	STBY	H-Z	IN	P/U 8.2K 3VDUAL	
GP58	STBY	H-Z	NATIVE	P/U 8.2K 3VDUAL	
GP59	STBY	NATIVE	USB_OC0#	N/A	
GP60	STBY	H-Z	NATIVE	P/U 8.2K 3VDUAL	
GP61	STBY	L	NATIVE	N/A	
GP62	STBY	L	NATIVE	N/A	
GP63	STBY	L	NATIVE	N/A	
GP64	MAIN	L	NATIVE	N/A	
GP65	MAIN	L	NATIVE	N/A	
GP66	MAIN	L	NATIVE	N/A	
GP67	MAIN	L	NATIVE	N/A	
GP72	STBY	H-Z	NATIVE	P/U 8.2K 3VDUAL	
GP73	STBY		Mobile Only	N/A	
GP74	STBY	H-Z	NATIVE	P/U 8.2K 3VDUAL	
GP75	STBY	H-Z	NATIVE	P/U 8.2K 3VDUAL	

Super I/O ITE8720 GPIO Table			
PIN NAME	USAGE	NOTE	
SVC/PECI_RQT/GP14	-PECI_REQ		
PWROK1/GP13	PWROK1/ITE_PWROK		
KRST#/GP62	-KBRST		
SO/GP50	-ICH_SPI_CS		
IRTX/GP47/CE2_N/JP7	CEB_N		
GP46/IRRX	-LAN2_DSM		
PSION#/GP42	-PSON		
PWROK2#/GP41	PECI_CTL		
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST		
RSMRST#CIRRX1/GP55	-RSMRST		
PME#/GP54	-LPCPME		
PD5/GP75/BUSS00	N/A		

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/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	
3VSBW#/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/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	
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	
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：

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

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology			
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