Model Name: GA-B85M-D3H-A

Revision 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 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
16	PCI SLOT1,2
17	ITE 8620 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC892-GR
23	REAR AUDIO JACK
24	REALTEK RTL8111G
25	DISCRETE POWER
26	ATX ,TPM
27	VCORE ISL95812_1

SHEET	TITLE
28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI, HDMI
32	IT8892E

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Model Name: GA-B85M-D3H-A

Revision 1.0

Component value change history

2014/2/20

Data	Change Item		Reason
2014.02.12	20A E-BOM release.	PCB:2.0	Modify from H97M-D3H , 修改PWM(95812+6208B) , 並改為1上1下(3項)
2014.02.14	20A E-BOM release.	PCB:2.0	E-BOM 變更 1.F_AUDIO CR58/CR54 22K/4 上件 2.OC18 / OC22 1u/4/x5r/6.3v/k 上件 3.HDMI Level shift NXP change to ASMEDIA
2014.03.24	20B E-BOM release.	PCB:2.01	WBC20 上件 / 20A時的E-BOM變更 / PWM DR61 105K change to 41.2K(廠商建議) / FR1,FR2,FR3,R672,R673,R4,R403,R404,NR20,NR21,R313,R314,NR1,NR2,FR9,NR246 remove
2014.04.02	20C P-BOM release.	PCB:2.01	OR49/OC27/RS3 不上件 (TR6)
2014.06.18	20D P-BOM release.	PCB:2.02	a.SATA remove MLCC,修改方式為short pad + Mask b. EMI : add PEMC2 [3VDUAL] (0.01uF) ，BC164 [5VDUAL] (0.1u-->0.01uF) for FRONT_USB ESD
2014.10.14	20E P-BOM release.	PCB:2.02	CEC1/CEC2/CEC10/CEC11/CEC12/CEC13/CEC14/CEC15/CEC9/CEC6 change to "100uF/D/10V/6*5/[11CE2-651000-05R] "(金色電容)
2014.11.11	20F P-BOM release.	PCB:2.02	a. All of INTEL 8/9 series 請發BOM 修改, 預防 SPEAKER 嘸嘸叫 Issue DR100 1K-->3.3K/4/1 (for SIO 8620) b.0.1u/Y5V/16V change to 0.1u/X7R/16V (16pcs, total 0.1u/X7R/16V 102pcs)
2015.01.08	21A P-BOM release.	PCB:2.1	Modify from Rev2.02 to Rev2.1
2015.02.13	10A P-BOM release.	PCB:1.0	1. Modify from Rev2.1 to Rev1.0 2. LAN 8111F CHANGE TO 8111G 3. 加切斷線 4. NX2 FOOTPRINT XTALS-RH-N
2015.03.19	10A P-BOM release.	PCB:1.0	轉P-BOM

Circuit or PCB layout change

DATE	Change Item		Reason
2014.02.20	20 release.	PCB:2.0	1. modify from H97M-D3H to B85M-D3H 2. PWM change to ISL95812+ISL6208 3. FUSE change 2.6A , not support 1 port 1fuse & 3X power 4. SATA3*4 , SATA2*2 5.USB3.0*4
2014.03.24	20 release.	PCB:2.01	PCB 243.84*215
2014.06.19	20 release.	PCB:2.02	1.SATA / SATA Express remove MLCC,修改方式為short pad + Mask
2015.01.08	21 release.	PCB:2.1	修改文字面Rev2.02 to Rev2.1
2015.02.25	10 release.	PCB:1.0	1. Modify from Rev2.1 to Rev1.0 2. LAN 8111F CHANGE TO 8111G 3. 加切斷線 4. NX2 FOOTPRINT XTALS-RH-N 5. MB NAME B85M-D3H TO B85M-D3H-A 6. MH2 cahnge to Isolate

Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

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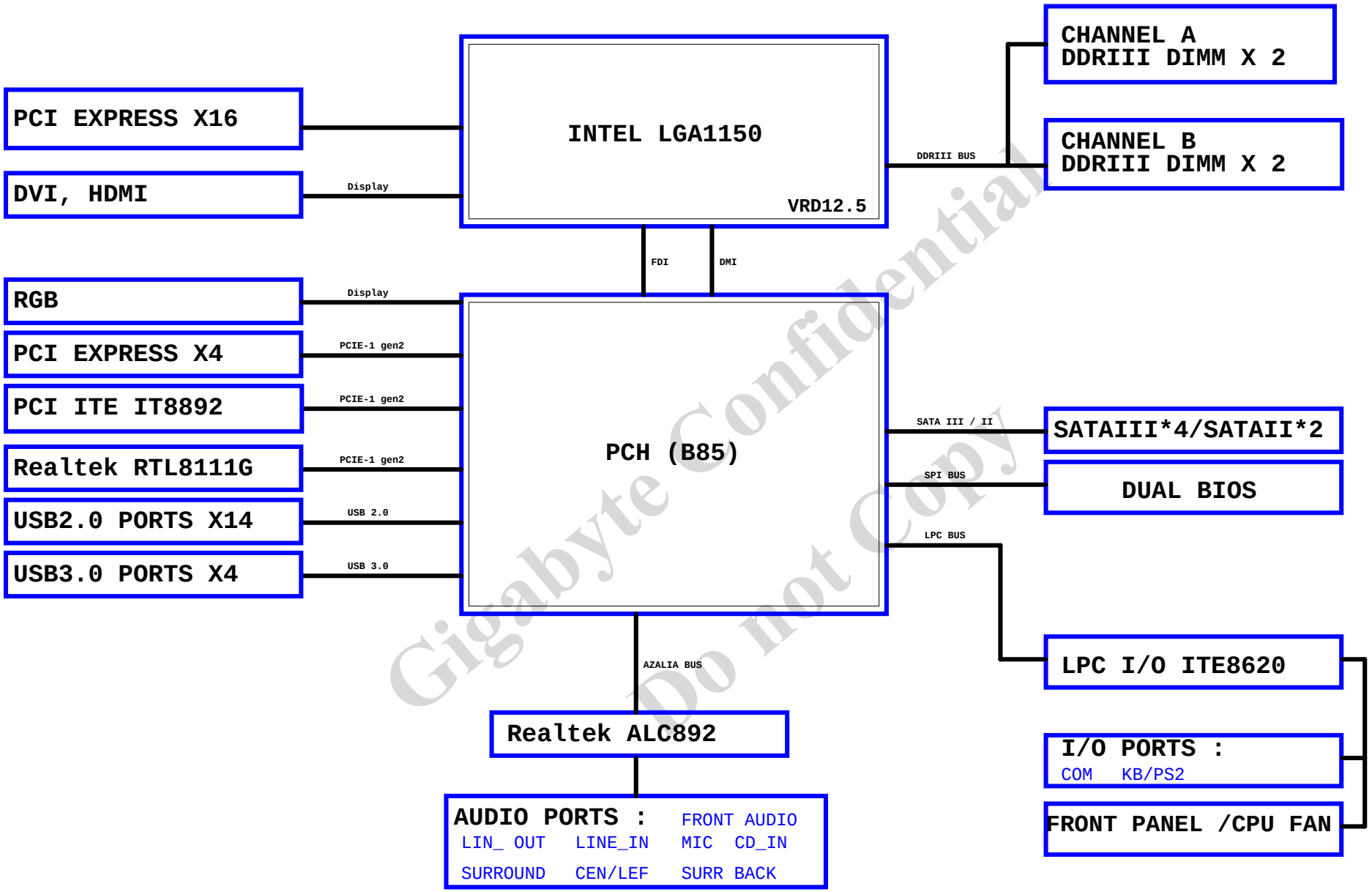
BLOCK DIAGRAM



Gigabyte Technology			
Title: BLOCK DIAGRAM			
Size: C	Document Number: GA-B85M-D3H-A		Rev: 1.0
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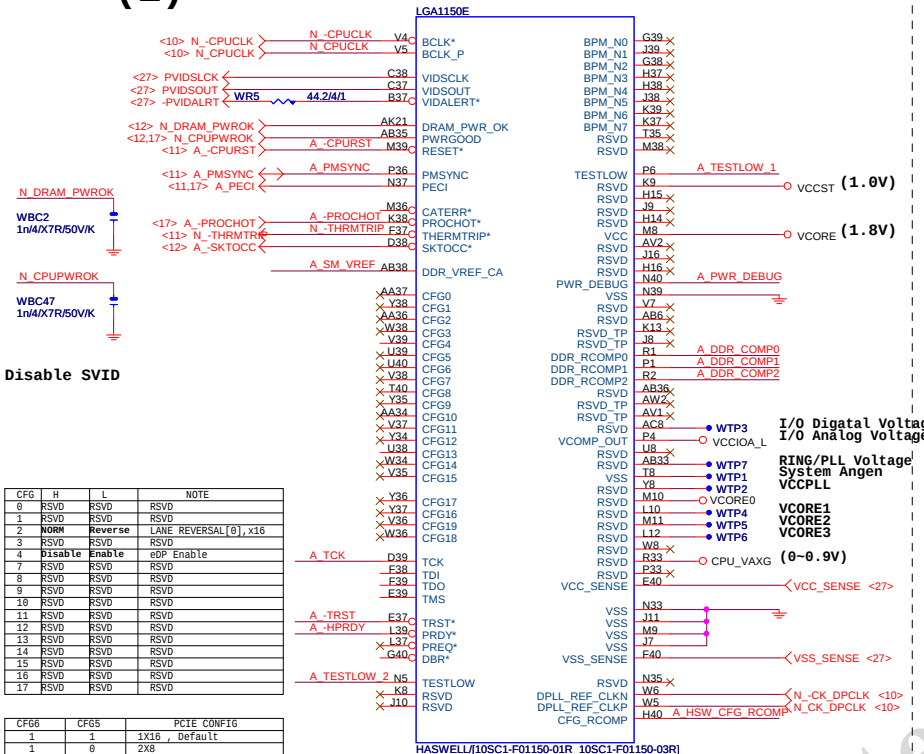
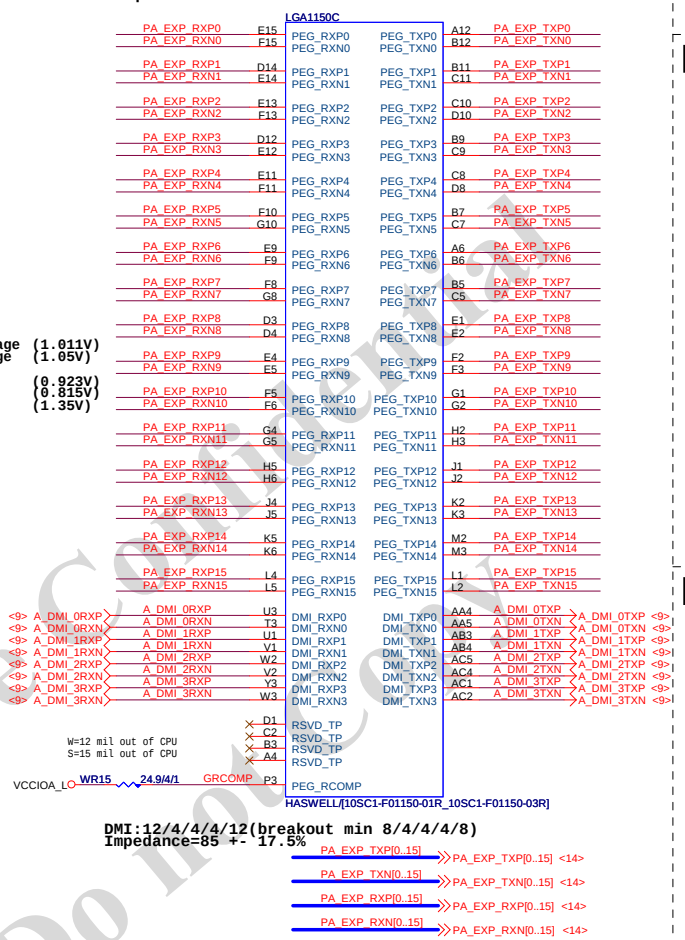
LGA1150 (E)



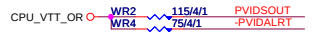
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

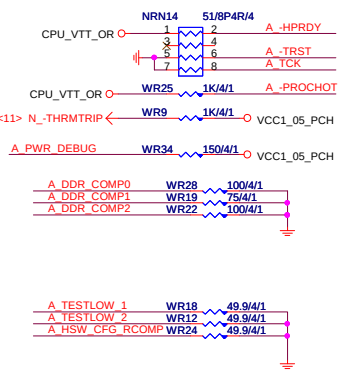
LGA1155 (C)



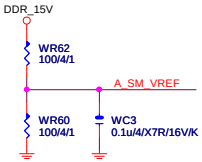
CPU SVID



CPU PU/PD

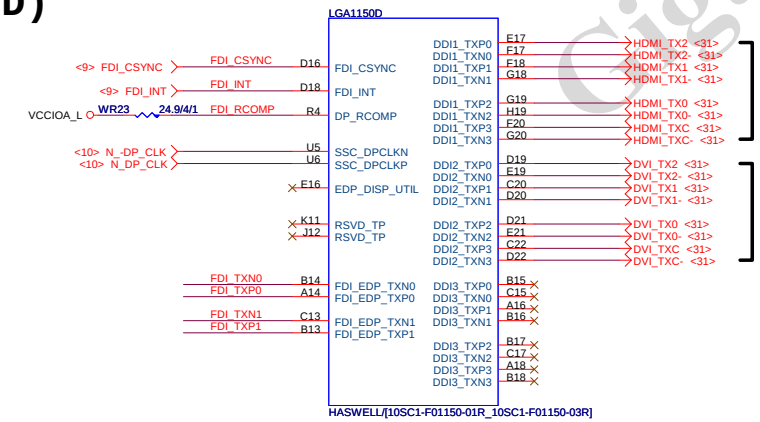


SM REF

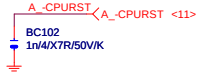


LGA1150 (D)

DVI-I + HDMI組態就是: DVI-I port B, HDMI port C
DVI-D + HDMI組態就是: DVI-D port C, HDMI port B



-CPURST



THRMTRIP DISABLE

Gigabyte Technology			
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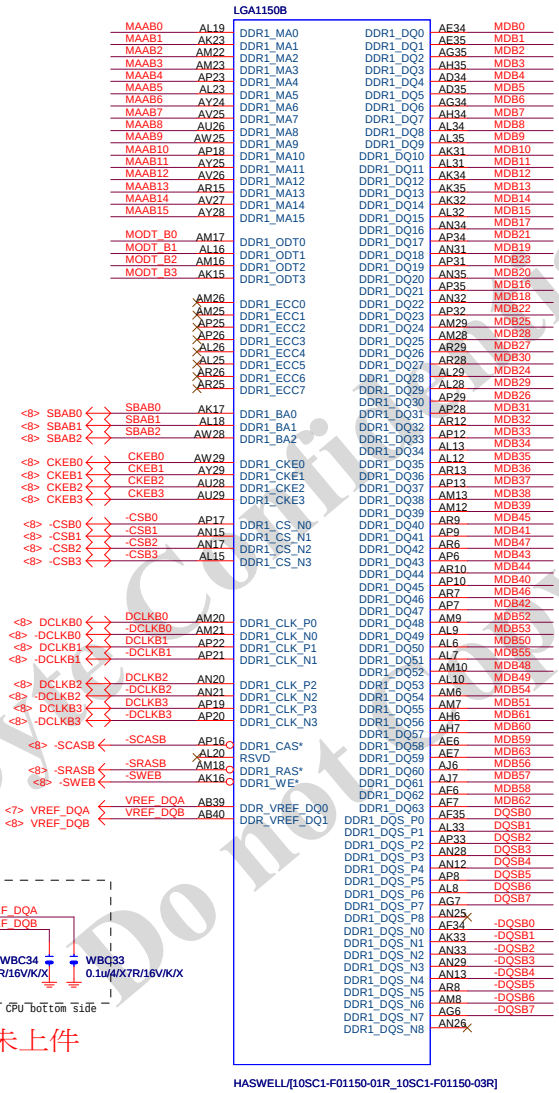
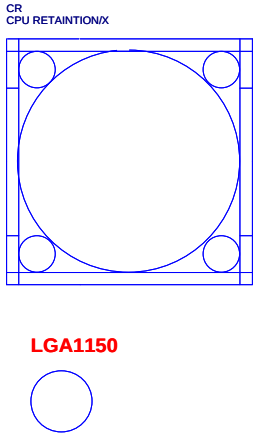
LGA1150 (A)

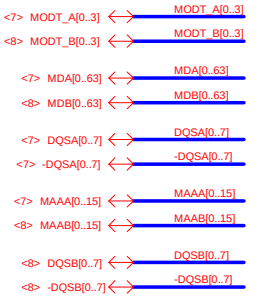
LGA1150 (B)



LGA1150 (CR)



DDR BUS



Gigabyte Technology			
Title: CPU LGA1150-B			
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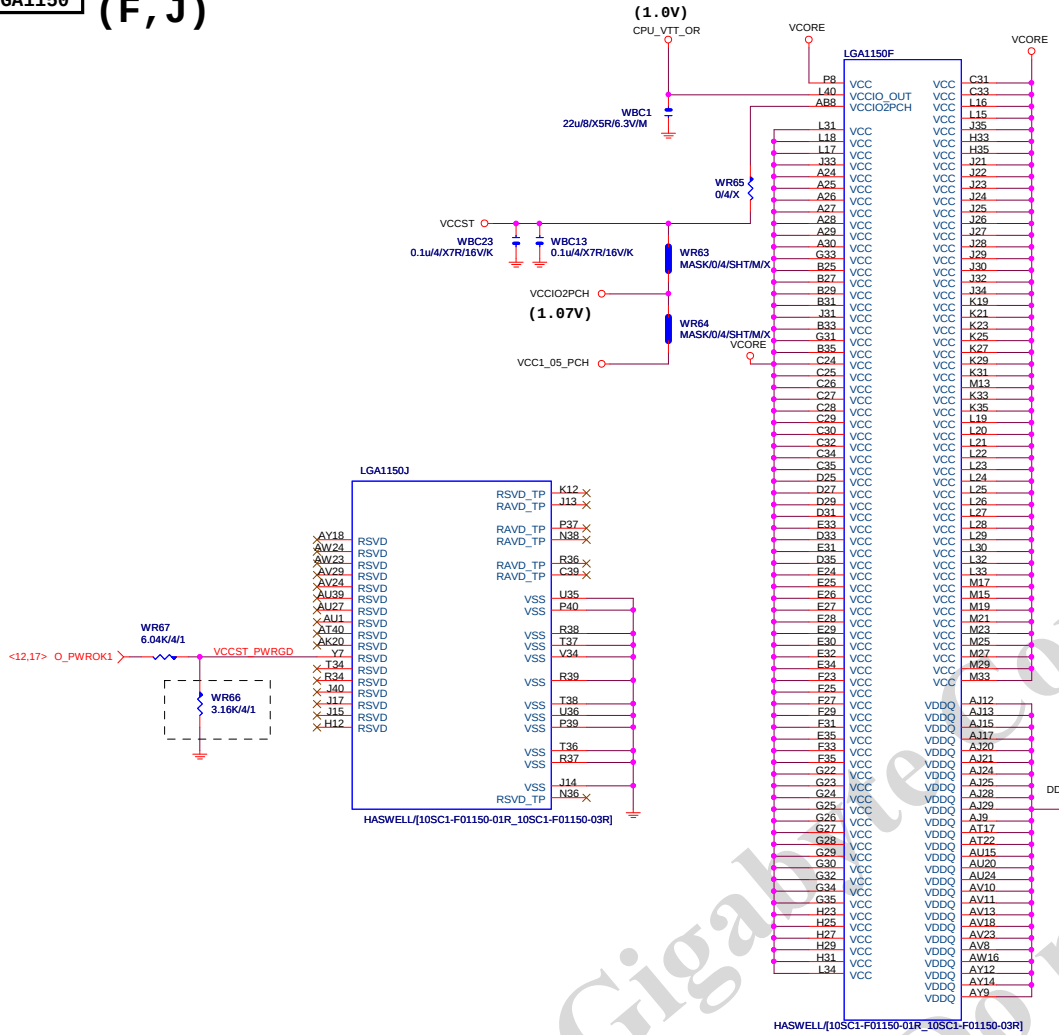
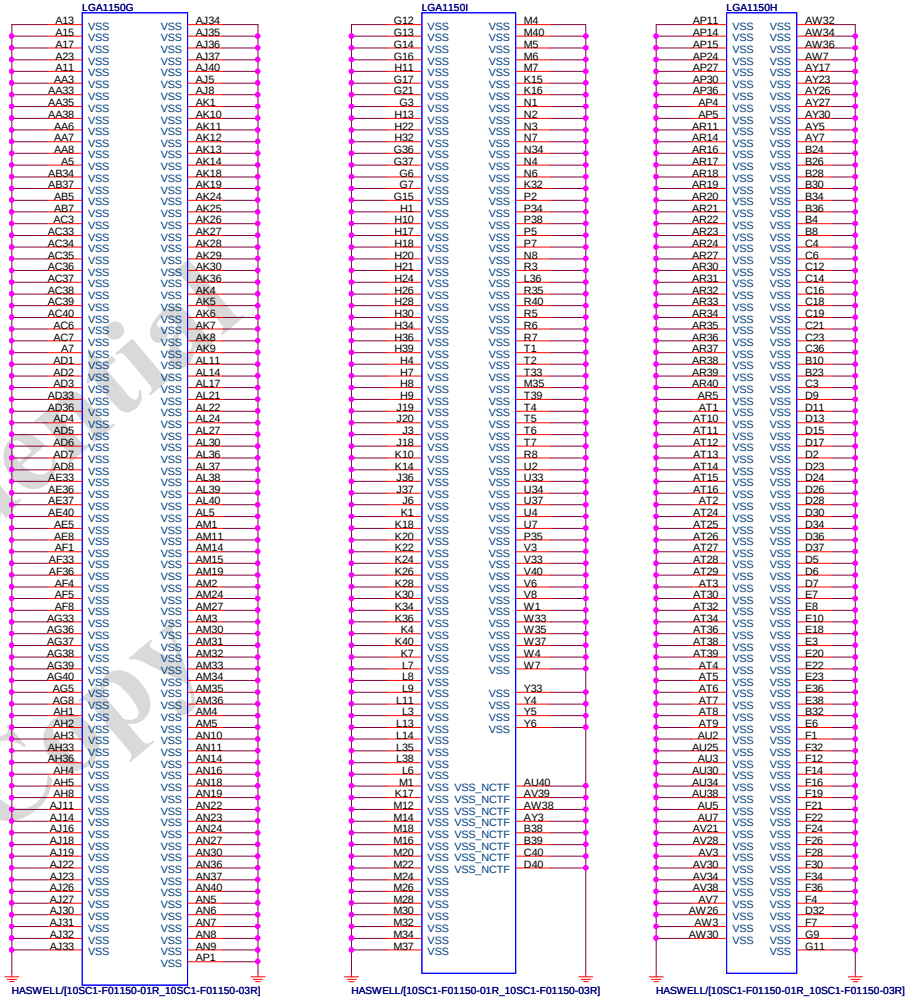
LGA1150 (F,J)

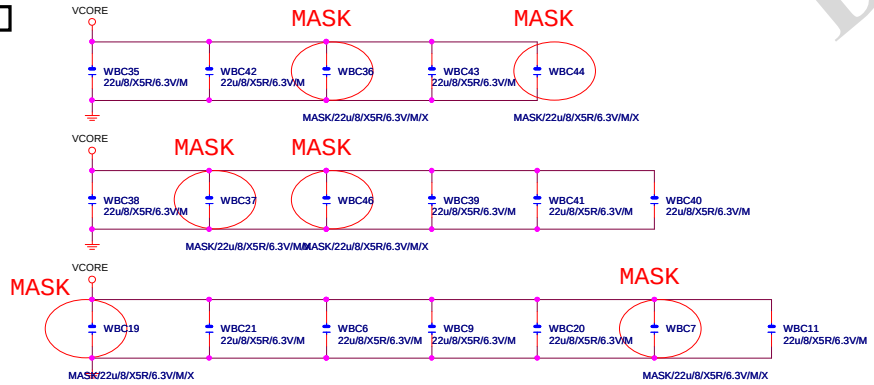


LGA1155 (G,H,I)



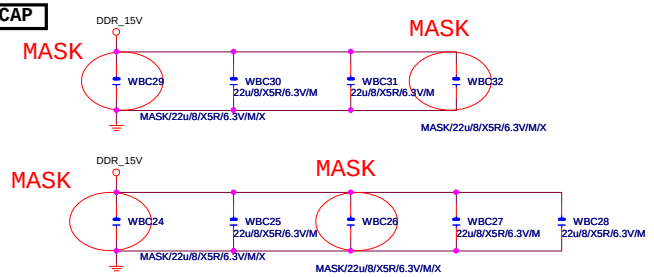
VCore CAP

(X18)



DDR CAP

(X9)



Gigabyte Technology			
Title: CPU LGA1150-C			
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DDR3 (A)

DDR3_4

DDRVTT
VTT 120 240
VDD 2 5 8 11 14 17 20 23 26 29 32 35 38 41 44 47 80 83 86 89 92 95 98 101 104 107 110 113 116 119 121 124 127 130 133 136 139 142 145 148 151 154 157 160 163 166 199 202 205 208 211 214 217 220 223 226 229 232 235 239
VSS 51 54 57 60 62 65 66 69 72 75 78 170 173 176 179 182 183 186 189 191 194 197
VDD 236
VDDSPD
VREFCA 67
VREFDQ 1
FREE 48 49 187 198
RSVD 79
ODT1 77
ODT0 195
MODT_A1
MODT_A0
NC/PAR_IN 68
NC/ERR_OUT 53
NC/TEST4 167
CB0 39
CB1 40
CB2 45
CB3 46
CB4 158
CB5 159
CB6 164
CB7 165
DQS0 7
DQS0* 6
DQSA0
-DQSA0
DQS1 16
DQS1* 15
DQSA1
-DQSA1
DQS2 25
DQS2* 24
DQSA2
-DQSA2
DQS3 34
DQS3* 33
DQSA3
-DQSA3
DQS4 85
DQS4* 84
DQSA4
-DQSA4
DQS5 94
DQS5* 93
DQSA5
-DQSA5
DQS6 103
DQS6* 102
DQSA6
-DQSA6
DQS7 112
DQS7* 111
DQSA7
-DQSA7
DQS8 43
DQS8* 42
DM0/DQS9 125
NC/DQS9* 126
DM1/DQS10 134
NC/DQS10* 135
DM2/DQS11 143
NC/DQS11* 144
DM3/DQS12 152
NC/DQS12* 153
DM4/DQS13 203
NC/DQS13* 204
DM5/DQS14 212
NC/DQS14* 213
DM6/DQS15 221
NC/DQS15* 222
DM7/DQS16 230
NC/DQS16* 231
DM8/DQS17 161
NC/DQS17* 162
DQ0 3
DQ1 4
DQ2 9
DQ3 10
DQ4 122
DQ5 123
DQ6 128
DQ7 129
DQ8 12
DQ9 13
DQ10 18
DQ11 19
DQ12 131
DQ13 132
DQ14 137
DQ15 138
DQ16 21
DQ17 22
DQ18 27
DQ19 28
DQ20 140
DQ21 141
DQ22 146
DQ23 147
DQ24 30
DQ25 31
DQ26 36
DQ27 37
DQ28 149
DQ29 150
DQ30 155
DQ31 156
DQ32 81
DQ33 82
DQ34 87
DQ35 88
DQ36 200
DQ37 201
DQ38 206
DQ39 207
DQ40 90
DQ41 91
DQ42 96
DQ43 97
DQ44 209
DQ45 210
DQ46 215
DQ47 216
DQ48 99
DQ49 100
DQ50 105
DQ51 106
DQ52 218
DQ53 219
DQ54 224
DQ55 225
DQ56 108
DQ57 109
DQ58 114
DQ59 115
DQ60 227
DQ61 228
DQ62 233
DQ63 234
MDA0 MDA1 MDA2 MDA3 MDA4 MDA5 MDA6 MDA7 MDA8 MDA9 MDA10 MDA11 MDA12 MDA13 MDA14 MDA15 MDA16 MDA17 MDA18 MDA19 MDA20 MDA21 MDA22 MDA23 MDA24 MDA25 MDA26 MDA27 MDA28 MDA29 MDA30 MDA31 MDA32 MDA33 MDA34 MDA35 MDA36 MDA37 MDA38 MDA39 MDA40 MDA41 MDA42 MDA43 MDA44 MDA45 MDA46 MDA47 MDA48 MDA49 MDA50 MDA51 MDA52 MDA53 MDA54 MDA55 MDA56 MDA57 MDA58 MDA59 MDA60 MDA61 MDA62 MDA63
MDA[0..63] <5>
MODT_A[0..3] MODT_A[0..3] <5>
-DQSA[0..7] -DQSA[0..7] <5>
DQSA[0..7] DQSA[0..7] <5>
-DDR3_RST
MC6 100p/4/NPO/50V/J
DDR_15V
N_SMBDATA
N_SMBCLK
MC10 100p/4/NPO/50V/J/X
MC11 100p/4/NPO/50V/J/X
VCC3
VDDSPD
MF1 SPR-P200T/6V/8/S
未上件
MC4 0.1u/4/X7R/16V/K/X
MC5 0.1u/4/X7R/16V/K/X
MC1 0.1u/4/X7R/16V/K/X
<8,12,14,15,16,19> N_SMBCLK
<8,12,14,15,16,19> N_SMBDATA
SCL
SDA
SA0 SA1 SA2
<5> SBAA2 <5> SBAA1 <5> SBAA0
BA0 BA1 BA2
<5> CKEA1 <5> CKEA0
CKE0 CKE1
<5> -CSA1 <5> -CSA0
S0* S1*
<5> -DCLKA1 <5> DCLKA1
CK1/NU CK1/NU*
<5> -DCLKA0 <5> DCLKA0
CK0 CK0*
<5> MAAA[0..15]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12 A13 A14 A15
<5,8> -DDR3_RST
<5> -SCASA
<5> -SRASA
<5> -SWEA
RESET* CAS* RAS* WE*
DDR3/240/BK/VA/D
BLACK CONNECTOR

DDR3_2

DDRVTT
VTT 120 240
VSS 2 5 8 11 14 17 20 23 26 29 32 35 38 41 44 47 80 83 86 89 92 95 98 101 104 107 110 113 116 119 121 124 127 130 133 136 139 142 145 148 151 154 157 160 163 166 199 202 205 208 211 214 217 220 223 226 229 232 235 239
VDD 51 54 57 60 62 65 66 69 72 75 78 170 173 176 179 182 183 186 189 191 194 197
VDDSPD 236
VREFCA 67
VREFDQ 1
FREE 48 49 187 198
RSVD 79
ODT1 77
ODT0 195
MODT_A3
MODT_A2
NC/PAR_IN 68
NC/ERR_OUT 53
NC/TEST4 167
CB0 39
CB1 40
CB2 45
CB3 46
CB4 158
CB5 159
CB6 164
CB7 165
DQS0 7
DQS0* 6
DQSA0
-DQSA0
DQS1 16
DQS1* 15
DQSA1
-DQSA1
DQS2 25
DQS2* 24
DQSA2
-DQSA2
DQS3 34
DQS3* 33
DQSA3
-DQSA3
DQS4 85
DQS4* 84
DQSA4
-DQSA4
DQS5 94
DQS5* 93
DQSA5
-DQSA5
DQS6 103
DQS6* 102
DQSA6
-DQSA6
DQS7 112
DQS7* 111
DQSA7
-DQSA7
DQS8 43
DQS8* 42
DM0/DQS9 125
NC/DQS9* 126
DM1/DQS10 134
NC/DQS10* 135
DM2/DQS11 143
NC/DQS11* 144
DM3/DQS12 152
NC/DQS12* 153
DM4/DQS13 203
NC/DQS13* 204
DM5/DQS14 212
NC/DQS14* 213
DM6/DQS15 221
NC/DQS15* 222
DM7/DQS16 230
NC/DQS16* 231
DM8/DQS17 161
NC/DQS17* 162
DQ0 3
DQ1 4
DQ2 9
DQ3 10
DQ4 122
DQ5 123
DQ6 128
DQ7 129
DQ8 12
DQ9 13
DQ10 18
DQ11 19
DQ12 131
DQ13 132
DQ14 137
DQ15 138
DQ16 21
DQ17 22
DQ18 27
DQ19 28
DQ20 140
DQ21 141
DQ22 146
DQ23 147
DQ24 30
DQ25 31
DQ26 36
DQ27 37
DQ28 149
DQ29 150
DQ30 155
DQ31 156
DQ32 81
DQ33 82
DQ34 87
DQ35 88
DQ36 200
DQ37 201
DQ38 206
DQ39 207
DQ40 90
DQ41 91
DQ42 96
DQ43 97
DQ44 209
DQ45 210
DQ46 215
DQ47 216
DQ48 99
DQ49 100
DQ50 105
DQ51 106
DQ52 218
DQ53 219
DQ54 224
DQ55 225
DQ56 108
DQ57 109
DQ58 114
DQ59 115
DQ60 227
DQ61 228
DQ62 233
DQ63 234
MDA0 MDA1 MDA2 MDA3 MDA4 MDA5 MDA6 MDA7 MDA8 MDA9 MDA10 MDA11 MDA12 MDA13 MDA14 MDA15 MDA16 MDA17 MDA18 MDA19 MDA20 MDA21 MDA22 MDA23 MDA24 MDA25 MDA26 MDA27 MDA28 MDA29 MDA30 MDA31 MDA32 MDA33 MDA34 MDA35 MDA36 MDA37 MDA38 MDA39 MDA40 MDA41 MDA42 MDA43 MDA44 MDA45 MDA46 MDA47 MDA48 MDA49 MDA50 MDA51 MDA52 MDA53 MDA54 MDA55 MDA56 MDA57 MDA58 MDA59 MDA60 MDA61 MDA62 MDA63
MDA[0..63] <5>
DDR_15V
MC8 0.1u/4/X7R/16V/K/X
MC3 0.1u/4/X7R/16V/K/X
MC7 0.1u/4/X7R/16V/K/X
VDDSPD
VREF_DDRA
VREF_DQDDRA
未上件
<8,12,14,15,16,19> N_SMBCLK
<8,12,14,15,16,19> N_SMBDATA
SCL
SDA
SA0 SA1 SA2
<5> SBAA2 <5> SBAA1 <5> SBAA0
BA0 BA1 BA2
<5> CKEA3 <5> CKEA2
CKE0 CKE1
<5> -CSA3 <5> -CSA2
S0* S1*
<5> -DCLKA3 <5> DCLKA3
CK1/NU CK1/NU*
<5> -DCLKA2 <5> DCLKA2
CK0 CK0*
<5> MAAA[0..15]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12 A13 A14 A15
<5,8> -DDR3_RST
<5> -SCASA
<5> -SRASA
<5> -SWEA
RESET* CAS* RAS* WE*
DDR3/240/GR/VA/D
GRAY CONNECTOR

DDR3_VREF

DDR_15V
MR15 1K/4/1
MR14 1K/4/1
MR4 1K/4/1
MR5 1K/4/1
VREF_DDRA
VREF_DQDDRA
VREF_DQA <5>

DDR15V Decouple

DDR_15V
MEC1 560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]
MEC2 560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]

DDR_15V
MBC1 0.1u/4/X7R/16V/K
MBC2 0.1u/4/X7R/16V/K
MBC3 0.1u/4/X7R/16V/K
MBC24 0.1u/4/X7R/16V/K/X
MBC12 0.1u/4/X7R/16V/K
MBC14 0.1u/4/X7R/16V/K

DDR_15V
MBC15 1u/4/X5R/6.3V/K
MBC17 1u/4/X5R/6.3V/K
MBC27 1u/4/X5R/6.3V/K/X
MBC29 1u/4/X5R/6.3V/K/X
MBC35 1u/4/X5R/6.3V/K/X
MBC36 1u/4/X5R/6.3V/K
MBC37 1u/4/X5R/6.3V/K/X
MBC47 1u/4/X5R/6.3V/K/X
MBC9 1u/4/X5R/6.3V/K/X
未上件

DDRVTT Decouple

DDRVTT
MBC40 10u/6/X5R/6.3V/M

DDRVTT
MBC18 1u/4/X5R/6.3V/K
MBC10 0.1u/4/X7R/16V/K

Gigabyte Technology

Title: DDRIII CHANNEL A

Size: Custom | Document Number: GA-B85M-D3H-A | Rev: 1.0

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DDR3 (B)

DDR3_3

DDRVTT

DDR_15V

-DQSB[0..7] <5>

DQSB[0..7] <5>

MODT_B[0..3] <5>

未上件

MC2 0.1u/4/X7R/16V/K/X

MC14 0.1u/4/X7R/16V/K/X VREF_DDRB

MC9 0.1u/4/X7R/16V/K/X VREF_DQDDRB

<7,12,14,15,16,19> N_SMBCLK

<7,12,14,15,16,19> N_SMBDATA

VDDSPD

<5> SBAB2

<5> SBAB1

<5> SBAB0

<5> CKEB1

<5> CKEB0

<5> -CSB1

<5> -CSB0

<5> -DCLKB1

<5> DCLKB1

<5> -DCLKB0

<5> DCLKB0

<5> MAAB[0..15]

<5,7> -DDR3_RST

<5> -SCASB

<5> -SRASB

<5> -SWEB

MDB[0..63] <5>

DDR3/240/BK/VA/D

BLACK CONNECTOR

DDR3_1

未上件

MC12 0.1u/4/X7R/16V/K/X

MC15 0.1u/4/X7R/16V/K/X VREF_DDRB

MC13 0.1u/4/X7R/16V/K/X VREF_DQDDRB

DDR3/240/GR/VA/D

GRAY CONNECTOR

DDR3_VREF

DDR_15V

MR10 1K/4/1

MR11 1K/4/1

MR8 1K/4/1

MR9 1K/4/1

VREF_DDRB

VREF_DQDDRB

VREF_DQB <5>

COUPON

COUPON1 COUPON1 1 2 COUPON/X

COUPON2 COUPON2 1 2 COUPON/X

CPU

DIMM4 (黑)

DIMM2 (灰)

CHA

DIMM3 (黑)

DIMM1 (灰)

CHB

Gigabyte Technology

Title: DDRIII CHANNEL B

Size: Custom | Document Number: GA-B85M-D3H-A | Rev: 1.0

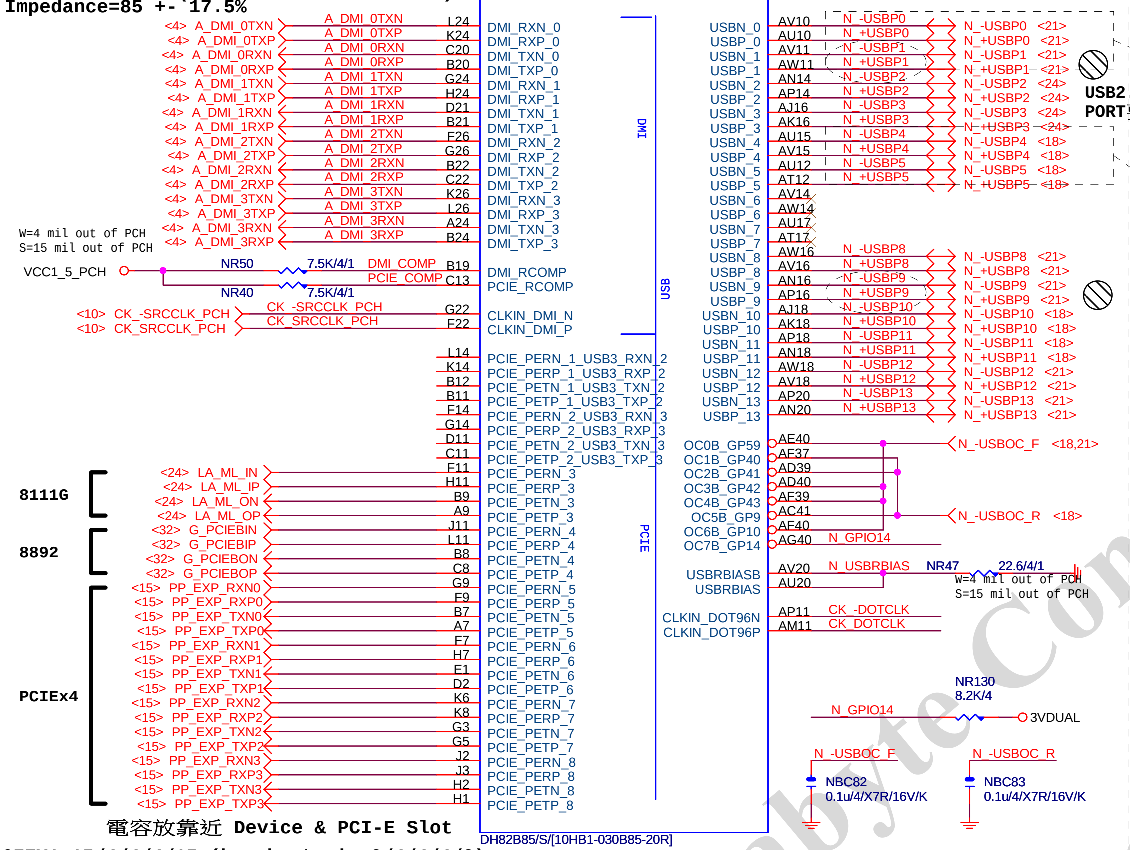
Date: | Sheet 8 of 32

PCH (B)

PORT1,PORT9[DEBUG PORT]FOR WHQL 一定要拉出PORT

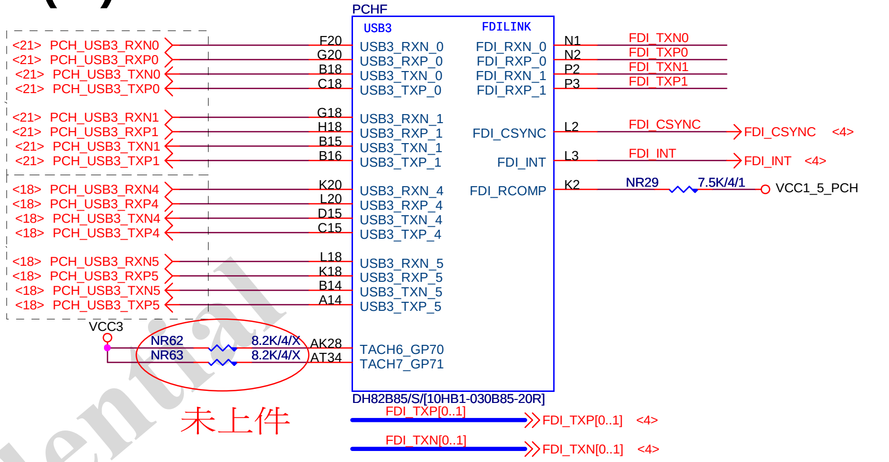
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

B85: Port 6/7 N/A
H81: Port 6/7/12/13 N/A



PCIEX1:15/4/4/4/15 (breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

PCH (F)



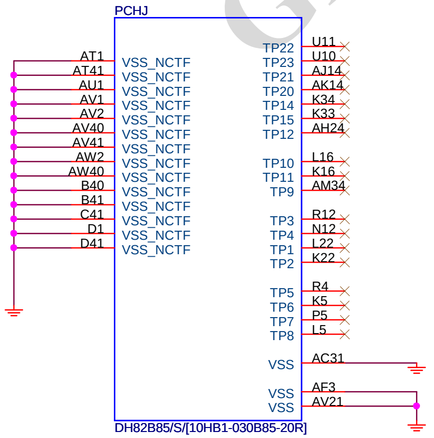
USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

PCH CLK PD

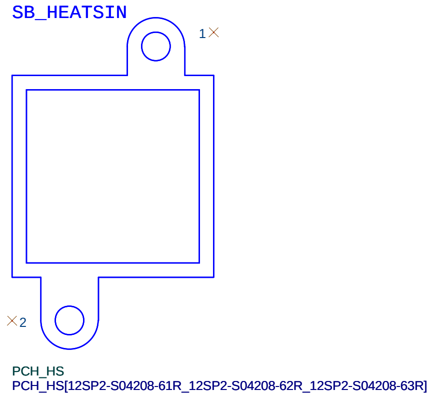
PCH (J)

PCH PCIE ,DMI 15/4/4/4//15

usb2.0 12/5/7/5//12
usb3.0 20/5/7/5//20



PCH H/S



USB TABLE

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

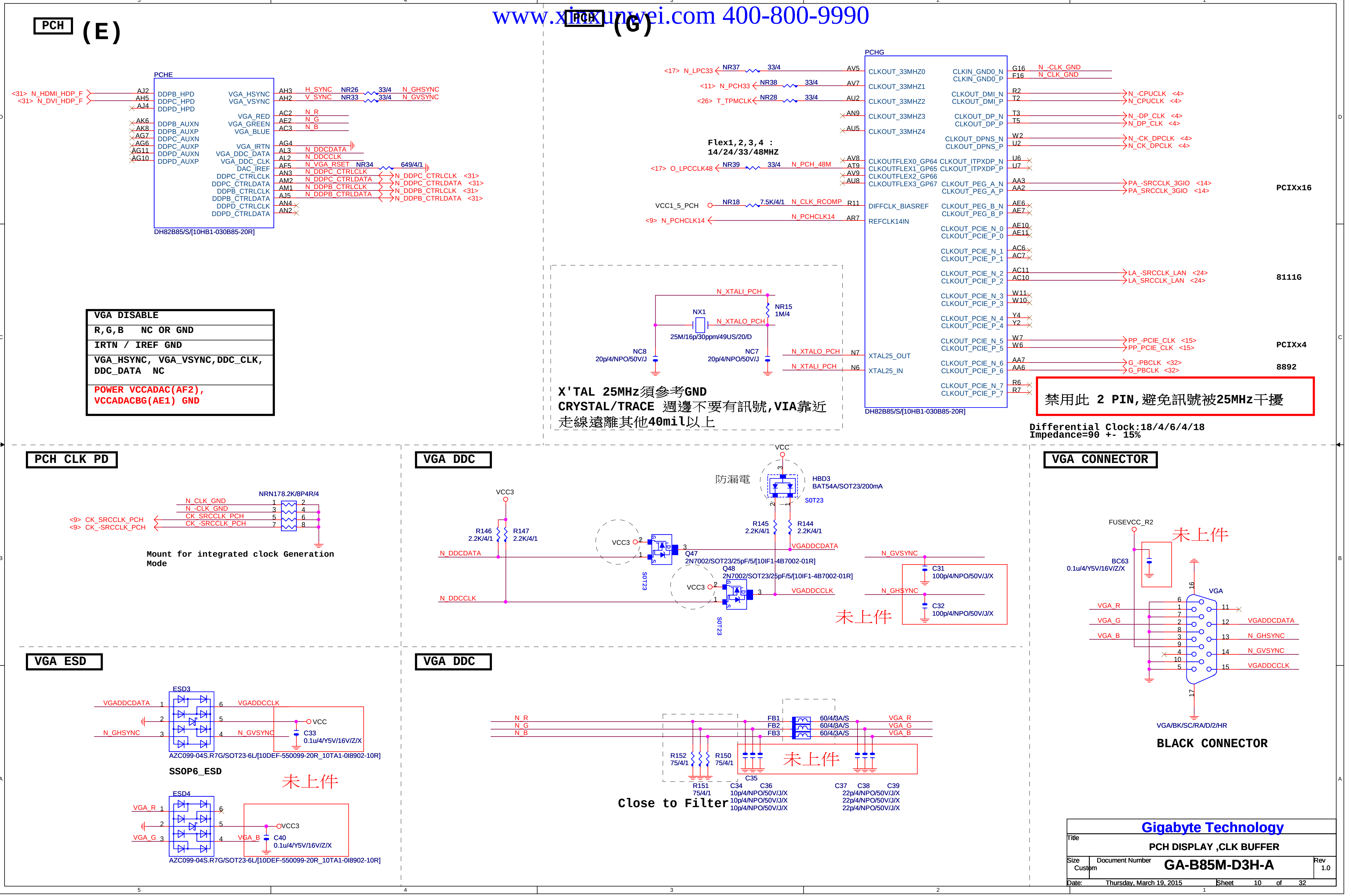
USB OC# Configure	
OC0#	F_USB30
OC1#	R_USB30
OC2#	USB30_LAN
OC3#	F_USB3
OC4#	F_USB2
OC5#	KB_MS_USB
OC6#	F_USB1
OC7#	Not Use

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE,NVRAM

Size: Custom | Document Number: GA-B85M-D3H-A | Rev 1.0

Date: Thursday, March 19, 2015 | Sheet 9 of 32



www.xinxunwei.com 400-800-9990
PCH (E)
PCH (G)
VGA DISABLE
R,G,B NC OR GND
IRTN / IREF GND
VGA_HSYNC, VGA_VSYNC,DDC_CLK,
DDC_DATA NC
POWER VCCADAC(AF2),
VCCADACBG(AE1) GND
Flex1,2,3,4 :
14/24/33/48MHZ
X'TAL 25MHz須參考GND
CRYSTAL/TRACE 週邊不要有訊號,VIA靠近
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%
PCIXx16
8111G
PCIXx4
8892
PCH CLK PD
Mount for integrated clock Generation Mode
VGA DDC
防漏電
未上件
VGA CONNECTOR
BLACK CONNECTOR
VGA ESD
SSOP6_ESD
Close to Filter
Gigabyte Technology
Title
PCH DISPLAY ,CLK BUFFER
Size Custom
Document Number
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PCH (C)

H97 N/A

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

PCHC

CLINK: CL_CLK (U36), CL_DATA (U35), CL_RSTB (U34)
APWROK ← N_ME_PWROK (AA32)
FAN: PWM0 (AL31), PWM1 (AM31), PWM2 (AP31), PWM3 (AV30)
GPIO: TACH0_GP17 (AP28) ← N_GPIO17; TACH1_GP1 (AT31) ← N_GPIO1 <18>; TACH2_GP6 (AM28) ← N_GPIO6; TACH3_GP7 (AV34) ← N_GPIO7; TACH4_GP68 (AT30) ← N_GPIO68; TACH5_GP69 (AV35)
SSTCTL (AJ31) ← N_SSTCTL <17>
SCLOCK_GP22 (L38) ← N_GPIO22; SLOAD_GP38 (H41) ← N_GPIO38; SDATAOUT0_GP39 (R31) ← N_GPIO39 <12>; SDATAOUT1_GP48 (L40) ← N_GPIO48

SATA_RXN_0 (B28) → N_SATA0RXN; SATA_RXP_0 (A28) → N_SATA0RXP; SATA_TXN_0 (F31) → N_SATA0TXN; SATA_TXP_0 (H31) → N_SATA0TXP
SATA_RXN_1 (D30) → N_SATA1RXN; SATA_RXP_1 (C30) → N_SATA1RXP; SATA_TXN_1 (B34) → N_SATA1TXN; SATA_TXP_1 (C34) → N_SATA1TXP
SATA_RXN_2 (A31) → N_SATA2RXN; SATA_RXP_2 (B31) → N_SATA2RXP; SATA_TXN_2 (B35) → N_SATA2TXN; SATA_TXP_2 (D35) → N_SATA2TXP
SATA_RXN_3 (B32) → N_SATA3RXN; SATA_RXP_3 (C32) → N_SATA3RXP; SATA_TXN_3 (G33) → N_SATA3TXN; SATA_TXP_3 (F33) → N_SATA3TXP
SATA_RXN_4_PCIE_PERN_1 (A26) → N_SATA4RXN; SATA_RXP_4_PCIE_PERP_1 (B26) → N_SATA4RXP; SATA_TXN_4_PCIE_PETN_1 (L28) → N_SATA4TXN; SATA_TXP_4_PCIE_PETP_1 (K28) → N_SATA4TXP
SATA_RXN_5_PCIE_PERN_2 (C27) → N_SATA5RXN; SATA_RXP_5_PCIE_PERP_2 (B27) → N_SATA5RXP; SATA_TXN_5_PCIE_PETN_2 (G28) → N_SATA5TXN; SATA_TXP_5_PCIE_PETP_2 (F28) → N_SATA5TXP
CLKIN_SATA_N (H35) → CK_-SRCCLK_SATA; CLKIN_SATA_P (H36) → CK_SRCCLK_SATA

SATALEDB (J39) → N_-SATALED <21>
SATA_RCOMP (D33) → SATA3COMP; NR68 7.5K/4/1 → VCC1_5_PCH
SATA0GP_GP21 (M37) → N_GPIO21 ↔ N_GPIO21 <26>
SATA1GP_GP19 (J40) → N_GPIO19
SATA2GP_GP36 (H40)
SATA3GP_GP37 (N41) → N_GPIO37 → N_GPIO37 <12>
SATA4GP_GP16 (M39) → N_GPIO16
SATA5GP_GP49 (N40) → N_GPIO49

EDP_BKLTCTL (AP2)
EDP_BKLTEN (AT2)
EDP_VDDEN (AP1)

HOST: RSVD (N30) → N_A20GATE → N_A20GATE <17>; RCINB (K36) → N_-KBRST → N_-KBRST <17>; SERIRQ (G39) → N_SERIRQ → N_SERIRQ <17,26>; THRMTRIPB (C40) → N_-THRMTRIP → N_-THRMTRIP <4>; PECI (G40) → SB_PECI NR85 0/4/X → A_PECI <4,17>; PM_SYNCH (F40) → A_PMSYNC <4>; PLTRST_PROCB (F41) → A_-CPURST <4>

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

GPIO37 PU VCC3 ENABLE SBA
For H87&B85

PCH (A)

PCHA

N_PCH33 → AA31 PMEB; AM22 CLKIN_33MHZLOOPBACK
PLTRSTB (AA37) → N_-PFMRST <17>
GP35/NMIB (M40) → N_GPIO35
GP50 (AH26) → N_GPIO50
GP51 (AU31)
GP52 (AJ26) → N_GPIO52
GP53 (AV31)
GP54 (AW33) → N_GPIO54
GP55 (R30) → N_GPIO55
TP16 (A2), TP17 (A3), TP18 (B2), TP19 (B1), TD_IREF (C3) ← NR30 8.2K/4 ← TD_IREF
N_-PIRQA (AU29), N_-PIRQB (AU27), N_-PIRQC (AW28), N_-PIRQD (AV27) → PIRQAB, PIRQBB, PIRQCB, PIRQDB
N_-PIRQE (AR30), N_-PIRQF (AV29), N_-PIRQG (AV28), N_GPIO5 (AT27) → GPIO2, GPIO3, GPIO4, GPIO5

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

PCH CLK PD

CK_SRCCLK_SATA NR174 8.2K/4
CK_-SRCCLK_SATA NR173 8.2K/4
Mount for integrated clock Generation Mode

PCH PU/PD

NRN2 8.2K/8P4R/4 VCC3: N_-PIRQC, N_GPIO5, N_-PIRQD, N_-PIRQB
NRN3 8.2K/8P4R/4: N_-PIRQE, N_-PIRQF, N_-PIRQA, N_-PIRQG
NRN7 8.2K/8P4R/4 VCC3: N_GPIO6, N_GPIO17, N_GPIO50, N_GPIO52
NRN11 8.2K/8P4R/4 VCC3: N_GPIO48, N_GPIO16, N_GPIO35
NRN12 8.2K/8P4R/4: N_SERIRQ, N_GPIO38, N_GPIO19, N_GPIO22
PCIE/MSATA MUX SELECT
MFG MODE
NRN13 8.2K/8P4R/4: N_GPIO49, N_-PCI_STOP <12>, N_A20GATE, N_GPIO55
PCH CONFIG
NRN18 8.2K/8P4R/4: N_GPIO0 <12>, N_-KBRST, N_GPIO21
GFX SELECT
DMI RX TERMINATION
GFX SELECT
DMI RX TERMINATION
SV_DETECT
NRN4 8.2K/8P4R/4 VCC3: N_GPIO68, N_GPIO1, N_GPIO54, N_GPIO7

SATA CONNECTOR

SATA3_0_1
SATA/14/WH/H/OP/RA/D/2

H81 Port 2/3 N/A

SATA3_2
SATA2/7/WH/H/OP/VA/D/1/B/PA66

SATA3_3
SATA2/7/WH/H/OP/VA/D/1/B/PA66

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

SATA2_0
SATA2/7/BK/H/OP/VA/D/1/B

SATA2_1
SATA2/7/BK/H/OP/VA/D/1/B

ME PWROK

Z97 N/A

VCC3_ME
ND2 BAT54A/SOT23/200mA
<12,30> N_SLP_A
VCC1_05_ME
NR187 MASK/0/4/SHT/M/X
NR189 8.2K/4
VCC3_ME
NR190 8.2K/4/X
NC50 1u/4/X5R/6.3V/K
3VDUAL
NR188 22K/4
NR186 8.2K/4
N_ME_PWROK
NQ15
S0T23 MMBT2222A/SOT23/600mA/40
NC49 0.01u/4/X7R/25V/K
S0T23 NQ16 MMBT2222A/SOT23/600mA/40

GPIO38 Ctrl

Gigabyte Technology

Title: PCH HOST , SATA, PCI
Size: Custom
Document Number: GA-B85M-D3H-A
Rev: 1.0
Date: Thursday, March 19, 2015
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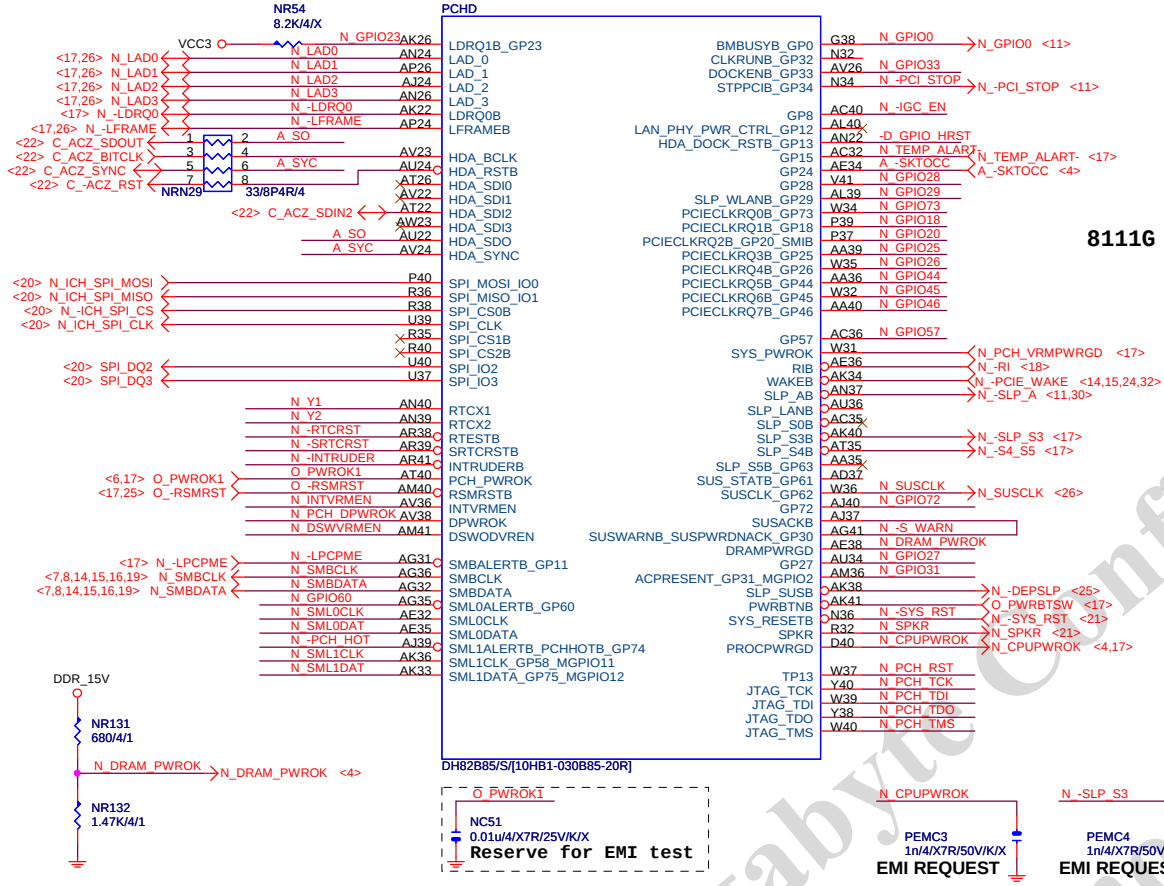
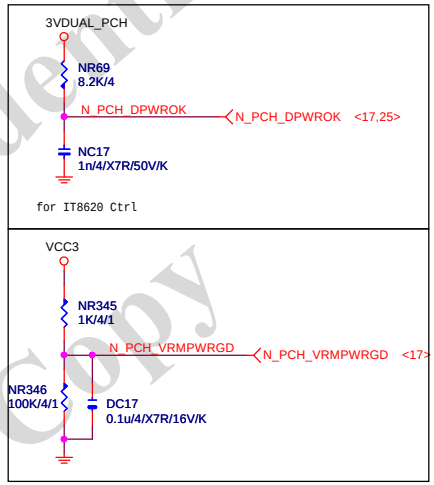
PCH (D)

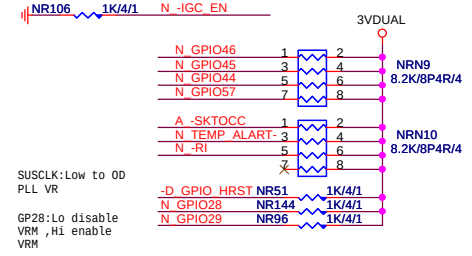


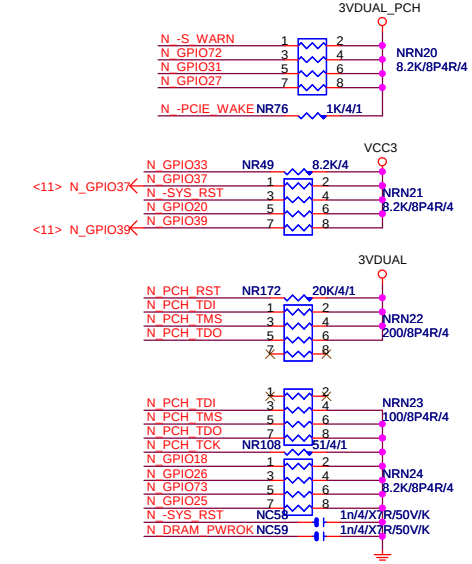
ACZ_SDOUT

PCH_DPWROK



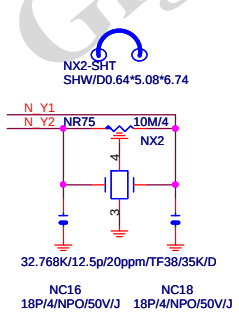
PCH_PU/PD



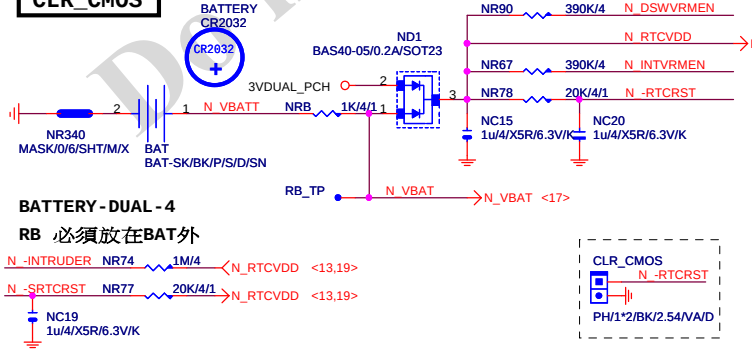


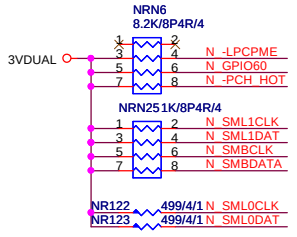
HSW_STRAP13

32.768KHZ



CLR_CMOS





Gigabyte Technology			
Title: PCH GPIO , CTRL , AUDIO			
Size: Custom	Document Number: GA-B85M-D3H-A		Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 12 of 32		

PCH (H)

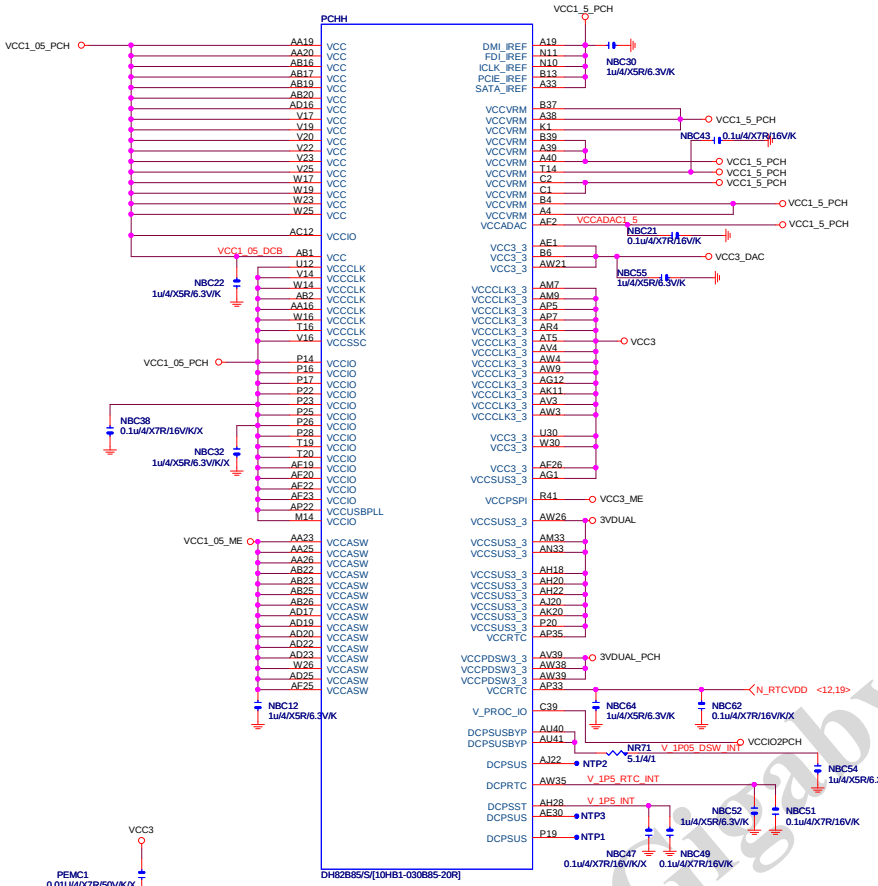
VCC3_DAC

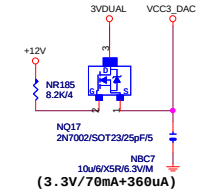
CLOSE北橋(注意震盪水波紋)

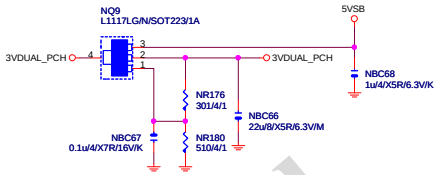
3VDUAL_PCH

SHT PWR

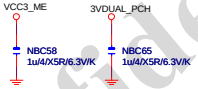
H97 N/A MASK
R1.0
SHORT WIRE
[Z97]



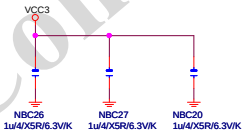




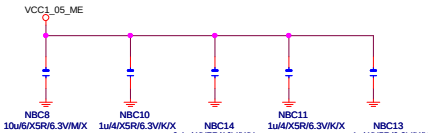
CAP



(3.3V)(X6)

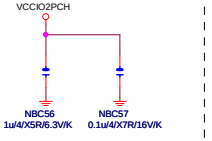


(1.05V)(X5)

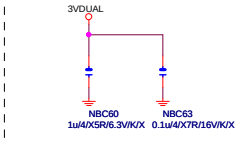


(1.05V)(X6)

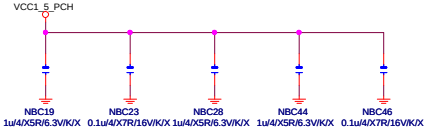
(1.05V)(X2)



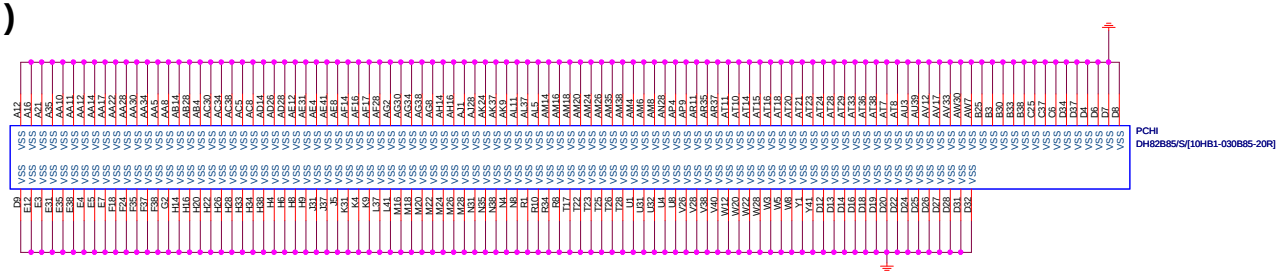
(3.3V)(X2)



(1.05V)(X10)

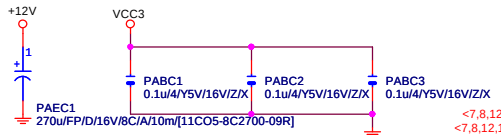


PCH (I)

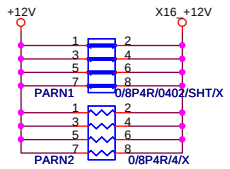


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-B85M-D3H-A		Rev: 1.0
Date: Thursday, March 19, 2015		Sheet 13 of 32	

PCIEX16 CAP



PCIEX16 PROTECT SHT



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

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>

PCIEX16 SLOT

PCIESLOT-164DN-Q-1

3GIO_*16

PCIEX16

X16_+12V	B1	12V	
X16_+12V	B2	12V	
	B3	RSVD	
PAR3 MASK/0/4/SHT/M/X	B4	GND	
<7,8,12,15,16,19> N_SMBCLK	B5	SMCLK	
<7,8,12,15,16,19> N_SMBDATA	B6	SMDAT	
	B7	GND	
3VDUAL	B8	3.3V	
VCC3	B9	JTAG1	
	B10	3.3VAUX	
<12,15,24,32> N_-PCIE_WAKE	B11	WAKE*	
		KEY	
	B12	RSVD	
	B13	GND	
PA_EXP_TXP0_C	B14	HSOP0	
PA_EXP_TXN0_C	B15	HSON0	
	B16	GND	
	B17	PRSNT2*	
	B18	GND	
PA_EXP_TXP1_C	B19	HSOP1	
PA_EXP_TXN1_C	B20	HSON1	
	B21	GND	
	B22	GND	
PA_EXP_TXP2_C	B23	HSOP2	
PA_EXP_TXN2_C	B24	HSON2	
	B25	GND	
	B26	GND	
PA_EXP_TXP3_C	B27	HSOP3	
PA_EXP_TXN3_C	B28	HSON3	
	B29	GND	
	B30	RSVD	
	B31	PRSNT2*	
	B32	GND	
PA_EXP_TXP4_C	B33	HSOP4	
PA_EXP_TXN4_C	B34	HSON4	
	B35	GND	
	B36	GND	
PA_EXP_TXP5_C	B37	HSOP5	
PA_EXP_TXN5_C	B38	HSON5	
	B39	GND	
	B40	GND	
PA_EXP_TXP6_C	B41	HSOP6	
PA_EXP_TXN6_C	B42	HSON6	
	B43	GND	
	B44	GND	
PA_EXP_TXP7_C	B45	HSOP7	
PA_EXP_TXN7_C	B46	HSON7	
	B47	GND	
	B48	PRSNT2*	
	B49	GND	
PA_EXP_TXP8_C	B50	HSOP8	
PA_EXP_TXN8_C	B51	HSON8	
	B52	GND	
	B53	GND	
PA_EXP_TXP9_C	B54	HSOP9	
PA_EXP_TXN9_C	B55	HSON9	
	B56	GND	
	B57	GND	
PA_EXP_TXP10_C	B58	HSOP10	
PA_EXP_TXN10_C	B59	HSON10	
	B60	GND	
	B61	GND	
PA_EXP_TXP11_C	B62	HSOP11	
PA_EXP_TXN11_C	B63	HSON11	
	B64	GND	
	B65	GND	
PA_EXP_TXP12_C	B66	HSOP12	
PA_EXP_TXN12_C	B67	HSON12	
	B68	GND	
	B69	GND	
PA_EXP_TXP13_C	B70	HSOP13	
PA_EXP_TXN13_C	B71	HSON13	
	B72	GND	
	B73	GND	
PA_EXP_TXP14_C	B74	HSOP14	
PA_EXP_TXN14_C	B75	HSON14	
	B76	GND	
	B77	GND	
PA_EXP_TXP15_C	B78	HSOP15	
PA_EXP_TXN15_C	B79	HSON15	
	B80	GND	
	B81	PRSNT2*	
	B82	RSVD	

	A1	PRSNT1*	X16_+12V
	A2	12V	X16_+12V
	A3	12V	
PAR1 MASK/0/4/SHT/M/X	A4	GND	
	A5	JTAG2	
	A6	JTAG3	
	A7	JTAG4	
PAR2 MASK/0/4/SHT/M/X	A8	JTAG5	
VCC3	A9	3.3V	
	A10	3.3V	
-PCIE_RST <15,17,32>	A11	PWRGD	
	A12	GND	
PA_SRCCLK_3GIO <10>	A13	REFCLK+	
PA_-SRCCLK_3GIO <10>	A14	REFCLK-	
	A15	GND	
PA_EXP_RXP0	A16	HSIP0	
PA_EXP_RXN0	A17	HSIN0	
	A18	GND	
	A19	RSVD	
PA_EXP_RXP1	A20	GND	
PA_EXP_RXN1	A21	HSIP1	
	A22	HSIN1	
	A23	GND	
PA_EXP_RXP2	A24	GND	
PA_EXP_RXN2	A25	HSIP2	
	A26	HSIN2	
	A27	GND	
PA_EXP_RXP3	A28	GND	
PA_EXP_RXN3	A29	HSIP3	
	A30	HSIN3	
	A31	GND	
	A32	RSVD	
	A33	RSVD	
PA_EXP_RXP4	A34	GND	
PA_EXP_RXN4	A35	HSIP4	
	A36	HSIN4	
	A37	GND	
PA_EXP_RXP5	A38	GND	
PA_EXP_RXN5	A39	HSIP5	
	A40	HSIN5	
	A41	GND	
PA_EXP_RXP6	A42	GND	
PA_EXP_RXN6	A43	HSIP6	
	A44	HSIN6	
	A45	GND	
PA_EXP_RXP7	A46	GND	
PA_EXP_RXN7	A47	HSIP7	
	A48	HSIN7	
	A49	GND	
	A50	RSVD	
PA_EXP_RXP8	A51	GND	
PA_EXP_RXN8	A52	HSIP8	
	A53	HSIN8	
	A54	GND	
PA_EXP_RXP9	A55	GND	
PA_EXP_RXN9	A56	HSIP9	
	A57	HSIN9	
	A58	GND	
PA_EXP_RXP10	A59	GND	
PA_EXP_RXN10	A60	HSIP10	
	A61	HSIN10	
	A62	GND	
PA_EXP_RXP11	A63	GND	
PA_EXP_RXN11	A64	HSIP11	
	A65	HSIN11	
	A66	GND	
PA_EXP_RXP12	A67	GND	
PA_EXP_RXN12	A68	HSIP12	
	A69	HSIN12	
	A70	GND	
PA_EXP_RXP13	A71	GND	
PA_EXP_RXN13	A72	HSIP13	
	A73	HSIN13	
	A74	GND	
PA_EXP_RXP14	A75	GND	
PA_EXP_RXN14	A76	HSIP14	
	A77	HSIN14	
	A78	GND	
PA_EXP_RXP15	A79	GND	
PA_EXP_RXN15	A80	HSIP15	
	A81	HSIN15	
	A82	GND	

-PCIE_RST → PAC1 33p/4/NPO/50V/J/X

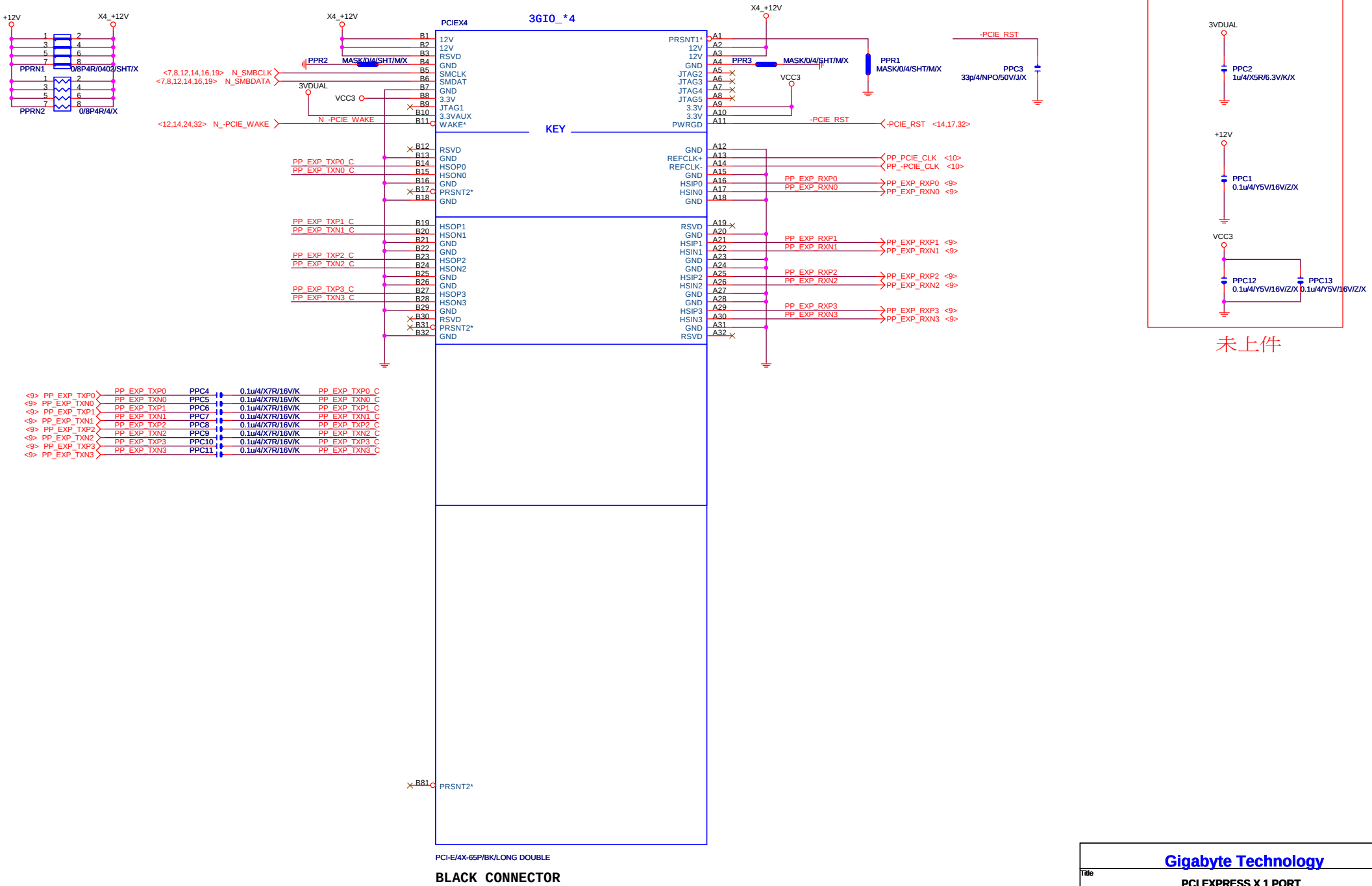
PCI-E/16X-164P/BK/LONG DOUBLE

BLACK CONNECTOR

Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-B85M-D3H-A		Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 14 of 32		

PCIEX4 SLOT

PCIESLOT-64D-98D-P



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Gigabyte Technology			
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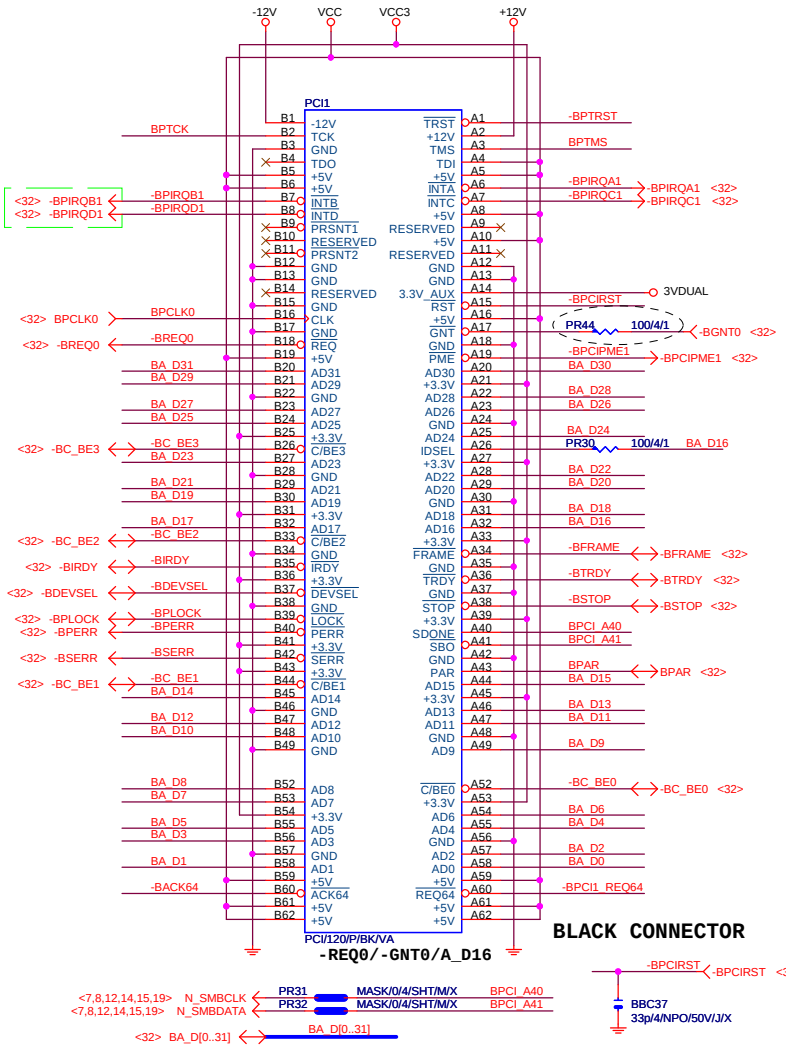
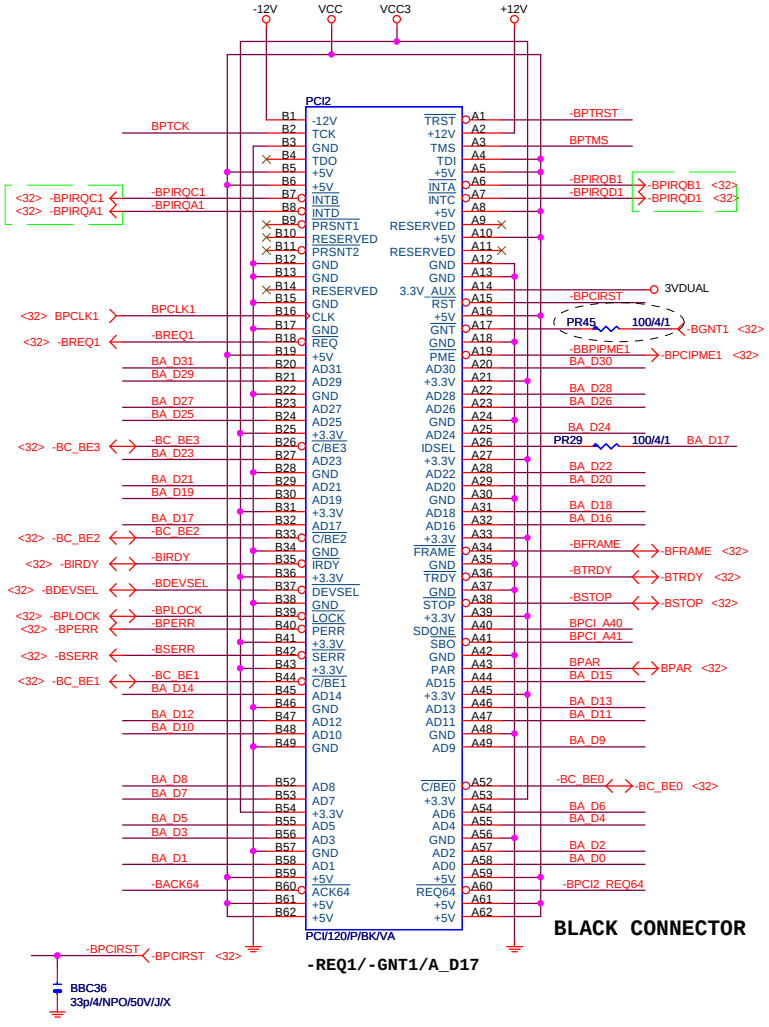
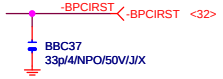
Size: Custom	Document Number: GA-B85M-D3H-A		Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 15 of 32		

PCI SLOT 1



PCI SLOT 2





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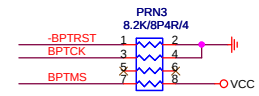
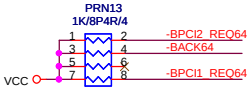
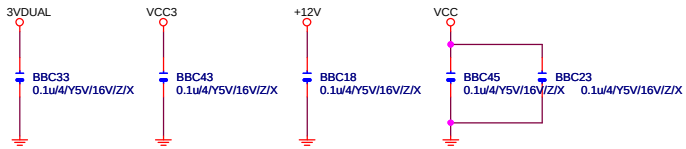
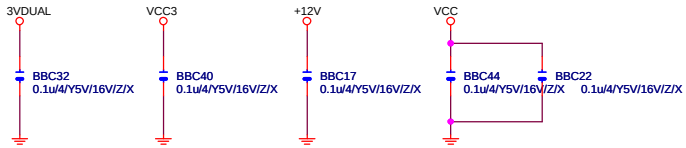




PCI CAP





Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
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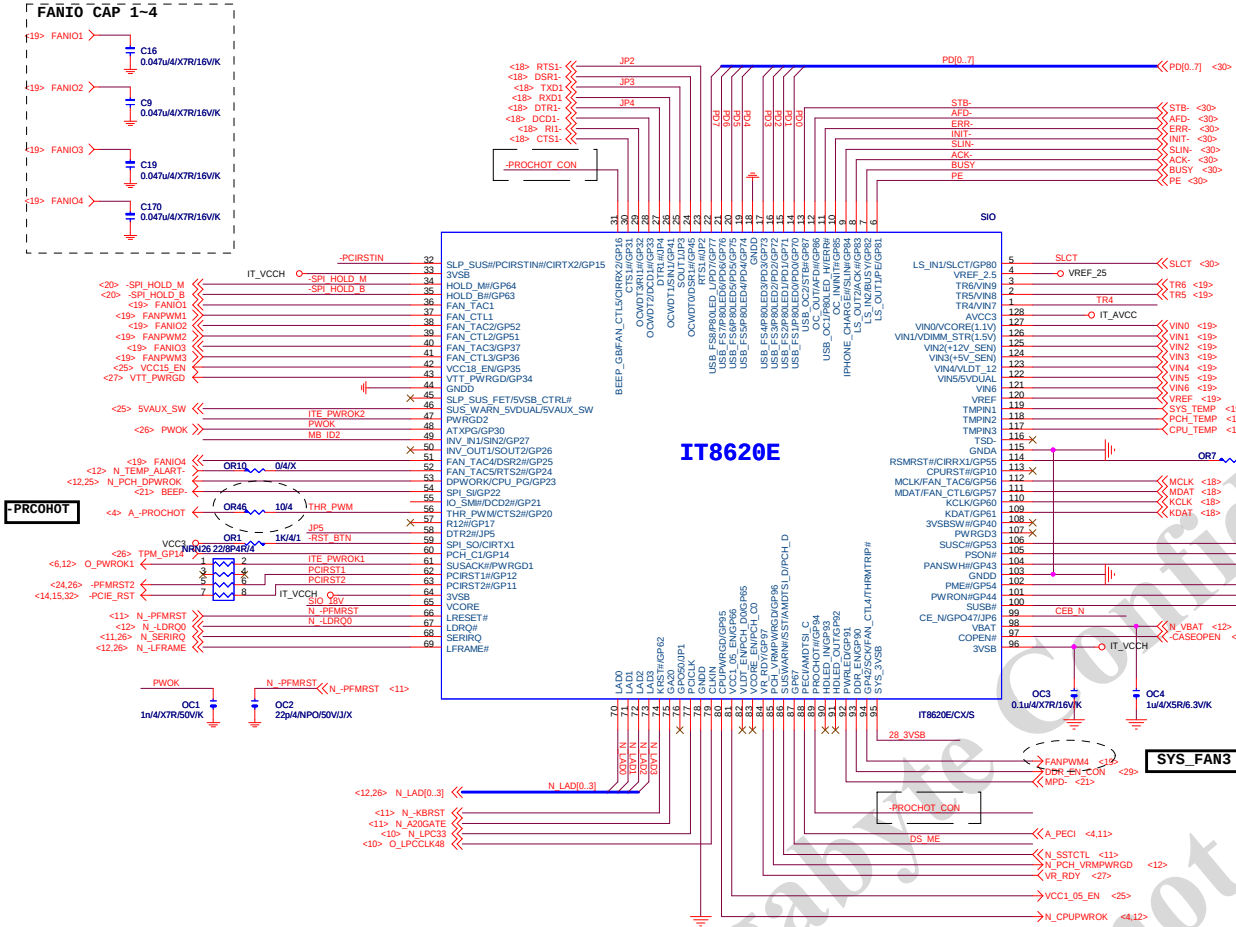
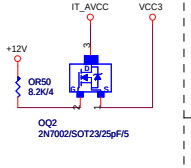
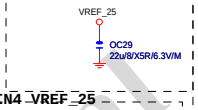
SIO IT8620

FANIO CAP 1~4

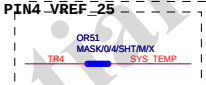


PIX ATX 插拔漏電



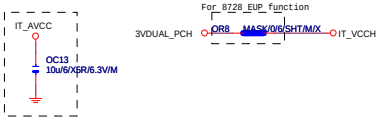


CLOSE SIO PIN4 VREF_25

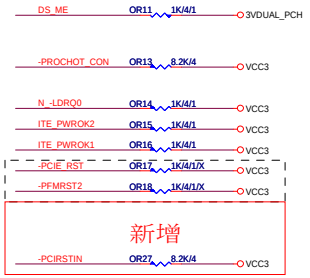


FOR SYS_FAN3確認SYS_TEMP

PWR SHT

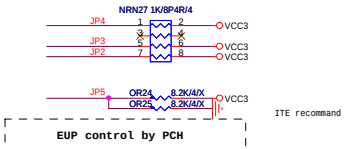


SIO PU



DO8:N/A

SIO STRAP



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

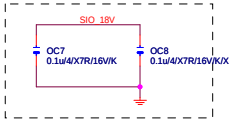
IT8620E GPIO問題匯整	
PIN 50	GP26--- 第一次換上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FANG FUNCTION 擇一使用,不然會互相干擾

DUAL BIOS OPT STRAP

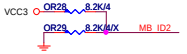
Power leakage N/A

SIO_18V

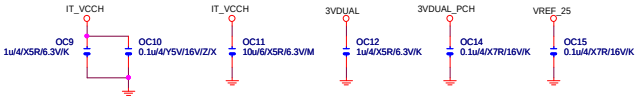
internal power pin, max 22nF cap

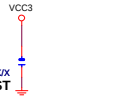


MB ID



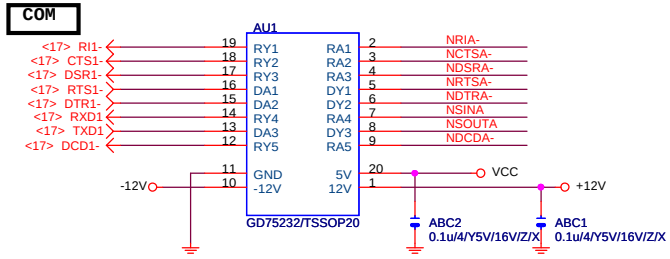
SIO CAP

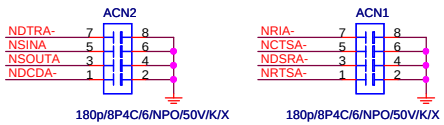


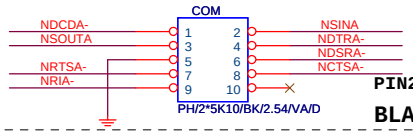


Gigabyte Technology	
Title	ITE 8728 LPC IO
Size C	Document Number GA-B85M-D3H-A Rev 1.0
Date: Thursday, March 19, 2015	Sheet 17 of 32

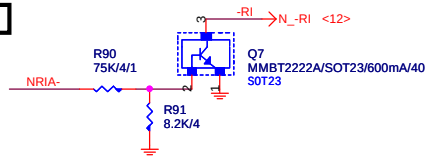
COM



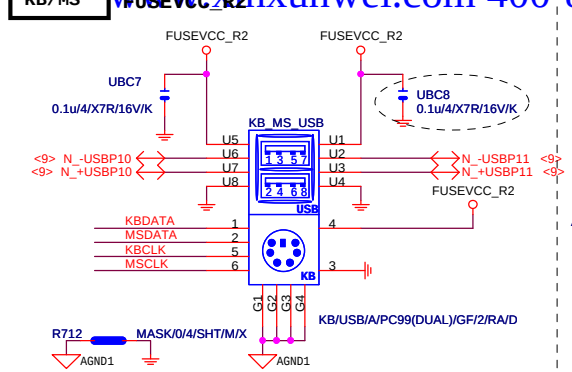


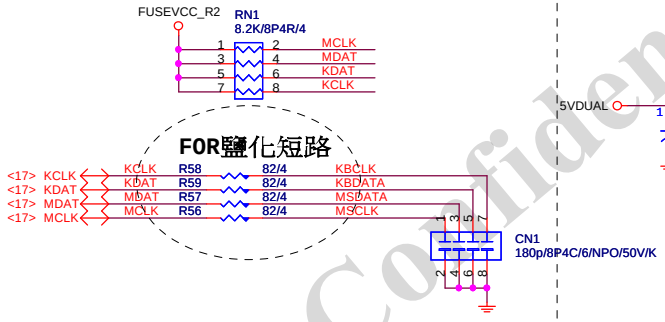


COM RI

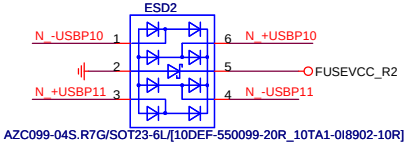


KB/MS



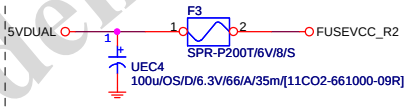


USB2.0 ESD



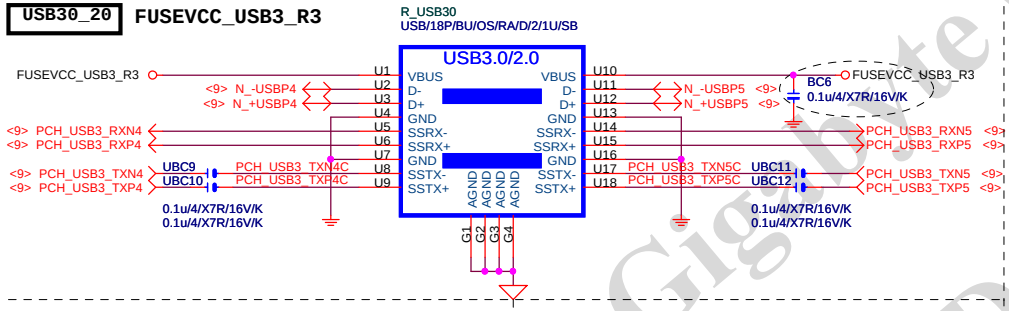
USB2.0 PWR

FUSE-0805



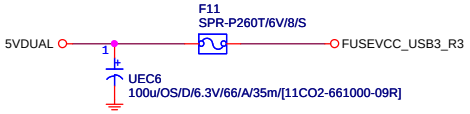
Close to connector

USB30_20 FUSEVCC_USB3_R3



USB30_20 PWR

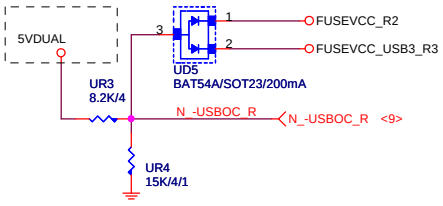
Polyswitch-1206



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

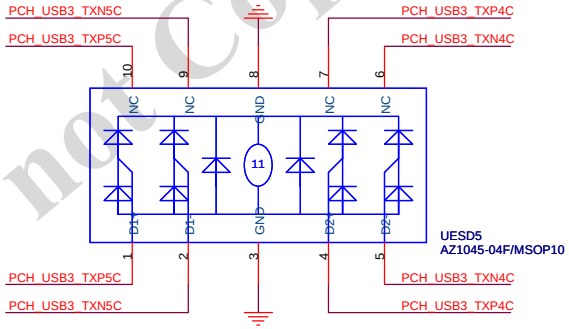
-USBOC_R

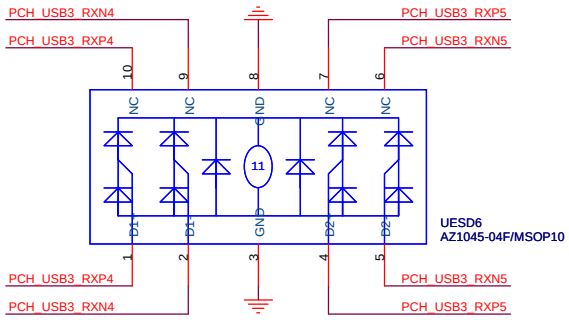
COSTDOWN:5VDUAL-->FUSEVCC_R2



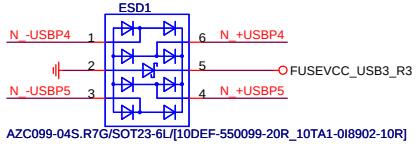
USB30_20 ESD PROCTECT

USB3.0 ESD

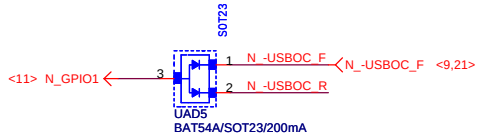




USB2.0 ESD



USB POWER PROTECT



Gigabyte Technology

Title	COM,-RI,KB_USB,USB_ESATA,-PROCHOT	
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
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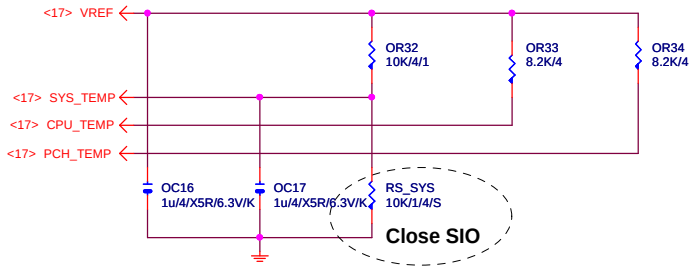
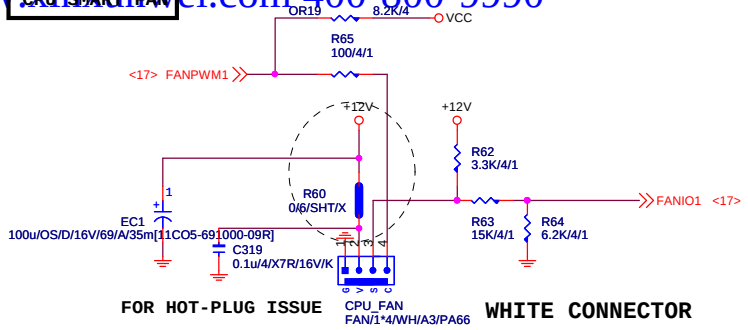
TEMP H/W MONITOR



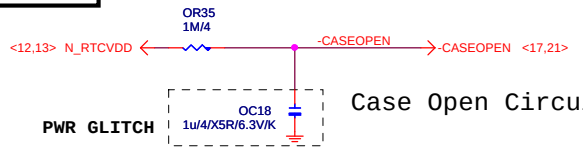
CPU SMART FAN



FOR HOT-PLUG ISSUE

WHITE CONNECTOR

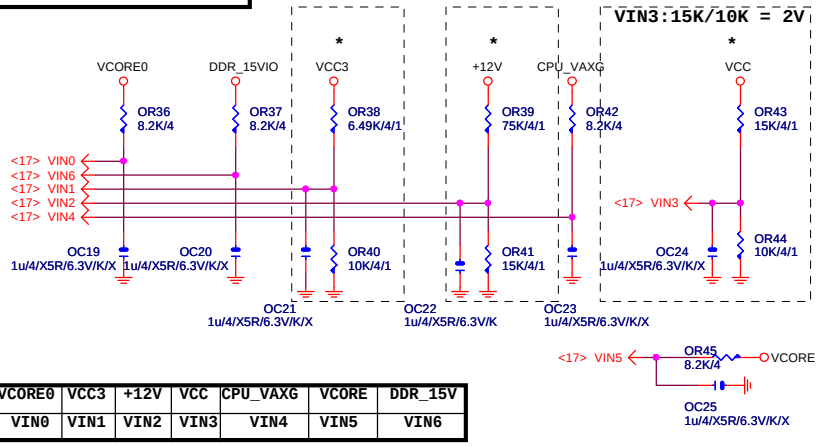
CASE OPEN



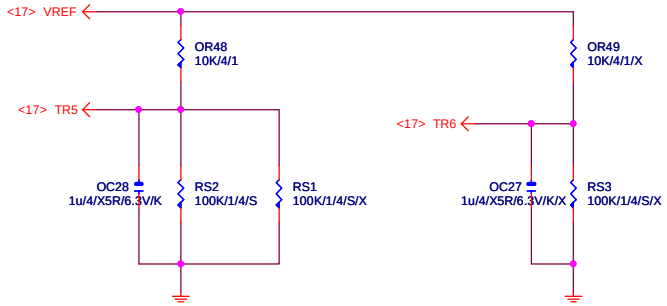
VOLTAGE-- H/W MONITOR

VIN2:75K/15K = 2V

VIN3:15K/10K = 2V

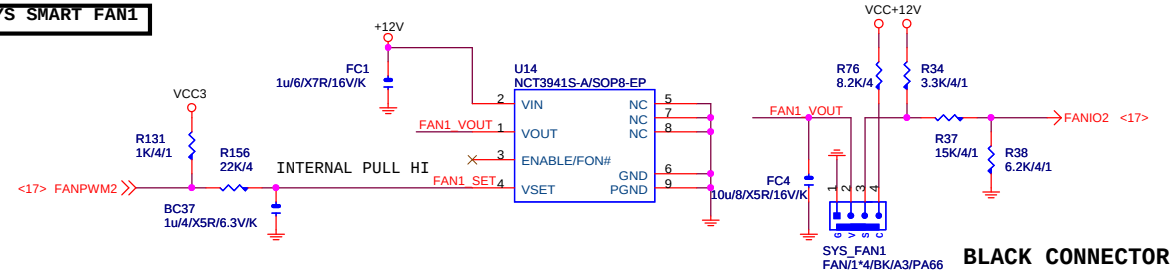


VCORE0	VCC3	+12V	VCC	CPU_VAXG	VCORE	DDR_15V
VIN0	VIN1	VIN2	VIN3	VIN4	VIN5	VIN6



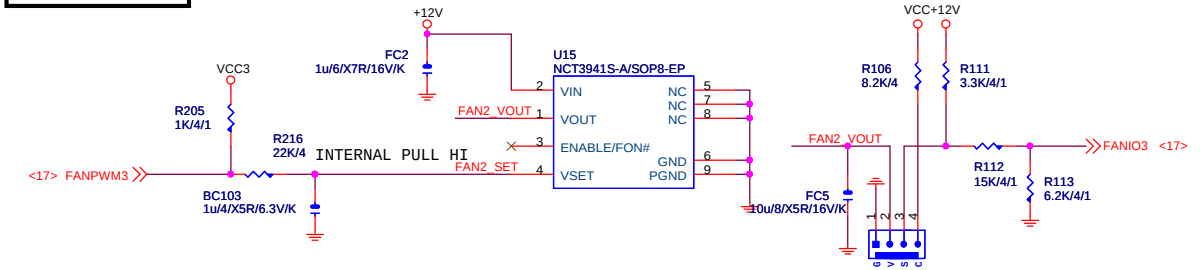
RS1、RS2、RS3 CLOSE CPU VR MOSFET

SYS SMART FAN1



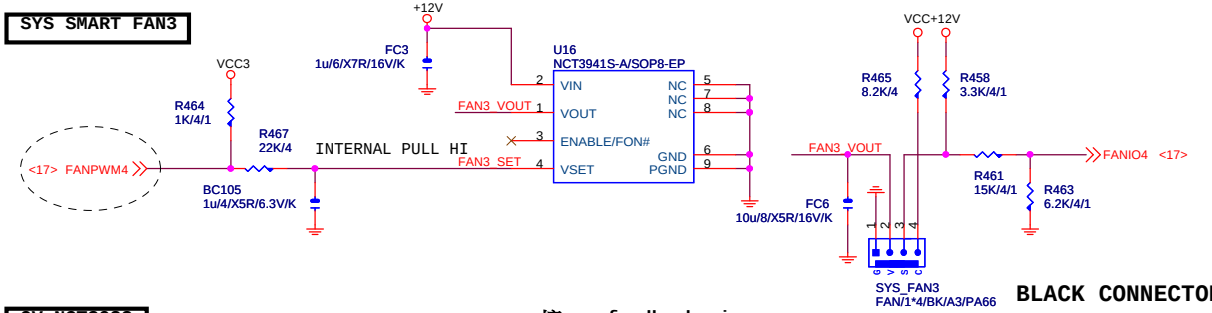
BLACK CONNECTOR

SYS SMART FAN2



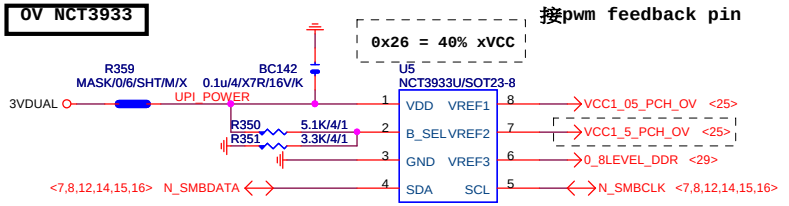
BLACK CONNECTOR

SYS SMART FAN3



BLACK CONNECTOR

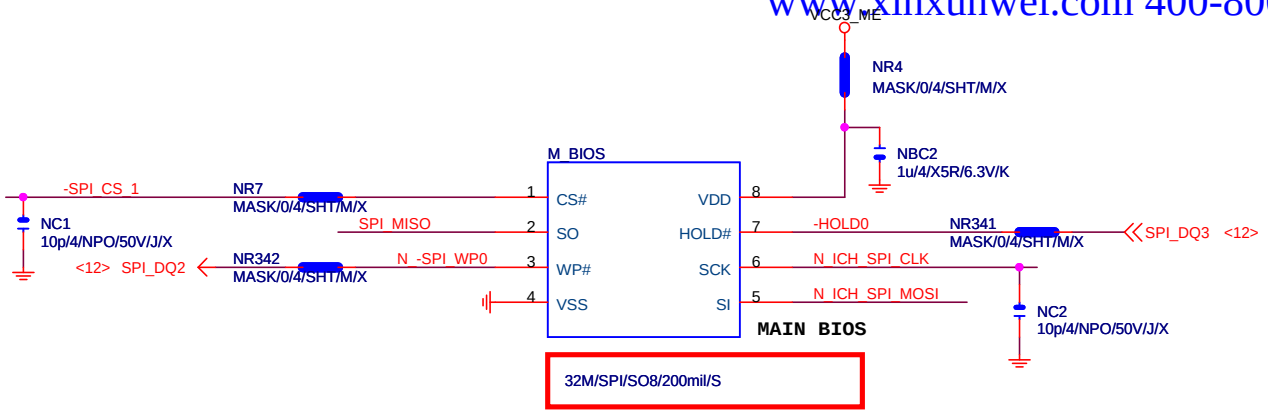
OV NCT3933

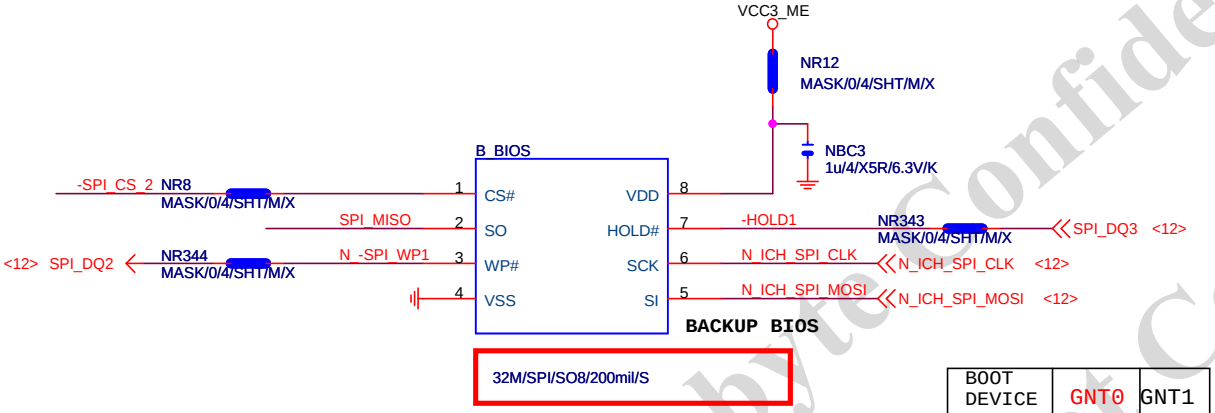


Gigabyte Technology	
Title	HWM,FAN CTRL,OV
Size: Custom	Document Number: GA-B85M-D3H-A
Rev: 1.0	
Date: Thursday, March 19, 2015	Sheet 19 of 32

BIOS DEBUG PORT

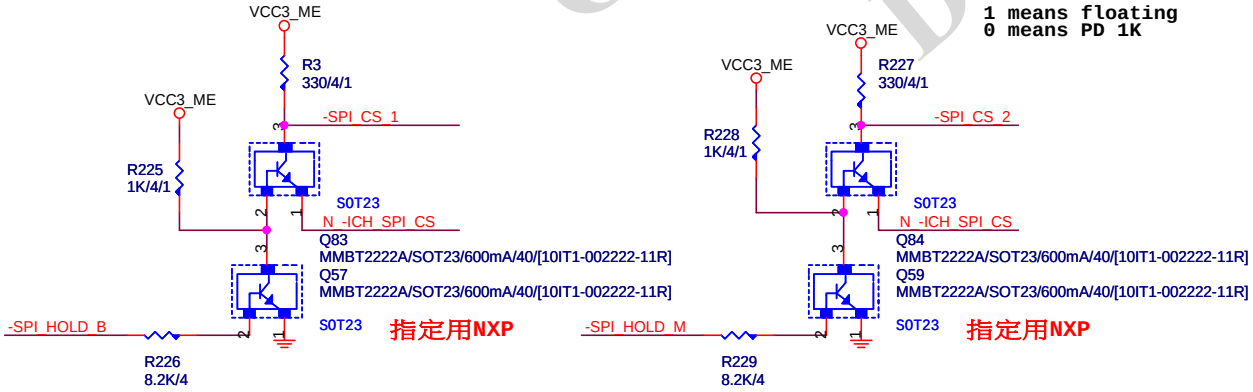
BIOS_PH R1.0 移除



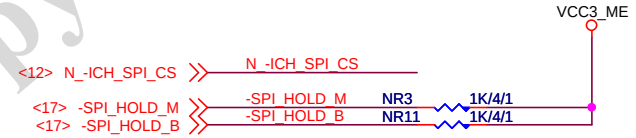


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K



MOSI For DMI RX Termination Voltage



Gigabyte Technology

Title: DUAL BIOS

Size: Custom | Document Number: GA-B85M-D3H-A | Rev: 1.0

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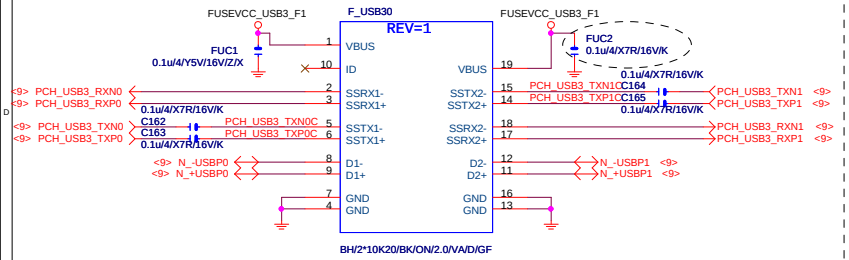
F_USB30 FUSEVCC_USB3_F1

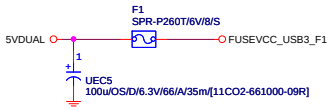


BH/2*10K20/BK/ON/2.0/VA/D/GF

BLACK CONNECTOR

F_USB30 PWR

Polyswitch-1206

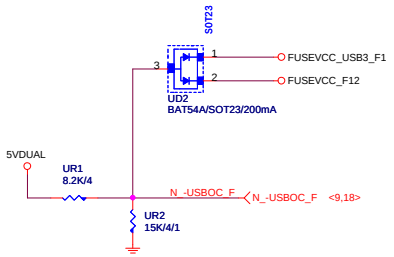


USB3.0 1Port - 1Fuse (3.5A)

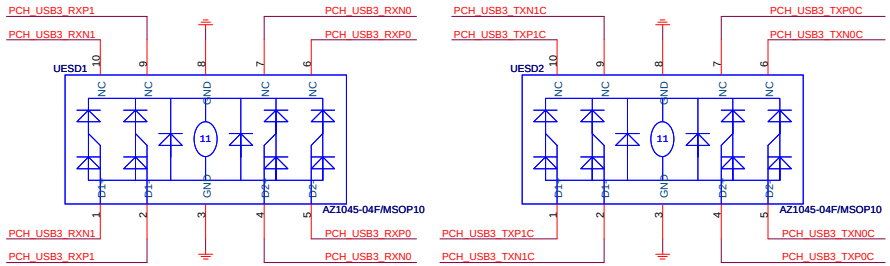
Close to connector

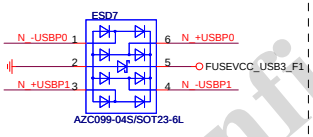
SATA LED

-USBOC_F



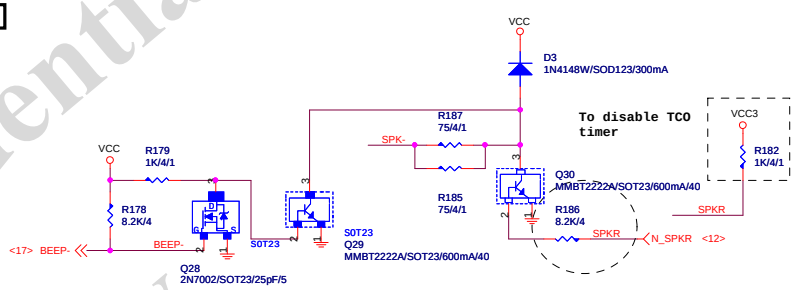
F_USB30 ESD PROTECT



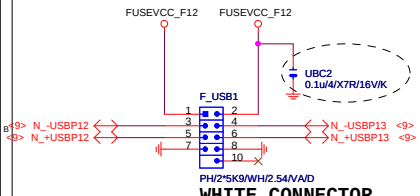


Close to connector

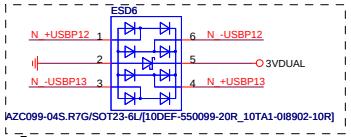
SPKR



FRONT USB1 FUSEVCC_F12



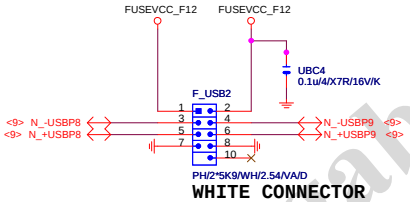
WHITE CONNECTOR



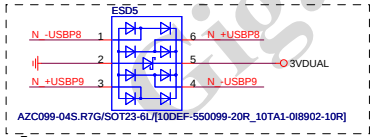
Close to connector

FUSE-0805

FRONT USB2 FUSEVCC_F4



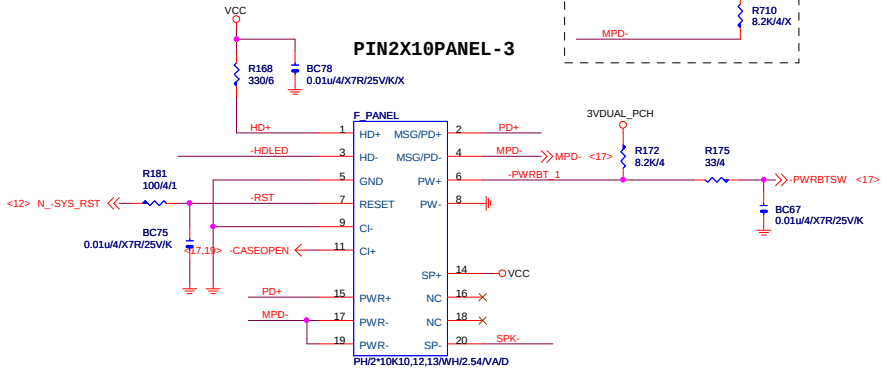
WHITE CONNECTOR

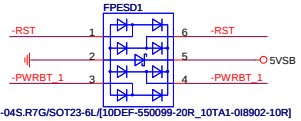


Close to connector

FUSE-0805

INTEL FRONT PANEL

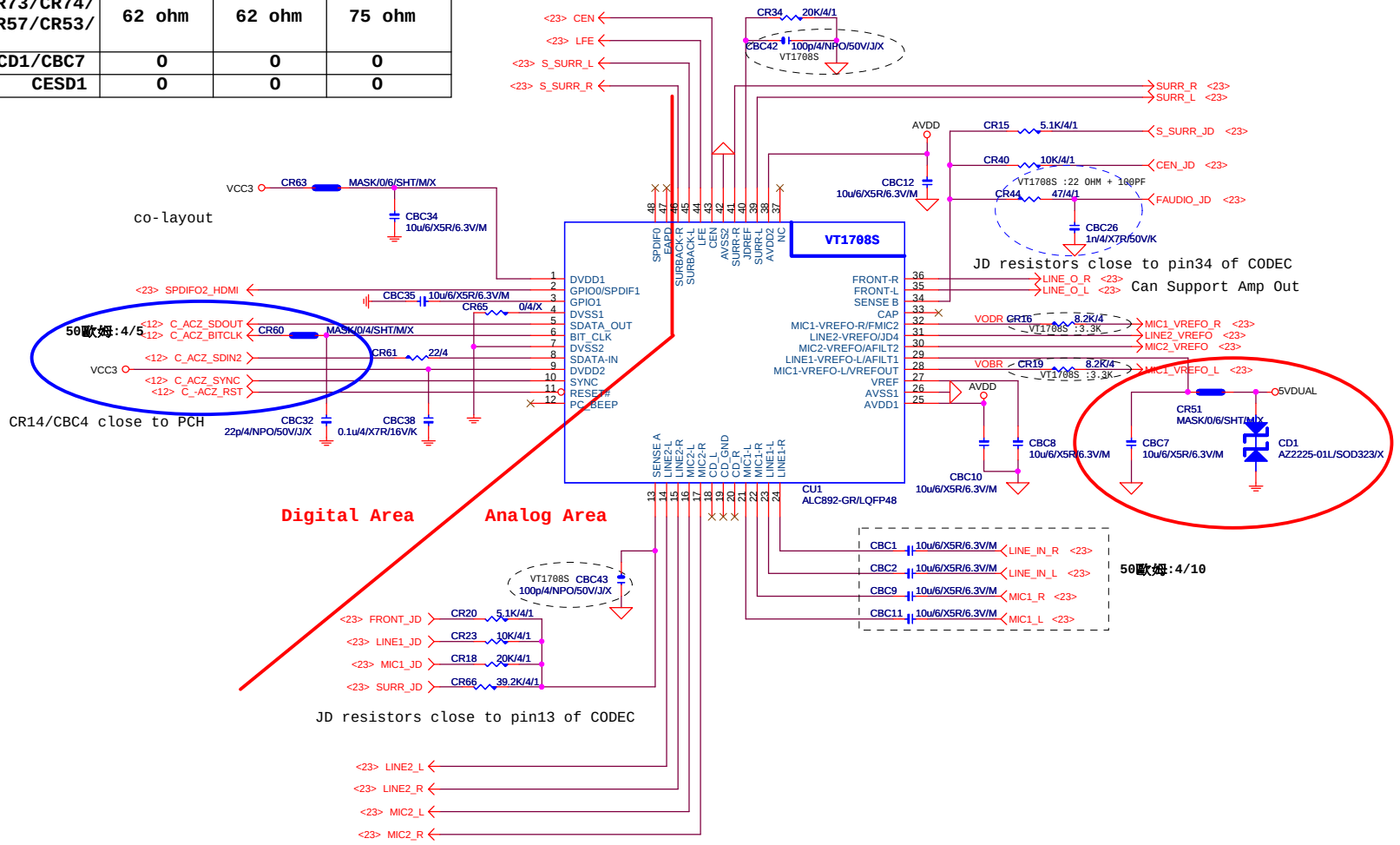




Gigabyte Technology			
Title: FP,F_USB,USB PWR,SPKR,SATA LED			
Size: Custom	Document Number: GA-B85M-D3H-A		Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 21 of 32		

AZALIA CODEC *ALC892/ALC887-VD2/VT1708-CE Colay*

	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	0	0	0



Gigabyte Technology	
Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021
Size: Custom	Document Number: GA-B85M-D3H-A
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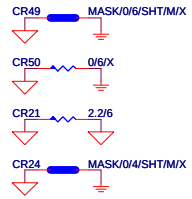
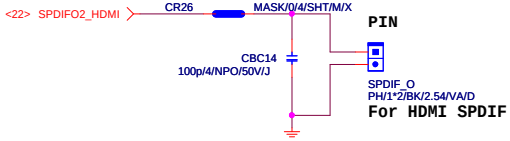
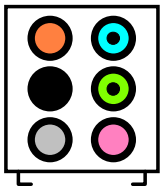
Date: Thursday, March 19, 2015	Sheet 22 of 32

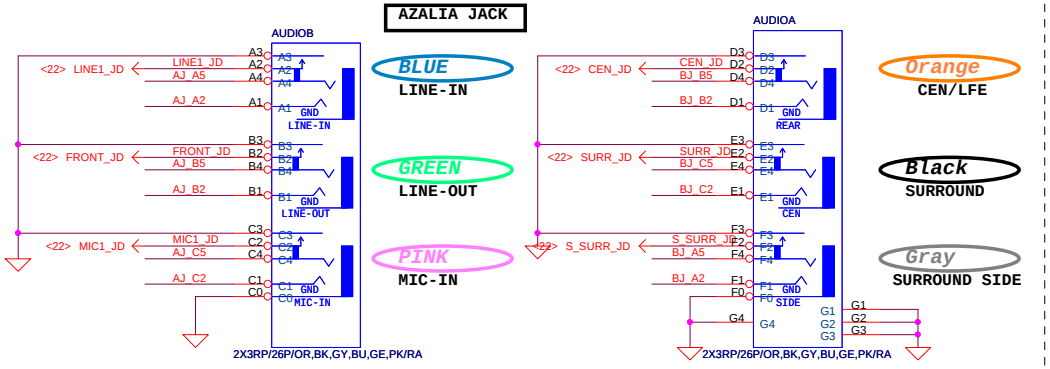


SPDIF_OUT

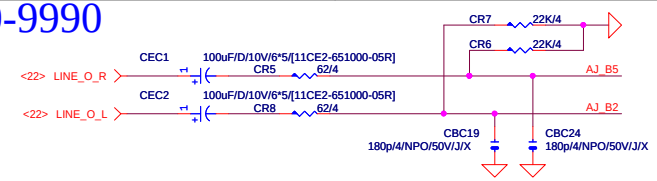


AZALIA JACK



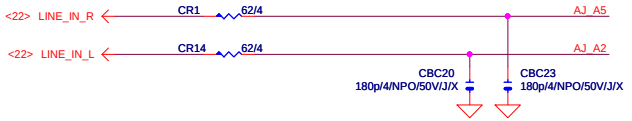


LINE-OUT



Only reserved for ALC888

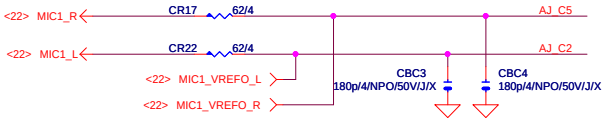
LINE-IN



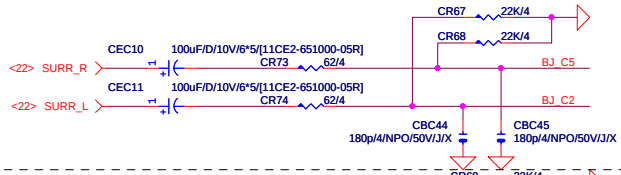
Verify MIC function in LINE-in

For 889A/888

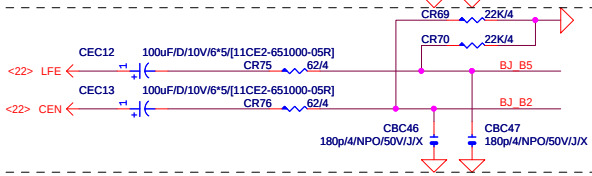
MIC-IN



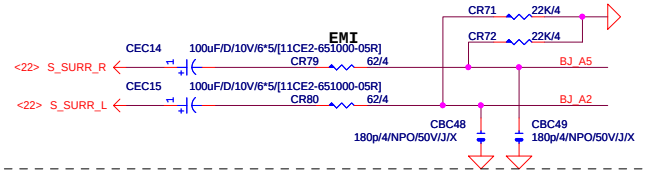
SURROUND



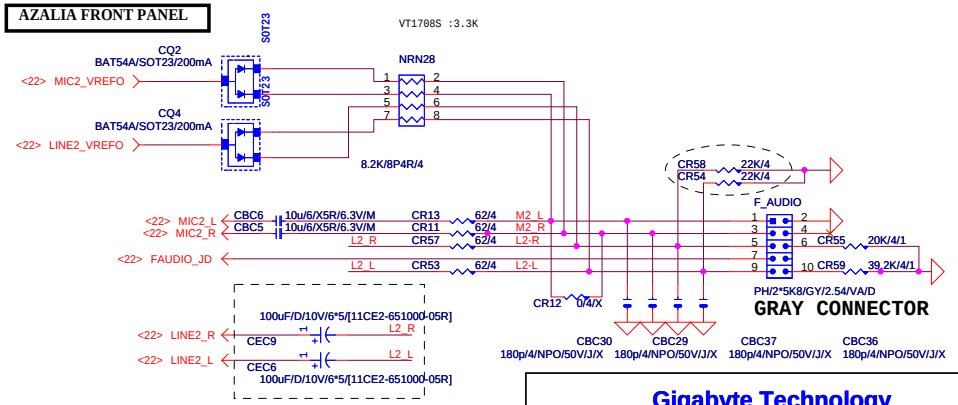
CEN/LFE



SURR BACK



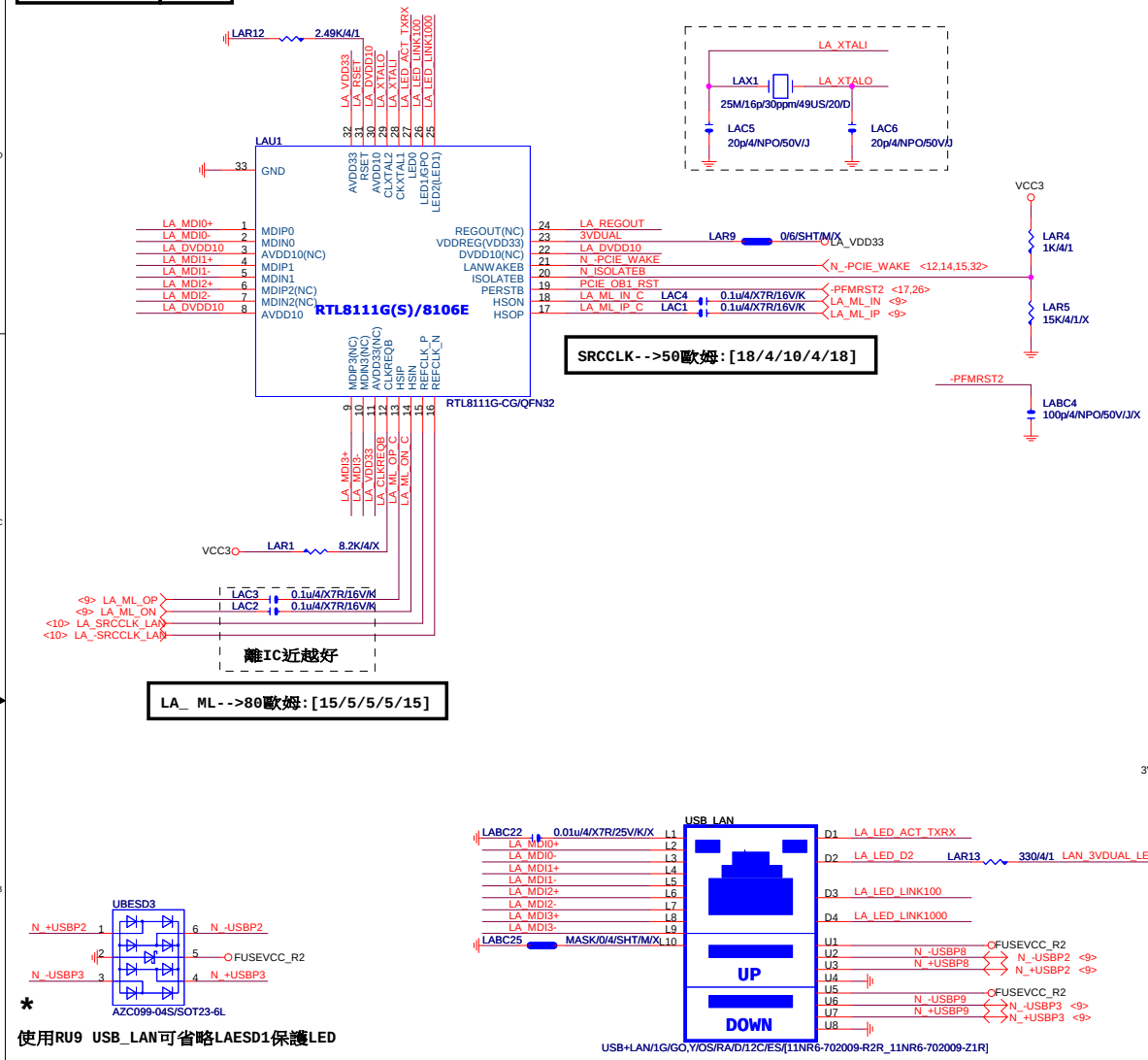
AZALIA FRONT PANEL



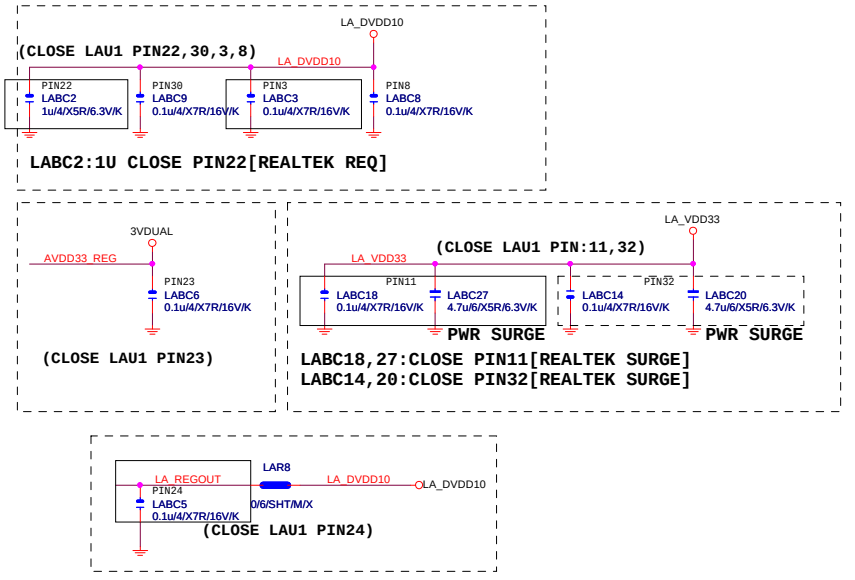
Gigabyte Technology

Title	AUDIO JACK		
Size Custom	Document Number GA-B85M-D3H-A		Rev 1.0
Date: Thursday, March 19, 2015	Sheet 23 of 32		

LAN:RTL8111GUS R1.03

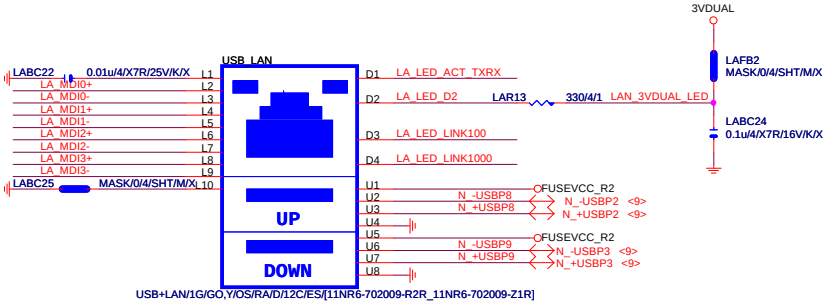


LAN POWER

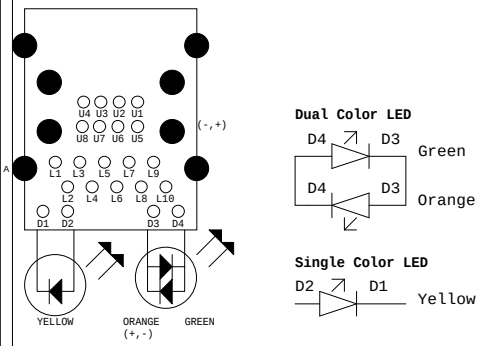


NOTE:
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

*
使用RU9 USB_LAN可省略LAESD1保護LED



EMI SHORT PAD
PS:視EMI需求



Dual Color LED

Single Color LED

注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

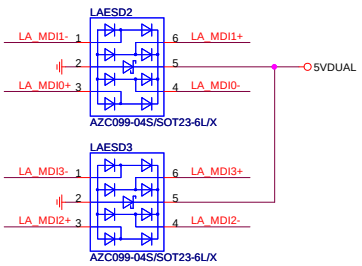
BOM NOTICE *

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)

[LED獨立走線,可省略外加AZC099料件LAESD1]

1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

MDI ESD預留28KV *



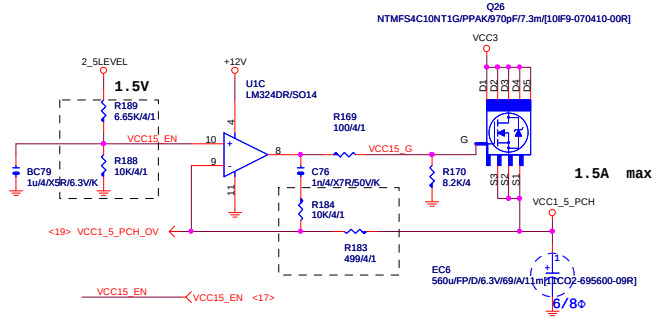
Gigabyte Technology

Title: Realtek RTL8111G

Size: Custom | Document Number: GA-B85M-D3H-A | Rev: 1.0

Date: Thursday, March 19, 2015 | Sheet 24 of 32

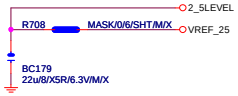
VCC1_5_PCH



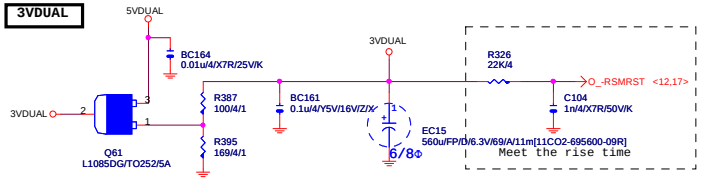
2_5LEVEL

FOOT MASK

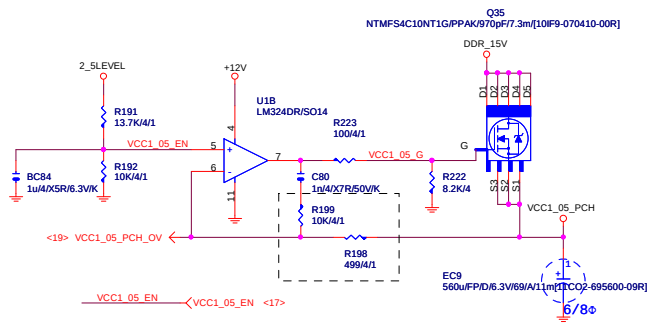
MASK

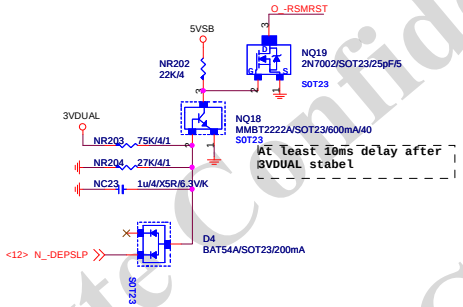


3VDUAL

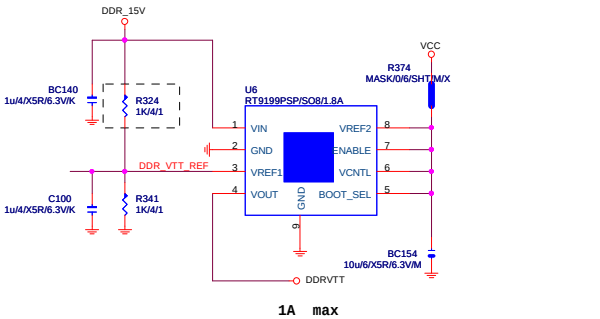


VCC1_05_PCH

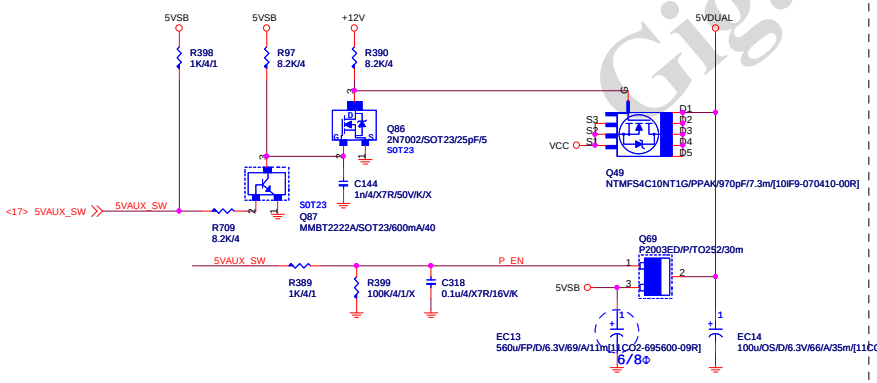




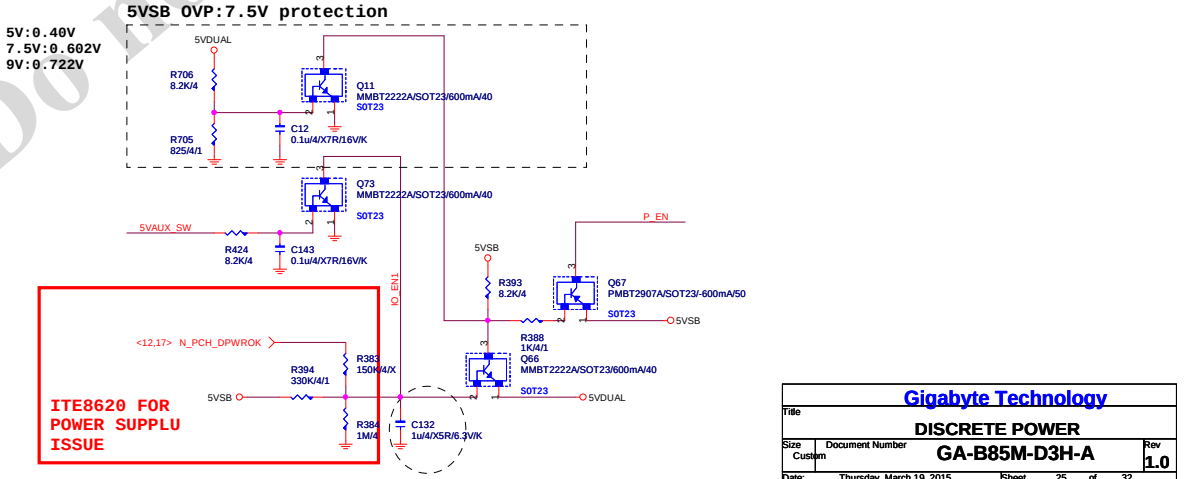
DDRVTT



5VDUAL



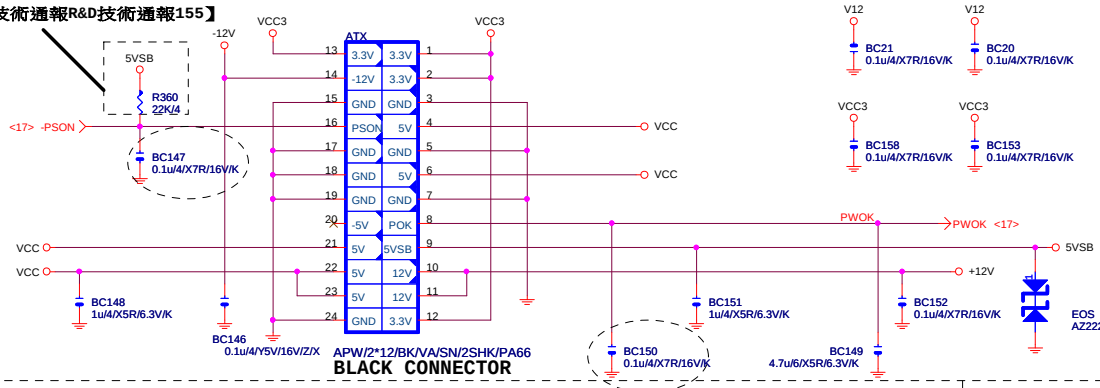
5VDUAL SHORT PROTECT



Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 25 of 32	

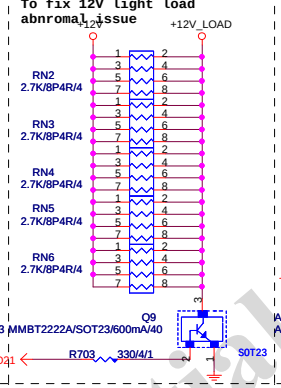
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】

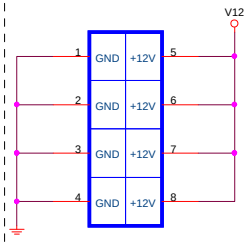


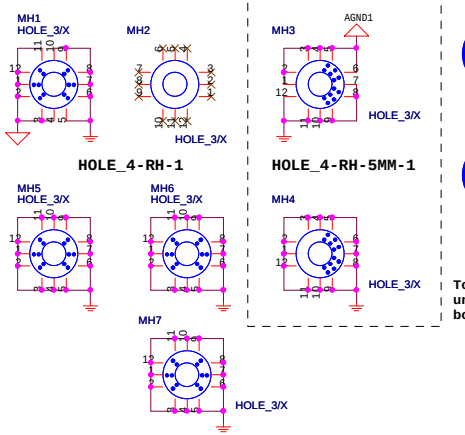
【技術通報R&D技術通報153】

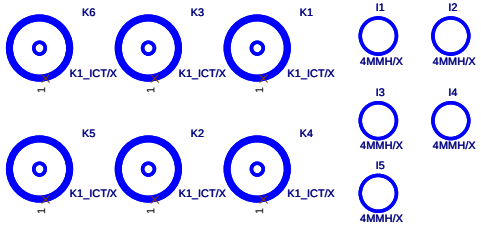
To fix 12V light load abnormal issue



ATXX4 POWER CONNECTOR

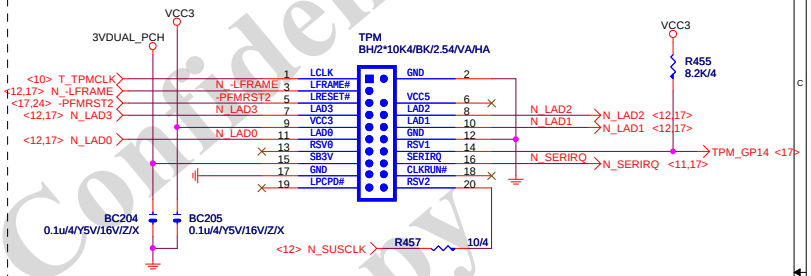




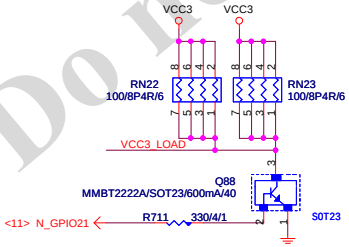


To prevent the 5VSB under loading when boot

TPM



FIX PWR MINMUN LOAD



PWOK PATCH

【技術通報R&D技術通報154】

Gigabyte Technology		
Title: ATX CONNECTOR		
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
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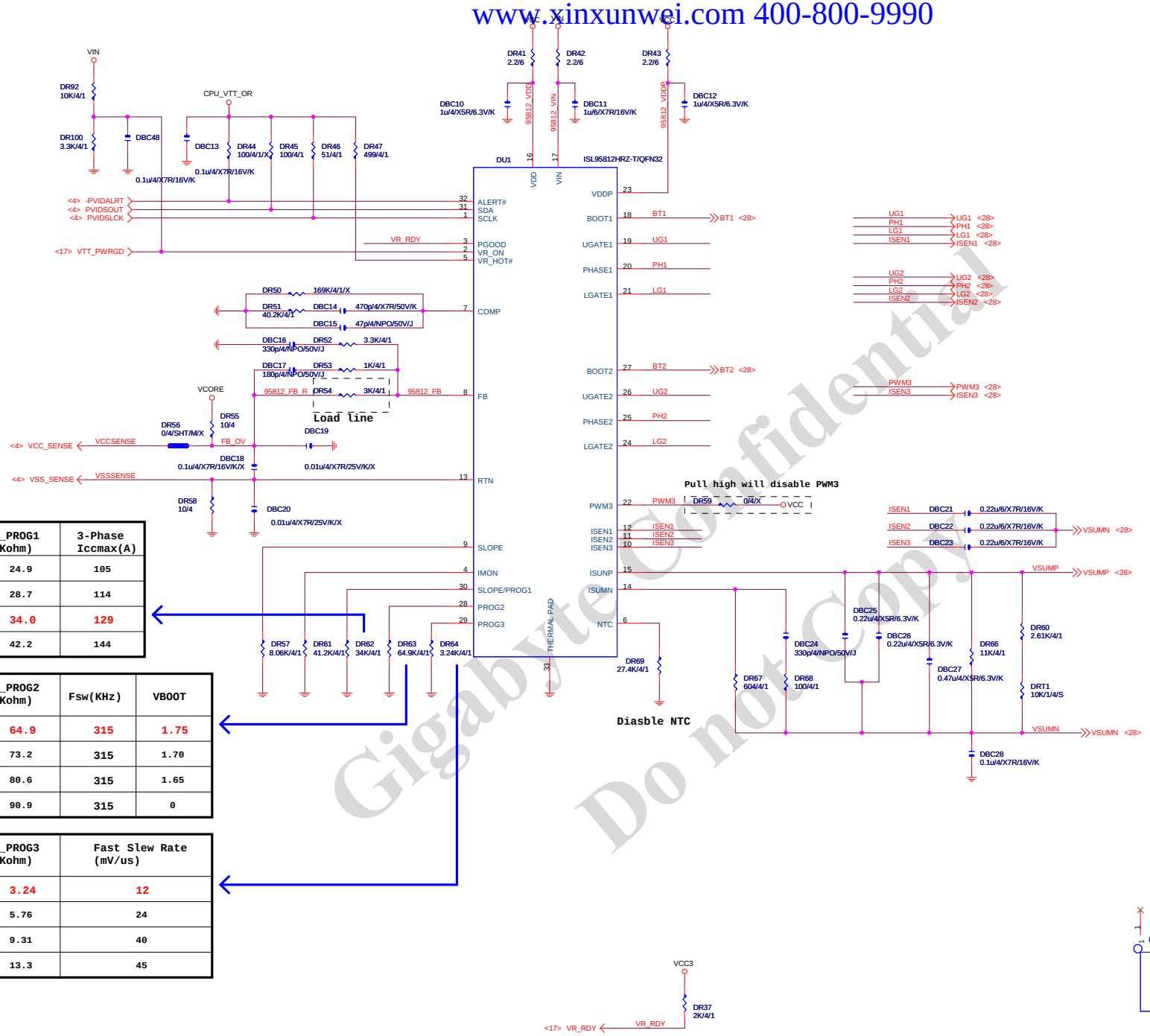

R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

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

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

Gigabyte Technology			
Title: CPU CORE VR-1			
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PHASE 1

UG1 → UG1 <27>
PH1 → PH1 <27>
LG1 → LG1 <27>

VIN
DAC1 1u/6/X7R/16V/K

UG1 DAR1 2.2/6 UG1_1
DAR2 8.2K/4
PH1
LG1 DAR3 0/6/SHT/M/X LG1_1
DAC2 0.22u/6/X7R/16V/K
DAR6 2.2/6
DAC3 1n/4/X7R/50V/K
DAR8 0/6/SHT/M/X
<27> BT1

[1]

VIN
DAQ1 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]
UG1_1
PH1
LG1_1
DAQ2 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]

DAL1 0.68uH/40A/IMD119/M/D
R50
VCORE
DAR4 0/4/SHT/M/X
DAR5 0/4/SHT/M/X

<27> VSUMP VSUMP DAR7 3.6K/4/1
<27> ISEN1 ISEN1 DAR9 10K/4/1
<27> VSUMN VSUMN DAR10 10/4 V1N
ISEN2 DAR11 10K/4/1
ISEN3 DAR12 10K/4/1

Close to PWM

PHASE 3

VCC
DCR13 1/6
DCC4 1u/6/X7R/16V/K
DCC5 0.1u/4/X7R/16V/K
BOOT 6609_PVCC PWM3
DCU1
BOOT PVCC VCC PWM GND GND UGATE PHASE LGATE
UG3 PH3 LG3
ISL6208BCRZ/DFN8/[10TA1-606208-21R]

PWM3 → PWM3 <27>

VIN
DCC1 1u/6/X7R/16V/K

UG3 DCR1 2.2/6 UG3_1
DCR2 8.2K/4
PH3
LG3 DCR3 0/6/SHT/M/X LG3_1
DCC2 0.22u/6/X7R/16V/K
DCR6 2.2/6
DCC3 1n/4/X7R/50V/K
DCR8 0/6/SHT/M/X
BOOT

[3]

VIN
DCQ1 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]
UG3_1
PH3
LG3_1
DCQ2 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]

DCL1 0.68uH/40A/IMD119/M/D
R50
VCORE
DCR4 0/4/SHT/M/X
DCR5 0/4/SHT/M/X

<27> VSUMP VSUMP DCR7 3.6K/4/1
<27> ISEN3 ISEN3 DCR9 10K/4/1
<27> VSUMN VSUMN DCR10 10/4 V3N
ISEN1 DCR11 10K/4/1
ISEN2 DCR12 10K/4/1

Close to PWM

PHASE 2

UG2 → UG2 <27>
PH2 → PH2 <27>
LG2 → LG2 <27>

VIN
DBC1 1u/6/X7R/16V/K

UG2 DBR1 2.2/6 UG2_1
DBR2 8.2K/4
PH2
LG2 DBR3 0/6/SHT/M/X LG2_1
DBC2 0.22u/6/X7R/16V/K
DBR6 2.2/6
DBC3 1n/4/X7R/50V/K
DBR8 0/6/SHT/M/X
<27> BT2

[2]

VIN
DBQ1 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]
UG2_1
PH2
LG2_1
DBQ2 NTMFS4C08NT1G/PPAK/1113pF/5.8m/[10IF9-584081-00R]

DBL1 0.68uH/40A/IMD119/M/D
R50
VCORE
DBR4 0/4/SHT/M/X
DBR5 0/4/SHT/M/X

<27> VSUMP VSUMP DBR7 3.6K/4/1
<27> ISEN2 ISEN2 DBR9 10K/4/1
<27> VSUMN VSUMN DBR10 10/4 V2N
ISEN1 DBR11 10K/4/1
ISEN3 DBR12 10K/4/1

Close to PWM

VCORE
DEC2 DEC3 DEC4 DEC5
560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]
560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]
560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]
560u/FP/D/6.3V/69/A/11m[11CO2-695600-09R]

V12 VIN
DEC10 DEC11
270u/FP/D/16V/8C/A/10m[11CO5-8C2700-09R]
270u/FP/D/16V/8C/A/10m[11CO5-8C2700-09R]

Gigabyte Technology

Title	CPU CORE VR-2		
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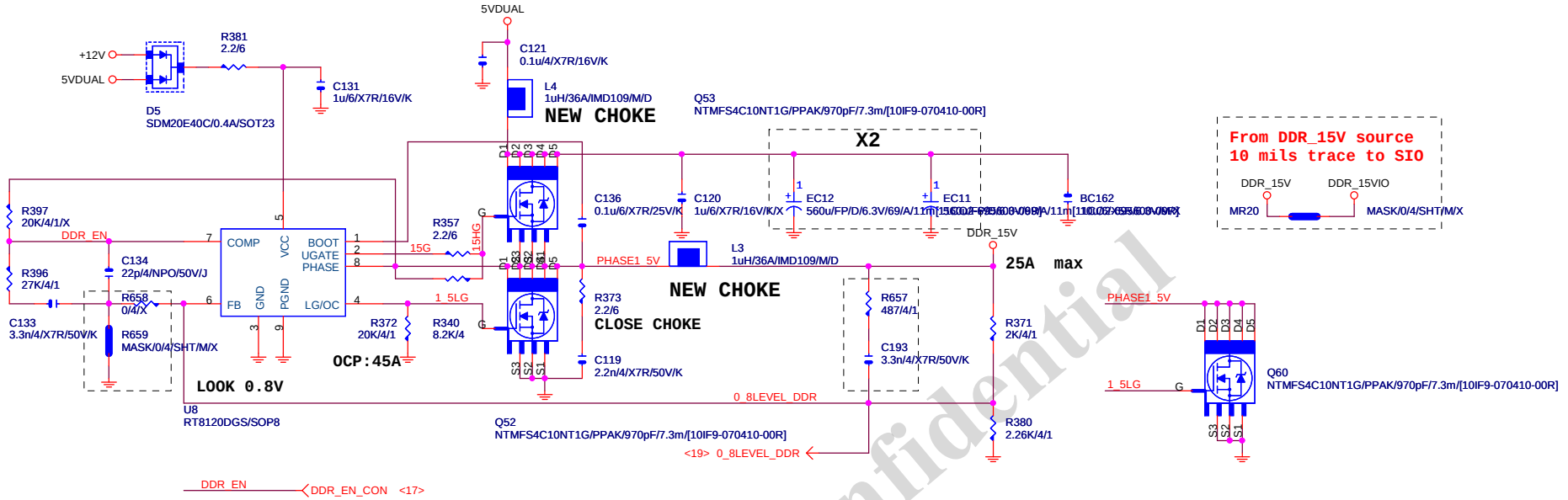
DDR15V



PWR SEQ

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

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

Gigabyte Technology			
Title: DDR POWER			
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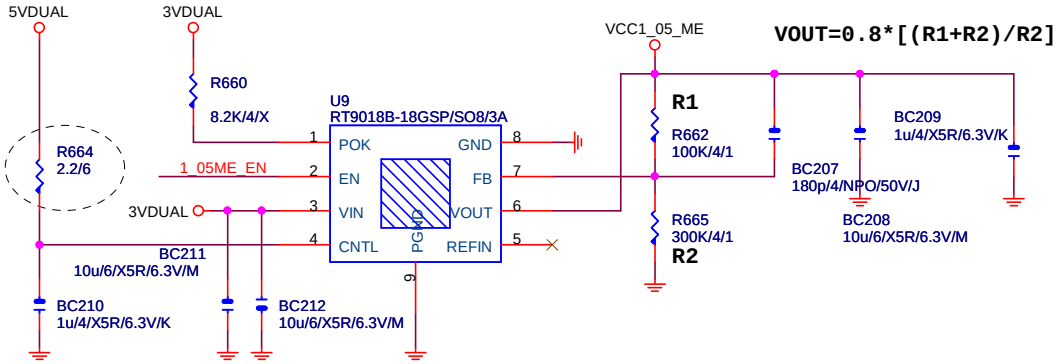
VCC1_05_ME FOOT MASK

Z97 N/A

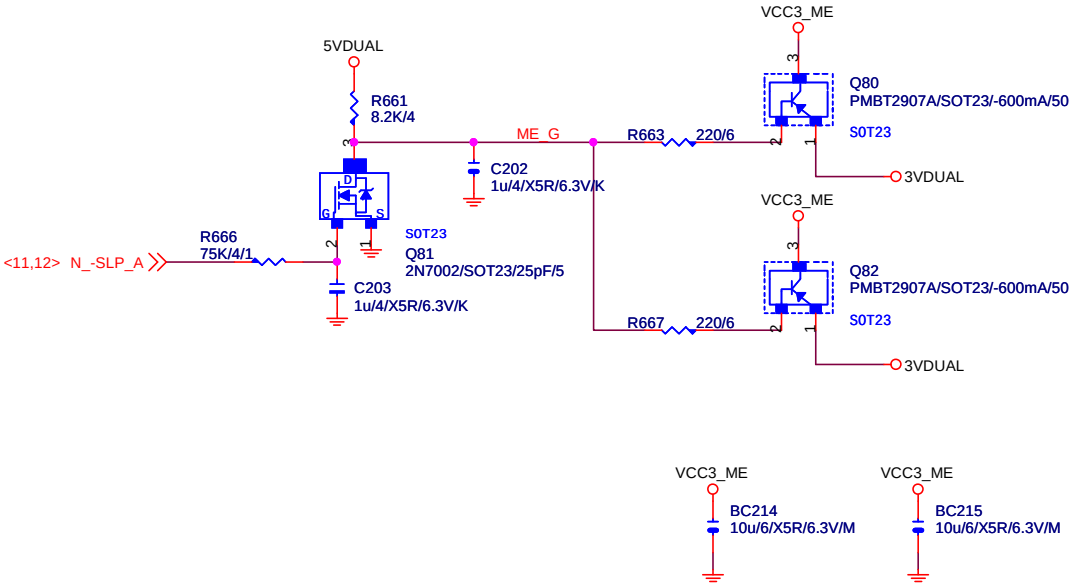
【技術通報R&D技術通報156】
(RICHTEK), (NUVOTON), (EMC)做共用
PIN7分壓阻值須做修改為100K以上電阻值



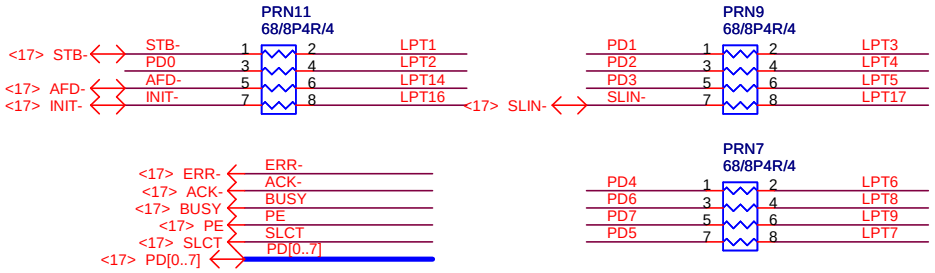
Second source
EM5103 - 10GL2-305103-01R
NCT3730S -
10GL2-303730-01R

VCC3_ME FOOT MASK

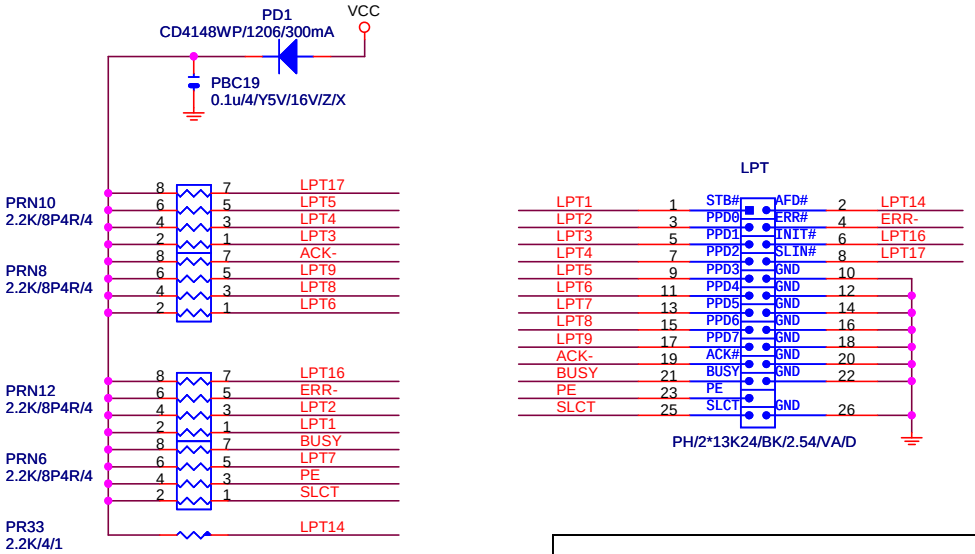
Z97 N/A



LPT PORT

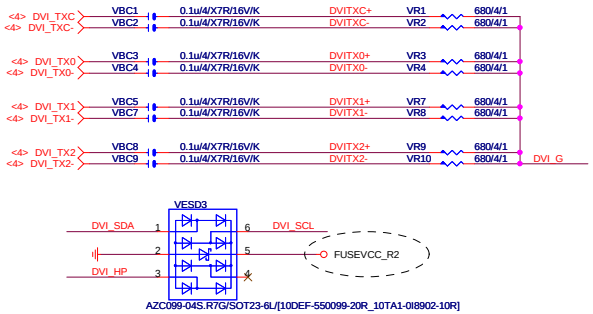


【技術通報R&D技術通報151】
33ohm Change to 68ohm



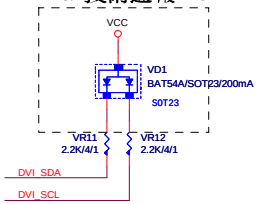
Gigabyte Technology		
Title: LPT		
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
Date: Thursday, March 19, 2015	Sheet 30 of 32	

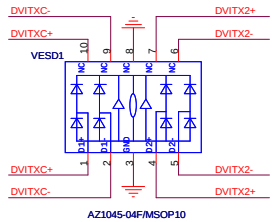
DVI LEVEL SHIFT



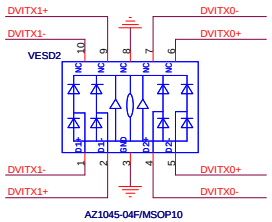
Close to connector

R&D技術通報 162

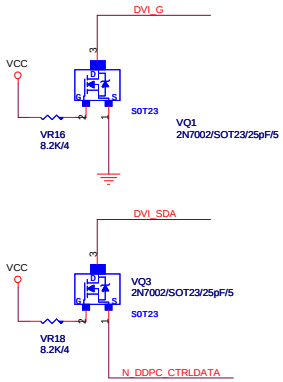


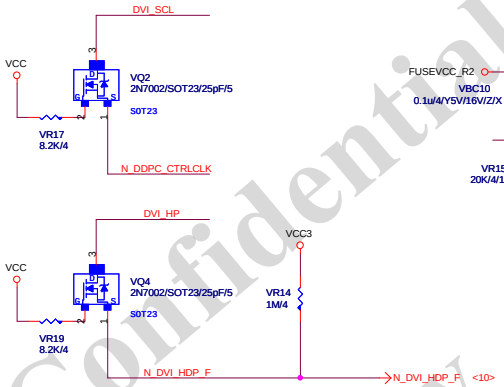


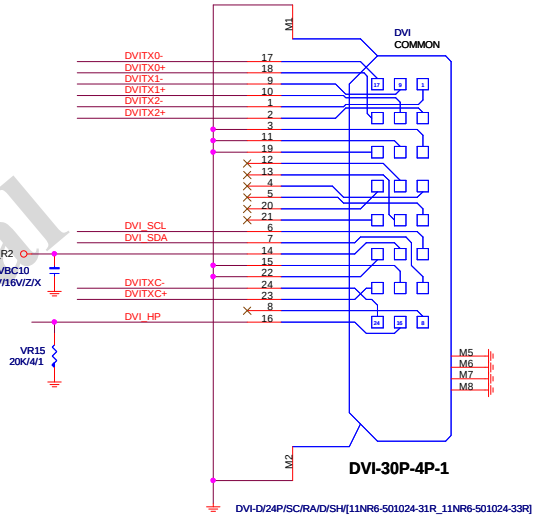
Close to connector



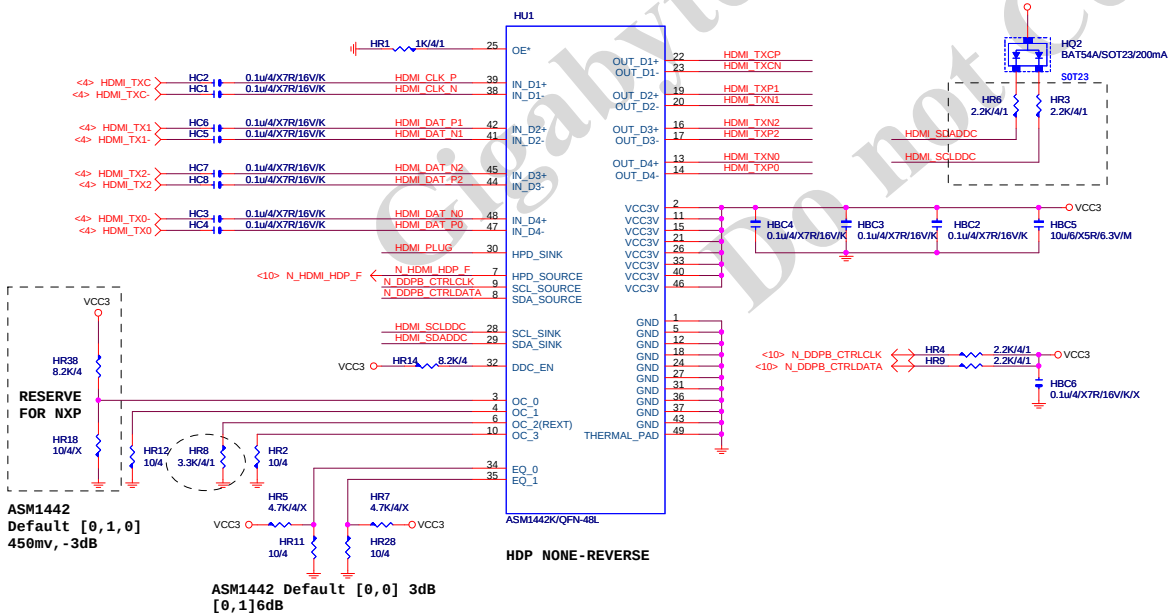
Close to connector

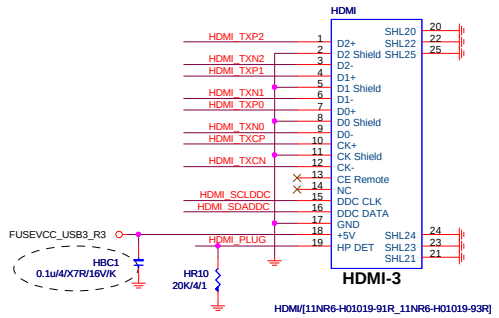






HDMI LEVEL SHIFT





Gigabyte Technology		
Title: DVI		
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PCIE TO PCI

PCI:5/4/5 Impedance=50 +- 15%

Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm

IT8892: PR46 -> X
IT8893: PR46 -> 0

IT8892: PR19 -> 0
IT8893: PR19 -> X

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

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

PU1 IT8892E/BX LQFP128

IT8892E/FX/S

IT8892

PCI slot

PCI slot

chipset side

PCB layout note:
Close to chip

PCB layout note:
Close to chip

Close to chip

Gigabyte Technology		
Title: ITE IT8892E		
Size: Custom	Document Number: GA-B85M-D3H-A	Rev: 1.0
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