Model Name: GA-B85M-DS3H *Revision 3.0*

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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
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11	PCH_HOST,SATA,PCI
12	PCH GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS X1 *2 SLOT
16	ITE 8620 LPC IO
17	COM,KB_MS_USB,USB30_20
18	HWM,FAN CTRL,OV,-PROCHOT
19	DUAL BIOS
20	FP,FUSB,SPK,SATALED
21	Realtek ALC887-VD2
22	REAR AUDIO JACK
23	REALTEK RTL8111G
24	DISCRETE POWER
25	ATX
26	VCORE ISL95812_1
27	VCORE ISL95812_2

SHEET	TITLE
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29	LPT, M3 POWER
30	DVI

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

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Model Name: GA-B85M-DS3H

Revision 3.0

Component value change history

2014/07/31

Data	Change Item	Reason
2013/06/28	ADD RSMRST DELAY	
2013/08/13	Update Rev to 1.1	
	PCIE X16 New Footprint "PCIESLOT-164DN-Q-1"	
2013/08/23		EBOM: 9M85MDS3H-00-11A
2013/09/13	Update to R1.11	
	Follow Crystal Trace Rule	
	SYS_FAN, DDR 0ohm 0402 -> 0603	
	Update Fuse 1206 Footprint "POLYSWITCH-1206-1"	
	Update PPAK Footprint "Q_TDSON8-GDS-T"	
2013/10/22	NX1: 25M/20p -> 12p	PBOM: 9M85MDS3H-00-11B
	NC7, NX8: 27p -> 10p	
2013/11/04	NC7, NX8: 10p -> 15p	PBOM: 9M85MDS3H-00-11C
2013/11/05	Update to R1.12	PBOM: 9M85MDS3H-00-11D
	Modify NX1 Trace	
2013/11/27	MR17 0ohm -> 0603 FUSE(10FP5-06100B-00R)	PBOM: 9M85MDS3H-00-11E
	ALC887 強壯版 (10HP5-368870-32R)	
2014/02/17	Sales Costdown Rev2.0	
	CPU Power ISL95820 1U2D -> ISL95812 1U1D	
	DVI Non-Level Shift	
	BIOS Size 64M -> 32M	
2014/02/20	SBA線路OPTION,整合電阻成排阻,精簡線路	
2014/02/24	整合電阻成排阻	
2014/02/27	MASK/DEL CAP	
2014/03/07	ADD ESD : NC3,NC4 (22P)	
2014/03/11	NR6改SHT PAD	
2014/03/12	WBC28,30,25,27,31解開MASK	
	COM:BLACK,F_AUDIO:GRAY	
	DEL後窗AUDIO 180P	

Circuit or PCB layout change

DATE	Change Item	Reason
2014/03/27		PBOM: 9M85MDS3H-00-20A
2014/04/25	Update DDR RC	PBOM: 9M85MDS3H-00-20B
	R396: 27K -> 15K	
	C133: 3.3n -> 0.01u	
	R372: 20K -> 34K	
	R657: 487 -> 680	
	R380: 2.26K -> 2.15K	
	ADD WBC28, WBC30, WBC25, WBC27, WBC31	
2014/06/18	Update to R2.01	
	Remove SATA MLCC	
2014/07/16	Update to R3.0	
	LAN RTL8111F -> 8111G	
	8P4R-0402 -> 0603 (KB&MS)	
	Remove 5VDUAL SHORT PROTECT	
	Remove NCT3933, use GPIO(GP24, GP25, GP26)	
	FUSE 1206 3.5A -> 0805 2.6A	
	Heatsink Gray -> Black	

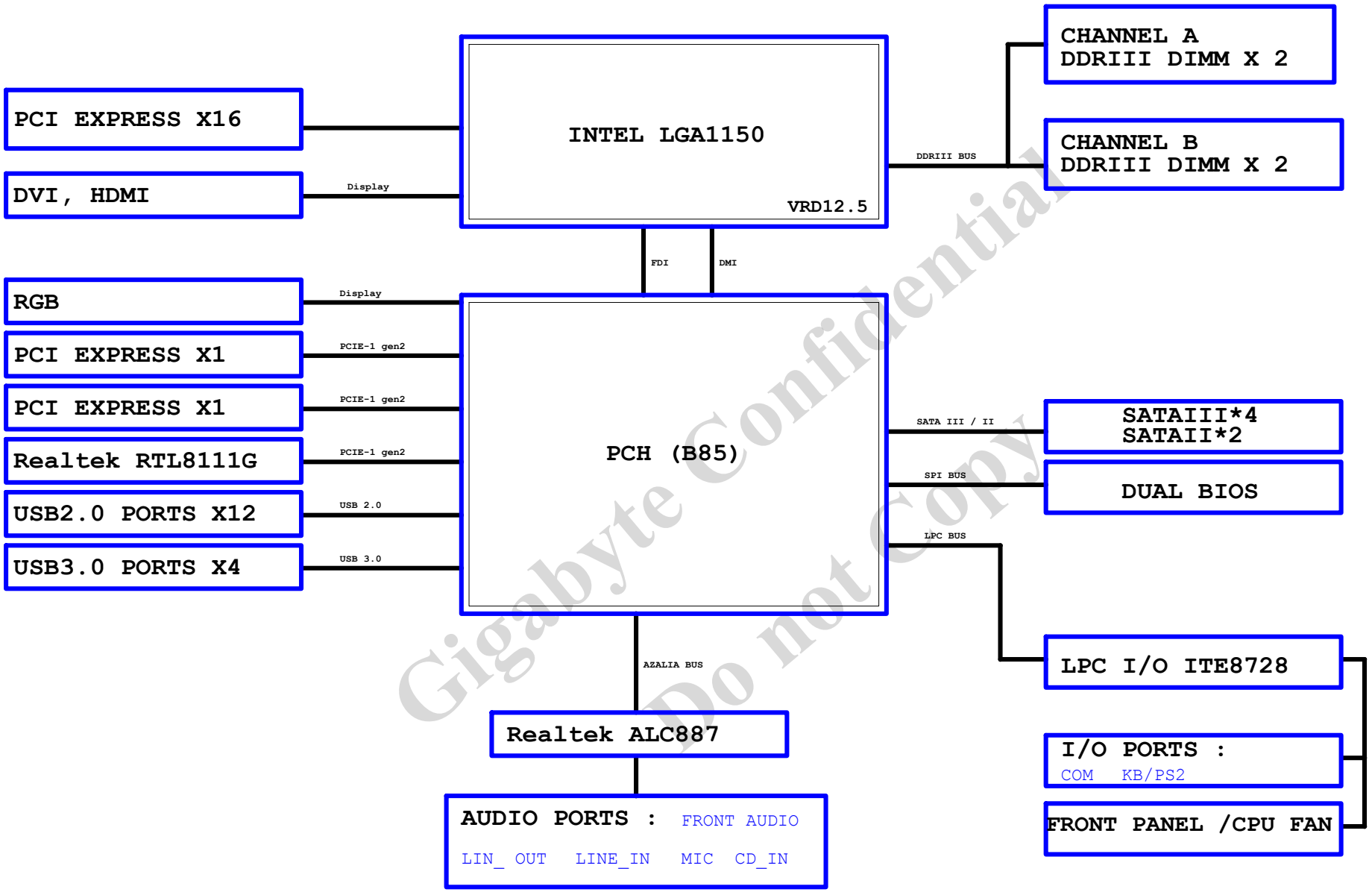
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

Date: Thursday, September 11, 2014 | Sheet 2 of 30

BLOCK DIAGRAM



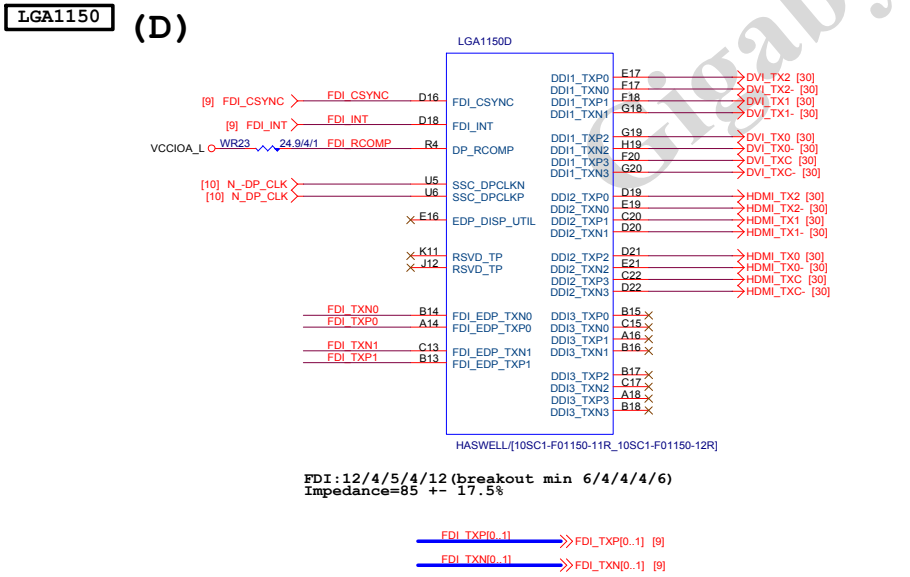
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-B85M-DS3H	Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 3 of 30	

LGA1150 (E)

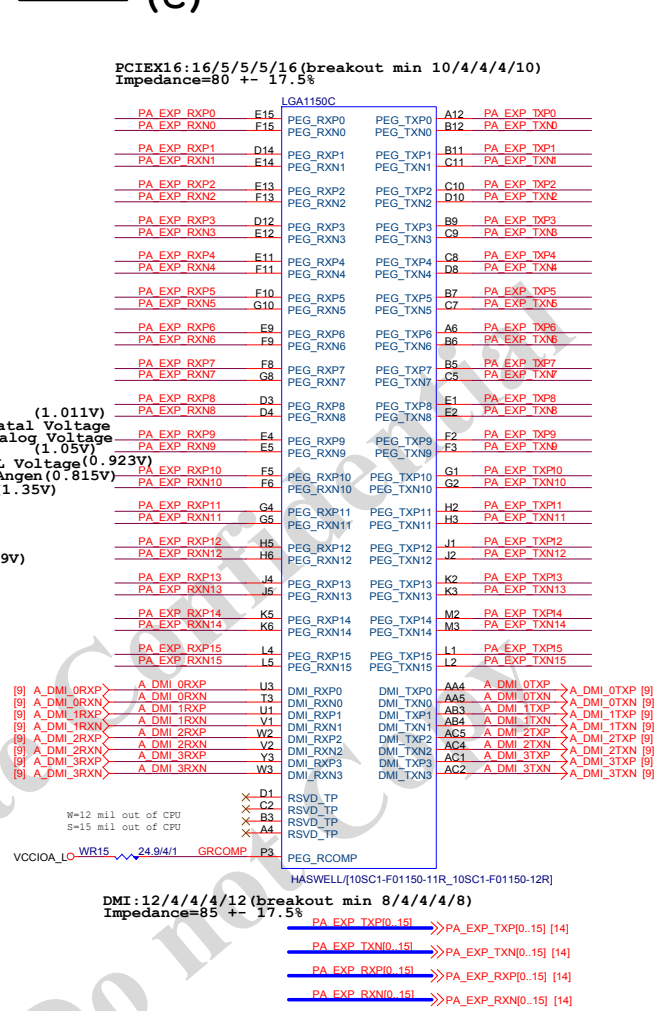
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

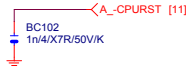
LGA1150 (D)



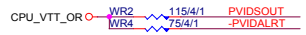
LGA1155 (C)



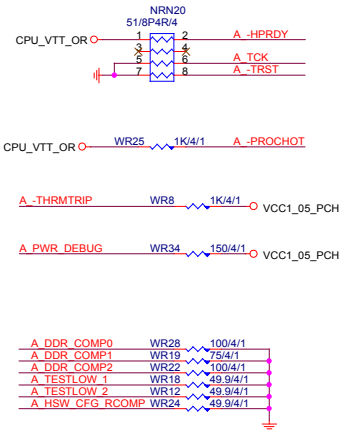
-CPURST



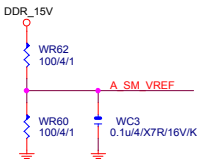
CPU SVID



CPU PU/PD



SM REF



Title	CPU LGA1150-A
Size	Custom
Document Number	GA-B85M-DS3H
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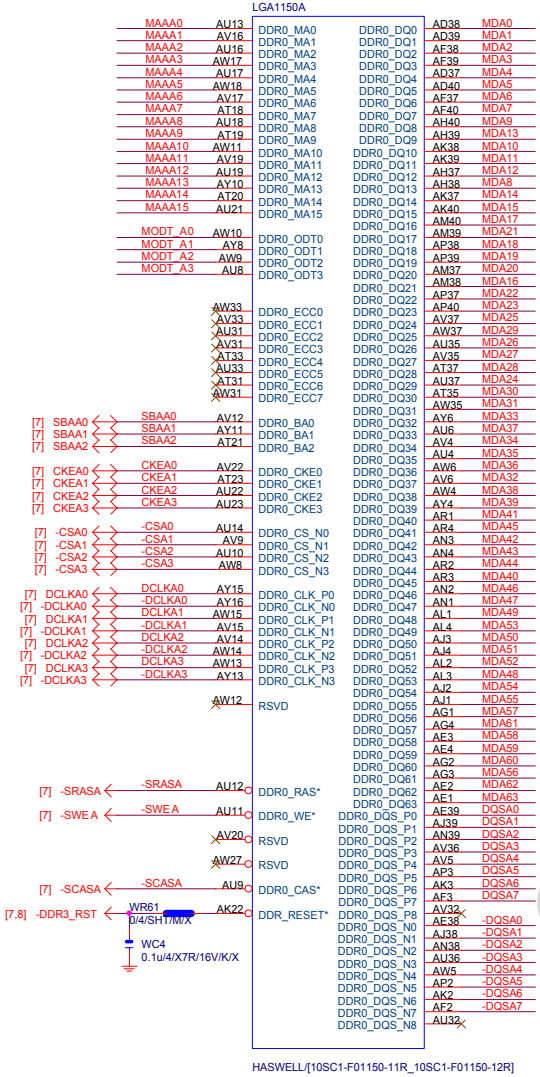
Gigabyte Technology

LGA1150 (A)

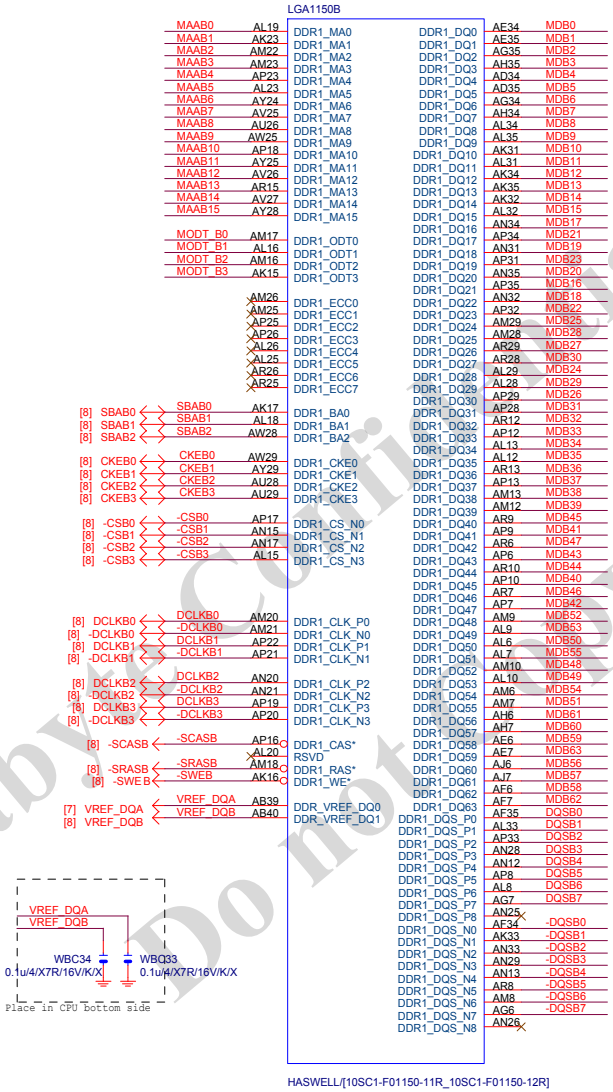
LGA1150A



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

LGA1150 (B)

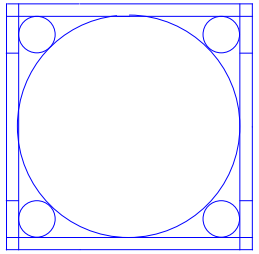
LGA1150B



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

LGA1150 (CR)

CR
CPU RETAINTION/X



LGA1150_P

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

DDR BUS

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

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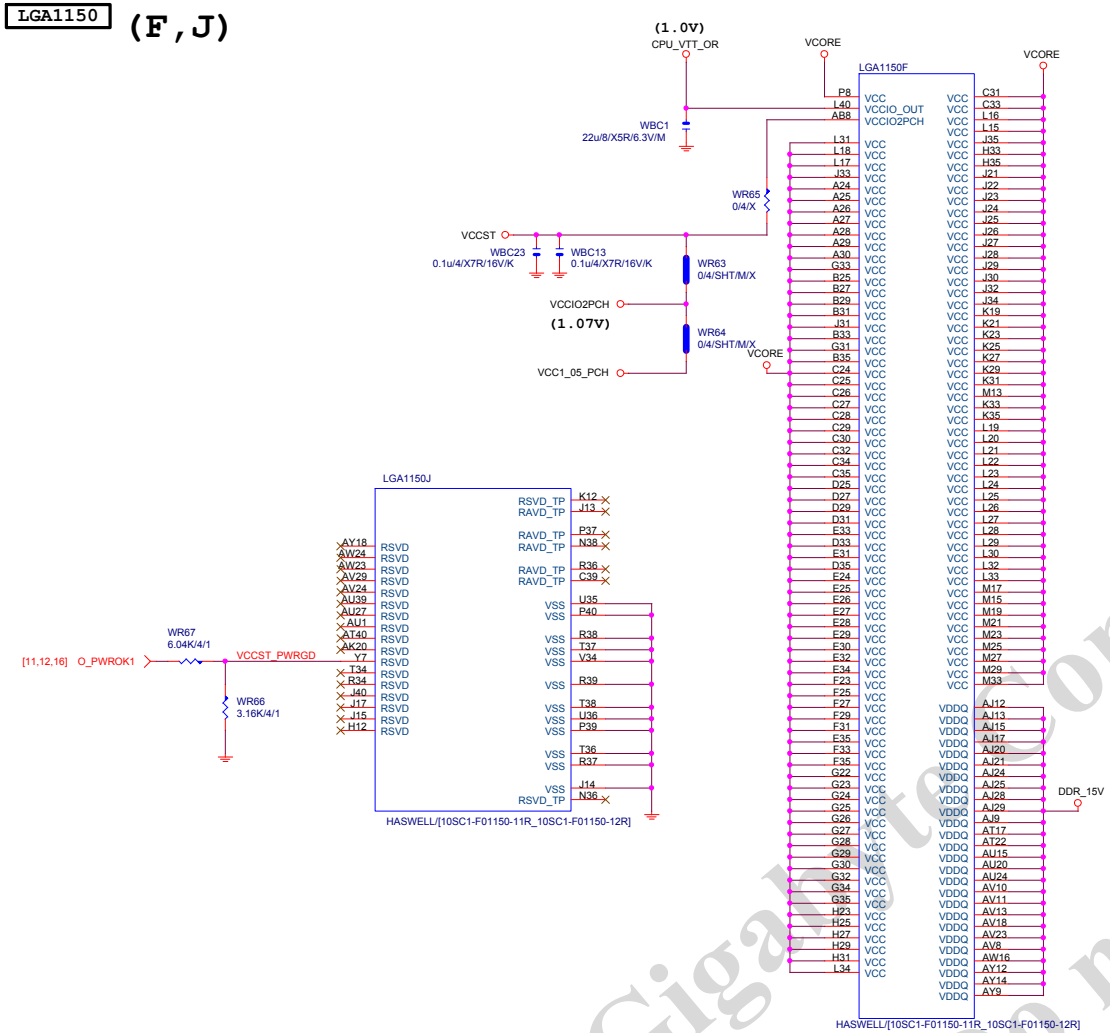
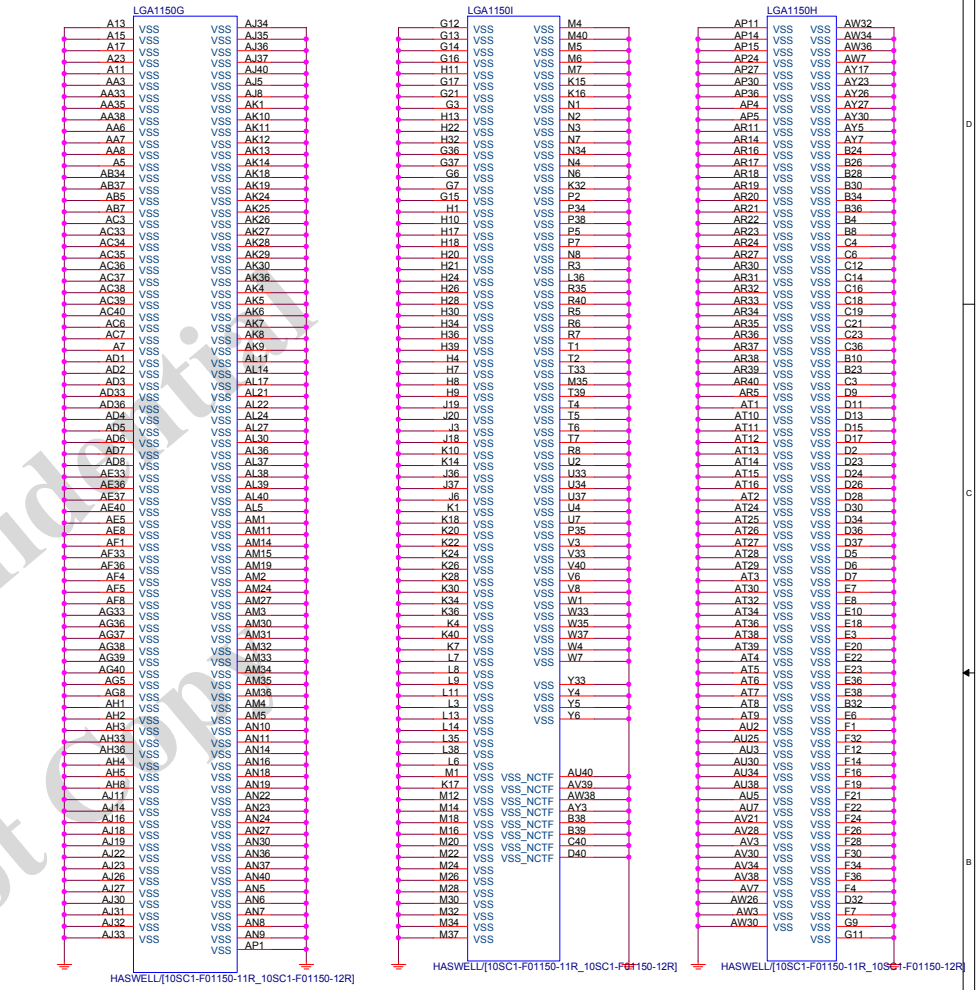
LGA1150 (F,J)

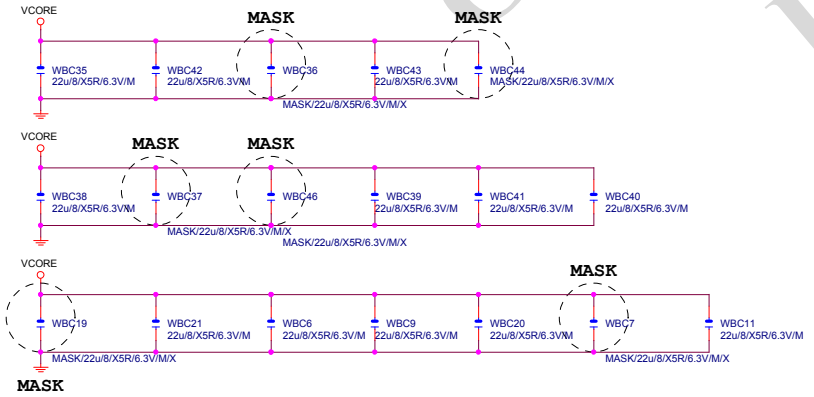


LGA1155 (G,H,I)



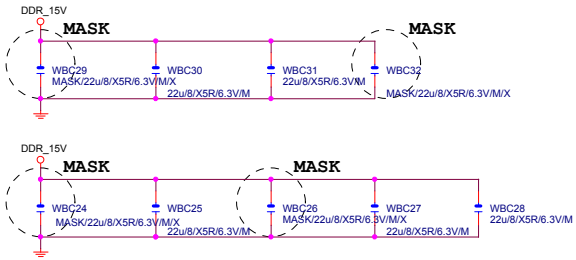
VCore CAP

(X12)

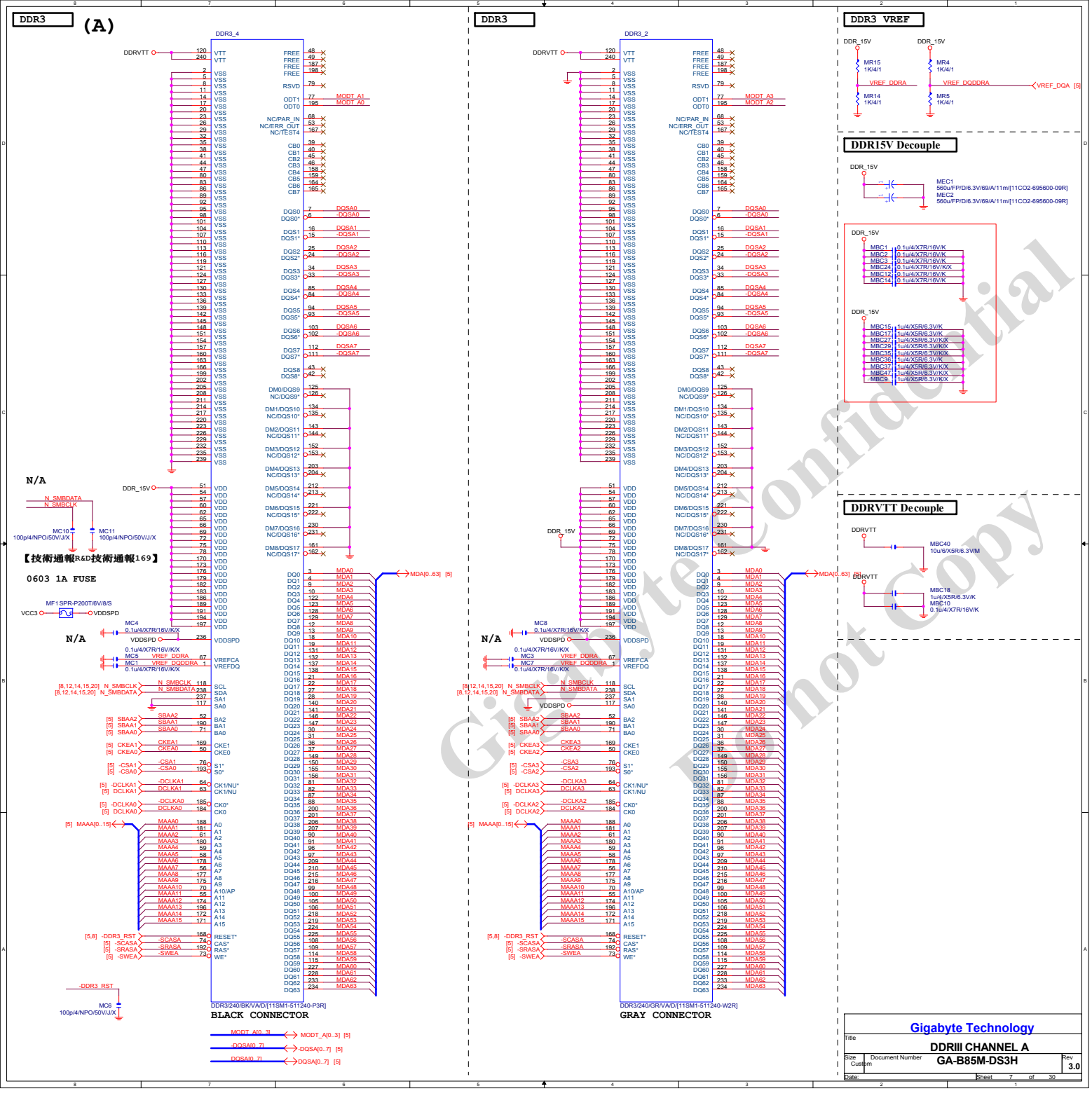


DDR CAP

(X0)



Gigabyte Technology		
Title	CPU LGA1150-C	
Size: Custom	Document Number: GA-B85M-DS3H	Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 6 of 30	


DDR3
(A)
DDR3_4
DDRVTT
DDR_15V
N/A
N_SMBDATA
N_SMBCLK
MC10
100p/4/NPO/50V/J/X
MC11
100p/4/NPO/50V/J/X
【技術通報R&D技術通報169】
0603 1A FUSE
MF1 SPR-P200T/6V/8/S
VCC3
VDDSPD
MC4
0.1u/4/X7R/16V/K/X
MC5
VREF_DDRA
MC1
VREF_DQDDRA
0.1u/4/X7R/16V/K/X
VREFCA
VREFDQ
MDA[0..63] [5]
MODT_A[0..3] [5]
DQSA[0..7] [5]
-DQSA[0..7] [5]
-DDR3_RST
MC6
100p/4/NPO/50V/J/X
DDR3/240/BK/VA/D/[11SM1-511240-P3R]
BLACK CONNECTOR
DDR3
DDR3_2
DDRVTT
DDR_15V
N/A
MC8
0.1u/4/X7R/16V/K/X
MC3
VREF_DDRA
MC7
VREF_DQDDRA
0.1u/4/X7R/16V/K/X
VREFCA
VREFDQ
VDDSPD
MDA[0..63] [5]
DDR3/240/GR/VA/D/[11SM1-511240-W2R]
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
MEC1
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]
MEC2
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]
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
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
DDRVTT Decouple
MBC40
10u/6/X5R/6.3V/M
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-DS3H
Rev
3.0
Date:
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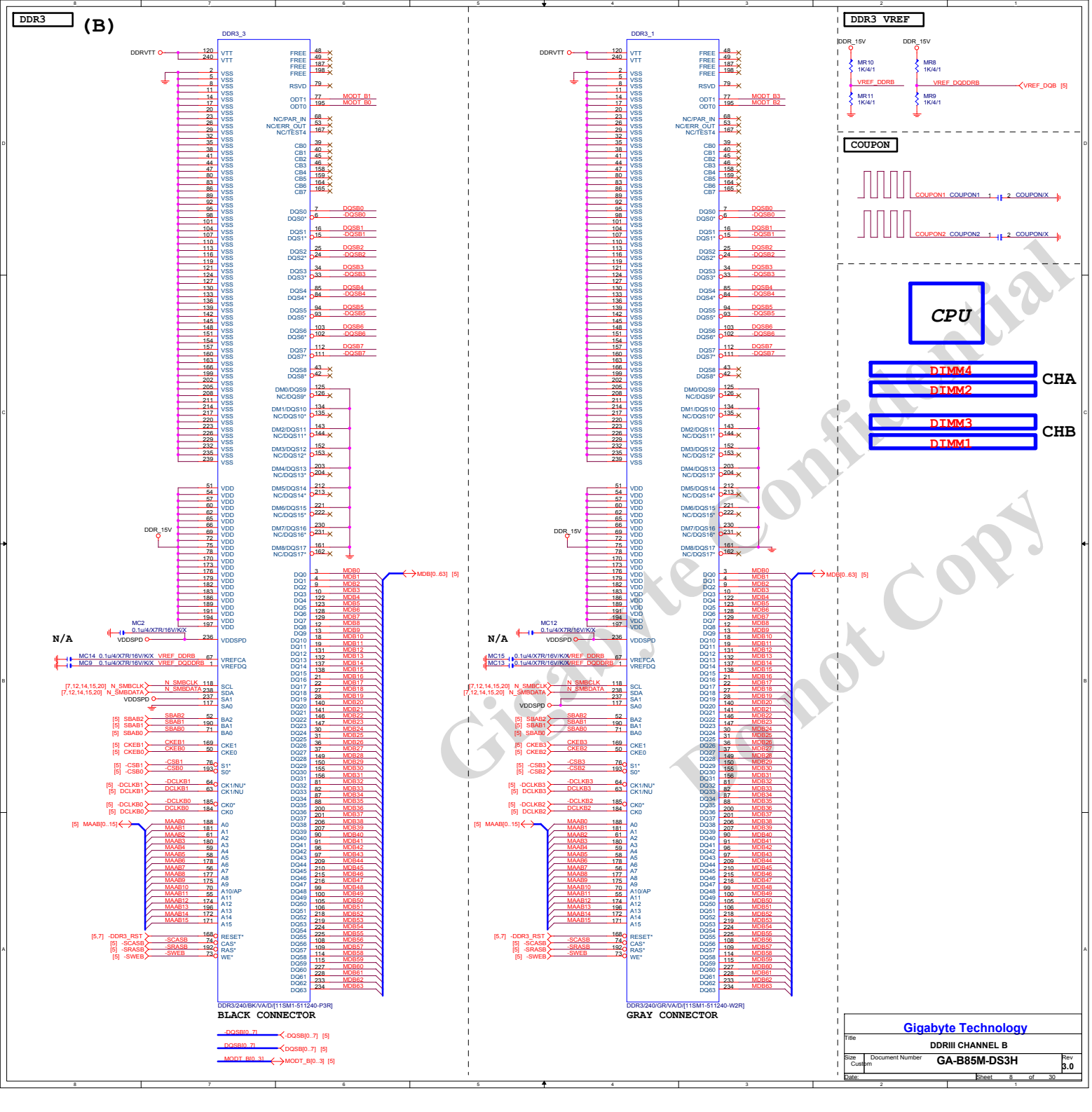
Gigabyte Confidential
Do not Copy



Gigabyte Technology

Title: DDRIII CHANNEL B

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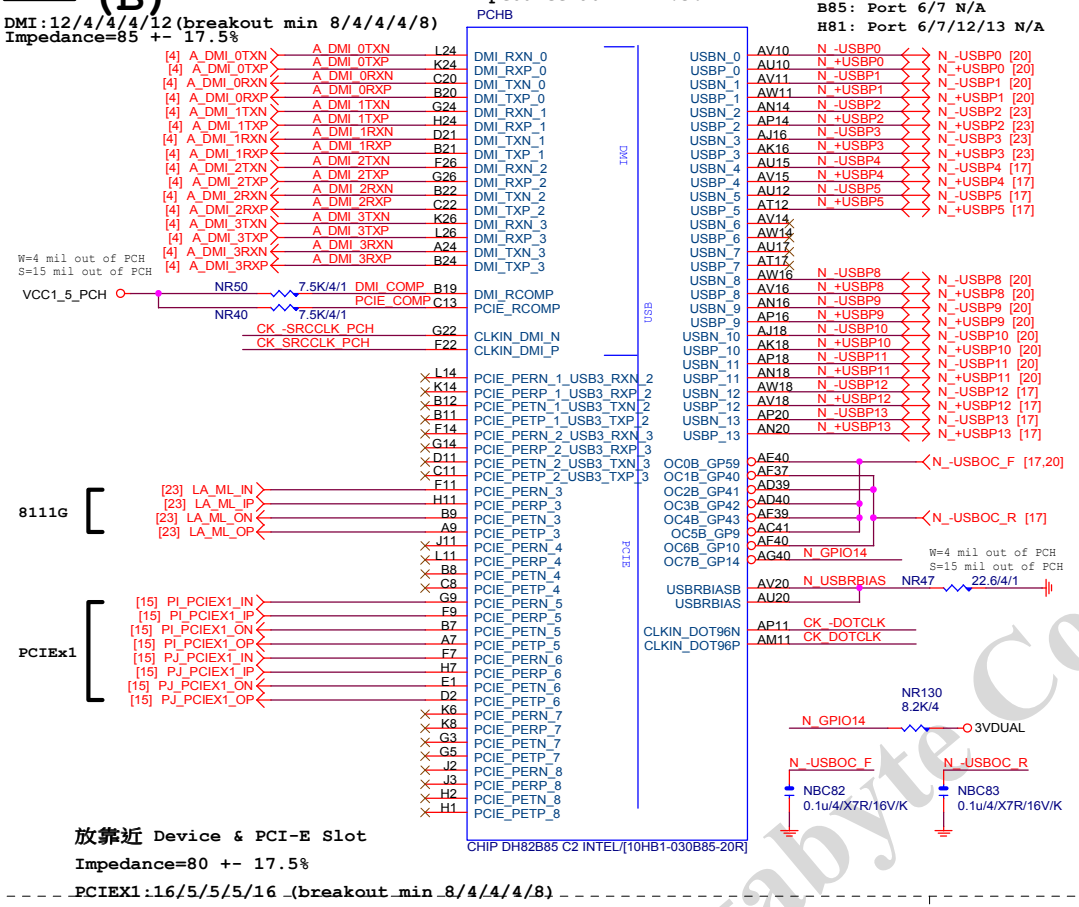
PCH (B)

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

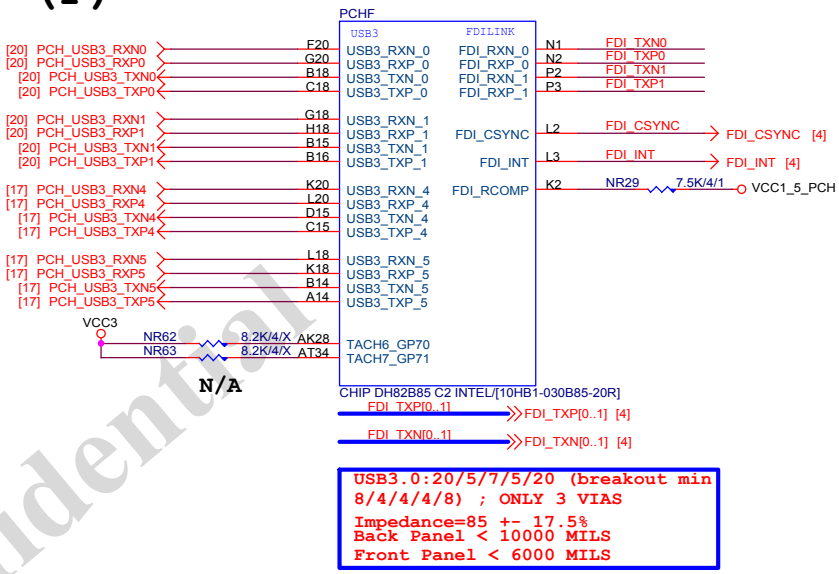
USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

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



放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

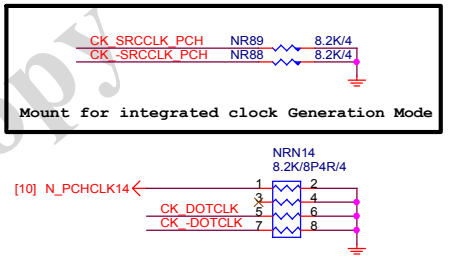
PCH (F)



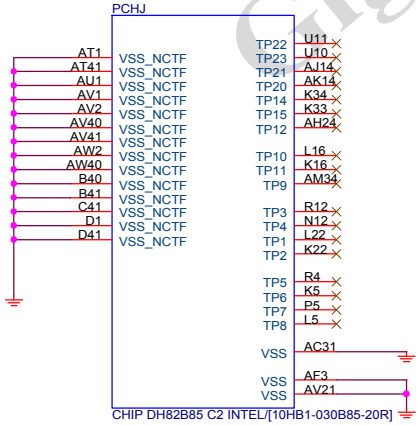
N/A

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

PCH CLK PD

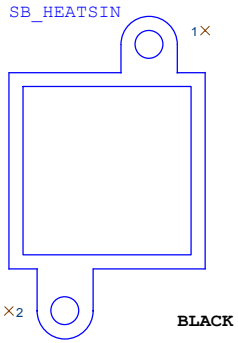


PCH (J)



PCH H/S

LOW COST ICH7 HEATSINK



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#	USB_LAN
OC2#	R_USB30
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	KB_MS_USB
OC7#	Not Use

Gigabyte Technology

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

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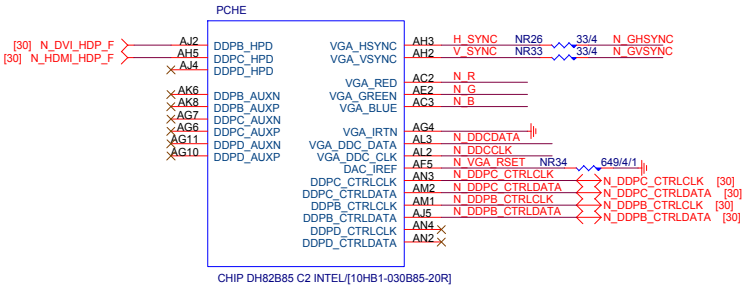
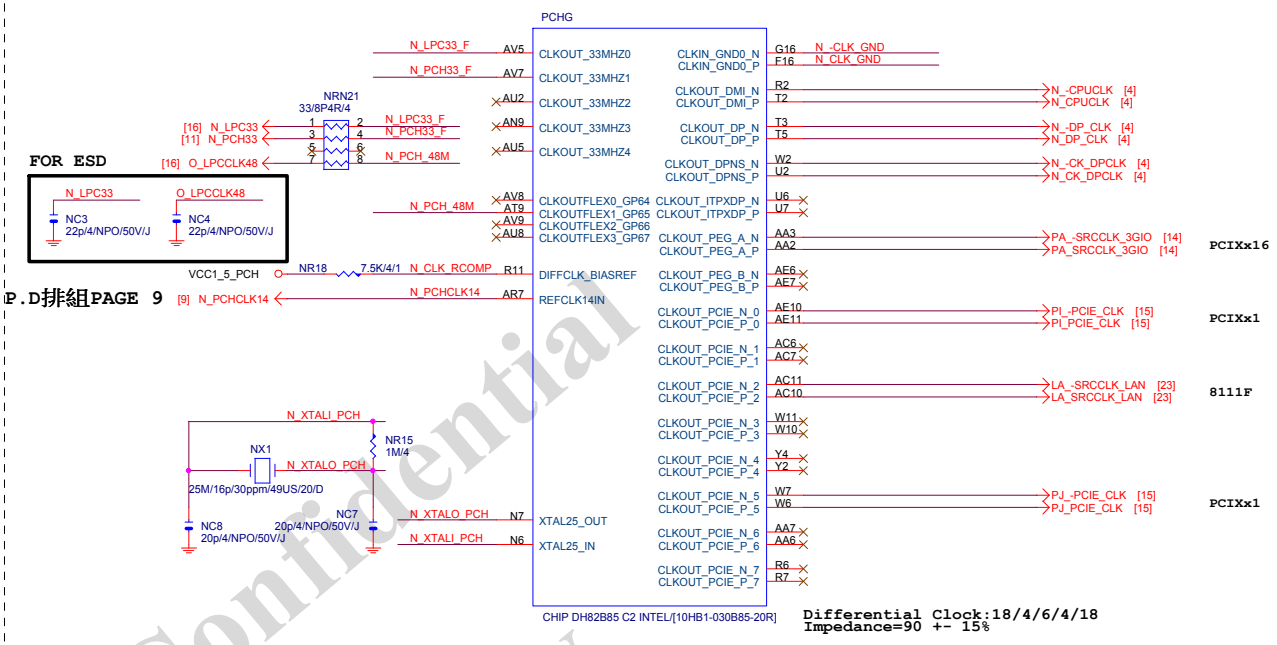
PCH (E)

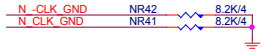


PCH (G)

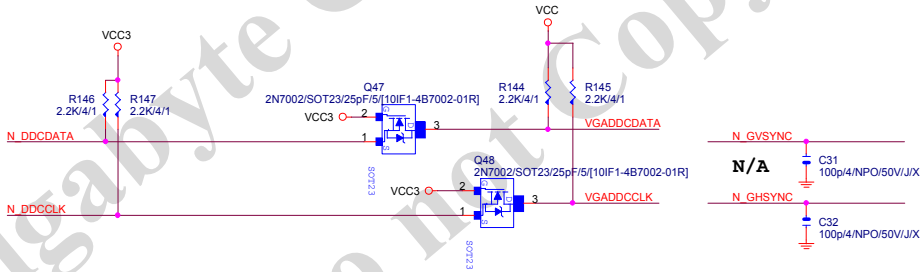


Differential Clock:18/4/6/4/18
Impedance=90 +- 15%

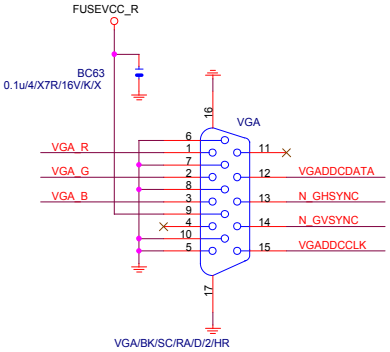
PCH CLK PD



VGA DDC

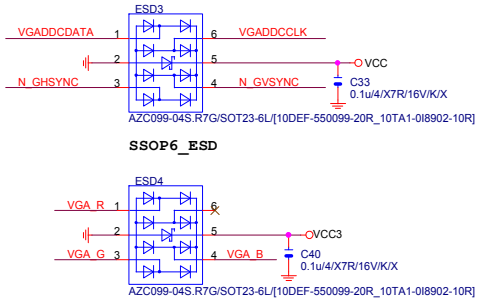


VGA CONNECTOR

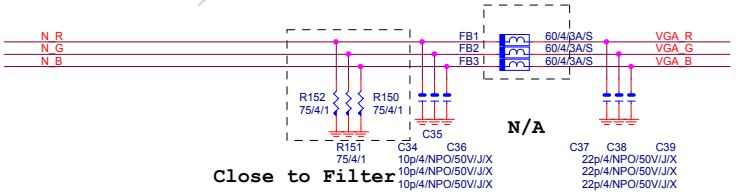


BLACK CONNECTOR

VGA ESD



VGA DDC



Close to Filter

Gigabyte Technology			
Title: PCH DISPLAY ,CLK BUFFER			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
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PCH (C)

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%

PCH (A)

PCH CLK PD

Mount for integrated clock Generation Mode

PCH PU/PD

SATA CONNECTOR Remove SATA MLCC [Footprint: C0402-SHORT4-MASK]

SATA3_0
SATA2/7/WH/H/OP/VA/D/1/B/PA66
WHITE CONNECTOR

SATA3_1
SATA2/7/WH/H/OP/VA/D/1/B/PA66
WHITE CONNECTOR

H81 Port 2/3 N/A

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

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

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

SATA2_4
SATA2/7/BK/H/OP/VA/D/1/B
BLACK CONNECTOR

SATA2_5
SATA2/7/BK/H/OP/VA/D/1/B
BLACK CONNECTOR

ME PWROK

N/A

GPIO37 PU VCC3 ENABLE SBA
For H87&B85

GPIO38 Ctrl

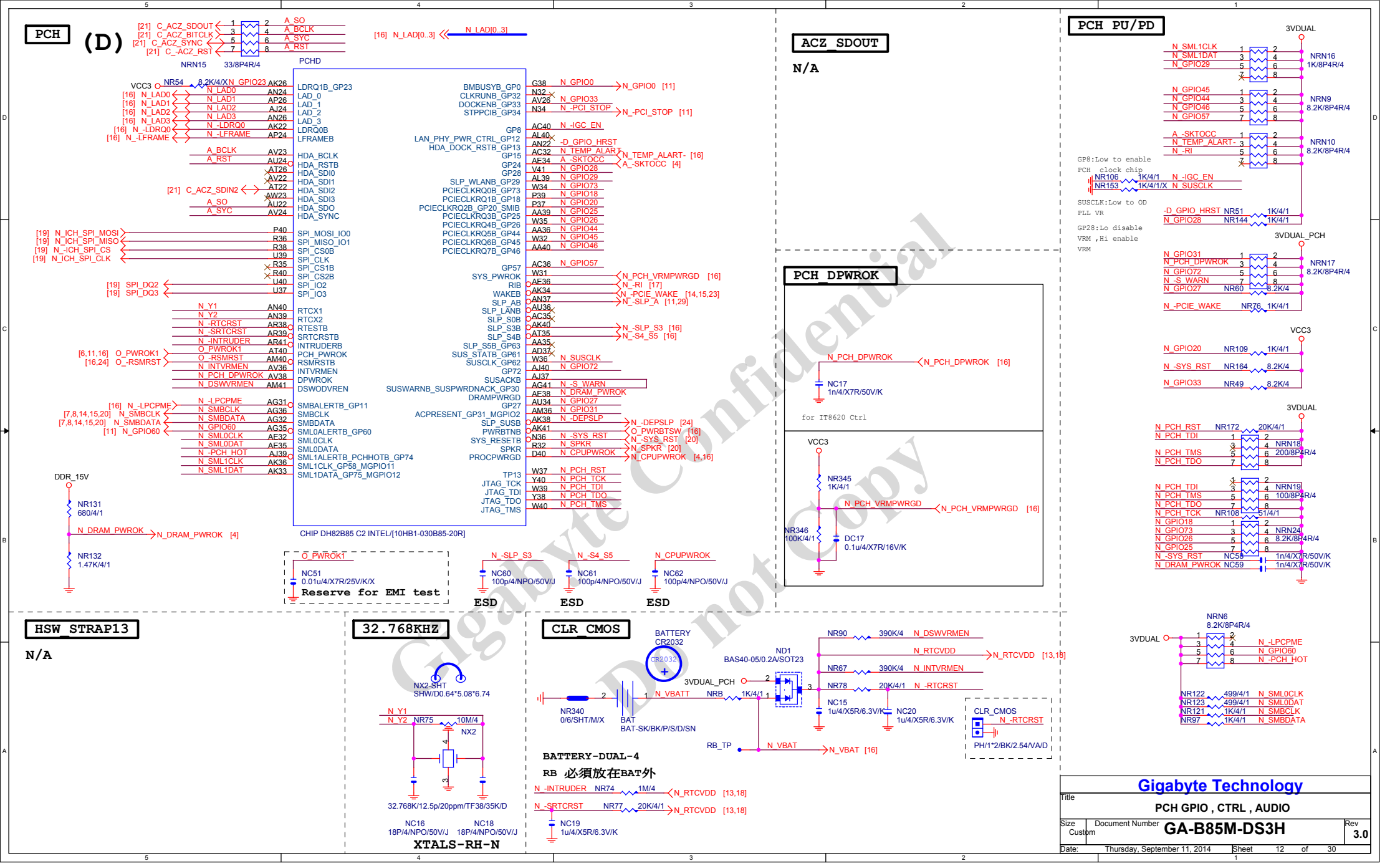
N/A

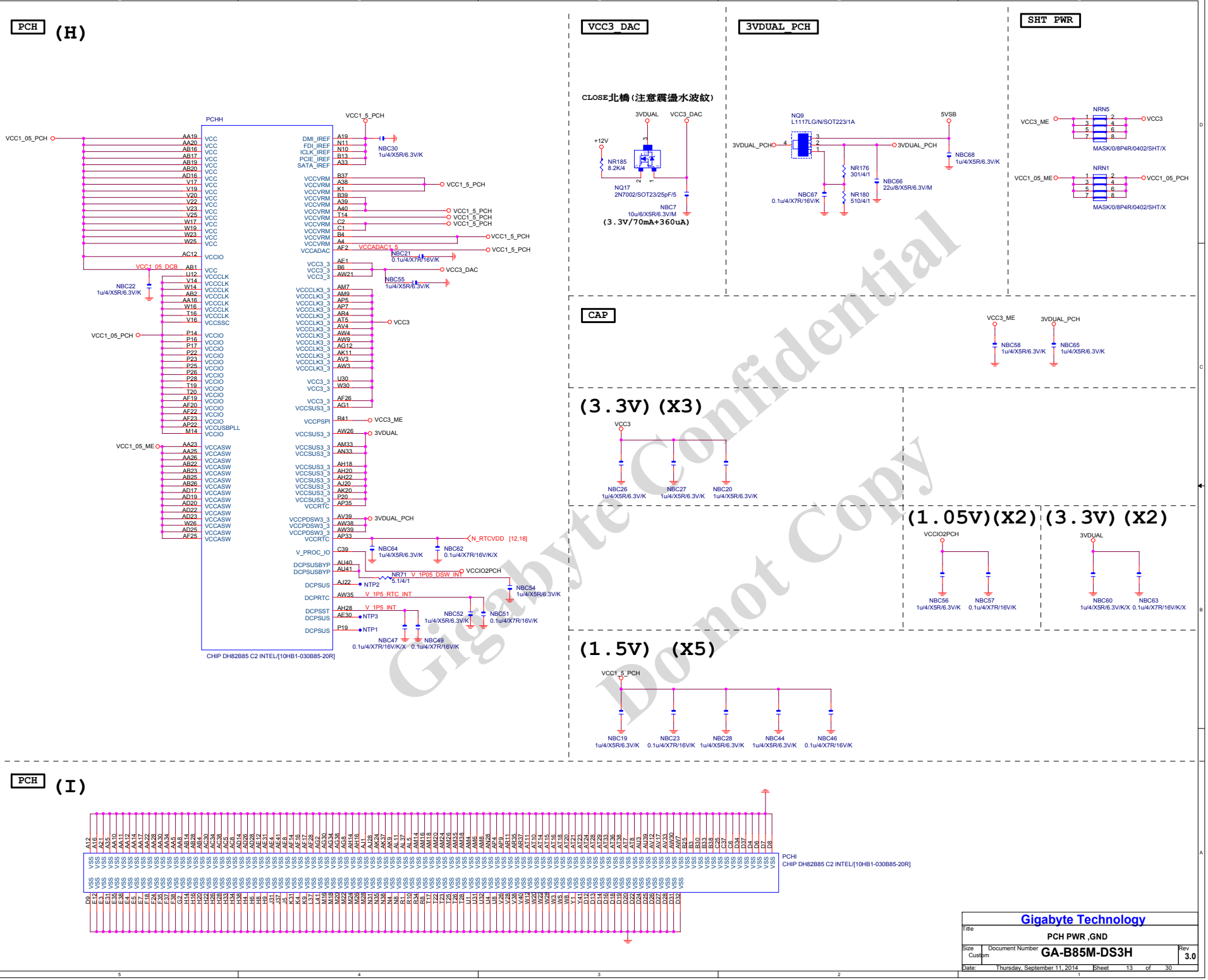
Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

Date: Thursday, September 11, 2014 | Sheet 11 of 30


PCH
(D)
PCHD
CHIP DH82B85 C2 INTEL/[10HB1-030B85-20R]
ACZ_SDOUT
N/A
PCH_DPWROK
PCH_PU/PD
Reserve for EMI test
ESD
ESD
ESD
HSW_STRAP13
N/A
32.768KHZ
XTALS-RH-N
CLR_CMOS
BATTERY-DUAL-4
RB 必須放在BAT外
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-B85M-DS3H
Rev 3.0
Thursday, September 11, 2014
Sheet 12 of 30
Do not Copy
Gigabyte Confidential



Title	PCH PWR ,GND
Size	Custom
Document Number	GA-B85M-DS3H
Rev	3.0
Date:	Thursday, September 11, 2014
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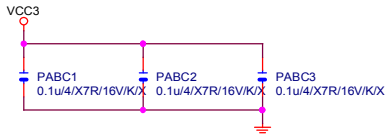
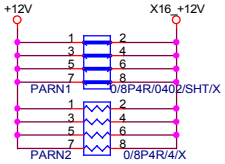
Gigabyte Technology

PCIEX16 CAP

N/A



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]

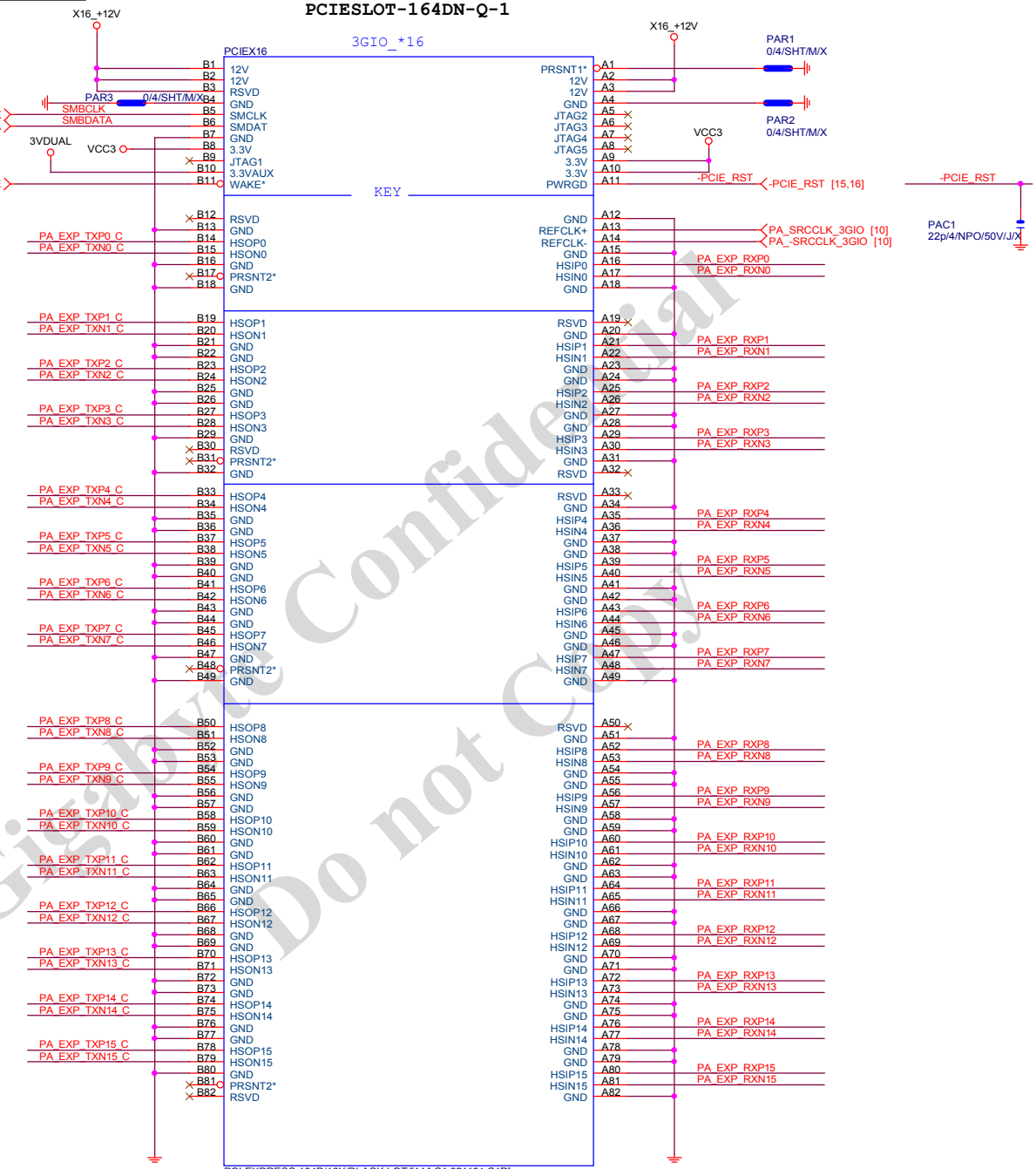
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [4]

PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [4]

PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [4]

PCIEX16 SLOT

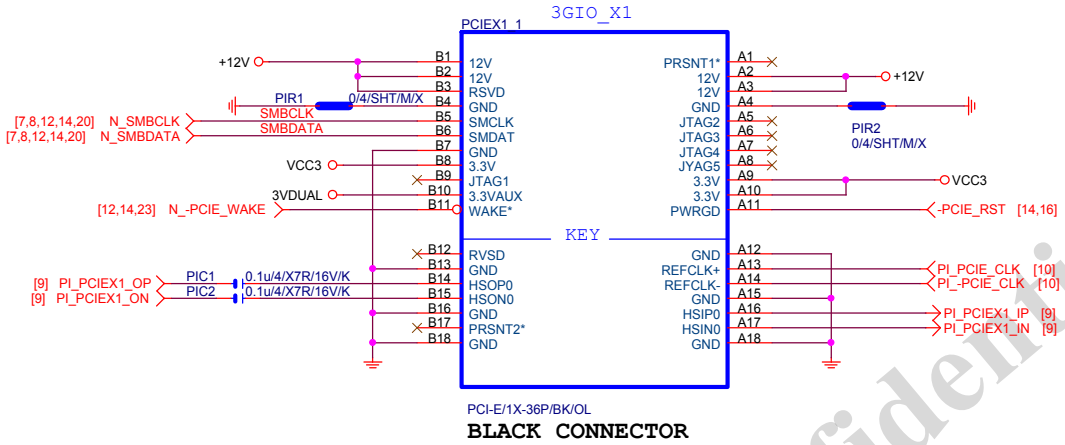
PCIESLOT-164DN-Q-1



BLACK CONNECTOR

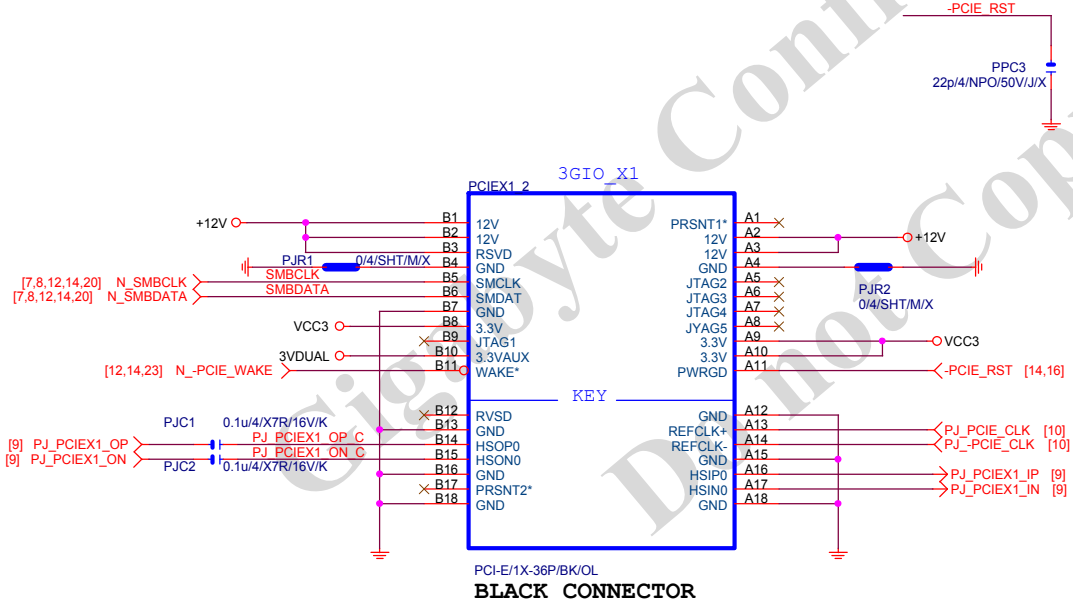
Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 14 of 30		

PCIEX1 SLOT



PCI-E/1X-36P/BK/OL

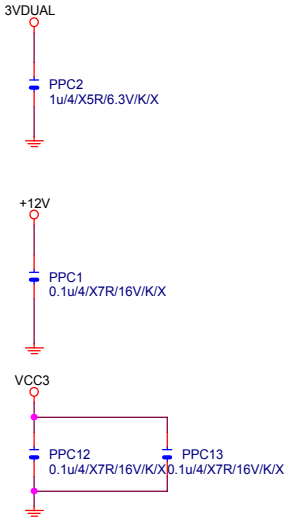
BLACK CONNECTOR



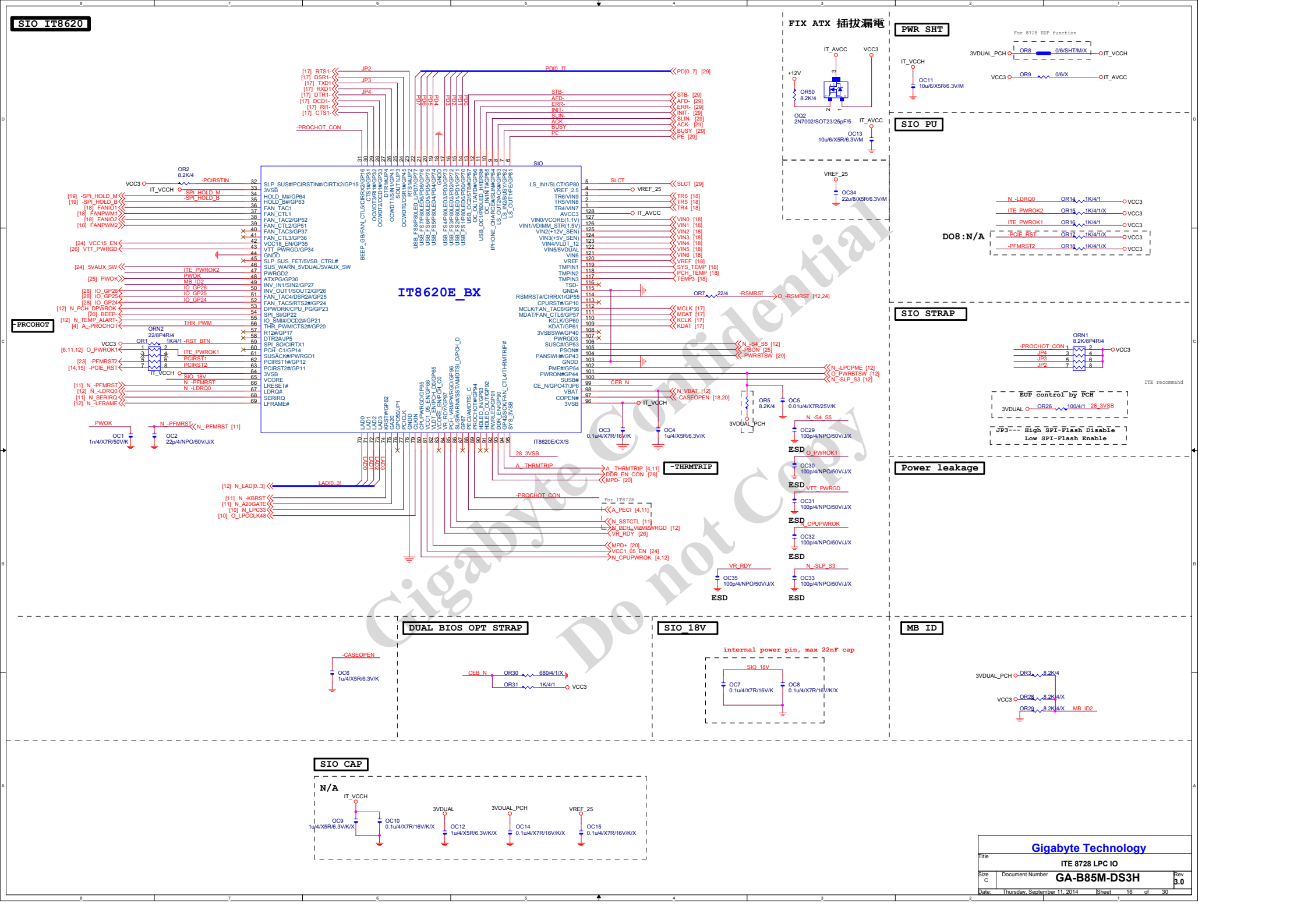
PCI-E/1X-36P/BK/OL

BLACK CONNECTOR

N/A



Gigabyte Technology		
Title: **PCI EXPRESS X 1 PORT**		
Size: Custom	Document Number: **GA-B85M-DS3H**	Rev: **3.0**
Date: Thursday, September 11, 2014	Sheet 15 of 30	


SIO IT8620
IT8620E_BX
SIO
IT8620E/CX/S
FIX ATX 插拔漏電
PWR SHT
SIO PU
SIO STRAP
Power leakage
DUAL BIOS OPT STRAP
SIO 18V
MB ID
SIO CAP
-PRCOHOT
-THRMTRIP
DO8:N/A
internal power pin, max 22nF cap
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ITE 8728 LPC IO
GA-B85M-DS3H
Rev 3.0
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COM

AU1 GD75232/TSSOP20

[16] RI1- 19 RY1 — RA1 2 NRIA-
[16] CTS1- 18 RY2 — RA2 3 NCTSA-
[16] DSR1- 17 RY3 — RA3 4 NDSRA-
[16] RTS1- 16 DA1 — DY1 5 NRTSA-
[16] DTR1- 15 DA2 — DY2 6 NDTRA-
[16] RXD1 14 DA3 — DY3 7 NSINA
[16] TXD1 13 DA4 — RA4 8 NSOUTA
[16] DCD1- 12 RY5 — RA5 9 NDCDA-

-12V 10 GND -12V — 5V 12V 20 1 VCC +12V

ABC2 0.1u/4/X7R/16V/K/X
ABC1 0.1u/4/X7R/16V/K

ACN2: NDTRA- NSINA NSOUTA NDCDA-
ACN1: NRIA- NCTSA- NDSRA- NRTSA-
180p/8P4C/6/NPO/50V/K

COM: NDCDA- NSOUTA NRTSA- NRIA- / NSINA NDTRA- NDSRA- NCTSA-
PH/2*5K10/BK/2.54/VA/D
PIN2X5-CUT10-COM
BLACK CONNECTOR

COM RI

-RI → N_-RI [12]
R90 75K/4/1
Q7 MMBT2222A/SOT23/600m A/40 SOT23
NRIA-
R91 8.2K/4

KB/MS

FUSEVCC_R FUSEVCC_R
UBC8 0.1u/4/X7R/16V/K/X
N/A

KB_MS_USB
[9] N_-USBP12 [9] N_+USBP12 — U5 U6 U7 U8 — U1 U2 U3 U4 — N_-USBP13 [9] N_+USBP13 [9]
FUSEVCC_R
KBDATA 1
MSDATA 2
KBCLK 5
MSCLK 6
KB 4 3
G1 G2 G3 G4
KB/USB/A/PC99(DUAL)/GF/2/RA/D
AGND1

R707 0/6/X
For EMI AGND1

FUSEVCC_R
RN1 8.2K/8P4R/6
1 2 MCLK
3 4 MDAT
5 6 KDAT
7 8 KCLK

FOR鹽化短路
[16] KCLK — KCLK R58 82/6 KBCLK
[16] KDAT — KDAT R59 82/6 KBDATA
[16] MDAT — MDAT R57 82/6 MSDATA
[16] MCLK — MCLK R56 82/6 MSCLK
CN1 180p/8P4C/6/NPO/50V/K

USB2.0 ESD

ESD2
N_-USBP12 1 — 6 N_+USBP12
2 — 5 FUSEVCC_R
N_+USBP13 3 — 4 N_-USBP13
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB2.0 PWR

FUSE-0805
5VDUAL — F3 1 2 — FUSEVCC_R
SPR-P200T/6V/8/S

Close to connector
KB_MS_USB 2-Port 2.0A

USB30_20

R_USB30
USB/18P/BU/OS/RA/D/2/1U/SB
USB3.0/2.0

FUSEVCC_USB3_R3
[9] N_-USBP4 [9] N_+USBP4
[9] PCH_USB3_RXN4 [9] PCH_USB3_RXP4
[9] PCH_USB3_TXN4 [9] PCH_USB3_TXP4
UBC9 UBC10 — PCH_USB3_TXN4C PCH_USB3_TXP4C
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

N/A
BC6 0.1u/4/X7R/16V/K/X
FUSEVCC_USB3_R3
N_-USBP5 [9] N_+USBP5 [9]
PCH_USB3_RXN5 [9] PCH_USB3_RXP5 [9]
PCH_USB3_TXN5 [9] PCH_USB3_TXP5 [9]
PCH_USB3_TXN5C PCH_USB3_TXP5C
UBC11 UBC12
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

AGND AGND AGND AGND — G1 G2 G3 G4

USB30_20 ESD PROCTECT

PCH_USB3_TXN5C PCH_USB3_TXP5C — PCH_USB3_TXP4C PCH_USB3_TXN4C
NC NC GND NC NC — D1 D1 GND D2 D2
UESD5 AZ1045-04F/MSOP10
PCH_USB3_TXP5C PCH_USB3_TXN5C — PCH_USB3_TXN4C PCH_USB3_TXP4C

PCH_USB3_RXN4 PCH_USB3_RXP4 — PCH_USB3_RXP5 PCH_USB3_RXN5
NC NC GND NC NC — D1 D1 GND D2 D2
UESD6 AZ1045-04F/MSOP10
PCH_USB3_RXP4 PCH_USB3_RXN4 — PCH_USB3_RXN5 PCH_USB3_RXP5

USB3.0 ESD

USB2.0 ESD

ESD1
N_-USBP4 1 — 6 N_+USBP4
2 — 5 FUSEVCC_USB3_R3
N_+USBP5 3 — 4 N_-USBP5
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB30_20 PWR

5VDUAL — F11 1 2 — FUSEVCC_USB3_R3
SPR-P260T/6V/8/S
UEC6 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R]

USB3.0 1Port - 1Fuse (2.6A)

-USBOC_R

SOT23
FUSEVCC_R
FUSEVCC_USB3_R3
UD5 BAT54A/SOT23/200mA
FUSEVCC_R2
UR3 8.2K/4
N_-USBOC_R — N_-USBOC_R [9]
UR4 15K/4/1

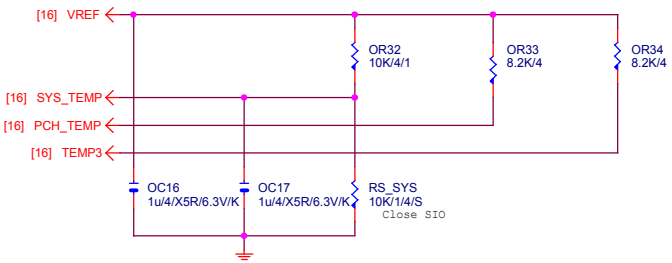
USB POWER PROTECT

SOT23
[11] N_GPIO1 — 3 — 1 N_-USBOC_F — N_-USBOC_F [9,20]
2 N_-USBOC_R
UAD5 BAT54A/SOT23/200mA

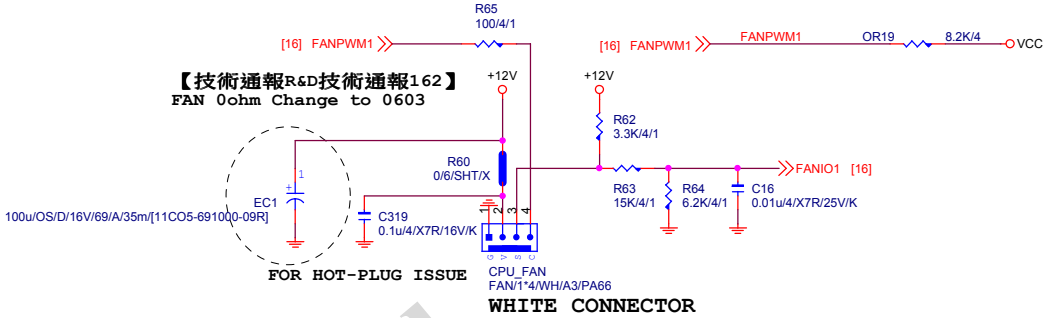
Gigabyte Technology

Title	COM,-RI,KB_USB,USB_ESATA,-PROCHOT	
Size: Custom	Document Number: GA-B85M-DS3H	Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 17 of 30	

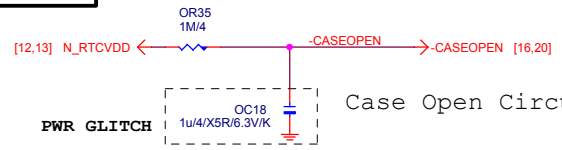
TEMP H/W MONITOR



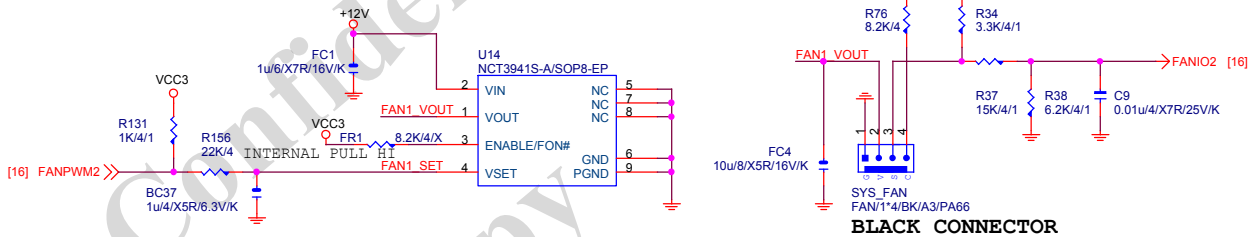
CPU SMART FAN



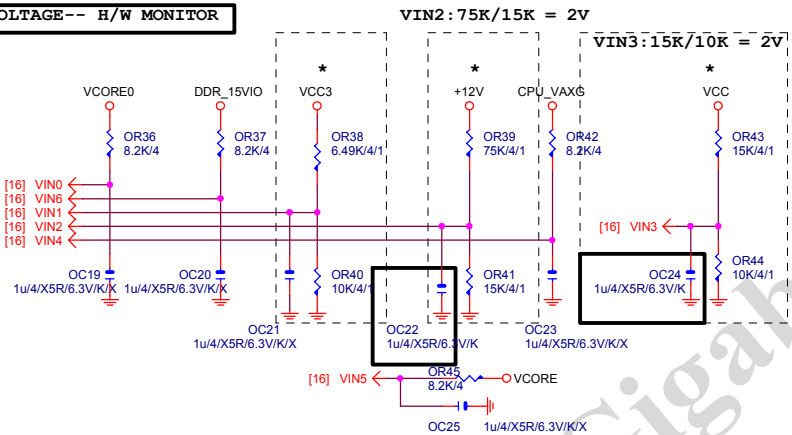
CASE OPEN

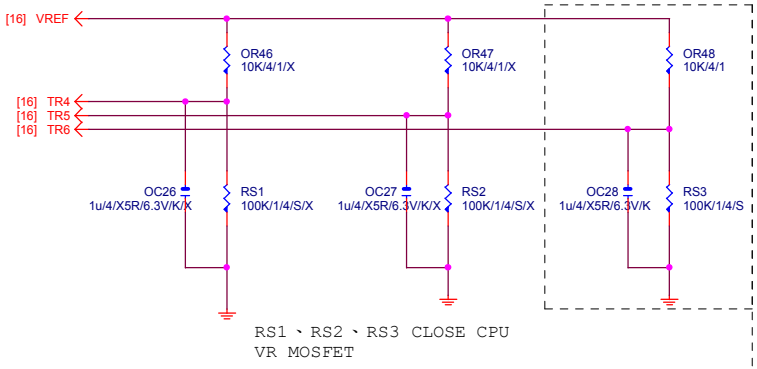


SYS SMART FAN

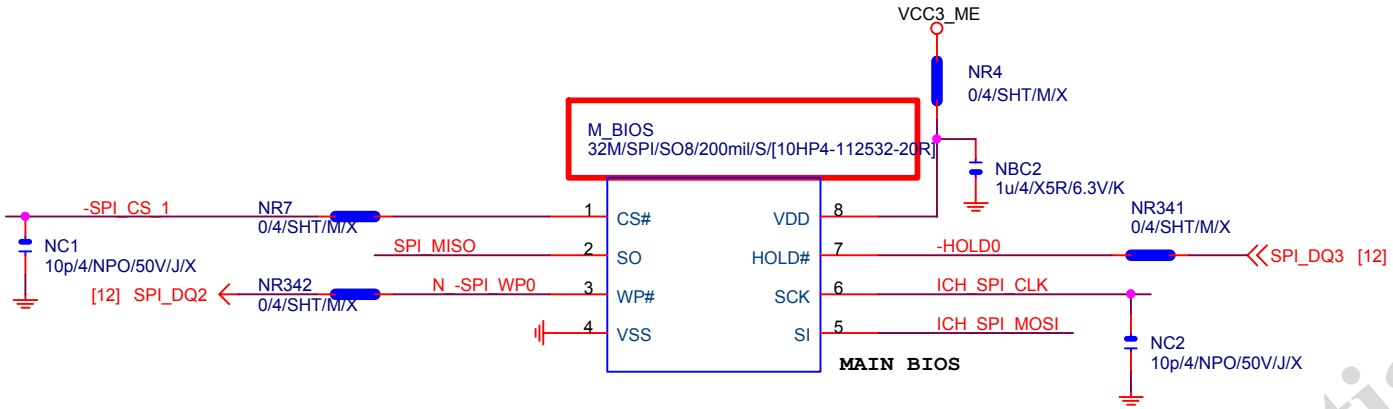


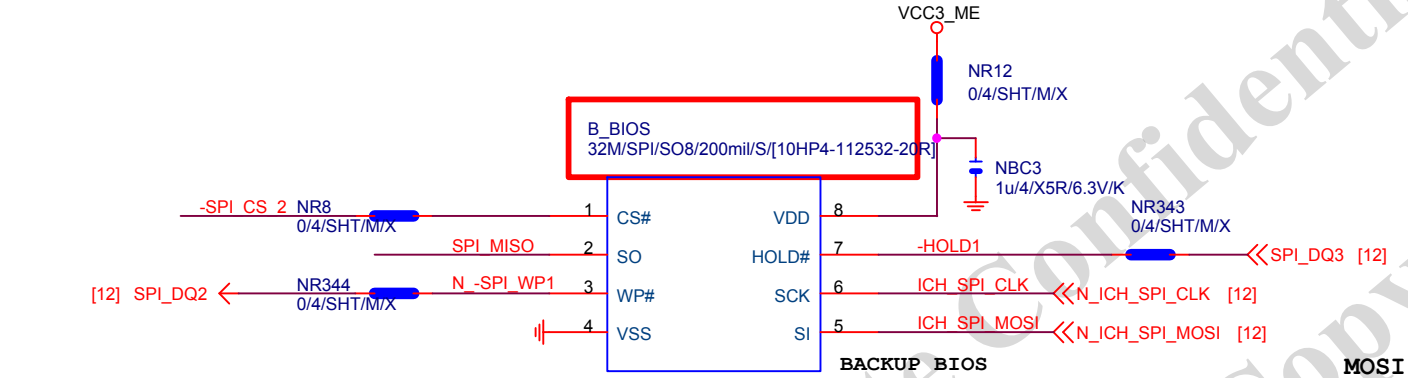
VOLTAGE-- H/W MONITOR





Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-B85M-DS3H	Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 18 of 30	

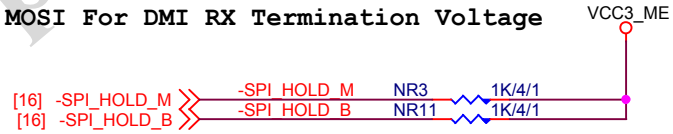


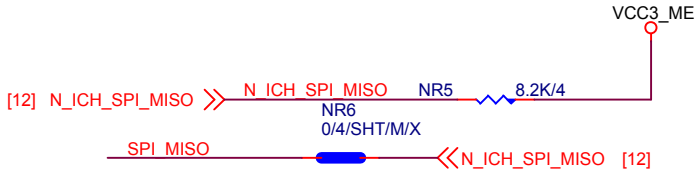


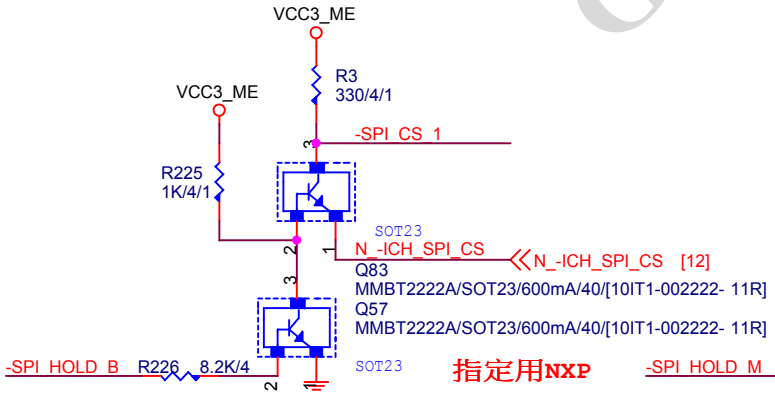
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

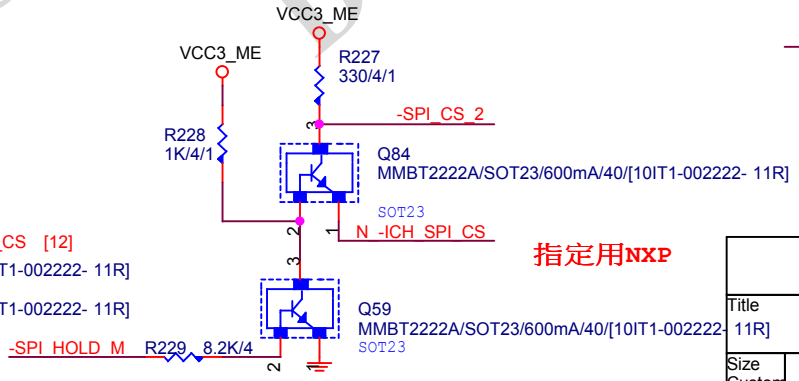
1 means floating
0 means PD 1K

MOSI For DMI RX Termination Voltage









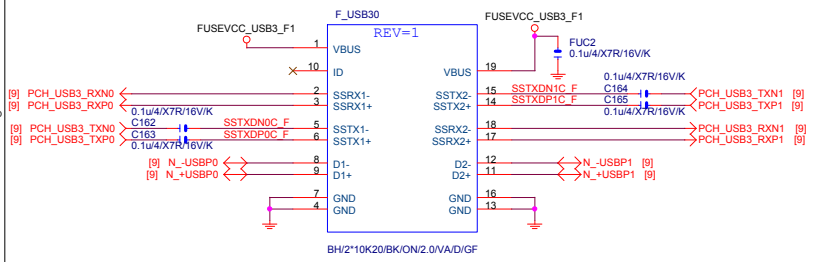
Gigabyte Technology

Title: DUAL BIOS

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

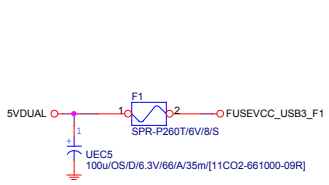
Date: Thursday, September 11, 2014 | Sheet 19 of 30

F_USB30



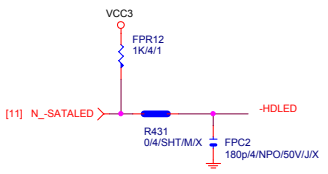
BLACK CONNECTOR

F_USB30 PWR

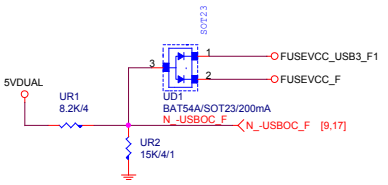


USB3.0 1Port - 1Fuse (3.5A)

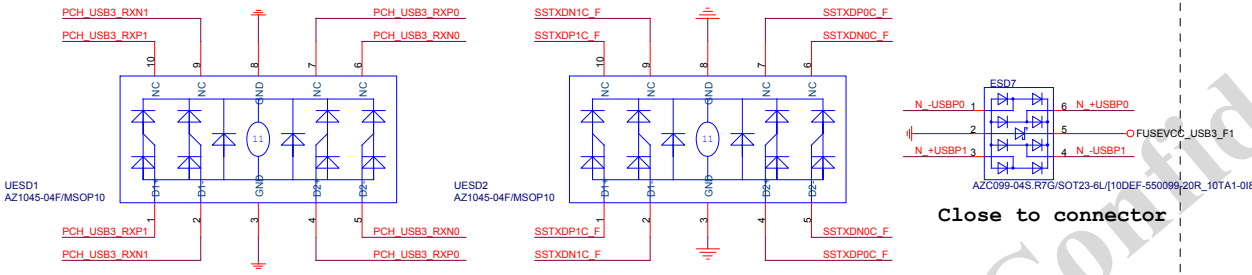
SATA LED



-USBOC_F

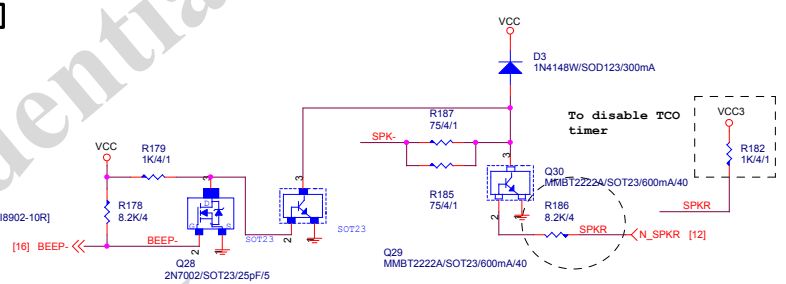


F_USB30 ESD PROTECT

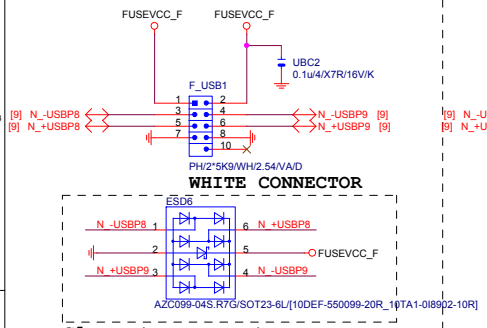


Close to connector

SPKR



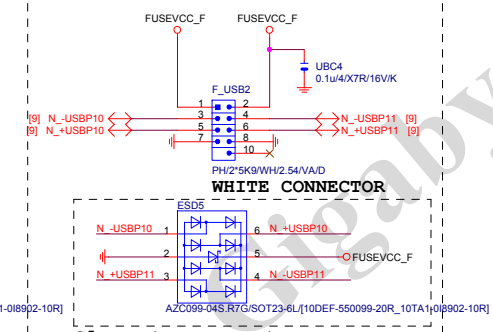
FRONT USB1



WHITE CONNECTOR

Close to connector

FRONT USB2

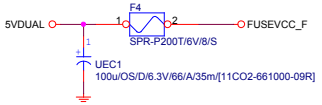


WHITE CONNECTOR

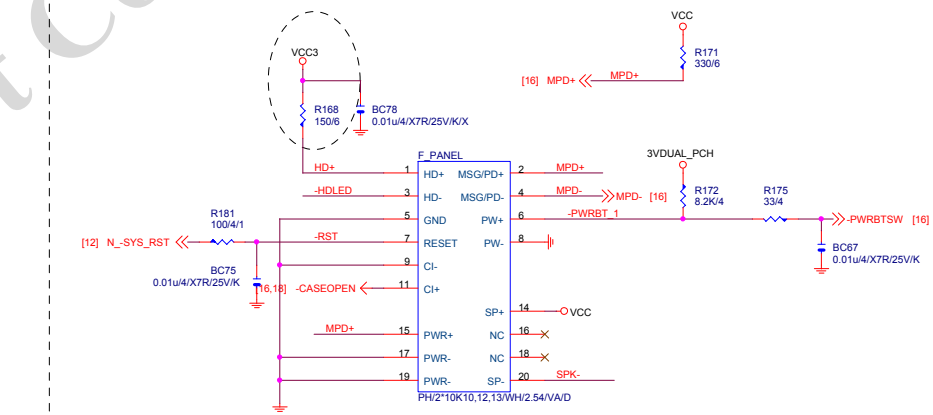
Close to connector

FUSE-0805

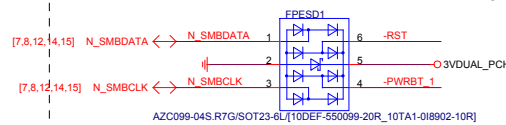
F_USB1, F_USB2 4-Port 2.0A



INTEL FRONT PANEL



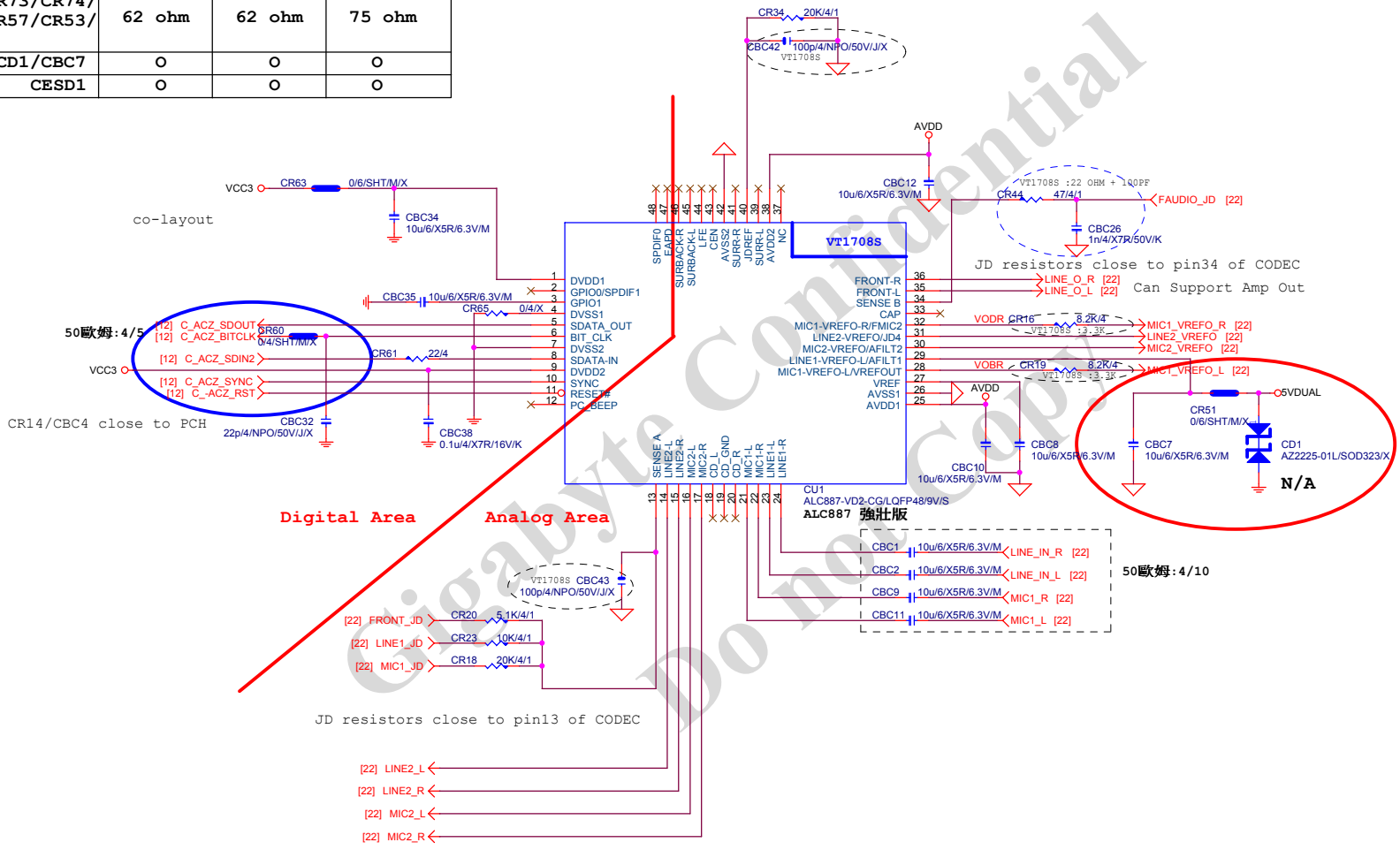
PIN2X10PANEL_NEW



Gigabyte Technology			
Title: FP,F_USB,USB PWR,SPKR,SATA LED			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 20 of 30		

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	O	O	O
CESD1	O	O	O

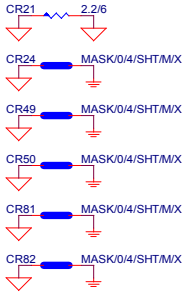


Gigabyte Technology

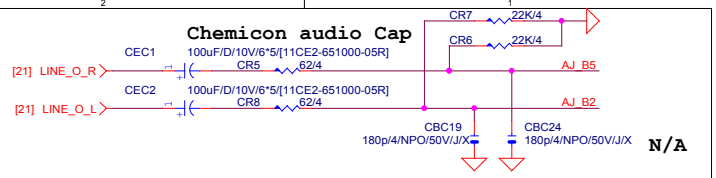
Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

Date: Thursday, September 11, 2014 | Sheet 21 of 30

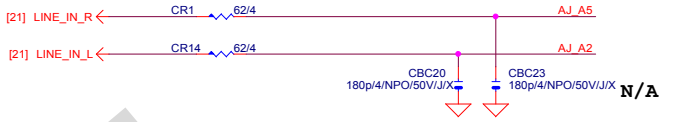


LINE-OUT



Only reserved for ALC888

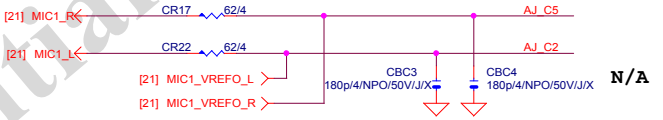
LINE-IN



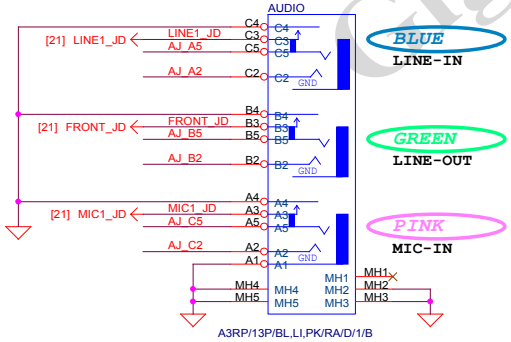
Verify MIC function in LINE-in

For 889A/888

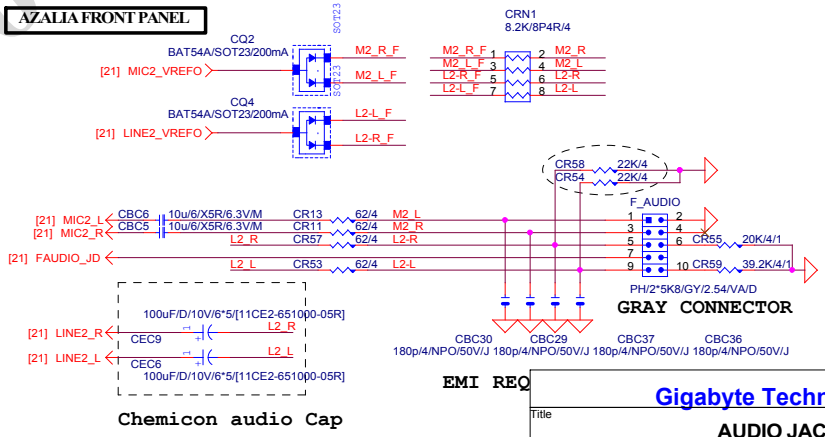
MIC-IN



SPDIF_OUT

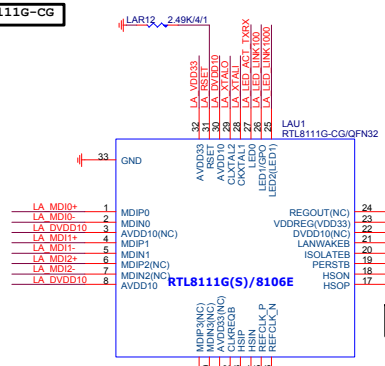


AZALIA FRONT PANEL



Gigabyte Technology			
Title: AUDIO JACK			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 22 of 30		

LAN RTL8111G-CG

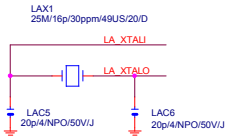


離IC近越好

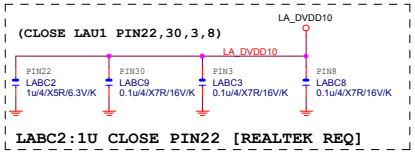
SRCCLK-->50歐姆:[18/4/10/4/18]

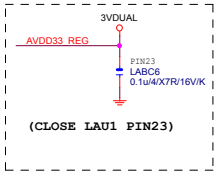
LA_ ML-->80歐姆:[15/5/5/5/15]

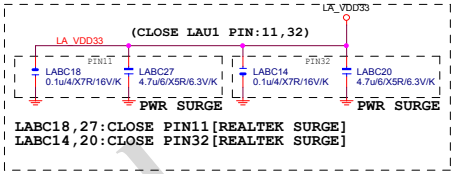
LAX1

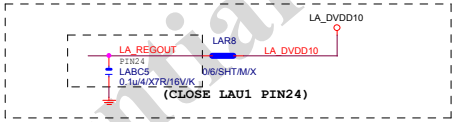


LAN POWER



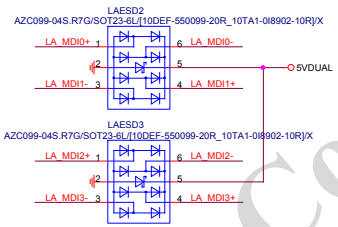






NOTE:
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

MDI ESD預留28KV ★

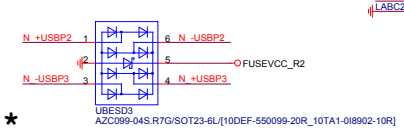


BOM NOTICE ★

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]		

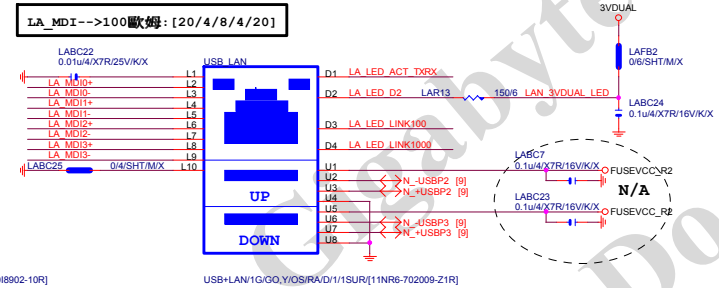
1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

USB_LAN CONNECTOR



★
使用RU9 USB_LAN可省略LAESD1保護LED

LA_MDI-->100歐姆:[20/4/8/4/20]



USB+LAN/1G/GO,Y/OS/RA/D/1/1SUR/[11NR6-702009-Z1R]

Surge加強RJ45 connector

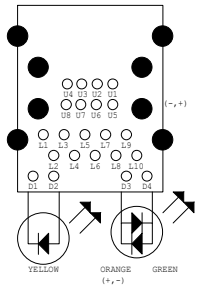
USB X3 POWER

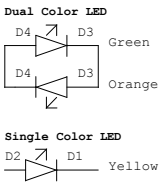
FUSE-0805

EMI SHORT PAD

PS:視EMI需求

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

Gigabyte Technology			
Title: Realtek RTL8111G			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
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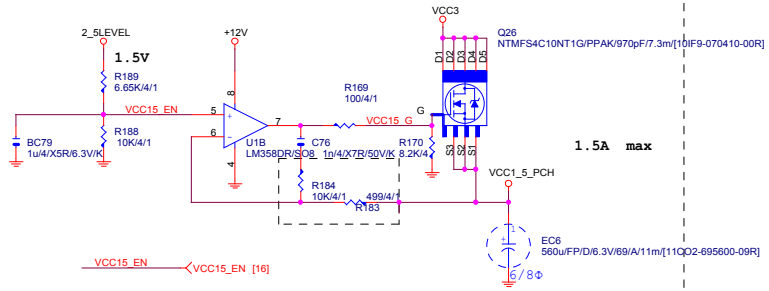
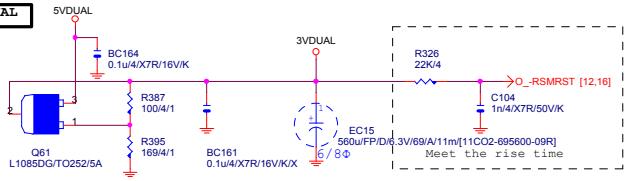
VCC1_5_PCH

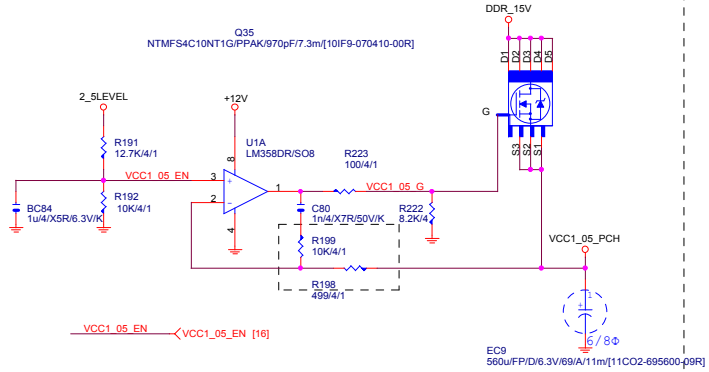


2_5LEVEL

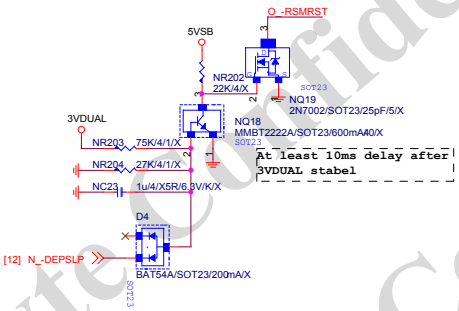
3VDUAL



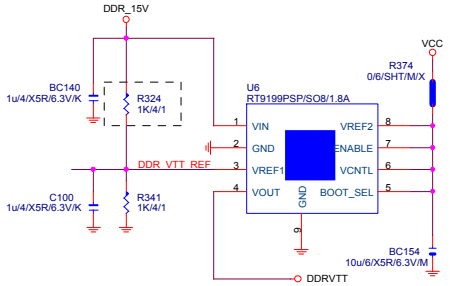
VCC1_05_PCH



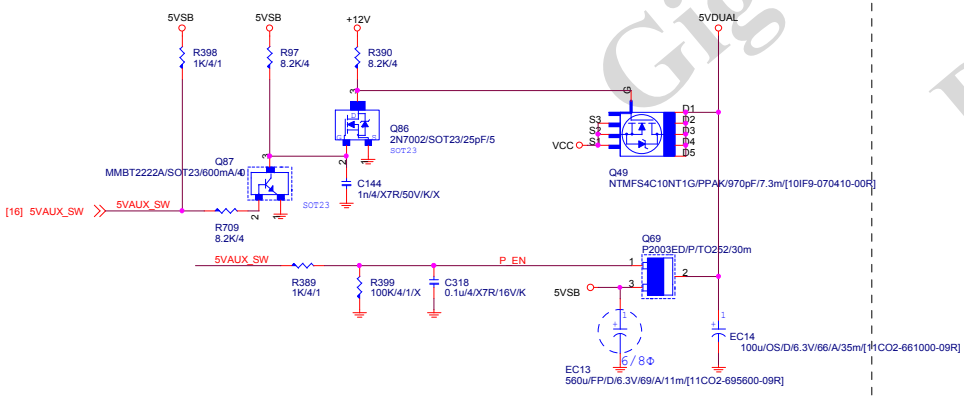
N/A



DDRVTT



5VDUAL



Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-B85M-DS3H	Rev: 3.0
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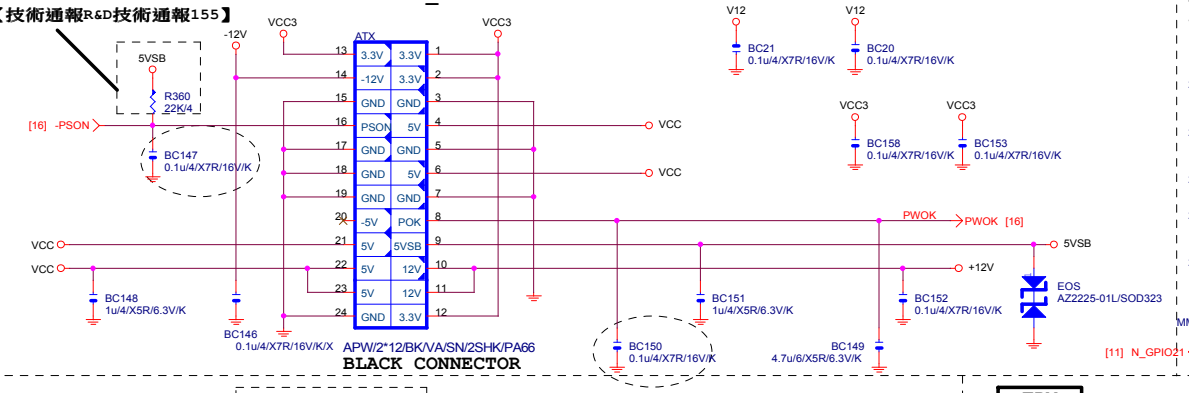
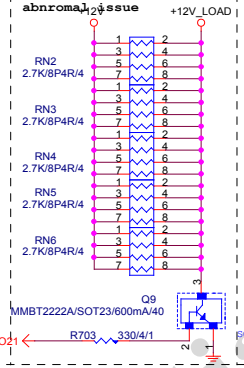
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】

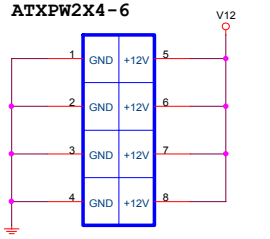
ATXPWR_24-6



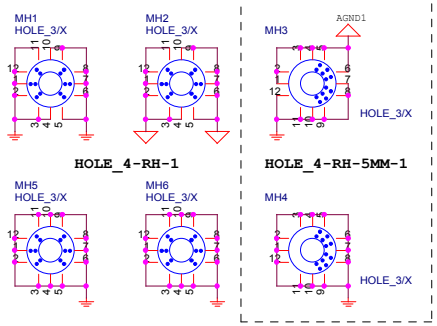


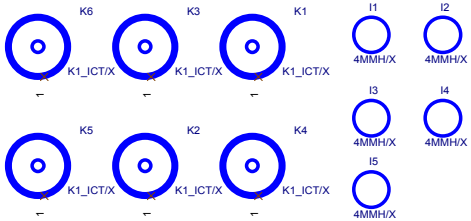
ATXX4 POWER CONNECTOR

ATXPW2X4-6



TPM

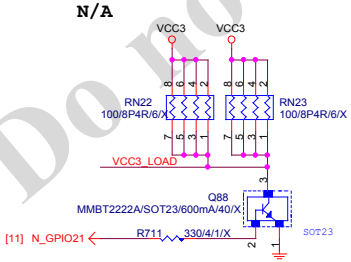




To prevent the 5VSB under loading when boot

FIX PWR MINMUN LOAD

N/A



PWOK PATCH

【技術通報R&D技術通報154】

Gigabyte Technology			
Title: ATX CONNECTOR			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
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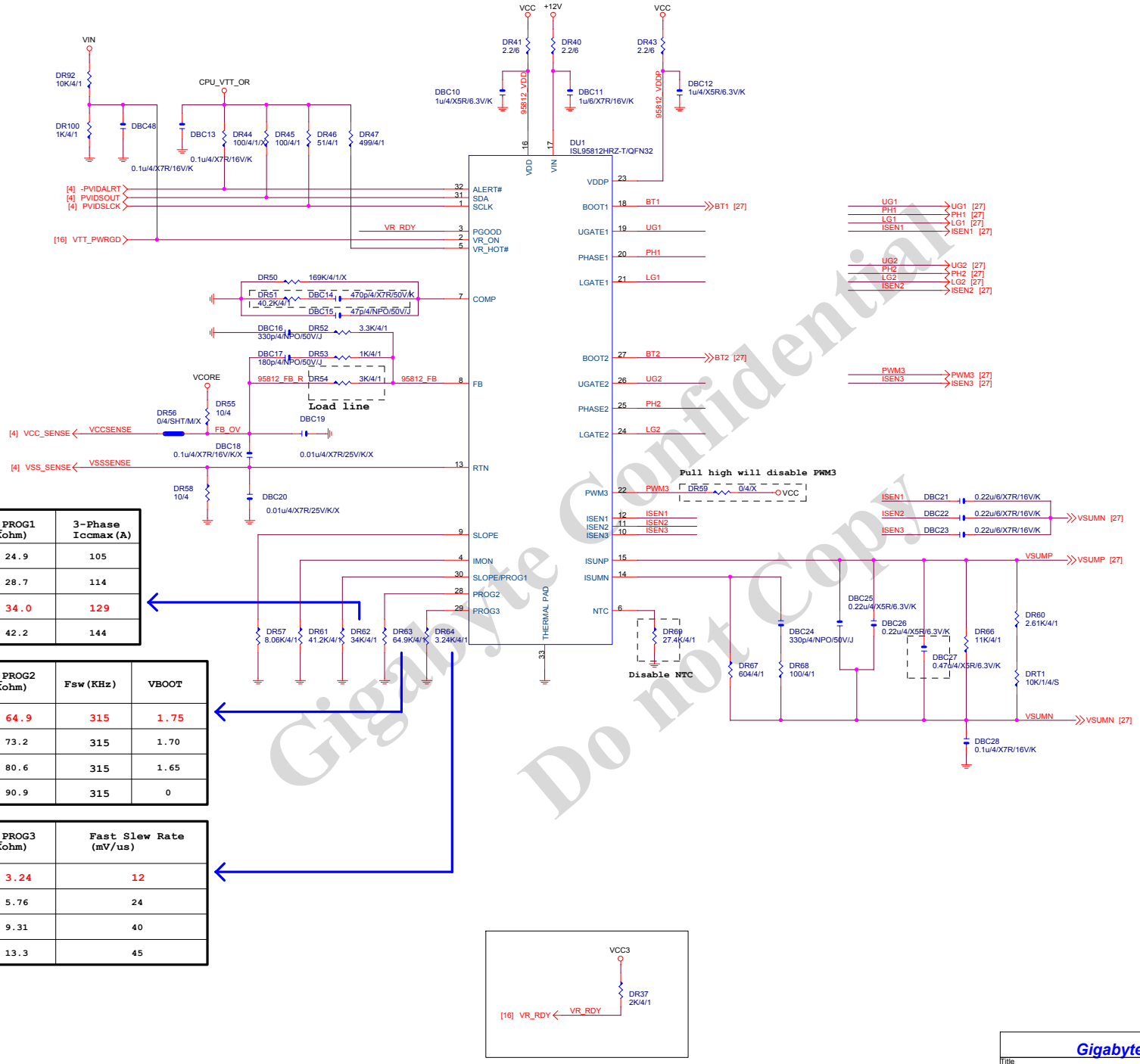


R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

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

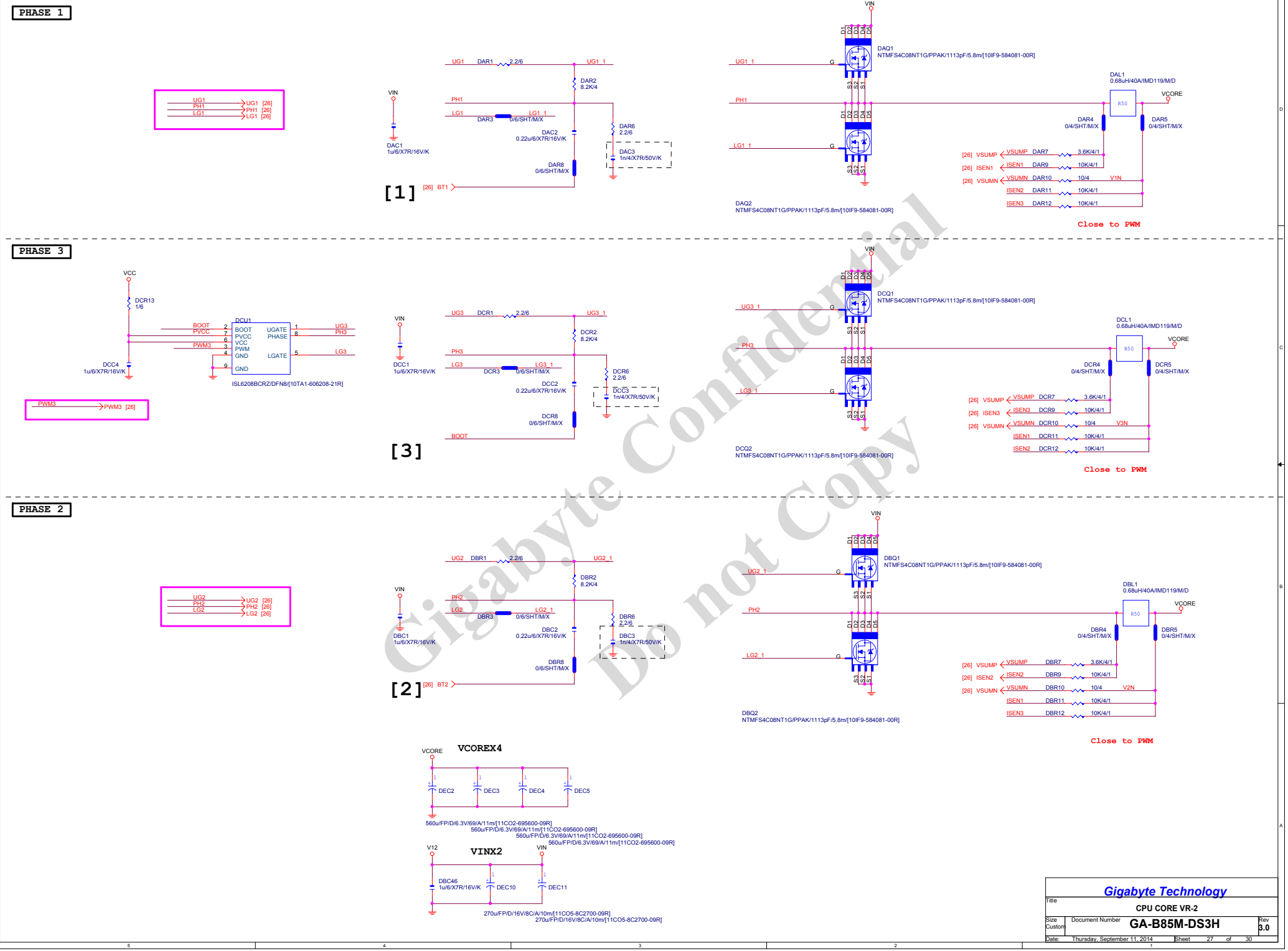
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45

Gigabyte Technology

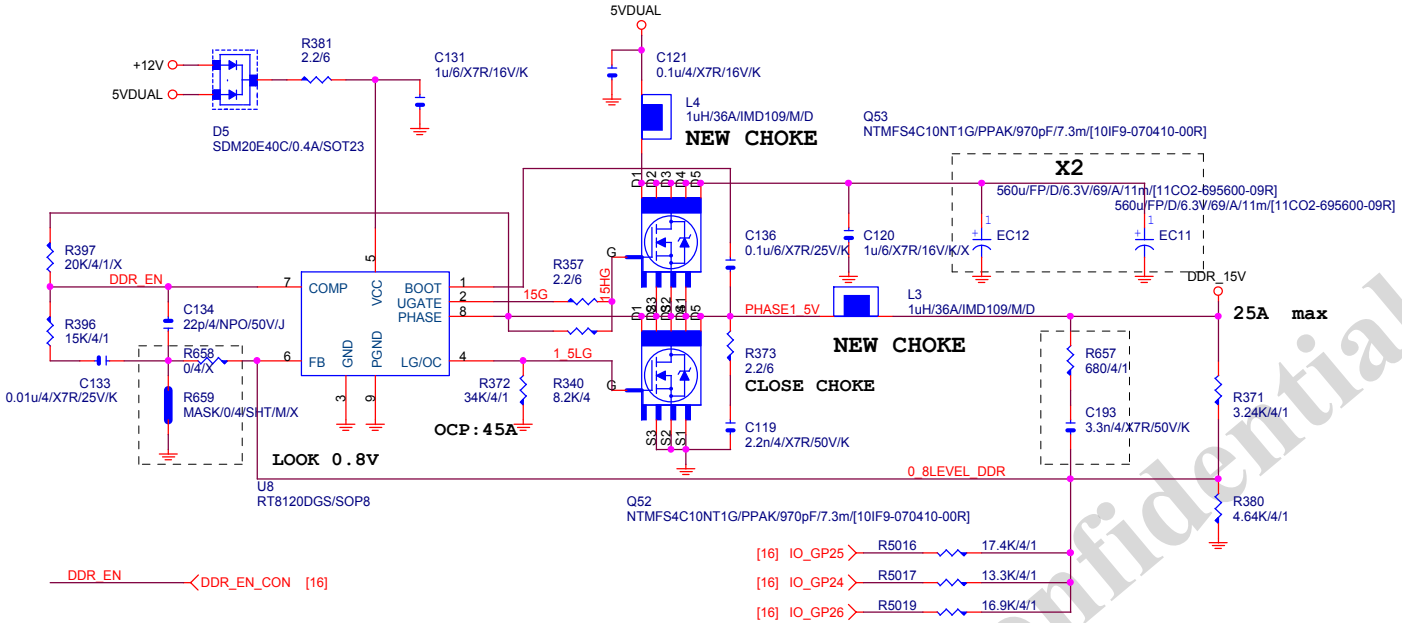
Title: CPU CORE VR-1

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

Date: Thursday, September 11, 2014 | Sheet 26 of 30



DDR15V



From DDR_15V source
10 mils trace to SIO

PWR SEQ

GP26	H	L	L	L
GP25	H	H	L	H
GP24	H	H	H	L
	1.35V	1.50V	1.65V	1.70V

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

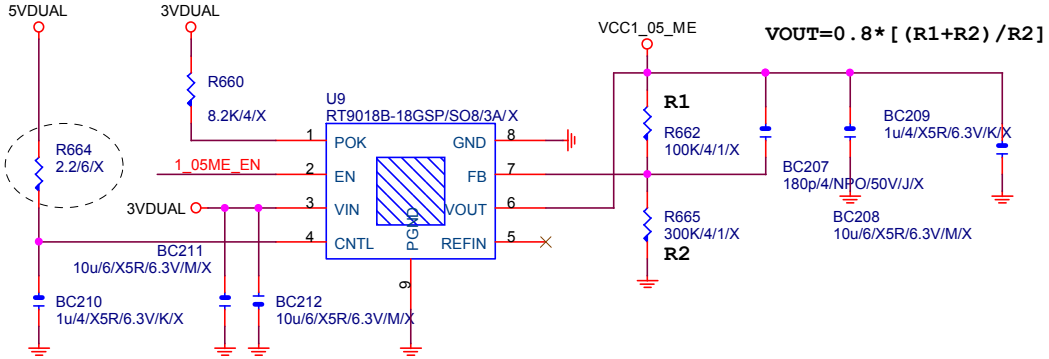
Iocset=10uA

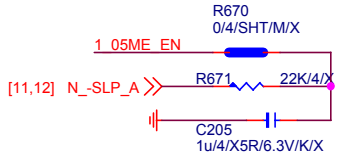
Gigabyte Technology			
Title: DDR POWER			
Size: Custom	Document Number: GA-B85M-DS3H		Rev: 3.0
Date: Thursday, September 11, 2014	Sheet 28 of 30		

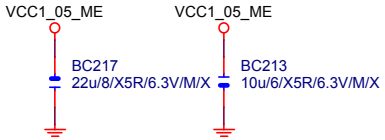
VCC1_05_ME

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



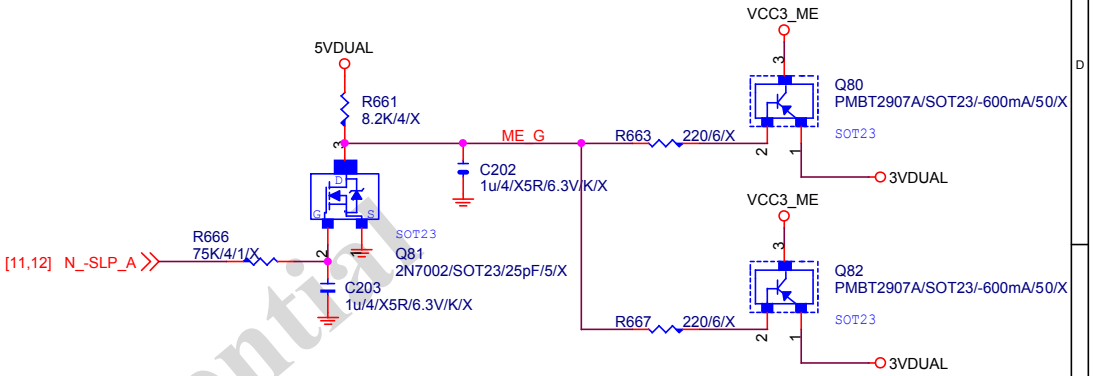


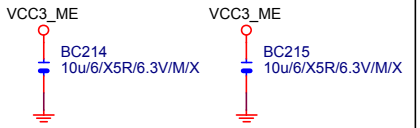


Second source
EM5103 - 10GL2-305103-01R
NCT3730S -
10GL2-303730-01R

VCC3_ME

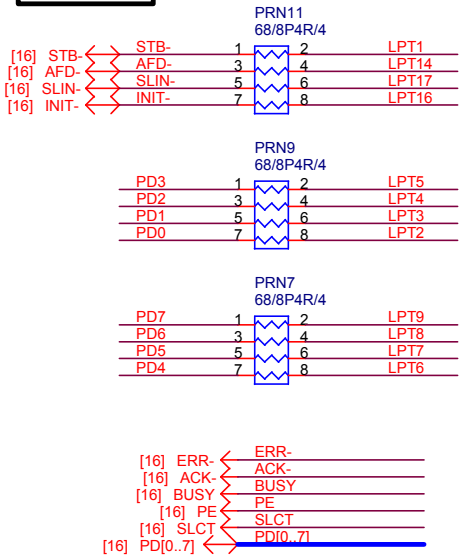
N/A

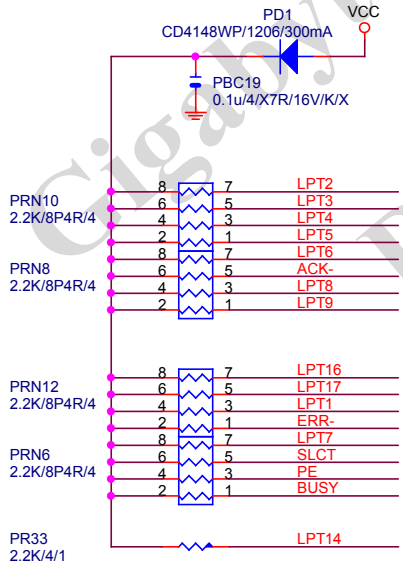


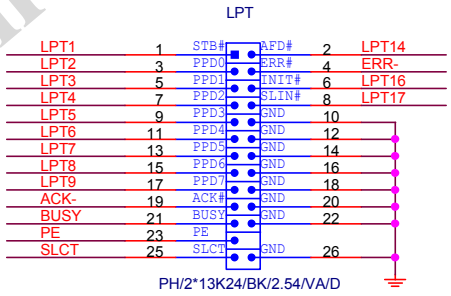


【技術通報R&D技術通報151】
33ohm Change to 68ohm

LPT PORT







Gigabyte Technology

Title: LPT

Size: Custom | Document Number: GA-B85M-DS3H | Rev: 3.0

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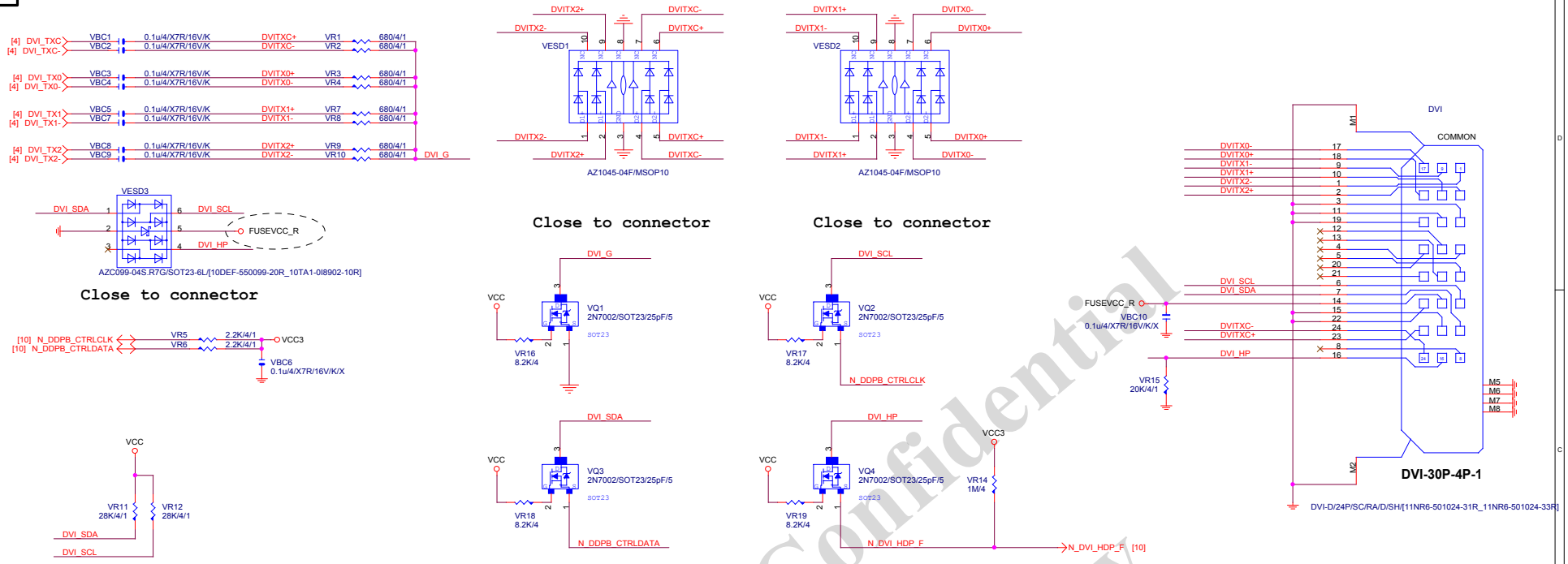
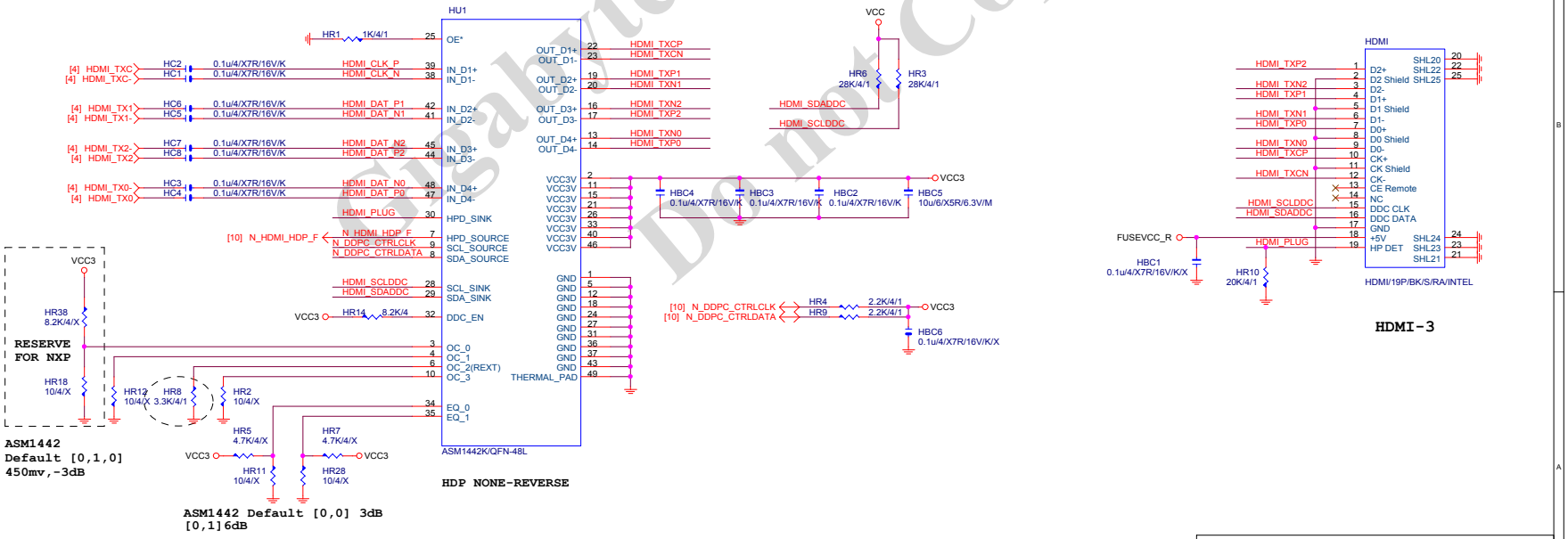
DVI



HDMI LEVEL SHIFT



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