

Model Name: GA-B85M-D3V

Revision 2.01

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,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 X1 *2 SLOT
16	PCI SLOT
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 ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95820_1

SHEET TITLE

28	VCORE ISL95820_2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI
32	IT8892E

Revision 2.01

Component value change history

[illegible][illegible]

BLOCK DIAGRAM

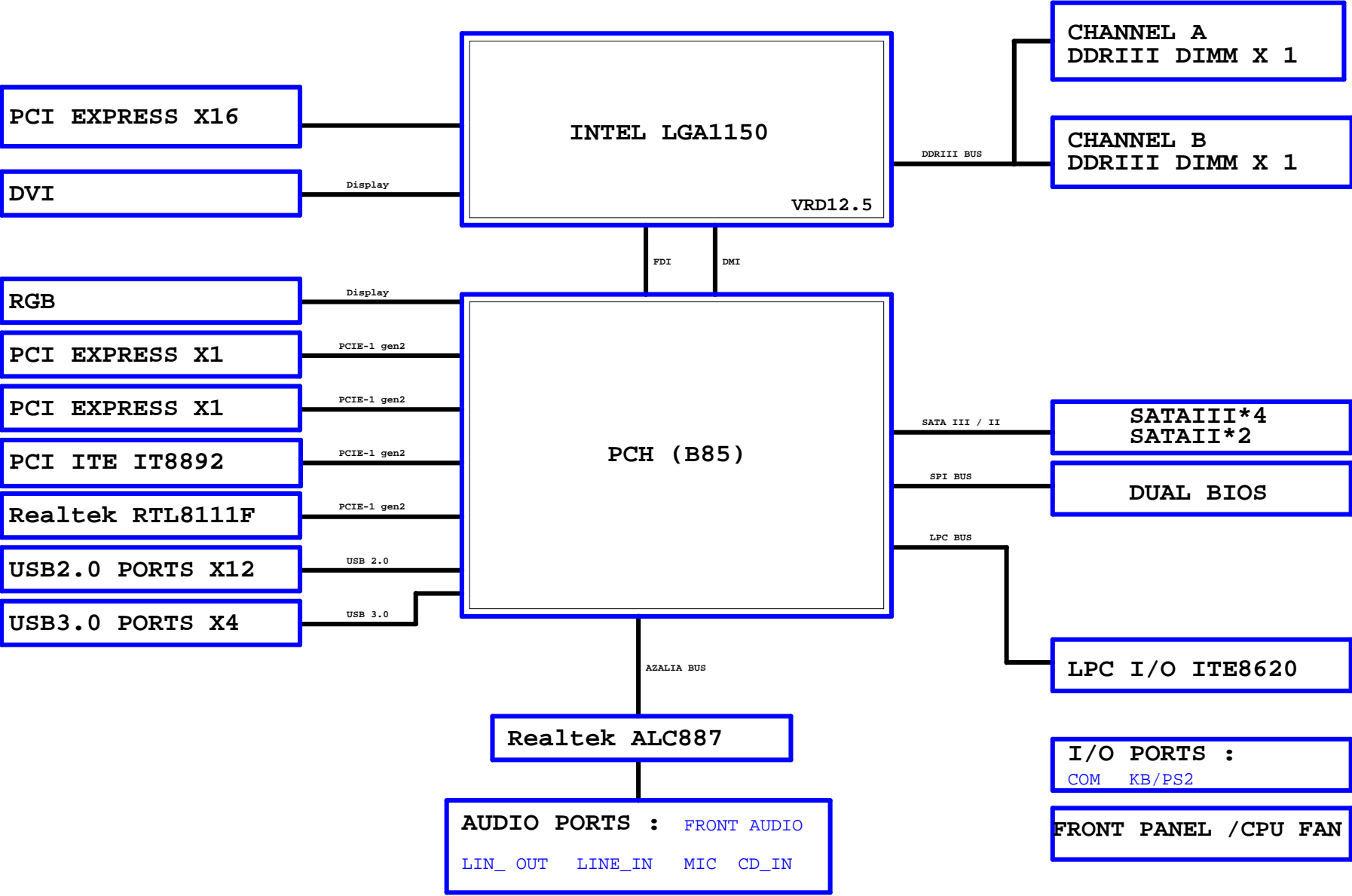


Figure 10-10. Pinmux and pin configuration for the Haswell PCH (continued)

Timing diagram for FDI signals. The diagram shows various FDI signals (FDI_CS[0:1], FDI_INT, FDI_RCOMP, FDI_TX[0:1], FDI_TXP[0:1]) and their connections to hardware components (D16, D18, R4, U5, U6, K11, J12, B14, A14, C13, B13). It also shows connections to other components (D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100).

Legend:

- FDI_CS[0:1]
- FDI_INT
- FDI_RCOMP
- FDI_TX[0:1]
- FDI_TXP[0:1]

Table of signal names and their connections:

Signal Name	Connection
FDI_CS[0:1]	D16
FDI_INT	D18
FDI_RCOMP	R4
FDI_TX[0:1]	U5
FDI_TXP[0:1]	U6
FDI_CS[0:1]	K11
FDI_INT	J12
FDI_RCOMP	B14
FDI_TX[0:1]	A14
FDI_TXP[0:1]	C13
FDI_CS[0:1]	B13

PCIEX16:16/5/5/16(breakout min 10/4/4/4/10)									
Impedance=80 +- 17.5%									
LGAI1150C									
PA EXP RXP0	E15	PEG_RXP0	A12	PA EXP TXP0					
PA EXP RXN0	F15	PEG_RXN0	B12	PA EXP TXN0					
PA EXP RXP1	D14	PEG_RXP1	B11	PA EXP TXP1					
PA EXP RXN1	E14	PEG_RXN1	C11	PA EXP TXN1					
PA EXP RXP2	E13	PEG_RXP2	C10	PA EXP TXP2					
PA EXP RXN2	F13	PEG_RXN2	D10	PA EXP TXN2					
PA EXP RXP3	D12	PEG_RXP3	B9	PA EXP TXP3					
PA EXP RXN3	E12	PEG_RXN3	C9	PA EXP TXN3					
PA EXP RXP4	E11	PEG_RXP4	C8	PA EXP TXP4					
PA EXP RXN4	F11	PEG_RXN4	D8	PA EXP TXN4					
PA EXP RXP5	F10	PEG_RXP5	B7	PA EXP TXP5					
PA EXP RXN5	G10	PEG_RXN5	C7	PA EXP TXN5					
PA EXP RXP6	E9	PEG_RXP6	A6	PA EXP TXP6					
PA EXP RXN6	F9	PEG_RXN6	B6	PA EXP TXN6					
PA EXP RXP7	F8	PEG_RXP7	B5	PA EXP TXP7					
PA EXP RXN7	G8	PEG_RXN7	C5	PA EXP TXN7					
PA EXP RXP8	D3	PEG_RXP8	E1	PA EXP TXP8					
PA EXP RXN8	D4	PEG_RXN8	F2	PA EXP TXN8					
PA EXP RXP9	E4	PEG_RXP9	F3	PA EXP TXP9					
PA EXP RXN9	E5	PEG_RXN9	F3	PA EXP TXN9					
PA EXP RXP10	F5	PEG_RXP10	G1	PA EXP TXP10					
PA EXP RXN10	F6	PEG_RXN10	G2	PA EXP TXN10					
PA EXP RXP11	G4	PEG_RXP11	H2	PA EXP TXP11					
PA EXP RXN11	G5	PEG_RXN11	J1	PA EXP TXN11					
PA EXP RXP12	H5	PEG_RXP12	J1	PA EXP TXP12					
PA EXP RXN12	H6	PEG_RXN12	J2	PA EXP TXN12					
PA EXP RXP13	J4	PEG_RXP13	K2	PA EXP TXP13					
PA EXP RXN13	J5	PEG_RXN13	K3	PA EXP TXN13					
PA EXP RXP14	K5	PEG_RXP14	M2	PA EXP TXP14					
PA EXP RXN14	K6	PEG_RXN14	M3	PA EXP TXN14					
PA EXP RXP15	L4	PEG_RXP15	L1	PA EXP TXP15					
PA EXP RXN15	L5	PEG_RXN15	L2	PA EXP TXN15					
A DMI_0RXP	U3	DMI_RXP0	AA4	A DMI_0TXP	→ A				
A DMI_0RXN	T3	DMI_RXN0	AA5	A DMI_0TXN	→ A				
A DMI_1RXP	U1	DMI_RXP1	AB3	A DMI_1TXP	→ A				
A DMI_1RXN	V1	DMI_RXN1	AB4	A DMI_1TXN	→ A				
A DMI_2RXP	W2	DMI_RXP2	AC5	A DMI_2TXP	→ A				
A DMI_2RXN	V2	DMI_RXP2	AC4	A DMI_2TXN	→ A				
A DMI_3RXP	Y3	DMI_RXP3	AC1	A DMI_3TXP	→ A				
A DMI_3RXN	W3	DMI_RXN3	AC2	A DMI_3TXN	→ A				
	X1	RSVD_TP							
	X2	RSVD_TP							
	X3	RSVD_TP							
	X4	RSVD_TP							
W=12 mil out of CPU									
S=15 mil out of CPU									
VCCIOA_LO	WR15	24.9/4.1	GRCOMP	P3	RSVD_RCOMP				

CPU PU/PD

CPU_VTT_OR ○

WR3 90.9/4/1X PVIDSLCK
WR2 115/4/1 PVIDSOUT
WR4 75/4/1 -PVIDALRT

WR14 51/4/1X A_TMS
WR16 51/4/1X A_TDO
WR17 51/4/1X A_TDI
WR30 51/4/1X A_HPRDY

WR11 51/4/1 A_TCK
WR9 51/4/1 A_-TRST

CPU_VTT_OR ○

WR29 1K/4/1X A_PECI
WR10 1K/4/1X A_CATERR-
WR25 1K/4/1 A_PROCHOT
WR56 51/4/1X N_CPUWPWOK
WR55 1K/4/1X

A_-THRMTrip WR8 1K/4/1 VCC1_05_PCH

A_PWR_DEBUG WR34 150/6 VCC1_05_PCH

A_-DBR WR21 8.2K/4/1X 3VDUAL
WR20 0/4/1X N_SYS_RST

A_DDR_COMP0 WR28 100/4/1
A_DDR_COMP1 WR19 75/4/1
A_DDR_COMP2 WR22 100/4/1
A_TESTLOW_1 WR18 49.9/4/1
A_TESTLOW_2 WR12 49.9/4/1
A_HSW_CFG_RCOMP WR24 49.9/4/1

SM REF

DDR_15V

WR62 100/4/1

WR60 100/4/1

WC3 0.1u4/XTR/16V/K

A SM VREF

DDR_15V

WR62
100k/1

WR60
100k/1

WC3
0.1uF/X7R/16V/K

A_SM_VREF

Title				CPU LGA1150-A			
Size	Custom	Document Number				Rev	2.0
		GA-B85M-D3V					
Date:		Thursday, November 28, 2013		Sheet	4	of	32

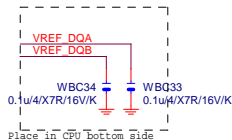
LGA1150 (A)

MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA13	AT20	DDR0_MA13	DDR0_D13	AH38	MDA13
MAAA14	AT20	DDR0_MA14	DDR0_D14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA15
MODT_A0	AW10	DDR0_ODT0	DDR0_D16	AM40	MDA17
MODT_A1	AV8	DDR0_ODT1	DDR0_D17	AM39	MDA21
AW9	AW9	DDR0_ODT2	DDR0_D18	AP38	MDA18
AW8	AW8	DDR0_ODT3	DDR0_D19	AP39	MDA19
AW33	AW33	DDR0_ECC0	DDR0_D20	AM37	MDA20
AW33	AW33	DDR0_ECC1	DDR0_D21	AM38	MDA16
AW31	AW31	DDR0_ECC2	DDR0_D22	AP37	MDA22
AW33	AW33	DDR0_ECC3	DDR0_D23	AP40	MDA23
AW33	AW33	DDR0_ECC4	DDR0_D24	AW37	MDA29
AW31	AW31	DDR0_ECC5	DDR0_D25	AU35	MDA26
AW31	AW31	DDR0_ECC6	DDR0_D26	AW35	MDA27
AW31	AW31	DDR0_ECC7	DDR0_D27	T137	MDA28
AW31	AW31	DDR0_ECC8	DDR0_D28	AU37	MDA24
AW31	AW31	DDR0_ECC9	DDR0_D29	AT35	MDA30
AW31	AW31	DDR0_ECC10	DDR0_D30	AW35	MDA31
AW31	AW31	DDR0_ECC11	DDR0_D31	AW6	MDA33
AW31	AW31	DDR0_ECC12	DDR0_D32	AU6	MDA37
AW31	AW31	DDR0_ECC13	DDR0_D33	AW6	MDA38
AW31	AW31	DDR0_ECC14	DDR0_D34	AW4	MDA34
AW31	AW31	DDR0_ECC15	DDR0_D35	AW6	MDA35
AW31	AW31	DDR0_ECC16	DDR0_D36	AW6	MDA32
AW31	AW31	DDR0_ECC17	DDR0_D37	AW4	MDA38
AW31	AW31	DDR0_ECC18	DDR0_D38	AW4	MDA39
AW31	AW31	DDR0_ECC19	DDR0_D39	AR1	MDA41
AW31	AW31	DDR0_ECC20	DDR0_D40	AR4	MDA45
AW31	AW31	DDR0_ECC21	DDR0_D41	AN3	MDA42
AW31	AW31	DDR0_ECC22	DDR0_D42	AN4	MDA43
AW31	AW31	DDR0_ECC23	DDR0_D43	AR2	MDA44
AW31	AW31	DDR0_ECC24	DDR0_D44	AR3	MDA40
AW31	AW31	DDR0_ECC25	DDR0_D45	AN2	MDA46
AW31	AW31	DDR0_ECC26	DDR0_D46	AN1	MDA47
AW31	AW31	DDR0_ECC27	DDR0_D47	AL1	MDA49
AW31	AW31	DDR0_ECC28	DDR0_D48	AL4	MDA53
AW31	AW31	DDR0_ECC29	DDR0_D49	AL4	MDA50
AW31	AW31	DDR0_ECC30	DDR0_D50	AJ4	MDA51
AW31	AW31	DDR0_ECC31	DDR0_D51	AL2	MDA52
AW31	AW31	DDR0_ECC32	DDR0_D52	AJ2	MDA54
AW31	AW31	DDR0_ECC33	DDR0_D53	AJ1	MDA55
AW31	AW31	DDR0_ECC34	DDR0_D54	AG1	MDA57
AW31	AW31	DDR0_ECC35	DDR0_D55	AG4	MDA61
AW31	AW31	DDR0_ECC36	DDR0_D56	AE3	MDA58
AW31	AW31	DDR0_ECC37	DDR0_D57	AE4	MDA59
AW31	AW31	DDR0_ECC38	DDR0_D58	AG2	MDA60
AW31	AW31	DDR0_ECC39	DDR0_D59	AG3	MDA56
AW31	AW31	DDR0_ECC40	DDR0_D60	AE2	MDA62
AW31	AW31	DDR0_ECC41	DDR0_D61	AE1	MDA63
AW31	AW31	DDR0_ECC42	DDR0_D62	AE39	DQSA0
AW31	AW31	DDR0_ECC43	DDR0_D63	AJ39	DQSA1
AW31	AW31	DDR0_ECC44	DDR0_D64	AN39	DQSA2
AW31	AW31	DDR0_ECC45	DDR0_D65	AV36	DQSA3
AW31	AW31	DDR0_ECC46	DDR0_D66	AV5	DQSA4
AW31	AW31	DDR0_ECC47	DDR0_D67	AP3	DQSA5
AW31	AW31	DDR0_ECC48	DDR0_D68	AK3	DQSA6
AW31	AW31	DDR0_ECC49	DDR0_D69	AF3	DQSA7
AW31	AW31	DDR0_ECC50	DDR0_D70	AV32	DQSA7
AW31	AW31	DDR0_ECC51	DDR0_D71	AE38	DQSA0
AW31	AW31	DDR0_ECC52	DDR0_D72	AJ38	DQSA1
AW31	AW31	DDR0_ECC53	DDR0_D73	AN38	DQSA2
AW31	AW31	DDR0_ECC54	DDR0_D74	AJ36	DQSA3
AW31	AW31	DDR0_ECC55	DDR0_D75	AW5	DQSA4
AW31	AW31	DDR0_ECC56	DDR0_D76	AP2	DQSA5
AW31	AW31	DDR0_ECC57	DDR0_D77	AK2	DQSA6
AW31	AW31	DDR0_ECC58	DDR0_D78	AF2	DQSA7
AW31	AW31	DDR0_ECC59	DDR0_D79	AJ32	DQSA7

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

LGA1150 (B)

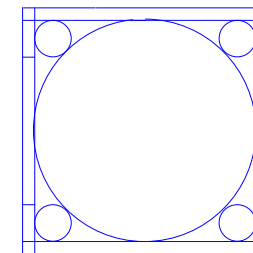
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MAAB1	AK23	DDR1_MA1	DDR1_D01	AE35	MDB1
MAAB2	AM22	DDR1_MA2	DDR1_D02	AG35	MDB2
MAAB3	AM23	DDR1_MA3	DDR1_D03	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_D04	AD34	MDB4
MAAB5	AL23	DDR1_MA5	DDR1_D05	AD35	MDB5
MAAB6	AY24	DDR1_MA6	DDR1_D06	AG34	MDB6
MAAB7	AY25	DDR1_MA7	DDR1_D07	AH34	MDB7
MAAB8	AU26	DDR1_MA8	DDR1_D08	AL34	MDB8
MAAB9	AW25	DDR1_MA9	DDR1_D09	AL35	MDB9
MAAB10	AP18	DDR1_MA10	DDR1_D10	AL31	MDB10
MAAB11	AY25	DDR1_MA11	DDR1_D11	AL31	MDB11
MAAB12	AY26	DDR1_MA12	DDR1_D12	AK34	MDB12
MAAB13	AR15	DDR1_MA13	DDR1_D13	AK35	MDB13
MAAB14	AV27	DDR1_MA14	DDR1_D14	AK32	MDB14
MAAB15	AY28	DDR1_MA15	DDR1_D15	AL32	MDB15
MODT_B0	AM17	DDR1_ODT0	DDR1_D16	AP34	MDB17
MODT_B1	AL16	DDR1_ODT1	DDR1_D17	AP34	MDB17
AM16	AM16	DDR1_ODT2	DDR1_D18	AN31	MDB19
AK15	AK15	DDR1_ODT3	DDR1_D19	AP31	MDB23
AK15	AK15	DDR1_ODT4	DDR1_D20	AP35	MDB20
AK15	AK15	DDR1_ODT5	DDR1_D21	AP35	MDB16
AK15	AK15	DDR1_ODT6	DDR1_D22	AN32	MDB18
AK15	AK15	DDR1_ODT7	DDR1_D23	AP32	MDB22
AK15	AK15	DDR1_ODT8	DDR1_D24	AM29	MDB25
AK15	AK15	DDR1_ODT9	DDR1_D25	AM28	MDB28
AK15	AK15	DDR1_ODT10	DDR1_D26	AR29	MDB27
AK15	AK15	DDR1_ODT11	DDR1_D27	AR28	MDB30
AK15	AK15	DDR1_ODT12	DDR1_D28	AL28	MDB29
AK15	AK15	DDR1_ODT13	DDR1_D29	AP29	MDB26
AK15	AK15	DDR1_ODT14	DDR1_D30	AP28	MDB31
AK15	AK15	DDR1_ODT15	DDR1_D31	AR12	MDB32
AK15	AK15	DDR1_ODT16	DDR1_D32	AL12	MDB33
AK15	AK15	DDR1_ODT17	DDR1_D33	AL13	MDB34
AK15	AK15	DDR1_ODT18	DDR1_D34	AL12	MDB35
AK15	AK15	DDR1_ODT19	DDR1_D35	AR13	MDB36
AK15	AK15	DDR1_ODT20	DDR1_D36	AP13	MDB37
AK15	AK15	DDR1_ODT21	DDR1_D37	AM13	MDB38
AK15	AK15	DDR1_ODT22	DDR1_D38	AM12	MDB39
AK15	AK15	DDR1_ODT23	DDR1_D39	AR9	MDB45
AK15	AK15	DDR1_ODT24	DDR1_D40	AP9	MDB41
AK15	AK15	DDR1_ODT25	DDR1_D41	AR6	MDB47
AK15	AK15	DDR1_ODT26	DDR1_D42	AP6	MDB43
AK15	AK15	DDR1_ODT27	DDR1_D43	AR10	MDB44
AK15	AK15	DDR1_ODT28	DDR1_D44	AR10	MDB40
AK15	AK15	DDR1_ODT29	DDR1_D45	AR7	MDB46
AK15	AK15	DDR1_ODT30	DDR1_D46	AP7	MDB42
AK15	AK15	DDR1_ODT31	DDR1_D47	AM9	MDB52
AK15	AK15	DDR1_ODT32	DDR1_D48	AL9	MDB53
AK15	AK15	DDR1_ODT33	DDR1_D49	AL6	MDB50
AK15	AK15	DDR1_ODT34	DDR1_D50	AL7	MDB55
AK15	AK15	DDR1_ODT35	DDR1_D51	AM10	MDB48
AK15	AK15	DDR1_ODT36	DDR1_D52	AL10	MDB49
AK15	AK15	DDR1_ODT37	DDR1_D53	AM6	MDB54
AK15	AK15	DDR1_ODT38	DDR1_D54	AM7	MDB51
AK15	AK15	DDR1_ODT39	DDR1_D55	AH6	MDB61
AK15	AK15	DDR1_ODT40	DDR1_D56	AH7	MDB60
AK15	AK15	DDR1_ODT41	DDR1_D57	AE6	MDB59
AK15	AK15	DDR1_ODT42	DDR1_D58	AE7	MDB63
AK15	AK15	DDR1_ODT43	DDR1_D59	AJ6	MDB56
AK15	AK15	DDR1_ODT44	DDR1_D60	AJ7	MDB57
AK15	AK15	DDR1_ODT45	DDR1_D61	AG6	MDB58
AK15	AK15	DDR1_ODT46	DDR1_D62	AF7	MDB62
AK15	AK15	DDR1_ODT47	DDR1_D63	AF35	DQSB0
AK15	AK15	DDR1_ODT48	DDR1_D64	AL33	DQSB1
AK15	AK15	DDR1_ODT49	DDR1_D65	AN28	DQSB2
AK15	AK15	DDR1_ODT50	DDR1_D66	AN23	DQSB3
AK15	AK15	DDR1_ODT51	DDR1_D67	AN12	DQSB4
AK15	AK15	DDR1_ODT52	DDR1_D68	AP8	DQSB5
AK15	AK15	DDR1_ODT53	DDR1_D69	AL8	DQSB6
AK15	AK15	DDR1_ODT54	DDR1_D70	AG7	DQSB7
AK15	AK15	DDR1_ODT55	DDR1_D71	AN25	DQSB7
AK15	AK15	DDR1_ODT56	DDR1_D72	AE34	DQSB0
AK15	AK15	DDR1_ODT57	DDR1_D73	AK33	DQSB1
AK15	AK15	DDR1_ODT58	DDR1_D74	AN33	DQSB2
AK15	AK15	DDR1_ODT59	DDR1_D75	AN29	DQSB3
AK15	AK15	DDR1_ODT60	DDR1_D76	AN13	DQSB4
AK15	AK15	DDR1_ODT61	DDR1_D77	AR8	DQSB5
AK15	AK15	DDR1_ODT62	DDR1_D78	AM8	DQSB6
AK15	AK15	DDR1_ODT63	DDR1_D79	AG6	DQSB7
AK15	AK15	DDR1_ODT64	DDR1_D80	AN26	DQSB7



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

LGA1150 (CR)

CR
CPU RETENTION/X



LGA1150_P



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

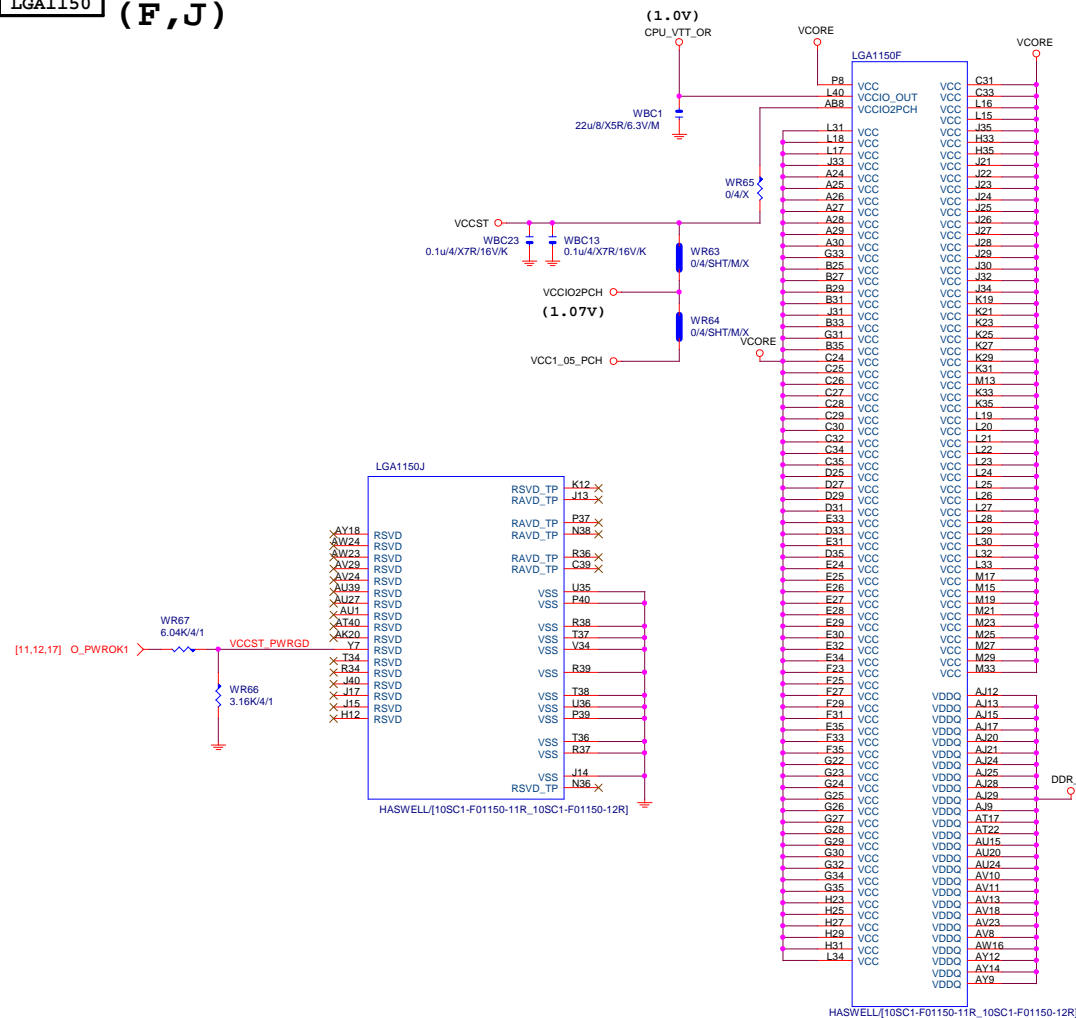
DDR BUS

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

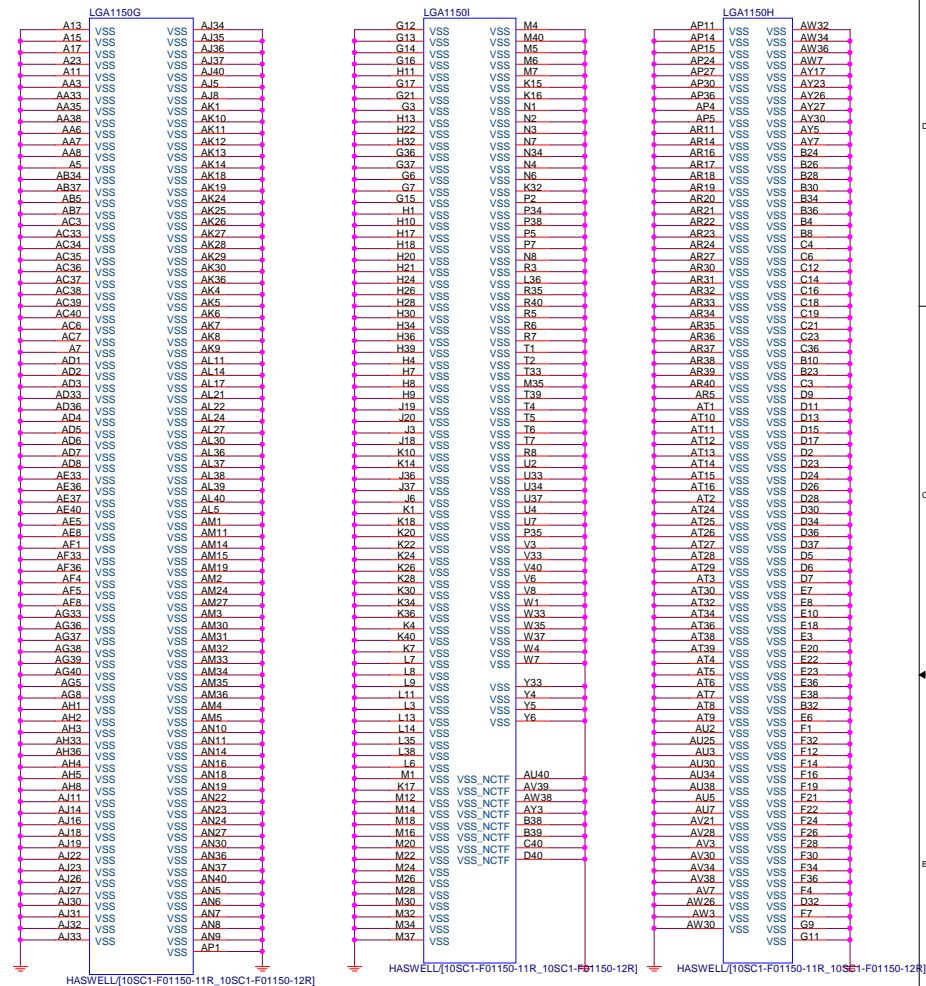
Gigabyte Technology

Title	CPU LGA1150-B	Rev	2.0
Size	Document Number	GA-B85M-D3V	
Date	Thursday, November 28, 2013	Sheet	5 of 32

LGA1150 (F,J)

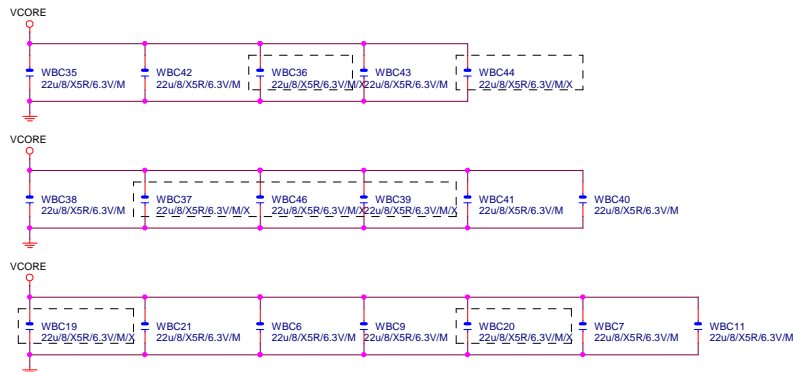


LGA1155 (G,H,I)



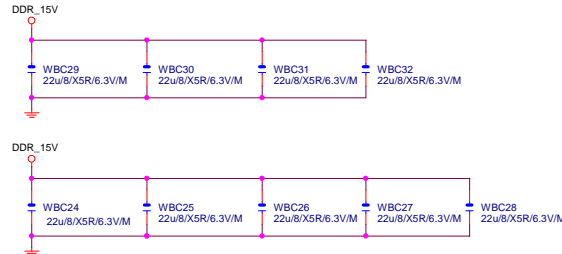
VCore CAP

(X18)



DDR CAP

(x9)



Gigabyte Technology

Title			
CPU LGA1150-C			
Size	Document Number	Rev	
Custom	GA-B85M-D3V	2.0	
Date:	Thursday, November 28, 2013	Sheet	6 of 32

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%

PCHB

B85: Port 6/7 N/A

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

W=4 mil out of PCH

S=15 mil out of PCH

VCC1_5_PCH

NR50 7.5K/4/1 DMI_COMP B19

NR40 7.5K/4/1 PCIE_COMP C13

CK -SRCCLK_PCH G22

CK SRCCLK_PCH F22

CLKIN_DMI_N

CLKIN_DMI_P

PCIE_PERN_1_USB3_RXN_2

PCIE_PERP_1_USB3_RXP_2

PCIE_PETN_1_USB3_TXN_2

PCIE_PETP_1_USB3_TXP_2

PCIE_PERN_2_USB3_RXN_3

PCIE_PERP_2_USB3_RXP_3

PCIE_PETN_2_USB3_TXN_3

PCIE_PETP_2_USB3_TXP_3

PCIE_PERN_3

PCIE_PERP_3

PCIE_PETN_3

PCIE_PETP_3

PCIE_PERN_4

PCIE_PERP_4

PCIE_PETN_4

PCIE_PETP_4

PCIE_PERN_5

PCIE_PERP_5

PCIE_PETN_5

PCIE_PETP_5

PCIE_PERN_6

PCIE_PERP_6

PCIE_PETN_6

PCIE_PETP_6

PCIE_PERN_7

PCIE_PERP_7

PCIE_PETN_7

PCIE_PETP_7

PCIE_PERN_8

PCIE_PERP_8

PCIE_PETN_8

PCIE_PETP_8

PCIE_PERN_9

PCIE_PERP_9

PCIE_PETN_9

PCIE_PETP_9

PCIE_PERN_10

PCIE_PERP_10

PCIE_PETN_10

PCIE_PETP_10

PCIE_PERN_11

PCIE_PERP_11

PCIE_PETN_11

PCIE_PETP_11

PCIE_PERN_12

PCIE_PERP_12

PCIE_PETN_12

PCIE_PETP_12

PCIE_PERN_13

PCIE_PERP_13

PCIE_PETN_13

PCIE_PETP_13

PCIE_PERN_14

PCIE_PERP_14

PCIE_PETN_14

PCIE_PETP_14

PCIE_PERN_15

PCIE_PERP_15

PCIE_PETN_15

PCIE_PETP_15

PCIE_PERN_16

PCIE_PERP_16

PCIE_PETN_16

PCIE_PETP_16

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

(J)

PCHJ

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

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VSS_NCTF

VSS_NCTF

VSS_NCTF

VSS_NCTF

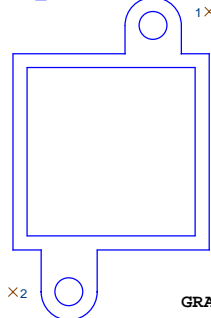
VSS_NCTF

VSS_NCTF

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSINK



PCH_HS
PCH_HS[12SP2-030005-43R_12SP2-030005-41R_12SP2-030005-42R]

PCH

(F)

PCHF

USB3 FDI LINK

USB3_RXN_0

USB3_RXP_0

USB3_TXN_0

USB3_TXP_0

USB3_RXN_1

USB3_RXP_1

USB3_TXN_1

USB3_TXP_1

USB3_RXN_4

USB3_RXP_4

USB3_TXN_4

USB3_TXP_4

USB3_RXN_5

USB3_RXP_5

USB3_TXN_5

USB3_TXP_5

TACH6_GP70

TACH7_GP71

CHIP DH82B85 C2 INTEL[10HB1-030B85-20R]

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

FDI_TXP0_01

FDI_TXN0_01

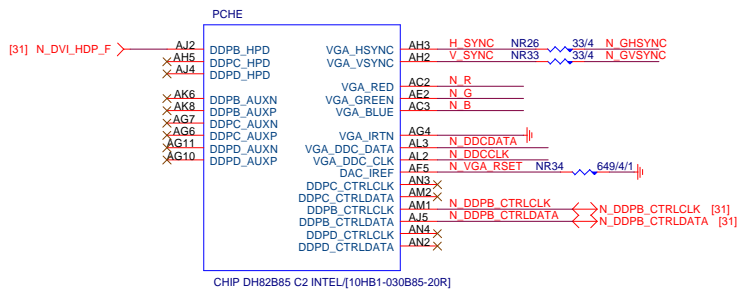
FDI_TXP0_01

FDI_TXN0_01

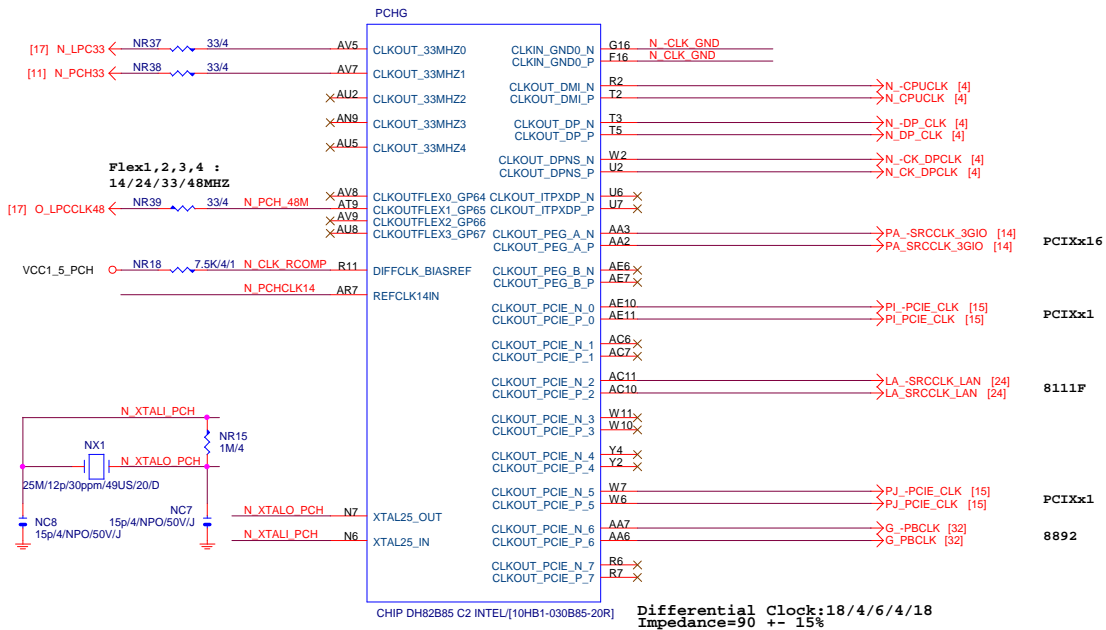
Gigabyte Technology

Title					PCH FDI,DMI,USB ,PCIE,NVRAM							
Size		Document Number			GA-B85M-D3V					Rev		
Custom										2.01		
Date:		Thursday, November 28, 2013			Sheet		9		of		32	

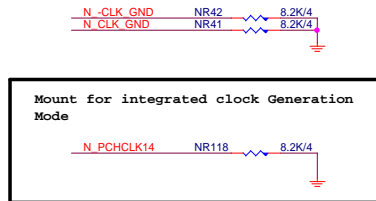
PCH (E)



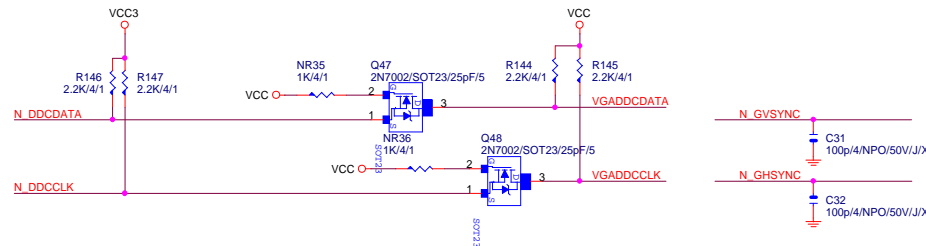
PCH (G)



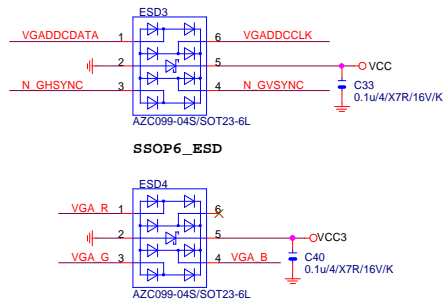
PCH CLK PD



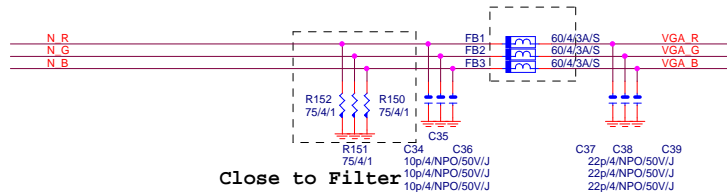
VGA DDC



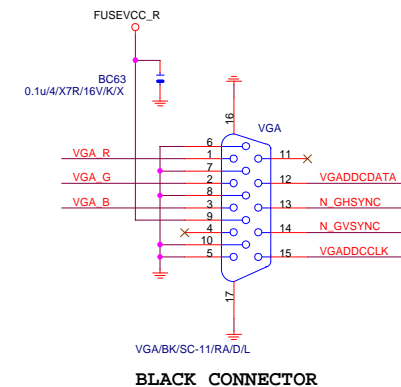
VGA ESD



VGA DDC

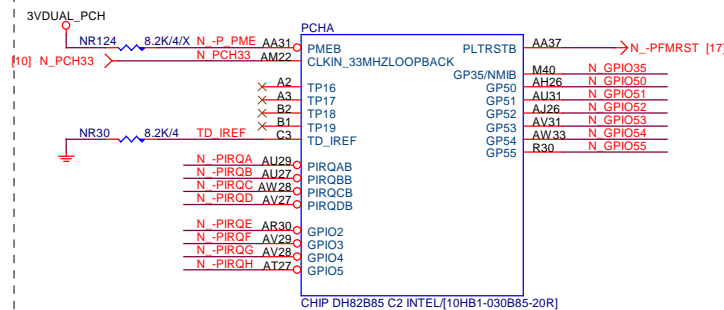


VGA CONNECTOR



Gigabyte Technology			
PCH DISPLAY_CLK BUFFER			
GA-B85M-D3V			
Size	Document Number	Rev	
Custom		2.01	
Date:	Thursday, November 28, 2013	Sheet	10 of 32

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%



CK SRCCLK SATA NR174 8.2K/4
CK -SRCCLK SATA NR173 8.2K/4

Mount for integrated clock Generation Mode

[illegible]

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

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

H81 Port 2/3 N/A

** Z87/H81 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0

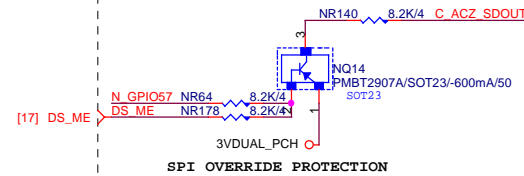
[illegible]

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-B85M-D3V		2.01
Date:	Thursday, November 28, 2013	Sheet	11 of 32

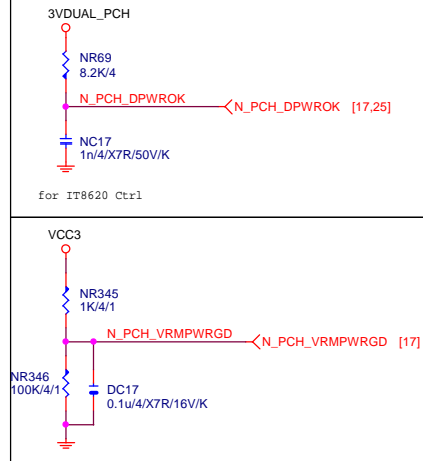
(D)



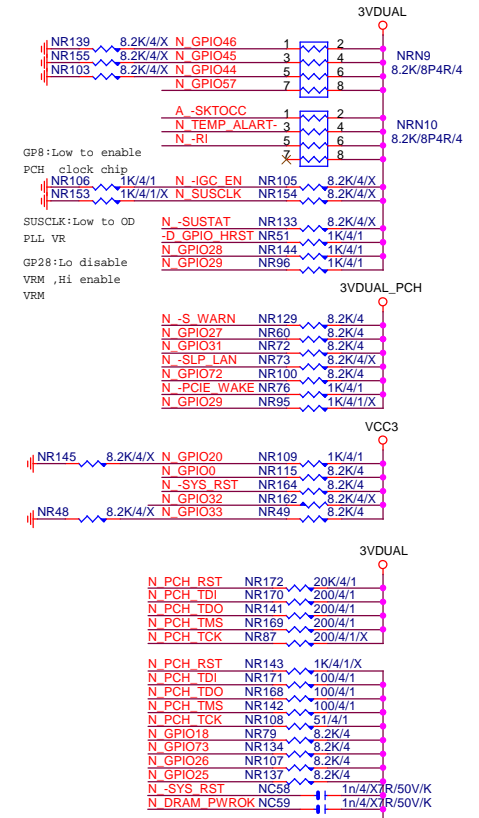
ACZ_SDOUT



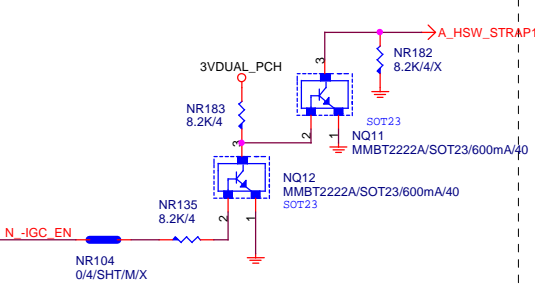
PCH_DPWROK



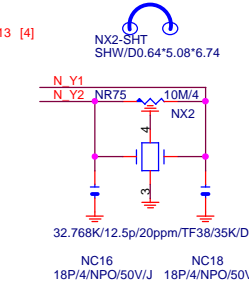
PCH PU/PD



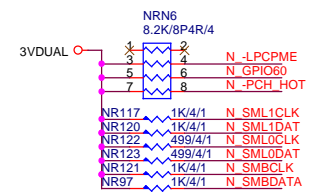
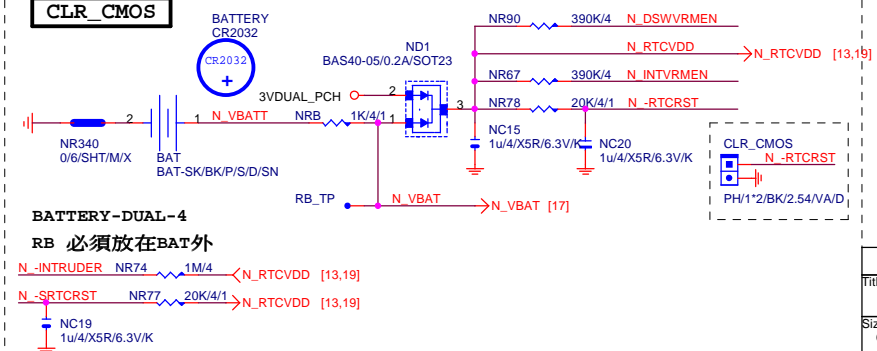
HSW_STRAP13



32.768KHZ



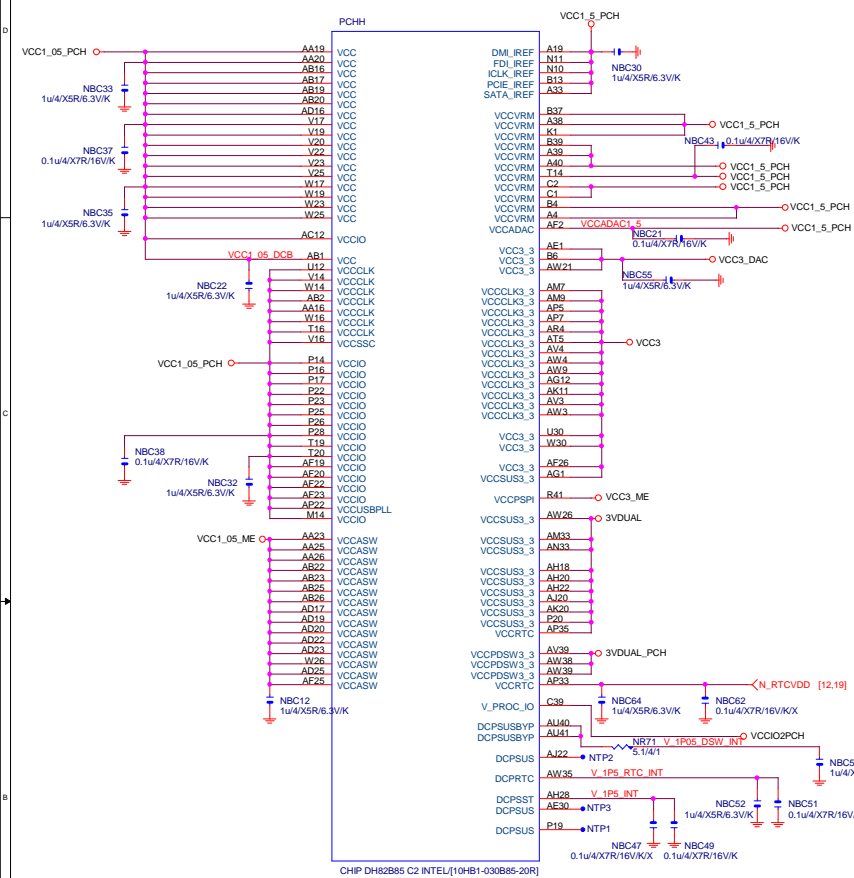
CLR_CMOS



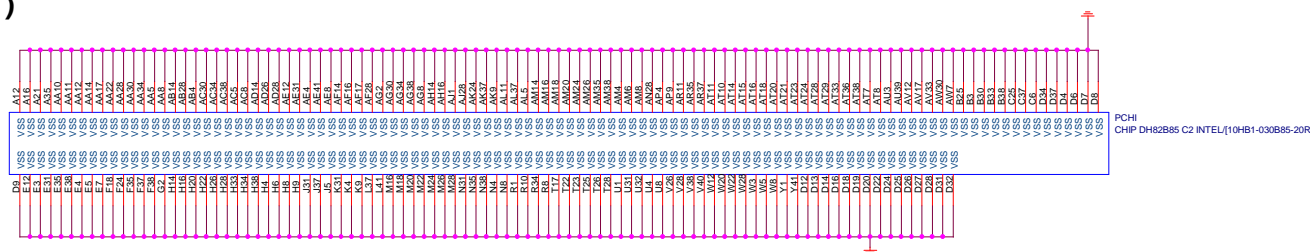
Gigabyte Technology

Title			
PCH GPIO , CTRL , AUDIO			
Size	Document Number	Rev	
Custom	GA-B85M-D3V	2.0	
Date:	Thursday, November 28, 2013	Sheet	12 of 32

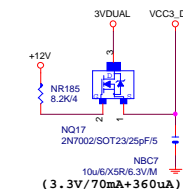
PCH (H)



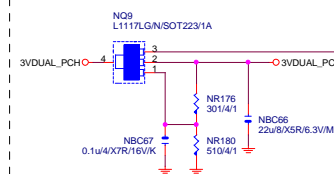
PCH (I)



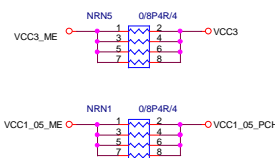
VCC3_DAC



3VDUAL_PCH

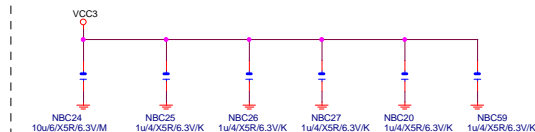


SHT PWR

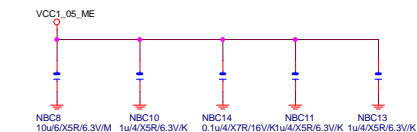


CAP

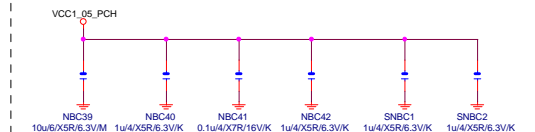
(3.3V) (X6)



(1.05V) (x5)



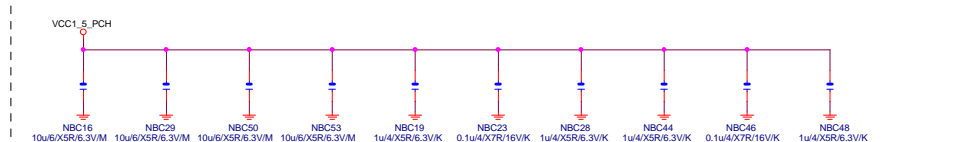
(1.05V) (x6)



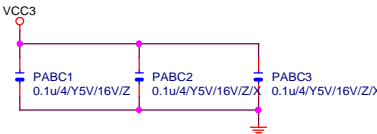
(1.05V)(x2) (3.3V)(x2)



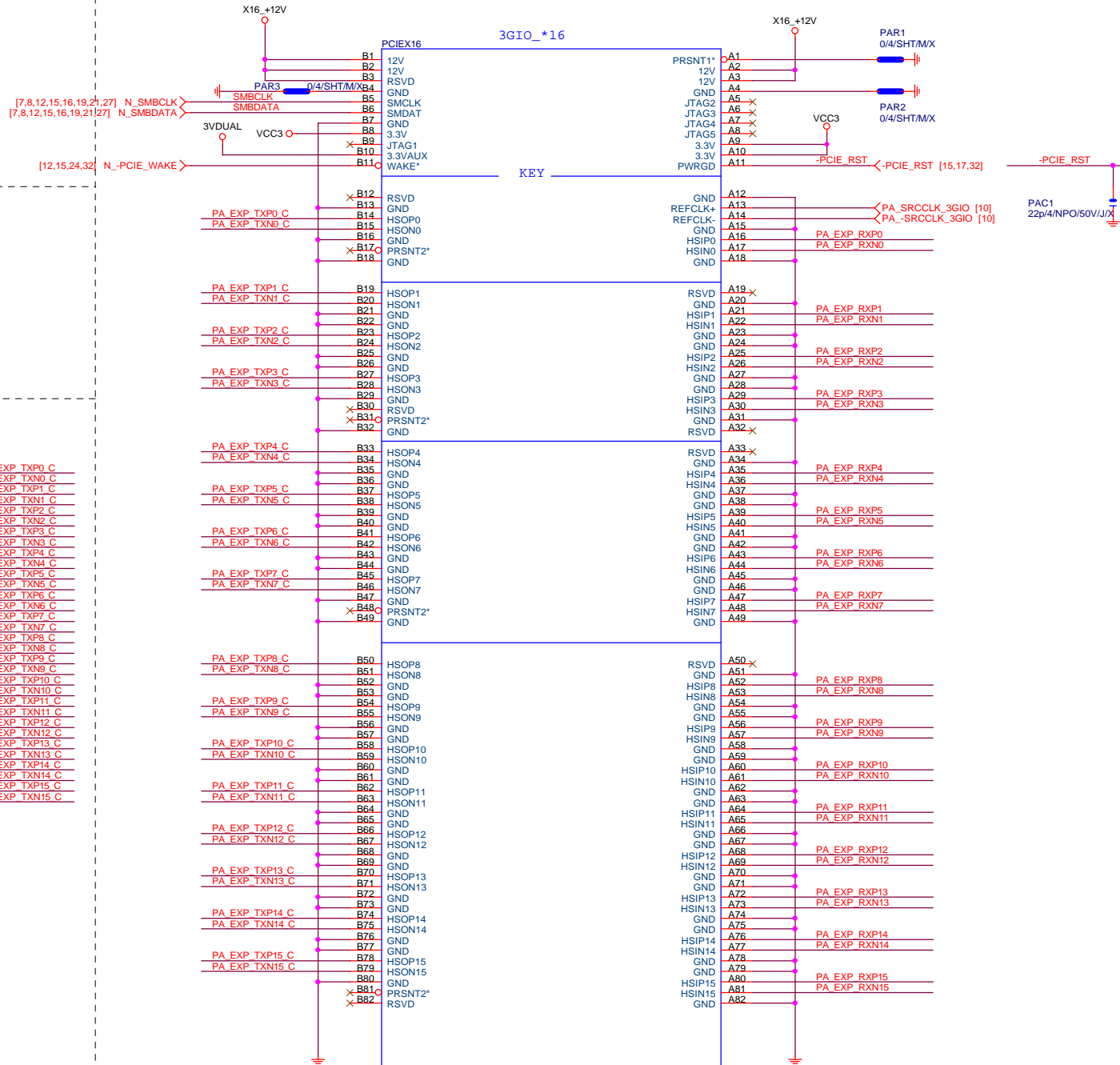
(1.05V) (x10)



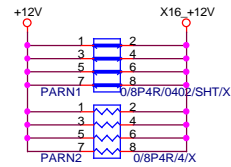
PCIEX16 CAP



PCIEX16 SLOT



PCIEX16 PROTECT SHT



PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXN15 C

PA EXP RXP0.[15] >>> PA_EXP_RXP[0..15] [4]
 PA EXP RXN0.[15] >>> PA_EXP_RXN[0..15] [4]
 PA EXP TXP0.[15] >>> PA_EXP_TXP[0..15] [4]
 PA EXP TXN0.[15] >>> PA_EXP_TXN[0..15] [4]

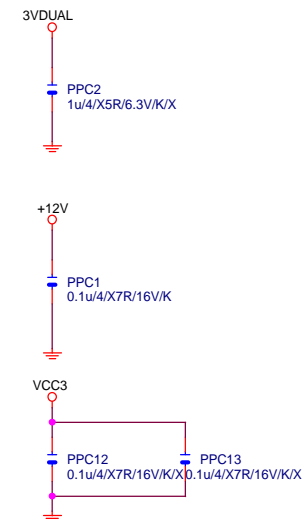
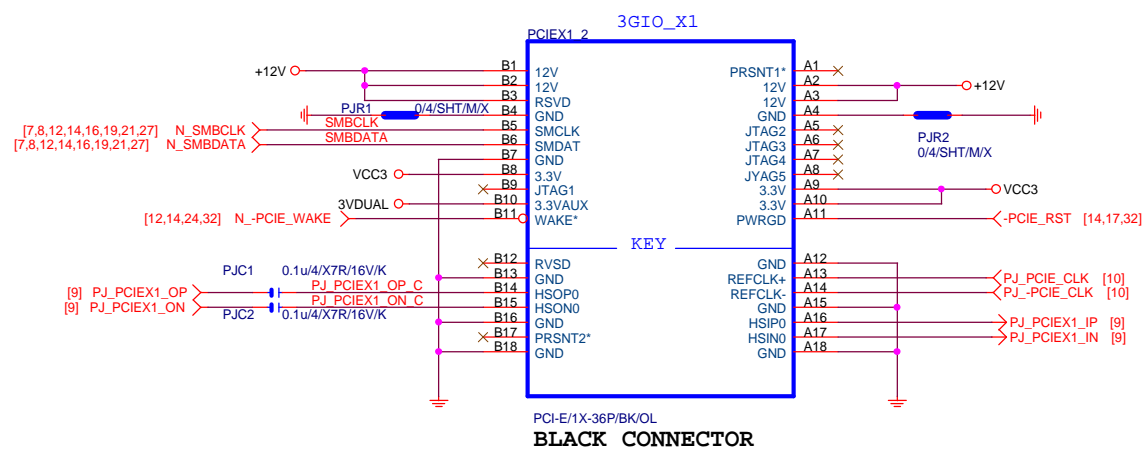
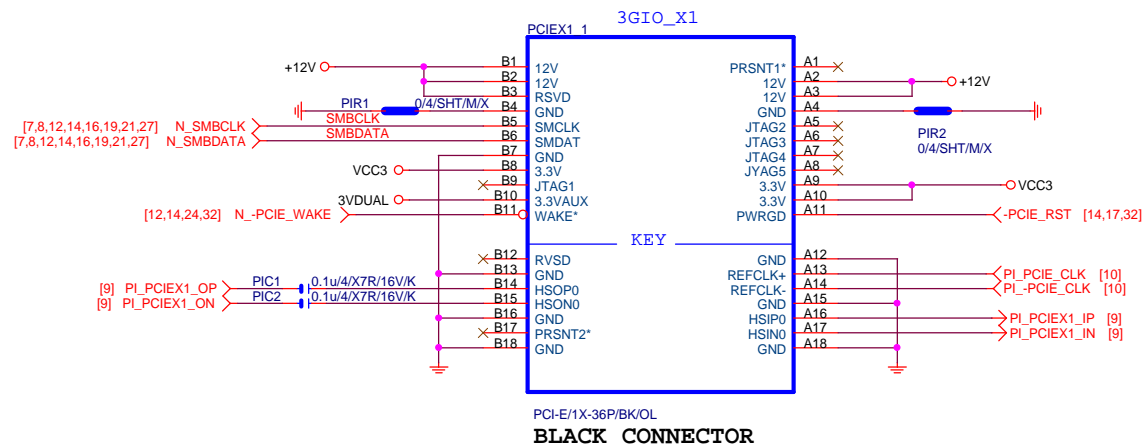
PCIESLOT-164DN-Q-1

BLACK CONNECTOR

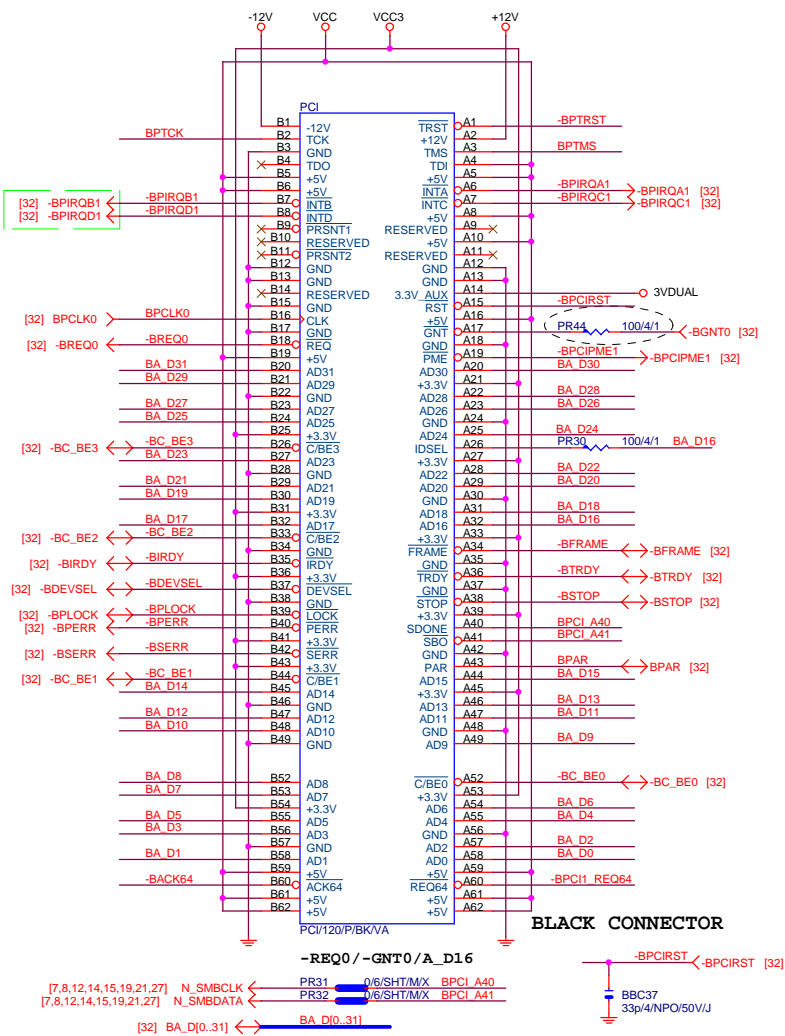
Gigabyte Technology

Title			PCI EXPRESS * 16	
Size			GA-B85M-D3V	
Custom			Rev 2.01	
Date:			Thursday, November 28, 2013	Sheet 14 of 32

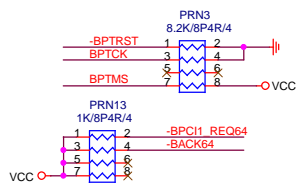
PCIEX1 SLOT



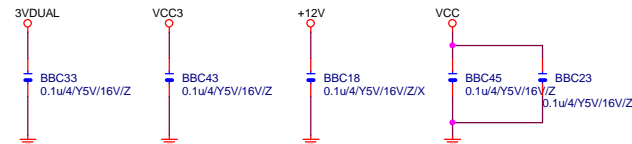
PCI SLOT 1



PCI PU



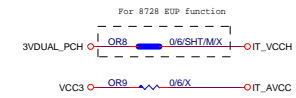
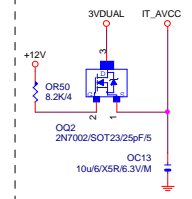
PCI CAP



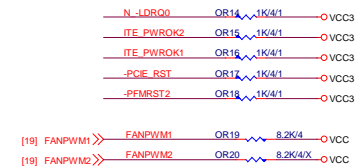
Gigabyte Technology

Title		
PCI SLOT 1&2		
Size	Document Number	Rev
Custom	GA-B85M-D3V	2.01
Date:	Thursday, November 28, 2013	Sheet 16 of 32

PWR	SHT
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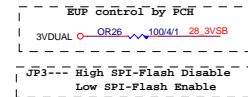
IO GP25	OR10	1K/4/1/X	3VDD
DS ME	OR11	1K/4/1	3VDD
SVID CTRL	OR12	8.2K/4	3VDD
-PROCHOT CON	OR13	8.2K/4	VCC3



H61M-S2 1.1 JP6 stuff
pull down

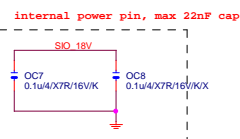


ITE recommand

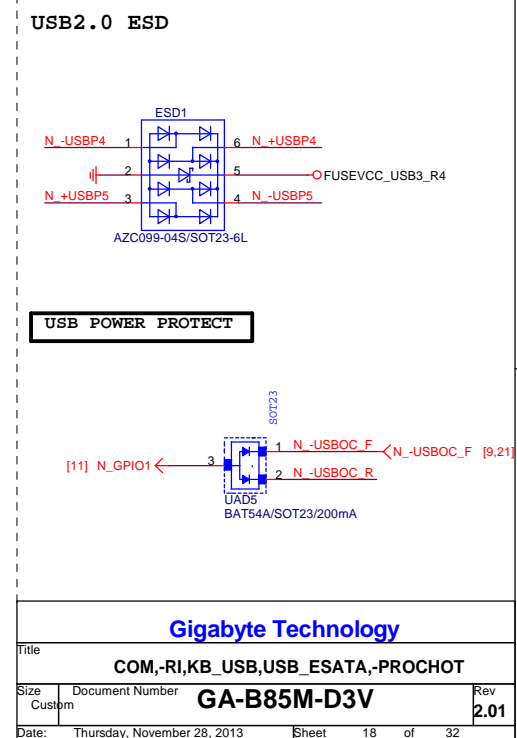
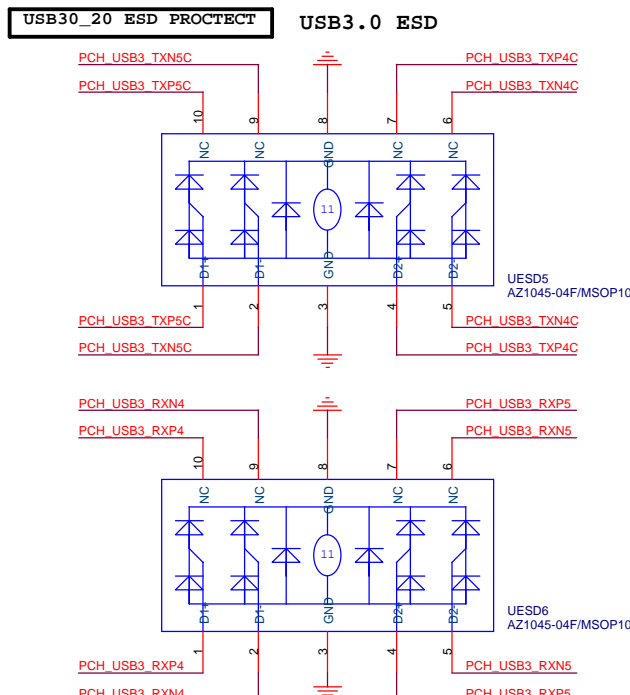
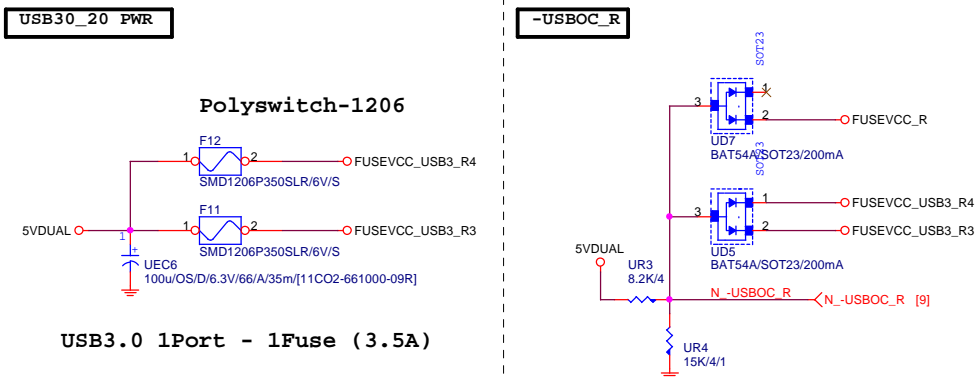
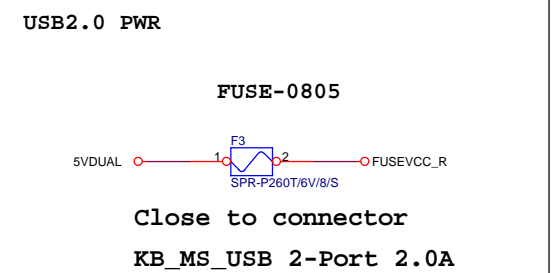
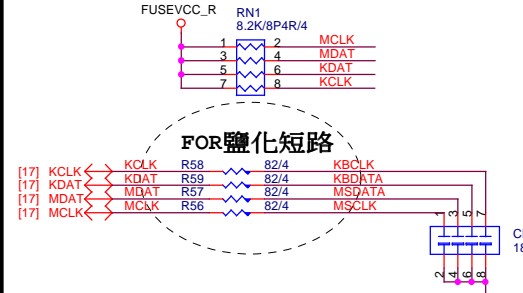
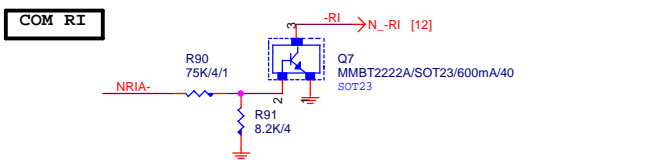


For IT8721 Power leakage

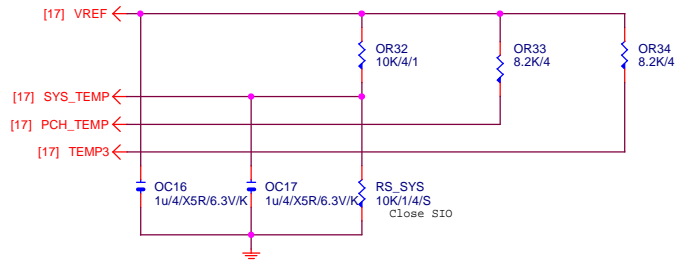
SIO_18V



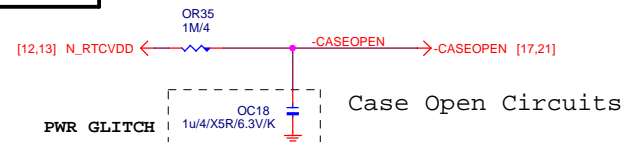
The diagram shows a circuit for MB ID2. It features two OR gates, OR28 and OR29. The VCC3 supply is connected to the input of OR28 through an 8.2K/4 resistor. The input of OR29 is also connected to VCC3 through an 8.2K/4 resistor. The output of OR29 is connected to ground. The output of OR28 is connected to the MB ID2 signal line.



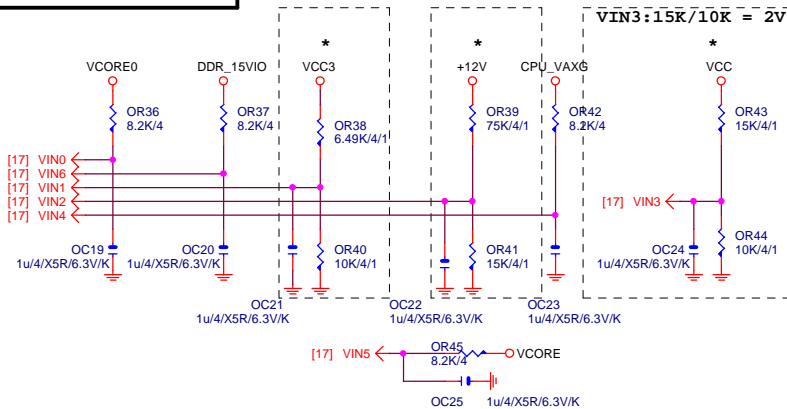
TEMP H/W MONITOR



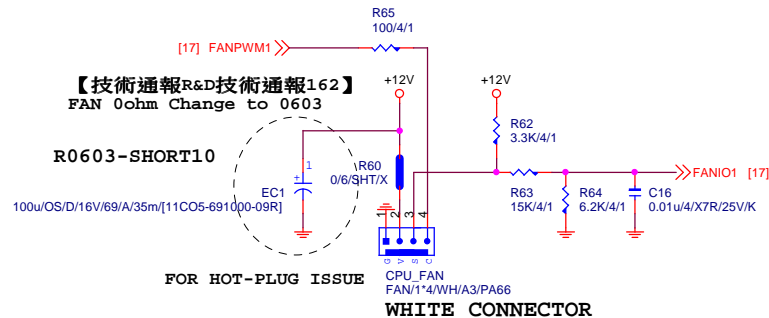
CASE OPEN



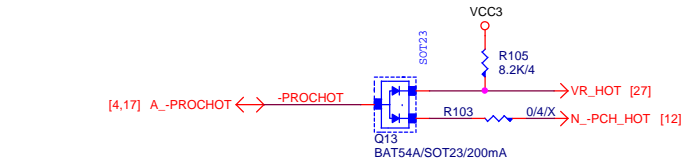
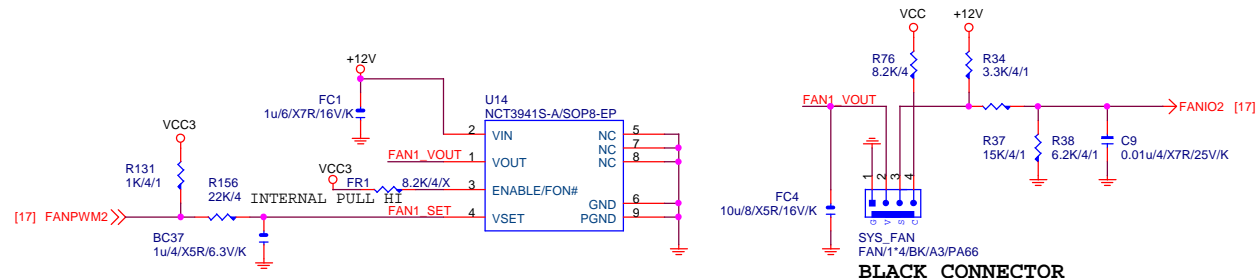
VOLTAGE-- H/W MONITOR



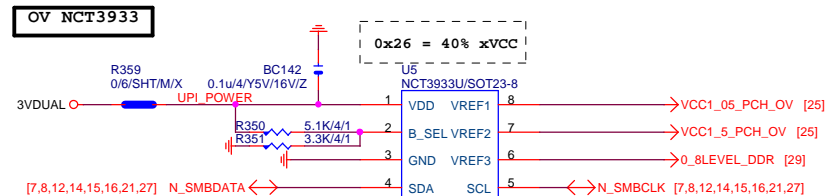
CPU SMART FAN



SYS SMART FAN

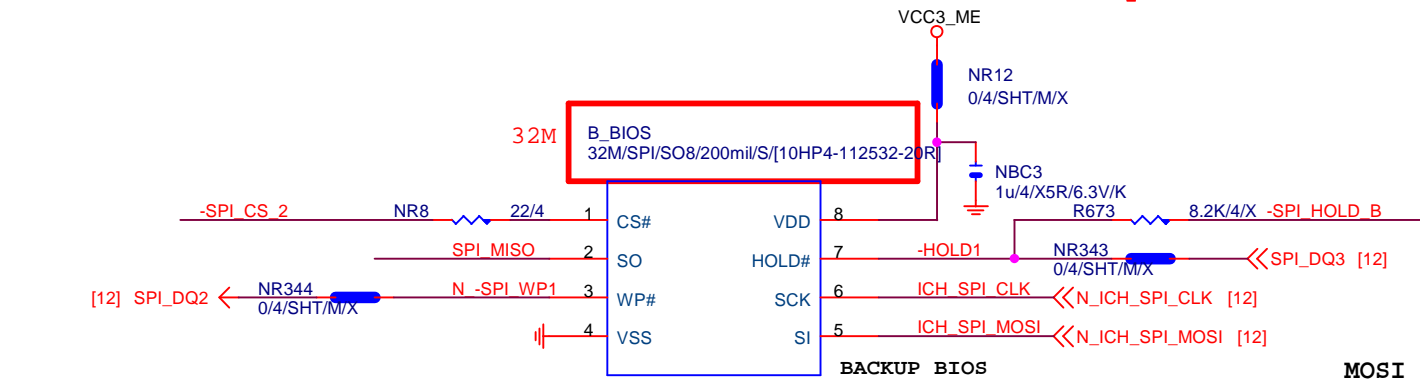
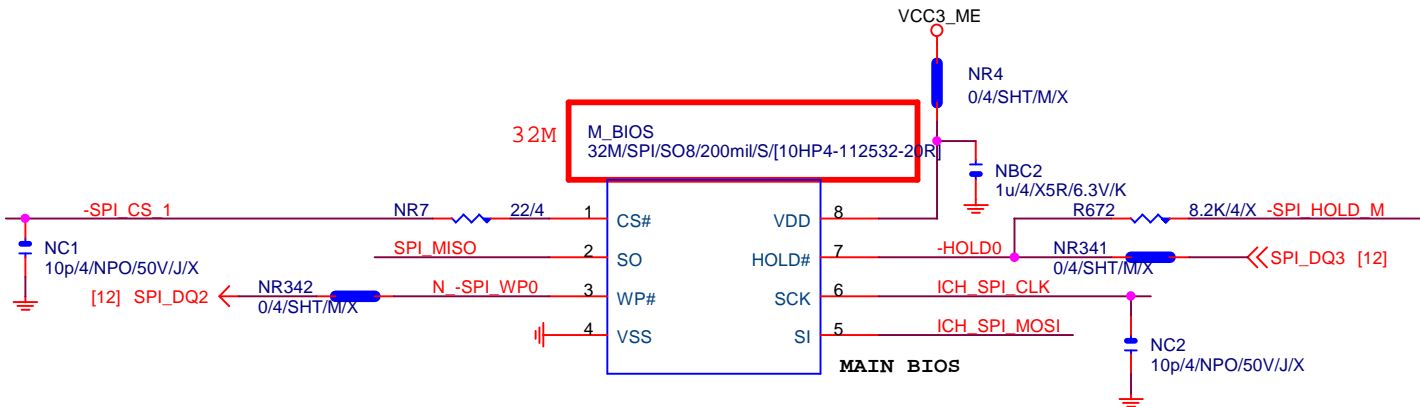


接pwm feedback pin



Gigabyte Technology

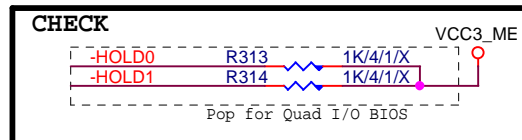
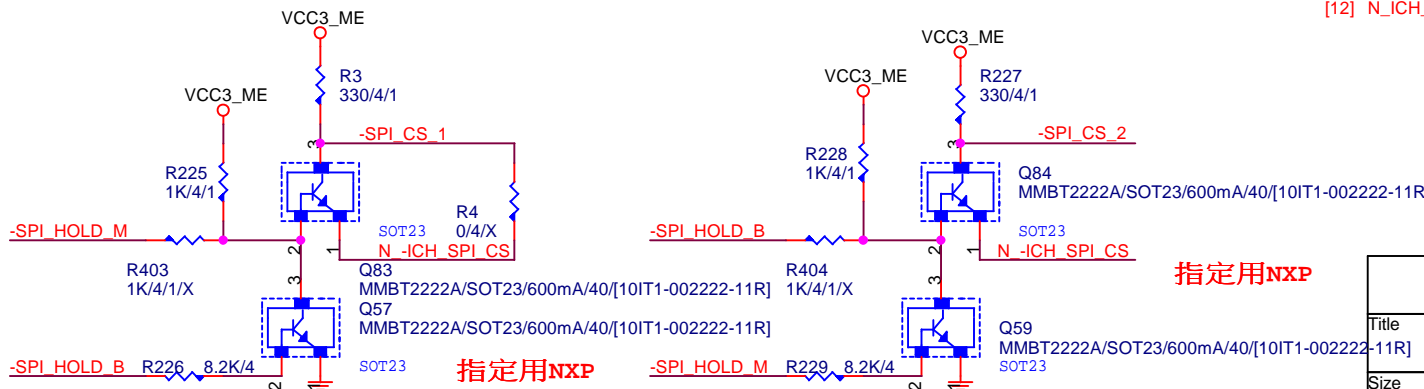
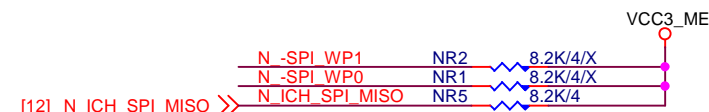
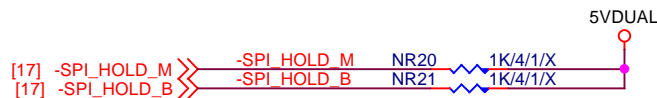
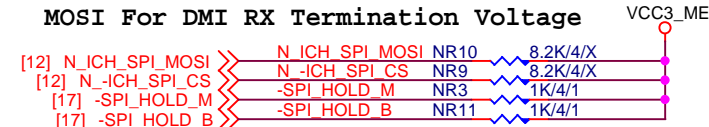
Title			HWM,FAN CTRL,OV	
Size			Document Number	
Custom			GA-B85M-D3V	
Date:			Thursday, November 28, 2013	
Sheet			19 of 32	
Rev			2.01	



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



指定用NXP

Gigabyte Technology

DUAL BIOS

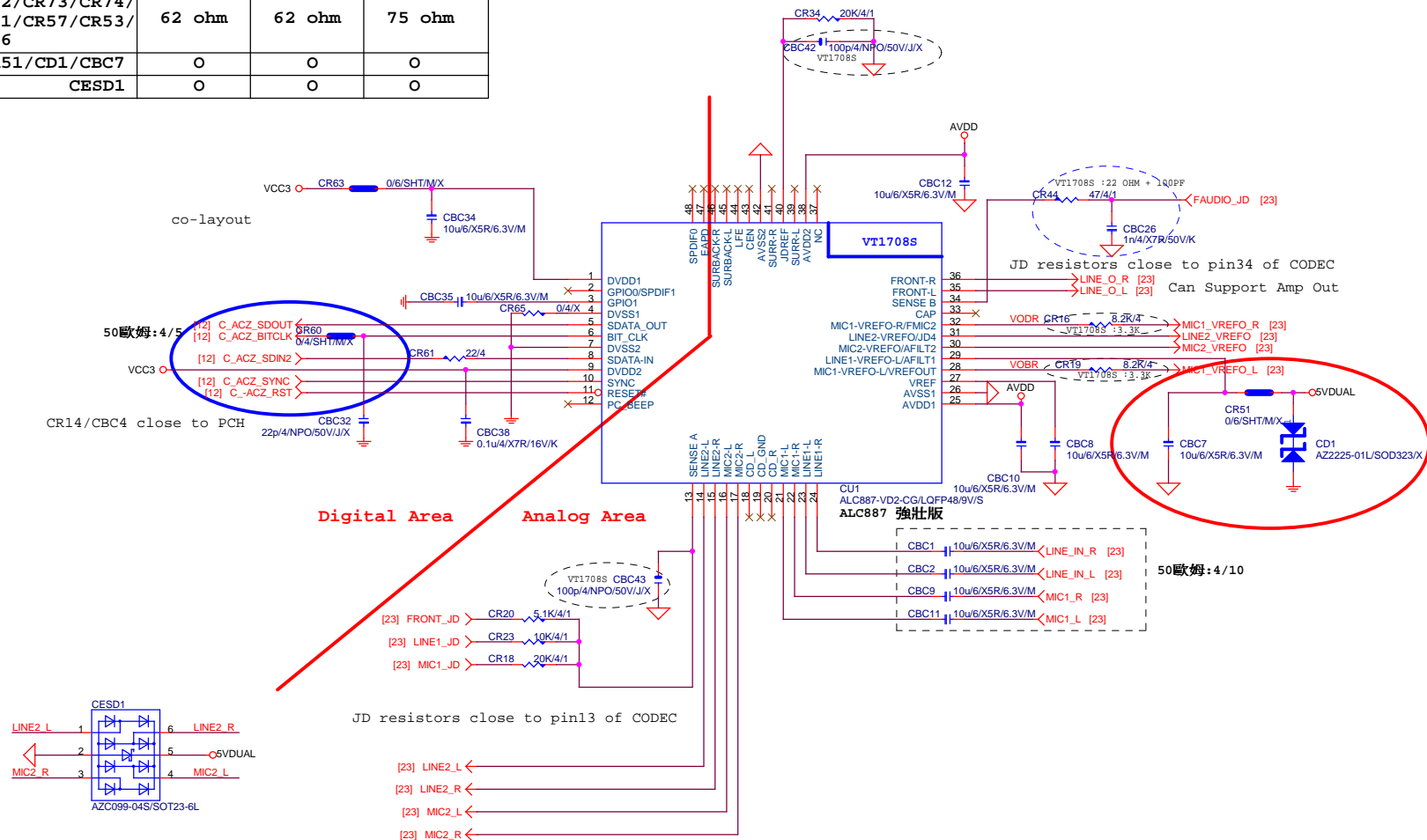
GA-B85M-D3V

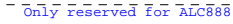
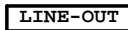
Rev 2.01

Title	Document Number	Rev
		2.01
Date	Thursday, November 28, 2013	Sheet 20 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	O	O	O
CESD1	O	O	O





For 889A/888
- - - - -

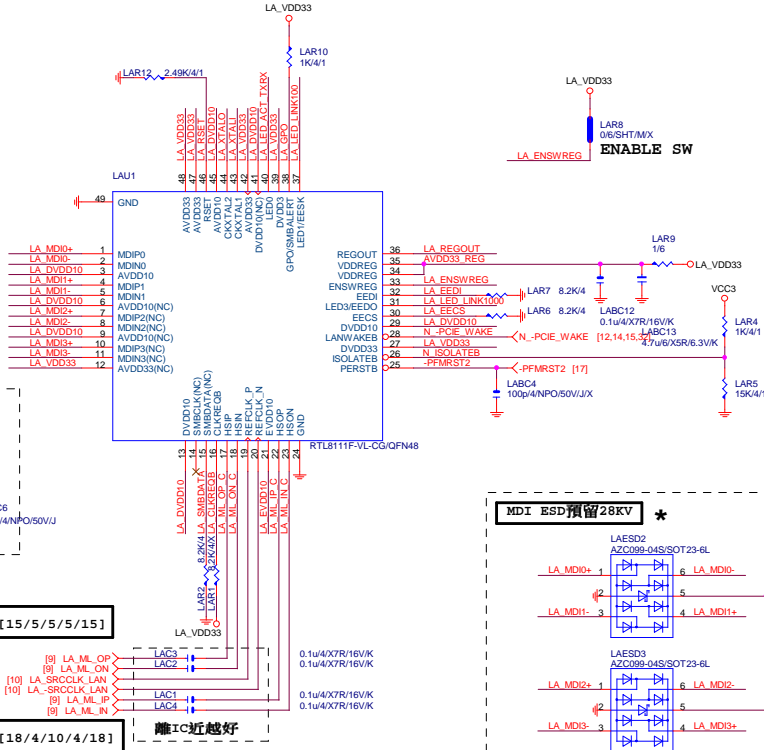


AZALIA FRONT PANEL

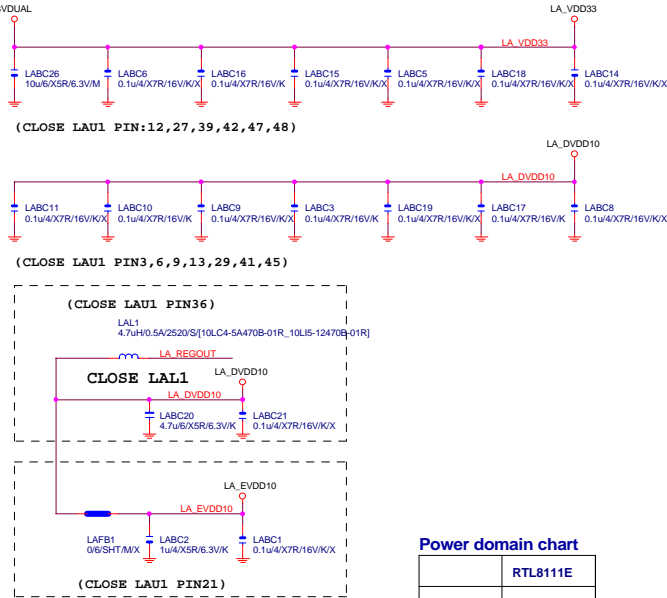


Size	
Custom	

LAN:RTL8111F/VB/VL



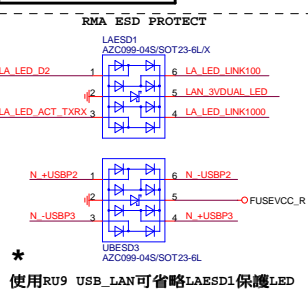
LAN POWER



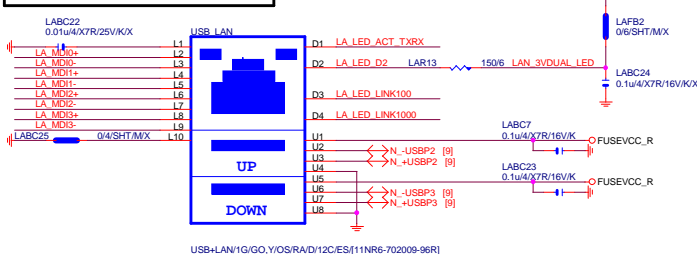
Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

USB_LAN CONNECTOR



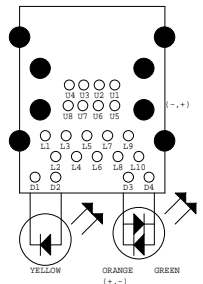
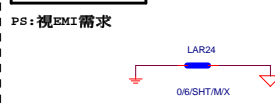
LA_MDI-->100歐姆:[20/4/8/4/20]



USB X3 POWER



EMI SHORT PAD



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

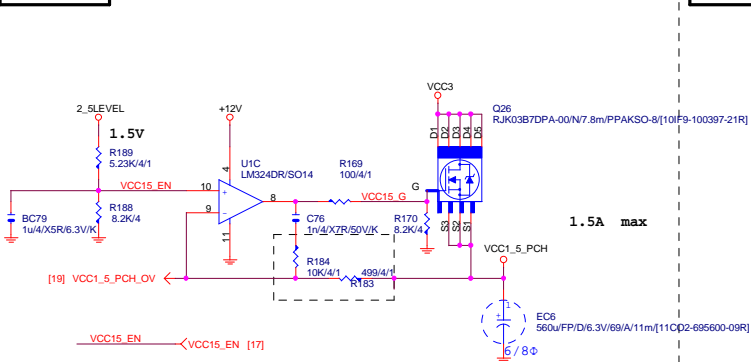
BOM NOTICE

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		

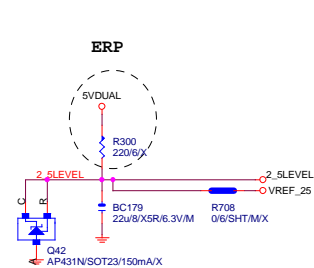
Gigabyte Technology

Title			Realtek RTL8111G
Size	Document Number	GA-B85M-D3V	
Date	Thursday, November 28, 2013	Sheet	24 of 32

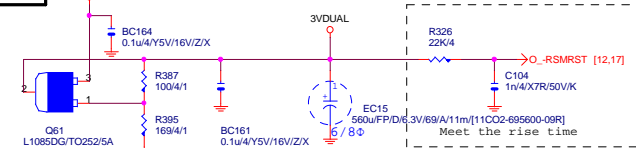
VCC1_5_PCH



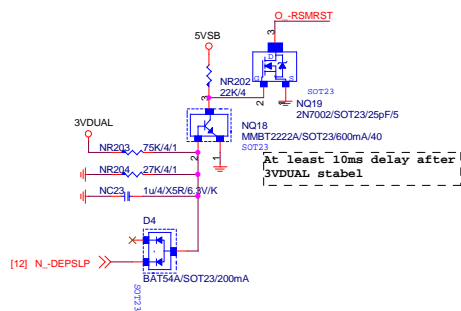
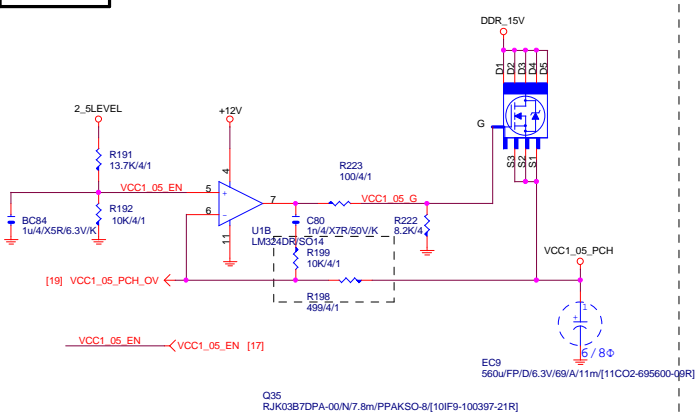
2_5LEVEL



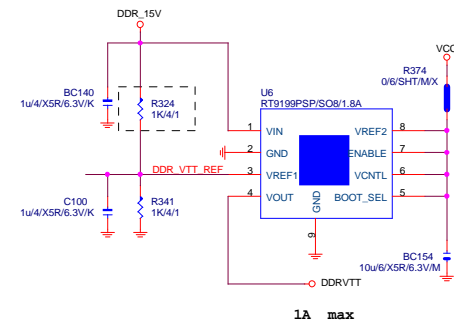
3VDUAL



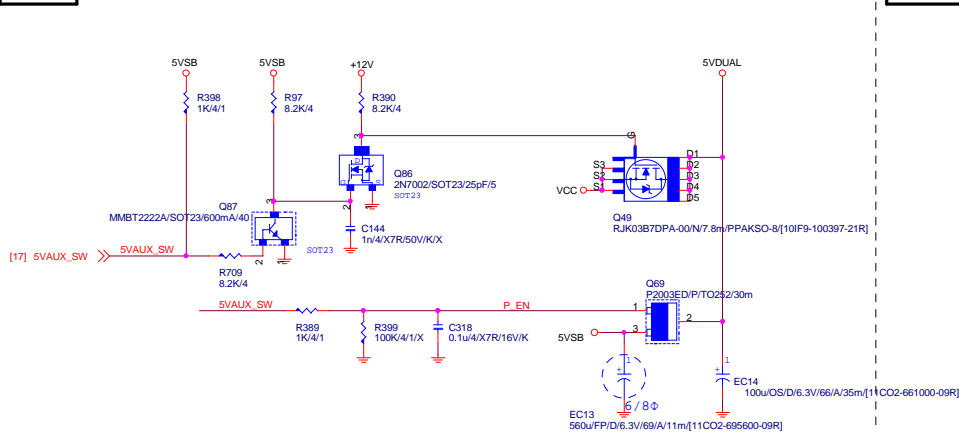
VCC1_05_PCH	
-------------	--



DDRVTT

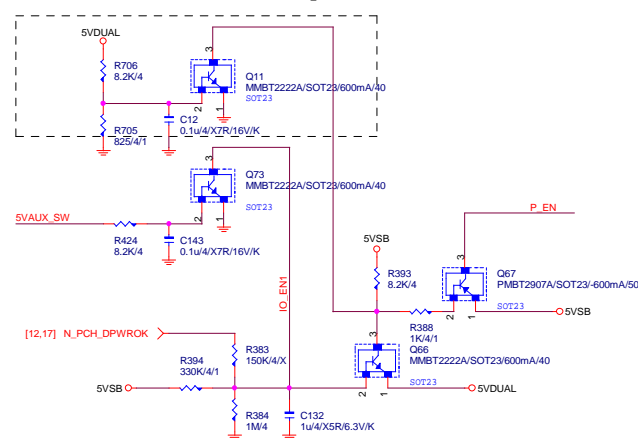



5VDUAL



5VDUAL SHORT PROTECT

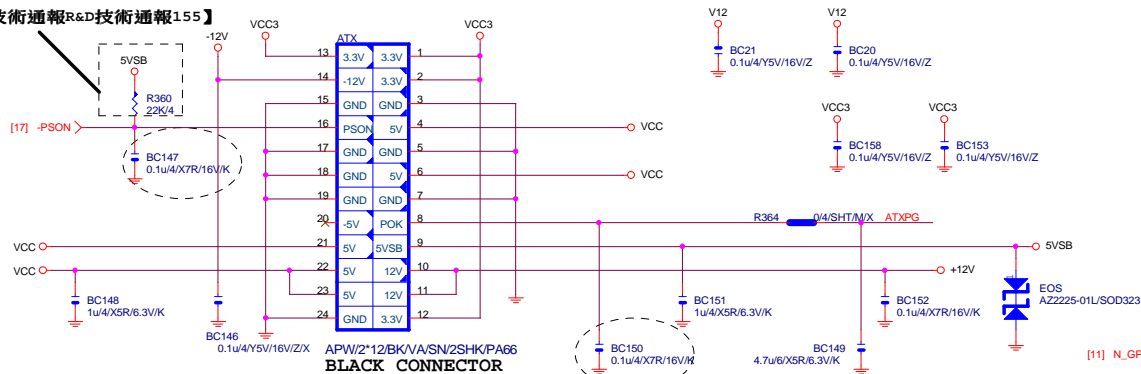
5VSB OVP:7.5V protection



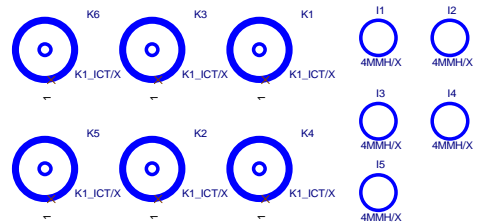
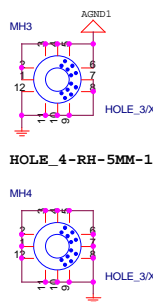
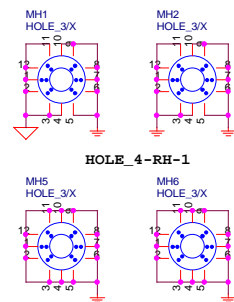
			
Title			
DISCRETE POWER			
Size	Document Number	Rev	
Custom	GA-B85M-D3V	2.01	
Date:	Thursday, November 28, 2013	Sheet	25 of 32

ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



BLACK CONNECTOR

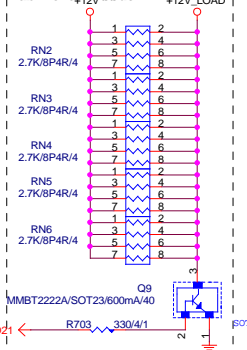


To prevent the 5VSB under loading when boot

TPM

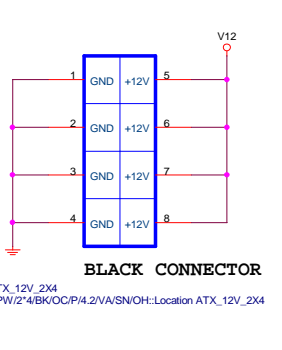
【技術通報R&D技術通報153】

To fix 12V light load abnormality issue



ATXX4 POWER CONNECTOR

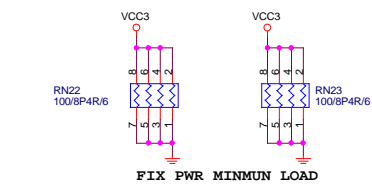
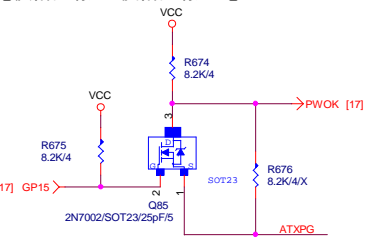
ATX_12V_2X4



BLACK CONNECTOR

PWOK PATCH

【技術通報R&D技術通報154】



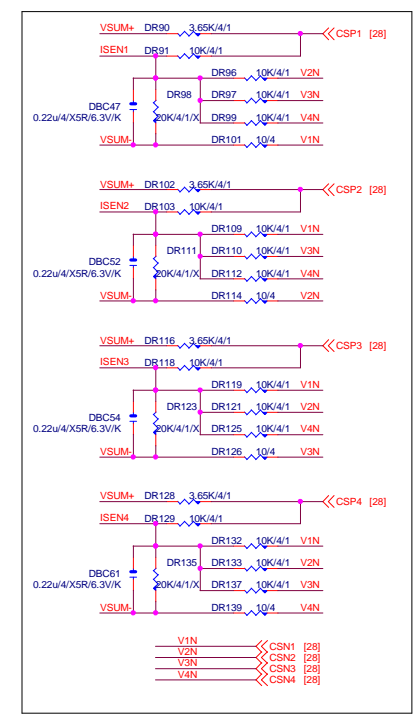
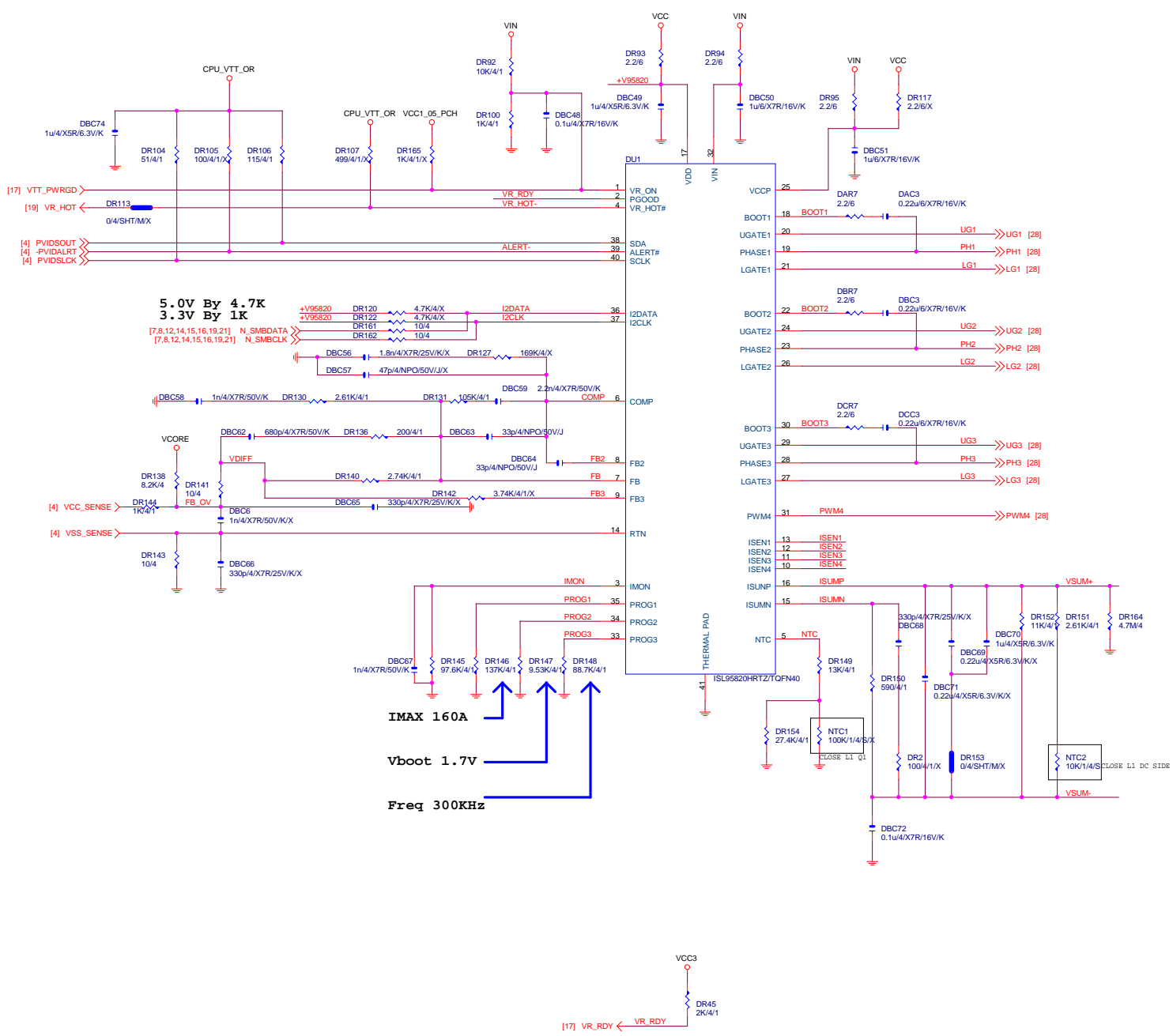
FIX PWR MINMUN LOAD

Gigabyte Technology

ATX CONNECTOR

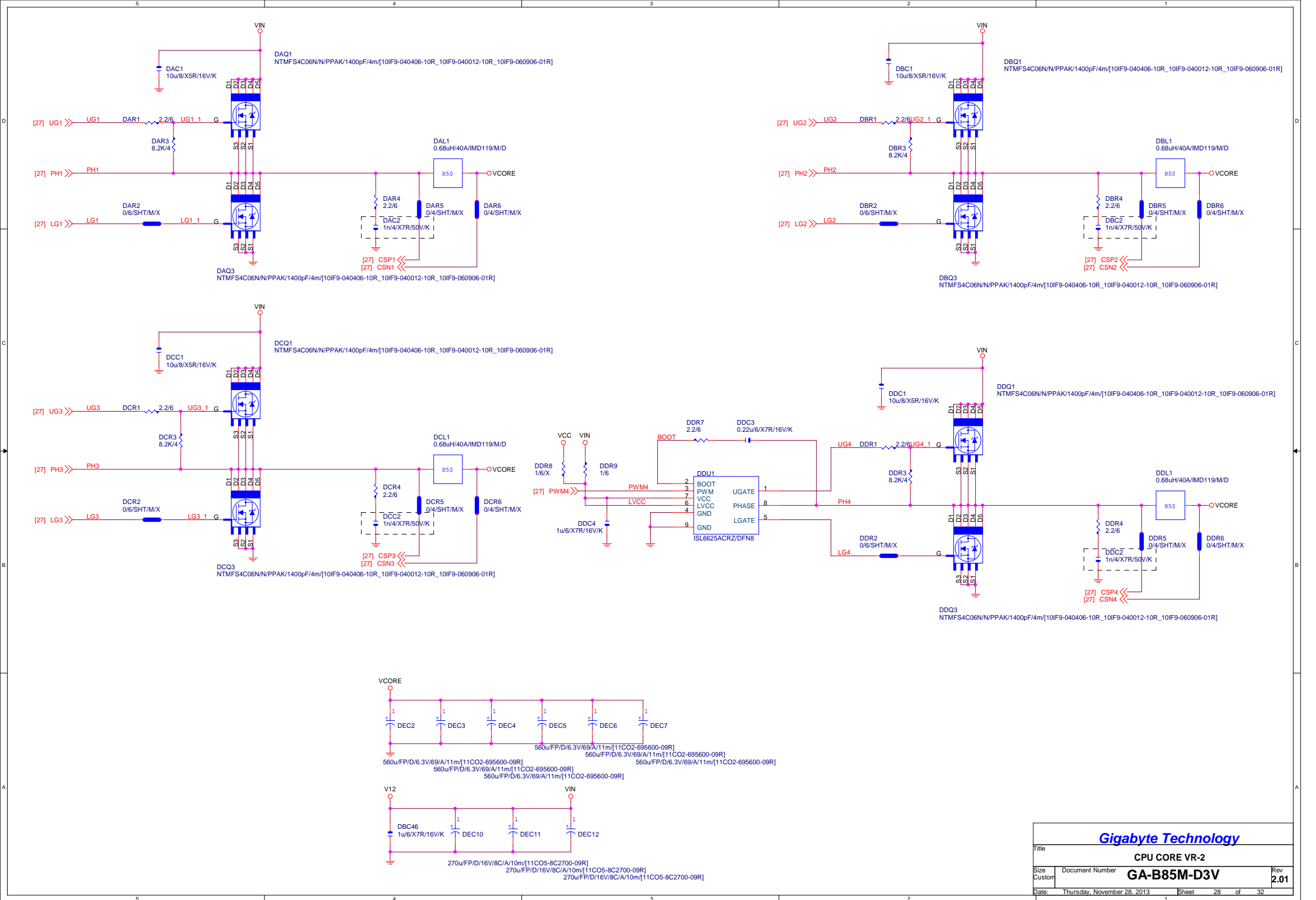
GA-B85M-D3V

Rev 2.01

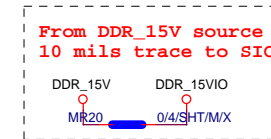


CLOSE PWR

IMAX 160A
Vboot 1.7V
Freq 300KHz



DDR15V

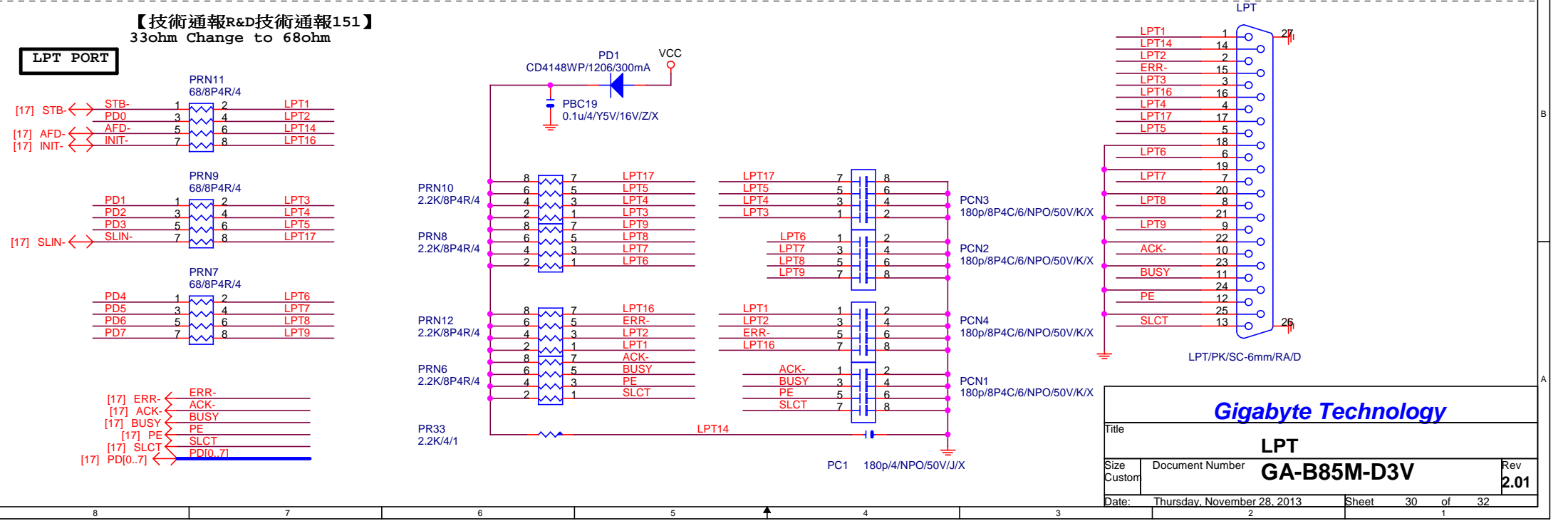
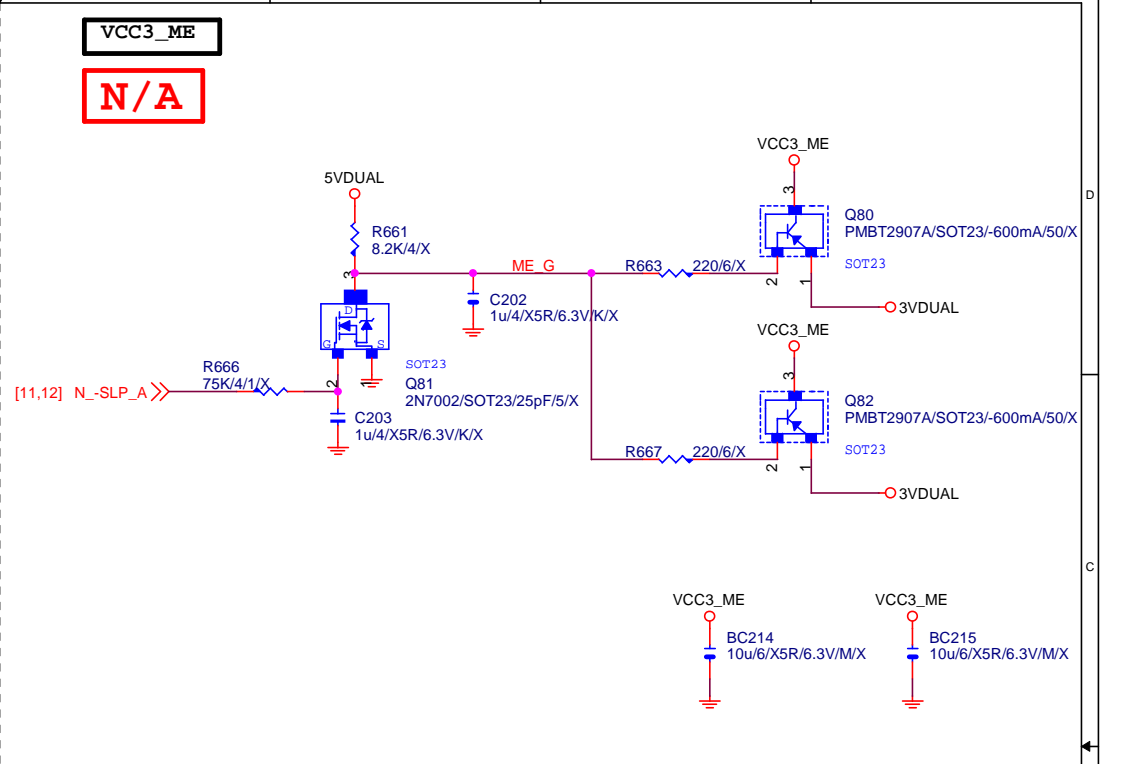
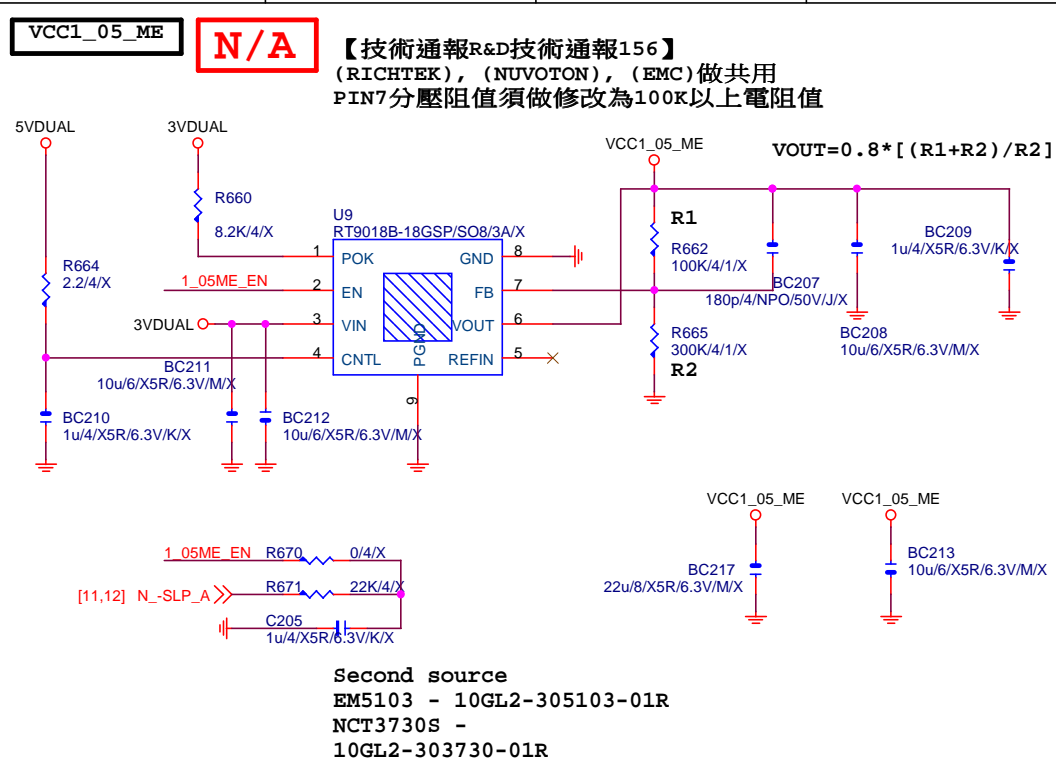


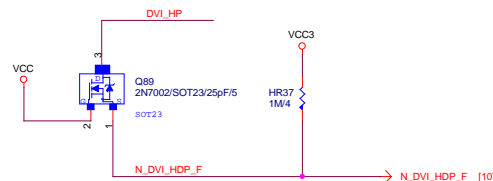
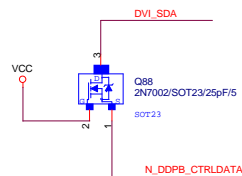
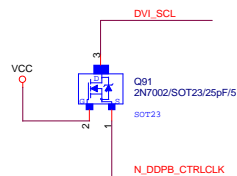
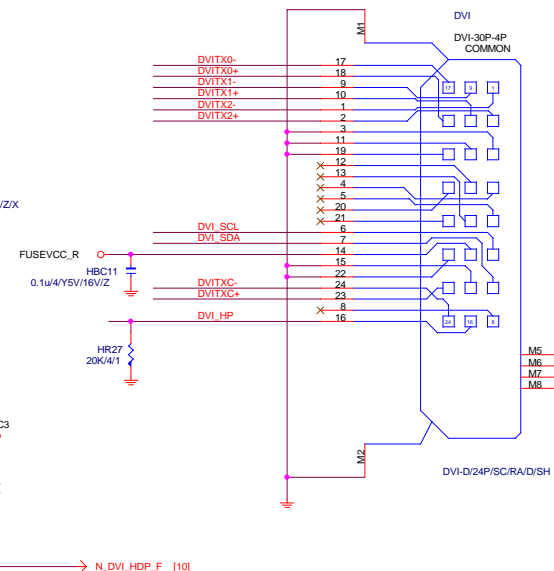
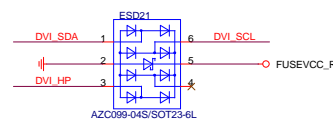
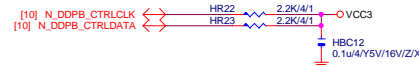
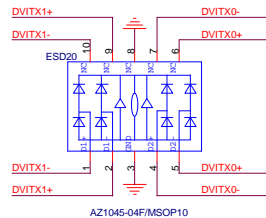
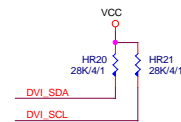
PWR SEQ

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

DDR POWER

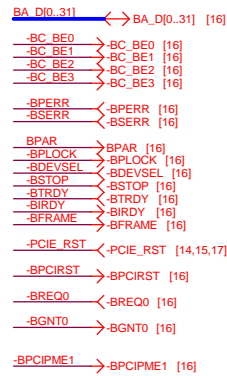
Size Custom	Document Number GA-B85M-D3V	Rev 2.01
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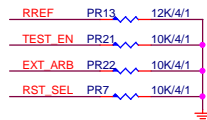


PCIE TO PCI

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



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



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



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



IT8892

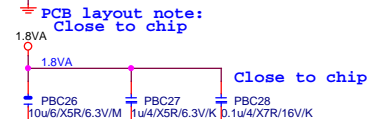
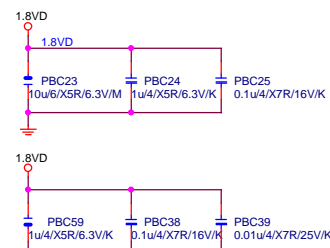
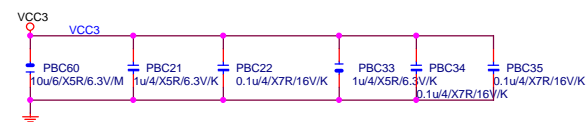
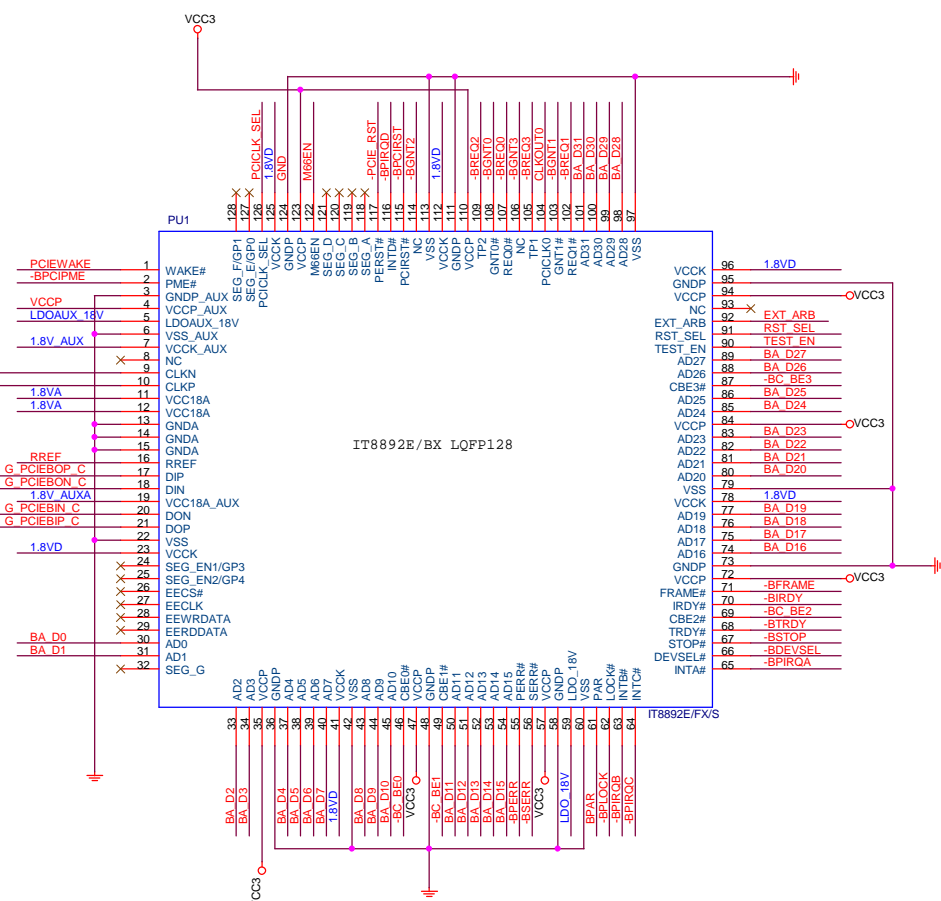
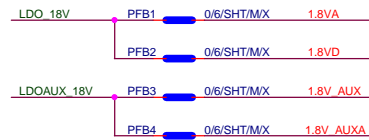
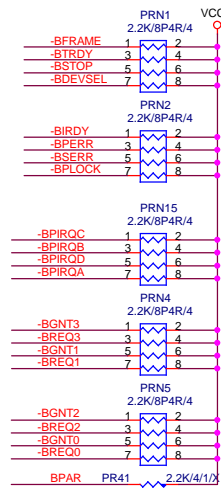
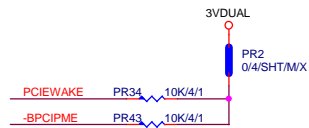


PCI slot

PCI slot



chipset side



PCB layout note:
Close to chip

PCB layout note:
Close to chip

Gigabyte Technology

ITE IT8892E
GA-B85M-D3V

Title		Rev	
Size	Document Number	32	2.01
Custom			
Date:	Thursday, November 28, 2013	Sheet	32 of 32