

Model Name:IPMH81G1

Revision 1.1

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,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	ITE 8620
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 RTL8111F
24	DISCRETE POWER
25	ATX , CLOCK GEN
26	VCORE ISL95812_1
27	VCORE ISL95812_2

SHEET

TITLE

28	RT8120_DDR POWER
29	HDMI
30	
31	
32	

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Gigabyte Technology

Cover Sheet

Size	Document Number	Rev
Custom	IPMH81G1	1.1
Date:	Friday, October 18, 2013	Sheet 1 of 29

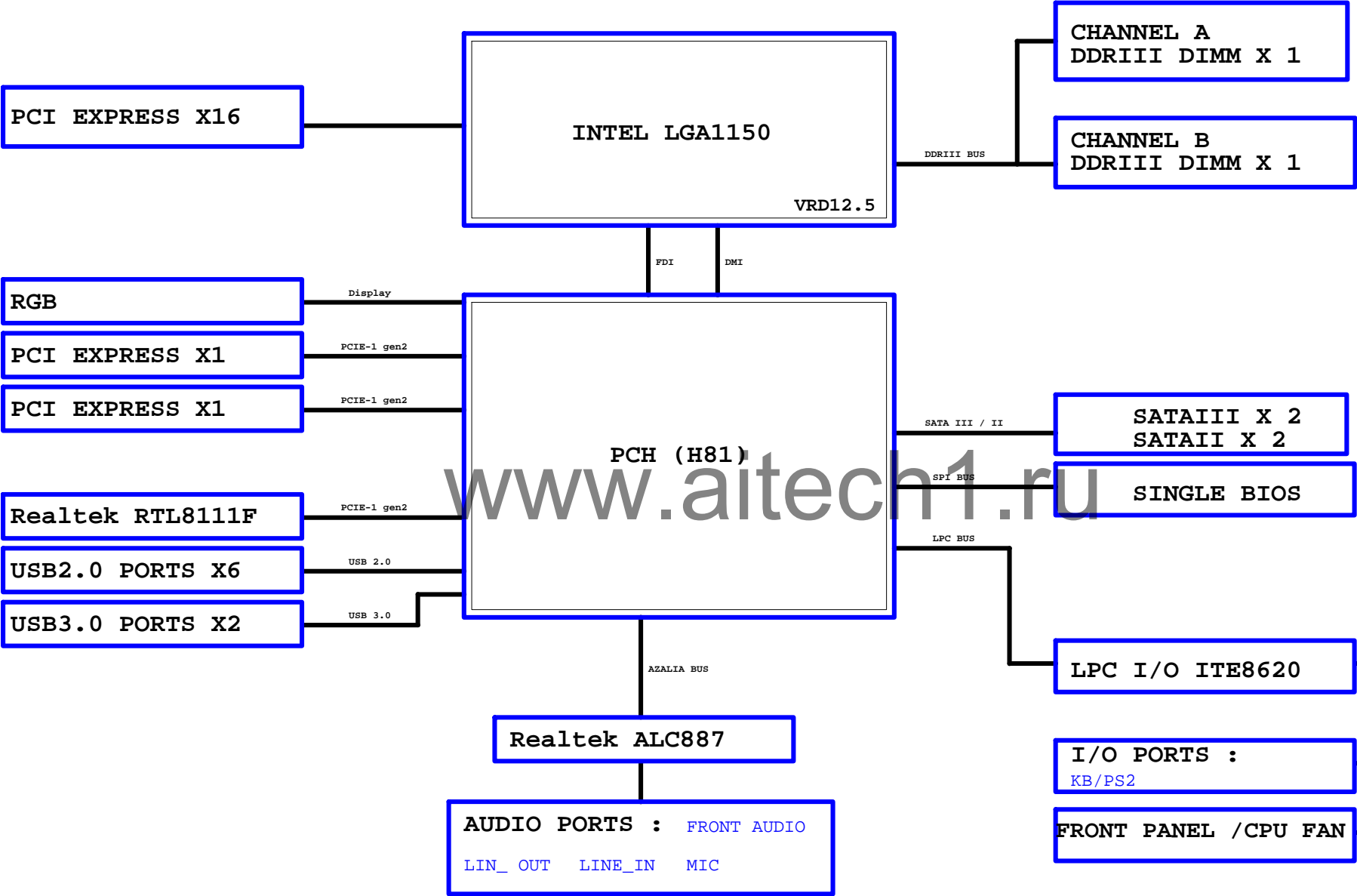
C

B

A

[illegible]

BLOCK DIAGRAM



[illegible]

Diagram illustrating the pin assignment for the LGA1150D package, showing connections for FDI_CSYNC, FDI_INT, FDI_RCOMP, FDI_TXN0, FDI_TXP0, FDI_TXN1, and FDI_TXP1.

Legend:

- (9) FDI_CSYNC
- (9) FDI_INT
- (10) N_DP_CLK
- (10) N_DP_CLK
- (10) FDI_TXN0
- (10) FDI_TXP0
- (10) FDI_TXN1
- (10) FDI_TXP1

Pin Assignments:

Signal	Pin	Signal	Pin	Signal	Pin
FDI_CSYNC	D16	FDI_INT	D18	FDI_TXN0	B14
FDI_INT	D18	FDI_RCOMP	R4	FDI_TXP0	A14
FDI_RCOMP	R4	SSC_DPCLKN	U5	FDI_TXN1	C13
SSC_DPCLKN	U5	SSC_DPCLKP	U6	FDI_TXP1	B13
SSC_DPCLKP	U6	EDP_DISP_UTIL	E16		
EDP_DISP_UTIL	E16	RSVD_TP	K11		
RSVD_TP	K11	RSVD_TP	J12		
FDI_EDP_TXN0	D13	FDI_EDP_TXP0	D13		
FDI_EDP_TXN1	D13	FDI_EDP_TXP1	D13		
FDI_EDP_TXP0	D13				
FDI_EDP_TXP1	D13				

Summary of FDI Pin Configuration:

Signal	Pin	Signal	Pin	Signal	Pin
FDI_CSYNC	D16	FDI_TXN0	B14	FDI_TXP0	A14
FDI_INT	D18	FDI_TXN1	C13	FDI_TXP1	B13
FDI_RCOMP	R4				
SSC_DPCLKN	U5				
SSC_DPCLKP	U6				
EDP_DISP_UTIL	E16				
RSVD_TP	K11				
RSVD_TP	J12				
FDI_EDP_TXN0	D13	FDI_EDP_TXP0	D13		
FDI_EDP_TXN1	D13	FDI_EDP_TXP1	D13		
FDI_EDP_TXP0	D13				
FDI_EDP_TXP1	D13				

Legend:

- (9) FDI_CSYNC
- (9) FDI_INT
- (9) FDI_RCOMP
- (9) FDI_TXN0
- (9) FDI_TXP0
- (9) FDI_TXN1
- (9) FDI_TXP1

Summary of FDI Pin Configuration:

Signal	Pin	Signal	Pin	Signal	Pin
FDI_CSYNC	D16	FDI_TXN0	B14	FDI_TXP0	A14
FDI_INT	D18	FDI_TXN1	C13	FDI_TXP1	B13
FDI_RCOMP	R4				
SSC_DPCLKN	U5				
SSC_DPCLKP	U6				
EDP_DISP_UTIL	E16				
RSVD_TP	K11				
RSVD_TP	J12				
FDI_EDP_TXN0	D13	FDI_EDP_TXP0	D13		
FDI_EDP_TXN1	D13	FDI_EDP_TXP1	D13		
FDI_EDP_TXP0	D13				
FDI_EDP_TXP1	D13				

Legend:

- (9) FDI_CSYNC
- (9) FDI_INT
- (9) FDI_RCOMP
- (9) FDI_TXN0
- (9) FDI_TXP0
- (9) FDI_TXN1
- (9) FDI_TXP1

Summary of FDI Pin Configuration:

Signal	Pin	Signal	Pin	Signal	Pin
FDI_CSYNC	D16	FDI_TXN0	B14	FDI_TXP0	A14
FDI_INT	D18	FDI_TXN1	C13	FDI_TXP1	B13
FDI_RCOMP	R4				
SSC_DPCLKN	U5				
SSC_DPCLKP	U6				
EDP_DISP_UTIL	E16				
RSVD_TP	K11				
RSVD_TP	J12				
FDI_EDP_TXN0	D13	FDI_EDP_TXP0	D13		
FDI_EDP_TXN1	D13	FDI_EDP_TXP1	D13		
FDI_EDP_TXP0	D13				
FDI_EDP_TXP1	D13				

Legend:

- (9) FDI_CSYNC
- (9) FDI_INT
- (9) FDI_RCOMP
- (9) FDI_TXN0
- (9) FDI_TXP0
- (9) FDI_TXN1
- (9) FDI_TXP1

Summary of FDI Pin Configuration:

Signal	Pin	Signal	Pin	Signal	Pin
FDI_CSYNC	D16	FDI_TXN0	B14	FDI_TXP0	A14
FDI_INT	D18	FDI_TXN1	C13	FDI_TXP1	B13
FDI_RCOMP	R4				
SSC_DPCLKN	U5				
SSC_DPCLKP	U6				
EDP_DISP_UTIL	E16				
RSVD_TP	K11				
RSVD_TP	J12				
FDI_EDP_TXN0	D13	FDI_EDP_TXP0	D13		
FDI_EDP_TXN1	D13	FDI_EDP_TXP1	D13		
FDI_EDP_TXP0	D13				
FDI_EDP_TXP1	D13				

Legend:

- (9) FDI_CSYNC
- (9) FDI_INT
- (9) FDI_RCOMP
- (9) F

PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)									
Impedance=80 +- 1.5%									
LGA1150C									
PA EXP RXP0	E15	PEG_RXP0	PEG_TXP0	A12	PA EXP TXP0				
PA EXP RXN0	F15	PEG_RXN0	PEG_TXN0	B12	PA EXP TXN0				
PA EXP RXP1	D14	PEG_RXP1	PEG_TXP1	B11	PA EXP TXP1				
PA EXP RXN1	E14	PEG_RXN1	PEG_TXN1	C11	PA EXP TXN1				
PA EXP RXP2	E13	PEG_RXP2	PEG_TXP2	C10	PA EXP TXP2				
PA EXP RXN2	F13	PEG_RXN2	PEG_TXN2	D10	PA EXP TXN2				
PA EXP RXP3	D12	PEG_RXP3	PEG_TXP3	B9	PA EXP TXP3				
PA EXP RXN3	E12	PEG_RXN3	PEG_TXN3	C9	PA EXP TXN3				
PA EXP RXP4	E11	PEG_RXP4	PEG_TXP4	C8	PA EXP TXP4				
PA EXP RXN4	F11	PEG_RXN4	PEG_TXN4	D8	PA EXP TXN4				
PA EXP RXP5	F10	PEG_RXP5	PEG_TXP5	B7	PA EXP TXP5				
PA EXP RXN5	G10	PEG_RXN5	PEG_TXN5	C7	PA EXP TXN5				
PA EXP RXP6	E9	PEG_RXP6	PEG_TXP6	A6	PA EXP TXP6				
PA EXP RXN6	F9	PEG_RXN6	PEG_TXN6	B6	PA EXP TXN6				
PA EXP RXP7	F8	PEG_RXP7	PEG_TXP7	B5	PA EXP TXP7				
PA EXP RXN7	G8	PEG_RXN7	PEG_TXN7	C5	PA EXP TXN7				
PA EXP RXP8	D3	PEG_RXP8	PEG_TXP8	E1	PA EXP TXP8				
PA EXP RXN8	D4	PEG_RXN8	PEG_TXN8	F2	PA EXP TXN8				
PA EXP RXP9	E4	PEG_RXP9	PEG_TXP9	F2	PA EXP TXP9				
PA EXP RXN9	E5	PEG_RXN9	PEG_TXN9	G2	PA EXP TXN9				
PA EXP RXP10	F5	PEG_RXP10	PEG_TXP10	G1	PA EXP TXP10				
PA EXP RXN10	G6	PEG_RXN10	PEG_TXN10	H2	PA EXP TXN10				
PA EXP RXP11	G4	PEG_RXP11	PEG_TXP11	H1	PA EXP TXP11				
PA EXP RXN11	G5	PEG_RXN11	PEG_TXN11	J1	PA EXP TXP12				
PA EXP RXP12	H5	PEG_RXP12	PEG_TXP12	J2	PA EXP TXN12				
PA EXP RXN12	H6	PEG_RXN12	PEG_TXN12	K2	PA EXP TXP13				
PA EXP RXP13	J4	PEG_RXP13	PEG_TXP13	K3	PA EXP TXN13				
PA EXP RXN13	J5	PEG_RXN13	PEG_TXN13	M2	PA EXP TXP14				
PA EXP RXP14	K5	PEG_RXP14	PEG_TXP14	M3	PA EXP TXN14				
PA EXP RXN14	K6	PEG_RXN14	PEG_TXN14	L2	PA EXP TXP15				
PA EXP RXP15	L4	PEG_RXP15	PEG_TXP15	L1	PA EXP TXN15				
PA EXP RXN15	L5	PEG_RXN15	PEG_TXN15						
A DMI ORXP	U3	DMI_RXP0	DMI_TXP0	A44	A DMI OTXP				
A DMI ORXN	T3	DMI_RXN0	DMI_TXN0	A45	A DMI OTXN				
A DMI 1RXP	U1	DMI_RXP1	DMI_TXP1	AB3	A DMI 1TXP				
A DMI 1RXN	U2	DMI_RXN1	DMI_TXN1	AB4	A DMI 1TXN				
A DMI 2RXP	V2	DMI_RXP2	DMI_TXP2	AC5	A DMI 2TXP				
A DMI 2RXN	V3	DMI_RXN2	DMI_TXN2	AC4	A DMI 2TXN				
A DMI 3RXP	Y3	DMI_RXP3	DMI_TXP3	AC1	A DMI 3TXP				
A DMI 3RXN	W3	DMI_RXN3	DMI_TXN3	AC2	A DMI 3TXN				
<div> <div> <div>W=12 mil out of CPU</div> <div>S=15 mil out of CPU</div> </div> <div> <div>RSVD_TP</div> <div>RSVD_TP</div> <div>RSVD_TP</div> <div>RSVD_TP</div> </div> </div>									

1.1V分壓

VCC3

WR26
2K4/1%

WR31
1K4/1%

A_CPIURST

BC102
1n/407R/50V/K

A_CPIURST (11,16)

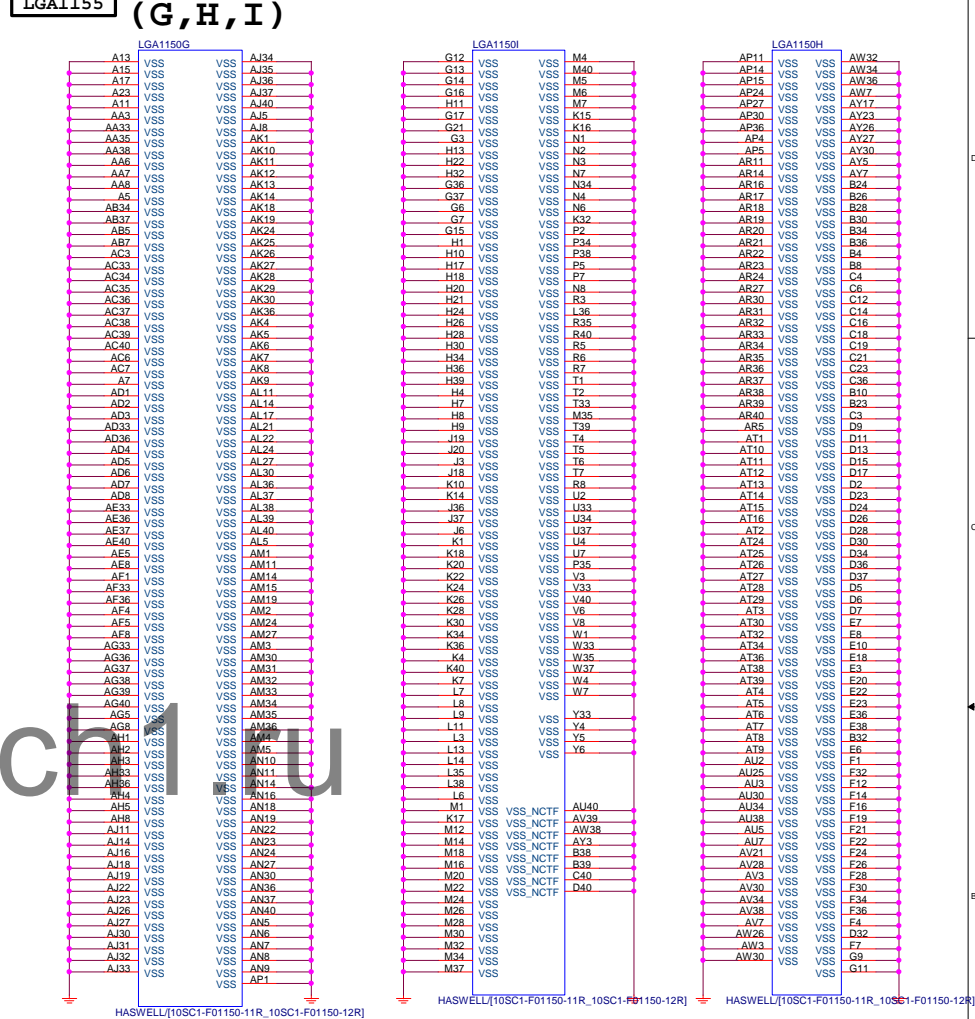
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Size	Document Number	IPMH81G1				Rev	1.1
Custom							
Date:	Friday, October 18, 2013			Sheet	4	of	29

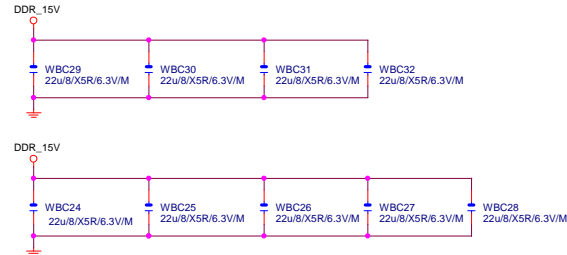
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MAAA0	AU13	DDR0_D00	AD38 MDA0
MAAA1	AV16	DDR0_D01	AD39 MDA1
MAAA2	AU16	DDR0_D02	AF38 MDA2
MAAA3	AW17	DDR0_D03	AF39 MDA3
MAAA4	AU17	DDR0_D04	AD37 MDA4
MAAA5	AW18	DDR0_D05	AD40 MDA5
MAAA6	AV17	DDR0_D06	AE37 MDA6
MAAA7	AT18	DDR0_D07	AF40 MDA7
MAAA8	AU18	DDR0_D08	AH40 MDA9
MAAA9	AT19	DDR0_D09	AH39 MDA10
MAAA10	AW11	DDR0_D10	AK38 MDA10
MAAA11	AV19	DDR0_D11	AK39 MDA11
MAAA12	AU19	DDR0_D12	AH37 MDA12
MAAA13	AY10	DDR0_D13	AH38 MDA13
MAAA14	AT20	DDR0_D14	AK37 MDA14
MAAA15	AU21	DDR0_D15	AK40 MDA15
MODT_A0	AW10	DDR0_D16	AM40 MDA17
MODT_A1	AY8	DDR0_ODT0	AM39 MDA21
AW9		DDR0_ODT1	AP38 MDA18
AW8		DDR0_ODT2	AP39 MDA19
AW7		DDR0_ODT3	AM37 MDA20
AW33		DDR0_ODT4	AM38 MDA16
AW32		DDR0_ODT5	AM37 MDA22
AW31		DDR0_ODT6	AP37 MDA23
AW30		DDR0_ODT7	AP40 MDA25
AW29		DDR0_ODT8	AW37 MDA29
AW28		DDR0_ODT9	AU35 MDA26
AW27		DDR0_ODT10	AU36 MDA27
AW26		DDR0_ODT11	AT37 MDA28
AW25		DDR0_ODT12	AU37 MDA24
AW24		DDR0_ODT13	AT35 MDA30
AW23		DDR0_ODT14	AT36 MDA31
AW22		DDR0_ODT15	AW35 MDA33
AW21		DDR0_ODT16	AW6 MDA37
AW20		DDR0_ODT17	AW4 MDA34
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AW17		DDR0_ODT20	AW4 MDA38
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AW15		DDR0_ODT22	AW4 MDA41
AW14		DDR0_ODT23	AW4 MDA45
AW13		DDR0_ODT24	AN3 MDA42
AW12		DDR0_ODT25	AN4 MDA43
AW11		DDR0_ODT26	AN4 MDA44
AW10		DDR0_ODT27	AN2 MDA46
AW9		DDR0_ODT28	AN1 MDA47
AW8		DDR0_ODT29	AL1 MDA49
AW7		DDR0_ODT30	AL4 MDA53
AW6		DDR0_ODT31	AL4 MDA50
AW5		DDR0_ODT32	AL4 MDA51
AW4		DDR0_ODT33	AL2 MDA52
AW3		DDR0_ODT34	AL2 MDA48
AW2		DDR0_ODT35	AL2 MDA54
AW1		DDR0_ODT36	AL1 MDA55
AW0		DDR0_ODT37	AG1 MDA57
AW34		DDR0_ODT38	AG4 MDA61
AW33		DDR0_ODT39	AE3 MDA58
AW32		DDR0_ODT40	AE4 MDA59
AW31		DDR0_ODT41	AG2 MDA60
AW30		DDR0_ODT42	AG3 MDA56
AW29		DDR0_ODT43	AE2 MDA62
AW28		DDR0_ODT44	AE1 MDA63
AW27		DDR0_ODT45	AE39 DQSA0
AW26		DDR0_ODT46	AE39 DQSA1
AW25		DDR0_ODT47	AN39 DQSA2
AW24		DDR0_ODT48	AN39 DQSA2
AW23		DDR0_ODT49	AV36 DQSA3
AW22		DDR0_ODT50	AV5 DQSA4
AW21		DDR0_ODT51	AP3 DQSA5
AW20		DDR0_ODT52	AK3 DQSA6
AW19		DDR0_ODT53	AF3 DQSA7
AW18		DDR0_ODT54	AV32 DQSA0
AW17		DDR0_ODT55	AE38 DQSA1
AW16		DDR0_ODT56	AN38 DQSA2
AW15		DDR0_ODT57	AU36 DQSA3
AW14		DDR0_ODT58	AW5 DQSA4
AW13		DDR0_ODT59	AP2 DQSA5
AW12		DDR0_ODT60	AK2 DQSA6
AW11		DDR0_ODT61	AF2 DQSA7
AW10		DDR0_ODT62	AU32
AW9		DDR0_ODT63	
AW8		DDR0_ODT64	
AW7		DDR0_ODT65	
AW6		DDR0_ODT66	
AW5		DDR0_ODT67	
AW4		DDR0_ODT68	
AW3		DDR0_ODT69	
AW2		DDR0_ODT70	
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AW0		DDR0_ODT72	
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AW31		DDR0_ODT76	
AW30		DDR0_ODT77	
AW29		DDR0_ODT78	
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AW27		DDR0_ODT80	
AW26		DDR0_ODT81	
AW25		DDR0_ODT82	
AW24		DDR0_ODT83	
AW23		DDR0_ODT84	
AW22		DDR0_ODT85	
AW21		DDR0_ODT86	
AW20		DDR0_ODT87	
AW19		DDR0_ODT88	
AW18		DDR0_ODT89	
AW17		DDR0_ODT90	
AW16		DDR0_ODT91	
AW15		DDR0_ODT92	
AW14		DDR0_ODT93	
AW13		DDR0_ODT94	
AW12		DDR0_ODT95	
AW11		DDR0_ODT96	
AW10		DDR0_ODT97	
AW9		DDR0_ODT98	
AW8		DDR0_ODT99	
AW7		DDR0_ODT100	
AW6		DDR0_ODT101	
AW5		DDR0_ODT102	
AW4		DDR0_ODT103	
AW3		DDR0_ODT104	
AW2		DDR0_ODT105	
AW1		DDR0_ODT106	
AW0		DDR0_ODT107	
AW34		DDR0_ODT108	
AW33		DDR0_ODT109	
AW32		DDR0_ODT110	
AW31		DDR0_ODT111	
AW30		DDR0_ODT112	
AW29		DDR0_ODT113	
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AW26		DDR0_ODT116	
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AW24		DDR0_ODT118	
AW23		DDR0_ODT119	
AW22		DDR0_ODT120	
AW21		DDR0_ODT121	
AW20		DDR0_ODT122	
AW19		DDR0_ODT123	
AW18		DDR0_ODT124	
AW17		DDR0_ODT125	
AW16		DDR0_ODT126	
AW15		DDR0_ODT127	
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AW4		DDR0_ODT138	
AW3		DDR0_ODT139	
AW2		DDR0_ODT140	
AW1		DDR0_ODT141	
AW0		DDR0_ODT142	
AW34		DDR0_ODT143	
AW33		DDR0_ODT144	
AW32		DDR0_ODT145	
AW31		DDR0_ODT146	
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AW25		DDR0_ODT152	
AW24		DDR0_ODT153	
AW23		DDR0_ODT154	
AW22		DDR0_ODT155	
AW21		DDR0_ODT156	
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AW12		DDR0_ODT165	
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AW9		DDR0_ODT168	
AW8		DDR0_ODT169	
AW7		DDR0_ODT170	
AW6		DDR0_ODT171	
AW5		DDR0_ODT172	
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AW3		DDR0_ODT174	
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AW1		DDR0_ODT176	
AW0		DDR0_ODT177	
AW34		DDR0_ODT178	
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AW32		DDR0_ODT180	
AW31		DDR0_ODT181	
AW30		DDR0_ODT182	
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AW13		DDR0_ODT199	
AW12		DDR0_ODT200	
AW11		DDR0_ODT201	
AW10		DDR0_ODT202	
AW9		DDR0_ODT203	
AW8		DDR0_ODT204	
AW7		DDR0_ODT205	
AW6		DDR0_ODT206	
AW5		DDR0_ODT207	
AW4		DDR0_ODT208	
AW3		DDR0_ODT209	
AW2		DDR0_ODT210	
AW1		DDR0_ODT211	
AW0		DDR0_ODT212	
AW34		DDR0_ODT213	
AW33		DDR0_ODT214	
AW32		DDR0_ODT215	
AW31		DDR0_ODT216	
AW30		DDR0_ODT217	
AW29		DDR0_ODT218	
AW28		DDR0_ODT219	
AW27		DDR0_ODT220	
AW26		DDR0_ODT221	
AW25		DDR0_ODT222	
AW24		DDR0_ODT223	
AW23		DDR0_ODT224	
AW22		DDR0_ODT225	
AW21		DDR0_ODT226	
AW20		DDR0_ODT227	
AW19		DDR0_ODT228	
AW18		DDR0_ODT229	
AW17		DDR0_ODT230	
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AW15		DDR0_ODT232	
AW14		DDR0_ODT233	
AW13		DDR0_ODT234	
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AW5		DDR0_ODT242	
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AW3		DDR0_ODT244	
AW2		DDR0_ODT245	
AW1		DDR0_ODT246	
AW0		DDR0_ODT247	
AW34		DDR0_ODT248	
AW33		DDR0_ODT249	
AW32		DDR0_ODT250	
AW31		DDR0_ODT251	
AW30		DDR0_ODT252	
AW29		DDR0_ODT253	
AW28		DDR0_ODT254	
AW27		DDR0_ODT255	
AW26		DDR0_ODT256	
AW25		DDR0_ODT257	
AW24		DDR0_ODT258	
AW23		DDR0_ODT259	
AW22		DDR0_ODT260	
AW21		DDR0_ODT261	
AW20		DDR0_ODT262	
AW19		DDR0_ODT263	
AW18		DDR0_ODT264	
AW17		DDR0_ODT265	
AW16		DDR0_ODT266	
AW15		DDR0_ODT267	
AW14		DDR0_ODT268	
AW13		DDR0_ODT269	
AW12		DDR0_ODT270	
AW11		DDR0_ODT271	
AW10		DDR0_ODT272	
AW9		DDR0_ODT273	
AW8		DDR0_ODT274	
AW7		DDR0_ODT275	
AW6		DDR0_ODT276	
AW5		DDR0_ODT277	
AW4		DDR0_ODT278	
AW3		DDR0_ODT279	
AW2		DDR0_ODT280	
AW1		DDR0_ODT281	
AW0		DDR0_ODT282	
AW34		DDR0_ODT283	
AW33		DDR0_ODT284	
AW32		DDR0_ODT285	
AW31		DDR0_ODT286	
AW30		DDR0_ODT287	
AW29		DDR0_ODT288	
AW28		DDR0_ODT289	
AW27		DDR0_ODT290	
AW26		DDR0_ODT291	
AW25		DDR0_ODT292	
AW24		DDR0_ODT293	
AW23		DDR0_ODT294	
AW22		DDR0_ODT295	
AW21		DDR0_ODT296	
AW20		DDR0_ODT297	
AW19		DDR0_ODT298	
AW18		DDR0_ODT299	
AW17		DDR0_ODT300	
AW16		DDR0_ODT301	
AW15		DDR0_ODT302	
AW14		DDR0_ODT303	
AW13		DDR0_ODT304	
AW12		DDR0_ODT305	
AW11		DDR0_ODT306	
AW10		DDR0_ODT307	
AW9		DDR0_ODT308	
AW8		DDR0_ODT309	
AW7		DDR0_ODT310	
AW6		DDR0_ODT311	
AW5		DDR0_ODT312	
AW4		DDR0_ODT313	
AW3		DDR0_ODT314	
AW2		DDR0_ODT315	
AW1		DDR0_ODT316	
AW0		DDR0_ODT317	
AW34		DDR0_ODT318	
AW33		DDR0_ODT319	
AW32		DDR0_ODT320	
AW31		DDR0_ODT321	
AW30		DDR0_ODT322	
AW29		DDR0_ODT323	
AW28		DDR0_ODT324	
AW27		DDR0_ODT325	
AW26		DDR0_ODT326	
AW25		DDR0_ODT327	
AW24		DDR0_ODT328	
AW23		DDR0_ODT329	</

LGA1155 (G,H,I)



DDR CAP

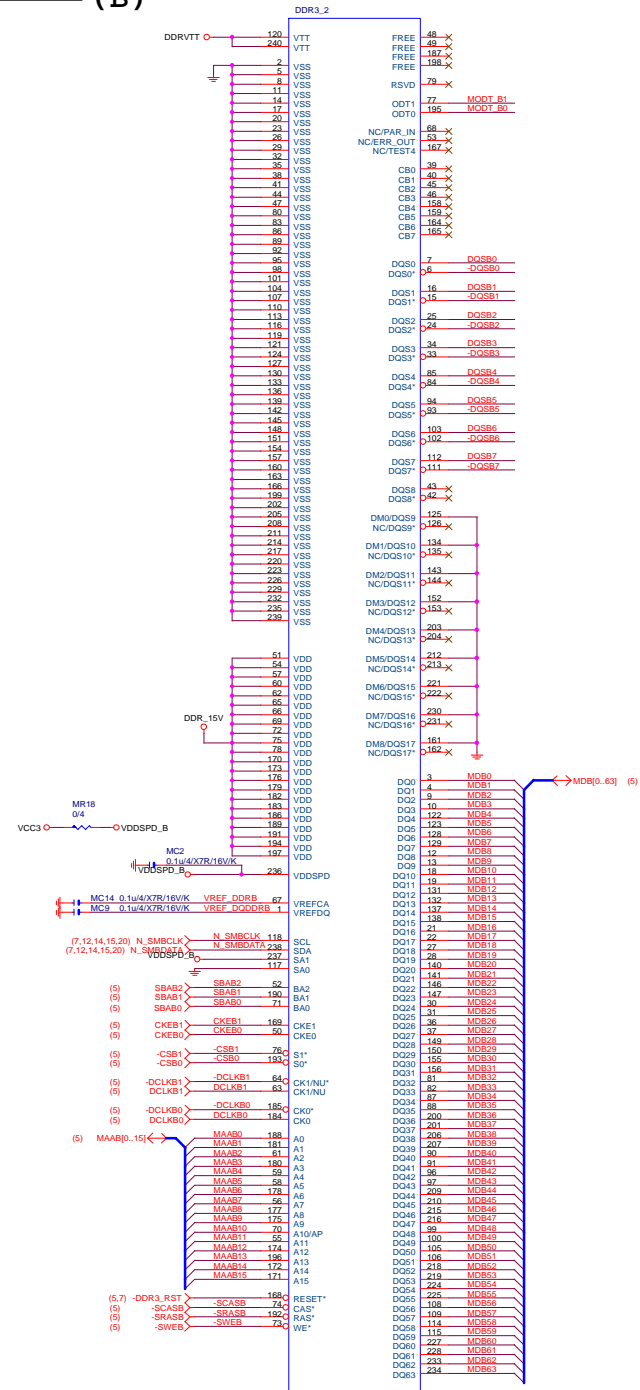
(x9)



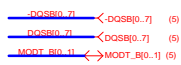
Title			
CPU LGA1150-C			
Size	Document Number		Rev
Custom	IPMH81G1		1.1
Date:	Friday, October 18, 2013	Sheet	6 of 29

DDR3

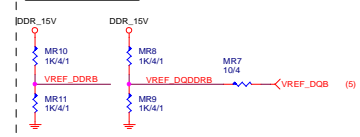
(B)



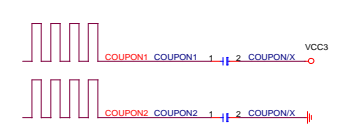
DDR3/240/BK/VA/D
BLACK CONNECTOR



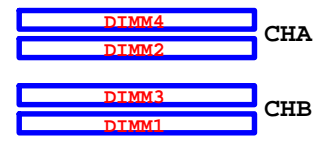
DDR3 VREF



COUPON



CPU



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

(4) A_DMI_0TXN A_DMI_0TXN L24
(4) A_DMI_0TXP A_DMI_0TXP K24
(4) A_DMI_0RXN A_DMI_0RXN C20
(4) A_DMI_0RXP A_DMI_0RXP B20
(4) A_DMI_1TXN A_DMI_1TXN G24
(4) A_DMI_1TXP A_DMI_1TXP H24
(4) A_DMI_1RXN A_DMI_1RXN B21
(4) A_DMI_1RXP A_DMI_1RXP F26
(4) A_DMI_2TXN A_DMI_2TXN G26
(4) A_DMI_2TXP A_DMI_2TXP B22
(4) A_DMI_2RXN A_DMI_2RXN C22
(4) A_DMI_2RXP A_DMI_2RXP K26
(4) A_DMI_3TXN A_DMI_3TXN L26
(4) A_DMI_3TXP A_DMI_3TXP A24
(4) A_DMI_3RXN A_DMI_3RXN B24
(4) A_DMI_3RXP A_DMI_3RXP B24

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

PCIE Only

8111G
(23) LA_ML_IN
(23) LA_ML_IP
(23) LA_ML_ON
(23) LA_ML_OP

PCIEx1
(15) PL_PCIE1_IN
(15) PL_PCIE1_ON
(15) PL_PCIE1_OP
(15) PJ_PCIE1_IN
(15) PJ_PCIE1_IP
(15) PJ_PCIE1_ON
(15) PJ_PCIE1_OP

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

(J)

PCHJ

AT1 VSS_NCTF TP22 U11
AT41 VSS_NCTF TP23 U10
AU1 VSS_NCTF TP21 A14
AV1 VSS_NCTF TP20 K34
AV2 VSS_NCTF TP15 K33
AV40 VSS_NCTF TP12 AH2
AV41 VSS_NCTF TP10 L16
AW2 VSS_NCTF TP11 K16
AW40 VSS_NCTF TP9 AM34
B40 VSS_NCTF TP3 R12
B41 VSS_NCTF TP4 N12
C41 VSS_NCTF TP1 L22
D1 VSS_NCTF TP2 K22
D41 VSS_NCTF TP5 R4
TP6 K5
TP7 P5
TP8 L5
VSS AC31
VSS AF3
VSS AV21

BD82B85/S/[10HB1-030H81-10R]

PCH

(F)

PCHF

(17) PCH_USB3_RXN0 F20
(17) PCH_USB3_RXP0 G20
(17) PCH_USB3_TXN0 B18
(17) PCH_USB3_TXP0 C18
(17) PCH_USB3_RXN1 G18
(17) PCH_USB3_RXP1 H18
(17) PCH_USB3_TXN1 B15
(17) PCH_USB3_TXP1 B16

N/A

VCC3

NR62 8.2K/4
NR63 8.2K/4 AK28
AT34

USB3 FDI LINK
USB3_RXN_0 FDI_RXN_0 N1 FDI_TXN0
USB3_RXP_0 FDI_RXP_0 N2 FDI_TXP0
USB3_TXN_0 FDI_TXN_1 P2 FDI_TXN1
USB3_TXP_0 FDI_RXP_1 P3 FDI_TXP1

USB3_RXN_1 FDI_CSXNC L2 FDI_CSXNC (4)
USB3_RXP_1 FDI_CSXNC L3 FDI_INT (4)
USB3_TXN_1 FDI_INT L3 FDI_INT (4)
USB3_TXP_1 FDI_INT L3 FDI_INT (4)

USB3_RXN_4 K20
USB3_RXP_4 L20
USB3_TXN_4 D15
USB3_TXP_4 C15
USB3_RXN_5 L18
USB3_RXP_5 K18
USB3_TXN_5 B14
USB3_TXP_5 A14

TACH6_GP70
TACH7_GP71

BD82B85/S/[10HB1-030H81-10R]

FDI_TXP0_11 FDI_TXP0[0..1] (4)

FDI_TXN0_11 FDI_TXN0[0..1] (4)

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

CK_SRCCLK_PCH NR89 8.2K/4
CK_SRCCLK_PCH NR88 8.2K/4

Mount for integrated clock Generation Mode

CK_DOTCLK NR92 8.2K/4
CK_DOTCLK NR91 8.2K/4

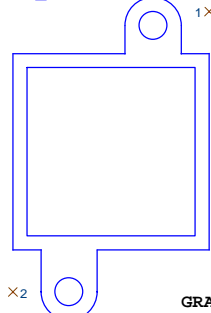
NR225 short to GND in non graphic SKU

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSINK

1X



2X

GRAY HS

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

USB TABLE

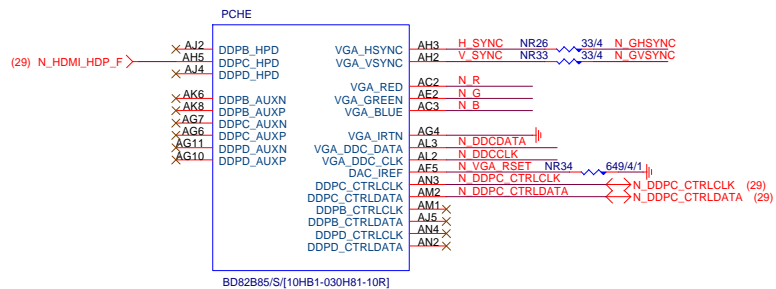
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC# Configure	
OC0#	R_USB30
OC1#	USB_LAN
OC2#	Not Use
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	Not Use
OC7#	N/A

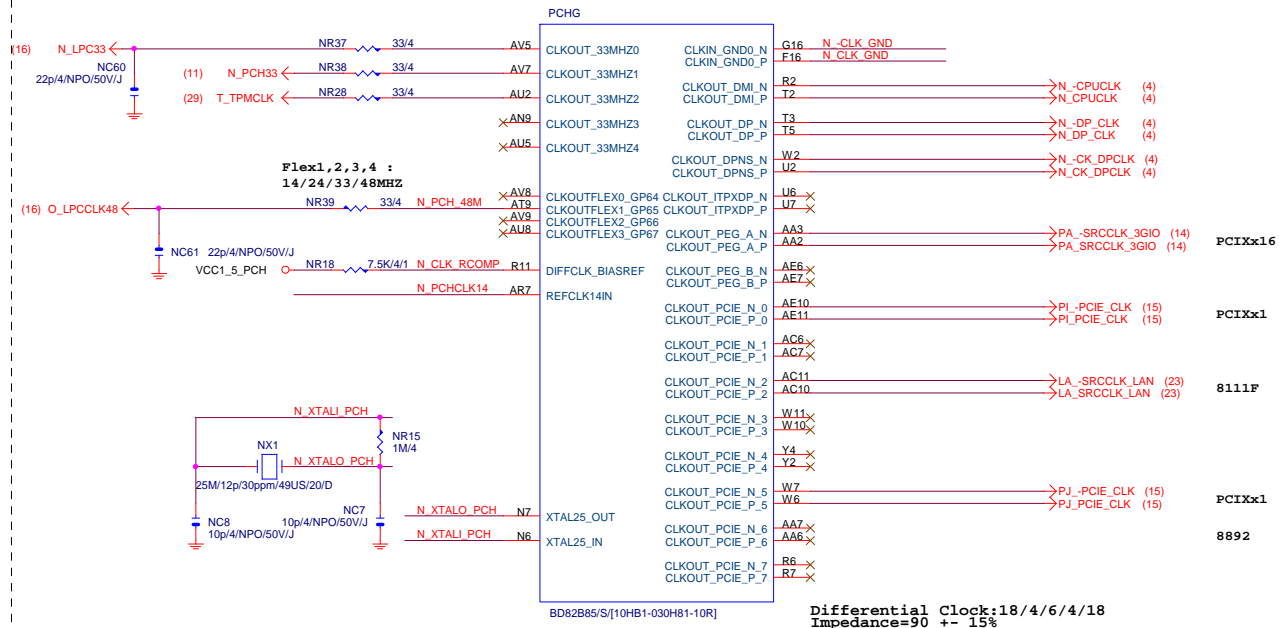
Gigabyte Technology

Title				
PCH FDI,DMI,USB ,PCIE,NVRAM				
Size	Document Number			Rev
Custom	IPMH81G1			1.1
Date:	Friday, October 18, 2013	Sheet	9 of 29	

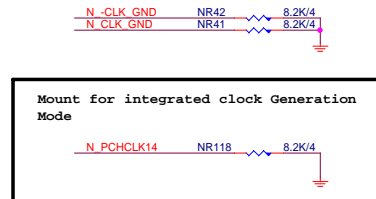
PCH (E)



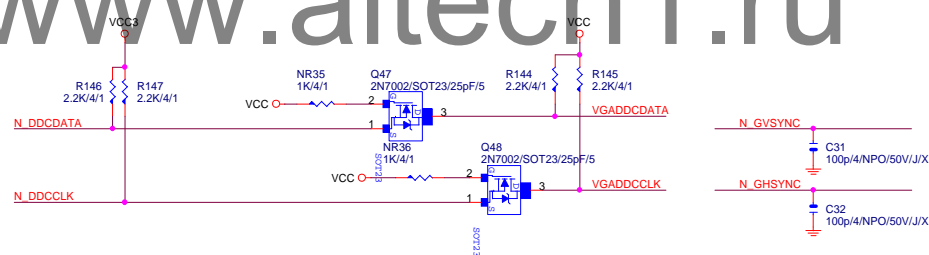
PCH (G)



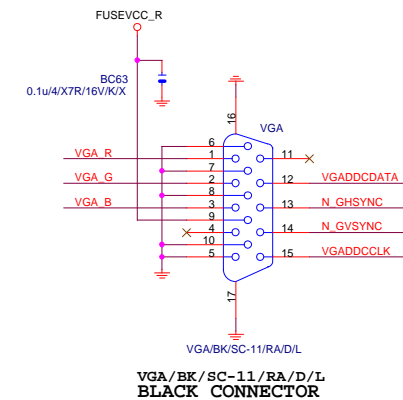
PCH CLK PD



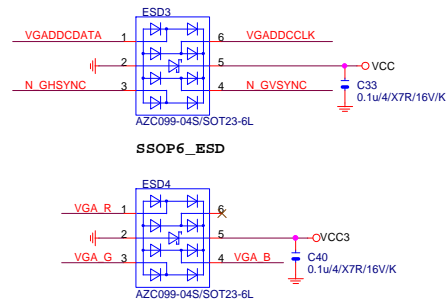
VGA DDC



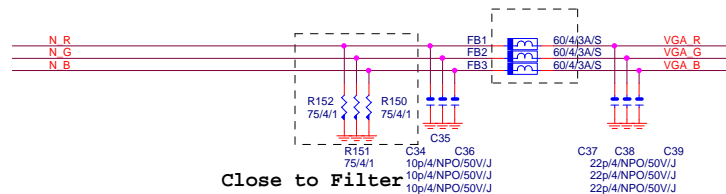
VGA CONNECTOR



VGA ESD



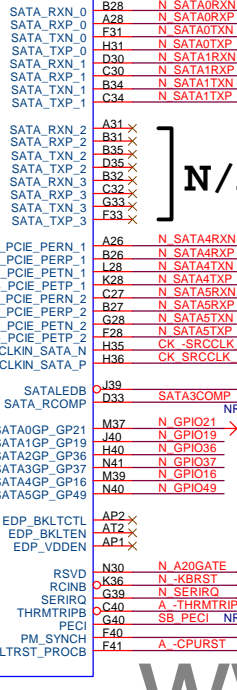
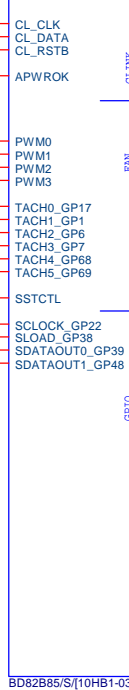
VGA DDC



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%

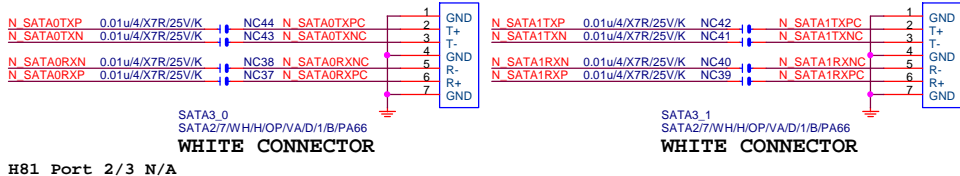
PCHC



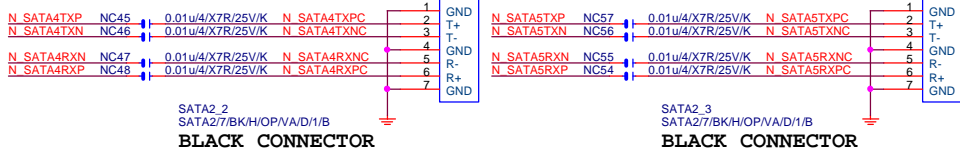
N/A

BD82B85/S/[10HB1-030H81-10R]

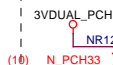
SATA CONNECTOR



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



PCH (A)



(10) N_PCH33

NR30

8.2K/4

TD_IREF

NR124

8.2K/4/X

N_P_PME

AA31

NR125

8.2K/4/X

N_PCH33

AM22

NR126

8.2K/4/X

N_PCH33

AM22

NR127

8.2K/4/X

N_PCH33

AM22

NR128

8.2K/4/X

N_PCH33

AM22

NR129

8.2K/4/X

N_PCH33

AM22

NR130

8.2K/4/X

N_PCH33

AM22

NR131

8.2K/4/X

N_PCH33

AM22

NR132

8.2K/4/X

N_PCH33

AM22

NR133

8.2K/4/X

N_PCH33

AM22

NR134

8.2K/4/X

N_PCH33

AM22

NR135

8.2K/4/X

N_PCH33

AM22

NR136

8.2K/4/X

N_PCH33

AM22

NR137

8.2K/4/X

N_PCH33

AM22

NR138

8.2K/4/X

N_PCH33

AM22

NR139

8.2K/4/X

N_PCH33

AM22

NR140

8.2K/4/X

N_PCH33

AM22

NR141

8.2K/4/X

N_PCH33

AM22

NR142

8.2K/4/X

N_PCH33

AM22

NR143

8.2K/4/X

N_PCH33

AM22

NR144

8.2K/4/X

N_PCH33

AM22

NR145

8.2K/4/X

N_PCH33

AM22

NR146

8.2K/4/X

N_PCH33

AM22

NR147

8.2K/4/X

N_PCH33

AM22

NR148

8.2K/4/X

N_PCH33

AM22

NR149

8.2K/4/X

N_PCH33

AM22

NR150

8.2K/4/X

N_PCH33

AM22

NR151

8.2K/4/X

N_PCH33

AM22

NR152

8.2K/4/X

N_PCH33

AM22

NR153

8.2K/4/X

N_PCH33

AM22

NR154

8.2K/4/X

N_PCH33

AM22

NR155

8.2K/4/X

N_PCH33

AM22

NR156

8.2K/4/X

N_PCH33

AM22

NR157

8.2K/4/X

N_PCH33

AM22

NR158

8.2K/4/X

N_PCH33

AM22

NR159

8.2K/4/X

N_PCH33

AM22

NR160

8.2K/4/X

N_PCH33

AM22

NR161

8.2K/4/X

N_PCH33

AM22

NR162

8.2K/4/X

N_PCH33

AM22

NR163

8.2K/4/X

N_PCH33

AM22

NR164

8.2K/4/X

N_PCH33

AM22

NR165

8.2K/4/X

N_PCH33

AM22

NR166

8.2K/4/X

N_PCH33

AM22

NR167

8.2K/4/X

N_PCH33

AM22

NR168

8.2K/4/X

N_PCH33

AM22

NR169

8.2K/4/X

N_PCH33

AM22

NR170

8.2K/4/X

N_PCH33

AM22

NR171

8.2K/4/X

N_PCH33

AM22

NR172

8.2K/4/X

N_PCH33

AM22

NR173

8.2K/4/X

N_PCH33

AM22

NR174

8.2K/4/X

N_PCH33

AM22

NR175

8.2K/4/X

N_PCH33

AM22

NR176

8.2K/4/X

N_PCH33

AM22

NR177

8.2K/4/X

N_PCH33

AM22

NR178

8.2K/4/X

N_PCH33

AM22

NR179

8.2K/4/X

N_PCH33

AM22

NR180

8.2K/4/X

N_PCH33

AM22

NR181

8.2K/4/X

N_PCH33

AM22

NR182

8.2K/4/X

N_PCH33

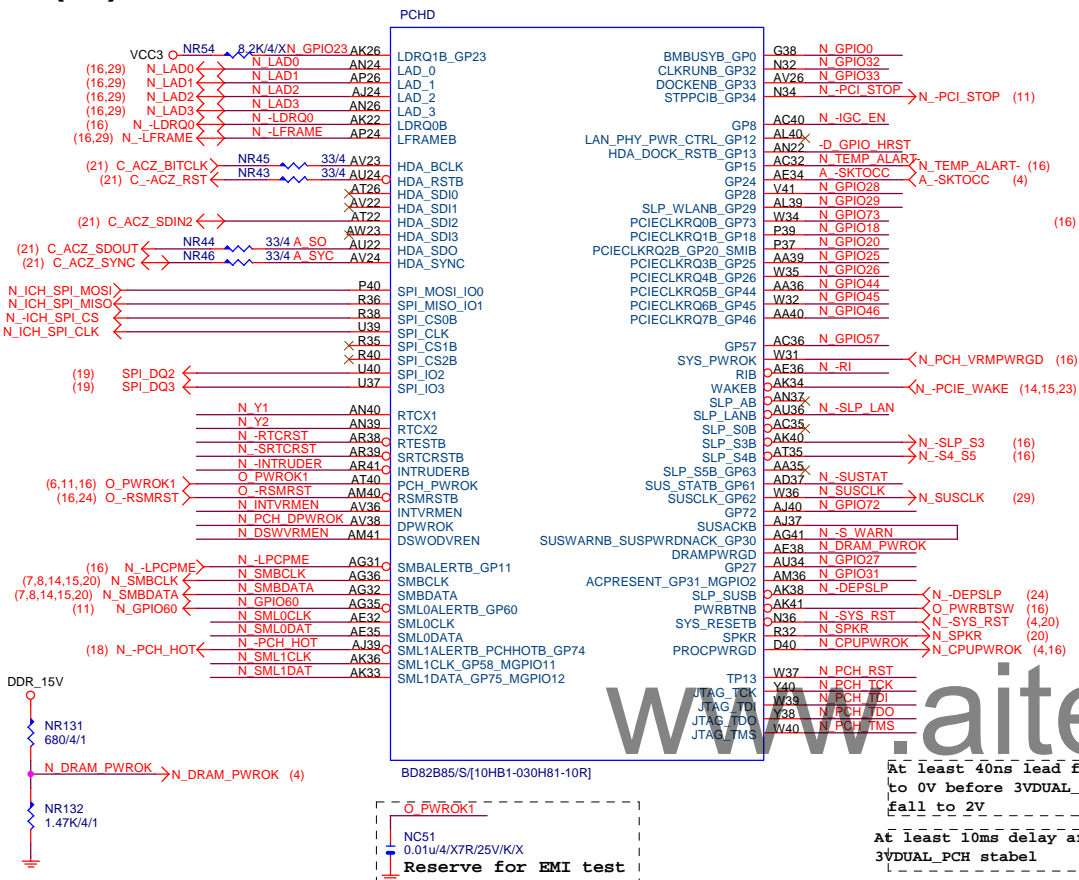
AM22

NR183

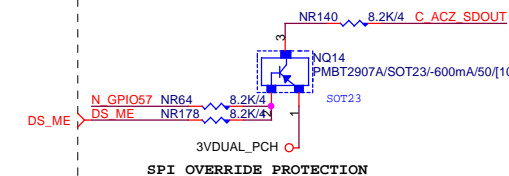
8.2K/4/X

N_PCH33

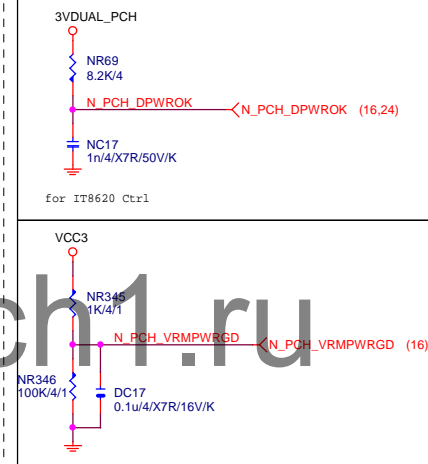
(D)



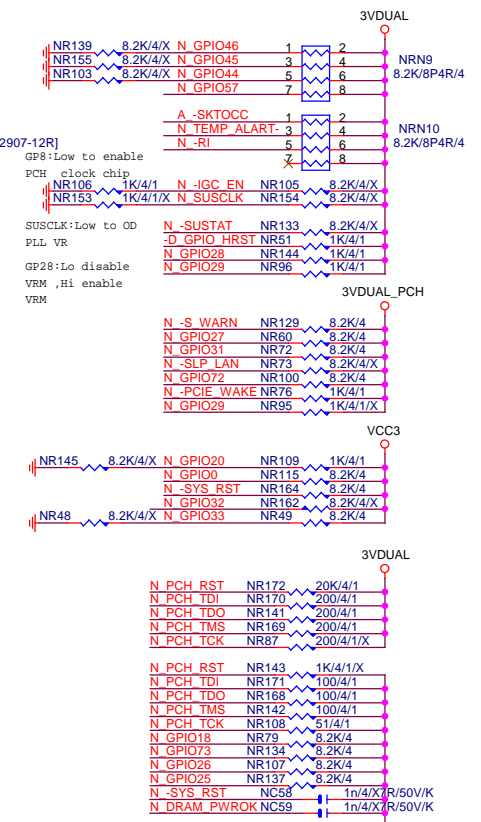
ACZ_SDOUT



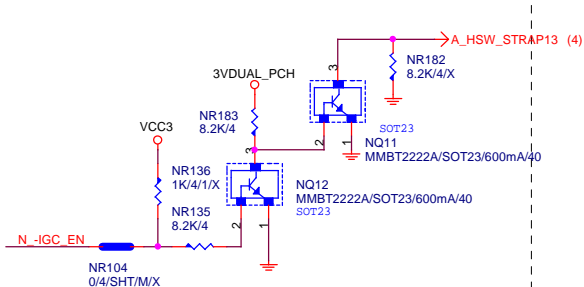
PCH_DPWROK



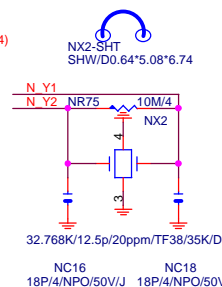
PCH	PU/PD
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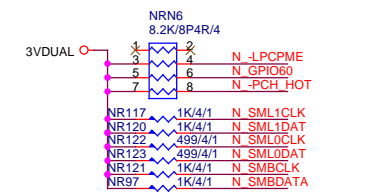
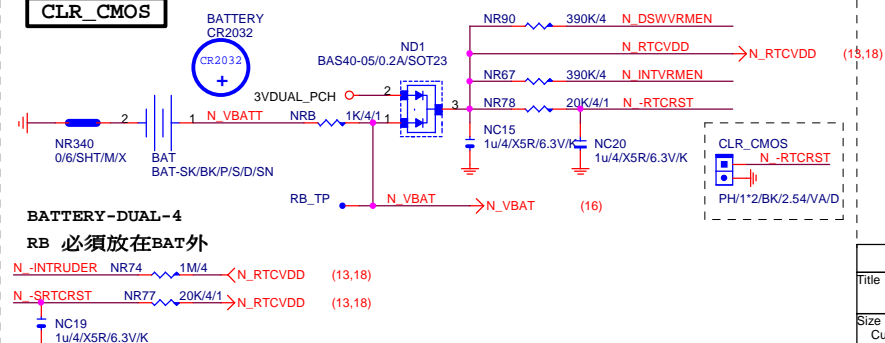
HSW_STRAP13



32.768KHZ



CLR_CMOS



Gigabyte Technology

PCH GPIO , CTRL , AUDIO

number **IPMH81G1**

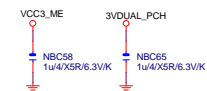
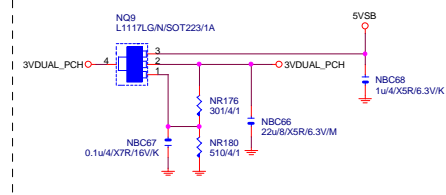
11

Date: Friday, October 18, 2013 Sheet 12 of 29

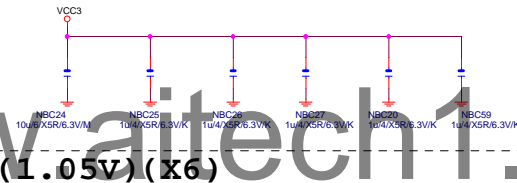
PCH (I)



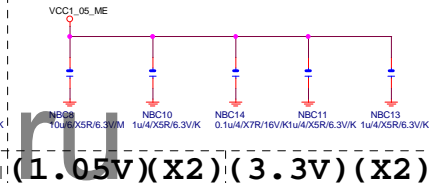
SHT PWR



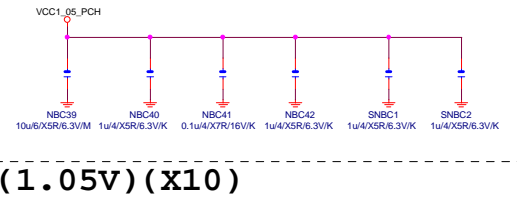
(3.3V) (X6)



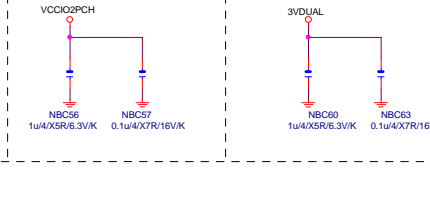
(1.05V) (x5)



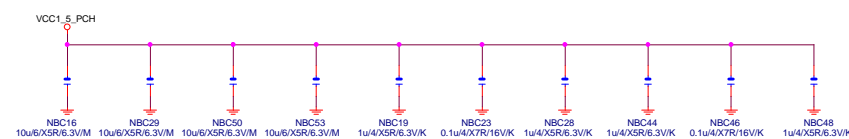
(1.05V)(x6)



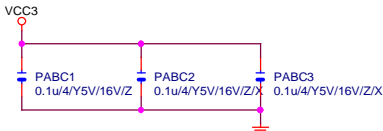
$(1.05V)(x2) (3.3V)(x2)$



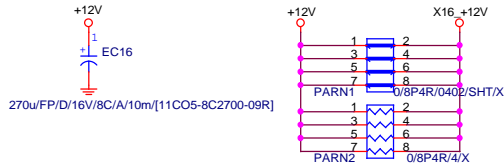
(1.05V) (x10)



PCIEX16 CAP



PCIEX16 PROTECT SHT

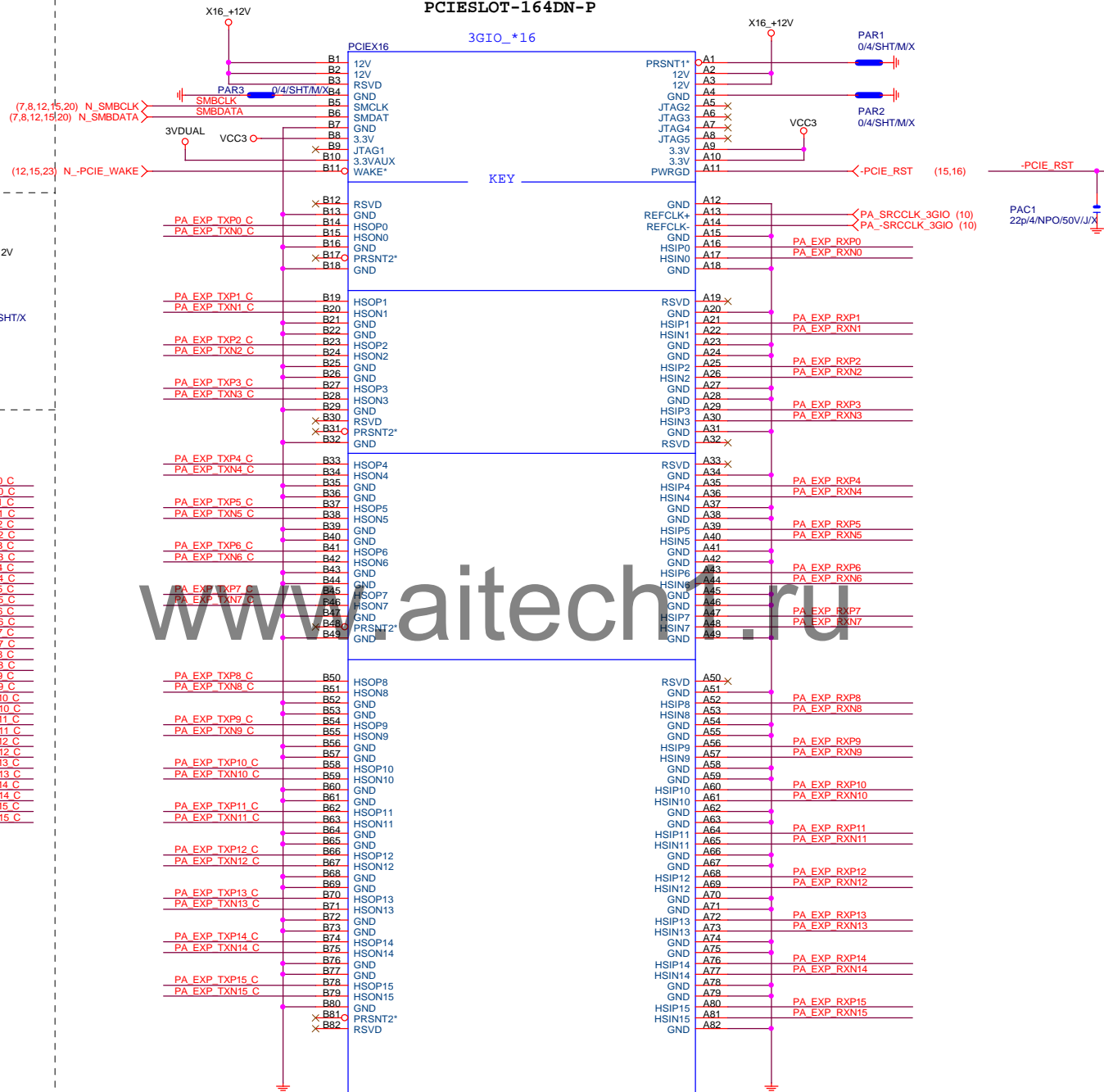


PCIEX16 AC CAP

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	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	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)

PCIEX16 SLOT



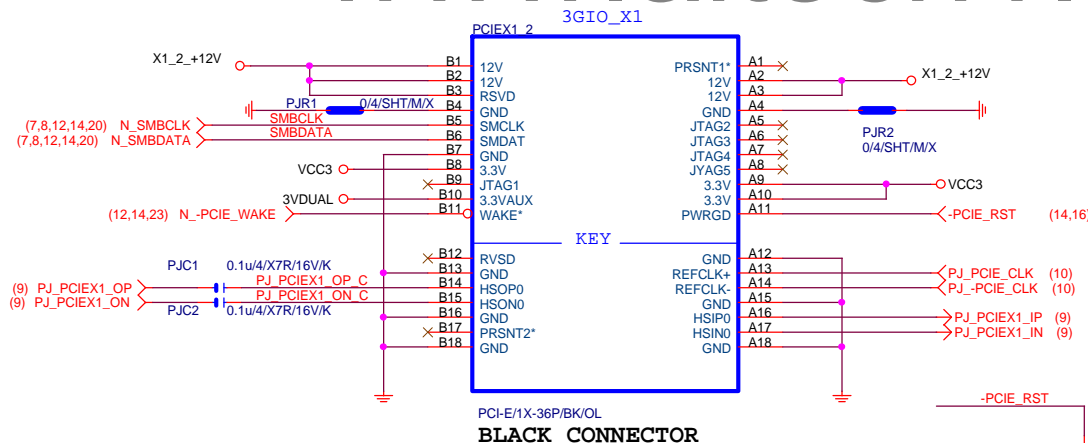
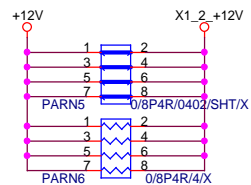
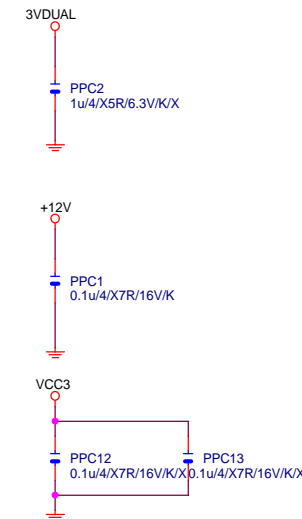
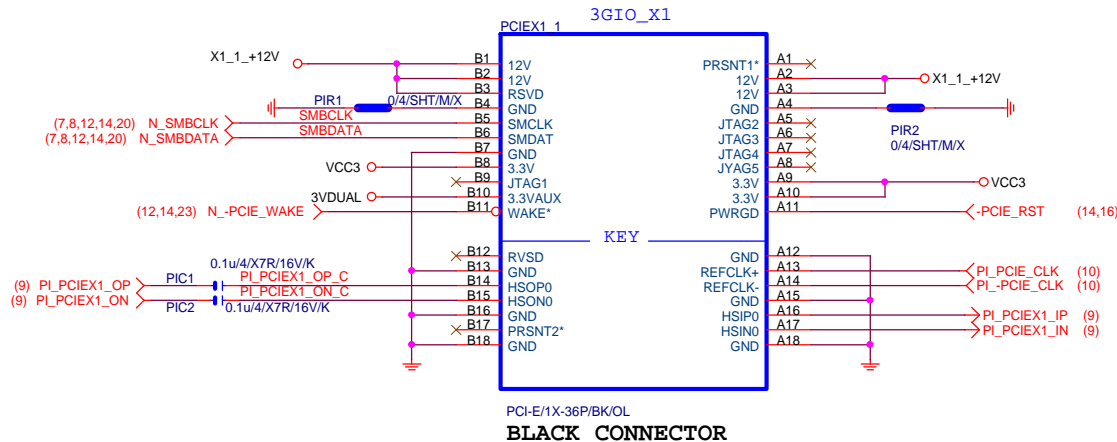
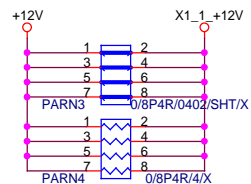
BLACK CONNECTOR

Gigabyte Technology

Title			PCI EXPRESS * 16		
Size			IPMH81G1		
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PCIEX1 SLOT

PCIEX1 PROTECT SHT



Gigabyte Technology			
PCI EXPRESS X 1 PORT			
Title	Document Number	Rev	
Size	Custom	IPMH81G1	1.1
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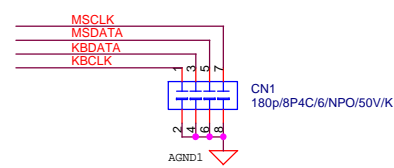
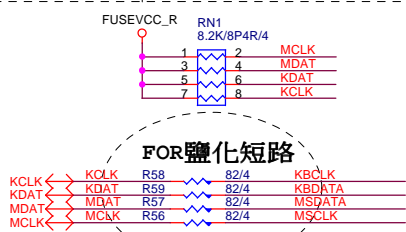
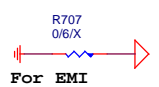
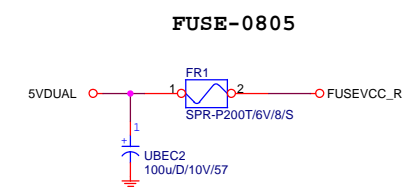
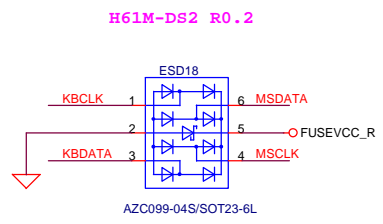
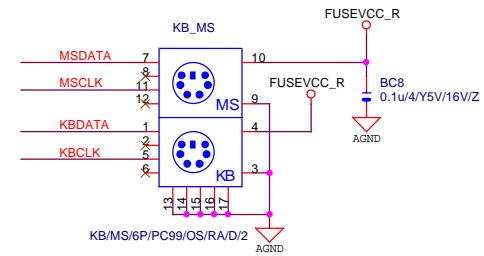
COM

KB/MS

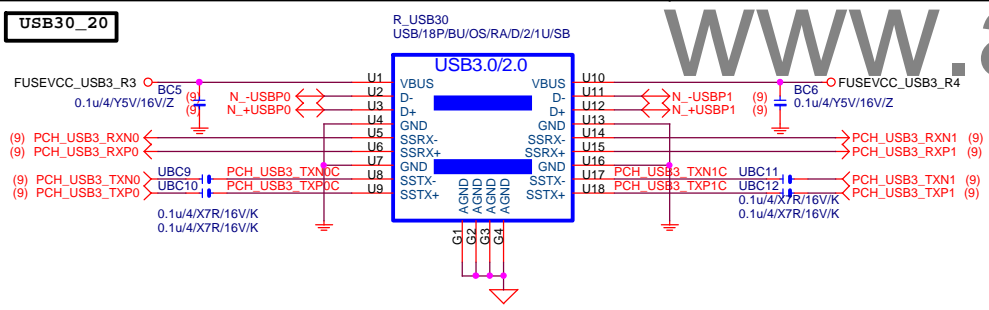
KB_MS ESD

USB2.0 PWR

COM RI

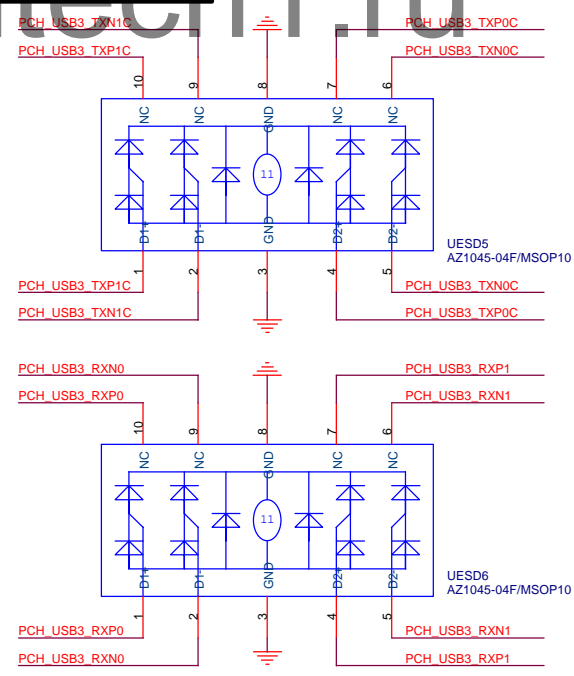


USB30_20

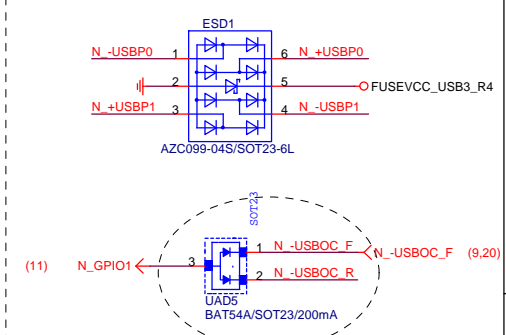


USB30_20 ESD PROTECT

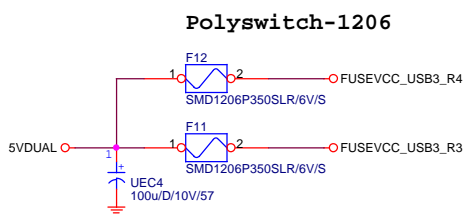
USB3.0 ESD



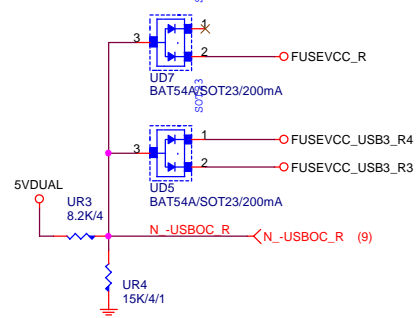
USB POWER PROTECT



USB30_20 PWR

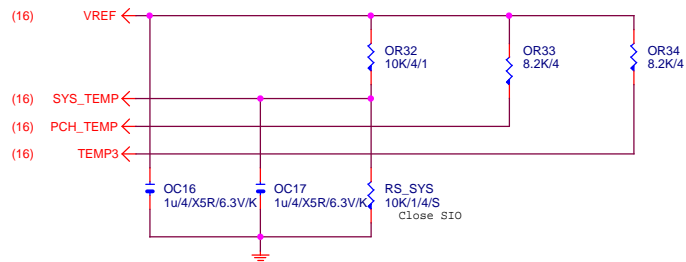


-USBOC_R

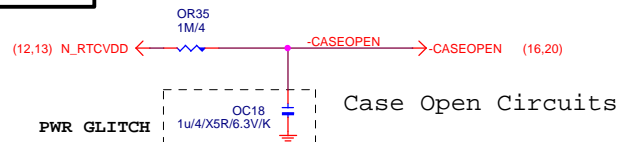


USB3.0 1Port - 1Fuse (3.5A)

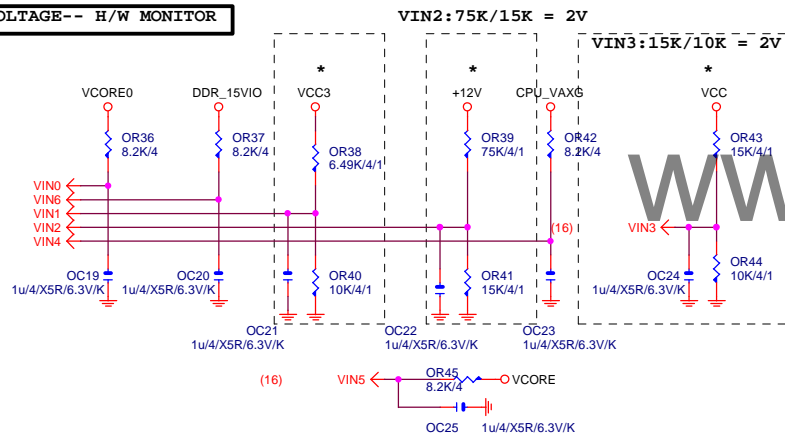
TEMP H/W MONITOR



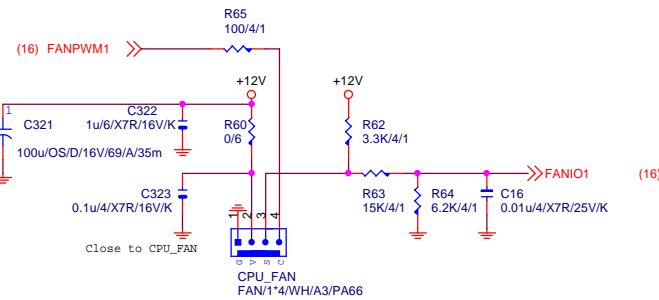
CASE OPEN



VOLTAGE-- H/W MONITOR



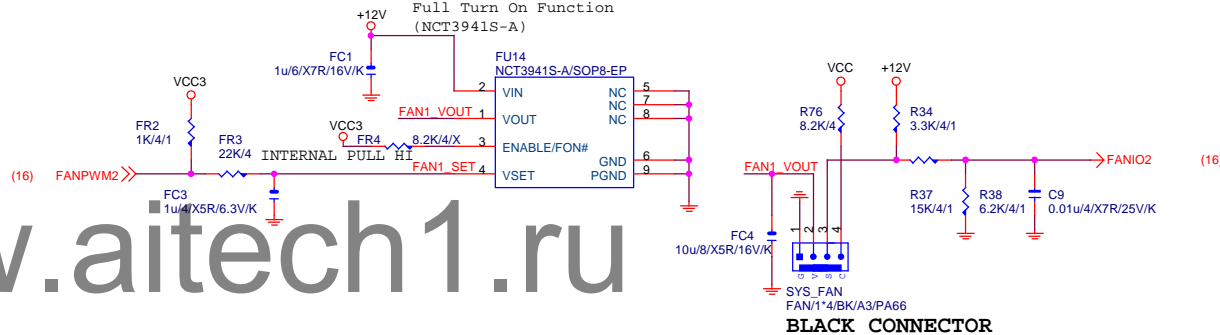
CPU SMART FAN



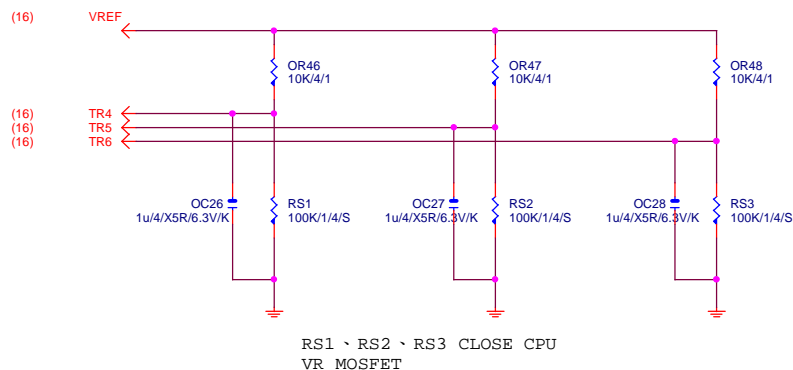
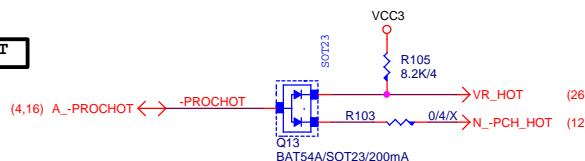
SYS SMART FAN

Linear SYS_FAN

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

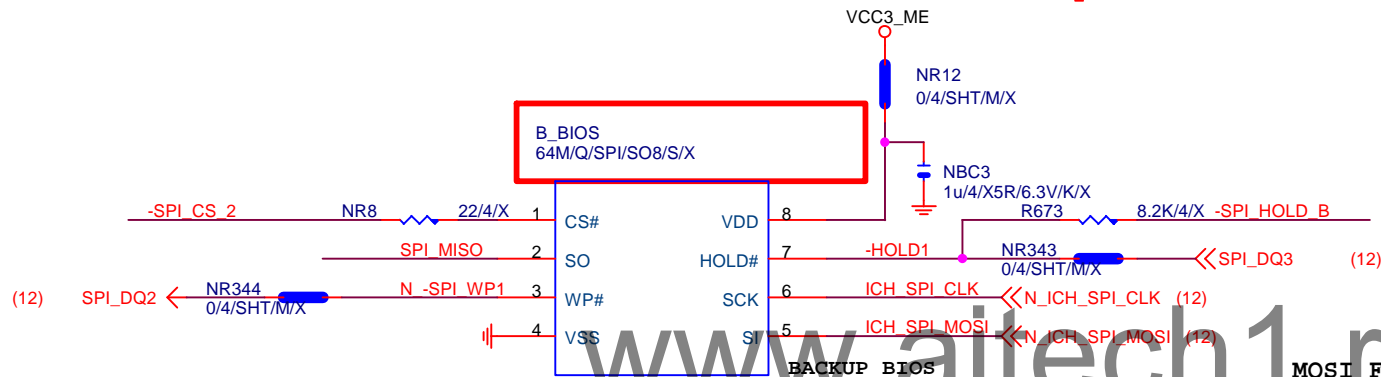
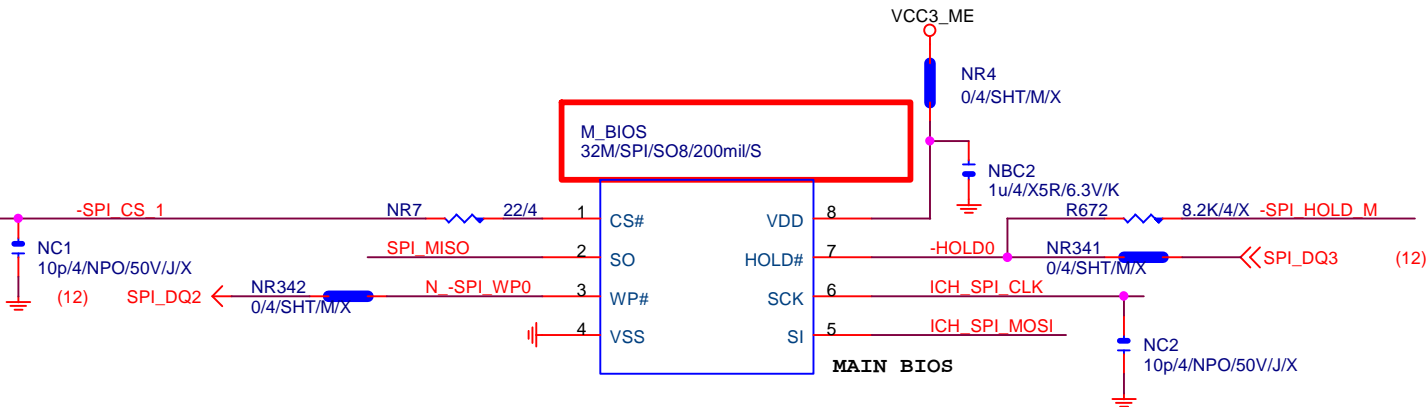


-PROHOT



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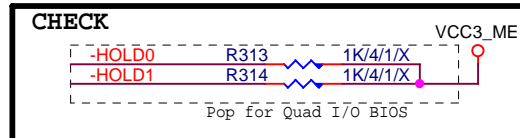
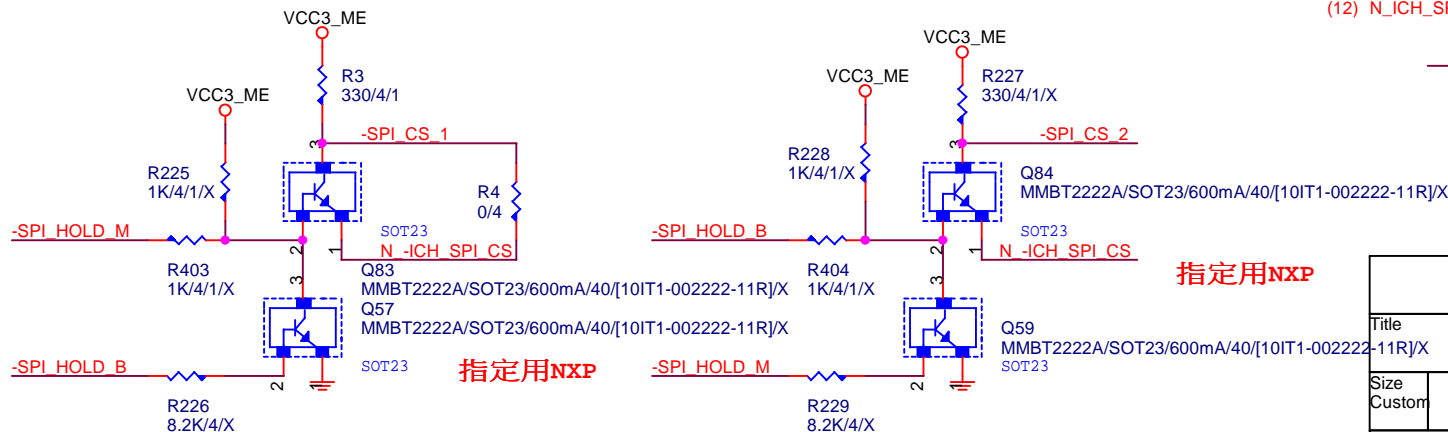
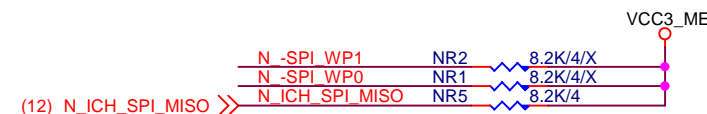
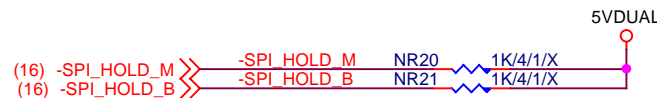
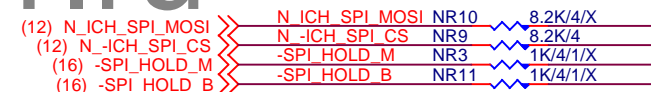
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BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

MOSI For DMI RX Termination Voltage



指定用NXP

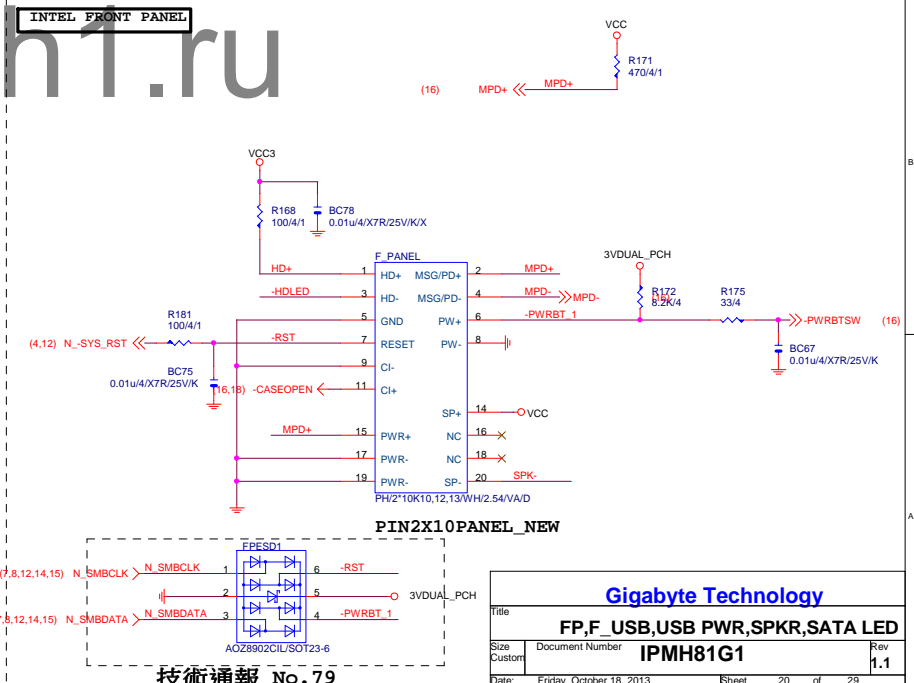
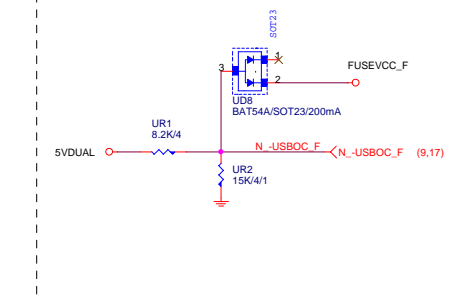
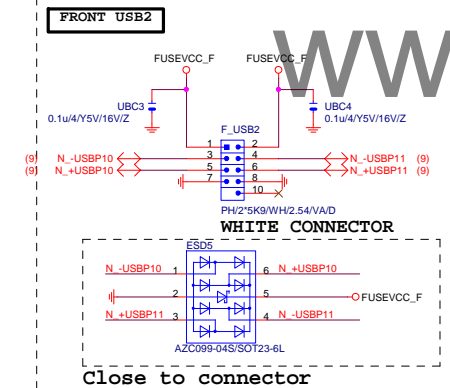
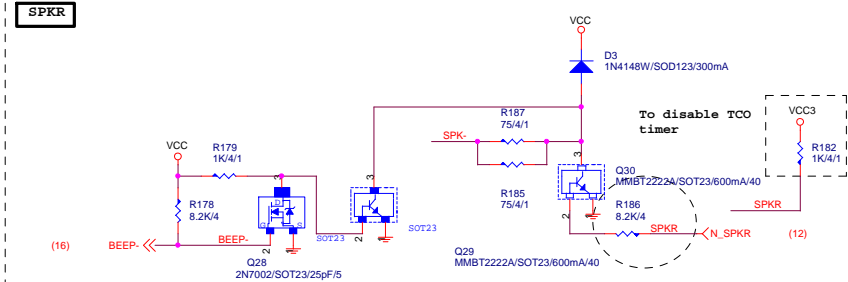
Gigabyte Technology

DUAL BIOS

IPMH81G1

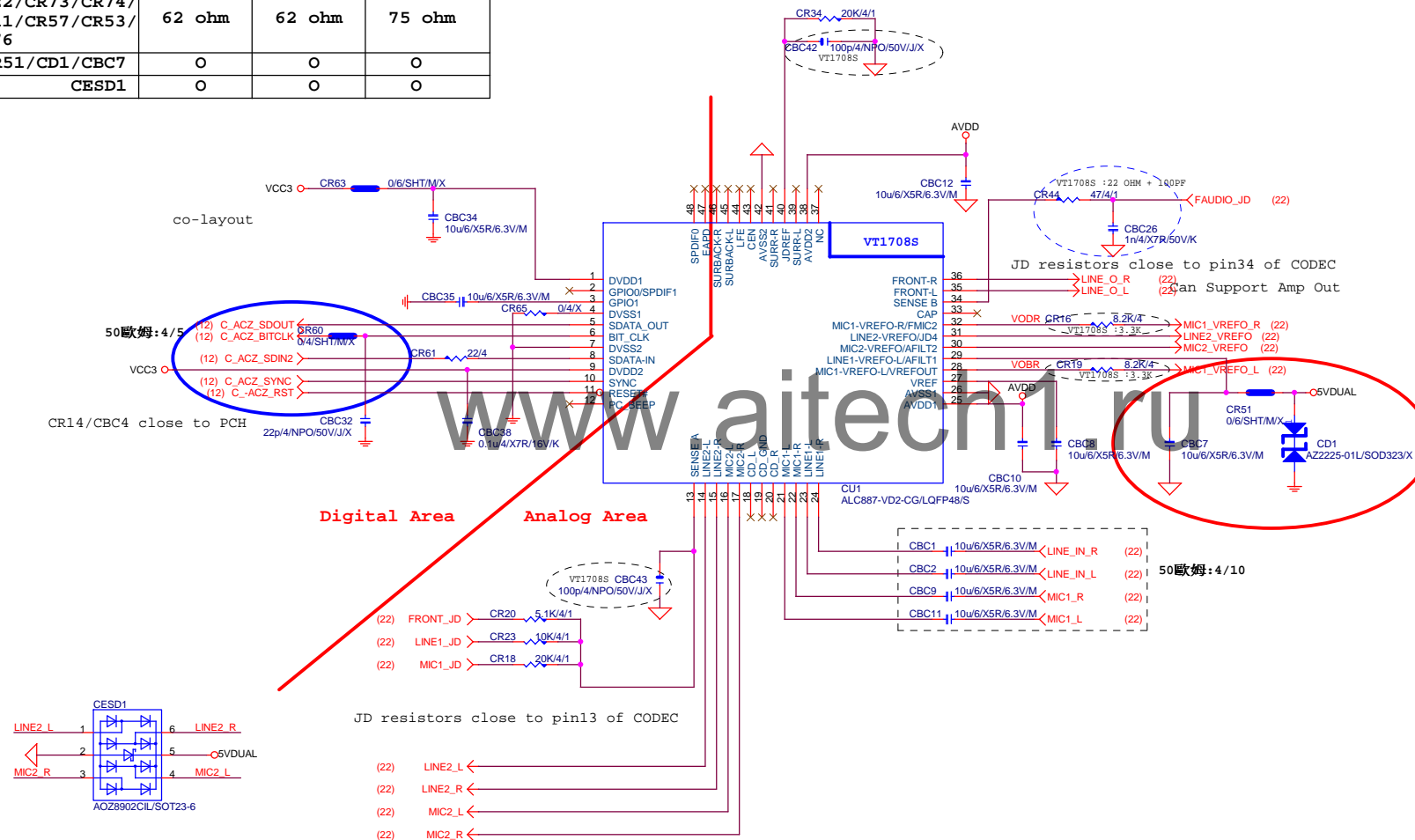
Rev 1.1

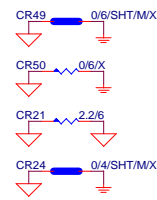
Title	Document Number	Rev
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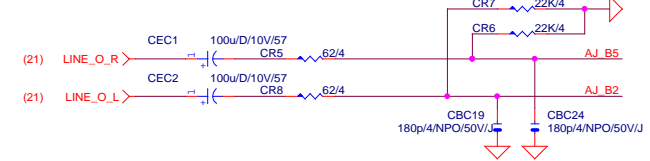
AZALIA CODEC ALC892/ALC887-VD2/VT1708-CE Colay

	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





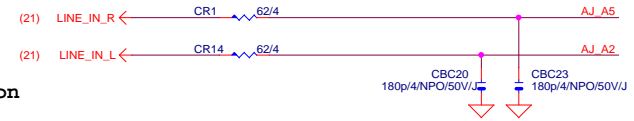
LINE-OUT



LINE-IN

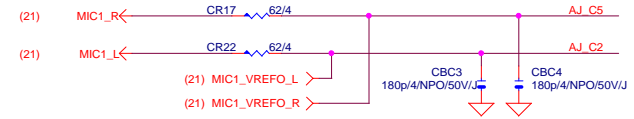
Verify MIC function
in LINE-in

Only reserved for ALC888



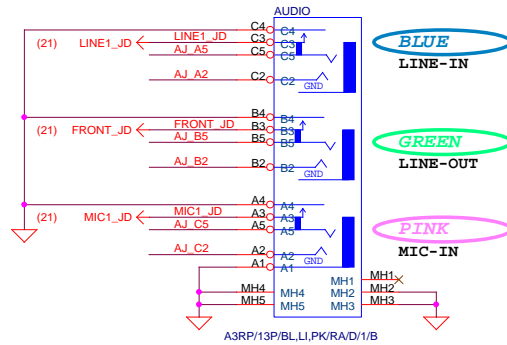
For 889A/888

MIC-IN

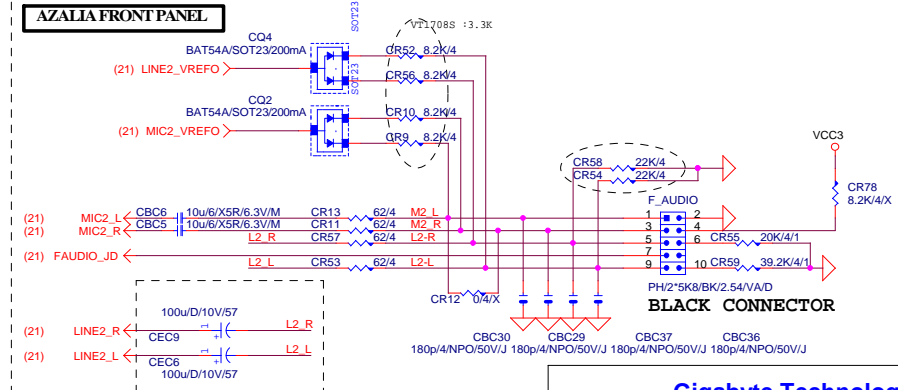


SPDIF_OUT

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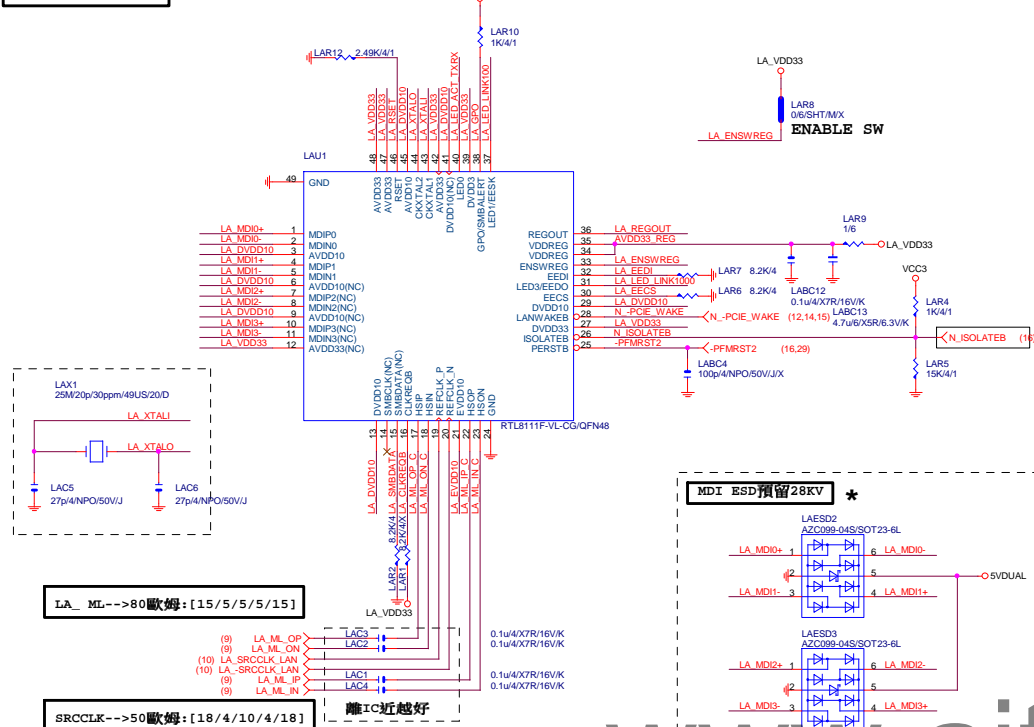
AZALIA FRONT PANEL



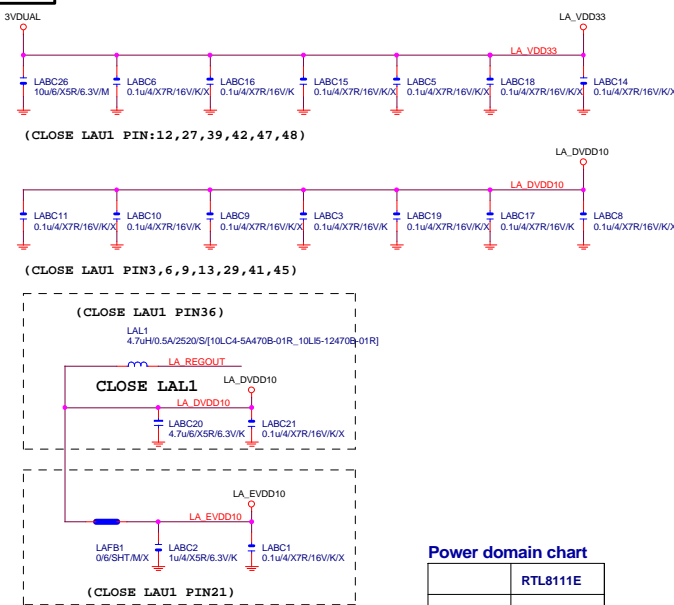
Gigabyte Technology

Title			
AUDIO JACK			
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LAN:RTL8111F/VB/VL



LAN POWER

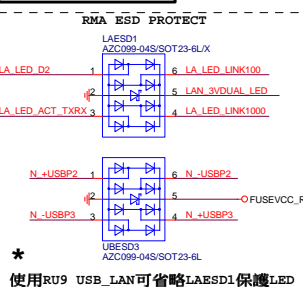


Power domain chart

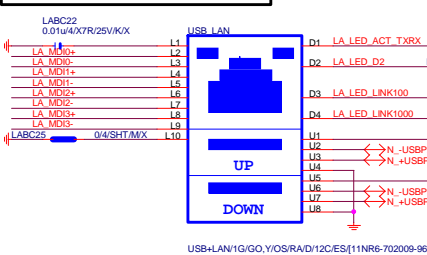
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

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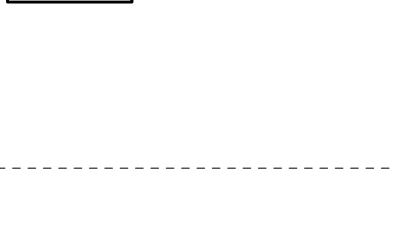
USB LAN CONNECTOR



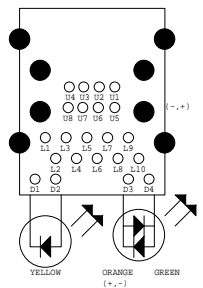
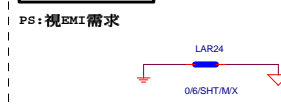
LA_MDI-->100歐姆:[20/4/8/4/20]



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]

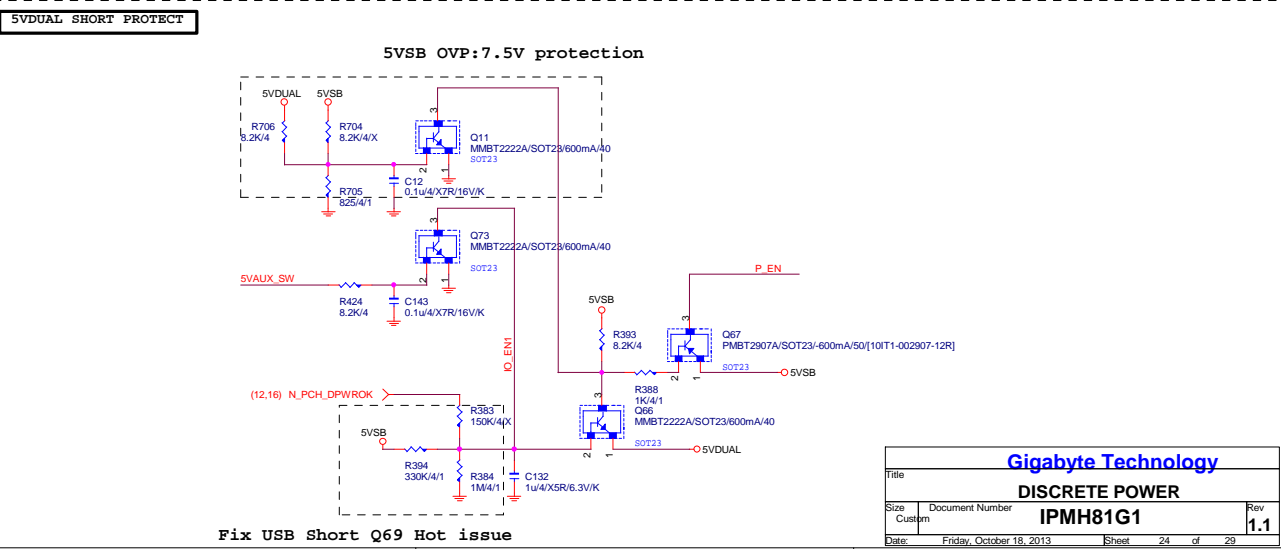
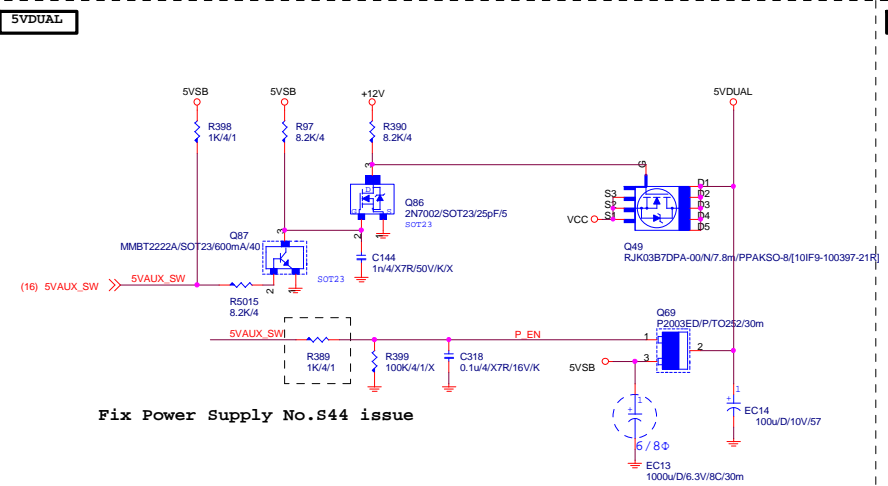
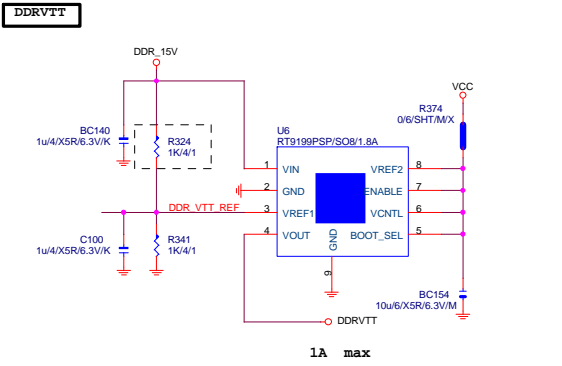
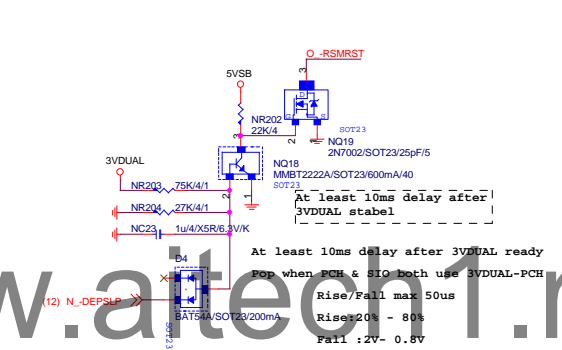
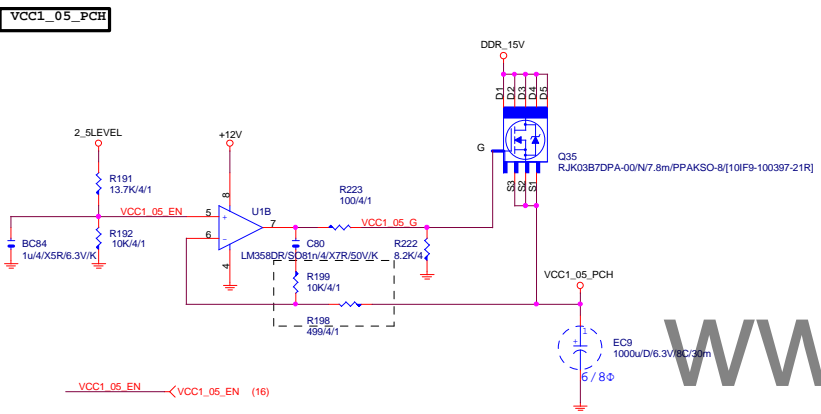
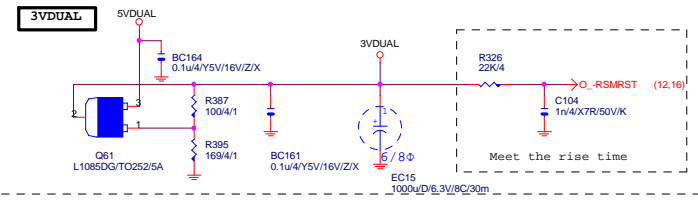
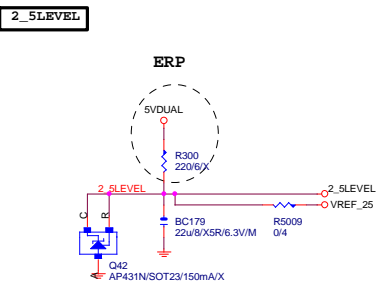
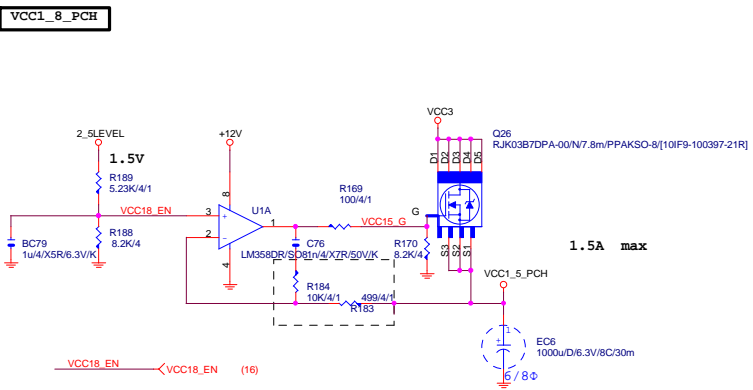
BOM NOTICE

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		

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Realtek RTL8111G

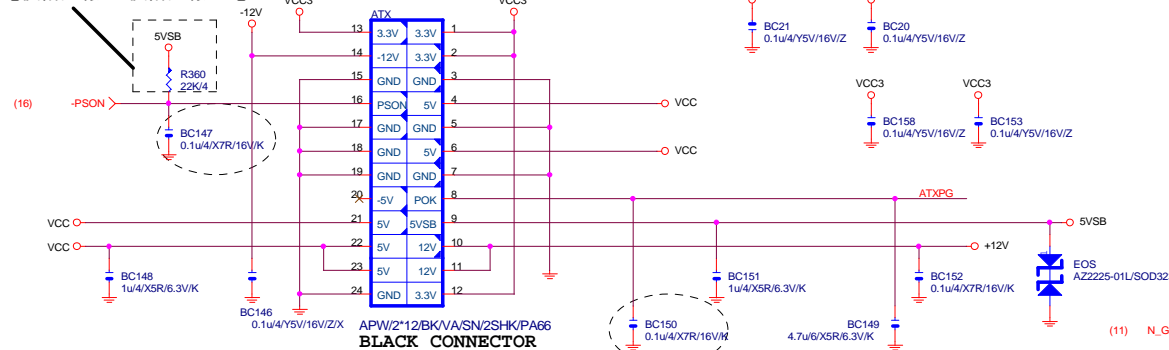
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DISCRETE POWER			
IPMH81G1			
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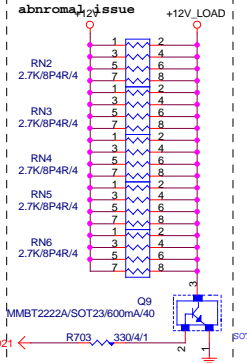
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



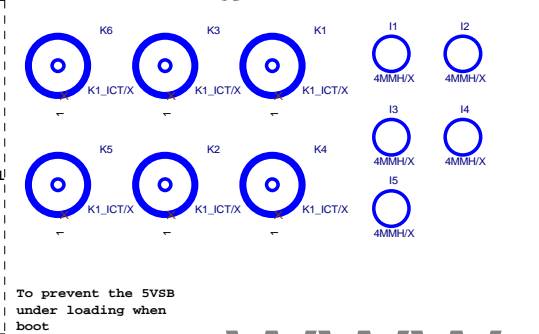
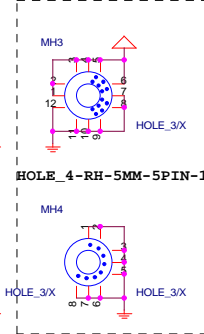
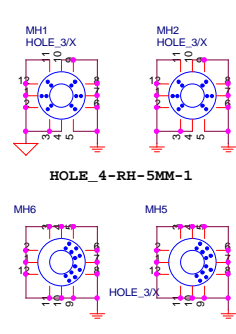
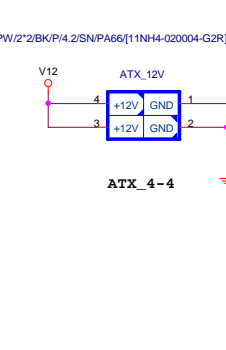
【技術通報R&D技術通報158】

To fix 12V light load abnormal issue



ATXX4 POWER CONNECTOR

APW/2*2BK/P/4.2/SN/PA66[11NH4-020004-G2R]



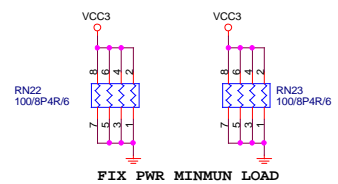
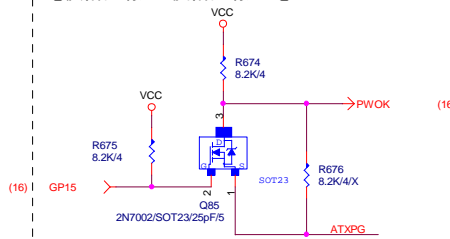
TPM

To prevent the 5VSB under loading when boot

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PWOK PATCH

【技術通報R&D技術通報154】



FIX PWR MINMUN LOAD

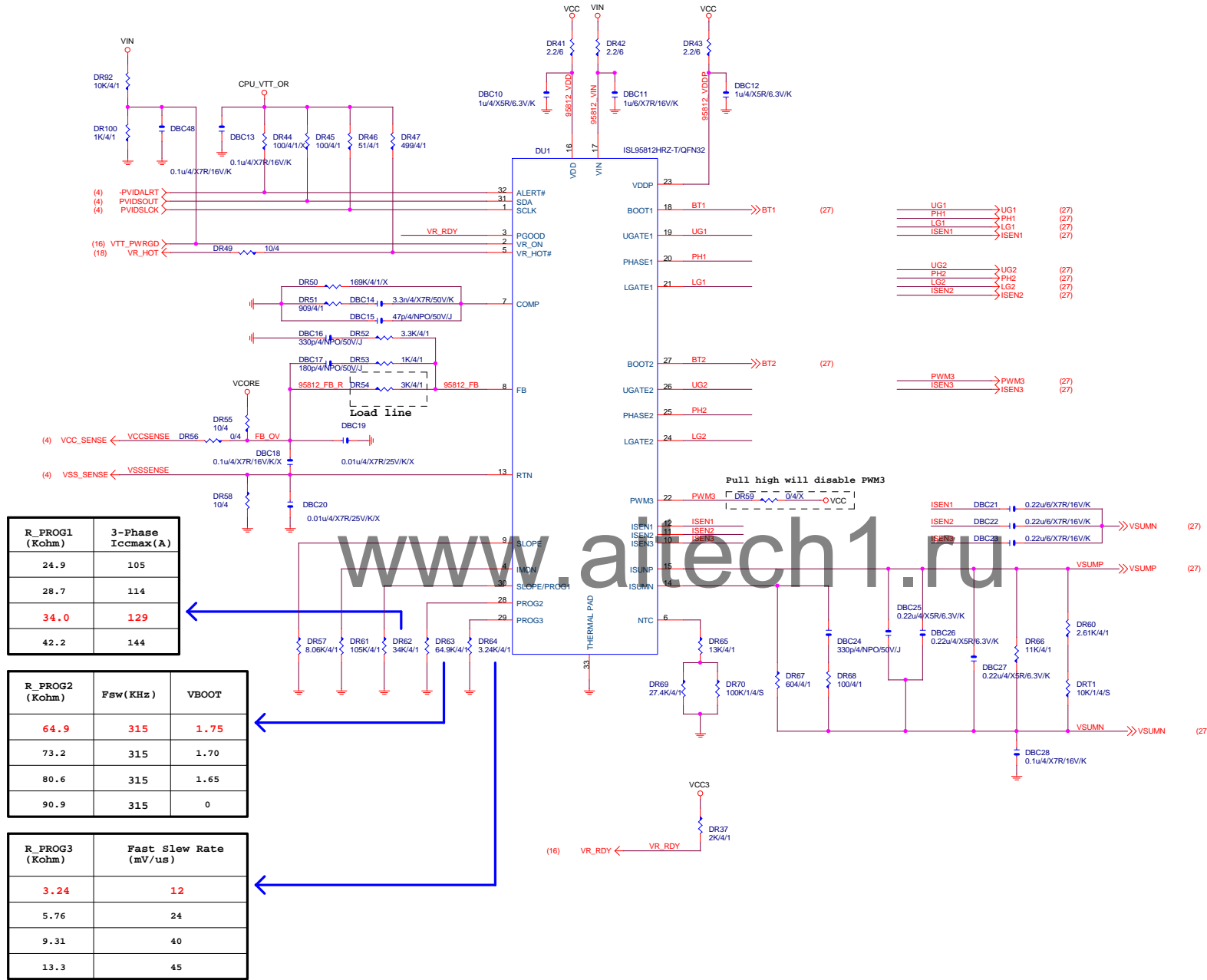
Gigabyte Technology

ATX CONNECTOR

IPMH81G1

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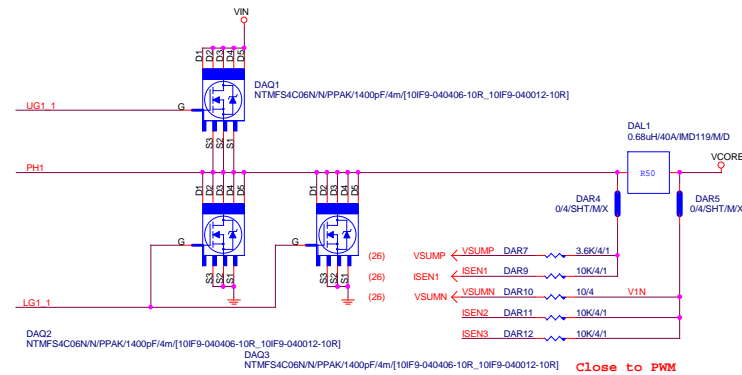
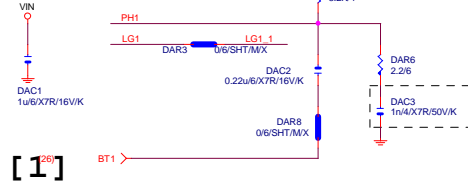
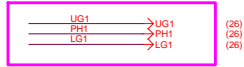


R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

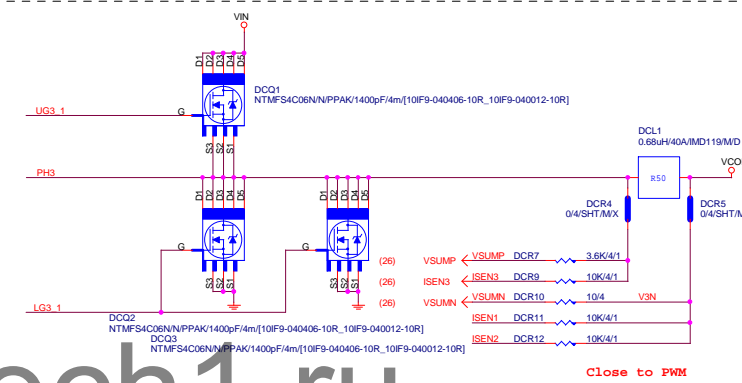
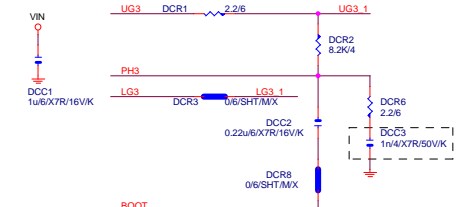
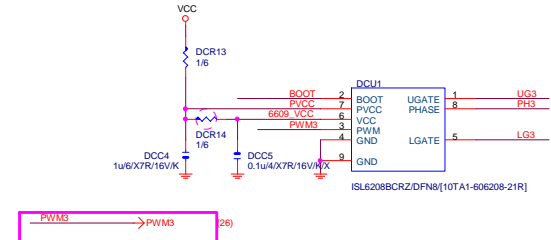
R_PROG2 (Kohm)	Fsw(KHz)	VBOOT
64.9	315	1.75
73.2	315	1.70
80.6	315	1.65
90.9	315	0

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

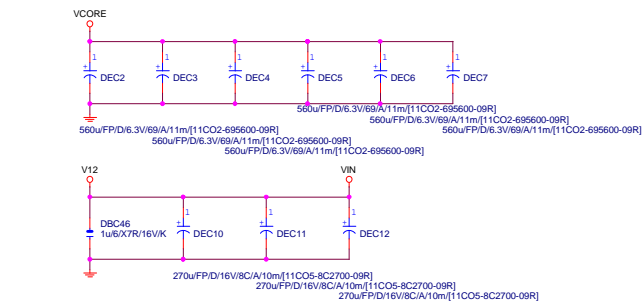
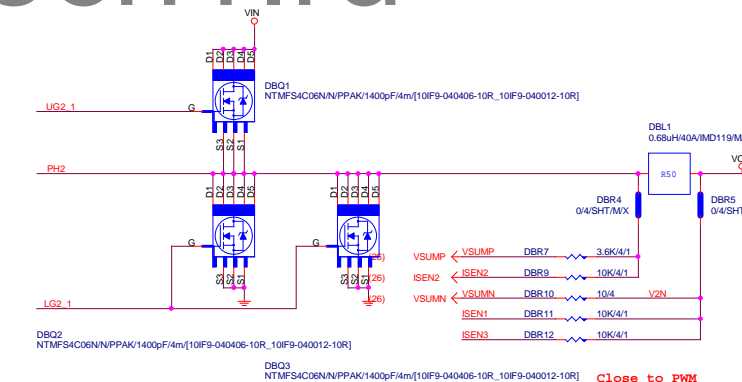
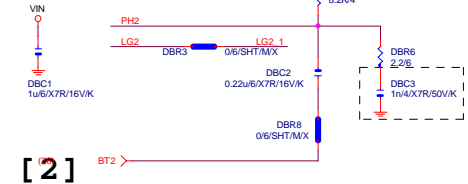
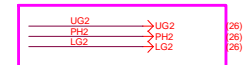
PHASE 1



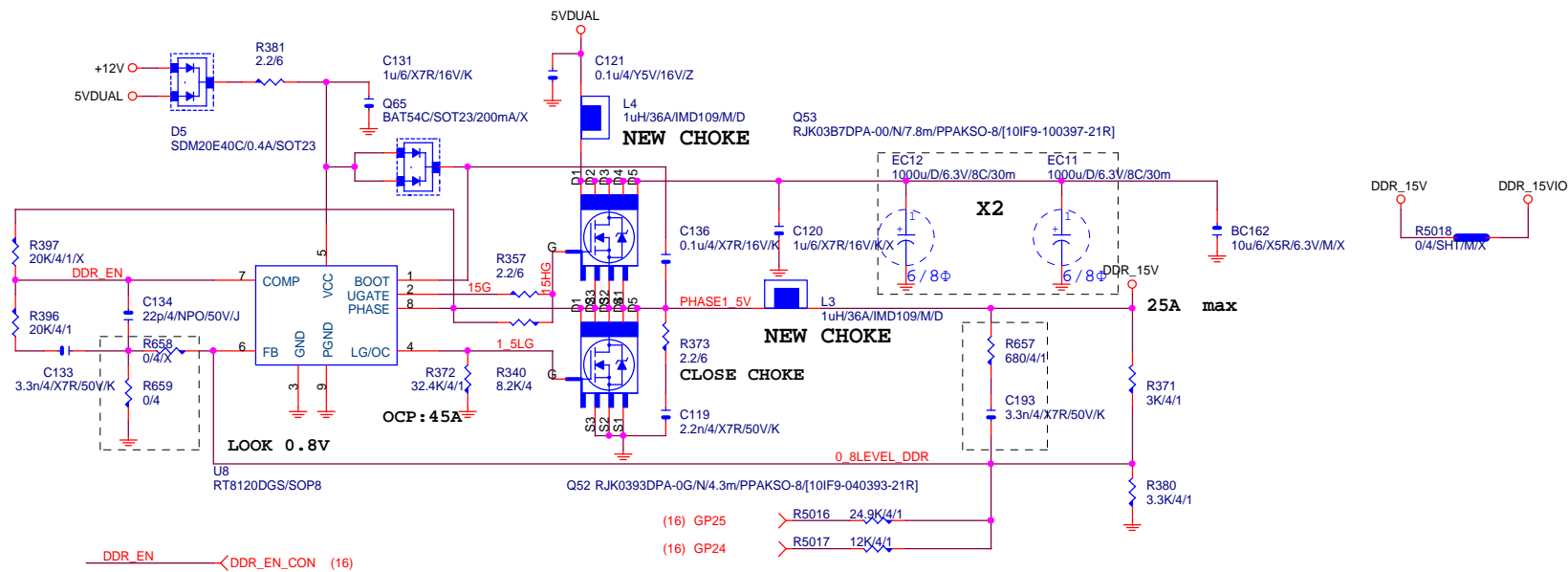
PHASE 3



PHASE 2



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VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A

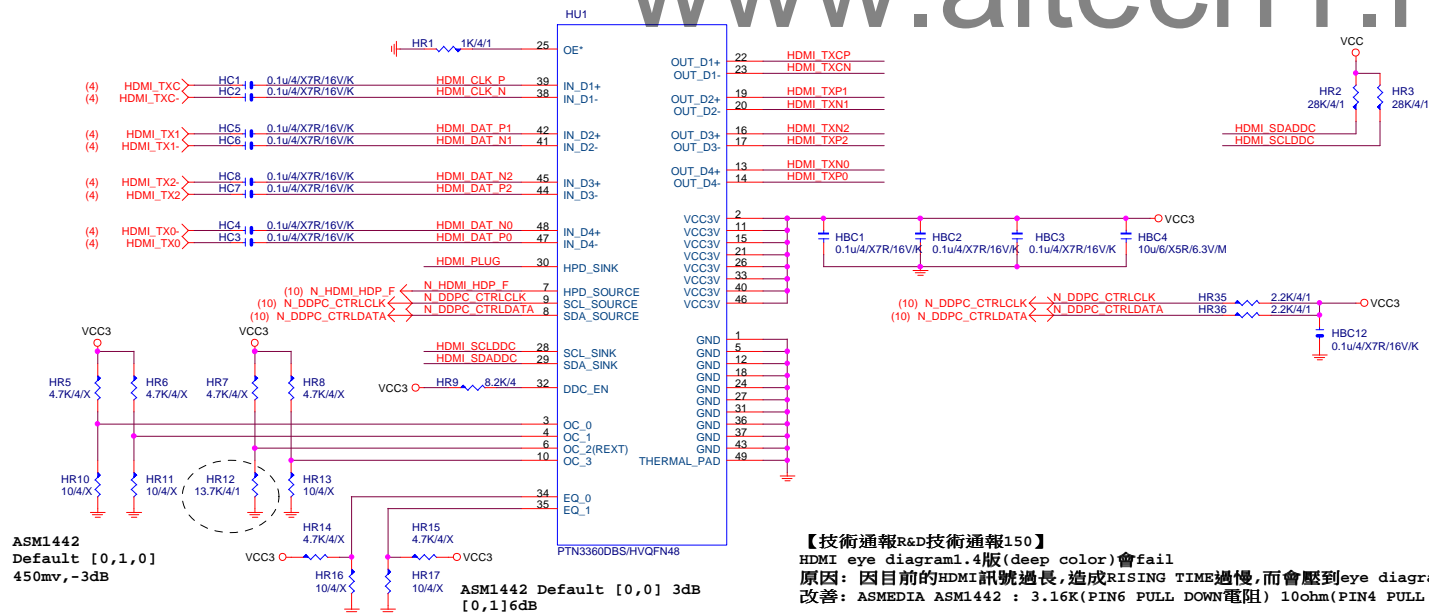
Rocset=(Iocp*Lgate, rdson)/Iocset
 Rocset=(45A*6.7mOhm)/10uA = 30K
 Iocset=10uA

Gigabyte Technology

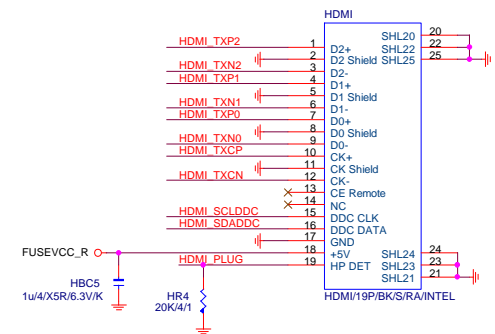
Title		
DDR POWER		
Size	Document Number	Rev
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[illegible]

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



【技術通報R&D技術通報150】
HDMI eye diagram 4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASML442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)



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HDMI

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