

Model Name : G31-S3L

Rev1.1

SHEET

TITLE

SHEET

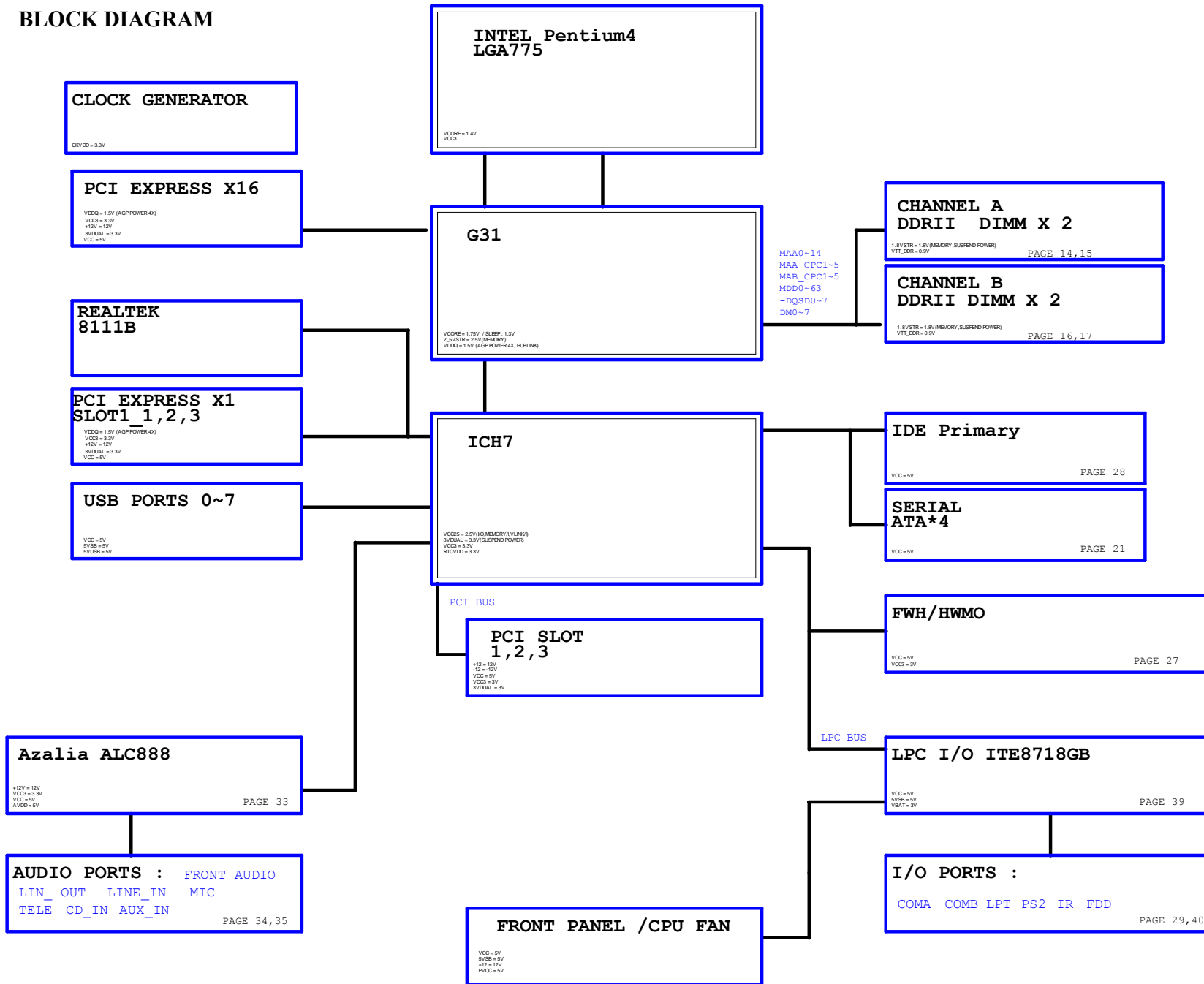
TITLE

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02	BLOCK DIAGRAM
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05	L775 B,D
06	L775 C
07	L775 E,F,G,H
08	BROADWATER HOST
09	BROADWATER DDR
10	BROADWATER PCI EXP 16,DMI
11	BROADWATER VGA,MISC
12	BROADWATER GND
13	BROADWATER PWR
14	DDRII CHANNEL A-SHARE 1,2
15	DDRII CHANNEL B-SHARE 1,2
16	DDRII CLOCK BUFFER / TERMINATION
17	PCI EXPRESS*16 SLOT
18	ICH7 DMI, PCI, USB
19	ICH7 IDE, GPIO, SATA, CTRL
20	ICH7 VCC, GND
21	ICS9LPRS587 CLOCK.
22	ATX,ATX 12V CONNECT,BIOS
23	PCI EXPRESS*1 SLOT 1,2,3
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25	HWM/ FAN CONTROL
26	IDE/FLOPPY
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28	FRONT PANEL
29	FRONT USB,REAL USB CONNECT
30	PROCESSOR HOT
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32	REAR AUDIO JACK
33	FRONT AUDIO CONNECTOR
34	RTL8111B
35	ITE 8712/8718 GBKX
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BLOCK DIAGRAM



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BOM & PCB MODIFY HISTORY		
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Version:1.1

Component value change history

2007

Data	Change Item	Reason
10A	9M946DS3R-00-10A --> 9MP31S3-00-10A	
10B	1. PROCHOT R379 1.54K --> 1.8K , R377 21K --> 68.1K	
2007/7/27 EBOM:10B	1. 由 GA-P31-DS3 1.04電路圖修改,但VCORE是貼P31-DS3L-1.02.	
	2. clock buffer 946AFLF	
	3. MB_ID1 8.2k 以區別clock buffer 版本	
2007/8/09 PBOM:11A	1. 由 GA-P31-DS3 1.04電路圖修改,但VCORE是貼P31-DS3L-1.02.	
	2. MB_ID1 8.2k-->1K 以區別clock buffer 版本	
2007/8/21 PBOM:11B	1. LEC3, EC5, EC4, EC12, EC18, EC26 560UF-->470UF/6.3V	
	2. DEC4, DEC1, DEC2, DEC3, EC37 470UF/16V加替料	
	3. EC30, EC31 等100UF/16 加替料	
2007/11/01 PBOM:11A	1. ADD G31 CHIP FOR VGA ,COMA	
	2. bios size 4M-->8M	
2007/11/23 PBOM:11B	1. DEC1~4 1500UF-->470UF OSCON	

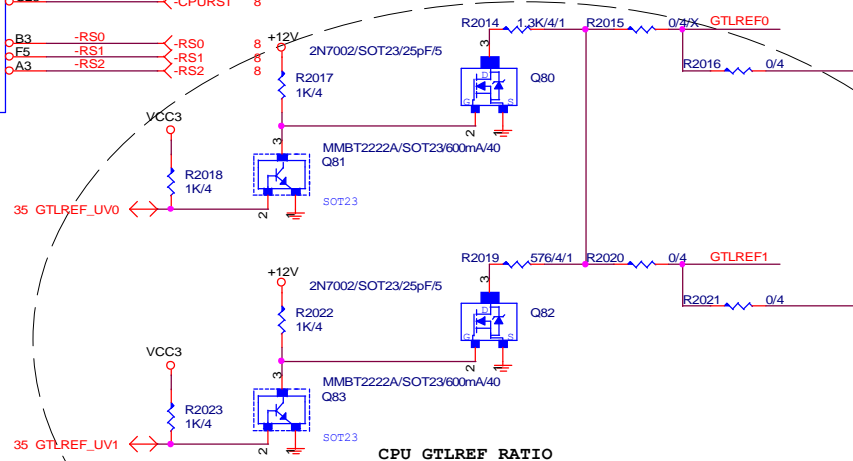
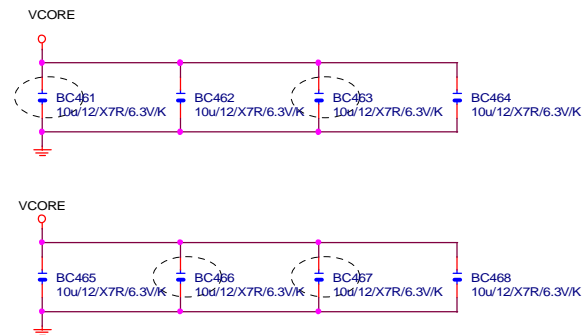
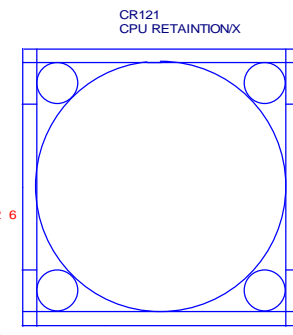
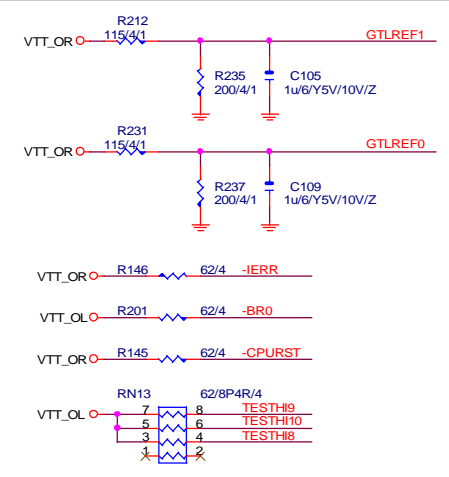
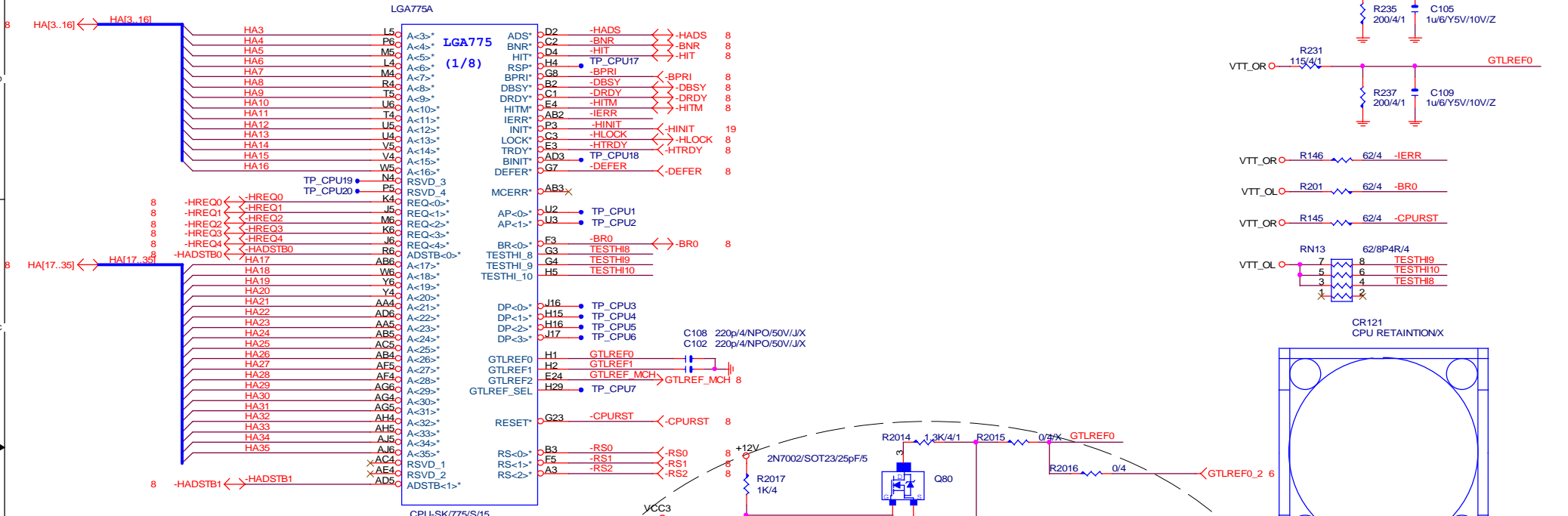
Circuit or PCB layout change for next version

DATE	Change Item	Reason
3.3	1. 946GZ-DS3 REV2.02 --> 946-DS3 REV3.3	
	1. ADD FSB1333 CPU SUPPORT	
	2. ADD VTT_GMCH & SVDUAL PROTECT	
	4. L3,L6 Footprint "CHOKE08U-15A_1P-1" ' "CHOKE08U-15A_1P-2"	
	5. L4,L5 Footprint "CHOKE2U-20A_SQ-1" ' "CHOKE08U-15A_1P-3"	
	6. 文字面增加 DDRII 800 , Quad Core CPU support	
備註:	946GZ無法超頻至FSB1333,但945P可超頻至FSB1333的原因	
	1. 因為946GZ要超頻至FSB1333,須同時將PCI_E CLK超頻至124MHz,造成SATA硬碟抓不到(只要PCI_E CLK超頻超過120MHz以上,SATA硬碟就會抓不到,IDE HDD則不影響)	
	2. 945P CHIPS超頻至FSB1333時,PCI_E CLK只需超頻至114MHz即可,所以不影響SATA硬碟	
	3. 就算946GZ可超頻至FSB1333,使用IDE硬碟RUN,也會不穩,只能跑到FSB1280	
2007/7/17 PCB:1.03	1. ADD CLOCK BUFFER	
	2. 由 GA-P31-DS3 1.04修改,但VCORE是貼P31-DS3L-1.02.	
2007/8/09 PCB:1.1	1. 由 P31-DS3L-1.03 修改文字面成1.1 FOR PVT	
2007/10/31 PCB:1.1	1. 由 P31-DS3L-1.1 修改文字面成G31-S3L -1.1	

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HA/REQ: 4/14

ADSTB: 4/17



CPU GTLREF RATIO

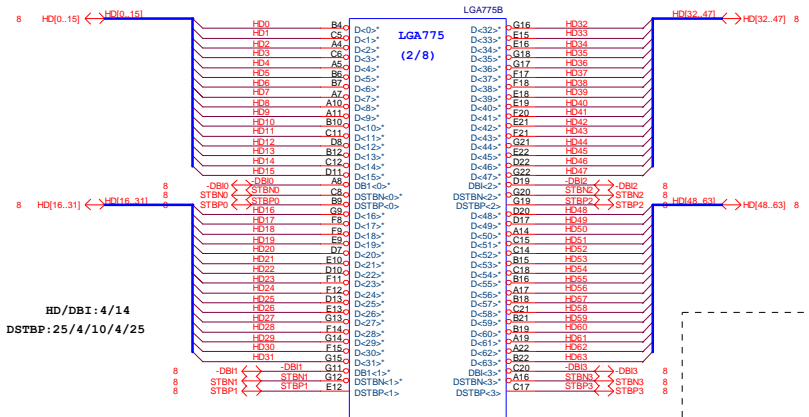
GTLREF_UV0	GTLREF_UV1	Ratio Set
HIGH	HIGH	0.67
LOW	HIGH	0.65
HIGH	LOW	0.63
LOW	LOW	0.615

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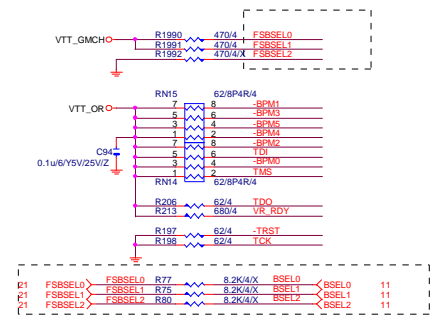
Title: **P4_LGA775-A**

Size B | Document Number: **G31-S3L** | Rev: **1.1**

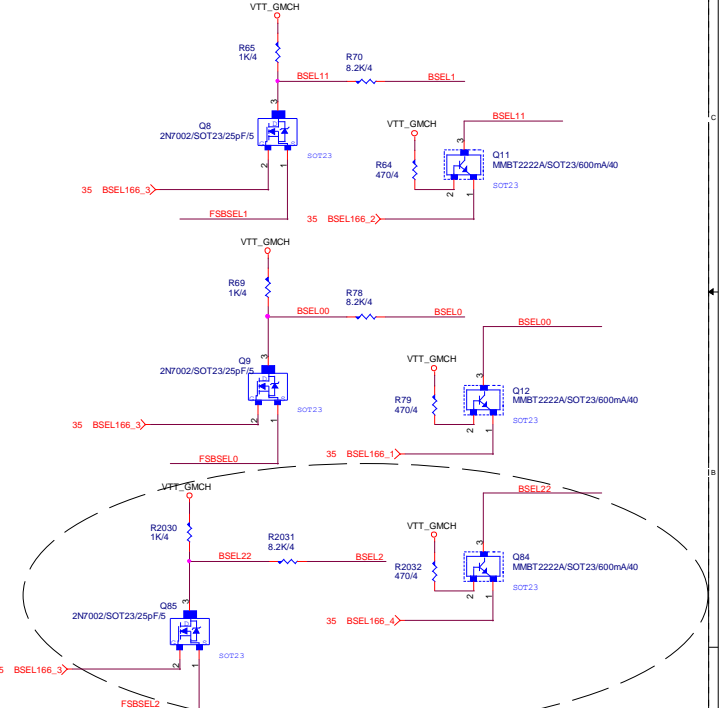
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HD/DBI: 4/14
DSTBP: 25/4/10/4/25



FOR ALL DDR CLK RATIO



CHECK BSEL0/1-ITE8712 POWER ON 時電壓是否會高於 1.2V

	FSA	FSB	FSC	FSBSEL0	FSBSEL1	FSBSEL2	Clcock	
?	1	0	1				100MHz	
?	1	0	0				1.33MHz	3/4
G31	0	1	0				200MHz	2/2.66/3.33/4+
G31	0	0	0				266MHz	2/2.5/3/4
G31	0	0	1				333MHz	2/2.4

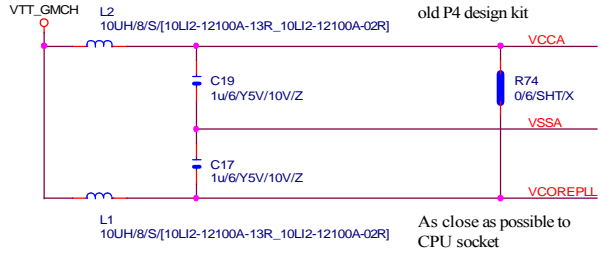
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File: P4_LGA775-B,D

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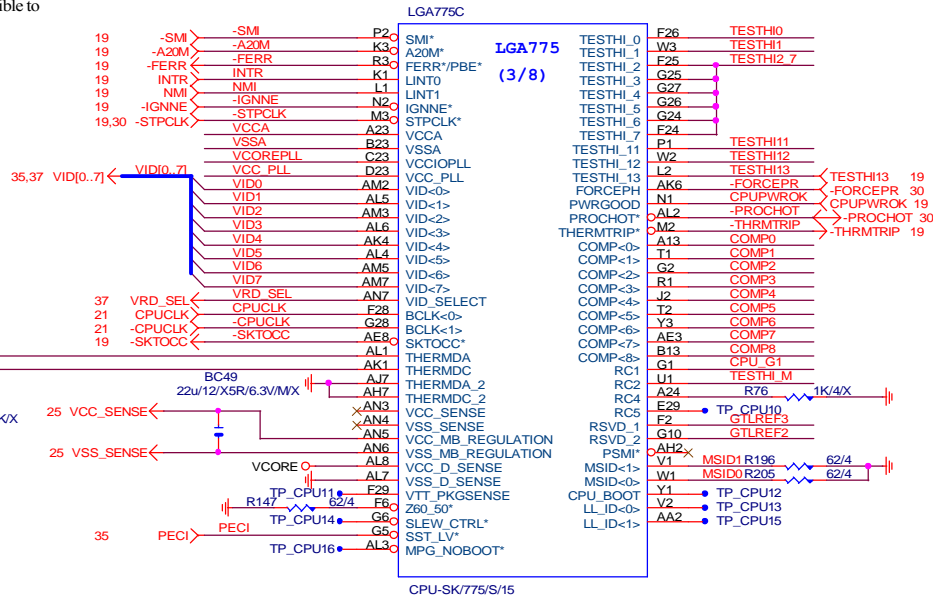
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Note:
VCCA & VCOREPLL
define doesn't same as
old P4 design kit

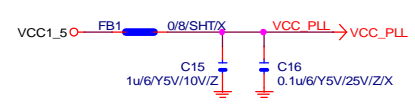
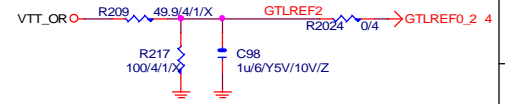
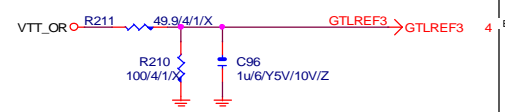
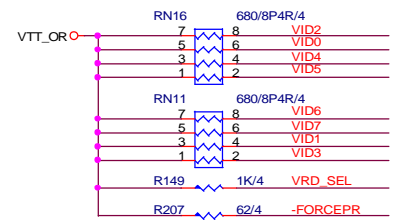
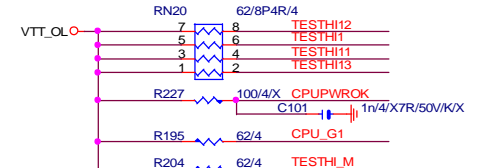
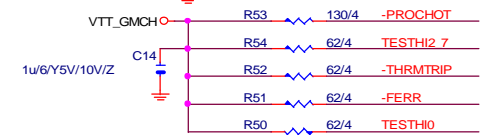
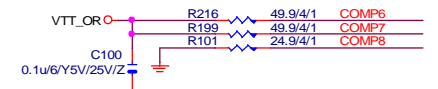
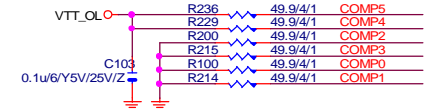


Trace width doesn't
less than 12 Mil

As close as possible to
CPU socket



Place outside of CPU socket

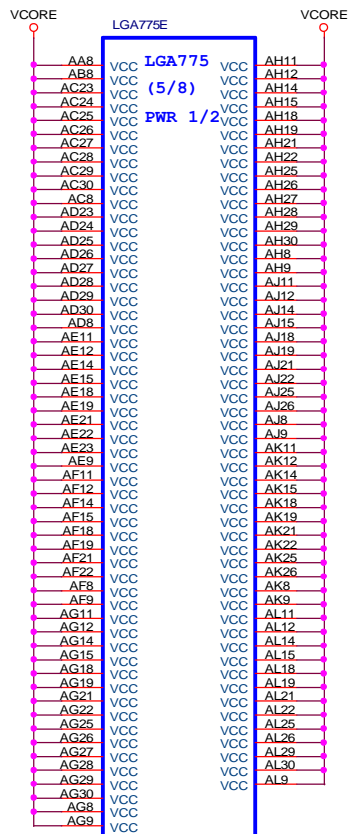


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P4_LGA775-C

Title		P4_LGA775-C	
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PECI: Platform Environment Control Interface



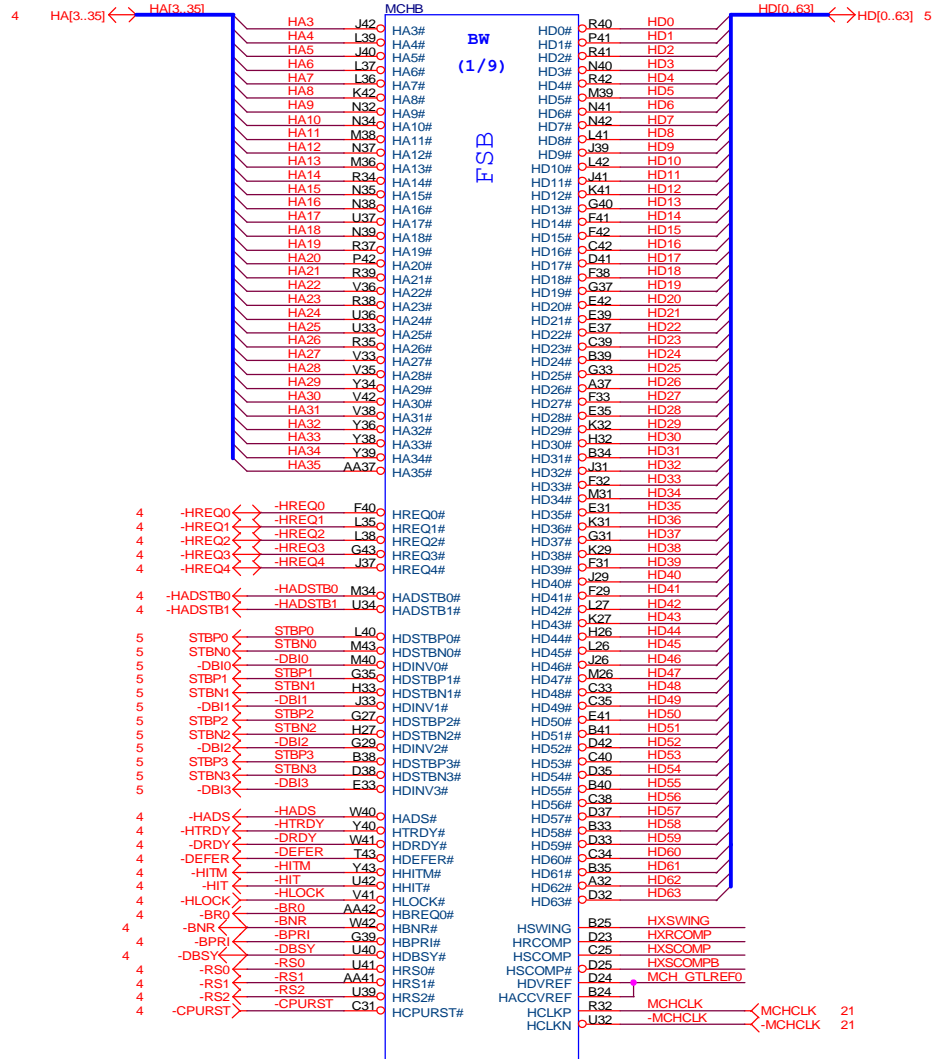
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CPU-SK/775/S/15

CPU-SK/775/S/15

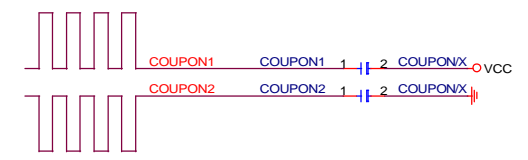
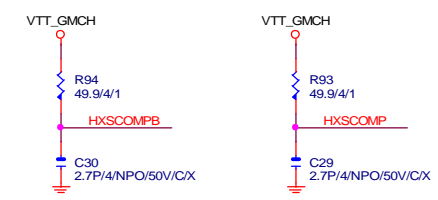
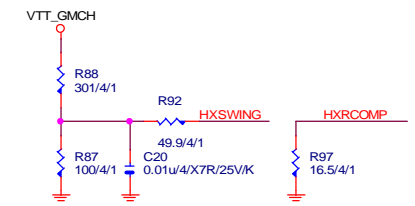
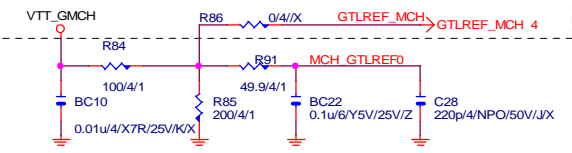
CPU-SK/775/S/15

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Title		
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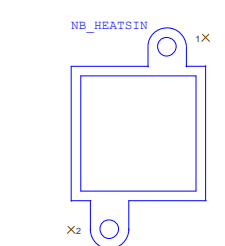
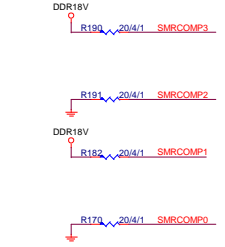
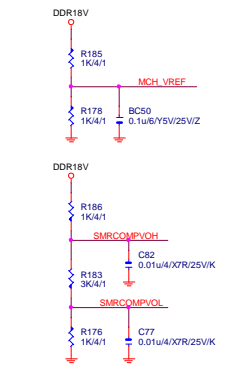
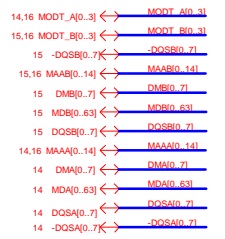
LE82G31/A2[10HB1-038231-10R]
CPU INTERFACE

Not used for CoreTM2 Duo and Wolfdale



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GMCH-HOST		
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MCHC		MCHC		MCHC	
MAAA0 BA31 SMA_A0 SDQS_A0	AW6 DQS80	MAA80 BB17 SMA_B0 SDQS_B0	AW6 DQS80	AV6 DQS80	MODT_A0_3
MAAA1 BB35 SMA_A1 SDQS_A0#	AW7 DQS80	MAA81 AY17 SMA_B1 SDQS_B0#	AW7 DQS80	AW6 -DQS80	MODT_B0_3
MAAA2 BA26 SMA_A2 SDQS_A0#	AW8 DQS80	MAA82 BA17 SMA_B2 SDQS_B0#	AW8 DQS80	AR7 DM80	-DQS80_7K
MAAA3 BA25 SMA_A3 SDQS_A1	AW9 DQS80	MAA83 FC16 SMA_B3 SDQS_B0	AW9 DQS80	AN7 MD80	MAAB0_14
MAAA4 AY26 SMA_A4 SDQS_A1	AW10 DQS80	MAA84 BA16 SMA_B4 SDQS_B0	AW10 DQS80	AN8 MD81	DMB0_7I
MAAA5 BA23 SMA_A5 SDQS_A2	AW11 DQS80	MAA85 BB16 SMA_B5 SDQS_B0	AW11 DQS80	AN9 MD82	MD80_63I
MAAA6 AY24 SMA_A6 SDQS_A2	AW12 DQS80	MAA86 BA15 SMA_B6 SDQS_B0	AW12 DQS80	AN6 MD83	DQS80_7I
MAAA7 AY23 SMA_A7 SDQS_A3	AW13 DQS80	MAA87 BA14 SMA_B7 SDQS_B0	AW13 DQS80	AN7 MD84	MAAA0_14I
MAAA8 BB23 SMA_A8 SDQS_A4	AW14 DQS80	MAA88 AY18 SMA_B8 SDQS_B0	AW14 DQS80	AN8 MD85	DMA0_7I
MAAA9 BA22 SMA_A9 SDQS_A4	AW15 DQS80	MAA89 BB14 SMA_B9 SDQS_B0	AW15 DQS80	AN9 MD86	MDA0_63I
MAAA10 AY23 SMA_A9 SDQS_A5	AW16 DQS80	MAA90 AW18 SMA_B9 SDQS_B0	AW16 DQS80	AU7 MD87	DQA0_7I
MAAA11 BB22 SMA_A10 SDQS_A5	AW17 DQS80	MAA91 BB14 SMA_B10 SDQS_B0	AW17 DQS80	AR12 DQS81	DMA0_7I
MAAA12 AW21 SMA_A11 SDQS_A7	AW18 DQS80	MAA92 BA13 SMA_B11 SDQS_B0	AW18 DQS80	AR12 -DQS81	DQA0_7I
MAAA13 AY28 SMA_A12 SDQS_A7	AW19 DQS80	MAA93 AY29 SMA_B12 SDQS_B0	AW19 DQS80	AR12 -DQS81	DQA0_7I
MAAA14 BA21 SMA_A14 SDQS_A7	AW20 DQS80	MAA94 AY13 SMA_B14 SDQS_B0	AW20 DQS80	AR12 -DQS81	DQA0_7I
SWEA SWEA SWE_A#	AW21 DQS80	SWEB SWEB SWE_B#	AW21 DQS80	AT11 MD88	DQA0_63I
SCASA SCASA SCAS_A#	AW22 DQS80	SCASB SCASB SCAS_B#	AW22 DQS80	AR13 MD89	DQA0_7I
SRASA SRASA SRAS_A#	AW23 DQS80	SRASB SRASB SRAS_B#	AW23 DQS80	AR13 MD90	DQA0_7I
SBAAD SBAAD SBS_A0	AW24 DQS80	SBA0 SBA0 SBS_B0	AW24 DQS80	AR13 MD91	DQA0_7I
SBA1 SBA1 SBS_A1	AW25 DQS80	SBA1 SBA1 SBS_B1	AW25 DQS80	AR11 MD92	DQA0_7I
SBA2 SBA2 SBS_A2	AW26 DQS80	SBA2 SBA2 SBS_B2	AW26 DQS80	AR2 MD93	DQA0_7I
CSA0 CSA0 SCS_A0#	AW27 DQS80	CSB0 CSB0 SCS_B0#	AW27 DQS80	AR2 MD94	DQA0_7I
CSA1 CSA1 SCS_A1#	AW28 DQS80	CSB1 CSB1 SCS_B1#	AW28 DQS80	AR2 MD95	DQA0_7I
CSA2 CSA2 SCS_A2#	AW29 DQS80	CSB2 CSB2 SCS_B2#	AW29 DQS80	AP15 DQS82	DQA0_7I
CSA3 CSA3 SCS_A3#	AW30 DQS80	CSB3 CSB3 SCS_B3#	AW30 DQS80	AP15 -DQS82	DQA0_7I
CKEAD CKEAD SCKE_A0	AW31 DQS80	CKEB0 CKEB0 SCKE_B0	AW31 DQS80	AP16 DQS82	DQA0_7I
CKE1 CKE1 SCKE_A1	AW32 DQS80	CKE1 CKE1 SCKE_B1	AW32 DQS80	AP16 -DQS82	DQA0_7I
CKE2 CKE2 SCKE_A2	AW33 DQS80	CKE2 CKE2 SCKE_B2	AW33 DQS80	AP17 DQS82	DQA0_7I
CKE3 CKE3 SCKE_A3	AW34 DQS80	CKE3 CKE3 SCKE_B3	AW34 DQS80	AP17 -DQS82	DQA0_7I
MODT_A0 MODT_A0 SODT_A0	AW35 DQS80	MODT_B0 MODT_B0 SODT_B0	AW35 DQS80	AP18 DQS82	DQA0_7I
MODT_A1 MODT_A1 SODT_A1	AW36 DQS80	MODT_B1 MODT_B1 SODT_B1	AW36 DQS80	AP18 -DQS82	DQA0_7I
BA38 BA38 SODT_A2	AW37 DQS80	BB29 BB29 SODT_B2	AW37 DQS80	AP19 DQS82	DQA0_7I
BB35 BB35 SODT_A2	AW38 DQS80	BB31 BB31 SODT_B3	AW38 DQS80	AP19 -DQS82	DQA0_7I
BB39 BB39 SODT_A3	AW39 DQS80	BB10 BB10 SODT_A23	AW39 DQS80	AP23 DQS83	DQA0_7I
CLK_INTA0 CLK_INTA0 SCLK_A0	AW40 DQS80	CLK_INTB0 CLK_INTB0 SCLK_B0	AW40 DQS80	AT24 DQS83	DQA0_7I
CLK_INTA0 CLK_INTA0 SCLK_A0#	AW41 DQS80	CLK_INTB0 CLK_INTB0 SCLK_B0#	AW41 DQS80	AL26 DQS83	DQA0_7I
AP27 AP27 SCLK_A1	AW42 DQS80	AP23 AP23 SCLK_B1	AW42 DQS80	AP23 DM83	DQA0_7I
AP27 AP27 SCLK_A1#	AW43 DQS80	AP23 AP23 SCLK_B1#	AW43 DQS80	AV24 MD84	DQA0_7I
AV33 AV33 SCLK_A2	AW44 DQS80	AV32 AV32 SCLK_B2	AW44 DQS80	AR18 MD85	DQA0_7I
AV33 AV33 SCLK_A2#	AW45 DQS80	AV32 AV32 SCLK_B2#	AW45 DQS80	AR18 MD86	DQA0_7I
AP29 AP29 SCLK_A3	AW46 DQS80	AP23 AP23 SCLK_B3	AW46 DQS80	AT26 MD86	DQA0_7I
AP29 AP29 SCLK_A3#	AW47 DQS80	AP23 AP23 SCLK_B3#	AW47 DQS80	AP26 MD87	DQA0_7I
AP31 AP31 SCLK_A4	AW48 DQS80	AP23 AP23 SCLK_B4	AW48 DQS80	AP26 MD88	DQA0_7I
AP31 AP31 SCLK_A4#	AW49 DQS80	AP23 AP23 SCLK_B4#	AW49 DQS80	AP26 MD89	DQA0_7I
AM7 AM7 SCLK_A5	AW50 DQS80	AM7 AM7 SCLK_B5	AW50 DQS80	AW23 MD89	DQA0_7I
AT33 AT33 SCLK_A5	AW51 DQS80	AT33 AT33 SCLK_B5	AW51 DQS80	AR24 MD90	DQA0_7I
AV33 AV33 SCLK_A5#	AW52 DQS80	AV33 AV33 SCLK_B5#	AW52 DQS80	AN6 MD91	DQA0_7I
TP_DDR2 TP_DDR2 SCLK_A5#	AW53 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW53 DQS80	AW39 DQS84	DQA0_7I
TP_DDR4 TP_DDR4 SCLK_A5#	AW54 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW54 DQS80	AW39 -DQS84	DQA0_7I
TP_DDR6 TP_DDR6 SCLK_A5#	AW55 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW55 DQS80	AW7 DM84	DQA0_7I
TP_DDR8 TP_DDR8 SCLK_A5#	AW56 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW56 DQS80	AW37 MD84	DQA0_7I
TP_DDR10 TP_DDR10 SCLK_A5#	AW57 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW57 DQS80	AW38 MD85	DQA0_7I
TP_DDR12 TP_DDR12 SCLK_A5#	AW58 DQS80	TP_DDR11 TP_DDR11 SCLK_B5#	AW58 DQS80	AN6 MD86	DQA0_7I
TP13 TP13 RESERVED	AW59 DQS80	TP13 TP13 RESERVED	AW59 DQS80	AN7 MD86	DQA0_7I
RESERVED	AW60 DQS80	TP13 TP13 RESERVED	AW60 DQS80	AN8 MD87	DQA0_7I
RESERVED	AW61 DQS80	TP13 TP13 RESERVED	AW61 DQS80	AN9 MD88	DQA0_7I
RESERVED	AW62 DQS80	TP13 TP13 RESERVED	AW62 DQS80	AR35 MD87	DQA0_7I
RESERVED	AW63 DQS80	TP13 TP13 RESERVED	AW63 DQS80	AN6 MD88	DQA0_7I
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RESERVED	AW65 DQS80	TP13 TP13 RESERVED	AW65 DQS80	AR35 MD88	DQA0_7I
RESERVED	AW66 DQS80	TP13 TP13 RESERVED	AW66 DQS80	AR37 MD89	DQA0_7I
RESERVED	AW67 DQS80	TP13 TP13 RESERVED	AW67 DQS80	AW35 DQS85	DQA0_7I
RESERVED	AW68 DQS80	TP13 TP13 RESERVED	AW68 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW69 DQS80	TP13 TP13 RESERVED	AW69 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW70 DQS80	TP13 TP13 RESERVED	AW70 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW71 DQS80	TP13 TP13 RESERVED	AW71 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW72 DQS80	TP13 TP13 RESERVED	AW72 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW73 DQS80	TP13 TP13 RESERVED	AW73 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW74 DQS80	TP13 TP13 RESERVED	AW74 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW75 DQS80	TP13 TP13 RESERVED	AW75 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW76 DQS80	TP13 TP13 RESERVED	AW76 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW77 DQS80	TP13 TP13 RESERVED	AW77 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW78 DQS80	TP13 TP13 RESERVED	AW78 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW79 DQS80	TP13 TP13 RESERVED	AW79 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW80 DQS80	TP13 TP13 RESERVED	AW80 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW81 DQS80	TP13 TP13 RESERVED	AW81 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW82 DQS80	TP13 TP13 RESERVED	AW82 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW83 DQS80	TP13 TP13 RESERVED	AW83 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW84 DQS80	TP13 TP13 RESERVED	AW84 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW85 DQS80	TP13 TP13 RESERVED	AW85 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW86 DQS80	TP13 TP13 RESERVED	AW86 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW87 DQS80	TP13 TP13 RESERVED	AW87 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW88 DQS80	TP13 TP13 RESERVED	AW88 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW89 DQS80	TP13 TP13 RESERVED	AW89 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW90 DQS80	TP13 TP13 RESERVED	AW90 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW91 DQS80	TP13 TP13 RESERVED	AW91 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW92 DQS80	TP13 TP13 RESERVED	AW92 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW93 DQS80	TP13 TP13 RESERVED	AW93 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW94 DQS80	TP13 TP13 RESERVED	AW94 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW95 DQS80	TP13 TP13 RESERVED	AW95 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW96 DQS80	TP13 TP13 RESERVED	AW96 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW97 DQS80	TP13 TP13 RESERVED	AW97 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW98 DQS80	TP13 TP13 RESERVED	AW98 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW99 DQS80	TP13 TP13 RESERVED	AW99 DQS80	AM07 DM85	DQA0_7I
RESERVED	AW100 DQS80	TP13 TP13 RESERVED	AW100 DQS80	AM07 DM85	DQA0_7I

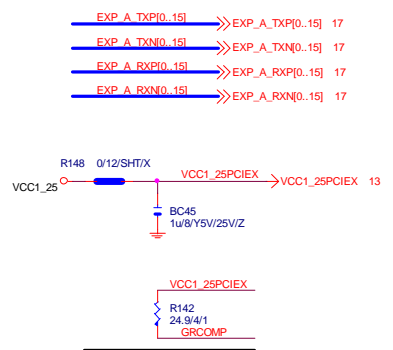


NB_HEATSINK(12SP2-04F004-F1R_12SP2-04F004-F2R_12SP2-04F004-F3R_12SP2-04F004-F4R)

注意:使用大的heatsink時, 要將VTT GMCH電容EC6改成 OS-CON 820u/FP/D/2.5V/88/7m

Gigabyte Technology		
File	GMCH-DDRII	
Size	Document Number	Rev 1.1
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MCHA			
EXP A_RXP0	F15	EXP_RXP0	D11 EXP A_TXP0
EXP A_RXN0	G15	EXP_RXN0*	D12 EXP A_TXN0
EXP A_RXP1	K15	EXP_RXP1	B11 EXP A_TXP1
EXP A_RXN1	L15	EXP_RXN1*	A10 EXP A_TXN1
EXP A_RXP2	F12	EXP_RXP2	C10 EXP A_TXP2
EXP A_RXN2	E12	EXP_RXN2*	D9 EXP A_TXN2
EXP A_RXP3	J12	EXP_RXP3	B7 EXP A_TXP3
EXP A_RXN3	H12	EXP_RXN3*	D7 EXP A_TXN3
EXP A_RXP4	H11	EXP_RXP4	B9 EXP A_TXP4
EXP A_RXN4	H11	EXP_RXN4*	D6 EXP A_TXN4
EXP A_RXP5	F7	EXP_RXP5	B5 EXP A_TXP5
EXP A_RXN5	E7	EXP_RXN5*	B6 EXP A_TXN5
EXP A_RXP6	E5	EXP_RXP6	B3 EXP A_TXP6
EXP A_RXN6	F6	EXP_RXN6*	B4 EXP A_TXN6
EXP A_RXP7	C2	EXP_RXP7	F2 EXP A_TXP7
EXP A_RXN7	D2	EXP_RXN7*	E2 EXP A_TXN7
EXP A_RXP8	C6	EXP_RXP8	F4 EXP A_TXP8
EXP A_RXN8	C5	EXP_RXN8*	G4 EXP A_TXN8
EXP A_RXP9	L9	EXP_RXP9	J4 EXP A_TXP9
EXP A_RXN9	L8	EXP_RXN9*	K3 EXP A_TXN9
EXP A_RXP10	M8	EXP_RXP10	L2 EXP A_TXP10
EXP A_RXN10	M9	EXP_RXN10*	K1 EXP A_TXN10
EXP A_RXP11	M4	EXP_RXP11	N2 EXP A_TXP11
EXP A_RXN11	L4	EXP_RXN11*	M2 EXP A_TXN11
EXP A_RXP12	M6	EXP_RXP12	M2 EXP A_TXP12
EXP A_RXN12	M6	EXP_RXN12*	N4 EXP A_TXN12
EXP A_RXP13	R9	EXP_RXP13	R2 EXP A_TXP13
EXP A_RXN13	R10	EXP_RXN13*	P1 EXP A_TXN13
EXP A_RXP14	T4	EXP_RXP14	L2 EXP A_TXP14
EXP A_RXN14	R4	EXP_RXN14*	T2 EXP A_TXN14
EXP A_RXP15	R6	EXP_RXP15	V3 EXP A_TXP15
EXP A_RXN15	R7	EXP_RXN15*	U4 EXP A_TXN15

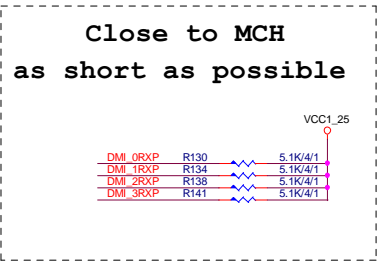


Close to MCH

18 DMI_0RXP	DMI_0RXP	W2	DMI_0RXP	V7	0.1u/4/Y5V/16V/Z	DMI_0TXP	18
18 DMI_0RXN	DMI_0RXN	V1	DMI_0RXN*	V6	0.1u/4/Y5V/16V/Z	DMI_0TXN	18
18 DMI_1RXP	DMI_1RXP	Y8	DMI_1RXP	W4	0.1u/4/Y5V/16V/Z	DMI_1TXP	18
18 DMI_1RXN	DMI_1RXN	Y9	DMI_1RXN*	Y4	0.1u/4/Y5V/16V/Z	DMI_1TXN	18
18 DMI_2RXP	DMI_2RXP	AA7	DMI_2RXP	C59	0.1u/4/Y5V/16V/Z	DMI_2TXP	18
18 DMI_2RXN	DMI_2RXN	AA6	DMI_2RXN*	AC8	0.1u/4/Y5V/16V/Z	DMI_2TXN	18
18 DMI_3RXP	DMI_3RXP	AB3	DMI_3RXP	C61	0.1u/4/Y5V/16V/Z	DMI_3TXP	18
18 DMI_3RXN	DMI_3RXN	AA4	DMI_3RXN*	C64	0.1u/4/Y5V/16V/Z	DMI_3TXN	18

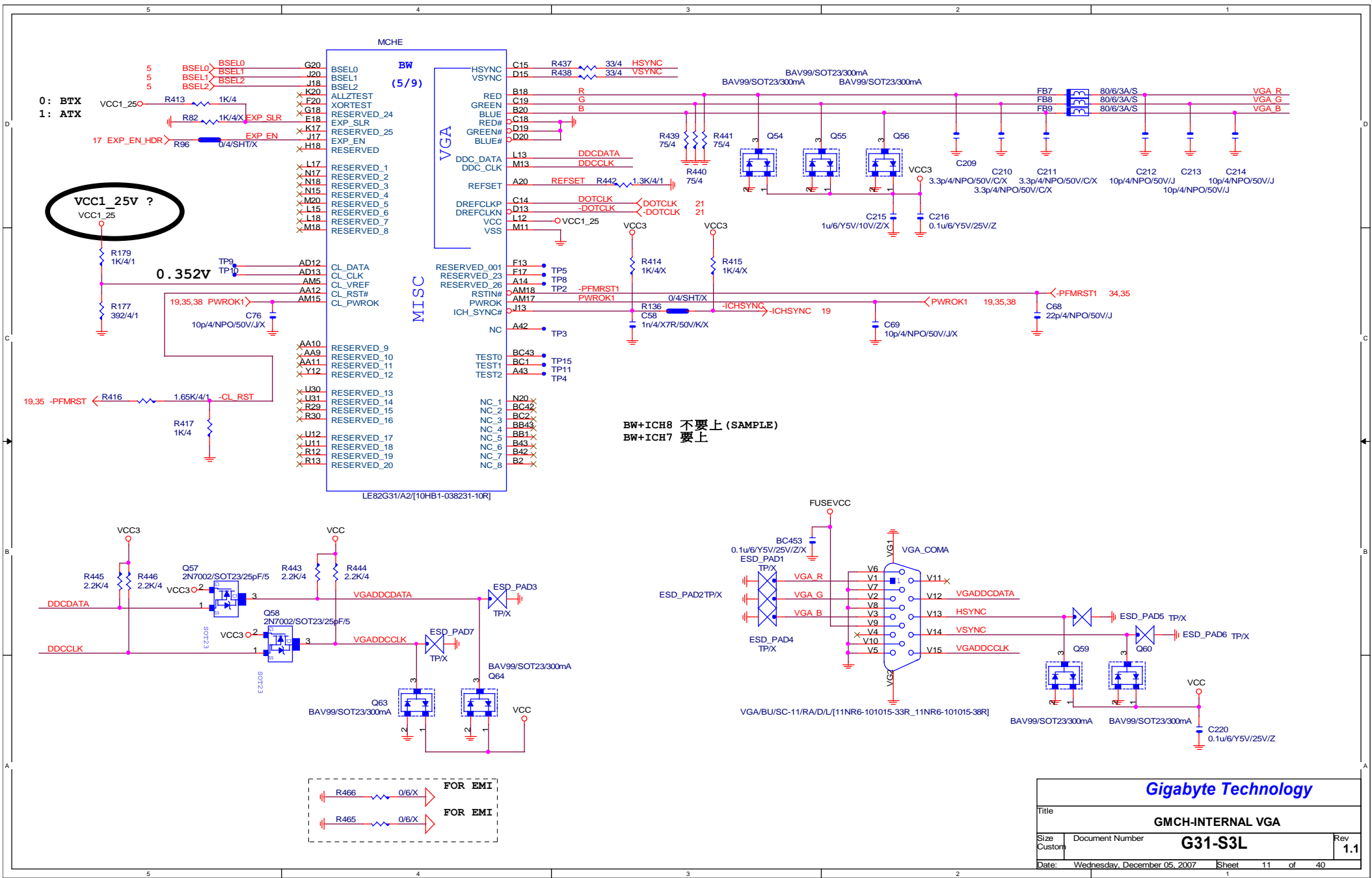
21 SRCCLK_MCH	SRCCLK_MCH	B12	GCLKP	AC11	GRCOMP	
21 -SRCCLK_MCH	-SRCCLK_MCH	B13	GCLKN*	AC12		
17 SDVO_CLDATA	SDVO_CLDATA	G17	SDVO_CTRLDATA			
17 SDVO_CLCLK	SDVO_CLCLK	E17	SDVO_CTRLCLK			

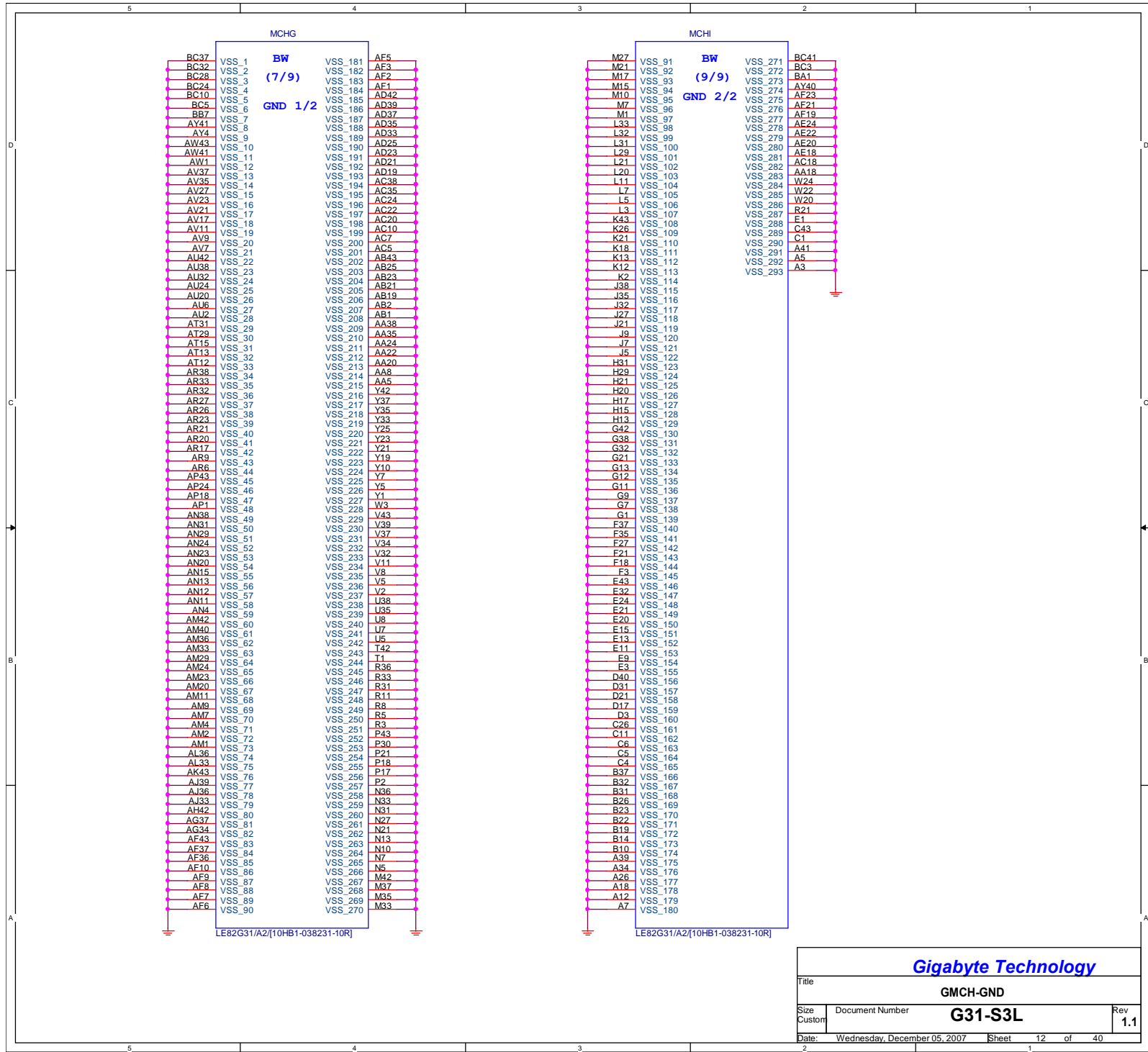
LE82G31/A2/[10HB1-038231-10R]



Gigabyte Technology

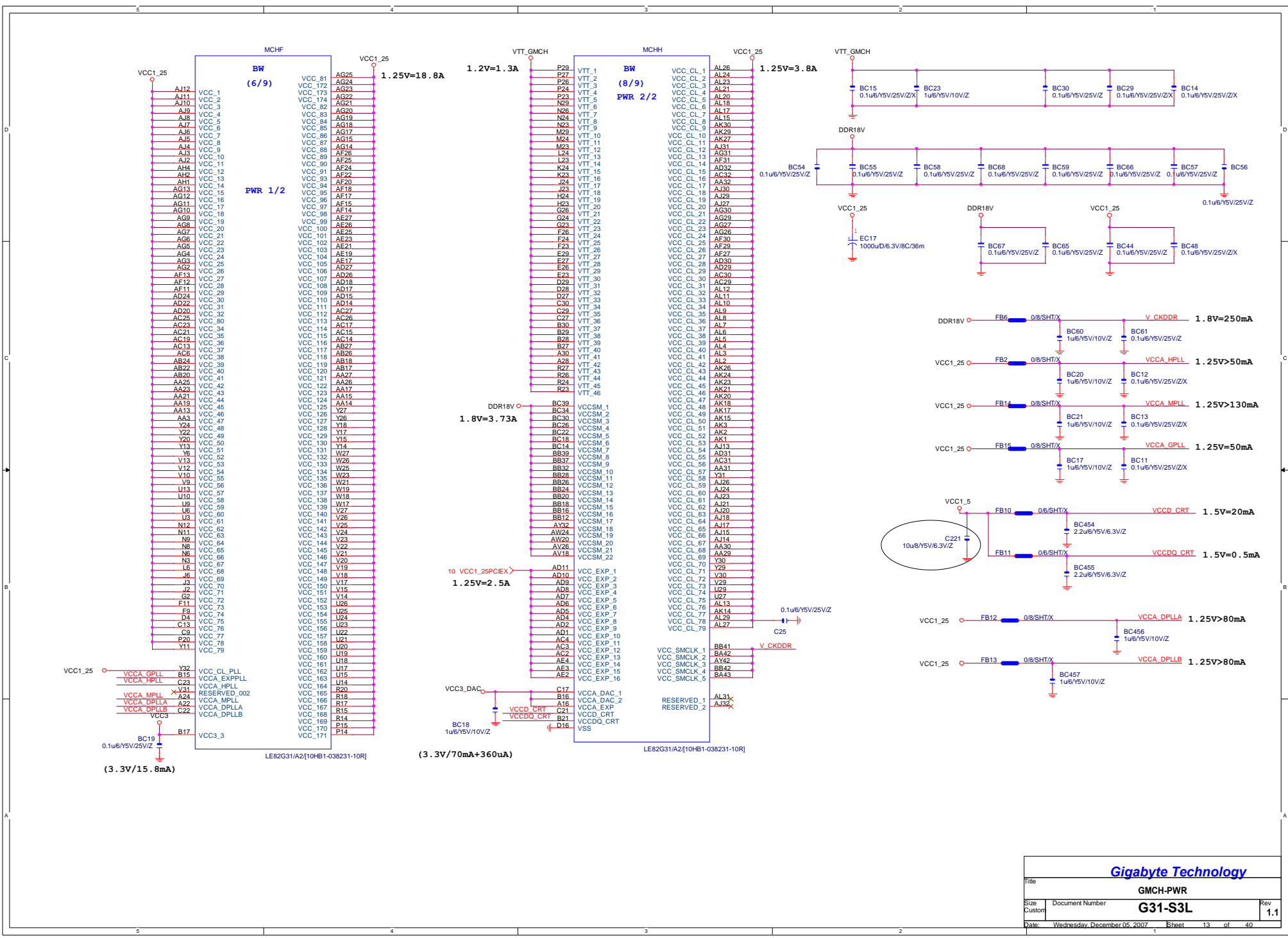
Title			
GMCH-PCI E & DMI			
Size	Document Number	G31-S3L	Rev
Custom			1.1
Date:	Wednesday, December 05, 2007	Sheet	10 of 40





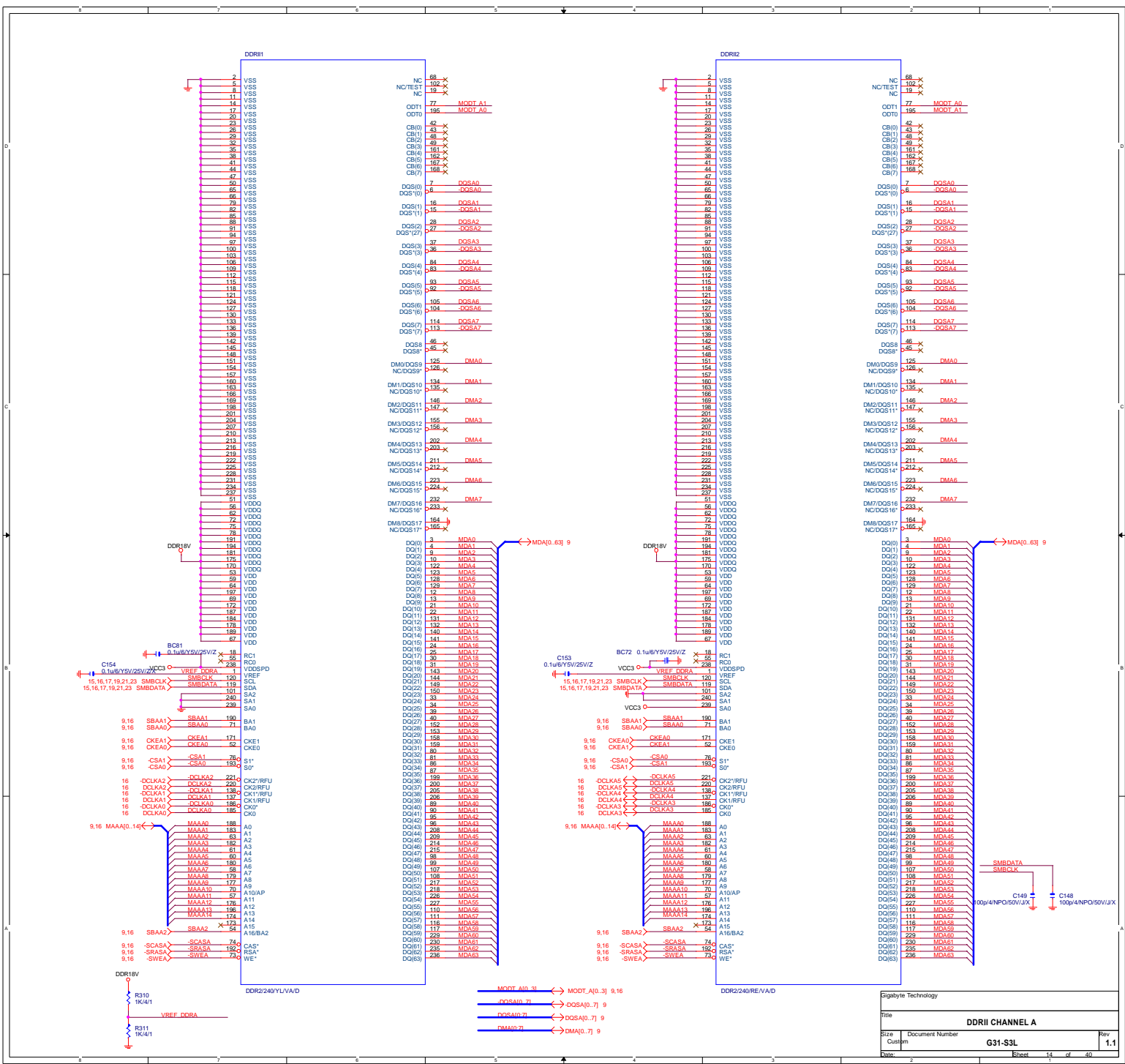
Gigabyte Technology

Title			GMCH-GND
Size	Document Number	G31-S3L	
Custom		Rev	1.1
Date: Wednesday, December 05, 2007			Sheet 12 of 40

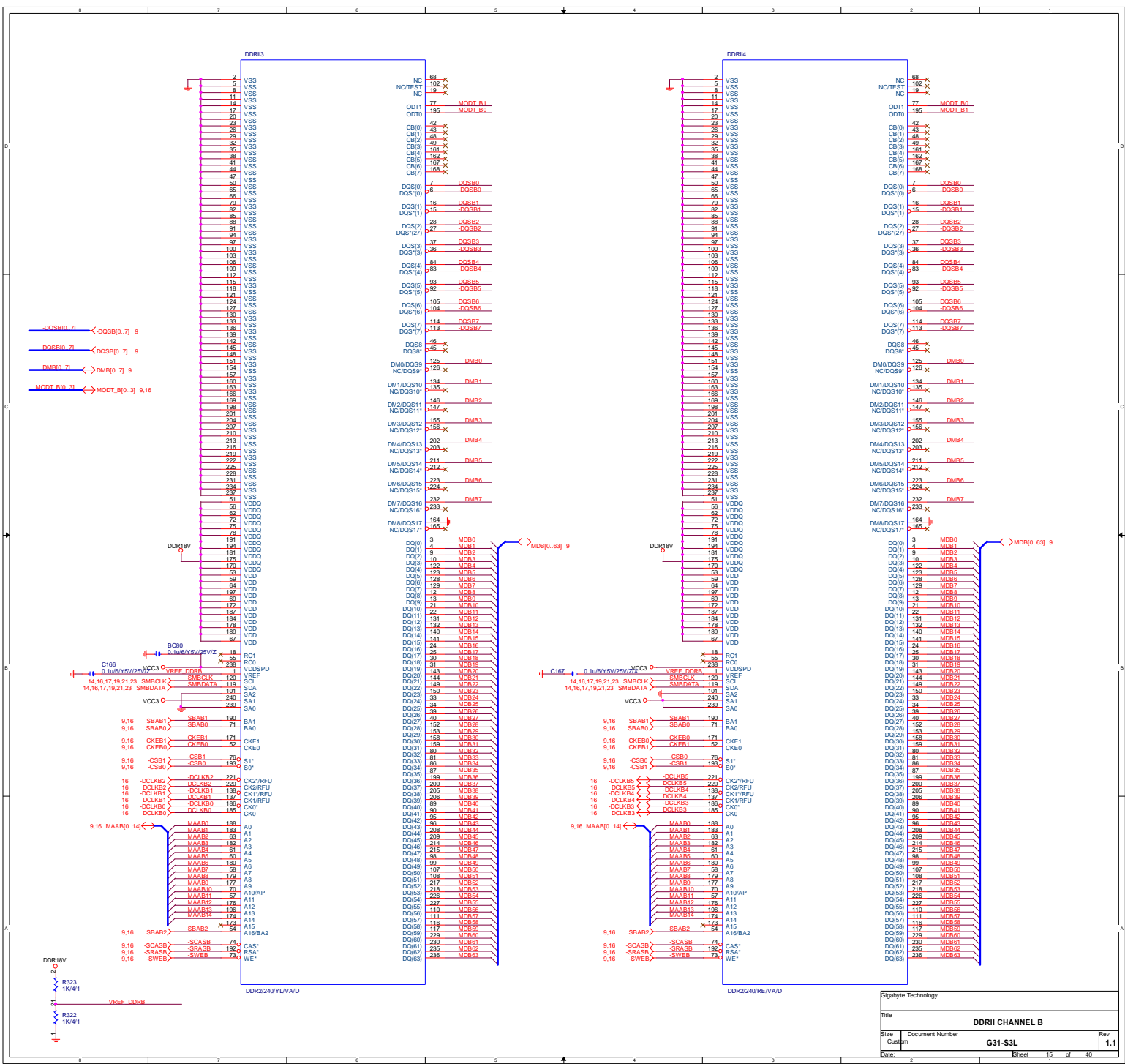


Gigabyte Technology

Title			GMCH-PWR
Docu	Number	G31-S3L	
Rev	1.1		
Date:	Wednesday, December 05, 2007	Sheet	13 of 40



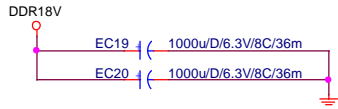
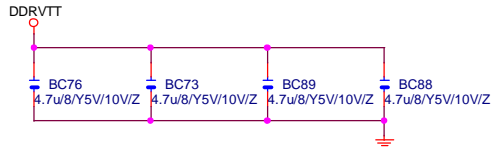
Gigabyte Technology	
Title	
DDRII CHANNEL A	
Size	Document Number
Custm	G31-S3L
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Gigabyte Technology		
Title	DDR2 CHANNEL B	
Size	Document Number	Rev
Custom	G31-S3L	1.1
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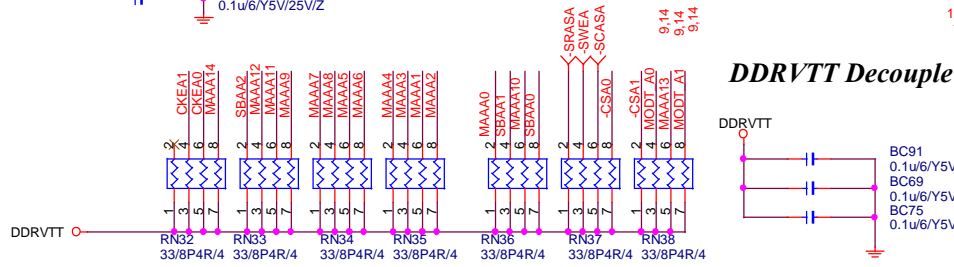
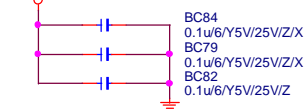
DDR TERMINATION CHANNEL A

DDRVTT Decouple



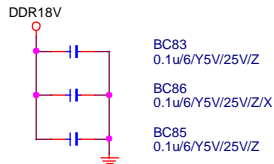
- SBA[A0..2] <- SBA[A0..2] 9,14
- CSA[A0..3] <- CSA[A0..3] 9,14
- CKEA[A0..3] <- CKEA[A0..3] 9,14
- MAAA[A0..14] <- MAAA[A0..14] 9,14
- MODT_A[A0..3] <- MODT_A[A0..3] 9,14

DDR18V Decouple

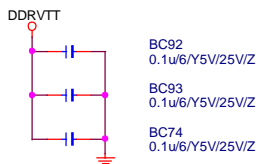


DDR TERMINATION CHANNEL B

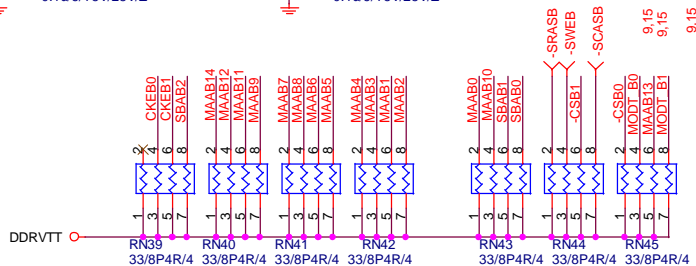
DDR18V Decouple



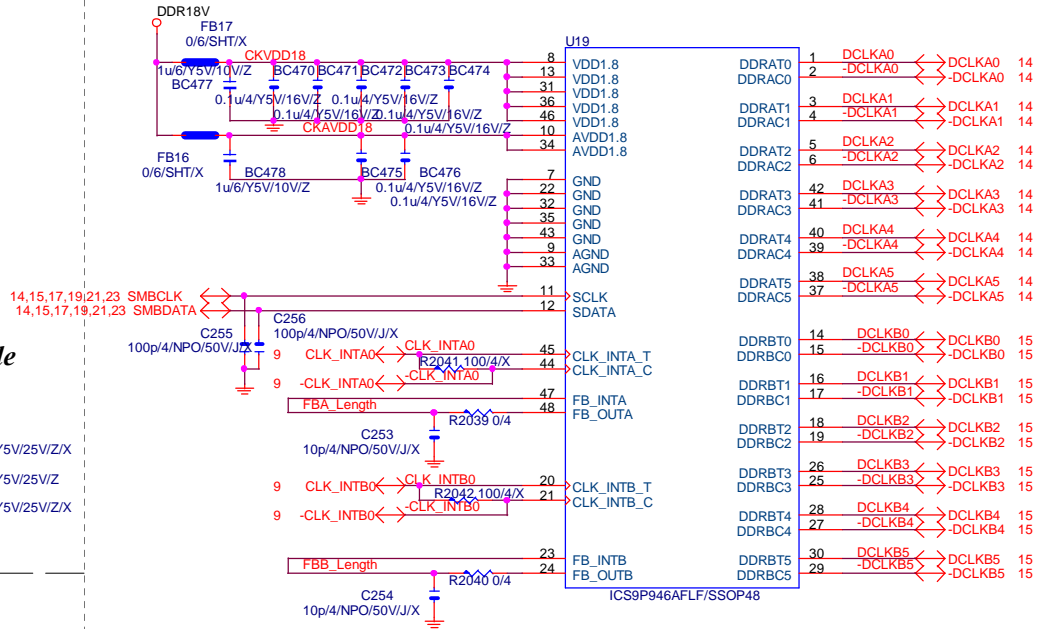
DDRVTT Decouple



- MODT_B[B0..3] <- MODT_B[B0..3] 9,15
- SBAB[B0..2] <- SBAB[B0..2] 9,15
- CSB[B0..3] <- CSB[B0..3] 9,15
- CKEB[B0..3] <- CKEB[B0..3] 9,15
- MAAB[B0..14] <- MAAB[B0..14] 9,15

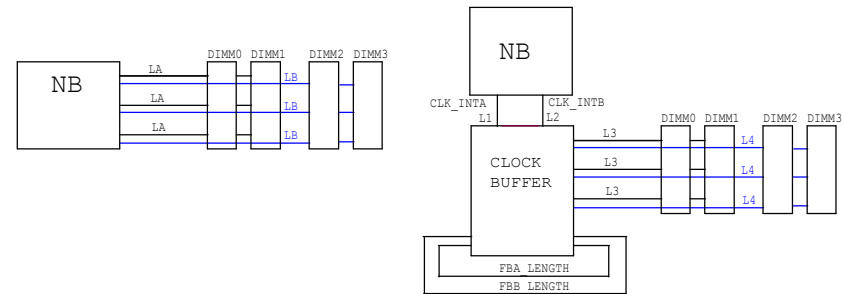


DDR2 CLOCK BUFFER

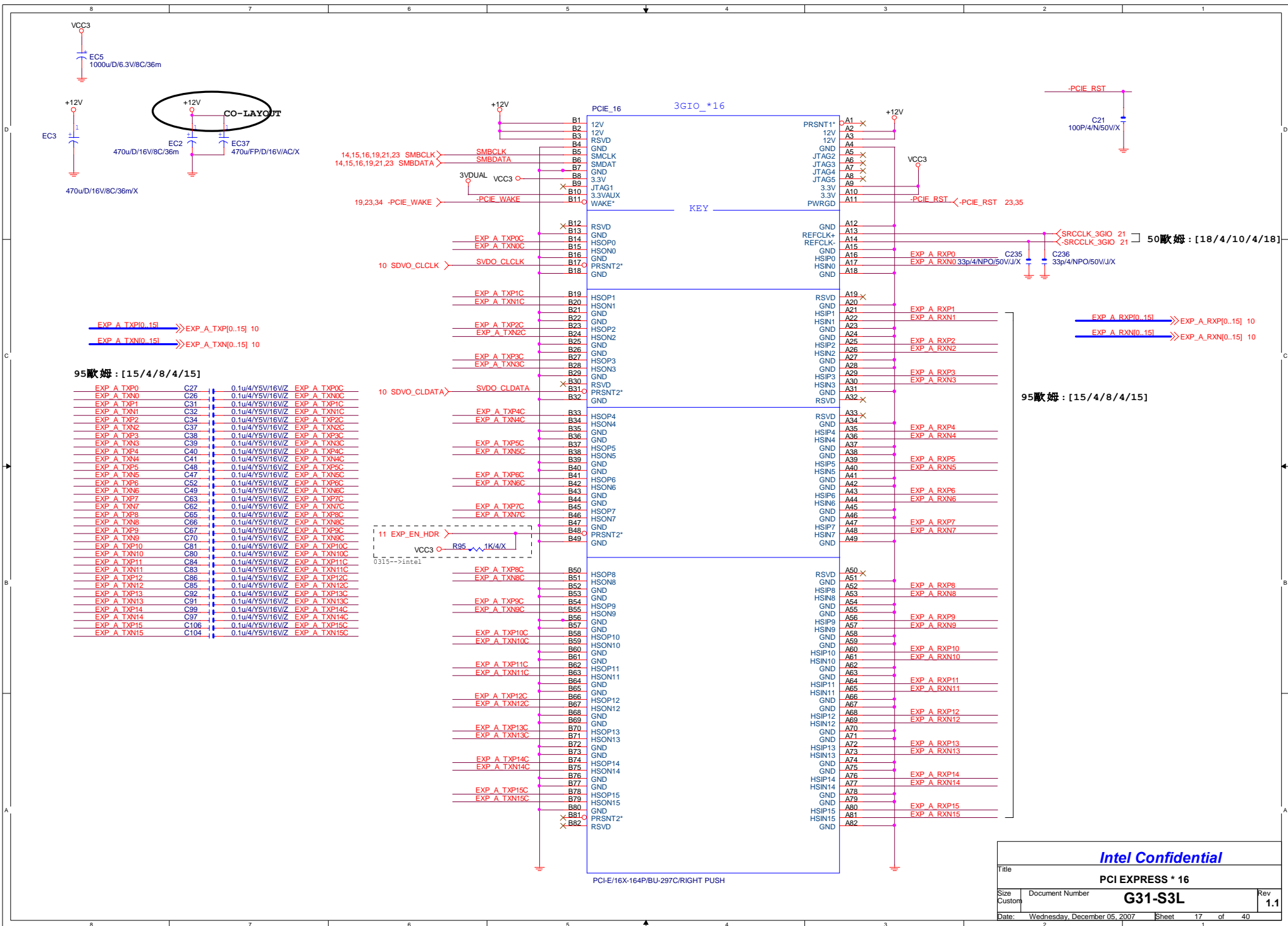


NOTICE

FBA_LENGTH=L1+L3-LA
FBB_LENGTH=L2+L4-LB



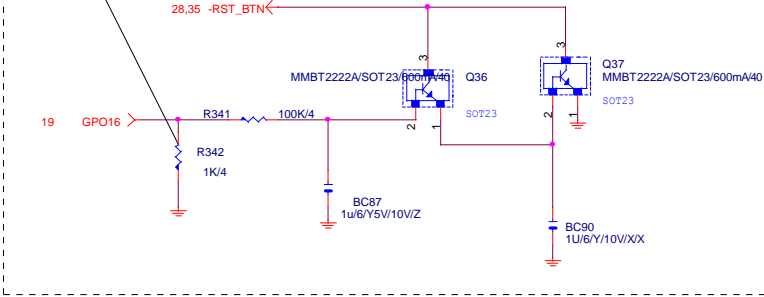
Gigabyte Technology		
DDRII CLOCK BUFFER/TERMINATOR		
Title	Document Number	Rev
	G31-S3L	1.1
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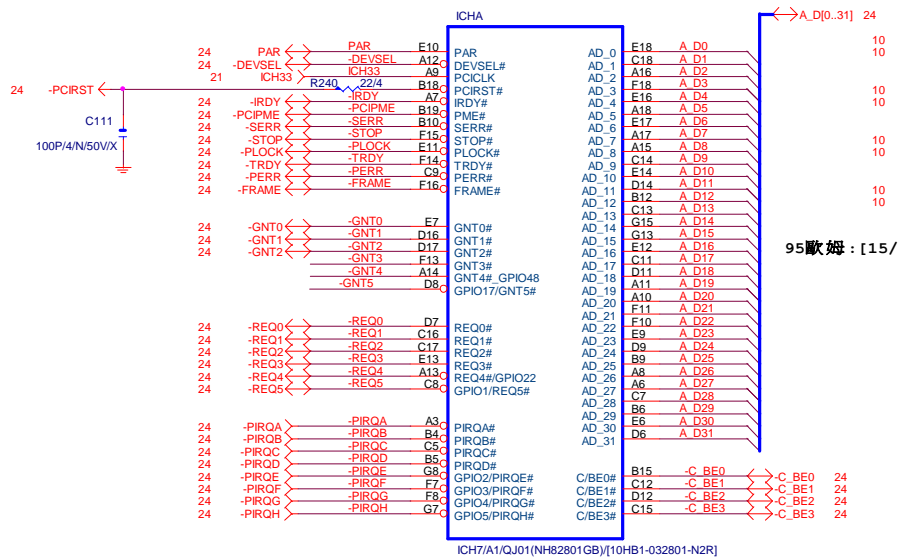
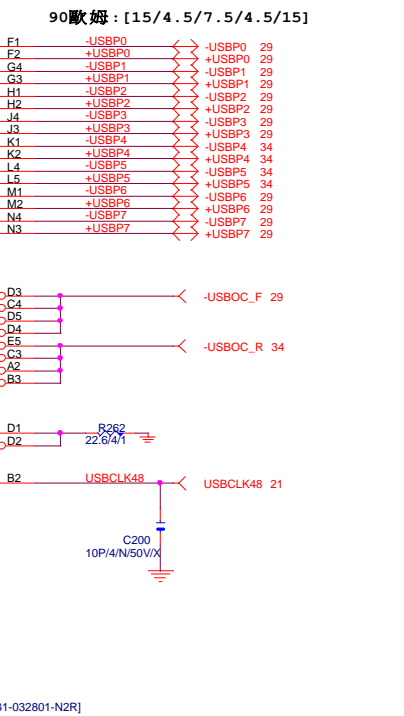
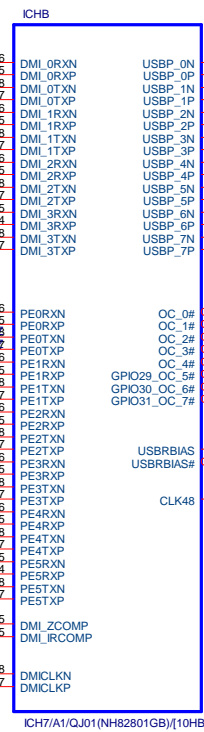
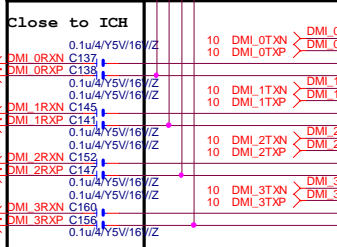
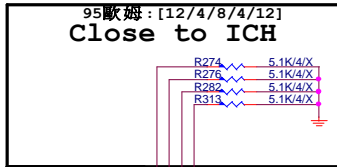
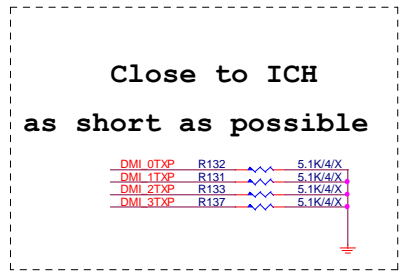
Intel Confidential

Title			PCI EXPRESS * 16		
Size	Document Number				Rev
Custom	G31-S3L				1.1
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FOR ICH7R POWER ON 瞬間會HIGH 到1.8V 之後0V, 必須PULL DOWN 1K/6

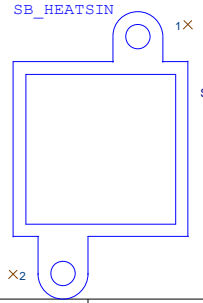
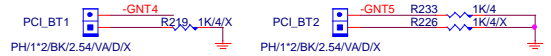
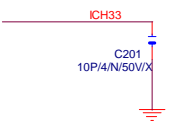


H/W
RESET



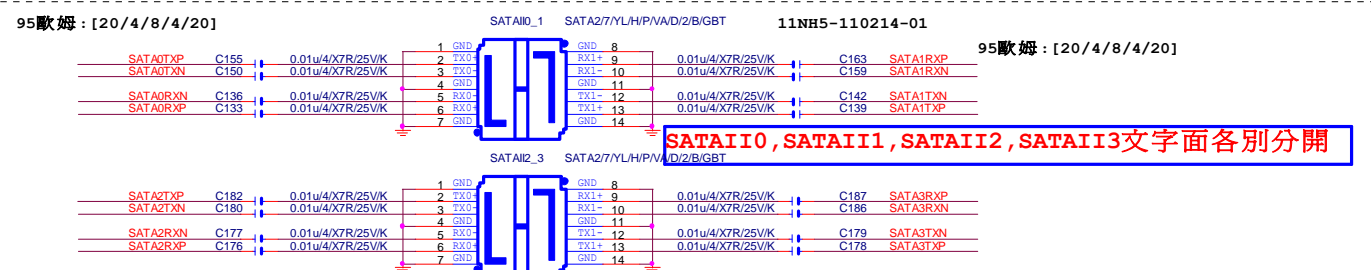
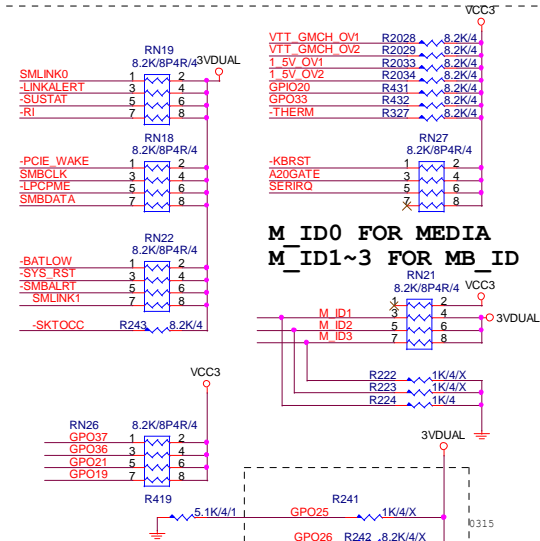
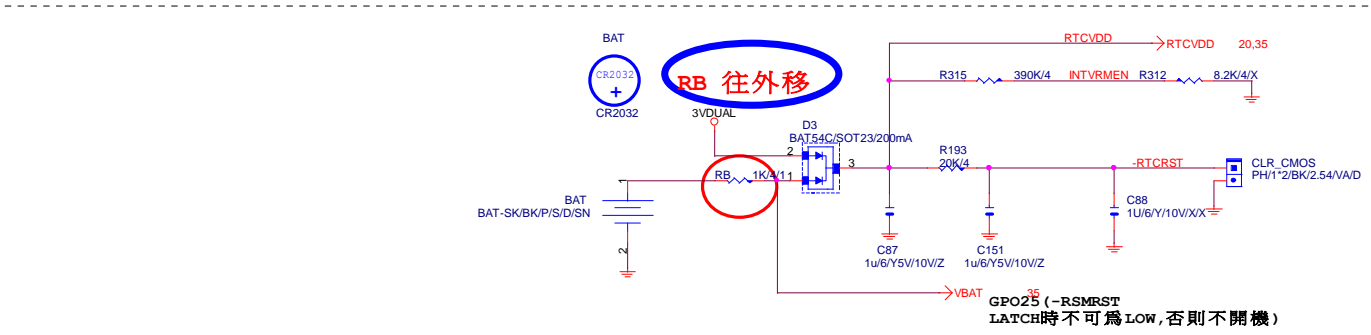
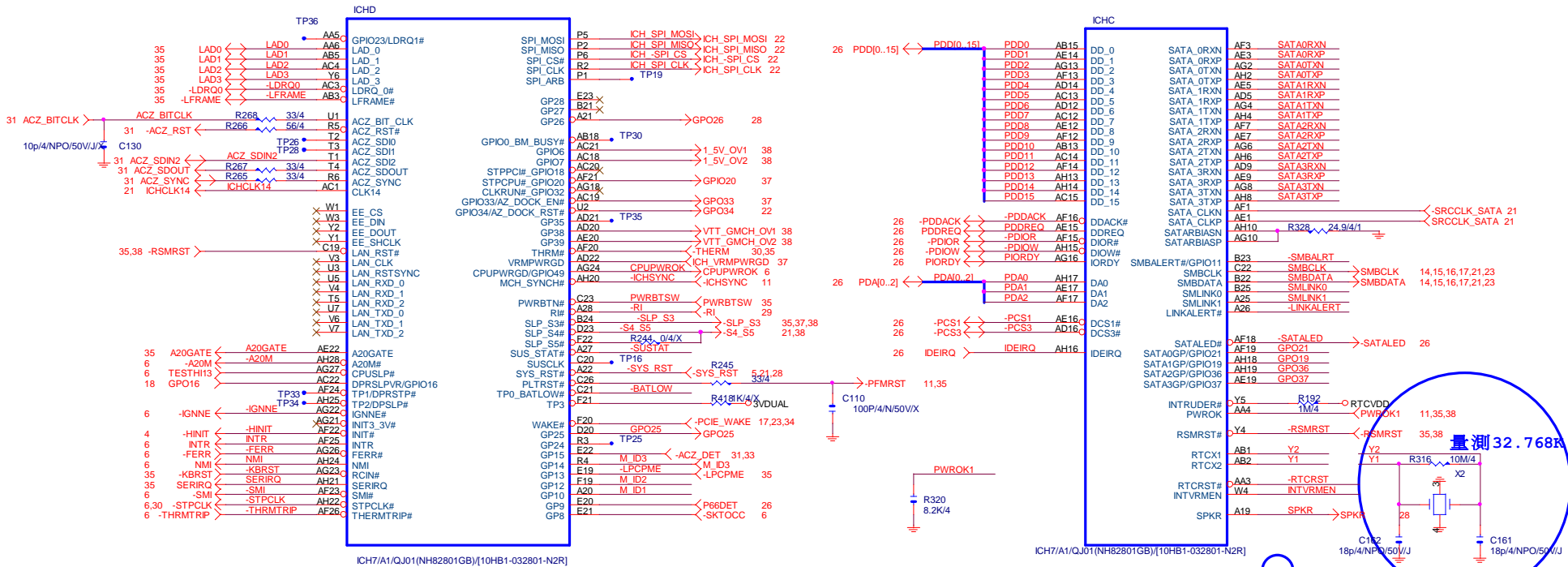
10HB1-032801-M1 REV:NON

	GNT4#	GNT5#
SPI=	1	0
PCI=	0	1
LPC=	1	1



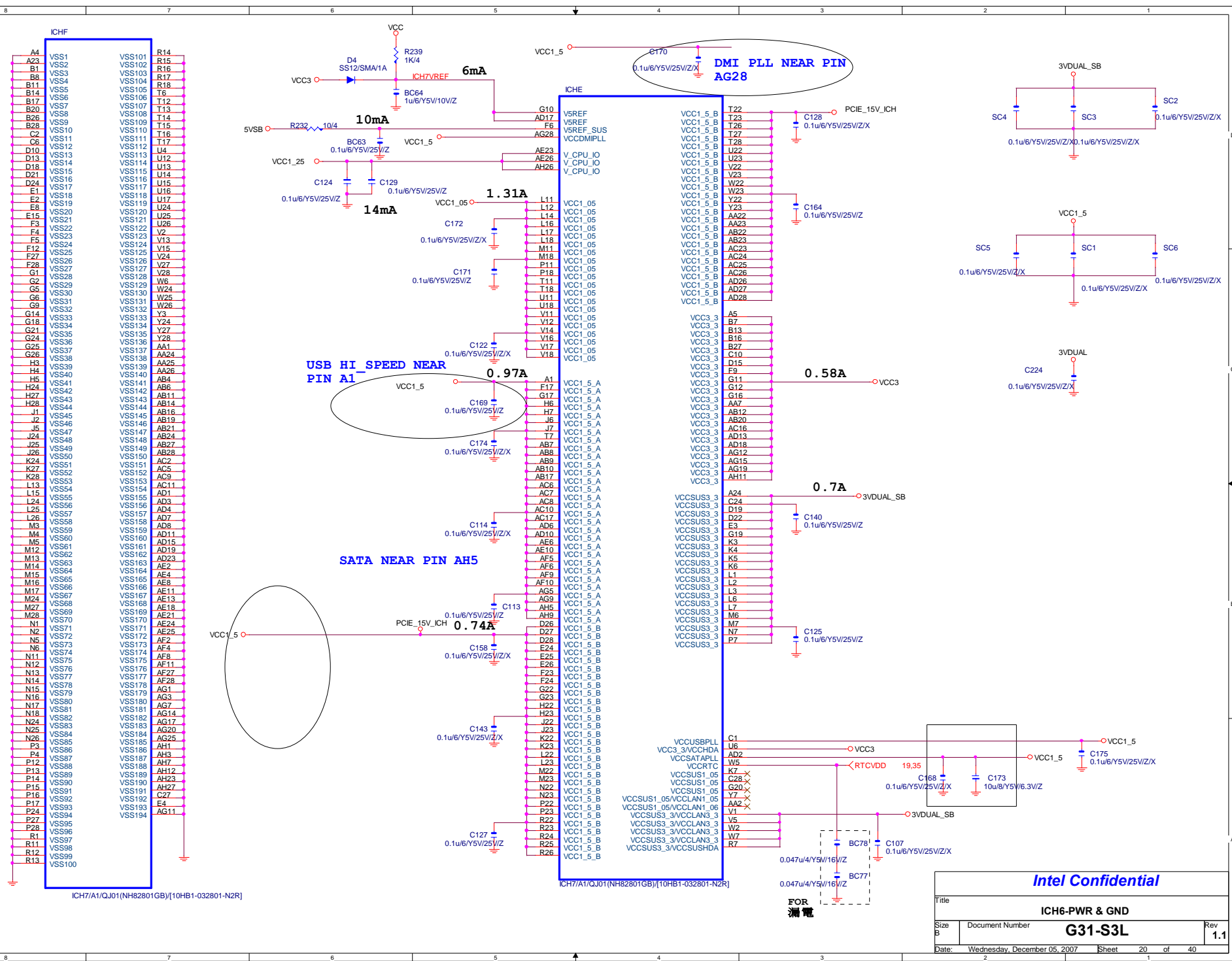
Intel Confidential

Title		
ICH6-PCI, DMI, LAN, USB		
Size	Document Number	Rev
B	G31-S3L	1.1
Date:	Wednesday, December 05, 2007	Sheet 18 of 40

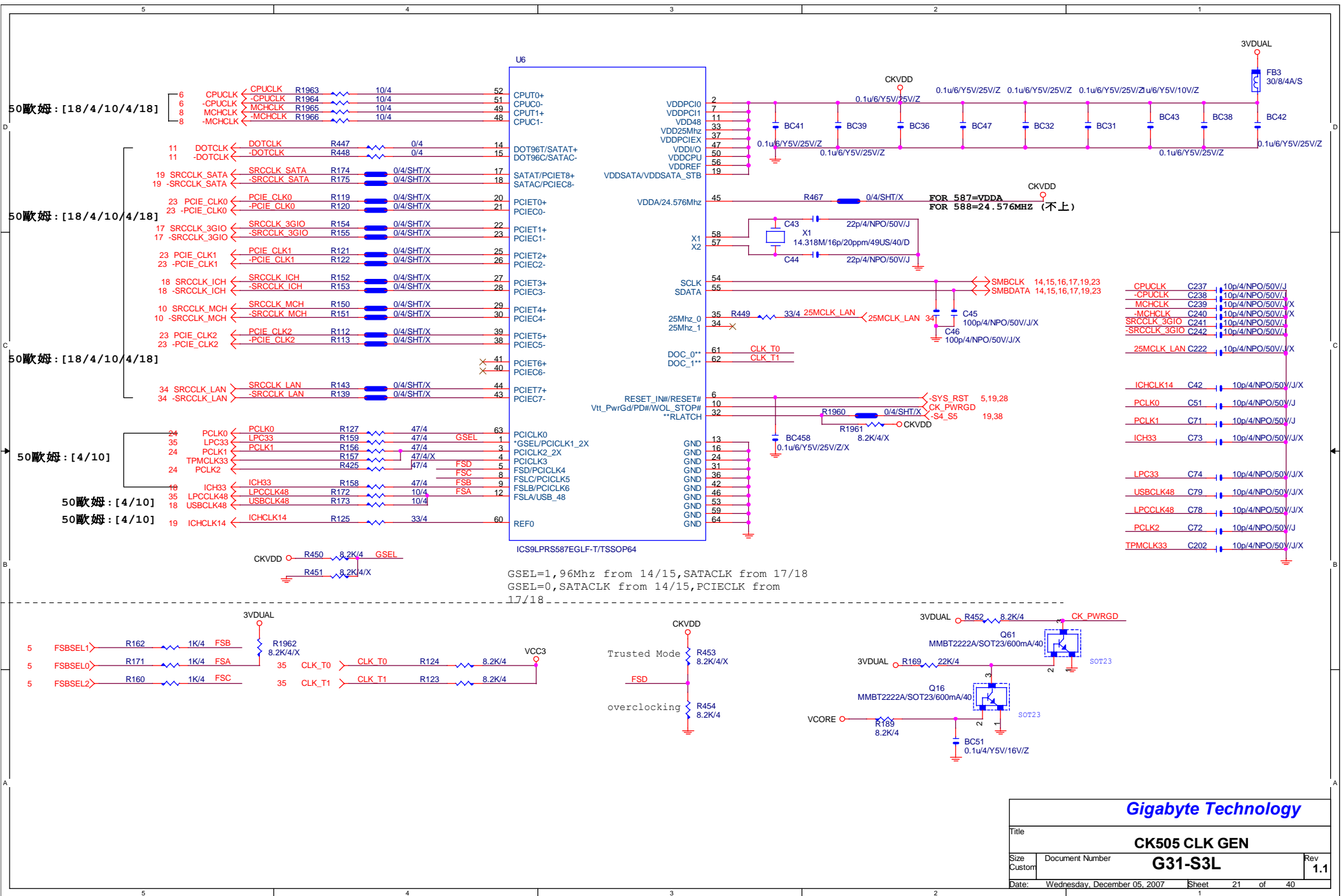


Intel Confidential

Title	ICH6-IDE, SATA, GPIO, CTRL		
Size	Document Number	G31-S3L	Rev 1.1
Custom			
Date:	Wednesday, December 05, 2007	Sheet 19	of 40

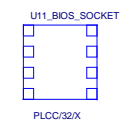
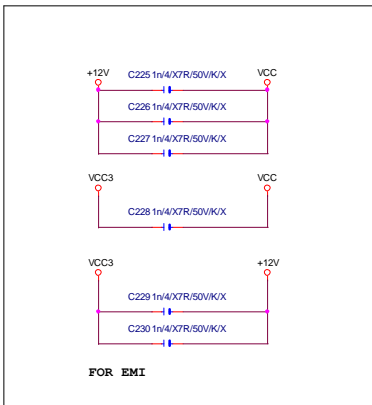
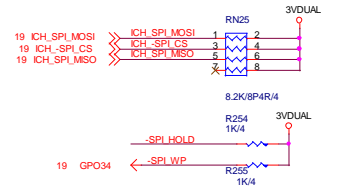
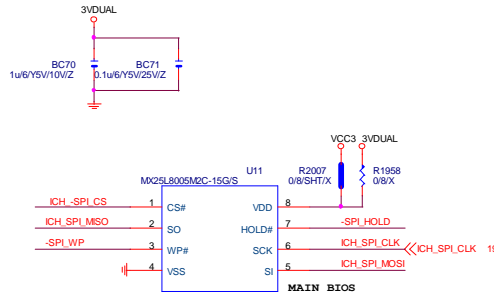
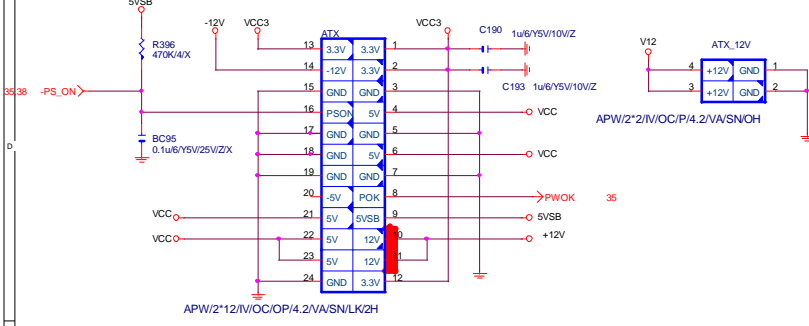


Intel Confidential		
Title ICH6-PWR & GND		
Size B	Document Number G31-S3L	Rev 1.1
Date:	Wednesday, December 05, 2007	Sheet 20 of 40

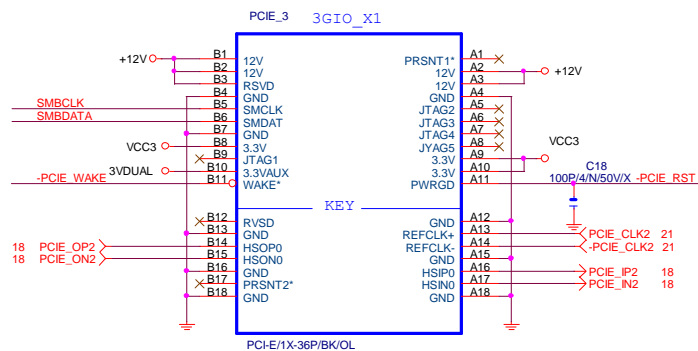
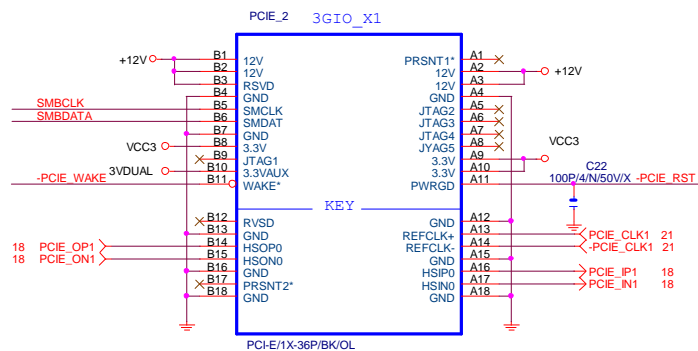
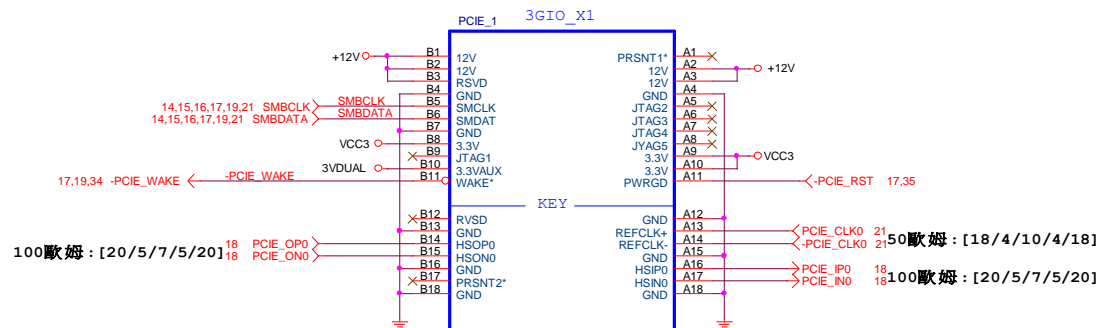


Gigabyte Technology			
CK505 CLK GEN			
Title		G31-S3L	
Size Custom	Document Number	Rev 1.1	
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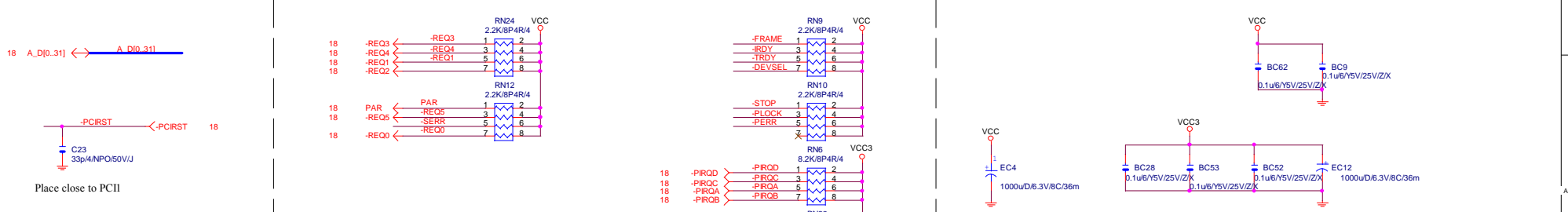
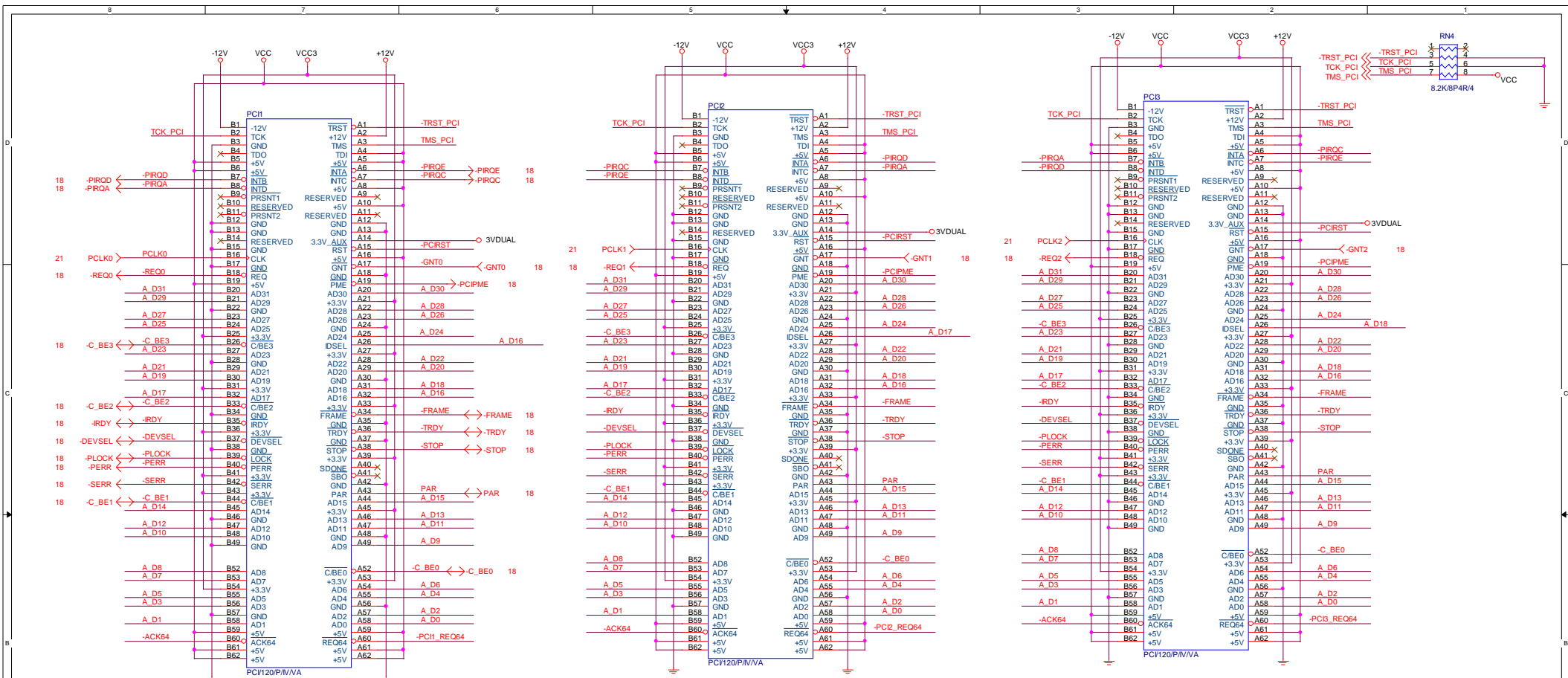
ATX POWER CONNECTOR



GIGABYTE		
Title ATX POWER CONNECTOR,DUAL BIOS		
Size Custom	Document Number G31-S3L	Rev 1.1
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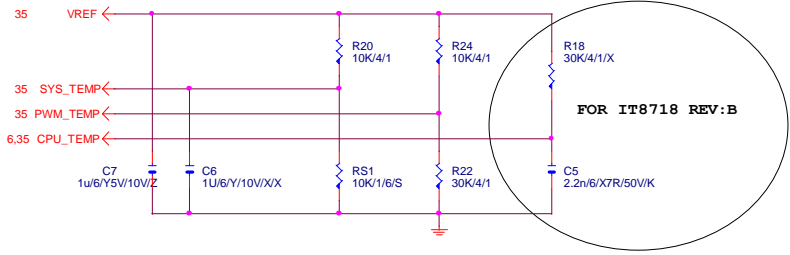


Intel Confidential		
Title PCI E SLOT 1, 2, 3		
Size B	Document Number G31-S3L	Rev 1.1
Date:	Wednesday, December 05, 2007	Sheet 23 of 40

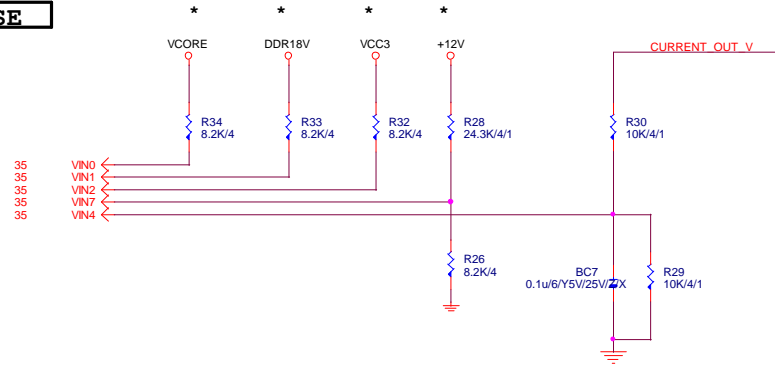


Intel Confidential		
PCI SLOT 1, 2		
G31-S3L		Rev 1.1
Date:	Wednesday, December 05, 2007	Sheet 24 of 40

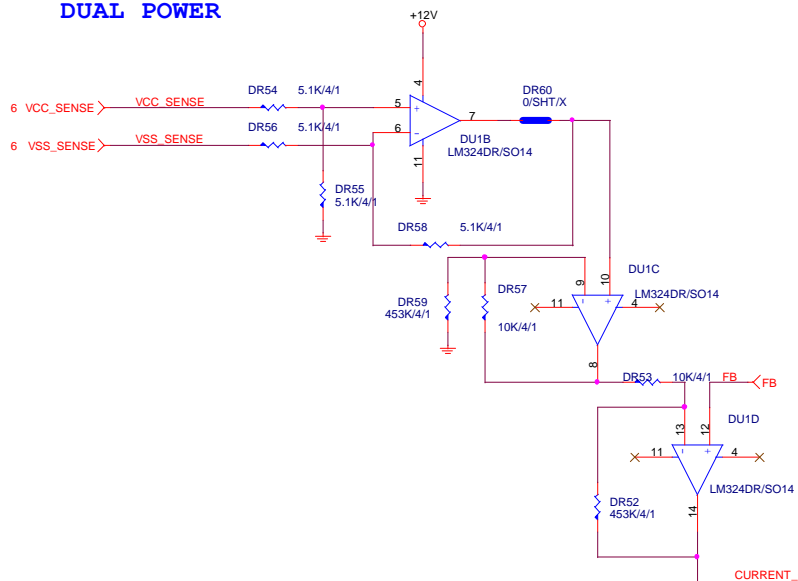
TEMP. SENSE



VOLTAGE SENSE



DUAL POWER

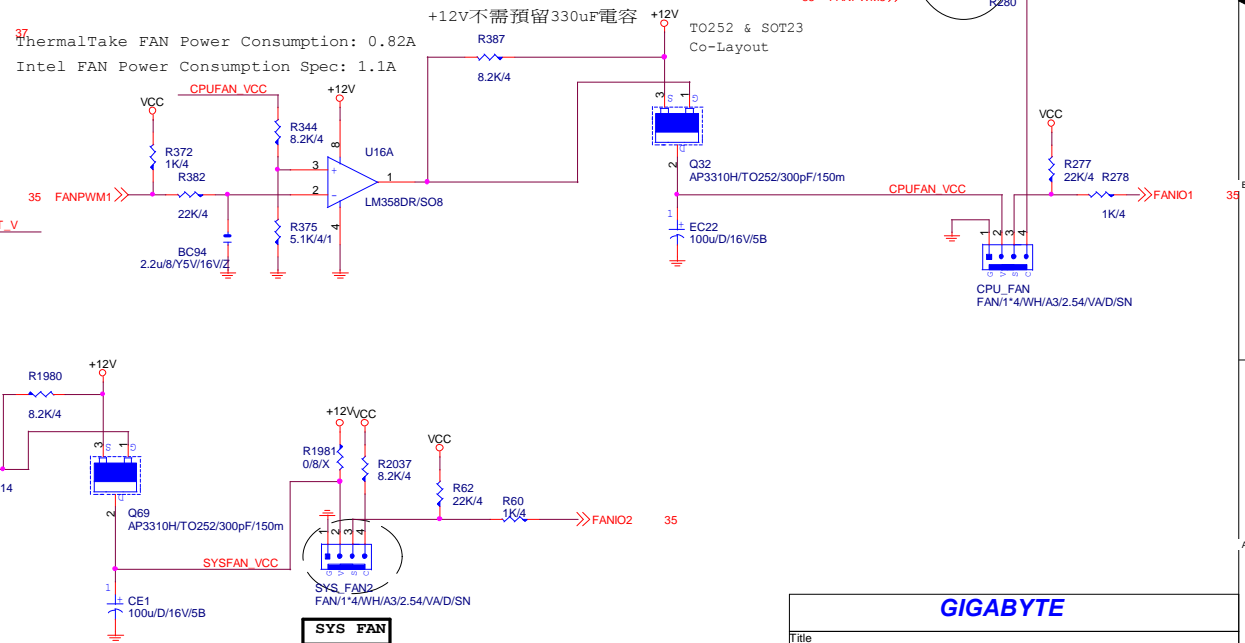


CPU/SYS FAN

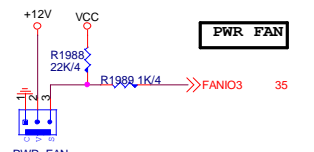
If use PBSS5240 lpcs : (non airflow) If use PBSS5240 lpcs : (with airflow)

CPUFAN_VCC=12V: Temp=40 deg CPUFAN_VCC=12V: Temp=33 deg
 CPUFAN_VCC=11V: Temp=82 deg CPUFAN_VCC=11V: Temp=62 deg
 CPUFAN_VCC=10V: Temp=70 deg CPUFAN_VCC=10V: Temp=86 deg
 CPUFAN_VCC= 9V: Temp=110 deg CPUFAN_VCC= 9V: Temp=117 deg
 CPUFAN_VCC= 8V: Temp>200 deg CPUFAN_VCC= 8V: Temp>122 deg

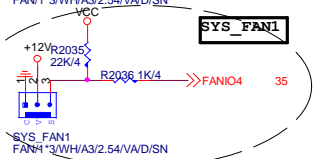
ThermalTake FAN Power Consumption: 0.82A
 Intel FAN Power Consumption Spec: 1.1A



PWR_FAN



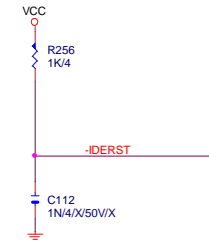
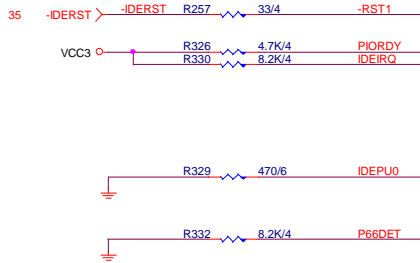
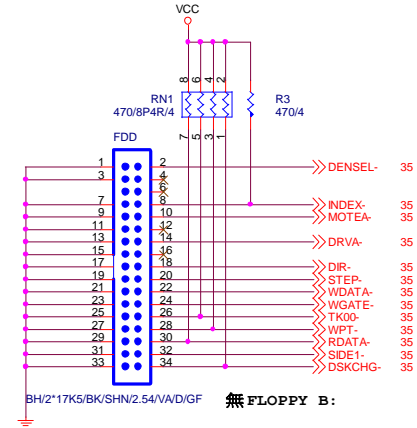
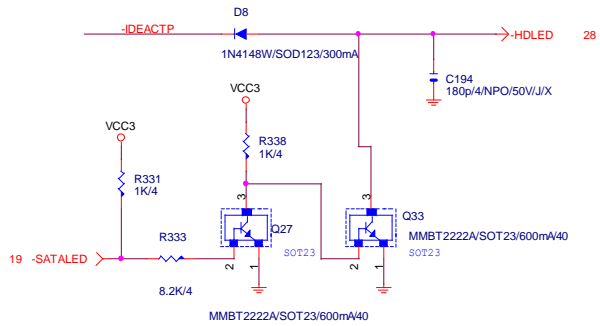
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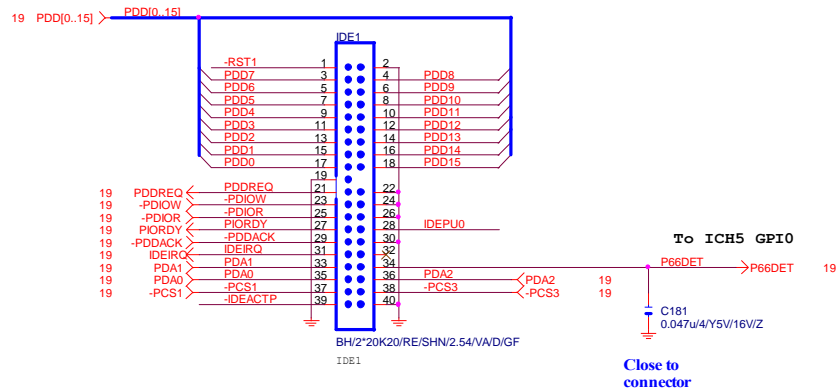
REV: 1.0

SYS_FAN

GIGABYTE		
Title		
HWM/FAN/C/BIOS		
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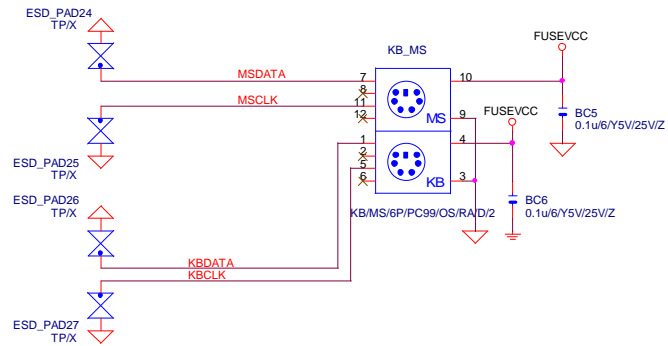
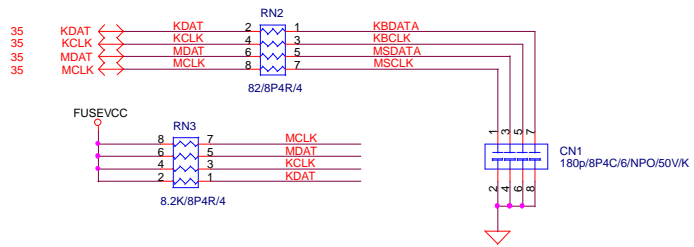
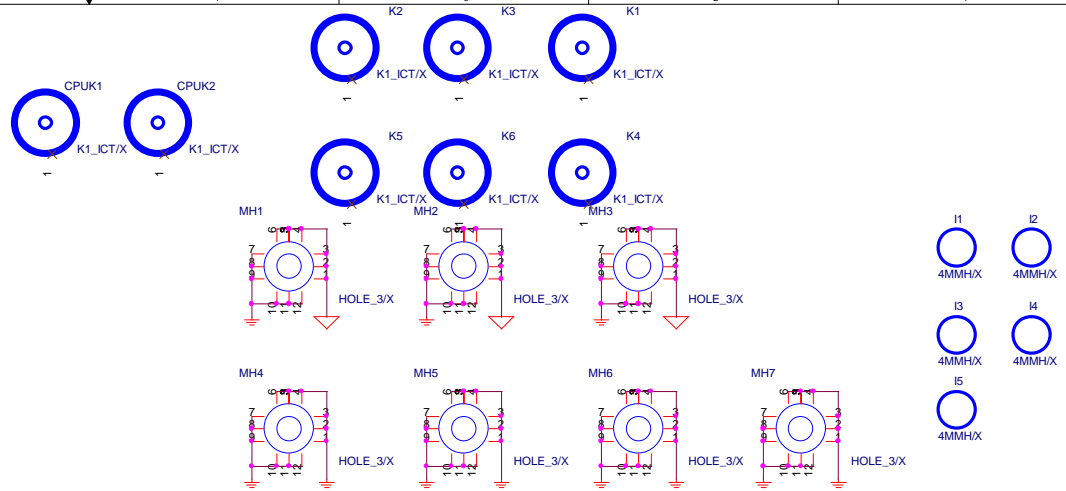
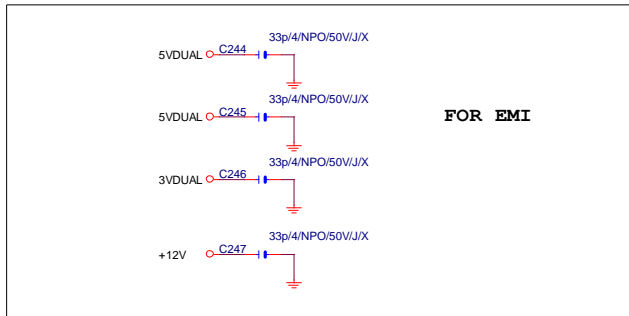
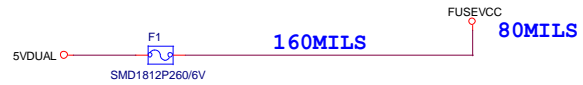


Default 不上,由IT8712 OUTPUT,REV0.2 驗證



PRIMARY IDE CONNECTOR

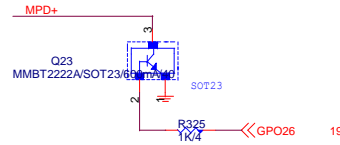
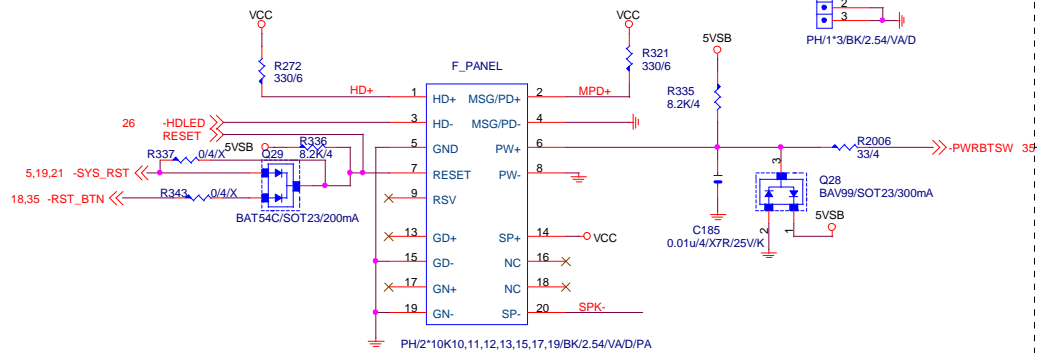
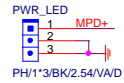
Intel Confidential		
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IDE		
Size	Document Number	Rev
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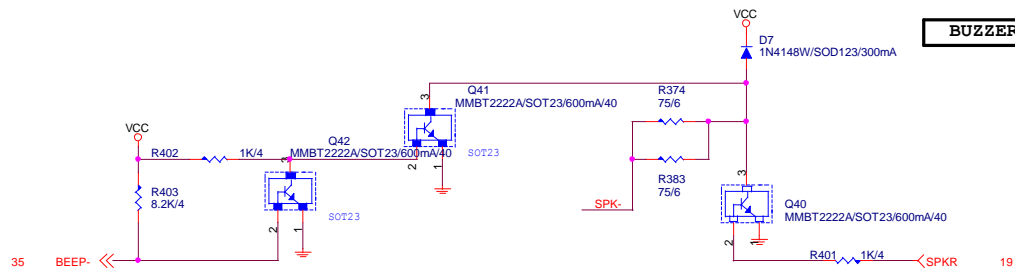
SIGABYTE CORP.			
Title			
KB & PS2 MOUSE & IR			
Size	Document Number	G31-S3L	Rev
B			1.1
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INTEL FRONT PANEL

3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL



BUZZER

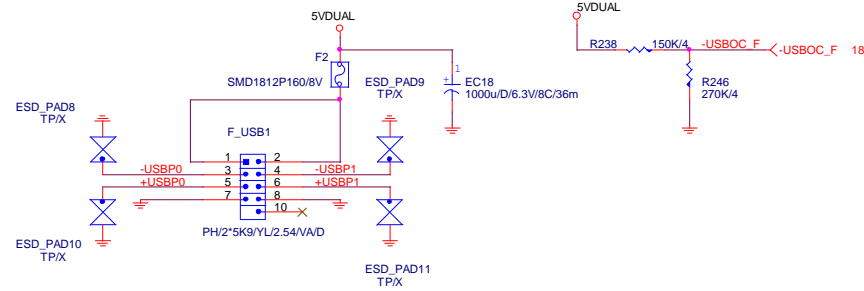


Intel Confidential

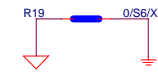
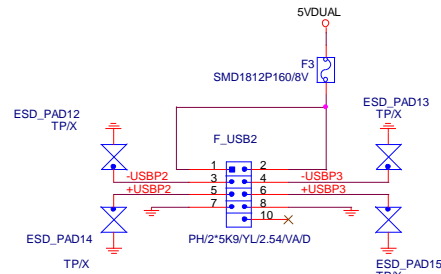
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FRONT PANEL		
Size Custom	Document Number	Rev
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FRONT USB

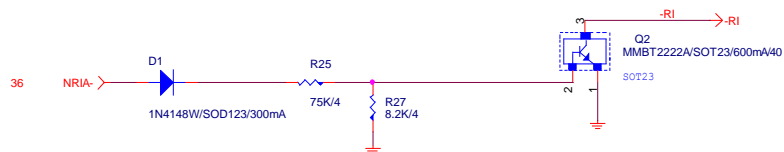
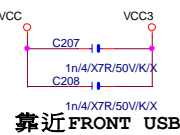
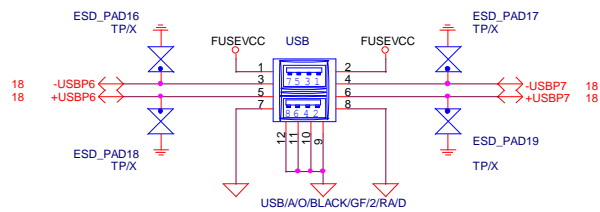
90 歐姆 : [15/4.5/7.5/4.5/15]



90 歐姆 : [15/4.5/7.5/4.5/15]



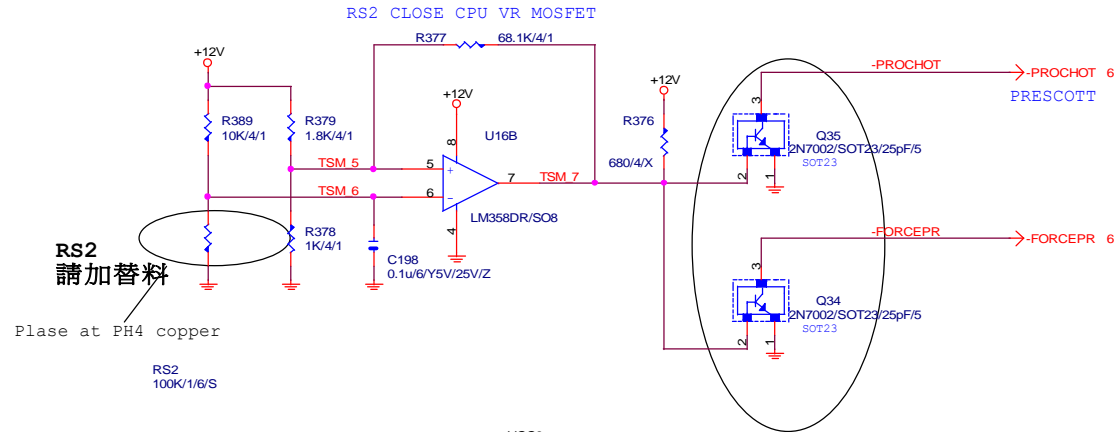
FOR 882 EMI
靠近USB



Intel Confidential

Title			FRONT USB CONNECTOR
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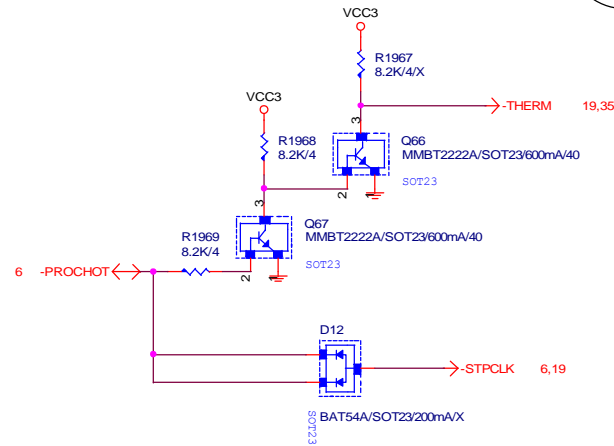
asserted at 131 degree
deasserted at 116 degree



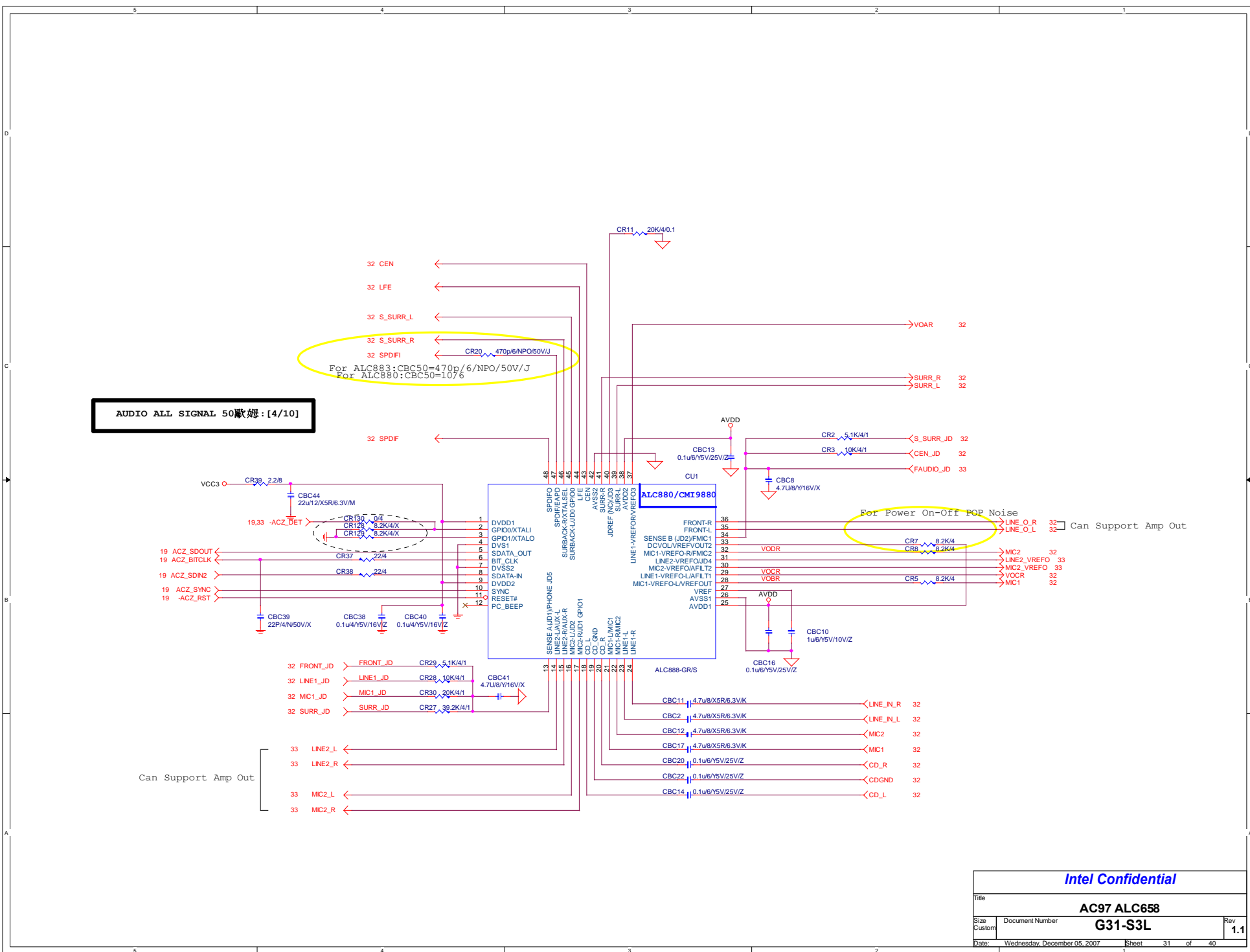
RS2
請加替料

Plase at PH4 copper

RS2
100K/1/6/S



Intel Confidential			
Title			
FAN CONTROL			
Size	Document Number	Rev	
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1			



AUDIO ALL SIGNAL 50歐姆:[4/10]

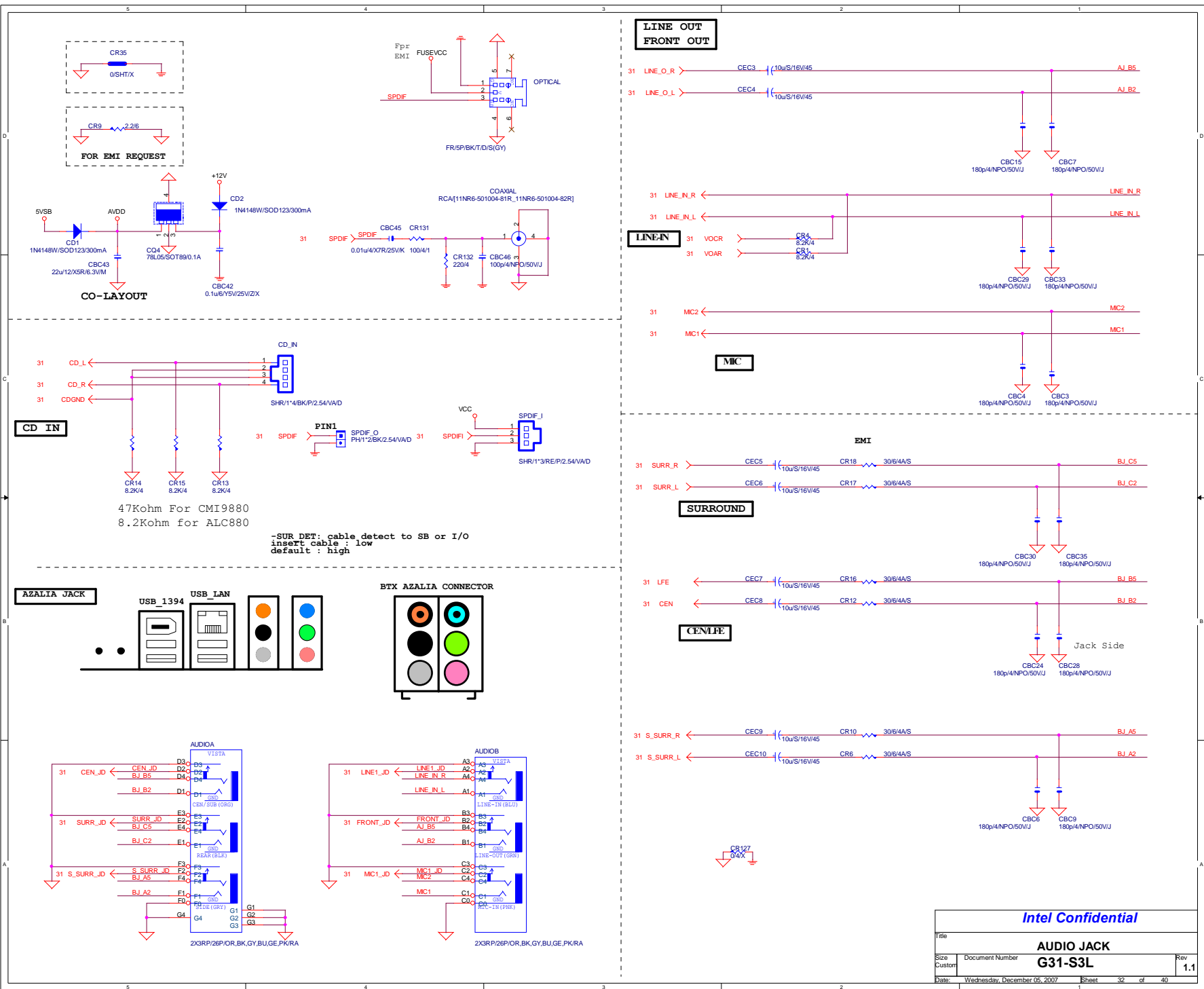
For ALC883: CBC50=470pF/6/NPO/50V/J
 For ALC880: CBC50=107pF

For Power On-Off POP Noise

Can Support Amp Out

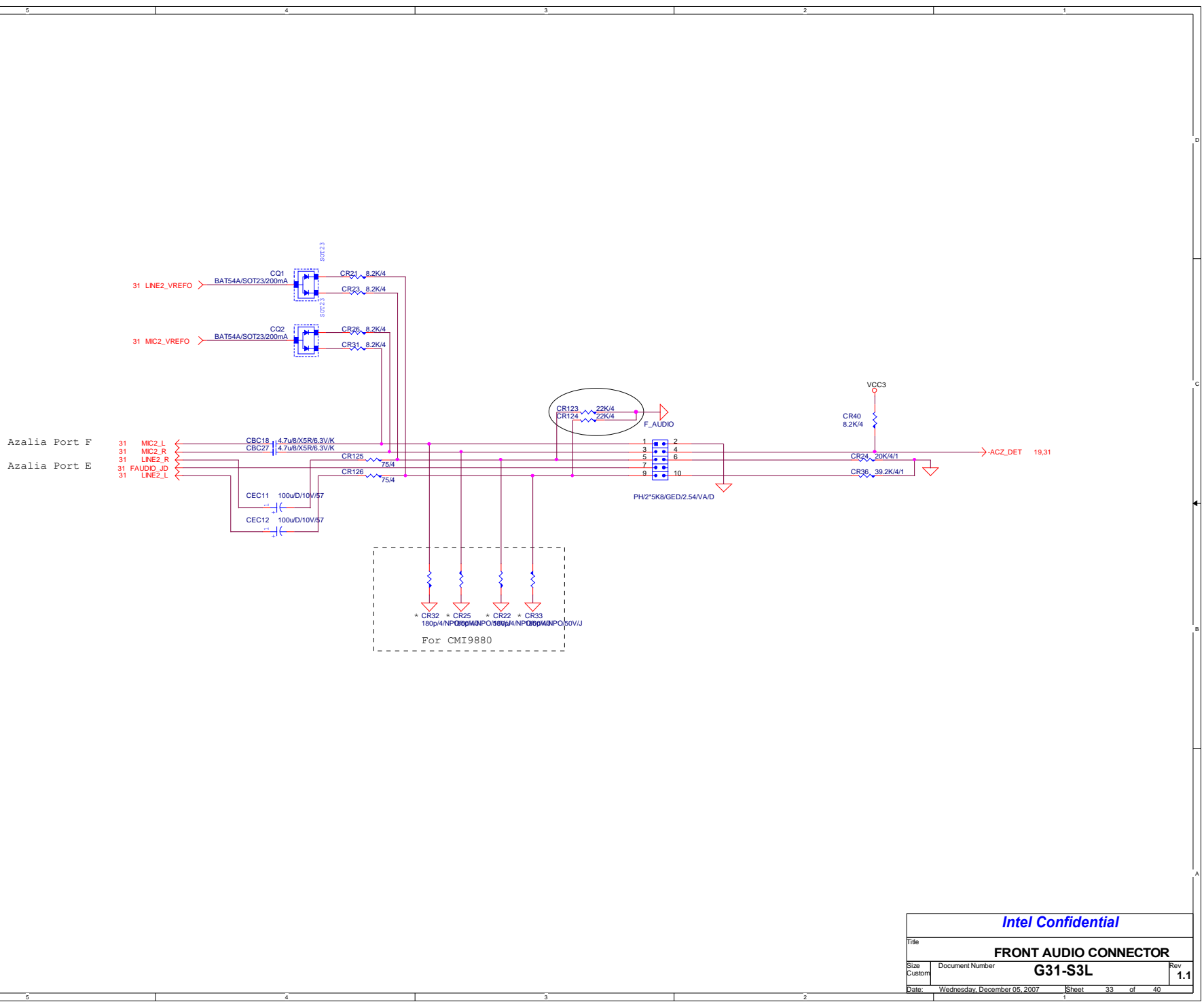
Intel Confidential

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AC97 ALC658		
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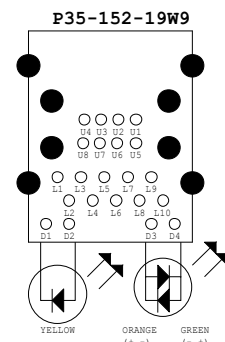
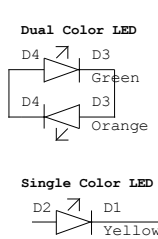
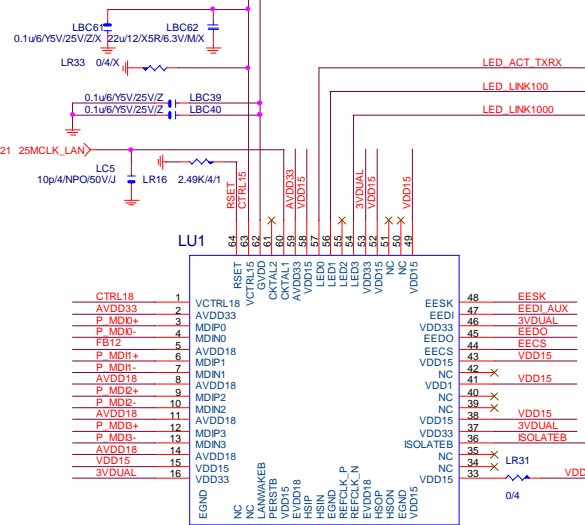
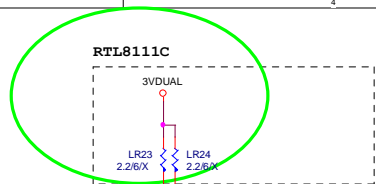
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AUDIO JACK		
Size	Document Number	Rev
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Intel Confidential

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FRONT AUDIO CONNECTOR			1.1
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Custom			
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PCIE-1G LAN



Power domain chart

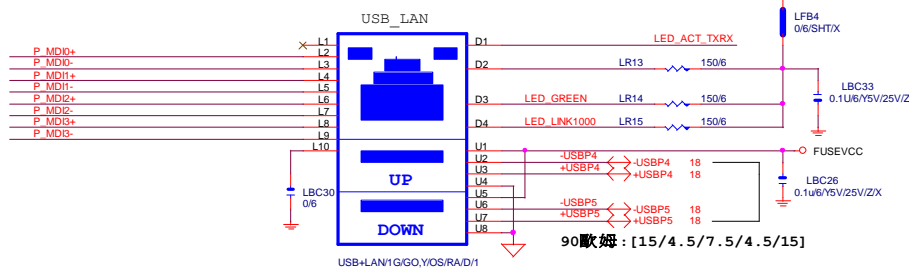
	RTL8111B / RTL8101E	RTL8111C
AVDD33	3.3V	3.3V
AVDD18	1.8V	1.2V
EVDD18	1.8V	1.2V
DVDD15	1.5V	1.2V

100歐姆 : [20/5/7/5/20]

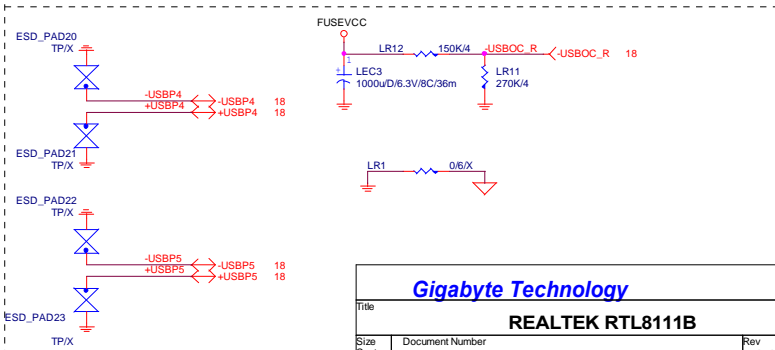
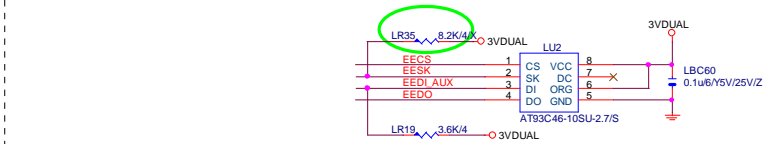
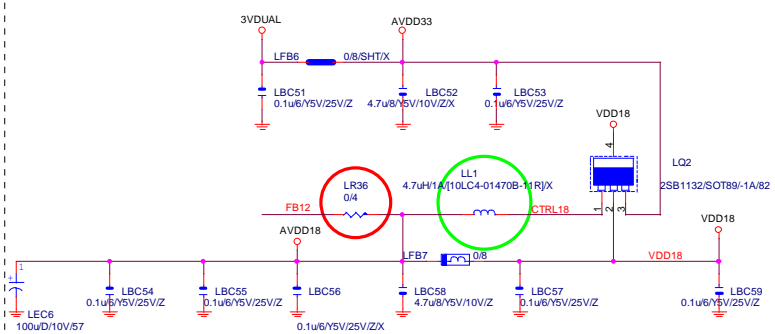
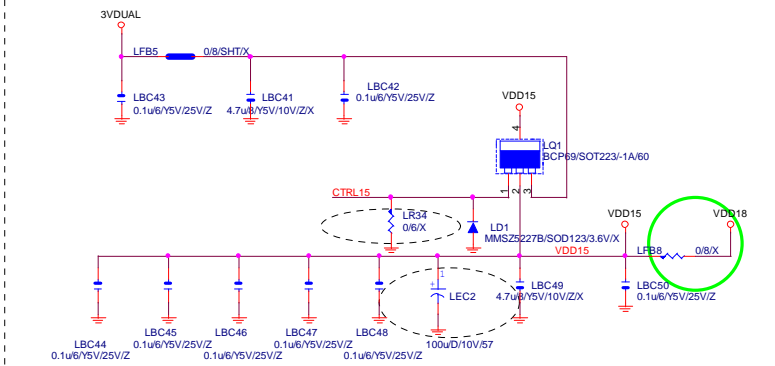
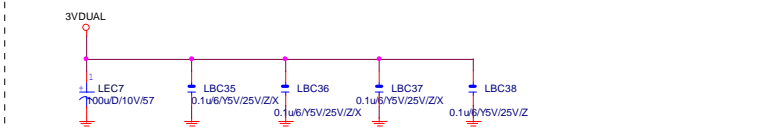
50歐姆 : [18/4/10/4/18]

USB_LAN CONNECTOR

LAN 100歐姆 : [30/4/8/4/30] FOR B 製程



90歐姆 : [15/4.5/7.5/4.5/15]

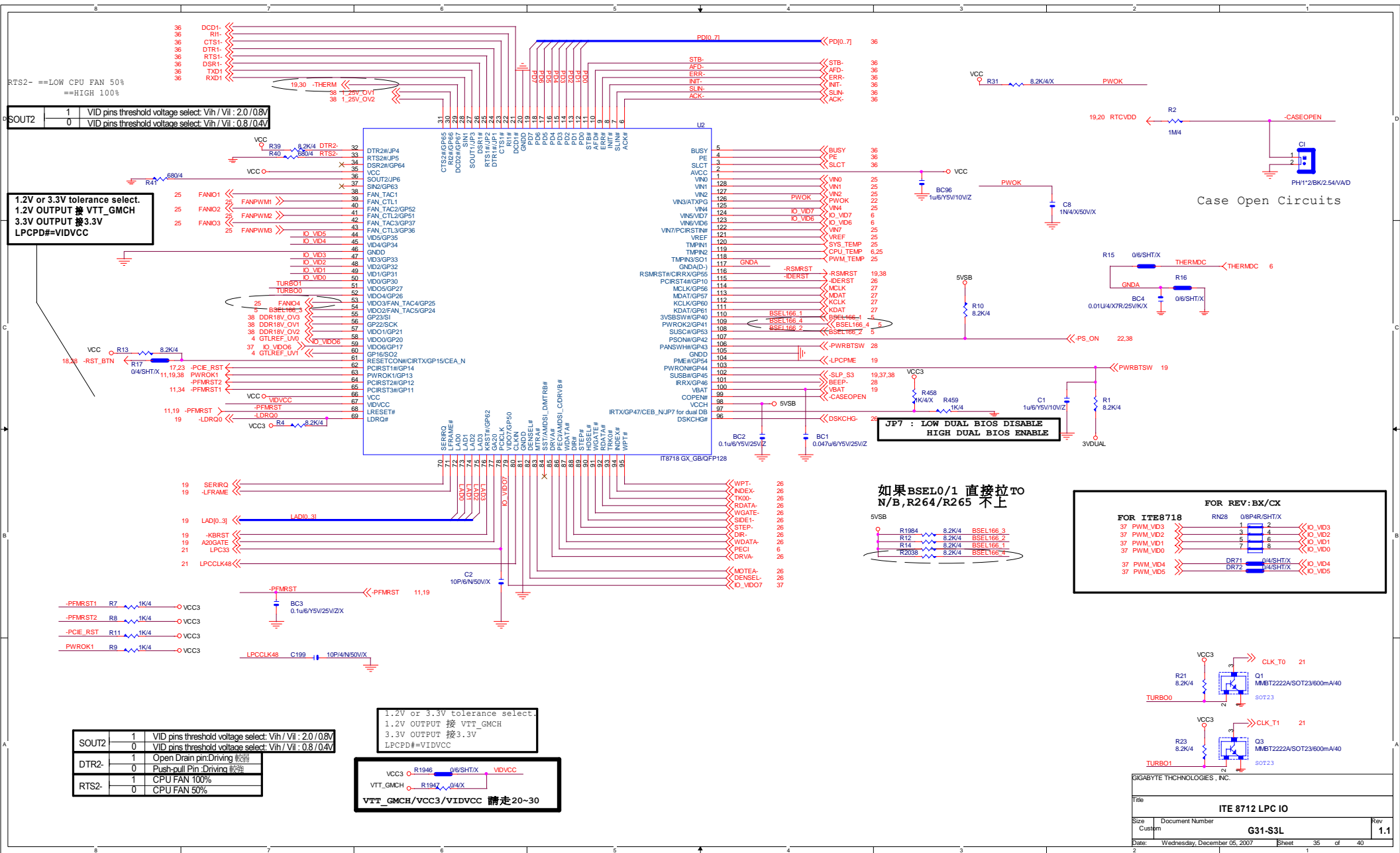


Gigabyte Technology

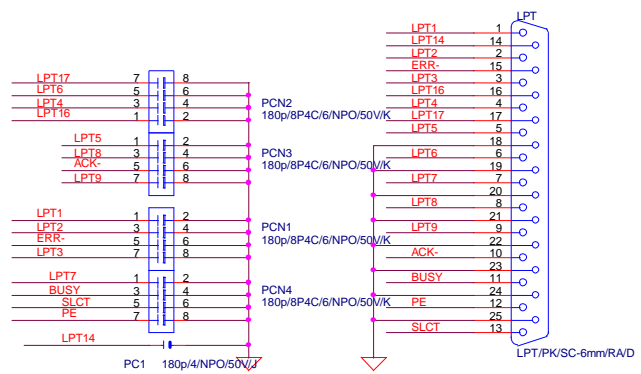
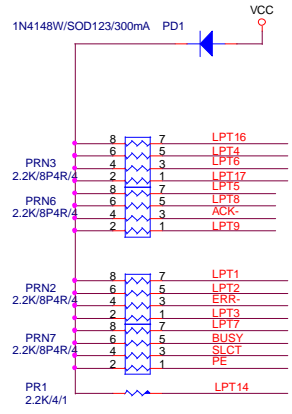
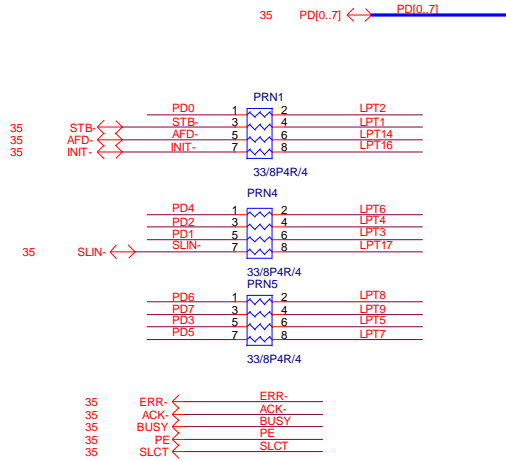
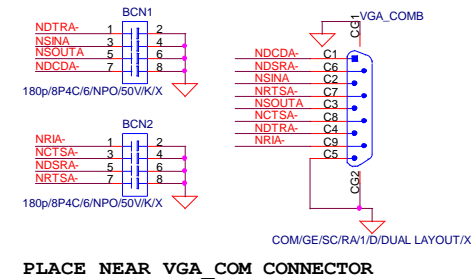
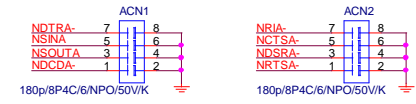
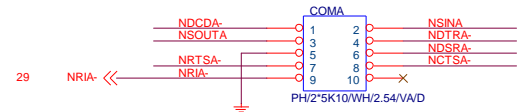
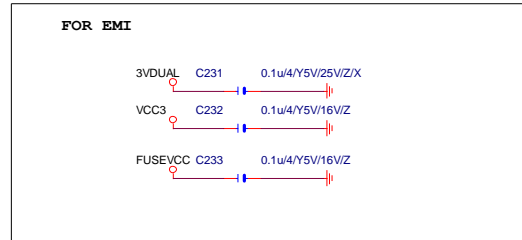
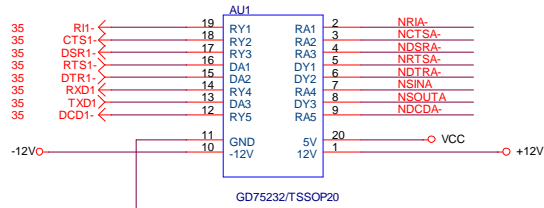
REALTEK RTL8111B

Size Custom **G31-S3L** Rev **1.1**

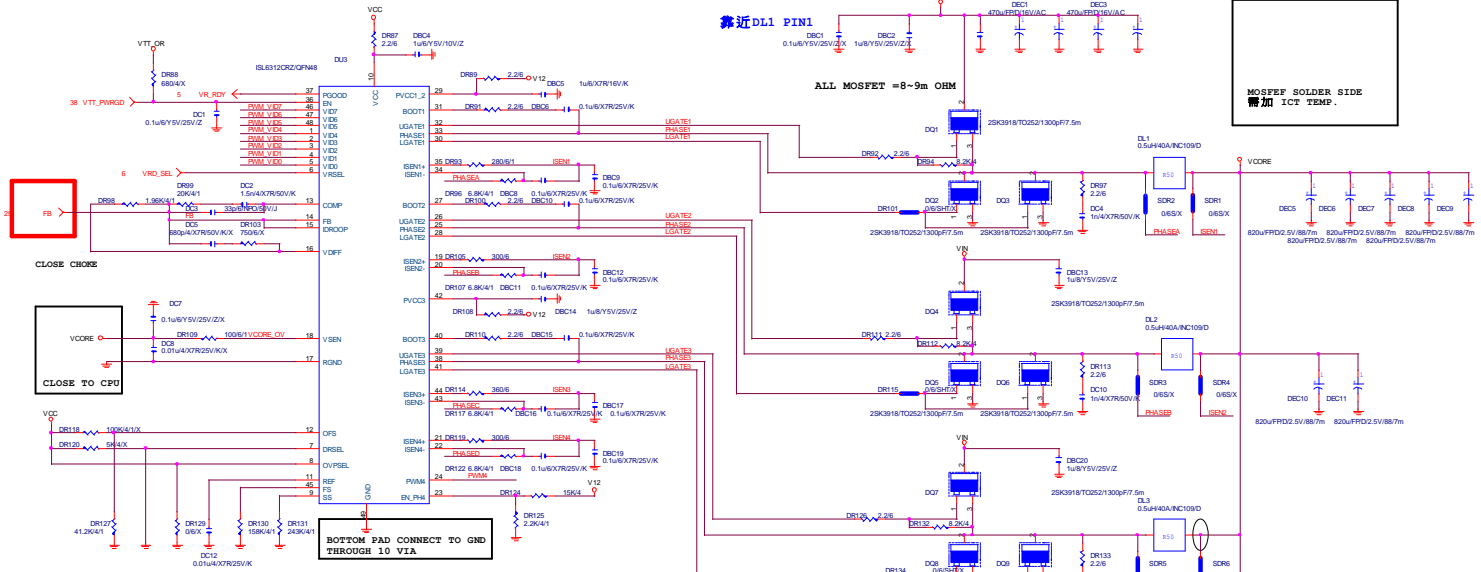
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GIGABYTE THCNOLOGIES, INC.		
Title		
COM & IR & LPT PORT &FLOOPY		
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靠近DL1 PIN1

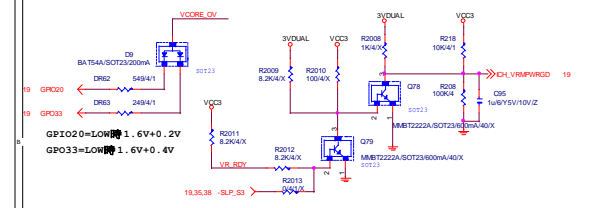
ALL MOSFET = 8-9m OHM

MOSFET SOLDER SIDE
需加 ICT TEMP.

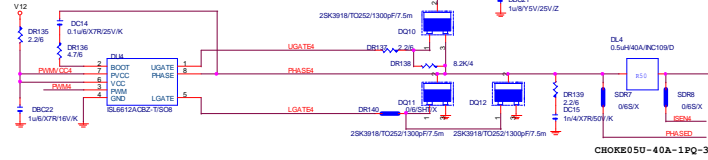
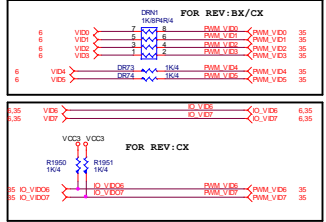
CLOSE CHOK

CLOSE TO CPU

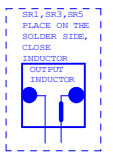
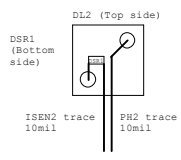
BOTTOM PAD CONNECT TO GND
THROUGH 10 VIA



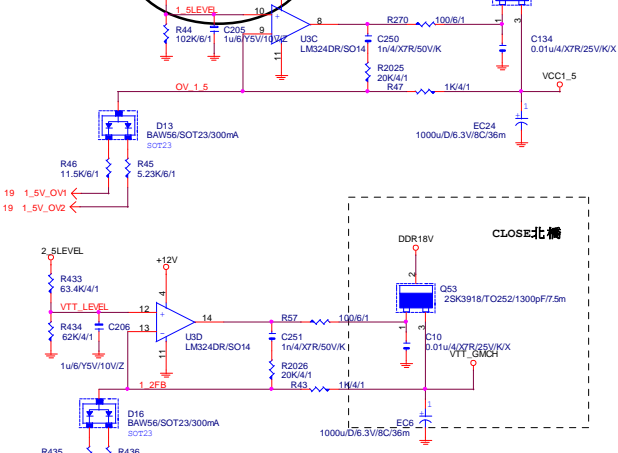
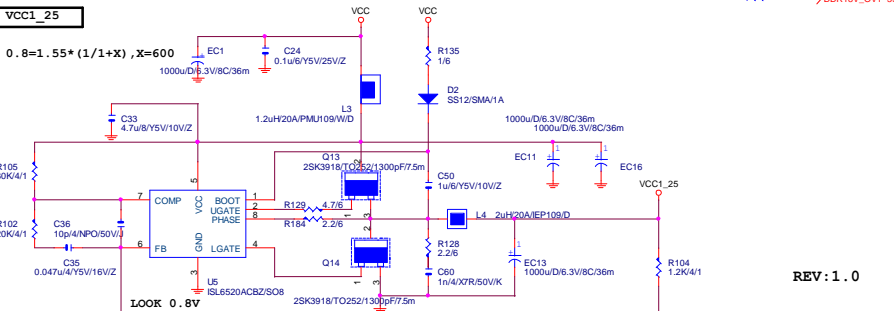
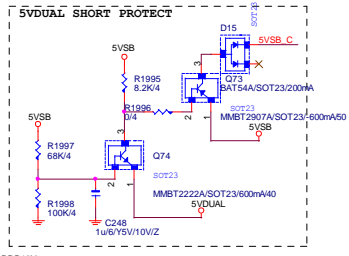
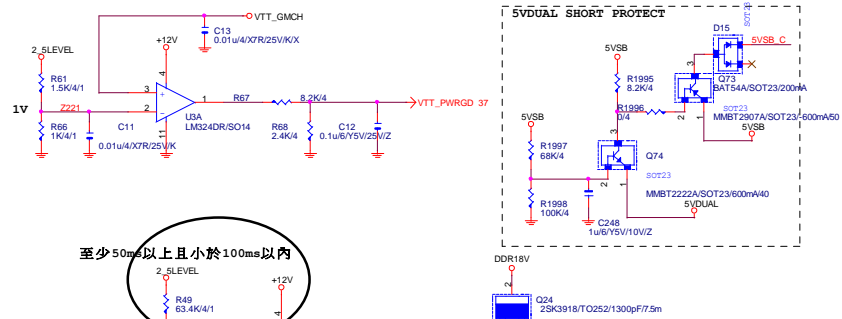
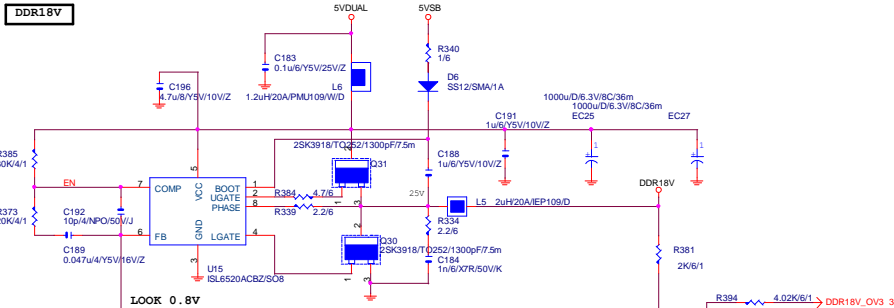
OUTPUT SINK=100uA
I/O OUTPUT SINK=8mA



CHOKR03U-40A-1PQ-3



Gigabyte Technology		
File	VRD 10.1/ISL6312	
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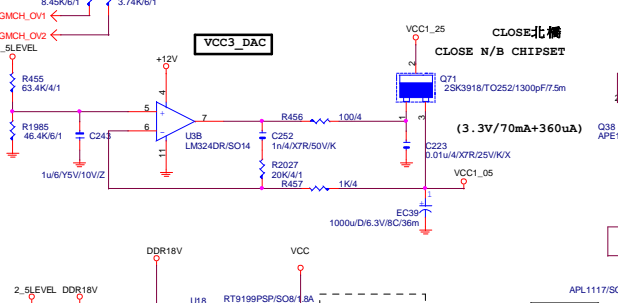
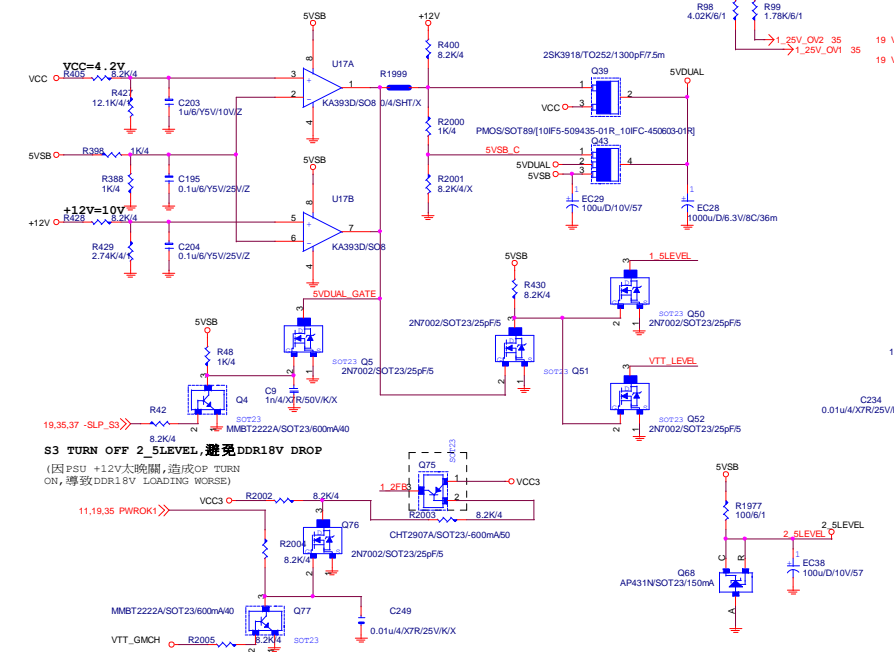
MEMORY VOLTAGE

	GP22	GO23	GP21
1.8V	X	X	X
1.9V	L	X	X
2.0V	X	L	X
2.1V	L	L	X
2.2V	X	X	L
2.3V	L	X	L
2.4V	X	L	L
2.5V	L	L	L

	GMCH
	1 25V OV1 1 25V OV2
	1.25V X X
	1.35V L X
	1.45V X L
	1.55V L L

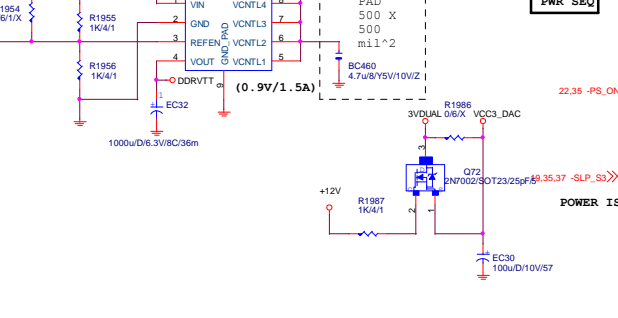
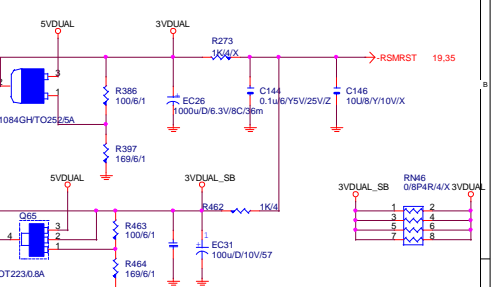
	ICB
	1 5V OV1 1 5V OV2
	1.5V X X
	1.6V L X
	1.7V X L
	1.8V L L

REV: 1.0



FSB

	VTT	GMCH	OV1	VTT	GMCH	OV2
1.2V	X	X	X	X	X	X
1.3V	L	L	X	X	X	X
1.4V	X	L	L	L	L	L
1.5V	L	L	L	L	L	L



GIGABYTE THCHNOLOGIES, INC.

Title: **DISCRETE POWER**

Docu- ment Number: **G31-S3L**

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INTEL ICH7 GPIO Implementation

紅字表示CPI/O 同PIN

GPI PIN

Pin Name	Pin Type	Power Well		GPIO Application
GPIO[0]	IIO	VCC3	GPIOBM_BUSY# (NA)	(NA)
GPIO[1]	IIO	VCC	-REQ[5] (P.U VCC)	-REQ[5]
GPIO[5:2]	IIO	VCC	-PIRQ[H:E] (P.U VCC)	-PIRQ[H:E]
GPIO[6]	IIO	VCC3	GPI (NA)	M_ID0 FOR MEDIA
GPIO[7]	IIO	VCC3	GPI (NA)	DUALBIOS_INPUT
GPIO[8]	IIO	3VDUAL	GPI (P.U 3VDUAL)	-SKTOCC
GPIO[9]	IIO	3VDUAL	GPI (NA)	P66DET
GPIO[10]	IIO	3VDUAL	GPI (NA)	M_ID1 FOR MB_ID
GPIO[11]	IIO	3VDUAL	-SMBALERT (P.U 3VDUAL)	-SMBALRT
GPIO[12]	IIO	3VDUAL	GPI (NA)	M_ID2 FOR MB_ID
GPIO[13]	IIO	3VDUAL	GPI (P.U 3VDUAL)	-LPCPME
GPIO[14]	IIO	3VDUAL	GPI (NA)	M_ID3 FOR MB_ID
GPIO[15]	IIO	3VDUAL	GPI (NA)	-ACZ_DET
GPIO[16]	IIO	VCC3	GPO P.D 20K(INT.)	HW RESET
GPIO[17]	IIO	VCC3	GPOI-GNT[5] (NA)	GPOI-GNT[5]
GPIO[18]	IIO	VCC3	GPOItoggle (NA)	(NA)
GPIO[19]	IIO	VCC3	SATA1GP (P.U VCC3)	SATA1GP
GPIO[20]	IIO	VCC3	GPO (P.U VCC3)	TBL-
GPIO[21]	IIO	VCC3	SATA0GP (P.U VCC3)	SATA0GP
GPIO[22]	IIO	VCC3	-REQ[4] (P.U VCC)	-REQ[4]
GPIO[23]	IIO	VCC3	LDRQ1# (NA)	(NA)
GPIO[24]	IIO	3VDUAL	GPOIreset not cleared (NA)	(NA)
GPIO[25]	IIO	3VDUAL	GPO (NA)	PWD_LED
GPIO[26]	IIO	3VDUAL	EL_RSVD (P.D)	-SPI_WP
GPIO[27]	IIO	3VDUAL	EL_STATE0 (NA)	(NA)
GPIO[28]	IIO	3VDUAL	EL_STATE1 (NA)	(NA)
GPIO[29]	IIO	3VDUAL	OC5# (P.U VCC 分壓)	OC5#
GPIO[30]	IIO	3VDUAL	OC6# (P.U VCC 分壓)	OC6#
GPIO[31]	IIO	3VDUAL	OC7# (P.U VCC 分壓)	OC7#
GPIO[32]	IIO	VCC3	GPO (NA)	DUAL BIOS
GPIO[33]	IIO	VCC3	GPO (NA)	DUAL BIOS
GPIO[34]	IIO	VCC3	GPO (P.U VCC3)	FWP-
GPIO[35]	IIO	VCC3	SATACLKREQ# (NA)	(NA)
GPIO[36]	I	VCC3	SATA2GP (P.U VCC3)	SATA2GP
GPIO[37]	I	VCC3	SATA3GP (P.U VCC3)	SATA3GP

GPO PIN

Pin Name	Pin Number	Power Well	Pin Type	GPIO Application
GPIO[38]	IIO	VCC3	GPI (NA)	(NA)
GPIO[39]	IIO	VCC3	GPI (NA)	(NA)
GPIO[40:47]			NOT IMPLEMENTED	NOT IMPLEMENTED
GPIO[48]	IIO	VCC3	-GNT[4] (NA)	-GNT[4]
GPIO[49]	IIO	VTT_GMCHCPUPWRGD	(P.U VTT_OL)	GPUPWROK
PC11	PCLK0	-PCIRST	-REQ0I-GNT0-PIRQE	A_D16
PC12	PCLK1	-PCIRST	-REQ1I-GNT1-PIRQD	A_D17
PC13	PCLK2	-PCIRST	-REQ2I-GNT2-PIRQC	A_D18
1394b	1394CLK	-PFMRST2	-REQ3I-GNT3-PIRQH	A_D23
IT8212	RAIDCLK	-PFMRST2	-REQ4I-GNT4-PIRQG	A_D22

GIGABYTE		
GPIO TABLE		
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ICH6 GPIO Table:

NAME	PWR LANE	USAGE	NAME	PWR LANE	USAGE
GPI0	V5REF	M/B ID (-REQ6)	GPI41	VCC3	M/B ID
GPI1	V5REF	-REQ5	GPO48	VCC3	-GNT4
GPI2	V5REF	-PIRQE	GPO49	V-CPUIO	CPUPWOK
GPI3	V5REF	-PIRQF			
GPI4	V5REF	-PIRQG			
GPI5	V5REF	-PIRQH			
GPI6	VCC3	-SLP_BTN			
GPI7	VCC3	DUAL BIOS			
GPI8	3VDAUL	-LANWAKE			
GPI9	3VDAUL	-USBOC4			
GPI10	3VDAUL	-USBOC5			
GPI11	3VDAUL	-SMBALT			
GPI12	VCC3	ATX_DET			
GPI13	3VDAUL	-LPCPME			
GPI14	3VDAUL	-USBOC6			
GPI15	3VDAUL	-USBOC7			
GPO16	VCC3	CPU OV1 (-GNT6)			
GPO17	VCC3	-GNT5			
GPO18	VCC3	CPU OV2			
GPO19	VCC3	DUAL BIOS			
GPO20	VCC3	BIOS T-BLOCK			
GPO21	VCC3	DUAL BIOS			
GPO23	VCC3	DDR OV0			
GPIO24	3VDAUL	GREEN LED			
GPIO25	3VDAUL	DDR OV1			
GPI26	VCC3	SATA_GP0			
GPIO27	3VDAUL	+PWRLED			
GPIO28	3VDAUL	-PWRLED			
GPI29	VCC3	SATA GP1			
GPI30	VCC3	SATA GP2			
GPI31	VCC3	SATA GP3			
GPIO32	VCC3	BIOS WP			
GPIO33	VCC3	AZALIA DET			
GPIO34	VCC3	PWRLED			
GPI40	V5REF	-REQ4			

PWROK/RESET Table:

ITE8712BHX PIN	NET NAME	TARGET
PIN62/-PCIRST1	-PCIE_RST	1. PCI-E * 1 Slot1 2. PCI-E * 1 Slot2 3. PCI-E * 1 Slot3 4. PCI-E * 16 Slot
PIN64/-PCIRST2	-PFMRST2	1. Onboard PCI Lan 2. Onboard 1394 Chip 3. OnBoard FWH
PIN65/-PCIRST3	-PFMRST1	1. Onboard PCI-E Lan 2. Onboard SATA Chip 3. GMCH
PIN115/-PCIRST4	-PFMRST -IDERST	Reserved For IDE
PIN63/PWROK1	PWROK1	1. GMCH 2. ICH6 3. 5VDUAL SWITCH 4. DPS CONTROL
PIN109/PWROK2	-THERM	1. ICH6

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Title			GPIO/RESET TABLE		
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