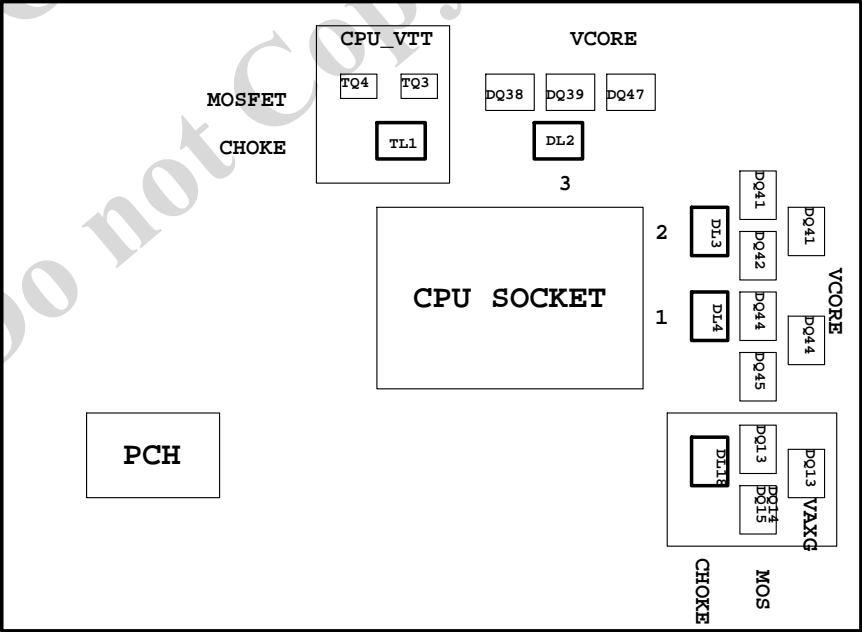


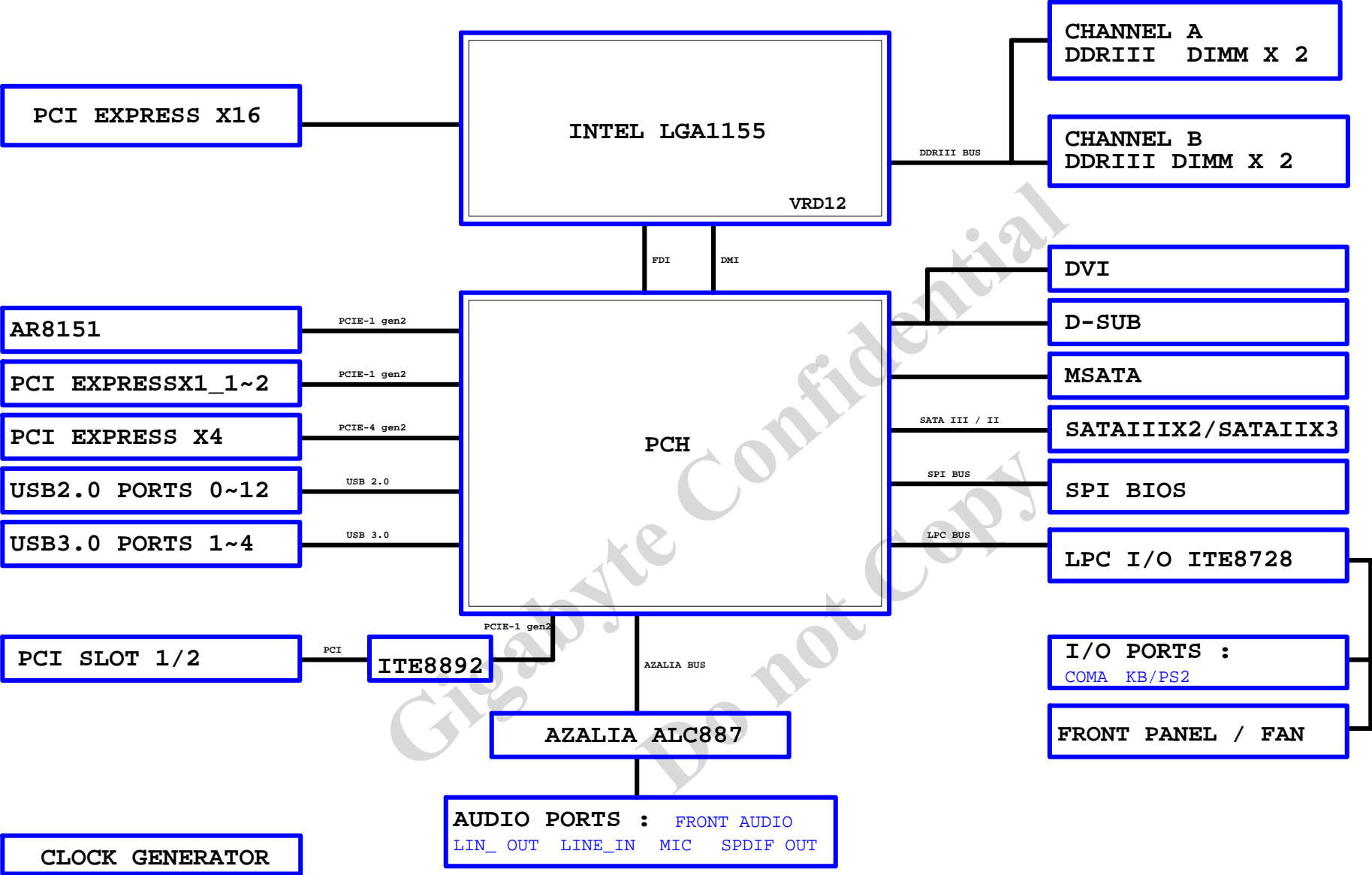
SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESSX4 SLOT / PCIE X1 SLOT
16	PCI SLOT 1~2
17	I/O ITE8728
18	COM, LPT, TPM
19	Dual BIOS
20	VIA2021
21	REAR AUDIO JACK
22	ISL95836_VCORE_1
23	ISL95836_VCORE_2
24	DISCRETE POWER
25	PCH CORE / VOLTAGE CONSOLE
26	RT8120_CPU_VTT
27	VCCSA POWER

SHEET	TITLE
28	F_PANEL , F_USB
29	ATX POWER, CLOCK GEN
30	HWM,KB/MS , FAN CTRL
31	ARTHEROS AR8161/AR8151
32	mSATA
33	RT8120_DDR POWER
34	DVI
35	
36	
37	
38	
39	
40	



<b><i>Gigabyte Technology</i></b>			
Title			
<b>BOM &amp; PCB MODIFY HISTORY</b>			
Size Custom	Document Number	<b>GA-Z77-DS3H</b>	Rev <b>1.1</b>
Date:	Friday, July 13, 2012	Sheet	2 of 35

BLOCK DIAGRAM





## LGA1155A

M_AAA0	AV27	SA_MA[0]	SA_DSQ[0]	AK3	M_DQSA0
M_AAA1	AY24	SA_MA[1]	SA_DSQ[0]	AK2	M_DQSA0
M_AAA2	AW24	SA_MA[2]			
M_AAA3	AV23	SA_MA[3]			
M_AAA4	AV23	SA_MA[4]	SA_DSQ[0]	AJ3	M_DA0
M_AAA5	AT24	SA_MA[5]	SA_DSQ[1]	AJ4	M_DA1
M_AAA6	AT23	SA_MA[6]	SA_DSQ[2]	AL3	M_DA2
M_AAA7	AU22	SA_MA[7]	SA_DSQ[3]	AL4	M_DA3
M_AAA8	AV22	SA_MA[8]	SA_DSQ[4]	AJ1	M_DA5
M_AAA9	AT22	SA_MA[9]	SA_DSQ[5]	AL2	M_DA6
M_AAA10	AV28	SA_MA[10]	SA_DSQ[6]	AL1	M_DA7
M_AAA11	AU21	SA_MA[11]			
M_AAA12	AT21	SA_MA[12]			
M_AAA13	AW32	SA_MA[13]	SA_DSQ[11]	AP3	M_DQSA1
M_AAA14	AU20	SA_MA[14]	SA_DSQ[11]	AP2	M_DQSA1
M_AAA15	AT20	SA_MA[15]			

[7] M_SWEA	M_SCASA	AW29	SA_WE#	AN1	M_DA8
[7] M_SCASA	M_SRASA	AV30	SA_DSQ[8]	AN4	M_DA9
[7] M_SRASA		AU28	SA_DSQ[9]	AR3	M_DA10
			SA_DSQ[10]	AR4	M_DA11
			SA_DSQ[11]	AN2	M_DA12
			SA_DSQ[12]	AN3	M_DA13
			SA_DSQ[13]	AR2	M_DA14
			SA_DSQ[14]	AR1	M_DA15
			SA_DSQ[15]		

[7] M_SBA0	M_SBA0	AY29	SA_BS[0]		
[7] M_SBA1	M_SBA1	AW28	SA_BS[1]		
[7] M_SBA2	M_SBA2	AV20	SA_BS[2]		
			SA_DSQ[15]		

[7] M-CSA0	M-CSA0	AU29	SA_CS#0		
[7] M-CSA1	M-CSA1	AV32	SA_CS#1		
[7] M-CSA2	M-CSA2	AW30	SA_CS#2		
[7] M-CSA3	M-CSA3	AU33	SA_CS#3		

[7] M_CKEA0	M_CKEA0	AV19	SA_CKE[0]		
[7] M_CKEA1	M_CKEA1	AT19	SA_CKE[1]		
[7] M_CKEA2	M_CKEA2	AU18	SA_CKE[2]		
[7] M_CKEA3	M_CKEA3	AV18	SA_CKE[3]		

M_ODT_A0	AV31	SA_ODT[0]			
M_ODT_A1	AU32	SA_ODT[1]			
M_ODT_A2	AU30	SA_ODT[2]			
M_ODT_A3	AW33	SA_ODT[3]			

[7] M_DCLKA0	M_DCLKA0	AY25	SA_CK[0]		
[7] M_DCLKA0	M_DCLKA0	AW25	SA_CK#0		
[7] M_DCLKA1	M_DCLKA1	AU24	SA_CK[1]		
[7] M_DCLKA1	M_DCLKA1	AU25	SA_CK#1		
[7] M_DCLKA2	M_DCLKA2	AW27	SA_CK[2]		
[7] M_DCLKA2	M_DCLKA2	AY27	SA_CK#2		
[7] M_DCLKA3	M_DCLKA3	AW26	SA_CK[3]		
[7] M_DCLKA3	M_DCLKA3	AW26	SA_CK#3		

[7,8] M_DDR3_RST	MR1	AW18	SM_DRAMRST#		
		0/4/SHT/MX			
	MBC8				
		0.1u4/X7R/16V/K/X			

AV13	SA_DSQ[8]				
AV12	SA_DSQ[8]				
AU12	SA_ECC_CB[0]				
AU14	SA_ECC_CB[1]				
AU13	SA_ECC_CB[2]				
AY13	SA_ECC_CB[3]				
AU11	SA_ECC_CB[4]				
AY12	SA_ECC_CB[5]				
AW12	SA_ECC_CB[7]				

## DDR\_0

1 OF 10

CPU-SK/1155/S/15

## LGA1155B

M_AAB0	AK24	SB_MA[0]	SB_DSQ[0]	AH7	M_DQSB0
M_AAB1	AM20	SB_MA[1]	SB_DSQ[0]	AH6	M_DQSB0
M_AAB2	AM19	SB_MA[2]			
M_AAB3	AK18	SB_MA[3]			
M_AAB4	AP19	SB_MA[4]	SB_DSQ[0]	AG7	M_DB0
M_AAB5	AP18	SB_MA[5]	SB_DSQ[1]	AG8	M_DB1
M_AAB6	AM18	SB_MA[6]	SB_DSQ[2]	AJ9	M_DB2
M_AAB7	AL18	SB_MA[7]	SB_DSQ[3]	AJ8	M_DB3
M_AAB8	AY17	SB_MA[8]	SB_DSQ[4]	AG5	M_DB4
M_AAB9	AN18	SB_MA[9]	SB_DSQ[5]	AJ6	M_DB5
M_AAB10	AN23	SB_MA[10]	SB_DSQ[6]	AJ7	M_DB6
M_AAB11	AU17	SB_MA[11]	SB_DSQ[7]	AJ8	M_DB7
M_AAB12	AT18	SB_MA[12]			
M_AAB13	AR26	SB_MA[13]	SB_DSQ[11]	AM8	M_DQSB1
M_AAB14	AY16	SB_MA[14]	SB_DSQ[11]	AL8	M_DQSB1
M_AAB15	AV16	SB_MA[15]			

[8] M_SWEB	M_SWEB	AR25	SB_WE#		
[8] M_SCASB	M_SCASB	AK25	SB_DSQ[8]	AL7	M_DB8
[8] M_SRASB	M_SRASB	AP24	SB_DSQ[9]	AM7	M_DB9
			SB_DSQ[10]	AM10	M_DB10
			SB_DSQ[11]	AL10	M_DB11
			SB_DSQ[12]	AL6	M_DB12
			SB_DSQ[13]	AL9	M_DB13
			SB_DSQ[14]	AM9	M_DB15
			SB_DSQ[15]		

[8] M_SBA0	M_SBA0	AP23	SB_BS[0]		
[8] M_SBA1	M_SBA1	AM2	SB_BS[1]		
[8] M_SBA2	M_SBA2	AW17	SB_BS[2]		
			SB_CS#0		
			SB_CS#1		
			SB_CS#2		
			SB_CS#3		

[8] M-CSB0	M-CSB0	AN25	SB_CS#0		
[8] M-CSB1	M-CSB1	AN26	SB_CS#1		
[8] M-CSB2	M-CSB2	AL25	SB_CS#2		
[8] M-CSB3	M-CSB3	AT26	SB_CS#3		

[8] M_CKEB0	M_CKEB0	AU18	SB_CKE[0]		
[8] M_CKEB1	M_CKEB1	AY15	SB_CKE[1]		
[8] M_CKEB2	M_CKEB2	AW15	SB_CKE[2]		
[8] M_CKEB3	M_CKEB3	AV15	SB_CKE[3]		

M_ODT_B0	AL26	SB_ODT[0]			
M_ODT_B1	AP26	SB_ODT[1]			
M_ODT_B2	AM26	SB_ODT[2]			
M_ODT_B3	AK26	SB_ODT[3]			

[8] M_DCLKB0	M_DCLKB0	AL21	SB_CK[0]		
[8] M_DCLKB0	M_DCLKB0	AL22	SB_CK#0		
[8] M_DCLKB1	M_DCLKB1	AK20	SB_CK[1]		
[8] M_DCLKB2	M_DCLKB2	AL23	SB_CK#1		
[8] M_DCLKB2	M_DCLKB2	AM22	SB_CK#2		
[8] M_DCLKB3	M_DCLKB3	AP21	SB_CK#3		
[8] M_DCLKB3	M_DCLKB3	AN21	SB_CK#3		

[8] M_VREF_DQB	AH1	FC_AH1			
[7] M_VREF_DOA	AH4	FC_AH4			

AN16	SB_DSQ[8]				
AN15	SB_DSQ[8]				

AL16	SB_ECC_CB[0]				
AM16	SB_ECC_CB[1]				
AP16	SB_ECC_CB[2]				
AR16	SB_ECC_CB[3]				
AL15	SB_ECC_CB[4]				
AM15	SB_ECC_CB[5]				
AP15	SB_ECC_CB[7]				

AP32	M_DB40				
AP21	M_DB41				
AP35	M_DB42				
AP34	M_DB43				
AR32	M_DB44				
AR31	M_DB45				
AR35	M_DB46				
AR34	M_DB47				

AL33	M_DQSB6				
AM33	M_DQSB6				

AM32	M_DB48				
AM31	M_DB49				
AL35	M_DB50				
AL32	M_DB51				
AM34	M_DB52				
AL31	M_DB53				
AM35	M_DB54				
AL34	M_DB55				

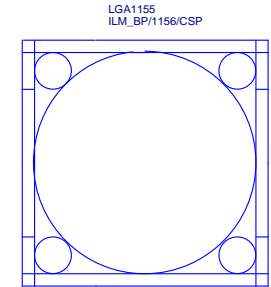
AG35	M_DQSB7				
AG34	M_DQSB7				

SB_DSQ[7]					
SB_DSQ[6]					
SB_DSQ[5]					
SB_DSQ[4]					
SB_DSQ[3]					
SB_DSQ[2]					
SB_DSQ[1]					
SB_DSQ[0]					

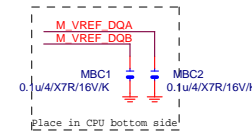
## DDR\_1

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CPU-SK/1155/S/15



Need check the new CPU ME

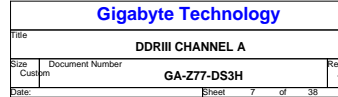


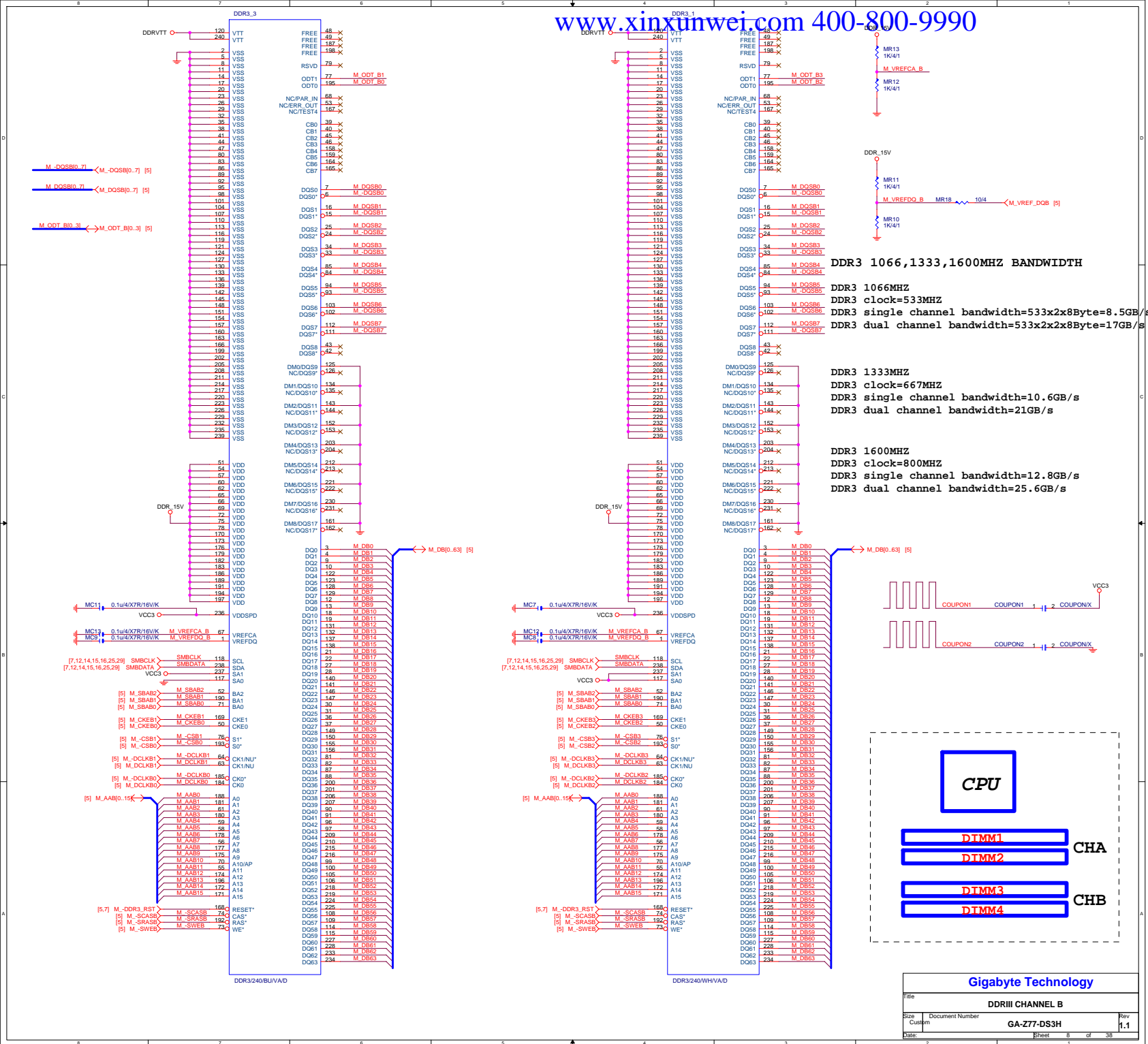
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Size			Document Number		
Custom			GA-Z77-DS3H		
Date:			Friday, July 13, 2012		
			Sheet 5 of 35		
			Rev 1.1		

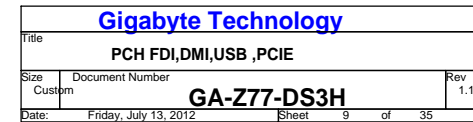


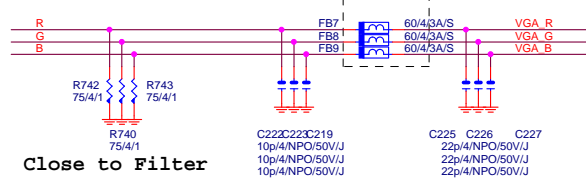
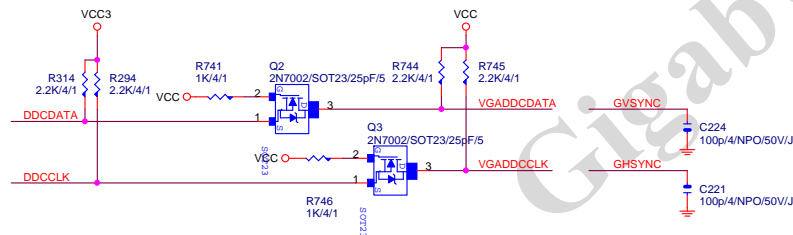
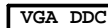
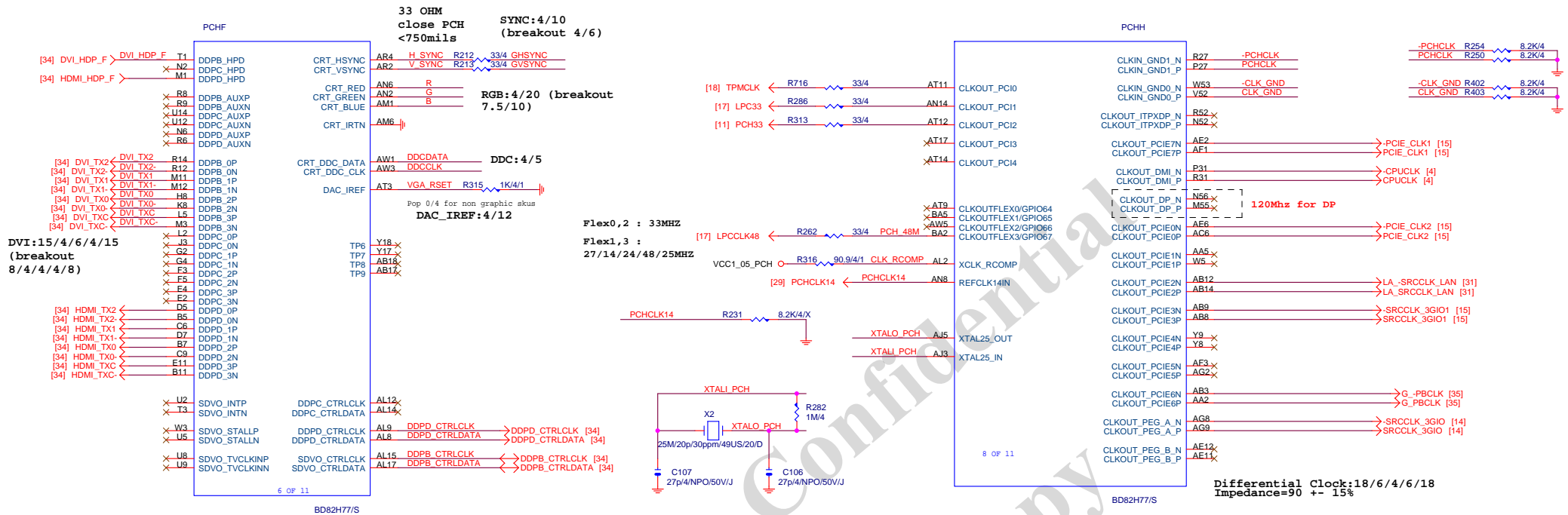




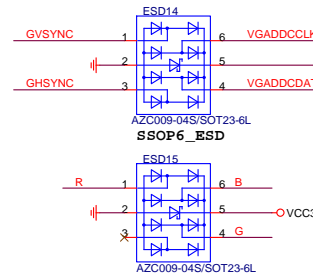
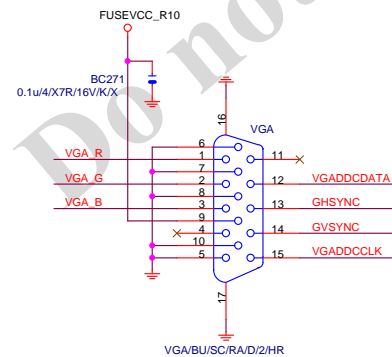






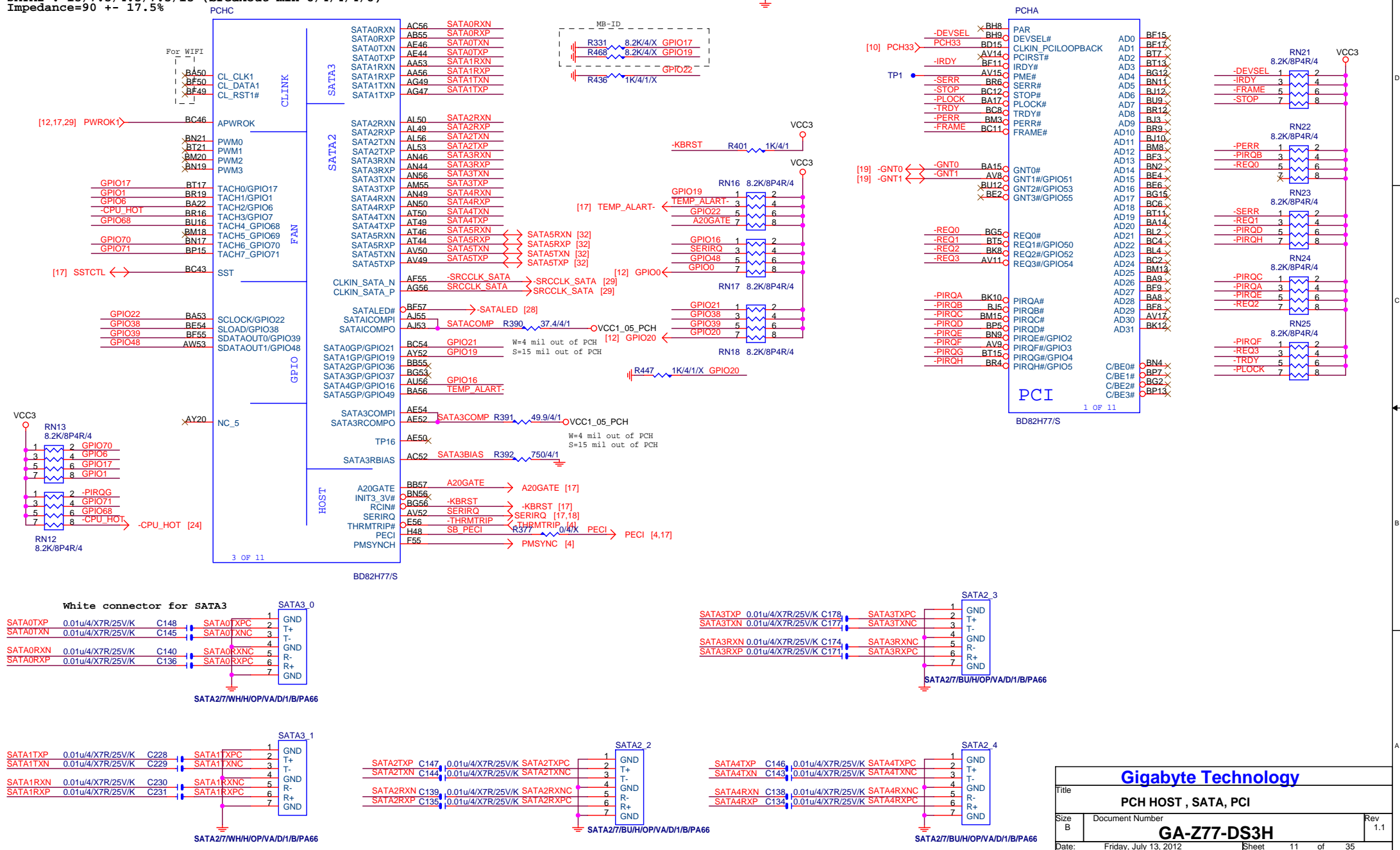


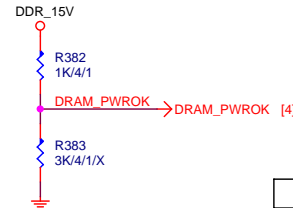
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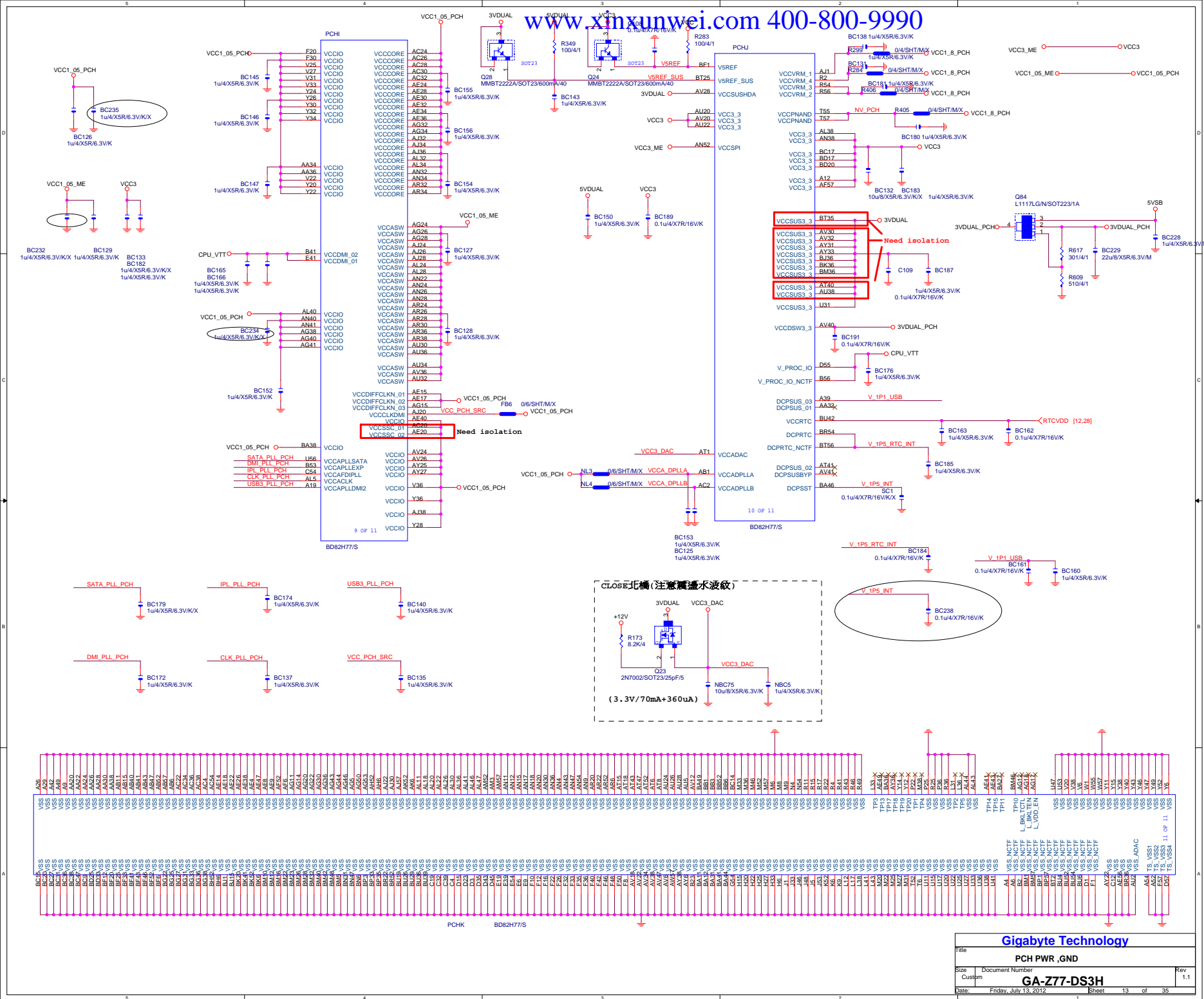


SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5% PCHC

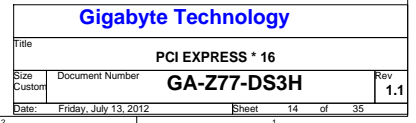
www.xinxunwei.com 400-800-9990



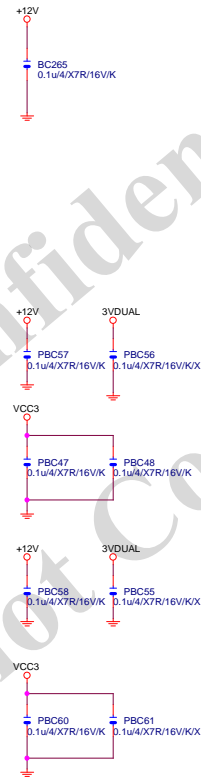
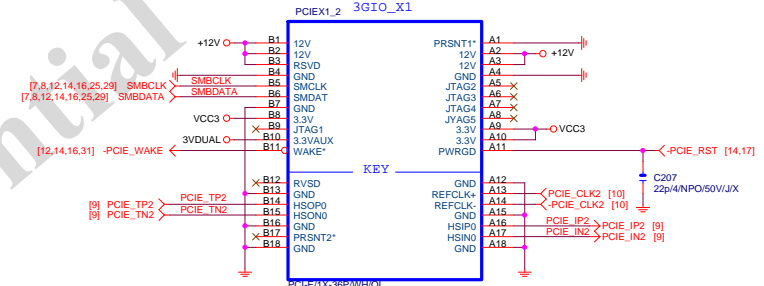




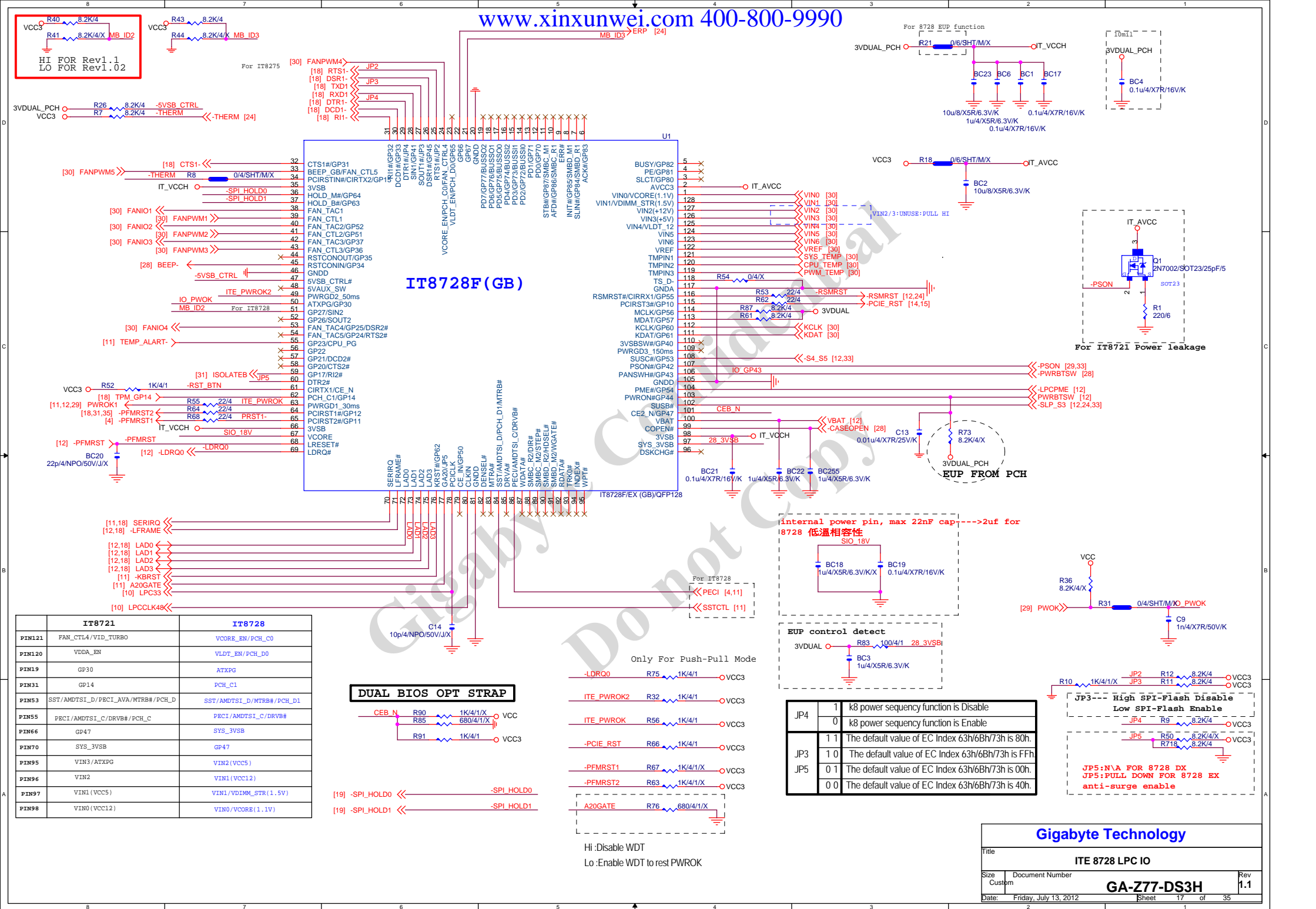




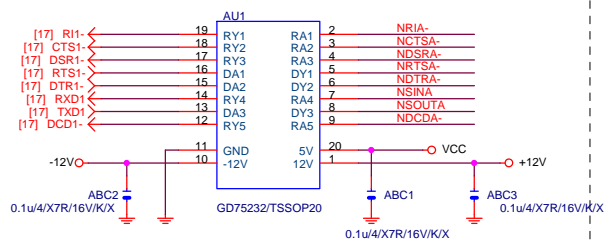




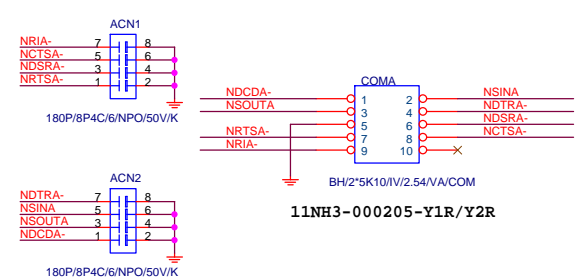
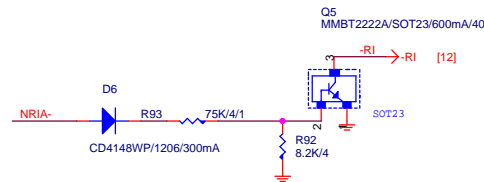




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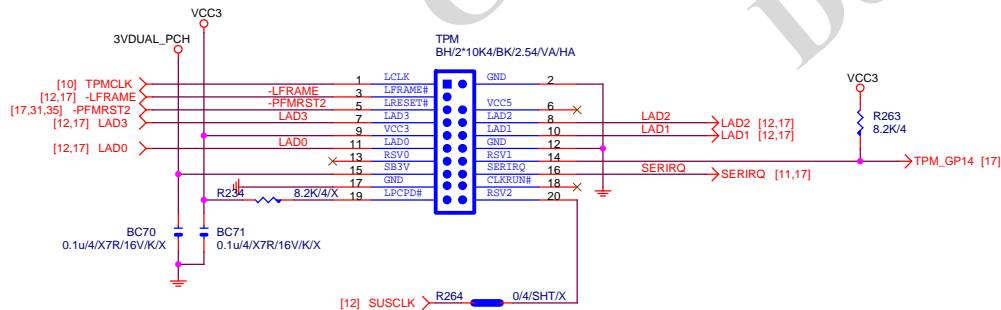


COM R1



LPT PORT

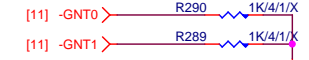
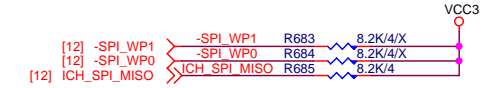
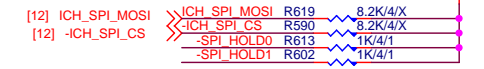
TPM



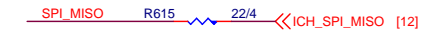
Gigabyte Technology

COM & Print			
Title	COM & Print		
Size	Document Number	Rev	
Custom	GA-Z77-DS3H	1.1	
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## MOSI For DMI RX Termination Voltage

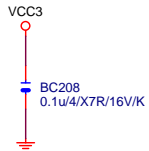
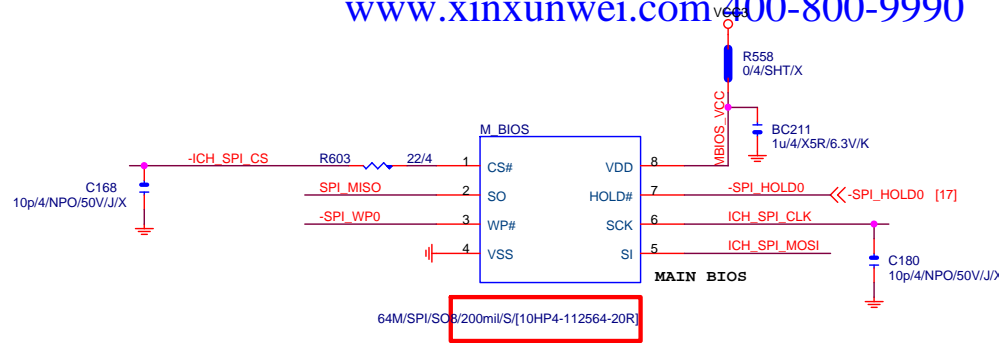


Default int pull up



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

1 means floating  
0 means PD 1K



Gigabyte Technology

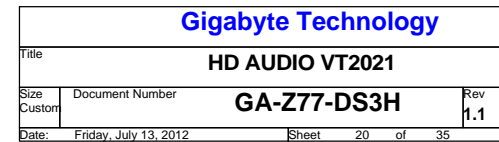
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Size Custom Document Number GA-Z77-DS3H Rev 1.1

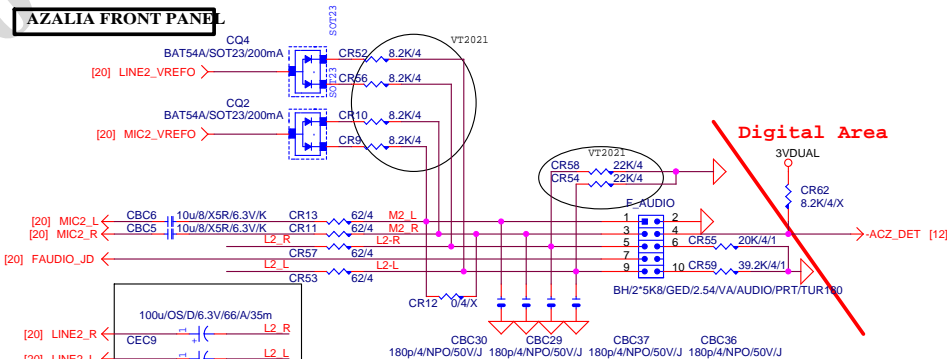
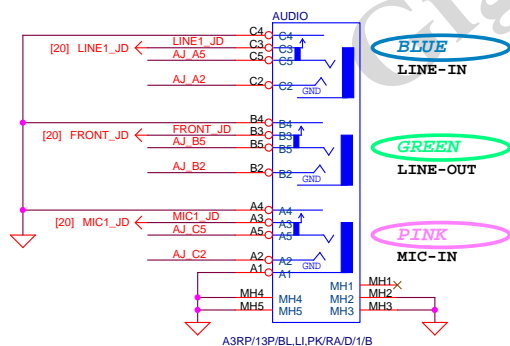
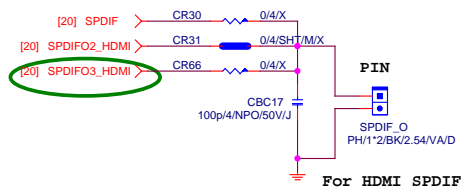
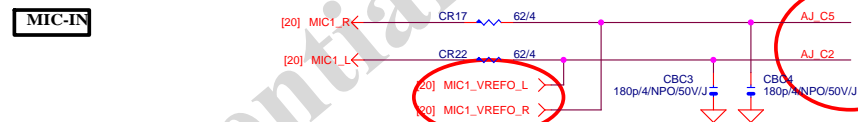
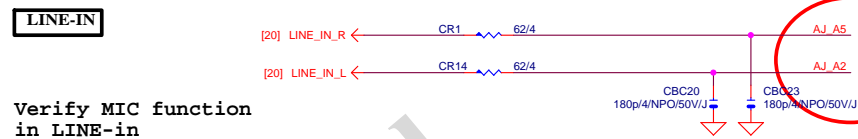
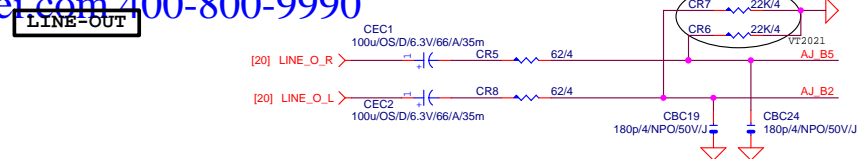
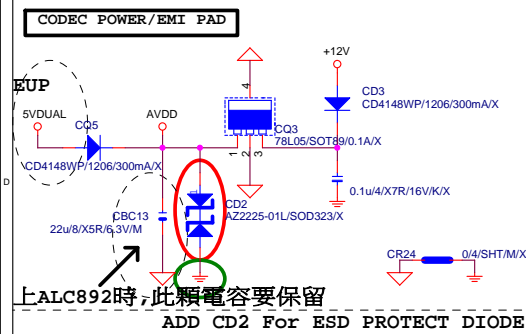
Date: Friday, July 13, 2012 Sheet 19 of 35

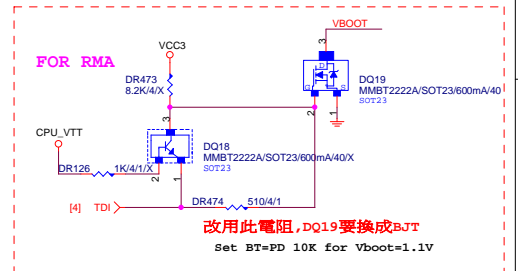
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CR26: 20K/4/1% @others

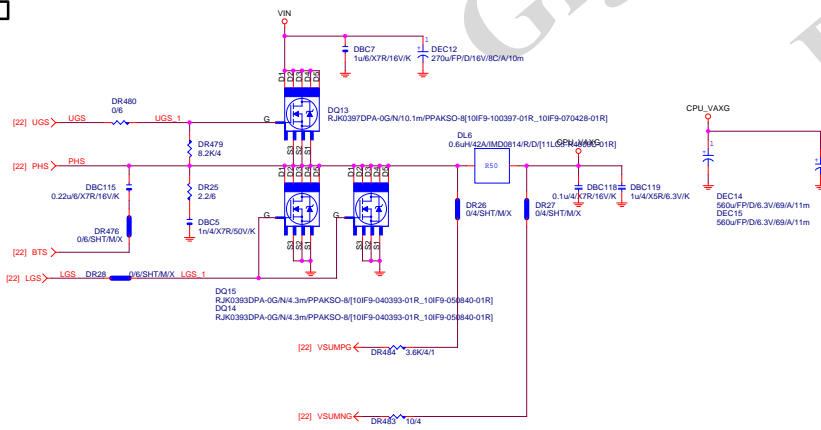
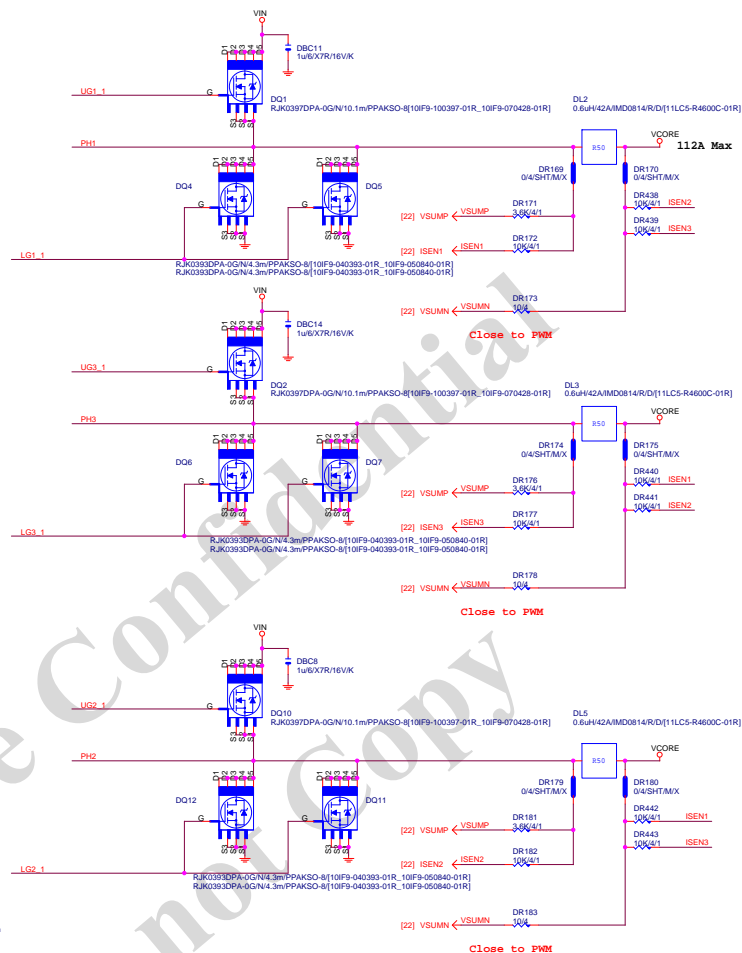
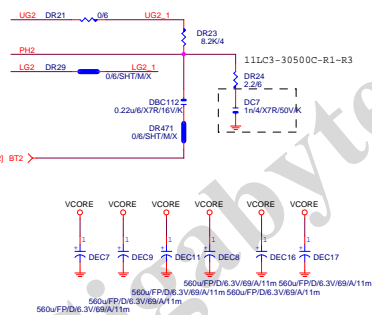
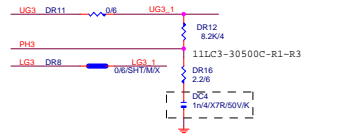
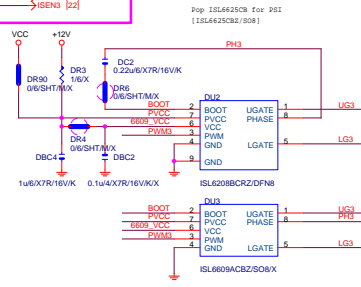
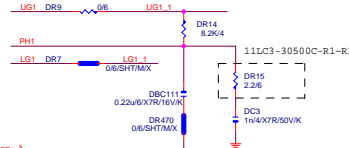
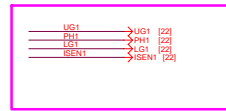
CR34 20K/4/1 VT1708S :5.1K + 100PF  
CBC40 100p4/NFO/50V/J/X





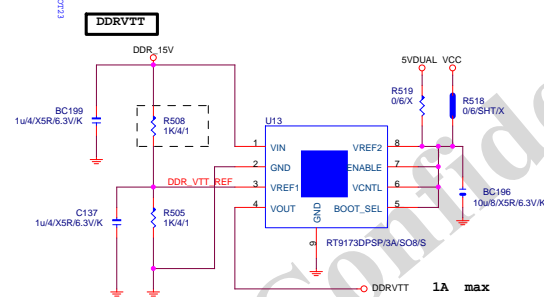




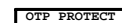




## I/O ErP Control

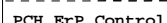


OTP PROTECT

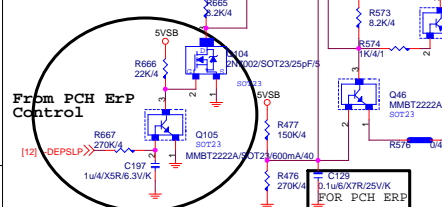


From I/O ERP

PCN	ErP	Control
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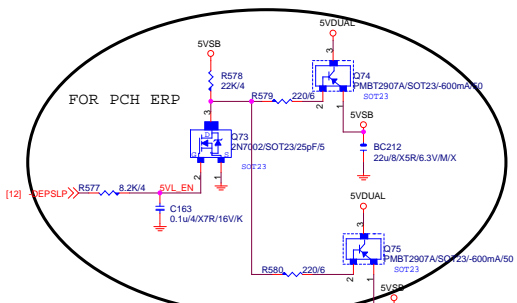
\_\_\_\_\_



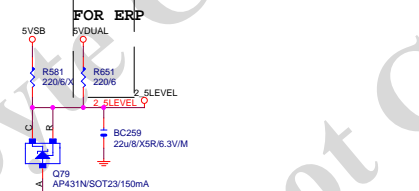
From PCH ErP



## FOR PCH ERP



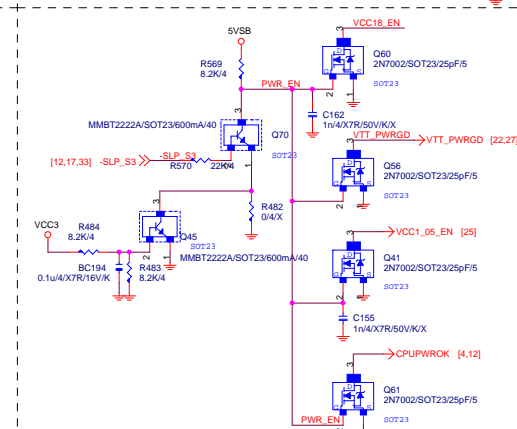
FOR ER



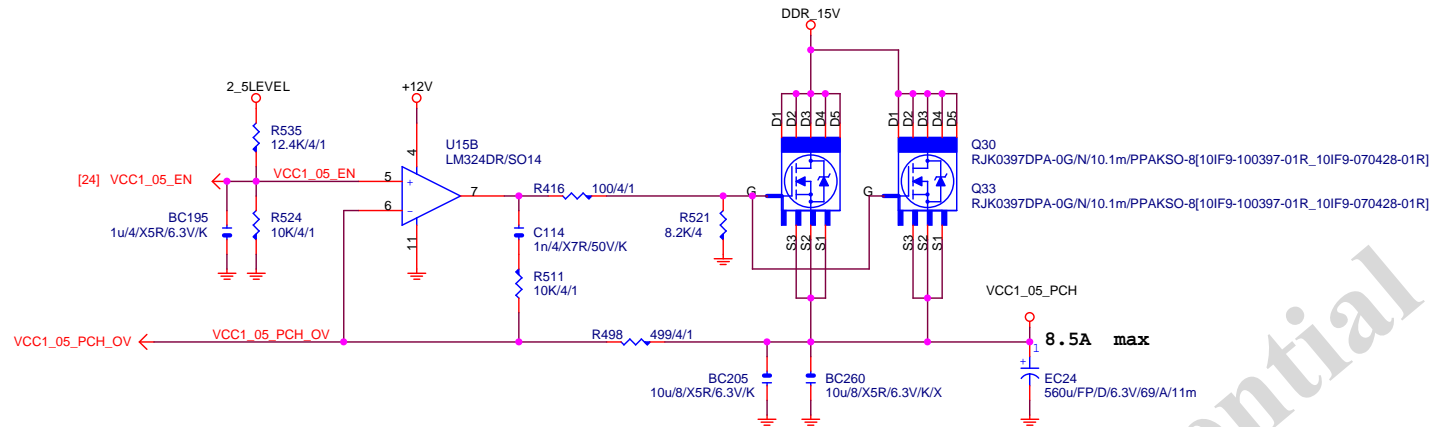
**-PROHO**



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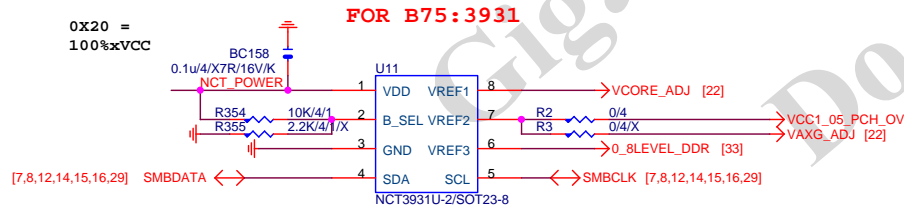
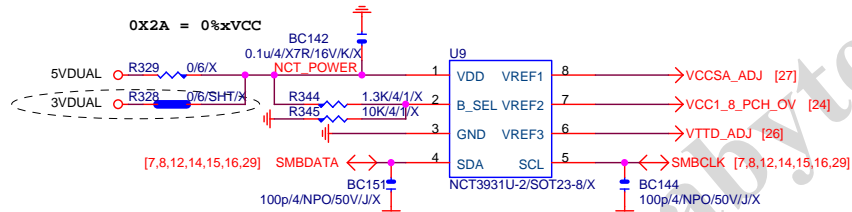


VCC1\_05\_PCH



## Voltage console

ADDRESS	0X2A	0X20	0X22	0X26
R1 (K)	OPEN	10	1.3	3
R2 (K)	10	OPEN	3.9	2.2
%VCC	0	100	75	42



up6262	0X2A	0X20
VREF1	VCC1_05_PCH	VCORE
VREF2	VCC1_8_PCH	VCCSA
VREF3	CPU_VTT	DDR

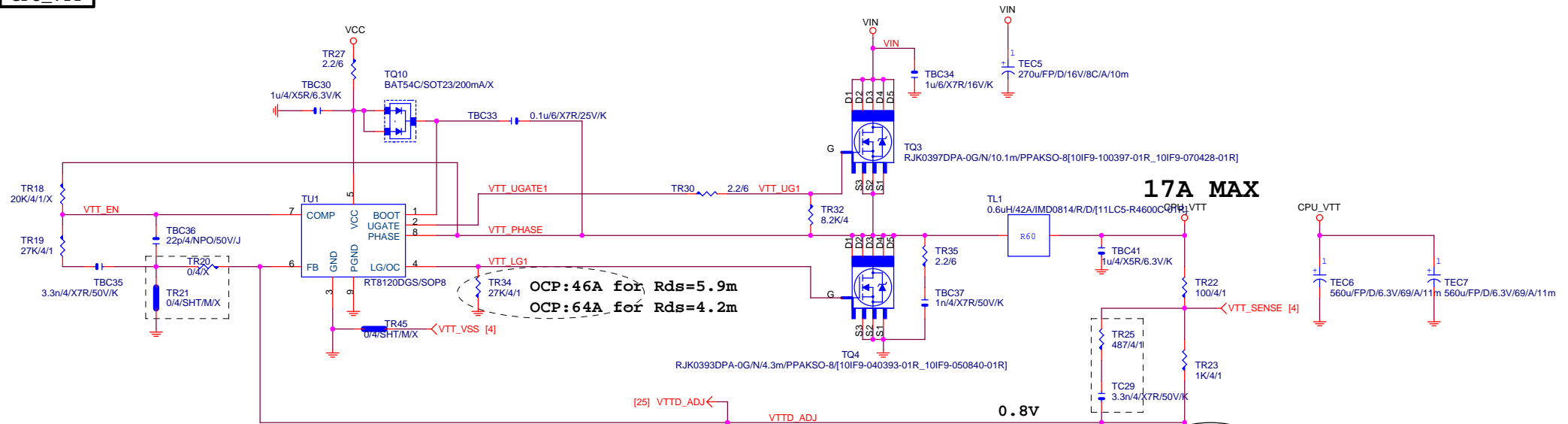
Gigabyte Technology

PCH CORE / VOLTAGE CONSOLE

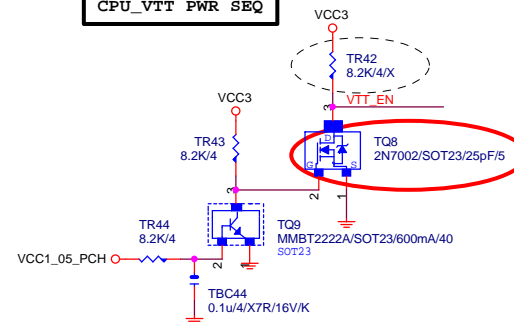
Size B	Document Number	Rev
	GA-Z77-DS3H	1.1

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## CPU\_VTT



## CPU\_VTT PWR SEQ



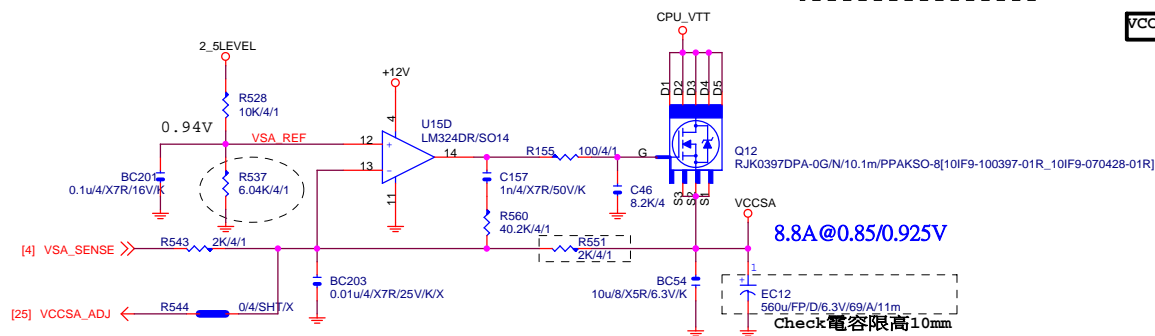
GIGABYTE™

Title	RT8120_CPU_VTT		
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Check電容限高10mm

VCC\_SA

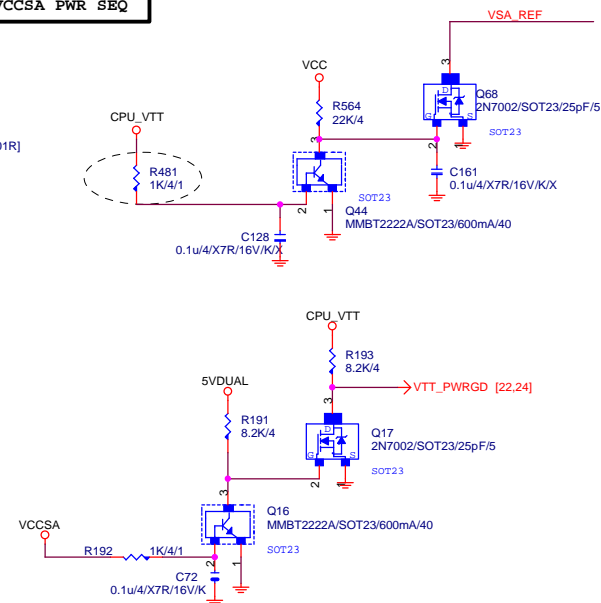


PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

According intel  
CDI/IBP#476733, 固定0.925V

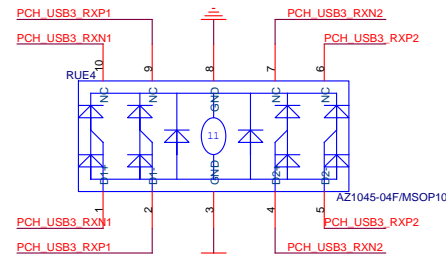
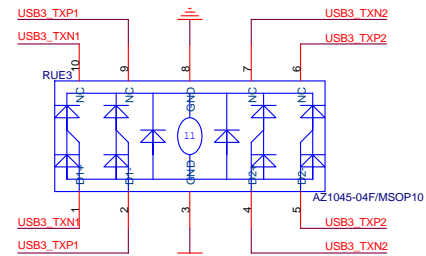
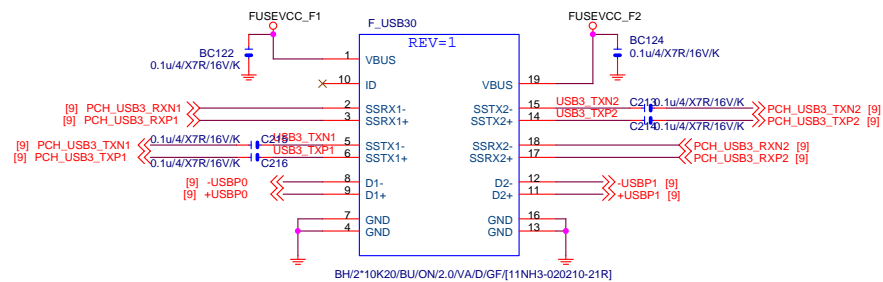
VCCSA\_PWR\_SEQ



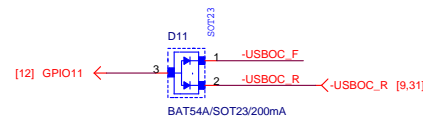
Gigabyte Technology

Title		
VCCSA POWER		
Size	Document Number	Rev
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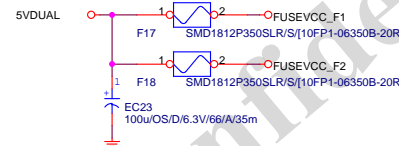
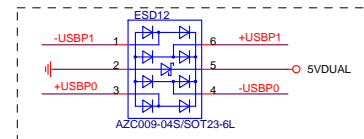
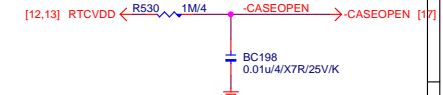
## FRONT USB1



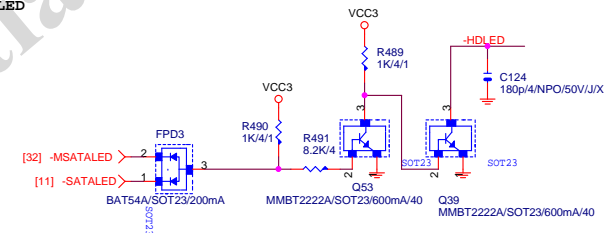
## F\_USB POWER PROTECT



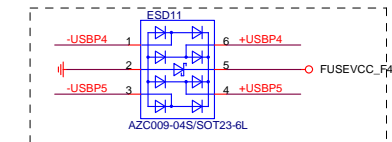
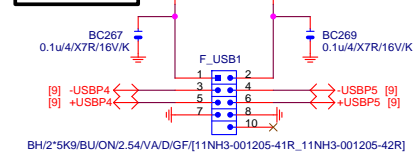
## CASE OPEN



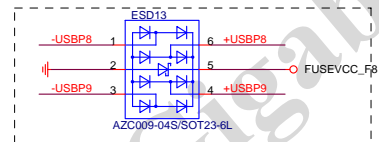
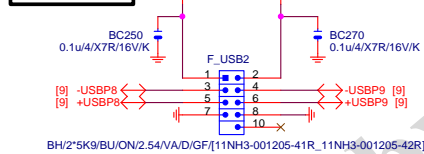
## SATA LED



## FRONT USB1

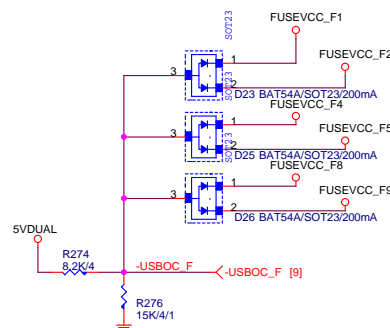
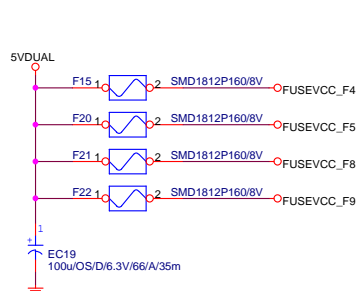


## FRONT USB2

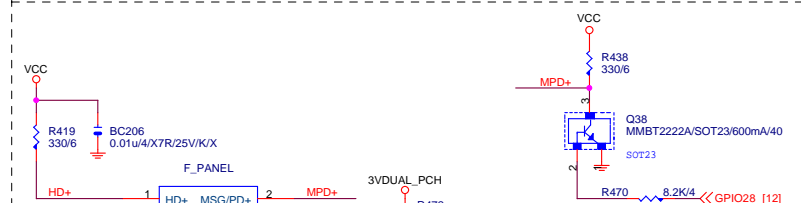
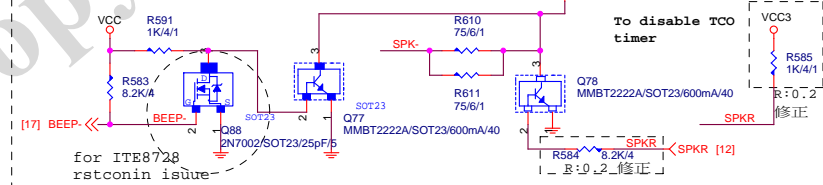
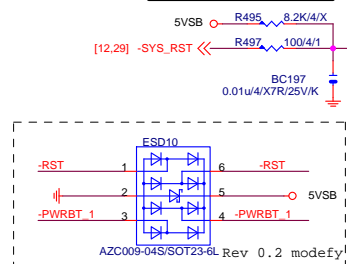


## ESD Close to connector

## ESD Close to connector



## INTEL FRONT PANEL



## Gigabyte Technology

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FS	CPU
0	100M <Default>
1	133M







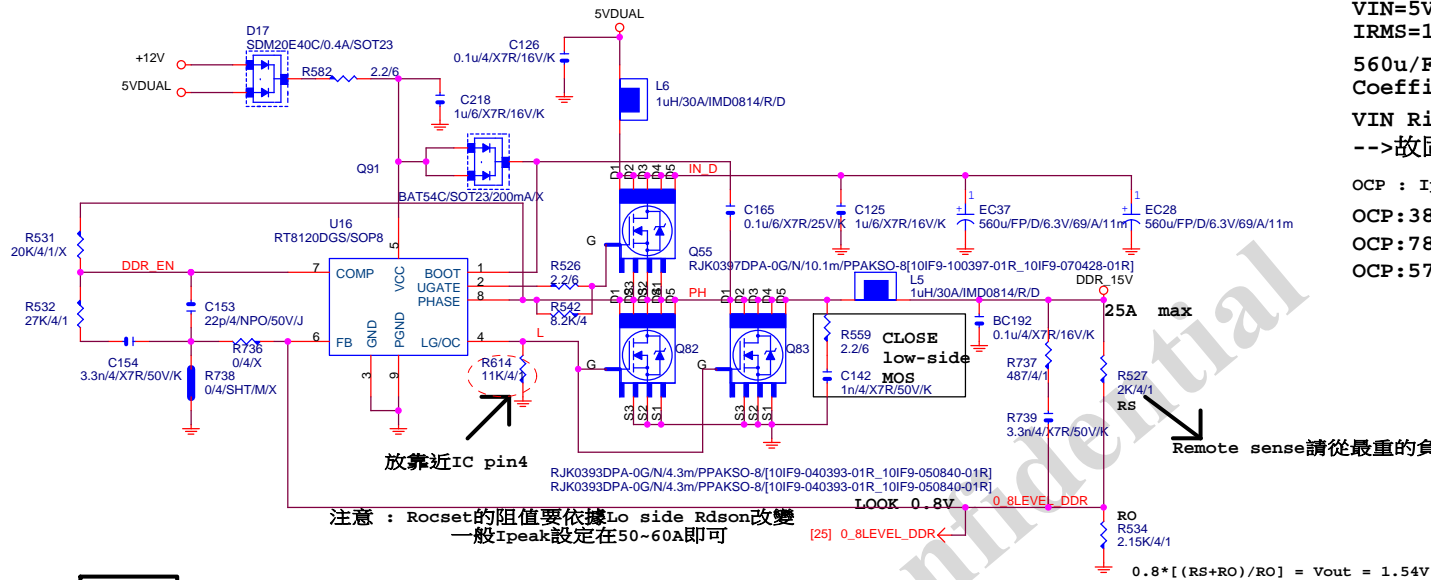
## MSATA

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## DDR18V



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

OCP :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$

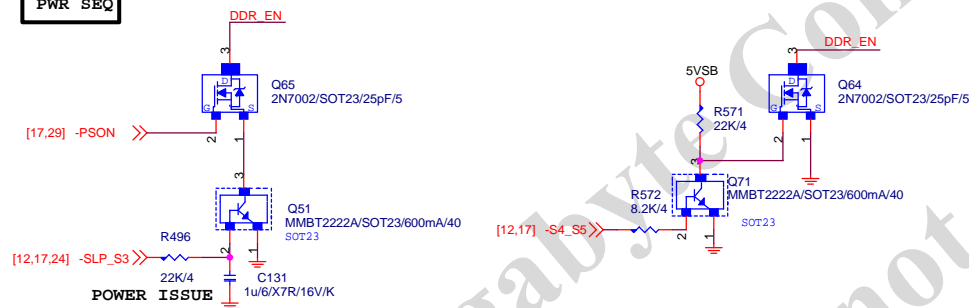
OCP:38.31A for Rds=6.7m for vishay@4.5V

OCP:78.78A for Rds=3.3m for renesas@10V

OCP:57A=Roset\*Iocset / Rds(on)

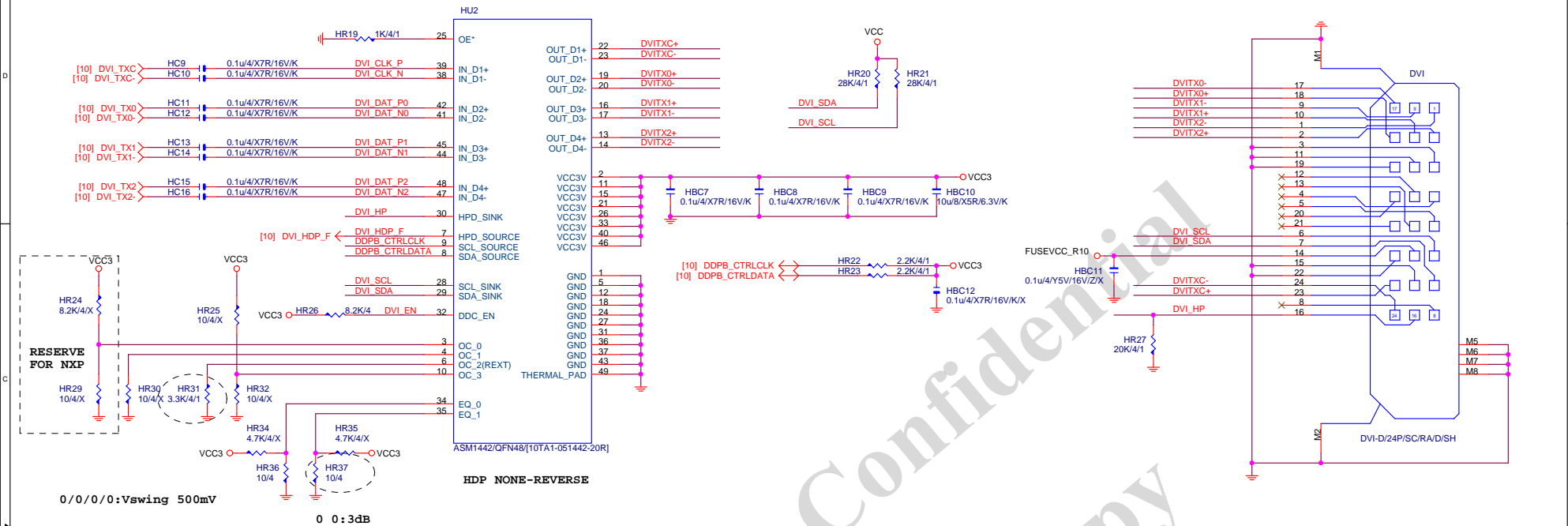
$$= 11\text{K} \cdot 10\mu\text{A} \quad / \quad [5//5]$$

## PWR SEQ

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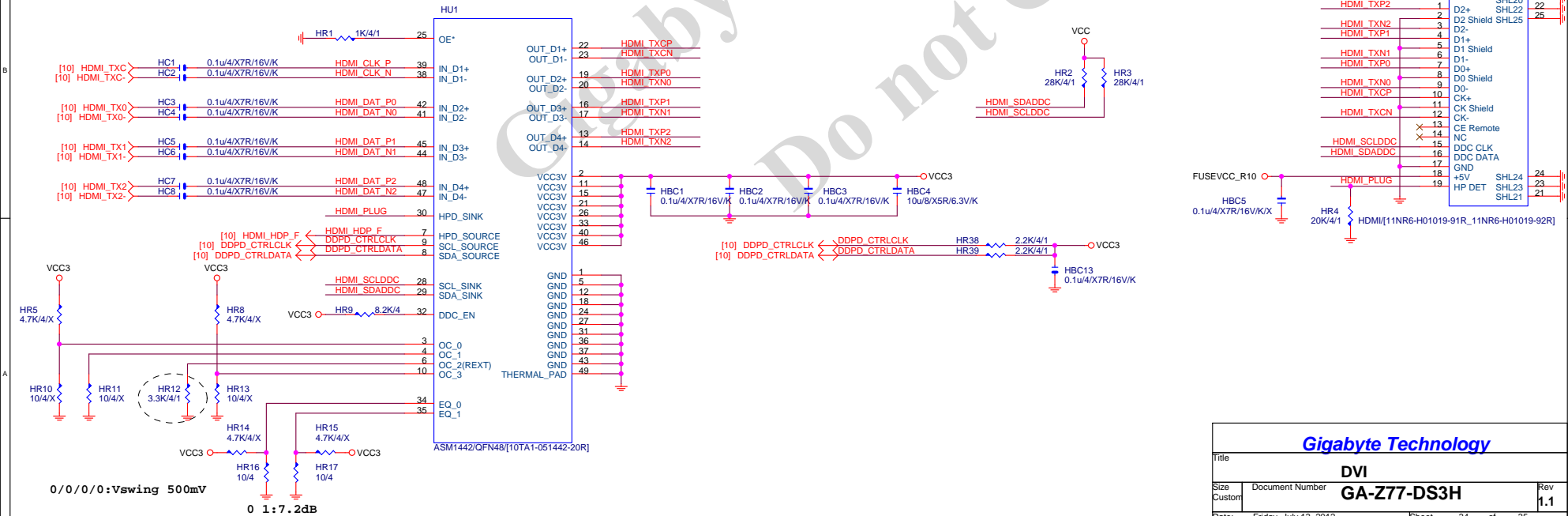
RT8120

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**DVI LEVEL SHIFT****HDMI LEVEL SHIFT**

HDMI:20/4/6/4/20

Impedance=85 +- 17.5%

**Gigabyte Technology**

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