

# GA-AB350M-GAMING 3

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[illegible]

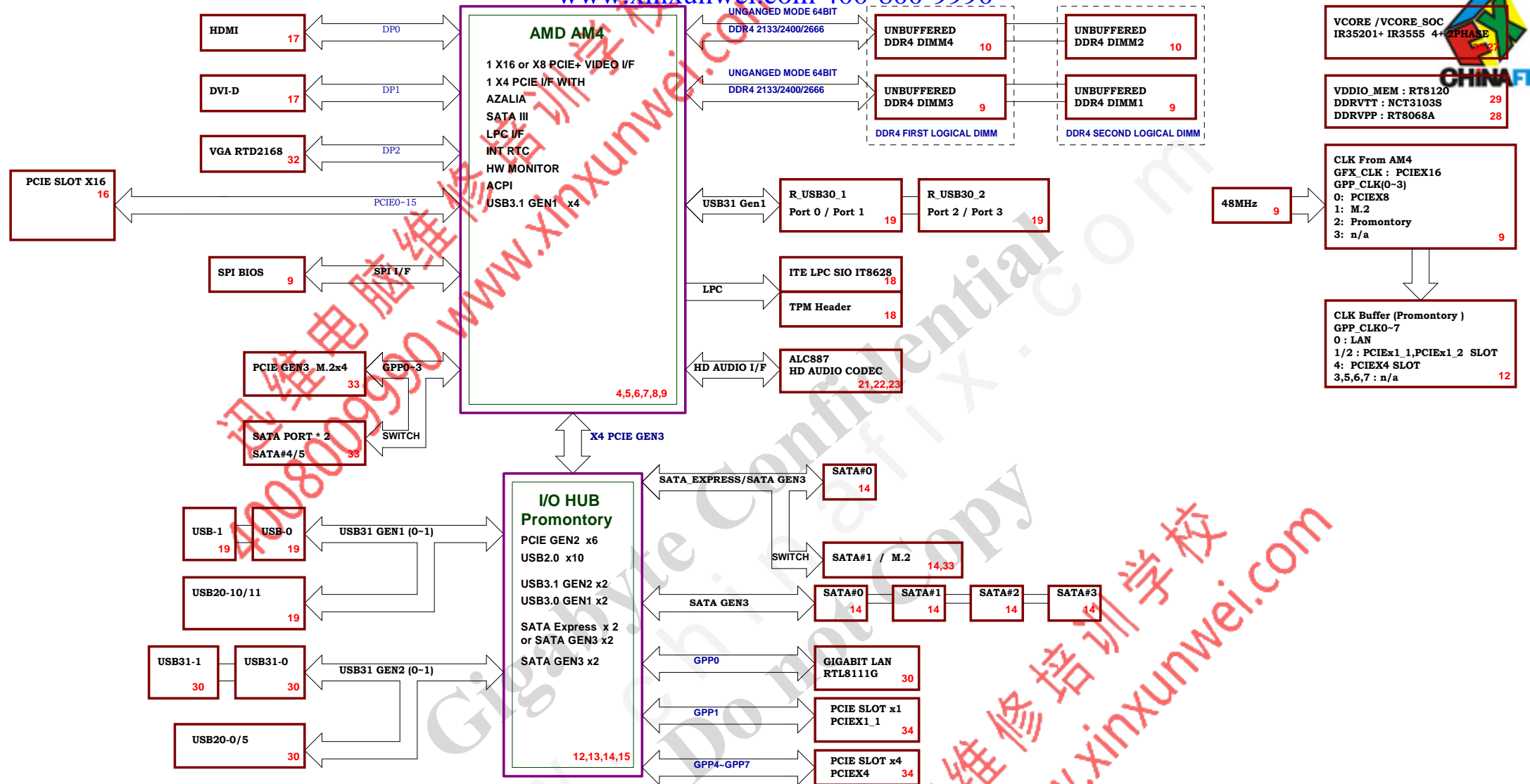
2015.12.30--B.L

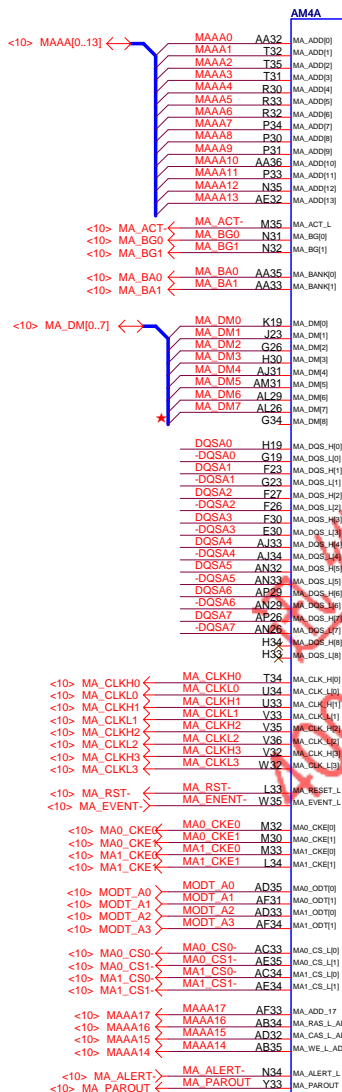
			
Title			
COVER SHEET			
Size	Document Number	Rev	
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**Circuit or PCB layout change for next version**

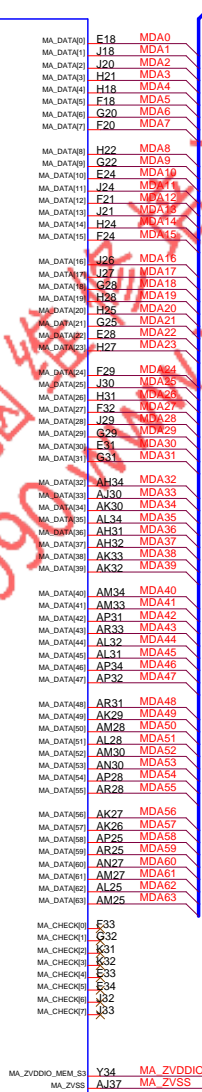
**Version: 1.0**  
**P-Code: U98126-0**

[illegible]

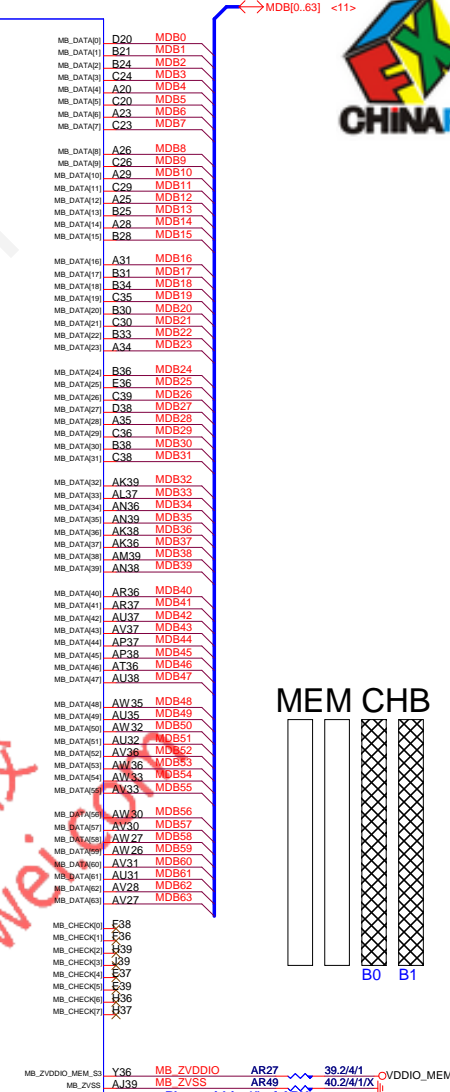
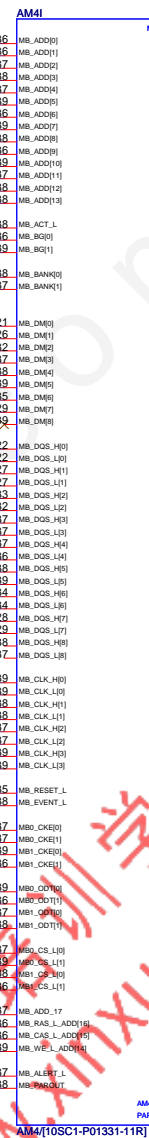




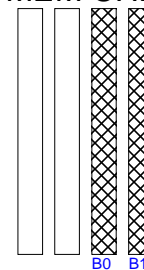
AM4[10SC1-P01331-11R]



Place within 1" of APU.

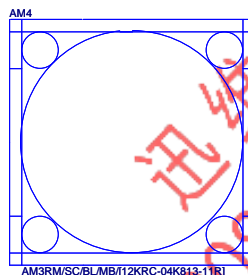
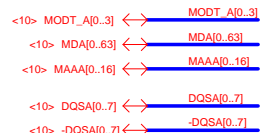
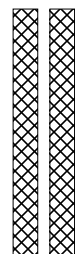


MEM CHB

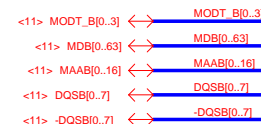


Place within 1" of APU.

MEM CHA

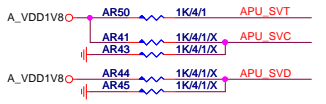
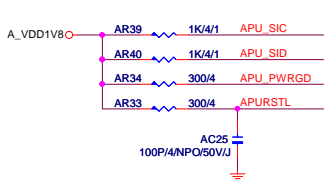


AM3RM/SC/BLMB[12KRC-04K813-11R]

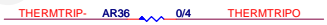
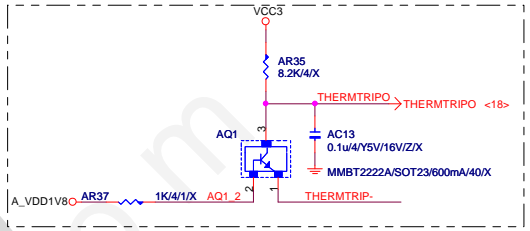
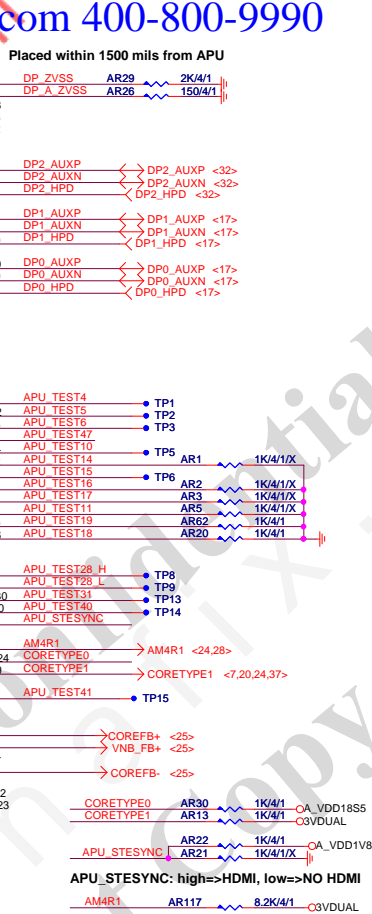
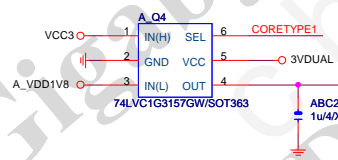
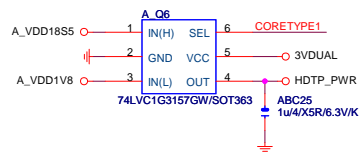
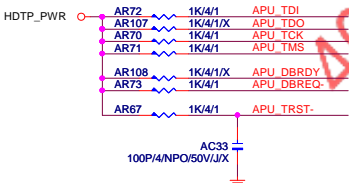


<b>GIGABYTE™</b>		
Title <b>APU DDR4</b>		
Size <b>Custom</b>	Document Number <b>GA-AB350M-GAMING 3</b>	Rev <b>1.0</b>
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SVC	SVD	Boot voltage
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8



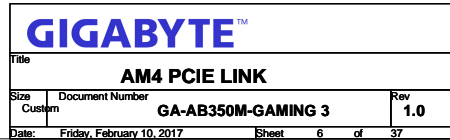
CORETYPE 1	CORETYPE 0	Family / Model Numbers	AM4 APU TYPE
0 BR	0	Family 15 h / Models 60 h- 6 Fh	TYPE 0
0 ST	1	Reserved	TYPE 1
1 ZP	0	Family 17 h / Models 00 h- 0 Fh	TYPE 2
1 RV	1	Family 17 h / Models 10 h- 1 Fh	TYPE 3

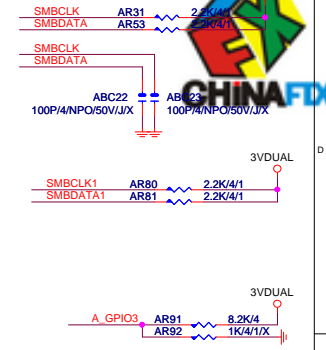
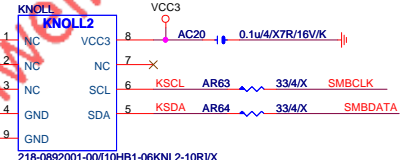
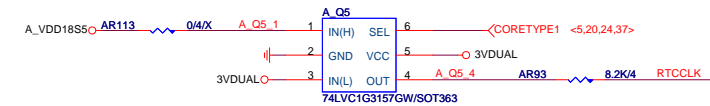
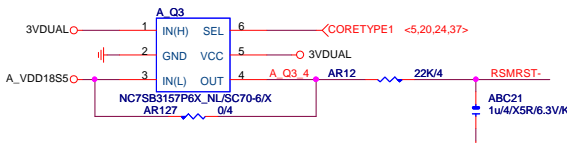
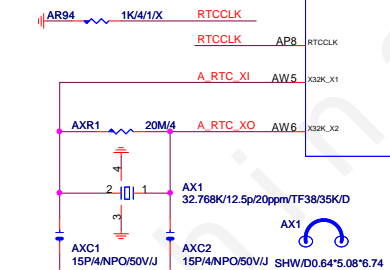
**GIGABYTE™**


Title: **CPU CONTROL**

Size: Custom Document Number: **GA-AB350M-GAMING 3** Rev: **1.0**

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[illegible]

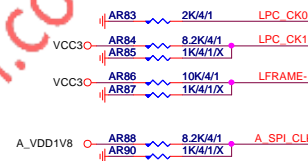
				
Title				
AM4 MISC				
Size	Document Number			Rev
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Title			
CPU POWER & GND			
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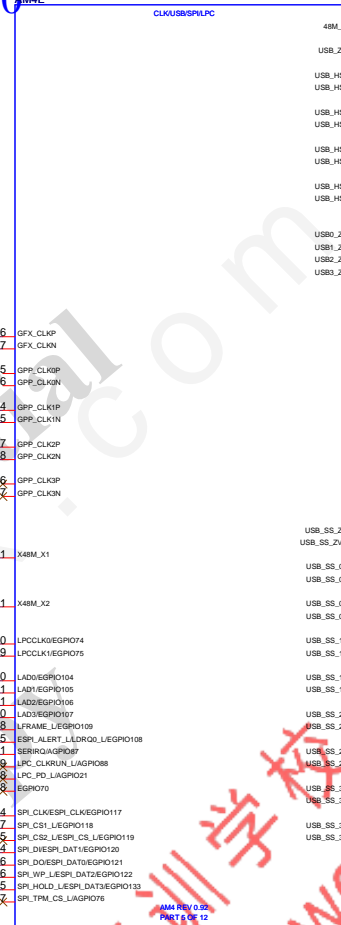
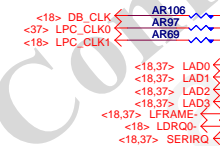
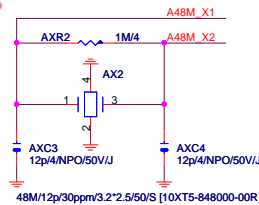




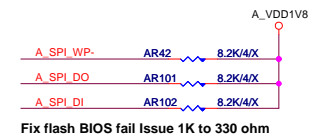
X16 Slot <16> A\_GFX\_CLKP  
<16> A\_GFX\_CLKN

M.2 Socket <33> A\_GPP\_CLKP1  
<33> A\_GPP\_CLKN1

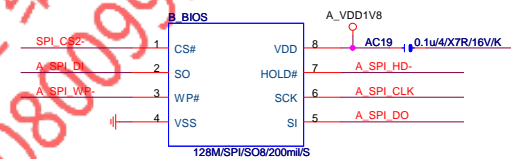
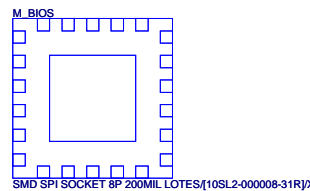
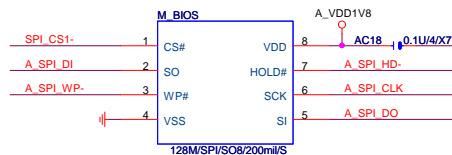
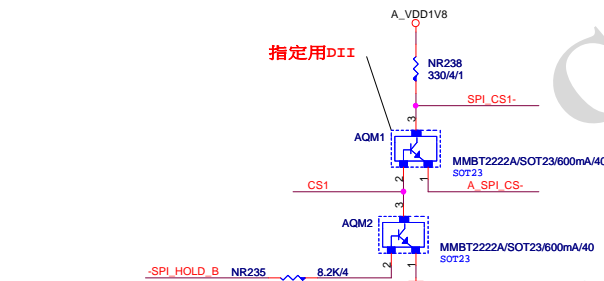
Promontory <12> PM\_CLKP  
<12> PM\_CLKN



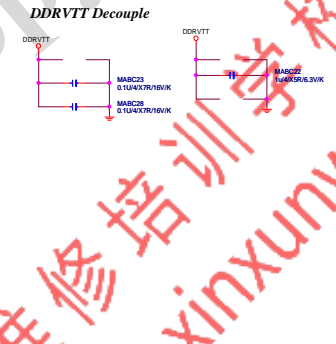
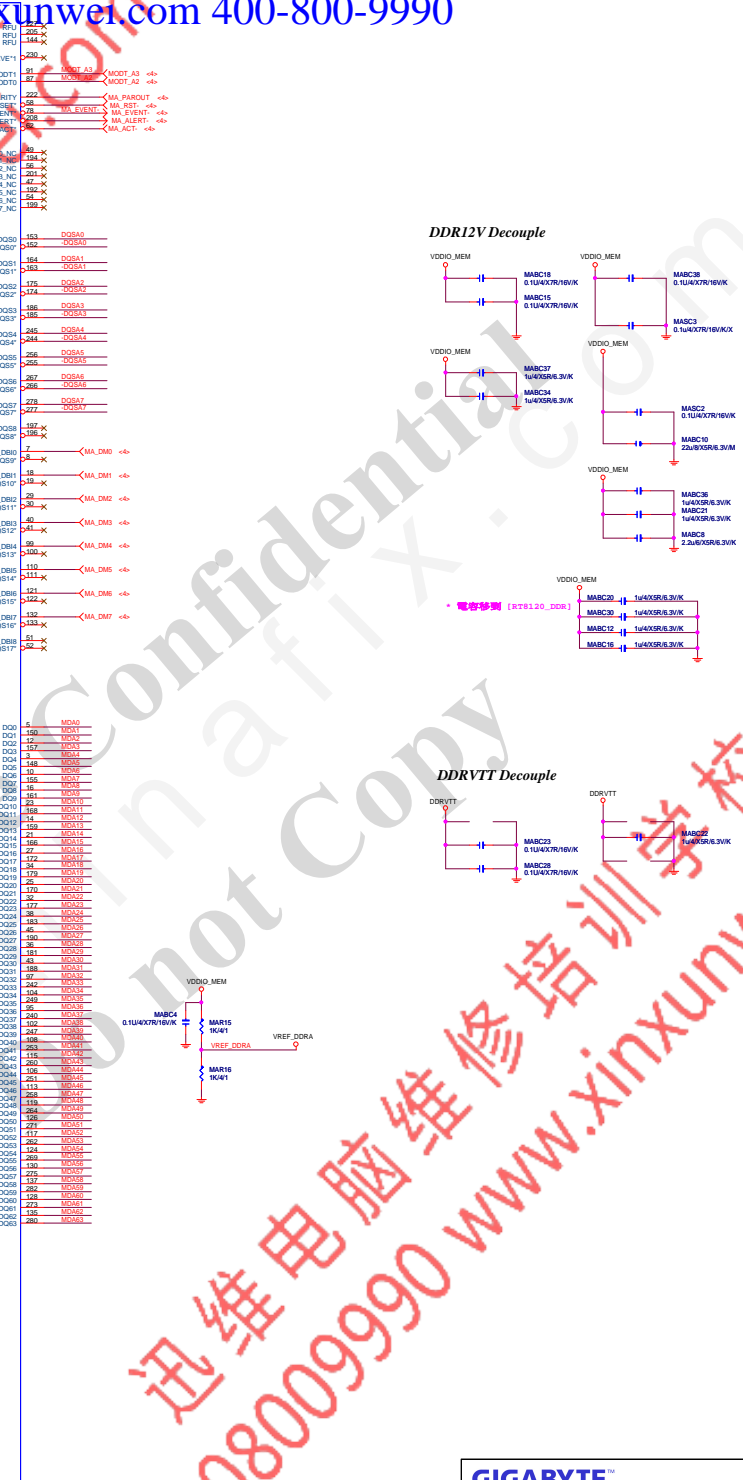
★1.8V SPI ROM USE



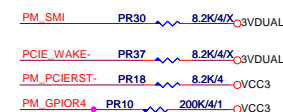
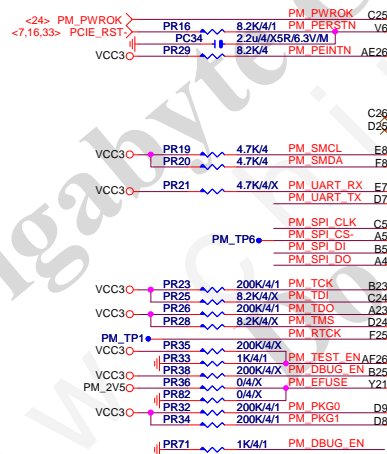
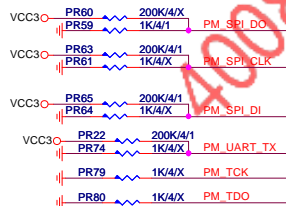
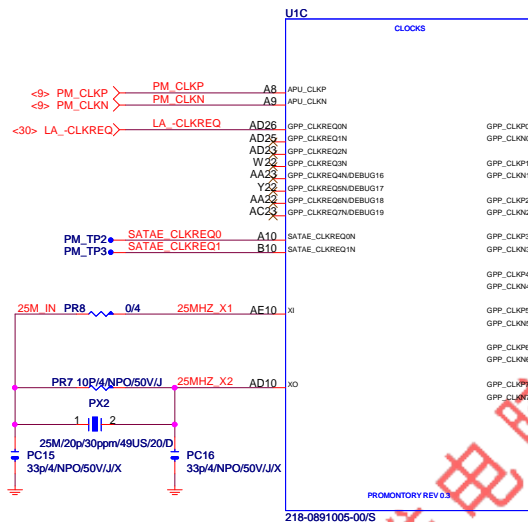
Fix flash BIOS fail Issue 1K to 330 ohm



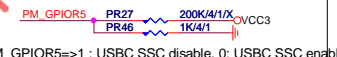
GIGABYTE™			
Title			
DDR4 CHANNEL A			
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PM\_GPIOR4 1: GPP clock source from APU\_CLKP/N; 0: GPP clock source from Crystal, also enables GPIO\_R8.



PM\_GPIOR5=>1: USBC SSC disable, 0: USBC SSC enable



PM\_GPIOR6=>1: SATA SSC disable, 0: SATA SSC enable



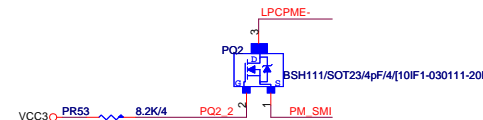
PM\_GPIOR7=>1: SATA Express SSC disable, 0: SATA Express SSC enable



PM\_GPIOR8 (enabled from GPIO\_R4) =>1: GPP SSC disable, 0: GPP SSC enable



PM\_GPIOR11=>1: GPP clock output enabled, 0: GPP clock output disabled



ANS 5168388			
GIGABYTE™			
Title			
B350 CLK GEN / GPIO			
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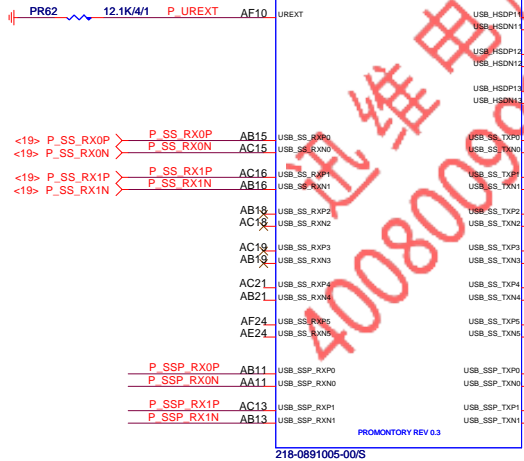




USB port power control 13:0  
(VCC3). Output.

<30> -USBOC\_R1

<19> -USBOC\_F1



PROMOTORY REV 0.3

218-0891005-00/5

USB3.1	USB2.0	USB_OC
USB_SSP_TX/RXP/N[0]	USB_HSDP/N[5]	USB_OC0N
USB_SSP_TX/RXP/N[1]	USB_HSDP/N[0]	USB_OC1N
USB3.0	USB2.0	USB_OC
USB_SS_TX/RXP/N[0]	USB_HSDP/N[10]	USB_OC2N
USB_SS_TX/RXP/N[1]	USB_HSDP/N[11]	USB_OC3N
USB_SS_TX/RXP/N[2]	USB_HSDP/N[6]	USB_OC4N
USB_SS_TX/RXP/N[3]	USB_HSDP/N[7]	USB_OC5N
USB_SS_TX/RXP/N[4]	USB_HSDP/N[8]	USB_OC6N
USB_SS_TX/RXP/N[5]	USB_HSDP/N[9]	USB_OC7N
	USB_HSDP/N[1]	USB_OC7N
	USB_HSDP/N[2]	USB_OC7N
	USB_HSDP/N[3]	USB_OC7N
	USB_HSDP/N[4]	USB_OC7N
	USB_HSDP/N[12]	USB_OC7N
	USB_HSDP/N[13]	USB_OC7N

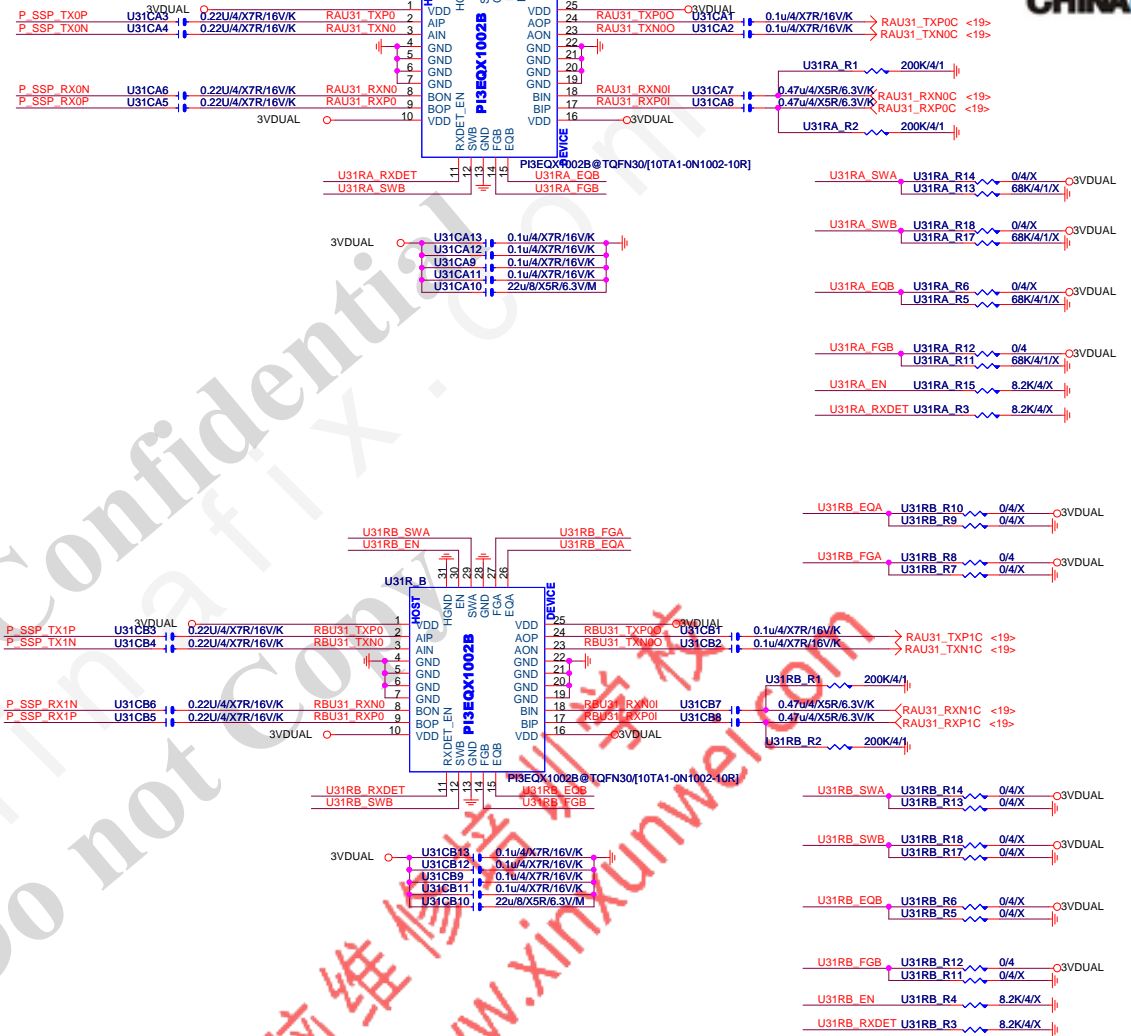
BUS Model	USB			
	3.1 Gen2 10 Gbps	3.1 Gen1 5 Gbps	2.0	Debug Port
PROM4	USB_SSP Port0~1	USB_SS Port 0~5	USB_HSD Port0~13	USB_SSP Port0
PROM2	USB_SSP Port0~1	USB_SS Port 0~1	USB_HSD Port0~5 USB_HSD Port10~13	USB_SSP Port0
PROM1	USB_SSP Port0	USB_SS Port0 USB_SSP Port1	USB_HSD Port0~5 USB_HSD Port10, 12~13	USB_SSP Port0

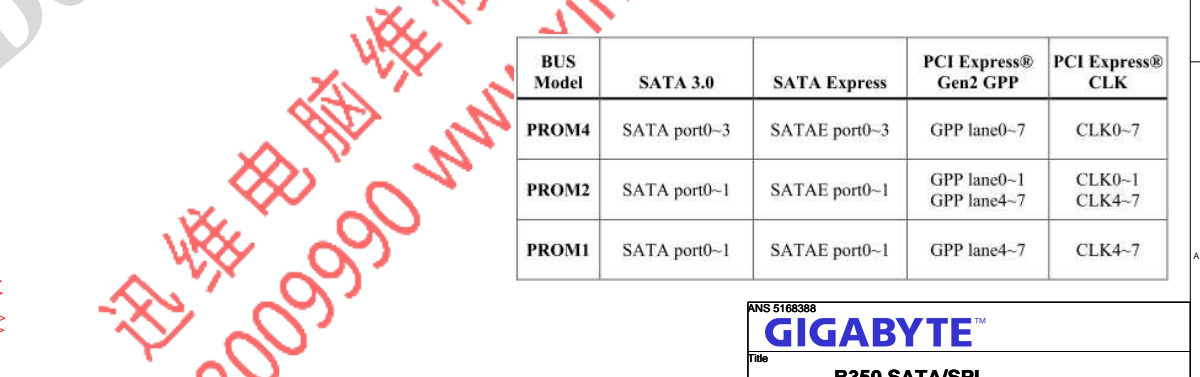
ANS 5168388

**GIGABYTE**™

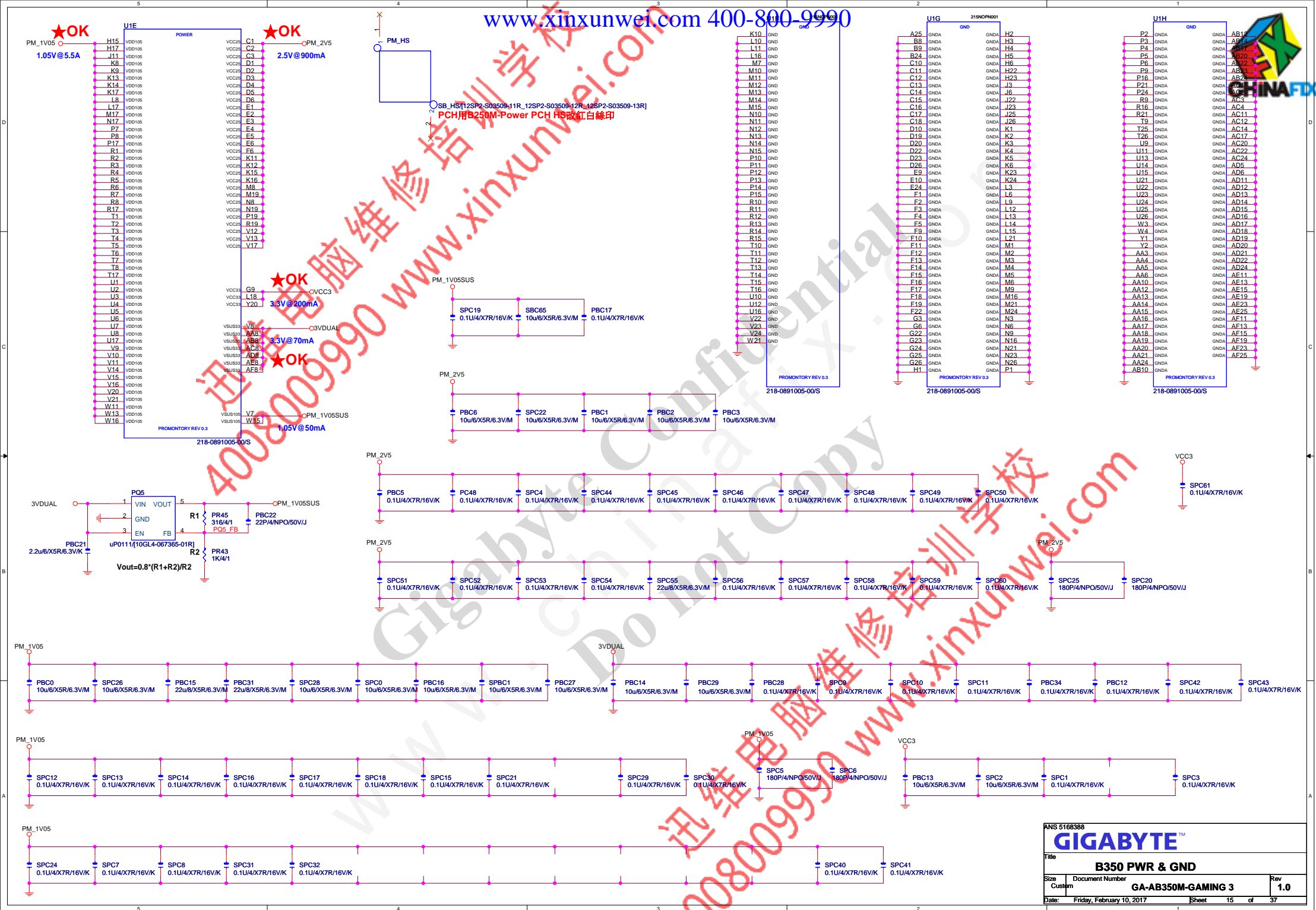
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Size Document Number  
Customer **GA-AB350M-GAMING 3** Rev **1.0**  
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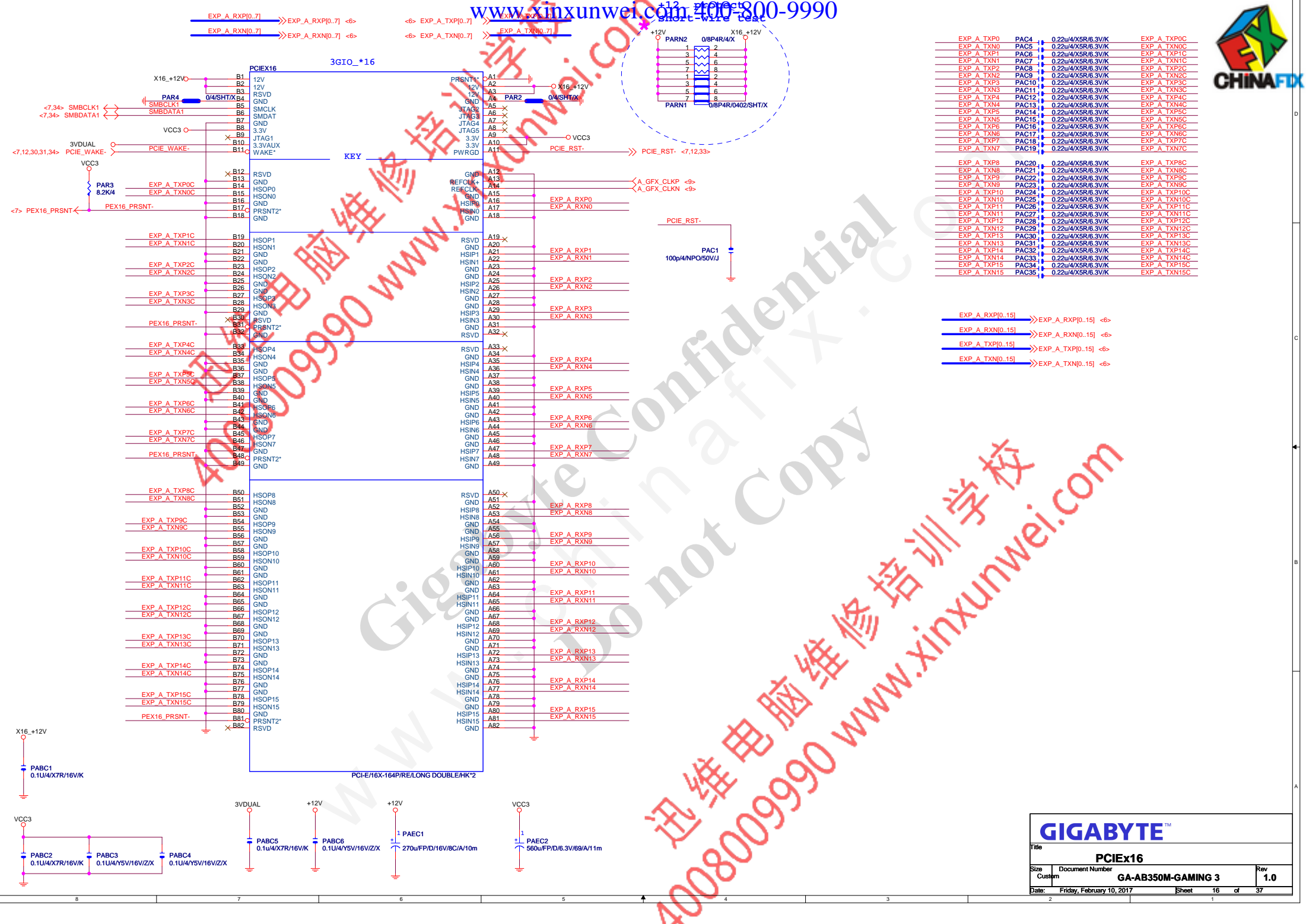




ANS 5168388			
<b>GIGABYTE™</b>			
Title			
<b>B350 SATA/SPI</b>			
Size	Document Number	Rev	
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EXP A TXP0	PAC4	0.22u/4X5R6.3V/K	EXP A TXP0C
EXP A TXN0	PAC5	0.22u/4X5R6.3V/K	EXP A TXN0C
EXP A TXP1	PAC6	0.22u/4X5R6.3V/K	EXP A TXP1C
EXP A TXN1	PAC7	0.22u/4X5R6.3V/K	EXP A TXN1C
EXP A TXP2	PAC8	0.22u/4X5R6.3V/K	EXP A TXP2C
EXP A TXN2	PAC9	0.22u/4X5R6.3V/K	EXP A TXN2C
EXP A TXP3	PAC10	0.22u/4X5R6.3V/K	EXP A TXP3C
EXP A TXN3	PAC11	0.22u/4X5R6.3V/K	EXP A TXN3C
EXP A TXP4	PAC12	0.22u/4X5R6.3V/K	EXP A TXP4C
EXP A TXN4	PAC13	0.22u/4X5R6.3V/K	EXP A TXN4C
EXP A TXP5	PAC14	0.22u/4X5R6.3V/K	EXP A TXP5C
EXP A TXN5	PAC15	0.22u/4X5R6.3V/K	EXP A TXN5C
EXP A TXP6	PAC16	0.22u/4X5R6.3V/K	EXP A TXP6C
EXP A TXN6	PAC17	0.22u/4X5R6.3V/K	EXP A TXN6C
EXP A TXP7	PAC18	0.22u/4X5R6.3V/K	EXP A TXP7C
EXP A TXN7	PAC19	0.22u/4X5R6.3V/K	EXP A TXN7C
EXP A TXP8	PAC20	0.22u/4X5R6.3V/K	EXP A TXP8C
EXP A TXN8	PAC21	0.22u/4X5R6.3V/K	EXP A TXN8C
EXP A TXP9	PAC22	0.22u/4X5R6.3V/K	EXP A TXP9C
EXP A TXN9	PAC23	0.22u/4X5R6.3V/K	EXP A TXN9C
EXP A TXP10	PAC24	0.22u/4X5R6.3V/K	EXP A TXP10C
EXP A TXN10	PAC25	0.22u/4X5R6.3V/K	EXP A TXN10C
EXP A TXP11	PAC26	0.22u/4X5R6.3V/K	EXP A TXP11C
EXP A TXN11	PAC27	0.22u/4X5R6.3V/K	EXP A TXN11C
EXP A TXP12	PAC28	0.22u/4X5R6.3V/K	EXP A TXP12C
EXP A TXN12	PAC29	0.22u/4X5R6.3V/K	EXP A TXN12C
EXP A TXP13	PAC30	0.22u/4X5R6.3V/K	EXP A TXP13C
EXP A TXN13	PAC31	0.22u/4X5R6.3V/K	EXP A TXN13C
EXP A TXP14	PAC32	0.22u/4X5R6.3V/K	EXP A TXP14C
EXP A TXN14	PAC33	0.22u/4X5R6.3V/K	EXP A TXN14C
EXP A TXP15	PAC34	0.22u/4X5R6.3V/K	EXP A TXP15C
EXP A TXN15	PAC35	0.22u/4X5R6.3V/K	EXP A TXN15C

EXP A_RXP[0..15]	>>>EXP_A_RXP[0..15] <-6>
EXP A_RXN[0..15]	>>>EXP_A_RXN[0..15] <-6>
EXP A_TXP[0..15]	>>>EXP_A_TXP[0..15] <-6>
EXP A_TXN[0..15]	>>>EXP_A_TXN[0..15] <-6>

GIGABYTE™

PCIe16

Size

Custom

Date:

Friday, February 10, 2017

Document Number

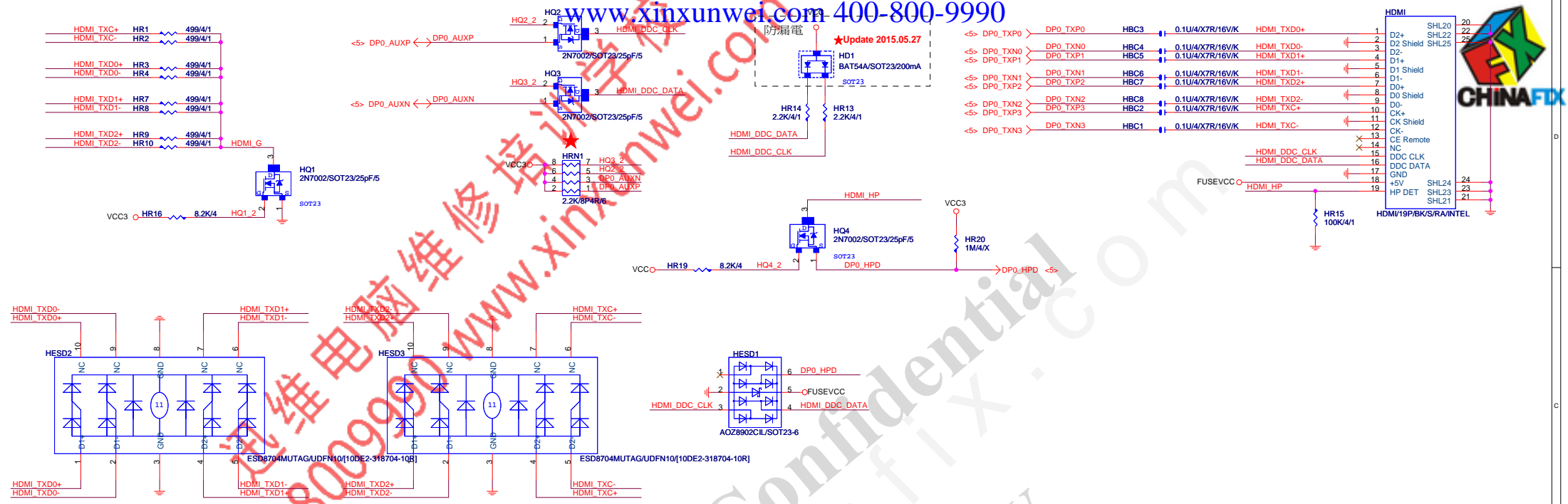
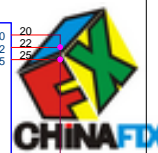
GA-AB350M-GAMING 3

Rev

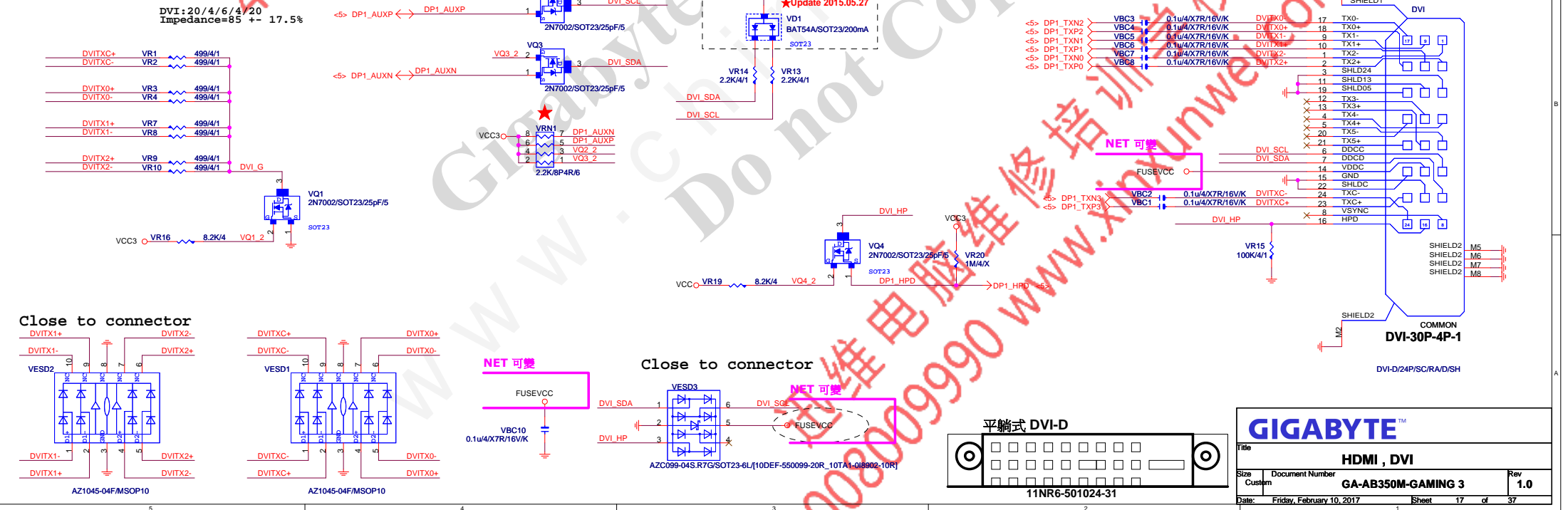
1.0

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Rev: 0.73 DVI CONN



GIGABYTE™		
HDMI, DVI		
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## PWR SHT

IT\_VCCCH OR42 0.6/SH/7X 3V3DUAL  
IT\_AVCCO OR8 0.4/SH/7X 3V3DUAL

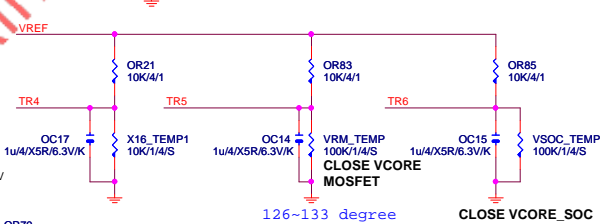
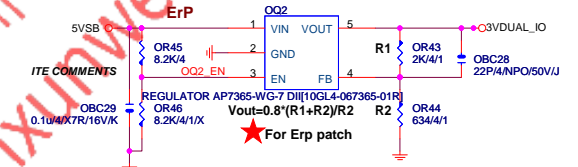
## SIO PU

IO GP17 OR84 8.2K/4X 3V3DUAL  
LDRQ0- OR27 1K/4/1 VCC3  
ITE PWROK OR10 1K/4/1 VCC3  
APU PROCHOTL OR29 8.2K/4 VCC3

## SIO STRAP

JP2 RT31 8.2K/4 VCC3  
JP3 OR35 8.2K/4X 3V3DUAL  
JP4 OR32 8.2K/4 3V3DUAL  
JP5 OR12 8.2K/4 3V3DUAL  
JP6 OR37 8.2K/4 3V3DUAL

JP2	1	Disable WDT to rest PWROK
JP2	0	Enable WDT to rest PWROK
JP3		Dual-BIOS CS pin mode select bit "0" See the below table
JP4	1	LPC/ESPI power VCCBT = 3.3V
JP4	0	LPC/ESPI power VCCBT = 1.8V
JP5	1	LPC I/F
JP5	0	ESPI I/F
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
JP6	0	Disable Dual BIOS Function (for GigaByte Only)
JP7		Dual-BIOS CE pin mode select bit "1" See the below table
JP7	1 1	CE pin disable (Hold pin mode)
JP7	1 0	CE mode 1
JP3	0 1	CE mode 2
JP3	0 0	CE mode 3

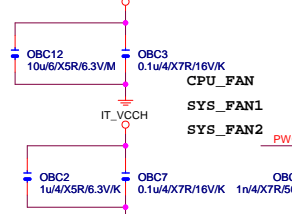


**GIGABYTE**

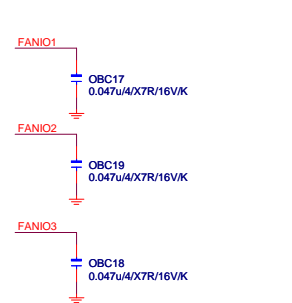
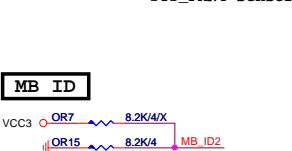
Title			
ITE 8628CX , HWM , TPM , KB_MS_USB			
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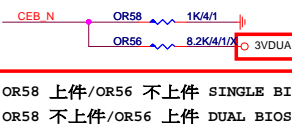
## SIO CAP



## MB ID

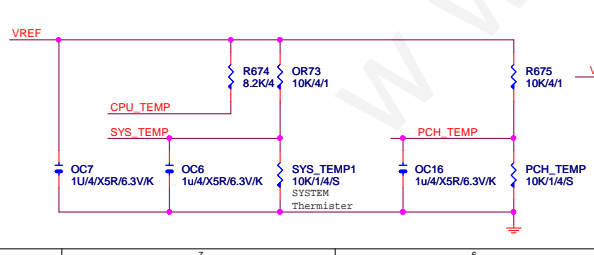


## DUAL BIOS OPT STRAP

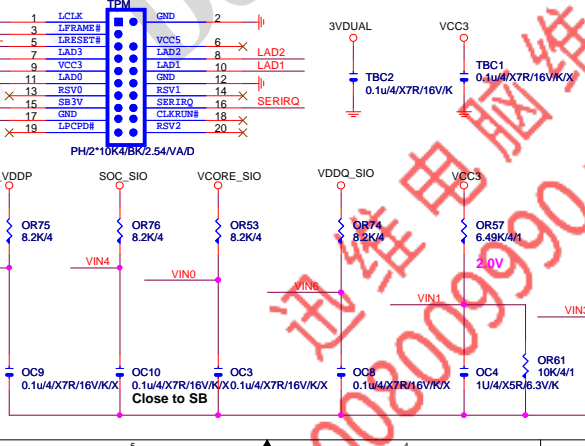
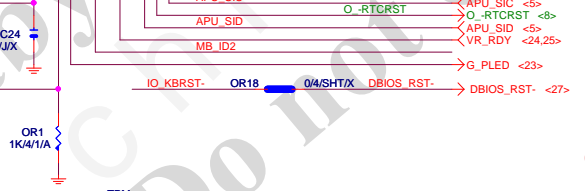
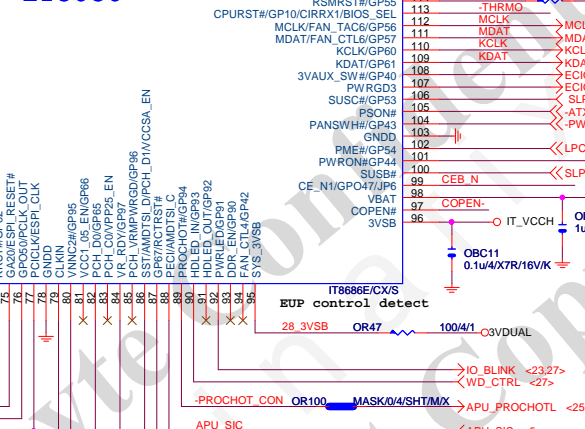


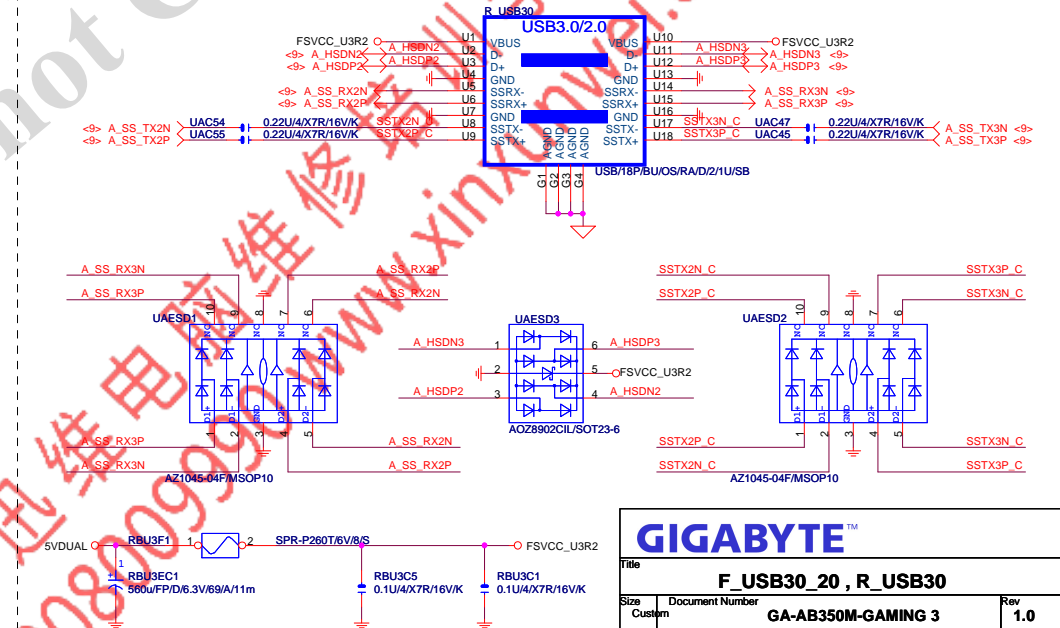
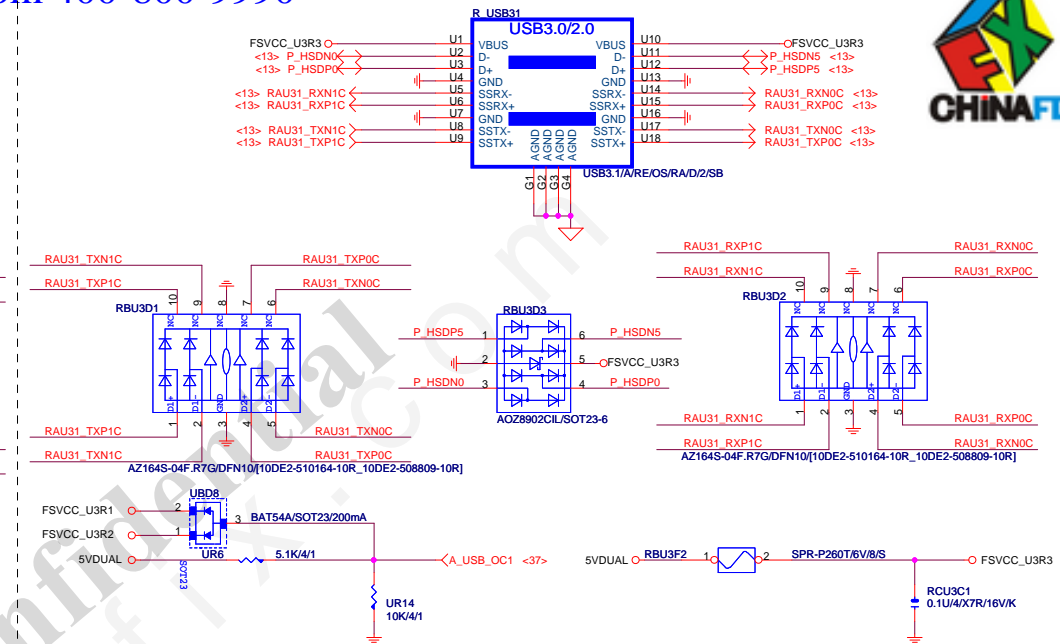
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

## Hardware Monitor circuits

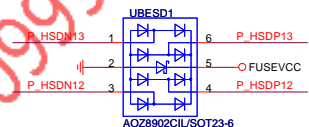


## IT8686

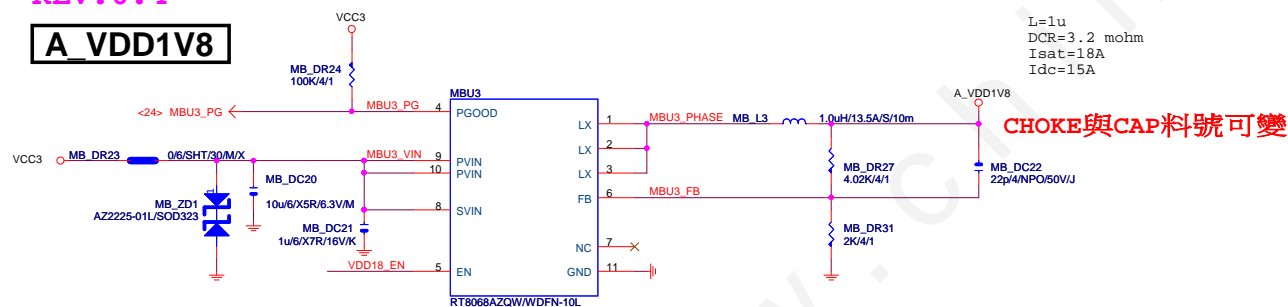




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**A\_VDD1V8**

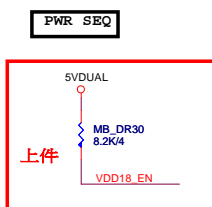
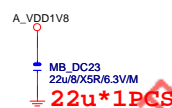
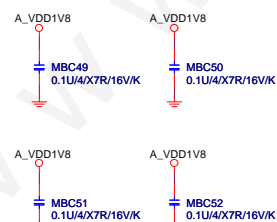


L=1u  
DCR=3.2 mohm  
Isat=18A  
Idc=15A

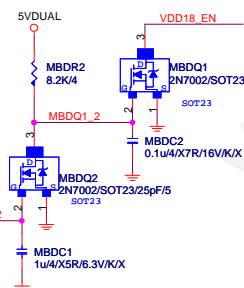
### CHOKES與CAP料號可變

VPP CAP

★ 大電容 x0



\* 冊 MA DR32



CORETYPE1	CORETYPE0	VPPD_ALW
1	X	0.9V
0	X	1.05V

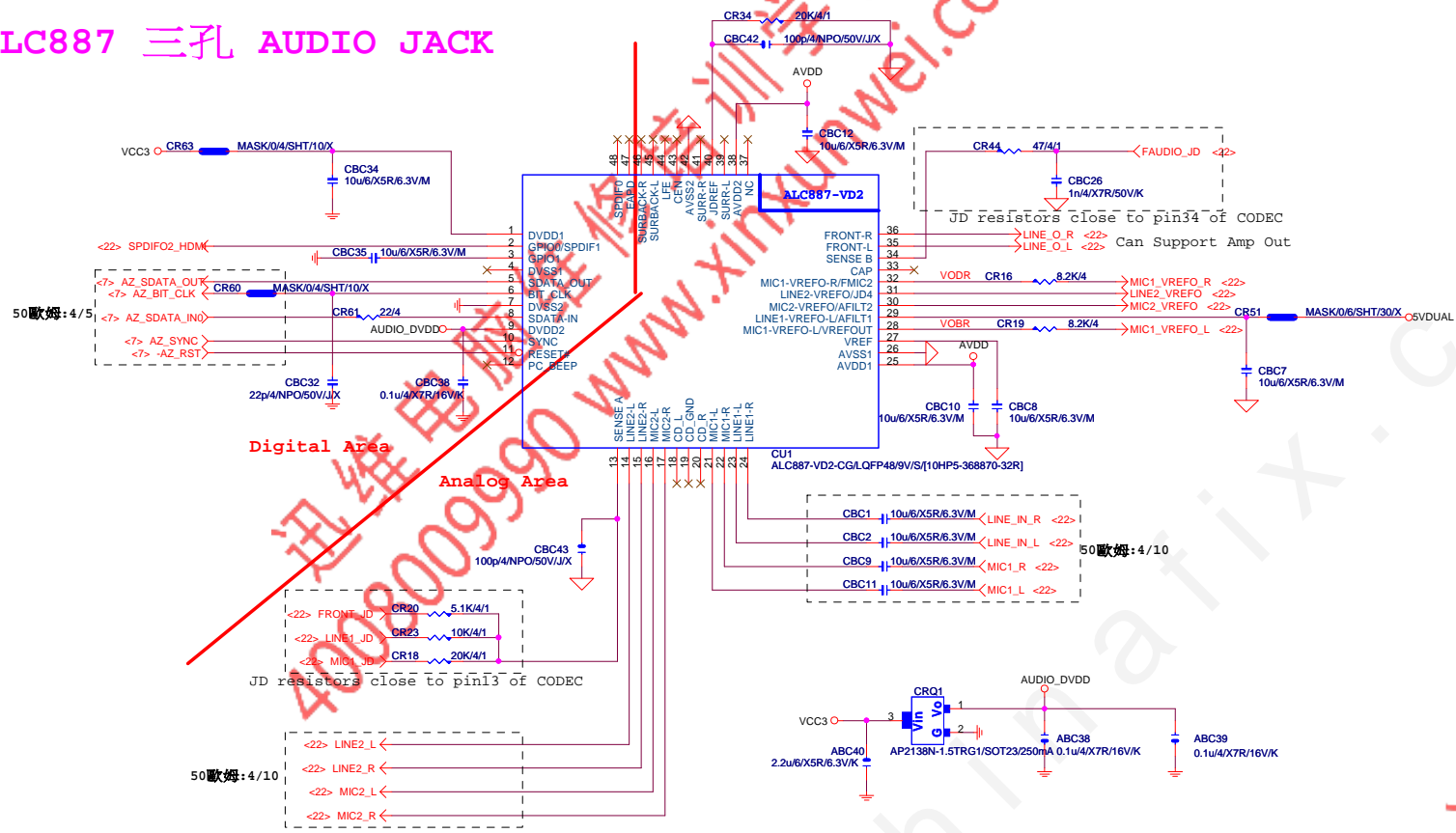
【技術通報R&amp;D技術通報156】

RT9018 (RICHTER) 與 NCT3730 (NUVOTON),  
EM5103GE (EMC) 做共用, 針對 PIN7 (FB) 分壓阻值部份  
(R1/R2) 須做修改為 100K 以上電阻值

$$0.8 * [(R1+R2)/R1] = V_{out} = 1.121V$$

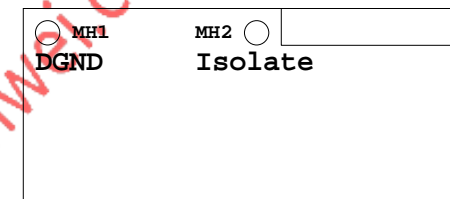


## ALC887 三孔 AUDIO JACK



LAYOUT注意: 螺絲孔下GND方式

1. MH1空間夠, 下DGND
2. MH2一律改為Isolate



LAYOUT注意: 要加

GND切割線

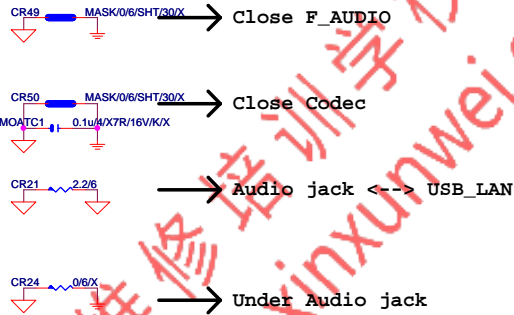


- BOM OPTION :
1. Chemicon 音效電容
  2. 金屬外罩 Reserve (上件與否, 依照各Model spec)
  3. LED Reserve (上件與否和LED顏色, 依照各Model spec)

GIGABYTE™		
Title		
ALC887 CODEC		
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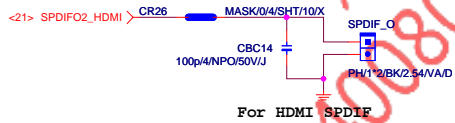
Rev 0.5

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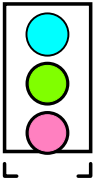
\*量產前,0ohm改short pad

#### SPDIF\_OUT

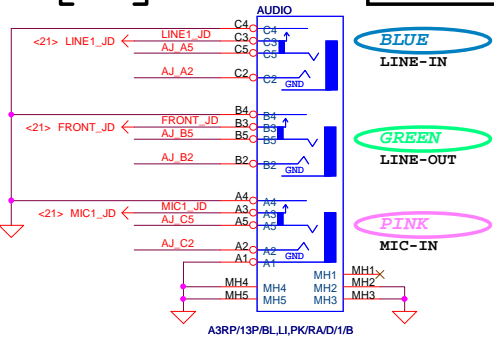


#### SPDIF\_IN

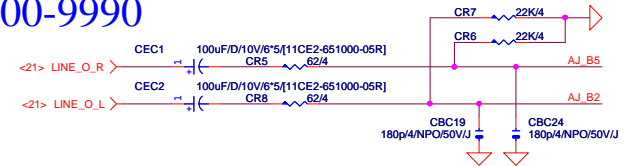
#### AZALIA JACK



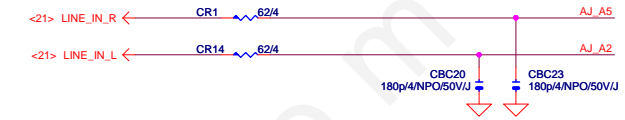
#### AZALIA JACK



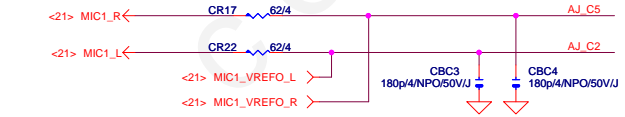
#### LINE-OUT



#### LINE-IN



#### MIC-IN

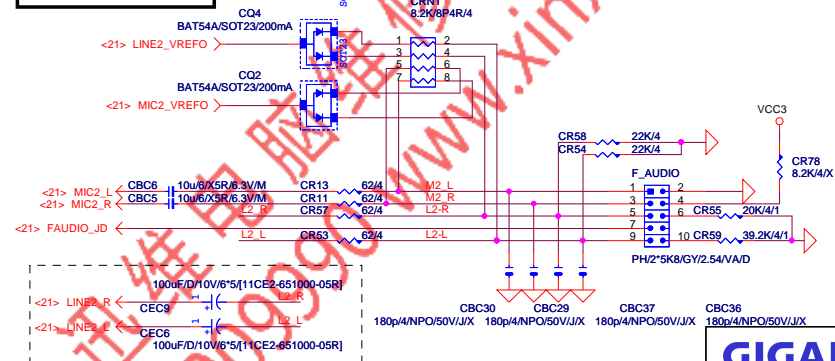


#### SURROUND

#### CEN/LFE

#### SURR BACK

#### AZALIA FRONT PANEL



**GIGABYTE**

Title		
AUDIO JACK		
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4008009990 www.xinxunwei.com

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4008009990

www.xinxunwei.com

www.xinxunwei.com 400-800-9990

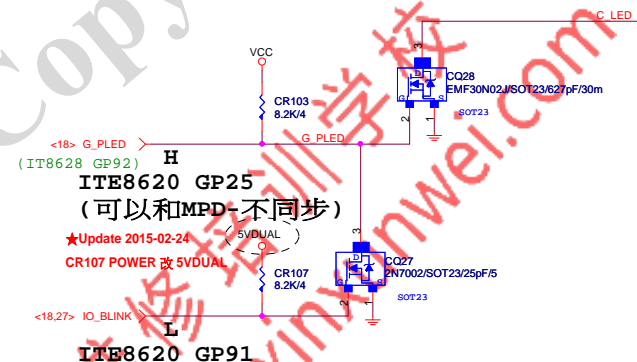
請自行修改

ED:LED/Y/6/S)

Still Mode
OFF Mode
Pluse Mode
Beat Mode

<18> G\_PLED > H  
 (IT8628 GP92) ITE8620  
 (可以和M  
 ★Update 2015-02-24  
 CR107 POWER 改 5V  
 <18.27> IO\_BLINK > L  
 ITE8620

: 1. Chemicon音效電容  
 2. 金屬外罩 Reserve (LAYOUT上件與否,依照各Model spec)  
 3. LED Reserve (上件與否和LED顏色,依照各Model spec)



.com 400-800-9990

AUDIO LED Control			
	IO_GP25	IO_GP23	IO_GP91
Still Mode	L	H	L
OFF Mode	L	L	L
Pluse Mode	L	H	BREATH
Beat Mode	OD	H	L

LED PW  
ED10  
RN0603/S  
C\_LED

VCC  
CR103  
8.2K/4  
<18> G\_PLED  
(IT8628 GP92)  
**H**  
**ITE8620 GP25**  
(可以和MPD-不同步)  
★Update 2015-02-24  
CR107 POWER 改5VDUAL  
5VDUAL  
CR107  
8.2K/4  
<18,27> IO\_BLINK  
**L**  
**ITE8620 GP91**

G\_PLED  
CO28  
EMF30N02/SOT23/62pf/30m  
SOT23  
CO27  
PN7002/SOT23/25pF/5  
SOT23

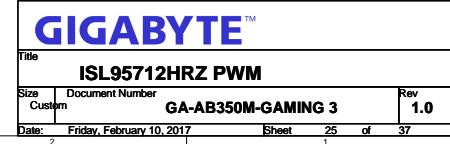
GIGABYTE

Title  
Size Custom  
Date: Friday, February 10, 20

3 2

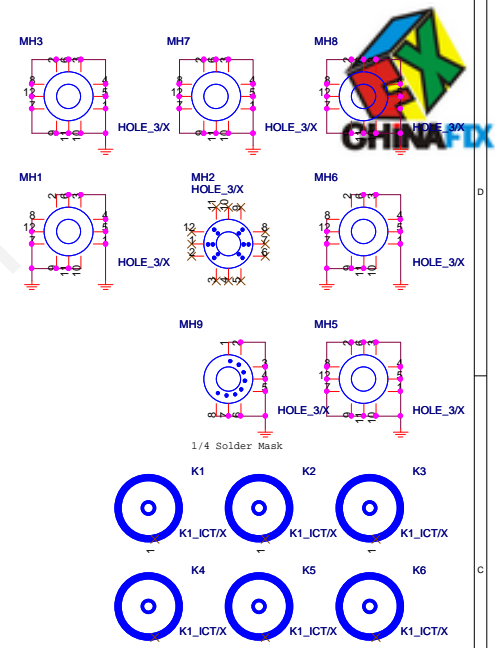
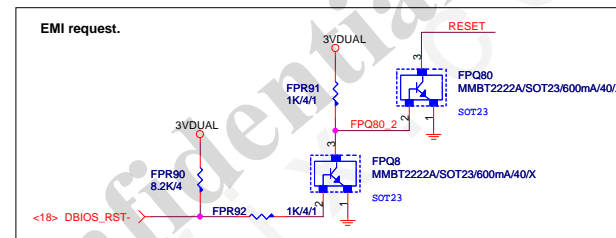
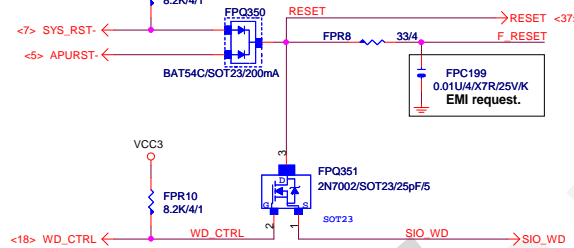
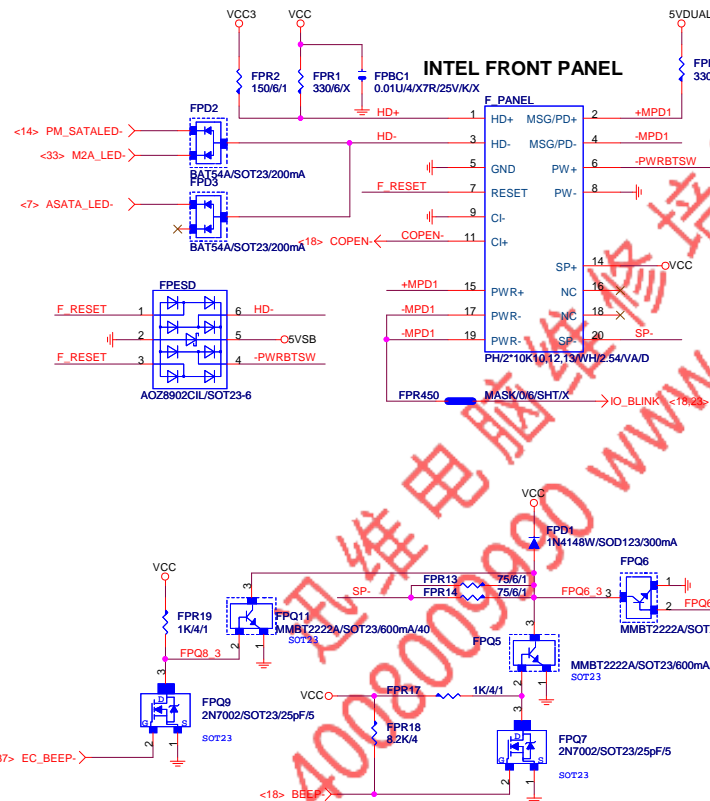




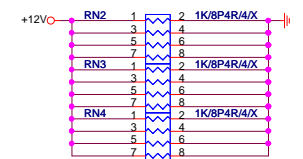
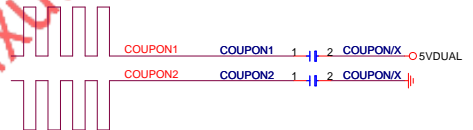
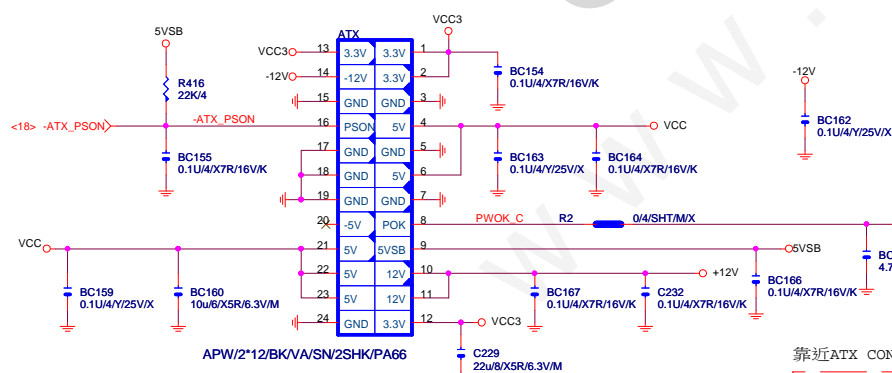




## INTEL FRONT PANEL



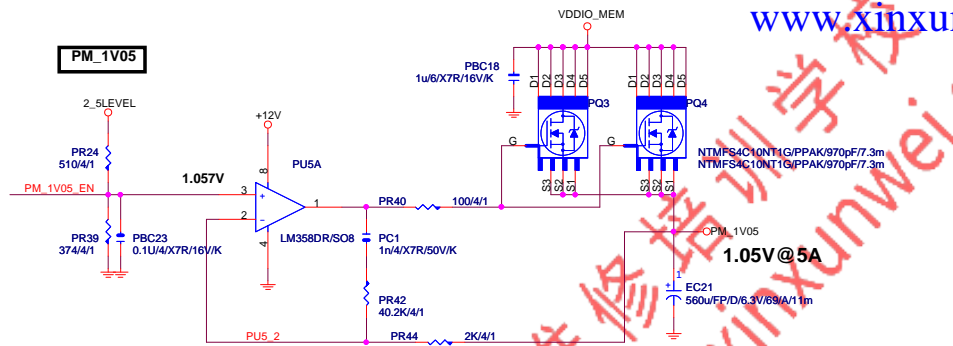
## ATX POWER CONNECTOR



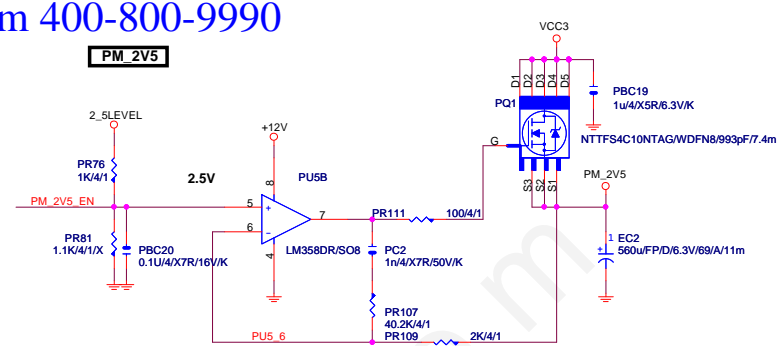
GIGABYTE™			
Title			
ATX, FRONT PANEL-1			
Size			
Custom			
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Rev 1.0			
GA-AB350M-GAMING 3			



PM\_1V05

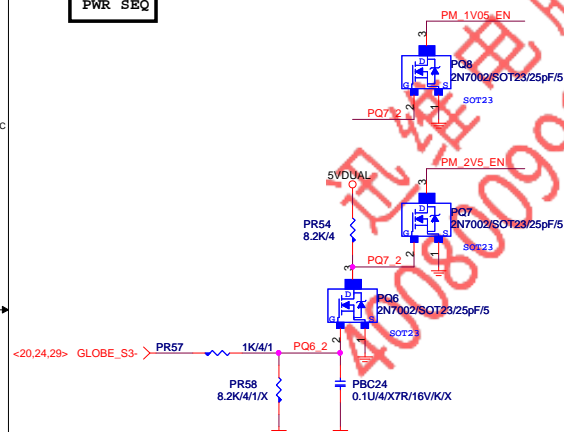


PM\_2V5

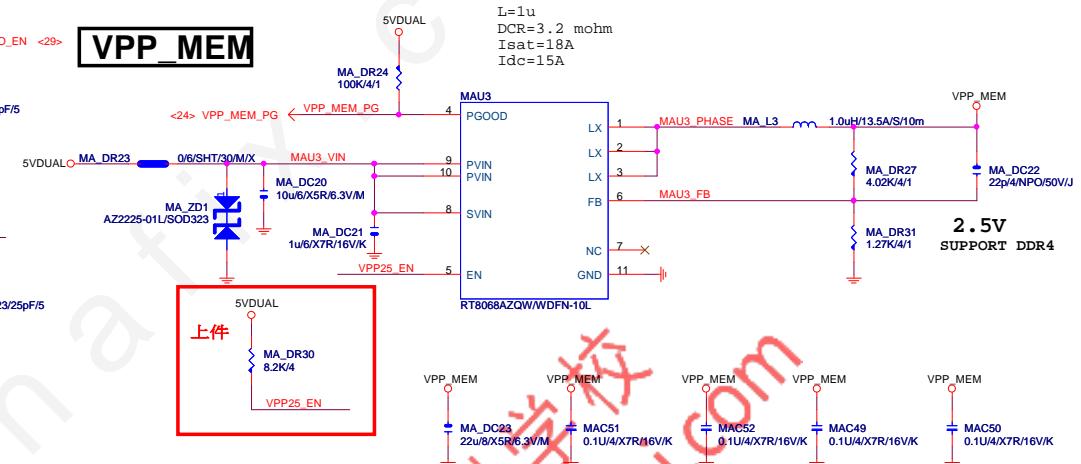


PWR\_SEQ

PWR\_SEQ

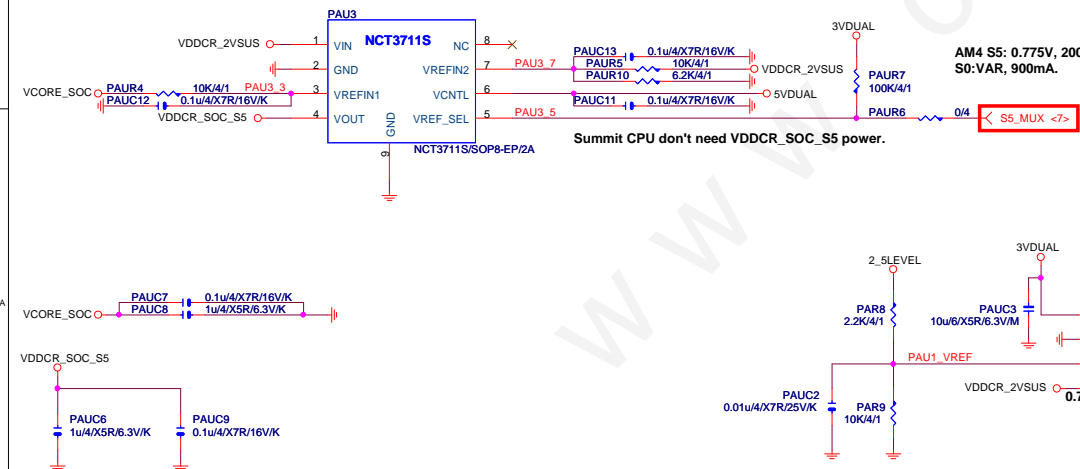


VPP\_MEM



VDDCR SOC S5

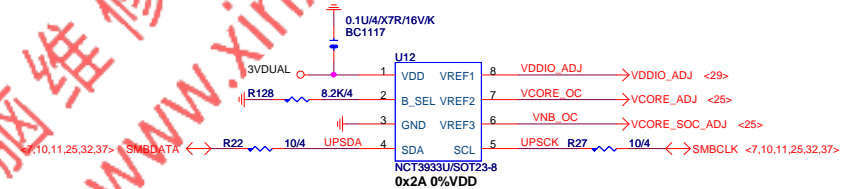
S5\_MUX: S0-->High, S5-->Low  
H: VDDCR\_SOC\_S5 will track VCORE\_SOC.  
L: If VCORE\_SOC < 0.775V (OR 0.85V), VDDCR\_SOC\_S5=0.775V.  
If VCORE\_SOC >= 0.775V (OR 0.85V), VDDCR\_SOC\_S5 will trace VCORE\_SOC.



AM4 S5: 0.775V, 200mA,  
S0:VAR, 900mA.

S5\_MUX <7>

Summit CPU don't need VDDCR\_SOC\_S5 power.

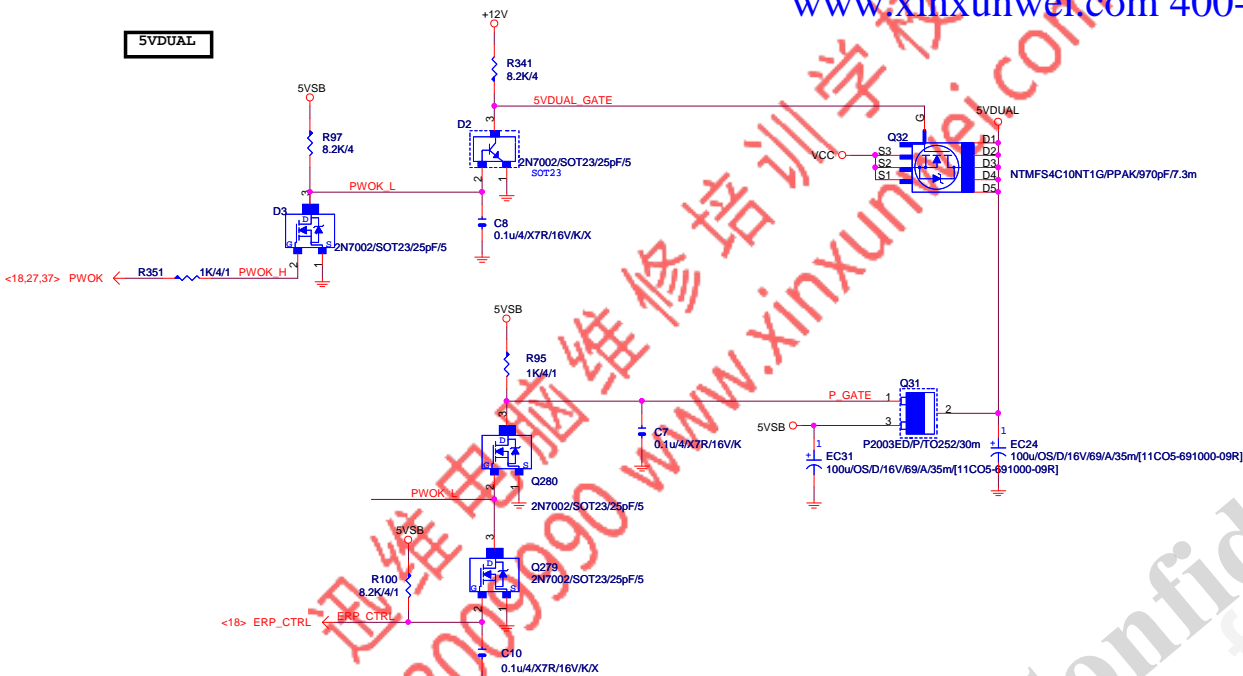


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Title		
SB PWR,VDDA25,VCC11DUAL		
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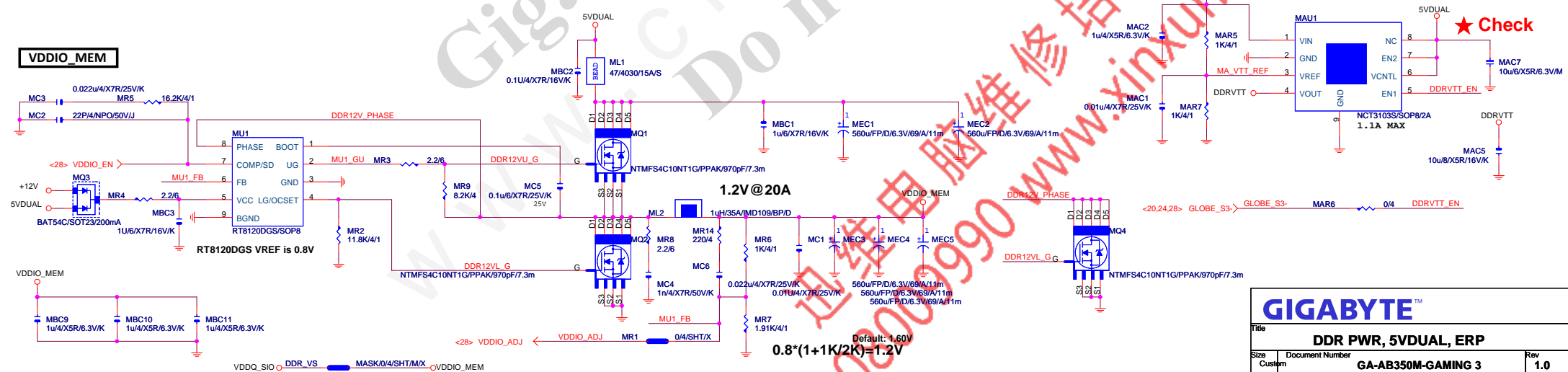


## 5VDUAL



## DDRVT

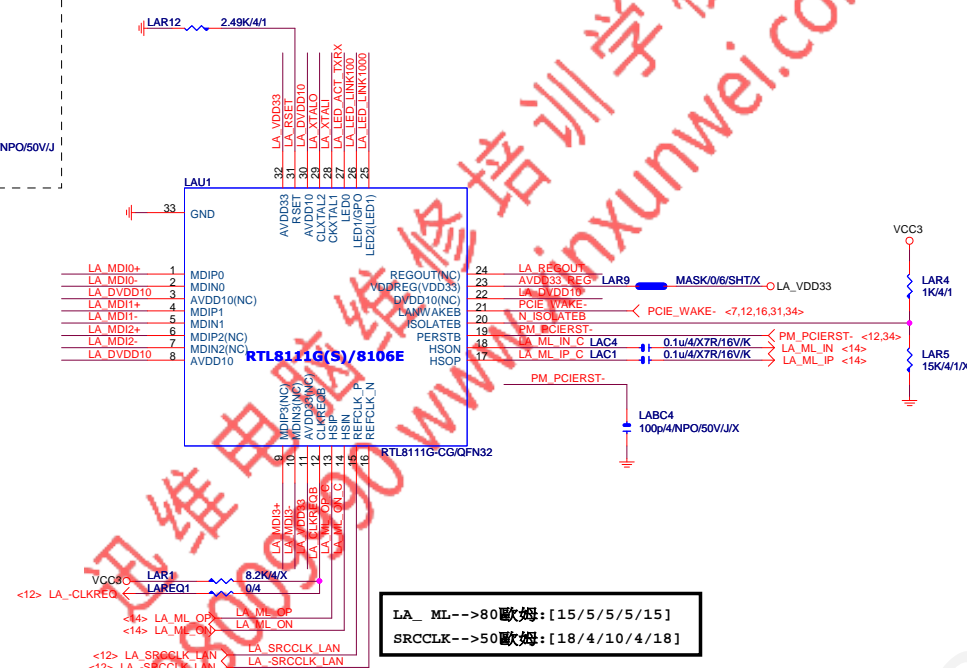
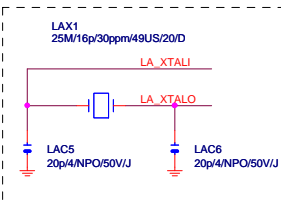
## VDDIO\_MEM



GIGABYTE™

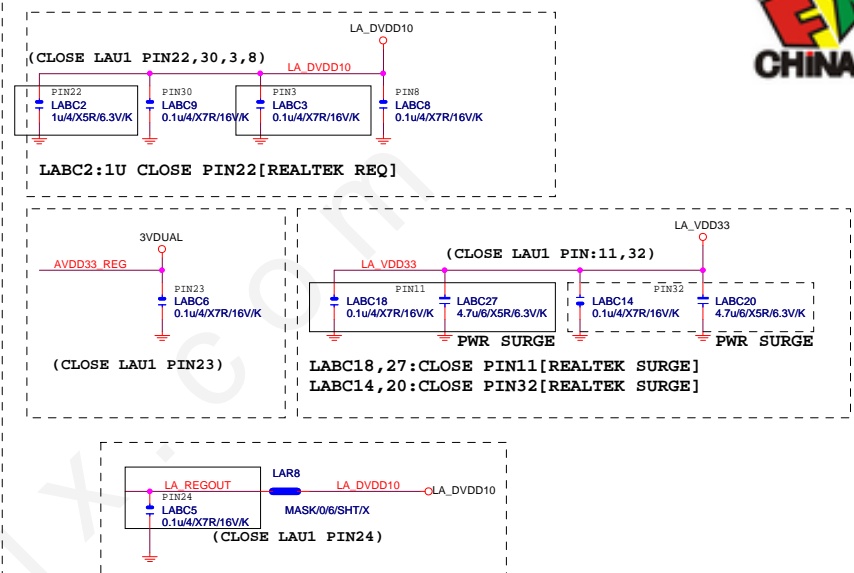
Title		
DDR PWR, 5VDUAL, ERP		
Size	Document Number	Rev
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# LAN:RTL8111G



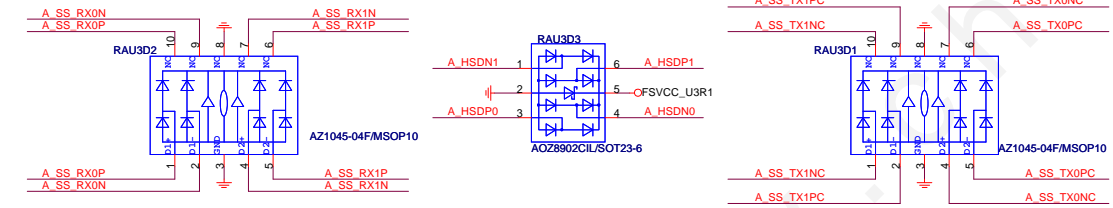
LA\_ML-->80欧姆:[15/5/5/5/15]  
SRCCLK-->50欧姆:[18/4/10/4/18]

# LAN POWER

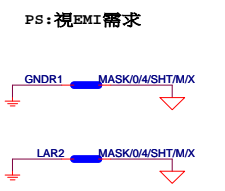
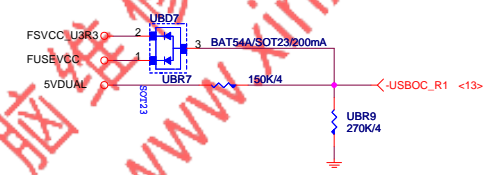
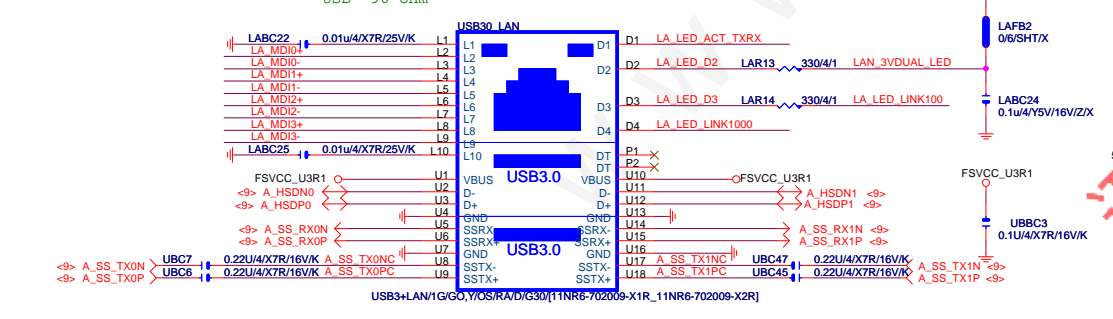


NOTE:  
RT8106E:PIN3,11,22,24-->NC  
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

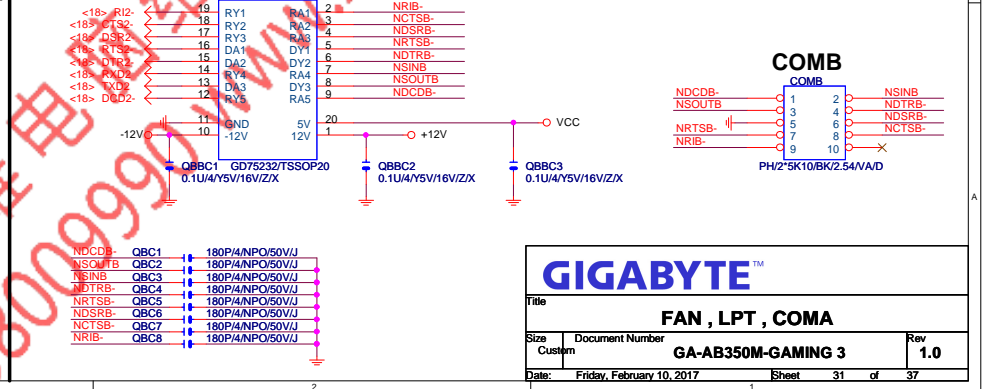
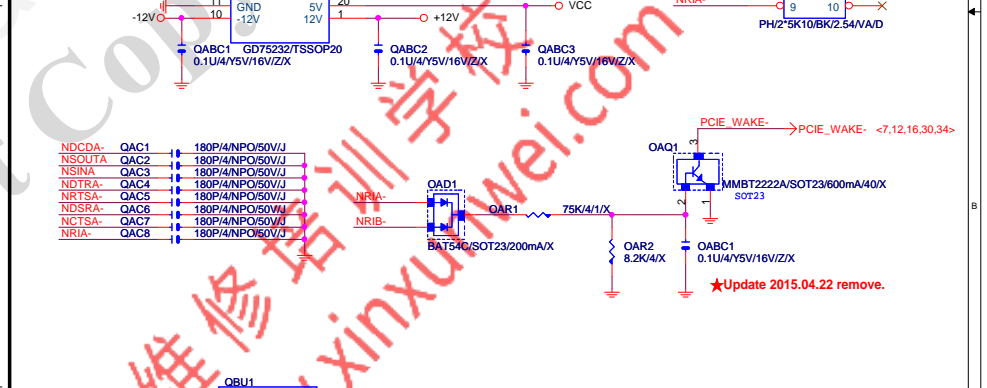
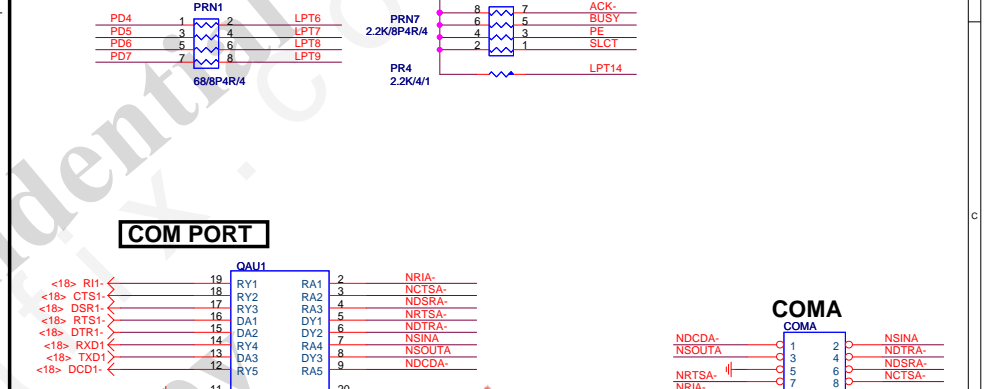
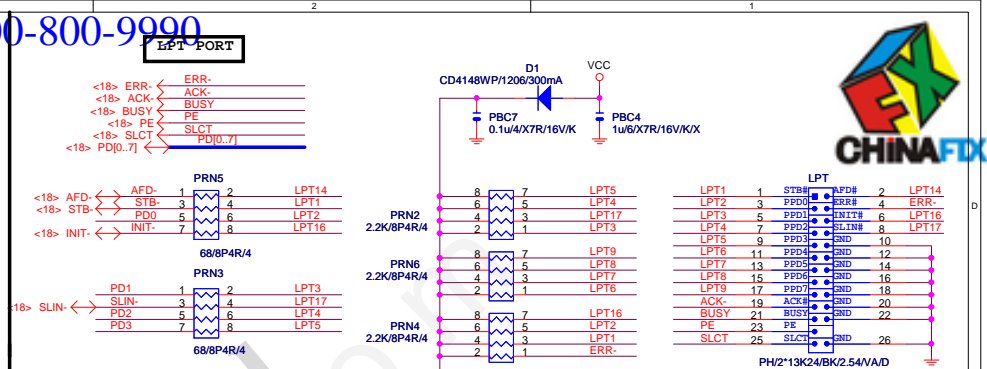
# USB LAN

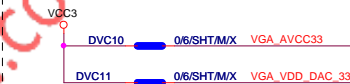


# USB LAN CONNECTOR



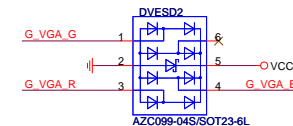
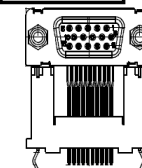
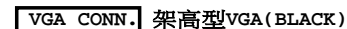
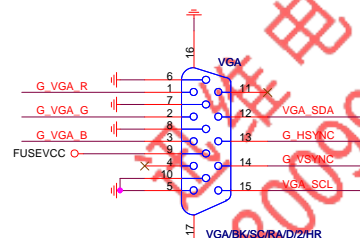
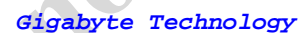
GIGABYTE™		
Title		
RTL8111G , USB31		
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VCC3 ○ DVR13 8.2K/4/X VGA\_LDO E

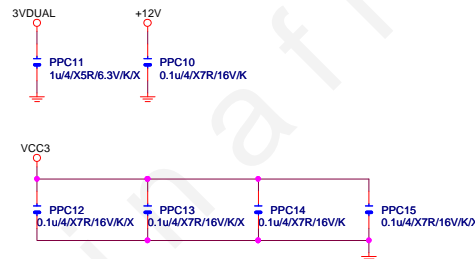
DP HPD



Title			
RTD2168			
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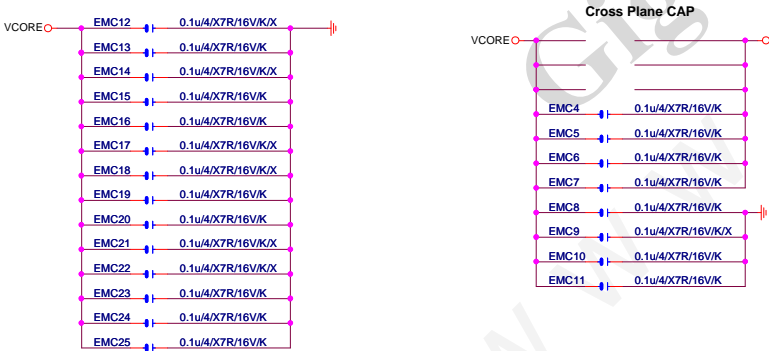






			
<b>PCIEx4, PCIEx1</b>			
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CPU TOP			
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