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Model Name: GA-H87-HD3

1.12

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC892 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET	TITLE
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
37	
38	
39	
40	

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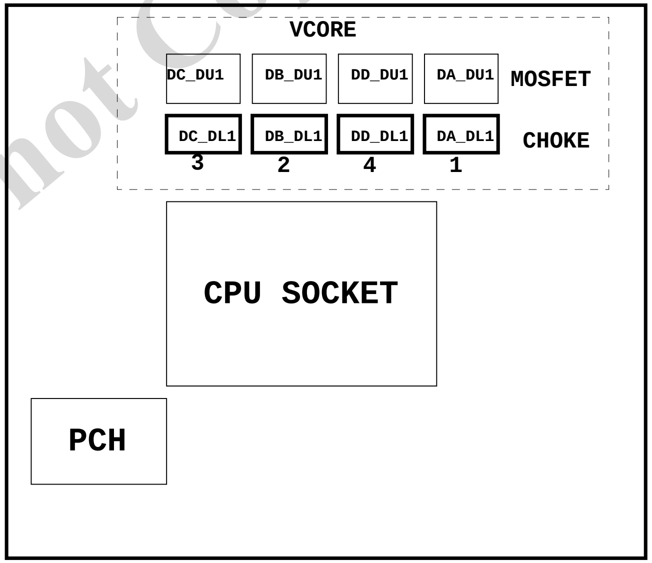

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GA-H87-HD3

Component value change history

Data	Change Item	Reason
2012/12/11 EBOM:01	E-BOM	
2013/01/18 EBOM:02	1.修改HDMI阻值	
	2.修改cpu vcore load line /DVID 阻值	
	3.修改PROCHOT 阻值	
	4.修改DDR DIMM 顏色順序	
	5.DR166 1K--->5.76K FOR CPU loadline calibration	
2013/03/22 PBOM:10A	1.LEVEL SHIFT限用NXP	
	2.不用PROCHOT改用Thermtrip線路	
2013/03/29 PBOM:10B	1.DVI LEVEL SHIFT NXP------>ASM1442	
2013/05/13 PBOM:10C	1.change MOS-HS	
2013/06/28 PBOM:11A	1.H87 C1 CHIP change TO C2	
	2.OR80 移除,dissable ITE OVP PROTECT	
2013/07/11 PBOM:11B	1.DEL CD1,R704,ADD R706,R705 715 ---->825	
2013/09/23 EBOM:11C	1.FOR PCB 1.11 E-BOM	
2013/10/16 EBOM:11H	FOR PCB 1.12 E-BOM	
	1.NX1 25MHZ/20PF --->25MHZ/12PF;NC7,NC8 27PF ------>10PF FOR CRYSTAL 干擾ISSUE	
2013/10/16 EBOM:11I	1.NC7,NC8 10PF ------>12PF FOR RTC TIMING	

Circuit or PCB layout change

DATE	Change Item	Reason
2012/12/07 PCB:0.1	1.由Z87-D3H 修改成Z87-HD3-0.1	
2013/01/16 PCB:0.2	1.CS 1*1 PIN ---->1*2 PIN 2.front panel update footprint	
	3.NC59跟NR132 位置互換 4.N_CLK_RCOMP SPACE 調整	
	5.ADD DISABLE ME SCH 6. WR59 SHORT----->499/4/1 7.ADD VCORE OVER VOLTAGE CIRCUIT	
	8.MAU2 REF GND,ML1轉向 9.SATA/PCIEX16 WIDTH/SPACE修正.	
	10.PI_-PCIE_CLK1 / PE_-SRCCLK_3GIO1 換位置FOR PCIE 2.0 CLCOK	
	11.ALL SYS FAN換成3941S-A	
2013/03/01 PCB:1.0	1.SYS_FAN short protection	4.部分0 ohm改short pad
	2.PWR_LED change to IO_GP65	5.Add +12V dummy load control
	3.Add N_GPIO37 pull up VCC3	6.Add 5VSB/5VDUAL OVP protection
	7.WBC35~46;MBC48~51;SBC1/2 背板電容改MASK	8.預留N_PCH_DPWROK 控制線路
	9.修正usb2.0 對應到usb3.0 名稱及位置	
2013/03/21 PCB:1.01	1.CPU_FAN ADD 100UF CAP FOR 12V DROOP ISSUE	
2013/03/22 PCB:1.02	1.NR177 SHORT WIRE -----> 0402 SIZE	
2013/06/27 PCB:1.1	1.修改HDMI footprint -2 ----------->-3 固定孔加大	
2013/09/11 PCB:1.11	1.Crystal (25MHZ / 32.768KHz) ref GND /width/space	
	2.CPU fan R676 0402----->0603,UPDATE 3941S-A FOOTPRINT	
	3.DDR VDDSPD 0402----->0603/POLY FUSE CO-LAY	
	4.POWER PAK (Q_TDSON8-GDS-T)/ 1206 POLY FUSE UPDATE FOOTPRINT	
	5.UPDATE PCIEX16 FOOTPRINT"PCIESLOT-164DN-Q-1"	
	6.ADD FPR22,FPR23 FOR SATA LED	
	7.PCIEX4 CLOCK(PE_SRCCLK_3GIO1)由PIN R6,R7 換成PIN W7,W6 避免跟CRYSTAL 25MHZ干擾	
2013/10/01 PCB:1.12	1.FRONT USB 2.0 OVP PROTECT	

BLOCK DIAGRAM

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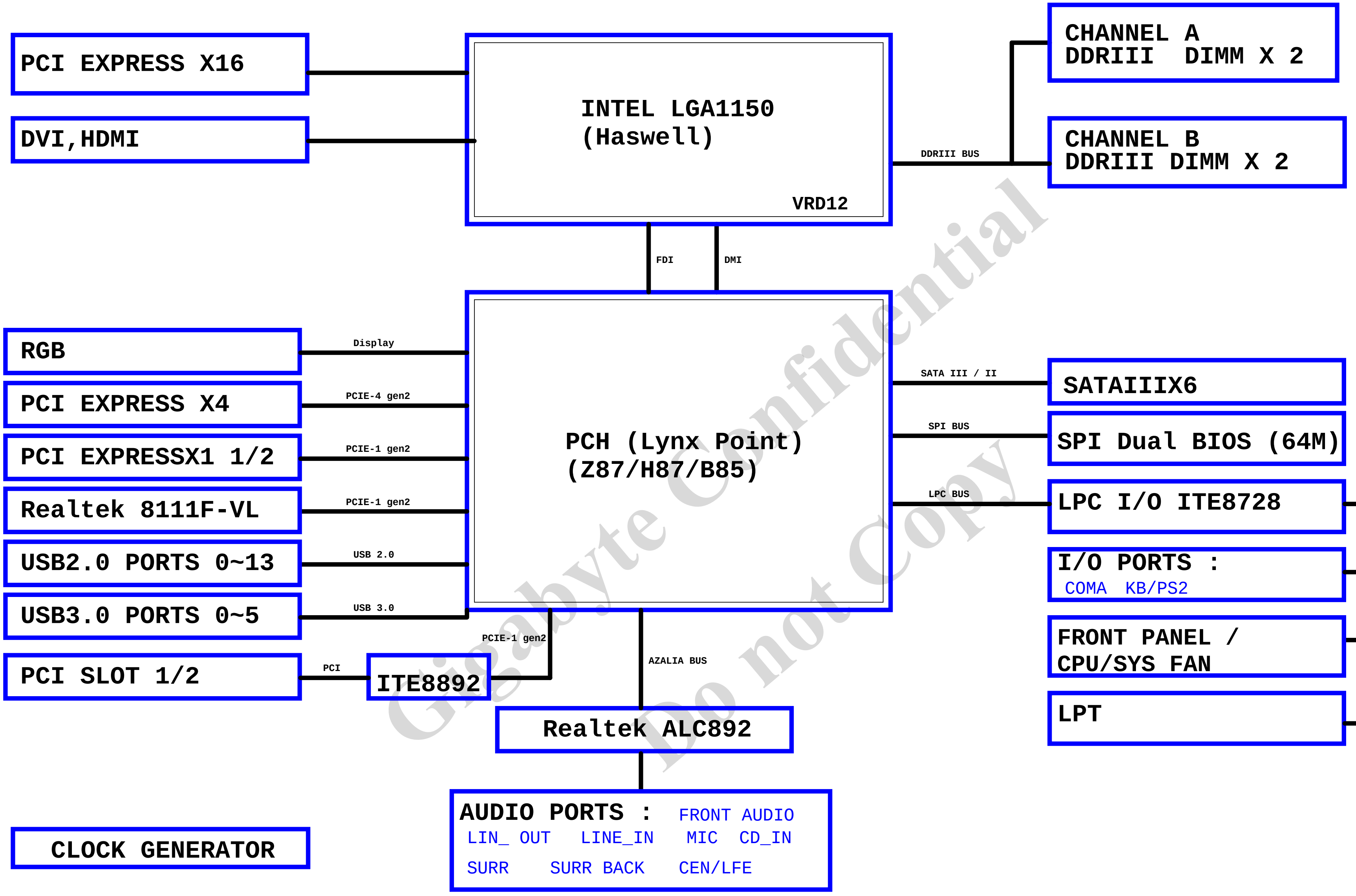

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Gigabyte Technology		
Title	BLOCK DIAGRAM	
Size C	Document Number GA-H87-HD3	Rev 1.12
Date: Friday, October 25, 2013	Sheet 3 of 34	

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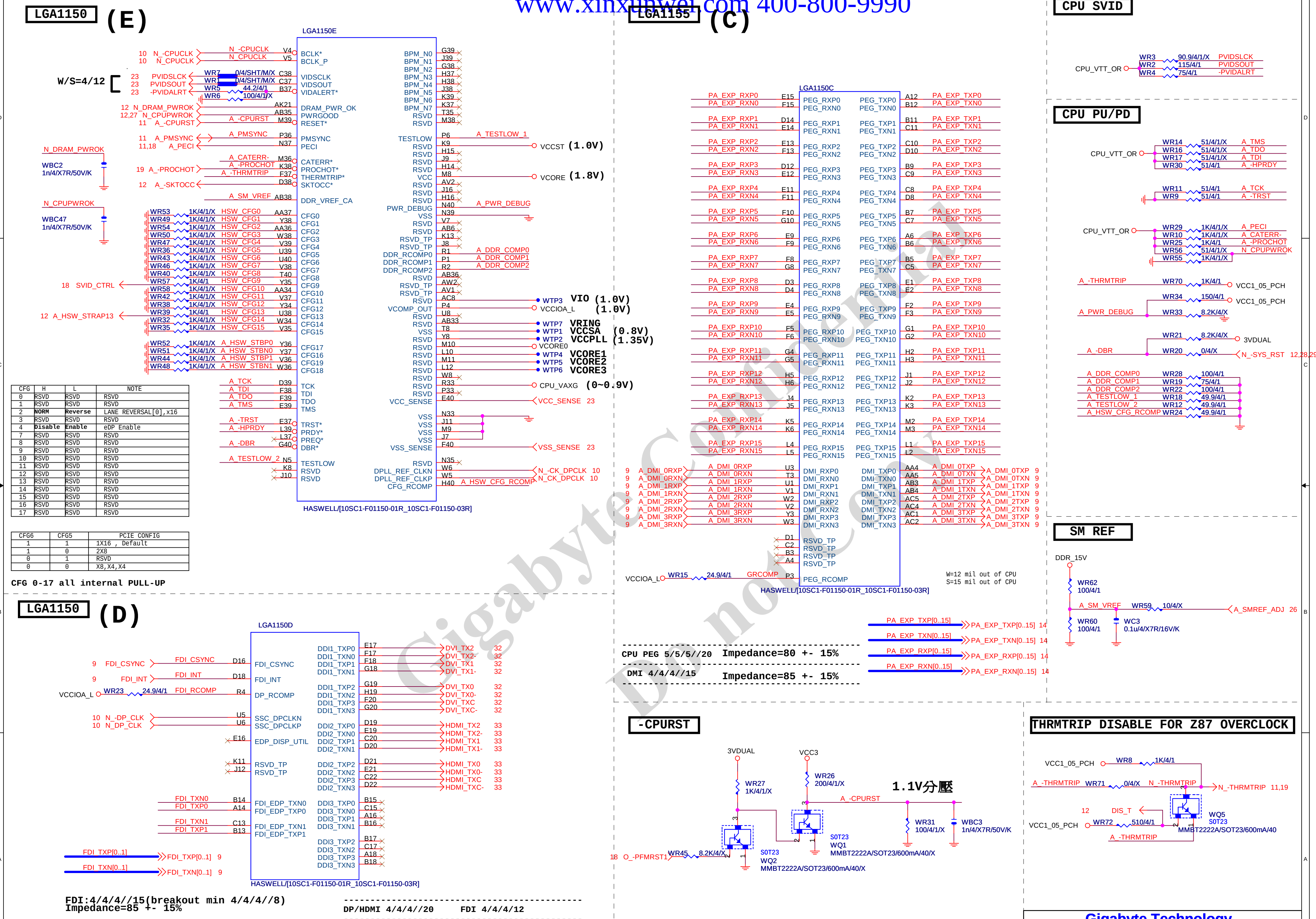

CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

Gigabyte Technology

Title: CPU LGA1150-A

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

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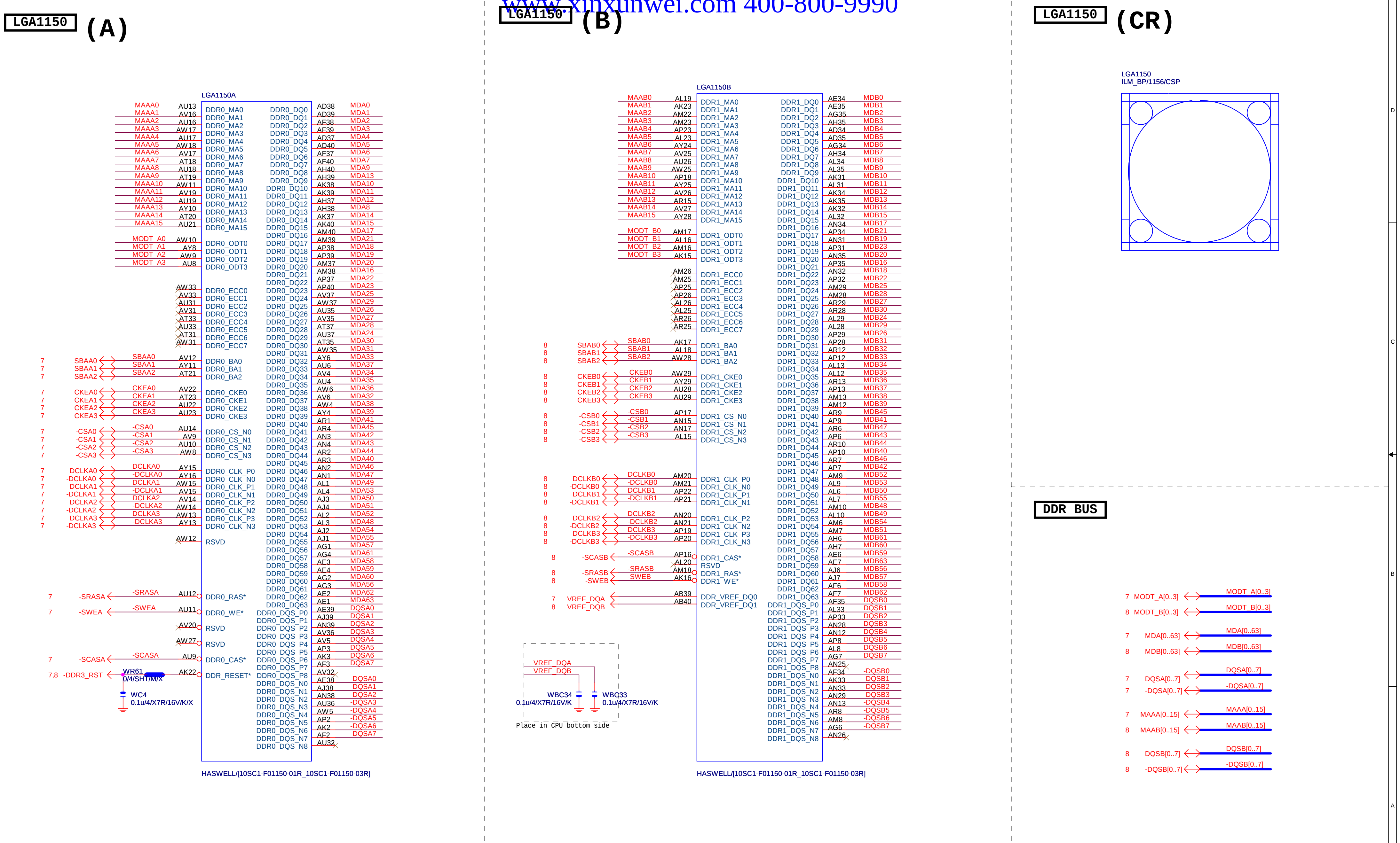

Gigabyte Technology			
Title	CPU LGA1150-B		
Size: Custom	Document Number: GA-H87-HD3		Rev: 1.12
Date: Friday, October 25, 2013	Sheet 5 of 34		

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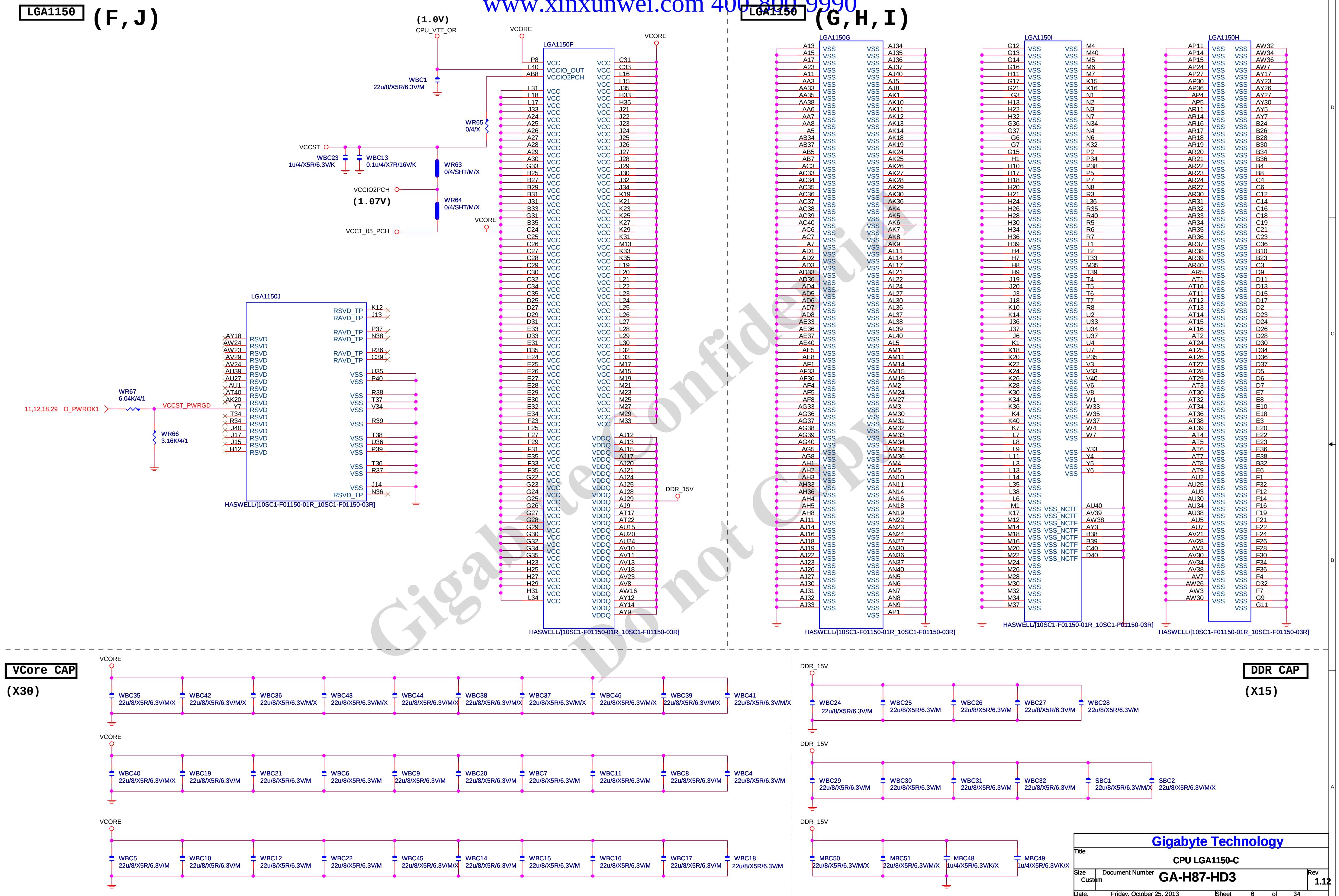

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Gigabyte Technology

Title: CPU LGA1150-C

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 6 of 34

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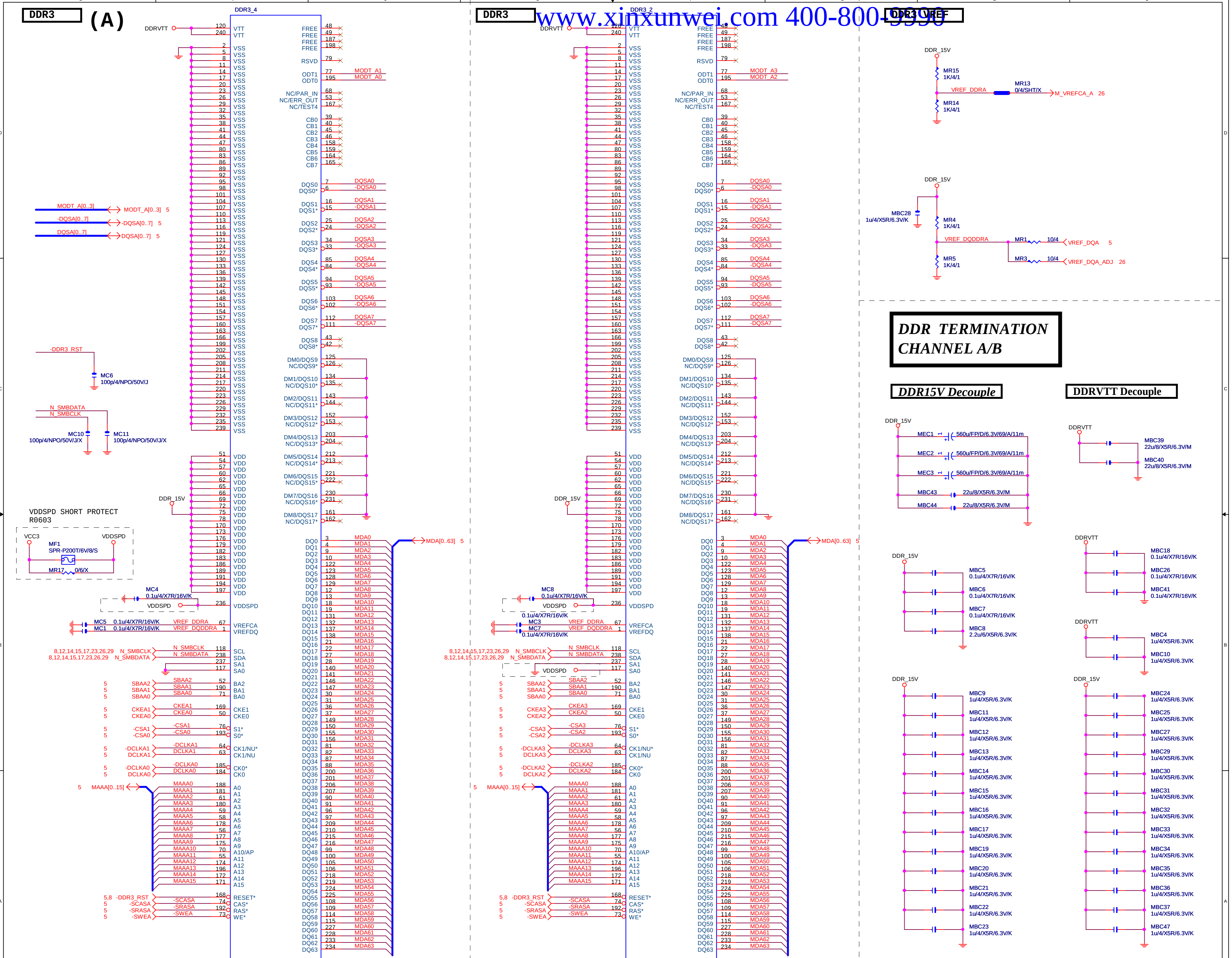

Gigabyte Technology

Title: DDRIII CHANNEL A

Size	Document Number	Rev
Custom	GA-H87-HD3	1.12

Date: Sheet 7 of 34

DDR3 (B)

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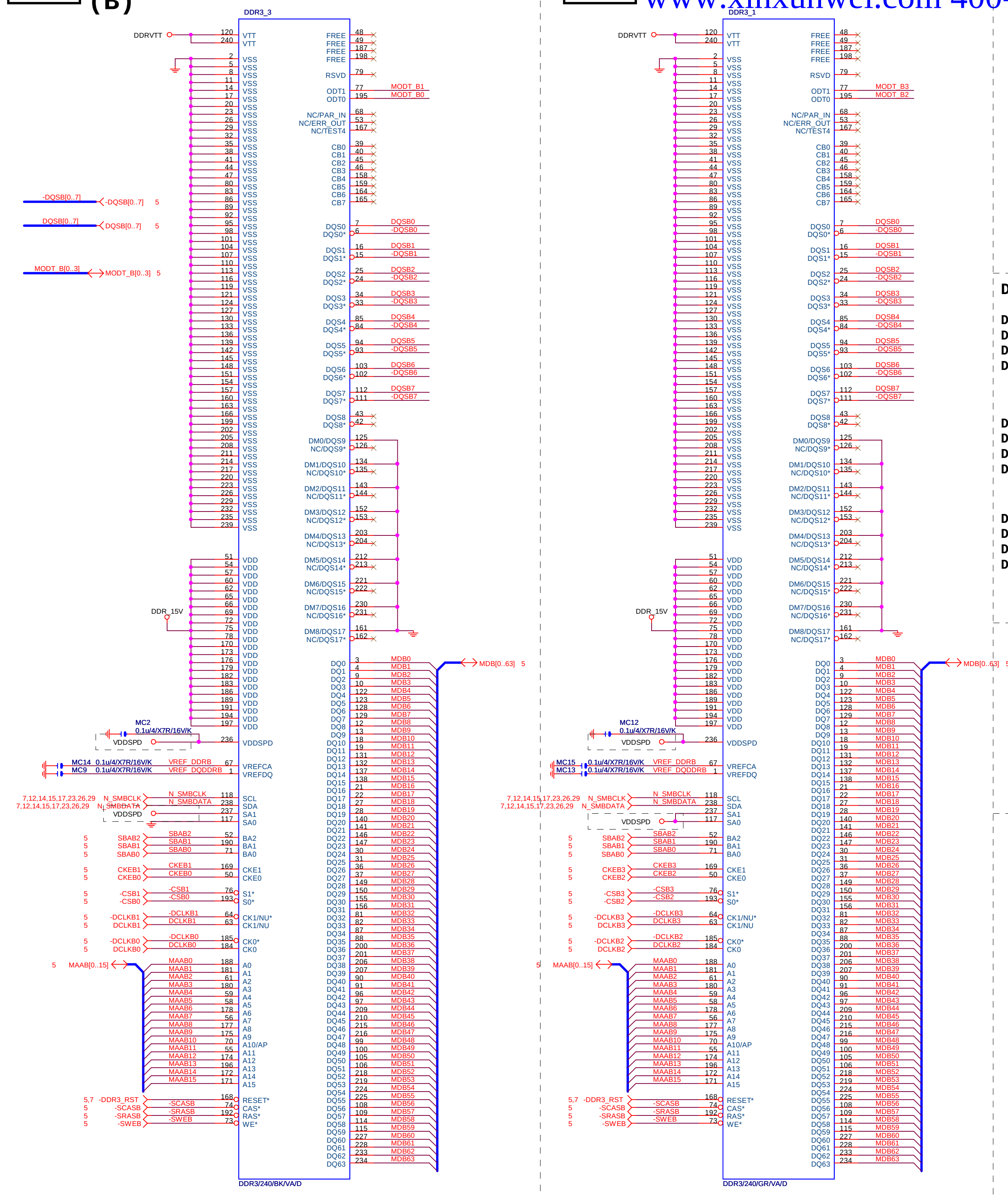
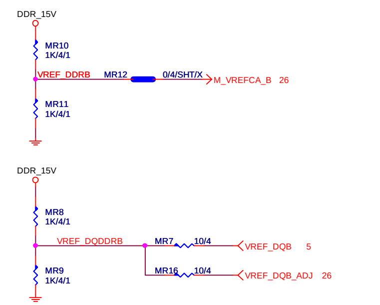




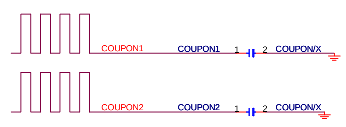
DDR3 1066,1333,1600MHZ BANDWIDTH

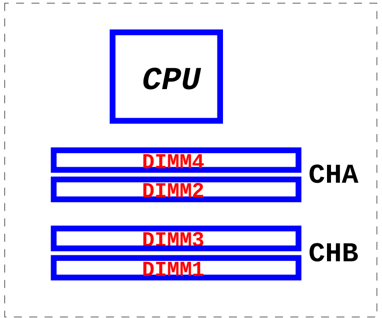
DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

COUPON





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Title	DDRIII CHANNEL B	
Size: Custom	Document Number: GA-H87-HD3	Rev: 1.12
Date:	Sheet 8 of 34	

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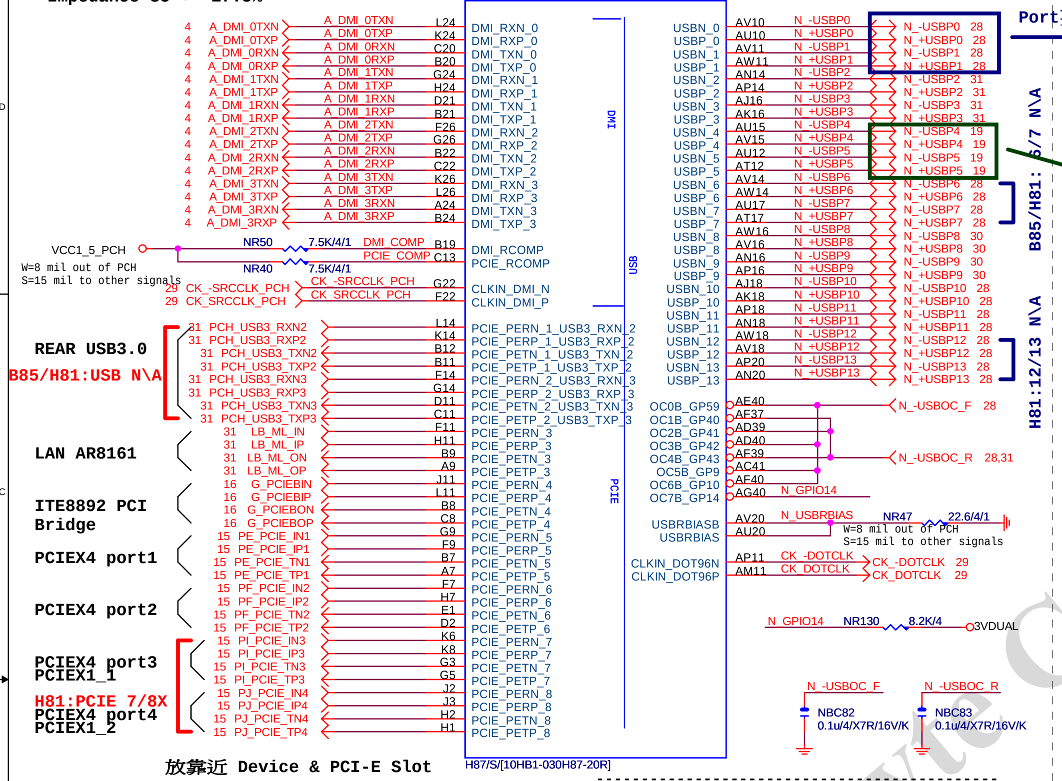
PCH (B)

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

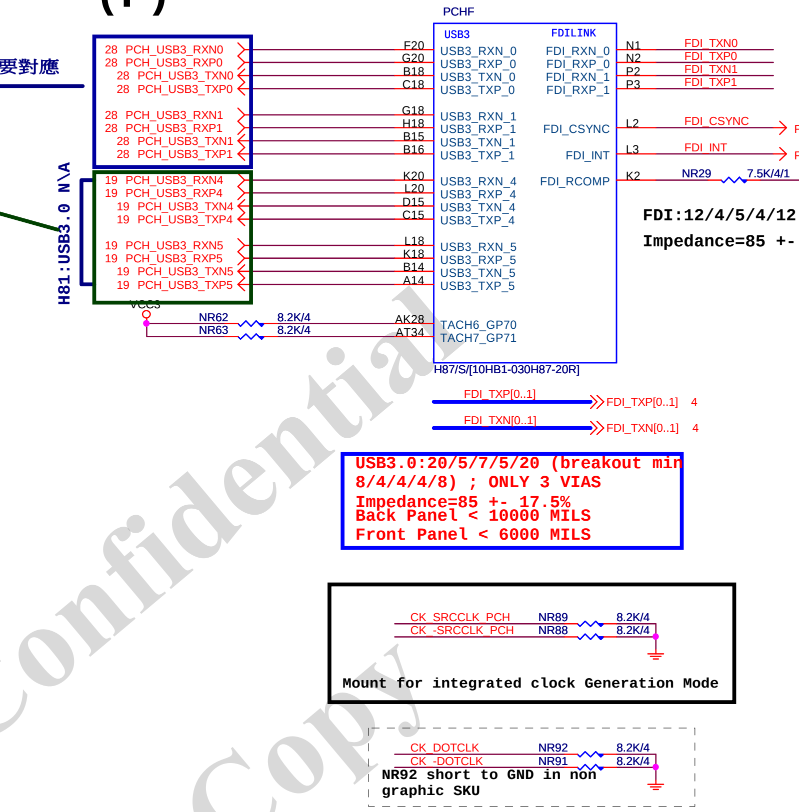
USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)
Impedance=85 +- 15%



PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

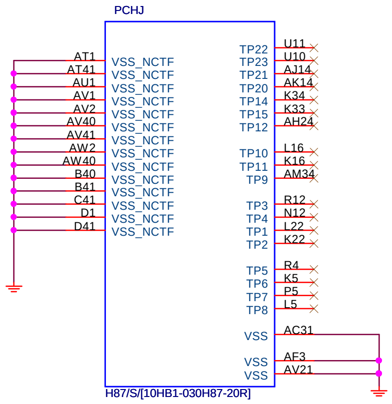
usb2.0 5/7/5//12
usb3.0 5/7/5//20 Impedance=85 +- 15%

PCH (F)

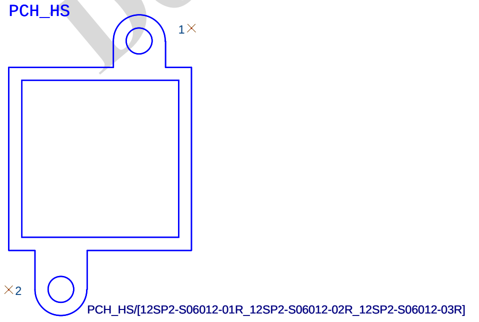


USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

PCH (J)



PCH H/S



USB TABLE

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

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

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Title: PCH FDI,DMI,USB ,PCIE
Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12
Date: Friday, October 25, 2013 | Sheet 9 of 34

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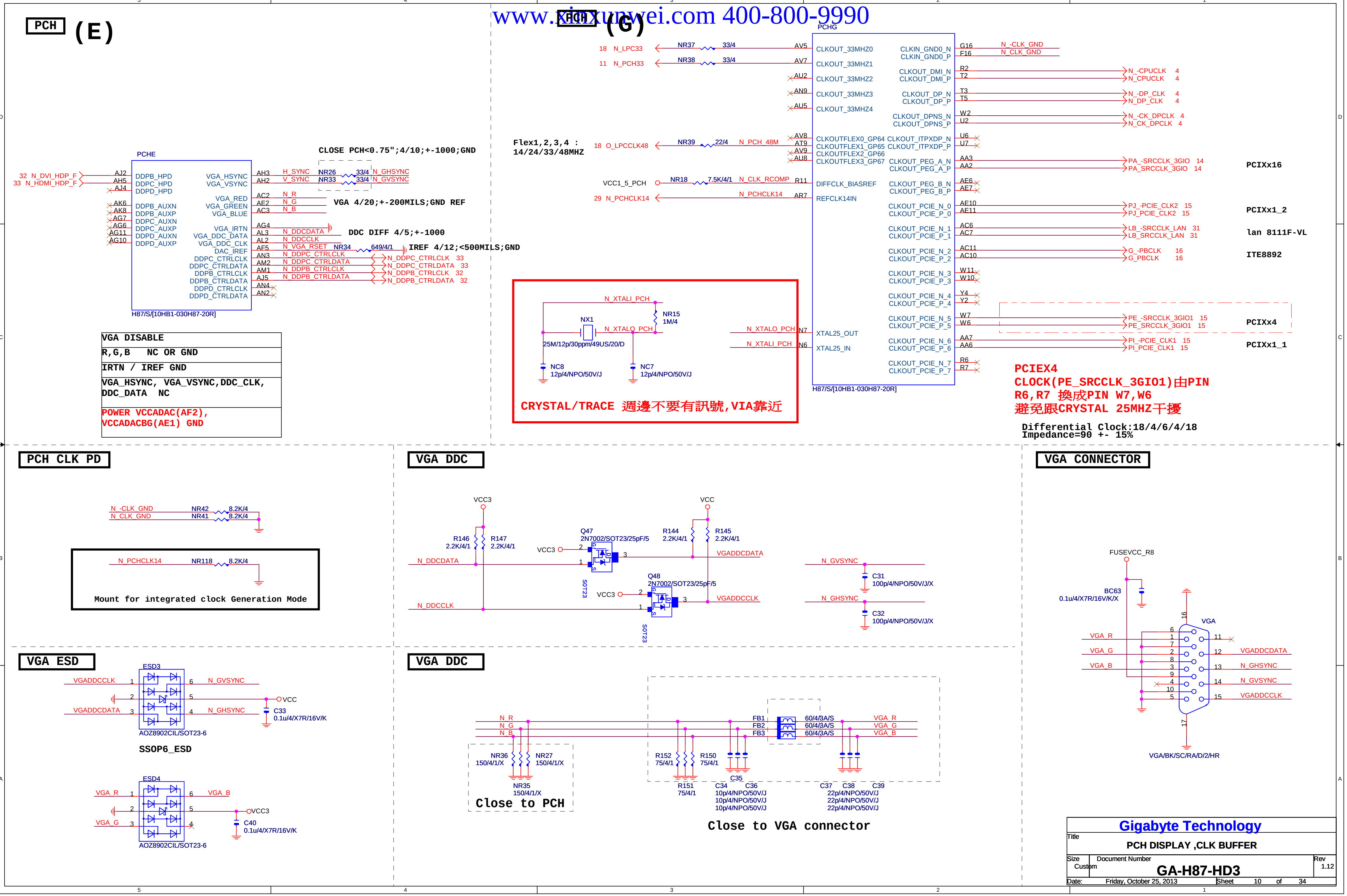

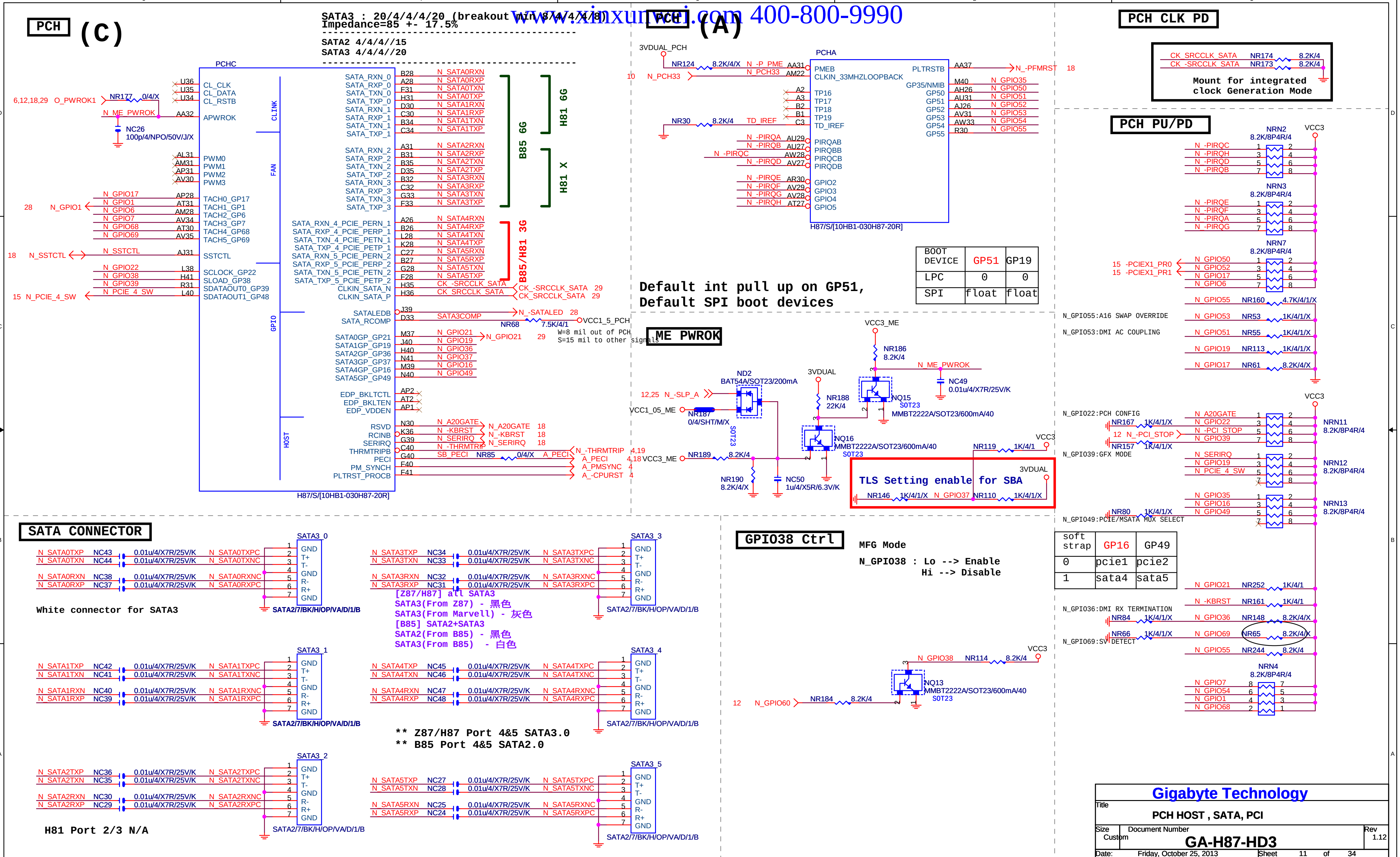

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

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Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 11 of 34

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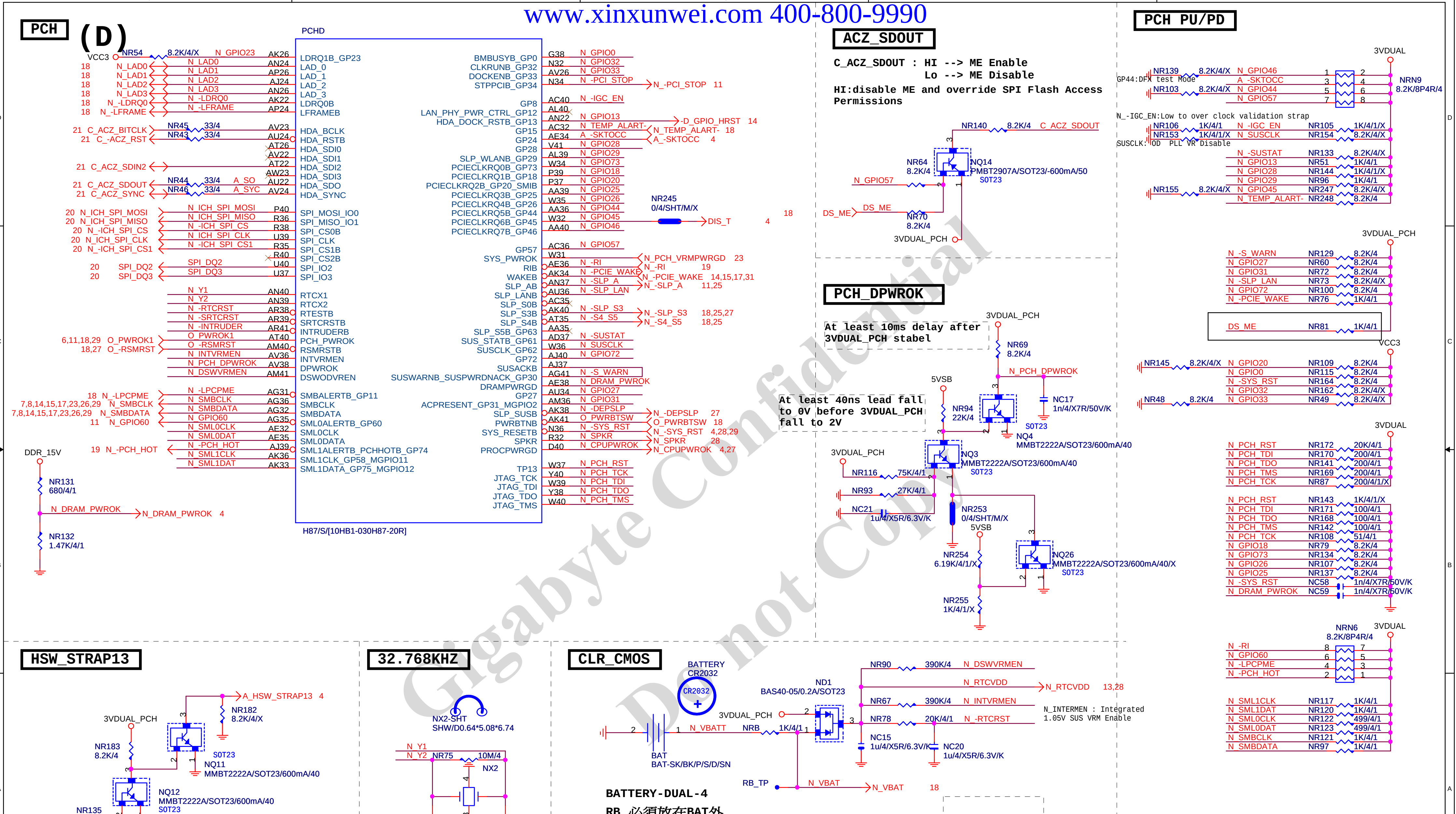

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Title: PCH GPIO , CTRL , AUDIO

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 12 of 34

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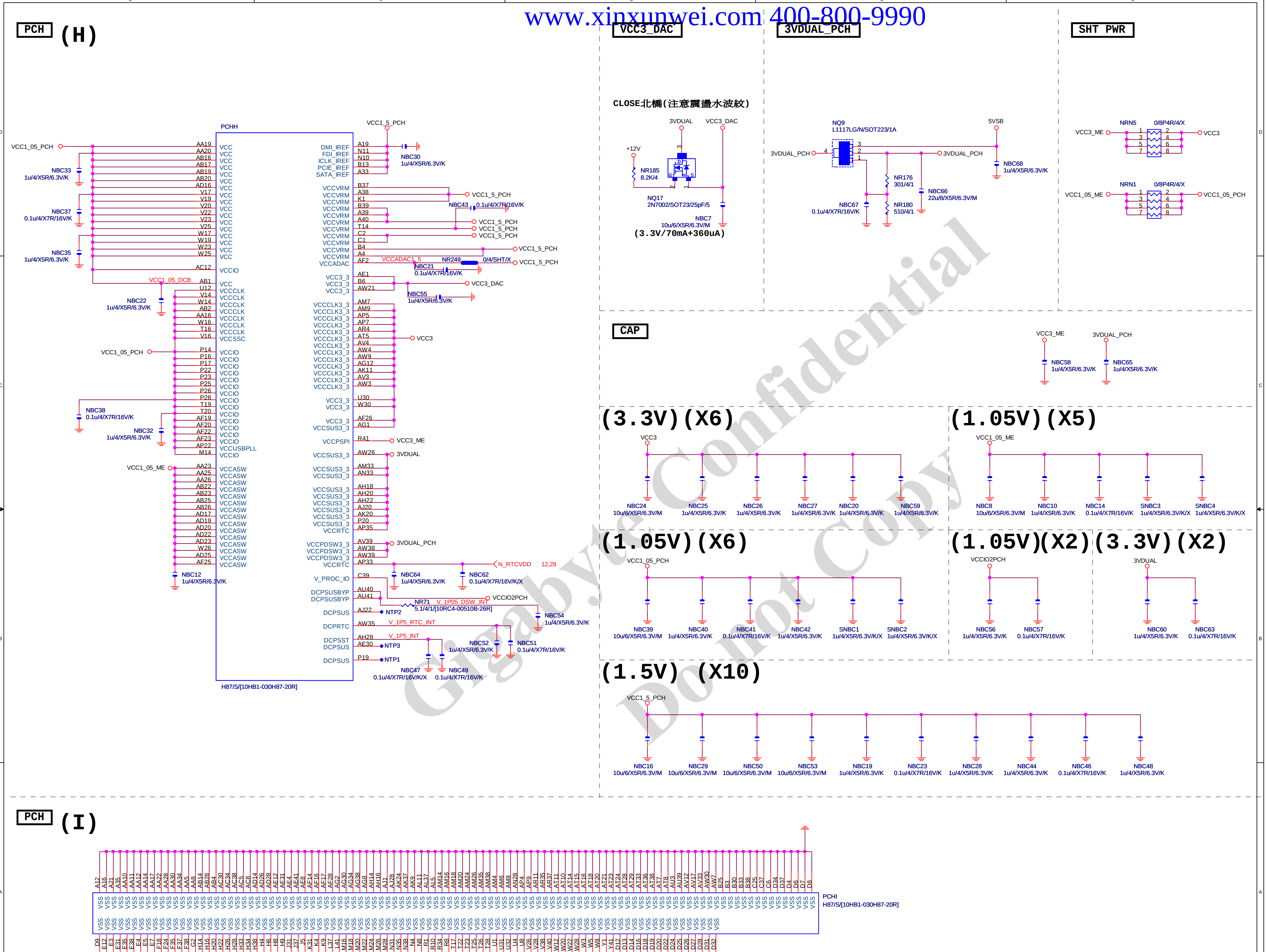

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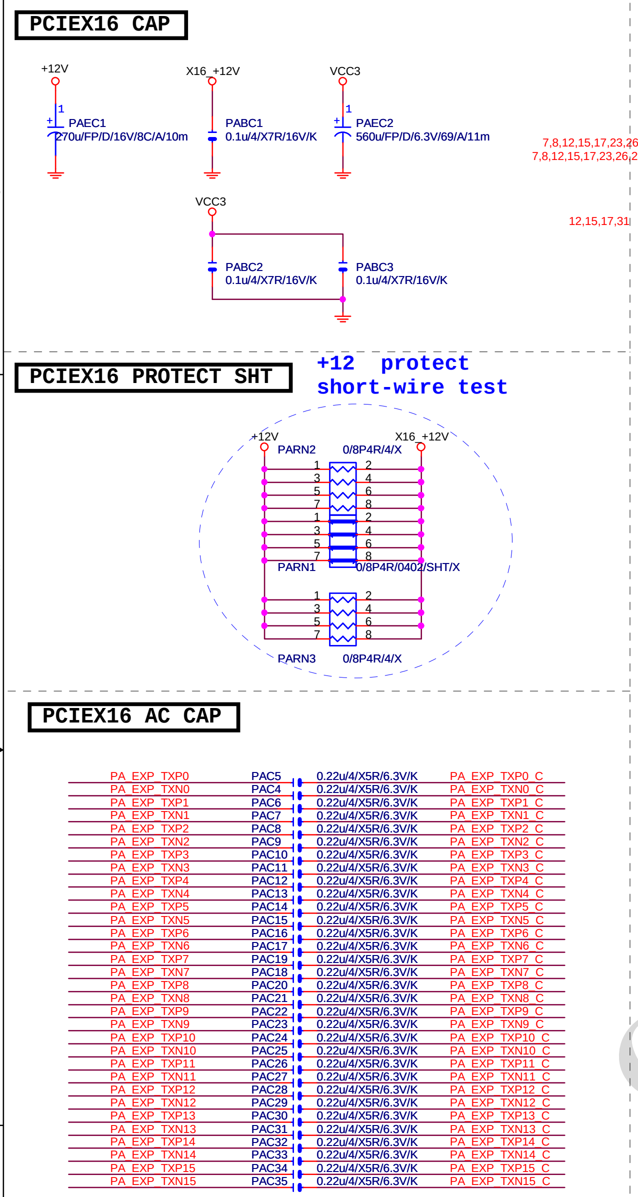
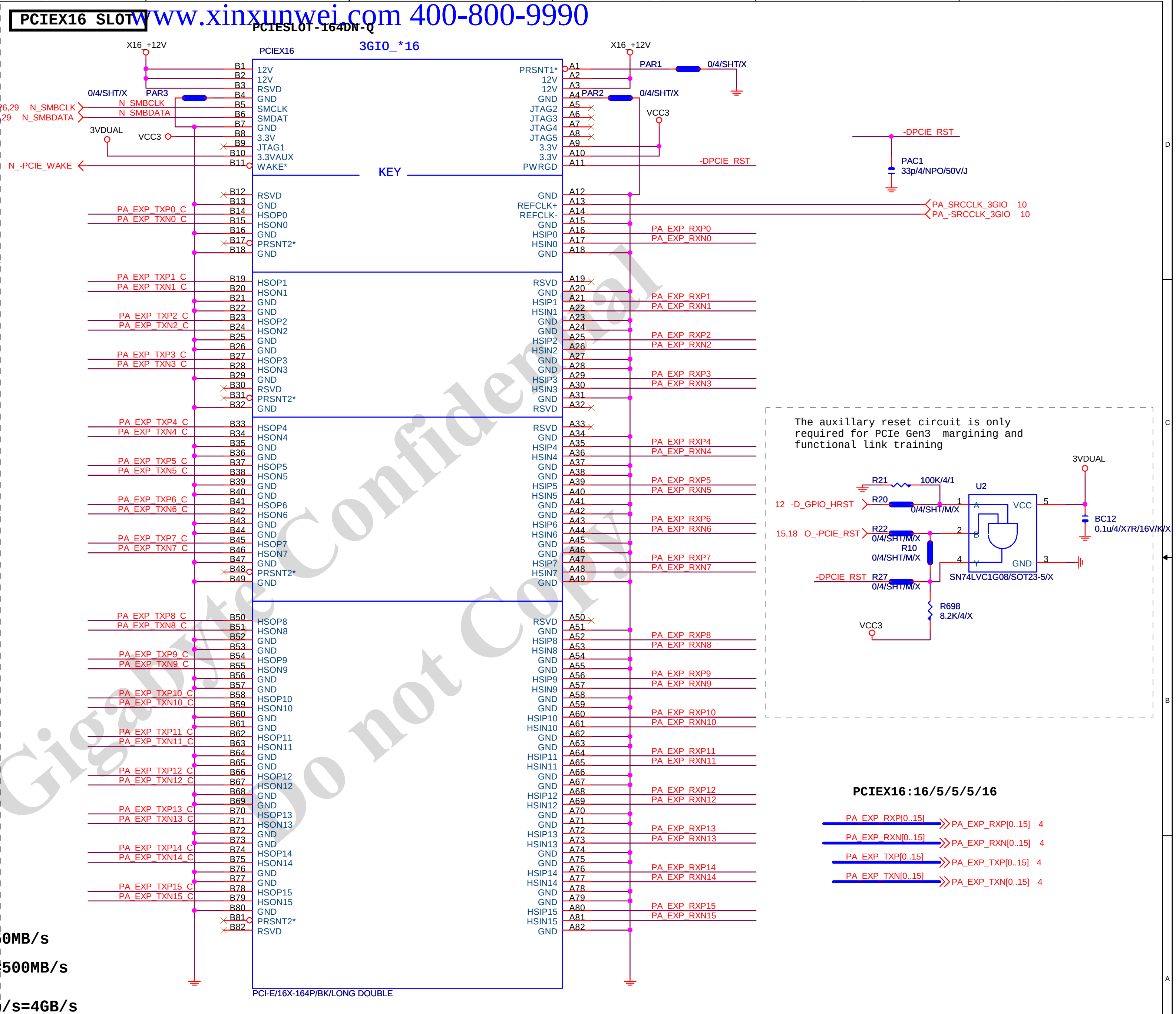
Title	PCH PWR ,GND		
Size Custom	Document Number GA-H87-HD3		Rev 1.12
Date: Friday, October 25, 2013	Sheet 13	of 34	





PCI-E REV:1.1--> 2.5GHZ

PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

Gigabyte Technology			
Title	PCI EXPRESS * 16		
Size Custom	Document Number	GA-H87-HD3	Rev 1.12
Date: Friday, October 25, 2013		Sheet 14 of 34	

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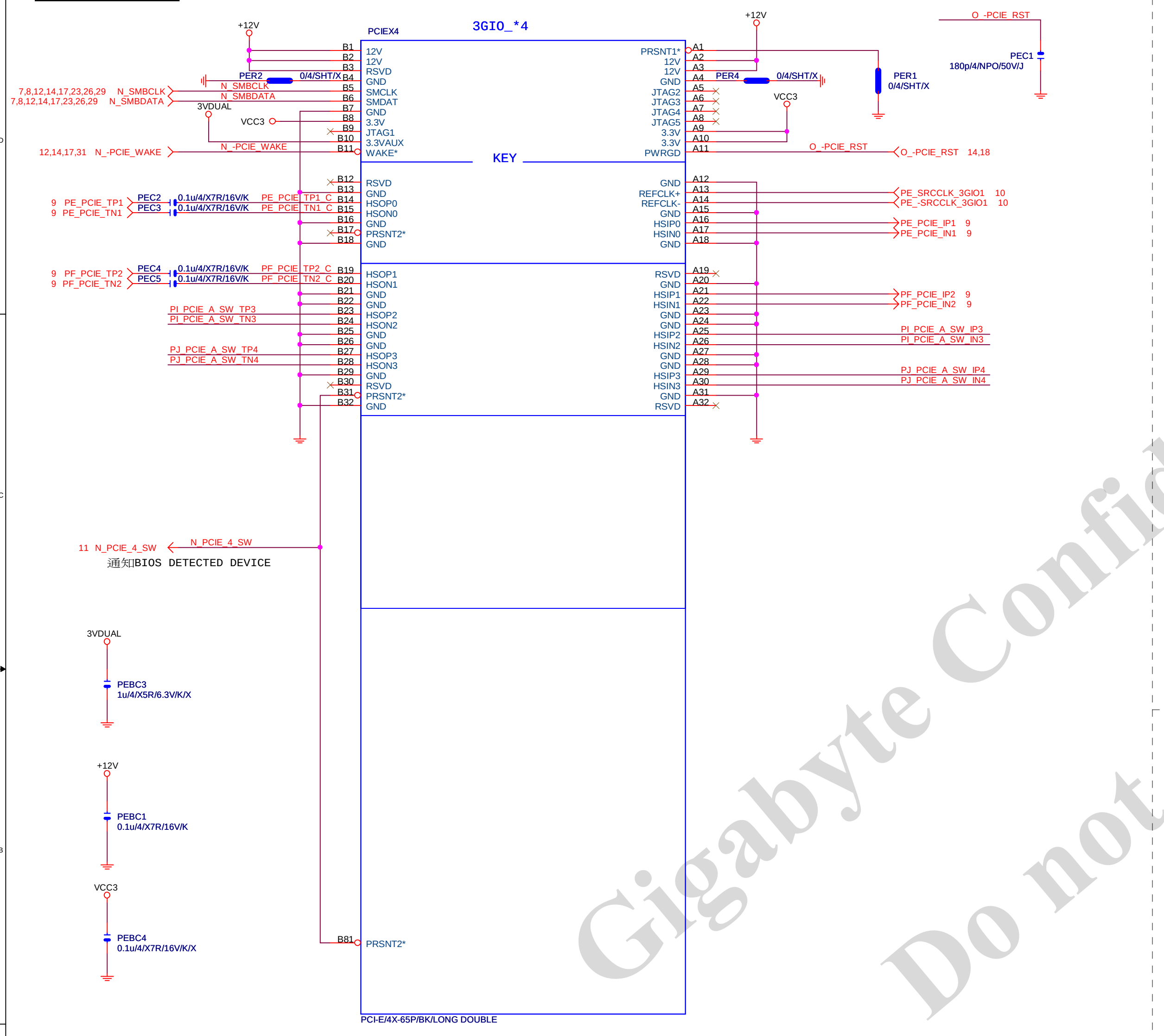
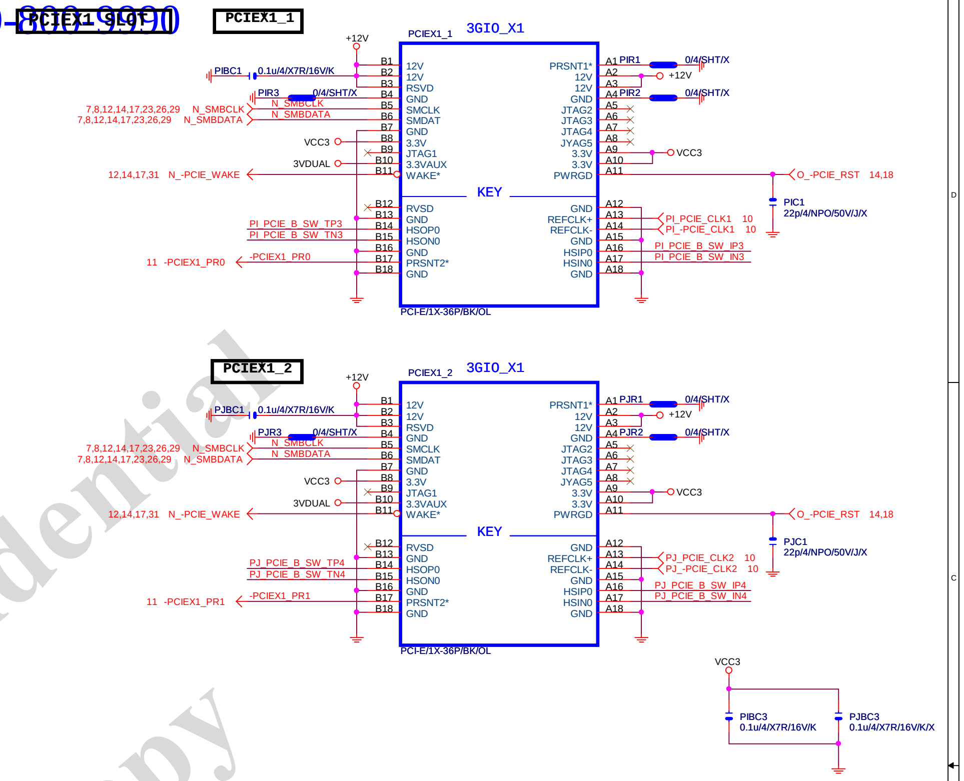
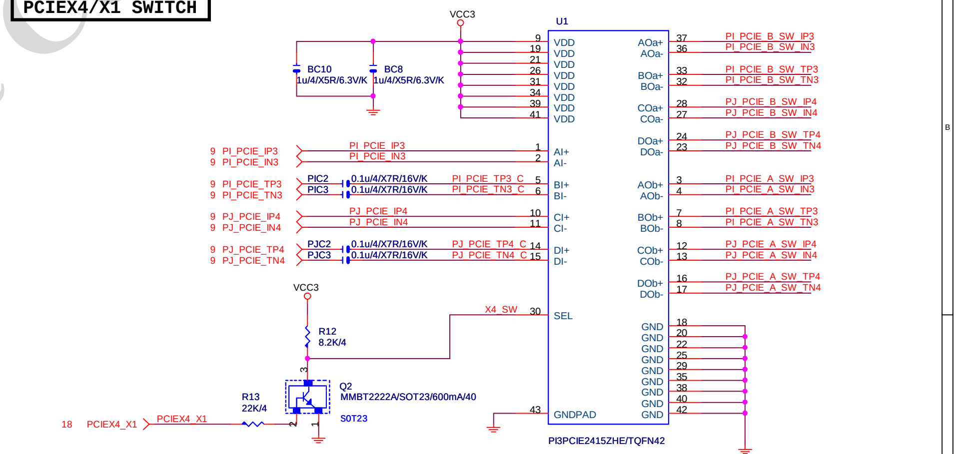
PCIEX4 SLOT



PCIEX1 SLOT



PCIEX4/X1 SWITCH



	N_PCIE_4_SW (PCH_GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4-->X	H	H
PCIEX4 No devices PCIEX4 -> X1	H	H
PCIEX4 Have devices PCIEX4 -> X4 PCIEX1_1/2 --> N/A	L	L

Function	SEL
xI--> xOa	L;PCIEX4 SLOT-->X1
xI--> xOb	H;PCIEX4 SLOT-->X4

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Title: PCIE_X1 1,2

Size: Custom | Document Number: GA-H87-HD3 | Rev 1.12

Date: Friday, October 25, 2013 | Sheet 15 of 34

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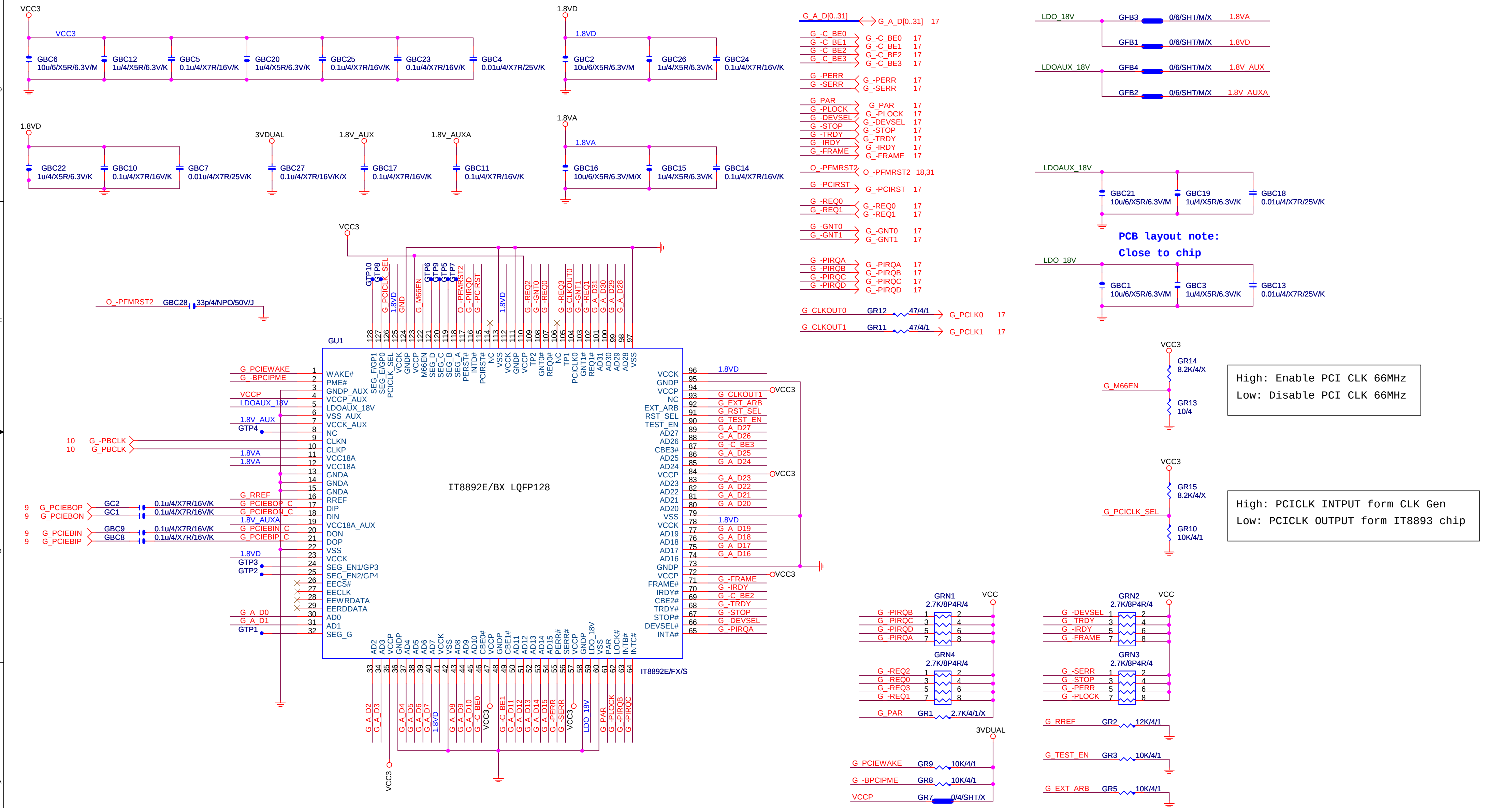

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Title: IT8892E

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 16 of 34

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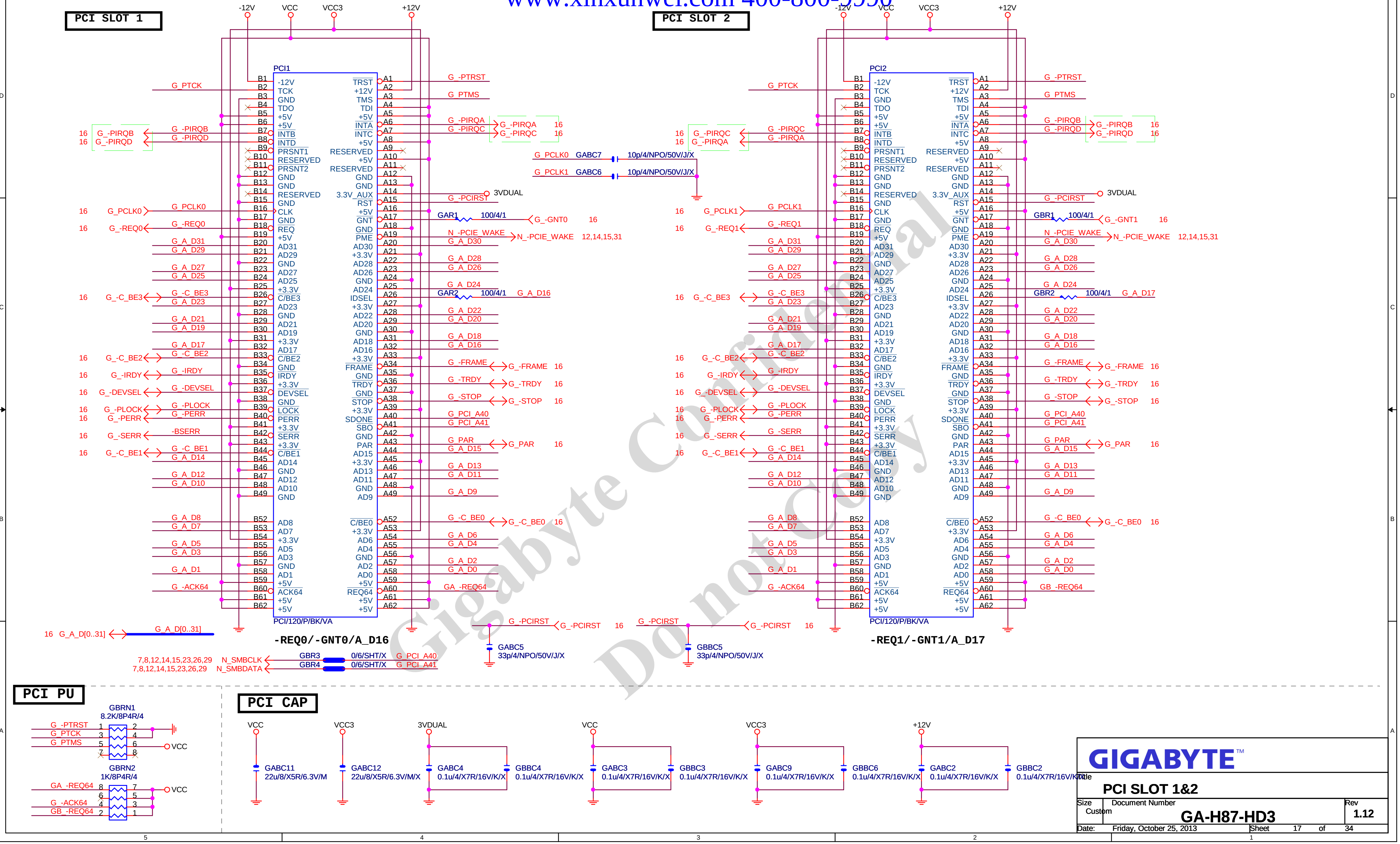

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Title: PCI SLOT 1&2

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 17 of 34

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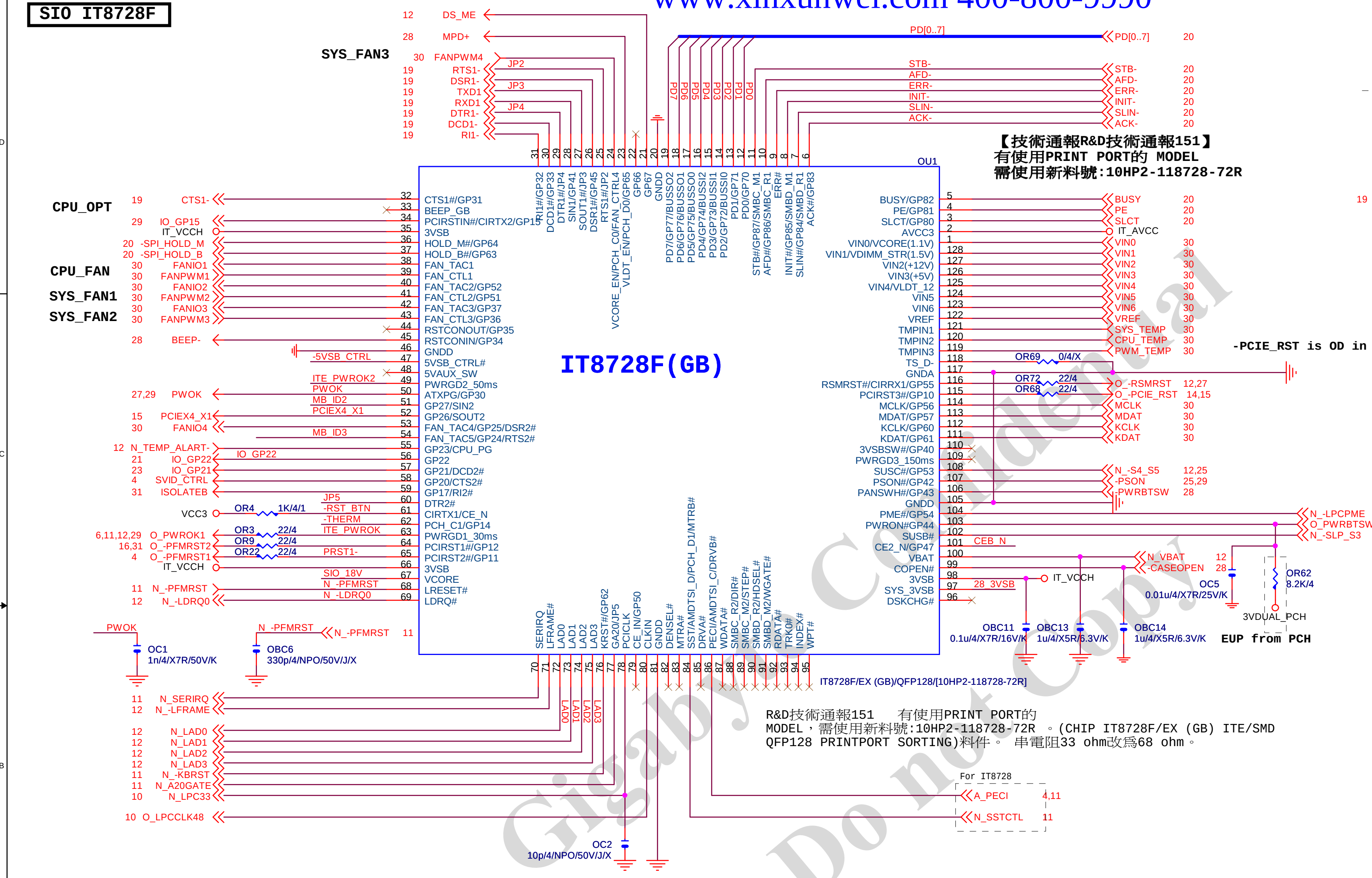
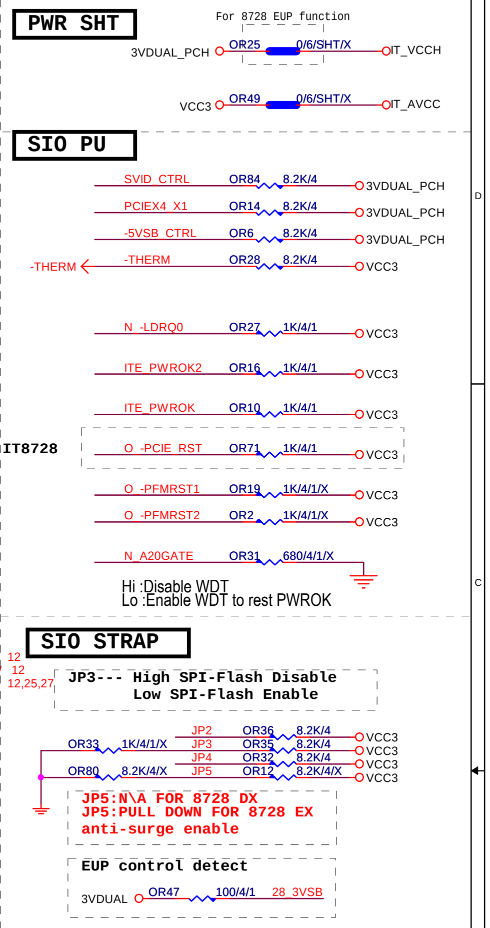
SIO IT8728F



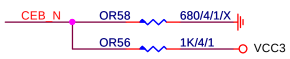


JP4		1	k8 power sequency function is Disable
		0	k8 power sequency function is Enable
JP3	JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
		1 0	The default value of EC Index 63h/6Bh/73h is FFh
		0 1	The default value of EC Index 63h/6Bh/73h is 00h.
		0 0	The default value of EC Index 63h/6Bh/73h is 40h.

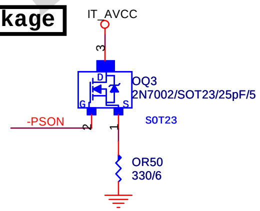
IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

DUAL BIOS OPT STRAP

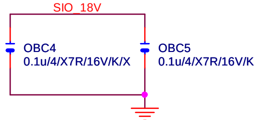


Power leakage

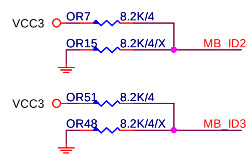


SIO_18V

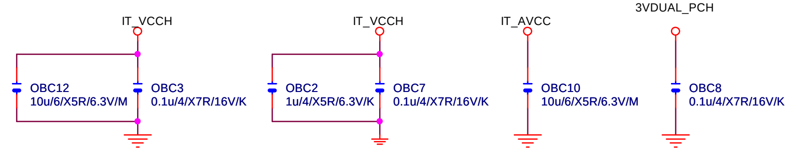
internal power pin, max 22nF cap



MB ID



SIO CAP



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Title: ITE 8728 LPC IO

Size: B | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 18 of 34

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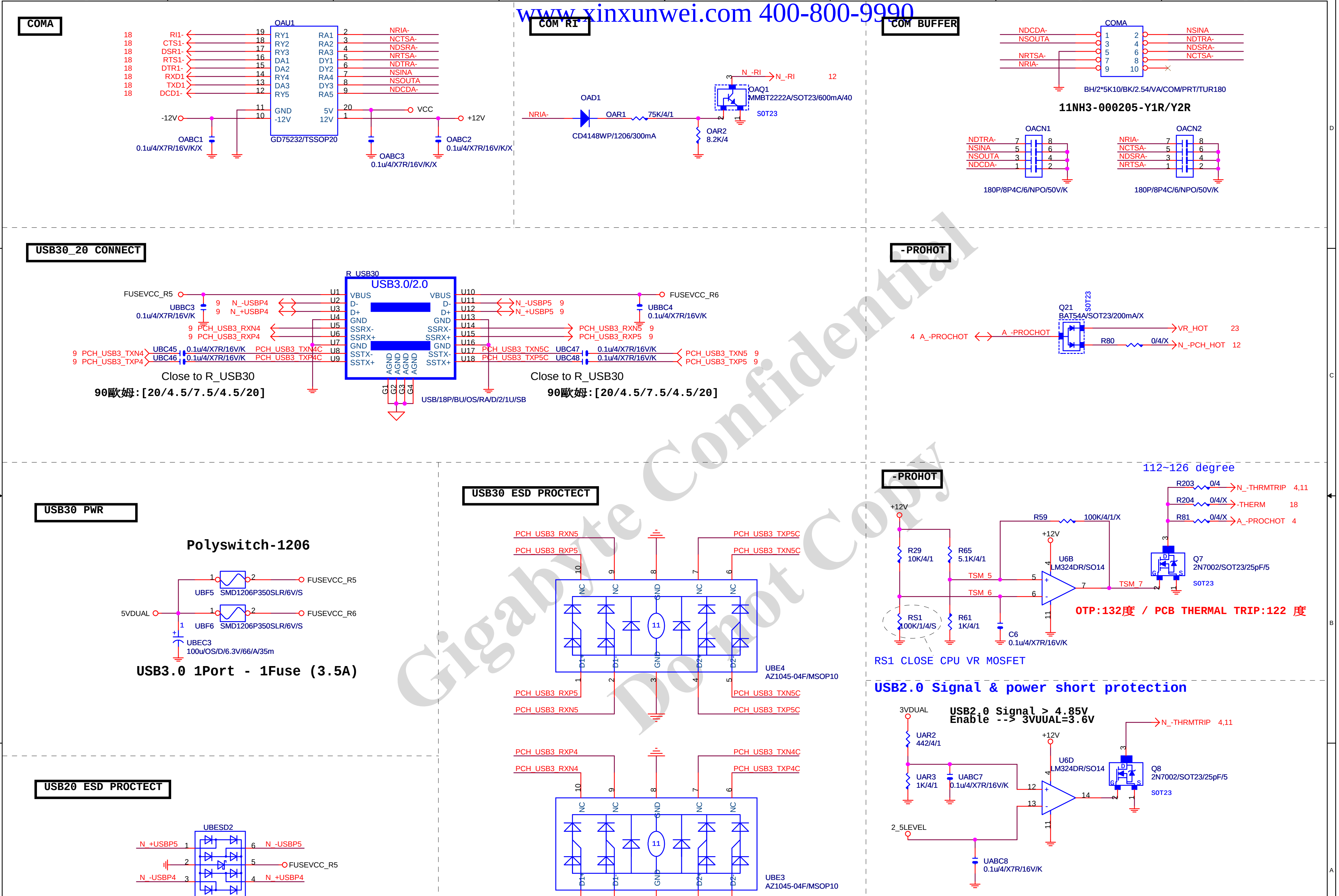

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Title	COM/ PROHOT/ R_USB	
Size: Custom	Document Number: GA-H87-HD3	Rev: 1.12
Date: Friday, October 25, 2013	Sheet 19 of 34	

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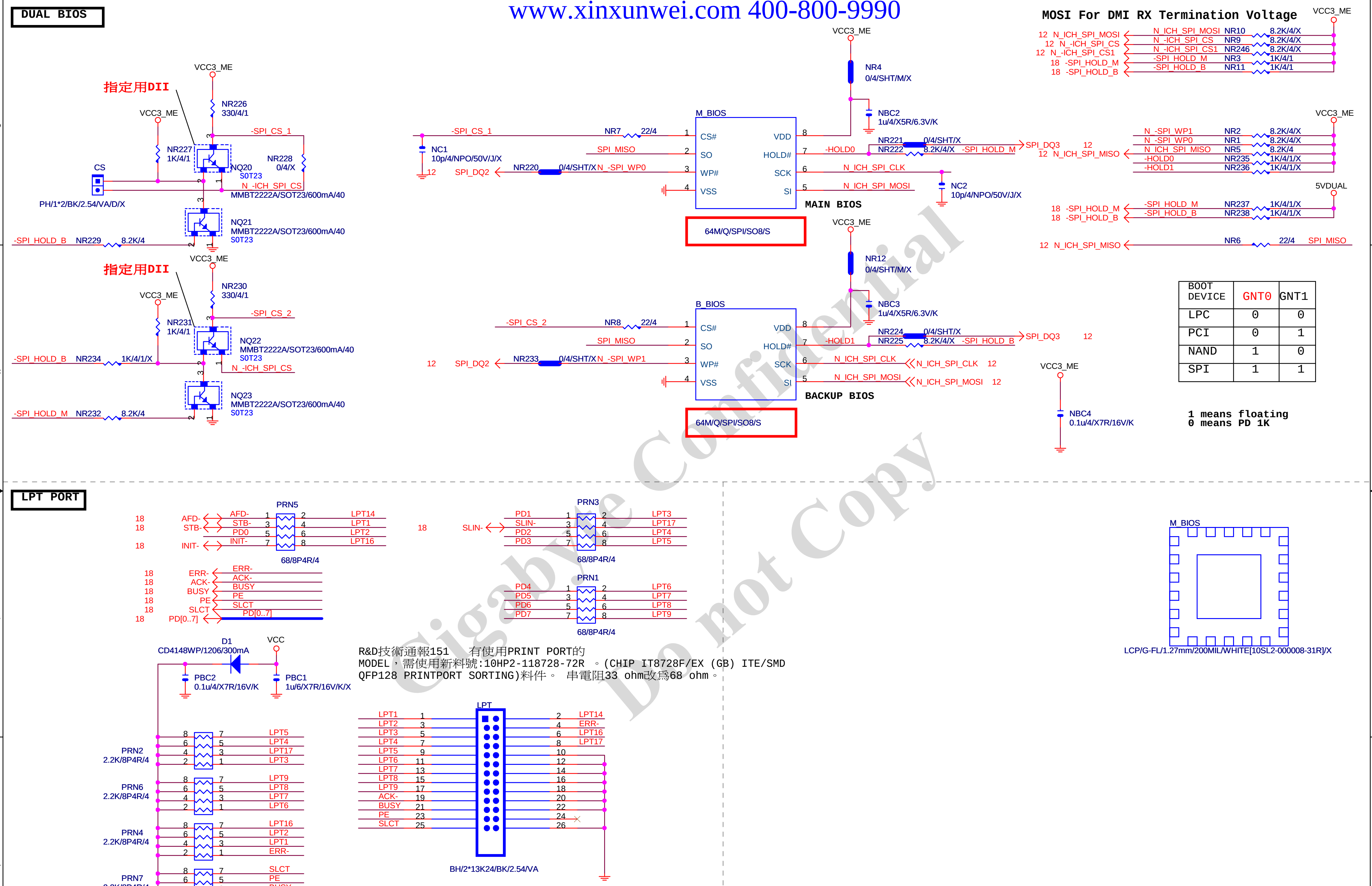

BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

R&D技術通報151　有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R 。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。 串電阻33 ohm改爲68 ohm。

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AZALIA CODEC

ALC892/ALC887-VD2/VT1708-CE Colay

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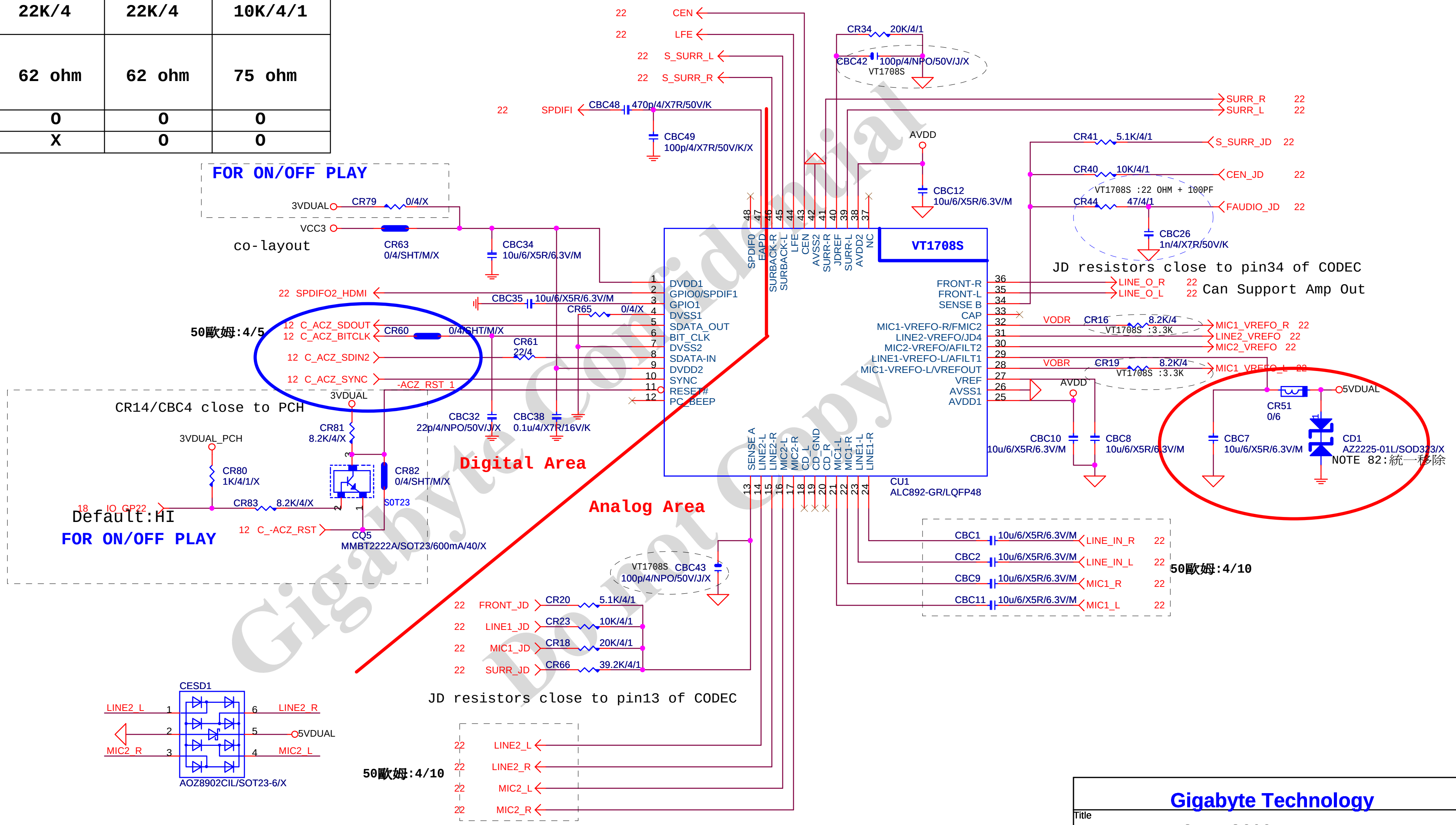
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	X	0	0



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Title: HD AUDIO ALC892

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Tuesday, November 26, 2013 | Sheet 21 of 34

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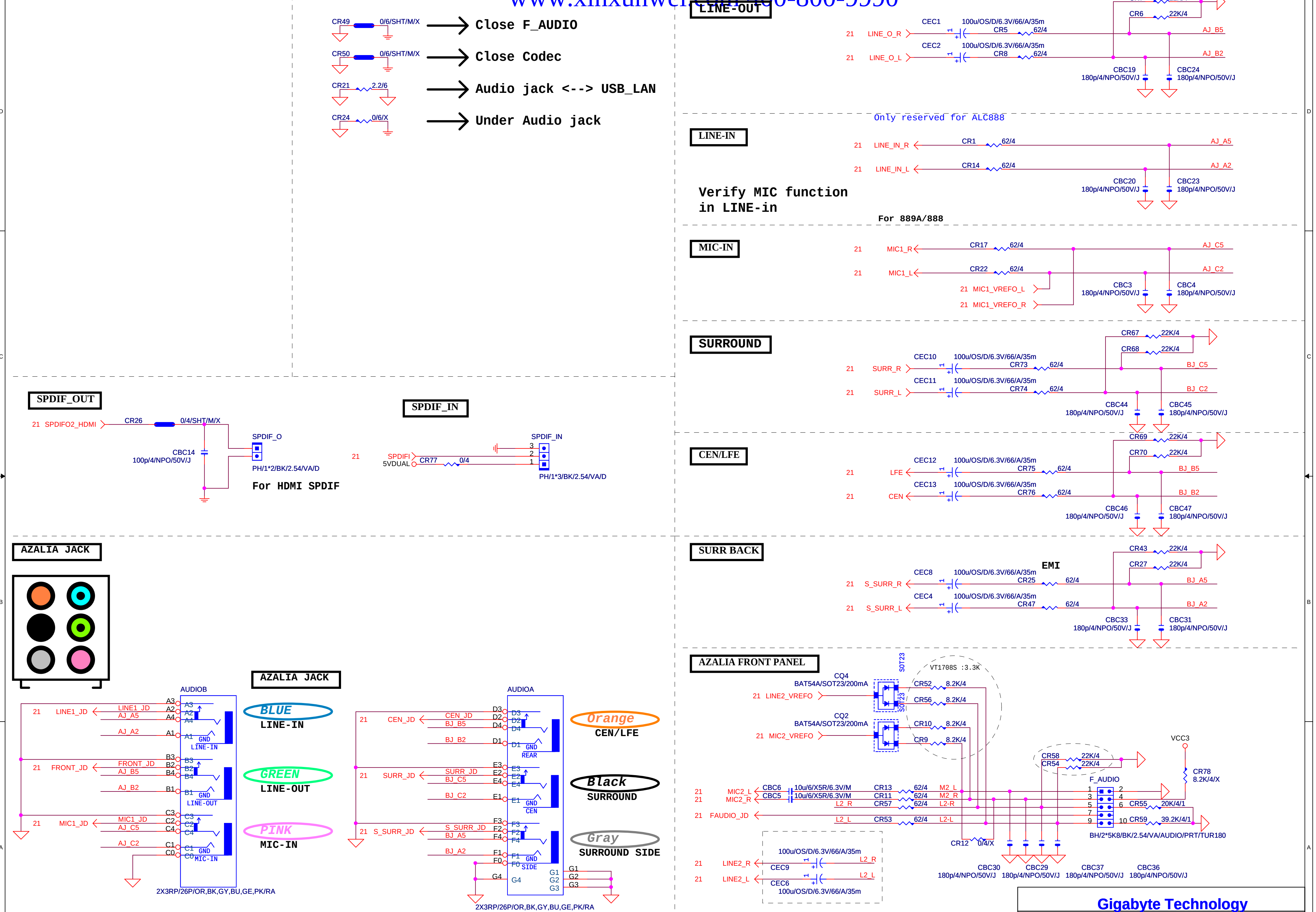

Gigabyte Technology			
Title	AUDIO JACK		
Size Custom	Document Number GA-H87-HD3		Rev 1.12
Date: Friday, October 25, 2013		Sheet 22 of 34	

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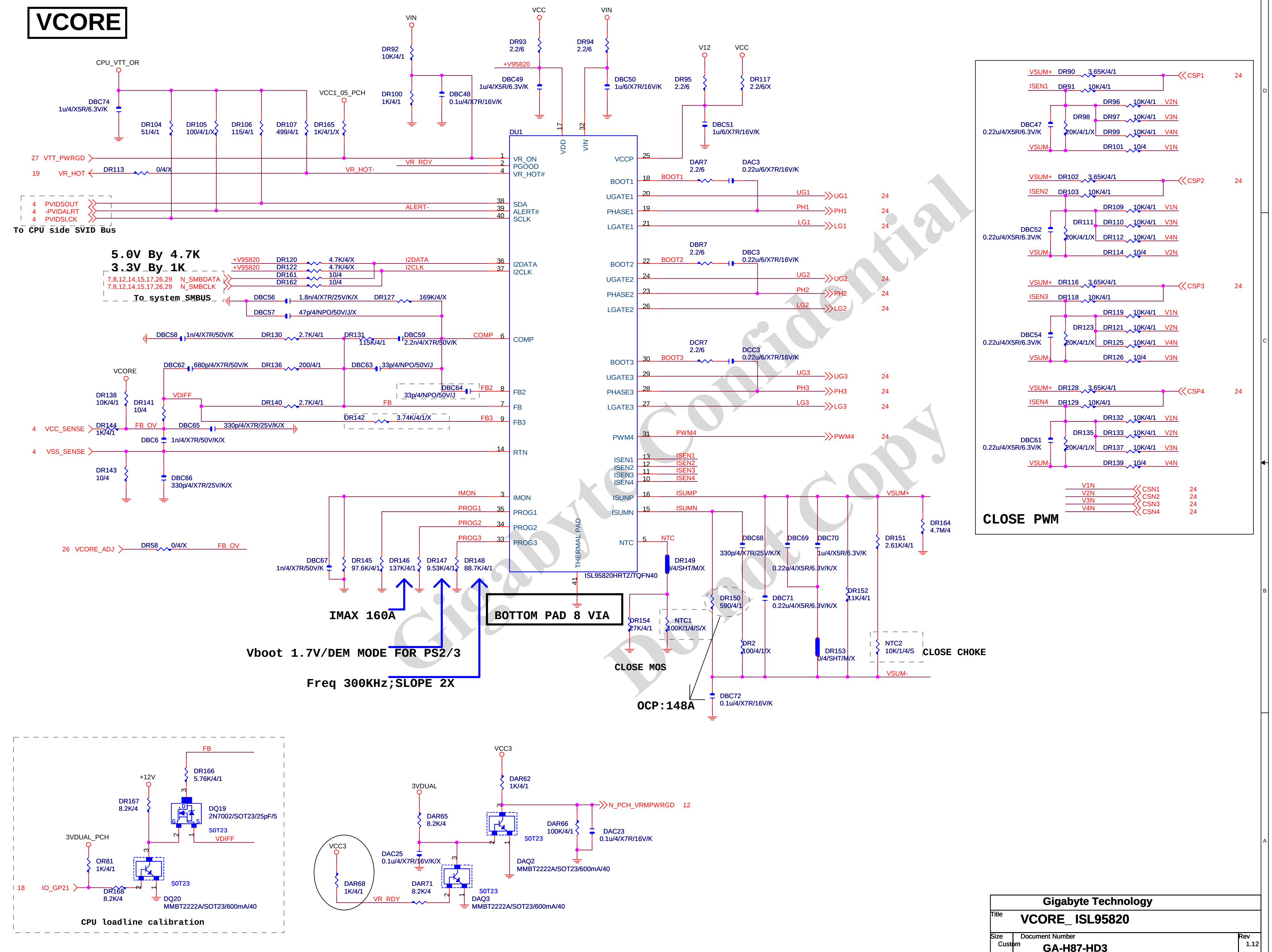
VCORE



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Gigabyte Technology			
Title	VCORE_ ISL95820		
Size: Custom	Document Number: GA-H87-HD3		Rev: 1.12
Date: Friday, October 25, 2013	Sheet 23 of 34		

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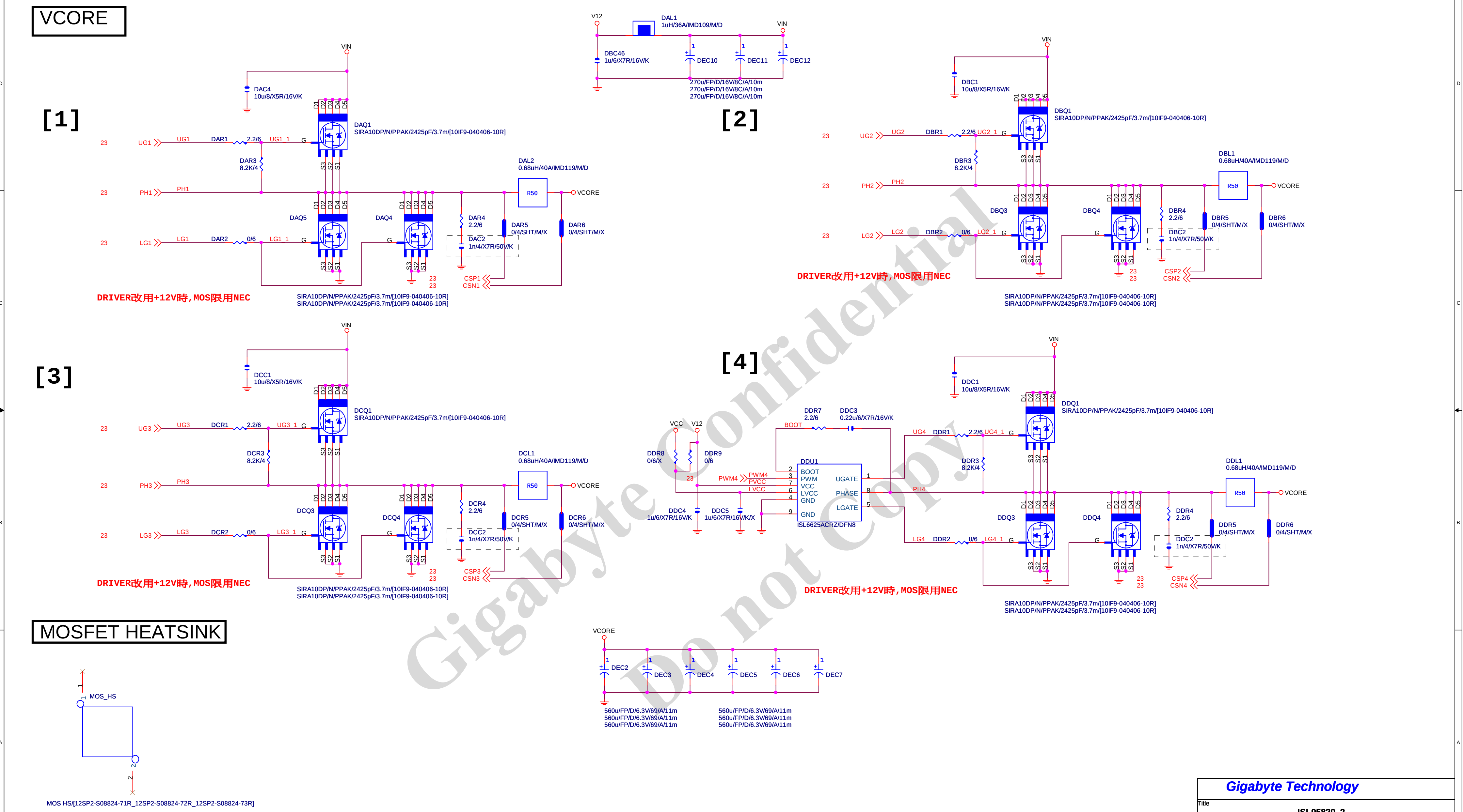

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Gigabyte Technology			
Title	ISL95820_2		
Size: Custom	Document Number: GA-H87-HD3		Rev: 1.12
Date: Friday, October 25, 2013	Sheet 24 of 34		

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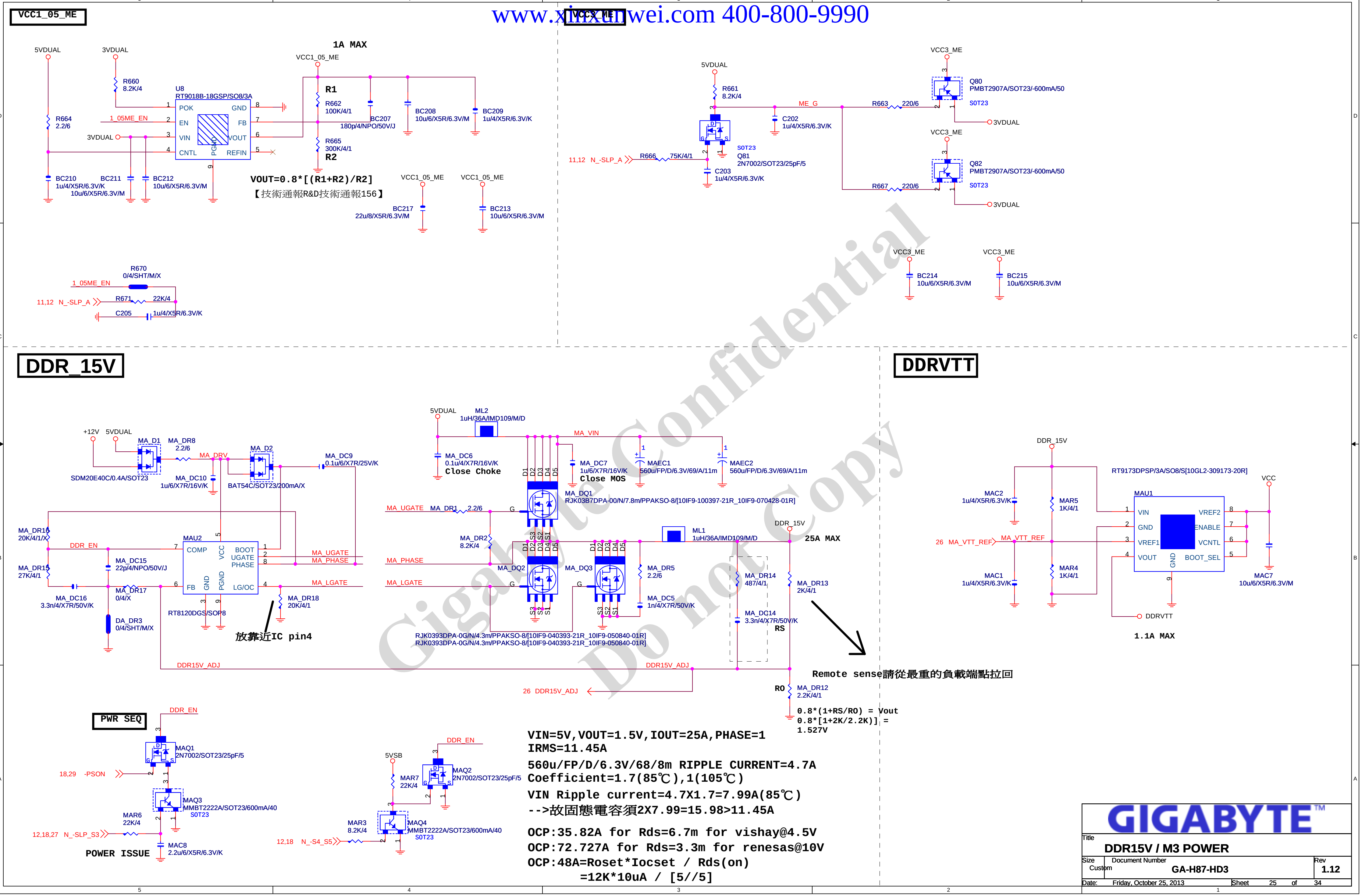

GIGABYTE

Title	DDR15V / M3 POWER	
Size: Custom	Document Number: GA-H87-HD3	Rev: 1.12
Date: Friday, October 25, 2013	Sheet 25 of 34	

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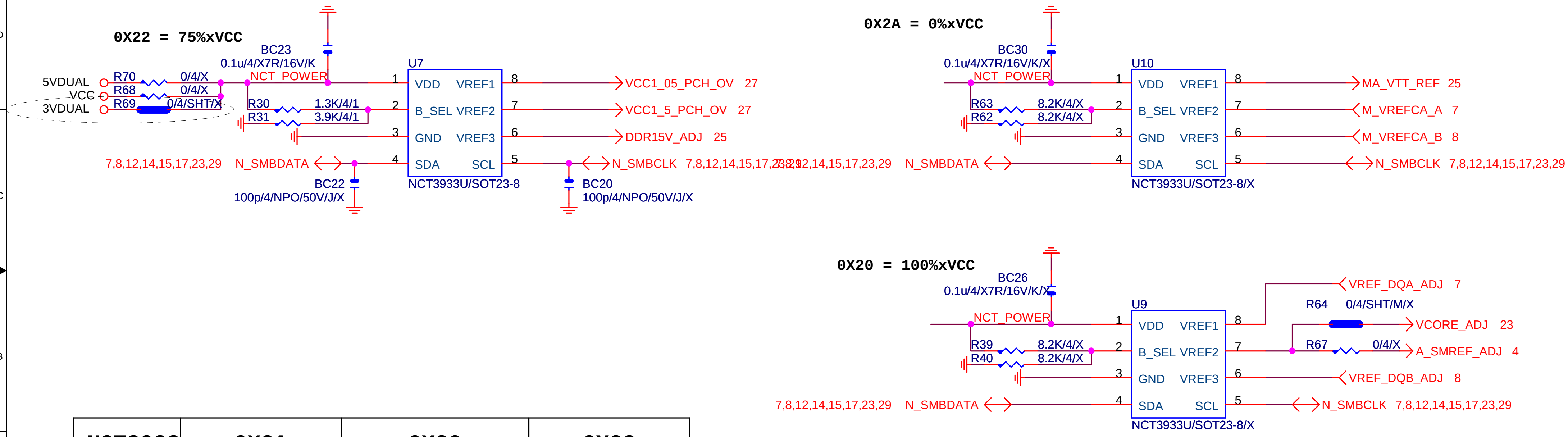
OVER VOLTAGE



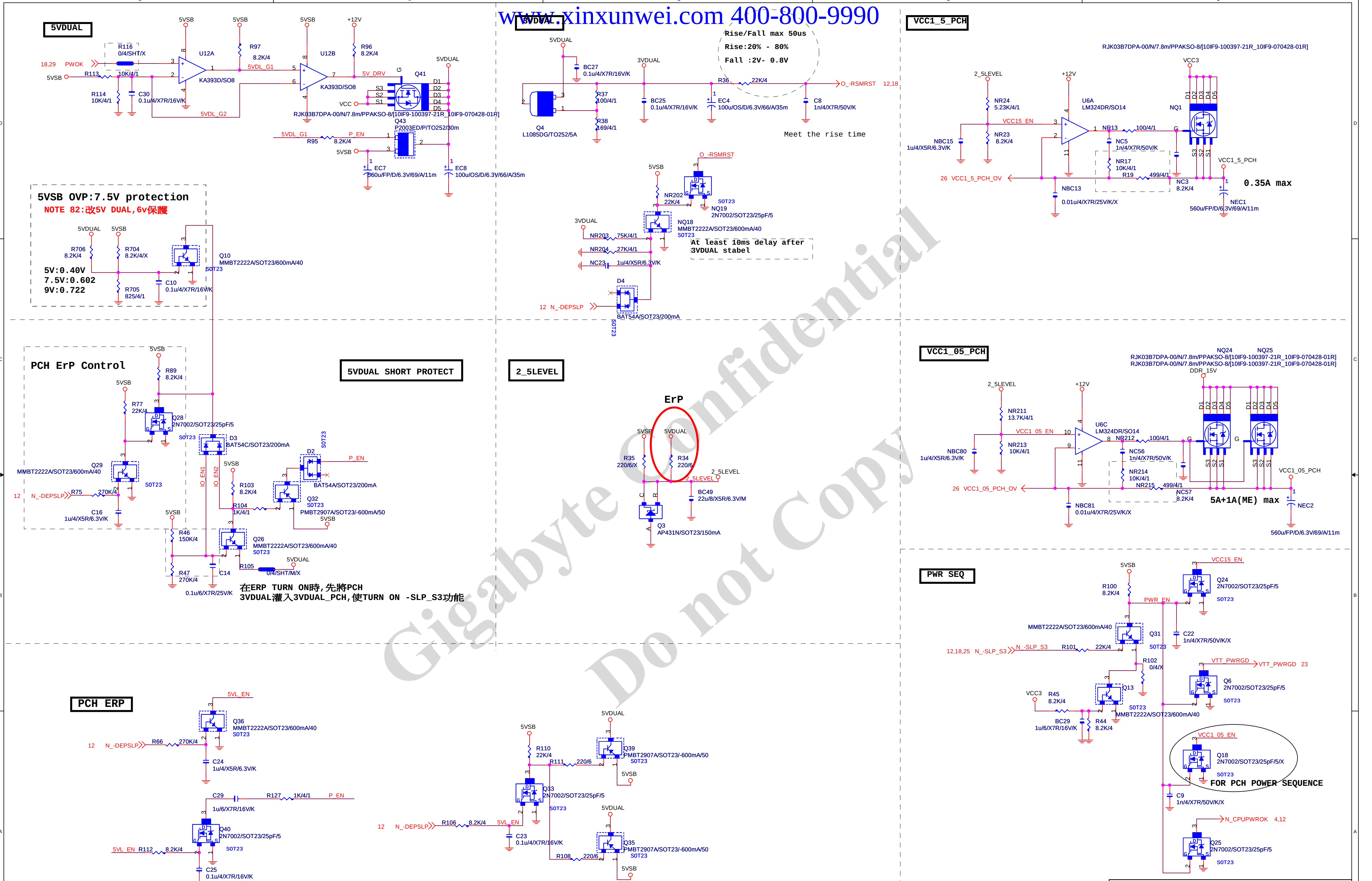
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

Title: CPU CORE VR-2

Size: Custom | Document Number: GA-H87-HD3 | Rev 1.12

Date: Friday, October 25, 2013 | Sheet 26 of 34



Gigabyte Technology

Title: DISCRETE POWER

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 27 of 34

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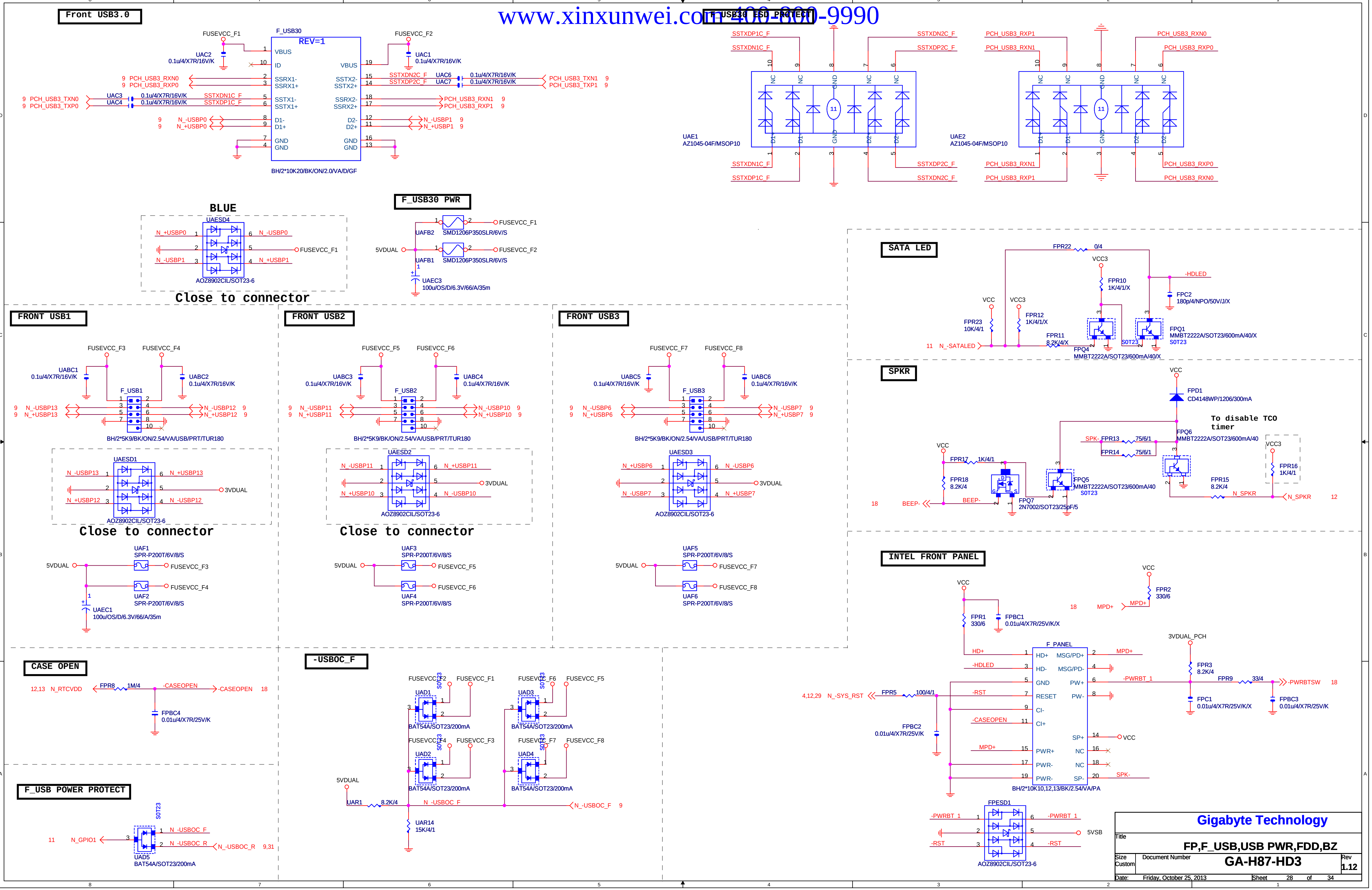

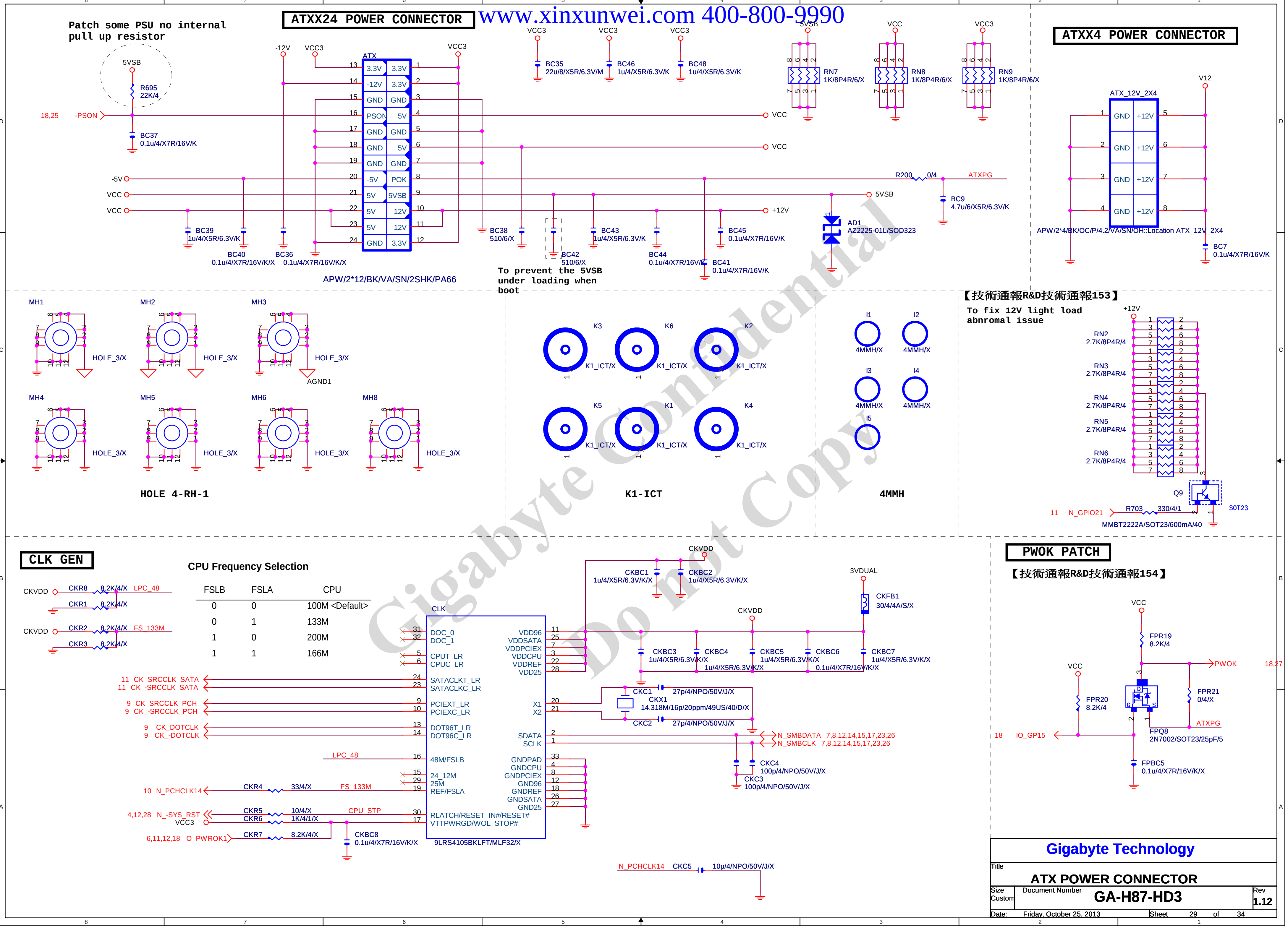

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Title: ATX POWER CONNECTOR

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 29 of 34

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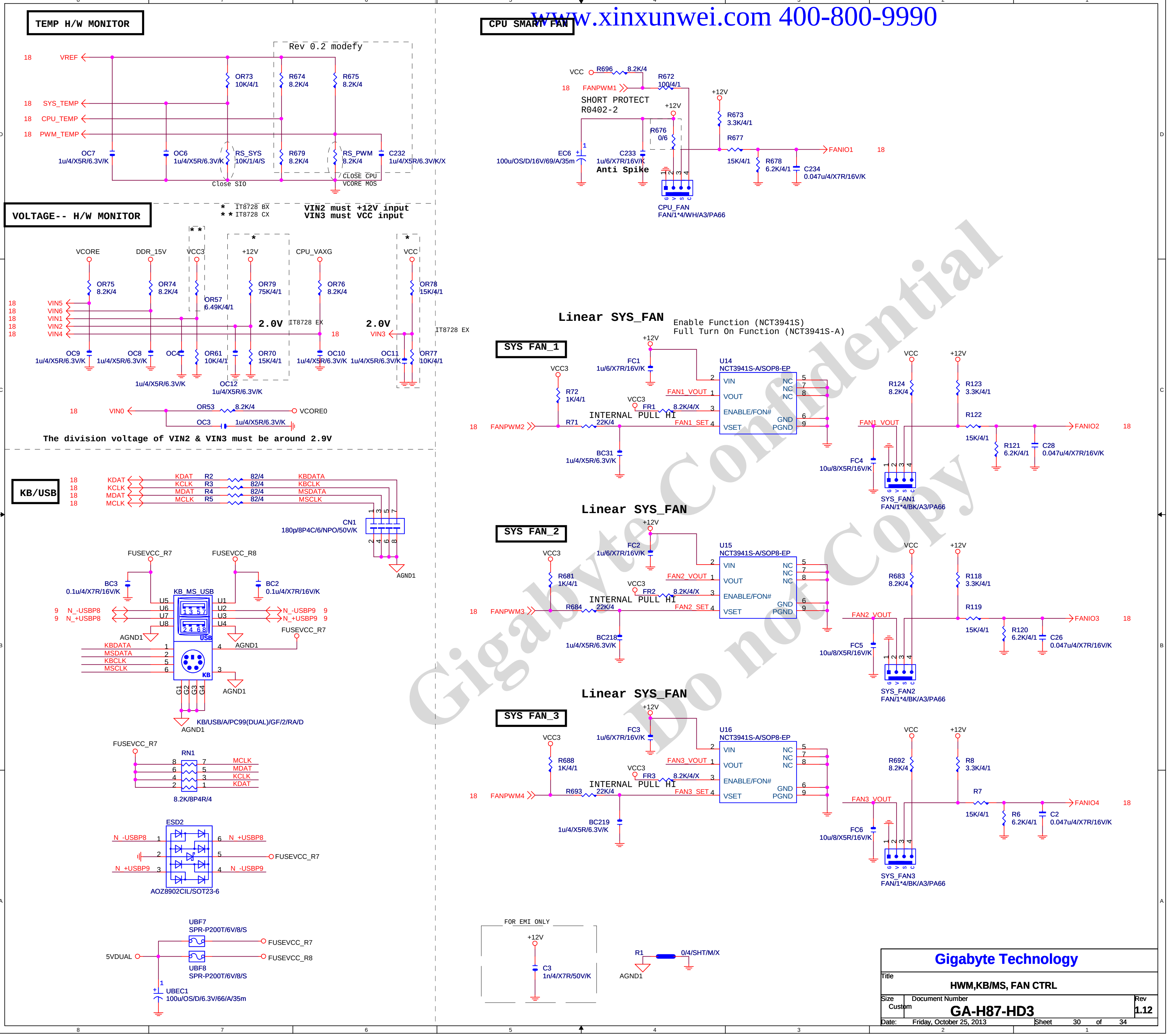

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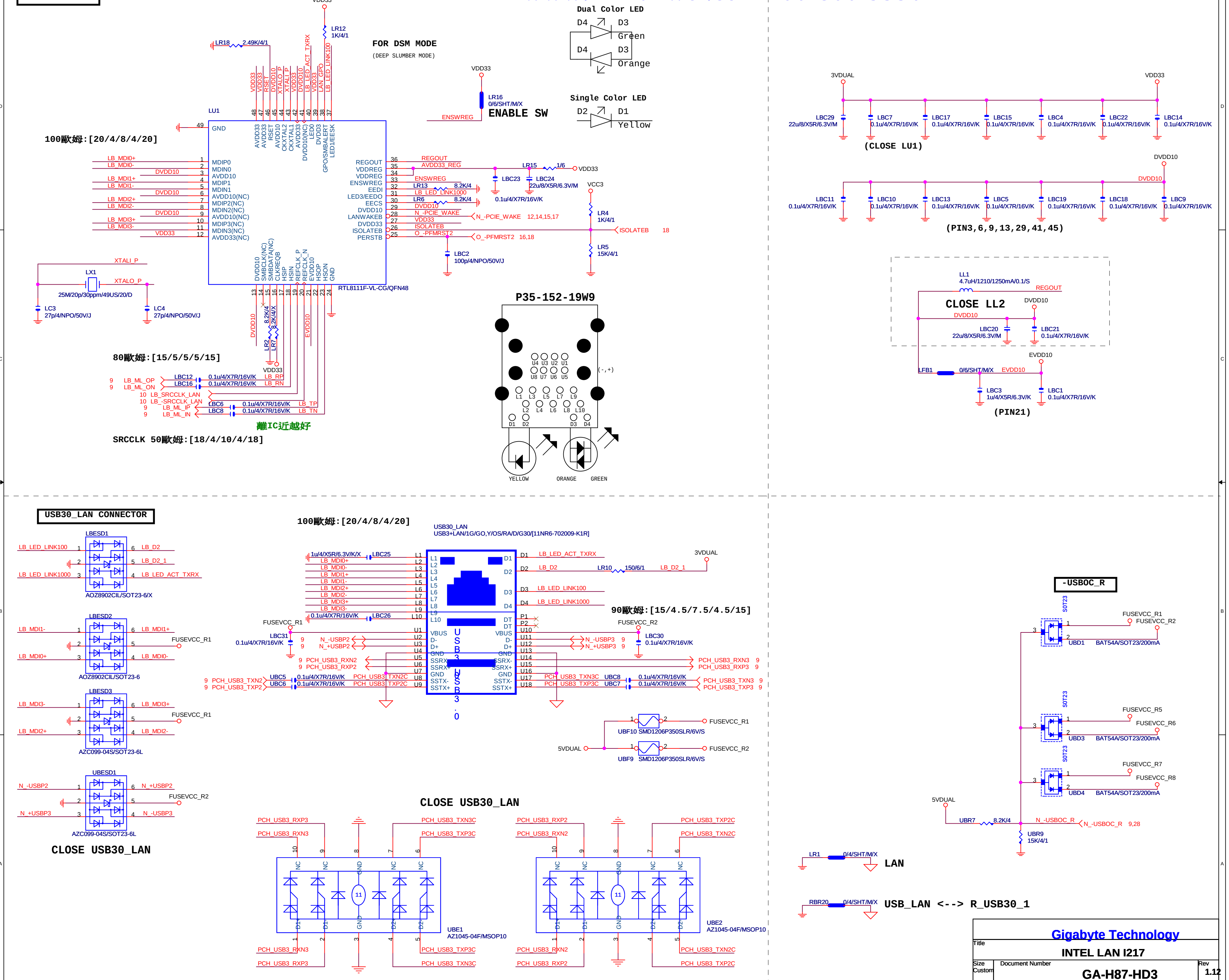

Gigabyte Technology		
Title	INTEL LAN I217	
Size: Custom	Document Number: GA-H87-HD3	Rev: 1.12
Date: Friday, October 25, 2013	Sheet 31 of 34	

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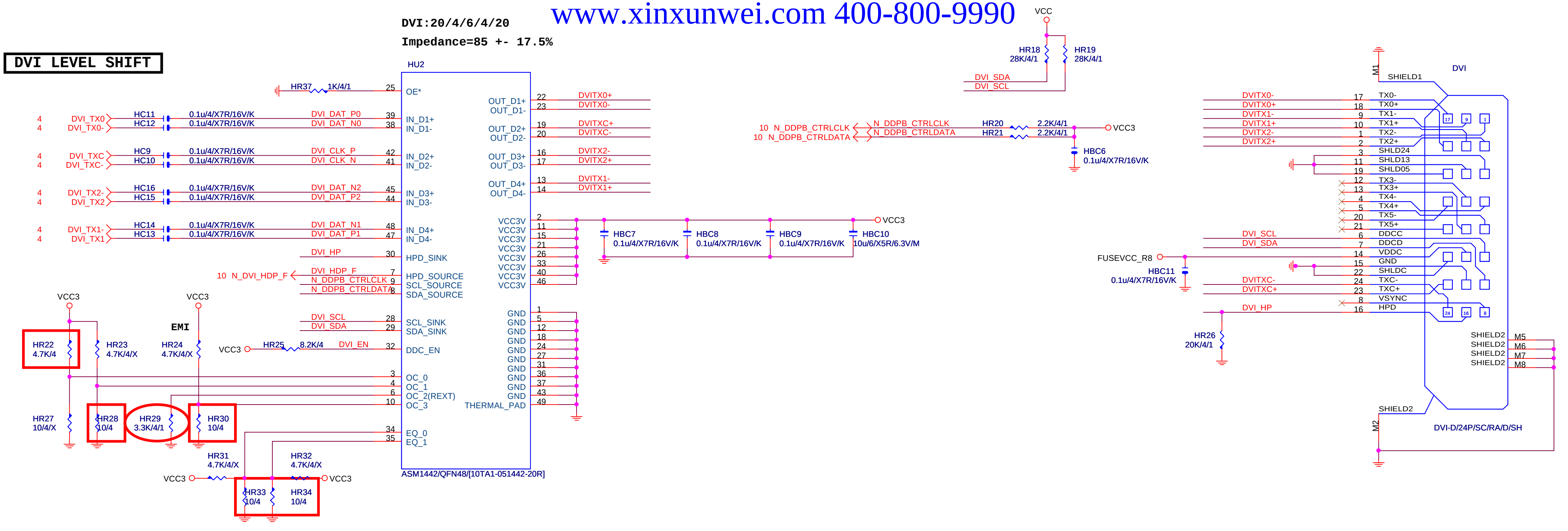

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR29:10K

ASM1442:紅色框要上,HR29:3.3K

Gigabyte Technology		
Title: TI TSB43AB23 1394		
Size: Custom	Document Number: GA-H87-HD3	Rev: 1.12
Date: Friday, October 25, 2013	Sheet 32 of 34	

HDMI LEVEL SHIFT

HDMI:20/4/6/4/20

Impedance=85 +- 17.5%

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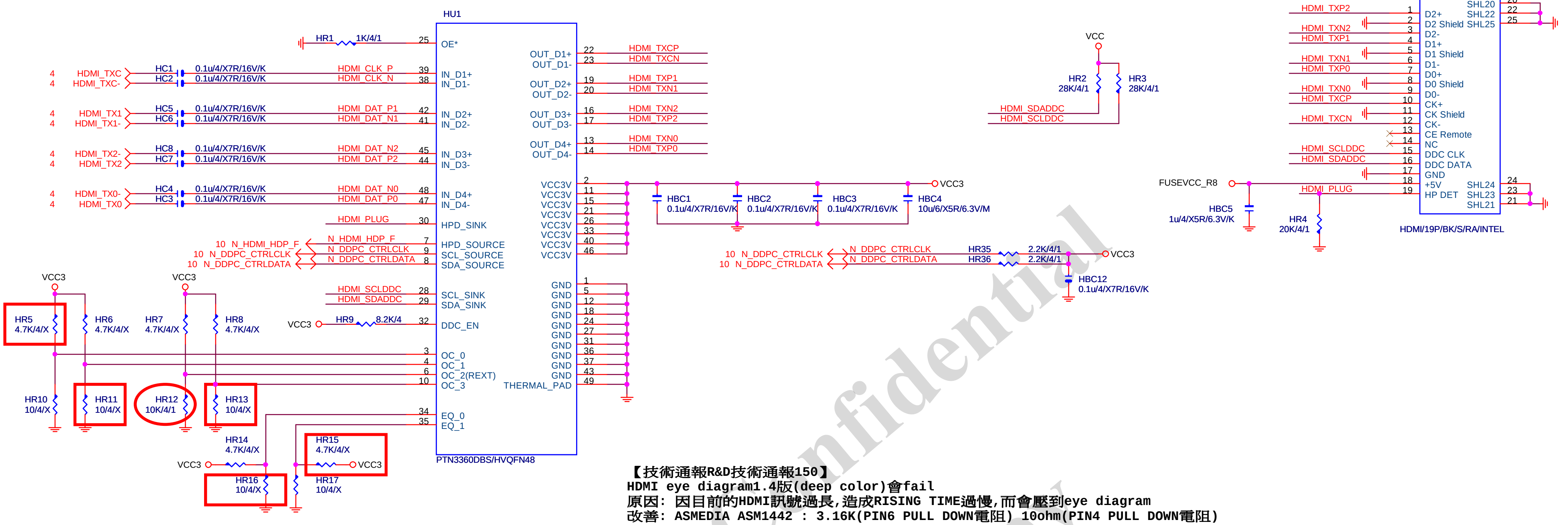

【技術通報R&D技術通報150】

HDMI eye diagram1.4版(deep color)會fail

原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram

改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K

ASM1442:紅色框要上,HR12:3.16K

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Title: HDMI

Size: Custom | Document Number: GA-H87-HD3 | Rev: 1.12

Date: Friday, October 25, 2013 | Sheet 33 of 34

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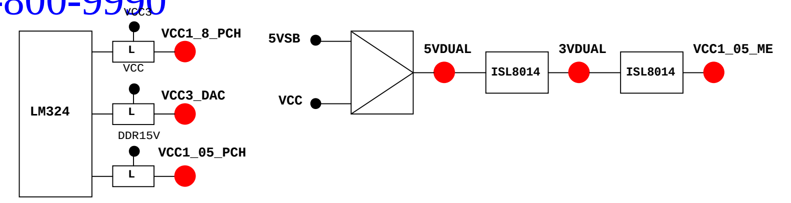
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

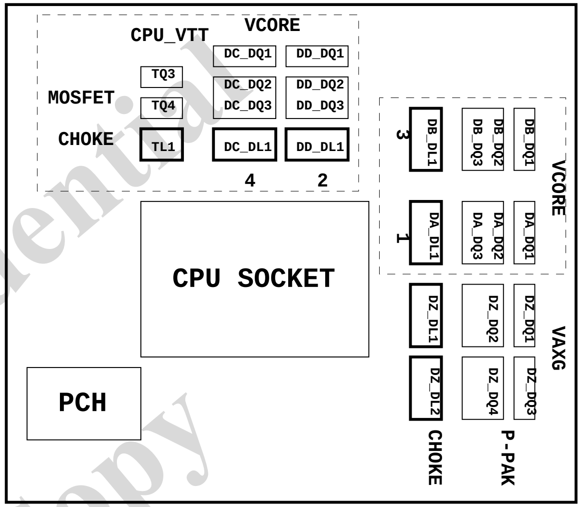
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VID03/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	SB_LED3_C	



PWM各相位的擺法如下:



BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號:

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

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