

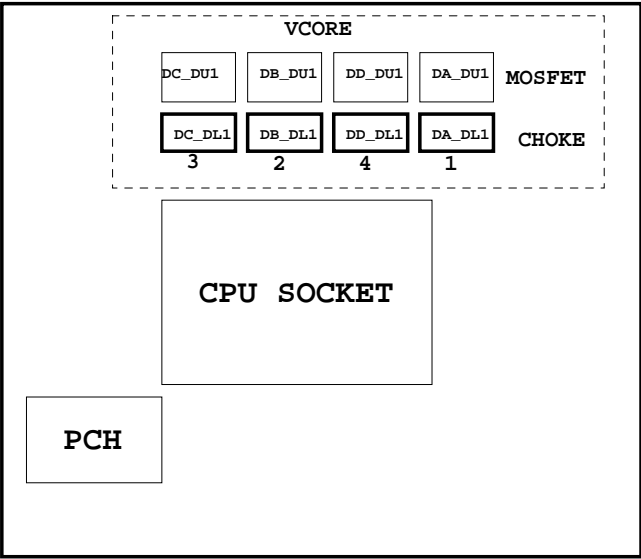
Model Name: GA-P85-D3 1.0

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*1 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1~4
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC887 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

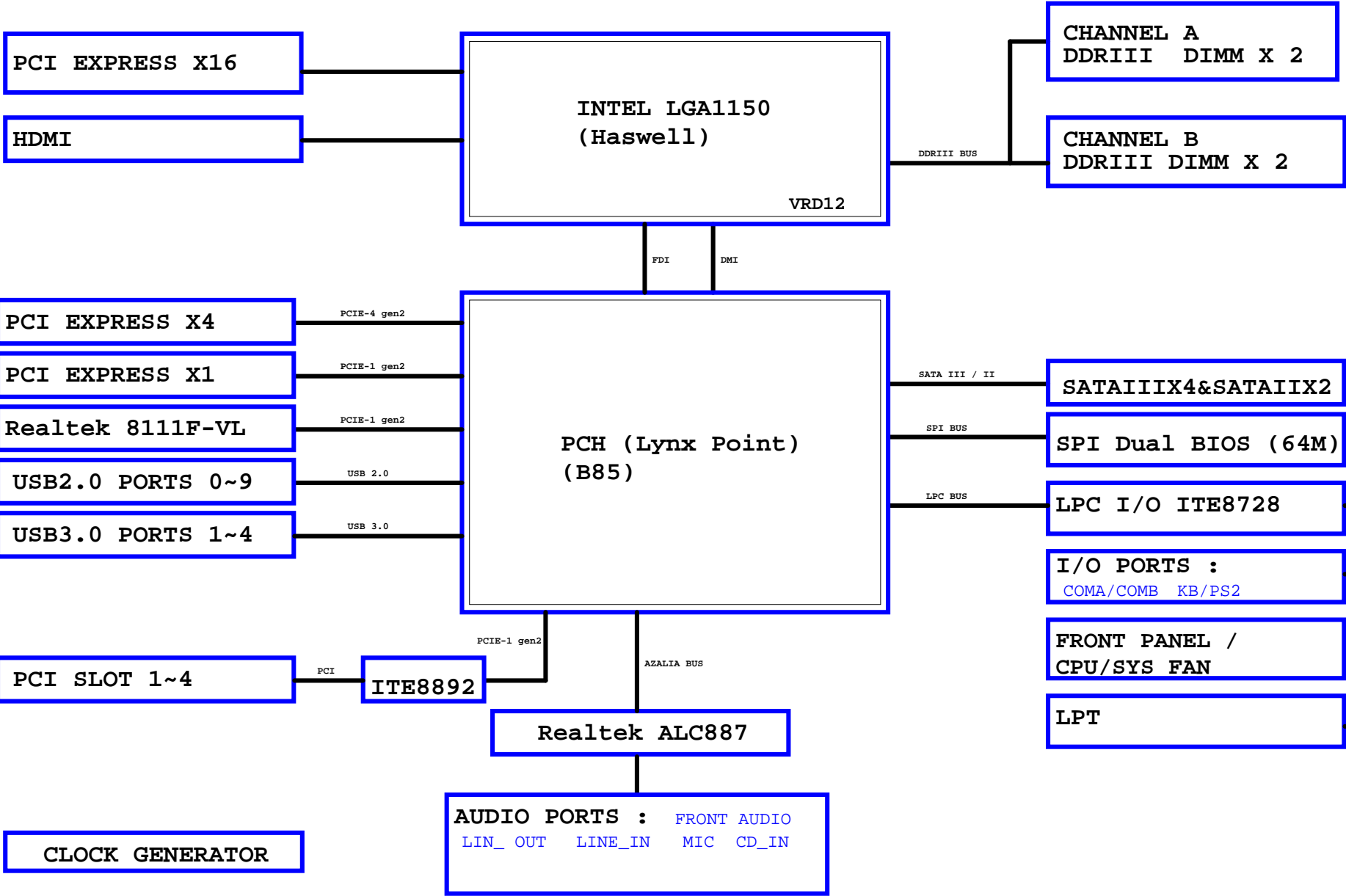
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	HDMI
33	TABLE LIST
34	
35	
36	
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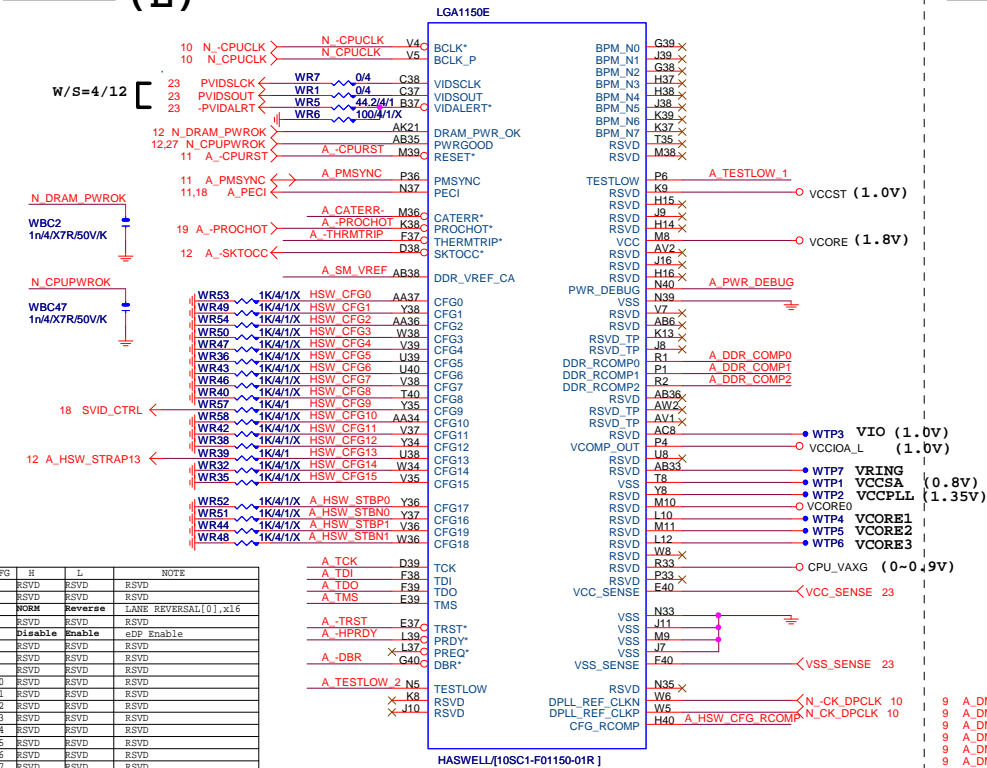
Component value change history

[illegible][illegible]

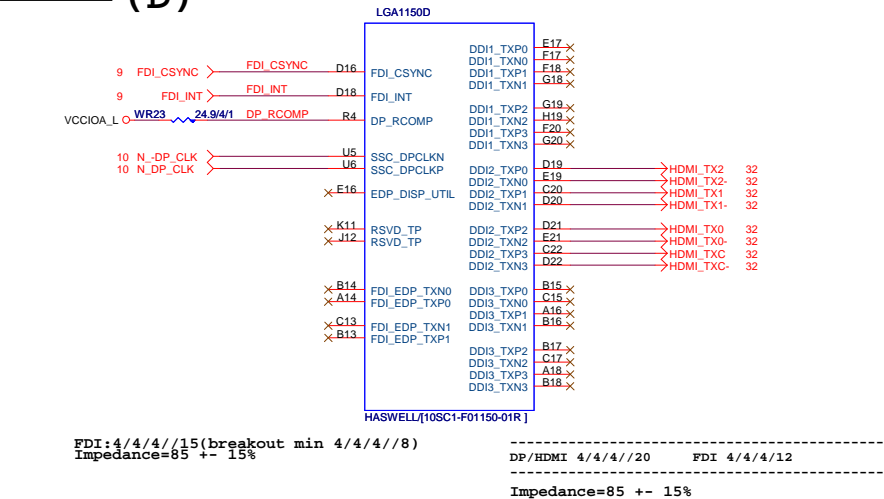
BLOCK DIAGRAM



LGA1150 (E)



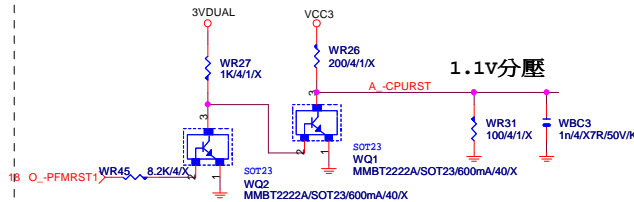
LGA1150 (D)



LGA1155 (C)



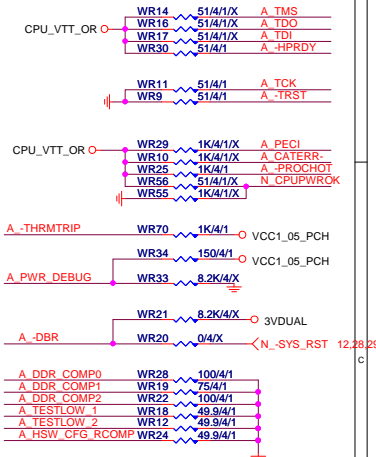
-CPURST



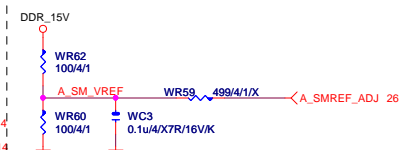
CPU SVID



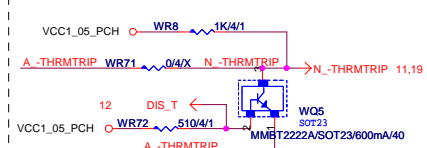
CPU PU/PD



SM REF



THRMTRIP DISABLE FOR Z87 OVERCLOCK



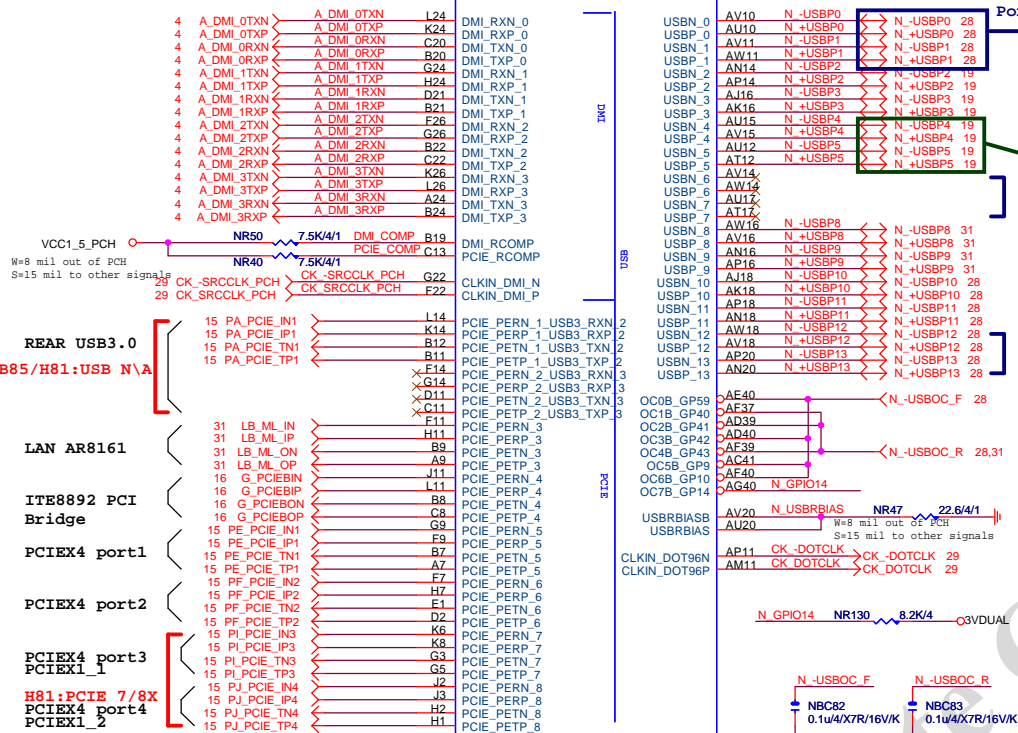
PCH

(B)

DMI:12/4/4/12(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%

PCHB



放靠近 Device & PCI-E Slot

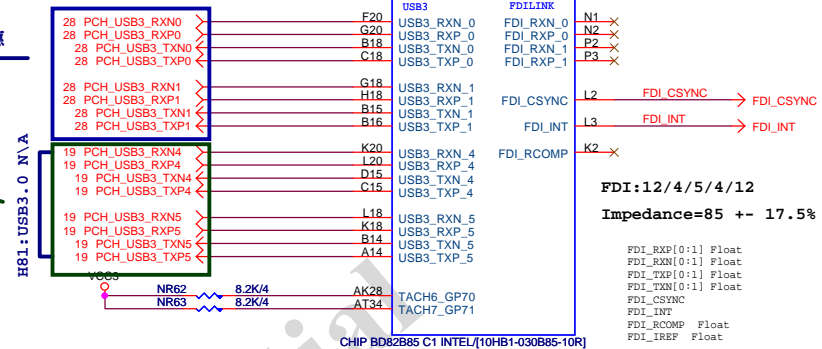
CHIP BD82B85 C1 INTEL[10HB1-030B85-10R]

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)



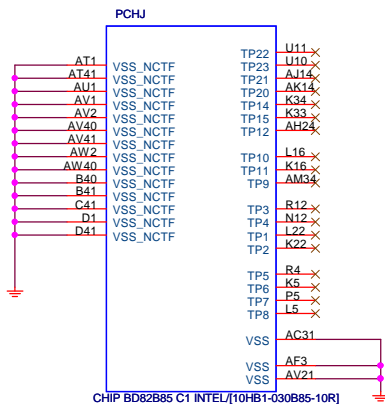
USB3.0:20/5/7/5/20 (breakout min
8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

Mount for integrated clock Generation Mode

CK DOTCLK NR92 8.2K/4
CK -DOTCLK NR91 8.2K/4
NR92 short to GND in non
graphic SKU

PCH

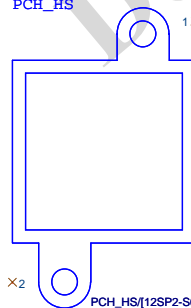
(J)



CHIP BD82B85 C1 INTEL[10HB1-030B85-10R]

PCH H/S

PCH_HS



PCH_HS[12SP2-S06012-01R_12SP2-S06012-02R_12SP2-S06012-03R]

USB TABLE

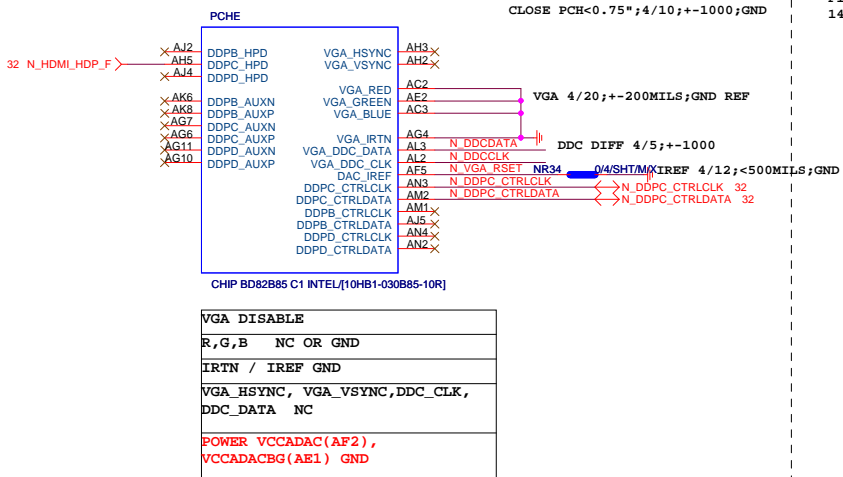
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

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

Gigabyte Technology

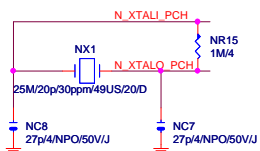
Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number		Rev
Custom	GA-P85-D3		1.0
Date:	Friday, March 29, 2013	Sheet 9 of 33	

PCH (E)

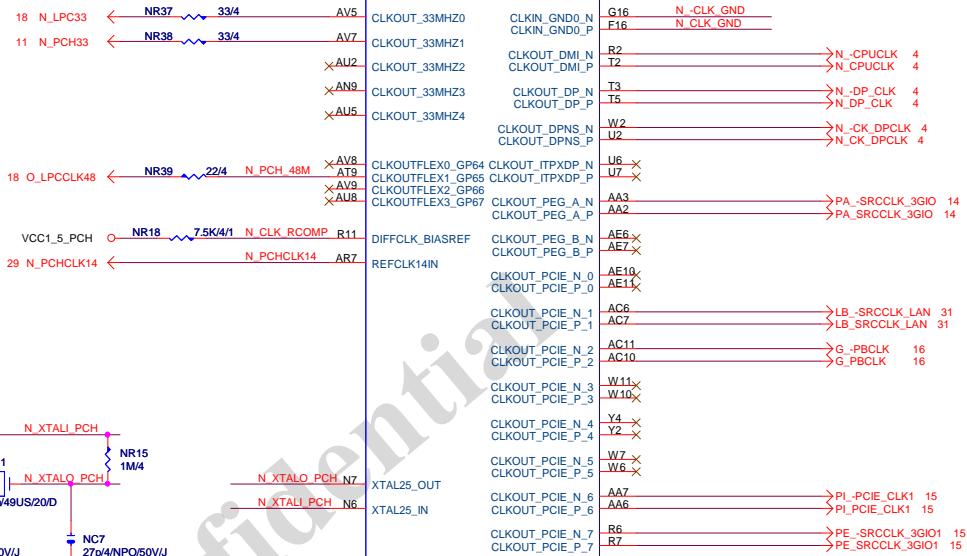


PCH (G)

Flex1,2,3,4 :
14/24/33/48MHZ

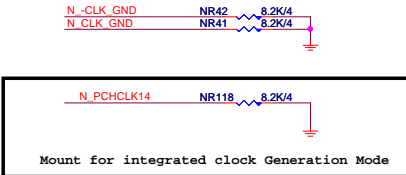


PCHG

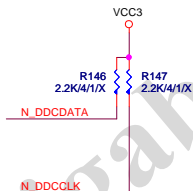


CHIP BD82B85 C1 INTEL[10HB1-030B85-10R]

PCH CLK PD



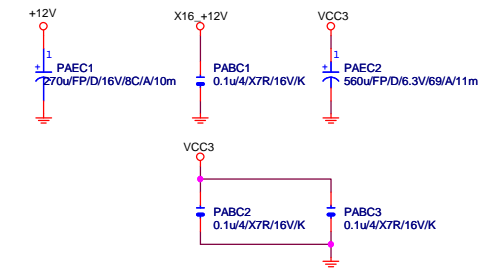
VGA DDC



VGA DDC

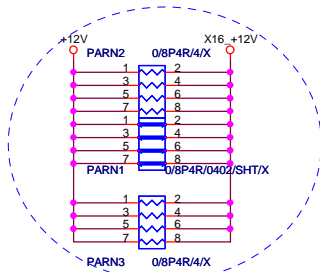
VGA CONNECTOR

PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA EXP TXP0 C	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0 C	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1 C	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1 C	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2 C	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2 C	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3 C	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3 C	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4 C	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4 C	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5 C	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5 C	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6 C	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6 C	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7 C	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7 C	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8 C	PAC20	0.22u/4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8 C	PAC21	0.22u/4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9 C	PAC22	0.22u/4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9 C	PAC23	0.22u/4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10 C	PAC24	0.22u/4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10 C	PAC25	0.22u/4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11 C	PAC26	0.22u/4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11 C	PAC27	0.22u/4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12 C	PAC28	0.22u/4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12 C	PAC29	0.22u/4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13 C	PAC30	0.22u/4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13 C	PAC31	0.22u/4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14 C	PAC32	0.22u/4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14 C	PAC33	0.22u/4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15 C	PAC34	0.22u/4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15 C	PAC35	0.22u/4/X5R/6.3V/K	PA EXP TXN15 C

PCI-E REV:1.1--> 2.5GHZ

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

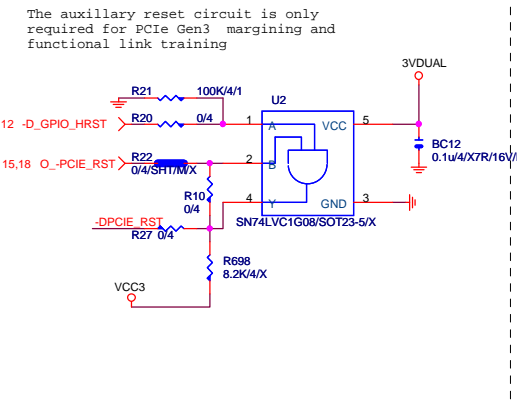
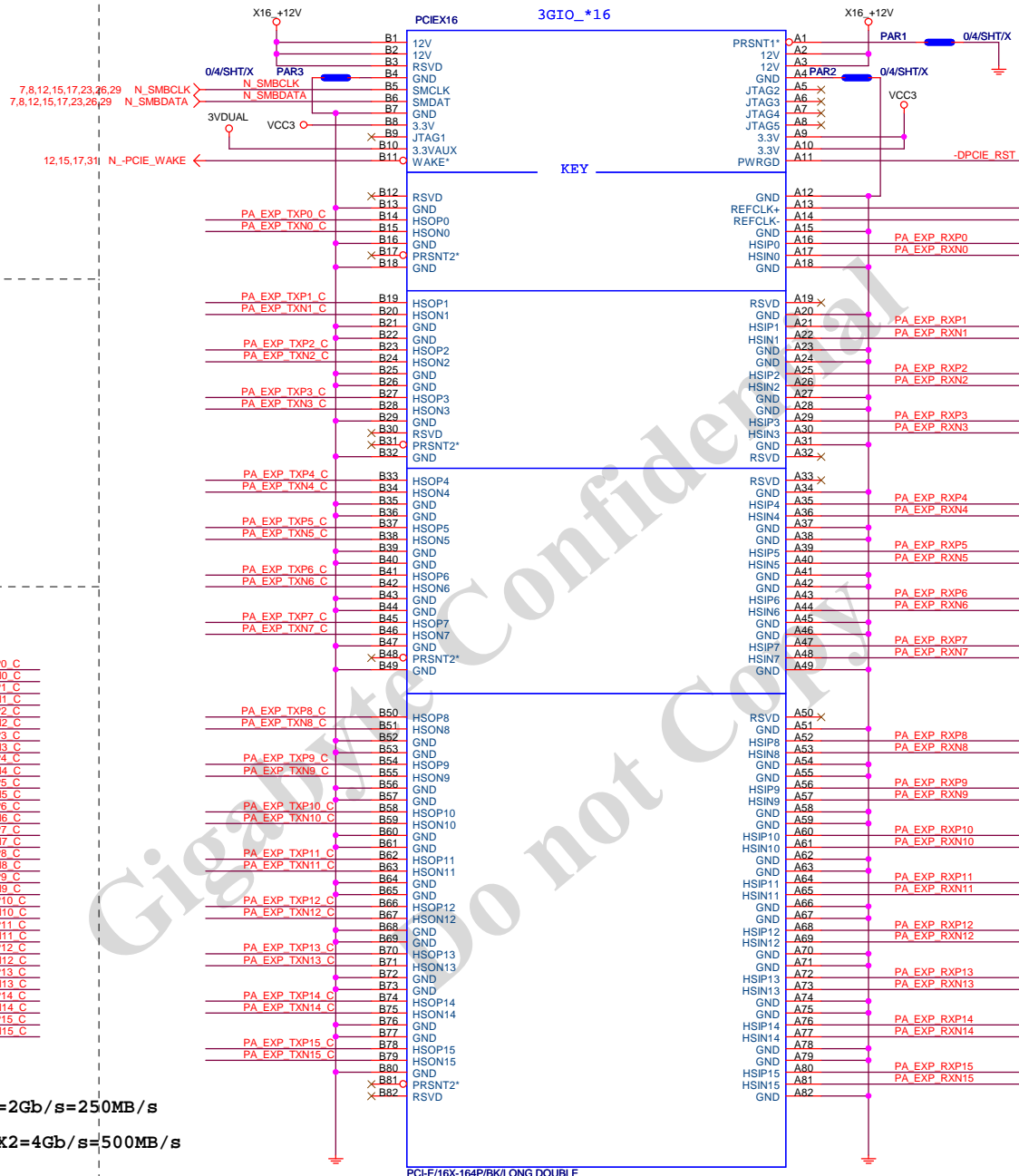
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

PCIEX16 SLOT

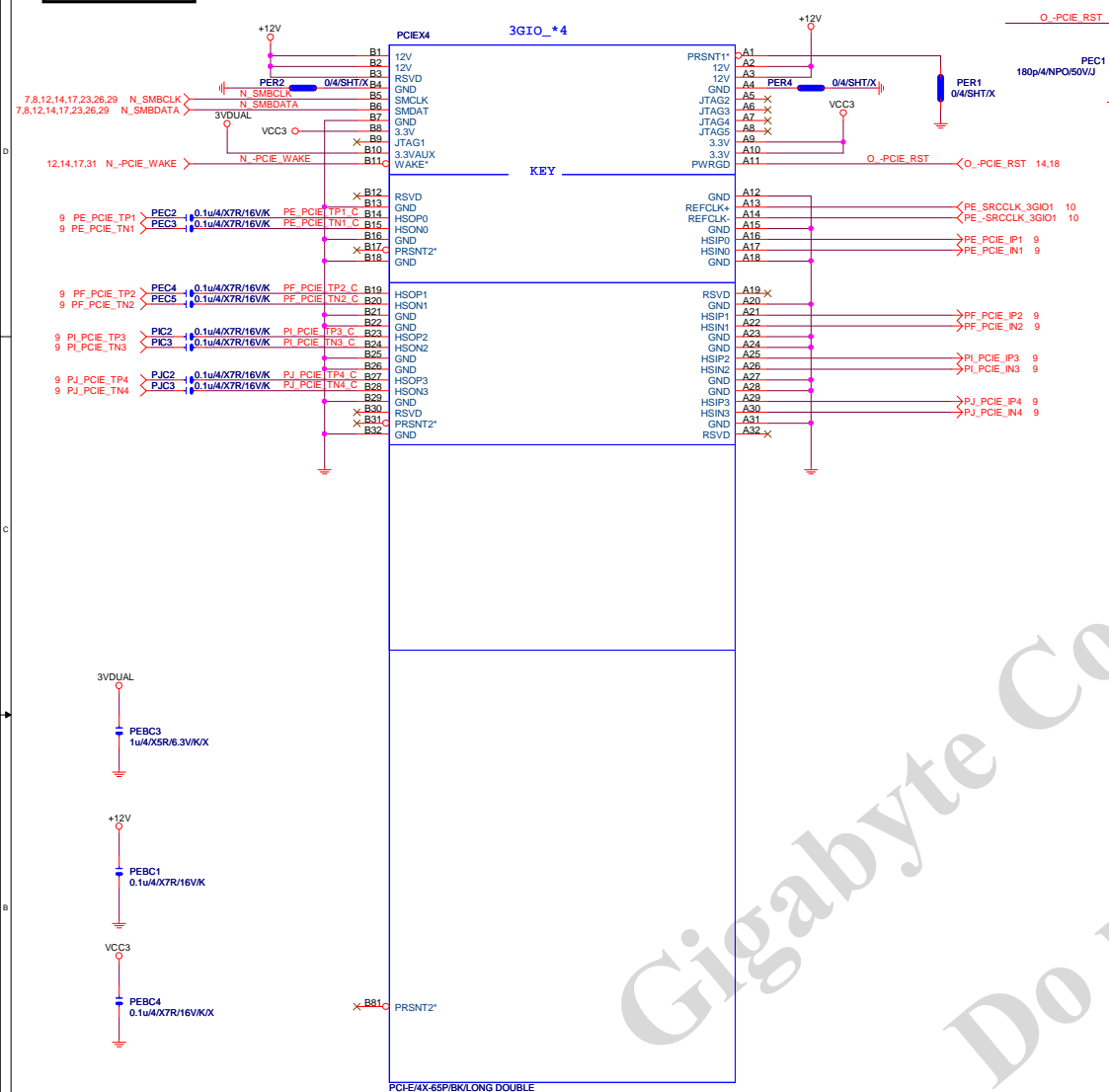


PCIEX16:16/5/5/5/16

PA EXP RXP0.15]	>>>PA_EXP_RXP[0.15]	4
PA EXP RXN0.15]	>>>PA_EXP_RXN[0.15]	4
PA EXP TXP0.15]	>>>PA_EXP_TXP[0.15]	4
PA EXP TXN0.15]	>>>PA_EXP_TXN[0.15]	4

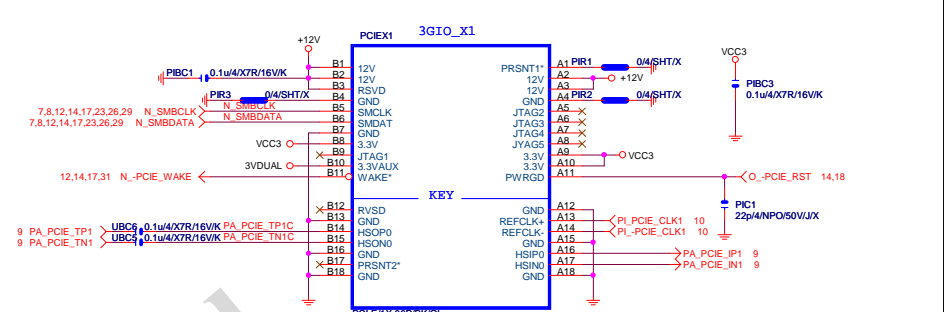
Gigabyte Technology			
PCI EXPRESS * 16			
File	Document Number	Rev	
	GA-P85-D3	1.0	
Date:	Friday, March 29, 2013	Sheet	14 of 33

PCIEX4 SLOT



PCIEX1 SLOT

PCIEX1_1



PCIEX4/X1 SWITCH

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

Function	SEL
x1--> x0a	L;PCIEX4 SLOT-->X1
x1--> x0b	H;PCIEX4 SLOT-->X4

Gigabyte Technology

Title

PCIE X1 1,2

Size

Document Number

Rev

1.0

Custom

GA-P85-D3

Date

Friday, March 29, 2013

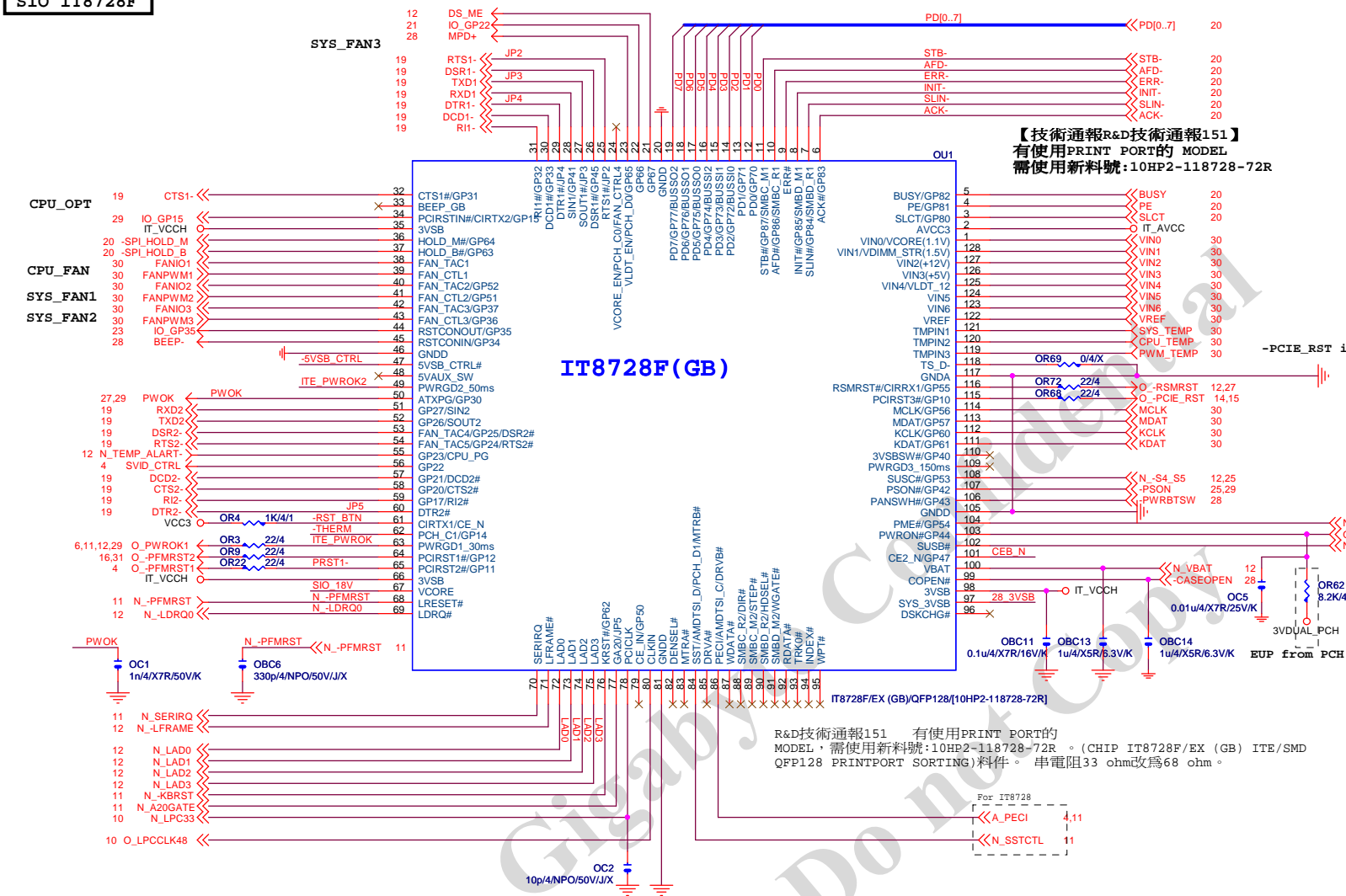
Sheet

15

of

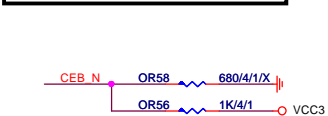
33

SIO IT8728F

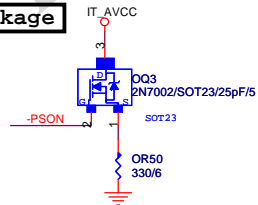


IT8728F NOTE	
IT8728	
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSL_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSL_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

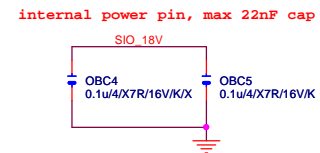
DUAL BIOS OPT STRAP



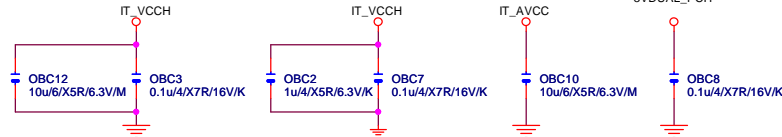
Power leakage



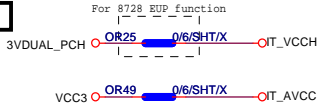
SIO_18V



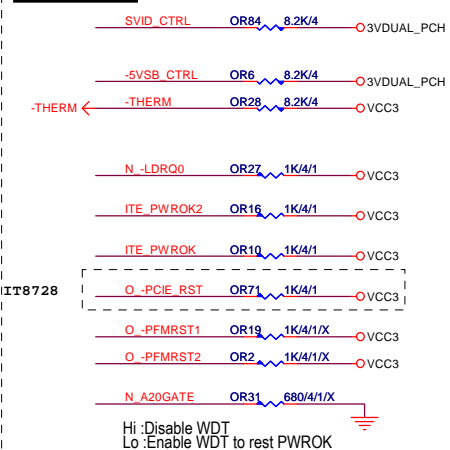
SIO CAP



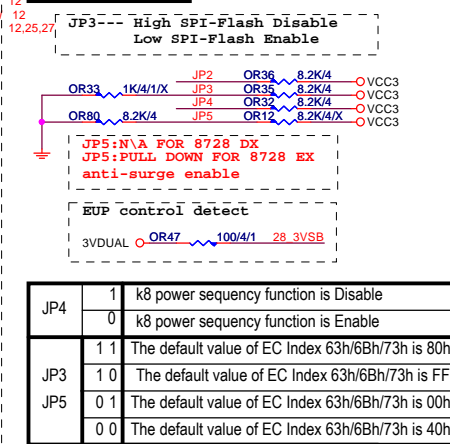
PWR SHT



SIO PU

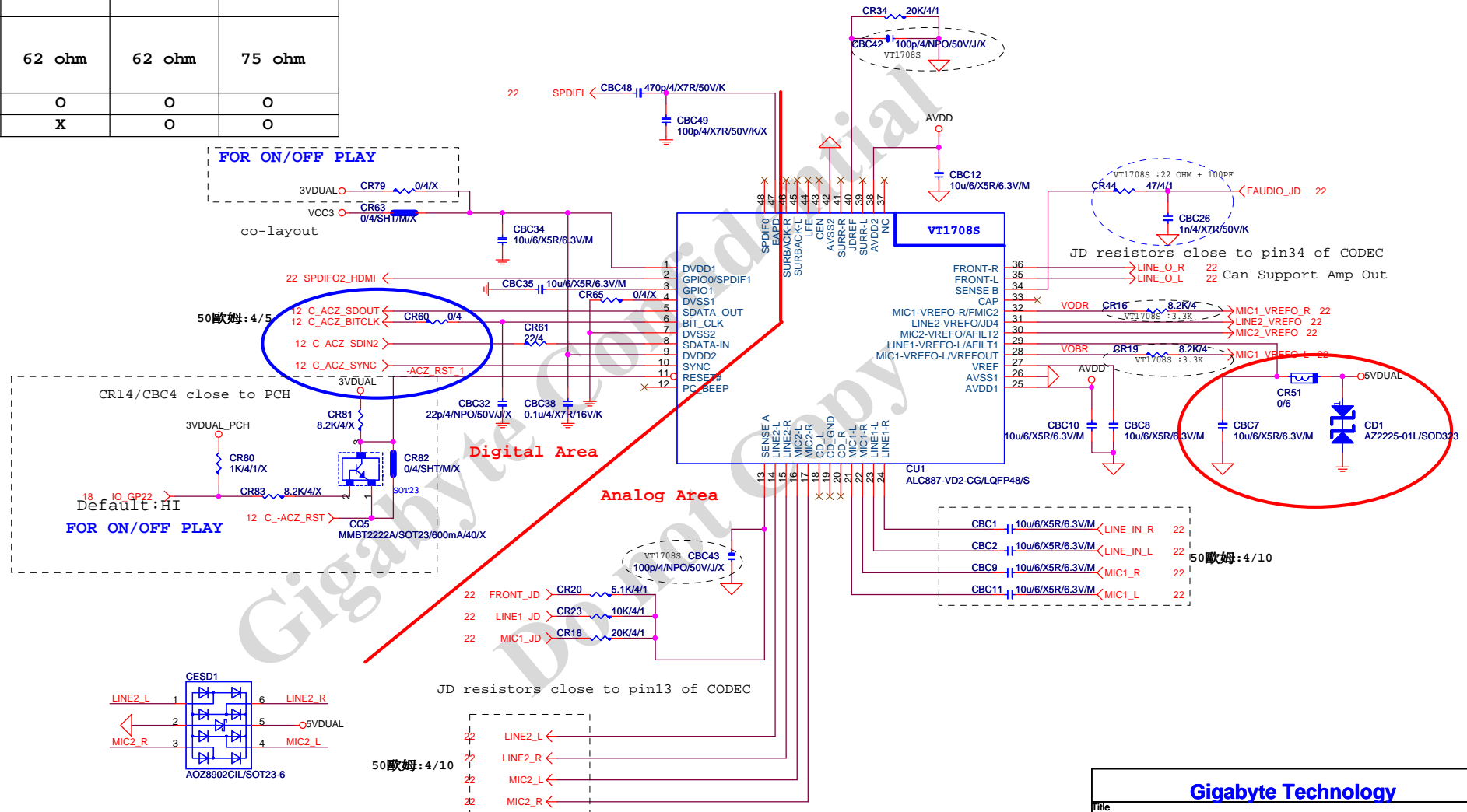


SIO STRAP



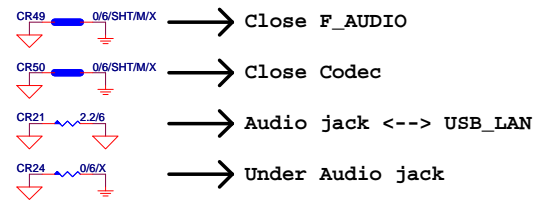
Gigabyte Technology			
Title			
ITE 8728 LPC IO			
Size B	Document Number	GA-P85-D3	
Date:	Friday, March 29, 2013	Sheet	18 of 33
		Rev	1.0

	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	O	O	O
CESD1	X	O	O

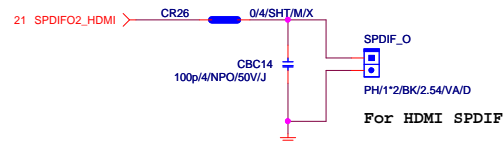


Gigabyte Technology

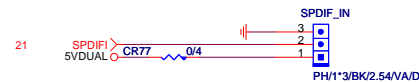
Title		
HD AUDIO ALC887		
Size	Document Number	Rev
Custom	GA-P85-D3	1.0
Date:	Friday, March 29, 2013	Sheet 21 of 33



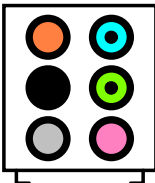
SPDIF_OUT



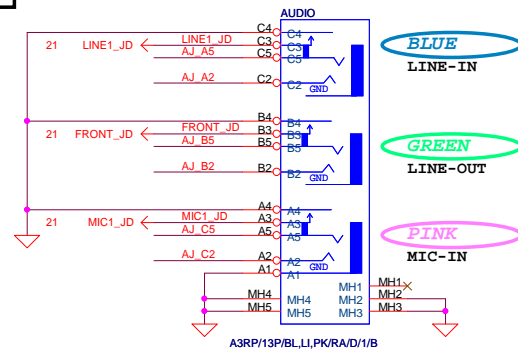
SPDIF_IN



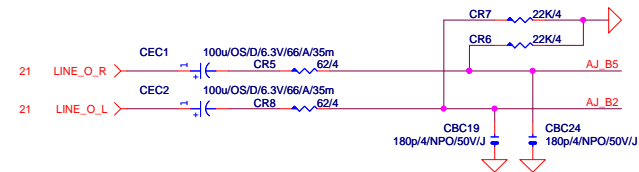
AZALIA JACK



AZALIA JACK



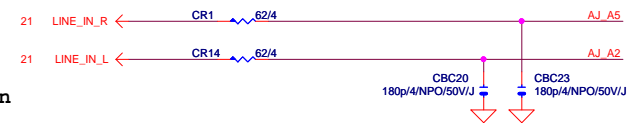
LINE-OUT



LINE-IN

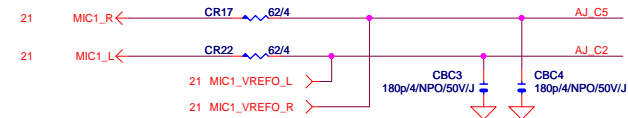
Verify MIC function in LINE-in

Only reserved for ALC888



For 889A/888

MIC-IN

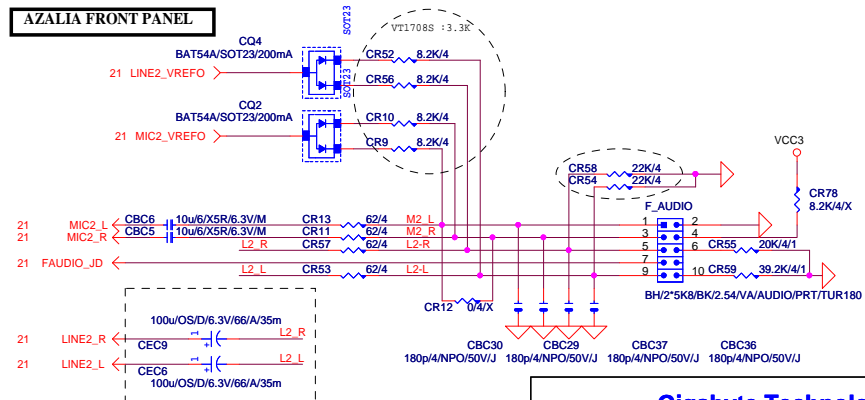


SURROUND

CEN/LFE

SURR BACK

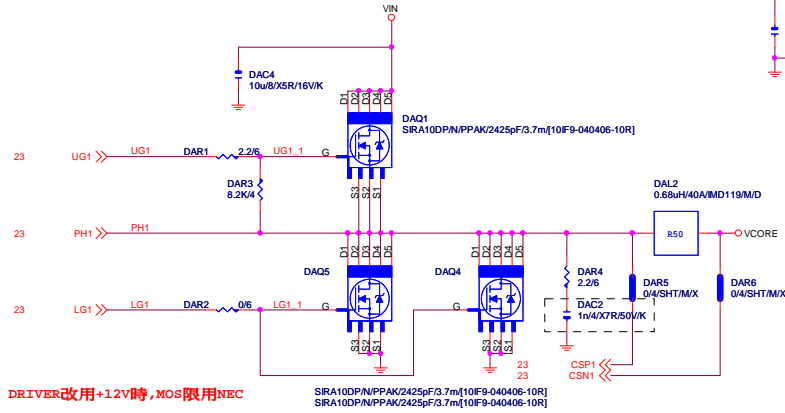
AZALIA FRONT PANEL



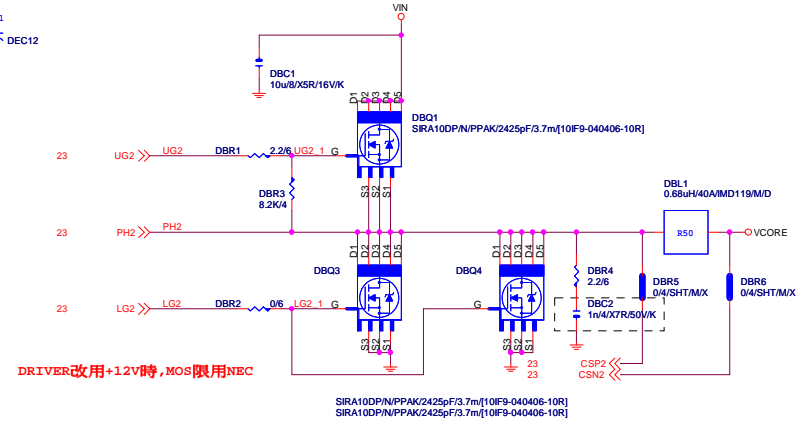
Gigabyte Technology			
AUDIO JACK			
GA-P85-D3			
Rev 1.0			
Date:	Friday, March 29, 2013	Sheet	22 of 33

VCORE

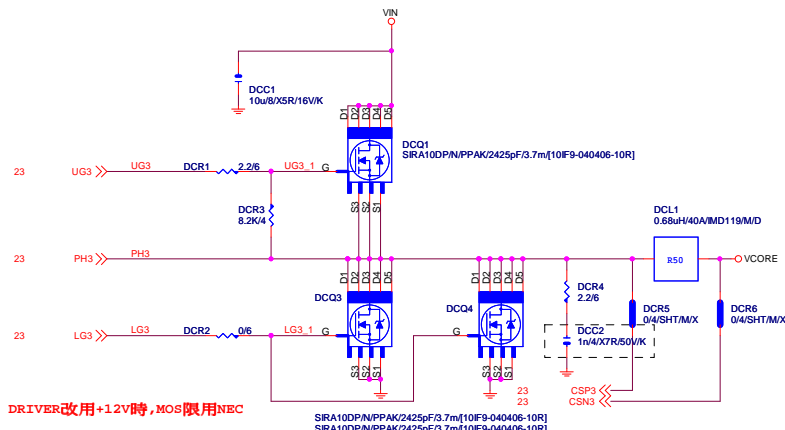
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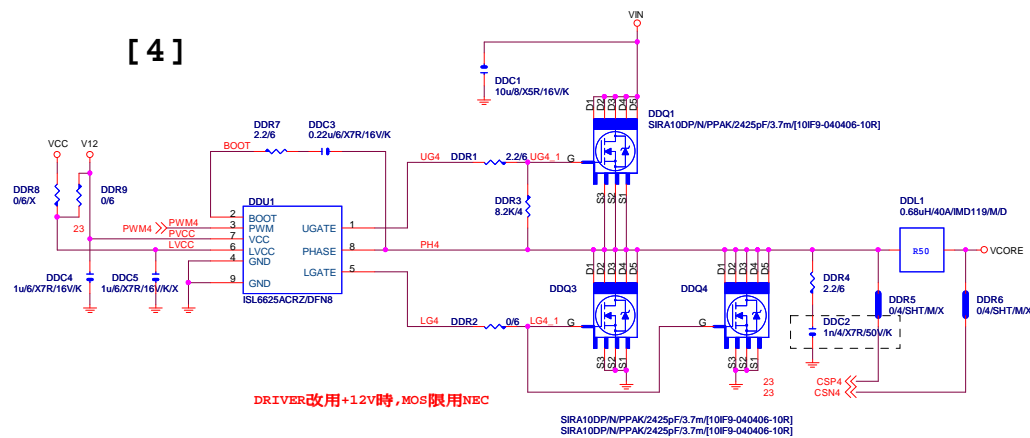
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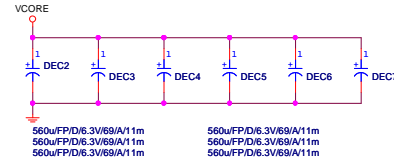
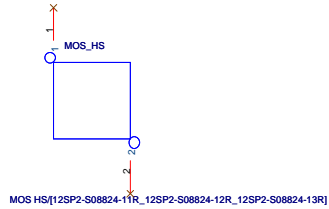
[3]



[4]

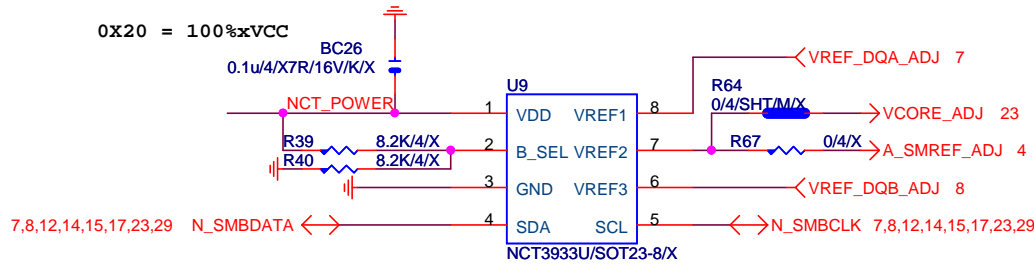
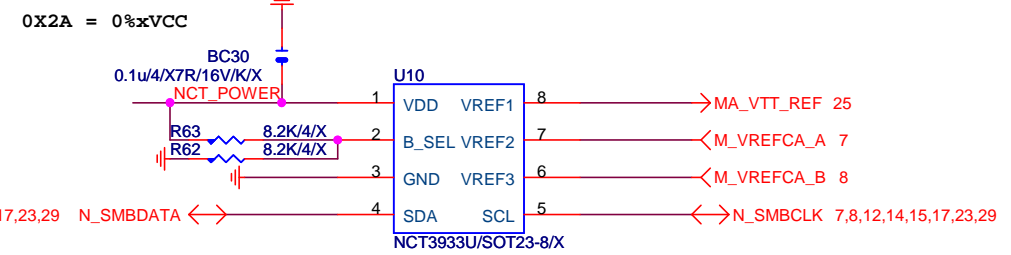
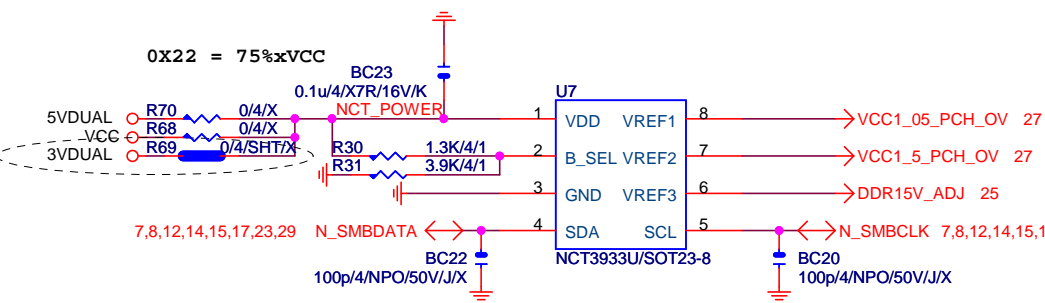


MOSFET HEATSINK



Gigabyte Technology			
Title		ISL95820_2	
Size		Document Number	
Custom		GA-P85-D3	
Date		Friday, March 29, 2013	
		Sheet 24 of 33	
		Rev 1.0	

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

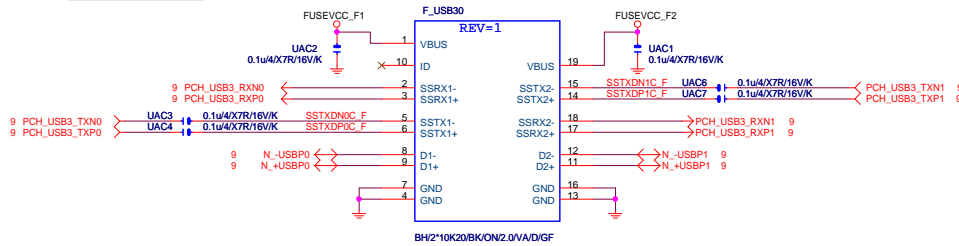
GA-P85-D3

Rev 1.0

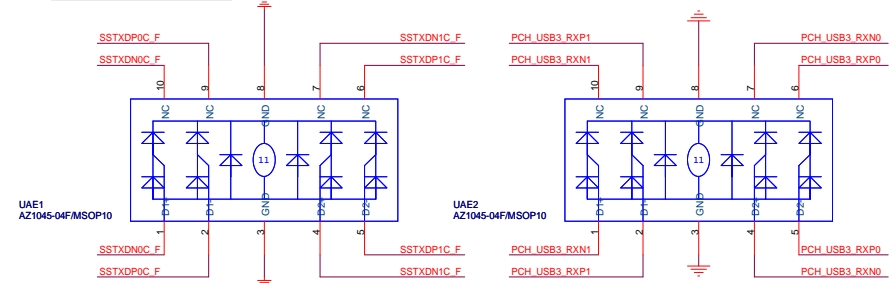
Date: Friday, March 29, 2013

Sheet 26 of 33

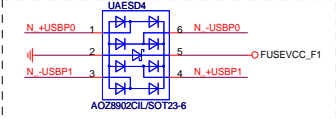
Front USB3.0



F_USB30 ESD PROTECT

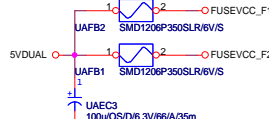


BLUE

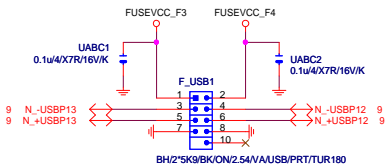


Close to connector

F_USB30 PWR

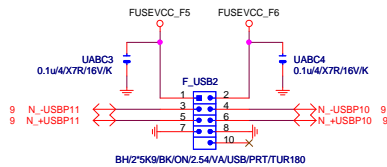


FRONT USB1



Close to connector

FRONT USB2

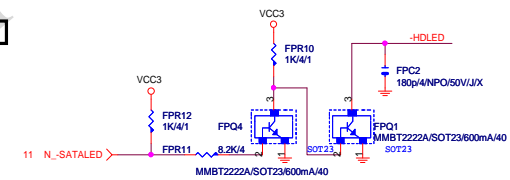


Close to connector

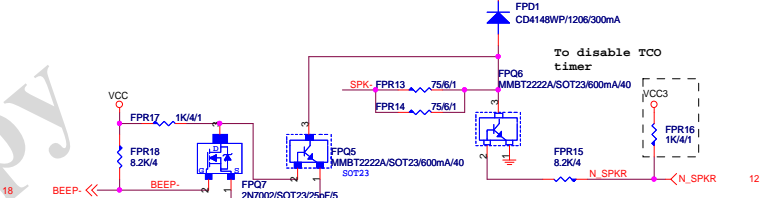
FRONT USB3



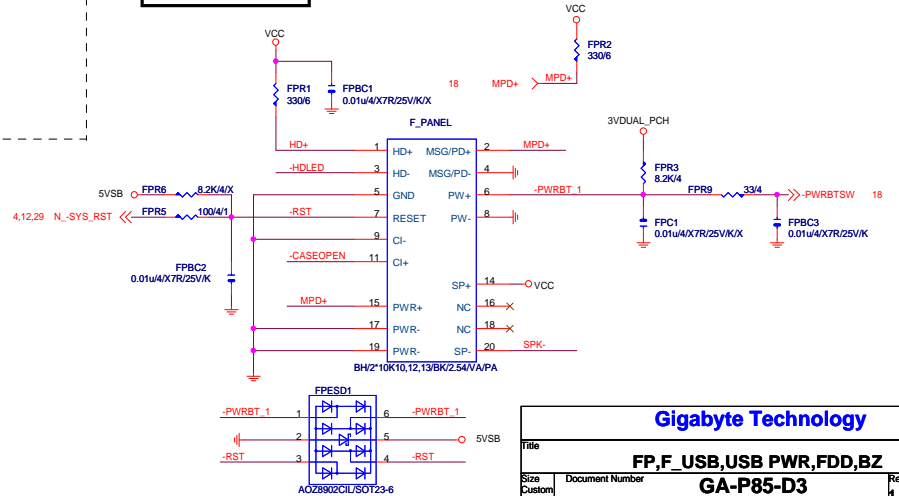
SATA LED



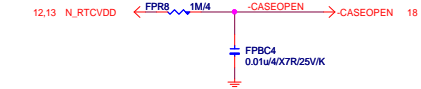
SPKR



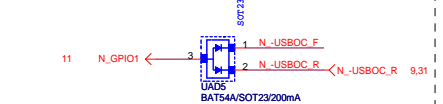
INTEL FRONT PANEL



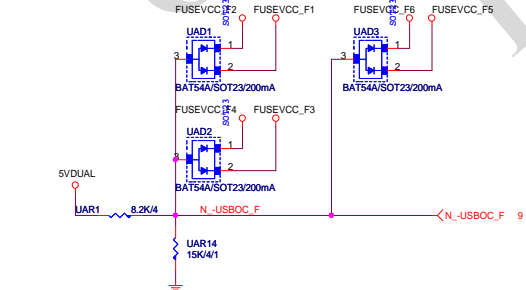
CASE OPEN



F_USB POWER PROTECT

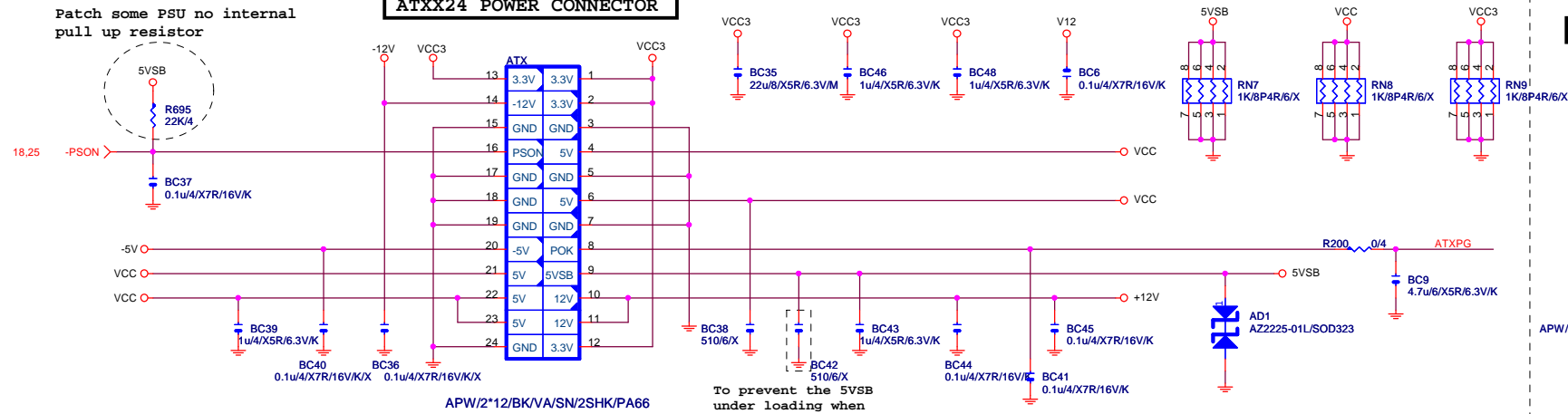


-USBOC_F

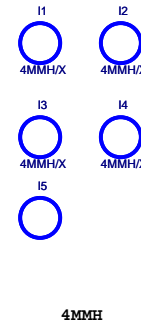
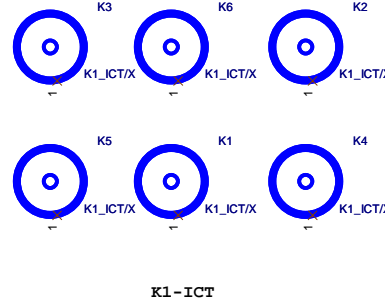
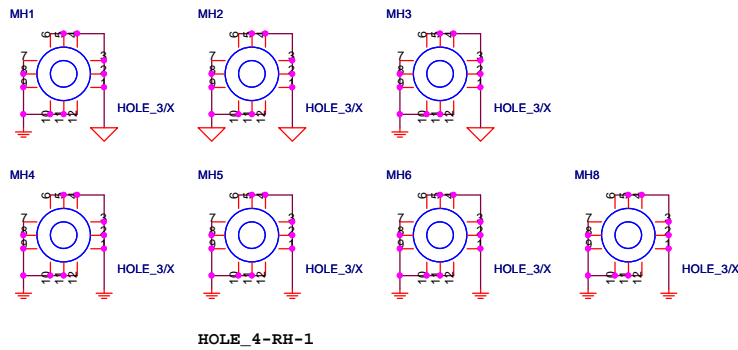
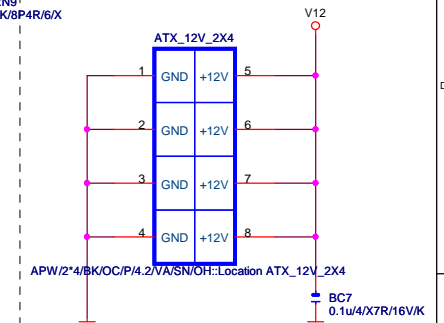


Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

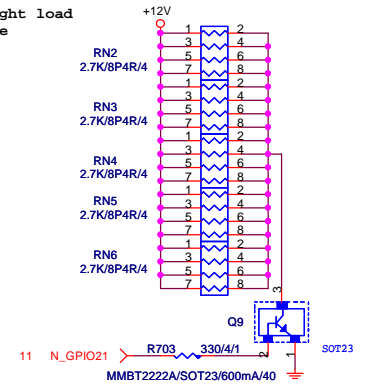


ATXX4 POWER CONNECTOR



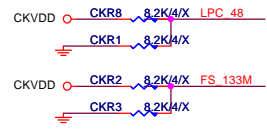
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

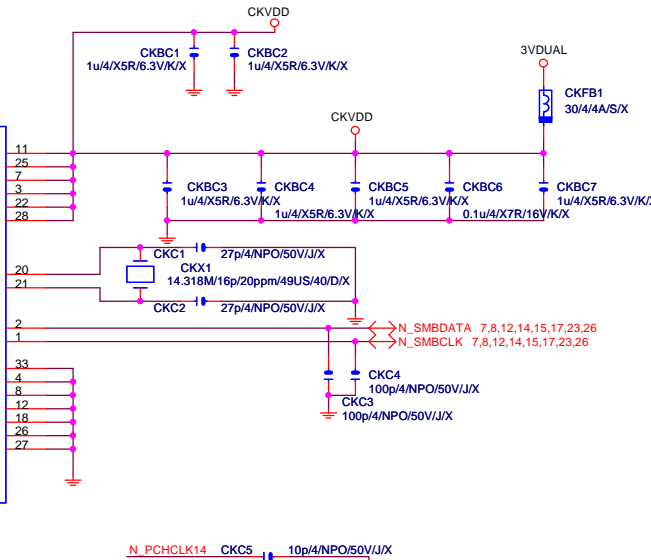
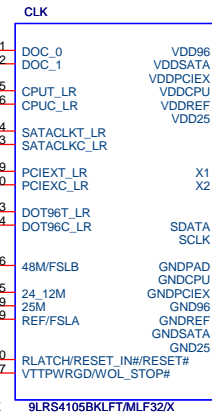
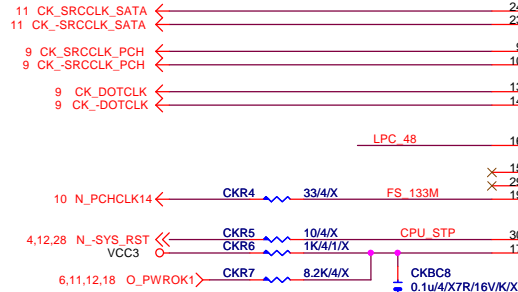


CLK GEN

CPU Frequency Selection

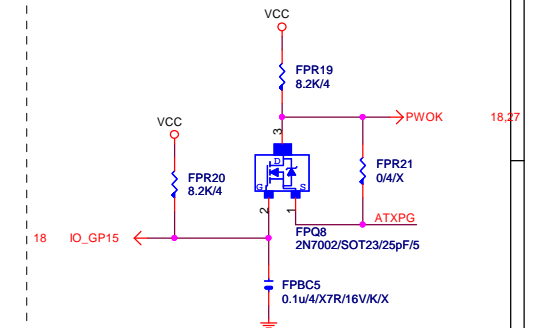


FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



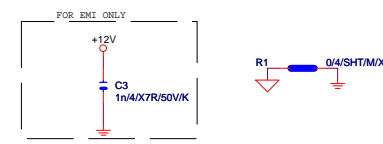
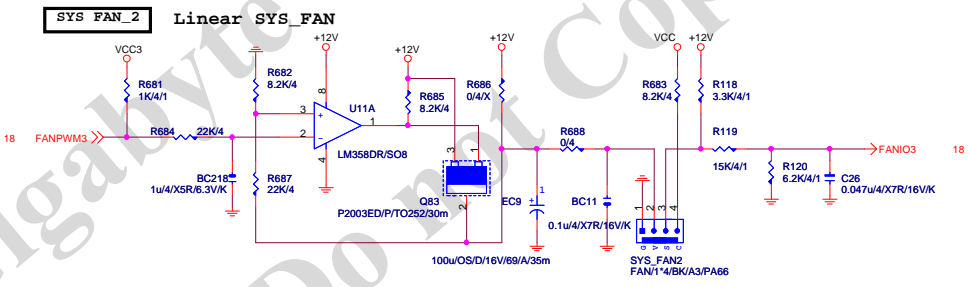
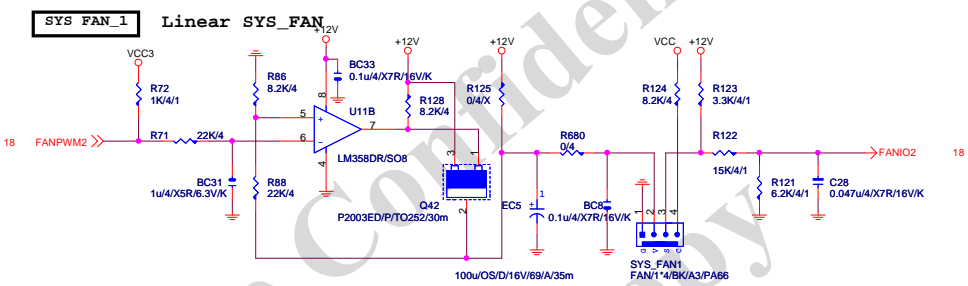
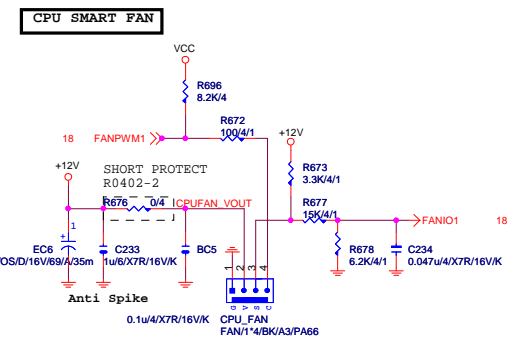
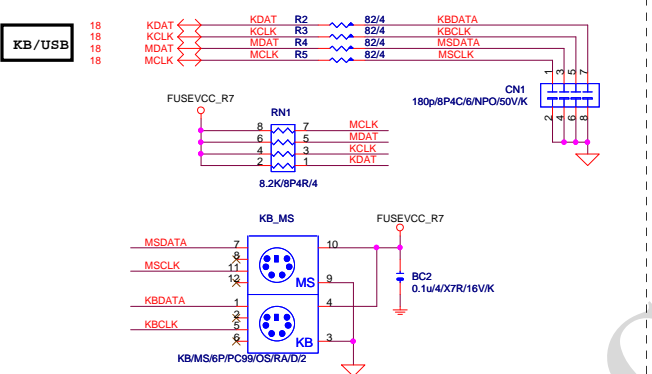
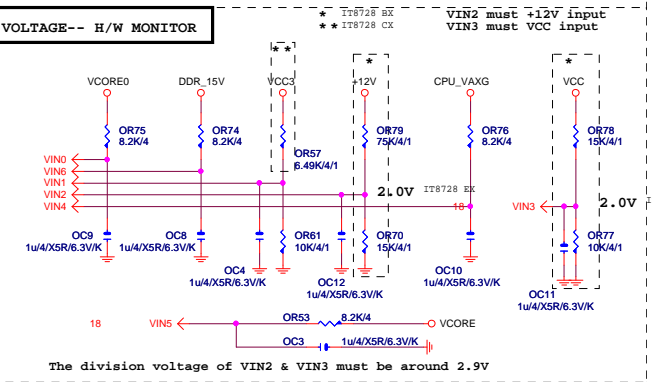
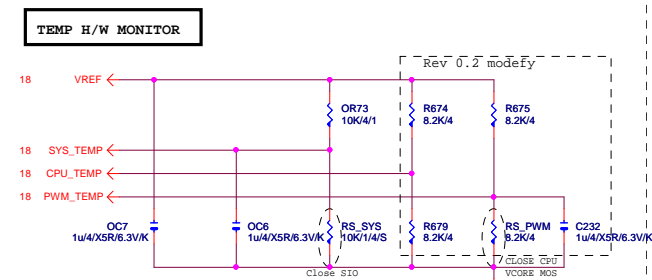
PWOK PATCH

【技術通報R&D技術通報154】



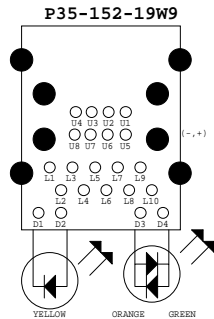
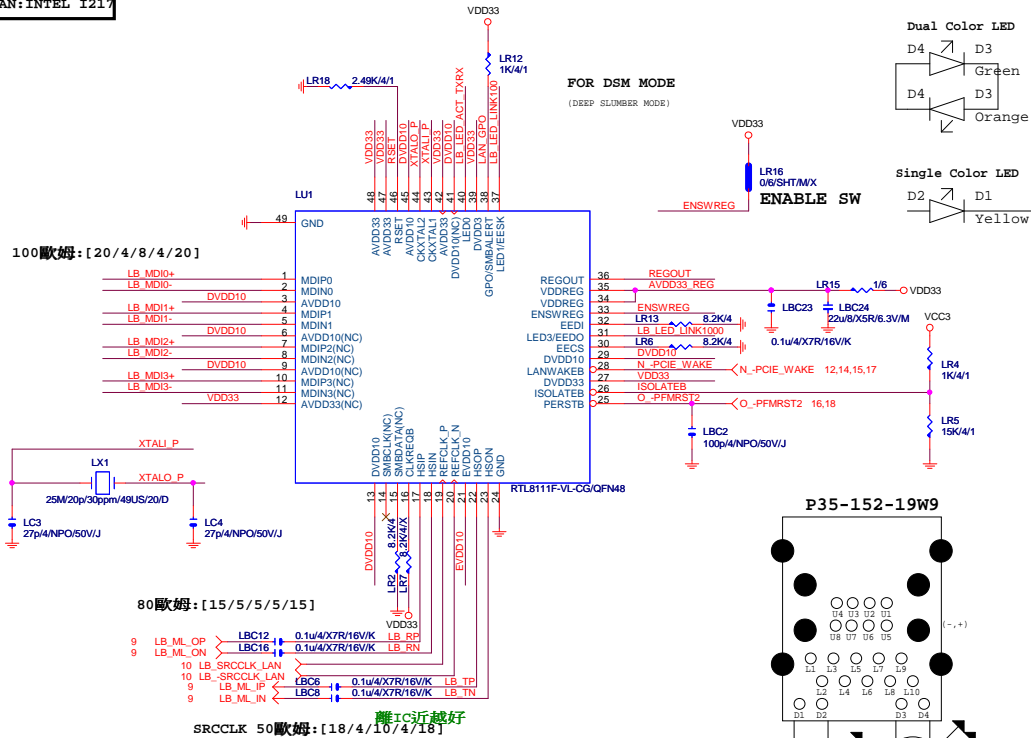
Gigabyte Technology

Title			ATX POWER CONNECTOR
Size	Document Number	GA-P85-D3	
Custom		Rev 1.0	
Date	Friday, March 29, 2013	Sheet 29	of 33



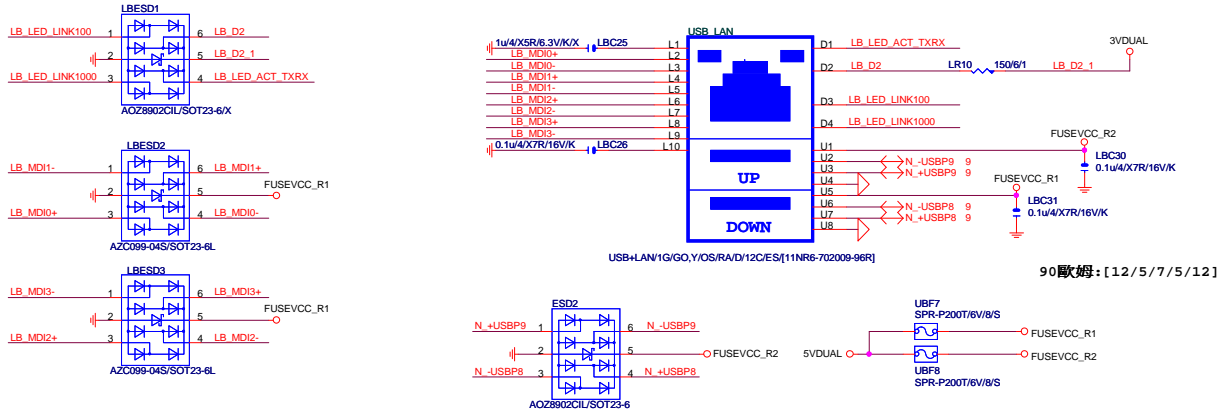
LAN:INTEL I217

100歐姆:[20/4/8/4/20]

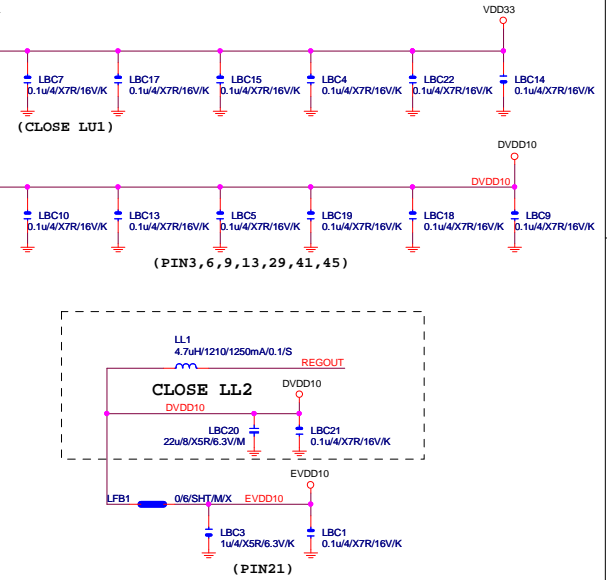


USB30_LAN CONNECTOR

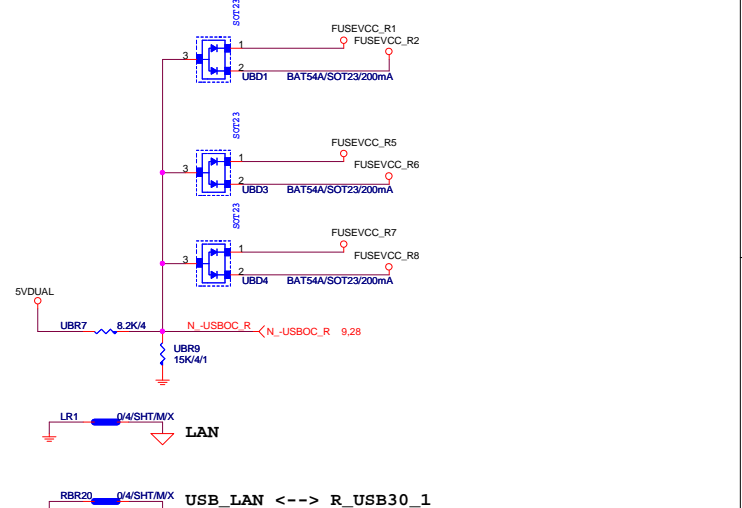
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90歐姆:[12/5/7/5/12]



-USB0C_R

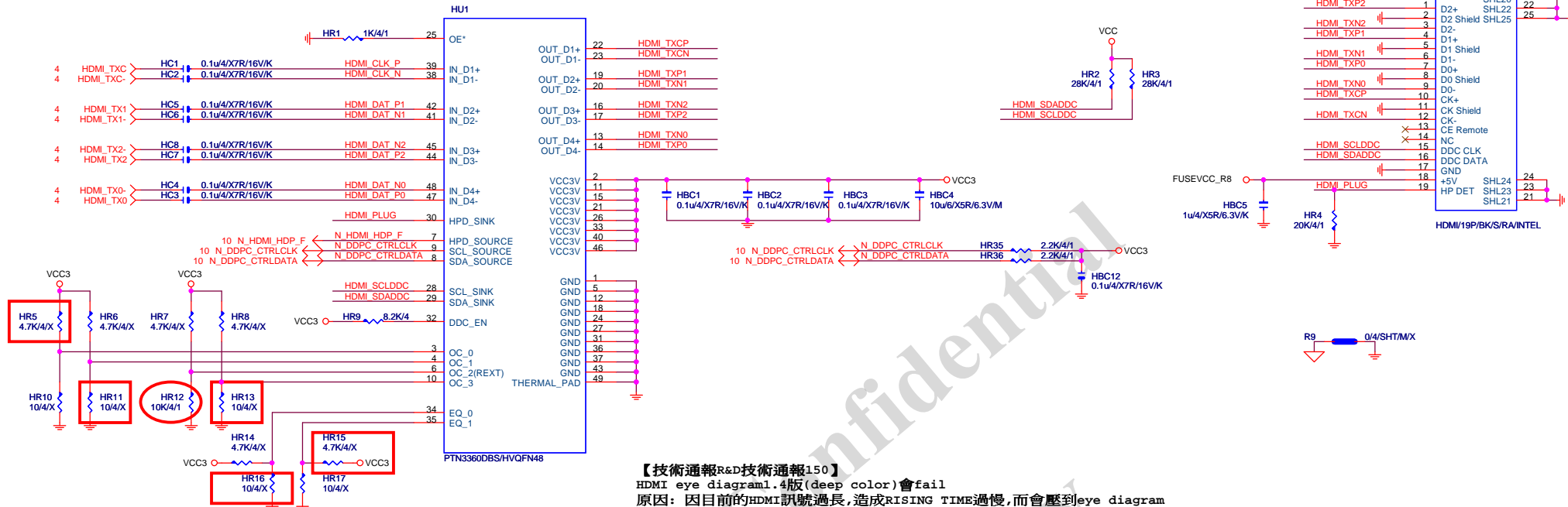


Gigabyte Technology			
Title	REALTEK 8111F-VL		
Size	Document Number	Rev	
Custom		1.0	
Date	Friday, March 29, 2013	Sheet	31 of 33

HDMI LEVEL SHIFT

HDMI:20/4/6/4/20

Impedance=85 +- 17.5%



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

【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)

GIGABYTE™

Title		
HDMI		
Size	Document Number	Rev
Custom	GA-P85-D3	1.0
Date:	Friday, March 29, 2013	Sheet 32 of 33

