

Model Name: 8I945P-G-RH

SHEET

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03	BOM & PCB MODIFY HISTORY
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05	P4_LGA775_B
06	P4_LGA775_C
07	P4_LGA775_D
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09	GMCH-LAKEPORT_DDRII
10	GMCH-LAKEPORT_PCI E, DMI
11	GMCH-LAKEPORT_INT VGA
12	GMCH-LAKEPORT_GND
13	GMCH-LAKEPORT_PWR
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16	DDRII TERMINATION
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24	PCI SLOT 1,2,3
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SHEET

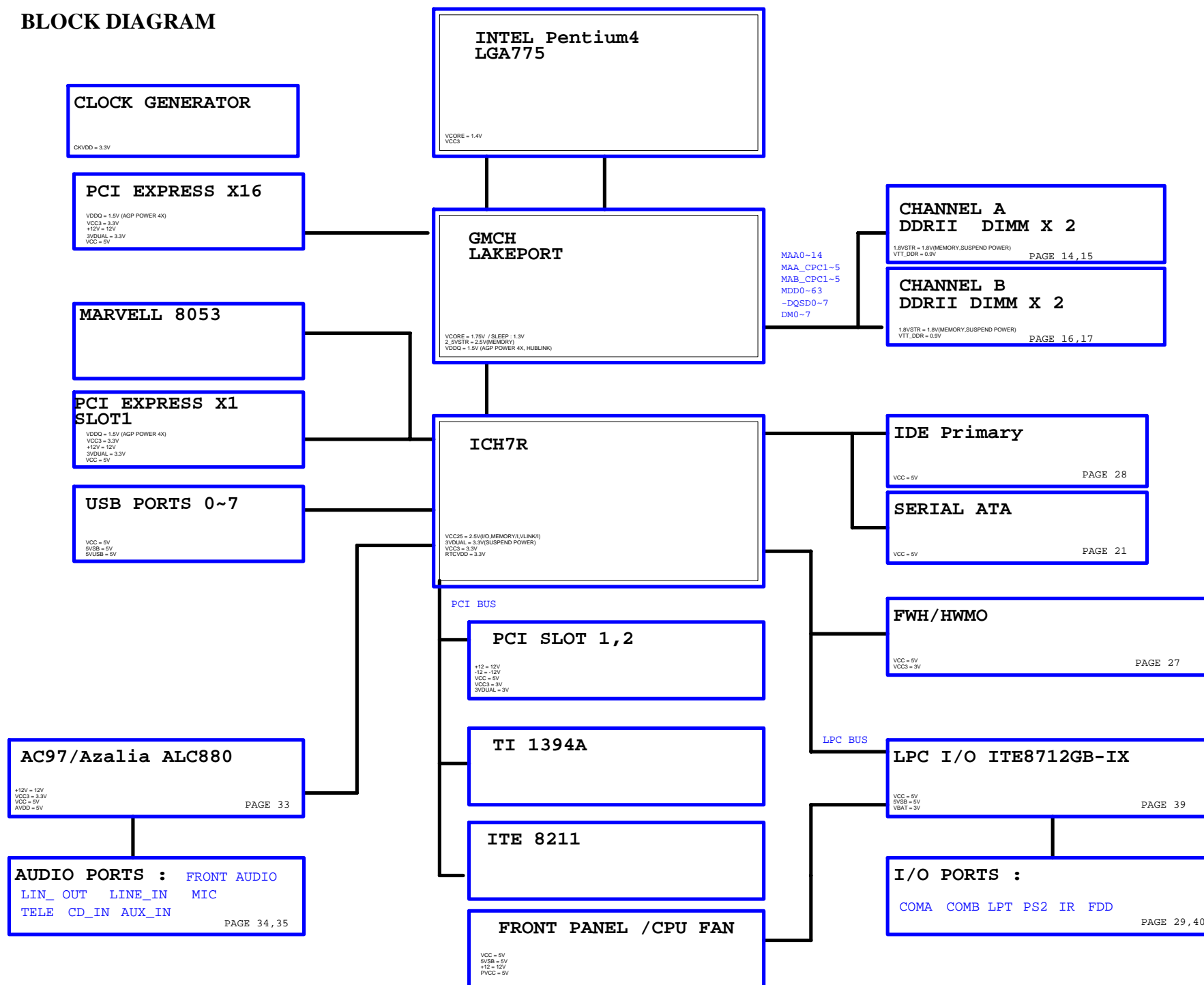
TITLE

28	FRONT PANEL
29	FRONT USB,REAL USB CONNECT
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31	AZALIA CODEC ALC880
32	AUDIO JACK 1
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40	DISCRETE POWER
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42	ITE8212 RAID
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44	GPIO DEFINE



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BLOCK DIAGRAM



Version: 1.0

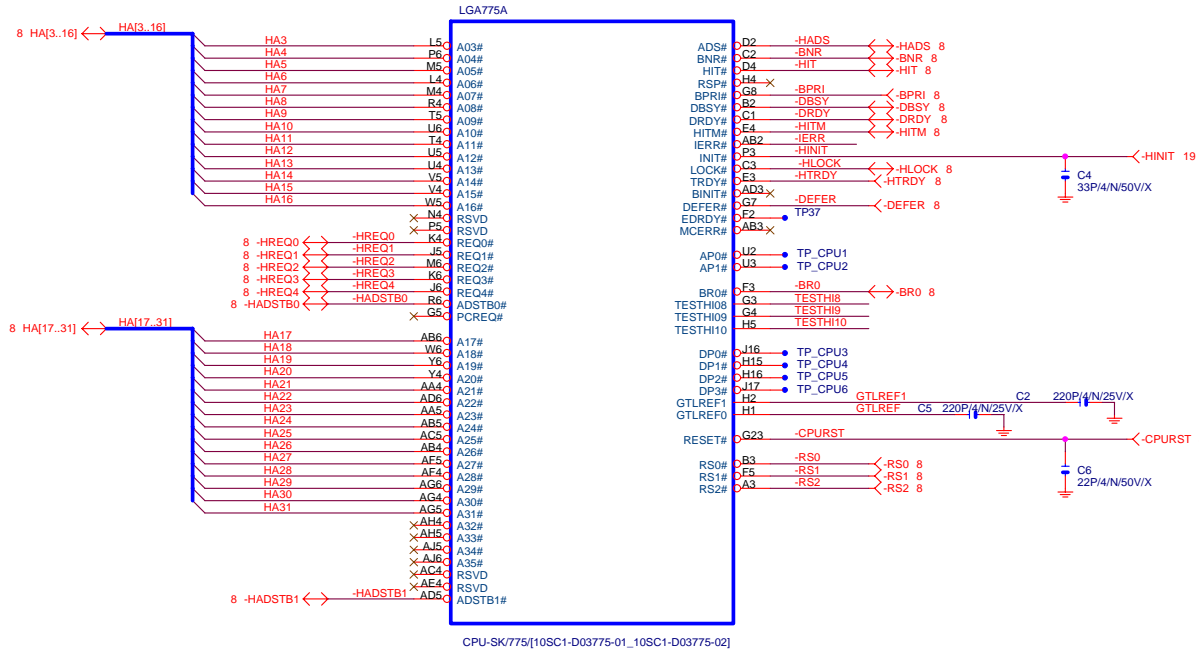
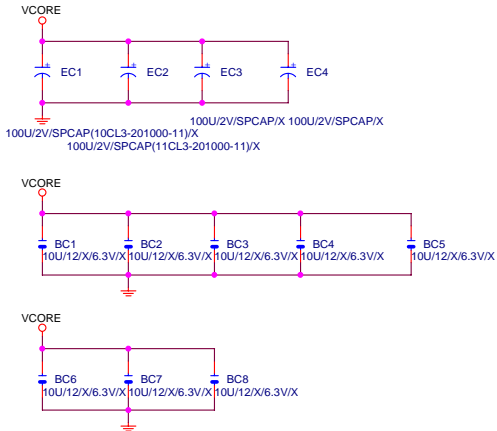
Component value change history

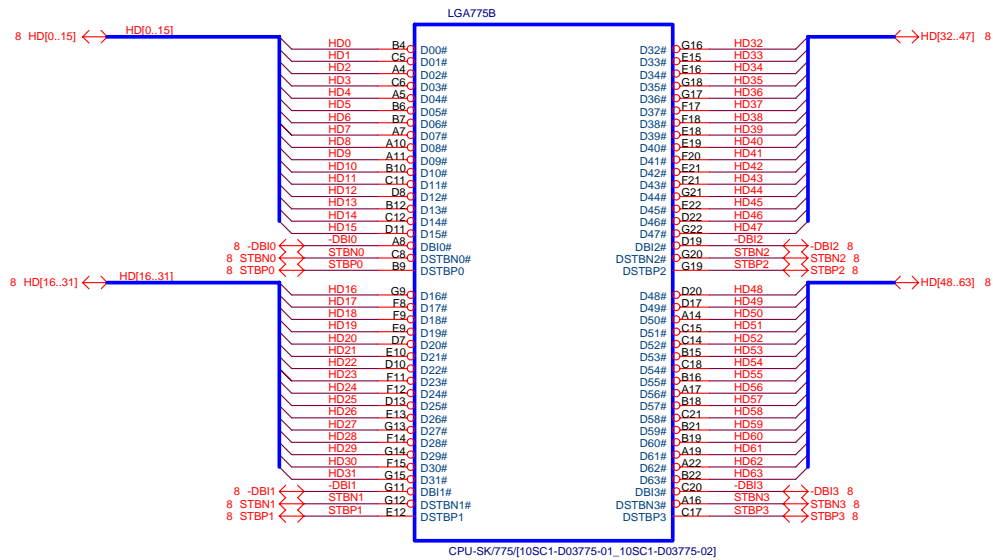
Data	Change Item	Reason
0.2	release 02	
1.0	release 02	
	add bc24 22u	
	ddr ratio 線路圖 修改斷線且要上	
	DDR18V 線路修改	
	F2 改料號	
	INFO_LINK REMOVE	
	N/B,S/B 改料號	
	USB AGND/GND 加電阻	
	加SPDIFI	
1.0B	R1619 1K/6 REMOVE	
	REMOVE NB_FAN/POWER_FAN	
1.0C	REMOVE PCIE_12V(11NH4-010004-01)	
	CUI 10HP5-366882-10 CHANGE 10HP5-366882-10R ALC882	
	L1,L2,L18 10LI2-12100A-03 CHANGE 10LI2-12100A-13	
1.0D	1.SPDIF_I change to 11NH5-010103-51	
	2.單一料,加替代料	
1.0E	1.RU1 from VT6410 change to IT8212	
1.0F	1.PCB change to 1.0 2	
	2.VCC3 add 1u/6 *3 for DDRII SPD issue	
1.0G	1.RF_ID change to white 11NH2-000203-41	
	2.Add PWR_LED connect	
1.0L	1.RF_ID change to white 11NH2-000203-41	
	2.Add PWR_LED connect	
1.0M	1.C190 add 0.1u/6	
1.0A	Model name change to 8I945P-G-RH 1.0	For RoHS BOM
	1.BOM change from 9M8I945PG-00-R10L	
1.0A	1.Remove 10SC1-D03775-04R	

Circuit or PCB layout change
for next version

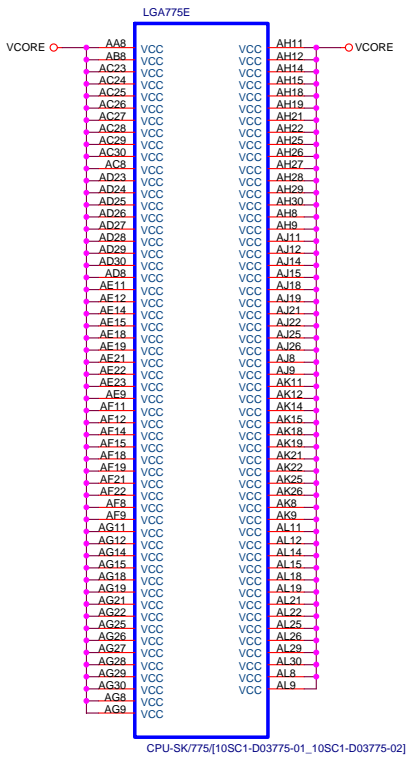
[illegible]

SP-CAP X 4PCS

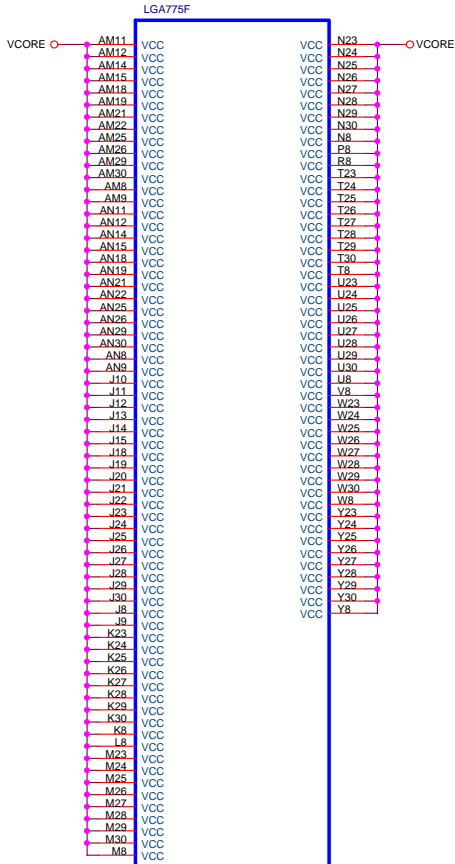




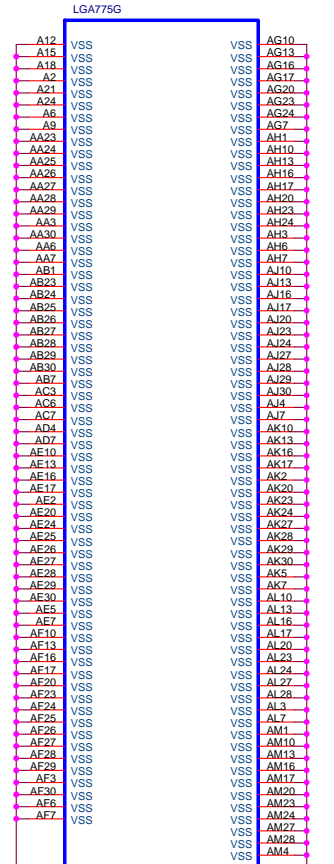
<i>Intel Confidential</i>			
Title			
P4_LGA775-B			
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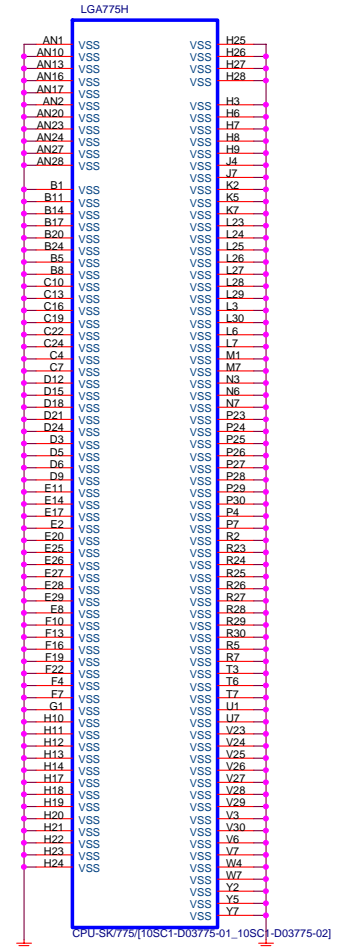
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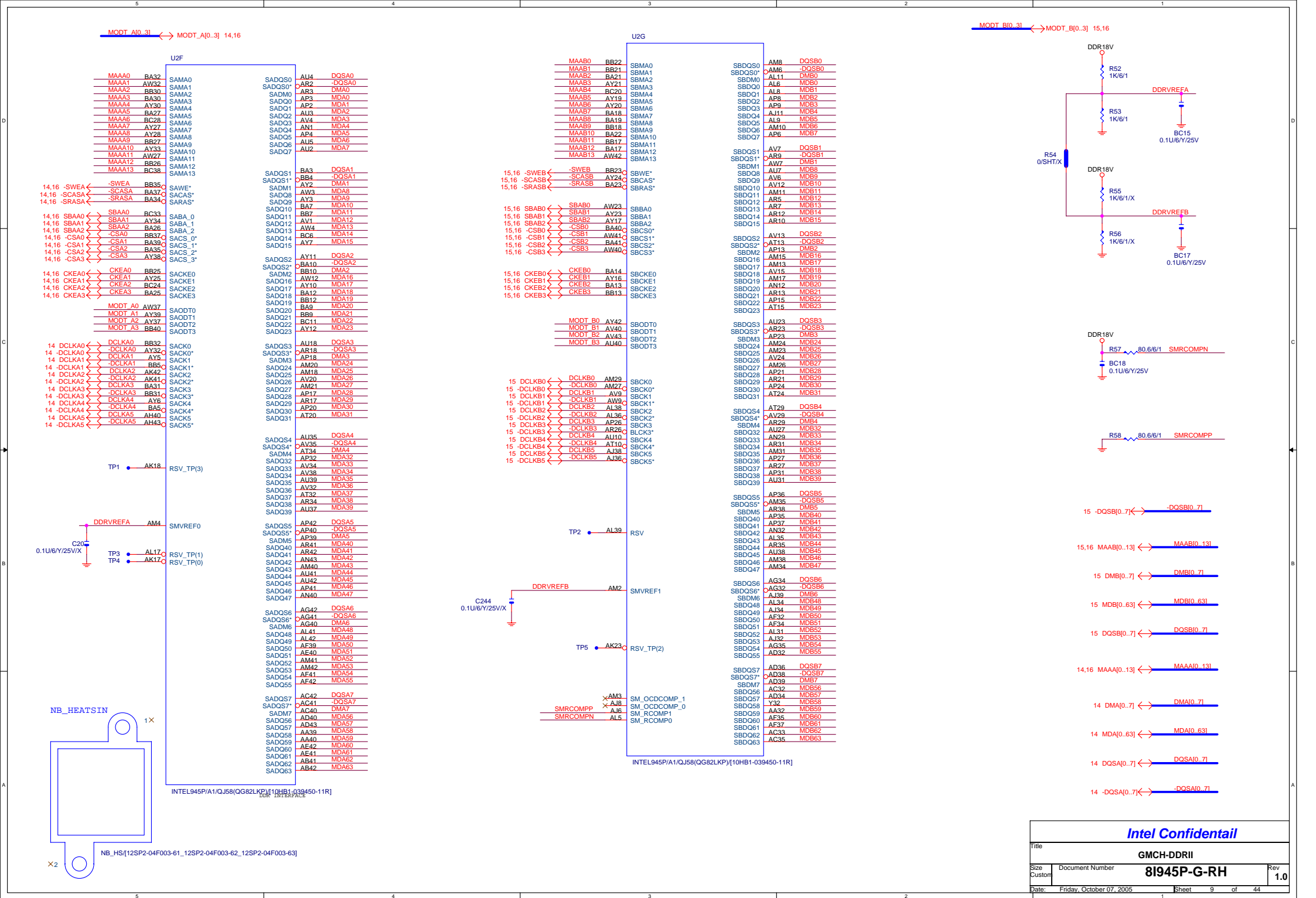
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CPU-SK/775[10SC1-D03775-01_10SC1-D03775-02]

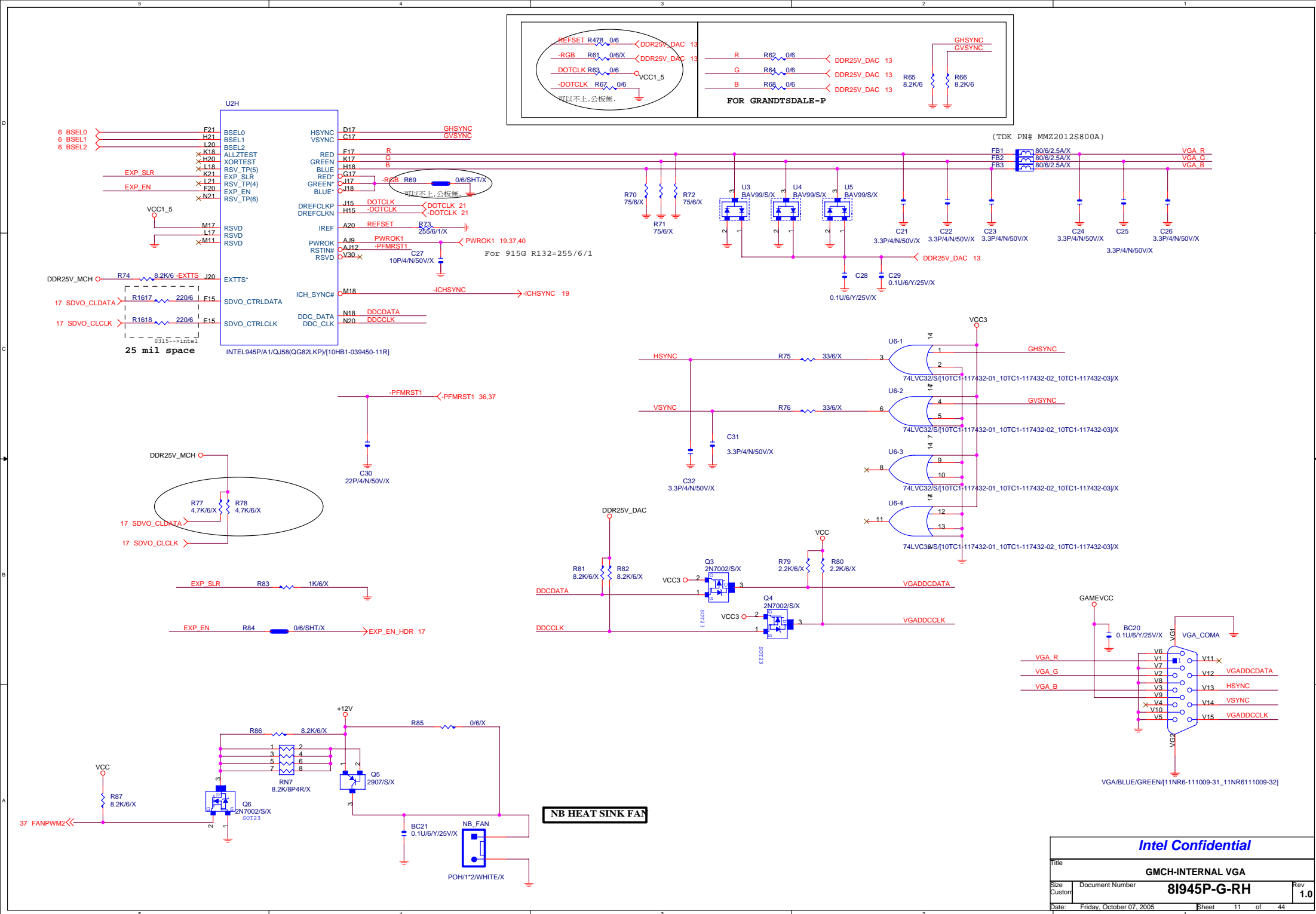


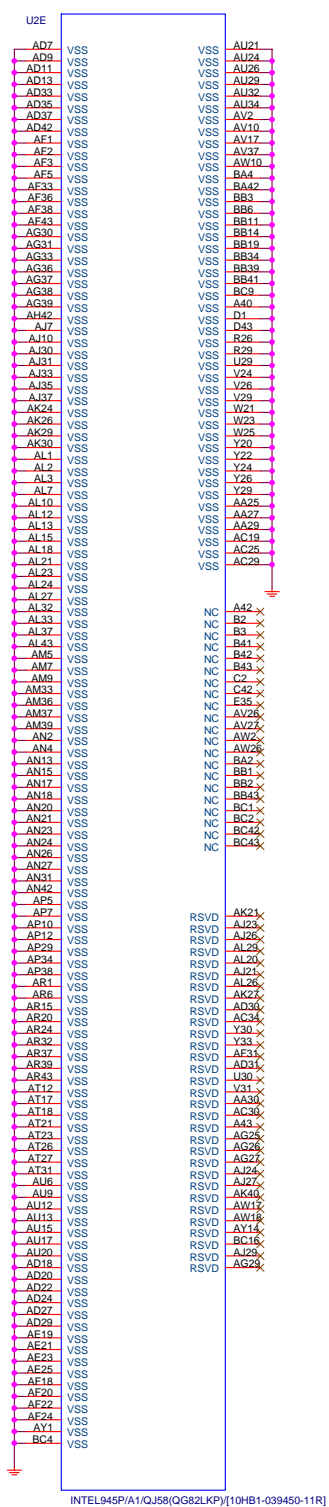
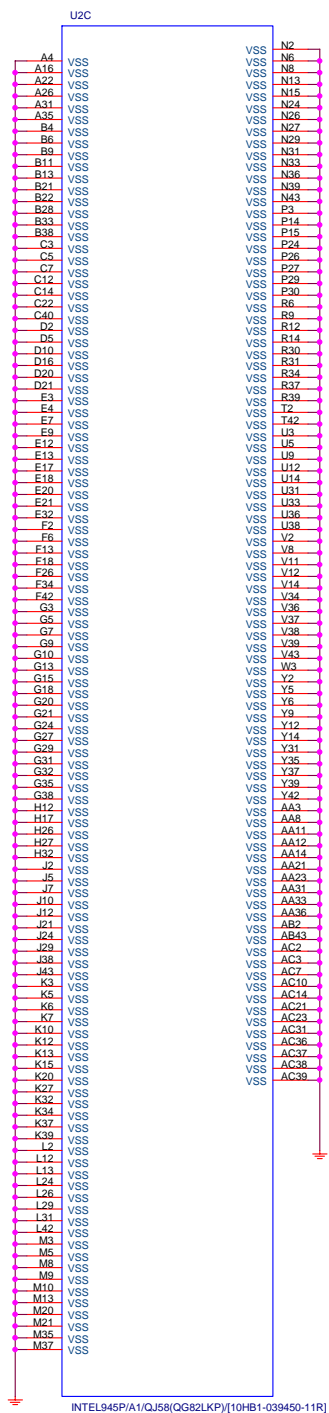
CPU-SK/775[10SC1-D03775-01_10SC1-D03775-02]



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1.425~1.575V

1.7~1.9V

VCCA_EXPPLL=VCCA_GPLL=45mA(1.425V~1.575V)

VCCA_HPLL>50mA 公板爲200mA(1.425V~1.575V)

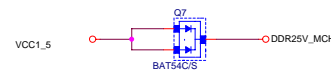
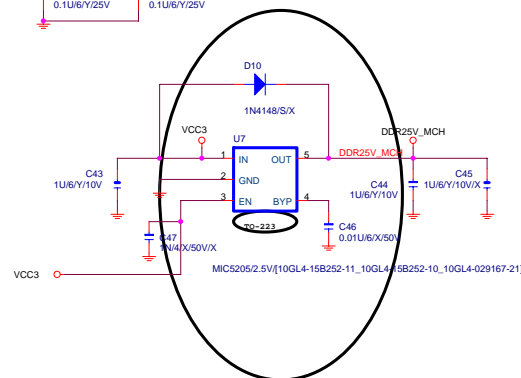
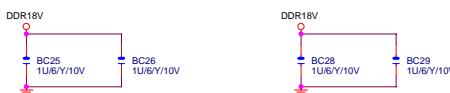
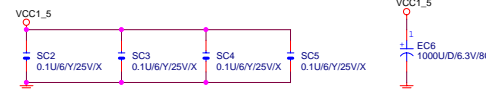
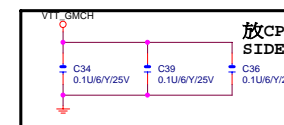
VCCA_DPLLA=65mA(1.425V~1.575V)

VCCA_DPLLB=65mA(1.425V~1.575V)

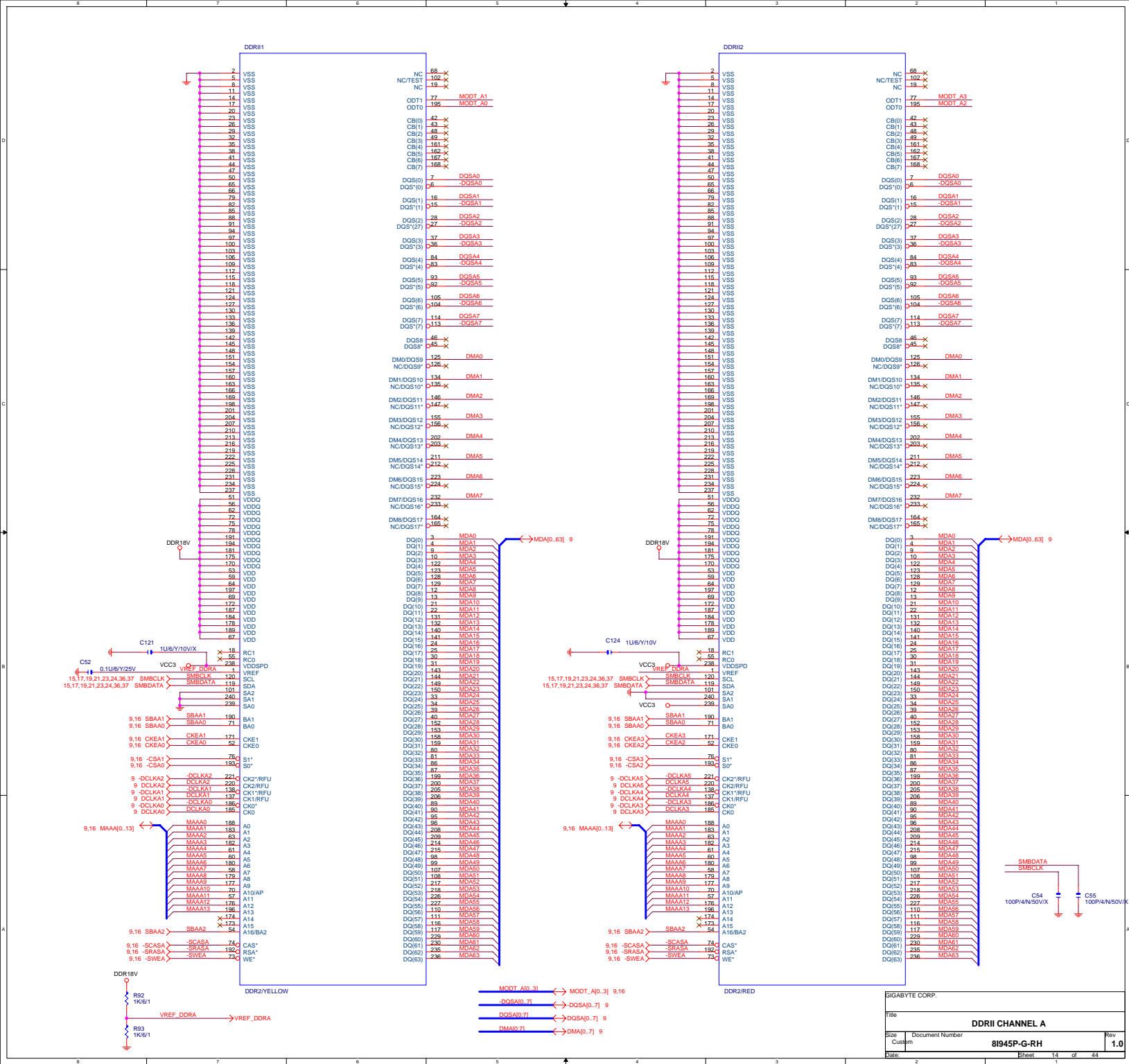
VCCA_MPLL>50mA(1.425V~1.575V)

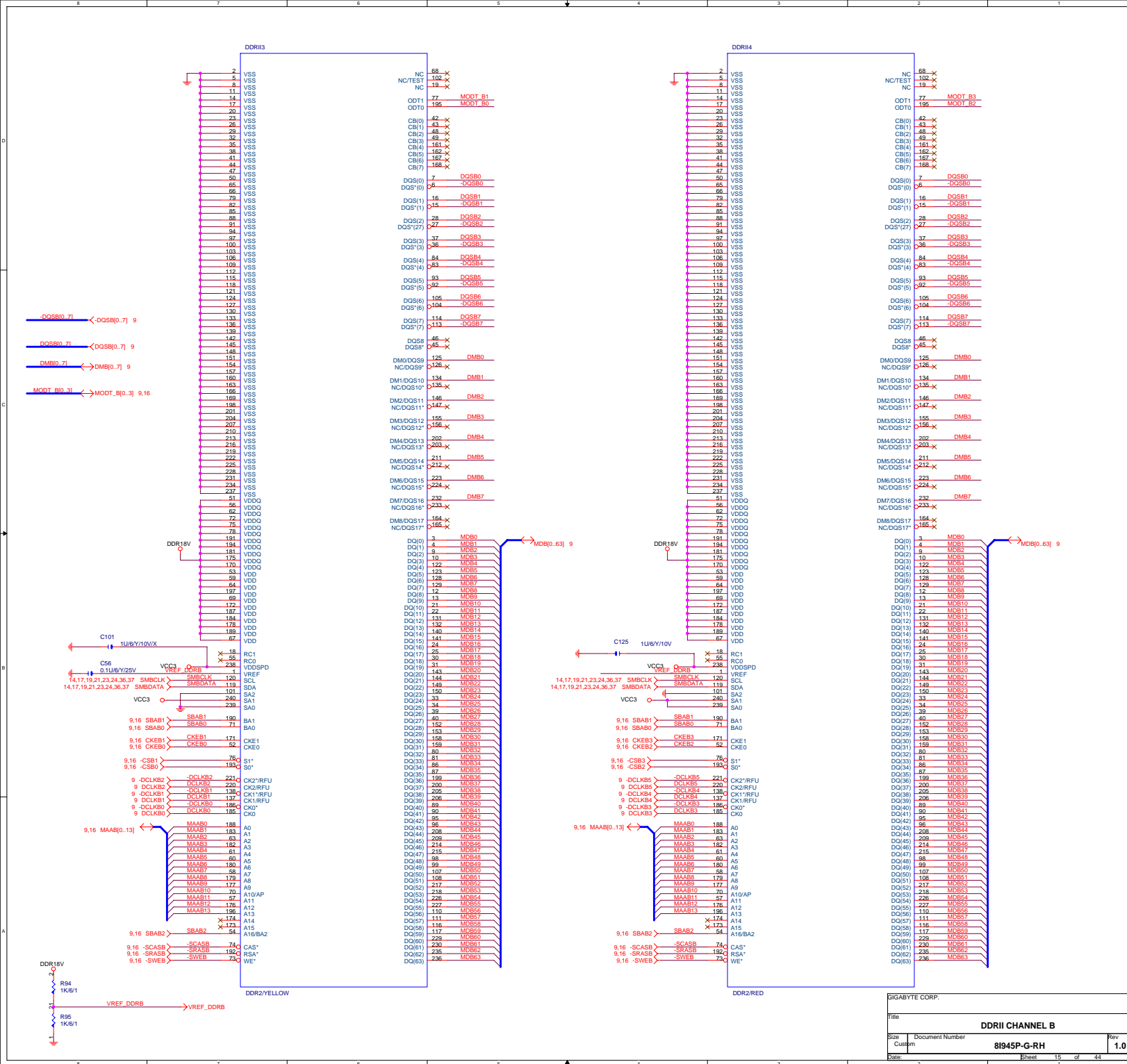
VCCA_DAC=DDR25V_DAC=70mA(2.375~2.625V)

945 Design Guide rev1.5 spec.
VCCA_EXPPLL=VCCA_GPLL=45mA(1.425V~1.575V)
VCCA_HPLL>50mA 公板爲200mA(1.425V~1.575V)
VCCA_DPLLA=65mA(1.425V~1.575V)
VCCA_DPLLB=65mA(1.425V~1.575V)
VCCA_MPLL>50mA(1.425V~1.575V)
VCCA_DAC=DDR25V_DAC=70mA(2.375~2.625V)

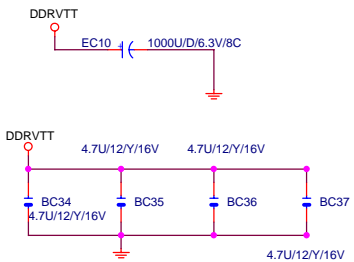


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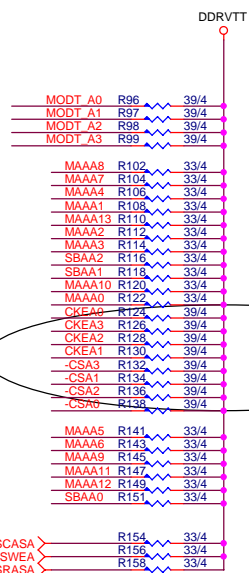
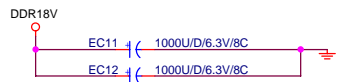




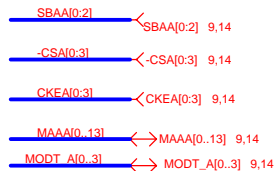
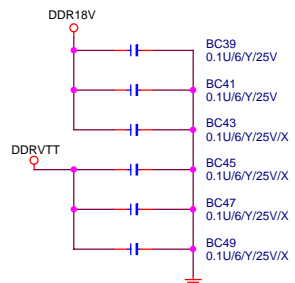
DDRVTT Decouple



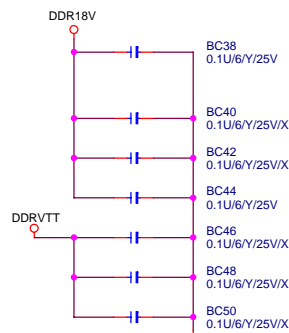
DDR TERMINATION CHANNEL A



DDR18V Decouple

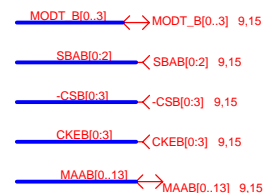
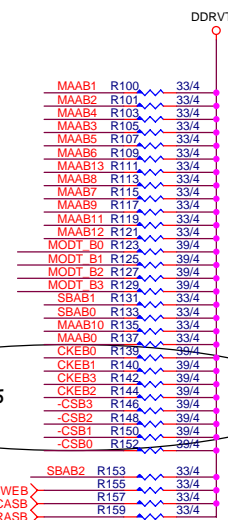


DDRVTT Decouple



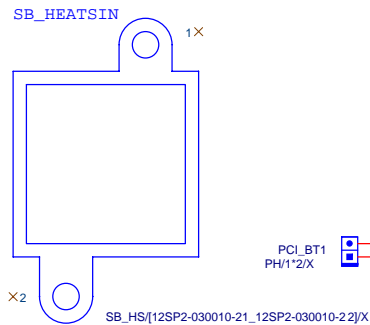
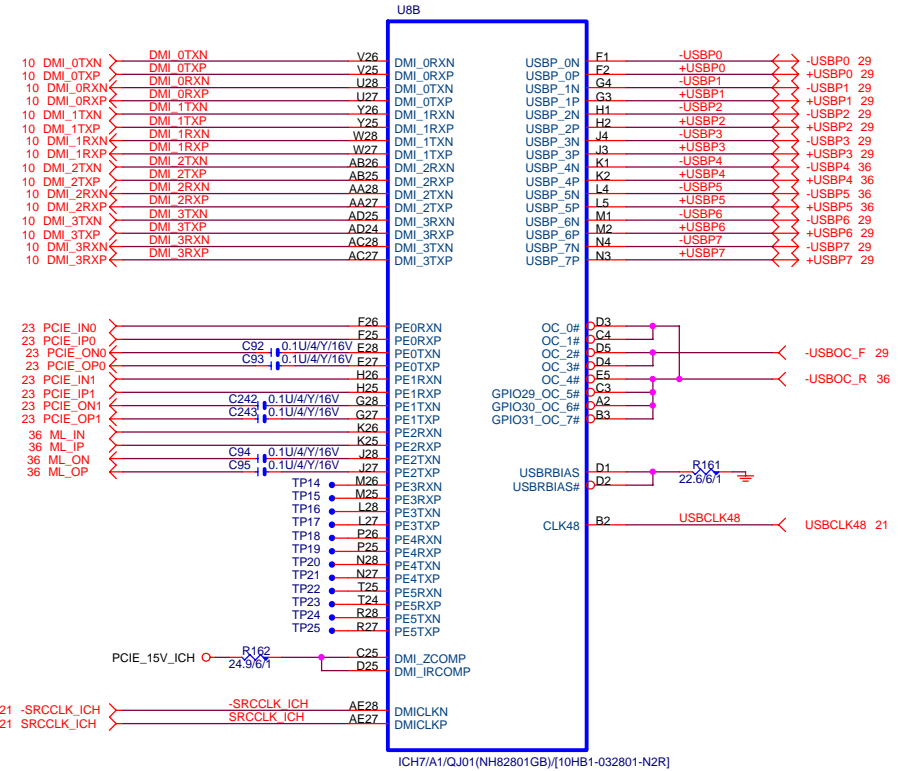
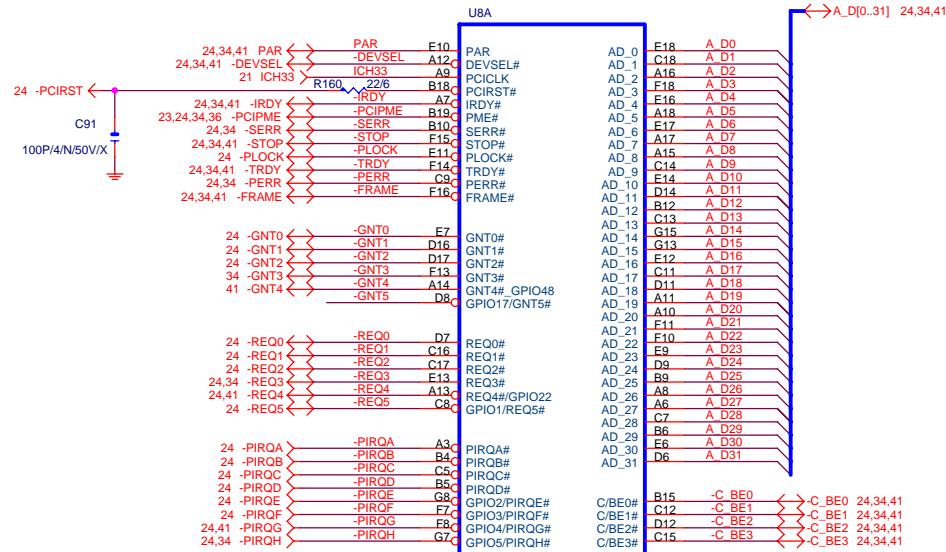
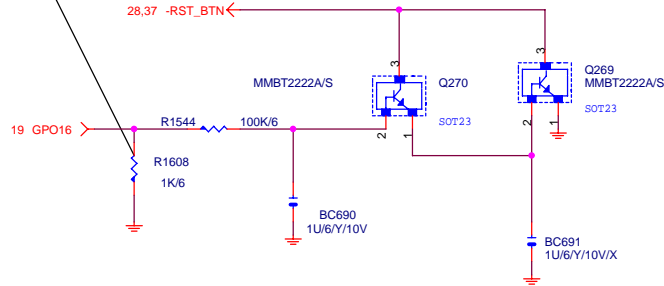
DDR18V Decouple

CHANNEL B



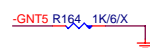
FOR ICH7R POWER ON 瞬間會HIGH 到1.8V 之後0V,必須PULL DOWN 1K/6

H/W
RESET



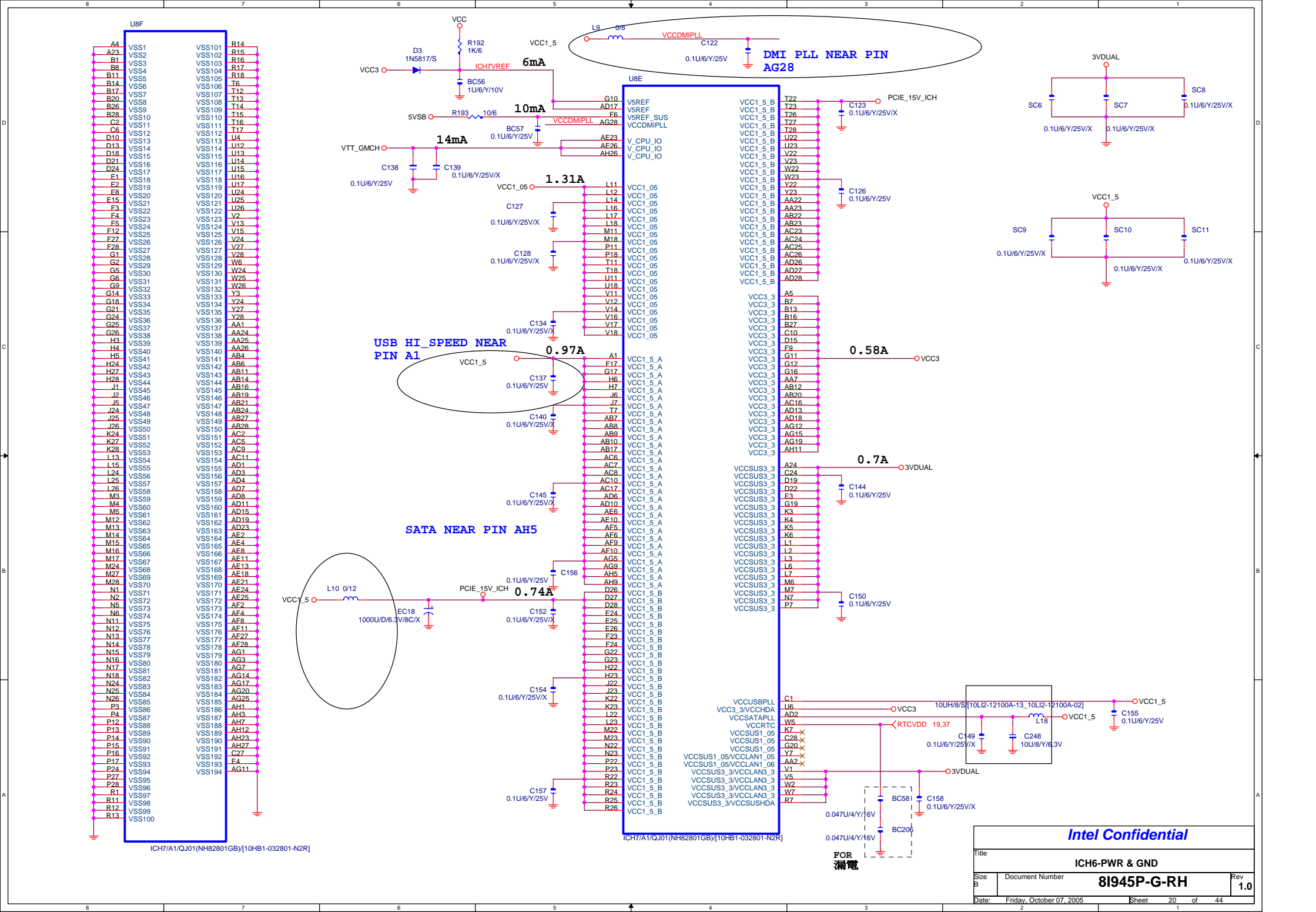
PCI_BT2: OPEN FW

CLOSE SPI

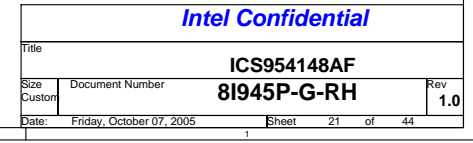


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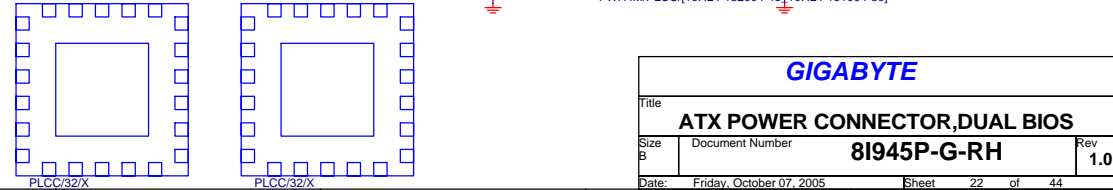
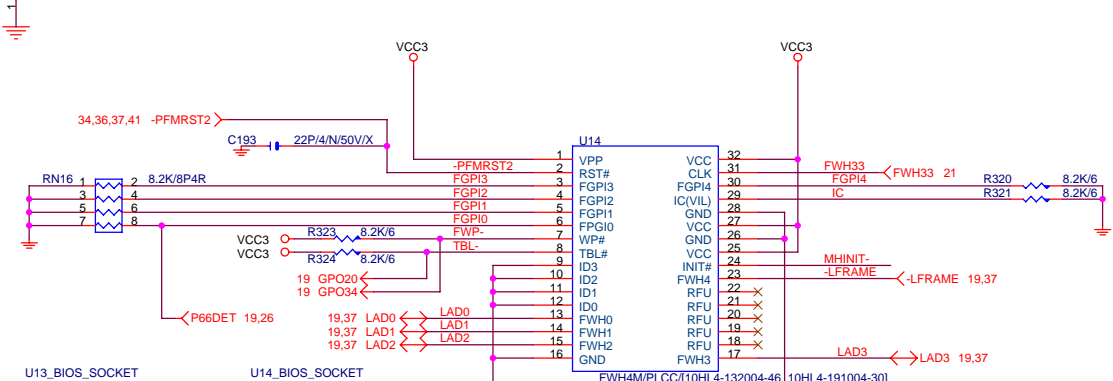
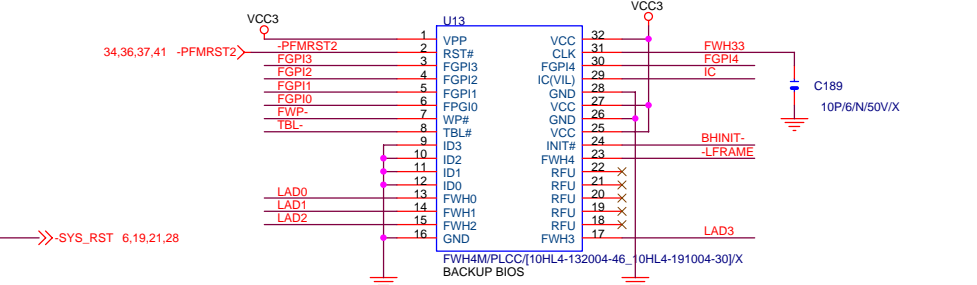
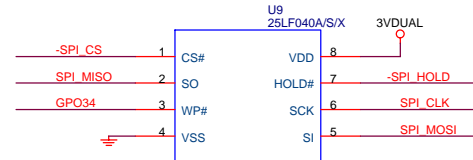
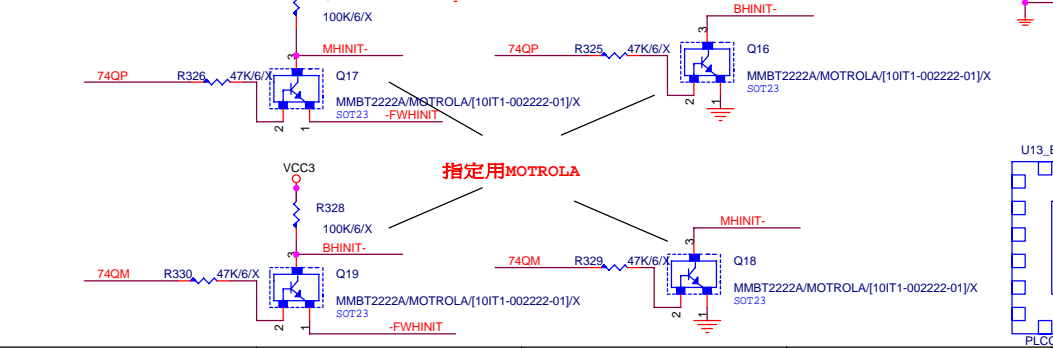
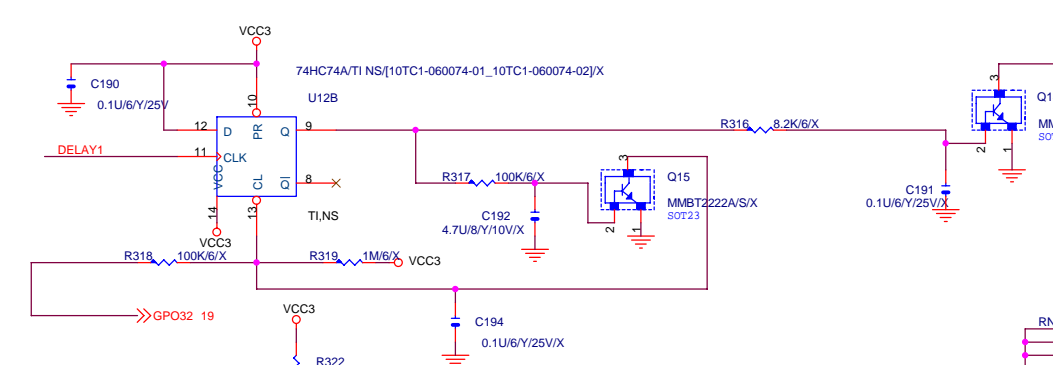
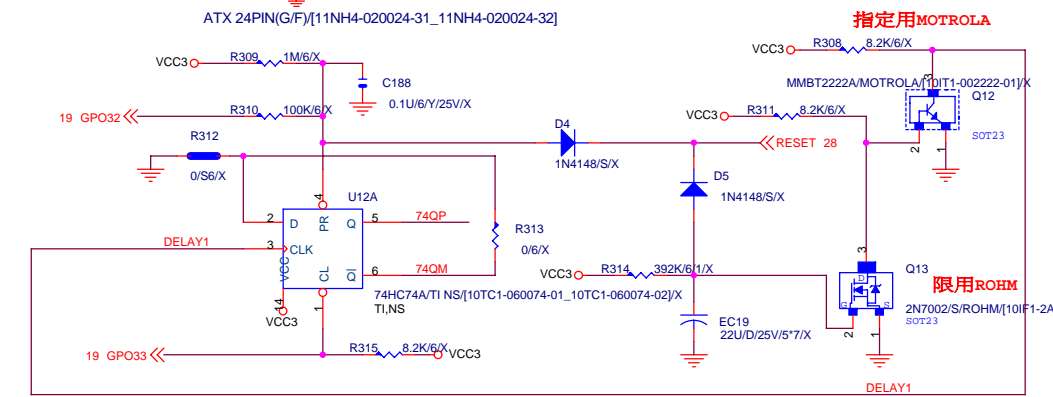
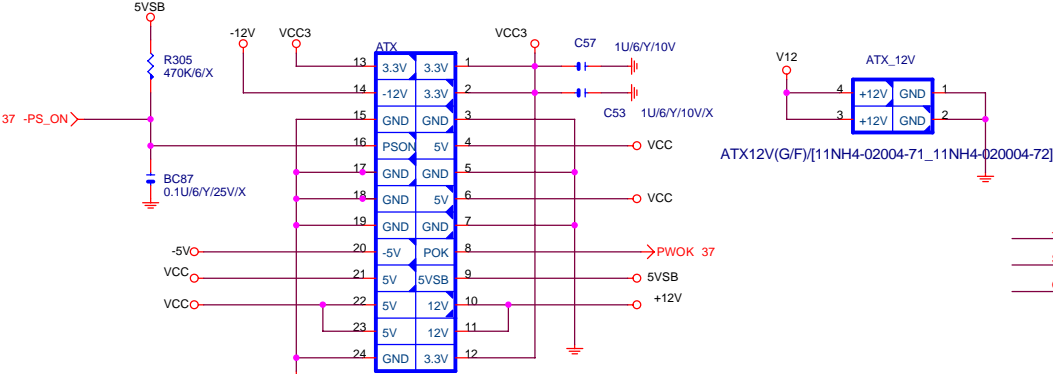
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ICH6-PCI, DMI, LAN, USB			
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8.2K/6 R194



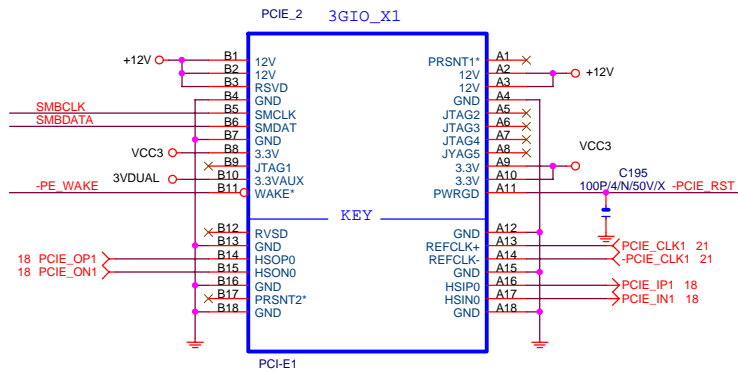
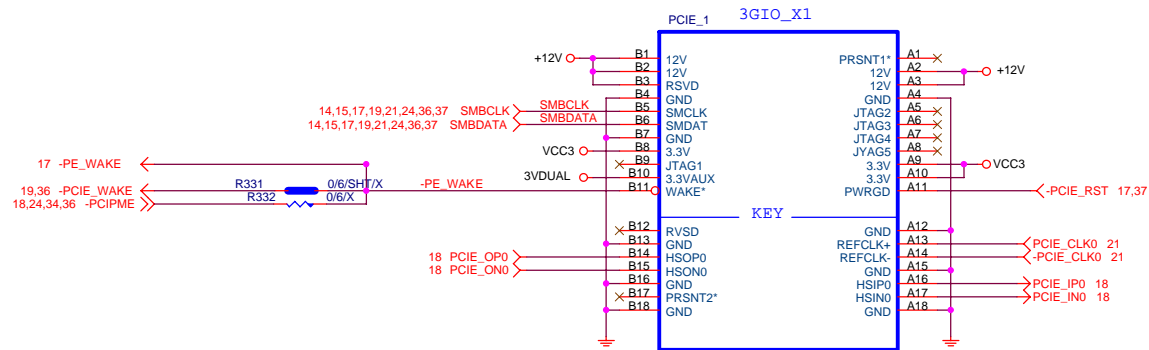
ATX POWER CONNECTOR

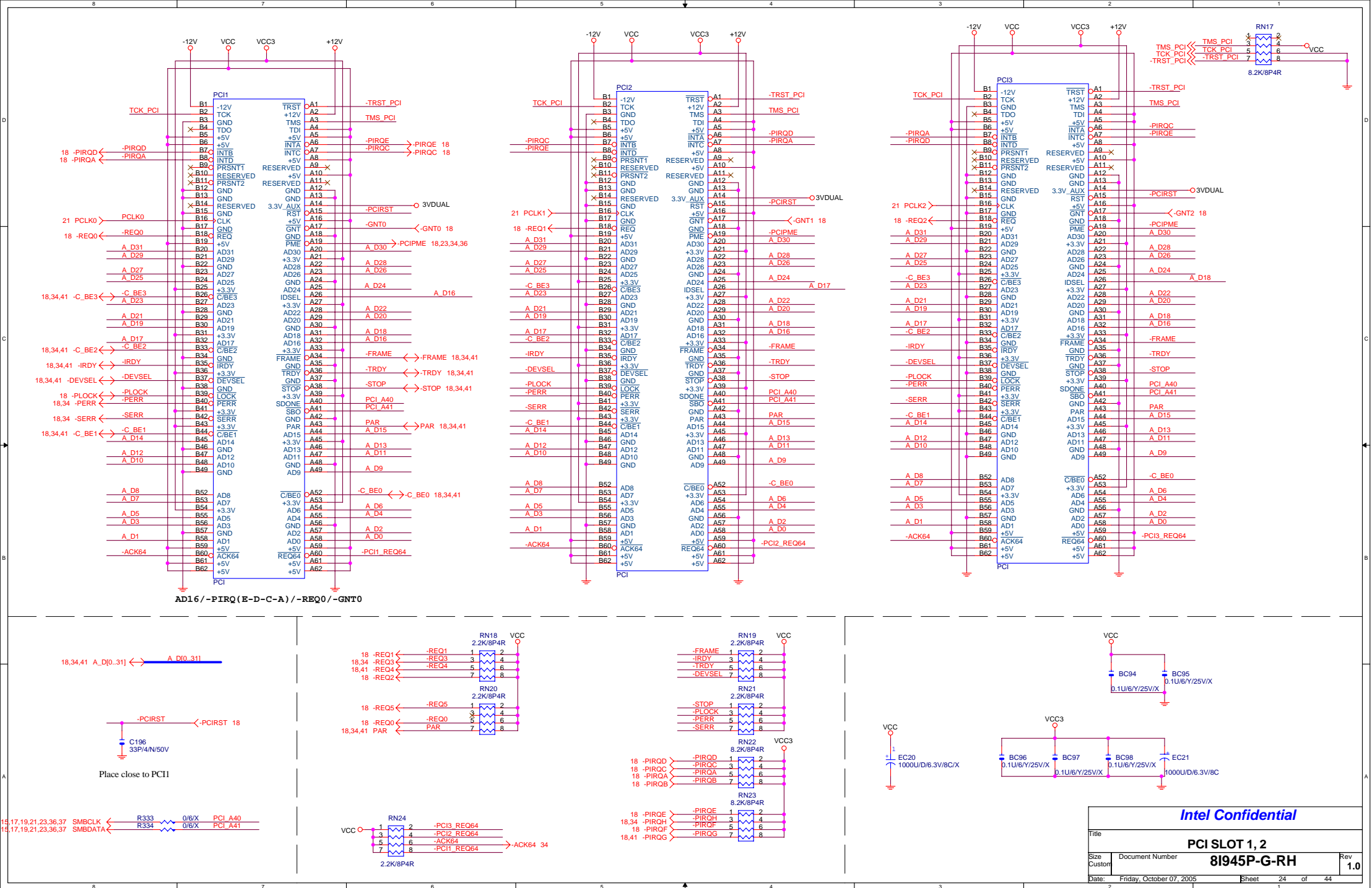


GIGABYTE

ATX POWER CONNECTOR,DUAL BIOS

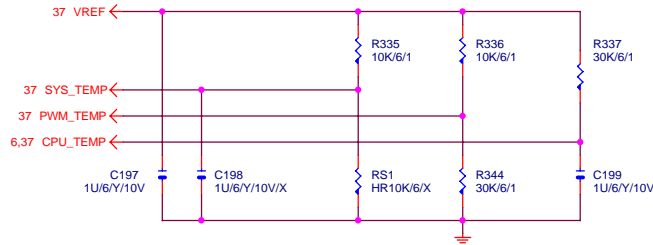
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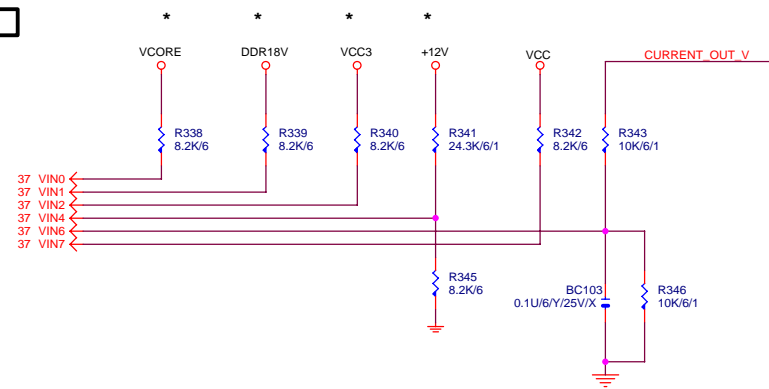
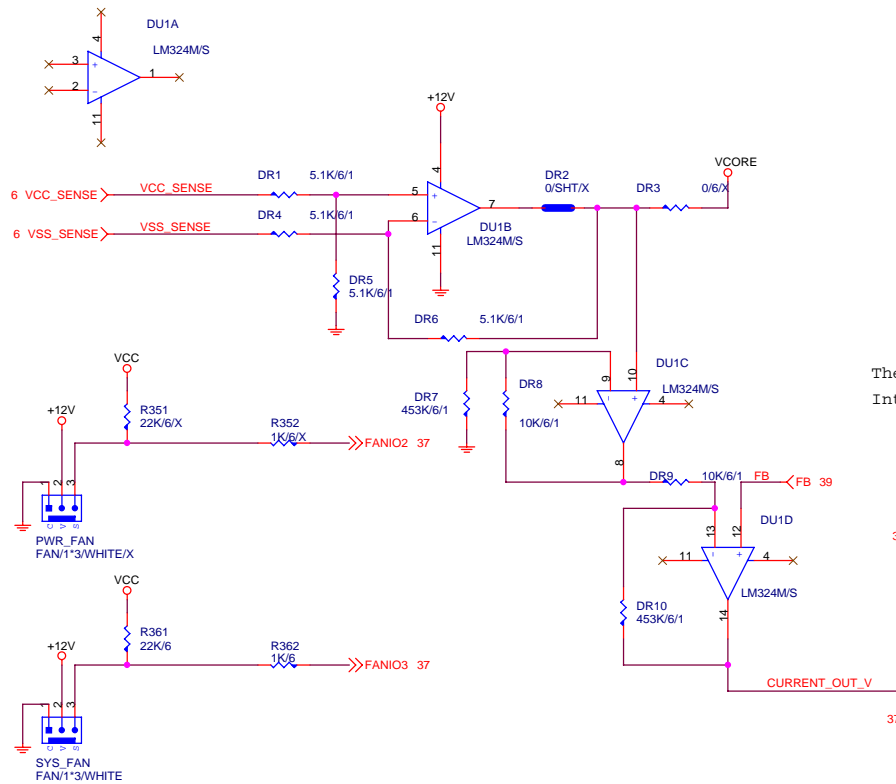


TEMP. SENSE

VOLTAGE SENSE



DUAL POWER



CPU/SYS FAN

If use PBSS5240 1pcs : (non airflow)

```

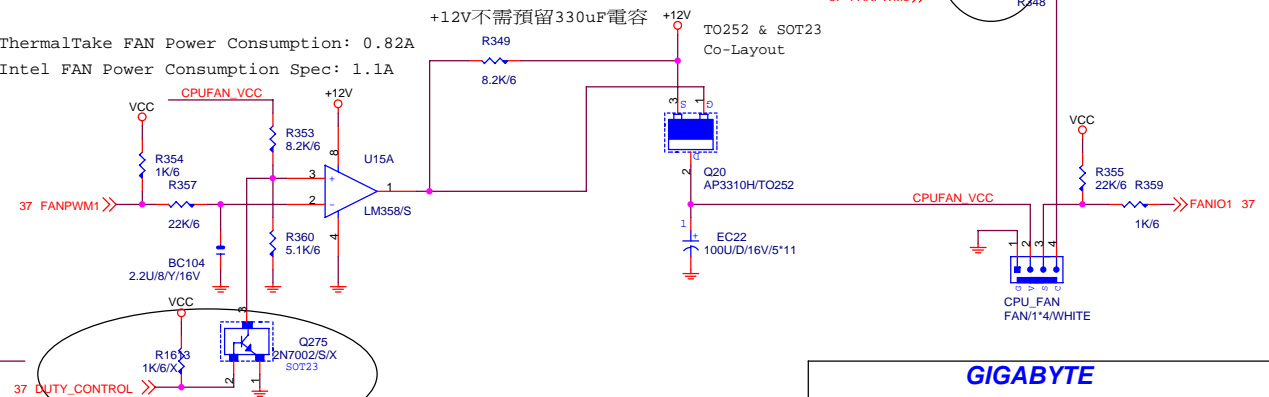
CPUFAN_VCC=12V: Temp=40 deg
CPUFAN_VCC=11V: Temp=82 deg
CPUFAN_VCC=10V: Temp=70 deg
CPUFAN_VCC= 9V: Temp=110 deg
CPUFAN_VCC= 8V: Temp>200 deg

```

If use PBSS5240 1pcs : (with airflow)

```
CPUFAN_VCC=12V: Temp=33 deg
CPUFAN_VCC=11V: Temp=62 deg
CPUFAN_VCC=10V: Temp=86 deg
CPUFAN_VCC= 9V: Temp=117 deg
CPUFAN_VCC= 8V: Temp>122 deg
```

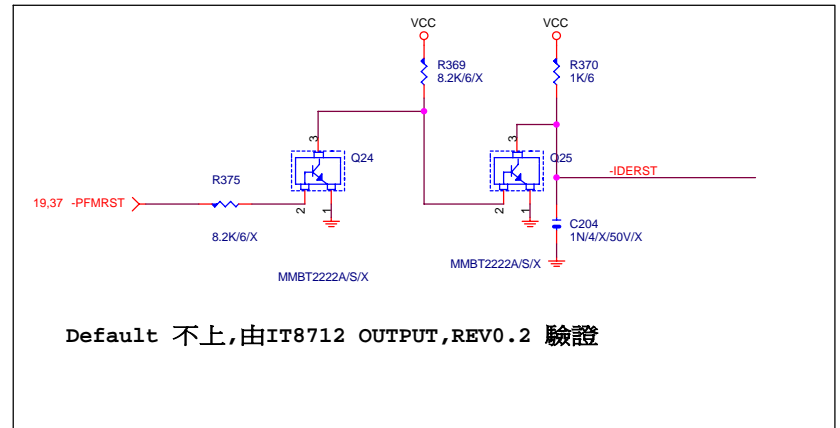
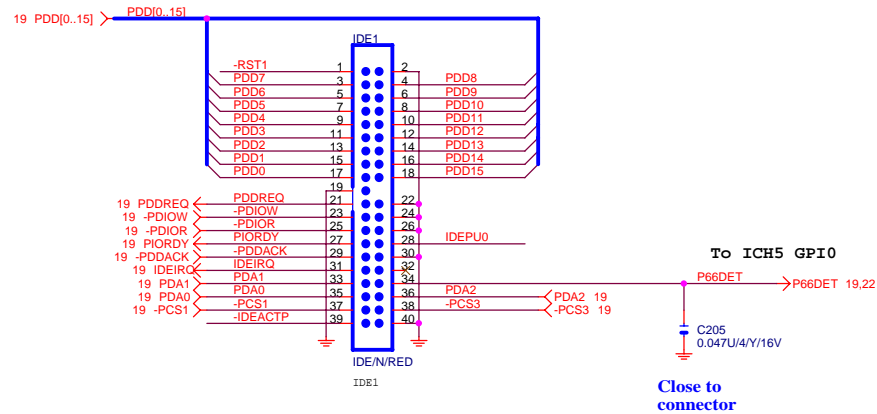
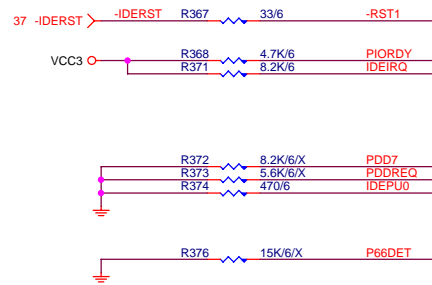
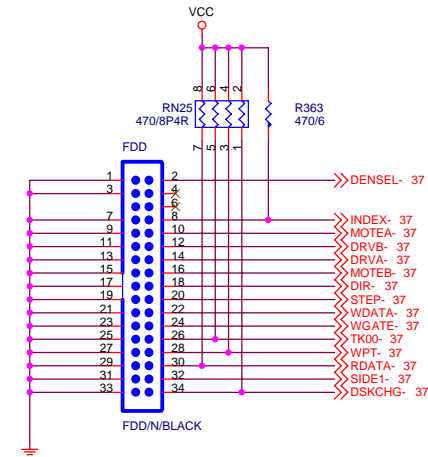
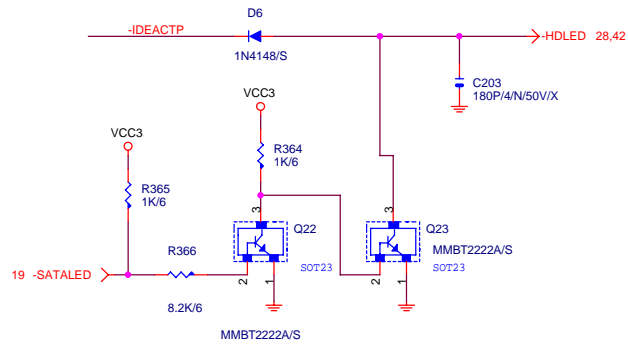
```
ThermalTake FAN Power Consumption: 0.82A
Intel FAN Power Consumption Spec: 1.1A
```



```
default is high
gpiox pin 可以3.3v or 5v
if 3pin fan 則開機後將program is low
```

GIGABYTE

Title			
HWM/FAN/CI/BIOS			
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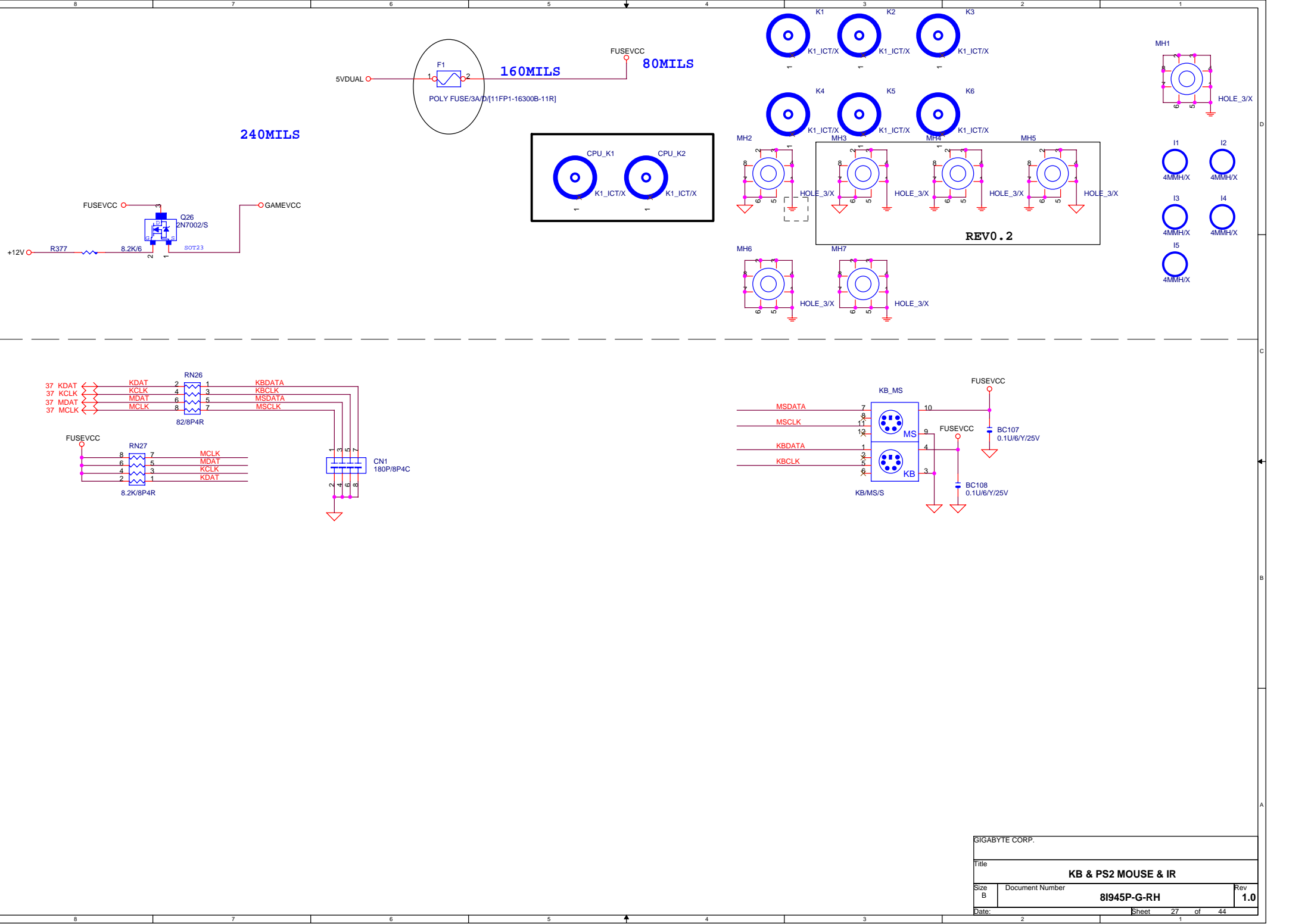


Default 不上,由IT8712 OUTPUT,REV0.2 驗證

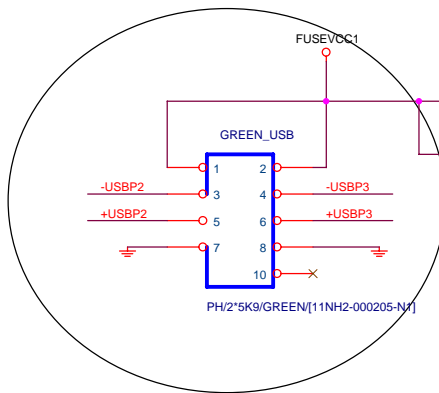
PRIMARY IDE CONNECTOR

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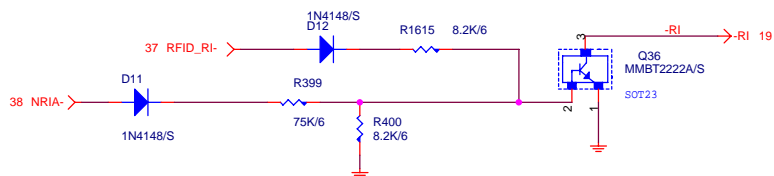
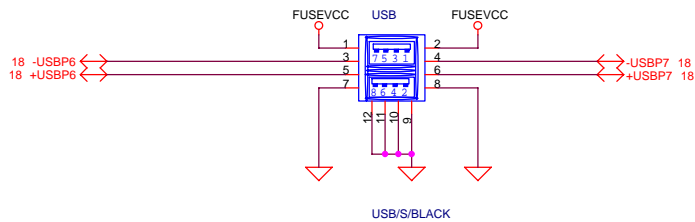
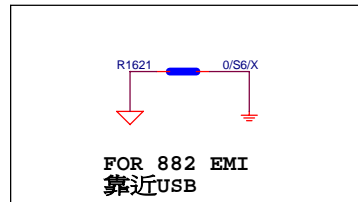
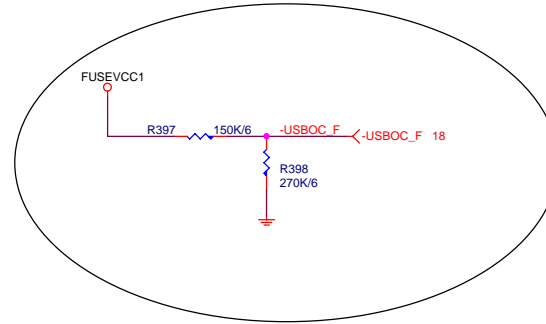
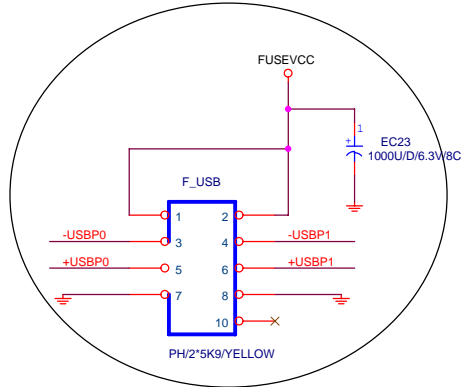
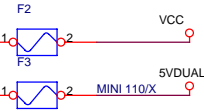
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FRONT USB



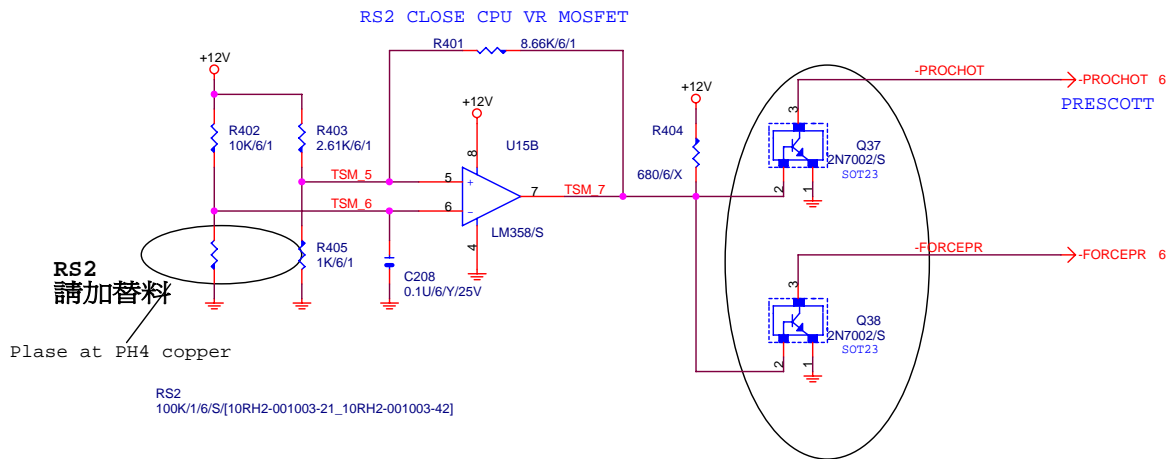
MINISMDC110F/6/S[10FP1-06110B-01_10FP1-06110B-05_10FP1-06110B-07]



Intel Confidential

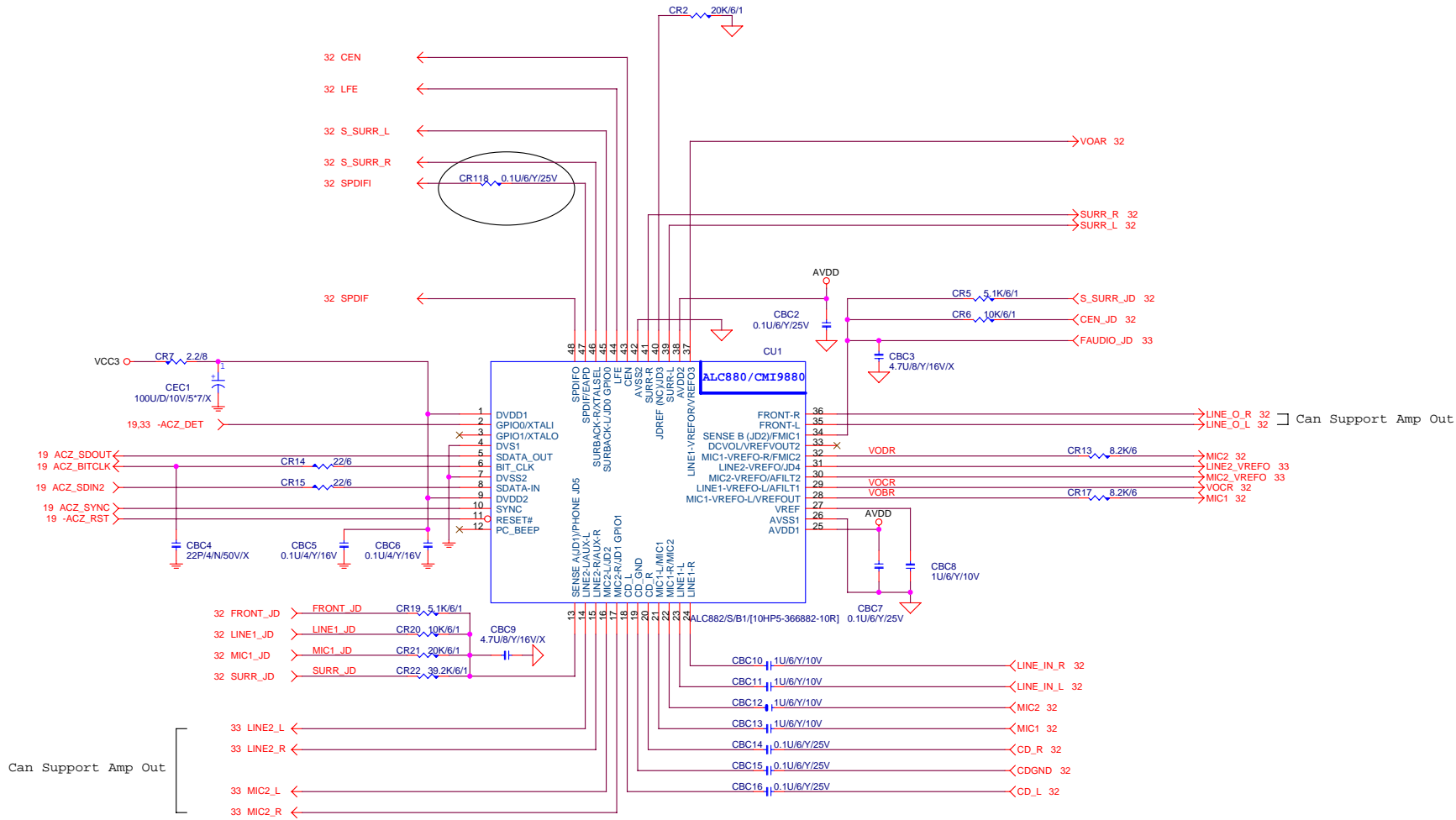
Title			
FRONT USB CONNECTOR			
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asserted at 131 degree
deasserted at 116 degree



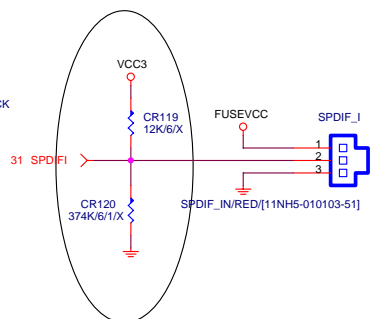
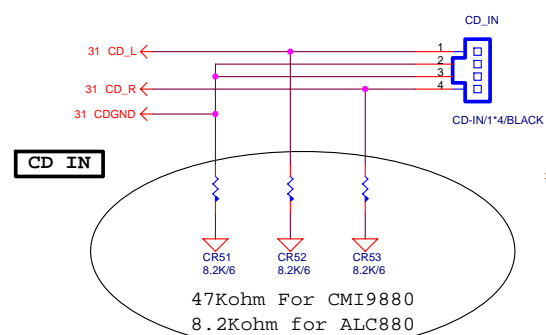
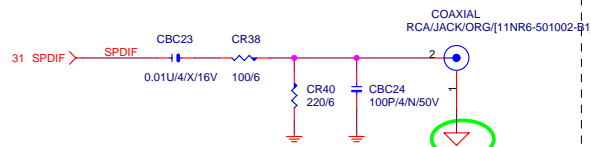
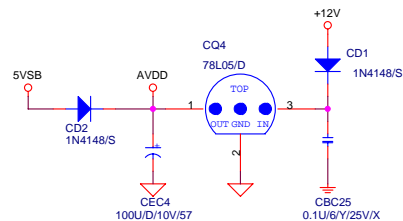
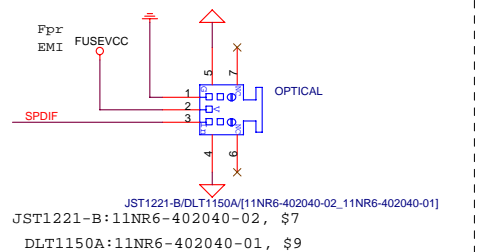
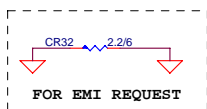
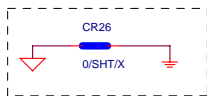
Intel Confidential

Title			
FAN CONTROL			
Size B	Document Number	8I945P-G-RH	Rev 1.0
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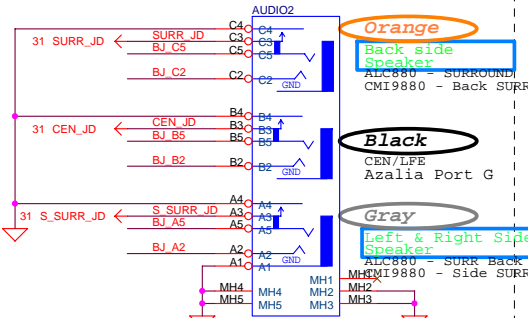
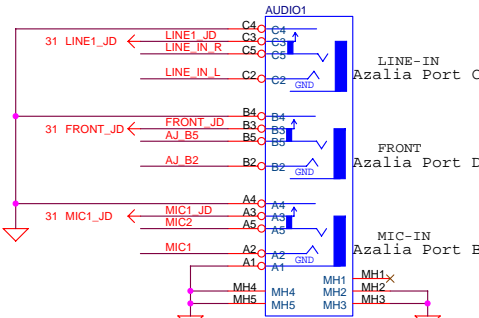
Intel Confidential

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Azalia Jack
Normal --> pin4/pin3 open
Plug jack --> pin4/pin3 close

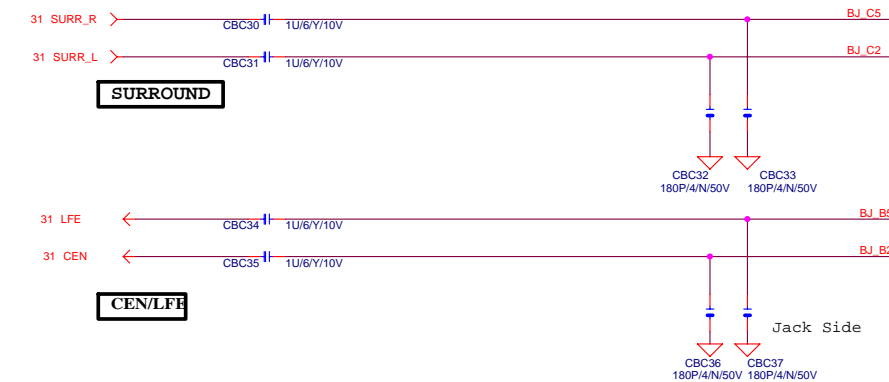
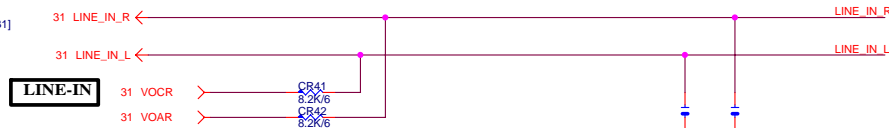
CMI9880 Port A is Side SURROUND, Port H is Back SURROUND
ALC880 Port A is SURROUND, Port H is SIDE



A3RJ13P/B/[11NR6-403006-01_11NR6-403006-02]

A3RJ13P/OBG/[11NR6-403006-71]

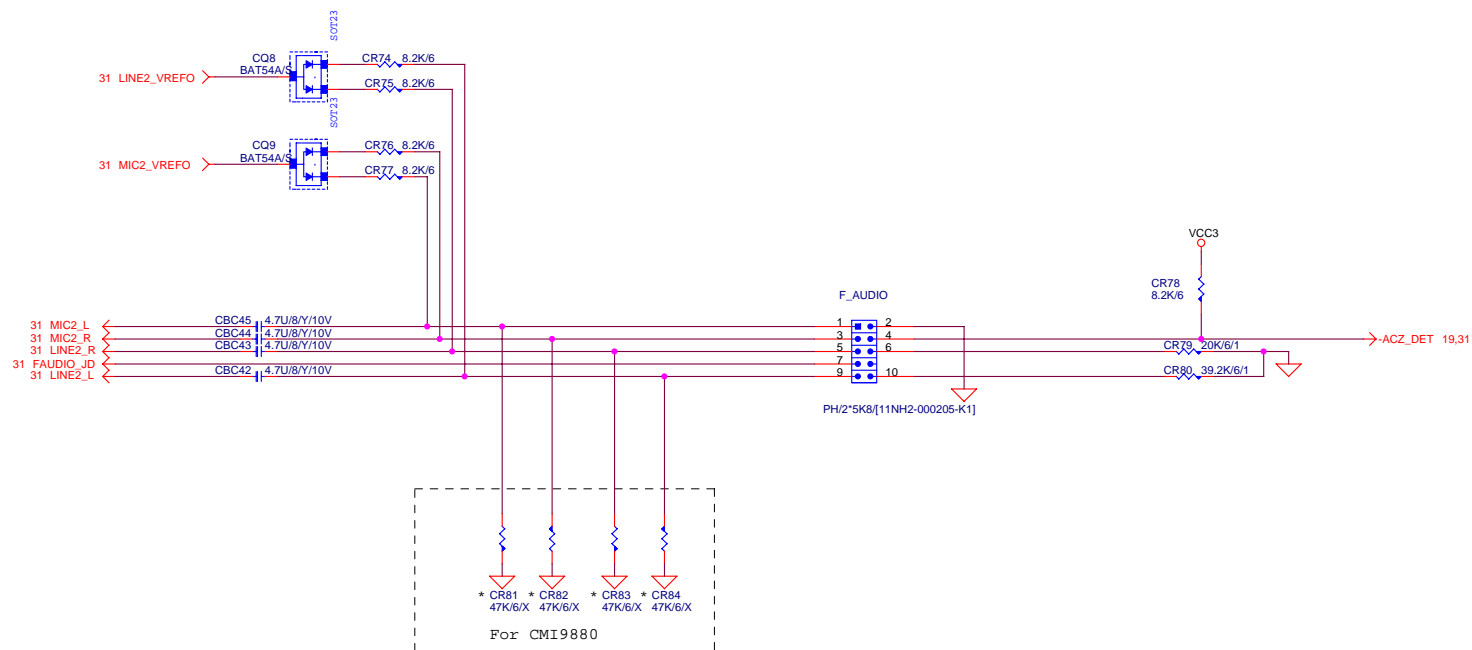
LINE OUT FRONT OUT



Intel Confidential			
Title			
AUDIO JACK			
8I945P-G-RH			
Size	Document Number	Rev	
Custom		1.0	
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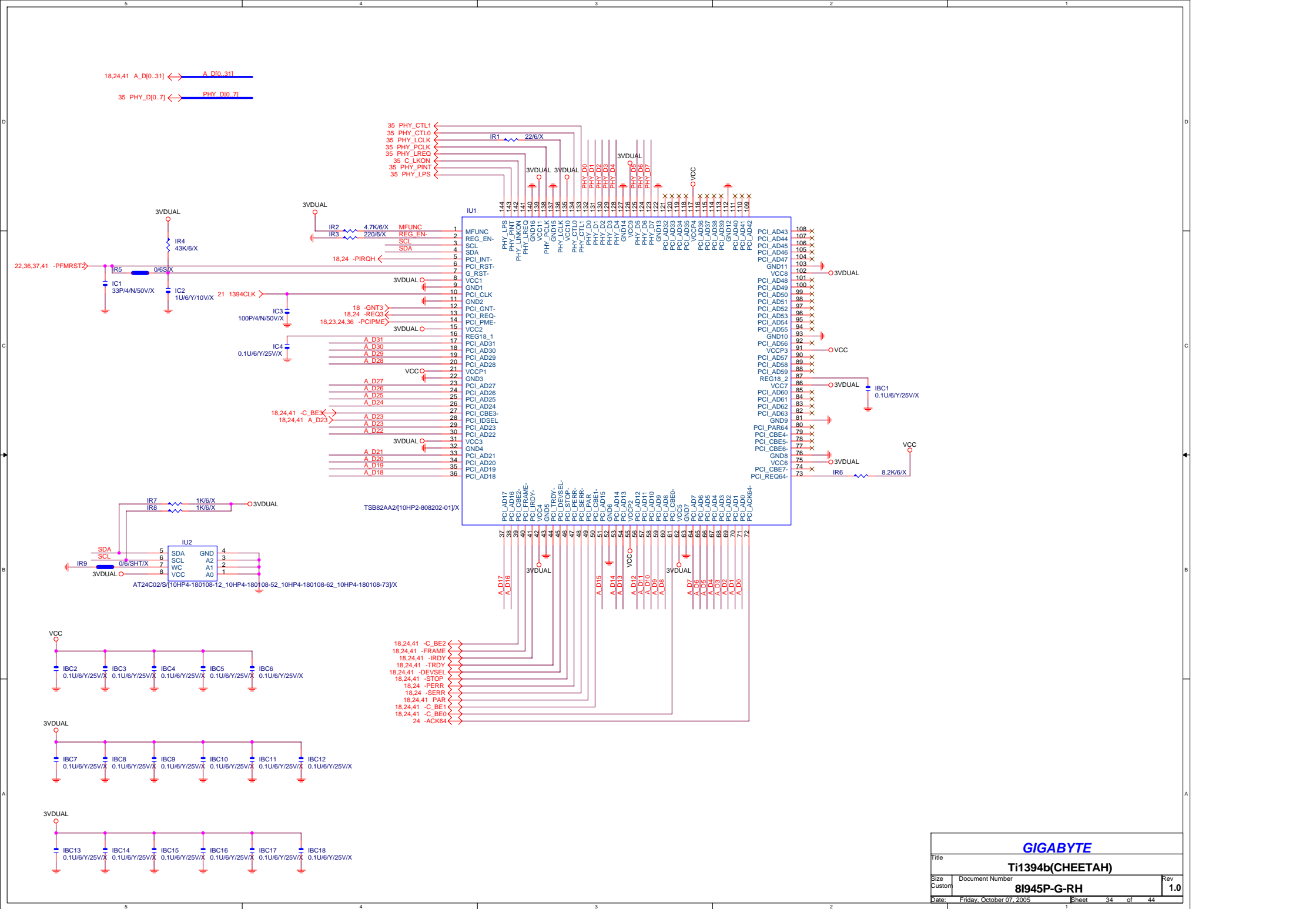
Azalia Port F

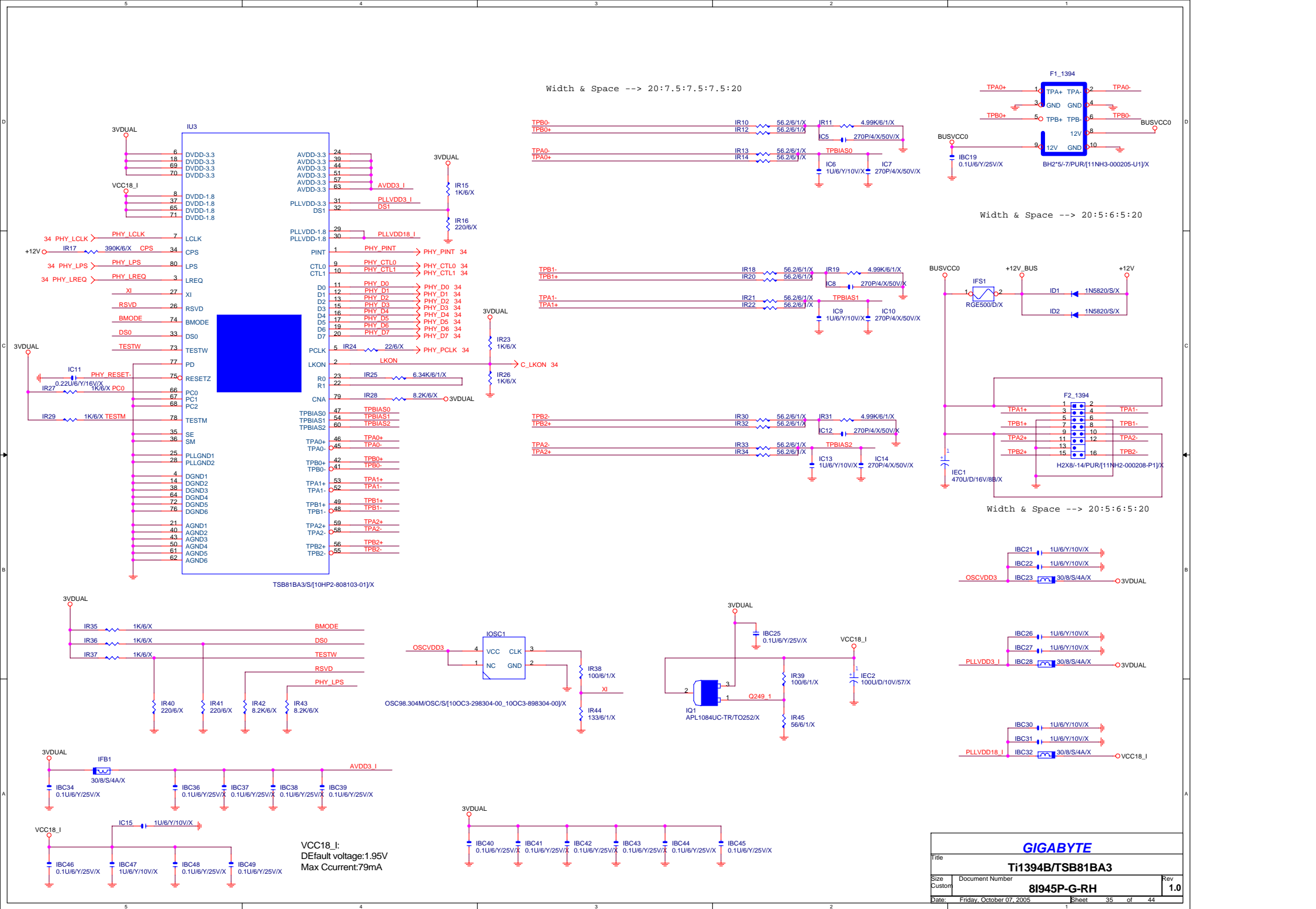
Azalia Port E

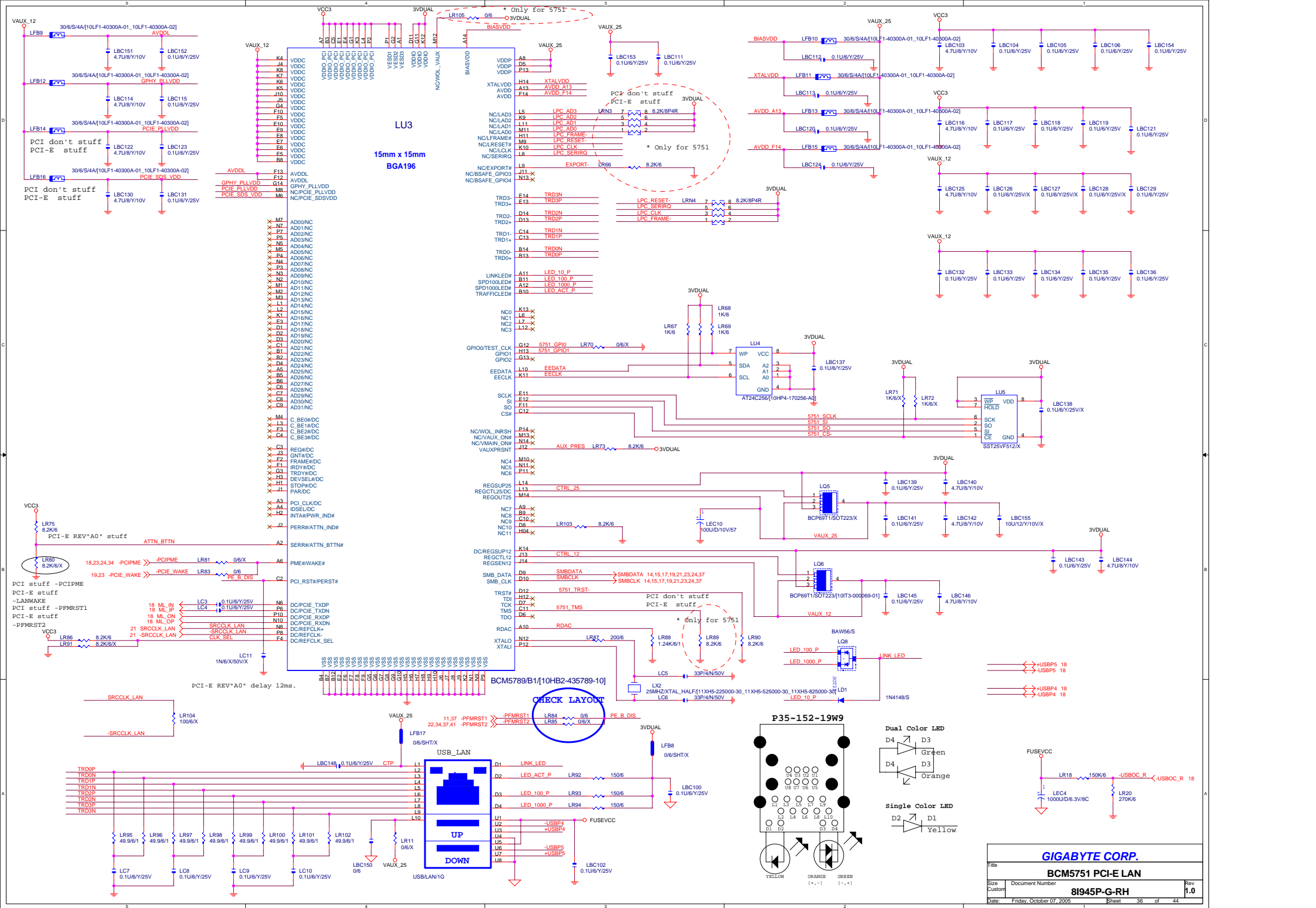


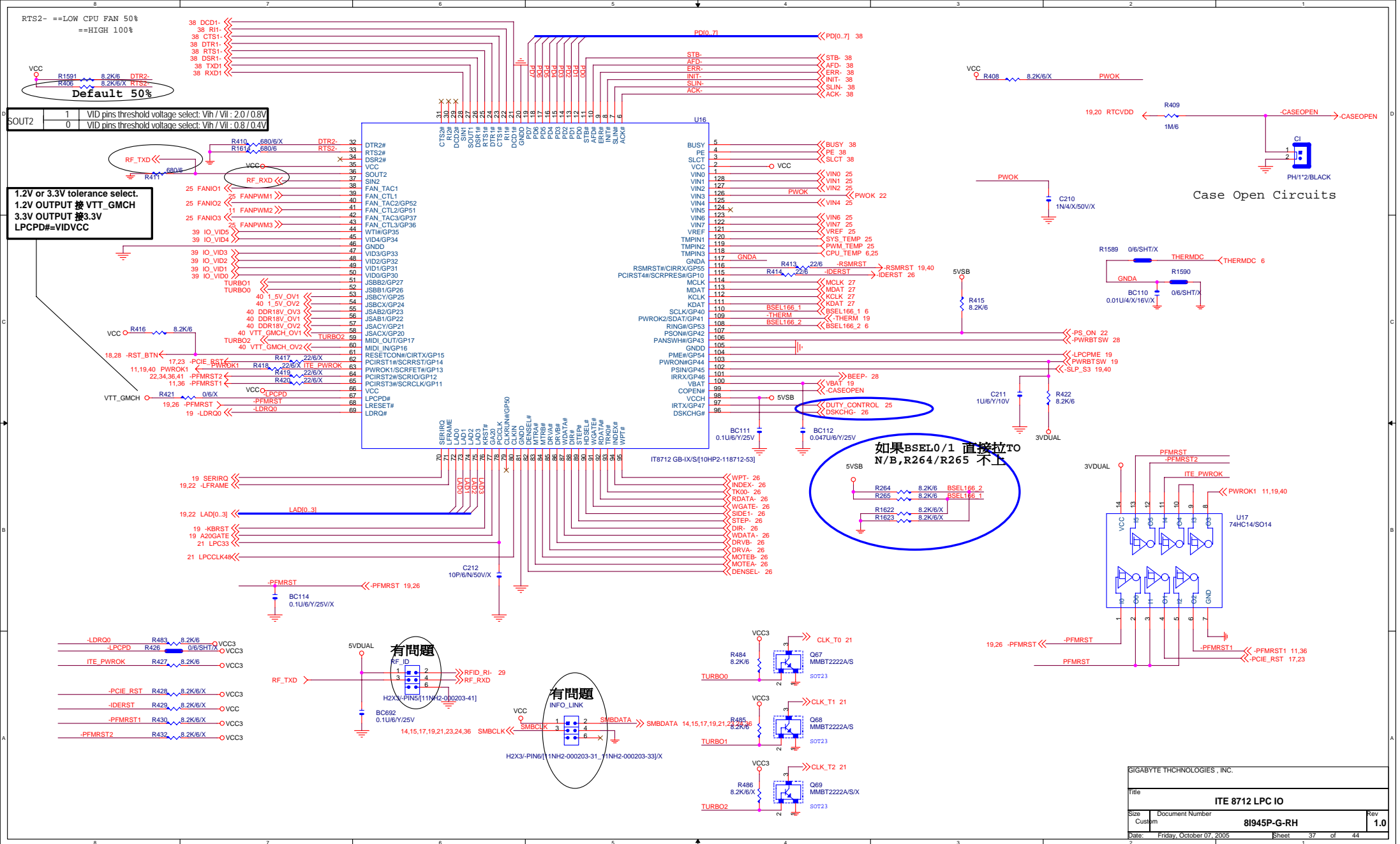
Intel Confidential

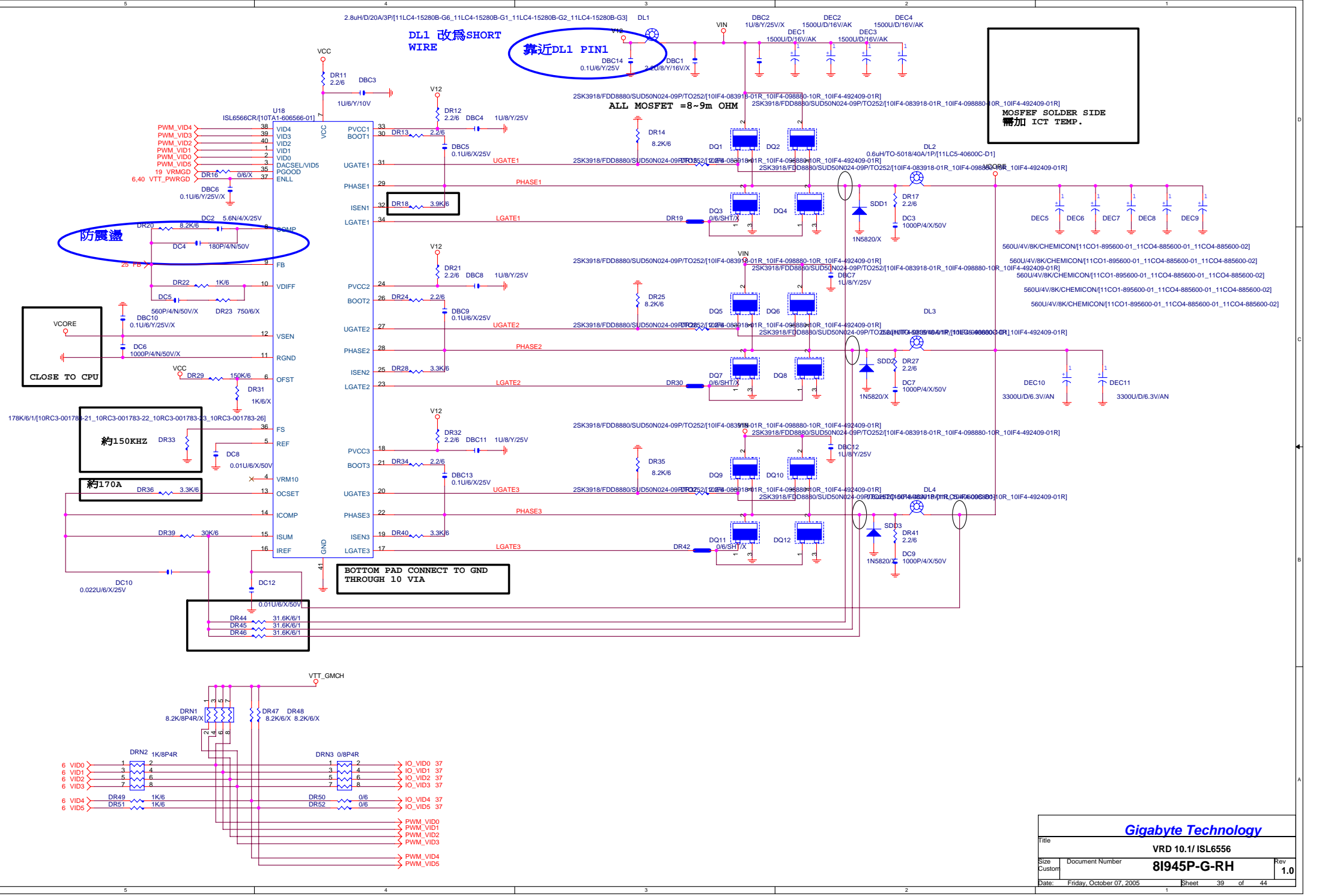
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Size	Document Number	Rev	1.0
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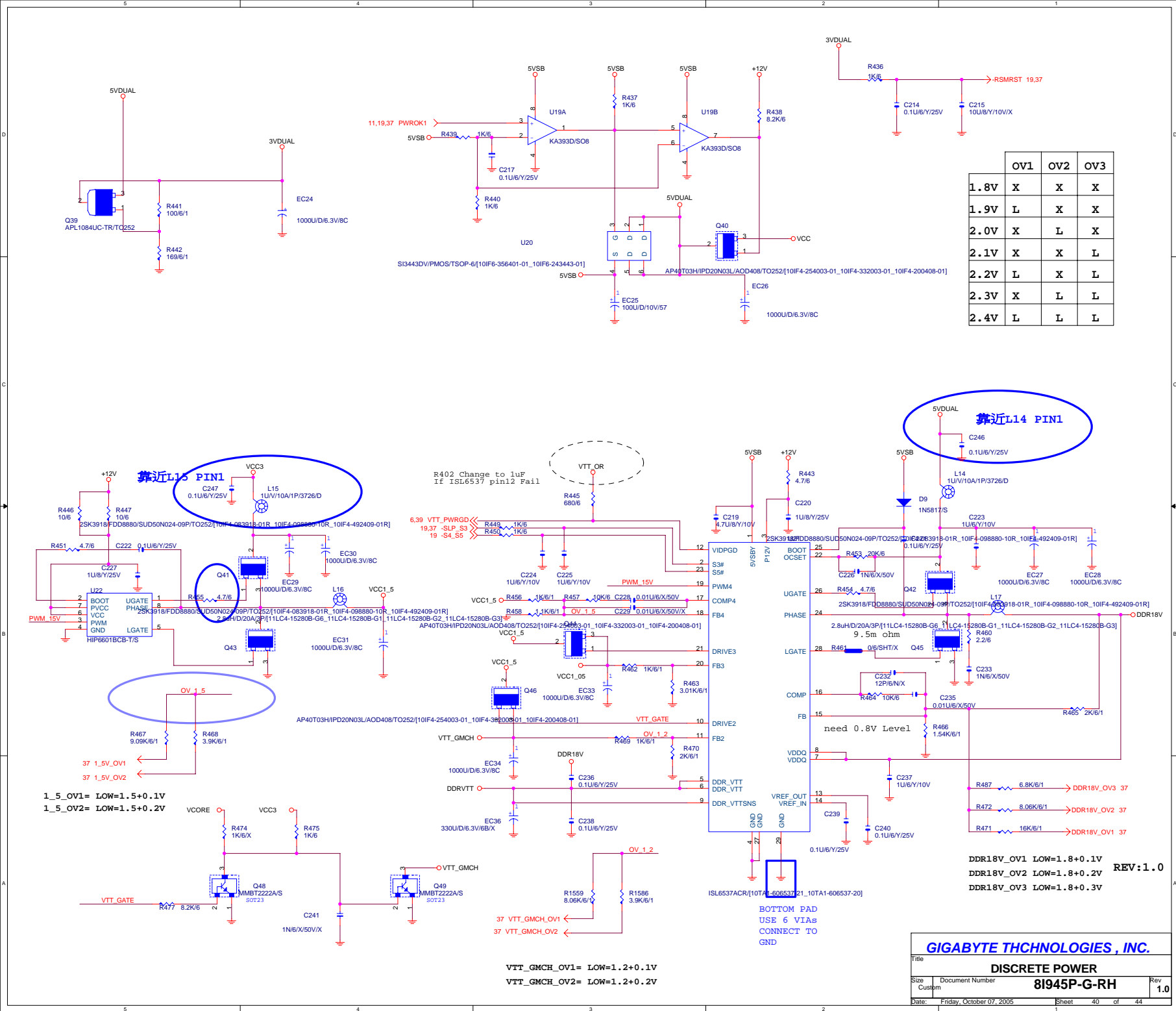




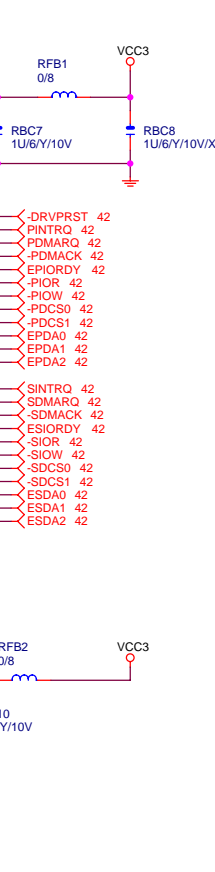
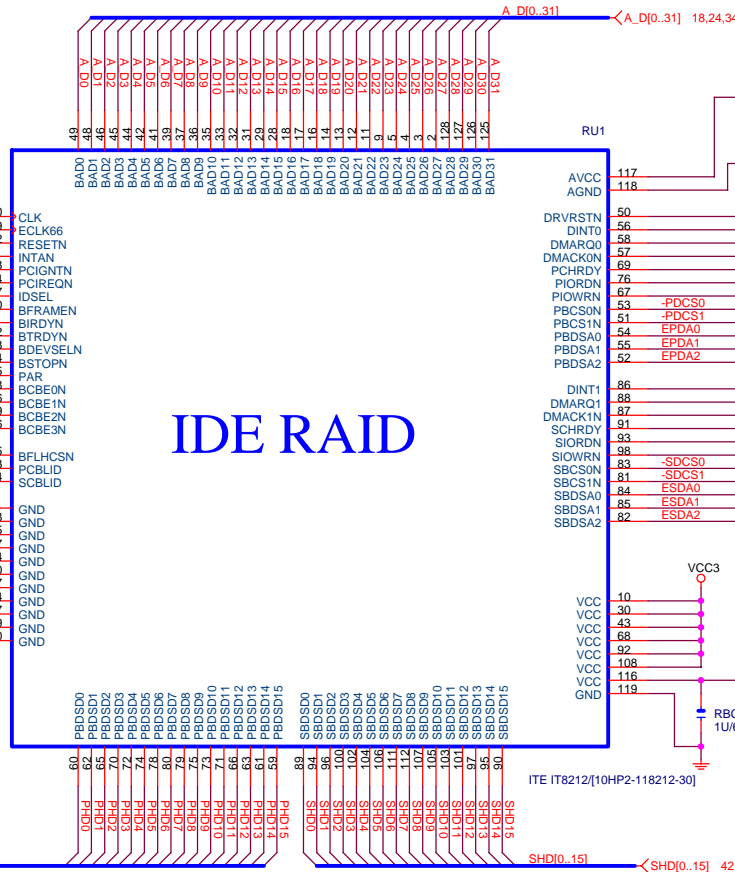
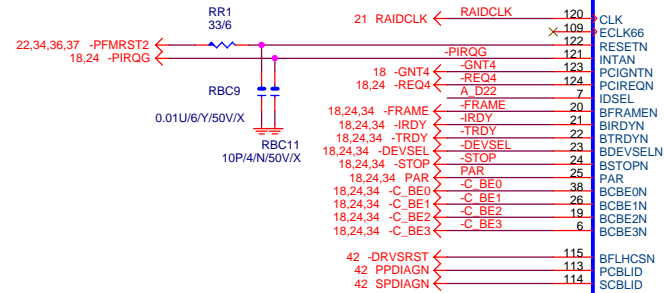
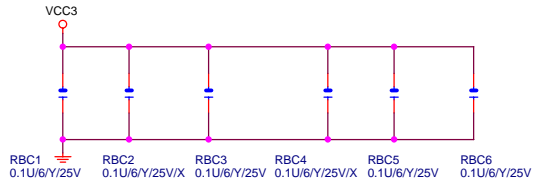


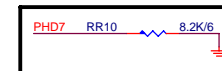
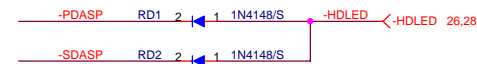
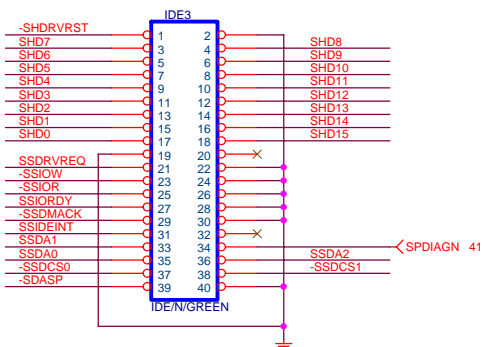
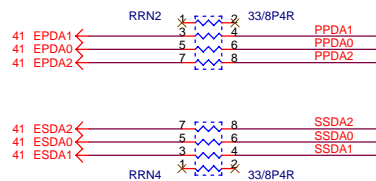
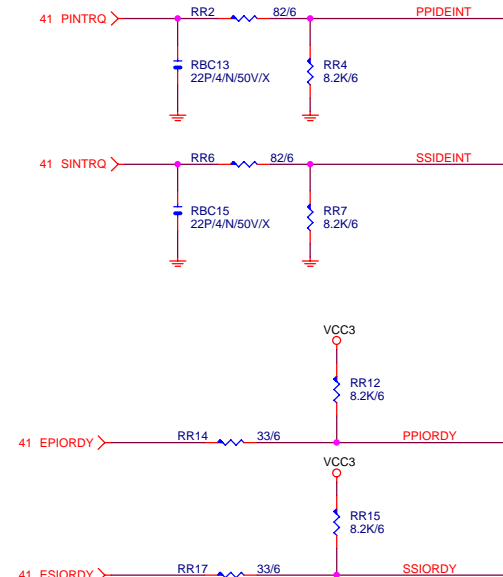
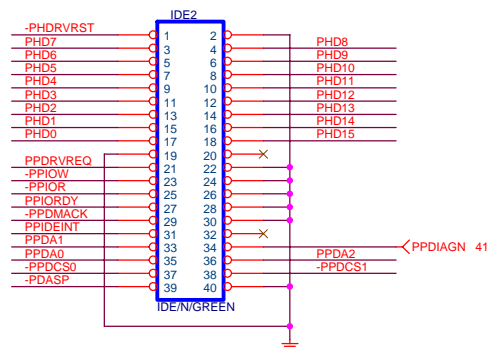
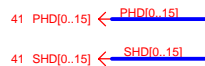
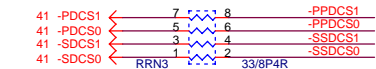
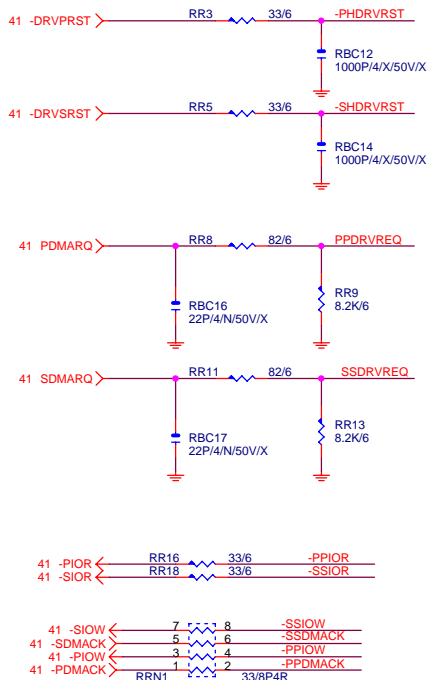






ALL INPUT PIN MUST HAVE 0.1 CAPACITOR





GPI PIN

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

GPO PIN

Pin Name	Pin Number	Power Well	Pin Type		GPIO Application
GPIO[38]	I/O	VCC3	GPI	(NA)	(NA)
GPIO[39]	I/O	VCC3	GPI	(NA)	(NA)
GPIO[40:47]		NOT IMPLEMENTED		NOT IMPLEMENTED	
GPIO[48]	I/O	VCC3	-GNT[4]	(NA)	-GNT[4]
GPIO[49]	I/O	VTT_GMCH	CPUPWRGD	(P.U VTT_OL)	CPUPWROK
PCI1	PCLK0	-PCIRST	-REQ0/-GNT0	-PIRQE	A_D16
PCI2	PCLK1	-PCIRST	-REQ1/-GNT1	-PIRQD	A_D17
PCI3	PCLK2	-PCIRST	-REQ2/-GNT2	-PIRQC	A_D18
1394b	1394CLK	-PFMRST2	-REQ3/-GNT3	-PIRQH	A_D23
IT8212	RAIDCLK	-PFMRST2	-REQ4/-GNT4	-PIRQG	A_D22

ICH6 GPIO Table:

NAME	PWR LANE	USAGE	NAME	PWR LANE	USAGE
GPI0	V5REF	M/B ID (-REQ6)	GPI41	VCC3	M/B ID
GPI1	V5REF	-REQ5	GPO48	VCC3	-GNT4
GPI2	V5REF	-PIRQE	GPO49	V-CPUIO	CPUPWOK
GPI3	V5REF	-PIRQF			
GPI4	V5REF	-PIRQG			
GPI5	V5REF	-PIRQH			
GPI6	VCC3	-SLP BTN			
GPI7	VCC3	DUAL BIOS			
GPI8	3VDAUL	-LANWAKE			
GPI9	3VDAUL	-USBOC4			
GPI10	3VDAUL	-USBOC5			
GPI11	3VDAUL	-SMBALT			
GPI12	VCC3	ATX DET			
GPI13	3VDAUL	-LPCPME			
GPI14	3VDAUL	-USBOC6			
GPI15	3VDAUL	-USBOC7			
GPO16	VCC3	CPU OV1 (-GNT6)			
GPO17	VCC3	-GNT5			
GPO18	VCC3	CPU OV2			
GPO19	VCC3	DUAL BIOS			
GPO20	VCC3	BIOS T-BLOCK			
GPO21	VCC3	DUAL BIOS			
GPO23	VCC3	DDR OV0			
GPI024	3VDAUL	GREEN LED			
GPI025	3VDAUL	DDR OV1			
GPI26	VCC3	SATA GP0			
GPI027	3VDAUL	+PWRLED			
GPI028	3VDAUL	-PWRLED			
GPI29	VCC3	SATA GP1			
GPI30	VCC3	SATA GP2			
GPI31	VCC3	SATA GP3			
GPI032	VCC3	BIOS WP			
GPI033	VCC3	AZALIA DET			
GPI034	VCC3	PWRLED			
GPI40	V5REF	-REQ4			

PWROK/RESET Table:

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

GIGABYTE THCHNOLOGIES , INC.

Title			
GPIO/RESET TABLE			
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Custom	8I945P-G-RH	1.0	
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