

Model Name: 8I945G-PRO Revision 1.0

SHEET TITLE

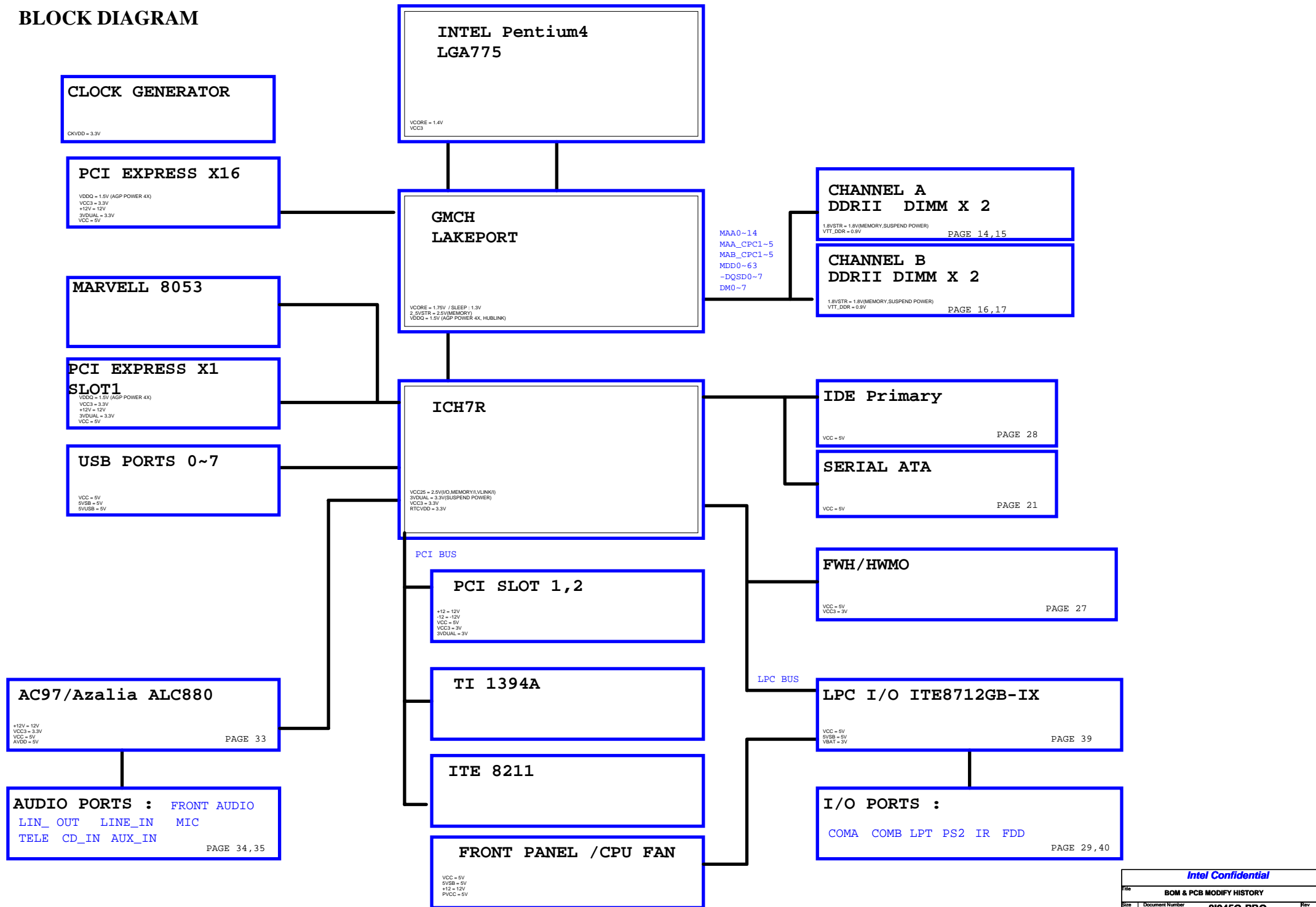
| | |
|----|-------------------------------|
| 01 | COVER SHEET |
| 02 | BLOCK DIAGRAM |
| 03 | BOM & PCB MODIFY HISTORY |
| 04 | P4_LGA775_A |
| 05 | P4_LGA775_B |
| 06 | P4_LGA775_C |
| 07 | P4_LGA775_D |
| 08 | GMCH-LAKEPORT_HOST |
| 09 | GMCH-LAKEPORT_DDRII |
| 10 | GMCH-LAKEPORT_PCI E, DMI |
| 11 | GMCH-LAKEPORT_INT VGA |
| 12 | GMCH-LAKEPORT_GND |
| 13 | GMCH-LAKEPORT_PWR |
| 14 | DDRII CHANNEL A 1,2 |
| 15 | DDRII CHANNEL B 1,2 |
| 16 | DDRII TERMINATION |
| 17 | PCI EXPRESS*16 SLOT |
| 18 | ICH7 PCI, USB, DMI, LAN |
| 19 | ICH7 IDE, GPIO, SATA, CTRL |
| 20 | ICH7 VCC, GND |
| 21 | ICS954148AF CLOCK. |
| 22 | ATX,ATX_12V CONNECT,DUAL BIOS |
| 23 | PCI EXPRESS*1 SLOT 1,2 |
| 24 | PCI SLOT 1,2,3 |
| 25 | H/W MONITOR,FAN |
| 26 | IDE |
| 27 | KB_PS2,S.P.R |

SHEET TITLE

| | |
|----|----------------------------|
| 28 | FRONT PANEL |
| 29 | FRONT USB,REAL USB CONNECT |
| 30 | PROCESSOR HOT |
| 31 | AZALIA CODEC ALC880 |
| 32 | AUDIO JACK 1 |
| 33 | AUDIO JACK 2 |
| 34 | TI1394B |
| 35 | TI1394B |
| 36 | MARVELL 88E8053 LAN |
| 37 | ITE 8712GB |
| 38 | COM_LPT |
| 39 | VCORE PWM |
| 40 | DISCRETE POWER |
| 41 | ITE8212 RAID |
| 42 | ITE8212 RAID |
| 43 | GPIO DEFINE |
| 44 | GPIO DEFINE |



BLOCK DIAGRAM



Model Name: 8I945G PRO

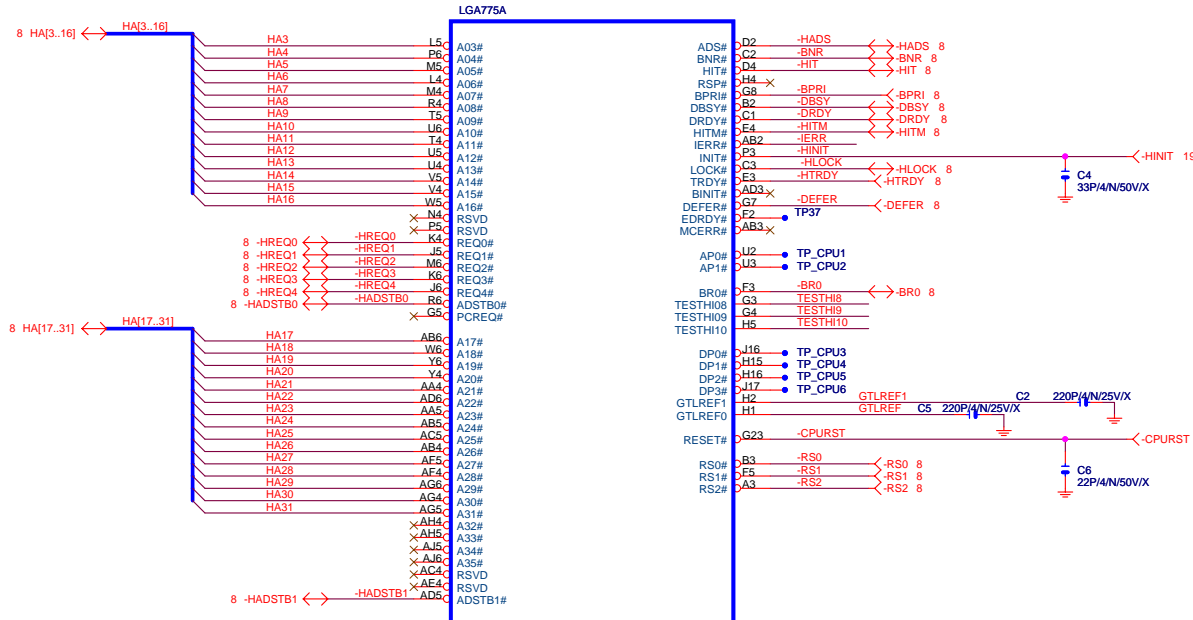
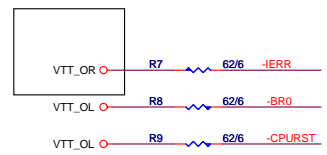
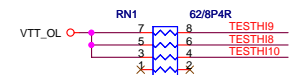
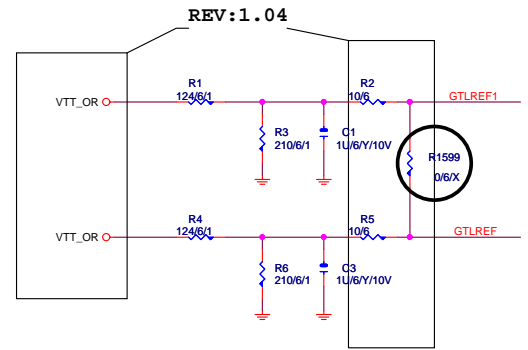
Version: 1.0

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 | |
| 1.0C | REMOVE PCIE_12V(11NH4-010004-01) | |
| | CU1 10HP5-366882-10 CHANGE 10HP5-366882-10R ALC882 | |
| | L1,L2,L18 10LI2-12100A-03 CHANGE 10LI2-12100A-13 | |
| 1.0D | 1.Add SB_HS | |
| | 2.SPDIFF_I change to 11NH5-010103-51 | |
| | 3.單一料,加替代料 | |
| 1.0E | 1.RU1 from VT6410 change to IT8212 | |
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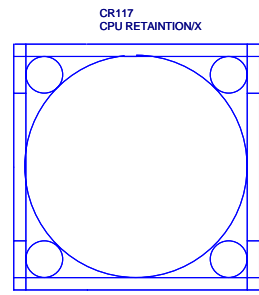
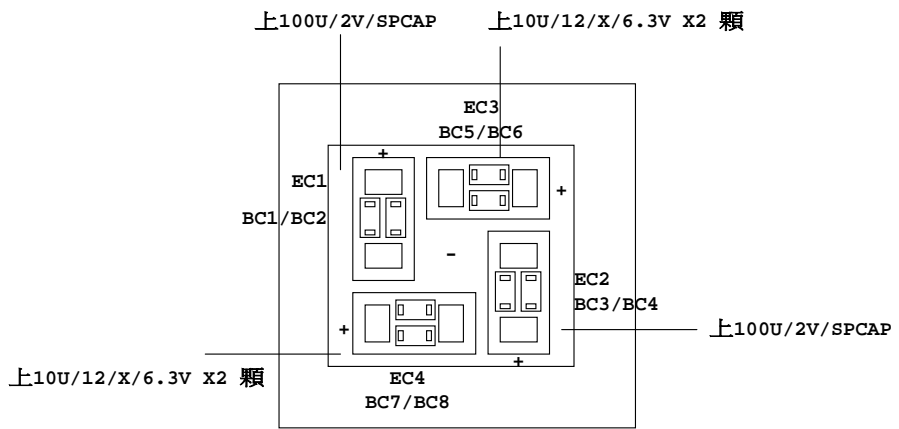
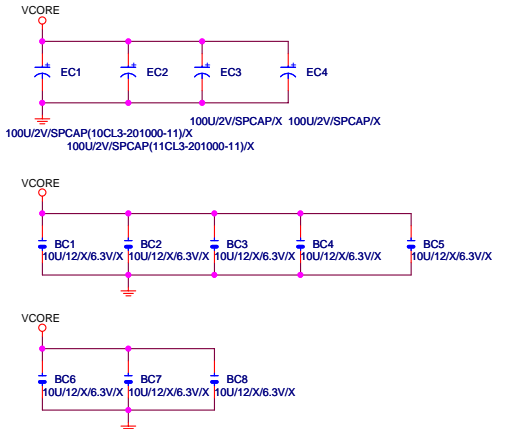
Circuit or PCB layout change for next version

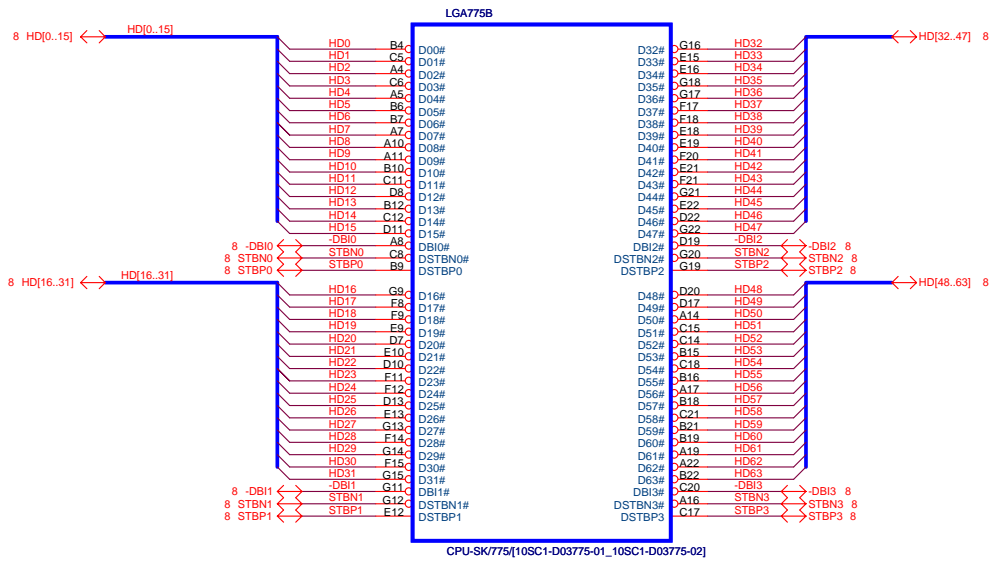
| DATE | Change Item | Reason |
|------|-------------------------------------|------------|
| 8/20 | CHANGE CPU,MCH,ICH7 LIB and Circuit | Lib update |
| 9/14 | CHANGE DDR RESITOR VALUE 1K/1K | |
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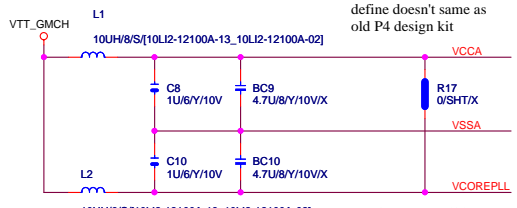
CPU-SK775[10SC1-D03775-01_10SC1-D03775-02]

SP-CAP X 4PCS





Note: VCCA & VCOREPLL define doesn't same as old P4 design kit

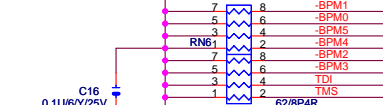
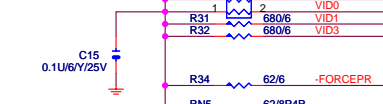
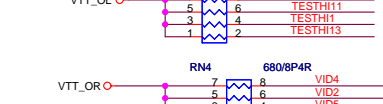
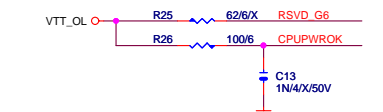
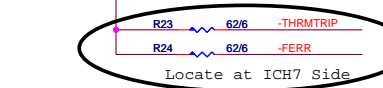
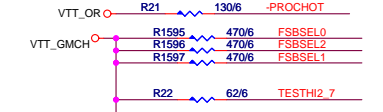
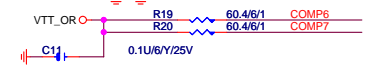
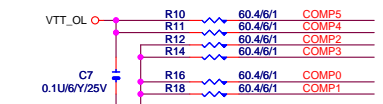
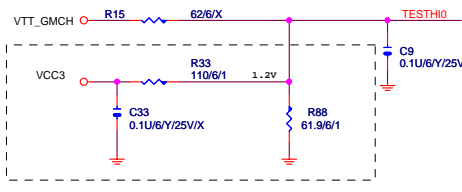
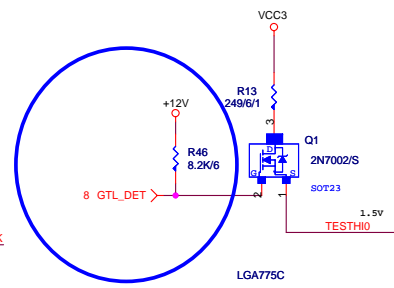


Trace width doesn't less than 12 Mil

As close as possible to CPU socket

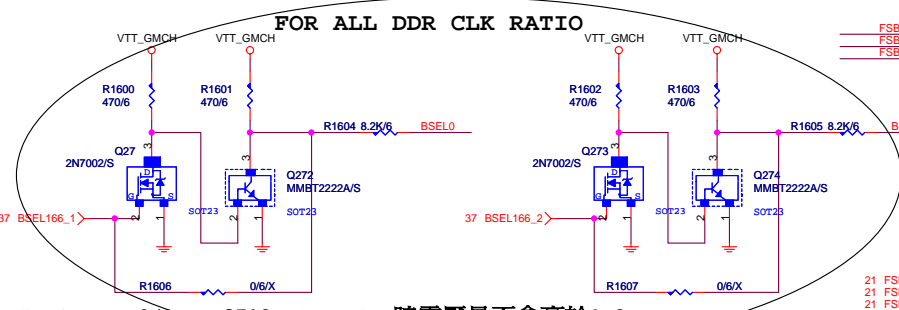
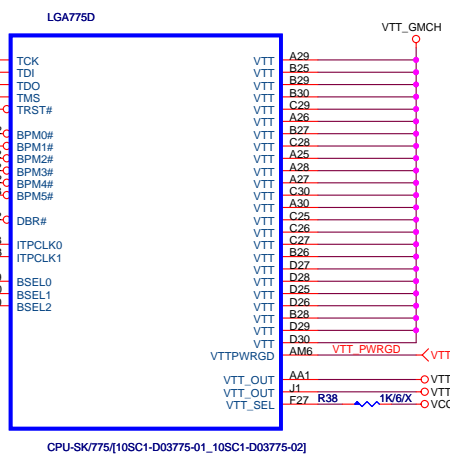
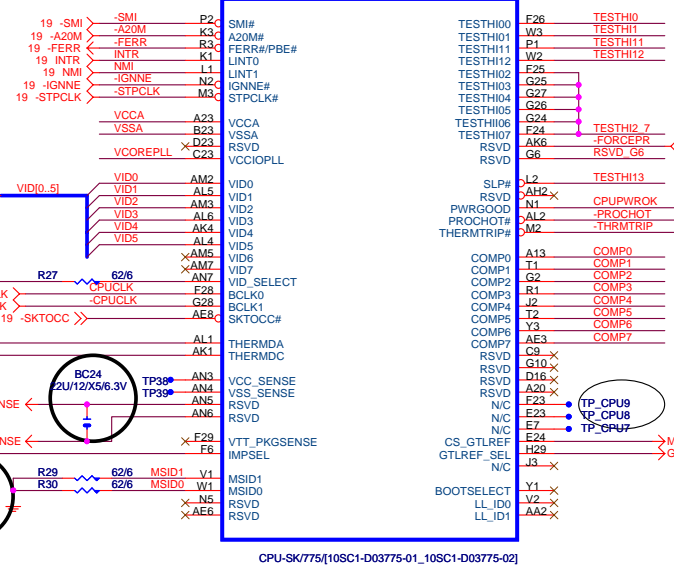
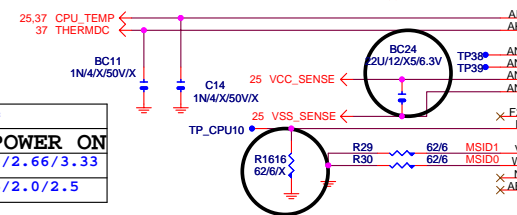
945 Design Guide rev1.5 spec. VCCA=120~220mA 公板為125mA

- 10LI2-12100A-13=INDUCTOR 10uH 320mA TAI-TECH
10LI2-12100A-02=INDUCTOR 10uH 155mA TAIYO
10LI2-12100A-03=INDUCTOR 10uH 300mA TAI-TECH(會破裂)
10LI2-12100A-01=INDUCTOR 10uH 120mA TDK

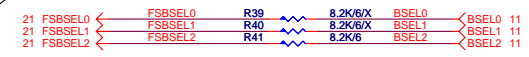


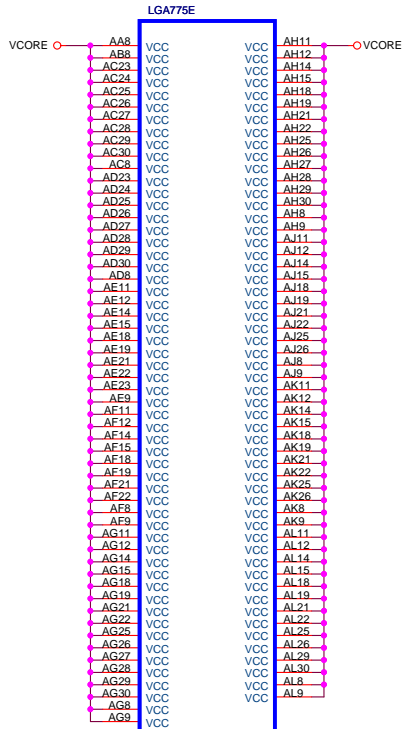
CPU

Table with columns: FSA, FSB, NA, FSBSEL0, FSBSEL1, FSBSEL2, Clock. It lists various CPU configurations and their corresponding clock speeds (100MHz, 133MHz, 166MHz, 200MHz, 266MHz).

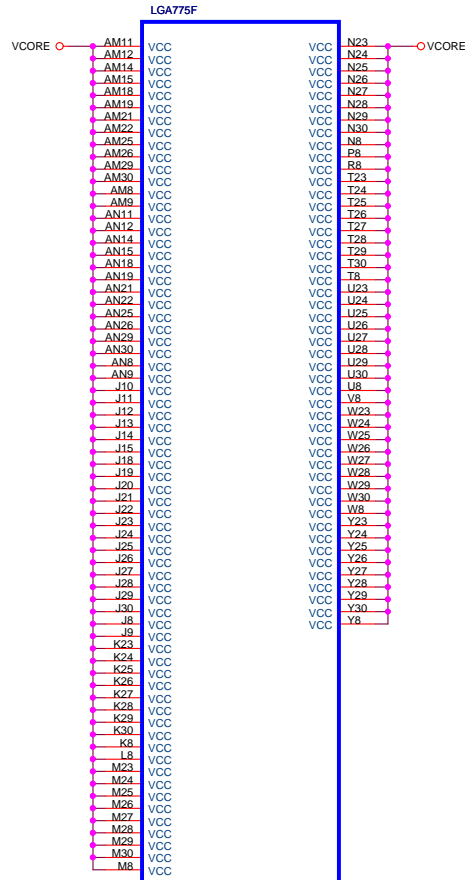


CHECK BSELO/1 ITE8712 POWER ON 時電壓是否會高於1.2V

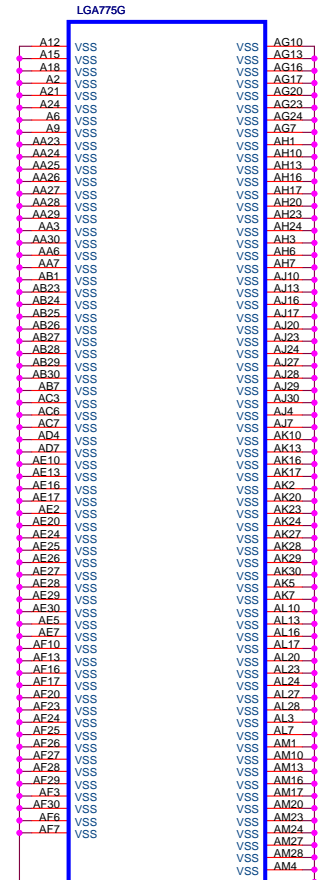




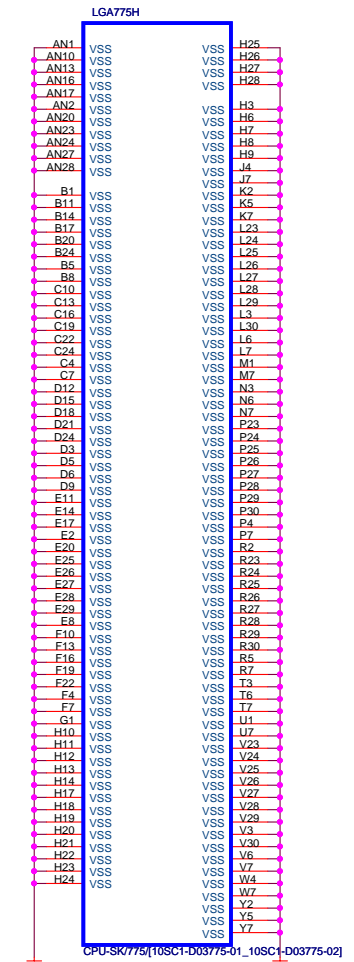
CPU-SK775(10SC1-D03775-01_10SC1-D03775-02)



CPU-SK775(10SC1-D03775-01_10SC1-D03775-02)



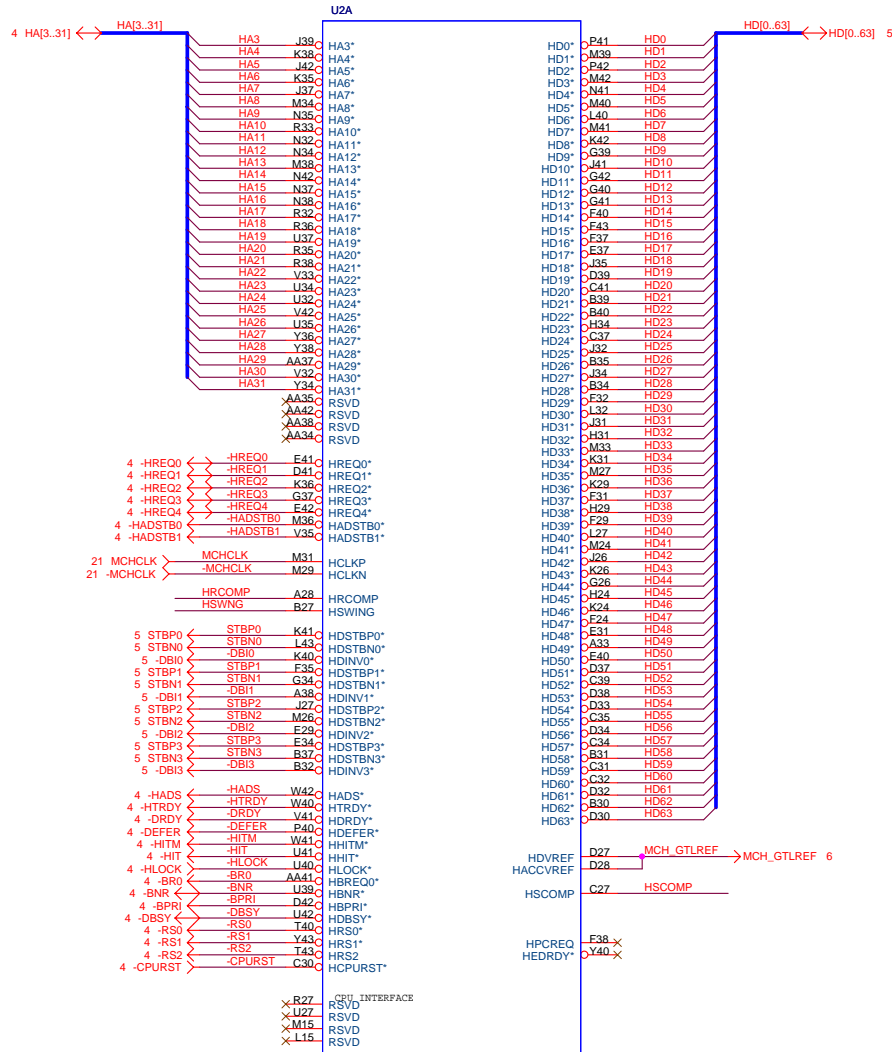
CPU-SK775(10SC1-D03775-01_10SC1-D03775-02)



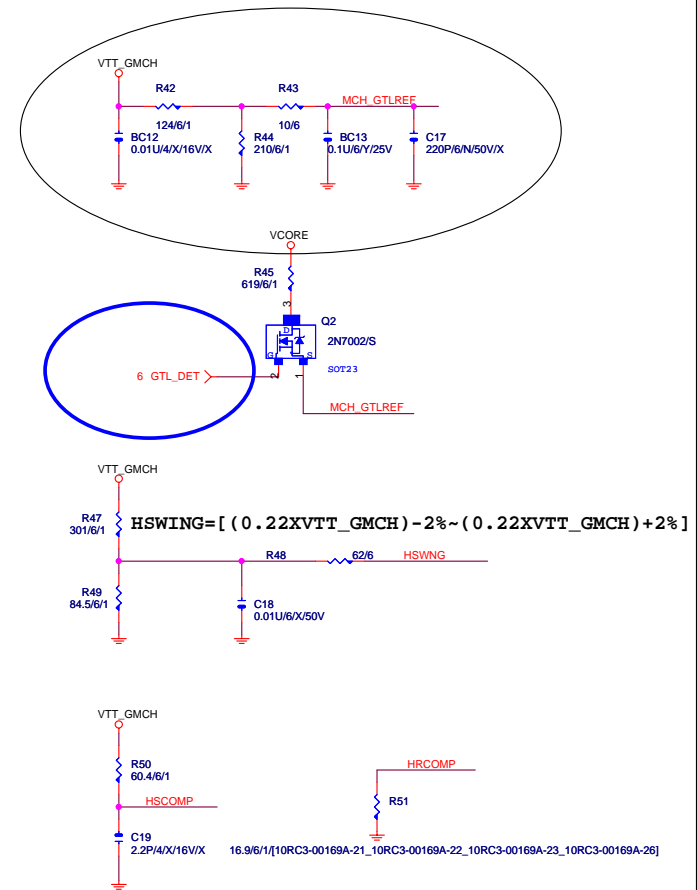
CPU-SK775(10SC1-D03775-01_10SC1-D03775-02)

Intel Confidential

| | | | |
|-------|--------------------------|---------------|---------|
| Title | | P4_LGA775-D | |
| Size | Document Number | 81945G-PRO | Rev 1.0 |
| Date: | Thursday, April 21, 2005 | Sheet 7 of 44 | |



INTEL945G/A2/QJ64(QG82LPG)100B1000228033000-11-REV:A1
 10HB1-033000-21-REV:A2 FOR ACER

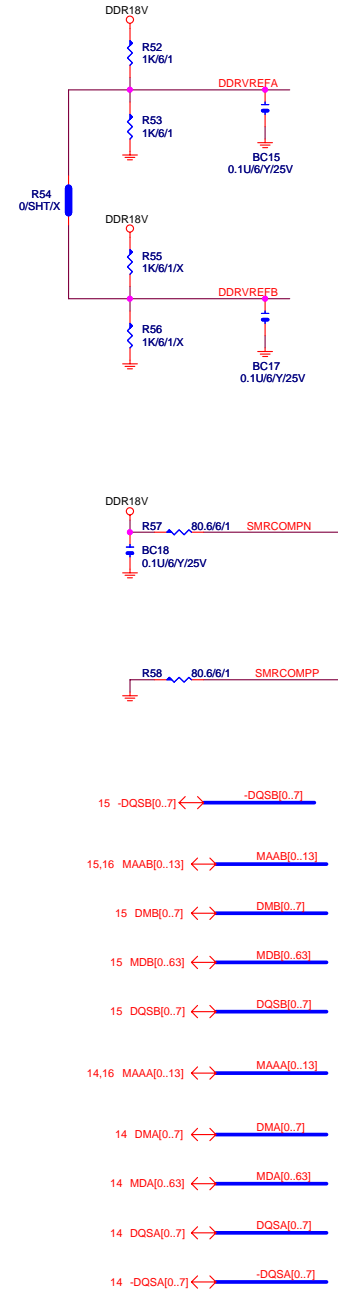
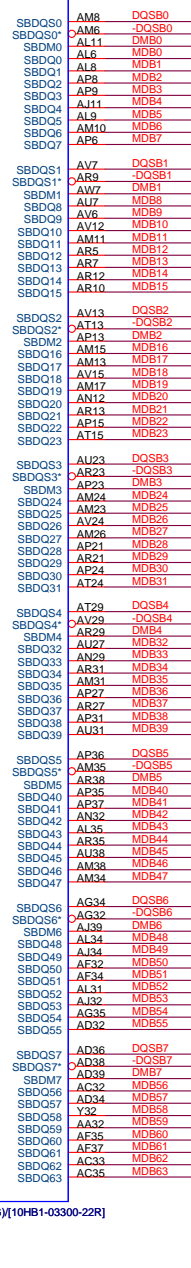
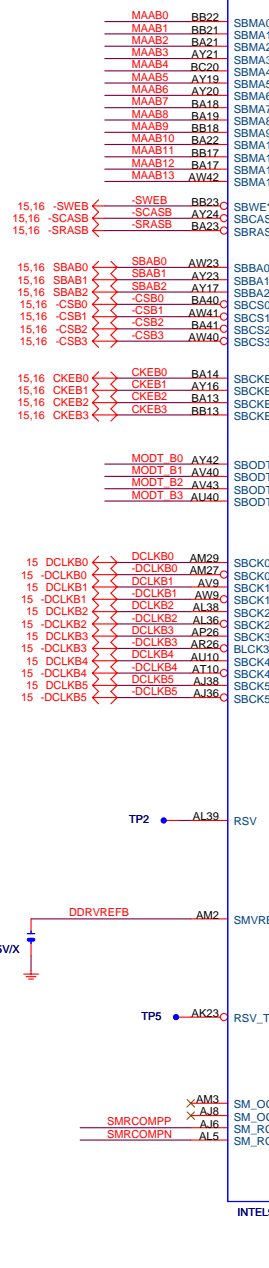
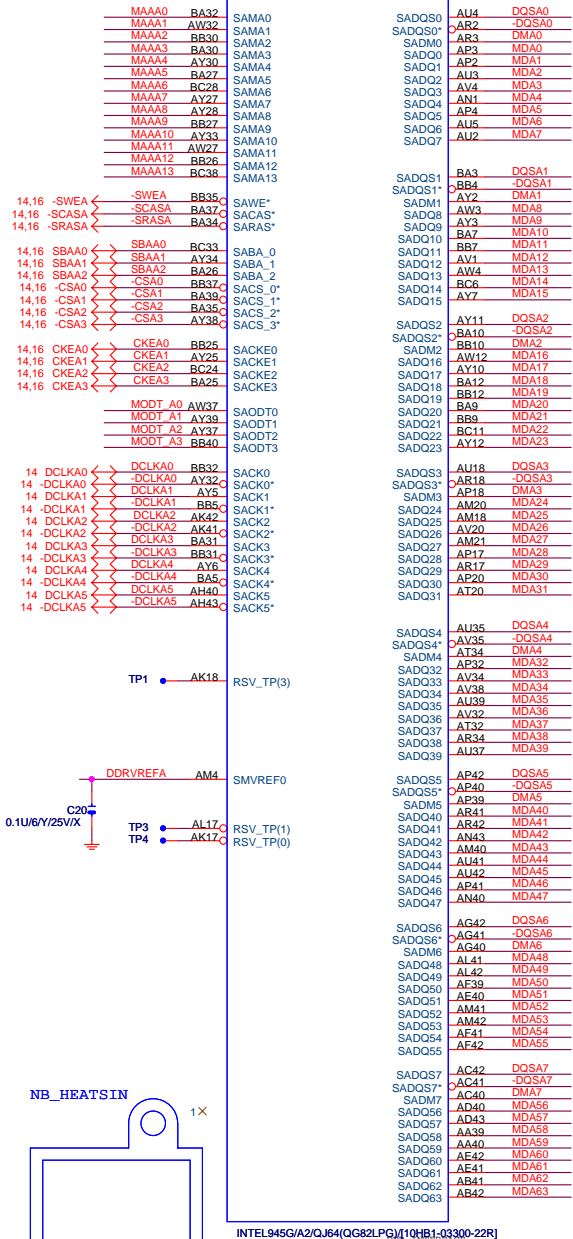


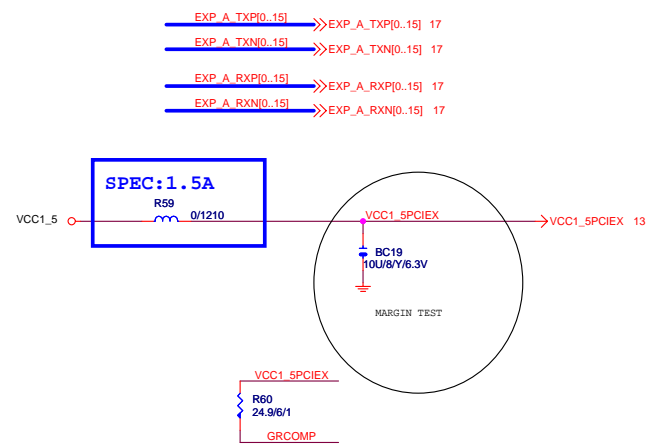
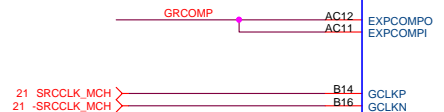
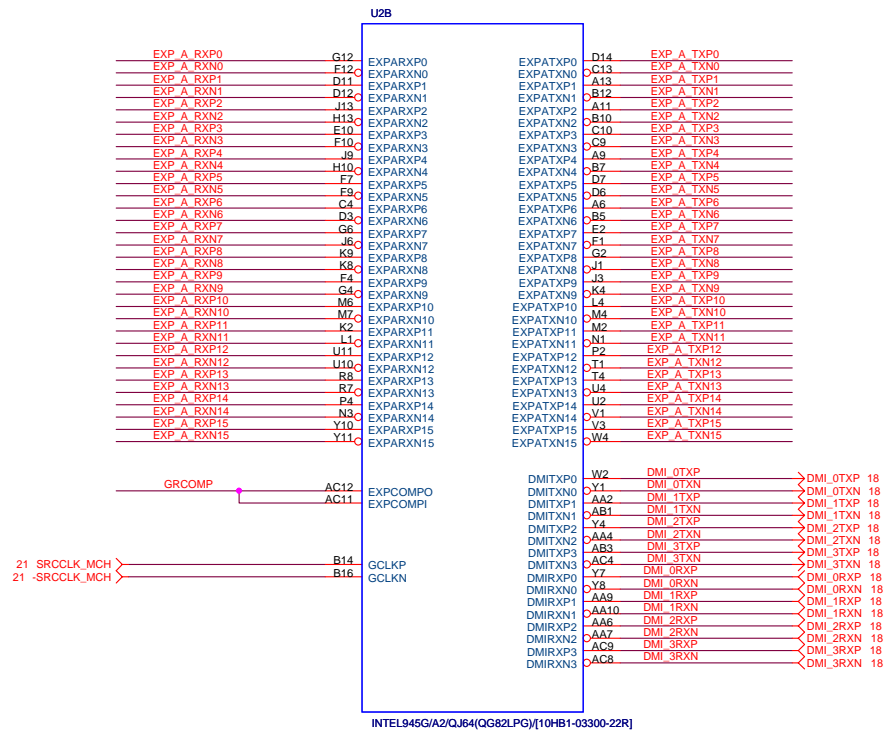
MODT_A[0..3] ↔ MODT_A[0..3] 14.16

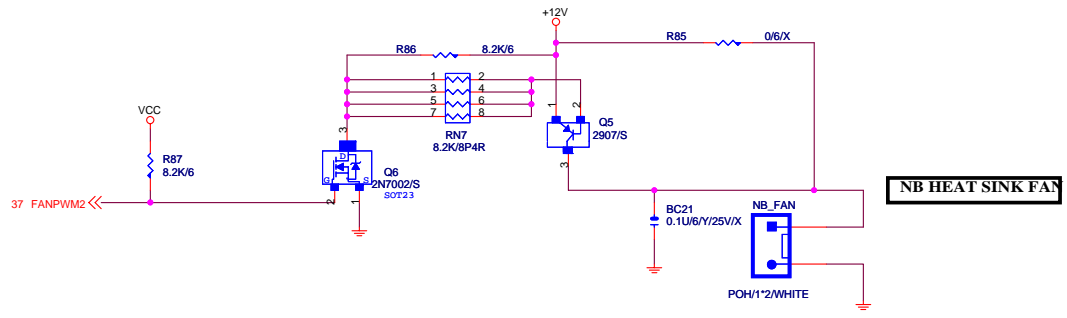
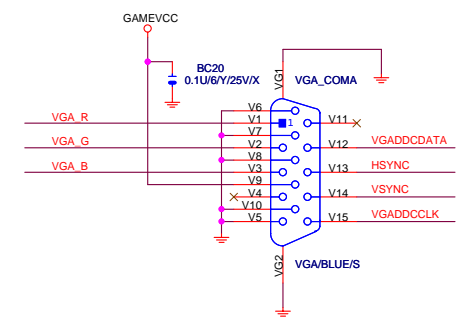
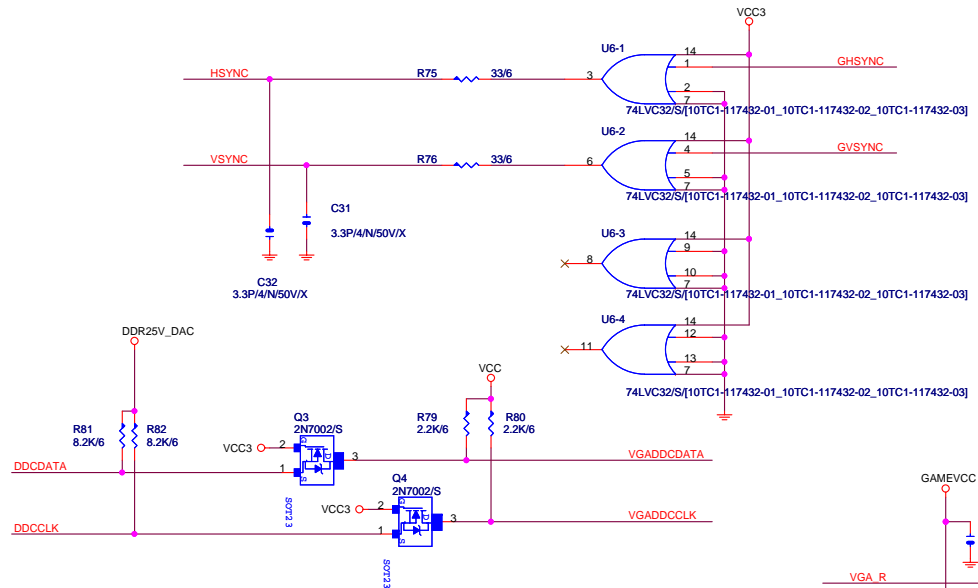
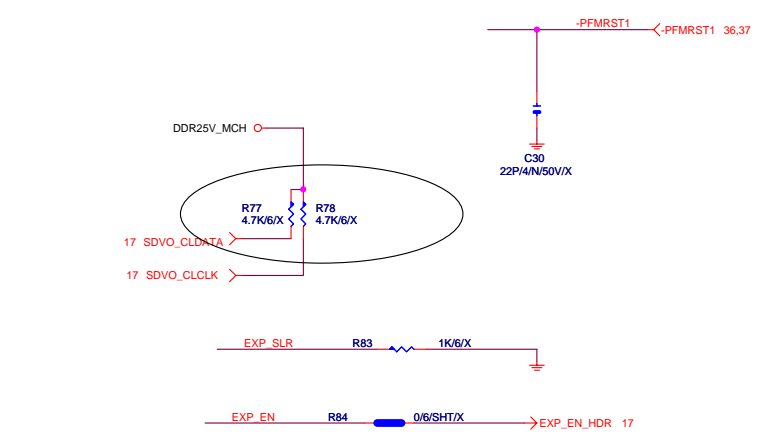
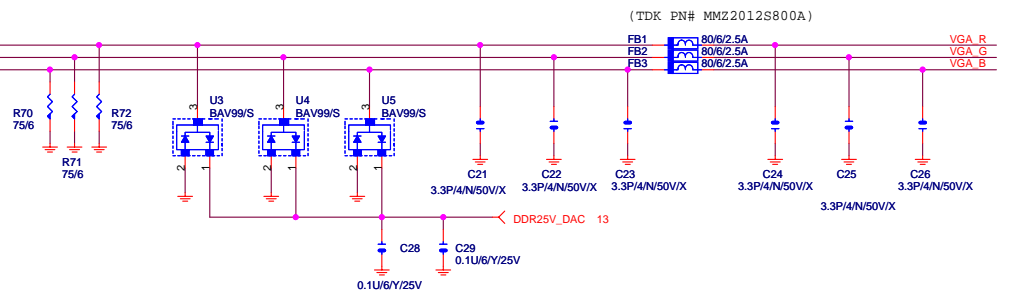
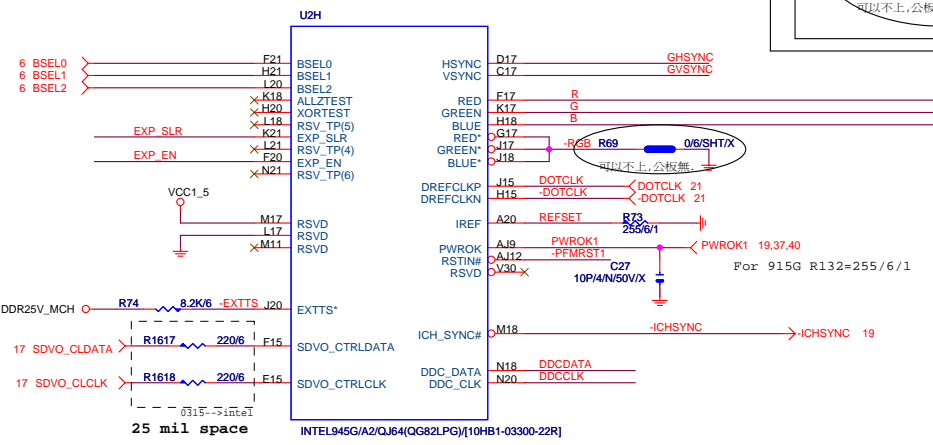
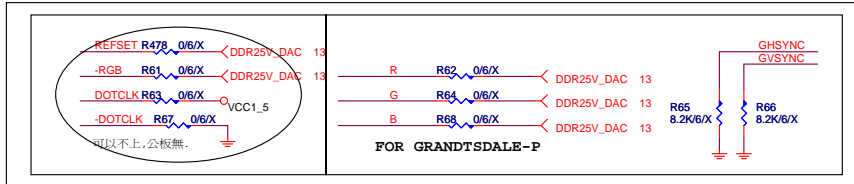
MODT_B[0..3] ↔ MODT_B[0..3] 15.16

U2F

U2G







| | | | |
|--------------------------------|-----------------|-------------------|----------------|
| Intel Confidential | | | |
| GMCH-INTERNAL VGA | | | |
| Size Custom | Document Number | 81945G-PRO | |
| Date: Thursday, April 21, 2005 | Sheet | 11 | of 44 |
| | | | Rev 1.0 |

U2C

A4 VSS N2
A16 VSS N6
A22 VSS N8
A26 VSS N13
A31 VSS N15
A35 VSS N24
B4 VSS N26
B6 VSS N27
B9 VSS N29
B11 VSS N31
B13 VSS N33
B21 VSS N36
B22 VSS N39
B28 VSS N43
B33 VSS P3
B38 VSS P14
C1 VSS P15
C3 VSS P24
C5 VSS P26
C7 VSS P27
C12 VSS P29
C14 VSS P30
C22 VSS R6
C40 VSS R9
D2 VSS R12
D5 VSS R14
D10 VSS R30
D16 VSS R31
D21 VSS R34
E3 VSS R37
E4 VSS R39
E7 VSS T2
E9 VSS T42
E12 VSS U3
E13 VSS U5
E17 VSS U9
E18 VSS U12
E20 VSS U14
E21 VSS U31
E32 VSS U33
F2 VSS U36
F6 VSS U38
F13 VSS V2
F18 VSS V8
F26 VSS V11
F34 VSS V12
F42 VSS V14
G3 VSS V34
G5 VSS V36
G7 VSS V37
G9 VSS V38
G10 VSS V39
G13 VSS V43
G15 VSS V43
G18 VSS Y2
G20 VSS Y5
G21 VSS Y6
G24 VSS Y9
G27 VSS Y12
G29 VSS Y14
G31 VSS Y31
G32 VSS Y35
G35 VSS Y37
G38 VSS Y39
H12 VSS Y42
H17 VSS Y48
H26 VSS AA11
H27 VSS AA12
J2 VSS AA14
J5 VSS AA21
J7 VSS AA23
J10 VSS AA31
J12 VSS AA33
J21 VSS AA36
J24 VSS AB2
J29 VSS AB43
K3 VSS AC2
K5 VSS AC3
K6 VSS AC7
K7 VSS AC10
K10 VSS AC14
K12 VSS AC21
K13 VSS AR6
K15 VSS AR15
K20 VSS AR20
K27 VSS AR24
K32 VSS AR32
K34 VSS AR37
K39 VSS AR39
L2 VSS AR43
L12 VSS AT12
L13 VSS AT17
L24 VSS AT18
L26 VSS AT21
L29 VSS AT23
L31 VSS AT26
L42 VSS AT27
M3 VSS AT31
M5 VSS AU6
M8 VSS AU12
M9 VSS AU13
M10 VSS AU15
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M21 VSS AD16
M37 VSS AD20
VSS AD22
VSS AD24
VSS AD27
VSS AD29
VSS AE19
VSS AE21
VSS AE23
VSS AE25
VSS AF18
VSS AF20
VSS AF22
VSS AF24
VSS AY1
VSS BC4

INTEL945G/A2/QJ64(QG82LPG)[10HB1-03300-22R]

U2E

AD7 VSS
AD9 VSS
AD11 VSS
AD13 VSS
AD33 VSS
AD35 VSS
AD37 VSS
AD42 VSS
AF1 VSS
AF2 VSS
AF3 VSS
AF5 VSS
AF33 VSS
AF36 VSS
AF38 VSS
AF43 VSS
AG30 VSS
AG31 VSS
AG33 VSS
AG36 VSS
AG37 VSS
AG38 VSS
AG39 VSS
AH42 VSS
AJ7 VSS
AJ10 VSS
AJ30 VSS
AJ31 VSS
AJ33 VSS
AJ35 VSS
AJ37 VSS
AK24 VSS
AK26 VSS
AK29 VSS
AK30 VSS
AL1 VSS
AL2 VSS
AL3 VSS
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AL13 VSS
AL15 VSS
AL18 VSS
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AL32 VSS
AL33 VSS
AL37 VSS
AL43 VSS
AM5 VSS
AM7 VSS
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AM37 VSS
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AN24 VSS
AN26 VSS
AN27 VSS
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AP7 VSS
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AP29 VSS
AP34 VSS
AP38 VSS
AR1 VSS
AR6 VSS
AR15 VSS
AR20 VSS
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AR39 VSS
AR43 VSS
AT12 VSS
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AT18 VSS
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AT26 VSS
AT27 VSS
AT31 VSS
AU6 VSS
AU12 VSS
AU13 VSS
AU15 VSS
AU17 VSS
AU20 VSS
AD16 VSS
AD20 VSS
AD22 VSS
AD24 VSS
AD27 VSS
AD29 VSS
AE19 VSS
AE21 VSS
AE23 VSS
AE25 VSS
AF18 VSS
AF20 VSS
AF22 VSS
AF24 VSS
AY1 VSS
BC4 VSS

INTEL945G/A2/QJ64(QG82LPG)[10HB1-03300-22R]

AU21 VSS
AU24 VSS
AU26 VSS
AU29 VSS
AU32 VSS
AU34 VSS
AV2 VSS
AV10 VSS
AV17 VSS
AV37 VSS
AW10 VSS
BA4 VSS
BA42 VSS
BB3 VSS
BB6 VSS
BB11 VSS
BB14 VSS
BB19 VSS
BB34 VSS
BB39 VSS
BB41 VSS
BC9 VSS
A40 VSS
D1 VSS
D43 VSS
R26 VSS
R29 VSS
U29 VSS
V24 VSS
V26 VSS
V29 VSS
W21 VSS
W23 VSS
W25 VSS
Y20 VSS
Y22 VSS
Y24 VSS
Y26 VSS
Y29 VSS
AA25 VSS
AA27 VSS
AA29 VSS
AC19 VSS
AC25 VSS
AC29 VSS

NC A42 X
NC B2 X
NC B3 X
NC B41 X
NC B42 X
NC B43 X
NC C2 X
NC C42 X
NC E35 X
NC AV26 X
NC AV27 X
NC AV29 X
NC AW2 X
NC AW2R X
NC B42 X
NC BB1 X
NC BB2 X
NC BB43 X
NC BC1 X
NC BC2 X
NC BC42 X
NC BC43 X

RSVD AK21 X
RSVD AJ23 X
RSVD AJ26 X
RSVD AL23 X
RSVD AL20 X
RSVD AJ21 X
RSVD AL26 X
RSVD AK22 X
RSVD AD36 X
RSVD AG34 X
RSVD Y30 X
RSVD Y33 X
RSVD AF31 X
RSVD AD31 X
RSVD U30 X
RSVD Y31 X
RSVD AA36 X
RSVD AC39 X
RSVD AA43 X
RSVD AC28 X
RSVD AG28 X
RSVD AG27 X
RSVD AJ24 X
RSVD AJ27 X
RSVD AK40 X
RSVD AW17 X
RSVD AW18 X
RSVD AX14 X
RSVD BC16 X
RSVD AJ25 X
RSVD AG29 X

1.425~1.575V

1.7~1.9V

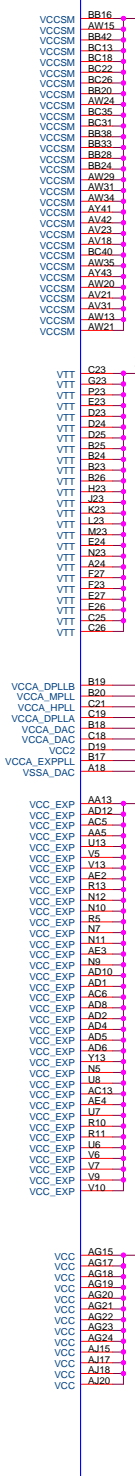
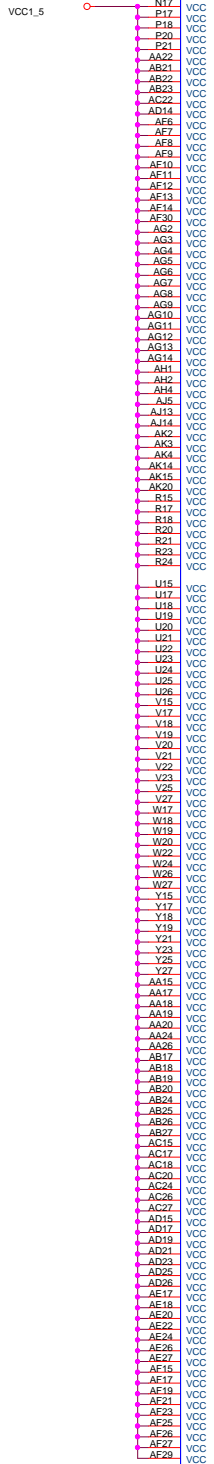
1.14~1.26V

2.375~2.625V

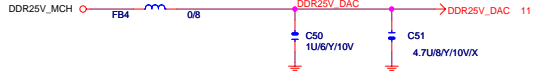
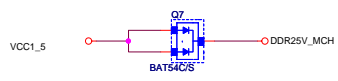
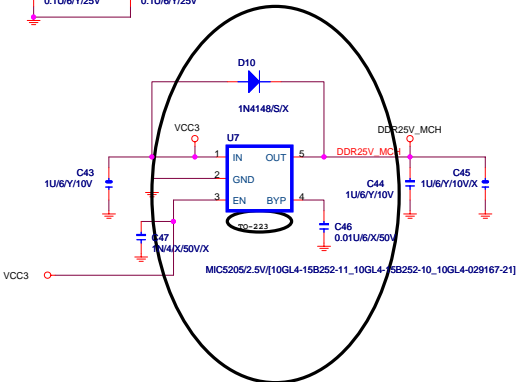
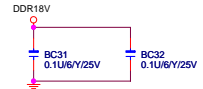
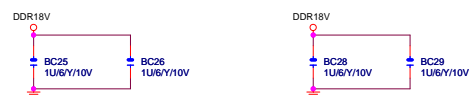
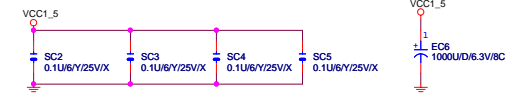
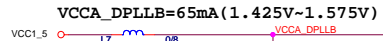
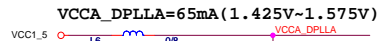
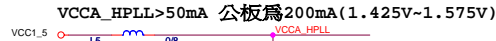
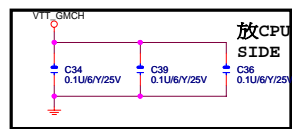
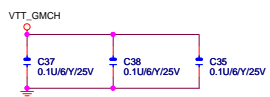
1.425~1.575V

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

945 Design Guide rev1.5 spec.
 VCCA_EXPLL=VCCA_GPLL=45mA(1.425V~1.575V)
 VCCA_HPLL>50mA 公板為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)

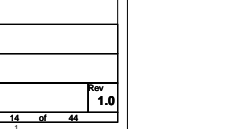
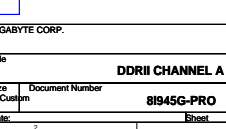
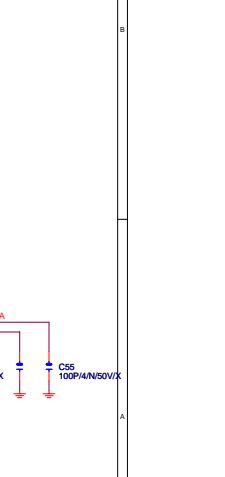
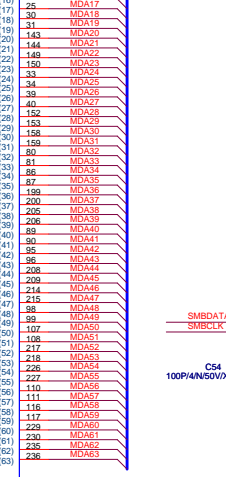
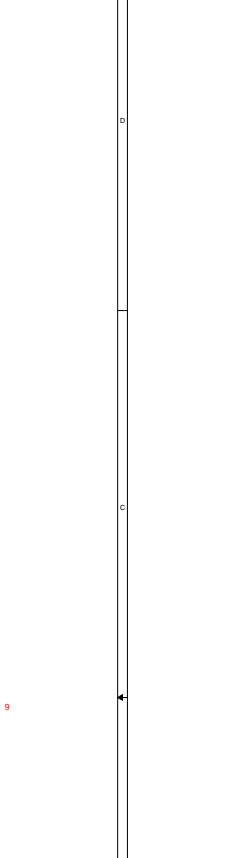
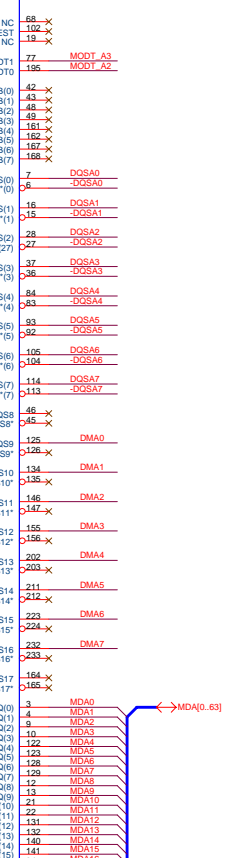
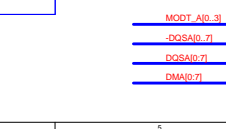
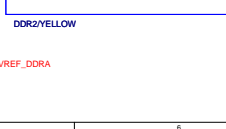
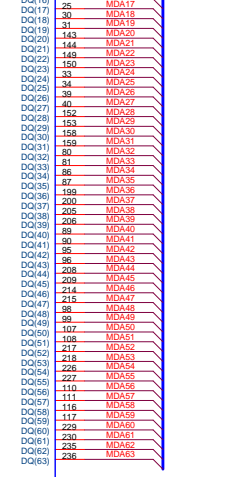
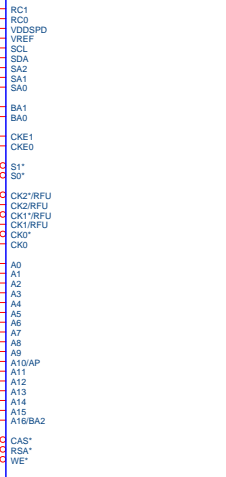
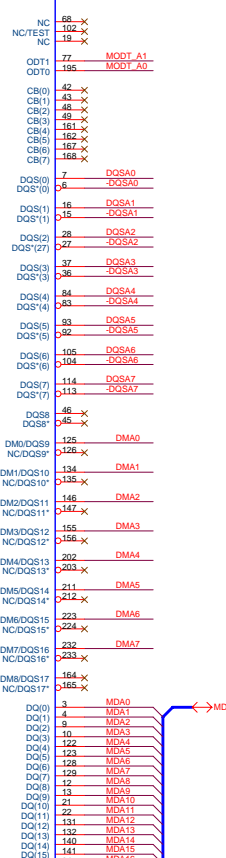
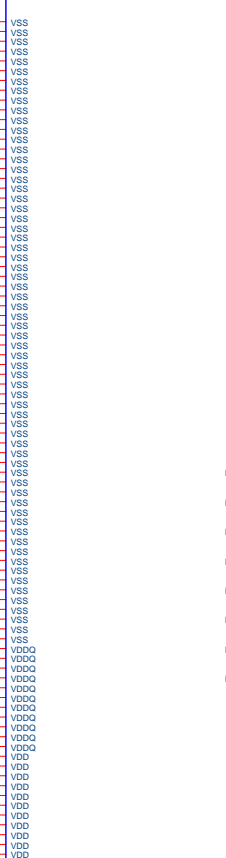


INTEL945G/A2/QJ64(Q82LPG)[10H1-03300-22R]



DDR11

DDR12

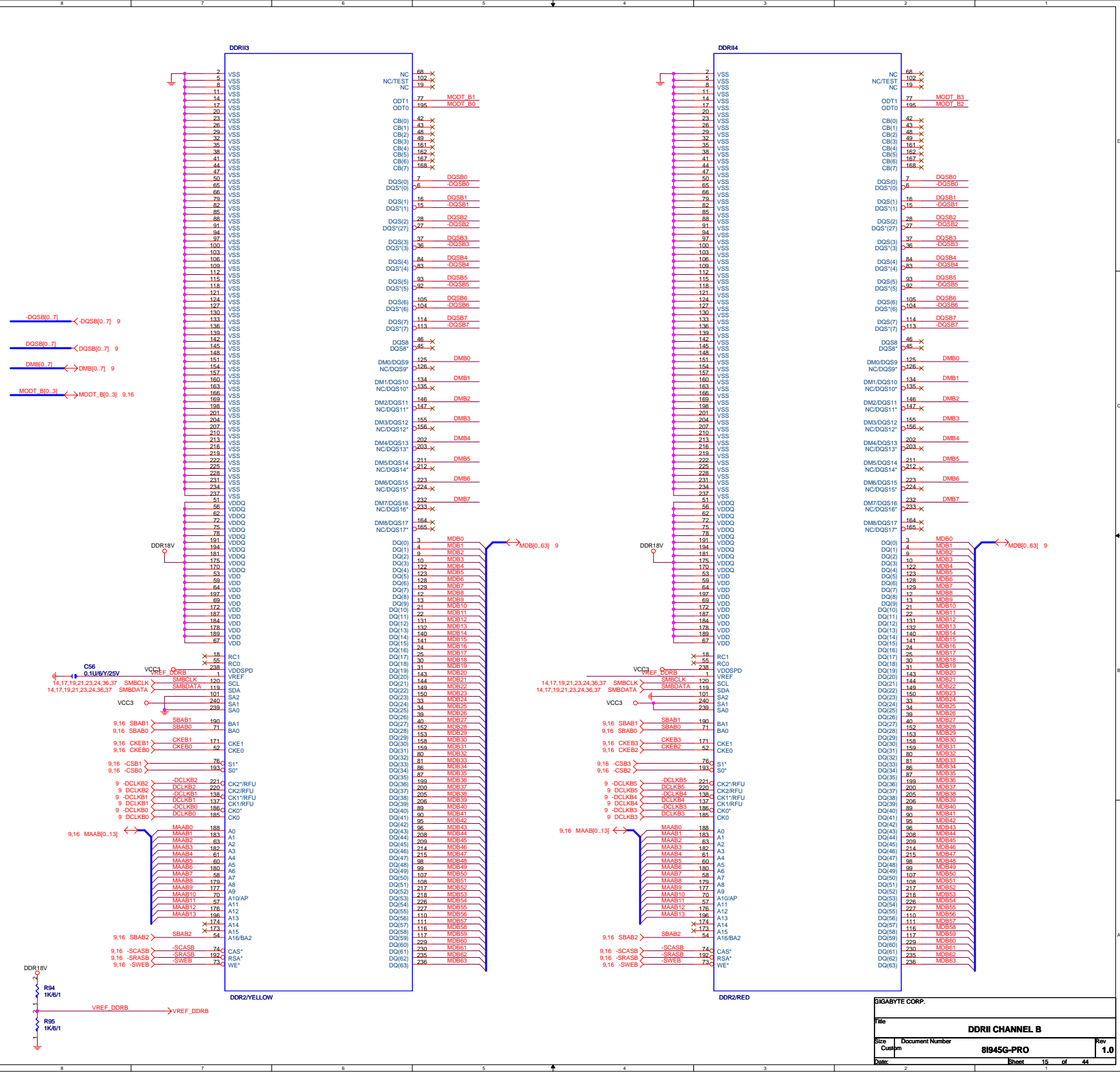


8IGABYTE CORP.

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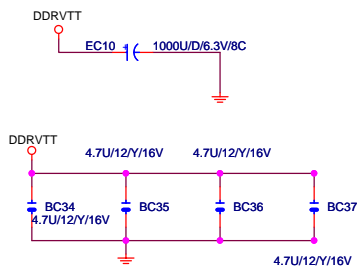
Size: Custom Document Number 81945G-PRO Rev: 1.0

Date: Sheet 14 of 44

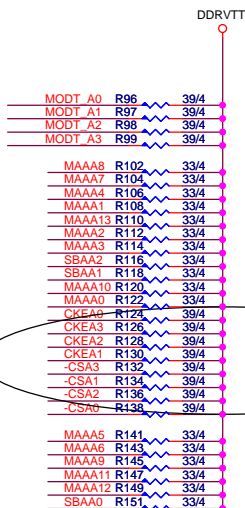
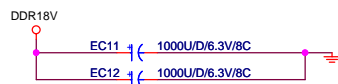


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| 8IGABYTE CORP. | | |
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| Site: | Document Number | Rev |
| Custom: | 81945G-PRO | 1.0 |
| Date: | Sheet 15 | of 44 |

DDRVTT Decouple



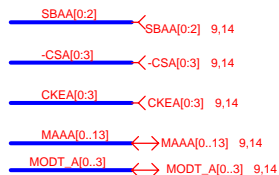
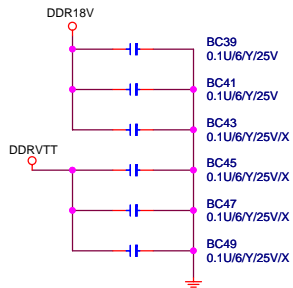
DDR TERMINATION CHANNEL A



全部改成 33 / 6

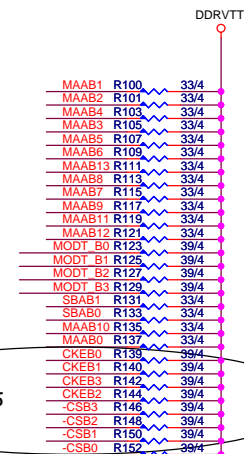


DDR18V Decouple



DDRVTT Decouple

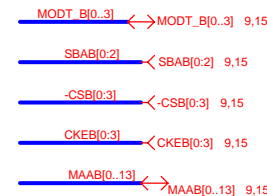
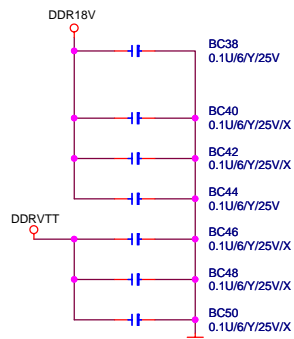
CHANNEL B



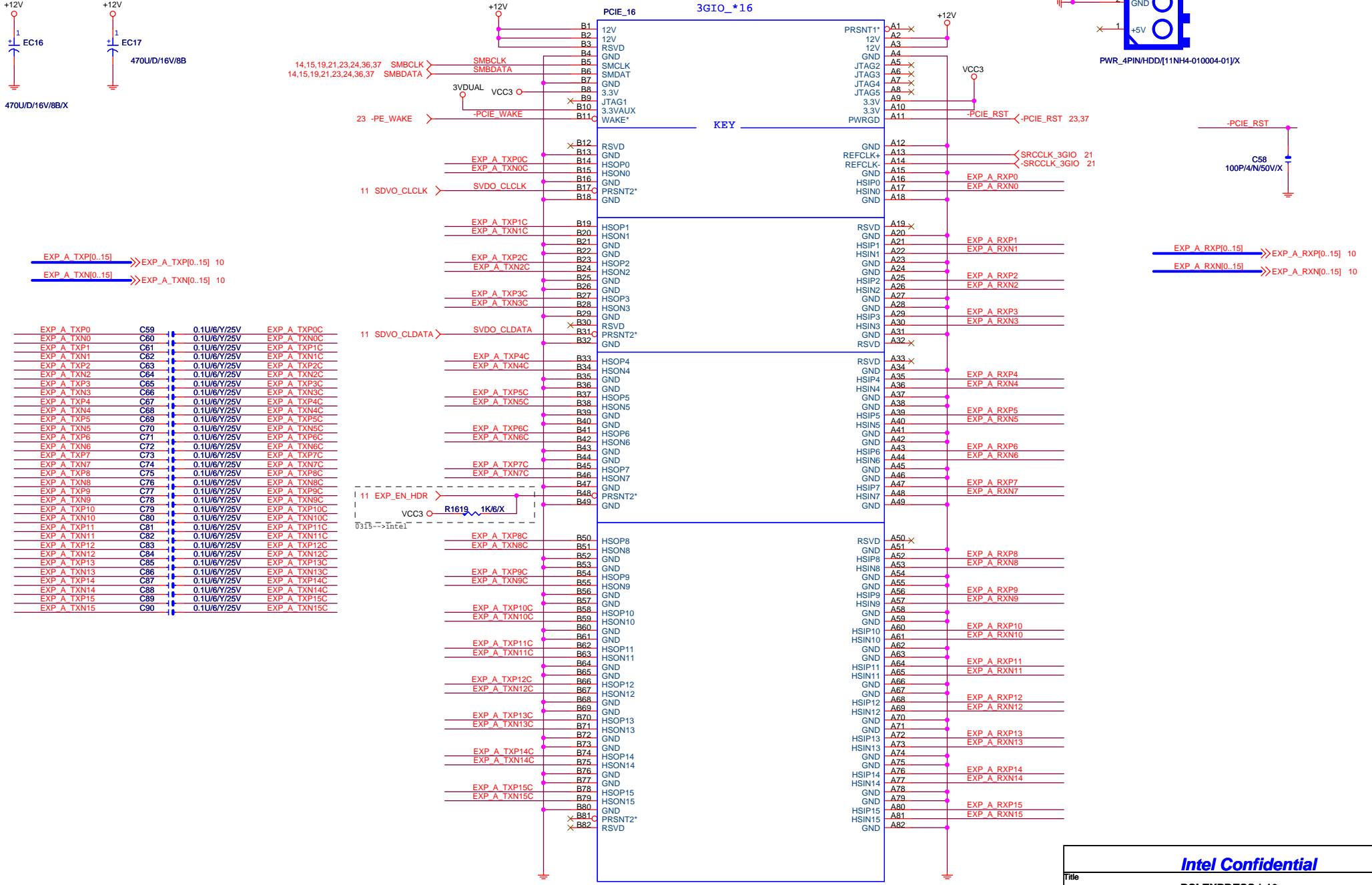
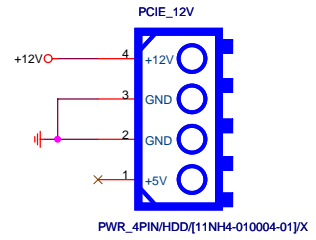
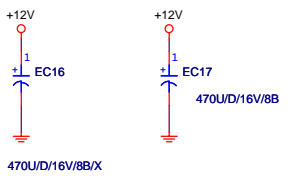
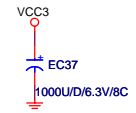
全部改成 33 / 6



DDR18V Decouple



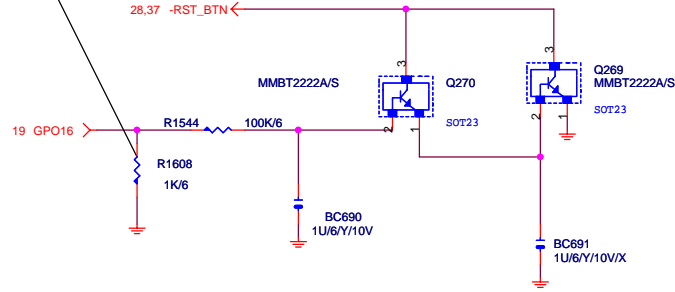
Intel Confidential



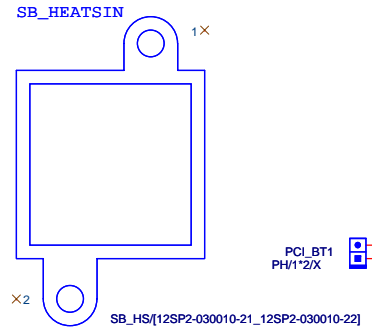
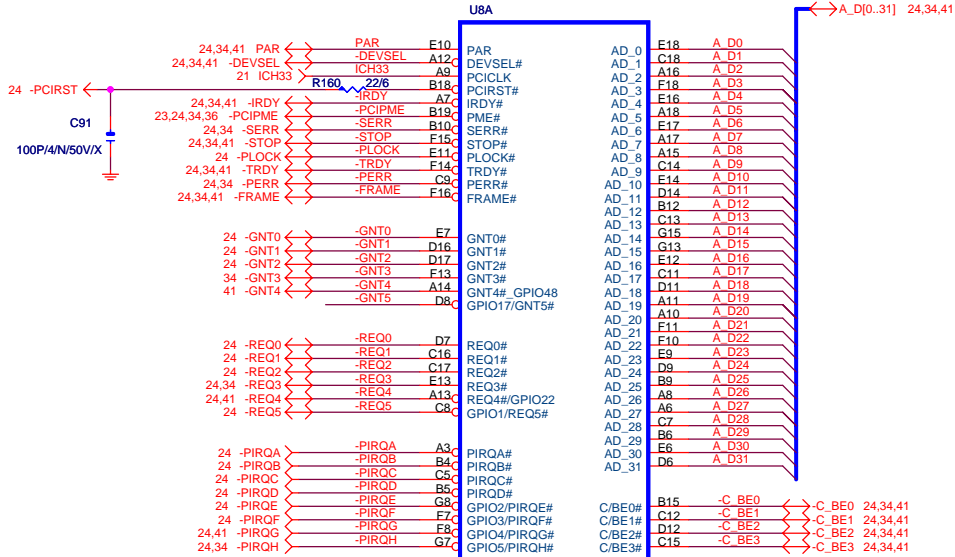
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 EXP_A_TXN[0..15] >>> EXP_A_TXN[0..15] 10

-PCIE_RST <<< -PCIE_RST 23,37
 C58 100P/4/N/50V/X
 EXP_A_RXP[0..15] >>> EXP_A_RXP[0..15] 10
 EXP_A_RXN[0..15] >>> EXP_A_RXN[0..15] 10

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



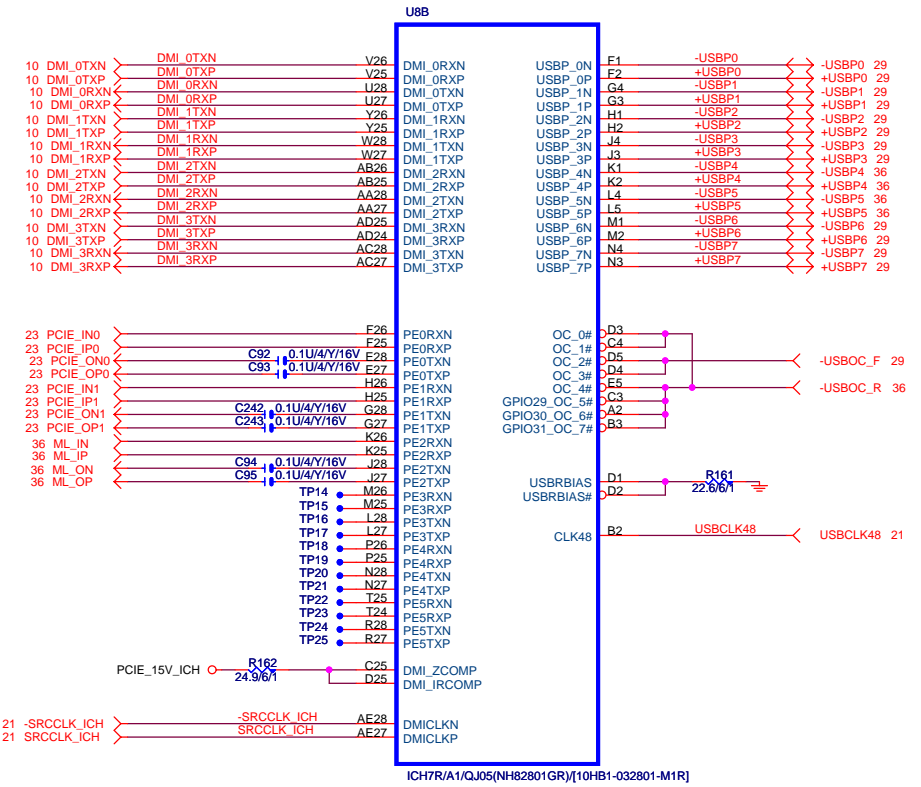
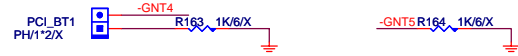
H/W
RESET



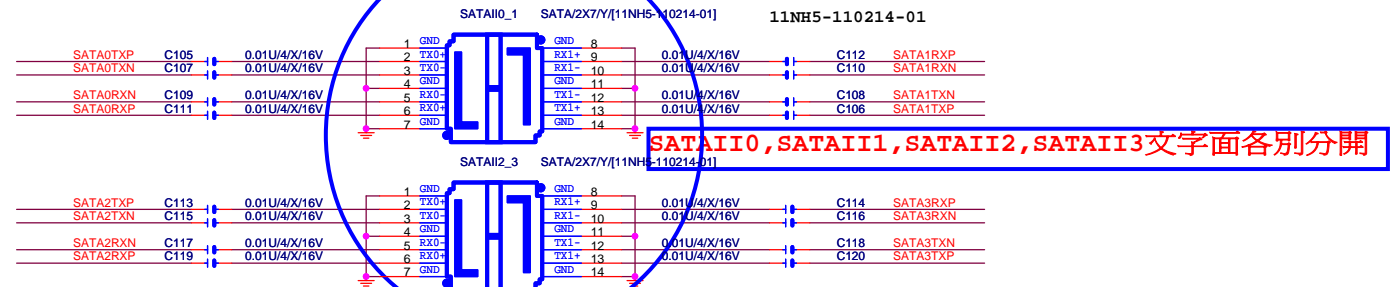
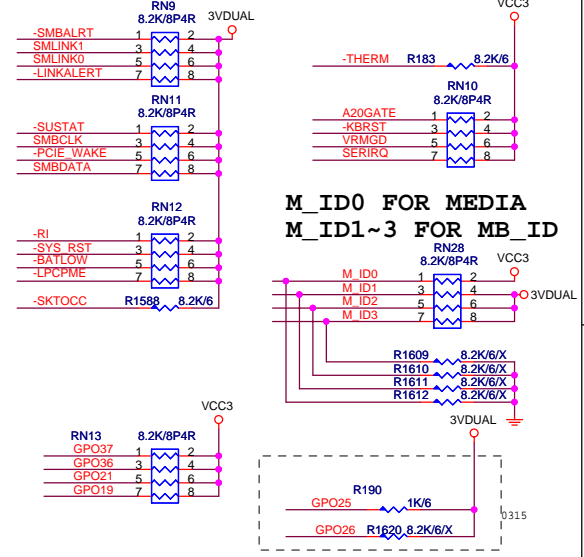
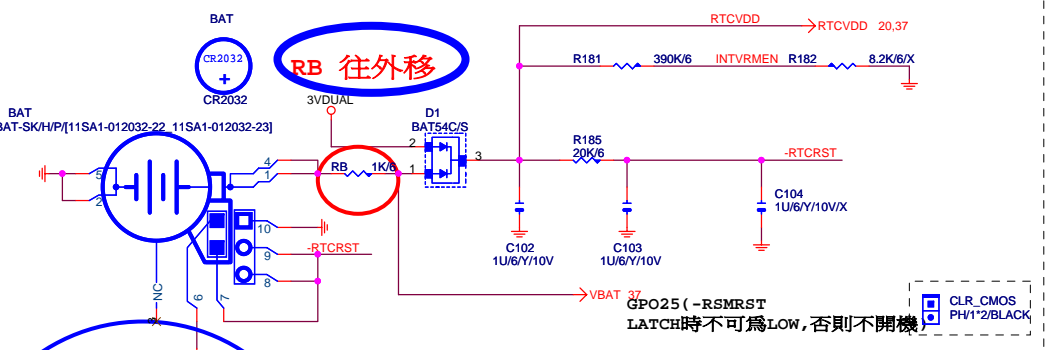
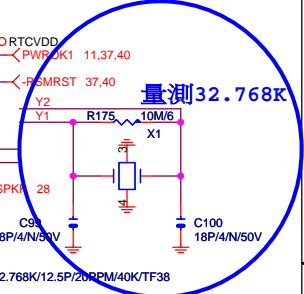
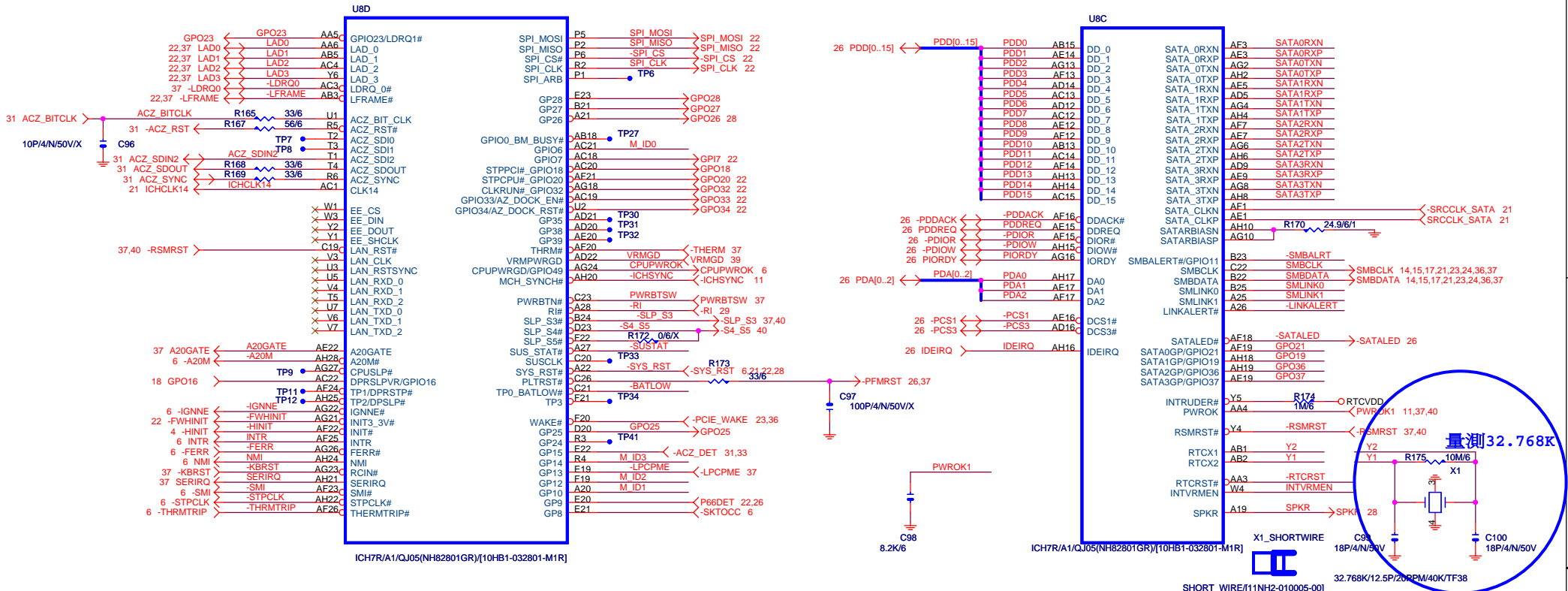
ICH7R/A1/QJ05(NH82801GR)[10HB1-032801-M1R]
10HB1-032801-M1 REV:NON

PCI_BT2: OPEN FW

CLOSE SPI

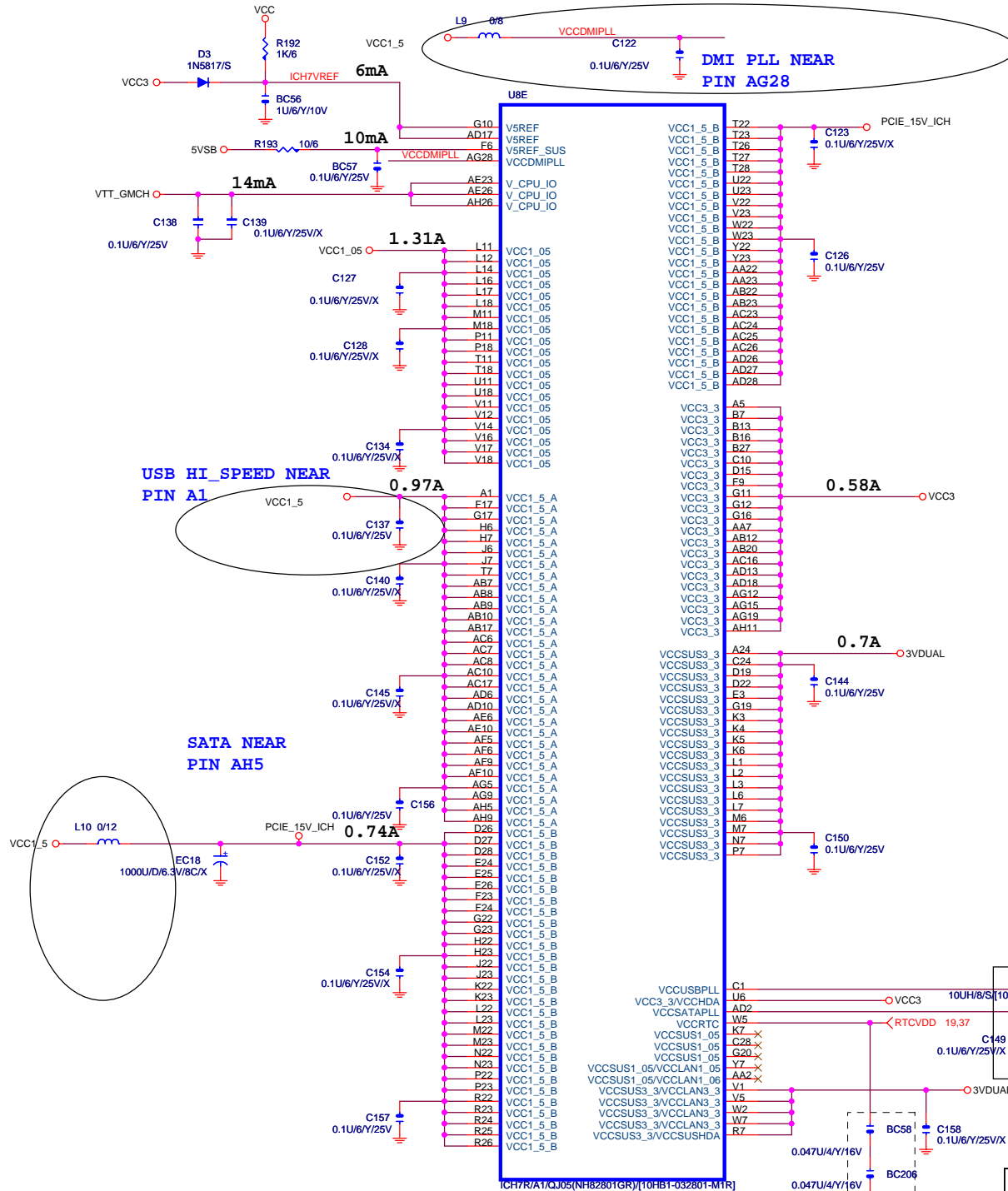


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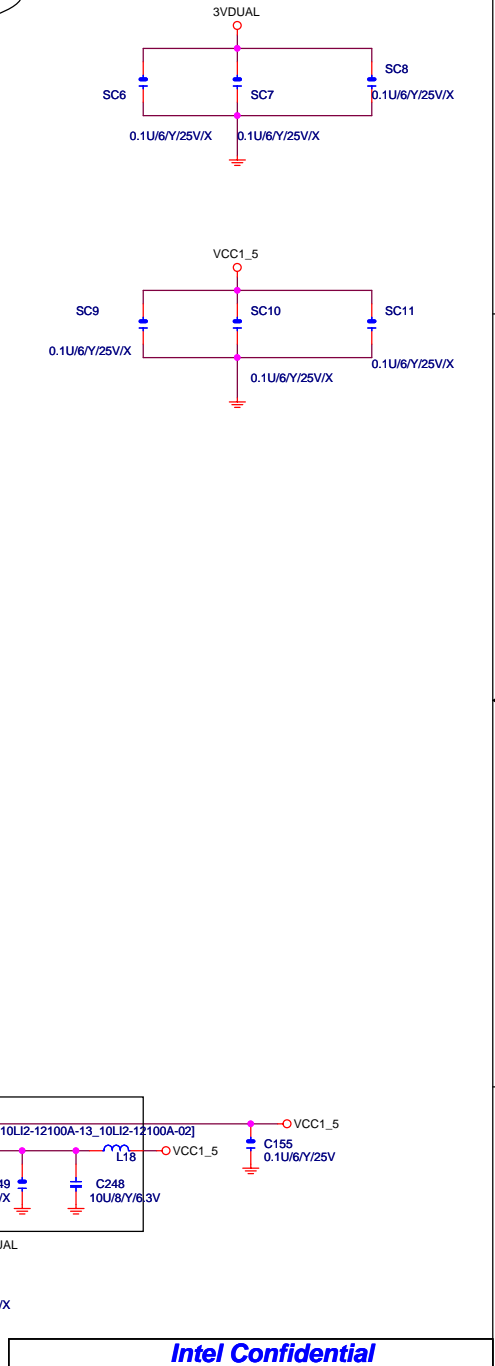


| U8F | | |
|-----|--------|------|
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| A23 | VSS2 | R15 |
| B1 | VSS3 | R16 |
| B8 | VSS4 | R17 |
| B11 | VSS5 | R18 |
| B14 | VSS6 | T8 |
| B17 | VSS7 | T12 |
| B20 | VSS8 | T13 |
| B26 | VSS9 | T14 |
| B28 | VSS10 | T15 |
| C2 | VSS11 | T16 |
| D6 | VSS12 | T17 |
| D10 | VSS13 | U4 |
| D13 | VSS14 | U12 |
| D18 | VSS15 | U13 |
| D21 | VSS16 | U14 |
| D24 | VSS17 | U15 |
| E1 | VSS18 | U16 |
| E2 | VSS19 | U17 |
| E8 | VSS20 | U24 |
| E15 | VSS21 | U25 |
| F3 | VSS22 | U26 |
| F4 | VSS23 | V2 |
| F5 | VSS24 | V13 |
| F12 | VSS25 | V15 |
| F27 | VSS26 | V24 |
| F28 | VSS27 | V27 |
| G1 | VSS28 | V28 |
| G2 | VSS29 | W6 |
| G5 | VSS30 | W24 |
| G6 | VSS31 | W25 |
| G9 | VSS32 | W26 |
| G14 | VSS33 | V3 |
| G18 | VSS34 | Y24 |
| G21 | VSS35 | Y27 |
| G24 | VSS36 | Y28 |
| G25 | VSS37 | AA1 |
| G26 | VSS38 | AA24 |
| H3 | VSS39 | AA25 |
| H4 | VSS40 | AA26 |
| H5 | VSS41 | AB4 |
| H24 | VSS42 | AB6 |
| H27 | VSS43 | AB11 |
| H28 | VSS44 | AB14 |
| J1 | VSS45 | AB16 |
| J5 | VSS46 | AB21 |
| J24 | VSS47 | AB24 |
| J25 | VSS48 | AB27 |
| J26 | VSS49 | AB28 |
| K24 | VSS50 | AC2 |
| K25 | VSS51 | AC5 |
| K28 | VSS52 | AC9 |
| L13 | VSS53 | AC11 |
| L15 | VSS54 | AD1 |
| L24 | VSS55 | AD3 |
| L25 | VSS56 | AD4 |
| L26 | VSS57 | AD7 |
| M3 | VSS58 | AD8 |
| M4 | VSS59 | AD11 |
| M5 | VSS60 | AD15 |
| M12 | VSS61 | AD19 |
| M13 | VSS62 | AD23 |
| M14 | VSS63 | AE2 |
| M15 | VSS64 | AE4 |
| M16 | VSS65 | AE8 |
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| M24 | VSS67 | AE13 |
| M27 | VSS68 | AE18 |
| M28 | VSS69 | AE21 |
| N1 | VSS70 | AE24 |
| N2 | VSS71 | AE25 |
| N5 | VSS72 | AF2 |
| N6 | VSS73 | AF4 |
| N11 | VSS74 | AF8 |
| N12 | VSS75 | AF11 |
| N13 | VSS76 | AF17 |
| N14 | VSS77 | AF24 |
| N15 | VSS78 | AF28 |
| N16 | VSS79 | AG1 |
| N17 | VSS80 | AG3 |
| N18 | VSS81 | AG7 |
| N24 | VSS82 | AG14 |
| N25 | VSS83 | AG17 |
| N26 | VSS84 | AG20 |
| P3 | VSS85 | AG25 |
| P4 | VSS86 | AH1 |
| P12 | VSS87 | AH3 |
| P13 | VSS88 | AH7 |
| P14 | VSS89 | AH12 |
| P15 | VSS90 | AH23 |
| P16 | VSS91 | AH27 |
| P17 | VSS92 | C27 |
| P24 | VSS93 | E4 |
| P27 | VSS94 | AG11 |
| P28 | VSS95 | |
| P29 | VSS96 | |
| R1 | VSS97 | |
| R11 | VSS98 | |
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ICH7R/A1/QJ05(NH82801GR)[10HB1-032801-M1R]

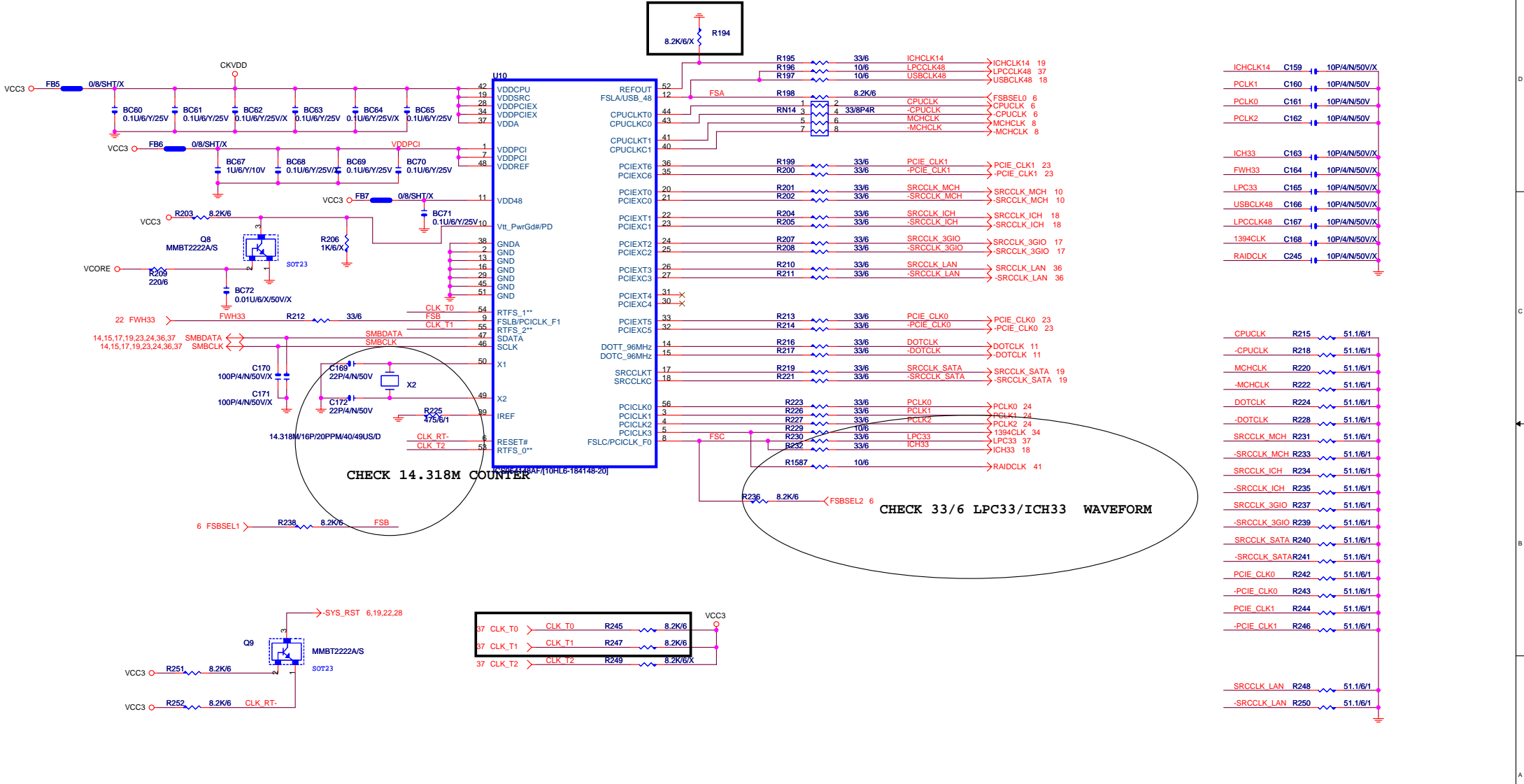


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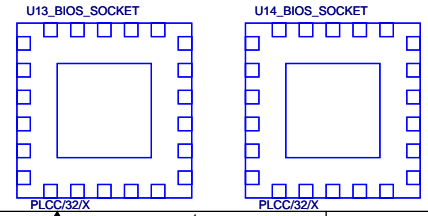
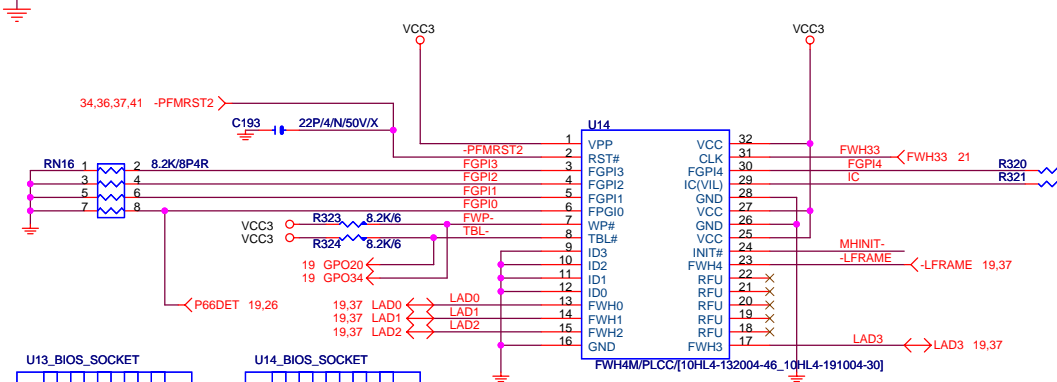
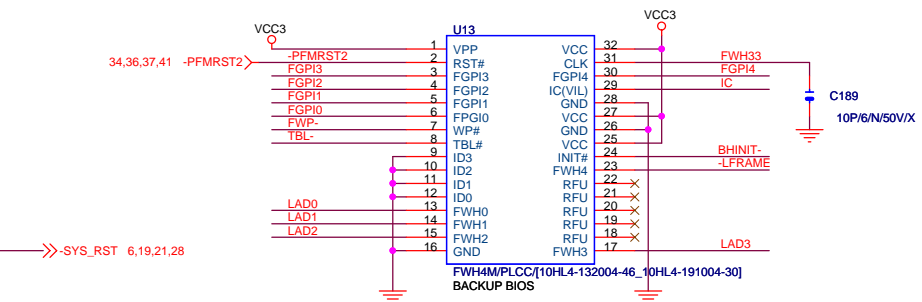
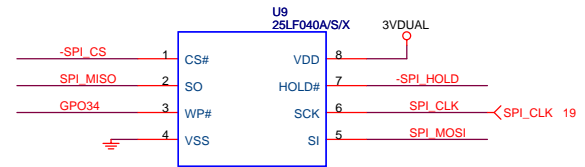
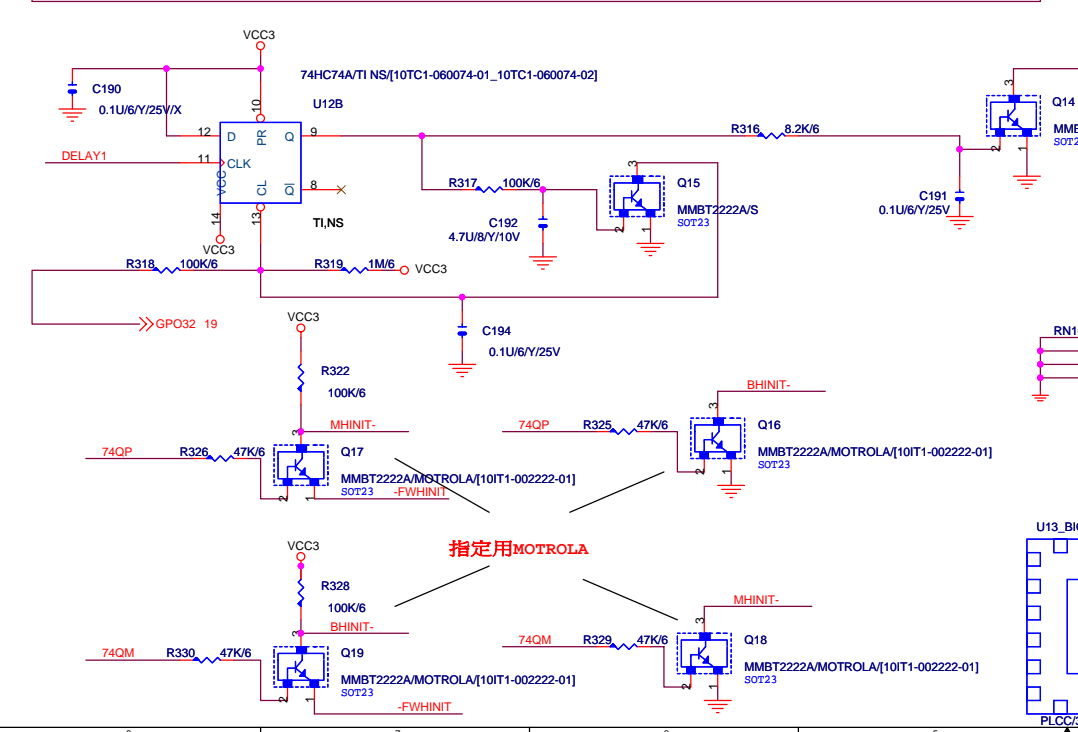
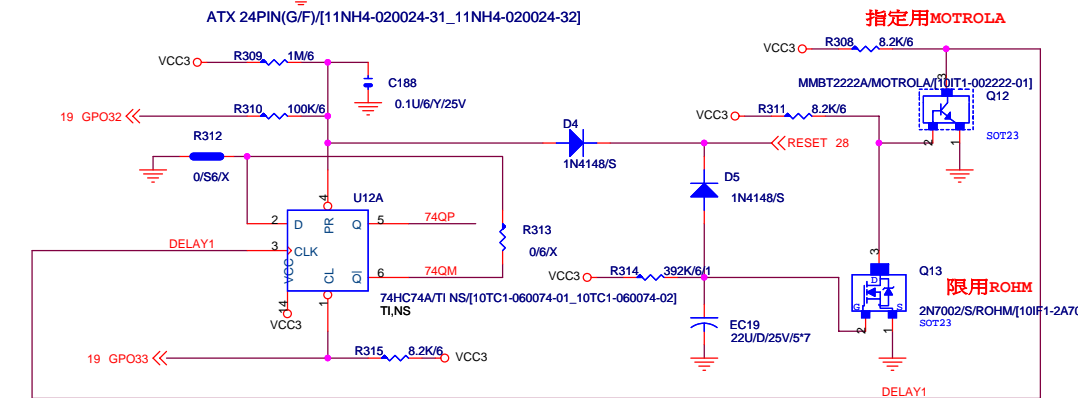
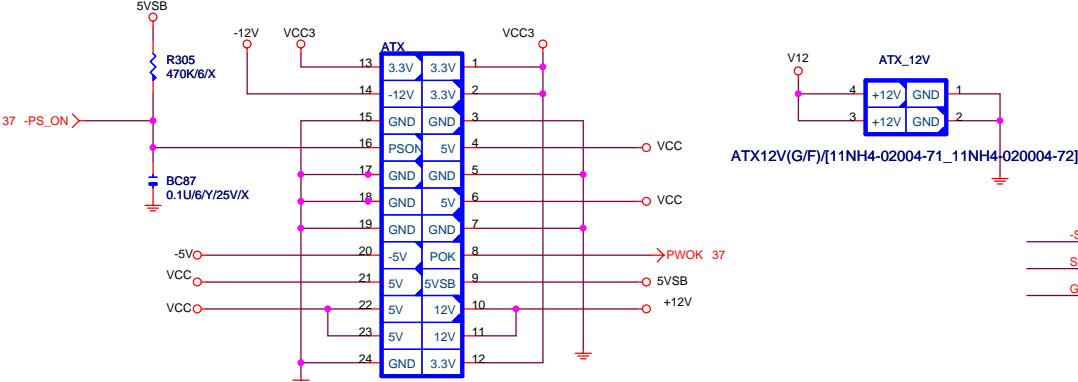
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| Intel Confidential | | |
| Title: ICH6-PWR & GND | | |
| Size: B | Document Number: 81945G-PRO | Rev: 1.0 |
| Date: Thursday, April 21, 2005 | Sheet: 20 | of 44 |

GSEL=1, DOT FREQ=96MHZ
 GSEL=0, DOT FREQ=100MHZ



| | | |
|---------------------------|--------------------------|----------------|
| Intel Confidential | | |
| ICS954148AF | | |
| Size Custom | Document Number | Rev 1.0 |
| 81945G-PRO | | |
| Date: | Thursday, April 21, 2005 | Sheet 21 of 44 |

ATX POWER CONNECTOR

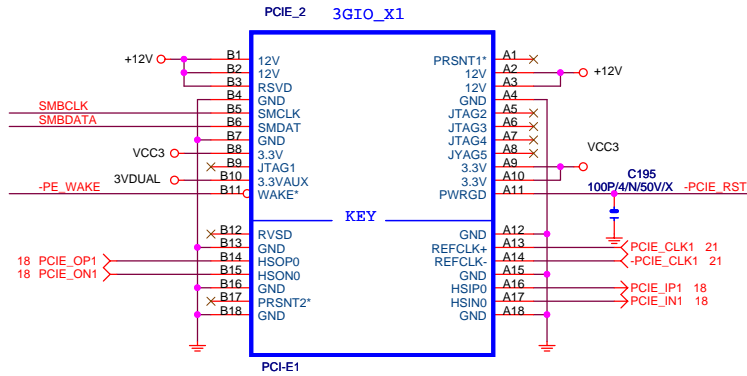
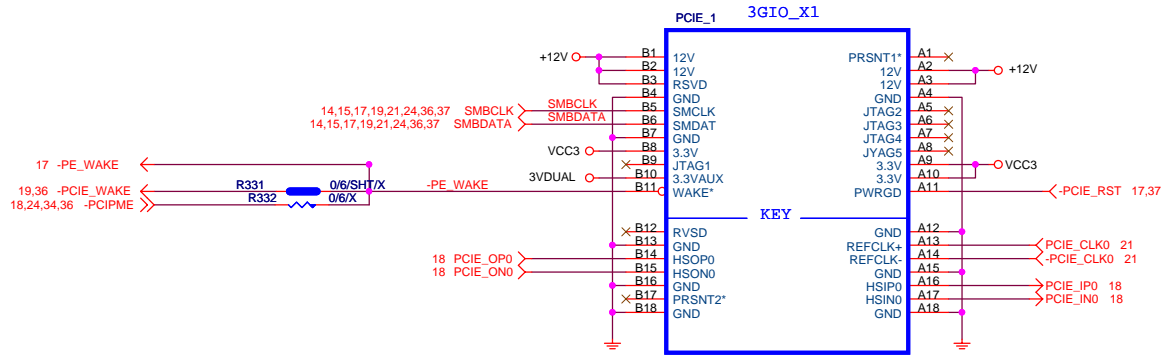


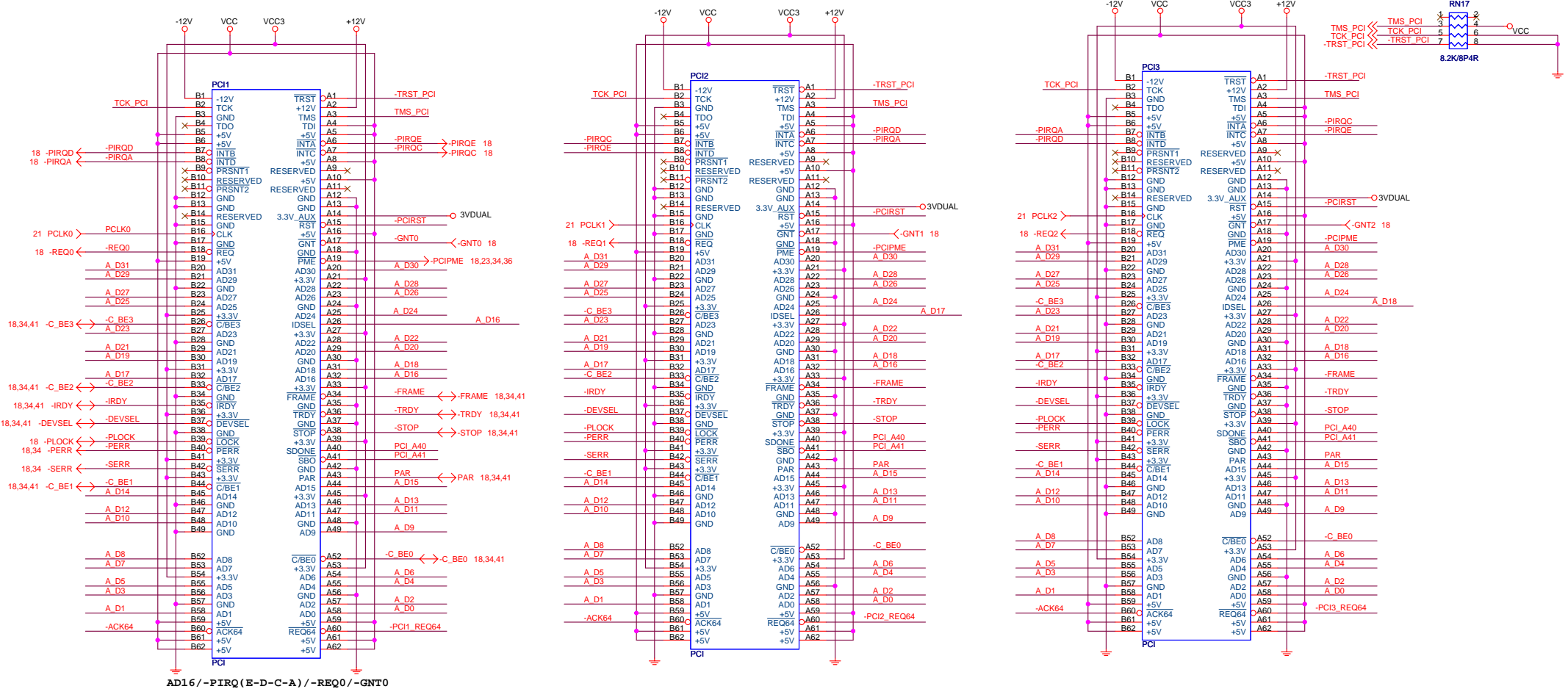
GIGABYTE

Title: **ATX POWER CONNECTOR, DUAL BIOS**

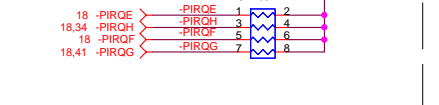
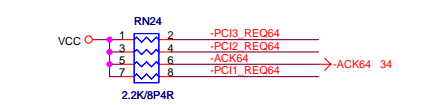
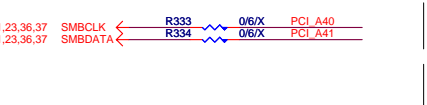
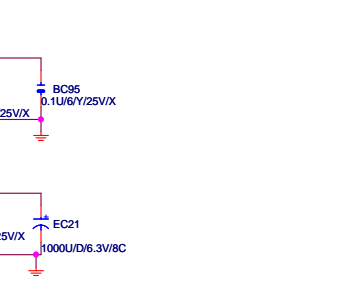
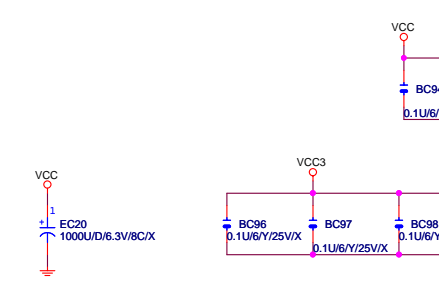
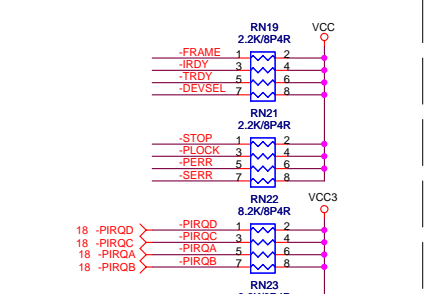
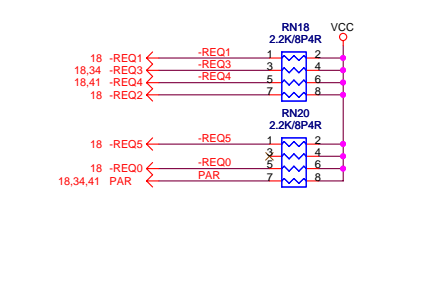
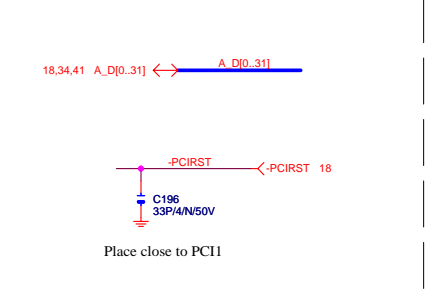
Size B: Document Number **81945G-PRO** Rev **1.0**

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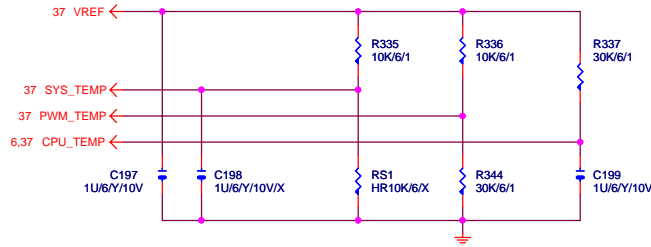
AD16 / -PIRQ (E-D-C-A) / -REQ0 / -GNT0



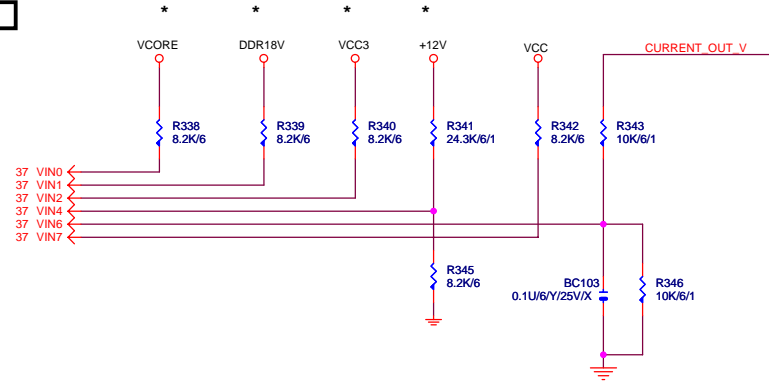
Intel Confidential

| | | |
|-----------------------------------|--------------------------------------|-------------------|
| PCI SLOT 1, 2 | | Rev 1.0 |
| Size Custom | Document Number 81945G-PRO | |
| Date: Thursday, April 21, 2005 | Sheet 24 | of 44 |

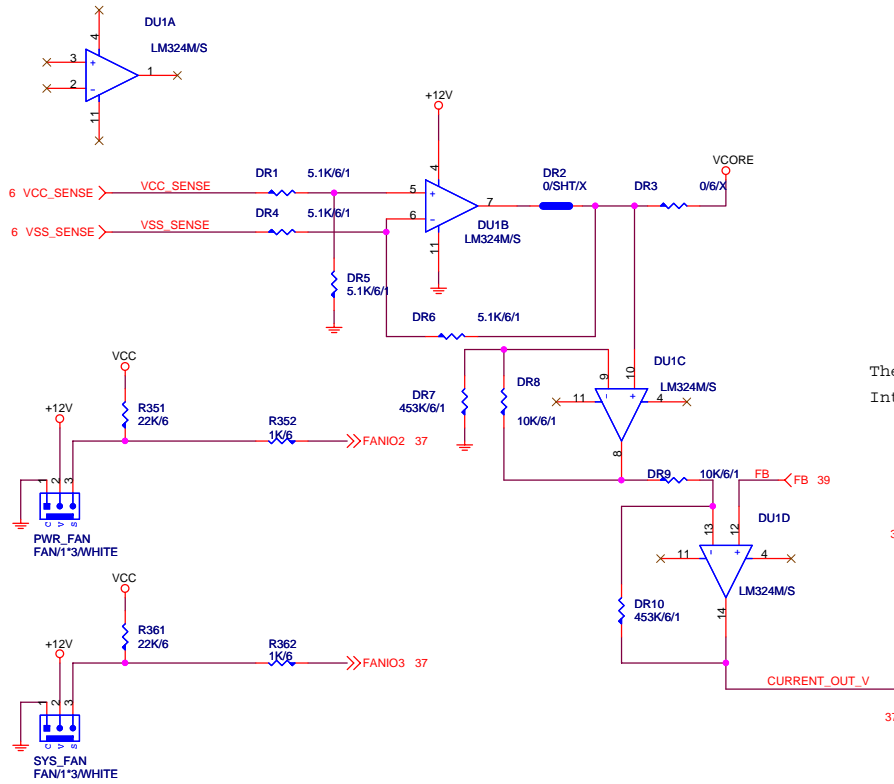
TEMP. SENSE



VOLTAGE SENSE



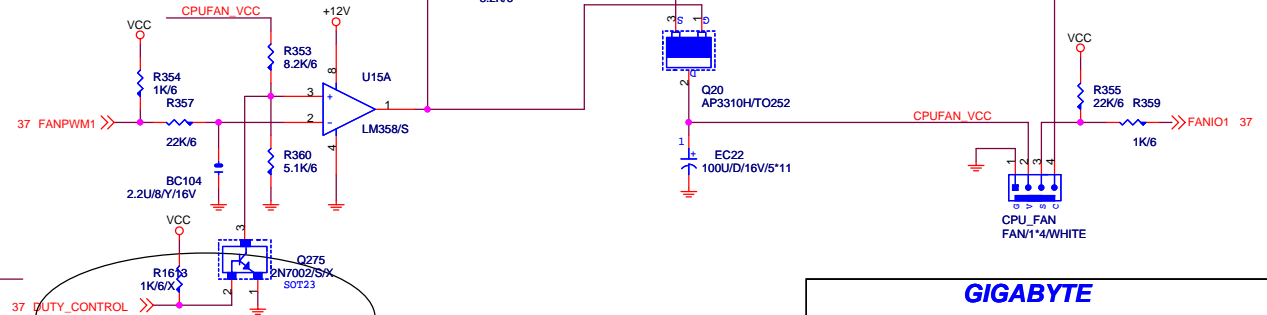
DUAL POWER



CPU/SYS FAN

| CPUFAN_VCC | Temp (non airflow) | Temp (with airflow) |
|------------|--------------------|---------------------|
| 12V | Temp=40 deg | Temp=33 deg |
| 11V | Temp=82 deg | Temp=62 deg |
| 10V | Temp=70 deg | Temp=86 deg |
| 9V | Temp=110 deg | Temp=117 deg |
| 8V | Temp>200 deg | Temp>122 deg |

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



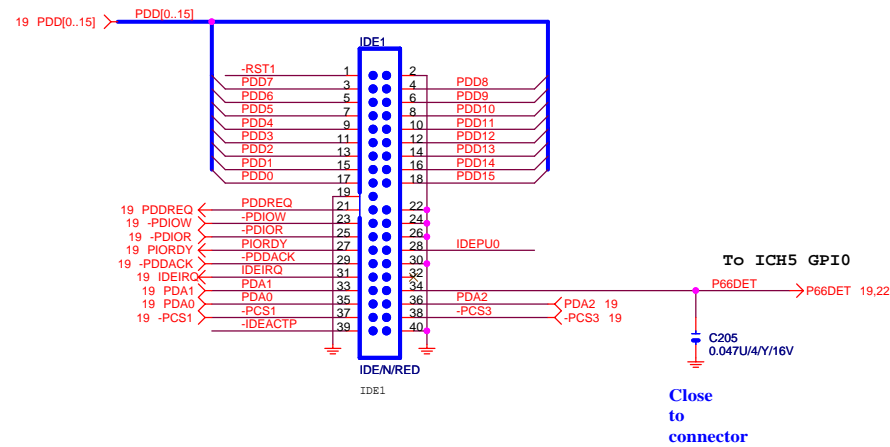
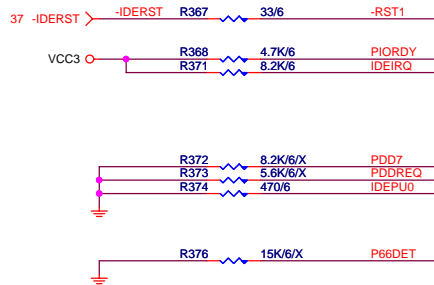
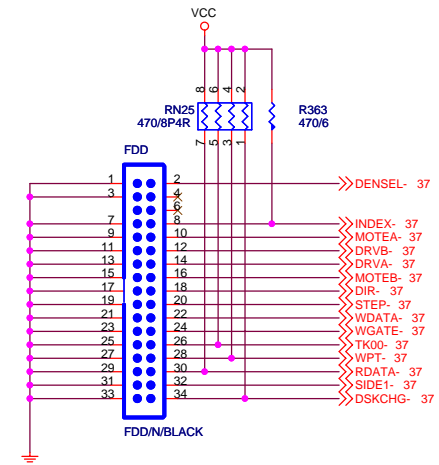
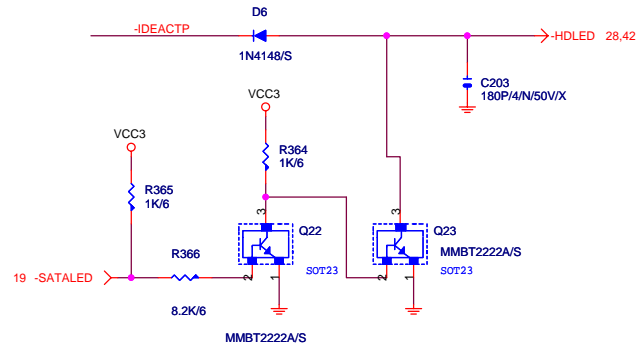
default is high
 gpiox pin 可以 3.3v or 5v
 if 3pin fan 則開機後將 program is low

GIGABYTE

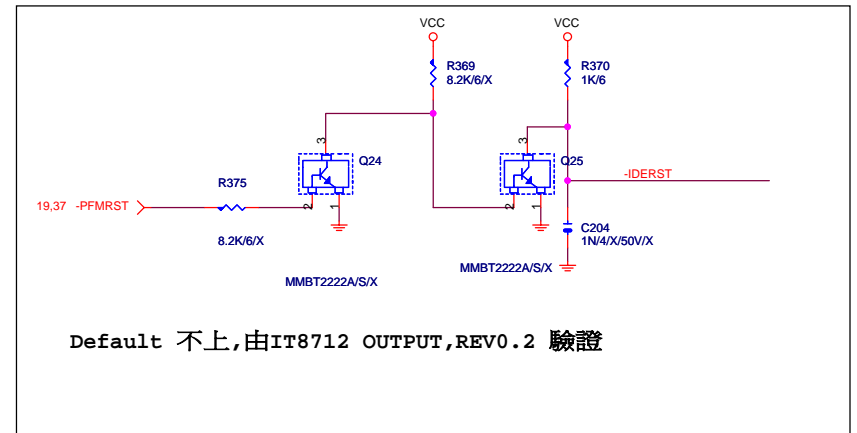
Title: **HWM/FAN/C/BIOS**

Size Custom: Document Number **8I945G-PRO** Rev **1.0**

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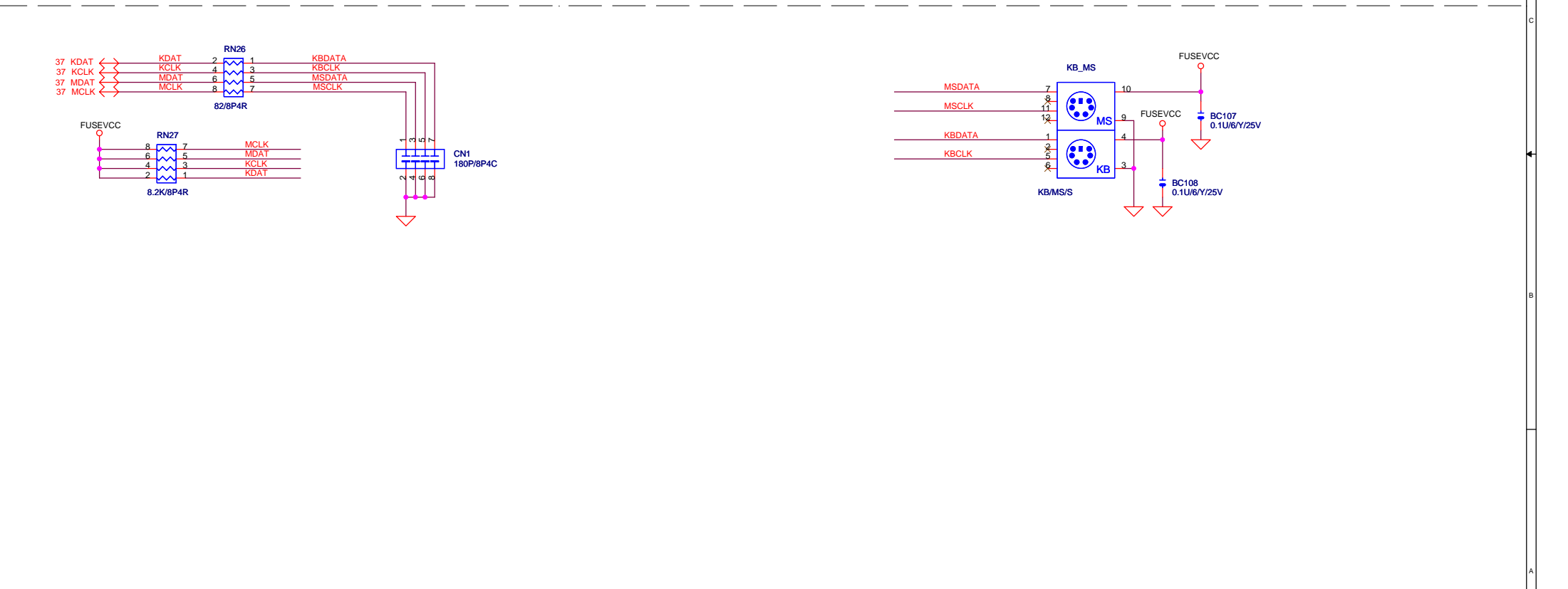
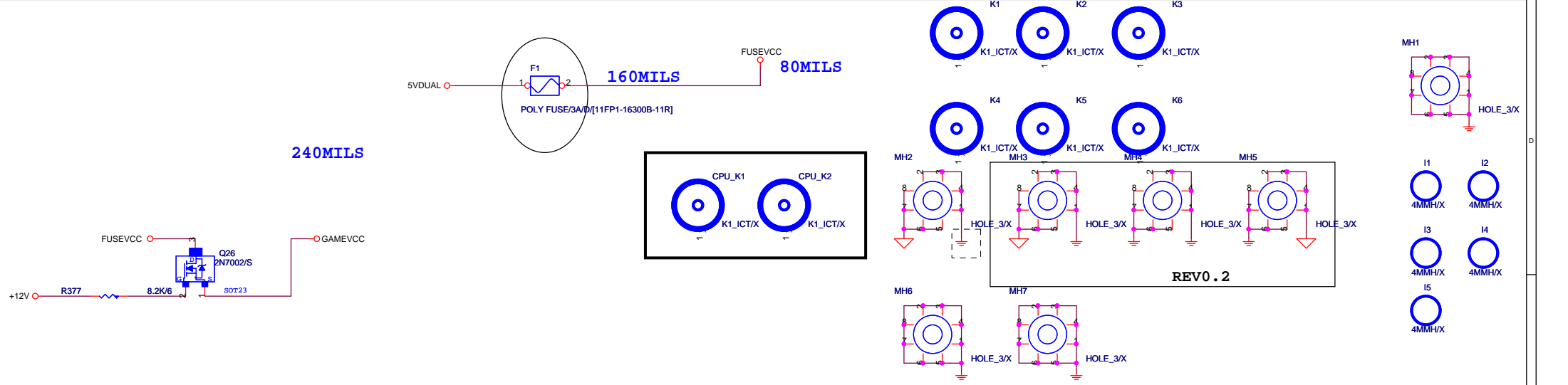
PRIMARY IDE CONNECTOR



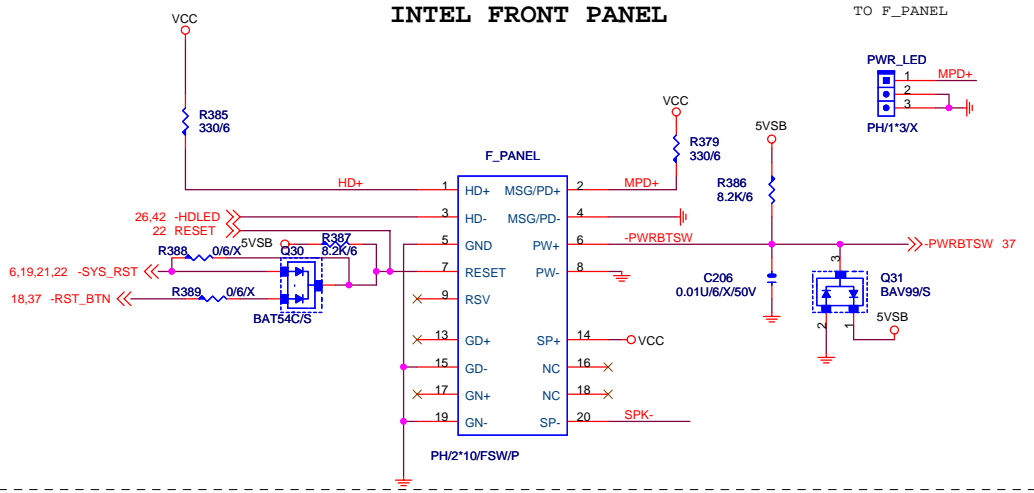
Default 不上,由IT8712 OUTPUT,REV0.2 驗證

Intel Confidential

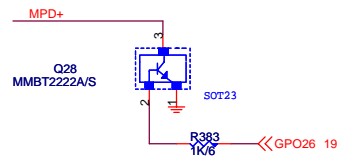
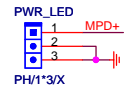
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|--------|--------------------------|------------|----------|
| Title | | IDE | |
| Size B | Document Number | 81945G-PRO | |
| Date | Thursday, April 21, 2005 | Sheet | 26 of 44 |
| | | Rev | 1.0 |



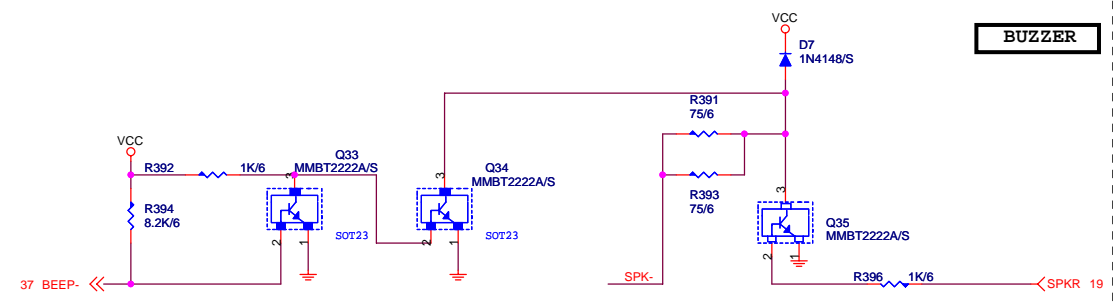
INTEL FRONT PANEL



3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL

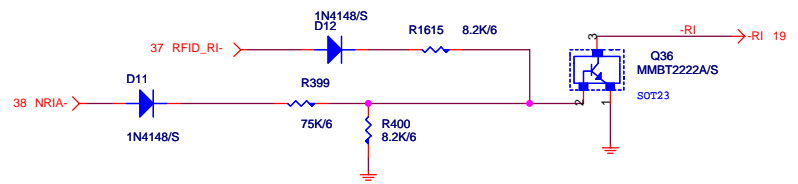
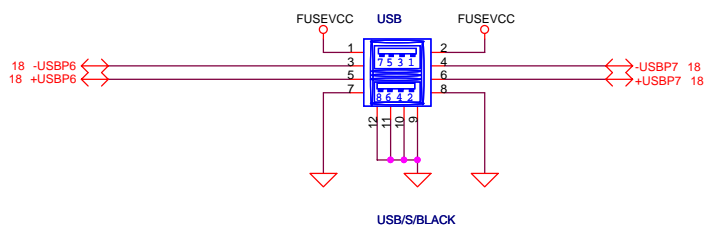
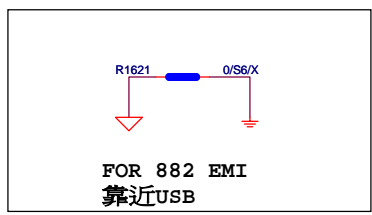
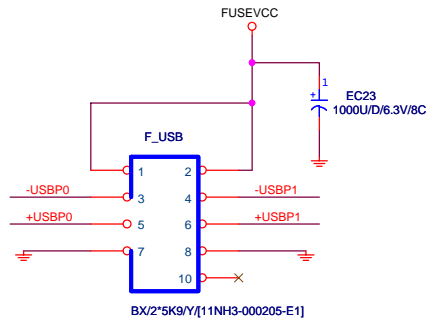
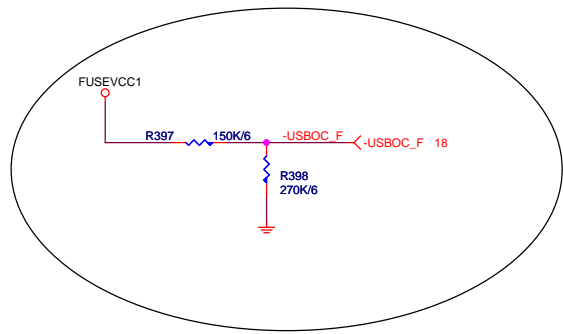
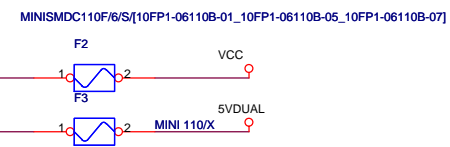
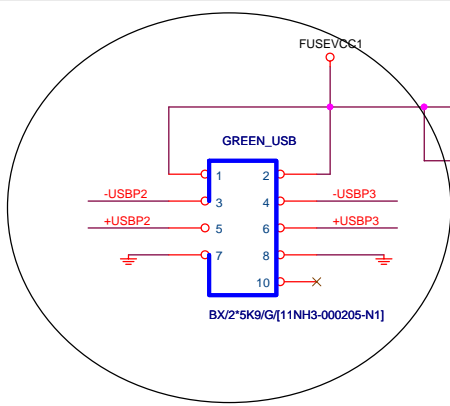


BUZZER

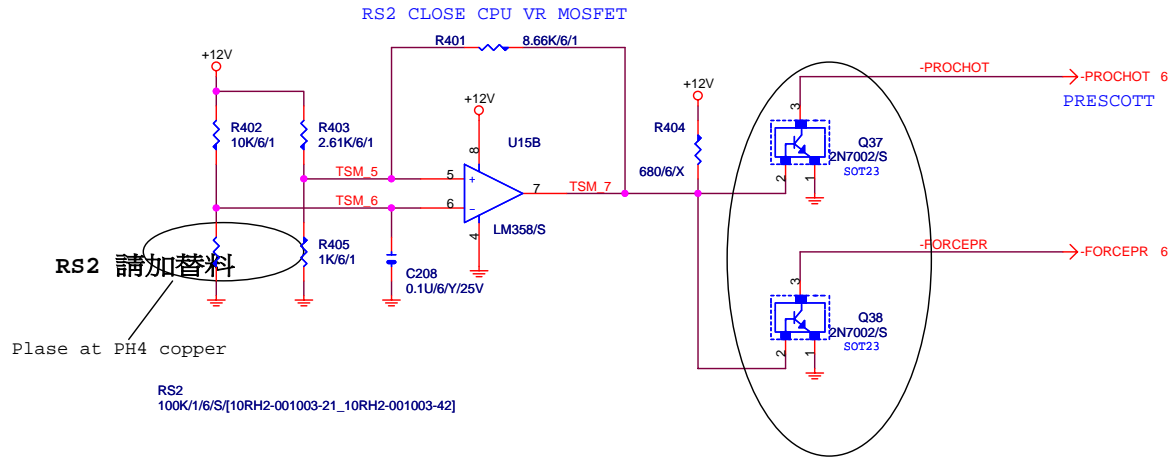


| | | | |
|---------------------------|--------------------------|-------------------|----------------|
| Intel Confidential | | | |
| FRONT PANEL | | | |
| Size | Document Number | 81945G-PRO | |
| Custom | | | Rev 1.0 |
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FRONT USB

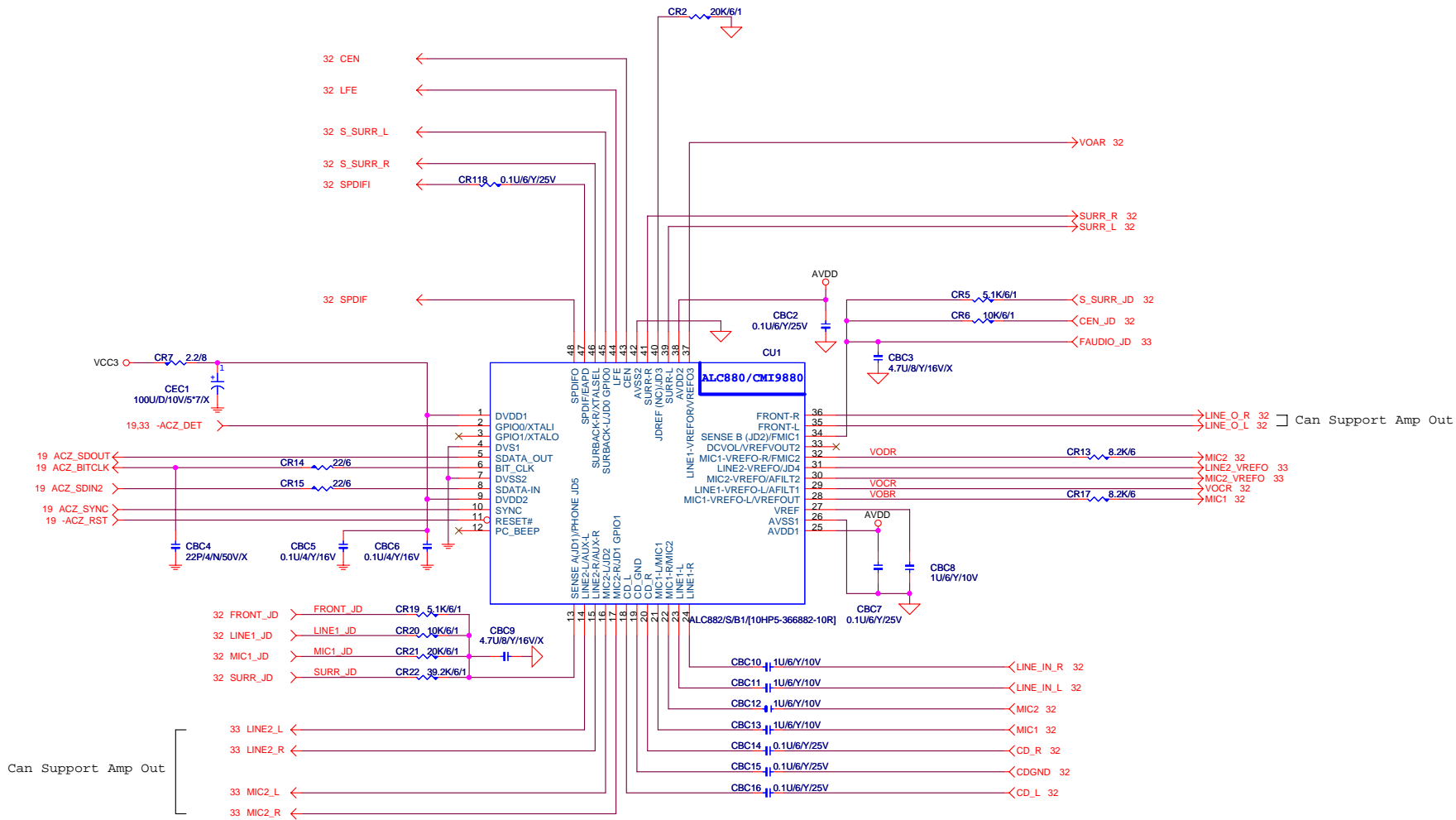


asserted at 131 degree
deasserted at 116 degree



Intel Confidential

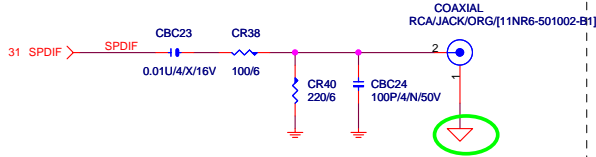
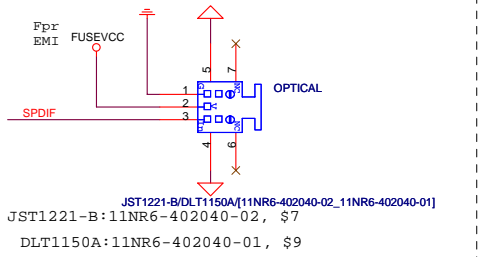
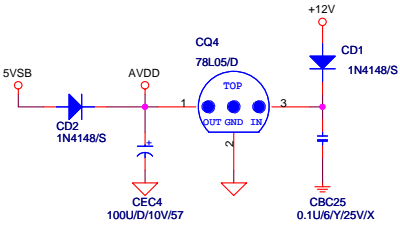
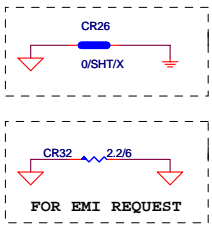
| | | |
|-------------|--------------------------|----------------|
| Title | | |
| FAN CONTROL | | |
| Size B | Document Number | Rev |
| | 81945G-PRO | 1.0 |
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Can Support Amp Out

Intel Confidential

| | | |
|--------------------|--------------------------|----------------|
| Title | | |
| AC97 ALC658 | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
| Date: | Thursday, April 21, 2005 | Sheet 31 of 44 |



LINE OUT FRONT OUT



LINE-IN



MIC



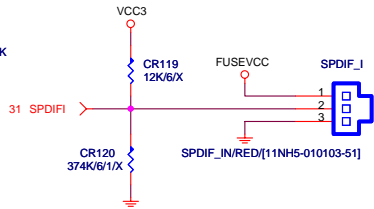
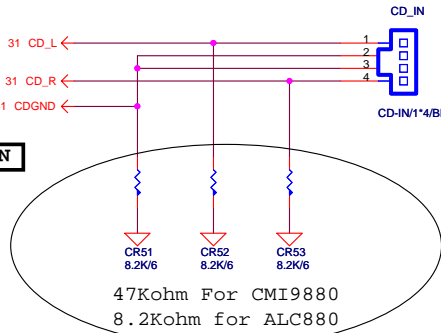
SURROUND



CEN/LFE



SURR BACK



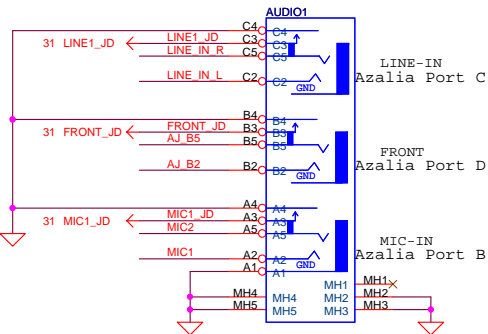
Azalia Jack

Normal --> pin4/pin3 open

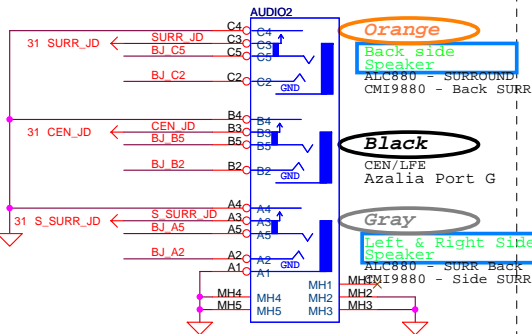
Plug jack --> pin4/pin3 close

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

ALC880 Port A is SURROUND, Port H is SIDE



A3RJ/13P/B/[11NR6-403006-01_11NR6-403006-02]



A3RJ/13P/OB/[11NR6-403006-71]

Orange
Back side Speaker
ALC880 - SURROUND
CMI9880 - Back SURR

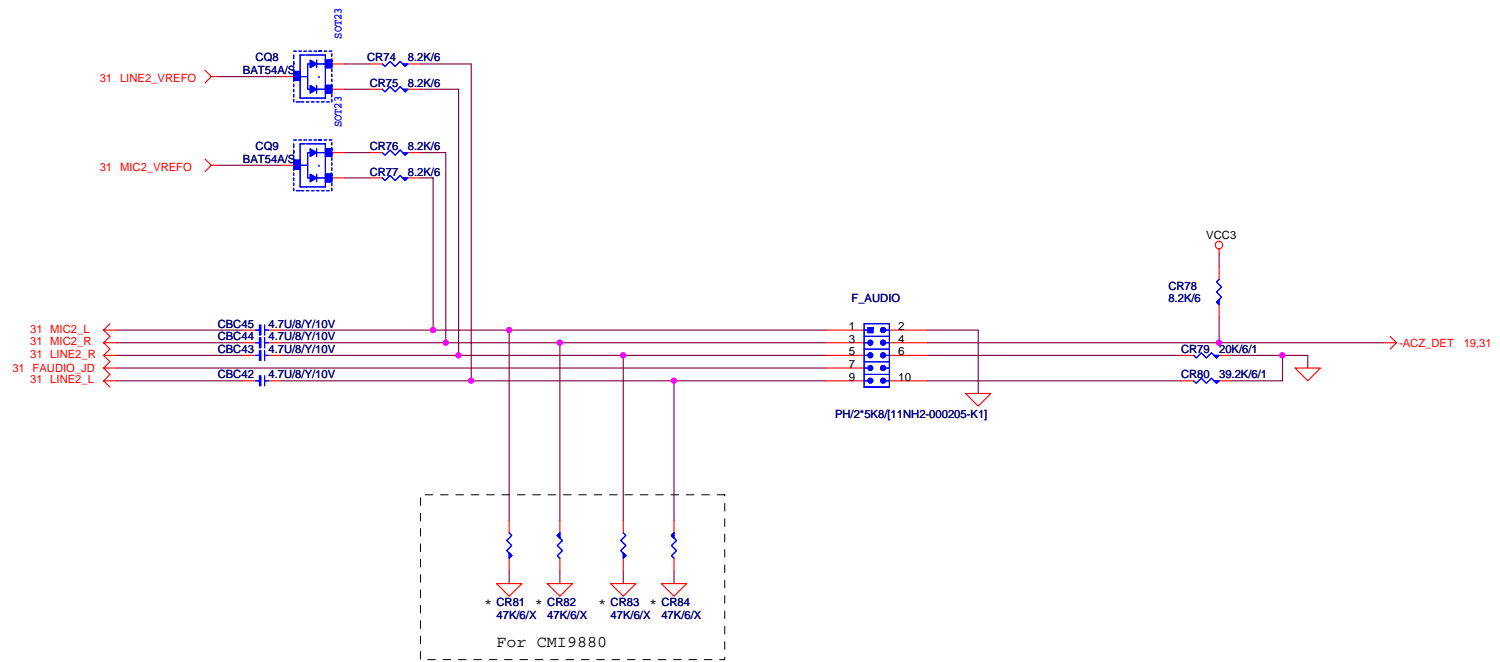
Black
CEN/LFE
Azalia Port G

Gray
Left & Right Side Speaker
ALC880 - SURR Back or SIDE
CMI9880 - Side SURR

Intel Confidential

| | | | | | |
|--------|--------------------------|------------|------------|----|-----|
| Title | | | AUDIO JACK | | |
| Size | Document Number | 81945G-PRO | | | Rev |
| Custom | | | | | 1.0 |
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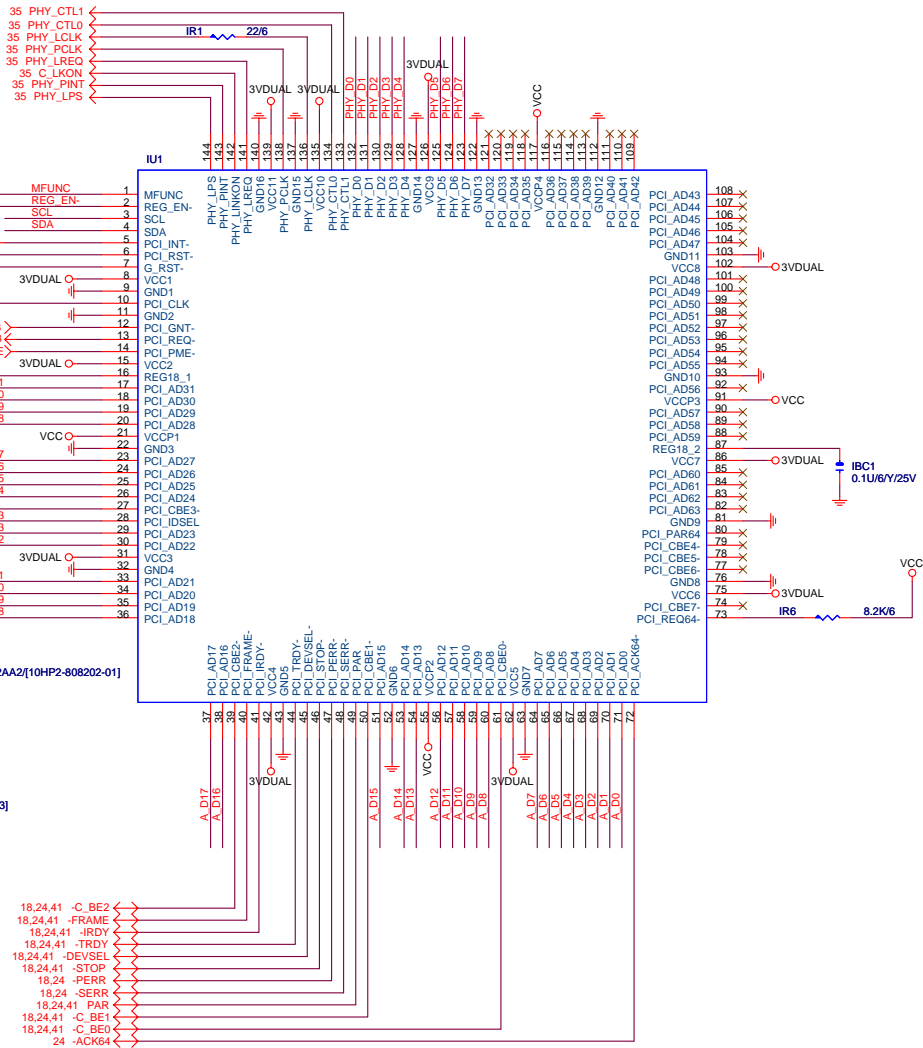
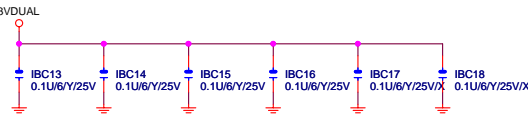
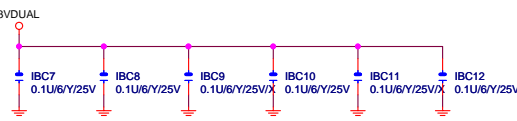
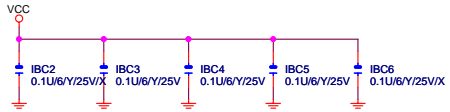
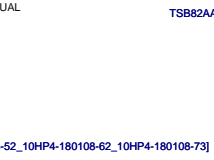
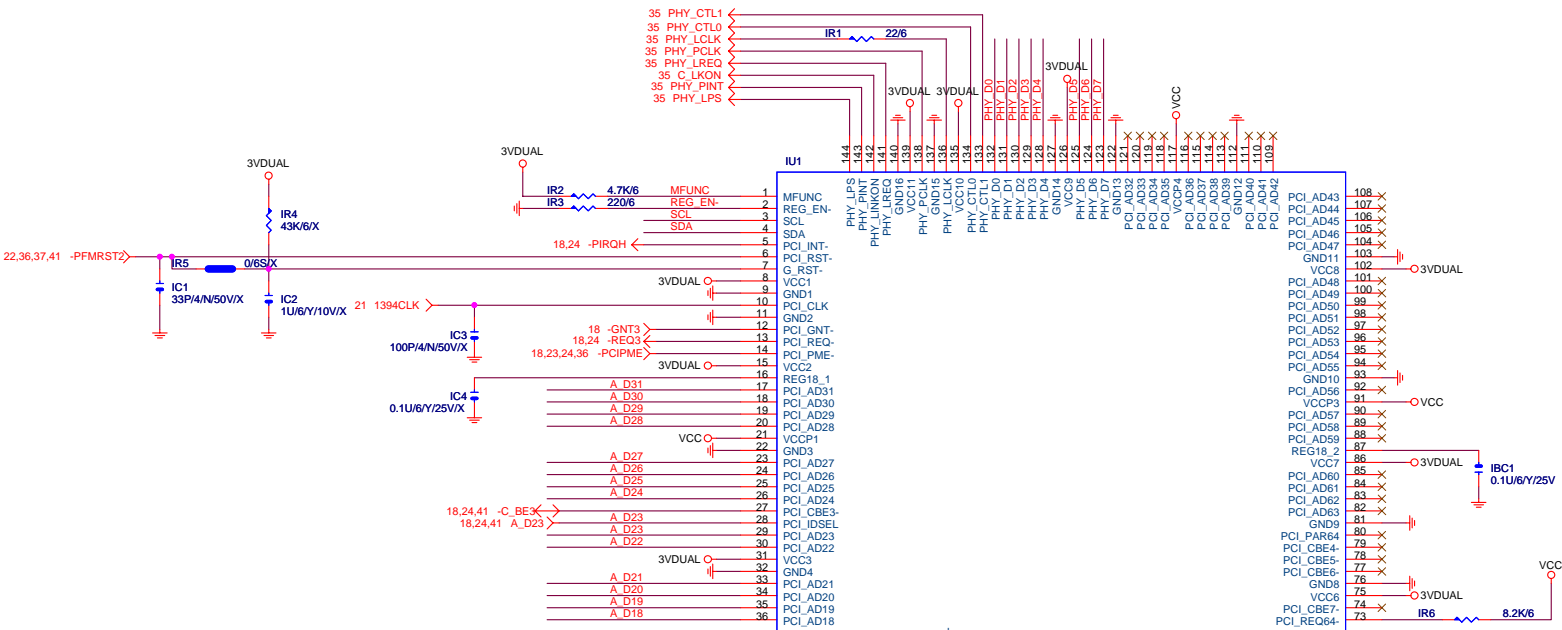
Azalia Port F
Azalia Port E



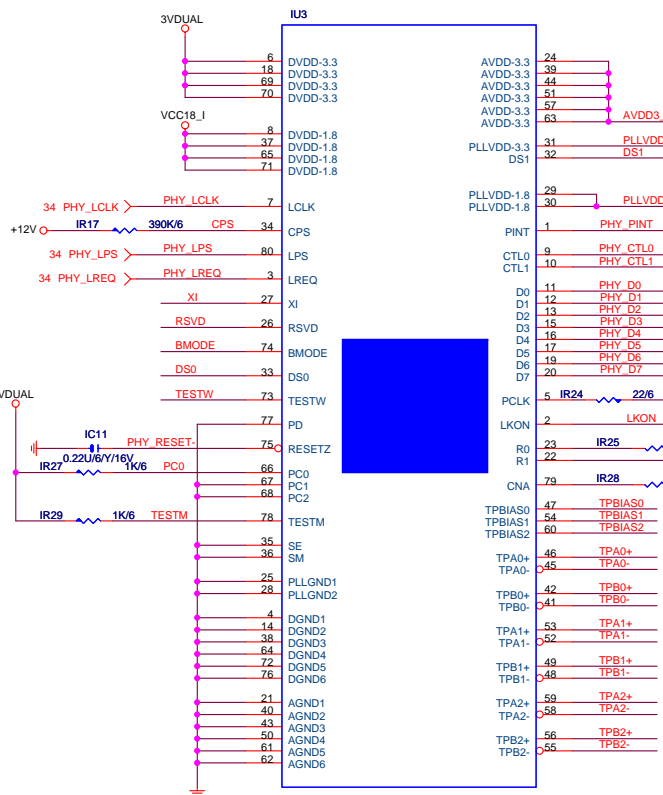
Intel Confidential

| | | |
|------------------------------|--------------------------|----------------|
| Title | | |
| FRONT AUDIO CONNECTOR | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
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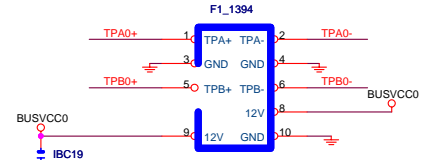
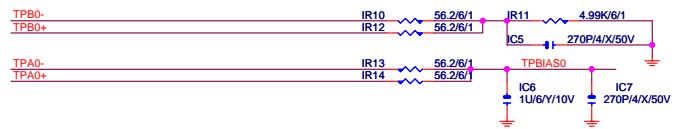
18,24,41 A_D[0..31] ← A_D[0..31]
 35 PHY_D[0..7] ← PHY_D[0..7]



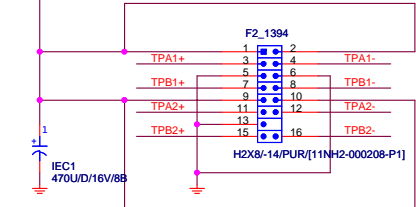
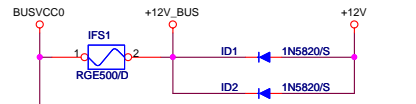
| | | |
|-------------------------|--------------------------|------------------------------|
| GIGABYTE | | |
| Title | | |
| T11394b(CHEETAH) | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
| Date: | Thursday, April 21, 2005 | Sheet 34 of 44 |



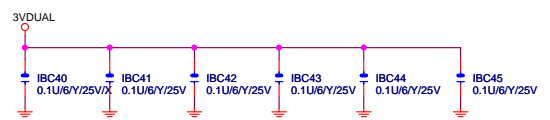
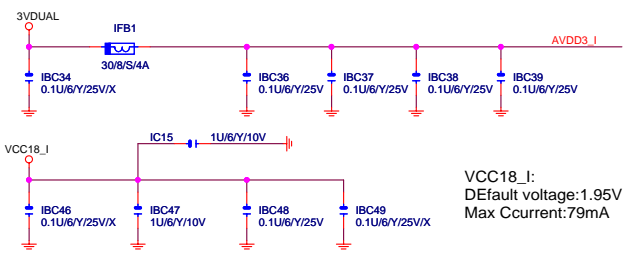
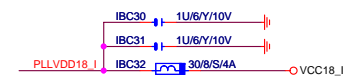
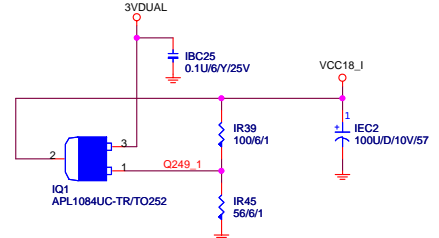
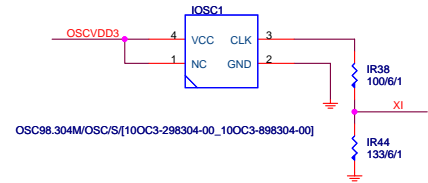
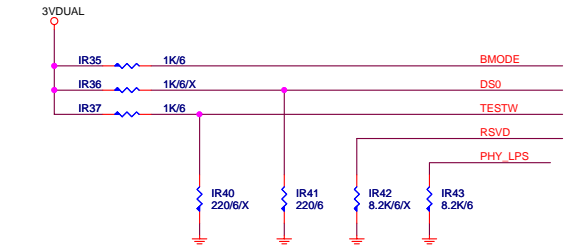
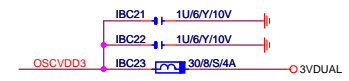
Width & Space --> 20:7.5:7.5:7.5:20



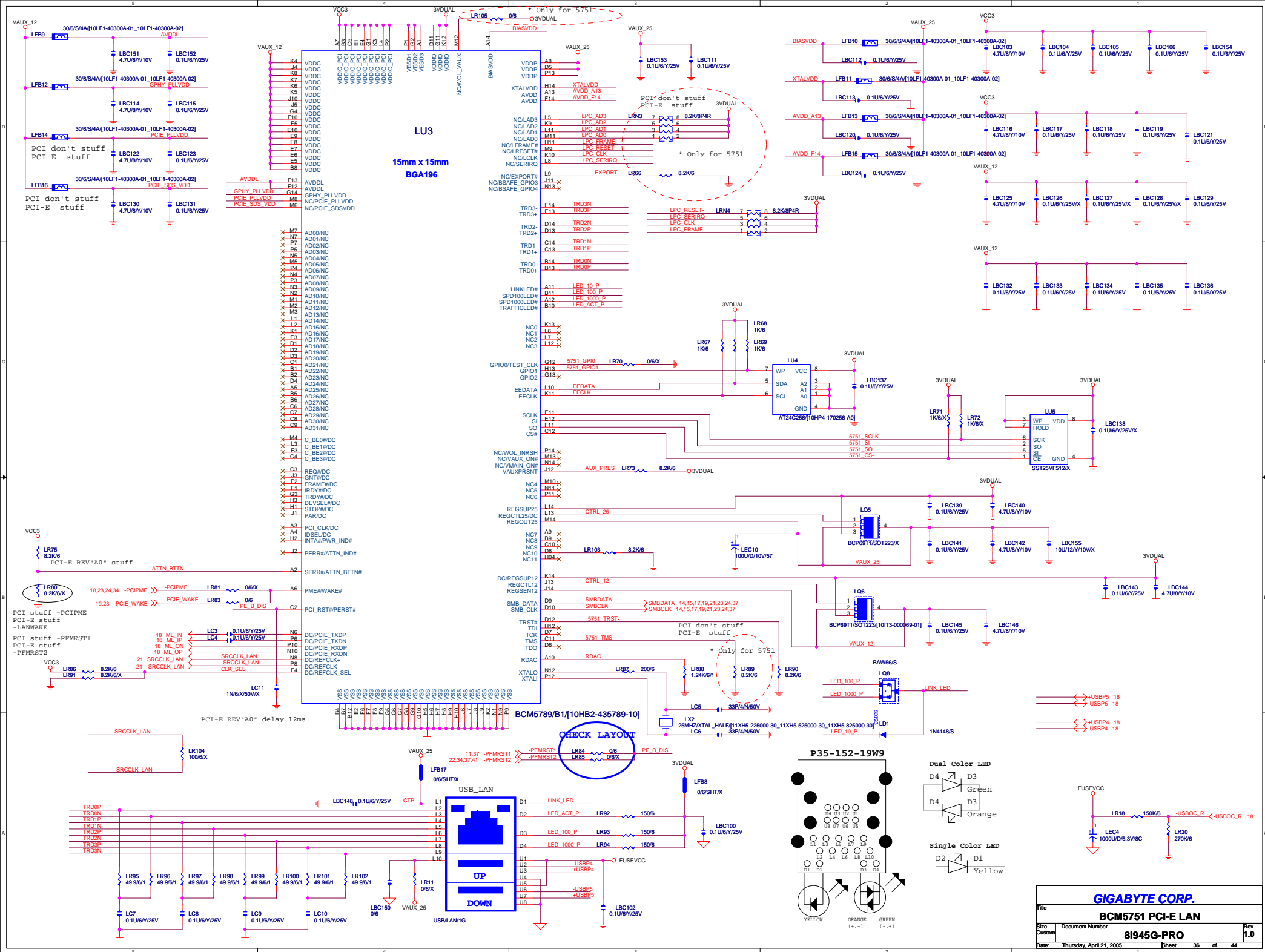
Width & Space --> 20:5:6:5:20



Width & Space --> 20:5:6:5:20



| | | |
|-------------------------|--------------------------|----------------|
| GIGABYTE | | |
| Ti1394B/TSB81BA3 | | |
| Title | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
| Date: | Thursday, April 21, 2005 | Sheet 35 of 44 |

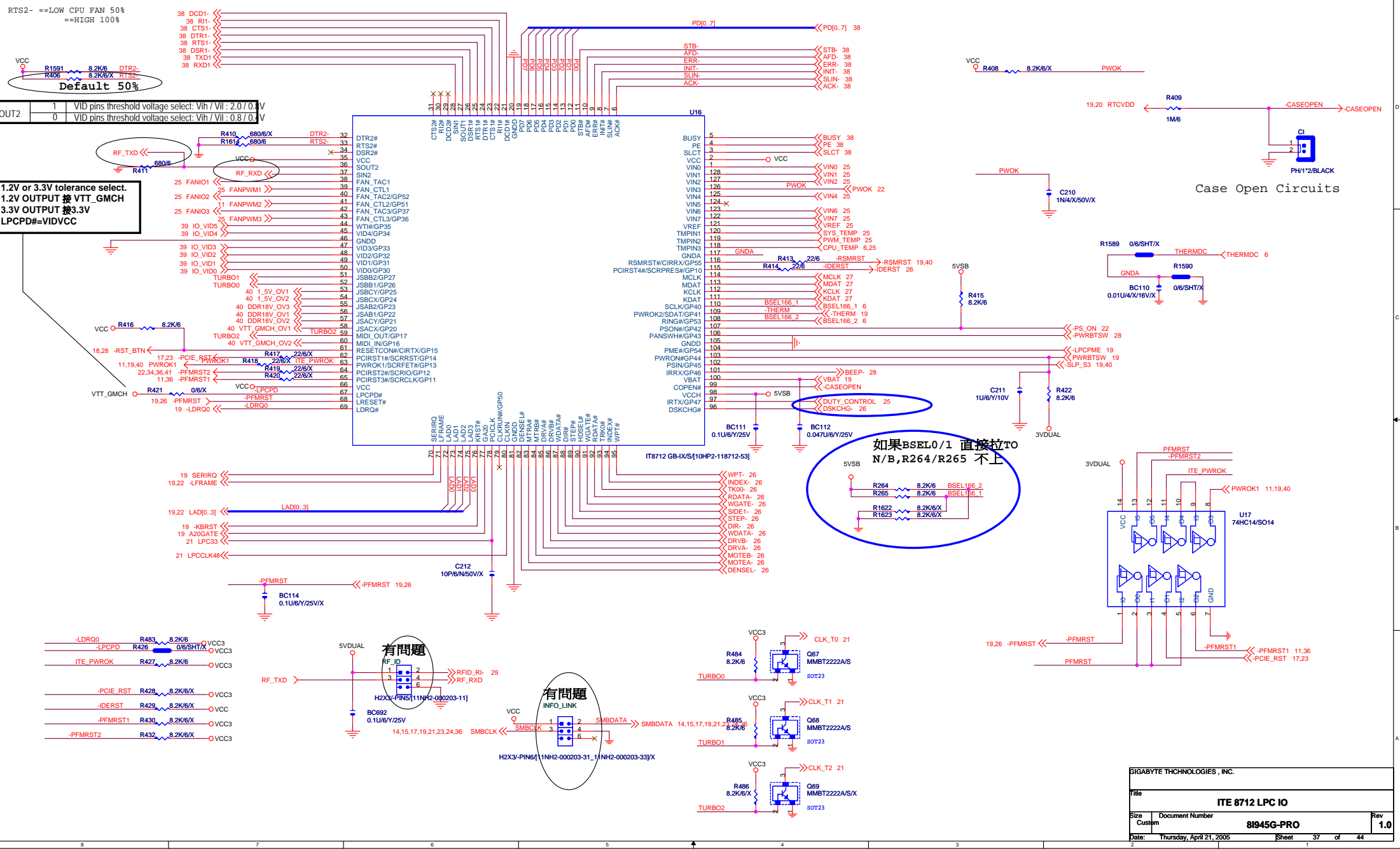


RTS2- ==LOW CPU FAN 50%
 ==HIGH 100%

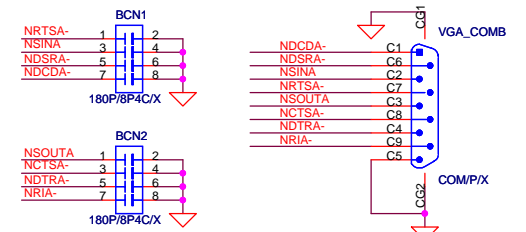
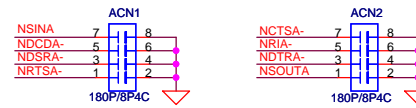
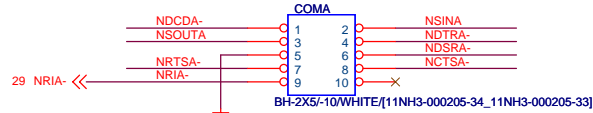
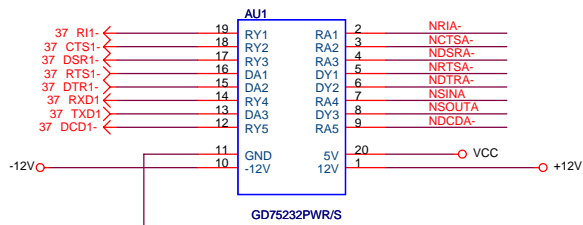
Default 50%

| | | |
|-------|---|--|
| SOUT2 | 1 | VID pins threshold voltage select: Vih / Vil : 2.0 / 0.0 V |
| | 0 | VID pins threshold voltage select: Vih / Vil : 0.8 / 0.0 V |

1.2V or 3.3V tolerance select.
 1.2V OUTPUT 接 VTT_GMCH
 3.3V OUTPUT 接 3.3V
 LPCPD#=#VIDVCC

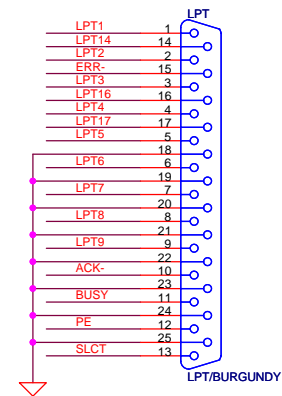
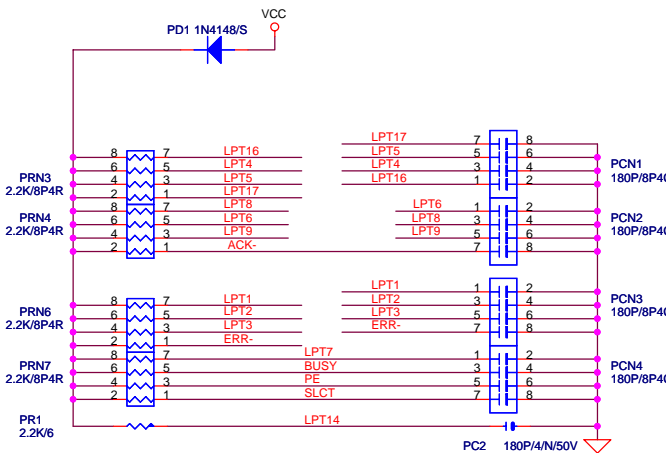
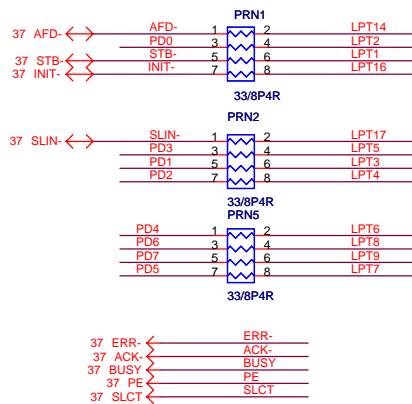


| | | |
|------------------------------|--------------------------|----------------|
| SILIGABYTE THCNHLOGIES, INC. | | |
| Title | | |
| ITE 8712 LPC IO | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
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PLACE NEAR VGA_COM CONNECTOR

37 PD[0..7] ← PD[0..7]

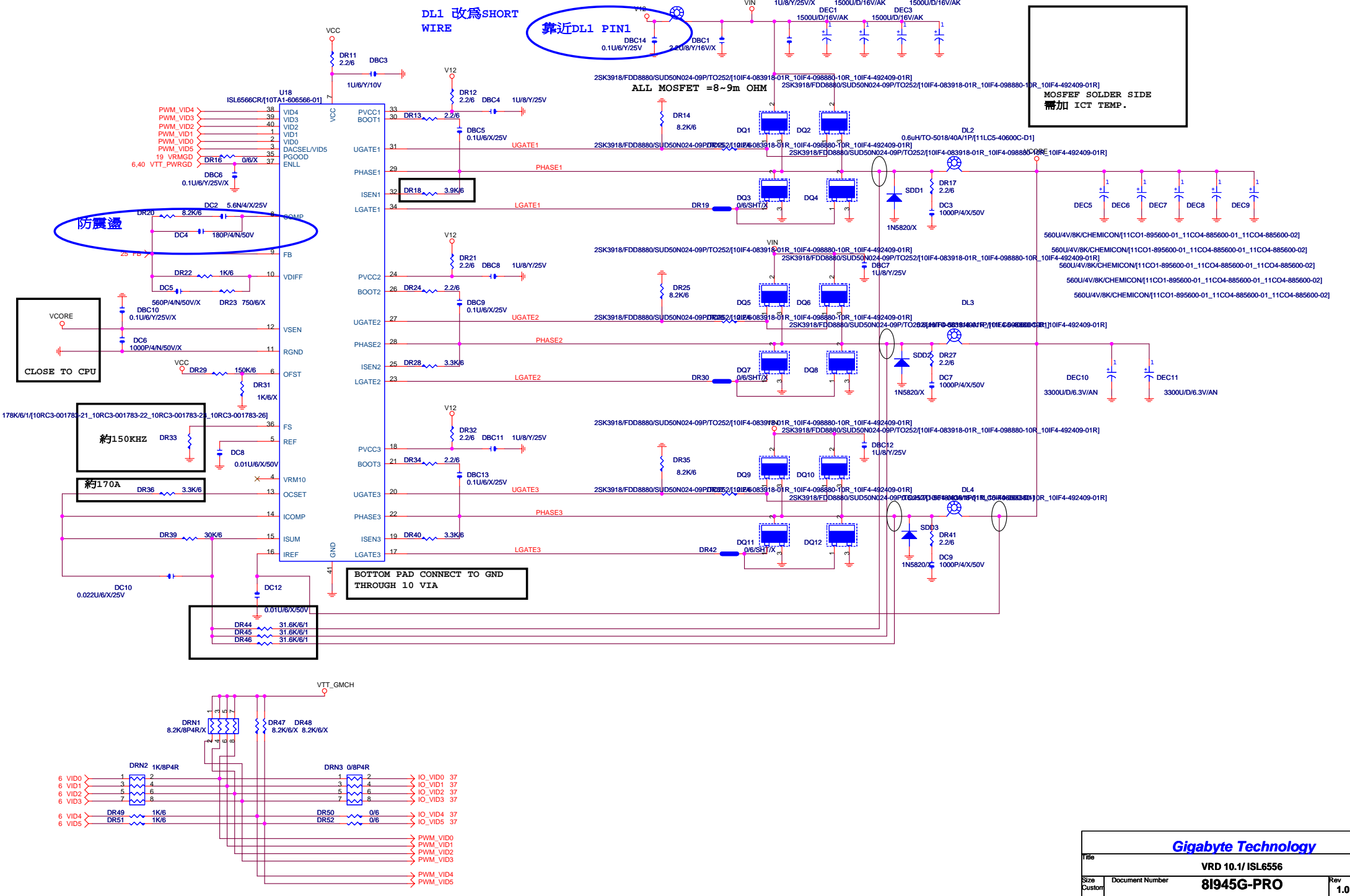


GIGABYTE THCHNOLOGIES , INC.

| | | | | | |
|-------|--------------------------|-------------------|---|-----|------------|
| Title | | | COM & IR & LPT PORT & FLOOPY | | |
| Size | Document Number | 81945G-PRO | | Rev | 1.0 |
| B | | | | | |
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DL1 改爲SHORT WIRE 靠近DL1 PIN1

MOSFET SOLDER SIDE 需加 ICT TEMP.



VCORE CLOSE TO CPU

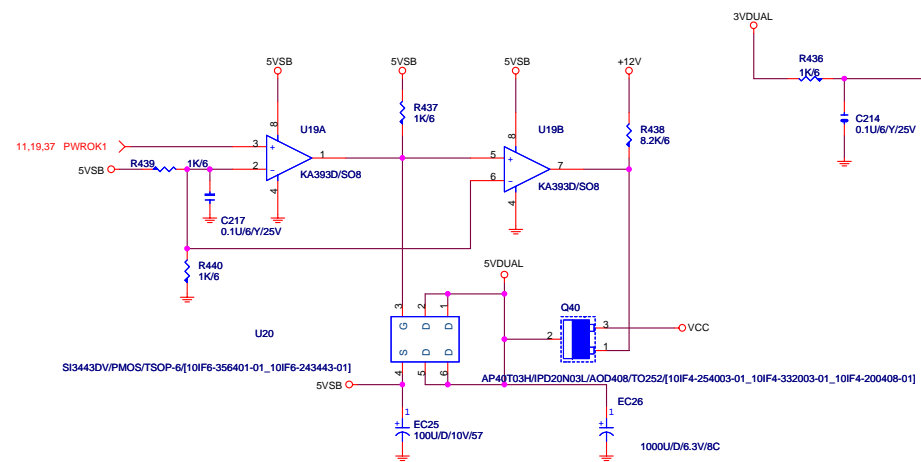
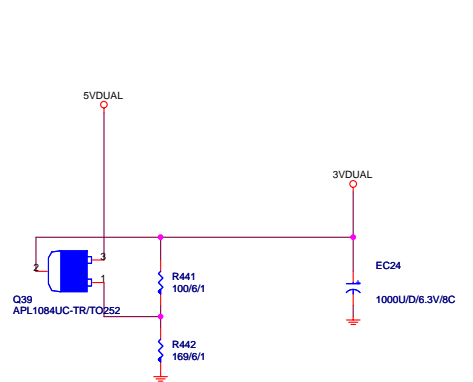
防震邊

約150KHZ DR33

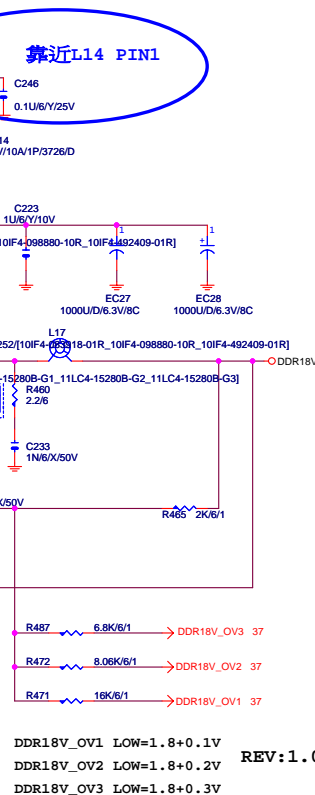
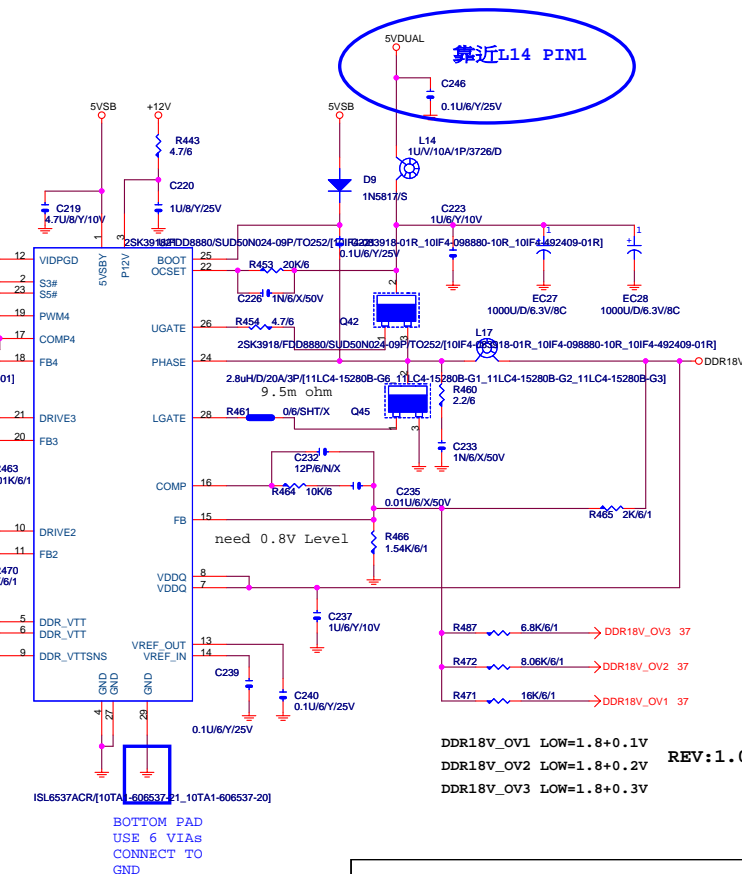
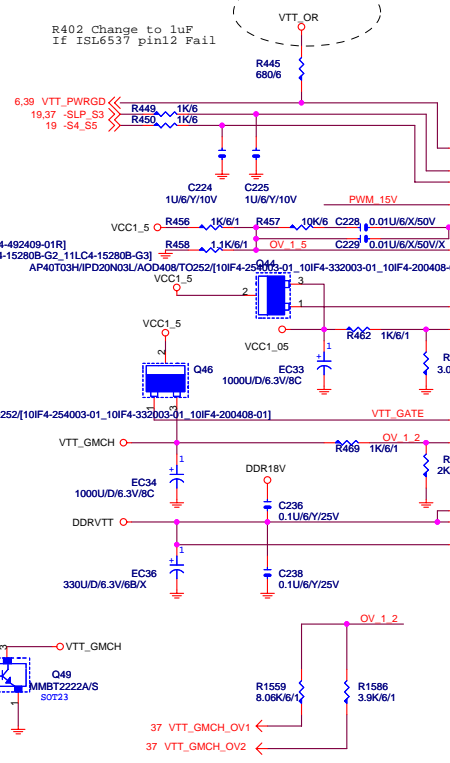
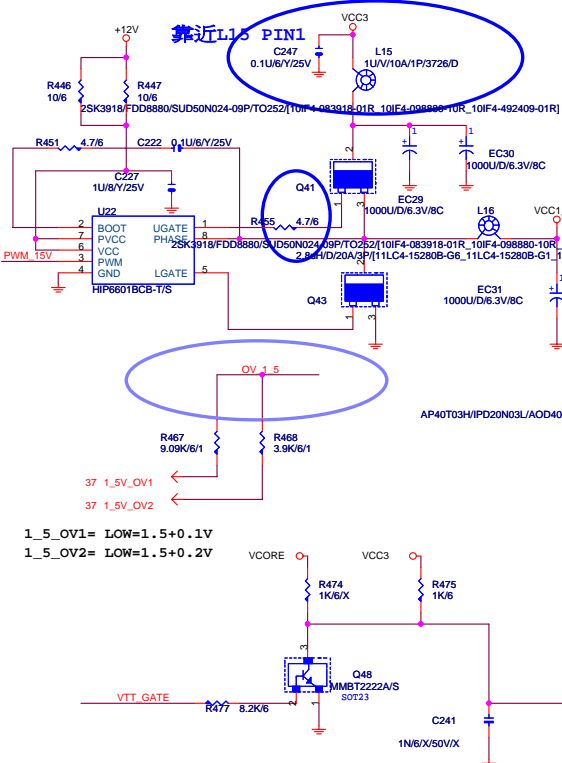
約170A DR36

BOTTOM PAD CONNECT TO GND THROUGH 10 VIA

| | | |
|----------------------------|--------------------------|----------------|
| Gigabyte Technology | | |
| VRD 10.1/ ISL6556 | | |
| Size | Document Number | Rev |
| Custom | 81945G-PRO | 1.0 |
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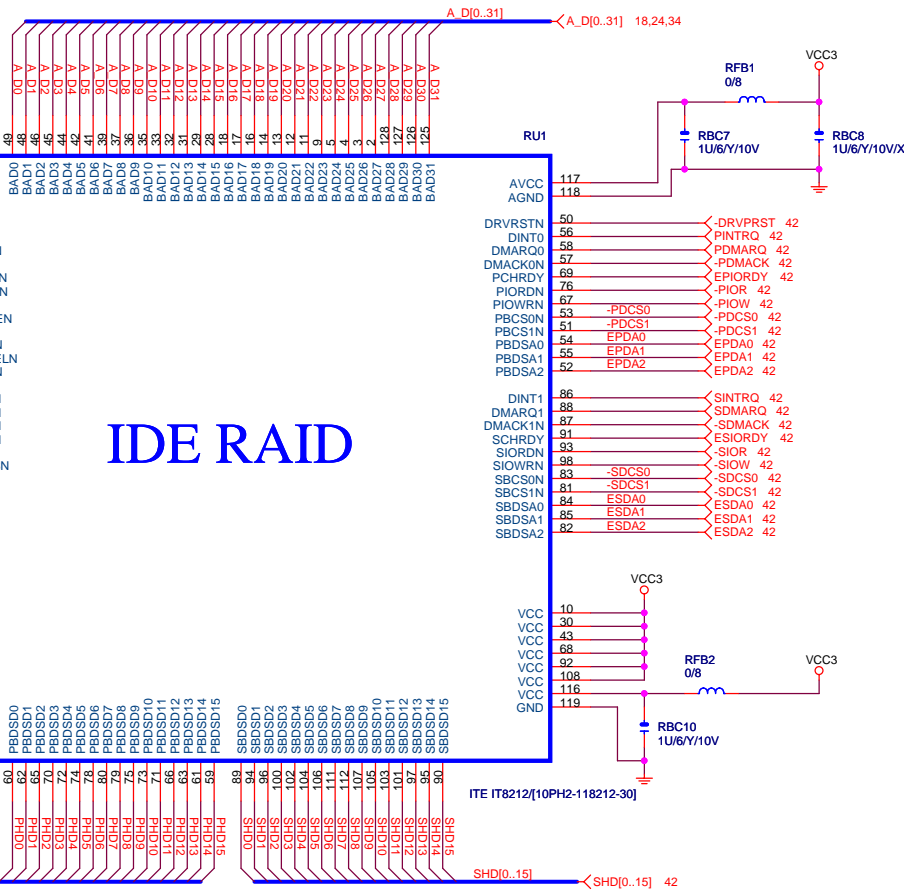
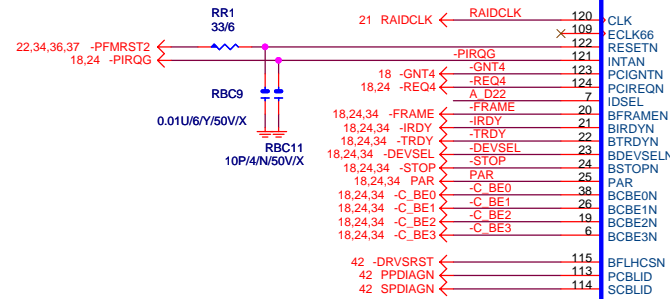
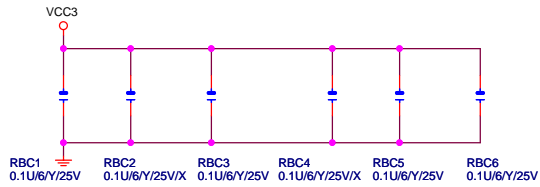


| | OV1 | OV2 | OV3 |
|------|-----|-----|-----|
| 1.8V | X | X | X |
| 1.9V | L | X | X |
| 2.0V | X | L | X |
| 2.1V | X | X | L |
| 2.2V | L | X | L |
| 2.3V | X | L | L |
| 2.4V | L | L | L |

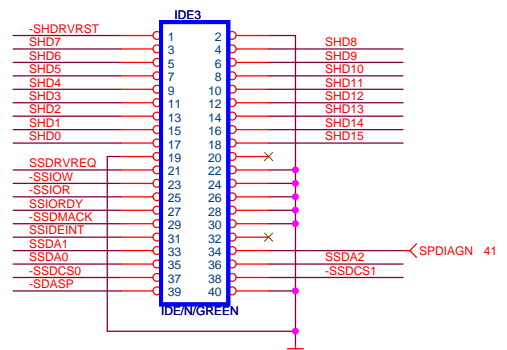
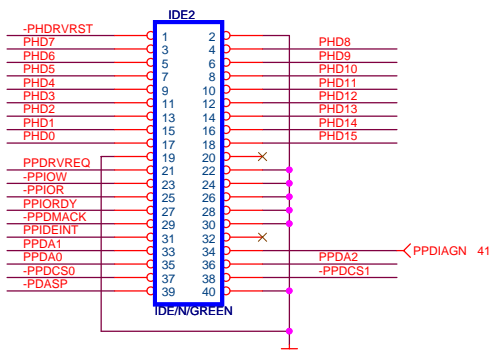
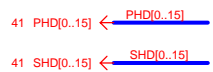
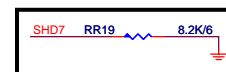
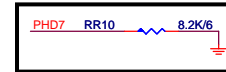
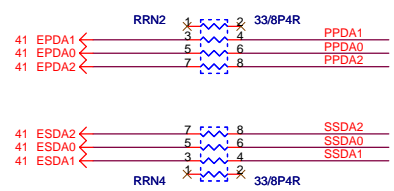
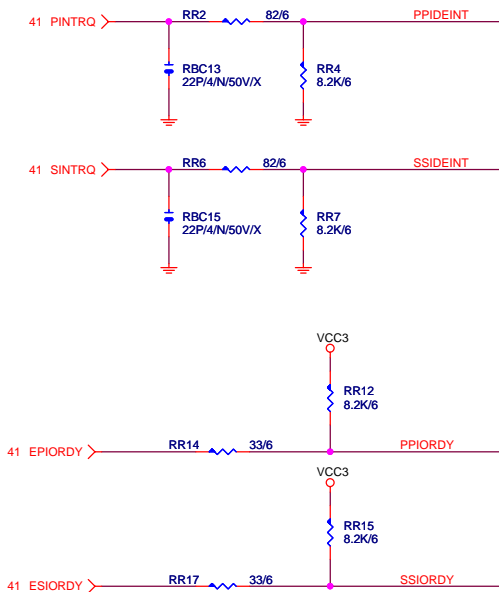
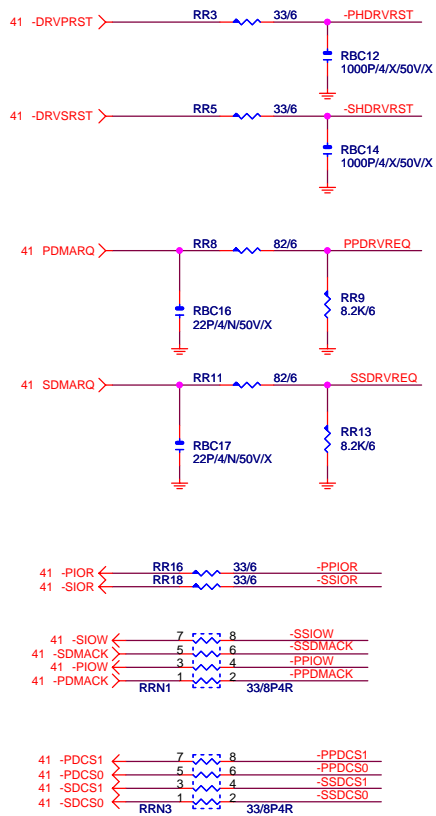


DDR18V_OV1 LOW=1.8+0.1V
 DDR18V_OV2 LOW=1.8+0.2V
 DDR18V_OV3 LOW=1.8+0.3V

ALL INPUT PIN MUST HAVE 0.1 CAPACITOR



IDE RAID



INTEL ICH7 GPIO Implementation

紅字表示CPI/O 同PIN

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 分屬) | OC5# |
| GPIO[30] | I/O | 3VDUAL | OC6# | (P.U VCC 分屬) | OC6# |
| GPIO[31] | I/O | 3VDUAL | OC7# | (P.U VCC 分屬) | 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 |
| PC11 | PCLK0 | -PCIRST | -REQ0/-GNT0 | -PIROE | A_D16 |
| PC12 | PCLK1 | -PCIRST | -REQ1/-GNT1 | -PIROD | A_D17 |
| PC13 | PCLK2 | -PCIRST | -REQ2/-GNT2 | -PIROC | A_D18 |
| 1394b | 1394CLK | -PFMRST2 | -REQ3/-GNT3 | -PIROH | A_D23 |
| IT8212 | RAIDCLK | -PFMRST2 | -REQ4/-GNT4 | -PIROG | A_D22 |

GIGABYTE

| | | | |
|------------|--------------------------|-------|----------|
| Title | | | |
| GPIO TABLE | | | |
| Size | Document Number | Rev | |
| Custom | 8I945G-PRO | 1.0 | |
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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 | | | |
| GPIO24 | 3VDAUL | GREEN LED | | | |
| GPIO25 | 3VDAUL | DDR OV1 | | | |
| GPI26 | VCC3 | SATA GP0 | | | |
| GPIO27 | 3VDAUL | +PWRLED | | | |
| GPIO28 | 3VDAUL | -PWRLED | | | |
| GPI29 | VCC3 | SATA GP1 | | | |
| GPI30 | VCC3 | SATA GP2 | | | |
| GPI31 | VCC3 | SATA GP3 | | | |
| GPIO32 | VCC3 | BIOS WP | | | |
| GPIO33 | VCC3 | AZALIA DET | | | |
| GPIO34 | 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 |
| | | |

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| | | | | | |
|--------|--------------------------|------------|-------------------------|----|-----|
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| Custom | | | | | 1.0 |
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