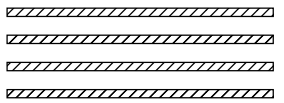
Model Name: 8I915G PRO REV2.1

SHEET	TITLE
01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	P4_LGA775_A
05	P4_LGA775_C
06	P4_LGA775_B
07	P4_LGA775_D,E,F,G
08	VCORE POWER
09	GMCH-GRANTSDALE_HOST
10	GMCH-GARNTSDALE_DDR
11	GMCH-GRANTSDALE_PCI E, DMI
12	GMCH-GRANTSDALE_INT VGA
13	GMCH-GRANTSDALE_GND
14	GMCH-GRANTSDALE_PWR
15	DDR CHANNEL A
16	DDR CHANNEL B
17	DDR TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH6 PCI, USB, DMI, LAN
20	ICH6 IDE, GPIO, SATA, CTRL
21	ICH6 VCC, GND
22	CLK GEN

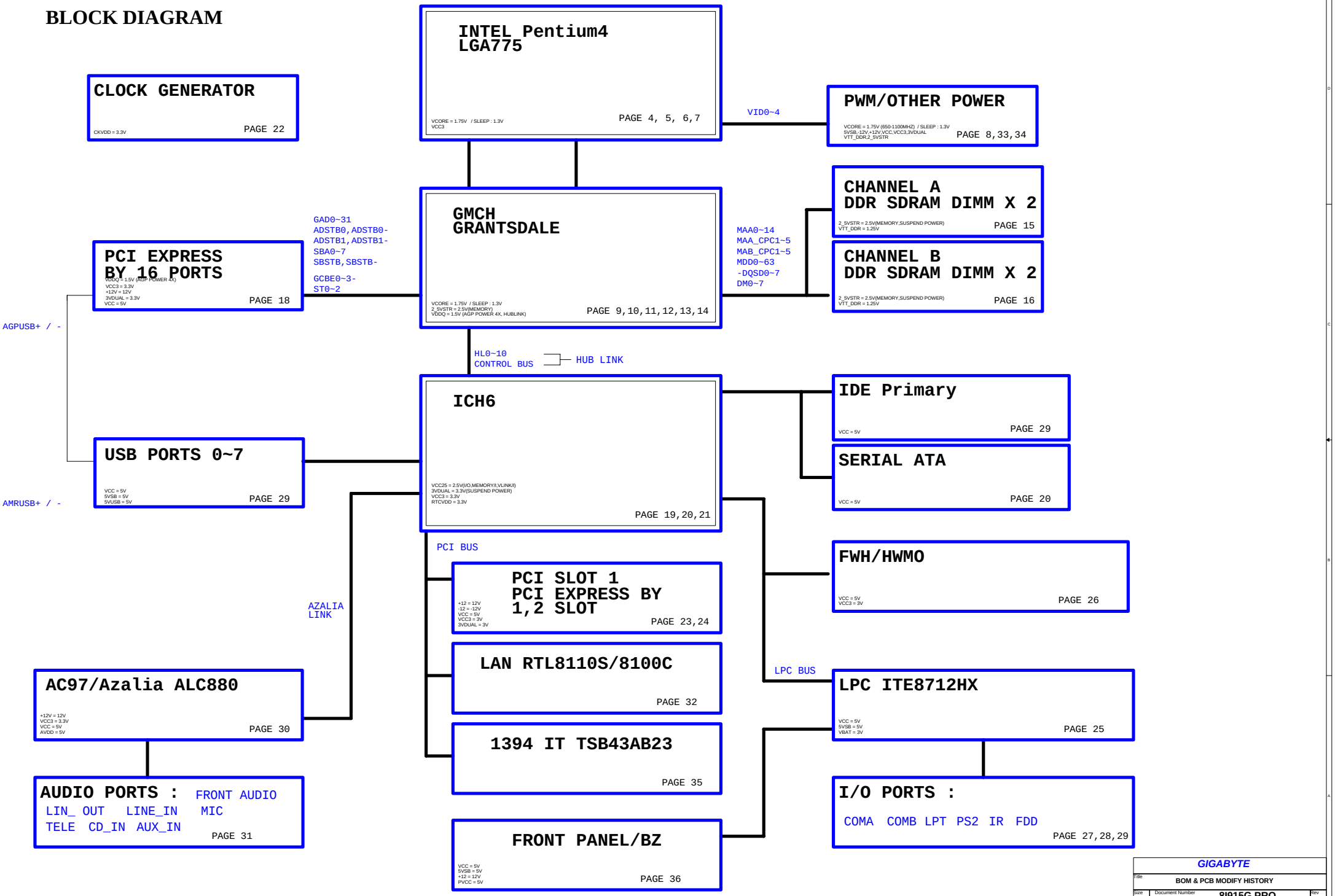
SHEET	TITLE
23	PCI SLOT 1
24	PCI EXPRESS*1 SLOT 1,2
25	ITE8712HX
26	HWMO/SMART_FAN/PROCESSOR_HOT
27	KB_MS/GAME
28	COM/LPT/FDD
29	(FRONT+REAR)USB/RING/IDE
30	AZALIA CODEC ALC880/CMI9880
31	REAR AUDIO JACK
32	FRONT AUDIO CONNECTOR
33	MARVELL 88E8001 LAN
34	ATX POWER CONN./DUAL BIOS
35	DISCRETE POWER
36	TI TSB43AB23 1394A
37	FRONT PANEL/CURRENT_OUT
38	RAID IT8212 (1)
39	RAID IT8212 (2)
40	GPIO CONFIGURATION
41	GPIO & RESET CONFIGURATION



GIGABYTE

Title	Cover Sheet	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 1 of 41	

BLOCK DIAGRAM



GIGABYTE

Title	BOM & PCB MODIFY HISTORY	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 2 of 41	

Model Name: 8I915G PRO

Component value change history

2003/12/12

Data	Change Item	Reason
2.1A	8I915G PRO(統盟,祥裕,慶生)TD,TF,TH	
	Q184 CHANGE TO AP40T03H/IPD20N03L/AOD408/2SK3641-ZK/TO252	
	L27 CHANGE TO 5uH/9A/(11LC4-09500B-01/02/03)	
	S_ATA1~3 CHANGE TO SATA0~3	
	R194 :20K/6 C117:1U/6/Y/10V	
	IEC2:330U CHANGE TO :470U/D/16V/8X11.5/11CL3-8B4700-02/03/04/05	
	U45 LM393 :10TA1-800393-06/07/01	
	U40 LM358 :10TA1-710358-15/14/13/12	
	RU1 IT8212 CX CHANGE TO IT8212 DX,BIOS ROM CHANGE TO REV1.7	
2.1B	1. HI SIDE MOSFET DQ1,5,9,14 FDD6296 --> VISHAY SUD50N024-09	
	LO SIDE MOSFET DQ3,4,7,8,11,12,16,17 FDD8896 --> VISHAY SUD50N024-06	
	2. CPU TRANSIENT CHANGE DR31 91K/6/1 --> 68K/6/1,DEC13,14 3300U REMOVE & ADD DEC16 560U/OS-CON	
	3. 包材修改	
2.1C	1. R1136 1K/6 & , R1139 10K/6 --> 8.2K/6	
	2. LU1 MARVELL Rev.A3 --> Rev.A4	
	3. Q45 ADD AOD420/TO252	
	4. ATX : 11NH4-020024-21/22 --> 11NH4-020024-31/32	
1111-21C	1. LU1 MARVELL Rev.A4 --> Rev.A3	

Circuit or PCB layout change for next version

PAGE	Change Item	Reason
2.1	重8I915G PRO -10T 修改成8I915GP-00-21	
	+12V TRACER 要補強,在PCI_E SLOT SOLDER SIDE	
	+12V TRACER 要補強,從POWER CONNECTOR TO SOLT 走 GND 確認	
	DU5 請加 PIN1	
	IF1 CHANGE TO FUSESW-5A-1	
	ATX CHANGE TO ATXPWR_24P-1	
	U1 CHANGE TO LGA775-1	
	REV: 請離板邊2MM以上	
	ASSEM:文字面請改位置	
	S_ATA1~3 CHANGE TO SATA0~3	
	VTT_GMCH 6.2A 請把N/B 內層挪寬一點,且Q45在多打2~3 VIA HOLD	

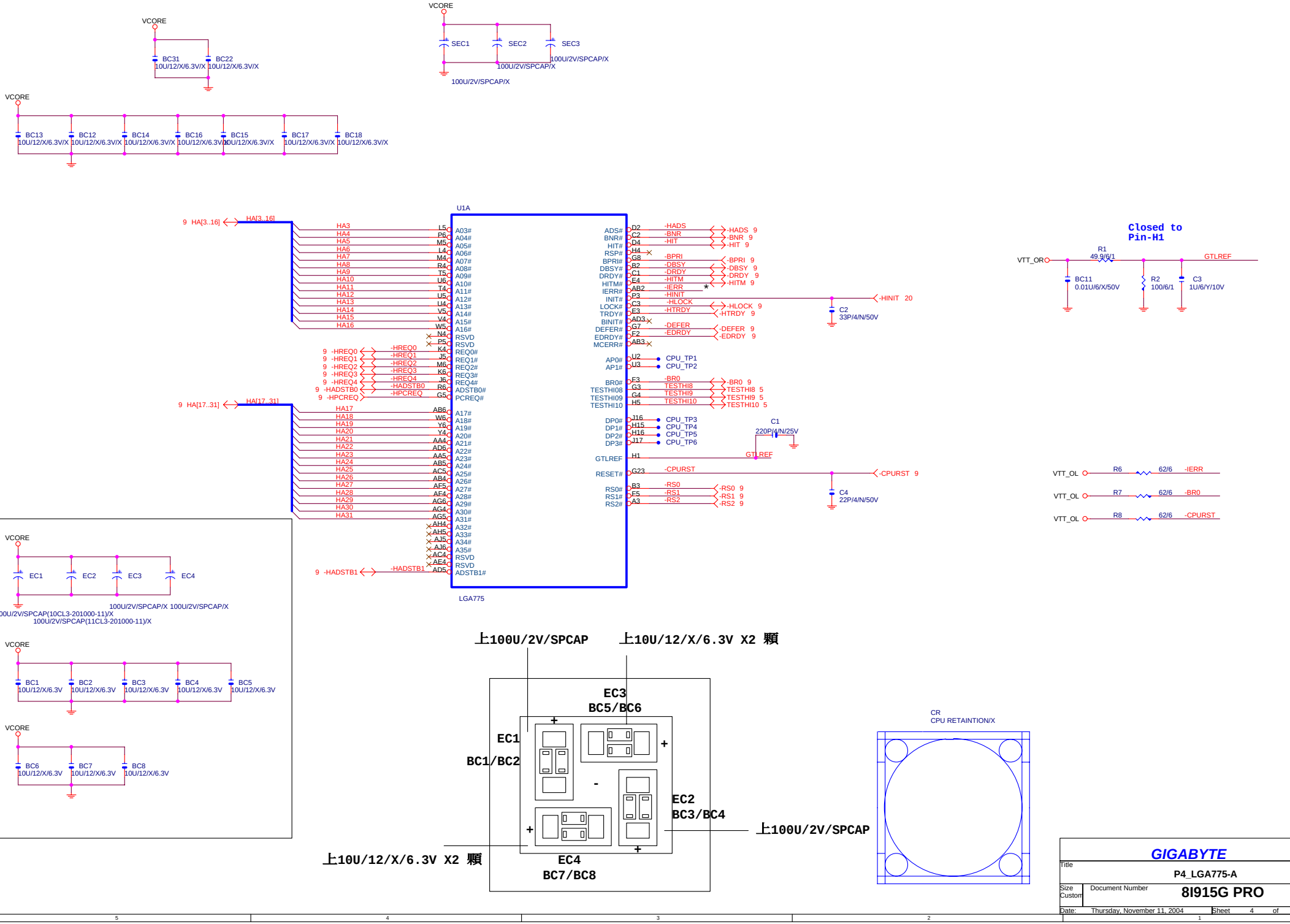
GIGABYTE

Title: BOM & PCB MODIFY HISTORY

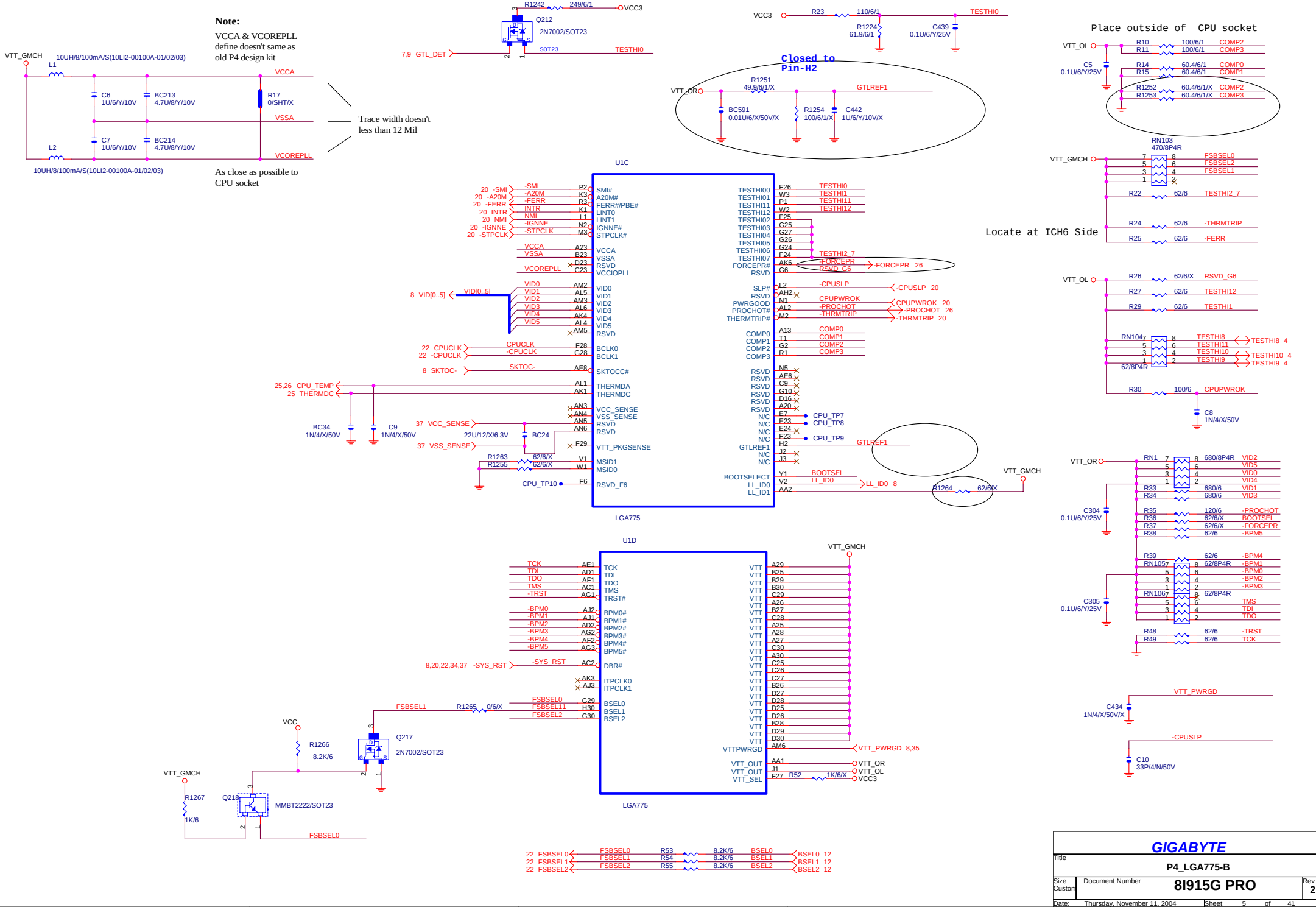
Size: Custom | Document Number: 8I915G PRO | Rev: 2.1

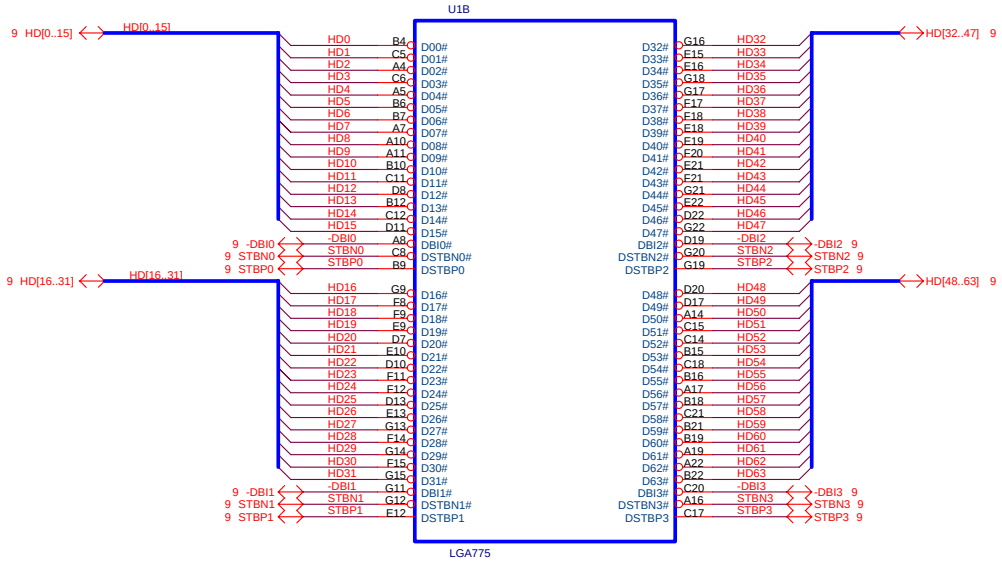
Date: Thursday, November 11, 2004 | Sheet 3 of 41

SP-CAP X 4PCS



GIGABYTE		
Title	P4_LGA775-A	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 4 of 41	


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
Closed to Pin-H2
Place outside of CPU socket
Locate at ICH6 Side
U1C
U1D
LGA775
LGA775
GIGABYTE
P4_LGA775-B
8I915G PRO
Rev 2.1
Thursday, November 11, 2004
Sheet 5 of 41

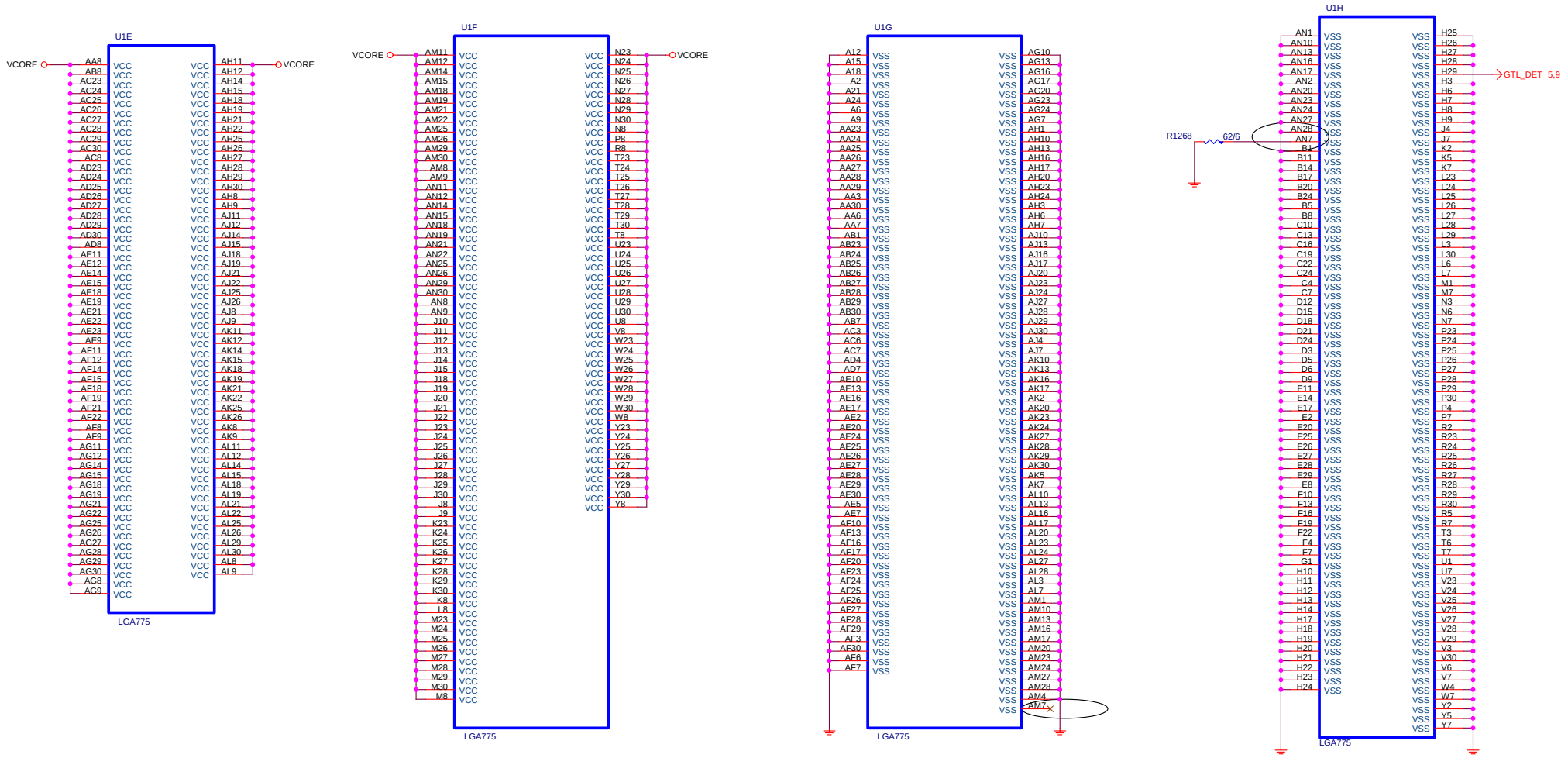


GIGABYTE

Title: P4_LGA775-C

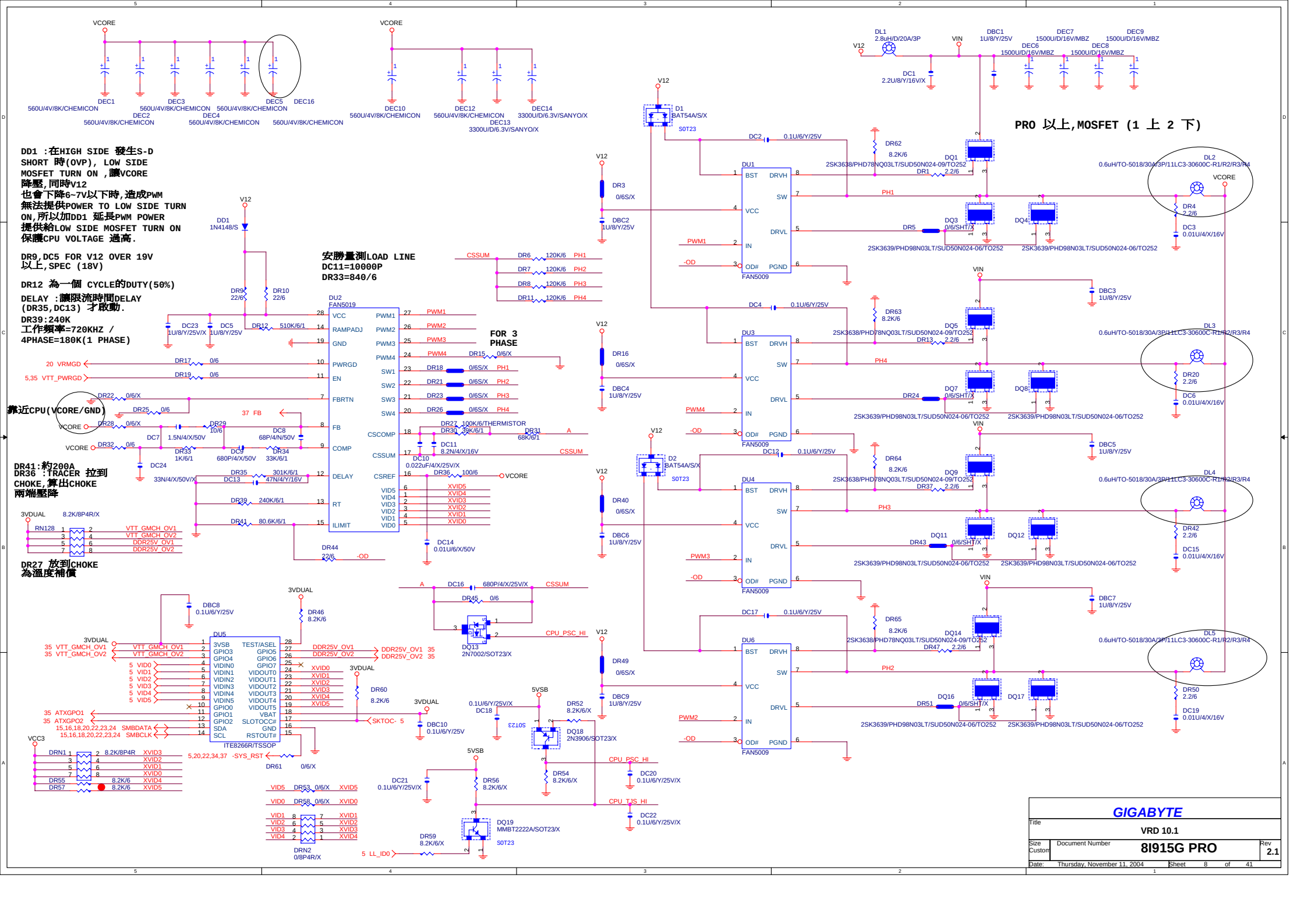
Size: Custom | Document Number: 8I915G PRO | Rev: 2.1

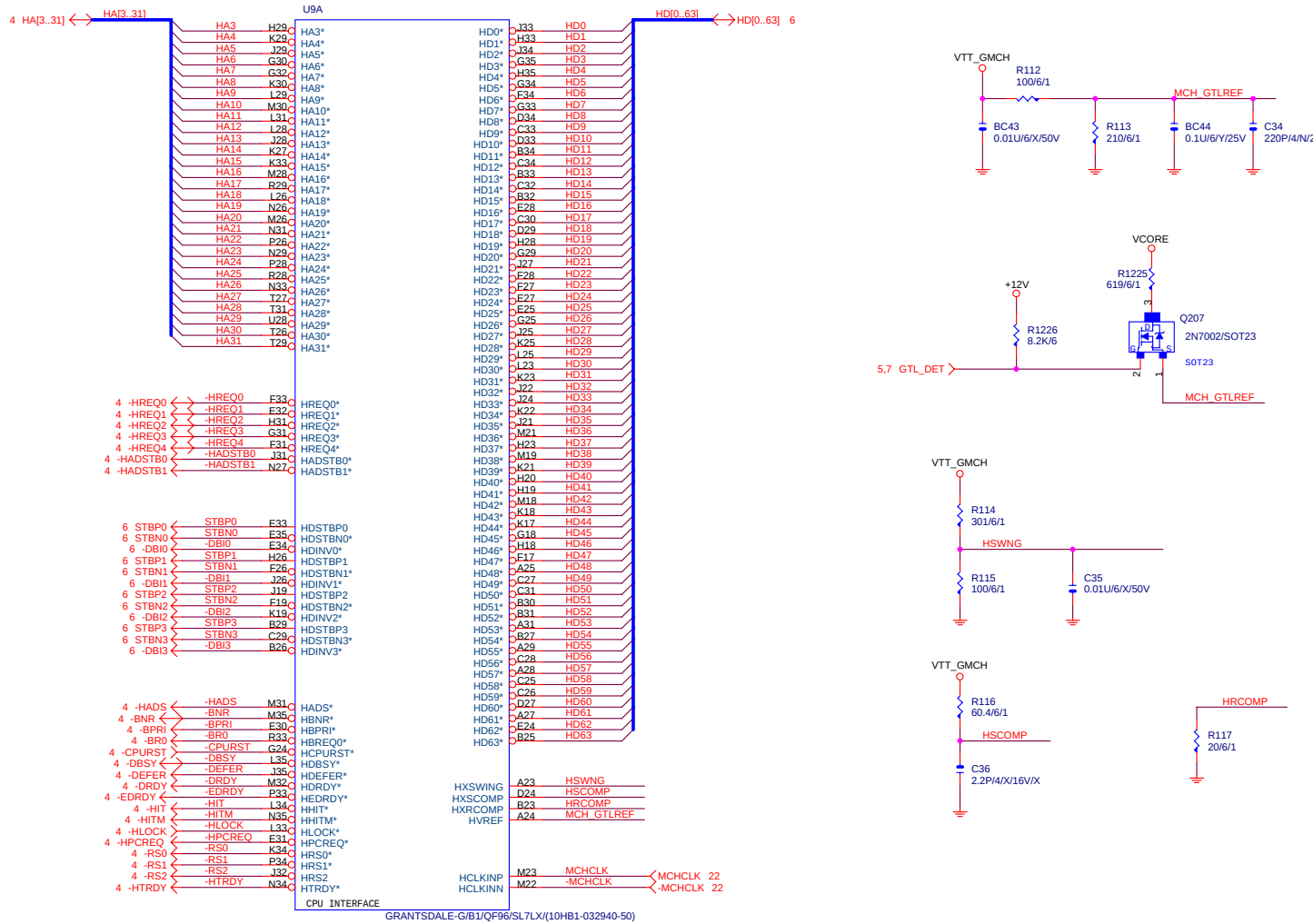
Date: Thursday, November 11, 2004 | Sheet 6 of 41



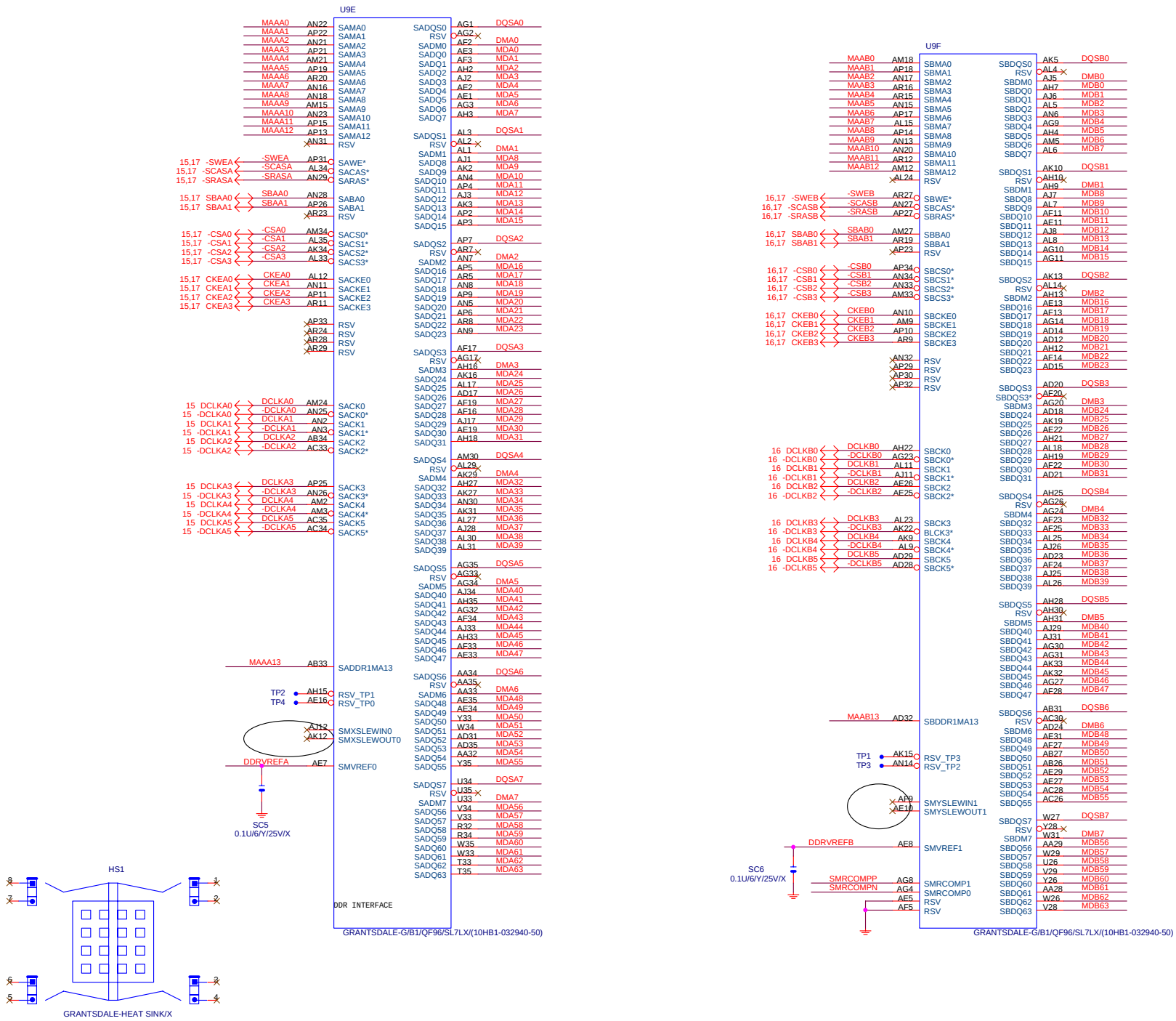
GIGABYTE

Title	P4_LGA775-D		
Size: Custom	Document Number: 8I915G PRO		Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 7 of 41		


DD1 :在HIGH SIDE 發生S-D SHORT 時(OVP), LOW SIDE MOSFET TURN ON ,讓VCORE 降壓,同時V12 也會下降6~7V以下時,造成PWM 無法提供POWER TO LOW SIDE TURN ON,所以加DD1 延長PWM POWER 提供給LOW SIDE MOSFET TURN ON 保護CPU VOLTAGE 過高.
DR9,DC5 FOR V12 OVER 19V 以上,SPEC (18V)
DR12 為一個 CYCLE的DUTY(50%)
DELAY :讓限流時間DELAY (DR35,DC13) 才啟動.
DR39:240K
工作頻率=720KHZ / 4PHASE=180K(1 PHASE)
安勝量測LOAD LINE
DC11=10000P
DR33=840/6
FOR 3 PHASE
靠近CPU(VCORE/GND)
DR41:約200A
DR36 :TRACER 拉到 CHOKE,算出CHOKE 兩端壓降
DR27 放到CHOKE 為溫度補償
PRO 以上,MOSFET (1 上 2 下)
GIGABYTE
VRD 10.1
8I915G PRO
2.1
Thursday, November 11, 2004
Sheet 8 of 41

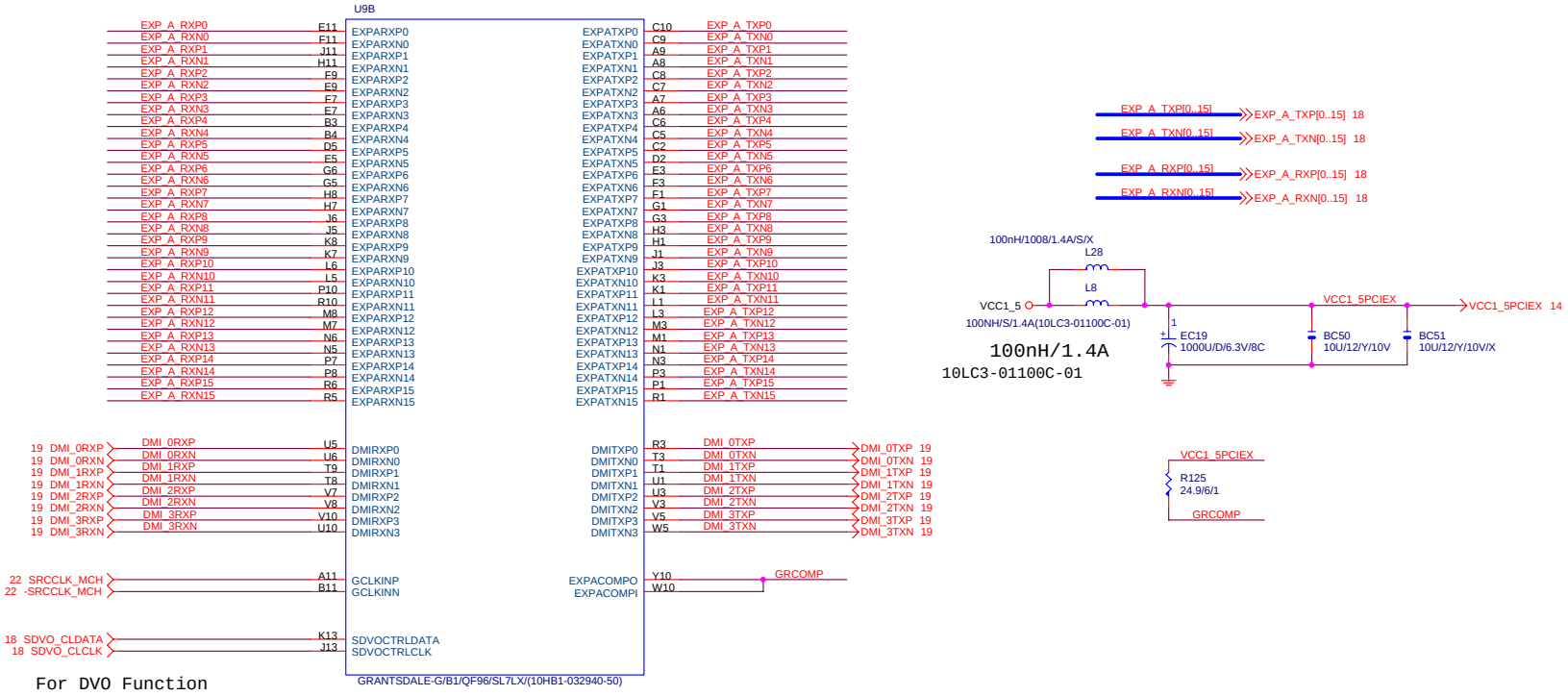


GIGABYTE		
Title	GMCH-HOST	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 9 of 41	



GIGABYTE

Title	GMCH-DDR		
Size: Custom	Document Number: 8I915G PRO		Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 10 of 41		



GIGABYTE		
Title	GMCH-PCI E & DMI	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 11 of 41	

FOR NONE VGA

VCC1_5

R1149 0/6/X

DOTCLK

-DOTCLK

R1150 0/6/X

U9G

GRANTSDALE-G/B1/QF96/SL7LX/(10HB1-032940-50)

FOR NONE VGA

R1151 8.2K/6/X

R1152 8.2K/6/X

FOR NONE VGA

DDR25V_DAC 14

RN107 0/8P4R/X

(TDK PN# MMZ2012S800A)

C37 3.3P/4N/50V/X

C38 3.3P/4N/50V/X

FB1 FB80/6/S/3A VGA_R

FB2 FB80/6/S/3A VGA_G

FB3 FB80/6/S/3A VGA_B

C39 3.3P/4N/50V/X

C40 3.3P/4N/50V/X

C41 3.3P/4N/50V/X

C42 3.3P/4N/50V/X

FOR NONE VGA

R1153 0/6/X

R1154 0/6

R129 150/6/1/X

R131 150/6/1/X

R130 150/6/1/X

R1209 75/6/1

R1210 75/6/1

R1211 75/6/1

U10 BAV99/S

U11 BAV99/S

U12 BAV99/S

C43 1U/6/Y/10V/X

C44 0.1U/6/Y/25V

DDR25V_DAC 14

GHSYNC

GVSYNC

DDCDATA

DDCCLK

DOTCLK 22

-DOTCLK 22

REFSET

R132 255/6/1

FOR NONE VGA

R132=0/6

R133 8.2K/6

DDR25V_MCH

-PFMRST1

PWROK1

-ICHSYNC

-PFMRST1 25

PWROK1 20,25,35

-ICHSYNC 20

TP34

C416 1000P/4/N/50V/X

C417 10000P/6/N/50V/X

VCC3

BC576 0.1U/6/Y/25V/X

U13-1

U13-2

U13-3

U13-4

74LVC32/74LCX32/SO14/10TC1-117432-01/02/03

R134 33/6

R135 33/6

HSYNC

VSYNC

C436 3.3P/4/N/50V/X

C437 3.3P/4/N/50V/X

GAMEVCC

BC170 0.1U/6/Y/25V/X

VGA_COMA

VGA_R

VGA_G

VGA_B

VGADDCDATA

HSYNC

VSYNC

VGADDCCLK

VGA/P/S

NB_HEATSINK

12SP2-04F003-41/42/43/44

MTYPE

EXP_SLR

R146 1K/6/X

R147 1K/6/X

+12V

R1155 8.2K/6

R1156 0/6/X

RN108 8.2K/8P4R

Q194 2N2907A/SOT23

VCC

R1157 8.2K/6

R1158 0/6S/X

Q195 2N7002/SOT23

SOT23

25 FANPWM2

CE4 22U/D/25V/57/X

BC561 0.1U/6/Y/25V

NB_FAN

H1X2/NB_FAN

DDR25V_MCH

R140 8.2K/6

R141 8.2K/6

DDCDATA

DDCCLK

R144 8.2K/6/X

R145 8.2K/6/X

Q22 2N7002/SOT23

Q23 2N7002/SOT23

VCC3

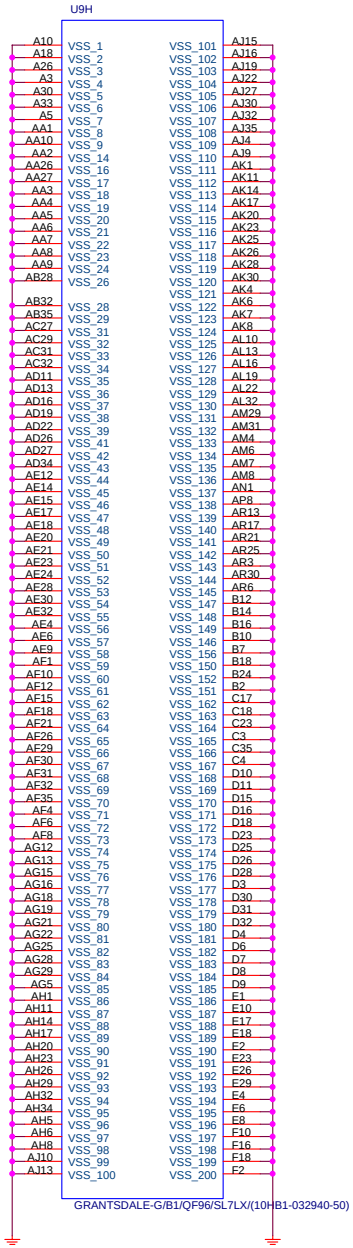
R138 8.2K/6

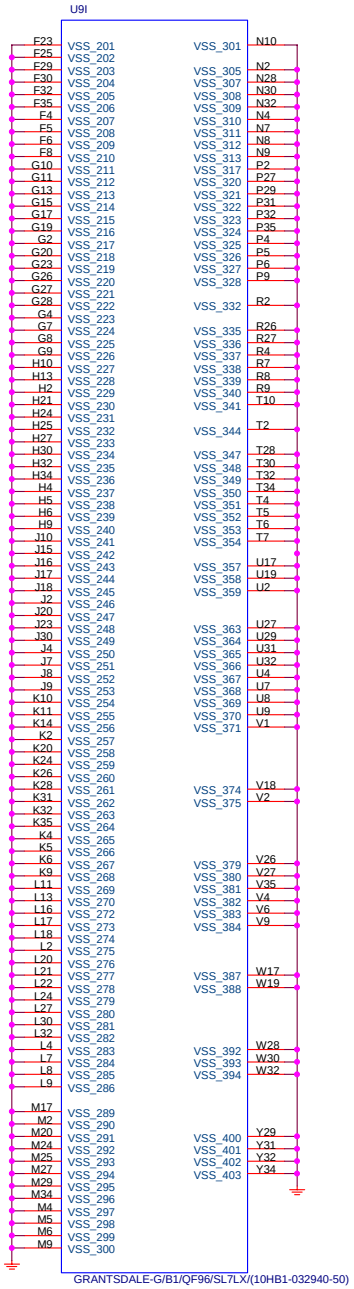
R139 8.2K/6

R142 100/6/SHT/X VGADDCDATA

R143 100/6/SHT/X VGADDCCLK

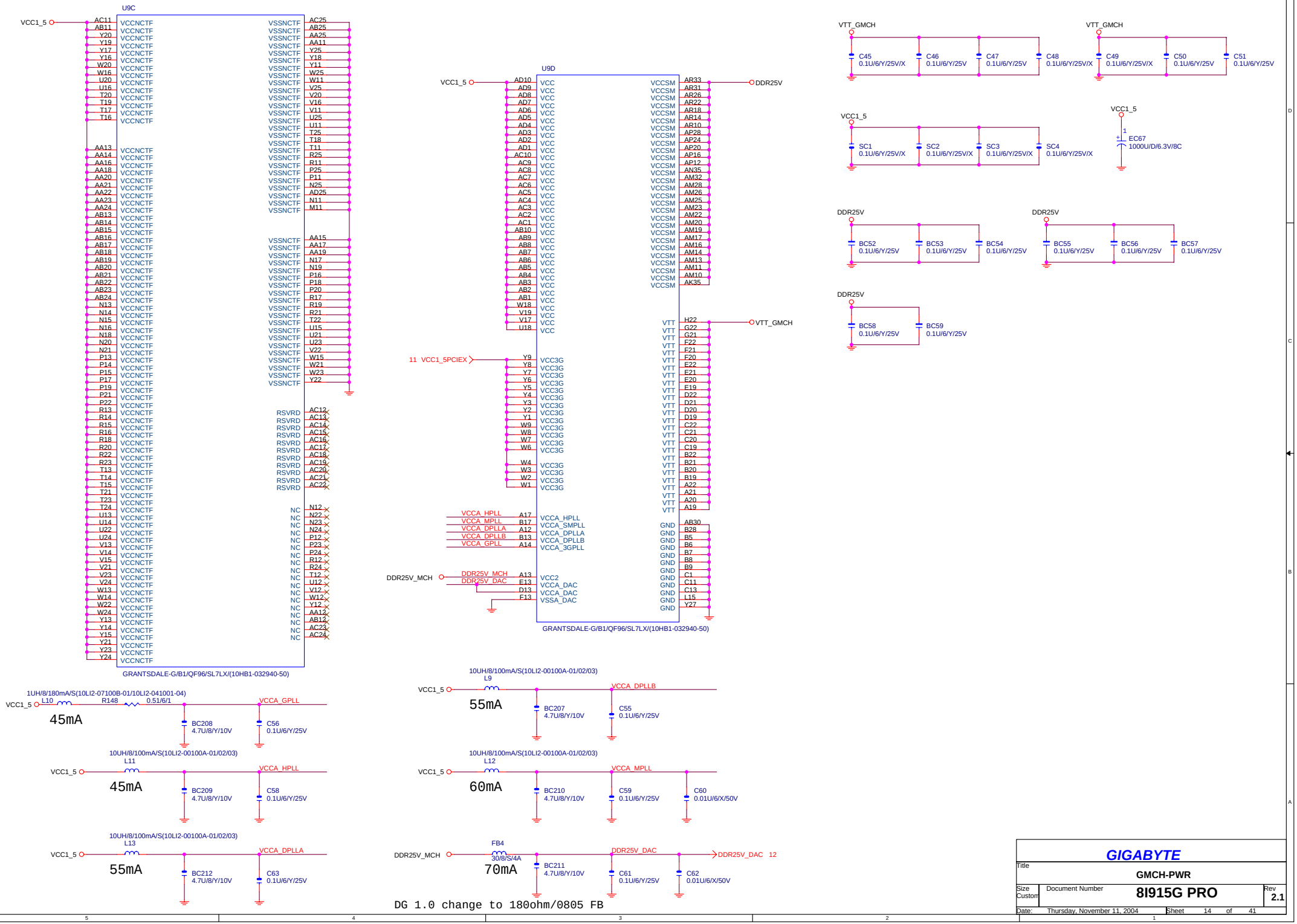
GIGABYTE			
Title	GMCH-INTERNAL VGA		
Size Custom	Document Number 8I915G PRO		Rev 2.1
Date: Thursday, November 11, 2004	Sheet 12 of 41		

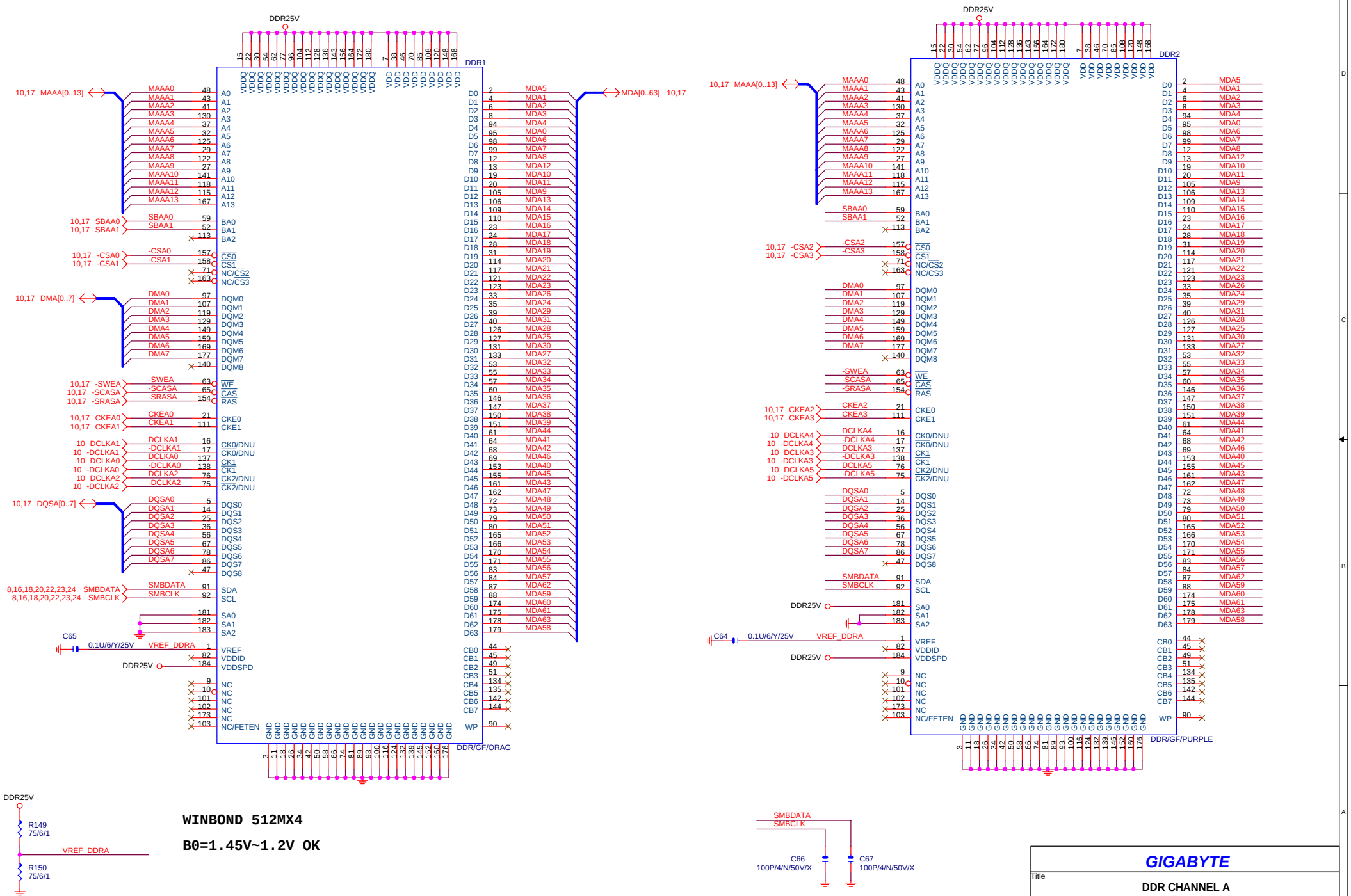


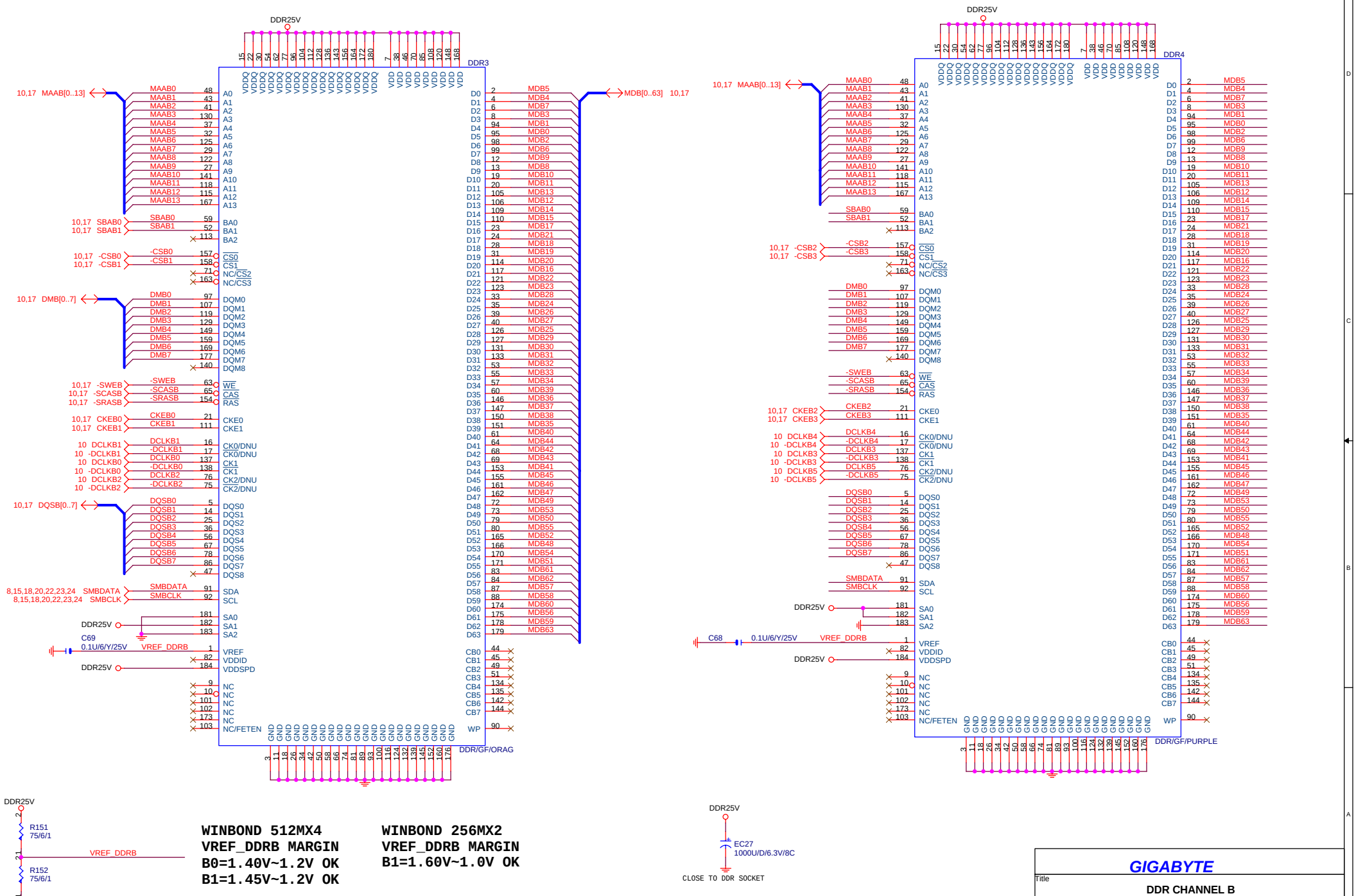


GIGABYTE

Title	GMCH-GND	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 13 of 41	


U9C
VCC1_5
VCCNCTF
VSSNCTF
RSVRD
NC
GRANTSDALE-G/B1/QF96/SL7LX/(10HB1-032940-50)
U9D
VCC1_5
DDR25V
VTT_GMCH
11 VCC1_5PCIEX
VCC
VCCSM
VCC3G
VTT
GND
VCCA_HPLL
VCCA_MPLL
VCCA_DPLLA
VCCA_DPLLB
VCCA_GPLL
VCCA_SMPLL
VCCA_3GPLL
DDR25V_MCH
DDR25V_DAC
VCC2
VCCA_DAC
VSSA_DAC
GRANTSDALE-G/B1/QF96/SL7LX/(10HB1-032940-50)
VTT_GMCH
C45 0.1U/6/Y/25V/X
C46 0.1U/6/Y/25V
C47 0.1U/6/Y/25V
C48 0.1U/6/Y/25V/X
C49 0.1U/6/Y/25V/X
C50 0.1U/6/Y/25V
C51 0.1U/6/Y/25V
VCC1_5
SC1 0.1U/6/Y/25V/X
SC2 0.1U/6/Y/25V/X
SC3 0.1U/6/Y/25V/X
SC4 0.1U/6/Y/25V/X
EC67 1000U/D/6.3V/8C
DDR25V
BC52 0.1U/6/Y/25V
BC53 0.1U/6/Y/25V
BC54 0.1U/6/Y/25V
BC55 0.1U/6/Y/25V
BC56 0.1U/6/Y/25V
BC57 0.1U/6/Y/25V
BC58 0.1U/6/Y/25V
BC59 0.1U/6/Y/25V
1UH/8/180mA/S(10LI2-07100B-01/10LI2-041001-04)
L10
R148 0.51/6/1
45mA
BC208 4.7U/8/Y/10V
C56 0.1U/6/Y/25V
10UH/8/100mA/S(10LI2-00100A-01/02/03)
L11
45mA
BC209 4.7U/8/Y/10V
C58 0.1U/6/Y/25V
L13
55mA
BC212 4.7U/8/Y/10V
C63 0.1U/6/Y/25V
L9
55mA
BC207 4.7U/8/Y/10V
C55 0.1U/6/Y/25V
L12
60mA
BC210 4.7U/8/Y/10V
C59 0.1U/6/Y/25V
C60 0.01U/6/X/50V
FB4
30/8/S/4A
70mA
BC211 4.7U/8/Y/10V
C61 0.1U/6/Y/25V
C62 0.01U/6/X/50V
DG 1.0 change to 180ohm/0805 FB
GIGABYTE
Title
GMCH-PWR
Size Custom
Document Number
8I915G PRO
Rev 2.1
Date: Thursday, November 11, 2004
Sheet 14 of 41


DDR25V
DDR1
DDR2
MAAA[0..13]
SBAA0
SBAA1
-CSA0
-CSA1
-CSA2
-CSA3
DMA[0..7]
-SWEA
-SCASA
-SRASA
CKEA0
CKEA1
CKEA2
CKEA3
DCLKA0
DCLKA1
DCLKA2
DCLKA3
DCLKA4
DCLKA5
DQSA[0..7]
SMBDATA
SMBCLK
MDA[0..63]
VREF_DDRA
C64
C65
0.1U/6/Y/25V
DDR/GF/ORAG
DDR/GF/PURPLE
R149
75/6/1
R150
75/6/1
C66
100P/4/N/50V/X
C67
100P/4/N/50V/X
WINBOND 512MX4
B0=1.45V~1.2V OK
GIGABYTE
DDR CHANNEL A
8I915G PRO
Rev
2.1
Size
B
Document Number
Date:
Thursday, November 11, 2004
Sheet
15
of
41



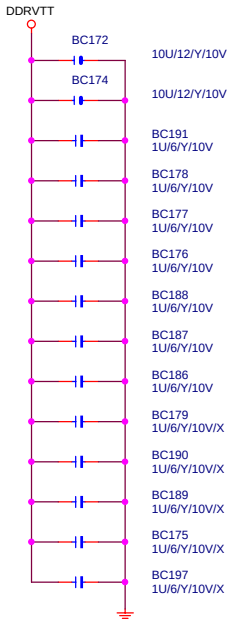
WINBOND 512MX4
VREF_DDRB MARGIN
B0=1.40V~1.2V OK
B1=1.45V~1.2V OK

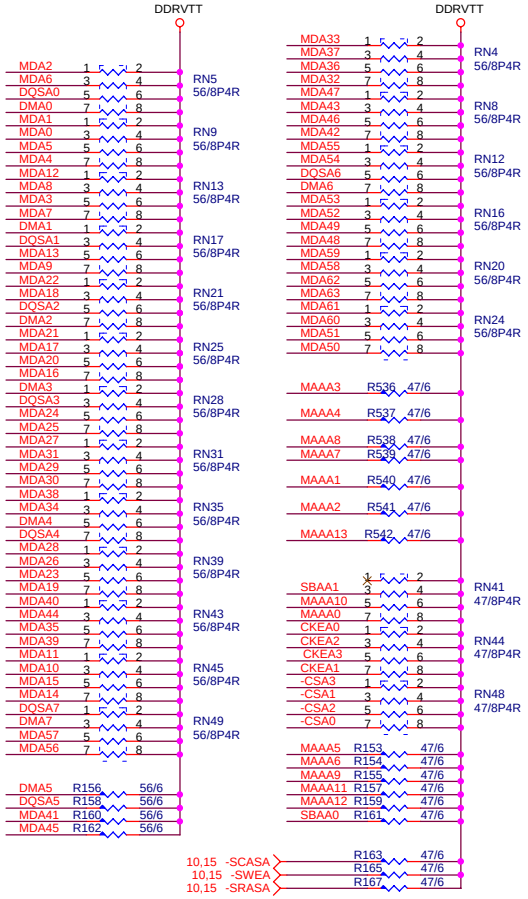
WINBOND 256MX2
VREF_DDRB MARGIN
B1=1.60V~1.0V OK

GIGABYTE			
Title: DDR CHANNEL B			
Size: B	Document Number: 8I915G PRO		Rev: 2.1
Date: Thursday, November 11, 2004		Sheet 16 of 41	

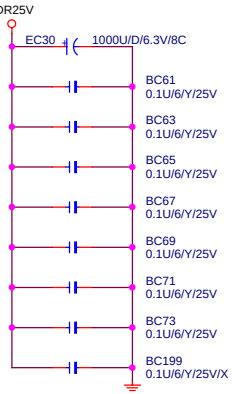
DDR TERMINATION
CHANNEL A

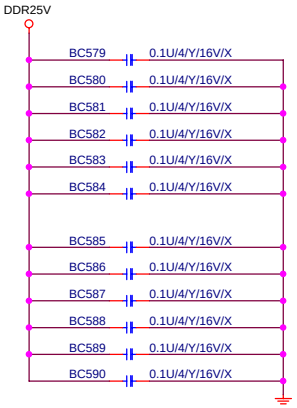
DDRVTT Decouple



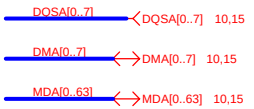


DDR25V Decouple

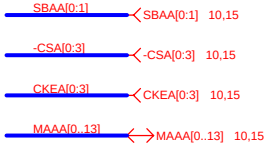




56 Ohms

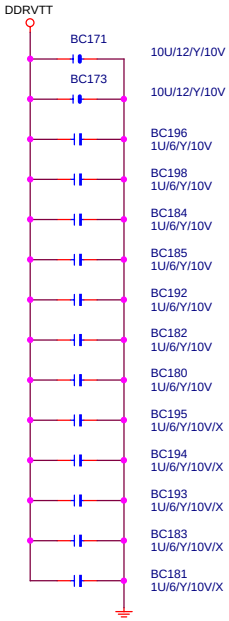


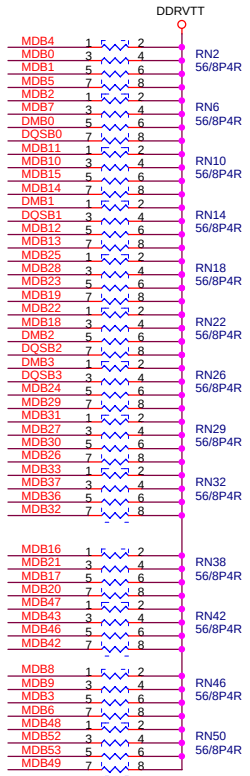
47 Ohms



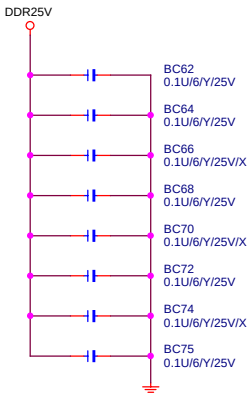
CHANNEL B

DDRVTT Decouple

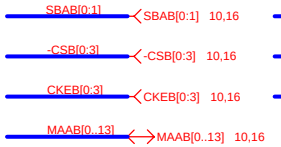




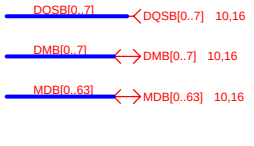
DDR25V Decouple



47 Ohms

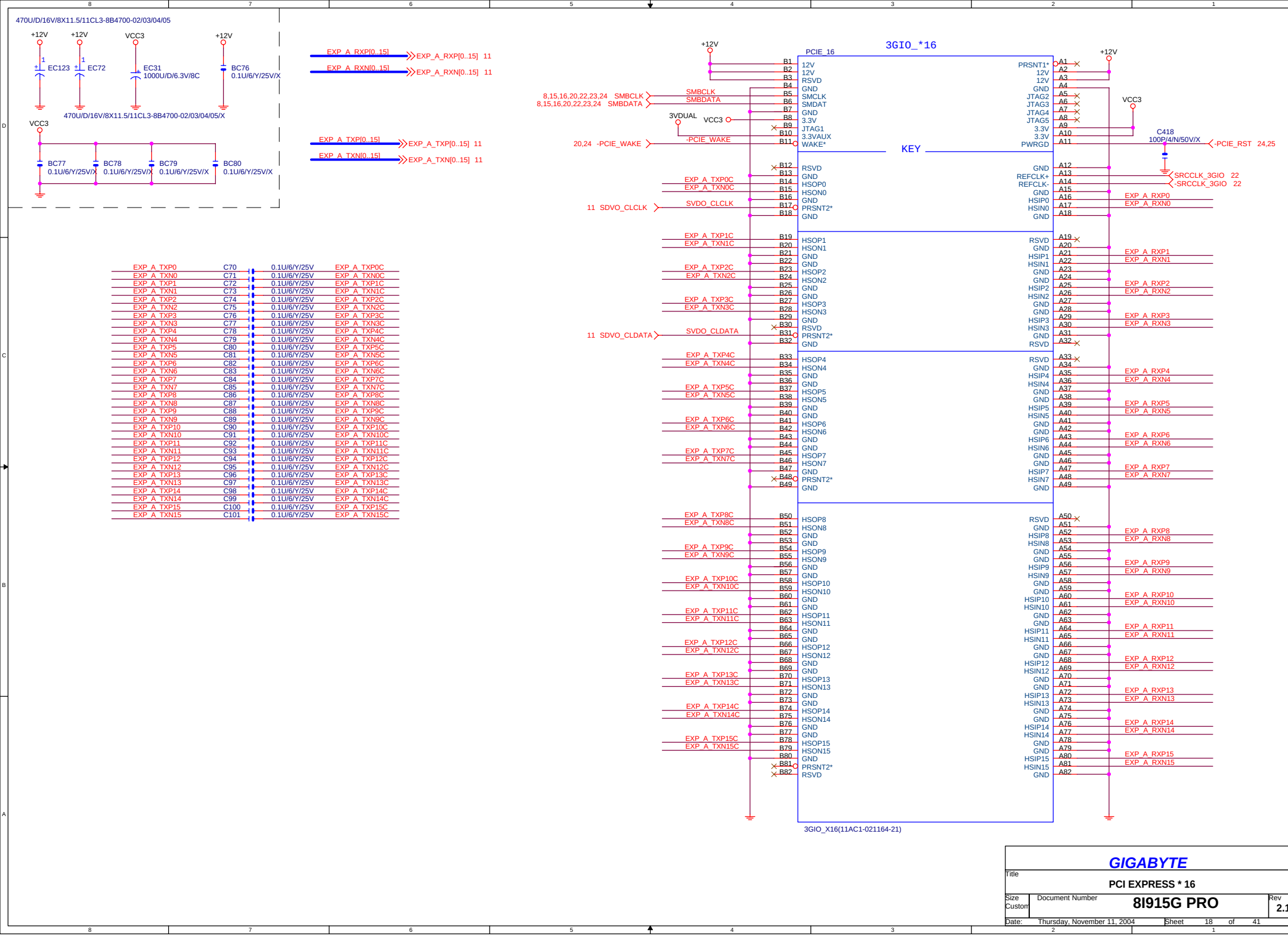


56 Ohms



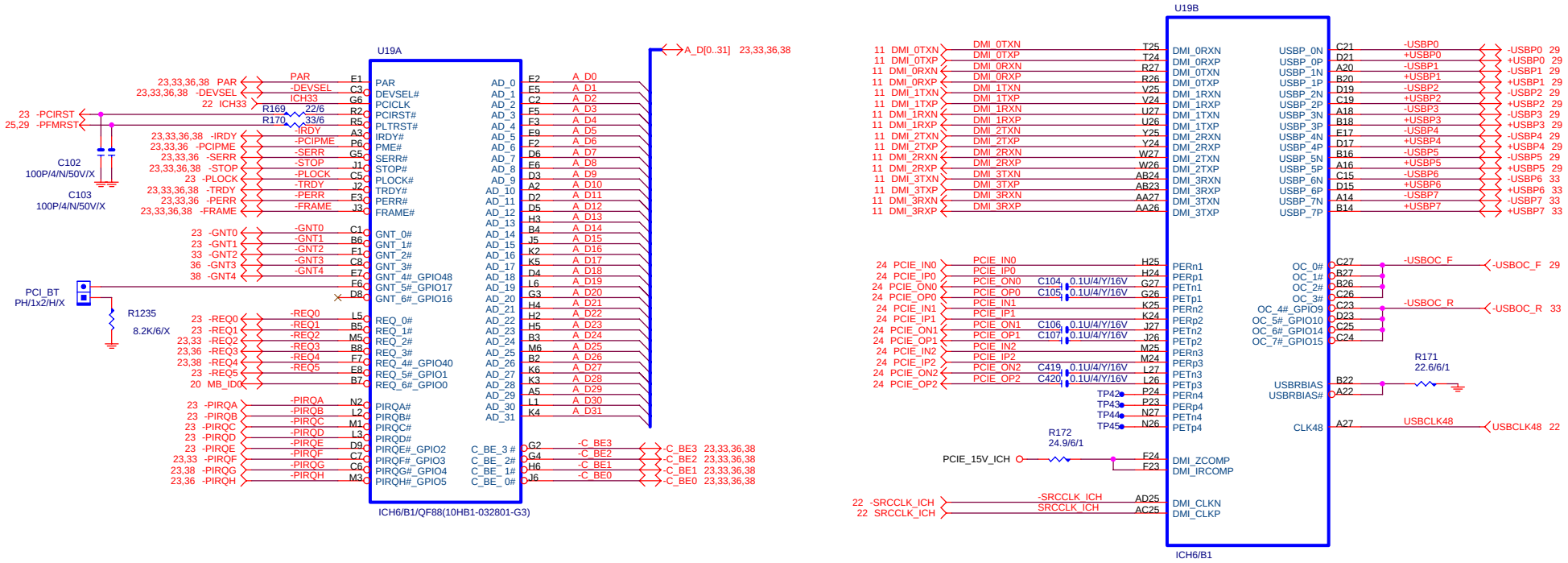
GIGABYTE

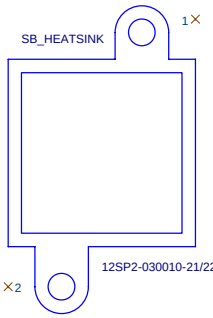
Title: DDR TERMINATOR		
Size: B	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 17 of 41	



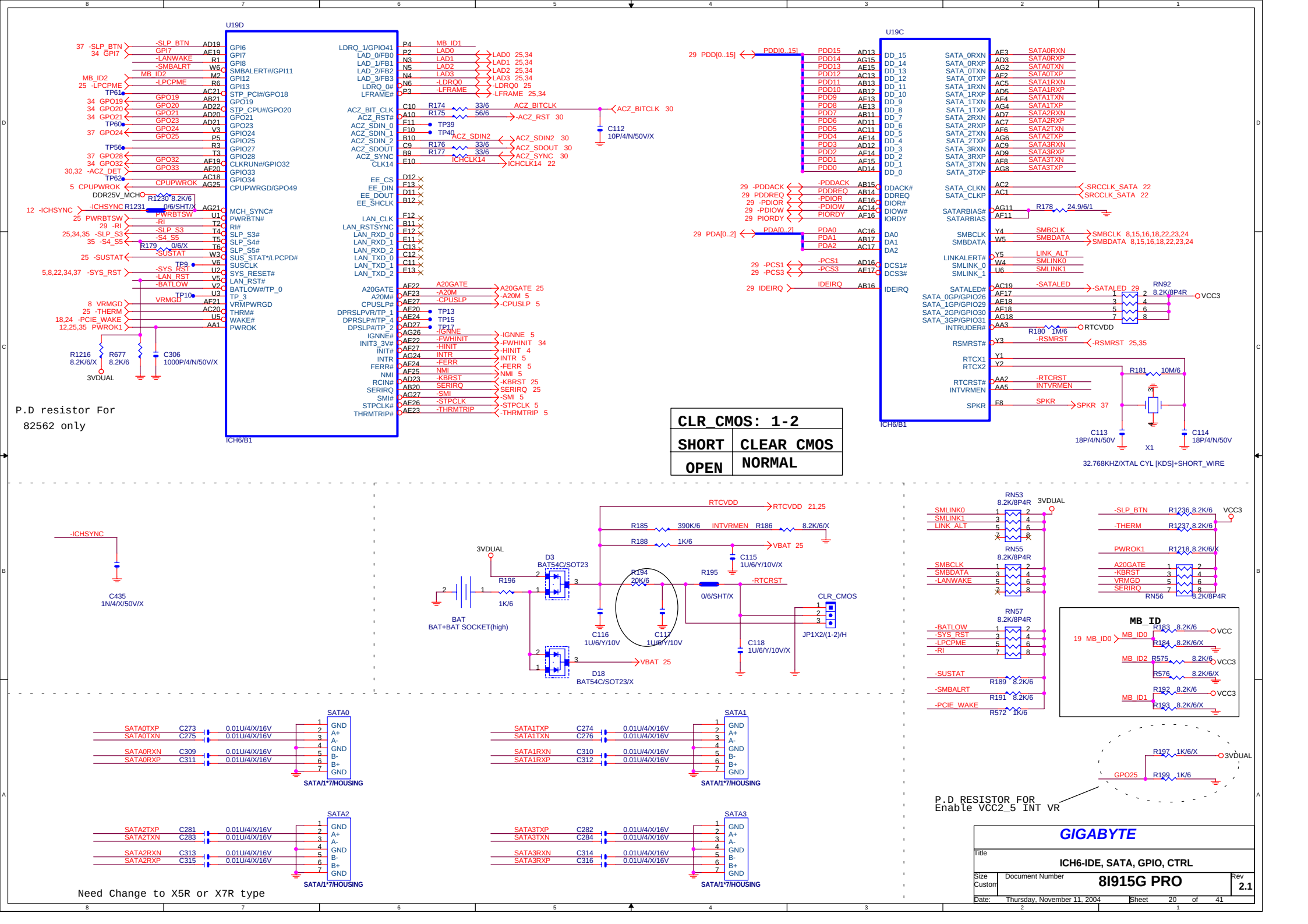
Title	PCI EXPRESS * 16		
Size: Custom	Document Number: 8I915G PRO		Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 18 of 41		

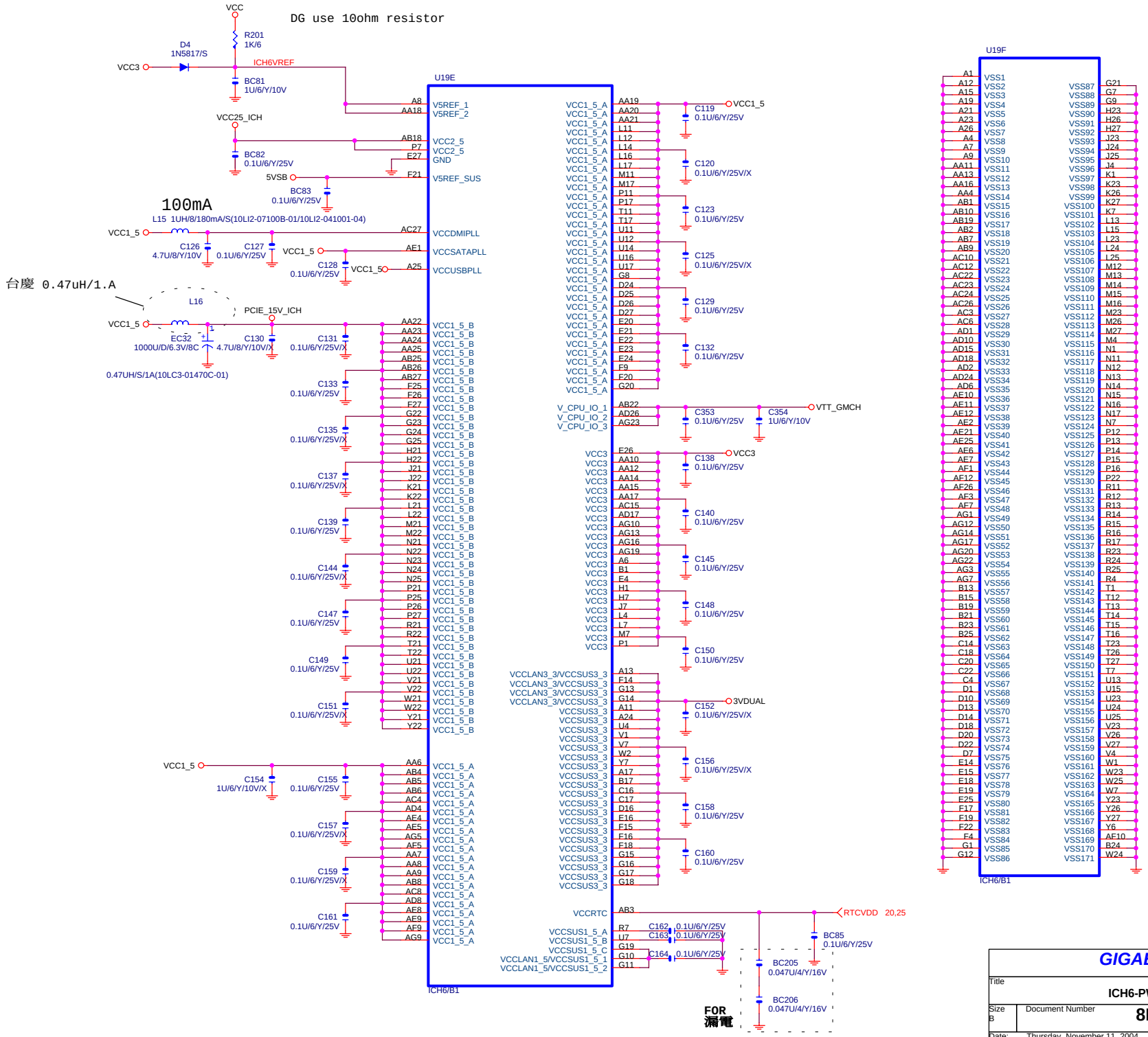
DMI Connection Note
GMCH TX Pin Need Connect to ICH6 RX Pin
ICH6 TX Pin Need Connect to GMCH RX Pin

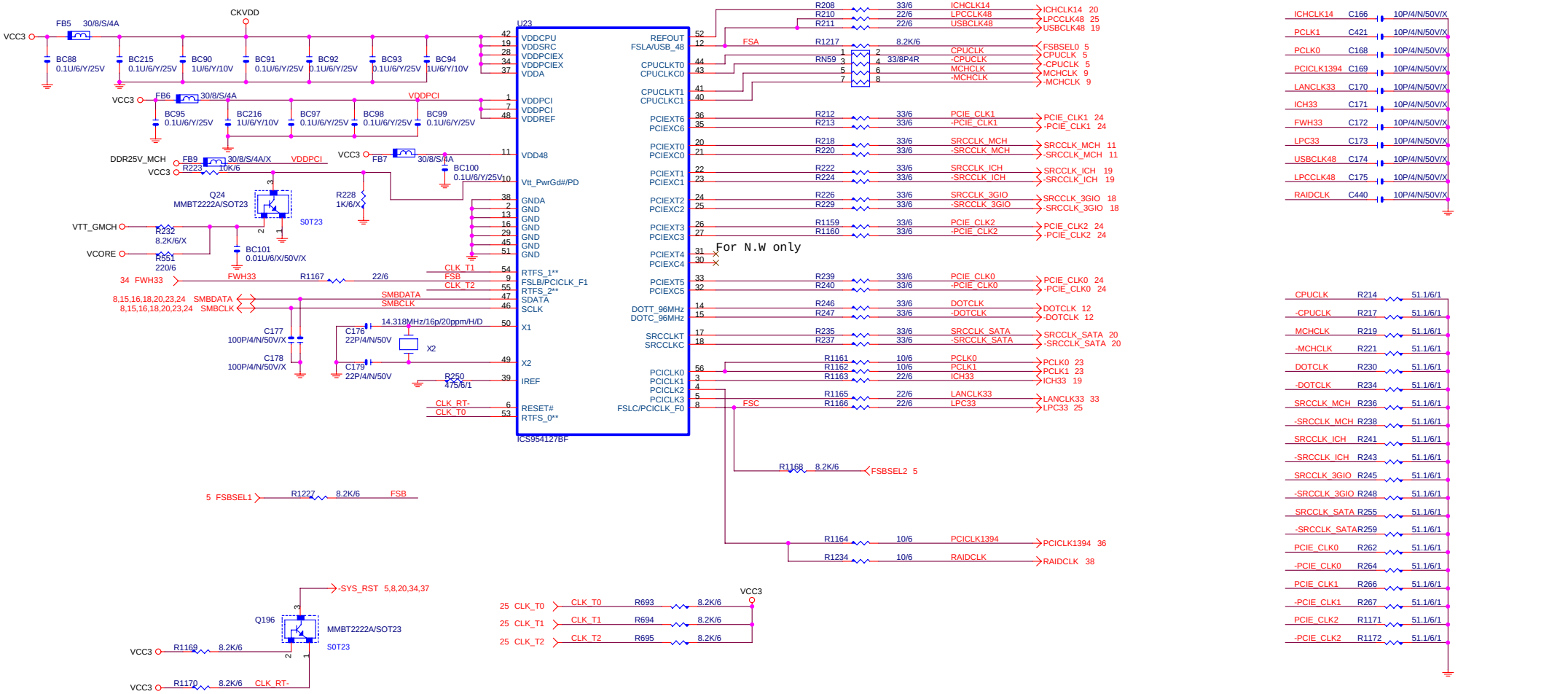




GIGABYTE			
Title	ICH6-PCI, DMI, LAN, USB		
Size B	Document Number 8I915G PRO		Rev 2.1
Date: Thursday, November 11, 2004	Sheet 19 of 41		

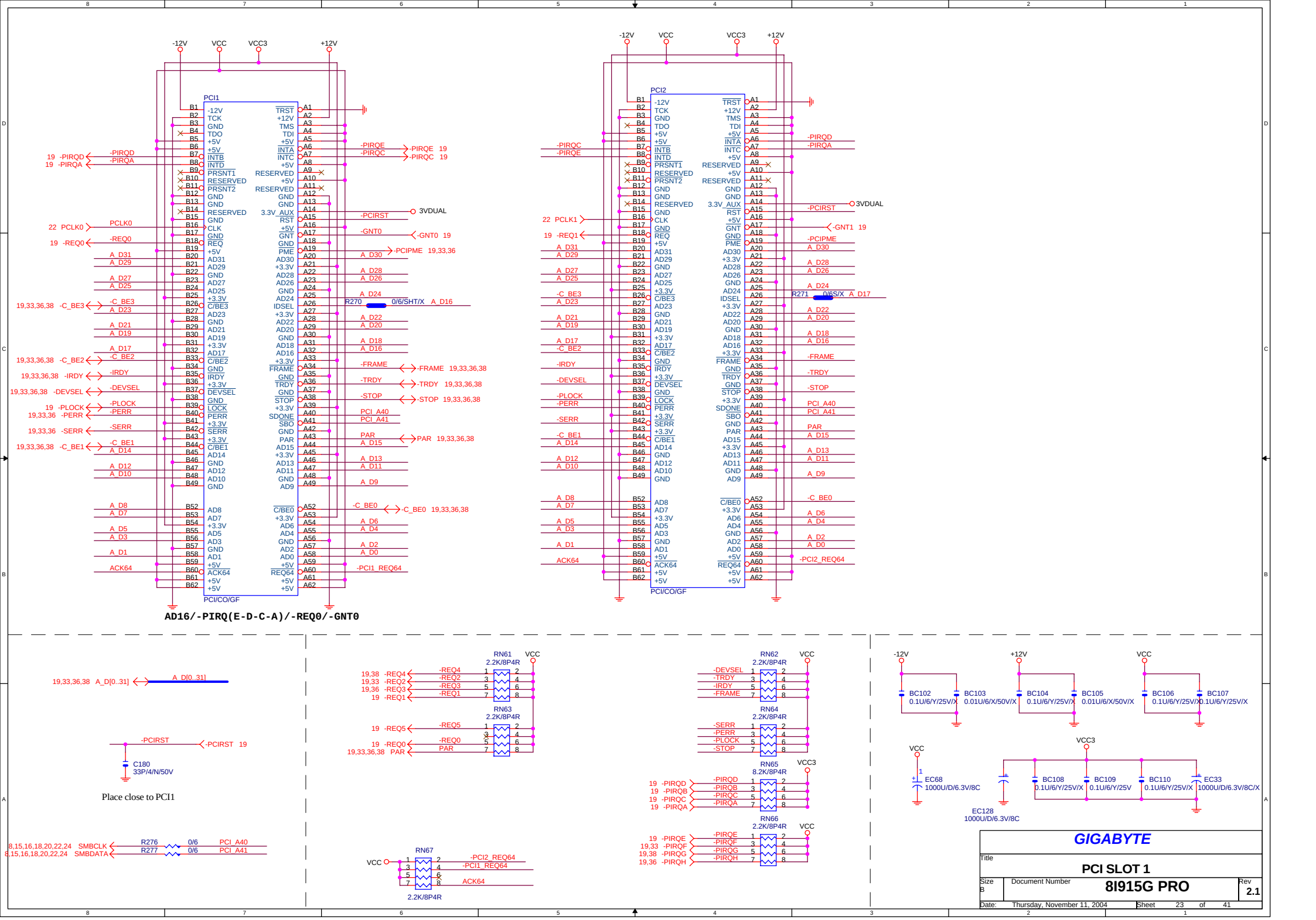

U19D
ICH6/B1
U19C
ICH6/B1
P.D resistor For
82562 only
CLR_CMOS: 1-2
SHORT CLEAR CMOS
OPEN NORMAL
32.768KHZ/XTAL CYL [KDS]+SHORT_WIRE
MB_ID
P.D RESISTOR_FOR
Enable VCC2_5 INT VR
Need Change to X5R or X7R type
SATA0
SATA1
SATA2
SATA3
SATA/1*7/HOUSING
GIGABYTE
Title
ICH6-IDE, SATA, GPIO, CTRL
Size Custom
Document Number
8I915G PRO
Rev 2.1
Date: Thursday, November 11, 2004
Sheet 20 of 41

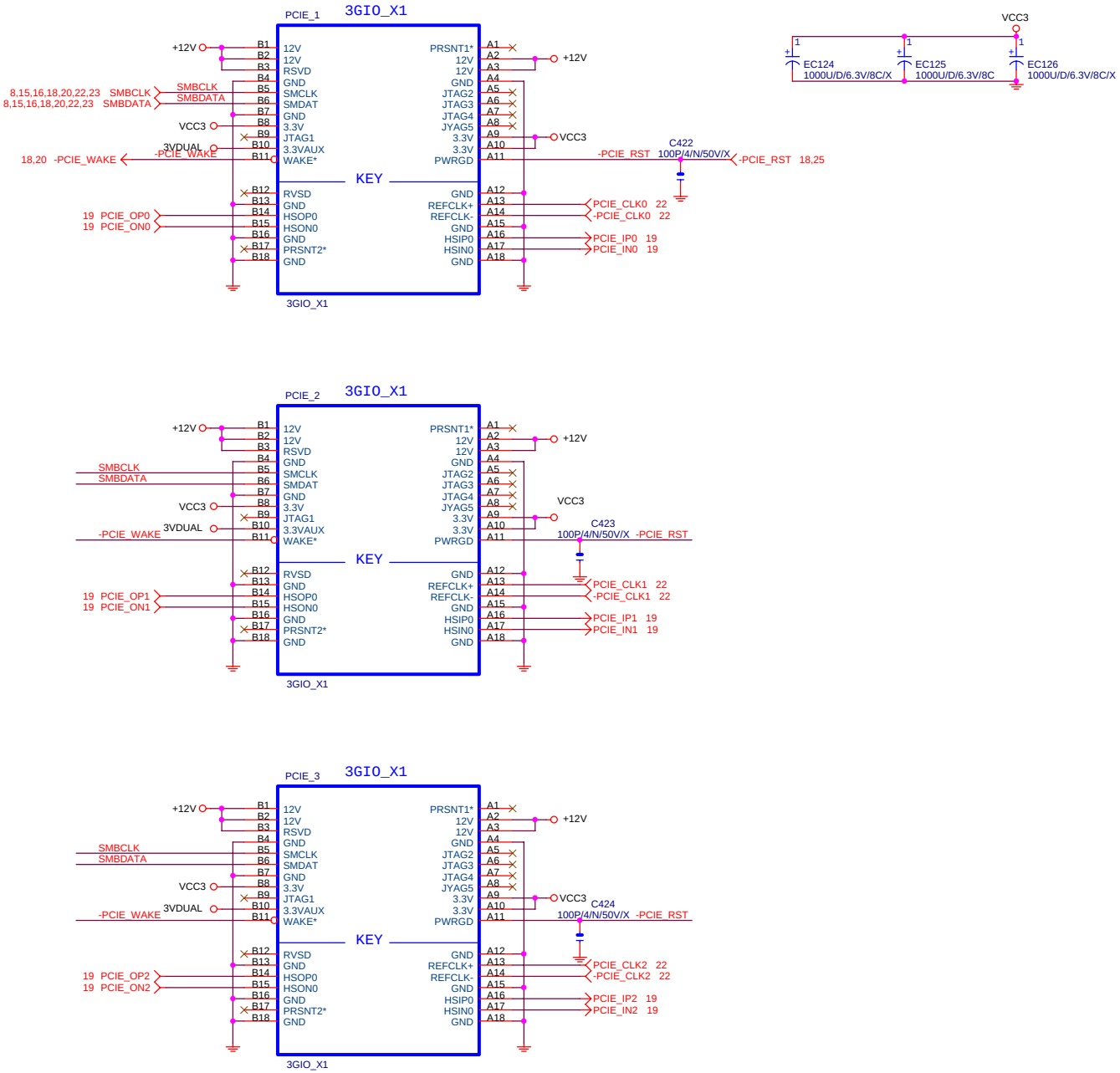

DG use 10ohm resistor
VCC
R201
1K/6
D4
1N5817/S
VCC3
ICH6VREF
BC81
1U/6/Y/10V
VCC25_ICH
BC82
0.1U/6/Y/25V
5VSB
BC83
0.1U/6/Y/25V
100mA
L15 1UH/8/180mA/S(10LI2-07100B-01/10LI2-041001-04)
VCC1_5
C126
4.7U/8/Y/10V
C127
0.1U/6/Y/25V
C128
0.1U/6/Y/25V
台慶 0.47uH/1.A
L16
PCIE_15V_ICH
EC32
1000U/D/6.3V/8C
C130
4.7U/8/Y/10V/X
C131
0.1U/6/Y/25V/X
0.47UH/S/1A(10LC3-01470C-01)
C133
0.1U/6/Y/25V
C135
0.1U/6/Y/25V/X
C137
0.1U/6/Y/25V/X
C139
0.1U/6/Y/25V
C144
0.1U/6/Y/25V/X
C147
0.1U/6/Y/25V
C149
0.1U/6/Y/25V
C151
0.1U/6/Y/25V/X
C154
1U/6/Y/10V/X
C155
0.1U/6/Y/25V
C157
0.1U/6/Y/25V/X
C159
0.1U/6/Y/25V/X
C161
0.1U/6/Y/25V
U19E
V5REF_1
V5REF_2
VCC2_5
VCC2_5
GND
V5REF_SUS
VCCDMIPLL
VCCSATAPLL
VCCUSBPLL
VCC1_5_B
VCC1_5_A
ICH6/B1
C119
0.1U/6/Y/25V
C120
0.1U/6/Y/25V/X
C123
0.1U/6/Y/25V
C125
0.1U/6/Y/25V/X
C129
0.1U/6/Y/25V
C132
0.1U/6/Y/25V
V_CPU_IO_1
V_CPU_IO_2
V_CPU_IO_3
C353
0.1U/6/Y/25V
C354
1U/6/Y/10V
VTT_GMCH
C138
0.1U/6/Y/25V
C140
0.1U/6/Y/25V
C145
0.1U/6/Y/25V
C148
0.1U/6/Y/25V
C150
0.1U/6/Y/25V
VCCLAN3_3/VCCSUS3_3
3VDUAL
C152
0.1U/6/Y/25V/X
C156
0.1U/6/Y/25V/X
C158
0.1U/6/Y/25V
C160
0.1U/6/Y/25V
VCCRTC
RTCVDD 20,25
C162
0.1U/6/Y/25V
C163
0.1U/6/Y/25V
C164
0.1U/6/Y/25V
VCCSUS1_5_A
VCCSUS1_5_B
VCCSUS1_5_C
VCCLAN1_5/VCCSUS1_5_1
VCCLAN1_5/VCCSUS1_5_2
BC85
0.1U/6/Y/25V
BC205
0.047U/4/Y/16V
BC206
0.047U/4/Y/16V
FOR
漏電
U19F
VSS1
VSS2
VSS3
VSS4
VSS5
VSS6
VSS7
VSS8
VSS9
VSS10
VSS11
VSS12
VSS13
VSS14
VSS15
VSS16
VSS17
VSS18
VSS19
VSS20
VSS21
VSS22
VSS23
VSS24
VSS25
VSS26
VSS27
VSS28
VSS29
VSS30
VSS31
VSS32
VSS33
VSS34
VSS35
VSS36
VSS37
VSS38
VSS39
VSS40
VSS41
VSS42
VSS43
VSS44
VSS45
VSS46
VSS47
VSS48
VSS49
VSS50
VSS51
VSS52
VSS53
VSS54
VSS55
VSS56
VSS57
VSS58
VSS59
VSS60
VSS61
VSS62
VSS63
VSS64
VSS65
VSS66
VSS67
VSS68
VSS69
VSS70
VSS71
VSS72
VSS73
VSS74
VSS75
VSS76
VSS77
VSS78
VSS79
VSS80
VSS81
VSS82
VSS83
VSS84
VSS85
VSS86
VSS87
VSS88
VSS89
VSS90
VSS91
VSS92
VSS93
VSS94
VSS95
VSS96
VSS97
VSS98
VSS99
VSS100
VSS101
VSS102
VSS103
VSS104
VSS105
VSS106
VSS107
VSS108
VSS109
VSS110
VSS111
VSS112
VSS113
VSS114
VSS115
VSS116
VSS117
VSS118
VSS119
VSS120
VSS121
VSS122
VSS123
VSS124
VSS125
VSS126
VSS127
VSS128
VSS129
VSS130
VSS131
VSS132
VSS133
VSS134
VSS135
VSS136
VSS137
VSS138
VSS139
VSS140
VSS141
VSS142
VSS143
VSS144
VSS145
VSS146
VSS147
VSS148
VSS149
VSS150
VSS151
VSS152
VSS153
VSS154
VSS155
VSS156
VSS157
VSS158
VSS159
VSS160
VSS161
VSS162
VSS163
VSS164
VSS165
VSS166
VSS167
VSS168
VSS169
VSS170
VSS171
ICH6/B1
GIGABYTE
Title
ICH6-PWR & GND
Size
B
Document Number
8I915G PRO
Rev
2.1
Date:
Thursday, November 11, 2004
Sheet
21
of
41



GIGABYTE

Title	CK410M/GBT_CLK GEN	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 22 of 41	


PCI1
PCI2
PCI/CO/GF
-12V
VCC
VCC3
+12V
AD16/-PIRQ(E-D-C-A)/-REQ0/-GNT0
A_D[0..31]
C180
33P/4/N/50V
Place close to PCI1
RN61
RN62
RN63
RN64
RN65
RN66
RN67
2.2K/8P4R
8.2K/8P4R
R276
R277
SMBCLK
SMBDATA
BC102
BC103
BC104
BC105
BC106
BC107
BC108
BC109
BC110
EC68
EC128
EC33
GIGABYTE
PCI SLOT 1
8I915G PRO
Rev
2.1
Size
B
Document Number
Title
Date:
Thursday, November 11, 2004
Sheet
23
of
41

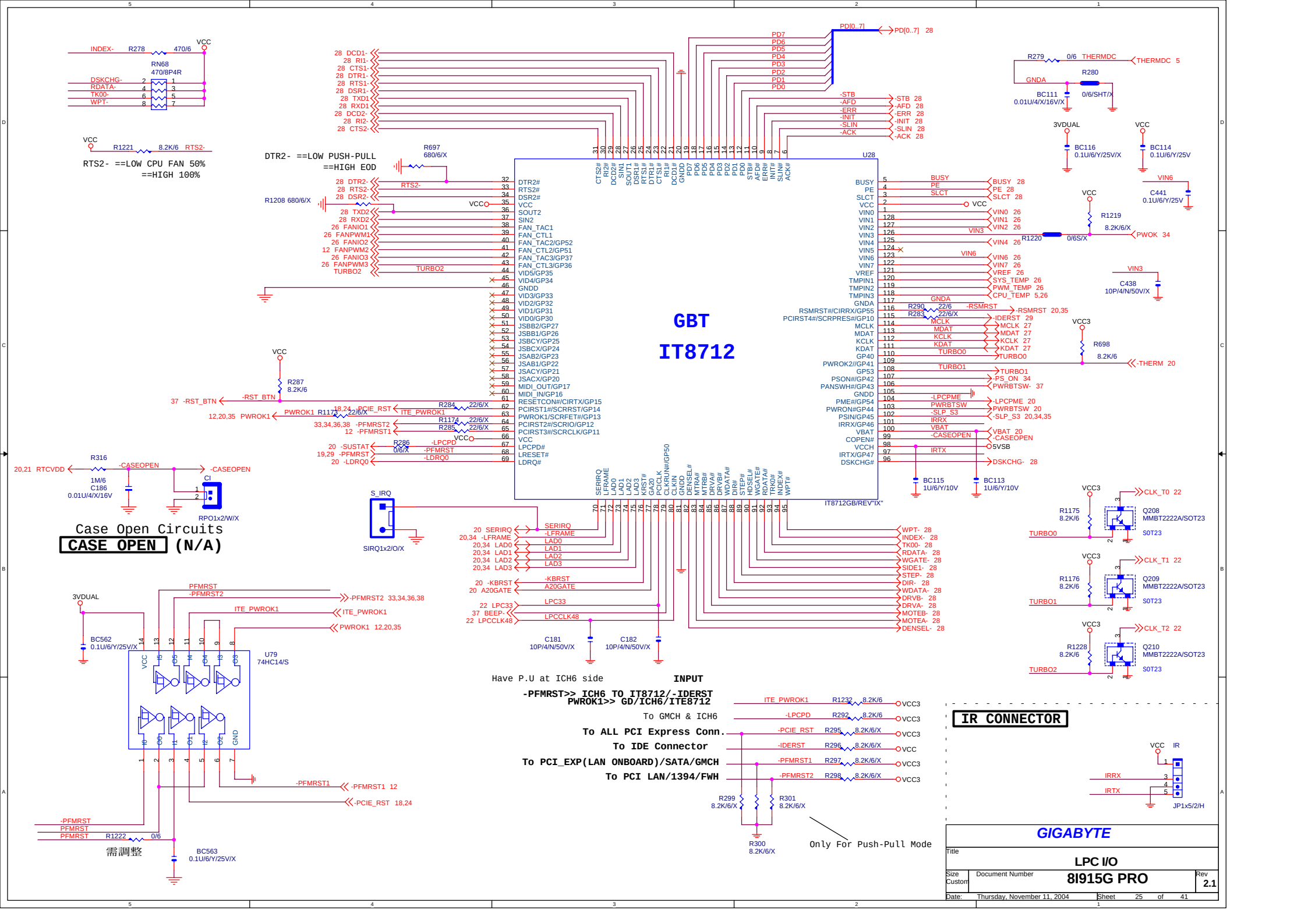


GIGABYTE

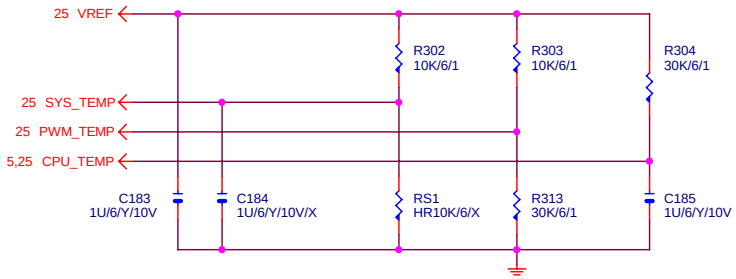
Title: PCI E SLOT 1, 2

Size: B | Document Number: 8I915G PRO | Rev: 2.1

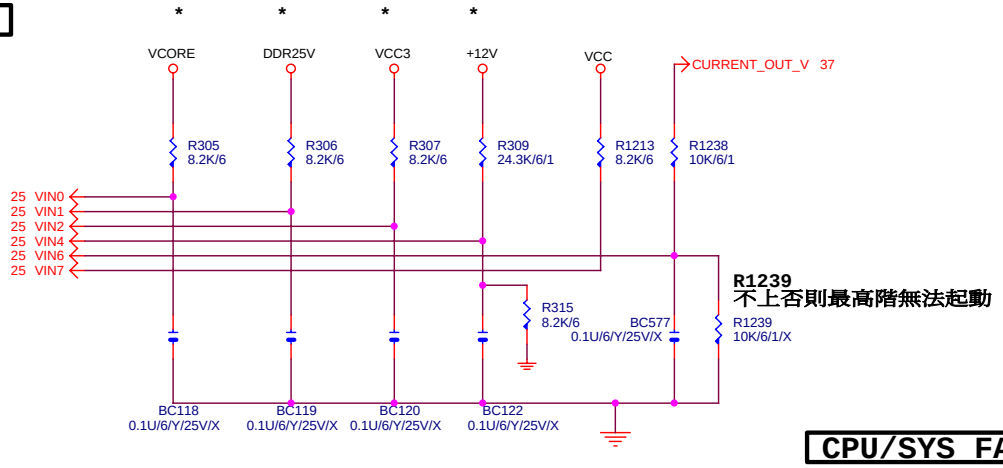
Date: Thursday, November 11, 2004 | Sheet 24 of 41


GBT
IT8712
IT8712GB/REV"IX"
DTR2- ==LOW PUSH-PULL
==HIGH EOD
RTS2- ==LOW CPU FAN 50%
==HIGH 100%
Case Open Circuits
CASE OPEN (N/A)
Have P.U at ICH6 side
INPUT
-PFMRST>> ICH6 TO IT8712/-IDERST
PWROK1>> GD/ICH6/ITE8712
To GMCH & ICH6
To ALL PCI Express Conn.
To IDE Connector
To PCI_EXP(LAN ONBOARD)/SATA/GMCH
To PCI LAN/1394/FWH
Only For Push-Pull Mode
IR CONNECTOR
GIGABYTE
LPC I/O
8I915G PRO
Rev 2.1
Thursday, November 11, 2004
Sheet 25 of 41

TEMP. SENSE

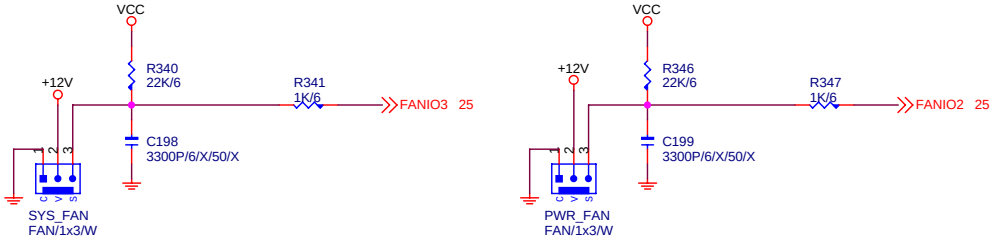


VOLTAGE SENSE

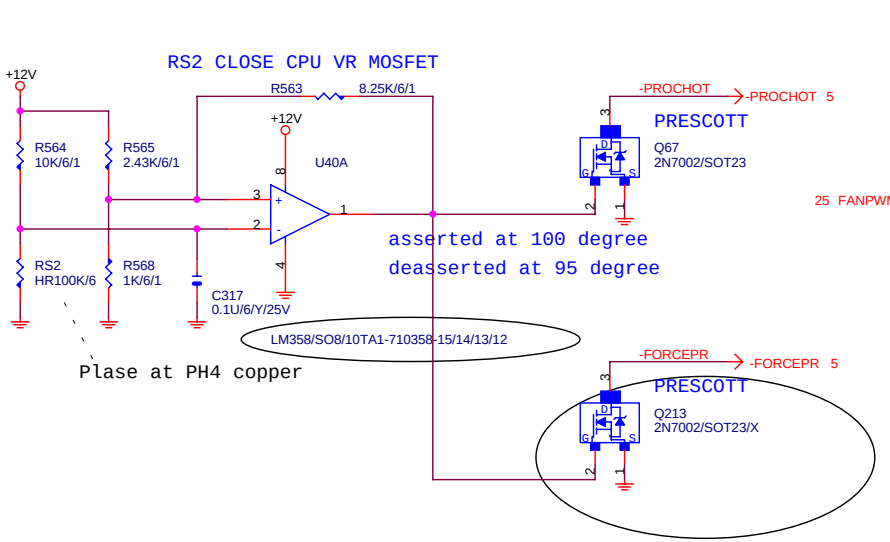


R1239
不上否則最高階無法起動

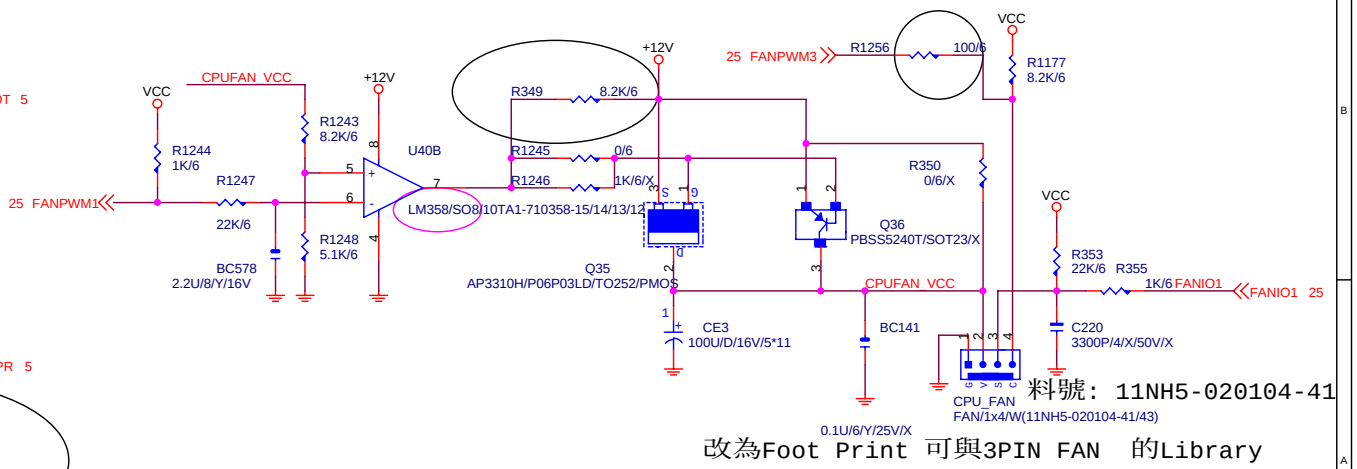
CPU/SYS FAN



RS2 CLOSE CPU VR MOSFET



Plase at PH4 copper

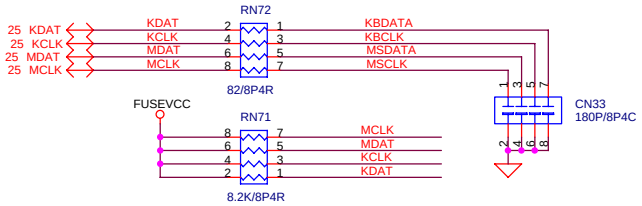


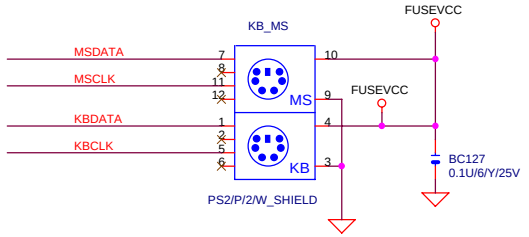
料號: 11NH5-020104-41

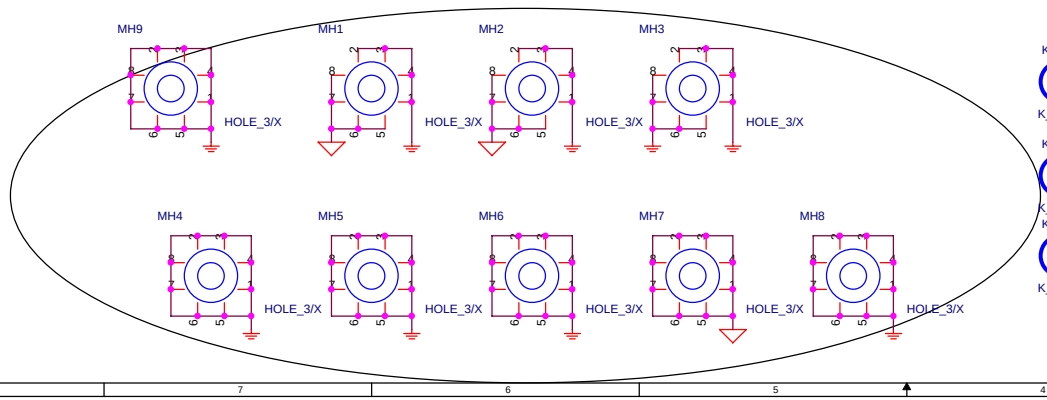
改為Foot Print 可與3PIN FAN 的Library

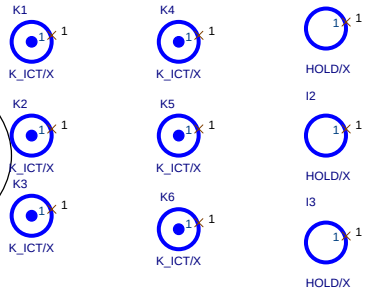
GIGABYTE		
Title: HWM/FAN/CI/BIOS		
Size: B	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 26 of 41	

KB/MS



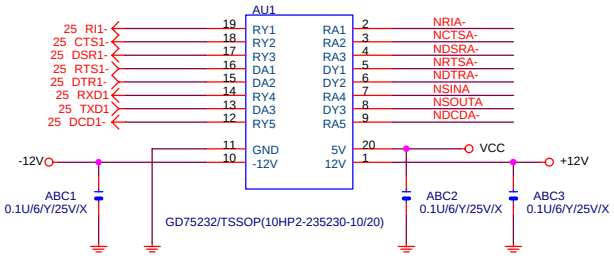




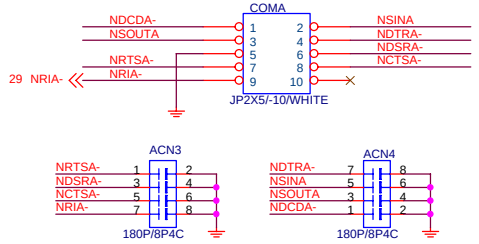


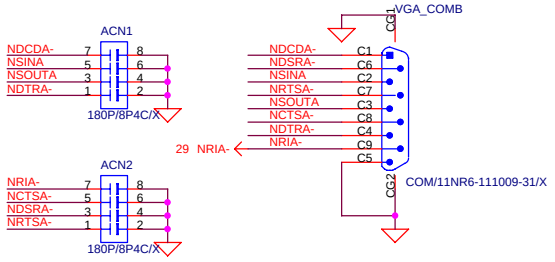
GIGABYTE		
Title	PS/2 KB & MS	
Size B	Document Number 8I915G PRO	Rev 2.1
Date: Thursday, November 11, 2004	Sheet 27 of 41	

COMA/COMB

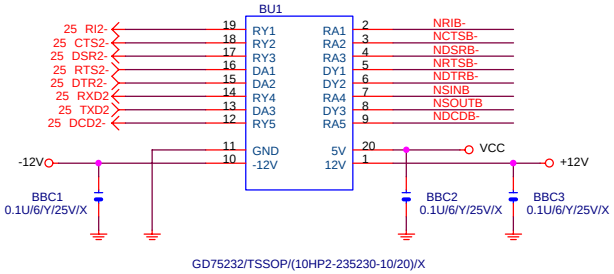


INTERNAL COMA

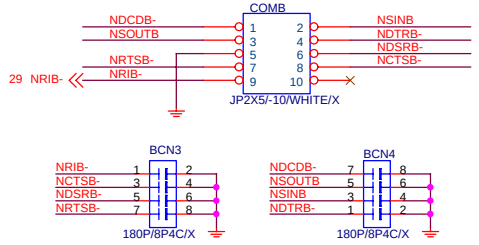




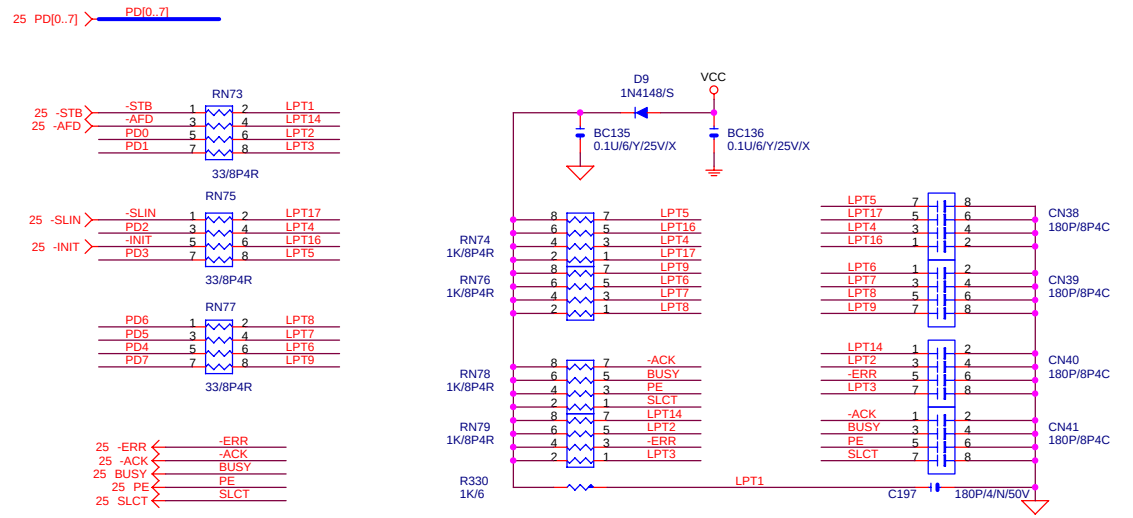
PLACE NEAR VGA_COM CONNECTOR



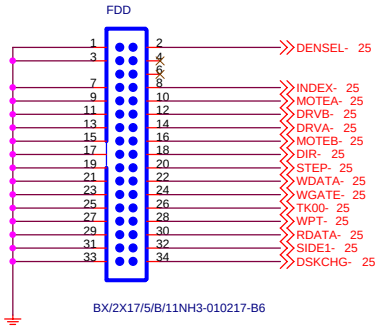
INTERNAL COMB



LPT



FLOPPY



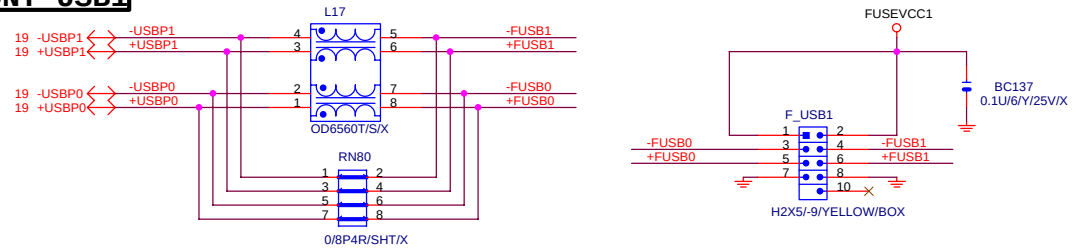
GIGABYTE

Title: COM, LPT, FDD

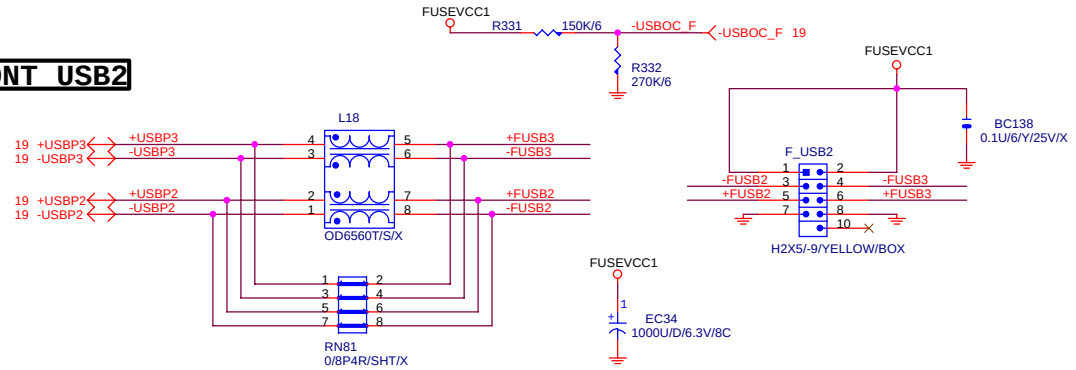
Size	Document Number	Rev
B	8I915G PRO	2.1

Date: Thursday, November 11, 2004 Sheet 28 of 41

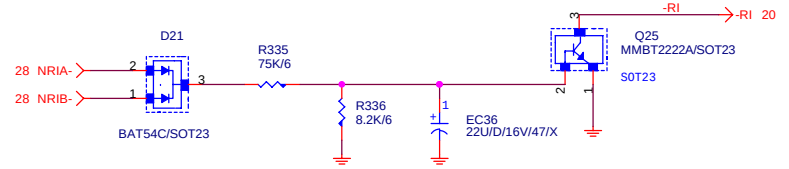
FRONT USB1



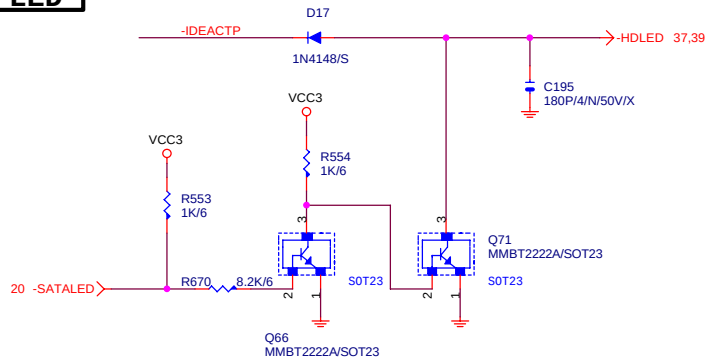
FRONT USB2



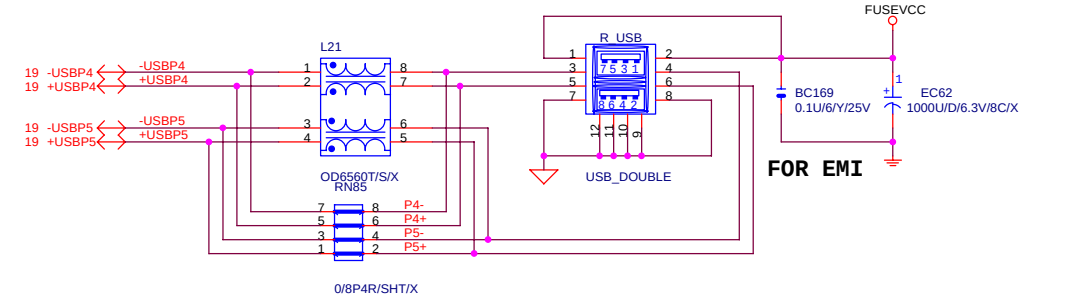
RING IN



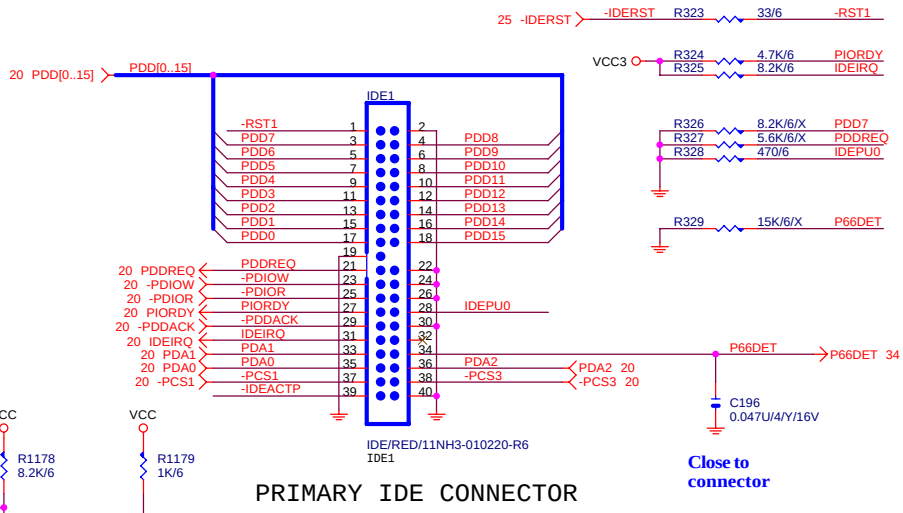
IDE/SATA LED



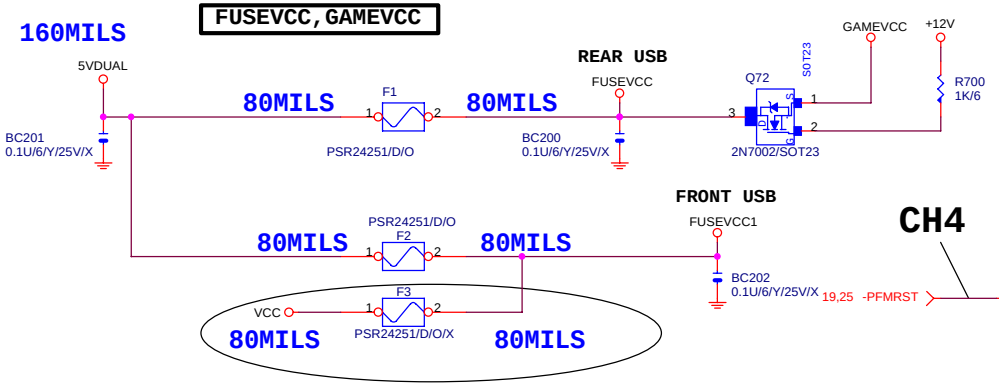
REAR USB



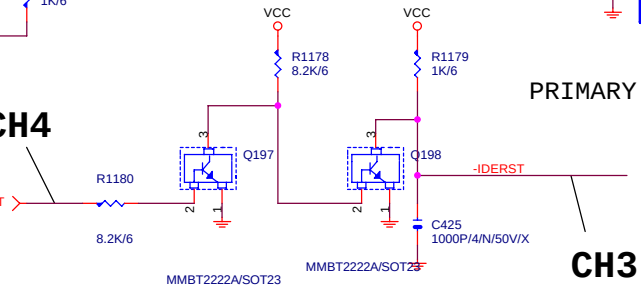
IDE



FUSEVCC, GAMEVCC



CH4



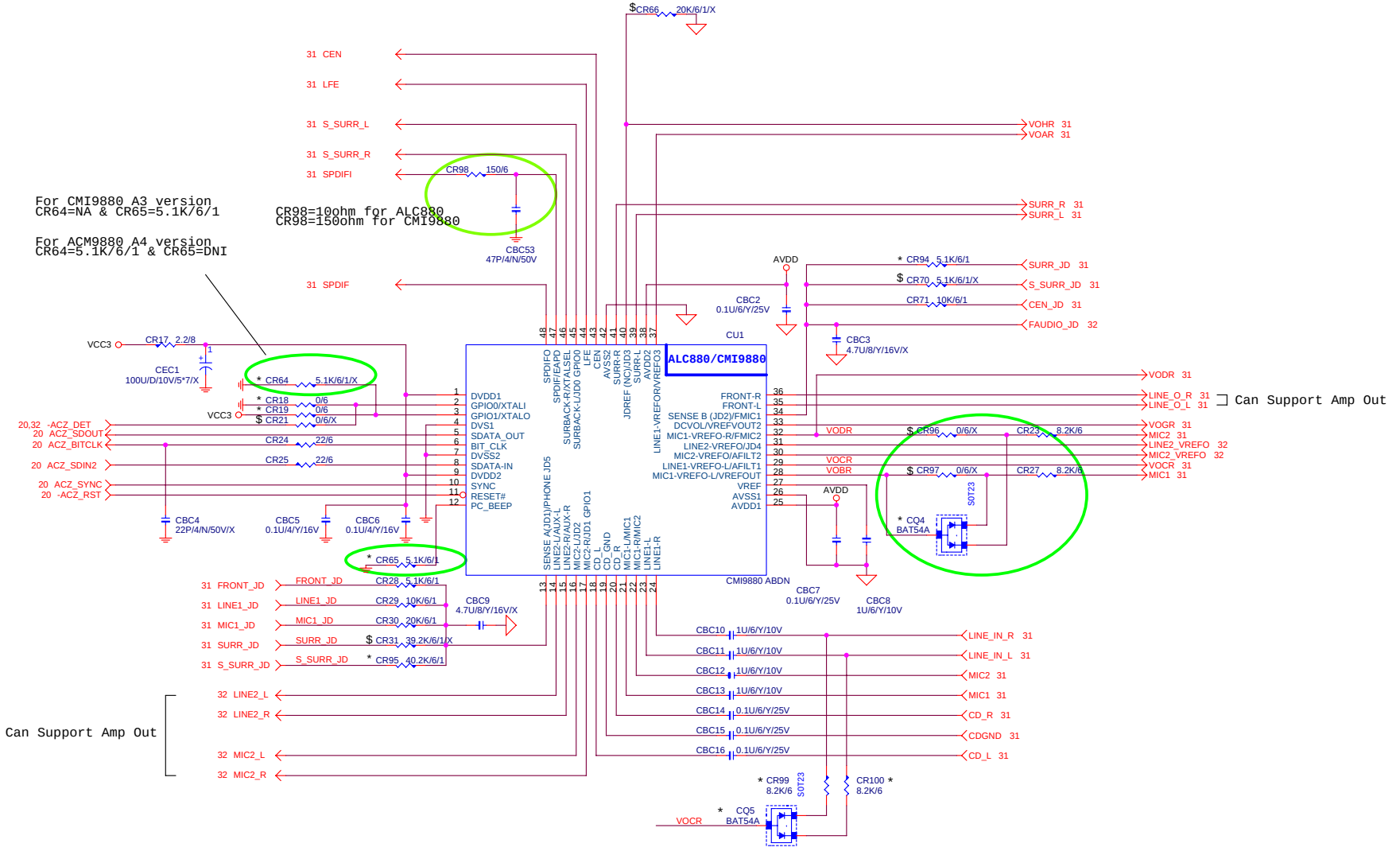
GIGABYTE

Title: FRONT/REAR USB CONNECTOR/IDE

Size: Custom | Document Number: 8I915G PRO | Rev: 2.1

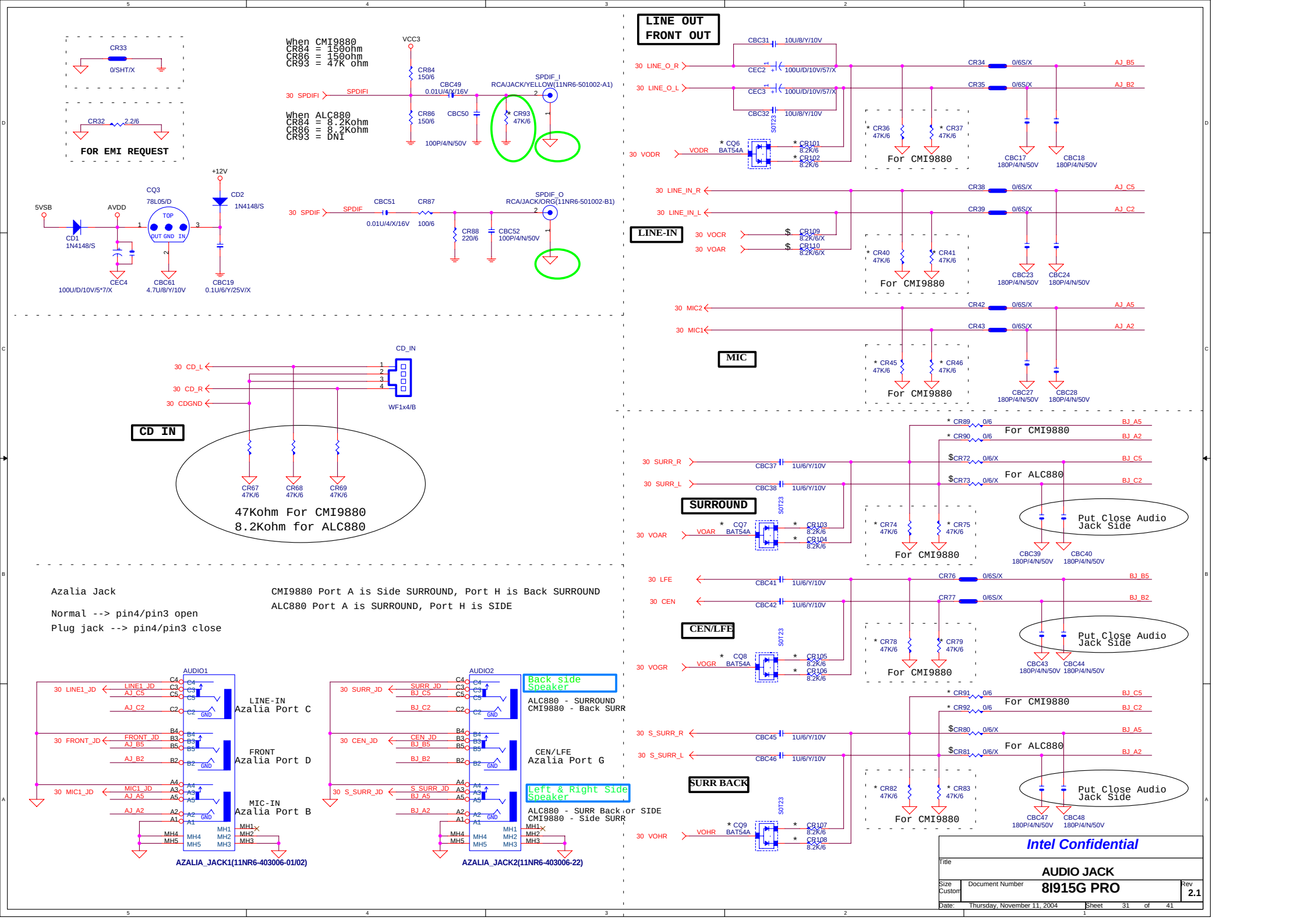
Date: Thursday, November 11, 2004 | Sheet 29 of 41

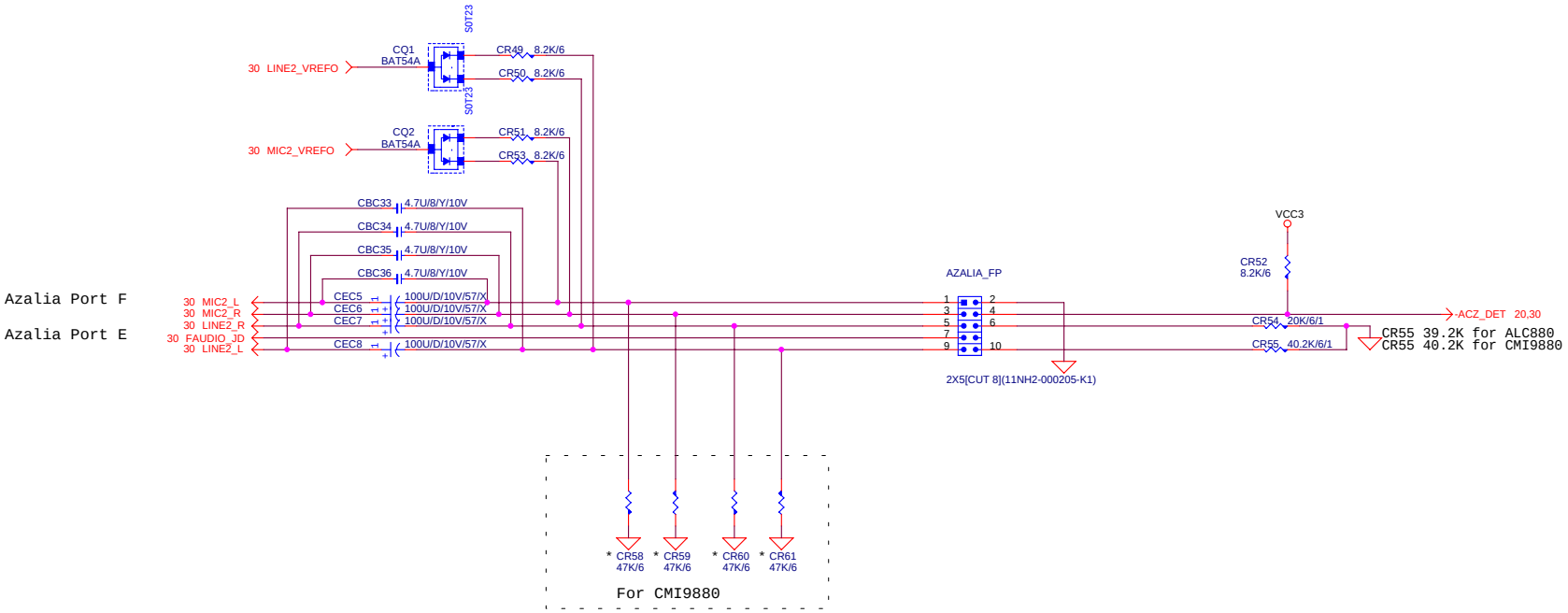
"$" means for ALC880 only
"*" means for CMI9880 only



Intel Confidential

Title	ALC880/CMI9880	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 30 of 41	


CR33
0/SHT/X
CR32
2.2/6
FOR EMI REQUEST
When CMI9880
CR84 = 150ohm
CR86 = 150ohm
CR93 = 47K ohm
When ALC880
CR84 = 8.2Kohm
CR86 = 8.2Kohm
CR93 = DNI
VCC3
CR84 150/6
CBC49 0.01U/4/X/16V
CR86 150/6
CBC50
100P/4/N/50V
* CR93 47K/6
SPDIF_I
RCA/JACK/YELLOW(11NR6-501002-A1)
30 SPDIFI
SPDIFI
+12V
CQ3
78L05/D
5VSB
AVDD
CD1 1N4148/S
CD2 1N4148/S
CEC4 100U/D/10V/5*7/X
CBC61 4.7U/8/Y/10V
CBC19 0.1U/6/Y/25V/X
SPDIF_O
RCA/JACK/ORG(11NR6-501002-B1)
30 SPDIF
SPDIF
CBC51 0.01U/4/X/16V
CR87 100/6
CR88 220/6
CBC52 100P/4/N/50V
LINE OUT
FRONT OUT
30 LINE_O_R
30 LINE_O_L
CBC31 10U/8/Y/10V
CEC2 100U/D/10V/57/X
CEC3 100U/D/10V/57/X
CBC32 10U/8/Y/10V
CR34 0/6S/X
CR35 0/6S/X
AJ_B5
AJ_B2
30 VODR
VODR
* CQ6 BAT54A
SOT23
* CR101 8.2K/6
* CR102 8.2K/6
* CR36 47K/6
* CR37 47K/6
For CMI9880
CBC17 180P/4/N/50V
CBC18 180P/4/N/50V
LINE-IN
30 LINE_IN_R
30 LINE_IN_L
30 VOCR
30 VOAR
$ CR109 8.2K/6/X
$ CR110 8.2K/6/X
CR38 0/6S/X
CR39 0/6S/X
AJ_C5
AJ_C2
* CR40 47K/6
* CR41 47K/6
For CMI9880
CBC23 180P/4/N/50V
CBC24 180P/4/N/50V
MIC
30 MIC2
30 MIC1
CR42 0/6S/X
CR43 0/6S/X
AJ_A5
AJ_A2
* CR45 47K/6
* CR46 47K/6
For CMI9880
CBC27 180P/4/N/50V
CBC28 180P/4/N/50V
CD IN
CD_IN
30 CD_L
30 CD_R
30 CDGND
WF1x4/B
CR67 47K/6
CR68 47K/6
CR69 47K/6
47Kohm For CMI9880
8.2Kohm for ALC880
SURROUND
30 SURR_R
30 SURR_L
CBC37 1U/6/Y/10V
CBC38 1U/6/Y/10V
30 VOAR
* CQ7 BAT54A
SOT23
* CR103 8.2K/6
* CR104 8.2K/6
* CR89 0/6
* CR90 0/6
For CMI9880
$CR72 0/6/X
$CR73 0/6/X
For ALC880
BJ_A5
BJ_A2
BJ_C5
BJ_C2
* CR74 47K/6
* CR75 47K/6
For CMI9880
Put Close Audio Jack Side
CBC39 180P/4/N/50V
CBC40 180P/4/N/50V
CEN/LFE
30 LFE
30 CEN
CBC41 1U/6/Y/10V
CBC42 1U/6/Y/10V
30 VOGR
* CQ8 BAT54A
SOT23
* CR105 8.2K/6
* CR106 8.2K/6
CR76 0/6S/X
CR77 0/6S/X
BJ_B5
BJ_B2
* CR78 47K/6
* CR79 47K/6
For CMI9880
Put Close Audio Jack Side
CBC43 180P/4/N/50V
CBC44 180P/4/N/50V
SURR BACK
30 S_SURR_R
30 S_SURR_L
CBC45 1U/6/Y/10V
CBC46 1U/6/Y/10V
30 VOHR
* CQ9 BAT54A
SOT23
* CR107 8.2K/6
* CR108 8.2K/6
* CR91 0/6
* CR92 0/6
For CMI9880
$CR80 0/6/X
$CR81 0/6/X
For ALC880
BJ_C5
BJ_C2
BJ_A5
BJ_A2
* CR82 47K/6
* CR83 47K/6
For CMI9880
Put Close Audio Jack Side
CBC47 180P/4/N/50V
CBC48 180P/4/N/50V
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
AUDIO1
30 LINE1_JD
LINE1_JD
AJ_C5
AJ_C2
LINE-IN
Azalia Port C
30 FRONT_JD
FRONT_JD
AJ_B5
AJ_B2
FRONT
Azalia Port D
30 MIC1_JD
MIC1_JD
AJ_A5
AJ_A2
MIC-IN
Azalia Port B
AZALIA_JACK1(11NR6-403006-01/02)
AUDIO2
30 SURR_JD
SURR_JD
BJ_C5
BJ_C2
Back side Speaker
ALC880 - SURROUND
CMI9880 - Back SURR
30 CEN_JD
CEN_JD
BJ_B5
BJ_B2
CEN/LFE
Azalia Port G
30 S_SURR_JD
S_SURR_JD
BJ_A5
BJ_A2
Left & Right Side Speaker
ALC880 - SURR Back or SIDE
CMI9880 - Side SURR
AZALIA_JACK2(11NR6-403006-22)
Intel Confidential
Title
AUDIO JACK
Size Custom
Document Number
8I915G PRO
Rev 2.1
Date: Thursday, November 11, 2004
Sheet 31 of 41



Intel Confidential

Title	FRONT AUDIO CONNECTOR	
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 32 of 41	

POWER DECOUPLING CAP.

 # Layout Check 注意事項 :

1. LU1 PIN129 需下內層GND,打 12 VIA
2. 3VDUAL , VCC3 , VDD15_L , AVDD25_L
   至少走20mil寬,並且電容擺設每兩pin至少放一顆Bypass Cap.
3. X'TAL 25MHz 兩訊號線,TRACE 愈短愈好,線寬12mil
4. MDI正負0~3,TRACE 8:7:8 , 每對之間保持 40mil

Lan Led Indicator	Yellow	Green	Orange
10Mbit		OFF	OFF
100Mbit		ON	OFF
1000Mbit		OFF	ON
Cable Link	ON		
Active	Blinking		

FOR EMI

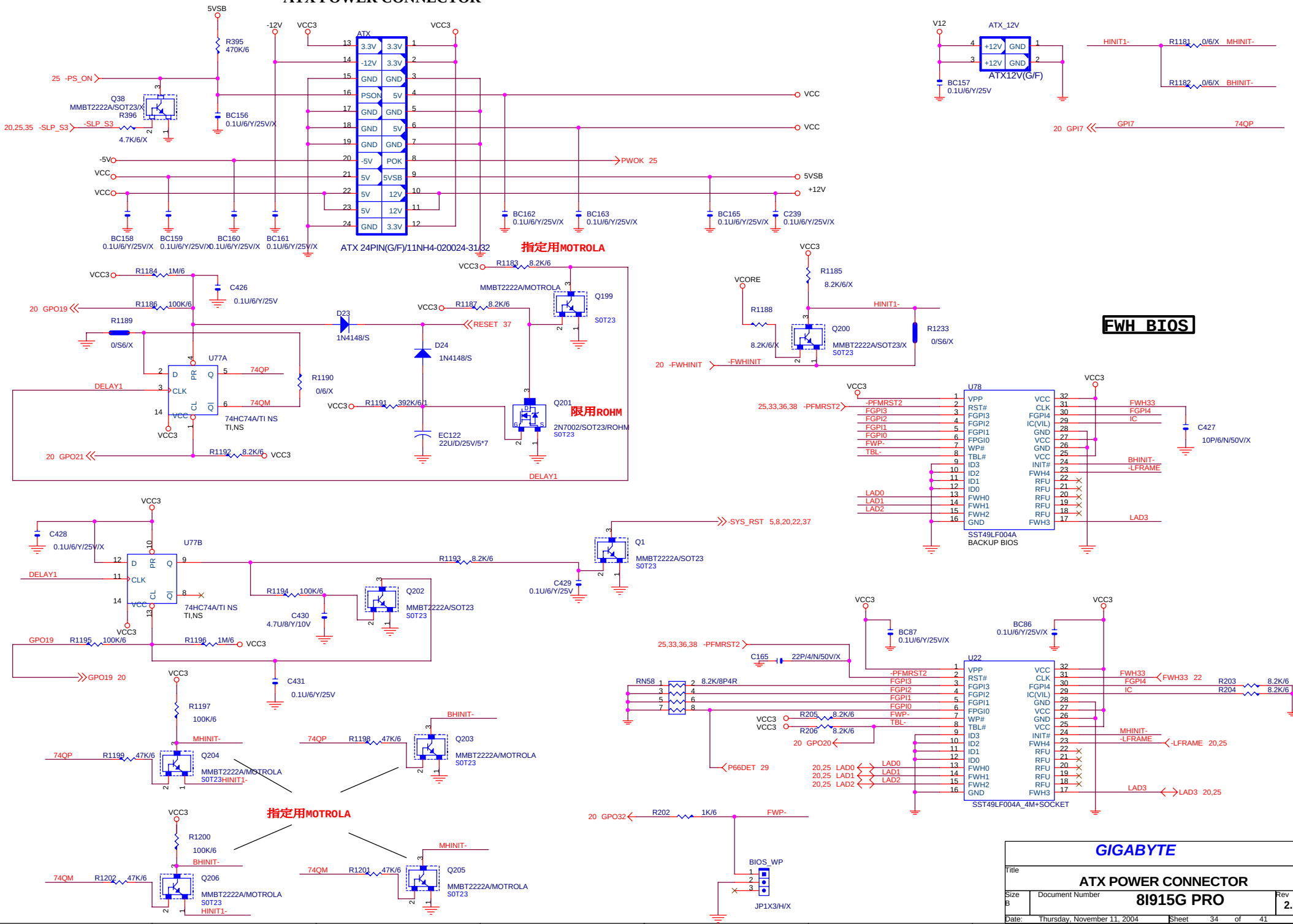
FOR EMI

1.layout 4pair to gnd
2.usb_lan pinL1,L10 tracer 40mil

Title	MARVELL 88E8001
Size: Custom	Document Number: 8I915G PRO
Rev	2.1
Date:	Thursday, November 11, 2004
Sheet	33 of 41

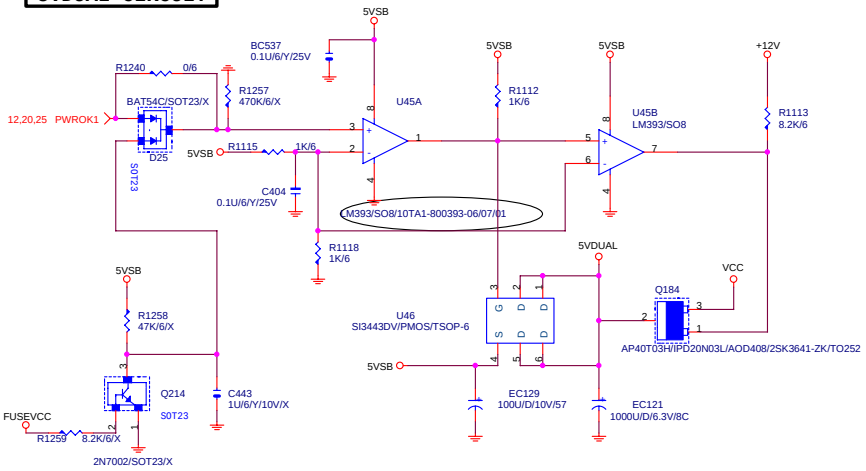
GIGABYTE

ATX POWER CONNECTOR

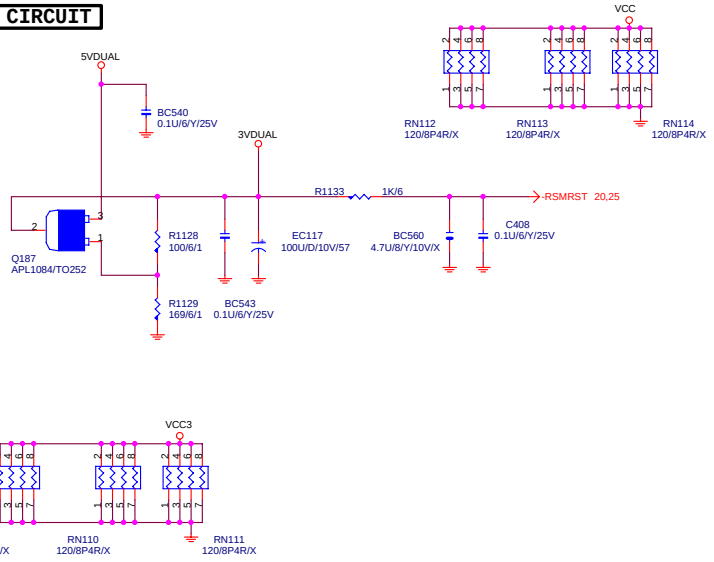


GIGABYTE		
Title	ATX POWER CONNECTOR	
Size B	Document Number 8I915G PRO	Rev 2.1
Date: Thursday, November 11, 2004	Sheet 34 of 41	

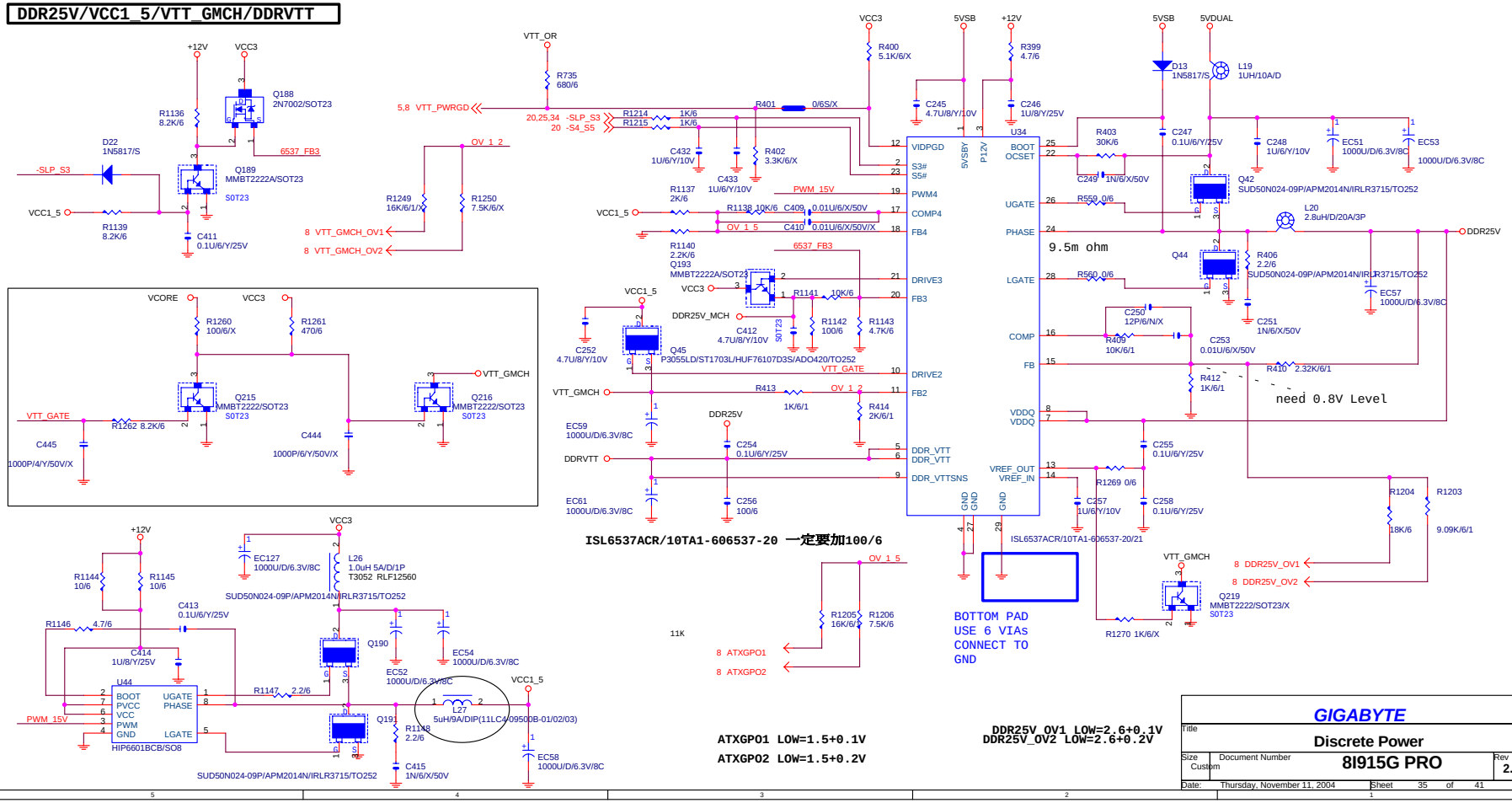
5VDUAL CIRCUIT



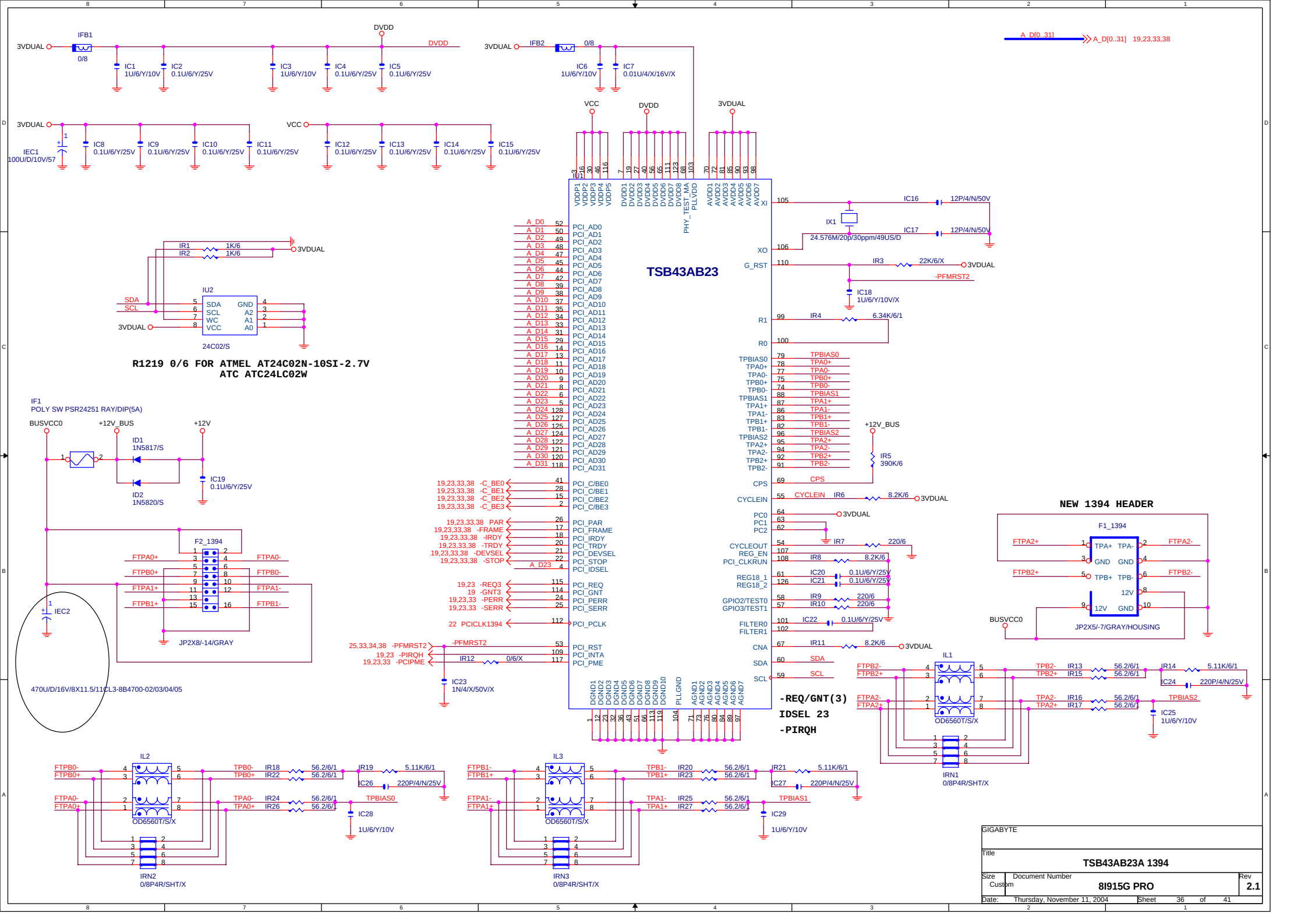
3VDUAL CIRCUIT



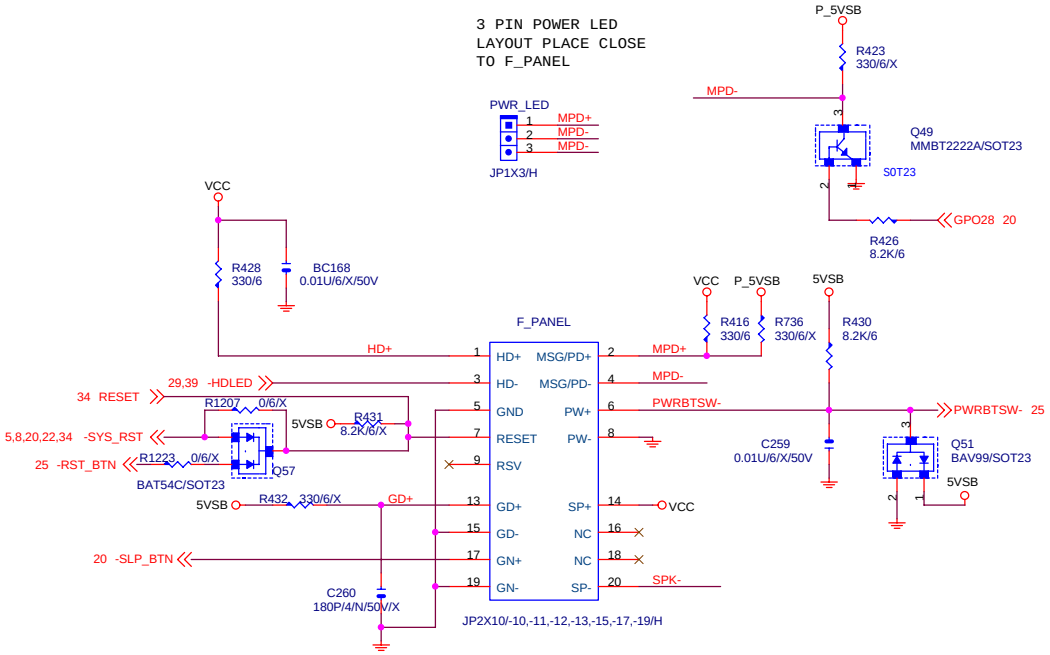
DDR25V/VCC1_5/VTT_GMCH/DDRVTT



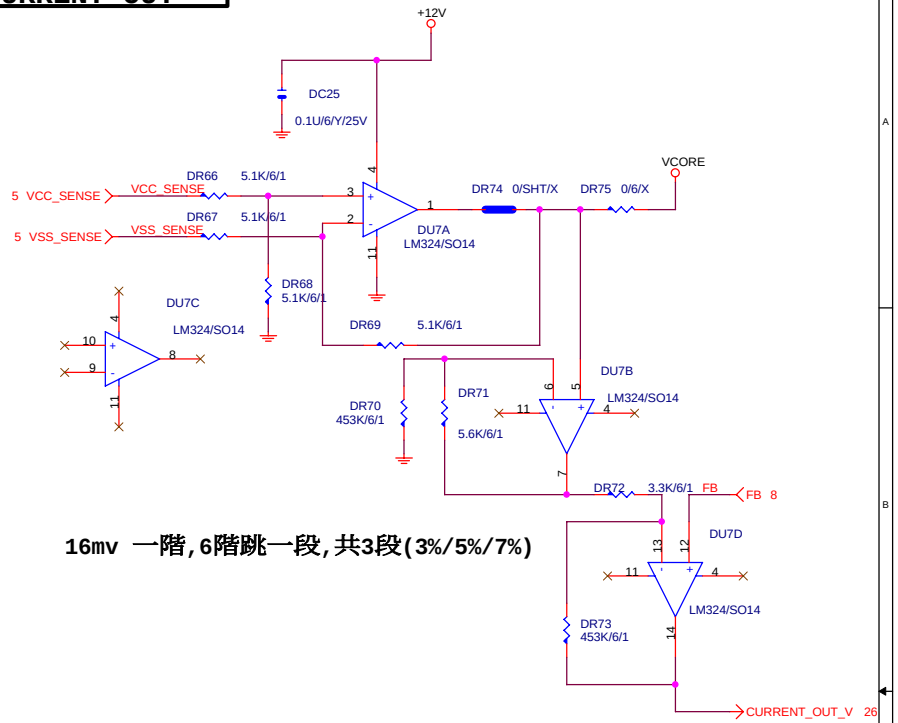
GIGABYTE			
Title: Discrete Power			
Size: Custom	Document Number: 8I915G PRO		Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 35 of 41		

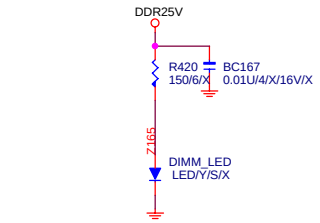

A_D[0..31]
A_D[0..31] 19,23,33,38
TSB43AB23
R1219 0/6 FOR ATMEL AT24C02N-10SI-2.7V
ATC ATC24LC02W
NEW 1394 HEADER
-REQ/GNT(3)
IDSEL 23
-PIRQH
GIGABYTE
TSB43AB23A 1394
8I915G PRO
2.1
Thursday, November 11, 2004
36 of 41

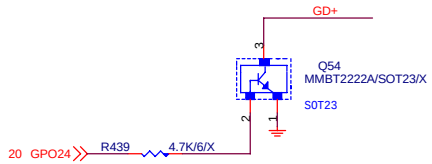
INTEL FRONT PANEL

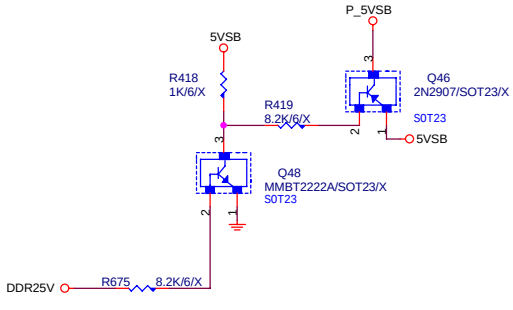


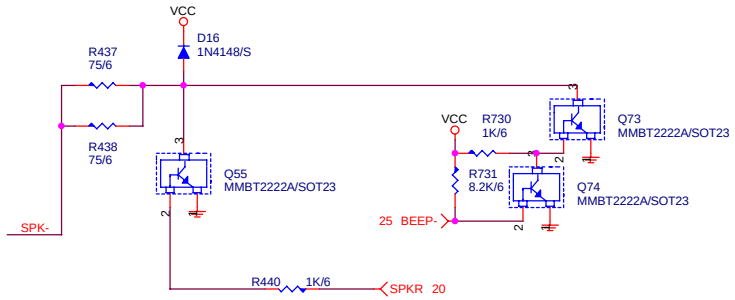
CURRENT OUT (N/A)











States for green LED NO1 GPO22 only S1 PROGRAMMING LOW

LED States	ACPI States	GP028
ON	S1,S3	0
OFF	S0,S5	1

(GPO22 DEFAULT HIGH, main power)

States for a single-color power LED

LED States	ACPI States	GP025	GP027	GP024
OFF	S1,S3,S5	1	1	NO1
Steady Green	S0	1	1	1
Blinking Green	S0(message waiting)	1	B	1

LED States	ACPI States	GP025	GP027	GP022
OFF	S5	1	1	X
Steady Green	S0	1	1	1
Blinking Green	S0(message waiting)	1	B	1
Steady Yellow	S1,S3	1	0	NO1
Blinking Yellow	S1,S3(message waiting)	1	B	NO1

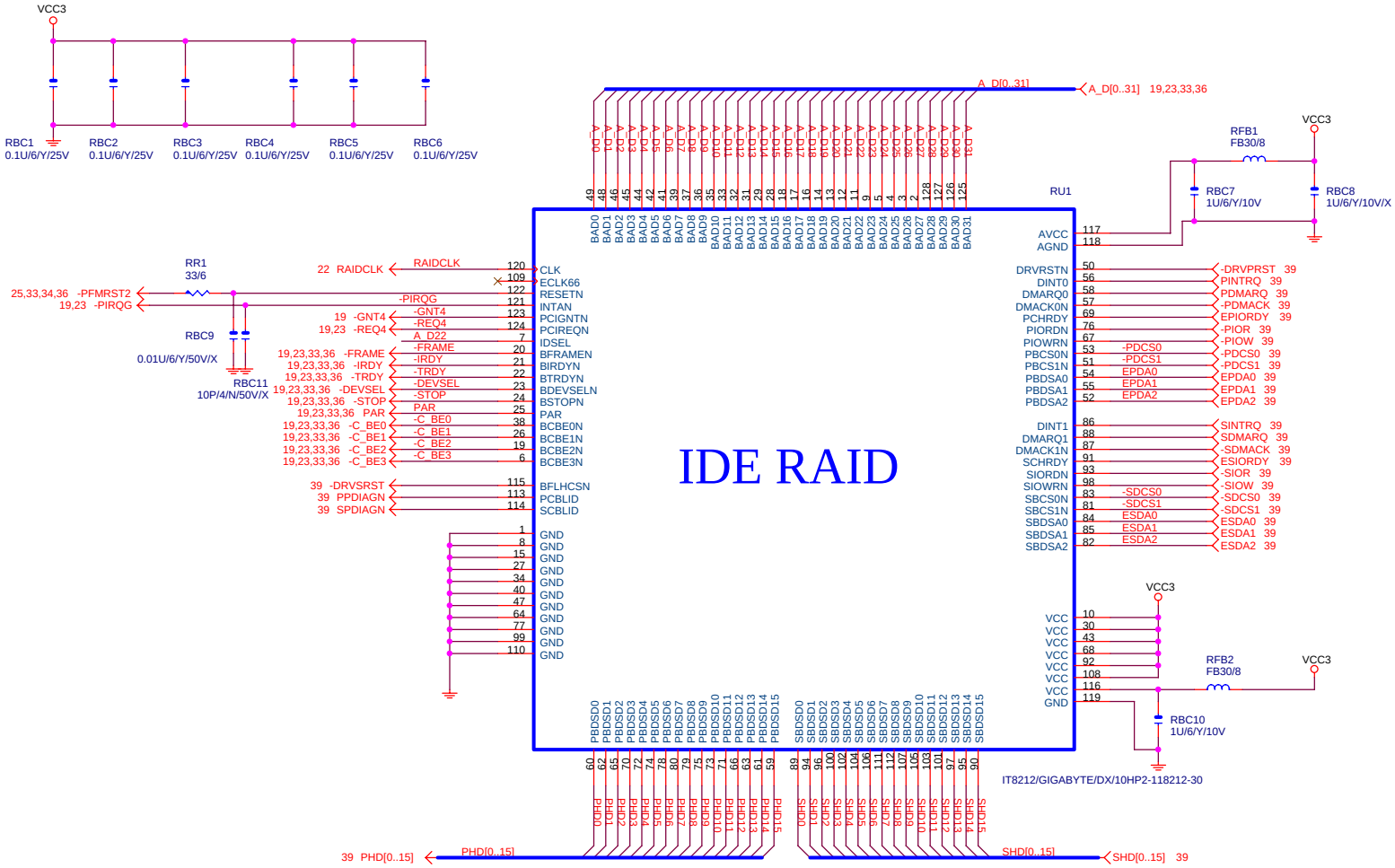
GIGABYTE

Title: FRONT PANEL

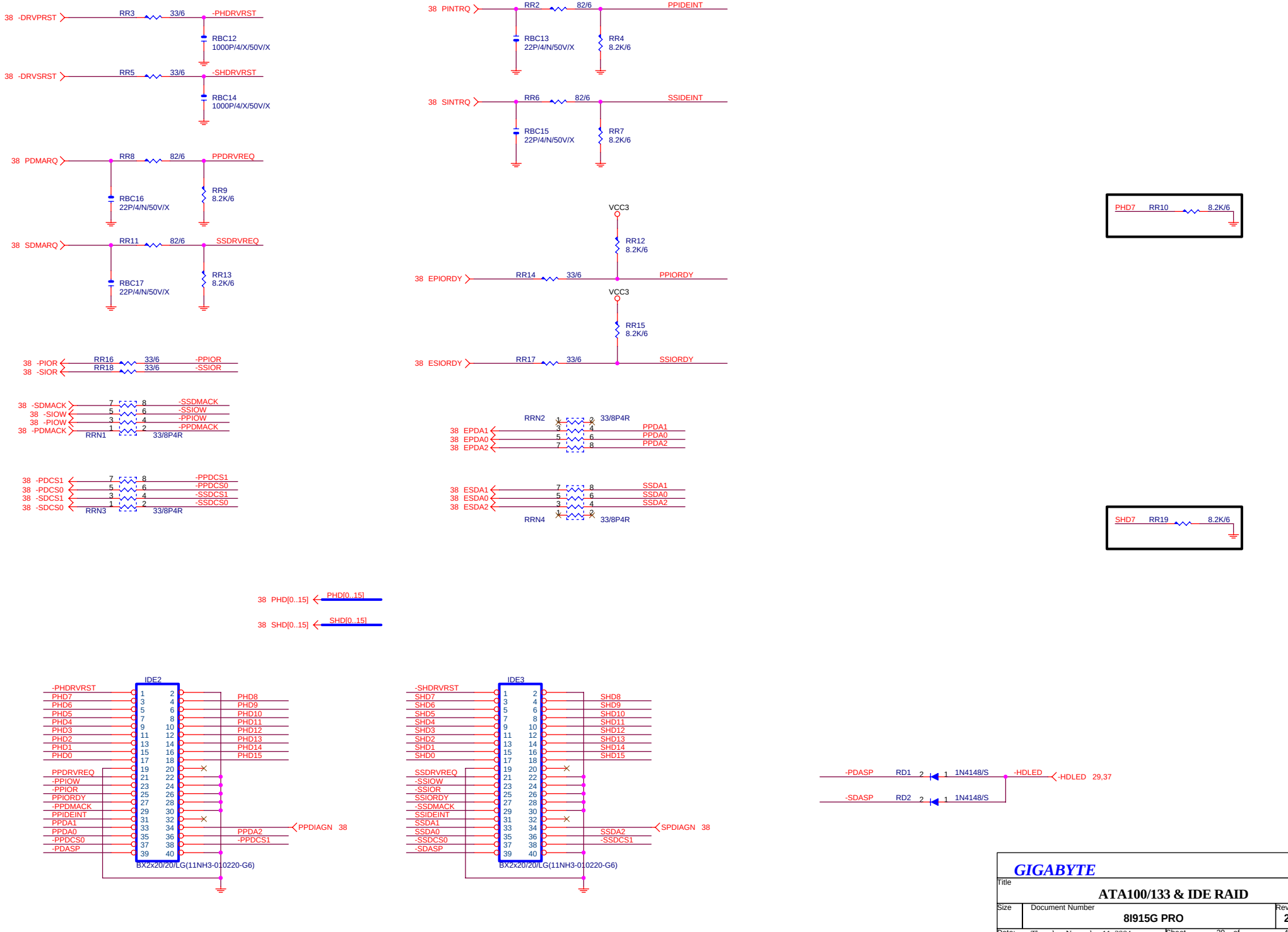
Size: Custom | Document Number: 8I915G PRO | Rev: 2.1

Date: Thursday, November 11, 2004 | Sheet 37 of 41

ALL INPUT PIN MUST HAVE 0.1 CAPACITOR



GIGABYTE			
Title	ATA100/133 & IDE RAID		
Size	Document Number		Rev
	8I915G PRO		2.1
Date:	Thursday, November 11, 2004	Sheet 38 of 41	



GIGABYTE

Title	ATA100/133 & IDE RAID	
Size	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 39 of 41	

GPI26

INTEL ICH6 GPIO Implementation

紅字表示CPI/O 同PIN

GPI PIN

Pin Name	Pin Type	Power Well			GPIO Application
GPI[0]			-REQ[6]		MB_ID0
GPI[1]	Input	V5REF	-REQ[5]	(P.U VCC)	Reserved
GPI[5:2]	Input	V5REF	-PIRQ[H:E]	(P.U VCC)	PCI/LAN/NA/1394
GPI[6]	Input	VCC3	GPI[6]	(P.U VCC3)	-SLP_BTN
GPI[7]	Input	VCC3	GPI[7]	(NA)	DUALBIOS_INPUT
GPI[8]	Input	3VDUAL	GPI[8]	(P.U 3VDUAL)	-LANWAKE
GPI[10:9]	Input	3VDUAL	0C_4/5	(P.U 5VDUAL分壓)	-USBOC_R
GPI[11]	Input	3VDUAL	-SMBALERT	(P.U 3VDUAL)	-SMBALRT
GPI[12]	Input	VCC3	GPI[12]	(P.U VCC3)	MB_ID2
GPI[13]	Input	3VDUAL	GPI[13]	(P.U 3VDUAL)	-LPCPME
GPI[15:14]	Input	3VDUAL	0C_6/7	(P.U 5VDUAL分壓)	-USBOC_R
GPO[16]	OUTPUT	VCC3	-GNT[6]	(integrated VCC3)	Reserved
GPO[17]	OUTPUT	VCC3	-GNT[5]	(integrated VCC3)	Reserved
GPO[18]	OUTPUT	VCC3	GPO[18]	(NA blinking)	Reserved
GPO[19]	OUTPUT	VCC3	GPO[19]	(P.U VCC3)	DUAL_BIOS_OUTPUT
GPO[20]	OUTPUT	VCC3	GPO[20]	(P.U VCC3)	TBL-
GPO[21]	OUTPUT	VCC3	GPO[21]	(P.U VCC3)	DUAL_BIOS_OUTPUT
GPO[22]	Not Implemented		Not Implemented		Not Implemented
GPO[23]	OUTPUT	VCC3	GPO[23]	(NA)	Reserved
GPO[24]	IN/OUT	3VDUAL	GPO[24]	(NA)	GREEN_LED
GPO[25]	IN/OUT	3VDUAL	vcc_25vregulator	(NA)	Reserved
GPI[26]	Input	VCC3	SATA[0]GP	(P.U VCC3)	SATA[0]GP
GPIO[27]	IN/OUT	3VDUAL	GPIO[27]	(NA)	Reserved
GPIO[28]	IN/OUT	3VDUAL	GPO[28]	(NA)	PWD_LED
GPI[29]	Input	VCC3	SATA_1GP	(P.U VCC3)	SATA_1GP
GPI[30]	Input	VCC3	SATA_2GP	(P.U VCC3)	SATA_2GP
GPI[31]	Input	VCC3	SATA_3GP	(P.U VCC3)	SATA_3GP
GPIO[32]	IN/OUT	VCC3	GPO[32]	(NA)	FWP-
GPIO[33]	IN/OUT	VCC3	GPI[33]	(P.U VCC3)	-ACZ_DET
GPIO[34]	IN/OUT	VCC3	GPIO[34]	(NA)	Reserved
GPI[40]	Input	V5REF	-REQ[4]	(P.U VCC)	-REQ[4]
GPI[41]	Input	VCC3	GPI[41]	(P.U VCC3)	MB_ID1
GPO[48]	OUTPUT	VCC3	-GNT[4]	(integrated VCC3)	Reserved
GPO[49]	OD O	V_CPU_IO	CPUPWROK	(P.U VTT_OR)	CPUPWROK
GP1O[35-39,42-47]	NOT IMPLEMENTED		NOT IMPLEMENTED		

GPO PIN

Pin Name	Pin Number	Power Well	Pin Type			GPIO Application

GIGABYTE

Title: GPIO TABLE

Size: Custom | Document Number: 8I915G PRO | Rev: 2.1

Date: Thursday, November 11, 2004 | Sheet 40 of 41

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

GIGABYTE THCHNOLOGIES , INC.

Title: GPIO/RESET TABLE		
Size: Custom	Document Number: 8I915G PRO	Rev: 2.1
Date: Thursday, November 11, 2004	Sheet 41 of 41	