

Model Name: GA-Z68AP-D3

1.0

SHEET

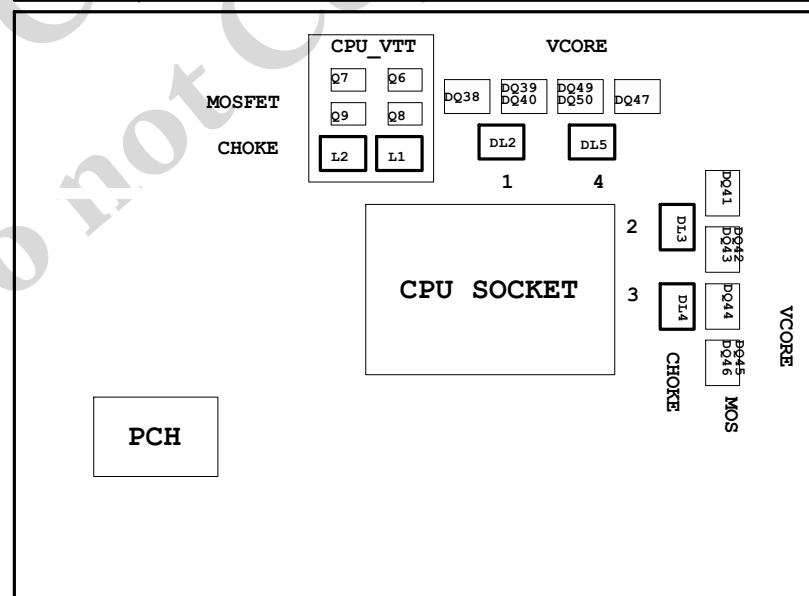
TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU LGA1155-A
05	CPU LGA1155-B
06	CPU LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH FDI,DMI,USB,PCIE,NVRAM
10	PCH DP,CLK BUFFER
11	PCH HOST,SATA,PCI
12	PCH GPIO,CTRL,AUDIO
13	PCH PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESSX4 SLOT / PCIE X1 SLOT
16	IT8892
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, LPT, TPM
20	Dual BIOS
21	ALC889
22	REAR AUDIO JACK
23	VCORE PWM ISL6364CRZ-1
24	VCORE PWM ISL6364CRZ-2
25	DISCRETE POWER
26	DDR 15V & VCC1 05 PCH PWM ISL6545CBZ
27	CPU VTT PWM ISL95870

SHEET

TITLE

28	VCCSA POWER
29	F PANEL , F USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	ETRON 168A
34	HDMI
35	VAXG POWER, mSATA
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GA-Z68AP-D3

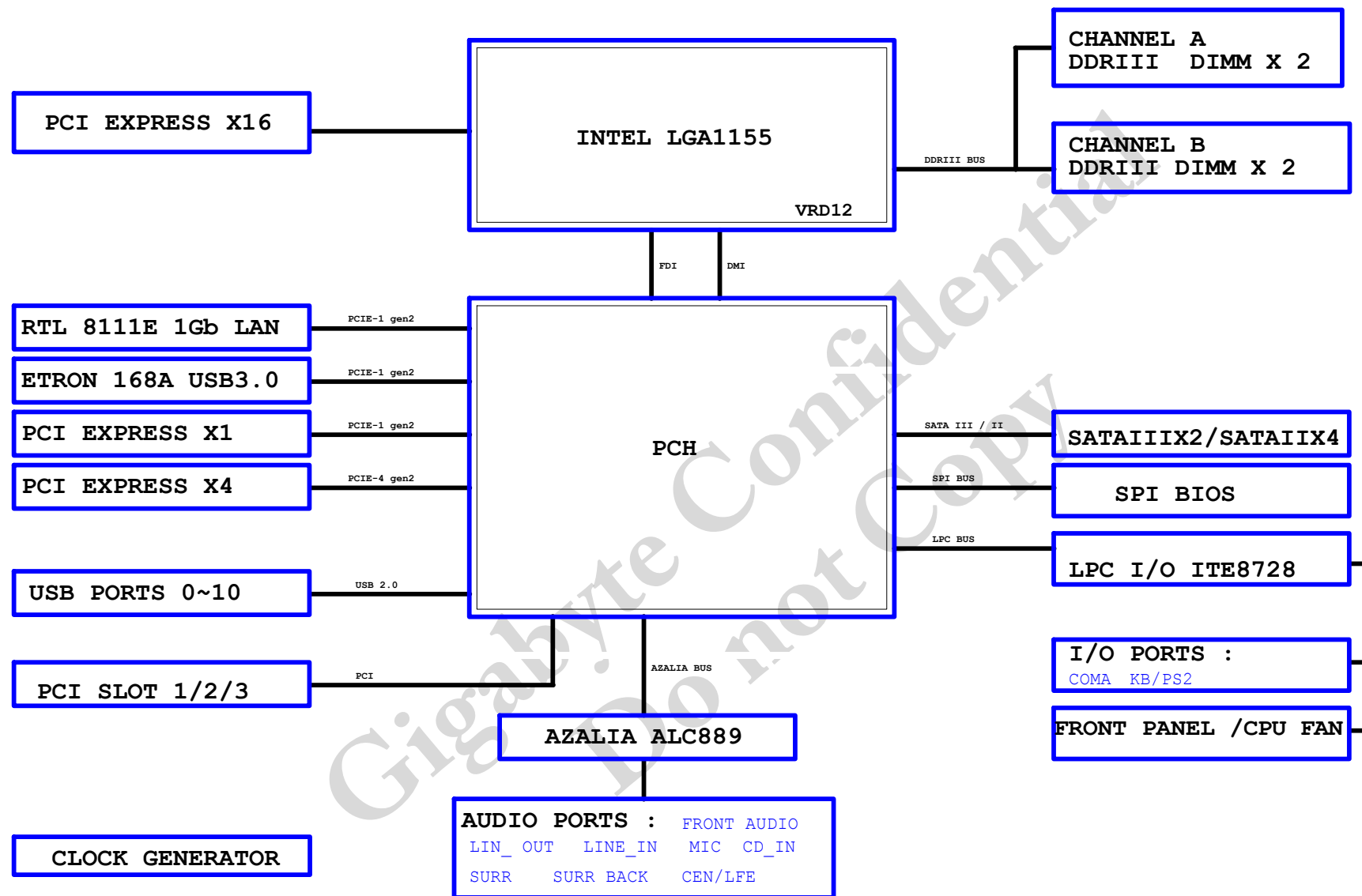
Component value change history

[illegible]

Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM



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Title BLOCK DIAGRAM			
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LGA1155A

MAAA0 AV27
MAAA1 AV24
MAAA2 AW24
MAAA3 AW23
MAAA4 AV23
MAAA5 AT23
MAAA6 AT24
MAAA7 AU22
MAAA8 AV22
MAAA9 AT22
MAAA10 AV28
MAAA11 AU21
MAAA12 AT21
MAAA13 AW32
MAAA14 AU20
MAAA15 AT20

7 -SWEA <- -SWEA AV29
7 -SCASA <- -SCASA AV30
7 -SRASA <- -SRASA AU28
7 SBAA0 <- SBAA0 AY29
7 SBAA1 <- SBAA1 AW28
7 SBAA2 <- SBAA2 AV20
7 -CSA0 <- -CSA0 AU29
7 -CSA1 <- -CSA1 AV32
7 -CSA2 <- -CSA2 AW30
7 -CSA3 <- -CSA3 AU33
7 CKEA0 <- CKEA0 AV19
7 CKEA1 <- CKEA1 AT19
7 CKEA2 <- CKEA2 AU18
7 CKEA3 <- CKEA3 AV18
MODT_A0 AV31
MODT_A1 AU32
MODT_A2 AU30
MODT_A3 AW33

7 DCLKA0 <- DCLKA0 AY25
7 -DCLKA0 <- -DCLKA0 AW25
7 DCLKA1 <- DCLKA1 AU24
7 -DCLKA1 <- -DCLKA1 AU25
7 DCLKA2 <- DCLKA2 AW27
7 -DCLKA2 <- -DCLKA2 AY27
7 DCLKA3 <- DCLKA3 AV26
7 -DCLKA3 <- -DCLKA3 AW26

7,8 -DDR3_RST <- TR1
TBC9
0.1u4/X7R/16V/K/X

AV13
AV12
AU12
AU14
AU13
AU13
AU13
AU11
AU12
AU12

DDR_0

1 OF 10

CPU-SK/1155/S/15

SA_DQS[0] AK3 -DQSA0
SA_DQS[0] AK2 -DQSA0
SA_DQ[0] AJ3 MDA0
SA_DQ[1] AJ4 MDA1
SA_DQ[2] AJ5 MDA2
SA_DQ[3] AJ6 MDA3
SA_DQ[4] AJ7 MDA4
SA_DQ[5] AJ8 MDA5
SA_DQ[6] AJ9 MDA6
SA_DQ[7] AJ10 MDA7
SA_DQS[1] AP3 -DQSA1
SA_DQS[1] AP2 -DQSA1

SA_WE# AN1 MDA8
SA_DQ[8] AN4 MDA9
SA_DQ[9] AR3 MDA10
SA_DQ[10] AR4 MDA11
SA_DQ[11] AN2 MDA12
SA_DQ[12] AN3 MDA13
SA_DQ[13] AN3 MDA13
SA_DQ[14] AR2 MDA14
SA_DQ[15] AR1 MDA15
SA_DQS[2] AW4 -DQSA2
SA_DQS[2] AV4 -DQSA2

SA_DQ[16] AV2 MDA16
SA_DQ[17] AW3 MDA17
SA_DQ[18] AV5 MDA18
SA_DQ[19] AW5 MDA19
SA_DQ[20] AU2 MDA20
SA_DQ[21] AU3 MDA21
SA_DQ[22] AU5 MDA22
SA_DQ[23] AV5 MDA23
SA_DQS[3] AV8 -DQSA3
SA_DQS[3] AW8 -DQSA3

SA_CK[0] AU7 MDA24
SA_CK[1] AU7 MDA25
SA_CK[2] AU9 MDA26
SA_CK[3] AU9 MDA27
SA_CK[4] AU7 MDA28
SA_CK[5] AU7 MDA29
SA_CK[6] AU9 MDA30
SA_CK[7] AU9 MDA31

SA_DQS[4] AV37 -DQSA4
SA_DQS[4] AV36 -DQSA4

SA_DQ[32] AU35 MDA32
SA_DQ[33] AU37 MDA33
SA_DQ[34] AU39 MDA34
SA_DQ[35] AU36 MDA35
SA_DQ[36] AU35 MDA36
SA_DQ[37] AU36 MDA37
SA_DQ[38] AU38 MDA38
SA_DQ[39] AU37 MDA39
SA_DQS[5] AP38 -DQSA5
SA_DQS[5] AP39 -DQSA5

SA_DQ[40] AR40 MDA40
SA_DQ[41] AR37 MDA41
SA_DQ[42] AN38 MDA42
SA_DQ[43] AN37 MDA43
SA_DQ[44] AR39 MDA44
SA_DQ[45] AR38 MDA45
SA_DQ[46] AN39 MDA46
SA_DQ[47] AN40 MDA47

SA_DQS[6] AK38 -DQSA6
SA_DQS[6] AK39 -DQSA6

SA_DQ[48] AL40 MDA48
SA_DQ[49] AL37 MDA49
SA_DQ[50] AJ38 MDA50
SA_DQ[51] AL37 MDA51
SA_DQ[52] AL39 MDA52
SA_DQ[53] AL38 MDA53
SA_DQ[54] AJ39 MDA54
SA_DQ[55] AJ40 MDA55

SA_DQS[7] AF38 -DQSA7
SA_DQS[7] AF39 -DQSA7

SA_DQ[56] AG40 MDA56
SA_DQ[57] AG37 MDA57
SA_DQ[58] AE38 MDA58
SA_DQ[59] AE37 MDA59
SA_DQ[60] AG39 MDA60
SA_DQ[61] AG38 MDA61
SA_DQ[62] AE39 MDA62
SA_DQ[63] AE40 MDA63

7 MODT_A[0..3] <- MODT_A[0..3]

8 MODT_B[0..3] <- MODT_B[0..3]

7 MDA[0..63] <- MDA[0..63]

8 MDB[0..63] <- MDB[0..63]

7 DQSA[0..7] <- DQSA[0..7]

7 -DQSA[0..7] <- -DQSA[0..7]

7 MAA[A0..15] <- MAA[A0..15]

8 MAA[B0..15] <- MAA[B0..15]

8 DQSB[0..7] <- DQSB[0..7]

8 -DQSB[0..7] <- -DQSB[0..7]

LGA1155B

MAAB0 AK24
MAAB1 AM20
MAAB2 AM19
MAAB3 AK18
MAAB4 AP19
MAAB5 AP18
MAAB6 AM18
MAAB7 AL18
MAAB8 AN18
MAAB9 AV17
MAAB10 AN20
MAAB11 AU17
MAAB12 AT18
MAAB13 AR26
MAAB14 AT18
MAAB15 AV16

8 -SWEB <- -SWEB AR26
8 -SCASB <- -SCASB AK25
8 -SRASB <- -SRASB AP24

8 SBAB0 <- SBAB0 AP24
8 SBAB1 <- SBAB1 AW17
8 SBAB2 <- SBAB2 AW17

8 -CSB0 <- -CSB0 AN25
8 -CSB1 <- -CSB1 AN26
8 -CSB2 <- -CSB2 AL25
8 -CSB3 <- -CSB3 AT26

8 CKEB0 <- CKEB0 AU18
8 CKEB1 <- CKEB1 AY15
8 CKEB2 <- CKEB2 AW15
8 CKEB3 <- CKEB3 AY15

MODT_B0 AL26
MODT_B1 AP26
MODT_B2 AK28
MODT_B3 AK28

8 DCLKB0 <- DCLKB0 AL21
8 -DCLKB0 <- -DCLKB0 AL22
8 DCLKB1 <- DCLKB1 AL20
8 -DCLKB1 <- -DCLKB1 AK20
8 DCLKB2 <- DCLKB2 AL23
8 -DCLKB2 <- -DCLKB2 AM22
8 DCLKB3 <- DCLKB3 AP21
8 -DCLKB3 <- -DCLKB3 AN21

8 VREF_DQB <- AH1
7 VREF_DQA <- AH4

AN16
AN15
AN16
AN15

AL16
AP16
AR16
AL15
AR15
AP15

SB_MA[0] AH7 -DQSB0
SB_MA[1] AH6 -DQSB0
SB_MA[2] AG7 MD80
SB_MA[3] AG8 MD81
SB_MA[4] AJ8 MD82
SB_MA[5] AJ8 MD83
SB_MA[6] AG5 MD84
SB_MA[7] AG6 MD85
SB_MA[8] AJ6 MD86
SB_MA[9] AJ7 MD87
SB_MA[10] AM8 -DQSB1
SB_MA[11] AL8 -DQSB1
SB_MA[12] AL7 MD88
SB_MA[13] AM7 MD89
SB_MA[14] AM10 MD90
SB_MA[15] AL10 MD91
AL10 MD91
AL9 MD92
AL9 MD93
AL9 MD94
AL9 MD95

SB_WE# AL7 MD88
SB_CAS# AM7 MD89
SB_RAS# AM10 MD90
SB_DQ[8] AL10 MD91
SB_DQ[9] AL10 MD91
SB_DQ[10] AL9 MD92
SB_DQ[11] AL9 MD93
SB_DQ[12] AL9 MD94
SB_DQ[13] AL9 MD95
SB_DQ[14] AL9 MD96
SB_DQ[15] AL9 MD97

SB_CS#0 AL8 -DQSB2
SB_CS#1 AP8 -DQSB2
SB_CS#2 AL8 -DQSB2
SB_CS#3 AL8 -DQSB2

SB_DQ[16] AP7 MD16
SB_DQ[17] AR7 MD17
SB_DQ[18] AP10 MD18
SB_DQ[19] AR10 MD19
SB_DQ[20] AP6 MD20
SB_DQ[21] AR6 MD21
SB_DQ[22] AP9 MD22
SB_DQ[23] AR9 MD23

SB_DQS[3] AN13 -DQSB3
SB_DQS[3] AN12 -DQSB3

SB_CK[0] AM12 MD24
SB_CK[1] AM13 MD25
SB_CK[2] AR13 MD26
SB_CK[3] AP13 MD27
SB_CK[4] AL12 MD28
SB_CK[5] AL13 MD29
SB_CK[6] AL12 MD30
SB_CK[7] AP12 MD31

SB_DQS[4] AN29 -DQSB4
SB_DQS[4] AN28 -DQSB4

SB_DQ[32] AR28 MD32
SB_DQ[33] AR29 MD33
SB_DQ[34] AL28 MD34
SB_DQ[35] AL29 MD35
SB_DQ[36] AP28 MD36
SB_DQ[37] AP29 MD37
SB_DQ[38] AM28 MD38
SB_DQ[39] AM29 MD39

SB_DQS[5] AP33 -DQSB5
SB_DQS[5] AR33 -DQSB5

SB_ECC_CB[0] AP32 MD40
SB_ECC_CB[1] AP31 MD41
SB_ECC_CB[2] AP32 MD42
SB_ECC_CB[3] AP34 MD43
SB_ECC_CB[4] AR32 MD44
SB_ECC_CB[5] AR31 MD45
SB_ECC_CB[6] AR32 MD46
SB_ECC_CB[7] AR34 MD47

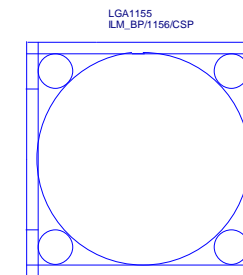
SB_DQS[6] AL33 -DQSB6
SB_DQS[6] AM33 -DQSB6

SB_DQ[48] AM32 MD48
SB_DQ[49] AM31 MD49
SB_DQ[50] AL35 MD50
SB_DQ[51] AL32 MD51
SB_DQ[52] AM34 MD52
SB_DQ[53] AL31 MD53
SB_DQ[54] AM35 MD54
SB_DQ[55] AL34 MD55

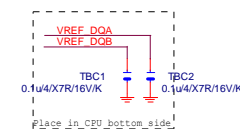
SB_DQS[7] AG35 -DQSB7
SB_DQS[7] AG34 -DQSB7

SB_DQ[56] AH35 MD56
SB_DQ[57] AH34 MD57
SB_DQ[58] AE34 MD58
SB_DQ[59] AE36 MD59
SB_DQ[60] AE35 MD60
SB_DQ[61] AJ34 MD61
SB_DQ[62] AE33 MD62
SB_DQ[63] AF35 MD63

DDR_1

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CPU-SK/1155/S/15

Need check the new CPU ME

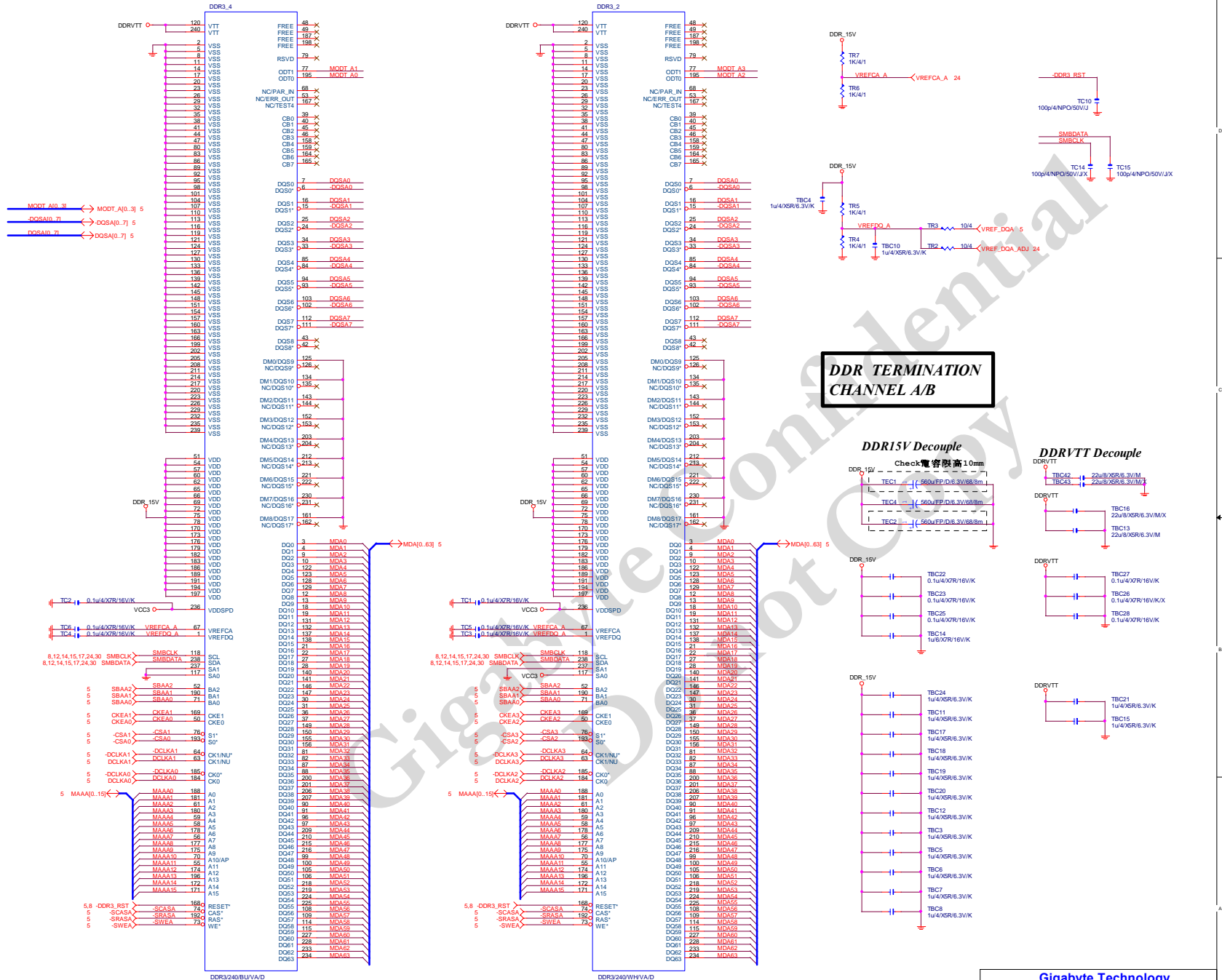
LGA1155
LGA1155/CSP

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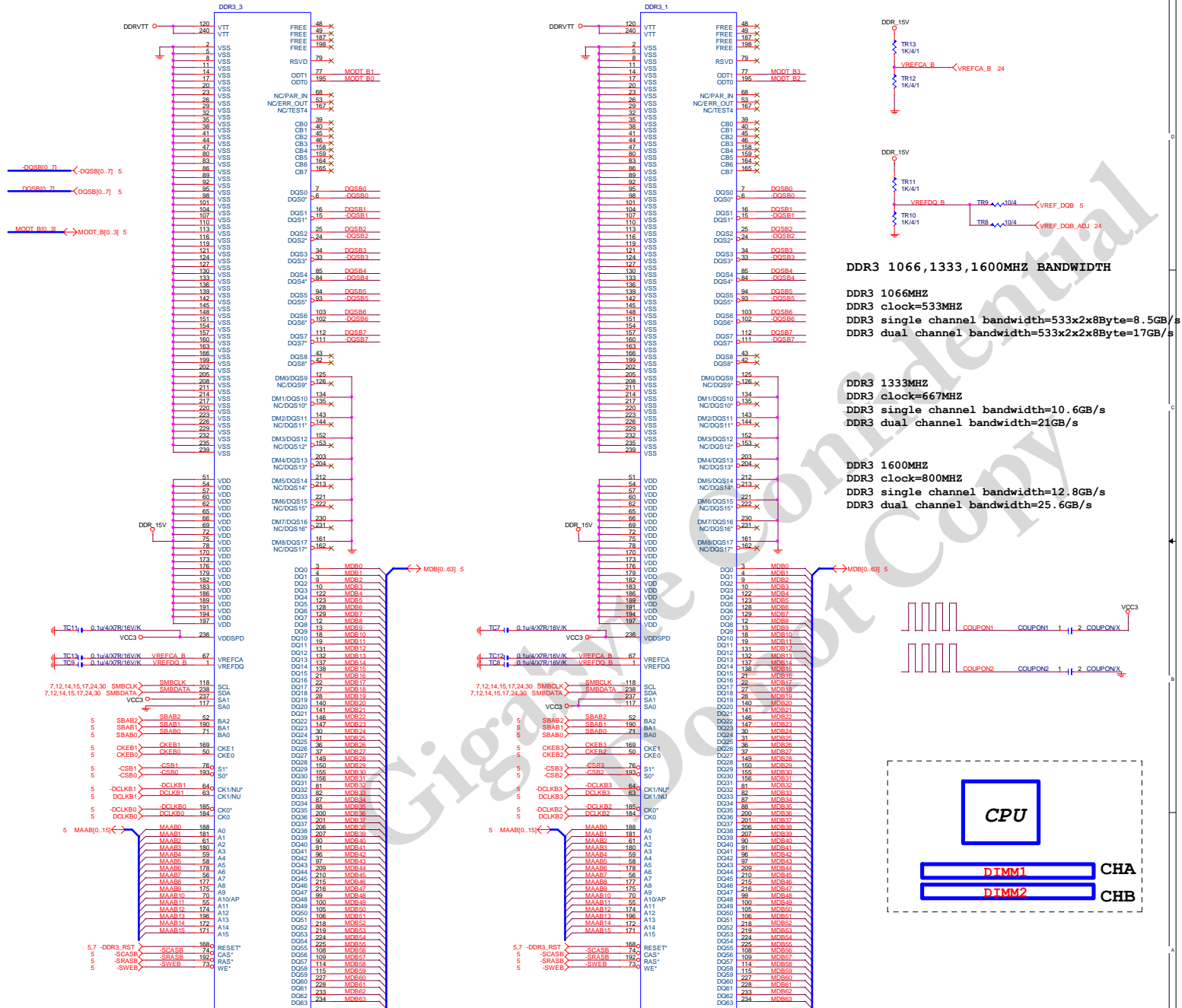
CPU LGA1155-B

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GA-Z68AP-D3



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DDR3 CHANNEL A		
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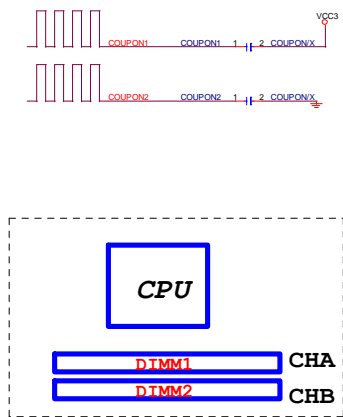


DDR3 1066,1333,1600MHZ BANDWIDTH

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

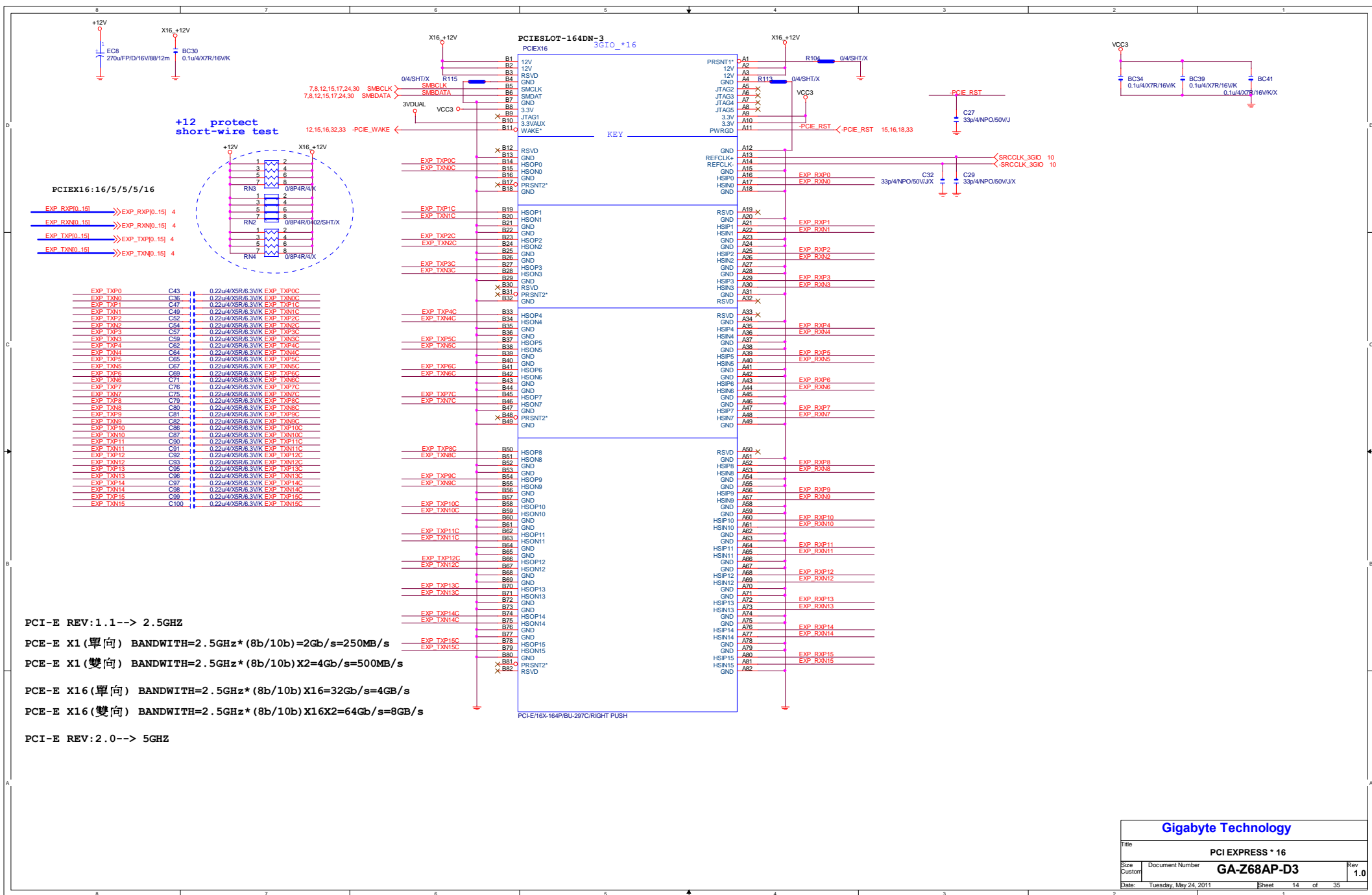
DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

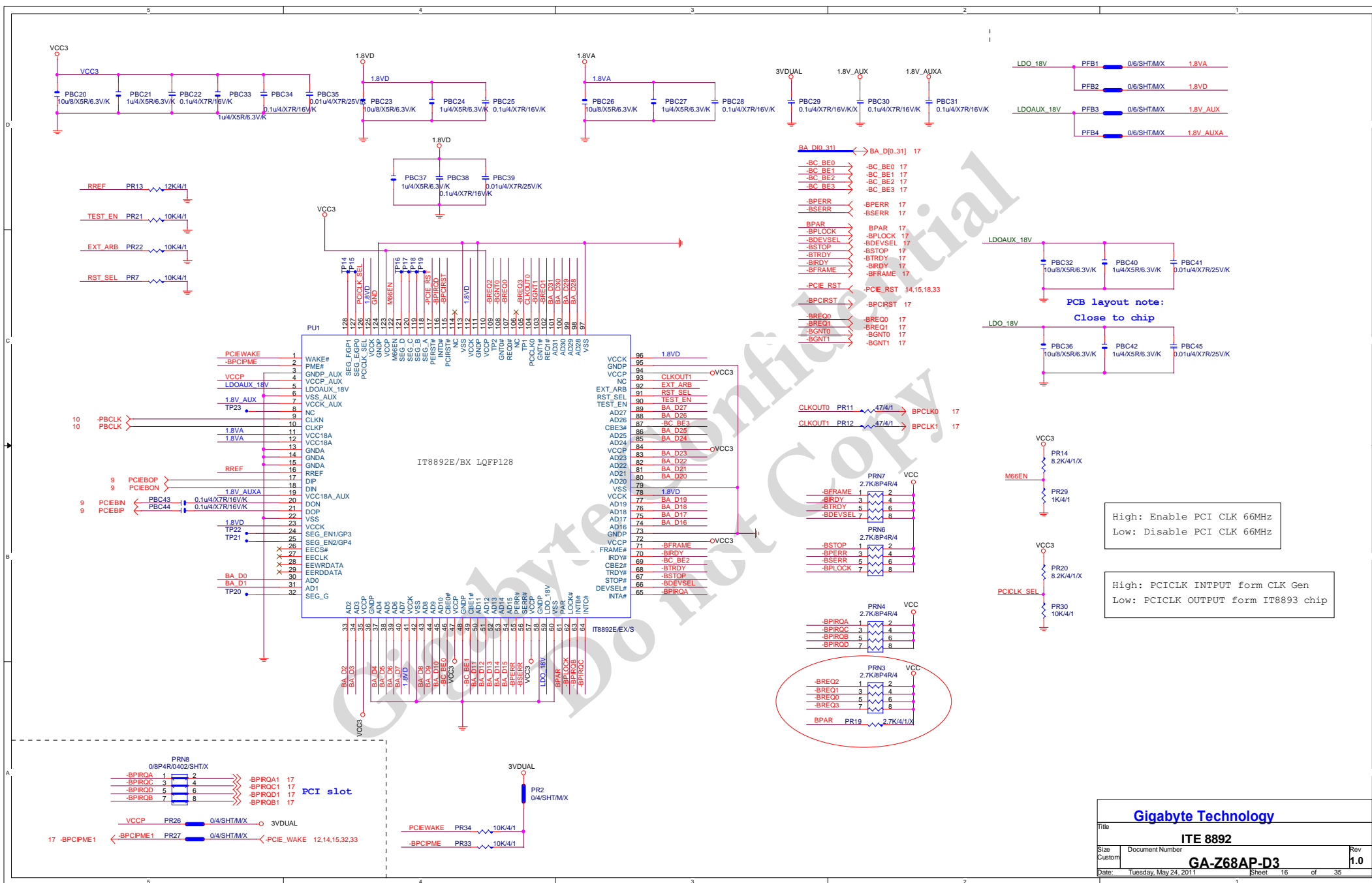
DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

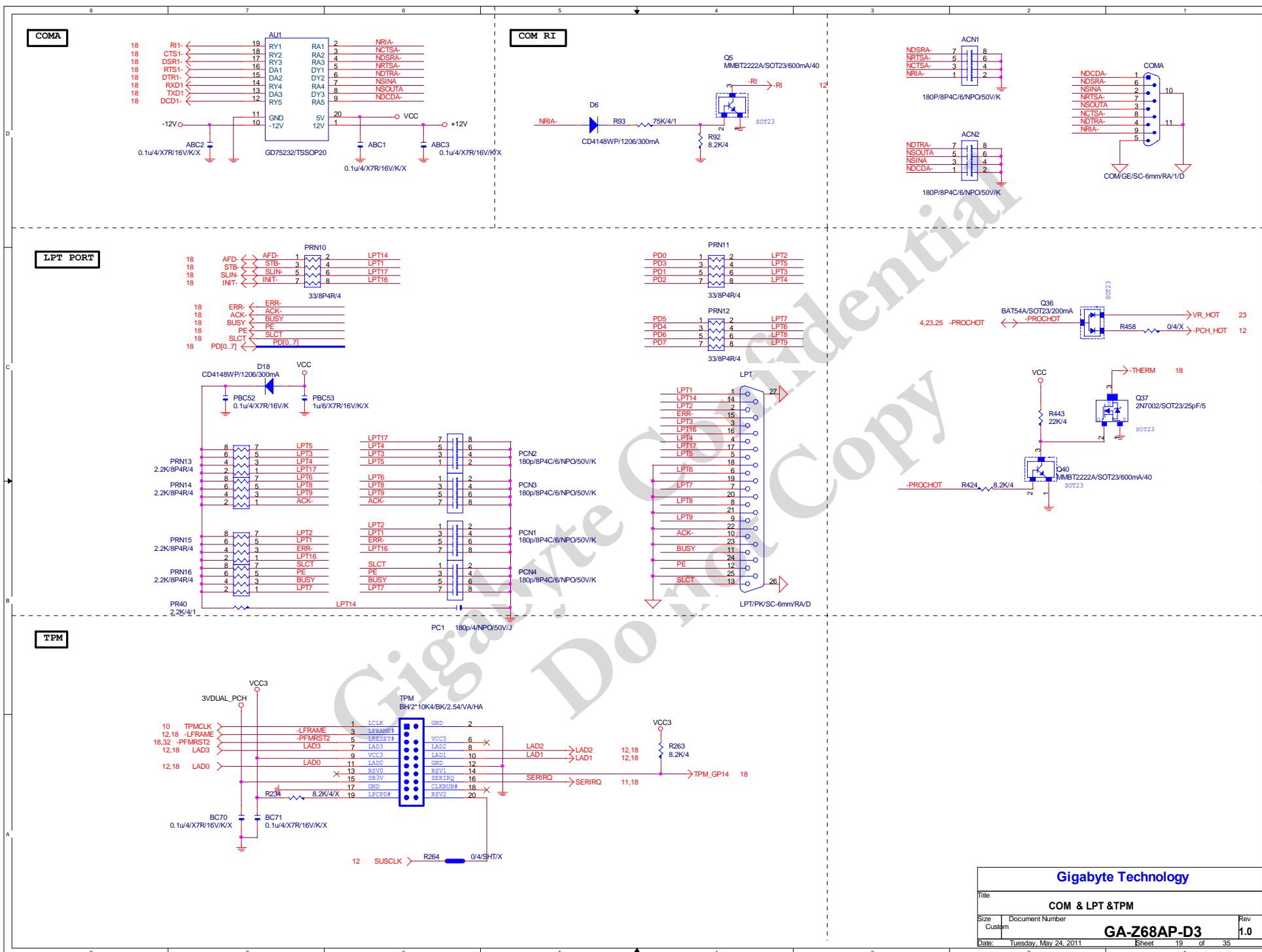


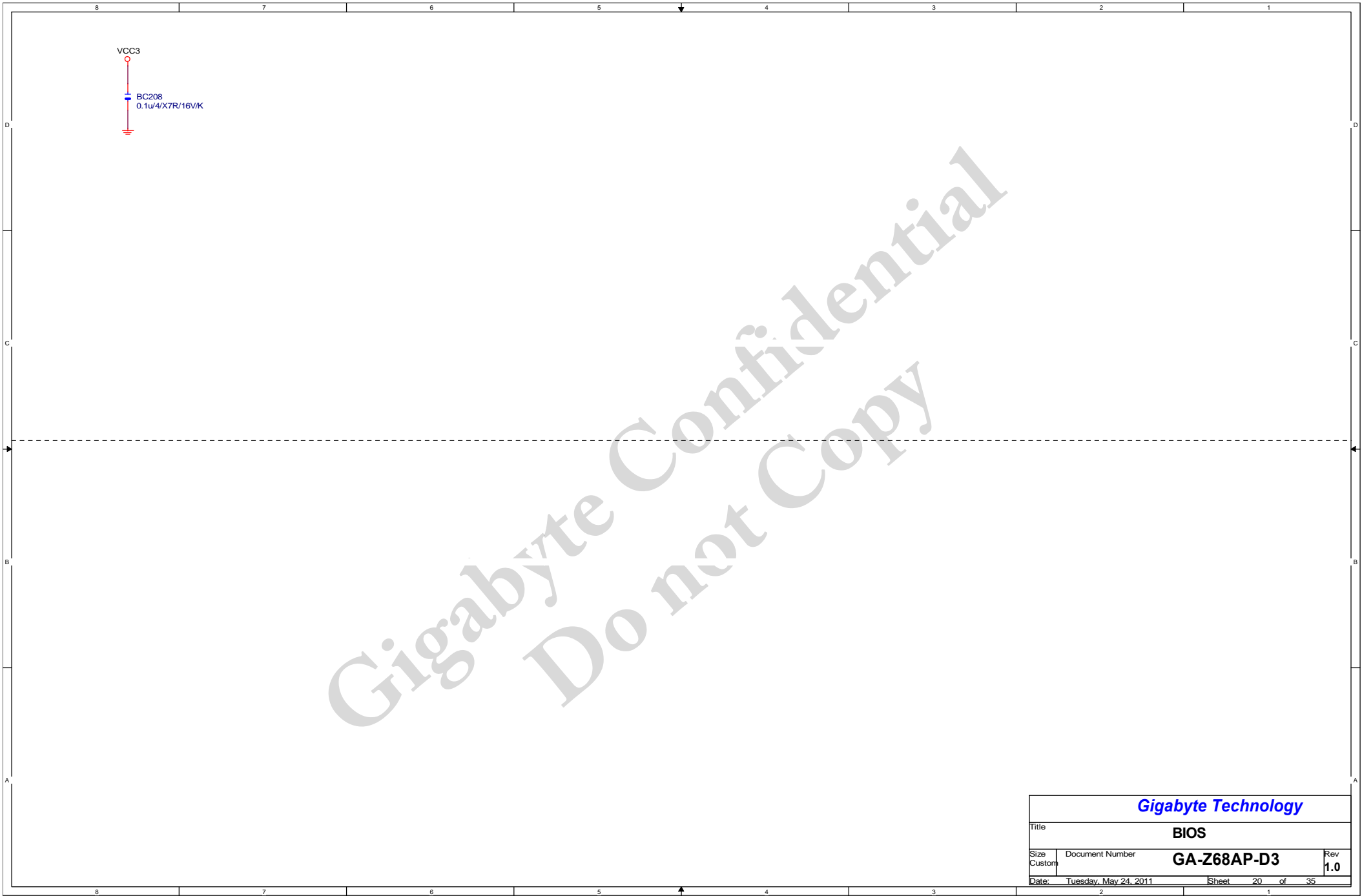
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Title	DDR3 240/1600V/D		
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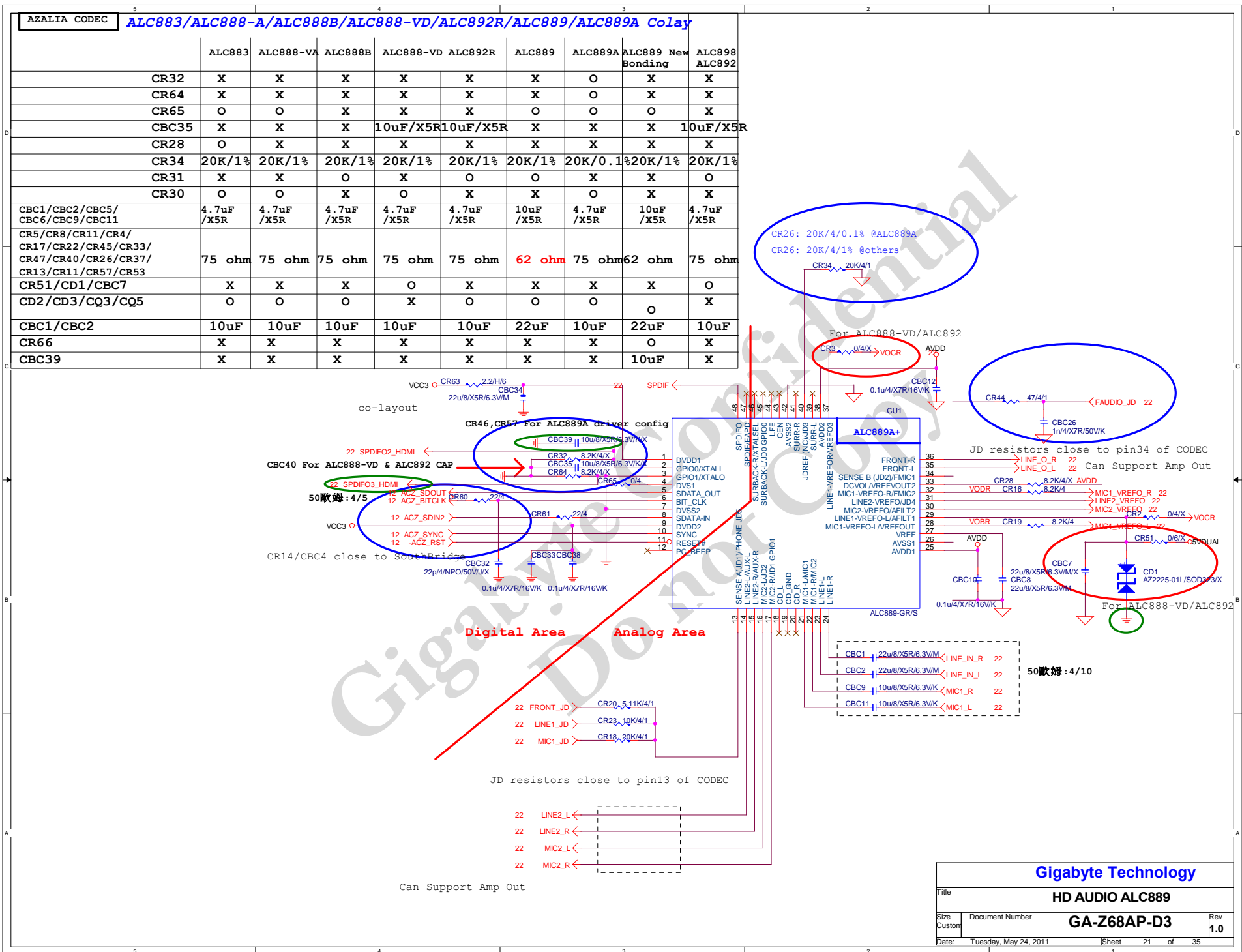


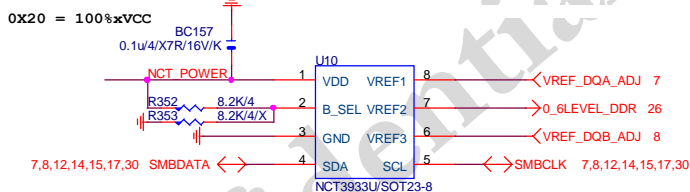
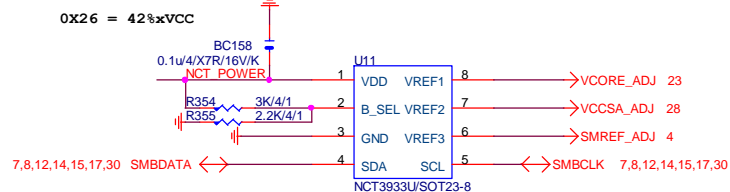
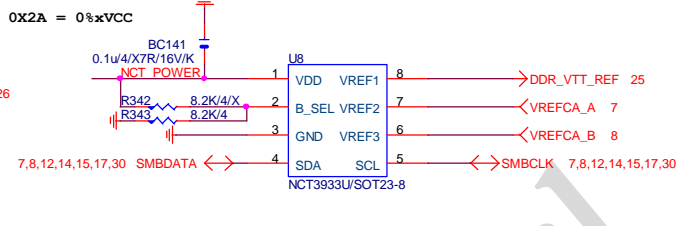
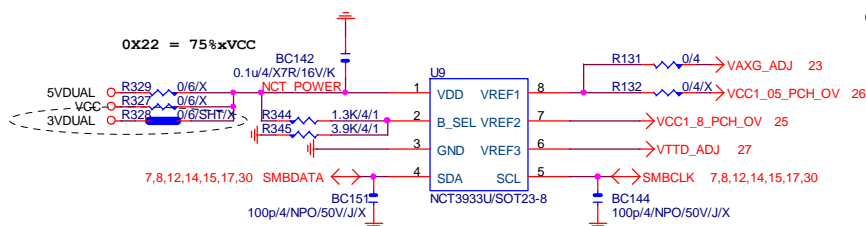






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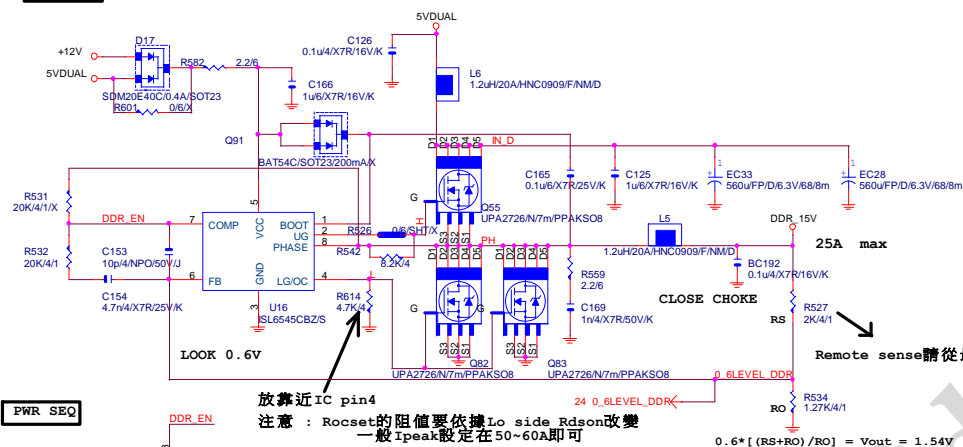


up6262	0X2A	0X20	0X22	0X26
VREF1	DDR_VTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAVREF_DDRB_DQ	CPU_VTT	SMREF	

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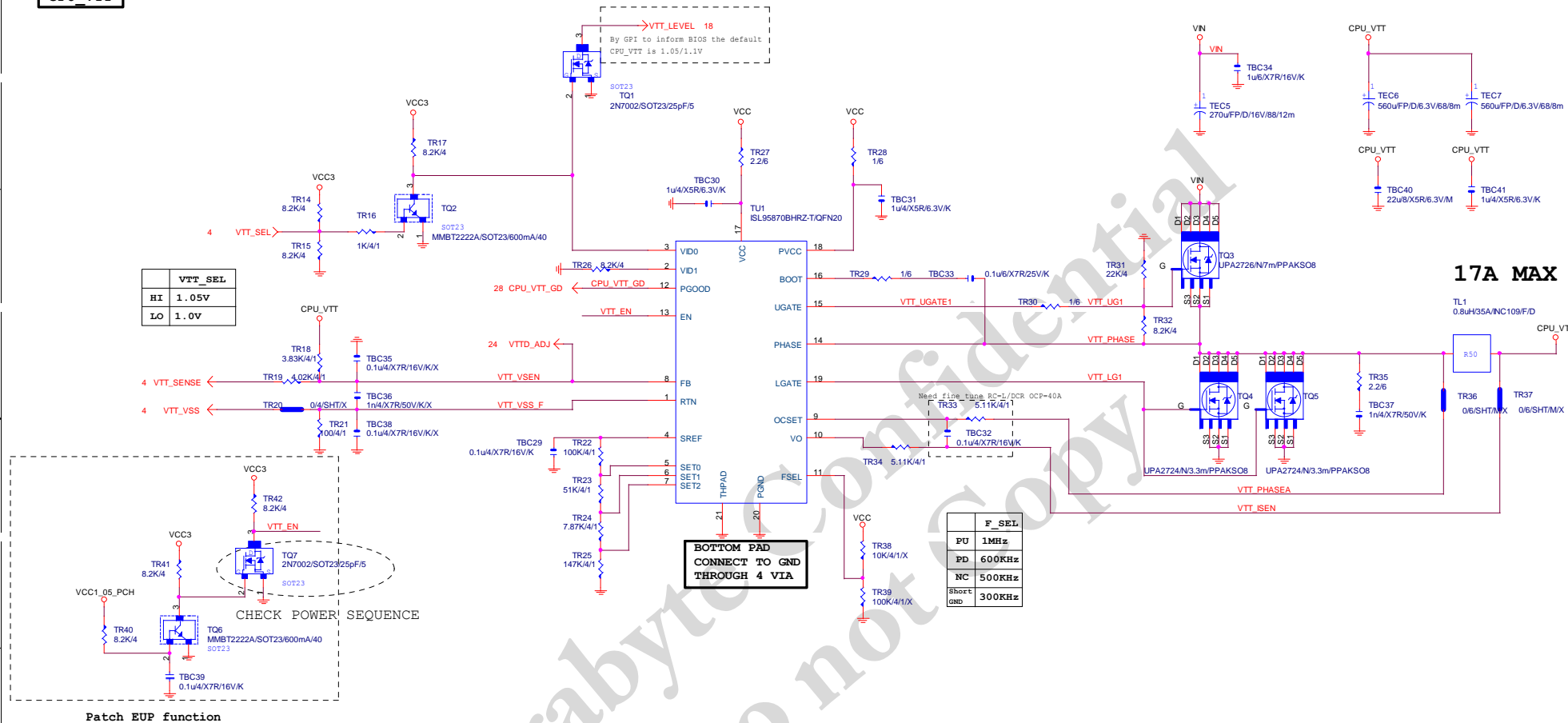
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DDR18V



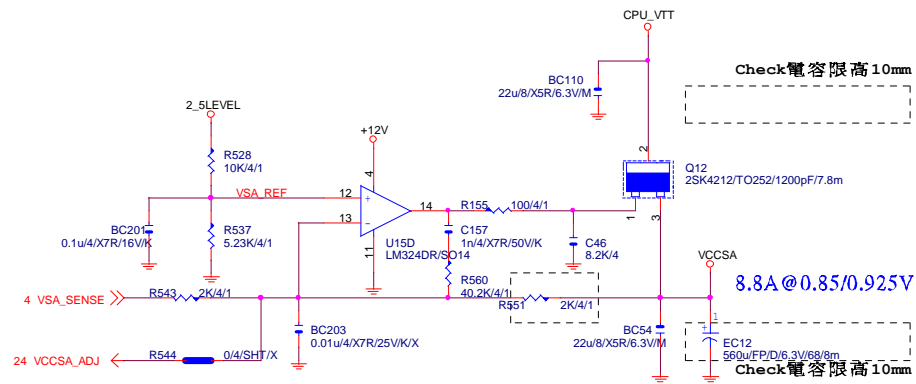
CPU_VTT

VTT_SEL	
HI	1.05V
LO	1.0V



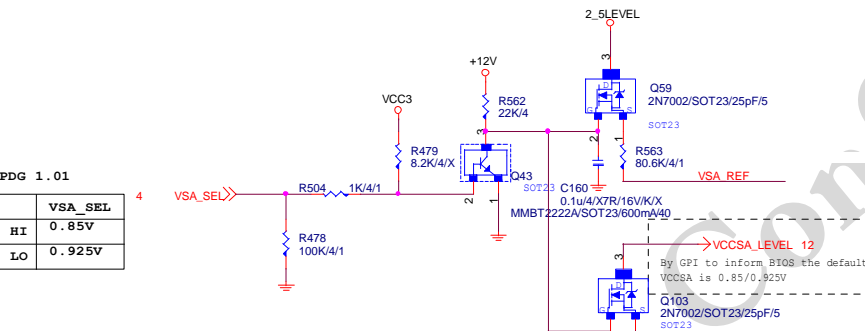
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Title			
CPU_VTT PWM_ISL95870			
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VCC_SA

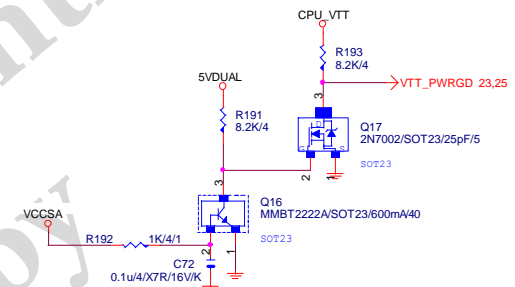
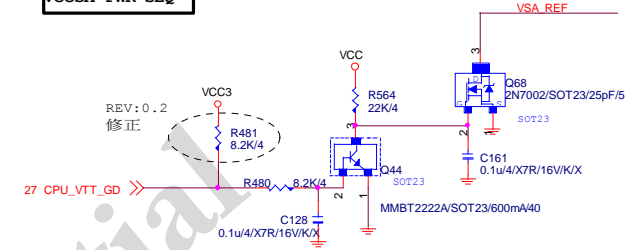


PDG 1.01

VSA_SEL	
HI	0.85V
LO	0.925V

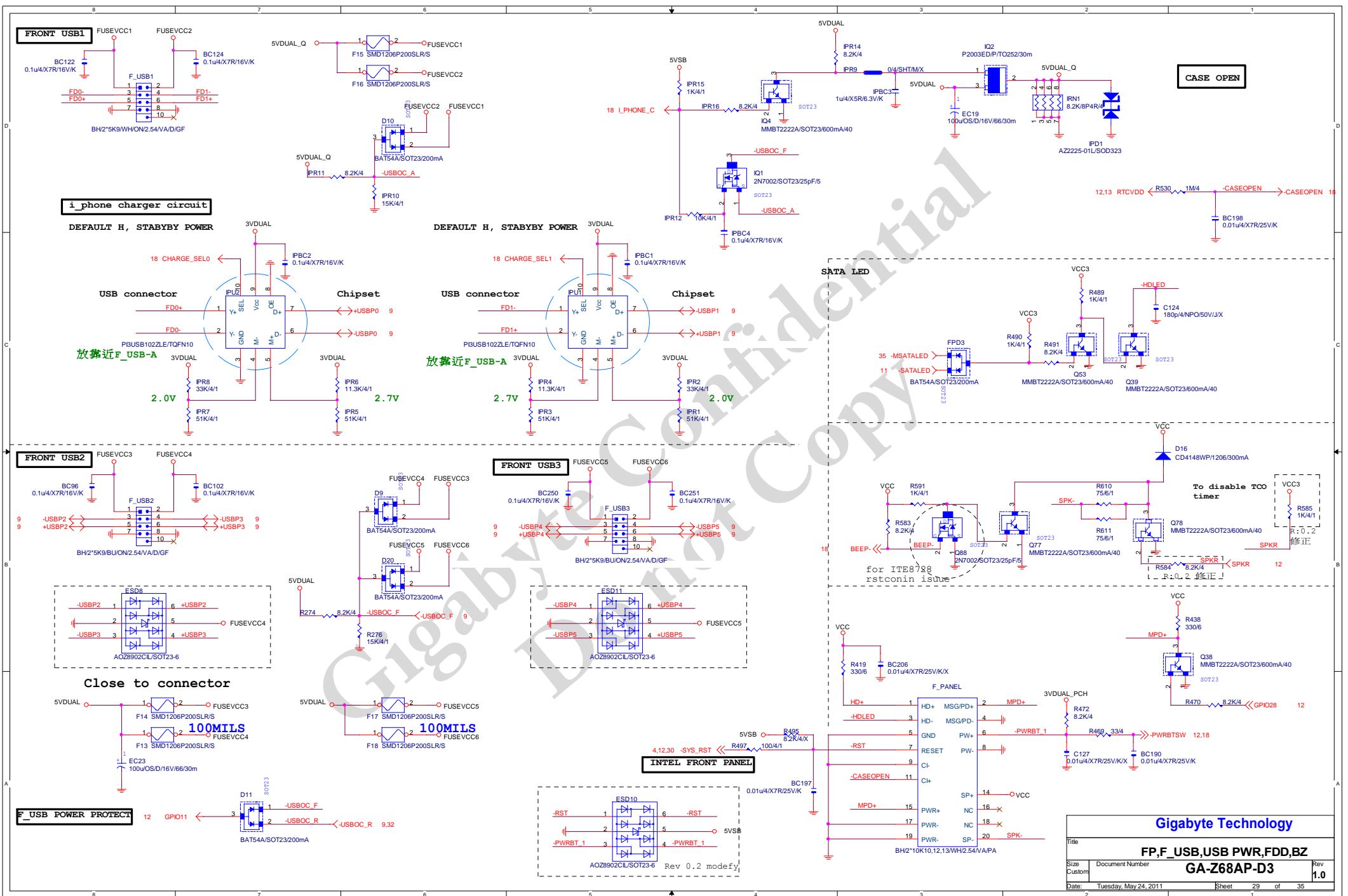


VCCSA PWR SEQ

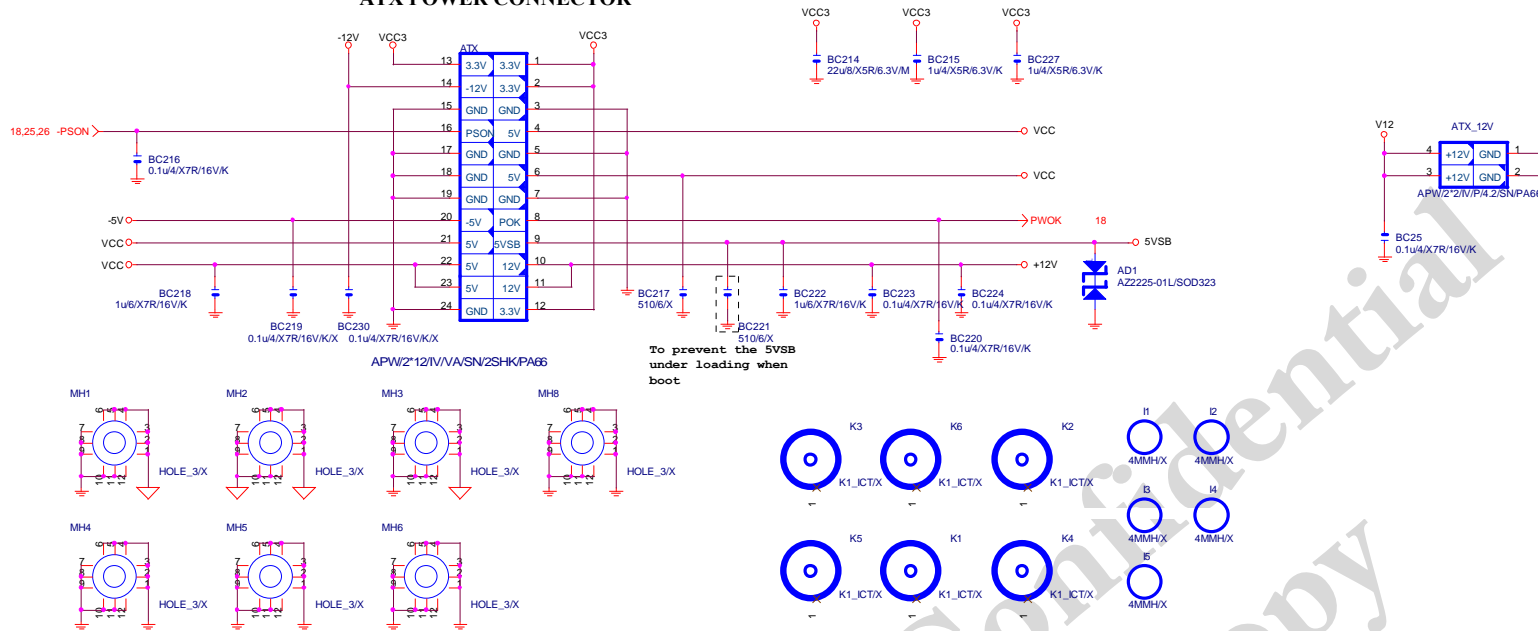


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Title	CPU VTT PWM_ISL6312	Rev	1.0
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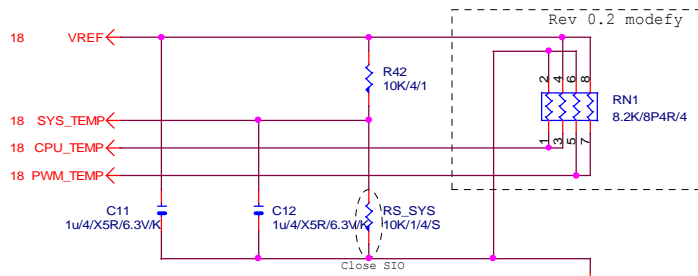
ATX POWER CONNECTOR



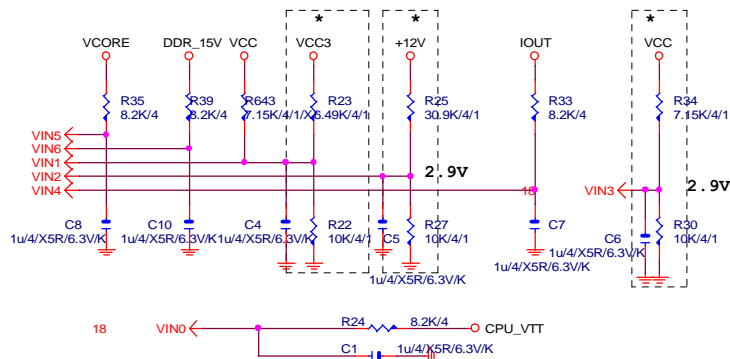
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Title		
ATX POWER CONNECTOR		
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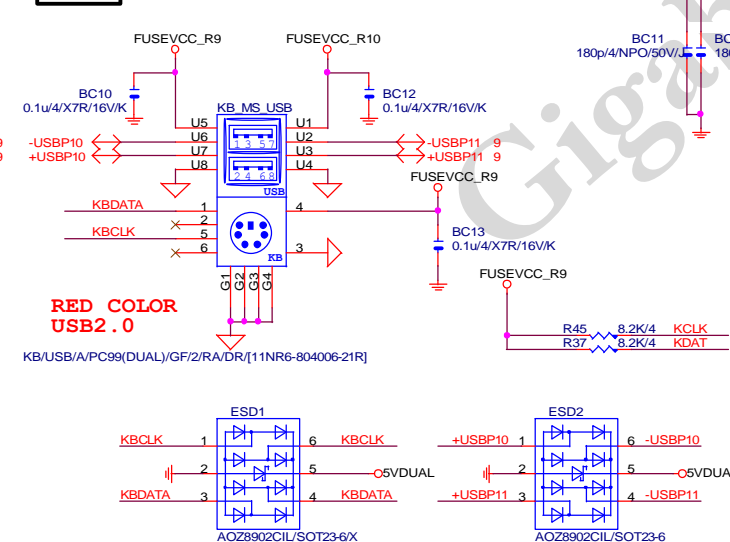
TEMP H/W MONITOR



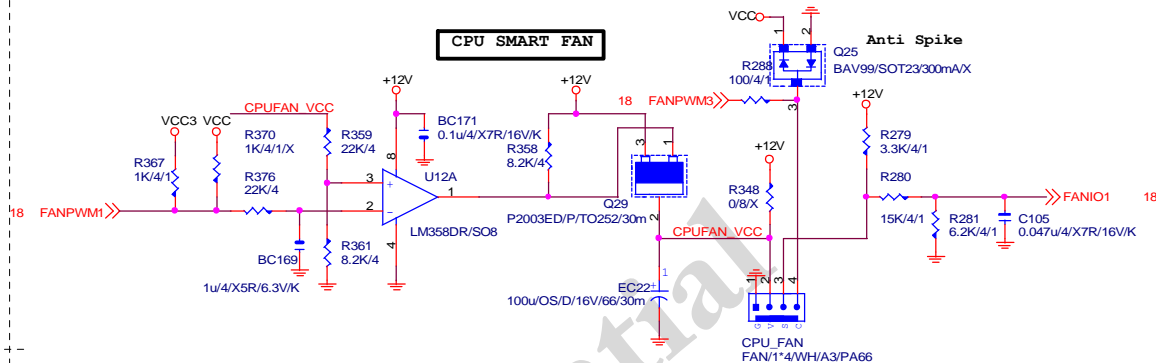
VOLTAGE-- H/W MONITOR



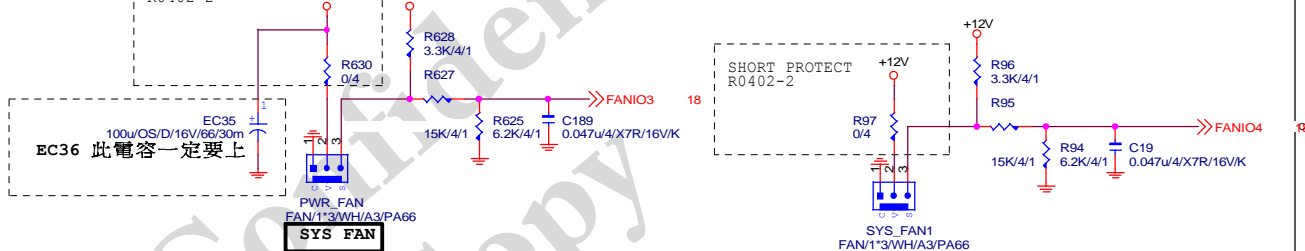
KB/USB



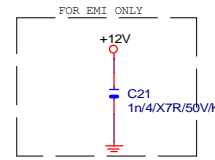
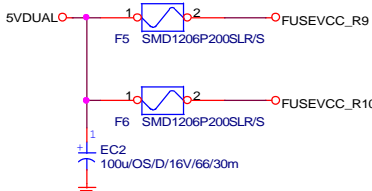
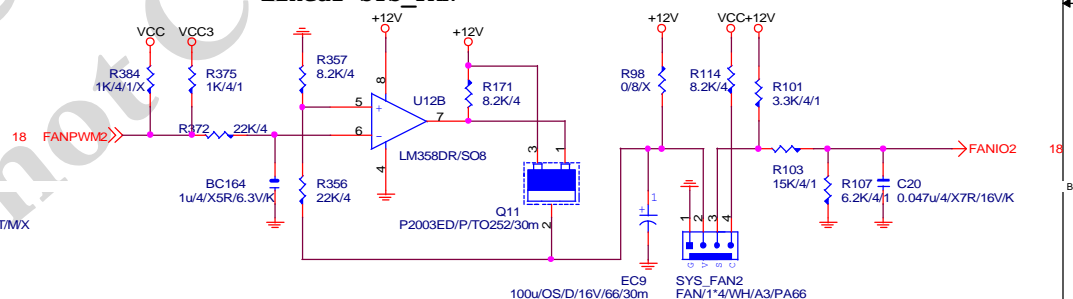
CPU SMART FAN



SHORT PROTECT



Linear SYS_FAN



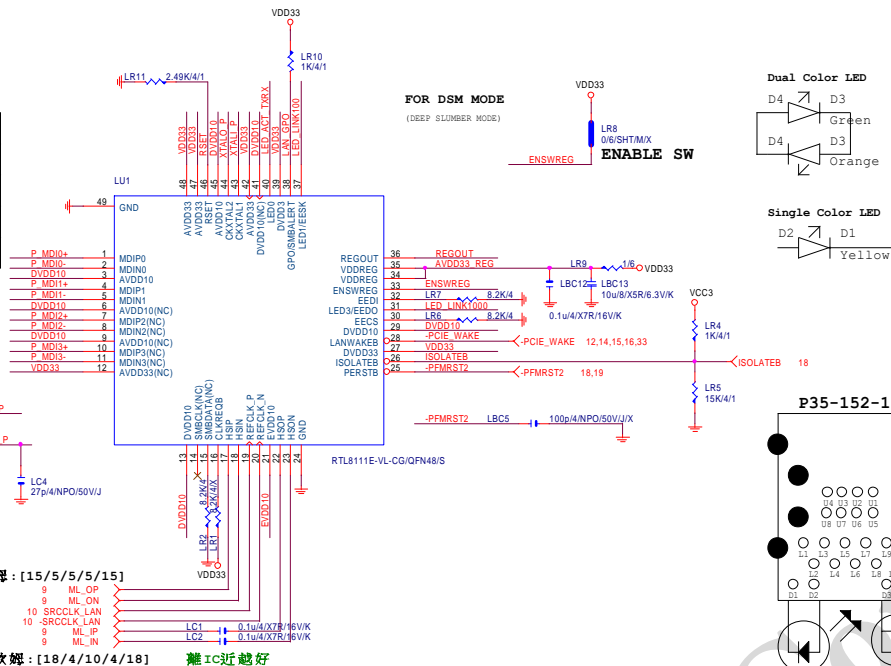
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Title			HWM,KB/MS, FAN CTRL
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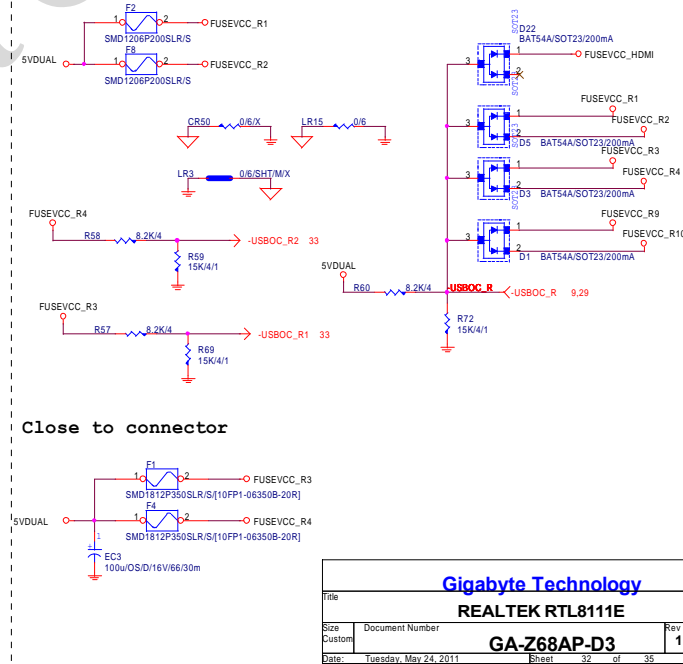
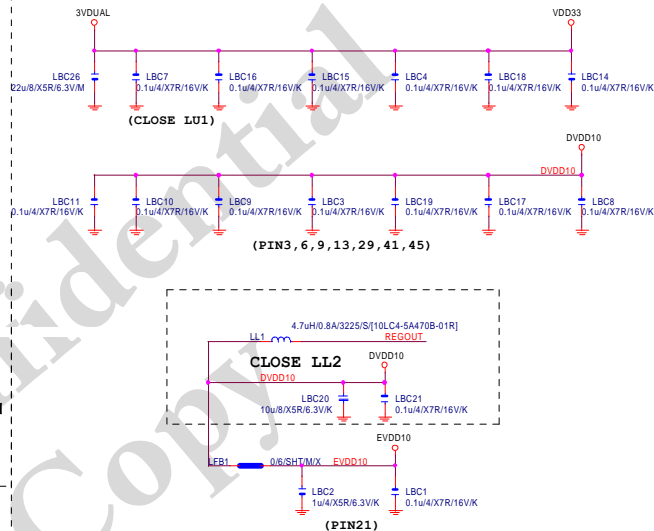
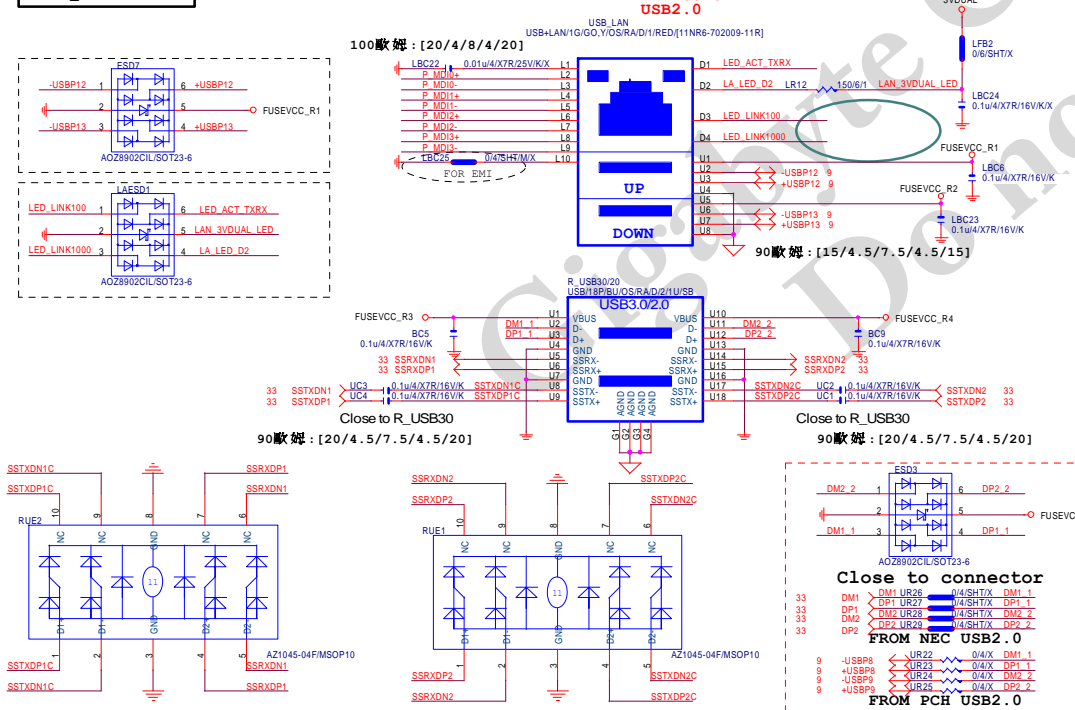
PCIE-1G LAN

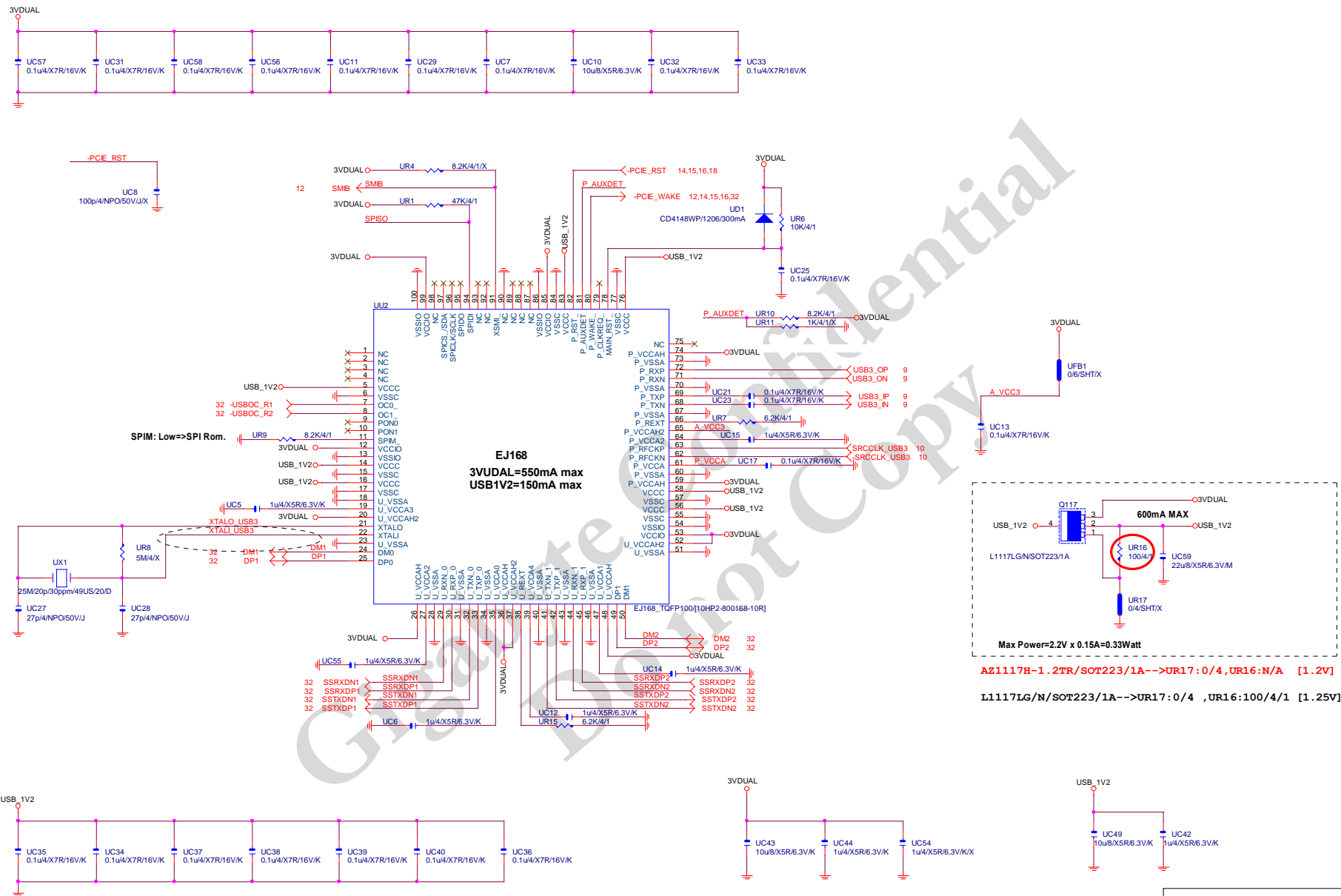
Power domain chart

AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



USB30_LAN CONNECTOR

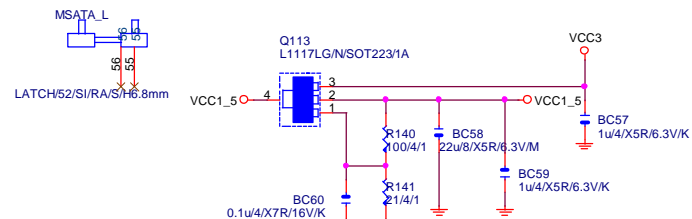
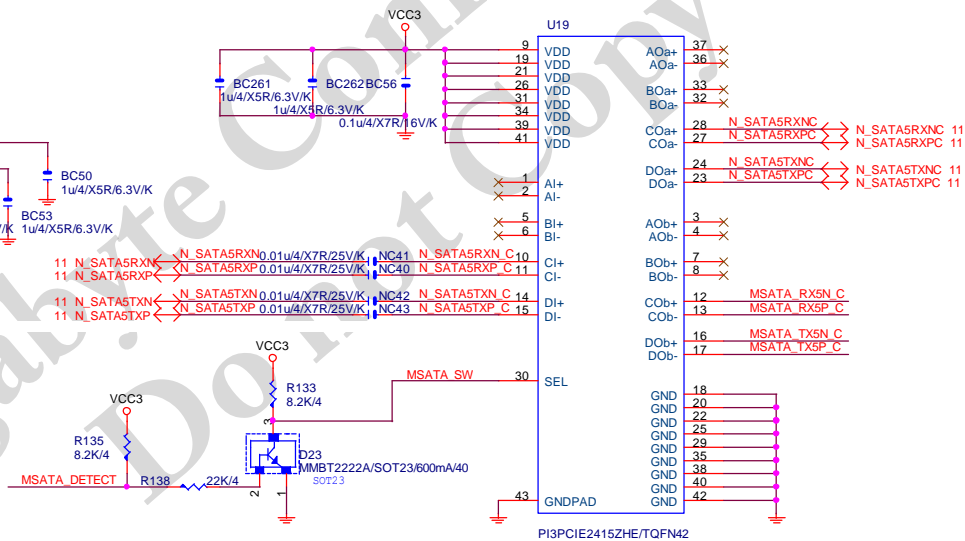
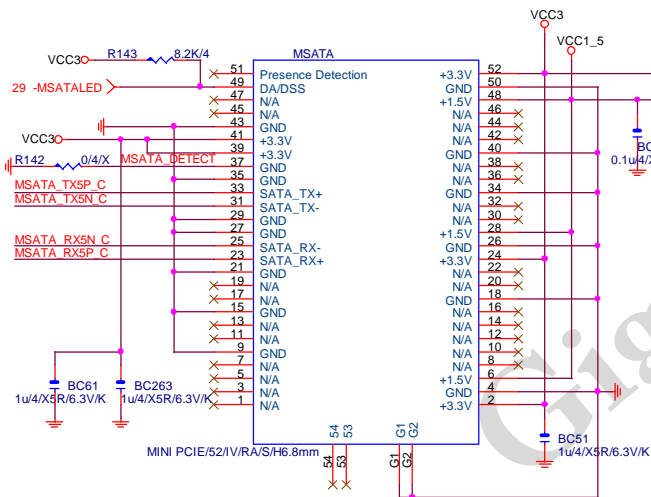
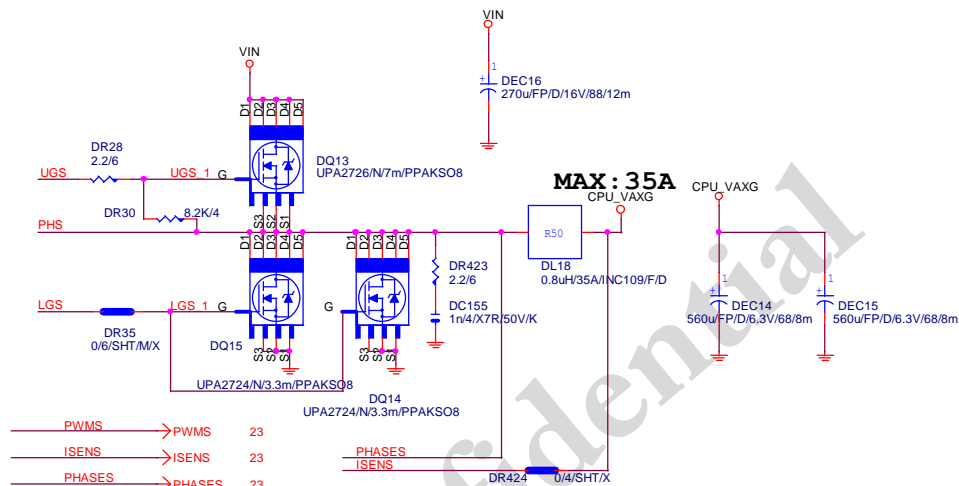
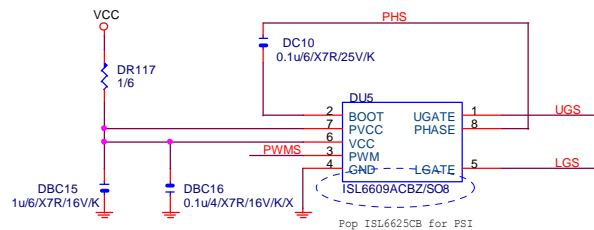




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VAXG

ISL6612 use +12V
ISL6609 use VCC
ISL6612 use 1 ohm
ISL6609 use 0 ohm



Function	SEL
A--> B	L
A--> C	H

FIX PCH-SATA --> SATA
，請放在U18背面

GIGABYTE

Title VAXG PHASE		
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