GA-AX370-GAMING K7

Revision : 1.0

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2015.12.30--B.L

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Title: COVER SHEET		
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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Model Name:GA-AX370-GAMING K7

Component value change history

Version: 1.0

P-Code: U98126-0

Date	Change Item		Reason
2016.08.08	01 New BOM Release.	PCB: 0.1	1. OR169 NA
2017.02.06	1.0A P-BOM Release.	PCB: 10	1. Modify AX370-GAMING 5 10T4 9FGL1214AKLFT 2. LED_REAR 上件 3.R_MOS :12SP2-S08025-F1R T_MOS :12SP2-S09425-R1R PT_MOS : 12SP2-S06912-21R/22R/23R AUDIO_COVER : 12KRC-0A0001-41R REAR_HS : 12KRC-0H0007-51R 4. IR VIN cap 上件 (all 0.1u)
2017.02.07	1.0B F-BOM Release.	PCB: 10	1. KNOLL NA 2. DAJP NA 3. SLOT CHANGE TO 鈹黑鎳金屬slot
2017.02.14	1.0C F-BOM Release.	PCB: 10	1. Update new value for DAC power (pull to 3VDual) DCCA_R15 / DACA_R15 NA DCCA_R16 / DACA_R16 上件

Circuit or PCB layout change for next version

Date	Change Item	Reason

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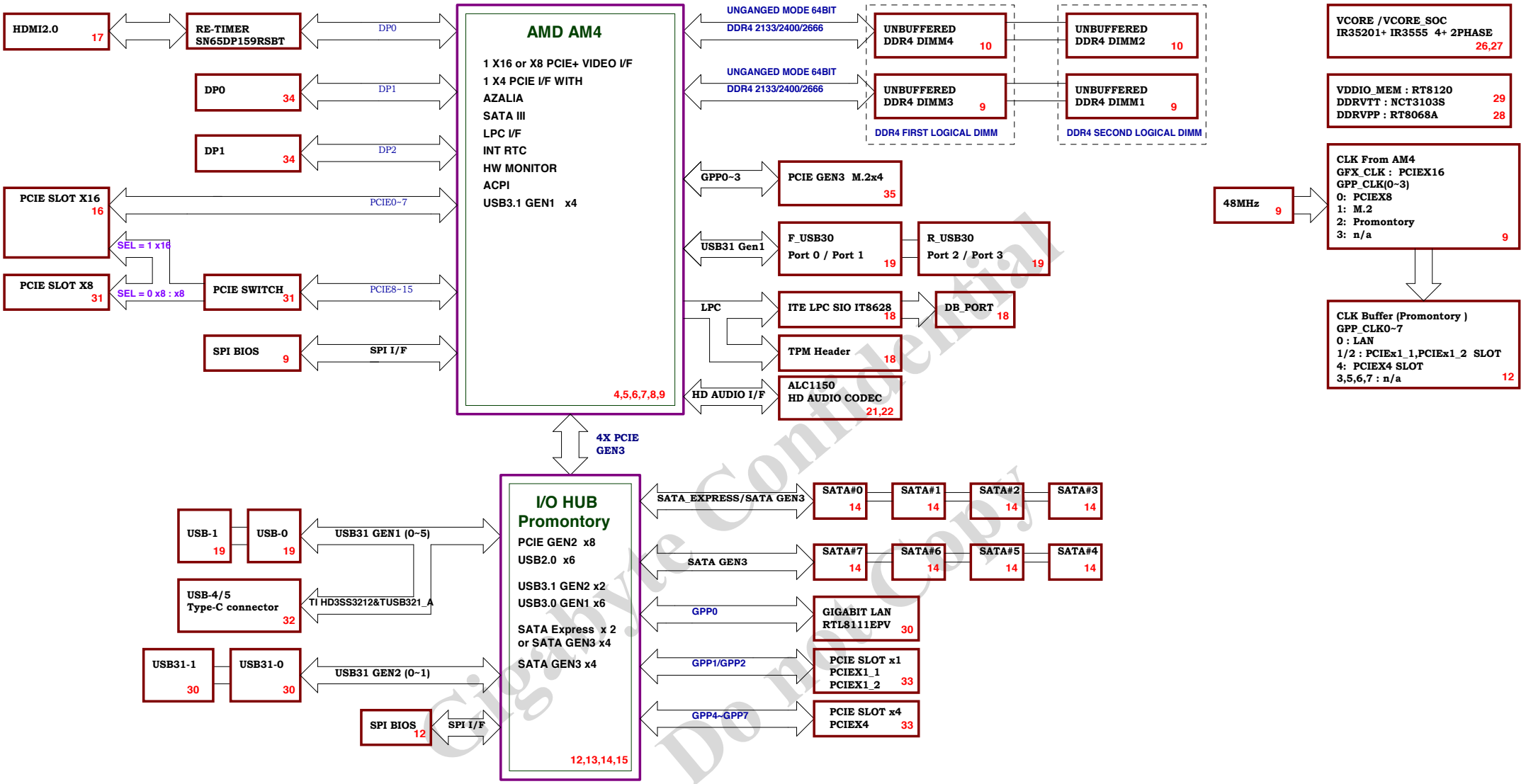
Title	BOM & PCB HISTORY	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
Date: Tuesday, February 14, 2017	Sheet 2 of 48	



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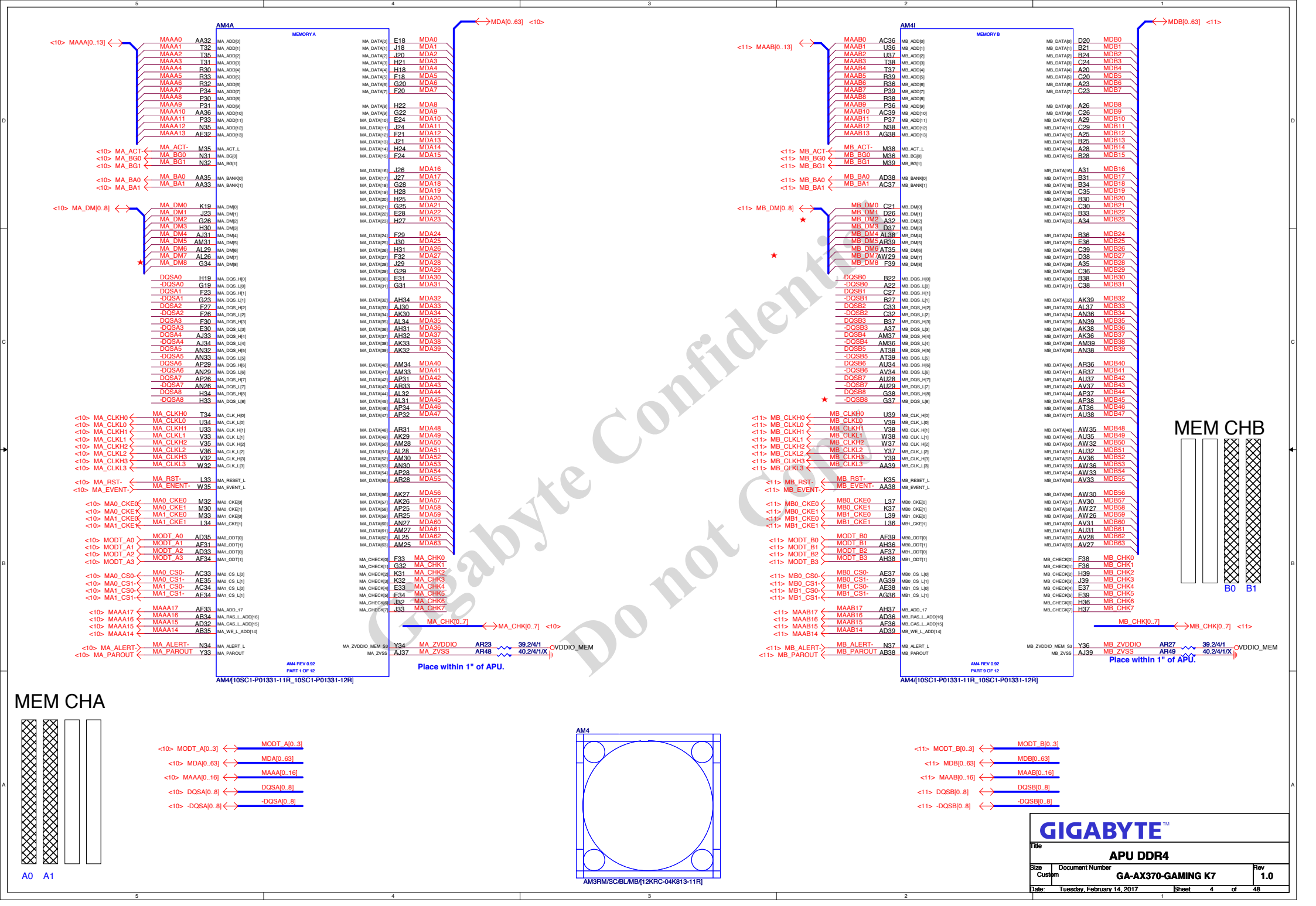
Title: BLOCK DIAGRAM

Size: Custom | Document Number: GA-AX370-GAMING K7 | Rev: 1.0

Date: Tuesday, February 14, 2017 | Sheet 3 of 48


AM4A
MEMORY A
AM4 REV 0.92
PART 1 OF 12
AM4[10SC1-P01331-11R_10SC1-P01331-12R]
AM4I
MEMORY B
AM4 REV 0.92
PART 9 OF 12
AM4[10SC1-P01331-11R_10SC1-P01331-12R]
MEM CHA
A0 A1
MEM CHB
B0 B1
AM4
AM3RM/SC/BL/MB/[12KRC-04K813-11R]
Place within 1" of APU.
Place within 1" of APU.
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GIGABYTE
Title
APU DDR4
Size
Custom
Document Number
GA-AX370-GAMING K7
Rev
1.0
Date: Tuesday, February 14, 2017
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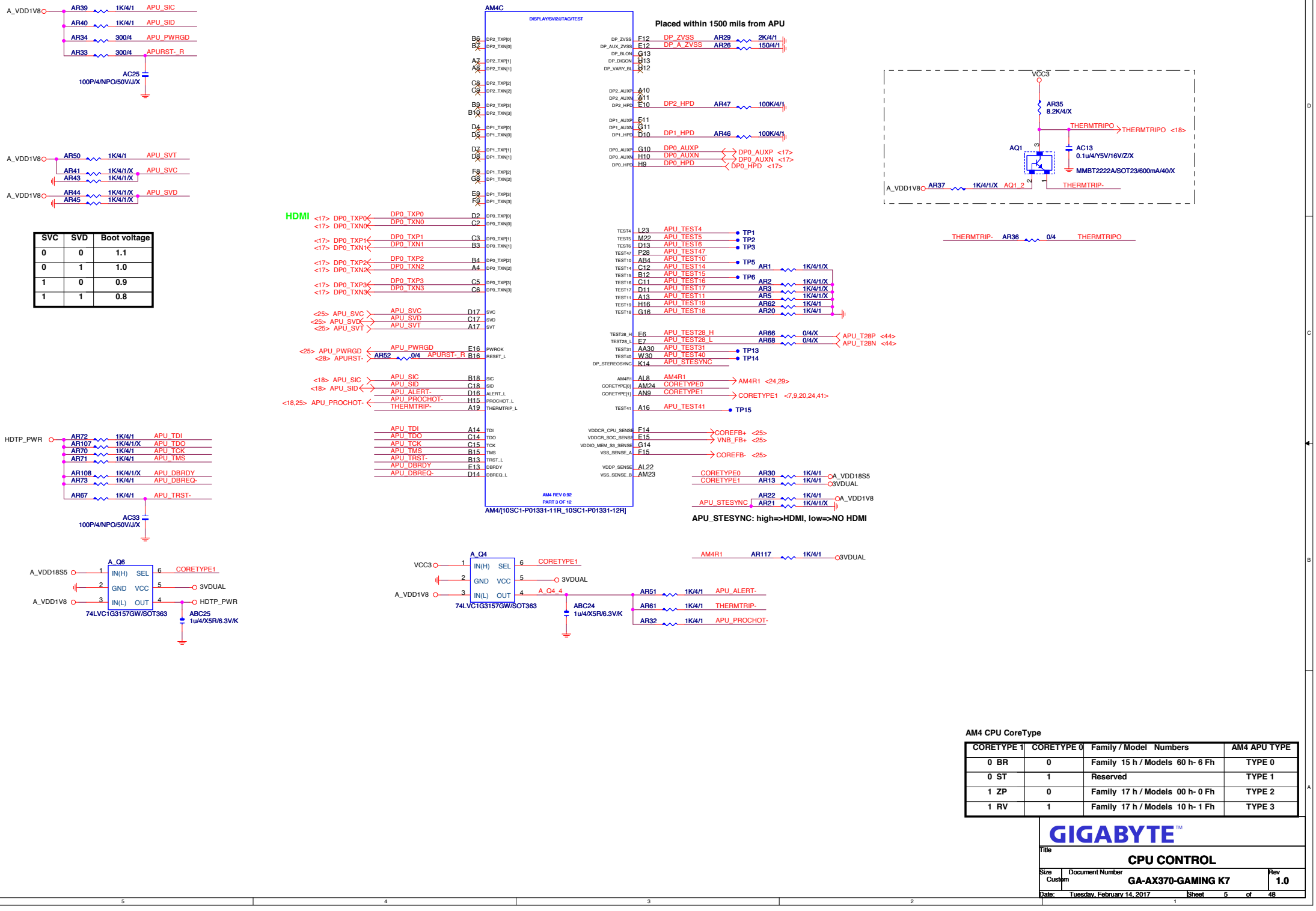

AM4 CPU CoreType

CORETYPE 1	CORETYPE 0	Family / Model Numbers	AM4 APU TYPE
0 BR	0	Family 15 h / Models 60 h- 6 Fh	TYPE 0
0 ST	1	Reserved	TYPE 1
1 ZP	0	Family 17 h / Models 00 h- 0 Fh	TYPE 2
1 RV	1	Family 17 h / Models 10 h- 1 Fh	TYPE 3

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Title: CPU CONTROL

Size: Custom | Document Number: GA-AX370-GAMING K7 | Rev: 1.0

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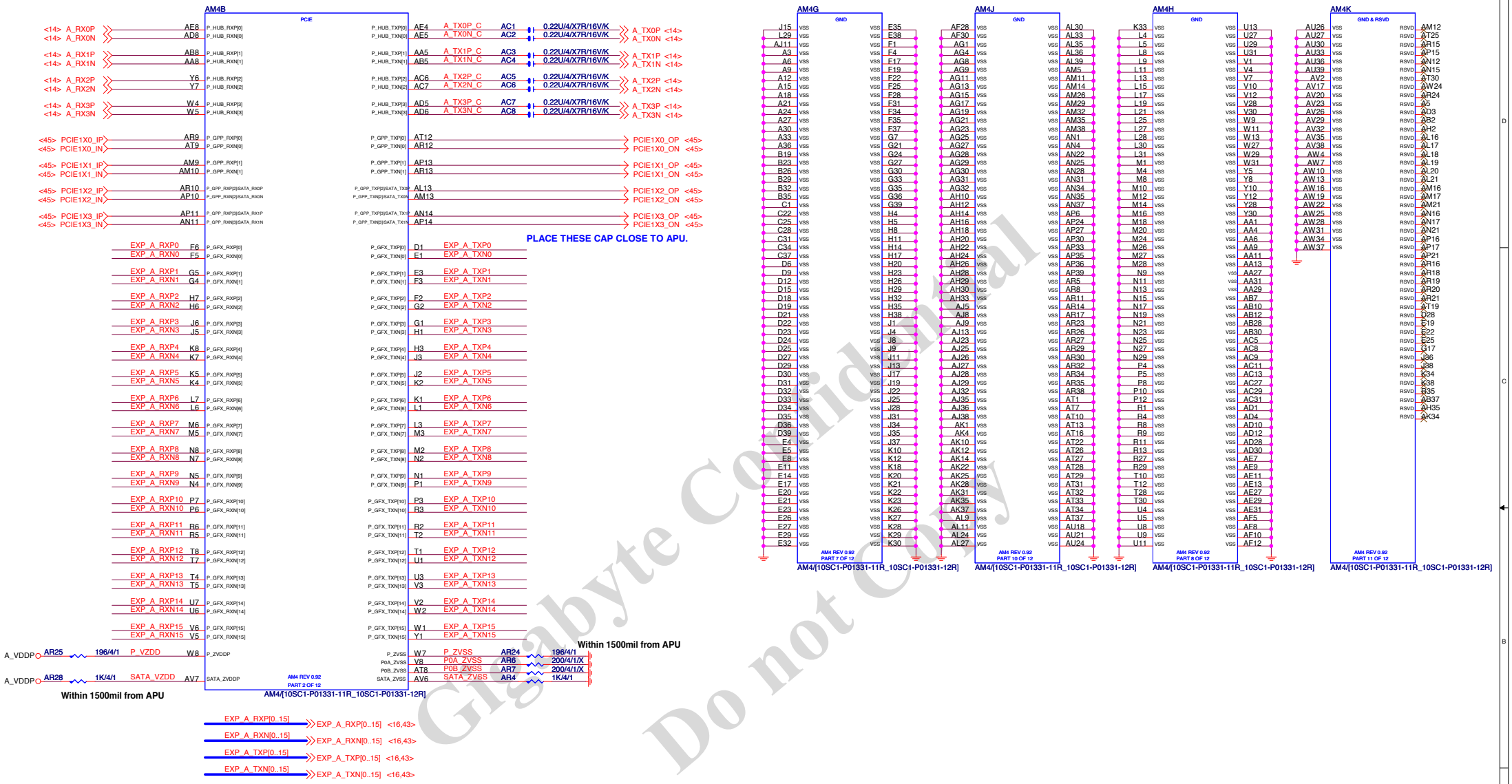

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Title	AM4_PCIE LINK, GND	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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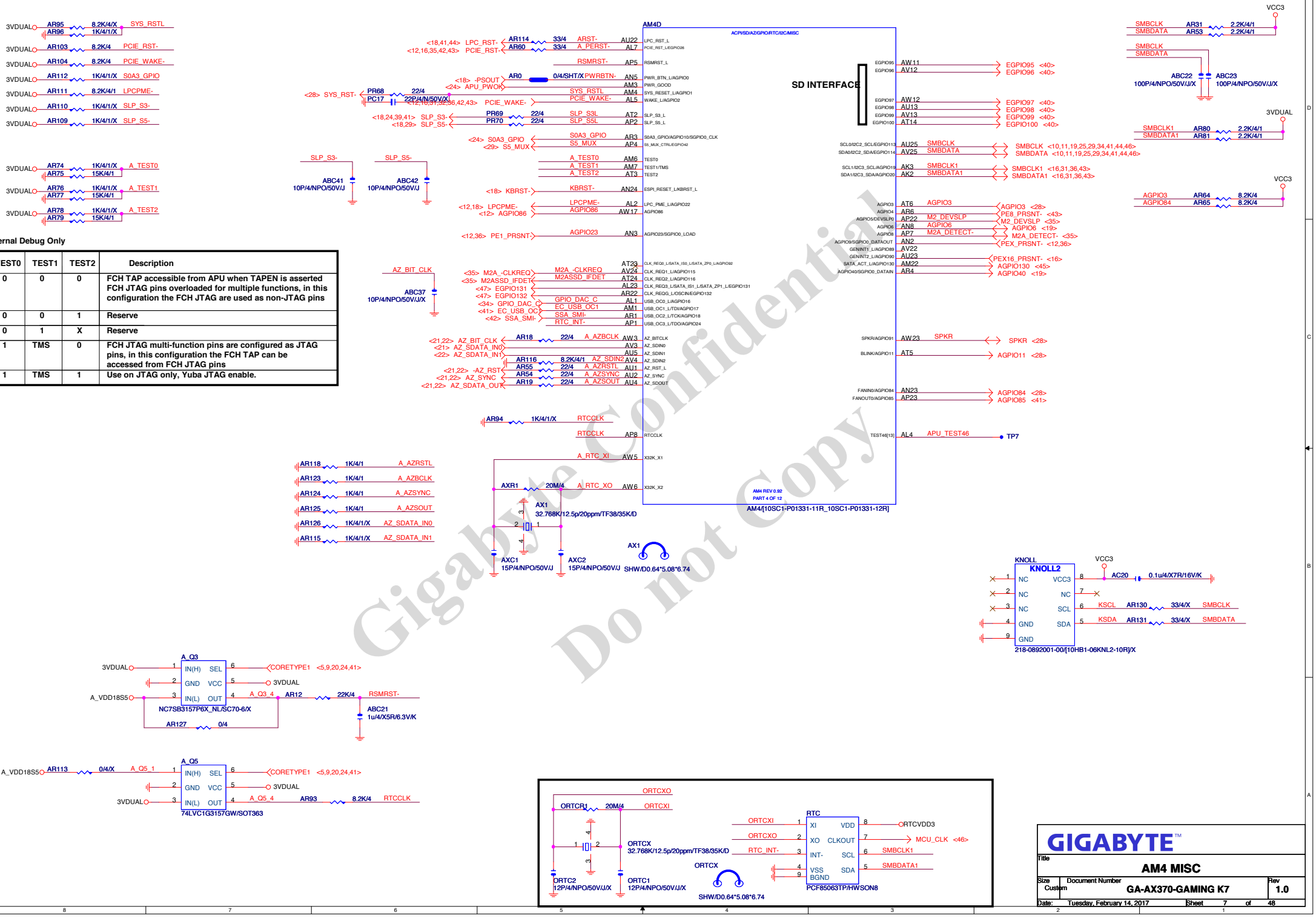
AM4D
ACPI/SD/AZ/GPIO/RTC/I2C/MISC
SD INTERFACE
AM4 REV 0.92
PART 4 OF 12
AM4/[10SC1-P01331-11R_10SC1-P01331-12R]
Internal Debug Only
TEST0 TEST1 TEST2 Description
0 0 0 FCH TAP accessible from APU when TAPEN is asserted FCH JTAG pins overloaded for multiple functions, in this configuration the FCH JTAG are used as non-JTAG pins
0 0 1 Reserve
0 1 X Reserve
1 TMS 0 FCH JTAG multi-function pins are configured as JTAG pins, in this configuration the FCH TAP can be accessed from FCH JTAG pins
1 TMS 1 Use on JTAG only, Yuba JTAG enable.
KNOLL
KNOLL2
218-0892001-00/[10HB1-06KNL2-10R]/X
NC7SB3157P6X_NL/SC70-6/X
74LVC1G3157GW/SOT363
PCF85063TP/HWSON8
SHW/D0.64*5.08*6.74
32.768K/12.5p/20ppm/TF38/35K/D
GIGABYTE
AM4 MISC
GA-AX370-GAMING K7
1.0
Tuesday, February 14, 2017
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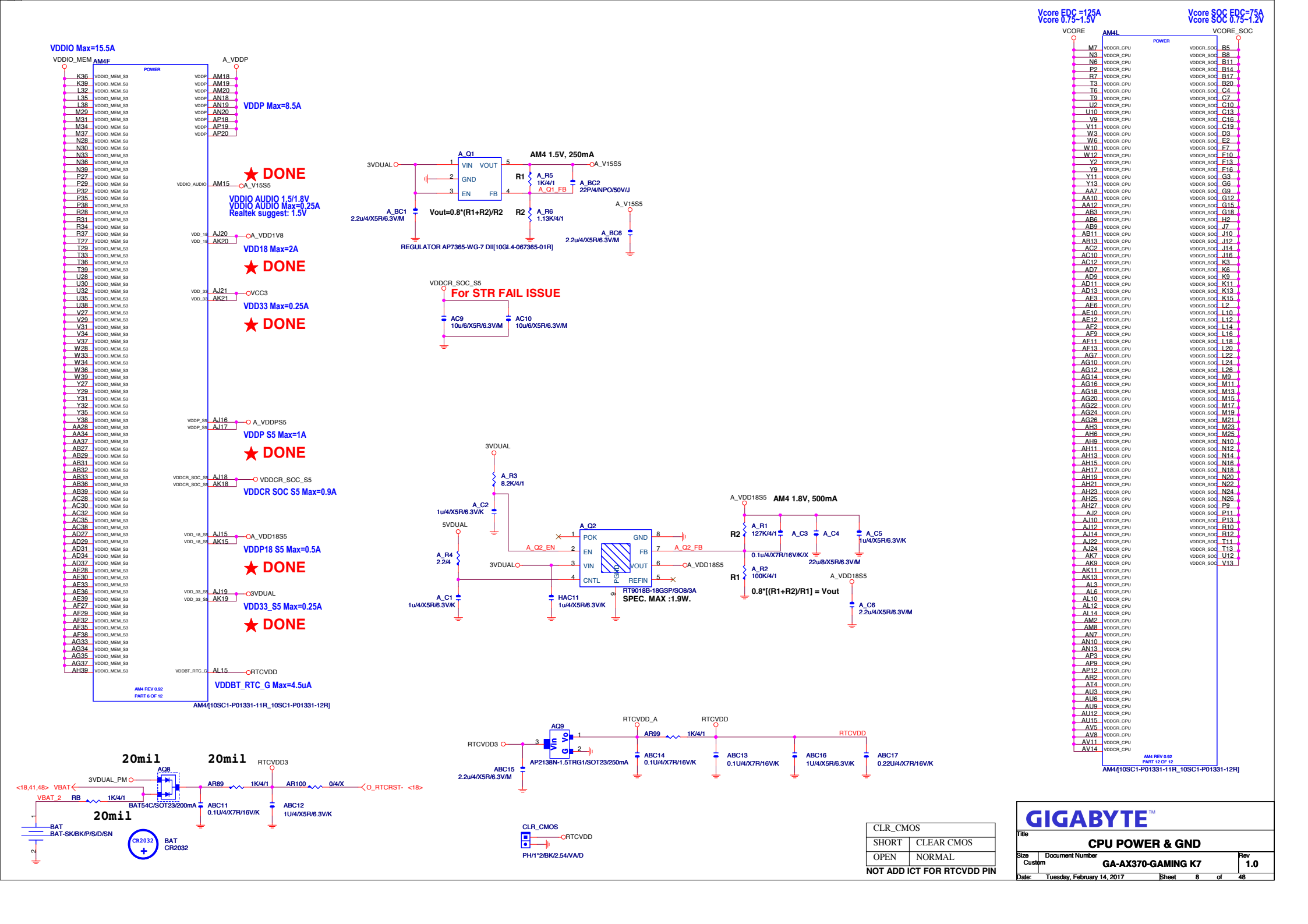
VDDIO Max=15.5A
VDDIO_MEM
AM4F
POWER
A_VDDP
VDDP Max=8.5A
DONE
VDDIO_AUDIO
AM15
A_V15S5
VDDIO AUDIO 1.5/1.8V
VDDIO AUDIO Max=0.25A
Realtek suggest: 1.5V
VDD_18
AJ20
AK20
A_VDD1V8
VDD18 Max=2A
DONE
VDD_33
AJ21
AK21
VCC3
VDD33 Max=0.25A
DONE
VDDP_S5
AJ16
AJ17
A_VDDPS5
VDDP S5 Max=1A
DONE
VDDCR_SOC_S5
AJ18
AK18
VDDCR SOC S5 Max=0.9A
VDD_18_S5
AJ15
AK15
A_VDD18S5
VDDP18 S5 Max=0.5A
DONE
VDD_33_S5
AJ19
AK19
3VDUAL
VDD33_S5 Max=0.25A
DONE
VDDBT_RTC_G
AL15
RTCVDD
VDDBT_RTC_G Max=4.5uA
AM4 REV 0.92
PART 6 OF 12
AM4[10SC1-P01331-11R_10SC1-P01331-12R]
A_Q1
AM4 1.5V, 250mA
3VDUAL
VIN
VOUT
GND
EN
FB
R1
A_R5
1K/4/1
A_Q1_FB
A_BC2
22P/4/NPO/50V/J
A_V15S5
A_BC1
2.2u/4/X5R/6.3V/M
Vout=0.8*(R1+R2)/R2
R2
A_R6
1.13K/4/1
A_BC6
2.2u/4/X5R/6.3V/M
REGULATOR AP7365-WG-7 DII[10GL4-067365-01R]
VDDCR_SOC_S5
For STR FAIL ISSUE
AC9
10u/6/X5R/6.3V/M
AC10
10u/6/X5R/6.3V/M
3VDUAL
A_R3
8.2K/4/1
A_C2
1u/4/X5R/6.3V/K
5VDUAL
A_R4
2.2/4
A_C1
1u/4/X5R/6.3V/K
A_Q2
POK
GND
EN
FB
VIN
VOUT
CNTL
PGND
REFIN
A_Q2_EN
A_Q2_FB
3VDUAL
A_VDD18S5
HAC11
1u/4/X5R/6.3V/K
RT9018B-18GSP/SO8/3A
SPEC. MAX :1.9W.
A_VDD18S5
AM4 1.8V, 500mA
R2
A_R1
127K/4/1
A_C3
A_C4
A_C5
1u/4/X5R/6.3V/K
0.1u/4/X7R/16V/K/X
22u/8/X5R/6.3V/M
R1
A_R2
100K/4/1
0.8*[(R1+R2)/R1] = Vout
A_VDD18S5
A_C6
2.2u/4/X5R/6.3V/M
VCORE
VCORE_SOC
AM4L
POWER
Vcore EDC =125A
Vcore 0.75~1.5V
Vcore SOC EDC=75A
Vcore SOC 0.75~1.2V
AM4 REV 0.92
PART 12 OF 12
AM4[10SC1-P01331-11R_10SC1-P01331-12R]
20mil
20mil
3VDUAL_PM
AQ6
<18,41,48> VBAT
VBAT_2
RB
1K/4/1
BAT54C/SOT23/200mA
AR89
1K/4/1
AR100
0/4/X
O_RTCRST- <18>
RTCVDD3
ABC11
0.1U/4/X7R/16V/K
ABC12
1U/4/X5R/6.3V/K
20mil
BAT
BAT-SK/BK/P/S/D/SN
CR2032
BAT
CR2032
AQ9
RTCVDD3
AP2138N-1.5TRG1/SOT23/250mA
ABC15
2.2u/4/X5R/6.3V/M
RTCVDD_A
AR99
1K/4/1
RTCVDD
ABC14
0.1U/4/X7R/16V/K
ABC13
0.1U/4/X7R/16V/K
ABC16
1U/4/X5R/6.3V/K
ABC17
0.22U/4/X7R/16V/K
CLR_CMOS
RTCVDD
PH/1*2/BK/2.54/VA/D
CLR_CMOS
SHORT
CLEAR CMOS
OPEN
NORMAL
NOT ADD ICT FOR RTCVDD PIN
GIGABYTE
Title
CPU POWER & GND
Size
Custom
Document Number
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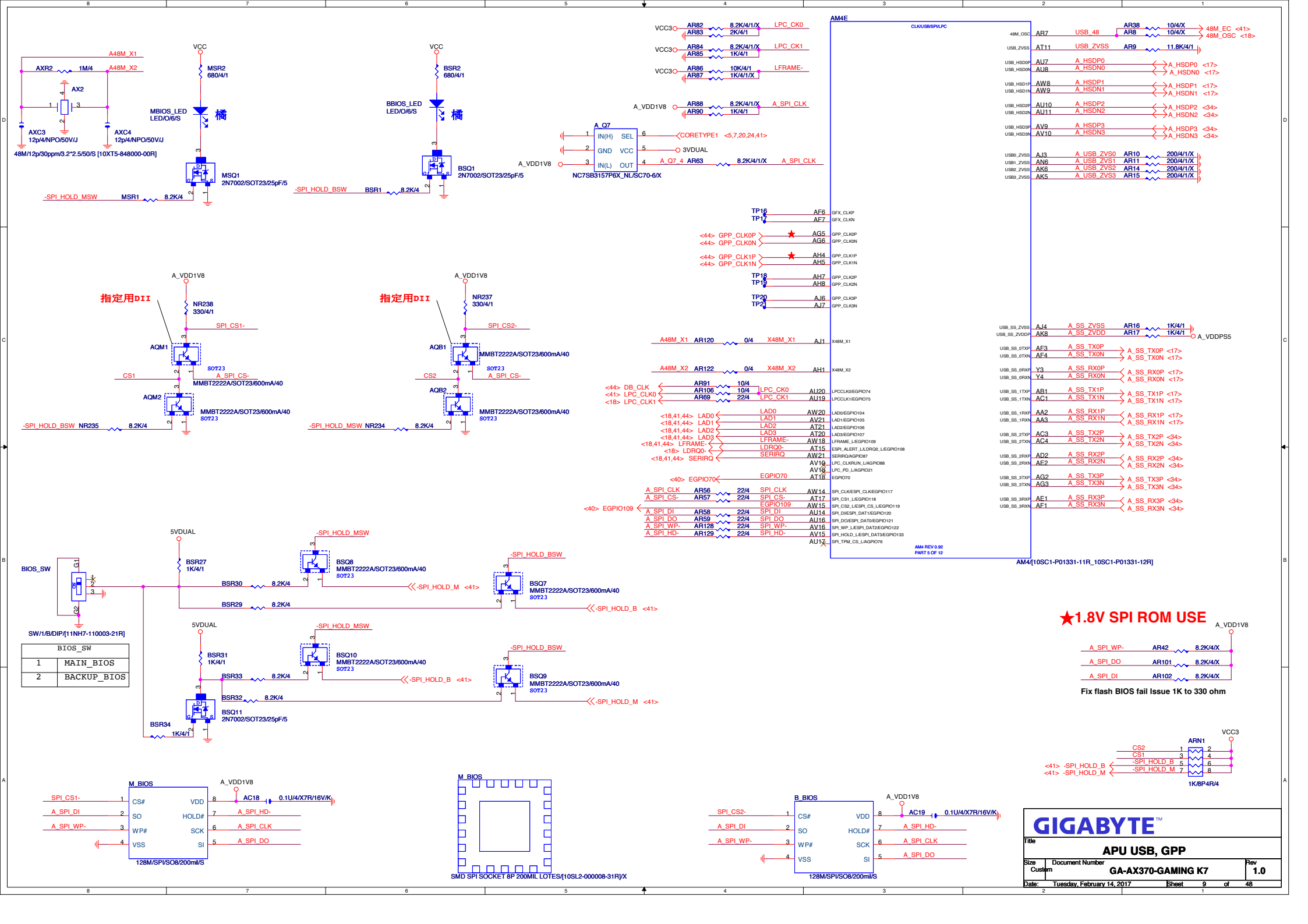
A48M_X1
AXR2
1M/4
A48M_X2
AX2
AXC3
12p/4/NPO/50V/J
AXC4
12p/4/NPO/50V/J
48M/12p/30ppm/3.2*2.5/50/S [10XT5-848000-00R]
VCC
MSR2
680/4/1
MBIOS_LED
LED/O/6/S
MSQ1
2N7002/SOT23/25pF/5
-SPI_HOLD_MSW
MSR1
8.2K/4
BSR2
680/4/1
BBIOS_LED
LED/O/6/S
BSQ1
2N7002/SOT23/25pF/5
-SPI_HOLD_BSW
BSR1
8.2K/4
VCC3
AR82
8.2K/4/1/X
AR83
2K/4/1
LPC_CK0
AR84
8.2K/4/1/X
AR85
1K/4/1
LPC_CK1
AR86
10K/4/1
AR87
1K/4/1/1/X
LFRAME-
A_VDD1V8
AR88
8.2K/4/1/X
AR90
1K/4/1
A_SPI_CLK
A_Q7
IN(H)
SEL
GND
VCC
IN(L)
OUT
CORETYPE1 <5,7,20,24,41>
3VDUAL
A_Q7_4
AR63
8.2K/4/1/X
A_SPI_CLK
NC7SB3157P6X_NL/SC70-6/X
AM4E
CLK/USB/SPI/LPC
48M_OSC
AR7
USB_48
AR38
10/4/X
AR8
10/4/X
48M_EC <41>
48M_OSC <18>
USB_ZVSS
AT11
USB_ZVSS
AR9
11.8K/4/1
USB_HSDP
AU7
A_HSDP0
USB_HSDN
AU8
A_HSDN0
A_HSDP0 <17>
A_HSDN0 <17>
USB_HSD1P
AW8
A_HSDP1
USB_HSD1N
AW9
A_HSDN1
A_HSDP1 <17>
A_HSDN1 <17>
USB_HSD2P
AU10
A_HSDP2
USB_HSD2N
AU11
A_HSDN2
A_HSDP2 <34>
A_HSDN2 <34>
USB_HSD3P
AV9
A_HSDP3
USB_HSD3N
AV10
A_HSDN3
A_HSDP3 <34>
A_HSDN3 <34>
USB3_ZVSS
AJ3
A_USB_ZVS0
AR10
200/4/1/X
USB1_ZVSS
AN6
A_USB_ZVS1
AR11
200/4/1/X
USB2_ZVSS
AK6
A_USB_ZVS2
AR14
200/4/1/X
USB3_ZVSS
AK5
A_USB_ZVS3
AR15
200/4/1/X
TP16
TP17
AF6
AF7
GFX_CLKP
GFX_CLKN
<44> GPP_CLK0P
<44> GPP_CLK0N
AG5
AG6
GPP_CLK0P
GPP_CLK0N
<44> GPP_CLK1P
<44> GPP_CLK1N
AH4
AH5
GPP_CLK1P
GPP_CLK1N
TP18
TP19
AH7
AH8
GPP_CLK2P
GPP_CLK2N
TP20
TP21
AJ6
AJ7
GPP_CLK3P
GPP_CLK3N
A48M_X1
AR120
0/4
X48M_X1
AJ1
X48M_X1
A48M_X2
AR122
0/4
X48M_X2
AH1
X48M_X2
<44> DB_CLK
<41> LPC_CLK0
<18> LPC_CLK1
AR91
10/4
AR106
10/4
AR69
22/4
LPC_CK0
LPC_CK1
AU20
AU19
LPCCLK0/EGPIO74
LPCCLK1/EGPIO75
<18,41,44> LAD0
<18,41,44> LAD1
<18,41,44> LAD2
<18,41,44> LAD3
<18,41,44> LFRAME-
<18> LDRQ0-
<18,41,44> SERIRQ
LAD0
LAD1
LAD2
LAD3
LFRAME-
LDRQ0-
SERIRQ
AW20
AV21
AT21
AT20
AW18
AT15
AW21
LAD0/EGPIO104
LAD1/EGPIO105
LAD2/EGPIO106
LAD3/EGPIO107
LFRAME_L/EGPIO109
ESPI_ALERT_L/LDRQ0_L/EGPIO108
SERIRQ/AGPIO87
LPC_CLKRUN_L/AGPIO88
LPC_PD_L/AGPIO21
<40> EGPIO70
EGPIO70
AT18
EGPIO70
A_SPI_CLK
A_SPI_CS-
<40> EGPIO109
A_SPI_DI
A_SPI_DO
A_SPI_WP-
A_SPI_HD-
AR56
AR57
AR58
AR59
AR128
AR129
22/4
SPI_CLK
SPI_CS-
EGPIO109
SPI_DI
SPI_DO
SPI_WP-
SPI_HD-
AW14
AT17
AW15
AU14
AU16
AV16
AV15
AU17
SPI_CLK/ESPI_CLK/EGPIO117
SPI_CS1_L/EGPIO118
SPI_CS2_L/ESPI_CS_L/EGPIO119
SPI_DI/ESPI_DAT1/EGPIO120
SPI_DO/ESPI_DAT0/EGPIO121
SPI_WP_L/ESPI_DAT2/EGPIO122
SPI_HOLD_L/ESPI_DAT3/EGPIO133
SPI_TPM_CS_L/AGPIO76
AM4 REV 0.92
PART 5 OF 12
USB_SS_ZVSS
AJ4
A_SS_ZVSS
AR16
1K/4/1
USB_SS_ZVDDP
AK8
A_SS_ZVDD
AR17
1K/4/1
A_VDDPS5
USB_SS_0TXP
AF3
A_SS_TX0P
A_SS_TX0P <17>
USB_SS_0TXN
AF4
A_SS_TX0N
A_SS_TX0N <17>
USB_SS_0RXP
Y3
A_SS_RX0P
A_SS_RX0P <17>
USB_SS_0RXN
Y4
A_SS_RX0N
A_SS_RX0N <17>
USB_SS_1TXP
AB1
A_SS_TX1P
A_SS_TX1P <17>
USB_SS_1TXN
AC1
A_SS_TX1N
A_SS_TX1N <17>
USB_SS_1RXP
AA2
A_SS_RX1P
A_SS_RX1P <17>
USB_SS_1RXN
AA3
A_SS_RX1N
A_SS_RX1N <17>
USB_SS_2TXP
AC3
A_SS_TX2P
A_SS_TX2P <34>
USB_SS_2TXN
AC4
A_SS_TX2N
A_SS_TX2N <34>
USB_SS_2RXP
AD2
A_SS_RX2P
A_SS_RX2P <34>
USB_SS_2RXN
AE2
A_SS_RX2N
A_SS_RX2N <34>
USB_SS_3TXP
AG2
A_SS_TX3P
A_SS_TX3P <34>
USB_SS_3TXN
AG3
A_SS_TX3N
A_SS_TX3N <34>
USB_SS_3RXP
AE1
A_SS_RX3P
A_SS_RX3P <34>
USB_SS_3RXN
AF1
A_SS_RX3N
A_SS_RX3N <34>
AM4/[10SC1-P01331-11R_10SC1-P01331-12R]
指定用DII
A_VDD1V8
NR238
330/4/1
SPI_CS1-
AQM1
SOT23
A_SPI_CS-
CS1
MMBT2222A/SOT23/600mA/40
AQM2
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_BSW
NR235
8.2K/4
指定用DII
A_VDD1V8
NR237
330/4/1
SPI_CS2-
AQB1
SOT23
A_SPI_CS-
CS2
MMBT2222A/SOT23/600mA/40
AQB2
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_MSW
NR234
8.2K/4
5VDUAL
BSR27
1K/4/1
BSQ8
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_MSW
BSR30
8.2K/4
-SPI_HOLD_M <41>
BSQ7
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_BSW
BSR29
8.2K/4
-SPI_HOLD_B <41>
BIOS_SW
G1
G2
SW/1/B/DIP/[11NH7-110003-21R]
BIOS_SW
1 MAIN_BIOS
2 BACKUP_BIOS
5VDUAL
BSR31
1K/4/1
BSQ10
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_MSW
BSR33
8.2K/4
-SPI_HOLD_B <41>
BSQ9
MMBT2222A/SOT23/600mA/40
SOT23
-SPI_HOLD_BSW
BSR32
8.2K/4
-SPI_HOLD_M <41>
BSQ11
2N7002/SOT23/25pF/5
BSR34
1K/4/1
★1.8V SPI ROM USE
A_VDD1V8
A_SPI_WP-
AR42
8.2K/4/X
A_SPI_DO
AR101
8.2K/4/X
A_SPI_DI
AR102
8.2K/4/X
Fix flash BIOS fail Issue 1K to 330 ohm
VCC3
ARN1
CS2
CS1
-SPI_HOLD_B
-SPI_HOLD_M
<41> -SPI_HOLD_B
<41> -SPI_HOLD_M
1K/8P4R/4
M_BIOS
A_VDD1V8
SPI_CS1-
A_SPI_DI
A_SPI_WP-
CS#
SO
WP#
VSS
VDD
HOLD#
SCK
SI
AC18
0.1U/4/X7R/16V/K
A_SPI_HD-
A_SPI_CLK
A_SPI_DO
128M/SPI/SO8/200mil/S
M_BIOS
SMD SPI SOCKET 8P 200MIL LOTES/[10SL2-000008-31R]/X
B_BIOS
A_VDD1V8
SPI_CS2-
A_SPI_DI
A_SPI_WP-
AC19
0.1U/4/X7R/16V/K
128M/SPI/SO8/200mil/S
GIGABYTE
Title
APU USB, GPP
Size
Custom
Document Number
GA-AX370-GAMING K7
Rev
1.0
Date: Tuesday, February 14, 2017
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Rev:0.5

DDR4_4

DDR4_2

* net 改 VDDQ

DDRVTT

VDDIO_MEM

VPP_MEM

MODT_A[0..3]

MDA[0..63]

MAA[0..16]

DQSA[0..8]

-DQSA[0..8]

MA_CHK[0..7]

MA_EVENT-

VCC3 MR19 0/0/X VPP_SPD

VPP_MEM MR0 0/6 VPP_SPD

DDR12V Decouple

VDDIO_MEM

MABC18 0.1u/4/X7R/16V/K

MABC15 0.1u/4/X7R/16V/K

MABC38 0.1u/4/X7R/16V/K

MASC3 0.1u/4/X7R/16V/K/X

MABC37 1u/4/X5R/6.3V/K

MABC34 1u/4/X5R/6.3V/K

MASC2 0.1u/4/X7R/16V/K

MABC10 22u/8/X5R/6.3V/M

MABC36 1u/4/X5R/6.3V/K

MABC21 1u/4/X5R/6.3V/K

MABC8 2.2u/4/X5R/6.3V/M

MABC20 1u/4/X5R/6.3V/K

MABC30 1u/4/X5R/6.3V/K

MABC12 1u/4/X5R/6.3V/K

MABC16 1u/4/X5R/6.3V/K

* 電容移到 [RT8120_DDR]

DDRVTT Decouple

DDRVTT

MABC23 0.1u/4/X7R/16V/K

MABC28 0.1u/4/X7R/16V/K

MABC22 1u/4/X5R/6.3V/K

MABC4 0.1u/4/X7R/16V/K

MAR15 1K/4/1

MAR16 1K/4/1

VREF_DDRA

MAC11 1u/4/X5R/6.3V/K

MAC16 0.1u/4/X7R/16V/K

MAC42 0.1u/4/X7R/16V/K

MAC43 0.1u/4/X7R/16V/K

MAR1 1K/4/1

CHANNEL A0
SA2:0=000

CHANNEL A1
SA2:2=010

DDR4288SBK/VA/D/G15/TWO LATCH/BK NI SH

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Title: DDR4 CHANNEL A

Size: Custom | Document Number: GA-AX370-GAMING K7 | Rev: 1.0

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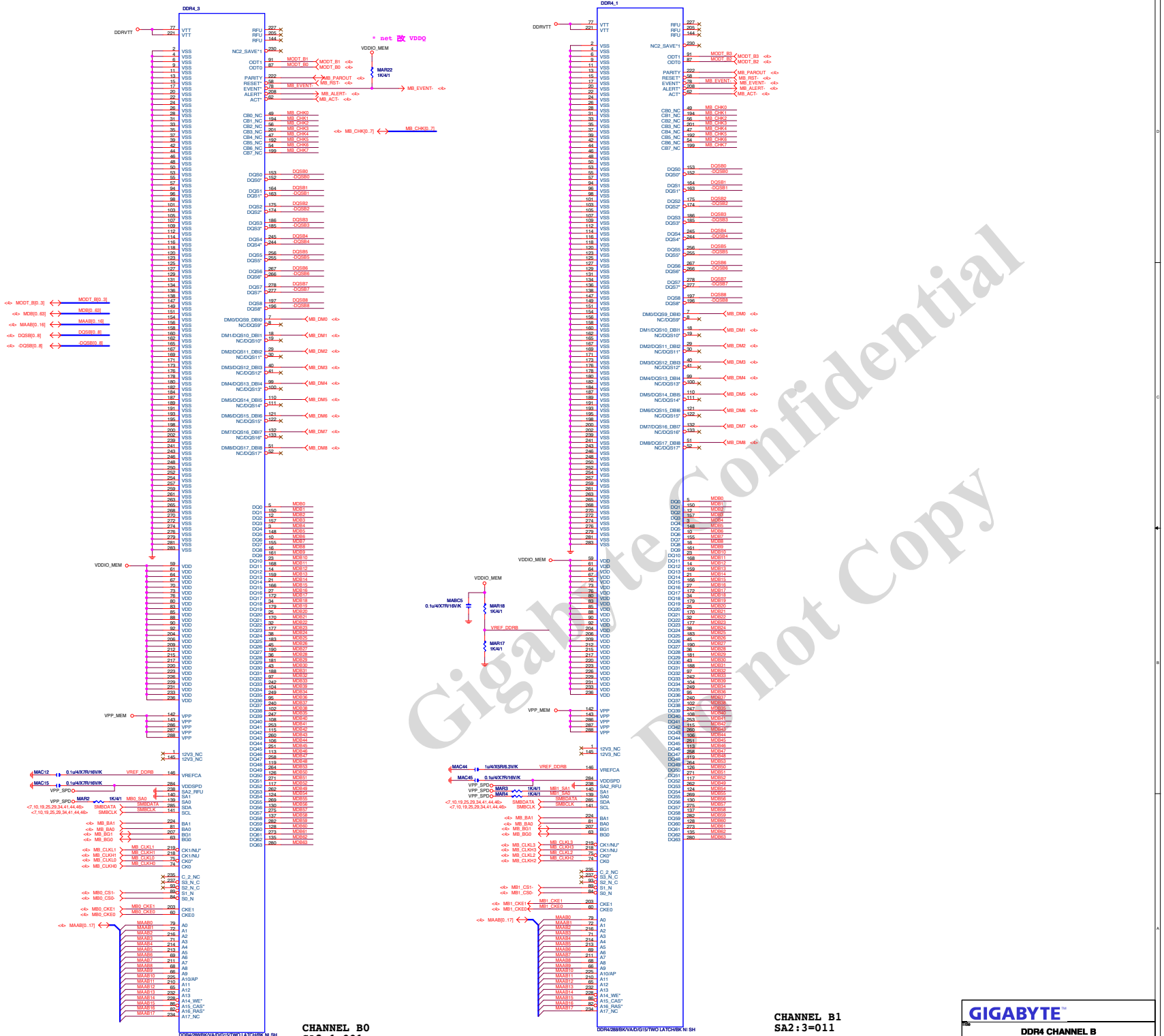

CHANNEL B0
SA2:1=001

CHANNEL B1
SA2:3=011

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Title	DDR4 CHANNEL B		
Size: Custom	Document Number: GA-AX370-GAMING K7		Rev: 1.0
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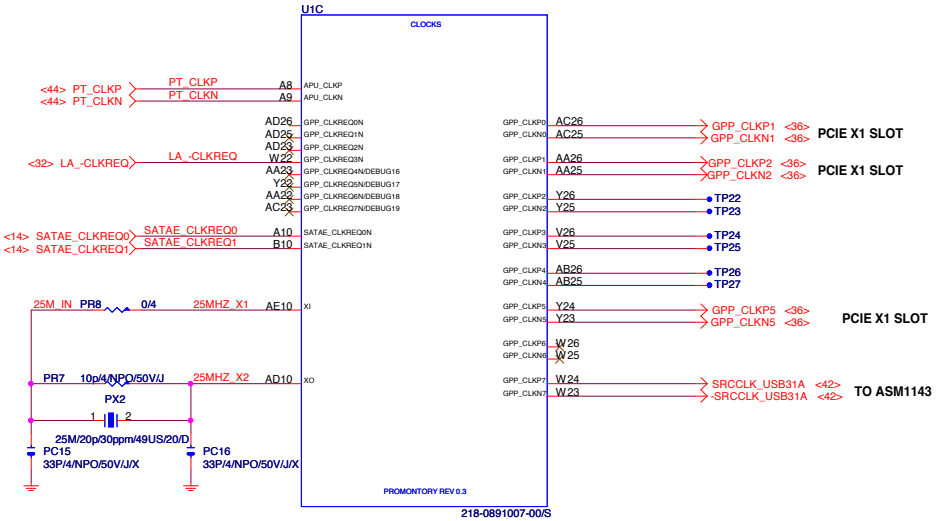
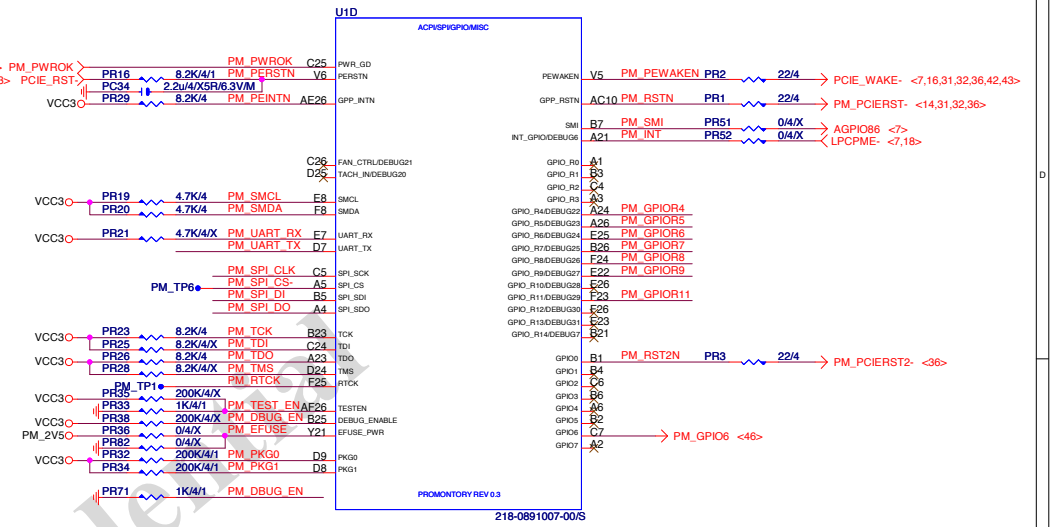
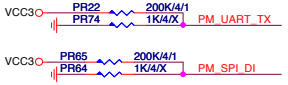
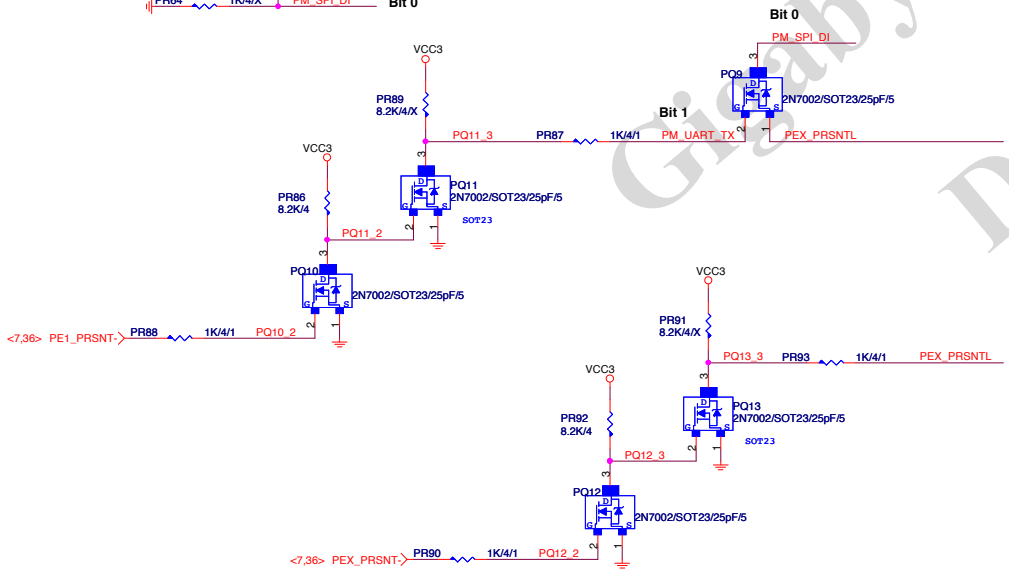


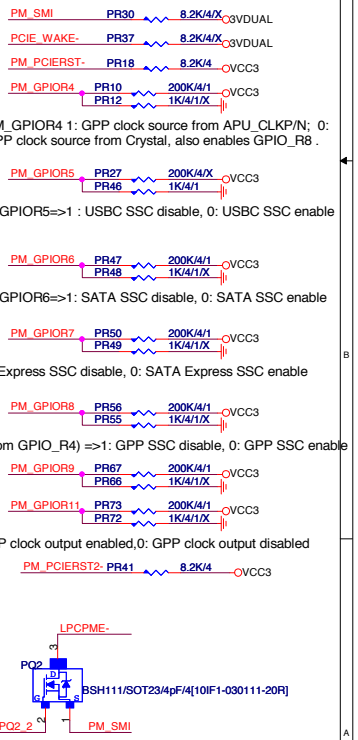


PM GPP Group 0 Strap: 11=> 1PCIe x4, 10=>1PCIe x2, 2PCIex1, 01=>4PCIe x1, 00=>Reserved.
PM GPP Group 0=>0~3

PM GPP Group 1 Strap: 11=> 1PCIe x4, 10=>1PCIe x2, 2PCIex1, 01=>4PCIe x1, 00=>Reserved.
PM GPP Group 1=>4~7







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Title	PROMONTORY CPU/CLK/MISC		
Size: Custom	Document Number: GA-AX370-GAMING K7		Rev: 1.0
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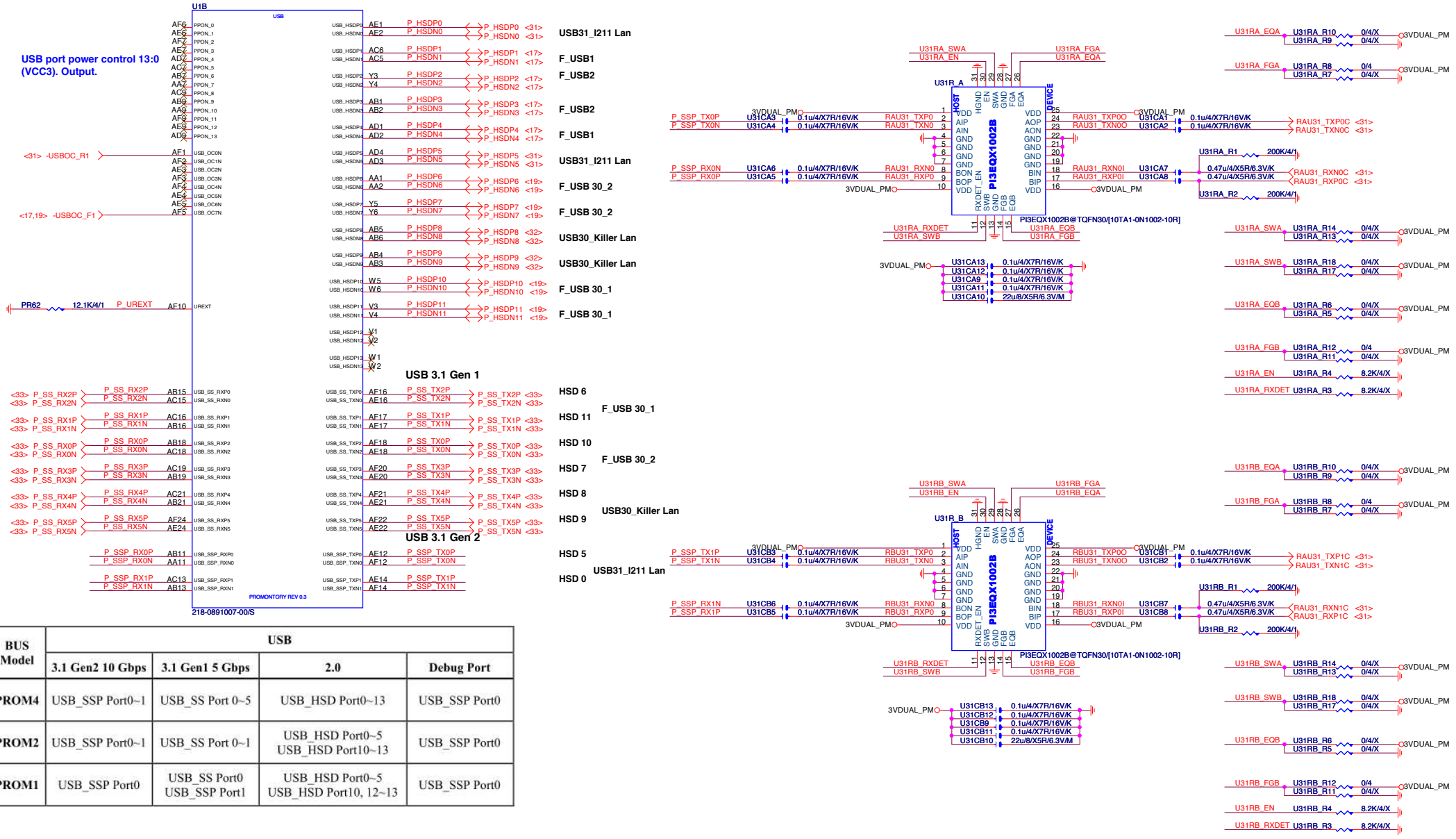

BUS Model	USB			
	3.1 Gen2 10 Gbps	3.1 Gen1 5 Gbps	2.0	Debug Port
PROM4	USB_SSP Port0~1	USB_SS Port 0~5	USB_HSD Port0~13	USB_SSP Port0
PROM2	USB_SSP Port0~1	USB_SS Port 0~1	USB_HSD Port0~5 USB_HSD Port10~13	USB_SSP Port0
PROM1	USB_SSP Port0	USB_SS Port0 USB_SSP Port1	USB_HSD Port0~5 USB_HSD Port10, 12~13	USB_SSP Port0

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Title: PM USB

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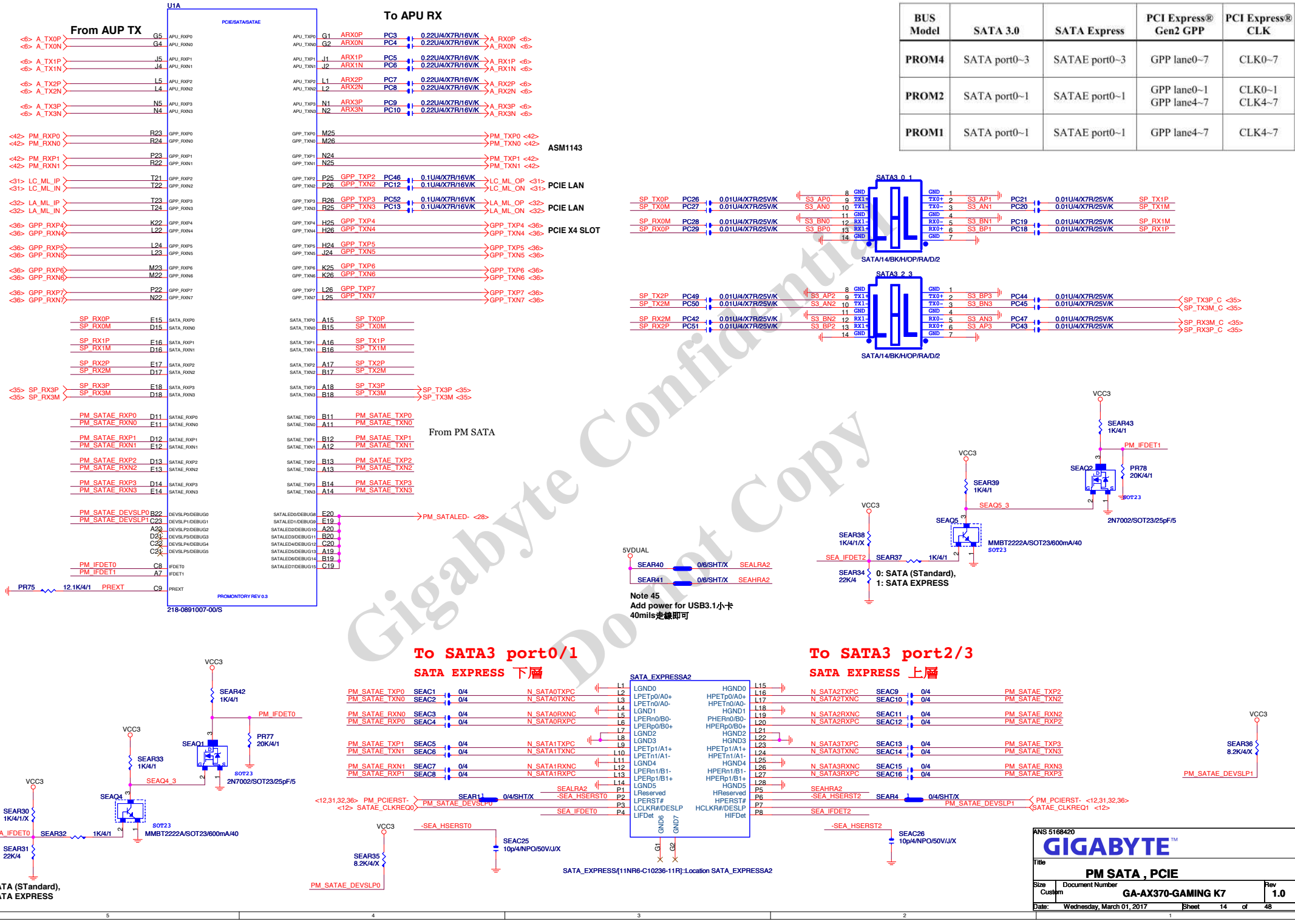
BUS Model	SATA 3.0	SATA Express	PCI Express® Gen2 GPP	PCI Express® CLK
PROM4	SATA port0~3	SATAE port0~3	GPP lane0~7	CLK0~7
PROM2	SATA port0~1	SATAE port0~1	GPP lane0~1 GPP lane4~7	CLK0~1 CLK4~7
PROM1	SATA port0~1	SATAE port0~1	GPP lane4~7	CLK4~7



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ANS 5168420

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Title: PM SATA , PCIE

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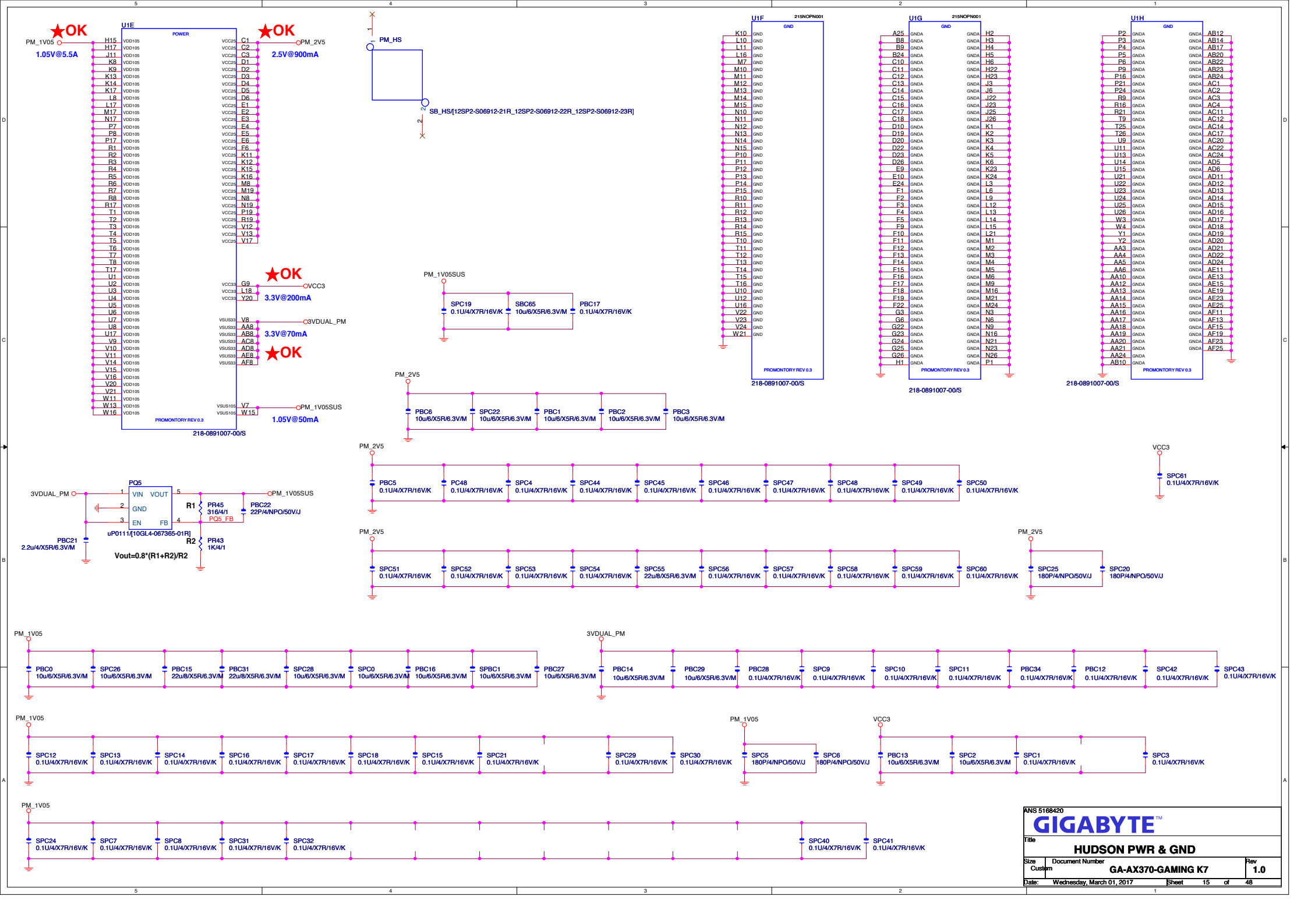
U1E
POWER
PM_1V05
1.05V@5.5A
OK
PM_2V5
2.5V@900mA
VCC3
3.3V@200mA
3VDUAL_PM
3.3V@70mA
PM_1V05SUS
1.05V@50mA
PROMONTORY REV 0.3
218-0891007-00/S
PM_HS
SB_HS/[12SP2-S06912-21R_12SP2-S06912-22R_12SP2-S06912-23R]
U1F
U1G
U1H
215NOPN001
GND
218-0891007-00/S
PQ5
uP0111/[10GL4-067365-01R]
R1
PR45
316/4/1
R2
PR43
1K/4/1
PBC22
22P/4/NPO/50V/J
PBC21
2.2u/4/X5R/6.3V/M
Vout=0.8*(R1+R2)/R2
PQ5_FB
SPC19
0.1U/4/X7R/16V/K
SBC65
10u/6/X5R/6.3V/M
PBC17
PBC6
PBC22
PBC1
PBC2
PBC3
PBC5
PC48
SPC4
SPC44
SPC45
SPC46
SPC47
SPC48
SPC49
SPC50
SPC61
SPC51
SPC52
SPC53
SPC54
SPC55
22u/8/X5R/6.3V/M
SPC56
SPC57
SPC58
SPC59
SPC60
SPC25
180P/4/NPO/50V/J
SPC20
180P/4/NPO/50V/J
PBC0
SPC26
PBC15
22u/8/X5R/6.3V/M
PBC31
22u/8/X5R/6.3V/M
SPC28
SPC0
PBC16
SPBC1
PBC27
PBC14
PBC29
PBC28
SPC9
SPC10
SPC11
PBC34
PBC12
SPC42
SPC43
SPC12
SPC13
SPC14
SPC16
SPC17
SPC18
SPC15
SPC21
SPC29
SPC30
SPC5
SPC6
PBC13
SPC2
SPC1
SPC3
SPC24
SPC7
SPC8
SPC31
SPC32
SPC40
SPC41
ANS 5168420
GIGABYTE
Title
HUDSON PWR & GND
Size
Custom
Document Number
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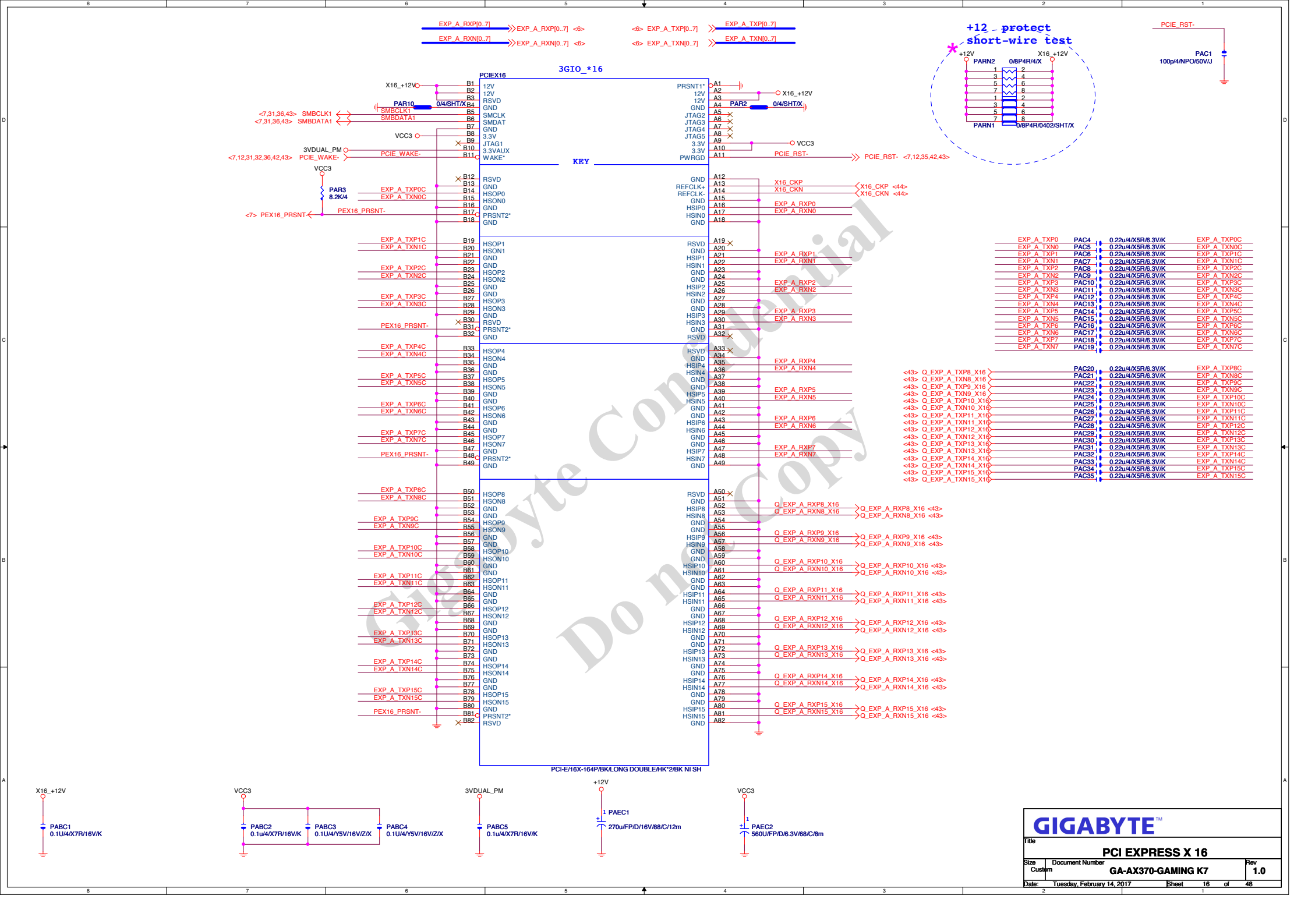

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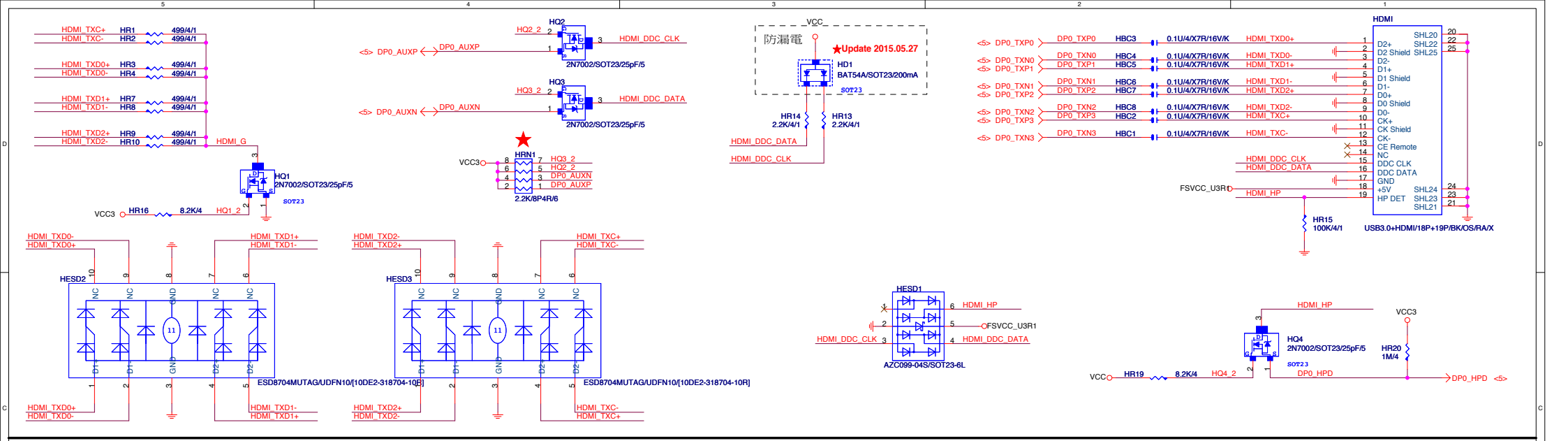
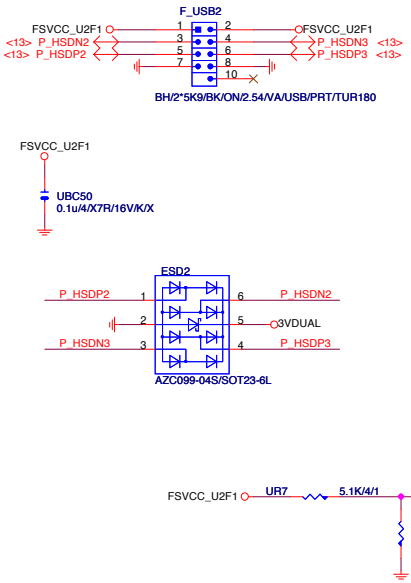
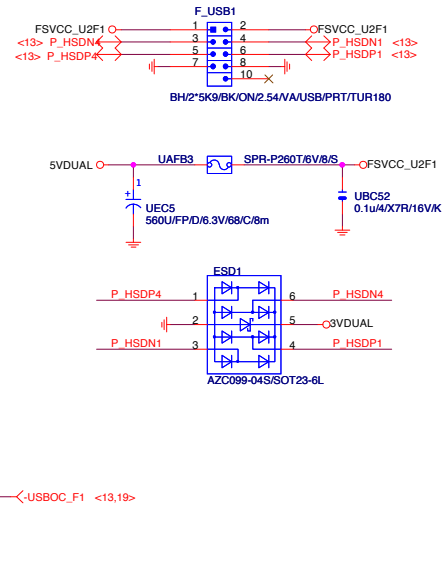
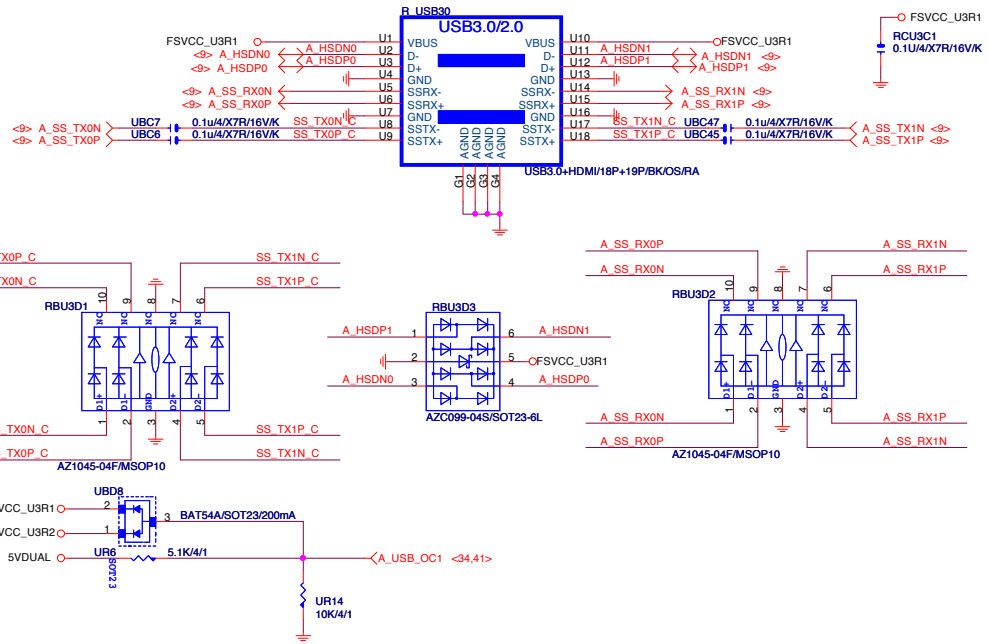


FRONT SIDE USB2



FRONT SIDE USB1





GIGABYTE			
Title	HDMI 2.0		
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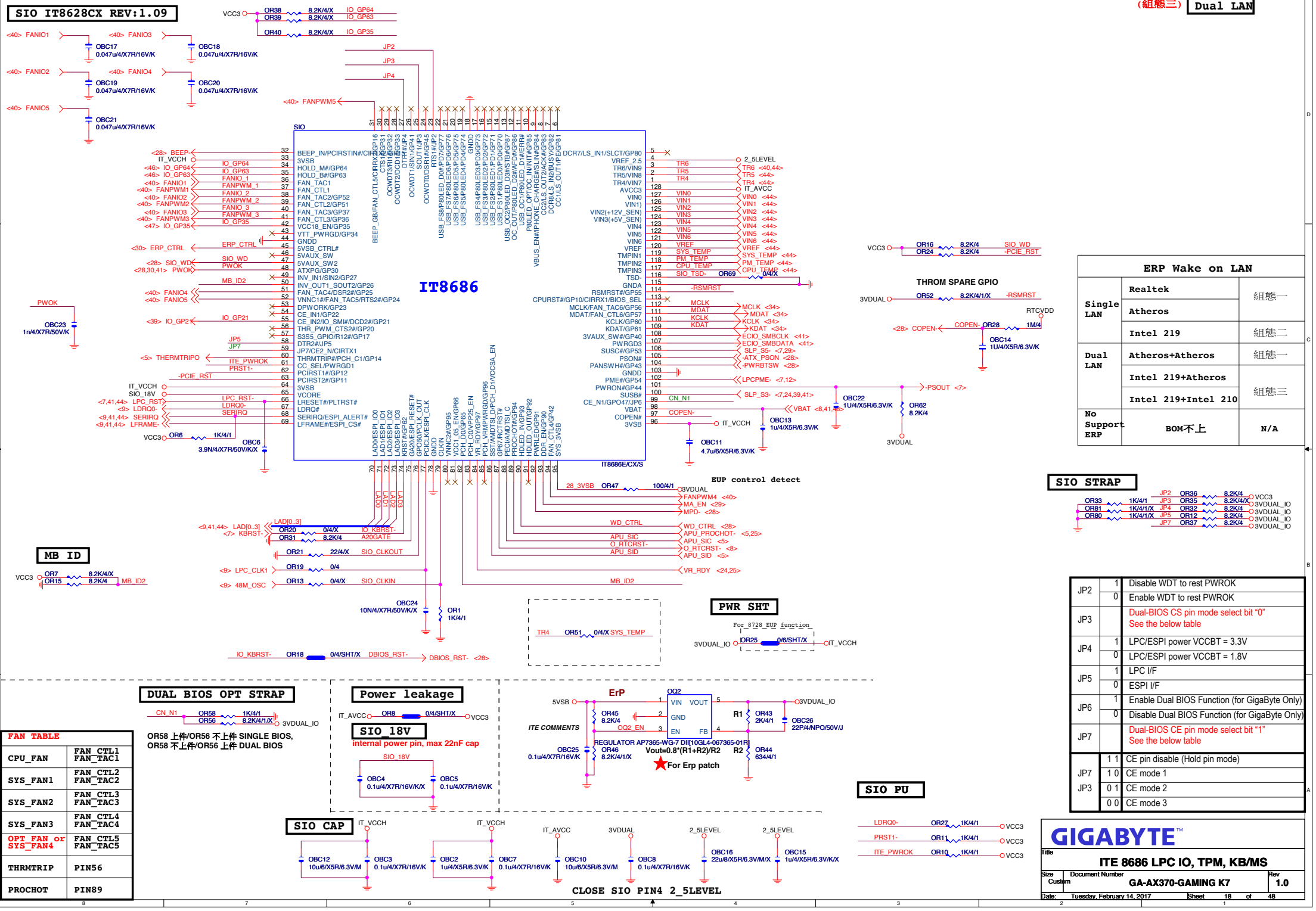
SIO IT8628CX REV:1.09

（組態三） **Dual LAN**



ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN	Atheros+Atheros	組態一
	Intel 219+Atheros	組態三
	Intel 219+Intel 210	
No Support ERP	BOM不上	N/A

FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

JP2	1	Disable WDT to rest PWROK
	0	Enable WDT to rest PWROK
JP3		Dual-BIOS CS pin mode select bit "0" See the below table
JP4	1	LPC/ESPI power VCCBT = 3.3V
	0	LPC/ESPI power VCCBT = 1.8V
JP5	1	LPC I/F
	0	ESPI I/F
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
	0	Disable Dual BIOS Function (for GigaByte Only)
JP7		Dual-BIOS CE pin mode select bit "1" See the below table
JP7 JP3	1 1	CE pin disable (Hold pin mode)
	1 0	CE mode 1
	0 1	CE mode 2
	0 0	CE mode 3

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Title: ITE 8686 LPC IO, TPM, KB/MS

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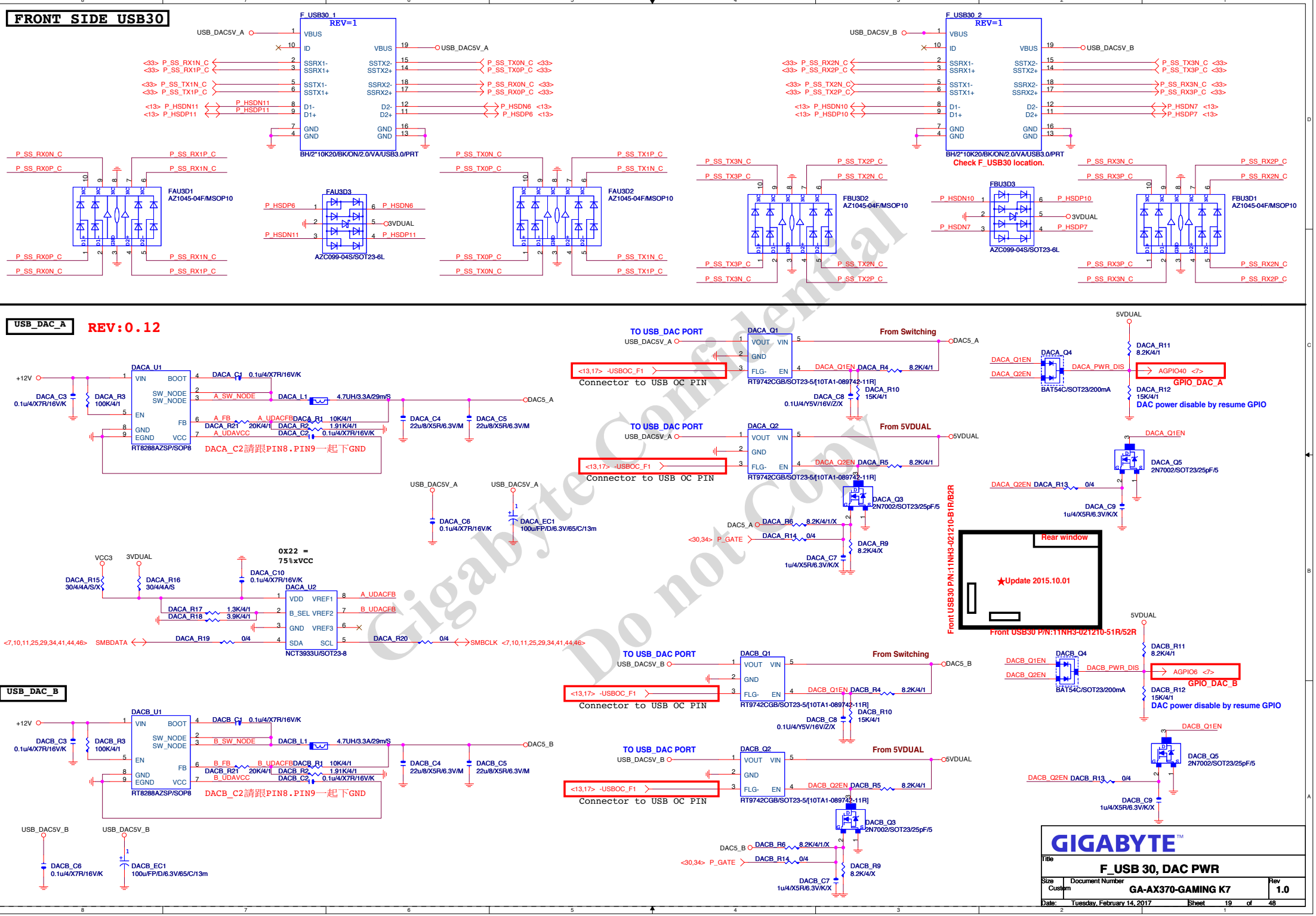
FRONT SIDE USB30
F_USB30_1
REV=1
USB_DAC5V_A
VBUS
ID
SSRX1-
SSRX1+
SSTX1-
SSTX1+
D1-
D1+
GND
SSTX2-
SSTX2+
SSRX2-
SSRX2+
D2-
D2+
BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT
F_USB30_2
REV=1
USB_DAC5V_B
Check F_USB30 location.
FAU3D1
AZ1045-04F/MSOP10
FAU3D2
AZ1045-04F/MSOP10
FAU3D3
AZC099-04S/SOT23-6L
FBU3D1
AZ1045-04F/MSOP10
FBU3D2
AZ1045-04F/MSOP10
FBU3D3
AZC099-04S/SOT23-6L
USB_DAC_A
REV:0.12
DACA_U1
RT8288AZSP/SOP8
DACA_C2請跟PIN8.PIN9一起下GND
DACA_U2
NCT3933U/SOT23-8
0x22 = 75%xVCC
USB_DAC_B
DACB_U1
RT8288AZSP/SOP8
DACB_C2請跟PIN8.PIN9一起下GND
TO USB_DAC PORT
Connector to USB OC PIN
From Switching
From 5VDUAL
RT9742CGB/SOT23-5/[10TA1-089742-11R]
BAT54C/SOT23/200mA
DAC power disable by resume GPIO
GPIO_DAC_A
GPIO_DAC_B
Front USB30 P/N:11NH3-021210-B1R/B2R
Rear window
Front USB30 P/N:11NH3-021210-51R/52R
★Update 2015.10.01
Do not Copy
GIGABYTE
F_USB 30, DAC PWR
GA-AX370-GAMING K7
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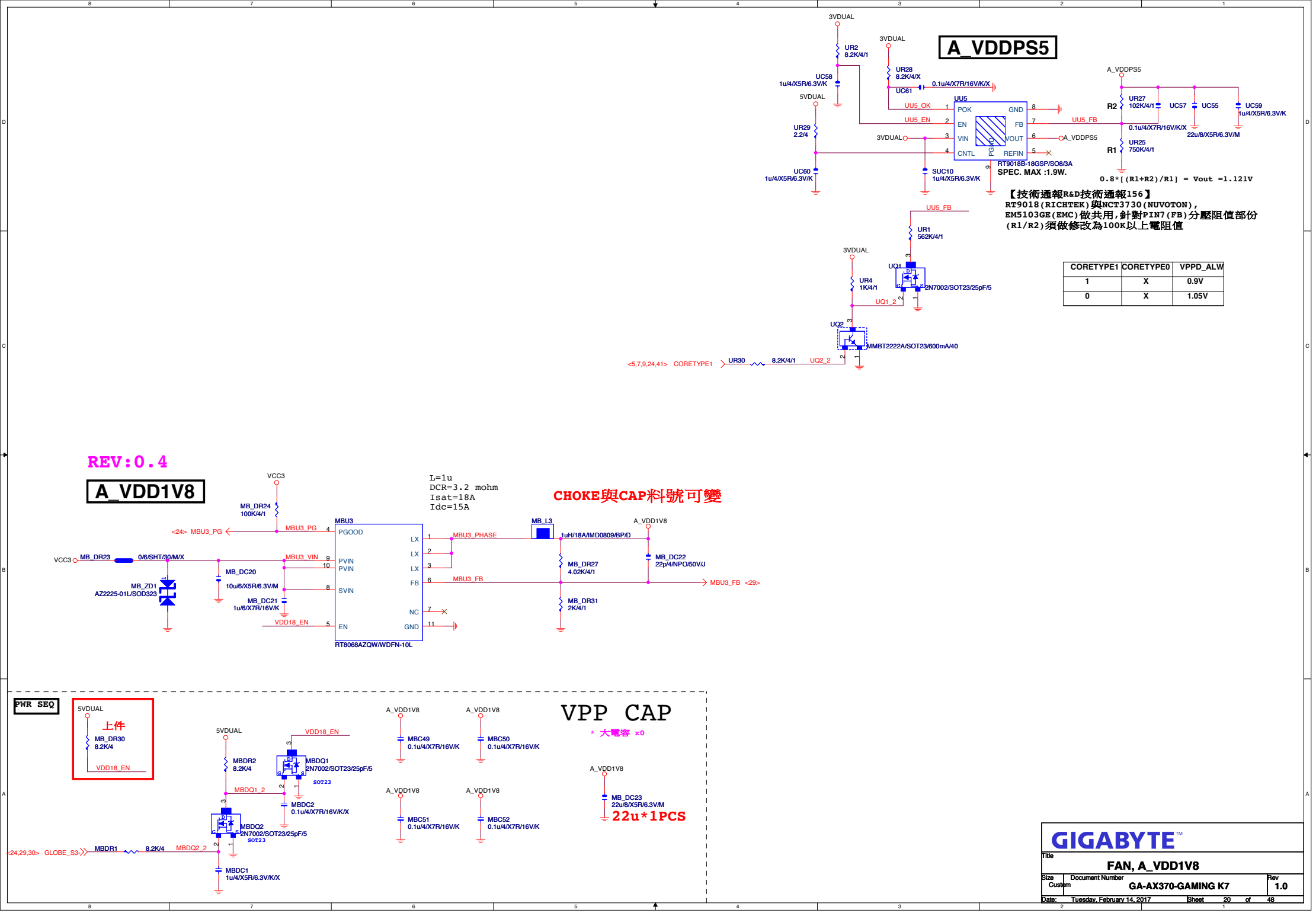
A_VDDPS5
3VDUAL
UR2
8.2K/4/1
UC58
1u/4/X5R/6.3V/K
5VDUAL
UR29
2.2/4
UC60
1u/4/X5R/6.3V/K
UR28
8.2K/4/X
0.1u/4/X7R/16V/K/X
UC61
UU5
UU5_OK
UU5_EN
POK
EN
VIN
CNTL
GND
FB
VOUT
REFIN
PGND
RT9018B-18GSP/SO8/3A
SPEC. MAX :1.9W.
SUC10
1u/4/X5R/6.3V/K
UU5_FB
A_VDDPS5
R2
UR27
102K/4/1
UC57
UC55
UC59
1u/4/X5R/6.3V/K
0.1u/4/X7R/16V/K/X
22u/8/X5R/6.3V/M
R1
UR25
750K/4/1
0.8*[(R1+R2)/R1] = Vout =1.121V
【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON),
EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份
(R1/R2)須做修改為100K以上電阻值
UR1
562K/4/1
UQ1
UR4
1K/4/1
2N7002/SOT23/25pF/5
UQ1_2
UQ2
MMBT2222A/SOT23/600mA/40
<5,7,9,24,41> CORETYPE1
UR30
8.2K/4/1
UQ2_2
CORETYPE1
CORETYPE0
VPPD_ALW
1
X
0.9V
0
X
1.05V
REV:0.4
A_VDD1V8
VCC3
MB_DR24
100K/4/1
<24> MBU3_PG
MBU3_PG
MBU3
PGOOD
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A
CHOKE與CAP料號可變
MB_L3
1uH/18A/IMD0809/BP/D
A_VDD1V8
MB_DR23
0/6/SHT/30/M/X
MB_ZD1
AZ2225-01L/SOD323
MB_DC20
10u/6/X5R/6.3V/M
MB_DC21
1u/6/X7R/16V/K
MBU3_VIN
PVIN
SVIN
LX
FB
NC
EN
MBU3_PHASE
MBU3_FB
VDD18_EN
MB_DR27
4.02K/4/1
MB_DR31
2K/4/1
MB_DC22
22p/4/NPO/50V/J
MBU3_FB <29>
RT8068AZQW/WDFN-10L
PWR SEQ
5VDUAL
上件
MB_DR30
8.2K/4
VDD18_EN
MBDR2
8.2K/4
MBDQ1
2N7002/SOT23/25pF/5
SOT23
MBDQ1_2
MBDC2
0.1u/4/X7R/16V/K/X
MBDQ2
2N7002/SOT23/25pF/5
SOT23
<24,29,30> GLOBE_S3
MBDR1
8.2K/4
MBDQ2_2
MBDC1
1u/4/X5R/6.3V/K/X
MBC49
0.1u/4/X7R/16V/K
MBC50
0.1u/4/X7R/16V/K
MBC51
0.1u/4/X7R/16V/K
MBC52
0.1u/4/X7R/16V/K
VPP CAP
* 大電容 x0
MB_DC23
22u/8/X5R/6.3V/M
22u*1PCS
GIGABYTE
Title
FAN, A_VDD1V8
Size
Custom
Document Number
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ALC1220 5H+1S+ALC1220

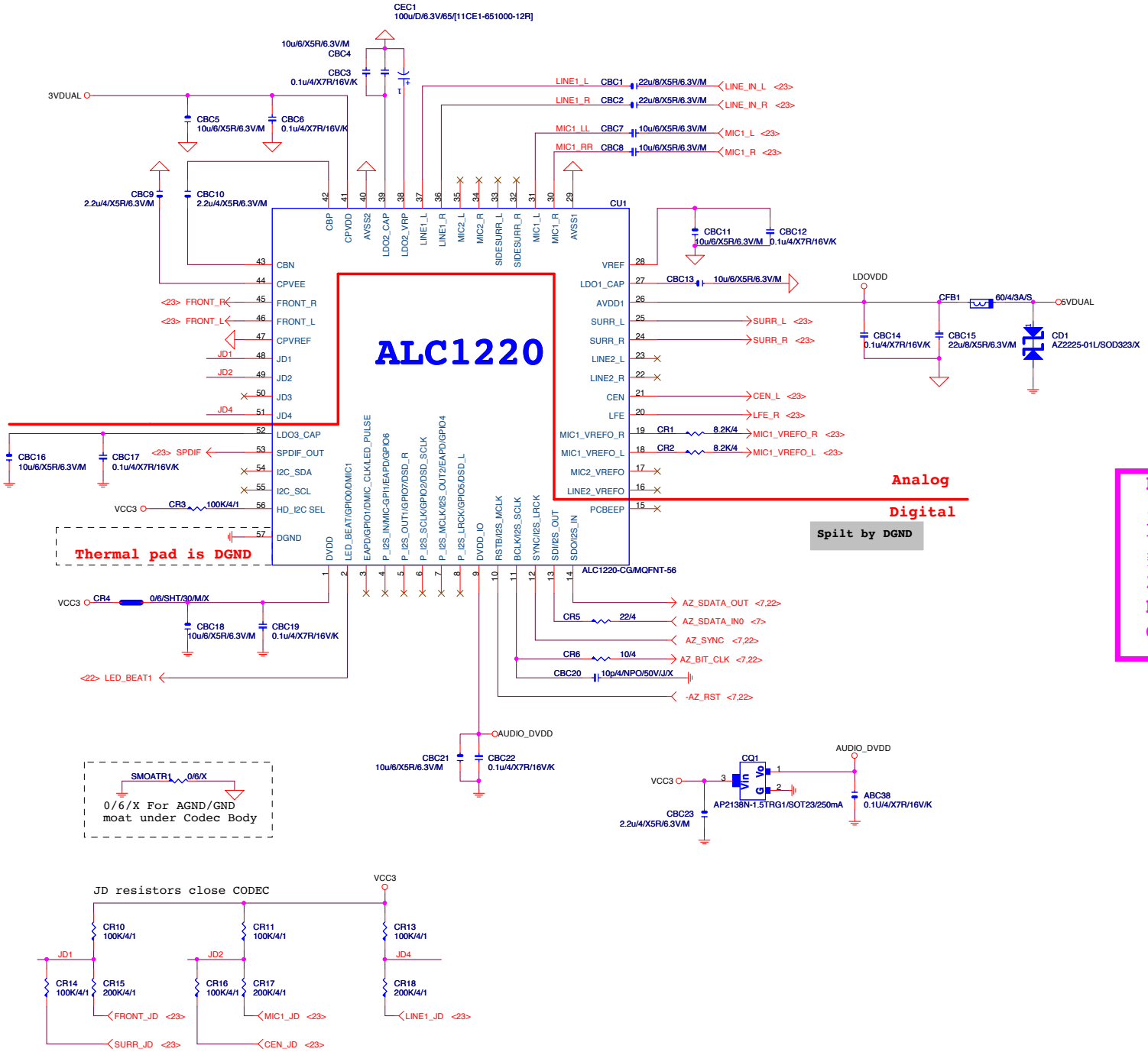
LAYOUT注意:螺絲孔下GND方式
1. MH1空間夠,下DGND
   空間不夠,改為Isolate
2. MH2一律改為Isolate

MH1	MH2
AGND	AGND

LAYOUT注意:是否要加?
GND切割線

音效區域印刷

BOM OPTION :
1. AUDIO CONNECT
不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R
2. AUDIO CAP
Nichicon MW音效電容 : 11CE1-651000-12R
Chemicon音效電容 : 11CE2-651000-05R



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Title	ALC1220 REAR	
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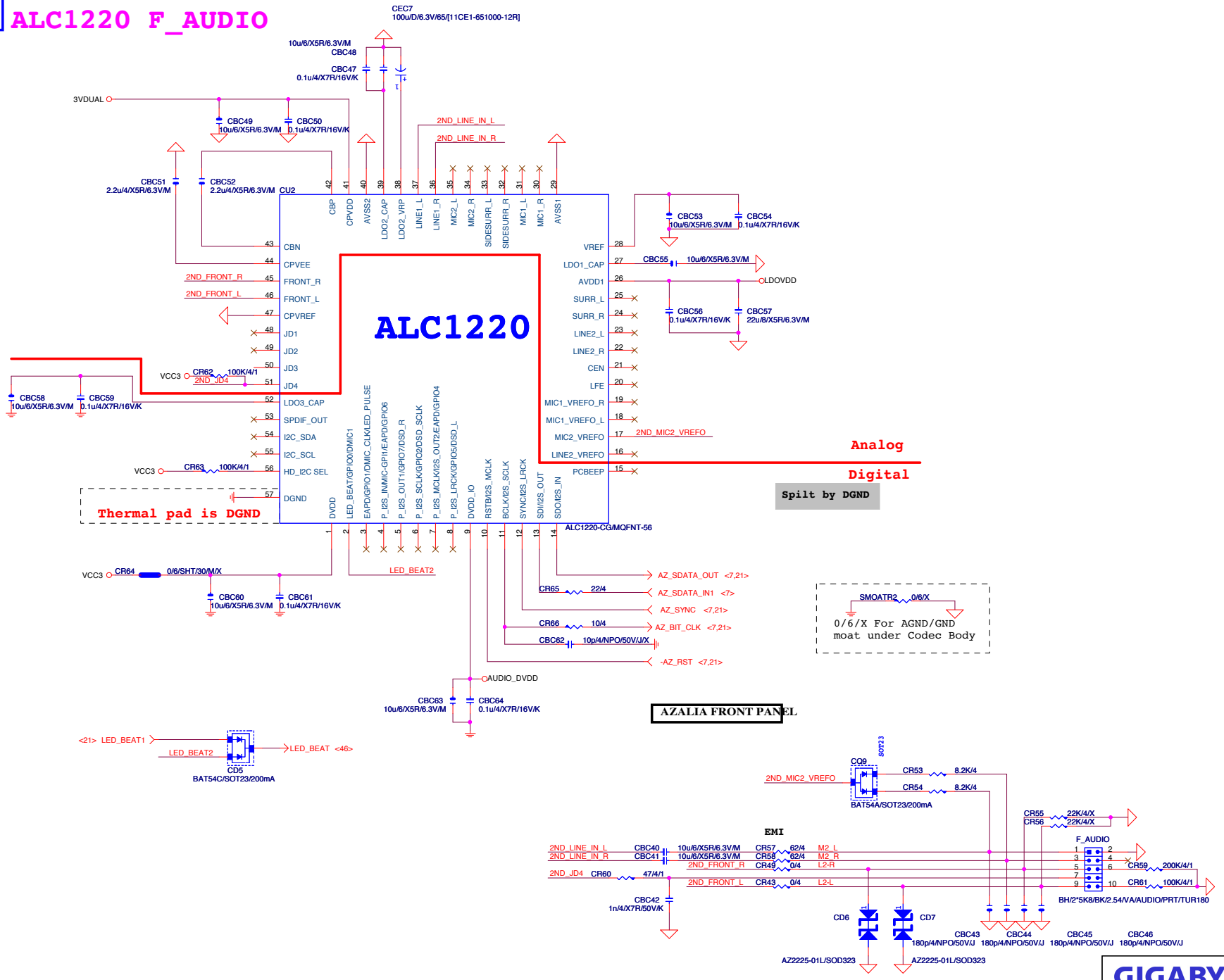
ALC1220 F_AUDIO



Title	ALC1220 FRONT
Size	Custom
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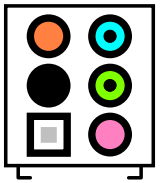
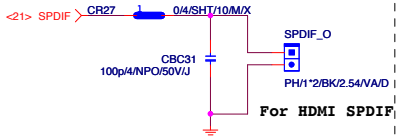
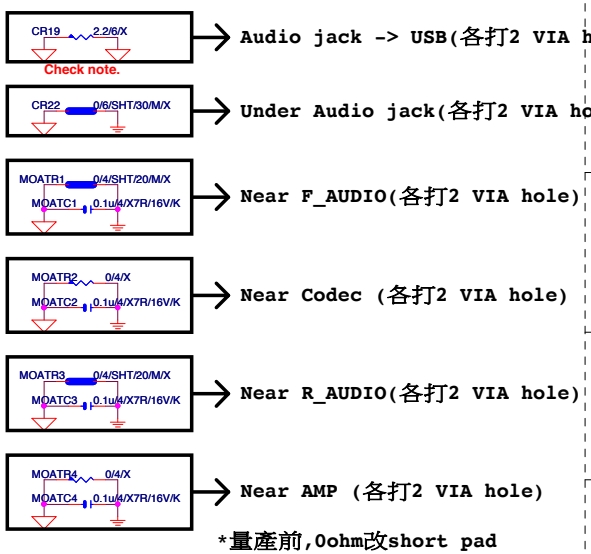
Rev 0.1

AZALIA JACK

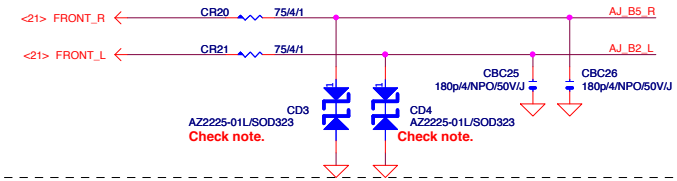


SPDIF_OUT

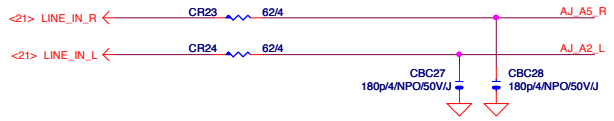




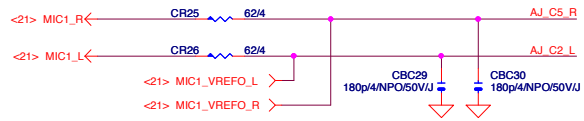
LINE-OUT



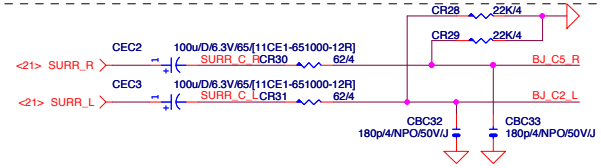
LINE-IN



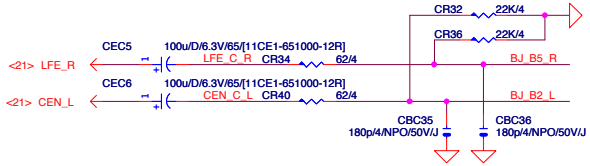
MIC-IN

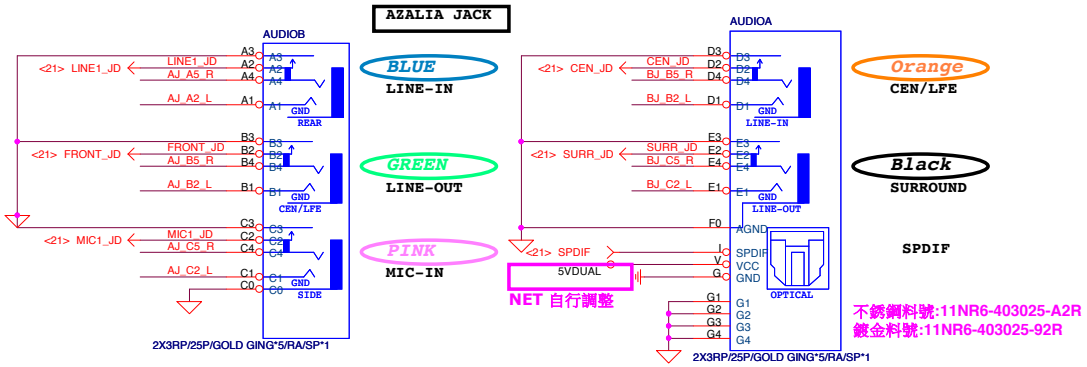


SURROUND

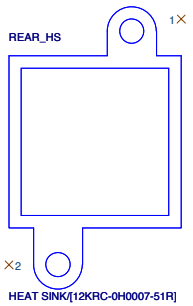


CEN/LFE

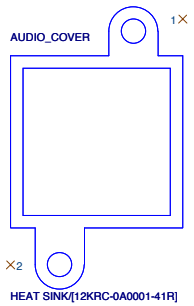




不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R



Footprint"Z270X_BASE_COVER"



Footprint "Z270X_EXTEND_COVER"

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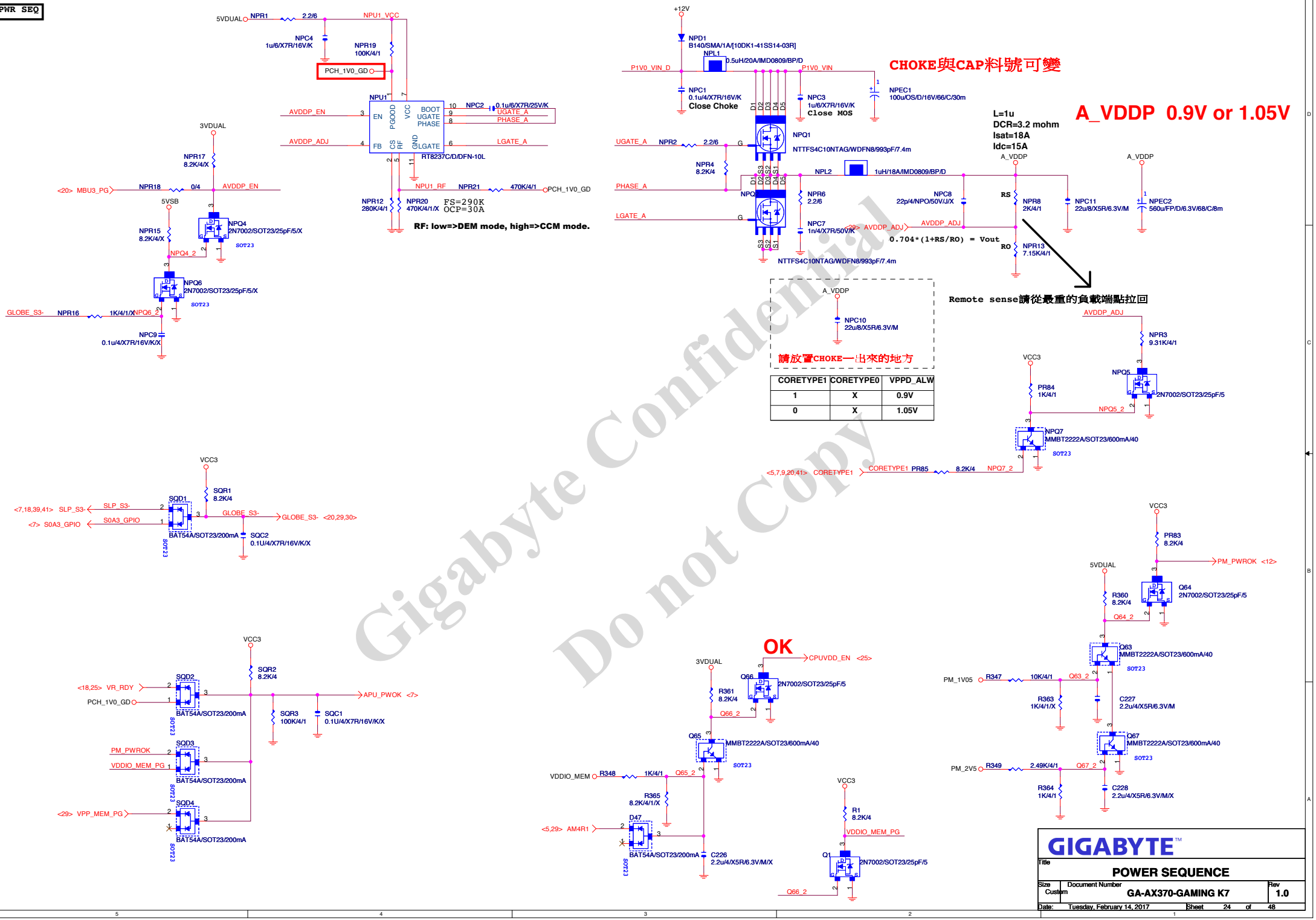
Title	AUDIO JACK	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
Date: Tuesday, February 14, 2017	Sheet 23 of 48	

PWR SEQ



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Title	POWER SEQUENCE	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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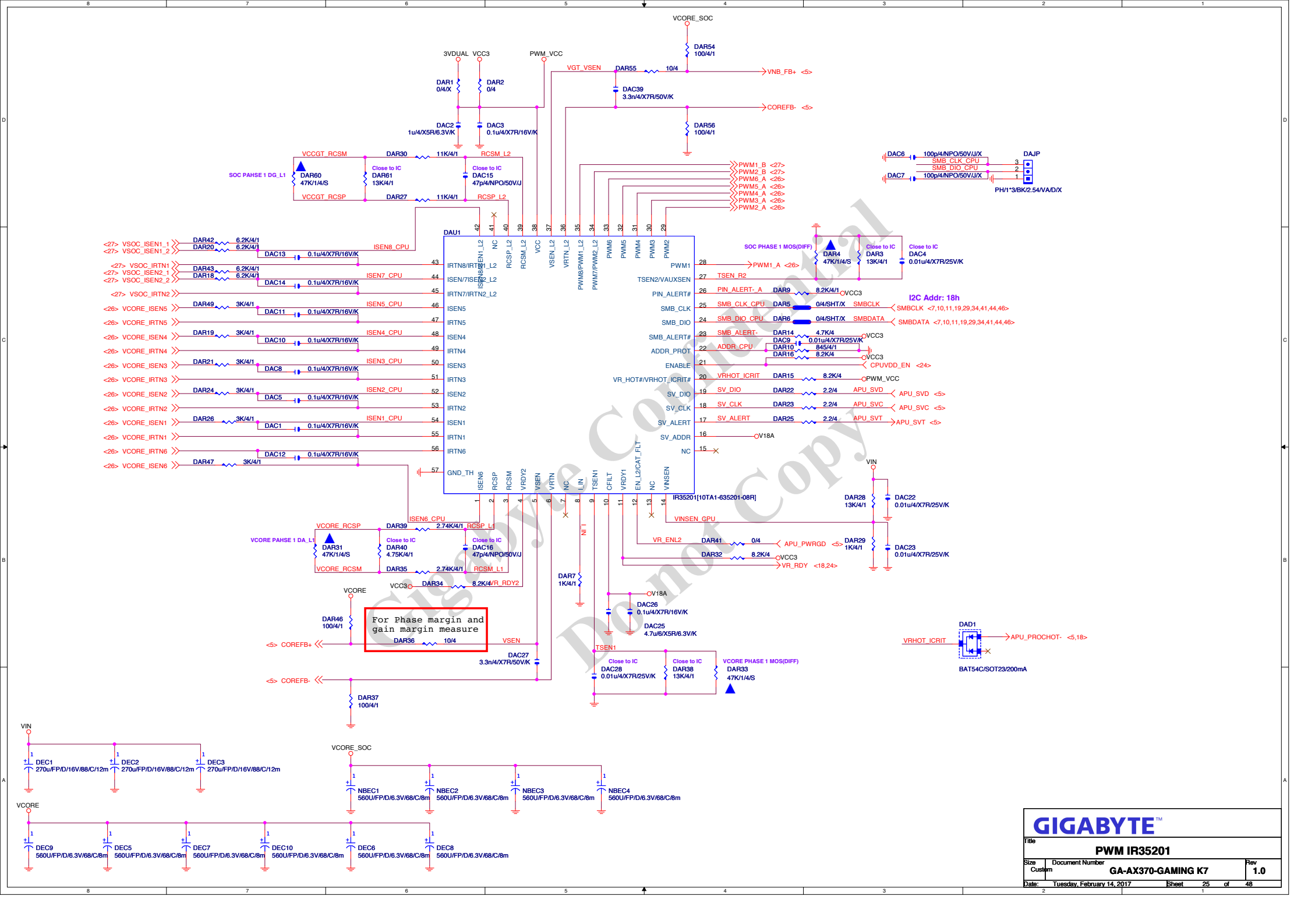

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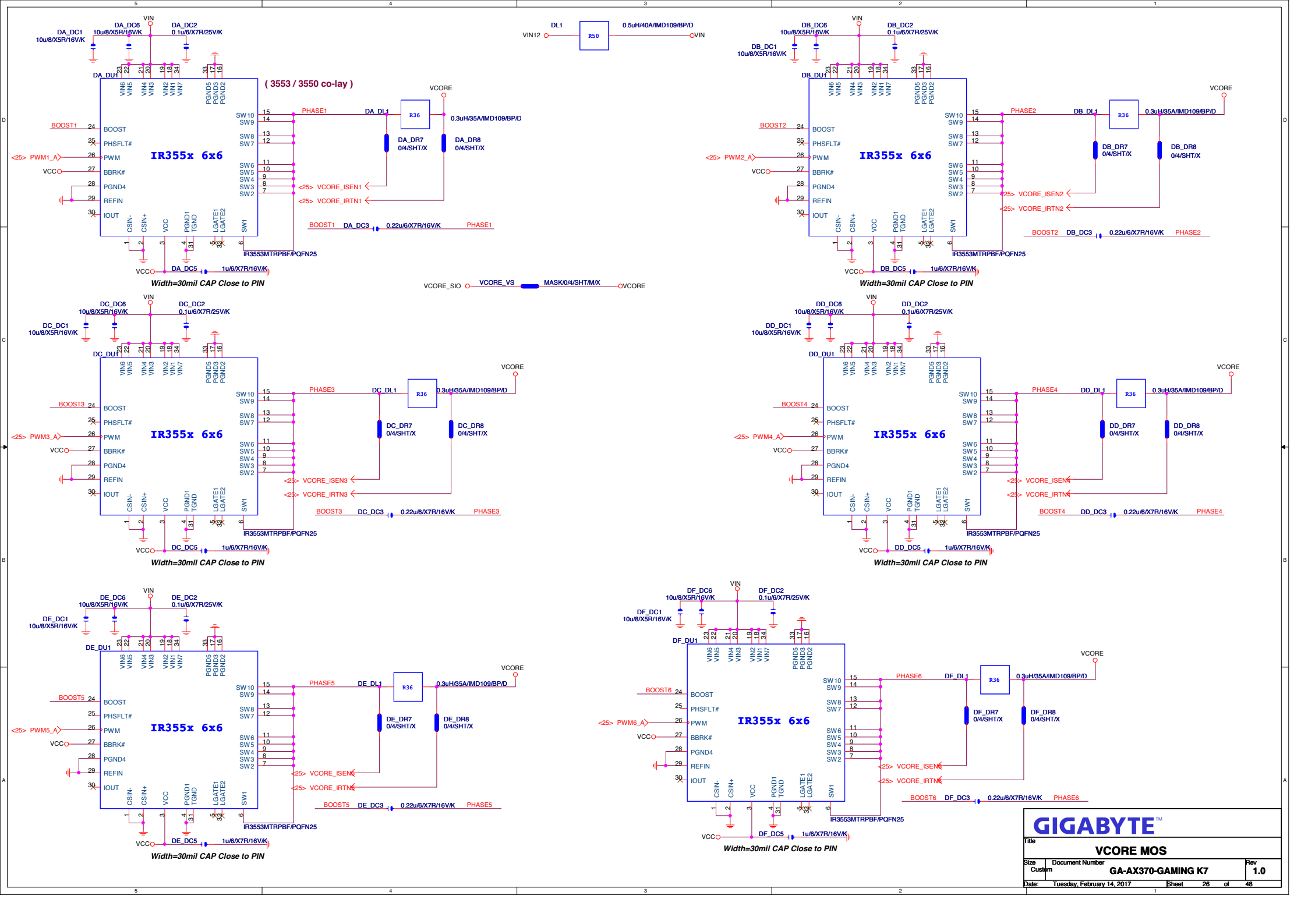
(3553 / 3550 co-lay)
IR355x 6x6
IR3553MTRPBF/PQFN25
Width=30mil CAP Close to PIN
VCORE_SIO
VCORE_VS
MASK/0/4/SHT/M/X
VCORE
VIN
VIN12
DL1
R50
0.5uH/40A/IMD109/BP/D
DA_DU1
DB_DU1
DC_DU1
DD_DU1
DE_DU1
DF_DU1
DA_DC6 10u/8/X5R/16V/K
DA_DC2 0.1u/6/X7R/25V/K
DA_DC1 10u/8/X5R/16V/K
DB_DC6 10u/8/X5R/16V/K
DB_DC2 0.1u/6/X7R/25V/K
DB_DC1 10u/8/X5R/16V/K
DC_DC6 10u/8/X5R/16V/K
DC_DC2 0.1u/6/X7R/25V/K
DC_DC1 10u/8/X5R/16V/K
DD_DC6 10u/8/X5R/16V/K
DD_DC2 0.1u/6/X7R/25V/K
DD_DC1 10u/8/X5R/16V/K
DE_DC6 10u/8/X5R/16V/K
DE_DC2 0.1u/6/X7R/25V/K
DE_DC1 10u/8/X5R/16V/K
DF_DC6 10u/8/X5R/16V/K
DF_DC2 0.1u/6/X7R/25V/K
DF_DC1 10u/8/X5R/16V/K
R36
0.3uH/35A/IMD109/BP/D
DA_DR7 0/4/SHT/X
DA_DR8 0/4/SHT/X
DB_DR7 0/4/SHT/X
DB_DR8 0/4/SHT/X
DC_DR7 0/4/SHT/X
DC_DR8 0/4/SHT/X
DD_DR7 0/4/SHT/X
DD_DR8 0/4/SHT/X
DE_DR7 0/4/SHT/X
DE_DR8 0/4/SHT/X
DF_DR7 0/4/SHT/X
DF_DR8 0/4/SHT/X
DA_DC3 0.22u/6/X7R/16V/K
DB_DC3 0.22u/6/X7R/16V/K
DC_DC3 0.22u/6/X7R/16V/K
DD_DC3 0.22u/6/X7R/16V/K
DE_DC3 0.22u/6/X7R/16V/K
DF_DC3 0.22u/6/X7R/16V/K
DA_DC5 1u/6/X7R/16V/K
DB_DC5 1u/6/X7R/16V/K
DC_DC5 1u/6/X7R/16V/K
DD_DC5 1u/6/X7R/16V/K
DE_DC5 1u/6/X7R/16V/K
DF_DC5 1u/6/X7R/16V/K
PHASE1
PHASE2
PHASE3
PHASE4
PHASE5
PHASE6
BOOST1
BOOST2
BOOST3
BOOST4
BOOST5
BOOST6
<25> PWM1_A
<25> PWM2_A
<25> PWM3_A
<25> PWM4_A
<25> PWM5_A
<25> PWM6_A
<25> VCORE_ISEN1
<25> VCORE_IRTN1
<25> VCORE_ISEN2
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<25> VCORE_ISEN3
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<25> VCORE_IRTN
VCC
GIGABYTE
Title
VCORE MOS
Size
Custom
Document Number
GA-AX370-GAMING K7
Rev
1.0
Date:
Tuesday, February 14, 2017
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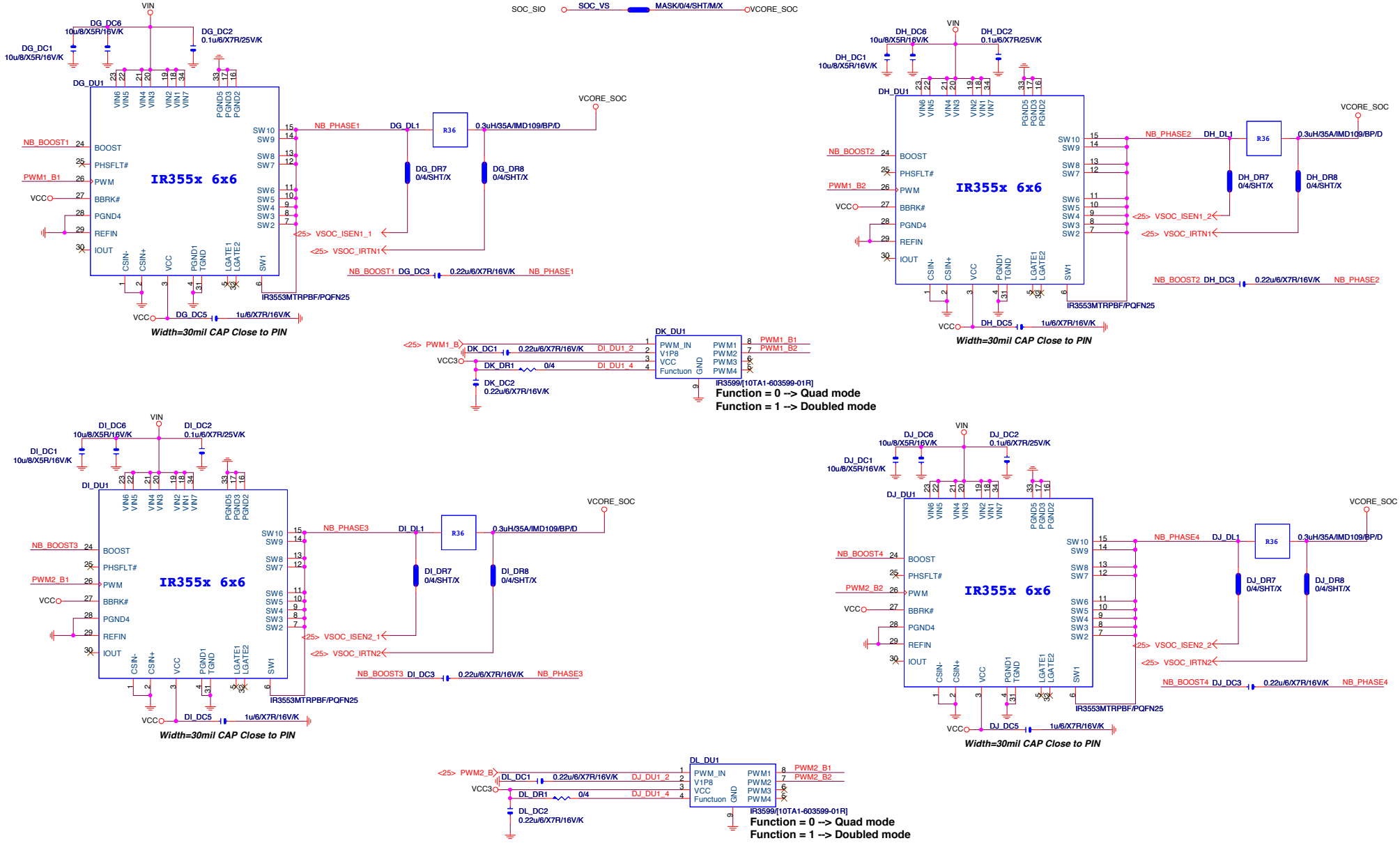
48

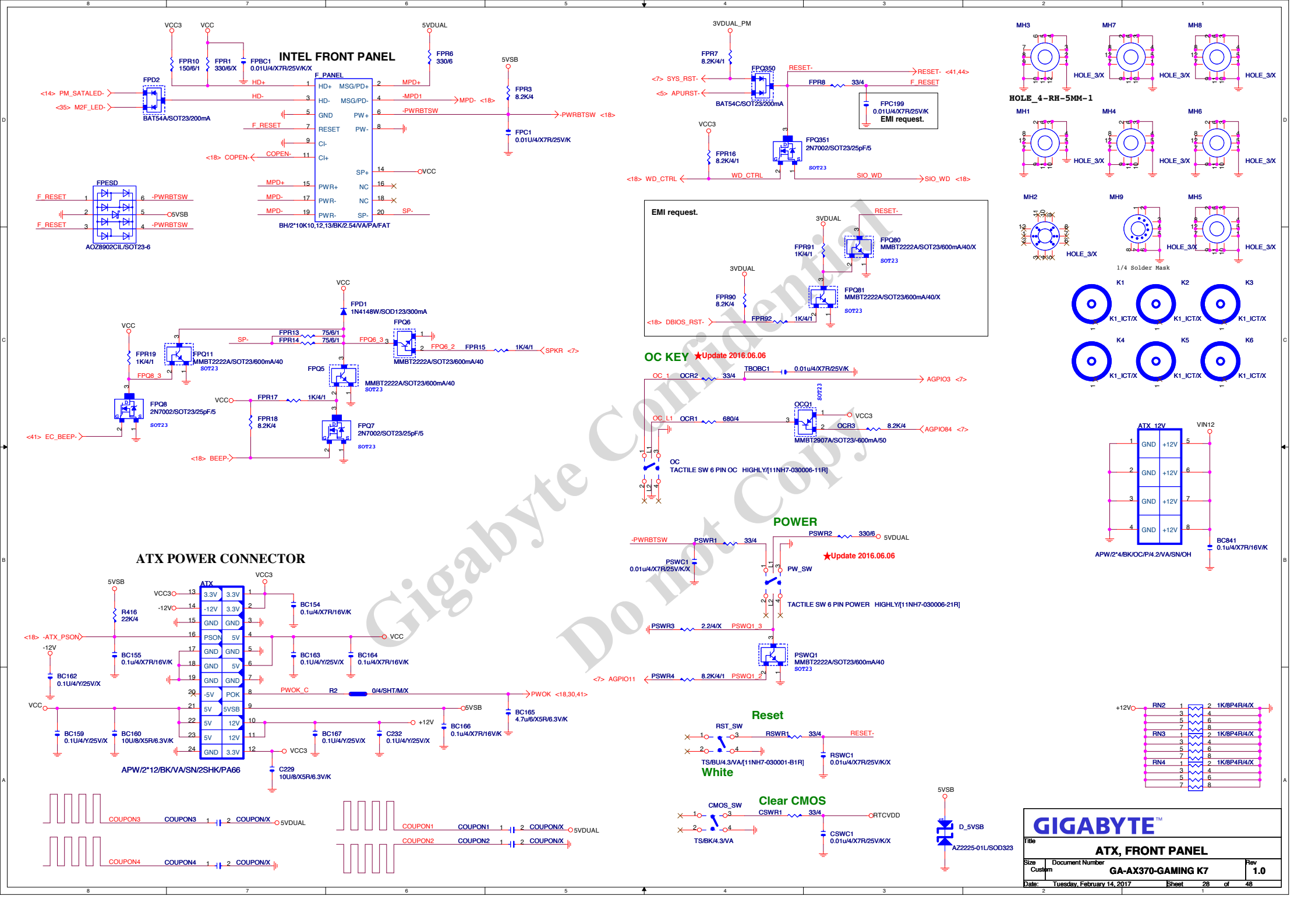
Vcore_Soc



MOS HEATSINK

GIGABYTE™

Title	VCORE_SOC	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
Date: Tuesday, February 14, 2017	Sheet 27 of 48	



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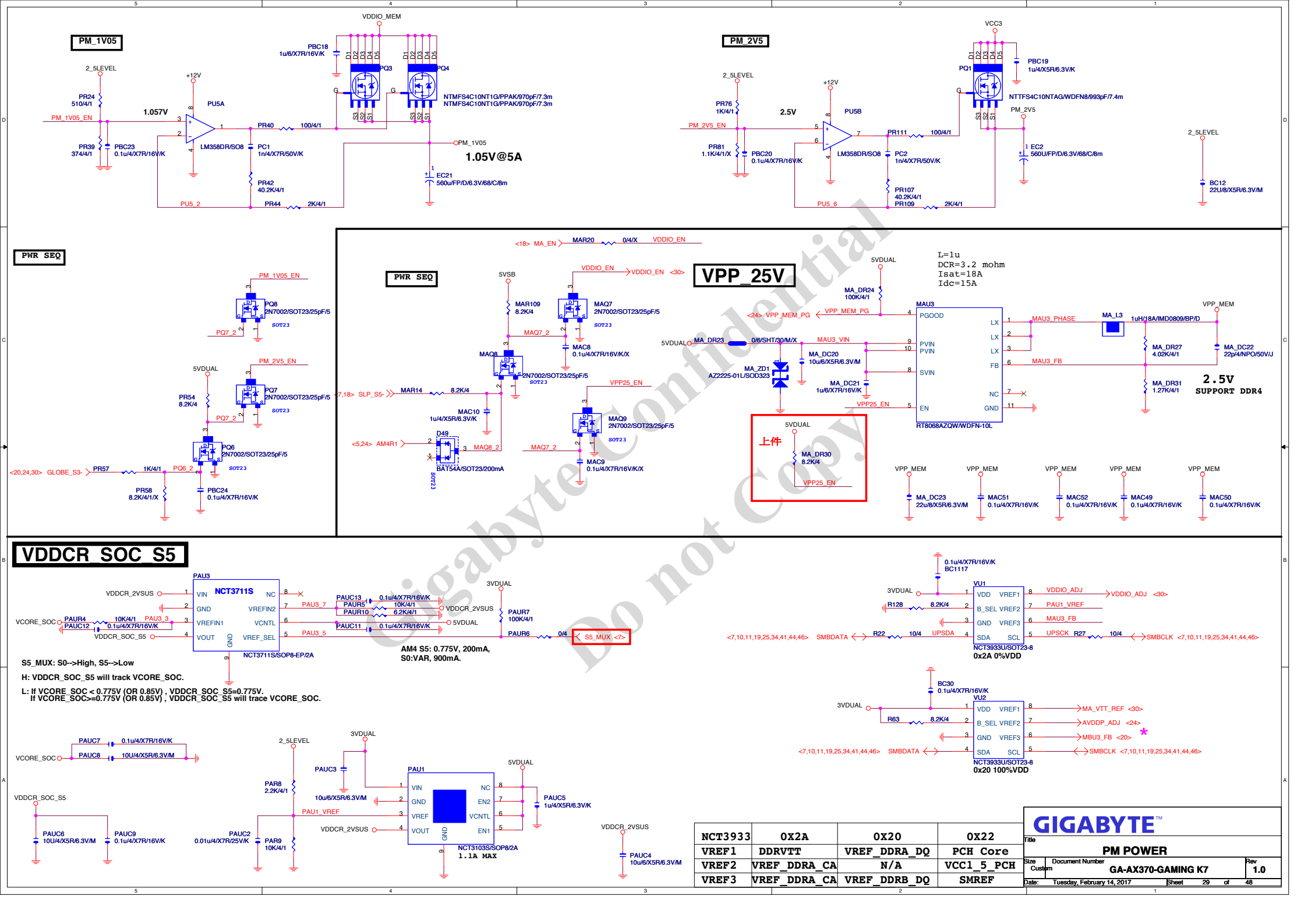

NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

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Title: PM POWER

Size: Custom | Document Number: GA-AX370-GAMING K7 | Rev: 1.0

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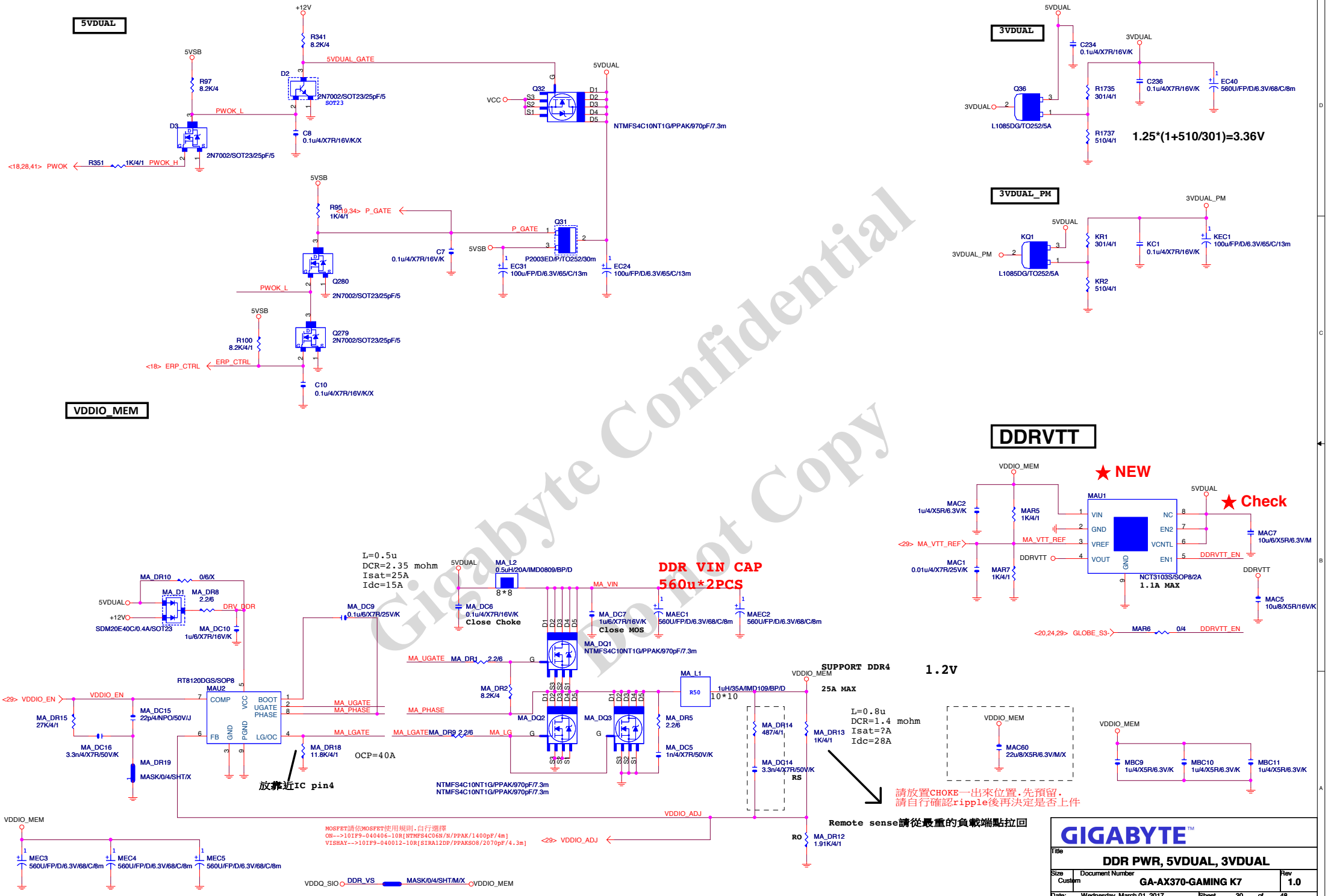

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Title	DDR PWR, 5VDUAL, 3VDUAL	
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LAN INTEL I211AT R1.1

I211AT不支援:NC-SI,SMBus

When pulled up, iNVM security features are enabled.

SUPPORT CIRCUITS

POWER SUPPLY & I210 REGULATOR

I211-AT_MDI_LED_SDP

PCIE_NC-SI_SMB

FOR ERP WAKEUP

WGI211AT/QFN64/[10HP2-400211-10R]

CLOSE 3VDUAL_LAN2源頭處

(CLOSE PIN38)

(CLOSE PIN39)

EMI SHORT PAD

LAN POWER

(CLOSE LCU1 PIN10,27,41,51,64)

(CLOSE LCU1 PIN39,47,56)

(CLOSE LCU1 PIN11,32,38,42,59)

note: lan power連接及電流

USB_LAN

USB_LAN CONNECTOR

note:可變更USB NAME

[I210]

USB3.1+LAN/1G/RE/GO,Y/OS/RA/D/1/15KV

LA_MDI-->100歐姆:[20/4/8/4/20]

LA_MDI-->100歐姆:[20/4/8/4/20]

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GIGABYTE

Title: RTL8111EPV

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LAN:E2201(E2400) R1.05

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

<44> LA_-SRCCLK_LAN
<44> LA_SRCCLK_LAN
LAC1 0.1u/4/X7R/16V/K LA_ML_OP_C
LAC2 0.1u/4/X7R/16V/K LA_ML_ON_C
<14> LA_ML_OP
<14> LA_ML_ON

PCIE X1 SLOT

LABC5 0.1u/4/X7R/16V/K
LABC4 1u/4/X5R/6.3V/K
LABC3 0.1u/4/X7R/16V/K
LABC6 0.1u/4/X7R/16V/K/X

LA_AVDDVCO
LABC7 0.1u/4/X7R/16V/K
LABC8 4.7u/6/X5R/6.3V/K
AR8161-->(O)

3VDUAL_LAN1
LABC9 10u/6/X5R/6.3V/M
1u/4/X5R/6.3V/K
LABC10
LABC11 0.1u/4/X7R/16V/K

LA_LED_ACT_TXRX
LA_LED_LINK100
LA_LX
LA_DVDDL
LA_AVDDVCO
LA_AVDDL

3VDUAL_LAN1
LAC33 100p/4/NPO/50V/J/X
LAR6 8.2K/4
FOR ERP WAKEUP
<12,14,31,36> PM_PCIERST-
<7,12,16,31,36,42,43> PCIE_WAKE-
<12> LA_-CLKREQ
LAREQ1 0/4
LABC12 1u/4/X5R/6.3V/K/X

L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#

LAU1

41	EGND		
40	LX		
39	LED1		
38	LED0		
37	DVDDL_REG		
36	RX_N		
35	RX_P		
34	AVDDL		
33	REFCLKP		
32	REFCLKN		
31	AVDDL		
1	VDD3V	TX_P	30
2	PERST#	TX_N	29
3	WAKE#	NC	28
4	CLKREQ#	TESTMODE2	27
5	DEBUGMODE0	TESTMODE1	26
6	AVDDL_REG	TESTMODE0	25
7	XTLO	PPS	24
8	XTLI	LED2	23
9	AVDDH_REG	AVDDH	22
10	RBIAS	TRXN3	21
11	TRXP0		
12	TRXN0		
13	AVDDL		
14	TRXP1		
15	TRXN1		
16	AVDD33		
17	TRXP2		
18	TRXN2		
19	AVDDL		
20	TRXP3		

Qualcomm (Atheros) Killer E2201

E2500-RIV1-RL/QFN40/[10HP2-402500-10R]
E2400料號:E2400-RIV1-RL/QFN40/[10HP2-402400-10R]

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

LA_ML_IP_C LAC12 0.1u/4/X7R/16V/K LA_ML_IP <14>
LA_ML_IN_C LAC13 0.1u/4/X7R/16V/K LA_ML_IN <14>

LA_PPS
LA_LED_LINK1000
LA_AVDDH
LA_MDI3-
LA9 0/4/X
LABC14
LA_DVDDL
0.1u/4/X7R/16V/K/X
LABC17
0.1u/4/X7R/16V/K

LA_RBIAS
LAR10 2.37K/4/1

LA_MDI0+
LA_MDI0-
LA_MDI1+
LA_MDI1-
LA_MDI2+
LA_MDI2-
LA_MDI3+

LABC15 1u/4/X5R/6.3V/K
LABC16 0.1u/4/X7R/16V/K
LABC18 1u/4/X5R/6.3V/K
LABC19 0.1u/4/X7R/16V/K
LABC21 0.1u/4/X7R/16V/K
LABC20 0.1u/4/X7R/16V/K/X

LA_XTALI
LAX1
LA_XTALO
25M/16p/30ppm/49US/20/D
LAC31 20p/4/NPO/50V/J
LAC32 20p/4/NPO/50V/J

LA_AVDD33
LAR19 MASK/0/4/SHT/X 3VDUAL_LAN1
LABC22 1u/4/X5R/6.3V/K

LAN POWER

LAL1 4.7uH/0.8A/3225/S
LA_LX_OUT LA_LX
CLOSE
LA_LX 200mil
LABC1 10u/6/X5R/6.3V/M
LABC2 0.1u/4/X7R/16V/K

LA_DVDDL LA_AVDDL LA_AVDDVCO
LAR5 MASK/0/6/SHT/X AR8161-->(O)
LAFB1 30/4/4A/S AR8161-->BEAD
LAFB3 30/4/4A/S AR8161-->BEAD

LA_AVDDH
LAR7 8.2K/4 LA_LED_ACT_TXRX
LAR8 8.2K/4 LA_LED_LINK100
VCC3
LAR11 8.2K/4 LA_VDDCT

LAN_COVER

FOOT PRINT:LAN_COVER

EMI SHORT PAD

PS:視EMI需求
LAR24 MASK/0/4/SHT/M/X

LAN POWER

可變 3VDUAL_LAN1 LAPW1 0/4 3VDUAL *
*

USB POWER

note:可變更FUSE
可變
5VDUAL RFUS3 SPR-P260T/6V/8/S RFSVCC_U3R3

Close to connector
FUSE-0805

USB_LAN CONNECTOR

note:可變更USB NAME

[E2201]

LABC27 0.1u/4/X7R/16V/K
LA_CN_L1
LA_MDI0+
LA_MDI0-
LA_MDI1+
LA_MDI1-
LA_MDI2+
LA_MDI2-
LA_MDI3+
LA_MDI3-
LABC25 MASK/0/4/SHT/M/X
LA_CN_L10

USB30_LAN2

L1		D1	LA_LED_ACT_TXRX
L2		D2	LA_LED_D2 LAR13 330/4 LAN_3VDUAL_LED
L3		D3	LA_LED_LINK100 LAR14 330/4
L4		D4	LA_LED_LINK1000 LAR15 330/4
L5			
L6			
L7			
L8			
L9			
L10		DT	
		P1	LAUBC13 0.1u/4/X7R/16V/K
		P2	
U1	VBUS	U10	RFSVCC_U3R3
U2	D-	U11	P_HSDN9 <13>
U3	D+	U12	P_HSDP9 <13>
U4	GND	U13	
U5	SSRX-	U14	P_SS_RX5N_C <33>
U6	SSRX+	U15	P_SS_RX5P_C <33>
U7	GND	U16	
U8	SSTX-	U17	P_SS_TX5N_C <33>
U9	SSTX+	U18	P_SS_TX5P_C <33>

USB3.0 USB3.0

RFSVCC_U3R3
<13> P_HSDN8
<13> P_HSDP8
<33> P_SS_RX4N_C
<33> P_SS_RX4P_C
<33> P_SS_TX4N_C
<33> P_SS_TX4P_C

USB3+LAN/1G/GO,Y/OS/RA/D/G30/[11NR6-702009-X1R]

3VDUAL_LAN1
LAFB2 MASK/0/4/SHT/M/X
LABC24 0.1u/4/X7R/16V/K/X

LA_MDI-->100歐姆:[20/4/8/4/20]

P_SS_TX4N_C
P_SS_TX4P_C
P_SS_RX4N_C
P_SS_RX4P_C
P_SS_TX5N_C
P_SS_TX5P_C
P_SS_RX5N_C
P_SS_RX5P_C

NC NC GND NC NC
D1+ D1- GND D2- D2+
LAU3ESD1 AZ1045-04F/MSOP10

note:可變更USB NAME
可變

LAU3ESD2 AZ1045-04F/MSOP10

LAUESD1
P_HSDP9
P_HSDN9
RFSVCC_U3R3
P_HSDN8
P_HSDP8
AZC099-04S/SOT23-6L

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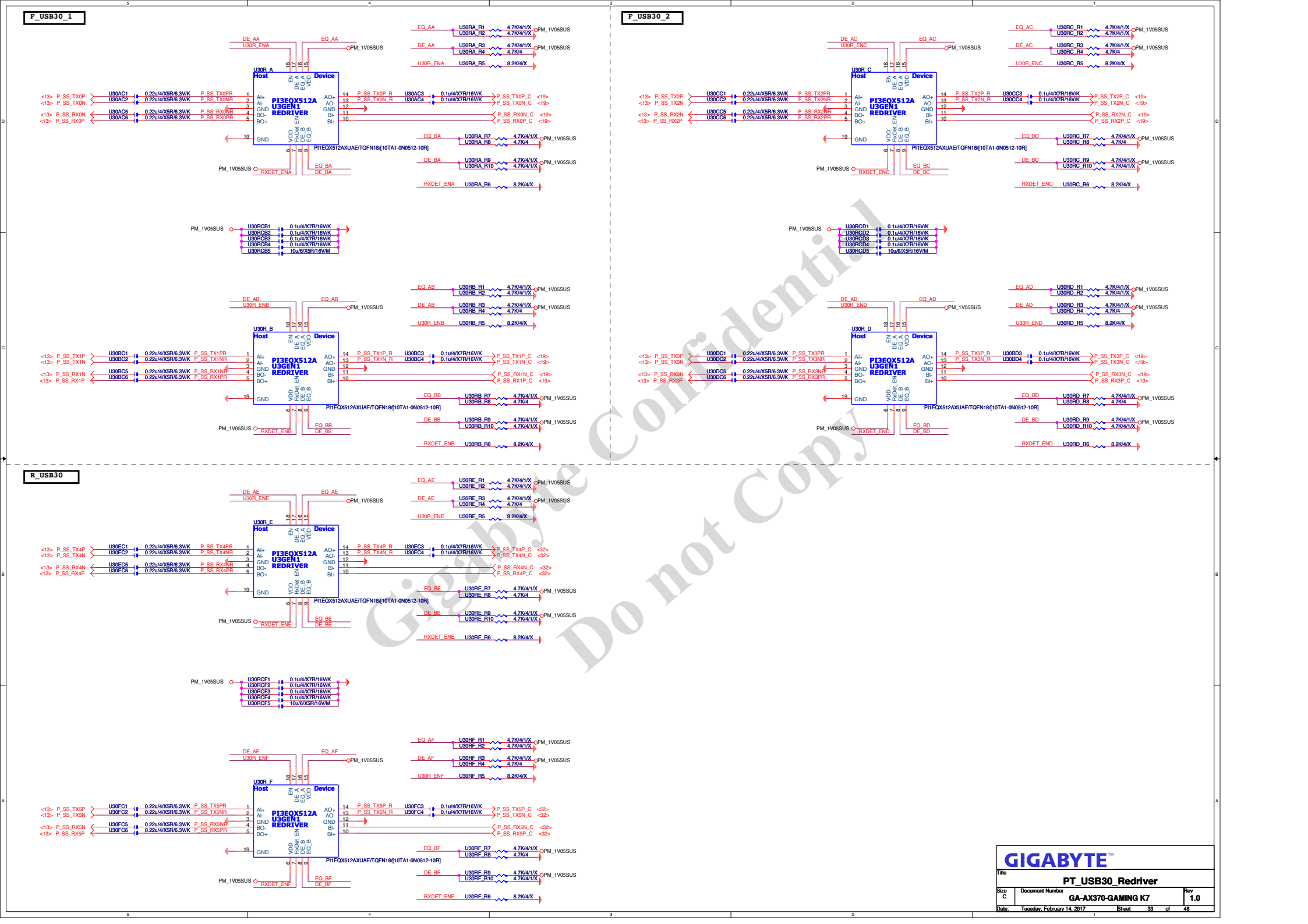
F_USB30_1
F_USB30_2
R_USB30
U30R_A
U30R_B
U30R_C
U30R_D
U30R_E
U30R_F
Host
Device
PI3EQX512A
U3GEN1
REDRIVER
PI1EQX512AXUAE/TQFN18/[10TA1-0N0512-10R]
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GIGABYTE
Title
PT_USB30_Redriver
Size C
Document Number
GA-AX370-GAMING K7
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KB/MS/DAC PWR

FOR鹽化短路

KB_MS_USB30
KB/USB3/A/PC99(DUAL)/YL/GF/2/RA/D::Location KB_MS_USB30

MASK/AZC099-04S/SOT23-6L/X

AZ1045-04F/MSOP10

AZC099-04S/SOT23-6L

AZ1045-04F/MSOP10

USB_DAC_C

Rev0.12

RT8288AZSP/SOP8

DACC_C2請跟PIN8.PIN9一起下GND

TO USB_DAC PORT

From Switching

RT9742CGB/SOT23-5/[10TA1-089742-11R]

Connector to USB OC PIN

TO USB_DAC PORT

From 5VDUAL

RT9742CGB/SOT23-5/[10TA1-089742-11R]

Connector to USB OC PIN

DAC power disable by resume GPIO

NCT3933U/SOT23-8

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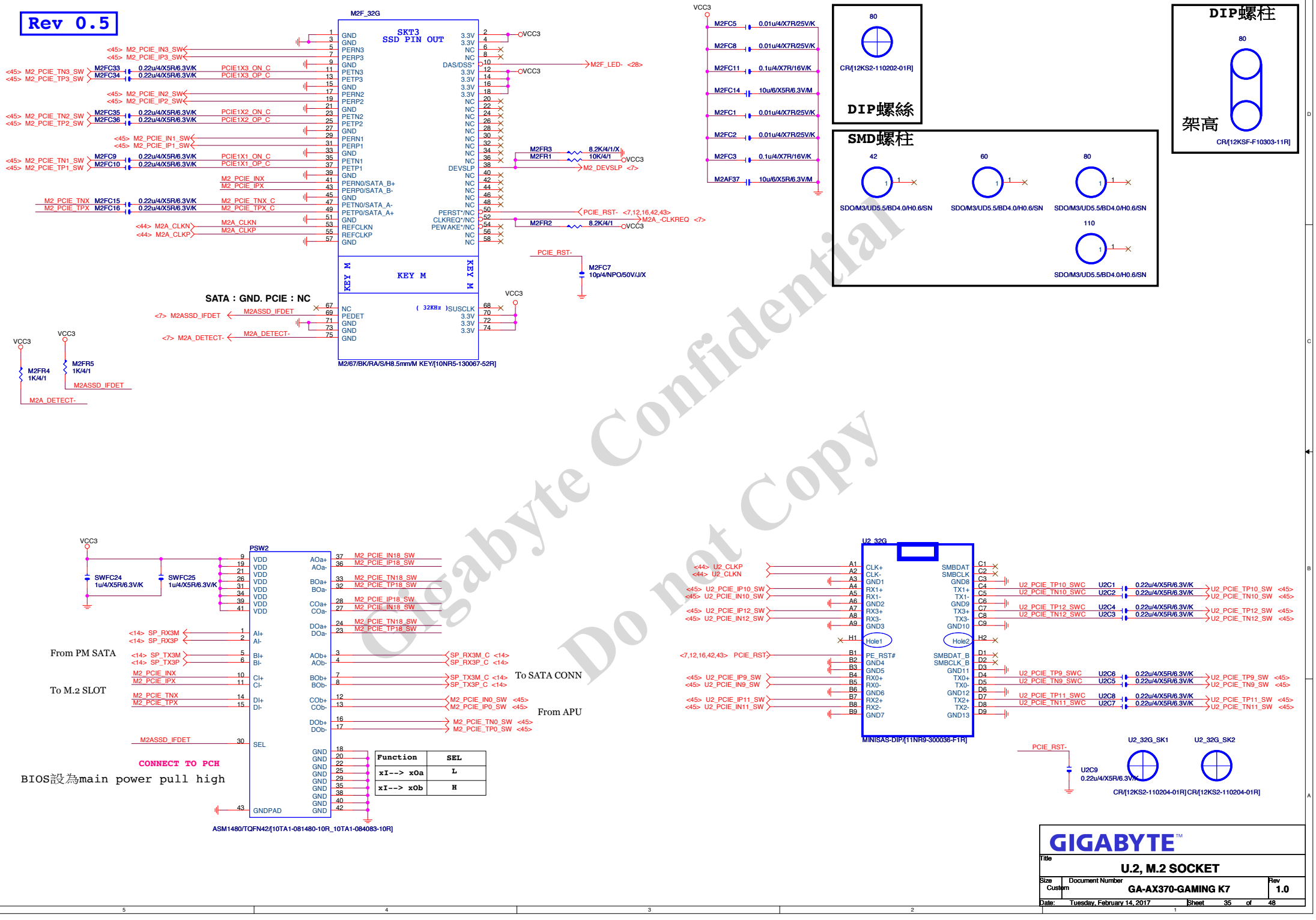
GIGABYTE			
Title	KB_USB_DEC PWR		
Size: Custom	Document Number: GA-AX370-GAMING K7		Rev: 1.0
Date: Tuesday, February 14, 2017	Sheet 34 of 48		

Rev 0.5



Function	SEL
xI--> xOa	L
xI--> xOb	H

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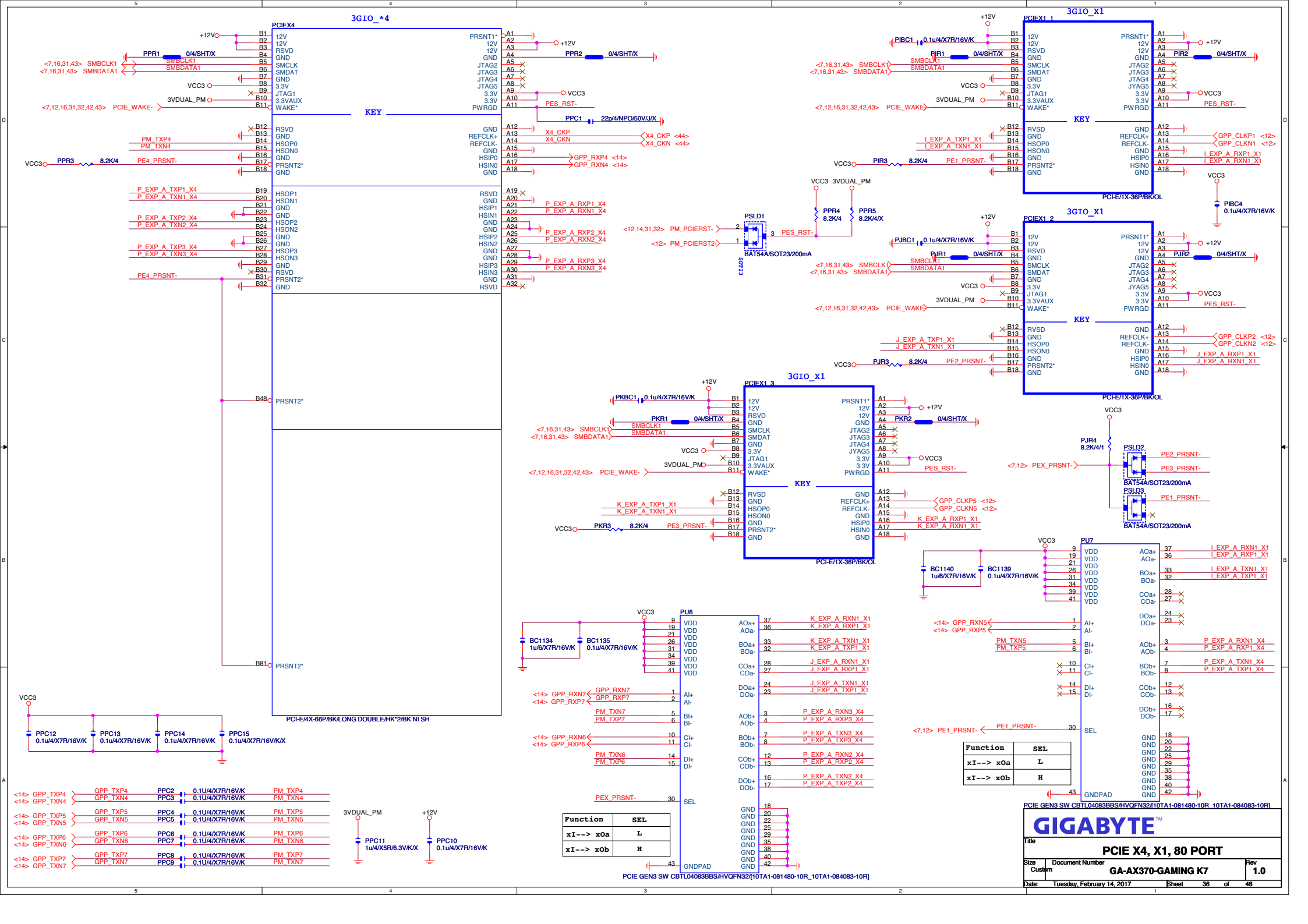
Title: U.2, M.2 SOCKET

Size: Custom | Document Number: GA-AX370-GAMING K7 | Rev: 1.0

Date: Tuesday, February 14, 2017 | Sheet 35 of 48


3GIO_*4
PCIEX4
KEY
PCI-E/4X-66P/BK/LONG DOUBLE/HK*2/BK NI SH
3GIO_X1
PCIEX1_1
PCIEX1_2
PCIEX1_3
PCI-E/1X-36P/BK/OL
PSLD1
BAT54A/SOT23/200mA
PSLD2
PSLD3
PU6
PU7
PCIE GEN3 SW CBTL04083BBS/HVQFN32/[10TA1-081480-10R_10TA1-084083-10R]
Function
SEL
xI--> xOa
L
xI--> xOb
H
GIGABYTE
Title
PCIE X4, X1, 80 PORT
Size
Custom
Document Number
GA-AX370-GAMING K7
Rev
1.0
Date:
Tuesday, February 14, 2017
Sheet
36
of
48

CPU TOP CAVITY

VCORE C70 47u/8/X5R/6.3V/M
VCORE C64 47u/8/X5R/6.3V/M
C52 47u/8/X5R/6.3V/M VCORE_SOC
VCORE C223 22u/6/X5R/6.3V/M
VCORE C225 22u/6/X5R/6.3V/M
C26 22u/6/X5R/6.3V/M VCORE_SOC
VCORE C63 47u/8/X5R/6.3V/M
VCORE C224 47u/8/X5R/6.3V/M
C27 47u/8/X5R/6.3V/M VCORE_SOC
VCORE C72 22u/6/X5R/6.3V/M
C31 22u/6/X5R/6.3V/M VCORE_SOC
C92 22u/6/X5R/6.3V/M VCORE
C93 47u/8/X5R/6.3V/M VCORE_SOC
VCORE C65 47u/8/X5R/6.3V/M
VCORE C62 22u/6/X5R/6.3V/M
C53 47u/8/X5R/6.3V/M VCORE
C25 22u/6/X5R/6.3V/M VCORE_SOC
C19 47u/8/X5R/6.3V/M VDDIO_MEM
C17 47u/8/X5R/6.3V/M VDDIO_MEM
VDDIO_MEM C20 47u/8/X5R/6.3V/M

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VCORE
EMC12 0.1u/4/X7R/16V/K
EMC13 0.1u/4/X7R/16V/K
EMC14 0.1u/4/X7R/16V/K
EMC15 0.1u/4/X7R/16V/K
EMC16 0.1u/4/X7R/16V/K
EMC17 0.1u/4/X7R/16V/K
EMC18 0.1u/4/X7R/16V/K
EMC19 0.1u/4/X7R/16V/K
EMC20 0.1u/4/X7R/16V/K
EMC21 0.1u/4/X7R/16V/K
EMC22 0.1u/4/X7R/16V/K
EMC23 0.1u/4/X7R/16V/K

Cross Plane CAP

VCORE
EMC1 0.1U/4/X7R/16V/K
EMC2 0.1U/4/X7R/16V/K
EMC3 0.1U/4/X7R/16V/K
EMC4 0.1U/4/X7R/16V/K
EMC5 0.1U/4/X7R/16V/K
EMC6 0.1U/4/X7R/16V/K
EMC7 0.1U/4/X7R/16V/K
EMC8 0.1U/4/X7R/16V/K
EMC9 0.1U/4/X7R/16V/K
EMC10 0.1U/4/X7R/16V/K
EMC11 0.1U/4/X7R/16V/K
VCORE_SOC

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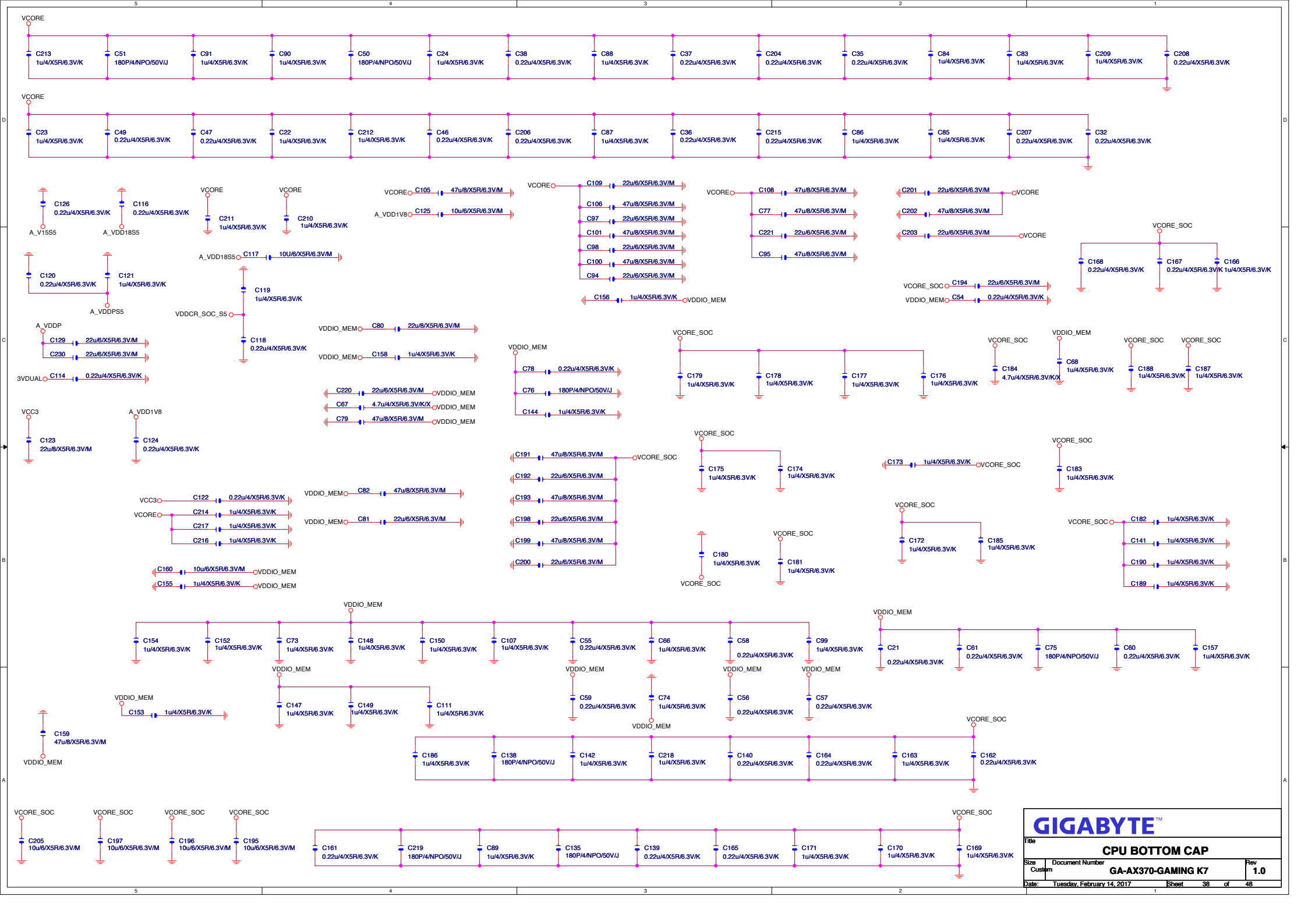
Title	CPU TOP CAP	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
Date: Tuesday, February 14, 2017	Sheet 37 of 48	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C51 180P/4/NPO/50V/J
C91 1u/4/X5R/6.3V/K
C90 1u/4/X5R/6.3V/K
C50 180P/4/NPO/50V/J
C24 1u/4/X5R/6.3V/K
C38 0.22u/4/X5R/6.3V/K
C88 1u/4/X5R/6.3V/K
C37 0.22u/4/X5R/6.3V/K
C204 0.22u/4/X5R/6.3V/K
C35 0.22u/4/X5R/6.3V/K
C84 1u/4/X5R/6.3V/K
C83 1u/4/X5R/6.3V/K
C209 1u/4/X5R/6.3V/K
C208 0.22u/4/X5R/6.3V/K
VCORE
C23 1u/4/X5R/6.3V/K
C49 0.22u/4/X5R/6.3V/K
C47 0.22u/4/X5R/6.3V/K
C22 1u/4/X5R/6.3V/K
C212 1u/4/X5R/6.3V/K
C46 0.22u/4/X5R/6.3V/K
C206 0.22u/4/X5R/6.3V/K
C87 1u/4/X5R/6.3V/K
C36 0.22u/4/X5R/6.3V/K
C215 0.22u/4/X5R/6.3V/K
C86 1u/4/X5R/6.3V/K
C85 1u/4/X5R/6.3V/K
C207 0.22u/4/X5R/6.3V/K
C32 0.22u/4/X5R/6.3V/K
C126 0.22u/4/X5R/6.3V/K
A_V15S5
C116 0.22u/4/X5R/6.3V/K
A_VDD18S5
VCORE
C211 1u/4/X5R/6.3V/K
VCORE
C210 1u/4/X5R/6.3V/K
VCORE
C105 47u/8/X5R/6.3V/M
A_VDD1V8
C125 10u/6/X5R/6.3V/M
VCORE
C109 22u/6/X5R/6.3V/M
C106 47u/8/X5R/6.3V/M
C97 22u/6/X5R/6.3V/M
C101 47u/8/X5R/6.3V/M
C98 22u/6/X5R/6.3V/M
C100 47u/8/X5R/6.3V/M
C94 22u/6/X5R/6.3V/M
C156 1u/4/X5R/6.3V/K
VDDIO_MEM
VCORE
C108 47u/8/X5R/6.3V/M
C77 47u/8/X5R/6.3V/M
C221 22u/6/X5R/6.3V/M
C95 47u/8/X5R/6.3V/M
C201 22u/6/X5R/6.3V/M
VCORE
C202 47u/8/X5R/6.3V/M
C203 22u/6/X5R/6.3V/M
VCORE
VCORE_SOC
C168 0.22u/4/X5R/6.3V/K
C167 0.22u/4/X5R/6.3V/K
C166 1u/4/X5R/6.3V/K
VCORE_SOC
C194 22u/6/X5R/6.3V/M
VDDIO_MEM
C54 0.22u/4/X5R/6.3V/K
C120 0.22u/4/X5R/6.3V/K
C121 1u/4/X5R/6.3V/K
A_VDDPS5
A_VDD18S5
C117 10U/6/X5R/6.3V/M
VDDCR_SOC_S5
C119 1u/4/X5R/6.3V/K
C118 0.22u/4/X5R/6.3V/K
A_VDDP
C129 22u/6/X5R/6.3V/M
C230 22u/6/X5R/6.3V/M
3VDUAL
C114 0.22u/4/X5R/6.3V/K
VDDIO_MEM
C80 22u/8/X5R/6.3V/M
VDDIO_MEM
C158 1u/4/X5R/6.3V/K
C220 22u/6/X5R/6.3V/M
VDDIO_MEM
C67 4.7u/4/X5R/6.3V/K/X
VDDIO_MEM
C79 47u/8/X5R/6.3V/M
VDDIO_MEM
VDDIO_MEM
C78 0.22u/4/X5R/6.3V/K
C76 180P/4/NPO/50V/J
C144 1u/4/X5R/6.3V/K
VCORE_SOC
C179 1u/4/X5R/6.3V/K
C178 1u/4/X5R/6.3V/K
C177 1u/4/X5R/6.3V/K
C176 1u/4/X5R/6.3V/K
VCORE_SOC
C184 4.7u/4/X5R/6.3V/K/X
VDDIO_MEM
C68 1u/4/X5R/6.3V/K
VCORE_SOC
C188 1u/4/X5R/6.3V/K
VCORE_SOC
C187 1u/4/X5R/6.3V/K
VCC3
C123 22u/8/X5R/6.3V/M
A_VDD1V8
C124 0.22u/4/X5R/6.3V/K
C191 47u/8/X5R/6.3V/M
VCORE_SOC
C192 22u/6/X5R/6.3V/M
C193 47u/8/X5R/6.3V/M
C198 22u/6/X5R/6.3V/M
C199 47u/8/X5R/6.3V/M
C200 22u/6/X5R/6.3V/M
VCORE_SOC
C175 1u/4/X5R/6.3V/K
C174 1u/4/X5R/6.3V/K
C173 1u/4/X5R/6.3V/K
VCORE_SOC
VCORE_SOC
C183 1u/4/X5R/6.3V/K
VCC3
C122 0.22u/4/X5R/6.3V/K
VCORE
C214 1u/4/X5R/6.3V/K
C217 1u/4/X5R/6.3V/K
C216 1u/4/X5R/6.3V/K
VDDIO_MEM
C82 47u/8/X5R/6.3V/M
VDDIO_MEM
C81 22u/6/X5R/6.3V/M
C180 1u/4/X5R/6.3V/K
VCORE_SOC
VCORE_SOC
C181 1u/4/X5R/6.3V/K
VCORE_SOC
C172 1u/4/X5R/6.3V/K
C185 1u/4/X5R/6.3V/K
VCORE_SOC
C182 1u/4/X5R/6.3V/K
C141 1u/4/X5R/6.3V/K
C190 1u/4/X5R/6.3V/K
C189 1u/4/X5R/6.3V/K
C160 10u/6/X5R/6.3V/M
VDDIO_MEM
C155 1u/4/X5R/6.3V/K
VDDIO_MEM
VDDIO_MEM
C154 1u/4/X5R/6.3V/K
C152 1u/4/X5R/6.3V/K
C73 1u/4/X5R/6.3V/K
C148 1u/4/X5R/6.3V/K
C150 1u/4/X5R/6.3V/K
C107 1u/4/X5R/6.3V/K
C55 0.22u/4/X5R/6.3V/K
C66 1u/4/X5R/6.3V/K
C58 0.22u/4/X5R/6.3V/K
C99 1u/4/X5R/6.3V/K
VDDIO_MEM
C21 0.22u/4/X5R/6.3V/K
C61 0.22u/4/X5R/6.3V/K
C75 180P/4/NPO/50V/J
C60 0.22u/4/X5R/6.3V/K
C157 1u/4/X5R/6.3V/K
VDDIO_MEM
C147 1u/4/X5R/6.3V/K
C149 1u/4/X5R/6.3V/K
C111 1u/4/X5R/6.3V/K
VDDIO_MEM
C153 1u/4/X5R/6.3V/K
VDDIO_MEM
C59 0.22u/4/X5R/6.3V/K
C74 1u/4/X5R/6.3V/K
VDDIO_MEM
VDDIO_MEM
C56 0.22u/4/X5R/6.3V/K
VDDIO_MEM
C57 0.22u/4/X5R/6.3V/K
C159 47u/8/X5R/6.3V/M
VDDIO_MEM
VCORE_SOC
C186 1u/4/X5R/6.3V/K
C138 180P/4/NPO/50V/J
C142 1u/4/X5R/6.3V/K
C218 1u/4/X5R/6.3V/K
C140 0.22u/4/X5R/6.3V/K
C164 0.22u/4/X5R/6.3V/K
C163 1u/4/X5R/6.3V/K
C162 0.22u/4/X5R/6.3V/K
VCORE_SOC
C205 10u/6/X5R/6.3V/M
VCORE_SOC
C197 10u/6/X5R/6.3V/M
VCORE_SOC
C196 10u/6/X5R/6.3V/M
VCORE_SOC
C195 10u/6/X5R/6.3V/M
C161 0.22u/4/X5R/6.3V/K
C219 180P/4/NPO/50V/J
C89 1u/4/X5R/6.3V/K
C135 180P/4/NPO/50V/J
C139 0.22u/4/X5R/6.3V/K
C165 0.22u/4/X5R/6.3V/K
C171 1u/4/X5R/6.3V/K
C170 1u/4/X5R/6.3V/K
VCORE_SOC
C169 1u/4/X5R/6.3V/K
GIGABYTE™
Title
CPU BOTTOM CAP
Size
Custom
Document Number
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Rev
1.0
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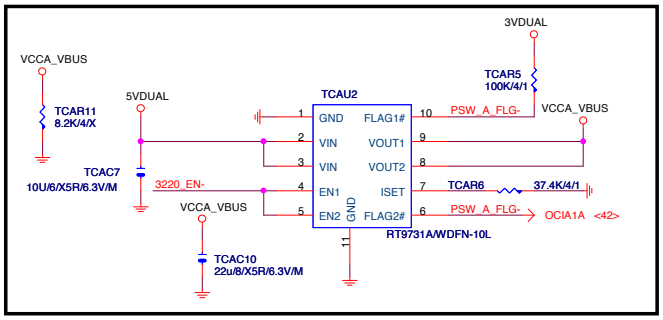
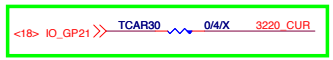
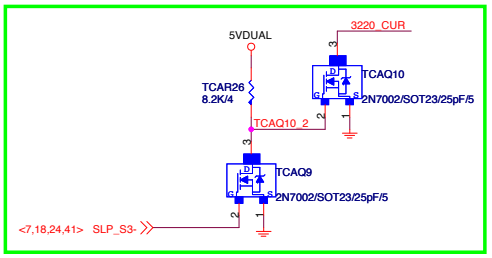
ASM1143 USB31 Host Rev0.3 TI HD3SS3220

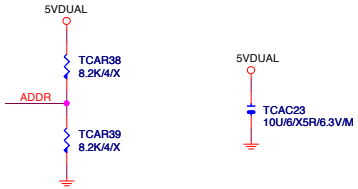
For VBUS current limit at 900mA on S3

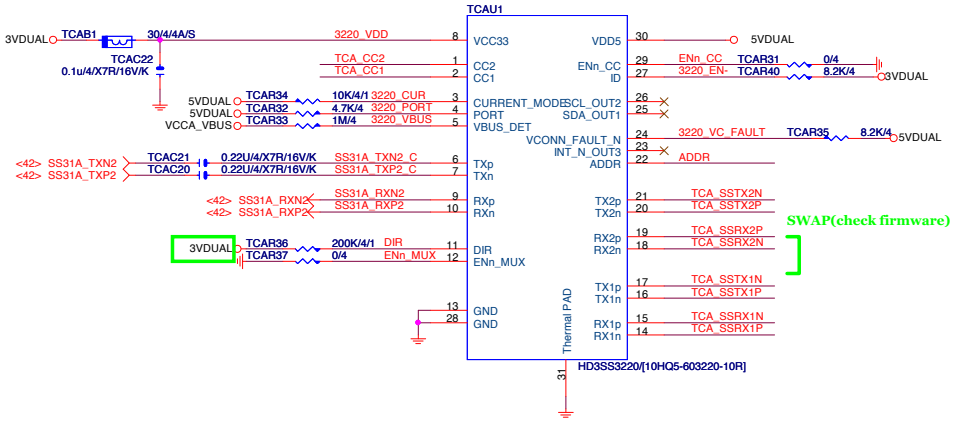
TypeC default 5V/3A







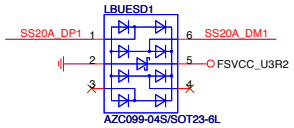


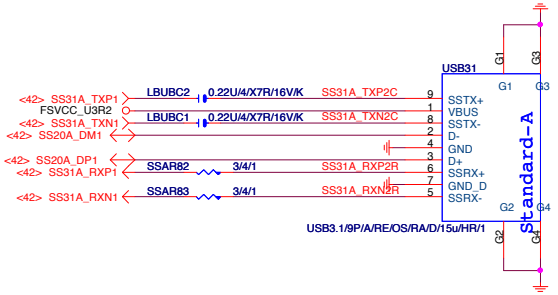


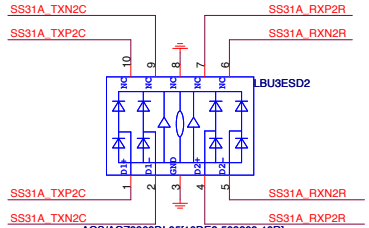
SWAP(check firmware)

USB 3.1 Red

架高，Lotus.

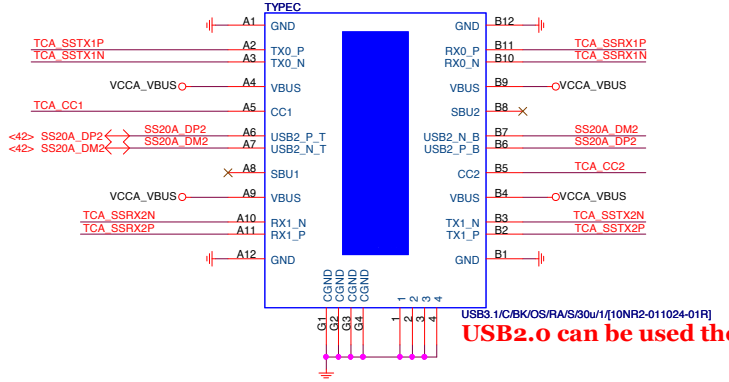




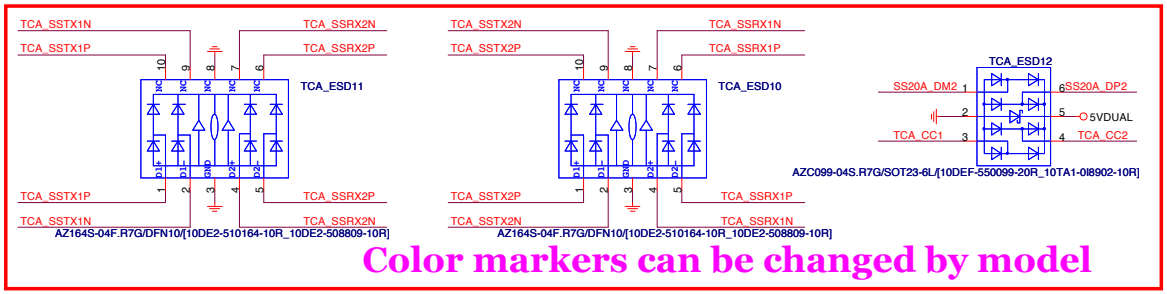


PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

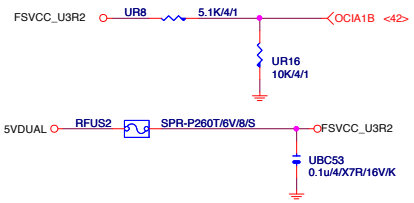
CURRENT MODE
L - Default (900mA) / Pull down to GND or NC
M - Medium (1.5A) / Pull up to VDD 500K
H - High (3.0A) / Pull up to VDD 10K



USB2.0 can be used the same source



Color markers can be changed by model



GIGABYTE™

Title	M.2 SOCKET	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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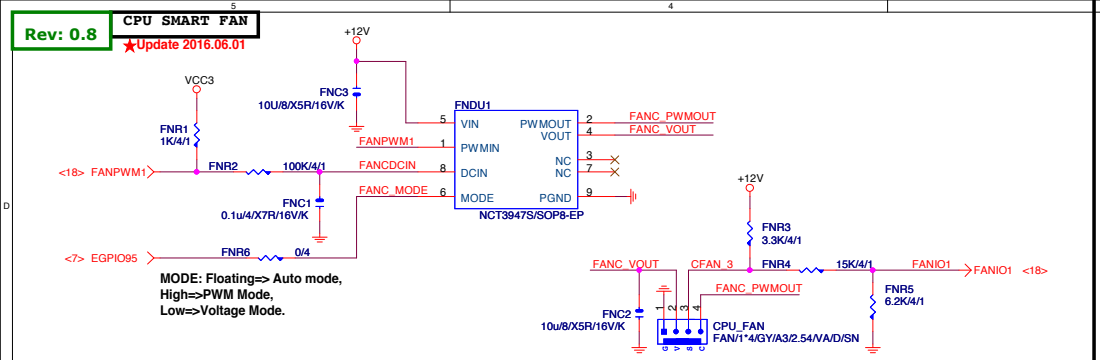
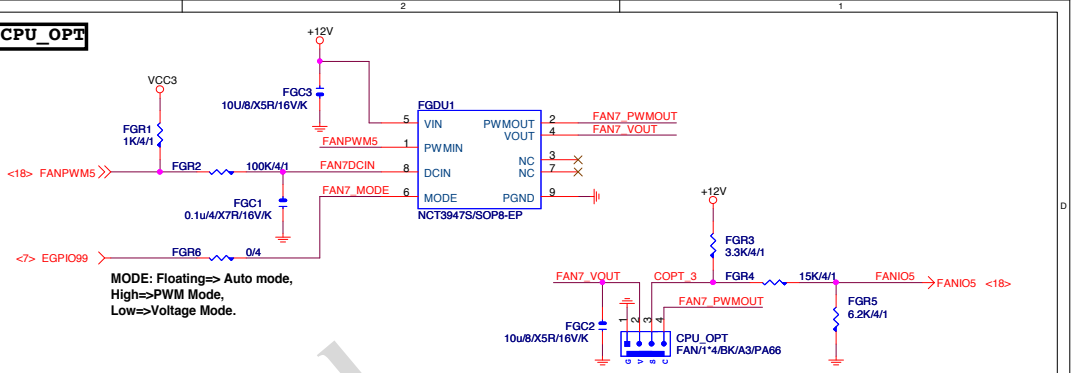
CPU SMART FAN

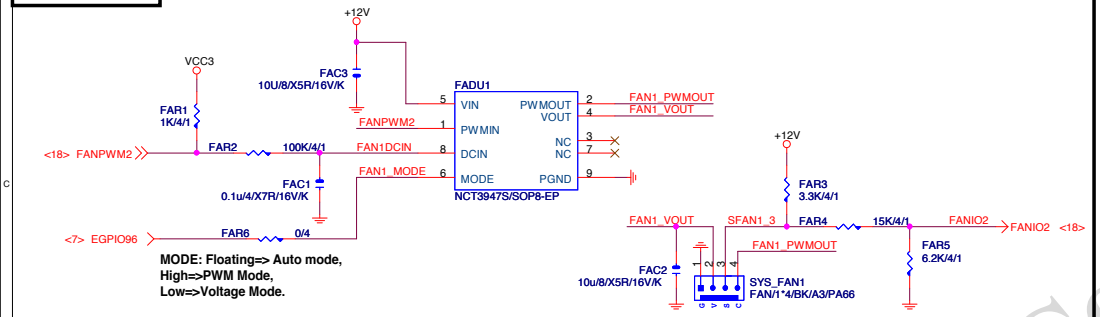
★Update 2016.06.01



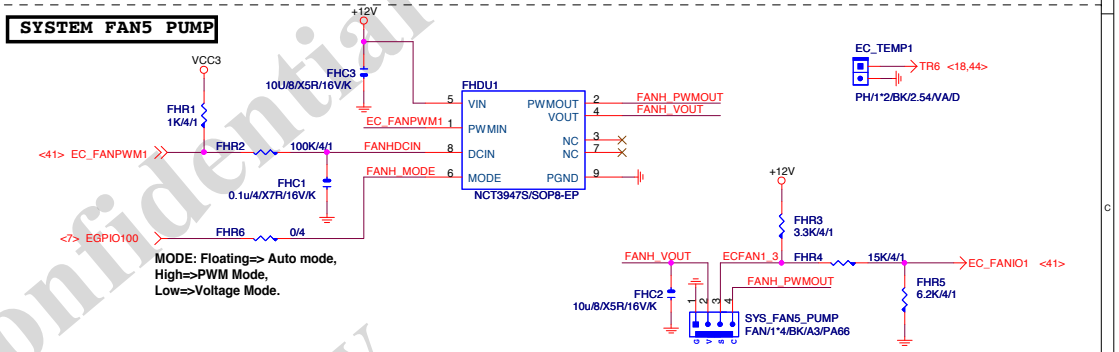
CPU_OPT



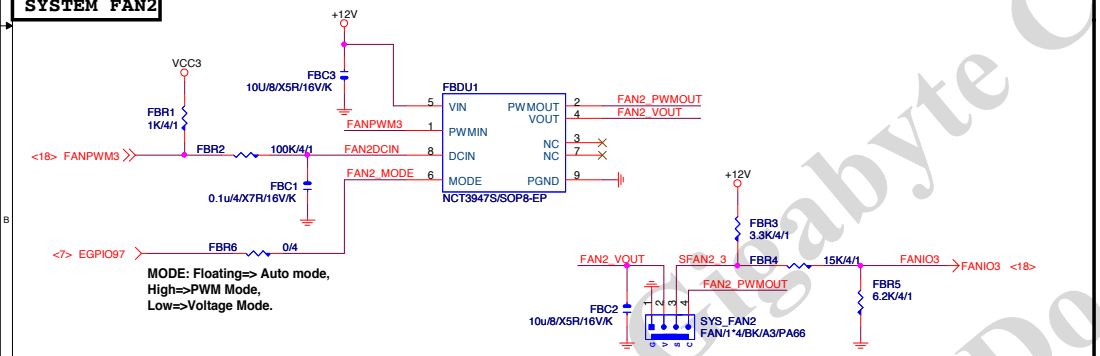
SYSTEM FAN1



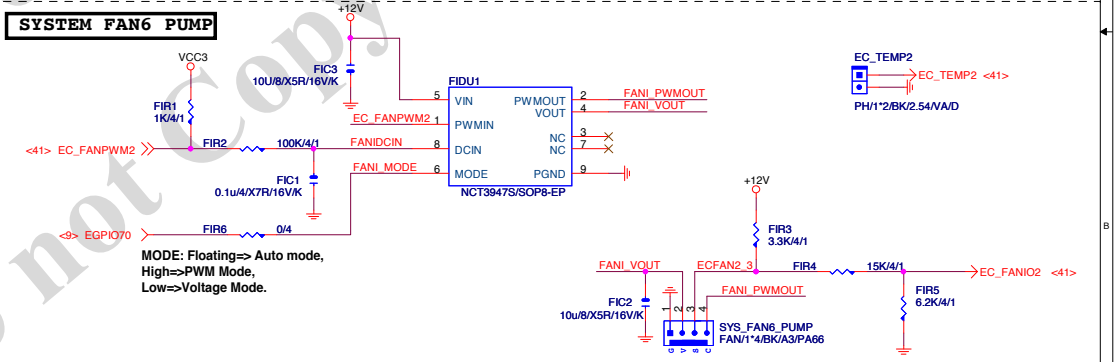
SYSTEM FAN5 PUMP



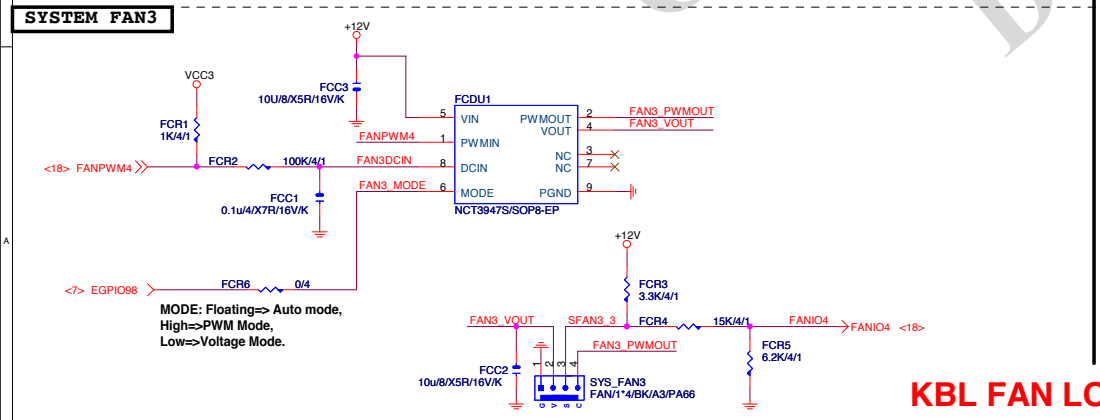
SYSTEM FAN2



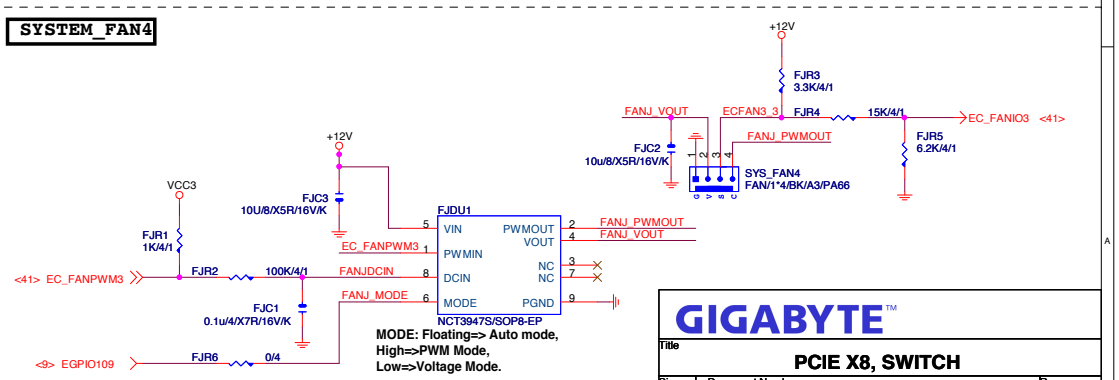
SYSTEM FAN6 PUMP



SYSTEM FAN3



SYSTEM_FAN4



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KBL FAN LOCATION MAP REFER TO PAGE.27

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Title	PCIE X8, SWITCH	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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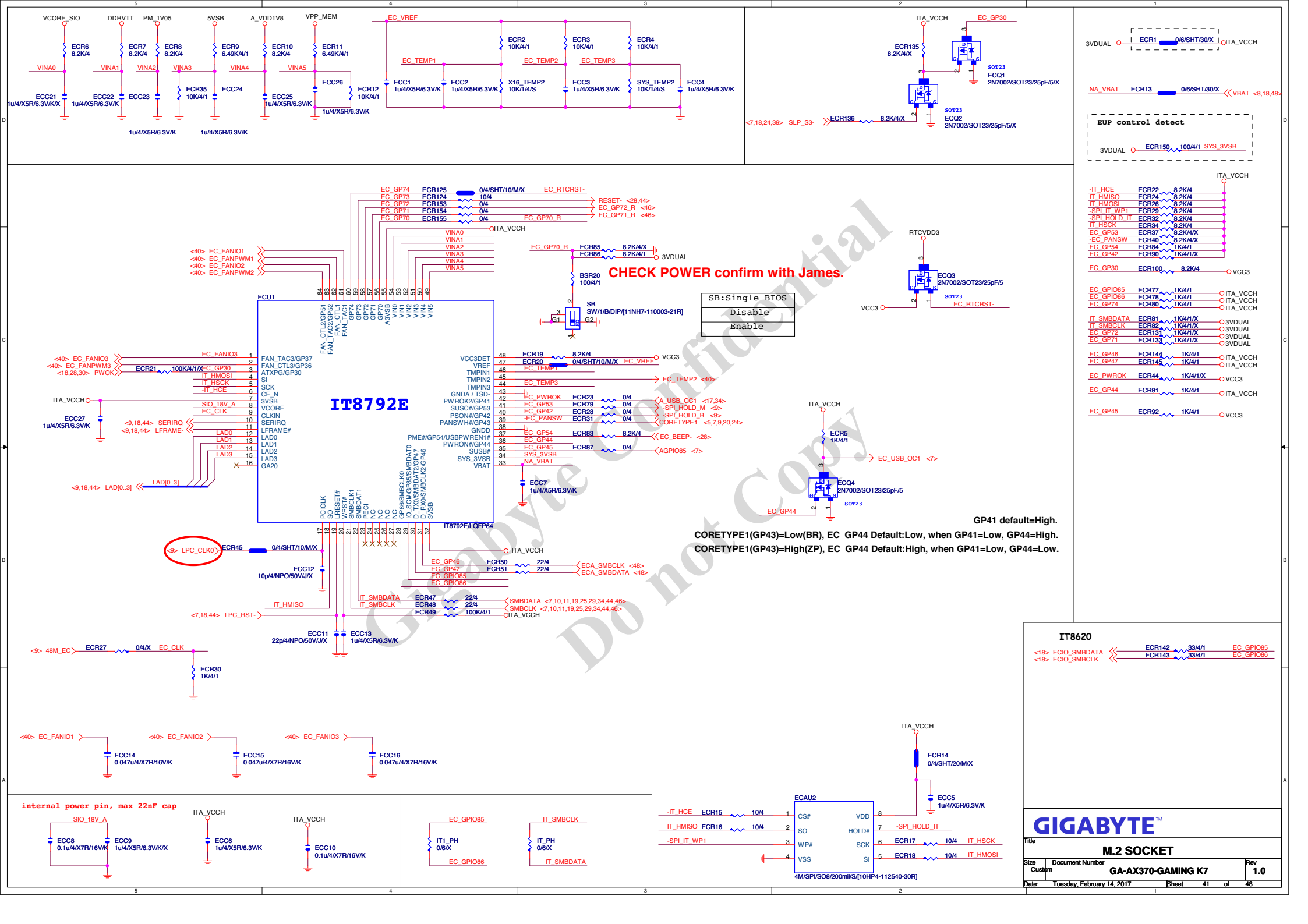
IT8792E
IT8792E/LQFP64
ECU1
CHECK POWER confirm with James.
SB:Single BIOS
Disable
Enable
GP41 default=High.
CORETYPE1(GP43)=Low(BR), EC_GP44 Default:Low, when GP41=Low, GP44=High.
CORETYPE1(GP43)=High(ZP), EC_GP44 Default:High, when GP41=Low, GP44=Low.
internal power pin, max 22nF cap
EUP control detect
IT8620
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M.2 SOCKET
GA-AX370-GAMING K7
Tuesday, February 14, 2017

ASM1143 USB3 Host Rev0.63

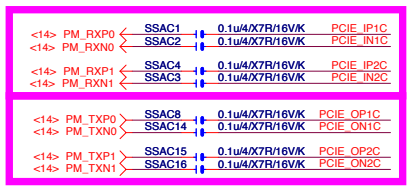
PCIE Gen3 X1 or PCIE Gen2 X2

To PCIE host.

Color markers can be changed by model

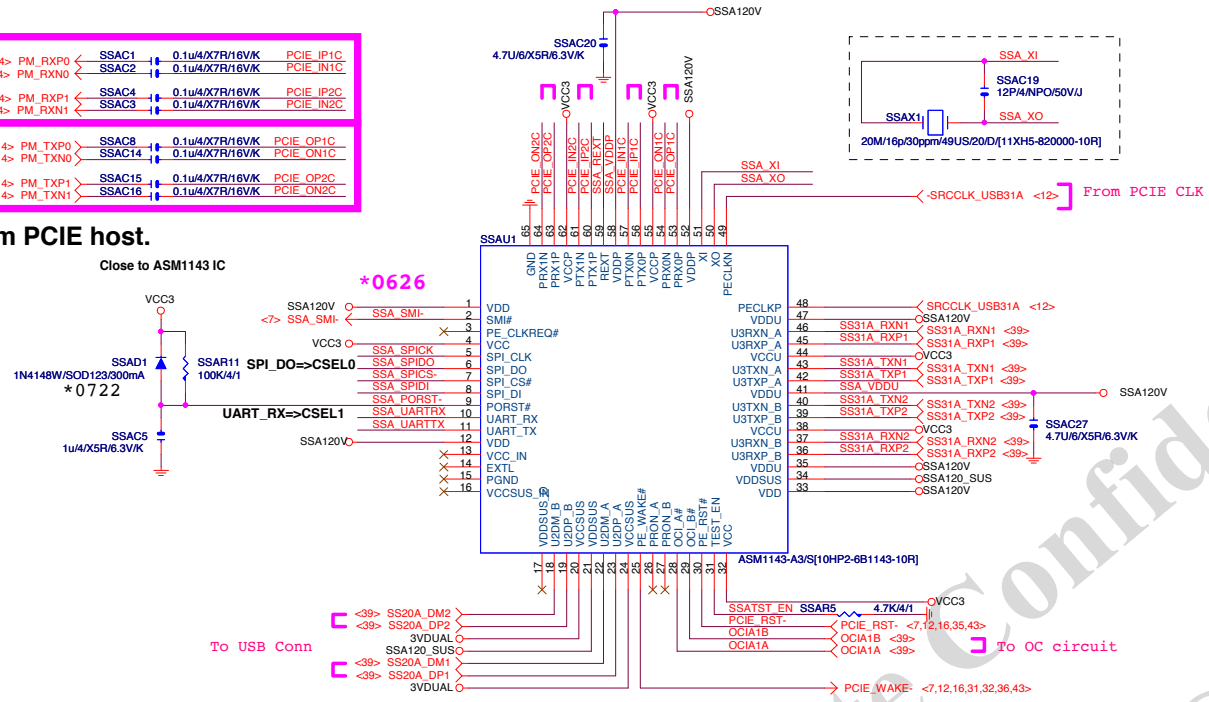
ASM1143 USB3.1

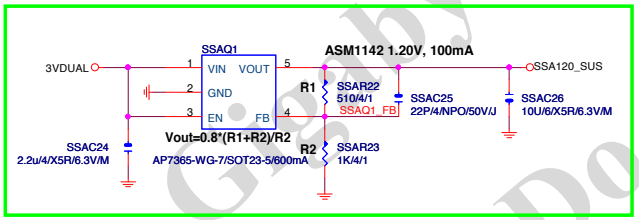
Base on ASM1142 0.3 Reference SCH

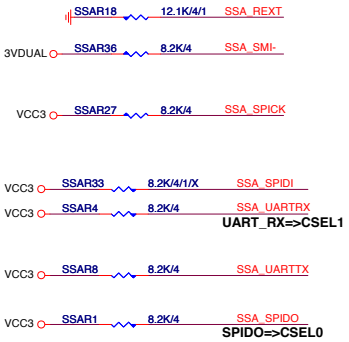


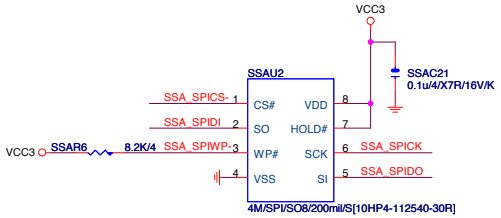
From PCIE host.

Close to ASM1143 IC

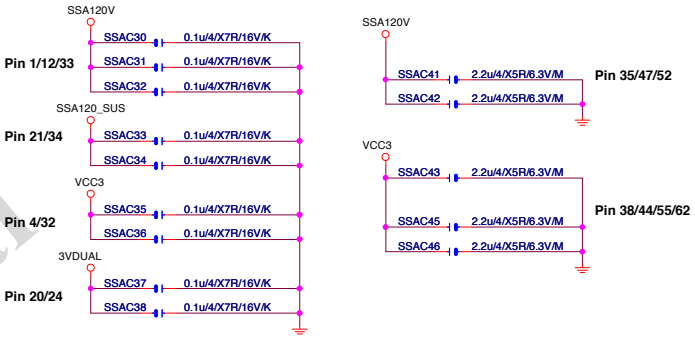


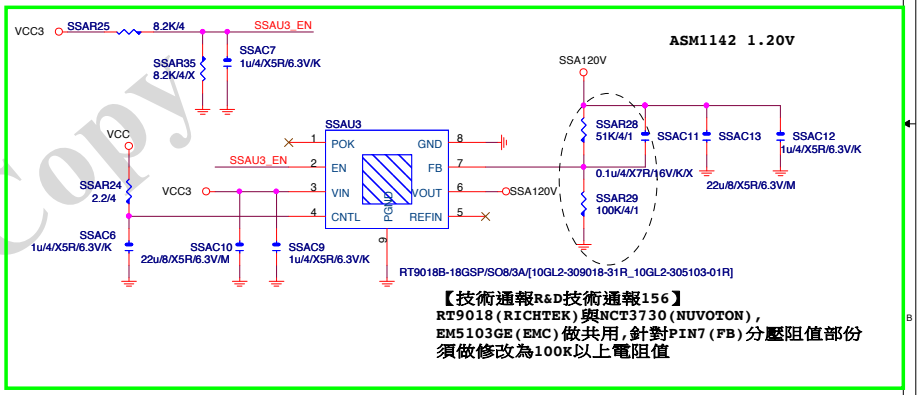






CSEL1	CSEL0	
1	1	External 20MHz Crystal (Asynchronous)
0	1	48MHz clock input (Synchronous)
X	0	Reseved for Test





【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON),
EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份
須做修改為100K以上電阻值

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Title	ASM 2142 U31	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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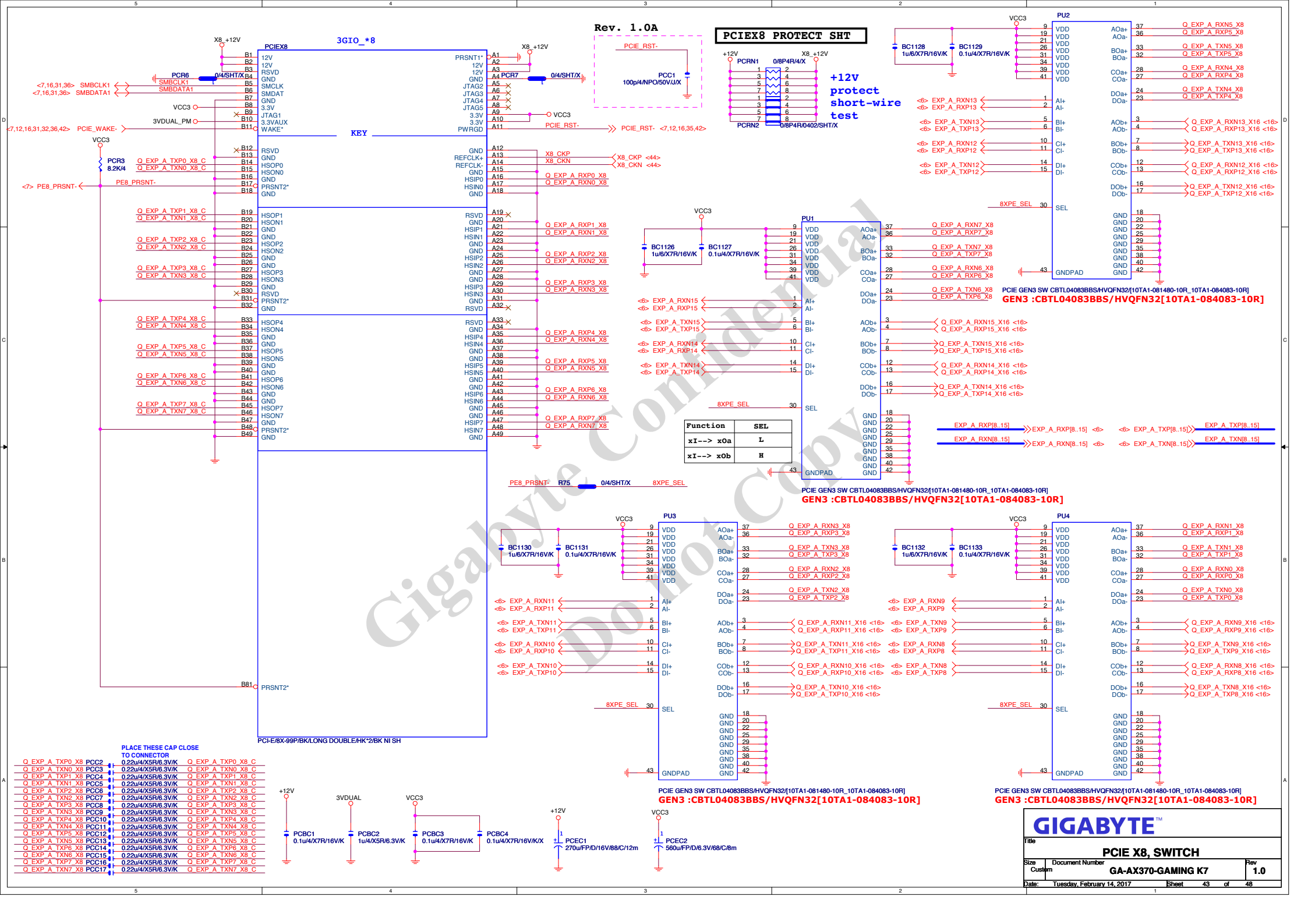
Rev. 1.0A
PCIEX8 PROTECT SHT
3GIO_*8
PCIEX8
KEY
PCI-E/8X-99P/BK/LONG DOUBLE/HK*2/BK NI SH
+12V protect short-wire test
PCRN1 0/8P4R/4/X
PCRN2 0/8P4R/0402/SHT/X
PCC1 100p/4/NPO/50V/J/X
PU1
PU2
PU3
PU4
PCIE GEN3 SW CBTL04083BBS/HVQFN32/[10TA1-081480-10R_10TA1-084083-10R]
GEN3 :CBTL04083BBS/HVQFN32[10TA1-084083-10R]
Function | SEL
xI--> xOa | L
xI--> xOb | H
PLACE THESE CAP CLOSE TO CONNECTOR
PCBC1 0.1u/4/X7R/16V/K
PCBC2 1u/4/X5R/6.3V/K
PCBC3 0.1u/4/X7R/16V/K
PCBC4 0.1u/4/X7R/16V/K/X
PCEC1 270u/FP/D/16V/88/C/12m
PCEC2 560u/FP/D/6.3V/68/C/8m
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GIGABYTE
Title
PCIE X8, SWITCH
Size Custom
Document Number GA-AX370-GAMING K7
Rev 1.0
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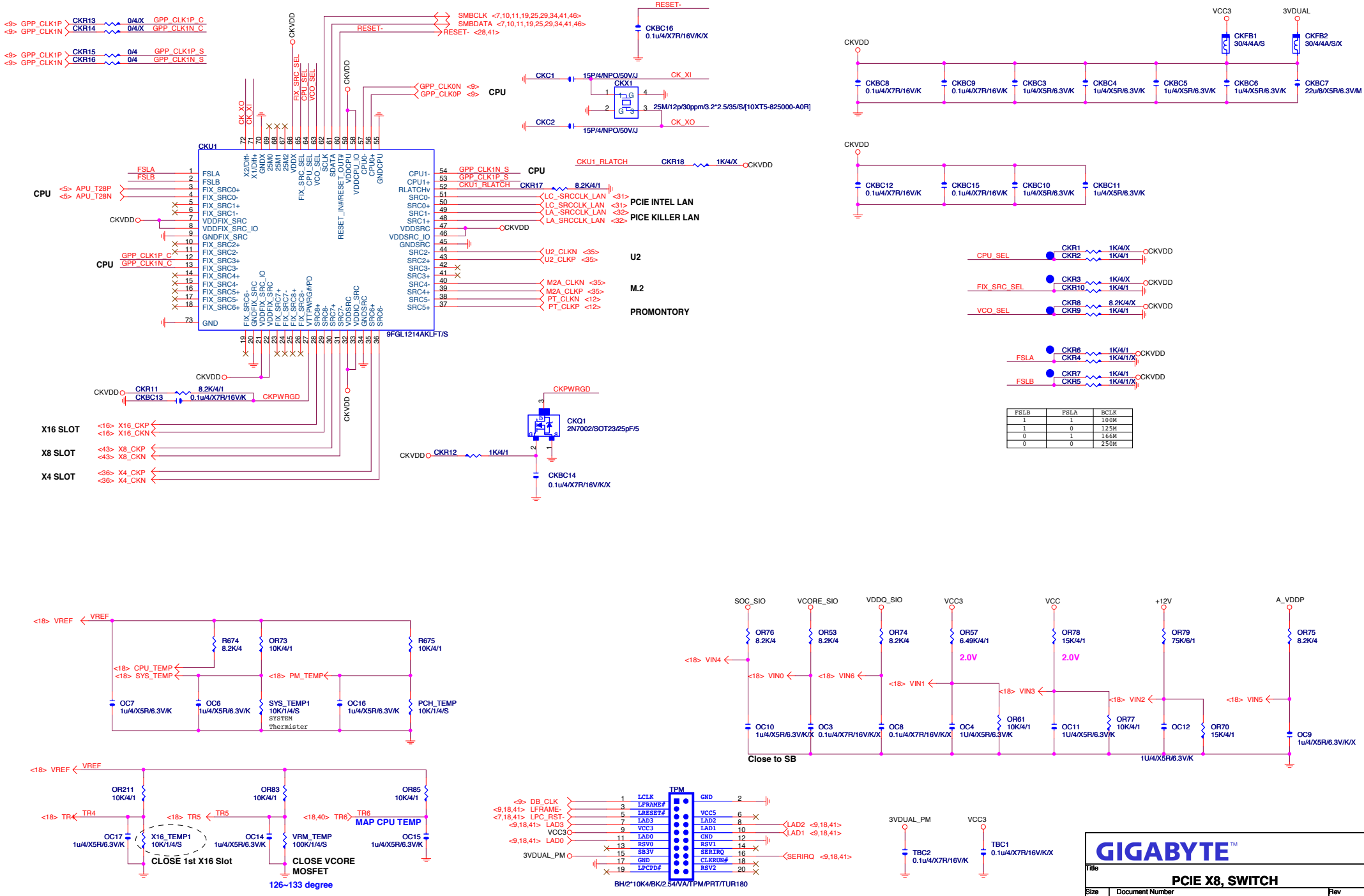
CKU1
9FGL1214AKLFT/S
CPU
PCIE INTEL LAN
PICE KILLER LAN
U2
M.2
PROMONTORY
X16 SLOT
X8 SLOT
X4 SLOT
CKQ1
2N7002/SOT23/25pF/5
CKBC16
0.1u/4/X7R/16V/K/X
CKBC14
0.1u/4/X7R/16V/K/X
CKFB1
30/4/4A/S
CKFB2
30/4/4A/S/X
CKBC8
CKBC9
CKBC3
CKBC4
CKBC5
CKBC6
CKBC7
22u/8/X5R/6.3V/M
CKBC12
CKBC15
CKBC10
CKBC11
CKR1
CKR2
CKR3
CKR10
CKR8
CKR9
CKR6
CKR4
CKR7
CKR5
FSLB FSLA BCLK
1 1 100M
1 0 125M
0 1 166M
0 0 250M
R674
8.2K/4
OR73
10K/4/1
R675
10K/4/1
OC7
1u/4/X5R/6.3V/K
OC6
1u/4/X5R/6.3V/K
SYS_TEMP1
10K/1/4/S
SYSTEM
Thermister
OC16
1u/4/X5R/6.3V/K
PCH_TEMP
10K/1/4/S
OR211
10K/4/1
OR83
10K/4/1
OR85
10K/4/1
OC17
1u/4/X5R/6.3V/K
X16_TEMP1
10K/1/4/S
OC14
1u/4/X5R/6.3V/K
VRM_TEMP
100K/1/4/S
OC15
1u/4/X5R/6.3V/K
CLOSE 1st X16 Slot
CLOSE VCORE MOSFET
126~133 degree
MAP CPU TEMP
SOC_SIO
VCORE_SIO
VDDQ_SIO
VCC3
VCC
+12V
A_VDDP
OR76 8.2K/4
OR53 8.2K/4
OR74 8.2K/4
OR57 6.49K/4/1
2.0V
OR78 15K/4/1
2.0V
OR79 75K/6/1
OR75 8.2K/4
OC10 1u/4/X5R/6.3V/K/X
OC3 0.1u/4/X7R/16V/K/X
OC8 0.1u/4/X7R/16V/K/X
OC4 1U/4/X5R/6.3V/K
OR61 10K/4/1
OC11 1U/4/X5R/6.3V/K
OR77 10K/4/1
OC12
OR70 15K/4/1
OC9 1u/4/X5R/6.3V/K/X
1U/4/X5R/6.3V/K
Close to SB
TPM
BH/2*10K4/BK/2.54/VA/TPM/PRT/TUR180
TBC2
0.1u/4/X7R/16V/K
TBC1
0.1u/4/X7R/16V/K/X
GIGABYTE
PCIE X8, SWITCH
GA-AX370-GAMING K7
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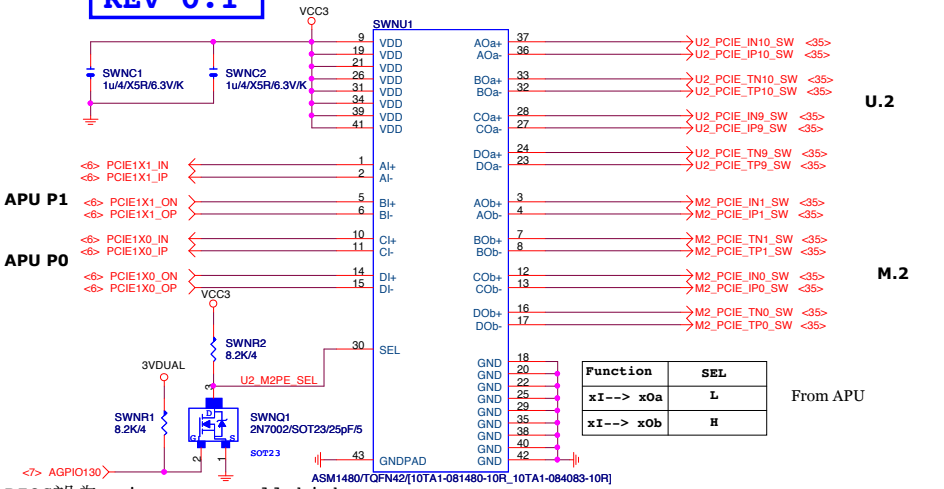
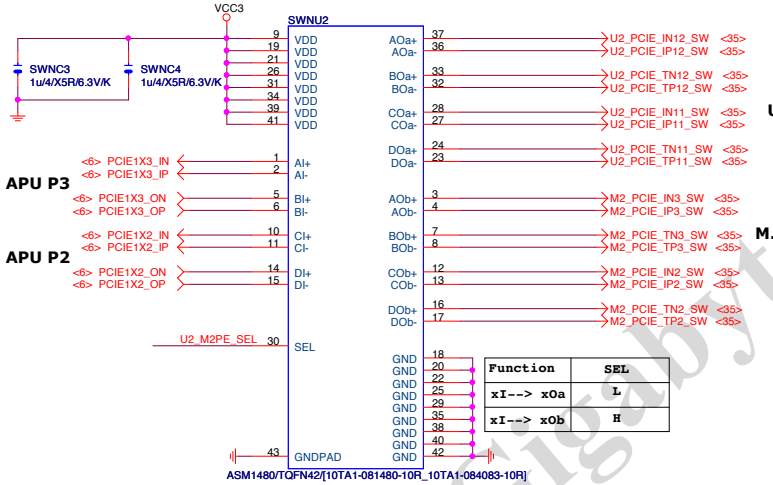
REV 0.1



Function	SEL
xI--> xOa	L
xI--> xOb	H

From APU

BIOS設為main power pull high



Function	SEL
xI--> xOa	L
xI--> xOb	H

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Title: M.2/U.2 SWITCH

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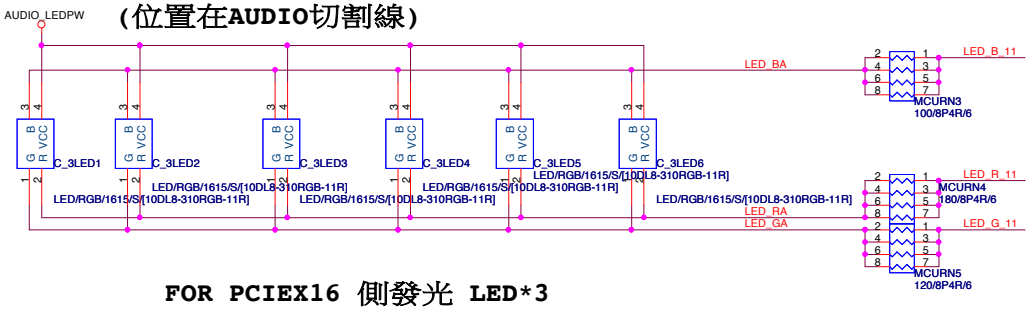
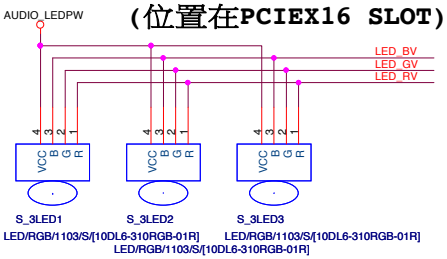
第一區 LED

Rev 0.63

FOR AUDIO 正發光 LED*13
(位置在AUDIO切割線)



FOR PCIEX16 側發光 LED*3
(位置在PCIEX16 SLOT)

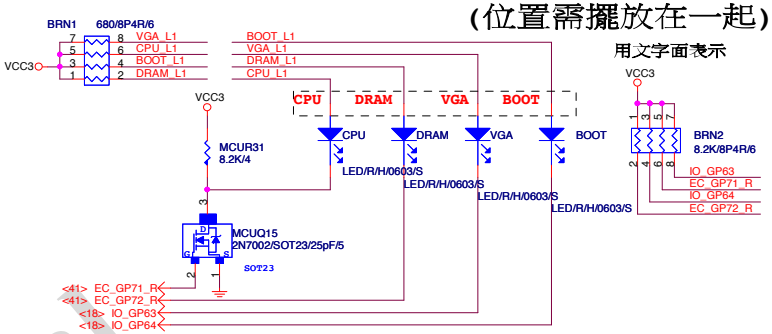


LED GPIO PIN DEFINE

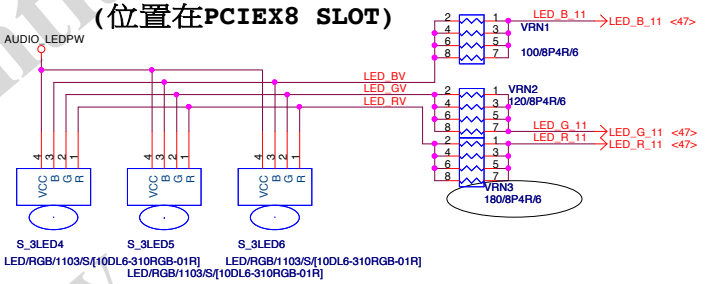
EC_GP71_R	CPU DEBUG
EC_GP72_R	DDR DEBUG
IO_GP63	VGA DEBUG
IO_GP64	BOOT DEBUG
PM_GPIO5	LED_C LED SWITCH
PM_GPIO6	PCIEX16 LED SWITCH
PM_GPIO7	PCIEX8 LED SWITCH

DEBUG PORT LED *4
(位置需擺放在一起)

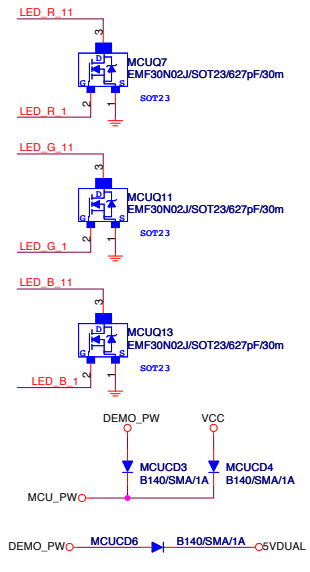
用文字面表示



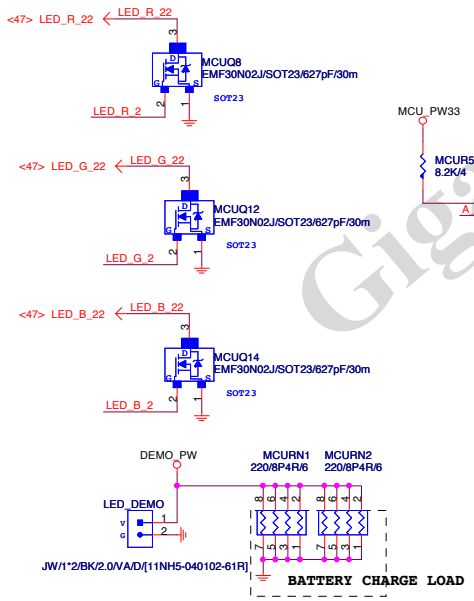
FOR PCIEX8 側發光 LED*3
(位置在PCIEX8 SLOT)

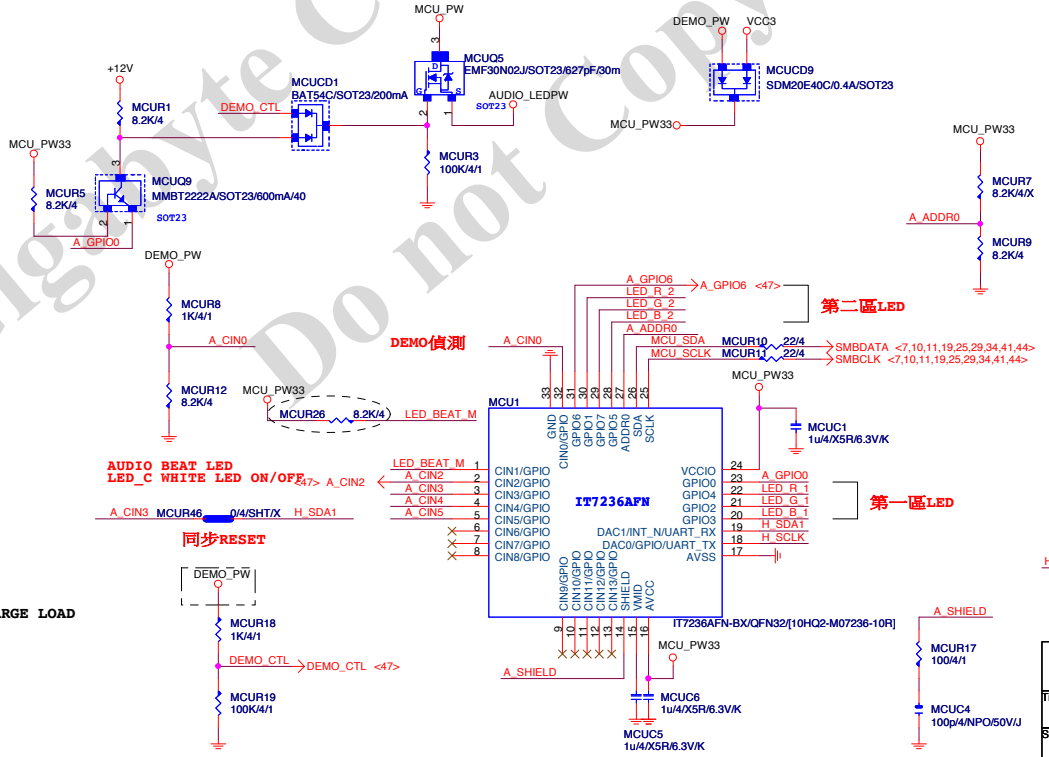


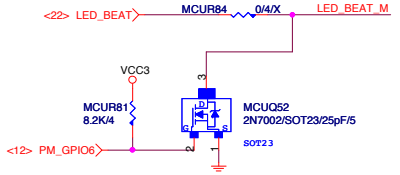
第一區 LED CONTROL



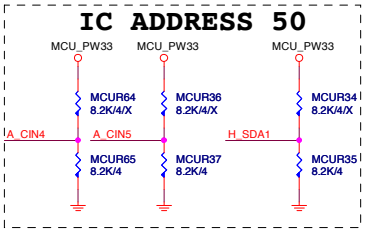
第二區 LED CONTROL



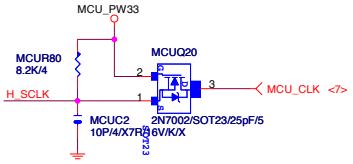




IC ADDRESS 50



Note : Pulldown address is 0x8C



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Title	CPU / AUDIO / PCIE/REAR LED
Size	Custom
Document Number	GA-AX370-GAMING K7
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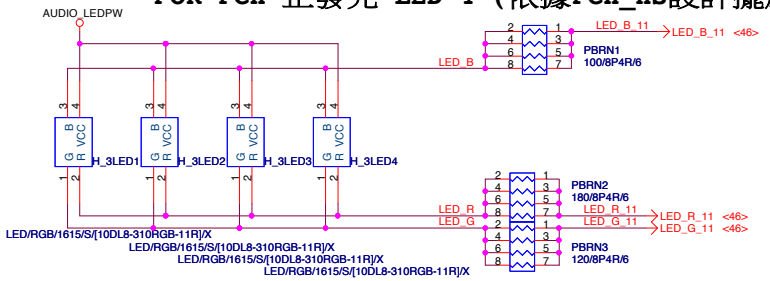
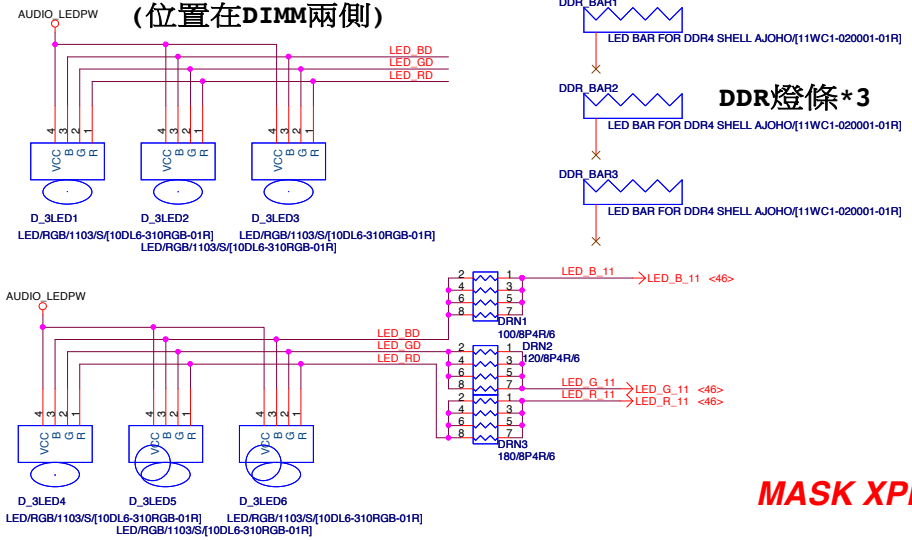
第二區 LED

Rev 0.63

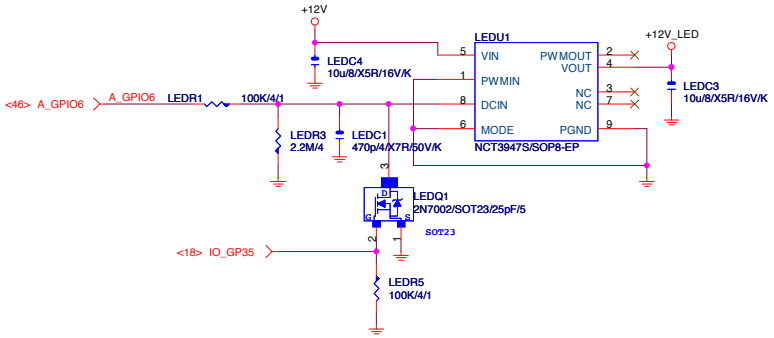
FOR PCH 正發光 LED*4 (依據PCH_HS設計擺放)



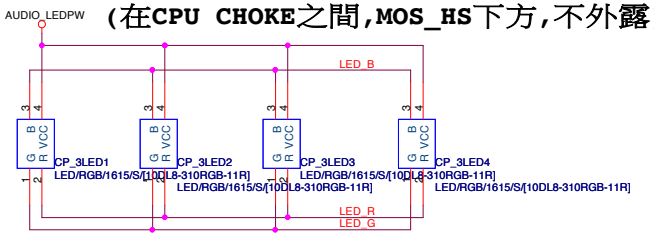
FOR DIMM 側發光 LED*6 (位置在DIMM兩側)



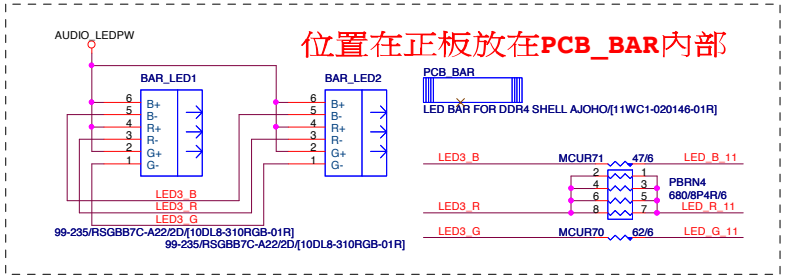
FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



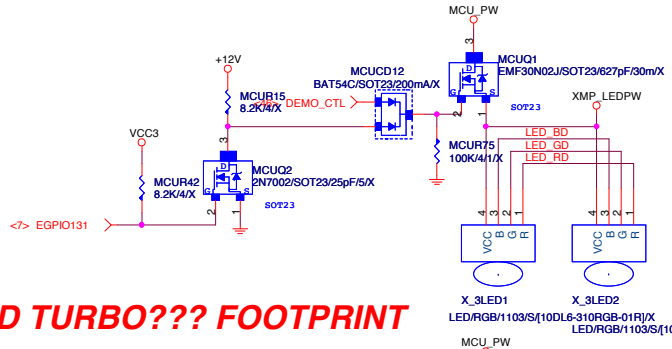
FOR CPU 正發光 LED*5 (在CPU CHOKE之間,MOS_HS下方,不外露)

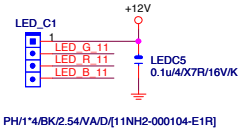


位置在正板放在PCB_BAR內部



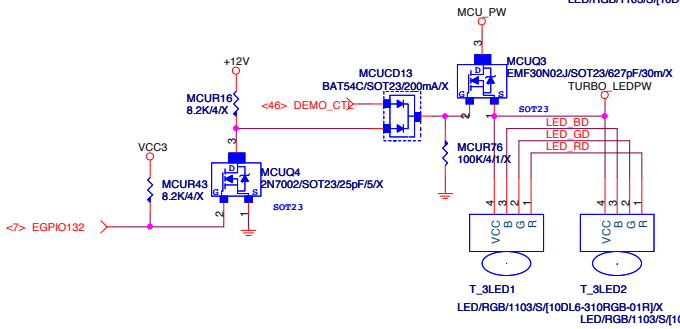
FOR XMP 側發光 LED*2 (靠近DIMM附近放背板鏤空)

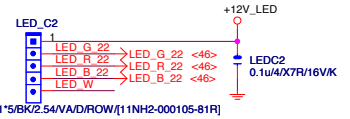


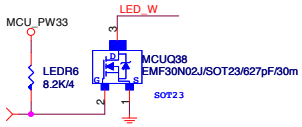


MASK XPM AND TURBO??? FOOTPRINT

FOR TURBO 側發光 LED*2 (靠近DIMM附近背板鏤空)







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Title	PCB / PCH / DDR / LED_C LED	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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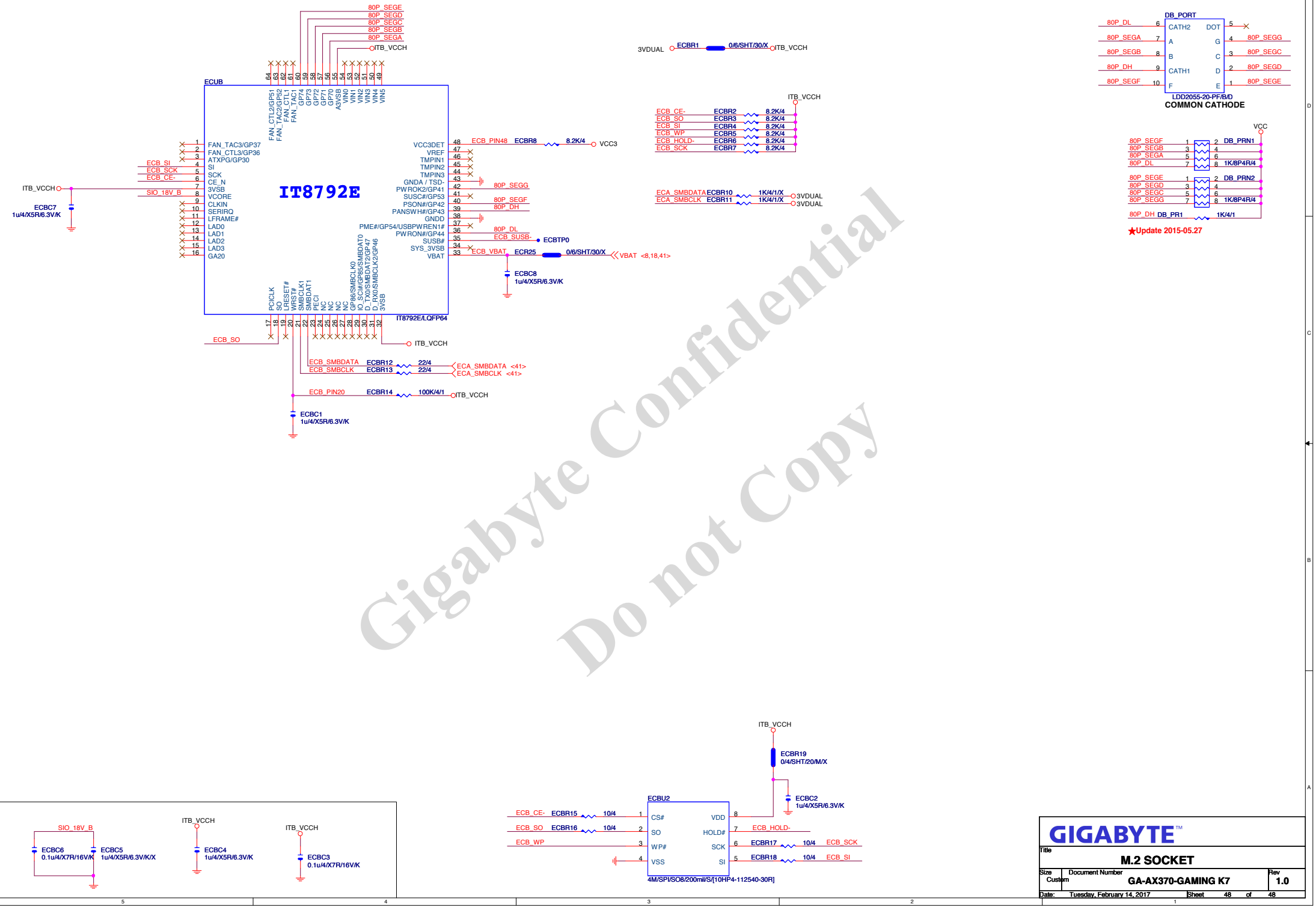

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Title	M.2 SOCKET	
Size: Custom	Document Number: GA-AX370-GAMING K7	Rev: 1.0
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