GA-78LMT-S2PT

Revision :4.1

9M78LMT2T-00

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Title: COVER SHEET		
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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Model Name:GA-78LMT-S2PT

Component value change history

Version: 4.1

P-Code: U11120-0

Date	Change Item		Reason
2011.10.25	3.1A E_BOM Release.	PCB: 3.1	Modify from 78LMT-S2P 4.0, Remove DVI, Add LPT,IDE, COM PH 改 CONN to back panel
2011.12.28	3.1B P_BOM Release.	PCB: 3.1	ACN1~2 , PCN1~4 , PC2 180p Cap for HCL requirements
2012.01.20	3.1C P_BOM Release.	PCB: 3.1	Change CLK GEN RTM880-792
2012.02.13	40A D_BOM Release.	PCB: 4.0	Change PWM RT8871+RT9612 & RT8120 , IT8728 EX,
2012.05.02	40B E_BOM Release.	PCB: 4.01	Add PRN1&2 33ohm , IT8728 Use Sorting 過的料號 -71R / R153 改2.32K
2012.05.18	40B P_BOM Release.	PCB: 4.01	Turn PVT BOM ,Delete 全成信 PCB
2012.08.17	41A E_BOM Release.	PCB: 4.1	LAN AR8151 to AR8161 / Fix ErP CTRL by IO & Patch Some PSU Fail When ErP Enable Issue
2012.10.04	41B P_BOM Release.	PCB: 4.1	Codec Pin25/38 0.1 to 1uf (預防AVDD 22uF容值過低JD 會誤動作) EPR2 Change to 100K,add IT8728 70R to Main

Circuit or PCB layout change for next version

Date	Version	Change Item
2011.10.25	3.1 Gerber out	Modify from 78LMT-S2P 4.0. Remove DVI, Add LPT,IDE, COM PH 改 CONN to back, (RS760=RS780L) SIO/LAN /F_PANEL /F_USB/VGA relocate
2012.03.06	4.0 Gerber out	Change PWM to RT8868 + 8896 & IO Change to IT8728EX , MOSFET TO252 Change to P-PEK DDR3 slot,避開螺孔干涉問題, MOSFETHOT Protect ,Remove EC34,EC44 (DDR&NB_VCC VIN)
2012.05.02	4.01 Gerber out	Add OR24,OR30 Short Pad & LPT PD0~7 Serise 33ohm RES (ITE reaommend) & IO_BLINK Change GP20 / RESET Rount by EMI Request
2012.07.16	4.1 Gerber out	ErP CTRL by IO & Patch some PSU can't boot when ERP enable.

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Title: BOM & PCB HISTORY		
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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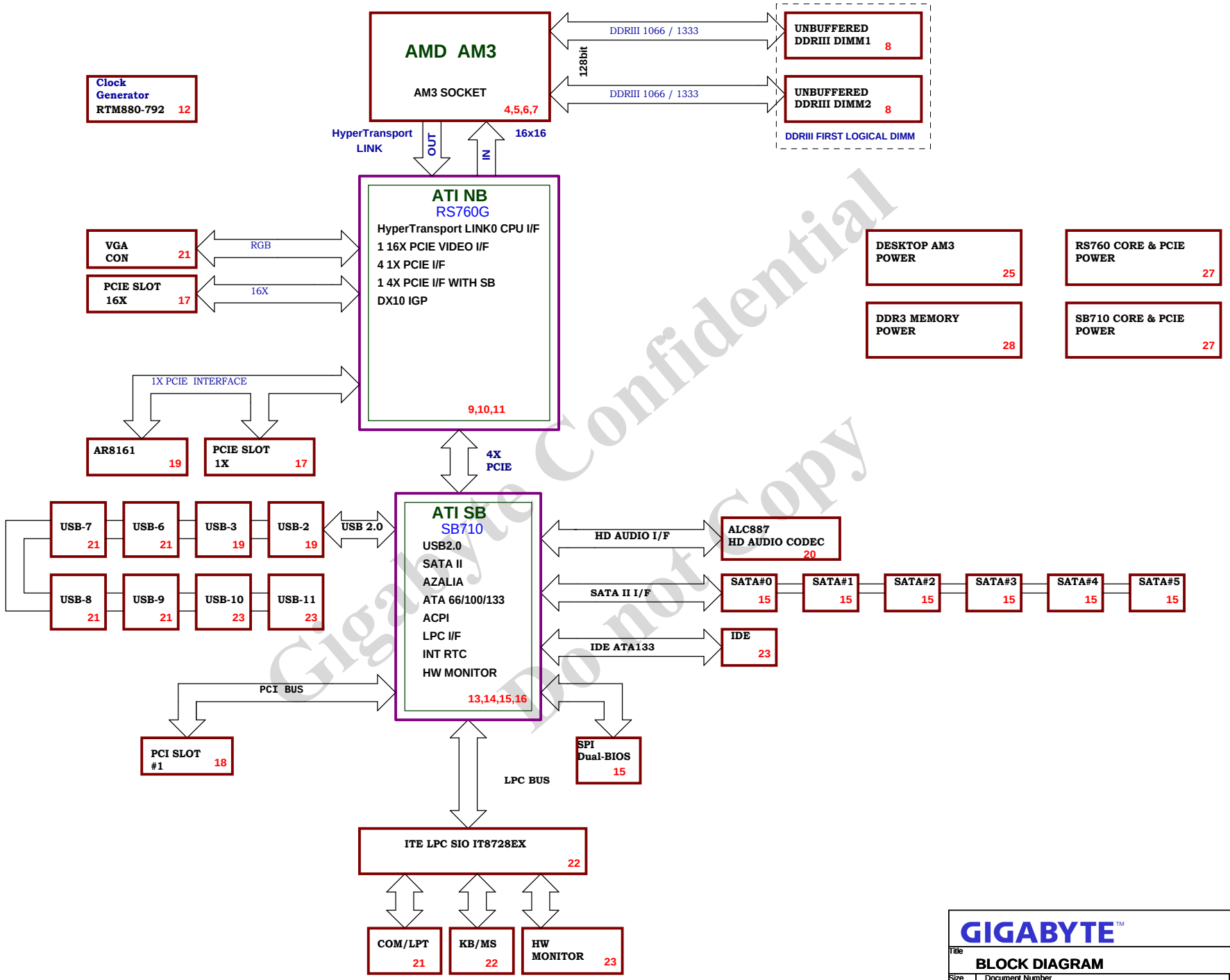
RS780L CUSTOMER DESKTOP DESIGN



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Title: BLOCK DIAGRAM

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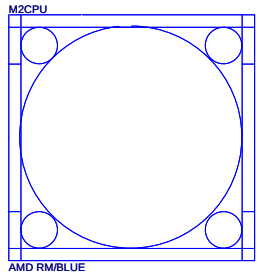
CPU_VDD_RUN = VCORE
CPU_VDDA_RUN = VDDA25
VLDT_RUN = VCC12_HT
CPU_VDDIO_SUS = DDR18V
CPU_VTT_SUS = DDRVTT

VLDT_A = VCC12_HT
VLDT_B = HT12B



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Title: CPU HYPER TRANSPORT		
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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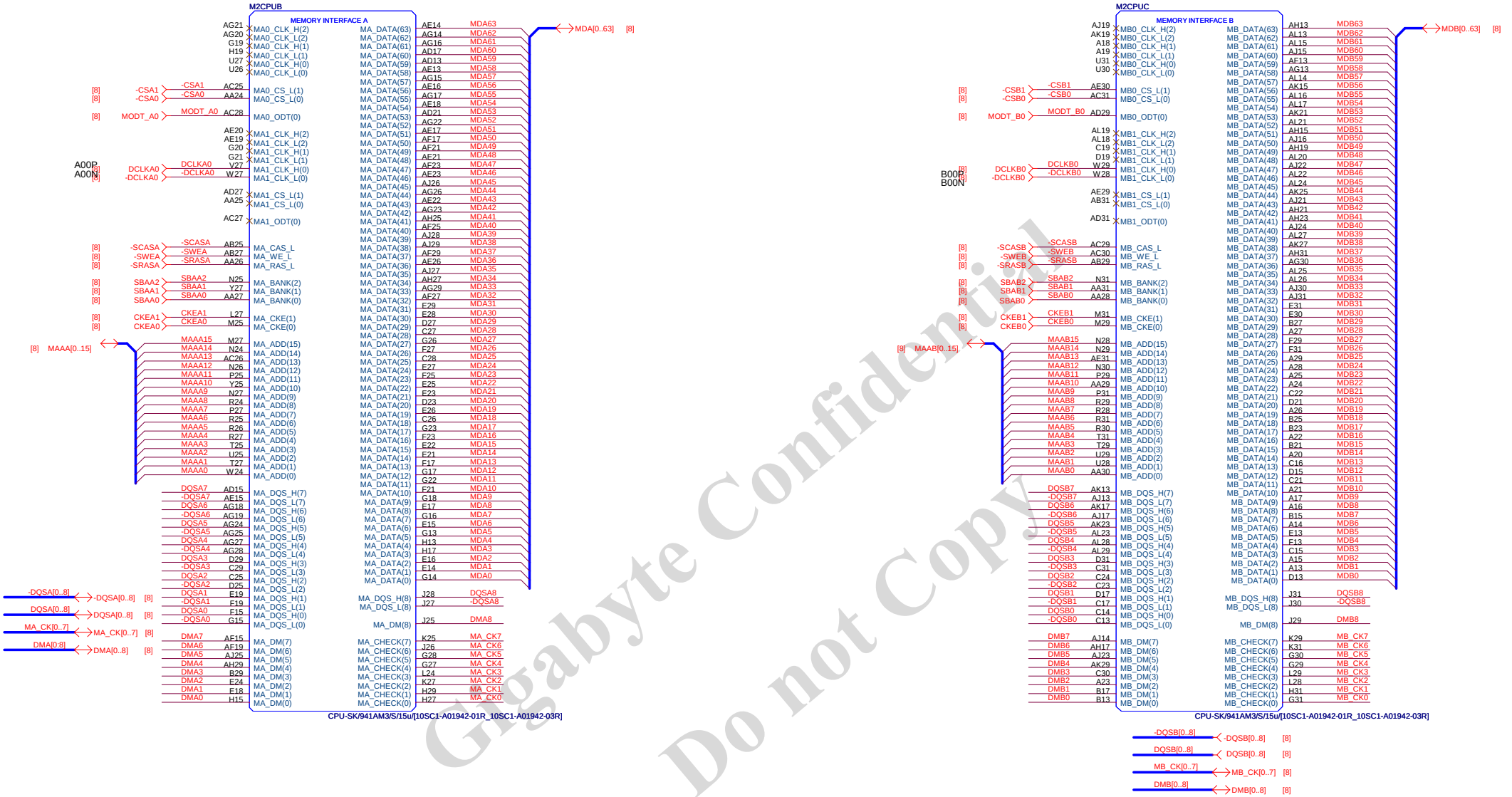

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Title	CPU DDRII MEMORY	
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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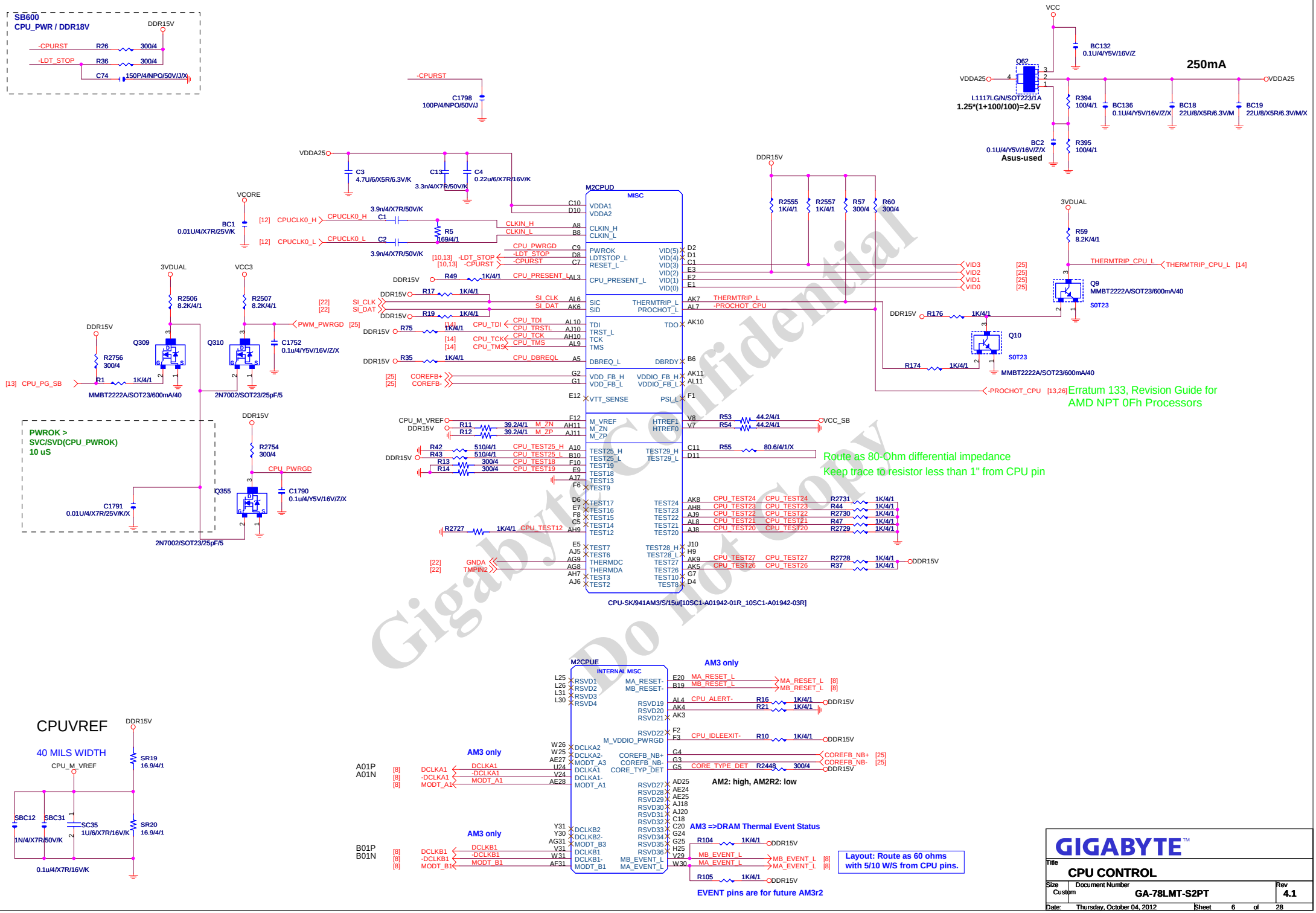
SB600
CPU_PWR / DDR18V
DDR15V
-CPURST
R26
300/4
-LDT_STOP
R36
300/4
C74
150P/4/NPO/50V/J/X
C1798
100P4/NPO/50V/J
VCC
BC132
0.1U/4/Y5V/16V/Z
250mA
Q62
VDDA25
L1117LG/N/SOT223/1A
1.25*(1+100/100)=2.5V
R394
100/4/1
BC136
0.1U/4/Y5V/16V/Z/X
BC18
22U/8/X5R/6.3V/M
BC19
22U/8/X5R/6.3V/M/X
BC2
0.1U/4/Y5V/16V/Z/X
Asus-used
R395
100/4/1
C3
4.7U/6/X5R/6.3V/K
C13
3.3n/4/X7R/50V/K
C4
0.22u/6/X7R/16V/K
VCORE
BC1
0.01U/4/X7R/25V/K
3.9n/4/X7R/50V/K
C1
C2
R5
169/4/1
CPUCLK0_H
CPUCLK0_L
M2CPUD
MISC
CLKIN_H
CLKIN_L
CPU_PWRGD
-LDT_STOP
-CPURST
PWROK
LDTSTOP_L
RESET_L
CPU_PRESENT_L
R49
1K/4/1
SIC
SID
SI_CLK
SI_DAT
THERMTRIP_L
PROCHOT_L
THERMTRIP_L
-PROCHOT_CPU
TDI
TRST_L
TCK
TMS
CPU_TDI
CPU_TRSTL
CPU_TCK
CPU_TMS
TDO
DBREQ_L
DBRDY
CPU_DBREQL
VDD_FB_H
VDD_FB_L
VDDIO_FB_H
VDDIO_FB_L
COREFB+
COREFB-
VTT_SENSE
PSI_L
M_VREF
M_ZN
M_ZP
HTREF1
HTREF0
VCC_SB
CPU_M_VREF
R11
39.2/4/1
R12
39.2/4/1
R53
44.2/4/1
R54
44.2/4/1
TEST25_H
TEST25_L
TEST19
TEST18
TEST13
TEST9
TEST29_H
TEST29_L
R42
510/4/1
R43
510/4/1
R13
300/4
R14
300/4
CPU_TEST25_H
CPU_TEST25_L
CPU_TEST18
CPU_TEST19
R55
80.6/4/1/X
Route as 80-Ohm differential impedance
Keep trace to resistor less than 1" from CPU pin
TEST17
TEST16
TEST15
TEST14
TEST12
TEST24
TEST23
TEST22
TEST21
TEST20
R2727
1K/4/1
CPU_TEST12
R2731
R44
R2730
R47
R2729
CPU_TEST24
CPU_TEST23
CPU_TEST22
CPU_TEST21
CPU_TEST20
TEST7
TEST6
THERMDC
THERMDA
TEST3
TEST2
TEST28_H
TEST28_L
TEST27
TEST26
TEST10
TEST8
R2728
R37
CPU_TEST27
CPU_TEST26
GNDA
TMPIN2
CPU-SK/941AM3/S/15u/[10SC1-A01942-01R_10SC1-A01942-03R]
R2555
1K/4/1
R2557
1K/4/1
R57
300/4
R60
300/4
VID(5)
VID(4)
VID(3)
VID(2)
VID(1)
VID(0)
VID3
VID2
VID1
VID0
3VDUAL
R59
8.2K/4/1
THERMTRIP_CPU_L
Q9
MMBT2222A/SOT23/600mA/40
SOT23
R176
1K/4/1
Q10
R174
1K/4/1
MMBT2222A/SOT23/600mA/40
Erratum 133, Revision Guide for
AMD NPT 0Fh Processors
3VDUAL
VCC3
R2506
8.2K/4/1
R2507
8.2K/4/1
PWM_PWRGD
Q309
Q310
C1752
0.1u/4/Y5V/16V/Z/X
R2756
300/4
CPU_PG_SB
R1
1K/4/1
MMBT2222A/SOT23/600mA/40
2N7002/SOT23/25pF/5
PWROK >
SVC/SVD(CPU_PWROK)
10 uS
R2754
300/4
CPU_PWRGD
Q355
C1790
0.1u/4/Y5V/16V/Z/X
C1791
0.01U/4/X7R/25V/K/X
2N7002/SOT23/25pF/5
M2CPUE
INTERNAL MISC
AM3 only
RSVD1
RSVD2
RSVD3
RSVD4
MA_RESET-
MB_RESET-
MA_RESET_L
MB_RESET_L
CPU_ALERT-
R16
1K/4/1
R21
1K/4/1
RSVD19
RSVD20
RSVD21
RSVD22
M_VDDIO_PWRGD
CPU_IDLEEXIT-
R10
1K/4/1
DCLKA2
DCLKA2-
MODT_A3
DCLKA1
DCLKA1-
MODT_A1
COREFB_NB+
COREFB_NB-
CORE_TYP_DET
CORE_TYPE_DET
R2448
300/4
AM2: high, AM2R2: low
A01P
A01N
DCLKA1
-DCLKA1
MODT_A1
AM3 only
RSVD27
RSVD28
RSVD29
RSVD30
RSVD31
RSVD32
RSVD33
RSVD34
RSVD35
RSVD36
AM3 =>DRAM Thermal Event Status
R104
1K/4/1
R105
1K/4/1
MB_EVENT_L
MA_EVENT_L
Layout: Route as 60 ohms
with 5/10 W/S from CPU pins.
DCLKB2
DCLKB2-
MODT_B3
DCLKB1
DCLKB1-
MODT_B1
B01P
B01N
DCLKB1
-DCLKB1
MODT_B1
AM3 only
EVENT pins are for future AM3r2
CPUVREF
40 MILS WIDTH
CPU_M_VREF
SR19
16.9/4/1
SR20
16.9/4/1
SBC12
SBC31
SC35
1U/6/X7R/16V/K
1N/4/X7R/50V/K
0.1u/4/X7R/16V/K
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Title
CPU CONTROL
Size
Custom
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GA-78LMT-S2PT
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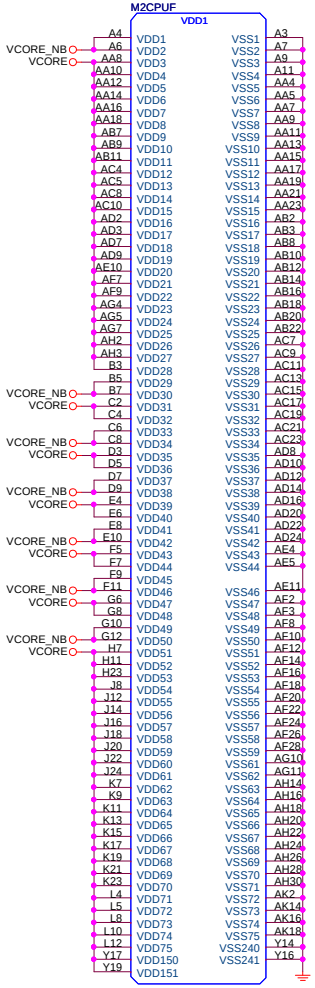
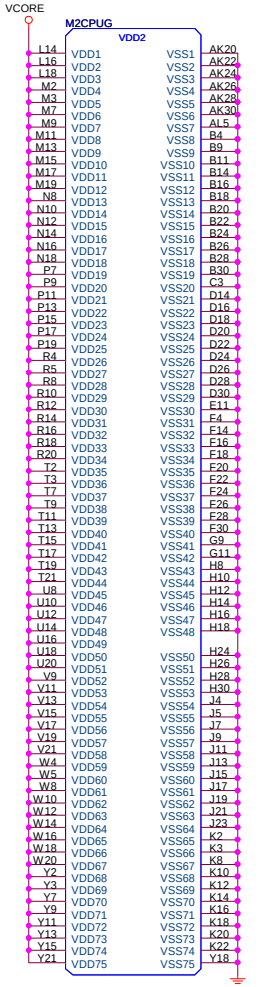
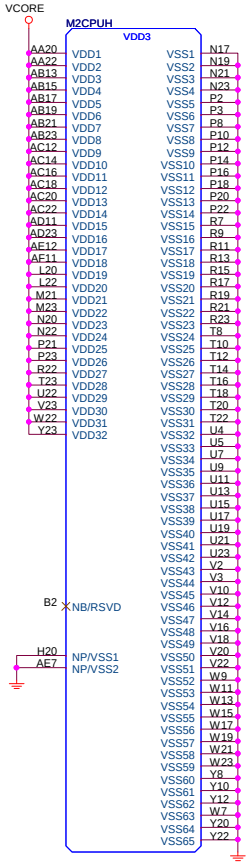
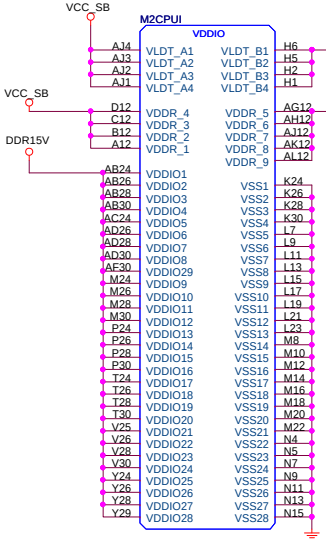
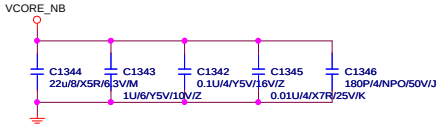
VLDT_RUN_B is connected to the VLDT_RUN power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.

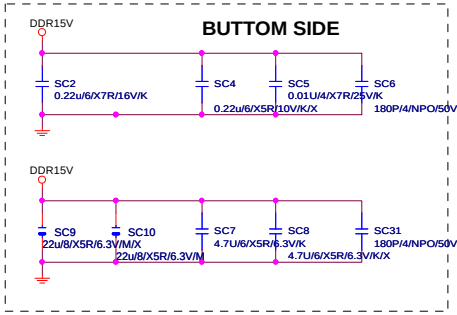


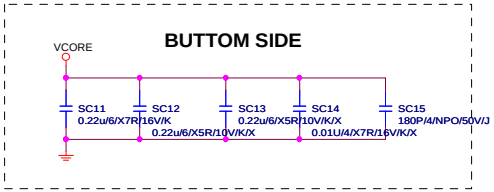


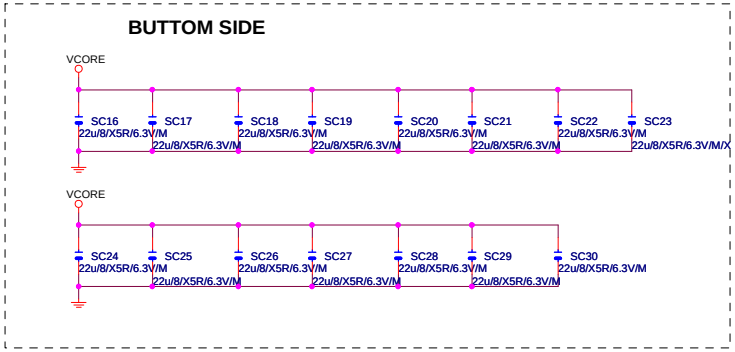


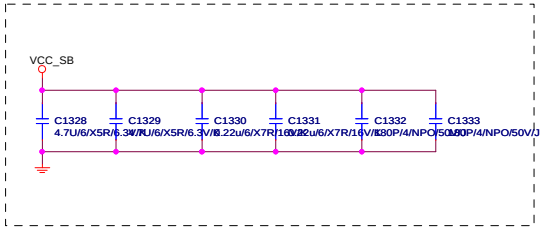


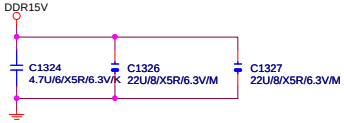


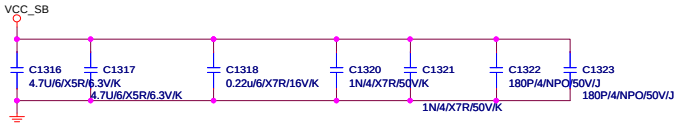


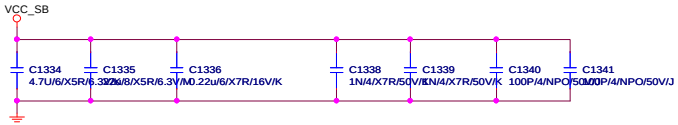


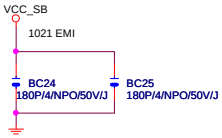












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Title	CPU POWER & GND	
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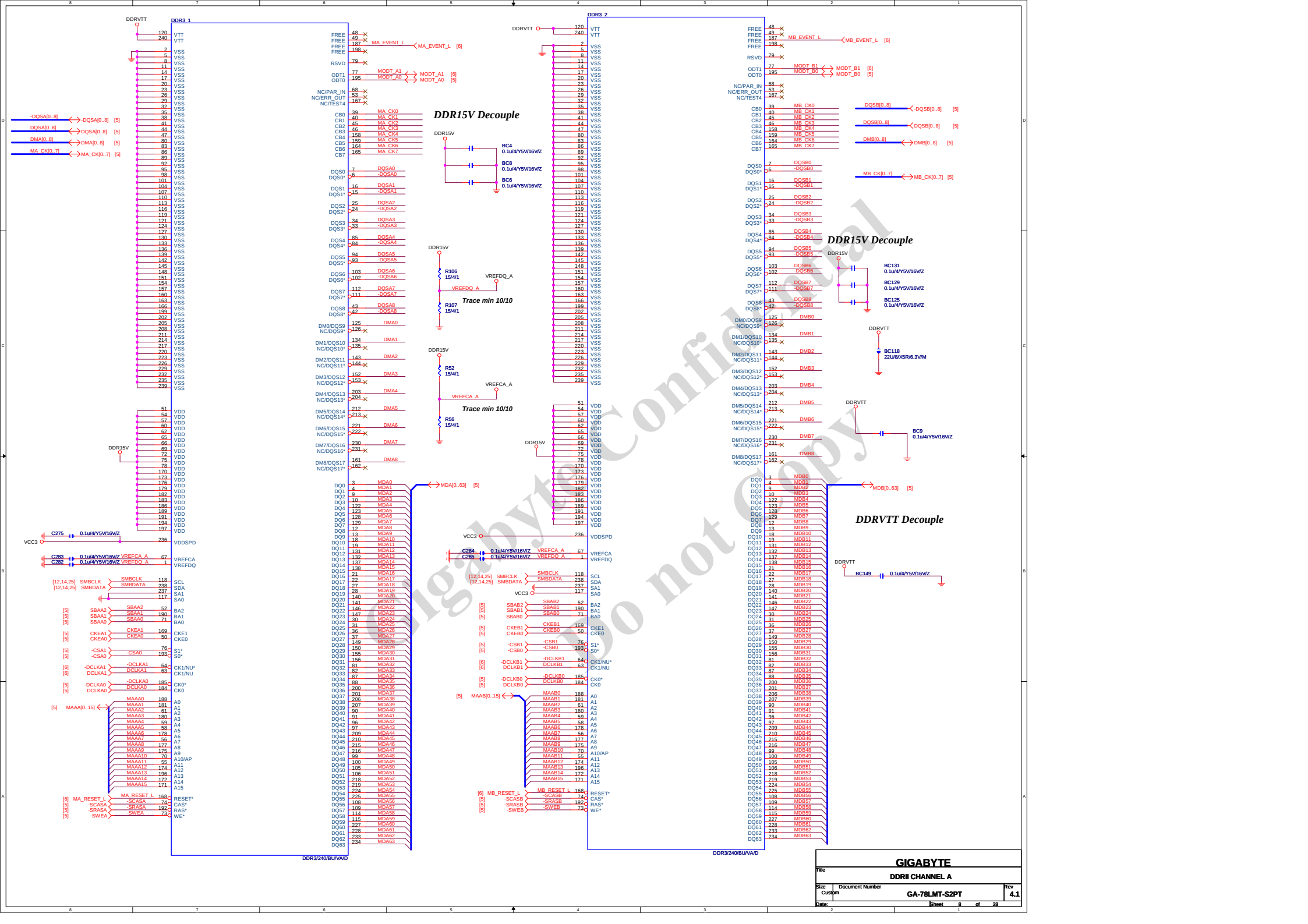

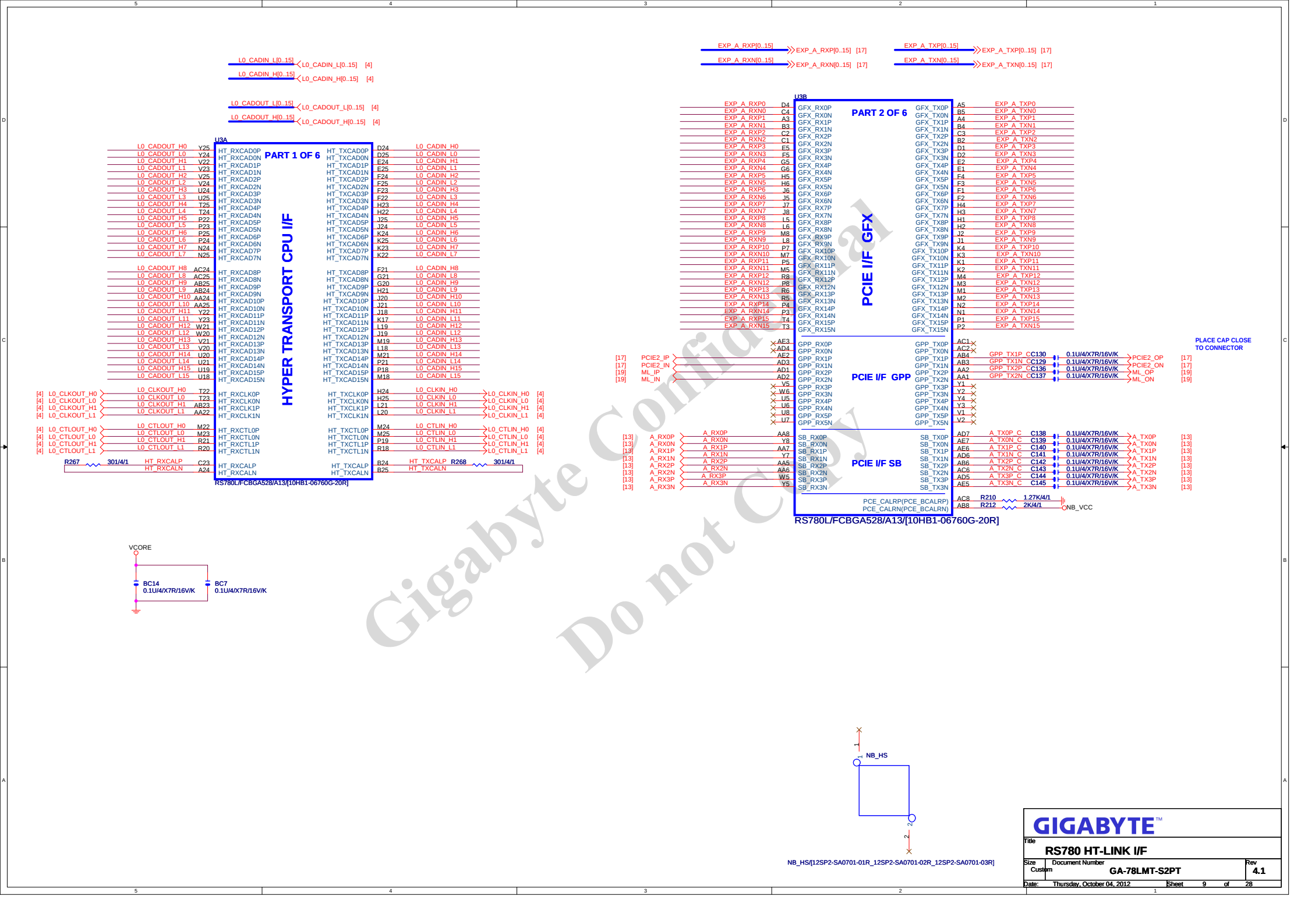

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Title	RS780 HT-LINK I/F	
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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RS740/RX780/RS780 STRAPS

Note: for RS780, change R232 to 150R as AUX_CAL, place close to pin C8

RS740_DFT_GPIO1 — R272 150/4/1

Note: for RX780, R217 (RX780_DFT_GPIO1) to 3K accordingly

[21] DAC_VSYNC — R276 3K/4/1 — VCC3

Note: for RX780, change following pull-down resistor to 3K accordingly

R912 (RX780_DFT_GPIO5)

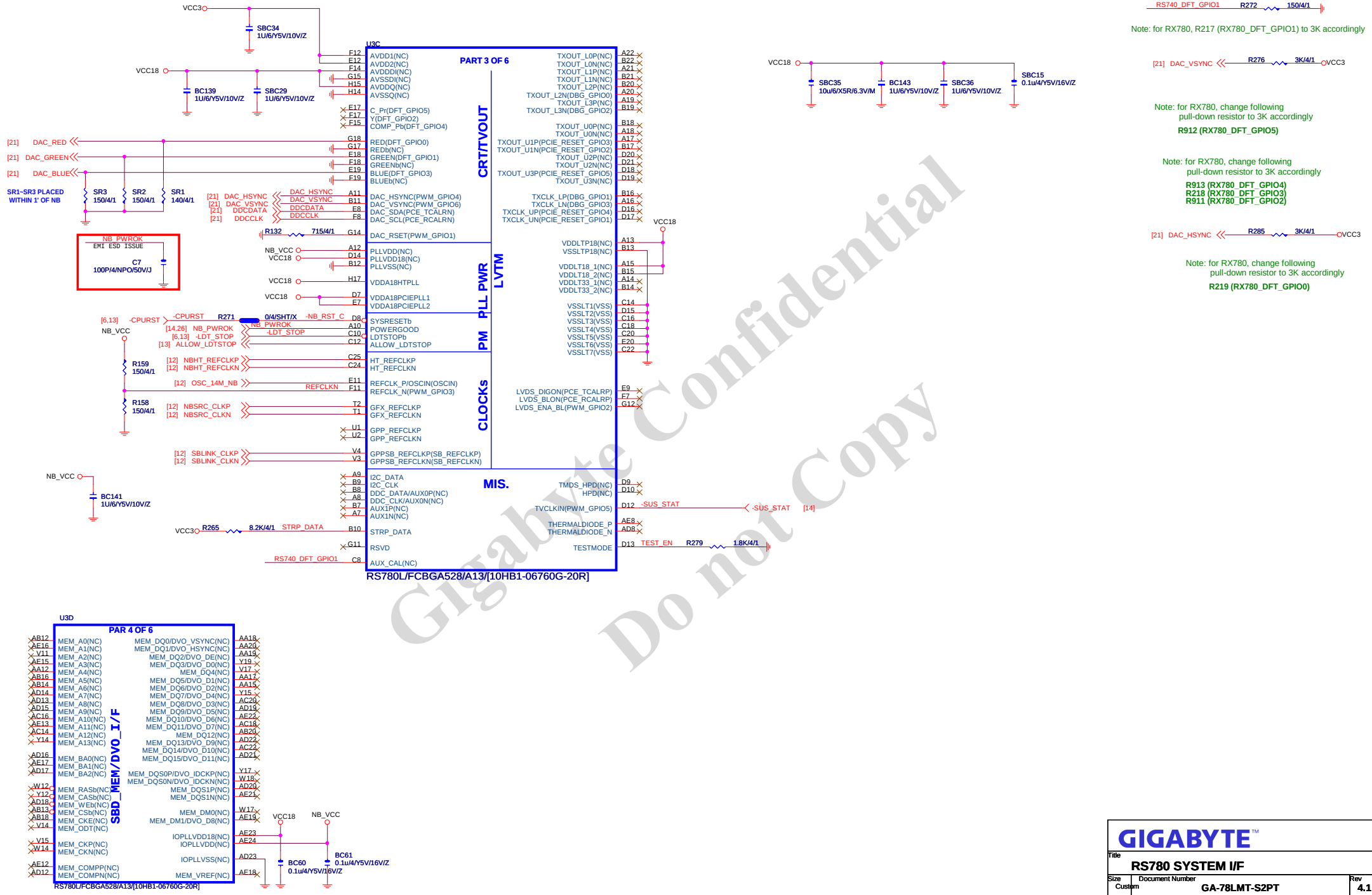
Note: for RX780, change following pull-down resistor to 3K accordingly

R913 (RX780_DFT_GPIO4)
R218 (RX780_DFT_GPIO3)
R911 (RX780_DFT_GPIO2)

[21] DAC_HSYNC — R285 3K/4/1 — VCC3

Note: for RX780, change following pull-down resistor to 3K accordingly

R219 (RX780_DFT_GPIO0)



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Title	RS780 SYSTEM I/F	
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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RS740/RX780/RS780 POWER DIFFERENCE TABLE

PIN NAME	RS740	RX780	RS780	PIN NAME	RS740	RX780	RS780
VDDHT	NC	+1.1V	+1.1V	IOPLLVDD	+1.2V	NC	+1.1V
VDDHTRX	NC	+1.1V	+1.1V	AVDD	+3.3V	NC	+3.3V
VDDHTTX	+1.2V	+1.2V	+1.2V	AVDDDI	+1.8V	NC	+1.8V
VDDA18PCIE	NC	+1.8V	+1.8V	AVDDQ	+1.8V	NC	+1.8V
VDD18	+1.8V	+1.8V	+1.8V	PLLVDD	+1.2V	NC	+1.1V
VDD18_MEM	NC	NC	+1.8V	PLLVDD18	+1.8V	NC	+1.8V
VDDPCIE	+1.2V	+1.1V	+1.1V	VDDA18PCIEPLL	+1.2V	+1.8V	+1.8V
VDDC	+1.2V	+1.1V	+1.1V	VDDA18HTPLL	+1.8V	+1.8V	+1.8V
VDD_MEM	+1.8V	NC	+1.8V(DDR2) +1.5V(DDR3)	VDDLTP18	+1.8V	NC	+1.8V
VDD33	+3.3V	NC	+3.3V	VDDLT18	+1.8V	NC	+1.8V
IOPLLVDD18	+1.8V	NC	+1.8V	VDDLT33	+3.3V	NC	NC

U3F — PART 6/6 — GROUND

RS780L/FCBGA528/A13/[10HB1-06760G-20R]

Please use 1mm pad size, place all ELT test pads on bottom side only

U3E — PART 5/6 — POWER

RS780L/FCBGA528/A13/[10HB1-06760G-20R]

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Title: RS780 POWER & GND

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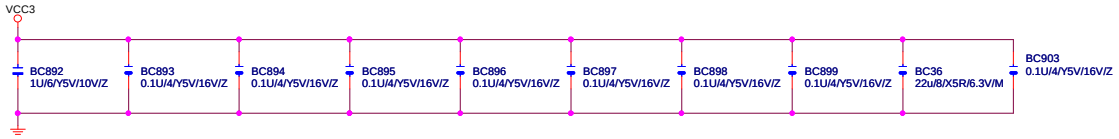


1- PLACE ALL THE SERIES TERMINATION RESISTORS AS CLOSE TO U800 AS POSSIBLE

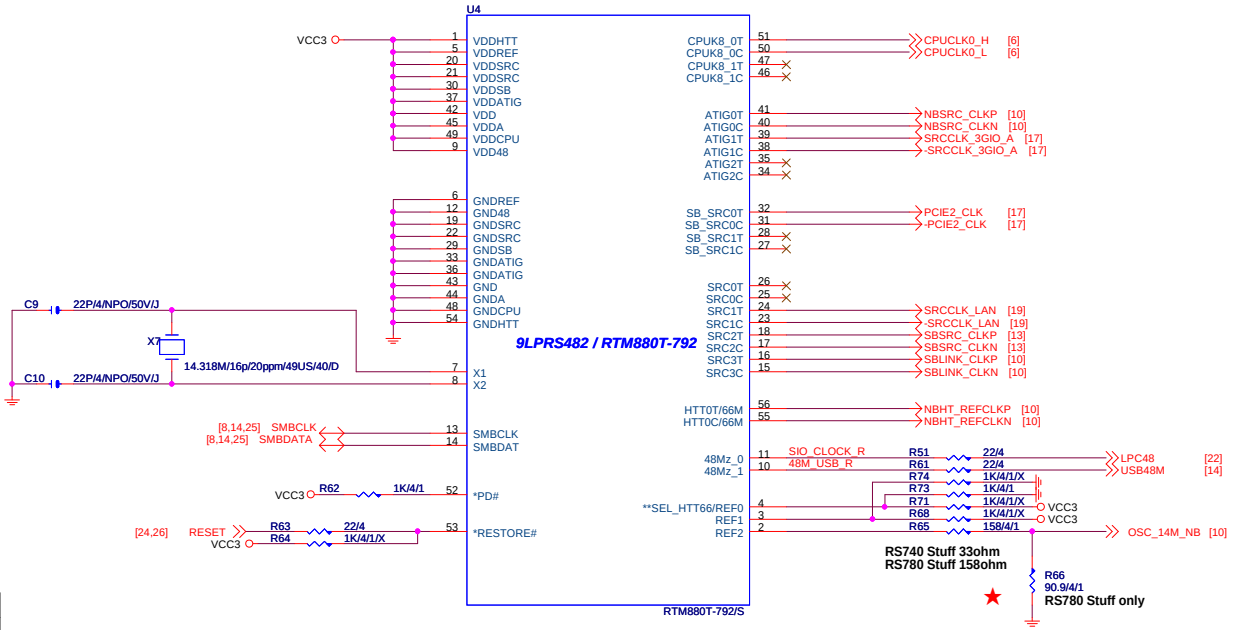
2- ROUTE ALL SRCCLKTx AND SRCCLKCx AS DIFFERENT PAIR RULE

3- PUT DECOUPLING CAPS CLOSE TO U800 POWER PIN

NB CLOCK INPUT TABLE

NB CLOCKS	RS740	RX780	RS780	
HT_REFCLKP	66M SE(SE)	100M DIFF	100M DIFF	
HT_REFCLKN	NC	100M DIFF	100M DIFF	
REFCLK_P	14M SE (3.3V)	14M SE (1.8V)	14M SE (1.1V)	100M DIFF
REFCLK_N	NC	NC	vref	100M DIFF
GFX_REFCLK*	100M DIFF	100M DIFF	100M DIFF	
GPP_REFCLK	NC	100M DIFF	100M DIFF(OUT)	
GPPSB_REFCLK	100M DIFF	100M DIFF	100M DIFF	

* the GFX_REFCLK input is required for all cases



watch dog --
RESTORE# 接 RESET

	OSC_14M_NB
RS740	3.3V 33R serial
RX780	1.8V 82.5R/130R
RS780 (Single-ended)	1.1V 158R/90.9R

**SEL_HTT66/REF0		OUT 3.3V 14.318MHz REF output.
IN	Low	100MHz differential HT clock, (Internal 120KΩ pull-down)
	High	66MHz 3.3V single ended HT clock.

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Title: ICS9LPRS485C

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PLACE THESE PCIE AC COUPLING CAPS CLOSE TO U600

S.B HEATSINK

SB_HS

SB_HS/[12SP2-030005-41R_12SP2-030005-42R_12SP2-030005-43R]

U2A

SB700

Part 1 of 5

SB710/FCBGA528/A14/[10HB1-06B710-11R]

PCI EXPRESS INTERFACE

PCI CLKS

PCI INTERFACE

CLOCK GENERATOR

RTC XTAL

LPC

CPU

RTC

Note: LDT_PG, LDT_STP# & LDT_RST# are OD and require a PU to the CPU I/O rail. They are also in the S5 domain to prevent glitching at power up.

X4

32.768K/12.5p/20ppm/TF38/35K/D

SHW/D0.64*5.08*6.74

	PCLK2	PCLK3
PULL HIGH	WATCHDOG TIMER ON NB_PWRGD ENABLED	USE DEBUG STRAPS
PULL LOW	WATCHDOG TIMER ON NB_PWRGD DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT

BIOS after boot setting
EC AOD-ACC

	LPC_CLK0	LPC_CLK1
PULL HIGH	IMC ENABLED AOD Extreme	CLKGEN ENABLED
PULL LOW	IMC DISABLED DEFAULT	CLKGEN DISABLED DEFAULT

20mil 20mil 20mil

BAT54C/SOT23/200mA

BATTERY CR2032

CLR_CMOS

PH/1*2/BK/2.54/VA/D

CLR_CMOS	
SHORT	CLEAR CMOS
OPEN	NORMAL

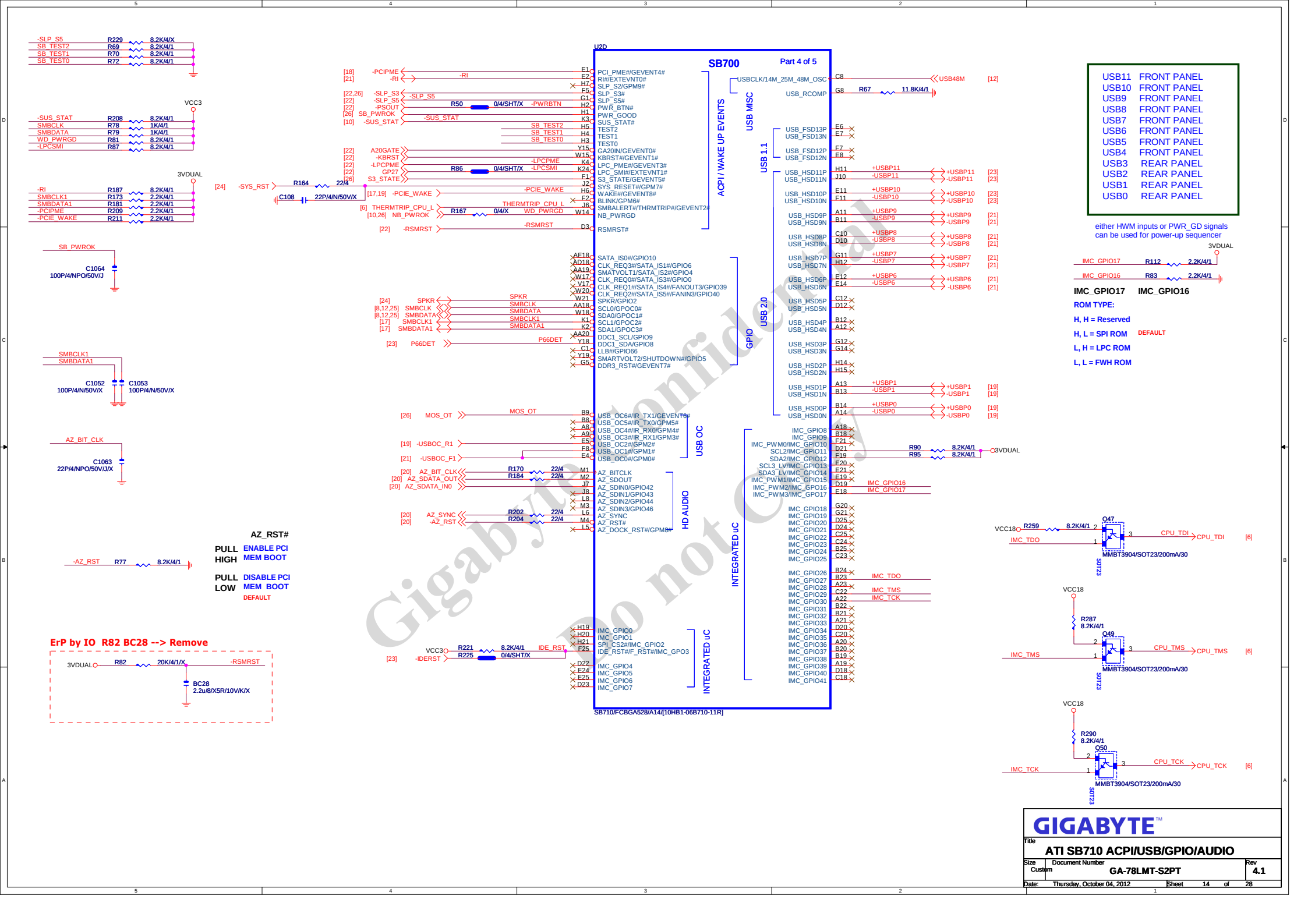
NOT ADD ICT FOR RTCVDD PIN

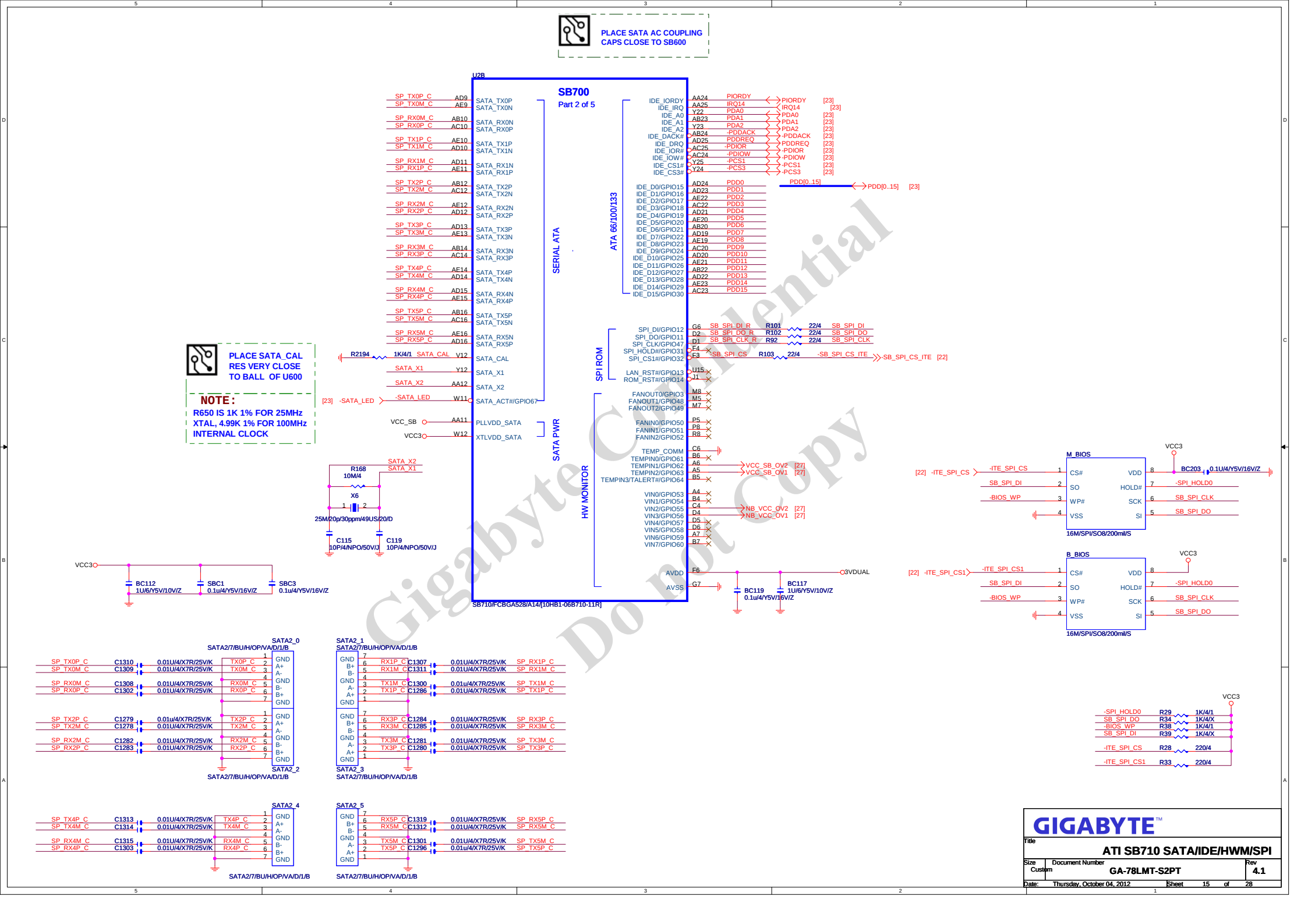
GIGABYTE

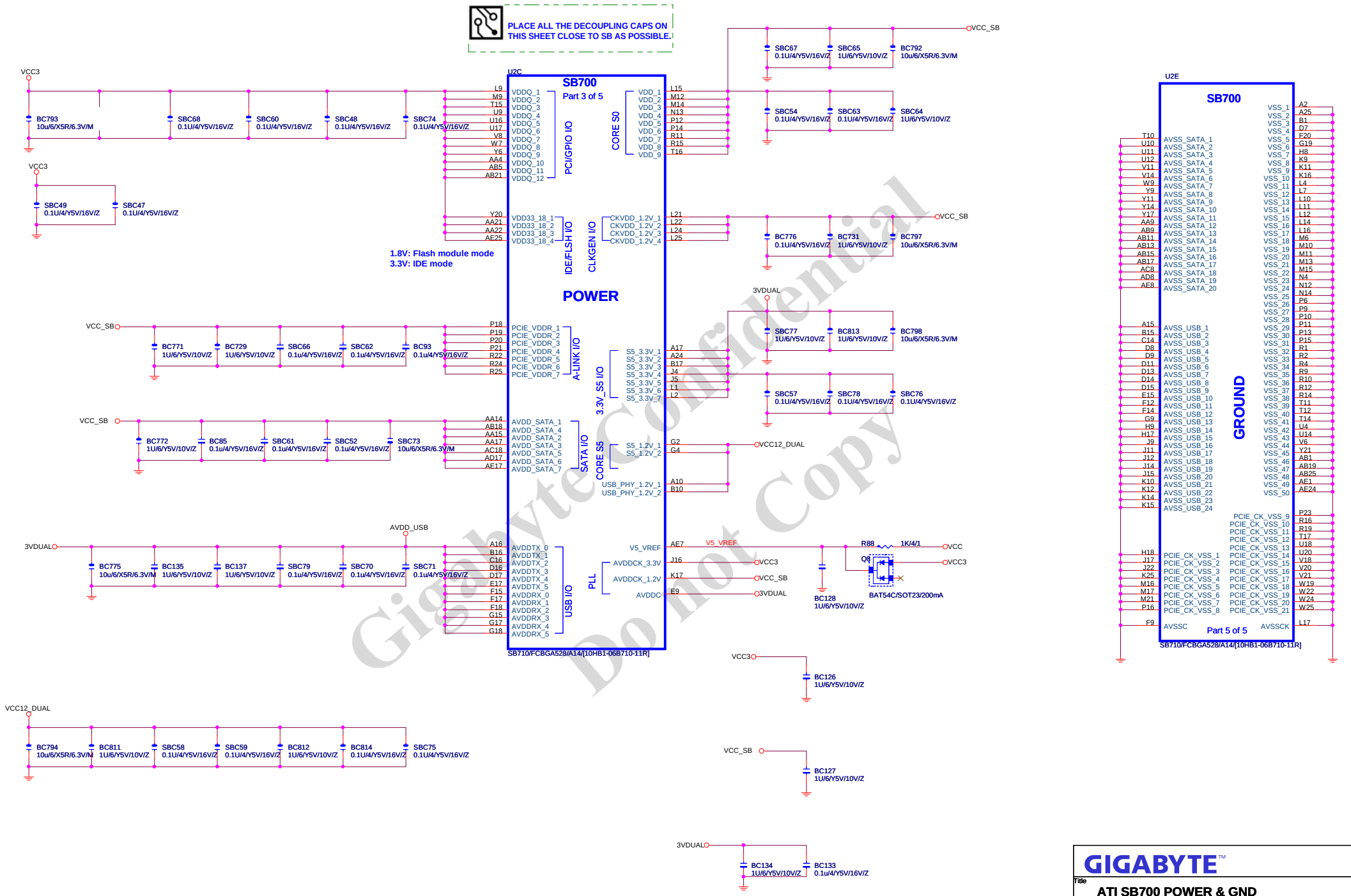
Title: ATI SB710 PCIE/PCI/CPU/LPC

Size: Custom | Document Number: GA-78LMT-S2PT | Rev: 4.1

Date: Thursday, October 04, 2012 | Sheet 13 of 28


SB700
Part 4 of 5
U2D
SB710/FCBGA528/A14/[10HB1-06B710-11R]
ACPI / WAKE UP EVENTS
USB MISC
USB 1.1
USB 2.0
GPIO
USB OC
HD AUDIO
INTEGRATED uC
USB11 FRONT PANEL
USB10 FRONT PANEL
USB9 FRONT PANEL
USB8 FRONT PANEL
USB7 FRONT PANEL
USB6 FRONT PANEL
USB5 FRONT PANEL
USB4 FRONT PANEL
USB3 REAR PANEL
USB2 REAR PANEL
USB1 REAR PANEL
USB0 REAR PANEL
either HWM inputs or PWR_GD signals can be used for power-up sequencer
IMC_GPIO17 IMC_GPIO16
ROM TYPE:
H, H = Reserved
H, L = SPI ROM DEFAULT
L, H = LPC ROM
L, L = FWH ROM
AZ_RST#
PULL HIGH ENABLE PCI MEM BOOT
PULL LOW DISABLE PCI MEM BOOT DEFAULT
ErP by IO R82 BC28 --> Remove
MMBT3904/SOT23/200mA/30
Gigabyte Confidential
Do not Copy
GIGABYTE
Title
ATI SB710 ACPI/USB/GPIO/AUDIO
Size Custom
Document Number GA-78LMT-S2PT
Rev 4.1
Date: Thursday, October 04, 2012
Sheet 14 of 28



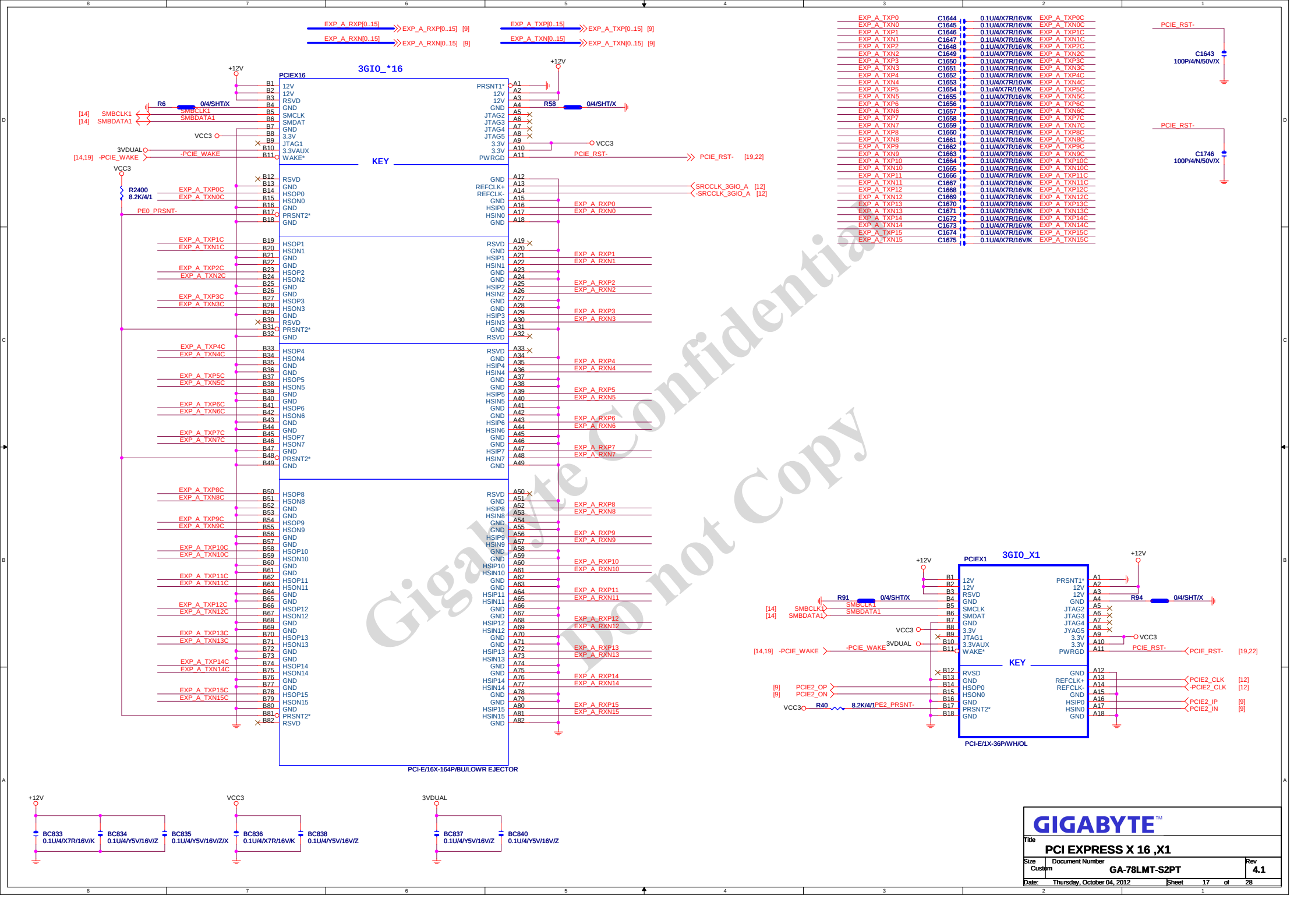


GIGABYTE™

Title: ATI SB700 POWER & GND

Size	Document Number	Rev
Custom	GA-78LMT-S2PT	4.1

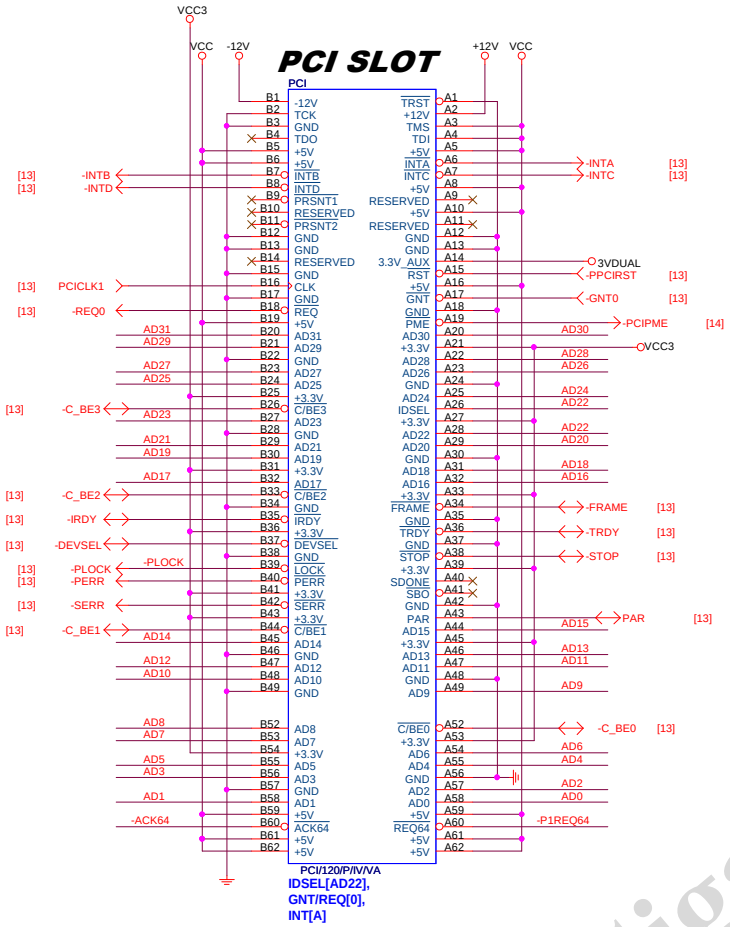
Date: Thursday, October 04, 2012 Sheet 16 of 28

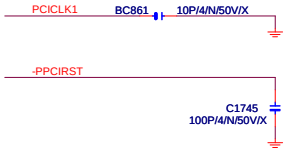


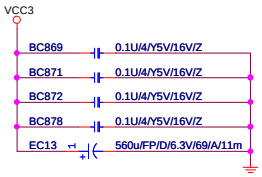
GIGABYTE™

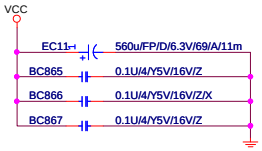
Title	PCI EXPRESS X 16 ,X1	
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
Date: Thursday, October 04, 2012	Sheet 17 of 28	

PCI SLOT 1,2

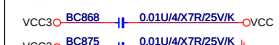




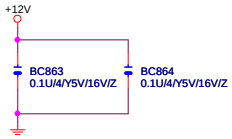


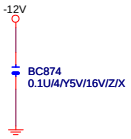


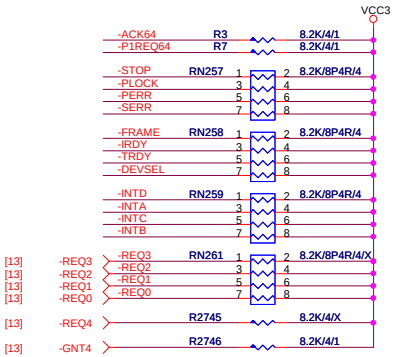
EMI, Oct.19,2010



BC875 to VCC3 ,Close to I/O
78LMT-S2PT change







GIGABYTE™

Title	PCI SLOT 1,2	
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1
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LAN:AR8151/AR8161

離IC近越好

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

[12] -SRCCLK_LAN
[12] SRCCLK_LAN
[9] ML_OP
[9] ML_ON

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
AR8161-->N/A (LABC6)

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

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

LAU1

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

3VDUAL
LAC33 100p/4/NPO/50V/J/X
LAR6 8.2K/4/1
[17,22] PCIE_RST-
[14,17] -PCIE_WAKE

AR8161-->N/A (LABC12)
LABC12 1u/4/X5R/6.3V/K/X

Atheros
AR8151/AR8161
AR8161-BL3A-R/QFN40/[10HP2-408161-10R]

LA_VDD33
LA_-CLKREQ
LA_VDDCT
LA_AVDDL
LA_XTALO
LA_XTALI
LA_AVDDH
LA_RBIAS

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
LAR10 2.37K/4/1

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_IN_C LAC13 0.1u/4/X7R/16V/K
ML_IP
ML_IN
[9]
[9]

LAR9 0/4/X
LABC14 0.1u/4/X7R/16V/K
AR8161-->N/A (LAR9,LABC14)

LA_PPS
LA_LED_LINK1000
LA_AVDDH
LA_MDI3-
LABC17 0.1u/4/X7R/16V/K

LAX1 25M/20p/30ppm/49US/20/D
LA_XTALI
LA_XTALO
LAC31 27p/4/NPO/50V/J
LAC32 27p/4/NPO/50V/J

LABC20 0.1u/4/X7R/16V/K/X
AR8161-->N/A (LABC20)
LABC21 0.1u/4/X7R/16V/K

LAR19 0/4/SHT/M/X
LAR20 0/4/X
3VDUAL
LA_AVDDH
AR8151:LA_AVDDH(LAR20)
AR8161:3VDUAL(LAR19)
LABC22 1u/4/X5R/6.3V/K

SCH BOM OPT:(二擇一使用)
-->(LAC30):M/B有CLK GEN 25M
-->(LAX1,LAC31,LAC32):M/B無CLK GEN 25M

EMI 20080103
GNDR2 0/6/SHT/X
SR4

LAN POWER

NEW DESIGN ONLY FOR INTERNAL SWR
AR8151:LAR3(0),LAR5(X)
AR8161:LAR5(0),LAR3/LAR4(X)

EMI Request
Put on LAR4

LA_LX_OUT
LAESD2
AZ2225-01L/SOD323/X

LAL1 4.7uH/1A/[10LC4-5A470B-01R_10LI5-12470B-01R]
LA_LX_OUT
LA_LX
CLOSE
LA_LX 200mil
LABC1 10u/6/X5R/6.3V/M
LABC2 0.1u/4/X7R/16V/K

LA_VDDCT
LAR3 0/4/X
AR8161-->N/A (LAR3,LAR4)
LA_AVDD_CEN
LAR4 0/4/X

AR8151 POWER

LA_DVDDL
LA_AVDDL
LA_AVDDVCO
LAR5 0/6/SHT/M/X
AR8161-->(O)
LAFB2 0/6/SHT/M/X
AR8161-->BEAD
AR8151-->N/A
LAFB3 0/6/SHT/M/X
AR8161-->BEAD
AR8151-->0/6

AR8161 POWER

AR8161-->(O)
LA_AVDDH
LAR7 8.2K/4/1
LA_LED_ACT_TXRX
LA_LED_LINK100
LAR8 8.2K/4/1

AR8161-->(O)
VCC3
LAR1 30K/4/1
LAR2 0/4/SHT/M/X
LA_VDDCT
N_ISOLATEB [22]

Power domain chart

	AR8151	AR8161
AVDD33	N/A	3.3V
VDD33	3.3V	3.3V
AVDDH	2.7V	2.7V
AVDDL/DVDDL	1.1V	1.1V
VDDCT	1.7V	

MDI : AR8161-->N/A

LA_MDI0+ LA_MDI0-
LAR11 49.9/4/1/X
LAR12 49.9/4/1/X
LA_MDI_RC0
LAC26 0.1u/4/X7R/16V/K/X

LA_MDI1+ LA_MDI1-
LAR13 49.9/4/1/X
LAR14 49.9/4/1/X
LA_MDI_RC1
LAC27 0.1u/4/X7R/16V/K/X

LA_MDI2+ LA_MDI2-
LAR15 49.9/4/1/X
LAR16 49.9/4/1/X
LA_MDI_RC2
LAC28 0.1u/4/X7R/16V/K/X

LA_MDI3+ LA_MDI3-
LAR17 49.9/4/1/X
LAR18 49.9/4/1/X
LA_MDI_RC3
LAC29 0.1u/4/X7R/16V/K/X

CLOSE LAN CHIP

USB_LAN CONNECTOR

3VDUAL
LFB4 0/6/SHT/X
LABC23 0.1u/4/X7R/16V/K
LA_AVDD_CEN
USB_LAN
LA_MDI0+
LA_MDI0-
LA_MDI1+
LA_MDI1-
LA_MDI2+
LA_MDI2-
LA_MDI3+
LA_MDI3-
GND_L10
LABC25 0/4/SHT/M/X
UP
DOWN
USB+LAN/1G/GO,Y/OS/RA/D/8C/[11NR6-702009-0ER]

D1 LA_LED_ACT_TXRX
D2 LA_LED_D2 LR13 150/4/1 LAN_3VDUAL_LED
D3 LA_LED_LINK100 LR21 150/4/1
D4 LA_LED_LINK1000 LR22 150/4/1
LBC33 0.1U/4/Y5V/25V/Z/X

U1 U2 -USBP0 U3 +USBP0 U4 U5 U6 -USBP1 U7 +USBP1 U8
[14] -USBP0 +USBP0 [14]
[14] -USBP1 +USBP1 [14]
FUSEVCC
LBC26 0.1U/4/Y5V/25V/Z/X
LBC29 0.1U/4/Y5V/25V/Z/X

FUSEVCC
LEC4 560u/FP/D/6.3V/69/A/11m

EC要靠近USB_PORT的FUSEVCC

LAESD1
LA_LED_LINK100
LA_LED_LINK1000
LA_LED_ACT_TXRX
LAN_3VDUAL_LED
LA_LED_D2
AOZ8902CIL/SOT23-6

ESD1
-USBP0
+USBP0
-USBP1
FUSEVCC
+USBP1
AOZ8902CIL/SOT23-6

5VDUAL F6 SMD1812P260/6V FUSEVCC

FUSEVCC R3161 150K/4 -USBOC_R1 [14]
R3162 270K/4

EMI
GNDR1 0/6/SHT/X
LR28

GIGABYTE

Title	ATHEROS AR8161 /AR8151		
Size: Custom	Document Number: GA-78LMT-S2PT		Rev: 4.1
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AZALIA CODEC *ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay*

	ALC662	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR26	X	X	O	O	X
CR27	X	X	X	X	0.1u/4
CBC42	O	O	X	X	O
CR32/CBC20	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR31	X	O	O	O	O
CR30	O	X	X	X	X
CR19	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR2	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC9/CBC14	N/A	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	22K/4	10K/4	10K/4
CR59/CR60/CR61/ CR62/CR63/CR64	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	O	X	X	O
CD1/CD2/CD3/CQ3	X	X	O	O	X

LINE OUT FRONT OUT

LINE-IN

MIC

CR2:20K/4/1% @ Realtek codec
CR2:20K/4/1% CBC9:100P@ VIA codec

next Rev : change to 10uF

ALC880/CMI9880

CU1

ALC887-VD2-CG/LQFP48/S

CBC14:100P VT1708S

Can Support Amp Out

INTEL FRONT AUDIO

USB_LAN

USB

CODEC POWER/EMI PAD

UR6 0.01U/4/X7R/25V/K between Audio & Lan

Realtek recommand for AP Put on Codec Bottom side

SR5

AUDIO

BLUE LINE-IN

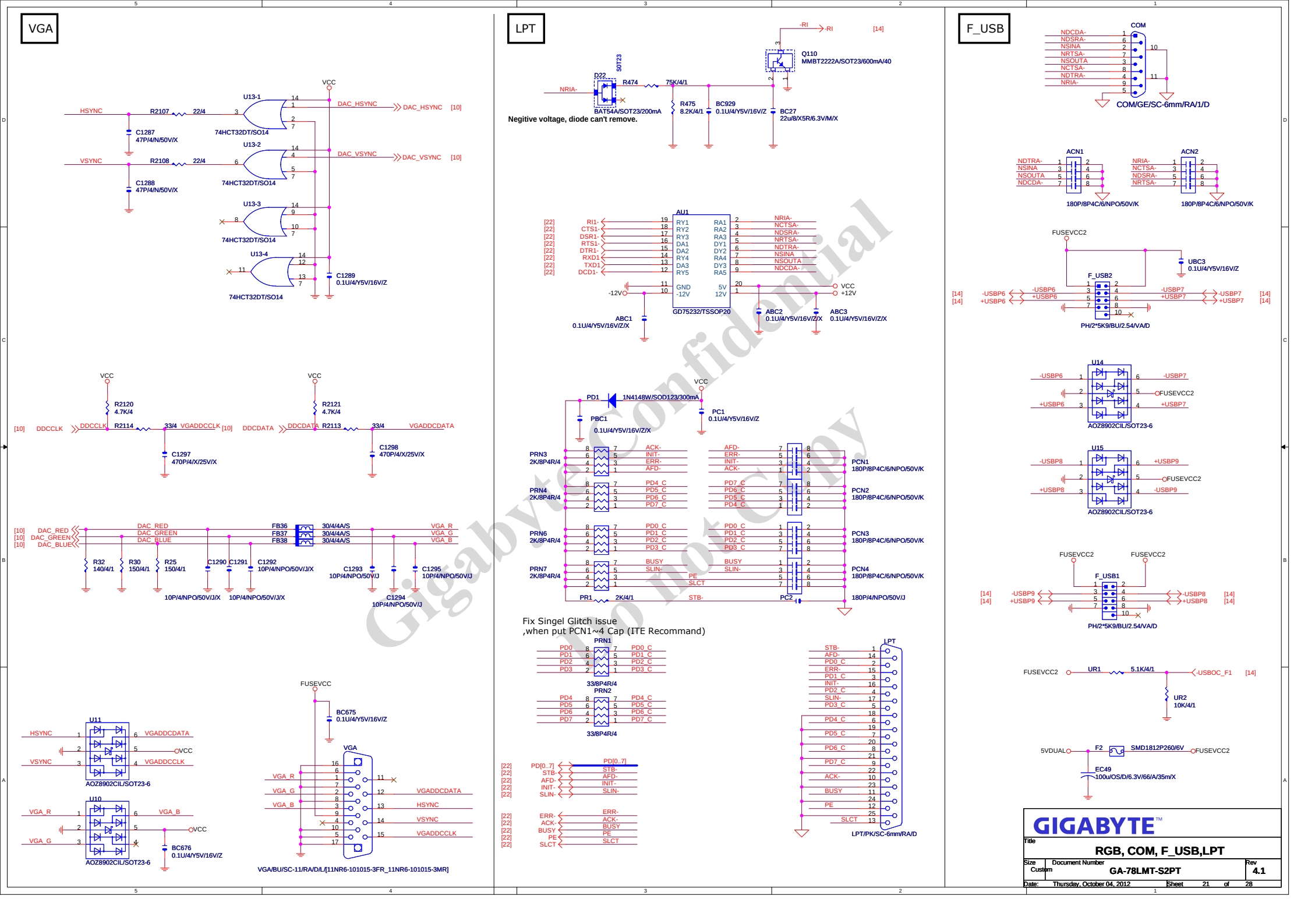
GREEN LINE-OUT

PINK MIC-IN

A3RP/13P/BL,LI,PK/RA/D/1/B

SSOP6-1

GIGABYTE			
Title	ALC888B CODEC		
Size: Custom	Document Number: GA-78LMT-S2PT	Rev: 4.1	
Date: Thursday, October 04, 2012	Sheet 20 of 28		


VGA
LPT
F_USB
HSYNC
VSYNC
R2107
R2108
22/4
C1287
47P/4/N/50V/X
C1288
47P/4/N/50V/X
U13-1
U13-2
U13-3
U13-4
74HCT32DT/SO14
VCC
DAC_HSYNC
DAC_VSYNC
[10]
C1289
0.1U/4/Y5V/16V/Z
R2120
4.7K/4
R2121
4.7K/4
DDCCLK
DDCDATA
R2114
R2113
33/4
VGADDCCLK
VGADDCDATA
C1297
470P/4/X/25V/X
C1298
470P/4/X/25V/X
DAC_RED
DAC_GREEN
DAC_BLUE
FB36
FB37
FB38
30/4/4A/S
VGA_R
VGA_G
VGA_B
R32
140/4/1
R30
150/4/1
R25
150/4/1
C1290
C1291
C1292
10P/4/NPO/50V/J/X
C1293
10P/4/NPO/50V/J
C1294
10P/4/NPO/50V/J
C1295
10P/4/NPO/50V/J
U11
U10
AOZ8902CIL/SOT23-6
BC676
0.1U/4/Y5V/16V/Z
FUSEVCC
BC675
0.1U/4/Y5V/16V/Z
VGA
VGA/BU/SC-11/RA/D/L/[11NR6-101015-3FR_11NR6-101015-3MR]
-RI
[14]
Q110
MMBT2222A/SOT23/600mA/40
SOT23
D22
NRIA-
R474
75K/4/1
BAT54A/SOT23/200mA
Negitive voltage, diode can't remove.
R475
8.2K/4/1
BC929
0.1U/4/Y5V/16V/Z
BC27
22u/8/X5R/6.3V/M/X
AU1
RI1-
CTS1-
DSR1-
RTS1-
DTR1-
RXD1
TXD1
DCD1-
GD75232/TSSOP20
-12V
ABC1
0.1U/4/Y5V/16V/Z/X
ABC2
0.1U/4/Y5V/16V/Z/X
ABC3
0.1U/4/Y5V/16V/Z/X
PD1
1N4148W/SOD123/300mA
PBC1
0.1U/4/Y5V/16V/Z/X
PC1
0.1U/4/Y5V/16V/Z
PRN3
2K/8P4R/4
PRN4
2K/8P4R/4
PRN6
2K/8P4R/4
PRN7
2K/8P4R/4
PR1
2K/4/1
ACK-
INIT-
ERR-
AFD-
PD4_C
PD5_C
PD6_C
PD7_C
PD0_C
PD1_C
PD2_C
PD3_C
BUSY
SLIN-
PE
SLCT
STB-
PCN1
PCN2
PCN3
PCN4
PC2
180P/8P4C/6/NPO/50V/K
180P/4/NPO/50V/J
Fix Singel Glitch issue
,when put PCN1~4 Cap (ITE Recommand)
PRN1
PRN2
33/8P4R/4
LPT
LPT/PK/SC-6mm/RA/D
COM
NDCDA-
NDSRA-
NSINA
NRTSA-
NSOUTA
NCTSA-
NDTRA-
NRIA-
COM/GE/SC-6mm/RA/1/D
ACN1
ACN2
180P/8P4C/6/NPO/50V/K
FUSEVCC2
UBC3
0.1U/4/Y5V/16V/Z
F_USB2
-USBP6
+USBP6
-USBP7
+USBP7
PH/2*5K9/BU/2.54/VA/D
U14
AOZ8902CIL/SOT23-6
U15
F_USB1
UR1
5.1K/4/1
-USBOC_F1
UR2
10K/4/1
5VDUAL
F2
SMD1812P260/6V
EC49
100u/OS/D/6.3V/66/A/35m/X
GIGABYTE
RGB, COM, F_USB,LPT
Custom
GA-78LMT-S2PT
4.1
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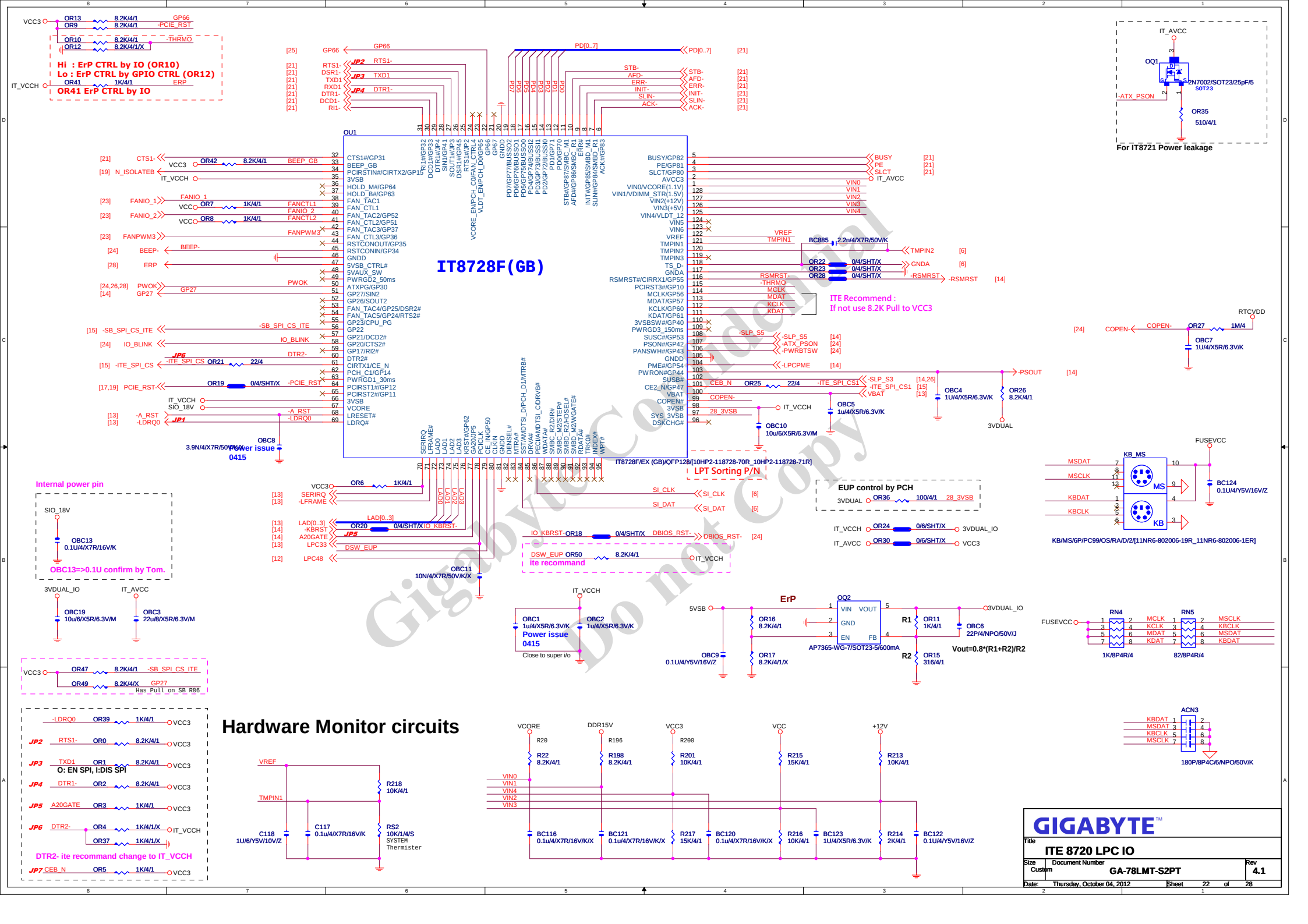
IT8728F(GB)
Hi : ErP CTRL by IO (OR10)
Lo : ErP CTRL by GPIO CTRL (OR12)
OR41 ErP CTRL by IO
For IT8721 Power leakage
ITE Recommend :
If not use 8.2K Pull to VCC3
Power issue
0415
LPT Sorting P/N
Internal power pin
OBC13=>0.1U confirm by Tom.
EUP control by PCH
ErP
AP7365-WG-7/SOT23-5/600mA
Vout=0.8*(R1+R2)/R2
Power issue
0415
Close to super i/o
Has Pull on SB R86
O: EN SPI, I:DIS SPI
DTR2- ite recommand change to IT_VCCH
Hardware Monitor circuits
Thermister
KB/MS/6P/PC99/OS/RA/D/2/[11NR6-802006-19R_11NR6-802006-1ER]
180P/8P4C/6/NPO/50V/K
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ITE 8720 LPC IO
GA-78LMT-S2PT
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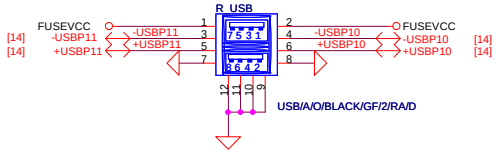
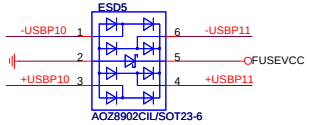
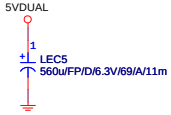
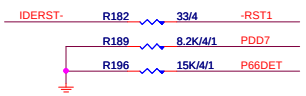
R_USB

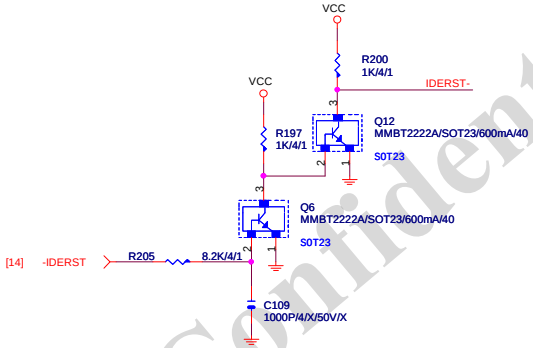


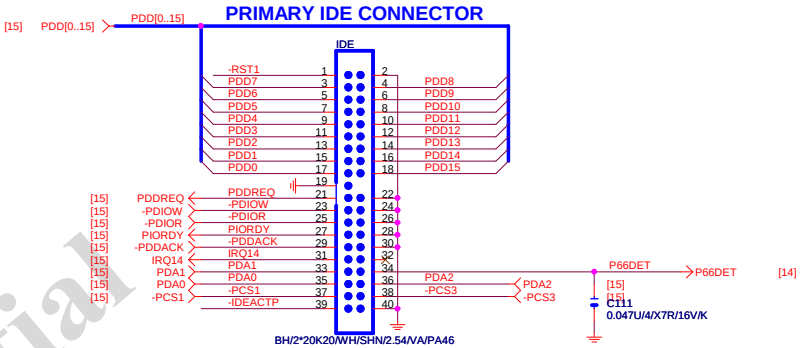


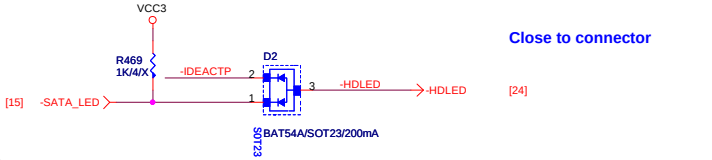


IDE

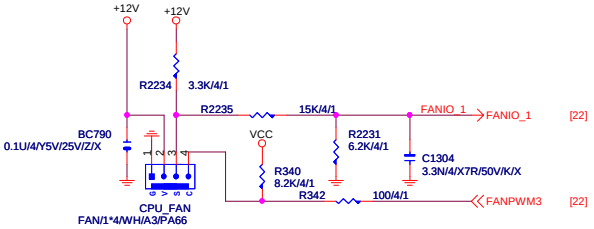








CPU_FAN



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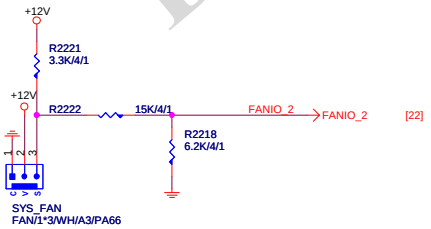

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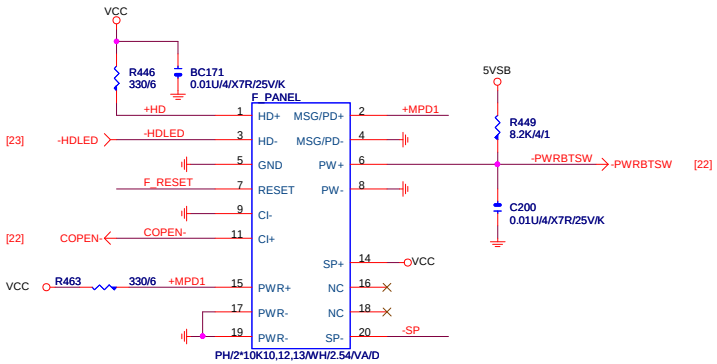
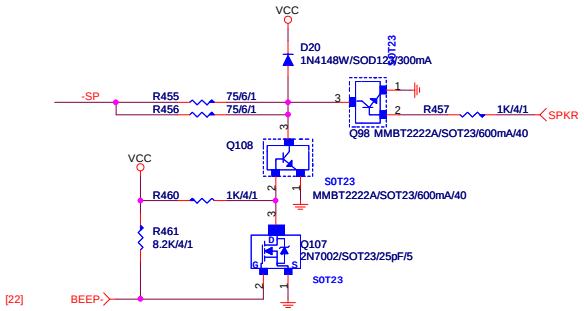
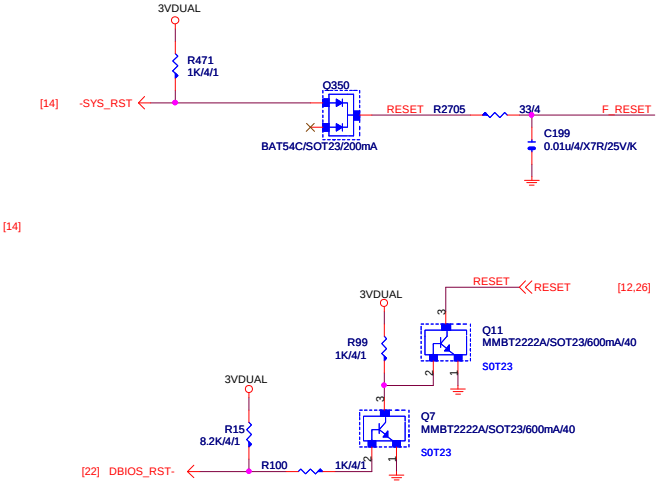
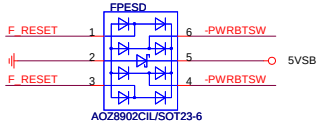
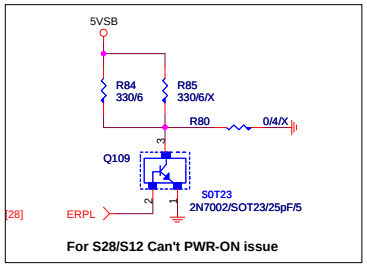
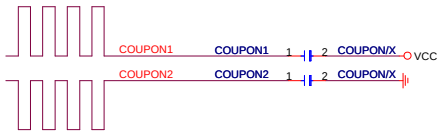




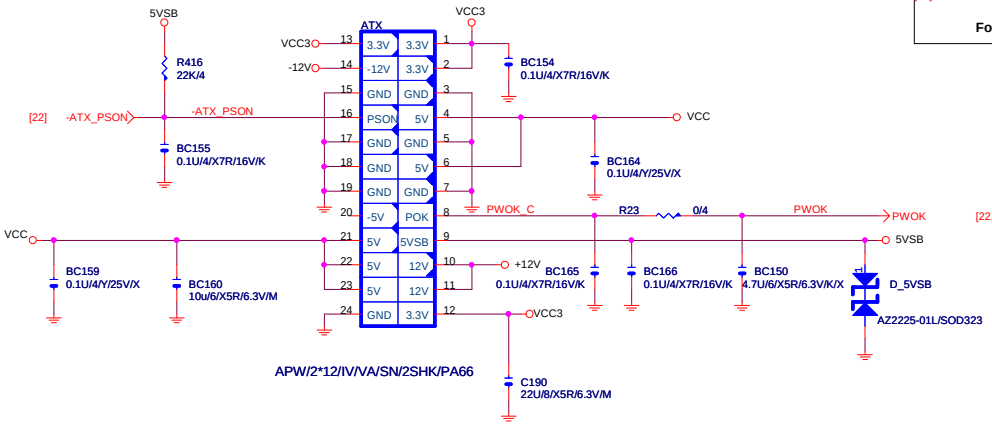


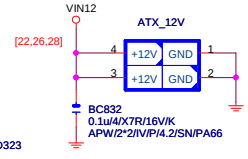


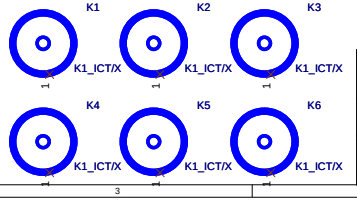


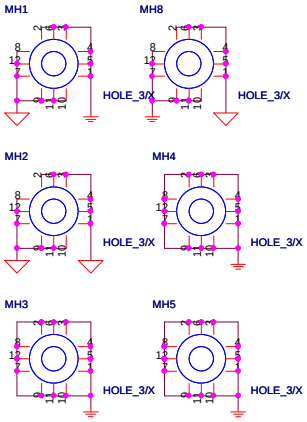


ATX POWER CONNECTOR









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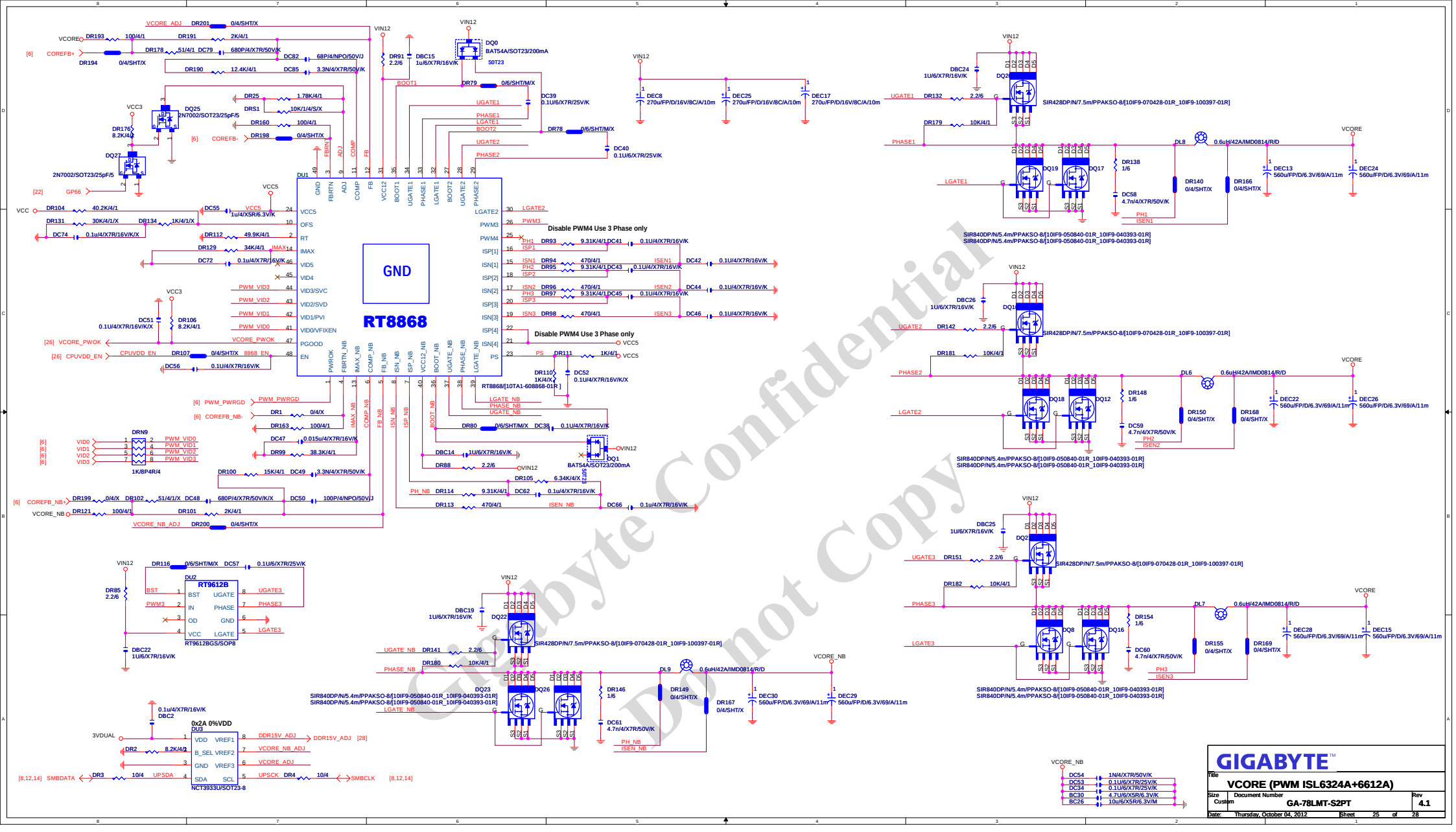
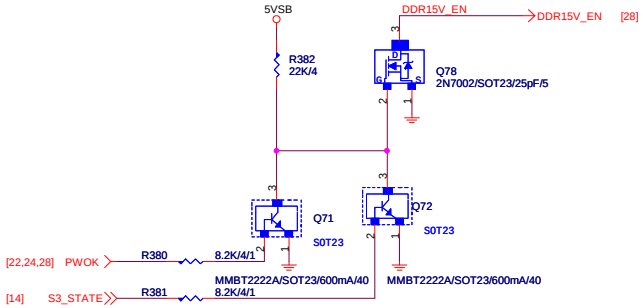
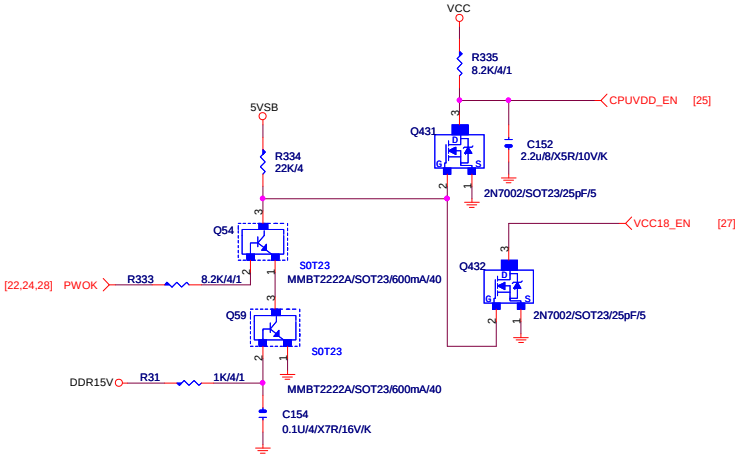
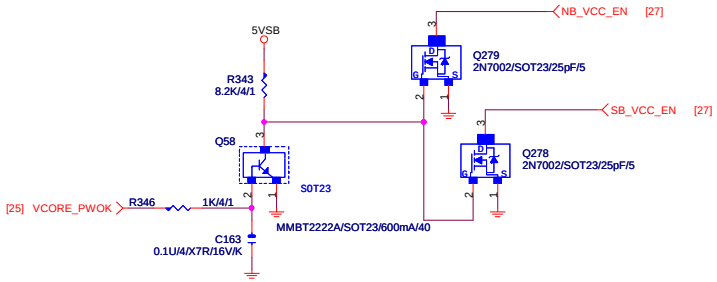
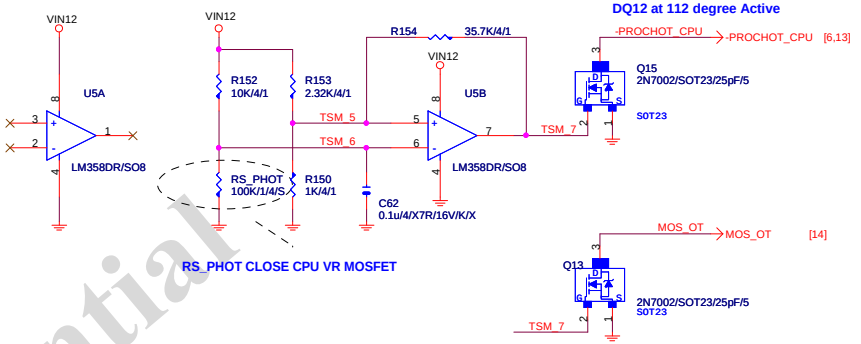


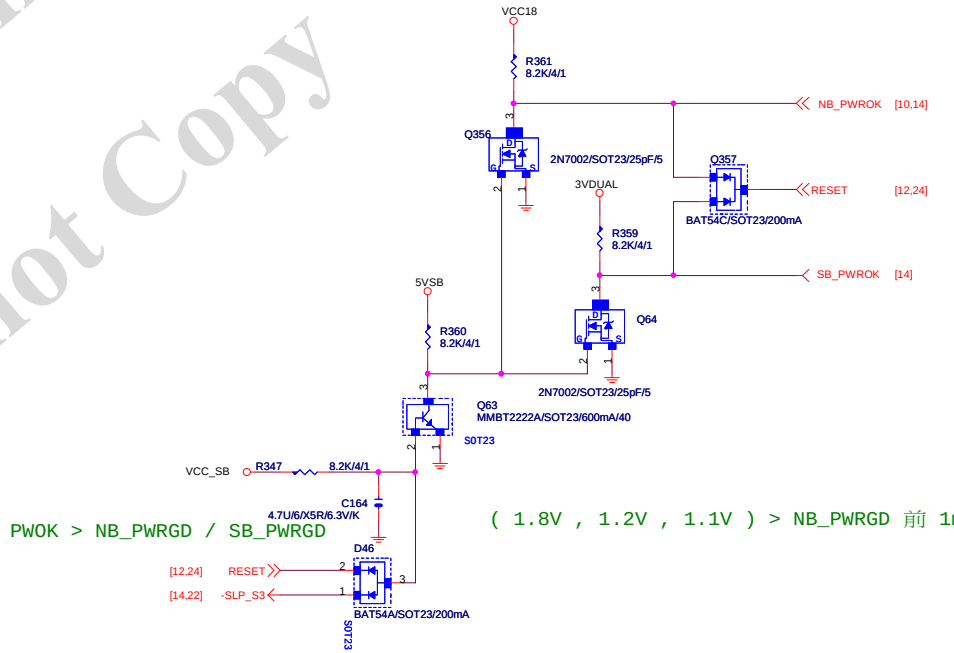






MOSFETHOT Protect





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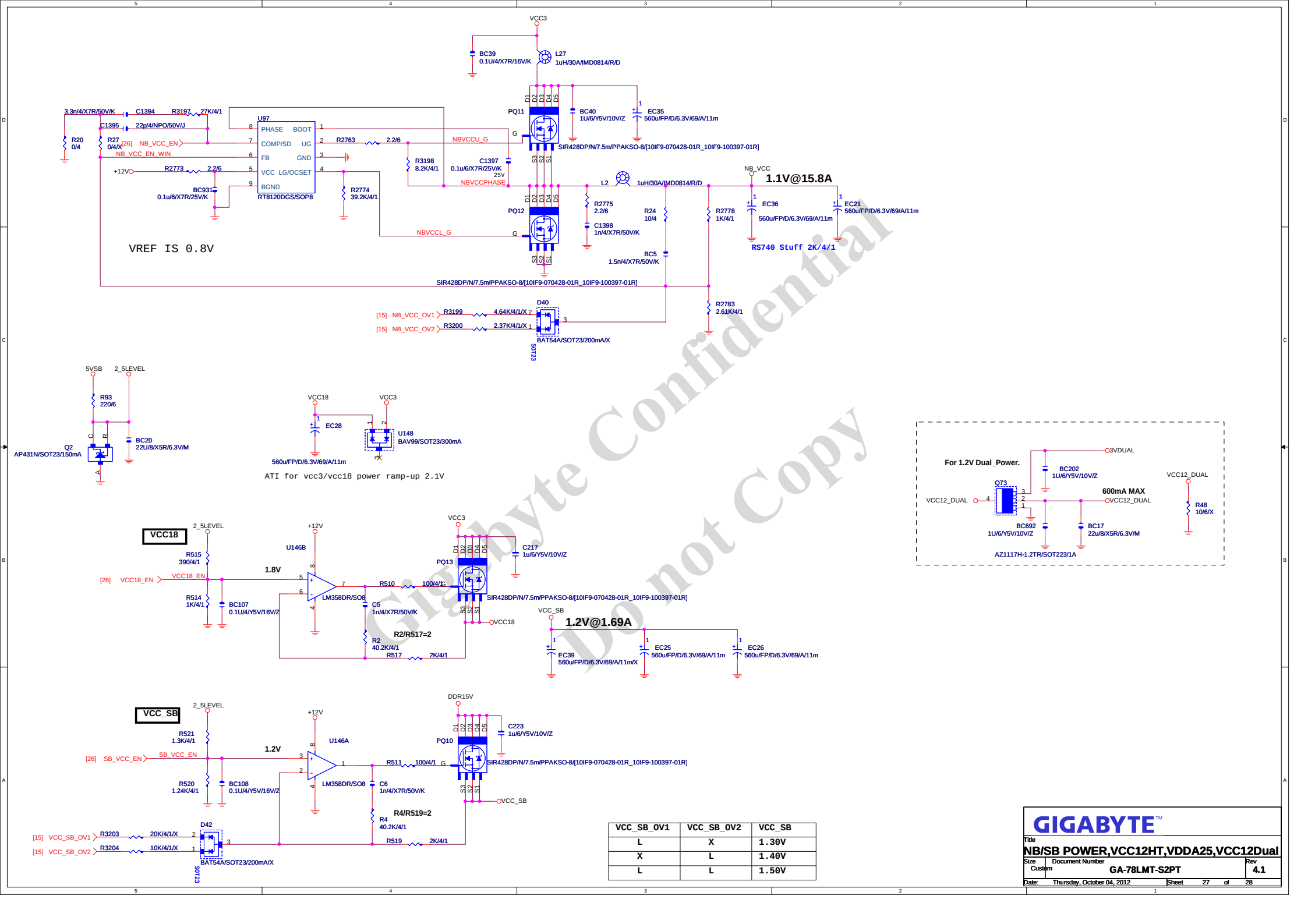

VCC_SB_OV1	VCC_SB_OV2	VCC_SB
L	X	1.30V
X	L	1.40V
L	L	1.50V

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Title: NB/SB POWER,VCC12HT,VDDA25,VCC12Dual

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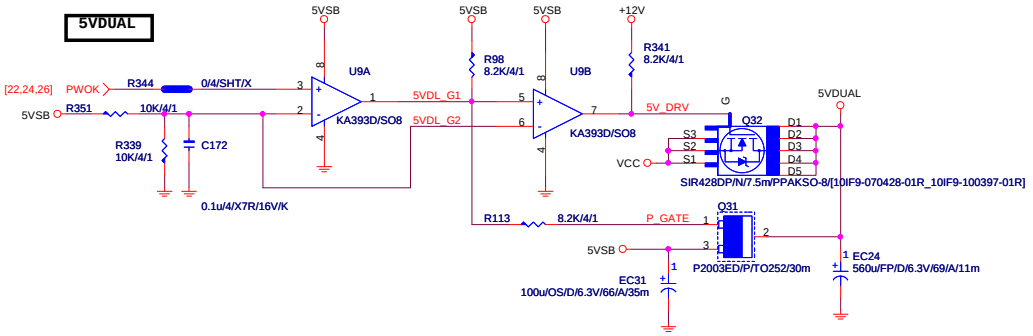
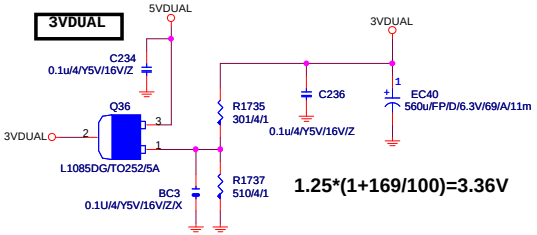
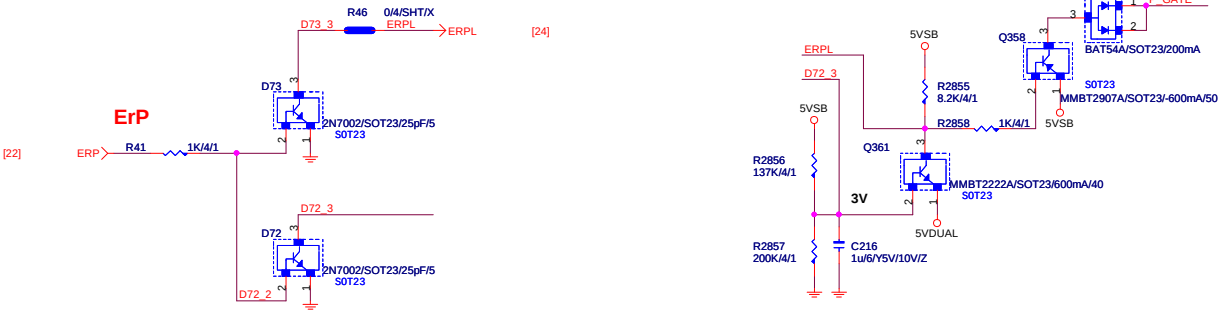
5VDUAL

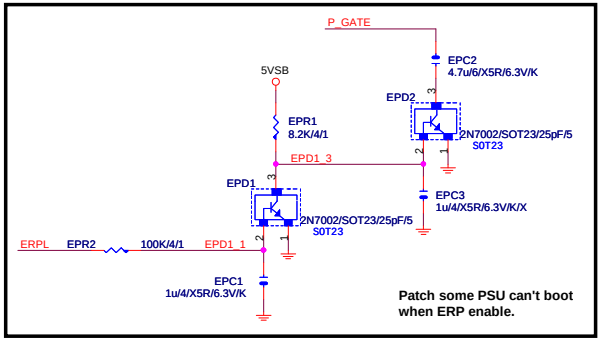


3VDUAL



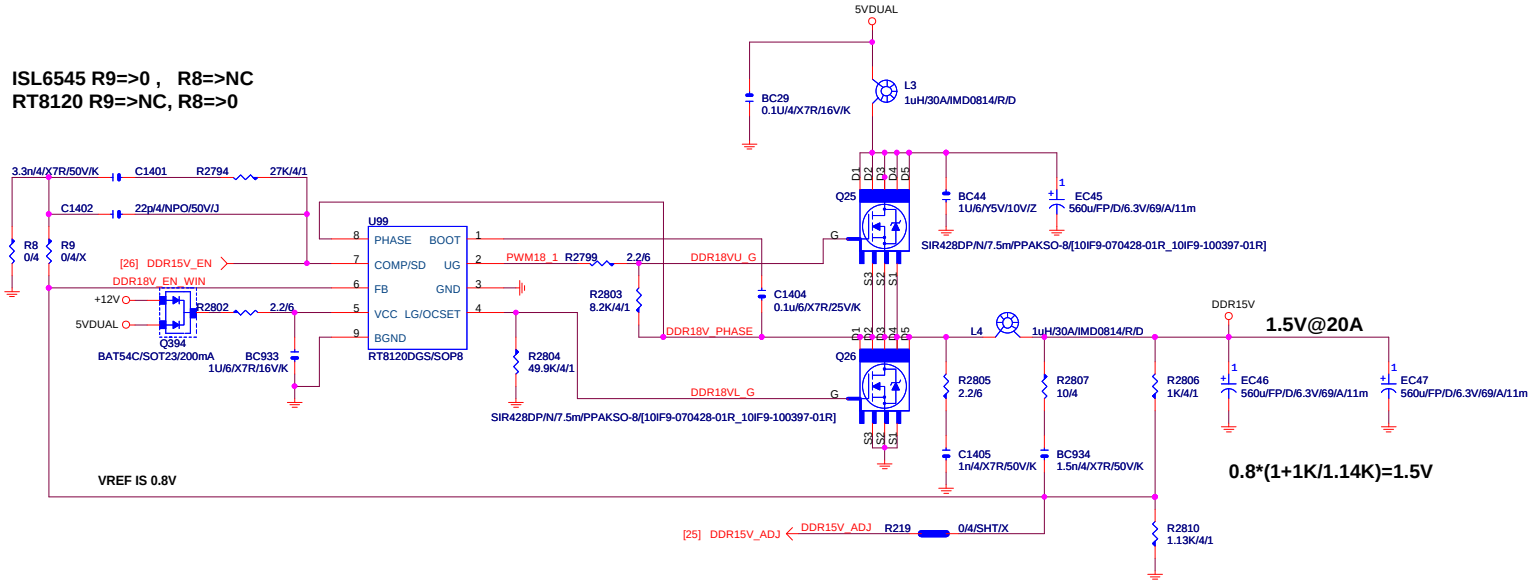
ErP

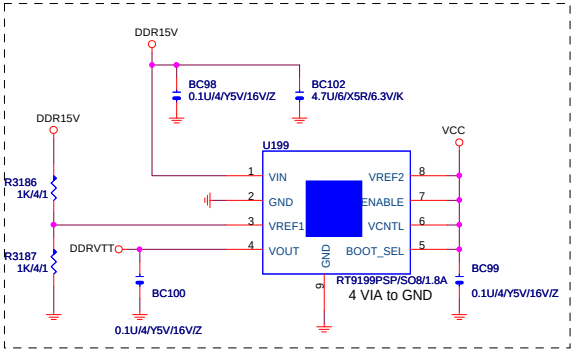




DDR15V

ISL6545 R9=>0 , R8=>NC
RT8120 R9=>NC, R8=>0





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