GA-AM1M-S2P

Sep.06, 2013

Revision : 1.0

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	APU DDRIII, PCI_E
05	APU CONTROL , VGA
06	APU ACPI/AUDIO
07	APU SATA/USB/SPI
08	APU POWER & GND
09	DDRIII CHANNEL A
10	PCI_E x4, PCI_E x1
11	R_USB , F_USB
12	ITE 8620 CX
13	ALC887 CODEC
14	8892 PCI BRIDGE
15	FAN , PCI , COM , LPT
16	POWER SEQUENCE , EUP , F_PANEL
17	PWM ISL62771
18	SB POWER , VDDA25
19	DDR POWER , VCC18
20	LAN RTL8111F
21	
22	
23	
24	
25	

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Title: COVER SHEET		
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Model Name:GA-AM1M-S2P

Component value change history

Version: 1.0

P-Code: U13071-0

Date	Change Item		Reason
2013.07.xx	1.0A EVT BOM Release.	PCB: 1.0	Modify from GA-BZ1 0.1
2013.10.17	0.2A EVT BOM Release.	PCB: 0.2	MODIFY FS1BM-S2P Rev0.1
2013.12.24	1.0A PVT BOM Release.	PCB: 1.0	Modify FS1BM-S2P Rev0.2 1.ACL887 Change 32R (CR51 change to short-pad / F_AUDIO connect color change) 2.不上件 AR43/AR44/AR102/ORTC1/ORTC2/DR38/DR40 3.Erp 阻值 OR43->2K/OR44->634 4.COM connect WH->BK 5.DR12->124K , DC39->680P , DR91->2.49K , DR71->100K , DR74->1.8K , DR24->680 , DR28->487 , DR37->16.5K(MOS NTC) 6.3VDUAL阻值 SR2->301 / SR1->510
2014.01.24	1.0B F-BOM Release.	PCB: 1.0	CR24 : 57.6/4/1 , CR25 : 49.9/4/1 (CODEC D/C ISSUE)

Circuit or PCB layout change for next version

Date	Change Item	Reason
2013.07.xx	Rev 0.1 Gerber-out	New Gerber out
2013.10.17	Rev 0.2 Gerber-out	ADD DB_PORT / SVC & SVD SCH 修改 / PX2 PIN腳定義 / ADD OR14 pull to VCC3(預留不上) /SPI_CS- pull hi to VCC3(add AR101) / CODEC pin9 需分壓1.5V (add CR24/CR25) / SWAP PCIEx4 TX/RX
2013.12.24	Rev 1.0 Gerber-out	Modify FS1BM-S2P Rev0.2 1.CPU_FAN Change to Voltage Mode (NCT3941S) 2.0ohm Change to short-pad 3.VDDSPD Change to 0805 Short-pad (10mil) 4.WD_CTRL GPIO Change to GP22 5.Add TMPIN2 schematic (for CPU thermal) 6.IO_BLINK Change From SIO.92 CTRL(-MPD1)by技術通報 7.ATX POK Add BC156 8.Remove PR53 9.NQ1接+12V DEL NL1 NRN45,ML1,MRN1,2 ,NEC3 10.Change MB Name to AM1M-S2P

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Title: BOM & PCB HISTORY

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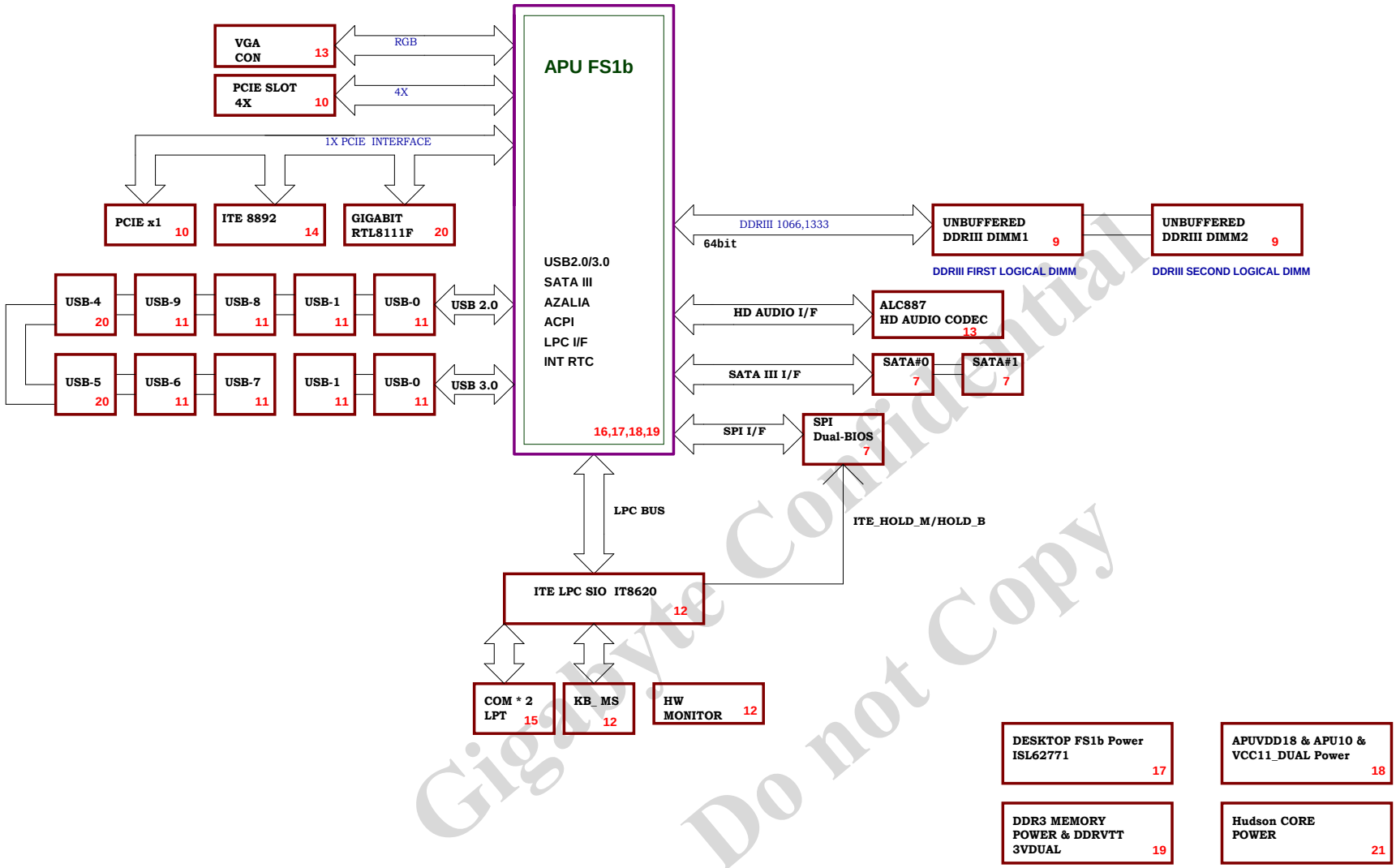

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Title: BLOCK DIAGRAM

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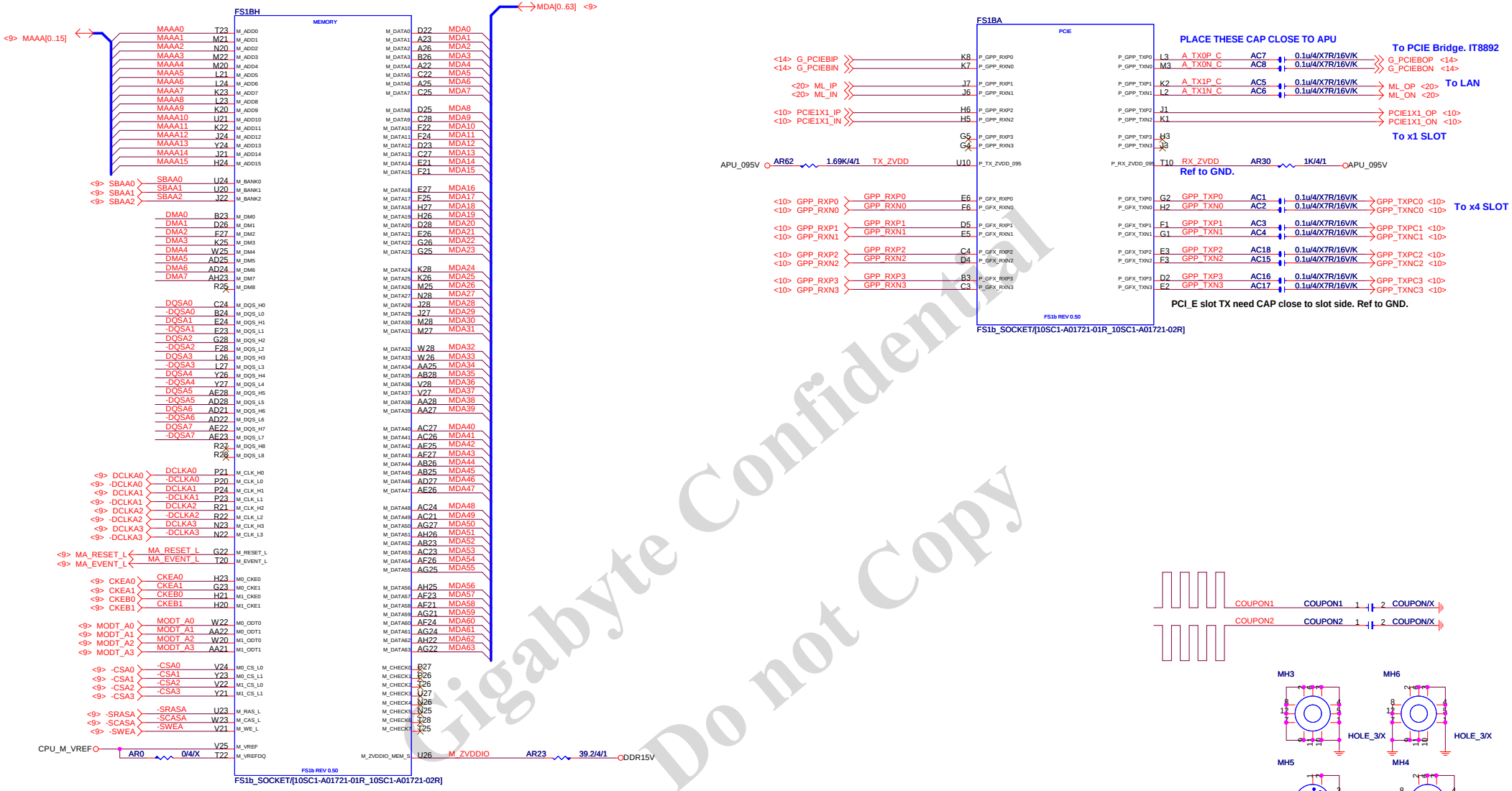

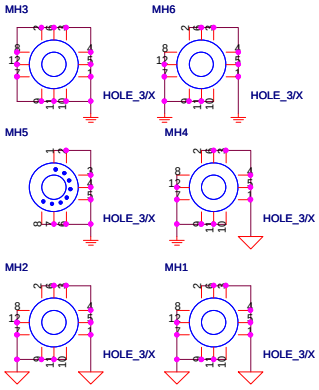

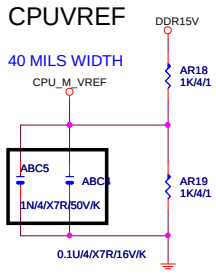

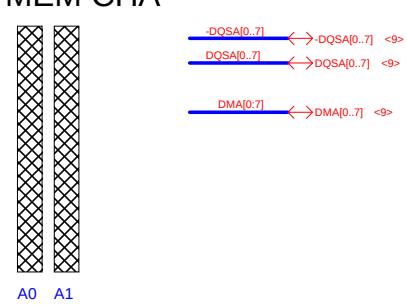

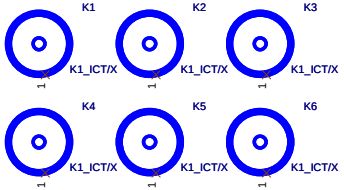

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Title	FS1B DDR, PCIE	
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APU_18V
AR100 300/4 CPU_PWRGD
AR43 1K/4/1/X APU_SVC
AR44 1K/4/1/X APU_SVD
AR45 300/4 -CPURST
AC27 0.1U/4/Y5V/16V/Z
AC20 100P/4/NPO/50V/J/X
Cross MOAT use

VCC3
AR46 1K/4/1 APU_SIC
AR47 1K/4/1 APU_SID
AR49 1K/4/1 PROCHOT-
AR50 1K/4/1 ALERT_L

5VDUAL
AQ3 2N7002/SOT23/25pF/5
AR35 8.2K/4
AQ2 MMBT2222A/SOT23/600mA/40 S0T23
<17> CPU_PWRGD AR33 1K/4/1
AC25 0.1u/4/X7R/16V/K

FS1b
DP1_TXP0 C9
DP1_TXN0 C10
DP1_TXP1 A10
DP1_TXN1 A11
DP1_TXP2 B11
DP1_TXN2 B12
DP1_TXP3 C12
DP1_TXN3 C13
LTDP0_TXP0 A4
LTDP0_TXN0 A5
LTDP0_TXP1 B5
LTDP0_TXN1 B6
LTDP0_TXP2 C6
LTDP0_TXN2 C7
LTDP0_TXP3 A7
LTDP0_TXN3 A8
DISP_CLKIN_H E10
DISP_CLKIN_L E9
SVT D19
SVC B18
SVD C18
SIC B21
SID C21
APU_RST_L H12
LDT_RST_L D13
APU_PWROK A16
LDT_PWROK C16
PROCHOT_L D17
ALERT_L H17
TDI G19
TDO F18
TCK E18
TMS G17
TRST_L H18
DBRDY F19
DBREQ_L F17
VDDCR_NB_SENSE E15
VDDCR_CPU_SENSE F16
VDDIO_MEM_S_SENSE G16
VSS_SENSE F15
VDD_095_FB_H AB20
VDD_095_FB_L AC20
DP_150_ZVSS D11
DP_2K_ZVSS D10
DP_BLON E14
DP_DIGON J13
DP_VARY_BL E13
TDP1_AUXP B8
TDP1_AUXN B9
TDP1_HPD G10
LTDP0_AUXP G11
LTDP0_AUXN H11
LTDP0_HPD F10
DAC_RED B14
DAC_GREEN A14
DAC_BLUE B15
DAC_HSYNC G13
DAC_VSYNC H14
DAC_SCL F12
DAC_SDA E12
DAC_ZVSS C15
TEST4 J17
TEST5 J16
TEST6 E20
TEST14 A19
TEST15 A20
TEST16 C19
TEST17 B20
TEST18 D16
TEST19 D14
TEST25_H B17
TEST25_L A17
TEST28_H V19
TEST28_L V18
TEST31 G20
TEST36 H15
TEST37 G14
TEST42 V7
TEST43 V4
TEST39 T18
TEST40 U18
TEST41 Y17
DP_STEREOSYNC D20
FS1b REV 0.50
FS1b_SOCKET/[10SC1-A01721-01R_10SC1-A01721-02R]

Input clock for external clock Gen mode. NC for internal clock Gen.

<17> APU_SVT APU_SVT
<17> APU_SVC APU_SVC
<17> APU_SVD APU_SVD
<12> APU_SIC APU_SIC
<12> APU_SID APU_SID
-CPURST AR4 0/4/SHT/X -LDTRST
ABC6 100P/4/Y5V/16V/Z/X CPU_PWRGD
<17> CPU_PWRGD AR3 0/4/SHT/X LDT_PWRGD
ABC7 100P/4/Y5V/16V/Z/X
<17> VR_HOT VR_HOT- AR32 0/4/SHT/X PROCHOT-
ALERT_L
DDR15V AR36 300/4 CPU_DBREQ
<17> NBCOREFB+ NBCOREFB+
<17> COREFB+ COREFB+
<17> COREFB- COREFB-

DP_150_ZVSS DP_150_ZVSS AR26 150/4/1
DP_2K_ZVSS DP_2K_ZVSS AR27 2K/4/1
TDP1_HPD DP1_HPD AR55 100K/4/1
LTDP0_HPD DP0_HPD AR37 100K/4/1
DAC_RED AR38 150/4/1 DAC_RED
DAC_GREEN AR39 150/4/1 DAC_GREEN
DAC_BLUE AR40 150/4/1 DAC_BLUE
DAC_HSYNC
DAC_VSYNC
DDCCLK
DDCDATA
DAC_RSET AR41 499/4/1
TP13
APU_TEST14 AR1 1K/4/1/X
APU_TEST15 AR2 1K/4/1/X
APU_TEST16 AR17 1K/4/1/X
APU_TEST17 AR20 1K/4/1/X
APU_TEST18 AR6 1K/4/1
APU_TEST19 AR7 1K/4/1
APU_TEST25H AR8 510/4/1
APU_TEST25L AR13 510/4/1 APU_18V
TP4
AR29 1K/4/1/X
APU_TEST36 AR31 1K/4/1 APU_18V
APU_TEST37 AR34 1K/4/1 APU_18V
AR22 1K/4/1/X
APU_TEST42 TP3
APU_TEST43 TP14
APU_TEST41 TP7
APU_TEST35 AR24 1K/4/1 APU_18V
AR21 1K/4/1/X

VCC3
AR103 1K/4/1/X
AR104 100K/4/1

DAC/HSYNC :
Pull Hi : Enable HDMI (AR103)
Pull Down : Disable HDMI (AR104)

HSYNC VR4 22/4 DAC_HSYNC
VC9 10P/4/NPO/50V/J
For EMI -Alain, Feb.02, '10

VSYNC VR5 22/4 DAC_VSYNC
VC10 10P/4/NPO/50V/J

VCC
VR8 2K/4/1
VCC3 VR11 4.7K/4 DDCDATA
VQ1 2N7002/SOT23/25pF/5
DDC_DATA VR6 33/4 VGADDCDATA
VC7 10P/4/NPO/50V/J
For EMI -Alain, Feb.02, '10

VCC
VR9 2K/4/1
VCC3 VR10 4.7K/4 DDCCLK
Q2 2N7002/SOT23/25pF/5
DDC_CLK VR7 33/4 VGADDCCLK
VC8 10P/4/NPO/50V/J
For EMI -Alain, Feb.02, '10

DAC_RED VFB1 30/4/4A/S VGA_R
DAC_GREEN VFB2 30/4/4A/S VGA_G
DAC_BLUE VFB3 30/4/4A/S VGA_B
VR1 150/4/1
VR2 150/4/1
VR3 150/4/1
VC1 10P/4/NPO/50V/J/X
VC2 10P/4/NPO/50V/J/X
VC3 10P/4/NPO/50V/J/X
VC4 10P/4/NPO/50V/J
VC5 10P/4/NPO/50V/J
VC6 10P/4/NPO/50V/J

VU1 AOZ8902CIL/SOT23-6
VSYNC
HSYNC
VGADDCDATA
VGADDCCLK
VCC
VC12 0.1U/4/Y5V/16V/Z/X

VU2 AOZ8902CIL/SOT23-6
VGA_B
VGA_G
VGA_R
VCC
VC11 0.1U/4/Y5V/16V/Z/X

VGA
VGA_R
VGA_G
VGA_B
FUSEVCC
VGADDCDATA
HSYNC
VSYNC
VGADDCCLK
VGA/BK/SC-11/RA/D/L

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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

3VDUAL
SB_TEST2 AR63 8.2K/4/X
AR94 15K/4/1
SB_TEST1 AR64 8.2K/4/X
AR95 15K/4/1
SB_TEST0 AR65 8.2K/4/X
AR96 15K/4/1

3VDUAL
SMBCLK1 AR68 2.2K/4/1
SMBDATA1 AR69 2.2K/4/1
-PCIE_WAKE AR70 2.2K/4/1
-RI AR71 8.2K/4/X
RTC_INT- AR72 8.2K/4/1

VCC3
SMBCLK AR66 2.2K/4/1
SMBDATA AR67 2.2K/4/1
-KBRST AR102 8.2K/4/1/X
SYS_PWROK AR98 8.2K/4/1 APU_18DUAL

APU_18DUAL AR97 8.2K/4/1 -RSMRST
AC40 1u/4/X5R/6.3V/K

SMBCLK
SMBDATA
AC23 100P/4/NPO/50V/J/X
AC12 100P/4/NPO/50V/J/X

AZ_BIT_CLK
AC24 100P/4/NPO/50V/J/X

FS1BC
ACPI/SD/AZ/GPIO/RTC/MISC

<12> LPC_RST- AR73 33/4
<10,12,14,20> PCIE_RST- AR74 33/4
AB11 LPC_RST_L
AC6 PCIE_RST_L

-RSMRST Y9 RSMRST_L

<12> -PSOUT AR75 0/4/SHT/X -PWRBTN AC11 PWR_BTN_L
AC11 AR76 22P/4/N/50V/X 33/4
<16> -SYS_RST <16> SYS_PWROK AA15 PWR_GOOD
AD9 SYS_RESET_L/GEVENT19_L
<10,14,20> -PCIE_WAKE -PCIE_WAKE AF11 WAKE_L/GEVENT8_L

<12,16> -SLP_S3 -SLP_S3 AC9 SLP_S3_L
<12,16> SLP_S5- SLP_S5- AG10 SLP_S5_L

SB_TEST0 AF12 TEST0
SB_TEST1 AE13 TEST1/TMS
SB_TEST2 AC12 TEST2

<12> -KBRST -KBRST AA16 KBRST_L
<12> A20GATE Y18 GA20IN/GEVENT0_L
<12> LPCPME- LPCPME- AC5 LPC_PME_L/GEVENT3_L
<12> IO_GP90 AA9 LPC_SMI_L/GEVENT23_L

AH8 AC_PRES/IR_RX0/GEVENT16_L
AF3 IR_TX0/GEVENT21_L
AF2 IR_TX1/GEVENT6_L
AG3 IR_RX1/GEVENT20_L
AG2 IR_LED_L/LLB_L/GPIO184

<10> PE4_PRSNT- AB17 CLK_REQ0_L/SATA_IS0_L/SATA_ZP0_L/GPIO60
AC18 CLK_REQ1_L/GPIO61
AA18 CLK_REQ2_L/GPIO62
Y20 CLK_REQ3_L/SATA_IS1_L/SATA_ZP1_L/GPIO63
AE20 CLK_REQ6_L/GPIO65/OSCIN

AE7 USB_OC0_L/SPI_TPM_CS_L/TRST_L/GEVENT12_L
<11,12> -USBOC_R1 AG6 USB_OC1_L/TDI/GEVENT13_L
<11> -USBOC_F1 AH7 USB_OC2_L/TCK/GEVENT14_L
RTC_INT- AD7 USB_OC3_L/TDO/GEVENT15_L

<13> AZ_BIT_CLK AR77 22/4 AE2 AZ_BITCLK
<13> AZ_SDATA_OUT AR78 22/4 AE1 AZ_SDOUT
<13> AZ_SDATA_IN0 AB4 AZ_SDIN0/GPIO167
AC3 AZ_SDIN1/GPIO168
AD4 AZ_SDIN2/GPIO169
AC2 AZ_SDIN3/GPIO170
<13> AZ_SYNC AR79 22/4 AD3 AZ_SYNC
<13> -AZ_RST AR80 22/4 AD1 AZ_RST_L

RTC_XI AA1 X32K_X1
AR81 20M/4 RTC_XO AB1 X32K_X2
FS1b REV 0.50

PX1 32.768K/12.5p/20ppm/TF38/35K/D
PC13 15P/4/NPO/50V/J
PC14 15P/4/NPO/50V/J
PX1 SHW/D0.64*5.08*6.74

FS1b_SOCKET/[10SC1-A01721-01R_10SC1-A01721-02R]

SD_PWR_CTRL AF15
SD_CLK/GPIO73 AF17
SD_CMD/GPIO74 AG18
SD_CD/GPIO75 AG16
SD_WP/GPIO76 AH16
SD_DATA0/GPIO77 AH17
SD_DATA1/GPIO78 AE16
SD_DATA2/GPIO79 AH19
SD_DATA3/GPIO80 AE17
SD_LED/GPIO45 AF18

SCL0/GPIO43 Y14 SMBCLK SMBCLK <9,18>
SDA0/GPIO47 Y15 SMBDATA SMBDATA <9,18>
SCL1/GPIO227 AD10 SMBCLK1 SMBCLK1 <10>
SDA1/GPIO228 AE10 SMBDATA1 SMBDATA1 <10>

GPIO49 AE19
GPIO50 AF20
GPIO51 AG19
DEVSLP0/GPIO55 AG15
GPIO57 AE11
GPIO58 AA13
DEVSLP1/GPIO59 AD16
GPIO64 AC14
SPKR/GPIO66 AD15 SPKR SPKR <16>
GPIO68 AB14
GPIO69 AB16
GPIO70 AC15
GPIO71 AB19
GPIO174 AB10

GEVENT2_L AD6 SPI_SELECT AR85 8.2K/4/1/X 3VDUAL
GEVENT4_L Y11 AR82 2K/4/1
GEVENT7_L AB8
GEVENT10_L AA10
GEVENT11_L AB2
GEVENT17_L Y8
BLINK/GEVENT18_L AB13
GEVENT22_L AE8 -RI <15>

GENINT1_L/GPIO32 AD18
GENINT2_L/GPIO33 AC17

FANOUT0/GPIO52 AD19
FANIN0/GPIO56 AA19

RTCCLK AH5 RTC_CLK AR83 8.2K/4/1 3VDUAL
RTC_CLK AR84 8.2K/4/1/X

SPI_SELECT ROM TYPE:
H =1.8V SPI ROM, L=3.3V SPI ROM

H =Normal power up(default),
L=Fast power up for siumlation.

ORTCXO
ORTCR1 20M/4 ORTCXI
ORTCX1 32.768K/12.5p/20ppm/TF38/35K/D
ORTC2 15P/4/NPO/50V/J/X
ORTC1 15P/4/NPO/50V/J/X
ORTCX1 SHW/D0.64*5.08*6.74

RTC
ORTCXI 1 XI VDD 8 RTCVDD3
ORTCXO 2 XO CLKOUT 7 TP8
RTC_INT- 3 INT- SCL 6 SMBCLK1
4 VSS BGND SDA 5 SMBDATA1
9
PCF85063TP/HWSON8

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POWER CHECK

FS1BD

CLK/SATA/USB/SPI/LPC

SP_TX0P_C AD12 SATA_TX0P
SP_TX0M_C AD13 SATA_TX0N
SP_RX0M_C AG12 SATA_RX0N
SP_RX0P_C AG13 SATA_RX0P
SP_TX1P_C AE14 SATA_TX1P
SP_TX1M_C AF14 SATA_TX1N
SP_RX1M_C AH14 SATA_RX1N
SP_RX1P_C AH13 SATA_RX1P
APU_095V AR51 1K/4/1 SATA_CALRP AA12 SATA_ZVSS
AR52 1K/4/1 SATA_CALRN Y12 SATA_ZVDD_095
<16> -SATA_LED -SATA_LED AH20 SATA_ACT_L/GPIO67
AH11 SATA_X1
AH10 SATA_X2
<10> SRCCLK_3GIO_B L6 GFX_CLKP
<10> -SRCCLK_3GIO_B M6 GFX_CLKN
<14> PBCLK M7 GPP_CLK0P
<14> PBCLK- N7 GPP_CLK0N
<20> SRCCLK_LAN K5 GPP_CLK1P
<20> -SRCCLK_LAN L5 GPP_CLK1N
<10> PCIEX1_CLKP J4 GPP_CLK2P
<10> PCIEX1_CLKN K4 GPP_CLK2N
N8 GPP_CLK3P
P8 GPP_CLK3N
<12> LPC48 AR16 22/4 APU_48M AG7 X14M_25M_48M_OSC
48MHZ_X1 M1 X48M_X1
48MHZ_X2 N1 X48M_X2
<12> LPC33 AR15 22/4 LPC_CLK0 AA6 LPCCLK0
<12> DB_CLK AR90 22/4 LPC_CLK1 AB5 LPCCLK1
<12> LAD0 LAD0 AF2 LAD0
<12> LAD1 LAD1 AF3 LAD1
<12> LAD2 LAD2 AG4 LAD2
<12> LAD3 LAD3 AH4 LAD3
<12> -LFRAME -LFRAME AG3 LFRAME_L
<12> -LDRQ0 -LDRQ0 AF5 LDRQ0_L
<12> SERIRQ SERIRQ AE5 SERIRQ/GPIO48
VCC3 AR42 2.2K/4/X LPC_CKRL AF6 LPC_CLKRUN_L
VCC3 AR48 2.2K/4/X LPC_PD AE4 LPC_PD_L/GEVENT5_L/SPI_TPM_CS_L
FS1b REV 0.50
FS1b_SOCKET

USBCLK/14M_25M_48M_OSC Y6 48M TP17
USB_ZVSS W9 USB_ZVSS AR53 11.8K/4/1
USB_HSD0P AA3 +USBP0
USB_HSD0N Y3 -USBP0
USB_HSD1P Y2 +USBP1
USB_HSD1N W2 -USBP1
USB_HSD2P W1
USB_HSD2N V1
USB_HSD3P V3
USB_HSD3N U3
USB_HSD4P U2 +USBP4
USB_HSD4N T2 -USBP4
USB_HSD5P T1 +USBP5
USB_HSD5N R1 -USBP5
USB_HSD6P V6 +USBP6
USB_HSD6N U6 -USBP6
USB_HSD7P R7 +USBP7
USB_HSD7N T7 -USBP7
USB_HSD8P P6 +USBP8
USB_HSD8N R6 -USBP8
USB_HSD9P U5 +USBP9
USB_HSD9N T5 -USBP9
USB_SS_ZVSS W10 USB_SS_ZVSS AR54 1K/4/1
USB_SS_ZVDD_095_USB3_DUAL V10 USB_SS_ZVDD AR57 1K/4/1 APU_095DUAL
USB_SS_0TXP M4 USB_SS_TXP0
USB_SS_0TXN N4 USB_SS_TXN0
USB_SS_0RXP P3 USB_SS_RXP0
USB_SS_0RXN P2 USB_SS_RXN0
USB_SS_1TXP N5 USB_SS_TXP1
USB_SS_1TXN P5 USB_SS_TXN1
USB_SS_1RXP R4 USB_SS_RXP1
USB_SS_1RXN R3 USB_SS_RXN1
SPI_CLK/GPIO162 W5 SB_SPI_CLK_R AR58 22/4 SPI_CLK
SPI_CS1_L/GPIO165 Y5 SB_SPI_CS- AR59 22/4 SPI_CS-
SPI_CS2_L/GPIO166 W4
SPI_DO/GPIO163 W8 SB_SPI_DO_R AR60 22/4 SB_SPI_DO
SPI_DI/GPIO164 W7 SB_SPI_DI_R AR61 22/4 SB_SPI_DI
SPI_HOLD_L/GEVENT9_L AA4
SPI_WP_L/GPIO161 AA7

48MHZ_X1 — AR86 1M/4 — 48MHZ_X2
PX2 (1, 2, 3, 4)
AC38 22P/4/NPO/50V/J
AC39 22P/4/NPO/50V/J
48M/12p/30ppm/3.2*2.5/50/S [10XT5-848000-00R]

3VDUAL AR5 8.2K/4/1 AR9 2.2K/4/X -LFRAME
-LFRAME
H =SPI ROM, L=LPC ROM

3VDUAL AR10 2.2K/4/X AR11 2K/4/1 LPC_CLK0
LPC_CLK0 = BOOT TIMER
H =ENABLE, L=DISABLE

3VDUAL AR12 8.2K/4/1 AR14 2.2K/4/X LPC_CLK1
LPC_CLK1= INTERNAL CLOCK GEN
H =ENABLE, L=DISABLE

M_BIOS
SPI_CS- 1 CS# VDD 8 SPC23 0.1U/4/Y5V/16V/Z
SB_SPI_DI 2 SO HOLD# 7 SPI_HOLDM- SPI_HOLDM- <12>
-BIOS_WP 3 WP# SCK 6 SPI_CLK
4 VSS SI 5 SB_SPI_DO
32M/SPI/SO8/200mil/S

VCC3
ABC3 1U/6/Y5V/10V/Z/X
ABC8 0.1u/4/Y5V/16V/Z

B_BIOS
SPI_CS- 1 CS# VDD 8 VCC3
SB_SPI_DI 2 SO HOLD# 7 SPI_HOLDB- SPI_HOLDB- <12>
-BIOS_WP 3 WP# SCK 6 SPI_CLK
4 VSS SI 5 SB_SPI_DO
32M/SPI/SO8/200mil/S

VCC3
SPI_HOLDM- AR92 1K/4/1
SPI_HOLDB- AR88 1K/4/1
-BIOS_WP AR91 1K/4/1
SPI_CS- AR101 1K/4/1

SATA3_0
SP_TX0P_C AC13 0.01U/4/X7R/25V/K SA_TP0 1 GND
SP_TX0M_C AC14 0.01U/4/X7R/25V/K SA_TN0 2 TX+
3 TX-
SP_RX0M_C AC21 0.01U/4/X7R/25V/K SA_RN0 4 GND
SP_RX0P_C AC22 0.01U/4/X7R/25V/K SA_RP0 5 RX-
6 RX+
7 GND
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_1
GND 7
RX+ 6 SA_RP1 AC30 0.01U/4/X7R/25V/K SP_RX1P_C
RX- 5 SA_RN1 AC31 0.01U/4/X7R/25V/K SP_RX1M_C
GND 4
TX- 3 SA_TN1 AC32 0.01U/4/X7R/25V/K SP_TX1M_C
TX+ 2 SA_TP1 AC33 0.01U/4/X7R/25V/K SP_TX1P_C
GND 1
SATA2/7/BK/H/OP/VA/D/1/B

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Title	FS1B USB, SATA	
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VDDCR_CPU = VCORE
VDDCR_NB = VCORE_NB
VLDT_RUN = VCC12_HT
VDDIO_MEM_S = DDR15V
CPU_VDDR = CPU_VDDR12
VDD_33 = VCC3
VDD_095 = APU_095V
VDDIO_AZ_ALW=APU_15DUAL
VDD_33_ALW=3VDUAL_SB
VDD_095_ALW=APU095DUAL

FS1BE — POWER
DDR15V
VDDIO_MEM_S: G21 G24 H22 J20 J23 K21 K24 L20 L22 L25 M23 M24 N21 N24 P22 R20 R23 R24 T21 T24 U22 V20 V23 W21 W24 Y22 Y25 AA23 AA24
VDDCR_CPU: D18 E19 F14 F17 G12 G15 G18 H13 H16 H19 J14 J18 K13 K15 K17 K19 L18 M19 N18 P19 R18 T19 → VCORE
VDDCR_NB: F8 G7 G9 H8 H10 J9 J11 J12 K10 K11 L9 L10 M9 M11 N10 N11 P11 → VCORE_NB
100mA
APU_15DUAL: V11 W11 (VDDIO_AZ_ALW)
APU_18DUAL: D8 E8 (VDD_18_ALW)
VDD_18: C1 C2 D1 → APU_18V
3VDUAL_APU: W12 AA11 (VDD_33_ALW)
VDD_33: W13 Y13 → APU33 AR93 1/6 AC19 1u/4/X5R/6.3V/K → VCC3
APU_095DUAL: U8 V8 Y7 AA8 (DD_095_USB3_DUAL)
R9 T9 T11 U9 (VDD_095_ALW)
VDD_095: W17 W18 AA17 AC16 AC19 AD17 AD20 AE18 → APU_095V
VDD_095_GFX: W14 W15
RTCVDD: AB7 (VDDBT_RTC_G)
FS1b REV 0.50
FS1b_SOCKET/[10SC1-A01721-01R_10SC1-A01721-02R]
RTCVDD_A=1.5V

VCORE_NB → MOTC1 0.1U/4/Y5V/16V/Z; MOTC2 0.1U/4/Y5V/16V/Z; MOTC0 0.1U/4/Y5V/16V/Z → VCORE
For EMI

APU_18V
ABC12 1u/4/X5R/6.3V/K
ABC13 1u/4/X5R/6.3V/K
ABC14 1U/6/Y5V/10V/Z
Ref to GND.
VDD_18DAC=> min 20mil, and 20mil away from others.

TOP SIDE
VCORE: ABC15 22u/8/X5R/6.3V/M; ABC16 10u/6/X5R/6.3V/M
VCORE_NB: ABC17 22u/8/X5R/6.3V/M; ABC18 22u/8/X5R/6.3V/M

20mil 20mil
3VDUAL → AQ1 → RTCVDD3
<12> VBAT → VBAT_2 → RB 510/4/1 → BAT54C/SOT23/200mA
AR89 1K/4/1
ABC2 0.1U/4/Y5V/16V/Z
ABC1 1U/4/X5R/6.3V/K
20mil
BAT BAT-SK/BK/P/S/D/SN
CR2032 BAT CR2032
CLR_CMOS RTCVDD
PH/1*2/BK/2.54/VA/D

CLR_CMOS	
SHORT	CLEAR CMOS
OPEN	NORMAL

NOT ADD ICT FOR RTCVDD PIN

RTCVDD3 → AQ0 AP2138N-1.5TRG1/SOT23/250mA
ABC9 2.2u/6/X5R/6.3V/K
AR99 8.2K/4/1
ABC10 0.1U/4/Y5V/16V/Z
RTCVDD_A → RTCVDD
ABC11 0.1U/4/Y5V/16V/Z

FS1BF — GND
VSS: A3 A6 A9 A12 A13 A15 A18 A21 A24 B4 B7 B10 B13 B16 B19 B22 B25 B27 C5 C8 C11 C14 C17 C20 C23 C26 D3 D6 D7 D9 D12 D21 D24 D27 E1 E4 E7 E11 E13 E16 E22 E25 E28 F2 F4 F5 F7 F9 F11 F20 F23 F26 G3 G6 G8 G27 H1 H4 H7 H9 H25 H28
VSS: J2 J5 J8 J10 J15 J19 J25 J26 K3 K6 K9 K12 K16 K18 K27 L1 L4 L7 L8 L11 L19 L28 M2 M5 M8 M10 M18 M26 N2 N3 N6 N9 N19 N27 P1 P4 P7 P9 P10 P18 P25 P28 R2 R5 R8 R10 R11 R19 R26 T3 T4 T6 T8 T27 U1 U4 U7 U11 U25 U28 V2 V5
FS1b REV 0.50
FS1b_SOCKET/[10SC1-A01721-01R_10SC1-A01721-02R]

FS1BG — GND
VSS: V9 V26 W3 W6 W19 W27 Y1 Y4 Y10 Y16 Y28 AA2 AA5 AA14 AA20 AA26 AB3 AB6 AB9 AB12 AB15 AB18 AB21 AB22 AB24 AB27 AC1 AC4 AC7 AC10 AC13 AC22 AC25 AC28 AD2 AD5 AD8 AD11 AD14 AD23 AD26 AE3 AE6 AE9 AE12 AE15 AE21 AE24 AE27 AF1 AF4 AF7 AF10 AF13 AF16 AF19 AF22 AF25 AF28 AG2 AG5 AG8
VSS: AG11 AG14 AG17 AG20 AG23 AG26 AH3 AH6 AH9 AH12 AH15 AH18 AH21 AH24 Y19 U19
VSSBG_DAC: D15
FS1b REV 0.50
FS1b_SOCKET/[10SC1-A01721-01R_10SC1-A01721-02R]

BUTTOM SIDE
VCORE: SAC9 22u/8/X5R/6.3V/M; SAC30 10u/6/X5R/6.3V/M; SAC32 4.7U/6/X5R/6.3V/K; SAC10 22u/8/X5R/6.3V/M; SAC11 22u/8/X5R/6.3V/M; SAC12 22u/8/X5R/6.3V/M; SAC53 22u/8/X5R/6.3V/M; SAC54 22u/8/X5R/6.3V/M
VCORE: SAC13 180P/4/NPO/50V/J; SAC4 1u/4/X5R/6.3V/K; SAC14 1u/4/X5R/6.3V/K; SAC15 1u/4/X5R/6.3V/K; SAC16 1u/4/X5R/6.3V/K; SAC17 1u/4/X5R/6.3V/K; SAC18 1u/4/X5R/6.3V/K
APU_15DUAL: SAC5 4.7U/6/X5R/6.3V/K; SAC8 1u/4/X5R/6.3V/K; SAC23 180P/4/NPO/50V/J
3VDUAL: SAC62 4.7U/6/X5R/6.3V/K; SAC61 1u/4/X5R/6.3V/K
3VDUAL_APU: SAC63 1u/4/X5R/6.3V/K
VCORE: SAC21 1u/4/X5R/6.3V/K; SAC22 1u/4/X5R/6.3V/K; SAC24 1u/4/X5R/6.3V/K; SAC25 1u/4/X5R/6.3V/K; SAC19 1u/4/X5R/6.3V/K; SAC20 1u/4/X5R/6.3V/K
DDR15V: SAC36 1u/4/X5R/6.3V/K; SAC35 4.7U/6/X5R/6.3V/K; SAC37 4.7U/6/X5R/6.3V/K; SAC34 1u/4/X5R/6.3V/K; SAC38 180P/4/NPO/50V/J
APU_18DUAL: SAC57 4.7U/6/X5R/6.3V/K; SAC56 1u/4/X5R/6.3V/K; SAC55 180P/4/NPO/50V/J; SAC58 1u/4/X5R/6.3V/K; SAC59 1u/4/X5R/6.3V/K
VCORE_NB: SAC28 22u/8/X5R/6.3V/M; SAC31 4.7U/6/X5R/6.3V/K; SAC29 1u/4/X5R/6.3V/K; SAC48 22u/8/X5R/6.3V/M; SAC26 22u/8/X5R/6.3V/M; SAC27 1u/4/X5R/6.3V/K; SAC33 180P/4/NPO/50V/J
APU_095V: SAC39 22u/8/X5R/6.3V/M; SAC40 4.7U/6/X5R/6.3V/K; SAC41 1u/4/X5R/6.3V/K; SAC42 1u/4/X5R/6.3V/K; SAC43 1u/4/X5R/6.3V/K; SAC44 1u/4/X5R/6.3V/K; SAC45 180P/4/NPO/50V/J; SAC1 10u/6/X5R/6.3V/M/X
APU_095DUAL: SAC47 22u/8/X5R/6.3V/M; SAC46 180P/4/NPO/50V/J; SAC49 1u/4/X5R/6.3V/K; SAC50 1u/4/X5R/6.3V/K; SAC51 1u/4/X5R/6.3V/K; SAC52 1u/4/X5R/6.3V/K

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Title	DDR3	
Size: Custom	Document Number: GA-AM1M-S2P	Rev: 1.0
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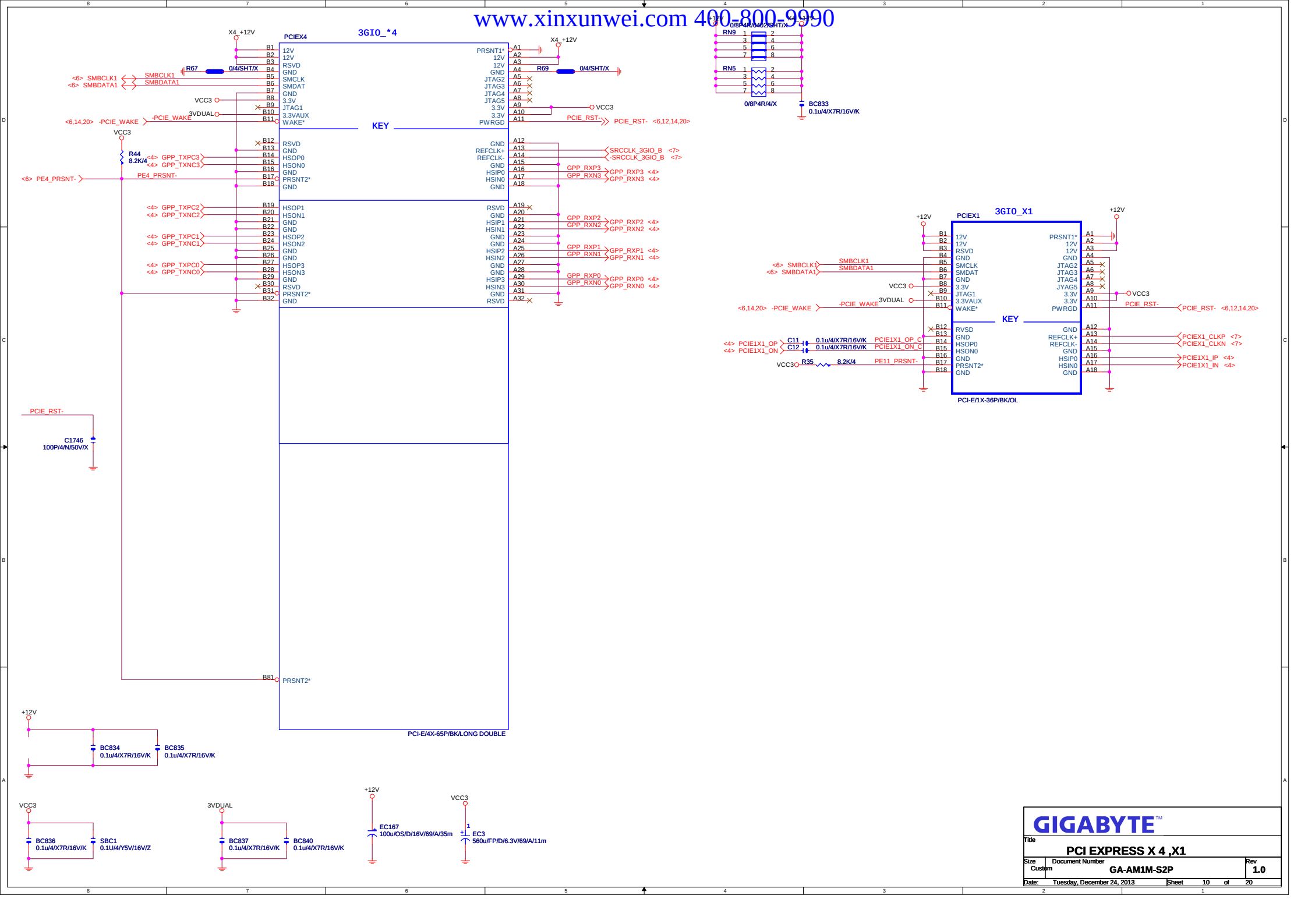

GIGABYTE™		
Title: PCI EXPRESS X 4 ,X1		
Size: Custom	Document Number: GA-AM1M-S2P	Rev: 1.0
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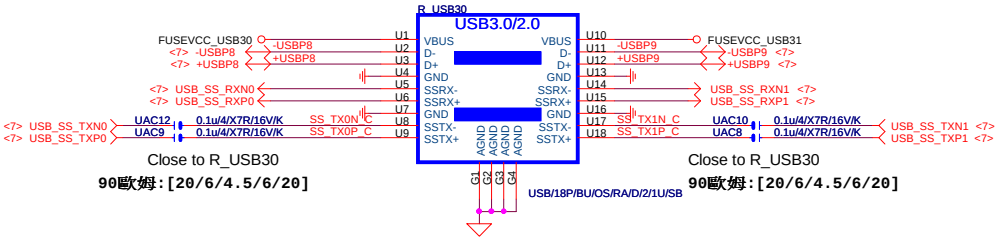
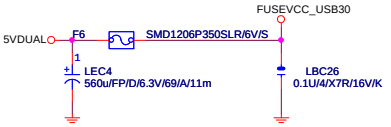
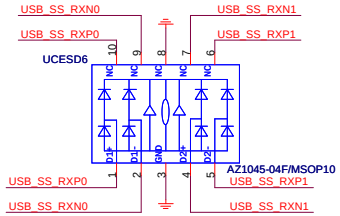
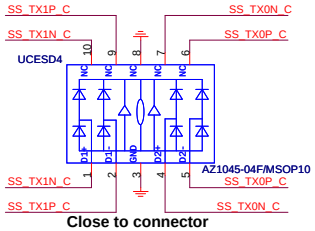
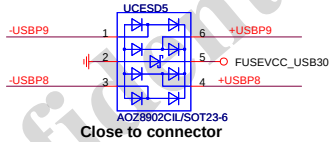
R_USB30

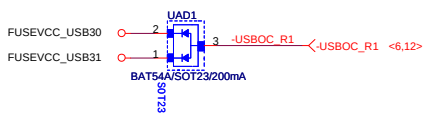


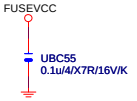




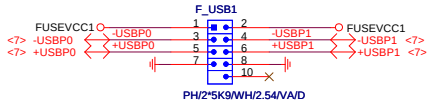


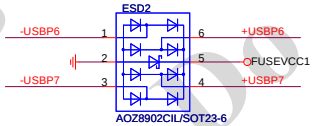


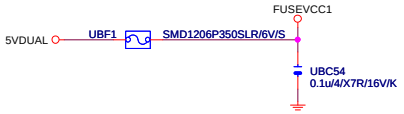


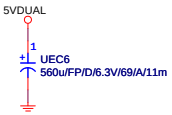


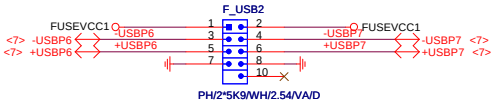
FRONT_USB

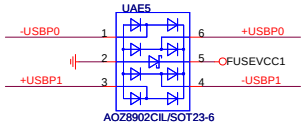


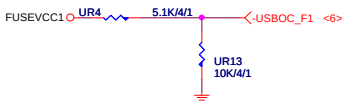












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Title: R_USB, F_USB		
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IT8620E_BX

Hardware Monitor circuits

THROM SPARE GPIO

LPT port pin just NC if no use---ITE<Tom>

Internal power pin

For IT8721 Power leakage

ErP

ITE COMMENTS

REGULATOR AP7365-WG-7 DII[10GL4-067365-01R]

Vout=0.8*(R1+R2)/R2

For Erp patch

KB/MS/6P/PC99/OS/RA/D/2/[11NR6-802006-19R_11NR6-802006-1ER]

sensor LPC DEBUG card (always mount)

DB_PORT

PH/2*6K12/BK/2.54/VA/D

IT8728 UV/OV protect 2.0V

O: EN SPI, I:DIS SPI

DTR2- ite recommand change to IT_VCCH

Title	ITE 8620B
Size	Custom
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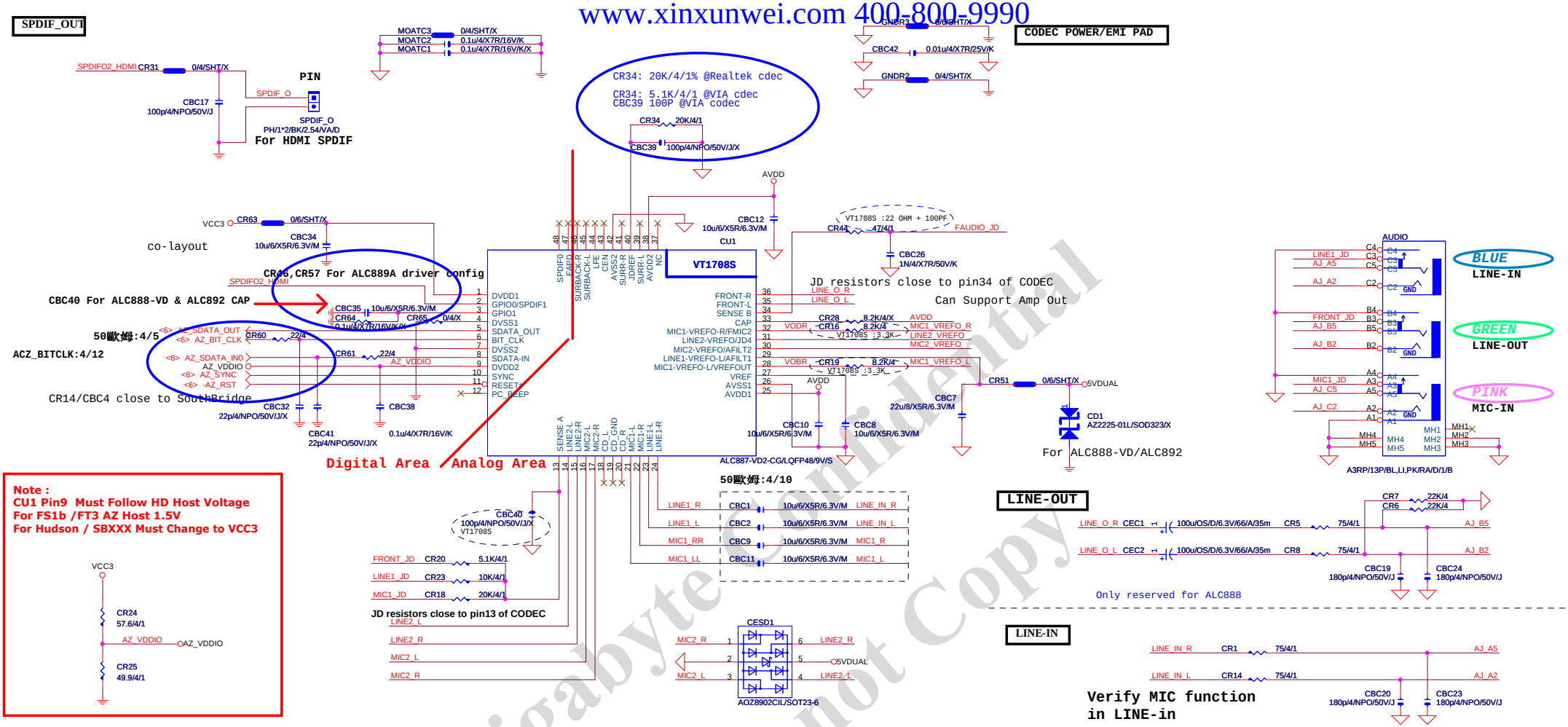

Note :
CU1 Pin9 Must Follow HD Host Voltage
For FS1b /FT3 AZ Host 1.5V
For Hudson / SBXXX Must Change to VCC3

AZALIA CODEC

ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay

	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR65	X	O	O	X
CR64	X	X	X	O
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR34	20K/1%	20K/1%	5.1K/1%	20K/1%
CR31	O	O	O	O
CR30	X	X	X	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R
CR20	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CBC35	O	X	X	O
CBC39/CBC40	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	10K/4	10K/4
CR5/CR8/CR13/CR11/ CR57/CR53	75 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	X	X	O
CD2/CD3/CQ3/CQ5	X	O	O	X
CR1/CR14/CR17/CR22	75 ohm	62 ohm	1K ohm	1K ohm

GIGABYTE™

Title: ALC887 CODEC

Size: Custom | Document Number: GA-AM1M-S2P | Rev: 1.0

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PCIE TO PCI

PCI:5/4/5 Impedance=50 +- 15%

Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm

<15> BPCLK0 — PR24 47/4/1 — CLKOUT0

BA_D[0..31] <15>

-BC_BE0 <15>
-BC_BE1 <15>
-BC_BE2 <15>
-BC_BE3 <15>

-BPERR <15>
-BSERR <15>

BPAR <15>
-BPLOCK <15>
-BDEVSEL <15>
-BSTOP <15>
-BTRDY <15>
-BIRDY <15>
-BFRAME <15>

PCIE_RST- <6,10,12,20>

-BPCIRST <15>

-BREQ0 <15>

-BGNT0 <15>

-BPCIPME1 <15>

VCC3 — PR14 1K/4/1/X — M66EN — PR42 1K/4/1

High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

VCC3 — PR35 8.2K/4/X — PCICLK_SEL — PR37 10K/4/1

High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

RREF PR13 12K/4/1
TEST_EN PR21 10K/4/1
EXT_ARB PR22 10K/4/1
RST_SEL PR7 10K/4/1

<7> PBCLK-
<7> PBCLK

<4> G_PCIEBOP
<4> G_PCIEBON
<4> G_PCIEBIN
<4> G_PCIEBIP

PBC43 0.1u/4/X7R/16V/K G_PCIEBIN_C
PBC44 0.1u/4/X7R/16V/K G_PCIEBIP_C

BA_D0
BA_D1

PU2

IT8892E/BX LQFP128

WAKE# PME# GNDP_AUX VCCP_AUX LDOAUX_18V VSS_AUX VCCK_AUX NC CLKN CLKP VCC18A VCC18A GNDA GNDA GNDA RREF DIP DIN VCC18A_AUX DON DOP VSS VCCK SEG_EN1/GP3 SEG_EN2/GP4 EECS# EECLK EEWRDATA EERDDATA AD0 AD1 SEG_G

PCIEWAKE
-BPCIPME
VCCP
LDOAUX_18V
1.8V_AUX
1.8VA
1.8VA
RREF
1.8V_AUXA
1.8VD

PCICLK_SEL 1.8VD M66EN SEG_F/GP1 SEG_F/GP0 PCICLK_SEL GNDP VCCP M66EN SEG_D SEG_C SEG_B SEG_A PERST# INTI# PCIRST# NC VSS VCCK GNDP VCCP GNT0# REQ0# NC TP1 PCICLK0 GNT1# REQ1# AD31 AD30 AD29 AD28 VSS

PCIE_RST- -BPIRQD -BPCIRST -BGNT2 1.8VD -BREQ2 -BGNT0 -BREQ0 -BGNT3 CLKOUT0 -BGNT1 -BREQ1 BA_D31 BA_D30 BA_D29 BA_D28

VCCK GNDP VCCP NC EXT_ARB RST_SEL TEST_EN AD27 AD26 CBE3# AD25 AD24 VCCP AD23 AD22 AD21 AD20 VSS VCCK AD19 AD18 AD17 AD16 GNDP VCCP FRAME# IRDY# CBE2# TRDY# STOP# DEVSEL# INTA#

1.8VD VCCP EXT_ARB RST_SEL TEST_EN BA_D27 BA_D26 -BC_BE3 BA_D25 BA_D24 VCCP BA_D23 BA_D22 BA_D21 BA_D20 1.8VD BA_D19 BA_D18 BA_D17 BA_D16 VCCP -BFRAME -BIRDY -BC_BE2 -BTRDY -BSTOP -BDEVSEL -BPIRQA

IT8892E/FX/S

AD2 AD3 GNDP VCCP AD4 AD5 AD6 AD7 VCCK VSS AD8 AD9 AD10 CBE0# VCCP GNDP CBE1# AD11 AD12 AD13 AD14 AD15 PERR# SERR# VCCP GNDP LDO_18V VSS PAR LOCK# INTB# INTC#

BA_D2 BA_D3 BA_D4 BA_D5 BA_D6 BA_D7 1.8VD BA_D8 BA_D9 BA_D10 -BC_BE0 VCC3 -BC_BE1 BA_D11 BA_D12 BA_D13 BA_D14 BA_D15 -BSERR VCC3 LDO_18V BPAR -BPLOCK -BPIRQB -BPIRQC

HS

SB_HS/[12SP2-SA0301-01R_12SP2-SA0301-02R_12SP2-SA0301-03R]

IT8892 — PCI slot

PRN14 0/8P4R/0402/SHT/X

-BPIRQA 1 2 -BPIRQA1 <15>
-BPIRQD 3 4 -BPIRQD1 <15>
-BPIRQB 5 6 -BPIRQB1 <15>
-BPIRQC 7 8 -BPIRQC1 <15>

VCCP PR26 0/4/SHT/M/X 3VDUAL

PCI slot — chipset side

-BPCIPME1 PR27 0/4/SHT/M/X -PCIE_WAKE <6,10,20>

3VDUAL — PR2 0/4/SHT/M/X

PCIEWAKE PR34 10K/4/1
-BPCIPME PR43 10K/4/1

PRN1 2.2K/8P4R/4
-BFRAME 1 2
-BTRDY 3 4
-BSTOP 5 6
-BDEVSEL 7 8

PRN2 2.2K/8P4R/4
-BIRDY 1 2
-BPERR 3 4
-BSERR 5 6
-BPLOCK 7 8

PRN15 2.2K/8P4R/4
-BPIRQC 1 2
-BPIRQB 3 4
-BPIRQD 5 6
-BPIRQA 7 8

PRN4 2.2K/8P4R/4
-BGNT3 1 2
-BREQ3 3 4
-BGNT1 5 6
-BREQ1 7 8

PRN5 2.2K/8P4R/4
-BGNT2 1 2
-BREQ2 3 4
-BGNT0 5 6
-BREQ0 7 8

BPAR PR41 2.2K/4/1/X

LDO_18V — PFB1 0/6/SHT/M/X 1.8VA
PFB2 0/6/SHT/M/X 1.8VD
LDOAUX_18V — PFB3 0/6/SHT/M/X 1.8V_AUX
PFB4 0/6/SHT/M/X 1.8V_AUXA

VCC3 — PBC60 10u/6/X5R/6.3V/M — PBC21 1u/4/X5R/6.3V/K — PBC22 0.1u/4/X7R/16V/K — PBC33 1u/4/X5R/6.3V/K — PBC34 0.1u/4/X7R/16V/K — PBC46 0.1u/4/X7R/16V/K

3VDUAL — PBC29 0.1u/4/X7R/16V/K/X
1.8V_AUX — PBC36 0.1u/4/X7R/16V/K
1.8V_AUXA — PBC31 0.1u/4/X7R/16V/K

1.8VD — PBC23 10u/6/X5R/6.3V/M — PBC24 1u/4/X5R/6.3V/K — PBC25 0.1u/4/X7R/16V/K

1.8VD — PBC59 1u/4/X5R/6.3V/K — PBC38 0.1u/4/X7R/16V/K — PBC39 0.01u/4/X7R/25V/K

PCB layout note:
Close to chip

1.8VA — PBC26 10u/6/X5R/6.3V/M — PBC27 1u/4/X5R/6.3V/K — PBC28 0.1u/4/X7R/16V/K

Close to chip

LDOAUX_18V — PBC32 10u/6/X5R/6.3V/M — PBC40 1u/4/X5R/6.3V/K — PBC41 0.01u/4/X7R/25V/K

LDO_18V — PBC58 10u/6/X5R/6.3V/M — PBC42 1u/4/X5R/6.3V/K — PBC45 0.01u/4/X7R/25V/K

PCB layout note:
Close to chip

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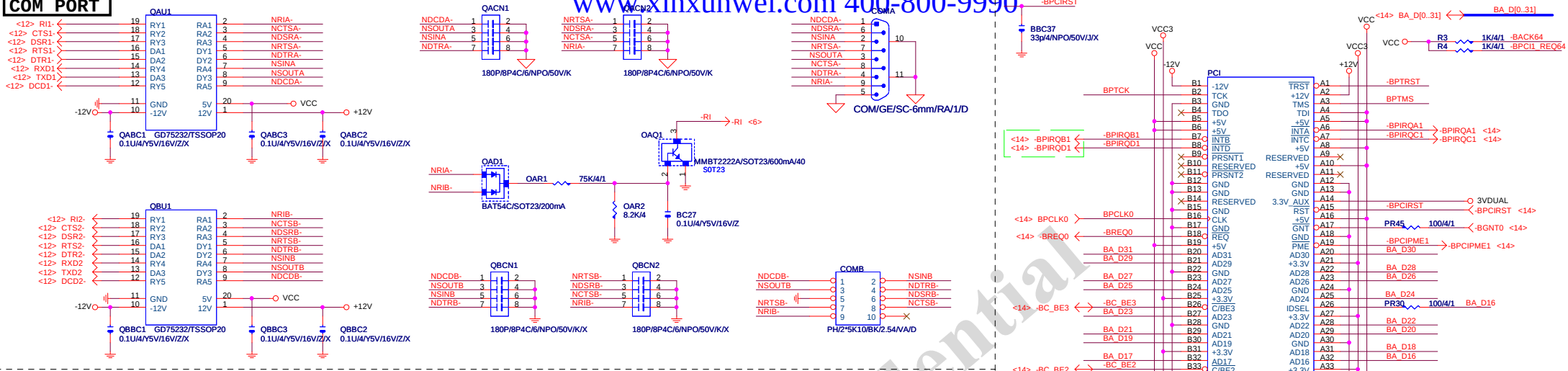
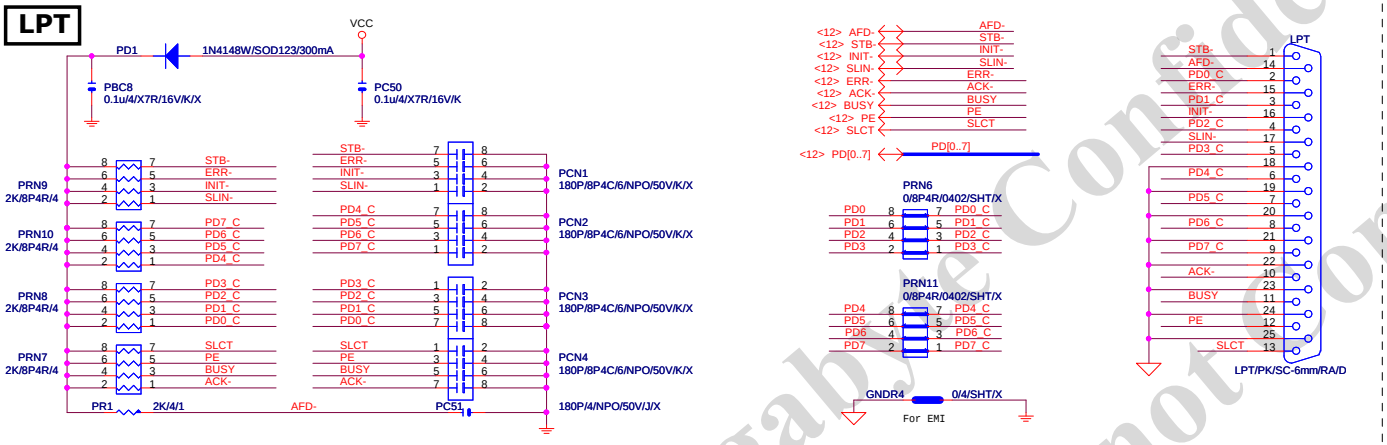
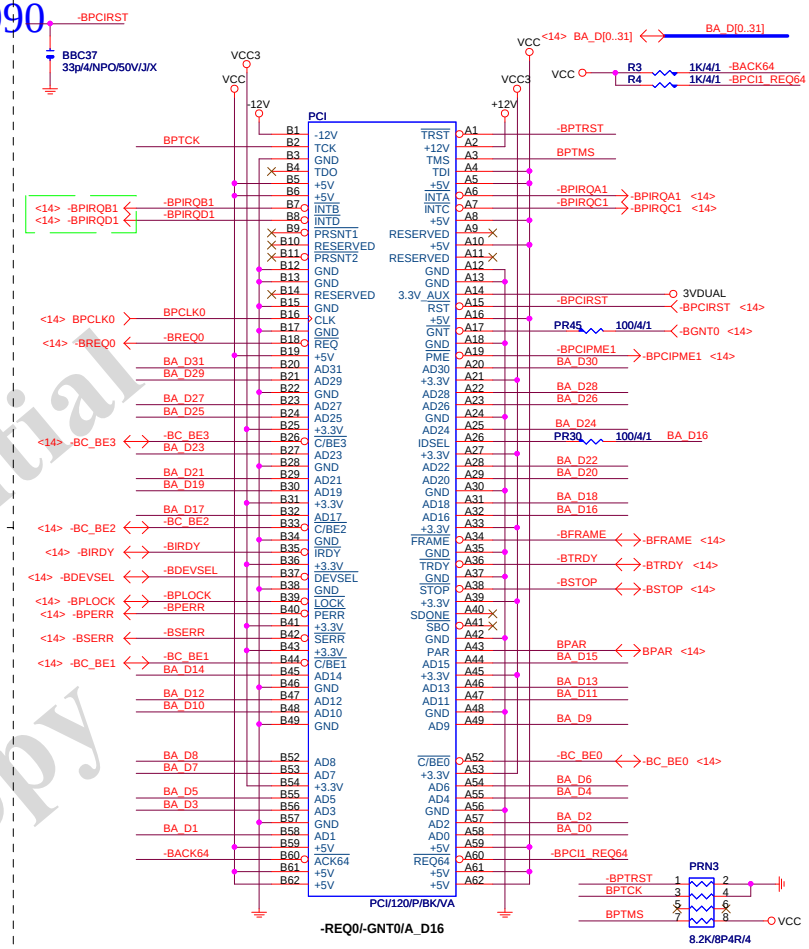
COM PORT

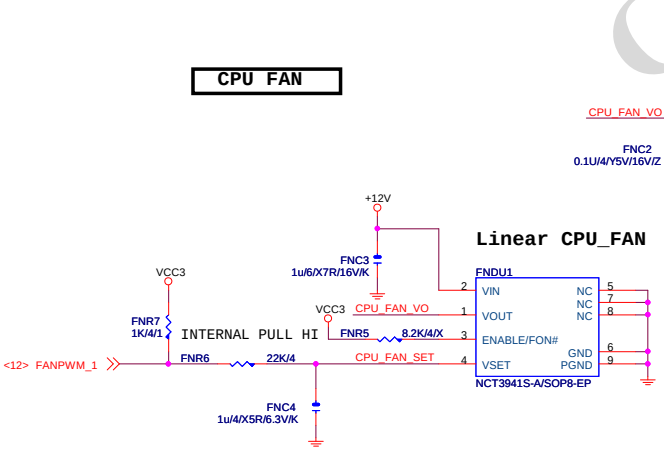


LPT

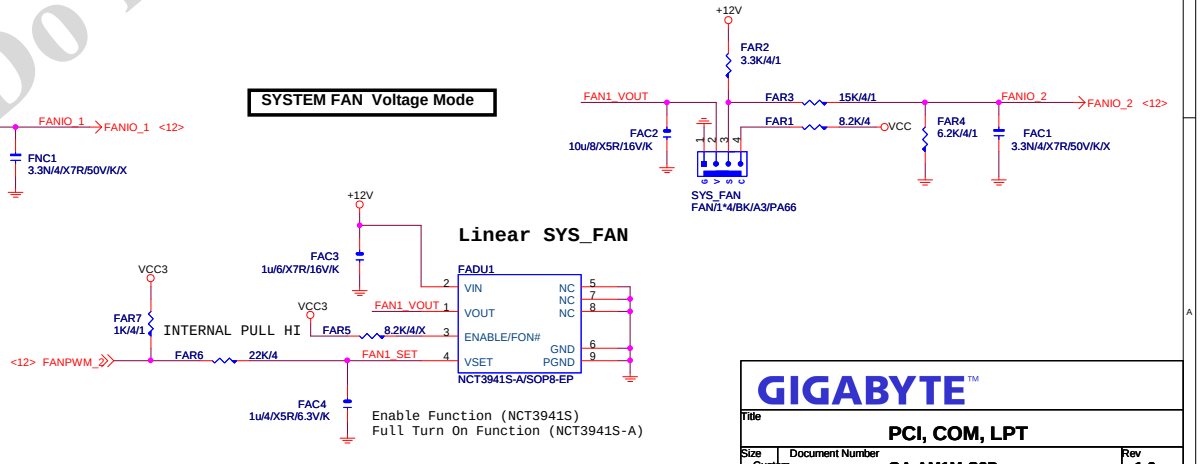




CPU FAN



SYSTEM FAN Voltage Mode



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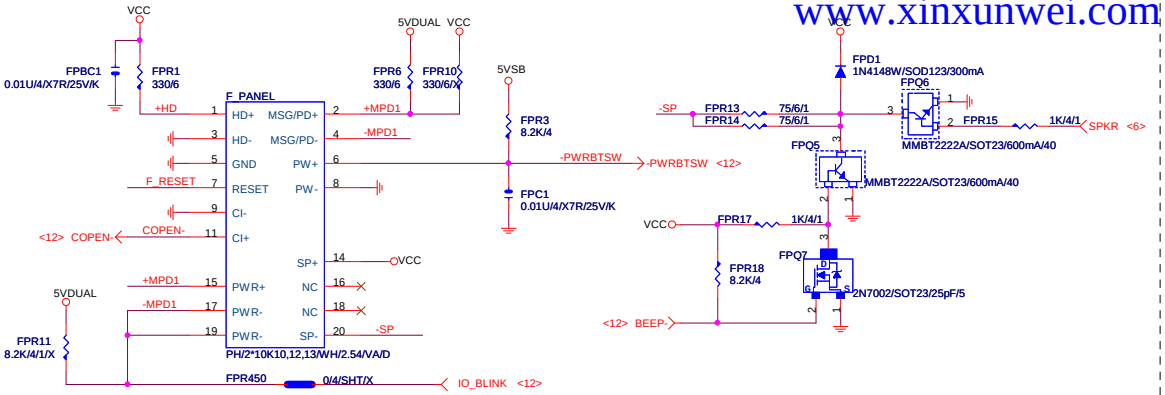
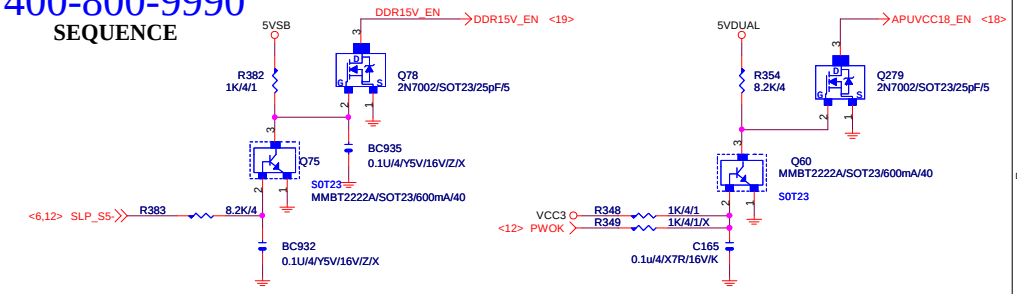
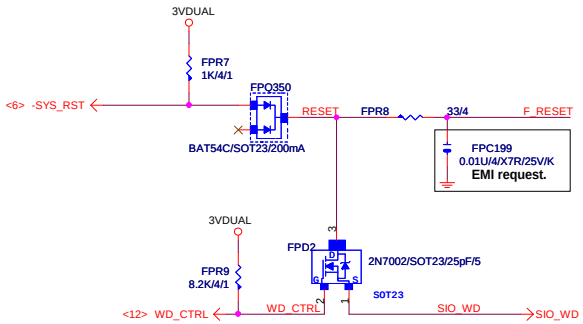
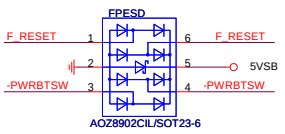
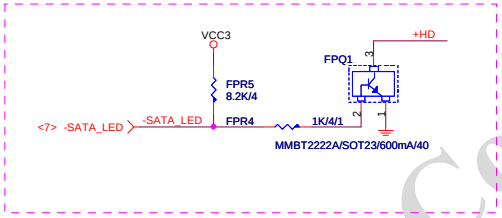
SEQUENCE

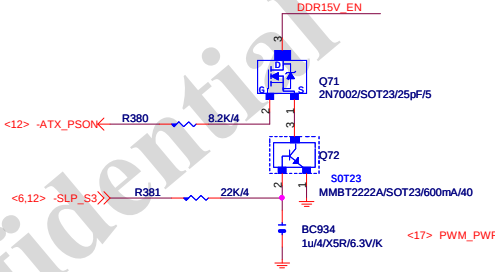


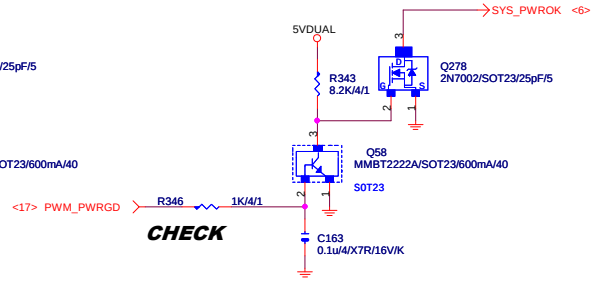




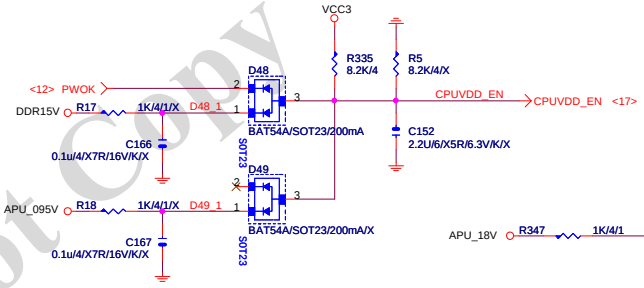


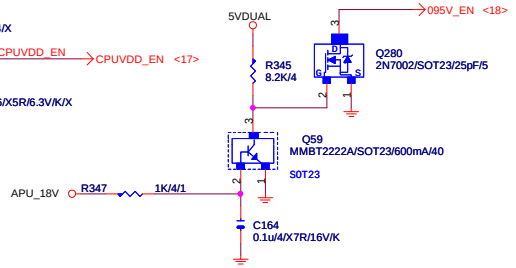




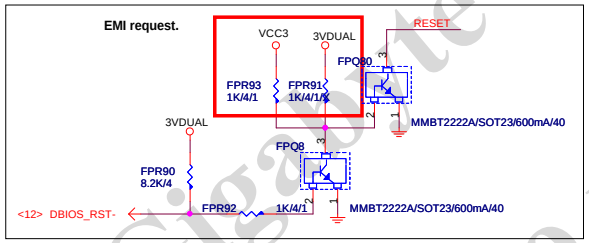


CHECK

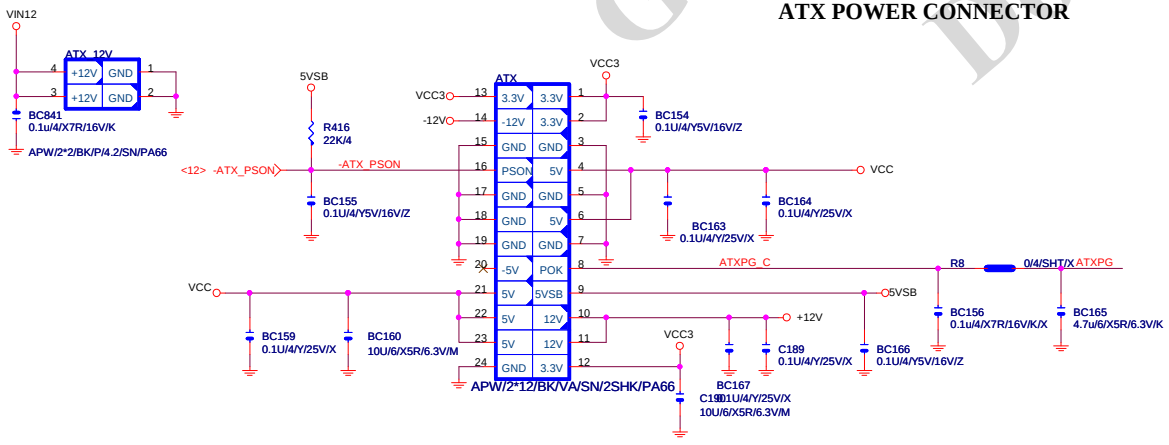


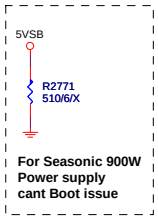


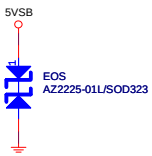
	FPR91	FPR93	FPR10	FPR11
-KBRST -> SIO	X	V	X	V
-KBRST -> RST	V	X	V	X



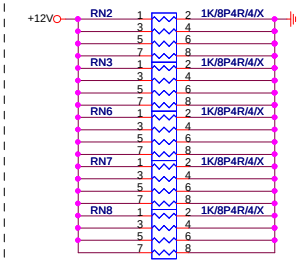
ATX POWER CONNECTOR







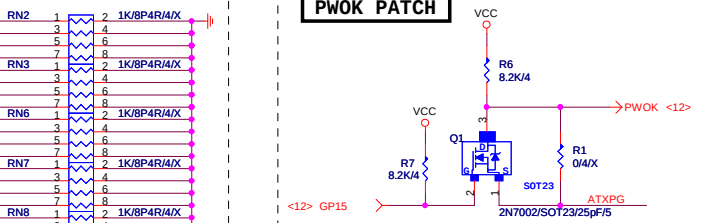
【技術通報153】



To fix 12V light load abnromal issue

【技術通報154】

PWOK PATCH



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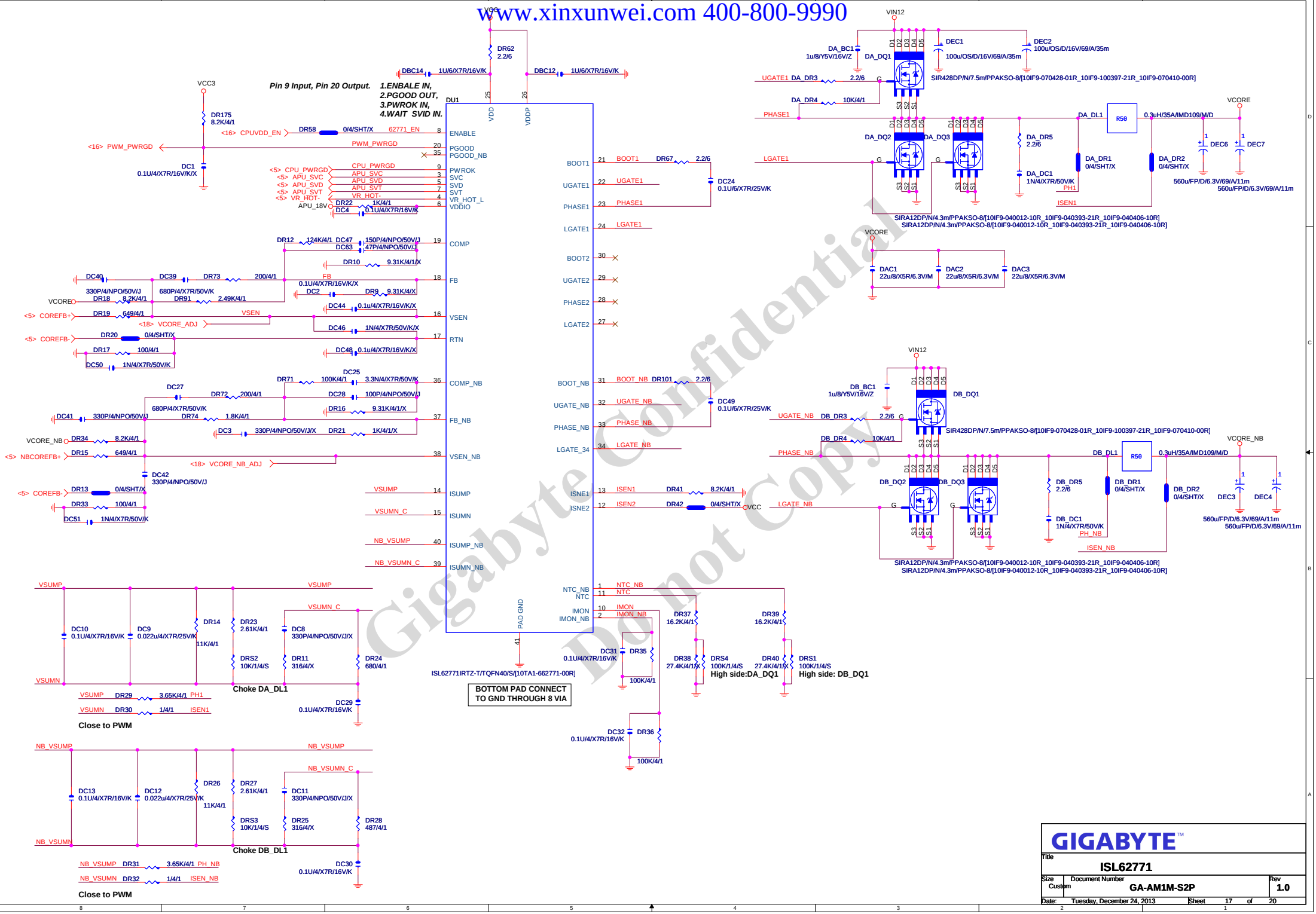

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Title: ISL62771			
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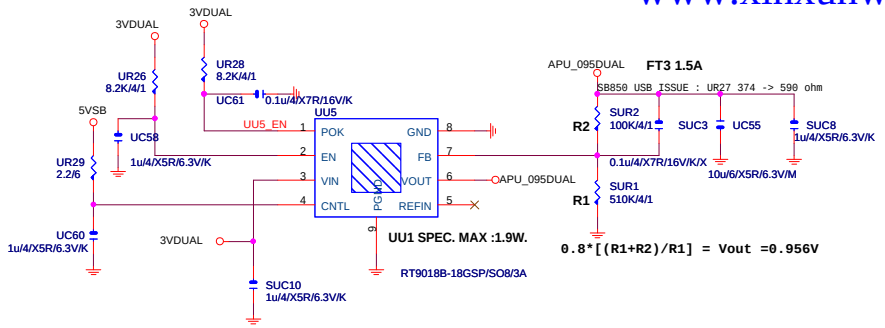
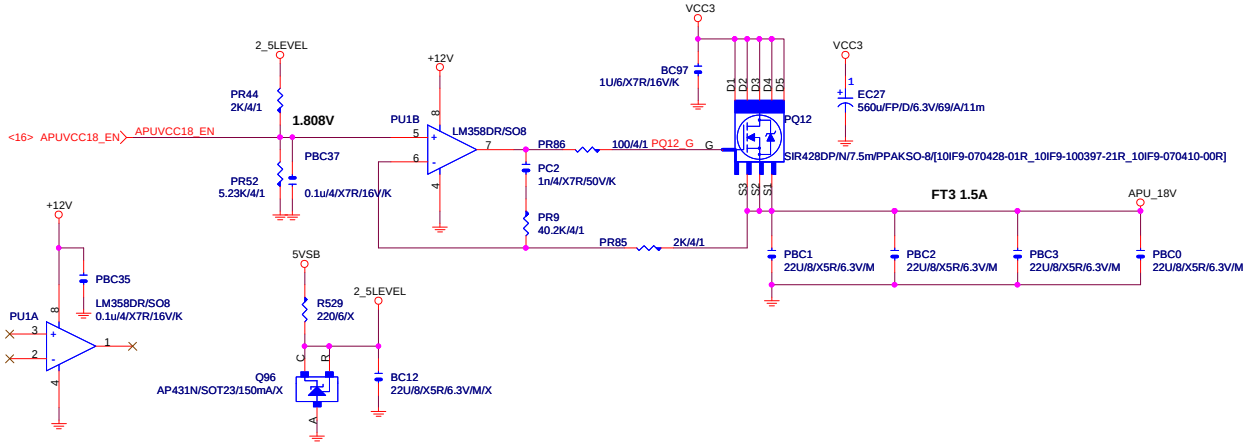
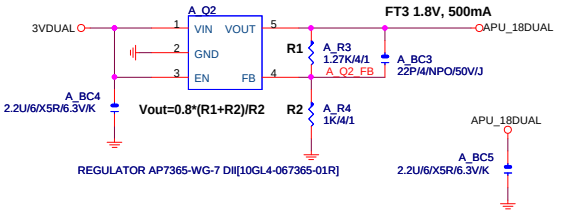
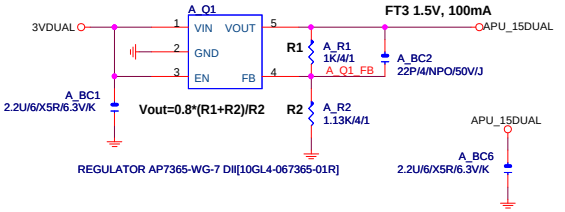


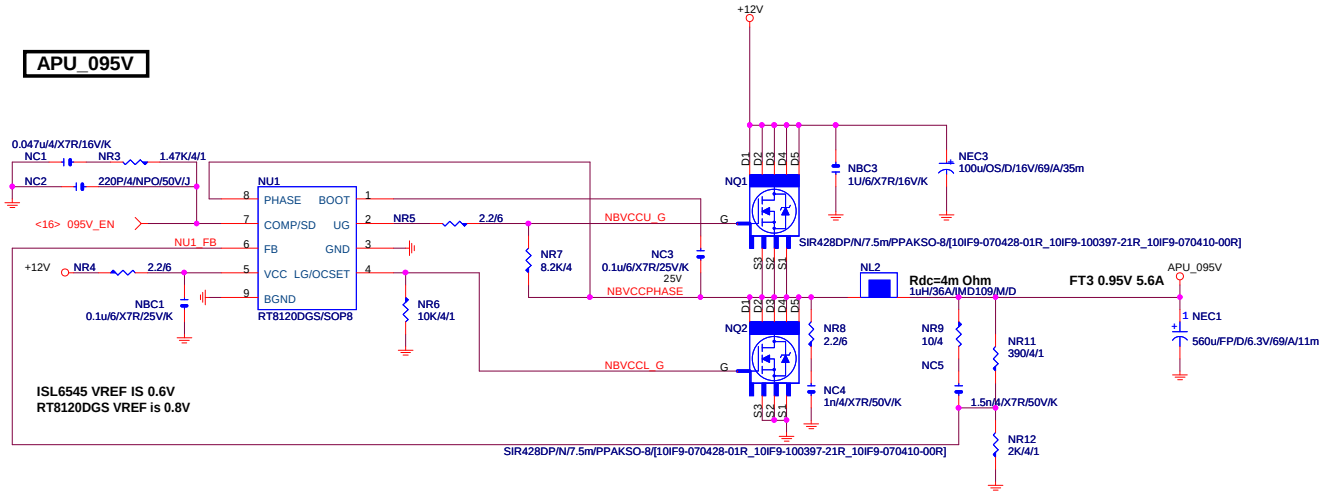
【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON),
EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份
(R1/R2)須做修改為100K以上電阻值

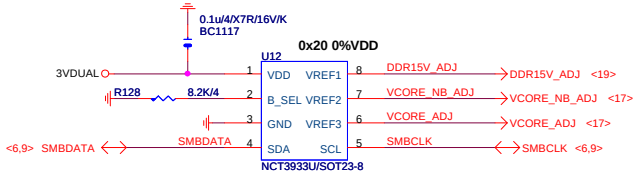






APU_095V





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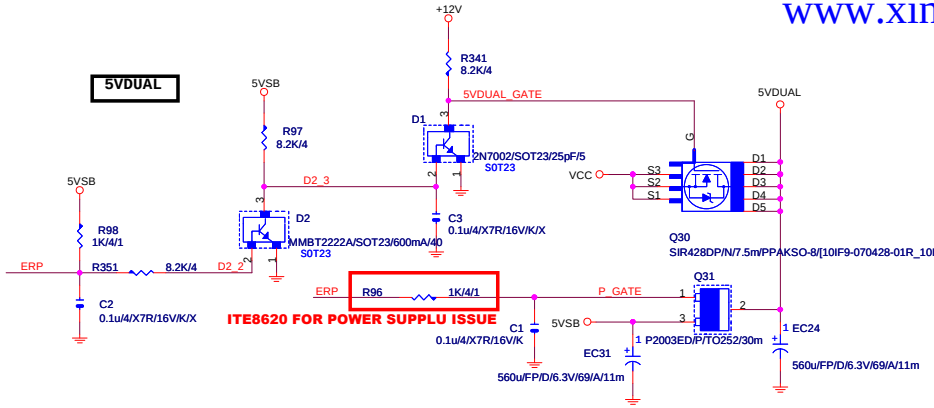

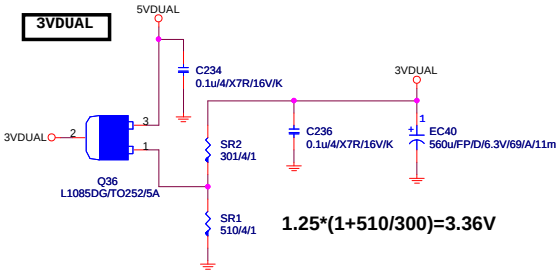

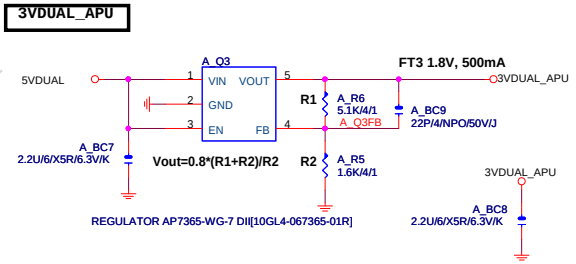

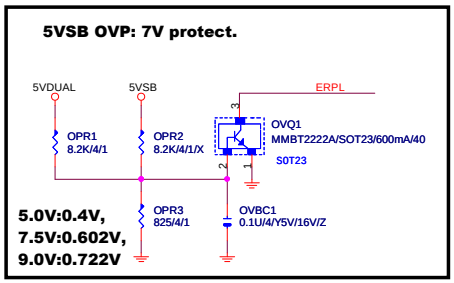

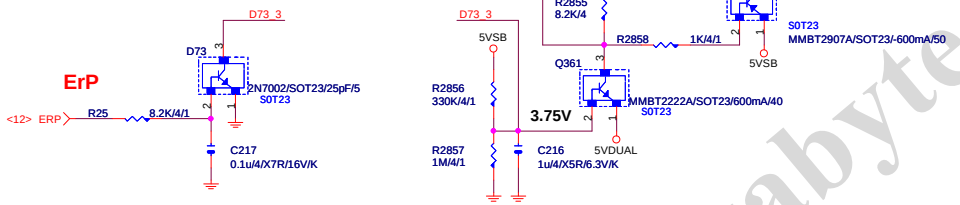

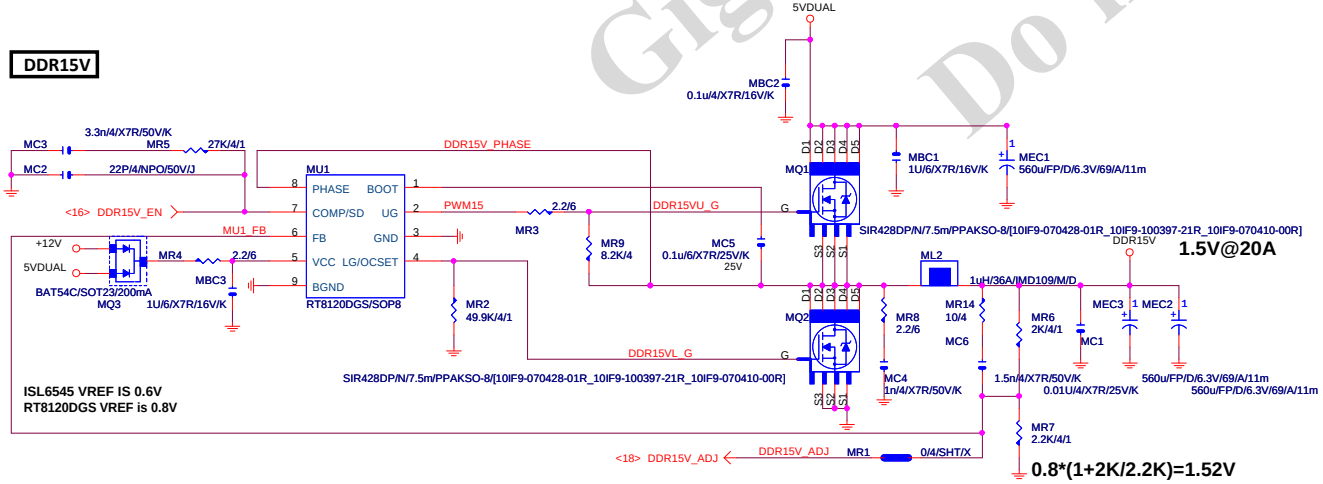

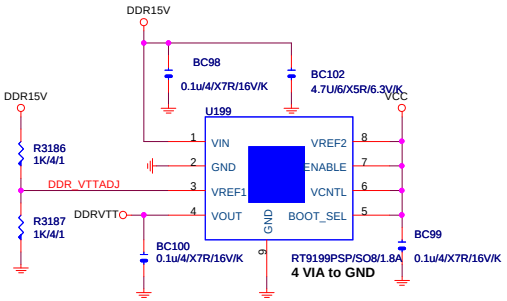

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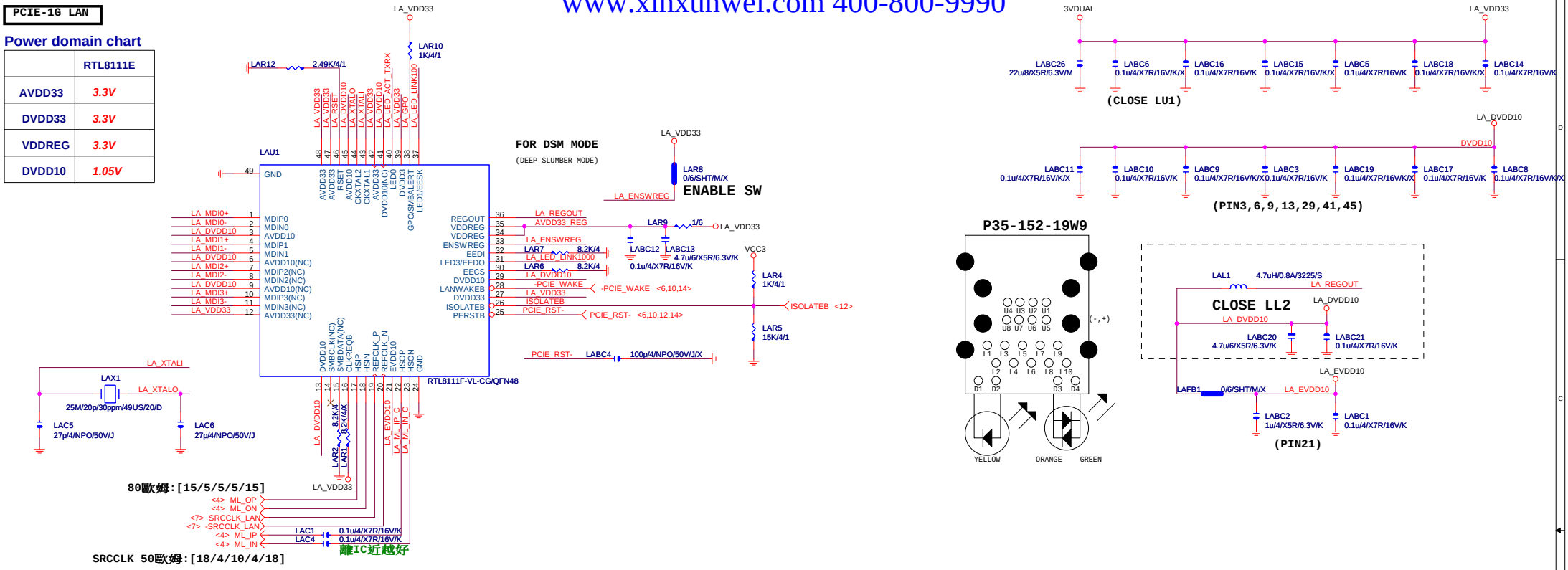
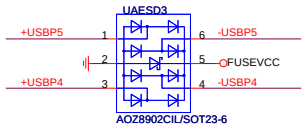
PCIE-1G LAN

Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

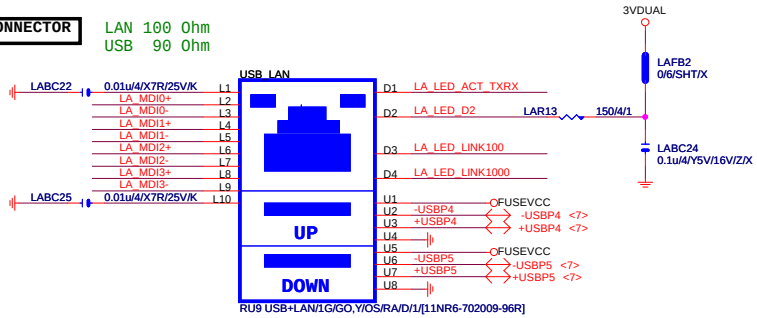


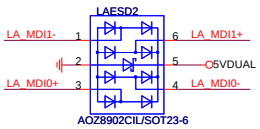
USB_LAN

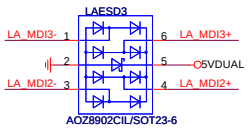


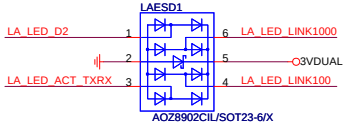
USB_LAN CONNECTOR

LAN 100 Ohm
USB 90 Ohm









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Title	REALTK RTL8111F	
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