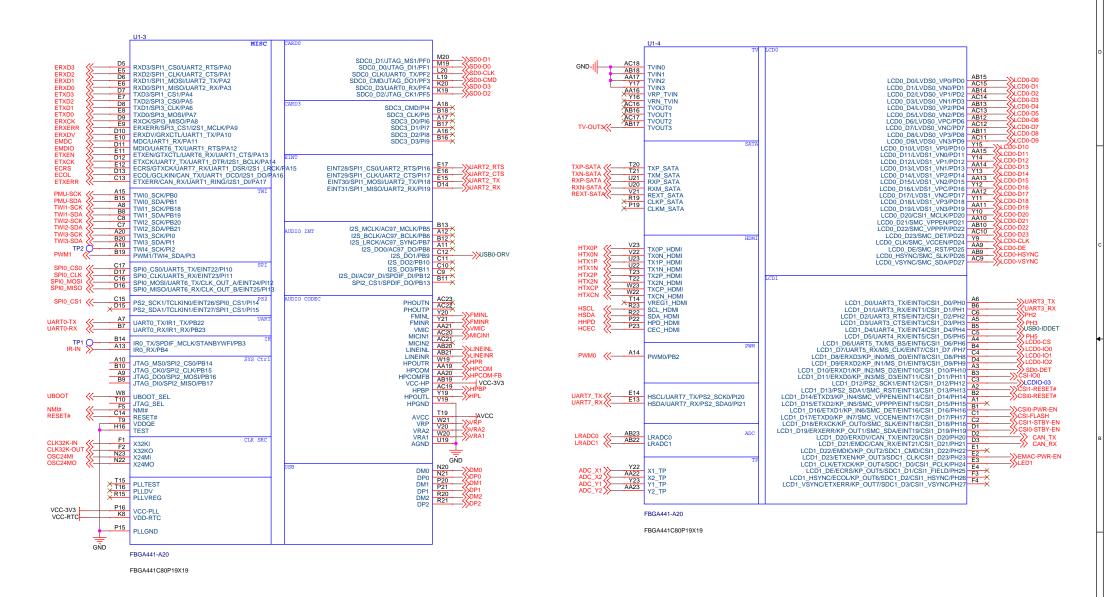
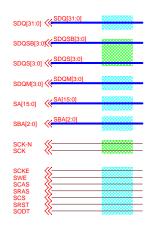
BLOCK CAN TWI2 **EEPROM EEPROM** PWM0 Ext Port 1 TWI4 IR-OUT **SPI0,1** UART2,3,5,6 TWI1 Camera CSI0/TS UART0 Ext Port 2 LCD(RGB/LVDS) LCD ADC0 TWI3 TP **MAIN CHIP UART7** Ext Port 3 **A20 BGA-441PIN HDMI OUT HDMI GPIO** TVOUT CVBS USB0 **USB DEVICE GMAC** Ethernet 1000/100/10M USB1 **USB HOST** USB2 MIC RTC **Audio Codec BACKUP BAT** HeadSet PMU AXP209 **Power System** 5V Micro USB TWI0 osc SATA SD/MMC 0 DRAMC HDD SD Card DDR3 2X16 RESET POWER ON 2.5" 24MHz 32768Hz Differential pairs Z0= 90 ohm +/-5 ohm Differential pairs Z0= 100ohm +/-5 ohm Xlongtech Co.Ltd A20_Banana_Pi BLOCK Monday, December 16, 2013 Sheet

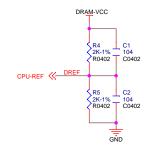
CPU₁ U1-2 U1-1 DRAM-VCC VDD25-SATA CC0-DRAM VCC1-DRAM SDQ0 SDQ1 AC4 AC8 AB5 AB7 VDD12-0-SATA M1 VCC2-DRAM NTVDD SDQ[31:0] VCC3-DRAM VDD12-1-SATA SDQ[31:0] << SDQ2 SDQ3 VCC4-DRAM VCC5-DRAM SDQ4 SDQ5 AB8 AB4 AC3 AA1 AC1 Y1 VCC6-DRAM VCC-HDMI VCC-3V3 VCC7-DRAM VCC8-DRAM SDQ6 W7 Y6 SDQ7 VCC9-DRAM SDQS[3:0] << SDQ8 GND0 G3 SDQ9 SDQ10 CPUVDD -VDD0-CPU VDD1-CPU GND1 H12 H13 AB2 GND2 SDQM[3:0] << SDQ11 AC2 W2 AB3 Y2 VDD2-CPU GND3 SDQ12 VDD3-CPU GND4 SDQ13 SDQ14 J12 VDD4-CPU GND5 J13 VDD5-CPU GND6 SDO15 GND7 SDQ16 INTVDD| VDD0-SYS GND8 SBA[2:0] SDQ17 J16 K9 Y8 GND9 M9 VDD1-SYS SDQ18 VDD2-SYS VDD3-SYS GND10 N10 GND11 P10 K10 K15 SDQ19 SDO20 VDD4-SYS GND12 GND12 GND13 GND14 K11 K12 SDQ21 L8 VDD4-313 SDQ22 M2 VDD6-SYS SDQ23 GND15 GND16 GND17 GND18 L10 GND18 L11 L12 VDD7-SYS SDQ24 SDQ25 R10 VDD8-SYS NCE4/SPI2 CS0/PC19 NCE5/SPI2_CLK/PC20 NCE6/SPI2_MOSI/PC21 NCE7/SPI2_MISO/PC22 SPI0_CS0/PC23 NDQS/PC24 VDD9-SYS SDQ26 K2 L2 G2 SDQ27 M8 INTVDD GND19 GND20 GND20 GND21 GND21 GND22 GND23 M13 VDD0-DLL SDQ28 N9 P9 VDD1-DLL M1 SDQ29 VDD2-DLL SDQ30 SDO31 VCC-3V3 GND23 N11 VCC2-LVDS CPU-REF << SVREF0 W13 GND24 N12 GND25 P11 VCC1-LVDS W12 VCC0-LVDS SVRFF1 AA8 AB6 AC5 AB1 AA2 R1 H8 H9 H15 J8 GND26 P12 GND26 GND27 GND28 GND29 GND30 GND30 GND31 GND32 GND32 GND33 GND33 SVRFF3 VCC0 SDQS0 VCC1 SDOS0# VCC2 VCC3 SDQS1 SDQS1# DRAM VCC4 VCC5 SDOS2 P2 SDQS2# GND33 W11 GND34 K14 SDOS3 VCC-PA VCC0-PA TS0_ERR/CSI0_MCLK/PE1
TS0_SYNC/CSI0_HSYNC/PE2 SCSI0-MCLK GND34 K14 GND35 L13 GND36 L14 GND37 M14 GND38 N13 GND39 N14 GND40 R13 GND41 P14 GND42 P13 GND43 Y18 SDQS3# VCC1-PA CSI0-HSYNC SDQM0 H19 VCC1-PA VCC0-PC VCC1-PC VCC-PF VCC-PF VCC-PE VCC-3V3 W1 R2 G1 D22 C23 C22 SDQM1 TS0_DVLD/CSI0_VSYNC/PE3 SDQM2 TS0 D0/CSI0 D0/PE4 TSO_D0/CSI0_D0/PE4
TSO_D1/CSI0_D1/PE5
TSO_D2/CSI0_D2/PE6
TSO_D3/CSI0_D3/PE7
TSO_D4/CSI0_D4/PE8
TSO_D5/CSI0_D5/PE9
TSO_D5/CSI0_D5/PE9
TSO_D6/CSI0_D7/PE11
TSO_D7/CSI0_D7/PE11 VCC-3V3 TSO/CSIO SDQM3 CSI0-D1 VCC-CSI SCK-N SCK# VCC-3V3 VCC-PG SCK SCKE N3 X J3 X J4 X W4 R4 U4 M4 SCK CSI0-D4 SCKE SCK1# CSI0-D5 W15 W16 VCC33-TVOUT VCC-3V3 SCK1 SA0 VCC33-TVIN VDD25-TVIN GND33-TVIN W18 W17 GND44 AA18 DRAM-VCC SA1 SA2 GND25-TVIN SA3 SA4 Y4 N4 VCC-3V3 VCC0-USB L15 K16 NC1 R14 X VCC1-USB VDD-USB SA5 SA6 GND TS1/CSI1 INTVDD TS1_CLK/CSI1_PCLK/SDC1_CMD/PG0 TS1_ERR/CSI1_MLCK/SDC1_CLK/PG1 TS1_SYNC/CSI1_HSYNC/SDC1_D0/PG2 TS1_DVI_CSI1_HSYNC/SDC1_D0/PG2 D21 SA7 SA8 SA9 AA3 P4 FBGA441-A20 FBGA441C80P19X19 TS1_SYNC/CSI1_HSYNC/SDC1_D0/PG2
TS1_DVLD/CSI1_VSYNC/SDC1_D1/PG3
TS1_D0/CSI1_D0/SDC1_D2/CSI0_D8/PG4
TS1_D1/CSI1_D1/SDC1_D3/CSI0_D8/PG4
TS1_D1/CSI1_D1/SDC1_D3/CSI0_D8/PG5 SA10 SA11 TSI_D0(CSI1_D0(SDC1_D2(CSI0_D8/PG4 | 7271 × TSI_D1(CSI1_D1(SSI0_D1) + D3(CSI0_D8/PG4 | 7271 × TSI_D1(CSI1_D2(CSI1_D3(CSI0_D1) + D3(CSI0_D1) + D3(CSI0_D1) + D3(CSI1_D2(CSI1_D3(LART3_RXCSI0_D1) + D3(CSI1_D3(LART3_RXCSI0_D1) + D3(CSI1_D3(LART3_RXCSI SA12 SA13 Y3 R3 SA14 SA15 AA4 K3 SBA0 SBA1 L4 K4 SBA2 SWE SCAS SRAS SCS SRST SODT SWE SCAS SRAS SCS0 SRST AA5 AA7 SZQ SDDBG0 × P8 SDDBG1 SADBG R1 240R-1% R0402 FRGA441-A20 FRGA441C80P19X19 ₩ GND Xlongtech Co.Ltd H3 H4 A20 Banana Pi Rev 1.4 CPU1 Monday, December 16, 2013 Sheet

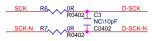
CPU₂

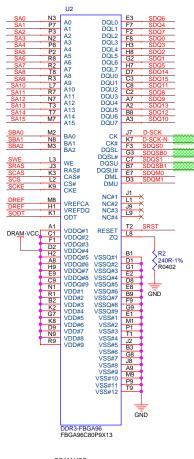


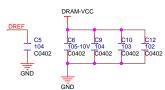
DDR3-16BITX2

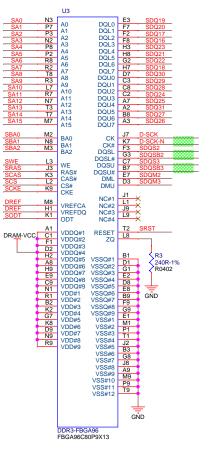


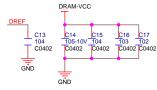




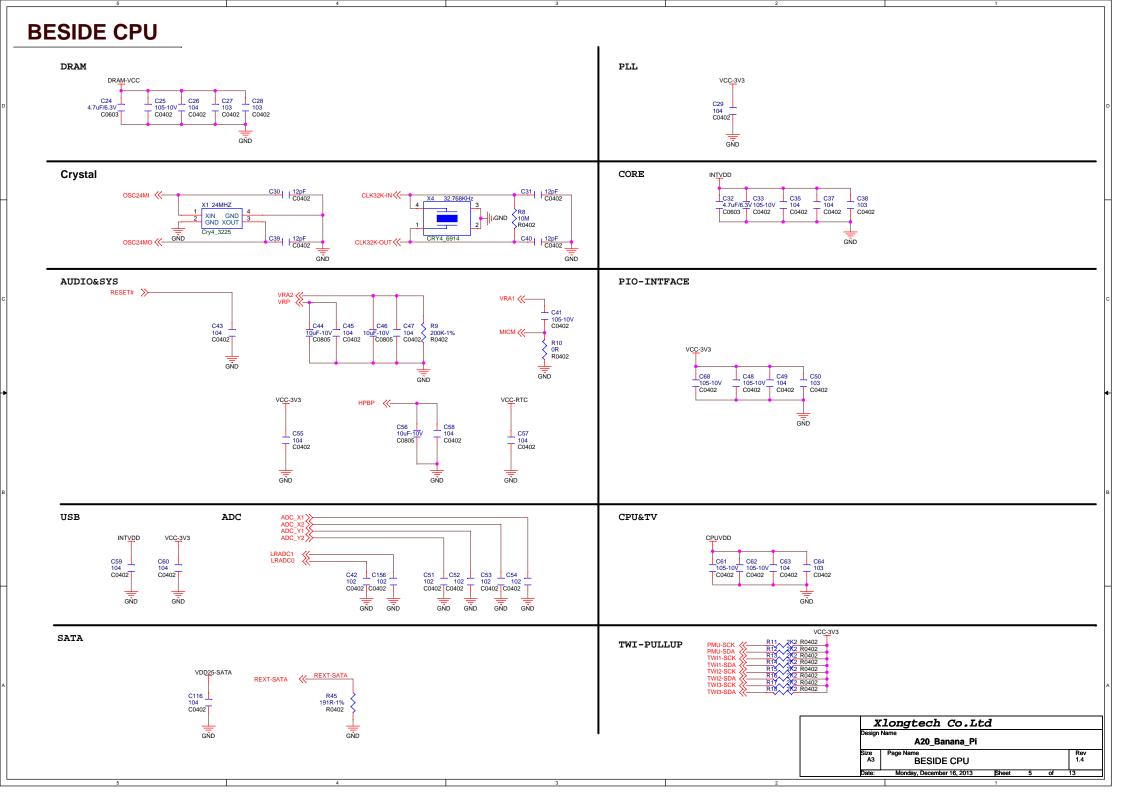




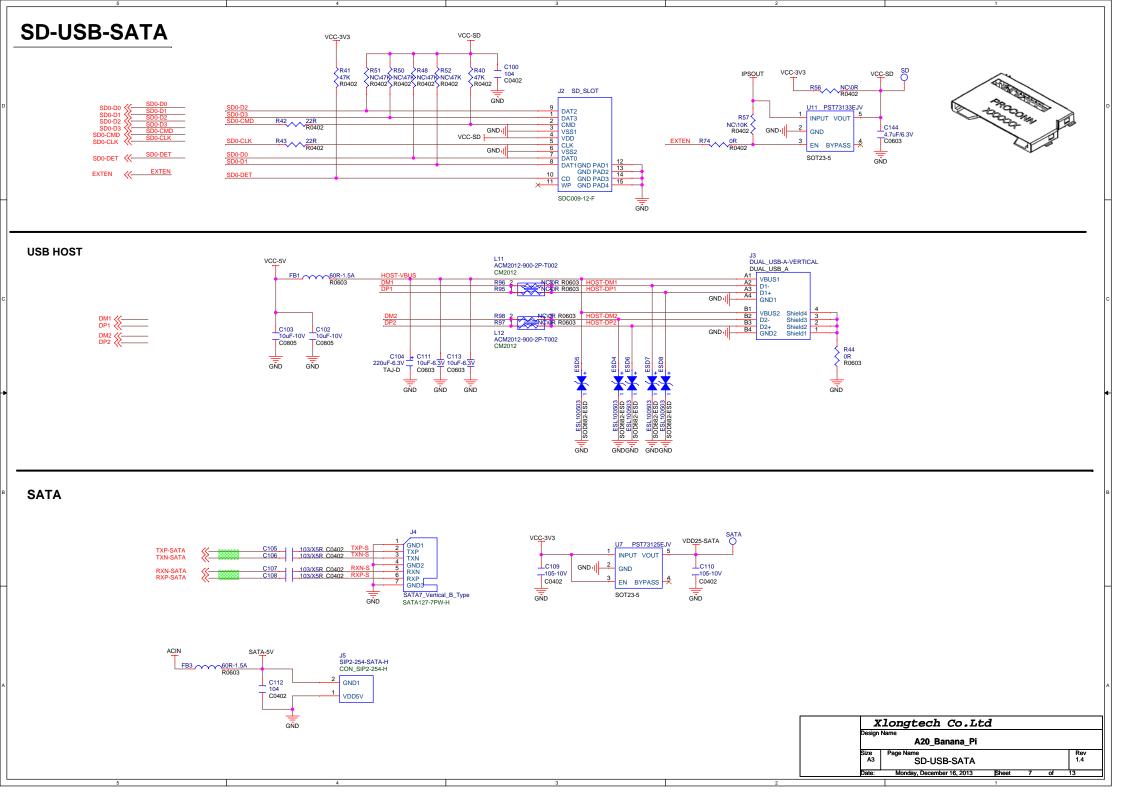




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Design	Name				
"	A20 Banana Pi				
Size	Page Name				Rev
A3	DDR3-16BITX2				1.4
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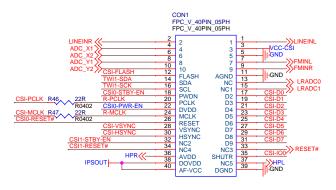
Power PMU-AXP209 DRAM-VCC DRAM-VCC DC-IN CPUVDD VCC-3V3 USB0-DRV SUSB0-DRV VCC-3V3 RESET# ACIN ->> RESET# GND GND GND DC1 INTVDD -S NMI# VCC-3V3 INTVDD VBUS AVCC PMU-SCK PMU-SCK PMU-SCK PMU-SDA D+ ID R37 2 C71 R23 C72 105-10V 2K2 105-10V C0402 R0402 C0402 VCC-RTC EXTEN EXTEN GND R0603 C74 22uF-6.3V C0805 GND | IPSOUT R24 IPSOUT_{IPSOUT} SHIELD1 47K LDO3 SHIFL D2 T 10uF-10V C0805 R0402 SHIELD3 GND-I C75 TAJ-B SHIELD4 100uF-6.3V Micro USB SMD RESET# MICRO-USB-5P-D GND GND GND GND R27 100R R0402 C76 105-10V C0402 C77 105-10V — C0402 BIAS IPSOUT VBAT-AGND BAT2 APS 1.25V INTVDD GND:|| C79 4.7uF/6.3V LDO3IN EXTEN GND I LDO3 BATSENSE GPIO0/LDO GPIO1 DRAM-VCC INTVDD VBAT-CH CHSENSE DCDC3 GND VIN1 PGND3 R106 0R03-1% LX1 PGND1 C82 22uF-6.3V 102 C0805 C0402 C158 105-10V C0402 VIN3 R29 1K5 R0402 47 IPSOUT LDO24IN DRAM-VCC IRO C191 4.7uF/6.3V C84 C81 47pF C0402 C159 C160 4.7uF/6.3V 10uF-10V C0603 C0805 T C0402 GND GND 3 41 TS-018 R32 47K C0603 AVCC R30 150K-1% R0402 R31 100K-1% | I-GND TS-018 R0402 GND GND U5 C86 4.7uF/6.3V C0603 II-GND GND EN FB 1N4148 SOD123 GND GND IPSOUT GND: GND GND L2 _____IND-5x5 4.7uH@1.5A,DCR<0.1R 1.4V O CPUVDD SY8008B-AAC 4.7uF/6.3V C0603 AVCC C88 22uF-6.3V C0805 SOT23-5 C90 L3 IND-5x5 4.7uH@1.5A,DCR<0.1F CPUVDD 104 C0402 IPSOUT R33 100R R0402 694 GND C92 22uF-6.3V C0805 C93 TS-018 GND 102 T C0402 TS-018 R34 2K R0402 GND GND GND GND VCC-3V3 VCC-3V3 C94 47pF C0402 NC\Bat GND BAT1 C95 4.7uF/6.3V C0603 R0402 XH414H II06E D7 U6 Bat_SMD414 I FD-R EN FB LED0805 IPSOUT GND I GND L4 IND-5x5 3 R38 GND 4.7uH@1.5A,DCR<0.1R SY8008B-AAC C97 22uF-6.3 R0402 C98 104 C0402 C0805 Xlongtech Co.Ltd GND GND GND A20 Banana Pi Rev 1.4 POWER Monday, December 16, 2013



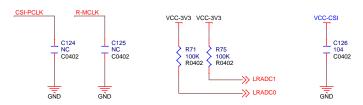


CSI



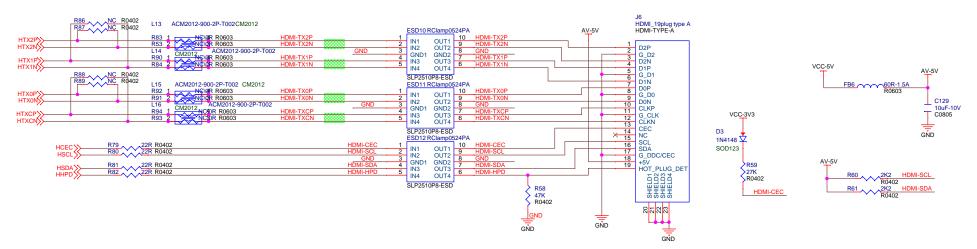


VCC-CSI为电源输入脚,给A20的PIN:F19供电需与摄像头的I0 供电电压保持一致



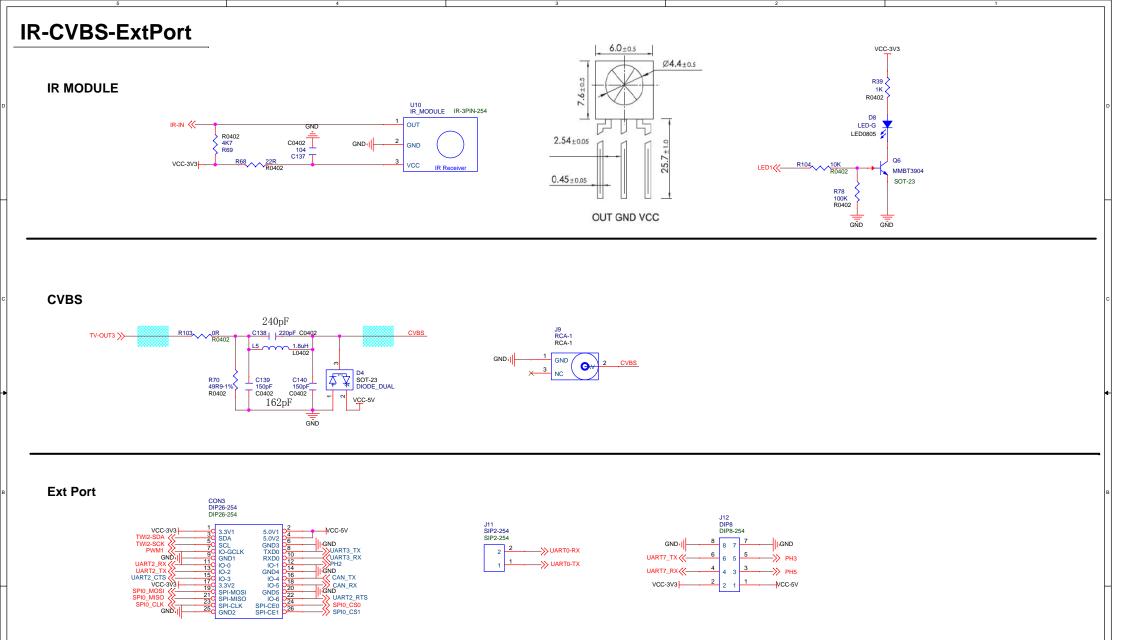
CSI-RESET和CSI-STBY如需要上拉,在子板上增加

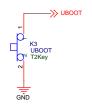
HDMI



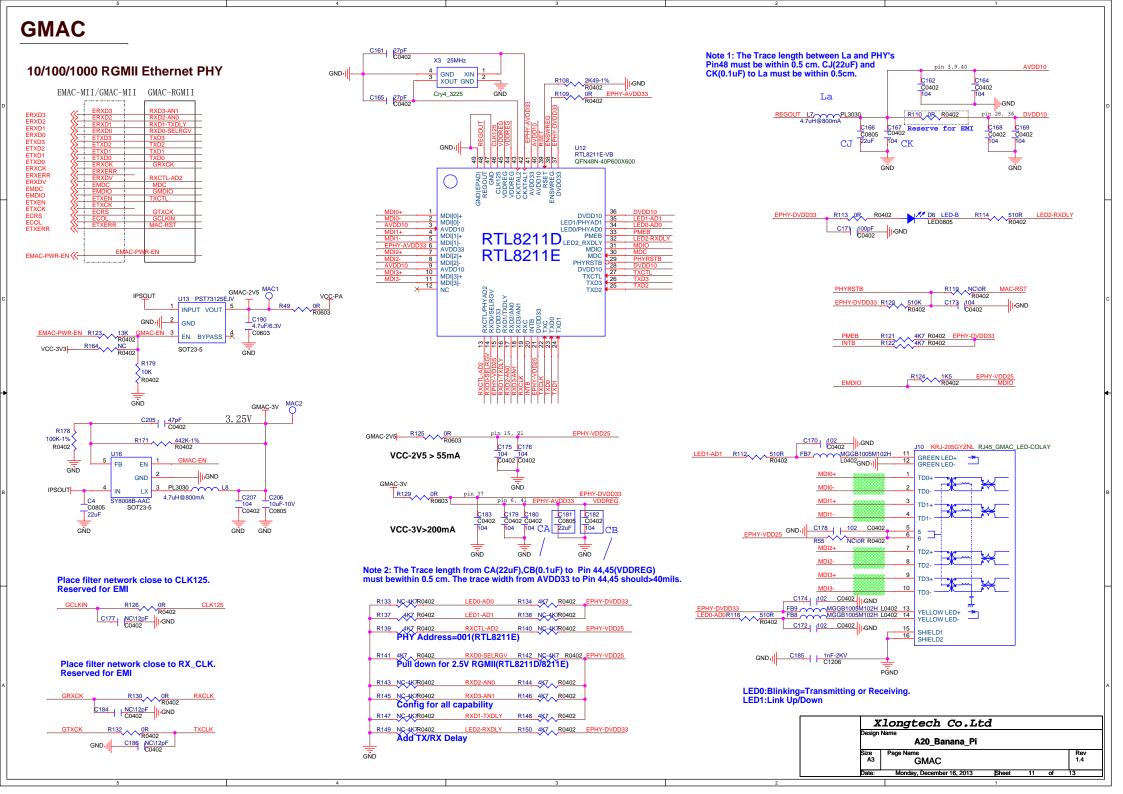
Xlongtech Co.Ltd					
Design Name A20_Banana_Pi					
Size A3	Page Name CSI-HDMI				Rev 1.4
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AUDIO-LCD-EEPROM HeadSet Microphone J7 HeadSet_PJ-3047 FB10 MGGB1005M102H L0402 R62 2K R0402 | 102 | C131 | T04 | C0402 | C133 | C0402 | C0 C130 4.7uF/6.3V PJ-3047 HPCOM-FB C0603 R64 R65 R66 22R 22R 22R R0402 R0402 C141 C142 C143 102 102 102 C0402 C0402 C0402 MICIN1 <<-Micphone MIC_400CIR180D місм <<-C134 C135 C136 104 104 104 C0402 C0402 C0402 LCD CON2 FPC_V_40PIN_05PH FPC_V_40PIN_05PH TWI3-SDA TWI3-SCK LCD0-I00 LCD0-I01 PWM0 LCD0-I02 LCD0-VSYNC LCD0-VSYNC LCD0-CS IPSOUT XL YD GND | CD0-CS | 22R | | CD0-D23 | CD0-D23 | CD0-D24 | CD0-D24 | CD0-D24 | CD0-D24 | CD0-D16 Xlongtech Co.Ltd A20_Banana_Pi AUDIO-LCD-EEPROM Monday, December 16, 2013



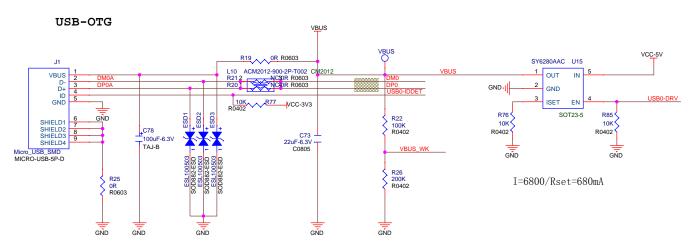


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Design	Design Name A20_Banana_Pi				
Size A3	Page Name IR-CVBS-ExtPort	Rev 1.4			
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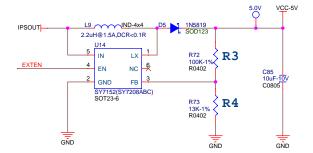








VCC-5V



Vout = 0.6*(1+R3/R4)

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V1.00

1. 第一版

V1.01

- 1. 调整J10 Transformer线路
- 2. U1的PIN: H10、J10供电由VCC-3V3改为VCC-PA

V1.2

- 1. GMAC-3V改为DC-DC供电(U16)
- 2. 增加FB7~FB9(网口灯EMI滤波)
- 3. C178改为102(原来104)
- 4. 增加C185, 1nf-2KV
- 5. IR-IN修正为连接IRO-RX
- 6. R49改为0603封装(原0402)
- 7. 增加FB10~FB12及电容(耳机EMI滤波)
- 8. 增加U11 (SD卡3. 3VLDO)
- 9. SATA座子改为弯插
- 10. 增加USB供电座子DC1
- 11. SATA供电改为ACIN, 只有接DC电源时才能用SATA
- 12. J3增加OTG功能,增加相应DC-DC升压电路(U14、U15), 删除Q1(VBUS连ACIN的MOS管)
- 13. HDMI供电改为VCC-5V
- 14. CON3, J12的VBUS改为VCC-5V
- 15. SD卡删除WP,增加DET
- 16. ACIN的滤波电容C96增加1R电阻

V1.3

- 1. CON1改为40PIN,增加ADC和AUDIO部分功能口
- 2. J3供电改为VCC-5V

V1.4

- 1. 去掉Camera的电源LDO
- 2. CON1的PIN22、36、37、38、40、3、5 分别改为CSIO-PWR-EN、HPR、HPL、IPSOUT、IPSOUT、VCC-CSI、GND
- 3. CVBS增加串联电阻R103, R70改为49. 9欧姆
- 4. CON2的PIN7、10分别改为LCDIO-03、PWMO
- 5. EMAC-PWR-EN增加下拉电阻R179, R123改为13K
- 6. J3供电合并为一路,增加220uF钽电容
- 7. 增加电源指示灯D7, I0灯D8
- 8. R75改为100uF钽电容
- 9. C73、C74、C97、C88、C82、C92改为22uF-6. 3V
- 10. 增加C78
- 11. USB和HDMI增加共模滤波器
- 12. SD卡数据线预留上拉电阻
- 13. HDMI 差分线预留并联电阻位置

A20	PIN	使用	不使用
HDMI	T13	VCC-3V3	VCC-3V3
SATA 2.5V	N15, N16	2. 5V	DRAM-VCC(1.5V)
CSI0	F19 (VCC-PE)	VCC-2. 8	VCC-2. 8
CSI1	E18 (VCC-PG)	VCC-2. 8	VCC-3V3
TVIN 2.5V	W17	2.5V	DRAM-VCC(1.5V)
TVIN 3.3V	W16	VCC-3V3	VCC-3V3
TVOUT 3.3V	W15	VCC-3V3	VCC-3V3
LVDS IO	W12, W13, W14	VCC-3V3	VCC-3V3
EMAC IO	J10, H10 (VCC-PA)	3. 0V/2. 5V	VCC-3V3
NAND IO	J19, H19 (VCC-PC)	VCC-3V3	VCC-3V3
SD IO	N19 (VCC-PF)	VCC-3V3	VCC-3V3
USB VDD	K16	INTVDD(1.2V)	VCC-3V3
USB VCC	L15, L16	VCC-3V3	VCC-3V3

	Xlongtech Co.Ltd				
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	A20_Banana_Pi				
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