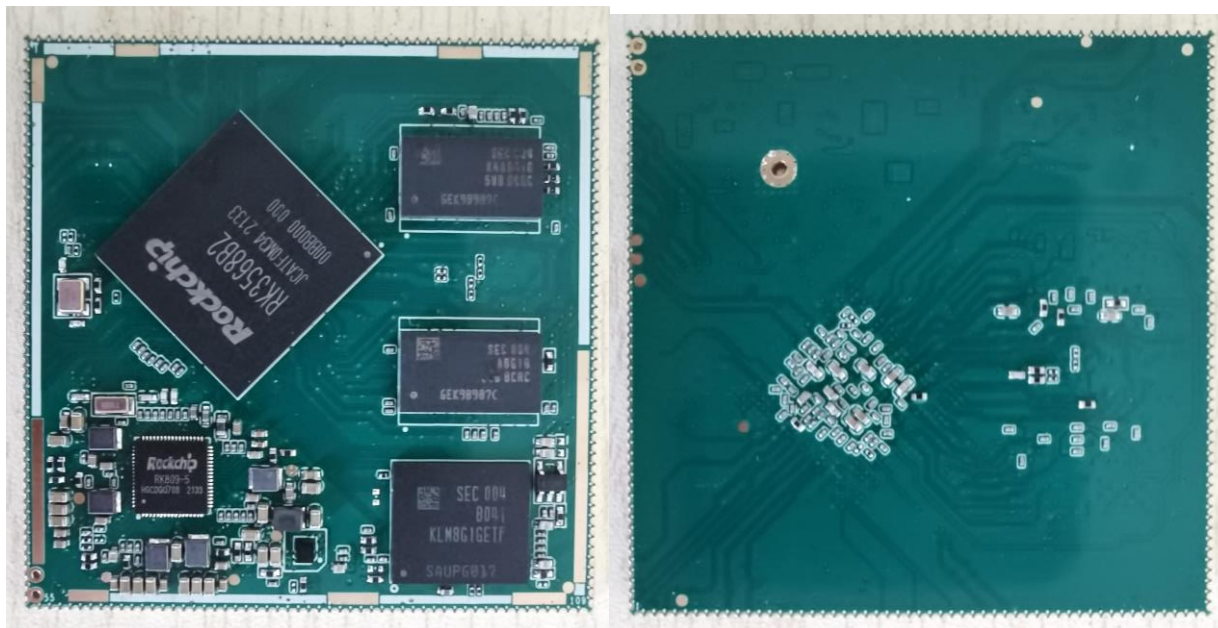


## RK3568 核心主板



### Function & Features:

内核: ARM Cortex-A55 四核;

主频: 2GHz\*4;

内存: 1GB/2GB/4GB/8GB DDR4 , 标配 2GB;

Flash: 支持 4GB/8GB/16GB/32GB/64GB/128GB emmc 可选, 标配 8GB;

1 路 USB HOST2.0 接口;

1 路 USB HOST3.0 接口;

一路 Micro USB OTG 接口 (和其中一路 USB3.0 接口复用) ;

4 路 TTL 串口接口 (含 1 路调试串口) ;

1 路 TF 卡接口;

1 个复位按钮, 1 个开关机按钮;

1 路 HDMI 输出接口;

1 路 SPDIF 光纤接口;

1 路 DSI 或 LVDS 显示接口 (通过软件配置) ;

1 路 EDP 显示接口 (通过软件配置) ;

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1 路红外一体化接收头;

2 路独立按键;

外置喇叭接口;

MIC 输入;

耳机输出接口;

支持背光无级调节;

支持电容触摸;

支持 RTC 时钟实时保存;

支持双路千兆有线以太网 RTL8211F;

支持 MIPI 摄像头接口;

支持 USB 鼠标, 键盘;

### 1.3 核心板特性

RK3568 芯片封装有铝壳(RK3568)及塑胶封装(RK3568B2)两种形式, 二者管脚完全兼容, 我们使用塑胶封装, 它唯一的缺点就是在散热上需要考虑得周全一些, 其他性能完全相同。

X3568 核心板具有以下特性:

最小尺寸, 仅 55mm\*55mm;

引出高达 216PIN 管脚, 几乎囊括 CPU 所有管脚;

使用 RK809 PMU, 保证工作稳定可靠;

使用双通道 DDR4 设计, 支持 1GB/2GB/4GB/8GB 容量;

全面支持 android/linux/ubuntu/debian 操作系统;

支持双路千兆有线以太网;

产品稳定可靠, 经过大量高低温, 反复重启等可靠性实验;

216Pin 邮票孔接口

#### A3568 邮票孔 PIN 定义:

| No | Net Name                        | Pin | No | Net Name              | Pin | No. | Net Name               | Pin |
|----|---------------------------------|-----|----|-----------------------|-----|-----|------------------------|-----|
| 1  | MIPI_DSI_TX1_CLKP               |     | 73 | CPU_AVS_GPIO0_B7      |     | 145 | GPIO4_B3_d             |     |
| 2  | VCC-WIFIMIPI_DSI_TX1_CLKN       |     | 74 | RTCIC_INT_L_GPIO0_D3  |     | 146 | GPIO4_B1               |     |
| 3  | MIPI_DSI_TX1_D1P                |     | 75 | VGA_PWREN_H_GPIO0_D5  |     | 147 | GPIO4_A7               |     |
| 4  | MIPI_DSI_TX1_D1N                |     | 76 | PCIE_PWREN_H_GPIO0_D4 |     | 148 | GPIO4_A6_d             |     |
| 5  | MIPI_DSI_TX1_D0P                |     | 77 | GND                   |     | 149 | GPIO4_A5_d             |     |
| 6  | MIPI_DSI_TX1_D0N                |     | 78 | RESETn                |     | 150 | GPIO4_A4_d             |     |
| 7  | MIPI_DSI_TX0_D3P/LVDS_TX0_D3P   |     | 79 | RK809_32KOUT_WIFI     |     | 151 | GPIO3_D4               |     |
| 8  | MIPI_DSI_TX0_D3N/LVDS_TX0_D3N   |     | 80 | EXT_EN                |     | 152 | GPIO4_A1               |     |
| 9  | MIPI_DSI_TX0_D2P/LVDS_TX0_D2P   |     | 81 | PWRON_KEY             |     | 153 | GPIO3_D1               |     |
| 10 | MIPI_DSI_TX0_D2N/LVDS_TX0_D2N   |     | 82 | MIC1_INP              |     | 154 | GPIO3_D0               |     |
| 11 | MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP |     | 83 | MIC1_INN              |     | 155 | GPIO3_D3_d             |     |
| 12 | MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN |     | 84 | GND                   |     | 156 | SPDIF_TX_M1            |     |
| 13 | MIPI_DSI_TX0_D1P/LVDS_TX0_D1P   |     | 85 | HPR_OUT               |     | 157 | GSENSOR_INT_L_GPIO3_C1 |     |
| 14 | MIPI_DSI_TX0_D1N/LVDS_TX0_D1N   |     | 86 | HP_SNS                |     | 158 | HP_DET_L_GPIO3_C2      |     |
| 15 | MIPI_DSI_TX0_D0P/LVDS_TX0_D0P   |     | 87 | HPL_OUT               |     | 159 | PA_EN_H_GPIO3_C3       |     |
| 16 | MIPI_DSI_TX0_D0N/LVDS_TX0_D0N   |     | 88 | SPKP_OUT              |     | 160 | PWM14_M0               |     |
| 17 | HDMI_TXCLKN                     |     | 89 | SPKN_OUT              |     | 161 | PCIE30X2_CLKR EQn_M1   |     |
| 18 | HDMI_TXCLKP                     |     | 90 | USB3_OTG0_ID          |     | 162 | PCIE30X2_WAK           |     |

|    |                  |  |     |  |  |     |                               |  |
|----|------------------|--|-----|--|--|-----|-------------------------------|--|
|    |                  |  |     |  |  |     | En_M1                         |  |
| 19 | HDMI_TX0N        |  | 91  | SDMMC0_CMD<br>/PWM10_M1/U<br>ART5_RX_M0/C<br>AN0_TX_M1 |  | 163 | PCIE30X2_PERS<br>Tn_M1        |  |
| 20 | HDMI_TX0P        |  | 92  | SDMMC0_CLK   |  | 164 | GMAC0_INT/PM<br>EB_GPIO2_D2   |  |
| 21 | HDMI_TX1N        |  | 93  | SDMMC0_D3/A<br>RMJTAG_TMS                              |  | 165 | GMAC1_INT/PM<br>EB_GPIO2_D0   |  |
| 22 | HDMI_TX1P        |  | 94  | SDMMC0_D1/U<br>ART2_RX_M1/U<br>ART6_RX_M1/P<br>WM9_M1  |  | 166 | PCIE30X2_PRSN<br>T_L_GPIO2_D7 |  |
| 23 | HDMI_TX2N        |  | 95  | SDMMC0_D0/U<br>ART2_TX_M1/U<br>ART6_TX_M1/P<br>WM8_M1  |  | 167 | GMAC1_RSTn_G<br>PIO2_D1       |  |
| 24 | HDMI_TX2P        |  | 96  | SDMMC0_D2/A<br>RMJTAG_TCK                              |  | 168 | GMAC0_RSTn_G<br>PIO2_D3       |  |
| 25 | GND              |  | 97  | SARADC_VIN0_<br>KEY/RECOVERY                           |  | 169 | GPIO4_C6                      |  |
| 26 | USB3_HOST1_SSTXP |  | 98  | SARADC_VIN3  |  | 170 | GPIO4_C2                      |  |
| 27 | USB3_HOST1_SSTXN |  | 99  | SARADC_VIN2_<br>LCD_ID                                 |  | 171 | GPIO4_C5                      |  |
| 28 | USB3_HOST1_SSRXP |  | 100 | FSPI_D3/FLASH<br>_CS1n                                 |  | 172 | GPIO4_D2                      |  |
| 29 | USB3_HOST1_SSRXN |  | 101 | FSPI_D0/FLASH<br>_RDY                                  |  | 173 | GPIO4_C3                      |  |
| 30 | USB3_OTG0_SSTXP  |  | 102 | FSPI_D1/FLASH<br>_RDn                                  |  | 174 | GPIO4_C4                      |  |
| 31 | USB3_OTG0_SSTXN  |  | 103 | FSPI_CS0n/FLA<br>SH_CS0n                               |  | 175 | GPIO3_B5                      |  |
| 32 | USB3_OTG0_SSRXP  |  | 104 | FSPI_CLK/FLAS<br>H_ALE                                 |  | 176 | GPIO3_B6                      |  |
| 33 | USB3_OTG0_SSRXN  |  | 105 | GMAC0_MCLKI<br>NOUT                                    |  | 177 | UART3_TX_M1                   |  |
| 34 | USB3_OTG0_DM     |  | 106 | UART8_TX_M0  |  | 178 | UART3_RX_M1                   |  |
| 35 | USB3_OTG0_DP     |  | 107 | UART8_RX_M0  |  | 179 | I2C5_SDA_M0                   |  |
| 36 | USB3_HOST1_DM    |  | 108 | UART8_CTSn_<br>M0                                      |  | 180 | I2C5_SCL_M0                   |  |
| 37 | USB3_HOST1_DP    |  | 109 | GMAC0_RXDV_  |  | 181 | USB2_HOST2_D                  |  |

|    |                              |  |     |                      |  |     |                             |
|----|------------------------------|--|-----|----------------------|--|-----|-----------------------------|
|    |                              |  |     | CRS                  |  |     | M                           |
| 38 | EDP_TX_AUXN                  |  | 110 | GMAC0_RXCLK          |  | 182 | USB2_HOST2_D<br>P           |
| 39 | EDP_TX_AUXP                  |  | 111 | GMAC0_TXD3           |  | 183 | USB2_HOST3_D<br>M           |
| 40 | EDP_TX_D3N                   |  | 112 | GMAC0_TXD2           |  | 184 | USB2_HOST3_D<br>P           |
| 41 | EDP_TX_D3P                   |  | 113 | GMAC0_TXD1           |  | 185 | UART4_RX_M1                 |
| 42 | EDP_TX_D2N                   |  | 114 | GMAC0_TXD0           |  | 186 | UART4_TX_M1                 |
| 43 | EDP_TX_D2P                   |  | 115 | GMAC0_TXCLK          |  | 187 | ETH1_REFCLKO_<br>25M_M0     |
| 44 | EDP_TX_D1N                   |  | 116 | GMAC0_RXD3           |  | 188 | PCIECLKIC_OE_<br>H_GPIO3_A7 |
| 45 | EDP_TX_D1P                   |  | 117 | GMAC0_RXD2           |  | 189 | BT_WAKE_HOST<br>H_GPIO3_A1  |
| 46 | EDP_TX_D0N                   |  | 118 | GMAC0_RXD1           |  | 190 | HOST_WAKE_BT<br>H_GPIO3_A2  |
| 47 | EDP_TX_D0P                   |  | 119 | GMAC0_RXD0           |  | 191 | I2S3_SDI_M0                 |
| 48 | USB3_OTGO_VBUSDET            |  | 120 | GMAC0_TXEN           |  | 192 | I2S3_SDO_M0                 |
| 49 | VDC_EXT                      |  | 121 | GMAC0_MDC            |  | 193 | I2S3_LRCK_M0                |
| 50 | VCC3V3_SYS                   |  | 122 | GMAC0_MDIO           |  | 194 | I2S3_SCLK_M0                |
| 51 | VCC3V3_SYS                   |  | 123 | UART8_RTSn_<br>M0    |  | 195 | BT_REG_ON_H_<br>GPIO3_A0    |
| 52 | VCC3V3_SYS                   |  | 124 | ETH0_REFCLKO_<br>25M |  | 196 | HDMI_TX_HPDI<br>N           |
| 53 | GND                          |  | 125 | I2C3_SCL             |  | 197 | HDMITX_CEC_M<br>0           |
| 54 | GND                          |  | 126 | I2C3_SDA             |  | 198 | HDMITX_SDA                  |
| 55 | UART2_RX_M0_DEBUG            |  | 127 | SPDIF_TX_M0          |  | 199 | HDMITX_SCL                  |
| 56 | UART2_TX_M0_DEBUG            |  | 128 | GPIO4_B5             |  | 200 | GND                         |
| 57 | LCD1_PWREN_H_GPIO0<br>_C5    |  | 129 | GPIO4_B2             |  | 201 | MIPI_CSI_RX_CL<br>K1P       |
| 58 | WORKING_LEDEN_H_G<br>PIO0_C0 |  | 130 | GPIO3_D6_d           |  | 202 | MIPI_CSI_RX_CL<br>K1N       |
| 59 | LCD0_BL_PWM4_GPIO0<br>_C3    |  | 131 | GPIO3_D7_d           |  | 203 | MIPI_CSI_RX_CL<br>K0P       |
| 60 | DVP_PWREN0_H_GPIO0<br>_C1    |  | 132 | GPIO4_A3             |  | 204 | MIPI_CSI_RX_CL<br>K0N       |
| 61 | EDP_HPDI_M1_GPIO0<br>_C2     |  | 133 | GPIO4_A0_d           |  | 205 | MIPI_CSI_RX_D3<br>P         |
| 62 | I2C1_SCL_TP_GPIO0_B3         |  | 134 | GPIO3_D5             |  | 206 | MIPI_CSI_RX_D3              |

|    |                           |  |     |            |  |     |                      |  |
|----|---------------------------|--|-----|------------|--|-----|----------------------|--|
|    |                           |  |     |            |  |     | N                    |  |
| 63 | LCD0_PWREN_H_GPIO0_C7     |  | 135 | GPIO3_C7   |  | 207 | MIPI_CSI_RX_D2<br>P  |  |
| 64 | USB_OTG_PWREN_H_GPIO0_A5  |  | 136 | GPIO4_B0   |  | 208 | MIPI_CSI_RX_D2<br>N  |  |
| 65 | REFCLKOUT_GPIO0_A0        |  | 137 | GPIO4_B6   |  | 209 | MIPI_CSI_RX_D1<br>P  |  |
| 66 | SDMMC0_DET_L_GPIO0_A4     |  | 138 | GPIO4_B7   |  | 210 | MIPI_CSI_RX_D1<br>N  |  |
| 67 | TP_RST_L_GPIO0_B6         |  | 139 | GPIO4_C0   |  | 211 | MIPI_CSI_RX_D0<br>P  |  |
| 68 | I2C1_SDA_TP_GPIO0_B4      |  | 140 | GPIO4_B4   |  | 212 | MIPI_CSI_RX_D0<br>N  |  |
| 69 | PWM7_IR_GPIO0_C6          |  | 141 | GPIO3_D2   |  | 213 | MIPI_DSI_TX1_D<br>3P |  |
| 70 | LCD1_BL_PWM5_GPIO0_C4     |  | 142 | GPIO4_A2   |  | 214 | MIPI_DSI_TX1_D<br>3N |  |
| 71 | TP_INT_L_GPIO0_B5         |  | 143 | GPIO3_C6   |  | 215 | MIPI_DSI_TX1_D<br>2P |  |
| 72 | USB_HOST_PWREN_H_GPIO0_A6 |  | 144 | GPIO4_C1_d |  | 216 | MIPI_DSI_TX1_D<br>2N |  |
|    |                           |  |     |            |  |     |                      |  |

**RK3568 核心板结构尺寸图：**

