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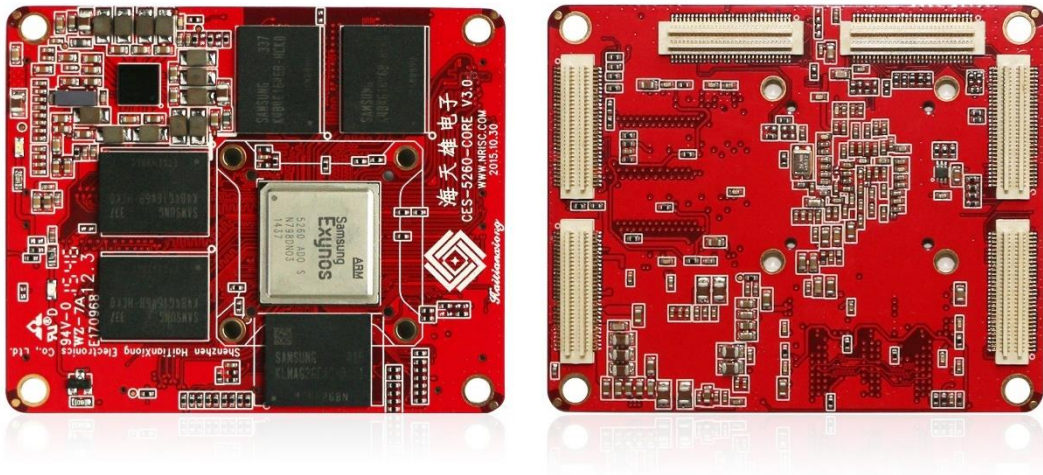
CES-5260-CORE

产品手册

ARM 核心板

Rev. V1.0

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简介

CES-5260 核心板是一款低功耗、高性能的嵌入式 ARM 主板，使用 Samsung 高端主流 ARM 处理器：六核架构，双核 Cortex-A15 + 四核 Cortex-A7，主频最高可达 1.7GHz，采用了 28 纳米的 HKMG 工艺，配备 Mali-T628 MP3 GPU，性能强大。Exynos5260 支持 32K/32K 一级缓存、1MB 二级缓存、增强的 VFP(浮点体系结构)、Neon 协处理器，DMIPS/MHz(单位频率的每秒百万指令数)比上代 Cortex-A9 1.5GHz 处理器提高了 40%。

CES-5260 核心板提供丰富的功能接口，提供 HDMI1.4、eDP 和 LCD(MIPI)三种显示接口。提供 1 个 USB 3.0 HOST 接口、4 个 USB HOST2.0 接口、4 个 UART 串口、多个存储接口、两路 MIPI-CSI 摄像头接口，提供可扩展的 GPIO 及其他外设接口。

CES-5260 核心板适用于不同的产品应用，包括医疗设备、汽车电子、POS 一体机、触控一体机、工业控制设备、加油机自动终端设备、手持 PDA 及其他行业产品。

特点

- 三星 Cortex-A15 Exynos5260 六核处理器，主频 1.7GHz
- 板载 2GB DDR3，16GB eMMC，12.8GB/s memory bandwidth
- 支持 1080p 60fps 全高清视频解码和编码硬件，3D 图形硬件
- 支持 OpenGL ES1.1/2.0/3.0, openVG1.0.1 硬件加速器
- 支持 eMMC5.0, USB3.0, SDIO3.0 高速接口
- 支持 WQXGA eDP, WUXGA MIPI, HDMI 显示
- 支持 Android4.4.2 和 Embedded Linux3.4.39 操作系统

规格

| | |
|----------------|--|
| 处理器 | |
| CPU | 基于 Samsung ARM Cortex™-A15 Exynos5260 六核处理器，主频 1.7GHz |
| 缓存 | 32KB (Instruction) /32KB (Data) Cache and 1MB L2 Cache |
| 存储 | |
| 工艺 | 2-ports 32-bit DDR3/LPDDR3 800MHz |
| 容量 | 板载 2GB DDR3 |
| FLASH | 板载 16GB eMMC, 可选 4GB、8GB、16GB、32GB eMMC |
| PMIC | |
| 芯片组 | Samsung S2MPA01 |
| B2B 连接器 | |
| 连接类型 | 精密广濂 0.5mm 双排 2*30PIN 连接器，6 个 |
| 管脚数 | 共计 360PIN |
| 管脚功能 | GPIO、ADC、MIPI DSI/CSI、HDMI、eDP、I2C、Audio I2S/PCM/SPDIF、UART、SPI、JTAG、USB HOST/OTG、HSIC、PWM、RESET、XEINT、MMC |
| B2B 固定孔 | |
| 固定孔 | 4 个 |
| 操作系统 | |
| 操作系统 | 可选 Android 4.4.2、Embedded Linux 3.4.39 |
| 环境 | |
| 工作环境 | 温度：-10~60°C 自然对流，湿度：5%~95%RH@31°C 无冷凝 |
| 存储环境 | 温度：-40~85°C，湿度：5%~95%RH@39°C 无冷凝 |
| 尺寸 | |
| 尺寸(mm) | 51*62mm |

管脚定义

| J1 | | | | |
|---------|--------------|-----------------|---------------|----------|
| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
| 1 | HD_TX2+ | B24 | XHDMITX2P | HDMI |
| 2 | HD_TX1+ | B25 | XHDMITX1P | HDMI |
| 3 | HD_TX2- | A24 | XHDMITX2N | HDMI |
| 4 | HD_TX1- | A25 | XHDMITX1N | HDMI |
| 5 | HD_TX0+ | B26 | XHDMITX0P | HDMI |
| 6 | HD_TXC+ | B27 | XHDMITXCP | HDMI |
| 7 | HD_TX0- | A26 | XHDMITX0N | HDMI |
| 8 | HD_TXC- | A27 | XHDMITXCN | HDMI |
| 9 | GND | | | 电源地 |
| 10 | GND | | | 电源地 |
| 11 | DP_TX3P | C28 | XDPTX3P | eDP |
| 12 | DP_TX2P | D28 | XDPTX2P | eDP |
| 13 | DP_TX3N | C29 | XDPTX3N | eDP |
| 14 | DP_TX2N | D29 | XDPTX2N | eDP |
| 15 | DP_TX1P | E28 | XDPTX1P | eDP |
| 16 | DP_TX0P | F28 | XDPTX0P | eDP |
| 17 | DP_TX1N | E29 | XDPTX1N | eDP |
| 18 | DP_TX0N | F29 | XDPTX0N | eDP |
| 19 | DP_AUXP | G28 | XDPAUXP | eDP |
| 20 | GND | | | 电源地 |
| 21 | DP_AUXN | G29 | XDPAUXN | eDP |
| 22 | XMIPI0MDN0 | J28 | XMIPI0MDN0 | MIPI DSI |
| 23 | GND | | | 电源地 |
| 24 | XMIPI0MDP0 | J29 | XMIPI0MDP0 | MIPI DSI |
| 25 | XMIPI0MDN1 | K28 | XMIPI0MDN1 | MIPI DSI |
| 26 | XMIPI0MDNCLK | L28 | XMIPI0MDNCLK | MIPI DSI |
| 27 | XMIPI0MDP1 | K29 | XMIPI0MDP1 | MIPI DSI |
| 28 | XMIPI0MDPCLK | L29 | XMIPI0MDPCLK | MIPI DSI |
| 29 | XMIPI0MDN2 | M28 | XMIPI0MDN2 | MIPI DSI |
| 30 | XMIPI0MDN3 | N28 | XMIPI0MDN3 | MIPI DSI |
| 31 | XMIPI0MDP2 | M29 | XMIPI0MDP2 | MIPI DSI |
| 32 | XMIPI0MDP3 | N29 | XMIPI0MDP3 | MIPI DSI |
| 33 | GND | | | 电源地 |
| 34 | GND | | | 电源地 |
| 35 | XMIPI0SDN0 | R28 | XMIPI0SDN0 | MIPI CSI |

| | | | | |
|----|-------------------|------|---|-------------|
| 36 | XMIPI0SDN1 | T28 | XMIPI0SDN1 | MIPI CSI |
| 37 | XMIPI0SDP0 | R29 | XMIPI0SDP0 | MIPI CSI |
| 38 | XMIPI0SDP1 | T29 | XMIPI0SDP1 | MIPI CSI |
| 39 | XMIPI0SDNCLK | U28 | XMIPI0SDNCLK | MIPI CSI |
| 40 | XMIPI0SDN2 | V28 | XMIPI0SDN2 | MIPI CSI |
| 41 | XMIPI0SDPCLK | U29 | XMIPI0SDPCLK | MIPI CSI |
| 42 | XMIPI0SDP2 | V29 | XMIPI0SDP2 | MIPI CSI |
| 43 | XMIPI0SDN3 | W28 | XMIPI0SDN3 | MIPI CSI |
| 44 | GND | | | 电源地 |
| 45 | XMIPI0SDP3 | W29 | XMIPI0SDP3 | MIPI CSI |
| 46 | CAM0_AF_EN/GPE1_0 | R24 | XISPGP8/NCTS_UART_ISP/SROM_DATA11/ DISP_VD15/GPE1_0 | GPIO/CAMERA |
| 47 | GND | | | 电源地 |
| 48 | CAM1_PD/GPE0_6 | Y25 | XISPGP6/NRTS_UART_ISP/SROM_DATA9/D ISP_VD13/GPE0_6 | GPIO/CAMERA |
| 49 | CAM0_FLASH/GPE0_7 | T24 | XISPGP7/TXD_UART_ISP/SROM_DATA10/D ISP_VD14/GPE0_7 | GPIO/CAMERA |
| 50 | LVDS_PD/GPK0_0 | R26 | XV_FRM/GPK0_0 | GPIO/LCD |
| 51 | CAM1_AF_EN/GPE1_1 | AA26 | XISPGP9/RXD_UART_ISP/SROM_DATA12/D ISP_VD16/GPE1_1 | GPIO/CAMERA |
| 52 | LCD33_EN/GPK0_1 | T26 | XV_TES/GPK0_1 | GPIO/LCD |
| 53 | GND | | | 电源地 |
| 54 | GND | | | 电源地 |
| 55 | CAM1_RST/GPE0_4 | R25 | XISPGP4/MPWM5_OUT_ISP/DP1_CH2_TXD _CLK_DIV08/SROM_DATA7/DISP_VD11/GP E0_4 | GPIO/CAMERA |
| 56 | GPF1_2 | V24 | XISPSP10MISO/CAM_GPIO16/DISP_VCLK/ GPF1_2 | GPIO |
| 57 | GPF1_1 | T25 | XISPSP10CSN/CAM_GPIO15/TRACECTL/DI SP_HSYNC/GPF1_1 | GPIO |
| 58 | GPF1_0 | AD27 | XISPSP10CLK/CAM_GPIO14/DISP_VSYNC/ GPF1_0 | GPIO |
| 59 | GPF1_3 | AB26 | XISPSP10MOSI/CAM_GPIO17/DISP_VDEN/ GPF1_3 | GPIO |
| 60 | GPF1_6 | AA25 | XISPSP11MISO/DISP_VD5/GPF1_6 | GPIO |

| J2 | | | | |
|---------|---------------------|-----------------|---|-------------|
| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
| 1 | GPF1_5 | U24 | XISPSP11CSN/TRACECLK/DISP_VD4/GPF1_5 | GPIO |
| 2 | GPF1_4 | AC25 | XISPSP11CLK/DISP_VD3/GPF1_4 | GPIO |
| 3 | GPF1_7 | AB25 | XISPSP11MOSI/DISP_VD6/GPF1_7 | GPIO |
| 4 | XISPI2C1SDA | U26 | XISPI2C1SDA/CAM_GPIO12/DISP_VD22/GPF0_2 | I2C |
| 5 | CAM_SDA/XISPI2C0SDA | U25 | XISPI2C0SDA/CAM_GPIO10/DISP_VD20/GPF0_0 | I2C |
| 6 | XISPI2C1SCL | W26 | XISPI2C1SCL/CAM_GPIO13/DISP_VD23/GPF0_3 | I2C |
| 7 | CAM_SCL/XISPI2C0SCL | V25 | XISPI2C0SCL/CAM_GPIO11/DISP_VD21/GPF0_1 | I2C |
| 8 | CAM0_RST/GPE0_1 | W25 | XISPGP1/MPWM2_OUT_ISP/SROM_DATA4/DISP_VD8/GPE0_1 | GPIO/CAMERA |
| 9 | CAM1_IND/GPE0_0 | V26 | XISPGP0/MPWM1_OUT_ISP/SROM_DATA3/DISP_VD7/GPE0_0 | GPIO/CAMERA |
| 10 | CAM0_PD/GPE0_2 | Y24 | XISPGP2/MPWM3_OUT_ISP/DP1_CH0_TXD_CLK_DIV08/SROM_DATA5/DISP_VD9/GPE0_2 | GPIO/CAMERA |
| 11 | CAM1_INT/GPE0_3 | Y27 | XISPGP3/MPWM4_OUT_ISP/DP1_CH1_TXD_CLK_DIV08/SROM_DATA6/DISP_VD10/GPE0_3 | INT/CAMERA |
| 12 | CAM1_FLASH/GPE0_5 | Y26 | XISPGP5/MPWM6_OUT_ISP/DP1_CH3_TXD_CLK_DIV08/SROM_DATA8/DISP_VD12/GPE0_5 | GPIO/CAMERA |
| 13 | GND | | | 电源地 |
| 14 | GND | | | 电源地 |
| 15 | GND | | | 电源地 |
| 16 | XMIPI1SDN0 | AA28 | XMIPI1SDN0 | MIPI CSI |
| 17 | XMIPI1SDNCLK | AB28 | XMIPI1SDNCLK | MIPI CSI |
| 18 | XMIPI1SDP0 | AA29 | XMIPI1SDP0 | MIPI CSI |
| 19 | XMIPI1SDPCLK | AB29 | XMIPI1SDPCLK | MIPI CSI |
| 20 | XMIPI1SDN1 | AC28 | XMIPI1SDN1 | MIPI CSI |
| 21 | GND | | | 电源地 |
| 22 | XMIPI1SDP1 | AC29 | XMIPI1SDP1 | MIPI CSI |
| 23 | XURXD2 | AD25 | XURXD2/GPA1_4 | UART |
| 24 | GND | | | 电源地 |
| 25 | XUTXD2 | AD26 | XUTXD2/GPA1_5 | UART |

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|----|---------------------------|------|--|------------------------|
| 26 | XURXD1 | AG27 | XURXD1/GPA1_0 | UART |
| 27 | XURXD0 | AH28 | XURXD0/GPA0_0 | |
| 28 | XUTXD1 | AG28 | XUTXD1/GPA1_1 | |
| 29 | XUTXD0 | AF25 | XUTXD0/GPA0_1 | |
| 30 | XUCTSN1 | AE25 | XUCTSN1/GPA1_2 | |
| 31 | XUCTSN0 | AG26 | XUCTSN0/GPA0_2 | |
| 32 | XURTSN1 | AE24 | XURTSN1/GPA1_3 | |
| 33 | XURTSN0 | AH27 | XURTSN0/GPA0_3 | |
| 34 | GND | | | 电源地 |
| 35 | GND | | | 电源地 |
| 36 | GPA2_5 | AE27 | XSPICSN1/GPA2_5 | GPIO/SPI |
| 37 | GPA2_4 | AE29 | XSPICLK1/GPA2_4 | GPIO/SPI |
| 38 | GPA2_6 | AE28 | XSPIMISO1/GPA2_6 | GPIO/SPI |
| 39 | GPA2_3 | AF26 | XSPIMOSI0/GPA2_3 | GPIO/SPI |
| 40 | TOUCH_RESET/GPA2_2 | AF27 | XSPIMISO0/GPA2_2 | GPIO/TOUCH/SPI |
| 41 | GPA2_1 | AF28 | XSPICSN0/GPA2_1 | GPIO/SPI |
| 42 | GND | | | 电源地 |
| 43 | GND | | | 电源地 |
| 44 | CAM0_CLKOUT/XCI0_M CLK | AH29 | XCI0_MCLK/SROM_DATA13/DISP_VD17/G PE1_2 | CAMERA |
| 45 | CAM1_CLKOUT/XCI1_M CLK | AJ28 | XCI1_MCLK/SROM_DATA14/DISP_VD18/G PE1_3 | CAMERA |
| 46 | XCI2_MCLK | AK27 | XCI2_MCLK/SROM_DATA15/DISP_VD19/G PE1_4 | XCI2_MCLK |
| 47 | GND | | | 电源地 |
| 48 | GND | | | 电源地 |
| 49 | GPB0_1 | AJ27 | XI2SCDCLK/PCM_EXTCLK/SPDIF_EXTCL K/GPB0_1 | I2S/PCM/SPDIF/GP IO |
| 50 | GPB0_2 | AH26 | XI2SLRCK/PCM_FSYNC/SPDIF_OUT/GPB0_ 2 | I2S/PCM/SPDIF/GP IO |
| 51 | GPB0_4 | AJ26 | XI2SSDO/PCM_SOUT/GPB0_4 | I2S/PCM/GPIO |
| 52 | GPB0_0 | AK25 | XI2SSCLK/PCM_SCLK/GPB0_0 | I2S/PCM/GPIO |
| 53 | GPB0_3 | AG25 | XI2SSDI/PCM_SIN/GPB0_3 | I2S/PCM/GPIO |
| 54 | GND | | | 电源地 |
| 55 | GND | | | 电源地 |
| 56 | XSPICLK2/GPB1_0 | AJ25 | XSPICLK2/GPB1_0 | SPI/GPIO |
| 57 | XSPIMOSI2/GPB1_3 | AH25 | XSPIMOSI2/GPB1_3 | SPI/GPIO |
| 58 | XSPIMISO2/GPB1_2 | AF24 | XSPIMISO2/GPB1_2 | SPI/GPIO |
| 59 | XSPICSN2/GPB1_1 | AG24 | XSPICSN2/GPB1_1 | SPI/GPIO |
| 60 | LCD_PWM/XPWMTOUT 0 | AH24 | XPWMTOUT0/GPB2_0 | PWM/LCD |

| J3 | | | | |
|---------|------------------|-----------------|---|--------|
| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
| 1 | XPWMTOUT1/GPB2_1 | AK24 | XPWMTOUT1/GPB2_1 | PWM |
| 2 | AP_USB3_BUSCTRL | AE23 | XUSB3VBUSCTRL/ETC7_3 | USB3.0 |
| 3 | GND | | | 电源地 |
| 4 | AP_USB3_OVRCUR | AF23 | XUSB3OVERCUR/ETC7_2 | USB3.0 |
| 5 | XUHOSTOVERCUR | AJ23 | XUHOSTOVERCUR/ETC7_1 | USB |
| 6 | GND | | | 电源地 |
| 7 | XUHOSTPWREN | AK23 | XUHOSTPWREN/ETC7_0 | USB |
| 8 | SENSOR_SDA3_1_8V | AE22 | XI2C3SDA/NB_DATA6/GPB3_6 | I2C |
| 9 | GND | | | 电源地 |
| 10 | SENSOR_SCL3_1_8V | AF22 | XI2C3SCL/NB_DATA7/GPB3_7 | I2C |
| 11 | HDMI_SDA2_1_8V | AG21 | XI2C2SDA/NB_DATA4/GPB3_4 | I2C |
| 12 | XI2C4_SDA_1_8V | AK22 | XI2C4SDA/NB_DATA8/GPB4_0 | I2C |
| 13 | HDMI_SCL2_1_8V | AH22 | XI2C2SCL/NB_DATA5/GPB3_5 | I2C |
| 14 | XI2C4_SCL_1_8V | AJ22 | XI2C4SCL/NB_DATA9/GPB4_1 | I2C |
| 15 | XI2C6_SDA_1_8V | AF21 | XI2C6SDA/NB_DATA12/GPB4_4 | I2C |
| 16 | XI2C5_SDA_1_8V | AG20 | XI2C5SDA/NB_DATA10/GPB4_2 | I2C |
| 17 | XI2C6_SCL_1_8V | AE21 | XI2C6SCL/NB_DATA13/GPB4_5 | I2C |
| 18 | XI2C5_SCL_1_8V | AH21 | XI2C5SCL/NB_DATA11/GPB4_3 | I2C |
| 19 | XI2C7_SDA_1_8V | AJ21 | XI2C7SDA/MIPI_BYTE_CLK/NB_DATA14/GPB4_6 | I2C |
| 20 | TOUCH_SDA8_1_8V | AF20 | XI2C8SDA/TRACEDATA24/SROM_ADDR8/NB_nWAIT/GPB5_0 | I2C |
| 21 | XI2C7_SCL_1_8V | AK21 | XI2C7SCL/MIPI_ESC_CLK/NB_DATA15/GPB4_7 | I2C |
| 22 | TOUCH_SCL8_1_8V | AE20 | XI2C8SCL/TRACEDATA25/SROM_ADDR9/NB_ADDR1/GPB5_1 | I2C |
| 23 | CODEC_SDA1_1_8V | AG19 | XI2C1SDA/NB_DATA2/GPB3_2 | I2C |
| 24 | XI2C9_SDA_1_8V | AJ20 | XI2C9SDA/TRACEDATA26/SROM_ADDR10/NB_ADDR2/GPB5_2 | I2C |
| 25 | CODEC_SCL1_1_8V | AH20 | XI2C1SCL/NB_DATA3/GPB3_3 | I2C |
| 26 | XI2C9_SCL_1_8V | AK20 | XI2C9SCL/TRACEDATA27/SROM_ADDR11/NB_ADDR3/GPB5_3 | I2C |
| 27 | XI2C10_SDA_1_8V | AE19 | XI2C10SDA/TRACEDATA28/SROM_ADDR12/NB_ADDR4/GPB5_4 | I2C |
| 28 | XI2C11_SDA_1_8V | AH19 | XI2C11SDA/TRACEDATA30/SROM_ADDR14/NB_ADDR6/GPB5_6 | I2C |

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|----|------------------|------|---|-------------|
| 29 | XI2C10_SCL_1_8V | AF19 | XI2C10SCL/TRACEDATA29/SROM_ADDR13/NB_ADDR5/GPB5_5 | I2C |
| 30 | XI2C11_SCL_1_8V | AJ19 | XI2C11SCL/TRACEDATA31/SROM_ADDR15/NB_ADDR7/GPB5_7 | I2C |
| 31 | GND | | | 电源地 |
| 32 | GND | | | 电源地 |
| 33 | BT_RST/GPD0_1 | AK19 | XGP1/SROM_ADDR1/NB_ADDR9/GPD0_1 | GPIO/BT |
| 34 | WIFI_PWDN/GPD0_0 | AE18 | XGP0/SROM_ADDR0/NB_ADDR8/GPD0_0 | GPIO/WIFI |
| 35 | GND | | | 电源地 |
| 36 | GPD0_2 | AK18 | XGP2/SROM_ADDR2/NB_ADDR10/GPD0_2 | GPIO |
| 37 | GPD0_5 | AH18 | XGP5/SROM_ADDR5/NB_ADDR13/GPD0_5 | GPIO |
| 38 | GPD0_4 | AG18 | XGP4/SROM_ADDR4/NB_ADDR12/GPD0_4 | GPIO |
| 39 | GPD0_6 | AJ18 | XGP6/SROM_ADDR6/NB_ADDR14/GPD0_6 | GPIO |
| 40 | GPD0_7 | AE17 | XGP7/SROM_ADDR7/NB_ADDR15/GPD0_7 | GPIO |
| 41 | GPD0_3 | AF18 | XGP3/SROM_ADDR3/NB_ADDR11/GPD0_3 | GPIO |
| 42 | GPD1_1 | AH17 | XGP9/SROM_NWE/NB_GNCS1/GPD1_1 | GPIO |
| 43 | AXI_ACE_SEL | AE16 | XGP11/SROM_GNCS0/NB_GNCS3/GPD1_3 | AXI_ACE_SEL |
| 44 | GPD1_4 | AJ17 | XGP12/SROM_GNCS1/NB_nOE/GPD1_4 | GPIO |
| 45 | GPD1_5 | AK17 | XGP13/SROM_GNCS2/NB_nWE/GPD1_5 | GPIO |
| 46 | GPD2_4 | AG16 | XTS_ERROR/SROM_DATA2/DISP_VD2/GPD2_4 | GPIO |
| 47 | GPD2_2 | AJ16 | XTS_VAL/SROM_DATA0/DISP_VD0/GPD2_2 | GPIO |
| 48 | GPD2_1 | AK16 | XTS_SYNC/SROM_NWBE1/NB_nWBE1/GPD2_1 | GPIO |
| 49 | GPD2_3 | AE14 | XTS_DATA/SROM_DATA1/DISP_VD1/GPD2_3 | GPIO |
| 50 | GPD2_0 | AK15 | XTS_CLK/SROM_NWBE0/NB_nWBE0/GPD2_0 | GPIO |
| 51 | XJTCK | AH16 | XJTCK/ETC0_2 | JTAG |
| 52 | XJTMS | AF15 | XJTMS/ETC0_1 | JTAG |
| 53 | XJTDO | AG15 | XJTDO/ETC0_4 | JTAG |
| 54 | XJTDI | AH15 | XJTDI/ETC0_3 | JTAG |
| 55 | XJTRSTN | AJ15 | XJTRSTN/ETC0_0 | JTAG |
| 56 | GND | | | 电源地 |
| 57 | GND | | | 电源地 |
| 58 | XADCAIN_9 | AC12 | XADCAIN_9 | ADC |
| 59 | XADCAIN_8 | AH14 | XADCAIN_8 | ADC |
| 60 | XADCAIN_7 | AG14 | XADCAIN_7 | ADC |

| J4 | | | | |
|---------|-------------------|-----------------|-------------------|--------|
| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
| 1 | XADCAIN_6 | AF14 | XADCAIN_6 | ADC |
| 2 | XADCAIN_5 | AG13 | XADCAIN_5 | ADC |
| 3 | XADCAIN_4 | AJ14 | XADCAIN_4 | ADC |
| 4 | XADCAIN_3 | AF13 | XADCAIN_3 | ADC |
| 5 | XADCAIN_2 | AE13 | XADCAIN_2 | ADC |
| 6 | KEY_ADC/XADCAIN_1 | AH13 | XADCAIN_1 | ADC |
| 7 | XADCAIN_0 | AJ13 | XADCAIN_0 | ADC |
| 8 | GND | | | 电源地 |
| 9 | GND | | | 电源地 |
| 10 | XMMC1CLK | AK11 | XMMC1CLK/GPC1_0 | SD/MMC |
| 11 | XMMC1CMD | AF10 | XMMC1CMD/GPC1_1 | SD/MMC |
| 12 | XMMC1DATA0 | AC10 | XMMC1DATA0/GPC1_2 | SD/MMC |
| 13 | XMMC1DATA1 | AH10 | XMMC1DATA1/GPC1_3 | SD/MMC |
| 14 | XMMC1DATA2 | AJ10 | XMMC1DATA2/GPC1_4 | SD/MMC |
| 15 | XMMC1DATA3 | AG10 | XMMC1DATA3/GPC1_5 | SD/MMC |
| 16 | XMMC1DATA4 | AE10 | XMMC1DATA4/GPC4_0 | SD/MMC |
| 17 | XMMC1DATA5 | AH9 | XMMC1DATA5/GPC4_1 | SD/MMC |
| 18 | XMMC1DATA6 | AG9 | XMMC1DATA6/GPC4_2 | SD/MMC |
| 19 | XMMC1DATA7 | AF9 | XMMC1DATA7/GPC4_3 | SD/MMC |
| 20 | GND | | | 电源地 |
| 21 | GND | | | 电源地 |
| 22 | XMMC2CLK | AK9 | XMMC2CLK/GPC2_0 | SD/MMC |
| 23 | XMMC2CMD | AG8 | XMMC2CMD/GPC2_1 | SD/MMC |
| 24 | XMMC2CDN | AE9 | XMMC2CDN/GPC2_2 | SD/MMC |
| 25 | XMMC2DATA0 | AH8 | XMMC2DATA0/GPC2_3 | SD/MMC |
| 26 | XMMC2DATA1 | AF8 | XMMC2DATA1/GPC2_4 | SD/MMC |
| 27 | XMMC2DATA2 | AC9 | XMMC2DATA2/GPC2_5 | SD/MMC |
| 28 | XMMC2DATA3 | AJ9 | XMMC2DATA3/GPC2_6 | SD/MMC |
| 29 | GND | | | 电源地 |
| 30 | GND | | | 电源地 |
| 31 | AP_USB3_VBUS | AG7 | XUSB30VBUS0 | USB3.0 |
| 32 | XUSB30TX0P | AK4 | XUSB30TX0P | USB3.0 |
| 33 | XUSB30RX0P | AK7 | XUSB30RX0P | USB3.0 |
| 34 | XUSB30TX0M | AK3 | XUSB30TX0M | USB3.0 |
| 35 | XUSB30RX0M | AK6 | XUSB30RX0M | USB3.0 |

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|----|------------------------|-----|-----------------------------------|--------------|
| 36 | GND | | | 电源地 |
| 37 | GND | | | 电源地 |
| 38 | AP_USB_DRD_D+ | AH4 | XUSB30DP0 | USB3.0 |
| 39 | USB3_ID | AJ5 | XUSB30ID0 | USB3.0 |
| 40 | AP_USB_DRD_D- | AH3 | XUSB30DM0 | USB3.0 |
| 41 | GND | | | 电源地 |
| 42 | GND | | | 电源地 |
| 43 | XUHOSTDM | AH1 | XUHOSTDM | USB |
| 44 | XUHOSTVBUS | AJ2 | XUHOSTVBUS | USB |
| 45 | XUHOSTDP | AG1 | XUHOSTDP | USB |
| 46 | XOM5 | AE3 | XOM_5 | Boot Mode |
| 47 | XOM4 | AF4 | XOM_4 | Boot Mode |
| 48 | XOM3 | AF3 | XOM_3 | Boot Mode |
| 49 | XOM2 | AE6 | XOM_2 | Boot Mode |
| 50 | XOM1 | AE7 | XOM_1 | Boot Mode |
| 51 | XOM0 | AF2 | XOM_0 | Boot Mode |
| 52 | DP_HPD/XEINT7 | AG6 | XEINT7/DP_HPD/ALV_DBG3/GPX0_7 | XEINT/eDP |
| 53 | UHOST_ID/XEINT3 | AG5 | XEINT3/ALV_TDO/MFC_TDO/GPX0_3 | XEINT/USB |
| 54 | SPK_EN/GPX0_5/XEINT5 | AG3 | XEINT5/ALV_DBG1/MFC_RTCK/GPX0_5 | GPIO/AUDIO |
| 55 | XEINT6/GPX0_6 | AG2 | XEINT6/ALV_DBG2/GPX0_6 | XEINT/GPIO |
| 56 | PHONE_DET/XEINT1 | AF7 | XEINT1/ALV_TMS/MFC_TMS/GPX0_1 | XEINT/AUDIO |
| 57 | XEINT4/GPX0_4 | AF6 | XEINT4/ALV_DBG0/MFC_TRSTN/GPX0_4 | XEINT/GPIO |
| 58 | LED1/XEINT0/GPX0_0 | AF5 | XEINT0/ALV_TCK/MFC_TCK/GPX0_0 | GPIO/LED |
| 59 | USB3_DET/XEINT8/GPX1_0 | AD3 | XEINT8/TRACEDATA0/ALV_DBG4/GPX1_0 | XEINT/USB3.0 |
| 60 | USB3_ID1/XEINT9/GPX1_1 | AD2 | XEINT9/TRACEDATA1/ALV_DBG5/GPX1_1 | XEINT/USB3.0 |

J5

| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
|---------|-------------|-----------------|---------------|------------------|
| 1 | VCC_1.8V_AP | | | PMU 电源 VLDO3(输出) |
| 2 | VCC_1.8V_AP | | | PMU 电源 VLDO3(输出) |
| 3 | VCC_1.8V_AP | | | PMU 电源 VLDO3(输出) |
| 4 | VCC_1.8V_AP | | | PMU 电源 VLDO3(输出) |
| 5 | GND | | | 电源地 |
| 6 | GND | | | 电源地 |

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|----|---------------------|--|--|---------------------------|
| 7 | VDD_33ON | | | PMU 电源 VLDO11(输出) |
| 8 | VDD_33ON | | | PMU 电源 VLDO11(输出) |
| 9 | VDD_TFLASH_2.8V | | | PMU 电源 VLDO13(输出) |
| 10 | VDD_TFLASH_2.8V | | | PMU 电源 VLDO13(输出) |
| 11 | VDD_MAINCAM_D1.8V | | | PMU 电源 VLDO14(输出) |
| 12 | VDD_MAINCAM_D1.8V | | | PMU 电源 VLDO14(输出) |
| 13 | VDD_CAMSENSOR_A2.8V | | | PMU 电源 VLDO15(输出) |
| 14 | VDD_CAMSENSOR_A2.8V | | | PMU 电源 VLDO15(输出) |
| 15 | VDD_MAINCAMAF_2.8V | | | PMU 电源 VLDO16(输出) |
| 16 | VDD_MAINCAMAF_2.8V | | | PMU 电源 VLDO16(输出) |
| 17 | VDD_VTCAM_1.8V | | | PMU 电源 VLDO17(输出) |
| 18 | VDD_VTCAM_1.8V | | | PMU 电源 VLDO17(输出) |
| 19 | VCC_1.8V_AP_OFF | | | PMU 电源 VLDO18(输出) |
| 20 | VCC_1.8V_AP_OFF | | | PMU 电源 VLDO18(输出) |
| 21 | VCC_3.3V | | | PMU 电源 VLDO19(输出) |
| 22 | VCC_3.3V | | | PMU 电源 VLDO19(输出) |
| 23 | VLDO20 | | | PMU 电源 VLDO20(输出) |
| 24 | VLDO20 | | | PMU 电源 VLDO20(输出) |
| 25 | VCC_3.0V_MOTOR | | | PMU 电源 VLDO21(输出) |
| 26 | VCC_3.0V_MOTOR | | | PMU 电源 VLDO21(输出) |
| 27 | VLDO22 | | | PMU 电源 VLDO22(输出) |
| 28 | VLDO22 | | | PMU 电源 VLDO22(输出) |
| 29 | VCC_2.8V_PERI | | | PMU 电源 VLDO24(输出) |
| 30 | VCC_2.8V_PERI | | | PMU 电源 VLDO24(输出) |
| 31 | VCC_1.8V_PERI | | | PMU 电源 VLDO25(输出) |
| 32 | VCC_1.8V_PERI | | | PMU 电源 VLDO25(输出) |
| 33 | VDD_MAINCAM_D1.2V | | | PMU 电源 VLDO26(输出) |
| 34 | VDD_MAINCAM_D1.2V | | | PMU 电源 VLDO26(输出) |
| 35 | GND | | | 电源地 |
| 36 | GND | | | 电源地 |
| 37 | GND | | | 电源地 |
| 38 | GND | | | 电源地 |
| 39 | PVDD_BUCK9 | | | PMU 电源 PVDD_BUCK9 (输出) |
| 40 | PVDD_BUCK9 | | | PMU 电源 PVDD_BUCK9 (输出) |
| 41 | GND | | | 电源地 |
| 42 | GND | | | 电源地 |
| 43 | VDDQ_MMC2_2.8V_AP | | | PMU 电源 VLDO2(输出) |
| 44 | VDDQ_MMC2_2.8V_AP | | | PMU 电源 VLDO2(输出) |

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|----|------|--|--|------------------|
| 45 | GND | | | 电源地 |
| 46 | GND | | | 电源地 |
| 47 | VBAT | | | DC 电源 2.7-5V(输入) |
| 48 | VBAT | | | DC 电源 2.7-5V(输入) |
| 49 | VBAT | | | DC 电源 2.7-5V(输入) |
| 50 | VBAT | | | DC 电源 2.7-5V(输入) |
| 51 | VBAT | | | DC 电源 2.7-5V(输入) |
| 52 | VBAT | | | DC 电源 2.7-5V(输入) |
| 53 | VBAT | | | DC 电源 2.7-5V(输入) |
| 54 | VBAT | | | DC 电源 2.7-5V(输入) |
| 55 | VBAT | | | DC 电源 2.7-5V(输入) |
| 56 | VBAT | | | DC 电源 2.7-5V(输入) |
| 57 | VBAT | | | DC 电源 2.7-5V(输入) |
| 58 | VBAT | | | DC 电源 2.7-5V(输入) |
| 59 | VBAT | | | DC 电源 2.7-5V(输入) |
| 60 | VBAT | | | DC 电源 2.7-5V(输入) |

J6

| PIN NO. | Signal Name | CPU Ball Number | CPU Ball Name | Remark |
|---------|---------------------------|-----------------|--------------------------------------|------------|
| 1 | XEINT10/GPX1_2 | AC5 | XEINT10/TRACEDATA2/ALV_DBG6/GPX1_2 | XEINT/GPIO |
| 2 | GSENSOR_INT1/XEINT13 | AC4 | XEINT13/TRACEDATA5/ALV_DBG9/GPX1_5 | |
| 3 | BT_WAKE_AP/XEINT15/GPX1_7 | AC3 | XEINT15/TRACEDATA7/ALV_DBG11/GPX1_7 | |
| 4 | WIFI_WOW/XEINT12/GPX1_4 | AC2 | XEINT12/TRACEDATA4/ALV_DBG8/GPX1_4 | |
| 5 | TOUCH_INT/XEINT14 | AB5 | XEINT14/TRACEDATA6/ALV_DBG10/GPX1_6 | |
| 6 | VOL_UP/XEINT16 | AB4 | XEINT16/TRACEDATA8/ALV_DBG12/GPX2_0 | |
| 7 | RS485_EN1/GPX2_2/XEINT18 | AB3 | XEINT18/TRACEDATA10/ALV_DBG14/GPX2_2 | |
| 8 | RS485_EN2/GPX2_3/XEINT19 | AB2 | XEINT19/TRACEDATA11/ALV_DBG15/GPX2_3 | |
| 9 | LED2/XEINT11/GPX1_3 | AA5 | XEINT11/TRACEDATA3/ALV_DBG7/GPX1_3 | |

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|----|-------------------------|-----|---|-----------|
| 10 | GPS_EN/GPX2_6/XEINT22 | AA3 | XEINT22/TRACEDATA14/ALV_DBG18/GPX2_6 | |
| 11 | 3G_RST/GPX3_2/XEINT26 | AA2 | XEINT26/TRACEDATA18/ALV_DBG22/GPX3_2 | |
| 12 | VOL_DOWN/XEINT17 | Y5 | XEINT17/TRACEDATA9/ALV_DBG13/GPX2_1 | |
| 13 | XEINT20/GPX2_4 | Y4 | XEINT20/TRACEDATA12/ALV_DBG16/GPX2_4 | |
| 14 | XEINT25/GPX3_1 | Y3 | XEINT25/TRACEDATA17/ALV_DBG21/GPX3_1 | |
| 15 | BUZZ_EN/GPX3_5/XEINT29 | Y2 | XEINT29/TRACEDATA21/ALV_DBG25/GPX3_5 | |
| 16 | XEINT21/GPX2_5 | W6 | XEINT21/TRACEDATA13/ALV_DBG17/GPX2_5 | |
| 17 | BT_EN/XEINT28/GPX3_4 | W5 | XEINT28/TRACEDATA20/ALV_DBG24/GPX3_4 | |
| 18 | HDMI_CEC/XEINT30 | W4 | XEINT30/HDMI_CEC/TRACEDATA22/ALV_DBG26/GPX3_6 | |
| 19 | GSENSOR_INT2/XEINT27 | W3 | XEINT27/TRACEDATA19/ALV_DBG23/GPX3_3 | |
| 20 | 3G_POWER/GPX3_0/XEINT24 | V6 | XEINT24/TRACEDATA16/ALV_DBG20/GPX3_0 | |
| 21 | HDMI_HPD/XEINT31 | U7 | XEINT31/HDMI_HPD/TRACEDATA23/ALV_DBG27/GPX3_7 | |
| 22 | GND | | | 电源地 |
| 23 | GND | | | 电源地 |
| 24 | AP_NRESET | AE4 | XNRESET/ETC6_0 | XNRESET |
| 25 | AP_WRESET | AD5 | XNWRESET/ETC6_3 | XNWRESET |
| 26 | AP_PMIC_EN | AE5 | XPWRRGTON | XPWRRGTON |
| 27 | GND | | | 电源地 |
| 28 | XHSICSTROBE | AD1 | XHSICSTROBE | USB HSIC |
| 29 | PM_RTC32K_AP | AB1 | XRTCXTI | CLOCK |
| 30 | XHSICDATA | AC1 | XHSICDATA | USB HSIC |
| 31 | GND | | | 电源地 |
| 32 | GND | | | 电源地 |
| 33 | CODEC_I2S_LRCK | V5 | XAUDI2SLRCK/AUD_PCM_FSYNCGPZ0_2 | AUDIO |
| 34 | CODEC_I2S_DI | V4 | XAUDI2SSDI/AUD_PCM_SIN/GPZ0_3 | AUDIO |
| 35 | CODEC_I2S_CDCLK | V2 | XAUDI2SCDCLK/AUD_PCM_EXTCLK/GPZ0_1 | AUDIO |
| 36 | CODEC_I2S_DO0 | U2 | XAUDI2SSDO0/AUD_PCM_SOUT/GPZ0_4 | AUDIO |

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|----|----------------|----|---------------------------------|---------------|
| 37 | CODEC_I2S_SCLK | U1 | XAUDI2SSCLK/AUD_PCM_SCLK/GPZ0_0 | AUDIO |
| 38 | CODEC_I2S_DO1 | V3 | XAUDI2SSDO1/ST_TICK/GPZ0_5 | AUDIO |
| 39 | GND | | | 电源地 |
| 40 | CODEC_I2S_DO2 | U6 | XAUDI2SSDO2/ST_INT/GPZ0_6 | AUDIO |
| 41 | APCLK_OUT | V1 | XCLKOUT/ETC6_1 | CLOCK |
| 42 | GND | | | 电源地 |
| 43 | GND | | | 电源地 |
| 44 | XAUD_UART_RXD | U4 | XAUDRXD/GPZ1_0 | UART |
| 45 | GND | | | 电源地 |
| 46 | XAUD_UART_TXD | U3 | XAUDTXD/GPZ1_1 | UART |
| 47 | GND | | | 电源地 |
| 48 | XAUD_UART_RTSN | U5 | XAUDRTSN/GPZ1_3 | UART |
| 49 | KEY_RST | | | 复位按键 |
| 50 | XAUD_UART_CTSN | T6 | XAUDCTSN/GPZ1_2 | UART |
| 51 | GND | | | 电源地 |
| 52 | GND | | | 电源地 |
| 53 | PMIC_JIGONB | | | PMU JIGONB |
| 54 | GND | | | 电源地 |
| 55 | GND | | | 电源地 |
| 56 | GND | | | 电源地 |
| 57 | TA_NCONNECTED | | | PMU ACOKB |
| 58 | VDD_RTC | | | RTC 电源 |
| 59 | CLK_32K_BT | | | PMU 32.768KHz |
| 60 | ON_SW | | | PMU PWRON |

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