

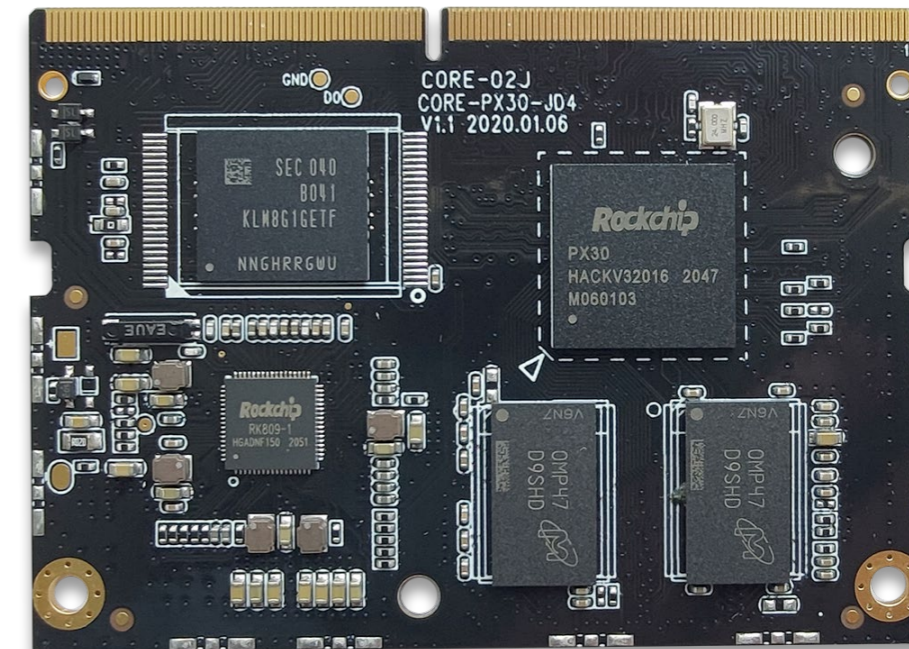


Quad-core 64-bit Core Board

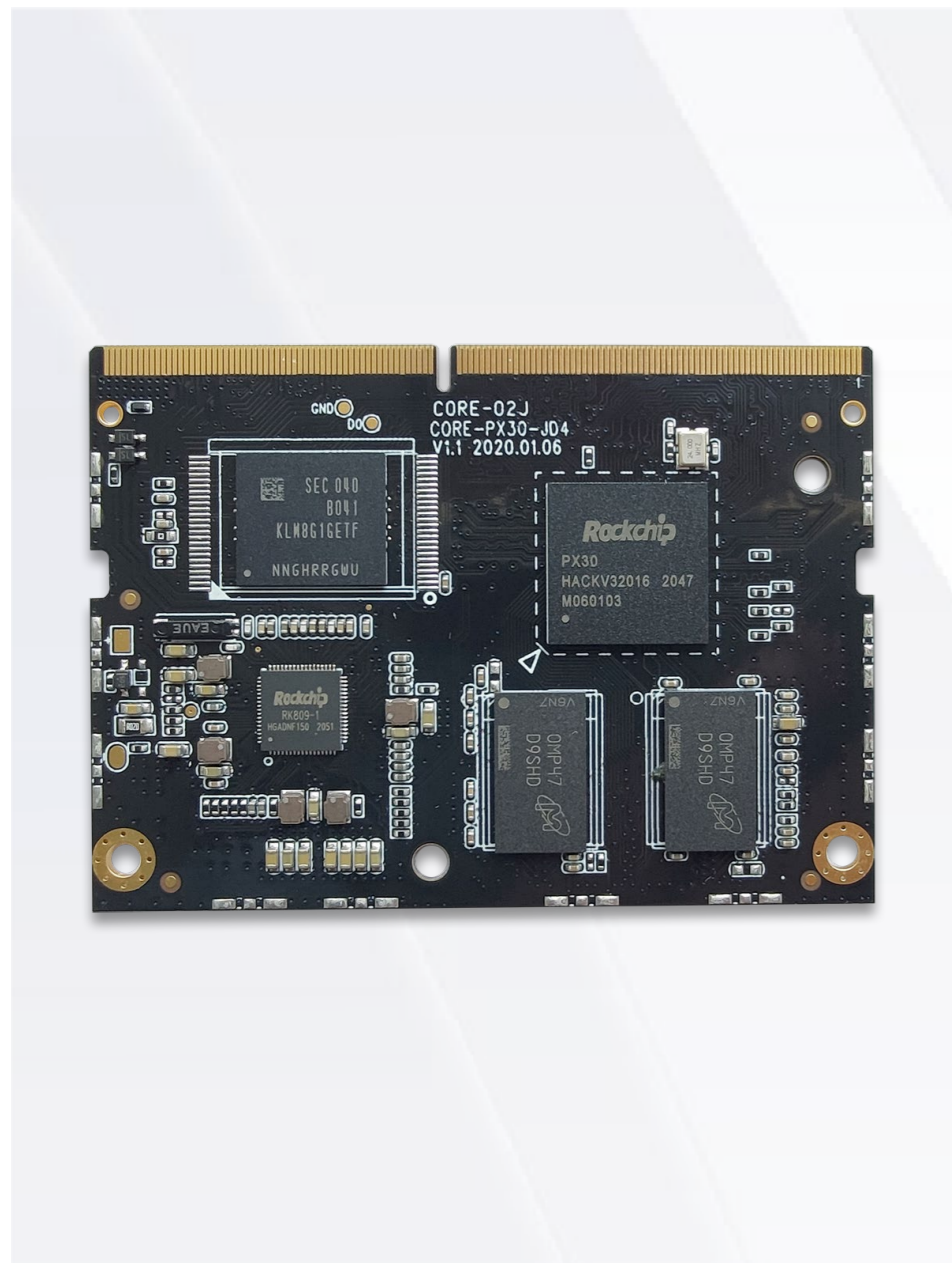
- Core-PX30-JD4(Commercial)
- Core-PX30K-JD4(Industrial)

V1.1 2023-12-26

T-CHIP INTELLIGENCE TECHNOLOGY

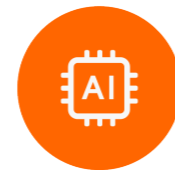


Product features



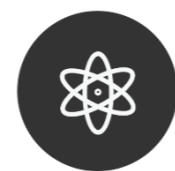
Quad-core 64-bit Core Board

Adopts PX30 industrial grade 64-bit low-power processor, Equipped with quad core Cortex-A35 and dual core Mali-G31 GPU. Supports multiple operating system, with powerful hardware decoding capability and rich interface. It can be configured with a far-field microphone array board to realize AI intelligent voice.



AI Intelligent Voice Interaction

Configurable far-field microphone array board, supporting 8 digital microphone array inputs, achieving AI intelligent voice interaction.



Powerful Hardware Decoding Capability

Supports RGB/LVDS/MIPI-DSI interfaces, with LVDS interfaces supporting up to 1280 × 800@60fps RGB/MIPI DSI interface supports up to 1080p@60fps , supports dual VOP (dual screen display), supports multi format 1080P 60fps video decoding (H.265, H.264, VC-1, MPEG-1/2/4, VP8), 1080P (H.264, VP8 formats) video encoding.

Product features



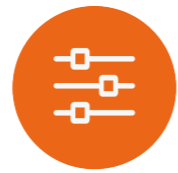
Stable And Reliable

With immersion gold process pin, corrosion resistant, 2 studs fixed, stable operation at 0 °C-80 °C working temperature for 7X24 hours.



Support For Multiple OS

Supports Android, Linux+QT, Ubuntu multiple operating system, the performance is stable and reliable.



Rich Extension Interfaces

Supports I2C×4, UART×6, PWM×8, SPI×2, 100M RMII, SDIO3.0, USB2.0 HOST&OTG, 1x 8ch I2S/TDM, 1x8ch PDM, 2x2ch I2S/PCM, etc.



Application

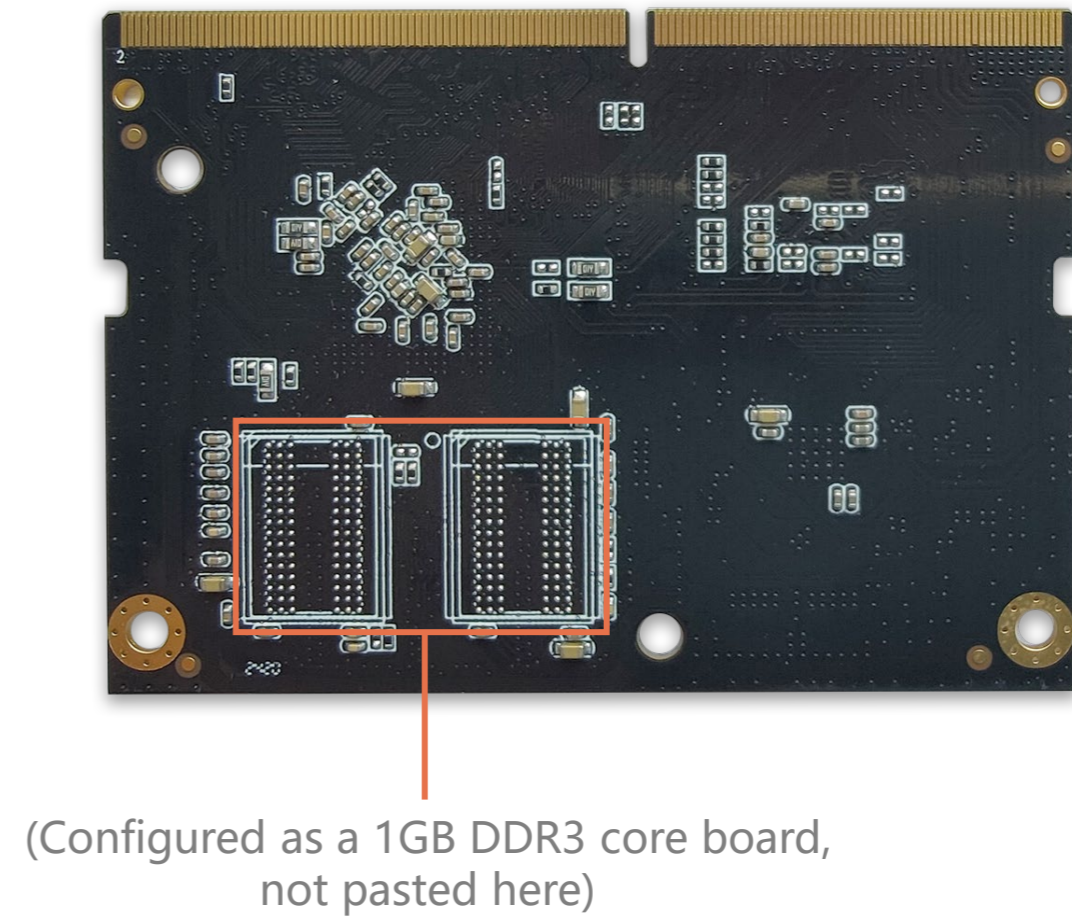
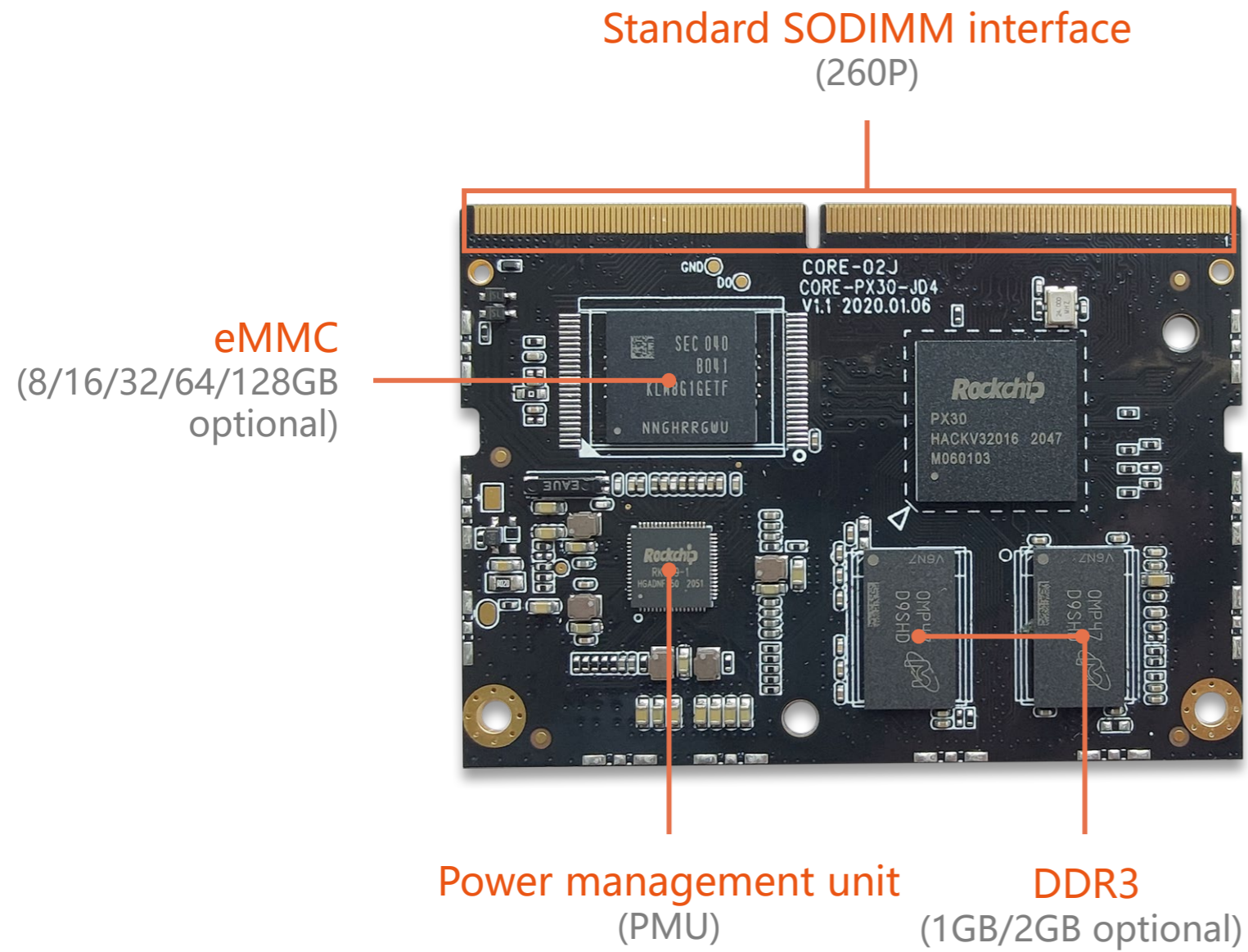
Suitable for industries such as AIOT IoT devices, in car central control, entertainment/gaming devices, integrated commercial display devices, medical and health equipment, vending machines, industrial computers, etc.

Specifications

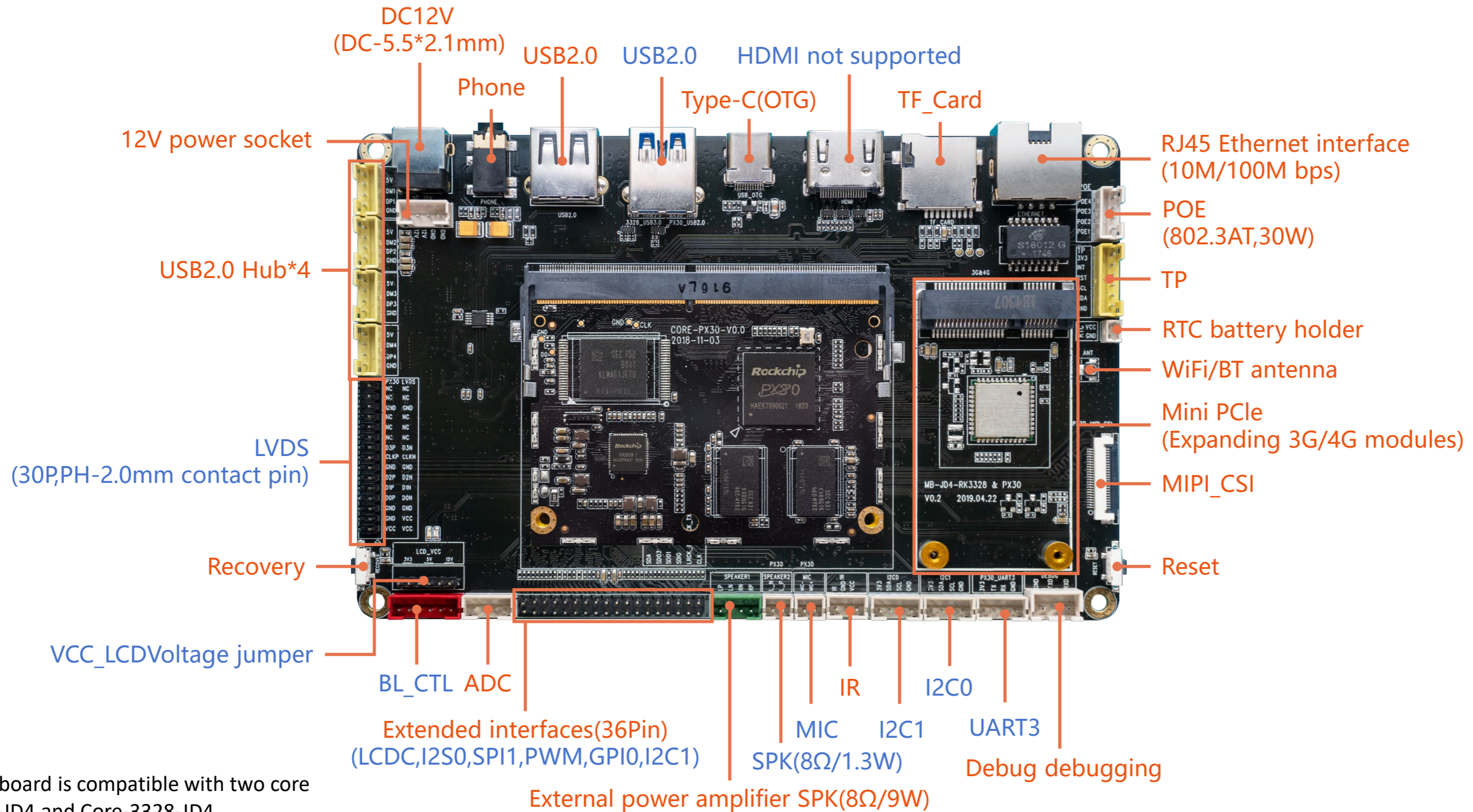


| | | Core-PX30-JD4(Commercial) | Core-PX30K-JD4(Industrial) |
|--------------------------|-------------|--|--|
| Basic Specifications | CPU | Rockchip PX30 Quad-Core ARM® Cortex-A35 processor, up to 1.5GHz | Rockchip PX30K Quad-Core ARM® Cortex-A35 processor, up to 1.5GHz |
| | GPU | Mali-G31GPU, Support OpenGL ES3.2, Vulkan 1.0, OpenCL 2.0 Built-in embedded high-performance 2D acceleration hardware | |
| | ISP | Built-in 8M ISP | |
| | VPU | Multi-format1080P 60fps video decoding (H.265,H.264,VC-1, MPEG-1/2/4, VP8) 1080P video coding, support H.264,VP8 | |
| | RAM | 2GB DDR3 (1GB/2GB optional) | |
| | Storage | 8GB eMMC (8GB/16GB/32GB/64GB/128GB optional) | |
| | Power | DC input voltage 5V (voltage tolerance ±5%) | |
| | OS | Android, Linux | |
| | Interface | Gold Finger (SODIMM 260P, 0.5mm pitch) | |
| | Size | 69.6mm * 49.6 mm | |
| | Environment | Operating Temperature:-20°C ~ 60°C Operating Humidity:10% ~ 90%RH(non-condensing) | Operating Temperature:-20°C ~ 70°C Operating Humidity:10% ~ 90%RH(non-condensing) |
| Interface Specifications | Ethernet | 100Mbps Ethernet interface(RJ45) | |
| | Display | Support RGB/LVDS/MIPI-DSI interface and dual-VOP(Dual display), resolution up to 1920x1080 | |
| | Audio | 1 x SPDIF, for audio output 1 x 8ch I ² S /TDM, 1x8ch PDM, 1x2ch I ² S/PCM | |
| | USB | 1 * USB2.0 OTG, 1 * USB2.0 HOST | |
| | Other | 4 * I2C、 6 * UART、 2 * SPI、 8 * PWM、 SDIO3.0 | |

Interface description



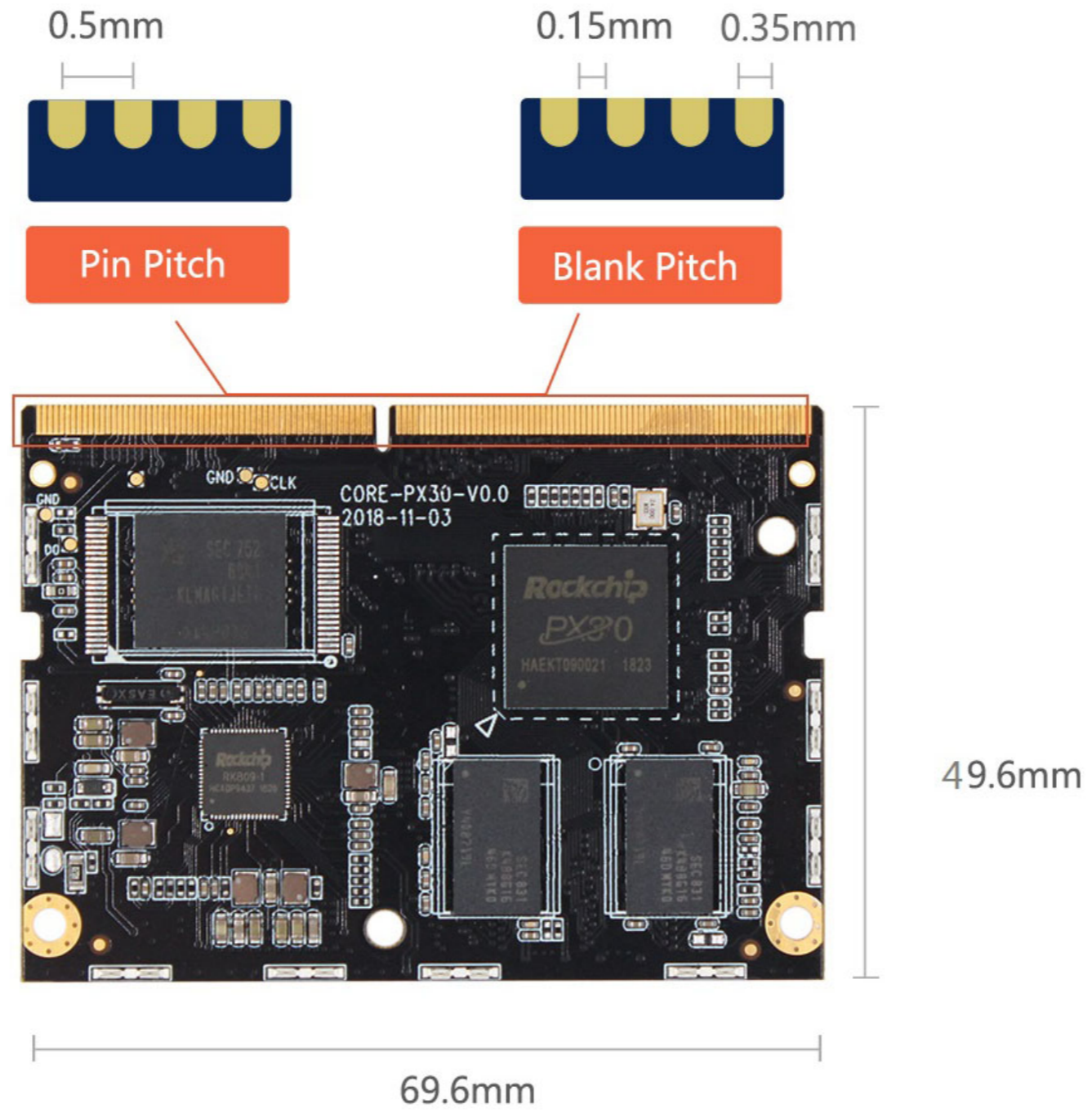
Interface description



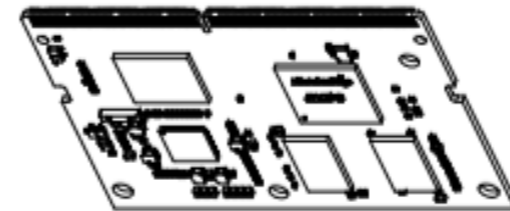
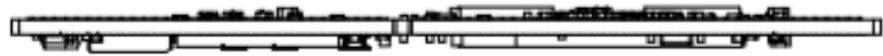
Note: This motherboard is compatible with two core boards:Core-PX30-JD4 and Core-3328-JD4

The interfaces marked in blue above may vary depending on the core board

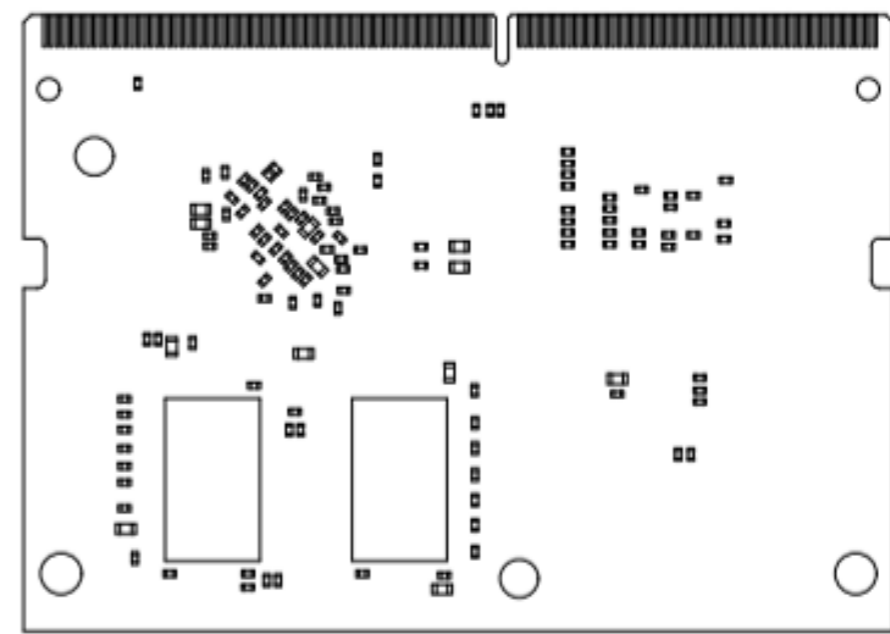
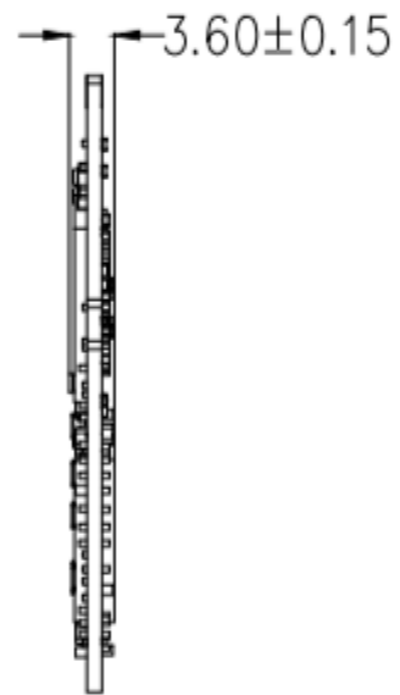
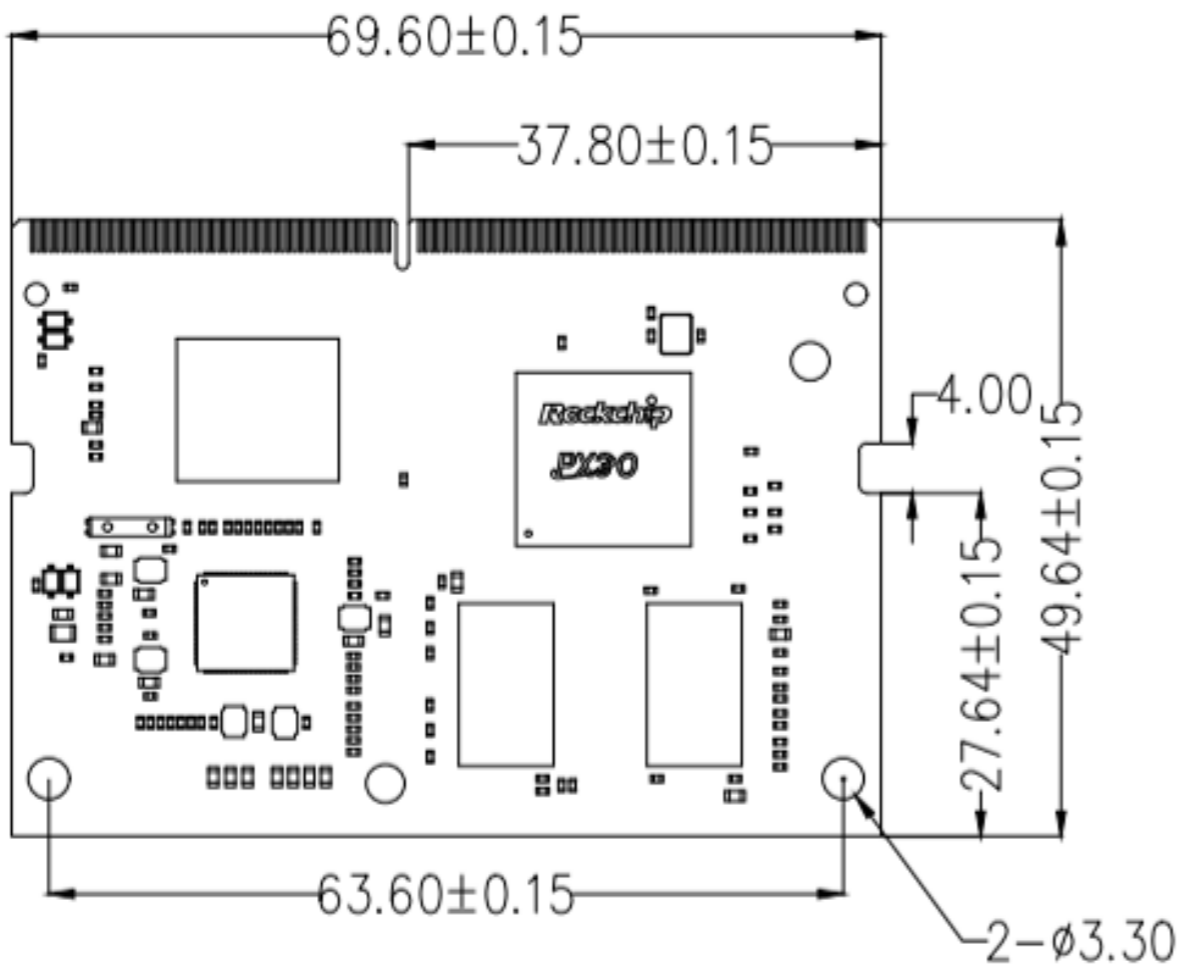
Dimension



Dimension



Proportion 0.5



Interface Definition



Notes1:
 ① : Pad types: I = input, O = output, I/O = input/output (bidirectional) , I/GPIO = When used as GPIO port, it is input (I) ,
 A = Analog , G= Ground , P = power supply , DOWN = Internal pull down , UP = Internal pull UP
 0 = Low Level 1 = High level

| Part A | PIN | Core board pin definition | Pad type | IO Pull | Function for Floor(MB-PX30-JD4) | Defual function description | IO Power domain | PX30 Pin Number | PX30 Pin Name |
|--------|-----|---|----------|---------|---------------------------------|--|-----------------|-----------------|--|
| | 1 | GND_1 | G | | GND | GND | | | |
| | 3 | GPIO1_B5/FLASH_WRN/UART3_RTS_M1/SPI0_MISO/I2C3_SCL_U_1.8V | I/O | UP | WORK_LED | System LED control , Core board internal series resistance 0R 1:Enable, 0:Disable | 1.8V | H20 | GPIO1_B5/FLASH_WRN/UART3_RTS_M1/SPI0_MISO/I2C3_SCL |
| | 5 | GPIO1_B4/FLASH_CLE/UART3_CTS_M1/SPI0_MOSI/I2C3_SDA_D_1.8V | I/O | DOWN | DIY_LED | Diy led control , Core board internal series resistance 0R 1:Enable, 0:Disable | 1.8V | G21 | GPIO1_B4/FLASH_CLE/UART3_CTS_M1/SPI0_MOSI/I2C3_SDA |
| | 7 | USB_HOST_DP | A | | HOST_DP | USB HOST Data Plus port | | AA12 | USB_HOST_DP |
| | 9 | USB_HOST_DM | A | | HOST_DM | USB HOST0 Data Minus port | | Y12 | USB_HOST_DM |
| | 11 | USB_ID | I | | USB_ID | USB ID detect input (USB Mode H or fload:Slave, L:Host) | | Y11 | USB_ID |
| | 13 | GND_2 | G | | GND | GND | | | |
| | 15 | GND_3 | G | | GND | GND | | | |
| | 17 | GND_4 | G | | GND | GND | | | |
| | 19 | GND_5 | G | | GND | GND | | | |
| | 21 | GND_6 | G | | GND | GND | | | |
| | 23 | GND_7 | G | | GND | GND | | | |
| | 25 | GND_8 | G | | GND | GND | | | |
| | 27 | GND_9 | G | | GND | GND | | | |
| | 29 | GND_10 | G | | GND | GND | | | |
| | 31 | GND_11 | G | | GND | GND | | | |
| | 33 | GND_12 | G | | GND | GND | | | |
| | 35 | GND_13 | G | | GND | GND | | | |
| | 37 | GPIO0_A3/SDMMC0_DET_N_U_1.8V | I/O | UP | SDMMC0_DET | Card plug_in detect input(plug_in: L) | 3.0V | AA20 | GPIO0_A3/SDMMC0_DET_N |
| | 39 | GPIO1_D3/SDMMC0_D1/UART2_RX_M0_U_3.3V | I/O | UP | SDMMC0_D1 | SDMMC0 data1 | 3.3V | AA18 | GPIO1_D3/SDMMC0_D1/UART2_RX_M0 |
| | 41 | GPIO1_D2/SDMMC0_D0/UART2_TX_M0_U_3.3V | I/O | UP | SDMMC0_D0 | SDMMC0 data0 | 3.3V | AA17 | GPIO1_D2/SDMMC0_D0/UART2_TX_M0 |
| | 43 | SDMMC0_CLKO/UART4_CTS/TEST_CLKO/GPIO1_D6_D_3.3V | I/O | DOWN | SDMMC0_CLK | SDMMC0 clock output | 3.3V | Y17 | GPIO1_D6/SDMMC0_CLKO/UART4_CTS/TEST_CLKO |

| | | | | | | | | |
|----|---|-----|------|--------------------|---|------|------|--------------------------------------|
| 45 | SDMMC0_CMD/UART4_RTS/GPIO1_D7_U_3.3V | I/O | UP | SDMMC0_CMD | SDMMC0 command output | 3.3V | Y16 | GPIO1_D7/SDMMC0_CMD/UART4_RTS |
| 47 | SDMMC0_D3/UART4_TX/JTAG_TMS/GPIO1_D5_U_3.3V | I/O | UP | SDMMC0_D3/JTAG_TMS | SDMMC0 data3 | 3.3V | AA16 | GPIO1_D5/SDMMC0_D3/UART4_TX/JTAG_TMS |
| 49 | SDMMC0_D2/UART4_RX/JTAG_TCK/GPIO1_D4_U_3.3V | I/O | UP | SDMMC0_D2/JTAG_TCK | SDMMC0 data2 | 3.3V | AA19 | GPIO1_D4/SDMMC0_D2/UART4_RX/JTAG_TCK |
| 51 | GND_14 | G | | GND | GND | | | |
| 53 | GND_15 | G | | GND | GND | | | |
| 55 | GND_16 | G | | GND | GND | | | |
| 57 | GND_17 | G | | GND | GND | | | |
| 59 | GND_18 | G | | GND | GND | | | |
| 61 | NC_1 | | | | | | | |
| 63 | GND_19 | G | | GND | GND | | | |
| 65 | GND_20 | G | | GND | GND | | | |
| 67 | I2C1_SCL/UART3_CTS_M0/GPIO0_C2_D_3.0V | I/O | DOWN | I2C1_SCL | I2C serial port 1 , Core board interior pull up Resistor 2.2K | 3.0V | T20 | GPIO0_C2/I2C1_SCL/UART3_CTS_M0 |
| 69 | I2C1_SDA/UART3_RTS_M0/GPIO0_C3_D_3.0V | I/O | DOWN | I2C1_SDA | I2C serial port 1 , Core board interior pull up Resistor 2.2K | 3.0V | R20 | GPIO0_C3/I2C1_SDA/UART3_RTS_M0 |
| 71 | NC_2 | | | | | | | |
| 73 | GPIO0_B3/CIF_PDN0_D_3.0V | I/O | DOWN | GPIO0_B3/CIF_PDN0 | MIPI Camera power | 3.0V | P18 | GPIO0_B3/UART0_RX |
| 75 | NC_3 | | | | | | | |
| 77 | GND_21 | G | | GND | GND | | | |
| 79 | NC_4 | | | | | | | |
| 81 | NC_5 | | | | | | | |
| 83 | NC_6 | | | | | | | |
| 85 | NC_7 | | | | | | | |
| 87 | CIF_D11_M0/I2C2_SDA/GPIO2_C0_U_3.0V | I/O | UP | I2C2_SDA | Camera data port, I2C serial port 1 , Core board interior pull up Resistor 2.2K | 3.0V | V6 | GPIO2_C0/CIF_D11_M0/I2C2_SDA |
| 89 | CIF_D10_M0/I2C2_SCL/GPIO2_B7_U_3.0V | I/O | UP | I2C2_SCL | Camera data port, I2C serial port 1 , Core board interior pull up Resistor 2.2K | 3.0V | U7 | GPIO2_B7/CIF_D10_M0/I2C2_SCL |
| 91 | NC_8 | | | | | | | |
| 93 | NC_9 | | | | | | | |

| | | | | | | | | |
|-----|--|-----|------|--|---|------|------|---|
| 95 | UART0_RTS/TEST_CLK1/GPIO0_B5_U_3.0V | I/O | UP | BL_EN/GPIO0_B5 | LCD panel backlight power enable | 3.0V | N19 | GPIO0_B5/UART0_RTS/TEST_CLK1 |
| 97 | PWM0/OTG_DRV/GPIO0_B7_D_3.0V | I/O | DOWN | PWM0/GPIO0_B7 | PWM0 output | 3.0V | M19 | GPIO0_B7/PWM0/OTG_DRV |
| 99 | NC_10 | | | | | | | |
| 101 | GND_22 | G | | GND | GND | | | |
| 103 | GPIO3_B6/LCDC_D10_M0/CIF_D8_M1/I2S0_8CH_SDO3/SPI1_MISO_D_3.0V | I/O | DOWN | LCDC_D10_M0/I2S0_8CH_SDO3/SPI1_RXD/GPIO3_B6 | LCDC data10 | 3.0V | G18 | GPIO3_B6/LCDC_D10_M0/CIF_D8_M1/I2S0_8CH_SDO3/SPI1_MISO |
| 105 | GPIO3_B4/LCDC_D8_M0/CIF_D7_M1/I2S0_8CH_SCLKRX/SPI1_MOSI_D_3.0V | I/O | DOWN | LCDC_D8_M0/I2S0_8CH_SCLKRX/SPI1_TXD/GPIO3_B4 | LCDC data8 | 3.0V | F18 | GPIO3_B4/LCDC_D8_M0/CIF_D7_M1/I2S0_8CH_SCLKRX/SPI1_MOSI |
| 107 | GPIO3_B7/LCDC_D11_M0/CIF_D9_M1/I2S0_8CH_SDO2/SPI1_D_3.0V | I/O | DOWN | LCDC_D11_M0/I2S0_8CH_SDO2/SPI1_CLK/GPIO3_B7 | LCDC data11 | 3.0V | G17 | GPIO3_B7/LCDC_D11_M0/CIF_D9_M1/I2S0_8CH_SDO2/SPI1_CLK |
| 109 | GPIO3_B1/LCDC_D5_M0/CIF_D6_M1/I2S0_8CH_SDI2/SPI1_C_D_3.0V | I/O | DOWN | LCDC_D5_M0/I2S0_8CH_SDI2/SPI1_CSN/GPIO3_B1 | LCDC data5 | 3.0V | F17 | GPIO3_B1/LCDC_D5_M0/CIF_D6_M1/I2S0_8CH_SDI2/SPI1_CSN0 |
| 111 | GPIO3_B2/LCDC_D6/SPI1_CSN1_D_3.0V | I/O | DOWN | LCDC_D6/SPI1_CSN1/GPIO3_B2 | LCDC data6 | 3.0V | B18 | GPIO3_B2/LCDC_D6/SPI1_CSN1 |
| 113 | GPIO3_C2/LCDC_D14/PWM4/I2S0_8CH_LRCKTX/TDM_FSYNC_D_3.0V | I/O | DOWN | LCDC_D14/I2S0_8CH_LRCKTX/PWM4/GPIO3_C2 | LCDC data14 | 3.0V | C19 | GPIO3_C2/LCDC_D14/PWM4/I2S0_8CH_LRCKTX/TDM_FSYNC |
| 115 | GPIO3_C3/LCDC_D15/PWM5/I2S0_8CH_SCLKTX/TDM_SCLK_D_3.0V | I/O | DOWN | LCDC_D15/I2S0_8CH_SCLKTX/PWM5/GPIO3_C3 | LCDC data15 | 3.0V | B19 | GPIO3_C3/LCDC_D15/PWM5/I2S0_8CH_SCLKTX/TDM_SCLK |
| 117 | GPIO3_C4/LCDC_D16/PWM6/I2S0_8CH_SDO0/TDM_SDO_D_3.0V | I/O | DOWN | LCDC_D16/I2S0_8CH_SDO0/PWM6/GPIO3_C4 | LCDC data16 | 3.0V | C18 | GPIO3_C4/LCDC_D16/PWM6/I2S0_8CH_SDO0/TDM_SDO |
| 119 | GPIO3_C5/LCDC_D17/PWM7/I2S0_8CH_SDI0/TDM_SDI_D_3.0V | I/O | DOWN | LCDC_D17/I2S0_8CH_SDI0/PWM7/GPIO3_C5 | LCDC data17 | 3.0V | A18 | GPIO3_C5/LCDC_D17/PWM7/I2S0_8CH_SDI0/TDM_SDI |
| 121 | NC_11 | | | | | | | |
| 123 | GND_23 | G | | GND | GND | | | |
| 125 | NC_12 | | | | | | | |
| 127 | NC_13 | | | | | | | |
| 129 | NC_14 | | | | | | | |
| 131 | NC_15 | | | | | | | |
| 133 | USB_OTG_DP | A | | OTG_DP | USB 2.0 Data signal DP(For System Update) | | Y10 | USB_OTG_DP |
| 135 | USB_OTG_DM | A | | OTG_DM | USB 2.0 Data signal DM(For System Update) | | AA10 | USB_OTG_DM |
| 137 | NC_16 | | | | | | | |
| 139 | NC_17 | | | | | | | |
| 141 | NC_18 | | | | | | | |
| 143 | GND_24 | G | | GND | GND | | | |

| | | | | | | | | |
|-----|----------|---|--|----------|--|--|-----|----------|
| 145 | USB_VBUS | A | | OTG_DET | Vbus power detect | | Y13 | USB_VBUS |
| 147 | NC_19 | | | | | | | |
| 149 | NC_20 | | | | | | | |
| 151 | NC_21 | | | | | | | |
| 153 | NC_22 | | | | | | | |
| 155 | GND_25 | G | | GND | GND | | | |
| 157 | NC_23 | | | | | | | |
| 159 | NC_24 | | | | | | | |
| 161 | NC_25 | | | | | | | |
| 163 | NC_26 | | | | | | | |
| 165 | NC_27 | | | | | | | |
| 167 | NC_28 | | | | | | | |
| 169 | NC_29 | | | | | | | |
| 171 | NC_30 | | | | | | | |
| 173 | GND_26 | G | | GND | GND | | | |
| 175 | GND_27 | G | | GND | GND | | | |
| 177 | GND_28 | G | | GND | GND | | | |
| 179 | HP_SNS | G | | HP_SNS | Reference ground for the headphone | | | |
| 181 | HPL | O | | AOL | Left channel output of the headphone | | | |
| 183 | HPR | O | | AOR | Right channel output of the headphone | | | |
| 185 | NC_31 | | | | | | | |
| 187 | NC_32 | | | | | | | |
| 189 | NC_33 | | | | | | | |
| 191 | NC_34 | | | | | | | |
| 193 | GND_29 | G | | GND | GND | | | |
| 195 | GND_30 | G | | GND | GND | | | |
| 197 | SPKN_OUT | O | | SPKN_OUT | (RK809-1)speaker output- | | | |
| 199 | SPKP_OUT | O | | SPKP_OUT | (RK809-1)speaker output+ | | | |
| 201 | MIC1_IN | I | | MIC1_IN | (RK809-1)Microphone input+(or MIC_IN1) | | | |
| 203 | MIC2_IN | I | | MIC2_IN | (RK809-1)Microphone input-(or MIC_IN2) | | | |

| | | | | | | | | |
|-----|--|-----|----|--------------------|--|------|--------------------|---|
| 205 | GND_31 | G | | GND | GND | | | |
| 207 | FLASH_RDN/UART3_RX_M1/SPI0_CLK/GPIO1_B7_U_1.8V | I/O | UP | GPIO1_B7/FLASH_RDN | GPIO1_B7 | 1.8V | H21 | GPIO1_B7/FLASH_RDN/UART3_RX_M1/SPI0_CLK |
| 209 | FLASH_CS1/UART3_TX_M1/SPI0_CSN/GPIO1_B6_U_1.8V | I/O | UP | GPIO1_B6/FLASH_CS1 | GPIO1_B6 | 1.8V | G20 | GPIO1_B6/FLASH_CS1/UART3_TX_M1/SPI0_CSN |
| 211 | NC_35 | | | | | | | |
| 213 | NC_36 | | | | | | | |
| 215 | NC_37 | | | | | | | |
| 217 | NC_38 | | | | | | | |
| 219 | GND_32 | G | | GND | GND | | | |
| 221 | PWRON | | | POWER_ON | Power on Signal Input, External connection Power key , active low | | To POWER KEY | |
| 223 | PMIC_VDC | P | | VCC_5V_S | PMIC_EN: Input Voltage 3V-5.5V , Rated input current 50mA | 5V | | |
| 225 | VDDIO_WL_1 | P | | VDDIO_WL | (SDMMC1,UART1 Power_Input)1.8V or 3.3V | 3.0V | | |
| 227 | VCC_3V0 | P | | VCC_3V0 | 3.0V Output, Rated output current 150mA | 3.0V | | |
| 229 | VCC_1V8 | P | | VCC_18 | 1.8V Output, Rated output current 200mA | 1.8V | | |
| 231 | NC_39 | | | | | | | |
| 233 | VCC_5V_S | P | | VCC_5V_S | RTC Power_Input : 3V-5.5V | 5V | | |
| 235 | VCC3V3_LCD_1 | P | | VCC3V3_LCD | 3.3V Output, Rated output current 400mA | 3.3V | | |
| 237 | VCC3V3_SYS_1 | P | | VCC3V3_SYS | 3.3V Output, Rated output current 1A | 3.3V | | |
| 239 | VCC3V3_SYS_2 | P | | VCC3V3_SYS | | 3.3V | | |
| 241 | GND_33 | G | | GND | Power ground | | | |
| 243 | GND_34 | G | | GND | | | | |
| 245 | GND_35 | G | | GND | | | | |
| 247 | GND_36 | G | | GND | | | | |
| 249 | GND_37 | G | | GND | | | | |
| 251 | VCC5V0_SYS_1 | P | | VCC5V0_SYS | System Power supply Input Voltag : Min 4.8V, Typ 5.0V, Max 5.2V Input current: Typ 650mA ;Max 1300mA | 5V | | |
| 253 | VCC5V0_SYS_3 | P | | VCC5V0_SYS | | | | |
| 255 | VCC5V0_SYS_5 | P | | VCC5V0_SYS | | | | |
| 257 | VCC5V0_SYS_7 | P | | VCC5V0_SYS | | | | |
| 259 | VCC5V0_SYS_9 | P | | VCC5V0_SYS | | | | |

| Part B | PIN | Core board pin definition | Pad type | IO Pull | Function for Floor(MB-PX30-JD4) | Defual function description | IO Power domain | PX30 Pin Number | PX30 Pin Name |
|--------|-----|--|----------|---------|---------------------------------|--|-----------------|-----------------|---------------------------------------|
| | 2 | GND_38 | G | | GND | GND | | | |
| | 4 | NC_40 | | | | | | | |
| | 6 | NC_41 | | | | | | | |
| | 8 | NC_42 | | | | | | | |
| | 10 | NC_43 | | | | | | | |
| | 12 | NC_44 | | | | | | | |
| | 14 | NC_45 | | | | | | | |
| | 16 | NC_46 | | | | | | | |
| | 18 | NC_47 | | | | | | | |
| | 20 | NC_48 | | | | | | | |
| | 22 | I2C0_SDA/GPIO0_B1_U_3.0V | I/O | UP | I2C0_SDA_PMIC | I2C serial port 0 ,for PMIC , Core board interiorl pull up Resistor 2.2K | 3.0V | P21 | GPIO0_B1/I2C0_SDA |
| | 24 | I2C0_SCL/GPIO0_B0_U_3.0V | I/O | UP | I2C0_SCL_PMIC | I2C serial port 0 ,for PMIC , Core board interiorl pull up Resistor 2.2K | 3.0V | R21 | GPIO0_B0/I2C0_SCL |
| | 26 | GND_39 | G | | GND | GND | | | |
| | 28 | REF_CLKO/GPIO_A0_D_3.0V | I/O | DOWN | SPK_MUTE | Speaker control | 3.0V | Y21 | GPIO0_A0/REF_CLKO |
| | 30 | GND_40 | G | | GND | GND | | | |
| | 32 | GPIO2_B3/CIF_CLKO_M0/CLK_OUT_ETHERNET_D_3.0V | I/O | DOWN | GPIO2_B3/MIPI_CLKO | Mipi Camera clock output | 3.0V | Y5 | GPIO2_B3/CIF_CLKO_M0/CLK_OUT_ETHERNET |
| | 34 | GPIO0_B4/UART0_CTS_U_3.0V | I/O | UP | GPIO0_B4/TP_RST | Touch pannel reset output | 3.0V | R18 | GPIO0_B4/UART0_CTS |
| | 36 | GPIO0_A5_U_3.0V | I/O | UP | GPIO0_A5/TP_INT | Touch pannel interrupt input | 3.0V | T21 | GPIO0_A5 |
| | 38 | PX30_ID | | | PX30_ID | Internal core board distinction (no used) | 3.3V | | |
| | 40 | GND_41 | G | | GND | GND | | | |
| | 42 | GPIO0_A2_D_3.0V | I/O | DOWN | WIFI_REG_ON_H | WIFI module power enable | 3.0V | V21 | GPIO0_A2 |
| | 44 | GPIO0_B2/UART0_TX_D_3.0V | I/O | DOWN | WIFI_WAKE_HOST | WIFI module wake up AP | 3.0V | N20 | GPIO0_B2/UART0_TX |
| | 46 | GPIO1_D0/SDMMC1_D2_U_3.3V | I/O | UP | SDIO0_D2 | SDIO0 data port , for WIFI module | 3.3V | M21 | GPIO1_D0/SDMMC1_D2 |
| | 48 | GPIO1_D1/SDMMC1_D31_U_3.3V | I/O | UP | SDIO0_D3 | SDIO0 data port , for WIFI module | 3.3V | J19 | GPIO1_D1/SDMMC1_D3 |
| | 50 | GPIO1_C4/SDMMC1_CMD_U_3.3V | I/O | UP | SDIO0_CMD | SDIO0 command output , for WIFI module | 3.3V | H19 | GPIO1_C4/SDMMC1_CMD |
| | 52 | GPIO1_C5/SDMMC1_CLK_D_3.3V | I/O | DOWN | SDIO0_CLK | SDIO0 clock output, for WIFI module | 3.3V | M20 | GPIO1_C5/SDMMC1_CLK |
| | 54 | GPIO1_C6/SDMMC1_D0_U_3.3V | I/O | UP | SDIO0_D0 | SDIO0 data port , for WIFI module | 3.3V | L20 | GPIO1_C6/SDMMC1_D0 |

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|-----|--|-----|------|-----------------------------------|--|------|-----|---|
| 56 | GPIO1_C7/SDMMC1_D1_U_3.3V | I/O | UP | SDIO0_D1 | SDIO0 data port , for WIFI module | 3.3V | L19 | GPIO1_C7/SDMMC1_D1 |
| 58 | GND_42 | G | | GND | GND | | | |
| 60 | GPIO0_C4/CLKIO_32K_Z_3.0V | I/O | Z | RK805_32KOUT | Output 32.768K CLK , Core board interior pull up Resistor 10K | 3.0V | P20 | GPIO0_C4/CLKIO_32K |
| 62 | GPIO2_B0/CIF_VSYNC_M0_D_3.0V | I/O | DOWN | BT_REG_ON_H | BT module power enable | 3.0V | Y4 | GPIO2_B0/CIF_VSYNC_M0 |
| 64 | GPIO1_C0/UART1_RX_U_3.3V | I/O | UP | UART0_RXD | UART0 serial port, for BT module | 3.3V | J20 | GPIO1_C0/UART1_RX |
| 66 | GPIO1_C1/UART1_TX_U_3.3V | I/O | UP | UART0_TXD | UART1 serial port, for BT module | 3.3V | K20 | GPIO1_C1/UART1_TX |
| 68 | GPIO1_C2/UART1_CTS_U_3.3V | I/O | UP | UART0_CTS | UART2 serial port, for BT module | 3.3V | K21 | GPIO1_C2/UART1_CTS |
| 70 | GPIO1_C3/UART1_RTS_U_3.3V | I/O | UP | UART0_RTS | UART3 serial port, for BT module | 3.3V | L21 | GPIO1_C3/UART1_RTS |
| 72 | NC_49 | | | | | | | |
| 74 | GPIO0_A1_D_1.8V | I/O | DOWN | BT_WAKE_HOST | BT module wake up AP | 1.8V | Y20 | GPIO0_A1 |
| 76 | NC_50 | | | | | | | |
| 78 | MIPI_CSI_DP3 | A | | MIPI_CSI_D3P | MIPI-DSIO differential lane 3 positive | | V9 | MIPI_CSI_D3P |
| 80 | MIPI_CSI_DN3 | A | | MIPI_CSI_D3N | MIPI-DSIO differential lane 3 negative | | W8 | MIPI_CSI_D3N |
| 82 | MIPI_CSI_D2P | A | | MIPI_CSI_D2P | MIPI-DSIO differential lane 2 positive | | U9 | MIPI_CSI_D2P |
| 84 | MIPI_CSI_D2N | A | | MIPI_CSI_D2N | MIPI-DSIO differential lane 2 negative | | V8 | MIPI_CSI_D2N |
| 86 | MIPI_CSI_CLKP | A | | MIPI_CSI_CLKP | MIPI-DSIO differential clock lane positive | | V10 | MIPI_CSI_CLKP |
| 88 | MIPI_CSI_CLKN | A | | MIPI_CSI_CLKN | MIPI-DSIO differential clock lane negative | | U10 | MIPI_CSI_CLKN |
| 90 | MIPI_CSI_D1P | A | | MIPI_CSI_D1P | MIPI-DSIO differential lane 1 positive | | Y9 | MIPI_CSI_D1P |
| 92 | MIPI_CSI_D1N | A | | MIPI_CSI_D1N | MIPI-DSIO differential lane 1 negativ | | W9 | MIPI_CSI_D1N |
| 94 | MIPI_CSI_D0P | A | | MIPI_CSI_D0P | MIPI-DSIO differential lane 0 positive | | W10 | MIPI_CSI_D0P |
| 96 | MIPI_CSI_D0N | A | | MIPI_CSI_D0N | MIPI-DSIO differential lane 0 negativ | | V11 | MIPI_CSI_D0N |
| 98 | GPIO1_B0/FLASH_CS0_U_1.8V | I/O | UP | HP_DET | Headphone detection , Core board internal series resistance 0R | 1.8V | F19 | GPIO1_B0/FLASH_CS0 |
| 100 | GPIO2_B6/CIF_D1_M0/UART2_RX_M1_D_3.0V | I/O | DOWN | UART2_RX_M1 | Uart2 serial port data input, for AP debug | 3.0V | W6 | GPIO2_B6/CIF_D1_M0/UART2_RX_M1 |
| 102 | GPIO2_B4/CIF_D0_M0/UART2_TX_M1_D_3.0V | I/O | DOWN | UART2_TX_M1 | Uart2 serial port data output ,for AP debug | 3.0V | V12 | GPIO2_B4/CIF_D0_M0/UART2_TX_M1 |
| 104 | GPIO0_C0/UART3_TX_M0/PWM1_D_3.0V | I/O | DOWN | LCDC_BL_PWM/UART3_TX/GPIO0_C0 | GPIO | 3.0V | N21 | GPIO0_C0/UART3_TX_M0/PWM1 |
| 106 | GPIO0_C1/UART3_RX_M0/PWM3_D_3.0V | I/O | DOWN | IR_IN/UART3_RX/GPIO0_C1 | IR receiver input | 3.0V | P19 | GPIO0_C1/UART3_RX_M0/PWM3 |
| 108 | NC_51 | | | | | | | |
| 110 | GPIO3_A0/LCDC_CLK_D_3.0V | I/O | DOWN | LCDC_CLK/GPIO3_A0 | LCDC data port (no used) | 3.0V | D19 | GPIO3_A0/LCDC_CLK |
| 112 | GND_43 | G | | GND | GND | | | |
| 114 | GPIO3_B0/LCDC_D4_M0/CIF_D5_M1/I2S0_8CH_SDI3_D_3.0V | I/O | DOWN | LCDC_D4_M0/I2S0_8CH_SDI3/GPIO3_B0 | LCDC data port (no used) | 3.0V | E17 | GPIO3_B0/LCDC_D4_M0/CIF_D5_M1/I2S0_8CH_SDI3 |

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|-----|--|-----|------|--|--|------|-----|---|
| 116 | GPIO3_C1/LCDC_D13/I2S0_8CH_MCLK_D_3.0V | I/O | DOWN | LCDC_D13/I2S0_8CH_MCLK/GPIO3_C1 | LCDC data port (no used) | 3.0V | B20 | GPIO3_C1/LCDC_D13/I2S0_8CH_MCLK |
| 118 | GPIO3_B5/LCDC_D9_M0/I2S0_8CH_LRCKRX_D_3.0V | I/O | DOWN | LCDC_D9_M0/I2S0_8CH_LRCKRX/GPIO3_B5 | I2S0 for receiving serial data , External (no used) | 3.0V | C16 | GPIO3_B5/LCDC_D9_M0/I2S0_8CH_LRCKRX |
| 120 | GPIO3_B3/LCDC_D7/I2S0_8CH_SDI1_D_3.0V | I/O | DOWN | LCDC_D7/I2S0_8CH_SDI1/GPIO3_B3 | LCDC data port (no used) | 3.0V | C17 | GPIO3_B3/LCDC_D7/I2S0_8CH_SDI1 |
| 122 | NC_52 | | | | | | | |
| 124 | GPIO3_C0/LCDC_D12/I2S0_8CH_SDO1_D_3.0V | I/O | DOWN | LCDC_D12/I2S0_8CH_SDO1/GPIO3_C0 | LCDC data port (no used) | 3.0V | A20 | GPIO3_C0/LCDC_D12/I2S0_8CH_SDO1 |
| 126 | GPIO3_A5/LCDC_D1_M0/CIF_D3_M1/I2S2_2CH_SDI/UART5_RTS_D_3.0V | I/O | DOWN | LCDC_D1_M0/I2S2_2CH_SDI/GPIO3_A5 | LCDC data port (no used) | 3.0V | E15 | GPIO3_A5/LCDC_D1_M0/CIF_D3_M1/I2S2_2CH_SDI/UART5_RTS |
| 128 | GPIO3_A2/LCDC_VSYNC_M0/CIF_D1_M1/I2S2_2CH_SCLK/UART5_TX_D_3.0V | I/O | DOWN | LCDC_VSYNC_M0/I2S2_2CH_SCLK/GPIO3_A2 | LCDC data port (no used) | 3.0V | F13 | GPIO3_A2/LCDC_VSYNC_M0/CIF_D1_M1/I2S2_2CH_SCLK/UART5_TX |
| 130 | GPIO3_A3/LCDC_DEN_M0/CIF_D2_M1/I2S2_2CH_LRCK_TXRX/UART5_CTS_D_3.0V | I/O | DOWN | LCDC_DEN_M0/I2S2_2CH_LRCK/GPIO3_A3 | LCDC data port (no used) | 3.0V | E14 | GPIO3_A3/LCDC_DEN_M0/CIF_D2_M1/I2S2_2CH_LRCK_TXRX/UART5_CTS |
| 132 | GND_44 | G | | GND | GND | | | |
| 134 | GPIO3_A7/LCDC_D3_M0/CIF_D4_M1/I2S2_2CH_SDO_D_3.0V | I/O | DOWN | LCDC_D3_M0/I2S2_2CH_SDO/GPIO3_A7 | LCDC data port (no used) | 3.0V | E16 | GPIO3_A7/LCDC_D3_M0/CIF_D4_M1/I2S2_2CH_SDO |
| 136 | GPIO3_A1/LCDC_HSYNC_M0/CIF_D0_M1/I2S2_2CH_MCLK/UART5_RX_D_3.0V | I/O | DOWN | LCDC_HSYNC_M0/I2S2_2CH_MCLK/GPIO3_A1 | LCDC data port (no used) | 3.0V | E13 | GPIO3_A1/LCDC_HSYNC_M0/CIF_D0_M1/I2S2_2CH_MCLK/UART5_RX |
| 138 | GPIO3_C7/LCDC_D19/CIF_D11_M1/PDM_CLK1_D_3.0V | I/O | DOWN | LCDC_D19/PDM_CLK1/CIF_D11_M1/GPIO3_C7 | I2S0 serial clock , External (no used) | 3.0V | D14 | GPIO3_C7/LCDC_D19/CIF_D11_M1/PDM_CLK1 |
| 140 | GPIO3_C6/LCDC_D18/CIF_D10_M1/PDM_CLK0_M0_D_3.0V | I/O | DOWN | LCDC_D18/PDM_CLK0_M0/CIF_D10_M1/GPIO3_C6 | I2S serial clock , External (no used) | 3.0V | D13 | GPIO3_C6/LCDC_D18/CIF_D10_M1/PDM_CLK0_M0 |
| 142 | GPIO3_D0/LCDC_D20/CIF_CLKOUT_M1/PDM_SDI1_D_3.0V | I/O | DOWN | LCDC_D20/PDM_SDI1/CIF_CLKOUT_M1/GPIO3_D0 | I2S0 SDO1 serial data output , External (no used) | 3.0V | D15 | GPIO3_D0/LCDC_D20/CIF_CLKOUT_M1/PDM_SDI1 |
| 144 | GPIO3_D1/LCDC_D21/CIF_VSYNC_M1/PDM_SDI2/ISP_PRELIGHT_TRIG_D_3.0V | I/O | DOWN | LCDC_D21/PDM_SDI2 | I2S0 SDO2 serial data output , External (no used) | 3.0V | D16 | GPIO3_D1/LCDC_D21/CIF_VSYNC_M1/PDM_SDI2/ISP_PRELIGHT_TRIG |
| 146 | GPIO3_D2/LCDC_D22/CIF_HREF_M1/PDM_SDI3/ISP_FLASH_TRIGOUT_D_3.0V | I/O | DOWN | LCDC_D22/PDM_SDI3/CIF_HREF_M1/GPIO3_D2 | I2S0 SDO3 serial data output , External (no used) | 3.0V | D17 | GPIO3_D2/LCDC_D22/CIF_HREF_M1/PDM_SDI3/ISP_FLASH_TRIGOUT |
| 148 | GPIO3_D3/LCDC_D23/CIF_CLKIN_M1/PDM_SDI0_M0/ISP_FLASH_TRIGIN_D_3.0V | I/O | DOWN | LCDC_D23/PDM_SDI0_M0 | I2S0 SDO0 serial data output , External (no used) | 3.0V | D18 | GPIO3_D3/LCDC_D23/CIF_CLKIN_M1/PDM_SDI0_M0/ISP_FLASH_TRIGIN |
| 150 | ADC_IN1 | A | | SARADC_IN1 | ADC input | | W14 | ADC_IN1 |
| 152 | ADC_IN2 | A | | RECOVER | ADC keyboard input, Core board interior pull up Resistor 10K | | V15 | ADC_IN2 |
| 154 | ADC_IN0 | A | | ADC0_HW_ID | Hardware version ADC | | V14 | ADC_IN0 |
| 156 | GPIO3_A4/LCDC_D0_D_3.0V | I/O | DOWN | LCDC_D0/GPIO3_A4 | LCDC data port (no used) | | C15 | GPIO3_A4/LCDC_D0 |
| 158 | GPIO3_A6/LCDC_D2_D_3.0V | I/O | DOWN | LCDC_D2/GPIO3_A6 | LCDC data port (no used) | | C14 | GPIO3_A6/LCDC_D2 |

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| 160 | LVDS_TX0N/MIPI_TX_D0N/LCDC_D11_M1 | A | | LCDC_D11_M1/LVDS_TX0N/MIPI_TX_D0N | LVDS differential lane 0 negative | | B16 | LVDS_TX0N/MIPI_TX_D0N/LCDC_D11_M1 |
| 162 | LVDS_TX0P/MIPI_TX_D0P/LCDC_D8_M1 | A | | LCDC_D8_M1/LVDS_TX0P/MIPI_TX_D0P | LVDS differential lane 0 positive | | B17 | LVDS_TX0P/MIPI_TX_D0P/LCDC_D8_M1 |

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|-----|--------------------------------------|-----|------|-------------------------------------|---|------|-----|-------------------------------------|
| 164 | LVDS_TX1N/MIPI_TX_D1N/LCDC_D1_M1 | A | | LCDC_D1_M1/LVDS_TX1N/MIPI_TX_D1N | LVDS differential lane 1 negative | | B15 | LVDS_TX1N/MIPI_TX_D1N/LCDC_D1_M1 |
| 166 | LVDS_TX1P/MIPI_TX_D1P/LCDC_D10_M1 | A | | LCDC_D10_M1/LVDS_TX1P/MIPI_TX_D1P | LVDS differential lane 1 positive | | A16 | LVDS_TX1P/MIPI_TX_D1P/LCDC_D10_M1 |
| 168 | LVDS_CLKN/MIPI_TX_CLKN/LCDC_D4_M1 | A | | LCDC_D4_M1/LVDS_CLKN/MIPI_TX_CLKN | LVDS differential clock lane negative | | B14 | LVDS_CLKN/MIPI_TX_CLKN/LCDC_D4_M1 |
| 170 | LVDS_CLKP/MIPI_TX_CLKP/LCDC_D3_M1 | A | | LCDC_D3_M1/LVDS_CLKP/MIPI_TX_CLKP | LVDS differential clock lane positive | | A14 | LVDS_CLKP/MIPI_TX_CLKP/LCDC_D3_M1 |
| 172 | LVDS_TX2N/MIPI_TX_D2N/LCDC_VSYNC_M1 | A | | LCDC_VSYNC_M1/LVDS_TX2N/MIPI_TX_D2N | LVDS differential lane 2 negative | | C13 | LVDS_TX2N/MIPI_TX_D2N/LCDC_VSYNC_M1 |
| 174 | LVDS_TX2P/MIPI_TX_D2P/LCDC_D5_M1 | A | | LCDC_D5_M1/LVDS_TX2P/MIPI_TX_D2P | LVDS differential lane 2 positive | | B13 | LVDS_TX2P/MIPI_TX_D2P/LCDC_D5_M1 |
| 176 | LVDS_TX3N/MIPI_TX_D3N/LCDC_HSYNC_M1 | A | | LCDC_HSYNC_M1/LVDS_TX3N/MIPI_TX_D3N | LVDS differential lane 3 negative | | B12 | LVDS_TX3N/MIPI_TX_D3N/LCDC_HSYNC_M1 |
| 178 | LVDS_TX3P/MIPI_TX_D3P/LCDC_DEN_M1 | A | | LCDC_DEN_M1/LVDS_TX3P/MIPI_TX_D3P | LVDS differential lane 3 positive | | A12 | LVDS_TX3P/MIPI_TX_D3P/LCDC_DEN_M1 |
| 180 | GND_45 | G | | GND | GND | | | |
| 182 | GPIO2_A7/CIF_D9_M0/RMII_MDIO_D_3.0V | I/O | DOWN | RMII_MDIO | MAC management interface data | 3.0V | W7 | GPIO2_A7/CIF_D9_M0/RMII_MDIO |
| 184 | GPIO2_B1/CIF_HREF_M0/RMII_MDC_D_3.0V | I/O | DOWN | MDC_MAC | MAC management interface clock , Core board internal series resistance 22R | 3.0V | AA4 | GPIO2_B1/CIF_HREF_M0/RMII_MDC |
| 186 | NC_53 | | | | | | | |
| 188 | GPIO2_A5/CIF_D7_M0/RMII_RXER_D_3.0V | I/O | DOWN | RMII_RXER | MAC RX error signal | 3.0V | Y7 | GPIO2_A5/CIF_D7_M0/RMII_RXER |
| 190 | GND_46 | G | | GND | GND | | | |
| 192 | GPIO2_B2/CIF_CLKI_M0/RMII_CLK_D_3.0V | I/O | DOWN | RMII_CLK | MAC REC_CLK output or external clock input, Core board internal series resistance 22R | 3.0V | AA6 | GPIO2_B2/CIF_CLKI_M0/RMII_CLK |
| 194 | GPIO2_A4/CIF_D6_M0/RMII_RXD1_D_3.0V | I/O | DOWN | RMII_RXD1 | MAC RX data 1 | 3.0V | Y8 | GPIO2_A4/CIF_D6_M0/RMII_RXD1 |
| 196 | NC_54 | | | | | | | |
| 198 | GPIO2_A3/CIF_D5_M0/RMII_RXD0_D_3.0V | I/O | DOWN | RMII_RXD0 | MAC RX data 0 | 3.0V | Y6 | GPIO2_A3/CIF_D5_M0/RMII_RXD0 |
| 200 | NC_55 | | | | | | | |
| 202 | GPIO2_A6/CIF_D8_M0/RMII_RXDV_D_3.0V | I/O | DOWN | RMII_RXDV | MAC RX enable | 3.0V | W5 | GPIO2_A6/CIF_D8_M0/RMII_RXDV |
| 204 | GPIO2_A2/CIF_D4_M0/RMII_TXD0_D_3.0V | I/O | DOWN | RMII_TXD0 | MAC TX data , Core board internal series resistance 22R | 3.0V | AA7 | GPIO2_A2/CIF_D4_M0/RMII_TXD0 |
| 206 | NC_56 | | | | | | | |
| 208 | NC_57 | | | | | | | |

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| 210 | GPIO2_A1/CIF_D3_M0/RMII_TXD1_D_3.0V | I/O | DOWN | RMII_TXD1 | MAC TX data , Core board internal series resistance 22R | 3.0V | AA8 | GPIO2_A1/CIF_D3_M0/RMII_TXD1 |
| 212 | GPIO2_A0/CIF_D2_M0/RMII_TXEN_D_3.0V | I/O | DOWN | RMII_TXEN | MAC TX data enable , Core board internal series resistance 22R | 3.0V | AA5 | GPIO2_A0/CIF_D2_M0/RMII_TXEN |
| 214 | NC_58 | | | | | | | |
| 216 | GPIO2_B5/PWM2_D_3.0V | I/O | DOWN | RMII_RST | MAC reset | 3.0V | V7 | GPIO2_B5/PWM2 |
| 218 | NPOR_1.8V | I | UP | RESET_KEY | system reset signal Input,External connection Reset key,active low | 1.8V | W19 | NPOR |
| 220 | EXT_EN | | | EXT_EN | External Power enable output,Voltage 5V | 5V | | |
| 222 | NC_59 | | | | | | | |
| 224 | GND_47 | G | | GND | GND | | | |
| 226 | VDDIO_WL_2 | P | | VDDIO_WL | (SDMMC1,UART1 Power_Input)1.8V or 3.3V | 1.8V/3.3V In | | |
| 228 | VCC1V8_DVP | P | | VCC_18 | Output Voltage 1.8V , Rated output current 200mA | 1.8V OUT | | |
| 230 | GND_48 | G | | GND | GND | | | |
| 232 | VCC_RTC | P | | VCC_RTC | Input Voltage 3.3V-5.5V , Rated input current 50mA | 3.3V/5.0V In | | |
| 234 | VCC3V3_LCD_2 | P | | VCC3V3_LCD | Output Voltage 3.3V , Rated output current 400mA | 3.3V OUT | | |
| 236 | NC_60 | | | | | | | |
| 238 | VCC3V3_SYS_3 | P | | VCC3V3_SYS | Output Voltage 3.3V , Rated output current 1A | 3.3V OUT | | |
| 240 | GND_49 | G | | GND | Power ground | | | |
| 242 | GND_50 | G | | GND | | | | |
| 244 | GND_51 | G | | GND | | | | |
| 246 | GND_52 | G | | GND | | | | |
| 248 | GND_53 | G | | GND | | | | |
| 250 | GND_54 | G | | GND | | | | |
| 252 | VCC5V0_SYS_2 | P | | VCC5V0_SYS | System Power supply Input Voltag : Min 4.8V,Typ 5.0V, Max 5.2V Input current: Typ 650mA ;Max 1300mA | 5.0V | | |
| 254 | VCC5V0_SYS_4 | P | | VCC5V0_SYS | | | | |
| 256 | VCC5V0_SYS_6 | P | | VCC5V0_SYS | | | | |
| 258 | VCC5V0_SYS_8 | P | | VCC5V0_SYS | | | | |
| 260 | VCC5V0_SYS_10 | P | | VCC5V0_SYS | | | | |
| 261 | GND_55 | G | | GND | | | | |

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|-----|--------|---|--|-----|
| 262 | GND_56 | G | | GND |
| 263 | GND_57 | G | | GND |
| 264 | GND_58 | G | | GND |
| 265 | GND_59 | G | | GND |
| 266 | GND_60 | G | | GND |
| 267 | GND_61 | G | | GND |
| 268 | GND_62 | G | | GND |

Power ground

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