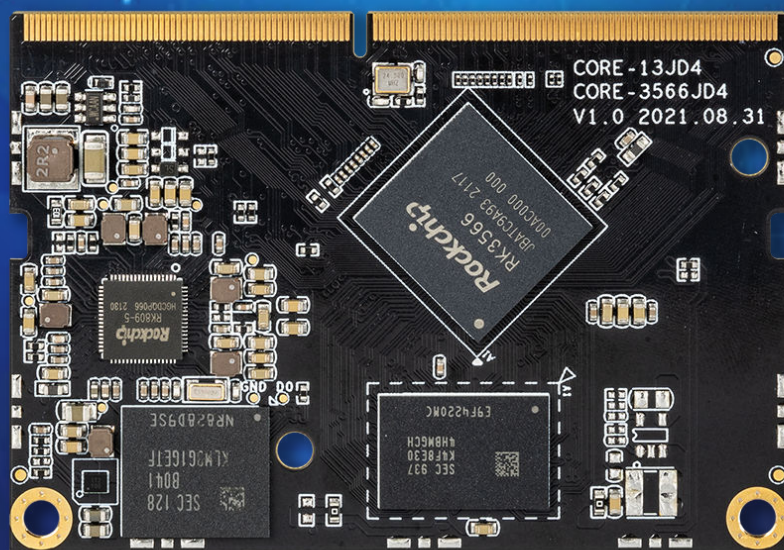


# Core-3566JD4

Quad-Core 64-Bit AI Core Board

V1.0



T-CHIP INTELLIGENCE TECHNOLOGY CO.,LTD.

[www.t-firefly.com](http://www.t-firefly.com)

## Update history

| Version | Date       | Details          |
|---------|------------|------------------|
| V1.0    | 2021-12-14 | Original version |
|         |            |                  |
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Firefly

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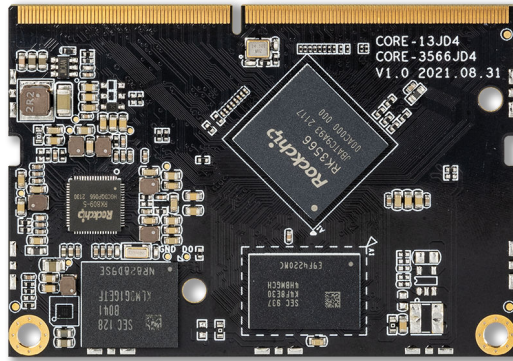
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# Overview

Equipped with RK3566 quad-core 64-bit processor, and integrated with dual-core GPU and high-efficiency NPU, the core board supports PCIe2.1 and SATA3.0 interfaces for large hard disk expansion and supports various operating systems. Backplane reference design and other open resources are provided for users to make further customization.



- **RK3566 quad-core 64-bit processor**

RK3566 quad-core 64-bit Cortex-A55 processor has frequency up to 1.8GHz. With 22nm lithography process, it features low power consumption and high performance.

- **8GB large RAM, all-data-link ECC**

It supports up to 8GB RAM, and supports all-data-link ECC, making data safer and more reliable, and meeting the requirements of running large-memory products.

- **PCIe2.1 and SATA3.0 interfaces**

PCIe2.1 interface can be connected with NVMe SSD, and SATA3.0 interface can be connected with SSD/HDD, owning the superiority of high-speed reading and writing and large storage.

- **A variety of interfaces**

The core board has interfaces like UART, I2C, ADC, PWM, GPIO, PCIE2.1, SATA3.0, USB2.0, USB3.0, HDMI, EDP, MIPI CSI, MIPI DSI, I2S, SPEAK and HPOUT.

- **To form high-performance mainboard**

The core board with SODIMM 260P interface can be combined with a backplane to form a complete high-performance industrial mainboard delivering more powerful performance, which can be directly applied to various smart products to accelerate the product development process.

- **Backplane reference design is provided**

Backplane reference design and complete technical information are provided, so users can efficiently proceed secondary development to quickly create independent and controllable products.

- **Supports various operating systems**

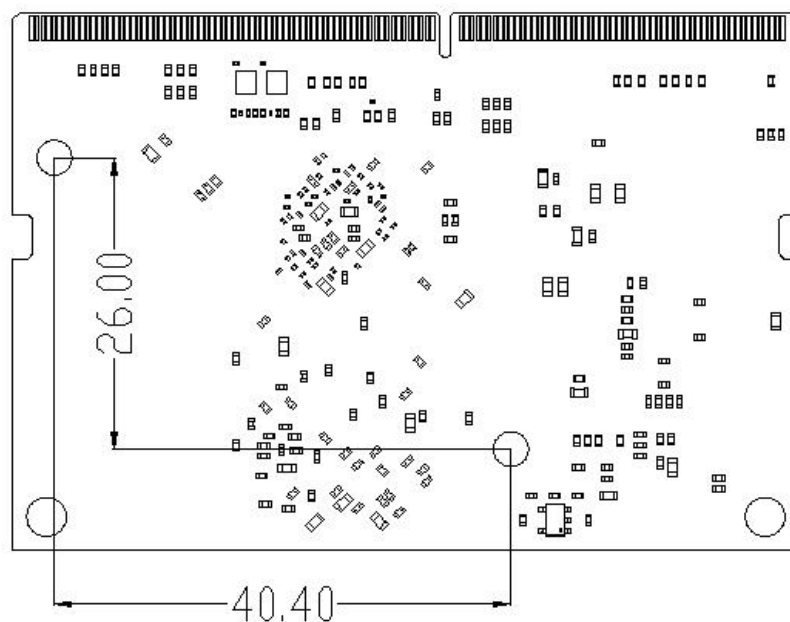
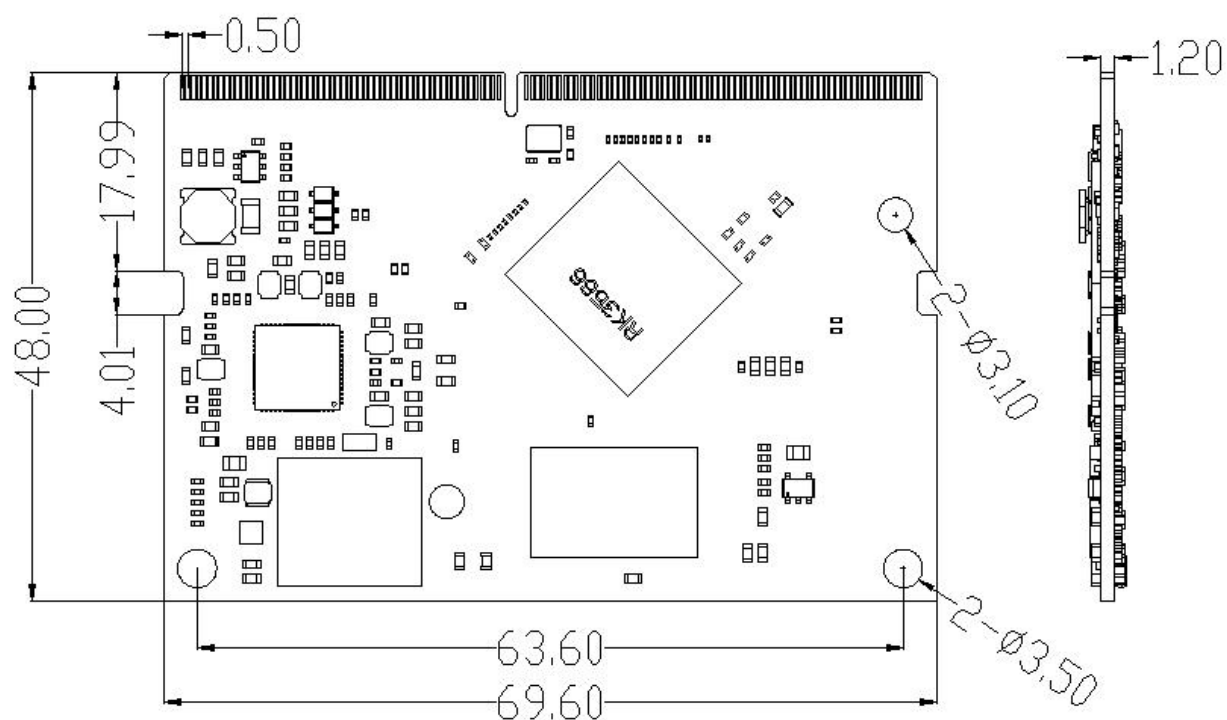
It supports Android, Ubuntu Buildroot+QT, OpenWRT, Debian and other operating systems, stable and reliable.

- **Abundant resources for customization**

A complete SDK, development documents, examples, technology documents, tutorials and other resources are provided for users to make further customization.

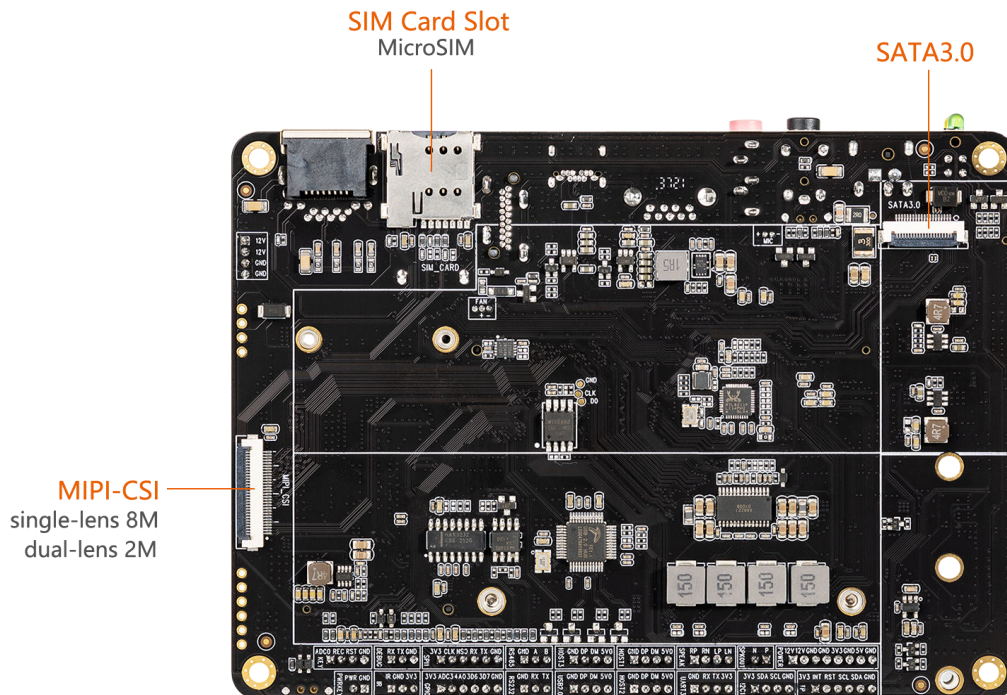
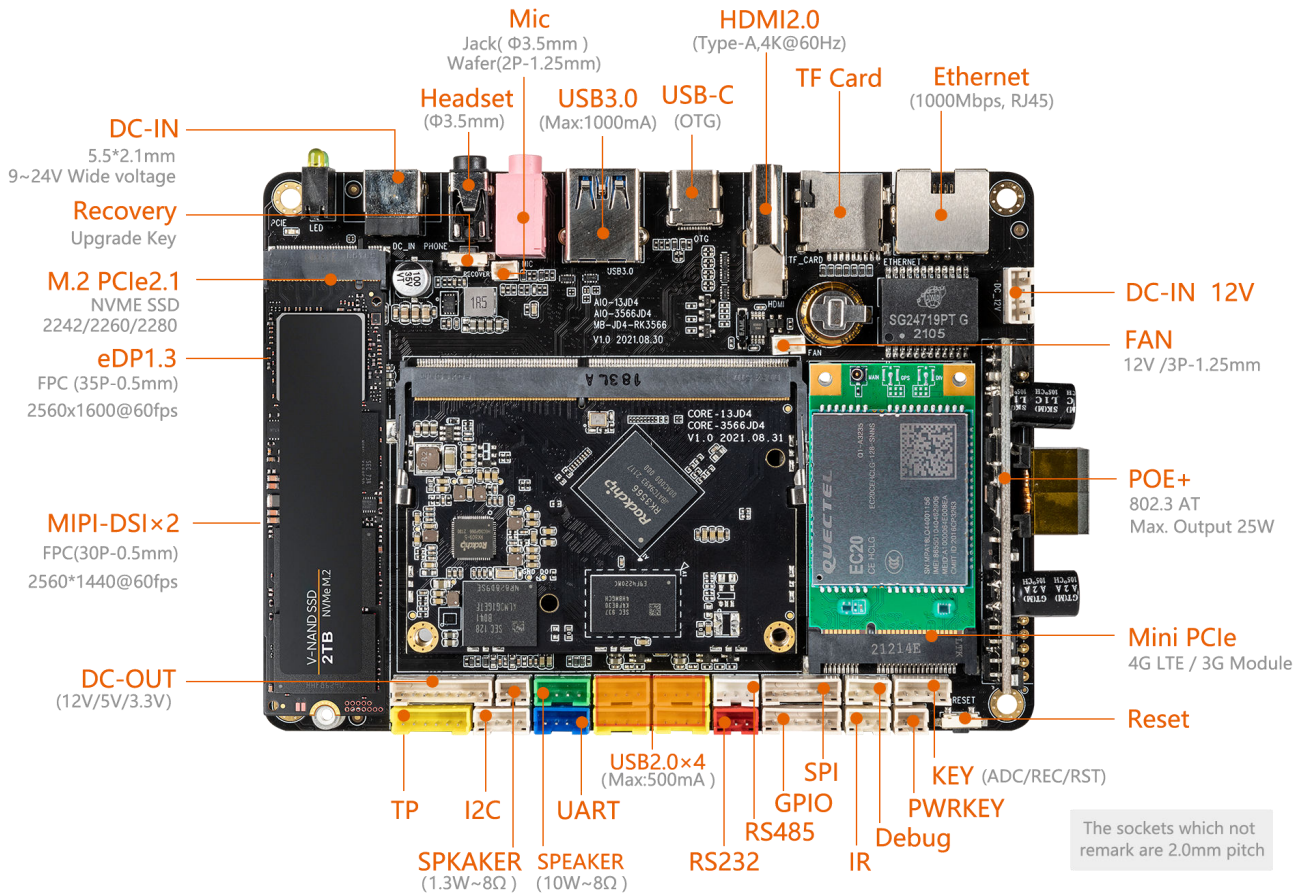
Specification

| Basic Specifications    |                                                                                                                                                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SOC                     | RockChip RK3566                                                                                                                                                                                              |
| CPU                     | Quad-core 64-bit Cortex-A55, 22nm lithography process, up to 1.8GHz                                                                                                                                          |
| GPU                     | ARM G52 2EE GPU<br>Supports OpenGL ES 1.1/2.0/3.2. OpenCL 2.0. Vulkan 1.1<br>Embedded high-performance 2D acceleration hardware                                                                              |
| NPU                     | Integrated RKNN NPU AI accelerator, 0.8Tops@INT8<br>Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet                                                                       |
| VPU                     | 4K@60fps H.265/H.264/VP9 video decoding1080P 100fps H.265/H.264 video encoding                                                                                                                               |
| RAM                     | 1GB/2GB/4GB/8GB LPDDR4                                                                                                                                                                                       |
| Storage                 | 8GB/16GB/32GB/64GB/128GB eMMC                                                                                                                                                                                |
| Hardware Specifications |                                                                                                                                                                                                              |
| Ethernet                | Integrated GMAC Ethernet controller, supports 1000Mbps Ethernet (RJ45)                                                                                                                                       |
| Wireless                | Extend to WiFi+Bluetooth combo module through SDIO interface:<br>-Supports 2.4GHz / 5GHz dual-band WiFi, 802.11a/b/g/n/ac protocol<br>-Supports Bluetooth5.0<br>Supports extended 4G LTE/3G wireless network |
| Display                 | 1 × HDMI2.0, supports up to 4K@60fps output<br>2 × MIPI DSI, supports single/dual channel mode, supports up to 2560*1440@60fps output<br>1 × eDP1.3, supports up to 2560x1600@60fps output                   |
| Audio                   | 1 × I2S (8-channel input and output), 2 x I2S (2-channel input and output) , 1 x I2S (HDMI)                                                                                                                  |
| Camera                  | MIPI-CSI (4-channel), supports 2-channel input, built-in 8M ISP, Supports single-lens 8M camera / dual-lens 2M camera                                                                                        |
| USB                     | USB2.0×5、USB3.0×1                                                                                                                                                                                            |
| PCIe                    | PCIe 2.1                                                                                                                                                                                                     |
| SATA                    | SATA3.0                                                                                                                                                                                                      |
| Interface               | UART×10、I2C×6、ADC×4、PWM×15、GPIO×118、I2S×4、SPEAK×1、HPOUT×1                                                                                                                                                    |
| OS / Software           |                                                                                                                                                                                                              |
| OS                      | Android、Ubuntu、Buildroot+QT、OpenWRT、Debian                                                                                                                                                                   |
| General                 |                                                                                                                                                                                                              |
| Interface Type          | Gold Finger (SODIMM 260P standard interface, 0.5mm pitch)                                                                                                                                                    |
| Size                    | 69.6mm × 48mm                                                                                                                                                                                                |
| Heat Dissipation        | Heat sink installation hole pitch: 45mm                                                                                                                                                                      |
| Power Consumption       | Idle: 0.075W<br>Normal: 2.8W<br>Max: 4.6W                                                                                                                                                                    |
| Environment             | Operating Temperature: -20℃-60℃,<br>Storage Temperature: -20℃-70℃,<br>Storage Humidity: 10%-80%                                                                                                              |





# Interface describe



# Interface Definition

| Notes1:<br>Pad types: I = input, O = output, I/O = input/output (bidirectional) , G = Ground , P = power sUPply , DOWN = Internal pull DOWN , UP = Internal pull UP L = Lowe Level H = High level, AI=Analog Input, AO=Analog Output, AI/O=Analog Input/Output |     |                               |          |         |                                   |                                                           |                 |                   |                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------|----------|---------|-----------------------------------|-----------------------------------------------------------|-----------------|-------------------|-----------------------------------------------------------------------------|
| Part A                                                                                                                                                                                                                                                         | PIN | Core board pin definition     | Pad type | IO Pull | Function for Floor(MB-JD4-RK3566) | Default function description                              | IO Power domain | RK3566 Pin Number | RK3566 Pin Name                                                             |
|                                                                                                                                                                                                                                                                | 1   | I2S1_LCLK_RX_M1               | I/O      | DOWN    | MIPI_MCLK0                        | MIPI_MCLK0 OUT                                            | 1.8V            | 1N1               | CAM_CLKOUT0/EBC_SDCE1/GMAC1_RXD0_M1/SPI3_CS1_M0/I2S1_LRCK_RX_M1/GPIO4_A7_d  |
|                                                                                                                                                                                                                                                                | 3   | I2S2_MCLK                     | I/O      | DOWN    | WORK_LED                          | LED EN, active H                                          | 1.8V            | 1L1               | CIF_HREF/EBC_SDLE/GMAC1_MDC_M1/UART1_RTsn_M1/I2S2_MCLK_M1/GPIO4_B6_d        |
|                                                                                                                                                                                                                                                                | 5   | I2S1_SDO1_M1                  | I/O      | DOWN    | DIY_LED                           | LED EN, active H                                          | 1.8V            | 1L2               | CAM_CLKOUT1/EBC_SDCE2/GMAC1_RXD1_M1/SPI3_MISO_M0/I2S1_SDO1_M1/GPIO4_B0_d    |
|                                                                                                                                                                                                                                                                | 7   | GND                           | G        |         | GND                               | GND                                                       |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 9   | USB_HOST2_DM                  | AI/O     |         | USB_HOST2_DM                      | USB_HOST2_DM                                              | 3.3V            | V1                | USB_HOST2_DM                                                                |
|                                                                                                                                                                                                                                                                | 11  | USB_HOST2_DP                  | AI/O     |         | USB_HOST2_DP                      | USB_HOST2_DP                                              | 3.3V            | V2                | USB_HOST2_DP                                                                |
|                                                                                                                                                                                                                                                                | 13  | GND                           | G        |         | GND                               | GND                                                       |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 15  | USB_HOST3_DM                  | AI/O     |         | USB_HOST3_DM                      | USB_HOST3_DM                                              | 3.3V            | Y1                | USB_HOST3_DM                                                                |
|                                                                                                                                                                                                                                                                | 17  | USB_HOST3_DP                  | AI/O     |         | USB_HOST3_DP                      | USB_HOST3_DP                                              | 3.3V            | Y2                | USB_HOST3_DP                                                                |
|                                                                                                                                                                                                                                                                | 19  | GND                           | G        |         | GND                               | GND                                                       |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 21  | CIF_CLKOUT                    | I/O      | DOWN    | MIPI_MCLK1                        | MIPI_MCLK1 OUT                                            | 1.8V            | AB2               | CIF_CLKOUT/EBC_GDCLK/PWM11_IR_M1/GPIO4_C0_d                                 |
|                                                                                                                                                                                                                                                                | 23  | I2S2_SCLK_TX                  | I/O      | DOWN    | SENSOR_INT_L_GPIO4_B7             | SENSOR interrupt                                          | 1.8V            | AC2               | CIF_VSYNC/EBC_SDOE/GMAC1_MDIO_M1/I2S2_SCLK_TX_M1/GPIO4_B7_d                 |
|                                                                                                                                                                                                                                                                | 25  | I2C4_SCL_M0                   | I/O      | DOWN    | I2C4_SCL_M0                       | I2C4_SCL_M0<br>Core board Pull up resistance 2.2K to 1.8V | 1.8V            | AE2               | I2C4_SCL_M0/EBC_GDOE/ETH1_REFCLK0_25M_M1/SPI3_CLK_M0/I2S2_SDO_M1/GPIO4_B3_d |
|                                                                                                                                                                                                                                                                | 27  | I2C4_SDA_M0                   | I/O      | DOWN    | I2C4_SDA_M0                       | I2C4_SDA_M0<br>Core board Pull up resistance 2.2K to 1.8V | 1.8V            | AF2               | I2C4_SDA_M0/EBC_VCOM/GMAC1_RXER_M1/SPI3_MOSI_M0/I2S2_SDI_M1/GPIO4_B2_d      |
|                                                                                                                                                                                                                                                                | 29  | I2S1_SDO2_M1                  | I/O      | DOWN    | MIPI_PDN1_CAM                     | MIPI CSI power down 1                                     | 1.8V            | AG2               | ISP_PRELIGHT_TRIG/EBC_SDCE3/GMAC1_RXDV_CRS_M1/I2S1_SDO2_M1/GPIO4_B1_d       |
|                                                                                                                                                                                                                                                                | 31  | I2S2_LRCK_TX                  | I/O      | DOWN    | MIPI_RESET1_CAM                   | MIPI CSI reset 1                                          | 1.8V            | 1N2               | CIF_D14/EBC_SDD014/GMAC1_TXD0_M1/UART9_TX_M2/I2S2_LRCK_TX_M1/GPIO4_A4_d     |
|                                                                                                                                                                                                                                                                | 33  | I2S2_LRCK_RX                  | I/O      | DOWN    | VCCSV0_USB30_EN                   | USB 3.0 power_ENActive H                                  | 1.8V            | AJ1               | CIF_D15/EBC_SDD015/GMAC1_TXD1_M1/UART9_RX_M2/I2S2_LRCK_RX_M1/GPIO4_A5_d     |
|                                                                                                                                                                                                                                                                | 35  | ETH1_REFCLK0_25M_M0           | I/O      | DOWN    | HUB_RST                           | Hub reset,Active H                                        | 3.3V            | AR7               | VOP_BT1120_D6/ETH1_REFCLK0_25M_M0/SDMMC2_PWREN_M1/GPIO3_B0_d                |
|                                                                                                                                                                                                                                                                | 37  | HDMITX_SDA                    | I/O      | UP      | HDMITX_SDA                        | I2C SDA for HDMI                                          | 3.3V            | AP11              | HDMITX_SDA/I2C5_SDA_M1/GPIO4_D0_u                                           |
|                                                                                                                                                                                                                                                                | 39  | HDMITX_SCL                    | I/O      | UP      | HDMITX_SCL                        | I2C SCL for HDMI                                          | 3.3V            | AR12              | HDMITX_SCL/I2C5_SCL_M1/GPIO4_C7_u                                           |
|                                                                                                                                                                                                                                                                | 41  | HDMITX_CEC_M0                 | I/O      | UP      | HDMITX_CEC_M0                     | HDMITX_CEC_M0                                             | 3.3V            | 1V5               | HDMITX_CEC_M0/SPI3_CS1_M1/GPIO4_D1_u                                        |
|                                                                                                                                                                                                                                                                | 43  | GND                           | G        |         | GND                               |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 45  | MIPI_CSI_RX_D3N               | AI       |         | MIPI_CSI_RX_D3N                   | MIPI_CSI_RX_D3N                                           | 1.8V            | AP14              | MIPI_CSI_RX_D3N                                                             |
|                                                                                                                                                                                                                                                                | 47  | MIPI_CSI_RX_D3P               | AI       |         | MIPI_CSI_RX_D3P                   | MIPI_CSI_RX_D3P                                           | 1.8V            | AR14              | MIPI_CSI_RX_D3P                                                             |
|                                                                                                                                                                                                                                                                | 49  | MIPI_CSI_RX_D2N               | AI       |         | MIPI_CSI_RX_D2N                   | MIPI_CSI_RX_D2N                                           | 1.8V            | AR15              | MIPI_CSI_RX_D2N                                                             |
|                                                                                                                                                                                                                                                                | 51  | MIPI_CSI_RX_D2P               | AI       |         | MIPI_CSI_RX_D2P                   | MIPI_CSI_RX_D2P                                           | 1.8V            | AP15              | MIPI_CSI_RX_D2P                                                             |
|                                                                                                                                                                                                                                                                | 53  | MIPI_CSI_RX_D1N               | AI       |         | MIPI_CSI_RX_D1N                   | MIPI_CSI_RX_D1N                                           | 1.8V            | AP17              | MIPI_CSI_RX_D1N                                                             |
|                                                                                                                                                                                                                                                                | 55  | MIPI_CSI_RX_D1P               | AI       |         | MIPI_CSI_RX_D1P                   | MIPI_CSI_RX_D1P                                           | 1.8V            | AR17              | MIPI_CSI_RX_D1P                                                             |
|                                                                                                                                                                                                                                                                | 57  | MIPI_CSI_RX_D0N               | AI       |         | MIPI_CSI_RX_D0N                   | MIPI_CSI_RX_D0N                                           | 1.8V            | AR18              | MIPI_CSI_RX_D0N                                                             |
|                                                                                                                                                                                                                                                                | 59  | MIPI_CSI_RX_D0P               | AI       |         | MIPI_CSI_RX_D0P                   | MIPI_CSI_RX_D0P                                           | 1.8V            | AP18              | MIPI_CSI_RX_D0P                                                             |
|                                                                                                                                                                                                                                                                | 61  | GND                           | G        |         | GND                               |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 63  | MIPI_DSI_TX1_D3N              | AO       |         | MIPI_DSI_TX1_D3N                  | MIPI_DSI_TX1_D3N                                          | 1.8V            | AP20              | MIPI_DSI_TX1_D3N                                                            |
|                                                                                                                                                                                                                                                                | 65  | MIPI_DSI_TX1_D3P              | AO       |         | MIPI_DSI_TX1_D3P                  | MIPI_DSI_TX1_D3P                                          | 1.8V            | AR20              | MIPI_DSI_TX1_D3P                                                            |
|                                                                                                                                                                                                                                                                | 67  | MIPI_DSI_TX1_D2N              | AO       |         | MIPI_DSI_TX1_D2N                  | MIPI_DSI_TX1_D2N                                          | 1.8V            | AR21              | MIPI_DSI_TX1_D2N                                                            |
|                                                                                                                                                                                                                                                                | 69  | MIPI_DSI_TX1_D2P              | AO       |         | MIPI_DSI_TX1_D2P                  | MIPI_DSI_TX1_D2P                                          | 1.8V            | AP21              | MIPI_DSI_TX1_D2P                                                            |
|                                                                                                                                                                                                                                                                | 71  | MIPI_DSI_TX1_D1N              | AO       |         | MIPI_DSI_TX1_D1N                  | MIPI_DSI_TX1_D1N                                          | 1.8V            | AP23              | MIPI_DSI_TX1_D1N                                                            |
|                                                                                                                                                                                                                                                                | 73  | MIPI_DSI_TX1_D1P              | AO       |         | MIPI_DSI_TX1_D1P                  | MIPI_DSI_TX1_D1P                                          | 1.8V            | AR23              | MIPI_DSI_TX1_D1P                                                            |
|                                                                                                                                                                                                                                                                | 75  | MIPI_DSI_TX1_D0N              | AO       |         | MIPI_DSI_TX1_D0N                  | MIPI_DSI_TX1_D0N                                          | 1.8V            | AR24              | MIPI_DSI_TX1_D0N                                                            |
|                                                                                                                                                                                                                                                                | 77  | MIPI_DSI_TX1_D0P              | AO       |         | MIPI_DSI_TX1_D0P                  | MIPI_DSI_TX1_D0P                                          |                 | AP24              | MIPI_DSI_TX1_D0P                                                            |
|                                                                                                                                                                                                                                                                | 79  | GND                           | G        |         | GND                               |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 81  | MIPI_DSI_TX0_D3N/LVDS_TX0_D3N | AO       |         | MIPI_DSI_TX0_D3N/LVDS_TX0_D3N     | MIPI_DSI_TX0_D3N/LVDS_TX0_D3N                             | 1.8V            | AP26              | MIPI_DSI_TX0_D3N/LVDS_TX0_D3N                                               |
|                                                                                                                                                                                                                                                                | 83  | MIPI_DSI_TX0_D3P/LVDS_TX0_D3P | AO       |         | MIPI_DSI_TX0_D3P/LVDS_TX0_D3P     | MIPI_DSI_TX0_D3P/LVDS_TX0_D3P                             | 1.8V            | AR26              | MIPI_DSI_TX0_D3P/LVDS_TX0_D3P                                               |
|                                                                                                                                                                                                                                                                | 85  | MIPI_DSI_TX0_D2N/LVDS_TX0_D2N | AO       |         | MIPI_DSI_TX0_D2N/LVDS_TX0_D2N     | MIPI_DSI_TX0_D2N/LVDS_TX0_D2N                             | 1.8V            | AR27              | MIPI_DSI_TX0_D2N/LVDS_TX0_D2N                                               |
|                                                                                                                                                                                                                                                                | 87  | MIPI_DSI_TX0_D2P/LVDS_TX0_D2P | AO       |         | MIPI_DSI_TX0_D2P/LVDS_TX0_D2P     | MIPI_DSI_TX0_D2P/LVDS_TX0_D2P                             | 1.8V            | AP27              | MIPI_DSI_TX0_D2P/LVDS_TX0_D2P                                               |
|                                                                                                                                                                                                                                                                | 89  | MIPI_DSI_TX0_D1N/LVDS_TX0_D1N | AO       |         | MIPI_DSI_TX0_D1N/LVDS_TX0_D1N     | MIPI_DSI_TX0_D1N/LVDS_TX0_D1N                             | 1.8V            | AP29              | MIPI_DSI_TX0_D1N/LVDS_TX0_D1N                                               |
|                                                                                                                                                                                                                                                                | 91  | MIPI_DSI_TX0_D1P/LVDS_TX0_D1P | AO       |         | MIPI_DSI_TX0_D1P/LVDS_TX0_D1P     | MIPI_DSI_TX0_D1P/LVDS_TX0_D1P                             | 1.8V            | AR29              | MIPI_DSI_TX0_D1P/LVDS_TX0_D1P                                               |
|                                                                                                                                                                                                                                                                | 93  | MIPI_DSI_TX0_D0N/LVDS_TX0_D0N | AO       |         | MIPI_DSI_TX0_D0N/LVDS_TX0_D0N     | MIPI_DSI_TX0_D0N/LVDS_TX0_D0N                             | 1.8V            | AR30              | MIPI_DSI_TX0_D0N/LVDS_TX0_D0N                                               |
|                                                                                                                                                                                                                                                                | 95  | MIPI_DSI_TX0_D0P/LVDS_TX0_D0P | AO       |         | MIPI_DSI_TX0_D0P/LVDS_TX0_D0P     | MIPI_DSI_TX0_D0P/LVDS_TX0_D0P                             | 1.8V            | AP30              | MIPI_DSI_TX0_D0P/LVDS_TX0_D0P                                               |
|                                                                                                                                                                                                                                                                | 97  | GND                           | G        |         | GND                               |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 99  | HDMI_TXCLKN_PORT              | AO       |         | HDMI_TXCLKN_PORT                  | HDMI_TXCLKN                                               | 1.8V            | AP32              | HDMI_TX_CLKN                                                                |
|                                                                                                                                                                                                                                                                | 101 | HDMI_TXCLKP_PORT              | AO       |         | HDMI_TXCLKP_PORT                  | HDMI_TXCLKP                                               | 1.8V            | AR32              | HDMI_TX_CLKP                                                                |
|                                                                                                                                                                                                                                                                | 103 | HDMI_TX0N_PORT                | AO       |         | HDMI_TX0N_PORT                    | HDMI_TX0N                                                 | 1.8V            | AR33              | HDMI_TX_D0N                                                                 |
|                                                                                                                                                                                                                                                                | 105 | HDMI_TX0P_PORT                | AO       |         | HDMI_TX0P_PORT                    | HDMI_TX0P                                                 | 1.8V            | AP33              | HDMI_TX_D0P                                                                 |
|                                                                                                                                                                                                                                                                | 107 | HDMI_TX1N_PORT                | AO       |         | HDMI_TX1N_PORT                    | HDMI_TX1N                                                 | 1.8V            | AP35              | HDMI_TX_D1N                                                                 |
|                                                                                                                                                                                                                                                                | 109 | HDMI_TX1P_PORT                | AO       |         | HDMI_TX1P_PORT                    | HDMI_TX1P                                                 | 1.8V            | AR35              | HDMI_TX_D1P                                                                 |
|                                                                                                                                                                                                                                                                | 111 | HDMI_TX2N_PORT                | AO       |         | HDMI_TX2N_PORT                    | HDMI_TX2N                                                 | 1.8V            | AR36              | HDMI_TX_D2N                                                                 |
|                                                                                                                                                                                                                                                                | 113 | HDMI_TX2P_PORT                | AO       |         | HDMI_TX2P_PORT                    | HDMI_TX2P                                                 | 1.8V            | AP36              | HDMI_TX_D2P                                                                 |
|                                                                                                                                                                                                                                                                | 115 | GND                           | G        |         | GND                               |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 117 | TP_INT_L_GPIO0_C4             | I/O      | DOWN    | EDP_BL_PWM5                       | EDP Backlight EN, Active H                                | 3.3V            | AN37              | PWMS/SPI0_CS1_M0/UART0_RTsn/GPIO0_C4_d                                      |
|                                                                                                                                                                                                                                                                | 119 | LCD0_BL_PWM4                  | I/O      | DOWN    | LCD0_BL_PWM4                      | LCD Backlight EN for MIPI DSI0, Active H                  | 3.3V            | AN38              | PWM4/VOP_PWM_M0/MCU_JTAG_TRSTn/GPIO0_C3_d                                   |
|                                                                                                                                                                                                                                                                | 121 | I2C1_SDA                      | I/O      | UP      | I2C1_SDA                          | I2C1_SDA<br>Core board Pull up resistance 2.2K to 3.3V    | 3.3V/2.2K       | AM38              | I2C1_SDA/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u                          |
|                                                                                                                                                                                                                                                                | 123 | I2C1_SCL                      | I/O      | UP      | I2C1_SCL                          | I2C1_SCL<br>Core board Pull up resistance 2.2K to 3.3V    | 3.3V/2.2K       | AK37              | I2C1_SCL/MCU_JTAG_TDO/GPIO0_B3_u                                            |
|                                                                                                                                                                                                                                                                | 125 | SPK_CTL                       | I/O      | DOWN    | LCD_PWR_EN_GPIO0_A6_D             | MIPI DSI1 power_en,Active L                               | 3.3V            | AJ38              | GPU_PWREN/SATA_CP_POD/GPIO0_A6_d                                            |
|                                                                                                                                                                                                                                                                | 127 | SDMMC_PWREN                   | I/O      | DOWN    | TP_INT_GPIO0_A5_D                 | MIPI DSI1 TP interrupt input, Active L                    | 3.3V            | AG37              | SDMMC0_PWREN/SATA_MP_SWITCH/PCIE20_CLKREQn_M0/GPIO0_A5_d                    |
|                                                                                                                                                                                                                                                                | 129 | SDMMC0_DET_L                  | I/O      | UP      | SDMMC0_DET                        | SDMMC0_DET,Active L                                       | 3.3V            | AF37              | SDMMC0_DET/SATA_CP_DET/GPIO0_A4_u                                           |
|                                                                                                                                                                                                                                                                | 131 | GND                           | G        |         |                                   |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 133 | USB_OTG0_DP                   | AI/O     |         | USB_OTG0_DP                       | USB_OTG0_DP                                               | 3.3V            | R37               | USB_OTG0_DP                                                                 |
|                                                                                                                                                                                                                                                                | 135 | USB_OTG0_DM                   | AI/O     |         | USB_OTG0_DM                       | USB_OTG0_DM                                               | 3.3V            | R38               | USB_OTG0_DM                                                                 |
|                                                                                                                                                                                                                                                                | 137 | GND                           | G        |         |                                   |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 139 | PCIE20_RXP/SATA2_RXP          | AI/O     |         | PCIE20_RXP/SATA2_RXP              | PCIE20_RXP/SATA2_RXP                                      | 1.8V            | AB37              | PCIE20_RXP/SATA2_RXP                                                        |
|                                                                                                                                                                                                                                                                | 141 | PCIE20_RXN/SATA2_RXN          | AI/O     |         | PCIE20_RXN/SATA2_RXN              | PCIE20_RXN/SATA2_RXN                                      | 1.8V            | AB38              | PCIE20_RXN/SATA2_RXN                                                        |
|                                                                                                                                                                                                                                                                | 143 | GPIO0_D4_D                    | I/O      | DOWN    | RTIC_INT_L_GPIO0_D4_D             | RTC IC interrupt                                          | 1.8V            | 1M19              | GPIO0_D4_D                                                                  |
|                                                                                                                                                                                                                                                                | 145 | USB_OTG0_VBUSDET              | I        |         | USB_OTG0_VBUSDET                  | OTG0_VBUSDET Input,Active H                               | 3.3V            | T38               | USB_OTG0_VBUSDET                                                            |
|                                                                                                                                                                                                                                                                | 147 | GND                           | G        |         |                                   |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 149 | PCIE20_TXN/SATA2_TXN          | AI/O     |         | PCIE20_TXN/SATA2_TXN              | PCIE20_TXN/SATA2_TXN                                      | 1.8V            | AA38              | PCIE20_TXN/SATA2_TXN                                                        |
|                                                                                                                                                                                                                                                                | 151 | PCIE20_TXP/SATA2_TXP          | AI/O     |         | PCIE20_TXP/SATA2_TXP              | PCIE20_TXP/SATA2_TXP                                      | 1.8V            | AA37              | PCIE20_TXP/SATA2_TXP                                                        |
|                                                                                                                                                                                                                                                                | 153 | GND                           | G        |         |                                   |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 155 | USB3_HOST1_SSTXP              | AI/O     |         | USB3_HOST1_SSTXP                  | USB3_HOST1_SSTXP                                          | 3.3V            | W37               | USB3_HOST1_SSTXP/SATA1_TXP                                                  |
|                                                                                                                                                                                                                                                                | 157 | USB3_HOST1_SSTXN              | AI/O     |         | USB3_HOST1_SSTXN                  | USB3_HOST1_SSTXN                                          | 3.3V            | W38               | USB3_HOST1_SSTXN/SATA1_TXN                                                  |
|                                                                                                                                                                                                                                                                | 159 | USB3_HOST1_SSRXP              | AI/O     |         | USB3_HOST1_SSRXP                  | USB3_HOST1_SSRXP                                          | 3.3V            | V38               | USB3_HOST1_SSRXP/SATA1_RXP                                                  |
|                                                                                                                                                                                                                                                                | 161 | USB3_HOST1_SSRXN              | AI/O     |         | USB3_HOST1_SSRXN                  | USB3_HOST1_SSRXN                                          | 3.3V            | V37               | USB3_HOST1_SSRXN/SATA1_RXN                                                  |
|                                                                                                                                                                                                                                                                | 163 | GND                           | G        |         |                                   |                                                           |                 |                   |                                                                             |
|                                                                                                                                                                                                                                                                | 165 | EDP_TX_D3P                    | AO       |         | EDP_TX_D3P                        | EDP_TX_D3P<br>core board series capacitance 0.1uF         | 1.8V            | N37               | EDP_TX_D3P                                                                  |
|                                                                                                                                                                                                                                                                | 167 | EDP_TX_D3N                    | AO       |         | EDP_TX_D3N                        | EDP_TX_D3N<br>core board series capacitance 0.1uF         | 1.8V            | N38               | EDP_TX_D3N                                                                  |
|                                                                                                                                                                                                                                                                | 169 | EDP_TX_D2N                    | AO       |         | EDP_TX_D2N                        | EDP_TX_D2N<br>core board series capacitance 0.1uF         | 1.8V            | M38               | EDP_TX_D2N                                                                  |



# Interface Definition

|        |     |                                   |          |         |                                   |                                                                       |                 |                   |                                                                                 |
|--------|-----|-----------------------------------|----------|---------|-----------------------------------|-----------------------------------------------------------------------|-----------------|-------------------|---------------------------------------------------------------------------------|
|        | 171 | EDP_TX_D2P                        | AO       |         | EDP_TX_D2P                        | EDP_TX_D2P<br>core board series capacitance 0.1uF                     | 1.8V            | M37               | EDP_TX_D2P                                                                      |
|        | 173 | EDP_TX_D1N                        | AO       |         | EDP_TX_D1N                        | EDP_TX_D1N<br>core board series capacitance 0.1uF                     | 1.8V            | K37               | EDP_TX_D1N                                                                      |
|        | 175 | EDP_TX_D1P                        | AO       |         | EDP_TX_D1P                        | EDP_TX_D1P<br>core board series capacitance 0.1uF                     | 1.8V            | K38               | EDP_TX_D1P                                                                      |
|        | 177 | EDP_TX_D0N                        | AO       |         | EDP_TX_D0N                        | EDP_TX_D0N<br>core board series capacitance 0.1uF                     | 1.8V            | J38               | EDP_TX_D0N                                                                      |
|        | 179 | EDP_TX_D0P                        | AO       |         | EDP_TX_D0P                        | EDP_TX_D0P<br>core board series capacitance 0.1uF                     | 1.8V            | J37               | EDP_TX_D0P                                                                      |
|        | 181 | EDP_TX_AUXP                       | AO       |         | EDP_TX_AUXP                       | EDP_TX_AUXP<br>core board series capacitance 0.1uF                    | 1.8V            | 1H19              | EDP_TX_AUXP                                                                     |
|        | 183 | EDP_TX_AUXN                       | AO       |         | EDP_TX_AUXN                       | EDP_TX_AUXN<br>core board series capacitance 0.1uF                    | 1.8V            | 1H20              | EDP_TX_AUXN                                                                     |
|        | 185 | GND                               | G        |         | GND                               | GND                                                                   |                 |                   |                                                                                 |
|        | 187 | UART1_CTSn_M0                     | I/O      | UP      | UART1_CTSn_M0                     | UART1_CTSn_M0                                                         | 1.8V            | G37               | UART1_CTSn_M0/SP1_MISO_M0/GPIO2_B6_u                                            |
|        | 189 | UART1_RX_M0                       | I/O      | UP      | UART1_RX_M0                       | UART1_RX_M0                                                           | 1.8V            | 1C20              | UART1_RX_M0/GPIO2_B3_u                                                          |
|        | 191 | UART1_TX_M0                       | I/O      | UP      | UART1_TX_M0                       | UART1_TX_M0                                                           | 1.8V            | F38               | UART1_TX_M0/GPIO2_B4_u                                                          |
|        | 193 | UART1_RTSn_M0                     | I/O      | UP      | UART1_RTSn_M0                     | UART1_RTSn_M0                                                         | 1.8V            | F37               | UART1_RTSn_M0/SP1_CLK_M0/GPIO2_B5_u                                             |
|        | 195 | BT_REG_ON_H_GPIO2_B7              | I/O      | DOWN    | BT_REG_ON_H_GPIO2_B7              | BT_REG_ONActive H                                                     | 1.8V            | D38               | I2S2_SCLK_RX_M0/UART6_RTSn_M0/SP11_MOSI_M0/GPIO2_B7_d                           |
|        | 197 | CLK32K_OUT1_WIFI                  | I/O      | DOWN    | CLK32K_OUT1_WIFI                  | 32KHz clock out for WIFI                                              | 1.8V            | B38               | CLK32K_OUT1/UART8_RX_M0/SP11_CSI_M0/GPIO2_C6_d                                  |
|        | 199 | BT_WAKE_HOST_H_GPIO2_C0           | I/O      | DOWN    | BT_WAKE_HOST_H_GPIO2_C0           | BT_WAKE_HOSTActive H                                                  | 1.8V            | A37               | I2S2_LRCK_RX_M0/UART6_CTSn_M0/SP11_CSD_M0/GPIO2_C0_d                            |
|        | 201 | H0ST_WAKE_BT_H_GPIO2_C1           | I/O      | DOWN    | H0ST_WAKE_BT_H_GPIO2_C1           | H0ST_WAKE_BTActive H                                                  | 1.8V            | B36               | I2S2_MCLK_M0/ETH0_REFCLK0_25M/UART7_RTSn_M0/SP12_CLK_M0/GPIO2_C1_d              |
|        | 203 | WIFI_REG_ON_H_GPIO2_B1            | I/O      | DOWN    | WIFI_REG_ON_H_GPIO2_B1            | WIFI_REG_ONActive H                                                   | 1.8V            | A35               | SDMMC1_PWREN/I2C4_SDA_M1/UART8_RTSn_M0/GPIO2_B1_d                               |
|        | 205 | WIFI_WAKE_HOST_H_GPIO2_B2         | I/O      | UP      | WIFI_WAKE_HOST_H_GPIO2_B2         | WIFI_WAKE_HOSTActive H                                                | 1.8V            | B34               | SDMMC1_DET/I2C4_SCL_M1/UART8_CTSn_M0/GPIO2_B2_u                                 |
|        | 207 | PCIE_WAKE                         | I/O      | DOWN    | PCIE_WAKE                         | PCIE_WAKE                                                             | 3.3V            | A26               | I2S1_SDO2_M0/I2S1_SDI2_M0/PDM_SDI2_M0/PCIE20_WAKEn_M2/GPIO1_B1_d                |
|        | 209 | PCIE_RST                          | I/O      | DOWN    | PCIE_RST                          | PCIE_RESET                                                            | 3.3V            | B26               | I2S1_SDO3_M0/I2S1_SDI1_M0/PDM_SDI1_M0/PCIE20_PERSTn_M2/GPIO1_B2_d               |
|        | 211 | PCIE_CLKREQ                       | I/O      | DOWN    | PCIE_CLKREQ                       | PCIE_CLK_REQ                                                          | 3.3V            | 1B13              | I2S1_SDO1_M0/I2S1_SDI3_M0/PDM_SDI3_M0/PCIE20_CLKREQn_M2/GPIO1_B0_d              |
|        | 213 | GPI01_A4                          | I/O      | DOWN    | SPK_CTL_H_GPIO1_A4                | SPEAK_CONTROLActive H                                                 | 3.3V            | 1A13              | I2S1_SCLK_RX_M0/UART4_RX_M0/PDM_CLK1_M0/SPDIF_TX_M0/GPIO1_A4_d                  |
|        | 215 | I2C3_SDA_M0/GPIO1_A0              | I/O      | UP      | I2C3_SDA_M0/UART3_RX_M0           | I2C3_SDA_M0/UART3_RX_M0<br>Core board Pull up resistance 2.2K to 3.3V | 3.3V            | A22               | I2C3_SDA_M0/UART3_RX_M0/AUDIOPWM_LOUT_P/GPIO1_A0_u                              |
|        | 217 | I2C3_SCL_M0/GPIO1_A1              | I/O      | UP      | I2C3_SCL_M0/UART3_TX_M0           | I2C3_SCL_M0/UART3_TX_M0<br>Core board Pull up resistance 2.2K to 3.3V | 3.3V            | B22               | I2C3_SCL_M0/UART3_TX_M0/AUDIOPWM_LOUT_N/GPIO1_A1_u                              |
|        | 219 | GND                               | G        |         |                                   |                                                                       |                 |                   |                                                                                 |
|        | 221 | PMIC_PWRON                        |          |         | PMIC_PWRON                        | PMIC_POWER ON                                                         |                 |                   | PMIC_PWRON                                                                      |
|        | 223 | PMIC_VDC                          |          |         | VCC_5V_S                          | PMIC_VDC InputActive H                                                | 5V              |                   | PMIC_VDC                                                                        |
|        | 225 | VCCIO_WL                          | P        |         | VCCIO_WL                          | WIFI VCCIO Output 1.8V or 3.3V option (Core board Default:1.8V)       | 1.8V            |                   | Pin224/225 Total Max 300mA                                                      |
|        | 227 | VCC3V3_SD                         | P        |         | VCC3V3_SD                         | 3.3V Output TF Card Power,VCC3V3_SD                                   | 3.3V            |                   | Pin226/227 Total Max:500mA                                                      |
|        | 229 | VCC_1V8                           | P        |         | VCC_1V8                           | 1.8V Output_VCC_1V8                                                   | 1.8V            |                   | Pin228/229 Total Max:1.0A                                                       |
|        | 231 | VCCIO_ACODEC                      | P        |         | VCCIO_ACODEC                      | 3.3V Output For codec,VCCIO_ACODEC                                    | 3.3V            |                   | Pin230/231 Total Max:300mA                                                      |
|        | 233 | VCC_5V_S                          | P        |         | VCC_5V_S                          | 5V Input (LDO)                                                        | 5V              |                   |                                                                                 |
|        | 235 | VCC3V3_SYS                        | P        |         | VCC3V3_SYS                        | 3.3V Output_VCC3V3_SYS                                                | 3.3V            |                   | Pin234/235 Total Max:1.5A                                                       |
|        | 237 | HP_SNS                            |          |         | HP_SNS                            | HeadPhone_OUT GND                                                     |                 |                   |                                                                                 |
|        | 239 | MIC2_IN                           |          |         | MIC2_IN                           | MIC1_INPUT-<br>core board series capacitance 0.1uF                    | 3.3V            |                   |                                                                                 |
|        | 241 | MIC1_IN                           |          |         | MIC1_IN                           | MIC1_INPUT+<br>core board series capacitance 0.1uF                    | 3.3V            |                   |                                                                                 |
|        | 243 | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 245 | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 247 | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 249 | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 251 | VCC5V0_SYS                        | P        |         | VCC5V0_SYS                        |                                                                       | 5V              |                   | CORE BOARD 5.0V Supply current:<br>Normal: 600mA<br>Max: 1.0A<br>Recommend:1.5A |
|        | 253 | VCC5V0_SYS                        | P        |         | VCC5V0_SYS                        |                                                                       | 5V              |                   |                                                                                 |
|        | 255 | VCC5V0_SYS                        | P        |         | VCC5V0_SYS                        | Input Voltage 4.8V-5.5V                                               | 5V              |                   |                                                                                 |
|        | 257 | VCC5V0_SYS                        | P        |         | VCC5V0_SYS                        |                                                                       | 5V              |                   |                                                                                 |
|        | 259 | VCC5V0_SYS                        | P        |         | VCC5V0_SYS                        |                                                                       | 5V              |                   |                                                                                 |
| Part B | PIN | Core board pin definition         | Pad type | IO Pull | Function for Floor(MB-JM3-RK3568) | Default function description                                          | IO Power domain | RK3568 Pin Number | RK3568 Pin Name                                                                 |
|        | 2   | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 4   | I2S2_SCLK_RX                      | I/O      | DOWN    | EDP_LCD_EN                        | EDP_LCD_EN                                                            | 1.8V            | AB1               | CIF_CLKIN/EB_C_SCLK/GMAC1_MCLKINOUT_M1/UART1_CTSn_M1/I2S2_SCLK_RX_M1/GPIO4_C1_d |
|        | 6   | PDM_SDI1_M1                       | I/O      | DOWN    | FAN_CTL                           | FAN control                                                           | 1.8V            | 1P2               | CIF_D11/EB_C_SDDO11/GMAC1_RXD2_M1/PDM_SDI1_M1/GPIO4_A1_d                        |
|        | 8   | PDM_SDI2_M1                       | I/O      | DOWN    | EDP_TP_INT                        | EDP_TP interrupt                                                      | 1.8V            | 1R1               | CIF_D12/EB_C_SDDO12/GMAC1_RXD3_M1/UART7_TX_M2/PDM_SDI2_M1/GPIO4_A2_d            |
|        | 10  | PDM_SDI3_M1                       | I/O      | DOWN    | EDP_TP_RESET                      | EDP_TP Reset                                                          | 1.8V            | AJ2               | CIF_D13/EB_C_SDDO13/GMAC1_RXCLK_M1/UART7_RX_M2/PDM_SDI3_M1/GPIO4_A3_d           |
|        | 12  | PDM_CLK1_M1                       | I/O      | DOWN    | GPI04_A0_D                        | GPI04_A0_D                                                            | 1.8V            | AK2               | CIF_D10/EB_C_SDDO10/GMAC1_TXCLK_M1/PDM_CLK1_M1/GPIO4_A0_d                       |
|        | 14  | PDM_CLK0_M1                       | I/O      | DOWN    | GPI03_D6_D                        | GPI03_D6_D                                                            | 1.8V            | AL2               | CIF_D8/EB_C_SDDO8/GMAC1_TXD2_M1/UART1_TX_M1/PDM_CLK0_M1/GPIO3_D6_d              |
|        | 16  | PDM_SDI0_M1                       | I/O      | DOWN    | GPI03_D7_D                        | GPI03_D7_D                                                            | 1.8V            | AL1               | CIF_D9/EB_C_SDDO9/GMAC1_TXD3_M1/UART1_RX_M1/PDM_SDI0_M1/GPIO3_D7_d              |
|        | 18  | I2S1_SDI2_M1                      | I/O      | DOWN    | MIPI_PDN0_CAM                     | MIPI_CSI powerdown                                                    | 1.8V            | 1R2               | CIF_D6/EB_C_SDDO6/SDMMC2_DET_M0/I2S1_SDI2_M1/VOP_BT656_D6_M1/GPIO3_D4_d         |
|        | 20  | I2S1_SDI3_M1                      | I/O      | DOWN    | MIPI_RESET0_CAM                   | MIPI_CSI reset                                                        | 1.8V            | 1T1               | CIF_D7/EB_C_SDDO7/SDMMC2_PWREN_M0/I2S1_SDI3_M1/VOP_BT656_D7_M1/GPIO3_D5_d       |
|        | 22  | I2C2_SDA_M1                       | I/O      | DOWN    | NC                                |                                                                       | 1.8V            | AF1               | I2C2_SDA_M1/EB_C_GDSP/ISP_FLASH_TRIGIN/VOP_BT656_CLK_M1/GPIO4_B4_d              |
|        | 24  | I2C2_SCL_M1                       | I/O      | DOWN    | LCDO_PWR_EN                       | MIPI_DSI0 LCD Power EN                                                | 1.8V            | AD1               | I2C2_SCL_M1/EB_C_SDSHR/I2S1_SDO3_M1/GPIO4_B5_d                                  |
|        | 26  | I2S1_SCLK_RX_M1                   | I/O      | DOWN    | TP0_RST_L_GPIO4_A6                | MIPI_DSI0 TP_Reset                                                    | 1.8V            | AH2               | ISP_FLASHTRIGOUT/EB_C_SDC0/GMAC1_TXEN_M1/SP13_CSD_M0/I2S1_SCLK_RX_M1/GPIO4_A6_d |
|        | 28  | I2S1_MCLK_M1                      | I/O      | DOWN    | LCDO_RST_L_GPIO3_C6               | MIPI_DSI0 LCD_Reset                                                   | 1.8V            | 1T2               | CIF_D0/EB_C_SDDO0/SDMMC2_D0_M0/I2S1_MCLK_M1/VOP_BT656_D0_M1/GPIO3_C6_d          |
|        | 30  | I2S1_SCLK_TX_M1                   | I/O      | DOWN    | TP1_RST_L_GPIO3_C7                | MIPI_DSI1 TP_Reset                                                    | 1.8V            | 1U1               | CIF_D1/EB_C_SDDO1/SDMMC2_D1_M0/I2S1_SCLK_TX_M1/VOP_BT656_D1_M1/GPIO3_C7_d       |
|        | 32  | I2S1_SDI1_M1                      | I/O      | DOWN    | LCD1_RST_L_GPIO3_D3               | MIPI_DSI1 LCD_Reset                                                   | 1.8V            | AM1               | CIF_D5/EB_C_SDDO5/SDMMC2_CLK_M0/I2S1_SDI1_M1/VOP_BT656_D5_M1/GPIO3_D3_d         |
|        | 34  | I2S1_SDI0_M1                      | I/O      | DOWN    | VCC5V0_HOST_EN                    | HOST Power EN                                                         | 1.8V            | AM2               | CIF_D4/EB_C_SDDO4/SDMMC2_CMD_M0/I2S1_SDI0_M1/VOP_BT656_D4_M1/GPIO3_D2_d         |
|        | 36  | I2S1_SDO0_M1                      | I/O      | DOWN    | VCC5V0_OTG_EN                     | OTG Power EN                                                          | 1.8V            | AN2               | CIF_D3/EB_C_SDDO3/SDMMC2_D3_M0/I2S1_SDO0_M1/VOP_BT656_D3_M1/GPIO3_D1_d          |
|        | 38  | I2S1_LCLK_TX_M1                   | I/O      | DOWN    | EAR_CTL                           | Headphone output control, Active H                                    | 1.8V            | AP1               | CIF_D2/EB_C_SDDO2/SDMMC2_D2_M0/I2S1_LRCK_TX_M1/VOP_BT656_D2_M1/GPIO3_D0_d       |
|        | 40  | SP1_CLK_M1                        | I/O      | DOWN    | SP1_CLK_M1/UART5_RX               | SP1_CLK_M1/UART5_RX                                                   | 3.3V            | AR2               | VOP_BT1120_D15/SP1_CLK_M1/UART5_RX_M1/I2S1_SCLK_RX_M2/GPIO3_C3_d                |
|        | 42  | SP1_MISO_M1                       | I/O      | DOWN    | SP1_MISO_M1/UART5_TX              | SP1_MISO_M1/UART5_TX                                                  | 3.3V            | AP3               | VOP_BT1120_D14/SP1_MISO_M1/UART5_TX_M1/I2S1_SDO3_M2/GPIO3_C2_d                  |
|        | 44  | SP1_MOSI_M1                       | I/O      | DOWN    | SP1_MOSI_M1                       | SP1_MOSI_M1                                                           | 3.3V            | AP4               | VOP_BT1120_D13/SP1_MOSI_M1/PCIE20_PERSTn_M1/I2S1_SDO2_M2/GPIO3_C1_d             |
|        | 46  | SP1_CSD_M1                        | I/O      | DOWN    | SP1_CSD_M1                        | SP1_CSD_M1                                                            | 3.3V            | 1U5               | VOP_BT1120_D0/SP1_CSD_M1/SDMMC2_D0_M1/GPIO3_A1_d                                |
|        | 48  | HP_DET_L_GPIO4_C4                 | I/O      | DOWN    | SATA2_ACT_LED                     | SATA2_ACT_LED Active H                                                | 3.3V            | 1V6               | EDP_HPDIIN_M0/SPDIF_TX_M2/SATA2_ACT_LED/I2S3_LRCK_M1/GPIO4_C4_d                 |
|        | 50  | SP13_MOSI_M1/GPIO4_C3             | I/O      | DOWN    | TP_INT_L_GPIO4_C3                 | MIPI_DSI0 TP interrupt                                                | 3.3V            | AP12              | PWM15_IR_M1/SP13_MOSI_M1/I2S3_SCLK_M1/GPIO4_C3_d                                |
|        | 52  | UART9_RX_M1/SP13_CSD_M1/GPIO4_C6  | I/O      | DOWN    | UART9_RX_M1                       | UART9_RX_M1                                                           | 3.3V            | 1T6               | PWM13_M1/SP13_CSD_M1/SATA0_ACT_LED/UART9_RX_M1/I2S3_SDI1_M1/GPIO4_C6_d          |
|        | 54  | UART9_TX_M1/SP13_MISO_M1/GPIO4_C5 | I/O      | DOWN    | UART9_TX_M1                       | UART9_TX_M1                                                           | 3.3V            | 1U6               | PWM12_M1/SP13_MISO_M1/SATA1_ACT_LED/UART9_TX_M1/I2S3_SDO_M1/GPIO4_C5_d          |
|        | 56  | SP13_CLK_M1/GPIO4_C2              | I/O      | DOWN    | EDP_HPD                           | EDP_HPD det Active H                                                  | 3.3V            | 1U7               | PWM14_M1/SP13_CLK_M1/I2S3_MCLK_M1/GPIO4_C2_d                                    |
|        | 58  | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 60  | MIPI_CSI_RX_CLK1N                 | AI       |         | MIPI_CSI_RX_CLK1N                 | MIPI_CSI_RX_CLK1N                                                     | 1.8V            | 1U8               | MIPI_CSI_RX_CLK1N                                                               |
|        | 62  | MIPI_CSI_RX_CLK1P                 | AI       |         | MIPI_CSI_RX_CLK1P                 | MIPI_CSI_RX_CLK1P                                                     | 1.8V            | 1V8               | MIPI_CSI_RX_CLK1P                                                               |
|        | 64  | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 66  | MIPI_CSI_RX_CLK0N                 | AI       |         | MIPI_CSI_RX_CLK0N                 | MIPI_CSI_RX_CLK0N                                                     | 1.8V            | 1U9               | MIPI_CSI_RX_CLK0N                                                               |
|        | 68  | MIPI_CSI_RX_CLK0P                 | AI       |         | MIPI_CSI_RX_CLK0P                 | MIPI_CSI_RX_CLK0P                                                     | 1.8V            | 1V9               | MIPI_CSI_RX_CLK0P                                                               |
|        | 70  | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 72  | MIPI_DSI_TX1_CLKN                 | AO       |         | MIPI_DSI_TX1_CLKN                 | MIPI_DSI_TX1_CLKN                                                     | 1.8V            | 1U11              | MIPI_DSI_TX1_CLKN                                                               |
|        | 74  | MIPI_DSI_TX1_CLKP                 | AO       |         | MIPI_DSI_TX1_CLKP                 | MIPI_DSI_TX1_CLKP                                                     | 1.8V            | 1V11              | MIPI_DSI_TX1_CLKP                                                               |
|        | 76  | GND                               | G        |         | GND                               |                                                                       |                 |                   |                                                                                 |
|        | 78  | FSPI_D2                           | I/O      | DOWN    | FSPI_D2                           | FSPI_D2                                                               | 1.8V            | 1B16              | EMMC_RSTn/FSPI_D2/FLASH_WPn/GPIO1_C7_d                                          |
|        | 80  | FSPI_D3                           | I/O      | DOWN    | FSPI_D3                           | FSPI_D3                                                               | 1.8V            | 1C15              | FSPI_D3/FLASH_CS1n/GPIO1_D4_u                                                   |
|        | 82  | FSPI_CLK                          | I/O      | DOWN    | FSPI_CLK                          | FSPI_CLK                                                              | 1.8V            | 1A15              | FSPI_CLK/FLASH_ALE/GPIO1_D0_d                                                   |

# Interface Definition

|     |                                 |      |      |                                 |                                                                                          |           |      |                                                                                  |
|-----|---------------------------------|------|------|---------------------------------|------------------------------------------------------------------------------------------|-----------|------|----------------------------------------------------------------------------------|
| 84  | FSPI_CS0n                       | I/O  | DOWN | FSPI_CS0n                       | FSPI_CS0n                                                                                | 1.8V      | 1B17 | FSPI_CS0n/FLASH_CS0n/GPIO1_D3_u                                                  |
| 86  | FSPI_D0                         | I/O  | DOWN | FSPI_D0                         | FSPI_D0                                                                                  | 1.8V      | 1A17 | FSPI_D0/FLASH_RDY/GPIO1_D1_u                                                     |
| 88  | FSPI_D1                         | I/O  | DOWN | FSPI_D1                         | FSPI_D1                                                                                  | 1.8V      | 1A18 | FSPI_D1/FLASH_RDn/GPIO1_D2_u                                                     |
| 90  | MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN | AO   |      | MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN | MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN                                                          | 1.8V      | 1V15 | MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN                                                  |
| 92  | MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP | AO   |      | MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP | MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP                                                          | 1.8V      | 1V16 | MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP                                                  |
| 94  | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 96  | HDMI_TX_HPDIN                   | AO   |      | HDMI_TX_HPDIN                   | HDMI_TX_HPDIN                                                                            | 1.8V      | 1V17 | HDMI_TX_HPDIN                                                                    |
| 98  | PWM7_IR                         | I/O  | DOWN | PWM7_IR                         | PWM7_IR                                                                                  | 3.3V      | 1T18 | PWM7_IR/SPI0_CS0_M0/GPIO0_C6_d                                                   |
| 100 | UART2_RX_M0                     | I/O  | UP   | UART2_RX_M0_DEBUG               | UART2_RX_M0 (DEBUG)                                                                      | 3.3V      | 1V19 | UART2_RX_M0/GPIO0_D0_u                                                           |
| 102 | UART2_TX_M0                     | I/O  | UP   | UART2_TX_M0_DEBUG               | UART2_TX_M0 (DEBUG)                                                                      | 3.3V      | 1U18 | UART2_TX_M0/GPIO0_D1_u                                                           |
| 104 | LCDO_PWREN_H_GPIO0_C7           | I/O  | DOWN | LCDO_BL_PWM0_M1                 | LCDO Backlight EN, Active H                                                              | 3.3V      | 1V20 | HDMITX_CEC_M1/PWM0_M1/UART0_CTSn/GPIO0_C7_d                                      |
| 106 | TP_RST_L_GPIO0_C5               | I/O  | DOWN | EDP_BL_EN                       | EDP Backlight EN, Active H                                                               | 3.3V      | 1U19 | PWM6/SPI0_MISO_M0/GPIO0_C5_d                                                     |
| 108 | I2C2_SCL_M0                     | I/O  | UP   | I2C2_SCL_M0                     | I2C2_SCL_M0<br>Core board Pull up resistance 2.2K to 3.3V                                | 3.3V/2.2k | 1U20 | I2C2_SCL_M0/SPI0_CLK_M0/PCIE20_WAKEn_M0/PWM1_M1/GPIO0_B5_u                       |
| 110 | I2C2_SDA_M0                     | I/O  | UP   | I2C2_SDA_M0                     | I2C2_SDA_M0<br>Core board Pull up resistance 2.2K to 3.3V                                | 3.3V/2.2k | 1R16 | I2C2_SDA_M0/SPI0_MOSI_M0/PCIE20_PERSn_M0/PWM2_M1/GPIO0_B6_u                      |
| 112 | UART0_TX                        | I/O  | DOWN | UART0_TX                        | UART0_TX                                                                                 | 3.3V      | 1R18 | PWM2_M0/NPUAVS/UART0_TX/MCU_ITAG_TD/GPIO0_C1_d                                   |
| 114 | UART0_RX                        | I/O  | DOWN | UART0_RX                        | UART0_RX                                                                                 | 3.3V      | 1T19 | PWM1_M0/GPUAVS/UART0_RX/GPIO0_C0_d                                               |
| 116 | LCDO_RST_L_GPIO0_C2             | I/O  | DOWN | BL_EN_GPIO0_C2                  | BL_EN                                                                                    | 3.3V      | AM37 | PWM3_IR/EDP_HPDIN_M1/MCU_ITAG_TMS/GPIO0_C2_d                                     |
| 118 | GPI00_D6_D                      | I/O  | DOWN | VCC_5V_EN_GPIO0_D6_D            | VCC_5V power EN                                                                          | 1.8V      | 1P20 | GPI00_D6_d                                                                       |
| 120 | GPI00_A0_D                      | I/O  | DOWN | BL_EN_GPIO0_A0_D                | MIPI DSI1 Backlight EN, Active H                                                         | 3.3V      | 1P18 | REFCLK_OUT/GPIO0_A0_d                                                            |
| 122 | GPI00_D3_D                      | I/O  | DOWN | 4G_PWR_EN_GPIO0_D3_D            | 4G Moudle Power EN                                                                       | 1.8V      | 1N19 | GPI00_D3_d                                                                       |
| 124 | GPI00_D5_D                      | I/O  | DOWN | EDP_TP_PWREN                    | EDP TP Power EN                                                                          | 1.8V      | 1N20 | GPI00_D5_d                                                                       |
| 126 | PCIE20_REFCLKP                  | AI/O |      | PCIE20_REFCLKP                  | PCIE20_REFCLKP                                                                           | 1.8V      | 1K19 | PCIE20_REFCLKP                                                                   |
| 128 | PCIE20_REFCLKN                  | AI/O |      | PCIE20_REFCLKN                  | PCIE20_REFCLKN                                                                           | 1.8V      | 1K20 | PCIE20_REFCLKN                                                                   |
| 130 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 132 | USB3_HOST1_DP                   | AI/O |      | USB3_HOST1_DP                   | USB3_HOST1_DP                                                                            | 3.3V      | 1J19 | USB3_HOST1_DP                                                                    |
| 134 | USB3_HOST1_DM                   | AI/O |      | USB3_HOST1_DM                   | USB3_HOST1_DM                                                                            | 3.3V      | 1J20 | USB3_HOST1_DM                                                                    |
| 136 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 138 | SDMMC0_D1                       | I/O  | UP   | SDMMC0_D1                       | SDMMC0_D1                                                                                | 3.3V      | 1F19 | SDMMC0_D1/UART2_RX_M1/UART6_RX_M1/PWM9_M1/GPIO1_D6_u                             |
| 140 | SDMMC0_D3                       | I/O  | UP   | SDMMC0_D3                       | SDMMC0_D3                                                                                | 3.3V      | 1F18 | SDMMC0_D3/ARM_ITAG_TMS/UART5_RTSn_M0/GPIO2_A0_u                                  |
| 142 | SDMMC0_D0                       | I/O  | UP   | SDMMC0_D0                       | SDMMC0_D0                                                                                | 3.3V      | 1E20 | SDMMC0_D0/UART2_TX_M1/UART6_TX_M1/PWM8_M1/GPIO1_D5_u                             |
| 144 | SDMMC0_CMD                      | I/O  | UP   | SDMMC0_CMD                      | SDMMC0_CMD                                                                               | 3.3V      | 1F19 | SDMMC0_CMD/PWM10_M1/UART5_RX_M0/GPIO2_A1_u                                       |
| 146 | SDMMC0_D2                       | I/O  | UP   | SDMMC0_D2                       | SDMMC0_D2                                                                                | 3.3V      | 1D20 | SDMMC0_D2/ARM_ITAG_TCK/UART5_CTSn_M0/GPIO1_D7_u                                  |
| 148 | SDMMC0_CLK                      | I/O  | UP   | SDMMC0_CLK                      | SDMMC0_CLK                                                                               | 3.3V      | G38  | SDMMC0_CLK/TEST_CLKOUT/UART5_TX_M0/GPIO2_A2_d                                    |
| 150 | SARADC_VIN1                     | AI   |      | SARADC_VIN1                     | SARADC_VIN1                                                                              | 1.8V      | 1C17 | SARADC_VIN1                                                                      |
| 152 | SARADC_VIN0_KEY/RECOVERY        | AI   |      | RECOVERY                        | RECOVERY                                                                                 | 1.8V      | 1D17 | SARADC_VIN0                                                                      |
| 154 | SARADC_VIN2_HP_HOOK             | AI   |      | SARADC_VIN2                     | SARADC_VIN2                                                                              | 1.8V      | 1B18 | SARADC_VIN2                                                                      |
| 156 | SARADC_VIN3                     | AI   |      | SARADC_VIN3                     | SARADC_VIN3                                                                              | 1.8V      | 1A19 | SARADC_VIN3                                                                      |
| 158 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 160 | SDMMC1_D2                       | I/O  | UP   | SDMMC1_D2                       | SDMMC1_D2                                                                                | 1.8V      | 1D18 | SDMMC1_D2/UART7_RX_M0/GPIO2_A5_u                                                 |
| 162 | SDMMC1_D3                       | I/O  | UP   | SDMMC1_D3                       | SDMMC1_D3                                                                                | 1.8V      | 1A20 | SDMMC1_D3/UART7_TX_M0/GPIO2_A6_u                                                 |
| 164 | SDMMC1_CMD                      | I/O  | UP   | SDMMC1_CMD                      | SDMMC1_CMD                                                                               | 1.8V      | B35  | SDMMC1_CMD/UART9_RX_M0/GPIO2_A7_u                                                |
| 166 | SDMMC1_CLK                      | I/O  | UP   | SDMMC1_CLK                      | SDMMC1_CLK<br>core board series resistance 22R                                           | 1.8V      | B37  | SDMMC1_CLK/UART9_TX_M0/GPIO2_B0_d                                                |
| 168 | SDMMC1_D0                       | I/O  | UP   | SDMMC1_D0                       | SDMMC1_D0                                                                                | 1.8V      | 1C19 | SDMMC1_D0/UART6_RX_M0/GPIO2_A3_u                                                 |
| 170 | SDMMC1_D1                       | I/O  | UP   | SDMMC1_D1                       | SDMMC1_D1                                                                                | 1.8V      | 1E18 | SDMMC1_D1/UART6_TX_M0/GPIO2_A4_u                                                 |
| 172 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 174 | I2S2_SCLK_TX_M0                 | I/O  | DOWN | I2S2_SCLK_TX_M0                 | I2S2_SCLK_TX_M0                                                                          | 1.8V      | C37  | I2S2_SCLK_TX_M0/UART7_CTSn_M0/SPI2_MISO_M0/GPIO2_C2_d                            |
| 176 | I2S2_LRCK_TX_M0                 | I/O  | DOWN | I2S2_LRCK_TX_M0                 | I2S2_LRCK_TX_M0                                                                          | 1.8V      | 1D19 | I2S2_LRCK_TX_M0/UART9_RTSn_M0/SPI2_MOSI_M0/GPIO2_C3_d                            |
| 178 | I2S2_SDO_M0                     | I/O  | DOWN | I2S2_SDO_M0                     | I2S2_SDO_M0                                                                              | 1.8V      | 1B20 | I2S2_SDO_M0/UART9_CTSn_M0/SPI2_CS0_M0/GPIO2_C4_d                                 |
| 180 | I2S2_SDI_M0                     | I/O  | DOWN | I2S2_SDI_M0                     | I2S2_SDI_M0                                                                              | 1.8V      | D37  | I2S2_SDI_M0/UART8_TX_M0/SPI2_CS1_M0/GPIO2_C5_d                                   |
| 182 | GMAC1_MDIO_M0                   | I/O  | DOWN | MAC_MDIO                        | MAC_MDIO                                                                                 | 3.3V      | 1P4  | PWM15_IR_M0/SPDIF_TX_M1/GMAC1_MDIO_M0/UART7_RX_M1/I2S1_LRCK_RX_M2/GPIO3_C5_d     |
| 184 | GMAC1_MDC_M0                    | I/O  | DOWN | MAC_MDC                         | MAC_MDC                                                                                  | 3.3V      | 1P3  | PWM14_M0/VOP_PWM_M1/GMAC1_MDC_M0/UART7_TX_M1/PDM_CLK1_M2/GPIO3_C4_d              |
| 186 | GMAC1_TXCLK_M0                  | I/O  | DOWN | PHY_TXCLK                       | PHY_TXCLK                                                                                | 3.3V      | 1U4  | VOP_BT1120_CLK/GMAC1_TXCLK_M0/I2S3_SDI_M0/SDMMC2_CLK_M1/GPIO3_A6_d               |
| 188 | GMAC1_RXCLK_M0                  | I/O  | DOWN | MAC_RXCLK                       | MAC_RXCLK                                                                                | 3.3V      | 1V3  | VOP_BT1120_D5/GMAC1_RXCLK_M0/SDMMC2_DET_M1/GPIO3_A7_d                            |
| 190 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 192 | GMAC1_MCLKINOUT_M0              | I/O  | DOWN | MAC_CLK                         | MAC_CLK                                                                                  | 3.3V      | AR4  | PWM13_M0/GMAC1_MCLKINOUT_M0/UART3_RX_M1/PDM_SDI3_M2/GPIO3_C0_d                   |
| 194 | GMAC1_RXD1_M0                   | I/O  | DOWN | MAC_RXD1                        | MAC_RXD1                                                                                 | 3.3V      | AR6  | VOP_BT1120_D8/GMAC1_RXD1_M0/UART4_TX_M1/PWM9_M0/GPIO3_B2_d                       |
| 196 | GMAC1_RXD3_M0                   | I/O  | DOWN | MAC_RXD3                        | MAC_RXD3                                                                                 | 3.3V      | AP9  | VOP_BT1120_D4/GMAC1_RXD3_M0/I2S3_SDO_M0/SDMMC2_CMD_M1/GPIO3_A5_d                 |
| 198 | GMAC1_RXD0_M0                   | I/O  | DOWN | MAC_RXD0                        | MAC_RXD0                                                                                 | 3.3V      | AP7  | VOP_BT1120_D7/GMAC1_RXD0_M0/UART4_RX_M1/PWM8_M0/GPIO3_B1_d                       |
| 200 | GMAC1_RXD2_M0                   | I/O  | DOWN | MAC_RXD2                        | MAC_RXD2                                                                                 | 3.3V      | AR9  | VOP_BT1120_D3/GMAC1_RXD2_M0/I2S3_LRCK_M0/SDMMC2_D3_M1/GPIO3_A4_d                 |
| 202 | GMAC1_RXDV_CR5_M0               | I/O  | DOWN | MAC_RXDV                        | MAC_RXDV                                                                                 | 3.3V      | AP6  | VOP_BT1120_D9/GMAC1_RXDV_CR5_M0/I2C5_SCL_M0/PDM_SDI0_M2/GPIO3_B3_d               |
| 204 | GMAC1_TXD0_M0                   | I/O  | DOWN | PHY_TXD0                        | PHY_TXD0<br>core board series resistance 22R                                             | 3.3V      | 1T4  | VOP_BT1120_D11/GMAC1_TXD0_M0/I2C3_SCL_M1/PWM10_M0/GPIO3_B5_d                     |
| 206 | GMAC1_TXD2_M0                   | I/O  | DOWN | PHY_TXD2                        | PHY_TXD2<br>core board series resistance 22R                                             | 3.3V      | AR10 | VOP_BT1120_D1/GMAC1_TXD2_M0/I2S3_MCLK_M0/SDMMC2_D1_M1/GPIO3_A2_d                 |
| 208 | GMAC1_TXD3_M0                   | I/O  | DOWN | PHY_TXD3                        | PHY_TXD3<br>core board series resistance 22R                                             | 3.3V      | AP10 | VOP_BT1120_D2/GMAC1_TXD3_M0/I2S3_SCLK_M0/SDMMC2_D2_M1/GPIO3_A3_d                 |
| 210 | GMAC1_TXD1_M0                   | I/O  | DOWN | PHY_TXD1                        | PHY_TXD1<br>core board series resistance 22R                                             | 3.3V      | 1V2  | VOP_BT1120_D12/GMAC1_TXD1_M0/I2C3_SDA_M1/PWM11_IR_M0/GPIO3_B6_d                  |
| 212 | GMAC1_TXEN_M0                   | I/O  | DOWN | PHY_TXEN                        | PHY_TXEN<br>core board series resistance 22R                                             | 3.3V      | AP5  | PWM12_M0/GMAC1_TXEN_M0/UART3_TX_M1/PDM_SDI2_M2/GPIO3_B7_d                        |
| 214 | GMAC1_INT/PMEB_GPIO3_B4         | I/O  | DOWN | PHY_INTERRUPT                   | Phy interrupt                                                                            | 3.3V      | 1U3  | VOP_BT1120_D10/GMAC1_RXER_M0/I2C5_SDA_M0/PDM_SDI1_M2/GPIO3_B4_d                  |
| 216 | GMAC1_RSTn_GPIO0_B7             | I/O  | DOWN | PHY_RST                         | Phy reset                                                                                | 3.3V      | 1R17 | PWM0_M0/CPUAVS/GPIO0_B7_d                                                        |
| 218 | RST_KEY                         | I    | UP   | SYS_RESET                       | System reset input. Reset key, Active L<br>Pull up resistance 10K ,series resistance 22R |           |      | RESET_KEY                                                                        |
| 220 | EXT_POWER_EN                    |      |      | NC                              |                                                                                          |           |      | PMIC_EXT_EN                                                                      |
| 222 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 224 | VCCIO_WL                        | P    |      | VCCIO_WL                        | WiFi VCCIO Output 1.8V or 3.3V option (Core board Default:1.8V)                          | 1.8V      |      | Pin224/225 Total Max 300mA                                                       |
| 226 | VCC3V3_SD                       | P    |      | VCC3V3_SD                       | 3.3V Output TF Card Power ,VCC3V3_SD                                                     | 3.3V      |      | Pin226/227 Total Max-500mA                                                       |
| 228 | VCC_1V8                         | P    |      | VCC_1V8                         | 1.8V Output_VCC_1V8                                                                      | 1.8V      |      | Pin228/229 Total Max-1.0A                                                        |
| 230 | VCCIO_ACODEC                    | P    |      | VCCIO_ACODEC                    | 3.3V Output For codec,VCCIO_ACODEC                                                       | 3.3V      |      | Pin230/231 Total Max-300mA                                                       |
| 232 | PMIC_32KOUT_WIFI                |      |      | PMIC_32KOUT_WIFI                | 32KHz for WiFi                                                                           | 3.3V      |      |                                                                                  |
| 234 | VCC3V3_SYS                      | P    |      | VCC3V3_SYS                      | 3.3V Output_VCC3V3_SYS                                                                   | 3.3V      |      | Pin234/235 Total Max-1.5A                                                        |
| 236 | SPKP_OUT                        |      |      | SPKP_OUT                        | RX809 Speak out +                                                                        | 5V        |      | MAX:1.3W ClassD @ 8Q                                                             |
| 238 | SPKN_OUT                        |      |      | SPKN_OUT                        | RX809 Speak out -                                                                        | 5V        |      | MAX:1.3W ClassD @ 8Q                                                             |
| 240 | HPL_OUT                         |      |      | HPL_OUT                         | RX809 HeadPhone_OUT L                                                                    |           |      | MAX:0.5Vrms @ 32Q/ 0.8Vrms @ 300Q                                                |
| 242 | HPR_OUT                         |      |      | HPR_OUT                         | RX809 HeadPhone_OUT R                                                                    |           |      | MAX:0.5Vrms @ 32Q/ 0.8Vrms @ 300Q                                                |
| 244 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 246 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 248 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 250 | GND                             | G    |      | GND                             |                                                                                          |           |      |                                                                                  |
| 252 | VCC5V0_SYS                      | P    |      | VCC5V0_SYS                      |                                                                                          | 5V        |      |                                                                                  |
| 254 | VCC5V0_SYS                      | P    |      | VCC5V0_SYS                      |                                                                                          | 5V        |      |                                                                                  |
| 256 | VCC5V0_SYS                      | P    |      | VCC5V0_SYS                      | Input Voltage 4.8V-5.5V                                                                  | 5V        |      | CORE BOARD 5.0V Supply current:<br>Normal: 600mA<br>Max: 1.0A<br>Recommend :1.5A |
| 258 | VCC5V0_SYS                      | P    |      | VCC5V0_SYS                      |                                                                                          | 5V        |      |                                                                                  |
| 260 | VCC5V0_SYS                      | P    |      | VCC5V0_SYS                      |                                                                                          | 5V        |      |                                                                                  |

## About us

T-Chip Intelligent Technology (Zhongshan) Co., Ltd. , established in 2005, has more than ten years of technological product research and development capabilities, and has nearly 100 patents and software copyrights. As a national high-tech enterprise, we focus on the research and development, production and sales of open source smart hardware, Internet of Things, and digital audio products, while also provide overall solutions with smart hardware products.

T-Chip is an IDH (Independent Design House) officially authorized by Rockchip in Fuzhou, and also a strategic partner of Rockchip, with a close cooperative relationship for more than 10 years.

Firefly is a brand established by T-Chip, with open source community and online store. Firefly products include core boards, mainboards, embedded computers, cluster servers, development kits and other products. Currently, we have more than 100,000 users, including more than 10,000 enterprise users such as Arm, Google, Baidu, Tencent and Alibaba.

Firefly team has more than 70 R&D members, with excellent research and development capabilities of schematic design, PCB layout, board mass production, embedded development, system development, application development and so on. We accelerate the research and development process for many technology entrepreneurs and start-ups, and provide professional technical services.

Make technology simpler, Make life smarter - is the idea of Firefly team. We hope that through Firefly's open source products and technical services, the research and development of various technological products will become efficient and simple, and intelligent technology can be integrated into life.

Firefly is committed to providing enterprise customers with long-term stable and reliable industrial products and services, and continuously creating value for customers.

### Business Communication

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### Shopping Mall

- 1) [www.firefly.store](http://www.firefly.store)
- 2) [t-firefly.taobao.com](http://t-firefly.taobao.com)

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