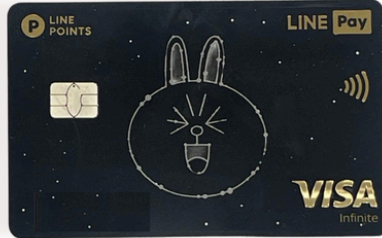
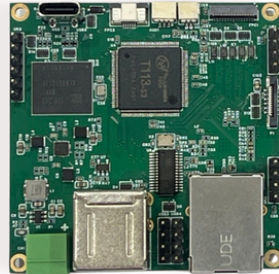
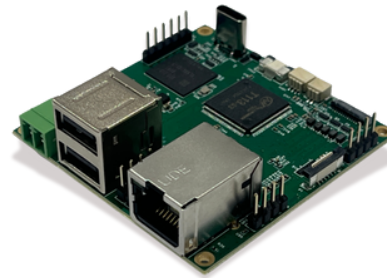


Credit Card-Size Efficiency
INDUSTRIAL-GRADE PERFORMANCE


Features

- Ultra-Compact size with Mobile-ITX , 60x60mm size for space-saving applications
- Powered by Dual-core ARM Cortex-A7 with 128MB DDR3
- 8GB eMMC storage on board design
- Single-core HiFi4 DSP for high-efficiency processing
- H.265/H.264 decoding with GPU acceleration for smooth 1080p video
- Multimedia Interfaces: MIPI-DSI (1920x1200), I2C touch, 1x headphone/Line-out and 1x MIC-in for rich audio and display integration
- Flexible Expansion: 4x USB 2.0 HS, USB Type-C for debugging, and 3x UART with flow control, offering broad connectivity options for various peripherals
- Linux OS with LVGL, Qt, GTK+ support for fast GUI development


Introduction

MBM-T113 is powered by Allwinner T113-S3 processor. delivers exceptional versatility with dual-core ARM Cortex-A7, HiFi4 DSP, and 4GB eMMC storage. Its MIPI-DSI, I2C touch interface, and GPIO make it ideal for automotive dashboards and industrial control panels. USB and UARTs support seamless connectivity for IoT devices and medical equipment. With Line-out and MIC-in, it enables audio-driven smart gateways and multimedia systems. Optimized for Linux OS with GUI libraries like LVGL and Qt, the MBM-T113 is perfect for HMI applications in smart homes, industrial automation, and healthcare solutions. Small in size, big in possibilities.

Specification

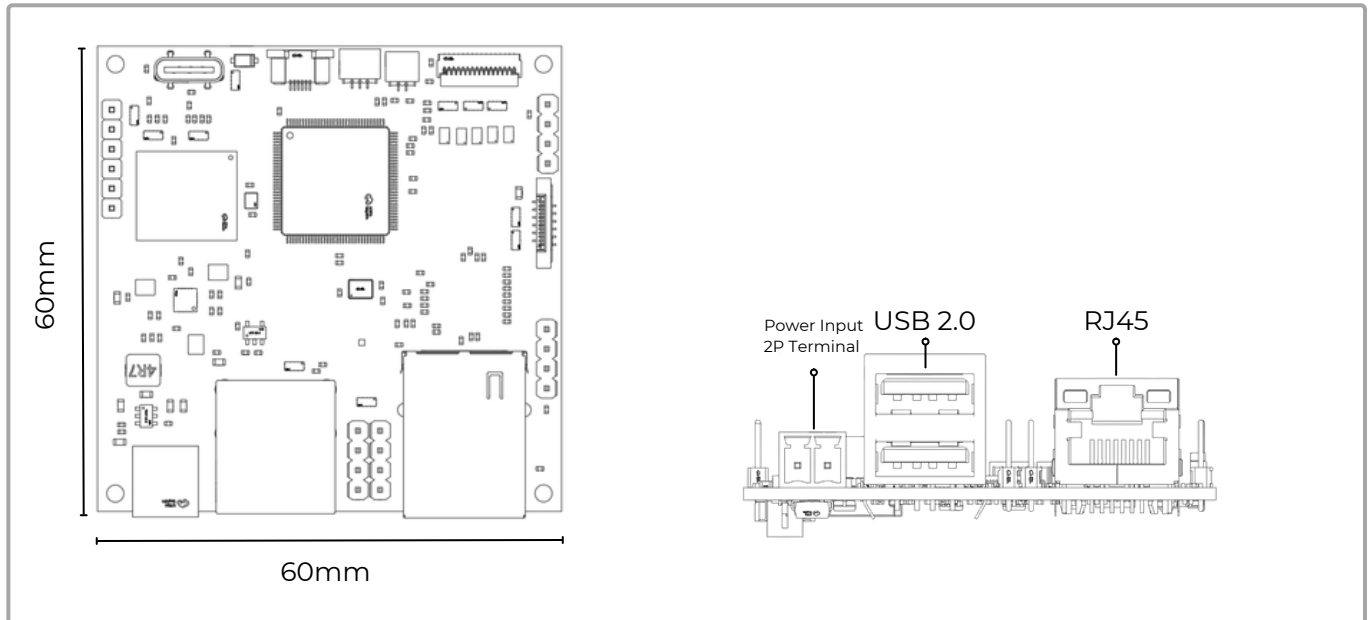
| Specification | | |
|---------------|-----------|---|
| System | Processor | Dual-core ARM Cortex-A7 @ 1.2GHz |
| | RAM | On-chip Memory, 128MB DDR3 |
| | Storage | 8GB eMMC flash onboard and 1x Micro SD slot |
| | Display | MIPI DSI w/1080p60 |
| | Touch | Support via I2C |
| | Ethernet | 10/100Mbps |
| I/O Interface | Ethernet | 1x RJ45 w/ LED indicator |
| | USB Port | 2x USB 2.0 Type A (USB 1/2), 2x USB 2.0 via 1x 4P Header 1x Type C for Debug/FW update |
| | UART | 3x UART with flow control (UART 1/2, 1x4P Header; UART3, 1x6P Header) |
| | GPIO | 1x GPIO for external extention |
| | Audio | 1x Headphone/Line-out; 1x MIC-in |



MBM-T113

Mobile-ITX Board

Dimension(mm)



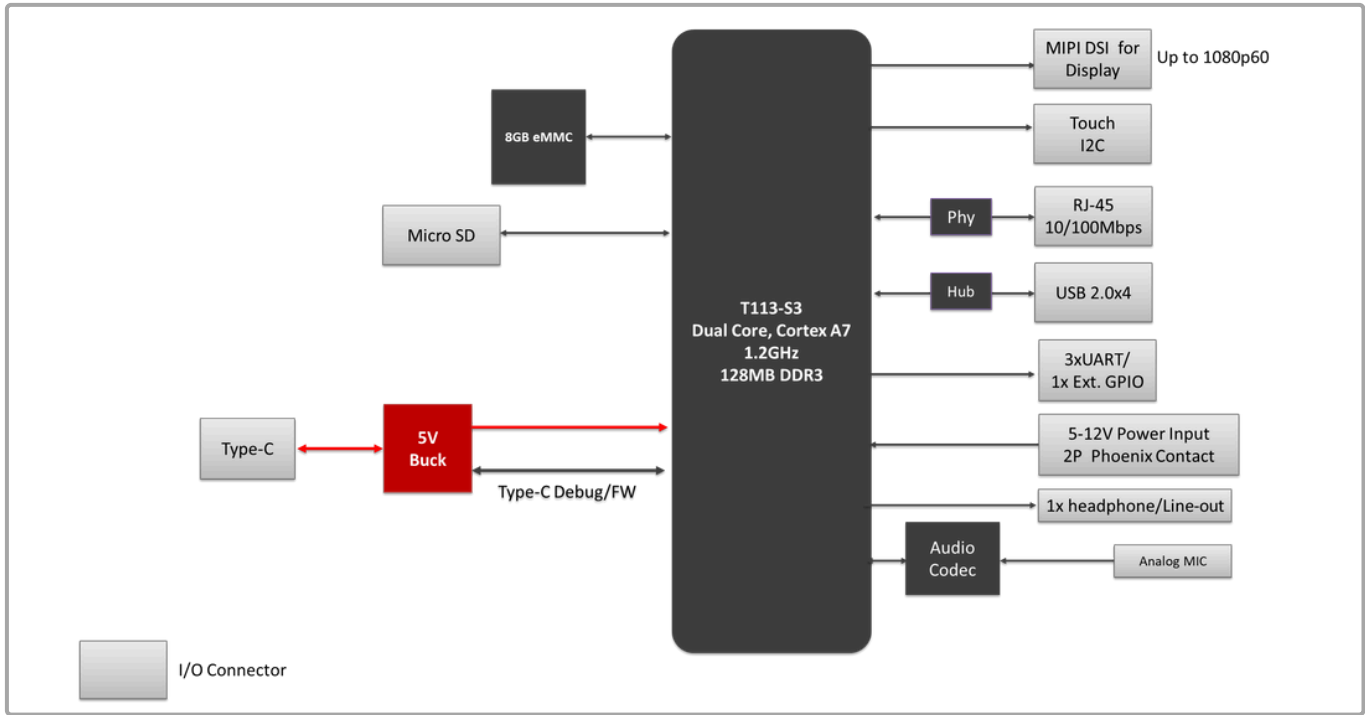
Specification

| | |
|------------------------------|--|
| Power Input | 5~12V via 1x 2P Terminal Block Phoenix Contact |
| Form Factor | 60x 60mm, Mobile-ITX |
| Operating Temperature | -10°C ~ 70°C |
| Operating System | Linux with LVGL, Qt, GTK+ support |

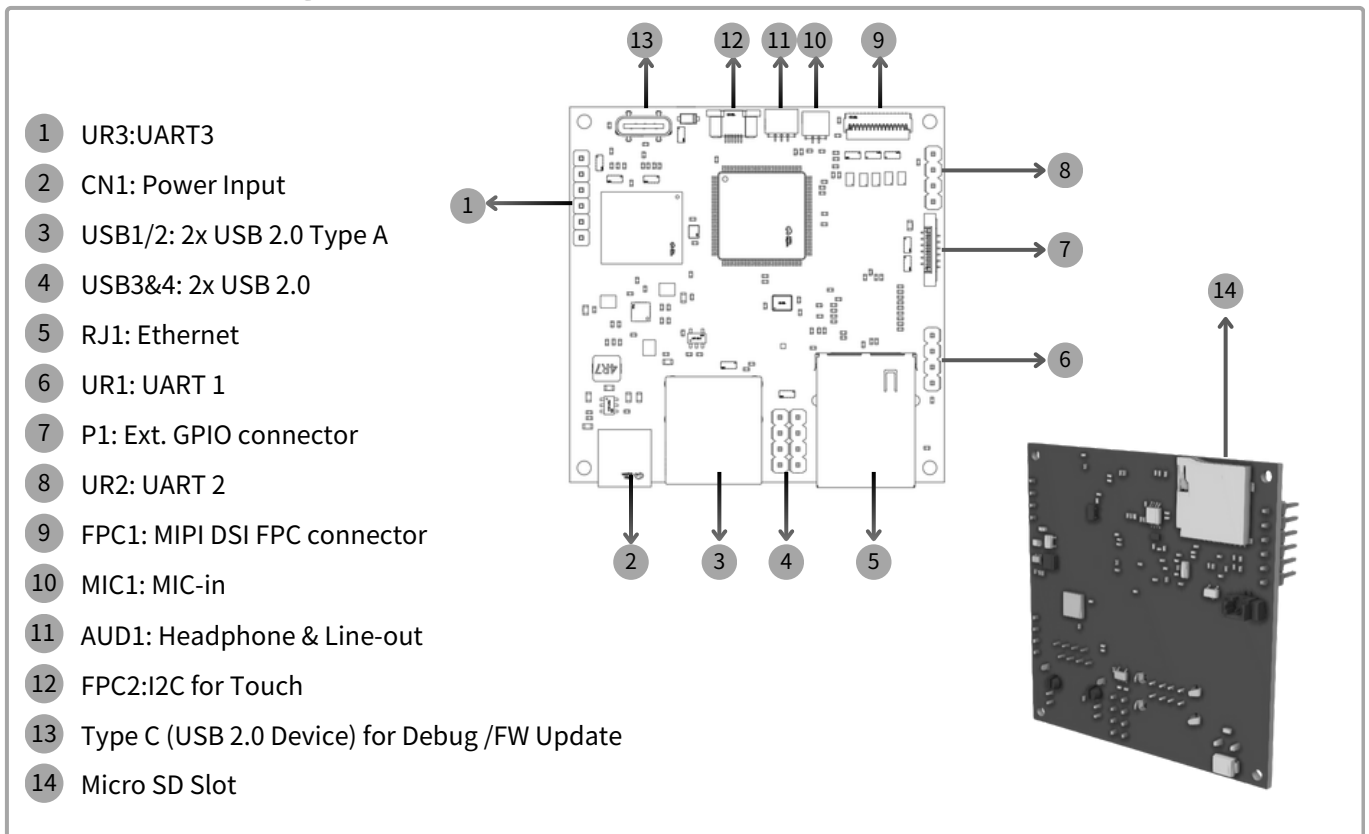
MBM-T113

Mobile-ITX Board

Block Diagram



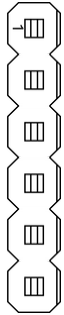
I/O Briefing



MBM-T113

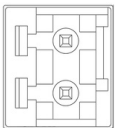
Mobile-ITX Board

- 1 UR3: UART3
1x6-Pin Header, 2.54mm



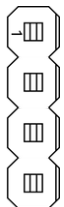
| PIN | Assignment |
|-----|------------|
| 1 | 5V_SYS |
| 2 | UART1_RX |
| 3 | UART1_TX |
| 4 | UART1_CTS |
| 5 | UART1_RTS |
| 6 | GND |

- 2 CN1: 5~12V Power Input
1x 2-Pin Terminal Block Phoenix Contact



| PIN | Assignment |
|-----|------------|
| 1 | 12V |
| 2 | GND |

- 4 USB3/4: 2x USB 2.0
1x4-Pin Header, 2.54mm



USB3

| PIN | Assignment |
|-----|---------------|
| 1 | VBUS_34 |
| 2 | USB_HUB_P3_D- |
| 3 | USB_HUB_P3_D+ |
| 4 | GND |

USB4

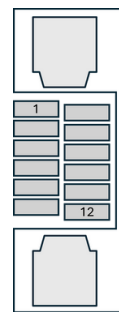
| PIN | Assignment |
|-----|---------------|
| 1 | VBUS_34 |
| 2 | USB_HUB_P4_D- |
| 3 | USB_HUB_P4_D+ |
| 4 | GND |

- 6 UR1: UART 1
1x4-Pin Header, 2.54mm



| PIN | Assignment |
|-----|------------|
| 1 | 3.3V |
| 2 | RX3 |
| 3 | TX3 |
| 4 | GND |

- 7 P1: Ext. GPIO connector
1x12-Pin Ext. GPIO connector, P:0.5mm



| PIN | Assignment | PIN | Assignment |
|-----|------------|-----|------------|
| 1 | 12V | 2 | 12V |
| 3 | GPADC0 | 4 | PD13 |
| 5 | PD12 | 6 | PD14 |
| 7 | PD15 | 8 | PD16 |
| 9 | PD11 | 10 | PD10 |
| 11 | GND | 12 | GND |

- 8 UR2: UART 2
1x4-Pin Header 2.54mm

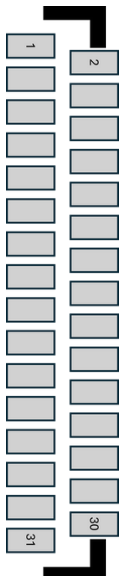


| PIN | Assignment |
|-----|--------------|
| 1 | 3.3V |
| 2 | I2C1-SCK_RX5 |
| 3 | I2C1-SDA_TX5 |
| 4 | GND |

MBM-T113

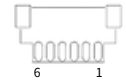
Mobile-ITX Board

- 9 FPC1: MIPI DSI, FPC Connector
1x 31-Pin FPC Connector, P=0.3mm
(FH35C-31S-0.3SHW(50))



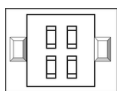
| PIN | Assignment | PIN | Assignment |
|-----|---------------|-----|---------------|
| 1 | LED_A | 2 | LED_A |
| 3 | LED_A | 4 | N/A |
| 5 | LED_K | 6 | LED_K |
| 7 | LED_K | 8 | LED_K |
| 9 | GND | 10 | GND |
| 11 | MIPI_TXJ_D2+ | 12 | MIPI_TXJ_D2- |
| 13 | GND | 14 | MIPI_TXJ_D1+ |
| 15 | MIPI_TXJ_D1- | 16 | GND |
| 17 | MIPI_TXJ_CLK+ | 18 | MIPI_TXJ_CLK- |
| 19 | GND | 20 | MIPI_TXJ_D0+ |
| 21 | MIPI_TXJ_D0- | 22 | GND |
| 23 | MIPI_TXJ_D3+ | 24 | MIPI_TXJ_D3- |
| 25 | GND | 26 | VDD_1P8 |
| 27 | PG13_LCD_RST | 28 | GND |
| 29 | VDD_1P8 | 30 | 3V3 |
| 31 | 3V3 | | |

- 12 FPC2: I2C for Touch
1x6-Pin FFC Connector, 0.5mm



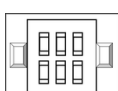
| PIN | Assignment |
|-----|--------------|
| 1 | GND |
| 2 | PG14_TP_INT |
| 3 | PG15_TP_RST |
| 4 | 3V3 |
| 5 | PC2_I2C0_SDA |
| 6 | PB3_I2C0_SCK |

- 10 MIC: MIC-In
1x2-Pin wafer, 1mm



| PIN | Assignment |
|-----|------------|
| 1 | MICIN+ |
| 2 | MICIN- |

- 11 AUD1: Headphone & Line-out
1x3-Pin wafer, 1mm



| PIN | Assignment |
|-----|------------|
| 1 | HPOUTL |
| 2 | HPOUTR |
| 3 | GND |