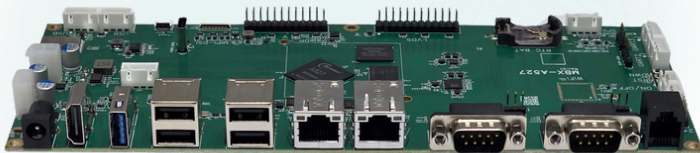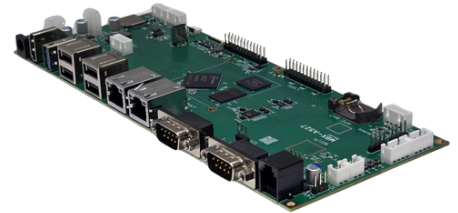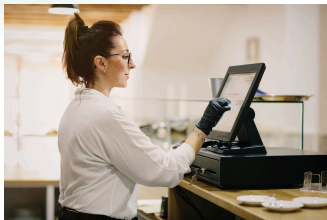# MBX-A527

# POS-Optimized Embedded Board

NEW

## Features

- High-performance Octa-Core Cortex-A55 SoC processor, up to 2.0GHz
- Built-in Integrated ARM G57 MC01 GPU for High performance multimedia processing with low power consumption
- 4GB LPDDR4 Memory and 32GB eMMC onboard design
- Comprehensive connectivity: 2x Gigabit Ethernet and Wi-Fi6 +BT5.4 for option
- Flexible Media output for selection: HDMI, eDP, LVDS, MIPI-DSIx 4 lanes, support dual-screen output simultaneously
- Rich IO: 8 x USB, 2xRS232, 2xUART, 1x 1W stereo Amp 4Ω
- Support Android 15 and Linux-Debian, Ubuntu

## Best POS Application

## Introduction

MBX-A527 is a high-performance embedded board designed for POS (Point-of-Sale) systems and retail applications, offering exceptional processing power and connectivity. Featuring an Octa-Core ARM Cortex-A55 processor up to 2.0GHz and 4GB LPDDR4 memory, it ensures smooth and efficient operations. Equipped with dual Gigabit Ethernet, WiFi 6, and Bluetooth 5.4, MBX-A527 enables seamless network connectivity for modern retail environments. It supports multiple display interfaces including HDMI, MIPI-DSI, LVDS, and eDP, allowing dual-screen output—ideal for interactive kiosks, self-service terminals, and digital signage. With 8xUSB ports, 2xRS232, 2xUART interfaces, and a cash drawer port, it integrates effortlessly with peripherals such as barcode scanners, receipt printers, and payment terminals. Running Android 15, it provides a flexible software environment for retail and self-service solutions.

Beyond retail, MBX-A527 is also well-suited for hospitality, vending machines, and industrial control applications, making it a versatile embedded platform.
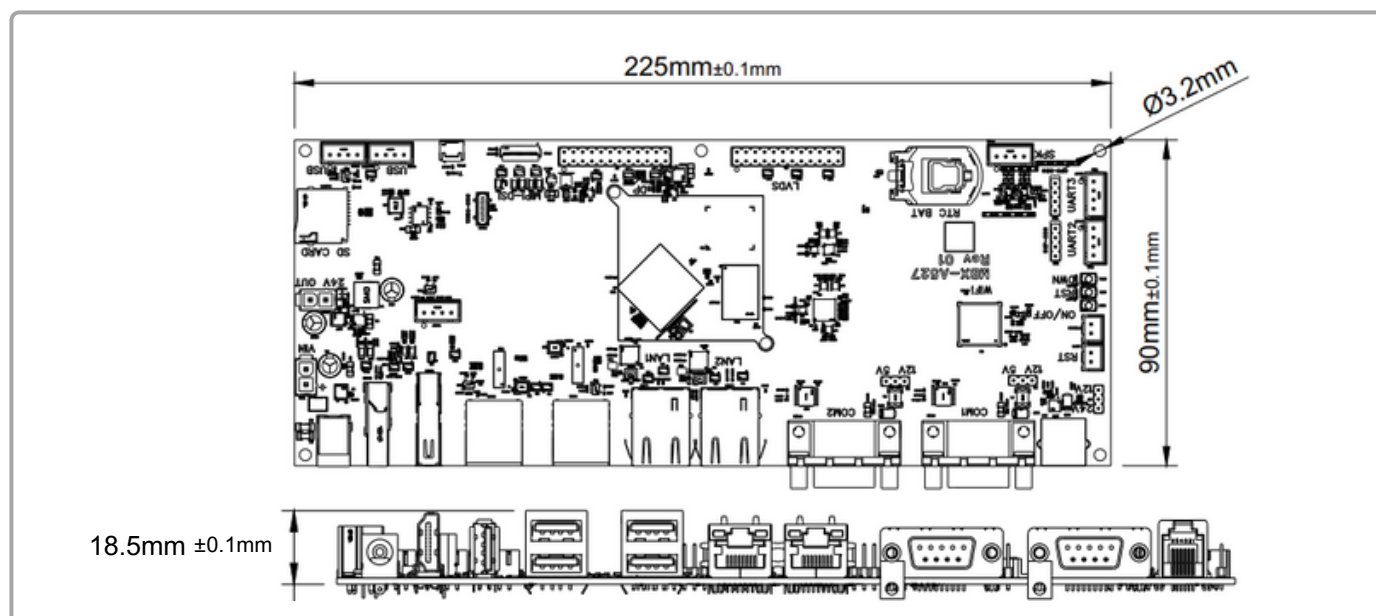
## Specification

| System | Processor | 8x ARM Cortex-A55 up to 2.0GHz |
|---|---|---|
| | Memory | Onboard LPDDR4 4GB |
| | Storage | 32GB eMMC (Option to 64GB/128GB) |
| | Graphics | For internal LCD: MIPI-DSI up to 1920x1080; LVDS up to 1366x768; eDP up to 1920x 1080; For external Display: HDMI up to 1920x 1080 |

# MBX-A527 — POS-Optimized Embedded Board

## Dimension(mm)



| Specification | | |
|---|---|---|
| **System** | **Display** | MIPI-DSIx 4 lanes, eDP, LVDS, HDMI |
| | **Touch** | I2C with RST/INT For 10.1" LCD |
| **Connectivity** | **WLAN** | WiFi 6+ BT 5.4 for Option |
| | **LAN** | 10/100/1000Mbps |
| **I/O Interface** | **Ethernet** | 2x RJ45 connector |
| | **USB Port** | 4x USB 2.0 Type-A (HS), 1x USB 3.0 Type A (SS) |
| | **COM** | 2x RS232, DB9 connector with CTS/RTS, PIN9 supports 5V/12V (selectable by jumper) |
| | **Cash Drawer** | 1x RJ12 6P/6C, 12V/24V selectable by jumper |
| | **Expansion** | 1x Micro SD slot, support SDXC up to 256GB |
| | **RTC** | Support via a Battery Socket (CR2032) |
| **Internal I/O** | **USB** | 3x USB 2.0 HS via 3x4P WAFER |
| | **UART** | 2x 4P wafer w/ 2.5mm PH, 3.3V level w/ 5V output |
| | **Audio** | 1x 1W stereo Amp 4Ω |
| **Others** | | 1x 24V IN Conn., 1x 24V OUTPUT Conn., 1x Type-C for ADB, 1x RST Button, 1x DWN Button |
| **Expansion** | | 1x Micro SD slot, support SDXC up to 256GB |
| **Power Supply** | | 24V Power Input via DC Jack 5.5/2.5mm; Passthrough 24V output for printer |
| **Dimension** | | 225x 90mm |
| **Operating Temperature** | | 0°C ~ 70°C ( 0% to 90% RH, non-condensing) |
| **Storage Temperature** | | -40°C ~ 85°C |
| **Operating System** | | Android 15, Linux-Debian, Ubuntu |

## I/O Briefing
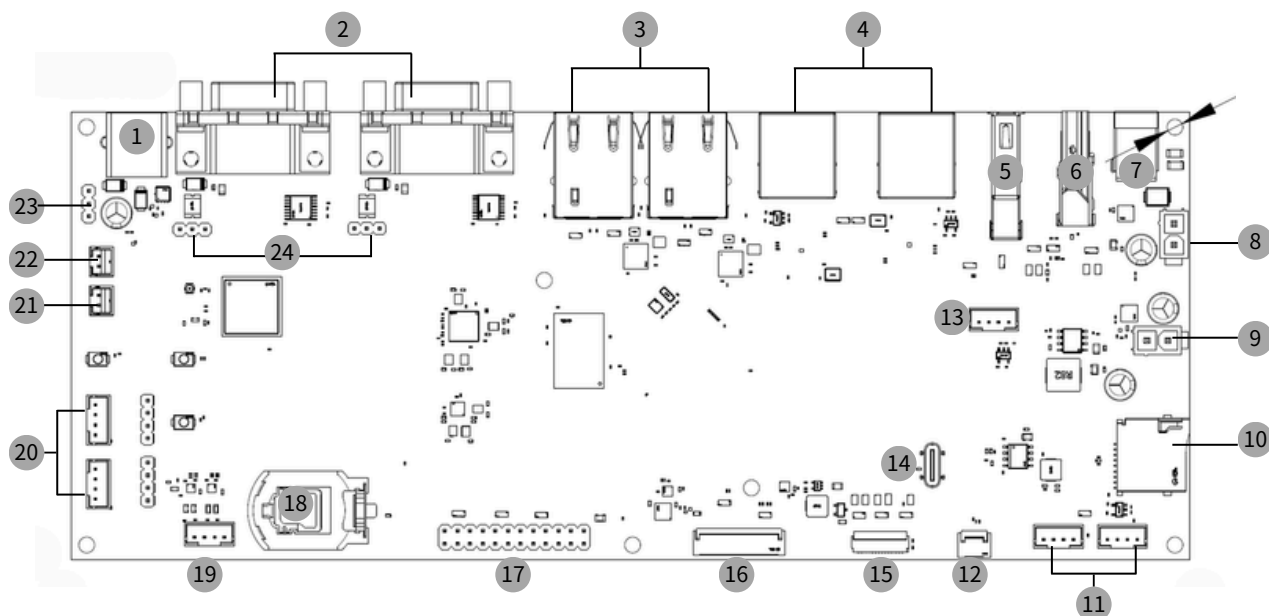


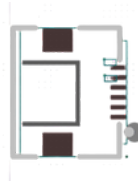| | | | |
|---|---|---|---|
| 1 | RJ12 (6P6C) for Cash Drawer, 12V/24V Selectable by jumper | 15 | FPC1: MIPI DSI Connector |
| 2 | COM Port 1, 2 | 16 | FPC3: eDP Connector |
| 3 | RJ45 Ethernet | 17 | LVDS |
| 4 | USB 2.0 Type A (Stacked Type) | 18 | RTC BAT: RTC Battery Socket |
| 5 | USB 3.0 Type A | 19 | SPK: Speaker |
| 6 | HDMI | 20 | UART: UART 2, UART3 |
| 7 | 24V DC Jack | 21 | PWR: Power Key |
| 8 | 24VIN | 22 | RST: Rest Key |
| 9 | 24VOUT | 23 | 12V/24V: Cashdrawer VOUT Select |
| 10 | TF Card Slot | 24 | 12V/5V:RS232 Vout Select |
| 11 | USB 2.0 | | |
| 12 | FPC2: I2C for Touch | | |
| 13 | USB 2.0 | | |
| 14 | USB0-DBG: Type-C for ADB | | |

**① RJ12: 1x6P/6C Connector for Cash Drawer**
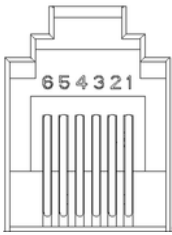
| PIN | Assignment |
|-----|------------|
| 1 | GND |
| 2 | CD# |
| 3 | STAT |
| 4 | 24V/12V |
| 5 | N/A |
| 6 | N/A |

**② RS232: DB9 Connector**

| PIN | Assignment |
|-----|------------|
| 2 | RX |
| 3 | TX |
| 5 | GND |
| 9 | 5V/12V |

**⑧ 24VIN: 24V IN**
1x 2-Pin Header, PH 4.2mm
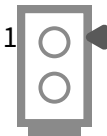
| PIN | Assignment |
|-----|------------|
| 1 | 24Vin |
| 2 | GND |

**⑨ 24Vout: 24V Out**
1x 2-Pin Header, PH 4.2mm
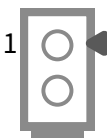
| PIN | Assignment |
|-----|------------|
| 1 | 24Vout |
| 2 | GND |

**⑪ & ⑬ USB: USB 2.0**
1x4-Pin Header, PH: 2.0mm
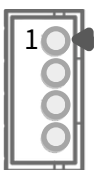
| PIN | Assignment |
|-----|------------|
| 1 | 5V |
| 2 | D- |
| 3 | D+ |
| 4 | GND |

**⑫ FPC2: I2C For Touch**
0.5mm 6P FFC Connector

| PIN | Assignment |
|-----|------------|
| 1 | GND |
| 2 | INT |
| 3 | RESET |
| 4 | 3.3V |
| 5 | SDA |
| 6 | SCL |

**⑮ FPC1:MIPI DSI FFC Conn. (Back-Locking Type)**
1x 31-Pin FPC Connector, P=0.3mm

| PIN | Assignment | PIN | Assignment |
|-----|------------|-----|------------|
| 1 | LED A | 16 | GND |
| 2 | LED A | 17 | CLK+ |
| 3 | LED A | 18 | CLK- |
| 4 | NC | 19 | GND |
| 5 | LED K | 20 | D0+ |
| 6 | LED K | 21 | D0- |
| 7 | LED K | 22 | GND |
| 8 | LED K | 23 | D3+ |
| 9 | GND | 24 | D3- |
| 10 | GND | 25 | GND |
| 11 | D2+ | 26 | 1.8V |
| 12 | D2- | 27 | Reset |
| 13 | GND | 28 | GND |
| 14 | D1+ | 29 | 1.8V |
| 15 | D1- | 30 | 3.3V |
| | | 31 | 3.3V |

*Preliminary*

Issued Date: Jun. 19, 2025

**16** FPC3: eDP Connector (Back-Locking Type)
30-Pin FFC Connector, P= 0.5mm

| PIN | Assignment | PIN | Assignment |
|-----|-----------|-----|-----------|
| 1 | NC | 16 | GND |
| 2 | GND | 17 | HPD |
| 3 | D1- | 18 | GND |
| 4 | D1+ | 19 | GND |
| 5 | GND | 20 | GND |
| 6 | D0- | 21 | GND |
| 7 | D0+ | 22 | BL EN |
| 8 | GND | 23 | BL PWM |
| 9 | AUX+ | 24 | NC |
| 10 | AUX- | 25 | NC |
| 11 | GND | 26 | 12V |
| 12 | 3.3V | 27 | 12V |
| 13 | 3.3V | 28 | 12V |
| 14 | NC | 29 | 12V |
| 15 | GND | 30 | NC |

**12** LVDS: LVDS Connector
1x 24-Pin Header, PH=2.54mm
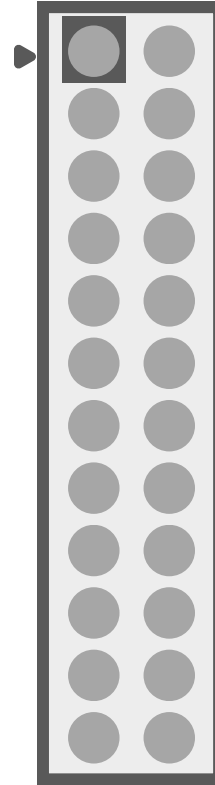
| PIN | Assignment | PIN | Assignment |
|-----|-----------|-----|-----------|
| 1 | 12V | 2 | 5V |
| 3 | 12V | 4 | 5V |
| 5 | EN | 6 | 3.3V |
| 7 | D0+ | 8 | 3.3V |
| 9 | D0- | 10 | PWM |
| 11 | GND | 12 | GND |
| 13 | D1+ | 14 | CLK+ |
| 15 | D1- | 16 | CLK- |
| 17 | GND | 18 | GND |
| 19 | D2+ | 20 | D3+ |
| 21 | D2- | 22 | D3- |
| 23 | GND | 24 | GND |

**19** SPK: 1W Speaker
1x 4-Pin Header, PH 2.0mm
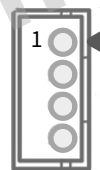
| PIN | Assignment |
|-----|-----------|
| 1 | SPK L- |
| 2 | SPK L+ |
| 3 | SPK R- |
| 4 | SPK R+ |

**20** UART: UART 3.3V
2x 4-Pin Header, PH 2.0mm
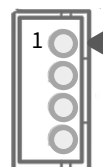
| PIN | Assignment |
|-----|-----------|
| 1 | 3.3V |
| 2 | RX |
| 3 | TX |
| 4 | GND |

Preliminary

21  PWR: Power Key
1x 2-Pin Header, PH 2.0mm
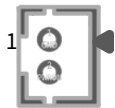
| PIN | Assignment |
| --- | --- |
| 1 | GND |
| 2 | Power Key+ |

22  RST: Reset Key
1x 2-Pin Header, PH 2.0mm
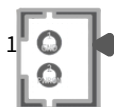
| PIN | Assignment |
| --- | --- |
| 1 | GND |
| 2 | Reset+ |

23  24V/12V: CD Vout, H3

**24V**

**12V**
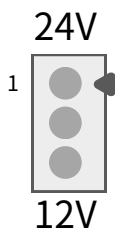
| PIN | Assignment |
| --- | --- |
| 1-2 | 24V |
| 2-3 | 12V |
| N/A | N/A |

24  12V/5V:RS232 Vout Select
H4 for COM1
H5 for COM2
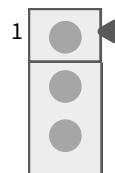
| PIN | Assignment |
| --- | --- |
| 1-2 | 12V |
| 2-3 | 5V |
| N/A | N/A |

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