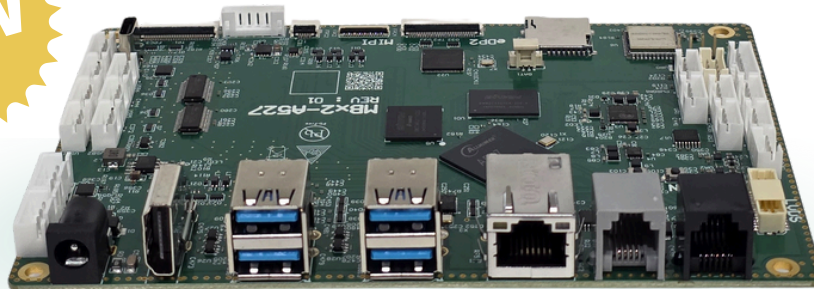# MBx2-A527 Industrial-Optimized Embedded Board

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: 1 Gigabit Ethernet and Wi-Fi6 +BT5.4 for option
- Flexible Media output for selection: HDMI, eDP(eDP1, eDP2), LVDS, MIPI-DSI, Optional 5 to 2
- Rich I/O for usage: 11 x USBs, 6x Serial Ports, 1x 1W stereo Amp 4Ω, Support 1x R12 C/D
- Support Android 15, Linux-Debian, Ubuntu

Introduction

MBx2-A527 is a compact, high-performance embedded board tailored for automation control, smart retail, and industrial terminals. Built on an Octa-core ARM Cortex-A55 processor and equipped with a G57 GPU, it provides responsive system performance and efficient multimedia handling—ideal for interface-rich industrial applications.

This board integrates 11x USB ports and 6x serial ports, enabling seamless connection with a wide range of peripherals such as barcode readers, thermal printers, industrial sensors, and control panels. With 1x Gigabit Ethernet, optional Wi-Fi 6 + BT 5.4, and support for Android 15, Debian, and Ubuntu, MBx2-A527 delivers deployment flexibility across both wired and wireless environments.

Its advanced multimedia capabilities support dual eDP, MIPI-DSI, LVDS, and HDMI outputs—making it a great fit for dual-screen HMI panels, real-time dashboards, or operator terminals that require graphical interfaces and responsive touch interaction.

MBx2-A527's compact-size design and 12V input make it ideal for space-constrained deployments such as factory HMI panels, self-service kiosks, retail data terminals, and interactive info points—where rich I/O and dual-display support are key.
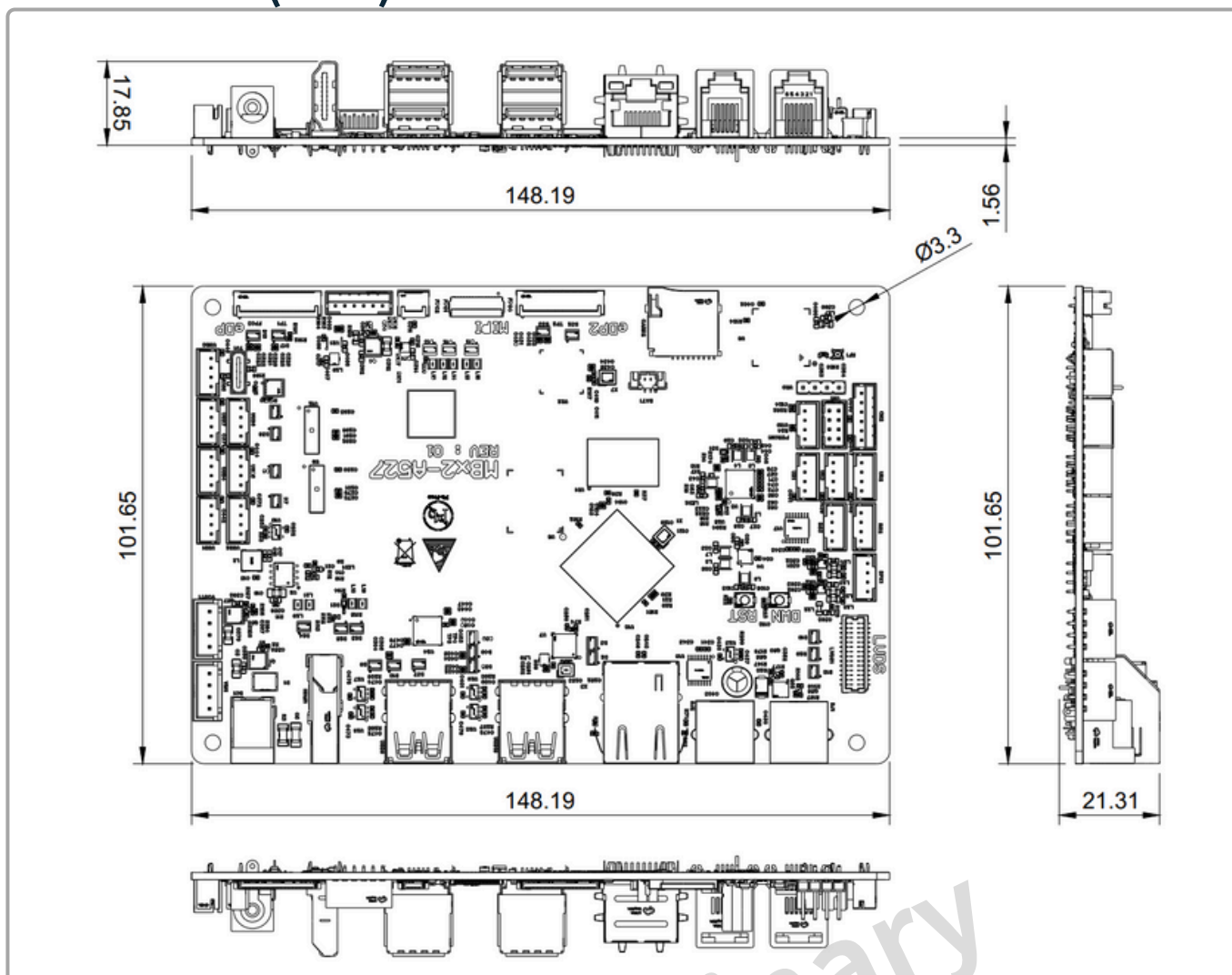
Specification		
System	**Processor**	8x ARM Cortex-A55 up to 2.0GHz
	Memory	Onboard LPDDR4 4GB
	Storage	32GB eMMC (Option to 64GB/128GB)

Dimension(mm)

Specification		
System	**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
	Display	MIPI DSI, eDP (eDP1/eDP2), LVDS, HDMI
	Touch	Support via I2C signal
Connectivity	**WLAN**	WiFi 6+ BT 5.4 for Option
	LAN	10/100/1000Mbps
I/O Interface	**Display Port**	1x HDMI
	Ethernet	1x RJ45 connector w/ LED indicator
	USB Port	4x USB 3.0 Type-A
	Serial Port	1x RJ11 (6P4C) for RS232
	Cash Drawer	1x RJ12 6P/6C
	Power Input	1x DC Jack, 5.5/ 2.5mm

Specification		
Internal I/O	**USB Ports**	7x USB 2.0 (PH 2.0mm)
	Serial Ports	2x RS232 (PH 2.0mm), 3x TTL UART (PH 2.0mm, 4P)
	Display Port	1x LVDS, 1x MIPI DSI, 2x eDP
	Touch Conn.	1x 6-Pin Connector (PH 2.0mm)/1 x 6-Pin FFC Connector, P=0.5mm
	Audio	1x 1W speaker stereo Amp 4Ω
	RTC	Support via 1x PH 1.25mm
	Others	1x 12V IN Conn.(PH 2.5mm, 4P); 1x 12V Out conn. (PH 2.5mm, 4P); 1x Type-C for ADB; 1x Power Key/LED conn. (PH 2.0mm, 4P) ; 1x Reset KEY/GPIO (PH 2.0mm, 4P); 1x SPI Conn. (PH2.0mm, 6P); 1x RST Button, 1x DWN Button
Expansion		1x TF Card Slot
Power Supply		1x 12V DC Jack 5.5/2.5mm
Dimension		148.2 x101.6mm (in temporary)
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
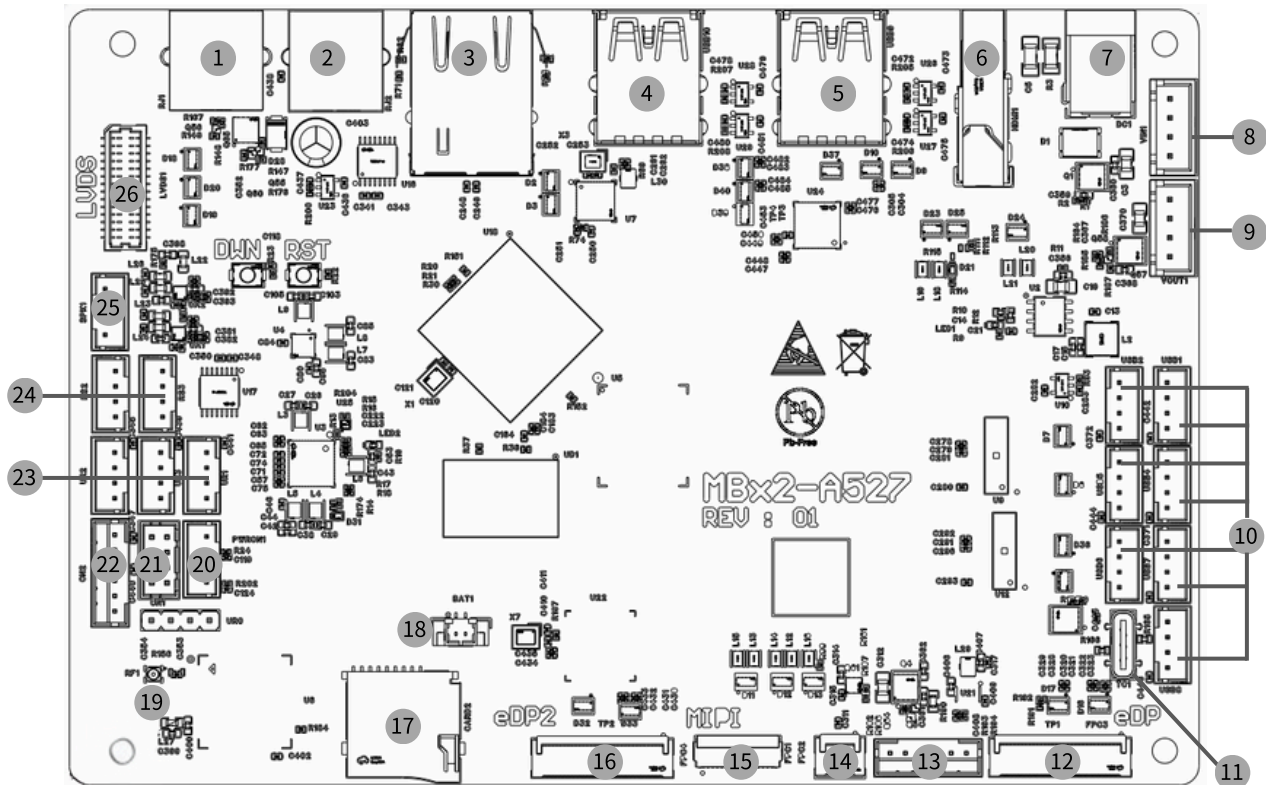
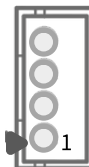|			
1	RJ12 (6P6C) for Cash Drawer	15	FPC1:MIPI DSI FFC Connector
2	RJ11(6P4C) for RS232	16	FPC4/TP2: eDP2, FFC Connector.
3	RJ45 Ethernet	17	BAT1: RTC Battery Conn.
4	USB 3.0 Type A (Stacked Type)	18	CARD2: TF Card Socket
5	USB 3.0 Type A (Stacked Type)	19	RF1: Wi-Fi Ant. IPEX-4
6	HDMI	20	PWRON1: Power KEY/LED
7	12V DC-in	21	CN1: Reset Key/GPIO
8	VIN1: 12V IN	22	CN2:SPI
9	VOUT1:12V Out	23	UR2/3/1: TTL UART 3.3V
10	USB2.0 Connector:7x USB 2.0; USB 1, 2,4,5,6,7,8	24	RS2/3: RS232
11	TC1: Type C for ADB	25	SPK1: 1W Speaker
12	FPC3: eDP1, FFC Connector	26	LVDS: LVDS Connector
13	TP1: I2C for Touch, Pin Header		
14	FPC2: I2C for Touch, FFC Connector		

① RJ12: 1x6P/6C Connector for Cash Drawer

PIN	Assignment
1	GND
2	CD-
3	Stat
4	12V
5	NC
6	NC

② RJ11: 1x 6P4C Connector for RS232
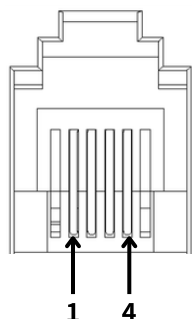
PIN	Assignment
1	RX
2	TX
3	GND
4	5V

⑦ DC-IN: 12V DC Jack 5.5/2.5mm

PIN	Assignment
1	GND
2	GND

⑧ VIN1: 12V IN
1x 4-Pin Header, PH 2.5mm
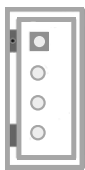
PIN	Assignment
1	GND
2	GND
3	12V IN
4	12V IN

⑨ VOUT1: 12V OUT
1x 4-Pin Header, PH 2.5mm
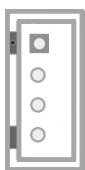
PIN	Assignment
1	GND
2	GND
3	12V OUT
4	12V OUT

⑩ USB: USB 2.0; USB 1, 2,4,5,6,7,8
7 x USB 2.0 , 4-Pin Header, PH 2.0mm

PIN	Assignment
4	GND
3	D+
2	D1
1	5V

⑫ & ⑯ FPC3/FPC4: eDP1/eDP2
30-Pin FFC Connector, P= 0.5mm

PIN	Assignment	PIN	Assignment
1	NC	16	GND
2	GND	17	HPD
3	D1n	18	GND
4	D1p	19	GND
5	GND	20	GND
6	D0n	21	GND
7	D0p	22	BL EN
8	GND	23	BL PWM
9	AUXp	24	NC
10	AUXn	25	NC
11	GND	26	12V
12	3.3V	27	12V
13	3.3V	28	12V
14	NC	29	12V
15	GND	30	NC
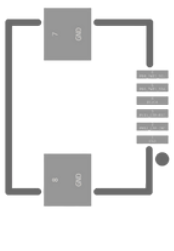
⑬ CN3 FPC2: I2C for Touch
1x 6-Pin Header, PH=2.0mm

PIN	Assignment
6	GND
5	INT
4	RESET
3	SCL
2	SDA
1	3.3V
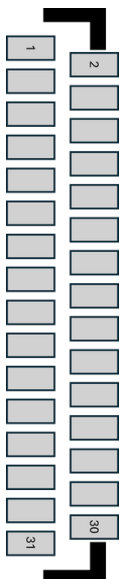
14   TP1: I2C for Touch
FFC Connector, P=0.5mm, 6P
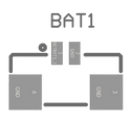
PIN	Assignment
6	GND
5	INT
4	RESET
3	SCL
2	SDA
1	3.3V

15   FPC1:MIPI DSI FFC Conn.
1x 31-Pin FPC Connector, P=0.3mm
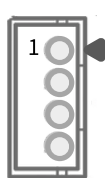
PIN	Assignment	PIN	Assignment
1	BL LED A	2	BL LED A
3	BL LED A	4	NC
5	BL LED K	6	BL LED K
7	BL LED K	8	BL LED K
9	GND	10	GND
11	D2p	12	D2n
13	GND	14	D1p
15	D1n	16	GND
17	CLKp	18	CLKn
19	GND	20	D0p
21	Don	22	GND
23	D3p	24	D3n
25	GND	26	1.8V
27	EN	28	GND
29	1.8V	30	3.3V
31	3.3V		

17   BAT1: RTC Battery
1x 2-Pin Header , PH=1.25mm
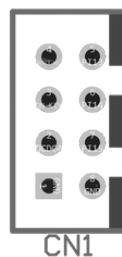
PIN	Assignment
1	3V
2	GND

20   POWRON1: Power Key/ LED
1x 4-Pin Header , PH 2.0mm

PIN	Assignment
1	LED-
2	LED+
3	P-Key-
4	P-Key+

21   CN1: Reset Key/GPIO
1x 2x4-Pin Header, PH 2.0mm
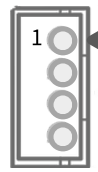
PIN	Assignment	PIN	Assignment
4	ResetKEY	5	GPIO
3	Download KEY	6	GPIO
2	3.3V	7	GPIO
1	GND	8	GND

22   CN2: SPI
1x6-Pin Header, PH 2.0mm
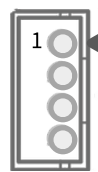
PIN	Assignment
6	3.3V
5	CS
4	MISO
3	MOSI
2	CLK
1	GND

23   UR2/3/1: UART 3.3V
3x 4-Pin Header, PH 2.0mm

PIN	Assignment
1	3.3V
2	RX
3	TX
4	GND

24   RS2/3: RS232
2x 4-Pin Header, PH=2.0mm

PIN	Assignment
1	3.3V
2	RX
3	TX
4	GND

25   SPK1: 1W Speaker
1x 4-Pin Header, PH 2.0mm
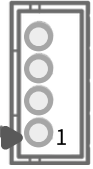
PIN	Assignment
4	R+
3	R-
2	L+
1	L-

26   LVDS1: LVDS
LVDS Connector
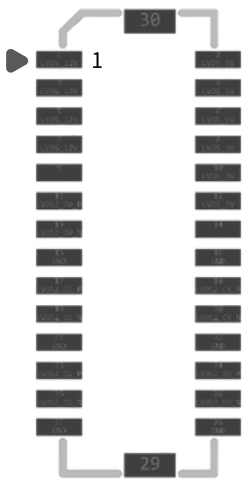
PIN	Assignment	PIN	Assignment
1	12V	2	5V
3	12V	4	5V
5	12V	6	5V
7	12V	8	3.3V
9	BL-EN	10	3.3V
11	D0p	12	3.3V
13	D0n	14	PWM
15	GND	16	GND
17	D1p	18	CLKp
19	D1n	20	CLKn
21	GND	22	GND
23	D2p	24	D3p
25	D2n	26	D3n
27	GND	28	GND