

CoreIPC

ITX120U-L26

Mini-ITX Industrial Motherboard Datasheet

Intel® Alder Lake / Raptor Lake Platform | Industrial Embedded Motherboard

Document	Datasheet
Model	ITX120U-L26
Issue	1.1
Product Type	Mini-ITX Industrial Motherboard
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This datasheet is prepared based on ITX120U-L26 User Manual Issue 1.1.

1. Product Overview

The ITX120U-L26 is a 170 x 170 mm Mini-ITX industrial motherboard supporting Intel® Alder Lake-U/P/H 12th Gen and Raptor Lake-U/P/H 13th Gen Core i3/i5/i7 processors. It is designed for commercial displays, machine vision, medical instruments, industrial control, financial equipment, cloud terminals and other embedded applications.

2. Key Features

- Supports Intel® Alder Lake-U/P/H 12th Gen and Raptor Lake-U/P/H 13th Gen Core i3/i5/i7 processors.
- Two DDR4 SO-DIMM slots supporting dual-channel DDR4-3200 memory, up to 64 GB according to the main specification sections.
- VGA or optional DP, HDMI 2.1 or optional dual HDMI, LVDS or optional eDP1, plus eDP2; supports multiple simultaneous or independent displays.
- Up to two Intel® I226 Ethernet ports with Wake-on-LAN and PXE support; single-LAN configuration is available.
- One SATA 3.0 interface plus one M.2 Key-M 2280/2242 PCIe 4.0 x4 slot supporting NVMe and SATA storage-device auto-detection.
- One M.2 Key-E slot for Wi-Fi/Bluetooth and one M.2 Key-B slot for 5G (3052), compatible with 4G (3042).
- Up to eight USB interfaces; rear USB 3.0 and internal USB 2.0 availability depends on the selected LAN/wireless configuration.
- Six serial ports. COM1/COM2 support RS232/RS485; COM2 can be hardware-modified for RS422, while COM3/COM4 require hardware modification for RS485/RS422 functions.
- Onboard ALC897 high-definition audio with MIC/Line-out and 2 ohm, 5 W stereo amplifier support.
- Mini-ITX 170 x 170 mm form factor; 12-19 V DC input; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
CPU	Supports Intel® Alder Lake-U/P/H 12th Gen and Raptor Lake-U/P/H 13th Gen Core i3/i5/i7 processors. Standard ordering examples include i3-1215U, i5-1235U, i7-1265U, i5-1240P, i5-12450H, i5-1340P, i5-1335U and i5-13420H.
Platform	Intel® Alder Lake / Raptor Lake U/P/H platform.
Memory	2 x DDR4 SO-DIMM slots; dual-channel DDR4-3200; maximum capacity 64 GB according to the main specification sections.
Graphics / Display	Integrated Intel® Iris® Xe Graphics eligible graphics; DirectX 12.1 and OpenGL 4.6; 4K display support. 1 x VGA (optional DP), 1 x HDMI 2.1 (optional dual HDMI), 1 x LVDS (optional eDP1), and 1 x eDP2.
Ethernet	Up to 2 x Intel® I226 Ethernet ports; supports Wake-on-LAN and PXE. Single-LAN configuration available.
Storage	1 x SATA 3.0 interface; 1 x M.2 Key-M 2280/2242 PCIe 4.0 x4 slot supporting NVMe and SATA storage-device auto-detection.
Audio	Onboard Realtek ALC897 6-channel high-definition audio; MIC/Line-out; amplifier support for 2 ohm, 5 W stereo.
Expansion	1 x M.2 Key-B for 5G (3052), compatible with 4G (3042); 1 x M.2 Key-E for PCIe Wi-Fi/BT and CNVi2 Wi-Fi 6E modules.
USB	Rear panel supports up to 4 x USB 3.0; dual-LAN configuration supports 2 x USB 3.0 because USB3/LAN2 resources are mutually exclusive. Internal USB 2.0 count depends on configuration.
Serial Ports	6 x COM headers. COM1/COM2 support RS232/RS485; COM2 can be hardware-modified for RS422. COM3/COM4 can support additional RS485/RS422 functions through hardware modification.
GPIO	4-channel input/output GPIO.
TPM	2 x 6-pin TPM 2.0 external header; optional onboard TPM 2.0.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware reset, 256 levels, 0-255 seconds.
Operating System	Windows 10 / Windows 11 / Linux.
Power Input	12-19 V DC input according to the detailed specifications; Ordering Information lists 19 V for standard models.
Fan	1 x 4-pin CPU fan connector and 1 x 4-pin system fan connector.
Dimensions	170 mm x 170 mm.
Environment	Operating: -10°C to 60°C; storage: -20°C to 70°C; 5%-95% RH, non-condensing.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x HDMI 2.1; optional dual-stack HDMI. 1 x VGA; optional DP instead of VGA.
USB	Up to 4 x USB 3.0 ports. USB3 and LAN2 resources are mutually exclusive; dual-LAN configuration supports 2 x USB 3.0.
LAN	Up to 2 x RJ-45 Ethernet ports using Intel® I226 controllers; single-LAN option available.
Audio	1 x Line-out jack (green), 1 x MIC jack (red).
Optional Controls	Optional Clear CMOS push-button (configurable as one-key recovery) and optional auto-power-on DIP switch.
Power	1 x 12-19 V DC power input.

4.2 Internal I/O and Headers

Interface / Header	Description
eDP2	1 x 2 x 15-pin eDP2 interface.
LVDS / eDP1	1 x 2 x 15-pin LVDS interface; mutually exclusive with optional eDP1.
Backlight Power	1 x 6-pin display backlight power connector.
USB 2.0	4 x 2 x 5-pin USB 2.0 headers. Internal USB count depends on LAN and wireless configuration; the source manual references up to 8 x USB 2.0.
Front Audio	1 x 2 x 5-pin front-panel audio header supporting Line-out and MIC.
Amplifier	1 x 4-pin amplifier connector, 2 ohm / 5 W stereo support.
Serial	6 x COM headers. COM1-COM6 default to RS232; optional RS485/RS422 functions depend on port and hardware configuration.
ATX Power	1 x 2 x 2-pin ATX power connector.
SATA Power	1 x 4-pin SATA drive power connector.
LPT	1 x LPT interface.
Front Panel	1 x 2 x 5-pin front-panel switch/button/LED header.
GPIO	1 x 2 x 5-pin GPIO header supporting 4 inputs and 4 outputs.
TPM	1 x 2 x 6-pin TPM 2.0 header; optional onboard TPM 2.0.
Fans	1 x 4-pin CPU fan header and 1 x 4-pin system fan header.

5. Display and LVDS / eDP Support

The ITX120U-L26 provides flexible display options including VGA or optional DP, HDMI 2.1 or optional dual HDMI, LVDS or optional eDP1, and eDP2. The source manual lists support for multiple simultaneous or independent displays. Panel operating voltage, backlight voltage, PWM polarity and LVDS enable/resolution are configurable through onboard jumpers and switches.

Item	Description
External Display	1 x HDMI 2.1 with optional dual-stack HDMI; 1 x VGA with optional DP. HDMI/DP maximum resolution is listed as 4096 x 2160 @ 60 Hz.
Internal LVDS	1 x 2 x 15-pin LVDS header. LVDS is mutually exclusive with optional eDP1.
Internal eDP	eDP1 is optional through the LVDS position; 1 x dedicated eDP2 interface is provided.
Panel Voltage	Panel operating voltage options: 3.3 V, 5 V and 12 V; default 3.3 V.
Backlight Power	Backlight power options: 12 V or 5 V; default 12 V.
LVDS Settings	LVDS enable, PWM polarity and resolution are configurable by jumpers/DIP switch. The source manual lists resolutions up to 1920 x 1080.

6. Serial Port Configuration

Port	Default / Optional Function
COM1	RS232 by default; supports RS485 through jumper selection.
COM2	RS232 by default; supports RS485 through jumper selection; RS422 is available through hardware modification.
COM3	RS232 by default; RS485/RS422 requires hardware

Port	Default / Optional Function
	modification and is routed through JRS1.
COM4	RS232 by default; RS485 requires hardware modification and is routed through JRS1.
COM5-COM6	RS232 by default.
Configuration Note	The standard 2-COM version supports 1 x RS485; the 6-COM version supports 2 x RS485. Additional COM3/COM4 RS485/RS422 functions require hardware modification; consult CoreIPC before ordering.

7. Power, Cooling and Reliability Functions

Item	Description
Power Input	12-19 V DC input according to the detailed specifications. Ordering Information lists 19 V for standard configurations.
Recommended Adapter	The source manual recommends a minimum 19 V / 6.3 A adapter for bare-board reference.
AT / ATX Mode	Supports AT/ATX power mode selection through the AT-ATX1 jumper.
CPU / System Fan	1 x 4-pin CPU smart-fan interface and 1 x 4-pin system smart-fan interface.
Watchdog	Supports hardware reset, 256 levels, 0-255 seconds.
CMOS Clear	JBAT1 1 x 3-pin Clear CMOS jumper; optional rear-panel Clear CMOS push-button.
TPM	2 x 6-pin TPM 2.0 external header; optional onboard TPM 2.0.

8. Mechanical and Environmental Information

Item	Description
Form Factor	Mini-ITX industrial motherboard.
Dimensions	170 mm x 170 mm.
Operating Temperature	-10°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% relative humidity, non-condensing.
Installation Notes	Use ESD protection and power off the system before installation, removal or hardware reconfiguration.

9. Ordering Information

Model	Description
ITX120U-L26-1215U	Core i3-1215U 2P/4E 1.2-4.4 GHz 19 V
ITX120U-L26-1235U	Core i5-1235U 2P/8E 1.3-4.4 GHz 19 V
ITX120U-L26-1265U	Core i7-1265U 2P/8E 1.8-4.8 GHz 19 V
ITX120U-L26-1240P	Core i5-1240P 4P/8E 1.7-4.4 GHz 19 V
ITX120U-L26-12450H	Core i5-12450H 4P/4E 2.0-4.4 GHz 19 V
ITX120U-L26-1340P	Core i5-1340P 4P/8E 1.9-4.6 GHz 19 V
ITX120U-L26-1335U	Core i5-1335U 2P/8E 1.3-4.6 GHz 19 V
ITX120U-L26-13420H	Core i5-13420H 4P/4E 2.1-4.6 GHz 19 V
Common Configuration	DDR4 x2; HDMI x1; VGA x1; LVDS x1; eDP x1; LAN x2; USB x8; LPT x1; COM x6 / RS485 x2. Options vary by project.

10. Compliance and Documentation Notes

- Certification and compliance information is not specified in the source manual. Contact CoreIPC for CE, RoHS, EMC or project-specific documentation.
- The Ordering Information table lists 19 V for all standard models, while the detailed motherboard specifications state support for 12-19 V DC input. Confirm the final power adapter and selected configuration before shipment.
- The main Product Description and Motherboard Specifications state 2 x DDR4 SO-DIMM slots, while the Memory Installation section states 1 x 260-pin DDR4 SO-DIMM slot. Confirm the actual production configuration before order placement.

11. Contact Information

Company	CoreIPC
Sales Team	CoreIPC Sales Team
Email	sales@coreipc.com
Website	https://www.coreipc.com/

Disclaimer: This datasheet was compiled from ITX120U-L26 User Manual Issue 1.1. Product specifications, interface counts and optional functions may vary by model and project configuration. Please confirm the selected model before order placement. All product names, trademarks and registered trademarks are the property of their respective owners.