

CoreIPC

ITX50D

Mini-ITX Industrial Motherboard Datasheet

Intel® Jasper Lake Platform

Document	Datasheet
Model	ITX50D
Issue	1.1
Product Type	Mini-ITX Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITX50D User Manual Issue 1.1.

1. Product Overview

The ITX50D is a CoreIPC Mini-ITX industrial motherboard supporting Intel® Jasper Lake processors. It integrates DDR4 memory, VGA/HDMI/LVDS or optional eDP display, up to dual Gigabit Ethernet, SATA and mSATA storage, Mini PCIe expansion, multiple USB and serial interfaces, LPT, GPIO, TPM 2.0, and 12 V DC input for commercial display, communication control, medical equipment, industrial control, financial equipment, cloud terminals, and other embedded applications.

2. Key Features

- Integrated Intel® Celeron® N5095 2.0 GHz quad-core processor; N5105 configuration is also listed in Ordering Information; compatible with Intel® Jasper Lake processors.
- 1 x DDR4 SO-DIMM slot supporting single-channel DDR4 memory up to 2933 MHz. Detailed specifications list up to 32 GB; Product Description states up to 16 GB.
- VGA or optional DisplayPort, HDMI 1.4, and LVDS or optional eDP display interfaces; supports triple-display operation depending on configuration.
- Up to 2 x Realtek RTL8111H Gigabit Ethernet ports with Wake-on-LAN and PXE; single-LAN configuration optional.
- Storage includes 1 x SATA 3.0 connector, an optional 2.5-inch SATA connector, and 1 x full-size mSATA 3.0 slot.
- 1 x Mini PCIe slot for half/full-size Wi-Fi or 4G, plus an optional half-size Mini PCIe slot or optional PCIe x1 expansion.
- Supports up to 10 USB ports on single-LAN configurations or 8 USB ports on dual-LAN configurations, including 2 x USB 3.0.
- Provides 6 x COM ports. COM1 supports RS232/RS485; COM2/COM3 support RS232/RS485/RS422; COM4 supports RS232/RS485; COM5/COM6 support RS232.
- Onboard Realtek ALC897 7.1-channel HD audio with Mic-in, Line-out, and dual-channel 5 W amplifier output for 2-ohm speakers.
- Mini-ITX 170 x 170 mm; 12 V DC input; fanless thermal design; onboard TPM 2.0; operating temperature -20°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Integrated Intel® Celeron® N5095 quad-core processor, 2.0 GHz, 15 W TDP; compatible with Intel® Jasper Lake processors. N5105 configuration is also listed in Ordering Information.
Memory	1 x SO-DIMM; single-channel DDR4 up to 2933 MHz. Detailed specifications: up to 32 GB. Product Description: up to 16 GB.
Graphics / Display	Intel® UHD Graphics 600; 1 x VGA or DP, 1 x HDMI 1.4 up to 4096 x 2160 @ 30 Hz, and 1 x LVDS or eDP interface. Triple-display support depends on configuration.
Ethernet	Up to 2 x Realtek RTL8111H Gigabit Ethernet controllers; single-LAN option; Wake-on-LAN and PXE support.
Storage	1 x SATA 3.0 connector, up to 6 Gbps; 1 x optional 2.5-inch SATA connector, mutually exclusive with the 7-pin SATA port; 1 x full-size mSATA 3.0 slot.
Audio	Realtek ALC897 7.1-channel HD audio; Mic-in, Line-out, and dual-channel 5 W amplifier output for 2-ohm speakers.
Expansion	1 x Mini PCIe slot for half/full-size Wi-Fi/4G; 1 x optional half-size Mini PCIe slot for Wi-Fi; 1 x optional PCIe x1 slot.
USB	2 x USB 3.0 plus USB 2.0 interfaces; up to 10 USB ports on single-LAN versions or 8 on dual-LAN versions.
Serial Ports	6 x COM. COM1 supports RS232/RS485; COM2 and COM3 support RS232/RS485/RS422; COM4 supports RS232/RS485; COM5/COM6 support RS232.
Legacy I/O	1 x LPT header.
GPIO	4-channel GPIO input/output.
TPM	Onboard TPM 2.0 chip.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
OS Support	Windows 10 / Linux.
Power	12 V DC input; AT/ATX power-mode selection.
Dimensions	170 mm x 170 mm.
Environment	Operating: -20°C to 60°C; Storage: -20°C to 70°C; Humidity: 5%-95% RH, non-condensing.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x HDMI; 1 x VGA in standard configuration.
USB	2 x USB 3.0; 2 x USB 2.0 available in single-LAN configuration.
LAN	Up to 2 x RJ45 Gigabit Ethernet ports; LAN2 is mutually exclusive with two rear USB 2.0 ports.
Audio	1 x Line-out (green); 1 x Mic-in (red).
Power	1 x 12 V DC input.

4.2 Internal I/O and Headers

Interface / Header	Description
VGA	1 x JVGA header sharing signals with the DB15 VGA port.
LVDS / eDP	1 x dual-channel 24-bit LVDS header; optional eDP header. LVDS and eDP are mutually exclusive; eDP requires component changes.
Backlight	1 x 6-pin panel backlight connector; selectable panel and backlight voltage.
USB 2.0	3 x 2 x 5-pin USB 2.0 headers; single-LAN version supports 6 onboard USB 2.0 ports, dual-LAN version supports 4.
Serial	2 x standard JCOM headers plus 1 x 2 x 20-pin four-port serial header for COM3-COM6.
RS485 / RS422	COM1 supports RS485; COM2 supports RS485/RS422; COM3 optional RS485/RS422; COM4 optional RS485.
LPT	1 x LPT parallel-port header.
Audio	1 x front-audio header; 1 x 4-pin amplified speaker output header.
Power / Panel	1 x ATX 4-pin power connector; 1 x drive-power connector; 1 x front-panel switch/LED header.
Fan / GPIO	1 x reserved CPU fan header; 1 x reserved system fan header; 1 x GPIO header.

5. Display Support

ITX50D provides VGA or optional DisplayPort, HDMI 1.4, and LVDS or optional eDP display interfaces. The source manual specifies HDMI up to 4096 x 2160 @ 30 Hz. LVDS is the default embedded display interface, while eDP is optional and requires component changes. The platform supports synchronous or asynchronous triple-display output depending on the selected configuration.

Item	Description
Integrated Graphics	Intel® UHD Graphics 600.
VGA / DP	1 x VGA standard; DisplayPort is an optional configuration.
HDMI	1 x HDMI 1.4 output supporting up to 4096 x 2160 @ 30 Hz.
LVDS	1 x dual-channel 24-bit LVDS interface; default configuration.
eDP	Optional; mutually exclusive with LVDS and not supported by default. Component changes are required.
Multi-display	Supports synchronous or asynchronous triple-display output depending on selected configuration.

6. Serial Port Configuration

Port / Source	Default / Optional Function
COM1	RS232 default; supports RS485 by jumper.
COM2	RS232 default; supports RS485 by jumper; optional RS422 requires hardware modification.
COM3	RS232 default; optional RS485/RS422 requires hardware modification.
COM4	RS232 default; optional RS485 requires hardware modification.
COM5-COM6	RS232.
Differential Serial	Source manual lists 2 x RS485 by default and optional 4 x RS485 or 2 x RS422 configurations.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	12 V DC input.
AT / ATX Mode	AT-ATX1 jumper selects automatic power-on behavior.
Cooling	Fanless thermal design; reserved 4-pin CPU and system fan headers.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
TPM	Onboard TPM 2.0 chip.
Clear CMOS	JBAT1 1 x 3-pin Clear CMOS jumper.
USB Wake-up	JUSB_PWR1 supports USB 3.0 standby power and keyboard/mouse wake-up.

8. Mechanical and Environmental Information

Item	Description
Form Factor	Mini-ITX industrial motherboard.
Dimensions	170 mm x 170 mm.
Operating Temperature	-20°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Power Input	12 V DC.
Cooling	Fanless-capable design with reserved CPU and system fan headers.

9. Ordering Information

Model	Description
ITX50D-L12 VER1.1	N5095; 4 cores; 2.0 GHz; DDR4; HDMI + VGA + LVDS; 1 LAN; 10 USB; LPT; 2 COM / 1 RS485; 12 V DC.
ITX50D-L16 VER1.1	N5095; 4 cores; 2.0 GHz; DDR4; HDMI + VGA + LVDS; 1 LAN; 10 USB; LPT; 6 COM / 2 RS485; 12 V DC.
ITX50D-L26 VER1.1 - N5095	N5095; 4 cores; 2.0 GHz; DDR4; HDMI + VGA + LVDS; 2 LAN; 8 USB; LPT; 6 COM / 2 RS485; 12 V DC.
ITX50D-L26 VER1.1 - N5105	N5105; 4 cores; 2.0 GHz; DDR4; HDMI + VGA + LVDS; 2 LAN; 8 USB; LPT; 6 COM / 2 RS485; 12 V DC.

10. Compliance and Documentation Notes

- Certification and compliance information is not specified in the source manual. Contact CoreIPC for project-specific certification or compliance documentation.
- Memory capacity differs by section: Product Description states DDR4 up to 2933 MHz and up to 16 GB, while the detailed Motherboard Specifications table states up to 32 GB. This datasheet uses 32 GB in the main specification table and flags the discrepancy for confirmation before ordering.
- Display and I/O resources vary by configuration. The detailed specification states that LAN2 is mutually exclusive with two rear USB 2.0 ports, LVDS and eDP are mutually exclusive, and eDP support requires component changes. Single-LAN models can support more USB ports than dual-LAN models.

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 ITX50D User Manual Issue 1.1. Product specifications, interface counts, supported functions and optional configurations may vary by production revision. Please confirm the selected configuration before order placement. All product names, trademarks and registered trademarks are the property of their respective owners.