

CoreIPC

ITX310P

Mini-ITX Industrial Motherboard Datasheet

Intel® LGA1151 Platform | B250 / B365 Chipset

Document	Datasheet
Model	ITX310P
Issue	1.1
Product Type	Mini-ITX Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITX310P User Manual Issue 1.1.

1. Product Overview

The ITX310P is a 170 x 170 mm Mini-ITX industrial motherboard supporting 6th-, 7th-, 8th- and 9th-generation Intel® LGA1151 Celeron®, Pentium® and Core™ i3/i5/i7 processors. It provides dual Gigabit Ethernet, PCIe x16 expansion, multiple SATA ports, up to ten USB ports and six serial ports for industrial and embedded applications.

2. Key Features

- Supports 6th-, 7th-, 8th- and 9th-generation Intel® LGA1151 Celeron®, Pentium® and Core™ i3/i5/i7 processors.
- Two 288-pin DDR4 DIMM slots supporting 1866/2133/2400 MHz DDR4 1.2 V memory, up to 64 GB.
- Supports VGA and HDMI display outputs with integrated Intel® HD Graphics and 4K output support.
- Two Realtek RTL8111H Gigabit Ethernet ports with Wake-on-LAN and PXE boot support.
- Up to four SATA 3.0 ports; H310C configuration supports three SATA 3.0 ports.
- One mSATA slot for SSD by default or Wi-Fi as an option, plus one PCIe 3.0 x16 expansion slot.
- Supports 4 x USB 3.0 and 6 x USB 2.0 ports for a total of up to 10 USB interfaces.
- Six RS232 serial ports; COM1 and COM2 can optionally support RS485 using hardware jumper and BIOS settings.
- Onboard Realtek ALC897 HD audio supporting microphone input and line output.
- Mini-ITX 170 x 170 mm form factor; 24-pin ATX power input; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
CPU	Supports 6th-, 7th-, 8th- and 9th-generation Intel® LGA1151 Celeron®, Pentium® and Core™ i3/i5/i7 processors.
Chipset	Intel® B250 or B365 according to the document title and Ordering Information. The detailed specification also lists H310C.
Memory	2 x 288-pin DDR4 DIMM slots; DDR4-1866/2133/2400, 1.2 V; maximum capacity 64 GB. The detailed specification describes single-channel memory.
Graphics / Display	Integrated Intel® HD Graphics; DirectX 12 and OpenGL 4.5; 4K output support. 1 x VGA up to 1920 x 1200 @ 60 Hz and 1 x HDMI 1.4 up to 4096 x 2304 @ 24 Hz.
Ethernet	2 x Realtek RTL8111H Gigabit Ethernet controllers; supports Wake-on-LAN and PXE boot.
Storage	4 x SATA 3.0 ports; H310C supports 3 x SATA 3.0 ports.
Audio	Onboard Realtek ALC897 HD audio according to the detailed specification; supports microphone input and line output.
Expansion	1 x mSATA 3.0 slot for SSD by default or Wi-Fi as an option; 1 x PCIe 3.0 x16 slot.
USB	4 x USB 3.0 and 6 x USB 2.0 ports, up to 10 USB interfaces total. Rear I/O provides 4 x USB 3.0 and 2 x USB 2.0; onboard headers provide 4 x USB 2.0.
Serial Ports	6 x RS232 serial ports. COM1 and COM2 use DB9 connectors and optionally support RS485 through hardware jumper and BIOS settings; COM3-COM6 are provided through one 2 x 20-pin header.
GPIO	4-channel GPIO input/output.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware reset with 256 programmable levels, 0-255 seconds.
Operating System	Windows 7 / Windows 10 / Linux.
Power Input	24-pin ATX power supply; additional 4-pin ATX connector.
Fan	1 x 4-pin CPU fan header and 1 x 4-pin system fan header.
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 1.4; 1 x VGA.
USB	4 x USB 3.0; 2 x USB 2.0.
LAN	2 x RJ-45 Gigabit Ethernet ports.
Serial	2 x DB9 RS232 ports for COM1 and COM2; optional RS485 support.
Audio	1 x dual audio jack assembly for Line-out and MIC input.
PS/2	1 x PS/2 port for keyboard and mouse.

4.2 Internal I/O and Headers

Interface / Header	Description
USB 2.0	2 x 2 x 5-pin headers supporting 4 x USB 2.0 ports.
Serial	COM3-COM6 through 1 x 2 x 20-pin standard four-port serial header.
Front Audio	1 x 2 x 5-pin front-panel audio header.
ATX Power	1 x 24-pin ATX power connector plus 1 x 4-pin ATX power connector.
Front Panel	1 x 2 x 5-pin front-panel switch and LED header.
GPIO	1 x 2 x 5-pin GPIO header supporting 4-channel GPIO input/output.
Fans	1 x 4-pin CPU fan header and 1 x 4-pin system fan header.
SATA	Up to 4 x SATA 3.0 ports; H310C supports 3 x SATA 3.0 ports.
Expansion	1 x PCIe 3.0 x16 slot and 1 x mSATA 3.0 slot.

5. Display and LVDS Support

The ITX310P provides one VGA output and one HDMI 1.4 output. The source manual lists VGA up to 1920 x 1200 @ 60 Hz and HDMI up to 4096 x 2304 @ 24 Hz. Integrated Intel® HD Graphics supports DirectX 12, OpenGL 4.5 and 4K display output.

Item	Description
Integrated Graphics	Intel® HD Graphics with DirectX 12, OpenGL 4.5 and 4K display support.
VGA	1 x VGA output, maximum resolution 1920 x 1200 @ 60 Hz.
HDMI	1 x HDMI 1.4 output, maximum resolution 4096 x 2304 @ 24 Hz.
Display Interfaces	VGA and HDMI are both listed as supported interfaces in the source manual.

6. Serial Port Configuration

Port	Default / Optional Function
COM1	DB9 RS232 by default; optional RS485. Requires hardware jumper and BIOS mode selection.
COM2	DB9 RS232 by default; optional RS485. Requires hardware jumper and BIOS mode selection.
COM3-COM6	RS232 through one 2 x 20-pin internal header.
RS485 Configuration	Set JCOM1_SW1 / JCOM2_SW2 jumpers and select RS232/RS485 mode in BIOS under IT8786 Super IO Configuration.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	24-pin ATX power supply.
Auxiliary Power	1 x 4-pin ATX power connector.
AT / ATX Mode	Supports AT/ATX power-mode selection through the AT-ATX1 jumper.
CPU Fan	1 x 4-pin CPU fan header with GND, +12 V, DET and PWM.
System Fan	1 x 4-pin system fan header with GND, +12 V, DET and PWM.
Watchdog	Hardware reset with 256 programmable levels, 0-255 seconds.
CMOS Clear	JBAT1 1 x 3-pin Clear CMOS jumper.

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
ITX310P VER1.1	B250/B365; 2 x DDR4 DIMM; PCIe x16; 1 x HDMI; 1 x VGA; 4 x SATA; 2 x LAN; 10 x USB; PS/2; 6 COM / up to 2 RS485; ATX power.
Chipset Note	The detailed specification also lists Intel® H310C. Confirm the production chipset before ordering.
Processor Support	6th/7th/8th/9th Gen Intel® LGA1151 Celeron®, Pentium® and Core™ i3/i5/i7. Actual CPU support depends on chipset and BIOS configuration.
Options	mSATA SSD / optional Wi-Fi and COM1/COM2 RS485 functions depend on the selected production configuration.

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.
- The Ordering Information and document title identify B250/B365, while the detailed motherboard specification also lists H310C as a supported chipset. Confirm the production chipset before ordering.
- The block diagram labels the audio codec as ALC662, while the detailed motherboard specification lists ALC897. This datasheet follows the detailed specification table; confirm the production audio codec for the selected configuration.

11. Contact Information

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Disclaimer: This datasheet was compiled from ITX310P User Manual Issue 1.1. Product specifications, chipset, interface counts and optional functions may vary by production configuration. Please confirm the selected configuration before order placement. All product names, trademarks and registered trademarks are the property of their respective owners.