

CoreIPC

ITX810U

Mini-ITX Industrial Motherboard Datasheet

Intel® Coffee Lake-U / Comet Lake-U Platform

Document	Datasheet
Model	ITX810U
Issue	1.1
Product Type	Mini-ITX Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITX810U User Manual Issue 1.1.

1. Product Overview

The ITX810U is a 170 x 170 mm Mini-ITX industrial motherboard for Intel® Coffee Lake-U and Comet Lake-U low-power processors. It supports multiple display interfaces, up to dual Gigabit Ethernet, M.2 and Mini PCIe expansion, multiple USB and serial ports, and 12 V DC input for industrial and embedded applications.

2. Key Features

- Supports Intel® Coffee Lake-U and Comet Lake-U Celeron®, Pentium®, and Core™ i3/i5/i7 low-power processors.
- Two DDR4 SO-DIMM slots supporting dual-channel DDR4-2400 memory, up to 64 GB.
- Supports VGA or optional DP, HDMI, and LVDS or eDP for synchronous/asynchronous triple-display output.
- Up to two Realtek RTL8111H Gigabit Ethernet ports with Wake-on-LAN and PXE support.
- Storage includes 1 x SATA 3.0 plus 1 x M.2 Key M 2242/2280 slot supporting SATA/NVMe self-adaptation.
- Expansion includes 1 x Mini PCIe slot and 1 x M.2 Key E interface for wireless connectivity.
- Supports up to 9 USB interfaces, including USB 3.0 and USB 2.0 ports/headers depending on LAN configuration.
- Six serial ports; COM1-COM4 can support RS485 by configuration, and COM3 can optionally support RS422.
- Onboard Realtek ALC897 7.1-channel audio with MIC, Line-out and 2 ohm / 5 W dual-channel amplifier support.
- Mini-ITX 170 x 170 mm form factor; 12 V DC input; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
CPU	Intel® Coffee Lake-U or Comet Lake-U Celeron®, Pentium®, and Core™ i3/i5/i7 low-power processors. Example listed CPUs include Core i5-8265U and Core i5-10210U.
Memory	2 x 260-pin DDR4 SO-DIMM slots, dual-channel DDR4-2400, up to 64 GB.
Graphics / Display	Integrated Intel® UHD Graphics (CPU dependent). 1 x VGA or optional DP; 1 x HDMI; 1 x LVDS or eDP. Triple-display synchronous/asynchronous support. HDMI up to 4K @ 30 Hz; optional DP up to 4K @ 60 Hz.
Ethernet	Up to 2 x Realtek RTL8111H Gigabit Ethernet controllers; single-LAN option available; Wake-on-LAN and PXE support.
Storage	1 x SATA 3.0; 1 x M.2 Key M 2242/2280 slot supporting M.2 SATA and NVMe self-adaptation.
Audio	Onboard Realtek ALC897 7.1-channel HD audio; MIC, Line-out and 2 ohm / 5 W dual-channel amplifier support.
Expansion	1 x Mini PCIe slot (mSATA/4G by default depending on configuration; optional Wi-Fi/4G by component change); 1 x M.2 Key E interface for Wi-Fi/Bluetooth.
USB	Up to 9 USB ports. Rear I/O includes 2 x USB 3.0 and up to 4 x USB 2.0 depending on configuration; additional USB 2.0 headers are provided onboard.
Serial Ports	6 x COM ports. COM1/COM2/COM3/COM4 can support RS485; default configuration supports 2 x RS485. COM3 can optionally support RS422 by hardware adjustment.
Parallel Port	1 x onboard LPT header.
GPIO	4-channel GPIO input/output.
BIOS	64 Mb Flash ROM.
Watchdog	Firmware reset function with 256 levels, 0-255 seconds.
Operating System	Windows 10 / Windows 11 / Linux.
Power Input	12 V DC input; additional 2 x 2-pin ATX_IN1 12 V power connector. Supports AT/ATX mode selection.
Fan	1 x 4-pin CPU fan header and 1 x 4-pin system smart 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 x VGA by default or optional DP.
USB	2 x USB 3.0; USB 2.0 count depends on single-LAN / dual-LAN configuration.
LAN	Up to 2 x RJ-45 Gigabit Ethernet ports; single-LAN option available.
Audio	1 x Line-out (green); 1 x MIC (red).
Power	1 x 12 V DC input.
Optional Controls	Clear CMOS switch and power-on/off selection switch are optional and not populated by default.

4.2 Internal I/O and Headers

Interface / Header	Description
Display	1 x 2 x 8-pin JHDMI header (optional); 1 x 1 x 12-pin JVGA header; 1 x 2 x 15-pin LVDS header; 1 x 2 x 15-pin eDP header; 1 x 1 x 6-pin backlight power connector.
USB 2.0	Multiple 2 x 5-pin / 1 x 4-pin USB 2.0 headers. Header population varies between single-LAN and dual-LAN configurations.
Serial	6 x COM total. COM1/COM2 standard headers plus COM3-COM6 through one 2 x 20-pin header.
LPT	1 x 2 x 13-pin LPT header.
Front Audio	1 x 2 x 5-pin front audio header.
Amplifier	1 x 1 x 4-pin amplifier header supporting 2 ohm / 5 W dual-channel output.
SATA Power	1 x 1 x 4-pin SATA drive power connector.
ATX Power	1 x 2 x 2-pin 12 V ATX IN1 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 inputs and 4 outputs.
Fans	1 x 4-pin CPU fan header and 1 x 4-pin system fan header.

5. Display and LVDS Support

The ITX810U supports one HDMI output, one VGA output with optional DP, and one LVDS or eDP output. The source manual specifies HDMI up to 4K @ 30 Hz, optional DP up to 4K @ 60 Hz, and synchronous/asynchronous triple-display operation.

Item	Description
Integrated Graphics	Intel® UHD Graphics, dependent on the selected processor.
VGA / DP	VGA is standard; DP is optional. The source manual lists optional DP up to 4K @ 60 Hz.
HDMI	1 x HDMI output, up to 4K @ 30 Hz.
LVDS / eDP	1 x LVDS or eDP interface, mutually exclusive; LVDS is the default configuration.
Multi-display	Supports VGA/DP + HDMI + LVDS/eDP synchronous/asynchronous triple-display output.

6. Serial Port Configuration

Port	Default / Optional Function
COM1	RS232 by default; supports RS485 through jumper configuration.
COM2	RS232 by default; supports RS485 through jumper configuration.
COM3	RS232 by default; optional RS485 or RS422 requires hardware adjustment.
COM4	RS232 by default; optional RS485 requires hardware adjustment.
COM5 / COM6	RS232.
Default Serial Mix	The source block diagram notes support for 6 x RS232, or 1 x RS422 + 2 x RS485 + 3 x RS232, or 4 x RS485 + 2 x RS232 depending on configuration.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	12 V DC input.
ATX Power Header	1 x 2 x 2-pin ATX IN1: Pins 1-2 GND, Pins 3-4 12 V.
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	Firmware reset function, 256 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
ITX810U-L16-10210U VER1.1	Core i5-10210U; 1 LAN; 2 x DDR4; HDMI; VGA; LVDS; 9 USB; 6 COM / 2 RS485; 12 V.
ITX810U-L26-8265U VER1.1	Core i5-8265U; 2 LAN; 2 x DDR4; HDMI; VGA; LVDS; 9 USB; 6 COM / 2 RS485; 12 V.
ITX810U-L26-10310U VER1.1	Core i5-10310U; 2 LAN; 2 x DDR4; HDMI; VGA; LVDS; 9 USB; 6 COM / 2 RS485; 12 V.
ITX810U-L26-10610U VER1.1	Core i7-10610U; 2 LAN; 2 x DDR4; HDMI; VGA; LVDS; 9 USB; 6 COM / 2 RS485; 12 V.
ITX810U-L26-10810U VER1.1	Core i7-10810U; 6 cores; 2 LAN; 2 x DDR4; HDMI; VGA; LVDS; 9 USB; 6 COM / 2 RS485; 12 V.
Options	DP instead of VGA, eDP instead of LVDS, wireless modules and extended RS485/RS422 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.
- Memory: 2 x DDR4 SO-DIMM slots supporting dual-channel DDR4-2400 memory, up to 64 GB.
- USB and LAN configurations are interdependent in the source manual. LAN2 and selected USB 2.0 interfaces may be mutually exclusive depending on the single-LAN or dual-LAN configuration.

11. Contact Information

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Disclaimer: This datasheet was compiled from ITX810U User Manual Issue 1.1. Product specifications, 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.