

CoreIPC

ITX45U

Mini-ITX Industrial Motherboard Datasheet

Intel® Haswell-U / Broadwell-U Platform

Document	Datasheet
Model	ITX45U
Issue	1.2
Product Type	Mini-ITX Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITX45U User Manual Issue 1.2.

1. Product Overview

The ITX45U is a CoreIPC Mini-ITX industrial motherboard supporting Intel® Haswell-U and Broadwell-U processors. It combines DDR3L memory, VGA/HDMI/LVDS or optional eDP display, up to dual Intel® I210 Gigabit Ethernet, SATA and mSATA storage, dual Mini PCIe expansion, multiple USB and serial interfaces, LPT, PS/2, GPIO, audio amplification, and 12 V DC input for industrial and embedded applications.

2. Key Features

- Supports Intel® Celeron®, Pentium®, and Core™ i3/i5/i7 Haswell-U / Broadwell-U processors. Source examples include i3-4030U, i3-5005U, i5-4300U, and i5-5300U.
- 1 x DDR3L SO-DIMM slot supporting single-channel DDR3L-1333/1600, 1.35 V memory, up to 8 GB.
- VGA, HDMI, and LVDS or optional eDP display interfaces; LVDS is populated by default.
- Up to 2 x Intel® I210 Gigabit Ethernet ports with Wake-on-LAN and PXE; single-LAN configuration optional.
- Storage includes 1 x 2.5-inch SATA 3.0 connector, 1 x SATA 3.0 connector, and 1 x full-size mSATA 3.0 slot.
- Two Mini PCIe positions are supported: one half/full-size slot for Wi-Fi/4G and one half-size slot for Wi-Fi.
- Supports up to 8 USB ports, including 2 x USB 3.0; exact USB availability depends on LAN configuration.
- Provides up to 6 x COM ports. COM2 supports RS485/optional RS422; COM3-COM5 can support RS485; up to 4 RS485 is supported.
- 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; CPU/system smart fan headers; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Intel® Haswell-U / Broadwell-U Celeron®, Pentium®, and Core™ i3/i5/i7 processors. Source examples include i3-4030U, i3-5005U, i5-4300U, and i5-5300U.
Memory	1 x 204-pin SO-DIMM; single-channel DDR3L-1333/1600, 1.35 V; up to 8 GB.
Graphics / Display	Integrated Intel® HD Graphics 4400; 1 x VGA, 1 x HDMI, and 1 x LVDS or eDP interface (LVDS default; mutually exclusive).
Ethernet	Up to 2 x Intel® I210 Gigabit Ethernet controllers; single-LAN option; Wake-on-LAN and PXE support.
Storage	1 x 2.5-inch SATA 3.0 drive connector; 1 x SATA 3.0 connector; 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 supporting half/full-size Wi-Fi/4G; 1 x half-size Mini PCIe slot supporting Wi-Fi.
USB	2 x USB 3.0 plus USB 2.0 interfaces; up to 8 USB ports total depending on LAN configuration.
Serial Ports	2 x COM standard; optional 6-COM configuration. COM2 supports RS485/RS422; COM3-COM5 can support RS485; up to 4 RS485 supported.
Legacy I/O	1 x LPT header; 1 x PS/2 keyboard/mouse header.
GPIO	4-channel GPIO input/output.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
OS Support	Windows 7 / Windows 10 / Linux.
Power	12 V DC input; AT/ATX power-mode selection.
Dimensions	170 mm x 170 mm.
Environment	Operating: -10°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. VGA is mutually exclusive with COM1 according to the source manual.
USB	2 x USB 3.0; 2 x USB 2.0 depending on LAN configuration.
LAN	Up to 2 x RJ45 Gigabit Ethernet ports; one LAN position is mutually exclusive with the 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
HDMI	1 x optional JHDMI 2 x 8-pin header.
VGA	1 x 1 x 12-pin JVGA header sharing signals with the DB15 VGA port.
LVDS / eDP	1 x 2 x 15-pin dual-channel 24-bit LVDS header; optional eDP header; LVDS and eDP are mutually exclusive.
Backlight	1 x 6-pin panel backlight power connector; panel/backlight voltage is jumper-selectable.
USB 2.0	USB 2.0 headers provide up to 4 onboard ports; dual-LAN versions can support up to 6 USB 2.0 ports.
Serial	2 x standard JCOM headers plus 1 x 2 x 20-pin four-port header for COM3-COM6.
RS485 / RS422	COM2 supports RS485; COM3-COM5 can support RS485; COM2 RS422 requires hardware modification.
LPT / PS2	1 x LPT header; 1 x 6-pin PS/2 keyboard/mouse header.
Audio	1 x front-audio header; 1 x 4-pin amplified speaker output header.
Power / Panel	1 x drive power connector; 1 x 4-pin ATX power connector; 1 x front-panel switch/LED header.
Fan / GPIO	1 x CPU fan header; 1 x system fan header; 1 x GPIO header.

5. Display Support

ITX45U provides VGA and HDMI together with an onboard LVDS interface. LVDS can be replaced by eDP through the optional configuration; LVDS and eDP are mutually exclusive. The source manual states synchronous or asynchronous display output through VGA, HDMI, LVDS, or eDP.

Item	Description
Integrated Graphics	Intel® HD Graphics 4400.
VGA	1 x VGA output.
HDMI	1 x HDMI output.
LVDS	1 x dual-channel 24-bit LVDS interface; default configuration.
eDP	Optional; mutually exclusive with LVDS.
Multi-display	Supports synchronous or asynchronous display through VGA, HDMI, LVDS, or eDP.

6. Serial Port Configuration

Port / Source	Default / Optional Function
COM1	RS232; Pin 9 supports selectable RI / 5 V / 12 V.
COM2	RS232 default; supports RS485; optional RS422 requires hardware modification; Pin 9 supports selectable RI / 5 V / 12 V.
COM3	RS232 default; optional RS485.
COM4	RS232 default; optional RS485.
COM5	RS232 default; optional RS485.
COM6	RS232.
Differential Serial	Up to 4 RS485 ports supported; optional RS422 on COM2 requires advance confirmation.

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	1 x 4-pin CPU fan header and 1 x 4-pin system fan header; source manual describes a dual-ball-bearing smart fan.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
Clear CMOS	JBAT1 1 x 3-pin Clear CMOS jumper.
LVDS Enable	LVDS_EN1 jumper enables or disables the LVDS function.

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% RH, non-condensing.
Power Input	12 V DC.

9. Ordering Information

Model	Description
ITX45U-L12-4030U VER1.2	Core™ i3-4030U; 2 cores; 1.9 GHz; DDR3L; HDMI + VGA + LVDS; 2 LAN; 8 USB; PS/2; LPT; 2 COM / 1 RS485; 12 V DC.
ITX45U-L16-5300U VER1.2	Core™ i5-5300U; 2 cores; 2.3 GHz; DDR3L; HDMI + VGA + LVDS; 1 LAN; 8 USB; PS/2; LPT; 6 COM / 2 RS485; 12 V DC.
ITX45U-L26-4300U VER1.2	Core™ i5-4300U; 2 cores; 1.9 GHz; DDR3L; HDMI + VGA + LVDS; 2 LAN; 8 USB; PS/2; LPT; 6 COM / 2 RS485; 12 V DC.
ITX45U-L26-5300U VER1.2	Core™ i5-5300U; 2 cores; 2.3 GHz; DDR3L; HDMI + VGA + LVDS; 2 LAN; 8 USB; PS/2; 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.
- Rear-I/O resource sharing varies by configuration: the source manual states VGA is mutually exclusive with COM1, and the rear USB 2.0 ports are mutually exclusive with an RJ45 LAN port. Confirm the required rear-I/O combination before ordering.
- Serial functions are configuration-dependent. The detailed specification lists 2 COM ports with an optional 6-COM configuration; COM2 supports RS485/RS422, COM3-COM5 support RS485, and up to 4 RS485 ports are possible. RS422 and some RS485 options require hardware modification or advance confirmation.

11. Contact Information

Company	CoreIPC
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Disclaimer: This datasheet was compiled from ITX45U User Manual Issue 1.2. 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.