

CoreIPC

EPIC54P

4-inch Industrial Motherboard Datasheet

Intel® Haswell-U / Broadwell-U Platform

Document	Datasheet
Model	EPIC54P
Issue	1.1
Product Type	4-inch Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on EPIC54P User Manual Issue 1.1.

1. Product Overview

The EPIC54P is a CoreIPC 4-inch industrial motherboard supporting Intel® Haswell-U and Broadwell-U processors. It combines DDR3L memory, VGA/HDMI/LVDS or optional eDP display, up to four Gigabit Ethernet ports, SATA and mSATA storage, Mini PCIe expansion, multiple USB and serial interfaces, GPIO, audio amplification, and 12 V DC input for machine vision, medical equipment, industrial automation, financial equipment, cloud terminals, and other industrial applications.

2. Key Features

- Supports Intel® Haswell-U / Broadwell-U Celeron®, Pentium®, and Core™ i3/i5/i7 processors.
- 1 x DDR3L SO-DIMM slot supporting single-channel DDR3L-1333/1600 at 1.35 V, up to 8 GB.
- VGA, HDMI, and LVDS or optional eDP display interfaces; LVDS is the default configuration.
- Up to 4 x Realtek RTL8111H Gigabit Ethernet ports with Wake-on-LAN and PXE; 2-LAN and 3-LAN configurations are optional.
- Storage includes 1 x SATA 3.0 interface and 1 x full-size mSATA 3.0 slot.
- 1 x Mini PCIe slot supporting half-size/full-size Wi-Fi or 4G modules, with SIM interface.
- Supports up to 8 USB ports; rear and onboard USB availability depends on the selected LAN configuration.
- Provides 6 x COM ports. COM2 and COM3 support RS485; COM2 optionally supports RS422.
- Onboard Realtek ALC897 7.1-channel HD audio with MIC/Line-out and 2-ohm, 5 W stereo amplifier output.
- 165 x 115 mm 4-inch form factor; 12 V DC input; AT/ATX power-mode selection; 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 SO-DIMM slot; 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). Supports synchronous/asynchronous triple-display operation.
Ethernet	Up to 4 x Realtek RTL8111H Gigabit Ethernet controllers; 2-LAN or 3-LAN options; Wake-on-LAN and PXE support.
Storage	1 x SATA 3.0 interface; 1 x full-size mSATA 3.0 slot.
Audio	Realtek ALC897 7.1-channel HD audio; MIC/Line-out; stereo amplifier output, 2 ohm / 5 W per channel.
Expansion	1 x Mini PCIe slot supporting half-size/full-size Wi-Fi or 4G modules, with SIM interface.
USB	2 x USB 3.0 rear ports plus USB 2.0 interfaces; up to 8 USB ports depending on LAN configuration.
Serial Ports	6 x COM ports. COM2 and COM3 support RS485; COM2 can optionally support RS422.
GPIO	4-input / 4-output GPIO.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
OS Support	Windows 7 / Windows 10 / Linux.
Power	12 V DC input; 1 x 4-pin ATX power connector.
Operating Temperature	-10°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Dimensions	165 mm x 115 mm.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x HDMI; 1 x VGA.
USB	2 x USB 3.0; up to 4 x USB 2.0 depending on LAN configuration.
LAN	2 x RJ45 Gigabit Ethernet ports standard in the detailed rear-I/O description; optional 4-LAN configuration available.
Audio	1 x Line-out jack (green).
Power	1 x 12 V DC input; power/HDD LED.

4.2 Internal I/O and Headers

Interface / Header	Description
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; can be converted to eDP through hardware modification; LVDS default.
Backlight	1 x 1 x 6-pin LCD backlight power connector; selectable 5 V / 12 V.
USB 2.0	USB 2.0 headers; available port count depends on 2-LAN / 3-LAN / 4-LAN configuration.
Serial	2 x 2 x 5-pin JCOM headers plus 1 x 2 x 20-pin header for COM3-COM6.
RS485 / RS422	1 x 2 x 3-pin JRS485 header; COM2/COM3 support RS485; COM2 optional RS422 requires hardware modification.
Audio	1 x front-audio header; 1 x 4-pin amplified speaker output header.
Drive Power	1 x HDD/SATA power connector.
Front Panel	1 x 2 x 5-pin front-panel switch and LED header.
Fan / GPIO	1 x 4-pin CPU fan header; 1 x 2 x 5-pin GPIO header.
Optional I/O Board	EPIC54P-IO-4CNP VER1.1 expansion board provides isolated GPIO and serial-port functions.

5. Display Support

EPIC54P provides VGA and HDMI together with an onboard LVDS interface. The LVDS interface supports dual-channel 24-bit output and can be changed to eDP through hardware modification. The source manual states support for synchronous/asynchronous triple-display operation using VGA, HDMI, and LVDS or eDP.

Item	Description
Integrated Graphics	Intel® HD Graphics 4400.
VGA	1 x VGA output; JVGA header shares the same signals.
HDMI	1 x HDMI output.
LVDS	Dual-channel 24-bit LVDS, default configuration.
eDP	Optional through hardware conversion of the LVDS interface.
Multi-display	Supports synchronous/asynchronous triple-display operation via VGA, HDMI and LVDS/eDP.

6. Serial Port Configuration

Port / Source	Default / Optional Function
COM1	RS232.
COM2	RS232 default; RS485 supported by jumper; optional RS422 requires hardware modification.
COM3	RS232 default; RS485 supported by jumper.
COM4-COM6	RS232.
JRS485	2-channel RS485 wiring header used for COM2 / COM3 differential serial functions.
Expansion I/O	Optional EPIC54P-IO-4CNP board provides isolated GPIO / serial-port functions.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	12 V DC input.
AT / ATX Mode	JSW1 jumper selects automatic power-on behavior.
CPU Cooling	1 x 4-pin CPU fan header; source manual describes a dual ball-bearing smart fan.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
Clear CMOS	JBAT1 1 x 3-pin Clear CMOS jumper.
Storage Power	1 x SATA/HDD power connector.
Panel Power	Selectable 3.3 V / 5 V / 12 V panel voltage and 5 V / 12 V backlight power.

8. Mechanical and Environmental Information

Item	Description
Form Factor	4-inch industrial motherboard.
Dimensions	165 mm x 115 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.
Display Panel Power	3.3 V / 5 V / 12 V panel options; 5 V / 12 V backlight options.

9. Ordering Information

Model	Description
EPIC54P-L26-4030U VER1.1	Intel® Core™ i3-4030U; 2 cores; 1.9 GHz; DDR3L; HDMI + VGA + LVDS; 2 LAN; 8 USB; 6 COM / 2 RS485; 12 V DC.
EPIC54P-L26-4300U VER1.1	Intel® Core™ i5-4300U; 2 cores; 1.9 GHz; DDR3L; HDMI + VGA + LVDS; 2 LAN; 8 USB; 6 COM / 2 RS485; 12 V DC.
EPIC54P-L46-4300U VER1.1	Intel® Core™ i5-4300U; 2 cores; 1.9 GHz; DDR3L; HDMI + VGA + LVDS; 4 LAN; 6 USB; 6 COM / 2 RS485; 12 V DC.
EPIC54P-L46-5300U VER1.1	Intel® Core™ i5-5300U; 2 cores; 2.3 GHz; DDR3L; HDMI + VGA + LVDS; 4 LAN; 6 USB; 6 COM / 2 RS485; 12 V DC.
EPIC54P-L46-4600U VER1.1	Intel® Core™ i7-4600U; 2 cores; 2.1 GHz; DDR3L; HDMI + VGA + LVDS; 4 LAN; 6 USB; 6 COM / 2 RS485; 12 V DC.
Options	2-, 3-, or 4-LAN configurations, eDP conversion, isolated I/O expansion, and serial options depend on 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 main specifications identify the memory as DDR3L-1333/1600, 1.35 V, up to 8 GB, while the memory-installation section states '260-pin DDR4 SO-DIMM'. This datasheet follows the main product and detailed specifications; confirm the actual memory socket/BOM before order placement.
- The source manual notes that the interface-marking image is EPIC54P-L26 VER1.0, while the document itself is Issue 1.1 and the I/O layout is identified as EPIC54P VER1.1. LAN, USB, COM and isolated-I/O population may vary by production configuration.

11. Contact Information

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Disclaimer: This datasheet was compiled from EPIC54P 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.