

CoreIPC

ITXH610D

Industrial Motherboard Datasheet

Intel® H610 / B660 / Q670 LGA1700 Platform

Document	Datasheet
Model	ITXH610D
Issue	1.1
Product Type	Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITXH610D User Manual Issue 1.1.

1. Product Overview

The ITXH610D is a CoreIPC industrial motherboard supporting Intel® LGA1700 Pentium®, Celeron®, and Core™ i3/i5/i7 processors. It combines dual-channel DDR4 memory, VGA or optional DisplayPort, HDMI 2.0, LVDS or optional eDP, up to dual Gigabit Ethernet, SATA and M.2 storage, Mini PCIe and PCIe x4 expansion, multiple USB and serial interfaces, TPM 2.0 support, GPIO, and 12-19 V DC input for machine vision, medical equipment, industrial control, financial equipment, cloud terminals, and other embedded applications.

2. Key Features

- Supports Intel® LGA1700 Pentium®, Celeron®, and Core™ i3/i5/i7 12th/13th/14th-generation processors.
- 2 x DDR4 SO-DIMM slots supporting dual-channel DDR4-3200 memory, up to 64 GB.
- VGA or optional DisplayPort, HDMI 2.0 or optional dual HDMI, and LVDS or optional eDP; supports up to three simultaneous/independent displays.
- Up to 2 x Realtek Gigabit Ethernet ports with Wake-on-LAN and PXE; single-LAN configurations available.
- Storage includes 2 x SATA 3.0 interfaces and 1 x M.2 Key M 2280/2242 PCIe 3.0 x4 slot with NVMe/SATA auto-detection.
- 1 x Mini PCIe slot for Wi-Fi/4G and 1 x PCIe 4.0 x4 slot for expansion.
- Source USB counts vary by section: Ordering Information lists 8 USB, Product Description lists 9 USB, while detailed I/O describes configuration-dependent USB resources.
- Up to 6 x COM ports. COM1/COM2 can support RS485; up to 4 x RS485 or 2 x RS422 configurations are described in the source manual.
- Realtek ALC897 HD audio with Mic-in, Line-out, and optional 2 x 5 W amplifier output at 2 ohms.
- 180 x 180 mm motherboard; 12-19 V DC input; CPU/system fan headers; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Intel® LGA1700 12th/13th/14th-generation Celeron®, Pentium®, and Core™ i3/i5/i7 processors.
Chipset	Intel® H610, B660, or Q670 according to the detailed specification; Ordering Information lists H610/B660.
Memory	2 x 260-pin DDR4 SO-DIMM slots; dual-channel DDR4-3200; up to 64 GB.
Graphics / Display	Integrated Intel® UHD Graphics; 1 x VGA or optional DP up to 4096 x 2160 @ 60 Hz; 1 x HDMI 2.0 up to 4096 x 2160 @ 60 Hz; 1 x LVDS or optional eDP; optional dual HDMI.
Ethernet	Up to 2 x Realtek Gigabit Ethernet controllers; Wake-on-LAN and PXE support; single-LAN versions available.
Storage	2 x SATA 3.0 interfaces; 1 x M.2 Key M 2280/2242 PCIe 3.0 x4 slot supporting NVMe/SATA auto-detection.
Audio	Realtek ALC897 HD audio; Mic-in, Line-out, and optional 2 x 5 W stereo amplifier at 2 ohms.
Expansion	1 x Mini PCIe slot for Wi-Fi/4G; 1 x PCIe 4.0 x4 slot.
USB	Configuration-dependent. Ordering Information: 8 USB; Product Description: 9 USB. Detailed I/O includes USB 3.0 and USB 2.0 resources shared with LAN configurations.
Serial Ports	Up to 6 x COM. COM1/COM2 support RS232/RS485; source manual also describes up to 4 x RS485 or 2 x RS422 configurations.
GPIO	4-channel GPIO input/output.
TPM	1 x external TPM 2.0 header; onboard TPM 2.0 support is listed.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
OS Support	Windows 10 / Windows 11 / Linux.
Power	12-19 V DC input. Board design maximum power consumption: 250 W.
Dimensions	180 mm x 180 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 2.0; 1 x VGA by default, optional DP; optional dual-stack HDMI.
USB	Up to 4 x rear USB 3.0 on single-LAN configurations; dual-LAN configurations support fewer rear USB 3.0 ports due to resource sharing.
LAN	Up to 2 x RJ45 Gigabit Ethernet ports; LAN2 shares resources with rear USB 3.0.
Audio / Controls	1 x Line-out, 1 x Mic-in, 1 x Clear CMOS push button.
Power	1 x 12-19 V DC input.

4.2 Internal I/O and Headers

Interface / Header	Description
Display	1 x dual-channel 24-bit LVDS header; optional eDP via component change; panel and backlight voltage selection provided.
USB 2.0	3 x 2 x 5-pin USB 2.0 headers; detailed source notes configuration-dependent counts and LAN sharing.
Serial	6 x COM headers total: COM1/COM2 individual headers plus one 4-port header for COM3-COM6.
RS485 / RS422	2 x 2 x 3-pin RS485 wiring headers. Source describes COM1-COM4 differential serial options and up to 4 x RS485 or 2 x RS422.
Audio	1 x front-audio header; 1 x 4-pin amplifier connector.
Storage Power	2 x SATA drive-power connectors.
Power / Panel	1 x 2 x 2-pin ATX power connector; 1 x front-panel switch/button/LED header.
Fan / GPIO	1 x CPU fan header; 1 x system fan header; 1 x GPIO header.
TPM	1 x 2 x 6-pin TPM 2.0 header.

5. Display Support

ITXH610D supports VGA by default with optional DisplayPort, HDMI 2.0 with an optional dual-HDMI configuration, and LVDS with optional eDP. The source manual lists DisplayPort and HDMI up to 4096 x 2160 @ 60 Hz. LVDS can be converted to eDP by component changes, with selectable 3.3 V / 5 V / 12 V panel power and 5 V / 12 V backlight power.

Item	Description
Integrated Graphics	Intel® UHD Graphics; DirectX 12, OpenGL 4.5, and 4K display support.
VGA / DP	1 x VGA up to 1920 x 1080 @ 60 Hz; optional DP up to 4096 x 2160 @ 60 Hz.
HDMI	1 x HDMI 2.0 up to 4096 x 2160 @ 60 Hz; optional dual-stack HDMI.
LVDS / eDP	1 x LVDS by default; optional eDP through component changes.
Multi-display	Source Product Description states support for three simultaneous or independent displays.
Panel Power	Selectable 3.3 V / 5 V / 12 V panel power and 5 V / 12 V backlight power.

6. Serial Port Configuration

Port / Source	Default / Optional Function
COM1	RS232 default; supports RS485 via BIOS. Detailed spec also lists optional RS422.
COM2	RS232 default; supports RS485 via BIOS.
COM3	RS232 default; source pin-definition section describes optional RS485 via JRS485B.
COM4	RS232 default; source pin-definition section describes optional RS485 via JRS485B.
COM5-COM6	RS232.
Differential Serial	Up to 4 x RS485 or 2 x RS422 is stated in the source manual; confirm exact production configuration.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	12-19 V DC input.
Recommended Adapter	12 V / 15 A or 19 V / 10 A or higher, according to the source manual.
Maximum Board Design Power	250 W.
AT / ATX Mode	AT-ATX1 jumper selects automatic power-on behavior.
Cooling	1 x CPU fan connector and 1 x system fan connector.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
Clear CMOS	JBAT1 jumper plus rear Clear CMOS push button.

8. Mechanical and Environmental Information

Item	Description
Product Type	Industrial motherboard.
Dimensions	180 mm x 180 mm.
Operating Temperature	-10°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Power Input	12-19 V DC.

9. Ordering Information

Model	Description
ITXH610D-L26 VER1.1	H610/B660; DDR4; HDMI + VGA + LVDS; 2 LAN; 8 USB; 6 COM / 2 RS485; 12-19 V DC.
ITXH610D-L16 VER1.1	H610/B660; DDR4; HDMI + VGA + LVDS; 1 LAN; 8 USB; 6 COM / 2 RS485; 12-19 V DC.
ITXH610D-L12 VER1.1	H610/B660; DDR4; HDMI + VGA + LVDS; 1 LAN; 8 USB; 2 COM / 1 RS485; 12-19 V DC.
Chipset Option	Detailed specification additionally lists Intel® Q670.
CPU Examples	Power test table lists Core i3-12100, i5-12400, i7-12700, i3-13100, i5-13400, i3-14100, and Celeron G6900.

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.
- Model naming differs by section: the manual page header and cover use ITXH610D, while Product Description and Ordering Information use ITXH610D. This datasheet uses ITXH610D because the ordering models are ITXH610D-L26/L16/L12 VER1.1.
- USB and chipset descriptions vary by section. Ordering Information lists H610/B660 and 8 USB, Product Description lists 9 USB, while Detailed Specifications additionally list Q670 and configuration-dependent USB resources. Confirm the selected chipset and exact USB/LAN population before ordering.

11. Contact Information

Company	CoreIPC
Sales Team	CoreIPC Sales Team
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Website	https://www.coreipc.com/

Disclaimer: This datasheet was compiled from ITXH610D 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.