

CoreIPC

NUC62R

120 x 120 mm Quad-LAN Industrial NUC Motherboard Datasheet

Intel® Elkhart Lake Platform

Document	Datasheet
Model	NUC62R
Issue	1.1
Product Type	120 x 120 mm Quad-LAN Industrial NUC Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on NUC62R User Manual Issue 1.1.

1. Product Overview

The NUC62R is a compact 120 x 120 mm CoreIPC NANO-series multi-LAN motherboard supporting Intel® Elkhart Lake processors. It integrates dual-channel DDR4 memory, HDMI and DisplayPort display outputs, four Intel® 2.5GbE ports, SATA and M.2 storage, Mini PCIe expansion, USB and serial connectivity, TPM 2.0, GPIO, fanless cooling, and 12 V DC input for soft routers, network security appliances, industrial control, cloud terminals, and related embedded applications.

2. Key Features

- Integrated Intel® Celeron® J6412 2.0 GHz quad-core processor; compatible with the full Intel® Elkhart Lake processor family.
- 2 x DDR4 SO-DIMM slots supporting dual-channel DDR4 memory up to 3200 MHz, maximum 32 GB.
- 1 x HDMI and 1 x DisplayPort, both supporting up to 4K at 60 Hz; optional USB Type-C supports DP display output and USB 2.0.
- 4 x Intel® I225 or I226 2.5GbE ports with Wake-on-LAN and PXE boot support.
- Storage includes 1 x SATA 3.0 connector and 1 x M.2 Key M 2280/2242 PCIe/SATA SSD slot.
- 1 x Mini PCIe slot supports Wi-Fi or 4G modules.
- Supports 2 x USB 3.1 and 6 x USB 2.0 ports.
- 2 x DB9 RS232 ports are standard; COM1 can optionally support RS485 through hardware modification and must be specified before ordering.
- Supports 4-channel GPIO, TPM 2.0 header, hardware watchdog, optional CPU fan header, and AT/ATX power-mode selection.
- 120 x 120 mm form factor; 12 V DC input; fanless thermal design; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Integrated Intel® Celeron® J6412 quad-core processor, 2.0 GHz, 10 W TDP; compatible with Intel® Elkhart Lake processors.
Memory	2 x 260-pin SO-DIMM slots; dual-channel DDR4 up to 3200 MHz; maximum 32 GB.
Graphics / Display	Integrated 10th-generation Intel® UHD Graphics; 1 x HDMI up to 4K @ 60 Hz; 1 x DP up to 4K @ 60 Hz; optional USB Type-C with DP output.
Ethernet	4 x Intel® I225 or I226 2.5GbE controllers; Wake-on-LAN and PXE boot support.
Storage	1 x SATA 3.0 connector, up to 6 Gbps; 1 x M.2 Key M 2280/2242 PCIe/SATA SSD slot.
Expansion	1 x Mini PCIe slot supporting Wi-Fi or 4G modules.
USB	2 x USB 3.1 + 6 x USB 2.0. Optional USB Type-C also supports USB 2.0.
Serial Ports	2 x DB9 RS232 standard. COM1 can optionally support RS485; hardware modification and advance order confirmation are required.
GPIO	4-channel GPIO input/output.
TPM	1 x 2 x 6-pin TPM 2.0 header.
BIOS	128 Mb Flash ROM.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
OS Support	Windows 10 / Windows 11 / Linux.
Power	12 V DC input; AT/ATX power-mode selection.
Operating Temperature	-10°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Dimensions	120 mm x 120 mm.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x stacked HDMI + DisplayPort connector; HDMI and DP each support up to 4K @ 60 Hz.
USB	Rear: 2 x USB 2.0; front: 2 x USB 3.1 + 2 x USB 2.0; optional USB Type-C supports DP + USB 2.0.
LAN	4 x RJ45 2.5GbE ports using Intel® I225/I226 controllers.
Serial	2 x DB9 RS232; COM1 can optionally be configured as RS485.
Controls / Power	1 x HDD activity LED; 1 x power button with power LED; 1 x 12 V DC input.

4.2 Internal I/O and Headers

Interface / Header	Description
USB 2.0	2 x USB 2.0 interfaces via 2 x 5-pin headers.
Serial	1 x optional 2 x 5-pin JCOM2 header sharing the same signals as front I/O COM2.
TPM	1 x 2 x 6-pin TPM 2.0 header.
Storage Power	1 x drive power connector.
DC Power	1 x onboard 4-pin white power connector.
Front Panel	1 x 2 x 5-pin front-panel switch and LED header.
Fan	1 x optional/reserved 4-pin CPU fan header.
GPIO	1 x 2 x 5-pin GPIO header supporting 4 inputs and 4 outputs.

5. Display Support

NUC62R provides HDMI and DisplayPort outputs, each supporting up to 4K at 60 Hz according to the detailed specification. The source manual supports synchronous or independent HDMI/DP display operation. An optional USB Type-C port can provide DisplayPort display output together with USB 2.0 functionality.

Item	Description
Integrated Graphics	10th-generation Intel® UHD Graphics.
HDMI	1 x HDMI output, up to 4K @ 60 Hz.
DisplayPort	1 x DisplayPort output, up to 4K @ 60 Hz.
USB Type-C	Optional; supports DisplayPort display output and USB 2.0.
Multi-display	Supports synchronous or independent HDMI and DP display output.

6. Serial Port Configuration

Port	Default / Optional Function
COM1	DB9 RS232 by default; optional RS485 requires hardware modification and advance confirmation.
COM2	DB9 RS232 by default.
JCOM2	Optional onboard header sharing the same signals as COM2.
RS485 Option	1 x RS485 maximum according to the source manual; must be ordered in advance.

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	Rear-mounted CPU with fanless thermal design; 1 x optional/reserved 4-pin CPU fan header.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
Clear CMOS	JBAT1 1 x 3-pin Clear CMOS jumper.
TPM	1 x 2 x 6-pin TPM 2.0 header.

8. Mechanical and Environmental Information

Item	Description
Product Type	Industrial NANO-series quad-LAN motherboard.
Dimensions	120 mm x 120 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
NUC62R VER1.1	Intel® Celeron® J6412; 4 cores; 2.0 GHz; DDR4; HDMI + DP; 4 x 2.5GbE; 8 USB; 2 COM / 0 RS485 in ordering table; 12 V DC.
Memory	2 x DDR4 SO-DIMM slots; dual-channel up to 3200 MHz; maximum 32 GB.
Display Option	Optional USB Type-C supports DP display output and USB 2.0.
Serial Option	COM1 optional RS485; requires hardware modification and advance order confirmation.

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 standard motherboard provides only 2 x RS232 serial ports. COM1 may optionally be configured for RS485, but the source manual states that RS485 requires a hardware modification and must be ordered in advance.
- USB resources are described consistently as 2 x USB 3.1 plus 6 x USB 2.0 in the Product Description and block diagram. The detailed I/O section lists external and onboard USB interfaces and an optional Type-C port; confirm the exact connector population required for the project.

11. Contact Information

Company	CoreIPC
Sales Team	CoreIPC Sales Team
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Disclaimer: This datasheet was compiled from NUC62R 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.