

CoreIPC

NUC67D

120 x 120 mm Industrial NUC Motherboard Datasheet

Intel® Skylake-U / Kaby Lake-U Platform

Document	Datasheet
Model	NUC67D
Issue	1.1
Product Type	120 x 120 mm Industrial NUC Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on NUC67D User Manual Issue 1.1.

1. Product Overview

The NUC67D is a compact 120 x 120 mm CoreIPC NANO-series industrial motherboard supporting Intel® Skylake-U and Kaby Lake-U processor families. It integrates DDR4 memory, VGA or optional DisplayPort plus HDMI display outputs, up to dual Gigabit Ethernet, SATA and M.2 storage, Mini PCIe expansion, USB and serial connectivity, ALC897 audio, TPM 2.0 header, GPIO, and 12 V DC input for soft routers, network security appliances, industrial control, cloud terminals, and other embedded applications.

2. Key Features

- Supports Intel® Skylake-U / Kaby Lake-U Celeron®, Pentium®, and Core™ i3/i5/i7 processors. Ordering examples include i5-6300U, i5-7200U, and i5-8250U; the detailed CPU table also lists i7-6660U.
- 1 x DDR4 SO-DIMM slot supporting DDR4-2133, 1.2 V memory, up to 32 GB.
- 1 x VGA or optional DisplayPort plus 1 x HDMI; DP supports up to 4K @ 60 Hz and HDMI up to 4K @ 30 Hz.
- Up to 2 x Realtek RTL8111H Gigabit Ethernet ports with Wake-on-LAN and PXE; single-LAN configuration optional.
- Storage includes 1 x SATA 3.0 connector and 1 x M.2 Key M 2280 slot with automatic PCIe/SATA storage detection.
- 1 x Mini PCIe slot supporting Wi-Fi or 4G modules.
- Supports up to 8 USB ports, including 4 x USB 3.0; selected USB 2.0 resources are shared with LAN2 or optional Type-C.
- 2 x DB9 RS232 ports are standard. COM1/COM2 can be configured as RS485; optional support for up to 4 x RS232 requires hardware modification.
- Realtek ALC897 7.1-channel HD audio with Mic-in, Line-out, and 2-ohm 5 W x 2-channel amplifier output.
- 120 x 120 mm form factor; 12 V DC input; operating temperature -10°C to 60°C; onboard TPM 2.0 and GPIO headers.

3. Technical Specifications

Category	Specification
Processor	Intel® Skylake-U / Kaby Lake-U Celeron®, Pentium®, and Core™ i3/i5/i7 processors. Detailed table lists i5-6300U, i7-6660U, i5-7200U, and i5-8250U.
Memory	1 x 260-pin SO-DIMM; DDR4-2133, 1.2 V; up to 32 GB.
Graphics / Display	Intel® HD Graphics 540/610/620/650 depending on CPU; 1 x VGA or DP (up to 4K @ 60 Hz) + 1 x HDMI (up to 4K @ 30 Hz).
Ethernet	Up to 2 x Realtek RTL8111H Gigabit Ethernet controllers; single-LAN option; Wake-on-LAN and PXE support.
Storage	1 x SATA 3.0 connector, up to 6 Gbps; 1 x M.2 Key M 2280 slot with automatic PCIe/SATA device detection.
Audio	Realtek ALC897 7.1-channel HD audio; Mic-in, Line-out, and 2-ohm 5 W x 2-channel power amplifier.
Expansion	1 x Mini PCIe slot supporting Wi-Fi and 4G modules.
USB	Up to 8 USB ports. 4 x USB 3.0; USB 2.0 resources include front and internal ports with LAN2/Type-C sharing depending on configuration.
Serial Ports	2 x DB9 RS232 standard. COM1/COM2 can be switched to RS485 by jumper. Up to 4 x RS232 optional with hardware modification.
GPIO	1 x 2 x 5-pin GPIO header, 4 inputs + 4 outputs.
TPM	1 x 2 x 7-pin TPM 2.0 header.
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 HDMI; 1 x VGA by default, selectable as optional DP.
USB	4 x USB 3.0 plus USB 2.0 resources depending on selected LAN/Type-C configuration.
LAN	Up to 2 x RJ45 Gigabit Ethernet ports; LAN2 shares resources with a USB 2.0 interface.
Serial / Audio	2 x DB9 RS232; 1 x 3.5 mm combined Line-out / Mic-in audio jack.
Controls / Power	1 x HDD activity LED; 1 x illuminated power button; 1 x Clear CMOS button; 1 x 12 V DC input.

4.2 Internal I/O and Headers

Interface / Header	Description
USB 2.0	1 x USB 2.0 pin header supporting 2 x USB 2.0 ports; shares signals with LAN2 according to the source manual.
Serial	4 x 2 x 5-pin COM headers are defined; JCOM1/JCOM2 share signals with DB9 COM1/COM2 and are not populated by default. 4-COM support requires hardware modification.
Audio Amplifier	1 x 4-pin amplifier header.
GPIO	1 x 2 x 5-pin GPIO header.
TPM	1 x 2 x 7-pin TPM 2.0 header.
Storage Power	1 x 4-pin SATA power connector.
DC / ATX Power	1 x onboard 4-pin DC power connector and 1 x 4-pin ATX power connector.
Front Panel	1 x 2 x 5-pin front-panel switch and LED header.
Fan	1 x optional 4-pin fan header.

5. Display Support

NUC67D provides VGA or optional DisplayPort together with HDMI. The source manual states DP supports up to 4K at 60 Hz and HDMI up to 4K at 30 Hz, with synchronous or independent dual-display operation. VGA is populated by default and is selectable as an alternative to DP.

Item	Description
Integrated Graphics	Intel® HD Graphics 540/610/620/650 depending on processor.
VGA / DP	VGA by default; optional DisplayPort selectable instead. DP supports up to 4K @ 60 Hz.
HDMI	1 x HDMI output, up to 4K @ 30 Hz.
Multi-display	Supports synchronous or independent dual-display output via VGA/DP + HDMI.

6. Serial Port Configuration

Port / Option	Default / Optional Function
COM1	DB9 RS232 by default; switchable to RS485 by jumper.
COM2	DB9 RS232 by default; switchable to RS485 by jumper.
JCOM1 / JCOM2	Share signals with COM1 / COM2; not populated by default.
JCOM3 / JCOM4	Optional additional RS232 ports; 4-COM support requires hardware modification.

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.
Clear CMOS	Rear Clear CMOS button plus onboard JBAT1 jumper.
Cooling	1 x optional 4-pin fan header.
TPM	1 x 2 x 7-pin TPM 2.0 header.

8. Mechanical and Environmental Information

Item	Description
Product Type	Industrial NANO-series 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
NUC67D-N22-6300U VER1.1	Core™ i5-6300U; 2 cores; 2.4 GHz; 1 x DDR4; HDMI + VGA; 2 LAN; 8 USB; 2 COM / 2 RS485; 12 V DC.
NUC67D-N22-7200U VER1.1	Core™ i5-7200U; 2 cores; 2.5 GHz; 1 x DDR4; HDMI + VGA; 2 LAN; 8 USB; 2 COM / 2 RS485; 12 V DC.
NUC67D-N22-8250U VER1.1	Core™ i5-8250U; 4 cores; 1.6 GHz; 1 x DDR4; HDMI + VGA; 2 LAN; 8 USB; 2 COM / 2 RS485; 12 V DC.
CPU Table	Detailed Motherboard Specifications also list Core™ i7-6660U.

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.
- Serial-port descriptions differ by section. Product Description and Ordering Information state 2 x RS232 plus 2 x RS485, while the Pin Definitions state that COM1 and COM2 are RS232 by default and can be switched to RS485. This datasheet follows the detailed pin-definition behavior and flags the difference for confirmation before ordering.
- Processor/platform information also differs by section. The manual identifies the platform as Skylake-U / Kaby Lake-U, while Ordering Information includes an i5-8250U variant. This datasheet preserves the listed ordering model and recommends confirming the exact CPU/BOM 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 NUC67D 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.