



NUC19D User Manual

Issue 1.1A

www.CoreIPC.com

Security Guidance

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- The contents of this user manual may not be reproduced, modified, reprinted, distributed, or published in any form without prior written permission from CoreIPC.
- To help you use the CoreIPC motherboard, please read the [User Manual] carefully.
- For product-related information, please be sure to read these safety instructions carefully.
- Identifying the Product Version
You can find the version of this motherboard labeled [Issue:X.X] on the motherboard itself. X.X represents a number; for example, a label reading [Issue1.0] indicates that the version of this motherboard is 1.0. Please note the product version when updating the motherboard's BIOS or drivers, or when referring to other technical documentation.

Basic Safety Tips

1. Before using this product, please be sure to read the product manual carefully.
2. Any cards not yet ready for installation should be stored in anti-static bags.
3. Before removing the board from the antistatic bag, place your hand on a grounded metal object for a moment (such as 10 seconds) to discharge any static electricity from your body and hands.
4. When handling circuit boards, you must wear anti-static gloves and make it a habit to touch only the edges.
5. To prevent electric shock or damage to the product, be sure to turn off the AC power before inserting, removing, or reconfiguring the board.
6. Before moving a board or the entire unit, you must first turn off the AC power.
7. For complete systems, be sure to turn off the AC power before adding or removing any boards.
8. Before connecting or disconnecting any device, you must first turn off the AC power.
9. To avoid unnecessary damage to the product caused by frequent power cycles, wait at least 30 seconds after turning it off before turning it back on.

Ordering Information

No.	Model	CPU	Cores	Freq.	Memory	HDMI	VGA	LAN	USB	PS2	LPT	COM/ 485	POWER
1	NUC19D-N22-J1900 VER1.1A	J1900	4	1.99G	DDR3L	1	1	2	6	/	/	2 / 2	12V
2	NUC19D-N22-N2840 VER1.1A	N2840	2	2.16G	DDR3L	1	1	2	6	/	/	2 / 2	12V

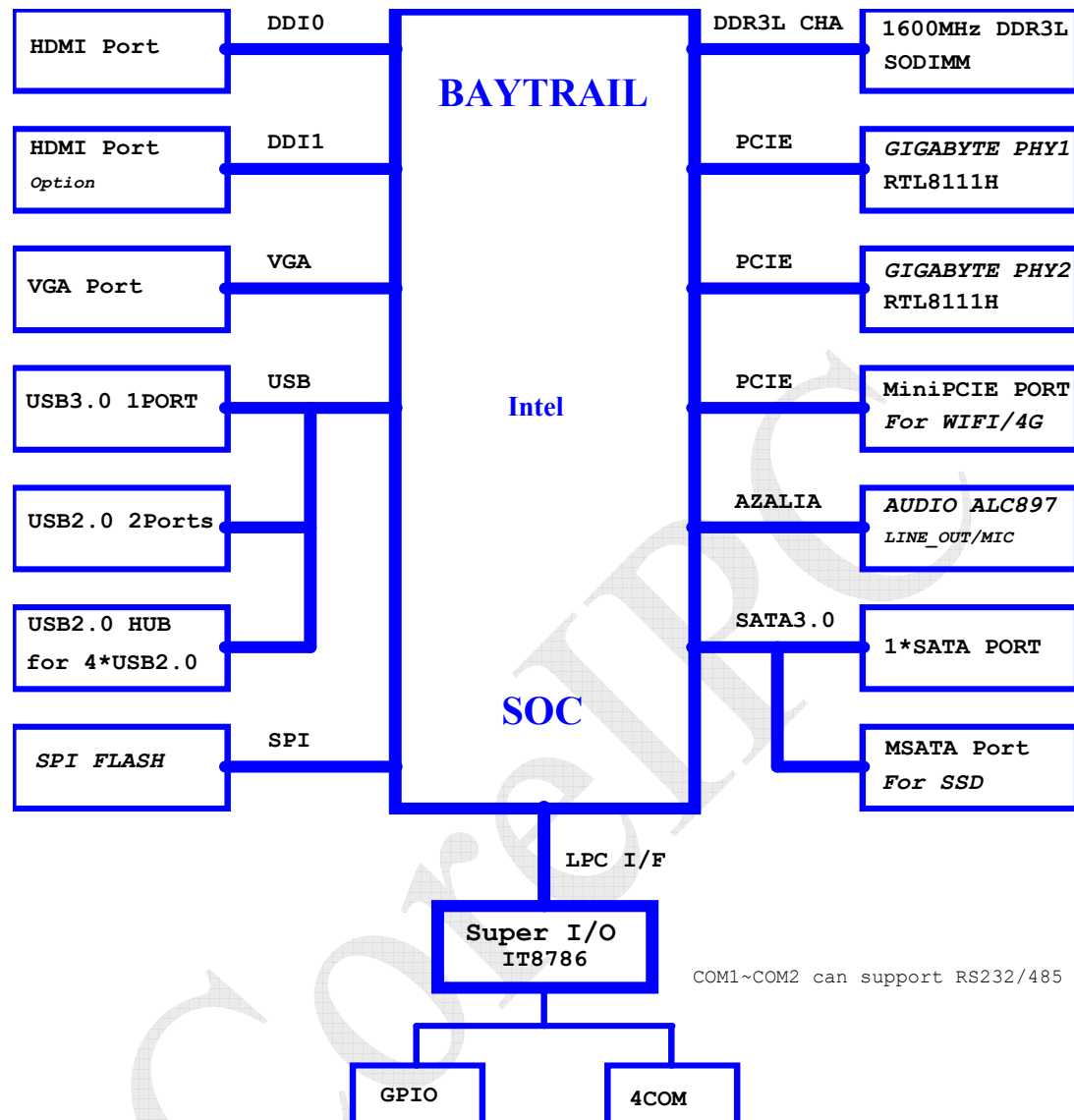
1. Product Description

NUC19D is a CoreIPC NANO-series motherboard supporting the full range of Intel® Bay Trail processors. It is widely applicable to mini PCs, medical instruments, industrial control, financial equipment, cloud terminals, and other applications.

The main features of the NUC19D motherboard are as follows:

- Integrated Intel® Celeron® J1900 2.0 GHz quad-core processor; compatible with Intel® Bay Trail-I/M/D series processors;
- 1 × SO-DIMM slot supporting single-channel 1600/1333 MHz DDR3L 1.35 V memory, up to 8 GB;
- Supports dual-display output through VGA and HDMI, or dual HDMI outputs;
- Supports up to 2 Gigabit Ethernet ports;
- Supports 1 × Mini PCIe slot for Wi-Fi/4G and 1 × mSATA slot;
- Supports 1 × USB 3.0 port and 5 × USB 2.0 ports;
- Supports 2 × RS232 serial ports by default, optionally configurable as 2 × RS485 ports; up to 4 serial ports are optional;
- Fanless cooling supports sealed-system designs for improved dust and moisture resistance;
- Supports wide-temperature operation from -20°C to 60°C;
- Supports AT/ATX power mode switching and 12 V DC power input.

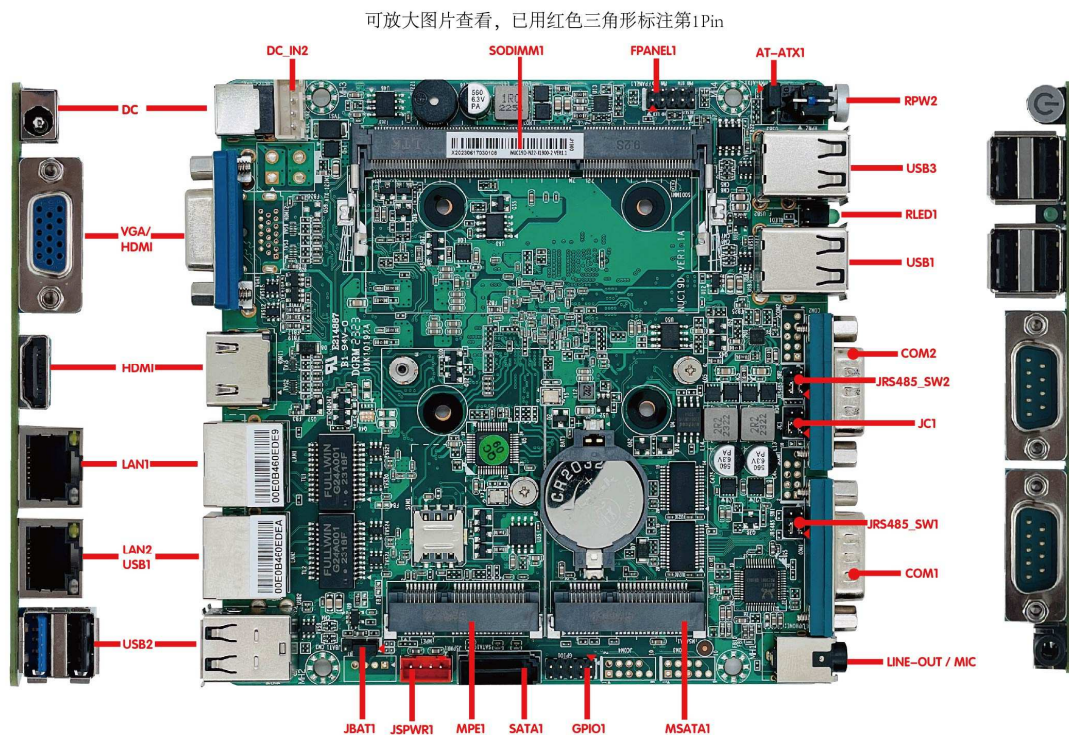
2. Motherboard Block Diagram



3. Motherboard Specifications

Item	Description
Processor	Integrated Intel® Celeron® J1900 2.0 GHz quad-core processor, TDP 10 W Compatible with Intel® Bay Trail-I/M/D series processors
Memory	1 × SO-DIMM slot supporting single-channel 1600/1333 MHz DDR3L 1.35 V memory, up to 8 GB
Display	Integrated Intel® HD Graphics
	1 × VGA and 1 × HDMI port, or 2 × HDMI ports
	Supports synchronous or asynchronous display through VGA and HDMI
Network	2 × Realtek RTL8111H Gigabit Ethernet controllers supporting Wake-on-LAN and PXE boot
Storage	1 × 7-pin SATA 2.0 drive connector
	1 × full-size mSATA slot
Audio	Onboard ALC897 7.1-channel HD audio controller supporting microphone input and line output
Expansion Slots	1 × Mini PCIe slot supporting half-size and full-size Wi-Fi/4G modules
Rear I/O	1 × HDMI 1.2 display port
	1 × VGA display port, mutually exclusive with the second HDMI 1.2 port; VGA is provided by default
	1 × USB 3.0 port and 1 × USB 2.0 port
	2 × RJ45 Gigabit Ethernet ports
	1 × 12 V DC power input connector
Front I/O	4 × USB 2.0 ports
	1 × combined line-out and microphone input jack
	2 × DB9 RS232 serial ports; COM1 and COM2 support RS485 through jumper configuration
	1 × HDD activity LED
	1 × Clear CMOS push button located on the back side of the motherboard near the USB 3.0 port
	1 × illuminated power button
Internal I/O	1 × 1 × 4-pin USB 2.0 header; unavailable when 4G support is enabled (optional)
	2 × 2 × 5-pin COM headers; COM1 and COM2 share signals with the front I/O ports, and JCOM1-JCOM4 are optional
	1 × 4-pin power input connector
	1 × drive power connector
	1 × 2 × 5-pin front-panel switch and indicator header

Fan Header	Fanless cooling design with the CPU mounted on the rear side
GPIO	Supports 4-channel GPIO input/output
BIOS	64Mb Flash ROM
Watchdog	Supports hardware reset watchdog with 256 levels (0-255 seconds)
Operating System	Windows 7/Windows 10/Linux
Power Type	12 V DC power input
Operating Temperature	60°C ~ -20°C
Storage Temperature	-20°C ~ 70°C
Operating Humidity	5%-95% relative humidity, non-condensing
Dimensions	120mm x 120mm



Note: The image above shows the front view of NUC19D VER1.1A. Other models may differ.
The image can be enlarged for viewing. Pin 1 of each header is marked with a red triangle.

4. Board Installation



Safety Precautions:

Before installing the motherboard, please read and follow the safety precautions below:

- Do not remove or damage the serial number label, distributor warranty label, or any other warranty-related labels on the motherboard before installation. Otherwise, it may affect the warranty validation.
- Before installing or removing the motherboard or any other hardware devices, make sure the power is turned off and the power cord is unplugged from the power outlet.
- When installing hardware devices into the motherboard connectors or slots, make sure the connectors are firmly and properly seated.
- When handling the motherboard, avoid touching the metal contacts or circuit areas to prevent short circuits.
- When handling the motherboard, CPU, or memory module, it is recommended to wear an anti-static wrist strap. If an anti-static wrist strap is not available, make sure your hands are dry and touch a grounded metal object first to discharge static electricity.
- Before installation, place the motherboard on an anti-static mat or inside an anti-static bag.
- Before unplugging the power connector from the motherboard, make sure the power supply is turned off.
- Before turning on the power, make sure the power supply voltage is set according to the local voltage standard.
- Before turning on the power, make sure all hardware cables and power cables are correctly connected.
- Do not allow screws to contact the circuits or components on the motherboard, as this may cause damage or malfunction.
- Make sure no screws or metal objects are left on the motherboard or inside the computer chassis.
- Do not place the computer system on an unstable surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the power during installation may cause damage to the motherboard, other devices, or personal injury.
- If you are not familiar with the installation process, or if you encounter any technical problems while using this product, please consult qualified technical personnel.

Memory Installation

This motherboard provides **1 × 204-pin DDR3L SO-DIMM memory slot**.

Before installing the memory module, please note the following:

- 1) Make sure the memory module you purchased is compatible with the specifications supported by this motherboard.
- 2) Before installing or removing the memory module, make sure the computer power is turned off to prevent damage.

- 3) The memory module is designed with a foolproof notch. If the insertion direction is incorrect, the module cannot be inserted. In this case, please change the insertion direction immediately.

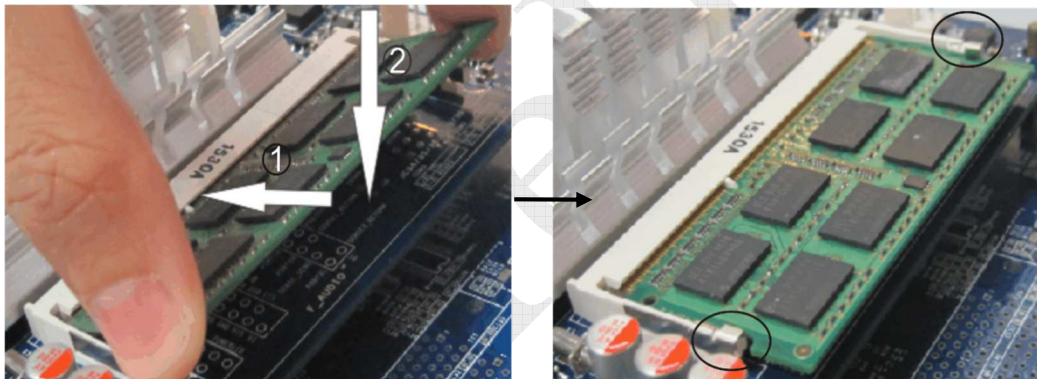
Memory Installation Steps:

- 1) Before installing or removing the memory module, turn off the power and unplug the AC power cord.
- 2) Carefully hold the memory module by both edges. Do not touch the metal contacts.
- 3) Align the gold fingers of the memory module with the memory slot. Make sure the notch on the memory module matches the key in the slot.
- 4) Insert the memory module into the slot at an angle of approximately 30 degrees, then gently press it down until you hear a “click” sound. This indicates that the memory module has been properly installed and is ready for use.

Note: Do not apply excessive force when pressing down the memory module to avoid damage.

- 5) To remove the memory module, push the retaining clips on both sides of the DIMM slot outward at the same time, then remove the memory module carefully.

Note: The installation diagram is for reference only.

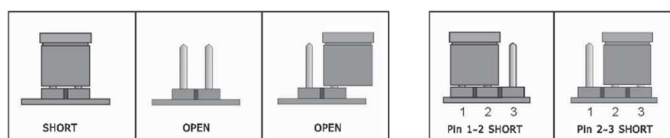


5. Jumper Settings

Jumper Description

For a **2-pin header**, installing a jumper cap on the two pins will close the circuit, creating a short connection.

For a **3-pin header**, the jumper cap can be installed on **Pin 1–2** or **Pin 2–3** to close the corresponding circuit and create a short connection.



How to Identify Pin 1 of a Jumper?

- 1) Carefully check the motherboard. The pin marked with “1” or indicated by a thick white line is usually Pin 1.
- 2) Check the solder pads on the back side of the motherboard. In most cases, the square solder pad indicates Pin 1.

Clear CMOS Jumper:

The motherboard provides 1 × 1×3-pin Clear CMOS header JBAT1 for clearing or retaining CMOS settings.

Pin pitch: 2.54 mm

The CMOS is powered by the onboard button battery. Clearing the CMOS will permanently erase the previous system configuration and restore the system settings to the default factory values.

To clear the CMOS, follow the steps below:

- 1) Turn off the computer and disconnect the power supply.
- 2) Short Pin 2–3 of JBAT1 for approximately 5 seconds.
- 3) Power on the computer.
- 4) During startup, follow the on-screen prompt to enter BIOS Setup, then load the optimized default settings.
- 5) Save the settings and exit BIOS Setup.

Pin definition is shown below:

JBAT1 Definition:

Function	JBAT1 Setting
Normal operation	1-2Pin
Clear CMOS and restore all BIOS settings to factory defaults	2-3Pin

AT/ATX Power Mode Jumper

The motherboard provides **1 × 1×3-pin AT-ATX1 jumper** for selecting the power-on mode.

Pin pitch: 2.54 mm

The power-on behavior can be configured by the jumper setting.

AT-ATX1 Definition:

Function	AT-ATX1 Setting
Disable Auto Power-on	1-2Pin (default)
Enable Auto Power-on	2-3Pin

6. Pin Definitions

6.1. The motherboard supports up to 4 serial ports (2 standard DB9 serial ports by default) and provides 4 × 2 × 5-pin standard COM headers with a 2.0 mm pitch. COM1 and COM2 support RS232 or RS485 through jumper settings.

The standard pin definitions for JCOM1, JCOM2, JCOM3, and JCOM4 are as follows:

PIN	Signal Name	PIN	Signal Name
1	DCD (A)	2	RXD (B)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

JCOM1 and COM1 share the same signals and are mutually exclusive. JCOM2 and COM2 also share the same signals and are mutually exclusive. JCOM1 and JCOM2 are not populated by default.

Supporting four serial ports requires a hardware modification; please contact CoreIPC sales in advance.

6.2. COM1 and COM2 use jumpers to select RS232 or RS485 mode. To enable RS485, configure the jumper caps as shown below.

Interface	Function	JRS485_SW1 Setting	JC1 Setting	Definition
COM1	RS232	1-3Pin ,2-4Pin (Default)	1-3Pin (Default)	COM1 Pin 2: RXD COM1 Pin 3: TXD
	RS485	3-5Pin ,4-6Pin	3-5Pin	COM1 Pin 1: A COM1 Pin 2: B

Interface	Function	JRS485_SW2 Setting	JC1 Setting	Definition
COM2	RS232	1-3Pin ,2-4Pin (Default)	2-4Pin (Default)	COM2 Pin 2: RXD COM2 Pin 3: TXD
	RS485	3-5Pin ,4-6Pin	4-6Pin	COM2 Pin 1: A COM2 Pin 2: B

6.3. The motherboard provides 1 × 1 × 4-pin USB 2.0 header with a 2.0 mm pitch (optional).

When the Mini PCIe slot is used for a 4G module, this USB port is unavailable. The

F_USB1 pin definition is as follows:

PIN	Signal Name
1	+5V
2	Data0-
3	Data0+
4	GND

6.4. The motherboard provides 1 × 1 × 4-pin red SATA drive power connector with a 2.0 mm pitch. The JSPWR1 pin definition is as follows:

PIN	Signal Name
1	+12V
2	GND
3	GND

4	+5V
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Be sure to verify the location of Pin 1 on JSATA_PWR1. Incorrect connection may damage the drive.
Use only the power cable supplied by CoreIPC.

6.5. The motherboard provides 1 × 2 × 5-pin FPANEL1 header with a 2.0 mm pitch.

The chassis power switch, reset switch, HDD LED, and power LED can be connected to this header. The FPANEL1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	HDDLED+	2	PWRLED+
3	HDDLED-	4	PWRLED-
5	GND	6	PWRBTN#
7	RESETBTN#	8	GND
9	NC	10	

6.6. The motherboard provides 1 × 1 × 4-pin 12 V DC power input connector. The DC_IN2 pin definition is as follows:

PIN	Signal Name
1	+12V
2	+12V
3	GND
4	GND

6.7. The motherboard provides 1 × 2 × 5-pin GPIO header with a 2.0 mm pitch. The GPIO1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	GND	2	+5V
3	GPO1	4	GPI1
5	GPO2	6	GPI2
7	GPO3	8	GPI3
9	GPO4	10	GPI4