Nano-N1221

Fanless Mini PC

Technical Support Documentation

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Product:	Nano-N1221
Platform:	Intel® Celeron® J6412 Processor
Classification:	Mini PC

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1. Product Overview

The Nano-N1221 is a compact fanless mini pc designed for versatile deployment in space-constrained environments. Its fanless design ensures silent, reliable operation suitable for offices, digital signage, and edge computing.

1.1 Key Features

• Fanless Aluminum Design

• Intel® Celeron® J6412 Processor

• 2 × Realtek 8111H 1000Mbps LAN Ports

• 1 × Mini PCIe, support WiFi/4G optional

• 8 × USB 4 × USB3.1

• Support synchronous / asynchronous

• 2 display, support 4K full HD

1.2 Target Applications

The Nano-N1221 is suitable for Education ect..

1.3 Package Contents

Verify the following items are included in the package:

Item	Qty	Description
Power Adapter	1	12V 5A / 12V 4A
Power Cord	1	CN, US, UK, EU etc.
VESA Bracket	1	Standard

NOTE: If any item is missing or damaged, contact IWILL Technology support immediately at support@iwilltech.co.uk.

2. Hardware Specifications

Complete technical specifications for the Nano-N1221.

SYSTEM	
Model	Nano-N1221
Processor	Intel® Celeron® J6412 Processor
Memory	1 × DDR4 3200MHz SODIMM, Max. 32 GB
BIOS	AMI UEFI BIOS
Graphics	Intel® UHD Graphics
Display Ports	2 × HDMI Max. Resolution support 4096x2160@60Hz 1 × M.2 2280
Storage	1 × 2.5-inch HDD/SSD 1 × M.2 2280 M-key support SATA protocol
Expansion	1 × Mini PCIe (support WiFi/4G optional)
Ethernet	2 × Realtek 8111H 1000M LAN Ports
OS Support	Windows 10, Windows 11, Linux
I/O PORTS	
Ports	2 × USB 2.0 1 × DB9 COM Port 1 × SIM Card Slot 1 × DC-In 2 × USB 2.0 2 × HDMI 2 × RJ45 LAN Ports 1 × Audio (support Mic and speaker at the same time)
POWER & OTHER	
Power Input	DC 12V
DISPLAY & TOUCH	
Resolution	support 4096x2160@60Hz
ENVIRONMENT	
Operating Temp.	0■ 40■ (Commercial HDD), -20■ 60■ (Industrial SSD), surface air flow
Humidity	0% 95% (non-condensing)
Certifications	CE, CCC, FCC Class A, RoHS
MECHANICAL	
Dimensions	150 × 126.5 × 45 mm
Weight	0.84 kg

3. I/O Interfaces & Connectivity

3.1 Front Io

Connector	Description
2	2 × USB 2.0
1	1 × DB9 COM Port
1	1 × SIM Card Slot
1	1 × DC-In
2	2 × USB 2.0

3.2 Rear Io

Connector	Description
2	2 × HDMI
2	2 × RJ45 LAN Ports
1	1 × Audio (support Mic and speaker at the same time)

Ethernet / LAN

• 2 × Realtek 8111H 1000M LAN Ports

> **WARNING:** Always power off the unit and disconnect all power sources before connecting or disconnecting any internal components.

4. Mechanical Dimensions

All dimensions are in millimeters (mm).

Parameter	Value
Overall Dimensions	150 × 126.5 × 45 mm
Weight	0.84 kg

NOTE: For detailed technical drawings with mounting hole positions, contact IWILL Technology at support@iwilltech.co.uk.

5. BIOS Configuration

The Nano-N1221 uses AMI UEFI BIOS. Access the BIOS setup by pressing **DEL** or **F2** during the POST screen at boot.

5.1 Entering BIOS Setup

1. Connect a USB keyboard to the unit.

2. Power on the system.

3. Press **DEL** or **F2** repeatedly as the splash screen appears.

4. The AMI UEFI BIOS setup utility will load.

5.2 Important BIOS Settings

Setting	Location	Description
Boot Order	Boot Tab	Set primary boot device (SSD, USB, PXE)
Power On After Power Loss	Advanced > ACPI	Set to [Power On] for automatic startup on power restoration
Wake-on-LAN	Advanced > Network	Enable for remote wake capability over LAN

> **NOTE:** BIOS menu paths may vary between firmware revisions. If a setting is not found, check adjacent menus or consult IWILL Technology support.

5.3 BIOS Reset

Method 1 (Keyboard): Enter BIOS setup and press **F9** to load optimized defaults, then **F10** to save and exit.

Method 2 (CMOS Reset): Power off, disconnect power, open the chassis, locate the CMOS clear jumper on the motherboard, short for 5 seconds, then remove.

6. Operating System Installation

6.1 Supported Operating Systems

OS	Notes
Windows 10	64-bit (21H2+). Recommended for most deployments.
Windows 11	64-bit. Requires TPM 2.0 enabled in BIOS.
Linux	Ubuntu 22.04+, CentOS, or compatible distributions.

6.2 Installation via USB

1. Prepare a bootable USB drive with the desired OS image (use Rufus, balenaEtcher, or dd).

2. Insert the USB drive into an available USB port.

3. Enter BIOS (DEL/F2) and set USB as the first boot device.

4. Save and restart. The OS installer should load from USB.

5. Follow on-screen instructions. Select the internal drive as the install target.

6. After installation, re-enter BIOS and restore the internal drive as primary boot device.

6.3 Driver Installation

Windows 10/11 should automatically detect most hardware via Windows Update. For chipset, graphics, and LAN drivers, download the latest versions from Intel's support site or contact IWILL Technology for the driver package.

7. Expansion Module Installation

7.1 Available Expansion Slots

• 1 × Mini PCIe (support WiFi/4G optional)

7.2 Installation Procedure

1. Power off and disconnect all power sources.

2. Remove the chassis access panel screws.

3. Locate the target expansion slot on the motherboard.

4. Insert the module at a 30° angle and press down until it clicks into the retaining clip.

5. If applicable, connect antenna pigtail cables to the module's U.FL connectors.

6. Replace the access panel and secure with screws.

> **WARNING:** Always use ESD protection (grounding strap) when handling internal expansion modules. Static discharge can permanently damage components.

7.3 Storage Installation

• 1 × 2.5-inch HDD/SSD

• 1 × M.2 2280 M-key support SATA protocol

8. Mounting Guide

8.1 VESA / Desktop Mounting

The Nano-N1221 supports VESA mounting (check rear panel for mounting hole pattern). Use M3 or M4 screws as appropriate — do not exceed the maximum thread depth.

WARNING: Ensure adequate ventilation around the unit. Do not block the heatsink fins or ventilation openings.

9. Maintenance & Troubleshooting

9.1 Routine Maintenance

• **Heatsink Cleaning:** Periodically blow out dust from the heatsink fins using compressed air.

• **Connector Inspection:** Check connectors for damage or corrosion, especially in harsh environments.

• **Firmware Updates:** Check with IWILL Technology for BIOS updates that may improve stability.

9.2 Troubleshooting Guide

Symptom	Possible Cause	Solution
No power / no LED	Power adapter disconnected or faulty	Verify DC input voltage. Try a different adapter.
No display output	Display cable loose or BIOS setting	Reseat display cable. Check BIOS display settings.
System freezes	Memory or storage issue	Reseat RAM. Test with known-good SSD. Enable watchdog.
Overheating	Blocked heatsink or high ambient temp	Clean heatsink. Ensure adequate airflow.
Boot loop	Corrupted BIOS or OS	Reset BIOS to defaults (F9). Reinstall OS.

10. Warranty & Support

10.1 Warranty Coverage

The Nano-N1221 is covered by a standard manufacturer warranty. The warranty covers defects in materials and workmanship under normal use conditions. It does not cover damage from misuse, unauthorized modifications, or exposure beyond rated specifications.

10.2 Technical Support

IWILL Technology provides worldwide technical support through regional offices:

Region	Website	Email
United Kingdom	www.iwilltech.co.uk	support@iwilltech.co.uk
MENA Region	www.iwillmena.com	support@iwillmena.com
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10.3 RMA Process

To initiate a return for repair or replacement, contact IWILL Technology support at the regional office nearest to your location with your product serial number and a description of the issue.

Appendix A — Order Information & Accessories

A.1 Order Configurations

Configuration	Description
Nano N1221 CPU Specification	Nano N1221 CPU Specification
Configuration Intel® Celeron® J6412 Stan	Configuration Intel® Celeron® J6412 Standard I/O

A.2 Included Accessories

Item	Qty	Specification
Power Adapter	1	12V 5A / 12V 4A
Power Cord	1	CN, US, UK, EU etc.
VESA Bracket	1	Standard

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