LattePanda 3 Delta 864 – High-Performance x86 Single Board Computer for Windows and Linux

The **LattePanda 3 Delta 864** is a next-generation **x86 single-board computer (SBC)** that delivers desktop-class performance in a compact, energy-efficient design. Featuring an **Intel Celeron N5105 quad-core processor** running up to **2.9 GHz**, 8 GB LPDDR4 RAM, and a fast **64 GB eMMC** drive, this board is the perfect hybrid of PC power and embedded versatility. Whether you're developing AI projects, robotics systems, media servers, or industrial control solutions, the LattePanda 3 Delta provides unmatched flexibility and processing power in the palm of your hand.

Powerful x86 Architecture in a Compact Form

At the heart of the LattePanda 3 Delta is Intel's **Celeron N5105 (Jasper Lake)** processor, built on a 10 nm process. This CPU offers **4 cores and 4 threads**, delivering up to **2× faster performance** than its predecessor, the LattePanda Delta 2. The integrated **Intel UHD Graphics 600** enables smooth 4K video playback, GPU acceleration, and lightweight 3D rendering—ideal for both graphical applications and machine-learning workloads.

Despite its miniature footprint, the LattePanda 3 Delta runs full **Windows 10/11**, **Linux (Ubuntu, Debian)**, or other x86 operating systems, making it fully compatible with traditional PC software

and development tools. You can run Visual Studio, Python, Node.js, or TensorFlow directly on the board—no cross-compiling or reduced-feature firmware required.

Fast Memory and Built-In Storage

Equipped with **8 GB LPDDR4 RAM**, the LattePanda 3 Delta handles multitasking and heavy workloads effortlessly. Its **64 GB eMMC storage** ensures quick boot times and reliable data access, while users can further expand storage using an **M.2 M-key slot** (for NVMe SSD drives) or external USB drives.

This combination of speed and expandability allows developers to create data-intensive applications such as AI inference, video analytics, or local databases—all without sacrificing performance or responsiveness.

Rich Connectivity and Expansion Options

The LattePanda 3 Delta is designed to integrate seamlessly with modern hardware ecosystems. It includes:

- **Gigabit Ethernet** for stable, high-speed networking
- **Wi-Fi 6 (802.11ax)** and **Bluetooth 5.2** for advanced wireless communication
- **USB 3.2 Gen 2 Type-C**, **USB 3.0 Type-A**, and **USB 2.0** ports for connecting peripherals
- **HDMI 2.0** output supporting 4K display at 60 Hz
- **M.2 B-key slot** for 4G / 5G cellular modules or SATA SSD
- **M.2 E-key slot** for Wi-Fi or AI accelerators

- **GPIO header (DF-Robot compatible)** for Arduino extensions and sensor interfacing

With these interfaces, the board can function as a full IoT hub, industrial controller, or embedded computer, seamlessly linking to cameras, sensors, displays, and edge AI hardware.

Dual System Architecture with Integrated Microcontroller

One of the LattePanda's standout features is its built-in **Arduino co-processor (ATmega32U4)**, giving developers direct access to real-time I/O control. This dual architecture allows you to run a full Windows or Linux environment on the x86 CPU while handling timing-critical tasks (sensors, motors, LEDs, etc.) on the Arduino side.

This combination bridges the gap between **PC-level processing** and **microcontroller precision**, making the LattePanda 3 Delta perfect for robotics, automation, and smart device applications.

Energy Efficient and Thermally Optimized

With a **10 W TDP**, the Celeron N5105 delivers exceptional performance per watt, allowing the LattePanda 3 Delta to run silently with minimal heat output. The board supports passive or active cooling, ensuring reliable operation in industrial and embedded environments. Its **USB-C PD input** supports **12 V–20 V power supply**, and it includes intelligent power management for safe startup and shutdown sequences.

Software Support and Development Flexibility

The LattePanda 3 Delta supports a wide range of programming languages and frameworks including C/C++, Python, .NET, ROS, TensorFlow, and OpenCV. Developers can utilize **Windows 10 IoT Enterprise**, **Windows 11**, or **Ubuntu 22.04 LTS**, allowing both graphical UI applications and headless server operations.

The open-source **LattePanda community** provides detailed documentation, tutorials, and software examples, enabling rapid prototyping and deployment for makers and professionals alike.

Applications

- Robotics and autonomous systems
- IoT gateways and edge computing nodes
- Industrial automation and machine vision
- AI model deployment and neural inference

- 💡 Digital signage and interactive displays
- 🖥️ Mini desktop computers or portable servers

From classrooms to factories, the LattePanda 3 Delta empowers developers to build smarter, faster, and more connected solutions.

Key Specifications

- **Processor:** Intel Celeron N5105 (Quad Core, up to 2.9 GHz)
- **GPU:** Intel UHD Graphics 600 (4K @ 60 Hz HDMI)
- **Memory:** 8 GB LPDDR4
- **Storage:** 64 GB eMMC + M.2 M-key for NVMe SSD
- **Connectivity:** Wi-Fi 6, Bluetooth 5.2, Gigabit Ethernet
- **Ports:** USB 3.2 Gen 2 Type-C, USB 3.0, USB 2.0, HDMI 2.0
- **Expansion:** M.2 B/E slots, GPIO header, Arduino ATmega32U4
- **Power:** 12–20 V via USB-C PD
- **Dimensions:** 125 mm × 78 mm × 16 mm

Package Includes

- 1 × LattePanda 3 Delta 864 Board (8 GB RAM + 64 GB eMMC)
- 1 × USB-C Power Cable
- 1 × Wi-Fi Antenna Pair
- 1 × User Documentation