Geniatech XPI-3566

Geniatech XPI-3566 Single Board Computer User Manual

Model: XPI-3566

1. Introduction

The Geniatech XPI-3566 is a high-performance single-board computer designed for various embedded applications. It features a Rockchip RK3566 processor with a built-in 0.8T NPU and up to 8GB of LPDDR4 RAM. This board supports multiple operating systems including Linux Debian10, Android 11, and Raspbian OS emulator, offering seamless migration capabilities for projects previously developed on Raspberry Pi platforms.
The XPI-3566 is equipped with a 40-pin GPIO extension interface, compatible with Raspberry Pi accessories, and supports 4K HDMI, MIPI-DSI, and MIPI-CSI display outputs. Integrated WiFi and wired network connections make it suitable for AI, machine learning, and multimedia applications.

Image 1.1: Geniatech XPI-3566 Single Board Computer, top view showing various ports and components.

2. Setup Guide

2.1 Hardware Overview

Familiarize yourself with the various ports and components on the XPI-3566 board before proceeding with setup.

Image 2.1: Labeled diagram of the XPI-3566 board, highlighting HDMI OUT, MIPI-DSI, MIPI-CSI, Type C, LAN, USB 3.0, USB 2.0, and Extension GPIO.

2.2 Power Supply

Connect a compatible 5V power supply to the USB Type-C port. Ensure the power supply can provide sufficient current for stable operation, especially when connecting multiple peripherals.

2.3 Display Connection

Connect your display device using one of the available interfaces:

- **HDMI:** For standard monitors and TVs.
- **MIPI-DSI:** For compatible display panels.
- **MIPI-CSI:** For compatible camera modules.

2.4 Peripheral Connections

- **USB Ports:** Connect keyboards, mice, and other USB devices to the USB 2.0 or USB 3.0 ports.
- **Ethernet:** For a wired network connection, plug an Ethernet cable into the LAN port.
- **GPIO:** The 40-pin GPIO header allows for connection to various sensors, actuators, and expansion boards. Refer to the pin definition table for details.

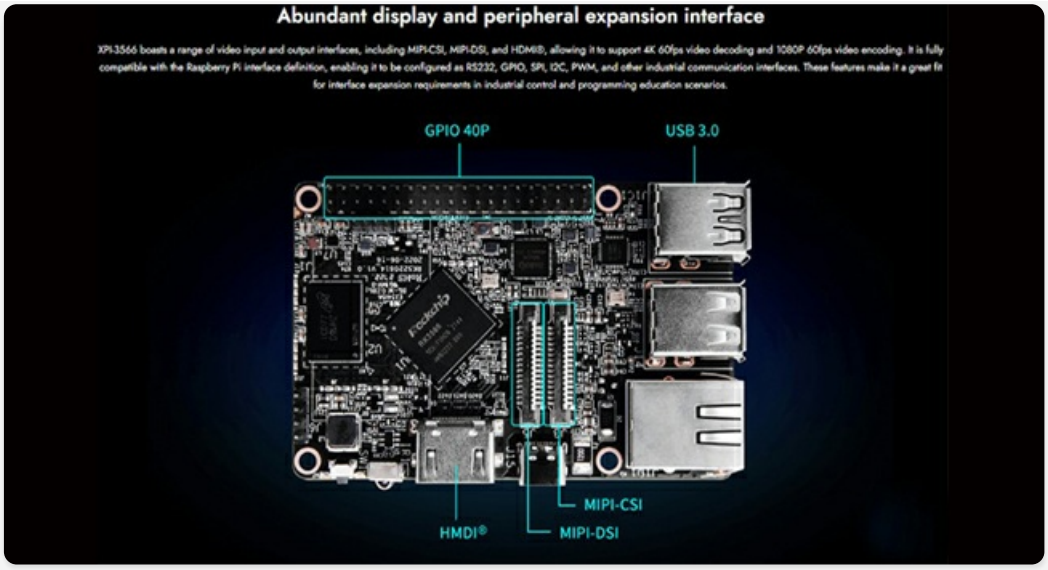


Image 2.2: Detailed pinout diagram for the 40-pin GPIO header, showing definitions for VCC, GND, I2C, UART, PWM, and other functions.

2.5 Operating System Installation

The XPI-3566 supports Linux Debian10, Android 11, and Raspbian OS emulator. Installation typically involves flashing an image to the eMMC storage or a TF card. Detailed instructions for flashing the OS can be found on the Geniatech support website.

3. Operating Instructions

3.1 First Boot

After connecting all necessary peripherals and flashing the operating system, connect the power supply. The board should boot automatically. Follow the on-screen prompts for initial setup of your chosen operating system.

3.2 Network Configuration

The XPI-3566 supports both wired Ethernet and wireless WiFi/Bluetooth connectivity. Configure your network settings within the operating system's network manager. For WiFi, select your network and enter the password. For Bluetooth, pair with compatible devices.

3.3 Software Development and Applications

The XPI-3566 is designed for a wide range of applications, including:

- Programming Education
- Software Development
- Business Display Advertising Machines
- Touch Control All-in-one Machines
- Self-service Terminals
- Multimedia Terminals

Its compatibility with Raspberry Pi's 40P GPIO and support for various operating systems facilitate diverse project development.

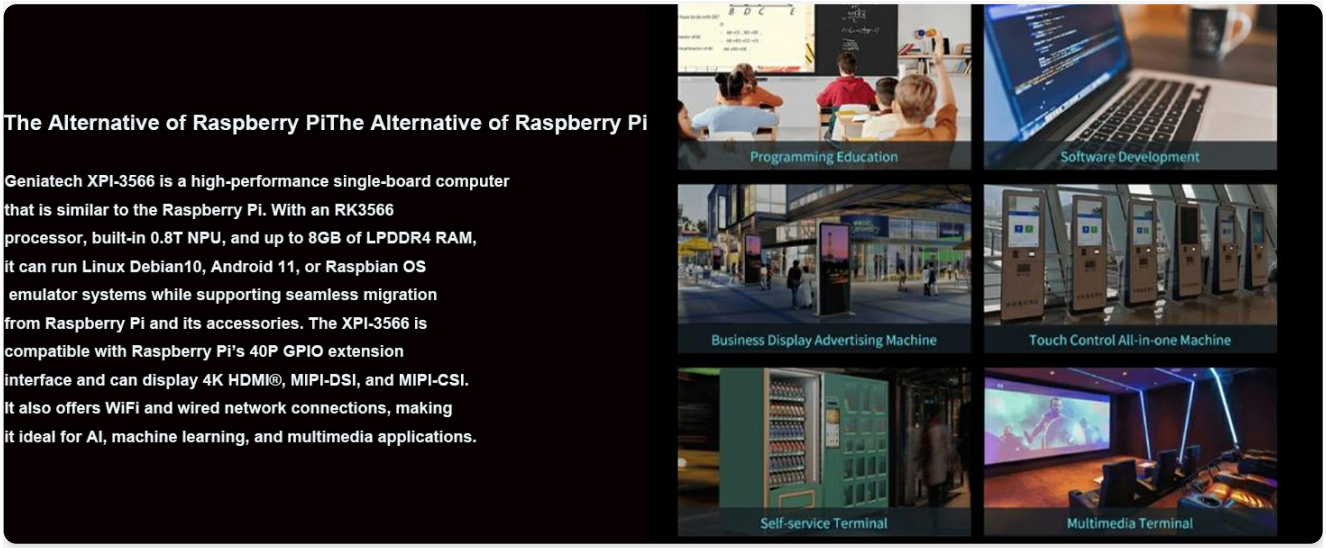


Image 3.1: Examples of XPI-3566 application scenarios, including programming education, software development, and various terminal uses.

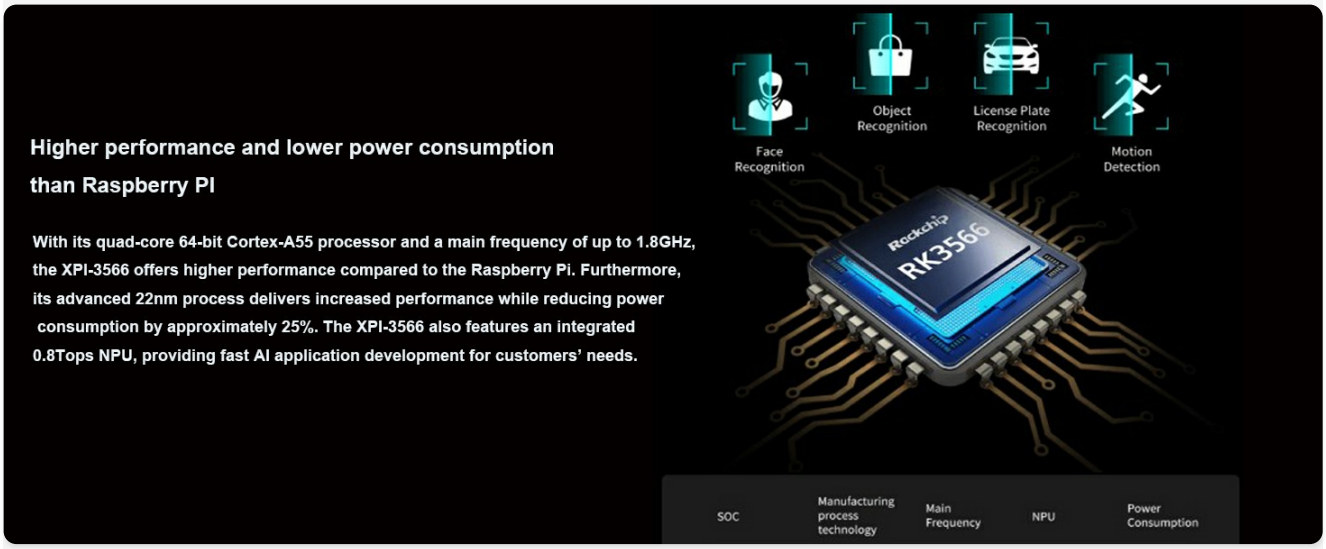


Image 3.2: Illustration of software customization options, showing logos for RaspbianOS simulator, Debian 10, and Android 11.

4. Maintenance

To ensure the longevity and optimal performance of your Geniatech XPI-3566, follow these maintenance guidelines:

- **Keep Clean:** Regularly clean the board to prevent dust accumulation, which can lead to overheating. Use compressed air or a soft brush.
- **Avoid Extreme Conditions:** Operate the board within its specified temperature and humidity ranges. Avoid direct sunlight, excessive heat, or moisture.
- **Proper Ventilation:** Ensure adequate airflow around the board, especially if it is enclosed in a case.
- **Secure Connections:** Periodically check all cable connections (power, display, peripherals) to ensure they are secure.
- **Software Updates:** Keep your operating system and installed software updated to benefit from performance improvements and security patches.

5. Troubleshooting

If you encounter issues with your XPI-3566, consider the following troubleshooting steps:

5.1 No Power/No Boot

- **Check Power Supply:** Ensure the power adapter is correctly connected and provides the specified 5V output with sufficient current.
- **Verify Connections:** Confirm all cables are securely plugged in.
- **Re-flash OS:** If the board does not boot, the operating system image might be corrupted. Try re-flashing the OS to the eMMC or TF card.

5.2 Display Issues

- **Cable Check:** Ensure the HDMI, MIPI-DSI, or MIPI-CSI cable is properly connected to both the board and the display.
- **Display Input:** Verify that your display is set to the correct input source.
- **Resolution Settings:** If you see a distorted image, the resolution might be incompatible. Try booting with a different display or accessing the OS via serial console to adjust settings.

5.3 Network Connectivity Problems

- **Wired Ethernet:** Check the Ethernet cable and router connection. Verify network settings within the OS.
- **WiFi/Bluetooth:** Ensure the wireless module is enabled in the OS. Check WiFi network credentials and signal strength. For Bluetooth, ensure the device is discoverable.

5.4 Peripheral Not Detected

- **USB Devices:** Try connecting the device to a different USB port. Ensure the device drivers are installed in the operating system.
- **GPIO Devices:** Verify your wiring and software configuration for the GPIO pins. Consult the 40-pin header definition.

6. Specifications

Detailed technical specifications for the Geniatech XPI-3566 Single Board Computer:

Feature	Specification
Processor	Rockchip RK3566, Quad-core Cortex-A55
NPU	0.8 TOPS
RAM	LPDDR4, 8 GB
Storage	8 GB eMMC (expandable via TF Card Slot)
Operating System Support	Linux Debian10, Android 11, Raspbian OS emulator
Display Output	4K HDMI, MIPI-DSI, MIPI-CSI
Connectivity	Wi-Fi, Bluetooth, Gigabit Ethernet, GPIO
USB Ports	USB 3.0 x 1, USB 2.0 x 3
GPIO	40-pin header (Raspberry Pi compatible)
Dimensions	3.4 x 2.2 x 0.7 inches

Feature	Specification
Weight	1.6 ounces
Manufacturer	Geniatech

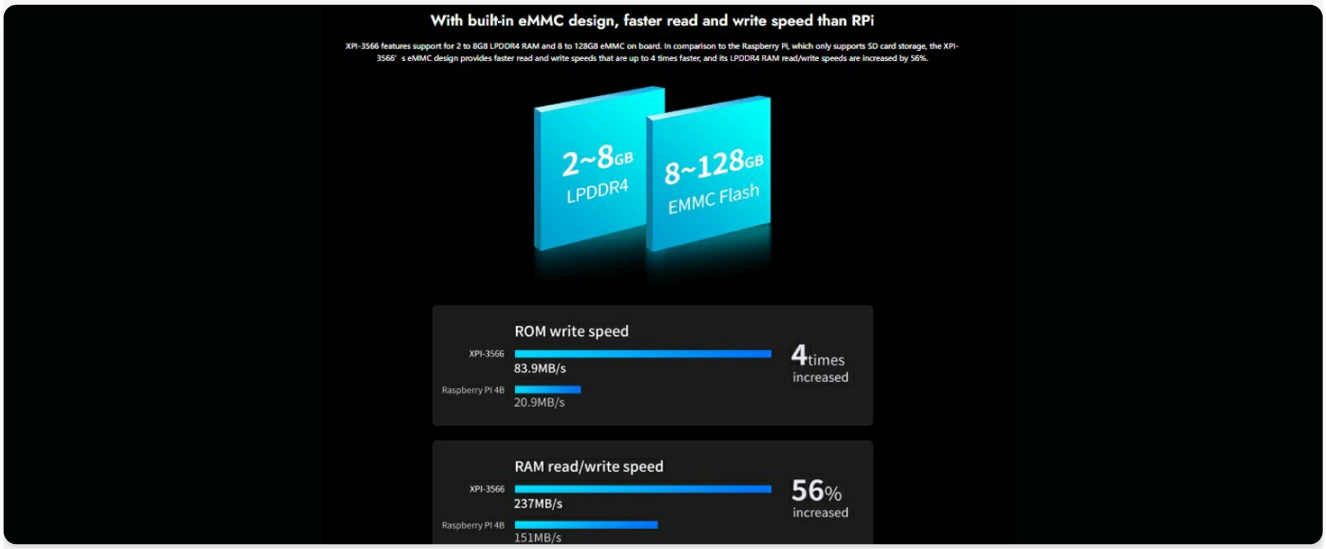


Image 6.1: Performance comparison highlighting the RK3566 processor's features like 1.8GHz frequency and 0.8 TOPS NPU.

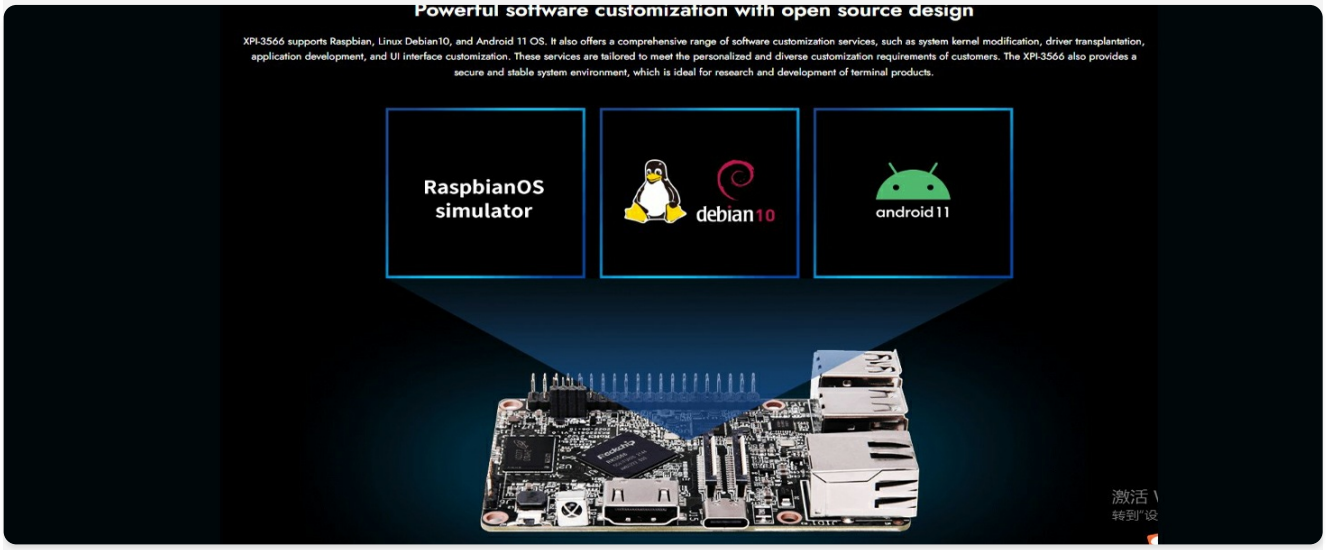
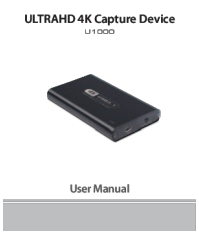


Image 6.2: Comparison of ROM write speed and RAM read/write speed, demonstrating increased performance with eMMC design.

7. Warranty and Support

For warranty information and technical support, please refer to the official Geniatech website or contact their customer service directly. Keep your purchase receipt as proof of purchase.
You can find more information and support resources at theGeniatech Store on Amazon.

Related Documents - XPI-3566

	[Geniatech APC3566MINI User's Guide: Setup, Settings, and Specifications] Comprehensive user guide for the Geniatech APC3566MINI media player, covering safety information, product features, detailed settings, troubleshooting, and specifications. Learn how to set up and use your device.
	[Geniatech Kloud Note User Manual: E-ink Digital Notebook and Reader Guide] Explore the features and functionalities of the Geniatech Kloud Note (Kloudnote-Slim) E-ink tablet. This user manual provides detailed instructions on note-taking, reading, app management, device settings, and troubleshooting.
	[Geniatech ATV316MAX Android TV Box User's Guide] Comprehensive user's guide for the Geniatech ATV316MAX Android TV Box, covering setup, safety information, product features, settings configuration, app management, troubleshooting, and technical specifications.
	[Geniatech ATV390 Android Box User's Guide: Setup, Features, and Settings] Comprehensive user guide for the Geniatech ATV390 Android Box, covering setup, product features, network settings, app management, troubleshooting, and specifications. Learn how to use your Android TV box effectively.
	[Geniatech CBD-3568-SMARC Specification Sheet] Detailed specifications for the Geniatech CBD-3568-SMARC, a development platform based on the RK3568 SMARC SOM. Includes features, connectors, multimedia capabilities, and precautions.
	[ULTRAHD 4K Capture Device U1000 User Manual] The Geniatech U1000 is a plug-and-play 4K HDR capture device for gaming and live streaming. Compatible with Windows, macOS, and Linux, it supports 4K P60 HDMI input/output and 4K P30 capture/streaming, with microphone input and OBS integration.