Raspberry Pi RPICM3P-LITE

Raspberry Pi Compute Module 3+ Lite User Manual
Model: RPICM3P-LITE

1. INTRODUCTION

The Raspberry Pi Compute Module 3+ Lite is an industrial-grade System-on-Module (SoM) that integrates the core components of a Raspberry Pi 3 Model B+ into a compact SODIMM form factor. This module is designed for embedded applications, offering a powerful quad-core processor and 1GB of LPDDR2 SDRAM. It provides access to more GPIO pins when used with a compatible I/O board (not included), making it suitable for a wide range of industrial and consumer products.

2. SAFETY INFORMATION

Please read all safety instructions carefully before using the Raspberry Pi Compute Module 3+ Lite.

- The Compute Module must only be handled in compliance with Electrostatic Discharge (ESD) protection measures.

- Before connecting to a power supply, ensure that no thermal overload will occur. Adequate ventilation is crucial.

- Do not operate the module in humid, wet, or excessively dusty environments.

- Never allow direct contact with water or any other conductive liquids.

- Only connect the module with recommended power supplies that provide the correct voltage and current.

- Liquids, dust, and overvoltages can lead to dangerous situations or cause permanent defects.

- Avoid storing the module in an enclosed housing without proper ventilation to prevent damage or corrosion.

- Do not attempt to repair defective modules or components yourself. Unauthorized repairs can void your warranty and cause further damage.

- Recycle defective or discarded Compute Modules according to local electronic waste disposal regulations.

3. PRODUCT OVERVIEW

The Raspberry Pi Compute Module 3+ Lite offers a compact and robust solution for embedded systems. Its

design allows for integration into custom hardware, leveraging the extensive Raspberry Pi ecosystem.

Key Features:

- **Processor:** Broadcom BCM2837B0, Cortex-A53 (ARMv8) 64-bit SoC running at 1.2GHz.

- **RAM:** 1GB of LPDDR2 SDRAM.

- **Form Factor:** Based on the SODIMM standard, enabling use with standard connectors.

- **GPIO:** Provides access to a greater number of GPIO pins compared to standard Raspberry Pi boards when used with an appropriate I/O board.

Module Layout:

Figure 3.1: Front view of the Raspberry Pi Compute Module 3+ Lite, showing the main processor and memory components.

Sicherheitshinweise
gemäß GPSR (General Product Safety Regulation)

Raspberry Pi Compute Module 3 B+ Lite

Artikelnummer	RPICM3P-LITE
Hersteller	Raspberry Pi
EAN	0765756931106
Zolltarifnummer	84715000
Herkunftsland	Großbritannien
Gewicht (in kg)	0.019

Warnhinweise und Sicherheitsinformationen:

- Das Compute Module nur unter Beachtung der ESD-Schutzmaßnahmen handhaben.
- Vor dem Anschluss an Stromversorgung sicherstellen, dass alle Verbindungen korrekt sind.
- Wird in einem Gehäuse verwendet, sicherstellen, dass keine Wärmeüberlastung auftritt (ausreichende Belüftung).
- Nicht in feuchter, nasser oder sehr staubiger Umgebung betreiben.
- Niemals direkten Kontakt mit Wasser oder leitfähigen Flüssigkeiten erlauben.
- Ausschließlich mit empfohlenem Netzteil verwenden (richtige Spannung und Stromstärke beachten).
- Flüssigkeits- oder Überspannungsschäden können zu gefährlichen Situationen oder Defekten führen.
- Längere Lagerung ohne Gehäuse vermeiden, um Beschädigungen oder Korrosion zu verhindern.
- Defekte Module oder Komponenten nicht eigenständig reparieren.
- Defekte oder ausgediente Compute Modules gemäß den lokalen Elektronik-Entsorgungsvorschriften recyceln.

Herstellerangaben

Raspberry Pi Ltd.
194 Cambridge Science Park, Milton Road
GB - CB4 0AB Cambridge
compliance@raspberrypi.com
https://www.raspberrypi.com

WEEE-Nummer: 20453810

Verantwortliche Person für die EU

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Figure 3.2: Back view of the Raspberry Pi Compute Module 3+ Lite, illustrating the SODIMM connector and additional circuitry.

4. SETUP

The Compute Module 3+ Lite requires a compatible I/O board for operation. This section outlines the general steps for initial setup.

1. **Prepare I/O Board:** Ensure your I/O board is compatible with the Compute Module 3+ Lite and has the necessary power supply and peripheral connections.

2. **Insert Compute Module:** Carefully align the Compute Module 3+ Lite with the SODIMM connector on your I/O board. Apply even pressure to insert it fully until it is securely seated.

3. **Connect Peripherals:** Connect any required peripherals such as a display (HDMI), keyboard, mouse, and network cable to the I/O board.

4. **Power Supply:** Connect a suitable power supply to your I/O board. Refer to your I/O board's documentation for specific power requirements.

5. **Operating System:** The Compute Module 3+ Lite does not have onboard eMMC storage. You will need to provide an operating system via an SD card (if your I/O board supports it) or network boot. It is compatible with NOOBS 3.0.0 or later.

5. OPERATING INSTRUCTIONS

Once the Compute Module 3+ Lite is set up with an I/O board and an operating system, its operation is similar to a standard Raspberry Pi.

- **Power On:** Apply power to the I/O board. The module should boot up, and you should see output on your connected display.

- **OS Interaction:** Interact with the operating system using your connected keyboard and mouse.

- **Software Installation:** Install software and applications as needed for your specific project or application.

- **GPIO Usage:** Utilize the GPIO pins for interfacing with external hardware, following the documentation for your I/O board and the Raspberry Pi GPIO libraries.

- **Shutdown:** Always perform a proper shutdown of the operating system before disconnecting power to prevent data corruption.

6. MAINTENANCE

Proper maintenance ensures the longevity and reliable operation of your Compute Module 3+ Lite.

- **Keep Clean:** Regularly clean the module and I/O board to prevent dust accumulation, which can lead to overheating or short circuits. Use a soft, dry brush or compressed air.

- **Environmental Control:** Operate the module within its specified temperature and humidity ranges. Avoid extreme conditions.

- **Firmware Updates:** Keep the operating system and any relevant firmware updated to ensure optimal performance and security.

- **Secure Connections:** Periodically check all connections (SODIMM, power, peripherals) to ensure they are secure and free from corrosion.

- **ESD Protection:** When handling the module, always observe ESD precautions to prevent damage from static electricity.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

- **No Power/No Boot:**

    - Ensure the power supply is correctly connected and provides sufficient voltage and current for the I/O board and module.
    - Verify the Compute Module is correctly seated in the SODIMM slot.
    - Check for any visible damage to the module or I/O board.

- **No Display Output:**

    - Confirm the display cable (e.g., HDMI) is securely connected to both the I/O board and the monitor.
    - Ensure the monitor is powered on and set to the correct input source.
    - Verify that the operating system image is correctly installed and configured for display output.

- **Peripheral Issues (Keyboard/Mouse/USB):**

    - Try connecting peripherals to different USB ports on the I/O board.
    - Test peripherals with another device to confirm they are functional.
    - Ensure the operating system has the necessary drivers.

- **Overheating:**

    - Ensure adequate ventilation around the module and I/O board.
    - Consider adding a heatsink or fan if operating in high-temperature environments or under heavy load.
    - Reduce CPU load if possible.

8. SPECIFICATIONS

Brand	Raspberry Pi
Model Name	Compute Module 3+ Lite
Model Number	RPICM3P-LITE
UPC	765756931106
Processor	Broadcom BCM2837B0, Cortex-A53 (ARMv8) 64-bit SoC
CPU Speed	1.2 GHz
RAM Memory Installed Size	1 GB LPDDR2 SDRAM
Memory Storage Capacity	None (Lite version, requires external storage)
Operating System	NOOBS 3.0.0 or later (user-provided)
Connectivity Technology	GPIO (via I/O board)
Compatible Devices	Raspberry Pi Camera, Raspberry Pi Touch Display, Arduino, USB keyboard, USB mouse, HDMI monitor, speakers (via I/O board)

Item Dimensions (L x W x H)	2.66" x 2.66" x 2.3" (approximate, module only)
Manufacturer	Raspberry Pi

9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact Raspberry Pi directly.

Manufacturer Information:

Raspberry Pi Ltd.
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