Debug Expansion Card (UART/EC-S/USB-C) Product Manual

Document Properties	
Document version	V1.0
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Applicable product model	DC-ROMA RISC-V Mainboard for Framework Laptop 13
Operating system version	Ubuntu 24.04 or Fedora 41
Document target audience	Users who purchased the DC-ROMA RISC-V Mainboard I on DeepComputing's official website
Document overview	This document details the features and usage of the Debug Expansion Card (UART/EC-S/USB-C)

Catalog

Product Photo

1. Product Overview

The Debug Expansion Card (UART/EC-S/USB-C) that splits a single USB-C port into two independent interfaces: one supporting USB 3.0 device connectivity and the other providing configurable debug functionality. The debug interface features a toggle switch for mode selection between serial UART mode and ST-LINK EC (embedded controller) flashing mode, addressing diverse development requirements.

2. Key Features

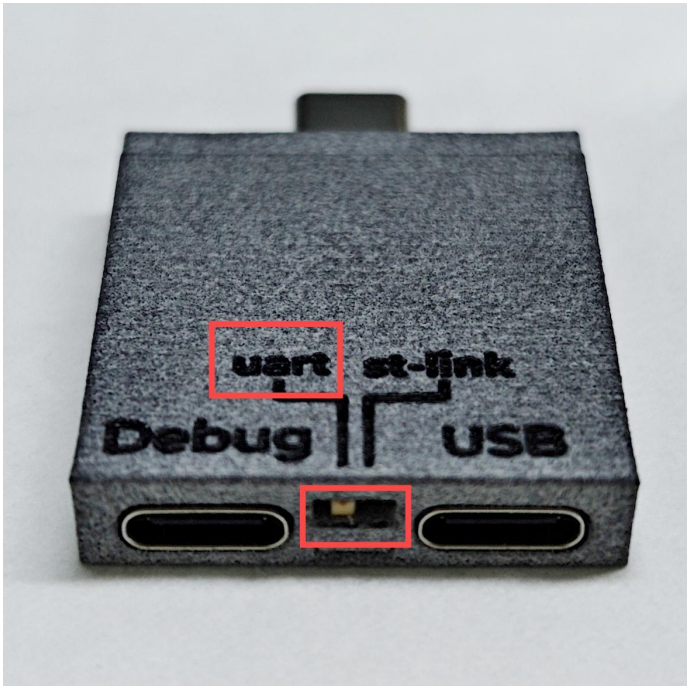
1) **USB-C Plug Compatibility : Standardized USB-C male connector design, compatible with all USB-C devices.**
2) **Dual Independent Female Ports : USB 3.0 Port supports high-speed data transfer (up to 5Gbps). Debug Port is switchable between UART serial communication and ST-LINK EC flashing modes.**
3) **Flexible Debug Mode Switching : Built-in physical switch for instant selection between UART serial debugging and ST-LINK flashing mode.**
4) **USB 3.0 High-Speed Transfer : USB-C female port (supports USB 3.0) delivers up to 5Gbps transfer speeds, making it ideal for reliable and efficient large-file transfers.**
5) **Compact & Portable Design: Measuring only 32mm × 30mm × 6mm, it requires no driver installation, ensuring portability and ease of use.**

3. Specifications

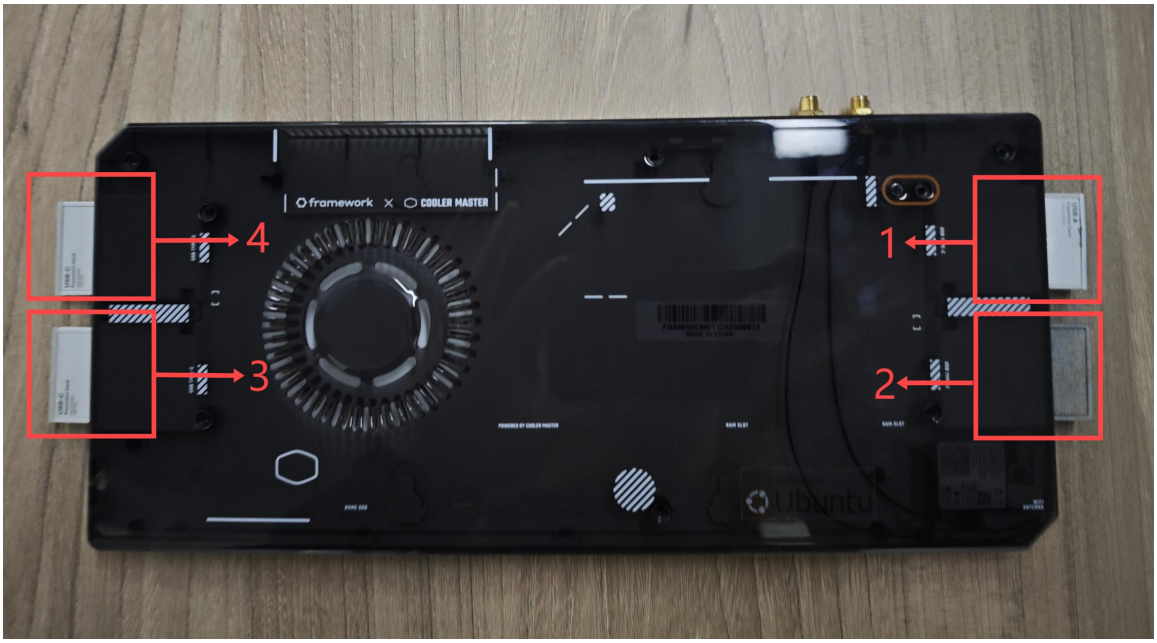
Input Interface	**USB-C Male Plug**
Output Interface	**1. USB-C Female Port (Supports USB 3.0)** **2. Debug Female Port (Supports UART Serial Debugging and ST-LINK EC Flashing)**
Transfer Speed	**USB 3.0: Up to 5Gbps**
Dimensions	**32mm × 30mm × 6mm**

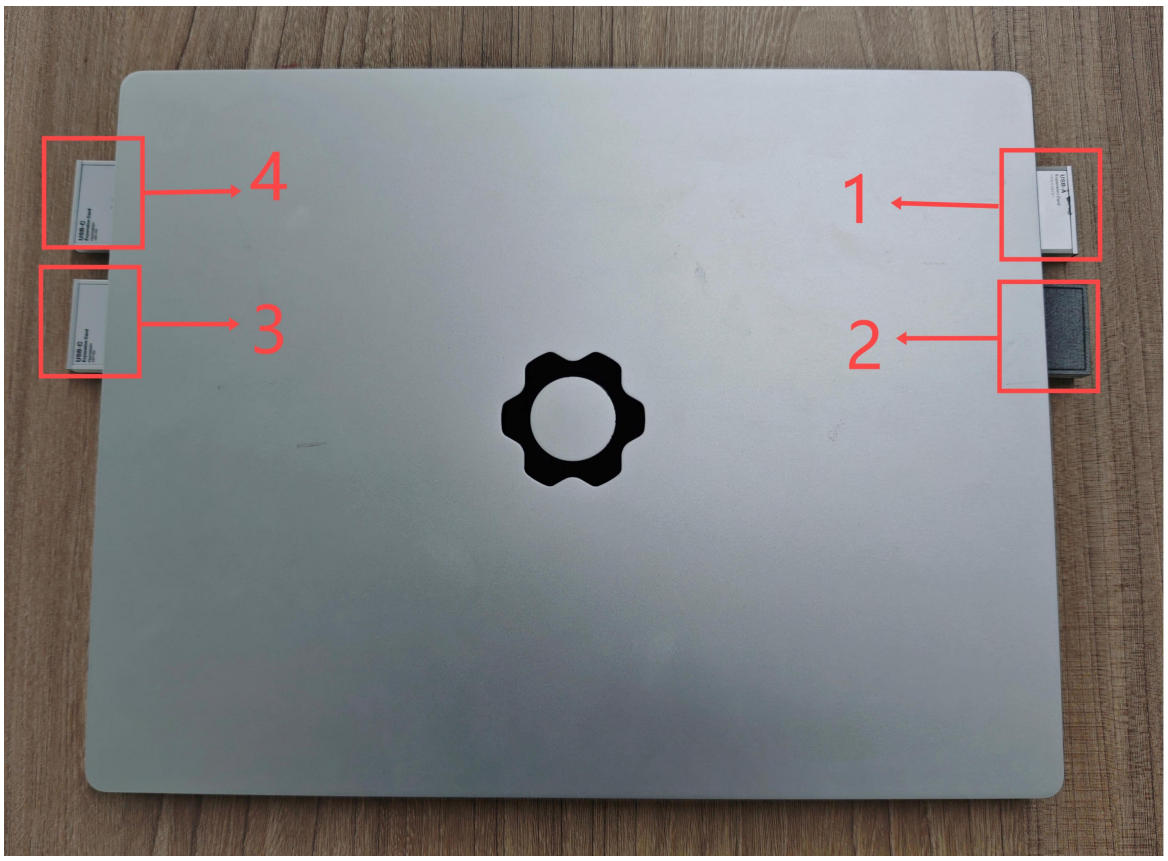
4. User Guide

1) **Device Connection : Insert the Debug expansion card (UART/EC-S/USB-C) into the device.**
2) **USB 3.0 Port Connection : Connect USB-C device to the USB 3.0 Port for immediate use.**
3) **Debugging Function Usage :**
   - **UART Serial Debugging: Switch the toggle to the "UART" position, and connect the Debug port to the target device using a dual-ended USB-C cable. Communication can then be carried out via debugging tools.**



- **To use the UART serial debugging function, insert the Debug Expansion Card (UART/EC-S/USB-C) into the designated slot, as shown in the photos below (Slot 2). Please note that only Slot 2 supports UART serial debugging functionality.**





- **ST-LINK EC Flashing : Switch the toggle to the "ST-LINK" position, and connect the Debug port to the target device using a dual-ended USB-C cable. Use the ST-LINK tool on the target device to perform EC firmware flashing. For detailed steps, please refer to [EC Firmware Flashing Instructions]**

- **To use the ST-LINK EC flashing function, insert the Debug Expansion Card (UART/EC-S/USB-C) into the designated slot, as shown in the photo below (Slot 3). Please note that only Slot 3 supports EC flashing functionality.**