K230 Flash GUI User Manual

1. Software Overview

K230 Flash GUI is a tool for flashing firmware to K230 development boards, providing both **single flash** and **batch flash** modes, and supporting multiple storage media (eMMC, SD Card, Nand Flash, NOR Flash, OTP).

This tool is based on the **k230-flash** library with a friendly GUI interface. If you need to use **command-line tools** for automated flashing workflows, you can directly call the **k230-flash** library without GUI interaction.

2. System Requirements

- **Operating System**: Windows / Linux
- **Python Version**: Python 3.8 and above
- **Dependencies**: PySide6, loguru, gitpython, k230-flash, etc. (see `requirements.txt` for details)

3. Installation

3.1 Install Python and Dependencies

1. **Install Python 3.8 or higher** and ensure `pip` is installed.

2. Run the following command to install dependencies:

   ```
   pip install -r requirements.txt
   ```

3.2 Run the Software

Launch the GUI by running the following command in terminal:

```
python main.py
```

4. Development Board Hardware Setup

Before flashing, you need to put the **K230 development board** into **USB Boot mode**:

1. **Method 1** (Recommended):

   - **Hold down** the **BOOT** button on the development board, then **plug in the USB cable** to power on the board.

2. **Method 2**:

   - When the board is already powered on, **hold down** the **BOOT** button, then **press and hold the RESET** button, then **release RESET**, and finally **release BOOT**.

After entering **USB Boot mode**, you can check in **Device Manager** (Windows) or `lsusb` (Linux) to see if the **"K230 USB Boot Device"** is recognized.

5. Driver Installation (Windows)

K230 Flash GUI uses **libusb** for USB device communication. On Windows, you need to install **drivers**. We recommend using the **Zadig** tool:

1. **Download Zadig** (https://zadig.akeo.ie/).
2. **Open Zadig**, select **Options > List All Devices**, then find **K230 USB Boot Device**.
3. In the **Driver** option, select **WinUSB** (if already installed, you can choose to reinstall).
4. Click **Install Driver** and wait for installation to complete.
5. After installation, you can see **K230 USB Boot Device (WinUSB)** in **Device Manager**.

6. User Interface

The software provides an intuitive graphical interface, including menu bar, main interface, and log area.
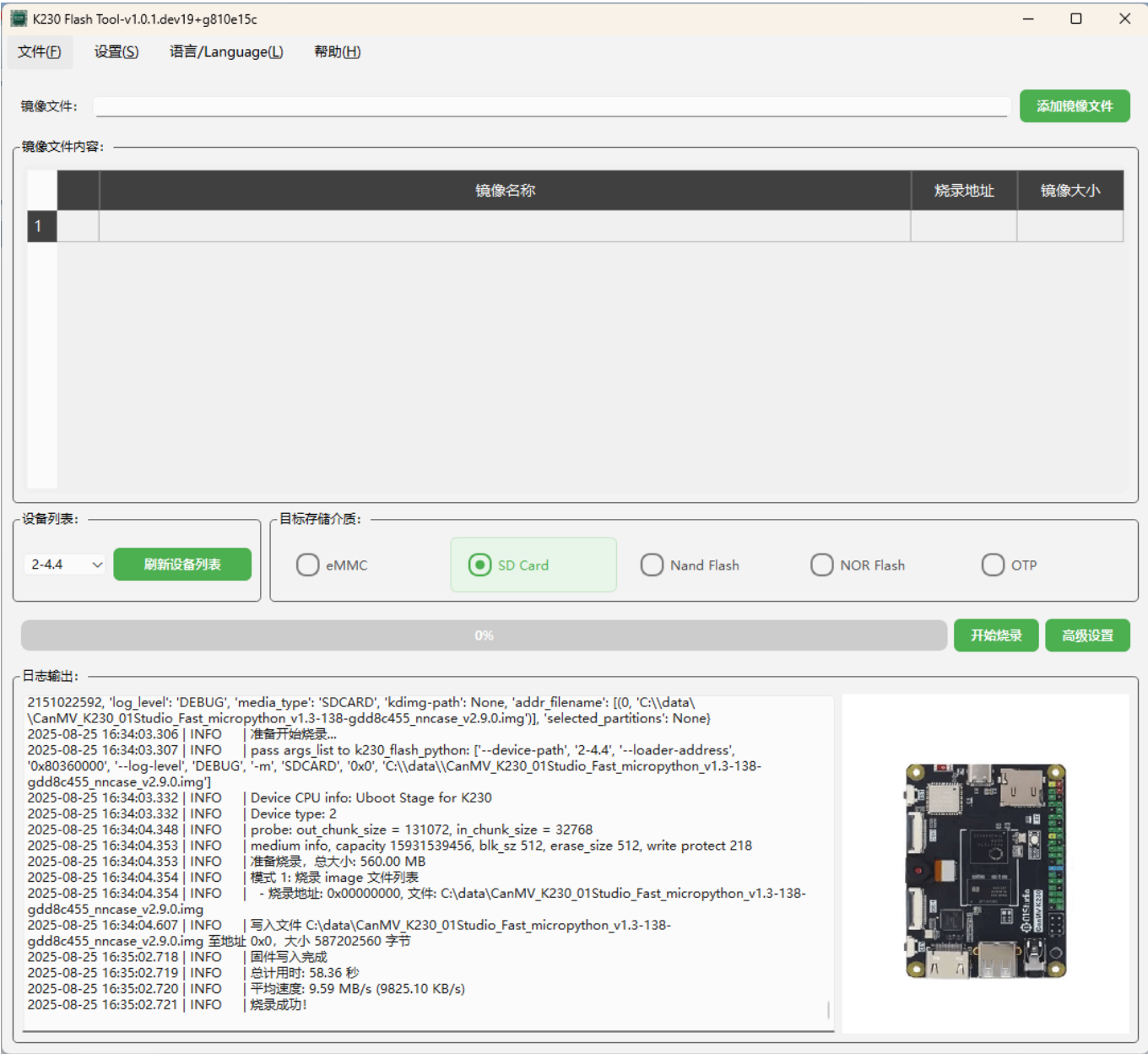
6.1 Menu Bar

- **File (F)**: Provides exit function (shortcut `Ctrl+Q`).
- **Settings (S)**: Select flash mode (single / batch) and advanced settings.
- **Language (L)**: Supports Chinese / English switching.
- **Help (H)**: Contains "About" information and user manual.

6.2 Main Interface

- **Image File Selection**: Select `.bin`, `.img`, `.kdimg` files.
- **Target Storage Media**: Supports eMMC, SD Card, Nand Flash, NOR Flash, OTP.
- **Progress Bar and Log**: Shows flashing progress and log information.

7. Flashing Process

7.1 Select Flash Mode

In **Settings > Flash Mode**, choose:

- **Single Flash Mode**: Flash a single device individually.
- **Batch Flash Mode**: Flash multiple devices simultaneously (this feature is still under development).

7.2 Select Firmware File

1. Click the "Add Image File" button to select `.bin`, `.img`, or `.kdimg` files.
2. `.img` files will be parsed into multiple partitions, and users can check the parts they want to flash.

7.3 Select Target Storage Media

Select **eMMC / SD Card / Nand Flash / NOR Flash / OTP** in the media options.

7.4 Start Flashing

1. **Confirm the image file, target storage media, and flash address**.
2. Click the **"Start Flash"** button, and the progress bar will show real-time flashing progress.
3. After flashing is complete, the log area will show **"Flash Complete!"**.

8. Command-line Flashing with k230-flash

If you need to flash from **command line** or **automation scripts**, you can directly use the `k230-flash` library. For example:

```python
from k230_flash.main import main

# Example: Flash a .kdimg file to SDCARD with auto-reboot
args = [
    "/path/to/your/firmware.kdimg",
    "--media-type", "SDCARD",
    "--auto-reboot"
]
```

```
# Call the main function with argument list
main(args)
```

9. Advanced Settings

You can configure advanced options in **Settings > Advanced Settings**, such as adjusting flash parameters, modifying flash addresses, etc.

10. Language Switching

Select **Chinese** or **English** in the **Language** menu, and the interface language will switch automatically.

11. Troubleshooting

11.1 Interface Not Responding / Flash Failure

- Ensure Python and PySide6 dependencies are correctly installed.
- Connect the K230 development board and check the USB cable.
- Check the log area for error messages and try flashing again.

11.2 Language Switch Failure

- Ensure the `english.qm` language pack is correctly loaded.
- Modify `language=zh-CN` or `language=en` in `config.ini`, then restart the software.