Hi3861 V100 / Hi3861L V100 HiBurn

User Guide

Issue 01

Date 2020-04-30

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About This Document

Purpose

This document describes how to use HiBurn, providing guidance for engineers to quickly burn images.

Related Versions

The following table lists the product versions related to this document.

Product Name	Version
Hi3861	V100
Hi3861L	V100

Intended Audience

The document is intended for:

- Technical support engineers
- Software engineers
- Hardware engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

Symbol	Description
⚠ CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
🕮 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Issue	Date	Change Description
01	2020-04-30	This issue is the first official release. • In **1.3.1 HiBurn**, **Figure 1-1** is updated. In **Table 1-1**, the descriptions of **Formal** in area 4 and **Select all** are added. • In **2.1 Manual Burning**, **Figure 2-2** and **Figure 2-3** are updated. • **2.3 CLI-based Burning** is added. • In **2.4 Reading the eFUSE**, **Figure 2-8** is updated. • In **2.5 Exporting an Image**, **Figure 2-9** is updated.
00B05	2020-03-19	In **2.1 Manual Burning**, **Figure 2-1** is updated.
00B04	2020-02-12	• In **1.3.1 HiBurn**, the GUI figure and description are updated. • In **2.1 Manual Burning**, the figures in **Step 5** and **Step 7** are updated. • In **2.4 Reading the eFUSE**, the figures in **Step 4** are updated. • In **2.5 Exporting an Image**, the figures in **Step 4** are updated. • In **3.1 Why Does Interrupt Fail in RomBoot Mode?**, **Solution** is updated. • **3.2 How to Obtain the allinone.bin File?** is added.

Issue	Date	Change Description
00B03	2020-01-15	• In **1.3 GUI Description**, the GUI figure and description are updated. • In **2 Operation Guidance**, the procedures for manually burning images, burning images in factory mode, reading the eFUSE, and exporting an image are updated.
00B02	2019-12-28	The HiBurn GUI and the corresponding description are updated.
00B01	2019-11-15	This issue is the first draft release.

Contents

1 HiBurn Introduction

1.1 Function Description

HiBurn is a burning tool for Hi3861 V100. You can burn images to the board using HiBurn in RomBoot interrupt mode.

1.2 Application Scenario

HiBurn is used in the following scenarios:

- Burning images
- Exporting an image file
- Reading eFUSE information
- Burning the eFUSE

1.3 GUI Description

1.3.1 HiBurn

Figure 1-1 shows the HiBurn GUI.

Figure 1-1 HiBurn GUI

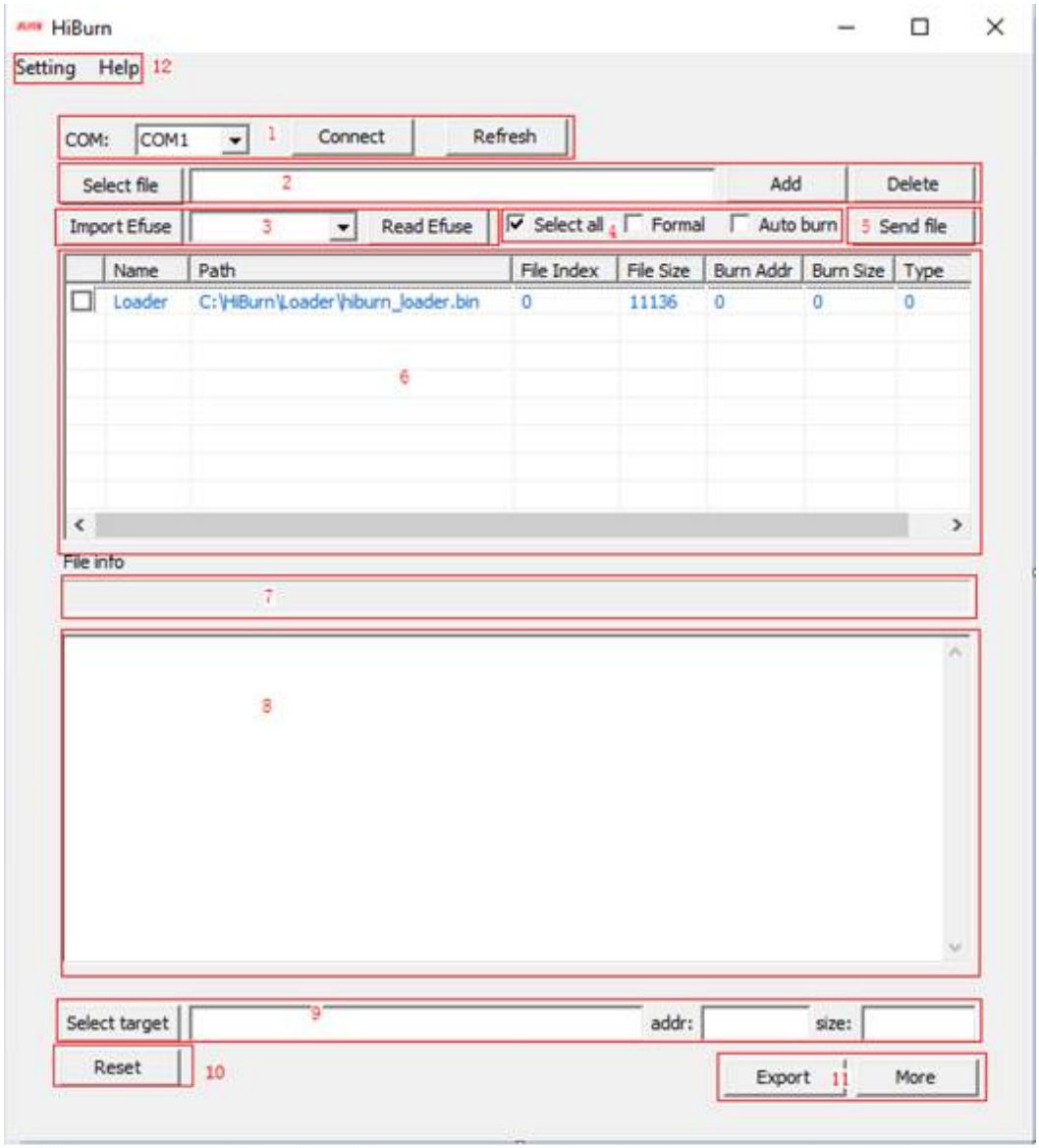


Table 1-1 Description of the HiBurn GUI

Area	Description
1	• **Connect**: enables the serial port and sends interrupt packets. • **Refresh**: refreshes the list of available serial ports. • **COM**: displays the current serial port.
2	• **Select file**: selects the image to be burnt. • **Add**: adds the selected image to be burnt to the table. • **Delete**: deletes the selected row from the table.

Area	Description
3	• **Import Efuse**: imports the eFUSE configuration file. • **Efuse list**: displays the name of the currently readable eFUSE. • **Read Efuse**: reads packets based on the selected eFUSE.
4	• **Formal**: When the firmware encryption function is enabled (that is, **FLASH_ENCPY_CFG** in the eFUSE is set to **1**), this option must be selected before image burning. A maximum of six images can be burnt at a time. • **Auto burn**: automatically interrupts the burning and burns images in sequence based on the information selected in the table. • **Select all**: selects or deselects all items in the table.
5	**Send file**: burns images in sequence based on the selected information in the table.
6	Image table: displays information about images that can be burnt. Column meanings: • **Name**: file name • **Path**: file path • **File Index**: start index of the image file • **File Size**: size of the image file • **Burn Addr**: start address of the flash memory to be burnt • **Burn Size**: size of the flash memory to be erased • **Type**: file type. **0** indicates Loader, **1** indicates a common image file, **2** indicates a parameter file, and **3** indicates an eFUSE file.
7	Progress bar: displays the file transfer progress.
8	Command output box: displays the command output of the board after the interruption.
9	• **Select target**: Select the location where the image is to be exported. • **addr**: Type the start address of the flash memory to be exported. • **size**: Type the size of the flash memory to be exported.
10	**Reset**: Resets the board.
11	• **Export**: starts to export the image. • **More**: displays the factory burning GUI.

Area	Description
12	• **Setting**: – **Com settings**: sets serial port parameters. – **Import loader**: imports the loader file. – **Burn interval**: sets the interrupt interval. (If 2 ms is selected, interrupt packets are sent at an interval of 2 ms. This rule also applies to 10 ms.) • **Help**: includes the version number.

1.3.2 Factory Burning

The factory burning function is used in the factory production burning scenario. After the interrupt, files are sent in the sequence specified in the table. (The **Hi3861_demo_allinone.bin** file in the SDK needs to be selected.) **Figure 1-2** shows the factory burning GUI.

Figure 1-2 Factory burning GUI

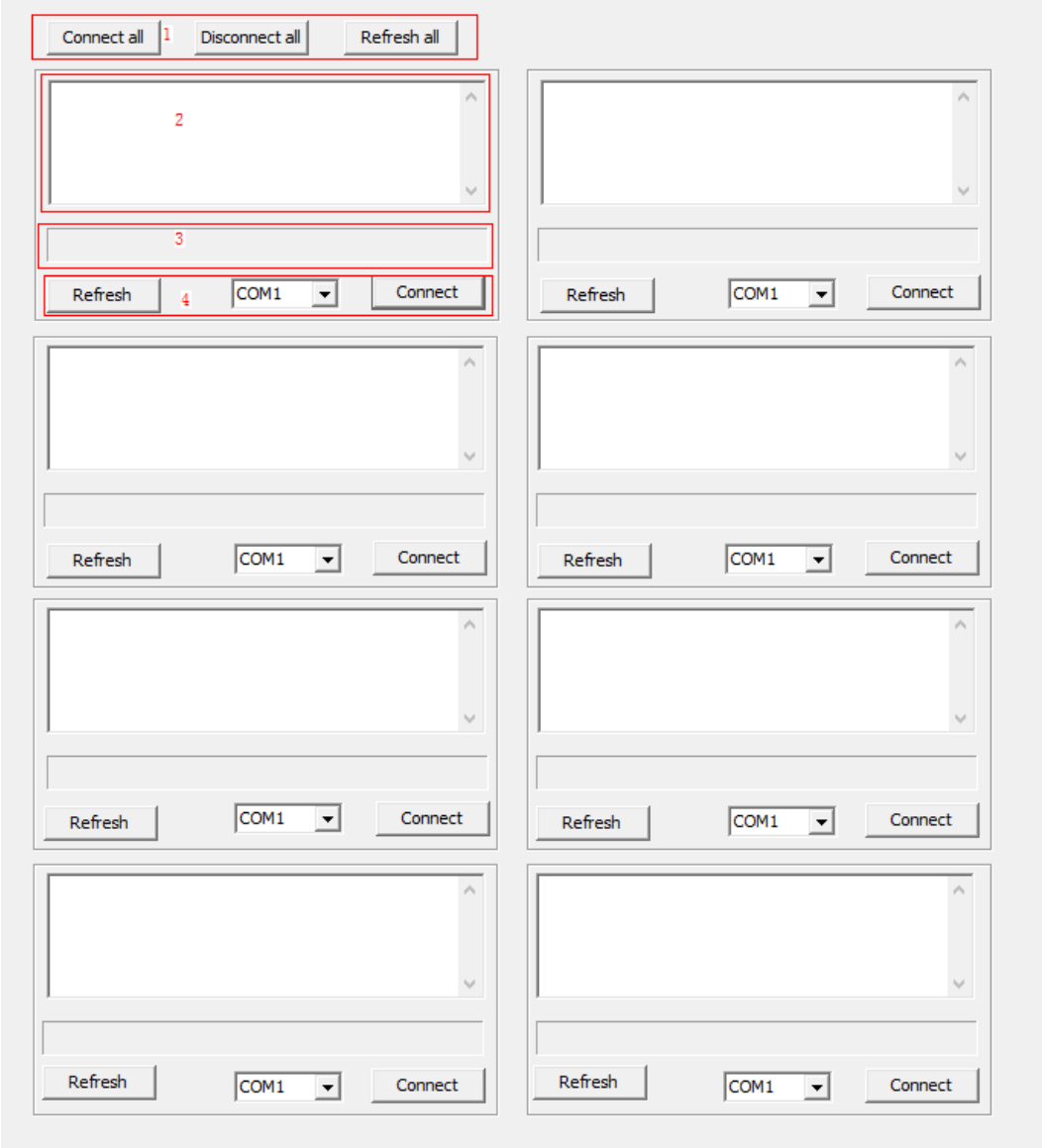


Table 1-2 Description of the factory burning GUI

Area	Description
1	• **Connect all**: sends interrupt packets based on the selected serial port number. • **Disconnect all**: disconnects all enabled serial ports. • **Refresh all**: refreshes the list of all available serial ports.
2	Command output box: displays the command output of the board after the interruption.
3	Displays the file transfer progress.

Area	Description
4	• **Connect**: sends interrupt packets. • **Refresh**: refreshes the list of available serial ports. • **COM**: displays the current serial port.

2 Operation Guidance

2.1 Manual Burning

Step 1 Click **Select file** on the HiBurn GUI and select the **Hi3861_demo_allinone.bin** file (such as the loader file, demo file, or eFUSE file) in the SDK. For example, to import the eFUSE file separately, change the value of **type** to **3** in the table.

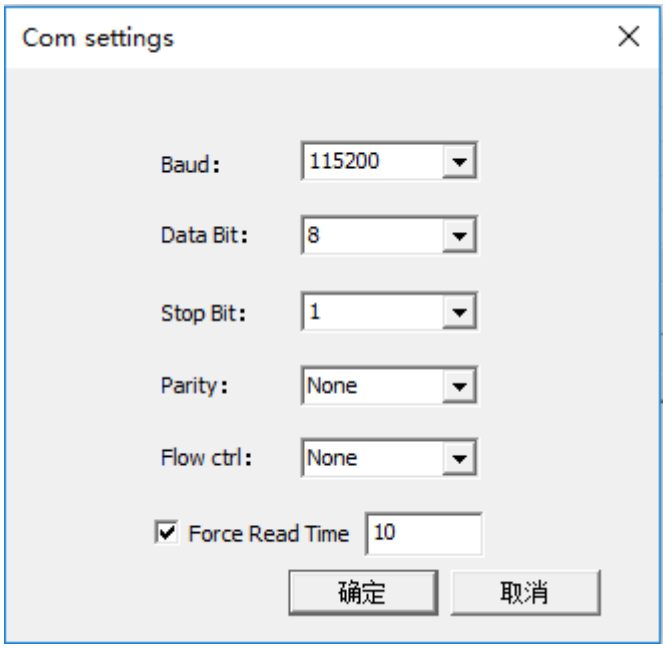
Step 2 Click **Add** to add the selected file to the table.

Step 3 Select the file to be burnt in the table.

Step 4 Choose **Setting** > **Com settings** to set the serial port parameters. **Figure 2-1** describes the default settings.

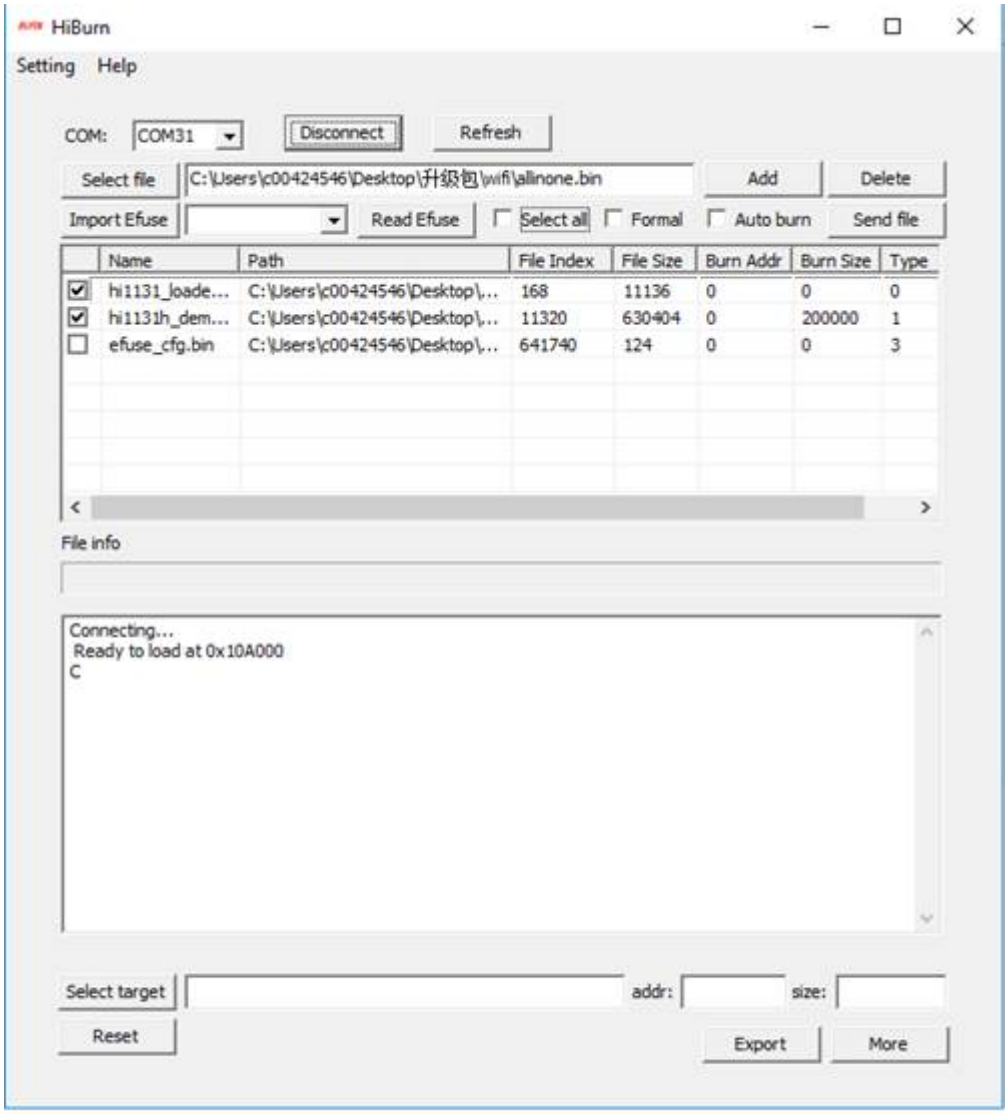
Hi3861 V100 and Hi3861L V100 do not support the stop bit 1.5 and hardware flow control.

Figure 2-1 Example of setting the serial port



Step 5 Select the target serial port and click **Connect** to reset the board. **Figure 2-2** shows the interrupt result.

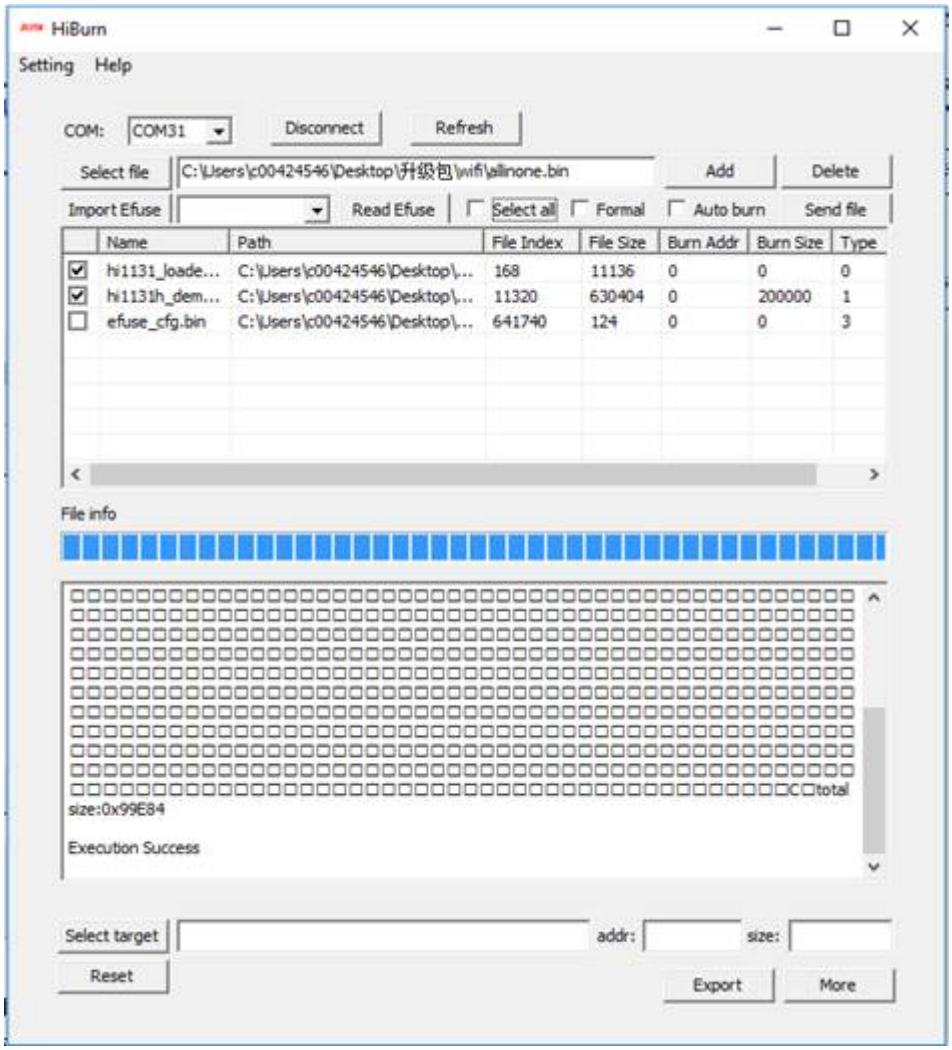
Figure 2-2 Example of the interrupt result



Step 6 When the string **Ready for load at 0x10A000** is displayed, click **Send file**.

Step 7 Wait until the file is successfully sent. **Figure 2-3** shows the burning result.

Figure 2-3 Example of the burning result



----End

2.2 Factory Burning

Step 1 On the HiBurn GUI, click **Select file**. Specifically, select the **Hi3861_demo_allinone.bin** file in the SDK.

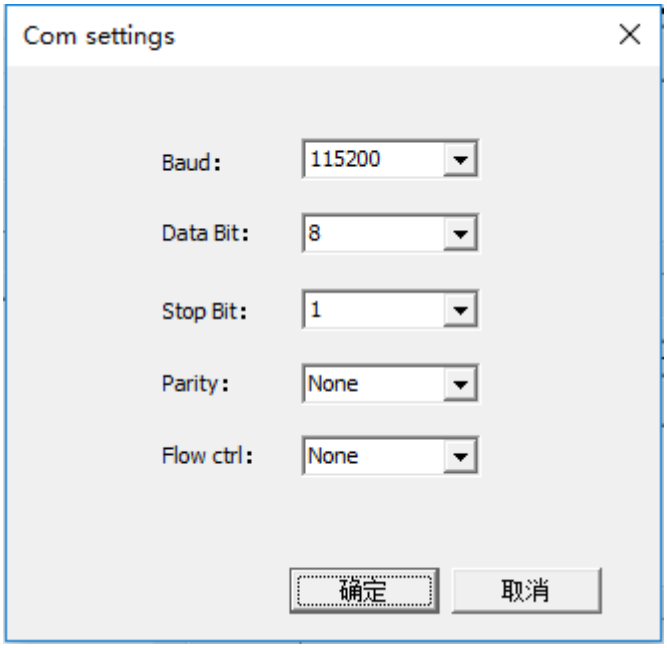
Step 2 Click **Add** to add the selected file to the table.

Step 3 Select the file to be burnt in the table.

Step 4 Select **Auto burn**. For formal burning, select **Formal**.

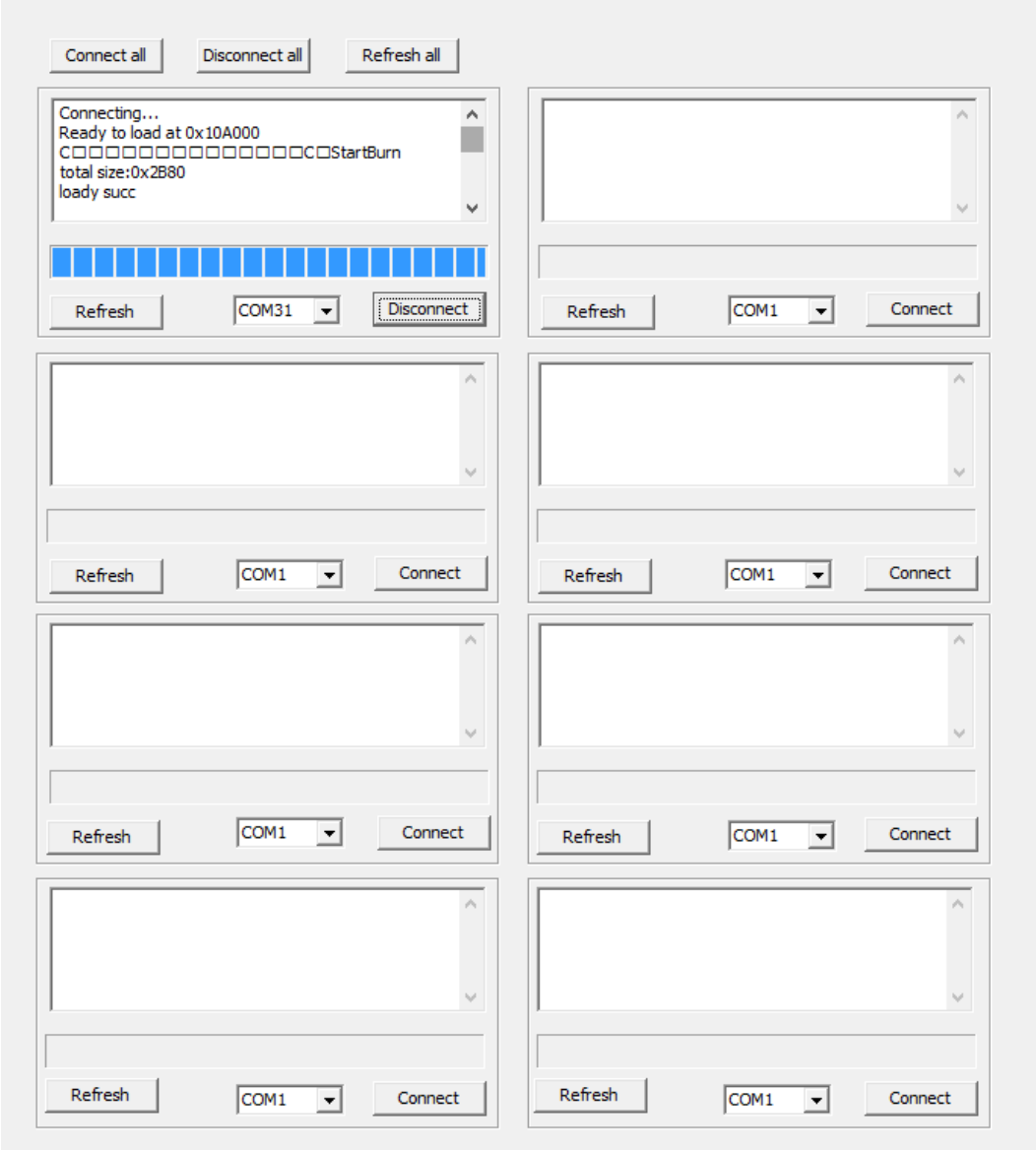
Step 5 Choose **Setting** > **Com settings** to set the serial port parameters. **Figure 2-4** describes the default settings.

Figure 2-4 Example of setting the serial port



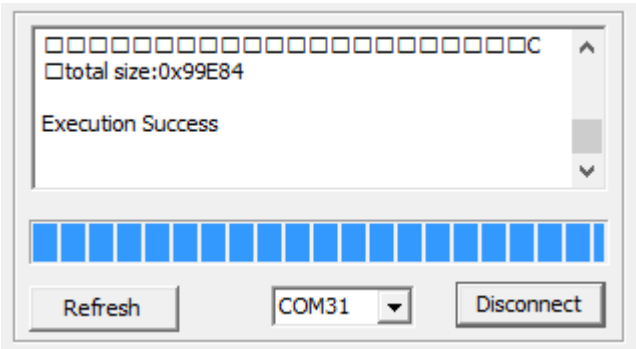
Step 6 Select the target serial port number on the factory burning GUI and click **Connect** to reset the board. **Figure 2-5** shows the interrupt result.

Figure 2-5 Example of the interrupt result



Step 7 Wait until the burning is complete. **Figure 2-6** shows the burning result.

Figure 2-6 Example of the burning result



----End

2.3 CLI-based Burning

In Windows, **HiBurn.exe** can be called in command-line interface (CLI) mode and can be integrated into the existing factory production line burning program. The calling command is as follows:

```
HiBurn.exe  params
```

Commands are separated by spaces. If parameters are contained, the commands are separated from parameters by colons (:), for example:

```
HiBurn.exe -com:31 -bin:C:\test_bin\wifi\hixx_allinone.bin -signalbaud:921600
```

Table 2-1 describes the parameters that must be configured in the **HiBurn.exe** burning command.

NOTICE

When the firmware encryption function is enabled (that is, **FLASH_ENCPY_CFG** in the eFUSE is set to **1**), the image program can be burnt for a maximum of six times.

Table 2-1 Parameters of the HiBurn.exe burning command

Command	Parameter	Description
-com:	x	UART port number of the PC, for example, 0
-bin:	path\hixx_allinone.bin	Absolute path of the **hixx_allinone.bin** file generated during software preparation
-signalbaud:	115200	Baud rate of the serial port when **hixx_allinone.bin** is transferred in ROMBoot. The default value is 115200 bit/s. You are advised to set the baud rate to 921600 bit/s or higher based on the hardware support to improve the burning efficiency.
-2ms	None	Interruption packets sending at an interval of 2 ms. This parameter is used in fastboot scenarios. If this parameter is not specified, interruption packets are sent at an interval of 10 ms.
-forceread:	10	If this parameter is contained, the data reading of the UART port at an interval of 10 ms is enabled. Generally, this function does not need to be enabled. If HiBurn cannot be used in some PC environments, set this parameter.

2.4 Reading the eFUSE

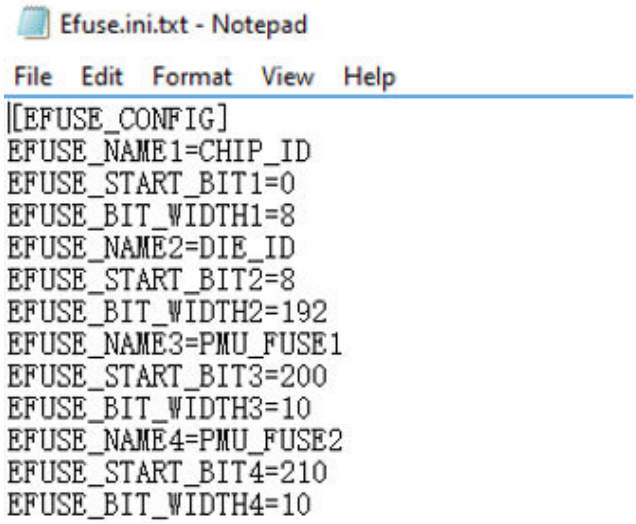
Step 1 Burn the loader file by following **2.1 Manual Burning**.

Step 2 Click **Import Efuse** and select an eFUSE configuration file.

Figure 2-7 shows the format of the eFUSE configuration file, which is an.ini file. An eFUSE item requires the following configurations:

- **EFUSE_NAMEX**: name displayed in HiBurn
- **EFUSE_START_BITX**: start bit index of the eFUSE
- **EFUSE_BIT_WIDTHX**: number of bits occupied by the eFUSE. *X* at the end of each parameter indicates a natural number ranging from 1 to 100.

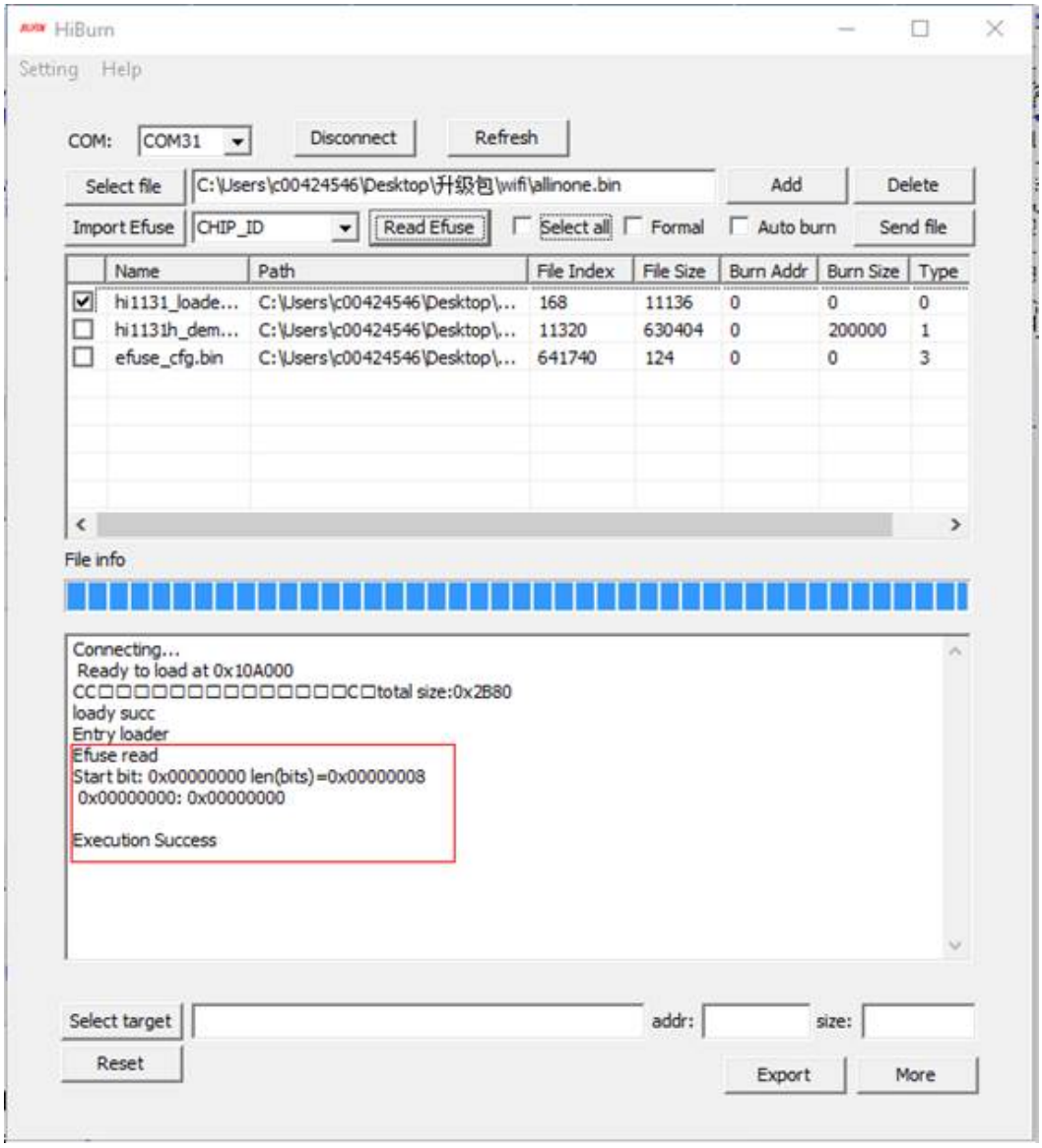
Figure 2-7 Example of the eFUSE configuration file format



Step 3 Select the eFUSE item to be read and click **Read Efuse**.

Step 4 View the reported content, as shown in **Figure 2-8**.

Figure 2-8 Example of the eFUSE read result



----End

2.5 Exporting an Image

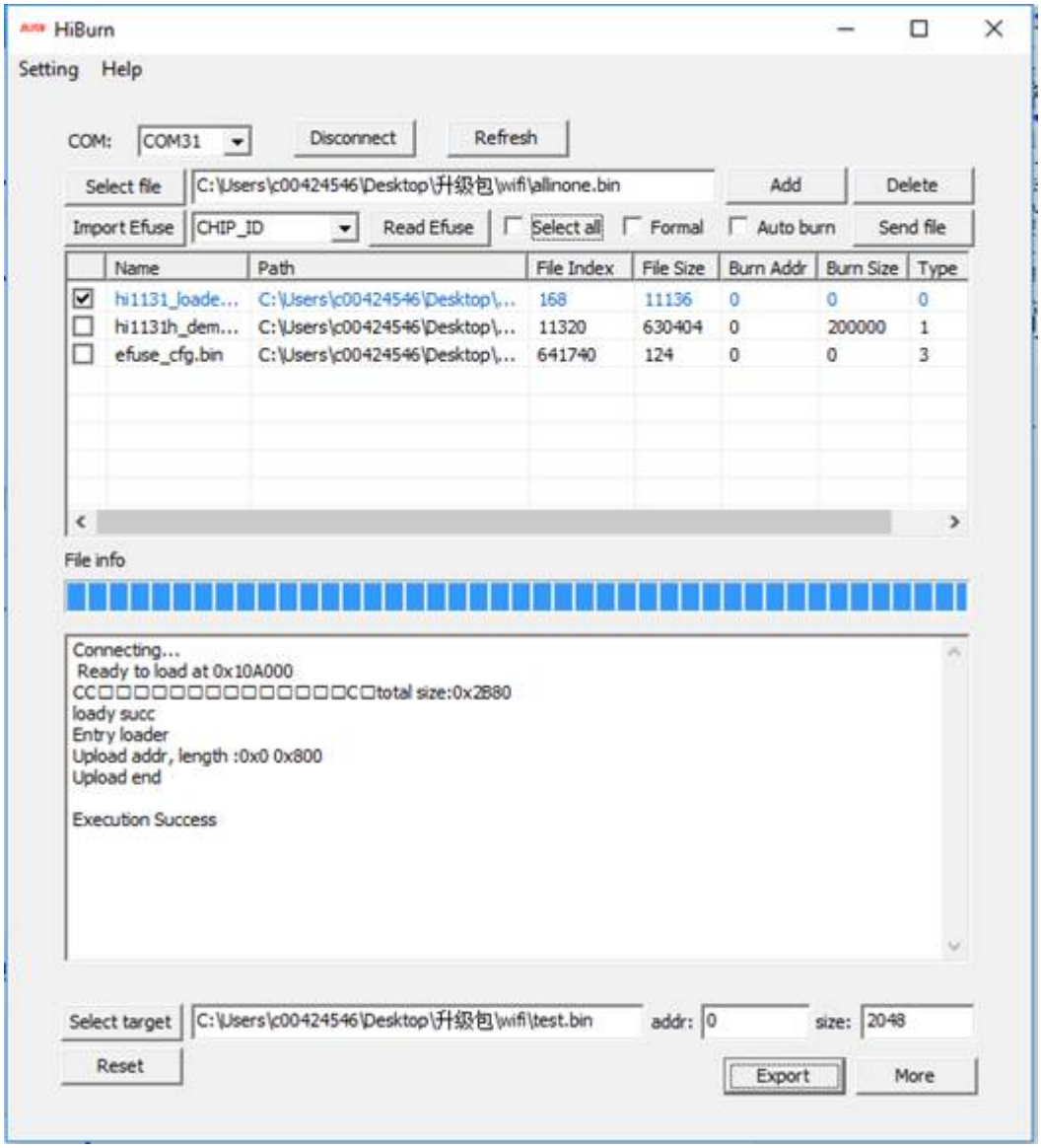
Step 1 Burn the loader file by following **2.1 Manual Burning**.

Step 2 Click **Select target** and select the path for storing the exported file.

Step 3 In the **addr** text box, type the start address of the flash memory to be read. In the **size** text box, type the size of the flash memory to be read.

Step 4 Click **Export**, as shown in **Figure 2-9**.

Figure 2-9 Example of the exported file transfer completion



----End

3 FAQs

3.1 Why Does Interrupt Fail in RomBoot Mode?

Symptom

Click **Connect**, power off the board, and restart it. However, there is no interrupt.

Solution

The possible cause is that the serial port is incorrectly selected or the serial port is not properly connected. Check the serial port configuration. If the board is set to 1 ms fast boot, you need to change it to 2 ms by choosing from **Setting** > **Burn interval** in HiBurn.

3.2 How to Obtain the allinone.bin File?

Symptom

How do I obtain the **allinone.bin** file that can be identified by HiBurn?

Solution

For details, see section "Making hixx_allinone.bin" in the *Hi3861 V100/Hi3861L V100 Production Line Equipment Test User Guide*.

