

HiBurn

User Guide

Issue 00B05

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About This Document

Purpose

This document describes how to use the HiBurn. By using the HiBurn, you can burn all program images to the flash memory of a board in one-click mode, burn images to the flash memory of a board with boot by the flash address, or burn only the boot image to the flash memory of a board.

Related Versions

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

Product Name	Version
Hi3516A	V100
Hi3516C	V200
Hi3516C	V300
Hi3518E	V20X
Hi3519	V100
Hi3519	V101
Hi3520D	V100
Hi3521	V100
Hi3521A	V100
Hi3531	V100
Hi3531A	V100
Hi3535	V100
Hi3536	V100
Hi3559	V100



Intended Audience

This document is intended for:

- Technical support engineers
- Hardware development engineers

Symbol Conventions

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

Symbol	Description					
DANGER	Alerts you to a high risk hazard that could, if not avoided, result in serious injury or death.					
MARNING	Alerts you to a medium or low risk hazard that could, if not avoided, result in moderate or minor injury.					
A CAUTION	Alerts you to a potentially hazardous situation that could, if not avoided, result in equipment damage, data loss, performance deterioration, or unanticipated results.					
©— ⁿ TIP	Provides a tip that may help you solve a problem or save time.					
NOTE	Provides additional information to emphasize or supplement important points in the main text.					

Change History

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made in previous issues.

Issue 00B05 (2016-10-29)

This issue is the fifth draft release, which incorporates the following changes:

Chapter 1 Overview

In section 1.5, step 7 is modified.

Chapter 8 FAQs

Section 8.19 is added.

Issue 00B04 (2016-09-28)

This issue is the fourth draft release, which incorporates the following changes:

Chapter 8 FAQs



Section 8.12, section 8.13, and section 8.14 are added.

Issue 00B03 (2016-08-30)

This issue is the third draft release, which incorporates the following changes:

Chapter 1 Overview

In section 1.5, step 7 is added.

Issue 00B02 (2016-07-26)

This issue is the second draft release.

Issue 00B01 (2015-08-28)

This issue is the first draft release.



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Tables

Table 1-1 Components and functions supported by the HiBurn based on the chip model2



1 Overview

1.1 Introduction to the HiBurn

The HiBurn is used to burn and upload images and create burner images.

1.2 Application Scenario

The three major functions of the HiBurn and corresponding application scenarios are as follows:

- Image burning: Burn the images to the corresponding flash address over the serial port and network port.
- Image upload: Export the data at the flash address to a file on the PC by using the DDR.
- Burner image creation: Package images in the partition table into the corresponding image file based on the format required by the burner and provide the image file to the burner for mass production burning.

1.3 Burning Principle

Burning principle for the U-boot

After the HiBurn starts burning, the HiBurn starts to interact with the BOOTROM. To be specific, the DDR parameters of the HiBurn are transferred to the BOOTROM. At this time, the U-boot download progress bar indicates that 5% is complete. The DDR is initialized and the U-boot is transferred to the DDR. When the U-boot download progress bar indicates that 100% is complete, the transfer is complete. Then the U-boot is boot from the DDR. After the boot is complete, the HiBurn starts to interact with the U-boot. To be specific, the burning command is sent to burn the U-boot in the DDR to the corresponding flash address.

Burning principle for other image partition

For other image partitions such as the kernel partition and rootfs partition, the HiBurn uses the network port transfer mode by default. Customers can choose the bare burning mode or the non-bare burning mode. In bare burning mode, images are burnt by partition, or images are burnt to the embedded multimedia card (eMMC). In this case, only the U-boot is selected, and the U-boot is burnt to the flash. In non-burning mode, all partitions



are selected except the U-boot partition. In this case, ensure that there is U-boot on the current board. During the burning process, the HiBurn starts the U-boot, sends the TFTP and write commands to the U-boot the implement burning.

1.4 Supported Components and Functions

The functions and components supported by the HiBurn vary according to the chip. For details, see Table 1-1.

Table 1-1 Components and functions supported by the HiBurn based on the chip model

Chip Model	Flash Type		File System					Advanced Function		Universal Interface			
	Spi	Nand	eM MC	Yaff s	Jff s2	Squas hFS	UB I	ext3/4	C A	Bad Check	Se ri al P or t	N et w or k P or t	U S B
Hi3518E V200 Hi3518E V201 Hi3516C V200 Hi3519 V100 Hi3519 V101 Hi3536	•	•	•	•	•	•	•	•	0	0	•	•	0
Hi3516A Hi3520D Hi3521 Hi3521A Hi3531 Hi3531A Hi3535	•	•	0	•	•	•	•	0	0	0	•	•	0
Hi3559	•	•	•	•	•	•	•	•	0	0	•	0	•
Hi3516C V300	•	•	•	•	•	0	0	0	0	0	•	•	•

Note that ● indicates supported and O indicates not supported.



1.5 Environment Preparation

Before using the HiBurn for burning, perform the following steps:

- **Step 1** Connect the PC and the board by using the serial port and network cable, and set **bootrom_sel** to **1** to enable the system to boot from the BOOTROM because the HiBurn needs to interact with the BOOTROM during the burning process.
- **Step 2** Copy **HiTool-BVT-***X.X.***X.zip** (in **\$SDK_DIR/tools/windows/HiTool**) to a local hard disk drive on a PC that runs Windows 7 or Windows XP.

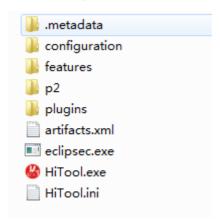
Preinstall JRE 1.6 (jre-6u1-windows-i586-p); otherwise, the HiTool may fail to run properly. You can download JRE 1.6 from

http://www.oracle.com/technetwork/java/javase/downloads/java-archive-downloads-javase6-419409.html.

Choose **Start** > **Run**, enter **cmd**, click **OK**, and enter **java** - **version** in the displayed command-line interface (CLI) to check the version of the JRE installed on the PC. If the current version is later than version 1.6, see section 8.18 "What Do I Do If the HiTool Displays "Failed to create the Java Virtual Machine" When the JRE 1.7 or Later Version Is Installed on the PC?"

Step 3 Decompress **HiTool-BVT-***X.X.***zip**, and double-click **HiTool.exe** to open the HiTool, as shown in Figure 1-1.

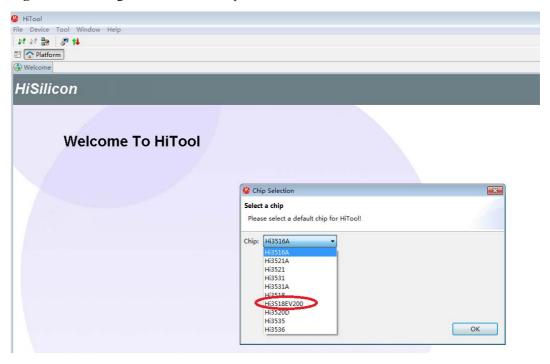
Figure 1-1 Opening the HiTool



Step 4 Select the model of the chip on the board (taking Hi3518E V200 as an example), as shown in Figure 1-2.

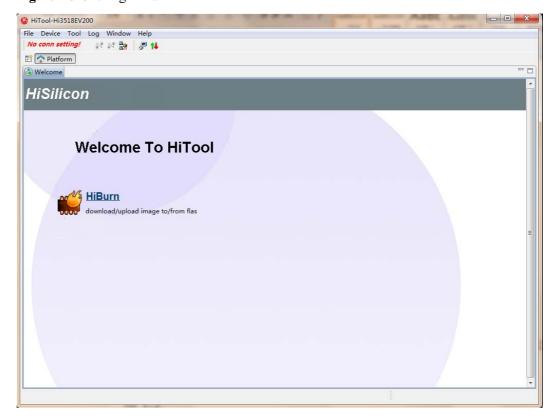


Figure 1-2 Selecting the model of the chip on the board



Step 5 Click **HiBurn** on the **Welcome To HiTool** UI, as shown in Figure 1-3.

Figure 1-3 Clicking HiBurn





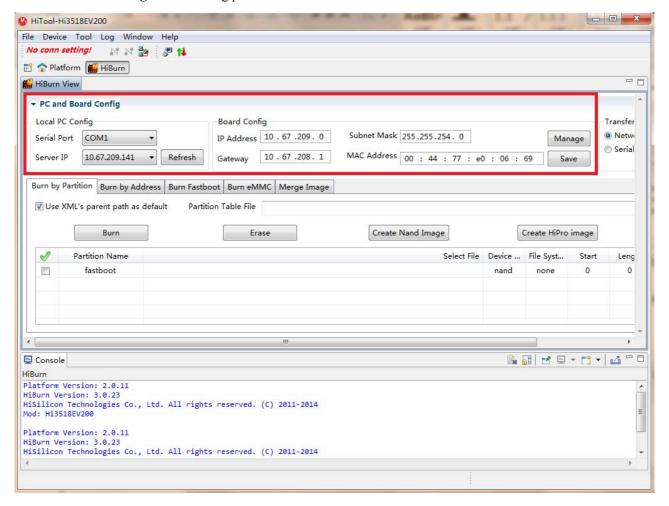
Step 6 Select a serial port for connecting the board, select the network IP address of the PC, and set the MAC address, IP address, subnet mask, and gateway of the board. See Figure 1-4.



CAUTION

The IP addresses of the PC and the board must be on the same network segment. Otherwise, images cannot be burnt over the network port except the fastboot image that is burnt over the serial port.

Figure 1-4 Setting parameters



- **Step 7** Install the specified driver on the PC that runs Windows as follows. This step is optional. The Hi3516C V300 supports the USB bare chip burning and Hi3559 V100 supports the USB non-bare chip burning.
 - 1. Download the corresponding **zadig.exe** executable file based on your OS from http://zadig.akeo.ie. Currently the latest versions are as follows: (The version may be updated. Please download the actual latest version.)
 - zadig_xp_2.2.exe



zadig 2.2.exe

Take the driver installation on the Windows 7 system as an example. (The installation on the Windows XP system is the same).

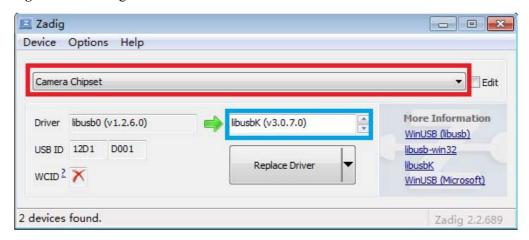
2. Open **zadig_2.2.exe**, choose **Options** > **List All Devices**, and select **List All Devices**, as shown in Figure 1-5.

Figure 1-5 Selecting List All Devices



Power on the board, select the correct device in the red box, select the driver libusbK
(v3.0.7.0) in the blue box, and then click Install Driver or Replace Driver, as shown in
Figure 1-6.

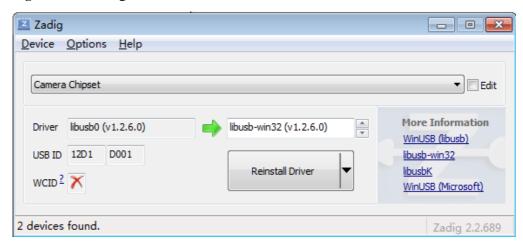
Figure 1-6 Installing libusbK



4. After the libusbK is installed successfully, the board is disconnected from the host automatically and the Device Manager of the host cannot detect the board. Power on the board and then install the drive libusb-win32. The installation method is the same as that of libusbK.

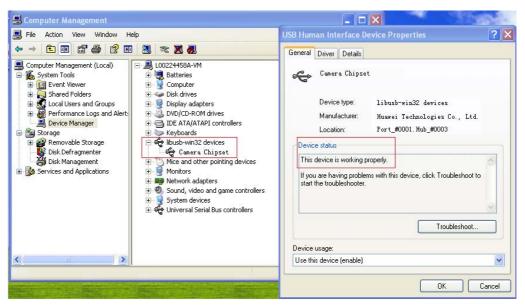


Figure 1-7 Installing libusb-win32



5. After the libusbK and libusb-win32 are installed successfully, open the **Device Manager** window, power on the board again, and check if the drivers are installed properly. Figure 1-8 shows the device status when the driver is installed properly.

Figure 1-8 Device status on the Device Manager after successful installation



----End



2 Burning Images by Partition

2.1 Application Scenario

The function of burning images by partition applies to all boards no matter whether the boot exists on the board.

2.2 Burning Procedures

To burn images by partition, perform the following steps:

Step 1 Click the **Burn by Partition** tab, as shown in Figure 2-1.

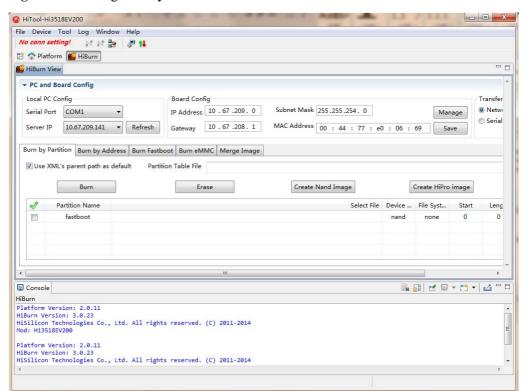


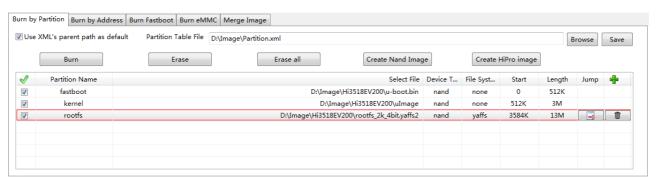
Figure 2-1 Clicking Burn by Partition



M NOTE

- When the HiBurn is started for the first time, it automatically generates default parameters. If the
 parameter configuration is changed, the HiBurn automatically records the modified parameter values,
 saves the values when it is exited normally, and uses the saved parameter values during the next
 startup. However, if the HiBurn is exited abnormally, the modified parameters may not be saved. In
 this case, the latest modifications are invalid.
- Clicking the Save button saves the current network configurations for the board; clicking the Load button allows you to select a group of saved configurations as the current configuration.
- If Use XML's parent path as default is selected, the HiBurn first searches for the partition image
 in the directory where the .xml partition table file locates. Otherwise, the HiBurn searches for the
 partition image in the absolute path specified in the .xml partition table in priority. If no image is
 found in the absolute path, the HiBurn then searches for the image in the directory where the .xml
 file locates.
- The XML file is a configuration file for saving the partition table information. You can click the **Save** button to save the edited partition table into an XML file. After the XML file is imported when the HiBurn is opened the next time, the partition table information is directly loaded.
- **Step 2** Configure the board partition information, click the **Browse** button, select an XML file that contains information about the configured partition table, and load the XML file to the HiBurn. Then the partition table information is loaded, as shown in Figure 2-2.

Figure 2-2 Setting the board partition information





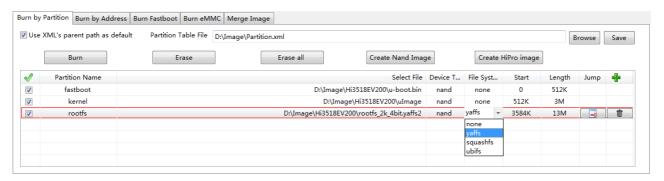
CAUTION

- The partition information here is used only for burning images. The allocation of actual
 partitions of the board depends on the **bootargs** parameter of the board. The partition
 information here must be consistent with that specified by the **bootargs** parameter.
 Otherwise, errors may occur.
- The HiBurn allows the paths of partitions to be different, and it supports remote burning, that is, it can burn images in the remote path.
- If a partition is selected but the file to be burnt is not selected, this partition is erased during the burning process.
- If you need to package all partition files as an image for burning, the image must contain
 fastboot and must be loaded to the fastboot partition for burning. (For the NAND flash, if
 the file system has the read and write properties, the partition files cannot be packaged
 together.) This burning method is not recommended because the fastboot partition is burnt
 over the serial port and the burning speed is low.



To modify the partition information, you can directly modify the .xml partition information file, or modify the information in the HiBurn by clicking the row of the partition to be modified. See Figure 2-3.

Figure 2-3 Modifying partition information



• To add a partition row, click . After clicking a partition row, you can rename the partition, select the flash memory type, select the file system type (select **none** if no file system is required), and change the start address of the partition and partition size.



CAUTION

- The start address of a partition and partition size are in the unit of KB or MB and must be an integral multiple of the flash memory size. Otherwise, an error may occur.
- The jffs2 is not a special file system format. If a partition uses the jffs2 file system, select **none** from the drop-down box in the **File System Type** column.
- To select or change the file to be burnt to a partition, click
- To delete a partition, click



CAUTION

The **fastboot** partition cannot be deleted and its name cannot be changed. Otherwise, images cannot be burnt in one-click mode.

- To select all partitions to be burnt in one-click mode, click ; to deselect all partitions, click again. To select a specific partition, select the corresponding check box.
- To save the edited partition table as a file, click **Save**.



MOTE

- There may be no XML partition information file when the HiBurn is started for the first time. When you close the HiBurn after creating the partition table through configuration or modification, a dialog box shown in Figure 2-4 is displayed, asking you whether to save the partition information. Click OK. Then a dialog box shown in Figure 2-6 is displayed. Select a save path, and enter a file name. Then if you click Save, an XML partition information file is generated; if you click Cancel, the partition information is not saved and the HiBurn is closed.
- After the partition table is created and the view is switched, a dialog box shown in Figure 2-5 is displayed, asking you whether to save the partition information. Click **OK**. Then a dialog box shown in Figure 2-6 is displayed. Select a save path, and enter a file name. Then if you click **Save**, an XML partition information file is generated; if you click **Cancel**, the partition information is not saved and the view is switched. The file must be in .xml format; otherwise, the partition information may fail to be loaded during next startup.

Figure 2-4 Asking you whether to save the partition information when the HiBurn is closed

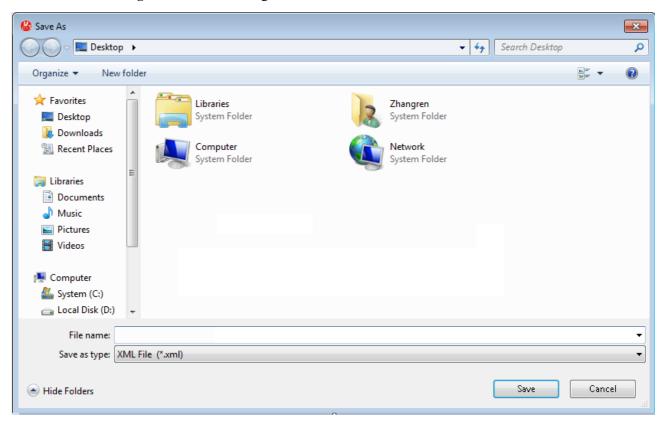


Figure 2-5 Asking you whether to save the partition information when the view is switched



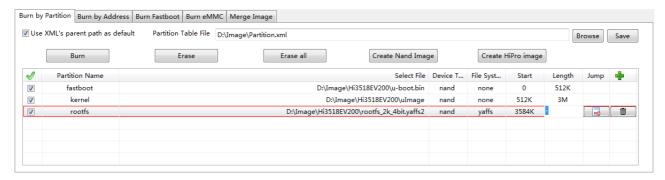


Figure 2-6 Save As dialog box



• Select the last row, and click . A new last row is generated. Enter - in the **Length** column, and specify the partition name, file system, and file path. The length of this partition can be calculated during burning, which is the available space of the component. See Figure 2-7.

Figure 2-7 Setting Length to -



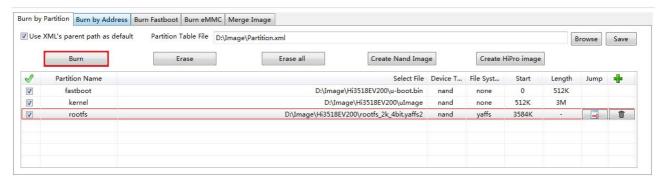


If you do not select the current last partition row when creating a partition row, the created partition may not be the last partition, and you cannot set **Length** to - in this case.



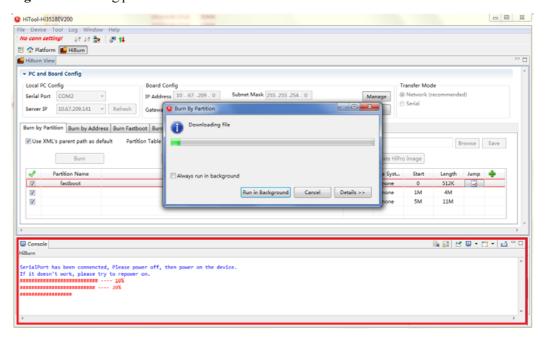
- **Step 3** Prepare the board environment. Connect the serial port and network port of the board. Power off the board if the board is powered on.
- **Step 4** Click **Burn** to start burning files. See Figure 2-8.

Figure 2-8 Clicking Burn



Step 5 Power on the board to burn the files. Figure 2-9 shows the burning process.

Figure 2-9 Burning process



The information about the burning process is displayed in the **Console**. If an error occurs:

- Check whether the correct serial port is selected.
- Check whether the IP address is correct and whether it is occupied.
- Check whether the bootstrap jumper on the board is short-circuited.

Step 6 Connect the terminal tool and restart the board.

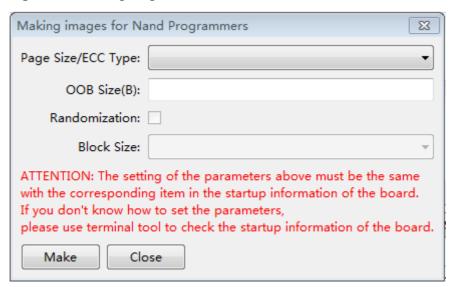
----End



2.3 Creating Images for the NAND Burner

The HiBurn allows you to create images for the NAND burner. After the partition information is configured, click **Make Nand Programmer Image**. The dialog box shown in Figure 2-10 is displayed.

Figure 2-10 Creating images for the NAND burner



Specify the parameters in the dialog box, and click **Make** to generate images for the NAND burner. Note that the **Randomization** can be selected if the page size of the NAND flash is 8 KB or larger.



CAUTION

- The specified parameter values must be consistent with those in the boot information of the board (you can view the boot information by using HyperTerminal) or match the parameters of the connected components.
- If a partition is not selected or the file to be burnt for a selected partition is not specified, the partition image is not created.
- For the image of the non-Yaffs partition, **File System** in the partition table cannot be set to **yaffs**. For the image of the Yaffs partition, **File System** in the partition table must be set to **yaffs**. Otherwise, the created image is incorrect.

2.4 Redirecting to the Burn by Address Page

The **Burn by Partition** tab page allows you to redirect the information of a partition (including the partition name, file system, file path, start address, and partition length) to the **Burn by Address** tab page. After redirection, the information is directly loaded on the **Burn by Address** tab page. You only need to select a row in the partition table on the **Burn by**



Partition tab page and click Then the **Burn by Address** page is displayed. See Figure 2-11 and Figure 2-12.

Figure 2-11 Selecting a row

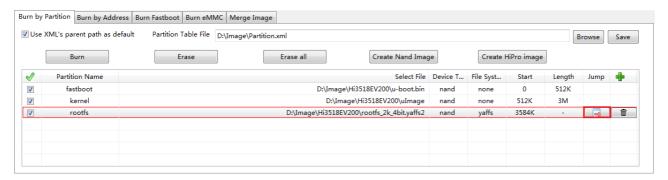
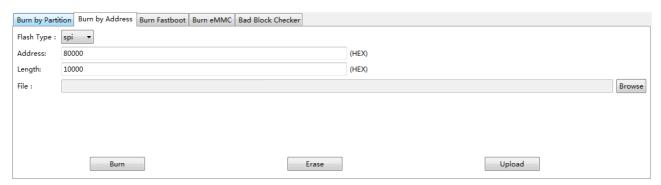
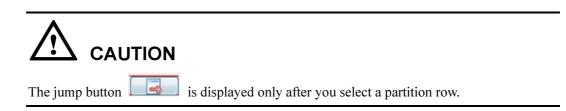


Figure 2-12 Redirecting to the Burn by Address tab page







Burning Images by the Flash Address

3.1 Application Scenario

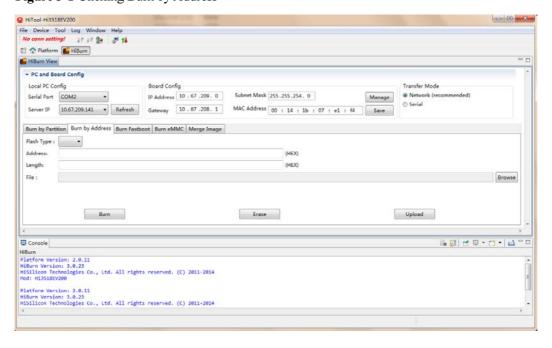
Boot exists on the board.

3.2 Burning Procedures

To burn images by address, perform the following steps:

Step 1 Click the **Burn by Address** tab, as shown in Figure 3-1.

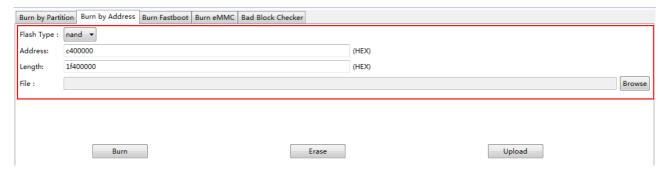
Figure 3-1 Clicking Burn by Address



Step 2 Set the flash memory type, set the start address and length of the file to be burnt, and click **Browse** to select the file to be burnt, as shown in Figure 3-2.



Figure 3-2 Setting parameters



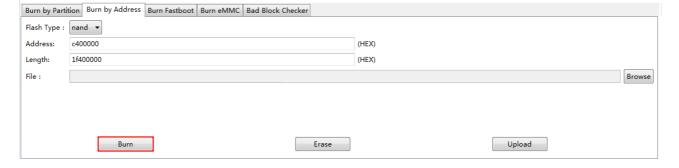
- **Step 3** Prepare the board environment. Connect the serial port and Ethernet port of the board. If the board is powered on, power it off and short-circuit the bootstrap jumper cap of the board. For details, see section 1.5 "Environment Preparation."
- **Step 4** Click **Burn** to start to burn the images, as shown in Figure 3-3.



CAUTION

When images are burnt by address, you need to select only the files to be burnt but not the file system type. The format of the Yaffs file (with OOB data) is different from that of other files (with no OOB data). The HiBurn automatically distinguishes the file type (yaffs or none) at the background based on the selected file and burns the file based on the type. When images are burnt by address, you need to power on the board again only when the **Burn** button is clicked for the first time.

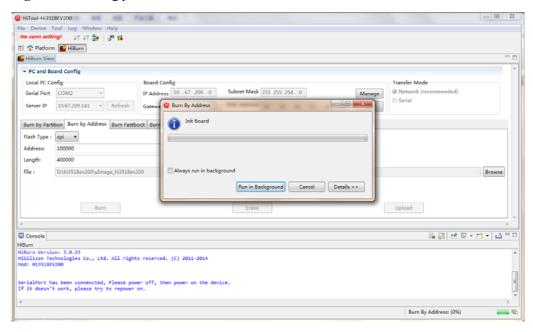
Figure 3-3 Clicking Burn



Step 5 Power on the board to burn the files. Figure 3-4 shows the burning process.



Figure 3-4 Burning process



The information about the burning process is displayed in the **Console**. If an error occurs:

- Check whether the correct serial port is selected.
- Check whether the IP address is correct and whether it is occupied.
- Check whether the bootstrap jumper on the board is short-circuited.

The process of the erase operation is similar to that of the burn operation.

Step 6 Connect the terminal tool and restart the board.

----End

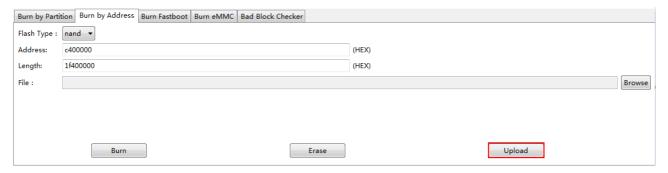
3.3 Uploading Procedures

The upload operation is the reverse of the burn operation. The burn function allows you to burn images to the board, and the upload function allows you to upload the data to the PC based on the specified start address and length. The uploading process is similar to the burning process.

- Step 1 Click the Burn by Address tab.
- **Step 2** Set the flash memory type, set the start address and length for the data to be uploaded, and click **Browse** to select the file that is used to store the uploaded data. See Figure 3-5.

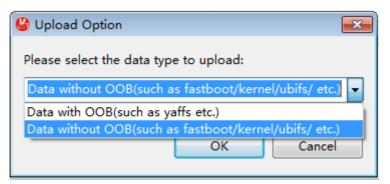


Figure 3-5 Upload information



- **Step 3** Prepare the board environment. Connect the serial port and Ethernet port of the board. If the board is powered on, power it off and short-circuit the bootstrap jumper cap of the board. For details, see section 1.5 "Environment Preparation."
- **Step 4** Click **Upload**. If images to be uploaded are fastboot, kernel, and ubifs images, select **Data** without **OOB**. If the images are yaffs files, select **Data with OOB**. See Figure 3-6.

Figure 3-6 Selecting the data type





CAUTION

If data is uploaded by address, specify the type of the data to be uploaded in the dialog box that is displayed after you click **Upload**. If you select an incorrect data type, the uploaded data is inconsistent with the original file. If a Yaffs file system image is to be uploaded, the length must be an integral multiple of (page size + OOB size).

----End

3.4 Erasing Procedures

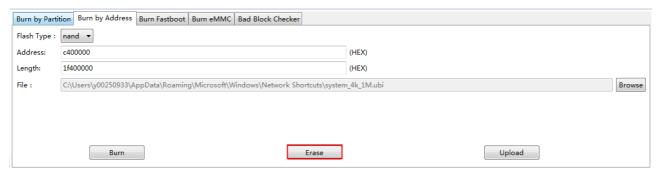
The erase function allows you to erase data of specific length from the specific start address from the board. The erasing process is similar to the burning process.

Step 1 Click the Burn by Address tab.



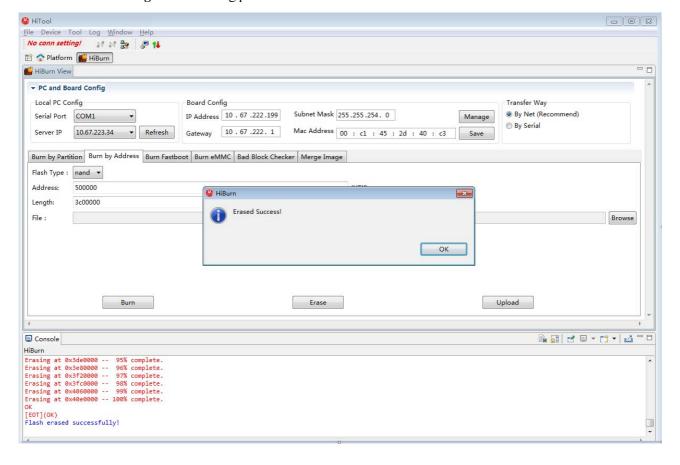
Step 2 Set the flash memory type, set the start address and length for the data to be erased in the flash memory. See Figure 3-7.

Figure 3-7 Erase information



- **Step 3** Prepare the board environment. Connect the serial port and Ethernet port of the board. If the board is powered on, power it off and short-circuit the bootstrap jumper cap of the board. For details, see section 1.5 "Environment Preparation."
- **Step 4** Click **Erase** and power on the board. See Figure 3-8.

Figure 3-8 Erasing process







CAUTION

The length of data to be erased must be an integral multiple of the block size.

----End



4 Burning the Boot

4.1 Application Scenario

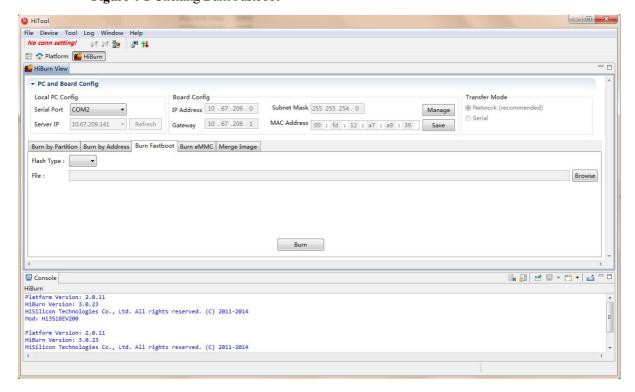
There is no fastboot program running on the board and all images can be burnt by address.

4.2 Burning Procedures

To burn the fastboot, perform the following steps:

Step 1 Click the **Burn Fastboot** tab, as shown in Figure 4-1.

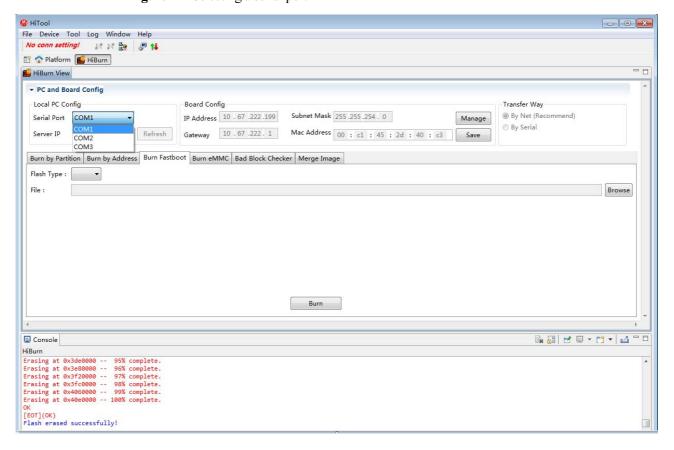
Figure 4-1 Clicking Burn Fastboot



Step 2 Select a serial port for connecting to the board, as shown in Figure 4-2.

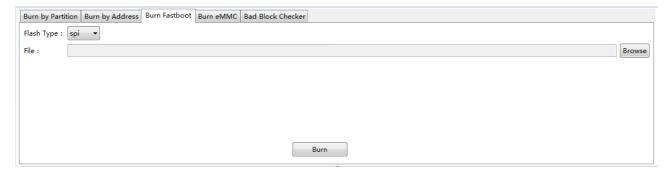


Figure 4-2 Selecting a serial port



Step 3 Select the flash memory type and the fastboot image, as shown in Figure 4-3.

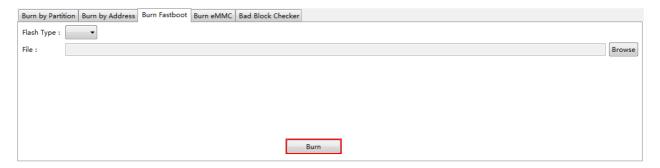
Figure 4-3 Setting the boot burning information



- **Step 4** Prepare the board environment. Power off the board if the board is powered on.
- **Step 5** Click **Burn** to start burning the fastboot. See Figure 4-4.

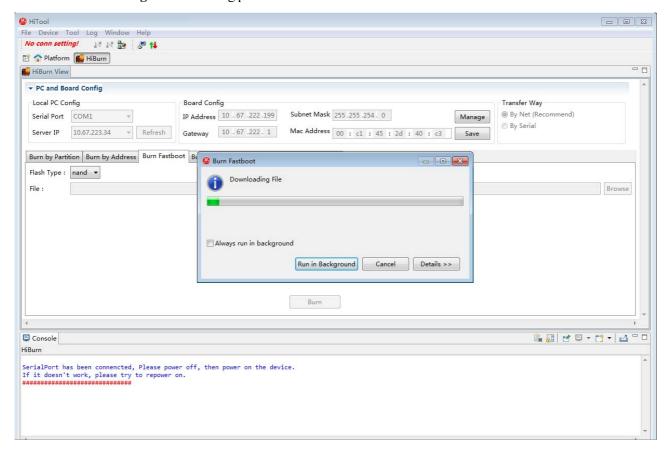


Figure 4-4 Clicking Burn



Step 6 Power on the board to burn the fastboot. Figure 4-5 shows the burning process.

Figure 4-5 Burning process



The information about the burning process is displayed in the **Console**. If an error occurs, Check whether the correct serial port is selected.

Step 7 Connect the terminal tool and restart the board.

----End



5 Burning Images to the eMMC

5.1 Application Scenario

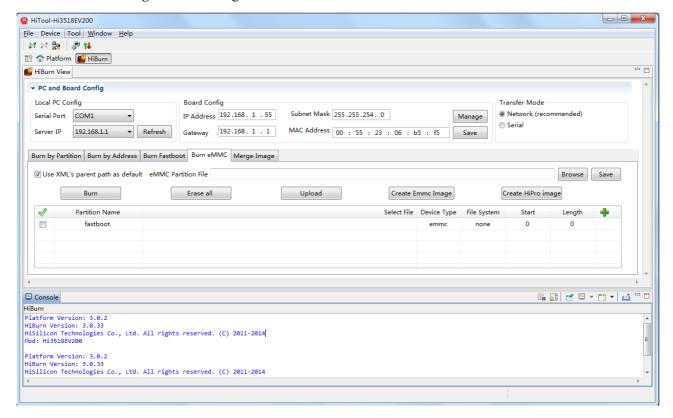
This burning mode applies only to the eMMC. No matter whether the boot exists on a board, all images can be burnt in one-click mode.

5.2 Burning Procedures

To burn images to the eMMC, perform the following steps:

Step 1 Click the Burn eMMC tab, as shown in Figure 5-1.

Figure 5-1 Clicking Burn eMMC

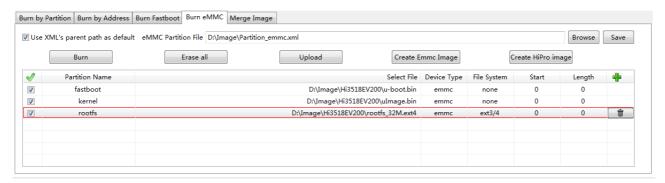




M NOTE

- If **Use XML's parent path as default** is selected, the HiBurn first searches for the partition image in the directory where the .xml partition table file locates. Otherwise, the HiBurn first searches for the partition image in an absolute path specified in the .xml partition table. If no image is found in the absolute path, the HiBurn then searches for the image in the directory where the .xml file locates.
- The XML file is a configuration file for saving the partition table information. You can click the
 Save button to save the edited partition table into an XML file. After the XML file is imported when
 the HiBurn is opened the next time, the partition table information is directly loaded.
- **Step 2** Configure the board partition information, click **Browse** to select a file that contains the configured partition table information, and load the file to the HiBurn, as shown in Figure 5-2.

Figure 5-2 Setting the board partition information





CAUTION

If the images of all partitions are packaged as an image file, the image file must be placed in the fastboot partition and must contain the fastboot. In this case, the image file is burnt over a serial port, which takes a long time. Note that because a partition table must be created for the eMMC file system partition, the images of other file system partitions cannot be packaged. There is no such issue for the Android version.

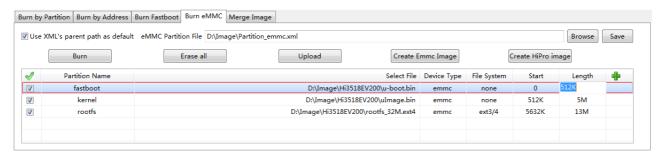
M NOTE

As the eMMC uses the DOS partition format, the kernel can identify the EXT3/4 file system partition only when a partition table is created for the EXT3/4 file system partition.

To modify the information about a partition, modify the .xml partition information file or click the corresponding partition row, as shown in Figure 5-3.



Figure 5-3 Modifying the board partition information





CAUTION

The start address of a partition and partition size are in the unit of KB or MB and must be an integral multiple of the eMMC sector size. Otherwise, an error may occur.

- . After clicking a partition row, you can rename the To add a partition row, click partition, select the file system type (select none if no file system is required), and change the start address of the partition and partition size.
- To select or change the file to be burnt to a partition, click



- To delete a partition, click . Note that the fastboot partition cannot be deleted and its name cannot be changed. Otherwise, one-click burning cannot be implemented.
- To select all partitions to be burnt in one-click mode, click ; to deselect all partitions, click again. To select a specific partition, select the corresponding check box
- To save the edited partition table as a file, click Save.

M NOTE

- There may be no XML partition information file when the HiBurn is started for the first time. When you close the HiTool after creating the partition table through configuration or modification, a dialog box shown in Figure 5-4 is displayed, asking you whether to save the partition information. Click **OK**. Then a dialog box shown in Figure 5-6 is displayed. Select a save path, and enter a file name. Then if you click Save, an XML partition information file is generated; if you click Cancel, the partition information is not saved and the HiTool is closed.
- After the partition table is created and the view is switched, a dialog box shown in Figure 5-5 is displayed, asking you whether to save the partition information. Click OK. Then a dialog box shown in Figure 5-6 is displayed. Select a save path, and enter a file name. Then if you click Save, an XML partition information file is generated; if you click Cancel, the partition information is not saved and the view is switched. The file must be in .xml format; otherwise, the partition information may fail to be loaded during next startup.



Figure 5-4 Asking you whether to save the partition information when the HiBurn is closed

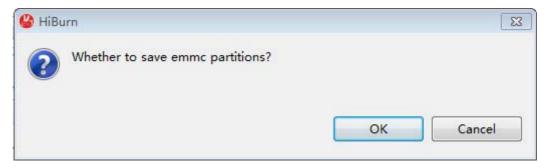


Figure 5-5 Asking you whether to save the partition information when the view is switched

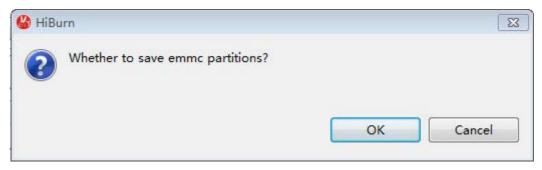
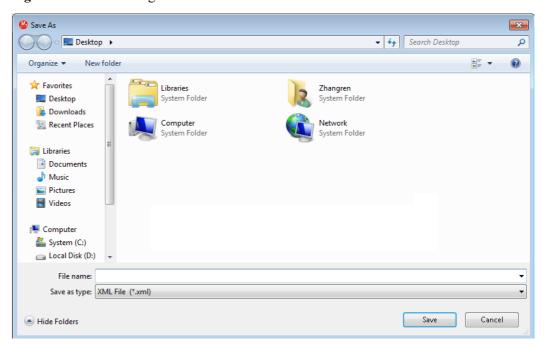


Figure 5-6 shows the Save As dialog box.

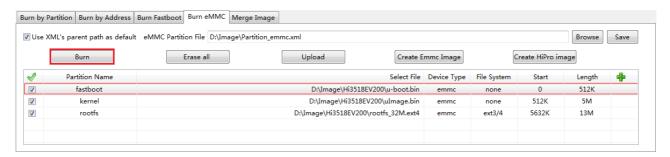
Figure 5-6 Save As dialog box





- **Step 3** Prepare the board environment. Connect the serial port and network port of the board. Power off the board if the board is powered on.
- **Step 4** Click **Burn** to start burning files. See Figure 5-7.

Figure 5-7 Clicking Burn



Step 5 Power on the board to burn the files.

The information about the burning process is displayed in the **Console**. If an error occurs:

- Check whether the correct serial port is selected.
- Check whether the IP address is correct and whether it is occupied.
- Check whether the bootstrap jumper on the board is short-circuited.
- **Step 6** Connect the terminal tool and restart the board.

----End

5.3 Creating a Burner Image

You can select a file from the current partition list to create an image for the burner. After the partition information is configured, click **Create Programmer Image**, and specify the file path in the displayed dialog box. See Figure 5-8.



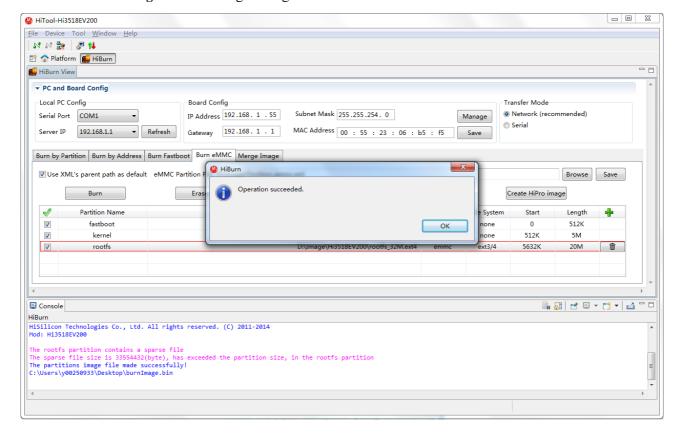


Figure 5-8 Creating an image for the burner

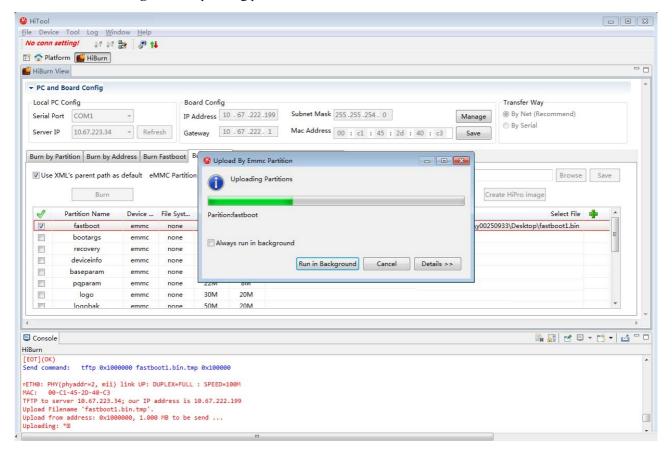
5.4 Uploading Procedures

Uploading data from the eMMC to the PC based on the configured start address and length is the reverse process of burning images to the eMMC. The uploading process is similar to the burning process. The following describes only the steps in which the upload process differs from the burning process.

- **Step 1** Same as step 1 in section 3.2 "Burning Procedures."
- **Step 2** Same as step 2 in section 3.2 "Burning Procedures."
- **Step 3** Configure the upload information. That is, set the start address in **Start** and length in **Length**, and specify a file path to save the content in a certain file on the PC.
- **Step 4** Same as step 3 in section 3.2 "Burning Procedures."
- **Step 5** Click **Upload** to save the data to the specified file. Figure 5-9 shows the uploading process.



Figure 5-9 Uploading process



----End



6 Merging Images

6.1 Application Scenarios

When the SPI flash is used, multiple images need to be merged into one image and the merged image is burnt to a block to save the flash space, because the storage space of the SPI flash is small. You can also merge images for other flash memories.

For example, the sizes of a fastboot image and a kernel image are 500 KB, and the block size of the SPI flash memory is 1 MB. If the two images are burnt as two partitions, two blocks are required after the burning command on the board is executed. If the two images are merged into one, only one block is required. Therefore, 1 MB flash storage space is saved.

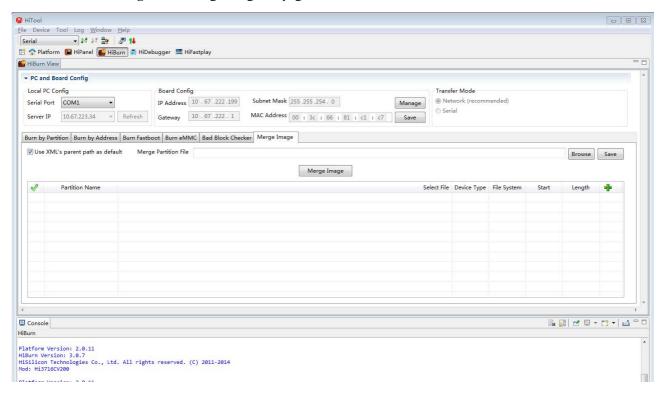
6.2 Procedures

To merge images, perform the following steps:

Step 1 Click the Merge Image tab, as shown in Figure 6-1.

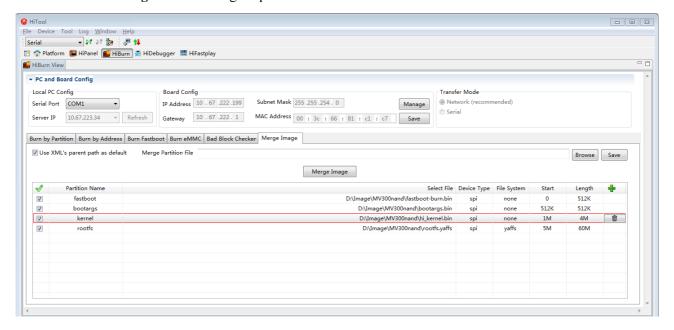


Figure 6-1 Merge Image tab page



Step 2 Click Browse to load a partition table or click to create a partition table, as shown in Figure 6-2.

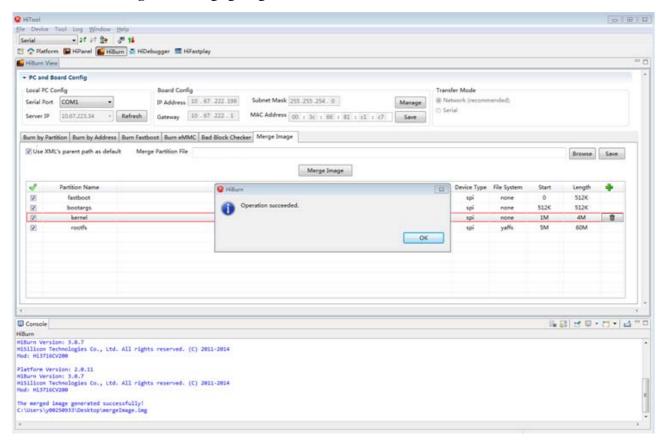
Figure 6-2 Loading the partition table



Step 3 Click Merge Image. See Figure 6-3.



Figure 6-3 Merging images



----End

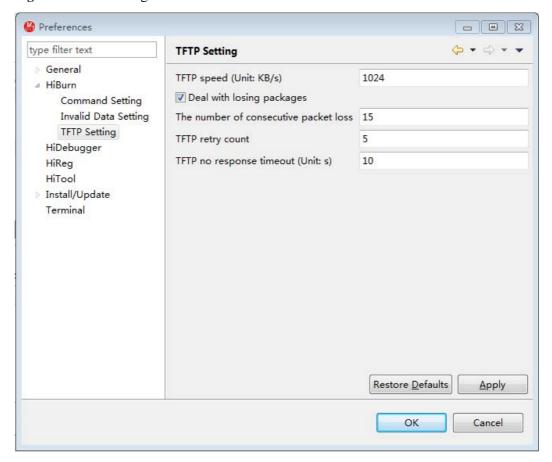


Preferences Settings

7.1 TFTP Settings

To set the Trivial File Transfer Protocol (TFTP) of the HiBurn, choose **Window** > **Preferences**, and choose **HiBurn** > **TFTP Setting**, as shown in Figure 7-1.

Figure 7-1 TFTP settings



The setting options are described as follows:



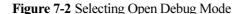
- **TFTP speed (Unit: KB/s)**: The timeout period can be calculated based on the configured TFTP speed and length of the transmitted file.
- **Deal with losing packages**: If this option is selected, the maximum number of lost consecutive packets can be configured. The transmission fails if the maximum number of lost consecutive packets is reached. If this option is not selected, the maximum number of lost consecutive packets cannot be configured, and packet loss during transmission is ignored.
- The number of consecutive packet loss: Sets the maximum number of lost consecutive packets allowed.
- **TFTP retry count**: Sets the times of TFTP retry attempts allowed. If the transmission fails, the tool retries for the configured times and then stops.
- **TFTP no response timeout (Unit: s)**: Sets the timeout period for no response. If there is no response during transmission in the configured timeout period, the transmission is considered failed. The default value is 10s.

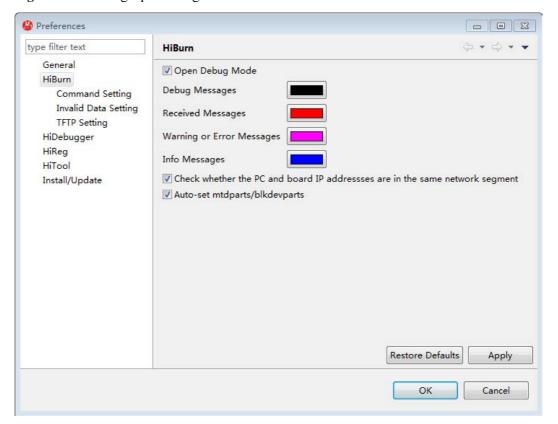
7.2 Other Settings

7.2.1 Setting the HiBurn-Debug Console

To set the HiBurn-Debug console, perform the following steps:

Step 1 Choose **Window** > **Preferences**, click **HiBurn**, and select **Open Debug Mode**, as shown in Figure 7-2.

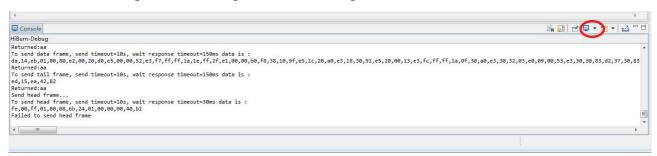






Step 2 After the burning starts, the HiBurn automatically creates the Debug console. Click in the upper right corner of the console and choose **HiBurn-Debug**. Then the Debug console is displayed, as shown in Figure 7-3.

Figure 7-3 Switching to the HiBurn-Debug console



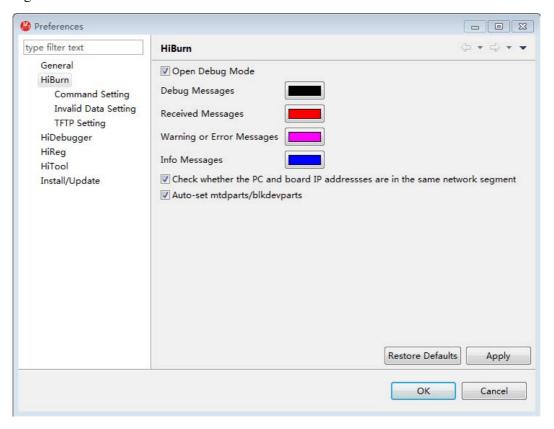
----End

7.2.2 Checking Whether the IP Addresses for the PC and the Board Are in the Same Network Segment

Choose Window > Preferences, click HiBurn, and select Check whether the PC and board IP addresses are in the same network segment, as shown in Figure 7-4. If this option is selected, the HiBurn checks whether the IP addresses for the PC and the board are in the same network segment before burning.



Figure 7-4 Checking whether the IP addresses for the PC and the board are in the same network segment





8 FAQS

8.1 What Do I Do If the TFTP Timeout Error Occurs?

Problem Description

The TFTP timeout error occurs, as shown in Figure 8-1.

Figure 8-1 TFTP timeout error

```
HiBurn

Send command: mw.b 0x1000000 0xFF 0x10000

[EOT](OK)

Send command: tftp 0x1000000 bootargs

ETH0: PHY(phyaddr=2, mii) link UP: DUPLEX=FULL: SPEED=100M

MAC: 00-2E-7E-A7-BE-9A

TFTP from server 10.67.225.26; our IP address is 10.67.224.204

Download Filename 'bootargs_Hi3716CV200-emmc.bin'.

Download to address: 0x1000000

Downloading: *DT T T T T
```

Solution

Do as follows:

Check whether the network configuration of the HiBurn is correct, as shown in Figure 8 2.

Check whether the server IP address is correct. If not, select the correct IP address for the PC. Then check whether the subnet mask and network gateway are correct. If yes, check whether the board IP address is occupied (Run the **ping** command to check whether the current board IP address can be pinged. If no, the network is disconnected.) Ensure that all parameters are correctly configured and try to burn an image again.

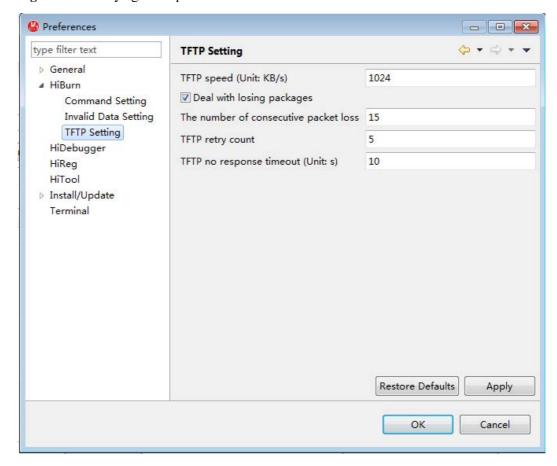


Figure 8-2 Checking the network configuration



- Use the external tftpd32 tool instead of the embedded TFTP to download images. If a
 timeout error also occurs, check whether the current network environment is normal. For
 details about how to use the external tftpd32 tool, see section 8.2 "How Do I Download
 Images by Using the External tftpd32?"
- Modify the TFTP parameters in the HiBurn to match the current network environment.
 Choose Window > Preferences > HiBurn > TFTP Setting, and set The number of consecutive packet loss and TFTP no response timeout to larger values, as shown in Figure 8-3. Then burn an image to check whether the tool is normal.
- Check whether the firewall is disabled. If not, disable the firewall.

Figure 8-3 Modifying TFTP parameters





8.2 How Do I Download Images by Using the External tftpd32?

Problem Description

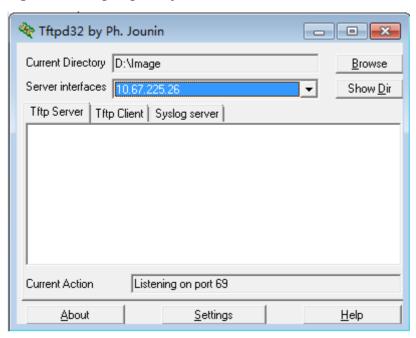
How do I download images by using the external tftpd32?

Solution

Perform the following steps:

Step 1 Open the tftpd32, and select the correct PC IP address and the directory for storing the image to be burnt, as shown in Figure 8-4.

Figure 8-4 Configuring the tftpd32



Step 2 Click the burn button in the HiBurn. The dialog box shown in Figure 8-5 is displayed. Click **OK**. Then the external tftpd32 is used to download the image, as shown in Figure 8-6.

Figure 8-5 Information indicating TFTP startup failure

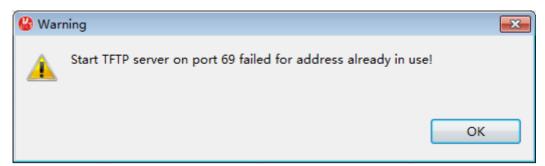






Figure 8-6 Downloading images by using the tftpd32

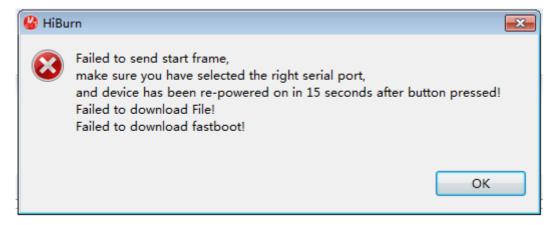
----End

8.3 What Do I Do If the System Displays "Failed to send start frame" When the Fastboot Partition Is Being Burnt?

Problem Description

The system displays "Failed to send start frame" when the fastboot partition is being burnt, as shown in Figure 8-7.

Figure 8-7 "Failed to send start frame" error

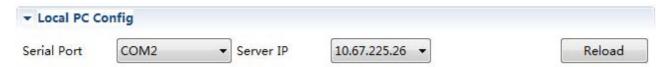




Solution

Check whether the board is restarted within 15 seconds after the burn button is clicked. If yes, check whether the serial port is properly connected to the board. If yes, check whether the serial port ID is correctly selected in the HiBurn, as shown in Figure 8-8. Then burn the image again.

Figure 8-8 Checking the serial port ID



8.4 What DO I Do If the Console Stops Displaying Information and the Error Message "Failed to send head frame" Is Displayed When the Fastboot Partition Is Being Burnt?

Problem Description

When the fastboot partition is being burnt, the console stops displaying information after "#######" is displayed, and the error message "Failed to send head frame" is displayed, as shown in Figure 8-9.

Figure 8-9 "Failed to send head frame" error



Solution

This issue may be caused due to the following reasons:

- There is a mismatch between the fastboot image being burnt and the current board chip model. Check the board chip model directly. Then select and burn the SDK image that matches the current board chip model.
- The board DDR is faulty. It cannot be initialized properly.

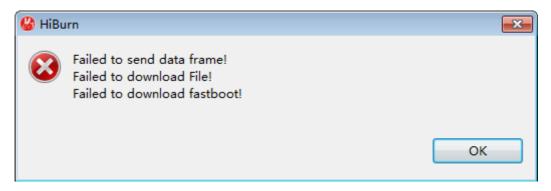


8.5 What Do I Do If the System Displays "Failed to send data frame" When the Fastboot Partition Is Being Burnt?

Problem Description

The system displays "Failed to send data frame" when the fastboot partition is being burnt, as shown in Figure 8-10.

Figure 8-10 "Failed to send data frame" error



Solution

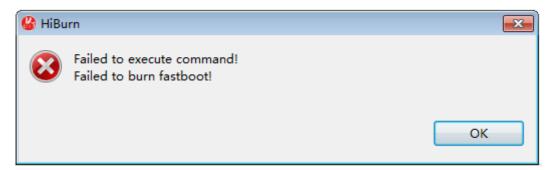
This issue may occur because the serial port is not connected properly when the fastboot image is being burnt, which results in a data transmission failure during interaction between the HiBurn and the board. Therefore, check whether the serial port is properly connected.

8.6 What Do I Do If the System Displays "Failed to execute command" When the Fastboot Partition Is Being Burnt?

Problem Description

The system displays "Failed to execute command" when the fastboot partition is being burnt, as shown in Figure 8-11.

Figure 8-11 "Failed to execute command" error





Solution

This issue occurs because the selected flash type of the fastboot partition is incorrect, as shown in Figure 8-12. Restart the board to check the **Boot Media** attribute of the board. If it is **eMMC**, the flash type of the fastboot partition must be eMMC, and the partition must be burnt in eMMC mode.

Figure 8-12 Checking Boot Media

```
System startup
U-Boot 2010.06-00421-g1c4fb8b-dirty (Aug 19 2015 - 15:43:33)
Check Flash Memory Controller v100 ... Found
SPI Nand ID Table Version 1.4
MMC:
EMMC/MMC/SD controller initialization.
MMC/SD Card:
   MID:
   Read Block: 512 Bytes
   Write Block: 512 Bytes
   Chip Size: 7452M Bytes (High Capacity)
                "SEM08"
   Name:
   Chip Type:
               MMC
   Version:
                4.0
                25000000Hz
   Speed:
    Bus Width: 8bit
   Boot Addr: 0 Bytes
In:
      serial
Out: serial
Err: serial
start download process.
```

8.7 What Are the Advantages and Disadvantages of File Transmission over the Serial Port?

Problem Description

What are the advantages and disadvantages of file transmission over the serial port?

Solution

If images are burnt over the serial port, the efficiency is low because a large amount of data needs to be transmitted to the board during burning and the transmission rate of the serial port is low. Therefore, you are advised to burn images over the Ethernet port. However, if your network environment is unstable, you are advised to use the serial port because burning images over the serial port is stable.



8.8 What Are the Requirements on the File Length On the Burnt by Address Page?

Problem Description

What are the requirements on the file length on the **Burn by Address** page?

Solution

The length of data to be erased must be an integral multiple of the block size, and the length of the Yaffs file system to be uploaded must be an integral multiple of (page size+OOB size).

8.9 What Do I Do If the HiBurn Does Not Start to Burn Images After the Burn Button Is Clicked and the Board is Restarted?

Problem Description

After the **Burn** button is clicked and the board is restarted, the HiBurn does not start to burn images.

Solution

This issue occurs if the selected serial port is incorrect or the serial port is not connected properly (view the serial port information by using the terminal tool). Wait for the console to display the related information.

8.10 What Are the Possible Causes If the Serial Port Cannot Be Detected, the TFTP Service Fails to Be Started, or the TFTP Port Is Occupied?

Problem Description

What are the possible causes if the serial port cannot be detected, the TFTP service fails to be started, or the TFTP port is occupied?

Solution

This issue occurs if you do not log in to the board as the root user, because only the root user has the permission to enable the TFTP service or use the serial port. If a message indicating that the TFTP port is occupied is reported, another software may be using the port.



8.11 What Is pure data length and len_incl_bad Displayed in the Console When Images Are Being Burnt to the NAND Flash?

Problem Description

The console displays **pure data length** and **len_incl_bad** when images are being burnt to the NAND flash. What do they mean?

Solution

As shown in Figure 8-13, pure data length indicates the length of the actually burnt data, and len_incl_bad indicates the length of burnt data including bad blocks. Both pure data length and len incl bad do not include the length of the OOB.

Figure 8-13 Length of burnt data displayed in the console

```
HiBurn

Send command: nand write.yaffs 0x81000000 0x500000 0x15c3540

NAND write: device 0 offset 0x500000, size 0x15c3540
pure data length is 22128640, len_incl_bad is 22413312
Skip bad block 0x00840000
Skip bad bloc 0x00860000|

22820160 bytes written: OK
[EOT](OK)
Partition rootfs burnt successfully!
Partition burnt completed!
```

8.12 What Do I Do If "Time out while receiving command execute result!" Is Displayed When Images Are Being Burnt to the eMMC?

Problem Description

What do I do if "Time out while receiving command execute result!" is displayed when images are being burnt to the eMMC?

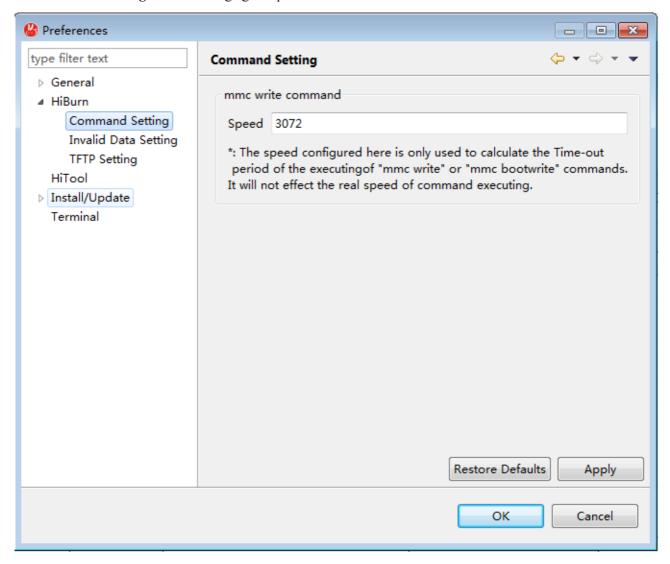
Solution

The possible reason is that after the **mmc write** command is executed, timeout occurs when the HiBurn is waiting for feedback from the board. If this issue occurs, choose **Window** >



Preferences > **HiBurn** > **Command Setting** (as shown in Figure 8-14), and set **Speed** to a smaller value. Then implement burning again.

Figure 8-14 Changing the speed of the mmc write command in Preferences



8.13 What Should I Pay Attention to When Creating the Image for the eMMC Burner?

Problem Description

What should I pay attention to when creating the image for the eMMC burner?

8 FAQs

Solution

During the creation of an image to be burnt by the eMMC burner, if the length of the last partition in the partition table is -, you need to enter the available length of the component on the board for calculating the length of the last partition. See Figure 8-15.

Figure 8-15 Calculating the length of the last partition



If the file system of the partition is EXT3 or EXT4, the partition image may be a sparse image. In this case, the console displays information similar to that shown in Figure 8-16. If the size of the parsed sparse image exceeds the partition size, the console displays information similar to that shown in Figure 8-17, and the created burner image may be abnormal.

Figure 8-16 Information displayed in the console if the partition image is a sparse image

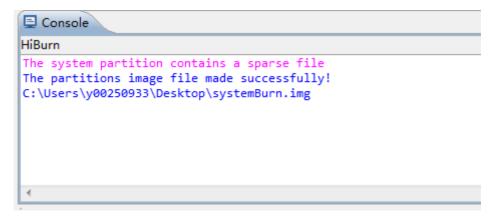
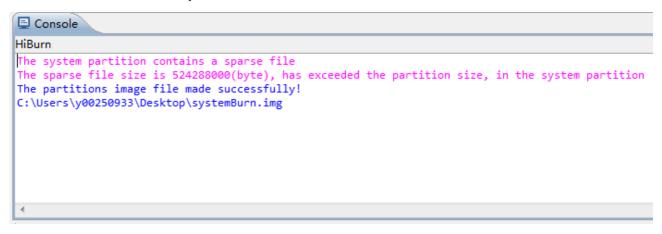




Figure 8-17 Information displayed in the console when the size of the parsed sparse image exceeds the partition size



8.14 When Creating Images to Be Burnt by the eMMC Burner, How Do I Change the Stuffed Value of Invalid Data to 0x00 or 0xFF?

Problem Description

When creating images to be burnt by the eMMC burner, how do I change the stuffed value of invalid data to 0x00 or 0xFF?

Solution

Choose Window > Preferences > HiBurn > Invalid Data Setting, and select 0x00 or 0xFF, as shown in Figure 8-18. Then invalid data will be stuffed with the selected value when you create images to be burnt by the eMMC burner.



Preferences - E X type filter text **Invalid Data Setting** General Fill in the data: HiBurn Command Setting The default EMMC blank area filling as follows: Invalid Data Setting TFTP Setting 0x00 0xFF HiTool Install/Update Terminal Apply Restore Defaults OK Cancel

Figure 8-18 Setting the stuffed value of invalid data in Preferences

8.15 What Does the HiBurn Display When the DDR Training Fails?

Problem Description

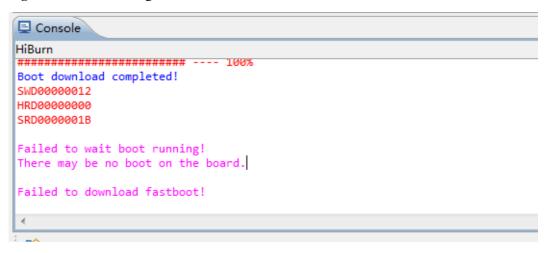
What does the HiBurn display when the DDR training fails?

Solution

If the DDR training fails, information shown in Figure 8-19 is displayed when the fastboot partition is being burnt.



Figure 8-19 DDR training failure information



8.16 What Information Should I Provide When Submitting Feedback on the HiBurn?

Problem Description

What information should I provide when submitting feedback on the HiBurn?

Solution

If an error occurs when you use the HiBurn, click the **Export** button on the console toolbar to export the displayed information in the console and provide the exported information when you submit feedback on the HiBurn. This helps locate and solve the problem.

8.17 How Do I Check Whether Port 69 of the TFTP Is Occupied?

Problem Description

Running the **tftp** command always returns a message indicating that the file cannot be found. However, all the configurations are correct. How do I check whether port 69 of the TFTP is occupied by a process?

Solution

Port 69 may be occupied by a background process. You can check whether it is occupied by a process by using the following method:

Enter **netstat -ano -p udp** in the command-line interface. The information similar to that shown in Figure 8-20 is displayed.



Figure 8-20 Checking whether the port is occupied by a process



As shown in Figure 8-20, port 69 is occupied by the process with the PID 7696. Then run **tasklist|findstr "7696"** to check the name of the process. The information similar to that shown in Figure 8-21 is displayed.

Figure 8-21 Checking the name of a process with a specific PID



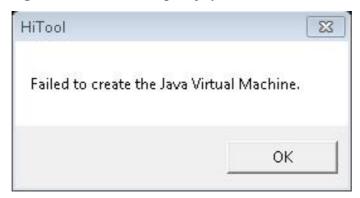
You can kill the process in the process manager.

8.18 What Do I Do If the HiTool Displays "Failed to create the Java Virtual Machine" When the JRE 1.7 or Later Version Is Installed on the PC?

Problem Description

The HiTool displays an error message when it is started if JRE 1.7 or later version is installed on the PC, as shown in Figure 8-22.

Figure 8-22 An error message displayed on HiTool





Solution

The versions earlier than HiTool-XXX-3.1.20 are dependent on the JRE1.6 version. Therefore, JRE1.6 needs to be loaded when the HiTool starts. Otherwise, the error "Failed to create the Java Virtual Machine" occurs. The versions later than HiTool-XXX-3.1.20 support JRE1.7 or higher versions.

8.19 What Do I Do If the 64-bit JRE Version Is Installed on the 64-bit PC?

Problem Description

What do I do if an error occurs in HiTool when the PC is installed with the 64-bit JRE version?

Solution

The HiTool is dependent on the 32-bit JRE version. Before using the HiTool, you need to log in to the official website of the JRE to download and install the JRE version that supports Windows x86 OS. The website is http://www.oracle.com/technetwork/java/javase/downloads/.

In addition, the versions later than HiTool-XXX-4.0.15 have the embedded JRE program. Therefore, JRE installation is not needed.



A

Acronyms and Abbreviations

A

AXI advanced eXtensible interface

 \mathbf{C}

CRC cyclic redundancy check

D

DDR double data rate

 \mathbf{E}

eMMC embedded multimedia card

 \mathbf{G}

GPIO general purpose input output

H

HDMI high-definition multimedia interface