

# **Fastboot Burning Tool**

# **Application Notes**

Issue 02

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# **About This Document**

# **Purpose**

This document describes how to use the fastboot burning tool. By using the fastboot, you can burn images of all programs to the flash memory on a board in one-click mode, burn images to the flash memory on a board with BOOTROM by flash address, or burn the fastboot image to the flash memory on a board.

## **Related Versions**

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

Product Name	Version
Hi3521	V100
Hi3520A	V100
Hi3520D	V100
Hi3515A	V100
Hi3515C	V100

## **Intended Audience**

This document is intended for:

- Technical support personnel
- Board software development engineers

# **Change History**

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



## Issue 02 (2013-06-21)

This issue is the second official release, which incorporates the following changes:

The descriptions of the Hi3515C is added.

### Issue 01 (2013-04-03)

This issue is the first official release, which incorporates the following changes:

The descriptions of the Hi3520D and Hi3515A are added.

### Issue 00B10 (2012-06-30)

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

Fastboot screenshots are changed in all chapters.

### **Chapter 2 Obtaining the Images to Be Burnt**

Image names are changed, ensuring that the image names are the same as those in the SDK.

The descriptions of decompressing the SDK are updated.

#### **Chapter 4 Burning Images by the Flash Address**

The operation of short-circuiting the bootstrap jumper cap is changed to the operation of checking the DIP switch corresponding to the bootstrap function.

#### **Chapter 5 Burning the Fastboot Image**

The operation of short-circuiting the bootstrap jumper cap is changed to the operation of checking the DIP switch corresponding to the bootstrap function.

#### Issue 00B01 (2012-04-20)

This issue is the first draft release.



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# Preparing the Burning Environment

Perform the following operations before burning:

- Copy **FastBoot3.1\_BVT.exe** in **tools/bin3.0** of the software development kit (SDK) to a PC running Windows.
- Connect the serial port and Ethernet port by using cables. You need set to the dual in-line package (DIP) switches on the Hi3521/Hi3520A demo board to enable the board to boot from the BOOTROM, as shown in Figure 1-1.



## **CAUTION**

The Hi3520D/Hi3515A/Hi3515C demo board has no DIP switch related to the BOOTROM and boots from the BOOTROM by default.

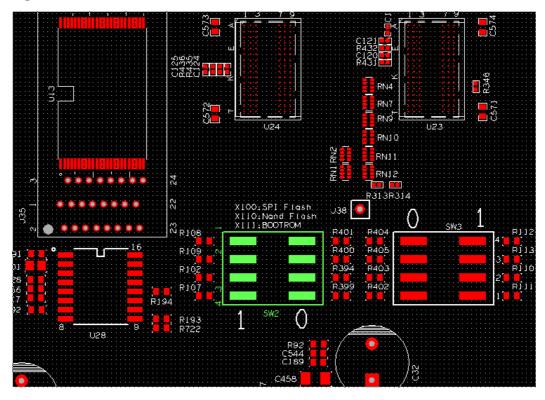


Figure 1-1 DIP switches on the Hi3521/Hi3520A demo board

The bits of each DIP switch from high to low correspond to pin 4, pin 3, pin 2, and pin 1 respectively. The following describes the DIP switch settings:

- Rootrom: SW2[X1XX] (set pin 3 of SW2 to 1)
- SPI flash: SW2[XX00] (set pin 2 and pin 1 of SW2 to 0)
- NAND flash: SW2[XX10] (set pin 2 of SW2 to 1, and set pin 1 of SW2 to 0)



# 2 Obtaining the Images to Be Burnt

The images to be burnt are as follows:

- BOOTROM files
  - Hi3521: u-boot-hi3521 930MHz.bin
  - Hi3520A: u-boot-hi3520a 930MHz.bin
  - Hi3520D/Hi3515A/Hi3515C: u-boot hi3520d full.bin
- Kernel files
  - Hi3521: uImage 3521
  - Hi3520A:uImage\_3520a
  - Hi3520D/Hi3515A/Hi3515C: uImage\_hi3520d\_full
- Root file systems
  - Hi3521: rootfs 3521 256K.jffs2 or rootfs 3521 2k 1bit.yaffs2
  - Hi3520A: rootfs\_3520a\_256K.jffs2 or rootfs\_3520a\_2k\_1bit.yaffs2
  - Hi3520D/Hi3515A/Hi3515C: rootfs\_hi3520d\_64k.jffs2

## **NOTE**

Select files based on the type of the file system to be burnt.

After decompressing the SDK, run ./sdk.unpack, open the osdrv folder, and run make to perform compilation. For details about compilation commands, read the **Readme** file in the osdrv folder. After compilation, the preceding images are generated in osdrv/pub/image\_uclibc or osdrv/pub/image\_glibc.



# **3** Burning Images By Partition

# 3.1 Prerequisite

No matter whether the fastboot program exists on a board, all images can be burnt in one-click mode.

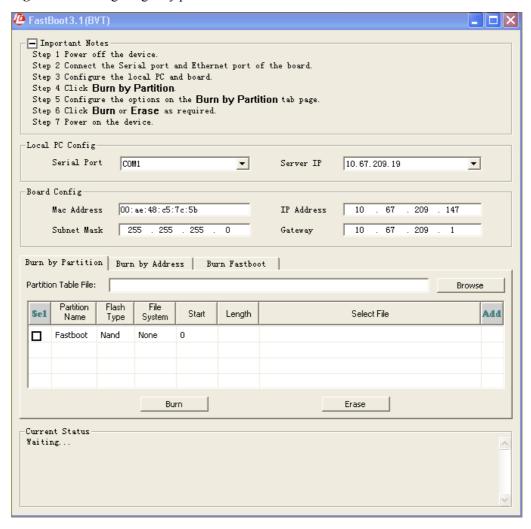
# 3.2 Procedure

To burn images, perform the following steps:

**Step 1** Start the fastboot3.1, as shown in Figure 3-1.



Figure 3-1 Burning images by partition



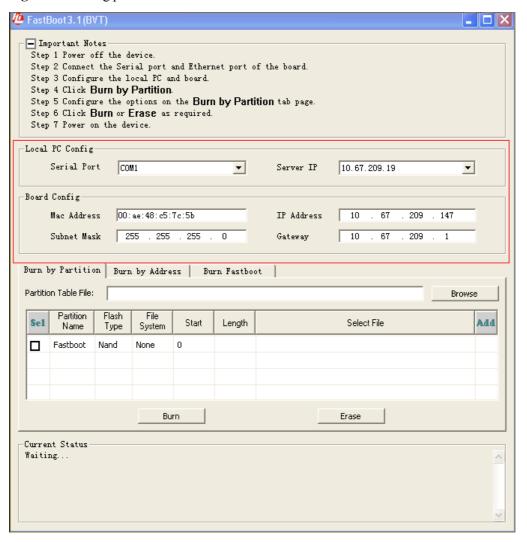
**Step 2** Select a serial port for connecting the board, select the server IP address of the PC, and set the media access control (MAC) address, IP address, subnet mask, and gateway of the board. See Figure 3-2.



The server IP address of the PC and the IP address of the board must be on the same network segment. Otherwise, images fail to be burnt.



Figure 3-2 Setting parameters 1



## **□** NOTE

When the fastboot3.1 is closed for the first time, the parameter settings are automatically saved in **UserConfig.ini** that is in the same directory of the fastboot3.1. When the fastboot.3.1 is started next time, the parameter settings are automatically loaded. You can modify the settings as required.

Step 3 Click Browse to select a partition table to load it to the fastboot3.1, as shown in Figure 3-3.



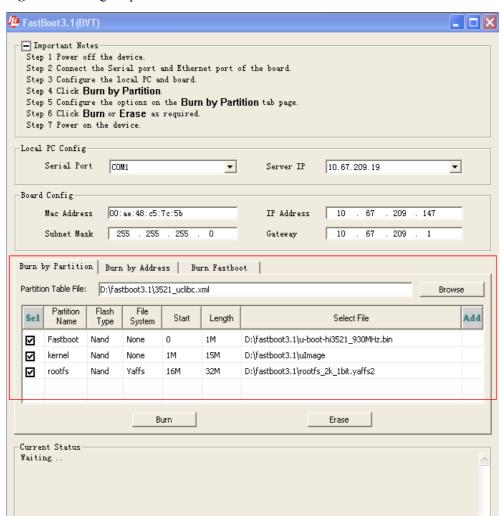


Figure 3-3 Setting the partition information about the board



## **CAUTION**

The partition information in Figure 3-3 is used only for burning images. The actual partitions of the board depend on the **bootargs** parameter of the board. The partition information must be consistent with that specified by the **bootargs** parameter. If not, errors may occur.

The paths of the images to be burnt for all partitions must be the same. If not, images fail to be burnt.

If no image is selected for a selected partition, erase the partition.

If the images of all partitions are packaged as an image, the image must be placed in the **fastboot** partition and the image must contain the uboot image. In this case, the image is burnt over a serial port. Therefore, it takes a long time to burn the image. For the NAND flash, if the image of the **rootfs** partition is readable and writable, the file cannot be packaged.

To modify the information about a partition, modify the .xml partition information file or click the corresponding partition row in the fastboot3.1, as shown in Figure 3-4.



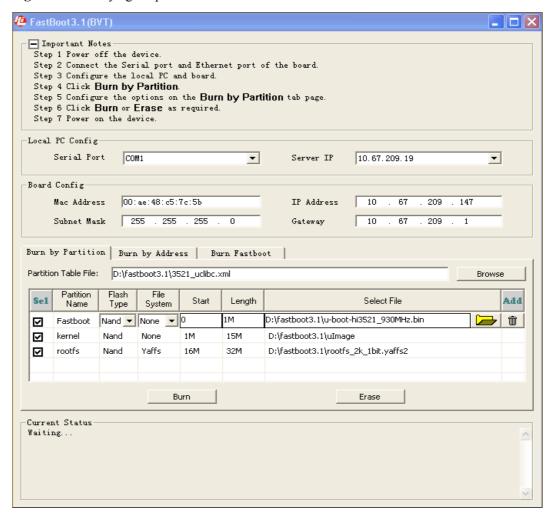


Figure 3-4 Modifying the partition information

The details are as follows:

- To add a partition row, click Add. After clicking each partition row, you can rename the partition, select the flash memory type, select the file system type, and change the start size of the partition and partition size. If the file system type is set to **None**, no file system is selected. The start size 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. If not, an error may occur.
- To select the file to be burnt to a partition, click <u>—</u>.
- To delete a partition, click . Note that the **fastboot** partition cannot be deleted and its name cannot be changed.
- To select all partitions for burning all files in one-click mode, click set; to deselect all partitions, click set again.
- To select a partition, click **c** corresponding to the partition.

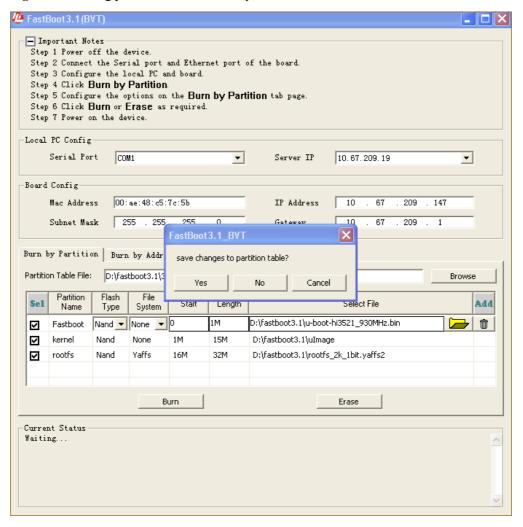


#### M NOTE

There is no .xml partition information file when the fastboot3.1 is started for the first time. When you close the fastboot3.1 after setting or modifying the partition information, a dialog box shown in Figure 3-5 is displayed, asking you whether to save the partition information. Click **Yes**. The **Save As** dialog box shown in Figure 3-6 is displayed. Select a storage path, enter a file name, and click **Save**. An .xml partition information file is generated.

The file must be in .xml format. If not, the partition information cannot be loaded at next startup.

Figure 3-5 Asking you whether to save the partition information



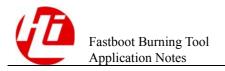
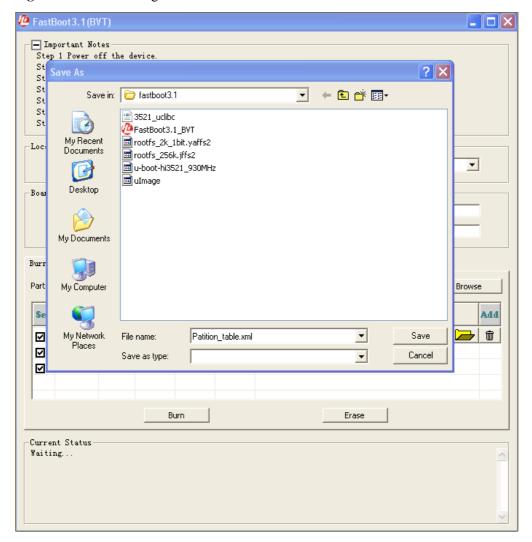


Figure 3-6 Save As dialog box



- **Step 4** Connect the serial port and Ethernet port of the board. If the board is powered on, power it off and check the DIP switch corresponding to the bootstrap function. For details, see chapter 1 "Preparing the Burning Environment."
- **Step 5** Click **Burn**, see Figure 3-7.

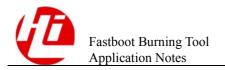
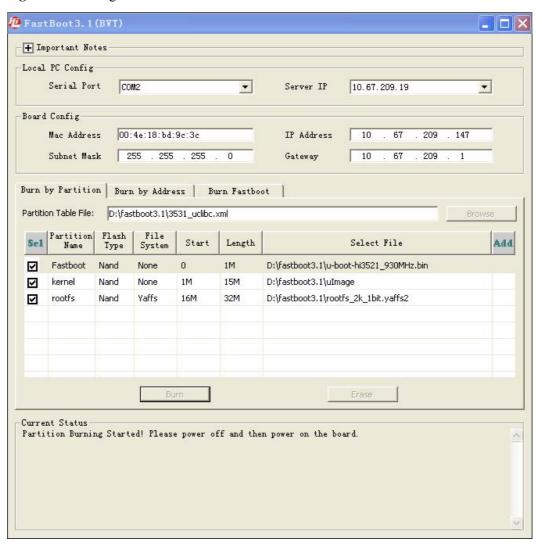


Figure 3-7 Clicking Burn

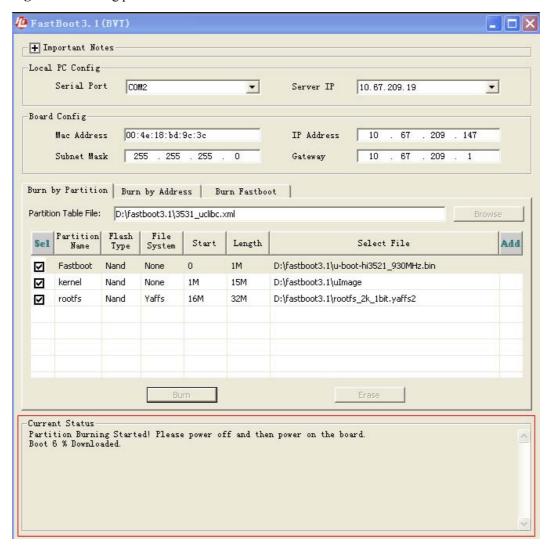


**Step 6** Power on the board to burn the files.

Figure 3-8 shows the burning process.



Figure 3-8 Burning process



The information about the burning process is displayed in the **Current Status** box.

If an error occurs, do as follows:

- Check whether the correct serial port is selected.
- Check whether the correct Ethernet port is selected.
- Check the DIP switch corresponding to the bootstrap function.

**Step 7** Connect the serial port tool and restart the board.

#### ----End

### M NOTE

The process of the erase operation is similar to the process of the burning operation.



# 4 Burning Images by the Flash Address

# 4.1 Prerequisite

There is no fastboot program running on the board.

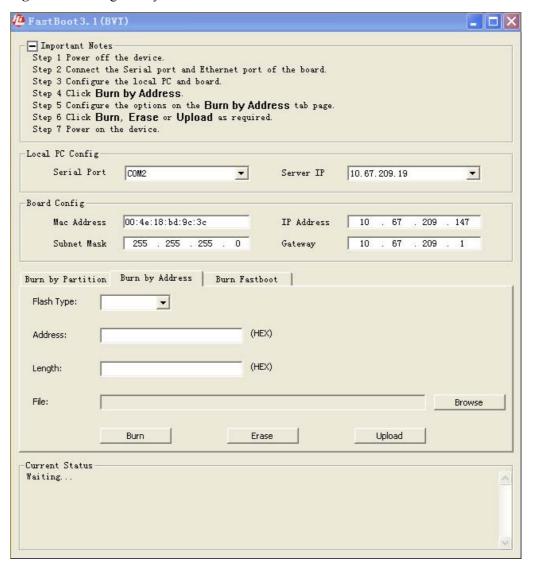
# 4.2 Procedure

To burn a file, perform the following steps:

**Step 1** Start the fastboot3.1, as shown in Figure 4-1.



Figure 4-1 Burning files by address



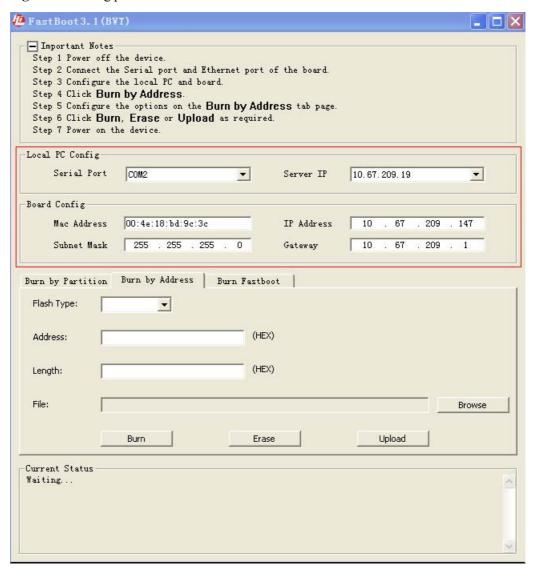
**Step 2** Select a serial port for connecting the board, select the server IP address of the PC, and set the MAC address, IP address, subnet mask, and gateway of the board. See Figure 4-2.



The server IP address of the PC and the IP address of the board must be on the same network segment. Otherwise, images fail to be burnt.



Figure 4-2 Setting parameters 2



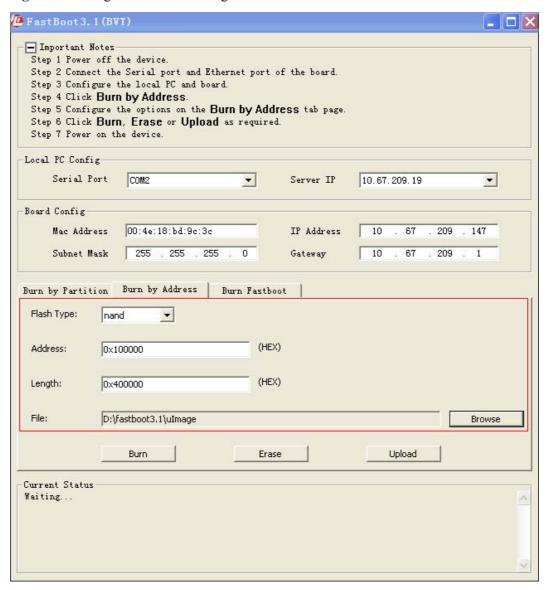
### M NOTE

When the fastboot3.1 is closed for the first time, the parameter settings are automatically saved in **UserConfig.ini** that is in the same directory of the fastboot3.1. When the fastboot3.1 is started next time, the parameter settings are automatically loaded. You can modify the settings as required.

Step 3 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 4-3.



Figure 4-3 Setting the board for burning



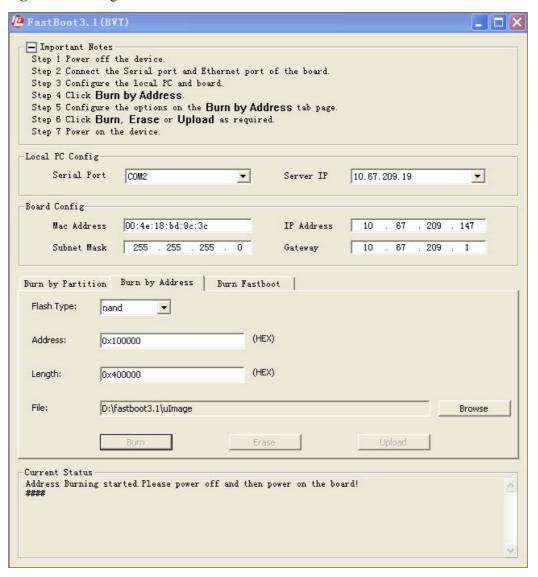
- **Step 4** Connect the serial port and Ethernet port of the board. If the board is powered on, power it off and short-circuit the bootstrap jumper cap of the board. For details, see chapter 1 "Preparing the Burning Environment."
- Step 5 Click Burn, see Figure 4-4.



If you burn files by the flash address, you need to power on the board again only when you click **Burn** for the first time.



Figure 4-4 Clicking Burn

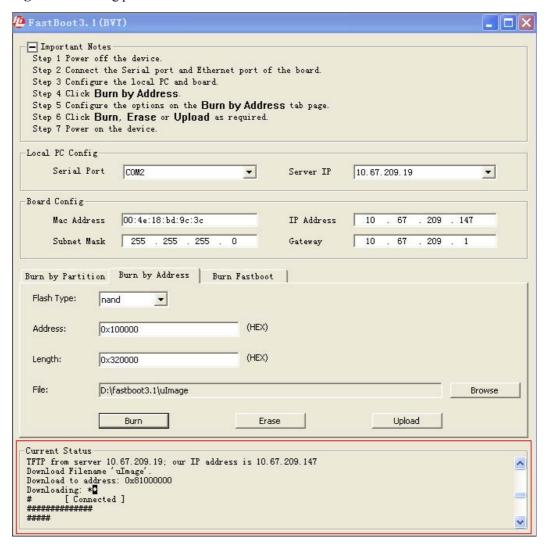


**Step 6** Power on the board to burn the files.

Figure 4-5 shows the burning process.



Figure 4-5 Burning process



The information about the burning process is displayed in the **Current Status** box.

If an error occurs, do as follows:

- Check whether the correct serial port is selected.
- Check whether the correct Ethernet port is selected.
- Check the DIP switch corresponding to the bootstrap function.

**Step 7** Connect the serial port tool and restart the board.

#### ----End

### NOTE

The process of the erase operation or upload operation is similar to the process of the burning operation.



# 5 Burning the Fastboot Image

# 5.1 Prerequisite

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

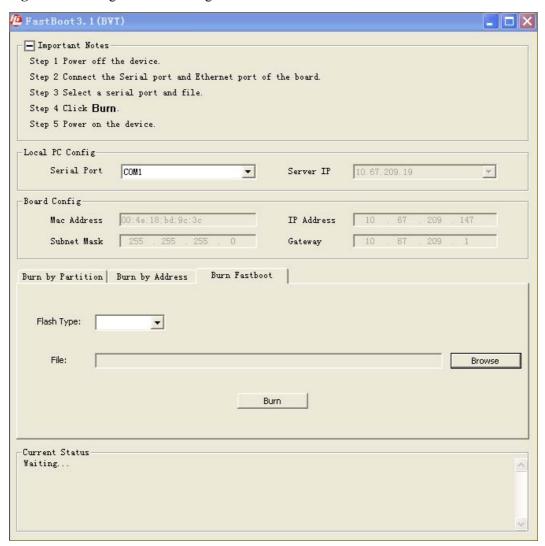
# 5.2 Procedure

To burn the fastboot image, perform the following steps:

**Step 1** Start the fastboot3.1, as shown in Figure 5-1.



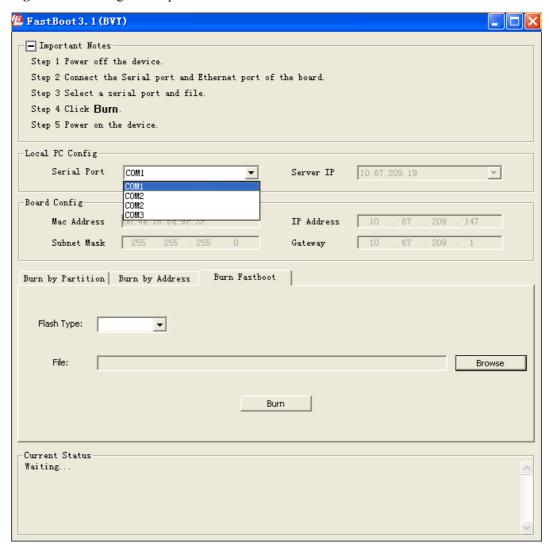
Figure 5-1 Burning the fastboot image



**Step 2** Select a serial port for connecting to the board, as shown in Figure 5-2.



Figure 5-2 Selecting a serial port



Step 3 Select the flash memory type and select the fastboot image, as shown in Figure 5-3.

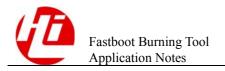
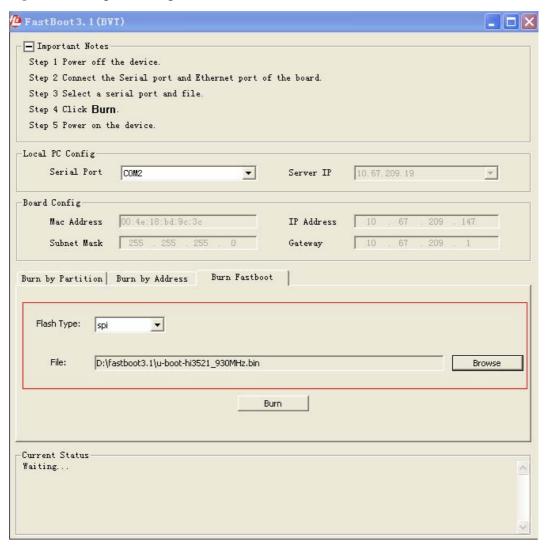


Figure 5-3 Setting the burning information



#### **Step 4** Prepare the board environment.

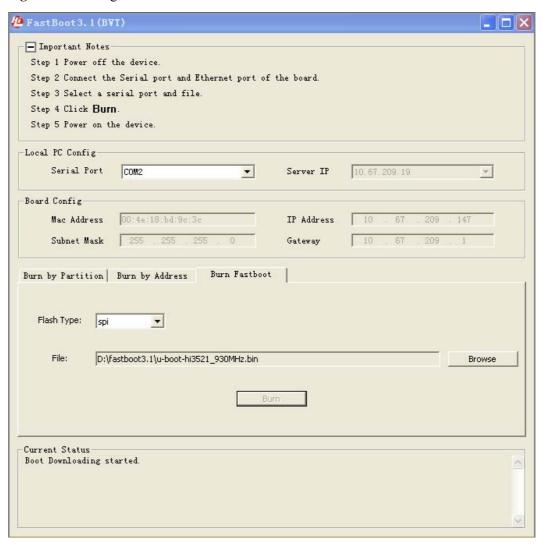
- If the board is powered on, set the DIP switch corresponding to the bootstrap function, and power the board off.
- If the board is not powered on, set the DIP switch corresponding to the bootstrap function.

For details about how to set the DIP switch corresponding to the bootstrap function, see chapter 1 "Preparing the Burning Environment".

Step 5 Click Burn, see Figure 5-4.



Figure 5-4 Clicking Burn

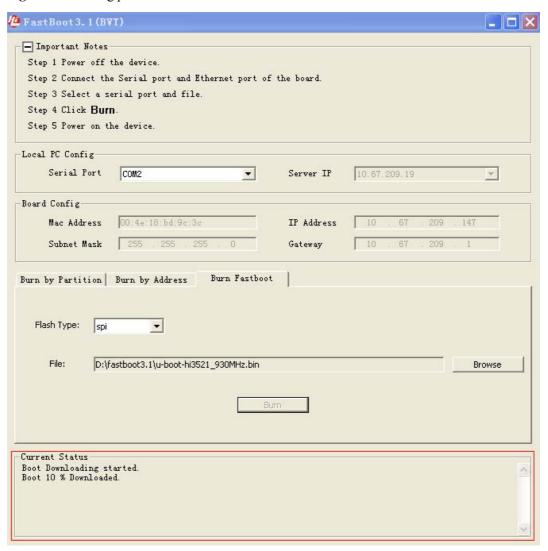


**Step 6** Power on the board to burn the files.

Figure 5-5 shows the burning process.



Figure 5-5 Burning process



The information about the burning process is displayed in the **Current Status** box.

If an error occurs, do as follows:

- Check the correct serial port is selected.
- Check the DIP switch corresponding to the bootstrap function.

**Step 7** Connect the serial port tool and restart the board.

----End