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.

NOTE

This document uses the Hi3516A as an example. Unless otherwise stated, Hi3516D and Hi3516A contents are consistent.

Related Versions

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

Product Name	Version
Hi3516A	V100
Hi3516D	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 (2015-06-16)

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

Chapter 1 Preparing the Burning Environment

The directory that stores **FastBoot3.1_BVT.exe** is changed to **osdrv\tools\pc \uboot_tools**.

Issue 01 (2014-12-20)

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

The contents related to the Hi3516D are added.

Issue 00B02 (2014-09-14)

This issue is the second draft release.

Issue 00B01 (2014-07-25)

This issue is the first draft release.

Contents

Figures

1 Preparing the Burning Environment

Perform the following operations before burning:

- Copy **FastBoot3.1_BVT.exe** in **osdrv\tools\pc\uboot_tools** of the software development kit (SDK) to a PC running Windows.
- Connect the serial port and Ethernet port by using cables.

CAUTION

The Hi3516A demo board has no DIP switch related to the BOOTROM and boots from the BOOTROM by default.

2 Obtaining the Images to Be Burnt

After decompressing the SDK, run **./sdk.unpack**, open the **osdrv** folder, and run **make** to compile the SDK. For details about compilation commands, read the **Readme** file in the **osdrv** folder. After compilation, the images to be burnt are generated in **osdrv/pub/image_uclibc** or **osdrv/pub/image_glibc**.

The images to be burnt include:

- U-boot image: **u-boot-hi3516a.bin**
- Kernel image: **uImage_hi3516a**
- Images of root file systems: **rootfs_hi3516a_256k.jffs2** and **rootfs_hi3516a_2k_4bit.yaffs2**

Note that the jiffs2 image is burnt to the SPI flash, and **256k** indicates the block size. The yaffs2 image is burnt to the NAND flash, and **2k** indicates the page size, and **4bit** indicates the ECC capability. You need to burn the images of root file systems based on the type and features of the flash memory.

3 Burning Images By Partition

3.1 Prerequisite

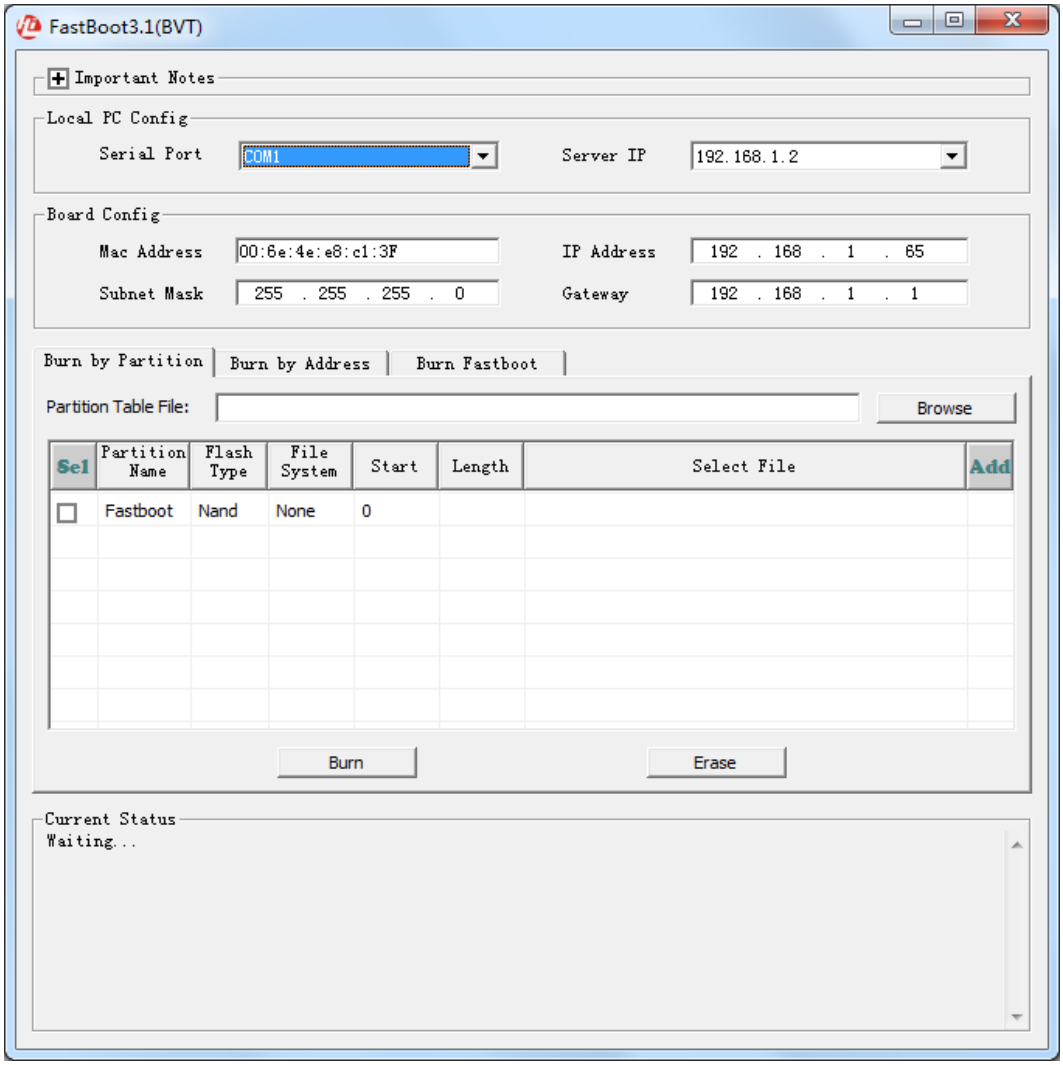
No matter whether the fastboot program exists on a board, all images can be burnt in one-click mode.

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

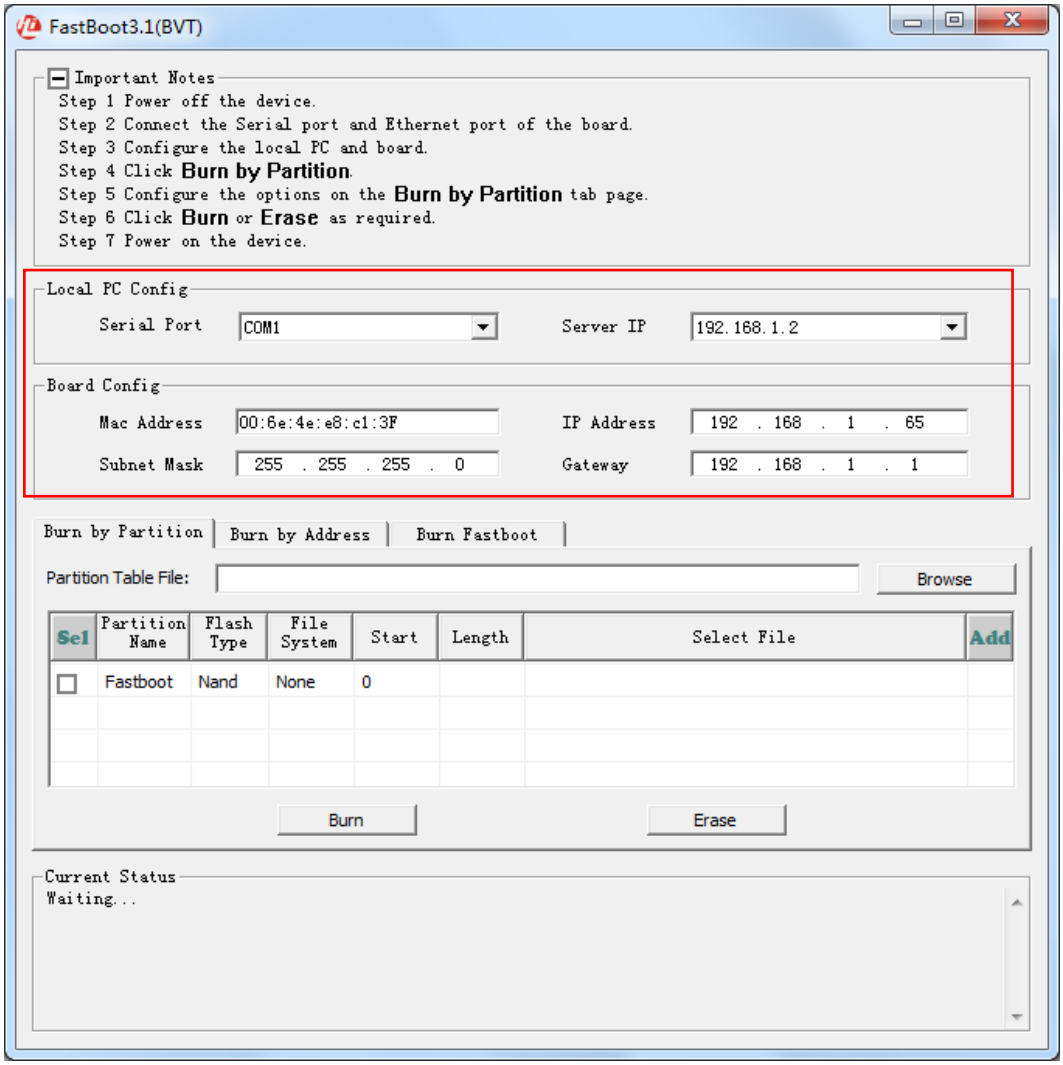


Step 2 Select a serial port for connecting the board, select the server IP address of the PC, and set the media access control (MAC) address, IP address, subnet mask, and gateway of the board. See Figure 3-2.

CAUTION

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

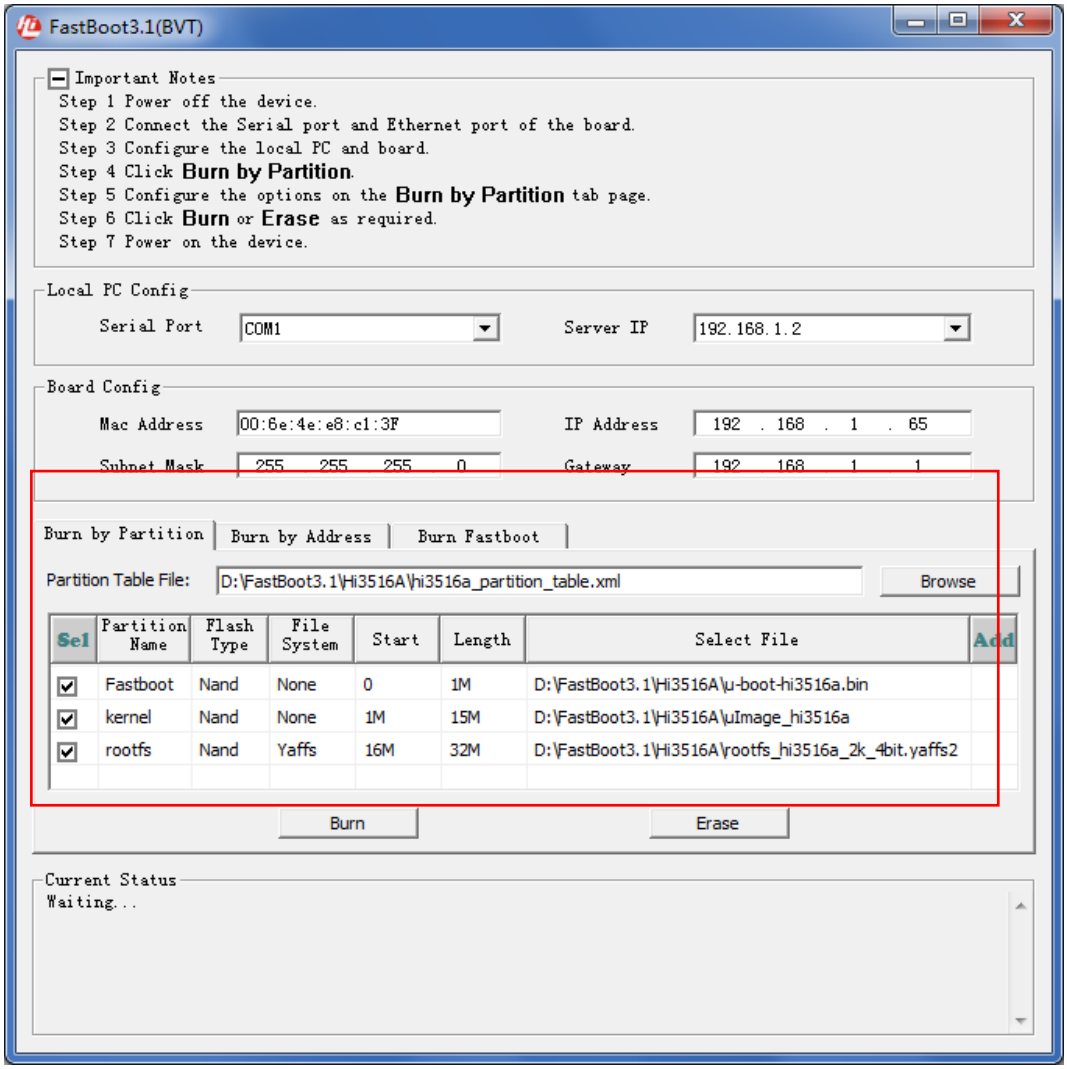


NOTE

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.

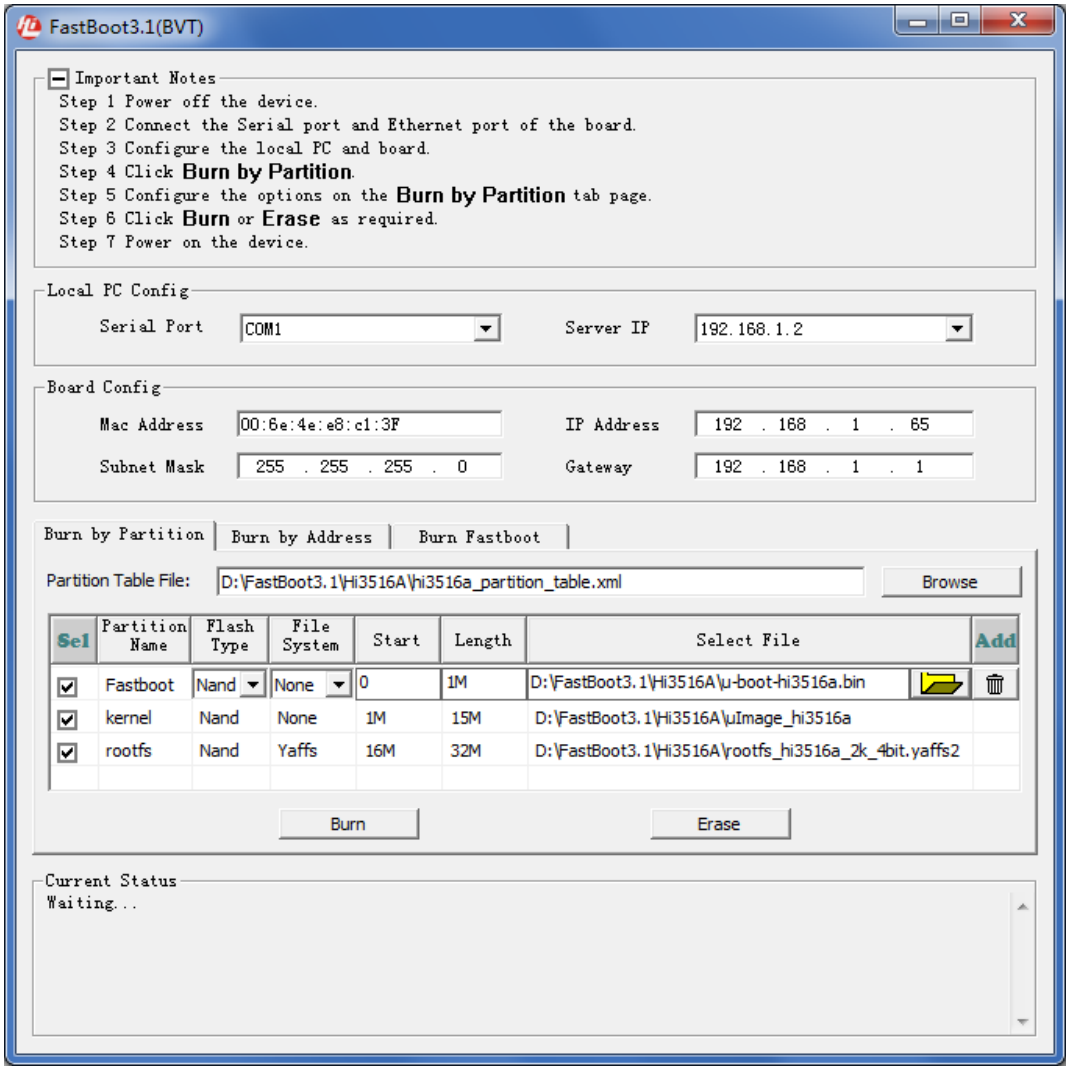
The paths of the images to be burnt for all partitions must be the same. Otherwise, images fail to be burnt.

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 .
- 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 Sel; to deselect all partitions, click Sel again.
- To select a partition, click ☑ corresponding to the partition.

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

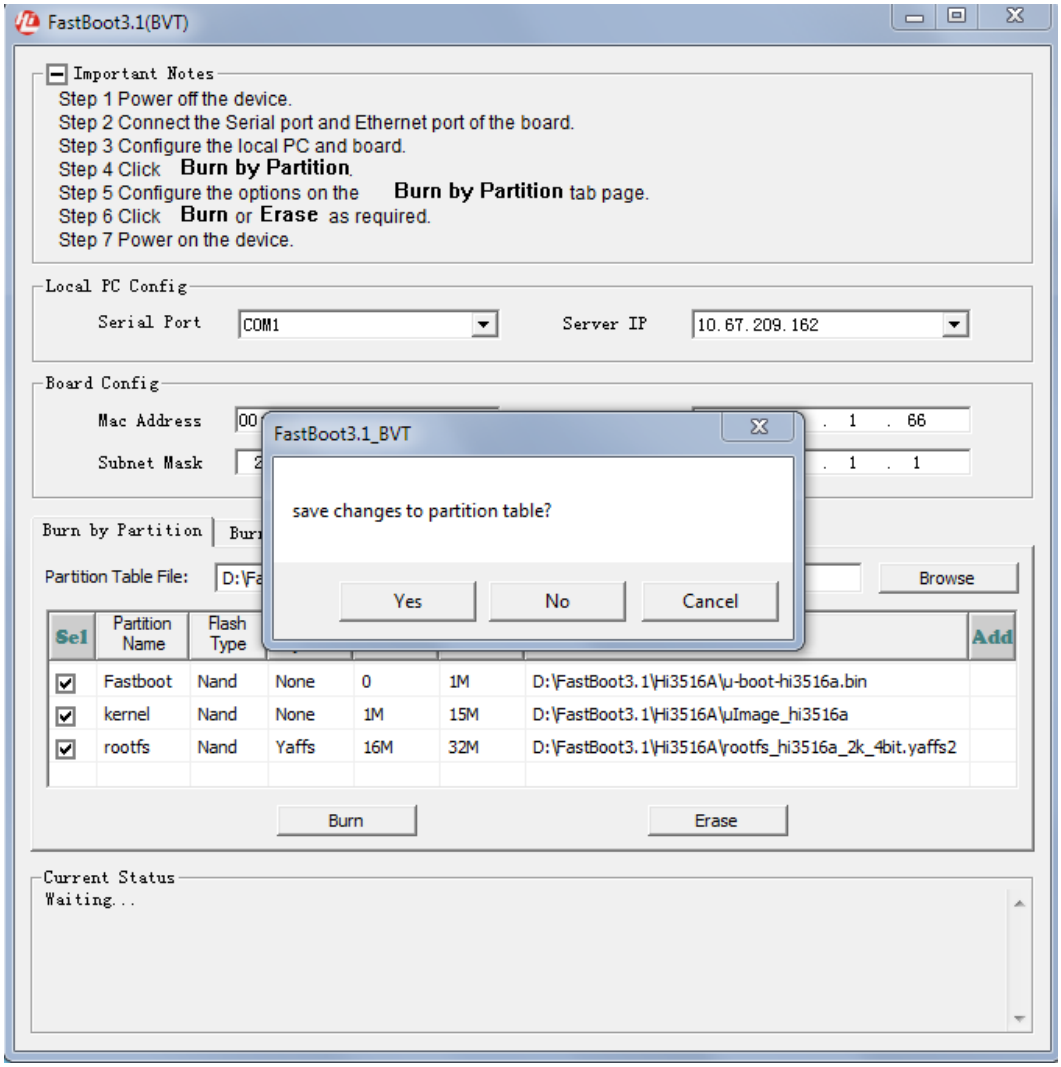
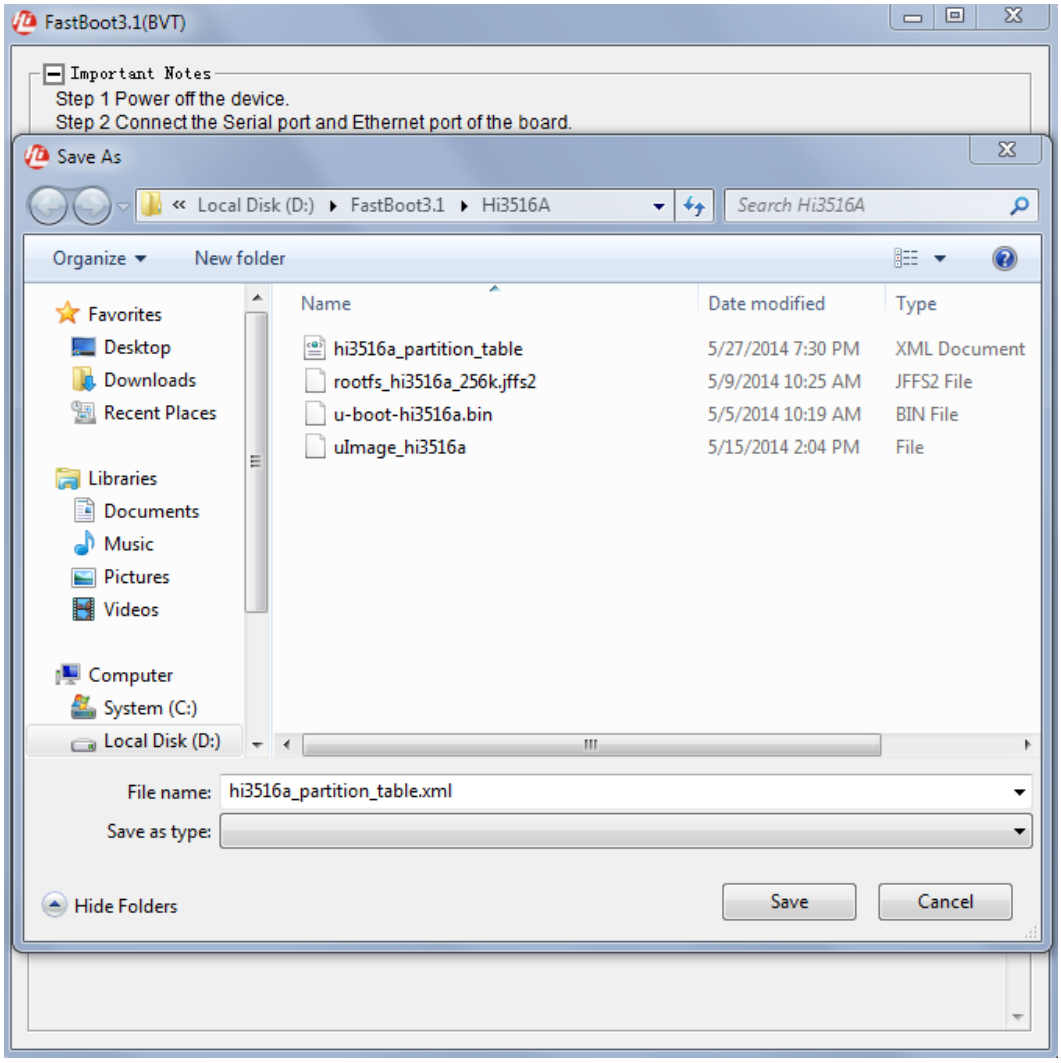


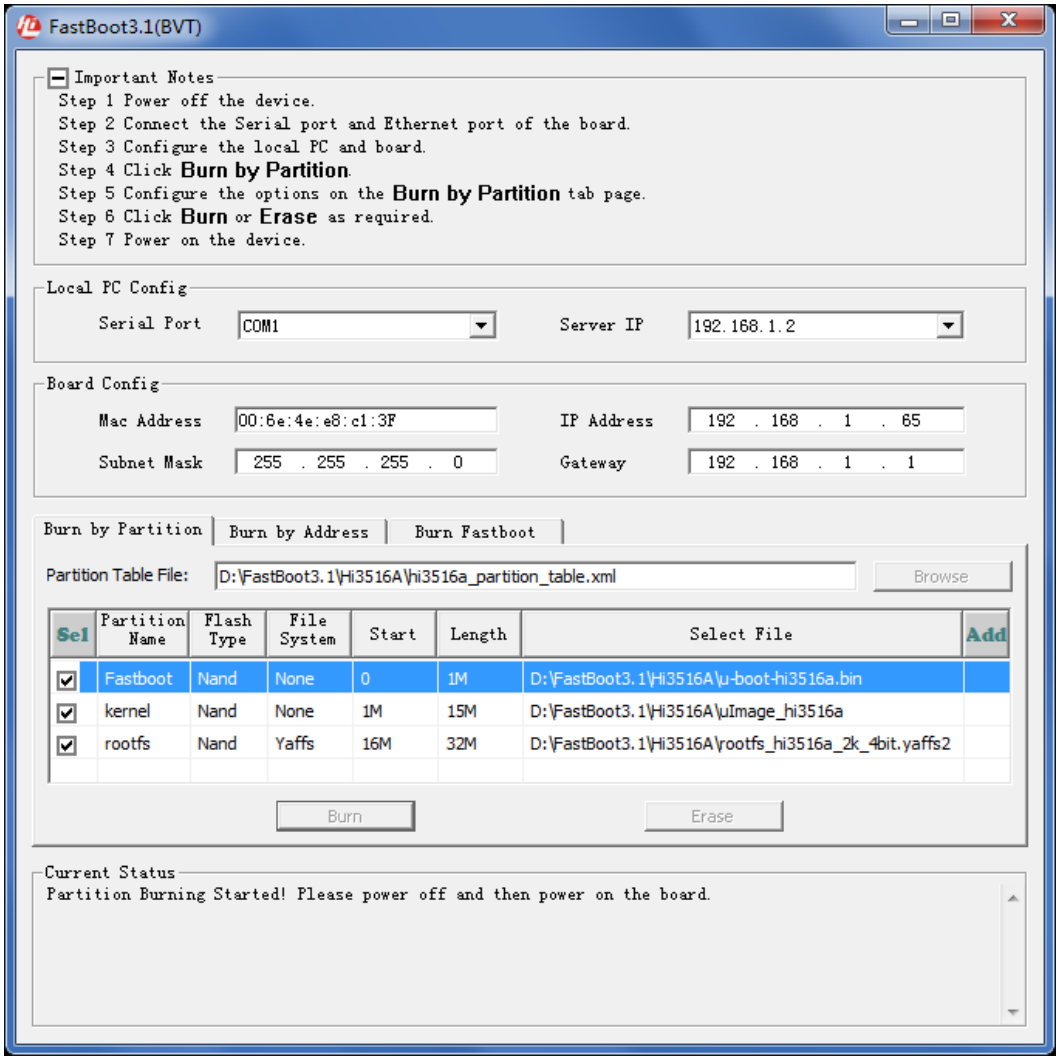
Figure 3-6 Save As dialog box



Step 4 Connect the serial port and Ethernet port of the board. If the board is powered on, If the board is powered on, power it off to ensure successful handshake with the board.

Step 5 Click **Burn**, see Figure 3-7.

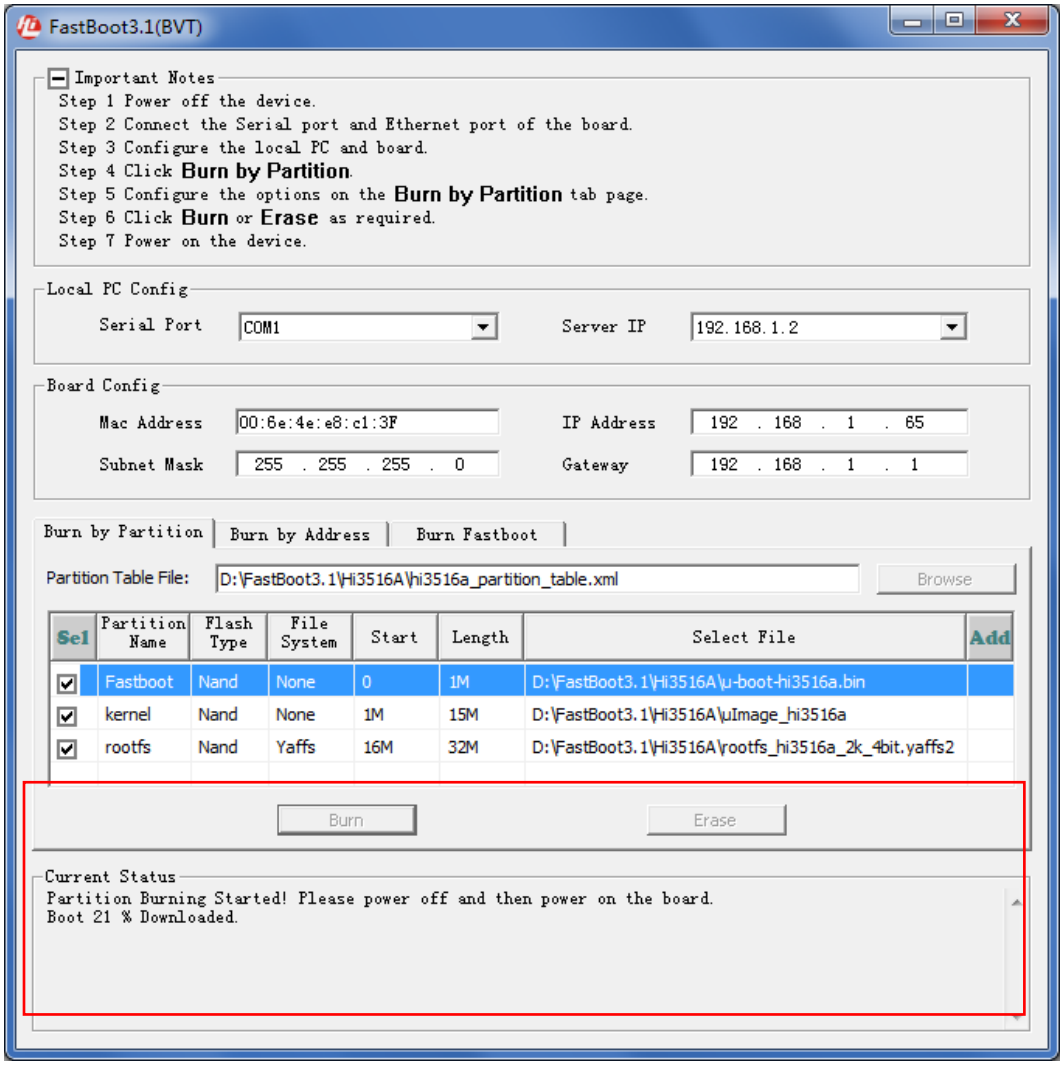
Figure 3-7 Clicking Burn



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.

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

----End

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

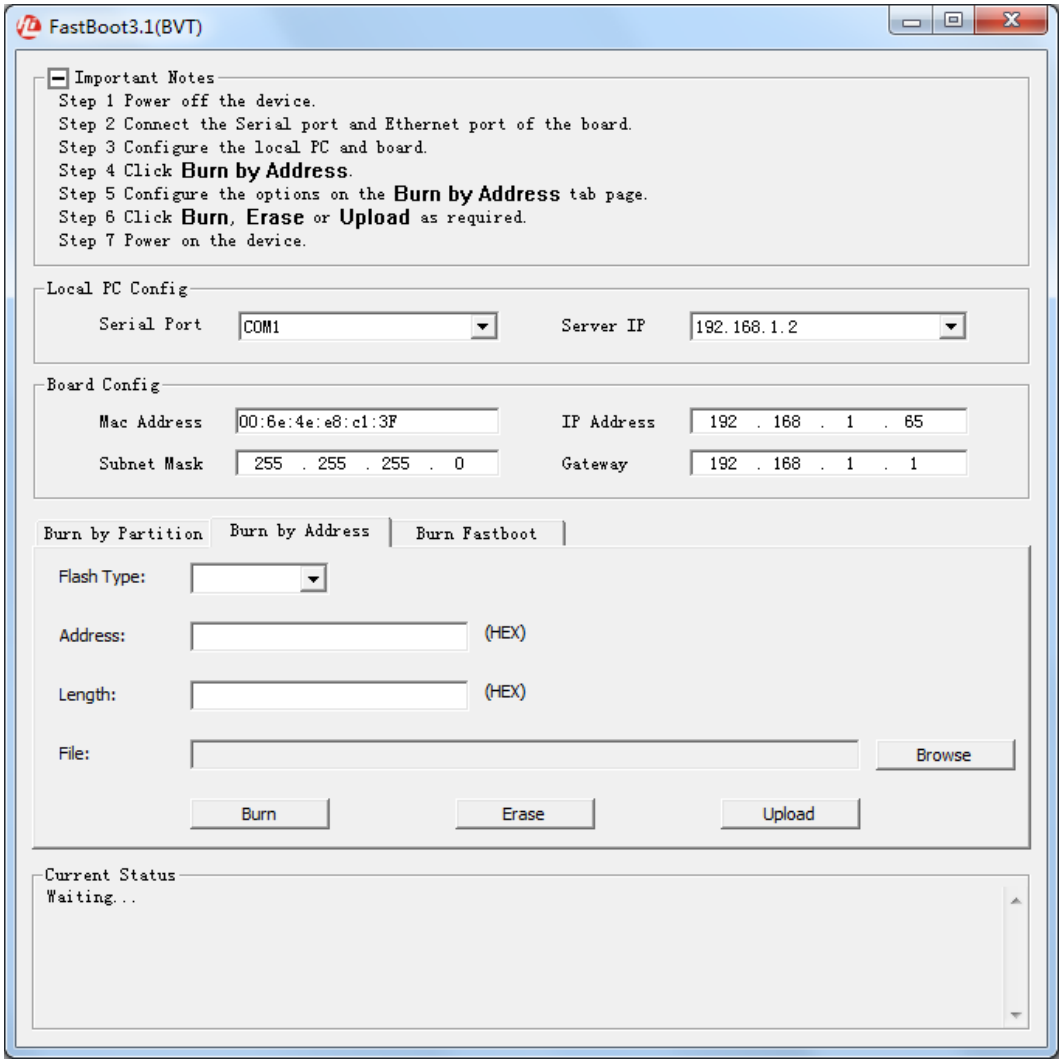
There is a fastboot program running on the board.

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

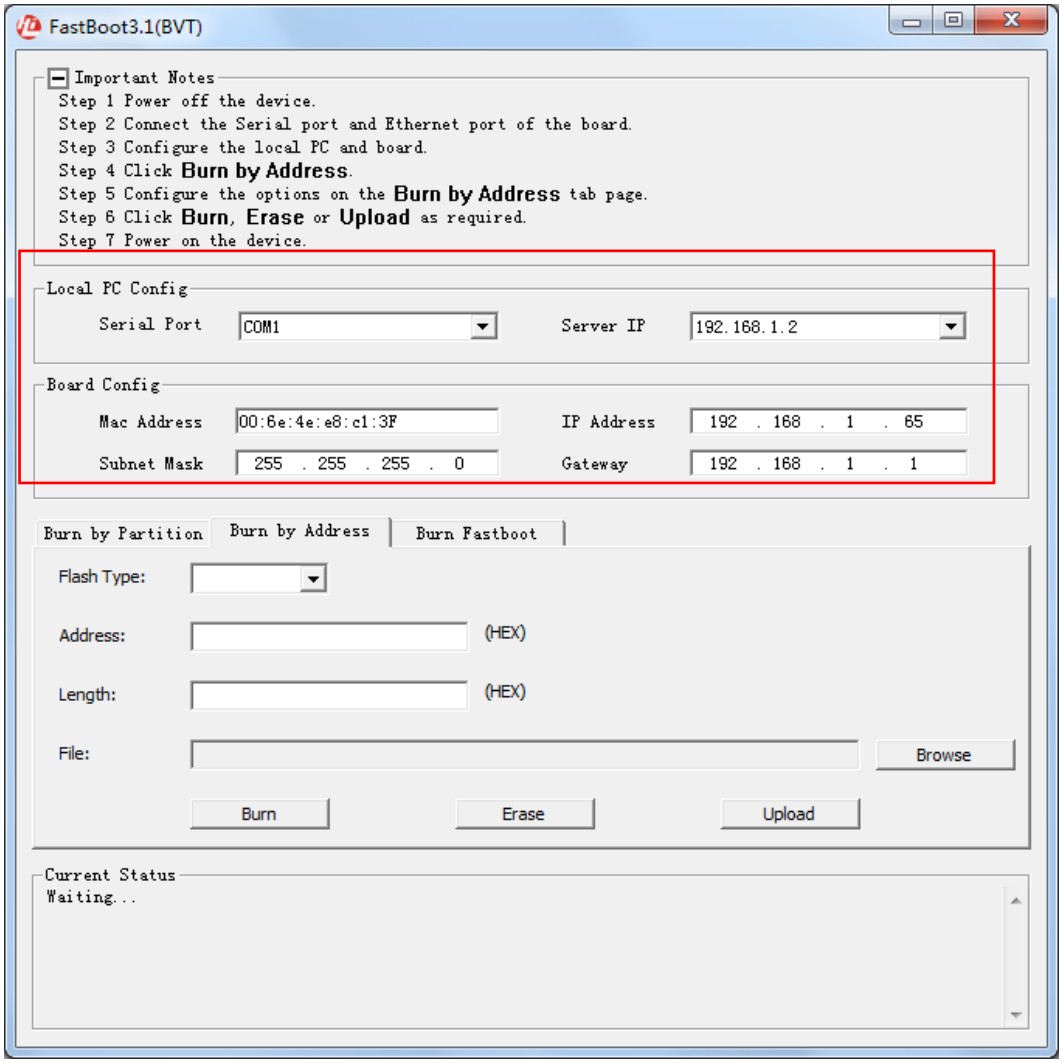


Step 2 Select a serial port for connecting the board, select the server IP address of the PC, and set the MAC address, IP address, subnet mask, and gateway of the board. See Figure 4-2.

CAUTION

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

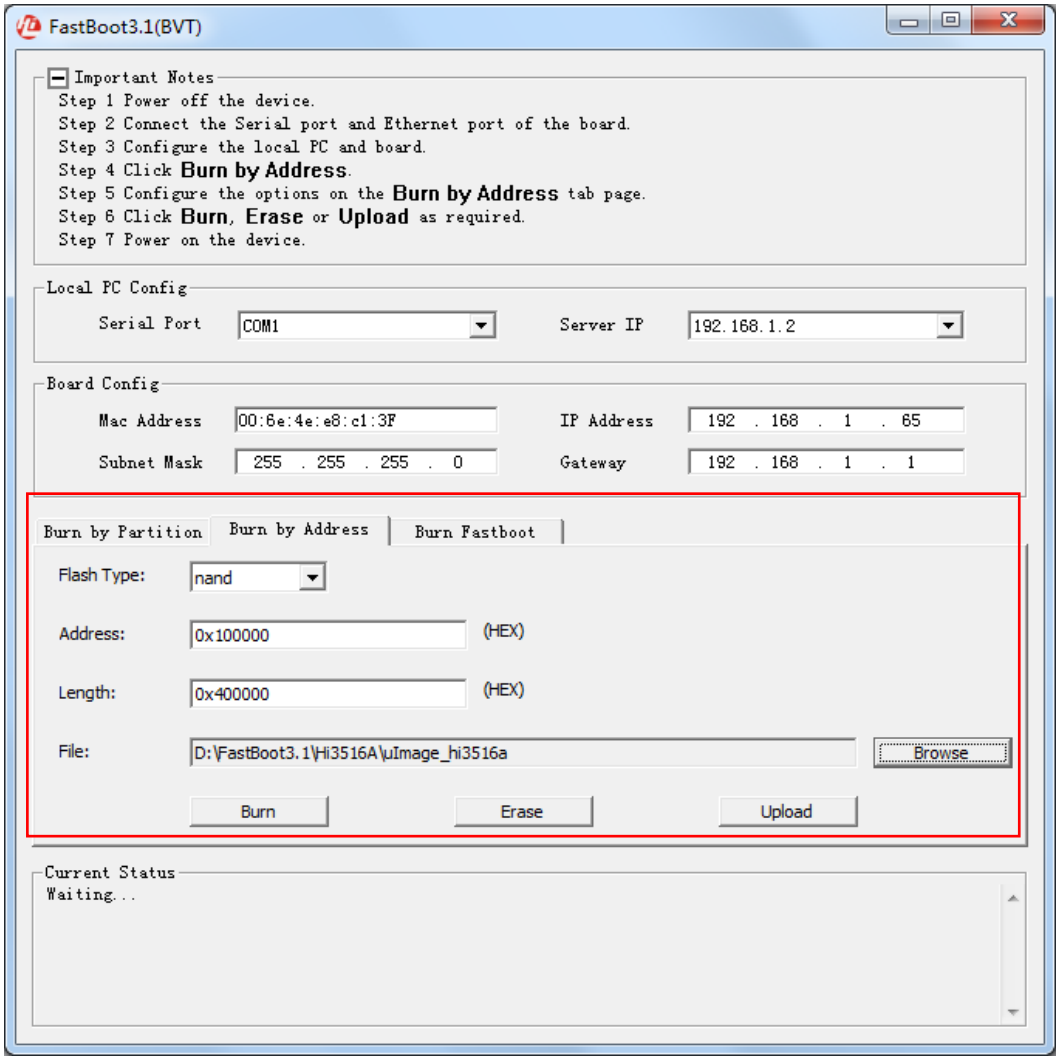


NOTE

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 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



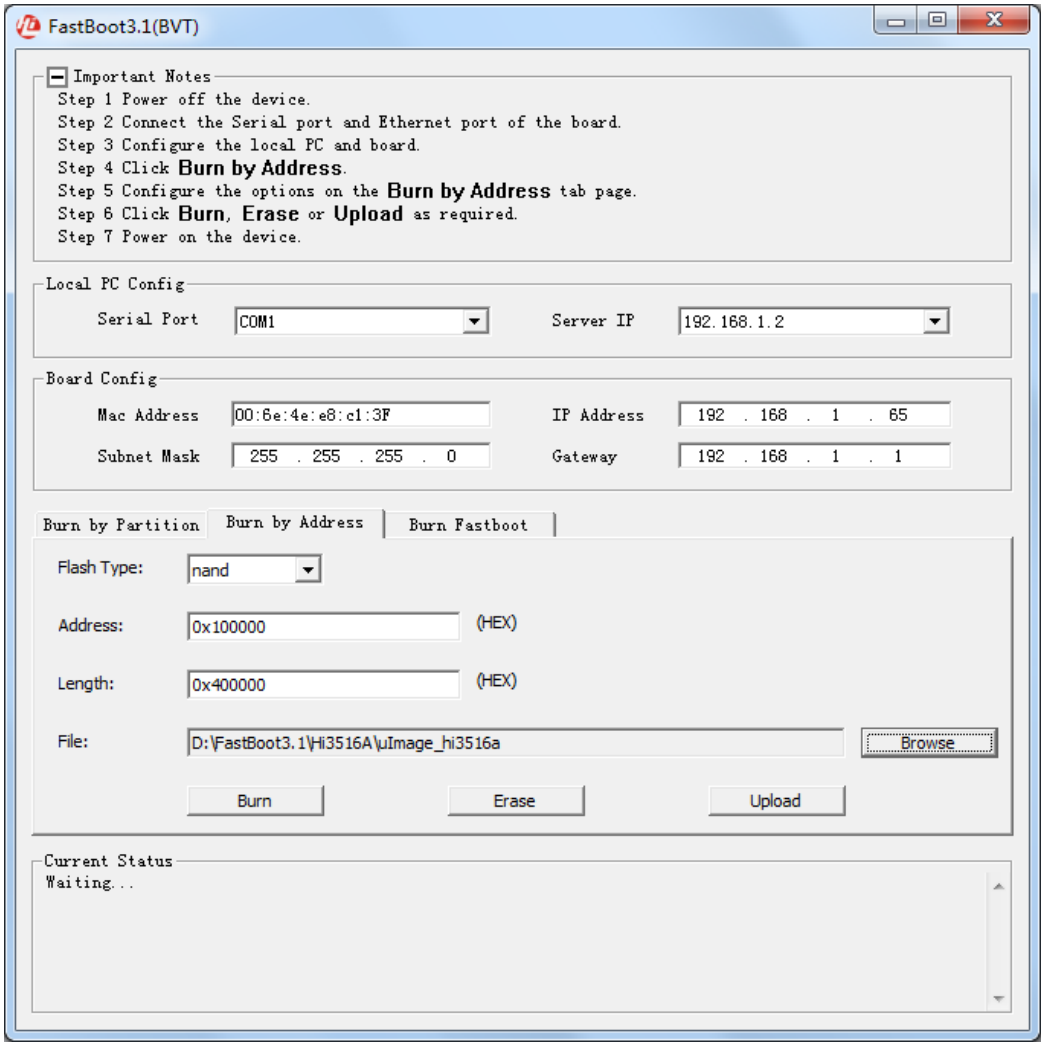
Step 4 Connect the serial port and Ethernet port of the board. If the board is powered on, power it off.

Step 5 Click **Burn**, see Figure 4-4.

CAUTION

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.

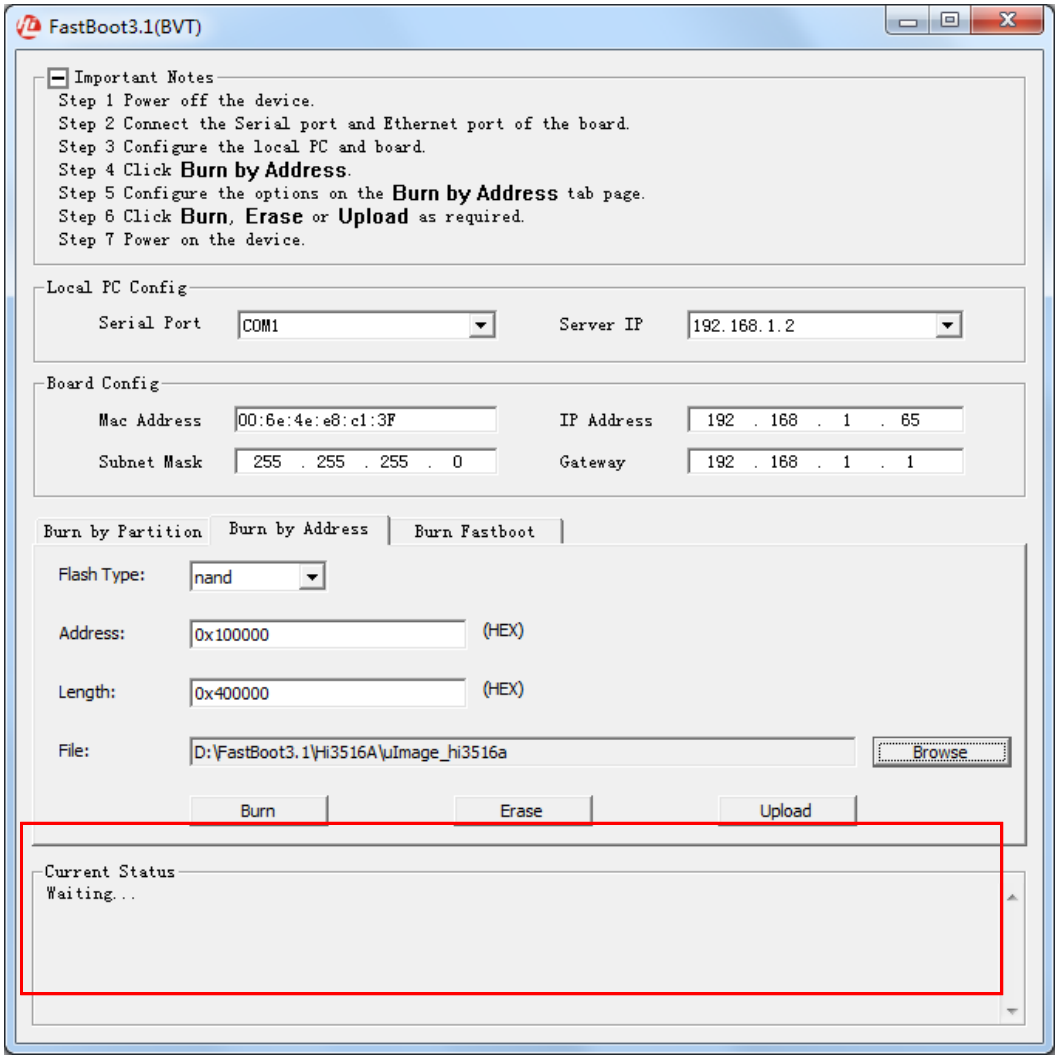
Figure 4-4 Clicking Burn



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.

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

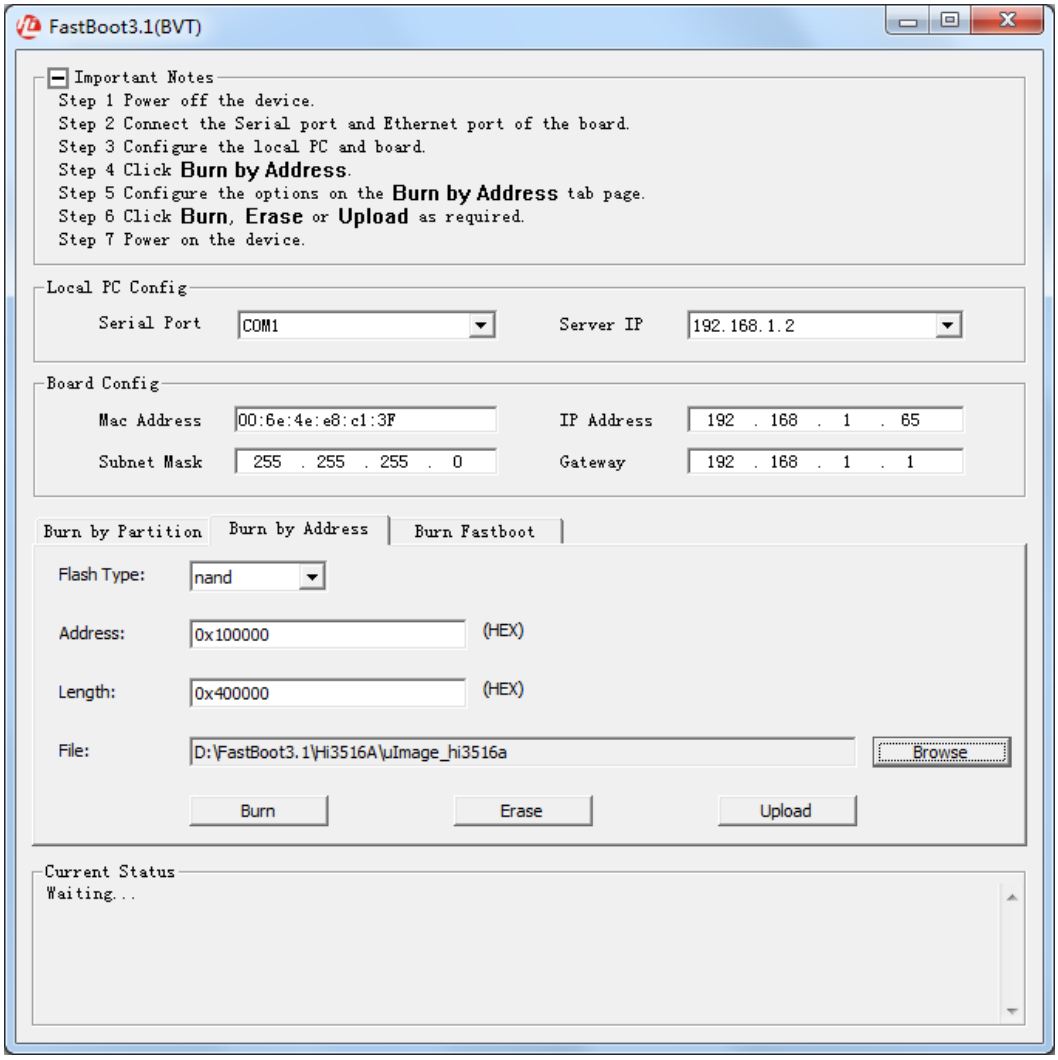
There is no fastboot program running on the board and all images can be burnt by the flash address.

5.2 Procedure

To burn the fastboot image, perform the following steps:

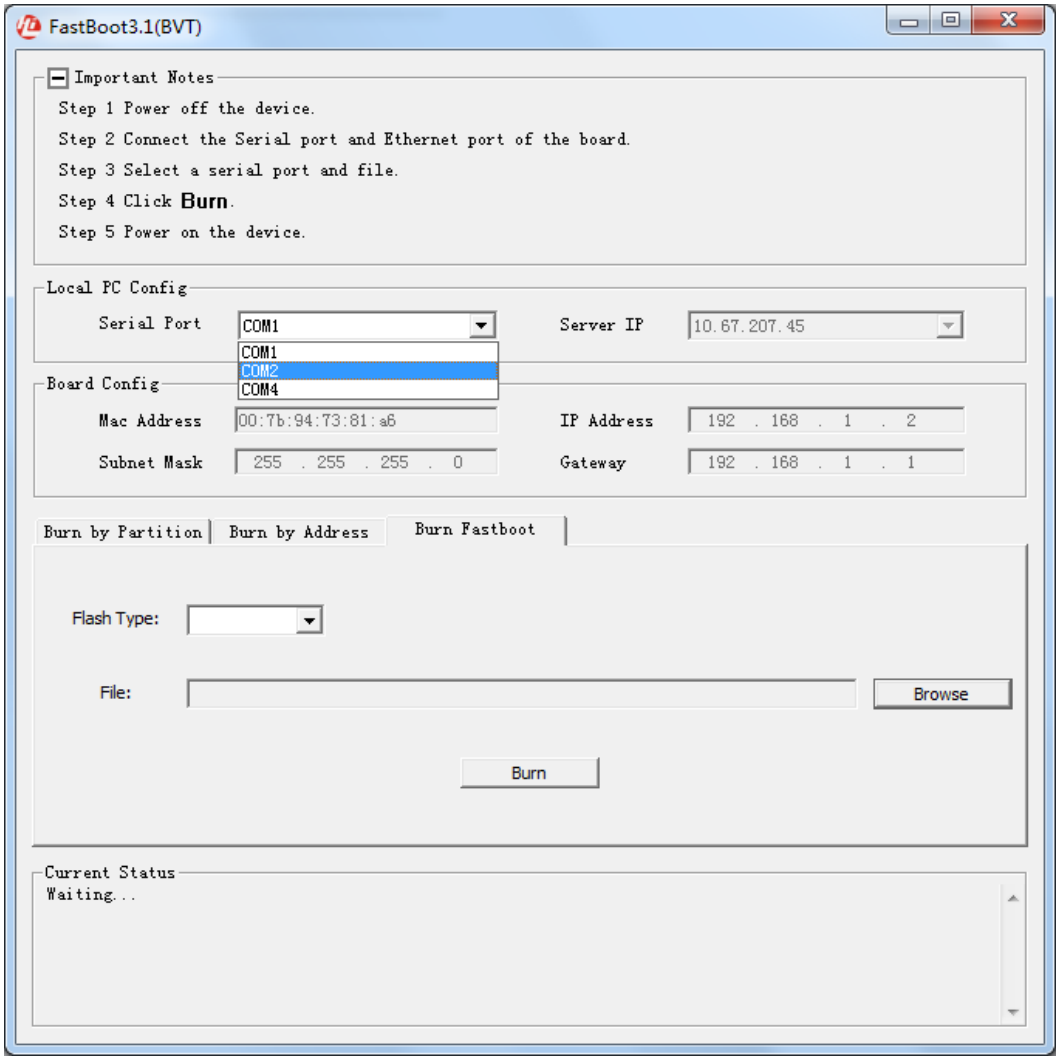
Step 1 Start the fastboot3.1, as shown in Figure 5-1.

Figure 5-1 Burning the fastboot image



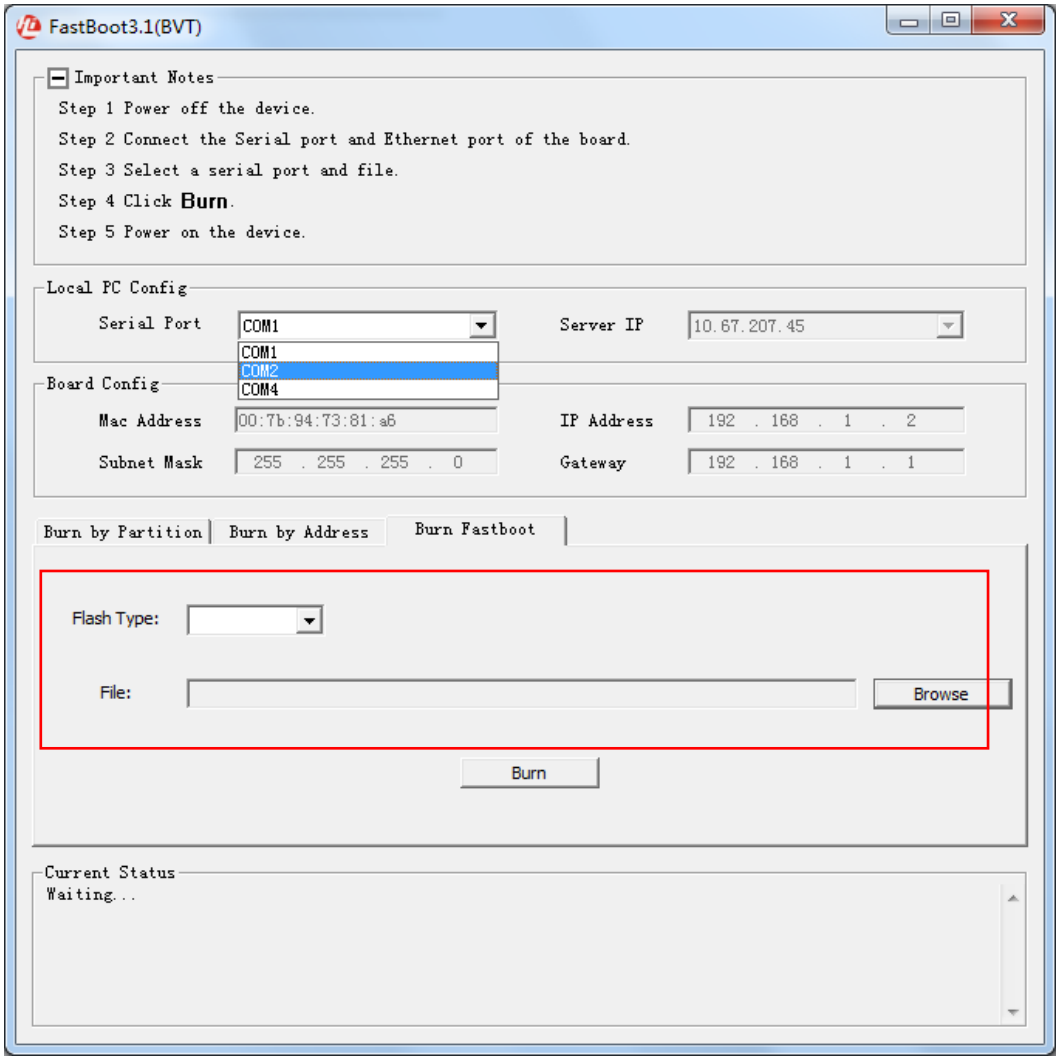
Step 2 Select a serial port for connecting to the board, as shown in Figure 5-2.

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.

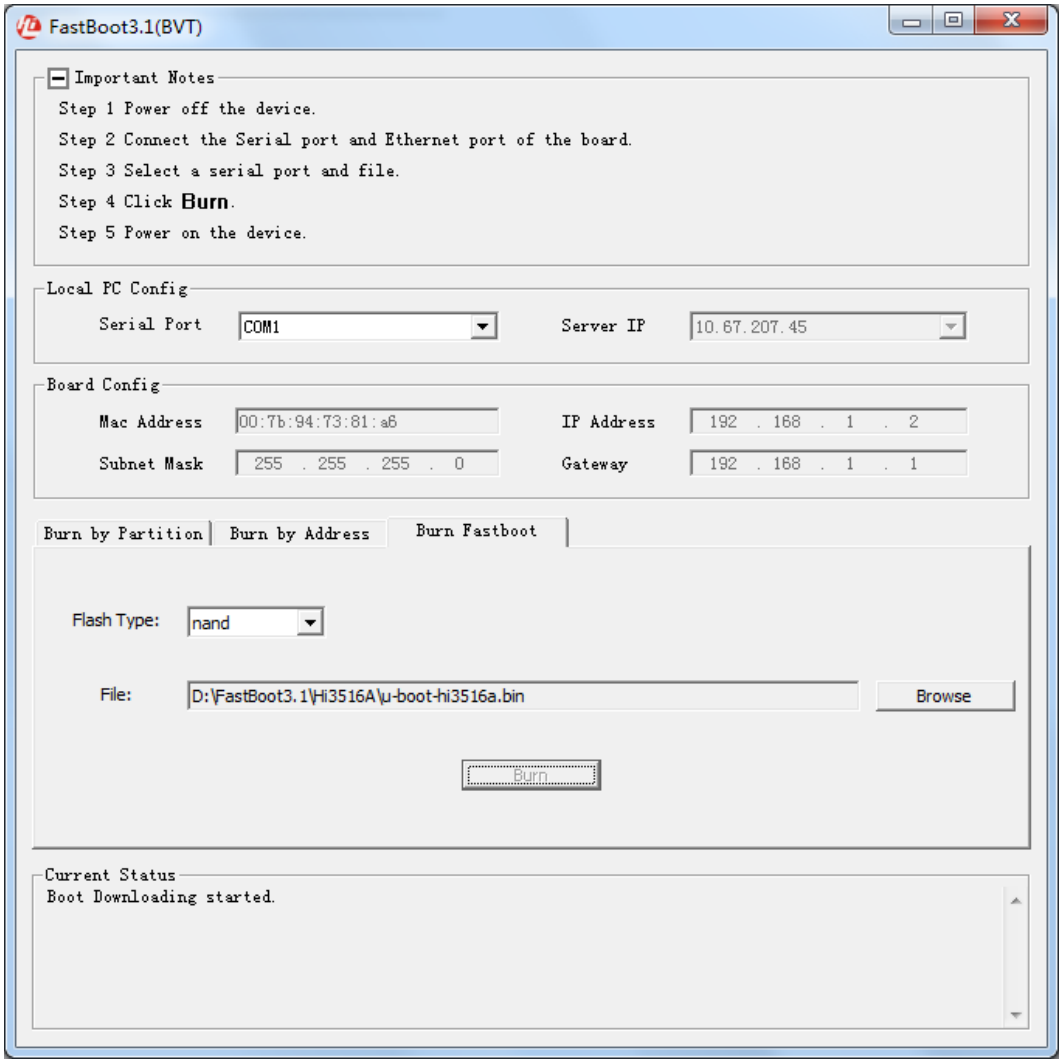
Figure 5-3 Setting the burning information



Step 4 Prepare the board environment. If the board is powered on, and power the board off.

Step 5 Click **Burn**, see Figure 5-4.

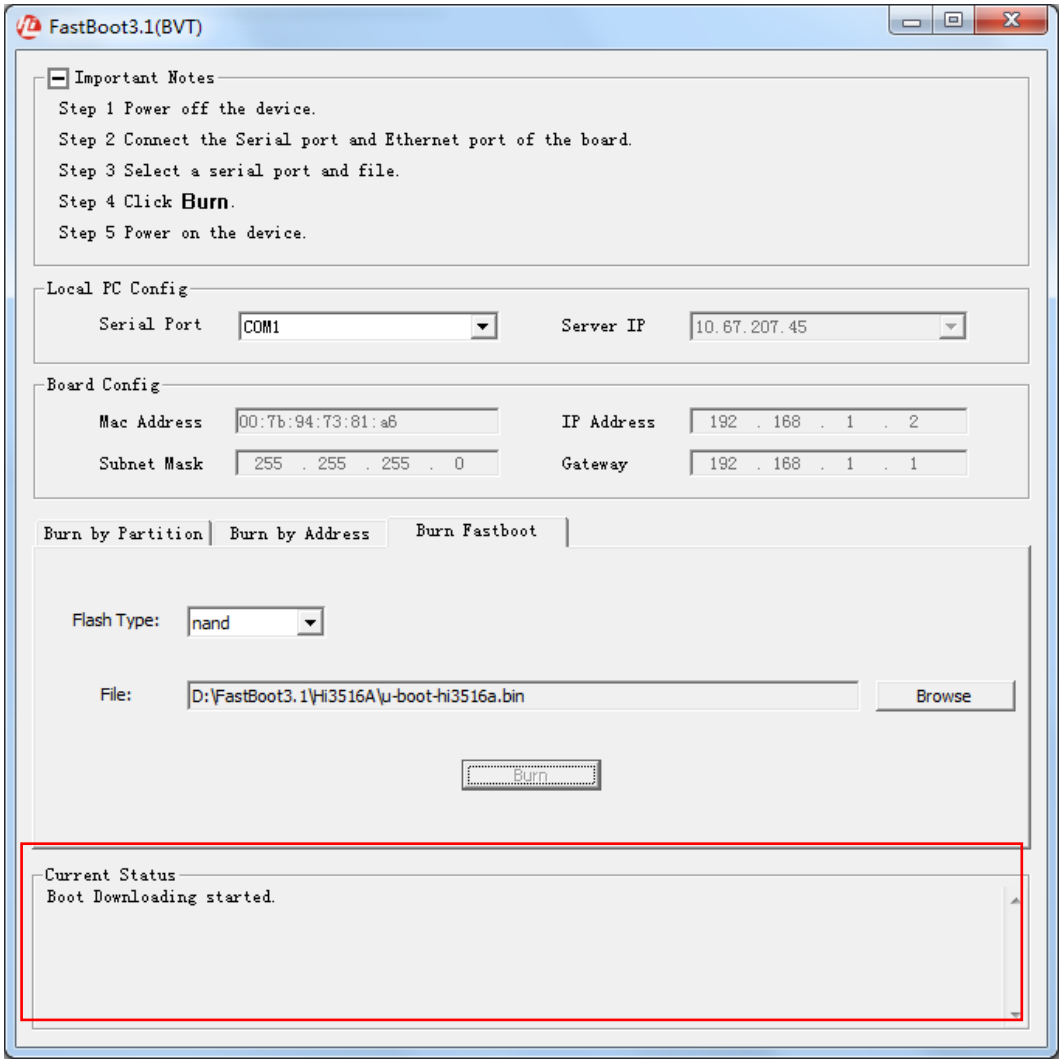
Figure 5-4 Clicking Burn



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 during burning, check the selected serial port.

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

----End