TMS320C5515 Fingerprint Development Kit (FDK) Windows Program User's Guide

User's Guide

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C5515FDK-tool.exe is a Microsoft Windows-based program for operating the finger development kit (FDK) through command. This program requires a Type B USB cable to connect the FDK to a PC. This document describes the setup of the connection and usage of this tool.

1 Setting Up the PC Connection

- Choose the DSP mode you want by choosing the DIP switch status on the extension board, the default mode is the normal mode. Then connect a B Type USB cable between a PC and the FDK board.
- Double click the “C5515FDK-tool.exe” program.
- Select the correct serial port under the pull-down menu “PortNumber”. For example, COM2 is selected in Figure 1. The default BaudRate is 9600.
- Click the “Open” button in the GUI. If the FDK is successfully detected and the DIP switch is in normal using status, the GUI will display as shown in Figure 1.

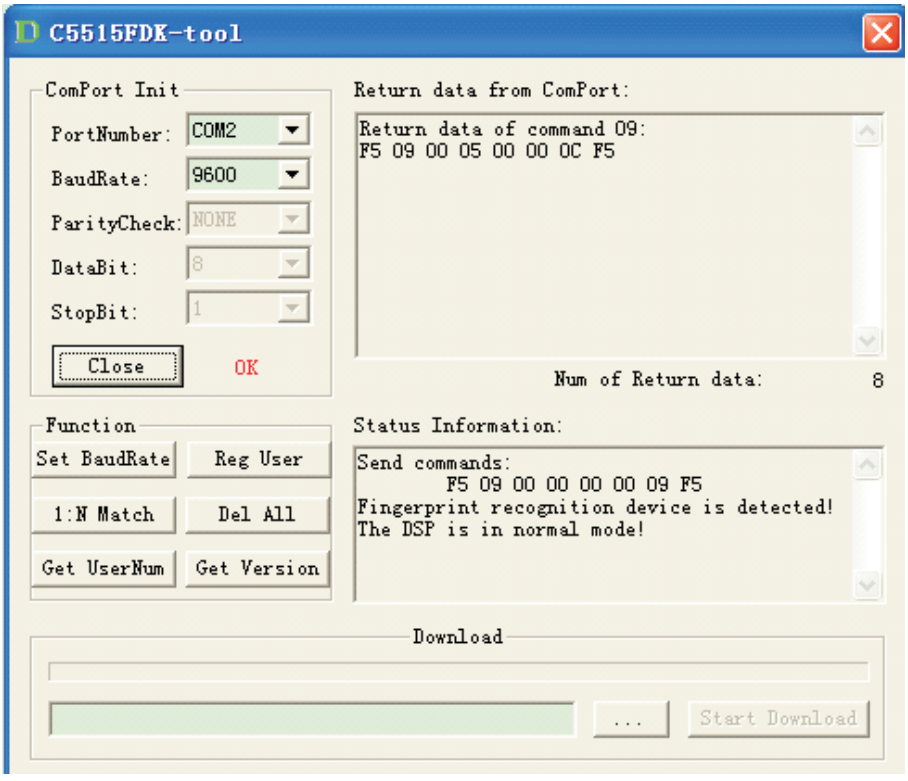

Figure 1. Command Tool Interface

In the previous figure, 8 bytes of data are displayed in the PortReturnData box:

"F5 09 00 05 00 00 0C F5"

The fourth byte of the data string (from left to right) is the number of finger-prints saved in the FDK storage space. So in this example, the 0x05 indicates that there are five fingerprints saved in the storage space.

After the FDK is successfully detected, all the functions of the FDK can be performed except for download by using the GUI.

If the FDK is successfully detected and the DIP switch is in User BIOS status, the GUI will display as shown in Figure 2.

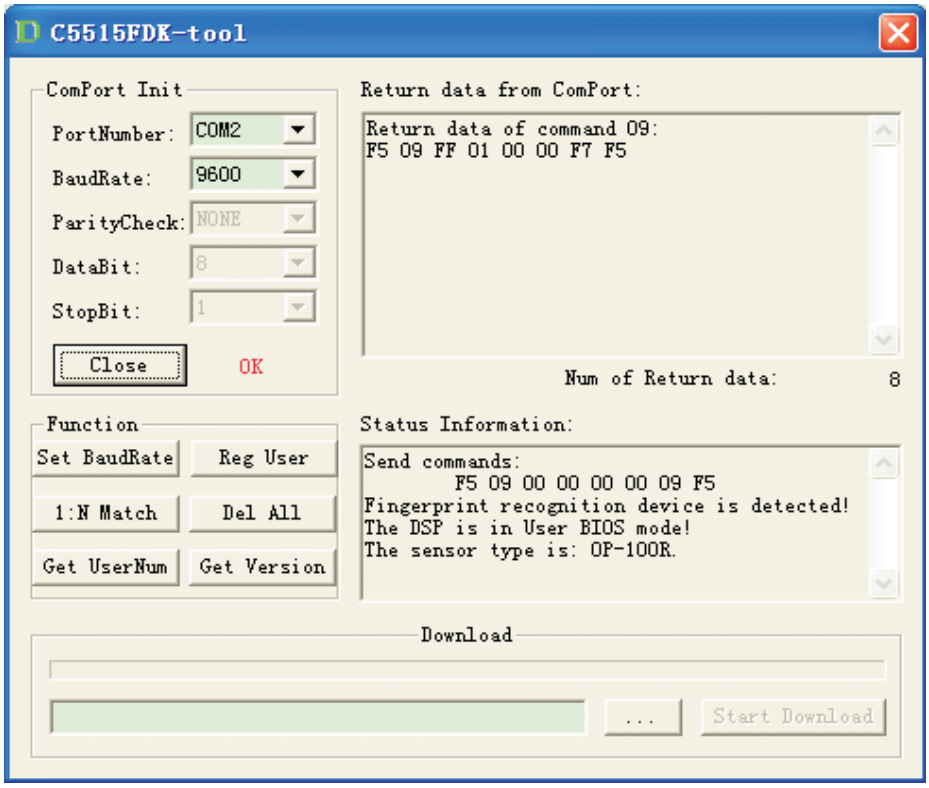

Figure 2. FDK Successfully Detected

Now, you can update the program. To accelerate the speed, first increase the baudrate.

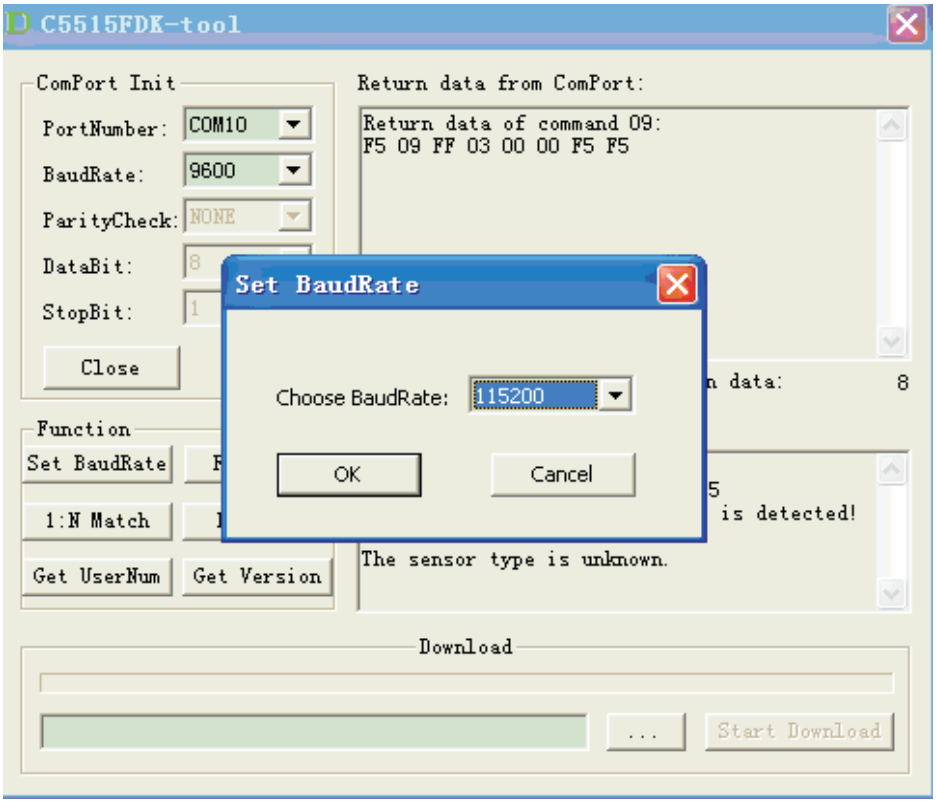

Figure 3. Set BaudRate

Next, change the baudrate of PC com port to the same as the DSP (for example: 115200):

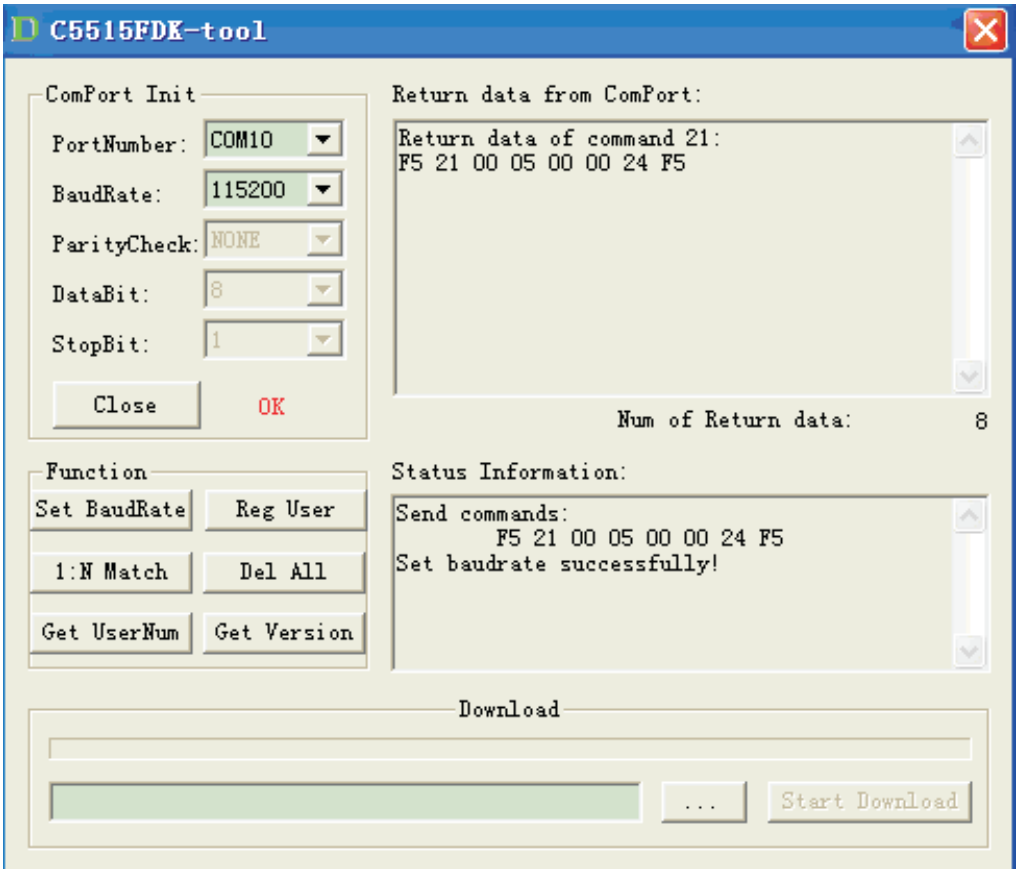

Figure 4. BaudRate Successfully Set

Then load the file you need to update and click the "Start Download" button. You will see:

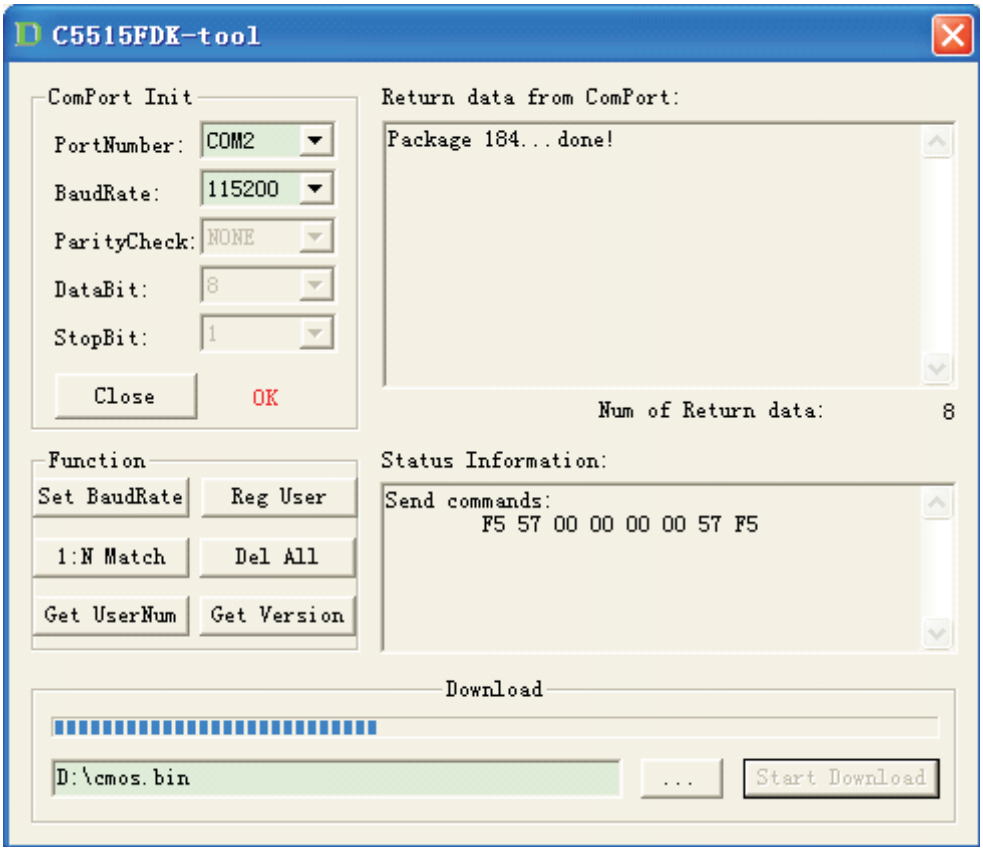

Figure 5. Starting Download

At last, the tool will tell you that it has successfully updated.

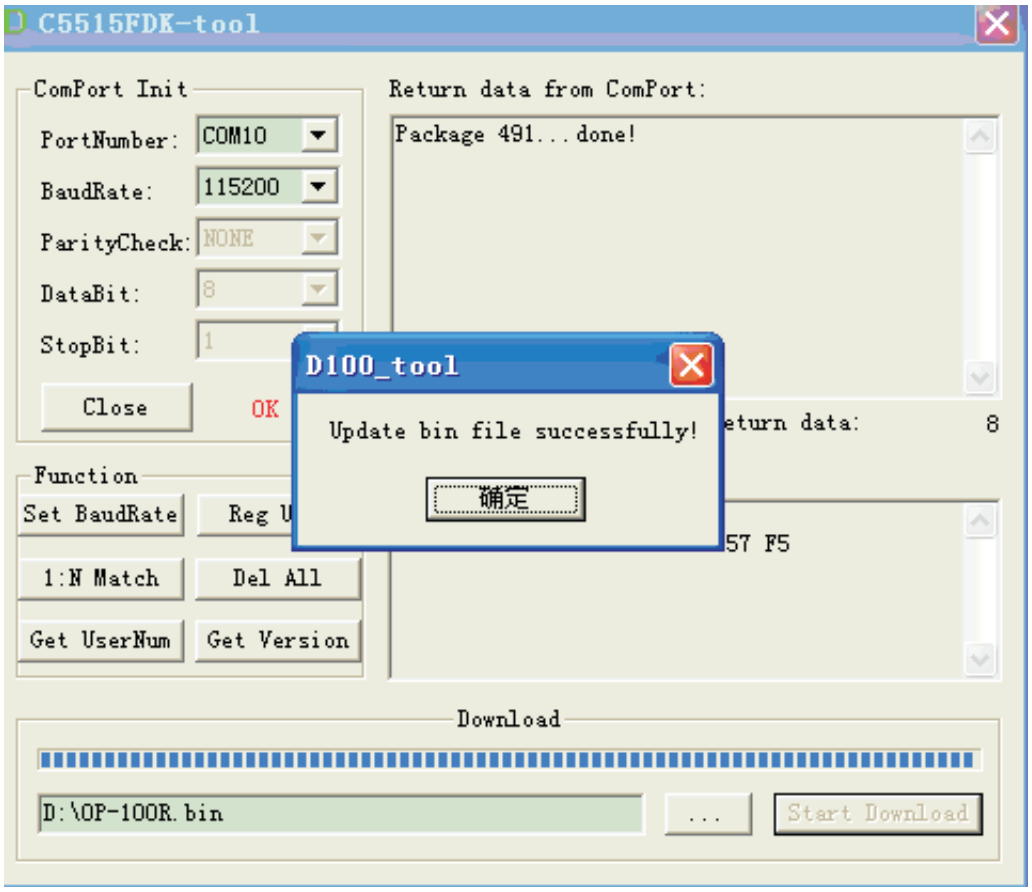

Figure 6. Bin File Successfully Updated

The FDK reserves four program storage spaces for different sensors. Three programs of corresponding sensor have been programmed to the FDK storage spaces: OP-100R, ATW310 and FPC1011. You can get OP-100R and ATW310 sensor from the FDK package. If you want to test the FPC1011 sensor, you can contact Tooan (www.tooan.cn).

If there are any bugs found after the release of this FDK, we will build new version program according to different sensors. You can get your FDK program updated in this mode, but you have to first connect the corresponding sensor to FDK board correctly. (The GUI will tell you the sensor type connected to the FDK core board.) In this case, the User BIOS will know which program need to be replaced in the storage space. All the new upgrade files can be get from Tooan (www.tooan.cn).

In this mode, only the “Get Version,” “Set BaudRate,” and “Download” commands will respond.

Usually, you do not need to enter this mode.

2 Functions and Usages of the Tool

The following table lists all functions of the GUI system for FDK, and describing how to use them.

Table 1. Functions and Usages of Command Tool

Button Names	Descriptions
Set BaudRate	Apply the current Baud-Rate setting to the serial port. After clicking this button, any rate setting in the pull-down menu box "BaudRate" will be applied to the system. Each time after one selected a new baud-rate, the tool will make the new baud rate available automatically.
Reg User	Click this button to register a new user. After click this button, the speaker will generate a beep sound; and a message "Collecting the first Fingerprint..." will be displayed in the message box. The green light will blink continuously. In order to register a new user, three scans of the same finger are required. During each scanning, a beep sound will tell you if the current scan is successful. If one of the three scans failed, the current register process will be aborted and the RED LED on the core board will light up for approximately 1 second. After three scans, if the registering process has successfully completed, the message "Operate Successfully!" will be displayed on the message box. The maximum number of users that a FDK can register and save is 50. After 50 users have been registered in a FDK, any attempts to register will display a message saying, "Memory full!" No user will be registered.
1:N Match	Scan a fingerprint and compare it with the registered user's ones in the FDK storage. If the comparison failed, the speaker will generate a long beep and a message "No fingerpints matched!" will be displayed in the message box. If the comparison passed, the speaker will generate a short beep, a message "Successful contrast" will be displayed in the message box.
Del All	Delete all the users registered in the FDK system. If the operation is successful, the message "Operation successfully!" will be displayed in the message box.
Get UserNum	Read the number of registered users stored in FDK. After this button is clicked, the message "The number of user is: X" will be displayed in the message display box. The maximum number of registered users is 50.
Get Version	Get the current program version from FDK. After this button is clicked, the message box will display a string about the version of current running program.
…	This button is used to browse to the upgrade files.
Start Download	Download new program to FDK, and replace the corresponding program stored in FDK according to current sensor type connected to FDK core board. This function is available only in User BIOS mode. After this button is clicked, the tool will download the bin file to FDK.

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