UM1885
User manual

uFlasher

Introduction

uFlasher tool is developed to manage the Flash (programming / verification /dumping / erasing) on different targets via SCI, CAN and K-line in the same tool.

The GUI is an Windows application in terms of user friendly interface that allows the user to connect the tool with the target, using an USB dongle and to perform the tool functionalities.

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1 Scope and requirements

1.1 Scope

This document gives an overview of uFlasher and it illustrates the first steps to use the basic functionalities. *Utester* explains how to use it (see *Section Appendix A: Further information*).

1.2 Requirements

uFlasher (PCs) has been designed to work correctly using Windows XP platform and no particular hardware requirements are requested. However, in order to connect your PC to the target, USB port or RS232 port installed in your PC is mandatory depending which interfaces the user wants to use.

2 uFlasher overview

uFlasher is an application developed to manage the Flash by different interfaces.
uFlasher allows to easily perform the basic Flash management tasks with results logging.

The tool functionalities are:

- Flash program
  - To download an image file into the Flash in s19, run a *.hex* file format.
- Flash Erase
  - To erase all sector except shadow Flash.
- Flash dump
  - To upload the content of the Flash. It can be showed on the memory window or it can be saved on a file in binary format.
- Flash Verify
  - To check the content of the Flash with an image file (s19, run or hex format).
- Flash blank check
  - To check the first address not blank of the Flash selected.

The interfaces available are:

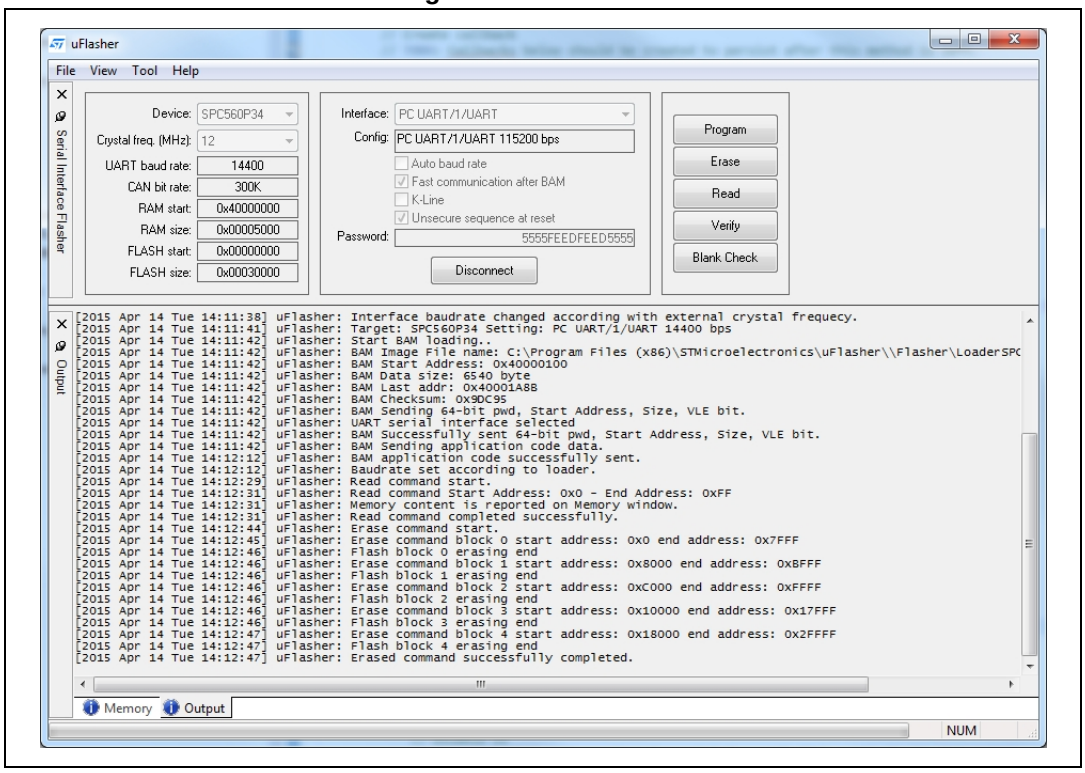
- SCI
- K-Line
- CAN

2.1 uFlasher GUI

uFlasher is composed of a menu and some different windows that allow to execute the Flash management command easily.

- Menu (*Section 2.2: Menu*)
- Serial Flasher window (*Section 2.3: Serial Interface Flasher window*)
- Memory window (*Section 2.4: Memory window*)
- Output window (*Section 2.5: Output window*)

Figure 1. uFlasher GUI



2.2 Menu

Menu has the following items:

- **File**
- **View**
- **Tool**
- **Help**

2.2.1 File item

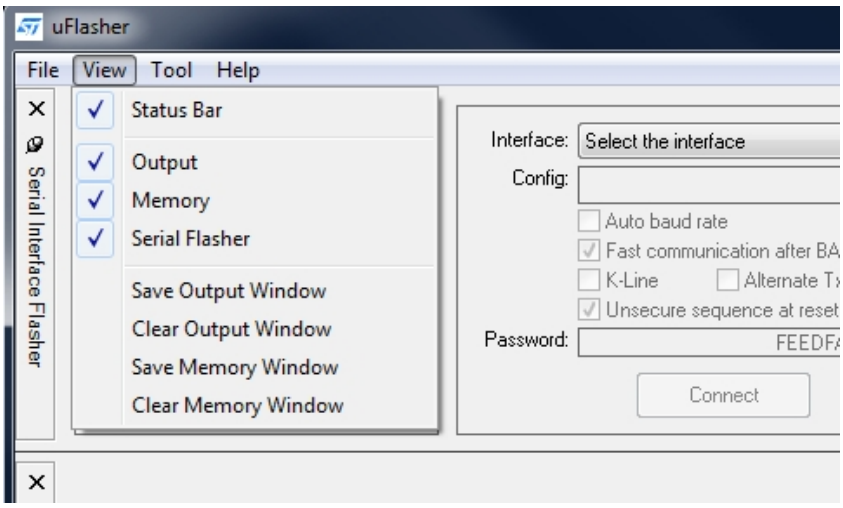
File item contains Exit item that allows to close the application.

2.2.2 View item

View item enable to manage the uFlasher GUI (*Figure 2*):

- **Status bar** item allows to show the status bar on the bottom side of the GUI.
- **Output** window allows to show the output window.
- **Memory** window allows to show the memory window.
- **Serial Flasher** window allows to show the serial Flasher window.
- **Save** output window allows to save the log of uFlasher in a log file.
- **Clear** output window allows to clear output window.
- **Save memory** window allows to save the memory window in a log file.
- **Clear memory** window allows to clear memory window.

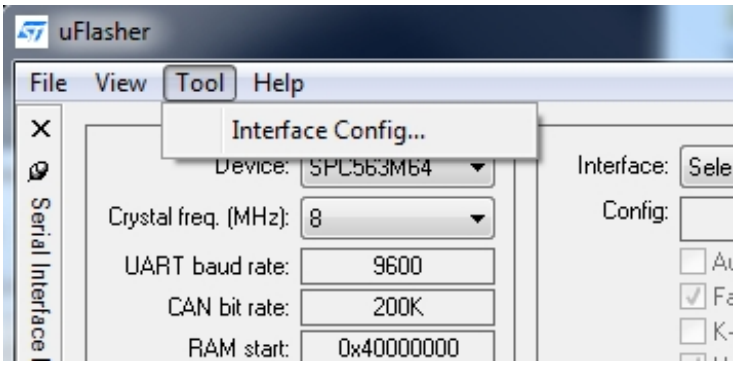
Figure 2. uFlasher GUI: Menu- View



2.2.3 Tool item

Tool item allows the user to set the serial interface selected *Figure 3*. Select from the menu **Tool item** and click on **Interface Config...**

Figure 3. uFlasher GUI: Menu- Tool



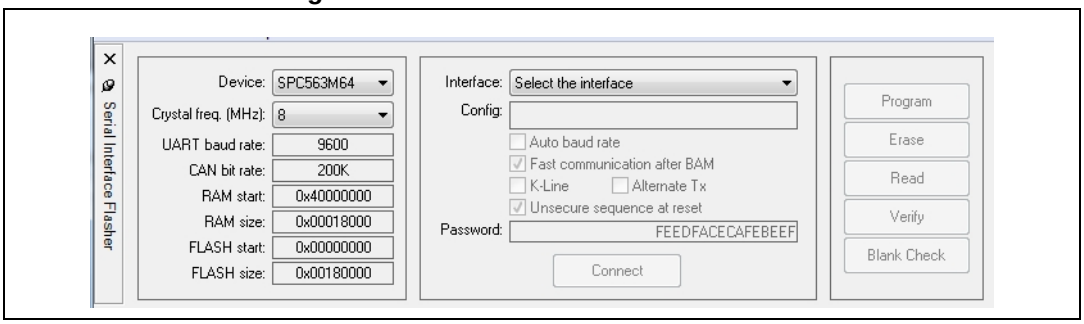
2.2.4 Help item

Last tool item is **Help** item. This item contains **About**... item just to show the information about uFlasher.

2.3 Serial Interface Flasher window

This window allows the user to use the Flasher functionalities by a serial interface. This window allows the user to select the target, the interface and to choose the command to execute (*Figure 4*).

Figure 4. Serial Interface Flasher window



2.3.1 Device list

The first part of the Flasher window allows the user to select the target and the external crystal frequency value. The **"Device"** list box contains all targets available. The **"Crystal frequency"** list box allows the user to indicate the external crystal used. When the crystal frequency is set, the **"UART baud rate"** edit box shows the baud rate value for the BAM with UART interface while **"CAN bit rate"** edit box shows the bit rate value for the BAM with CAN interface. When the user updates this value, automatically the speed of the interface used is updated if it is possible.

In fact, for example, using a Crystal frequency of 40MHz, the baud rate value for the UART is 48000 and this value is not supported.

In the same window some information are displayed as regards the target selected: RAM start, RAM size, Flash start and Flash size.

2.3.2 Interface list

The second part of the Flasher window allows the user to select the interface and to set the interface properties. Below are listed all items present in this part:

- **"Interface list"** contains a list of all interfaces available. The interfaces available are: UART, K-Line, CAN. This list box shows only the interface connected to the PC. When the user selects the interface, the speed is set according the external clock frequency used.
- **"K-Line"** check-box allows selecting K-Line interface. The user has to choose UART interface from interface list; at this point the check-box checked means that the K-Line interface is selected.
- **"Alternate Tx"** check-box allows selecting the alternate tx as tx pin.
- Auto baud rate check allows using the BAM with auto baud setting enabled.
- **"Fast communication after BAM"** check allows changing the baud rate in the UART interface from the BAM baud rate to 115200bps after BAM download just to improve the performance of the tool.
- **"Unsecure sequence at reset"** Check-box allows to have the chance to activate the unsecure sequence for censored device. In this case the user can set the password directly by the GUI. After the interface is selected, the user can set the related parameters by tool->Interface Config... menu item. A dialog is showed.
- **"Connect"** button: Once the interface is selected and configured, the user has to push **"Connect"** button to download by BAM the loader into the RAM of the micro. At this point the Flash management command is enabled and the user can perform the

desired operation. **“Connect”** button appears **“Disconnect”** and the user can push this button just to close the connection.

The right side of Flasher window contains the Flash management commands listed below:

- Program (*Section 2.3.3: Program command*)
- Erase (*Section 2.3.4: Erase command*)
- Read (*Section 2.3.4: Erase command*)
- Verify (*Section 2.3.6: Verify command*)
- Blank Check (*Section 2.3.7: Blank check command*)

These commands are enabled after the BAM.

2.3.3 Program command

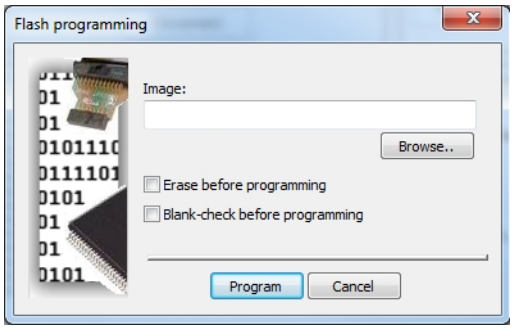
Program command allows the user to download a binary image file (.s19, .run and .hex format only) into the Flash of the target connected.

When the user push the **“program”** button, **“Flash programming”** dialog is showed (*Figure 5*). **“Browse”** button allows the user to choose the binary image file.

“Program” button starts the programming operation. **“Cancel”** button aborts the operation.

The output windows show the result of the operation.

Figure 5. Program command



2.3.4 Erase command

Erase command allows the user to erase a set of blocks or all Flash of the target connected.

When the user push the **Erase** button, **Flash erasing** dialog is showed (*Figure 6*).

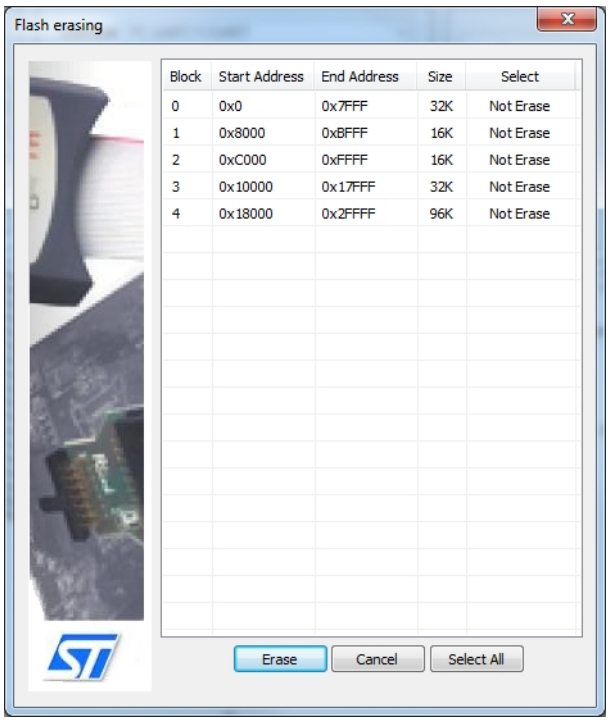
The dialog contains a table with all blocks of the Flash available for the connected target. The user can select the blocks he wants erase. He has to do a double-click on the **“Select”** column of the correspondent row of the block he wants erase. A list box containing two items (Erase; Not erase) are showed. The user has to choose the item desired.

Select All button allows the user to select all blocks in the same time. Once pushed **Select All** button, it becomes **Unselect All** just to unselect all blocks at the same time.

Erase button starts the erasing operation. **Cancel** button aborts the operation.

The **output** windows shows the result of the operation.

Figure 6. Erase command



2.3.5 Read command

Read command allows the user to read a specify range of Flash of the target connected.

When the user push the **Read** button, **Flash reading** dialog is showed (*Figure 7*).

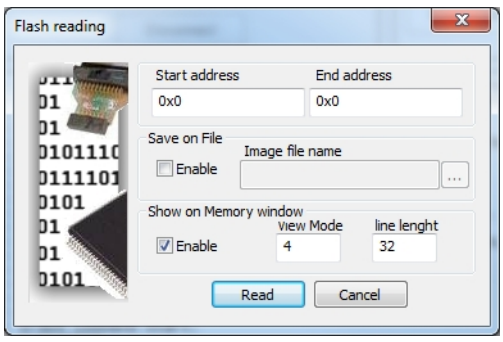
The dialog contains two edit boxes that allow the user to insert the start address and the end address of the Flash.

Moreover, the user can choose the output of the read command. He can enable the saving of the output in a file and he can enable the showing on memory window.

Read button starts the reading operation. **Cancel** button aborts the operation.

The **output** windows are the result of the operation.

Figure 7. Read command



2.3.6 Verify command

Program command allows the user to verify a binary image file (.s19, .run and .hex format only) with the content of the Flash of the target connected.

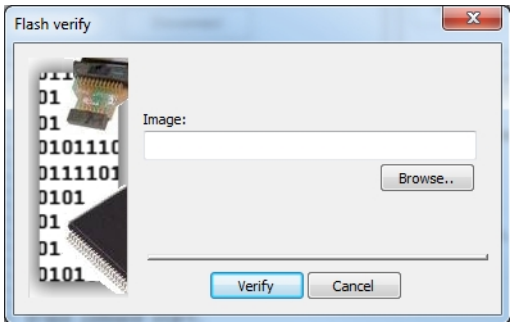
When the user pushes the **Verify** button, **Flash verify** dialog is showed (*Figure 8*).

Browse button allows the user to choose the binary image file.

Verify button starts the verifying operation. **Cancel** button aborts the operation.

The output windows are the result of the operation.

Figure 8. Verify command



2.3.7 Blank check command

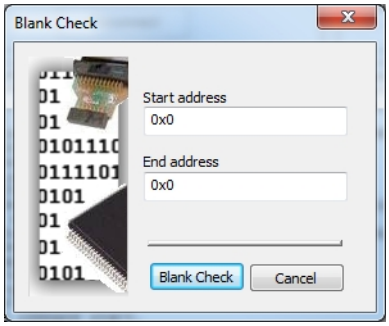
Blank check command allows the user to check if a specify range of Flash of the target connected is blank or not. When the user push the **Blank Check** button, **Blank Check** dialog is showed (*Figure 9*).

The dialog contains to edit box that allows the user to insert the start address and the end address of the Flash range.

Blank Check button starts the blank checking operation. **Cancel** button aborts the operation.

The output windows shows the result of the operation.

Figure 9. Blank Check command

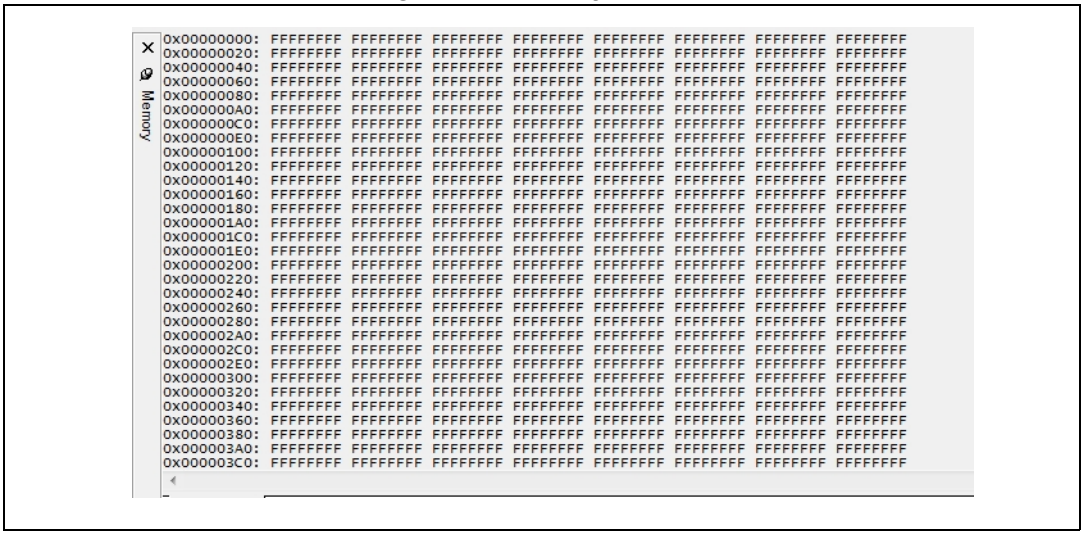


2.4 Memory window

This window shows the Flash of the device selected by memory read command (*Figure 10*).

Each row contains from left side to right side the address and the Flash content. The user can choose by memory read command dialog (*Section 2.3.5: Read command*) the start address, the size of the memory to read and the block size that represent the length of each row.

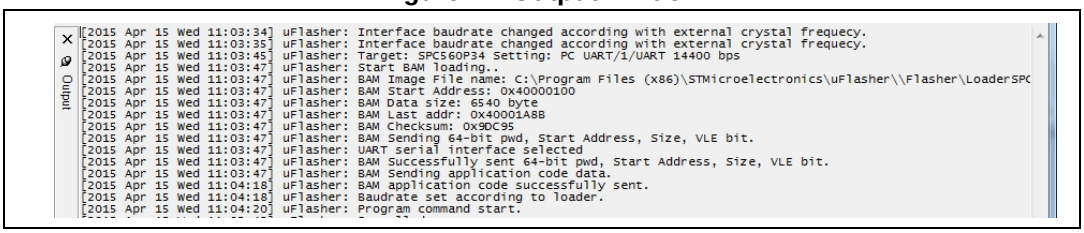
Figure 10. Memory window



2.5 Output window

Output window shows the output of the tool (*Figure 11*).

Figure 11. Output window



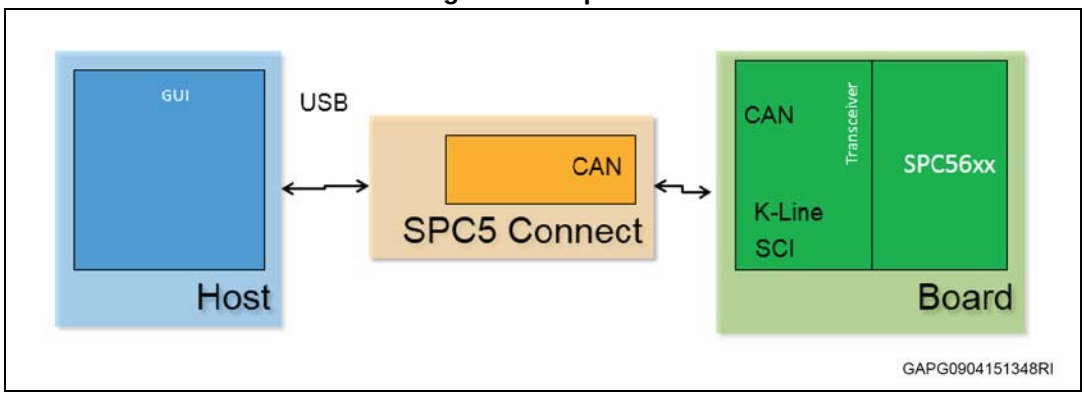
3 Diagram overview

Here below a brief description of the system used to work with uFlasher tool.

The management of the Flash is controlled by the host machine connected to the target using one of the interfaces available.

The top level diagram of the uFlasher is showed on *Figure 12*.

Figure 12. Top level



Appendix A Further information

- *UTester* (UM1886, DocId027729)

Revision history

Table 1. Document revision history

Date	Revision	Changes
07-May-2015	1	Initial release.