



ST7 CUSTOMER ROM CODE RELEASE INFORMATION

by MCD Applications

INTRODUCTION

When their ST7 ROM code is ready to be mask programmed, customers send their executable file to ST in Motorola .s19 format. When ST receives it, this file is reformatted by a proprietary automation tool called NEWGET in order to generate the mask levels and test patterns for manufacturing and testing the devices.

Consequently, when customers receive back their ROM code for validation before ST programs their parts, they receive a file in a different format from the one they sent originally. To help customers understand why the file is different, this Application Note lists the modifications that occur when the file is processed by NEWGET.

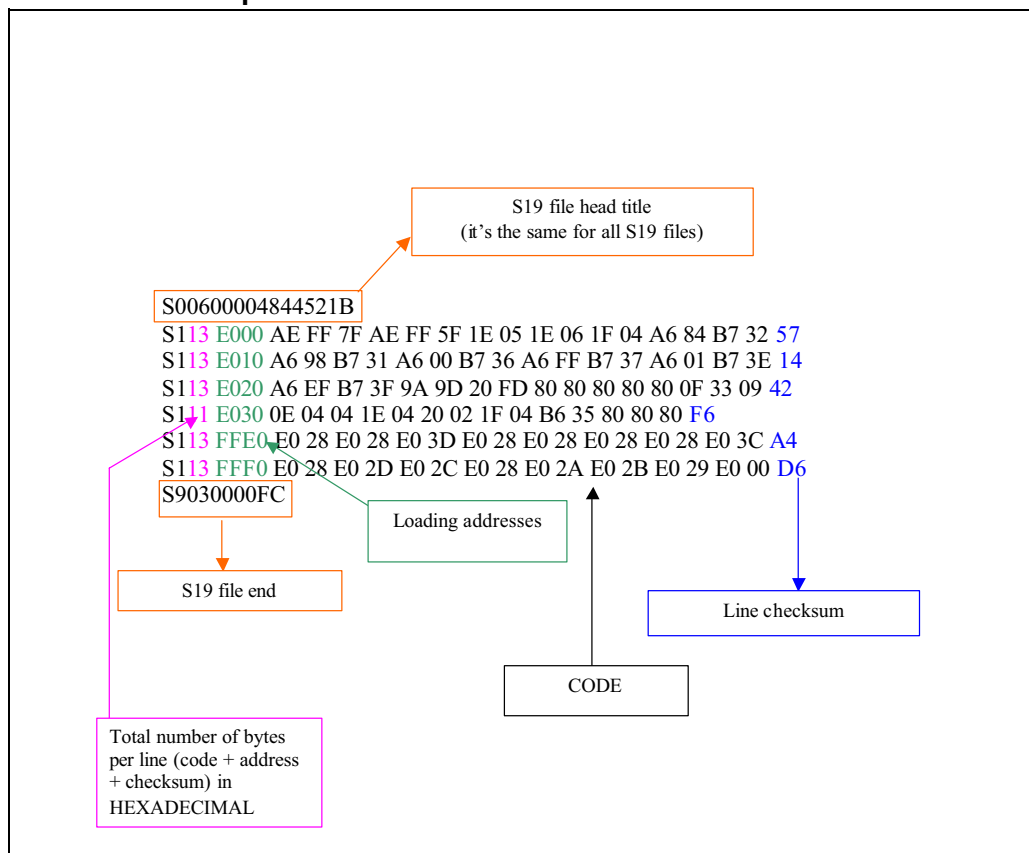
1 LIST OF CHANGES

Here are the modifications made to the executable file during NEWGET processing:

- The first line "s0" is removed (useless info common to all s19 files)
- the software is sorted by device memory address
- device memory unused by your software is filled with "FF"

2 .S19 FILE STRUCTURE

Figure 1. s19 file description



Note: The line checksum is calculated with the formula: FF-(all the bytes in the line including code, address and total number of bytes per line).

3 EXAMPLE

Here is an example of .s19 code generated by any ST or third-party software tool:

```
S00600004844521B
S105E0007A128E
S113E002140114021400A601B781CDE04BCDE05AED
S113E012B681B7049A9D20FDB631A808B731800CA9
S113E02233043D3F201C9839812404A601B781B6EC
S113E03281B704C6E001BB3797C6E000B936B736EC
S113E042BF3780808080808080A611B720A601B768
S113E0520AA6FFB705B70681A640B732A608B731AC
S110E062C6E000B736C6E001B73710808174
S113FFE0E04AE04AE048E04AE04AE04AE04AE046C3
S113FFF0E04AE021E047E04AE045E01AE049E00257
S9030000FC
```

and here is the code listing after being reformatted by NEWGET:

```
S123E0007A12140114021400A601B781CDE04BCDE05AB681B7049A9D20FDB631A808B7318E
S123E020800C33043D3F201C9839812404A601B781B681B704C6E001BB3797C6E000B93651
S123E040B736BF3780808080808080A611B720A601B70AA6FFB705B70681A640B732A60847
S123E060B731C6E000B736C6E001B737108081FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF8C
S123E080FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF9C
... (empty lines filled with "FF")...
S123FFC0FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF3D
S123FFE0E04AE04AE048E04AE04AE04AE04AE046E04AE021E047E04AE045E01AE049E0020D
S9030000FC
```

4 CHECKING ROM CONTENT WITH AN EPB PROGRAMMING BOARD

It's now possible to check the ROM content by reading it using STVP7 (ST7 Visual Programmer), which is the programming software provided for free by ST, and the EPB (Engineer Programming Board) of the target device.

It should be noted that option bytes can NOT be read, as in a ROM MCU they are coded in hardware, and not programmed in a parallel memory page like in a Flash MCU.

Using STVP7 version 1.8.0, use the following procedure to read the ROM content of your MCU:

- Create a shortcut for stvp.exe. You will find stvp.exe in the STVP7 installation path (by default: C:\Program Files\STM\st7toolchain\stvp7)
- Rename the new shortcut with a suitable name (stvp_rom.exe for instance)
- Right click on it and select Properties from the pop up menu
- In the shortcut tab, modify the target path:
"C:\ProgramFiles\STM\st7toolchain\stvp7\stvp.exe" to "C:\Program Files\STM\st7toolchain\stvp7\stvp.exe" -rom

Now when you double-click on this shortcut, the STVP7 will start in ROM mode (it looks the same as Flash mode except "ROM mode" is displayed in the toolbar).

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