D-Flash programming support in HI-WAVE for the S12P, S12XEx, S12XS

The present document describes how to load initialized variable in D-Flash/EEPROM. This feature is available only in **large** memory model.

The Flash Programming algorithms for the following devices include support for the programming of these areas. And to use this efficiently it is required to adjust the project.
This document explains how to adjust the project in order to be able to program D-Flash.

Supported devices

This feature is available for the following devices:
S12XEP100
S12XEP768
S12XEQ512
S12XEQ384
S12XET256

S12XS256
S12XS128
S12XS64

S12P128
S12P96
S12P64
S12P32

Project adjustment

The project configuration might require adjustment in order to use the programmer support, this is related to the definition of the memory areas in the linker configuration file and burner command file in case if the S-record format is required to be loaded.

PRM file

The PRM file shall have definition of the D-Flash areas with the following considerations:
D-Flash segments shall be defined using the 24-bit logical address.
For example, PRM file for the S12XEP100 derivative should include D-flash definitions in the **SEGMENT** list:

```
EEPROM_00     = READ_ONLY   0x000800 TO 0x000BFF;
EEPROM_01     = READ_ONLY   0x010800 TO 0x010BFF;
```

```
EEPROM_02     = READ_ONLY   0x020800 TO 0x020BFF;
...
EEPROM_1F     = READ_ONLY   0x1F0800 TO 0x1F0BFF;
```

The **PLACEMENT** statement shall define constant data to be placed in D-flash, for example:

```
/* constant variables */
ROM_VAR    INTO  EEPROM_00, EEPROM_01, EEPROM_1F;
myseg0     INTO  EEPROM_02;
```

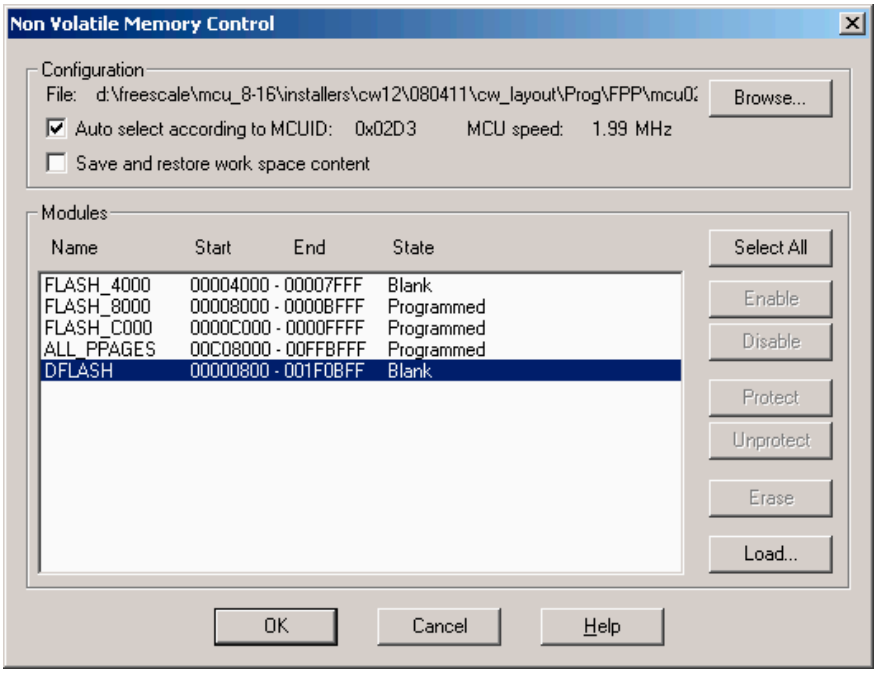
S-record generation

Depending on the application you are working on, you may need to load S-record file and in this case you might need to adjust the burner script file (burner.bbl) in order to include required areas into generated S19 image. See excerpt from S12XEP100 .bbl file below:

```
...
/* logical banked D-flash to logical */
len = 0x000400
origin = 0x000800
destination = 0x000800
SENDBYTE 1 "%ABS_FILE%"
origin = 0x010800
destination = 0x010800
SENDBYTE 1 "%ABS_FILE%"
origin = 0x020800
destination = 0x020800
SENDBYTE 1 "%ABS_FILE%"
...
origin = 0x1F0800
destination = 0x1F0800
SENDBYTE 1 "%ABS_FILE%"
...
```

Debugging

During the debugging the option to erase the D-Flash area is available in the Flash menu item in the Connection menu (name of the Connection will corresponds to currently used connection).


Non Volatile Memory Control
Configuration
File: d:\freescale\mcu_8-16\installers\cw12\080411\cw_layout\Prog\FPP\mcu0
Browse...
Auto select according to MCUID: 0x02D3
MCU speed: 1.99 MHz
Save and restore work space content
Modules
Name
Start
End
State
FLASH_4000 00004000 - 00007FFF Blank
FLASH_8000 00008000 - 0000BFFF Programmed
FLASH_C000 0000C000 - 0000FFFF Programmed
ALL_PPAGES 00C08000 - 00FFBFFF Programmed
DFLASH 00000800 - 001F0BFF Blank
Select All
Enable
Disable
Protect
Unprotect
Erase
Load...
OK
Cancel
Help