

EEM489 MICROPROCESSORS II

LAB6 – INTRODUCTION TO HC12

In this lab you will meet Adapt MC9S12E128 experiment boards which have HC9S12E128 mcu's as the core processor. Print out the manual attached to this document and implement two example programs mentioned in the manual which is also located in folder:

`\micro2\hc12cd\HC12\Products\AD9S12E128\ad9s12e128man.pdf`

LAB WORK:

Implement following example programs in lab.

1. LED Flasher with frequency of 2 Hz.
2. "Hello World" program using serial communication interface.

ADAPT9S12E128 Experimental Boards



uBug12 Serial Monitor

You will communicate and program the board directly from the serial port (NOT using BDM). Therefore, you will use uBug12 Serial Monitor application to erase and load programs on board. It is located in folder:

```
\micro2\hc12cd\HC12\Products\AD9S12E128\uBug12
```

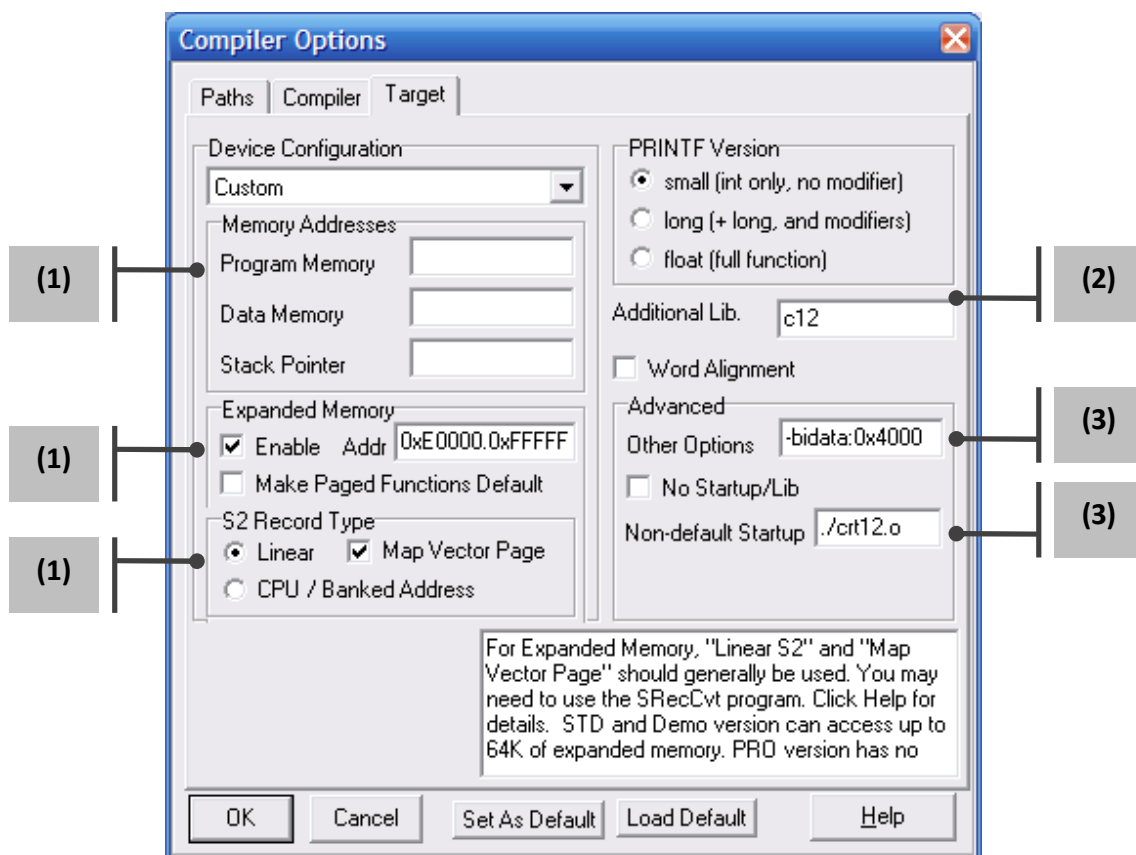
ICC12 Compiler Tool

You will write and compile your programs using ICC12 v6. If not installed you can locate installation files in folder:

```
\micro2\program\icc12dem_616.exe
```

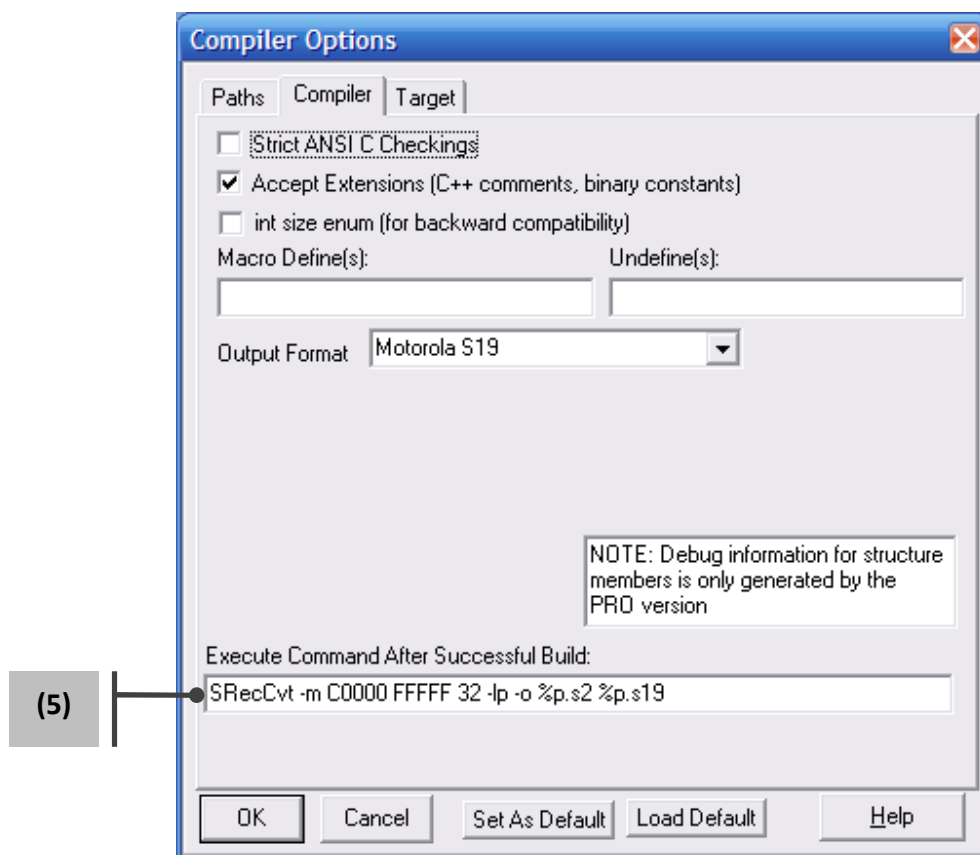
ADJUSTING ICC12 OPTIONS

Before starting, you'll need to set up your compiler settings, as follows: (*Menus → Project → Options → Target*). Following adjustments are important for your project to be linked correctly.



- 1- Program Memory = 0x4000.0x7FFF:0xC000.0xFFFF
Data Memory = 0x2000
Stack Pointer = 0x3FC0
- 2- Insert an additional library (file location: icc12\lib\libc12.a) with the name "c12" into the **Additional Lib.** Textbox.
- 3- Advanced Options: Insert option "-bidata:0x4000" and define a startup file (crt12.o). This file should be compiled - as described in the attached manual - from crt12.s which can be found after a search in micro2 folder. After crt12.o is created, it is recommended to copy it in your project folder.
- 4- You should also find the file "mc9s12e128.h" thru ssearching in micro2 folder and copy it into your project folder.
- 5- You need to insert the following converter command to the Compiler tab.

```
SRecCvt -m C0000 FFFFF 32 -lp -o %p.s2 %p.s19
```



There are some more adjustments not mentioned here. Therefore read the attached manual carefully and follow the instructions.