

Setup of the programming environment for the SH2Tiny board

This note was developed by Pål Liljebäck on 06 June 2012 and describes the software elements required to develop and download code to the SH7047 microcontroller located on the SH2Tiny board. The SH2Tiny documentation from Hibot should be consulted for more detailed information.

You will need the following pieces of software:

1. **Compiler and linker** for being able to compile C code for the SH7047 microcontroller.
2. **IDE Programming Environment**, i.e. a programming editor linked to the compiler.
3. **USB driver** for allowing the SH2Tiny to be programmed via a virtual serial port.
4. **FLASH program** for downloading the compiled code to the SH2Tiny board via the virtual serial port.

Compiler and linker (GNUSH)

1. Go to the web address:
<http://www.kpitgnutools.com>
2. Login in order to reach the download area:
User Name: pal.liljeback@sintef.no
Password: 536721af41c4
3. Download the latest version of the GNUSH Windows Tool Chain, for instance *"GNUSH v12.01 Windows Tool Chain (ELF)"*.

Note! The Programming Environment (HEW) should be installed before the GNUSH Windows Tool Chain (see below).

IDE Programming Environment (HEW)

1. Go to the web address:
<http://www.kpitgnutools.com>
2. Login in order to reach the download area:
User Name: pal.liljeback@sintef.no
Password: 536721af41c4
3. Download the latest version of HEW (High-Performance Embedded Workshop), for instance *"HEW 4.08-ntc for KPIT GNU Tools with Simulators"*.

Note! The Programming Environment (HEW) should be installed before the GNUSH Windows Tool Chain (see below).

Note from Pål 21.05.2012! It should also be possible to use Eclipse as an editor. However, during installation of newer versions of GNUSH, the option of integration with Eclipse is not available for unknown reasons. I have been able to make this work for older versions, such as GNUSH v10.01 and Eclipse v2.2, which are available at the KPTI download site under older archives. However, I

experienced some very strange behavior of the microcontroller when testing code compiled with these older versions. In particular, I tried a simple timer and led demo, where the led blinking worked for a few seconds and then stopped blinking. Moreover, the serial port communication also did not work properly with these versions. On the other hand, the same code worked fine with the newest version of GNUSH compiled from HEW. For this reason, I recommend using HEW. I also like HEW better than Eclipse because, unlike Eclipse, HEW automatically places .c-files and .h-files in different folders, and has a search function which allows searches across files.

USB driver (Virtual COM Port)

1. Go to the web address:
<http://www.ftdichip.com/Drivers/VCP.htm>
2. Download the latest version of the Virtual COM Port (VCP) driver.

FLASH program (Flash Development Toolkit)

1. Go to the web address:
http://www.renesas.eu/products/tools/flash_prom_programming/fdt/downloads.jsp#
2. Download the latest version of the Flash Development Toolkit.

Installation notes for GNUSH and HEW

1. Place both installation files in the same folder.
2. Install HEW before installing GNUSH.
3. Use the following activation information:
Activation e-mail address: pal.liljeback@sintef.no
Activation code: A2C368EA
4. Answer “no” when asked about integration with Renesas toolchains.
5. After answering “no”, you should be asked about integration of HEW with GNUSH. An option should be available corresponding to the GNUSH installation located in the same folder as the HEW installation.
6. The installation of GNUSH will be started from within the HEW installation.