



AN800

MicroBolt

Getting Started with ImageCraft's ICCARM and the MicroBolt

10/9/2005

Introduction:

This application note describes the use of ImageCraft's ICCV7 for ARM (ICCARM) software tool with the MicroBolt.

Background:

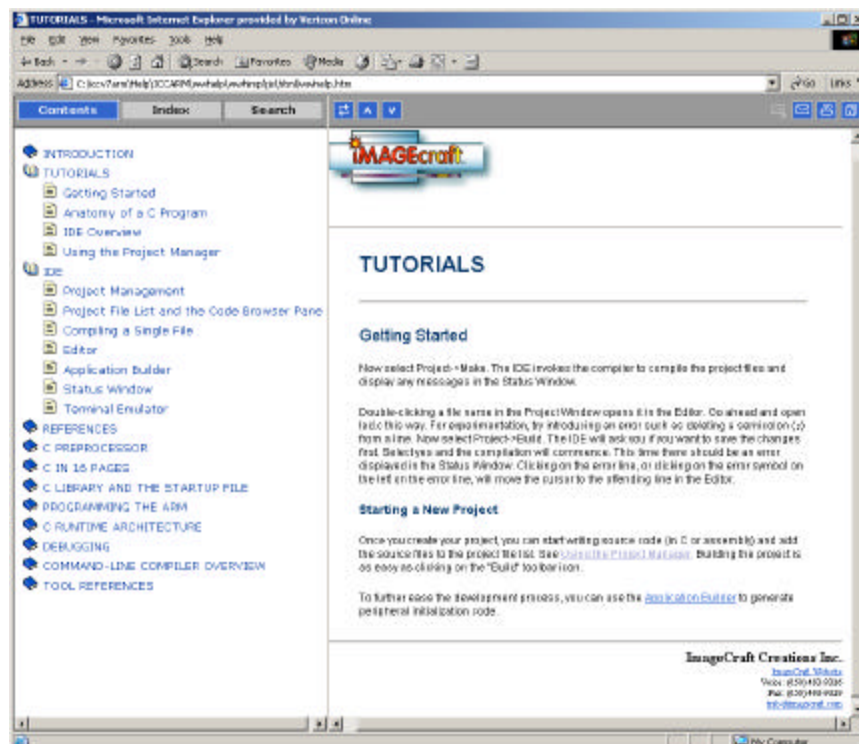
The ImageCraft ICCARM software tool is the recommended software tool for MicroBolt software development. Given its low cost and high quality, it makes for an exceptional development solution for the ARM based MicroBolt controller. The ICCARM tool lets you program in C or assembly language. It also contains a GUI to aide in MicroBolt setup. More information on ICCARM can be found at ImageCraft's website: <http://www.imagecraft.com/software/ARMdevtools.html>

You can also download the latest version of ICCARM from ImageCraft's website: <http://www.imagecraft.com/software/demos.html>

How it works:

The ImageCraft ICCARM software tool's help section contains an ICCARM tutorial and a very helpful "C in 16 Pages" section for those just getting started with C programming. In depth details of ICCARM can also be found in this help section. The rest of this application note will provide you with some quick setup and getting started tips whilst using the MicroBolt demo projects.

ICCARM Help Section:



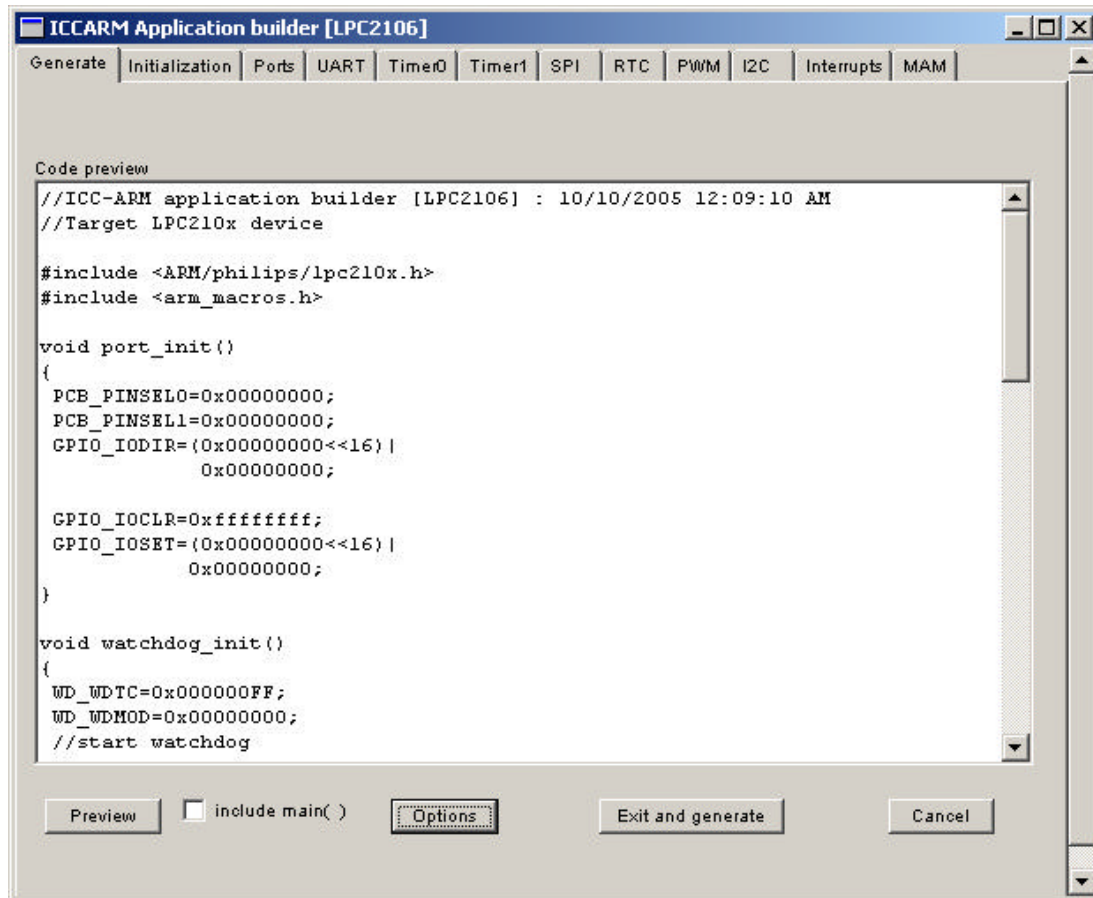
Debugger Support:

Various ELF/DWARF debugger companies support ICCARM's debug format. An example is Nohau and their EMULARM JTAG debugger solution.

Application Builder:

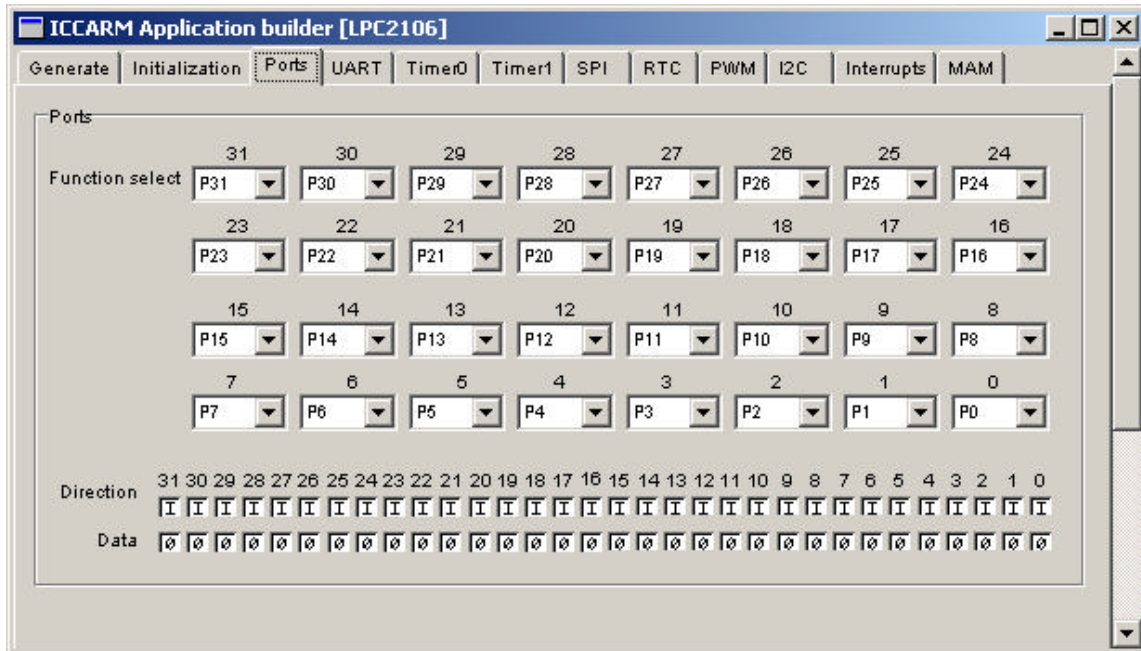
ICCARM contains an application builder GUI to aide in setting up the MicroBolt's LPC2106. The MicroBolt demo projects (found on the MicroBolt site or in the ICCARM examples directory) use the code generated from the Application Builder for various peripheral setups. Once your data is entered in, it can be saved via the "Options" button and recalled for later use. The "Exit and generate" button loads the generated code into ICCARM which gives the user access to the generated code.

Application Builder Code Generation:



One of the most useful features of Application Builder is its port configuration section. This one window alone makes using Application Builder a worth while part of project creation. Each MicroBolt LPC2106 port can easily be configured via the drop down boxes and the port direction and data checked at will. After the port configuration is done, the code can be generated and pasted into the users project.

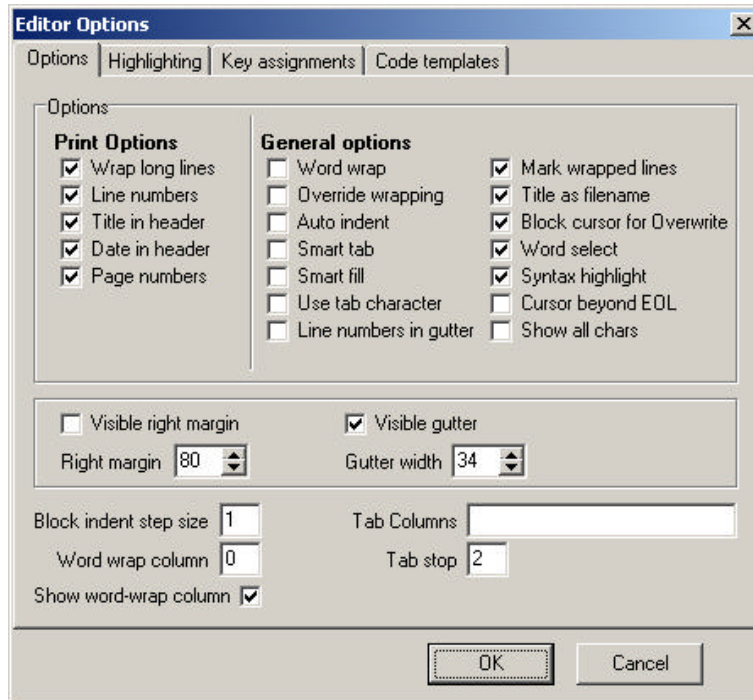
Application Builder Port Setup:



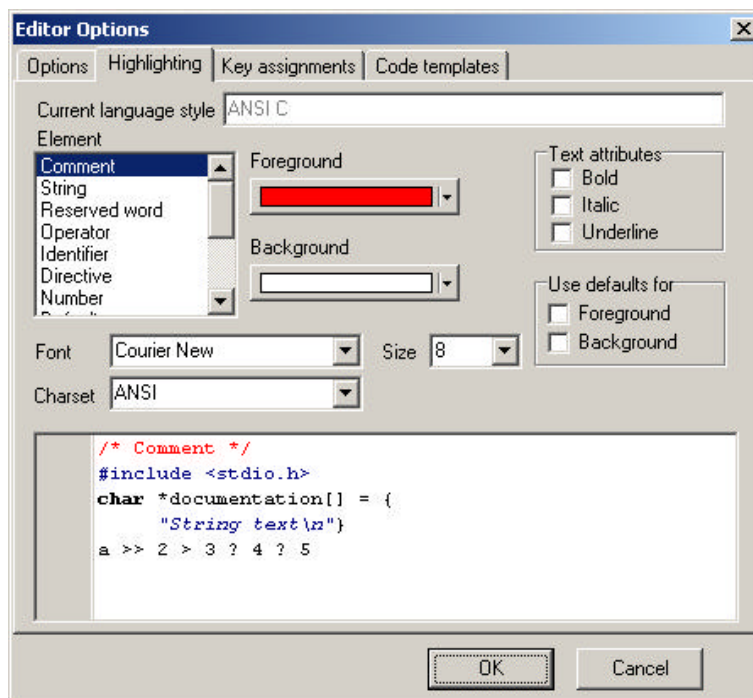
Project Overview:

The easiest way to get started with ICCARM and the MicroBolt is to open up an existing MicroBolt demo project. A simple one to start with is the MicroBolt_Blink_Led project. To properly view the MicroBolt demo projects, you must first setup your editor options to match those of the demo projects. Under “Tools” select “Editor Options”. Now, copy the setup in below screen shots for “Options” and “Highlighting”. Most importantly is the 2 tab stops and size 8 font.

Editor Options-Options:



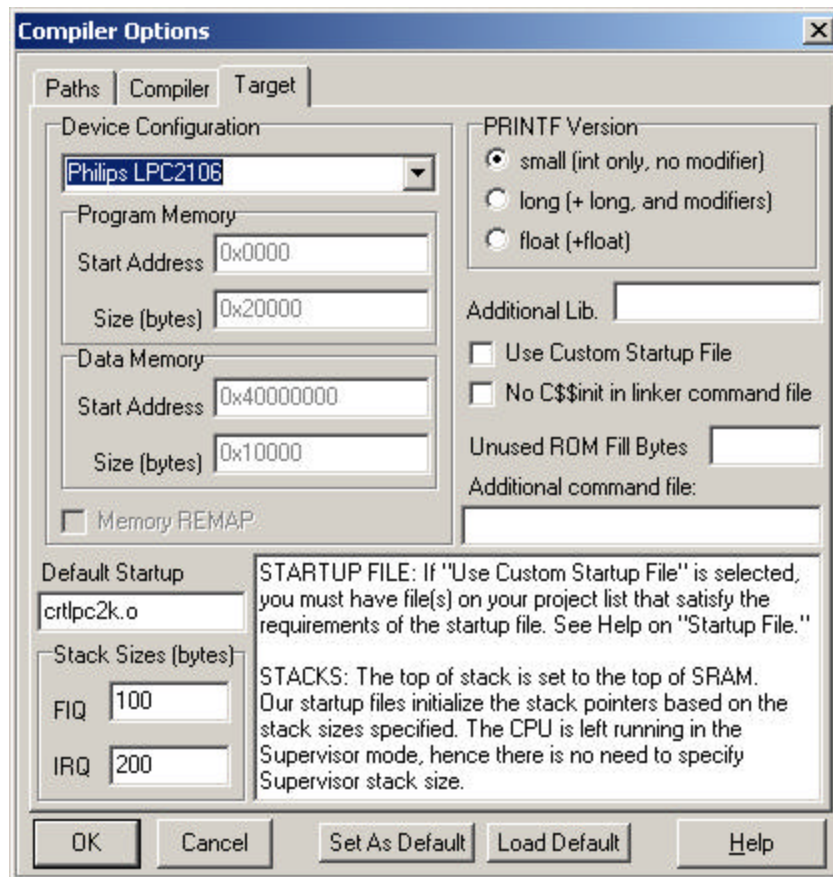
Editor Options-Highlighting:



Project Options:

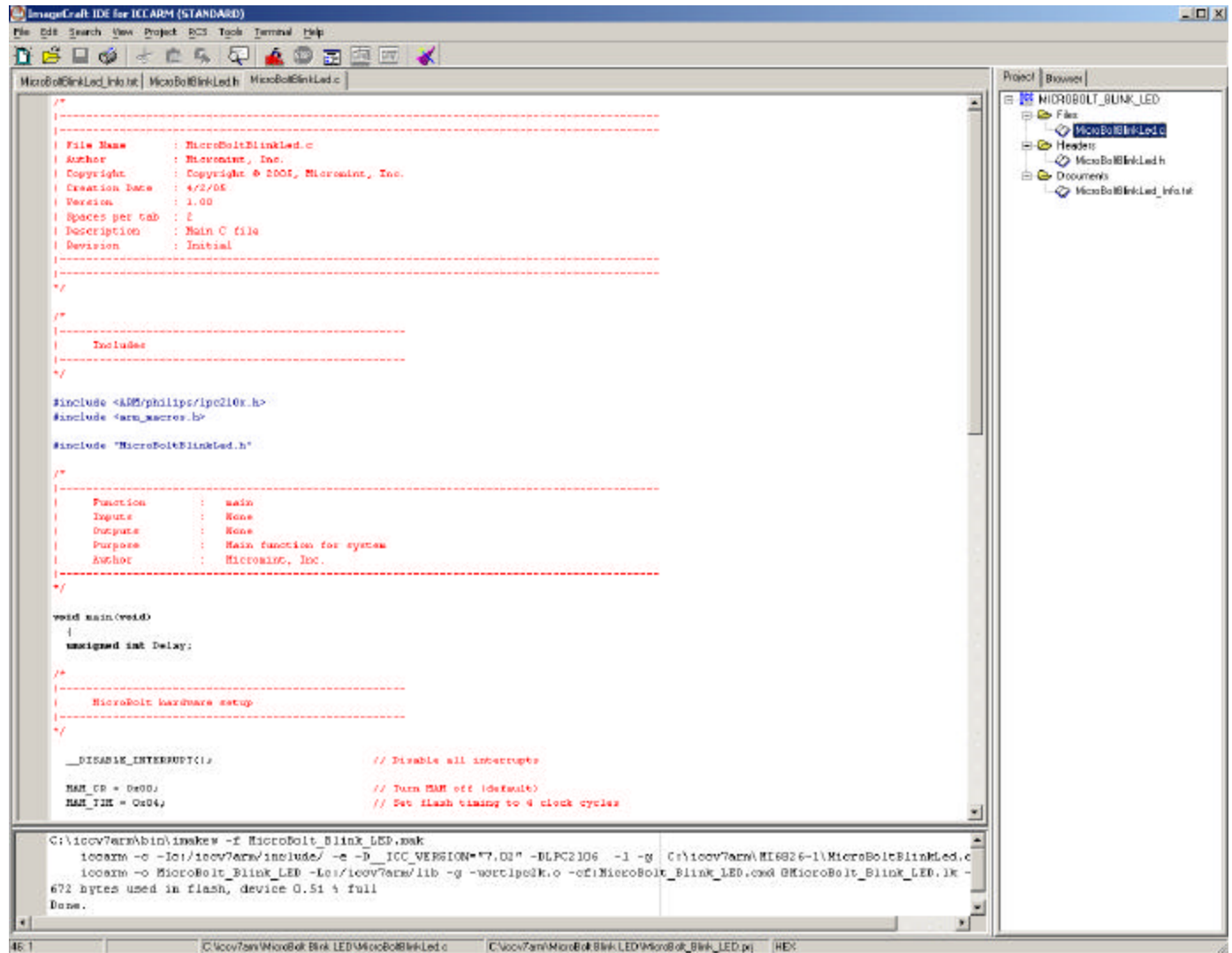
Although the demo project has already setup the compiler options for you, it's still worth understanding this important project creation step. The below screen can be found under "Project" and then "Options". Under "Target" you will notice the MicroBolt's LPC2106 controller is selected. There are also other options that can be setup based upon the users application. An important option is the "Stack Sizes". The MicroBolt demo projects show many IRQ examples and any required RAM usage in the IRQ or interrupt sections must fit inside this stack size. If large amounts of RAM are needed in the interrupt routines, the stack size must be adjusted accordingly or the risk of program crashes can occur.

Compiler Options - Target:



Once your options have been setup, the resulting loaded project can now be seen below. To build the project, simply select "Project" and then "Rebuild All". The below screenshot shows the successful building of the demo project. Once the project is built, the generated .hex file can be downloaded to the MicroBolt via the Philips ISP PC application (see MicroBolt datasheet) or the .elf file can be downloaded via a JTAG debugger.

ICCARM MicroBolt Demo Project:



Conclusion:

ImageCraft's ICCARM software tool is a high quality ARM development tool at a very low cost. It provides many features that will aide in the development of high quality MicroBolt C and assembly language programs .