SILICON LABORATORIES

AN121

CONVERTING FROM THE METALINK ASM51 ASSEMBLER TO THE KEIL A51 ASSEMBLER

Relevant Devices

This application note applies to the following devices:

C8051F000, C8051F001, C8051F002, C8051F005, C8051F006, C8051F010, C8051F011, C8051F012, C8051F012, C8051F015, C8051F016, C8051F017, C8051F018, and C8051F019.

Introduction

Starting with release V1.4 of the Silicon Labs Development Kit Software, the Metalink ASM51 assembler/linker has been replaced with the Keil Software A51 macro assembler and stand-alone OMF-51 compatible BL51 linker. Once V1.4 (or later) of the Silicon Labs Development Kit Software is installed, source-level debug using output from the Metalink assembler/linker is no longer supported by the Silicon Labs IDE.

Benefits of the Keil 8051 tools include:

- Multiple source and object file support. You can organize your projects into multiple source/object files and re-assemble only the files modified since the last program build.
- Source-level debug of code containing macros and conditional assembly directives.
- Faster debug processing before download.
- Source file names no longer restricted to 8.3 (DOS) format.
- A separate copy of register definition files is no longer required in each project's source directory. Include files can be kept in a single directory in the assembler's search path.

Converting Metalink ASM51 Source for the Keil A51 Assembler

The source and directive syntax of the Keil A51 assembler is very similar to that used by the Metalink ASM51 assembler. Typically, the only change required to your existing Metalink ASM51 source files to make them compatible with the Keil A51 assembler is the single line of source used to include register definition files. The Keil A51 assembler uses the $INCLUDE directive to include registers definition files instead of the $MODxxxx directive.

Metalink ASM51 syntax:

```
$MOD8F000; include C8051F000 regis-
ter definition file.
```

Keil A51 assembler syntax:

```
$INCLUDE (c8051F000.inc);   include
C8051F000 register definition file.
```

The latest register definition files, defining all SFR registers and bit-addressable control/status bits, are copied into the "Cygnal\Examples\C8051Fxxx" directory and into the default search path used by the Keil A51 assembler during IDE installation. It is no longer necessary to keep a copy of a register definition file in each project's source file directory. The register and bit names used in this file are identical to those used in the C8051Fxxx datasheets.

The complete assembler and linker reference manual can be found on-line under the Help menu in the IDE or in the "Cygnal\hlp" directory (A51.PDF). Example source code is provided in the "Cygnal\Examples\C8051Fxxx" directories

which may be used as a template for code development. Refer to Application Note "AN104 - Integrating Keil 8051 Tools into the Silicon Labs IDE" for additional information on using the Keil 8051 tools with the Silicon Labs IDE.

Notes:

Contact Information

Silicon Laboratories Inc.
4635 Boston Lane
Austin, TX 78735
Tel: 1+(512) 416-8500
Fax: 1+(512) 416-9669
Toll Free: 1+(877) 444-3032
Email: productinfo@silabs.com
Internet: www.silabs.com