Using MULTI®2000 V3.5 with the AT91 Library V2.1x

AT91 ARM® Thumb® Microcontrollers

Application Note

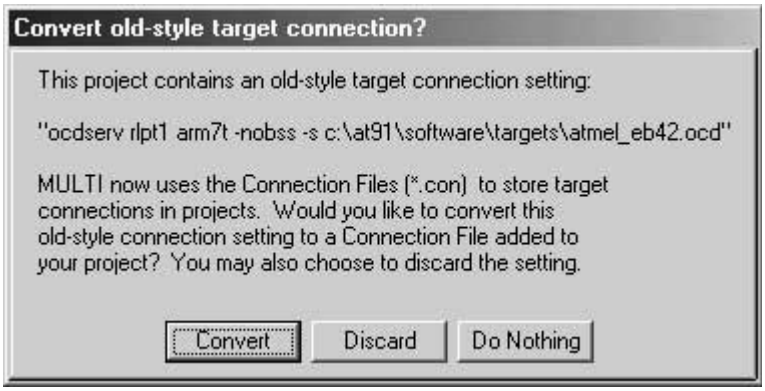
Introduction

The AT91 Library V2.1x is configured for use with Green Hills software MULTI®2000 V3.01. When any other version of MULTI®2000 is used, the project must be updated to ensure ARM UK assembly syntax compatibility.

This document describes the optimal settings when using MULTI®2000 V3.5 to debug an application written using the AT91Library V2.1x on an AT91 ARM-based product evaluation board.

Setting the Target Project

1. Load the parent project. Make sure that all project files are displayed by double-clicking on project_name.bld.
2. If necessary, convert the target connection when opening the project:



3. Select the parent project.
4. Choose: “Set Build_Target for project_xxx.bld” in the menu “Project”.

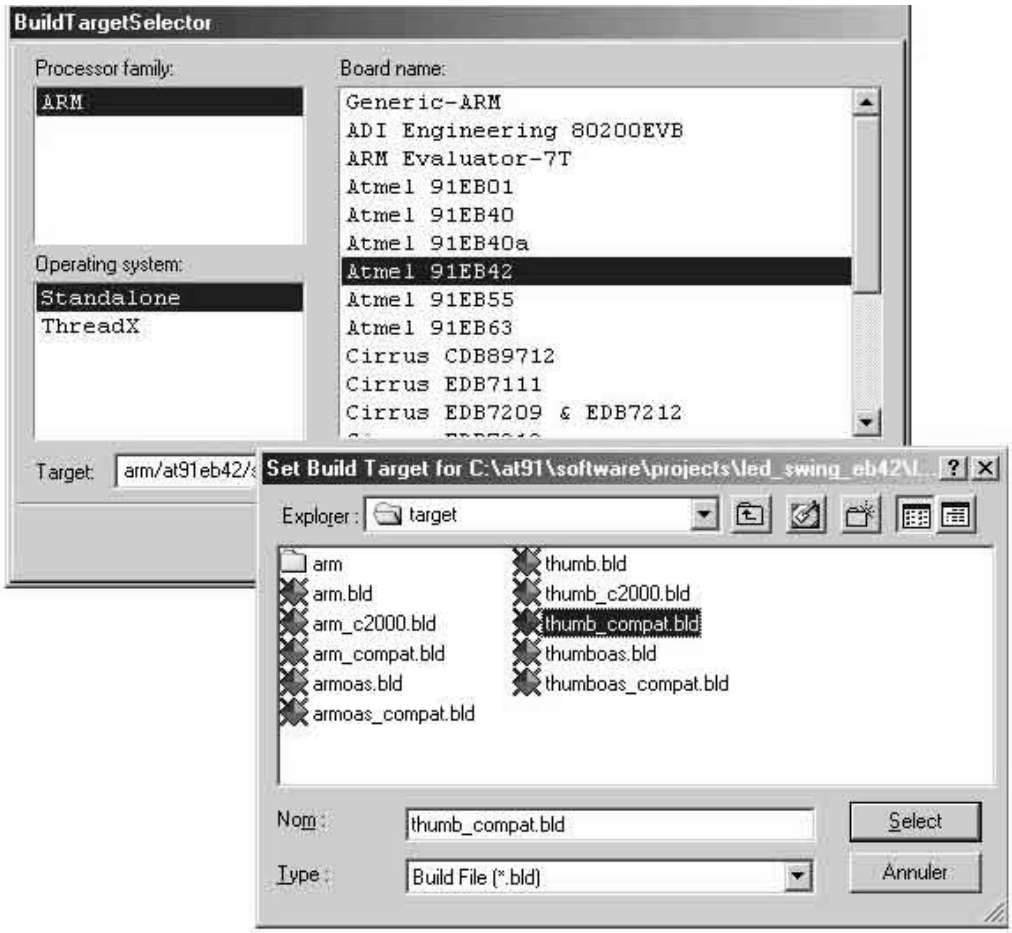
Rev. 2685A–ATARM–07-Mar-03

5. In BuildTargetSelector, select
   – Processor Family: ARM.

   Set window options as follows:
   – Operating system: Standalone
   – Board name: Atmel 91EBxx

Note: The following windows represent those used for a project using the EB42. If the project uses another board, select the corresponding evaluation board.

6. Select the Browse button, and choose the “thumb_compat.bld” Build file.



7. Select your project.

Setting Project Files

Check the .c and .arm file build options using the File Option window:

1. Select the project (project_name.bld).
2. Select “File option” in the “Project” menu or by clicking the right mouse button.
3. Choose “Configuration”.
4. For .c files, check that:

– the “C compiler” command name is “ecomarm” and

– the “C compiler (compatibility Mode)” command name is “ccomarm”.

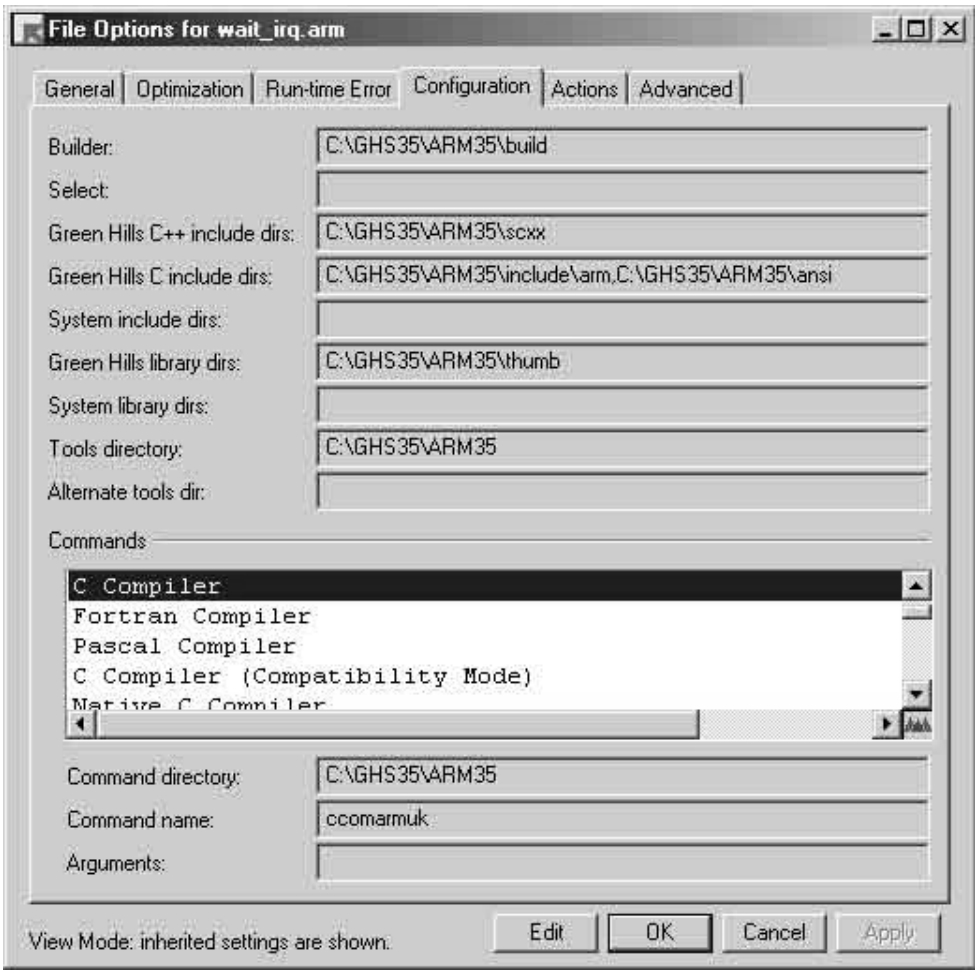
To change, click “Edit”, make the change and click “Apply”. To view settings, click “View”.

5. For .arm files check that:

– the “C compiler” command name is “ccomarmuk” and

– the ”C compiler (compatibility Mode)” command name is ”ccomarmuk”.

To change, click “Edit”, make the change and click “Apply”. To view settings, click “View”.



6. Rebuild the project.

Note: 1. The same settings must be applied to the libraries and they must be rebuilt.
2. The project must be saved before building.

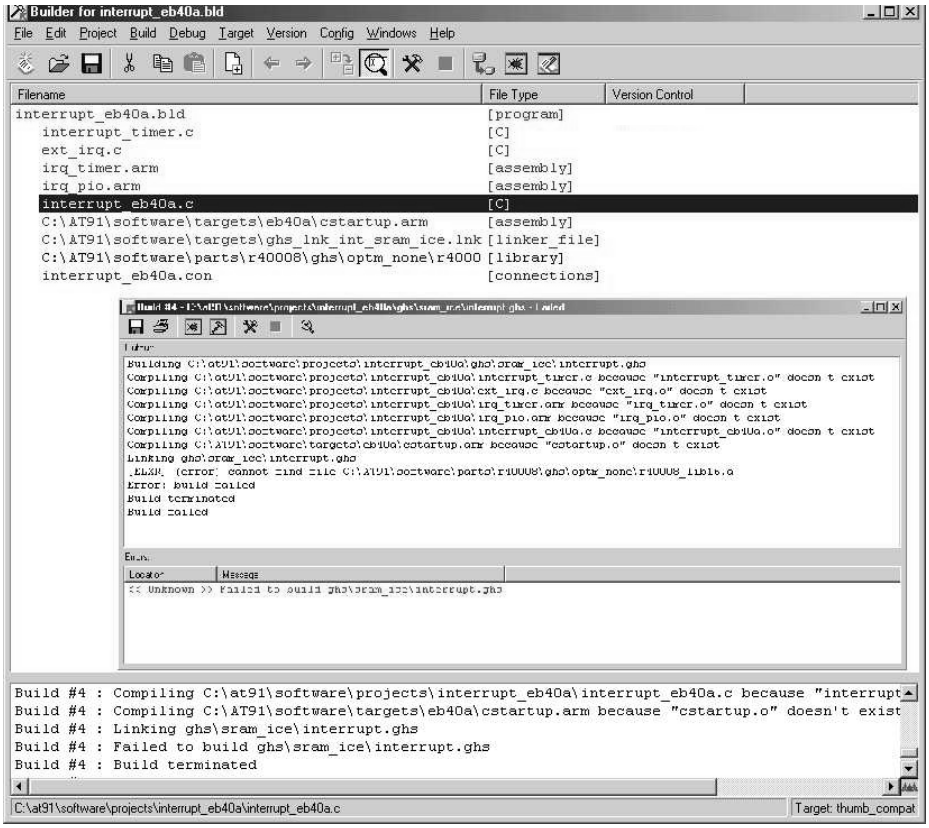
Troubleshooting

Failed Library Link

- Problem: If the AT91 part library or driver library is not generated before project generation, the following error message may occur:

```
Linking ghs\sram_ice\<project name>.ghs
[ELXR] (error) cannot find file C:\At91\software\parts\<part
name>\ghs\optm_none\m\<part name>\_lib16.a
Error: build failed
Build terminated
Build failed
Linking ghs\sram_ice\<project name>.ghs
 [ELXR] (error) cannot find file
C:\At91\software\drivers\lib_drv\ghs\optm_none\lib_drv_16.a
Error: build failed
Build terminated
Build failed
```

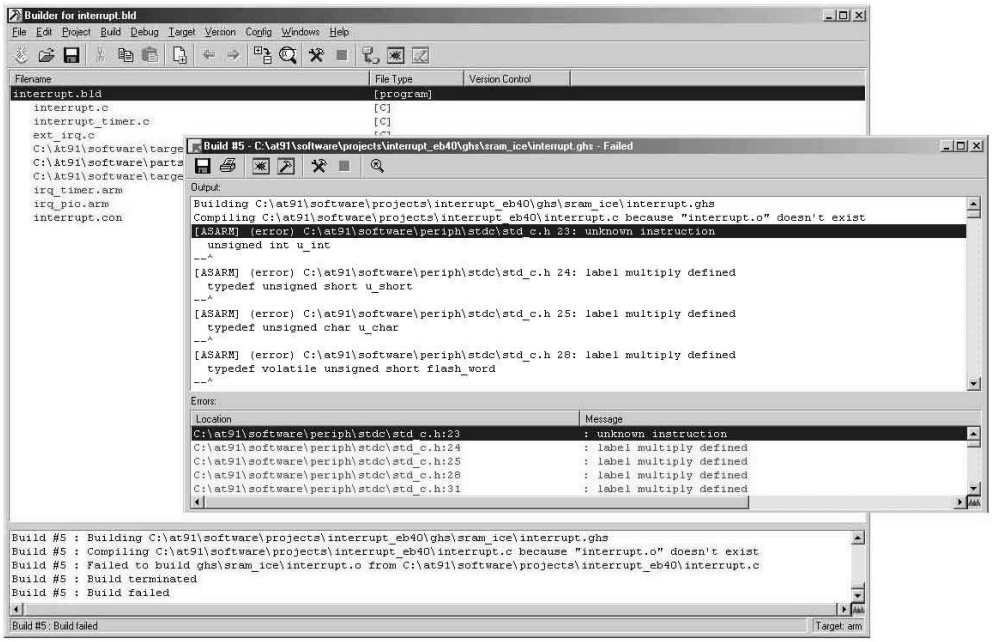
- Action: Open the library and build it as in “Setting the Target Project” on page 1 and “Setting Project Files” on page 3.



Rebuild the library and reload the application project.

Error in Building the .c File

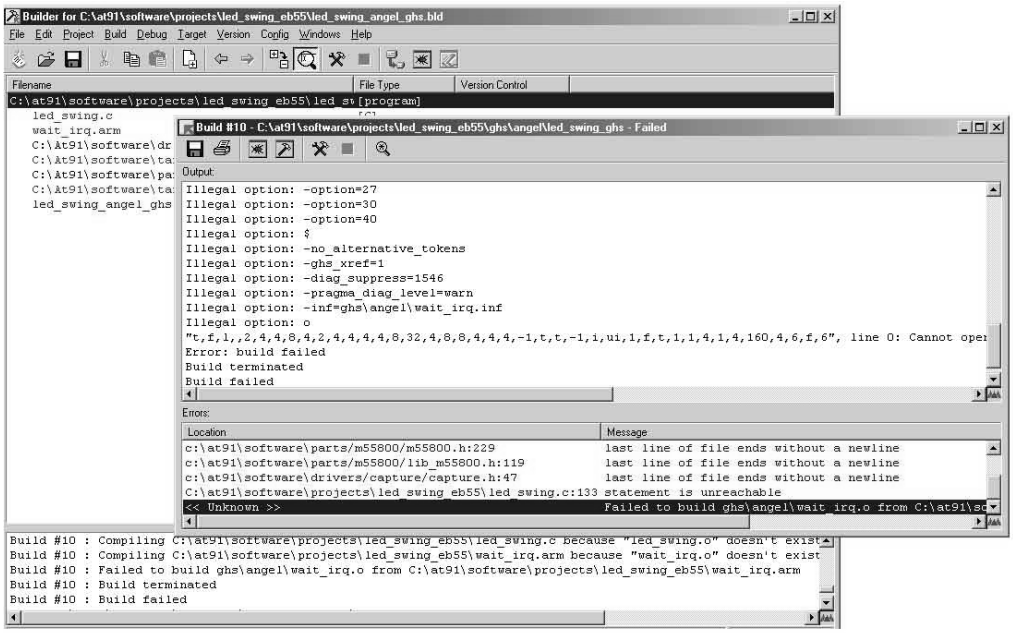
- Problem: Errors concerning “C” commands occur during compilation but the “C” commands are syntactically correct.
- Action: The project is configured to use the wrong compiler. Change the compiler selection as described in “Setting Project Files” on page 3.



Error in Building the .arm File

- Problem: Errors occur during the Assembly compilation step concerning the illegal option, the assembler is not the ccomarmuk type.
- Action: Check the compiler command setting as described in “Setting Project Files” on page 3.

  If the file compiler setting is correct, check your project target setting as described in “Setting the Target Project” on page 1.



Failure to Save the Project

- Problem: MULTI® 2000 does not save the user modification in the project file.
- Action: Check that the project (.bld files) attributes are not in Read-Only mode and try to save the project again.

Appendix

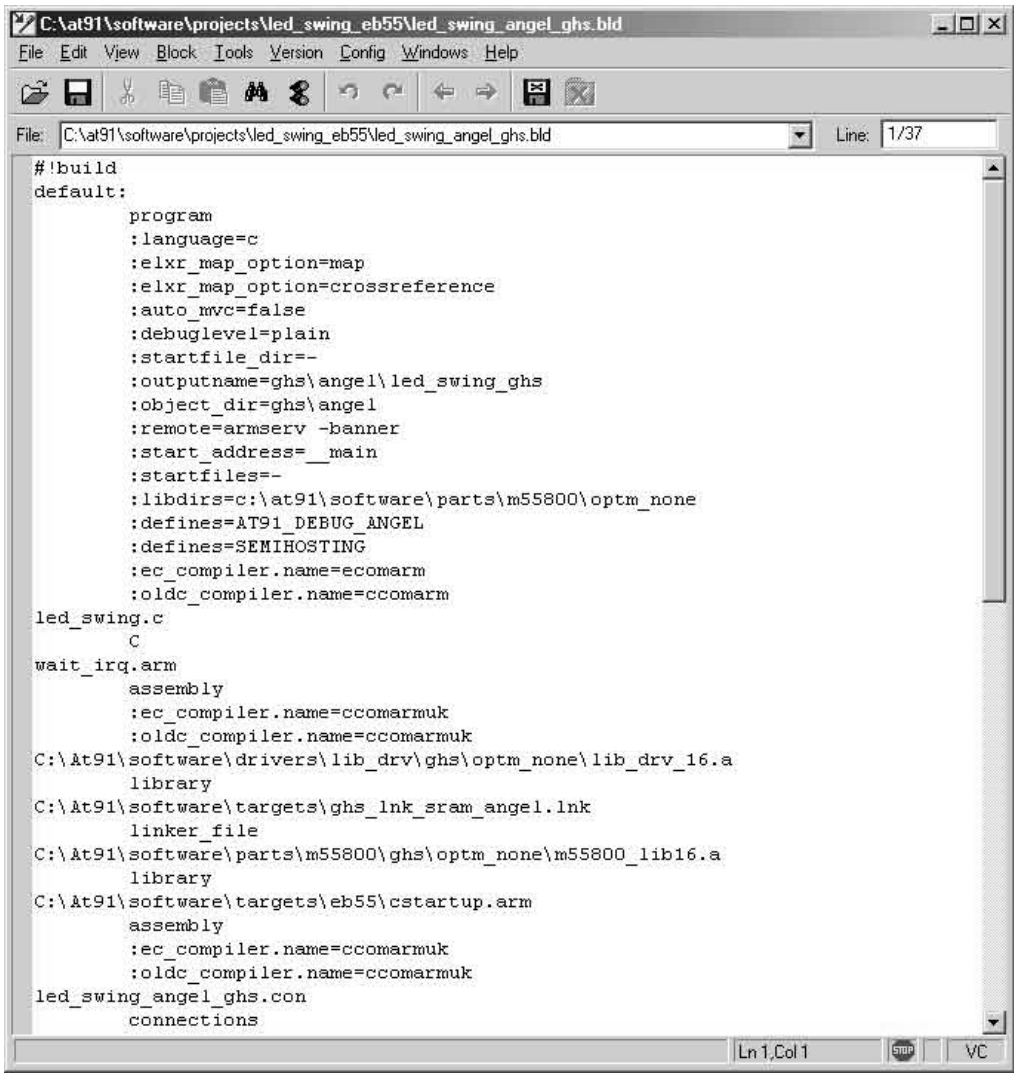
The build options for .c and .arm files can also be verified using the MULTI editor (cf. “Setting Project Files” on page 3):

1. Select the project.
2. Press CTRL-E.
3. The MULTI® 2000 editor screen displays the project build file. Editing the project (.bld files) directly with the editor is not recommended.
4. Check that the .c files are built as follows:

```
ec_compiler.name=ecomarm
oldc_compiler.name=ccomarm
```

5. Check that the .arm files are built as follows:

```
ec_compiler.name=ccomarmuk
oldc_compiler.name=ccomarmuk
```



6. Save and close the MULTI® 2000 editor.
7. Reload the project.
8. Rebuild the project. After editing and saving the build file using the text editor, MULTI® 2000 detects that the project has changed and asks the user if the project should be reloaded. User should respond with yes.

Document Details

Title	Using MULTI®2000 V3.5 with the AT91 Library V2.1x
Literature Number	2685

Revision History

Version A	**Publication Date:** 07-Mar-03

Atmel Headquarters

Corporate Headquarters
2325 Orchard Parkway
San Jose, CA 95131
TEL 1(408) 441-0311
FAX 1(408) 487-2600

Europe
Atmel Sarl
Route des Arsenaux 41
Case Postale 80
CH-1705 Fribourg
Switzerland
TEL (41) 26-426-5555
FAX (41) 26-426-5500

Asia
Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimhatsui
East Kowloon
Hong Kong
TEL (852) 2721-9778
FAX (852) 2722-1369

Japan
9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
TEL (81) 3-3523-3551
FAX (81) 3-3523-7581

Atmel Operations

Memory
2325 Orchard Parkway
San Jose, CA 95131
TEL 1(408) 441-0311
FAX 1(408) 436-4314

Microcontrollers
2325 Orchard Parkway
San Jose, CA 95131
TEL 1(408) 441-0311
FAX 1(408) 436-4314

La Chantrerie
BP 70602
44306 Nantes Cedex 3, France
TEL (33) 2-40-18-18-18
FAX (33) 2-40-18-19-60

ASIC/ASSP/Smart Cards
Zone Industrielle
13106 Rousset Cedex, France
TEL (33) 4-42-53-60-00
FAX (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906
TEL 1(719) 576-3300
FAX 1(719) 540-1759

Scottish Enterprise Technology Park
Maxwell Building
East Kilbride G75 0QR, Scotland
TEL (44) 1355-803-000
FAX (44) 1355-242-743

RF/Automotive
Theresienstrasse 2
Postfach 3535
74025 Heilbronn, Germany
TEL (49) 71-31-67-0
FAX (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906
TEL 1(719) 576-3300
FAX 1(719) 540-1759

Biometrics/Imaging/Hi-Rel MPU/
High Speed Converters/RF Datacom
Avenue de Rochepleine
BP 123
38521 Saint-Egreve Cedex, France
TEL (33) 4-76-58-30-00
FAX (33) 4-76-58-34-80

e-mail
literature@atmel.com

Web Site
http://www.atmel.com

2685A–ATARM–07-Mar-03 0M