

A Guide to Porting Projects Created with TM to High-performance Embedded Workshop V.4

This document explains how to port projects created with TM V.2.xx or V.3.xx into High-performance Embedded Workshop V.4.

1. Summary

To port projects created using TM V.2.xx or V.3.xx into High-performance Embedded Workshop V.4, the Import Makefile function of High-performance Embedded Workshop is used. This function can create projects from such items of information as source files and build options described in the specified makefile files.

In TM, project files are created in the makefile format executable in GNU make format. When project files created with TM are selected as makefile files using High-performance Embedded Workshop Import Makefile function, they are converted to files that can run in High-performance Embedded Workshop. In addition to TM project files, the Import Makefile function can also convert files in the makefile formats for hmake, nmake, and gmake to High-performance Embedded Workshop projects.

2. Porting Procedure

To port projects created using TM into High-performance Embedded Workshop, perform the following steps:

1. Open the File menu and select the New Workspace command.
2. The New Project Workspace dialog box opens.

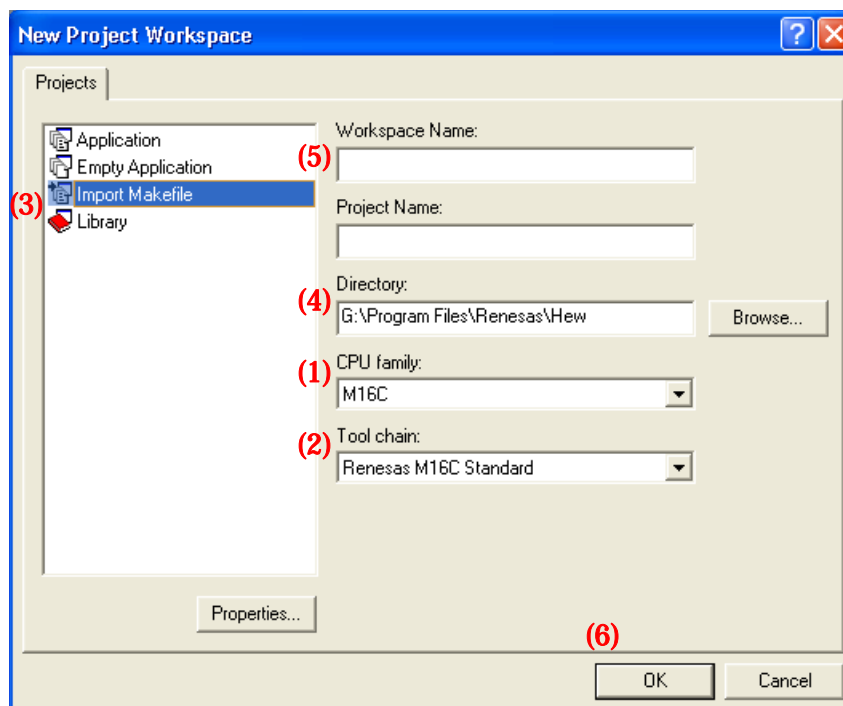


Figure 1 New Project Workspace Dialog Box

- Select the type of CPU used in the TM project from the Type of CPU drop-down list.
- Select the tool chain (cross tool) used for the TM project from the Toolchain drop-down list. The names

of tool chains and corresponding cross tools are shown in Table 1.

Table 1 Tool Chains and Corresponding Cross Tools

Tool Chain	Cross Tool
Renesas M16C Standard	NC30WA
Renesas R8C Standard	NC8C
Renesas M32C Standard	NC308WA
Renesas M32R Standard	CC32R

- Select Import Makefile from the Project list.
 - Type the directory path in the Directory text box.
 - Type the workspace name in the Workspace Name text box. The same name will be automatically entered as the project name in the Project Name text box.
 - Click **OK**.
3. You should now be able to see the New Project-1/4-Import Makefile wizard.

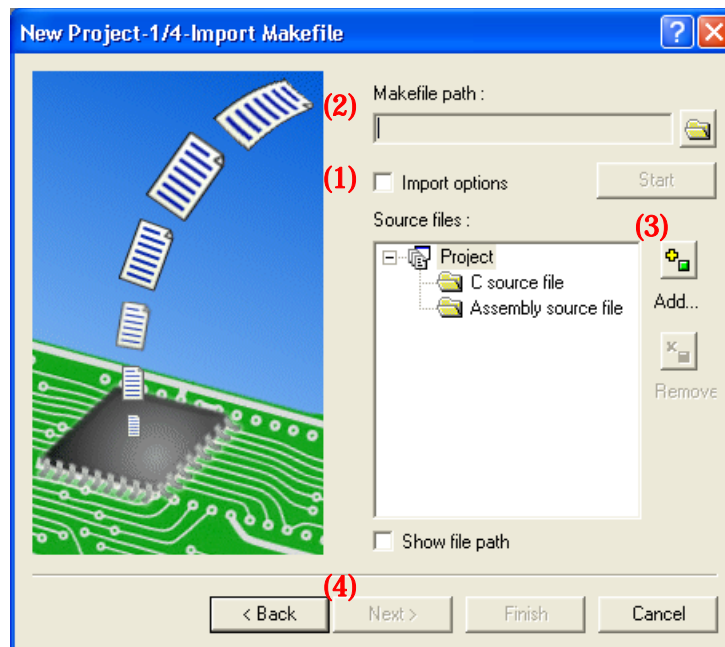


Figure 2 New Project-1/4-Import Makefile Wizard

- Select the Import options check box; this will enable information on build options (compiling and assembling options etc.) to be used to create High-performance Embedded Workshop projects. If you clear the Import options check box, the above information is neglected and not used in High-performance Embedded Workshop.
 - Type the name of the TM project file (with extension .tmk) in the Makefile path text box. As soon the name is input, the specified file is analyzed, and upon analysis completion, the analyzed source files are displayed in a tree structure in the Source files box. Click the Start button to analyze the specified file again.
 - If there are any errors in the analysis results (tree structure in the Source files box), rectify the tree structure with the Add and Remove buttons.
 - Click **Next**.
4. Follow the instructions according to the Wizard as it continues in the procedure.

3. Usage Notices

3.1 TM to High-performance Embedded Workshop Portable and Non-Portable Information

When you port a project created using TM into High-performance Embedded Workshop, not all the components of the project can be ported.

Portable information is as follows:

- Paths of assembler source files
- Paths of C-language source files
- Assembling options
- C-compiling options
- Linking options (except linkage order)

Non-Portable Information:

- Linkage order
- Tool configurations, dependencies, and options other than Assembler, C Compiler, Linker

To transfer these items, edit the High-performance Embedded Workshop project as described in Section 3.4 and further after processing the Import Makefile.

3.2 Cross Tools

Import Makefile cannot enable all cross tool versions for use in High-performance Embedded Workshop projects regardless of whether they are used with TM or not; only the following cross tools versions are valid for High-performance Embedded Workshop projects:

NC30WA	:	V.5.20 Release1 or later
NC8C	:	V.5.30 Release1
NC308WA	:	V.5.20 Release1 or later
CC32R	:	V.4.20 Release1 or later

3.3 High-performance Embedded Workshop Versions

When TM projects are ported into High-performance Embedded Workshop, information portable to High-performance Embedded Workshop varies according to the High-performance Embedded Workshop version. The information that can be ported from each cross tool to various High-performance Embedded Workshop versions are shown in Table 2.

Table 2 Portable Information and Corresponding High-performance Embedded Workshop Versions

		HEW	
		V.3	V.4
NC30WA	V.5.20 Release1 -> V.5.30 Release1	C	C
	V.5.30 Release 02 or later	---	A
NC8C	V.5.30 Release1	C	C
NC308WA	V.5.20 Release1	C	C
	V.5.20 Release 02	---	B
	V.5.40 Release00 or later	---	A
CC32R	V.4.20 Release1 -> V.4.20 Release1A	C	C
	V.4.30 Release 00	B	B
	V.5.00 Release 00 or later	---	A

A: All the items of information listed in Section 3.1 are portable.

B: The compiler and assembler of option and the paths of assembler and C-language source files are portable.

C: Only the paths of assembler and C-language source files are portable.

3.4 Generated Project Workspace

Because the project workspace created for a TM project ported to the High-performance Embedded Workshop environment is simply the contents of the makefile itself, its configuration (object output directory) will be different than that of a newly generated project workspace in High-performance Embedded Workshop.

To validate the configuration, modify the output directory file names for the compiler, assembler and linker as follows:

Output Directory (compiler, assembler):	\$(CONFIGDIR)
Output Directory (linker):	\$(CONFIGDIR)\\$(PROJECTNAME).x30

3.5 Load Module Converter

Import Makefile cannot port the information contained in any load module converter (for example, information on options, command executions, or dependencies) into the High-performance Embedded Workshop project. If using a load module converter to create projects in TM, change the settings of the load module converter as follows after completing the Makefile processing:

1. Open the Build menu and select the Build Phases command.
2. The Build Phases dialog box will open.

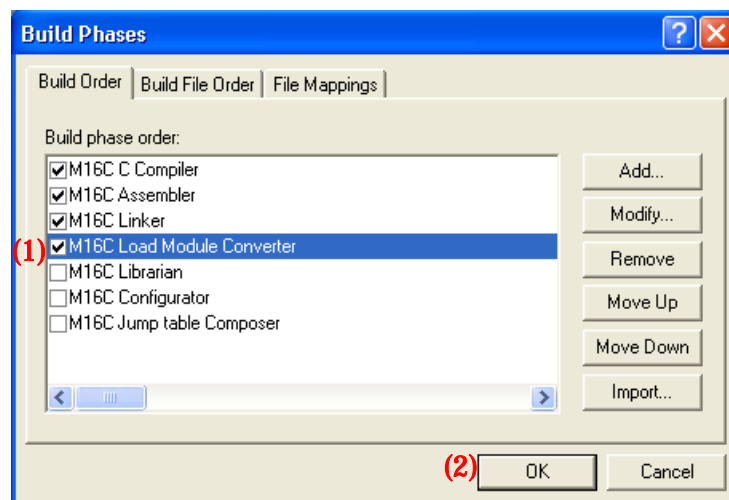


Figure 3 Build Phases Dialog Box

- Select the Mxxx Load Module Converter check box from the Order of Build Phases list.
 - Click **OK**.
3. Open the Build menu and select Renesas Mxxx Standard Toolchain.
 4. The Renesas Mxxx Standard Toolchain dialog box appears.

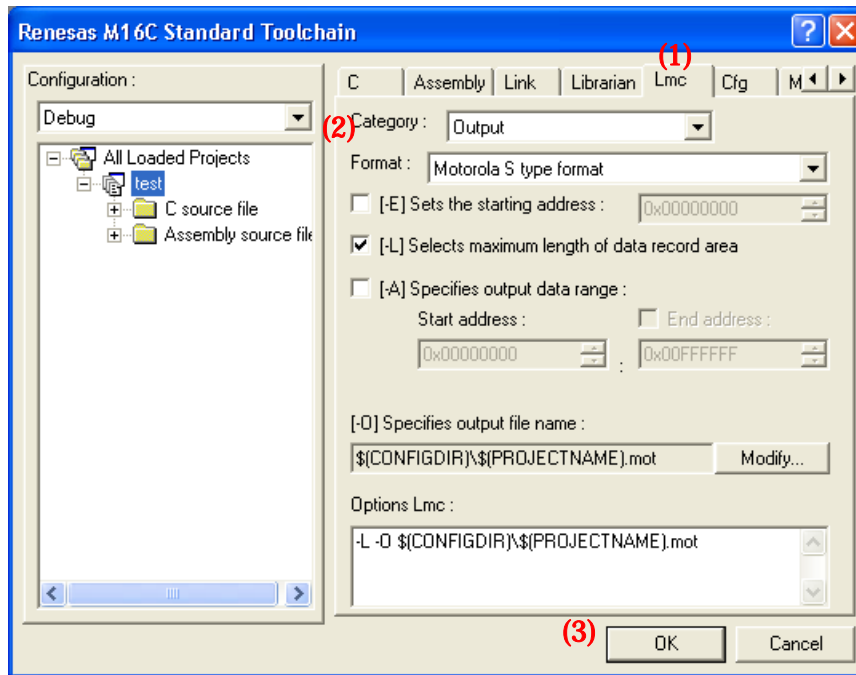


Figure 4 Renesas M16C Standard Toolchain Dialog Box

- Click the Lmc tab.
- Select the Category type from the Category drop-down list.
- Click **OK**.

3.6 Other Tools

Import Makefile cannot port any information (options, command executions, dependencies) contained in tools other than the assembler, C compiler, and linker. If any tools other than the assembler, C compiler, linker, and load module converter are used to create projects in TM, custom build phases must be created in High-performance Embedded Workshop. Custom build phases are specifically for operating other tools before, after, or during standard builds (in the assembler, C compiler, and linker).

For more details, see Section 3.2 “Creating Custom Build Phases” in the High-performance Embedded Workshop 4 User’s Manual. The following is provided as an example of how to register the cross-reference generation tool xrf30 with High-performance Embedded Workshop.

1. Open the Build menu and select the Build Phases command.
2. The Build Phases dialog box appears; click **Add**.

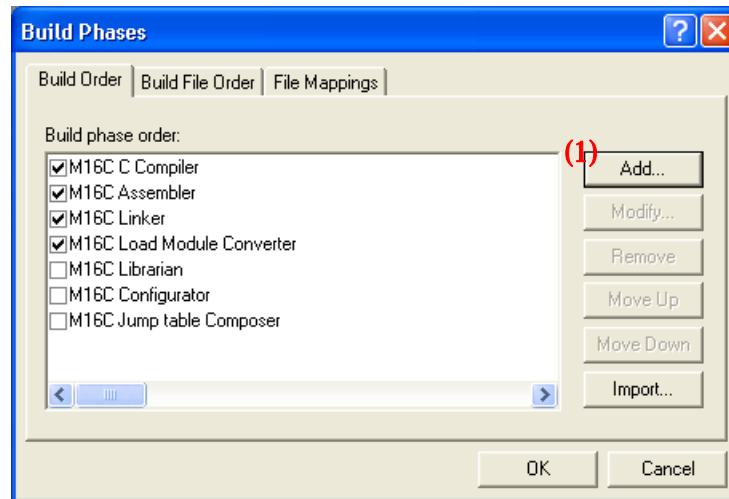


Figure 5 Build Phases Dialog Box

3. The New Build Phase- Step 1/4 wizard opens. Follow the instructions to register the tool as follows:

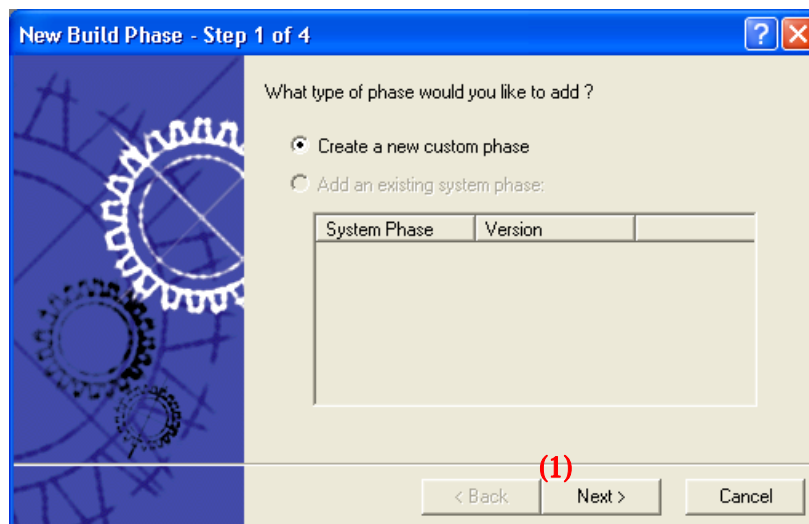


Figure 6 New Build Phase- Step 1/4 Wizard

- Click **Next** (the Create a New Custom Phase check box is selected by default); the New Build Phase-2/4 Step wizard opens.

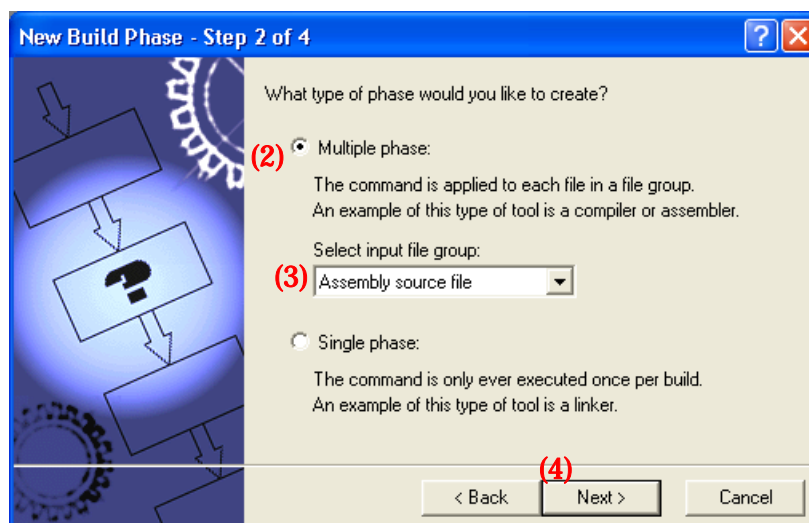


Figure 7 New Build Phase- Step 2/4 Wizard

- In this wizard, select the Multiple Phase check box.
- Select Assembly Source file from the Select input file group.
- Click **Next**; the New Build Phase- Step 3/4 wizard opens.

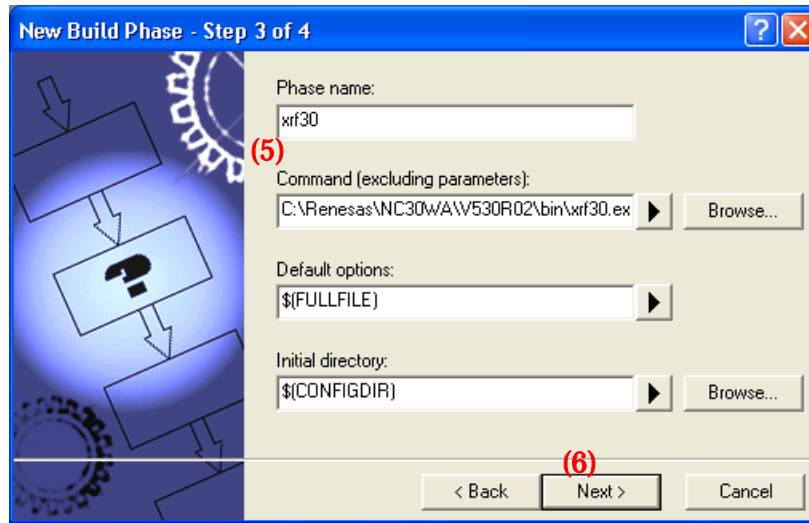


Figure 8 New Build Phase- Step 3/4 Wizard

- Type xrf30 and its fullpath name in the Phase Name and the Command text box.
- Click **Next**; the New Build Phase- Step 4/4 wizard opens.

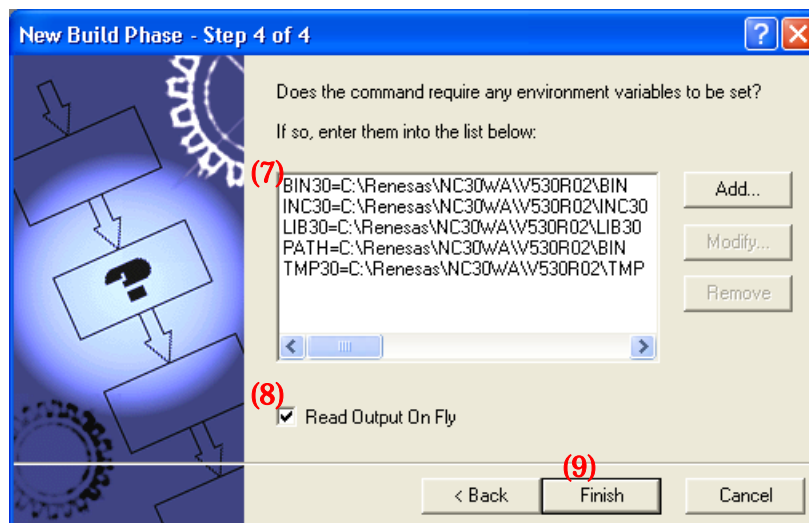


Figure 9 New Build Phase- Step 4/4 Wizard

- In this wizard, enter the necessary environment variables in the list.
 - Select “Read Output On Fly” check box.
 - Click **Finish**.
4. You return to the Build Phases dialog box at this point, where you can see that xrf30 has been registered as a build phase at the end of the Order of Build phase order.

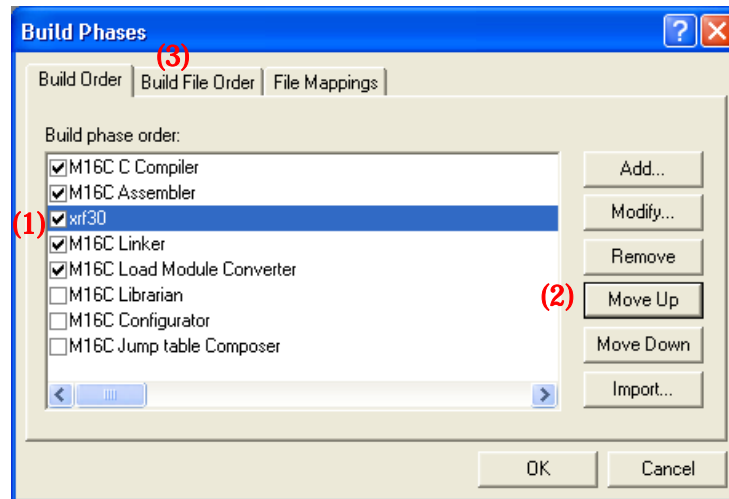


Figure 10 Build Phases Dialog Box (Build Order Tab)

- Select xrf30 from the Order of Build phase order.
- Click **Move Up** to move xrf30 next to the assembler name (see Figure 10).
- Click the Build File Order tab.

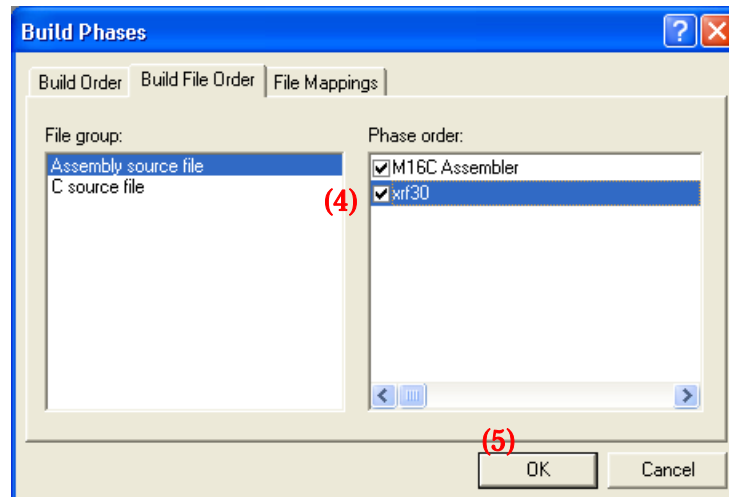


Figure 11 Build Phases Dialog Box (Build File Order Tab)

- Select the xrf30 check box in the Order of Phase order.
 - Click **OK**.
5. Open the Options menu and select the xrf30 command.
 6. The xrf30 Options dialog box appears; select options as necessary. This setting executes xrf30 for all assembler source files after assemble is completed at a build (before linking files).

3.7 Linkage order

Import Makefile cannot port the linking order information to High-performance Embedded Workshop. High-performance Embedded Workshop arranges the linking order alphabetically. To change this order, go through the following steps:

1. Open the Build menu and select the Linkage Order command.
2. The Linkage Order dialog box opens.

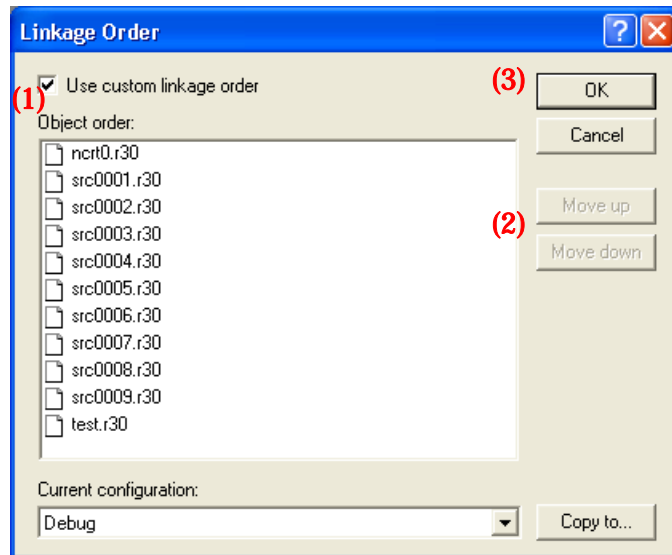


Figure 12 Linkage Order Dialog Box

- Select “Use custom linkage order” check box.
- Select a file from the Object order list, and click **Move up** or **Move down** to move the file. Repeat this step for all files that need to be rearranged.
- Click **OK**.

3.8 Placing the Start Up program at the top of Linkage Order

As the Import Makefile cannot port linking order information to High-performance Embedded Workshop, and links are order alphabetically, the start up program may not be placed at the top of the linking order. To place it at the top, follow the steps described previously in Section 3.6 “Linkage Order.”