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RENESAS

USER'S MANUAL

RENESAS

78K SERIES

PROJECT MANAGER

REFERENCE

V2.10 or Later
For Windows®

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INTRODUCTION

The project manager is a control software for efficiently using programs running on Windows.

- **Purpose and Structure of this Manual**

    This Operation Manual provides information on how to use and operate the project manager smoothly on Windows.

    It consists of the following chapters.

CHAPTER 1 OUTLINE

  Describes the project manager and the operations that need to be carried out before use.

  Read this chapter thoroughly before use.

CHAPTER 2 MENU LISTS AND BUTTONS

  Describes menu lists and buttons.

CHAPTER 3 FUNCTIONS

  Describes functions of the project manager and how to operate them.

CHAPTER 4 MAKE

  Describes the MAKE process and examples of execution.

CHAPTER 5 EXECUTING THE PROJECT MANAGER

  Describes the actual procedures for executing the project manager through examples.

APPENDIX A LIST OF MESSAGES

  Lists messages such as error messages, warning messages, etc.

APPENDIX B LIST OF MENUS

  Lists menus.

APPENDIX C MAXIMUM PERFORMANCE

  Describes maximum performance.

- **Legend**

" "   : Indicates characters and items displayed on the screen.

< >   : Indicates titles displayed on the screen.

{ }   : Indicates menu names, button names, and messages.

@<-@ : Indicates input of Return key.

[ ]   : Indicates menus.

{{ }}   : Indicates dialog names.

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CHAPTER 1   OUTLINE

This chapter gives an outline of the project manager.

1.1   Outline of Product

1.1.1   Details of product

The project manager is composed of the following programs.

Table 1-1. Program Structure

prjtman. exe	Project manager
prjtmake. exe	Analysis and execution of make files
prjtmsg. dll	Management of messages in project manager
prjtspin. dll	Spin button custom control
prjtlog. exe	Extracting messages from MS-DOS program
prjtlog. pif	prjtlog.exe PIF files
prjtpipe. 386	Connection interface between MS-DOS program and WINDOWS program
prjtman. hlp	Help file of project manager
prjtedit. exe	Project manager standard editor
prjtedit. dll	Standard editor tool interface
prjtedit. hlp	Standard editor help file
necdev. ini	Information for displaying series name and device name
readme. txt	Installation text file
smp. exe	Standard editor sample program

1.1.2   System structure

The project manager runs in the following environment.

Table 1-2. Operating Environment

Host machine	PC98 series/IBM PC series and its compatibles CPU: 80386 or upper
Memory	4M bytes
Hard disk	Available space at least 4M bytes
DOS	MS-DOS V3.30x or later/PC DOS™ V5.00 or later, Windows V3.1
OS	Windows V3.1
Monitor	Windows accelerator-compatible
Pointing device	

The project manager operates on the NEC PC-98 series/IBM PC series and compatibles. Operation on other commercially available MS-DOS machines is not guaranteed.

1.2 Outline of Functions

1.2.1 Outline of project manager functions

The project manager provides the environment for program development on Windows. It realizes a development environment composed of development tools such as editor, build, debugger, etc.

The functions of the project manager are as follows.

- Starting the editor
- Automatic compilation of MAKE files
- Starting the debugger
- Correcting source and executing MAKE according to instructions from the debugger
- Incorporating own tools into the menu and calling them
- Starting project files by dragging and dropping
- Registering icons of the project manager for each project

1.2.2 Role of the project manager

As the project manager is able to execute a series of softwares, its role is to integrate various softwares.

Figure 1-1. Program Development Software and Project Manager shows the relationship between the program development software and project manager.

Figure 1-1. Program Development Software and Project Manager
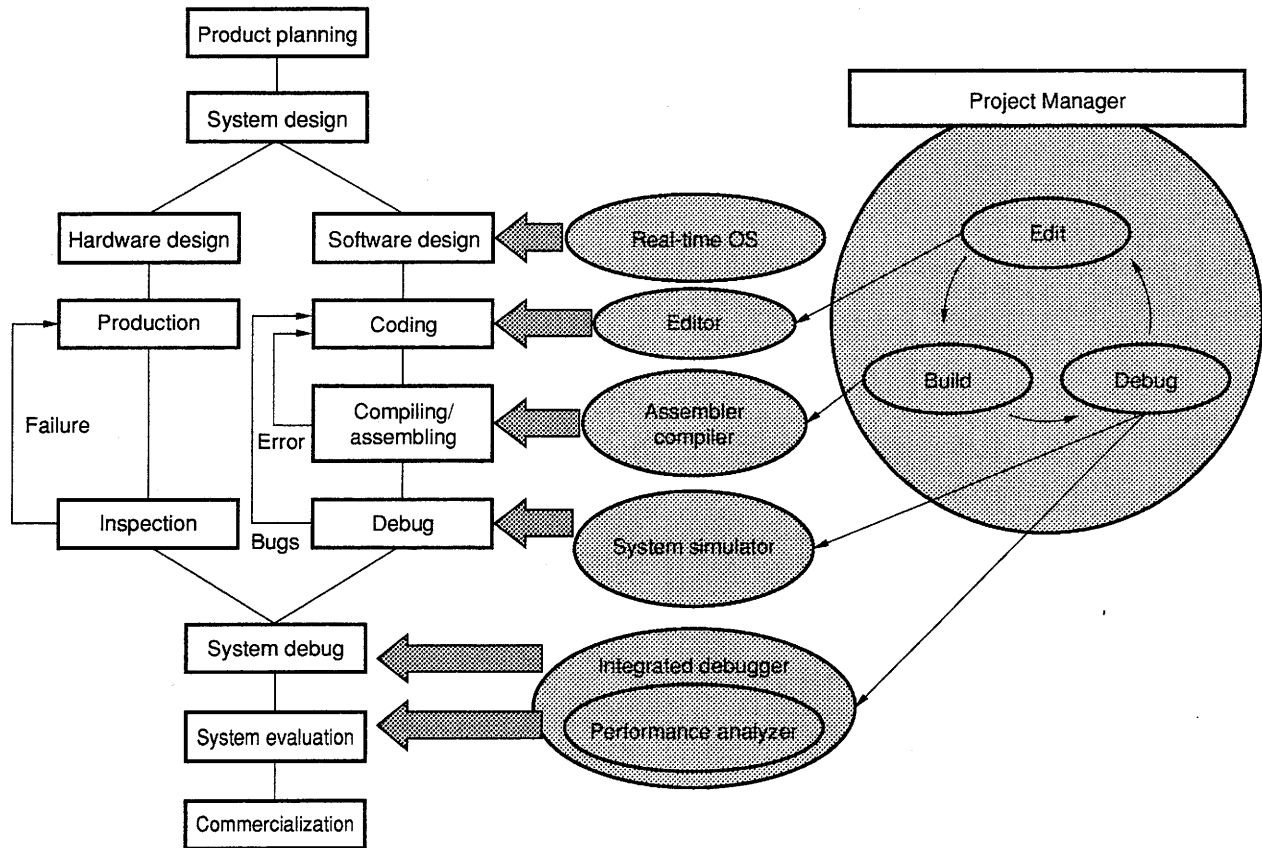
1.3 Installation

Before using the project manager, install it first.

In the following example, assuming that MS-DOS has already been started on the host machine, the hard disk drive is assumed as the C drive, the floppy disk drive is assumed as the B drive, and the hard disk to install the project manager to is assumed as c:\nectools\bin.

1.3.1 Installation

The project manager does not have a program for installation.

Install it by executing the LHA self-extraction file.

* The LHA is a software developed by Mr. Hideyasu Yoshizaki and is available as a free software.

[Creating a directory]

First, create a directory for the project manager on the hard disk.

Input the MS-DOS command as follows.

```
C>mkdir a:\nectools
C>mkdir a:\nectools\bin
```

[Executing the LHA self-extraction file]

Change the current directory to the directory for installing the program to and execute the self-extraction file.

Input the MS-DOS command as follows.

```
C>cd a:\nectools\bin
C>b:\pm0e210.exe
```

In the case of the Windows Japanese version, input the file name as "pm0j210.exe".

After executing the LHA self-extraction file, check if the following files exist.

```
prjtman.exe     prjtmake.exe    prjtlog.exe     prjtlog.pif
prjtpipe.386    prjtmsg.dll     prjtspin.dll    necdev.ini
prjtedit.exe    prjtedit.dll    prjtman.hlp     prjtedit.hlp
readme.txt      smp.exe
```

[Tool information]

Tool information is set in necdev.ini.

Open necdev.ini with the editor and edit the items with ★ mark according to the development environment.

The contents of necdev.ini are shown below.

- Contents of necdev.ini

```
[78K0.PM]                                        ; Series information section
Name=78K0 Series                                 ; ★ Series name displayed at "Series Name" of {{Project
                                                     Setup}}

Tool1=c:\nectools\bin\st78k0p.dll                ; ★ Pass name and file name of tool DLL
Tool2=c:\nectools\bin\ra78k0p.dll
Tool3=c:\nectools\bin\cc78k0p.dll
Tool4=c:\nectools\bin\lk78k0p.dll
Tool5=c:\nectools\bin\oc78k0p.dll
Tool6=
Debugger=                                        ; ★ Pass name and file name of debugger
Dev=78K0.DEV                                      ; Corresponding device information section name
EditExtension1=Source file(*.c;*.s;*.asm)|*.c;*.s;*.asm
EditExtension2=Include file(*.h;*.inc)|*.h;*.inc
EditExtension3=Make file(*.mak)|*.mak
EditExtension4=Text file(*.txt)|*.txt
EditExtension5=All files(*.*)|*.*
                                                 ; ★ Specification of type displayed at the "List Files of
                                                     Type" of the standard editor
[78K0.DEV]                                        ; Device information section
Dir=c:\nectools\dev                              ; ★ Path name in which the device file exists
78K014=d014.78k                                  ; Left side  :  ★ Device name displayed at "Device
                                                                  Name" of {{Project Setup}}

                                                 ; Right side :  ★ Device file name
```

[Copying]

Next, copy prjtlog.pif and necdev.ini to the Windows directory and prjtpipe.386 to the Windows system directory.

Input the MS-DOS commands as follows.

```
C>copy c:\nectools\bin\prjtlog.pif c:windows
C>copy c:\nectools\bin\necdev.ini c:\windows
C>COPY c:\nectools\bin\prjtpipe.386 c:\windows\system
```

[Changing SYSTEM.INI]

Next, open system.ini with the editor and add device=prjtpipe.386 to the [386Enh] section.

[Installing the sample program]

Change the current directory to the directory in which the sample program is installed and execute the LHA self-extraction file. The directory will be created automatically.

Input the MS-DOS commands as follows.

```
C>cd c:\nectools
C>b:\smp.exe
```

After executing the LHA self-extract file, the directory will have the following structure.

```
smp\ideal\example\   cd_chg.lib
                     exam0000.idm
                     exam0001.idm
                     example1.idl
                     example2.idl
                     example3.idl
                     pick_up.fnc
                     sub_pu.func
smp\ideal\org\       cd_chg.lib
                     exam0000.idm
                     exam0001.idm
                     example1.idl
                     example2.idl
                     example3.idl
                     pick_up.fnc
                     sub_pu.func
```

[Registering the group]

Register the project manager group and program in the program manager. Registration is described below assuming that Windows has already been started.

First, register the group to create icons.

<1> Select [New] from the [File] menu of the program manager.
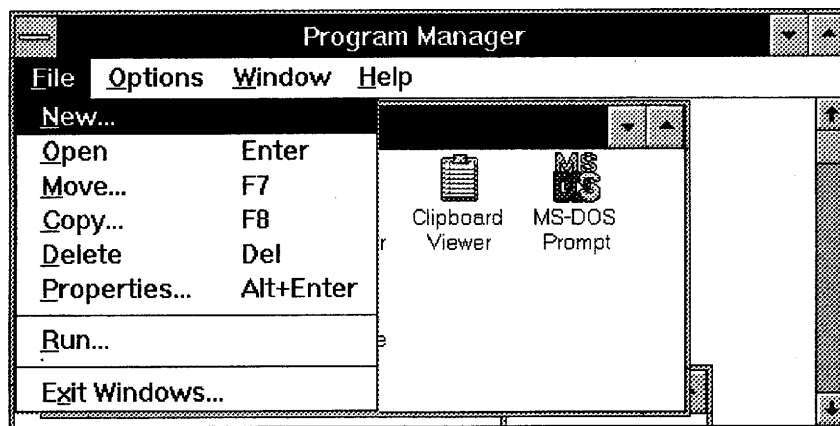
<2> Select "Program Group" in the dialog displayed and select "OK".

```
┌─────────────────────────────────────────────────┐
│ ▔  New Program Object                             │
├─────────────────────────────────────────────────┤
│  ┌─New──────────────────────┐   ┌──────────┐     │
│  │  ◉ Program Group          │   │    OK    │     │
│  │  ○ Program Item           │   └──────────┘     │
│  │                           │   ┌──────────┐     │
│  └──────────────────────────┘   │  Cancel  │     │
│                                  └──────────┘     │
│                                  ┌──────────┐     │
│                                  │   Help   │     │
│                                  └──────────┘     │
└─────────────────────────────────────────────────┘
```
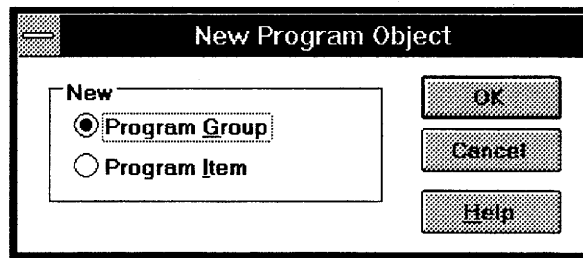
<3> Input the group name at "Description" in the dialog displayed. If the window is minimized, the name input is displayed below the icon. If the window is opened, the group name is displayed as the title of the window. Input the name of the file to be used for saving the information on group and program at "Group File". If the drive and directory are not specified, the group is created in the directory under the Windows directory.

Description : NEC Tools
Group File : nectools.grp

```
┌───────────────────────────────────────────────────────┐
│ ▔  Program Group Properties                            │
├───────────────────────────────────────────────────────┤
│  Description:   │NEC Tools          │   ┌──────────┐    │
│                 └───────────────────┘   │    OK    │    │
│  Group File:    │nectools.grp       │   └──────────┘    │
│                 └───────────────────┘   ┌──────────┐    │
│                                         │  Cancel  │    │
│                                         └──────────┘    │
│                                         ┌──────────┐    │
│                                         │   Help   │    │
│                                         └──────────┘    │
└───────────────────────────────────────────────────────┘
```
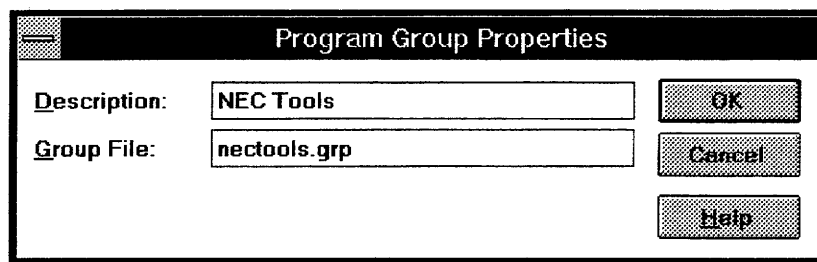
<4> The group with the title NEC Tools is displayed in the program manager. When the window is open and the control box at the top left of the box is double-clicked, the window closes. When the window is closed, double-clicking the icon will open the box.

```
┌──────────────────────────────────────────────────────┐
│ ▔         Program Manager                        ▼ ▲  │
├──────────────────────────────────────────────────────┤
│ File   Options   Window   Help                        │
├──────────────────────────────────────────────────┬───┤
│ ▔              NEC Tools                     ▼ ▲   │ ▲ │
│                                                   │   │
│                                                   │   │
│                                                   │   │
│                                                   │   │
│                                                   │   │
│                                                   │   │
│  ┌────────────────────────────────────────────┐  │   │
│  │ Setup                                       │  │   │
│  └─────────────────────────────────────────┐  │  │   │
│                                              ││ │  │ ▼ │
└──────────────────────────────────────────────┴──┴───┘
```
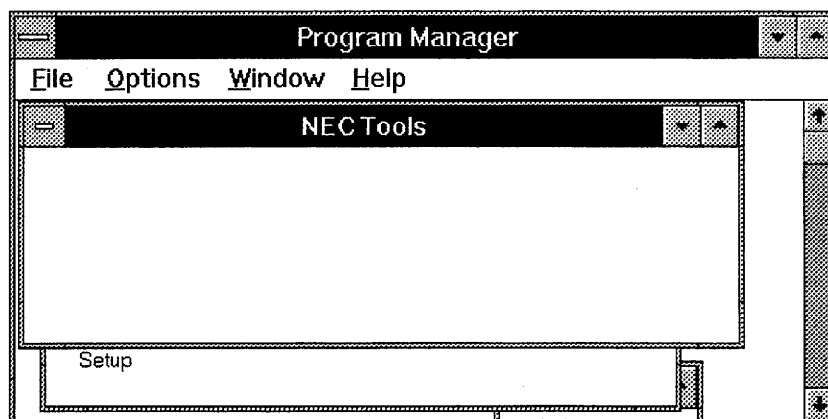
[Registering the Program]

Register the project manager as an icon.

<1> Open the project manager group created or select the group so that the group name is highlighted.

<2> Select "Program Item" from the "New Program Object" menu of the program manager, and select "OK".

```
┌─────────────────────────────────────────┐
│ ═══    New Program Object                │
├─────────────────────────────────────────┤
│ ┌─New─────────────────────┐  ┌─────────┐ │
│ │  ○ Program Group        │  │   OK    │ │
│ │  ⦿ Program Item         │  └─────────┘ │
│ │                         │  ┌─────────┐ │
│ └─────────────────────────┘  │ Cancel  │ │
│                              └─────────┘ │
│                              ┌─────────┐ │
│                              │  Help   │ │
│                              └─────────┘ │
└─────────────────────────────────────────┘
```
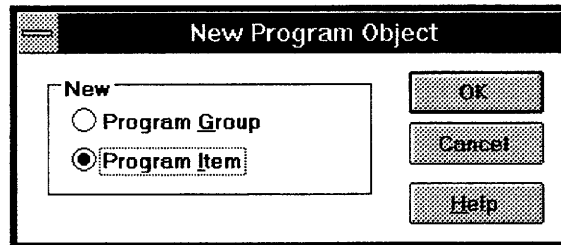
<3> Input the name of the icon at "Description" of the dialog displayed. The name input is displayed below the icon when the window is opened. Input the path name and file name where the program (prjtman.exe) was copied at "Command Line" and input the directory in which the program is saved at "Working Directory" (execution directory). Then click "Change Icon" to choose the desired icon.
For example, input as follows.

```
Description        :  Project Manager
Command Line       :  c:\nectools\bin\prjtman.exe
Working Directory:  c:\nectools\bin
```

```
┌───────────────────────────────────────────────────────────┐
│ ═══              Program Item Properties                   │
├───────────────────────────────────────────────────────────┤
│  Description:      ┌─────────────────────────┐  ┌────────┐ │
│                    │ Project Manager         │  │   OK   │ │
│                    └─────────────────────────┘  └────────┘ │
│  Command Line:     ┌─────────────────────────┐  ┌────────┐ │
│                    │ c:\nectools\bin\prjtman.exe│ │ Cancel │ │
│                    └─────────────────────────┘  └────────┘ │
│  Working Directory:┌─────────────────────────┐  ┌────────┐ │
│                    │ c:\nectools\bin         │  │ Browse │ │
│                    └─────────────────────────┘  └────────┘ │
│  Shortcut Key:     ┌─────────────────────────┐ ┌──────────┐│
│                    │ None                    │ │Change Icon││
│                    └─────────────────────────┘ └──────────┘│
│     [icon]          ☐ Run Minimized            ┌────────┐  │
│                                                │  Help  │  │
│                                                └────────┘  │
└───────────────────────────────────────────────────────────┘
```

8
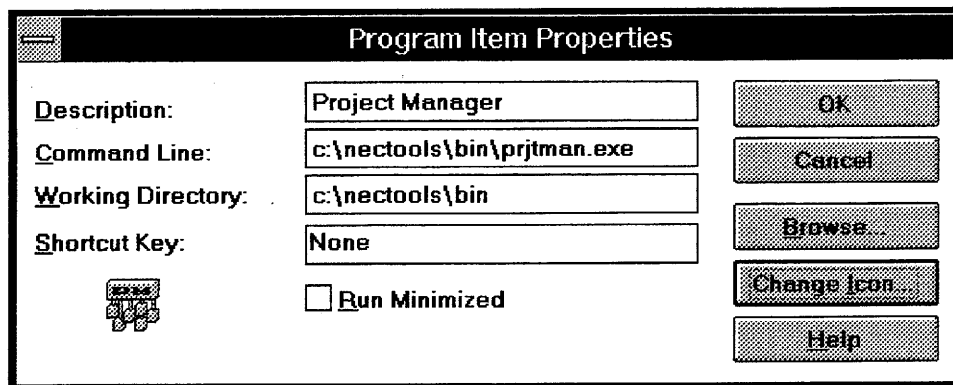
<4> After setting, select "OK". The following screen will be displayed, indicating that the icon has been registered.
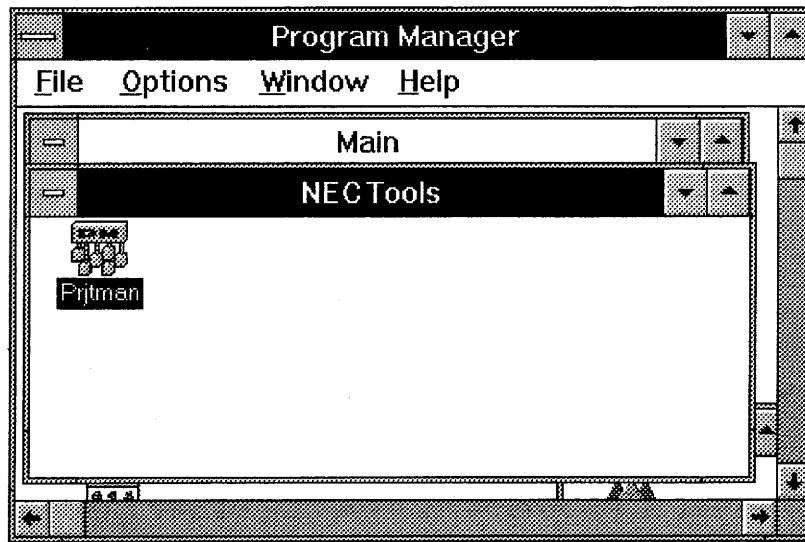
1.4 Starting and Exiting

1.4.1 Starting

The project manager is an application software for Windows.
Be sure to execute it after starting Windows.

[Starting the project manager]

When the icon (Project Manager) in the project manager group registered during installation is double-clicked, the following screen will be displayed.

This screen is the starting screen of the project manager.

Figure 1-2. Starting Screen of Project Manager
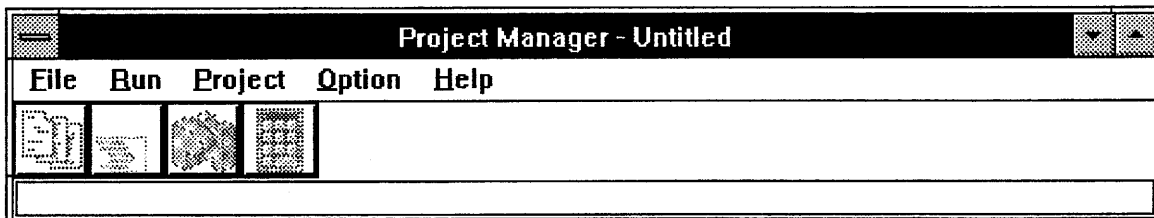
1.4.2 Exiting

There are two ways of exiting the project manager.

<1> Use the icon at the top left of the project manager (this is called control box). The screen can be closed by double-clicking the control box with the mouse.

Figure 1-3. Exiting the Project Manager (Control Box)

Control Box
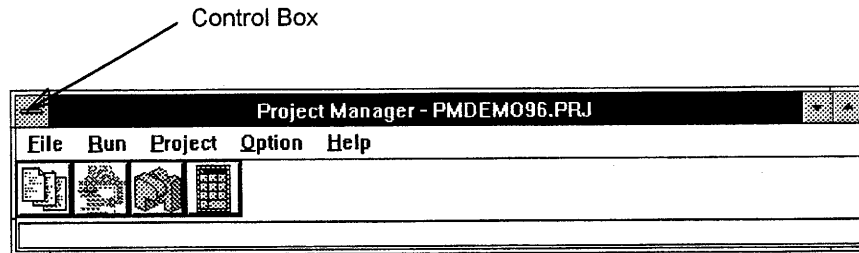
<2> The screen can be closed by selecting the Exit command in the File menu.

Figure 1-4. Exiting the Project Manager (Menu)

Click the file menu

Pull-down menu

Exit command
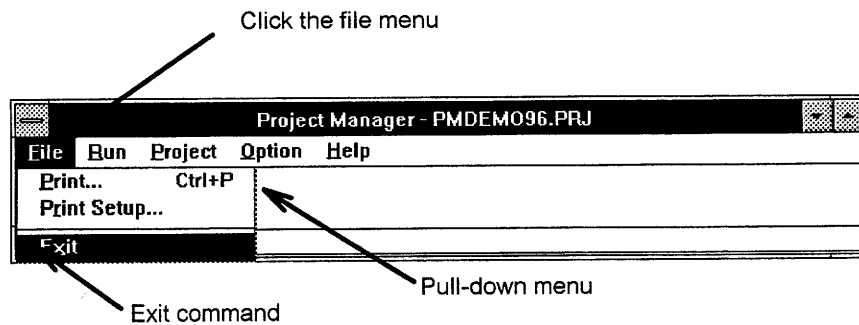
If the project setting has been changed, the following message will be displayed.

Figure 1-5. Message for Exiting the Project Manager

C:\nectools\project\78k0\sample.prj
The project is changed. Save the project ?

Yes   No   Cancel

10
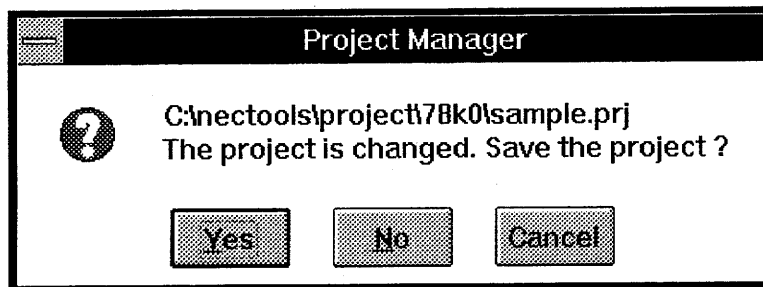
CHAPTER 2   MENU LISTS AND BUTTONS

This chapter describes the menu lists and buttons of the project manager.

2.1   Menu Lists

The project manager has the following menus.

(1) [File] menu

Menu for printing the project information and exiting the project manager.
This menu has the following sub menus.

- [Print]   : Prints the current project information
- [Print Setup]: Registers the type and attribute of the printer.
- [Exit]   : Exits the project manager. If the project information has been changed, asks whether to save
                     the information or not.

(2) [Run] menu

Menu for executing tools.
This menu has the following sub menus.

- [Build and Debug]: Executes build and debug continuously.
- [Edit]   : Executes the editor which edits the source file.
- [Build]   : Executes prjtmake which creates programs.
- [Stop Build]   : Stops build.
- [Debug]   : Executes the debugger which debugs programs.
- [Rebuild]   : Builds all targets forcibly.
- [Build Target]   : Builds only the specified targets.
- [Tool title]   : Executes the tools registered with [Tools Setup]. Up to 10 tools can be registered.

(3) **[Project] menu**

Menu for executing, maintaining, and managing projects.
This menu has the following sub menus.

- [New] : Initializes project settings and starts setting new projects.
- [Open] : Opens the specified project files and sets the project information.
- [Save] : Saves the currently set information.
- [Save As] : Saves the currently set information in the specified files.
- [Project] : Sets the project information.
- [Source Files] : Sets the source files composing the project.
- [Make a Make File] : Specifies the creation of the make file used for [Build]. Normally, created automatically.
- [Memo] : Sets the history of the project.
- [Project name] : Starts the project displayed on the menu. The latest 3 projects will be displayed.

(4) **[Option] menu**

Menu for setting options.
This menu has the following sub menus.

- [Project Manager Options] : Registers the options of the project manager and the editors used for projects.
- [Assembler options] : Sets options such as compiler, assembler, linker, etc. The contents differ according to the series.
- [Tools] : Registers the tools used frequently by the user.
- [Debug] : Switches between the debug and non-debug modes.
- [Status Bar] : Switches whether or not to display the status bar.
- [Tool Box] : Switches between the normal display and tool box display of the project manager window.
- [Source List] : Switches whether or not to display the source list dialog box.

(5) [Help] menu

Menu which displays help information.

This menu has the following sub menus.

- [Contents]   : Displays the help contents.
- [Search for Help on]   : Displays the help keywords.
- [How to Use Help]   : Displays the usages of Windows help.
- [About Project Manager] : Displays the version of the project manager.

Figure 2-1. Project Manager Menu
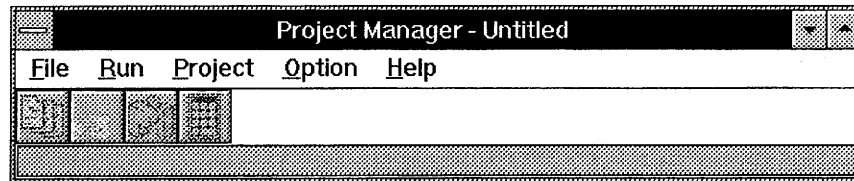
2.2 Buttons

The project manager has the following buttons.

  Displays the source list dialogs.

  Does not display the source list.

  Starts the standard editor.

  Executes build.

  Displays the project manager window in the tool box.

  Displays the project manager window normally.

[MEMO]

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CHAPTER 3   FUNCTIONS

This chapter describes the functions of the project manager.

3.1   File

3.1.1   Print

[Function]

Prints the current project information.

[Description]

(1) When [Print] is selected, the {{Print}} dialog (Figure 3-1) will be displayed.

Figure 3-1. {{Print}} Dialog
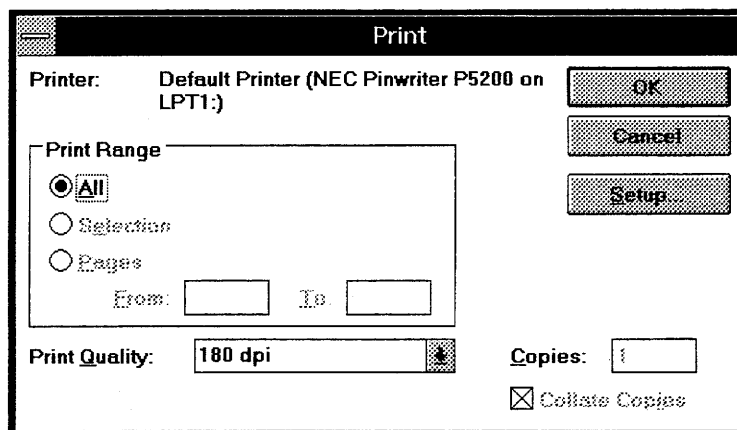
(2) {{Print}} Dialog

    <1> Copies: Specify the number of sets to be printed.

    <2> Print Range: Only "All" can be selected.

    <3> When "OK" is selected, the contents set will be printed in the text format. If the printer has not been set, perform [Set the Printer] (See 3.1.2 Print setup.)

    <4> When "Cancel" is selected, the screen before the dialog was displayed will be displayed.

    <5> When "Print Setup" is selected, the [Print Setup] process will be executed.

(3) During printing, the {{Printing}} dialog will be displayed.

Figure 3-2. {{Printing}} Dialog
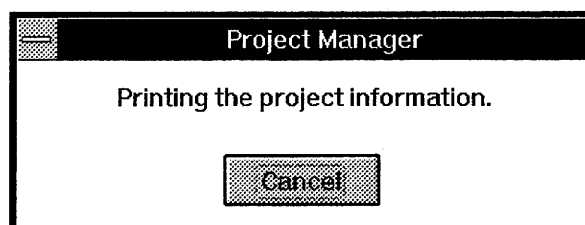
(4) {{Printing}} dialog

    <1> By selecting "Cancel", printing can be ended forcibly.

    <2> When printing ends, the {{Printing}} dialog closes automatically.

(5) After ending printing, the settings will not be changed.

Figure 3-3. [Print] Menu
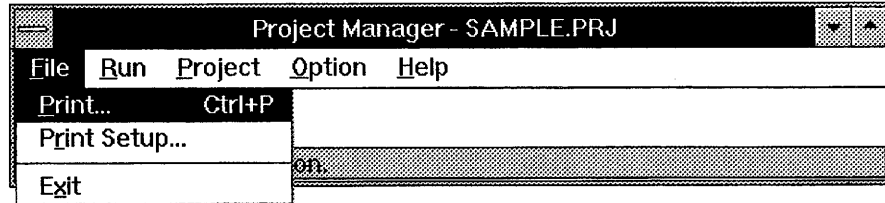
3.1.2 Print setup

[Function]

Sets the conditions of the printer (model, attributes).

[Description]

(1) When [Printer Setup] is selected, the {{Print Setup}} dialog will be displayed.

Figure 3-4. {{Print Setup}} Dialog
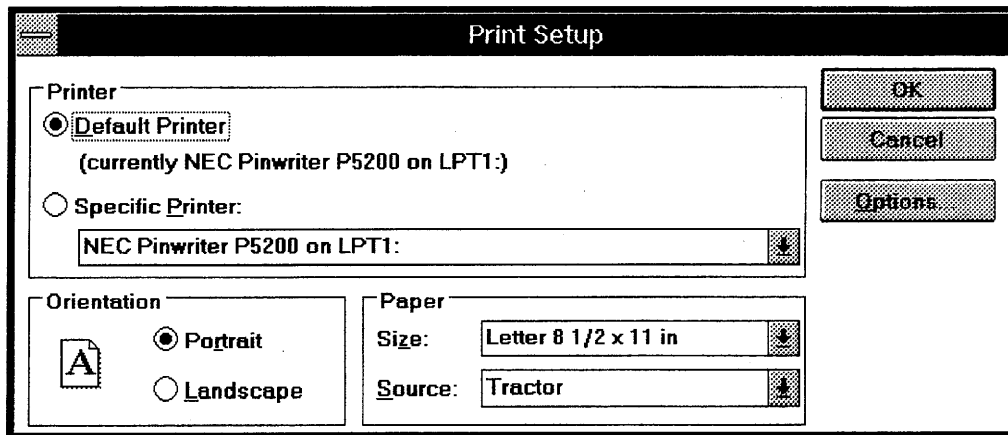
(2) {{Print Setup}} Dialog

<1> If "Default Printer" is set, the printer set as the default printer in the {{Print Setup}} dialog of the system will be set.

<2> If "Specific Printer" is selected, the printer selected from the drop down list will be set.

<3> "Orientation" is used for specifying whether to place the paper vertically or horizontally.

<4> "Size" is used to select the paper size from the paper sizes provided by the printer device driver.

<5> "Source" is used for specifying the source of the paper.

<6> When "OK" is selected, the model and attributes of the printer specified can be set.

<7> When "Cancel" is selected, the screen before the dialog was displayed will be displayed.

<8> "Option" is used for selecting the driver's printing options.

Figure 3-5. "Printer Setup" Menu
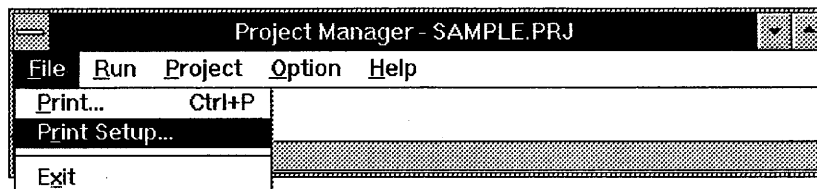
3.1.3 Exit

[Function]

Exits the project manager.

[Description]

(1) When [Exit] is selected, the project manager will be exited.

(2) If the project information has been changed, the following message will be displayed when [Exit] is selected.

Figure 3-6. Message When Project Has been Changed
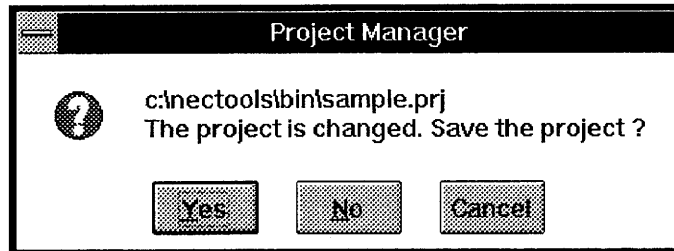
(3) Message when project has been changed

<1> When "Yes" is selected, if a file of the same name exists, [Save] (See 3.3.3 Save) will be executed. If the file does not exist [Save As] (See 3.3.4 Save As) will be executed. When these processes end, the settings of the directory path will be saved in the initial file and the project manager will be exited. If "Cancel" is selected at the "Save As" dialog, the state before "Exit" was selected will be returned.

<2> When "No" is selected, the project manager will be exited without saving the current project information.

<3> When "Cancel" is selected, the state before "Exit" was selected will be returned.

(4) When Windows is exited, the process when "Exit" was selected will be carried out.

Figure 3-7. [Exit] Menu
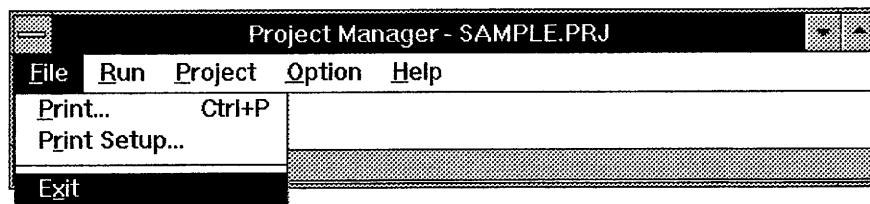
3.2 Run

3.2.1 Build and debug

[Function]

Performs batch processing from build to debug.

[Description]

(1) When [Build and Debug] is selected, the editor is checked if it has been started. If it has not been started, batch processing is continued. If it has been started, the message {"File name" is changed. Save file before closing?} will be displayed.

(2) Message {"File name" is changed. Save file before closing?}

<1> When "Yes" is selected, the request to save the file being processed and to quit the editor will be sent to the editor. Until the notification of quit has been received from the editor, {Source file will be saved and editor quit.} will be displayed at the status bar, and all the menus will be displayed in a light color except for the following [Help] menu to disable selection. When the notification of quit is received from the editor, batch processing is executed. At this time, the files being processed by the editor will be saved.

<2> When "No" is selected, batch processing will be executed. At this time, the files being processed by the editor will not be saved.

<3> When "Cancel" is selected, the state before [Build and Debug] was selected will be returned.

(3) Build and then debug will be carried out automatically.

(4) The make process in build will be carried out at the build window.

<1> While build is being executed, the message "Currently build" will be displayed at the status bar.

<2> If build ended normally, the message will disappear and debug will be carried out.

<3> To stop build, select [Run]-[Stop Build] (See 3.2.4 Stop Build).

<4> If build did not end normally, or [Stop Build] has been selected, batch processing is ended at that point.

(5) When debug ends, the batch processing also ends.

[Caution]

• If [Run]-[Edit], [Run]-[Build], [Run]-[Debug] cannot be executed, the [Run]-[Build and Debug] menu will be displayed in a light color, and batch processing will not be performed even if this menu is selected.

3.2.2 Edit

[Function]

Starts the editor.

[Description]

(1) When [Run]-[Edit] or the edit button ⬚ is selected, the editor set in the project will be started up. The editor can be set at the "Project Manager Options" menu (See 3.4.1 Project Manager Options.). The default is prjtedit.exe with a function for communication with the project manager.

(2) If the editor is already being executed, the input focus will be moved to the editor window.
If the editor is displayed as an icon, the normal screen will be displayed.

(3) If the editor cannot be started, the following message will be displayed.

Figure 3-8. Message When Editor Cannot be Started
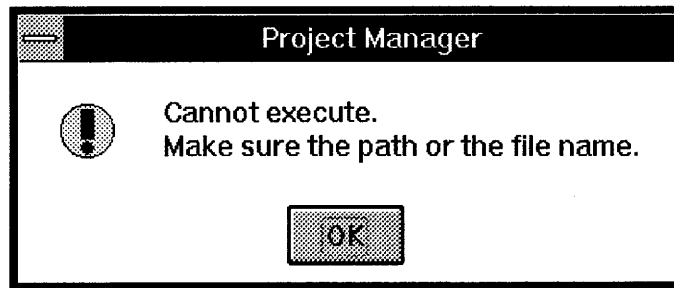
When the message is closed, the state before [Run]-[Edit] was selected will be displayed.

(4) If there is only one file in the project, the file will be opened at the same time the editor is started.

[Caution]

• At the edit button, the editor icon will be displayed. The edit button picture changes according to the editor used. The edit button above is prjtedit.exe, the standard editor of the project manager.

Figure 3-9. [Edit] Menu
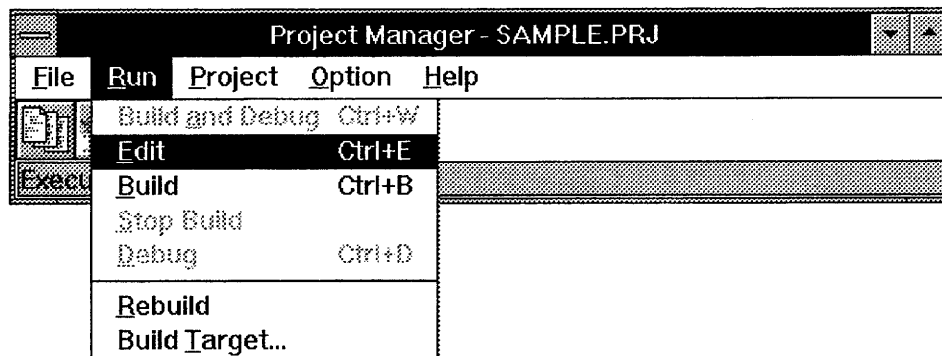
3.2.3 Build

[Function]

Starts build and a series of language programs.

[Description]

(1) When [Run]-[Build] or the Build button ▓ is selected, the make file is automatically created and build is started.

    <1> To stop build, select [Run]-[Stop Build] (See 3.2.4 Stop Build.) or the Stop button ▣ in the Build window.

(2) The make file is automatically created by the project manager. Use "Project file name. mak" for the make file name.

    <1> When the make file is automatically created, among the files on which the source file depends on the source files, only those that were changed after the previous make file was created will be scanned.

    <2> By selecting [Project]-[Make a Make File] (See 3.3.7 Make a Make File.), creation of make file can be specified. In this case, dependence of file is checked for all source files registered in the project and the make file is completely re-created.

(3) The build function executes the compiler, assembler, linker, and other tools according to the make file.

(4) If build cannot be started up, the following message will be displayed.

Figure 3-10. Message When Build Cannot be Started
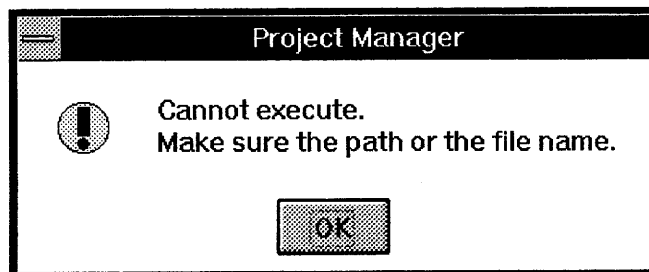
(5) The message "Run" will be displayed in the status bar while build is being executed and the whole menu except [Run]-[Stop Build] will be displayed in a light color to disable selection. When build ends, the message displayed will disappear and the normal menu will be returned.

(6) The message output from the language processing tool during build is output to the log file. The log file name created in the project directory is "project file name.plg".

(7) If the following process is carried out before performing build, the {{Confirmation of Rebuild}} message box will be displayed.
   • Change of debug mode
   • Change of series name and device name in setting of project
   • Change of tool options

Figure 3-11. {{Confirmation of Rebuild}} Message Box
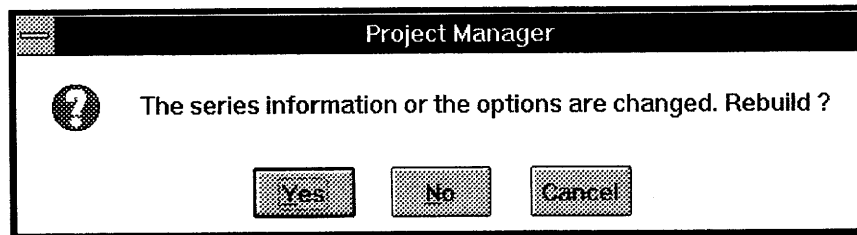
(8) {{Confirmation of Rebuild}} Message Box
   <1> When "Yes" is selected, rebuild is carried out. (See 3.2.6 Rebuild.)
   <2> When "No" is selected, the normal build is carried out.
   <3> When "Cancel" is selected, the state before [Run]-[Build] was selected will be returned.

[Caution]
   • If the file for executing build cannot be found, the [Run]-[Build] menu will be displayed in a light color and the Build button will not be displayed. Build will not be started even when the [Build] menu is selected.

Figure 3-12. [Build] Menu
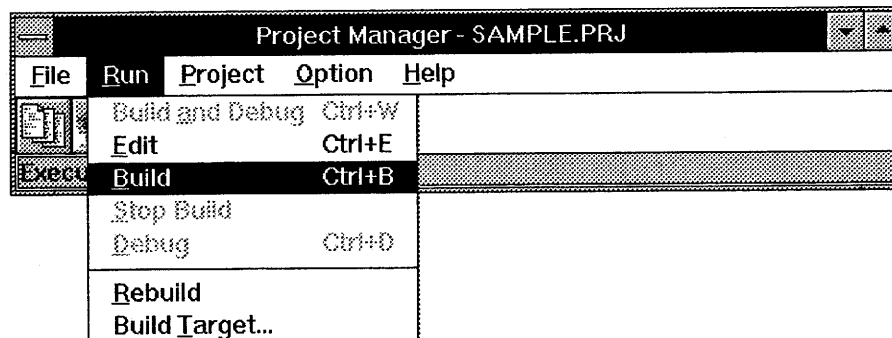
3.2.4 Stop build

[Function]

Stops the build process while it is being executed.

[Description]

(1) When [Run]-[Stop Build] is selected, the build process will be stopped while it is being executed.

    <1> In batch processing, when build is stopped, batch processing will also be stopped at the same time.

    <2> When amending the source from the debugger, [Build] is stopped first before the error is notified to the debugger.

[Caution]

- If build is not being carried out, the [Run]-[Stop Build] menu will be displayed in a light color to disable selection. If during build, the [Run]-[Stop Build] menu will be displayed normally to enable selection.
- When [Stop Build] is selected, or when build has ended, [Stop Build] will be ignored when executed.
- When [Run]-[Stop Build] is selected, if a command has already been executed, build will be stopped after the command has ended. These commands belong to the command line such as ra78k0.

Figure 3-13. [Stop Build] Menu
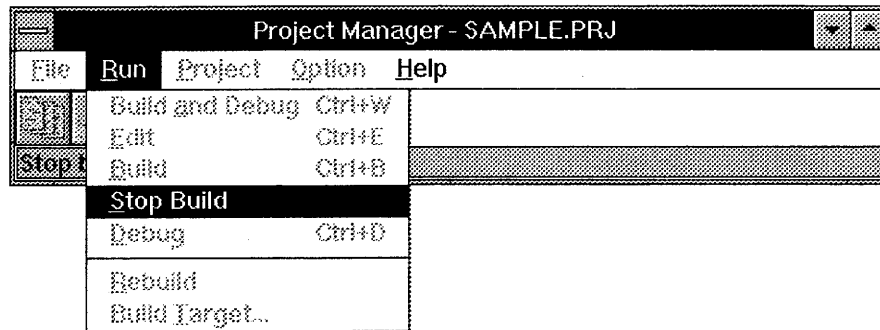
3.2.5 Debug

[Function]

Starts the debugger.

[Description]

(1) When [Run]-[Debug] or the Debug button is selected, the debugger is started.

(2) If the debugger has already been started, the focus is moved to the debugger window.

(3) If the debugger cannot be started, the message {Cannot start debugger. Check path and file name.} will be displayed.

[Caution]

- If the execution file of the debugger cannot be found, the [Run]-[Debug] menu will be displayed in a light color and the Debug button will not be displayed. The debugger will not be started even if the [Debug] menu is selected.
- The debugger icon is displayed at the Debug button. The Debug button picture differs according to the debugger used. The debugger button shown above is the ID78K0 (optional), the debugger for the 78K0 series.

3.2.6 Rebuild

[Function]

Recreates all targets unconditionally.

[Description]

(1) When [Run]-[Rebuild] is selected, build is started for all targets.

(2) Hereafter, the same steps as "3.2.3 Build" are performed except for the creation of all targets unconditionally.

Figure 3-14. [Rebuild] Menu
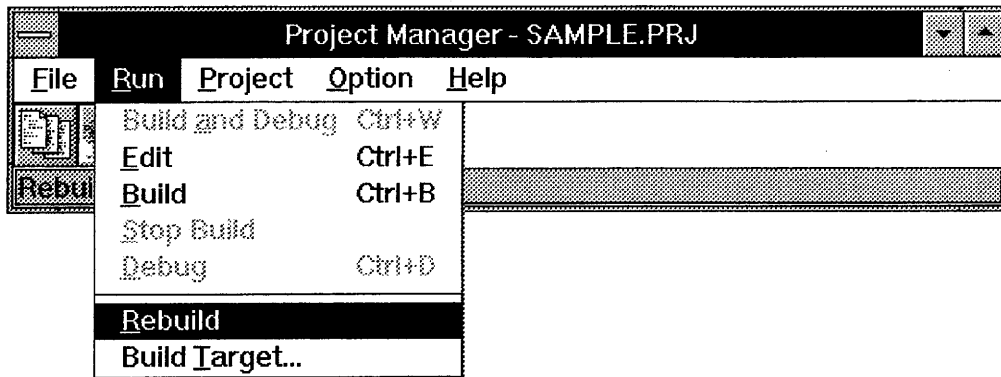
3.2.7 Build target

[Function]

Of the targets in the make file, builds only the specified targets.

[Description]

(1) When [Run]-[Build Targets] is selected, the [Targets] dialog will be displayed. After specifying the target to be built in this dialog, select "Build". The specified target will be created.

Figure 3-15. {{Targets}} Dialog
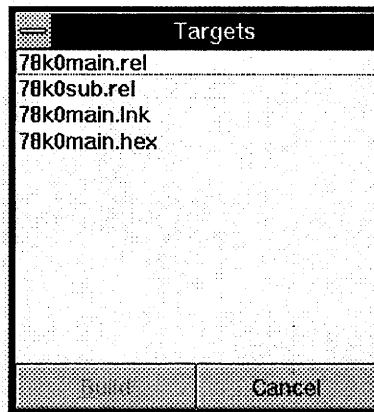
(2) {{Targets}} Dialog

<1> "Build" is displayed in a light color and cannot be selected until the target has been specified.

<2> When "Build" is selected, the build of the specified target will be started.

<3> When "Cancel" is selected, the state before [Run]-[Build Target] was selected will be returned.

(3) Hereafter, the same steps as "3.2.3 Build" are performed except for the creation of only the specified targets.

Figure 3-16. [Build Target] Menu
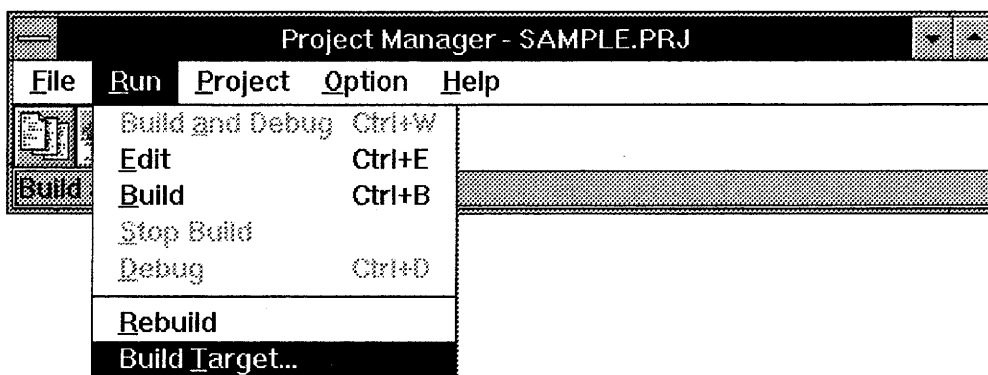
3.2.8 Amending source

[Function]

Amends the source as requested by the debugger.

[Description]

(1) When the amend request is received from the debugger, if the project manager is carrying a process, because the request cannot be realized immediately, an error is notified to the debugger. If the project manager is not carrying out any process, the amend source mode will be set.

(2) The amend file process during editing is not managed by the project manager until it is notified by the editor. When it receives a notification of end from the editor, build is executed.

<1> Until the end message from the editor is received, "Waiting for editor to end" will be displayed in the status bar.

<2> If currently editing in the amend source mode, the whole menu except the following will be displayed in a light color, disabling selection.

- [File] menu
- [Exit] menu
- [Project] menu
- [Save] menu
- [Save As] menu
- [Help] menu

<3> If the project manager is exited during editing in the amend source mode, a request to end is notified to the editor and an error is notified to the debugger.

(3) The message output from the language processing program during build is displayed in the build log window.

<1> While build is being executed, the message "Executing build" will be displayed in the status bar.

<2> If currently build in the amend source mode, the whole menu except [Run]-[Stop Build] menu and [Help] menu will be displayed in a light color to disable selection.

<3> When build ends, the log window disappears and the results are notified to the debugger.

<4> To stop build, select [Run]-[Stop Build] or select the Stop Build button in the build log window.

<5> If the build did not end normally or when "Stop Build" is selected, the error is notified to the debugger.

(4) If the results are notified to the debugger, the amend source mode of the project manager is canceled and the original menu, etc. is returned.

[Caution]

- If an editor other than standard is set in the [Option]-[Project Manager Options] menu, the project manager cannot receive the notification of end from the editor in respect to the amend source request from the debugger.

Therefore, the project manager returns an error in return for the request to amend source from the debugger.

3.2.9 Tool

[Function]

Runs the tools registered by the user.

[Description]

(1) The menu displayed below the [Run] menu displays the tools registered in the {{Tools Setup}} dialog. When these tools are selected, the corresponding commands are executed.

    <1> If a registered tool cannot be started, the following message will be displayed.

Figure 3-17. Message When Registered Tool Cannot be Started
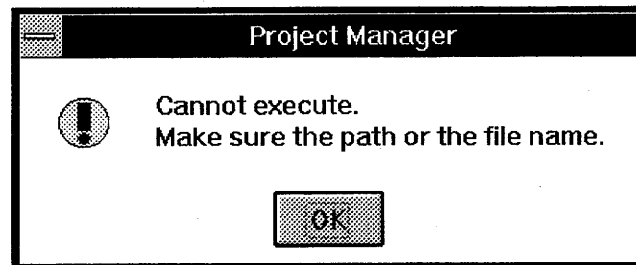
    <2> If no tool has been registered at [Tools Setup], nothing is displayed in the tool menu.

Figure 3-18. Example of Tool Menu

Tool
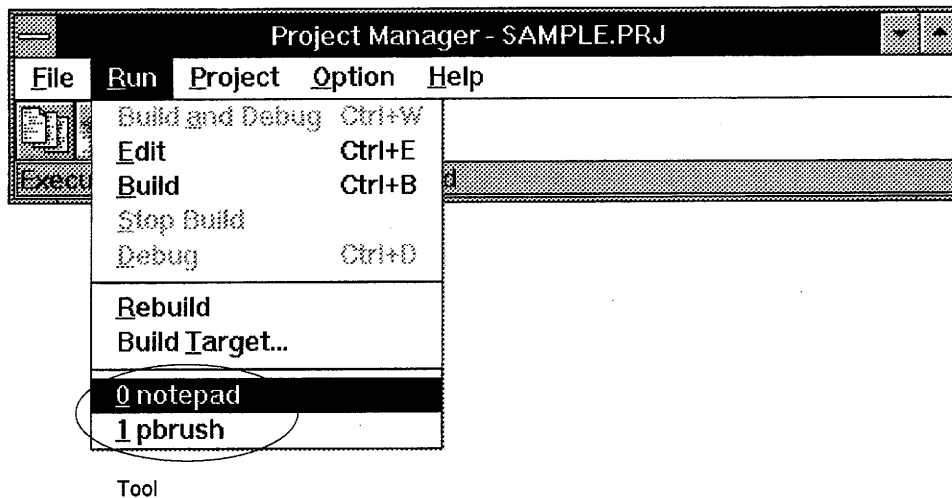
3.3 Project

3.3.1 New

[Function]

Initializes the project settings and starts the setting of the new project.

[Description]

(1) When [New] is selected, if the project information has been changed, the {{Project Changed}} dialog will be displayed.

Figure 3-19. {{Project Changed}} Dialog
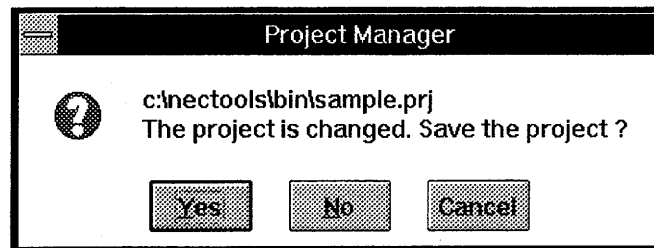
(2) When [New] is selected, the current project information will be cleared. The presence of initialized files will also be checked and if no such files are found, the following error message will be displayed and the project manager will be exited (See [Caution].)

Figure 3-20. Error Message When No Initialized File Has been Found
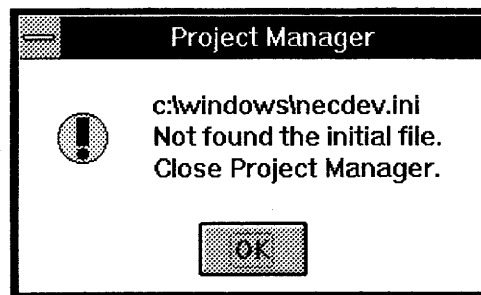
(3) In [New], settings are performed in the following order.
- Project Setup (See 3.3.5 [Project Setup].)
- Source Files Setup (See 3.3.6 [Source File Setup].)

Regardless of whether "OK" or "Cancel" is selected in these settings, the following process will be carried out. When all settings have been completed, "New" is ended. The project is set until the state where build can be carried out.

(4) {{Project Changed}} dialog message

    <1> When "Yes" is selected, if a file of the same name exists, [Save] (See 3.3.3 Save) will be executed. If the file does not exist [Save As] (See 3.3.4 Save As) will be executed. When these processes end, the [New] process will be carried out. But if "Cancel" is selected in the {{Save As}} dialog, the state before [New] was selected will be returned.

    <2> When "No" is selected, the [New] process will be carried out without saving the current project information.

    <3> When "Cancel" is selected, the state before [New] was selected will be returned.

[Caution]

(1) If the NEC tool information file does not exist in the Windows directory, the project manager will not run. Redo setup.

(2) The dialog which checks for changes in the project information is taken to have changed at a point when the dialog process ends by selecting the "OK" button after changing the dialog contents. If the "OK" button is selected when the dialog contents have not been changed, the project information will not be taken to have changed.

Of the functions of the project manager, the dialogs for checking changes in the project information are as follows.

    <1> [Project]
- {{Project Setup}} Dialog
- {{Source Files Setup}} Dialog
- {{Directory}} Dialog
- {{Memo}} Dialog

    <2> [Option]
- {{Tools Setup}} dialog

(3) The contents of the menus with the check marks change at the point they have been selected. Even if they are selected another time and returned to the original settings, their contents will be changed. These menus are as follows.
- [Option] - [Debug]
- [Option] - [Status Bar]
- [Option] - [Source List]
- [Option] - [Tool Box]

Figure 3-21. [New] Menu

Project Manager - SAMPLE.PRJ		

File	Run	Project	Option	Help

New	Ctrl+N
Open...	Ctrl+O
Save	Ctrl+S
Save As...	Ctrl+A
Project...	
Source Files...	
Make a Make File	Ctrl+M
Memo...	
1 C:\NECTOOLS\BIN\SAMPLE.PRJ	
2 C:\NECTOOLS\PROJECT\78K0\SAMPLE.PRJ	
3 C:\NECTOOLS\PROJECT\78K0\DEMO.PRJ	

Create a ne
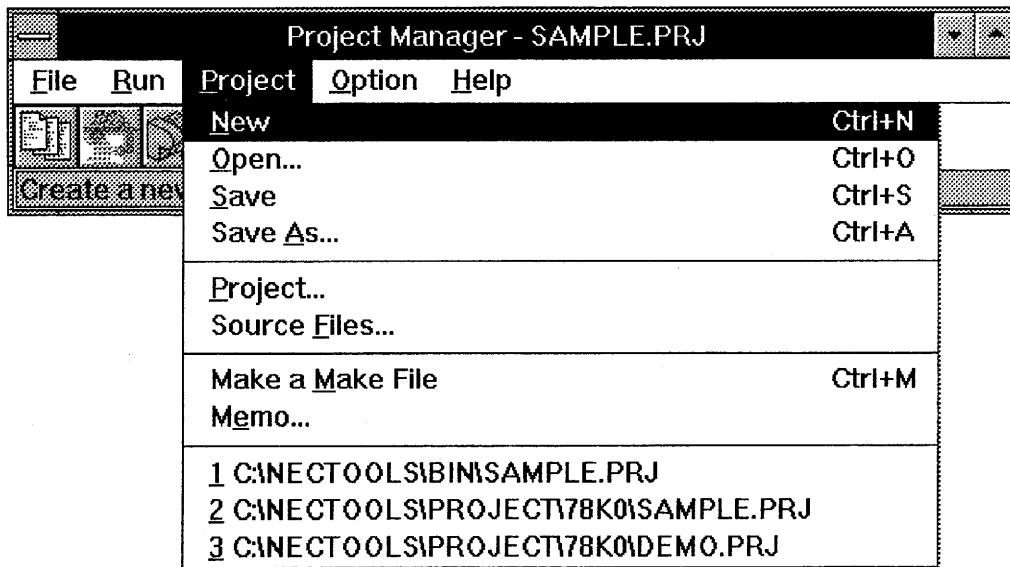
3.3.2 Open

[Function]

Sets the contents of the specified file as the project information.

Based on the display states of the windows saved in the file, the states of these windows when the previous project was closed are restored.

[Description]

(1) When [Open] is selected, the [Open] dialog will be displayed.

Figure 3-22. {{Open}} Dialog
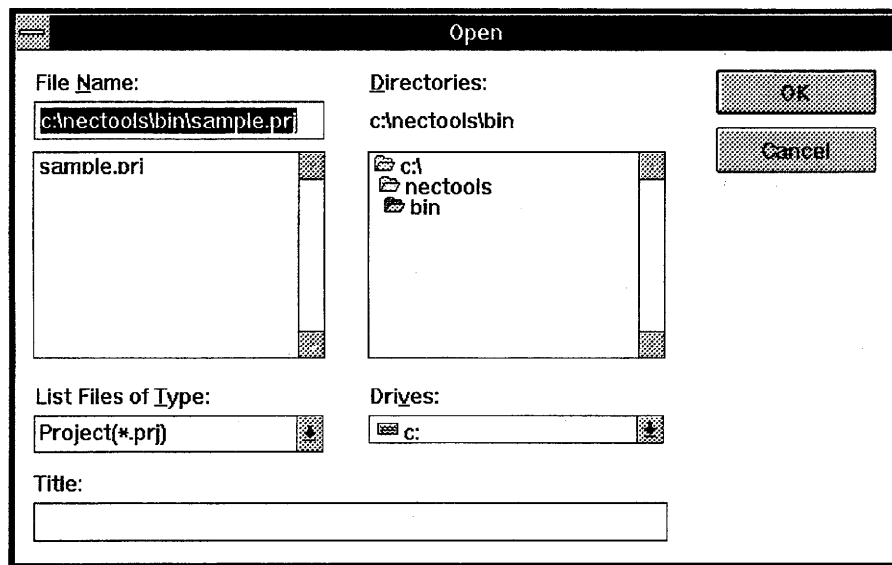
(2) {{Open}} dialog

    <1> The File Name is displayed in the text box or list box.

    <2> The file name immediately after the dialog is displayed is "*.prj", and the list displays the "*.prj" files of the project directory.

    <3> For File Name, one file name, several file names (wild card), directory, or drive can be specified.

    <4> If one file name is specified, and "OK" is selected, the file will be selected and this dialog will be exited.

    <5> If several file names are specified, and "OK" is specified, the files will be displayed in the list box.

    <6> When a directory is set to the File Name, and "OK" is selected, the files in the directory will be displayed in the list box for files to be selected from that directory.

    <7> When a drive is set to File Name, and "OK" is selected, the files in the drive will be displayed in the list box for files to be selected from that drive.

    <8> When the list box is clicked, a file in the list box is selected and displayed, and displayed in the text box. If no project file is specified, the title set when saving a file in Title will be displayed. If no title is set, the message {No title} will be displayed in Title. If files other than the project file are selected, the message {No project file} will be displayed in Title.

    <9> "List Files of Type" displays "Project (*.prj)". When this is selected, the text box displays "*.prj", followed by a list of files.

    <10> The directory consists of current display and hierarchical display. The file name and list of files are displayed according to "List Files of Type" when a directory is being selected.

<11> For Drives, select the drive from the list box (not editable). If the drive has been changed, the file name and directory will also be displayed accordingly.

<12> As Title is the display area, it cannot be edited. The set title will be displayed here. If no title, it will be empty.

<13> When "Cancel" is selected, the state before "Open" is set.

(3) The contents of the file selected at the {{Open}} will be set as the project information.

<1> If an error occur while the selected file is read, an error message will be displayed. After the error message is closed, the data with the error will be set to the default value and the process will be continued.

(4) If the project information has been changed when [Open] is selected, the following message will be displayed.

Figure 3-23. {{Project Changed}} Dialog
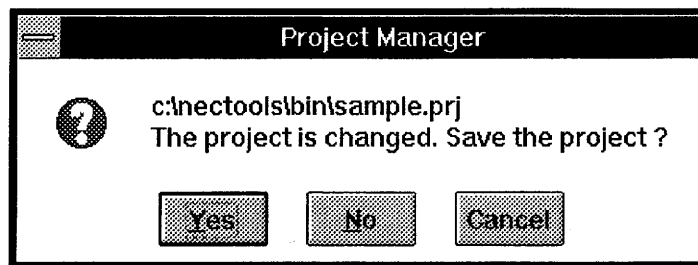
(5) {{Project Changed}} dialog

    <1> When "Yes" is selected, if a file of the same name exists, [Save] (See 3.3.3 Save) will be executed. If the file does not exist [Save As] (See 3.3.4 Save As) will be executed. If "Cancel" is selected in the "Save As" dialog, the state before [Open] was selected will be returned.

    <2> When "No" is selected, the [Open] process will be carried out without saving the current project information.

    <3> When "Cancel" is selected, the state before [Open] was selected will be returned.

Figure 3-24. [Open] menu

Project Manager - SAMPLE.PRJ	
File **Run** **Project** **Option** **Help**	
New	Ctrl+N
Open...	Ctrl+O
Save	Ctrl+S
Save As...	Ctrl+A
Project...	
Source Files...	
Make a Make File	Ctrl+M
Memo...	
1 C:\NECTOOLS\BIN\SAMPLE.PRJ	
2 C:\NECTOOLS\PROJECT\78K0\SAMPLE.PRJ	
3 C:\NECTOOLS\PROJECT\78K0\DEMO.PRJ	
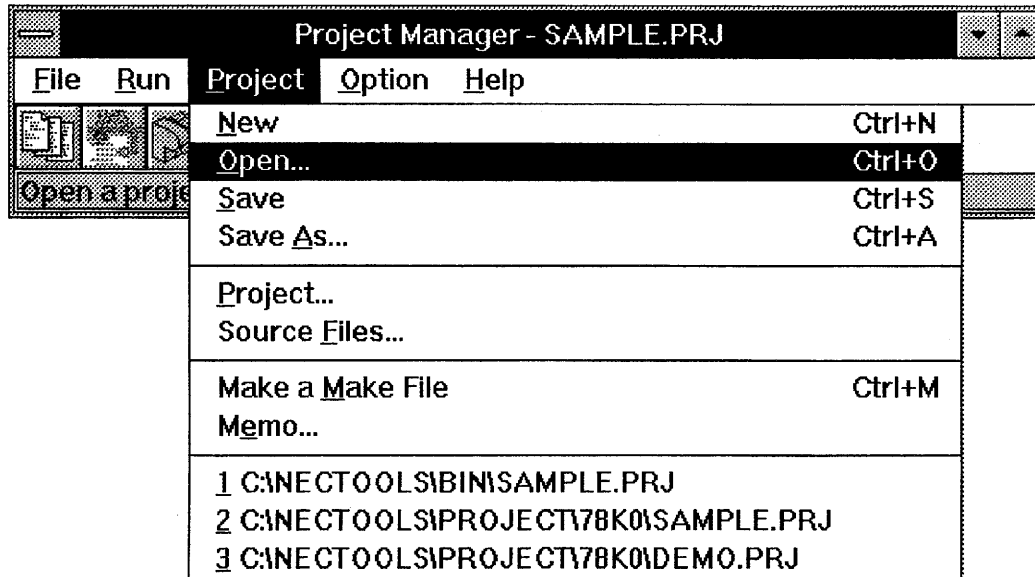
3.3.3 Save

[Function]

Saves the current project information.

[Description]

(1) Saves the current project information in the file of the same name.

[Caution]

- If the project file name is not set, or the project file name has been set but a file of the same name does not exist, the menu will be displayed in a light color and [Save] will not be executable.

Figure 3-25. [Save] Menu
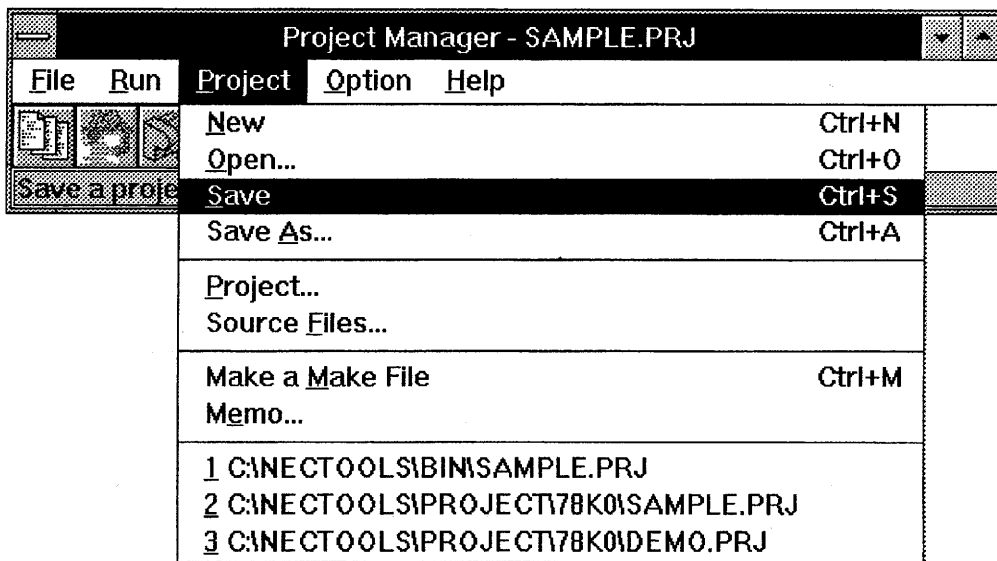
3.3.4 Save as

Saves the current project information and the display of the window in the specified file.

[Description]

(1) When [Save As] is selected, the {{Save As}} dialog will be displayed.

Figure 3-26. {{Save As}} Dialog
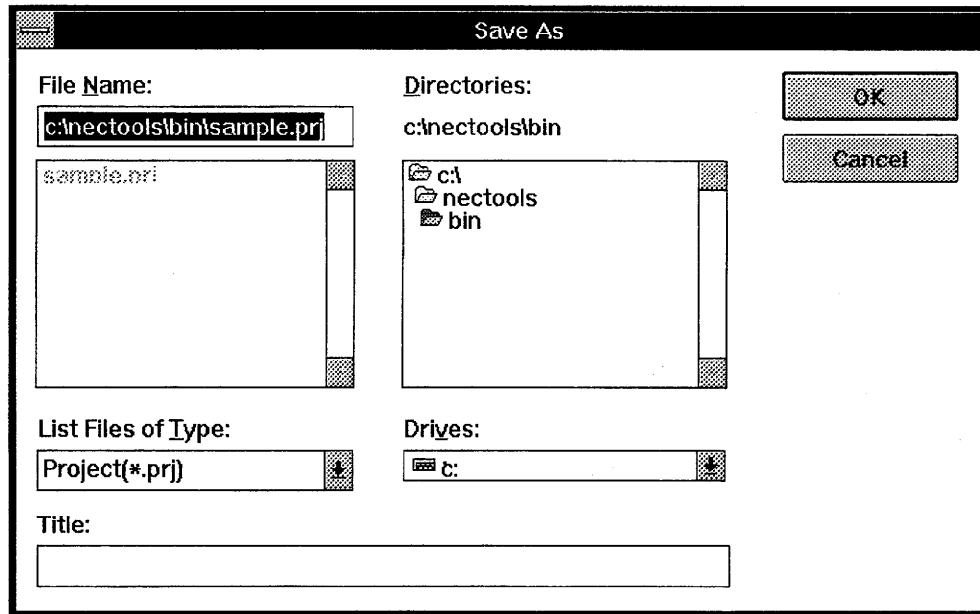
(2) {{Save As}} dialog

<1> The file name is displayed in the text box or list box. The list box is displayed in a light color but can be selected.

<2> The storage file name at initialization is the project file name, while the list displays a list of "*.prj" files of the project directory.

<3> For File Name, one file name, several file names (wild card), directory, drive can be specified.

<4> If one file name is specified, and "OK" is selected, the file will be selected and this dialog will be exited.

<5> If several file names are specified, and "OK" is specified, the files will be displayed in the list box.

<6> When a directory is set to File Name, and "OK" is selected, the files in the directory will be displayed in the list box for files to be selected from that directory.

<7> When a drive is set to File Name, and "OK" is selected, the files in the drive will be displayed in the list box for files to be selected from that drive.

<8> When the list box is clicked, a file in the list box is selected and displayed, and displayed in the text box.

<9> "List Files of Type" displays "Project (*prj)". When this is selected, the text box displays "*.prj", followed by a list of files.

<10> The directory consists of current display and hierarchical display. The file name and list of files are displayed according to "List Files of Type" when a directory is being selected.

<11> For Drives, select the drive from the list box (not editable). If the drive has been changed, the file name and directory will also be displayed.

<12> As Title is just for display, it cannot be edited. The title set will be displayed here. If no title has been set, it will be empty.

<13> When "Cancel" is selected, the state before [Save As] is set.

(3) The current project information is saved in the file selected in the {{Save As}} dialog.

    <1> When an error occurs when the file is being saved, a message will be displayed. After the message closes, if the process can be continued, the process will be continued without saving only that data with the error. If the process cannot be continued, the process will be stopped at the point the error occurs. At this time, the data from the start of save until the process is stopped will be saved.

(4) Save and restore of window display

    <1> For details of the window for saving and restoring the window state, refer to Table 3-1. Window for Saving and Restoring the Window State.

Table 3-1. Window for Saving and Restoring Window State

Window	Saving, restoring element
• Project manager normal window	Position, size, display or no display
• Project manager tool box window	Position, size, display or no display
• Build window	Position, size
• {{Source Files}} dialog box	Position, size, display or no display

[Caution]

- When the file extension is omitted, it will be set as "*.prj". The following error message will be displayed if the extension is not "*.prj". After the error message is closed, the state before [Save As] was selected will be returned.

Figure 3-27. Error Message When File Extension is Not .prj
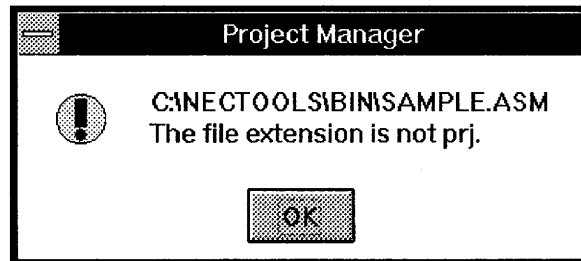
- If the project information is default, the menu will be displayed in a light color to disable [Save As] from being executed.

Figure 3-28. [Save As] Menu
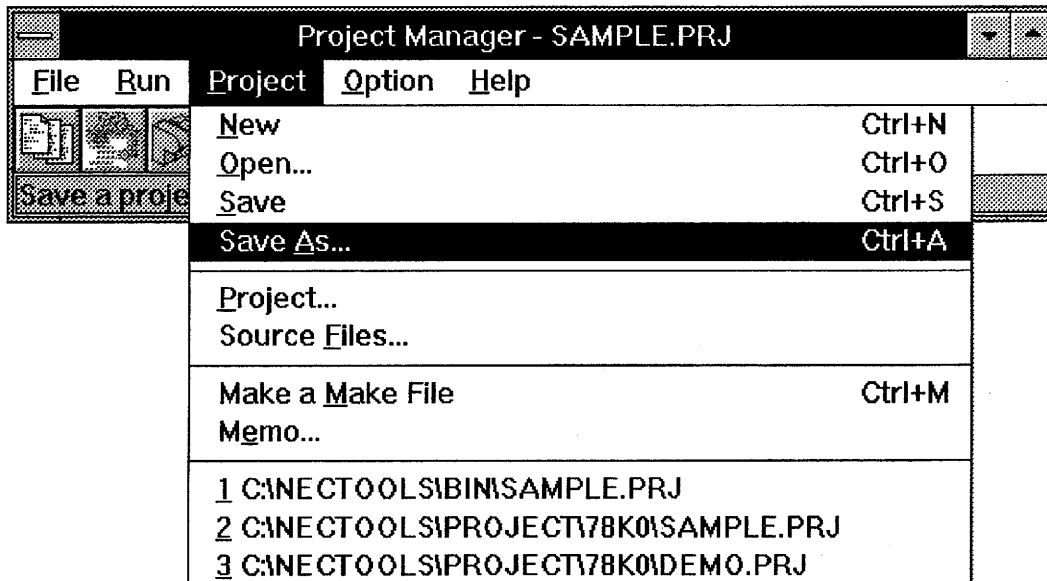
3.3.5 Project setup

[Function]

Sets the project information.

[Description]

(1) When [Project Setup] is selected, the {Project Setup} dialog will be displayed.

Figure 3-29. {Project Setup} Dialog

(2) {Project Setup} dialog

<1> Project File Name can be input by keys or set by displaying the file selection dialog using "Browse". The file name set will be displayed the next time "Project Setup" is selected.

<2> For Title, the title for the project can be input by keys. The title will be displayed at [Open] and [Save As].

<3> A file name can be input in the Project Directory by keys or set by displaying the project directory setting dialog using "Browse". Files composing project files and project are registered in each directory specified. If the directory specified is not registered, it will be created after checking that it is a new creation.

<4> The default of the project directory is the directory registered with the project manager at [New]. When [Project Setup] is selected with the project opened set, the project directory will be displayed as it has been set.

<5> For Series Name, select the targeted device from the drop-down list. The drop down list displays the series names that have been installed.

<6> For Device name, select the targeted device by keys or from the drop down list. The drop down list displays only the devices installed.

<7> When the device is input by keys with the drop down list of the device name opened, devices corresponding to the input characters will be displayed sequentially on the drop down list.

<8> The maximum number of characters that can be input in the text box is 12 characters for the project file name, 128 characters for the project directory name, and 64 characters for the title.

<9> When the project file name, series name, and device name have been specified, and "OK" is selected, these file names will be set.

<10> If the specified directory or file name is illegal, the following message will be displayed.

Figure 3-30. Message When Specified Directory or File Name is Illegal
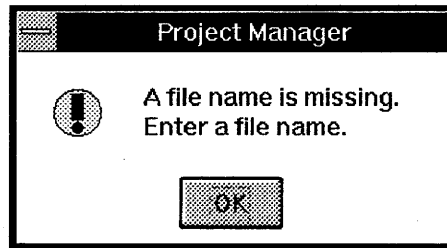
<11> If the project file name has not been input, the following message will be displayed.

Figure 3-31. Message When Project File Name Has Not been Input
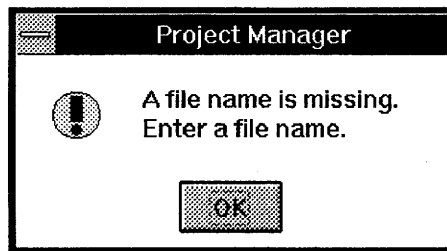
<12> The extension of the project file name must be "prj". If the extension has not been input, "prj" is added. If other extensions are input, the following message will be displayed.

Figure 3-32. Message When Extension is Not .prj

<13> If the file specified at Project File Name already exists, the following message will be displayed.

Figure 3-33. Message When Specified File Already Exists
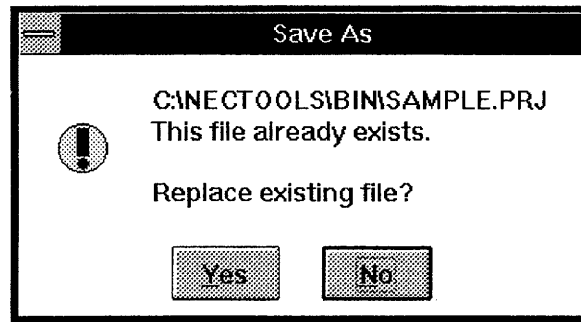
<14> The project file name is displayed at the project manager title bar.

(3) Adding new device files
   <1> When a new device name is added at Device Names, and "OK" is selected, the message "Not set a device name. Do you set a new device name?" will be displayed. If "Yes" is selected, the {{Device Files}} dialog will be displayed. If "No" is selected, the {{Project Setup}} dialog will be returned.

Figure 3-34. Message Box for Setting New Device Names
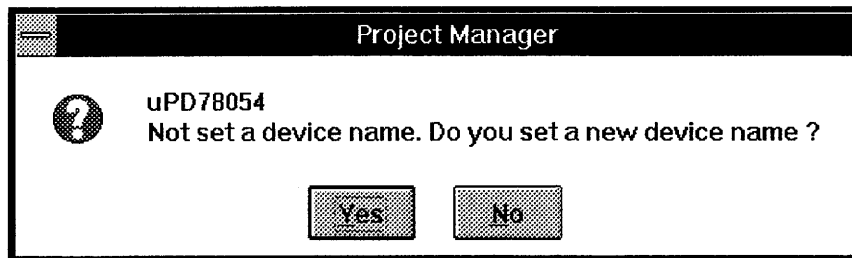
Figure 3-35. {{Device Files}} Dialog
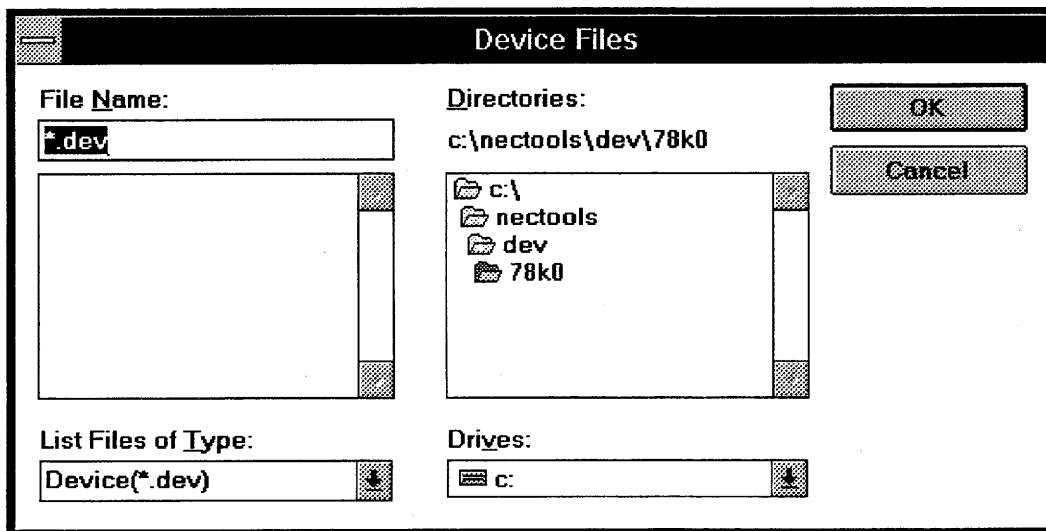
<2> When a new device name is registered, it will be set as the device used for the project and at the same time be added and saved in the device information of the selected series (item inside necdev.ini). Hereafter, the device name will be displayed in the device name drop down list.

(4) {{Device Files}} dialog

<1> At the {{Device Files}}, specify the device file for the device input at Device Name of the {{Project Setup}} dialog.

<2> After selecting the device, when "OK" is selected, the device file specified is set to the project, and the {{Device Files}} dialog process will end. When "Cancel" is selected, the {{Device Files}} dialog will be returned.

<3> The device file extension differs according to the series. Input the file name corresponding to the series (The extension of the 78 series device file is ".78k").

[Caution]

- The window title is "Project Manager-XXXXX". This "XXXXX" means the project file name. If the project file name has not been set, there will be no title.

Figure 3-36. [Project] Menu
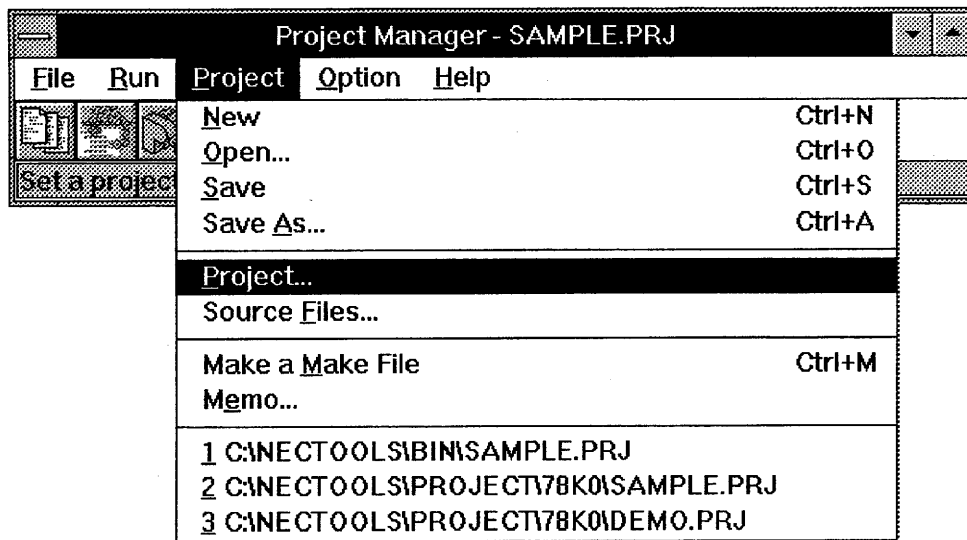
3.3.6 Source file setup

[Function]

Registers the source file in the project.

[Description]

(1) When [Source Files Setup] is selected, the {{Source Files Setup}} dialog will be displayed.

Figure 3-37. {Source Files Setup} Dialog
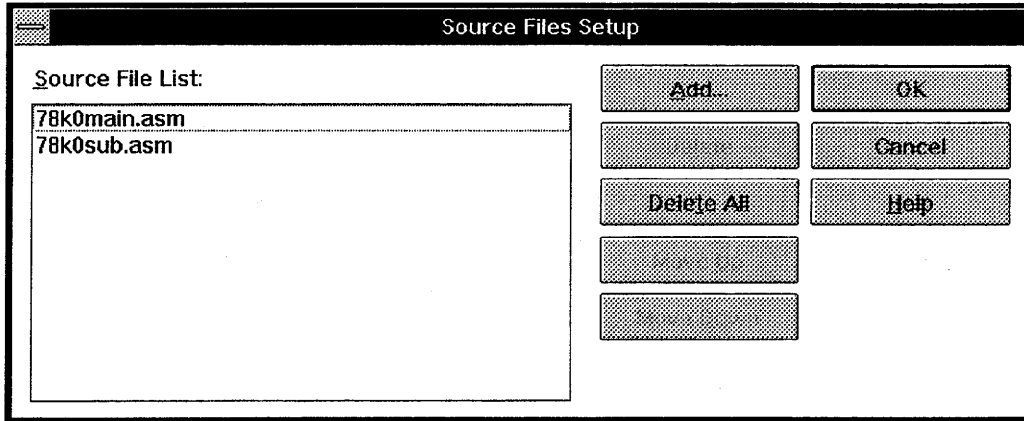
<1> When the source file has already been set, the source file information defined by the file will be displayed on the "Source File List" in the order specified.

(2) {{Source Files Setup}} dialog

<1> Several of the file names displayed in the "Source File List" can be selected by selecting them while pressing the Shift key or Ctrl key. The selected files can be manipulated collectively using the following buttons.

<2> When adding source files to the project, select "Add" after specifying the target to be added. When "Add" is selected, the "Source Files" dialog will be displayed. Specify the source files to be added to the project in this dialog.

<3> The source files will be added immediately after the source files selected at the "Source File List". If no source file has been selected, the source files will be added at the end.

<4> Another method for adding source file to the project is by dragging and dropping the source files from the file manager to the {{Source Files Setup}} dialog. The source files can be dropped anywhere in the dialog. The files will be added at the position mentioned earlier.

<5> The files selected from the "Source File List" can be deleted by selecting "Delete". If no source file has been set or selected, the "Delete" button will be displayed in a light color.

<6> The files selected from the "Source File List" can be moved using "Move Up" and "Move Down". Several files can be selected from the "Source File List" and moved together.

<7> If no source file has been selected, the "Move Up" and "Move Down" buttons will be displayed in a light color. If the selected source file cannot be moved up, the "Move Up" button will be displayed in a light color. If it cannot be moved down, the "Move Down" button will be displayed in a light color.

<8> To delete all the source files registered for the project, select "Delete All". If no source file has been set, "Delete All" will be displayed in a light color.

<9> When "OK" is selected, the source files will be set in the project according to the specification and the order they are displayed in the {{Source List File}}. After setting, the {{Source Files Setup}} dialog will be ended.

<10> When "Cancel" is selected, the "Source Files Setup" dialog process will be canceled and ended.

Figure 3-38. {{Source Files}} Dialog
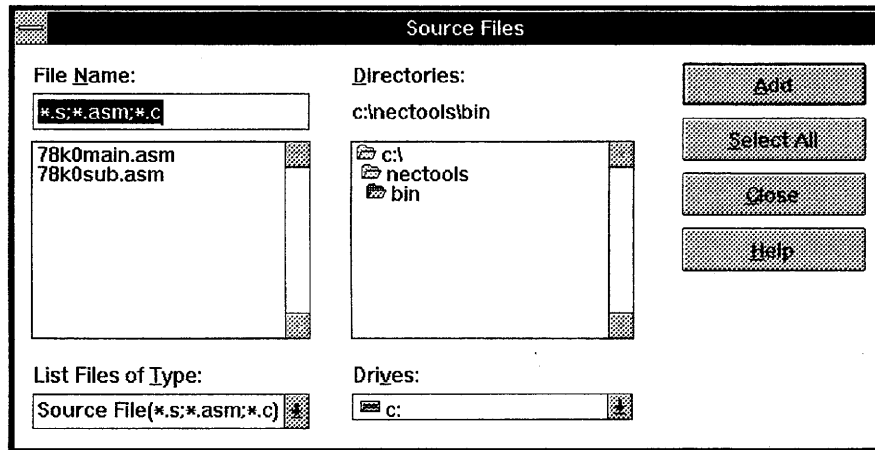
(3) {{Source Files}} dialog

<1> The file name is displayed in the text box and listed in the list box.

<2> The file name displayed initially depends on the series set to the project (For the 78K series, it is ".c", ".s", and ".asm"). The list box displays a list of files of the project directory.

<3> For File Name, besides the file name, wild card, directory, and drive can be specified.

<4> If a wild card is specified for File Name, and "OK" is selected, a list of files will be displayed in the list box.

<5> When directory is set for File Name, and "OK" is selected, a list of files will be displayed in the list box, enabling files to be selected from the directory.

<6> When drive is set for File Name, and "OK" is selected, a list of files will be displayed in the list box, enabling files to be selected from the directory and the drive.

<7> When the file name list box is clicked, a file in the list box is selected and displayed, and displayed in the text box.

<8> Several files in the file name list box can be selected, and registered together. When "Select All" is selected, all files displayed in the list box will be selected.

<9> The directory consists of current display and hierarchical display. The file name and list of files are displayed according to "List Files of Type" when a directory is being selected.

<10> For Drives, select the drive from the list box (not editable). If the drive has been changed, the file name and directory will also be changed.

<11> If an error occurs while the specified file is being read, an error message will be displayed. After closing the error message, the data with the error will be ignored and the process will be continued.

<12> Several of the source files displayed in the list box can be selected by selecting them while pressing the Shift key or Ctrl key. The selected files will be displayed in the file name text box.

<13> When "Add" is selected, the source files currently selected will be added to the project. The source files added will be displayed immediately in the "Source Files List" in the "Source File Setup" dialog.

<14> When "Add" is selected, and unregistered files are specified in the file name text box, the message to confirm if the source file is to be created will be displayed.

Figure 3-39. Message to Confirm if Source File is to be Created
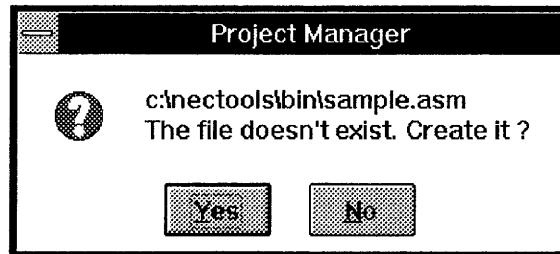
<15> The "Source Files" dialog will not end even after "Add" has been selected. Therefore, other source files can be added.

<16> When "Select All" is selected, all source files registered in the list box will be selected. The source files selected will be displayed in the file name text box.

<17> When "Return" is selected, the "Source Files" dialog ends and the "Source Files Setup" dialog is returned. However, if unprocessed files remain in the file name text box when "Return" is selected, after a message to confirm if the unprocessed files are to be processed or ignored, the add process is carried out if necessary and the "Source Files Setup" dialog will be returned.

Figure 3-40. Message to Confirm if Source File is to be Added
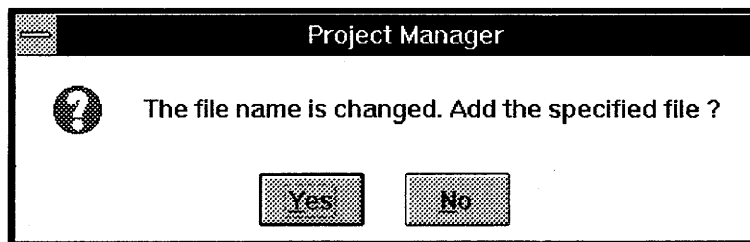
<18> When "Help" is selected, the project manager help will be started.

(4) Message to confirm if source file is to be created

    <1> The file name input to be registered is displayed in the message in the dialog.

    <2> If "Yes" is selected, the file will be created in the empty state and registered in the Source File List in the "Source File Setup" dialog.

    <3> If "No" is selected, the specified files will be invalid.

(5) Message to conform if source files are to be added

    <1> If "Yes" is selected, the specified files are added and registered in the Source Files List in the "Source File Setup" dialog.

    <2> If "No" is selected, the specified files are in valid.

[Caution]

- MAKE carries out assemble and compile according to the program type in the order on the source list. For the path name of the source file when make is being executed, the path of the project directory will be used automatically (in the process, the path of the project directory will be used as the current directory).
- The linking order depends on the DLL tool for the linker of the series and linker.

Figure 3-41. "Source Files" Menu
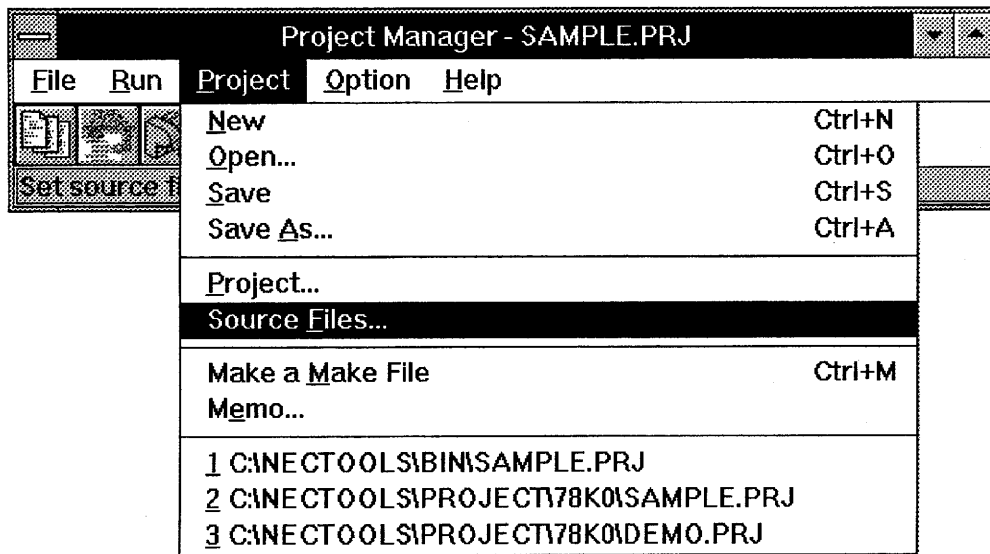
3.3.7 Make a make file

[Function]

Makes a make file.

[Description]

(1) [Make a Make File]

        <1> When [Make a Make File] is selected, a make file is created based on the source file set in the project. While the make file is being created, the cursor will be displayed as a sandglass. The status bar will display "Making a Make File".

        When the make file is created, the cursor will change to an arrow and the status bar will display {Make file has been created}.

        <2> When [Make a Make File] is selected, all files depending on the source file unconditionally will be searched, the information of dependence of the make file will be updated and the make file will be created.

        <3> The scanning of the files on which the source file depends is carried out by recursive scanning which searches for dependent files in the dependent file.

        <4> The make file is created by "Project file name.mak". If a make file already exists, it is updated.

        <5> When the make file is created, parameters for the language processing program may be created. The file created differs according to the series used.

        <6> For details of the make file, refer to CHAPTER 4. MAKE.

[Caution]

- If the information required for creating the make file (project file name, series name, device file name, and source file name) does not exist, the menu will be displayed in a light color.

Figure 3-42. [Make a Make File] Menu
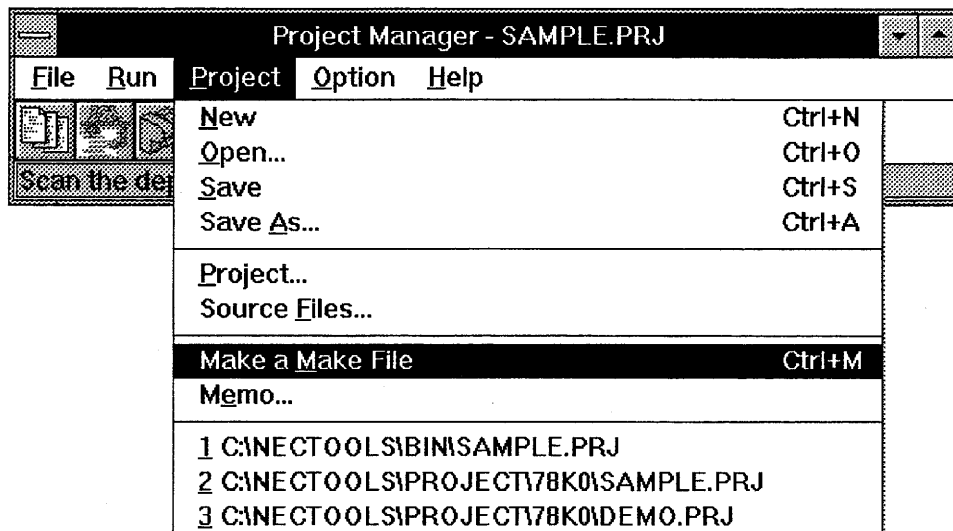
3.3.8 Memo

[Function]

Sets and browses the memo.

[Description]

(1) When [Memo] is selected, the {{Memo}} dialog will be displayed.

Figure 3-43. {{Memo}} Dialog
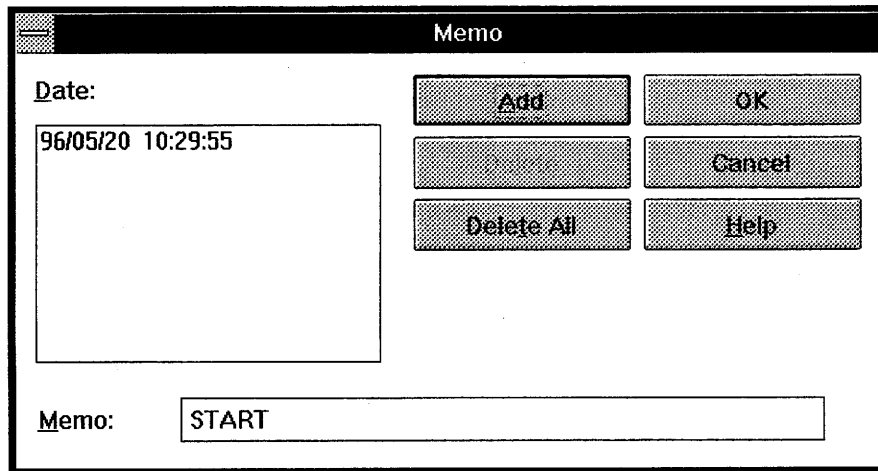
(2) {{Memo}} dialog

<1> The "Date" list box displays the list of dates when the memo was set.

<2> When a date in the "Date" list box is selected, the contents of the memo set to "Memo" will be displayed for browsing.

<3> Up to 256 bytes of characters can be input to "Memo".

<4> When characters are input to "Date", they can be added.

When "Add" is clicked, the characters with the current time will be added at the end of the list box.

<5> Up to 237 dates can be set to the "Memo" list box. When 237 dates are set, the "Add" button will be displayed in a light color to disable addition of any more dates.

<6> When "Delete" is selected after selecting the dates in the "Date" list box, the dates will be deleted from the list box. If no memo is set or if the "Date" list box is not selected, the "Delete" button will be displayed in a light color to disable deletion.

<7> To delete all dates in the "Date" list box, click "All Delete". If no memo has been set, it will be displayed in a light color to disable deletion.

<8> When "OK" is selected, the memo date information selected will be valid and the dialog process will end.

<9> When "Cancel" is selected, the dialog process will become invalid and end.

[Caution]

- The text box displays the contents selected from the list box. When "Add" is selected without changing the contents of the text box, the contents will be registered.

Figure 3-44. [Memo] Menu

Project Manager - SAMPLE.PRJ		
File Run Project Option Help		

New	Ctrl+N
Open...	Ctrl+O
Save	Ctrl+S
Save As...	Ctrl+A
Project...	
Source Files...	
Make a Make File	Ctrl+M
Memo...	
1 C:\NECTOOLS\BIN\SAMPLE.PRJ	
2 C:\NECTOOLS\PROJECT\78K0\SAMPLE.PRJ	
3 C:\NECTOOLS\PROJECT\78K0\DEMO.PRJ	

Set a memo
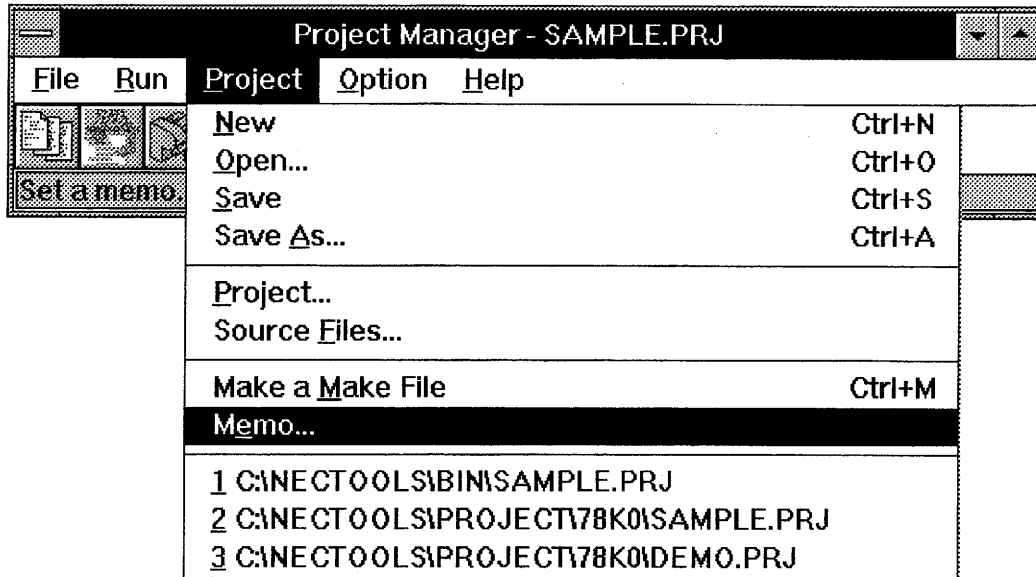
3.3.9 Project name n

[Function]

Starts the project.

[Description]

(1) The project file name of the 3 latest projects will be displayed below [Project]. By selecting this, the project can be opened.

(2) When the project is opened with [Project]-[Open], or when [Project name n] is selected, the projected opened will be displayed at the first line.

<1> When the project of the same name as the project registered in the menu is opened, and the project is not displayed at the first line, positions will be changed and the project will be displayed at the first line.

<2> When a project not registered in the menu is opened, the project at the third line will be deleted, and the projects at the first and second lines will be moved down.

(3) When the project information has already been changed when [Project name n] is selected, the following message will be displayed.

Figure 3-45. Message When Project Information is Changed
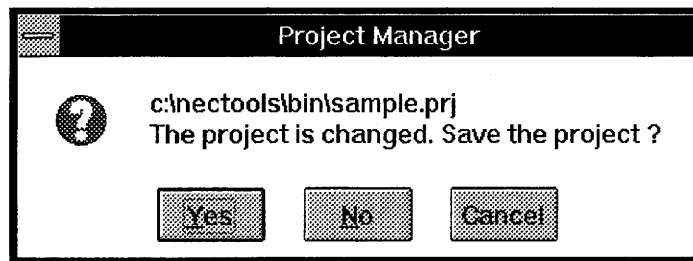
(4) Message when project information has been changed

<1> If "Yes" is selected, and a file of the same name exists, [Save] (See 3.3.3 Save) is executed. If it does not exist, [Save As] (See 3.3.4 Save As) will be executed. If "Cancel" is selected in the "Save" dialog, the state before [Project name n] was selected will be returned.

<2> If "No" is selected, the current project information will not be saved and the [Project name n] process will be performed.

<3> When "Cancel" is selected, the state before [Project name n] was selected will be returned.

Figure 3-46. [Project] Menu
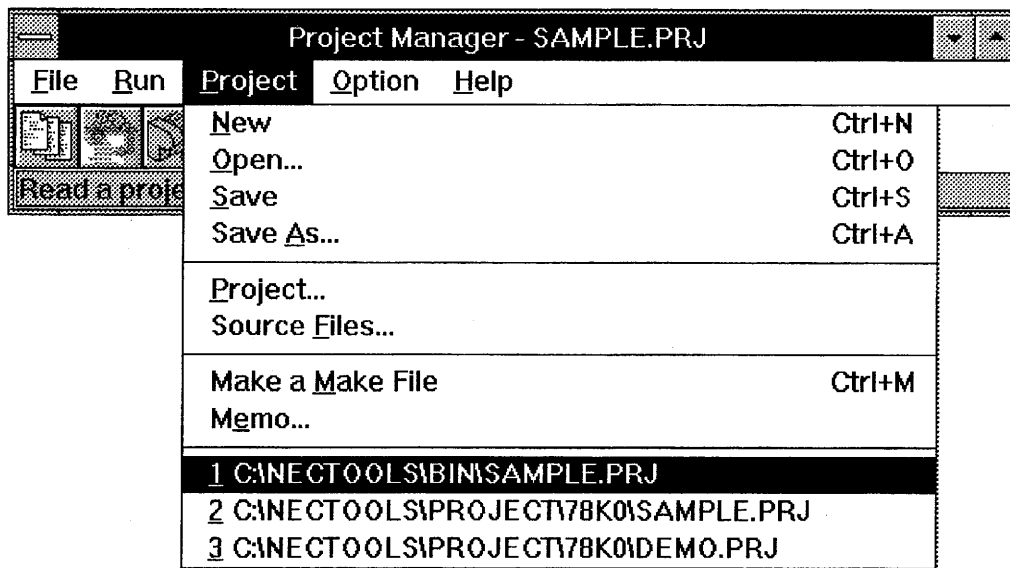
3.4 Options

3.4.1 Project manager options

[Function]

Sets project manager options.

This menu can be selected regardless of whether the project has started or not.

[Description]

(1) The project manager options are as follows.

- Options
- Scan file dependence just before building
- Display tool box window to the front of the screen
- Display "Stop Build" button in build window
- Work Directory

(2) The {{Project Manager Options}} dialog is composed of two screens which can be selected using the "Editor" and "Others" radio buttons in the "Options" group box.

The "OK", "Cancel", and "Help" buttons are the same in both dialogs.

Figure 3-47. {{Project Manager Options}} Dialog (When Editor is Set)

Figure 3-48. {{Project Manager Options}} Dialog (When Others is Set)
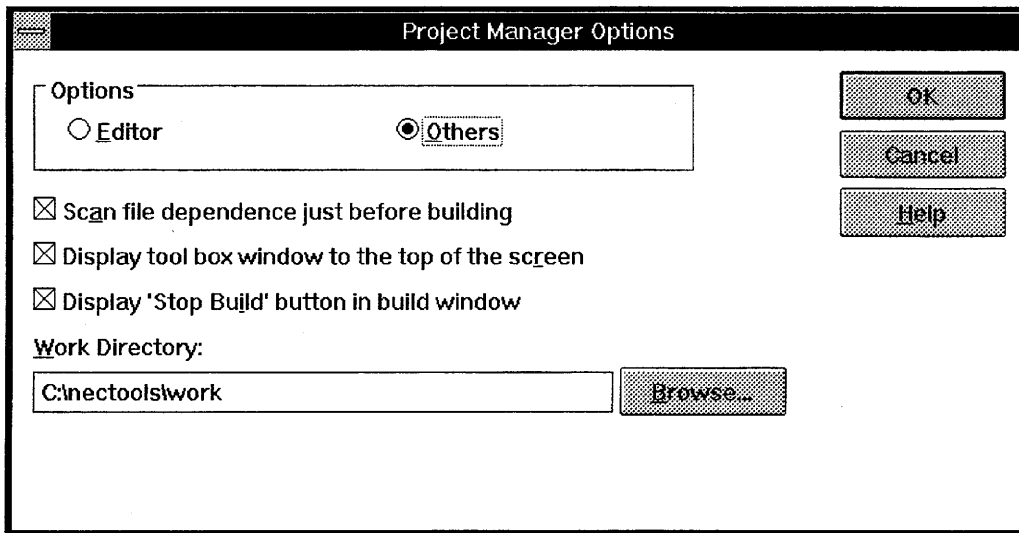
(3) Dialog when "Editor" is selected

    <1> Sets the editor used as the editor of the project manager. The editors that can be selected are as shown in Table 3-1. The editor selected here is started by selecting the [Execute]-[Edit] menu or Editor button.

Table 3-2. Selectable Editors

Radio Buttons	Editor
"Standard Editor"	Standard editor of the project manager (Default)
"Editor with Dll File"	Editor with interface functions with the project manager
"External Editor"	Editors other than above

    <2> When "Standard Editor" is selected, the standard editor of the project manager will be set as the editor.

    <3> When "Editor with Dll File" is selected, the editor with interface functions with the project manager will be set as the editor. In this case, the editor tool DLL file name has to be input at the "Editor DLL" column. When the "Browse" button is pressed, the dialog for selecting the editor tool DLL will be displayed.

    <4> When "External Editor" is selected, commercially available editors will be set. In this case, the execution file name has to be input at "File Name". When the "Browse" button is pressed, the dialog for selecting the execution file will be displayed.

    <5> When "OK" is selected, the values set will be checked and if correct and valid, the {{Project Manager Options}} dialog will be ended. If errors are found during the check, an error message will be displayed. After correcting the error part, select "OK" again.

    <6> When "Cancel" is selected, the operation carried out in the {{Project Manager Options}} dialog will be invalid and the dialog process will end.

    <7> When "Help" is selected, "Help" of the {{Project Manager Options}} dialog is displayed.

Figure 3-49. {{DLL file of Editor}} Dialog
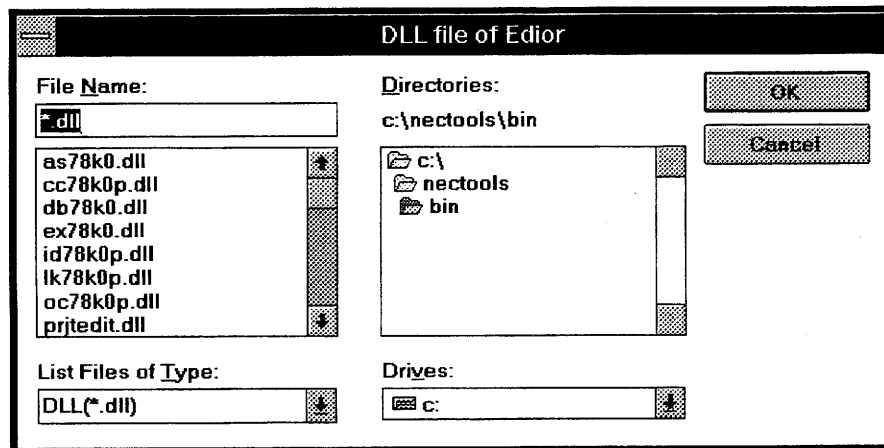
Figure 3-50. {{Editor}} Dialog
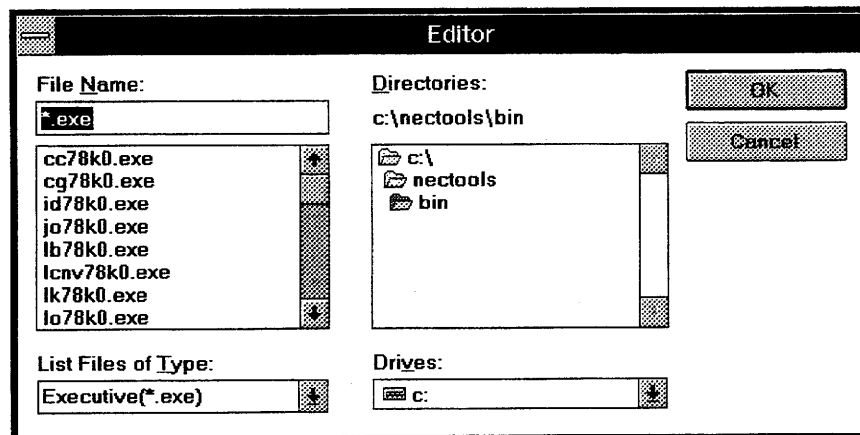
(4) Dialog when "Others" is selected

    <1> When "Scan file dependence just before building" is clicked, files on which the source file depends will be scanned automatically during the following build. Only sources changed will be scanned.

        • When [Execute]-[Build] menu is selected

        • When [Execute]-[rebuild] menu is selected

        • When [Execute]-[Build Targets] menu is selected

        • Press build button

    When "Scan file dependence just before building" has not been checked, files on which the source file depends will not be scanned automatically.

    <2> When "Display tool box window to the front of the screen" is clicked, if the project manager window display is the tool box, it will be displayed at the front of the screen. If not clicked, the normal window will be displayed.

    <3> When "Display "Stop Build" button to build window" is clicked, the button to stop building will be displayed at the top right of the build window. If not clicked, the button will not be displayed in the build window.

    Regardless of whether this item has been clicked or not, the build window control menu will be added with the [Stop Build] menu.

<4> For "Work Directory", specify the work directory used by the project manager. When the "Browse" button is pressed, the dialog for browsing the directory will be displayed.

<5> When "OK" is selected, the values set will be checked. If correct and valid, the {{Project Manager Options}} dialog will be ended. If an error is found during the check, an error message will be displayed. After correcting the error part, select "OK" again.

<6> When "Cancel" is selected, the "Project manager Options" dialog procedure carried out will be made invalid, and end.

<7> When "Help" is selected, the {{Project Manager Options}} dialog help will be displayed.

Figure 3-51. {{Work Directory}} Dialog
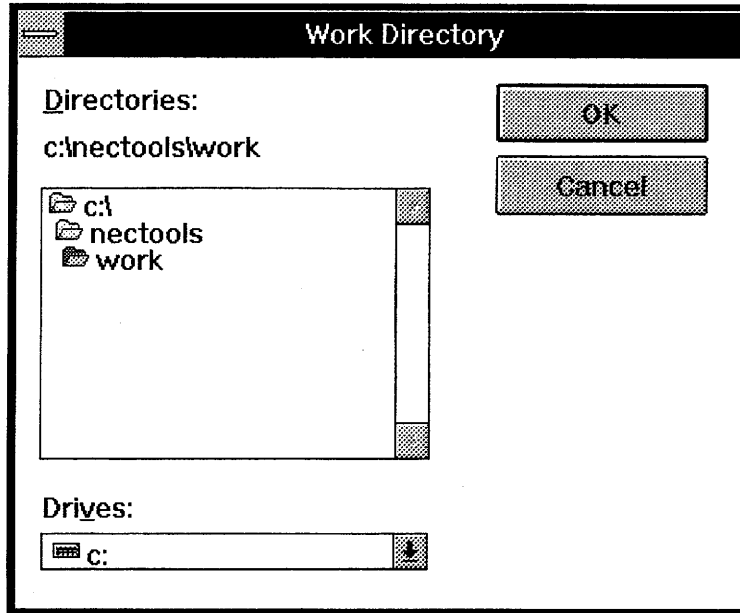
(4) Dialog for browsing directory

<1> When "OK" is selected, the {{Project Manager Options}} dialog setting values will be valid.

<2> When "Cancel" is selected, the dialog setting values will be invalid and the {{Project Manager Options}} dialog will be returned.

[Caution]

- If the editor settings have been changed, the settings will be valid when the new project is opened.

Figure 3-52. [Project Manager Options] Menu
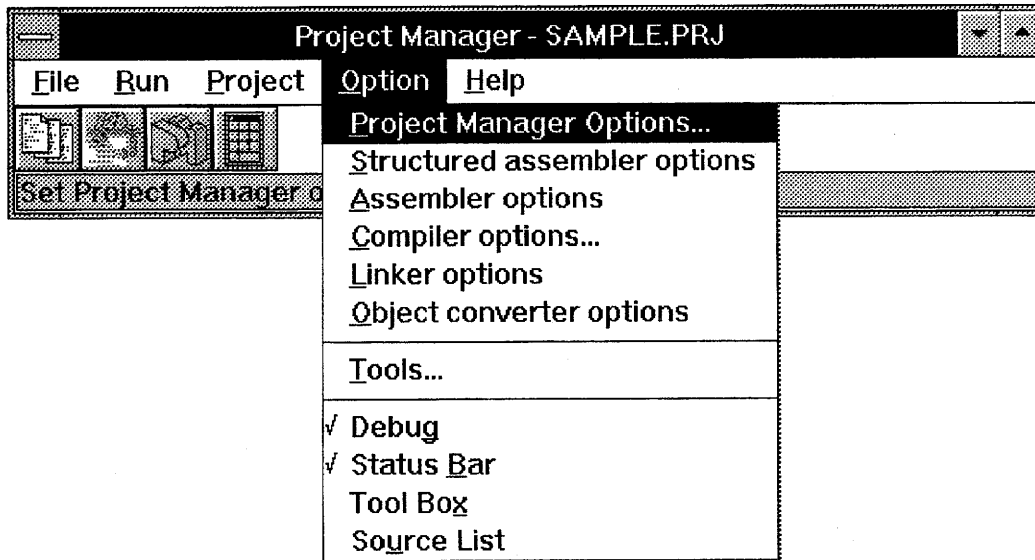
3.4.2 Options

[Function]

Sets the tool options operating on the project manager.

[Description]

(1) When [Options] is selected, the project manager calls the tool DLL option setting functions and requests for the Options dialog to be displayed.

(2) The [Assembler options] menu is located at the top of the [Options] menu. It is composed of menus for the tool with option setting functions.

(3) For tools working on source files, options can be set per source file. To set options by source file, select the {{Sources}} dialog and set options. (See **3.4.7 Sources**.)

    <1> For source files for which option settings have not been performed by source file, the overall option setting values will be applied.

(4) To delete the options set by source file, carry out the option setting dialog of the source file.

(5) For tools not working on source files such as linker and debugger, the selection of source files in the {{Source}} dialog will be ignored.

(6) For how to set each tool option, refer to the Users Manual for each tool.

(7) The following shows an example of the assembler tool.

Figure 3-53. Assembler Option Setup Dialog (Example of Assemble)
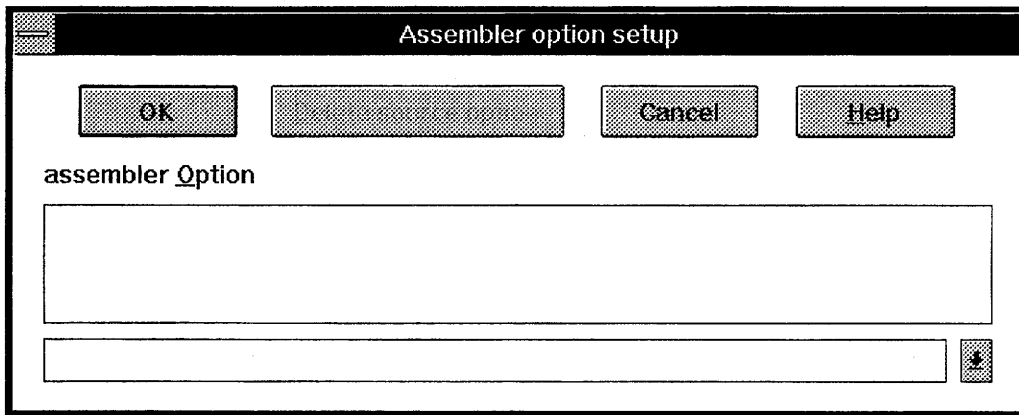
Figure 3-54. [Assembler options] Menu
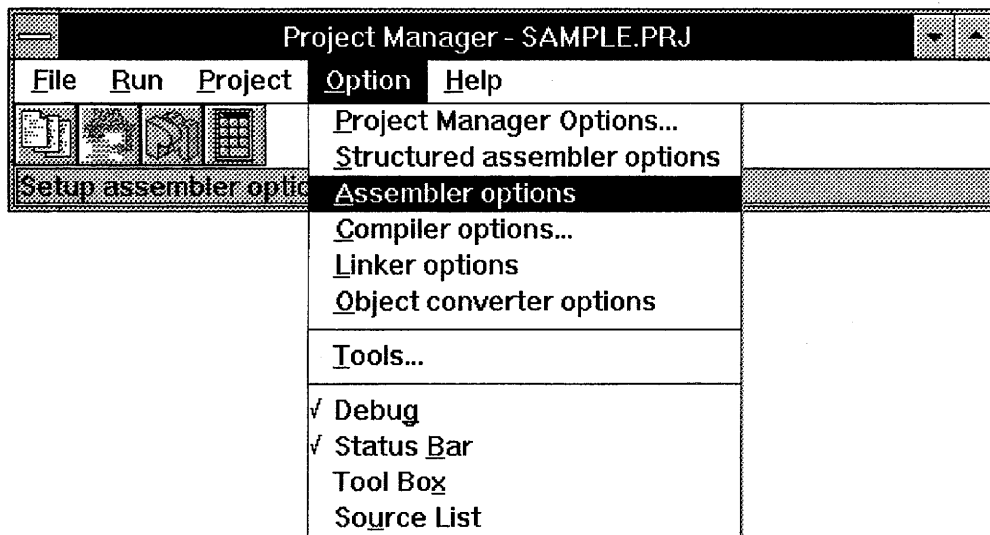
3.4.3 Tool setup

[Function]

Registers the menu for starting programs on the [Execute] menu of the project manager.

[Description]

(1) When [Tool Setup] is selected, the {{Tool Setup}} dialog will be displayed.

Figure 3-55. {{Tool Setup}} Dialog

(2) {{Tool Setup}} dialog

<1> The "Menu Title List" displays the title of the tool set. The title can also be used as a menu item.

<2> Up to 10 titles can be set in the "Menu Title List". When 10 have been set, the "Add" button is displayed in a light color to disable further addition.

<3> There are two ways of setting the tool-setting from the {{Tool Setup}} dialog and setting from the text box. Input the file at "Tool File Name", and if the file name is not the same as the file name of the title name selected in the list box, the file name input will be added to the title list. If they are the same, the file selection dialog will be displayed and the file name will be set.

<4> For "Tool File Name", input the file name, input more than one space to specify an argument of tools.

<5> If the file name specified has already been registered, the following message will be displayed.

Figure 3-56. Message When File Name Has Already been Registered
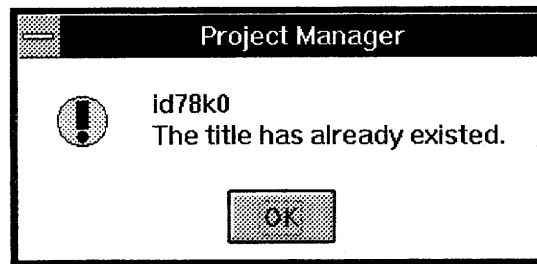
<6> When the "Add" button is selected, the {{Tool Setup}} dialog will be displayed.

<7> When a file name is input at "Tool File Name", or when the title name is input at "Menu Title", these will be added to the end of the list using "Add".

<8> Up to 128 characters can be input for the tool file name.

<9> Up to 32 characters can be input for the title name.

<10> If no tool file name has been input, the {{Tool Setup}} dialog will be displayed.

<11> If no title name has been input, the title excluding the tool file name path and extension will become the title.

<12> If no file name exists, the message {Path or File not found. Check path or file name.} will be displayed. After the message ends, the state before "Add" was selected will be returned.

<13> If the file name is illegal, the message "Path or File is not correct. Specify the correct Path or File" will be displayed. After the message ends, the state before "Add" was selected will be returned.

<14> After specifying the title name form the "Title list", the title name and tool file name can be changed and the title name and tool file name can be changed using "Change".

<15> If the specified title name is already registered, the message {Same title is already set} will be displayed. After the message ends, the state before "Change" was selected will be returned.

<16> If no title name has been specified for the "Menu Title List", the "Change" button will be displayed in a light color to disable change.

<17> If "Change" is selected without changing the title name and tool file name, the {{Change Tools}} dialog will be displayed. Select the file using this dialog, and when "OK" is selected, the tool selected using the title list will be changed.

<18> The title name specified from the "Menu Title List" can be deleted using "Delete". If no title name has been specified from the "Title List", the "Delete" button will be displayed in a light color to disable deletion.

<19> The title name specified from the "Menu Title List" can be moved using "Move Up" and "Move Down". If it cannot be moved up nor down from the current position, the "Move Up" and "Move Down" button will be displayed in a light color.

<20> When "OK" is selected, the all the title names and tool file names in "Menu Title List" will be displayed, and the dialog will end. When "cancel" is selected, the state before "Tool Setup" will be returned.

Figure 3-57. {{Add Tools}} Dialog
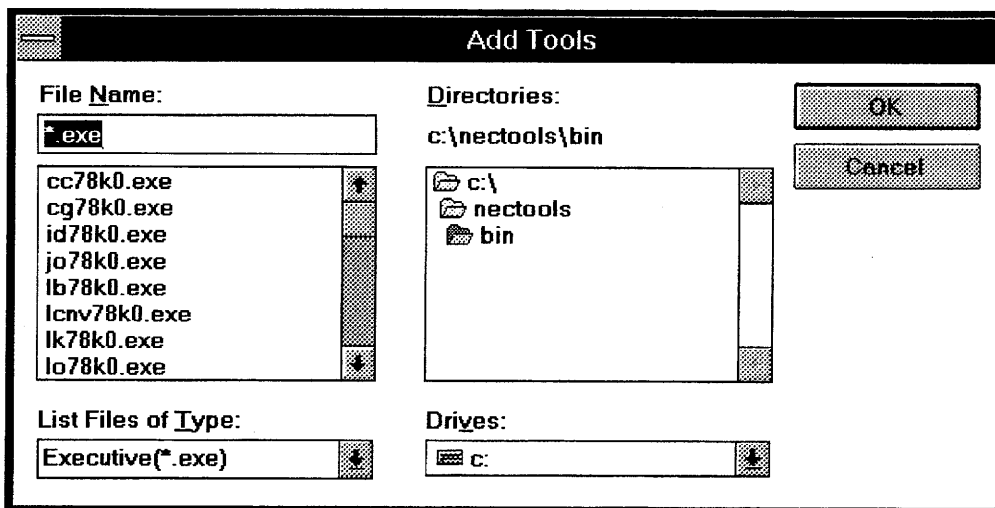
(3) {{Add Tools}} dialog

<1> The file name is displayed in the text box and listed in the list box.

<2> The file name is initially set at "*exe" and the list displays a list of the tool directory files.

<3> For File Name, one file name, several file names (wild card), directory, or drive can be specified.

<4> If one file name is specified, and "OK" is selected, the file will be selected and this dialog will be exited. The title of the selected files will be the file name excluding the path and and extension.

<5> If several file names are specified, and "OK" is specified, the files will be displayed in a list in the file name list box.

<6> When a directory is set to the File Name, and "OK" is selected, the files in the directory will be displayed in the list box for files to be selected from that directory.

<7> When a drive is set to File Name, and "OK" is selected, the files in the drive will be displayed in the list box for files to be selected from that drive.

<8> When the file name list box is clicked, a file in the list box is selected and displayed, and displayed in the text box.

<9> The directory consists of current display and hierarchical display. The file name and list of files are displayed according to "List Files of Type" when a directory is being selected.

<10> For Drives, select the drive from the list box (not editable). If the drive has been changed, the file name and directory will also be changed.

<11> When "Cancel" is selected, the dialog process will be invalid.

Figure 3-58. {{Change Tools}} Dialog
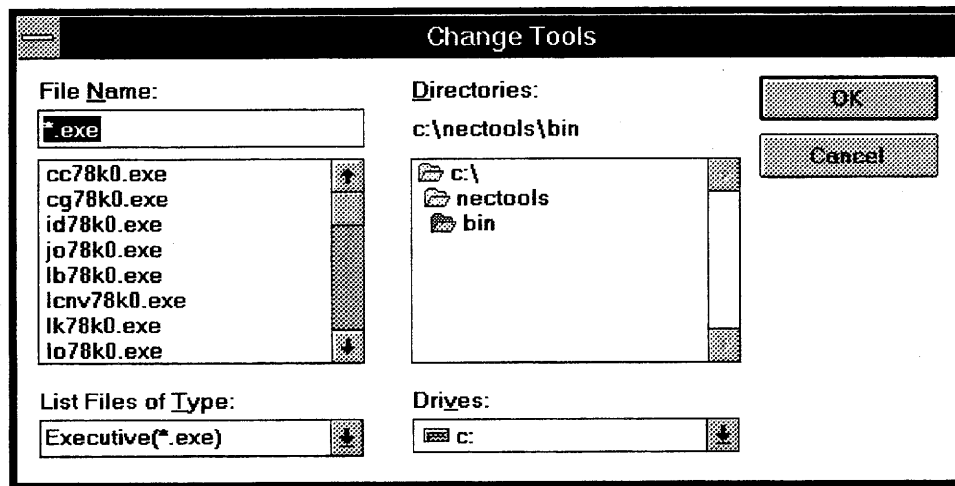
Figure 3-59. [Tools] Menu
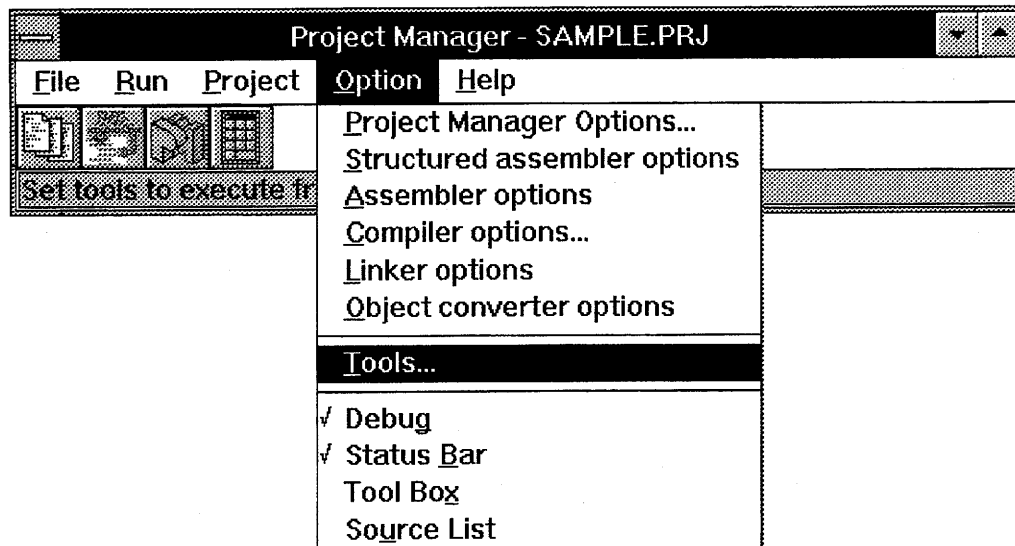
3.4.4 Debugging

[Function]

Specifies whether the execution file created by the project is for debug or non-debug.

[Description]

(1) When [Debug] is selected, the function will be switched between debug and non-debug.

(2) [Debug]

    <1> When [Debug] is selected from the non-debug specification, the following message will be displayed. When "Yes" is selected, the debug mode option will be changed. When "No" is selected, the original state will be returned.

Figure 3-60. Message to Change to Debug Mode
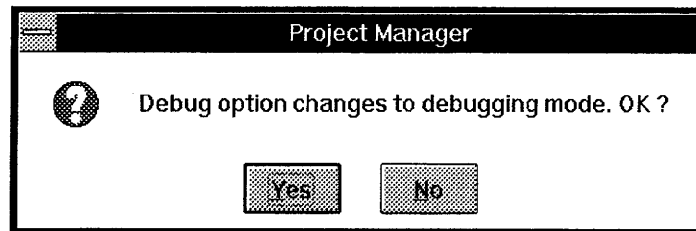
    <2> When [Debug] is selected from the debug specification, the following message will be displayed. When "Yes" is selected, the non-debug mode option will be set. When "NO" is selected, the original state will be returned.

Figure 3-61. Message to Change to Debug Mode
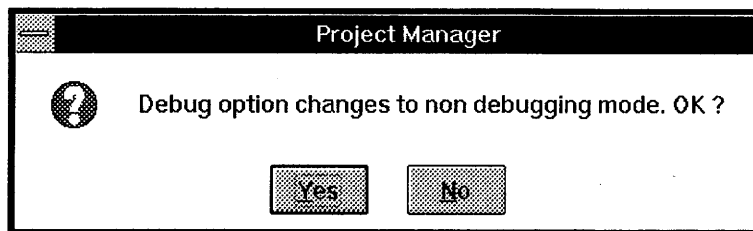
    <3> During debug, specify debug by starting the debugger after executing the series of language processing programs in building mode. The default is the [debug] mode.

(3) When the debug specification is changed, rebuild is carried out.

(4) Debug mode, non-debug mode

<1> The debug mode outputs the information (symbol information, etc.) required by the debugger for creating the execution file. Set this mode when debugging. If set to the debug mode, a check mark will be shown at the top of the [Debug] menu.

Figure 3-62. [Debug] Menu (Debug Mode)
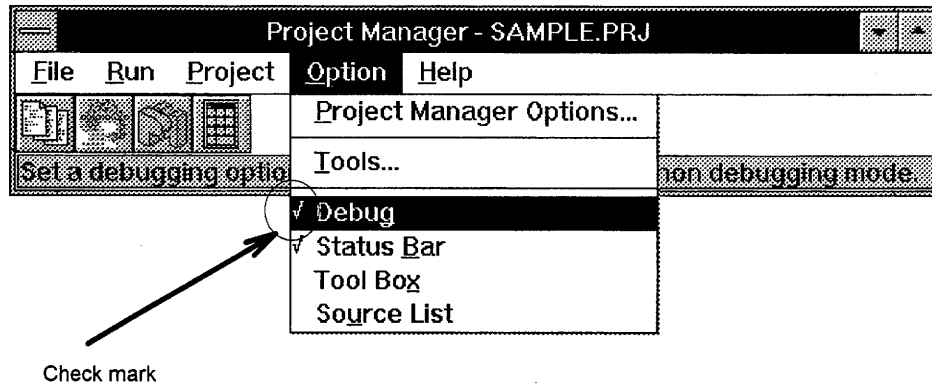
Check mark

<2> The non-debug mode does not output the debug information. Debug will not be performed for execution files created in the mode. If set to the non-debug mode, no check mark will be displayed at the top of the [Debug] menu.

Figure 3-63. [Debug] Menu (Non Debug Mode)
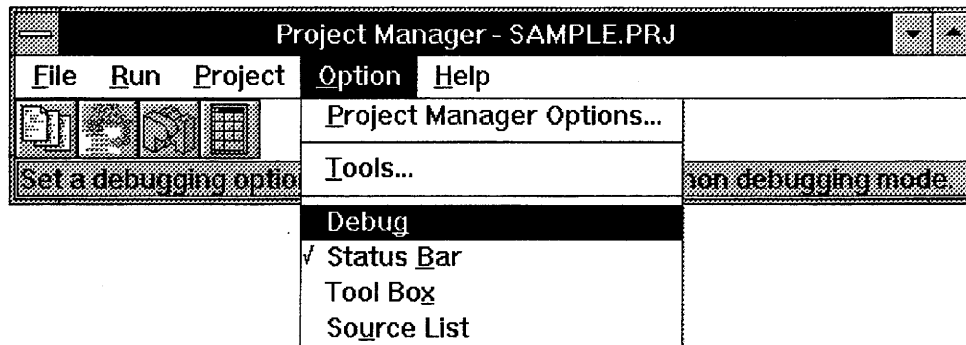
3.4.5 Status bar

[Functions]

Specifies whether the status bar can be displayed below the project manager window.

[Caution]

(1) If a check mark is displayed at the top of the [Status Bar], the status bar can be displayed.

(2) Each time [Status Bar] is selected, the status bar will be displayed or turned off. The default displays the status bar.

Figure 3-64. [Status Bar] Menu (Displayed)
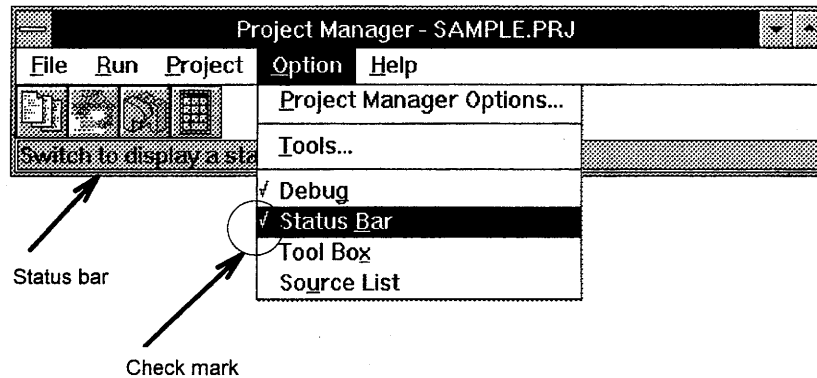
Figure 3-65. [Status Bar] Menu (Not Displayed)
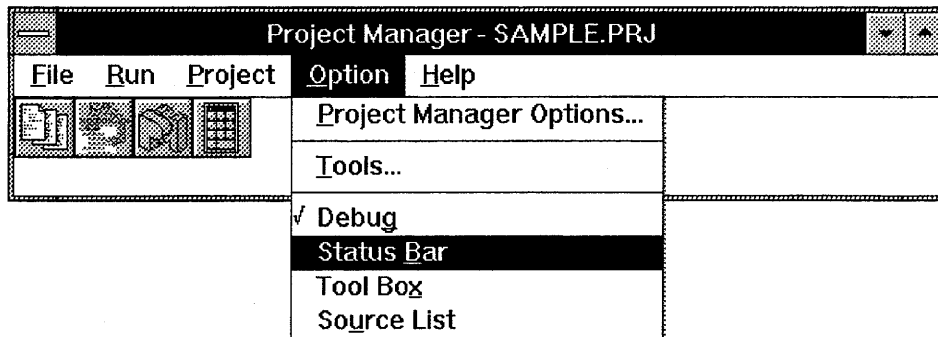
3.4.6 Tool box

[Function]

Switches whether or not to change the project manager window into the tool box.

[Description]

(1) When set to [Tool Box Display], the project manager window will be changed to the tool box display.

        <1> When set to tool box display, the menu will not be displayed. When operating on the menu, return the window to the normal display first.

        <2> The buttons on the normal display and tool box display are as follows.

Figure 3-66. Normal Display
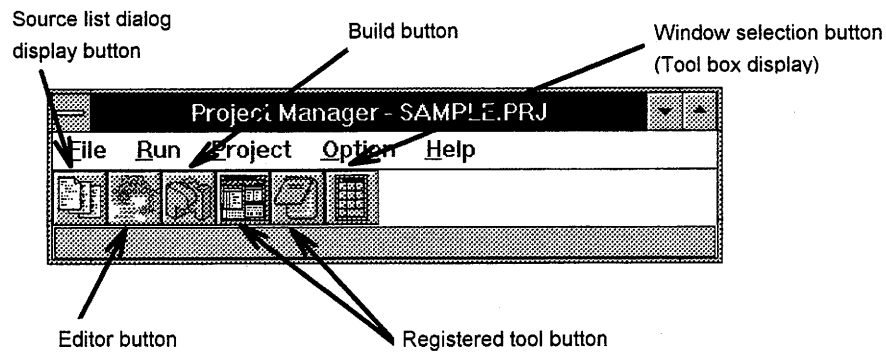
Figure 3-67. Tool Box Display
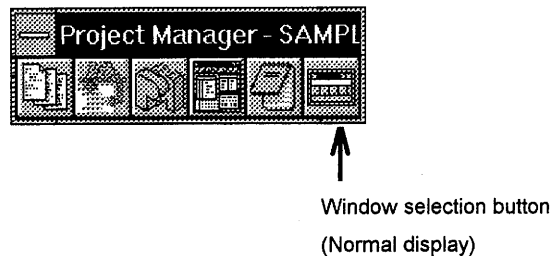
        <3> Icons registered at the top of the execution files are used as the display of the editor, build, and registered tool button.

(2) Each time the window selection button on the project manager window is pressed, the display switches between the tool box display and normal display.

(3) When displaying the tool box display window, if resize is carried out, the buttons will be repositioned according to the shape of the window. The buttons are repositioned from the top left to the bottom right of the window. When a button is moved outside the window, it is moved one step downwards. Finally, the window is resized according to the overall width and height of the buttons.

Figure 3-68. [Tool Box] Menu
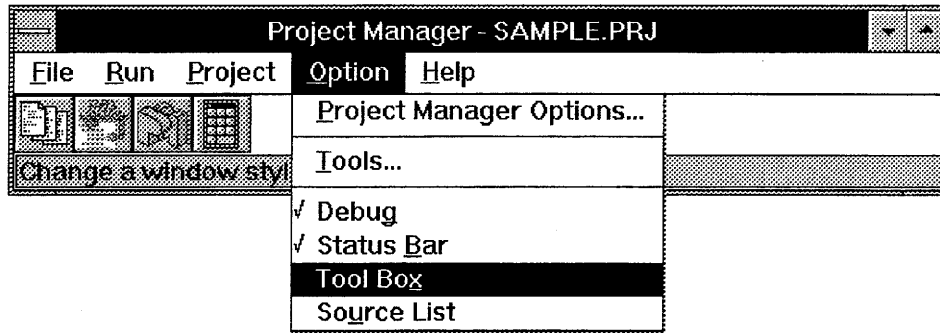
3.4.7 Source files

[Function]

Sets whether to display or not display the {{Source Files}}.

The editor can be started from the [Source Files] dialog. When setting options according to source file, use the {{Source Files}} dialog.

[Description]

(1) Each time [Source Files] is selected, the {{Source Files}} dialog is displayed or turned off. If the check mark is displayed before the [Source Files], it means that the {{Source Files}} dialog is to be displayed.

Figure 3-69. {{Source Files}} Dialog
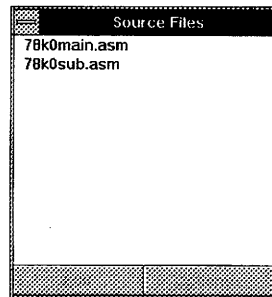
(2) When a source file name is double-clicked on the {{Source Files}} dialog using the left mouse button, the editor is started and the source files is edited. After starting the editor, the selection of the source file will be canceled.

(3) When a source file is selected from the {{Source Files}} dialog and the "Edit" button is selected, the editor will be started and the source file will be edited. After starting the editor, the selection of the source file will be canceled.

(4) When a source file is selected from the {{Source Files}} dialog and "Tool Options" is selected, options will be set for the selected source file. After setting the option, the selection of the source file will be canceled.

(5) When a source file is selected from the {{Source Files}} dialog and the "Options" button is selected, options will be set for the selected source file. After setting options, the selection of the source file will be canceled.

(6) As the {{Source Files}} dialog is a modeless dialog, the project manager can be operated with the {{Sources Files}} dialog displayed.

(7) When the source file to be registered for the project has been updated by [Source File Setup], the contents of {{Source Files}} dialog will also be updated.

(8) Whether options have been set for the source file will be displayed at the left of the source file name in the {{Source Files}} dialog. If options for source files have been set, "*" will be displayed at the left of the source file name.

Figure 3-70. {{Source Files}} Dialog (When Options are Specified)
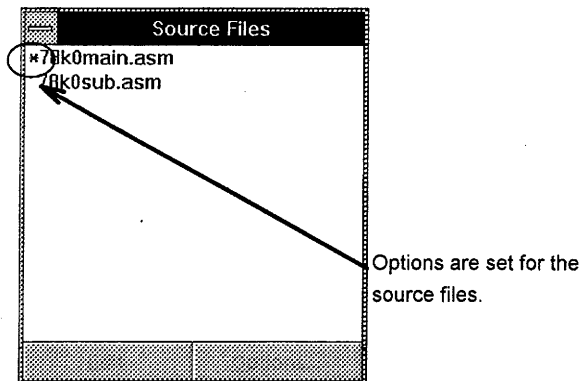
Figure 3-71. [Source List] Menu (Displayed)
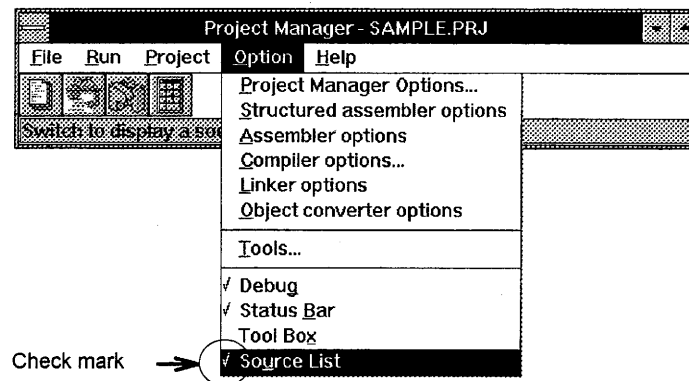
Figure 3-72. [Source List] Menu (Not Displayed)
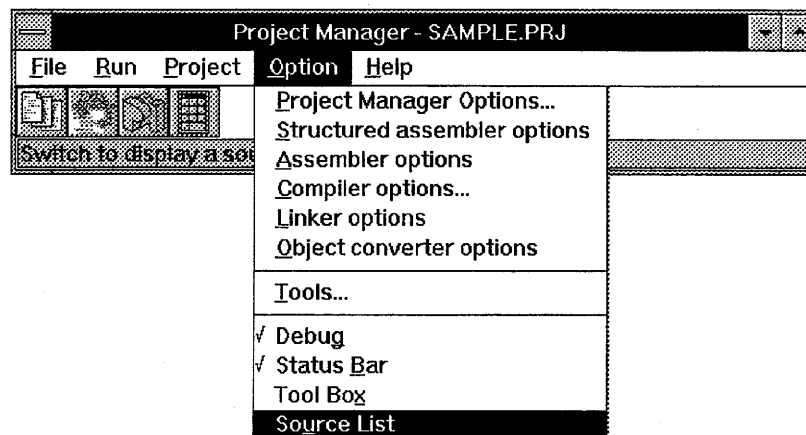
3.5 Help

3.5.1 Contents

[Function]

Displays the Help contents.

[Description]

(1) When [Contents] is selected, the help window is started, the project manager help file is opened, and the contents is displayed.

Figure 3-73. Help Contents
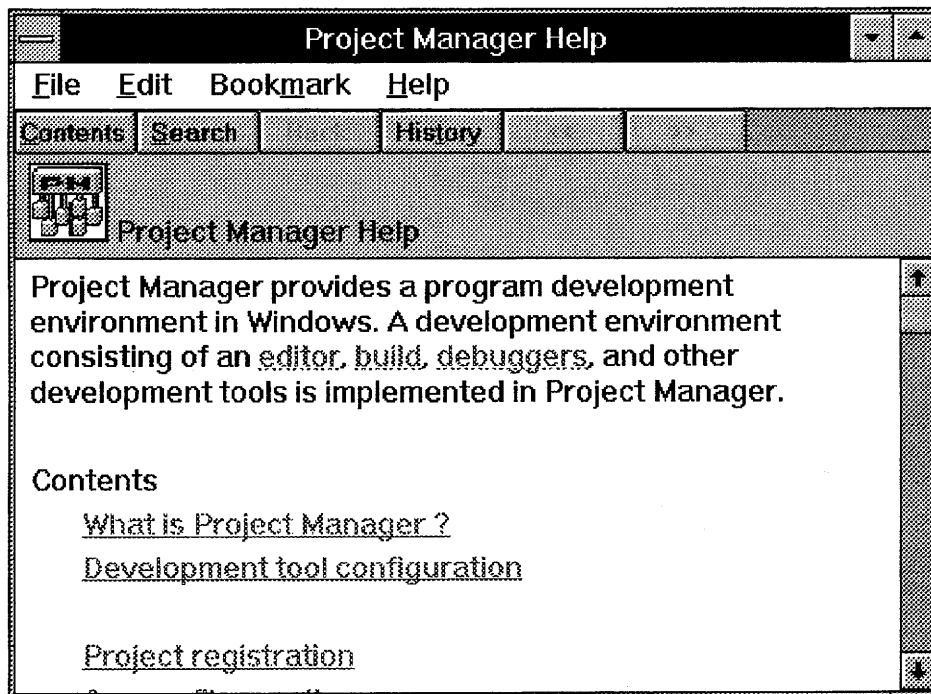
Figure 3-74. [Contents] Menu
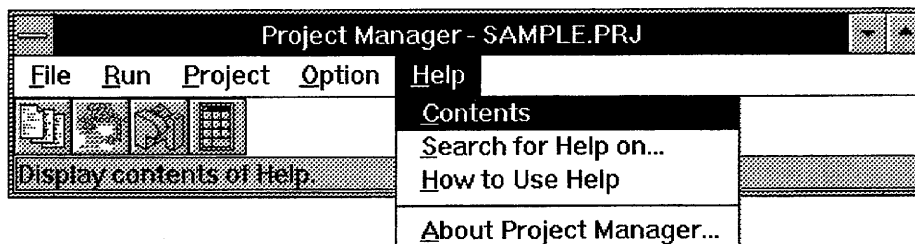
3.5.2 Search

[Function]

Displays the help {{Search}} dialog.

[Description]

(1) When [Search] is selected, the help window is started and the {{Search}} dialog is displayed.

Figure 3-75. {{Search}} Dialog
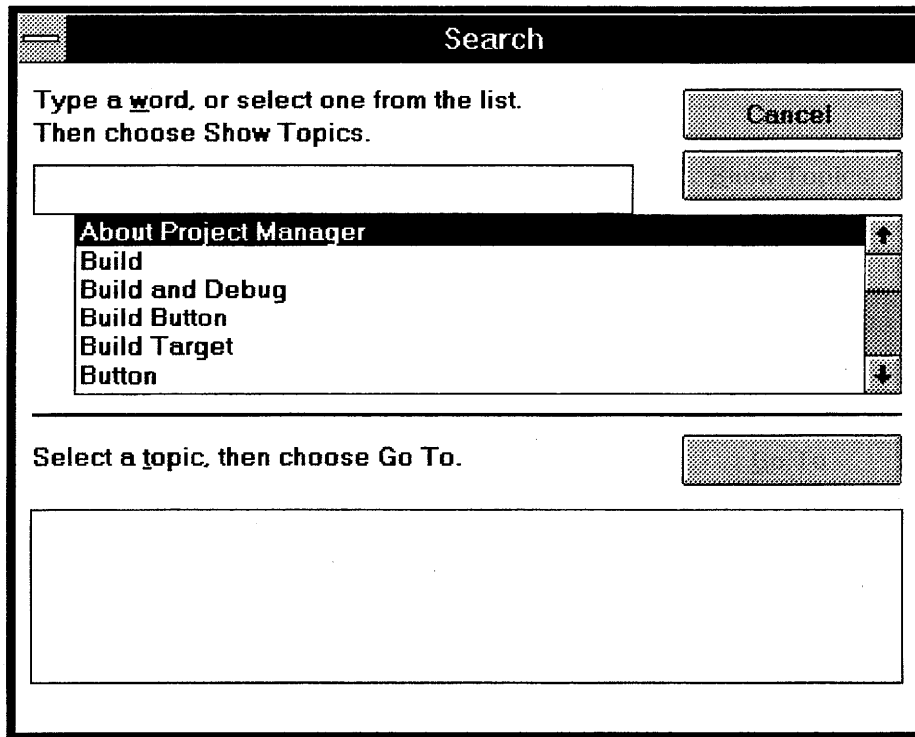
Figure 3-76. [Search for Help on] Menu
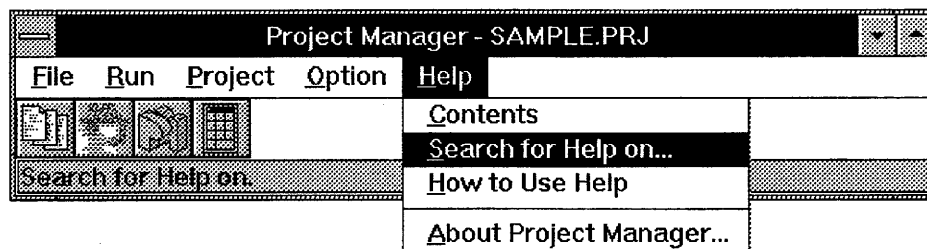
3.5.3 How to use help

[Function]

Displays how to use help.

[Description]

(1) When [How to Use Help] is selected, the help window is started and how to use help is displayed.

Figure 3-77. {{How to Use Help}} Dialog
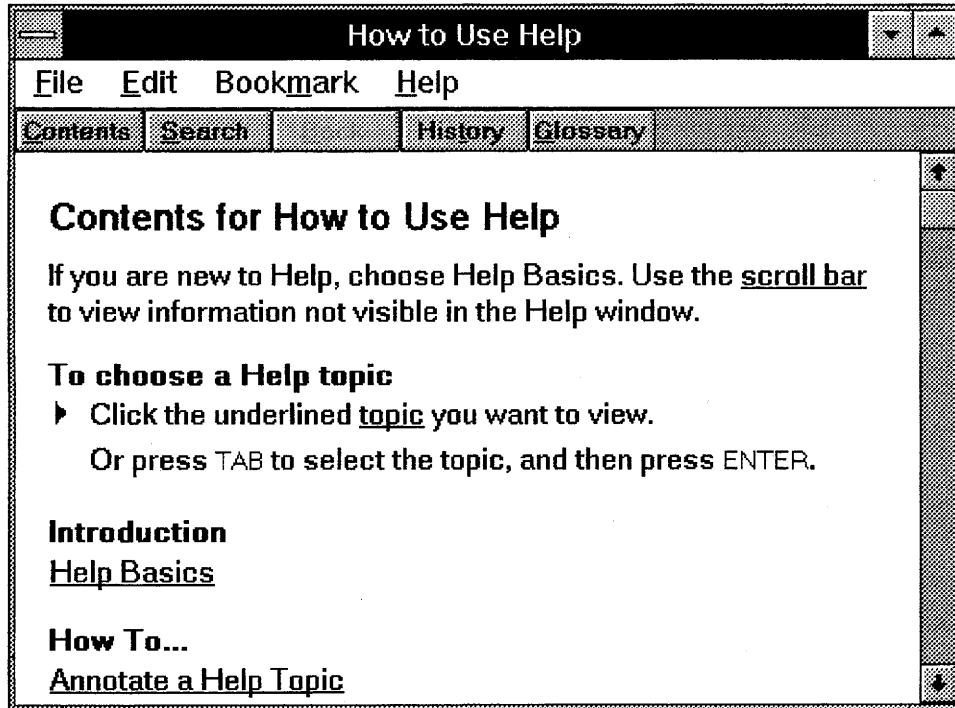
Figure 3-78. [How to Use Help] Menu
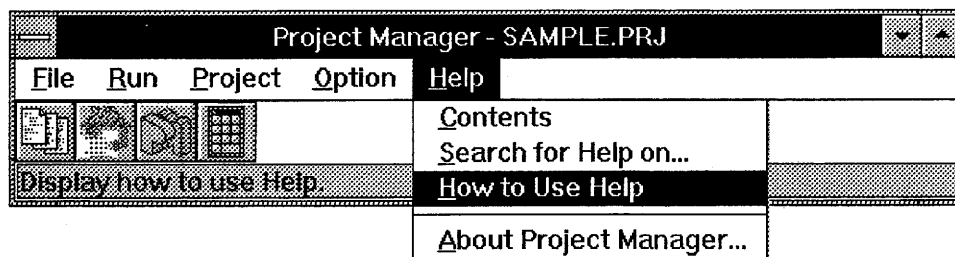
3.5.4 About project manager

[Function]

Displays information on the project manager version.

[Description]

(1) When [About Project Manager] is selected, the {{About Project Manager}} dialog is displayed.

(2) In the {{About Project Manager}} dialog, when "OK" is selected, the dialog closes.

Figure 3-79. {{About Project Manager}} Dialog
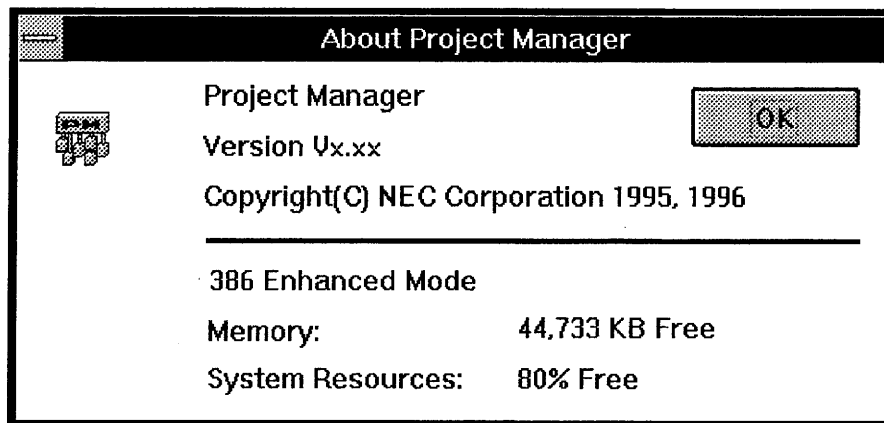
Figure 3-80. [About Project Manager] Menu
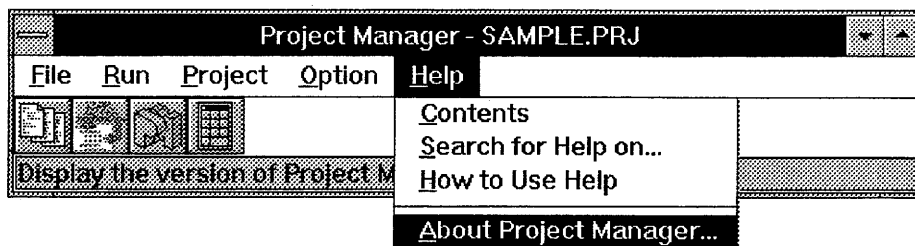
[MEMO]

CHAPTER 4   MAKE

This chapter describes the MAKE function of the project manager.

4.1   Starting

The MAKE function is started when the [Run]-[Build] menu, Build button, or [Run]-[Batch Processing] of the project manager is selected and when the debugger source is corrected.

When the MAKE function is started, the presence of make files from the project manager is confirmed.

If no make file exists, the message "No make file. Create the make file. Build is stopped." is displayed and the project manager is notified that the make file has ended in error.

4.2 Project Make

If an unreadable syntax is found during the analysis of the make file, the message "Syntax error. xxx Build is stopped." is displayed and the project manager is notified that the make file has ended in error. The xxx in the message indicates the unreadable syntax.

When the make file has been analyzed and all the targets were found to be up to date, the message "xxx is up to date. Rebuild?" will be displayed to confirm if rebuilding is to be carried out. Select the "OK" or "Cancel" button. When "OK" is selected, rebuilding will be carried out, when "Cancel" is selected, build will end. If ended normally by rebuilding, or when "Cancel" was selected, the project manger will be notified that the make file has ended correctly. The xxx in the message indicates the make file and notifies that the target created by that make file is up to date.

Figure 4-1. Message When Target is Up to Date
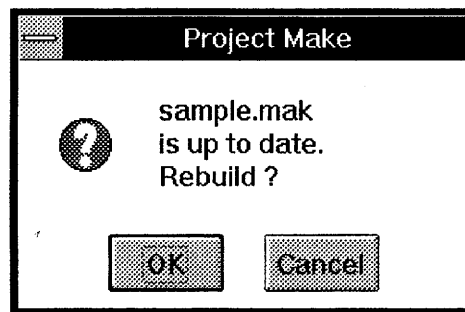
When an error is detected while ending a command in the make file, the message "xxx error while ending. Build is stopped." will be displayed and the project manager will be notified that the make file has ended in error. The xxx in the message indicates the command which cannot be executed.

Figure 4-2. Error Message For Command Error
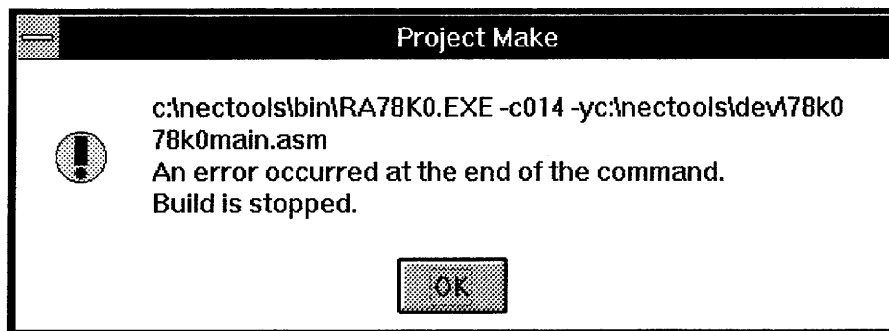
After completing make, select the error message line in the MAKE window to carry out tag-jump. Tag-jump is carried out when the following procedure is carried out.

<1> Select the error message line

Move to the line to be tag-jumped using the up/down arrow keys on the keyboard so that it is highlighted, or move the mouse cursor to the line to be tag-jumped and click the left button.

<2> Jump
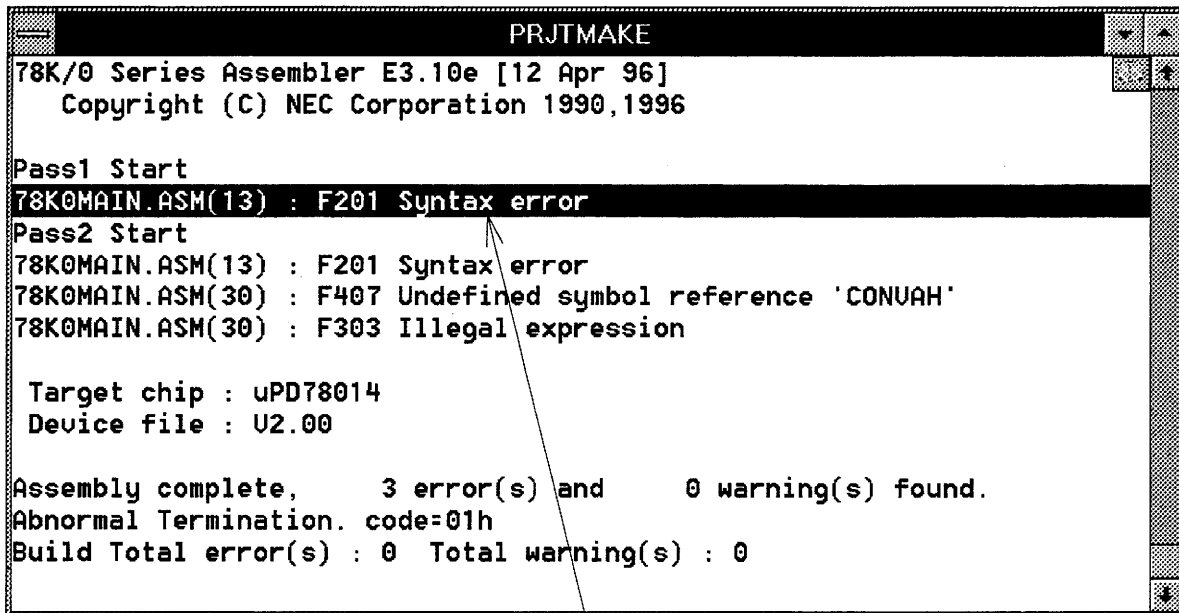
Press the return key. Or double-click the left mouse button.

Tag-jump is executed only when the selected line is in the following format. It will not be tag-jumped in other formats.

"Source file name Line number Error message"

* Space or at least one special symbol must be placed between the "Source file name" and "Line number" as a separation code.

Figure 4-3. Tag-Jump Specification

```
┌──────────────────────────────────────────────────────────────┐
│ ═              PRJTMAKE                                    ▼│▲ │
│78K/0 Series Assembler E3.10e [12 Apr 96]                   ▒│♦│
│   Copyright (C) NEC Corporation 1990,1996                     │
│                                                               │
│Pass1 Start                                                    │
│78K0MAIN.ASM(13) : F201 Syntax error                           │
│Pass2 Start                                                    │
│78K0MAIN.ASM(13) : F201 Syntax error                           │
│78K0MAIN.ASM(30) : F407 Undefined symbol reference 'CONVAH'    │
│78K0MAIN.ASM(30) : F303 Illegal expression                     │
│                                                               │
│ Target chip : uPD78014                                        │
│ Device file : V2.00                                           │
│                                                               │
│Assembly complete,    3 error(s) and    0 warning(s) found.    │
│Abnormal Termination. code=01h                                 │
│Build Total error(s) : 0  Total warning(s) : 0                 │
└──────────────────────────────────────────────────────────────┘
```

Selected with highlighted

4.3   Make Log Display

The make window shows the command starting the tool executed by make and the message output by the tool.

These commands and messages are displayed one after another each time a tool is executed. When the make window becomes full, the window is scrolled upward from the oldest information and the latest information is displayed at the very bottom of the make window.

If the tool started by the make function ended in error, the make function stops all processes thereafter.

The information displayed on the make window is also output to the log file. Regardless of whether build ends normally or not, the log file is created.

When the tool started by make ends, the ending state of the tool is displayed on the make window as follows.

"Normal Termination"   Indicates normal ending when the ending code is 0.

"Abnormal Termination code=nnn"   Indicates abnormal ending. "nnn" is an ending code.

When make ends, the total error messages displayed on the make window is displayed.
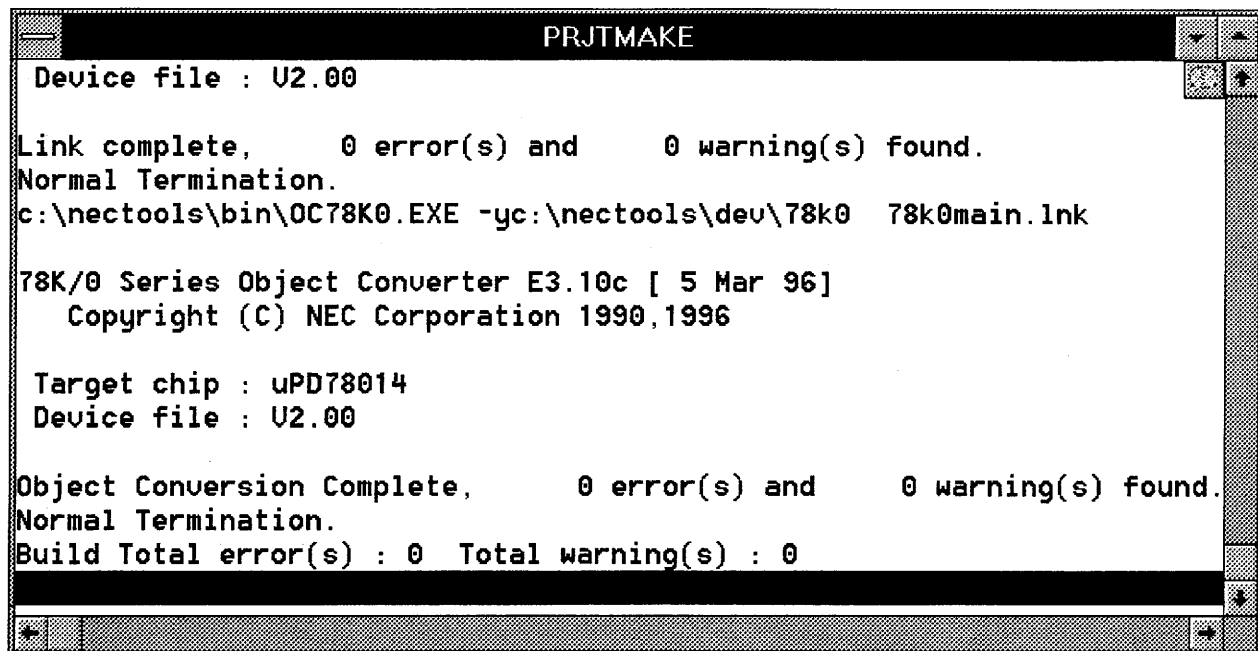
Form: Build Total error(s): n   Total warning(s): m

n indicates the fatal errors and m indicates the total warning errors.

The total error messages is calculated by totaling the total fatal errors and warning errors from the message line in the following format.

Form: Total error(s): n   Total warning(s): m

Figure 4-4. Make Log Screen

```
┌─────────────────────────────────────────────────────────────────────────┐
│█  ▐                            PRJTMAKE                            ▼▐ ─ │
├─────────────────────────────────────────────────────────────────┬───┴─┤
│ Device file : V2.00                                              │░░▌▲│
│                                                                  └───┤ │
│Link complete,      0 error(s) and      0 warning(s) found.           ▓ │
│Normal Termination.                                                   ▓ │
│c:\nectools\bin\OC78K0.EXE -yc:\nectools\dev\78k0  78k0main.lnk       ▓ │
│                                                                      ▓ │
│78K/0 Series Object Converter E3.10c [ 5 Mar 96]                      ▓ │
│   Copyright (C) NEC Corporation 1990,1996                            ▓ │
│                                                                      ▓ │
│ Target chip : uPD78014                                               ▓ │
│ Device file : V2.00                                                  ▓ │
│                                                                      ▓ │
│Object Conversion Complete,      0 error(s) and      0 warning(s) found.│
│Normal Termination.                                                     │
│Build Total error(s) : 0  Total warning(s) : 0                          │
│                                                                     ▼ │
├──┬──────────────────────────────────────────────────────────────┬────┤
│◄ ▌                                                               │ ► │
└──┴──────────────────────────────────────────────────────────────┴────┘
```

4.4 Stopping Build

To stop build, select [Stop Build] in the control menu or press the Stop Build button at the top right of the Build window. This button may not be displayed according to [Project Manager Options].

The second method can be carried out by selecting the [Run]-[Stop Build] menu of the project manager.

The [Stop Build] menu is displayed in a light color except during build.

Figure 4-5. [Stop Build] Button

Stop Build button
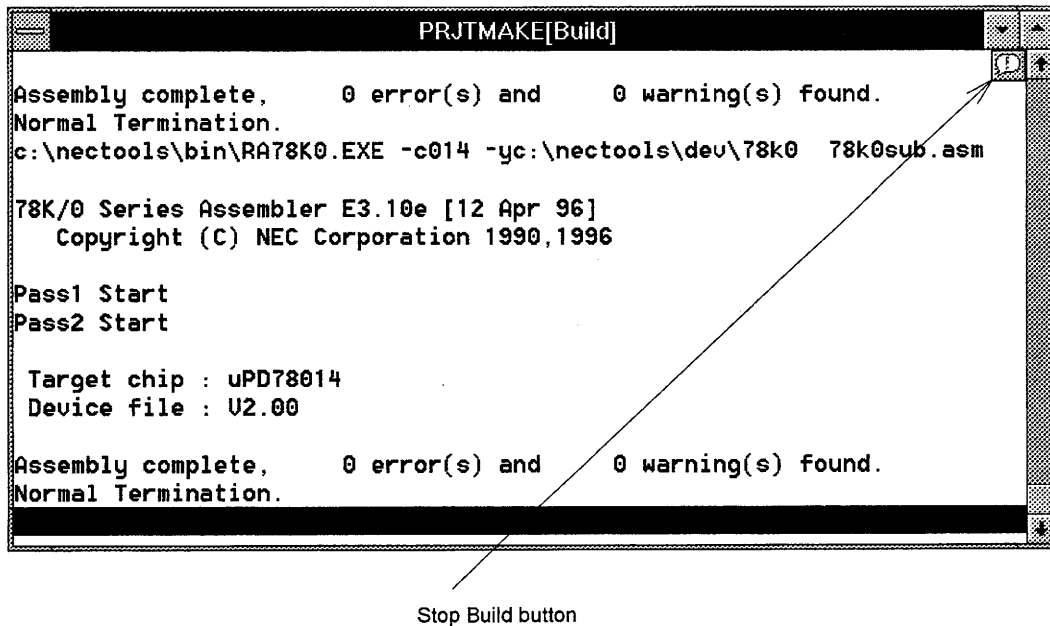
Figure 4-6. [Stop Build] Menu
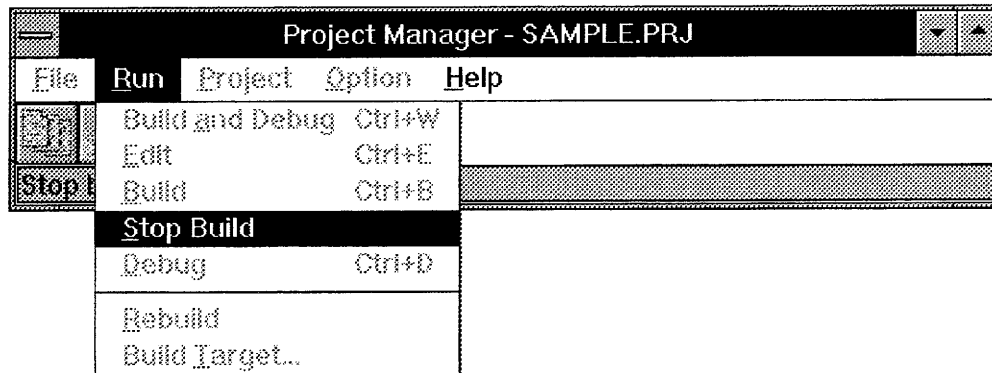
CHAPTER 5 EXECUTING THE PROJECT MANAGER

This chapter explains how to execute the project manager by giving some examples.

5.1 Environment

It is assumed that the project manager, assembler package, and sample programs are installed in the directory c:\nectools\bin.

It is assumed that WINDOWS has already been started.

5.2 Sample Program

The sample program given in this example is the sample program for the 78K/0 series assembler package. Take note that this program is not provided with the project manager.

The following shows the sample program (sample 1.asm, sample 2.asm).

```
[sample1.asm]
     $    PROCESSOR(014)
          NAME    SAMPM

     PUBLIC  MAIN, START
     EXTRN   CONVAH

     DATA    DSEG     AT 0FE20H
     HDTSA:  DS  1
     STASC:  DS  2

     CODE    CSEG     AT 0H
     MAIN:   DW  START

          CSEG
     START:

          ;chip initialize

          MOV     HDTSA, #1A00H
          MOVW    HL, #HDTSA       ;set hex 2-code data in HL registor

          CALL    !CONVAH          ;convert ASCII <- HEX
                                   ;output BC-register <- ASCII code
          MOVW    DE, #STASC       ;set DE <- store ASCII code table
          MOV     A, B
          MOVW    [DE], A
          INCW    DE
          MOV     A, C
          MOV     [DE], A

          BR      $$

          END
```

```
[sample2.asm]
    $   PROCESSOR (014)
        NAME    SAMPS

    PUBLIC  CONVAH

        CSEG
CONVAH:
        XOR     A, A
        ROL4    [HL]            ;hex upper code load
        CALL    !SASC
        MOV     B, A            ;store result

        XOR     A, A
        ROL4    [HL]            ;hex lower code load
        CALL    !SASC
        MOV     C, A            ;store result

        RET

SASC:
        CMP     A, #0AH         ;check hex code > 9
        BC      $SASC1
        ADD     A, #07H         ;bias(+7H)
SASC1:
        ADD     A, #30H         ;bias(+30H)
        RET

        END
```

5.3 Executing the Project Manager

This following describes the procedure for executing the project manager.

(1) Starting the project manager

Double-click the icon ▓▓ to start the project manager.

The following window will be displayed.

```
┌──────────────────────────────────────────────────────┐
│ ▬        Project Manager - Untitled          ▼ ▲      │
├──────────────────────────────────────────────────────┤
│ File   Run   Project   Option   Help                 │
├──────────────────────────────────────────────────────┤
│ ▓▓  │ ▓▓ │ ▓▓                                         │
├──────────────────────────────────────────────────────┤
│                                                        │
└──────────────────────────────────────────────────────┘
```

(2) Input as follows at the {{Project Setup}} dialog at the [Project]-[New] menu, and select "OK".

Project file name : sample.prj

Title :

Project directory : c\nectools\bin

Series : 78K0 Series

Device name : 78014

```
┌──────────────────────────────────────────────────────────────────┐
│ ▬                        Project Setup                             │
├──────────────────────────────────────────────────────────────────┤
│  Project File Name:                           ┌──────────────┐    │
│  ┌──────────────────────────┐                 │     OK       │    │
│  │ sample.prj               │                 └──────────────┘    │
│  └──────────────────────────┘                 ┌──────────────┐    │
│  Title:                                        │   Cancel     │    │
│  ┌────────────────────────────────────────┐   └──────────────┘    │
│  │                                        │   ┌──────────────┐    │
│  └────────────────────────────────────────┘   │   Browse...  │    │
│  Project Directory:                            └──────────────┘    │
│  ┌────────────────────────────────────────┐   ┌──────────────┐    │
│  │ c:\nectools\bin                        │   │    Help      │    │
│  └────────────────────────────────────────┘   └──────────────┘    │
│  Series Name:                   Device Name:                       │
│  ┌────────────────────┬──┐      ┌────────────────────────┬──┐     │
│  │ 78K0 Series        │▼ │      │ uPD78014               │▼ │     │
│  └────────────────────┴──┘      └────────────────────────┴──┘     │
└──────────────────────────────────────────────────────────────────┘
```

(3) Next, input at the {{Source Files Setup}} dialog.

It is assumed that the source files are c:\nectools\bin sample 1.asm, sample 2.asm.

```
┌─────────────────────────────────────────────────────────────┐
│ ▤                        Source Files Setup                   │
├─────────────────────────────────────────────────────────────┤
│  Source File List:                                           │
│                              ┌──────────┐  ┌──────────┐       │
│  ┌──────────────────────┐    │   Add... │  │    OK    │       │
│  │ 78k0main.asm         │    └──────────┘  └──────────┘       │
│  │ 78k0sub.asm          │    ┌──────────┐  ┌──────────┐       │
│  │                      │    │  Delete  │  │  Cancel  │       │
│  │                      │    └──────────┘  └──────────┘       │
│  │                      │    ┌──────────┐  ┌──────────┐       │
│  │                      │    │Delete All│  │   Help   │       │
│  │                      │    └──────────┘  └──────────┘       │
│  │                      │    ┌──────────┐                     │
│  │                      │    │          │                     │
│  │                      │    └──────────┘                     │
│  │                      │    ┌──────────┐                     │
│  │                      │    │          │                     │
│  └──────────────────────┘    └──────────┘                     │
└─────────────────────────────────────────────────────────────┘
```

(4) This ends the setting of the project. Next, set the assembler options at [Options]-[Assembler option setup]. Likewise set options such as linker, object converter.

```
┌─────────────────────────────────────────────────────────────┐
│ ▤                     Assembler option setup                  │
├─────────────────────────────────────────────────────────────┤
│  ┌──────────┐  ┌──────────────────┐  ┌──────────┐ ┌────────┐ │
│  │    OK    │  │                  │  │  Cancel  │ │  Help  │ │
│  └──────────┘  └──────────────────┘  └──────────┘ └────────┘ │
│  assembler Option                                            │
│  ┌─────────────────────────────────────────────────────────┐│
│  │ -ks -kx -e                                               ││
│  │                                                          ││
│  │                                                          ││
│  └─────────────────────────────────────────────────────────┘│
│  ┌──────────────────────────────────────────────────┐ ┌───┐ │
│  │ -ks -kx -e                                         │ │ ▼ │ │
│  └──────────────────────────────────────────────────┘ └───┘ │
└─────────────────────────────────────────────────────────────┘
```

(5) Select Build using the Build button [image] or at the [Run]-[Build] menu.

The make log screen will be displayed.

```
╔═══════════════════════════════════════════════════════════════╗
║  ▬        Project Manager - SAMPLE.PRJ           ▼ ▲          ║
╠═══════════════════════════════════════════════════════════════╣
║  File   Run   Project   Option   Help                         ║
╟───────────────────────────────────────────────────────────────╢
║ ▒▒▒ ▬              PRJTMAKE[Build]                    ▼ ▲      ║
║ Start to                                              ⊡ ↑      ║
║        78K/0 Series Assembler E3.10e [12 Apr 96]              ║
║           Copyright (C) NEC Corporation 1990,1996            ║
║       ┌─────────────────────────────────────────────┐        ║
║       │ ▬              Project Make                  │        ║
║       ├─────────────────────────────────────────────┤        ║
║  Pass1 St│                                           │        ║
║  78K0MAIN│  c:\nectools\bin\RA78K0.EXE -c014 -yc:\nectools\dev\78k0 │
║  Pass2 St│  78k0main.asm                             │        ║
║  78K0MAIN│(!)  An error occurred at the end of the command.    │
║  78K0MAIN│     Build is stopped.                     │        ║
║          │                                           │        ║
║   Target │           ┌─────────┐                     │        ║
║   Device │           │   OK    │                     │        ║
║          │           └─────────┘                     │        ║
║       └─────────────────────────────────────────────┘        ║
║  Assembly complete,    2 error(s) and     0 warning(s) found. ║
║  Abnormal Termination. code=01h                              ║
║  Build Total error(s) : 0  Total warning(s) : 0             ║
╚═══════════════════════════════════════════════════════════════╝
```

(6) Due to error, tag-jump was carried out.

Move the cursor to the error message, double-click, and jump to the editor.

```
┌─────────────────────────────────────────────────────────────┐
│ ▬                        PRJTMAKE                        ▼ ▲ │
│                                                           ▪ ⬆ │
│78K/0 Series Assembler E3.10e [12 Apr 96]                    │
│   Copyright (C) NEC Corporation 1990,1996                   │
│                                                              │
│Pass1 Start                                                   │
│▐78K0MAIN.ASM(34) : F202 Illegal operand                    ▌│
│Pass2 Start                                                   │
│78K0MAIN.ASM(27) : F312 Operand out of range (byte)         │
│78K0MAIN.ASM(34) : F202 Illegal operand                     │
│                                                              │
│ Target chip : uPD78014                                      │
│ Device file : V2.00                                         │
│                                                              │
│Assembly complete,    2 error(s) and    0 warning(s) found.  │
│Abnormal Termination. code=01h                               │
│Build Total error(s) : 0  Total warning(s) : 0              │
│                                                           ⬇ │
└─────────────────────────────────────────────────────────────┘
```

(7) The editor will be started.

The cursor will be at the error line.

After the error at the 34th line is corrected, the makelog screen is returned. Move the cursor to the error message at the 27th line, double-click, and correct the error with the editor.

Save the source files using the [File]-[Save] menu of the editor.

For the {Save first 2 lines (1st layer and 2nd layer)?} message, select "No".

```
                                    idea-L Light

File   Edit   Layer   Jump   Options   Window   Help

                    C:\NECTOOLS\BIN\78K0MAIN.ASM (PM)

        *       MOV       HDTSA, #1A00H
        *       MOVW      HL, #HDTSA          ;set hex 2-code data in
        *
        *       CALL      !CONVAH             ;convert ASCII <- HEX
        *                                     ;output BC-register <- A
        *       MOVW      DE, #STASC          ;set DE <- store ASCII
        *       MOV       A, B
        *       MOVW      [DE], A
        *       INCW      DE
        *       MOV       A, C
        *       MOV       [DE], A
        *
        *       BR        $$
        *
        *       END

                                    TEXT      78k0main.asm     1        36
```

(8) After correcting all errors, select Build again.

```
┌──────────────────────────────────────────────────────────┐
│         Project Manager - SAMPLE.PRJ          [▼][▲]      │
├──────────────────────────────────────────────────────────┤
│  File   Run   Project   Option   Help                    │
├──────────────────────────────────────────────────────────┤
│ ┌─────────────────────── PRJTMAKE ──────────────[▼][▲]─┐ │
│ │ Device file : V2.00                            [D][↑] │ │
│ │                                                      │ │
│ │ Link complete,     0 error(s) and    0 warning(s) found. │
│ │ Normal Termination.                                  │ │
│ │ c:\nectools\bin\OC78K0.EXE -yc:\nectools\dev\78k0  78k0main.lnk │
│ │                                                      │ │
│ │ 78K/0 Series Object Converter E3.10c [ 5 Mar 96]    │ │
│ │    Copyright (C) NEC Corporation 1990,1996          │ │
│ │                                                      │ │
│ │  Target chip : uPD78014    ┌──── Project Make ────┐ │ │
│ │  Device file : V2.00       │                      │ │ │
│ │                            │  (i)  Build is completed. │ warning(s) found.│
│ │ Object Conversion Complete,│                      │ │ │
│ │ Normal Termination.        │      [   OK   ]      │ │ │
│ │ Build Total error(s) : 0  T└──────────────────────┘ │ │
│ └──────────────────────────────────────────────────────┘ │
└──────────────────────────────────────────────────────────┘
```

(9) The Build process ends normally.

(10) Start the debugger and begin debug.

APPENDIX A LIST OF MESSAGES

This section describes both the Japanese and English messages, but on the screen, messages of only either language will be displayed.

A.1 Project Manager Messages

The title of the message boxes output by the project manager is all "Project Manager".

A.1.1 Errors

Table A-1. Project Manager Error Messages (1/4)

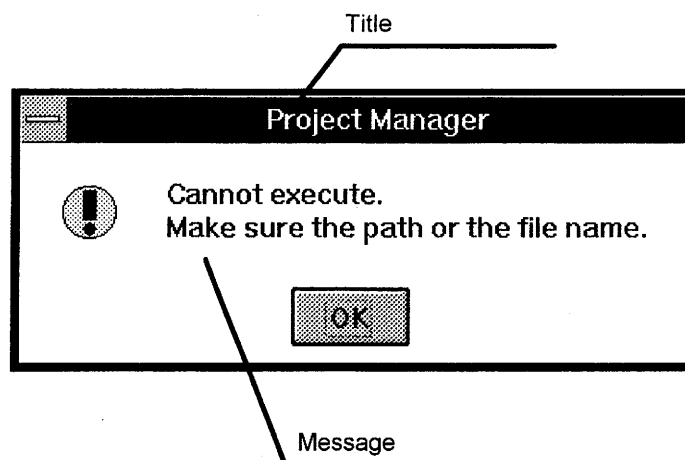|		
!	Message	Not found the path or the file. Make sure the path or the file name.
	Cause	The specified path name or file name is not found. Specify an existing path or file.
!	Message	Illegal directory name. Enter a right directory name.
	Cause	The specified directory name is illegal or does not exist. Specify the correct directory.
!	Message	Illegal path or file name. Enter a right path or file name.
	Cause	The specified path or file is illegal. Specify the correct path or file.
STOP	Message	Not found the initial file. Close Project Manager.
	Cause	The initial file (NECDEV.INI) is not registered in the Windows directory. Perform installation again or register the initialization file in the Windows directory.
!	Message	The file extension is not prj.
	Cause	The specified project file extension is not "PRJ". Use "PRJ".
!	Message	A file name is missing. Enter a file name.
	Cause	The file name has not been input where it must be specified. Input the file name.
!	Message	Cannot print the project information.
	Cause	The printer driver is not set or has not been set properly. Check if the printer driver has been set and check if the correct printer has been connected.

Table A-1. Project Manager Error Messages (2/4)

!	Message	No enough memory.
	Cause	Not enough memory to execute PM. Close unnecessary applications occupying the memory. If using Windows in the enhanced mode, delete all unnecessary files and increase the usable disk space.
!	Message	No Help item.
	Cause	The help file is illegal. Use the correct help file.
STOP	Message	Cannot output to a list box. Internal error.
	Cause	An error has been detected in an internal process. Contact NEC with the situation of use.
!	Message	The file has already existed.
	Cause	The path to be set has already been set. Change to a name not set and set again.
STOP	Message	Illegal number of the moving item. Internal error.
	Cause	An error has been detected in an internal process. Contact NEC with the situation of use.
!	Message	Illegal extension of source file.
	Cause	The extension of the source file to be set is illegal. Set a source file with a processable extension.
!	Message	The title has already existed.
	Cause	The title to be set has already been set. Change to a name not set and set again.
!	Message	Cannot get a debugged file name.
	Cause	The debugger to be used is incorrect. Use the correct debugger.
!	Message	Cannot execute. Make sure the path or the file name.
	Cause	The tools cannot be executed according to the state of the system such as insufficient memory. Confirm the setting of the system.
!	Message	Cannot access the drive. Make sure the drive.
	Cause	The drive is not ready and therefore cannot be accessed. Prepare the drive.
!	Message	Failed to write the file.
	Cause	Failed in writing the file due to the following reasons. • Insufficient disk space. • aximum file capacity of 64KB has been reached. • Accessed write-prohibited file. Check the file to be written in and carry out the following procedure. • Delete unnecessary files to increase usable disk space. • Delete unnecessary data and decrease the file size. • Change the file attribute or store in a separate file.
!	Message	Cannot create a path.
	Cause	The path cannot be created. Check if the path is illegal, too long, and if the usable disk space is sufficient.
?	Message	Start to building a program. Save the editting files?
	Cause	Attempted to execute build, but because the editor has been started, check if build is to be continued.

Table A-1. Project Manager Error Messages (3/4)

!	Message	Cannot create a file.
	Cause	Failed in creating files due to the following reasons. • Insufficient disk space. • Accessed write-prohibited file. Check the file to be written in and carry out the following procedure. • Delete unnecessary files to increase usable disk space. • Cancel the write prohibit state of the disk unit.
!	Message	Not set a series name.
	Cause	When setting the project, "OK" was selected in the state where the "Series name" has not been selected. After selecting the "Series Name", select "OK".
!	Message	Not set a device name.
	Cause	When setting the project, "OK" was selected in the state where the "Device name" has not been selected. After selecting the "Device name", select "OK".
!	Message	Not set an editor in the series information.
	Cause	The editor is not registered in the series information. Add the editor information to the series information.
!	Message	Illegal version of the initial file. Close Project Manager.
	Cause	The version number in the initial file (NECDEV.INI) does not match the version number of the project manager. Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	Illegal version of the project file. Stop reading the project file.
	Cause	The version number in the project file does not match the version number of the project manager. Recreate the project file.
!	Message	No series sections. Close Project Manager.
	Cause	The section storing the series information is not registered in the initial file (NECDEV.INI). Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	Failed to read the initial file. Close Project Manager.
	Cause	The series section name cannot be read from the initial file (NECDEV.INI). Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	Failed to load the dll file for a tool.
	Cause	The tool DLL cannot be loaded in the memory. Check if the initialization file tool DLL path is correct. Also reinstall the series.
!	Message	Failed to load the dll file for an editor.
	Cause	The editor tool DLL cannot be loaded in the memory. Check if the initialization file tool DLL path is correct. Also reinstall the series.
!	Message	Failed to load the dll file for a debugger.
	Cause	The debugger tool DLL cannot be loaded in the memory. Check if the initialization file tool DLL path is correct. Also reinstall the series.
!	Message	Not found a series section name.
	Cause	The series information is not registered in the initial file (NECDEV. INI). Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	Not found a series information.
	Cause	The series information is not registered in the series section of the initial file (NECDEV.INI). Reinstall and set the initial file (NECDEV.INI) correctly.

Table A-1. Project Manager Error Messages (4/4)

!	Message	Not found a device name or a device file name.
	Cause	The device information is not registered in the device file section of the initial file (NECDEV.INI). Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	The number of series sections in the initial file is different from the number of series.
	Cause	The series section name entry number is different from the number actually registered. Reinstall and set the initialization file (NECDEV.INI) correctly.
!	Message	The number of series sections in the initial file is different from the number of device sections.
	Cause	The series section number is different from the device section number. Reinstall and set the initial file (NECDEV.INI) correctly.
!	Message	Cannot input a path in the text box 'File Name'.
	Cause	The drive and directory were specified for the project file name of the project setting dialog. Specify the drive and directory name to the project directory.
!	Message	Cannot set some source files.
	Cause	The source file registered for the project has been deleted or a source file of the same name has been registered. Set the source file again.
!	Message	Cannot set some tools.
	Cause	The tool registered by [Tools Setup] has not been registered in the disk. Perform [Tools Setup] again
STOP	Message	Internal error.
	Cause	An error has been detected in the internal process. Contact NEC with the situation of use.

A.1.2 Warning messages
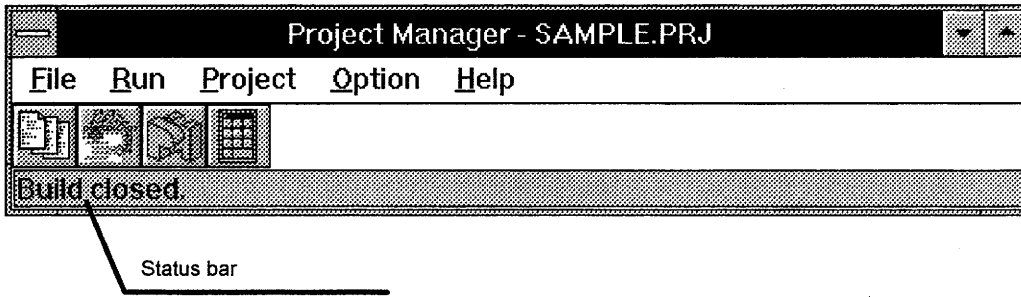
Table A-2. Project Manager Warning Messages

?	Message	This file has already existed. OK?
	Meaning	Because the file of the specified name already exists, confirm if the process is to be continued under that file name.
?	Message	This file has already existed. Overwrite it?
	Meaning	Because the file of the specified name already exists, confirm if the data is to be saved on that file.
?	Message	The project is changed. Save the project?
	Meaning	When the project information has been changed and a process to damage the contents is attempted, confirm if the current project information is to be saved.
?	Message	Not found the path. Create a directory?
	Meaning	Because the specified path does not exist, confirm if the path is to be created or not.
?	Message	Options are changed. Rebuild?
	Meaning	Because the previous option was changed when Build was selected, confirm if the path is to be created.

A.1.3 Information

Table A-3. Project Manager Information

?	Message	Debug option changes to non debugging mode. OK?
	Meaning	Confirm if the option can be changed to the non-debug mode.
?	Message	Debug option changes to debugging mode. OK?
	Meaning	Confirm if the option can be changed to the debug mode.
?	Message	The file doesn't exist. Create it?
	Meaning	Because the specified file is not registered on the disk, confirm if it is to be created.

A.2 Status Bar Message

Status bar

A.2.1 Menu messages

Table A-4. Menu Messages (1/2)

Message	Moves window, change size or close Project Manager.
Message	Print, Printer setup or close Project Manager.
Message	Build & Debug, Edit, Build or Debug.
Message	New, Open, Save, Save as or set a project.
Message	Setup tools, setup options, switch a debugging mode, switch status bar.
Message	Display Help.
Message	Print a project information.
Message	Set up a printer.
Message	Close Project Manager.
Message	Building and open debugger.
Message	Execute an editor.
Message	Execute a building.
Message	Stop building.
Message	Execute a debugger.
Message	Rebuild.
Message	Build a specified target.
Message	Execute a registered tool.
Message	Create a new project.
Message	Open a project file.
Message	Save a project.
Message	Save a project as a new name.
Message	Set up a project file name, a title and a device information.
Message	Set up source files.
Message	Set up a directory.
Message	Scan a dependence of source files.
Message	Set memos.
Message	Read a project file.

Table A-4. Menu Messages (2/2)

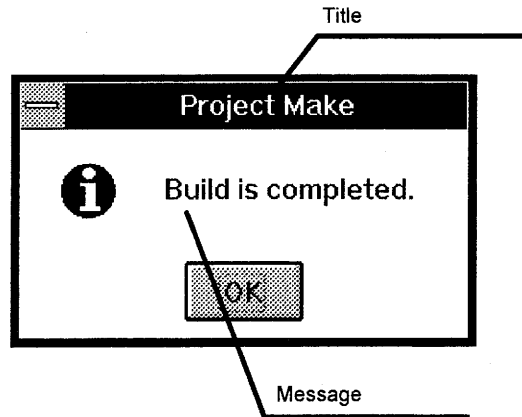| Message	Register a tool.
Message	Switch a debugging mode to a debugging mode or to a non debugging mode.
Message	Switch to display a status bar or not.
Message	Change a window style to a tool box.
Message	Switch to display a source list dialog.
Message	Display contents of Help.
Message	Search for Help on.
Message	Display how to use Help.
Message	Display the version of Project Manager.

A.2.2 Messages on communication between programs

Table A-5. Messages on Communication between Programs

Message	Making a make file.
Message	Failed to make a make file.
Message	Completed to make a make file.
Message	Scanning a dependence of source files.
Message	Failed to scan a dependence of source files.
Message	Reading a project file.
Message	Saving a project file.
Message	Not set an editor.
Message	Not set a building tool.
Message	Not maked a make file.
Message	Not set a debugger.
Message	Start to edit a source file.
Message	Save a source file and close an editor.
Message	Start to build.
Message	Stop building.
Message	Start to debug.
Message	Failed to.
Message	Failed to.
Message	Completed.
Message	Make sure an editor.
Message	Make sure to build.
Message	Make sure a debugger.
Message	Completed.
Message	Failed to.
Message	Failed to build.
Message	A make file has syntax errors.
Message	Building is canceled.
Message	Building is completed.
Message	Target is up to date.
Message	Start to change a source file.

A.3 Make Messages

The title of the message boxes output by the PRJTMAKE is all "Project Make".

Title

Project Make

Build is completed.

OK

Message

Table A-6. Make Messages

!	Message	No makefile. Build is stopped.
	Meaning	The make file specified by the project manager does not exist. Execute the {Project}-{Create Make File} menu of the project manager.
!	Message	Syntax error. ××× Build is stopped.
	Meaning	An error was found in the make file. Correct the make file.
!	Message	××× error while ending. Build is stopped.
	Meaning	An error was found when the command was ended. Check the contents of the build log file. Check the contents of the make file.
!	Message	Memory got an error. Build is stopped.
	Meaning	Memory required for build is insufficient. Close unnecessary applications occupying the memory. If using Windows in the enhanced mode, delete all unnecessary files and increase the disk usable space.
STOP	Message	System error.
	Meaning	An error has been detected in an internal process. Contact NEC with the situation of use.
!	Message	Command line has a format error. Build is stopped.
	Meaning	An error was found in the make file. Correct the make file.
?	Message	××× is up to date. Rebuild?
	Meaning	Because the target is up to date, confirm if it is to be rebuilt.
!	Message	Build is completed.
	Meaning	Notifies that build has completed correctly.
STOP	Message	PRJTPIPE.386 is not loaded.
	Meaning	PRJTPIPE.386 was not executed correctly when Windows was started. Add "DEVICE=PRJTPIPE.386" to the SYSTEM.INI file [386Enh] section.

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[MEMO]

APPENDIX B   LIST OF MENUS

B.1   Menu List

English Menu	Mnemonic	Meaning	Page
[File]			15
Print...	Ctrl + P	Print project information	15
Print Setup...		Set printer	17
Exit		Exit project manager	18
[Run]			19
Build and Debug	Ctrl + W	Continuously execute build and debug	19
Edit	Ctrl + E	Start editor	20
Build	Ctrl + B	Execute prjtmake	21
Stop Build		Stop build	23
Debug	Ctrl + D	Start debugger	24
Rebuild	Ctrl + R	Execute build forcibly	25
Build Target...	Ctrl + T	Build specified target	26
[Project]			29
New	Ctrl + N	Set new project	29
Open...	Ctrl + O	Open project file	32
Save	Ctrl + S	Save set information	35
Save As...	Ctrl + A	Save set information in specified file	36
Project...		Set project information	39
Source Files...		Set source file	43
Make a Make File	Ctrl + M	Create make file	46
Memo...		Set project history	47
[Option]			51
Project Manager Options...		Set project manager option and editor	51
Tools...		Register tool	58
Debug		Switch between debug and non-debug modes	62
Status Bar		Switch to display or not to display status bar	64
Tool Box		Switch between normal display and tool box display	65
Source List.		Switch to display or not to display source list	67
[Help]			69
Contents		Help contents	69
Search for Help on...		Help keywords Retrieval	70
How to Use Help		How to use help	71
About Project Manager...		Project manager version information	72

[MEMO]

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APPENDIX C   MAXIMUM PERFORMANCE

Item	Max. Performance
Total characters of DOS tool options such as assembler, compiler, etc.	128 characters (Limit in DOS command line)
Number of registered tool files	10 files
Memo size	256 bytes
Number of registered memos	237 memos
Tool DLLs which can be registered	10 DLLs
Project file name	12 characters
Project directory	128 characters
Project title	64 characters
Registered tool file name	128 characters
Registered tool title	32 characters

[MEMO]

INDEX

NEC

Facsimile Message

From:

_____
Name

_____
Company

_____
Tel.   FAX

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Document title: _____

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Document Rating	Excellent	Good	Acceptable	Poor
Clarity	❏	❏	❏	❏
Technical Accuracy	❏	❏	❏	❏
Organization	❏	❏	❏	❏

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