
Chapter 3.1 Using the Merlin Text Editor

Objectives of this Chapter

Having studied this chapter you will be able to:

- Use the Merlin Text Editor to:
 - Move the cursor to any point on the screen
 - Mark section of Text
 - Copy sections of Text
 - Load Text Files
 - Save Text Files
 - Print Text Files
 - Access on-line Help for text editing

Introduction

You will have already seen that hand assembly can be a time-consuming and error-prone process. A special computer program can be used to automatically **assemble** mnemonics into a machine-code program. Such a program is called an **assembler**. The assembler translates a **source program** written in mnemonics into an executable **object program** (machine code).

Text Editors

A text editor is a program which allows alphanumeric (numbers and letters) to be entered into memory. These are almost always in the form of ASCII (American Standard Code for Information Interchange) codes.

The text editor will also allow alphanumeric to be manipulated by means of a wide range of edit facilities. Programs written in this way are called **source code** and may be saved to disk as text files.

Merlin is a complete, screen-based, text editor for writing and editing any standard ASCII text file. These files may be used as source code for the LJ 80286 Cross Assembler. Merlin may also be used to edit text files created using other editors. The Merlin Text Editor is primarily a programming development tool for the applications or systems programmer. However, it may also be used to generate and edit other ASCII files (eg. DOS batch files) which have been created using other editors.

Since the Merlin Editor requires PC/MS-DOS to operate, it will be assumed that you have some familiarity with the fundamental terms and conventions. These topics will be covered by the manuals which you received with your IBM-PC or compatible.

Getting Started

If you are using a dual floppy disk system, you will require a DOS disk and a "80286 Cross Assembler" disk created from the D2000 disk.

If you are using a hard disk system, the D2000 80286 Cross Assembler should have been installed from the disk. Full installation details for floppy disk or hard disk systems are given in the D2000 80286 Cross Assembler Development System User Manual.

Dual Floppy Disk System

Place the DOS disk in Drive A, place the 80286 Cross Assembler disk in Drive B and switch on the power. When the system has loaded, enter the following command to log on to Drive B:

[A:\] B: [RETURN]

Hard disk system

Switch on the power to the system and wait for the DOS prompt to appear on the display. We will need to create an empty directory into which we will put all our programs. Enter the following command :

```
[C:\] MD \80286 [RETURN]
```

If you already have a directory called \80286 on drive C, then DOS will display an error message. You can ignore this error message.

Next, change to the 80286 directory:

```
[C:\] CD \80286 [RETURN]
```

Use of the Merlin Editor

The Merlin Editor allows ASCII characters to be input to the computer memory via the QWERTY keyboard. Files thus created may be stored or retrieved by means of the floppy or hard disk drive. Merlin allows ASCII text to be modified if required. Text can be deleted or inserted as single characters, lines or blocks.

Similarly, words, lines or blocks can be saved or loaded, using a disk drive. So the Merlin Editor is rather like a word processor program.

It is worthwhile spending a little time in learning some of the basic features of the Merlin Editor before going on to use it to create source files for the 80286 Cross Assembler.

Enter one of the following commands to load an example text file into the editor:

```
MERLIN TEST.TXT          for floppy disk systems
```

```
MERLIN \D2000\TEST.TXT   for hard disk systems
```

The screen will appear as shown on the next page.

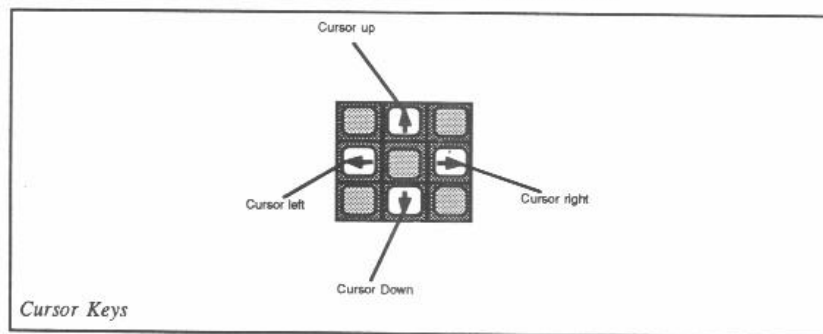
```
Line: 7   Col: 1   Mode: INSERT   Free: 89%   test.txt*
MERLIN Text Editor demonstration text

Mary had a little lamb,
Its fleece was as white as snow,
And everywhere that Mary went,
That lamb was sure to go.

MERLIN V2.0 (C)Copyright L.J.Technical Systems, Ltd. 1988-91   10 31 am
```

Moving Around the Screen

The flashing mark on the screen is called the **cursor**. This indicates the position where text will be inserted or changed. The cursor can be moved around the screen by means of the cursor keys (marked with arrows):



Cursor left	Moves the cursor 1 space left
Cursor right	Moves the cursor 1 space right
Cursor up	Moves the cursor to the previous line
Cursor down	Moves the cursor to the next line

Experiment with these keys until you can move the cursor to any desired point within the text area. Notice that as you move the cursor up and down the screen the line number (top left hand corner) changes. Similarly the column number (next to line number) changes as the cursor is moved from left to right. Now try some simple editing of the text on the screen:

Position the cursor over the "i" of "little"
 Press the **[Del]** key four times
 Enter "arg"

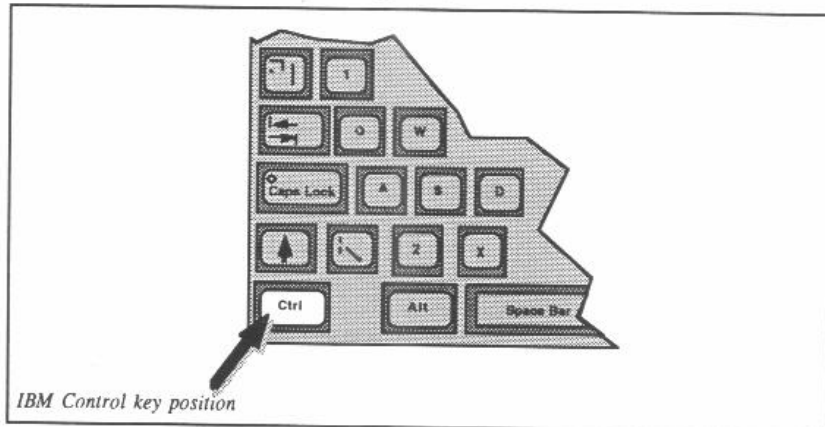
The first line of text should now read

"Mary had a large lamb"

The "Backspace" key can also be used to delete characters but this key deletes the **previous** character, rather than the **current** character defined by the cursor. Now use these keys to change the text to read:

"Mary had a large lamb
 Its fleece was black as night
 And everywhere that Mary went
 That lamb was sure to fright"

The cursor can be moved one **word** at a time by holding down the **[Ctrl]** key while pressing the Cursor Left or Right key :



CTRL-Cursor left Moves one word left
CTRL-Cursor right Moves one word right

Similarly, the cursor can be moved one line at a time by holding down the **Ctrl** key while pressing the PgUp or PgDn key thus:

CTRL-PgUp	Moves to the start of the line
CTRL-PgDn	Moves to the end of the line

Other keys can also be used to move the cursor more quickly:

Home	Moves cursor to the top of the screen
End	Moves cursor to the end of the screen
PgUp	Moves cursor to previous page
PgDn	Moves cursor to next page

A useful facility is the ability to "jump" immediately to any desired line in the text. This is achieved by holding down the **Ctrl** key while pressing and releasing the **G** key (Ctrl-G). "Go to line" appears in the bottom left hand corner of the screen. The desired line can then be entered. Experiment with the use of all of these keys.

Manipulating Larger Areas of Text

Very often it will be necessary to delete or move a complete line or number of lines of text. The Merlin Editor will allow this to be achieved very easily.

Before manipulating a large area of text, it is necessary to **mark** the area required, by holding down the **Alt** key while pressing and releasing the **M** key (Alt-M). Try marking the middle two lines of text. Position the cursor at the start the first line and press Alt-M. Use the downward cursor key followed by Ctrl-PgDn to **highlight** the next line.

```
Line: 5   Col: 31   Mode: INSERT   Free: 89%   test.txt*
MERLIN Text Editor demonstration text

Mary had a little lamb,
Its fleece was as white as snow,
And everywhere that Mary went,
That lamb was sure to go.
```

10 31 am

This highlighted area can be removed to the "scrap buffer" (or "cut") by pressing Alt-X. Notice that the middle two lines have disappeared from the screen. However they are still held within the scrap buffer. You can restore text deleted to scrap by Alt-V. Use Alt-V to restore the text you cut to scrap.

Marked text can also be copied to scrap (ie. without deleting the marked text from the screen) by Alt-C. Use this to produce the following:

```
Mary had a large lamb
Mary had a large lamb
Mary had a large lamb
Mary had a large lamb
Mary had a large lamb
Its fleece was black as night
And everywhere that Mary went
That lamb was sure to fright
```

Marked text can be **permanently** deleted by Alt-K. Use this to remove the extra lines you have just inserted. It is important to note that text removed in this way **cannot** be restored from scrap.

Further details regarding the manipulation of text can be found in the D2000 80286 Cross Assembler User Manual.

Saving and Loading Merlin Text Files

The names you can give to files have the same constraints as ordinary PCDOS or MSDOS files. Merlin files can have any extension. Further details regarding permissible file names can be found in your PC manual.

There are two basic methods for loading a text file:

- 1 From DOS, specifying a filename after the command "Merlin" (this was the way you loaded the TEST.TXT file earlier) thus:

```
MERLIN MYFILE.TXT
```

- 2 By entering Merlin with the command

```
MERLIN
```

The prompt "Edit File (Press TAB for List) :" will appear at the bottom of the screen. The required filename (and drive if necessary) can now be entered. If the file specified does not already exist it will be automatically created.

If you press the TAB key, MERLIN displays a list of all the files and subdirectories in the current directory. You can use the cursor keys to move the highlight through the list of files to select the one to be loaded. When you press RETURN, the selected file name is displayed at the prompt. Pressing RETURN again loads that file.

Saving Files

The current text file can be saved by simply pressing the function key **F1**. The filename can be changed before saving by Alt-O. The prompt "Enter new save file name :" will appear at the bottom of the screen. The desired filename (and drive if necessary) can now be entered.

Use of the Printer

While you are within Merlin, pressing the function key **F7** will print out the entire text file. However, if any text has been marked then only the marked block will be printed out.

Try printing out the sample text file TEST.TXT.

Merlin On-Line Help Facilities

The on-line help facility is available to provide quick help without reference to the User Manual. This facility can be invoked by simply pressing the function key **F8**. Try this feature now by pressing the function key **F8**. You should see:

```
MERLIN Help Index

Merlin Help
Help on Help
Introduction
Quick Reference
MERLIN Command line
Using MERLIN.INF
Environment Variables

6502 Help          Z80 Help          68000 Help
Directives         Directives        Directives
Instruction Set    Switches          Switches
Switches

MERLIN On-Line Help (C)Copyright 1991 L.J.Technical Systems
Home = Index | PgDn = Browse >> | PgUp = Browse << | F9 = Back | Esc = Exit
```

Notice that the bottom of the screen indicates the keys to be used. The **PgDn** and **PgUp** keys browse forward/backward one page. The Home key moves back to the index page and the **ESC** key returns to MERLIN.

MERLIN keeps track of all the pages that you visited, and you can back-track through those pages by pressing the **F9** key.

Some of the entries on the help pages appear in a brighter color than others. Using the cursor keys, you can move the highlight to these entries. When you press the **RETURN** key, the corresponding help page is displayed. For example, in the screen display shown above, the highlight is over the entry **Help on Help**. If you press the **RETURN** key now, the help page describing how to use the MERLIN help system is displayed.

Additionally, you can select one of the entries by pressing the first letter of that entry. For example, pressing the letter D moves the highlight to the entry **Directives**.

This feature allows you to obtain help during an editing session without reference to the D2000 80286 Cross Assembler User Manual. You will find this a valuable aid as you progress through this curriculum manual.

Student Assessment 3

1. The key which is used to **save** a text file is:
 - a F1
 - b F2
 - c F5
 - d F8

2. The key which moves the cursor to the next page of text is:
 - a Home
 - b PgUp
 - c PgDn
 - d End

3. The key sequence required to **mark** an area of text is:
 - a Alt-C
 - b Alt-E
 - c Alt-M
 - d Alt-V

4. The key sequence required to **copy** a marked area of text into the scrap buffer is:
 - a Alt-C
 - b Alt-E
 - c Alt-M
 - d Alt-V

5. The key used to **load files** from disk is:
 - a F1
 - b F2
 - c F5
 - d F8