Instructions for the Windows 95 version of the OMTC program

The Windows 95 version of the OMTC program (as well as the DOS version) may be obtained over the Web from the El. E. 336 home page:

http://www.olemiss.edu/~aglisson/ele336/index.html

The Windows 95 version of the OMTC simulator must be unzipped and installed before it can be used. To install the OMTC simulator, run SETUP from the *Run...* option of the start menu and follow the on-screen instructions. The installation will create the program OMTC.exe. The example data files Example1.dat and Example2.dat will also be created.

When OMTC.exe is executed, the *OMTC* window shown in Fig. 1 will appear. The main menu for the simulator appears across the top of the window.

The **File** menu has two options: **Save Memory** and **Restore Memory**. The **Save Memory** option will open a dialog box in which you may choose where to save the simulator's memory image in a file. The **Restore Memory** option will open a dialog box from which you may choose to load a memory image from a file (for example, from Example1.dat) into the

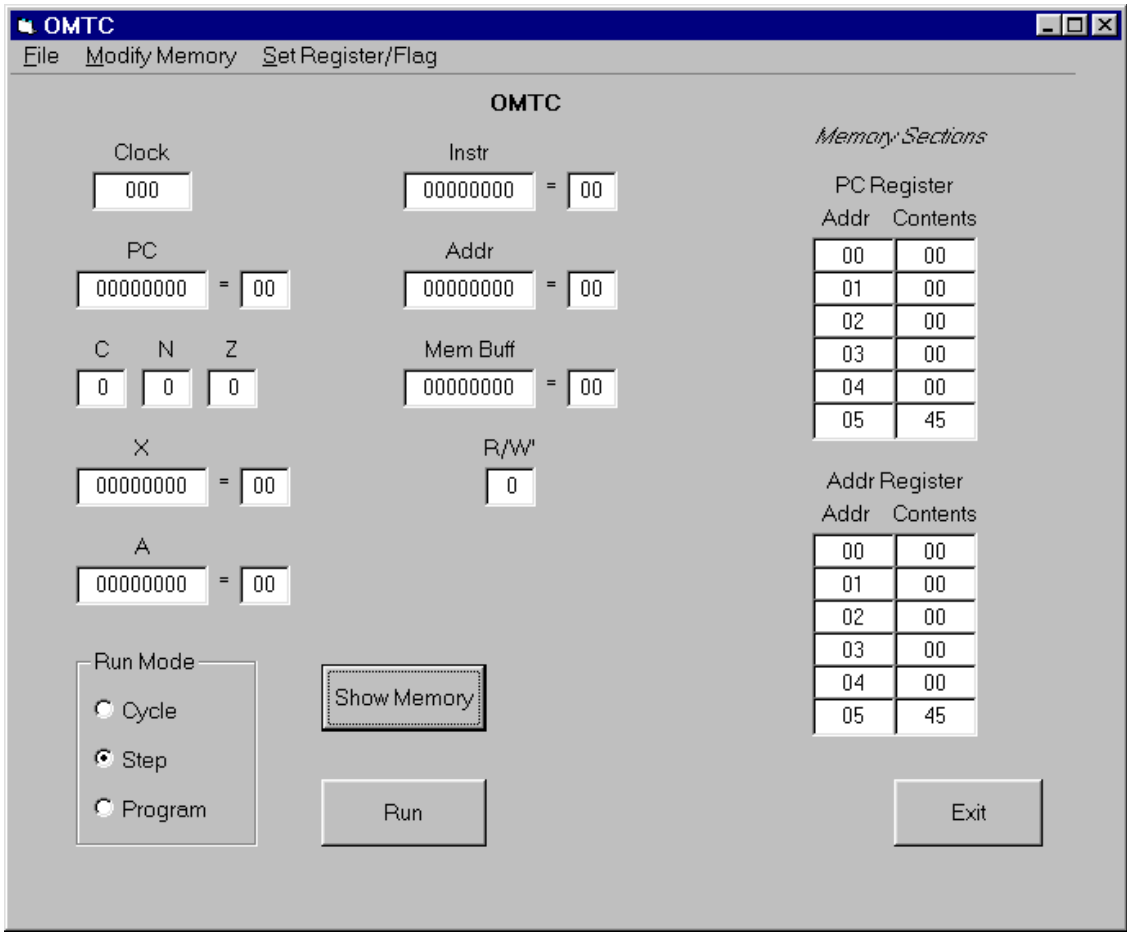
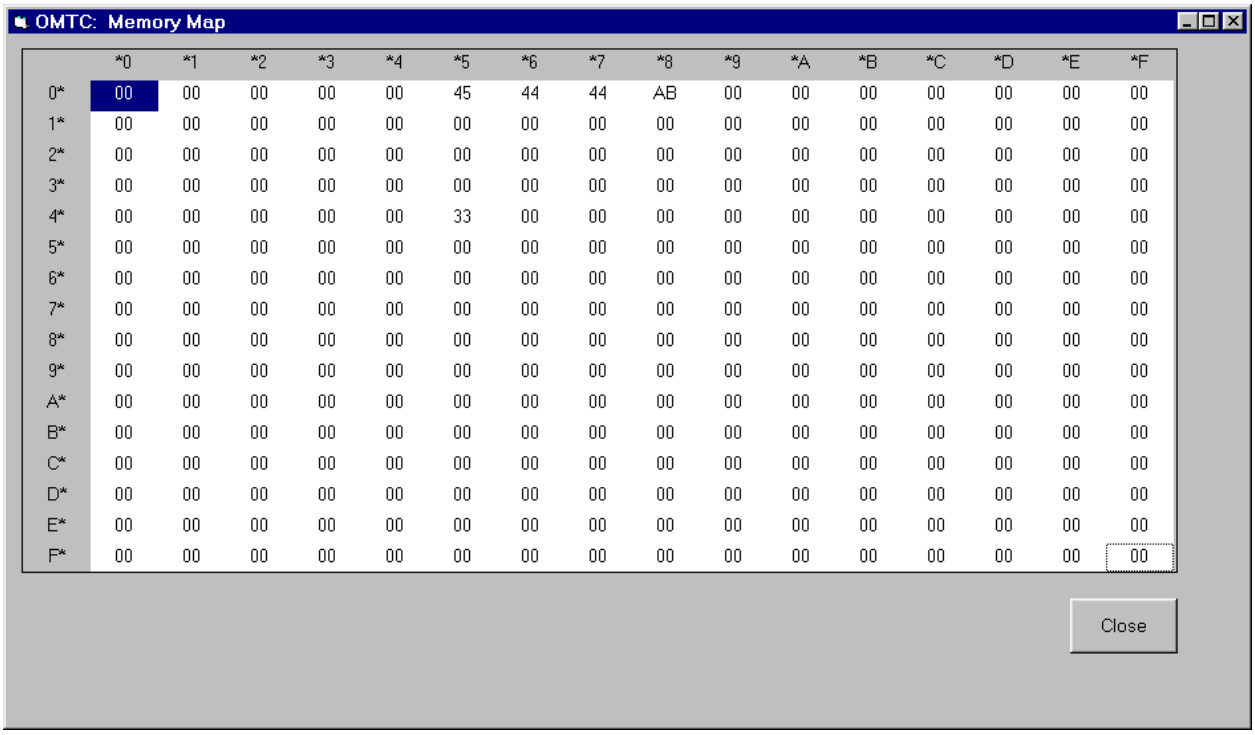


Figure 1. The main window of the OMTC simulator.

simulator.

The **Modify Memory** menu also has two options: **Input Program/Data** and **Clear Memory**. The **Clear Memory** option simply fills the simulator memory with Hex 00. When the **Input Program/Data** option is selected, the *Memory Map* window as shown in Fig. 2 is opened, along with a small data entry window, as shown in Fig. 3.



	*0	*1	*2	*3	*4	*5	*6	*7	*8	*9	*A	*B	*C	*D	*E	*F
0*	00	00	00	00	00	45	44	44	AB	00	00	00	00	00	00	00
1*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4*	00	00	00	00	00	33	00	00	00	00	00	00	00	00	00	00
5*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
6*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
8*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
9*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
D*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
E*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Figure 2. Memory map window of the OMTC simulator.

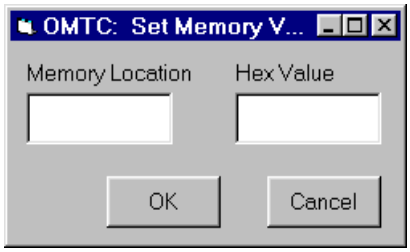


Figure 3. Data entry window for the **Input Program/Data** option.

To enter a program or data into memory, the Hex value of the memory location whose contents is to be changed must be entered in the left-hand box, while the Hex value of desired contents of the memory location is entered in the right-hand box. Pressing the "OK" button or the "Enter" key on the keyboard sets the value of the specified memory location. The memory location in the left-hand box is then automatically incremented by one, so that data entry can

continue without interruption. The memory location may be changed manually, however, if necessary. A valid assembly language instruction (including operation code and operand address) can be entered into the right-hand box instead of a Hex value. When this is done, the instruction will be assembled into machine code and placed in the two adjacent memory locations beginning with the location specified in the left-hand box. The memory location is then incremented by two (rather than one) so that further instructions can be entered without interruption.

Selecting the **Set Register/Flag** menu option opens the data entry window shown in Fig. 4. From this window one can select a register or flag and the value to which the item should be set. The *C*, *N*, and *Z* flags are single bits rather than 8-bit registers, so their values must be set simply as either 0 or 1. A button is also provided to clear all registers and flags (i.e., set them to Hex value 00).

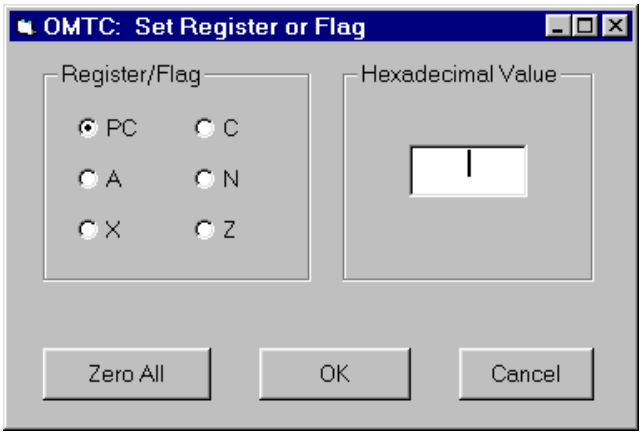


Figure 4. Data entry window for the **Set Register/Flag** menu option.

Once a program and data has been loaded into memory, either manually or by using the **Restore Memory** option, and the PC (program counter) register has been set to the location of the first executable instruction, the program may be "run." Three "modes" for running the program are provided: **Cycle**, **Step**, and **Program** (Program mode is not yet functional). The "Run Mode" is selected using the radio buttons at the lower left of the *OMTC* window. **Cycle** mode steps through the program one clock cycle at a time (one instruction may take several clock cycles to execute). **Step** mode allows one to step through the program one "instruction" at a time. When **Step** mode is selected and the **Run** button in the main window is pressed, the *Running in Step Mode* window shown in Fig. 5 will appear over the main window.

From the *Running in Step Mode* window one can choose to execute the next instruction, view the current state of memory, or abort execution of the program in the simulator. After an instruction is executed, the assembly language code for the instruction is shown at the lower left of the *Running in Step Mode* window.

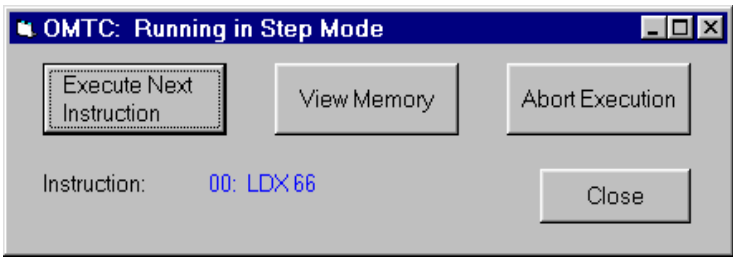


Figure 5. Step Mode execution window.

Known problems for the Windows 95 version of the OMTC simulator:

The background in the text boxes of the Main OMTC form should change color to indicate which registers/memory locations may have been affected by the last OMTC instruction during a simulation. The background color may not display the proper color if the system display mode is not set to HiColor.

The "Program mode" for the simulator has not yet been implemented.