Compiling the .asm File

        a11 filename
        a11 is a batch file that executes the appropriate
        commands to create an .lst file
Note that the extension is el ess tee, not one ess tee.

Starting the Simulator Software

The syntax is s11 filename (no extension)
There must be an .lst file present. A .cfg file is optional; if
        not present then the default is sim.cfg. If using
        Windows 95, the DOS simulator must be run full size in
        order for the mouse to work.

Running the Simulation

        F4 starts the simulation
        F1 single steps the simulation
        F2 stops execution
        alt-Z reset to the beginning of the program
        esc exit the simulator
The simulator may be run at various **speeds**. The default is
        slow and for some programs it really crawls at this
        speed, especially if you are using the SCI interface.
        F5 slow   (screen updates every cycle)
        F6 fast   (screen updates every 10 cycles)
        F7 faster   (screen updates every 100 cycles)
        F8 fastest   (screen updates every 1000 cycles)
The default speed may be changed in the .cfg file by
        changing the word "Slow" that appears near the end of
        the file to one of the others above.
Another way to speed up execution is to change the
        command "ShowCycles" that appears near the end of the
        .cfg file to "HideCycles". You can also type HideCycles
        into the Interpreter window. This speeds up the
        program at the expense of loss of information in the
        Interpreter window.

Run the Editor

        F10 starts the editor then the assembler

Numeric Type Commands

These commands run in several of the windows:
        alt-A ASCII   **alt-Y** Binary
        alt-D Decimal   **alt-U** Unsigned
        alt-H Hex   **alt-S** Signed
        alt-O Octal

Monitor the Values of Variables

In the **Interpreter window** or .cfg* file, execute the
        command:
        variablename am
to add the variable to the **Memory window**.

*Note that labels don't work in the .cfg file. You must use
        the memory location instead, i.e.
        $0002 ab

Breakpoints

In the **Interpreter window** or .cfg* file, execute the
        command:
        labelname ab
to cause the program to stop execution at that point.
        F3 clears all breakpoints
To remove a breakpoint without affecting the others:
        labelname sb
To list all breakpoints:
        lb

The .cfg File

The windows are called and defined beginning at the upper left and going down. When the vertical dimension has been filled, a second column of windows begins at the top.

The syntax is
```
windowname
width
# WinSize
parameters
```
"width" is either single, double, or triple relating to screen width.

"#" is the decimal? number of text lines for which space is allowed. This line is omitted for windows that don't display text such as "SwitchWin".

SCIWin represents the serial interface port. Strings may be output to this window using the `OutString` library and keyboard input may be accepted using various other libraries. It is necessary to make the window active (Alt-7) before accepting keyboard input.

SwitchWin parameter example is
```
Bit7 PortC s" C7" AddSwitch
```
The first line will apply to the leftmost switch.
"Bit7 PortC" is what receives the switch output.
I don't know what "s" is, maybe it means string.
The " C7" is the switch label.

MemWin parameter example is
```
Single isDecimal Signed ByteMode
```
This will show the data as 8-bit signed decimal values
Available parameters are:
```
Single    IsHex        WordMode
Double    IsDecimal    ByteMode
Triple    IsAscii      Unsigned
          IsOctal      Signed
          isBinary
```

PortWin parameter example is
```
IsWhite IsHex UnSigned PortA AddPort
```
"IsWhite" is the text color and may also be IsLightCyan, IsYellow, IsLightGray, IsLightRed, IsGreen, IsRed, etc.
"IsHex" is the numeric type that is displayed and may also be IsDecimal, IsOctal, or IsBinary.
"Unsigned" means just that and could be Signed.
"PortA" is the port name and could also be PortB, PortC, PortD, PortE, DDRC, or TCNT.

LEDWin parameter example is
```
LEDrow
IsGreen Bit7 PortB s" B7" AddLED
```
"LEDrow" preceeds each new row. There must be the same number of LED's in each row, 16 LED's max total.
"IsGreen" is the color, could be IsRed also.
"Bit7 PortB" is the source of the signal for the LED.
" B7" is the text label for the LED.

EXECUTION SPEED - The simulator may be run at various **speeds**. The default is slow and for some programs it really crawls at this speed, especially if you are using the SCI interface.

slow	(screen updates every cycle)
fast	(screen updates every 10 cycles)
faster	(screen updates every 100 cycles)
fastest	(screen updates every 1000 cycles)

The default speed may be changed in the .cfg file by changing the word "Slow" that appears near the end of the file to one of the others above.

Another way to speed up execution is to change the command "ShowCycles" that appears near the end of the .cfg file to "HideCycles". You can also type HideCycles into the Interpreter window. This speeds up the program at the expense of loss of information in the Interpreter window.