ECE 449 Assembler

Assembles the code in file <code_file_name> (or standard input stream). The code is written in ECE 449 assembly language.

The assembler produces a .lst, a .hex, and a .coe files. The .lst file is the list file that is human-readable. The .hex file can be used to load your program and data in the memory of your system. The .coe file can be used to load the program if you are using Xilinx IP cores from the IP catalog.

The assembler output is defined through the -o option. The -o option specifies a file name, and the assembler creates three files, one with extension .hex, one with extension .lst, and the other one with extension .coe as discussed above. If the -o option is not supplied, the default is that the name of the output files is a i.e. a.lst, a.hex and a.coe

This is a two-pass assembler; hence it handles correctly symbols including labels.

USAGE:
For Linux users, open the terminal. For Windows users, open the command window. Change the directory to the assembler and assembly file location. Use the following command:

For Windows: assembler19.exe [options] …. <code_file_name>

For Linux: assembler19 [options] …. <code_file_name>

You can also use Python 2.7 to compile the assembler and generate output files using the following command. In this case, make sure that the ISA file is also available in the same folder.

python assembler19.py [options] … <code_file_name>

Options:

-h	This help.
-o <output_file_name>	Directs output to the named file instead of the standard output. If -o option is not provided, the three output files will be generated as *a.lst*, *a.hex*, and *a.coe* in the same folder.
-y 2001 | 2002 | 2018	Sets the instruction set architecture (ISA) to 2001 (project requirement prior to 2002), 2002 (requirements as of 2002) or to 2018 (requirements as of 2018 and later. Default is 2018. The ISA architecture is defined in the accompanied isa20xx.py file that must be present within the same directory as the assembler.
-d <depth>	Sets the memory depth to <depth>. This value is used during assembly to trap programs larger than the specified size, and is used as the MEMORY_DEPTH parameter in the generated Xilinx MEM file. Default is 128 for the 2002 ISA, 256 for 2001 ISA, and 512 for the 2018 ISA. Please ensure that this limit is congruent with your design.

The default value is defined in the isa20xx.py file.

Examples:

```
assembler19.exe    -d 1024    -o output_file_name    my_code.asm
```

This command will generate output_file_name.lst, output_file_name.hex, and output_file_name.coe files.