EDE

ELB816 Development Environment

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Electrical and Electronic Engineering

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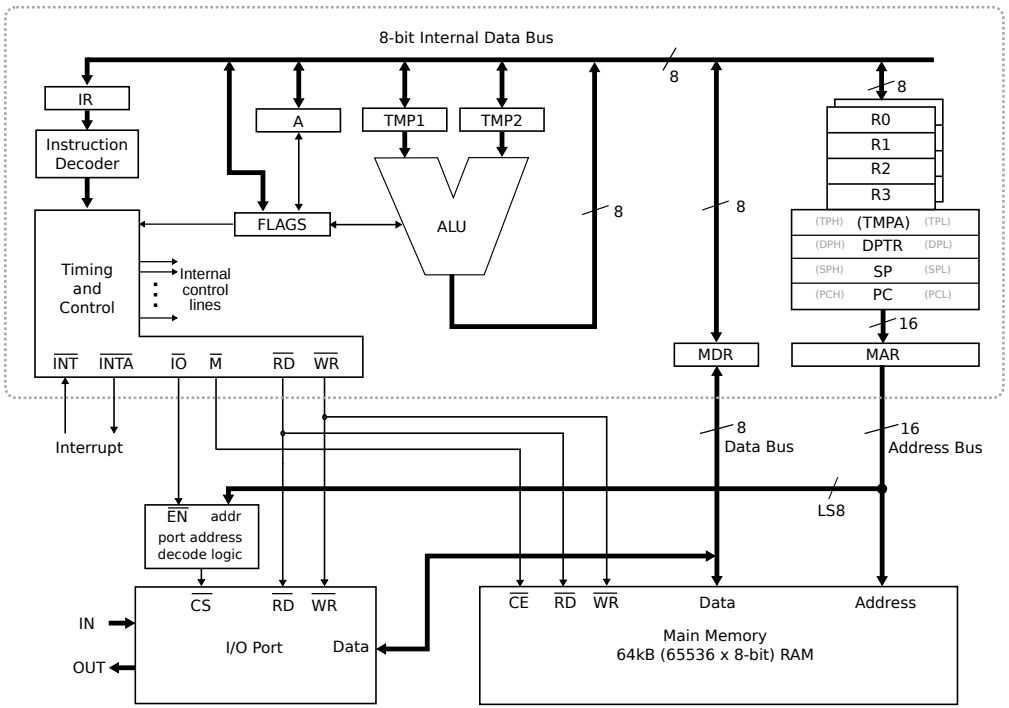
Outline

What is ELB816?



from the original ELB816 Specification [1]

- "A simple to understand 8-bit microprocessor system to help people learn about microprocessor electronics."

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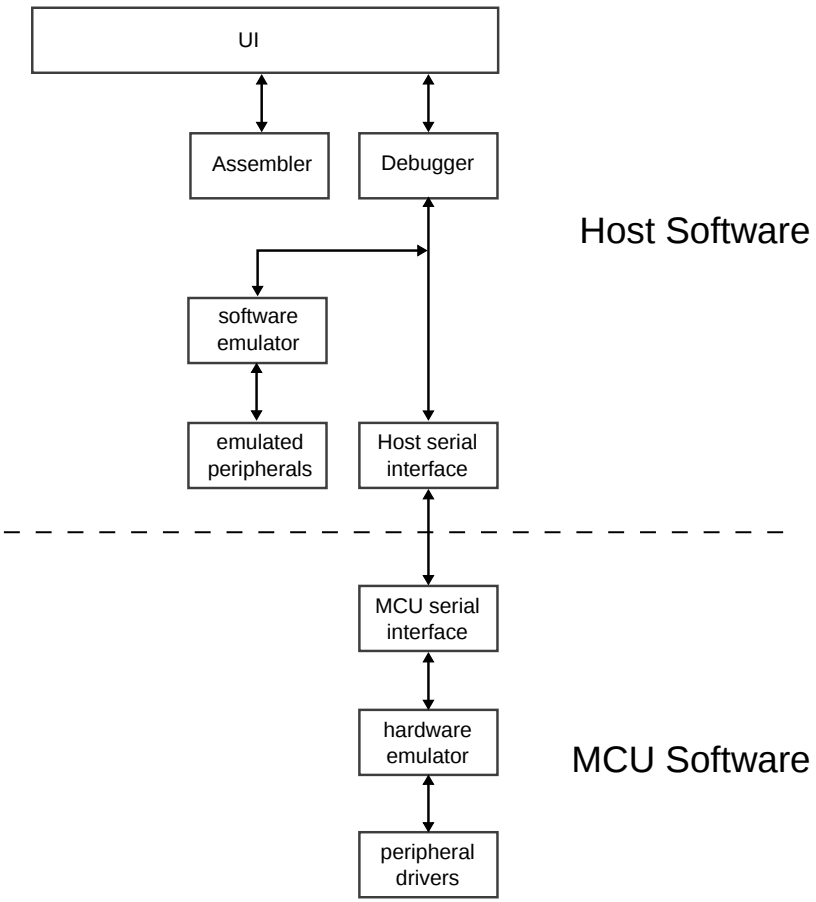

- A software implementation of the ELB816 microprocessor along with a development tool-chain
- An Assembler
- An Emulator
- A Debugger

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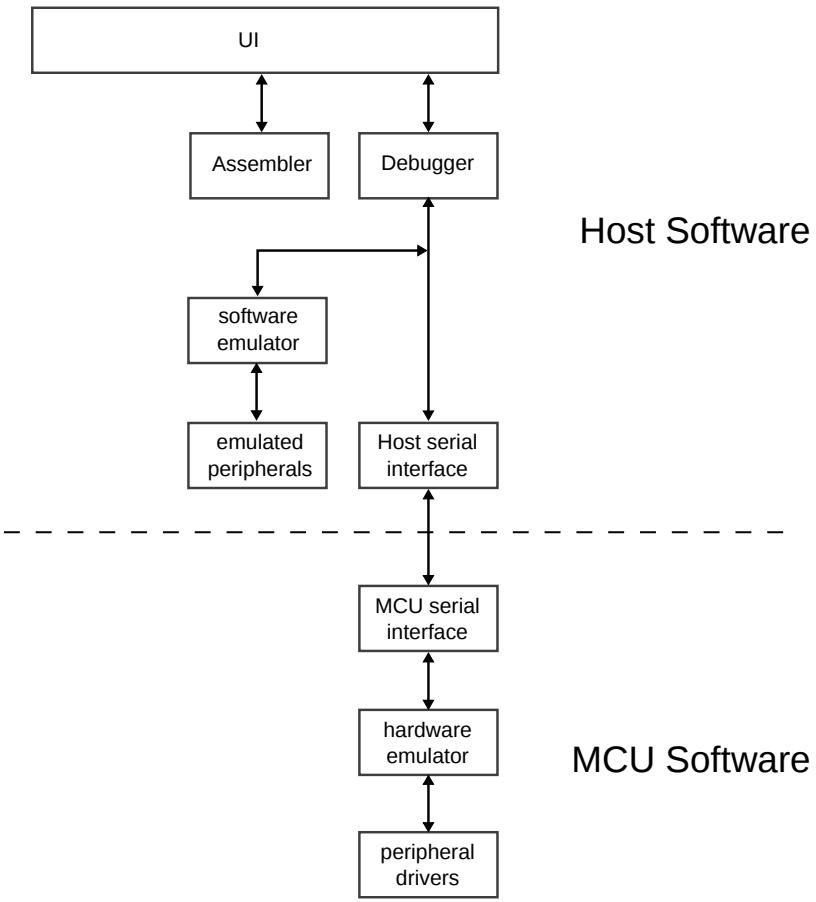

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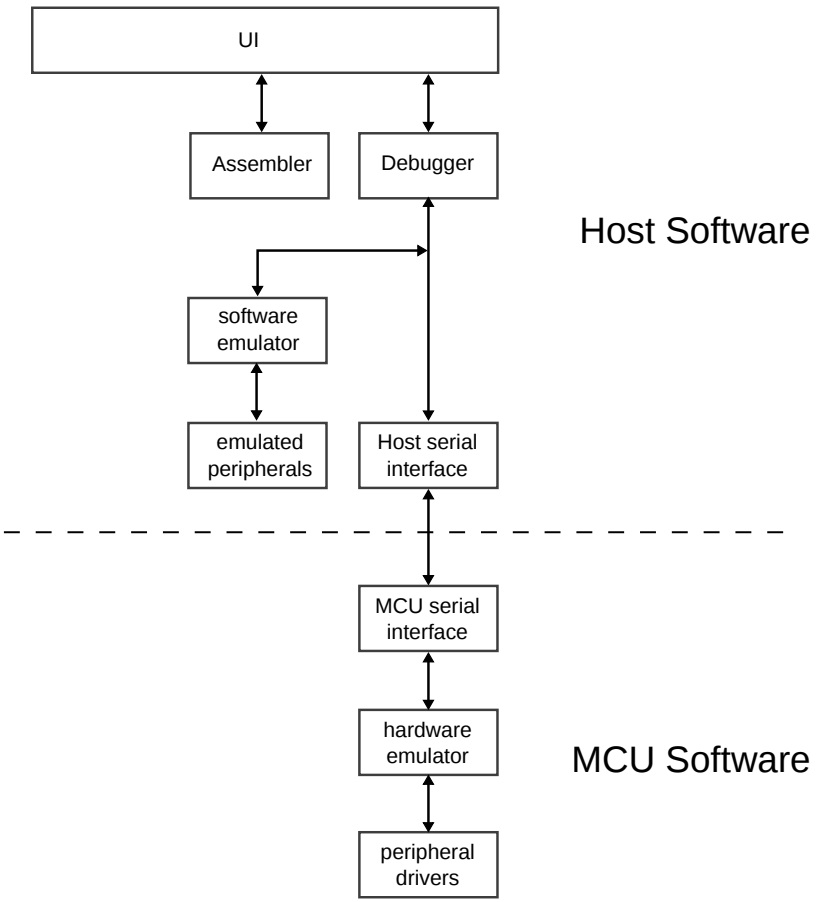

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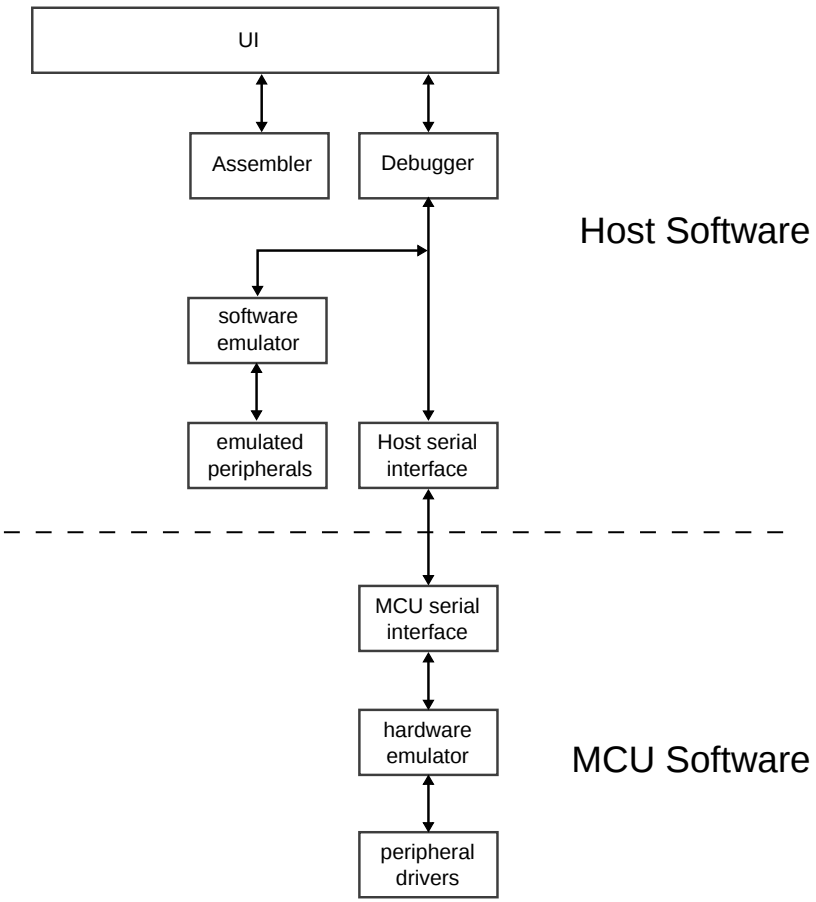

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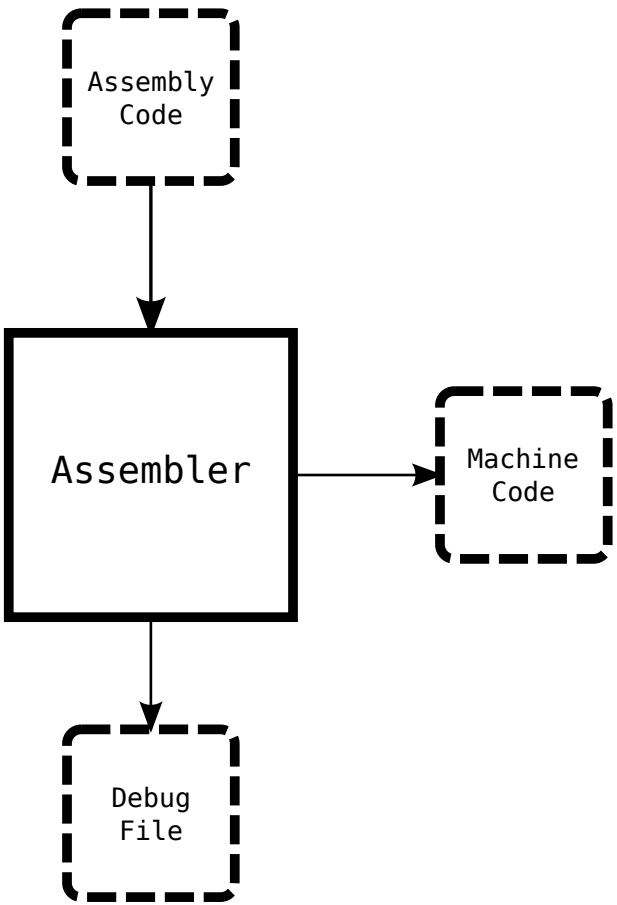
What is the point?

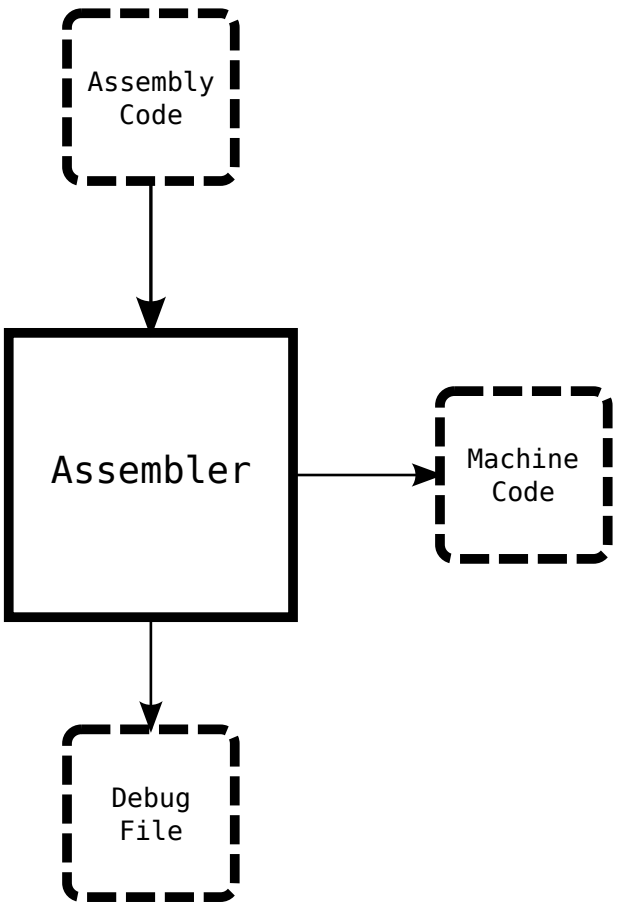
- To provide an environment for teaching and learning about micro-processor programming
- To provide an environment free of the the intricacies of real world micro-processors

The Assembler



- Written in Python using only standard libraries
- Two pass assembler
- Produces raw binary executables and “debug files”

The Assembler



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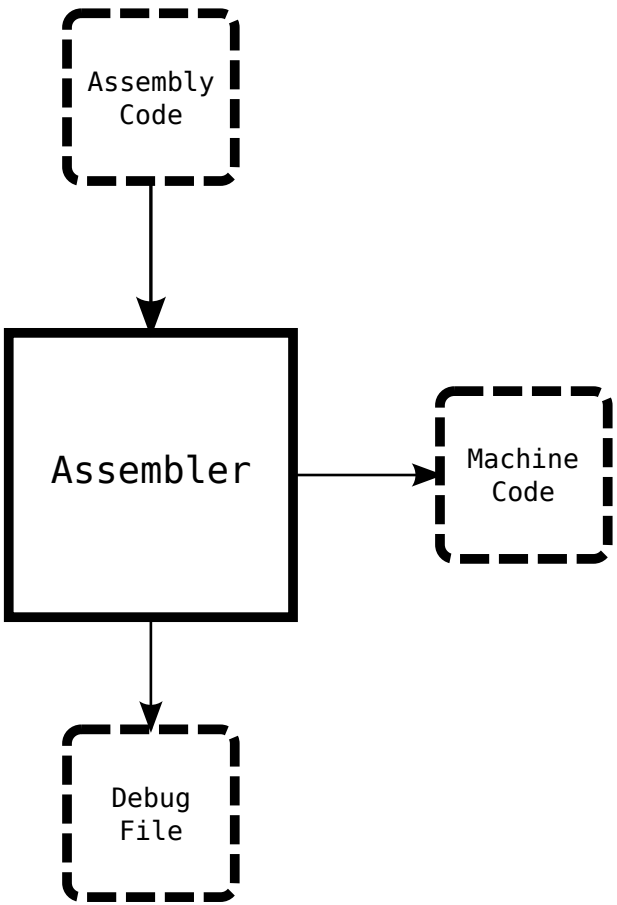

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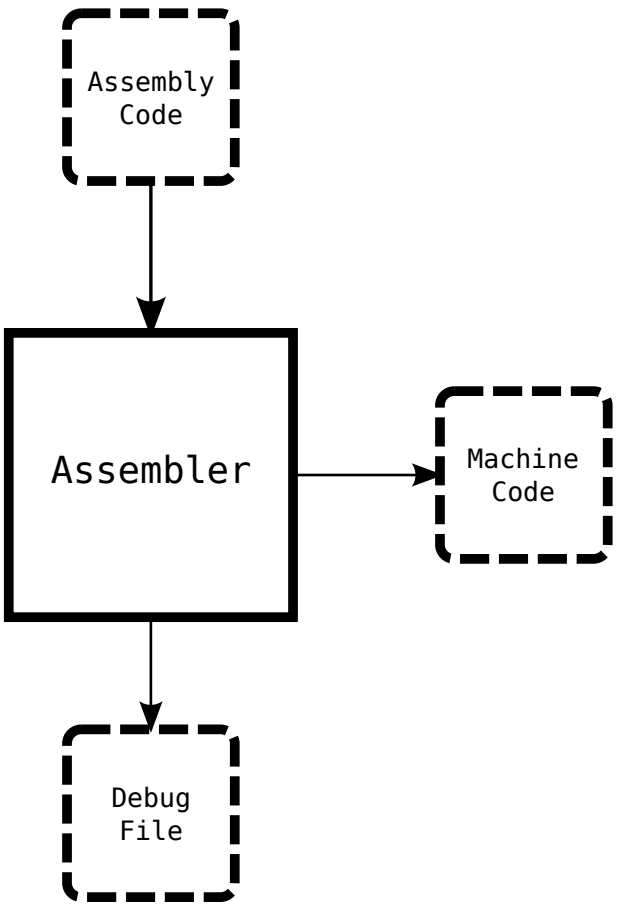

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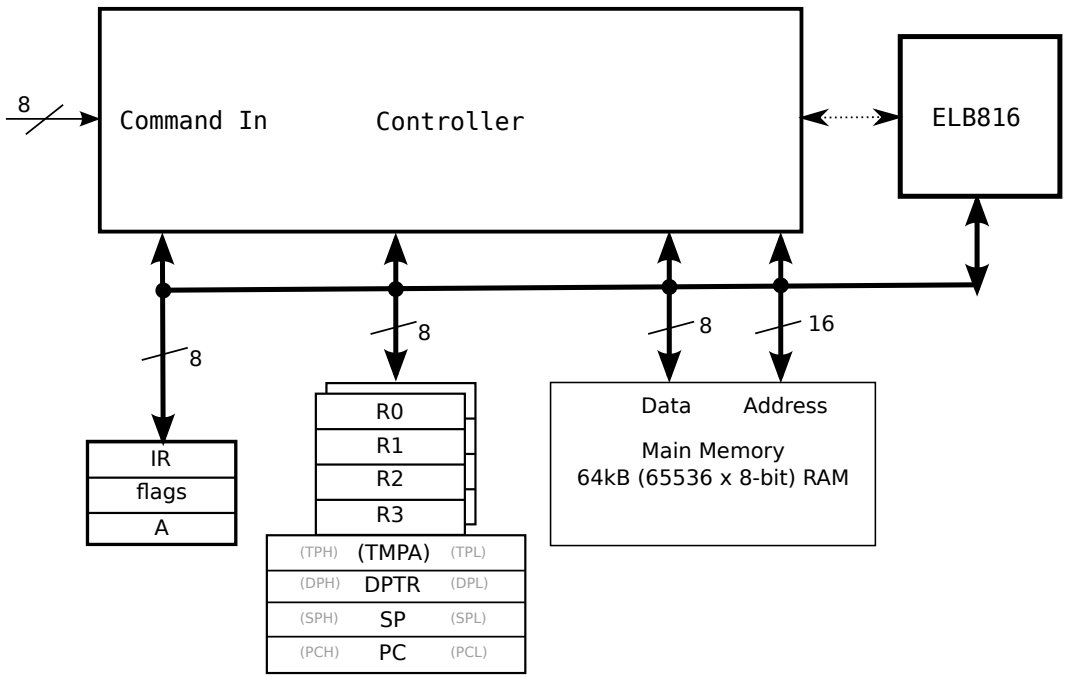
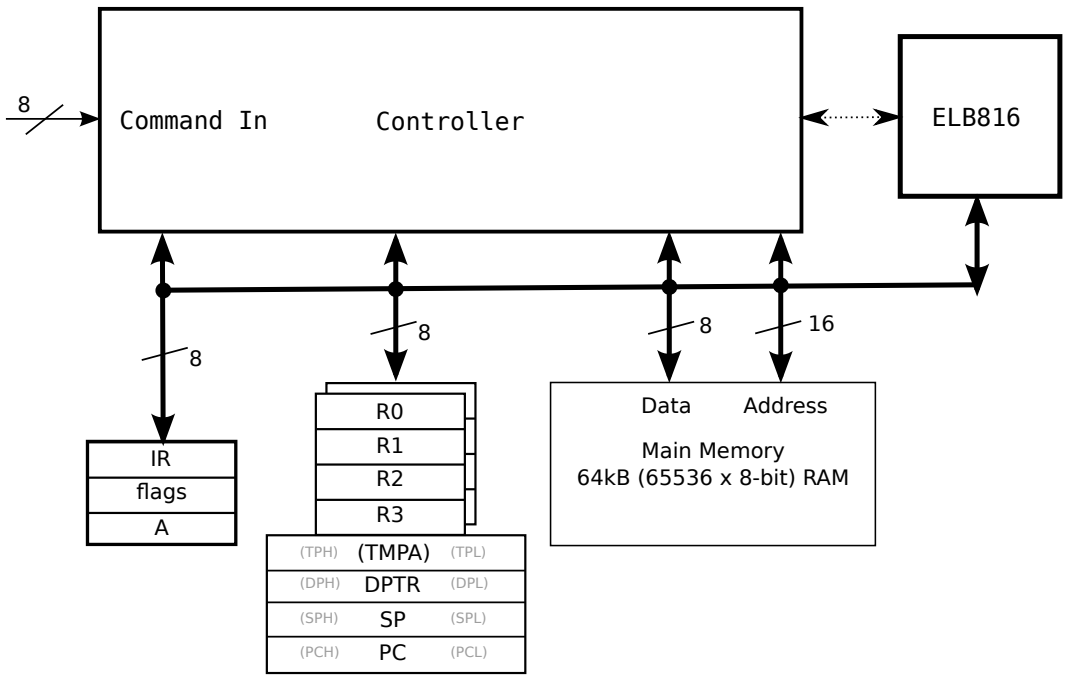
The Emulator



- Written in pure C89 using only standard libraries
- Separate builds for Linux and Intel MCS-51

The Emulator



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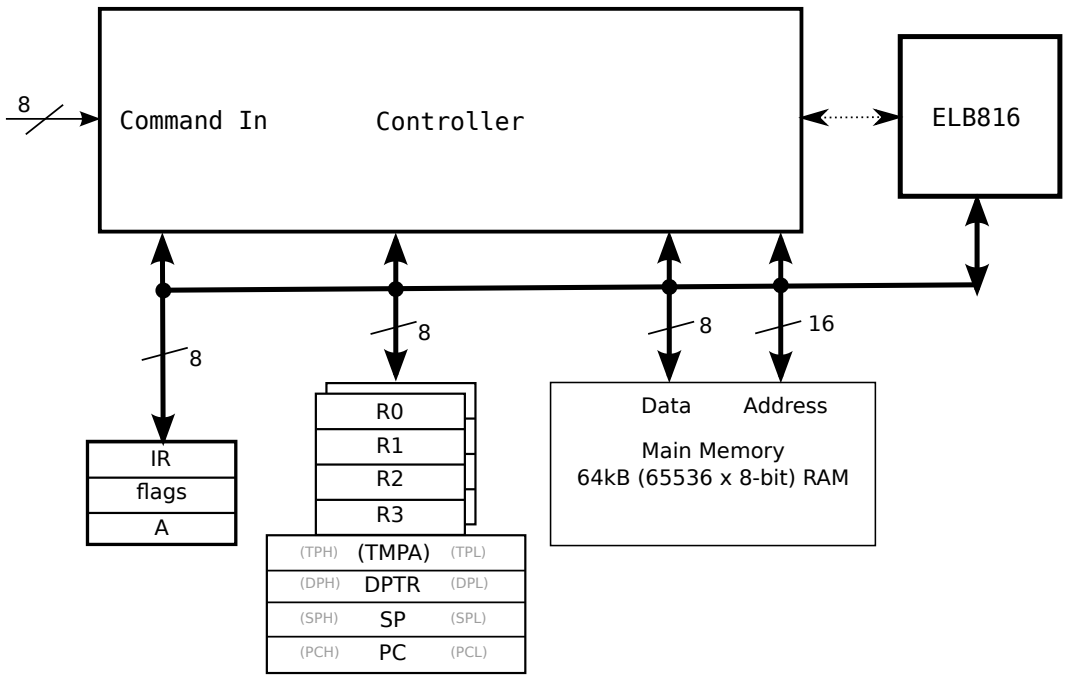

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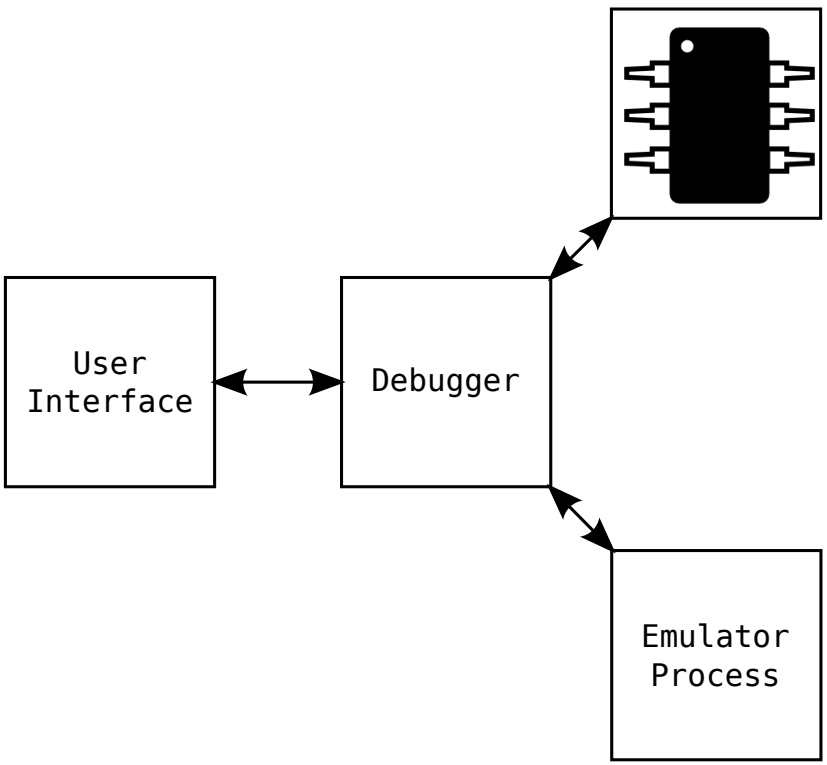
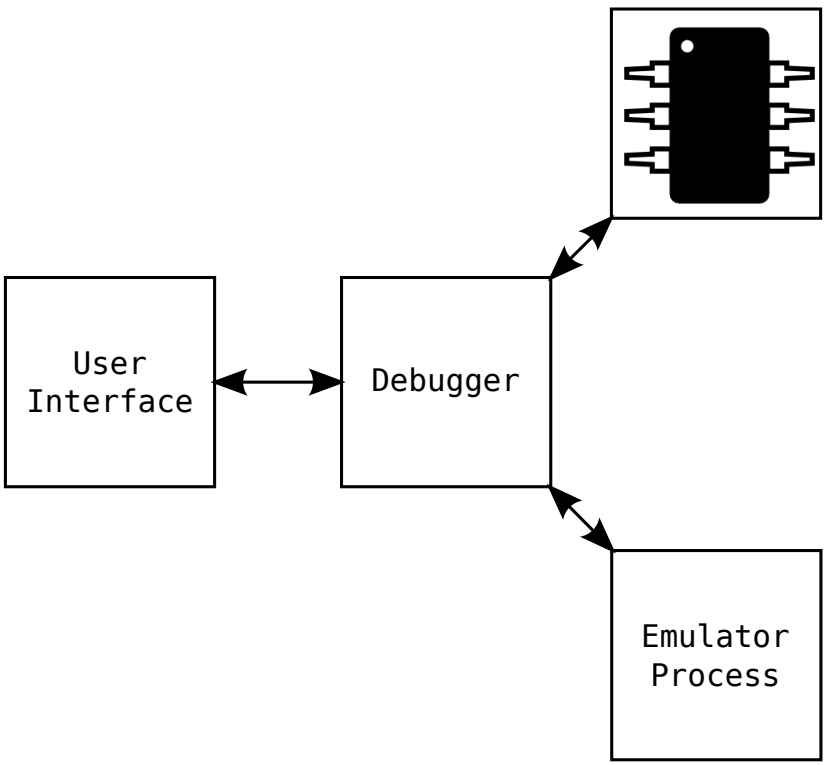
The Debugger



- Implemented as a Python class
- Communicates with the control function on a running instance of them emulator
- Text based command line interface built using this class

The Debugger



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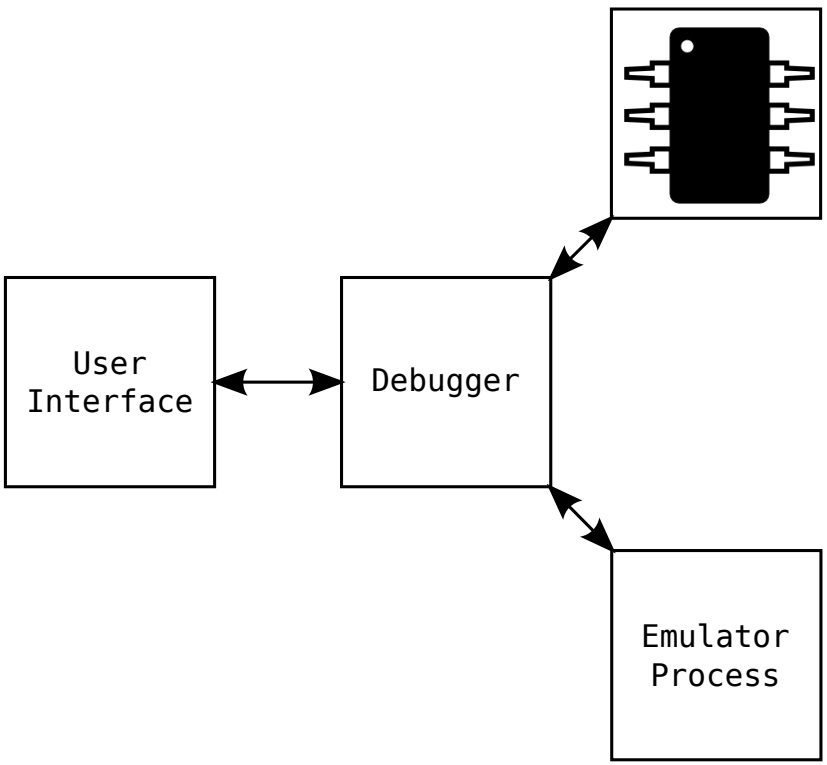

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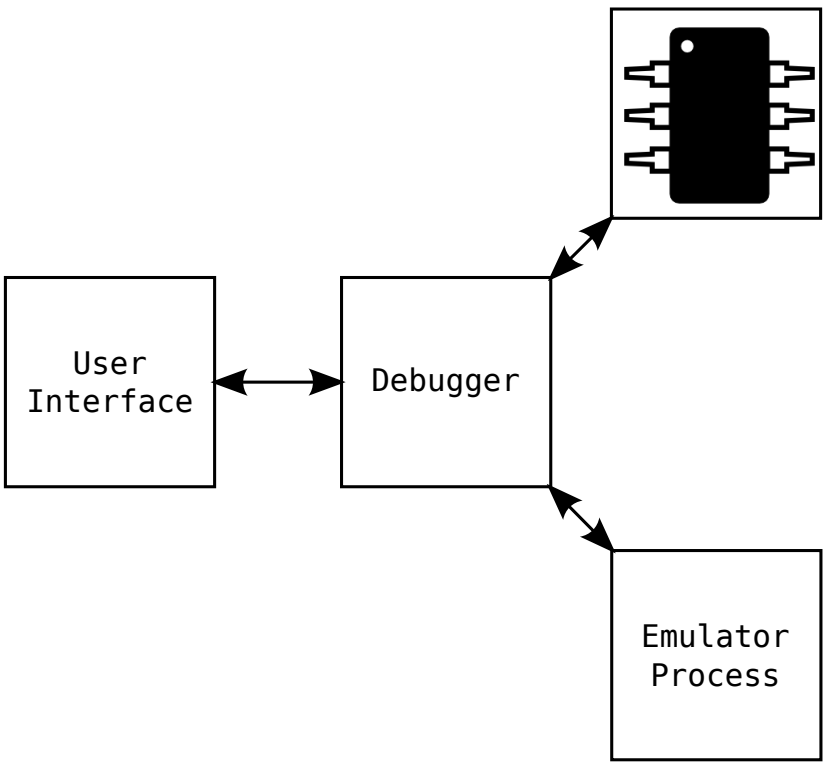

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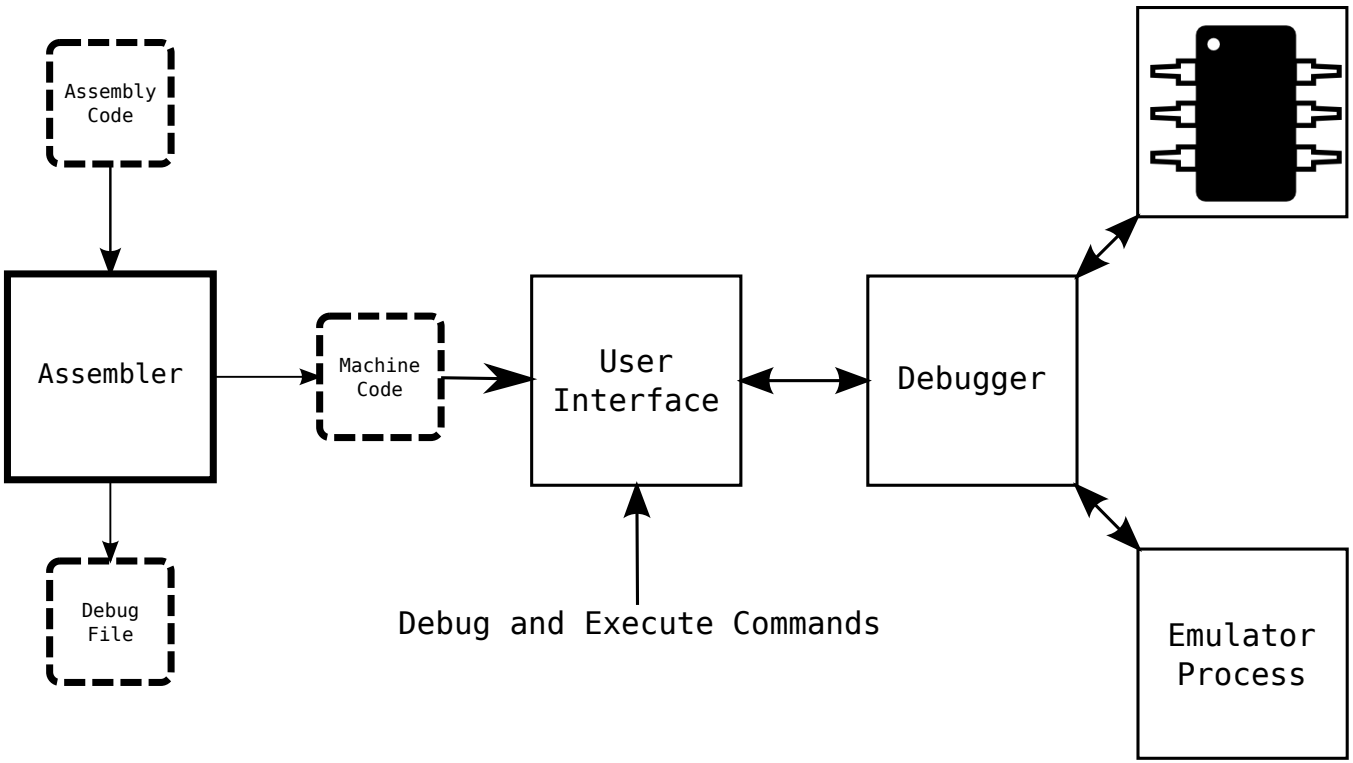
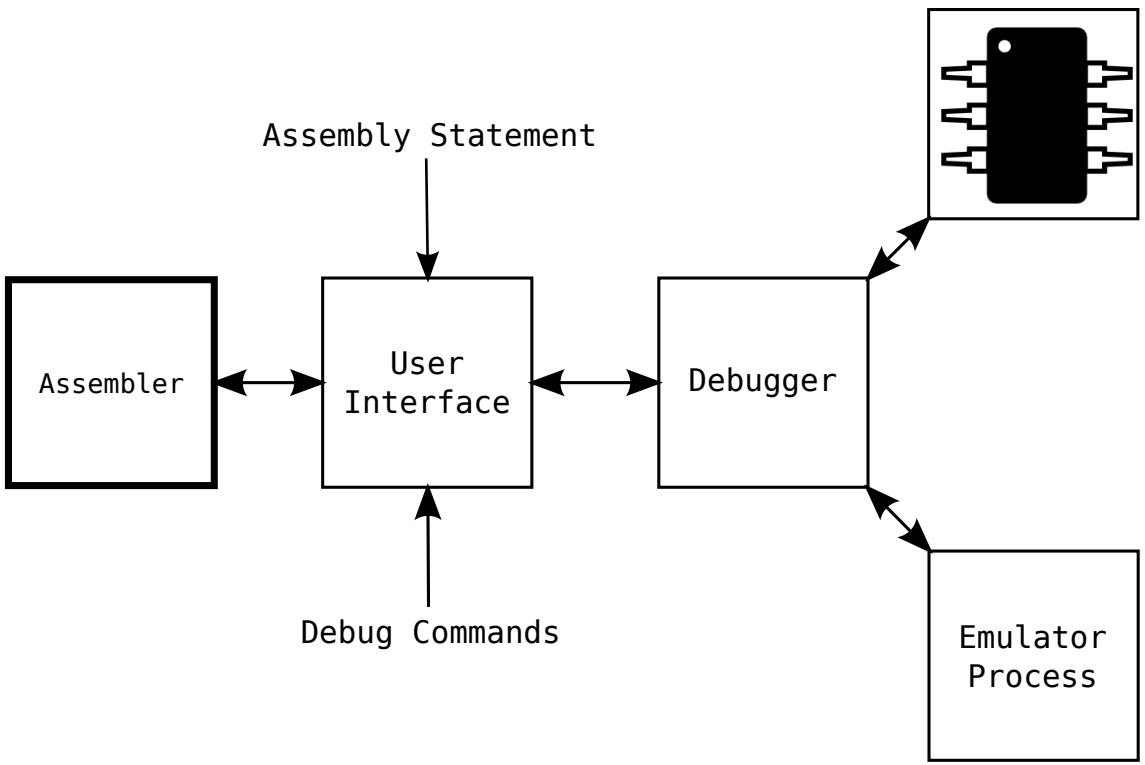
Assemble/Upload/Execute/Debug

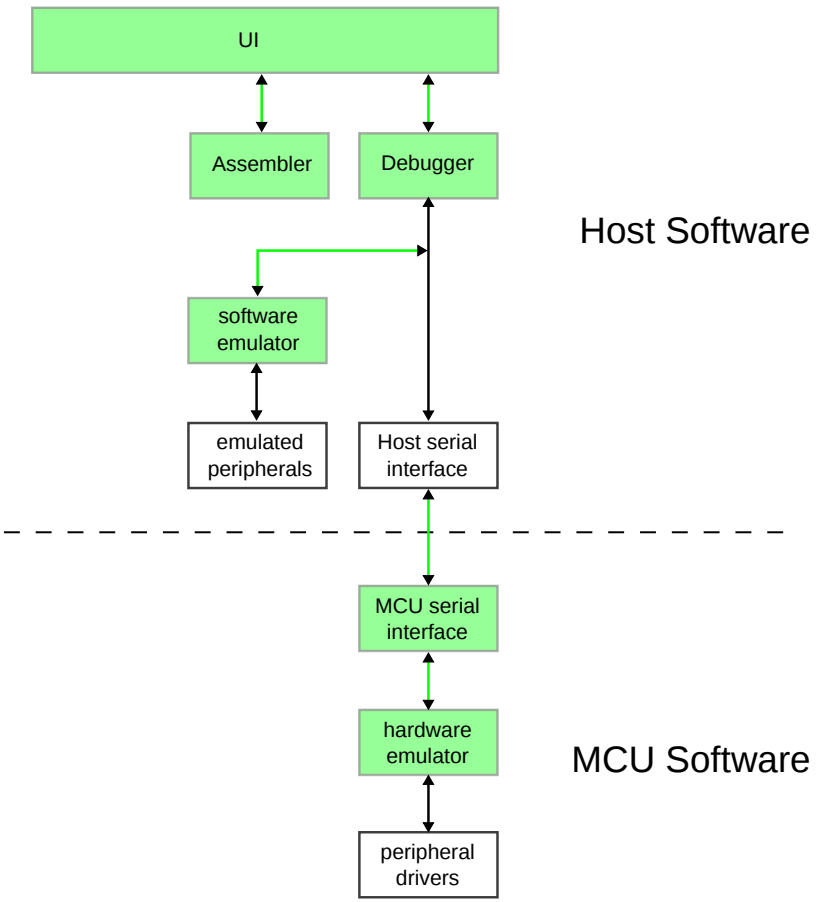


Interpreter Mode



Demonstration

Summary



- Developed a light weight portable software implementation of the ELB816 micro-processor core
- Developed a usable tool chain for writing and debugging code for the ELB816
- More to be done but code base is well commented and easily maintainable

References

1. ELB816 Home Page: http://code.google.com/p/elb816/