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M68EML

Advance Information

M6800 SIMULATOR

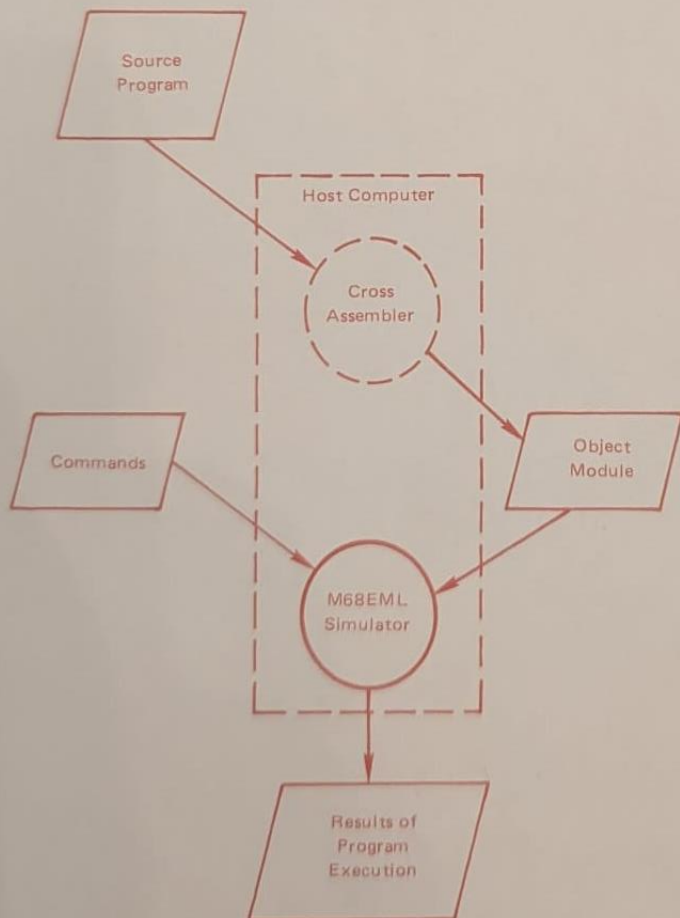
The M68EML simulates the execution of M6800 machine language instructions in a host computer. Although the simulation is not performed in real time, it maintains a count of the simulated execution cycles. M68EML facilitates the testing and debugging of microprocessor programs in a host computer environment.

The M68EML package includes:

- FORTRAN Source Program
- Formatted Source Listing and Installation Instructions
- A copy of the *M6800 Microprocessor Programming Manual*

M6800 SIMULATOR

OPERATION OF THE M6800 SIMULATOR



SIMULATOR INPUTS

- Object File – EXORciser-compatible format (ASCII characters)
- Simulator Commands
 - D – Display Registers
 - DB – Set Display Base
 - DF – Set Display Flag
 - DL – Display Last Instruction
 - DM – Display Memory
 - EX – Exit
 - HR – Set Header Count
 - IB – Set Input Base
 - IM – Input Memory Tape
 - LW – Last Word Address
 - PF – Emulate Non-Maskable Interrupt
 - PO – Emulate Reset
 - R – Run
 - SD – Select Display Registers
 - SM – Set Memory
 - SR – Set Register
 - T – Trace Instruction Execution
 - TB – Trace Branches

A description of these commands is included in the *M6800 Microprocessor Programming Manual*.

SIMULATOR OUTPUTS

- Trace of Program Execution
 - Instruction Address
 - Operation Code Mnemonic
 - M6800 Registers
 - Effective Address
 - Timing
- Memory Dump
 - Print selected portions of simulated M6800 Memory

HOST COMPUTER REQUIREMENTS

- Software
 - FORTRAN IV
 - Any operating system which will support FORTRAN programs
- Memory
 - 16 bit minimum word length (17 bits for 1's complement computers)
 - Memory size requirements vary due to computer and compiler differences. Estimates for common machines are included in Table 1.
- Peripherals
 - M68EML uses three logical units
 - Command Input
 - Object Program Input (EXORciser-compatible ASCII format)
 - List output – Simulation Results
 - In general the peripherals needed for FORTRAN are sufficient for M68EML.

SOURCE MEDIA

M68EML consists of approximately 3000 source statements including comments. The source program is available in two forms:

- Cards – 80-Column Punched Cards in O29 Punch Code
- Magnetic Tape – Unlabeled 9-track 800 BPI, Odd Parity, ASCII Character Set, Card-Image Records (80 character/record).

Other media are available on special order.

INSTALLATION

Although M68EML was designed to be portable and machine independent, some program functions must be changed to adapt this simulator to the host computer. For computers listed in Table 1, machine dependent modifications already have been incorporated into the program. For these machines, installing M68EML consists of supplying the job control statements required to run a FORTRAN program.

Installation of M68EML on other machines is straightforward. Computer dependencies have been isolated and identified as separate program modules. Features which may require minor modification include:

- Input/Output including the assignment of logic devices
- Word-length Parameters
- Intrinsic Function (Logical AND, OR)
- Character Set Translation

The starting point for such an installation should be the Motorola-converted version of M68EML for the computer closest to the target system. Using the list in Table 1, match the computer characteristics first by the internal character set and then by word size.

TABLE 1 – ORDERING INFORMATION

Part Number	Media	Computer	HOST COMPUTER ATTRIBUTES			
			Character Set	Word Size	Negative Number	Memory Used
M68EML0211E M68EML0211F	Cards Magnetic Tape	Sigma 9	8-Bit EBCDIC	32 Bits	2's Complement	17K Words
M68EML0411E M68EML0411F	Cards Magnetic Tape	HP2100	8-Bit ASCII	16 Bits	2's Complement	16K Words
M68EML0711E M68EML0711F	Cards Magnetic Tape	IBM360/370	8-Bit EBCDIC	32 Bits	2's Complement	120K Bytes
M68EML0811E M68EML0811F	Cards Magnetic Tape	Nova	8-Bit ASCII	16 Bits	2's Complement	18K Words
M68EML0911E M68EML0911F	Cards Magnetic Tape	Honeywell 6000	9-Bit ASCII	36 Bits	2's Complement	26K Words
M68EML1011E M68EML1011F	Cards Magnetic Tape	CDC6000	6/12-Bit Display Code	60 Bits	1's Complement	19K Words
M68EML1111E M68EML1111F	Cards Magnetic Tape	PDP-11	8-Bit ASCII	16 Bits	2's Complement	18K Words

