



MOTOROLA
Semiconductors

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M68SAM

Advance Information

M6800 CROSS ASSEMBLER

M68SAM is a Cross Assembler used to translate M6800 assembly language source programs into M6800 machine language. M68SAM is compatible with the time-sharing and resident assemblers for the M6800 MPU.

Using a host computer for software development reduces the load on the M6800 development systems and provides access to the host computer's other resources including text editors, file systems, and peripherals.

The M68SAM Package includes:

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

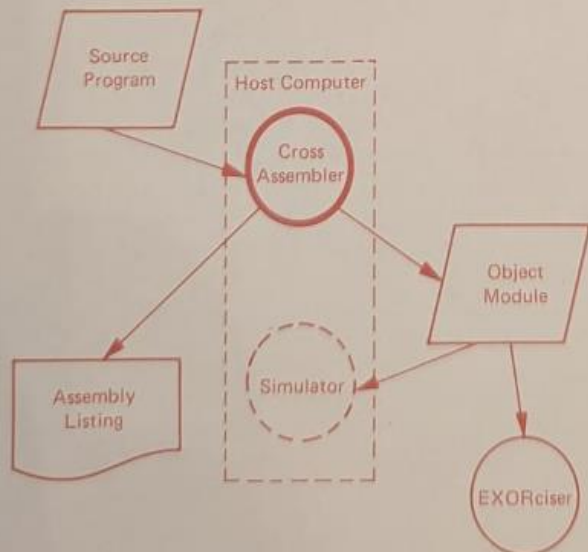
M6800 CROSS ASSEMBLER

ASSEMBLY LANGUAGE INPUT

- 72 Assembly Language Operation Codes
- 7 Address Modes
- 11 Assembler Directives (Pseudo-operations)

END	End of Program
EQU	Equate Symbol
FCB	Form Constant Byte
FCC	Form Constant Characters
FDB	Form Double Constant Byte
NAM	Name
ORG	Origin
PAGE	Top of Form
RMB	Reserve Memory Byte
Space	Space Lines
OPT	Option
DB8	Display Base Octal
DB10	Display Base Decimal
DB16	Display Base Hexadecimal (default)
LIST	(default)
NOLIST	

OPERATION OF THE M6800 CROSS ASSEMBLER



The M6800 Assembly Language is described in the *M6800 Microprocessor Programming Manual*.

ASSEMBLER OUTPUT

- Object Program—EXORciser-compatible Format (ASCII Characters)
- Assembly Listing (Display Base Selectable: Octal, Decimal, Hexadecimal)
- Symbol Table

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
 - M68SAM uses three logical units
 - Source Input
 - Object Output (EXORciser-compatible ASCII format)
 - List Output
 - in general the peripherals needed for FORTRAN are sufficient for M68SAM.

SOURCE MEDIA

M68SAM consists of approximately 2500 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 M68SAM was designed to be portable and machine independent, some program functions must be changed to adapt this assembler to the host computer. For computers listed in Table 1, machine dependent modifications already have been incorporated into the program. For these machines, installing M68SAM consists of supplying the job control statements required to run a FORTRAN program.

Installation of M68SAM on other machines is straightforward. Computer dependencies have been isolated and identified as separated 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 M68SAM 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
M68SAM0213E M68SAM0213F	Cards Magnetic Tape	Sigma 9	8-Bit EBCDIC	32 Bits	2's Complement	9K Words
M68SAM0413E M68SAM0413F	Cards Magnetic Tape	HP 2100	8-Bit ASCII	16 Bits	2's Complement	15K Words
M68SAM0713E M68SAM0713F	Cards Magnetic Tape	IBM 360/370	8-Bit EBCDIC	32 Bits	2's Complement	64K Bytes
M68SAM0812E M68SAM0812F	Cards Magnetic Tape	Nova	8-Bit ASCII	16 Bits	2's Complement	16K Words
M68SAM0912E M68SAM0912F	Cards Magnetic Tape	Honeywell 6000	9-Bit ASCII	36 Bits	2's Complement	17K Words
M68SAM1013E M68SAM1013F	Cards Magnetic Tape	CDC 6000	6/12-Bit Display Code	60 Bits	1's Complement	16K Words
M68SAM1113E M68SAM1113F	Cards Magnetic Tape	PDP-11	8-Bit ASCII	16 Bits	2's Complement	16K Words



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