

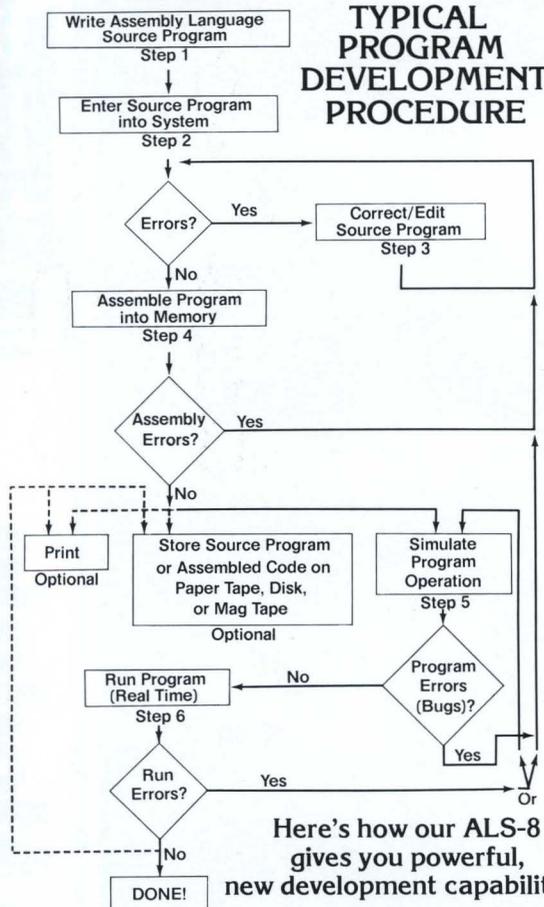
Turn On The Switch Power

The ALS-8 Assembly Language Operating System gives you "turn-on-the-switch" power. And has all the capabilities to let you quickly write, edit, assemble, de-bug and run your own programs. It's the most **useful** software development tool on the market today; and, yet, it's easy to understand. Even people with little or no previous software experience can begin Assembly Language work after only 15 minutes training on the machine.

ALS-8 Firmware Module

**Processor
Technology**
Corporation
Emeryville, CA 94608

TYPICAL PROGRAM DEVELOPMENT PROCEDURE



Assembly language source programs are entered using line number from paper or mag tape, keyboard, or disk. All editing is done by line number, and the optional TXT-2 Text Editing Firmware makes it possible to automatically add line numbers to un-numbered text.

Six source programs can be stored in memory as named files and called at will to be listed, edited, assembled or simulated. Files may also be stored on tape or disk and can be assembled from any selected input device. Files can be appended, moved, re-numbered, taken apart or linked together. Using the FCHK command, crashed files can be restored.

The Assembler includes labels, comments, expressions and constants, along with relative symbolic addressing, which gives you the ability to chain common symbols from one program to another (even if the other program was assembled at some other time). Also, various assembly error messages are provided to help you eliminate program bugs.

Perhaps the most unusual feature of the ALS-8 is its ability to dynamically adjust the system's I/O handling configuration. The System includes an I/O Driver Table which is accessed using three of the resident commands or by the drivers themselves. I/O device driver routines may switch themselves on and off or transfer I/O control to a different device driver under program control.

Your development system might have a CRT terminal, a high speed line printer, or paper tape reader/punch and a teletype. The System can print a listing to the line printer, then input from the paper tape reader and return console control to the CRT terminal, all under program control.

Up to 20 custom commands can be entered by the user and called in exactly the same way as the standard resident commands. With the ALS-8, you are not locked into a ROM determined program. With the Custom Commands, I/O Driver Table, dynamic I/O switching capability and common Symbol Tables, you can change your system's configuration and operating modes at any time.

Resident Commands:

ASSM	CUSTD	EXEC	FMOV	NFOR	SYML
ASSME	CUSTE	FCHK	FORM	SIMU	SYSIO
ASSMX	DUMP	FILE	IODR	STAB	SWCH
AUTO	EDIT	FILES	LIST	SYMD	TEXT
CUST	ENTR	FIND	MOVE	SYME	

Custom Commands: Up to 20 specified by user and set up or modified with the CUST, CUSTD or CUSTE.

The ALS-8 requires 2K of Random Access Memory (4K is recommended) for Symbol Tables and System Global area. It is addressed at D000.

Firmware Options: The SIM-1 Interpretive Simulator is a program that actually thinks it's an 8080! With the SIM-1/ALS-8 combination, you can simulate 8080 programs on your Altair, IMSAI, or Intellec computer without actually running them in real time. All registers, flags, program counter, and stack are simulated. This means you can test your programs with no worry of crashing your system if something goes wrong. **This is the only system that will not lose control** if a program error is encountered (e.g., an incorrect jump or call).

With the SIM-1, you can set breakpoints, enable or disable register/memory content printout. You can handle inputs or outputs in real or simulated time. I/O instructions can be run in real time, simulated from the system console, or set to pre-determined values for any I/O port address.

The SIM-1 is probably the most powerful de-bugging tool available for 8080 programming. In fact, we have used it extensively to develop the ALS-8, BASIC, the Math Pack Calculator software, FOCAL, and our FDOS.

The TXT-2, Text Editing firmware adds the world of text editing to your system. Using the TXT-2, you can insert, delete and move single characters, entire lines or portions of lines. Complete text files can be scanned at several user controlled rates, up to almost 1000 lines per minute when used with our VDM-1 Video Display Module. These are capabilities only available in systems selling for \$15,000 just a few short years ago!

For complete specifications, sample demonstration printouts and more information on the ALS-8, SIM-1, and TXT-2 firmware modules, please request our ALS-8 System Description.

Specifications

Memory Size: ALS-8: 5120 bytes in EPROM, hexadecimal address E000-F3FF

SIM-1: 1536 bytes in EPROM, hexadecimal address F400-F9FF

TXT-2: 1536 bytes in EPROM, hexadecimal address FA00-FFFF

Access &

Cycle Times: 1.0 microsecond worst case

Bus Pinout: Plug-in compatible with Sol System, Altair 8800 and IMSAI 8080 bus

Power Requirements: +7.5 to +10VDC at 600mA max; -14 to -19VDC at 450 mA max (with SIM-1 and TXT-2 options installed)

Dimensions: 5.3" x 10.0" (13.46cm x 25.4cm)

Processor
Technology
Corporation
Emeryville, CA 94608

ALS-8 Firmware Module