



# Software Product Description

---

PRODUCT NAME: Cassette Programming System (CAPS-8)

SPD 3.1.0

DESCRIPTION:

CAPS-8, the Cassette Programming System, is an economical, reliable programming system for use with the PDP-8/E computer. The system incorporates the convenience of a magnetic tape resident programming system and the adaptability of a paper tape system. CAPS-8 provides interactive processing that utilizes monitor-based file handling techniques, language and utility processors, and facilities for fault detection. The system hardware consists of the TA8 DECcassette system that provides low-cost bulk storage, an 8K PDP-8/E, a console terminal device such as an LA30 DECwriter, and an optional line printer. An MI8-E hardware bootstrap loader, although not a required part of the system hardware, facilitates loading of the Keyboard Monitor into core and thus would be a valuable hardware addition to the CAPS-8 PDP-8/E.

The CAPS-8 software is engineered to take full advantage of the TA8E features and the power of the PDP-8/E, F or N processors. The resulting CAPS-8 system is an inexpensive, highly cost effective computing system with a wide range of applications in industrial research and laboratory development and monitoring. Those applications which were typically thought of as being paper tape system applications can now be handled at greatly increased performance by CAPS-8.

The Cassette Monitor accepts typed commands to load and run library programs, list tape directories, and perform various functions associated with cassette file management. System command structure is similar to that of OS/8, providing the same concise format and ease of use. The tape cassette serves as an unformatted, file-structured bulk-storage device which contains the system executive along with a library of system and user programs. Monitor level control is maintained by refreshing the memory resident portion of the system executive from the cassette whenever necessary.

July 1974

## Cassette Programming System (CAPS-8)

-2-

System programs supplied with the Cassette Programming System include:

### Symbolic Editor

The Symbolic Editor is used to create and modify ASCII source files so the the source files can be used as input to the BASIC or PAL-C system programs. The editor accepts any number of input files and produces a single edited output file. CAPS-8 EDIT features include:

- . The current buffer can be output to the line printer.
- . Over 5600 source characters may be stored in a single buffer.
- . After a line is deleted, changed, or searched, free buffer space is automatically consolidated.
- . An intra-buffer string search can be carried out. The current buffer is searched to locate a particular occurrence (1st, 2nd, 5th, etc...) of a string of as many as 20 characters.
- . An inter-buffer string search can be carried out. The current buffer and subsequent buffers are searched to locate a particular occurrence of a string of up to 20 characters.

### PAL-C Assembler

PAL-C is symbolic, machine-oriented source language applicable to any problem. A program written in this language is translated by the assembler into a binary object file; two passes are required to carry out the translation. An optional third pass provides an octal and symbolic listing and a symbol table. CAPS-8 PAL C features include:

- . Conditional assembly pseudo-operators to perform certain tasks or to interpret subsequent coding in a certain way. For example, some pseudo-operators generate storage words in the object program; others can be used in the assembly operation.
- . Expanded symbol table allowing up to 1800 entries on a 12K system
- . A load-and-go option that causes the input program to be assembled, listed, loaded, and executed by one keyboard command
- . Cassette I/O support

- . Rapid binary symbol table search
- . Paginated listings with page headings

### CAPS-8 BASIC

The BASIC language was specifically developed for simple and convenient on-line use. CAPS-8 BASIC features include:

- . Program storage on cassettes (NEW, OLD, and SAVE commands)
- . Runtime data files on cassette
- . Program chaining that results in virtually unlimited program length
- . Immediate mode commands that provide a desk-calculator approach for one-time-only problems where a conventional stored program may not be necessary
- . One- and two-dimensional subscripting
- . User-defined function
- . User-coded, assembly language function

### SYSCOP

The System Copy Program enables the programmer to transfer files from one cassette to another. The file transfer can involve a specific file, or all the files on a cassette. Thus, the programmer can make copies of important cassettes, such as the system cassette, and can consolidate cassettes that contain empty files.

File transfers can be verified as they take place. To ensure rapid error detection and correction, SYSCOP includes a comprehensive error diagnostic.

### CODT

Cassette Octal Debugging Technique (CODT) is a modified version of standard PDP-8 ODT. Using CODT, the programmer can run his binary program on the computer, control its execution, and make alterations to his program by typing at the terminal keyboard.

### UTIL

The CAPS-8 Utility Program (UTIL) allows the user to take files stored on paper tape and transfer them as named files onto a cassette, using either the high- or low-speed reader. The utility program will transfer both ASCII and binary files.

Cassette Programming System (CAPS-8)

-4-

MINIMUM HARDWARE REQUIRED:

PDP-8/E, F, or M central processor with 8K of memory.  
A console terminal (LA30-PA DECwriter teleprinter, VT05 alphanumeric CRT display and keyboard, LT33, LT35 Teletypes).  
TA8-E Dual Drive Cassette Unit and Controller.  
MI8-EC Hardware Bootstrap Loader (highly recommended).

OPTIONAL HARDWARE SUPPORTED:

Additional memory (to a system total of 32K).  
Note: BASIC does not utilize over 8K.

LS8, LE8-FA, or LE-JA series Line Printer (highly recommended especially when VT05B is the console terminal).

PR8E High-Speed Paper Tape Reader (supported by UTIL as described above).

PREREQUISITE SOFTWARE:

None

ORDERING INFORMATION:

QF007-AN	Single-user license*; binaries on cassette and manual	\$250.00
QF007-EC	Sources on OS/8 DEctape (requires license*)	\$250.00
QF007-FZ	Listing (requires license*)	\$250.00

SUPPORT CATEGORY: B - One year Software Performance Reporting (SPR) Service.

UPDATE POLICY: Any future updates will be available at the prevailing handling and service charges.

\* This software is furnished under a license for use in a single system and can be copied (with the inclusion of DIGITAL's copyright notice) only for use in such system, except as may otherwise be provided in writing by DIGITAL.

D3.1.0

**digital**

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS 01754  
European Headquarters: 81 route de l'Aire, 1211 Geneva 26.  
Digital Equipment of Canada Ltd., P.O. Box 11500 Ottawa, Ontario K2H8K8.