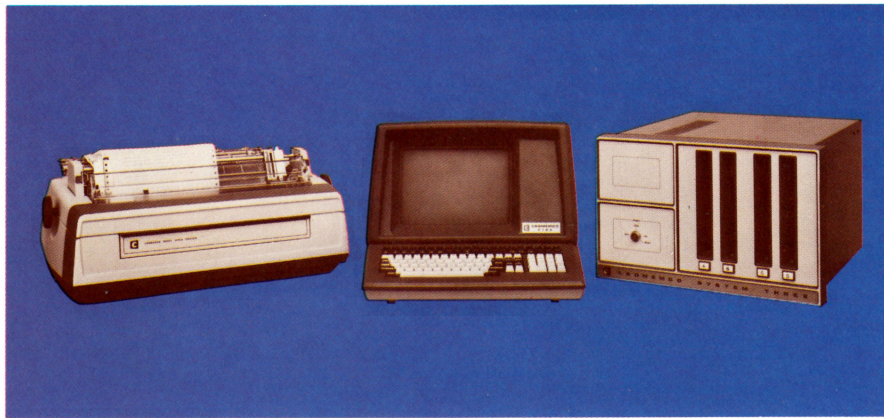# System Three Computer

**A fast, powerful microcomputer
with lots of disk storage
plus the industry's most complete line of software**

**Business — accounting — engineering —
science — data-base management — education —
medicine — word processing**

Cromemco
i n c o r p o r a t e d
Tomorrow's Computers Today

Features you'll need and want:
speed — large disk memory — expandability

Here's a microcomputer with the features you want and need to do contemporary level work in almost any field: engineering, science, business/accounting, word processing, data-base management, education, medicine, and others.

It's a computer that does what until recently only a much larger and many times more expensive computer could do.

In the microcomputer field the Cromemco System Three stands alone in the range of features and capabilities it offers. The heart of the System Three is a fast and powerful Z80A-based processor with capability for enormous RAM memory expansion and with provision for up to four double-sided, double-density disk drives. No other microcomputer offers four such drives. These drives are important to you, the computer user, because they let you use more powerful programs and larger files formerly usable only in much more expensive computers.

Further, Cromemco offers a wide range of plug-in memory and I/O for use with the computer. This is extremely valuable for many cases where you may find later need for added computer flexibility and/or expansion.

SYSTEM THREE FEATURES

- Fast circuitry and memory for rapid execution of programs
- Large storage capability
- Extensive software available
- Modular design for ready expansion to larger more complex jobs.
- Strong, all-metal cabinetry
- High-performance CRT terminal
- Fast, large-capacity printer
- Built-in diagnostics for testing system operation
- Service contracts available from local dealers
- Factory-trained dealer sales and service personnel

DISK PROTECTION

The System Three has several provisions for protection of disks from damage:
- The computer provides for ejection of disks under software control if desired.
- When the key switch is in the LOCK position, the eject buttons under the disks are disabled
- Disk loading and unloading are motor-driven, providing gentle handling of these long-life disks.

LARGE, EXPANDABLE MEMORY

One of the most important aspects of a computer has proved to be its capability for expansion, particularly expansion of memory. Experience has shown over and over that the need for memory capacity is often difficult to assess at the start of a project and is typically underestimated. The System Three computer can be so helpful that more and more tasks are often found for it.

Consequently, Cromemco has designed the System Three with generous provision for expansion, both RAM and disk.

First, the unit is supplied with 64 kilobytes of fast RAM. This can be expanded to 512 kilobytes in 8 banks.

Next, the System Three is supplied with a dual disk drive providing 2.4 megabytes of memory. Using Option 002, this can be increased to 4.8 megabytes of disk storage.

And for even more storage an optional 11-megabyte hard disk drive is available (see p. 4).

Thus, with the System Three you have the security inherent in an enormously-expandable memory.

ABOUT CROMEMCO

Cromemco is one of the best-known names in the microcomputer field, and our products are widely considered to be the benchmark of the field.

Cromemco also has an enviable reputation for product reliability, being rated #1 in an independent survey.

In another recent independent report* Cromemco received such comments as "Our survey revealed totally satisfied business users"..."users' impressions were extremely favorable"..."the Cromemco data storage systems...received an 'outstanding' rating."

*Benchmark Report, April, 1980; Association of Computer Users.

BROAD SOFTWARE SUPPORT
APPLICATION SOFTWARE

Following is some of the outstanding software support available to you for the System Three. More becomes available all the time.

- BUSINESS SOFTWARE. This includes General Ledger, Accounts Receivable, Accounts Payable and Inventory.

- WORD PROCESSING SYSTEM. The Cromemco word processing system is a combination Screen Editor and Formatter for the quick preparation of professional looking documents. Lines of text may be left- or right justified or centered.

- DATA BASE MANAGEMENT SYSTEM. This advanced software package can be used for inventory control, mailing lists, personnel records, order entry and other important business applications.
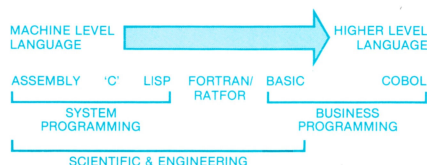
It includes our data-base report writer.

To create a data base, an operator simply specifies the field attributes, then the sorts by which the data can be retrieved (e.g., by state, by name, by state by city by name, etc.)

- A host of application software is available from independent vendors for Cromemco machines. Contact your dealer for details.

LANGUAGES

- CROMEMCO 16K DISK-EXTENDED Z-80 BASIC. This disk or PROM-based Extended BASIC was specifically designed to meet the most demanding requirements of business firms while also providing the flexibility and speed necessary for real-time control applications. It fully utilizes the extensive 158-instruction set of the Z-80 microprocessor to maximize computational precision (a full 14 digits), programming power, and speed of execution.

- 32K STRUCTURED BASIC. This includes all commands of Cromemco 16K BASIC and more besides. Variable names and label names may contain up to 31 characters. A highly-sophisticated Keyed Sequential Access Method is incorporated.

- FORTRAN IV. Cromemco FORTRAN IV provides new capabilities for users of Z-80 based microcomputer systems. This is a complete implementation of ANSI standard FORTRAN X3.9-1966, except for complex data types.

- COBOL. The Cromemco compiler contains all the features of level 1 COBOL as defined by the 1974 ANSI standards as well as the most useful options of Level 2.

- RATFOR (RATional FORtran). This is a FORTRAN preprocessor that brings the advantages of structured programming techniques to the widely-used FORTRAN language.

- LISP. This is a highly-evolved high-level language used particularly in artificial intelligence work. Cromemco LISP has a virtual storage capability, comprehensive error-trapping capabilities, and many other advanced features.

- 'C' is the language of choice for systems programming. It offers efficiencies comparable to those of assembly language while allowing full use of structural programming techniques. The C compiler operates only under the CROMIX operating system.

Complete spectrum of languages to cover broad range of application

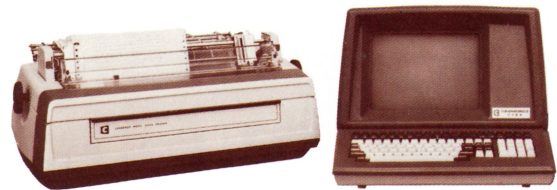## MULTI-USER VERSION OF SYSTEM THREE COMPUTER

The System Three is available in a multi-user system that lets you do the tasks usually associated with much more expensive time-sharing computers.

You can have up to six terminals, a fast printer, a large RAM memory expandable to one-half megabyte, and many more features. Check this system for speed — you'll be surprised.

Multi-user versions of the System Three are available to support from two to six users.

CROMIX
Operating System

The multi-user multi-tasking version of the System Three include our CROMIX Operating System, a sophisticated system similar to the UNIX operating system developed at Bell Laboratories. Using CROMIX up to 6 users, or six tasks, can be accommodated simultaneously.

'SMART' CRT TERMINAL

The Model 3102 CRT terminal available for the System Three displays 80-character lines and a 24-line page. The detachable keyboard is constructed using hermetically-sealed reed switches for long, reliable life.

Note the separate numeric keypad and the cursor keypad.

The terminal's many features include 20 user-definable software keys.

The terminal displays upper and lower-case characters with descenders.

DOT-MATRIX OR FULL-LETTER PRINTERS

A choice of three printers (see p. 4) is available for your System Three. Two dot matrix units offer printing speeds up to 180 characters/second.

A full-letter printer gives quality comparable to that of the best electric typewriters.

Note that the System Three includes a printer interface, allowing direct connection and use of these printers without additional circuitry.
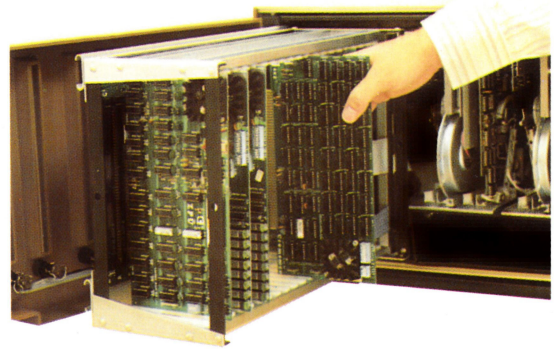
DESKS AVAILABLE

Two handsome desks are available for your System Three. The larger desk accommodates the computer and terminal, and provides extra work surface as well.

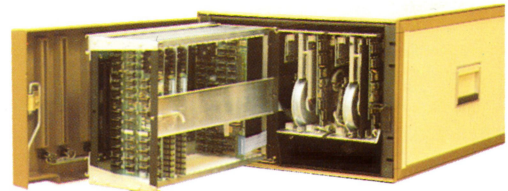The smaller desk is useful for printer or terminal. Styling of both is suited to the nicest of office surroundings.

- Larger desk is Model Z3-MDSK.
- Smaller desk is Model Z3-SDSK.

METAL DESK CABINET AVAILABLE

All-metal brown-trimmed beige cabinet for System Three Computer. Model number is Z3-CAB.

System Three computer is constructed so that hinged front panel swings open and motherboard/card cage slide out for easy insertion of circuit boards.

Retainer bar keeps circuit cards firmly in sockets.

TECHNICAL SPECIFICATIONS

SYSTEM THREE COMPUTER
(Model CS-3)

Processor: 4 MHz version Z-80A
Cycle Time: 250 nanoseconds
Minimum Instruction Execution Time: 1 microsecond
Instruction Set: 158 instructions including the 78 instructions of the 8080
System Bus: Industry standard S-100
Board Capacity: 21 boards
Disk Drive Capacity: 4 drives (supplied with two drives)
Disk Storage Capacity: 1.2 megabytes each disk (2.4 MB with 2 drives; 4.8 MB with 4 drives).
ROM Firmware: 4K bytes
Serial Interface: RS-232 or current loop; 110 to 76,800 baud. Supports Cromemco CRT Terminal.
Printer Interface: Supports Cromemco Model 3709, 3703, or 3355A Printers.
RAM Memory: 64K bytes
Power supply: +8 volts @ 30A, +18 volts @ 15A, –18 volts @ 15A
Power: Operates from 110/220 volts; 50/60 cycle
Operating Environment: 0-40°C
Dimensions: 12¼"H x 19"W x 20¾"D (31.1 x 48.3 x 52.7 cm)
Weight: 65 lbs
Mounting: For rack mounting (optional cabinets available)

CRT TERMINAL (Model 3102)

Format: 80 characters/line; 24 lines; upper and lower case; solid state capacitive keyboard
Additional Capabilities: line editing; block mode transfer; 16 software-assignable function keys

LINE PRINTER (Model 3703)

Format: 180 characters/sec.; 132 cols., 18" platen; impact printer. Bidirectional printing; tractor feed.

FULL-FORMED LETTER PRINTER
(Model 3355A)

Format: 55 characters/sec; 15-inch platen; tractor feed and friction platen; quality impression suited to camera copy.

LINE PRINTER (Model 3779)

Format: 60 characters/sec.; up to 132 ch/line; 12" platen; impact printer; tractor feed.

OPTION 001
2708 PROM PROGRAMMER

Sockets: Two sockets for ease of PROM duplicating

OPTION 002
DUAL DISK DRIVE

Capability: Provides for a total of four disk drives

MODEL HDD HARD DISK DRIVE

Storage capacity each drive: 11 megabytes (unformatted)
Data transfer rate: 5.6 megabits/sec.
Head positioner: linear actuator
Tracking mechanism: servo track following
Interface card: S-100 DMA interface
Rotational speed: 3600 RPM
Rotational latency: 8.3 msec
Number of data surfaces: 3 surfaces, sealed environment
Tracks per surface: 350
Head flying height: 19 microinches
Head tracking pressure: 10 grams
Average access time: 50 msec.
Power dissipation (each drive): 100 watts
Power requirements: 110/220 volts 50/60 cycle
Operating environment: 0-40°C; 10%-80% humidity (non-condensing)
Weight (w/one drive): 55 lbs (25 kg)
Weight (w/two drives): 88 lbs (40 kg)

Data subject to change without notice.