

## Numerous commands give full play to its computer capabilities.

Table of commands			
Classification	Command name	Function	
Direct commands	PRG LIST	Selects P0-P9 program area	
	EDIT	Displays program list on CRT	
	RUN	Displays program list on CRT	
	CLEAR	Deletes program from designated program area	
	CLEAR A	Deletes programs and data in all program areas	
	PASS	Performs password designation and cancellation	
	RFILE	Performs RAM file declaration and cancellation	
	RLIST	Displays contents of RAM file	
	RCLEAR	Deletes designated file in RAM file	
	RSAVE	Enters program in RAM file	
	RLOAD	Reads program from designated file in RAM file	
	Basic commands	REM	Inserts comments into program
		LET	Assigns a value of a formula to variable (command can be omitted)
		READ	Assigns data in DATA statement to variable
DATA		Designates data read by READ statement	
RESTORE		Sets DATA statement pointer at the beginning	
INPUT		Assigns input from the keyboard to variable	
KEYIN		Inputs 1 real time character from the keyboard for the character variable	
PRINT		Outputs designated data to the CRT	
IF...THEN...		Decides comparison expression condition	
GOTO		Goes to assigned line	
GOSUB		Subroutine goes to assigned line	
RETURN		Signifies subroutine termination	
ON...GOTO...		Goes to designated line by value	
ON...GOSUB...		Subroutine goes to designated line by value	
FOR	Repeats designated command in designated frequency		
NEXT	Signifies termination of FOR loop		
SET	Performs trigonometric function angle mode designation		
STOP	Stops program run		
END	Terminates program run		
DIM	Designates array variable		
CLEAR DATA	Deletes all data		
SAC	Deletes all statistical data		
STAT	Performs statistical data input		
ROPEN	Opens data file in RAM file		
RPUT	Writes data in RAM file		


Table of graphic functions		
Classification	Function name	Function
Graphic commands	RGET	Assigns RAM file data to variable
	RCLOSE	Closes data file in RAM file
	CLEAR DISP	Clears CRT
	INIT	Designates origin of graphic coordinate and expansion rate
Graphic functions	DRAW	Draws points, straight lines or curved lines
	CDRAW	Draws points, straight lines or curved lines
	QUAD	Draws quadrangle
	CQUAD	Deletes quadrangle

Table of functions			
Classification	Function name	Function	
Numeric functions	SIN, COS, TAN, ASN, ACS, ATN, HSN, HCS, HTN, AHS, AHC, AHT, SQ, EXP, LN, LOG, INT, FRAC, ABS, SGN, DEG, MOD, PER, COM, ROUND, RND#, SIZE, GNT, SUMX, SUMY, SUMXY, SUMX2, SUMY2, MEANX, MEANY, SDX, SDY, LRA, LRB, COR, VAL, LEN, ASC, π		
	Character functions	MIDS, CHRS, STR\$	
		Output control functions	TAB, CSR, REV, NORM

## Numerous options to permit free system expansion.

### Memory packages



**A ROM Package E-4K** (BASIC expansion [matrix])  
Dimensions and weight: 19H x 106W x 177.5mmD, 170g.  
(3/4"H x 4-1/4"W x 7"D, 6 oz)


Table of matrix commands	
1. Array definition statement	9. Matrix vector difference
2. Array redefinition statement	10. Matrix scalar product
3. Array data input statement	11. Matrix vector product
4. Array data output statement (CRT)	12. Zero matrix
5. Array data output statement (Graphic printer)	13. Constant matrix
6. Array data output statement (Character printer)	14. Unit matrix
7. Matrix assignment statement	15. Transposed matrix
8. Matrix vector sum	16. Inverse matrix
	17. Determinant value when calculating inverse matrix
	18. Determinant value

**B RAM Package D-16K** (Dynamic RAM, 16K bytes)  
Dimensions and weight: 19H x 106W x 177.5mmD, 190g.  
(3/4"H x 4-1/4"W x 7"D, 6.7 oz)

**C RAM Package C-4K** (with power backup C/MOS RAM, 4K bytes)  
Dimensions and weight: 19H x 106W x 177.5mmD, 210g.  
(3/4"H x 4-1/4"W x 7"D, 7.4 oz)

\* Backup period is about 3 years.

### Option Board



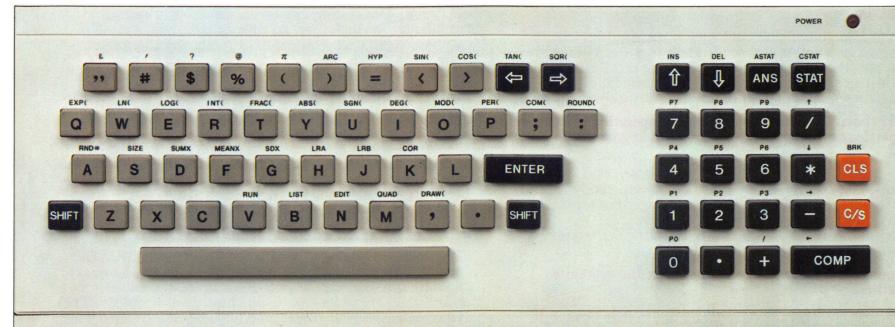
**Option Board OP-1**  
Attaches to lower rear of main frame. This board contains graphic printer interface; character printer interface; cassette tape interface; clock, alarm and calendar logic with power backup.

- **Graphic printer interface**  
Parallel interface based on centronics interface  
Applicable type: Epson Company MX-82
- **Character printer interface**  
Exclusive character printer to be sold at a later date
- **Cassette tape interface**  
Used for audio tape interface (transfer speed 300BPS)
- **Clock function**  
Crystal oscillator clock (±5 seconds per day accuracy)/3 time alarms/auto calendar with power backup  
\* Battery life: Approx. 6 months with 2 SUM-3 batteries  
Dimensions and weight: 27H x 252W x 242mmD, 735g (incl. batteries).  
(1"H x 10"W x 9-1/2"D, 1.62 lb)

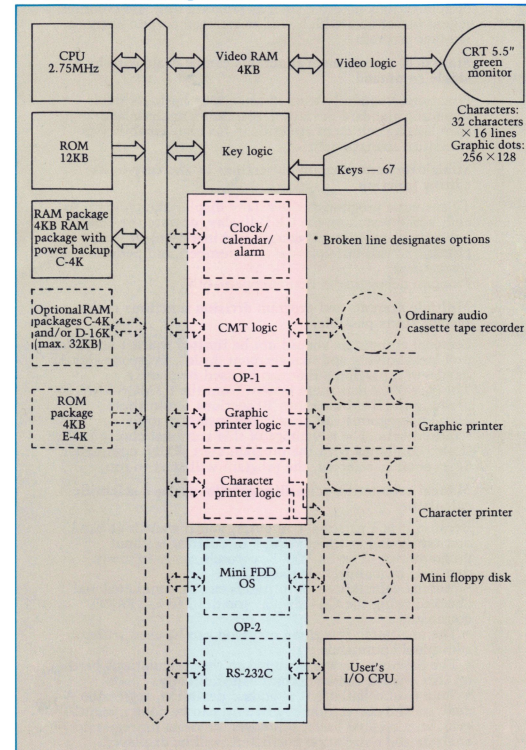
**Option Box OP-2** (to be sold at a later date)  
2 single-sided double-density floppy disks (including OS) and RS-232C interface together in a single unit connects to OP-1 with a cable.

## Highly capable and highly reliable hardware construction.

### Easy-to-use keyboard with improved functionality



### FX-9000P's configuration



\* Configuration, design and specifications are subject to change without notice.

# YOUR PERSONAL COMPUTER, READY FOR YOUR FUTURE.

Powerful CA-BASIC and C/MOS-RAM package have changed the personal computer.



CASIO FX-9000P main specifications	
Processor	Z80A compatible
Program language	CA-BASIC (CASIO BASIC)
Memory	ROM: 12K bytes (standard equipment) : 24K bytes (maximum expansion)
	RAM: 4K bytes (standard equipment) C/MOS-RAM with power backup : 32K bytes (maximum expansion)
CRT display	Screen: 5.5" green display Display capability: characters— 32 characters x 16 lines : graphics—256 x 128 dots Character composition: 8 x 8 dots Display characters: alpha-numeric Cursor
	Arrangement: ASCII improved type 67 keys Numerical input keys: 10 keys independent Function keys and CRT editing keys
Keyboard	
Decimal point system	Floating decimal
Calculation range	±1 x 10 <sup>-99</sup> — ±9.99999999999 x 10 <sup>99</sup> And 0
Significant digits	Mantissa part 12 digits
Line numbers	1 to 9999 for each program area
Multi statement	Possible
Command abbreviated form	Yes (When command abbreviation is used, memory can be saved and command run speed will be increased.)
Write form designated output	Possible
Software	Manual calculation function Function calculation function Statistical calculation function Graphic control function
Dimensions	187H x 415W x 430mmD (7-3/8"H x 16-3/8"W x 17"D)
Weight	7.2 kg (15.9 lb)
Power supply	AC 100/117/220 or 240V (±10V), 50/60 Hz
Power consumption	32W
Ambient temperature range	0°C—40°C (32°F—104°F)
Humidity	20%—85%



# The future starts today with the Casio FX-9000P—the first REAL personal computer.

The practical personal computer has finally arrived. It comes to you in a neat desktop form, about the same size as an electronic typewriter.

The FX-9000P takes a RAM package with backup power and, through the use of CA-BASIC software, delivers a highly precise and useful management service.

Whether you use it as a problem beater or as a right-hand information center, very soon you'll wonder how you ever managed without it.



## Highly Capable Hardware

Instant responses from the C/MOS RAM package system at switch on. Power backup means no data loss.

None of the customary desktop computer problems: No inconvenience of having to transfer program language from tape for programming. No time wasted in transferring software from tape before application.

These time consuming procedures were great demerits in previous personal computers, plus the unreliability and instability of cassette taped software.

The FX-9000P eliminates these problems. It employs a C/MOS-RAM package with power backup. Daily, weekly, monthly management data can be readily available and frequently used programs employed by simply switching on the power. This makes the FX-9000P a new entity in modern office and laboratory data control and computation.

No loss of programs and data, even in a power cut.

Until now, whenever power was lost during programming or when data was being used, the whole process had to be repeated from the beginning. This was a great disadvantage of personal computers and made it necessary to keep

Compact, all-in-one design allows instant use with no link-up.

The CPU, keyboard and CRT [green monitor] are all combined in a single desktop unit. It is the answer to numerous demands for a personal computer. Because there is no wiring to connect, this all-in-one system can be used in the laboratory, home or office instantly and at any time.

The keyboard is laid out to a logical operating system for independent typewriter-calculator style key control.

ASCII improved type code is used. The 67 keys most frequently used for data input have been selected. The numeral and command keys are banked separately and all function and editing keys have been placed for rapid use and user comfort.

All keys respond to a light touch, enabling the operator to perform smoothly for long periods without tiring.

Optional equipment and interface boost the system's capability.

Numerous options are available for multidirectional and more effective use of the FX-9000P.

- **OP-1**  
This option board fits on the lower rear of the main frame and provides "graphic printer interface", "character printer interface", "a clock and a calendar (with power backup)".

- **OP-2 (to be sold at a later date)**  
"2 single-sided double-density floppy disks (including OS)" and "RS-232C interface" are incorporated in this optional package.

The mini floppy disk can be used for personal management system to expand the FX-9000P capability to an office computer. The RS-232C interface can be used to communicate with different types of computers, collect data from measuring equipment and connect to I/O equipment such as an X-Y plotter, line printer or paper tape punch so that the usable range of the FX-9000P can be increased even further.

\* OP-2 specifications may be subject to change.

## Multi-use Software

Powerful, versatile BASIC responds to the demands of high level management.

The system is equipped for CA-BASIC (CASIO BASIC). CA-BASIC uses a high standard conversation type, problem-solving BASIC language for easy utilization and a more powerful and independent program language. It can be mastered by anyone because it uses easy to understand grammar and a versatile command group. This practical system enables maximum benefits from the hardware's capabilities and provides greater management capacity.

Complete graphic function for graphs and patterns with high picture definition.

The 5.5" CRT provides a 32 character  $\times$  16 line green display. Graphic display without mode designation displays  $256 \times 128$  dots. All graph patterns for analysis of experimental data, time sequence data or management data are produced in a clear, high quality picture. Graphic control is based on movement of an original point to any position on X-Y coordinates. Dots, straight lines, curves and quadrangles can be expressed simply and logically.

For instance, to plot a circle or double curved line: (circle) DRAW (cos(A), sin(A)) (quadratic curve) DRAW (X, X\*X) Problems containing the above can be solved easily. Also, since the  $256 \times 128$  dot pattern can be freely controlled, a wide range of other patterns can be used.

High precision, multi-place calculations, backed up by a complete decimal calculation function.

Highly precise calculating is accomplished by employing a decimal calculation method with 12 significant digits.

Errors are greatly minimized when calculating by binary operation. The system can be used smoothly and confidently for high level science calculations and for business work that requires multi-place calculation (exponent  $10^{+99}$ ).

All fields, from science to business, are covered by its expansive calculator functions.

Fundamental mathematic functions are all built in. The functions correspond perfectly to a wide range of fields such as electronics, mechanics, surveying, physics, mathematics, construction and business analysis. Moreover, 12 significant digits and one touch command keys insure high precision and wide utility.

File control function and RAM package can be used to create a high speed external memory device.

The system is equipped with a fully applicable RAM file control function and uses the RAM package as a program and data file medium. Master file storage and transfer to other FX-9000P units can be accomplished smoothly. The system's high speed access greatly surpasses systems which have cassette tape or floppy disks as a data base.

Additionally, this file control function makes a wide range of applications possible such as program link and common region use of data which will be retained despite entry of another program.

Statistical management functions can be dealt with by a single command.

Functions frequently used in science or business fields, including standard deviation, regression analysis and correlation coefficient are built in for high capability in statistical management.

Straightforward program corrections by the easy-to-use editing function.

To correct a program, sequentially display the program list and, while watching the CRT display, operate the editing key (cursor movement, erasure and insertion). It is also possible to call out optional line numbers and perform corrections.

Program debugging is extremely smooth.

Multiple systems and program division functions make instant starts possible.

Personal computers should not be limited in their scope for problems solving and management duties. Everyone should have 2 or 3 programs that can be used frequently.

The FX-9000P gets more benefit from the C/MOS-RAM by dividing the RAM area into 10 sections. From these sections programs can be selected instantly to fit requirements. The advantage of this sectional choice is that it also combines with the program start (RUN) command. So as soon as selected, the program will start to run.

Manual calculating versatility permits use as a scientific calculator.

Because it is a personal computer, you'll want it at hand constantly and at times require calculating without programming. The FX-9000P responds easily to many demands in manual calculating.

- Manual calculations of formulas can be completed and checked using the CRT display (no need to use PRINT command).

- The one-touch function command can be used without additional commands.

- The previous answer is stored so that calculations based on that answer can be accomplished directly.

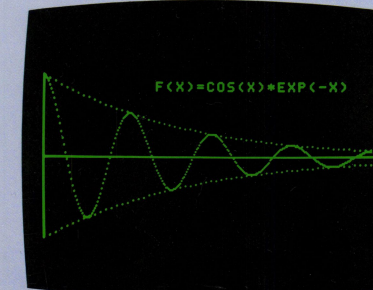
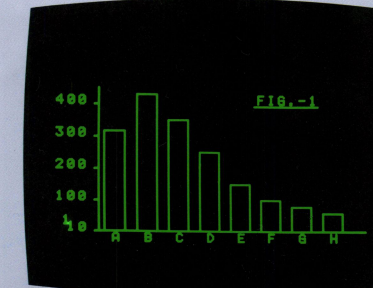
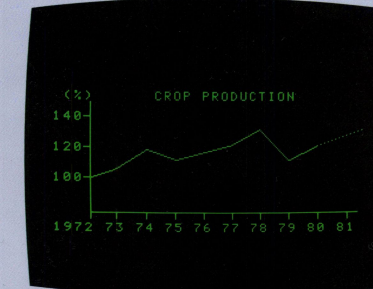
- Statistical calculations (standard deviation, regression analysis and correlation coefficient) can be done instantly, even on a manual basis. Moreover, answers for regression analysis and correlation coefficient will be displayed instantaneously.

# COMPLETE GRAPHIC FUNCTION AND RAM FILE FUNCTION EXTEND THE FIELDS OF APPLICATION THROUGHOUT SCIENCE AND BUSINESS.

Clear graphic representations are understandable at a glance.

The high resolution graphic function expresses all kinds of graphs such as curved lines, bars, circles, etc. with superb clarity.

Trend analysis management, degree of correlation, etc., coupled with a built-in statistical management function, make instant graphing possible. Hard copies of graphs can be obtained by connecting an optional graphic printer. These can then be used in reports straight from the printer.



The RAM file extends its capacity by simulation.

The FX-9000P uses a C/MOS RAM file to greatly increase management capability. Information can be simulated by using the RAM file to store the fundamental data.

PROV.	POP. (THOU.)	AREA (SQ. KM)	DENSITY PER SQ. KM
WEST.	12,874	72,651	177
CENT.	6,940	90,378	77
NOR.	9,240	133,004	69
EAST.	7,479	107,026	40
SOU.	11,081	229,750	52

NEXT TABLE (YES OR NO)?  
PLEASE PRESS V/WH

Interesting games can also be invented with complete originality.

The FX-9000P uses a combination of CA-BASIC and high resolution graphics to provide enjoyable games with dynamic and wide-ranging possibilities. By skillfully using the graphic function that controls the  $256 \times 128$  dots, original games can be invented and developed dot by dot. Besides helping to relieve work stress, creating challenging games also improves programming techniques.

