The System 2200S BASIC Interpreter Central Processor Unit (CPU) is designed to meet the computing demands of the classroom, laboratory, and office by providing a powerful and responsive processor in combination with an easy to program built-in higher level interactive language and extensive memory capability.

The standard System 2200S CPU contains 4,096 (4K) bytes of Random Access Memory (RAM) and three I/O slots. A powerful 24K BASIC Interpreter is separately hardwired into a Read Only Memory (ROM) area of the CPU leaving nearly the entire RAM available for user data and programs — only 700 bytes are reserved for system use. By hardwiring the interpreter, the System 2200S CPU is instantly ready to use with user memory directly accessible and fully available for your particular processing needs.

With its wide range of BASIC statements and commands, the System 2200S supports several peripheral devices including a Model 2220 Console-CRT/Keyboard/Single Tape Cassette Drive for overall system control and operation, a Model 2218 Dual Tape Cassette for additional mass storage, and a Model 2221W Matrix Printer for report quality hardcopy.

For the growth orientated user the System 2200S offers longevity through upward expendability. The CPU's memory is available in 4K, 8K, 16K, 24K, and 32K configurations. Additional I/O slots are available with Option 20 (6 I/O slots) and Option 20A (9 I/O slots) for users with a need for a number of peripheral devices.

Four special options are available to upgrade program operation and data management capabilities of the System 2200S:

- Option 21 — Matrix Instruction Set.
- Option 22 — Advanced Programming Instruction Set and Matrix Instruction Set.
- Option 23 — General I/O Instruction Set, Advanced Programming Statement Instruction Set, and Matrix Instruction Set.
- Option 24 — Disk Instruction Set, General I/O Instruction Set, Advanced Programming Instruction Set, Sort Instruction Set, and Matrix Instruction Set.

SYSTEM 2200S
CENTRAL PROCESSOR UNIT

2200S INSTRUCTION SET
General BASIC Statements, Commands, and Functions

Many BASIC statements and commands are single keystrokes input into the System 2200S via an alphanumeric/BASIC keyword keyboard and require only one byte of memory.

BASIC Statements:

COM	GOTO	READ
CONVERT	HEXPRINT	REM
DATA	% (Image)	RESTORE
DEFFN	INPUT	RETURN
DEFFN'	KEYIN	RETURN CLEAR
DIM	LET	SELECT
END	NEXT	STOP
FOR	ON GOTO/GOSUB	TRACE
GOSUB	PRINT	IF THEN
GOSUB'	PRINTUSING	IF END THEN

Although this instruction set represents, for the most part, statements most commonly found in BASIC languages, it also has a number of additions which extend the power and versatility of your programming and data processing capabilities. For example, the PRINTUSING and % (Image) statements permit easy and concise formatting of printed reports that contain leading dollar signs ($), commas, and decimal point insertion of numbers. The COM statement facilitates the passing of variable data between overlayed program steps. A number of statements permit extensive customization of the keyboard and display for data entry. These statements include KEYIN (receives one keyboard character), DEFFN' and RETURN CLEAR (use the 16 special function keys to execute program subroutines and continue program execution at various points), and also GOSUB' which permits the passing of arguments to subroutines.

BASIC Commands:

CLEAR	LIST	RUN
CONTINUE	RENUMBER	
HALT/STEP	RESET	

BASIC commands facilitate the running or modifying of a program, but are not part of the program.

Tape Cassette Statements

The seven operations included in this instruction set are identified by the following names:

BACKSPACE	LOAD	DSKIP
DATALOAD	REWIND	
DATASAVE	SAVE	

The SAVE command automatically formats a "program file" with a header record, program records (as many as required to store the program text), and a trailer record. A program can be stored with or without an identifying name (up to eight bytes long). If the parameter P is specified, a program can be read into memory and executed, but it cannot be listed or duplicated.

The DATASAVE statement automatically formats a logical record consisting of as many physical records as required to store all the values corresponding to a specified argument list. If the parameter OPEN and a name are specified, a data file header record is formatted. Similarly, if the parameter END is specified, a data file trailer record is formatted.

The LOAD statement reads program text and the DATALOAD statement reads data from tape cassette into memory. SKIP and BACKSPACE statements instruct a cassette drive to pass over an indicated number of program and data files, or to pass over a specified number of logical records.

Variables

Up to 286 variable names can be assigned to each of the following: simple numeric variables, numeric array variables, string variables and string array variables. Either one-or two-dimensional numeric or alphanumeric string arrays can be used, dimensioned to a maximum of 255.

The length of alphanumeric variables and array elements are defined from 1 to 64 bytes, with a 16-byte default size.

Alphanumeric Functions

STR	VAL
LEN	NUM
HEX	POS

The STR (string) function permits the user to extract, examine, compare or replace a specified portion of an alphanumeric string. The LEN (length) function offers the capability to determine the number of characters in a given string variable. As a form of literal string, the HEX (hexadecimal) function enables a programmer to use any 8-bit code in a BASIC program. To convert the binary value of the first character of a specified alphanumeric value to a floating point number, the VAL function may be used. The NUM function determines the number of sequential ASCII characters in a specified alphanumeric variable that represents a legal BASIC number. To find the position of the first character in a named alphanumeric value that is $<$, $\leq$, $=$, $\geq$, $>$ or $<>$ the character specified following the relation operation may be accomplished with the POS function.

Arithmetic Operators, Relational Symbols and Mathematical Functions

Arithmetic operations are performed with an accuracy of 13 digits. Most trigonometric and exponential functions are calculated to 12 digits of accuracy. Calculations are performed over a range of 10^{-99} to 10^{+99}.

Arithmetic Operators		Relational Symbols	
$\uparrow$	exponentiation	$=$	equal
$*$	multiplication	$<$	less than
$/$	division	$<=$	less than or equal to
$+$	addition	$>$	greater than
$-$	subtraction	$>=$	greater than or equal to
		$<>$	not equal

Mathematical Functions

LOG	— natural logarithm
ABS	— absolute value
SQR	— square root
RND	— random number
INT	— integer part
SGN	— assigns 1 if positive, 0 if zero, or −1 if negative
#PI	— π (3.14159265359)
SIN	— sine*
COS	— cosine*
TAN	— tangent*
ARCSIN	— arcsine*
ARCCOS	— arccosine*
ARCTAN	— arctangent*

(*trig arguments: degrees, radians, gradians)

SYSTEM 2200S FEATURES

Immediate Mode

- In the Immediate Mode, the user may enter unnumbered BASIC statements as one-line calculations. Multi-statement lines can be entered and executed without altering programs resident in memory, thus allowing the system to be used as a calculator and to make selective program dumps during debugging.

Programming Mode

- The System processes "multi-statement lines," which save keystrokes and memory.
- A total of 16 User-Defined Special Function Keys can be used for single-keystroke access of up to 32 subroutines, program entry points, program functions, or entry of character strings.
- The amount of unused memory is indicated on the CRT when the END statement is included at the completion of a program, or at any time during immediate mode operation.

Editing, Debugging, and Error Diagnostics

- When errors occur in program entry or execution, the program line is displayed and a Diagnostic Error Pointer/Error Code indicates the approximate location in the program line where an error is made and identifies the cause of the error with an error code.
- The programmable TRACE mode traces the program, producing a printout or display whenever a program variable receives a new value or a program transfer is made.
- The HALT/STEP key executes and displays one program statement each time it is depressed, allowing a line-by-line analysis of the program. If TRACE is activated, each executed statement as well as received calculated values are displayed.
- The Character EDIT Mode is designed to facilitate editing of lines of program text recalled from memory

or data and program lines currently being input and displayed on the CRT: ◄---(Multispace cursor left), ◄(Space cursor left),►(Space cursor right),--► (Multispace cursor right), INSERT, DELETE, ERASE, RECALL.

The EDIT key is used to enter EDIT mode. The RECALL key is used to recall a program line previously entered into memory. The Multispace (left and right) keys are provided to move the cursor five spaces to the left or right. Two Space keys are provided to move the cursor a single space to the left or right. The INSERT key is used to expand a line by inserting a space character to allow for additional text or data. When the DELETE key is depressed, the character at the current cursor position is deleted. A program or data line can be erased from the current cursor position to the end of the line by touching the ERASE key.

- The RENUMBER command assigns an entire program, or a specified segment of a program, with user-selectable, equally incremented statement numbers.
- Errors can be corrected in a program statement by using the edit functions or simply by backspacing (which erases characters) in an unexecuted line to the point where the error was made and properly reentering the remainder of the line; deleting the entire line by reentering the line number, followed by a CR/LF command; or replacing the line completely by reentering the line number, followed by the correct program statement.
- Additional statements can be inserted into a program by entering a line number between two existing line numbers. The new line automatically is inserted between the two original line numbers.

Program Saving, Loading and Chaining

- Programs, or specified portions of programs, can be saved (recorded) on tape cassettes (or other selectable storage device) for future use. When needed, the programs are loaded into the System 2200S memory to replace or append an existing program. Loading can be executed from the keyboard, or under program control, to facilitate chained program operation.
- When chaining programs, using the COM statement allows program variables and arrays to be defined permitting their passage to subsequent program steps.
- Loaded protected programs cannot be accidentally modified. Any attempt to modify a loaded protected program results in an error message being displayed (ERR 44).
- Saved programs can be identified by an alphanumeric name and then loaded by searching for the specified program name with the LOAD command.
- Preformatting or predetermining record space size is not necessary. Tape record and file updating is fast and easy.

Data Saving and Loading

- DATALOAD and DATASAVE commands read or write lists of variables and arrays from or onto a tape cassette or other selected storage device.

Telecommunications

- The Model 2228 Communications Controller with its microprocessor, memory, buffers, and transmitter/receiver circuits can emulate the binary synchronous communications protocol of particular terminals, such as the IBM 2780, at transmission rates up to 4800 baud. The controller comes with a Wang-supplied Terminal emulator program which automatically loads the controller microprocessor with appropriate microcode to support each communications protocol. With the controller, the program, and a suitable modem (not supplied by Wang Laboratories), the System 2200S can operate as a remote batch terminal over dial-up telephone lines to any host computer (e.g., an IBM 360 or 370) which utilizes the same communications protocol. Since the System 2200S with its stand-alone computer capability can preprocess or post-process communicated data off-line for a wide range of data processing applications, the Model 2228 Communications Controller can add a cost-effective remote batch terminal capability to the CPU. (Option 23 or 24 recommended.)
- The Model 2227 Telecommunications Controller allows local or remote asynchronous communication with other System 2200S' or remote asynchronous telecommunications with "foreign" CPU's (IBM, Univac, Honeywell, et cetera). Transmission over dial-up or leased phone lines equipped with Bell 103A3 Datasets is at 100 to 300 baud or with Bell 202C Datasets at 110, 150, 300, 600 or 1,200 baud. To the foreign CPU, the System 2200S appears as a Teletype Model 33 or 35. When linked directly, within 124 feet, to other System 2200S' asynchronous transmission can be up to 1200 baud. (Option 23 or 24 recommended.)

Instrumentation Interfacing

- The Model 2250 I/O Interface Controller (8-Bit-Parallel) transmits data at up to 10,000 (8-bit) characters per second asynchronously between System 2200S' linked directly by a maximum 100-foot cable. The controller facilitates mass data transfer between the System 2200S and 8-Bit Parallel I/O devices and instrumentation. (Option 23 or 24 recommended.)
- The Model 2252A Scanning Input Interface Controller (BCD 1-to-10 Digit Parallel) is an input-only interface directly compatible with many digital meters for an on-line application using the System 2200S CPU. The interface accepts, in parallel, a readout consisting of a sign-bit and up to ten BCD digits in 8-4-2-1 notation, or up to 41 bits of discrete data. Four "number of digits" switches are provided to indicate the exact number of BCD digits (or the number of 4-bit groups of

discrete binary data) to be processed per readout. The number-of-digits selectivity feature offers two advantages for applications involving readouts of fewer than 10 BCD digits. Less time is required to transfer each readout to the CPU and less memory is required when storing multireadouts in alphanumeric arrays.

The scanning mode capability is useful when instruments or devices with relatively slow settling times are interfaced to a System 2200S via one or more Model 2252A interface controllers. (Option 23 or 24 recommended.

- The Model 2207A I/O Interface Controller (RS-232-C) allows direct asynchronous input and output of data between a Teletype or other RS-232-C serial compatible devices and the System 2200S. The controller is excellent for linking the System 2200S to a local unit or for monitoring instruments. Laboratory or medical instrumentation which is RS-232-C and 8-level ASCII-compatible can be supported, as well as Teletype 33 and 35's equipped with EIA, RS-232-C adapters.

  Operation is selectable at 110, 150, 300, 600 or 1,200 baud. The controller can be used with the System 2200S CPU alone; the CRT is not required. (Option 22, 23 or 24 recommended.)

Device Selection

- The SELECT statement is used both in the Immediate Mode and under program control to select a device for particular I/O operations (PRINT, INPUT, TAPE).
- Device selections are maintained independently for input and output operations, allowing programs to be modified easily to work with any I/O device.

Disk Operation

- The System 2200S, with Option 24, can address numerous disk drive units with varying capacities from 0.25 to 10 megabytes.
- Each disk operates in two modes: automatic file cataloging and absolute sector addressing. With catalog operations, programs and data files can be saved and accessed automatically by name, without keeping track of sector addresses on the disk. The absolute disk operations permit the user to specify disk sector addresses when saving and loading programs and data. An extensive set of support operations is provided, including the ability to copy backup disk platters and list the catalog index in a single statement.

Plotting Operation

- The powerful BASIC statement PLOT (provided with Option 22) controls any of the plotting devices offered with the System 2200S.
- The plotters can perform any number up to 999 X and Y increments and can print entire words by using a single PLOT statement.
- The PLOT statement allows recursive plot arguments, and multi-plot arguments to optimize plotting efficiency.

OPTIONS, PERIPHERALS, AND INTERFACES

Central Processor Unit Memory/I/O

- The standard System 2200S CPU contains 4,096 (4K) bytes of memory and 3 I/O slots. The memory can be upgraded to 8K, 16K, 24K, and 32K configurations.
- Option 20 provides up to 6 I/O slots.
- Option 20A offers up to 9 I/O slots.

Keyboard/Display Peripherals and Options

- Model 2216 CRT Executive Display provides 16 lines of 64 characters each, instantly displayed.
- Model 2216A Upper and Lowercase CRT offers 16 lines of 64 characters each in either upper or lowercase alphanumeric characters.
- Option 4 Audio Alarm is a programmable signal for the Models 2216 and 2216A CRT.
- Model 2216/2217 Combined CRT Executive Display/ Single Tape Cassette Drive is what its name implies — a CRT and cassette drive housed in the same chassis. The cassette drive and controls are located to the right of the CRT.
- Model 2216A/2217 Combined Upper and Lowercase CRT/Single Tape Cassette Drive houses the upper/ lowercase CRT and cassette drive in one space-saving chassis.
- Model 2220 Integrated Console provides a 9 in. (22.9 cm) diagonal CRT, a Single Tape Cassette Drive, and an Alphanumeric/BASIC Keyword Keyboard in one unit. The keyboard offers two switch selectable typing modes: BASIC keyword/uppercase character entry, and uppercase/lowercase text line entry (with Option 30).
- Model 2226 CRT/Keyboard Console consists of a 12 in. (30.5 cm) diagonal CRT and an Alphanumeric/BASIC Keyword Keyboard in a single unit. The Keyboard provides two switch selectable typing modes: BASIC keyword/uppercase character entry, and uppercase/ lowercase text line entry (with Option 30).
- Option 30 provides an upper/lowercase capability for the 2220 and 2226 CRT.
- Option 31 Audio Signal provides a programmable signal for the Models 2220 and 2226 console units.
- Model 2223 Alphanumeric/BASIC Keyword Keyboard offers two switch selectable typing modes: BASIC keyword and uppercase character entry, and uppercase/ lowercase text entry.
- Option 32 Keyboard Clicker provides an audible indication that a key has been sufficiently depressed to enter a character.
- Model 2290 CPU/Peripheral stand stores the System 2200S CPU and provides a sturdy table for a number of peripherals. Four electrical outlets and a master ON/ OFF switch also are provided.
- Model 2292 Auxiliary Display (w/25' cable) is a 12" (30.5 cm) diagonal "slave" CRT that can be attached to any Wang CRT controller. The Model 2292 echoes the primary system display. Up to 10 Auxiliary Displays may be daisy-chained to a single controller, up to a maximum of 500 feet.

Output Peripherals

- Model 2201 Output Writer types numeric, and upper and lowercase alphabetic output from the System 2200S with full format control and typewriter quality print.
- Model 2202 Plotting Output Writer combines complete digital plotting with the alphanumeric capabilities of the Model 2201. Thus, plots are easily titled and labeled (both the Model 2201 and the Model 2202 can be used as standard electric typewriters when not interacting with the System 2200S). (Option 22, 23 or 24 is required.)
- Model 2212 Analog Flatbed Plotter (10" x 15") provides continuous line or point plotting of curves and data as well as full alphanumeric labeling of problems solved with the System 2200S. (Option 22, 23 or 24 is required.)
- Model 2232A Digital Flatbed Plotter (31" x 48") offers continuous line or point plotting of curves or data. The plotting surface is 31 inches by 48 inches. The plotter uses any type paper including vellum, linen, and Mylar. Fiber tip, ballpoint, or drafting pens can be used. (Option 22, 23 or 24 is required.)
- Model 2291 Digital Flatbed Plotter stand provides a sturdy support for the Model 2232A Flatbed Plotter.
- Model 2221W Wang Line Printer (132 columns) is a 9 by 9 dot matrix impact printer which produces output at approximately 200 char/sec (60 to 300 lines/min). Its set of 96 characters include upper and lowercase characters, numerics, and special characters. The 2221W also can produce highlighted print of double-width characters under program control.
- Model 2231 Line Printer (80 columns) provides permanent hardcopy output at 100 characters/second with up to 80 characters/line or 60 to 150 lines/minute, depending upon line length.
- Model 2261 High Speed Printer (132 columns) utilizes two bidirectional printing heads to print up to 330 characters/second, or 125 lines/minute with a maximum of 132 characters per line.

Input Peripherals

- Model 2203 Punched Tape Reader automatically reads raw paper tape data, in any format, into the System 2200S providing an efficient "data reduction" operation. The reader supports 5, 6, 7 or 8 track paper tape. (Option 22, 23 or 24 is required.)
- Model 2234A Hopper-Feed Punched Card Reader reads up to 300 cards/minute and can stack 500 cards in the input and output hoppers. An 80-column card can be punched with Hollerith or binary code. The card reader

supports both data and program loading. (Option 22, 23 or 24 is recommended.)

- Model 2244A Hopper-Feed Mark Sense/Punched Card Reader reads up to 300 cards/minute and can stack 500 cards in the input and output hoppers. The Model 2244A reads standard 80-column optical mark sense cards without clock marks (either punched or marked in pencil), and optical mark sense cards with timing marks and 80 columns or less of data (punched or marked). Data can be in Hollerith or binary code, and programs can be in Hollerith code. (Option 22, 23 or 24 is recommended.)
- Model 2262-1, -2, -3 XY Digitizer provides the capability to digitize single points or curves at a resolution of ± .005 of an inch over the entire digitizing surface. Three tablet sizes are available: 20" by 20", 30" by 40", and 36" by 48". (Option 22, 23 or 24 is required.)

Mass Storage Peripherals

- Model 2209 Nine-Track Tape Drive offers IBM compatible nine-track capability to the System 2200S. Tapes written conform to ANSI standards and are written and read at 800 bpi, NRZI. Read-after-write and single track error correction capabilities are provided. The unit accommodates tape reels up to 10.5 in. (26.7 cm) in diameter. (Option 23 or 24 is required.)
- Model 2217 Single Tape Cassette Drive is fast and easy to operate. The magnetic tape cassette provides a low cost bulk storage system for both programs and data. Recorded information is formatted automatically in 256-byte blocks called physical records, and each record is recorded twice to ensure the integrity of the information. A 150-foot tape has a capacity of 78,000 (8-bit) bytes, with a transfer rate of 326 bytes/second.
- Model 2218 Dual Tape Cassette Drive consists of two cassette drives housed in a single unit. The cassette drives are identical in operation and performance to the Model 2217. One controller board operates both cassette drives, but each drive functions independently, with separate device addresses.
- Model 2230 Fixed/Removable Disk Drive is available in three versions which provide storage for 1.25, 2.5, and 5 megabytes of information. Storage is divided equally between one fixed and one removable platter. (Option 24 is required.)
- Model 2260 Fixed/Removable Disk Drive offers 10 megabytes (10,027,008 total bytes) of on-line storage. The unit's total storage capacity is divided equally between two separate disk platters, one fixed and one removable. (Option 24 is required.)
- Model 2270 Diskette Drive is available in one, two, and three drive configurations, each supporting a capacity of approximately .25 megabytes. (Option 24 is required.)
- Model 2230MX Disk Multiplexer provides multiplexing capabilities which enable a single disk unit to be shared

by a maximum of four separate System 2200S'. Multiple CPU's can share a common data base for efficient file interrogation and updating. Systems multiplexed to a disk via the 2230MX are connected in a daisy-chain; the maximum length of the chain is 500 feet.(Option 24 is required.)

Interface Controllers

- Model 2207A I/O Interface Controller (RS-232-C) Selectable BPS allows attachment of a Model 33 Teletype as a terminal for the System 2200S, generating hardcopy and inputting programs and data stored on a Teletype punched paper tape. It also supports the interface of other Teletype compatible instrumentation or terminals at 110, 150, 300, 600 or 1,200 baud. (Option 22, 23 or 24 is recommended.)
- Model 2227 Asynchronous Telecommunications Controller allows local or remote asynchronous communication with other System 2200S' or remote telecommunication with "foreign" CPU's (IBM, Univac, Honeywell, etcetera). With the Model 2227, the System 2200S becomes an "intelligent terminal." (Option 23 or 24 is recommended.)
- Model 2228 Communications Controller with its microprocessor, memory buffers, and transmitting/receiver circuits can emulate the binary synchronous communication protocol of particular terminals, such as the IBM 2780, at transmission rates up to 4800 baud. A Wang-supplied terminal emulator program automatically loads the microprocessor with appropriate microcode to support the desired terminal protocol. When equipped with this controller, the System 2200S can operate as a remote batch terminal over dial-up telephone lines to any host computer, e.g., an IBM 360 or 370, which utilizes the same communications protocol. (Option 23 or 24 is recommended.)
- Model 2250 I/O Interface Controller (8-bit parallel) allows interfacing of external instrumentation and equipment enabling parallel 8-bit data to be transmitted from or received by the System 2200S.
- Model 2252A Scanning Input Interface Controller (BCD 1-10 digit parallel) permits external devices, such as digital voltmeters, to be directly connected to a System 2200S and allows the user to select the number of BCD digits to be transmitted. The controller accepts data consisting of a sign and up to 10 BCD digits or up to 40 bits of binary information in parallel. (Option 23 or 24 is recommended.)

Software

Wang Laboratories, Inc. provides an extensive software library which continually is being updated and expanded to meet the changing needs of the user. Our software library is divided into six application areas: Business; Education; Medicine; Public Service; Science, Engineering, and Mathematics; and Utilities. Each application area consists of a number of systems to fit varying needs.

SPECIFICATIONS

*Average Execution Time (Milliseconds)

Add/Subtract	0.8
Multiply	3.8
Divide	7.4
Square Root	46.4
e^x	25.3
$\log_e x$	23.2
X^y	45.4
Integer Value	0.24
Absolute Value	0.25
Sign	0.25
Sine	38.3
Cosine	38.9
Tangent	78.5
Arctangent	72.5
Read/Write Cycle	1.5 μ sec

*Average execution times determined using Random Number Arguments with 13 digits of precision. Speeds are generally faster in calculations with arguments of less precision.

Memory Size

4K, 8K, 16K, 24K, and 32K.

Power Requirements

115 or 230 VAC ± 10%, 50 or 60 Hz ± ½ Hz

Wattage

220W

Fuses

3A SB @ 115V

1.5A SB @ 230V

Operating Environment

50° F to 90° F (10° C to 32° C)

20% to 80% relative humidity, non-condensing, allowable,

35% to 65% relative humidity, non-condensing, recommended.

Subroutine Stacking

50

Size of 2200S CPU

Height	9.8 in. (24.8 cm)
Depth	21 in. (53.3 cm)
Width	14.5 in. (36.8 cm)

Weight

40 lb (18 kg)

ORDERING SPECIFICATIONS

A keyboard programmable Central Processing Unit (CPU) with hardwired BASIC language. The CPU must have at least 4,096 bytes of memory, with 8,192; 16,384; 24,576; and 32,768 byte configurations available. The character EDIT mode must be a standard feature. The CPU must be capable of supporting a number of Wang Laboratories, Inc. peripherals and ancillary equipment presently available, and the following options: Option 4, Audio Signal for 2216 & 2216A CRT; Option 20, 6 I/O slots; Option 20A, 9 I/O slots; Option 30, Upper/Lowercase for 2220 & 2226 CRT; Option 31, Audio Signal for 2220 & 2226 CRT; Option 32, Keyboard Clicker; Option 21, Matrix instruction set; Option 22, Advanced Programming and Matrix instruction sets; Option 23 General I/O, Advanced Programming and Matrix instruction sets; and Option 24 Disk, General I/O, Advanced Programming, Sort and Matrix Instruction sets.

Standard Warranty Applies.

Wang reserves the right to change specifications without prior notice.

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