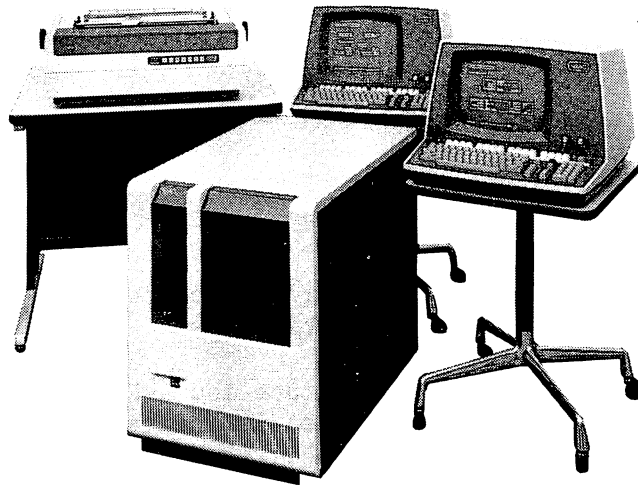


THE 2200LVP



INTRODUCTION

Wang Laboratories, Inc., is proud to announce an addition to the 2200 Series Product Line -- the LVP. The 2200 Series LVP is a high-performance computing system which can support as many as four users concurrently, and provide computing speed and capability never before available in its price range. Based upon the popular Wang 2200MVP processor, the 2200LVP offers the following features:

- . New Attractive Office-Style Packaging
- . Dual-Sided, Double-Density Diskette Drive with over 1 Megabyte of Storage
- . Winchester Technology Disk Available in 2, 4, and 8 Megabyte Capacities
- . User Memory Capacity of 32, 64, or 128K Bytes
- . Wang's Powerful BASIC-2 Language
- . Extensive Telecommunications Capabilities
- . Available with the 2236DE Business Graphics Terminals
- . Low Overhead Operating System
- . Supports up to 4 Terminals
- . Supports all 2200 Series Printers

Printed in U.S.A.

WANG

LABORATORIES, INC.

ONE INDUSTRIAL AVENUE, LOWELL, MASSACHUSETTS 01851. TEL. (617) 459-5000. TWX 710 343-6769. TELEX 94-7421

MARKET POSITION

The LVP can be positioned in the following two separate markets:

- . First-time user
- . Major account user

First-Time User

The 2200LVP offers an attractive choice for the small business due to its flexibility and the following capabilities.

- . Total solution system -- Since the LVP is compatible with other 2200 Series products, software is immediately available on announcement day. Additionally, the sophisticated software programs developed by our vendor network are immediately available for installation.
- . Expansion capabilities -- The LVP has been designed with full expansion capabilities, a feature particularly attractive to first-time users. The LVP is directly compatible with the 2200MVP and upward-compatible with the 2200VP, 2200T, and earlier processors. Initial hardware and software investments do not become obsolete when a user upgrades.
- . Ease-of-use -- The LVP, like our other 2200 Series products, is simple and easy to use. With its new, compact, office-style packaging the LVP requires less physical space than most other minicomputers.
- . Multiuser capabilities -- By configuring the LVP as a single-user system, the user may operate a stand-alone system with the same features and language as the multiuser configuration. Unlike most single-user systems, the 2200LVP enables a single terminal to control several programs executing concurrently. With additional terminals connected to the LVP central processing unit, a first time user, for example, can easily send orders, shipping papers, or other valuable information to remote warehouses and sales offices instantaneously.

The LVP is a "Total Solution" system to the small business market. The vendor network will continue to play a vital role in the selling and installation of the system.

In summary, the LVP is ideal for the first-time user marketplace because it fulfills the criteria of the small business.

- . Software is immediately available
- . Easy to use
- . Easily upgradable
- . Compact and attractive
- . Low priced

Major Account Market

Large companies or what we call major accounts are characterized by a recent trend to disperse their data processing activities functionally, geographically, and organizationally. These accounts are looking at small business computers as dedicated standalone units for decentralized applications or as clusters for distributed data processing applications.

A more sophisticated configuration uses the LVP as a powerful standalone processor dedicated to either a specific operator or as a general-purpose processor in a decentralized environment. With the LVP, users can share a common data base and at the same time have the freedom of local processing and local disk storage.

Besides the advantages offered to the first-time user, the LVP also offers advantages to the large multiuser environments because it fulfills their more sophisticated needs.

- . Communication capabilities
- . Powerful BASIC-2 language
- . Ability to decentralize or "cluster" CPUs
- . Competitive pricing

SYSTEM HOUSE/VENDORS

The LVP will provide a tremendous opportunity to our existing vendors, and will assist our upcoming efforts to recruit new vendors. Additionally, vendors will be able to immediately utilize their sophisticated software systems. Thus, with no additional software investment, they can utilize a state-of-the-art system with faster computing power.

IDEAS

The IDEAS software utility package, which is now available for the 2200 Series product line, is also supported on the LVP. IDEAS (Inquiry Data Entry Access System) is a powerful application development tool which can be used to create and maintain data files, generate sophisticated screen formats, solicit and validate operator-entered data, and produce complex reports. IDEAS is a Wang-developed and -supported software package which offers 2200 users state-of-the-art technology designed for application development. By providing a software package that simplifies application development, IDEAS enhances your market opportunities both to the first-time user and to the major account user.

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THE CENTRAL PROCESSING UNIT

The 2200LVP is operated by a high-performance, custom-designed MSI processor which is based upon the MVP CPU. Like the MVP, the LVP central processor combines the following features.

- . Memory cycle time of 600 nanoseconds
- . Simple, low-overhead operating system
- . Fixed-partition memory configuration
- . Foreground/background operation

MULTIPROGRAMMING FEATURES

In a multiprogramming environment, the activities of different programs must frequently be coordinated and individual programs often need to communicate with each other. This coordination is necessary to use shared resources as efficiently as possible and to prevent potentially damaging conflicts between programs using common resources. The 2200LVP provides the following special features for these purposes.

- . Global variables
- . Seize/release capability
- . Broadcast message facility
- . Disabled programming mode

EFFICIENT MEMORY USE

Among the most significant features of the 2200LVP are those which contribute to its highly efficient use of memory. These features include:

- . System Control Memory -- Stores the system programs (the BASIC-2 interpreter, operating system, and system diagnostics). Like the MVP, the 2200LVP contains approximately 32K 24-bit words of control memory.
- . User Memory -- The area of memory which is available to the user's programs and data. User memory may comprise 32K bytes, 64K bytes, or a maximum of 128K bytes. User memory consists of either one or two "banks" which contain a maximum of 64K bytes each. Because the system programs are stored separately, all user memory except for a small

portion used for system overhead is available for user programs and data.

- . The BASIC-2 Language -- a high-level programming language designed for interactive programming. BASIC-2 includes a versatile math package, system commands, general-purpose statements (facilitating such tasks as formatting printed output, decision-making, branching, passing data to subroutines, and overlaying program modules), and special-purpose statements (performing such specialized operations as code conversion, sorting, matrix arithmetic, and customized I/O control).
- . "Atomization Technique" -- each BASIC-2 keyword is stored in memory as a one-byte (or in rare cases, a two-byte) code to conserve memory and speed execution.
- . Global Partitions -- useful for containing program code shared by several partitions in the same memory bank.
- . "Universal" Global Partition -- can be shared by programs in all memory banks.
- . Foreground/Background Operation -- allows each terminal to run several different jobs concurrently. Although the terminal may be running several jobs in different partitions, it can communicate with only one job at a time.

STATE-OF-THE-ART DISK STORAGE

State-of-the-art disk technology enhances the speed and versatility of the 2200LVP. Two new types of disk drive units featuring the latest advances in hardware design are available with the LVP -- a fixed, Winchester-style drive and a dual-sided, double-density diskette drive. Both drives offer the user an exceptional cost/unit storage value, while surpassing many fixed/removable drives in performance. When combined with the LVP processor, a total cost-effective, disk-based system is created for the small-scale user. These new disk drives are controlled by a disk controller contained within the CPU; they occupy no user I/O ports.

Fixed-Only Disk Drive

The first major innovation is the development of an 8-inch fixed-only, rigid disk drive utilizing proven, highly reliable Winchester technology. The fixed-only approach eliminates the costly mechanical and electronic requirements of combining a removable platter with a fixed platter, yet provides fast data access in a compact space. Mechanical interlocks and loading devices are eliminated as well as the separation of the chambers

housing each type of platter. Fixed-only type heads provide a fast data access due to a decrease in head loading force and a consequent minimizing of the air gap between the heads and the disk surface. The decreased air gap permits a greater data density than was previously possible, enabling the user to access data faster and store more data in the same space. Additionally, this fixed disk drive uses lubricated disk surfaces and a special track which permits the head to "take-off" and "land" on the platter surface during power-up and power-down procedures. This technology greatly reduces the possibility of a "head crash," ensuring the integrity of the data and lessening the chances of expensive downtime that accompany a crash. The combination of these features has created a compact disk drive that retains the high performance and reliability of other models. Wang offers the fixed-disk drives in three sizes: 2, 4, and 8 megabytes.

Dual-Sided, Double-Density Diskette Drive

Since the ability to backup information is extremely important on fixed media devices, a dual-sided, double-density (DSDD) diskette drive is also being introduced as part of the LVP. This expanded capacity diskette drive can store over 1 megabyte of data (approximately four times the available disk space on the Model 2270 Diskette Drive). By doubling the density of the recording area and utilizing both sides of the new diskettes, the normal storage capacity of 1/4 megabyte for previously offered diskette drives is increased fourfold. The fixed disk can now be backed-up more easily with fewer diskettes. In addition to being the primary backup device, the DSDD diskette also serves as the medium for transferring system software and application packages obtained on DSDD diskettes.

The DSDD diskette drive also offers faster access times, lower heat dissipation, and improved reliability. The actuator on the diskette drive utilizes a flexible metal band for sure, low-friction head movement and a fast 3 millisecond track-to-track access time. The read/write heads are placed on a carriage assembly which allows the heads to be gently loaded on both sides of the media simultaneously, thus minimizing media wear and maximizing media life. With this improved head loading design and simple actuator assembly, maintenance is reduced and serviceability is enhanced.

The media used on the DSDD diskette drive, complete with the write-protect feature, is specifically designed for use on dual-sided, double-density diskette drives. Because of special sensing circuitry, the diskette drive can differentiate between dual-sided, double-density media, and single-sided, single-density soft sectored 2270A media, thus giving us the ability to read/write on 3741 IBM media. In single density mode, the IBM media can be read and written on in the DSDD diskette drive. However, the 2270 hard sectored Wang format media cannot be used in this drive. As a safety feature, the front access door on the DSDD diskette drive cannot be opened when a diskette is installed in the drive and heads are being loaded.

New Office-Style Design

Both the DSDD diskette drive and the fixed-disk drive are mounted directly in the compact office-style packaging, which also contains the central processor, thus saving space which separate drives would customarily occupy. A 2200LVP must be configured with both a DSDD for backup requirements and a fixed-disk drive for primary use.

LVP EXTENDED CHASSIS OPTION

LVP system configurations are standard with a chassis that has 3 I/O ports available for system peripherals. Since the two new LVP disk drives (the dual-sided, double-density diskette drive and the fixed disk drive) do not require an I/O port, the standard 3 I/O ports will meet the needs of the majority of LVP users. For those users with requirements that exceed 3 I/O ports, the LVP "E" Option is available. This option, which expands the number of I/O ports to 9, is field upgradable.

LVP SYSTEM UTILITIES

Residing on the LVP Operating System Diskettes are the following two new utilities: a backup/recovery utility and a conversion utility. The backup utility, which is operator-interactive and menu-driven, allows the operator to backup the entire used portion of the fixed disk. This is mandatory; since, in the unlikely event of hard disk failure, a complete backup will be available. It is strongly recommended that backups be performed frequently. The complete backup of an 8 megabyte fixed disk requires approximately 7-10 minutes, including operator intervention. In addition to the ability to recover the complete contents of the hard disk, the operator has the option to recover, by name, specific program and data files. The conversion utility allows the transfer of program and data files between the LVP and another 2200 system equipped with 2270A diskettes. Since the LVP diskette drives do not support the standard Wang single-density format, data is recorded in IBM single-density format.

THE MODEL 2236DE INTERACTIVE TERMINAL

The Model 2236DE Interactive Terminal with business graphics capabilities is used to communicate directly with the LVP. The terminal consists of an easy-to-read 24 x 80 CRT screen display and a typewriter-style keyboard. Special features of the Model 2236DE include the following.

- . Character attributes (bright intensity, reverse video, blinking, and underline)

- . Graphics character set
- . Box graphics
- . Edit mode operations
- . Screen dumps to a printer
- . Self-test diagnostics
- . Repeating keys

The Model 2236DE terminal also generates extensive bar and line graphics by using standard program statements, providing the user with valuable displays for business applications. In addition, the system performs automatic data compression on information transmitted to each terminal. This function accelerates communications and increases response time.

Each 2236DE Interactive Terminal is connected to the 2200LVP by either a Model 22C32 Triple Controller for single-user systems or a Model 2236MXD Terminal Processor for multiuser systems. These devices control I/O operations between the CPU and the terminals. As with the MVP, line handling between the CPU and each terminal is asynchronous full-duplex, and line speeds ranging from 300 to 19,200 bits per second (bps) may be selected. Terminals can be attached either locally to the CPU at distances ranging up to 2,000 feet, or remotely by using modems and telephone lines in the same manner as with the MVP.

PRINTER/PLOTTER CONNECTOR

The LVP supports multiple system printers or plotters. Any 2200 Series printer or plotter which can be connected to a 22C02 type controller may be used on the LVP. Additionally, each 2236DE terminal configured with an LVP system can support its own local printer in the same manner as the MVP.

COMMUNICATIONS CAPABILITIES

At the customer's option, the 2200LVP may be equipped with telecommunications controllers to enable remote devices to be attached directly to the CPU and accessed by a user at the terminal. Both asynchronous and bisynchronous protocols are supported by the 2200LVP processor. The 2200LVP supports a full range of communications capabilities between remote terminals and the 2200LVP and between the 2200LVP and other computer systems. Wang also offers a number of software packages to emulate common communications protocols.

For communicating with other computer systems, the 2200LVP can be equipped with either the Model 2227B or the Model 2228B communications controllers. The Model 2227B Communications Controller supports asynchronous-only communications in half- or full-duplex at line speeds ranging from 300 to 9600 bps. The Model 2228B Communications Controller offers a choice of synchronous or asynchronous communications at speeds ranging from 300 to 4800 bps.

COMPATIBILITY WITH OTHER 2200 SYSTEMS

Software compatibility is an important consideration when a user contemplates purchasing a new system. The 2200LVP has been designed to preserve maximum compatibility with Wang's older single-user systems as well as the more recent single and multiuser systems. Since the 2200LVP is totally compatible with the 2200MVP, multiuser software written for the 2200MVP will function correctly on the 2200LVP. However, differences in the number of peripherals which can be attached to the system may affect some packages.

Because the BASIC-2 language supported on the 2200LVP is identical to BASIC-2 on the 2200VP, nearly 100% software compatibility between these systems exists for single-user programs. The 2200LVP, like the 2200VP and the 2200MVP, also supports earlier Wang BASIC syntax, providing a significant degree of compatibility with non-VP and non-MVP systems. Since each 2200LVP terminal functions as a single-user 2200 system for program development purposes, this language compatibility means that programmers familiar with other 2200 systems will quickly become productive on the 2200LVP.

The 2200LVP offers several features, including global programs and global variables, which enable the programmer to use the memory available for multiuser programs as efficiently as possible. If a single-user program must be adapted for multiuser operations on a 2200LVP, the user should probably modify the program to capitalize upon these features. In general, such modification is not extensive. When memory space is not a problem, the program can be loaded and run in each partition with little or no modification.

COMPETITION

Table 1, which appears on the following pages, provides a comparison of the LVP with our major competitors. This information is designed to give an insight into the positioning of the LVP.

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Table 1. Product Specifications -- Wang LVP and Competing Systems

	Wang LVP	IBM Series/1	IBM 5280	Digital DataSystem 330	Data General GS-30
<u>Memory (bytes)</u>	32-128K (user)	32-256K	32-160K	128-256K	64-96K
<u>Disk Storage</u>	Winchester; DSDD diskette	Fixed; diskettes	Single or DSDD diskettes	Diskettes; 1-2 cartridge disks	Fixed/removable; Winchester; opt. diskette
<u>Type</u>					
<u>Capacity</u>	1-9 Mb	9-256 Mb	9.6 Mb	10-20 Mb	10-25 Mb
<u>Printers</u>	30-200 cps; 220-660 1pm	120 cps, 80-155 1pm, 235-414 1pm	80, 120 cps; 280-560 1pm	30, 180 cps; 240-300 1pm	60, 180 cps; 240-300 1pm
<u>Terminals</u>	4	Average to 8, software controlled	4	4	4
<u>Languages</u>	BASIC-2	Cobol, Fortran, PL/1	Cobol	Dibol	Cobol
<u>Communications</u>	2780/3780 2741, TTY	3270, TTY, others programmable; SDLC	BSC, SDLC	2780	2780/3780
<u>Price</u>					
<u>1-Station System</u>	17,600 (32K, 1 DSDD Diskette, 2 Mb Fixed Disk, 120 cps printer)	\$18,900 (hardware only; 64K, 4.8 Mb (4 diskettes), 120 cps printer)	\$17,200 (64K, 2 DSDD diskettes, 120 cps printer)	\$21,850 (128K, 2 diskettes, 180 cps printer)	\$19,500 (64K, 10 Mb disk, 180 cps printer)
<u>4-Station System</u>	31,860 (64K, 1 DSDD Diskette, 8 Mb Fixed Disk, 120 cps printer)	\$33,900 (hardware only; 64K, 9 Mb disk, 120 cps printer)	\$31,750 (64K, 4.8 Mb diskettes, 120 cps printer)	\$34,800 (128K, 10 Mb disk, 180 cps printer)	\$31,600 (96K, 10 Mb disk, 180 cps printer)

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NO.188

Table 1. Product Specifications -- Wang LVP and Competing Systems (continued)

	Wang LVP	Cado 20/IV	Datapoint 1800	Texas Instruments DS 990 Mod 2	Hewlett Packard HP 250
<u>Memory (bytes)</u>	32-128K (user)	20-52K	60K (user)	64K	32-64K (user)
<u>Disk storage</u>	Winchester; DSDD diskette	Single or dual diskette; F/R disk	Single-sided, double-density diskettes (2-8)	DSDD diskettes; F/R disk	DSDD diskettes; F/R or fixed disk
<u>Capacity</u>	1-9 Mb	3.78 Mb diskette; 19 Mb disk	5Mb	20 Mb	3.6 Mb diskette, 12 or 20 Mb disk
<u>Printers</u>	30-200 cps; 220-660 lpm	45-150 cps; 300 lpm	30-240 cps; 300-900 lpm	150 cps	180 cps, 400 lpm
<u>Terminals</u>	4	4	4 + master	2	5
<u>Languages</u>	BASIC-2	CADOL	Datashare, BASIC -Cobol, RPG-11, Assembler	BASIC, Fortran (1-user), Assembler	BASIC
<u>Communications</u>	2780/3780 2741, TTY	2770, 2780, 3780	2780/3780, HASP ARC, "Multilink"	2780/3780, asynchronous	Asynchronous only
<u>Price</u>					
1-Station System	17,600 (32K, 1 DSDD Diskette, 2 Mb Fixed Disk, 120 cps printer)	\$23,800 (20K, 2.5 Mb (2 diskettes), 150 cps printer)	\$21,600 (60K, 4.8 Mb (4 diskettes), 80 cps printer)	\$15,945 (64K, 2.4 Mb diskette, 150 cps printer)	\$24,150 (32K user memory, 2 DSDD diskettes, 180 cps printer)
4-Station System	31,860 (64K, 1 DSDD Diskette, 8 Mb Fixed Disk, 120 cps printer)	\$31,000 (52K, 4.8 Mb diskette, 150 cps printer)	\$36,000 (52K, 4.8 Mb diskette, 80 cps printer)		

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LVP MODEL CONFIGURATION

The 2200 LVP will be identified by a model number of the format:

2200 LVP-*xxxy*

- . 2200 LVP will represent the CPU, 1 Mb of Dual-Sided, Double-Density Diskette, and the cabinet.
- . *xx* will be a two digit number representing the actual memory size when multiplied by 4. This is the same as the present 2200 CPU model numbers. For example:

2200LVP-8 refers to a 32K Memory CPU

2200LVP-32 refers to a 128K Memory CPU

- . *y* will be a capital letter representing the model for the fixed disk capacity option. The format is as follows:

B - 2 Mb Fixed Disk Option

C - 4 Mb Fixed Disk Option

D - 8 Mb Fixed Disk Option

X - No Disk Option

Note the following examples:

2200LVP-16B refers to a 64K CPU with 2 Mb Fixed Disk

2200LVP-32X refers to a 128K CPU with no Fixed Disk

A summary of all model descriptions and numbers is given in Table 2.

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Table 2. Summary of 2200LVP Model Numbers

Model	Description	Part Number
2200LVP-8X	32K Memory, 1 Mb Floppy	177-3204
2200LVP-16X	64K Memory, 1 Mb Floppy	177-3205
2200LVP-32X	128K Memory, 1 Mb Floppy	177-3206
2200LVP-8B	32K Memory, 1 Mb Floppy/2 Mb Fixed Disk	177-3207
2200LVP-16B	64K Memory, 1 Mb Floppy/2 Mb Fixed Disk	177-3208
2200LVP-32B	128K Memory, 1 Mb Floppy/2 Mb Fixed Disk	177-3209
2200LVP-8C	32K Memory, 1 Mb Floppy/4 Mb Fixed Disk	177-3201
2200LVP-16C	64K Memory, 1 Mb Floppy/4 Mb Fixed Disk	177-3202
2200LVP-32C	128K Memory, 1 Mb Floppy/4 Mb Fixed Disk	177-3203
2200LVP-8D	32K Memory, 1 Mb Floppy/8 Mb Fixed Disk	177-3210
2200LVP-16D	64K Memory, 1 Mb Floppy/8 Mb Fixed Disk	177-3211
2200LVP-32D	128K Memory, 1 Mb Floppy/8 Mb Fixed Disk	177-3212

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2200LVP SPECIFICATIONS

Size

Height 27.0 in. (68.6 cm)
Width 20.4 in. (51.8 cm)
Depth 30.0 in. (76.2 cm)

Memory Cycle Time

600 nanoseconds

User Memory Size

32K bytes (standard); expandable to 64K or 128K bytes

Control Memory Size

32K 24-bit words

Maximum Number of Partitions

16

Minimum Partition Size

1.25K (1,280) bytes

Maximum Number of Terminals

4

System Overhead

3K (3,072) bytes for 32K and 64K machines
11K (11,264) bytes for 128K machines
1K (1,024) bytes per partition

Numeric Range

-100 100
10 to 10 , floating point with 13 significant digits

Power Requirements

115 or 230 VAC \pm 10%
50 or 60 Hz \pm 1.0 Hz
230 Watts

Fuses

3.0 amp (SB) for 115 VAC
1.5 amp (SB) for 230 VAC

Operating Environment

35% to 65% relative humidity, noncondensing (recommended)
20% to 80% relative humidity, noncondensing (allowable)
° ° ° °
50 to 90 F (10 to 32 C)

Heat Output

1,050 Btu/hr

DUAL-SIDED DOUBLE-DENSITY DISKETTE DRIVE SPECIFICATIONS

Rotational Speed

360 rpm

Seek Time

Minimum 18 ms

Average 164 ms includes track settle time of 15 ms

Maximum 246 ms

Latency Time

Average 84 ms at 360 rpm

Data Rate

500 KHz at 360 rpm

User Storage Capacity

Over 1 megabyte

FIXED DISK DRIVE SPECIFICATIONS

Rotational Speed

3,125 rpm

Seek Time

Minimum 19 ms

Average 100 ms includes track settle time of 18 ms

Maximum 150 ms

Latency Time

Average 9.63 ms

Data Rate

4.3 MHz at 3,125 rpm

Track Density

172 Tracks per Inch (TPI)

User Storage Capacity

Model B -- Approximately 2 megabytes

Model C -- Approximately 4 megabytes

Model D -- Approximately 8 megabytes

LVP Product Statistics

Model Number: See Model Configuration Table
Part Number: See Model Configuration Table
Release Date: April 21, 1980
Availability: August 1, 1980 (Selected City Program)
Classification: Mechanical
Warranty: Standard
Commission: 5%

MARKETING RELEASE

Computers

TO DISTRIBUTION	PUBLICATION #
FROM 2200 SYSTEMS MARKETING-JANICE SOCHALSKI	DATE APRIL 1980
SUBJECT 2200 LVP COMPETITIVE COMPARISON	REORDER FROM:
THIS RELEASE SUPERSEDES:	DESTROY SUPERSEDED INFORMATION <input type="checkbox"/> YES <input type="checkbox"/> NO

2200 LVP COMPETITION

The following pages represent seven (7) competitive systems which will be of interest when marketing the new 2200 LVP.

This information was produced by Barbara Mende and Wendy White of the Competition Department and is a sample of the full 2200 product line competition information currently being put together for your use. This data includes a description of the company, their systems and selling strategy, as well as a feature comparison.

The attached information includes the following companies:

Data General	CS-30
Cado 20-IV	
Datapoint	1800
Texas Instrument	DS990 Mod II
Hewlett-Packard	HP250
IBM Series I and 5280	
Digital Equipment	Data System 330

We hope you find this information informative and useful.

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DATA GENERAL

Corporate Abstract

Revenues 1979: \$507M
No. Employees: 13,000

Data General has enjoyed financial success with almost tripled revenues of \$179M in 1976 to \$597M in 1979. There was a slight decline in profits in the fourth quarter which has led industry watchers to fear for the company's health. Also, their inability to meet delivery schedules and provide adequate service support has been of some concern.

Marketing Organization

- . 70% OEM
- . Field service force expanded over 40% to 1422 in order to become a "full service company".
- . System Division, a low profile arm of DG, will do software development for customers who insist on a total DG solution.

Product Line

- DG has a full line of minis, plus peripherals. There are four lines:
- . The Nova - the traditional 16-bit mini; an industry standard which has been widely emulated.
 - . The Eclipse - a larger, more powerful mini which comes in scientific and commercial versions.
 - . The microNova - a Nova on a chip.
 - . The CS (Commercial Systems) - packaged configurations using interactive COBOL. They range from the microNova-based CS-20 to the Eclipse-based CS-60.

The CS systems

The CS-30, while it supports one to four terminals, is severely limited in its ability to do more than one thing at a time. Program development and most utilities require a dedicated system. It's also microNova-based. It's closest to the LVP in price and specifications, but lags far behind it in performance and versatility. Chief feature: its low price.

The CS-40 and its brand new upgrade, the CS-50, are rated at up to nine terminals, but any concurrent background jobs cut that number down fast. While price and disk storage capacity make them more MVP than LVP competitors, the LVP is likely to outperform them also.

The choice of COBOL virtually limits the customer list to systems houses and large accounts with COBOL programmers. CS COBOL is hard to use even for experienced mainframe programmers, since operating system limitations severely restrict program size. Some development aids have just been released, but they have a long way to go.

Marketing Strategy

- . Only recently have begun to penetrate major accounts.
- . Virtually no direct sales to end users.
- . Heavy price discounting.
- . Span most markets: medical, industrial, scientific and commercial.

The CS systems are usually marketed through systems houses; are barely surfacing at major accounts; the 20 and 30 are appearing in retail outlets.

Wang's Strategy

- . Sell to end users.
- . Sell to small and major accounts.
- . First-time user benefits as well as dedicated or distributed environments.
- . Approved vendor network for software support applications.

Wang has already impacted major accounts. The LVP can be a natural add-on. Our vendor support will be appealing to the first-time user as another plus to the LVP's overall offerings. The CS/30, for example, is a lot of hardware for a restricted system; it's not cost-effective for what it does, and its hard to use. We have a better package in every way.

Comparative Specifications

	CS-30	LVP
Memory (bytes)	64-96K	32-128K (user)
Disk storage Type	fixed/removable; Winchester; diskette (opt.)	Winchester; DSDD diskette
Capacity	10-25 MB	1-9 MB
Other peripherals	mag tape	plotter, graphic CRT
Printers	60, 180 cps; 240, 300 lpm	30-200 cps; 220-600 lpm
Terminals	4	4
Languages	COBOL	Basic II
Communications	2780/3780	2780/3780, 2741, TTY
Price:		
1-station system:	\$19,500 (64K, 10 MB disk, 180 cps printer)	\$20,300 (32K, 1 MB diskette, 8 MB disk, 120 cps printer)
4-station system:	\$31,600 (96K, 10 MB disk, 180 cps printer)	\$31,800 (64K, 1 MB diskette, 8 MB disk, 120 cps printer)

LVP vs. the CS-30

- . Full multiprogramming capability.
- . Higher performance.
- . Easier to program.
- . Easier to operate.
- . More efficient operating system.
- . Wider choice of printers.

CADO

Corporate Abstract

Revenues 1979: \$28M
Employees: 100

Founded in 1973, Cado is a small, privately held company. First deliveries were in 1976. It is about to go public.

Marketing Organization

- . Cado generally sells through "agents" who also provide service (along with Teletype and Perkin-Elmer).
- . Support varies with the area, and there are not too many sales location.

Product line

Cado systems consist of intelligent controllers with other people's terminals. System 40 and 40/IV use AT&T's Dataspeed 40's; System 20 and 20/IV use Perkin-Elmer. Systems 40 and 20 are standalones, limited to 10K memory; the /IV systems have more memory but little more relative performance. They're not fast; they're not powerful; but they're inexpensive. Programming is done in CADOL, a BASIC-like proprietary language. Cado prefers to sell its systems with packaged software.

The 20/IV

A 4-station system, to Cado, means a total of 4 terminals, printers and/or communications lines. There's no place to grow after that.

The 20/IV terminals are Perkin-Elmer Owls. Cado claims the maximum system will run two foreground and one background task - under ideal conditions.

Marketing Strategy

- . Inexpensive systems

If the customer does not plan expansion, is uncritical of performance, and is satisfied to run the software provided, then Cado is the right price.

Wang's Strategy

- . No comparison to Cado on price/performance
- . Multisite sales locations
- . Strong service organization
- . Software vendor network
- . Sell to first-time user and major accounts

Wang can boast financial strength and dedicated corporate support that's not only here today but will be here tomorrow.

Comparative Specifications

	20/IV	LVP
Memory (bytes)	20-52K	32-128K (user)
Disk storage		
Type	single or dual diskette; F/R disk	Winchester; DSDD diskette
Capacity	3.78 MB diskette; 19 MB disk	1-9 MB
Other peripherals		plotter, graphic CRT
Printers	45, 150 cps; 300 lpm	30-200 cps; 220-600 lpm
Terminals	4	4
Languages	CADOL	Basic II
Communications	2770,2780,3780	2780/3780, 2741,TTY
Price:		
1-station system:	\$14,500 (20K, 1.2 MB diskette storage, 150 cps printer)	\$17,600 (32K, 1 MB diskette, 2 MB disk, 120 cps printer)
4-station system:	\$31,000 (52K, 4.8 MB diskette storage, 150 cps printer)	\$30,300 (64K, 1 MB diskette, 4 MB disk, 120 cps printer)

LVP vs. the 20/IV

- . Higher performance.
- . Upgrade path; part of a family.
- . Industry standard programming language.
- . True multiprogramming capability.
- . More expandable in memory and peripherals.
- . More available application software.

DATAPOINT

Corporate Abstract

Revenues 1979: \$232M
No. Employees: 5,066

Originally a terminal supplier, Datapoint has realized a revenue growth of \$47M in 1976 to \$232M in 1979. Their growth can be attributed to various configurations that stem from basically one product: a small computer/intelligent terminal.

Marketing Organization

- . locations: 51 major U.S. cities

Due to a weakness in "people management" within the organization, they have had frequent personnel changes in the sales force.

Product line

Datapoint CPU's, from the 1500 desktop to the 6600 which allegedly supports 24 users on 256K memory, are small and low-powered. A Datapoint user who wants to expand can acquire an ARC, a high-speed coax network of small "file" and "application" processors which can share files (an extension of what Wang used to call disk multiplexing). Any Datapoint product except the 1500 can attach to an ARC, so you never have to throw anything away.

Datapoint offers a variety of languages, but the only multi-user interactive language it supports is a proprietary one. (Interactive COBOL requires a dedicated 1-user system.)

The 1800

Datapoint's smallest ARC-compatible product. As we write, storage is diskette only. A Winchester disk drive is reportedly on the way, and will make larger configurations more cost-effective.

It can run Datapoint's primitive word processing - only on the CPU, not on any of the terminals. It's an expensive route to WP.

Marketing Strategy

- . 92% of U.S sales force are to end users.
- . Concentrate on major accounts.
- . Lack of success in the small business market has led to a lack of commitment to their end users.
- . The lease rather than the sale has been encouraged.
- . Heavy discounting - the pitch is the price for quantity rather than the price for quality.

Wang's Strategy

- . Financing options: purchase, lease or rental.
- . Optimum price/performance.
- . The LVP can spiral from the first-time user to the sophisticated larger account - and still offer simplicity and ease of use.
- . The LVP can cross virtually all company size boundaries and provide continuous sales and service commitment to the end user.

Comparative Specifications

	1800	LVP
Memory (bytes)	60K (user)	32-128K (user)
Disk storage		
Type	single-sided dual-density diskettes (2-8)	Winchester; DSDD diskette
Capacity	5 MB	1-9 MB
Other peripherals	card reader, mag tape	plotter, graphic CRT
Printers	30-240 cps; 300-900 lpm	30-200 cps; 220-600 lpm
Terminals	4 + master	4
Languages	Datashare, Basic, Cobol, RPG-II, assembler	Basic II
Communications	2780/3780, HASP, ARC, "Multilink"	2780/3780, 2741, TTY
Price:		
1-station system:	\$16,450 (60K, 1.2 MB diskette storage, 80 cps printer)	\$17,600 (32K, 1 MB diskette, 2 MB disk, 120 cps printer)
4-station system:	\$36,000 (52K, 4.8 MB diskette storage, 80 cps printer)	\$30,300 (64K, 1 MB diskette, 4 MB disk, 120 cps printer)

LVP vs. the 1800

- . Higher performance
- . Easier to program
- . Industry standard multi-user language
- . More storage capacity
- . More available application software
- . Upgradeable without going to multiple systems

TEXAS INSTRUMENTS

Corporate Abstract

Revenues 1979: \$3.2B

Besides processors, the well known semiconductor giant's product lines include a wide line of printing terminals and the DS 990 and FS 990 small computer series.

Marketing Organizations

- . Large supplier of OEM printers and printing terminals
- . Due to difficulties with OEM's, they are now on campaign to recruit a dealer network.
- . Sales location have been selected at random.
- . Support, previously geared to terminal servicing, is being strengthened.
- . In-house development of system software, including programming aids, is another thrust.

At this stage of market development, application software and support are only as good as the dealer of OEM - and it's not likely to be abundant.

Product line

Most of TI's packaged computers and intelligent CRT's have been consolidated into the DS 990 line. They use the 990 and 9900 minis that TI formerly offered at board level. The line slices roughly into three parts:

- . DS 990 Models 1 and 2 - small, inexpensive, microprocessor-based, OEM-oriented; limited in software and peripheral support.
 - . 990/10 based systems - a range of languages, user aids and peripherals; can support 8 terminals in a pinch.
 - . 990/12 based systems - cache, more processor power, more storage.
- There's some upward compatibility through the line.

DS 990 Model 2

TI's answer for the user who doesn't need much in a system and can't afford to pay much for it. It's quite a step up, though, to the next level. The processors are among the many that have been benchmarked against Wang and found wanting.

Marketing Strategy

- . TI is relatively new to the commercial
- . Larger systems are seen mainly in major accounts.
- . Sell on low price, but
- . Maintenance pricing is unusually high.

Wang's Strategy

- . Strong service organization
- . Sell direct to end users
- . LVP provides greater flexibility and expandability

Wang has established itself successfully selling to the first-time user and major accounts.

Comparative Specifications

	DS 990 Mod 2	LVP
Memory (bytes)	64K	32-128K (user)
Disk storage Type	DSDD diskettes, F/R disk	Winchester; DSDD diskette
Capacity	20 MB	1-9 MB
Other peripherals		plotter, graphic CRT
Printers	150 cps	30-200 cps; 220-600 lpm
Terminals	2	4
Languages	Basic, Fortran(1-user), assembler	Basic II
Communications	2780/3780, async	2780/3780, 2741, TTY
Price: 1-station system:	\$15,945 (64K, 2.4 MB diskette storage, 150 cps printer)	\$17,600 (32K, 1 MB diskette, 2 MB disk, 120 cps printer)

LVP vs. the DS 990 Mod 2

- . Higher performance
- . Expandable within the same price range
- . Wider choice of peripherals
- . Line printers

HEWLETT-PACKARD

Corporate Abstract

Revenues 1979: \$2B

H-P is best known as an instrument company, however almost half of its \$2B revenues are minicomputer-related.

Marketing Organization

- . Recently organized a third-party marketing group to sell to OEM's.
- . New users will find little application software and an organization unfamiliar with supporting them.
- . New to small business market.

Product line

H-P is probably the company whose product line is the closest match to ours. Its computer families are:

- . HP 3000 - large interactive commercial minis, VS competitors.
- . HP 1000 - the scientific processor family.
- . HP 250 and HP 300 - small business systems.
- . The 98xx (Systems 35 and 45) family of number-crunching desktops.

The HP 250

A single-station system; slave terminals can be attached, but the only route to multiprogramming is through multiplexing (expensive) workstations. Good performance, lots of bells and whistles including a database subset, but high priced and offers no growth path. The HP 300 is entirely different hardware and software.

Marketing Strategy

- . Traditionally sells to technical users in large companies.
- . 250 and 300 targeted to small customers.
- . Systems sold on "friendliness" rather than performance.

Until recently, its marketing thrust has been toward engineering and plant-floor applications. H-P has not been successful in penetrating the OEM market, thus the need to revamp their third-party marketing group.

Wang's Strategy

- . Proven success with the small user- first-time or distributed.
- . Wang systems have always been "friendly" and price/performance is an added bonus.
- . H-P's level of support is no match for ours.
- . Solid vendor network and software compatible.

The LVP should be able to cross most vertical market boundaries since Wang has not attempted to get locked into any one specific area. Sell the performance - stress our service - and a lot more at a better price.

Comparative Specifications

	HP 250	LVP
Memory (bytes)	32-64K (user)	32-128K (user)
Disk storage Type	DSDD diskettes; F/R or fixed disk	Winchester; DSDD diskette
Capacity	3.6 MB diskette, 12 or 20 MB disk	1-9 MB
Other peripherals		plotter, graphic CRT
Printers	180 cps, 400 lpm	30-200 cps; 220-600 lpm
Terminals	5	4
Languages	Basic	Basic II
Communications	async only	2780/3780, 2741, TTY
Price: 1-station system:	\$24,150 (32K user memory, 2 DSDD diskettes, 180 cps printer)	\$17,600 (32K, 1 MB diskette, 2 MB disk, 120 cps printer)

LVP vs. the HP 250

- . Multiprogramming capability
- . Part of a family of products; growth path
- . More available application software
- . BSC communications
- . Wider choice of peripherals

IBM GENERAL SYSTEMS DIVISION

Corporate Abstract

Revenues 1979: \$21B (IBM total)

Marketing Organization

- . Series/1: Only a few specialists trained on this product, thus the need for a "hot line."

Lack of unified support and cohesiveness with the new product offerings reflects the "musical chairs" movement among divisions.

Product line

Formerly products for small and medium users, now getting to be a grab-bag:

- . System/3 - IBM's largest selling computer ever, now near the end of the line.
- . System/32 and System/34 small business computers (S/32 fading, too).
- . 5120 desktop (formerly the 5110).
- . System/38, the big one, not yet installed.
- . Series/1, the plain vanilla mini.
- . The 5520, GSD's entry into the automated office.
- . The 5280 intelligent terminal.

Series/1

A mini, period. Configure it as you wish - the hardware can physically support 256 I/O devices, although in power it's a small mini. You can interface foreign peripherals, but you may have to write the software. Two operating systems and three compilers, none compatible with anything else and none easy to use. They come at considerable extra cost - typically over \$6K for a small system with 2200-type capability.

The 5280

Strictly for distributed processing; its only local programming capability is an RPG subset for data entry. It can run COBOL programs compiled on a mainframe.

Marketing Strategy

- . Series 1: Sell to sophisticated users, or OEM's or anyone.
- . 5280 : Sell to large accounts.
DDP new avenue of sales.

Wang's Strategy

- . The LVP is a full service, cost effective system in contrast to the partial solution offered by the Series 1 and 5280.
- . Sell first-time and DDP user with growth path.
- . Provides reputable support and service to all users regardless of the product line sold.

Wang has coordinated marketing efforts to support all levels of sales.

Comparative Specifications

	Series/1	5280	LVP
Memory (bytes)	32-256K	32-160K	32-128K (user)
Disk storage			
Type	fixed; diskettes	single or DSDD diskettes	Winchester; DSDD diskette
Capacity	9-256 MB	9.6 MB	1-9 MB
Other peripherals	as configured by user		plotter, graphic CRT
Printers	120 cps, 80-155 lpm, 235-414 lpm	80, 120 cps; 280-560 lpm	30-200 cps; 220-660 lpm
Terminals	software con- trolled; avg.to 8	4	4
Languages	Cobol, Fortran, PL/1		Basic II
Communications	3270, TTY, others programmable; SDLC	BSC, SDLC	2780/3780, 2741, TTY
Price:			
1-station system:	\$21,975 (hardware only; 64K, 9 MB - disk 120 cps printer)	\$14,200 (32K, 2 DSDD diskettes, 120 cps printer)	\$20,300 (32K, 1 MB dis- kette, 8 MB disk, 120 cps printer)
Price:			
4-station system	\$33,900 (hardware only; 64K, 9 MB disk, 120 cps printer)	\$31,750 (64K, 4.8 MB diskettes, 120 cps printer)	\$31,800 (64K, 1 MB diskette, 8 MB disk, 120 cps printer)

LVP vs. Series/1

- . System software included in price
- . Easy to program
- . Easy to use
- . Business-oriented system software
- . More application software available
- . Commitment to end-user support

LVP vs. the 5280

- . Full standalone computing power
- . System software included in price
- . Hard disk
- . Easy and flexible to program
- . Easy to use
- . Application software available
- . Growth path

DIGITAL EQUIPMENT CORPORATION

Corporate Abstract

Revenues 1979: \$1.8B
No. Employees: 13,000 (U.S.)

DEC, the largest minicomputer manufacturer: \$1.8B revenues in 1979 and still growing. Presumably, their growing pains will be familiar to our prospects: long lead times, slipped deliveries, unacknowledged orders, lack of software support, and the vanishing customer engineers.

Marketing Organization

- No. Employees: 2,450 (U.S. Sales)
- . Their marketing umbrella includes several sales organizations who sell varying configurations of the same product.
 - . OEM company
 - . Dealer network - often competing with each other and DEC itself.

A new program of "authorized" distributors has begun in response to the uneven quality of support. There may be some disruption in the ranks before it's in place.

Product line

You name it, DEC makes it. It has many products and many divisions, and the dividing lines are not always clear. One division may sell a PDP-11/50 terminal, another may call the same box a Datasystem 150. A rough cut of the computer line:

- . PDP-11 bread-and-butter mini, which comes in many sizes; and its predecessor the PDP-8.
- . LSI-11 microprocessors, also in several sizes.
- . Big machines: the VAX supermini and timesharing DECsystems.
- . Datasystems - packaged configurations of the various minis, tied together by their own operating system and the "DIBOL" language.
- . Terminals; word processing; scientific and commercial desktops.

Datasystem 330

Based on the new PDP-11/23, it'll be delivered soon to replace the underpowered 320 line. "Solid 4-terminal support" is promised. Like the 320, it comes in two versions: the diskette-based 333 and the hard-disk 335. Look for 320's to move down in price.

Marketing Strategy

- . Sell to small/medium accounts
- . Prominent in government
- . DEC prefers to sell through third parties, who handle most of the support.
- . Datasystems, in particular, are generally marketed indirectly. The OEM provides all the application software.

Wang's Strategy

- . Sell to small, medium and large accounts.
- . Strong service support organization.
- . Wang and vendor expertise in end-user support.

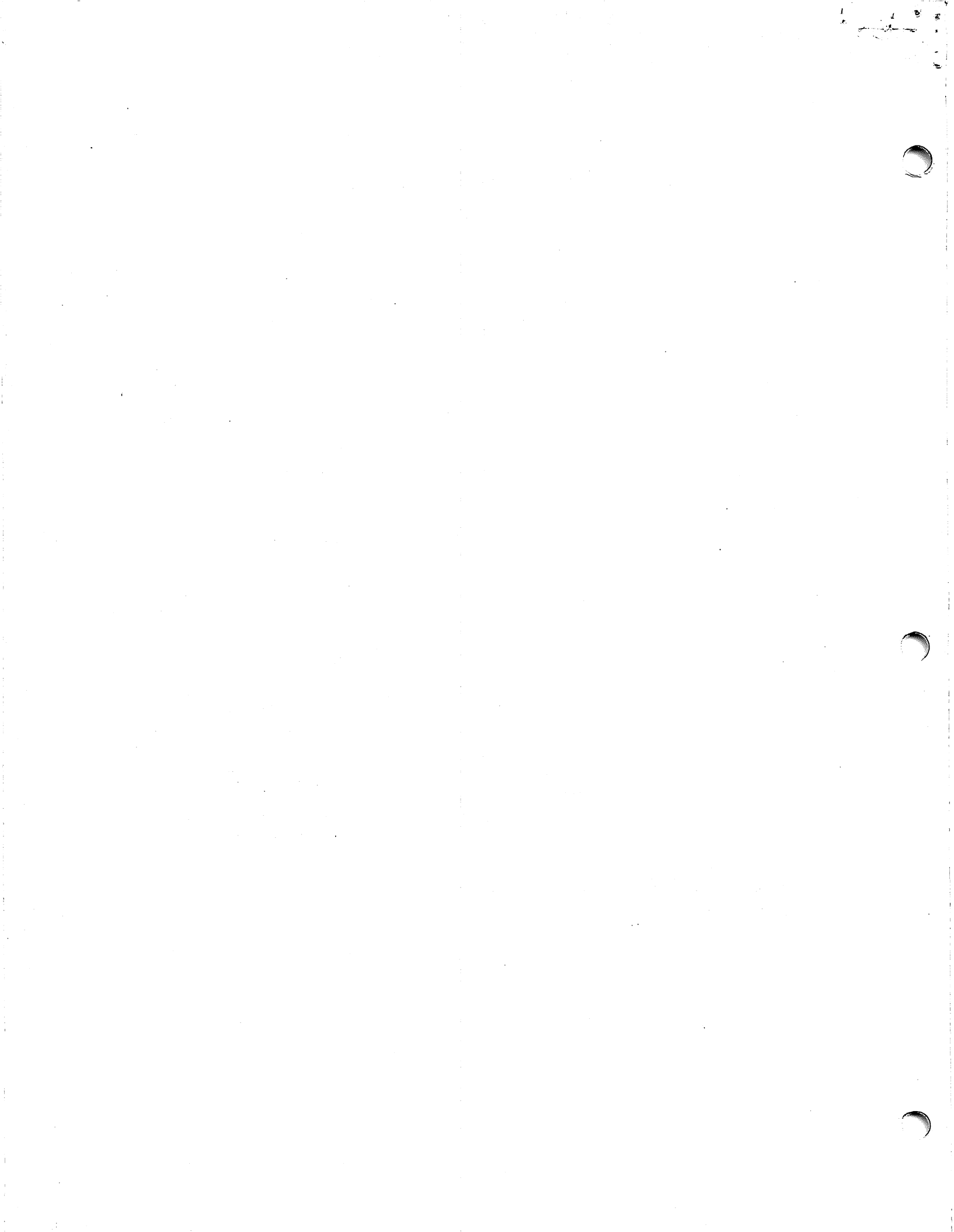
Wang cares. We sell total systems and don't forget our customers after the sale.

Comparative Specifications

	Datasystem 330	LVP
Memory (bytes)	128-256K	32-128K (user)
Disk storage		
Type	diskettes; 1-2 cartridge disks	Winchester; DSDD diskette
Capacity	10-20 MB	1-9 MB
Other peripherals	card reader, mag tape	plotter, graphic CRT
Printers	30, 180 cps; 240, 300 lpm	30-200 cps; 220-600 lpm
Terminals	4	4
Languages	Dibol	Basic II
Communications	2780	2780/3780, 2741, TTY
Price:		
1-station system:	\$21,850 (128K, 2 diskettes, 180 cps printer)	\$17,600 (32K, 1 MB diskette, 2 MB disk, 120 cps printer)
Price:		
4-station system:	\$34,800 (128K, 10 MB disk, 180 cps printer)	\$31,800 (64K, 1 MB diskette, 8 MB disk, 120 cps printer)

LVP vs. the Datasystem 330

- . Industry standard language.
- . Easy to program.
- . Higher performance.



Computers

TO DISTRIBUTION	PUBLICATION #
FROM 2200 SYSTEMS MARKETING - JANICE SOCHALSKI	DATE APRIL 1980
SUBJECT LVP RELEASE	REORDER FROM:
THIS RELEASE SUPERSEDES:	DESTROY SUPERSEDED INFORMATION <input type="checkbox"/> YES <input type="checkbox"/> NO

A NEW MEMBER OF THE 2200 FAMILY!

Wang Laboratories is pleased to announce a new member of the 2200 product line family, the LVP. Attractively designed, the 2200 LVP offers an array of dynamic features such as:

- . State-of-the-Art Disk Technology
- . Multi-terminal capabilities
- . The speed of the VP processor
- . Telecommunications
- . High price/performance ratio
- . Office-Of-The-Future Design
- . Very affordable price

This means that the 2200 LVP answers the critical computer needs of multiple market segments.

BENEFITS

The LVP will open doors for you! You can now offer a low cost, powerful alternative to competitive systems. Consider these opportunities:

- . Increase your prospect base with a low cost/high performance system.
- . Penetrate new markets that single-terminal systems couldn't satisfy.
- . Expand your opportunities in Fortune 1000 accounts through the extensive Telecommunication options available for Distributive Processing.
- . Upgrade your current T and PCSII customers who need a faster system and additional terminals.
- . Increase your Vendor Network with this powerful, multi-terminal addition to the Wang 2200 Product Line.

- Strengthen your existing Vendor Network with this demonstration of commitment to the 2200 family.
- The LVP is ready to install when delivered - all MVP software is compatible.

WHERE DOES THE LVP FIT IN THE MARKET?

Small Business Marketplace - The announcement of the LVP solidifies our dedication to the small business owner - that we are and will be dedicated to servicing this marketplace for many years to come. The small business market is growing at a rate of 25-35% and the LVP offers tremendous opportunities for you to:

- Expand your prospect base by offering a powerful, versatile system at an affordable price.
- Upgrade your T and VP users to a multi-terminal, expandable system.

Due to State-Of-The-Art disk technology, multi-user capability at an affordable price, the LVP answers the buying criteria for first time users.

USER ORIENTED AND FLEXIBLE

Easy-to-use - Data entry is easy using the 2236 DE terminal. The keyboard design and new screen features make it an operator's dream.

The LVP uses flexible diskettes which are easily and quickly inserted.

Protected Investment - start with only one terminal and easily add more without costly Central Processing Unit upgrades.

- Software availability - no waiting for software nor costly conversion charges. All current MVP software is compatible on the 2200 LVP.
- Attractive Styling - The LVP will attractively enhance any office decor. It also will fit comfortably into small offices.

Fortune 1000 Marketplace - The 2200 LVP is ready for Distributive Processing in a multitude of configuration options. Here are only a few opportunities:

- An alternative to the IBM data entry terminal.
- Stand alone system dedicated to a particular job.
- A network of LVP's providing dedicated functions and communication with inhouse mainframes.
- A dedicated LVP multiplexed to 2280 disk drives.

Or any combination of the above!!!

Use your imagination to configure the 2200 LVP because all telecommunication options available on the MVP are compatible with the LVP. Let's review these options:

- . 2227B Asynchronous Controller
- . 2228B Synchronous/Asynchronous Controller
- . 2228C Synchronous Controller when emulating the IBM 3275.

The 2200 LVP also takes full advantage of Wang's emulation software packages. This means that the LVP can:

- . Emulate the teletype (TTY) and IBM 2741.
- . Emulate IBM devices such as 2780, 3780, 3741, and HASP 36/20 workstation.
- . Emulate the IBM 3275 Dial-up interface terminal.
- . Emulate Burroughs TC and TD series of terminals.

LIMITLESS MARKETING POTENTIALS:

The above represents two significant market segments, but the LVP is also ideal for the medium size business who requires fast disk speed and multi-user capabilities at an affordable price. Penetrate these markets through our Vendor Network and Software Houses because the LVP demonstrates our commitment to support the 2200 product line and their selling efforts.

WHY THE LVP WAS BUILT?

The small business marketplace has steadily increased their need for computing power. Our competition in this market segment has also expanded due to a decrease in hardware cost as computer technology became more sophisticated.

Wang's 2200 family became separated; with the lower end market running toward the PCS II and T and the high end market purchasing the MVP. Wang saw a tremendous opportunity to combine the best of the VP processor products to serve even more companies who require a low priced but powerful and expandable computer system. This means their first purchase is minimal but yet their investment is protected; i.e., a computer that can easily grow with them. We now have the answer in the 2200 LVP.

FEATURES/BENEFITS

Feature:

One megabyte of storage on a dual sided double density IBM compatible diskette.

Benefit:

Four times more data can be stored than on our current diskettes. This means more storage capacity per dollar spent.

Back-up is faster; only one minute per megabyte.

Greater throughput of information due to faster access of data.

Feature:

The LVP uses micro-winchester type drives.

Benefit:

Cost effective - winchester technology offers the speed and reliability of hard disks at a more effective price/performance per megabyte.

Increase in reliability.

- Fixed disk design means a controlled environment.
- Fewer movable parts means fewer service visits.

Feature:

The LVP is physically stored in one cabinet; diskette drive, fixed disk and Central Processing Unit.

Benefit:

The sleek new design of the LVP is built for the Office-Of-The-Future.

The LVP will fit anywhere - even in the smallest of offices.

The LVP is quiet; fits naturally into a working atmosphere.

Feature:

The LVP has extensive communications capability; supporting packages for emulating IBM 2780, 3780, 3741, 2741 HASP 360/20 workstation and teletype, as well as remote 2236DE terminals.

Benefit:

Decentralized processing with home office reporting and control.

Data entry device; powerful and inexpensive.

Feature:

The Standard LVP Comes with three (3) I/O Slots

Benefit:

Your customers investment is protected as their computer needs grow because the LVP grows with them.

Add on a terminal or two for management control and inquiry.

Your market potential is increased with this vital feature.

NOTE: The 2200 LVP can optionally be upgraded to nine (9) I/O slots. This addresses those companies that need additional printers and/or telecommunication capabilities, plus three (3) or four (4) DE Terminals

COMPETITION - LOOK OUT!!

Wang's aggressive pricing will turn prospects heads - towards the LVP! Here are some samples of total system configurations and prices;

Single Terminal Configurations

Three Megabytes of Storage

32K User Memory
1-megabyte diskette
2-megabyte fixed disk
120 cps printer

\$17,600

5-megabytes

32K user memory
1-megabyte diskette
4-megabyte fixed disk
120-cps printer

\$18,800

Four Terminal Configurations

5-megabytes

64K User Memory
1-megabyte diskette
4-megabyte fixed disk
120 cps printer

\$30,300

9-megabytes

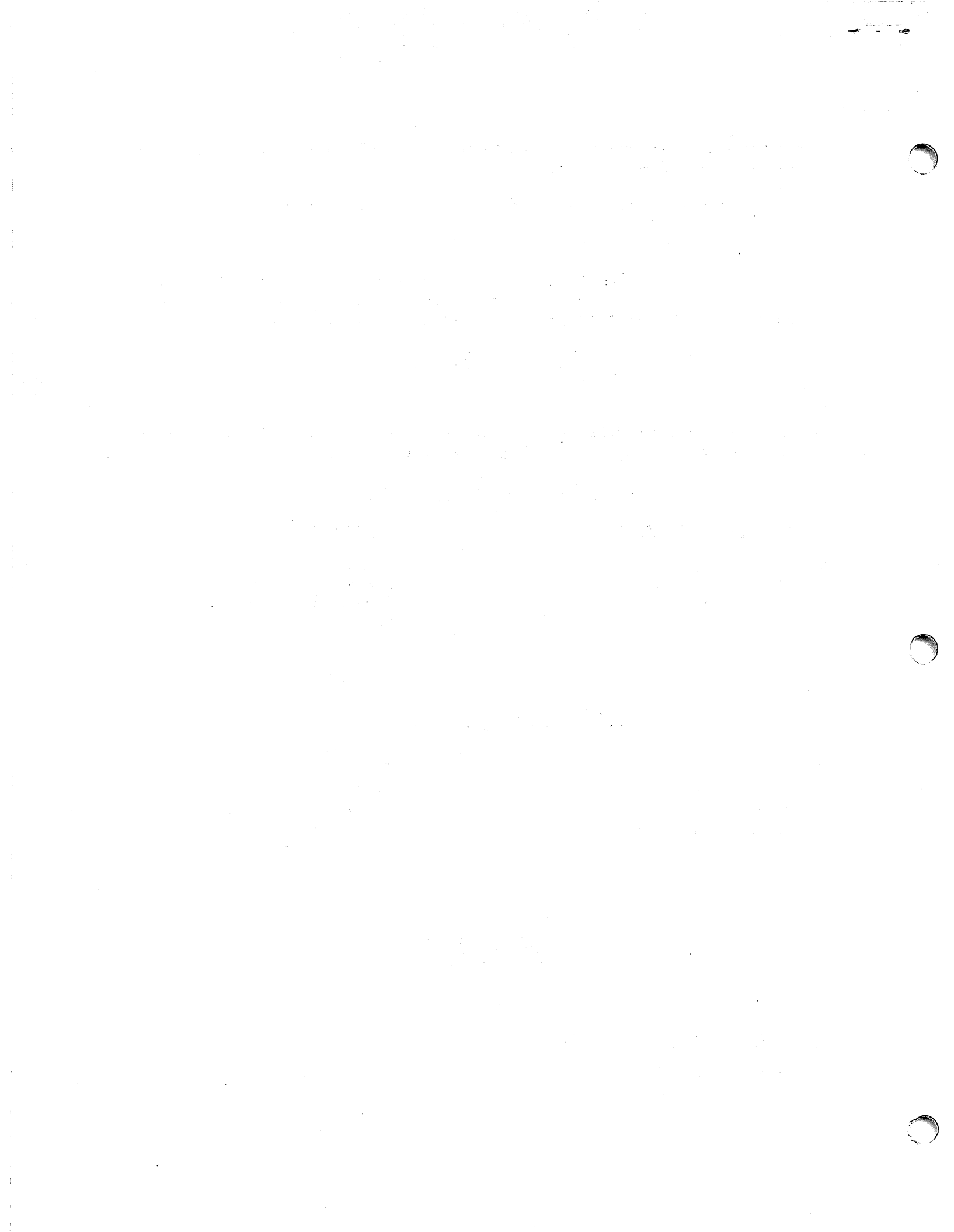
128K user memory
1-megabyte diskette
8-megabyte fixed disk
120 cps printer

\$34,800

GOOD LUCK AND GOOD SELLING

Additional information

LVP Data Sheet; 700-5796



Computers

TO DISTRIBUTION	PUBLICATION #
FROM 2200 SYSTEMS MARKETING - JANICE SOCHALSKI	DATE APRIL 1980
SUBJECT 2200 LVP SELLING STRATEGIES	REORDER FROM:
THIS RELEASE SUPERSEDES:	DESTROY SUPERSEDED INFORMATION <input type="checkbox"/> YES <input type="checkbox"/> NO

Selling Strategies

The new 2200 LVP provides you with a powerful product to add to your 2200 marketing efforts.

The key to successful selling lies in the ability to reach the right market and as many people as possible in a short amount of time.

This selling strategy paper describes three viable marketplaces where prospects can best benefit from a product such as the 2200 LVP.

1. Small business market
2. Large accounts
3. Current customers

How to go about selling?

The most effective way to talk to many people in a short period of time is through seminars. In this manner, you can address up to hundreds of people and companies in a period of two to three hours, having their undivided attention for that period of time. In addition, you are in control of the audience including what and how your products are presented.

Seminars should be held on a vertical market level. In this way, you can address their direct concerns.

This method also provides you with an opportunity to use another very valuable tool in your selling efforts: your Vendor. Having a vendor there, demonstrating his vertical software packages may actually close the business for you.

Let's now discuss each marketplace in further detail.

First-time user

The term "first-time user" represents an ever increasing number of computer prospects who require solutions to their business problems. The first-time-user category generally means a small business with five or more employees and sales volume of \$500,000 or more per year. The owner of this small business is unknowledgeable in computer hardware and software terms and doesn't want to start learning now. He knows his own business to the utmost detail but has no idea what a megabyte of storage will do for him, nor does he care. All he knows is that his business may have growing problems or overdue

accounts receivable and the cost of borrowing money is incredibly high. He needs help and everywhere he turns someone is trying to sell him a computer.

Even though your prospect is unaware of computer details, he may or may not be aware of an essential basic set of requirements. When buying a system, he must make sure his purchase satisfies all of the requirements, otherwise the investment in his system just won't be successful.

What are the requirements of the small business market? Listed below are the requirements and why they are important. Afterwards, we will discuss how the LVP satisfies the needs.

Requirements of the First-Time User

Easy-to-use

Any small business system must be usable by the current staff, such as order entry and accounts payable clerks. The manager, or owner, who invests in a business computer system shouldn't have to hire expensive specialized computer operators to run the system. He just can't afford the overhead.

On-line, transaction oriented

People in accounting, scientific, and almost all other categories of business, work with transactions, such as invoices, orders, payables, stock lists, formulas, etc. Business managers and owners need this information quickly because accurate and fast information means better business decisions. Therefore, a business system must be on-line and have quick access to data stored in the system.

Expandable

Any investment is poor unless the long range use is adequately considered. A computer system purchased today should not be sold a year later because it no longer can handle the volume. This means additional expense not only in the hardware but also in tailored programs which may not run on a larger system. An owner or manager must know that a computer system can comfortably handle increased loads, additional terminals, and even additional application packages. On the other hand, an owner shouldn't buy today a system he needs in the future. This is a far too expensive way to ensure growth. He needs a system to handle his needs today with the capability to upgrade and handle his needs of tomorrow.

Will it fit?

Many small business offices are exactly that - small in physical size. They need a system that will fit in their tiny office, and not disrupt the quiet work-like atmosphere. Another system requirement is attractiveness because, like the purchase of a new car, the owner will always want to "show off" his new computer to friends and competitors.

The system should solve my business needs!

One of the high priority requirements to be satisfied is "What problems will this system solve for me and my business?" The owner or manager always has a

problem area in his business where greater control or more decision-making information is essential. So the bottom line is "How much money will a system save me in time, people, and other overhead expenses?" The owner only cares about solutions and bottom-line benefits to his business.

The LVP Can Do the Job!

The announcement of the LVP clearly shows that Wang is firmly committed to maintaining and growing a significant share of the rapidly increasing small business systems market. Over the past several years, the entire 2200 product line has developed into a series of systems that completely addresses the special and competitive requirements of the small business market. With the LVP, Wang has taken the best features of the 2200 Series Systems and has combined them into a powerful, low cost system.

The LVP is a user-oriented system

Easy to use - using the new 2236DE terminal, current office personnel can easily adapt to the typewriter-like keyboard and ten-key numeric pad. This means that people who know the job, such as order entry and accounts payable clerks, can handle data in and out of the system. Information will be more accurate and input more timely.

In addition, the 2236DE terminal has many features for easy screen reference, such as box graphics, underlining, reverse video, blinking characters, etc. All of these features mean easy and quick eye reference.

The LVP uses flexible disks which are easily and quickly inserted. No office space is wasted in disk storage and they are very inexpensive. More storage for the buck.

On-line and in real-time

The LVP uses the extremely fast MVP processor which, according to Benchmark magazine, beats the competition twenty to one in speed. With tailored software from the Wang-approved vendor, all vital information is updated immediately and is easily accessible for fast decision making.

Due to the fact that the LVP is a partitioned system, additional terminals don't degrade response time. Data input and output is fast.

The original investment is always protected

With the state-of-the-art LVP, your customer can purchase an inexpensive starter system with tremendous growth capabilities. The LVP can expand to four terminals (five with the triple controller) and two, four, or eight megabytes of micro-winchester fixed disk plus the full product line of peripherals. His investment is protected for many years.

The LVP is part of the Office Of The Future

The LVP is attractively packaged in a sleek design that will fit any office - now and in the future. All disk storage, both hard and flexible, plus the central processing unit is stored in a small, under-the-desk cabinet. It fits naturally into any office environment providing quiet but powerful computer power.

The LVP is the tool to solve your business problems

Because the LVP fits naturally into the 2200 series line, all software applications currently running on the MVP are totally compatible on the LVP. This means that all the software packages currently written for the MVP can be utilized on the LVP. No costly conversion charges and no rewriting of application packages.

As you can see, the LVP is ideally suited for the first-time user. It answers his need for an easy-to-use, highly powerful, and affordable computer system. Let's also see how the LVP answers the needs of a large multi-location user.

Fortune 1000 Company

The Fortune 1000 Company is not interested in building systems, but in applying them. Preference is given to the company who can supply an entire array of systems which are flexible, expandable, reliable, and cost-effective.

The end user is ready now for Distributed Processing. The benefits are considerable: including more control at the home office, reduction in central computer load and response time, not to mention more capabilities at the branch level. This means the ability to access master files which were formerly unreachable at the branch level, on-line updating of the master files, faster reporting, etc., etc., etc. The bottom line also means less total cost than individual systems.

Let's look at the requirements which must be satisfied by a computer system(s):

Transaction oriented

A system must be transaction-oriented and processing-time fast. In a distributed processing environment, one branch office can require hundreds of transactions to be entered per day.

Strong development tools

The data processing department needs a powerful, flexible programming tool to build and mold systems to its requirements.

Cost-effective

With a purchase of large quantities of computer power, the systems purchased must be cost-effective. The system must be able to grow and expand without frequent system replacement.

Telecommunications capabilities

For true Distributed Processing, all computer systems considered must have extensive telecommunication capabilities. In most companies, the host computer will be an IBM mainframe system.

Now Let's See Where the LVP Can Satisfy These Requirements:

Transaction oriented

Remember: The LVP has the fast MVP processor - outperforms the competition twenty to one.

The micro-winchester disk is fast and reliable.

Strong development tools

The LVP offers BASIC II-enhanced version of the BASIC Language. BASIC II is powerful and it's also an industry standard language. Therefore, no need to train programmers on a special language.

I.D.E.A.S. - A powerful tool for creating application packages which are also available on the LVP.

Cost-effective

The LVP has a high performance/cost ratio due to the fast VP processor and Wang's aggressive pricing. In addition, your prospect can start small in low volume locations and add peripherals as each branch requires it.

The LVP takes full advantage of the tremendous telecommunication capabilities currently available on the MVP. Let's review these capabilities:

The LVP supports the following Wang controllers:

- 2227B - Async Asynchronous
- 2228B - Synchronous/Asynchronous
- 2228C - Synchronous Controller (used when emulating the IBM 3275)

In addition, the Wang emulation package are supported:

1. ASYNC I - enables the LVP to emulate the TTY or the IBM 2741.
2. BISYNC I - allows the emulation of four IBM devices: 2780, 3780, 3741, plus HASP 360/20 workstation.
3. 3275 - with the 2228C Controller, the LVP can emulate the IBM 3275 dial-up interface terminal.
4. Burroughs - using the 2228B or C, the LVP can emulate Burroughs TC and TD series of terminals.

With these powerful options, the LVP can dynamically function in the Fortune 1000 accounts communicating with IBM and/or Burroughs mainframe.

In summation, the LVP is compatible with:

1. IBM mainframe.
2. Non-IBM mainframes that support 2780/3780.

Customer Upgrades

You probably have customers right now in your territory who could use additional computing power. Perhaps the 2200 LVP is the solution.

Wang customers currently using the 2200 PCSII and the 2200T may be ideal prospects who need to increase their computing power. After all, they have already been sold on Wang Laboratories as a vendor; and now it's time to invest in additional applications and/or more terminals, perhaps, for inquiring purposes, warehouse picking slips, or credit checking.

You have a lot to offer them! Remember, their original investment is always protected.

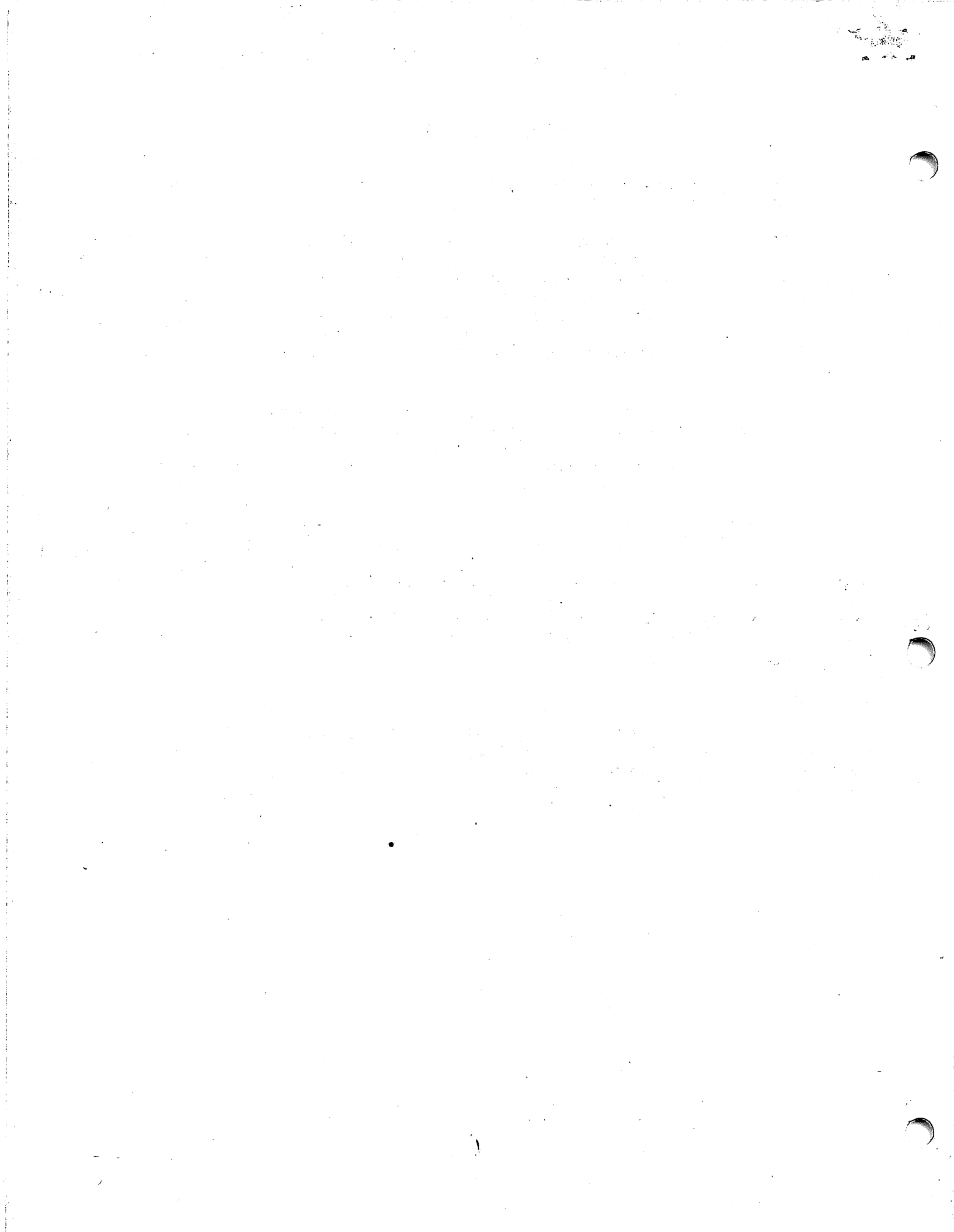
- . Put the PCSII or T to work in a dedicated function - perhaps a payroll application or an asset depreciation program.
- . Purchase an LVP and enhance the current application packages and/or number of terminals.
- . Use PCSII or T to communicate with the LVP utilizing telecommunications.

Let your current customers benefit from the advantages of the LVP.

Inform many customers at once through a seminar program held in your office or a nearby hotel. The current "Future for Expansion" seminar can help you do this.

Summation

The 2200 LVP provides tremendous flexibility in fulfilling the needs of many markets. Make full use of them by selling smart. This means holding seminars directed at individual vertical markets. This method gets the word out fast and accurately. Good Luck.





LABORATORIES, INC.

To: The Basic Systems Group
From: Bob Porter
Subject: L.V.P.
Date: September 26, 1980

Since alot of the questions we recieve concerning the L.V.P. are general information inquiries , the following sheets have been combined specifically for this need. It has a little bit of a number of things from model configuration to \$GIO statements. It is not intended to be an in depth guide, but it may be of use for quick reference.

Bob Porter

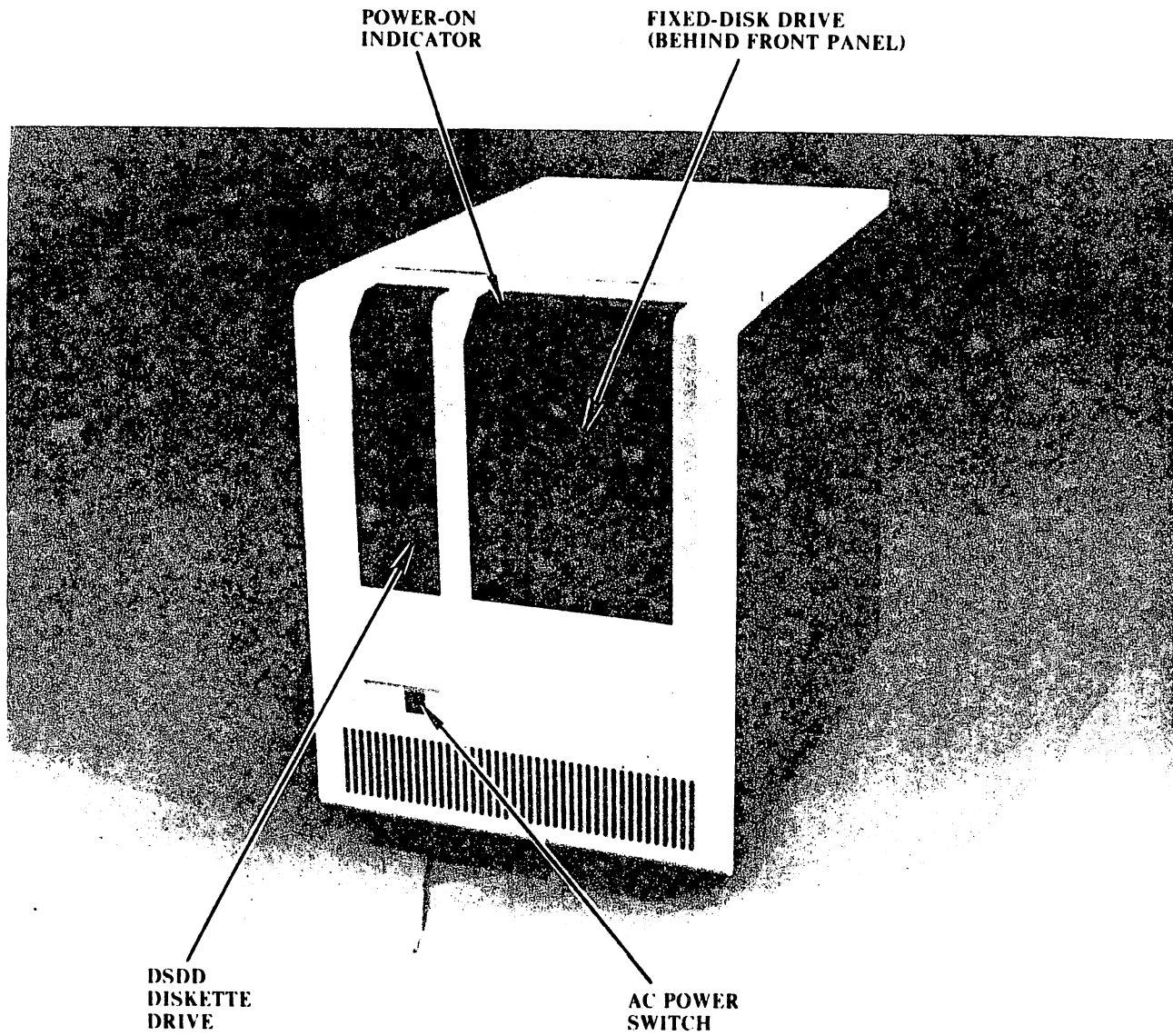


FIGURE 8-1 2200LVP (FRONT VIEW)

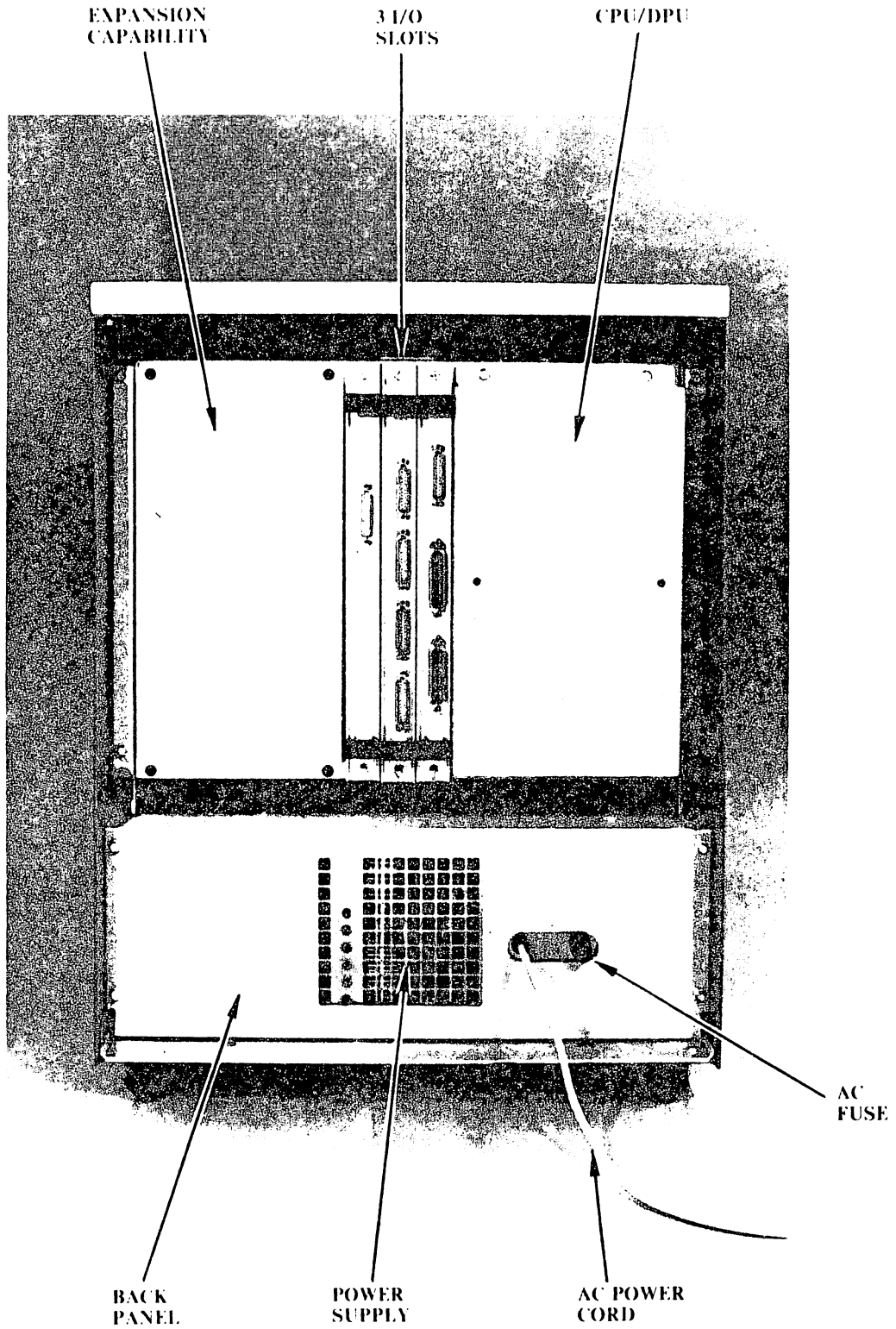


FIGURE 8-2 2200LVP (REAR VIEW)

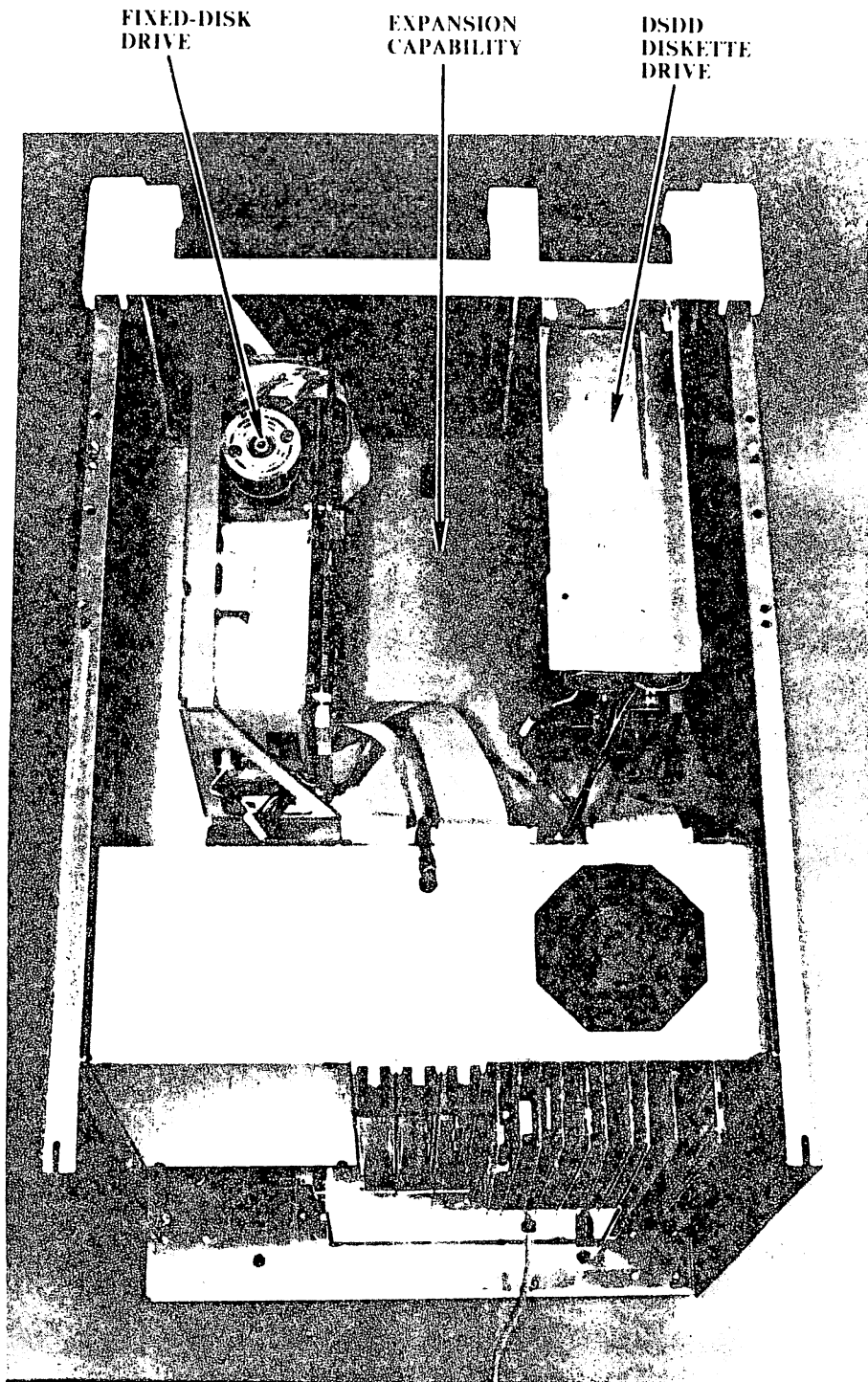


FIGURE 8-3 2200LVP (INSIDE VIEW)

1.5 COMPATIBILITY WITH OTHER 2200 SYSTEMS

The 2200LVP has been designed to preserve compatibility with Wang's older, single and multi-user systems, as well as the more recent single-user systems. Since the 2200LVP is compatible with the 2200MVP, multiuser software written for the 2200MVP will function correctly on the 2200LVP. However, differences in the number of peripherals which can be attached to the system may affect some user programs.

Because the BASIC-2 language supported on the 2200LVP is identical to BASIC-2 on the 2200VP, there is 100% software compatibility between these systems for single-user programs. The 2200LVP also supports earlier Wang BASIC syntax, providing a significant degree of compatibility with non-VP and non-MVP systems.

1.6 MODEL CONFIGURATION

The 2200LVP is identified by a model number of the format:

2200LVP-*xxy*

where: 2200LVP represents the CPU, 1 megabyte of dual-sided double-density diskette, and the cabinet.

xx is a one or two digit number representing the actual CPU user-memory size when multiplied by 4.

- 8 - 32 kilobytes of user-memory
- 16 - 64 kilobytes of user-memory
- 32 - 128 kilobytes of user-memory

y is a capital letter representing the model for the fixed disk capacity option.

- B - 2 megabyte fixed disk option
- C - 4 megabyte fixed disk option
- D - 8 megabyte fixed disk option
- X - No fixed disk option

A summary of all model descriptions and numbers is given in TABLE 1-1.

TABLE 1-1 SUMMARY OF 2200LVP MODEL NUMBERS

<u>MODEL</u>	<u>DESCRIPTION</u>	<u>WL #</u> <u>60 HERTZ</u>	<u>WL #</u> <u>50 HERTZ</u>
2200LVP-8X	32K Memory, 1 MB Floppy	177-3204	157-3204
2200LVP-16X	64K Memory, 1 MB Floppy	177-3205	157-3205
2200LVP-32X	128K Memory, 1 MB Floppy	177-3206	157-3206
2200LVP-8B	32K Memory, 1 MB Floppy, 2 MB Fixed Disk	177-3207	157-3207
2200LVP-16B	64K Memory, 1 MB Floppy, 2 MB Fixed Disk	177-3208	157-3208
2200LVP-32B	128K Memory, 1 MB Floppy, 2 MB Fixed Disk	177-3209	157-3209
2200LVP-8C	32K Memory, 1 MB Floppy, 4 MB Fixed Disk	177-3201	157-3201
2200LVP-16C	64K Memory, 1 MB Floppy, 4 MB Fixed Disk	177-3202	157-3202
2200LVP-32C	128K Memory, 1 MB Floppy, 4 MB Fixed Disk	177-3203	157-3203
2200LVP-8D	32K Memory, 1 MB Floppy, 8 MB Fixed Disk	177-3210	157-3210
2200LVP-16D	64K Memory, 1 MB Floppy, 8 MB Fixed Disk	177-3211	157-3211
2200LVP-32D	128K Memory, 1 MB Floppy, 8 MB Fixed Disk	177-3212	157-3212

1.7 SPECIFICATIONS

1.7.1 2200LVP CPU

Size

Height - 27.0 in. (68.6 cm)
Width - 20.4 in. (51.8 cm)
Depth - 30.0 in. (76.2 cm)

Memory Cycle Time

600 nanoseconds

User Memory Size

32K bytes (standard)
Expandable to 64K or 128K bytes

Control Memory Size

32K 24-bit words

Maximum Number of Partitions

16

Minimum Partition Size

1.25K (1,280) bytes

Maximum Number of Terminals

5

System Overhead

3K (3,072) bytes for 32K and 64K machines
11K (11,264) bytes for 128K machines
1K (1,024) bytes per partition

Numeric Range

10^{-100} to 10^{100} , floating point with 13 significant digits

Power Requirements

115 or 230 VAC \pm 10%
50 or 60 Hz \pm 1.0 Hz
230 Watts

Fuses

5.0 amp (SB) for 115 V
3.0 amp (SB) for 230 V

Operating Environment

Temperature - 60° to 90°F (15° to 32°C)
Relative Humidity - 35% to 65% (noncondensing--recommended)
20% to 80% (noncondensing--allowable)

Heat Output

1,050 Btu/hr.

1.7.2 DISK DRIVES

	<u>1 MB DSDD Diskette</u>	<u>2 MB Fixed-Disk</u>	<u>4 MB Fixed-Disk</u>	<u>8 MB Fixed-Disk</u>
Disk Surfaces	2	1	2	4
Sectors/Track	26	32	32	32
Tracks/Surface	77	**254	***255	***255
Bytes/Sector	374	320	320	320
Bytes/Data Field	256	256	256	256
Sectors/Surface	2002	8128	8160	8160
Total Sectors	3978 3974	8128	16320	32640
Total Bytes	1,025,024	2,080,768	4,177,920	8,355,840
Sector Addresses	*0-3977	0-8127	0-16319	0-32639

* The first track on side zero is single density, and is accessed by sector addresses 16384-16409. NOTE: The sector addresses for a single-density single-sided diskette are 16384-18386.

** Actually 256 -- the last track is reserved for alternate sector assignment, and the next to last track is reserved for diagnostic testing purposes.

*** Actually 256 -- the last cylinder is reserved for alternate sector assignment and for diagnostic testing purposes.

4.2.2 LOADING THE OPERATING SYSTEM

A Special Function Key must be depressed to specify the address of the disk drive in which the system disk is loaded.

The following options are available:

Key SF '00 to load BASIC-2 from the disk @ address 310 (Hex).
Key SF '01 to load BASIC-2 from the disk @ address B10 (Hex).
Key SF '02 to load BASIC-2 from the disk @ address 320 (Hex).
Key SF '03 to load BASIC-2 from the disk @ address B20 (Hex).
Key SF '04 to load BASIC-2 from the disk @ address 330 (Hex).
Key SF '05 to load BASIC-2 from the disk @ address B30 (Hex).
Key SF '08 to load BASIC-2 from the disk @ address 350 (Hex).
Key SF '09 to load BASIC-2 from the disk @ address B50 (Hex).
Key SF '10 to load BASIC-2 from the disk @ address 360 (Hex).
Key SF '11 to load BASIC-2 from the disk @ address B60 (Hex).
Key SF '12 to load BASIC-2 from the disk @ address 370 (Hex).
Key SF '13 to load BASIC-2 from the disk @ address B70 (Hex).

NOTE:

Normally, the fixed-disk drive is assigned address 310 (HEX), and the DSDD diskette drive (removable) is assigned address B10 (HEX).

The 2200LVP also supports a wide range of peripheral devices, such as printers, plotters, disks, and tape drives. The current peripherals available for use with the 2200LVP are:

PRINTERS

2201L Character
2221W Matrix (120 cps)
2231W Matrix (120 cps)
2251 Matrix (110 cps)
2261W Matrix (240 lpm)
2263W Chain (400/600 lpm)
2271 Bi-Directional (15 cps)
2273 Band (250/600 lpm)
2281 Diablo Daisy (30 cps)
2281W/WC Wang Daisy (40 cps)
IP41L Image (900 cps)

PRINTER MULTIPLEXERS

2211M
2221M

PLOTTERS

2232B Large Flatbed
2271P Bi-Directional
2272-2 Drum
2281P Daisy
2282 Graphic CRT

TELECOMMUNICATIONS

2227B Asynchronous
2228B/C Bisynchronous

TAPE DRIVE

2209A 9-Track (1600 bpi)

DISK DRIVES *

2280 Cartridge Module

- * 2230/60/70 model disk drives are supportable but are not sold in standard LVP-system configurations.

NOTE:

As of July, 1980, only 3 I/O slots are available in the 2200LVP, one of which is taken up by the 2236MXD Multiplexer/Controller. A field-upgradable, 9-I/O-slot version of the LVP is being designed.

FIGURE 1-1, on the following page, illustrates a typical 2200LVP system configuration.

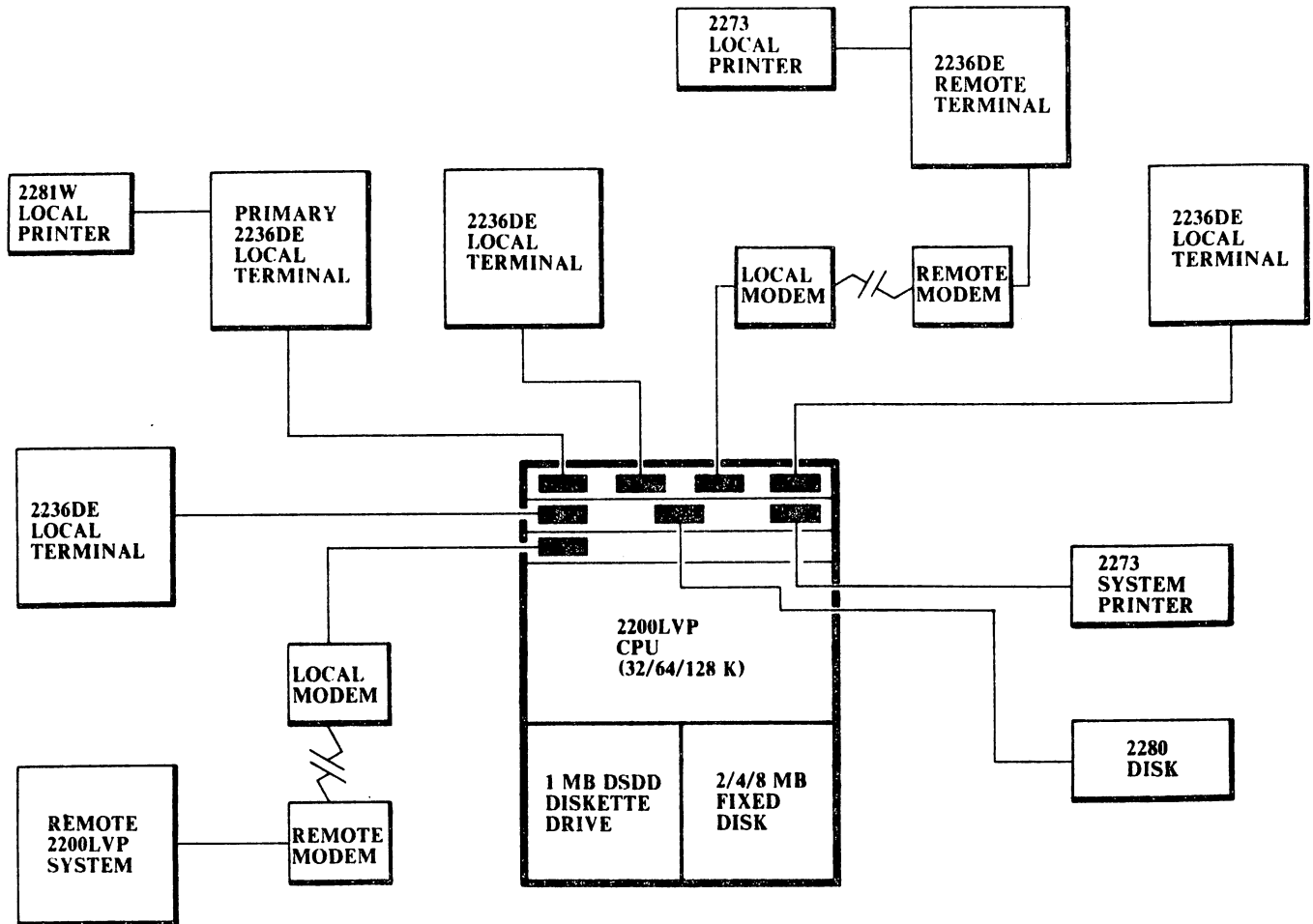


FIGURE 1-1 TYPICAL 2200LVP SYSTEM CONFIGURATION

4.8 PROGRAMMING THE 2209A ON THE 2200LVP

The present \$GIO sequences, documented in table 4-1 of the 2209A manual, will lead to an input timeout error (I92) on the LVP. The LVP cannot allow one partition to wait for an input strobe (8607) for a long time, as this would be unfair to other users. The LVP hardware does not permit the LVP to switch users once an 860X microcommand has begun, because data may be lost in the process. The solution is to wait for the tape drive controller to become ready (1020) before asking the board for input. Thus the change to the \$GIO sequence is to insert a 1020 microcommand after a CBS (44xx) that causes tape motion and before the single character input (8607) that follows the tape motion commands.

4.7.3 \$GIO RESTRICTIONS

1. CBS is not issued to the 2236MXD.
2. Input not allowed from 2236MXD (i.e., console keyboard).
3. Timeouts and delays are allowed for output; however, the timeout or delay value is a minimum time. The value applies to the execution time allocated to this program; if other programs are executing, the actual delay time will be longer than specified.
4. There is an implicit timeout (with error) of 1 millisecond for input (non-MXD). A timeout of up to 10 ms can be specified.

4.7.4 I/O STATEMENT RESTRICTIONS

The following chart defines which devices the LVP Operating System permits the statement to communicate with. ERR #48 results when a BASIC-2 statement addresses an illegal device.

STATEMENT OR OPERATION:	2236DE			
	2236DE TERMINAL KEYBOARD	2236DE TERMINAL CRT	2236DE TERMINAL LOCAL PRINTER	2236DE DEVICES OTHER THAN 2236DE TERMINALS
Console Output*		X	X	X
PRINT		X	X	X
PRINT USING		X	X	X
HEXPRINT		X	X	X
LIST		X	X	X
PLOT		X	X	X
Console Input	X			
INPUT	X			
LINPUT	X			
KEYIN	X			X
\$IF ON/OFF	X			X
\$GIO		X	X	X
SELECT ON (interrupt)				X
Disk Statements				X

* Console Output (keystroke echo, error, END, STOP messages, and LINPUT and INPUT prompts) is always directed to the terminal CRT except for TRACE output which can be selected to another device (such as a printer).

LVPC 1 (512K)

DISK DRIVES	PLATTER	ADDRESS	APPLICATIONS
2280 Phoenix End 52607	Removable	D20	Ideas 2.1
	Fixed N0.1	D21	System Menus, 2.4 OS PF '2
	Fixed N0.2	D22	WP Volumes, Applications
	Fixed N0.3	D23	ICS Utilities, WP 2.1, Mailway
	Fixed N0.4	D24	Greg's Applications
	Fixed N0.5	D25	ISS, Other Utilities
2280 Phoenix End 52607	Removable	D30	Open, backups, conversions
	Fixed N0.1	D31	Datamerge 2.0, Ideas 1.5, WP 2.0
	Fixed N0.2	D32	GBS 2.4, WP 2.2
	Fixed N0.3	D33	WP 2.0, Prism 00.01, Ideas 2.0
	Fixed N0.4	D34	Ideas 2.1, WP 2.1
	Fixed N0.5	D35	WP Volumes, Applications, Demos
2260C End 19583	Removable	B27	Greg's Stuff, Backups
	Fixed	327	Open
2270A End 1231	Left	326	Move cable at CPU to use with LVPC 2
	Center	B26	Change addresses in MOVEFIL & ISS
	Right	366	not standard addresses.
WINCHESTER End 25000	Fixed	310orD11	OPEN
DSDD End 3873	Fixed	D12	Lee's Applications
TERMINALS	Removable	B10	Three archive areas in WP
	N0.1	MXE 1	2236DE Top of CPU
	N0.2	MXE 1	2336DW-Jody
	N0.3	MXE 1	2336DW-Greg
	N0.4	MXE 1	2336DW-Lee
	N0.5	MXE 2	2236DW-Table upstairs
PRINTERS	2273	204	Move cable to use with LVPC 2
	2281W	204	Lee's terminal printer
	2245	204	Greg's Terminal Printer

LVPC 2 (512K)

DISK DRIVES	PLATTER	ADDRESS	APPLICATIONS
2280 Phoenix End 52607	Removable	D20	Ideas 2.1
	Fixed N0.1	D21	System Menus, 2.4 OS PF '2
	Fixed N0.2	D22	WP Volumes, Applications
	Fixed N0.3	D23	ICS Utilities, WP 2.1, Mailway
	Fixed N0.4	D24	Greg's Applications
	Fixed N0.5	D35	ISS, Other Utilities
2280 Phoenix End 52607	Removable	D30	Open, backups, conversions
	Fixed N0.1	D31	Datamerge 2.0, Ideas 1.5, WP 2.0
	Fixed N0.2	D32	GBS 2.4, WP 2.2
	Fixed N0.3	D33	WP 2.0, Prism 00.01, Ideas 2.0
	Fixed N0.4	D34	Ideas 2.1, WP 2.1
	Fixed N0.5	D35	WP Volumes, Applications, Demos
2270A End 1231	Left	326	Move cable at CPU to use with LVPC 2
	Center	B26	Change addresses in MOVEFIL & ISS
	Right	366	not standard addresses.
DSDD End 3873	Removable	B10	Three archive areas in WP
WINCHESTER End 25000	Fixed	310orD11	OS Rel. 2.4 PF '0, OPEN
TERMINALS	Fixed	D12	WP 2.0- Open
	N0.1	MXE 1	2236DE Top of CPU
	N0.2	MXE 1	2336DW-Wendy
	N0.3	MXE 1	2336DW-Ken
	N0.4	MXE 1	2336DW-Betty
	N0.5	MXE 2	2236DW-Wendy's Old Term.
PRINTERS	2273	204	Move cable to use with LVPC 1(T.N0.1)
	2235	204	Attached to Wendy's old terminal
	DW22-20	204	Ken's terminal printer

LVP 3 Backup System (256K)

DISK DRIVES	PLATTER	ADDRESS	APPLICATIONS
2260C End 19583	Removable	D30or B30	Open-Backups of Applications
NOTE	Fixed	D31or 330	WP 2.1, Ideas 2.1
	Load any other applications with removable pack-menus are set up for D30		
WINCHESTER End 25000	Fixed N0.1	310	2.4 OS PF '0
DSDD End 3873	Removable	B10	Open
2270A End 1231	Left	320	
	Center	B20	
	Right	360	
TERMINALS	N0.1	MXE 1	2236DW Table
	N0.2	MXE 1	Open-Red at patch panel
	N0.3	MXE 1	Open-Red at patch panel
	N0.4	MXE 1	Open-Red at patch panel
NOTE	Move cables at patch panel on right to any red connector.		
	Names of each analyst are on the cable ends.		
PRINTERS	2221W	215	