

2200 VLSI

TARGET MARKET:

The 2200 VLSI will target that portion of the market presently covered by the 2200 Product Line. Initially, the 2200 VLSI will replace the 2200 MVP only. A determination will be made later about how it will impact 2200 LVP and SVP.

PRODUCT DESCRIPTION:

The 2200 VLSI System will be a re-packaged version of the existing 2200 MVP System. The new system utilizes VLSI technology to incorporate the 2200 discrete processor design into single chip form. This will allow the 2200 CPU, Control, and User Memory to reside on one (1) PC board. The new PC board will considerably reduce the amount of space required to house the 2200 System.

The new 2200 System motherboard will have nine (9) I/O slots.

Existing 2200 MVP Systems can be converted to allow the use of the VLSI CPU/MEM board by adding two (2) wires to the old motherboard. This will be done on a need be basis (after existing spares are used up). The 2200 LVP, SVP will be addressed at a later date.

There will be two (2) versions of the 2200 VLSI System.

32K CONTROL - 128K DATA MEMORY

32K CONTROL - 512K DATA MEMORY

(Control memory can be expanded to 64K at a later date, if needed)

THE MAJOR COMPONENTS FOR THE SYSTEM:

CABINET

MOTHERBOARD WLI# 210-8176

POWER SUPPLY SPS-255

CPU/MEMORY BOARD WLI# 210-8034-XX (XX will denote 512 or 128 data memory)

THE MAJOR COMPONENTS FOR THE CPU/MEM BOARD:

VLSI CPU CHIP (VC 2043 GATE ARRAY WLI# 377-0621)

MEMORY CONTROLLER CHIP (VC 4501 WLI# 377-0619)

DATA MEMORY CHIPS (WLI# 377-0588 for 512K and 377-0417 for 128K data memory)

CONTROL MEMORY CHIPS (WLI# 377-0542)

BUFFERS

PRINTED CKT. BOARD (4 LAYER)

THE MAJOR FEATURES OF THE MOTHERBOARD:

→ 9 I/O SLOTS

1 CPU/MEM SLOT

MULTI LAYER DESIGN

THE POWER SUPPLY WILL BE THE SPS255:

The SPS-255 power supply will be integrated into the new system enclosure.

CABINET:

The cabinet will house the SPS-255 power supply, CPU/MEM board, motherboard and space for 9 I/O slots.

2200 VLSICURRENT STATUS AND SCHEDULE:

	<u>PLANNED</u>	<u>CURRENT</u>	<u>ACTUAL</u>
PRODUCT ANNOUNCEMENT	01/30/85		
ALPHA TEST START	11/30/84		
BETA TEST START	12/30/84		
FCC/UL/CSA/VDE/ENVIRONMENTAL TESTING	01/30/85		
FIRST CUSTOMER SHIPMENT	02/15/85		
MECHANICAL DESIGN COMPLETE	09/30/84		
MEI SAMPLE RECEIVED	12/30/84		
CAR APPROVED	09/30/84		
PCB DIAGNOSTICS RECEIVED	12/01/84		
SYSTEM DIAGNOSTICS RECEIVED	TBD		
O.S. SOFTWARE RELEASED	TBD		
PROTOTYPE START	10/84-11/85		
PILOT START	12/15/84		
PRODUCTION RELEASED/ACCEPTANCE	03/30/85		

FORECAST:

The latest forecast from Master Planning:

<u>Q3</u>	<u>Q4</u>	<u>Q1</u>	<u>Q2</u>
200	485	525	575

(Q3 forecast is for a total of 610 units (410- 2200MVP and 200- 2200 VLSI))

PROTOTYPE BUILD:

The plan is to build 30 prototype units and distribute them as follows:

(10) COMPLETE UNITS	R&D
(5) COMPLETE UNITS	SYSTEM INTEGRATION
(4) COMPLETE UNITS	CUSTOMER ENGINEERING
(2) BARE BOARDS	MANUFACTURING
(1) GOLDEN SAMPLE	MANUFACTURING
(3) ENG. SAMPLES	MANUFACTURING
(1) COMPLETE UNIT	QUALITY & RELIABILITY ENGINEERING
(2) COMPLETE UNITS	PRODUCT MARKETING

MARKETING:

Marketing is working on model numbers and selling prices for the VLSI Systems. As a result of the new design, we need to investigate the maintenance price to see if it could be lowered.

SOFTWARE:

The new 2200 System will be able to run all existing 2200 MVP software, diagnostics and I/O hardware options without modification.

IN THIS ISSUE...

NEW 2200 VLSI MVP AND MicroVP CPUs ANNOUNCED p. 646

Wang Laboratories announces the integration of the 2200 with microchip technology. The new 2200 VLSI MVP (2200MVP-128/512) and MicroVP (MicroVP-1/2) CPUs are based on the new 2200 VLSI chip produced by VLSI Technology (VTI) of San Jose, California. This announcement is Wang's first use of VTI's integrated circuit wafer processing capacity. The new VLSI type MVP and MicroVP CPUs will contain one printed circuit board including 32KB control memory which replaces seven to nine 8" X 11" boards. The CPU card, using the current 2200 I/O bus can communicate with the existing 2200 option boards and peripherals and supports 9 optional peripheral boards. The new VLSI type MVP and MicroVP CPUs are available in 128KB or 512KB.

For 2200 ISOs and users who want new product technology, greater reliability and lower costs, Wang's integration of the 2200 with the VLSI chip brings the 2200 into the micro-world. Designed with the 2200 ISO in mind, the VLSI 2200s will allow the 2200 product line to maintain its strong position between our PC and VS product lines.

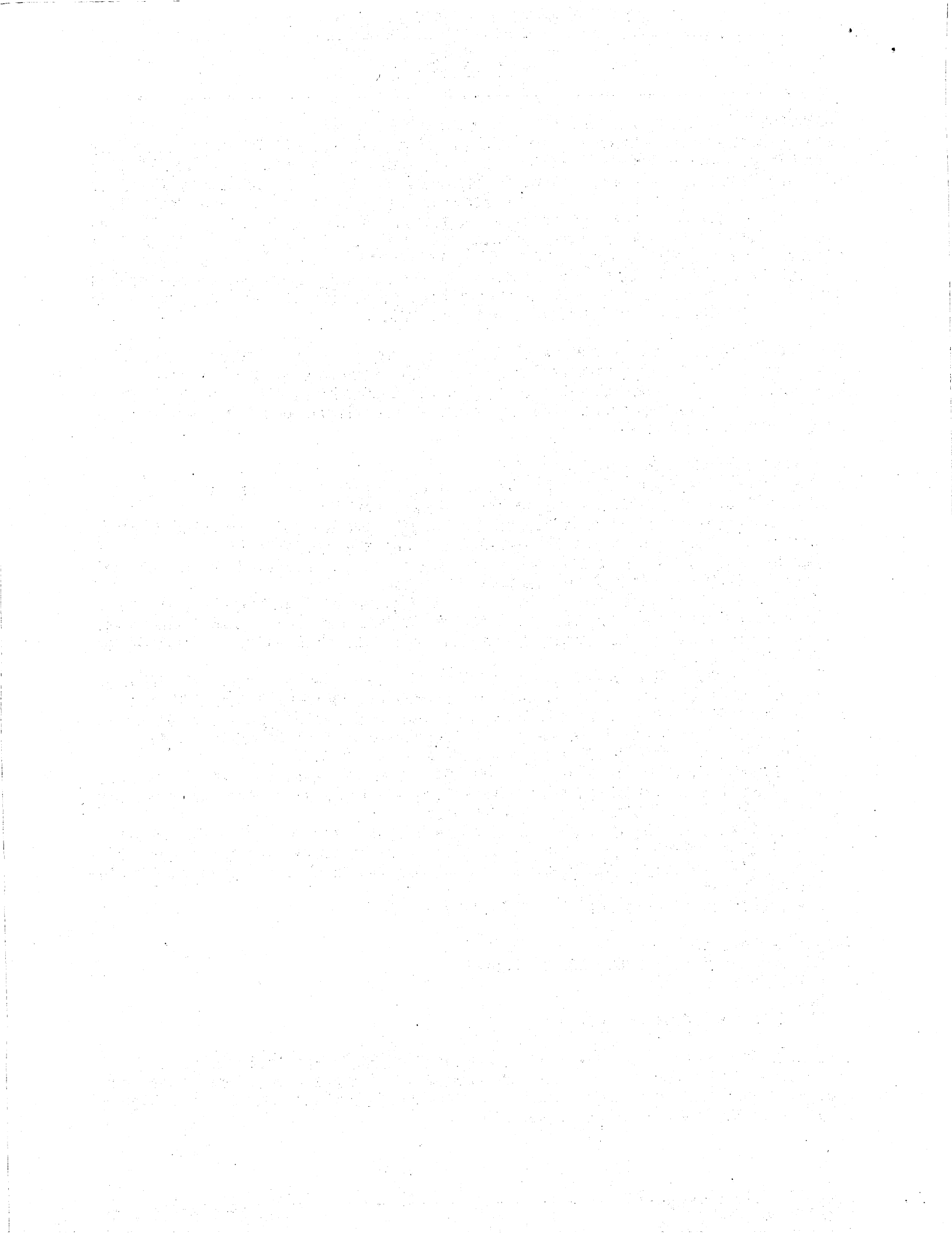
2200 VLSI Type MVP CPU Highlights

- . One printed circuit board replaces seven to nine 8" X 11" boards
- . Uses all existing 2200 option boards and peripherals
- . The announcement of Release 2.6 of the BASIC-2 Multi-user Operating System, which is required with the 2200MVP-128/512 and the MicroVP-1/2
- . Can be ordered as the 2200MVP-128/512 and/or the MicroVP-1/2 or as part of four 2200MVP-P or four 2200MicroVP-P packages
- . These new "P" packages now include a single terminal P package (2200MVP-P20 and MicroVP-P1), the 2236MXE in lieu of the MXD for two terminal packages, and two terminal 128KB packages are now available with either a 2275-10 or 2275-30 disk drive
- . The new 128KB CPUs are priced \$850 lower than the previous MVP/MVPC-32 (128KB) CPUs and \$100 lower than the previous MVP/MVPC-16 (64KB) CPUs
- . The new 512KB CPUs are priced \$3,000 lower than the previous MVPC-128 (512KB) CPU and equal in price to the previous MVP/MVPC-64 (256KB) CPUs
- . A reduction of monthly CPU maintenance prices by 59-70%
- . The 2200MVP-128/512 will use the existing 9-slot chassis. The MicroVP-1/2 will have a new 9-slot chassis, oyster white color, switching power supply and a new optional stand for the 2275 disk drive
- . The VLSI 2200MVP and MicroVP CPUs replace all previous MVP and MVPC CPUs
- . The 2200MVP-128/512 will be available for delivery in April and the MicroVP-1/2 in July. The optional stand for the 2275 will be available in the Q2 FY '86
- . The reduction in price of the 2275-30 by \$1,000

Target markets are:

- . Current and future 2200 ISOs as resellers
- . Existing 2200 users
- . New 2200 users
- . Third-Party Software Developers

2200 ISOs have depended almost entirely on the 2200 for their product in a price-sensitive market. With the new 2200 VLSI MVP CPUs and "P" packages, our 2200 ISOs can continue their successes with the latest technology and highly competitive selling and maintenance prices.



ANNOUNCING TWO
NEW 2200 CPUs,
TWO FAMILIES OF
SMALL BUSINESS
COMPUTER SYSTEMS,
AND THE 2.6
OPERATING SYSTEM
by Product
Marketing

Wang Laboratories, emphasizing our continuing commitment to the 2200 product line, to our 2200 ISOs and to our 2200 users, announces the integration of the 2200 with microchip technology with two new 2200 MVP CPUs, eight new P Packages and the 2.6 Operating System. Based on the latest technology -- the new 2200 VLSI chip -- the new VLSI type MVP CPUs will contain one printed circuit board including system memory thus replacing seven to nine (if 512KB) 8" X 11" boards.

The VLSI chip is produced by VLSI Technology, Inc. (VTI) of San Jose, California of which Wang owns 15% interest. In November 1983, Wang and VLSI announced a synergistic relationship in the development of custom-integrated circuits for use in Wang's office automation products. The announcement of the new 2200 VLSI MVP CPUs are our first products using VTI's software design technology and integrated circuit wafer processing capacity.

The new VLSI MVP CPUs are available in two styles:

- . 2200MVP -- 2200MVP-128, 2200MVP-512
- . MicroVP -- MicroVP-1, MicroVP-2

Available in two models, 128KB and 512KB of user memory plus 32KB control memory, each style has four P packages. The CPU card, using the current MVP 9-slot chassis for the 2200MVP-128/512 and a new 9-slot chassis for the MicroVP-1/2, is interfaced to the existing 2200 I/O bus. The CPUs can communicate with the existing 2200 option boards and peripherals including all communication controllers. These new 2200 CPUs support nine optional peripheral boards.

- . Pricing of the new 2200MVP-128/512 and MicroVP-1/2 CPUs and packages is highly competitive:

The new 128KB CPUs are priced \$850 (U.S. dollars) lower than the previous MVP/MVPC-32 (128KB) CPUs, \$100 lower than the previous MVP/MVPC-16 (64KB) CPUs and only \$650 more than the previous 2200MVP-8 (32KB) CPU.

The new 512KB CPUs are priced \$3,000 lower than the previous MVPC-128 (512KB) CPU, are equal in price to the previous MVP/MVPC-64 (256KB) CPUs and only \$1,500 more than the previous 2200MVP/MVPC-32 (128KB) CPUs.

Wang now offers a single terminal VLSI type 2200MVP-P package with 128KB for only \$8,000 (2200MVP-P20, MicroVP-P1).

Two terminal 128KB P packages for both the 2200 VLSI type MVP and MicroVP are now available with either a 2275-10 (2200MVP-P21, MicroVP-P2) or 2275-30 (2200MVP-P22, MicroVP-3) disk drive.

Monthly CPU maintenance prices have been reduced 59-70%.

Also, Wang has also reduced the price of the 2275-30 by \$1,000 and the 2200 Word Processing software by \$505.

RELEASE 2.6

These new 2200 VLSI type MVP CPUs are required to use Release 2.6 of the BASIC-2 Multi-user Operating System (OS) and 28KB of control memory. OS Release 2.6, which is also available for SVPs, LVPs and non-VLSI MVPs with 28KB of control memory, includes:

- . The LIST DCT which supports the use of the wildcard characters * and ? that allow the user to search a disk for specified groups of filenames
- . Enhancements to the 2236MXE terminal controller microcode
- . A new Generalized Printer Driver

The Generalized Printer Driver (GPD) is a table-driven driver that customizes print output to the attached printer. This GPD allows the 2200 system to use the Wang Professional Computer (PC) printers PC-PM010 and the PC-PM016 as either terminal or system printers.

There are three cases in which the GPD should not be used:

- . In transparent mode
- . In doing screen dumps to a terminal printer
- . In any \$GIO printer calls where data bypasses the driver and goes directly to the printer

Thus, applications that use \$GIO to print on printers will experience problems. For example, documents printed through 2200 WP on Wang Professional Computer printers will be printed without linefeeds. If an application wishes to use one of the printers supported by the GPD, all output should be done using PRINT statements and the escape sequences provided by the driver.

NEW 2200 SYSTEMS CONFIGURATIONS

2200MVP-128/512

This new VLSI type MVP CPU, which uses the existing 9-slot MVP CPU chassis, can be ordered as the 2200MVP-128 or 2200MVP-512 with all existing 2200 peripherals or as part of four new P packages. These new packages now include the 2236MXE in lieu of the MXD for two-terminal packages. These packaged configurations provide a substantial discount against the sum of the new individual peripheral prices (announced in the December 31, 1984 issue of FOCUS) and the new VLSI MVP CPU prices.

MVP-P20 (A/B) PACKAGE*

2200MVP-128 128KB Memory
22C32 Triple Controller
2275-10 5 1/4" 10MB Fixed Disk, 320KB Floppy Drive
(1) 2336DE Workstation

MVP-P21 (A/B) PACKAGE*

2200MVP-128 128KB Memory
2236MXE 4-Port Terminal Processor
22C11 Dual Controller
2275-10 5 1/4" 10MB Fixed Disk, 320KB Floppy Drive
(2) 2336DE Workstations

MVP-P22 (A/B) PACKAGE*

2200MVP-128 128KB Memory
2236MXE 4-Port Terminal Processor
22C11 Dual Controller
2275-30 5 1/4" 30MB Fixed Disk, 320KB Floppy Drive
(2) 2336DE Workstations

MVP-P23 (A/B) PACKAGE*

2200MVP-512 512KB Memory
2236MXE 4-Port Terminal Processor
22C11 Dual Controller
2275-30 5 1/4" 30MB Fixed Disk, 320KB Floppy Drive
2229 Tape Drive
(2) 2336DE Workstations

*Use 2200MVP-P20A, -P21A, -P22A, -23A for 2336DW workstations and 2200MVP-P20B, -P21B, -P22B, -P23B for 2326DW workstations.

Additional Information

. All standard volume discount policies for end-users and ISOs apply.

. These new P packages are available for purchase only.

- Previous MVP, MVPC CPUs and 2200MVP-P10, -P11 and -P12 (A/B) packages were orderable up to April 15, 1985.
- The 2200MVP-P packages have special maintenance prices.
- A 2200MVP-128 CPU can be field upgraded to a 2200MVP-512 CPU.
- Substitutions of other components are not allowed.

MicroVP-1/2

This new MicroVP CPU will have the Wang oyster white color, a new 9-slot streamline chassis and switching power supply. The MicroVP CPU can be ordered as the MicroVP-1 (128KB) or MicroVP-2 (512KB) with all existing 2200 peripherals or as part of four MicroVP-P packages, which also include the 2236MXE for two terminal packages. These packaged configurations provide a substantial discount against the sum of the new individual peripheral prices (announced in the December 31, 1984 issue of FOCUS) and the new MicroVP CPU prices.

MicroVP-P1 (A/B) PACKAGE*

2200MicroVP-1 128KB Memory
 22C32 Triple Controller
 2275-10 5 1/4" 10MB Fixed Disk, 320KB Floppy Drive
 (1) 2336DE Workstation

MicroVP-P2 (A/B) PACKAGE*

2200MicroVP-1 128KB Memory
 2236MXE 4-Port Terminal Processor
 22C11 Dual Controller
 2275-10 5 1/4" 10MB Fixed Disk, 320KB Floppy Drive
 (2) 2336DE Workstations

MicroVP-P3 (A/B) PACKAGE*

2200MicroVP-1 128KB Memory
 2236MXE 4-Port Terminal Processor
 22C11 Dual Controller
 2275-30 5 1/4" 30MB Fixed Disk, 320KB Floppy Drive
 (2) 2336DE Workstations

MicroVP-P4 (A/B) PACKAGE*

2200MicroVP-512 512KB Memory
 2236MXE 4-Port Terminal Processor
 22C11 Dual Controller
 2275-30 5 1/4" 30MB Fixed Disk, 320KB Floppy Drive
 2229 Tape Drive
 (2) 2336DE Workstations

*Use MicroVP-P1A, -P2A, -P3A, -P4A for 2336DW workstations and MicroVP-P1B, -P2B, -P3B, -P4B for 2326DW workstations.

Additional Information

- All standard volume discount policies for end users and ISOs apply.

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- . These new P packages are available for purchase only.
 - . The MicroVP-P packages have special maintenance prices.
 - . MicroVP-1 (128KB) CPUs can be field upgrade to MicroVP-2 (512KB) CPUs.
 - . Substitutions of other components are not allowed.

INTERNATIONAL CONSIDERATIONS

- . When ordering packages 2200MVP-P20, -P21, -P22 and -P23 or MicroVP-P1, -P2, -P3, and -P4 which include the 2336DE workstations, one language option per workstation should be ordered. The price of this language option is bundled into the system price. No expanded keyboards are offered for the 2336DE workstation.
- . When ordering packages 2200MVP-P20A, -P21A, -P22A and -P23A or MicroVP-P1A, -P2A, -P3A and -P4A which include the 2336DW workstation, one language option per workstation should be ordered. The price of this language option is bundled into the system price.
- . If an expanded keyboard is required, packages 2200MVP-P20B, -P21B, -P22B and -P23B or MicroVP -P1B, -P2B, -P3B and -P4B should be ordered. These include 2326DW workstations; the appropriate language option should also be ordered.
- . It should be noted that German is the standard for expanded keyboards. If no language option is specified, a German keyboard will be shipped with the system.

PRODUCT STRATEGY

The new VLSI type MVP and MicroVP CPUs and associated P packages will be the only MVP offerings. Commencing in April, the 2200MVP-128/512 was available for delivery. In July, the MicroVP-1/2 will be available for volume shipments and will phase out the 2200MVP-128/512. For immediate delivery and revenue, 2200MVP-128/512s or the associated P packages -- MVP-P20, to -P23 -- should be ordered. Orders for non-VLSI MVP CPUs and 2200MVP-P10, -P11 -P12 (A/B) packages have not been accepted since April 15, 1985. The new VLSI type MVPs and MicroVPs are the lead 2200 products. With the highly competitive VLSI pricing and state-of-the-art technology, there should be very few instances (as in the case of an existing user wanting a second identical system) where it will be necessary to propose SVPs or LVPs.

Existing and future 2200 users and ISOs want new product technology and greater reliability. Wang's integration of the 2200 with VLSI technology and the ability to use PCs as workstations brings the 2200 into the microworld. Designed specifically for the 2200 systems house marketplace, the new VLSI type MVP and MicroVP CPUs target:

. Minicomputers -- IBM Series/1 and System 36

. Micro-based Systems -- Altos, Data General Desktop Generation, Burroughs B-20 and IBM PC AT

2200 systems houses and software vendors who have depended almost entirely on the 2200 for their product in a price-sensitive market are in a favorable competitive position as a result of the December 15, 1984 pricing actions. Now, our ISOs have new 2200 MVP CPUs that incorporate VLSI technology and highly competitive selling prices. In addition, with the ability to use PCs as workstations and the ability to use low-cost PC type printers, our 2200 ISOs can further continue their successes with the latest technology.

2200 ISOs, because of the highly competitive selling and maintenance prices of the new VLSI and MicroVP MVP-P packages, and the individual CPU and peripheral prices, can close those deals where price and ownership of a micro has been the consideration. We have heard stories of how the, December 15, 1984 pricing actions have affected our ISOs business, especially when competing against the micros.

With our competitive prices so close to those of micros that are limited in expansion, in number of users and in the amount of storage, the 2200 is taking on a different perspective. Updated in technology, previous reservations should be removed.

SUPPORT POLICY

Current 2200 entitlement and support policies will apply. Refer to the Computer Systems section "Field Technical Support Policy Manual".

If you have any pre-sales questions, call SMART.

PRICING INFORMATION

Refer to the Pricing article in this issue of FOCUS for the prices of models listed below. All prices presented are U.S. prices in U.S. dollars.

<u>MODEL NUMBER</u>	<u>DESCRIPTION</u>
2200MVP-128	128KB MVP
2200MVP-512	512KB MVP
2200MVP-P20 (A/B)	128KB MVP
2200MVP-P21 (A/B)	128KB MVP
2200MVP-P22 (A/B)	128KB MVP
2200MVP-P23 (A/B)	512KB MVP
MicroVP-1	128KB MVP
MicroVP-2	512KB MVP
MicroVP-P1 (A/B)	128KB MVP
MicroVP-P2 (A/B)	128KB MVP
MicroVP-P3 (A/B)	128KB MVP
MicroVP-P4 (A/B)	512KB MVP

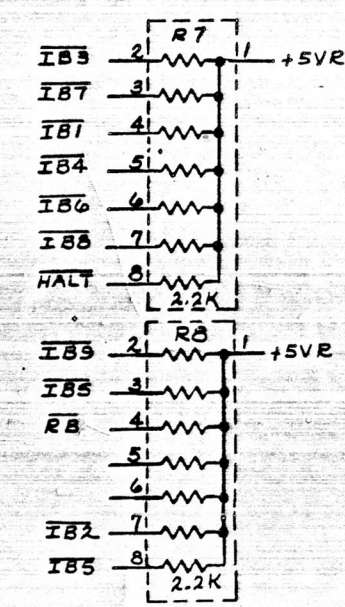
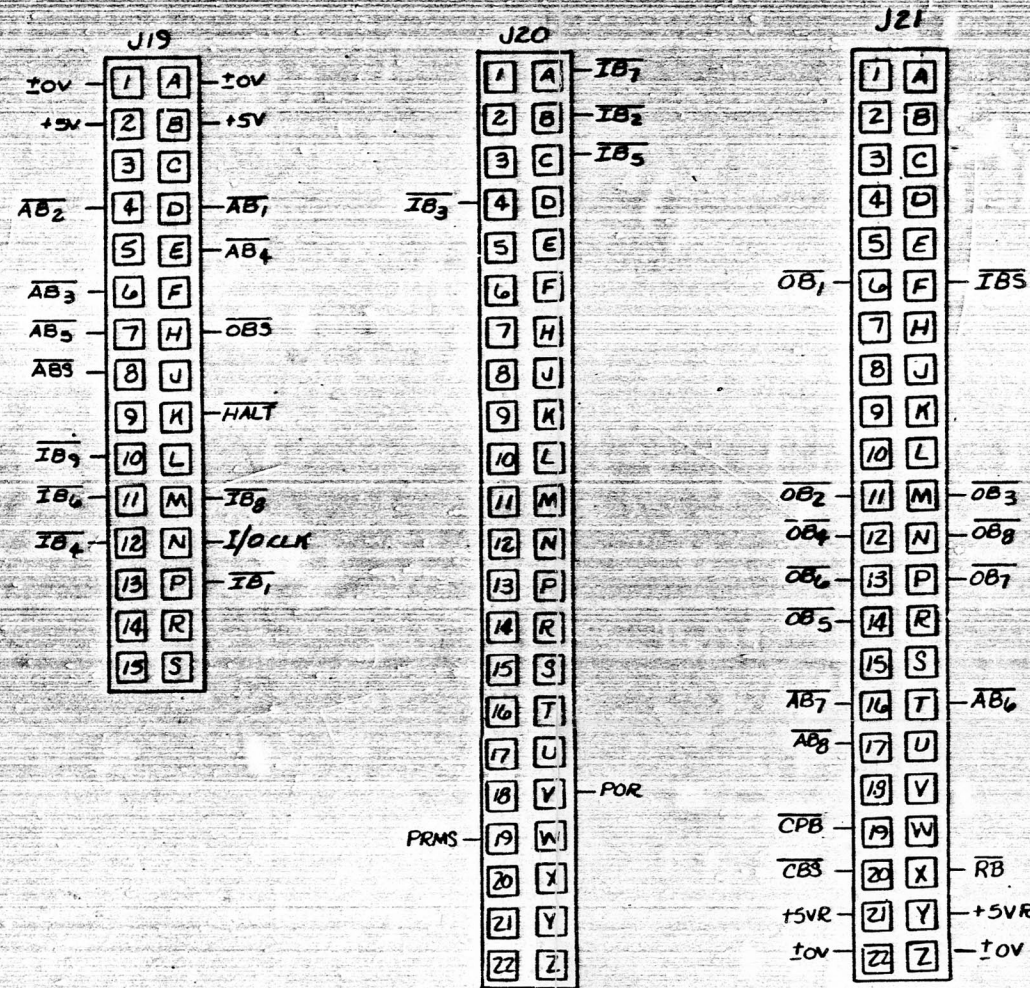
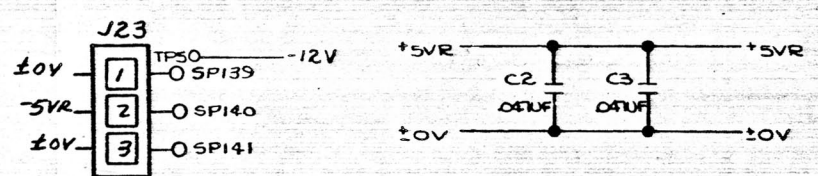
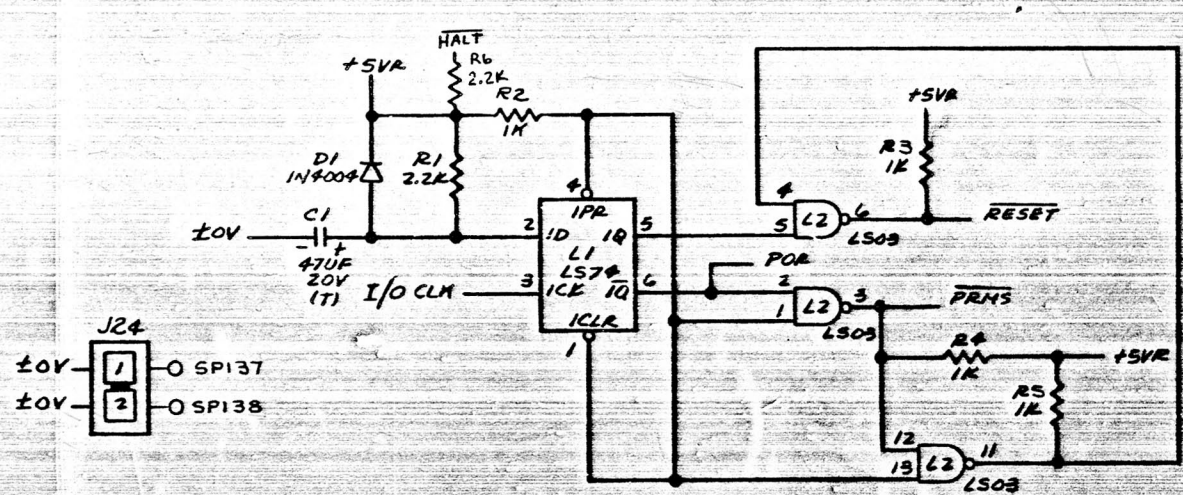
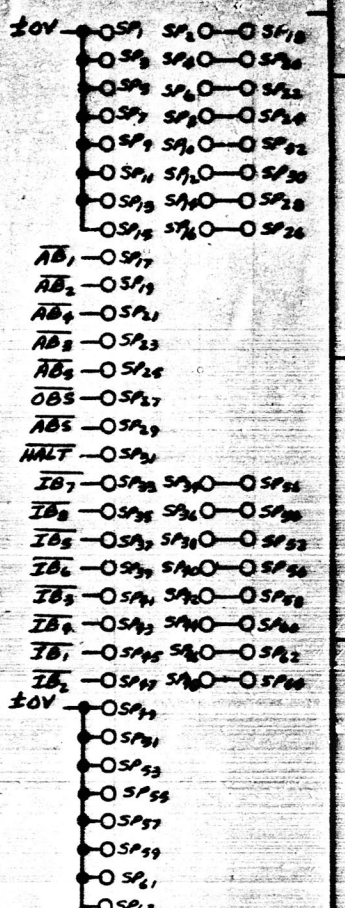
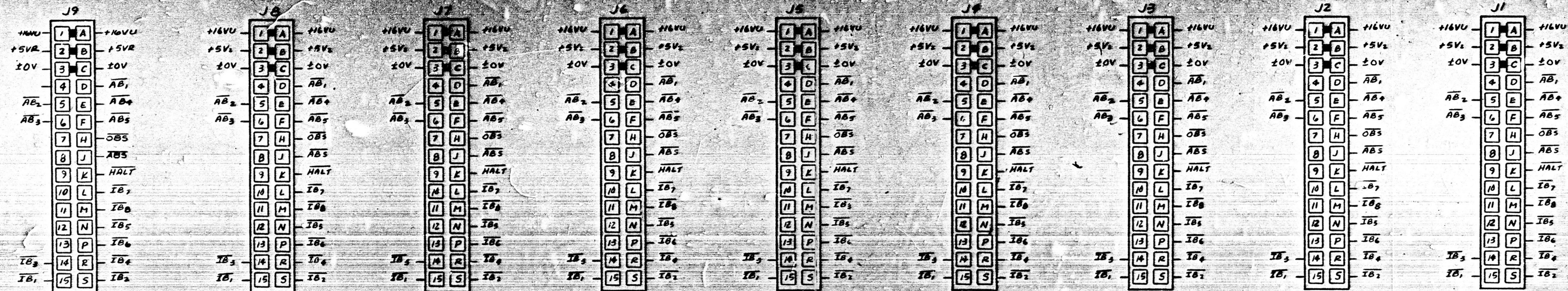
WORLDWIDE AVAILABILITY

<u>MODEL NUMBER</u>	<u>FCS</u>	<u>VOLUME SHIP</u>
2200MVP-128	Now	Now
2200MVP-512	Now	Now
2200MVP-P20 (A/B)	Now	Now
2200MVP-P21 (A/B)	Now	Now
2200MVP-P22 (A/B)	Now	Now
2200MVP-P23 (A/B)	Now	Now
MicroVP-1	7/85	7/85
MicroVP-2	7/85	7/85
MicroVP-P1 (A/B)	7/85	7/85
MicroVP-P2 (A/B)	7/85	7/85
MicroVP-P3 (A/B)	7/85	7/85
MicroVP-P4 (A/B)	7/85	7/85

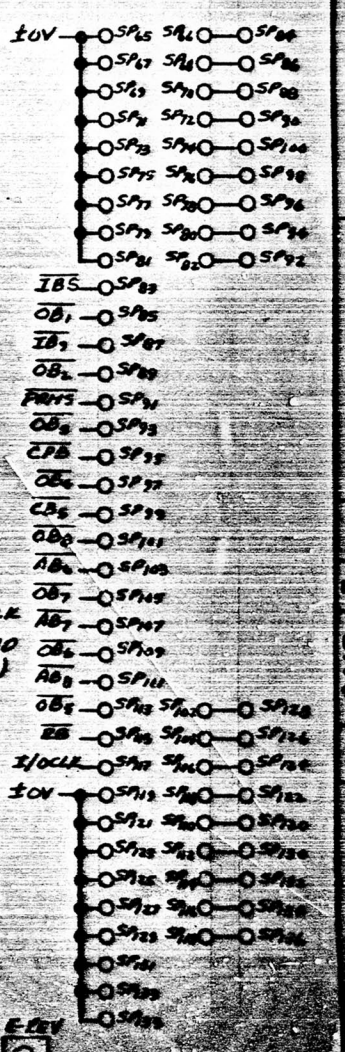
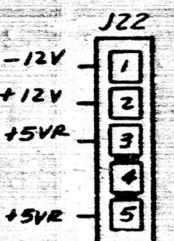
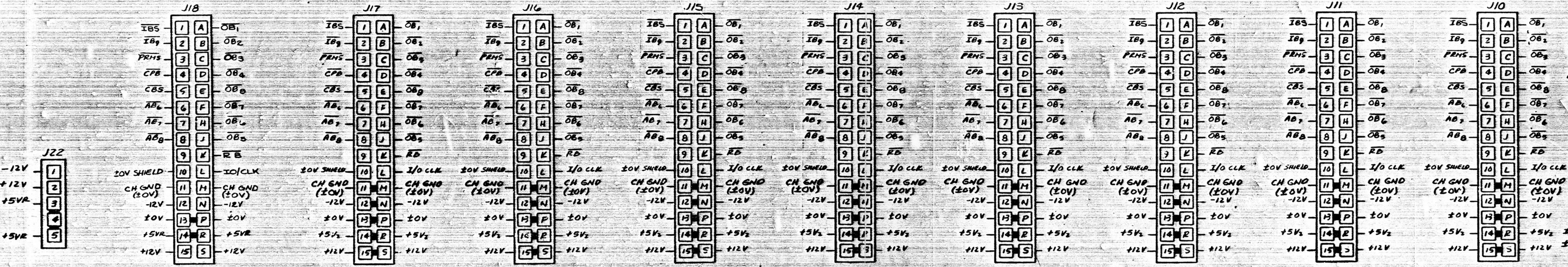
QUESTIONS AND ANSWERS

- Q1. What are the differences between the 2200MVP-128/512 CPU and the MicroVP-1/2 CPU?
- A1. The VLSI 2200MVP CPU uses the same 9-slot chassis as the current MVP. The MicroVP CPU will have a new smaller 9-slot chassis and oyster white color, a new switching power supply as used in the PC. Otherwise, functionally, the two are equal in performance.
- Q2. Will all current 2200 peripherals work with the new VLSI MVP and MicroVP CPUs?
- A2. Yes. The new VLSI MVP and MicroVP CPUs function the same as the previous MVP CPUs.
- Q3. Can existing MVP CPUs be field upgraded to either of the new 2200 CPUs?
- A3. No.
- Q4. Can Operating System (OS) 2.6 be installed on existing 2200 CPUs?
- A4. Yes, if the CPU has or is field upgraded to 28KB Control Memory.
- Q5. Is OS 2.6 the only operating system that can be used by the 2200MVP-128/512 and MicroVP-1/2?
- A5. Yes.
- Q6. Must the new VLSI type MVP configurations include a 5 1/4" or 8" diskette to load OS 2.6 even if the installation includes a 2275-20 or 2275-60 plus a 2229?
- A6. For any 2200 installation to be a sanctioned configuration, an 8" single-sided single density, 8" dual-sided double density or 5 1/4" dual-sided double density diskette must be present to provide the Customer Engineer proper access to the system for any OS.

- Q7. Using the Generalized Printer Driver (GPD) what PC type printers can be used on a 2200 under OS 2.6?
- A7. Initially, OS 2.6 will support the PC printers PC-PM010 and PC-PM016. There are three cases in which the GPD is not used: in transparent mode, in doing screen dumps to a terminal printer, and in any \$GIO printer calls where data bypasses the driver and goes directly to the printer. Thus, applications that use \$GIO to print on printers will experience problems. For example, documents printed through 2200 WP on PC printers will be printed without linefeeds. If an application wishes to use one of the printers supported by the GPD, all output should be done using PRINT statements and the escape sequences provided by the driver.
- Q8. Are the new VLSI MVP and MicroVP CPUs the replacement for the non-VLSI MVP CPUs?
- A8. Yes. As stated in this article, orders for non-VLSI MVPs have not been accepted since April 15, 1985.
- Q9. Will all SVP, LVP and MVP software run "as is" on the VLSI MVP CPUs?
- A9. Yes.
- Q10. Will the MicroVP and the MicroVP-P1 to -P4 packages replace the MVP-128/512 and MVP-P20 to P23 packages?
- A10. Yes. As soon as volume shipments commence on the MicroVP, the MVP-128/512 and associated P packages will be phased out.
- Q11. When should a 2200MVP-128/512 be proposed versus a MicroVP-1/2?
- A11. If the prospect needs immediate delivery, propose the 2200MVP-128/512.
- Q12. Will SVP/LVPs phase in the VLSI board?
- A12. No.



TP1 0 -10V
 TP2 0 -5V
 TP3 0 +5V
 TP4 0 +12V
 TP5 0 -12V



TYPE	I.C. LOC.	SPARE
RESISTOR	L3,4	

POWER (ALL RESISTORS ARE 1/4W UNLESS OTHERWISE SPECIFIED)