Prices and Specifications
August 1984

This catalogue illustrates Morrow’s comprehensive product line of business systems and peripherals. Morrow has developed this line to provide the kind of products that make the most sense to the independent person, — whether working at home or in a business.

Building high quality microcomputers at the lowest possible price is the company’s strategy for serving the business market. The price conscious customer needs basic tools — not necessarily the latest bells and whistles, just tools that will do the job at an affordable price.

Morrow offers this market a variety of desk top computer systems, either floppy or hard disk based, as well as a transportable for people who need to take their work with them.

Each of these computer systems comes with disk drives, video display, business keyboard, and a complete set of general purpose business software.

If you need computer accessories, the Morrow product line includes a choice of high quality low-cost letter quality printers, a modem to connect your computer with the phone lines, networking systems that allow you to link individual workstations, as well as a complete selection of software and hardware upgrades that let your system expand with your needs.

Morrow’s products use a straightforward component design which insures continued reliability. Should service ever be needed, Morrow gives you the option of dealer support through Authorized Service Centers, or XEROX third party service at over 80 outlets nationwide.

All this from Morrow, a company that has been providing low-cost computer solutions since the beginning of the microcomputer revolution in the mid 1970’s.

Take a look through this catalogue and see what Morrow has to offer. Then visit one of Morrow’s more than 600 nationwide Authorized Dealers. For the name of your nearest Authorized Dealer call (800) 521-3493, or (415) 430-1970 in California.
MD1-E computer, software and terminal $999

DESCRIPTION:
A full-screen desk top computer outfitted as an ultra low cost word processor. The MD1-E is ideal for someone who wants an affordable word processor, and does not need other applications programs at this time. The single floppy disk drive will allow you to store up to 100 pages of text on each system disk.

HARDWARE:
COMPUTER: One double sided double density soft sectored 5¼" floppy disk drive with a total of 384K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7" wide x 5.3" high x 11.3" deep □ Weight: 12 lbs.
TERMINAL: 12" diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad & 10 user definable function keys □ Dimensions: 13.5" high x 15.3" wide x 14.3" deep □ Weight: 30 lbs.

SUPPLIED SOFTWARE:
CP/M 2.2 operating system □ New Word word processor □ Co-Pilot front end menu system

MD3-E computer, software and terminal $1499

DESCRIPTION:
A full-screen desk top computer outfitted as a high performance, low-cost wordprocessor. The MD3-E is ideal for someone who wants an affordable wordprocessor, and does not need other applications programs at this time. The second drive provides the convenience of a larger floppy disk storage capacity.

HARDWARE:
COMPUTER: Two double sided double density soft sectored 5¼" floppy disk drives with a combined total of 768K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7" wide x 5.3" high x 11.3" deep □ Weight: 14 lbs.
TERMINAL: 12" diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad & 10 user definable function keys □ Dimensions: 13.5" high x 15.3" wide x 14.3" deep □ Weight: 30 lbs.

SUPPLIED SOFTWARE:
CP/M 2.2 operating system □ New Word word processor □ Co-Pilot front end menu system □ Correct-It spelling checker
MD2 computer with software and terminal $1699
MD2 available without terminal for $1299

DESCRIPTION:
A full screen desk top computer system at the most affordable price. It provides the essential decision making and productivity tools for the consultant or work-at-home professional.

HARDWARE:
COMPUTER: Two single sided double density soft sectored 5 1/4” floppy disk drives with a combined total of 372K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7” wide x 5.3” high x 11.3” deep □ Weight: 18 lbs.
TERMINAL: 12” diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad □ All keys are user definable when using SmartKey II □ Dimensions: 13.5” high x 15.3” high x 14.3” deep □ Weight: 30 lbs.

SUPPLIED SOFTWARE:
CP/M2.2 operating system □ New Word word processor □ Correct-It spelling checker □ SuperCalc spread sheet □ Microsoft BASIC 80 & Pilot programming languages □ Co Pilot front end menu □ SmartKey II keyboard customizer

MD3 computer with software and terminal $1999
MD3 available without terminal for $1599

DESCRIPTION:
A full-screen desk top computer system that provides the convenience of a larger floppy disk storage capacity. The MD3 adds a data base management program and the easy to use Quest Bookkeeper system* designed for the needs of the small business. The MD3 now features a Morrow Modem and communications software.

HARDWARE:
COMPUTER: Two double sided double density soft sectored 5 1/4” floppy disk drives with a combined total of 768K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7” wide x 5.3” high x 11.3” deep □ Weight: 14 lbs.
TERMINAL: 12” diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad □ All keys are user definable when using SmartKey II □ Dimensions: 13.5” high x 15.3” wide x 14.3” deep □ Weight: 30 lbs.

Modem: 300 BAUD, Bell 103 compatible □ Connects to any U.S. phone with an RJ11c connector □ Line status detection □ On line commands □ Auto dial; rotary or Touch-tone

SUPPLIED SOFTWARE:
CP/M 2.2 operating system □ New Word word processor □ Correct-It spelling checker □ SuperCalc spread sheet □ Microsoft BASIC 80 & Pilot programming languages □ Co-Pilot front end menu □ SmartKey II keyboard customizer □ Personal Pearl data base manager □ Reach Out communications software for Morrow Modem

OPTIONAL SOFTWARE:
Quest Bookkeeper System provides integrated general ledger, accounts receivable and cash disbursements for the small business (* Quest manual and software are provided free. A $37.50 licensing fee is required to unlock the software for month-end-closing).
MD3-P complete computer with software $1899

DESCRIPTION:
A complete transportable computer system for people who need to take their computers from job site to job site. The MD3-P is functionally identical to the MD3, and disk compatible with our complete line of full screen desk top computers.

HARDWARE:
COMPUTER: Two double sided double density soft sectored 5 1/4" floppy disk drives with a combined total of 768K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and one RS232C serial port □ Switching power supply
VIDEO DISPLAY: 5" x 9" screen with amber phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad □ All keys are user definable when used with SmartKey II □ Dimensions: 18.5" wide x 7.25" high x 15.3" deep □ Weight: 30 lbs. 4 oz.

SUPPLIED SOFTWARE:
CP/M2.2 operating system □ New Word word processor □ Correct-It spelling checker □ SuperCalc spread sheet □ Microsoft BASIC 80 & Pilot programming languages □ Co Pilot front end menu □ SmartKey II keyboard customizer □ Personal Pearl data base manager

OPTIONAL SOFTWARE:
Quest Bookkeeper System provides integrated general ledger, accounts receivable, and cash disbursements for the small business (Quest manual and software are provided free. A $37.50 licensing fee is required to unlock the software for month-end-closing).

MD11 computer software and terminal $2995

MD11 available without terminal for $2595

DESCRIPTION:
A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD11 offers the optional Quest Accountant that provides for all the accounting needs of the small business or the independent CPA.

HARDWARE:
COMPUTER: One 11 megabyte 5 1/4" hard disk with 10.75 megabytes formatted □ One double sided double density soft sectored 5 1/4" floppy drive with 384K bytes formatted □ Z80A CPU at 4MHz □ 128K RAM, 8K ROM □ One Centronics parallel. two RS232C serial ports, plus a third serial port with RS232C and RS422 compatibility □ Dimensions: 16.7" wide x 5.3" high x 11.3" deep □ Weight: 22 lbs. 3 oz.
TERMINAL: 12" diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad and up to 30 user definable function keys when used with a Morrow Micro Decision □ Dimensions: 13.5" wide x 15.3" wide x 14.3" deep □ Weight: 30 lbs.

SUPPLIED SOFTWARE:
CP/M PLUS operating system □ New Word word processor □ Correct-It spelling checker □ SuperCalc spread sheet □ Microsoft BASIC 80 & Pilot programming languages □ Co Pilot front end menu □ Personal Pearl data base manager

OPTIONAL SOFTWARE:
Quest Bookkeeper II System: integrated general ledger, cash disbursements accounts receivable with statements, and basic thirteen period business graphics (requires a $37.50 licensing fee for month-end-closing). Quest Accountant: four modules including: accounts receivable with billing, general ledger with budgets, accounts payable, and inventory control (Quest Accountant available for $295 each module).
MD16 computer, software and terminal  $3495
MD16 available without terminal for  $3095

DESCRIPTION:
A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD16 offers the same performance and features of the MD11, but provides 50% more hard disk storage space.

HARD DISK: One 16 megabyte 5¼" hard disk with 16.44 megabytes formatted

MD34 computer, software and terminal  $4995
MD34 available without terminal for  $4595

DESCRIPTION:
A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD34 provides the same performance and features of the MD11, but provides 215% more hard disk storage space. A Micro Decision system with that much storage space would be particularly useful as a file server on a Morrow Network.

HARD DISK:
One 34 megabyte 5¼" hard disk with 34.48 megabytes formatted
MP 100 12-14 CPS letter quality printer $550

DESCRIPTION:
A low cost letter quality daisy wheel printer with
displaciated word processing features of bi-directional printing, boldface, underscore, subscript and superscript.

SPECIFICATIONS:
Print speed of 12 characters per second at 10 pitch,
14 characters per second at 12 pitch □ Centronics
type parallel interface □ Maximum of 101 characters
per line at 10 pitch, 121 characters at 12 pitch,
and 151 characters at 15 pitch □ Front panel
controls: on line, line feed, form feed, set top of form
□ Optional tractor feed □ 65dB maximum noise
level □ Power: 110v 60Hz (90-120 VAC) 70w
maximum □ Dimensions: 17.5” wide x 5” high x
12.5” deep □ Weight: 18 lbs.

MPT 10 Tractor Feed for MP100 $125
MPT 50 Tractor Feed for MP200/300 $125

DESCRIPTION:
Mechanism for guiding continuous form paper
through a Morrow printer. Most useful when
printing high volume, close tolerance work.

SPECIFICATIONS:
Four pin engaged type tractor □ Bi-directional □
Paper empty detector □ Five phase paper tension
adjustment □ MPT 10: 8.5 inch printing width, 9.5
inch paper width □ MPT 50: 13.2 inch maximum
printing width, 15 inch maximum paper width.

MP 200/MP 300

MP 200 16-17 CPS letter quality printer $695
MP 300 27-31 CPS letter quality printer $1195

DESCRIPTION:
Full size letter quality daisy wheel printer with
sophisticated word processing features of propor-
tional spacing, bi-directional printing, bold face,
underscore, subscript and superscript.

SPECIFICATIONS:
Letter quality daisy wheel printer □ MP 200 print
speed of 16 CPS at 10 pitch, 17 CPS at 12 pitch □
MP 300 print speed of 27 CPS at 10 pitch, 31 CPS
at 12 pitch □ Centronics type parallel interface □
Maximum of 132 characters per line at 10 pitch, 158
characters at 12 pitch, and 197 characters at 15
pitch □ Front panel controls: on line, line feed,
form feed, set top of form □ Auto load single sheet
paper function □ Optional tractor feed, and sheet
feed □ 65dB maximum noise level □ Power: 110v
60Hz (90-120 VAC) 80w maximum □ Dimensions:
23” wide x 7.5” high x 14” deep □ Weight: 31 lbs.

MPSF 25 Sheet Feeder for MP 200/300 $595

DESCRIPTION:
Mechanism for guiding individual sheets of sta-
tionary through an MP200 or 300 Morrow Printer.
Most useful when printing large numbers of form
letters on non-perforated letterhead stationary.

SPECIFICATIONS:
Single bin holds up to 250 sheets of paper □ High
reliability: mechanically driven, no motors, no
electronics □ Easy installation and removal, no
mounting hardware □ Manual paper feeding slot □
Adjustable paper positioning for easy set-up and
variable paper width.

220V 50Hz Morrow Printers are not available.
## Printer Ribbons

**Ribbons for All Morrow Printers:**

<table>
<thead>
<tr>
<th>Ribbon Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 5503 Fabric</td>
<td>$7.25</td>
</tr>
<tr>
<td>MP 5504 One time film</td>
<td>$4.25</td>
</tr>
<tr>
<td>MP 5505 Multi strike film</td>
<td>$8.25</td>
</tr>
</tbody>
</table>

*(Note: dealer must order print ribbons from Morrow in box of six.)*

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## Printer Wheels

**Wheels for All Morrow Printers:**

<table>
<thead>
<tr>
<th>Wheel Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 6411 Courier 10-12 pitch</td>
<td>$17.50</td>
</tr>
<tr>
<td>MP 6412 Courier 12-12 pitch</td>
<td>$17.50</td>
</tr>
<tr>
<td>MP 6413 Gothic mini 15 pitch</td>
<td>$17.50</td>
</tr>
<tr>
<td>MP 6414 Modern proportional spacing</td>
<td>$17.50</td>
</tr>
</tbody>
</table>

*(for models MP200/300 only)*

*(Note: dealer must order print wheels from Morrow in a box of five.)*
MD1-E system ordered with MP100 (12-14 CPS) letter quality printer $1449

MD1-E system ordered with MP200 (16-17 CPS) letter quality printer $1594

MD1-E system ordered with MP300 (27-31 CPS) letter quality printer $2094

MD2 system ordered with MP100 (12-14 CPS) letter quality printer $2149

MD2 system ordered with MP200 (16-17 CPS) letter quality printer $2294

MD2 system ordered with MP300 (27-31 CPS) letter quality printer $2794

MD3-E system ordered with MP100 (12-14 CPS) letter quality printer $1949

MD3-E system ordered with MP200 (16-17 CPS) letter quality printer $2094

MD3-E system ordered with MP300 (27-31 CPS) letter quality printer $2594

MD3 system ordered with MP100 (12-14 CPS) letter quality printer $2449

MD3 system ordered with MP200 (16-17 CPS) letter quality printer $2594

MD3 system ordered with MP300 (27-31 CPS) letter quality printer $3094
MD 3-P system ordered with MP100 (12-14 CPS)  
letter quality printer  $2349

MD 3-P system ordered with MP200 (16-17 CPS)  
letter quality printer  $2494

MD 3-P system ordered with MP300 (27-31 CPS)  
letter quality printer  $2994

MD 11

MD 11 system ordered with MP 100 (12-14 CPS)  
letter quality printer  $3445

MD 11 system ordered with MP 200 (16-17 CPS)  
letter quality printer  $3590

MD 11 system ordered with MP300 (27-31 CPS)  
letter quality printer  $4090

MICRO DECISION UPGRADES & PERIPHERALS
MORROW MODEM 300

MM300 Morrow Modem and software $299
(specify desk top or portable)

DESCRIPTION:
The Morrow Modem provides the hardware and
software for using the phone lines to link a Micro
Decision to a remote computer, a commercial data
base, or a Telex system.

HARDWARE:
300 BAUD; Bell 103 compatible □ Connects to any
U.S. phone with an RJ-11c connector □ Line status
detection □ On line commands □ Auto dial; rotary
or Touch-tone
(Note: Micro Decisions with Rev. 1 boards require
a separate power supply for the modem. Order an
MM300-PS at a cost of $50.)

SOFTWARE:
Menu driven commands □ Automatic Dialing and
log-on from user directory □ Operates in batch or
interactive mode □ Displayed data can be option-
ally printed or stored on disk □ Multiple file
transfer protocols including file compression □
Includes Micro-ez-LNK for direct access to Western
Union's EasyLink.

MORROW NETWORK

MN hardware and software for network node $299

DESCRIPTION:
The Morrow Network provides all the hardware
and software needed for communication between
work stations as well as shared access to peripherals
and common data bases.

HARDWARE:
Hardware module for one work station on a
network of Morrow Computers □ Connects to
system serial port □ Network uses ordinary phone
wire (not included) □ Hardware is PC BUS
compatible

SOFTWARE:
Software library for one work station on Morrow
Network □ Software includes utilities for all from
private work stations to dedicated file servers □
Automatic and non-automatic file and record
locking □ Software is PC NOS compatible
(Note: Morrow Network available Summer 1984)

MDCP88-128 Co-processor board with 128K
RAM & software, installed by dealer $499

MDCP88-256 Co-processor board with 256K
RAM & software, installed by dealer $699

(MD#)-MDCP88 Co-processor board with 256K
RAM & software, specified with Micro Decision
when system is originally ordered from the factory
$499

(MDCP88 boards available for the MD3 or 11
second quarter 84)

DESCRIPTION:
Expansion board that allows the Micro Decision to
run 16 bit software. The board includes an 8088
microprocessor, additional RAM capacity, and
makes the Micro Decision operating system com-
patible with the IBM PC.

HARDWARE:
Plugs into Z80A on the Micro Decision board □
Comes with 128K or 256K RAM □ Additional
memory serves as a RAM disk when running under
CP/M80 □ Can be bought from the factory with
board installed, or can be installed by authorized
service technician.

SOFTWARE:
MS-DOS operating system □ SuperCalc 2 for
MS-DOS
MD1-E — MD3-E Upgrades MD1-E from one double sided drive to two double sided drives □ Includes one drive and the Correct-It spelling checker $499

MD3-E — MD3 Upgrades MD3-E into microcomputer complete with bundled software □ Includes SuperCalc electronic spreadsheet □ Personal PEARL data base manager □ Quest Bookkeeping system (Quest requires a $37.50 licensing fee) □ Microsoft BASIC 80 & Morrow Pilot programming languages $799

MD1-MD2 Upgrades MD 1 from one single sided drive to two single sided drives $299

MD2-MD3 Upgrades MD 2 from two single sided drives to two double sided drives □ Includes Quest Bookkeeping System □ and Personal PEARL data base manager $649

MDR1-MDR2 Upgrades Micro Decision from Revision 1 board to Revision 2 board, adds a Centronics parallel port $450

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MICRO DECISION OPTIONAL SOFTWARE

Optional software available in Micro Decision format for Micro Decision owners.

- New Word word processor $249
- Novice New Word $50
- WordStar $495
- SuperCalc $195
- SuperCalc II $295
- Smart Checkbook $149
- Personal Pearl for MD2 $295
- Word Index II $195
- Quest Bookkeeper II: for MD3 licensed to run Quest Bookkeeper $50
- Quest Accountant for MD11:
  - Accounts Receivable with billing $295
  - General Ledger with budgets $295
  - Accounts Payable $295
  - Inventory Control $295

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TRICEP MULTI-USER UNIX SYSTEMS

MORROW
T210 Four user UNIX supermicro $8495

DESCRIPTION:
A supermicro optimized for four users running UNIX System V on the 16/32-bit MC68000. This is a flexible system that can support more memory, more users, and provides the option of slave processors that access other operating systems such as MS-DOS.

HARDWARE:
MC68000 CPU at 8 MHz with MC68451 Memory Management Unit □ 16 Megabyte 5 1/5" hard disk drive (85 msec average access) with HDC/DMA controller □ Double sided/double density 5¼" (400K bytes) floppy disk drive with DJ/DMA controller □ Four RS232C serial ports on S104/DMA controller □ 512K RAM with 150 nsec 64K DRAM's □ 14 slot IEEE 696/S-100 motherboard with programmable interrupt controller, realtime CMOS clock/calendar & Centronics parallel port □ Dimensions: 19" wide x 20.5" deep x 7.5" high □ Weight: 40 lbs.

SOFTWARE:
UNIX System V derived (with UniSoft enhancements) □ Optimizing C compiler

T210-4 T210 system ordered with four MT70 terminals $10495

T230 High-speed four user UNIX supermicro $10495

DESCRIPTION:
A high-speed supermicro optimized for four users running UNIX System V on the 16/32-bit MC68000. This model provides the same specifications as the T210 but has been enhanced by a faster 32 Megabyte hard disk, a 10 MHz CPU and 120 nsec DRAMs to provide accelerated performance.

HARDWARE:
MC68000 CPU at 10 MHz with MC68451 Memory Management Unit □ 32 Megabyte 5 1/5" hard disk drive (45 msec average access) with HDC/DMA controller □ Double sided/double density 5¼" (400K bytes) floppy disk drive with DJ/DMA controller □ Four RS232C serial ports on S104/DMA controller □ 512K RAM with 120 nsec 64K DRAM's □ 14 slot IEEE 696/S-100 motherboard with programmable interrupt controller, realtime CMOS clock/calendar & Centronics parallel port □ Dimensions: 19" wide x 20.5" deep x 7.5" high □ Weight: 40 lbs.

SOFTWARE:
UNIX System V derived (with UniSoft enhancements) □ Optimizing C compiler

T230-4 T210 system ordered with four MT70 terminals $12495
MM256KD Additional 256K RAM board for 8 MHz TRICEP T210 systems □ Provides 64K Dynamic RAM chips with a 150 nsec access time $995

MM256KDH Additional 256K RAM board for 10 MHz TRICEP T230 systems □ Provides high speed 64K Dynamic RAM chips with a 120 nsec access time $1295

A5-M5R 5 Megabyte removable hard disk system for back up on TRICEP system □ Takes approximately eight minutes for each five megabytes of back up □ Comes complete with cabinet, fan, power supply and cable $1995

SIO4/DMA Second DMA Serial Input/Output board for TRICEP system □ Provides an additional four serial RS232C ports $795

SP188 Slave Processor board with an 80188 microprocessor at 8 MHz □ Provides MS-DOS compatibility □ Comes with 128K of dual port RAM (expandable to 512K) $TBA

T510 Factory installed upgrade for Decision 1 models D210 & D220 upgrading to a TRICEP model T210 □ Upgrade includes: MC68000 CPU board, SIO4/DMA board, 256KD RAM board and UNIX System V derived (with UniSoft enhancements) $TBA

(Note: A complete line of compatible add drive systems are listed at the end of the catalogue under DRIVES FOR S-100 SYSTEMS.)
D120 Single user S-100 computer $4995

DESCRIPTION:
Sophisticated single user system for someone who needs the performance and flexibility of an S-100 bus computer. The system offers the possibility of expanding memory or upgrading to a multi-user system at a later date.

HARDWARE:
*One 5 1/4" double sided double density (400K bytes)* floppy disk drive and DJ/DMA controller  
*One 10 Megabyte 5 1/4" hard disk with HDC/DMA controller*  
*Z80A CPU at 4 MHz*  
*64K bytes of Static RAM*  
*S-100 (IEEE 696) 14 slot motherboard*  
*Realtime CMOS clock/calendar and programmable interrupt controller*  
*One parallel Diablo Hytype printer port (Centronics interface available as added option) and three RS232C serial ports*  
*Dimensions: 19" wide x 20.5" deep x 7.5" high*  
*Weight: 40 lbs.*

SOFTWARE:
*CP/M2.2 operating system*  
*New Word word processing*  
*Correct-It spelling checker*  
*SuperCalc spread sheet*  
*Personal PEARL data base manager*  
*Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages*

D200 Level I multi-user S-100 computer $5695

DESCRIPTION:
A low cost multi-user system for up to *three* users. The system provides the performance and flexibility of an S-100 bus computer and offers the possibility of expanding memory or upgrading to a six-user system at a later date.

HARDWARE:
*One double sided double density 5 1/4" (400K bytes)* floppy disk drive and DJ/DMA controller  
*One 10 Megabyte 5 1/4" hard disk with HDC/DMA controller*  
*Z80A CPU at 4 MHz*  
*256K bytes of RAM*  
*S-100 (IEEE 696) 14 slot motherboard*  
*Hardware memory management*  
*Realtime CMOS clock/calendar and programmable interrupt controller*  
*One parallel Diablo Hytype printer port (Centronics interface available as added option) and three RS232C serial ports*  
*Dimensions: 19" wide x 20.5" deep x 7.5" high*  
*Weight: 40 lbs.*

SOFTWARE:
*Micronix operating system,* Morrow's proprietary 8 bit implementation of the UNIX operating system with a CP/M 80 emulator  
*New Word word processing*  
*Correct-It spelling checker*  
*SuperCalc spread sheet*  
*Personal PEARL data base manager*  
*Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages*
D210 Level II multi-user S-100 computer $5995

DESCRIPTION:
A low cost multi-user system for up to three users. The system offers the same performance and specifications as the D200 but provides 50% more hard disk storage space.

HARDWARE:
One double sided double density 5¼" (400K bytes) floppy disk drive and DJ/DMA controller □ One 16 Megabyte 5¼" hard disk with HDC/DMA controller □ Z80A CPU at 4 MHz □ 256K bytes of RAM □ S-100 (IEEE 696) 14 slot motherboard □ Hardware memory management □ Realtime CMOS clock/calendar and programmable interrupt controller □ One parallel Diablo Hytype printer port (Centronics interface available as added option) and three RS232C serial ports □ Dimensions: 19" wide x 20.5" deep x 7.5" high □ Weight: 40 lbs.

SOFTWARE:
Micronix operating system, Morrow’s proprietary 8 bit implementation of the UNIX® operating system with a CP/M 80 emulator □ CP/M 2.2 operating system □ NewWord word processing □ Correct-It spelling checker □ SuperCalc spread sheet □ Personal PEARL data base manager □ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages

D220 Level III multi-user S-100 computer $8495

DESCRIPTION:
A low cost multi-user system for up to six users. The system provides the same performance and specifications at the D210 but provides additional RAM and I/O ports for three more users.

HARDWARE:
One double sided double density 5¼" (400K bytes) floppy disk drive and DJ/DMA controller □ One 16 Megabyte 5¼" hard disk with HDC/DMA controller □ Z80A CPU at 4 MHz □ 512K bytes of RAM □ S-100 (IEEE 696) 14 slot motherboard □ Hardware memory management □ Realtime CMOS clock/calendar and programmable interrupt controller □ Two parallel Diablo Hytype printer ports (Centronics interface available as added option) and six RS232C serial ports □ Dimensions: 19" wide x 20.5" deep x 7.5" high □ Weight: 40 lbs.

SOFTWARE:
Micronix operating system, Morrow’s proprietary 8 bit implementation of the UNIX® operating system with a CP/M 80 emulator □ CP/M 2.2 operating system □ NewWord word processing □ Correct-It spelling checker □ SuperCalc spread sheet □ Personal PEARL data base manager □ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages □ Plus White-smith’s C & Pascal programming languages.
D505  Whitesmith's C & Pascal (specify 5¼" or 8" media, CP/M or Micronix as the host operating system.) $700

D520  Centronics parallel printer interface kit for adapting Diablo Hytype parallel port to Centronics parallel. $125

D510  Multi-user upgrade kit for single user Decision 1 systems upgrading to three users (must have Morrow’s hard disk and 400KB floppy drive.). Kit includes: 256K bytes of dynamic RAM □ Micronix operating system $1295

D530  Additional multi-user up grade kit for three user Decision 1 upgrading to six users. Kit includes: additional 256K RAM board □ M1/O-S slave board with an additional three serial ports and one Diablo Hytype parallel port (support cables included) □ Whitesmith’s C & Pascal. $2500

D####R  Rackmount option (add letter R to the end of model #). Includes: slides, dust cover and mounting hardware to convert desktop model into standard 19" rackmount unit. $295

MM65KS  High speed, low power 64K static RAM board with: 2K x 8 NMOS RAM chips (6116) □ Operating speeds up to 6MHz □ Extended addressing or bank select $645

MM256KD  High speed, low power 256K dynamic RAM board with: 4164 type 150NS RAM chips □ Operating speeds up to 6MHz □ Extended addressing □ Supports both 8 & 16 bit access as specified by S-100 bus standards □ 150NS typical access time, 350 NS minimum cycle time (as measured from pSTVAL) $995

DJ2/B  Memory mapped floppy disk controller □ Runs single or double density soft sectored 8" IBM Standard 3740 format □ Can control up to four 8" soft sectored drives □ 1K RAM & 1K ROM □ Hardware UART □ Switch programmable baud rate generator for I/O interfacing $595

DJ/DMA  Direct Memory Access floppy disk controller including: DMA bus arbitration logic □ IEEE standard 24-bit memory addressing □ Resident disk driver routines □ Supports up to four 8" drives, and up to four 5¼" drives □ Onboard firmware supports soft sectored IBM compatible 8" and Micro Decision format 5 ¼" diskettes, as well as hard sectored NorthStar CP/M compatible 5 ¼" diskettes □ Automatically determines whether media is single or double density and calculates number of sectors per track $695

HDC/DMA  Direct Memory Access hard disk controller including: DMA bus arbitration as outlined by the IEEE 696 standards □ Controls 1 to 4 soft sectored Winchester 5 ¼" hard disk drives (ST506 compatible) □ Variable format (128, 256, 512, 1024 or 2048 byte sector lengths) under onboard software control □ Automatic error checking □ Addresses 1 to 8 heads per drive □ 24-bit address burst DMA transfers □ Maximum transfer rate of 625K BPS. $695
HDCA-4  I/O mapped controller for 8” or 14” hard disks with an SA4008 interface □ Controls up to four drives □ Onboard 512 byte sector buffer □ Incorporates intelligence to supervise all data transfers, communicating with the CPU via four I/O ports (command, two status, and data) □ Can generate an interrupt at the completion of each command. $795

MI/O-M Master Input/Output controller □ Includes: 1 Diablo Hytype parallel port and three RS232C serial ports (8250 programmable) □ Realtime CMOS clock with programmable interrupt controller □ Includes support cables $595

MI/O-S Slave Input/Output controller for additional three users □ Includes: 1 Diablo Hytype parallel printer port and three RS232C serial ports (8250 programmable) □ Realtime CMOS clock with programmable interrupt controller □ Includes support cables $695

WB-8  Eight slot S-100 bus board $165

WB-12  Twelve slot S-100 bus board $225

WBI/O-14 Fourteen slot S-100 bus board with input/output utilities □ Includes: Programmable interrupt controller (8259) □ Realtime clock (NEC 1990) □ Diablo Hytype parallel port □ Three RS232C (8250) serial ports. $595

WB-20 Twenty slot S-100 bus board $295

MPZ-80 S-100 central processing unit board □ Including: Z80A CPU at 4MHz □ 24 bit extended addressing □ Sophisticated trapping mechanisms and memory management □ Memory protection hardware □ 2K bootstrap PROM/monitor, and 1K RAM. $695

DESCRIPTION:
The following floppy and hard disk systems are provided as additional drive options for S-100 systems. They can be acquired as a complete system that includes an S-100 controller, or as an add drive intended to be added to a system that already has an S-100 controller.

HARD DISKS: COMPLETE SYSTEMS
Including: drive □ S-100 controller □ Power supply □ Cabinet □ Fan □ Cables □ Install.com & sample I/O BIOS

DMA-M10 5¼” 10 Megabyte hard disk (formatted) with HDC/DMA controller $2295

DMA-M16 5¼” 16 Megabyte hard disk (formatted) with HDC/DMA controller $2595

HDC-M10 8” 10 Megabyte hard disk (formatted) with HDCA-4 controller $3995

HDC-M20 8” 20 Megabyte hard disk (formatted) with HDCA-4 controller $4995

HARD DISKS: ADD DRIVES
Including: drive □ Power supply □ Cabinet □ Fan □ Cables

A5-M10 5 ¼” 10 Megabyte hard disk $1795

A5-M16 5 ¼” 16 Megabyte hard disk $2095

A8-M10 8” 10 Megabyte hard disk $3495

A8-M20 8” 20 Megabyte hard disk $4495

220V 50Hz hard disk systems cost an additional $50 per drive flat rate (Add letter “E” to part number, e.g. DMA-M10E)

Boards listed on this price sheet will work in any standard IEEE 696 S-100 system with a minimum bus clock of 2.5 MHz. Please note that not all S-100 systems manufacturers adhere to the IEEE 696 standard throughout their product line. Therefore, MORROW does not guarantee the stated performance of these products in systems other than MORROW'S.
FLOPPY DISKS: COMPLETE SYSTEMS
Including: Drive □ S-100 controller □ Power supply □ Cabinet □ Cables □ CP/M2.2 & Microsoft BASIC 80

DF5124 5¼” double sided double density floppy drive (400K bytes) with DJ/DMA controller $1095

DF811 8” single sided double density floppy drive (500K bytes) with DJ/DMA controller $1395

DF812 8” double sided double density floppy drive (1 Megabyte) with DJ/DMA controller $1695

DF821 Two 8” single sided double density floppy drives (1 Megabyte) with DJ/DMA controller $2195

DF822 Two 8” double sided double density floppy drives (2 Megabytes) with DJ/DMA controller $2795

FLOPPY DISKS: ADD DRIVES
Including: Drive □ Power supply □ Cabinet □ Cables

A5124 5¼” double sided double density floppy drive (400K bytes) $595

A811 8” single sided double density floppy drive (500K bytes) $895

A812 8” double sided double density floppy drive (1 Megabyte) $1195

A821 Two 8” single sided double density floppy drives (1 Megabyte) $1595

A822 Two 8” double sided double density floppy drives (2 Megabytes) $2195

220V 50Hz floppy disk systems cost an additional $50 per drive flat rate (Add letter “E” to part number, e.g. DF822E).