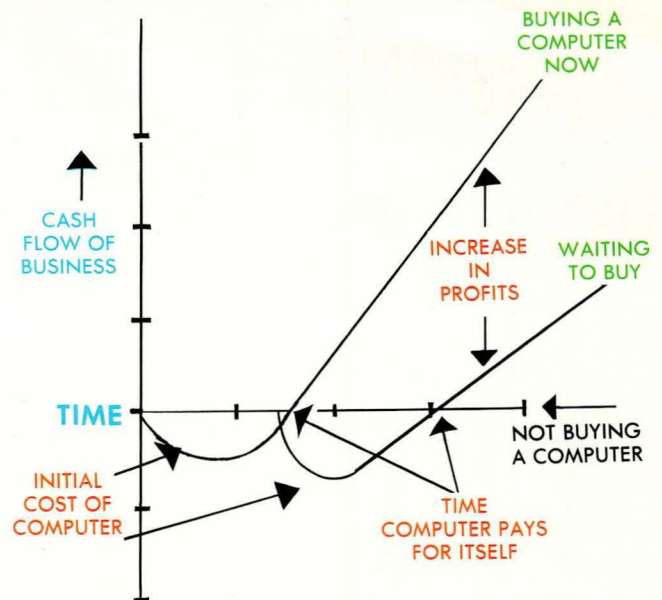## THIS COMPUTER AGE

There are still those who are not certain that computers could be practical for their business needs. Such doubters usually change their minds after a Micro Mike's demonstration. They see the amazing dollars-and-cents advantages. Employers, as well as employees, are realizing that a vast array of work, including repetitive, time-consuming tasks, can be performed by the computer.

By accomplishing routine tasks, the computer allows people to concentrate on creative matters. More time becomes available for building personal relations with clients, expansion of the business, family life, leisure pursuits, etc. In an age when time seems so scarce for the overworked person in business, the computer's value becomes increasingly apparent.

With speedy efficiency, the North Star Computer Business System supplies organized information at the touch of a few keys. The business's entire financial situation is available in minutes. More accurate management decisions result.

In the hands of competent personnel, the computer is the most valuable asset a business can possess. It has proven itself a cost-cutter in sales, repetitive labor, inventory, bookkeeping and overall management efficiency. **In the very near future, the computer will spell the difference between economic survival and failure in these competitive and changing times.**

This simple graph illustrates the benefits of investing in a Micro Mike's business computer system.

Micro-Mike's will be happy to run a complete cost-free analysis of your firm's data processing requirements. Please contact Micro Mike's for consultation with courteous representatives.

Time Sharing —multiple terminals on one computer.

MAJOR BUSINESS AND INDUSTRIAL APPLICATION

Stand Alone Processing. In many cases a separate microcomputer is needed to supplement an existing system. Often a corporation experiences a one to two-year delay in an attempt to tie in a separate department with its major computer system. Such time-lag can be eliminated by installing a microcomputer system in the user's office. Furthermore, in case of a breakdown in the major computer system, this microcomputer will remain functional.

Distributive Processing. If necessary, Micro Mike's **Stand Alone Microcomputer** can be interfaced with the "in-house" system. Multiple capabilities are added to existing hardware by cables, modem, or if time allows, mail, with an 8" disk to an interface on the in-house computer. Such an interface will allow information processed by the **Stand Alone Microcomputer** to be incorporated into the main computer.

TIME SHARING

Time sharing on the North Star Horizon, developed at Micro Mike's, allows as many as seven terminals to run on the same computer. These CRTs can simultaneously perform totally unrelated tasks in different high-level languages, if desired. The terminals can be distributed in different parts of a building (via cable) or in different locations on Earth (via modem and telephone line).

Micro Mike's will be glad to custom-tailor a time sharing system to fit your needs.

EDUCATIONAL APPLICATION

■ In institutions of learning, microcomputers can perform invaluable functions to expedite learning:

(1) teaching various subjects through computer-aided instructions

(2) teaching computer science classes the inner workings of computers (through the use of CSUB, 8080 Simulator, basics of machine language, etc.)

(3) serving as a valuable research tool for sciences, mathematics and the humanities

(4) other functions, limited only to the range of human imagination.

With the development of Time Sharing, Micro Mike's has made possible perhaps the most inexpensive and versatile educational computer system ever.

As many as seven terminals can be tied into one microcomputer, each terminal serving a different purpose, all seven running simultaneously at high speed. These clusters of seven terminals and one computer can be linked to other such clusters for a truly large, powerful system.

PROGRAM INTERCHANGE

It is Micro Mike's intention to promote an interchange of programs and ideas among institutions of learning. A special branch of the PROGRAM LIBRARY has been reserved for such a purpose. Institutions ranging from kindergarten to graduate school are encouraged to participate. The advantages of such a library are many and varied.

SOFTWARE (Programs)

The North Star Horizon can RUN more existing software than any other microcomputer. This capability is due to a simple fact: **North Star DOS** (Disk Operating System) and **Digital Research's CP/M** (Control Processor/Microprocessor), the two most widely used microcomputer operating systems, will both RUN on the Horizon. Combine this capability with the 8" disk interface feature only Micro Mike's can presently offer, and you have a microcomputer without equal in program selectability.

Micro Mike's maintains a **Program Library** that allows members access to any of the topnotch software in the library for the price of a disk or the cost of a long-distance call (via modem). A **one-time fee** buys for the purchaser continuous, unlimited access to the programs in the library.

Program Library membership is not confined to purchasers of Micro Mike's hardware.

A business computer without programs is about as useless as a phonograph without records. Micro Mike's offers **Program Library** membership to beat the high cost of software. The more programs a business has to RUN on its computer, the more that computer is worth to the business.

Programs are available in quantity. Write for information concerning dealer discounts.

BUSINESS PROGRAMS OFFERED:

All these programs are *turnkey* (automatic) for ease of operation and will be offered in Spanish and other languages.

The following programs are protected by copyrights, and all rights are reserved by Micro Mike's, Inc.

★ Word Processing *	★ Oil & Gas Program
★ General Ledger	★ Feedlot
★ Accounts Receivable	★ Commodities
★ Accounts Payable	★ Building Contractor
★ Payroll	★ Pharmacy
★ Checkbook	★ Land Subdivision
★ Calendar Appointments	★ Agriculture Control
★ Mailing List	★ Ranching
★ Work Order	★ Doctor/patient Ledger
★ Inventory Control	★ Metric Conversion
★ Forms Processing	★ Custom Programs

★ International Currency Conversion

* Word Processing: This program allows the user to compose and edit documents, forms, etc., on the screen. Paragraphs, words, lines, sentences can be added or deleted until the document is exactly as desired.

Many other functions are included to make the task of composition simple. For instance, margins automatically line up at the press of a control function key. Omitted letters, words or sections can be inserted. A *search function* finds a desired change automatically, makes correction, and justifies type.

The finished copy is then *stored on disk*. Merely press the print key and the printer quickly produces a copy on paper. Data on the disk is saved for future use.

The programming team at Micro Mike's continually produces the best, most innovative, practical-for-business **software** available anywhere. They will be happy to *custom-write* a program for you, or to alter an existing program to suit your needs.

WORD PROCESSING SYSTEM I:

This system is essentially the same as **Micro Business System I**, the difference being substitution of **NEC Spinwriter** for the **IP-125**. The **NEC Spinwriter** features document-quality type, with high speed, bi-directional printer capability. Twenty different type styles are available.

WORD PROCESSING SYSTEM II:

This system includes both printers (**IP-125** and **NEC Spinwriter**). For economical hard-copy in eight different print sizes, there is the workhorse **IP-125**; for document quality type, there is the **NEC Spinwriter**.
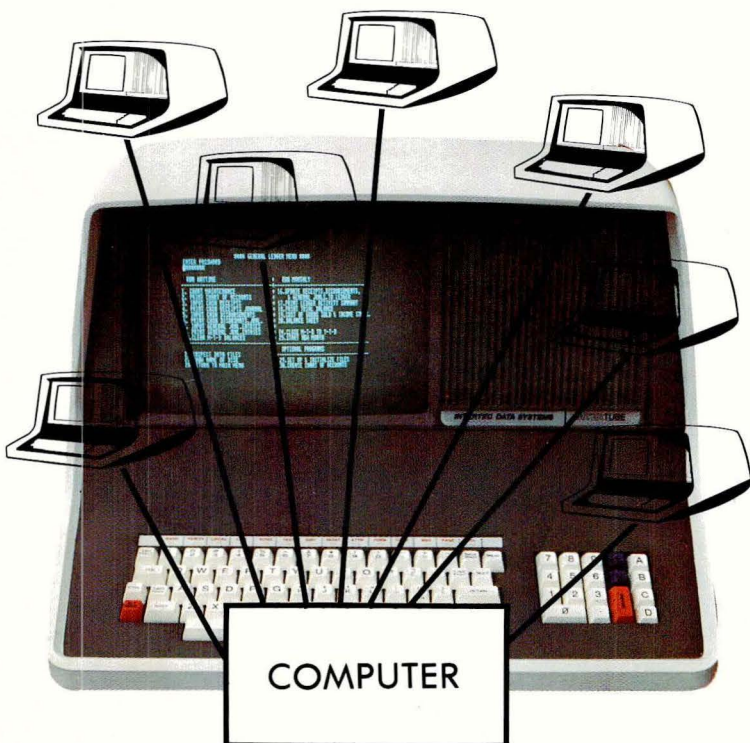
WITH ONLY MINIMAL TRAINING

Micro Mike's business computer systems are uncomplicated. The terminal (CRT) has a keyboard essentially like that of a typewriter. A competent clerk can learn to use this system with a minimum of training. All communication between operator and computer is in simple English (Spanish and other languages to be introduced in the future).

A typical **turnkey** business program is RUN like this: Insert the appropriate program disk in Drive #I, the appropriate data disk in #2. Turn on the computer. Type in the password (individualized to protect your records from unauthorized viewing). The machine RUNs through the program at your own pace, stopping to ask you for selection of options as needed. After the machine automatically positions the cursor, you type in the appropriate data (names, numbers, etc.)

One needn't know a thing about programming to operate this system with a turnkey program. It is that simple. All data entered is stored on disk. If hard copy (paper) is desired, simply press the print key.

The introduction of a Micro Mike's business computer system quickly leads to dramatic increases in speed and efficiency of office work.

Every key on the keyboard of terminal (CRT) is programmable for user-defined function.
As many as seven terminals can be used on same computer.

COMPUTER

Micro Mike's
had good reasons for choosing
North Star Horizon computer
over all the other microcomputers
in the world.

HARDWARE (The machinery itself)

North Star manufactures all their own circuit boards to insure their systems' being highest quality and completely compatible with the entire computer. The latest advances in electronic technology are thoroughly tested, and if proven worthy, adapted to the North Star product. North Star primarily uses integrated circuits from Texas Instruments, the industry leader in this field.

Engineers at North Star had the foresight to design the Horizon for easy future expandability, making it possible for their computer system to grow with your business. Among expandable features are:

Most **S-100 Bus** circuit boards are compatible with the Horizon. The Horizon conforms to standards set by leaders in the microcomputer industry. S-100 Bus circuit boards plug into the backplane, or "motherboard," with 100 connector pins. Many different S-100 Bus circuit boards and products are compatible with the Horizon.

Internal memory can presently be expanded from 16K to 448K by addition of memory boards.

Additional **bulk memory** (disk drives) can be added to the system. Larger 8" drives can now be used on the system with North Star DOS and BASIC.

Micro Mike's produced the software to make possible the addition of 8" drives. Presently Micro Mike's can add one or two megabyte PerSci dual 8" disk drives, 8" Thinker Toys disk drives, and in the future, as available, 14.5 and 29 Megabyte hard disk units from Schugart Associates.

As many as seven terminals can now be used on the same computer. In the near future, with continuing research developments at Micro Mike's, these clusters of 7 can be tied to other clusters for truly large-scale Time Sharing.

These multiple terminals (CRTs) can be used on the same computer simultaneously, doing totally unrelated tasks, in different high level languages, if desired. The different terminals can be placed in separate parts of a building (via cable), or in different locations anywhere on Earth (via modem board and telephone line).

Telephone line transmission further expands the uses of Micro Mike's computer system. The addition to the computer of a modem board allows transmission of programs, data, etc., over telephone lines, making possible such applications as time-sharing and remote trouble diagnosis.

CPU

Type: Zilog Z80A - 4 MHz

INTERNAL MEMORY

Standard: 32 K Bytes
Maximum: 448+ K Bytes

DISK MEMORY

Media: Minifloppies 5¼ in.^{2} (13.3 cm^2), 8 in^2
   (20.3 cm^2) optional
Capacity: 5¼ in.^{2} - 180K ea.
     8in.^{2}- 250K to 1 Megabyte ea.
Number of Drives: 2 - 5¼ in.^{2} standard, as many
  as 4, optional. As many as eight 8 in.^{2}, optional.

FILE MANAGEMENT SYSTEM

File Type: Direct
File Names: Alphanumeric
  8 characters maximum
Record Size: Variable by file
Records Per File: 65K, maximum
Files Per Disk: 128, maximum
Access: sequential, random, keyed access,
  linked list

CRT—Intertec Data Systems Intertube

Size: 12 inches (30.8 cm)
Rows: 25
Characters per row: 80
Character set: ASCII, 96 characters, 8x8 dot
  matrix
Cursor: Addressable

KEYBOARD

Alpha Section: Standard typewriter keyboard
  with cursor control
Numeric Section: 10 key pad with decimal point,
  negative and arithmetic keys.
Function Section: All keys are programmable for
  user-defined functions.

PRINTERS

INTEGRAL DATA SYSTEMS
IP-125 (friction roller)
IP-225 (tractor feed)
7 x 7 dot matrix
Print speed: 50—165 characters per second
Microprocessor controller
Interfaces: Serial RS-232C, Parallel TTL
Ribbon: nylon, auto-reinking; expected life,
    10 million characters
Options include:
  2K buffer, graphics plotting
  8 different print sizes switch and computer
   selectable
Print size: Fat, skinny, tall or small

TEXAS INSTRUMENTS
TI 810 (tractor feed)
9 x 7 dot matrix character font
150 characters per second
132 character positions per line
Bi-directional
Lines per minute: 440
Interface: RS-232-C
Baud rate: 110 to 9600 switchable
Forms printing: I original, 5 clear copies
Self-test capabilities

PRINTERS, cont'd.

NEC SPINWRITER
5500 (roller or tractor feed)
5510 (roller or tractor feed)
5520 (keyboard, roller or tractor feed)

Print element: Thimble
Type styles available: 20
Document quality type, camera-ready
  quality with film ribbon
Characters per second: 55
Bi-directional printing
Keyboard: Full ASCII set
Numeric pad: Standard
Proportional character spacing
Type Fonts: Multiple language
    multiple type faces
Interfaces:
  RS-232-C serial
  8080 input bus line
  Current loop
  Custom interfaces
Forms printing: 1 original, 5 clear copies

ENVIRONMENT

Operating: 10°C to 40°C (50° F to 104° F)
Non-operating: -40°C to 65°C (-40°F to 149°F)

POWER REQUIREMENTS

I20 volts (±10%) 60 Hz, grounded.

SERVICE AFTER PURCHASE:

Dealing intimately with the North Star Horizon Computer, the technicians at Micro Mike's are completely familiar with all aspects of it. All computers, including circuit boards, are completely assembled and thoroughly tested at Micro Mike's.

Because of the small number of moving parts in advanced microcomputer design, the need for service is rare. Should the system require servicing, however, Micro Mike's competent staff will have it back to work for you in short order.

Many components within the computer system have an expected life of more than 500 years. Truly, microcomputers are among the most reliable inventions in history.

Diagnosis of malfunctions can, in many cases, be made over telephone line. (*Telephone diagnosis* requires modem board in the computer). Micro Mike's service computer calls your computer, asks it what the problem is, and reports to the technicians at Micro Mike's.

WARRANTY:

The computer is warranted for one year from date of purchase. This warranty is limited to defects in materials or workmanship incurred under normal use.

SERVICE CONTRACT:

A service contract, for a minimal monthly fee, can be purchased after the system warranty expires.

In the very near future
the computer can spell the difference
between economic survival and failure
in these competitive and changing times.

MMike's

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