

CANADIAN

September 1981

DATA SYSTEMS



**COMPUTERS
IN RETAILING**
**Technology
expands users'
options at
point-of-sale**

- **COMPUTER VISION**
Making strides towards
better processing of images
- **SPECIAL SURVEY**
Specs of new word/text processors
- **Disaster Recovery — Part II**
Implementing recovery procedures
- **Adding mobility to computer communications**

"We have used ten XT 100 Terminals, and we are recommending them to all our existing and future Word 11 clients."

Mr. Ron Dutton
General Manager,
North West Computer Services

"We are pleased with the XT 100 Terminals, as they are fully compatible with RSTS on our 11/70."

Mr. Logan Ragan
Manager, Computer Services
Bridge Brand Food Services Ltd.

"We have been extremely happy with the performance of our sixteen XT 100 Terminals. They are fully compatible with RSX 11M and IAS, on our PDP 11/34-40 and PDP 11/70."

Mr. Lorne Sunley
Operations Manager,
Yamaha Canada Music Ltd.

"The XT 100 Terminal is 100% compatible with our Dec systems, and it allows IST to have better client pricing in new offerings."

Mr. Gerard Briere
Director of Marketing,
IST

AND THAT'S JUST THE BEGINNING!

By using Lanpar's financial power, we leave you free to use your capital in other areas. Lanpar can custom-tailor short term rental and lease-purchase plans to suit your needs. With low, long term rates, and one day cancellations, Lanpar makes it easy.

Once you have put your Lanpar XT 100 Terminal into production, we'll make sure it stays in production. Only Lanpar has Service Power®. Service Power® offers you 14 service centres located all across Canada, and

field engineers who will be on site within 2 to 4 hours, on average, should your terminal need servicing.



AT LANPAR, TERMINALS ARE JUST THE BEGINNING.

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Toronto East (416) 495-9661 Toronto West
& Mississauga (416) 494-8031,
Burlington (416) 681-2442, Winnipeg
(204) 632-4349, Edmonton (403)
453-5946, Calgary (403)
253-8866, Vancouver (604) 689-1516.
Service available from Service Centres
located in 14 major cities across Canada.

Lanpar has the technological expertise to customize any of its terminals. Our R & D Team has an impressive record of successful adaptations: Over 1000 custom terminals last year alone.

With Lanpar's financial power, lease-purchase plans, Service Power® and technological expertise, it's easy to see why at Lanpar, terminals are just the beginning!

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AT LANPAR, RENTALS ARE JUST THE BEGINNING.



At Lanpar we custom-tailor short term rental and lease-purchase plans to suit your needs. Our "No Stranglehold Lease" offers you low, long term rates, yet with one day cancellations. Most plans offer you generous credits towards purchase. Our lease rates can be adapted to include service, installation and delivery. And that's just the beginning!

Once you have put your Lanpar terminal into production, we'll make sure it stays in production. Only Lanpar offers Service Power. With service centres located nation-wide, we can have an experienced field engineer

on site in an average of 2 to 4 hours. Our meantime to repair (MTTR) averages ½ hour. So you can feel at ease even when setting up your own coast-to-coast terminal network.

Lanpar has established an Application Group to help you interface your terminal with different systems. Our R & D

team has an impressive record of successful customizations: Over 1,000 custom terminals last year alone.

You can also look to Lanpar for custom-made equipment, options, cables, modems and switches to help you increase the productivity of your particular unit.

And, by using Lanpar's financial power, we leave you free to use your capital in other areas.

So, by having one company offer you flexibility, service expertise, R & D, Application Support and financial strength, it's easy to see why at Lanpar, rentals are just the beginning!

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CANADIAN DATASYSTEMS

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This utility firm is improving data-entry productivity through OCR

COVER:

Computerization at the local supermarket is just one facet of the growing world of point-of-sale systems. Photo courtesy of NCR Canada.

NEXT MONTH:

An in-depth preview of the products and services to be displayed at this year's Canadian Computer Show and Conference (Nov. 16-19, in Toronto) will be presented, along with full conference details.

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TALK IS CHEAP.

Especially here.



If you need port contention, port selection or have more terminals than ports, you probably need an intelligent data switching system. We'd like to make a simple point: lots of people will dazzle you with super advantages, gee whiz features and out of this world performance claims. But when it comes time to deliver, and your job is on the line, promises won't help. At Develcon, we've taken a different approach. And it has proved quite successful for us and, more important, our customers.

Above all, Develcon is an *engineering* organization. Our data communications engineers are just that. Without impressive sounding titles. We'd rather they impress you with their knowledge. Their job is to *listen* to you. To learn about your data communications system problems, and then recommend solutions.

Of course, we hope their recommendations include our DATASWITCH intelligent switching system. But if they don't, you'll get straightforward answers. We'll be around for a long time. And if we can be honest with you from the beginning, we'll both be better off in the end. All it takes is a little talk – and we're ready to listen. Let us hear from you today.



Only Develcon Intelligent DATASWITCH Systems offer these advantages:

- Lower costs • Easy expansion
- Increased up time • Management control
- Security • Maximum system utilization and flexibility
- Multiple user priority levels
- English language commands
- High speed capability



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Saskatoon, Saskatchewan
Phone: (306) 374-2202

*Develcon has authorized representatives in most metropolitan areas.
Call us for the name and number of the nearest one.*

Reader Service Card Number 120

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A Maclean Hunter
Publication



*which praise, castigate,
comment and inquire*

A 'put down'?

I have been annoyed by articles in various trade magazines which contrast yesterday's computer against the modern computer-on-a-chip. These "Isn't it incredible!" stories invariably tend to put down the old computers, while greatly overstating the capabilities of a piece of silicon.

An example of this appears in your June 1981 issue, p. 102, showing a PDP-1 installation with a girl holding up an integrated circuit. The caption reads in part: "Small chip in inset is capable of performing most of the tasks accomplished by the vintage mini." What utter nonsense.

It's time someone stood up in defence of these 'vintage' machines and set the record straight. You not only ridicule the PDP-1, but also insult the people who originally designed and built the machine. When it comes down to raw computing power, even though it may be 20 years old, the PDP-1, with its 18-bit word length and fast instruction set can run rings around any of the 'one-chip' computers available today. Close examination of the IC the girl is holding reveals it to be an ordinary 16-pin DIP! Such a package might contain a few logic gates or a little memory, but not any microcomputer that I'm aware of.

*Bill de Carle
Elrac Computing Ltd.
Toronto*

Editor's Note: Digital Equipment Canada Ltd., which supplied the photo of the PDP-1 which went to the National Museum of Science and Technology, acknowledges that the chip in the inset is indeed a 16-PIN chip, and as you point

out, does not contain a microprocessor.

"We used the chip simply to illustrate the great changes in technology since the early days of the PDP-1," notes DEC. "A slightly larger chip than the one pictured would have done many of the functions of the PDP-1. You are absolutely right in your comments as well, and the creators of the machine have every right to be proud of it and we agree that every credit is due to them."

No put-down intended!

Micro power

Thank you for a well written article ('How to protect micro power,' June 1981). It addresses an important point to which micro and large-system users pay little attention.

As possible solutions to powerline disturbances, the usual separate powerline, isolation- and regulating-transformers are listed only.

We would like to bring to your attention the ROS powerline filter, a new product developed and manufactured in Canada. It is designed specifically to eliminate high and low-voltage transients, noise bursts, radio frequency interference and line oscillations; problems which account for over 90 per cent of powerline disturbances.

As this filter does not utilize a transformer, it does not generate heat or acoustical noise and is immune to self-oscillations; difficulties which are generally associated with line transformers.

*Rolf O. Stiefel
Manager, Marketing
Power Control Inc.
Mississauga, Ont.*

Reaching our readers, mail strike or not...

As with many other businesses, this magazine relies on the postal service to deliver its message to readers, customers etc. When it became apparent that there wouldn't be a quick resolution of the strike, this magazine, and its sister publications within Maclean Hunter Business Publishing Co., resorted to an 'alternate delivery plan', that had been developed since the last postal service disruption.

To reach our readers across the country, our alternate distribution called for the services of private carriers to supply our magazines to major

centres, where other private distribution services went into action delivering magazines to offices, plants and businesses.

Editors, publishers, advertising reps, and other staffers, all pitched in, working in our printing plant, sorting magazines by destinations, and packaging publications for distribution. The objective was to reach our readers, to deliver the communications message a magazine contains. It wasn't a perfect system, but turned out to be a surprisingly efficient means of reaching most of our readers.

Not
knowing
what tomorrow
will bring,
makes the choice
easier today:

CENTRONICS[®] PRINTERS

Centronics Model 6080 and Model 6081 Band printers are outstanding examples of Centronics engineering. Both models feature high throughput, greater efficiency and the superior print quality of fully formed characters, along with the reliability and dependability of Centronics—long a leader in printer technology and printer service.

Model 6080 incorporates the highest levels of band printer technology and for the first time allows a 750 lpm printer to operate at lower noise levels than the average office typewriter.

The 6080 delivers throughput at speeds of up to 750 lpm, making it ideal for distributed processing applications and use in word processing. It also offers a wide selection of character bands and sizes. (48, 64, 96 or 128).

No matter what system you are presently using; IBM, DEC, Burroughs, Univac, Honeywell, NCR, etc. the Centronics 6080 or 6081 will complement them all. For rent, lease or outright purchase - contact CES Ltd. It's an easy choice to make.

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Model 6080 featured above,
Model 6081 to the right.



Reader Service Card Number 109

WHAT'S NEW

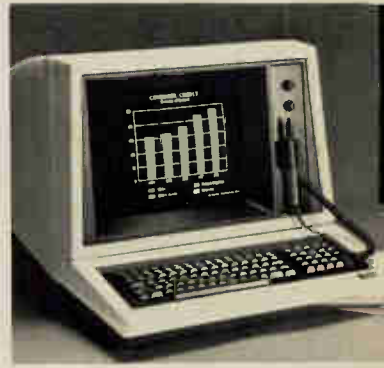


NEC PC-8000



Prime 850

Ramtek RM-6211



COMPUTERS

Z-80 compatibility

The Product: desk-top computer

Supplier: NEC Information Systems Inc.

Features: The PC-8000 personal computer is designed for the small business and professional market as well as for remote applications in large corporations.

A basic system consists of a Z-80 type processor with 32K RAM and 32K ROM, serial interface, ASCII keyboard with numeric pad and five function keys, an 80x25 CRT, cassette interface, parallel I/O bus extension, and a parallel printer adapter.

On-line data are stored on a mini-floppy diskette drive with a 320K byte capacity. A dual unit can be added. Also optional is an eight-color CRT.

Most application programs developed for Z-80 computers, including those running under CP/M, will execute on the PC-8000.

Reader Service Card Number 1

Increases throughput

The Product: minicomputer

Supplier: Prime Computer of Canada Ltd.

Features: The Prime 850 is a high-end minicomputer which

can process two instruction streams simultaneously using a single operating system and sharing the same main memory. This capability is said to enable the system to handle 50 per cent more throughput in a given time than comparable superminis, as well as to operate more efficiently than a two-processor network since the shared programs and software require fewer disc-to-memory transfers.

The 850 uses one-mega-byte memory boards with 64K byte MOS RAM chips, and main memory can be expanded from two to eight megabytes. The system supports 128 terminals.

Other features include: burst-mode I/O which increases system speed; and hardware support for floating point arithmetic, decimal arithmetic, and character string operations.

Reader Service Card Number 2

Off-loads host

The Product: batch processors

Supplier: Four-Phase Systems Inc.

Features: The System 311 and 312 batch processors are compatible with the instruction set and I/O channel interface of the IBM 370, and enable Four-Phase front-end

system users to off-load their IBM mainframes by transferring batch applications to remote sites.

The 311 is comparable in power to the IBM 3441 Group 1, while the 312, with twice the performance, is comparable to the IBM 4331 Group 2. Disc capacities range from 100M bytes to 1,600M bytes.

These models may be coupled "tightly" or "loosely" with Four-Phase systems by either a high-speed bidirectional channel or a low-speed connection.

Reader Service Card Number 3

TERMINALS

Choose 16 colors

The Product: color graphics terminal

Supplier: Ramtek Corp.

Features: The RM-6211 Colorgraphics terminal offers resolution of 640 x 480 pixels, operating at 30 Hz (interlace), with an option for 640 x 512 pixels operating at 60 Hz (repeat field). Sixteen colors, selected from 64, can be displayed simultaneously, or eight colors plus an alphanumeric overlay or a blink function can be used.

The terminal uses the company's Colorgraphic

Programming Language, and is compatible with the Tektronix Plot 10 graphics software as well as several other packages.

Reader Service Card Number 4

PRINTERS/PLOTTERS

Low-end printers

The Product: printers

Supplier: Hewlett-Packard (Canada) Ltd.

Features: The company has entered the low-cost printer market with three thermal printers and one dot-matrix printer.

The 2671A thermal printer offers the 128-character ASCII set plus a line-drawing character set for creating forms and a Roman Extension set. It prints 80 columns per eight-inch line or 132 columns. The 2671G offers the same as well as high-resolution raster graphics, while the 2673A features more enhancements, such as auto-centring, windowing and offsets.

The thermal models print 120 cps, use fan-fold paper, and have been designed to sit on top of the HP 9826 computer system.

Reader Service Card Number 5

WHAT'S NEW



ISI 387



Micronic 200



Chatsworth OMR 500



CC-80 processor

Options offered

The Product: printer
Supplier: Interface Systems Inc.

Features: The ISI 387 printer is a plug-compatible replacement for the IBM 3287 printer. It offers 180-cps print speed, bold face expanded character printing, SNA-SDLC compatibility and full SCS support. All the options of the 3287 are offered on the 387.

Reader Service Card Number 6

DATA ENTRY

Several scan options

The Product: portable computer

Supplier: Admiral Data Systems

Features: The Micronic 200 portable computer is designed for the retail and wholesale order entry market. It weighs less than half a pound and communicates with the host computer via a 1,200 baud acoustic coupler.

Its features are: LCD display, UPC wand scanning, EAN scanning, modified Plessey scanning, two of five scanning, Code-a-bar scanning, and 8K CMOS memory.

Reader Service Card Number 7

Collects remote data

The Product: data coupler
Supplier: Hewlett-Packard (Canada) Ltd.

Features: The HP 3078A

data coupler collects direct electrical data from manufacturing equipment at distances of up to four kilometers from the controlling computer. It can also be used to interface custom-built I/O modules to HP 1000 real-time computer systems.

The 3078A comes as a wall or desk unit. Five electrical interface modules are available for this unit, any three of which can be attached to the data coupler.

Reader Service Card Number 8

Reads holes or marks

The Product: optical card reader

Supplier: Chatsworth Data Corp.

Features: The OMR 500 optical card reader reads punched holes, preprinted data or pencil marks on standard OMR cards, using fibre optics technology. Processing speed is less than one-half second for hand-fed cards.

The unit comes with intelligent interfaces for Apple, TRS-80, PRT, and Atari computers, and RS-232 and S100 interfaces are also available.

Reader Service Card Number 9

DATA COMM

Tracks calls

The Product: telephone call recorder

Supplier: ESE Ltd.

Features: The Station Message Detail Recorder (SMDR) is a telephone network management device designed for use with electronic PABXs. It records and stores call records on an IBM-compatible magnetic tape which will easily hold data from a typical 500 to 1000-line system on a weekly basis. The unit can be polled over the direct dial network, and is compatible with the ASCII output from several switches.

The SMDR is compatible with ESE's Telaccount software package, and data may be processed by this accounting system or by the user's software.

Reader Service Card Number 10

Quality maintained

The Product: voice digitizer

Supplier: Centrigram Corp.

Features: The VOPAC voice digitizer converts an analog voice input in real time, full duplex, into a 4800 bps bit-stream for transmission over a network. The received voice is as clear as the average telephone conversation, thanks to a technology called parametric waveform coding (PWC).

Since a conditioned leased line can carry 9600 bps, two voice digitizers can carry voice conversations simultaneously, or the channel can be shared between voice and other types of transmission.

Reader Service Card Number 11

Handles 1,232 lines

The Product: communications processor

Supplier: Computer Communications Inc.

Features: The CC-80 enhanced communications processor functions several ways. It can be used as a replacement for IBM 270X/370X controllers, and as such handles 240-1,232 lines in a mixture of speeds and protocols while supporting seven host computers.

It can also function as an independent front end processor or can be incorporated at various points within a network system using CCI's Intercomputer Communications Protocol.

Reader Service Card Number 12

COMPONENTS

Uses less power

The Product: random access memory

Supplier: Integrated Device Technology

Features: The IDT 6116 is a 16K high-speed, low-power CMOS static RAM. Its access times of 70, 90, and 120 ns. are as fast or faster than comparable NMOS memories, while its power consumption is said to be about one-third the operational consumption and one-hundredth the standby consumption of NMOS memories.

Reader Service Card Number 13

Introducing a purchase management system that gives you four-way match, total information and a head start on the evening train.

If you're a purchasing manager, you know the frustration of not having the control you want over every P.O., receipt, invoice and inspection document floating around the company.

If you're an accountant for that same company, you're just as frustrated as the purchasing manager. And if you happen to be neither the accountant nor the purchasing manager – but the data processing manager – you're probably even more frustrated than your two colleagues. Because here you are with your heavy-horsepower IBM 360 or 370 or 303X or 4300. You're staying late at the office. You're hiring good programmers. But the purchasing manager and the accountant still aren't getting the level of control all three of you know ought to exist.

McCormack & Dodge would like to shorten your respective work days. With P/O Plus, a purchase management software package that gives you everything you need in one system. You get four-way matching of order, receipt, invoice and inspection documents. You prevent duplicate payment, you stop accepting goods not ordered, or paying for goods not inspected. You quickly generate reports on receipt status, overdue orders, requisitions, cash commitments, and virtually anything else you need. You easily do in-depth vendor quality analyses.

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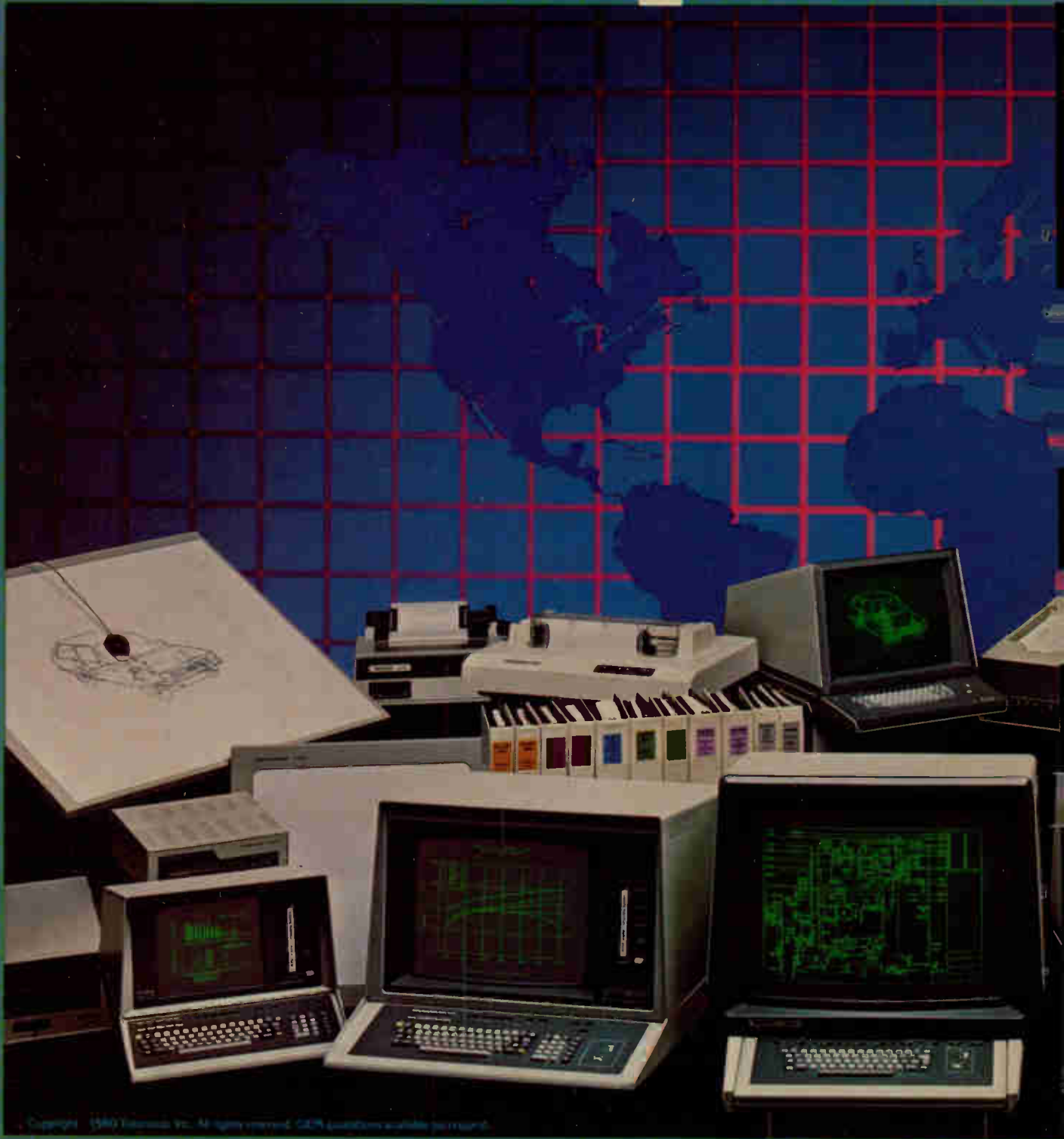
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CDS9A

Reader Service Card Number 141

The Graphics



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Imagine, a VA3400, a 212A, and a 103 in a low profile cabinet designed for remote terminal users.

Racal-Vadic has closed the loop with a direct-connect, originate/answer TRIPLE MODEM for remote terminal users.

It combines a 1200 bps full duplex VA3400, a 1200 bps full duplex Bell type 212A, and a 300 bps full duplex Bell type 103 in a compact low profile cabinet. Including the VA3400 at NO EXTRA COST is very important. After all, Racal-Vadic invented the 1200 bps full duplex modem. There are over 150,000 in operation. Also, the VA3400 can be acoustically coupled while the Bell 212A

can't. It has many technical advantages too, which is why major terminal manufacturers are incorporating VA3400 modems into their new equipment.

With TRIPLE MODEMS available for the central computer site, and remote ends of the network, users can lease or buy from Canadian General Electric and satisfy every full duplex switched network requirement from 0 to 1200 bps.

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VA3450 Triple Modem



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**Canadian
General Electric**

Data Communications
Products



AD636 converter

Draws low power

The Product: converter
Supplier: Analog Devices
Features: The AD636 monolithic rms-to-dc converter is said to be ideal for hand-held multimeter applications. It provides a full scale input of 200mVrms and draws 800 μ A from a single +5V to +24V or dual $\pm 2.5V$ to $\pm 12V$ power supplies.

The converter features 1MHz bandwidth and laser trimmed initial accuracy of $\pm 0.2mV \pm 0.5$ per cent of reading for dc or 1kHz sine wave input. External trimming improves accuracy to a level comparable with hybrid or modular devices.

Two versions are available: the K model meets the maximum specifications and the less expensive J model slightly less.

Reader Service Card Number 14

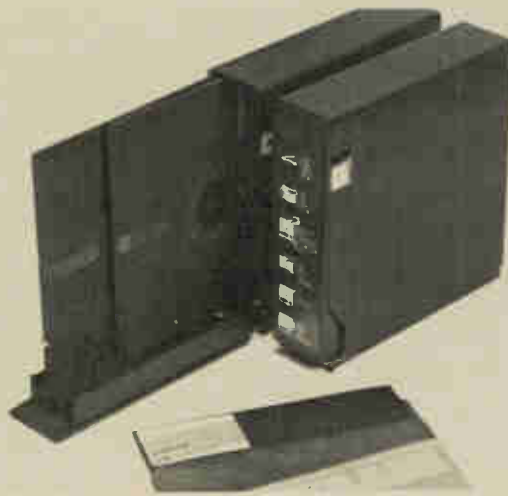
STORAGE

Size saves space

The Product: flexible disc drive

Supplier: Remex Div., Ex-Cell-O Corp.

Features: The RFD960 5 $\frac{1}{4}$ in. flexible disc drive combines 96 tpi data storage with low-profile design. It is 2 $\frac{1}{4}$ in. high at the bezel (standard 3.4 in. height is available also) and has a capacity of one megabyte of unformatted data.



Dennison Kybe magazine

Other features are: a direct drive brushless motor which is rated at 30,000 hours; no head solenoid to eliminate recurrent "tap-tap" problems; and an electronic damping of the stepper for excellent positioning. The drive is ANSI-compatible.

Reader Service Card Number 15

Loads automatically

The Product: diskette magazine

Supplier: Dennison KYBE Corp.

Features: The company is offering an automatic-loading diskette magazine for IBM Series 1 System/34 and System/38 computers equipped with auto-load drives. The magazine holds 10 eight-inch flexible discs, so that each magazine can store more than 10M bytes of formatted data. When not in use, the magazine acts as a protective covering for the diskettes.

Reader Service Card Number 16

Controller cuts costs

The Product: disc controller
Supplier: International Memories Inc.

Features: The Model 5000 disc controller is designed for IMI's 5000 5 $\frac{1}{4}$ -in. Winchester disc drives, and is said to be less expensive than competitors' controllers, making the total cost of a disc system less than previously available ones.

Features of the 5000 system are: self-test and CRC

capabilities to map media defects automatically; serial/deserialization; automatic error retry; three logical sectors; a 512-byte buffer; logical or physical sector addressing; implied seek and sector interlacing; overlapped commands; and automatic head and cylinder switching.

Reader Service Card Number 17

ACCESSORIES

Takes crumpled paper

The Product: shredder

Supplier: Datatech

Features: The Intimus 444 shredder will shred crumpled paper so that the contents of wastebaskets as well as computer printouts can be discarded. The feed funnel will take one wastepaper basket or 60 printouts at a time, and measures 20 in. x 14 in.

This model combines shredding with baling and is available with an optional hopper. It stands 27 in. wide, 19 in. deep, and 46 in. high.

Reader Service Card Number 18

Multiple voltages

The Product: voltage suppressor

Supplier: General Semiconductor Industries Inc.

Features: The DQA/DQB 16-pin dual-in-line transient voltage suppressor series gives the user a single protector for multiple power input applications.

Intimus 444

Each device offers four TransZorb arrays which permit the user to select either single or multiple voltages from 5 to 50V.

The devices have a response time of less than 1×10^{-12} seconds with protection levels from the most sensitive MOS memories and microprocessors, the company says.

Reader Service Card Number 19

Protects equipment

The Product: transformer

Supplier: Dresser Controlled Power Ltd.

Features: The Series 600 Super-Isolation Transformer protects computers and other data processing and electronic equipment from malfunctioning by attenuating common mode and transverse mode noise and transients. It is said to offer 95 per cent efficiency, less than 45 db noise-level on smaller units, and less than 0.1 per cent added distortion.

Single-phase sizes range from 125 VA to 25 KVA, and three-phase sizes range from 3 KVA to 500 KVA.

Reader Service Card Number 20

Holds 1,000 cards

The Product: file boxes

Supplier: RCS/Eichner Systems

Features: A line of microfiche filing trays has been introduced by the company. The "flip-top" plastic trays will hold 1,000 microfiche cards.

Reader Service Card Number 21

Plug into Comterm. Ontario Hydro does.

When Ontario Hydro decided it was time for additional terminals for their computer system, among others, they asked Comterm to tender. That's because as one of Canada's foremost independent computer terminal manufacturers they knew we could deliver on time. And we did.

But there was more to it than that. Our specifications exceeded their own. Our price was right. And when Ontario Hydro completed its extensive test program, they found that our terminals' performance lived up to the promise of the specifications.

They're compatible with

other terminals in their system. And unlike many other terminals, they withstand power losses and surges which means reduced downtime. Our twelve month purchase warranty (against the industry average 90 days) was another

attractive feature. And if something did go wrong, Ontario Hydro discovered that our service team consisted of problem solvers. Not spare part replacement people.

If new computer terminals are in your future, call us.

We're sure you will get a charge out of what we have to tell you.



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*Developments
in microprocessor
technology, applications*

Xylogics expands memory on LSI-based micro

The 22-bit memory address of the XL2300 single module system from Xylogics Inc., Burlington, Mass., is now supported under the company's supplied RSX-11M operating system, which allows the user to configure systems from 96 KB up to 4 MB. This feature is normally supplied with larger more expensive configurations from DEC, and does not allow the use of other cost saving devices such as Winchester discs and cartridge tapes, says the company.

The system includes the LSI-11/23 microprocessor, a 20.8 MB Winchester disc with RL02 emulation, a 17 MB tape cartridge with TU10 emulation and up to eight pre-wired RS-232 compatible ports.

Reader Service Card Number 22

HP main memory drops to under one cent/byte

Hewlett-Packard (Canada) Ltd., Mississauga, Ont., has announced a price drop for the main memory on its HP 1000 L-Series microcomputers to less than one cent per byte.

According to Joseph P. Schoendorf, Marketing Manager, HP Data Systems Division, the decision to use 64K RAMs to create the half-megabyte L-Series microcomputer now enables the company to make a 60 percent reduction in memory prices for the product. The price drop was also influenced by the rapid decline in vendor prices for 64K RAMs in the past few months, in conjunction with an extremely high order rate for the HP microcomputers, Mr. Schoendorf adds.

The price reduction applies to all L-Series micros, and to the newly-announced HP 1000 Model 5 Microsystem. The price of the 512K byte memory for the L-Series now stands at \$5,964 Can. That lowers the L-Series two-board half-megabyte microcomputer to \$8,947 Can.

Reader Service Card Number 23

Zeus 80 system supports Herzing education centre

Opening a new education centre in Ottawa, the Herzing Institute has selected the Zeus 80 microcomputer from Accountdata Corp., Markham, Ont., to provide systems applications to teach programming languages to college graduates.

The computer will be used to train students in Basic, word processing, on-line processing and inter-active processing. The course also provides training in com-

puter languages using Cobol and RPG2, providing advanced programming instruction in an on-line environment. The computer system will eventually provide other programming languages such as Pascal and PL1.

This is the first Zeus system purchased by the Institute and features an 8-user connection to the mainframe. An expanded main memory of 512,000 characters has been added to the basic configuration in order to support Herzing's extra educational requirements.

Reader Service Card Number 24

16-bit micro boasts high speed operation

Claimed to have execution times of 250 ns register-to-register, the F9445 16-bit microprocessor from Fairchild Semiconductor, Mississauga, Ont., uses the company's isoplanar integrated injection logic (I³L) technology.

The processor has eight program-accessible registers (ACo, ACi, AC2, AC3, SP, FP, PC, PSW) and the capability of directly addressing 128 K bytes (64 K words) with 11 addressing modes. Up to 4 MB of physical memory may be accessed using the F9454 memory management unit. The microprocessor can address 62 I/O devices, handle 16 levels of priority interrupt, and perform fast DMA. It has control lines to provide operator-console

functions and has an on-chip self-test program.

The processor's instruction set includes memory reference, ALU, I/O stack, multiply/divide, floating point assist (scale/normalize), instructions with 8-bit byte, 16-bit word, or 32-bit double-word data.

Reader Service Card Number 25

Zenith micro now offers access to most popular OS

Zenith Data Systems, Mississauga, Ont., has released Zenith Standard (ORG-O) CP/M Version 2.2 as an operating system for its Z-89 'All-In-One' line of microcomputers. According to Zenith general manager Brian Winks, programs written under Zenith Standard CP/M can run on any other computer system that uses CP/M.

Three operating system modules are included with the Zenith OS: 'BIOS,' implemented as a disc-resident relocatable file in the Zenith version, contains all hardware-level I/O code; 'BDOS' has all file-level and logical I/O code, while 'CCP' is the transient monitor, providing command-level communications between the user and the CP/M.

Zenith CP/M supports all 5¼ and 8-in. Zenith and Heath disc systems, printers, and hard-copy terminals.

Reader Service Card Number 26

Test station for micros helps repair, troubleshoot

The Series 4500 test station from Millennium Systems Inc., Cupertino, Ca., is designed for microprocessor boards and performs test program development, production go/no-go testing, repair and depot troubleshooting, or fault isolation.

The tester uses emulators to inspect a board range of microprocessor-based systems. Currently, emulators are available for the 6800, 6802, 8080A, 8085A, Z80A, 6801, 6803, 8021, 8041, 8048, 8035, 8039, and 8748.

The tester incorporates time-domain analysis, in-circuit emulation and signature analysis for system testing and troubleshooting.

Because of its simplified operation, the unit can be easily used in production-line testing and repair as well as field depot service by technicians with only a minimum of training. The tester provides results that can be read directly without requiring interpretation for rapid fault location. The test station incorporates a

functionally grouped keyboard including direct I/O, memory and register and breakpoint controls.

The device also has optional remote communications capabilities for field ser-



vice or quality control repair facilities.

The test station runs on the same test software as the Millennium Fastprobe test network which can generate test software and printed fault isolation trees to support the 4500 in remote locations.

Reader Service Card Number 27

Kit manages discs

The Product: Disc optimization utility

Supplier: Software Techniques Inc.

Features: The Diskit software package is a complete disc optimization "tool kit" for users of the DEC RSTS/E operating system. The package consists of four parts. The major component, the DSU disc structuring utility, requires less than one hour to run and is designed to rebuild any RSTS disc for efficient performance during directory and file operations.

The DSU transfers between unlike discs, saves accounting time, optimizes file clustersizes, places and pre-extends UFDs, allows manual file placement, and provides full logging and statistics.

The system also includes a DIR Macro-11 Fast Directory Program which is claimed to operate at 250 files/sec. It supports all the standard Direct switches (including backwards, up to 1,000 files); and features password lookup, UFD placement, and UFD size.

Reader Service Card Number 28

Replaces IBM DBT

The Product: Name standardizing software

Supplier: Hawkeye Information Systems

Features: Two software systems designed to standardize field and file names are available from Hawkeye for the IBM System/3 and System/34. The first system, Data Base/38, standardizes field names in RPG II programs on S/3 (models 8 to 15D) and S/34. The second system, File Re-Namer/Plus, is available on the System/3. It allows for the standardization of file names and/or labels in OCL and

RPG II programs, and provides useful edits and documentation for any installation going through a conversion.

As a replacement for IBM's Data Base Techniques, the software packages are claimed to eliminate most programming time by having standard field names coded on a file-by-file basis instead of the IBM approach of having changes coded field by field.

Reader Service Card Number 29

Stores bill data

The Product: Utility billing software

Supplier: Lawson Associates

Features: This new billing system allows utilities to keep accurate records of customer names and addresses, as well as the services used by each customer. It also allows individual customer meter information to be incorporated directly into the system.

Although the system was specifically designed for use by water utilities, the software can easily be adapted to companies offering other services, including gas and electricity, and allows all utility information to be put on the same statement.

The package automatically produces the initial water bills, plus past due notices for each customer. The water bill is produced on a specific date while the past due and final notices are produced if the first statement is not paid within a specified time period.

Other features of the system include a parameter file which stores information on individual customers; rate information; a municipality definition file; daily audit lists as well as a master file which contains individual customer information.

Reader Service Card Number 30

For business forms

The Product: Forms management package

Supplier: Digital Equipment Canada Ltd.

Features: The "Indent" forms management software package for DEC Datasystem 500 series business computers is designed to enhance interactive data entry applications using PDP-11 Cobol, Basic-Plus-2, or Dibase-11 programming languages. The package also provides an independent data-entry front end to business application programs.

The software can be used in both single and multi-terminal applications. Unlike traditional forms management software, where software copies must be run for each terminal, the new software is claimed to handle multiple terminals simultaneously. Use of the package with multiple terminals reduces system memory requirements and decreases CPU utilization, since it is not forced to run multiple forms management programs.

The package is supported by the RSTS/E operating system, version 7, or the CTS-500 operating system. It is designed for use both by OEMs and end users.

Reader Service Card Number 31

Enhanced accounting

The Product: Enhanced accounting package

Supplier: Mini-Computer Business Applications Inc.

Features: The Release 2 is designed as an improved set of five accounting packages for the Wang VS series computers. It includes accounts payable, accounts receivable, general ledger, payroll, and order entry.

The enhancements allow extensive use of the program function keys in the same manner provided by Wang.

This simplifies user option selection and access to the system. Full screen data entry is designed to improve operator speed and enhance system performance. The system also provides a full multi-company and multi-user capability with company consolidation as well as descriptive error messages displayed on the screen in response to invalid input. Fields containing errors blink to draw the operator's attention. All packages can automatically interface to the MCBA general ledger.

Reader Service Card Number 32

Suits desktops

The Product: Application programming language

Supplier: Westico

Features: The PL/I-80 from Digital Research is a powerful all-purpose application programming language for 8080, Z80 and 8085 microprocessors.

The PL/I-80 system comprises four major components: PL/I-80 compiler, Link-80 linkage editor, PL/I-80 run time library and RMAC relocatable macro assembler. The system generates Microsoft relocatable code so users can link load subroutines created by other language translators. Link-80 a disc to disc link loader, can load programs up to the maximum size of the machine. The run time library contains over 300 individual subroutines but loads only those which are used by the operator's program. A program can be as small as 600 bytes.

The package includes three comprehensive manuals and a programmer's quick reference guide. The large number of sample programs included serve as a "hands on" course in PL/I.

Reader Service Card Number 33

*Innovations, developments
and trends in edp technology*

NT designs filter chip for signal processing use

Northern Telecom's Semiconductor Components Group in Ottawa recently implemented a programmable transversal filter with 31 taps and 9-bit coefficient accuracy on a single chip integrated circuit.

Applications for the device, which measures 18,000 square mils in area, are in any voice band signal processing system requiring a real time, programmable transfer function. The component was designed for manufacture in a proprietary double polysilicon, NMOS processes featuring high density dynamic logic, low offset analog switches and precision-ratioed, linear capacitors.

According to the company the chip includes such features as on-chip oscillator, direct interface to MOS coefficient memory, 50Hz to 20kHz sampling rates, single power supply operation and a 28-pin dual-in-line ceramic packaging. The new device is an improvement over previous sample and hold designs.

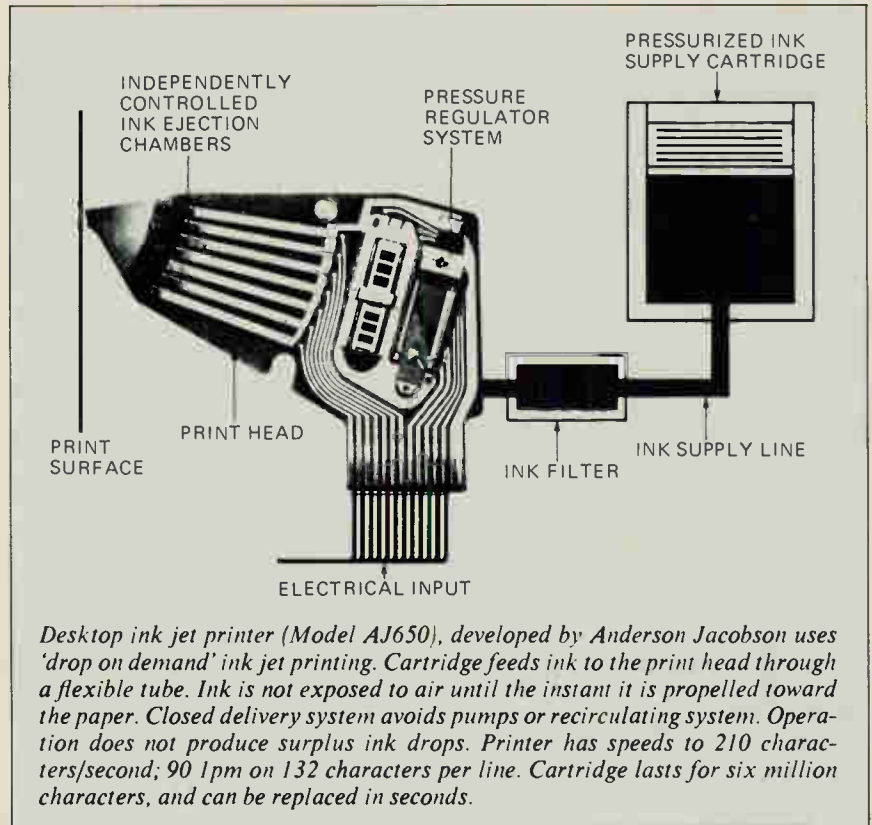
Increased memory in new low-cost, block-mode CRT

Increased memory, display enhancements, screen-labeled, user-programmable keys are features in a new low-priced block-mode display terminal (2622A) introduced by Hewlett-Packard (Canada) Ltd.

The new unit sells for \$3,019, and is placed between the firm's character-mode-only HP2621A and the advanced editing HP 2624A.

It is well suited for on-line data entry, notes the company. Format mode, supporting protected and unprotected fields, and an optional line drawing character set enable users to build screen forms that match existing paper forms. Four display enhancements—reverse video, underlining, blinking and half-bright—help make forms easier to read. Standard memory accommodates up to two full pages of 80-character lines, enabling two-page forms to be entered.

Text may be copied from the screen and logged to an optional thermal printer or transferred directly from the computer to the printer. The printer reproduces all screen copy, including line drawings, and also display enhancements. In normal report mode, the printer produces text with 60 or 64 lines per page. In the compressed print mode, 132 column lines can be sent from the computer.



Desktop ink jet printer (Model AJ650), developed by Anderson Jacobson uses 'drop on demand' ink jet printing. Cartridge feeds ink to the print head through a flexible tube. Ink is not exposed to air until the instant it is propelled toward the paper. Closed delivery system avoids pumps or recirculating system. Operation does not produce surplus ink drops. Printer has speeds to 210 characters/second; 90 lpm on 132 characters per line. Cartridge lasts for six million characters, and can be replaced in seconds.

Canterm adds novel ACD/PBX to serve interconnect market

Canterm Communications Inc., Markham, Ont., is strengthening its move into the interconnect market with a novel Automatic Call Distributor and combined PBX system from Solid State Systems Inc. in the US. The Canadian firm was recently appointed Canadian distributor for the software driven system. The first Canadian installation of the new system went to the Ontario Motor League.

The new system, designated ECD-16 is recommended and used by 15 of 23 US Bell operating companies and is also offered by such firms as IT&T and Continental Telephone. According to Solid State, the system has been well received world-wide with an installed base of over 600 systems.

According to Canterm Product Specialist Bill Marshall the new system offers state-of-the-art technology and includes one of the most advanced management information systems available today. The mini-computer-based management system provides reports on a variety of business activities, such as daily incoming and outgoing call volumes;

agent productivity; traffic monitoring; number of calls waiting maximum waiting time, and service levels, as well as other types of management information. Real-time displays, printed reports and special programs are 'designed in', notes the company, to provide complete statistical data for business and personnel management. A number of interactive system programs for a variety of needs are offered.

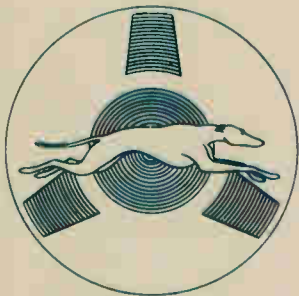
The new product offering being introduced here offers essentially electronic call distribution and PBX and management information, all in one system. Canterm, which has been active in the Canadian data communications market and the telephone business systems market for some time, sees a continued merging of data and telecommunications. In response to this trend it is stepping up its activities in the latter market, said Mr. Marshall. The company is providing full service support for the new product he said, and staff is being added to that function. The company is also a factory-authorized distributor for Siemens Canada telecom products.

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MANAGEMENT MEMO

*with news highlights for
corporate management*

NOVEMBER COMPUTER SHOW EXPANDS TO FOUR DAYS, 95% EXHIBIT SPACE SOLD

Canada's premier computer industry event, the 1981 Canadian Computer Show & Conference, November 16-19, has been expanded to run over four days this year instead of three days as in previous years. Show hours have also been expanded and some 28-30,000 visitors are expected. Last year's show attendance reached almost 25,000, said Show Manager Reg Leckie. Some 95% of the show space is sold out, with about 93% of the total available space having been reserved by previous exhibitors.

The four-day event is sponsored by the Canadian Information Processing Society (CIPS) and produced by Industrial Trade Shows of Canada. CIPS is organizing the conference, being held in conjunction with the show.

According to the CIPS, the conference segment of the event has also been expanded to four days, with the last day of the conference devoted to exposing professionals, such as lawyers, managers, doctors, to the types of computer hardware and software which can help them in their professions.

CANADA TRUST SELLS BACK-UP COMPUTER SPACE TO OTHER USERS

Canada Trust, London, Ontario, is offering some 4,000 sq. ft. of raised computer room space to other companies as standby space in case of interruption of their own operations.

Six companies have signed up since the standby space has been offered in July, said J. Brent Kelman, VP Data Resources for Canada Trust. The space is being leased on a three-year basis, he said, at the firm's London headquarters facility.

IBM, FLOATING POINT SYSTEMS EXTEND MARKETING OF ARRAY PROCESSORS TO CANADA

A marketing arrangement enabling representatives of IBM and Floating Point Systems to propose joint meetings with engineering and scientific data processing users of array processors has been extended to Canada. The initial arrangement between the two companies was for the US market only (Canadian Datasystems, Aug. 1981, p. 69).

Under the marketing arrangement, either IBM Canada or Floating Point Systems (Canada) Ltd. may initiate and coordinate joint meetings in which equipment alternatives, specifications and solutions can be discussed with users who have array processor requirements. Such processors are specialized systems which can be attached to central processing units to carry out high-speed arithmetic operations. They are chiefly used in geophysical data processing.

IN BRIEF

Ottawa-based Phoenix Automation Inc., has established a US subsidiary in Boston to market and service the firm's computer aided design and drafting systems throughout the US market. The new operation is headed by Irwin Stone.

Real Time Datapro Ltd., Don Mills, Ont., reports revenues for the year ended February 1981 of \$5,126,914, compared with \$4,320,807 for the same period last year. Earnings per share are 11.4¢, up from 9.1¢ in the previous year.

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Texas Instruments

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All the above terminals are available with Hamilton's Texp rint to expand from 80 columns to 136 columns of print.

783 KSR 120 c.p.s. printer
 785 KSR Portable 120 c.p.s. with acoustic coupler
 787 KSR 120 c.p.s. with internal modem
 810 RO 150 c.p.s. Dot Matrix printer
 820 KSR 150 c.p.s. Dot Matrix 9600 baud
 TI 840 Newest Addition-75 c.p.s., low-cost Dot Matrix printer
 TI 940 New CRT - Just Announced, 16 Function Keys

Hazeltine

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 1500 CRT Esprnt

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951 Floppy Disc off-line storage
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910 can emulate Hazeltine, Lier Sigler, Adds. CRT'S our most inexpensive CRT;

Hewlett Packard

HP 2621A V.D.U.
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 HP 2622A CRT (replaces 26408 Series)
 HP 2624A CRT (replaces 2645A Series)
 HP 2626A Multi-Port Display Terminal

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 4663 8-Pen Plotter "C" size
 4006-1* Graphics Display Terminal 11"
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 9872C 8-Pen Plotter HP-GL HP-18
 7580A Drafting Plotter
 9895 Flexible Disk Drive 2 Meg.
 2671G Graphics Printer (Thermal)
 2631G Graphics Printer (Dot Matrix)
 2621A CRT
 2621P with Integral Printer
 2622A Replaces 2640 Series
 2624A Replaces 2645 Series
 2626A Multi-Port Display Terminal
 2647 Graphics Terminal
 2623P Graphics Terminal New Just Announced

Hewlett Packard Desktop and Graphic Systems

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 9825S/9825T
 9826 New Just Announced (replaces 9825)
 98458,9845T
 98458 with option 200 lightpen & enhanced graphics
 9845C Colour Graphics

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MANAGEMENT MEMO

*with news highlights for
corporate management*

DATAPoint CANADA NOW HANDLES PRODUCTS FORMERLY MARKETED BY TRW DATA SYSTEMS

Sales, support and maintenance of all Datapoint products are being taken over by the newly formed Datapoint Canada Inc., the Canadian unit of Datapoint Inc. in the US. Previously Datapoint products and services were handled in Canada by TRW Data Systems. At press time, approval of the change by the Foreign Investment Review Agency (FIRA) was pending.

The new operation is headed by Glenn Myers, president. He was formerly director of marketing for TRW Data Systems. Staffing of the new operation is made up from personnel which previously handled the Datapoint product line with TRW.

The new unit will operate from 26 service centres and seven sales support offices across Canada. A new head office location is also under consideration.

CANADA'S ELECTRONICS MARKET REACHES \$4.6 BILLION

Canadian domestic consumption of electronic products reached an estimated \$4.6 billion last year, an increase of 22% from 1979's preliminary total of \$3.7 billion. Domestic consumption is calculated by adding imports to Canadian production and subtracting exports. Domestic production in 1980 is estimated at \$2,360 million, an increase of 16.3% over the previous year. Canada has long been a major net importer of electronic products. Imports totalling \$4,262 million in 1980 compared to exports of \$2,069 million pushed the imbalance past the \$2 billion level for the first time. The imbalance has more than doubled in the last five years. These highlights are from a new report "The Canadian Electronics Market" prepared for Canadian Electronics Engineering by the Maclean Hunter Research Bureau. Copies are available at \$65.00 each.

FACSIMILE UNITS ARE KEY ELEMENTS IN NEW PUBLIC ELECTRONIC MAIL SYSTEM

In the midst of the national mail strike, Toronto-based FacScan Communications Inc., launched its FacScan Electromail service, claimed to be the world's first public electronic mail system with four-hour service from drop to delivery. Developed by Ivor G. Kaye, the system began operations in Toronto, Ottawa, Montreal and Vancouver, with plans to include Calgary, Edmonton, Regina, Winnipeg and Halifax, within a week.

Documents to be sent can be dropped into FacScan mailboxes in various city locations. The boxes are cleared every hour and the document is sent from one of the firm's offices via 9600 3M high-speed digital facsimile units to another unit at the destination city. At the receiving end, the documents are delivered by messengers in sealed envelopes. Transmission of a typical page takes about 15 to 20 seconds and is via telephone lines.

Mr. Kaye told Canadian Datasystems that plans call for upgrading to 3M 9700 facsimile units later this year and a modification is under consideration to permit use of the units with the Datapac service using X.25 protocol.

Response to the new service has been most favourable, said Mr. Kaye and prior to introduction of the service several hundred documents had been sent. The service costs \$3.98 for one 8½ x 14-in. page, and \$1.98 for each successive page to the same address. Multiple addressing will be available at reduced rates. Original documents can be collected and returned if desired, or can be shredded.

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For more information about our full family of DS990 Business Computers, contact your local TI sales office, or write Texas Instruments Incorporated, Digital Systems Division 41 Shelley Rd., Richmond Hill, Ontario L4C 5G4 (416) 884-9181.



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Reader Service Card Number 154

If a group of employees were to cause the flow of electricity or water to stop because of a dispute, there would be action. But when it comes to the disruption of postal services, this appears to rate as being less important, even if businesses close doors; jobs are being lost and the enterprising sector of society has to be penalized for being productive. Enough is enough.

At the time of writing, the dispute is still going on, and there's a mere glimmer of progress, indicating that this essential service may be restored.

Much has been written about the devastating impact of such a disruption. It needs little emphasis here. If the well-being of the country is of concern, then some services—including the mail—ought to be maintained. And it is up to the authorities to step in and do something. Heaven knows, government is regulating just about everything else and a little more regulating in getting this service back on stream would indeed be appropriate. Instead, we have the spectacle of our Members of Parliament leaving with undue haste for their summer recess, rather than looking after the nation's business.

Yet if there's one thing emerging from this sad situation, it is the amazing resilience of the business community in coping, if not completely, with this lack of service. To see this resilience is heartening, yet at the same time it may not bode well for the Crown Corporation that is slated to handle the mails.

What has been happening is that businesses, both large and small, have discovered alternate means of reaching customers—of moving their own mail. Courier services are flourishing, but many are also discovering 'electronic mail.'

Increasingly, information is being moved electronically. Telex, facsimile and intra-company communicating word processors and the like are being used. Many firms for the first time assess their internal communications capabilities to handle some of their mail. With this renewed interest, some firms are for the first time becoming comfortable with it and are relying to a lesser degree on the mails. The costs may be higher, but many think it is well worth the price.

Many large firms already have their own internal electronic mail systems in place and are making good use of them. Some small firms are getting their first experience of electronic communications, often through a simple link between headoffice and branches via a computer terminal. And a Toronto based firm, FacScan Communications Inc., headed by Ivor Kay, made a timely launch of what it describes as the world's first completely automated public electronic mail system, FacScan Electromail, among key Canadian cities in early August.

In self-defence, business is looking to alternatives and finding them. In the process the role of the postal service as the predominant distributor of written messages is being challenged. It does not mean the end of the service, or that everything will go electronic. Not very likely, nor is it desirable. But it is a challenge that shouldn't be ignored.

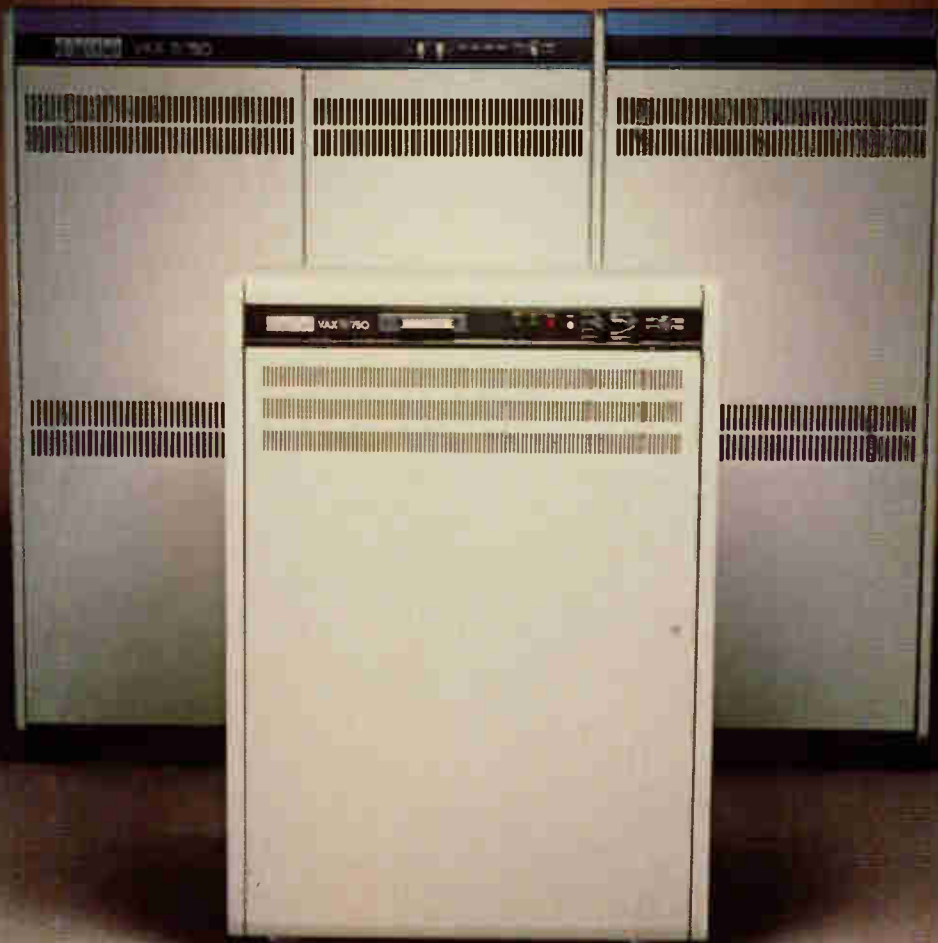
Reliable and efficient postal service is essential if the country's economy is to grow and to create the jobs needed for the work force. The recent disruption of mail service and business' response should make it clear that business people are enterprising and certainly not averse to trying the electronic route. Let's hope Ottawa reads the message . . . mail strike or not.

Tom Weissmann



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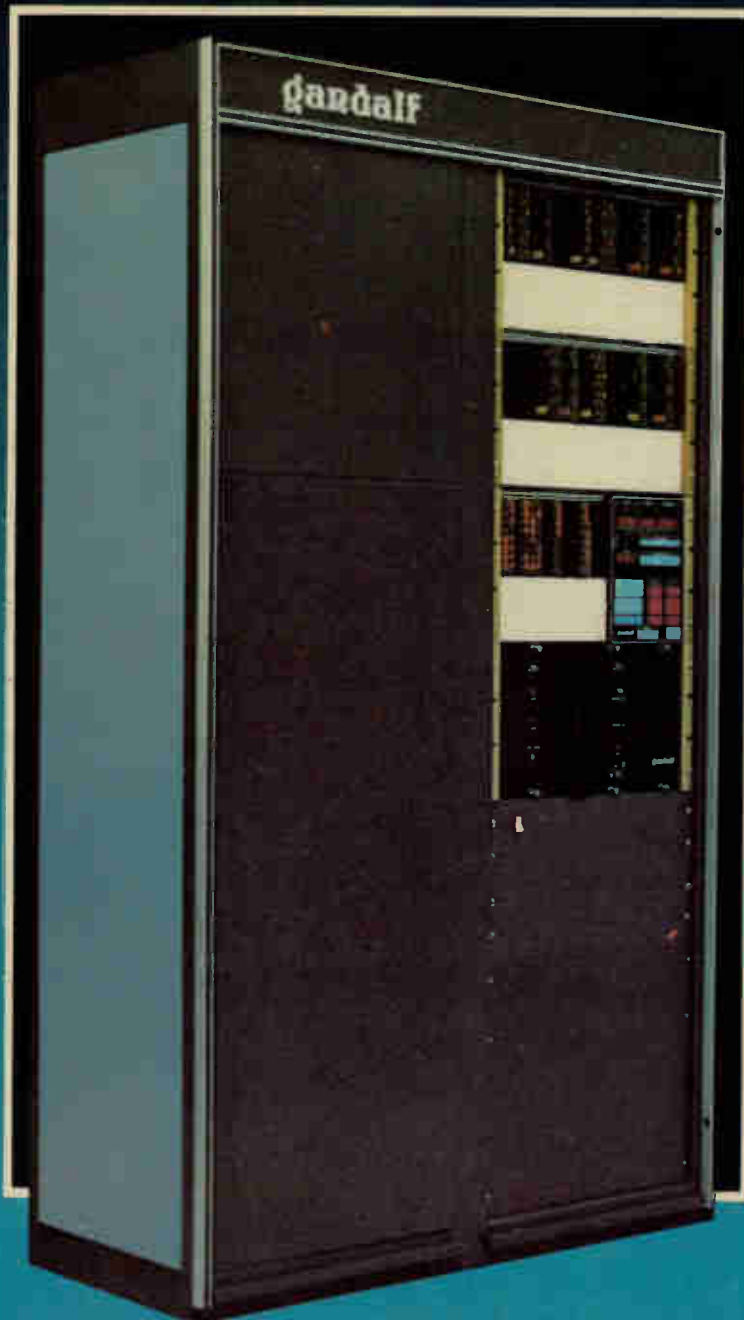
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Scanning devices and front-end checkout units are the most visible part of the move to wider use of POS equipment. Shown is an installation at Food City store in Oakville, Ont.

POS technology expands users' options

By Linde Fistell
Assistant Editor

New POS equipment continues to meet the challenge of diverse and expanding user needs. Suppliers stress multifunctional, modular systems based on new technology and innovative combinations of hardware and software.

AS applications for point-of-sale hardware continue to increase, new technology and innovative combinations of existing technology mark the forefront of the latest offerings.

The primary goal of suppliers is to increase speed and efficiency at the POS consumer interface as well as provide portable control and management of distributed work centres. To meet these requirements, suppliers have focussed on upgrading existing hardware with the use

of new technology or else combining different hardware and software configurations for increased multifunctionalism and ease of expansion.

Some of the new methods used to speed POS operations include refinements in scanning, with the use of, for example, a holographic technique developed by IBM, and scaled-down bar-code data entry devices from Norand Corp.

Other POS advances have centred on

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POS technology expands options

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electronic cash registers, expanding and upgrading their capabilities, increasing their flexibility and making them more adaptable to distributed system and changing in-store applications.

As well as innovations aimed at improving existing POS configurations, efforts have been directed at providing lower cost alternatives to the traditional POS set-up. Some of these have come in the form of handheld computers coupled with cash registers, or portable terminals equipped with wand scanners.

What's new in POS

One of the latest innovations in POS technology is a compact holographic scanner that uses a wraparound field of light to scan checkout purchases.

The IBM 3687 scanner's holographic technique produces three-dimensional-pictures in order to "read" Universal Product Code (UPC) on standard or irregularly-shaped articles passing through its field. It is not necessary to maintain precise alignment of each article as it is scanned. As long as the articles pass over the scanner—in any position—the device is able to read the UPC information. This rapid check-through of items speeds up processing and maintains higher efficiency. Claimed to be the first major commercial application of holography in North America, the scanner is scheduled for Canadian release the first quarter of 1982.

Another product designed for scanning functions at a POS station is the Norand 20/20 Instant Bar Code reader, which takes an electronic picture of a bar code without having to make contact with a light pen. Once it is located over the bar code to be read, the 20/20, by touch of a button, automatically reads the code, notifying the operator of a successful input using LED and audible signals. The device does not re-read a code a second time in error, as wand units sometimes do when repeatedly passed over a bar code in an effort to read it. Once the unit regis-

ters the input of the code, another impression is not registered until the button is depressed again.

The unit also speeds up processing by being able to read codes in any color, and on variable package shapes, sizes and textures (including light reflective surfaces). The unit will read bar/space widths with a minimum size of 6 mils, a print contrast ratio of 50 per cent, and a maximum length of two inches. The scanner is unaffected by high ambient light and will pick up bar codes at any angle under fluorescent or incandescent light. The device has just been released for Canadian purchase.

Modular systems take hold

Gains are being made in modular and especially portable POS systems. MSI Data Corp., Scarborough, Ont., has given primary focus to compact, portable alternatives to conventional POS systems as well as expanding the use of POS-like devices into other areas of retail management.

MSI's Model 88 Route Manager, for example, is a portable system for collecting and compiling sales and inventory data for route salespeople's daily activities. The entire system is housed in an attache case. For accounting and budgeting needs, the day's inventory can be loaded directly into the memory. Orders can be written on the MSI/88 portable terminal included with the system and invoices are automatically printed. The system keeps tab of all cash, charges, credits, and returns and at the end of the

day, the receipts can be quickly balanced in the form of a complete sales and inventory report for each truck or salesperson. All consolidated end-of-day transactions can be transmitted directly to the user's data processing centre to provide a summary of each day's sales, profits, and individual route performance.

The system is fully user-programmable operating with a microprocessor and ROM memory. The terminal is equipped with 27 alphanumeric keys and the programmable operating functions and data recording characters can be organized to the user's specifications.

The route manager also provides a direct connection to every van in a fleet of trucks, allowing remote downloading of customer and product lists, and new pricing information. MSI's TM700 terminal multiplexer system can interface to up to 32 portable route systems, combining all their day's transactions into a single output.

MSI also manufactures a series of handheld terminals designed specifically for continuous key entry or wand scanning of larger-volume inventories. The Series 88 provides extended data storage in segmentable memory, expandable from 16K to 64K in 8K increments. The wand scanning module can recognize and record either UPC, MSI's modified Plessey Code, Codabar, or the European EAN system.

The sales force of the Handleman Company of Canada Ltd., Toronto, is currently equipped with MSI/88 64K

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POS systems support new uses, operate with new software

Point-of-sale technology has entered a wide spectrum of uses, not just in the traditional supermarket field. In the U.S., for example, POS terminals are being used in both lottery ticket applications as well as off-track betting. In Canada, an increasing number of POS terminals are being installed in a lottery setting.

Lottario, an Ontario-based lottery, presently uses more than 1,400 terminal/printer units in lottery outlets across Ontario to process tickets and receipts. The central processing system is located at Control Data Canada Ltd., in Toronto. All hardware in the system including the terminals are manufactured by Consolidated Computer Inc.

When a customer purchases a lottery ticket, a message indicating the sale is entered through the printer into the terminal. The data is then relayed to the host computer which stores the information and initiates a return message that a ticket/receipt is issued.

Lottario is presently installing another 200 terminals across Ontario for a total of 1600 by the fourth quarter of 1981.

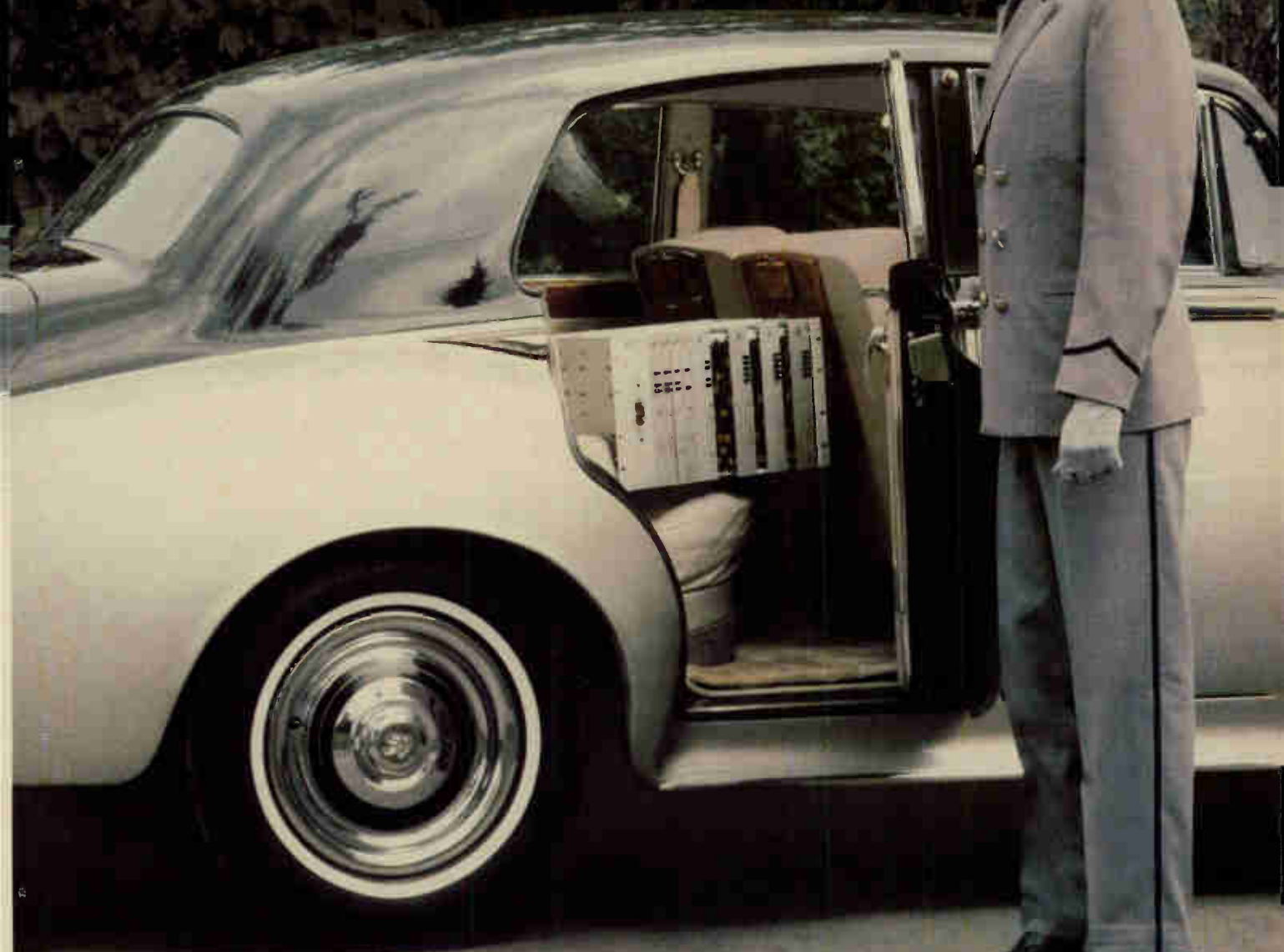
While new technology has entered the

mainstream of POS applications, existing technology is being boosted by innovative software support. TCS Software, Atlanta, Ga., for example, has introduced an inventory management system (IM) designed for retail/wholesale businesses. The system operates with an 8080, 8085 or Z-80 microcomputer with CP/M operating system, Microsoft Basic-80 and 56 K of user-available memory.

The software package allows for multiple item location, departmental ID, and quantity limitation. An inquiry function uses partial item keys and acts as a rotary file to help find an item. The system also sorts and sells fractional units to three decimal points; keys all reports by department, location or vendor; and provides special updating functions for physical inventory posting and purchase order entry.

The system also keeps track of sales, receipts, returns and reserves. Reports can be based on the entire data base or any subset, and all transactions have a full audit trail. A retail inventory catalogue can also be produced.

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