customers, employees use a special "shopping list" produced by a small IBM computer so they will travel the least distance to get the parts needed to fill each order.

"We’re now handling 250 orders a day from our 6,500 dealers across the country, and the computer-based order processing system helps us achieve same-day service on nearly every one," said Gene Rocchi, president of the firm.

As orders are received, information from each one is entered into an IBM System/3 Model 10. The system also can provide records showing how many of the 6,000 different parts are in stock and where they are located on warehouse shelves.

**Police Information System**

The City of Pasadena has announced a police system aimed at preventing crime rather than reacting to it. The police information reporting system is part of a total management information system announced today by the city.

The police chief Robert H. McGowan said his department’s computer-based system is unique in that information is entered on-line as calls for service from citizens are received. From this data, detailed profiles of crime patterns are produced and analyzed to help officers take preventive action through helicopter and car patrols.

The new police information reporting system provides the ability to record, process, and rapidly retrieve information about criminal offenses, arrests, and all other types of calls for service. A key feature of the system is the capability to aggregate on-line several geographic areas of the city with variable time-of-day parameters in order to determine the crime pattern in the combined area. For example, a detailed profile of crime patterns around certain schools in the city at a particular time of day could be produced in minutes.

Information on over 40,000 police incidents has been entered into the system since it was implemented in February 1972. Reports generated from this database were the foundation for establishing a new concept of overlapping shifts and beat assignments. Also, from current system reports, helicopter and car surveillance patrol effectiveness can be evaluated and redeployed as necessary.

**Toll Road**

The first in a network of computers to monitor and administer Kentucky’s parkway system is now saving the Commonwealth dollars and others promise to save even more in the future. While attendants still handle toll booth collections and other activities, a computer in the background will insure accurate counts of vehicles and money, fast billing of credit card customers and constant surveillance of plaza equipment.

The computer monitors the flow of traffic and money. Daily it reports to the Highway Department’s large-scale System/370 Model 165 computer in Frankfort headquarters the numbers and kinds of vehicles passing through the plaza, as well as collections.

Heavy-volume users of the toll system “charge” their tolls using a Toll Facilities-developed credit card system. In the computerized system, users receive specially designed credit cards which attendants slip into readers attached to the computer.

The computer can monitor weight- and-length-sensing devices in and alongside the roadway as such information is required. It can compile appropriate engineering and maintenance reports to insure equipment is kept operational. It allows parkway design and expansion planning to rely on actual use data.

**Feature New Product**

**IBM Adds Virtual Storage Technology and Two New Computers to System/370**

A major redirection of IBM System/370 technology, designed to make it easier and more economical for computer users to develop new applications, has been announced by International Business Machines Corporation.

The company introduced System/370 virtual storage, an advanced technique that can significantly speed and simplify the development of many computer applications, including remote computing networks and on-line inquiry systems — the key applications of the Seventies.

Virtual storage can increase the productivity of programmers by freeing them from much time-consuming and routine work. In addition, it enables a System/370 to process more jobs concurrently, adding new flexibility for user operations.

To provide virtual storage for System/370, IBM announced new system control programming and circuitry, and two new computers — System/370 Models 158 and 168 — that introduce the most compact storage circuits ever used in IBM computers. The company also announced
that virtual storage is available now for
the previously introduced Models 135
and 145.

Users of purchased Models 155 and
165 will be able to purchase the
dynamic address translation facility
that permits these models to operate
with virtual storage control program-
ing.

The vast majority of existing appli-
cations programmed for System/370
and System/360 will require little or
no reprogramming to take advantage
of System/370 virtual storage. In addi-
tion, compatibility between all
System/370 virtual storage models
makes it easier to move up to the
larger and more powerful models as
processing requirements grow.

Virtual storage is a storage manage-
ment technique that makes a System/
370 appear to the user as if it had up
to 16 million characters of main stor-
age—many times its actual capacity.
(Main storage sizes in System/370 now
range from 96,000 to four million
characters.) This makes possible con-
current processing of computer pro-
grams that, in total size, exceed main
storage capacity.

The Model 158 executes instruc-
tions at a rate 20 to 40 percent faster
than a Model 155 that is similarly
programmed and configured. Its main
storage capacity ranges from 512,000
to two million characters of data. The
console features a TV-like display with
an electronic “light pen” the operator
can use to communicate with the
system.

The larger-scale Model 168 exe-
cutes instructions at a rate 10 to 30
percent faster than a comparable
Model 165. Its main storage size ranges
from one million to four million char-
acters of data, one-third larger than
the maximum capacity of the Model
165.

For further information, contact
IBM Corp., Data Processing Division,
1133 Westchester Ave., White Plains,
N.Y. 10604.

Feature New Product

Burroughs Introduces
Revolutionary Fourth Generation,
Small-Scale Computers

Burroughs Corporation has an-
nounced the worldwide release of the
B 1700 Systems, a revolutionary new
series of small-scale data processing
systems.

The B 1700 Series are fully-
featured computers that bring the
most advanced technology to the
small-scale computer market. Their
introduction means that, for the first
time, the users of small-scale com-
puters can benefit from the sophisti-
cated techniques utilized in larger scale
systems such as self-regulation by
means of a Master Control Program,
automatic multiprogramming, and vir-
tual memory. In addition, the B 1700
Series utilizes entirely new data pro-
cessing technology which goes beyond
that employed in the most advanced
systems today.

The extensive library of Business
Management Systems developed by
Burroughs and sold with the B 1700
Systems provides the most economical
means for the user to achieve immedi-
ate productivity when his computer is
installed. These application program
products include management systems for banking, wholesaling, distributing, manufacturing, hospitals, government and education.

This wide range of ready-to-use application programs can reduce the user's program costs to a small fraction of what he would pay for developing and maintaining his own programming. In addition, the availability of these Business Management Systems brings to the small business enterprise, which does not normally employ a professional data processing staff, the benefits of efficient management information and control.

Of special importance to the banking community, in addition to the banking management systems, is the release with the B 1700 Systems of a new series of MICR document readsorters. They provide a choice of 8 to 12 distribution pockets and a sorting speed of 600 to 900 documents per minute. For larger installations, readsorters with speeds of 1,000 and 1,625 documents per minute, and with 4 to 16 distribution pockets, are available.

The higher-level languages available with the release of the B 1700 Series include COBOL (Common Business Oriented Language) and RPG (Report Program Generator) for business applications. FORTRAN (Formula Translation Language) and BASIC (Beginner's All Purpose Symbolic Instruction Code) are provided for engineering and scientific applications.

With the B 1700, multiprogramming is introduced into the small-scale class of computer systems for the first time. This feature, which is provided by the B 1700 Master Control Program, allows a number of independent programs to be processed concurrently, with significant savings in time and costs over serial processing.

B 1700 Systems provide long range growth capability, another important consideration for any current or prospective data processing system user. No reprogramming or recompiling is required as a user moves from system to system, or as he expands his system with additional capabilities. A user can start with a basic system for $1,500 per month and expand to the largest of the three models in the $10,000 per month range. Through use of high level languages, a B 1700 user can move to other computers in Burroughs "700" Systems family.

Contact the local Burroughs office for further information.

**POS Terminals**

The Singer Company today introduced two new versions of its well-known MDTs cash register/computer terminals. The new MDTs (modular data transaction system) terminals - the 902 Model and the 925 Model - offer several advances over the standard 900 Model which is helping to revolutionize U.S. retailing operations.

In addition to the standard characteristics of a point-of-sale terminal, the 902 and the 925 can be programmed for positive and negative credit assessments, make multi-copies of sales checks or cash receipts, and provide an original audit tape of each transaction.

In addition, the 925 has a side insertion printing capability with a full alphanumeric printer, with two print heads that independently produce an audit tape and a receipt of the transaction.

With approximately 9,000 units installed in over 500 store locations, Singer commands over 60 percent of the electronic cash register market which now is estimated at $74 million in 1972 and is projected to exceed $400 million by 1976.

Other key features of the new MDTs terminals include selective itemization, tax table look-up, minimum-maximum entry digit checking and transaction counts. The Model 902 is priced at $3,200 and is available for delivery in January 1973. The Model 925 with side insertion printing capability will sell for approximately $3,500 and deliveries will begin in the second quarter of 1973.

For further information, contact the Singer Company, 30 Rockefeller Plaza, New York, N.Y. 10020.

**Micro-Computer Simulator**

Intel Corporation now offers an assembler and simulator software package to help develop programs for micro-computer systems built from Intel's MCS-4 set of integrated computer circuits. The package consists of a simulating routine, which enables the computer to simulate the operation of an MCS-4 micro-computer, and an assembly routine, used primarily as an aid to programming the simulated micro-computer.

For further information contact Hank Smith, Manager, Micro-Computer Systems, Intel Corporation, 3065 Bowers Avenue, Santa Clara, Ca. 95051.
New DEC Software

New software systems which extend the capabilities of the PDP-11/45 computer have been announced by Digital Equipment Corporation.

The new software systems provide the medium-scale PDP-11/45 with a batch operating system (BATCH-11), a disk-based background-foreground real-time system executive (RSX-11D), and a 32-user timesharing system (RSTS-45). A FORTRAN IV compiler, a MACRO-11 assembler, and a group of utilities such as text editor, librarian, and an on-line debugging system are also fully supported on the PDP-11/45.

BATCH-11 permits a sequence of data processing tasks to be run in an automatic mode with minimum operator intervention. It uses a simple, efficient batch control language and offers automatic program control, multi-level file protection, and device-independent I/O.

RSX-11D is a modular, disk-based, real-time operating system capable of handling multiple user tasks in a multiprogram and hardware protected environment. In addition to processing real-time tasks, the system supports a batch stream processor that can be used for concurrent program development or execution of sequential repetitive jobs. User programs are written in either FORTRAN IV or assembly language.

RSTS-45 is a timesharing system for the PDP-11/45 which uses BASIC-PLUS, a powerful, superset of standard BASIC systems. The system supports up to 32 simultaneous and independent jobs controlled from online terminals.

Contact the local DEC Office for further information.

Cartridge Tape Drive

Mohawk Data Sciences Corporation has announced a rugged, compact, low-cost transport: the MDS Model 2021 Cartridge Tape Drive. It is available as a desk top console or as a panel-mounted assembly. All mechanical components are mounted on a heavy-duty precision aluminum casting.

The tape drive uses the 3M Co. DC300A Magnetic Tape Cartridge, which contains two reels and 300 feet of 1/4-inch computer-grade tape, and requires only a single drive motor.

The 2021 has a dual-gap read-write head and is available in one, two, or four-channel configurations. It is capable of recording at 800 to 1,600 bits per inch, with read, write and backspace speeds of 30 inches per second. Rewind and fast forward search speeds are 90 inches per second. The data transfer rate (per channel) is up to 48,000 bits-per-second. Tape acceleration or deceleration time is 25 milliseconds at 30 ips. The interface is TTL compatible.

Pricing, in OEM quantities, ranges from $200 for the mechanism only to $500 for the complete unit with electronics. For further information, contact MDS, OEM Marketing, 781 Third Avenue, King of Prussia, Pa. 19406.

Floppy Disk

Century Data Systems, Inc. expects to capture a substantial share of data collection and storage device requirements with its new CDS-110 "Floppy Disk", a low cost, random access, disk drive. Primary use will be in computer program loading and storage, terminal data collection, auxiliary storage, and in other such applications where paper tape, card and cassette devices are being used.

The CDS-110 utilizes a removable, 7.5", 4 mil mylar, jacketed disk that stores over 1.4 Mbits of data on 64 tracks. Data is transferred at 33.3 Kbits per second and track-to-track access time is 40 msec. Units are available with read only, read/write or read-after-write capability.

Unit price is $500 in OEM quantities and media is priced at less than $4 per disk cartridge. Production units will be available September 1972.

For further information, contact Century Data Systems, Inc., 1270 N. Kraemer Blvd., Anaheim, Ca. 92806.

High-Performance Minicomputer

A high-performance 16-bit general purpose minicomputer has been announced by Texas Instruments Incorporated. The latest in the TI family of 900 series computers, the powerful and flexible Model 980A is priced at $3,475 and includes an exceptional list of standard and built-in features.

T.I. Model 980A

Complementing the 960A industrial automation computer announced last November by TI, the new Model 980A general purpose minicomputer features price and performance characteristics that make it very cost-effective in applications such as data communications, scientific and small business data processing and front-end preprocessing.

Additional information on the 980A computer is available from Texas Instruments Incorporated, Digital Systems Division, P.O. Box 1444, Houston, Texas 77001.

Large Capacity Data File

Xebec Systems Incorporated recently announced the availability of a new large capacity data storage/
retrieval system for use in small-to-medium scale data applications for under $6,000. Called “MEGA-STORE,” the new combination disk/formatter system allows a choice of 12,16,24, or 32 sector sizes; sector data formats are 32 to 256 words. The MEGA-STORE System has disk spindle speeds of 1500 rpm or 2400 rpm for use with any modern minicomputers. Average random data access is only 75 milliseconds on this fixed platter moving head disk system.

In addition to its low cost, high storage capacity, and fast random access, MEGA-STORE is compact – only 8% inches high, it will fit into a standard 19 inch EIA rack and weighs only 65 pounds.

For further information on Xebec’s MEGA-STORE System or on any of the Xebec Systems, contact Xebec Systems Inc., 566 San Xavier Road, Sunnyvale, Ca. 94086.

**DEC Trims PDP-8 Prices**

Price reductions up to 27 percent on PDP-8 family minicomputer mainframes and up to 45 percent on typical systems have been announced by Digital Equipment Corporation. At the same time, the company announced a new series of peripheral devices and software packages for the PDP-8.

DEC also announced additions to the 60 standard and special peripheral devices offered for use with the PDP-8. These include a 165-character/second lineprinter, the L38-E, which sells for $5,000; a two-color oscilloscope plotter display, the VR20, which sells for $4,000; and a receive-only version of the LA30 DECwriter, the LA30A, which sells for $2,500. DEC also announced a low-cost alphanumeric display called the VT8-E for $1,900.

Additional terminal equipment announced for the PDP-8 include the LA30-E DECwriter with EIA interface for $3,195, an RT02 data entry terminal with alphanumeric display for $1,300, a new KL8-F series of asynchronous data interfaces for $425 each and the KL8-M modem controller for $250.

As a result of both the new products and price reductions, the cost of typical PDP-8 systems are reduced. An OS-8 system configuration consisting of PDP-8/E processor, 8192-word core memory, LA30 DECwriter, high-speed paper tape reader/punch, and 1.6 million words of disk memory pack drops from $35,985 to $19,900, a 45 percent reduction. Contact the local DEC office for further information.

**Coming Up In COMPUTER - A New Product Listing Section**

Watch for COMPUTER/MAGAZINE’s new Product Profile … Preparations are being made to carry these classified product listings on a monthly basis at a very nominal cost. For information regarding placement of your listing contact: John L. Kirkley, COMPUTER/MAGAZINE, 8949 Reseda Boulevard, Northridge, Ca. 91324, (213) 886-4111.

**Low Cost Minicomputer**

The Interdata New Series Model 74 is a low-cost, 16-bit processor for quantity OEM customers, who integrate inexpensive systems for industrial control, commercial business operations and data communications. While the Model 74 is low cost, it should not be confused with stripped down or “naked” minicomputers; the new machine from Interdata offers a full complement of advanced features – including hardware Multiply/Divide, 16 General Registers, 64 KB of directly addressable core memory, LSI-solid state Read-Only-Memory, up to 255 I/O Interrupts with automatic vectoring to service routine, and upward compatibility with all other New Series processors.

With field-proven software and peripherals, the Model 74 will be available in April 1973. Single unit list price with 8 KB of core is $3,600. On