NEW ZEALAND'S LEADING COMPUTER MAGAZINE

BITS & BYTES

June 1987 $2.75 (incl. GST) AUST $2.75

NEC Multispeed – *outruns the laptop portable field*

Power and familiarity from the Access 386

Ventura Publisher for the PC family

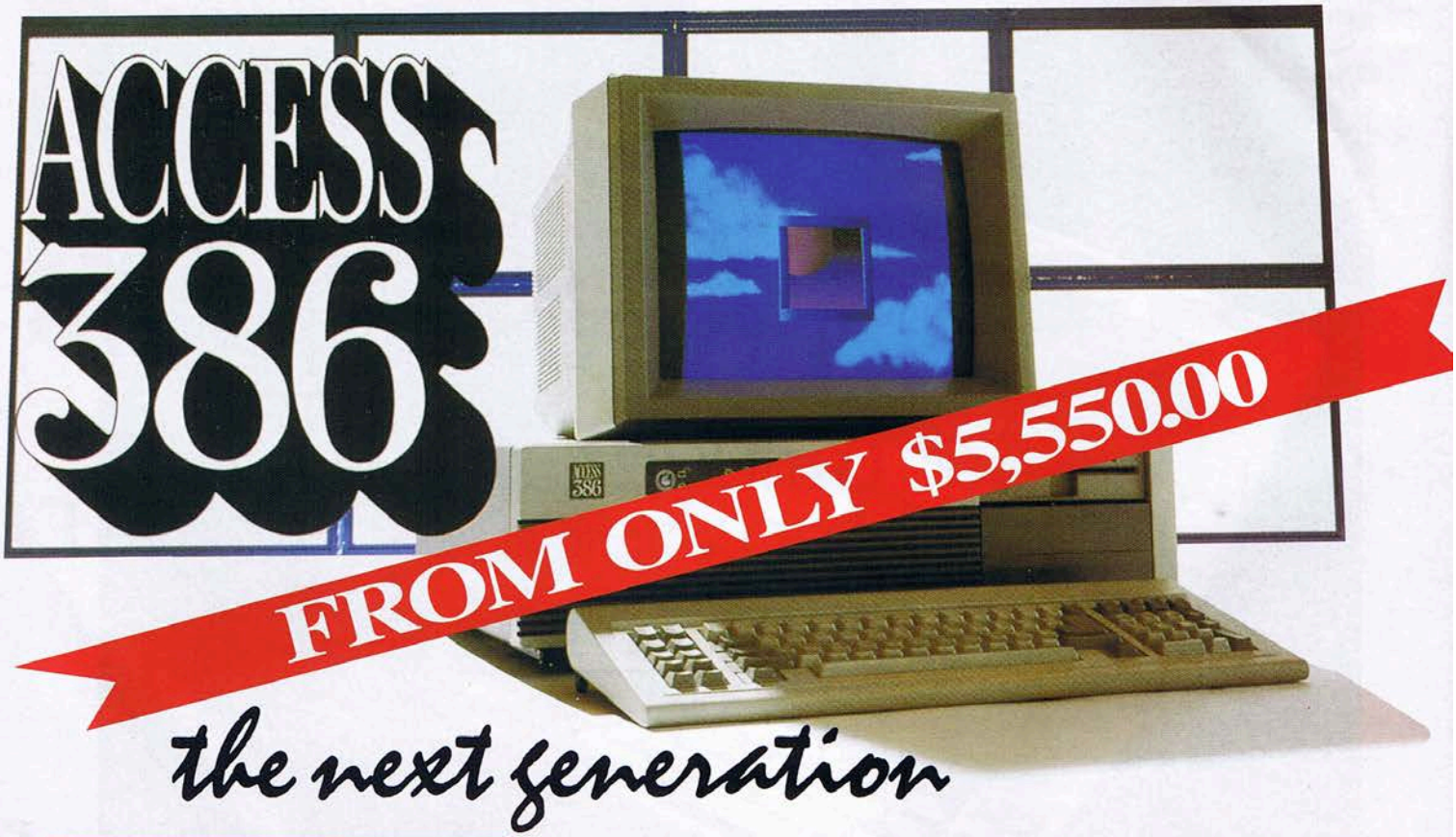
Any questions? Just askSAM

Integrated package with Ability

Computing 87 show catalogue

2nd Generation 80386

WHILE OTHERS STRUGGLE TO RELEASE THEIR FIRST 80386 MACHINE ALR LEADS THE WAY WITH A 2ND GENERATION OF 80386/2 POWERPLANTS.
THE FIRST ALR 80386 (SOLD IN JULY OF 1986) BROKE THE PERFORMANCE BARRIER. OUR 2ND GENERATION 80386/2 ANNIHILATES THE PRICE BARRIER!!



the next generation

Performance

- Intel 80386-16 Processor and Support Circuits
- 16 MHz CUP Clock Speed
- Socket for 80287 Numeric Co-Processor
- Phoenix 80386 AT Compitable BIOS
- IBM PC AT Hardware/Software Compatible
- 1 mg of 32 Bit Interleaved RAM Memory
- IBM Compatible Serial RS-232 Communication Port
- Parallel Printer Port—IBM Compatible
- Clock/Calendar with Battery Backed-up CMOS Memory
- Floppy/Hard Disk Controller Combo Card
- 1.2Mb Floppy Disk Drive
- 40, 80, 133M6 Fixed Disk Drive
- AT Style 84 Key Keyboard
- Sixteen Interrupts
- Seven Direct memory Access (DMA) Channels
- Speaker Drive
- Additional Serial Port—2 Serial Ports Total
- Additional Parallel Port—2 Parallel Ports Total

All the power you wanted at a price only we can deliver!

American designed and manufactured.

Up to 2 meg 32 bit ram on the mother board.

New high speed disk controller (1:1 interleaving with 17 sector buffering).

See your tired applications fly!

Pick DOS Xenix Dataflex Revelation CAD Desktop- Publishing Networking etc.

Network packages with **Novell** 286. V2A and Alrnet cards offer unbeatable value from **$38,500** for an **80386** file server with **4 AT** work stations.

(1.2 mg floppy disks, Alrnet cards) **60 mg** streeming tape and **80 mg** 28 ms voice coil drive.

Compatible
Affordable
Powerful
Available

TALK TO THE LEADERS IN 2ND GENERATION 80386 TECHNOLOGY TODAY!!

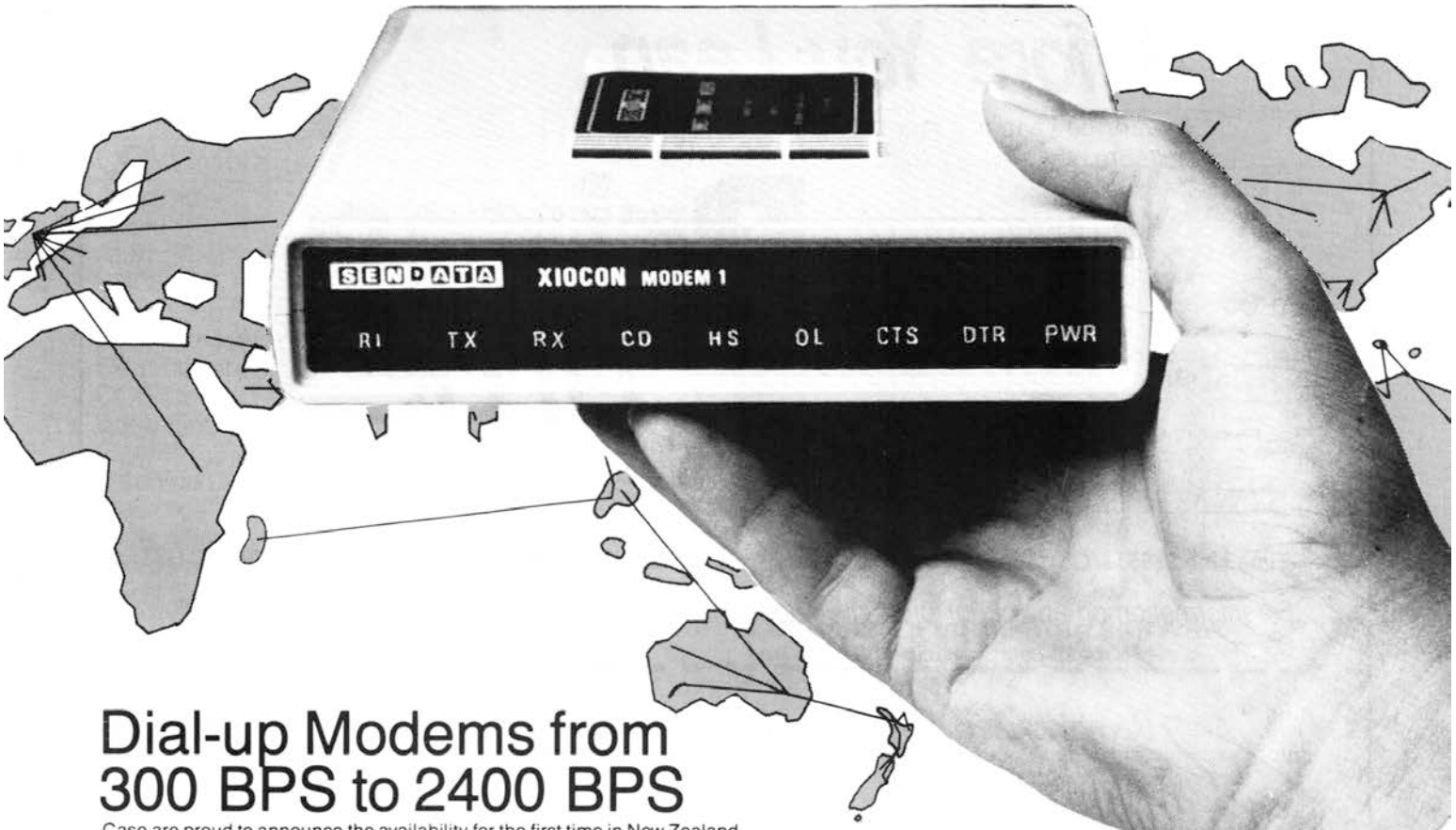
Advanced Logic Research, Inc.

Advance Imports

P.O. Box 9241, Newmarket, Auckland
Telephone (649) 391-451

Now available from CASE

Sendata State of the Art Dial-up Modems



Dial-up Modems from 300 BPS to 2400 BPS

Case are proud to announce the availability for the first time in New Zealand, of the world renowned Sendata range of dial-up modems and acoustic couplers. Sendata modems are available now with the following features:

- ★ Manual Dial
- ★ Auto Dial
- ★ Auto Answer/Disconnect
- ★ Sync/Async
- ★ Full Duplex
- ★ Videotex
- ★ Auto Speed Select
- ★ Hayes Compatible
- ★ Compact size
- ★ Dial Guard

N.Z.P.O. Approved

For further details telephone now:

CASE

Future-Proof Data Communications

Auckland 394-212 Wellington 850-250

FOLIO C8628B

TIME LINE™

A Powerful Management Tool for planning and Tracking Projects.

STOP? / GO!

Stop? / Go! *is an accurate, practical and structured venture elevation tool — something no growing company can afford to be without.*

Before You Leap

Before You Leap *is a more accurate way to estimate software development costs.*

Prime Time™

A personal time management system for the IBM-PC that succeeds where others have failed.

Time Line $895 + GST Stop? / Go! $495 + GST Before You Leap $1495 + GST Prime Time $295 + GST

For information on any of our products, telephone (024) 774-464 or use the reply coupon below

Remarkable Enterprises Ltd (Computer Division)
7 Crawford Street, DUNEDIN
Freepost 191, P.O. Box 1415, Dunedin
FAX (024) 772-948, Tel (024) 774-464. Telex NZ5406 REMPAR

I would like to order _____

I enclose my Cheque/Money Order/Postal Note.

Please debit my Credit Card: Visa/Bankcard/Amex/Diners for $_____

Card Number _____

Expiry Date _____ Signature _____

Name _____ Position _____

Address _____

Company _____

Phone Number _____ Date _____

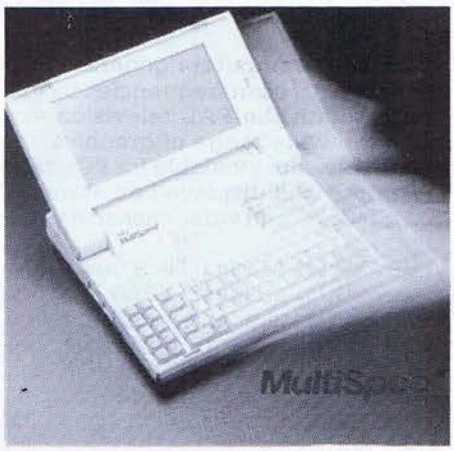
All orders must be accompanied by a cheque, money order, postal note or credit card number. All orders must be signed. Your money will not be banked until after your order is despatched.

TPB011

BITS & BYTES

June 1987 Vol. 5 No. 9

ISN 0111-9826



Take the MultiSpeed and run.
Cover review page 17.

COLUMNS

Amstrad	82
Apple	78
Atari	61
BBC	79
Book Club	76
Book Review	86
Commodore	59
DOS Corner	57
Education	66
Games	84
Machine Language	62
Macintosh	55
Micronews	6 etc
Micros at Work	64
Rural Computing	71
Sanyo	68
Spectravideo	74

MEMBER MPA
THE MAGAZINE PUBLISHERS ASSOCIATION OF NEW ZEALAND

FEATURES

COMPUTING 87 Show Catalogue 37

Big changes in data transmission 53
Even modems are old hat as Warren Meech covers the specialised field of data transmission in New Zealand today.

HARDWARE REVIEWS

Supertwist portable – the NEC Multispeed 15
Mark James tries, among other things, the ultimate in small-footprint multi-user systems on a new portable laptop.

Powerfully familiar – the Access 386 30
32-bit microcomputers are appearing on the market in some numbers now, and Peter Ensor looks at one which isn't dauntingly different.

SOFTWARE REVIEWS

A heavyweight of desktop publishing software 21
Aimed at the top end of corporate users of such packages is Ventura Publisher, studied carefully by Hylton Tuckett.

AskSAM anything 27
Ewen Green looks at an entirely new kind of database, where nothing is rigidly predetermined. Is it the answer to everybody's dreams?

Package of many parts 35
Another integrated package aimed at small business users is tested for such suitability by Peter Ensor.

BITS AND BYTES magazine is published monthly (excepting January) by Bits and Bytes Ltd, Denby House, third floor, 156 Parnell Road, PO Box 9870, Auckland 1. Phone 796-776, 796-775. **EDITORIAL:** managing editor, Gaie Ellis; editor, John King. **ADVERTISING:** Auckland – David Meyer, PO Box 9870, 796-775; Wellington – Vicki Eckford, 753-207. **SUBSCRIPTIONS:** third floor, Denby House, 156 Parnell Road, PO Box 9870, Auckland, phone 796-775. **SUBSCRIPTION RATE:** $27.50 (incl GST) for 11 issues, school pupils rate $25.00 (incl GST). Overseas subs are $35/year surface mail, and airmail rates of $68 (Australia, South Pacific), $100 (North America and Asia) and $125 (Europe, South America, Middle East). **BOOK CLUB:** manager, at above Auckland address, phone 796-775. **DISTRIBUTION INQUIRIES:** bookshops to Gordon and Gotch Ltd, computer stores to publisher. **PRODUCTION:** graphic designer, Derek Ward; typesetter, Monoset; printer, Business Print. **DISCLAIMERS:** The published views of contributors are not necessarily shared by the publisher. Although all material in Bits and Bytes is checked for accuracy, no liability is assumed by the publisher for any losses due to use of material in this magazine. **COPYRIGHT:** All articles and programs published herein are copyright and are not to be sold or distributed in any format to non-subscribers of Bits and Bytes.

Compact and low-cost

Displayed by Sanyo New Zealand for the first time at **Computing 87** will be the MBC-16, a 16-bit XT-compatible with small footprint and a special video adapter card developed by Tseng Laboratories to display 132 columns of text. With a modest price, it comes with 640kb RAM as standard, and will be reviewed by *Bits & Bytes* next month.

Sanyo's Business Systems Division has been split into four operating groups: office equipment, computers, ECRs and business systems. At the same time, the name has gone from Autocrat Sanyo to Sanyo New Zealand.

Mike Moir, head of the new computer group, says that under its new policies all personal computers will be sold only through dealers, while price lists will include third-party products fully supported by Sanyo and the company will provide special service arrangements on volume sales.

More desktop publishing

Digital Research has introduced its GEM Desktop Publisher, shortly after signing a contract with IBM to license its GEM Draw for IBM distribution.

PS: increasing standardisation

Despite recent staunch denials, Hewlett-Packard has now announced that it will be putting the PostScript page description language into its laser printers, opening the way for more standardised products especially in desktop publishing. By signing an agreement with Adobe, HP will either license PostScript for incorporation into its printers or allow a third-party developer to build a PostScript-based peripheral to achieve the same thing.

HP's PCL, or printer control language, is incompatible with PostScript-based software, and the company believes it is still superior to it, being 30 per cent faster. However, the customers continue to want PostScript and so they will get it in the near future.

Wide-track plotter

Versatec now includes a 44-inch wide electrostatic colour plotter in its range, producing images at 200 or 400 points per inch on opaque paper and polyester film. A separate black toner reservoir also gives a monochrome plotting feature at speeds of up to one inch per second.

Also recently introduced by Versatec is a thermal transfer colour plotter for mainframe, workstation or personal computer.

Computer-video synchronisation

Because computers generate RGB signals with scan frequencies incompatible with the PAL television system, the wide range of graphics and paint software available for PCs can't be stored and displayed on standard TV monitors and video cassette recorders.

However, Magna-Tech has introduced the Japanese YEM range of scan converters and synchronisers, suitable for use with IBMs and compatibles with CGA, EGA or PGC and conforming to the PAL standard. To avoid cropping of the display, vertical and horizontal positions and the width of the video frame can all be adjusted.

POSitive authorisation

Data Systems is marketing a point-of-sale authorisation device, the Omron CAT 90, which takes the customer's account number and dials up the appropriate authorisation centre to check the customer's credit. The unit offers a discreet method of accessing a credit record, avoiding potential embarrassment by taking only 20 seconds to complete the transaction.

Also from Omron is what Data Systems describes as second-generation EFT-POS hardware, the PST 150 (payment systems terminal), which will interface with most currently-available EFT-POS facilities and electronic cash registers. Tamper-resistant, it contains all security-related functions and isolates the security sensitive EFT operations from the retailer system.

SWEET·P-SP100

A4 size PC. Plotter

- Low cost, high quality graphics output
- Truly Portable
- Compatible with all popular microcomputers
- Convenient centronics type Parallel Interface.
- Resolution 0.10mm
- Repeatibility 0.10mm
- Fibre tip, Rollerball, Liquid Ink Pens
- Type-set Facilities
- Includes cable, paper and pens

Authorised NZ Distributor for Sweet-P. Plotters

$695.00

DATAPLUS PERIPHERALS LTD

QUEENS ARCADE
LOWER HUTT
P.O. BOX 2451
WELLINGTON
NEW ZEALAND
TEL: (04) 693-882

SUPPORT CONSULTANTS

On site installation, training and software support on:

CASHLINK
PROFAX
SILK
IRDOSS
ISSACS

Contact: Tainui Enterprises
P.O. Box 89-001,
Auckland
Ph: 404-7009

Accommodating software

Centron Corporation, the major online computer bureau, has branched into the PC software package field with its unveiling of Accommodata, a booking system for the hotel-motel market. Able to support a small group's single standalone PC or allow any number to share files through a LAN, the package can also connect to mainframes through a 3270 gateway emulation.

In announcing the system, Centron assistant general manager Trevor Vernon pointed out that with the high turnover of staff in hotels, the need for low training time and commonality in screen presentation was important. With "plenty of financial packages on the market", he said, there hadn't been the need to develop a full financial range, and Accommodata interfaces to Attache and will operate alongside other systems such as word processors and spreadsheets.

Minimum hardware requirement to operate the package, which was developed over 18 months, is a PC or compatible with 20Mb hard disk.

Post-graduate bursaries

Sigma Data has released details of the initial stage of its computer science post-graduate research awards scheme in Australia, worth a total of $AUS90,000 over the next three years. Initially, six awards of $5,000 each will go to current holders of government research awards who are engaged in computer science and the furthering of UNIX technology, open to students at all Australian universities.

"These bursaries are intended to benefit research generally and establish Australia as an international force in the UNIX world," said Sigma Data director John Williamson when making the announcement.

Keeping on track

New Zealand Railways' newly-corporatised Passenger Business Group has been supplied with a $2 million integrated computer system by Unisys with Linc-based application packages. The software has been developed froma number of sources: fleet management from Fletcher Computing in the UK for controlling aspects of fleet movement and maintenance; stores system from Class Systems, Napier, for location of spare parts; the Scope financial system, originally developed by Allied Computer Processors in Dunedin; and a Linc pay and personnel package.

Also planned for the future is a computerised reservations and ticketing system, less than 20 years after the airlines implemented their own.

Prices coming down

Hewlett-Packard (NZ) has announced prices lowered by 15 per cent on its Vectra models 50 and 60, PC/AT compatibles with 20Mb and 40Mb hard disk drives. The reductions, of around $1500 on each model, bring the bottom-end HP AT to $8,445 excluding GST.

"These price reductions were made because of lower material costs, streamlined production processes and lower manufacturing costs," says Don Sykes, marketing manager. "By reducing prices, HP can remain competitive with other 80286-based systems."

The announcement coincidentally follows the new pricing structure of the IBM PS/2 family – and the lowered prices of existing stocks of the old PC/AT series.

Wiri Marketing for very competitive computer rentals.

If you're contemplating purchase — why not also consider rental with its inherent advantages.

★ No capital outlay
★ Flexible periods of rental
★ No obsolescence
★ Utilize your budgets to best advantage

Talk to us about tax advantages

Ph:(09)278-6231

WIRI MARKETING LIMITED

487

Now, about that rise...

Business Week has listed some top executives' salaries, and some computer companies are noted as being big payers. Highest among the beneficiaries is Data General's president and chief executive (and one of the founders) Ed de Castro, paid $US10.09 million, followed by NCR's Charles Exley at $8.032 million and An Wang at $5.23 million.

Not far behind are John Akers of IBM ($5.174 million) and Apple's John Scully ($5.091 million), while at the other end of the scale is Microsoft's founder and chairman Bill Gates at a mere $160,000. However, *Business Week* notes that his figure does not include some non-salary compensation.

Ruckus at Commodore

Thomas Rattigan, Commodore International's chief executive officer, has been sacked, just months after being given a five-year contract as reward for bringing the company back to profitability from the brink of bankruptcy. The day after being forcibly removed from his office by security guards, Rattigan filed a $US9 million damages suit against the company, and chairman Irving Gould proclaimed himself in day-to-day command of the computer manufacturer.

Rattigan had called a special board meeting to complain about Gould's undercutting him with middle management, but the board agreed with Gould and also fired Nigel Shepherd, general manager for North America, and Commodore's treasurer, controller, and computer services manager.

Behind the action is Gould's dissatisfaction with the company's progress in the American domestic market and Rattigan's emphasis on administration, and sales and distribution would be increased, said Gould. Shortly afterwards 50 employees, 40 per cent of the West Chester administrative staff, were laid off.

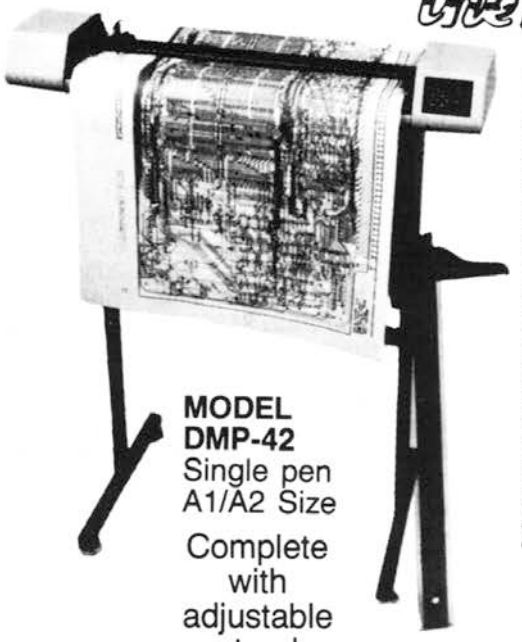
New boost for UNIX?

Further criticism for the new IBM Personal System/2 has come from the NZ Unix User Group. President Ian Howard calls them "strategically questionable in the light of increasing end-user sophistication, particularly in the PC end of the marketplace."

He believes that Unix is making more sense to more people now that users are demanding open system architectures which allow portability and connectability across different vendors' hardware offerings. In his view, "IBM's historically classic technique of locking its users into yet another proprietary IBM approach has had its day and will not be strongly supported by end users this time around."

AT&T and Microsoft recently announced a new version of the UNIX System V for the 80386 microprocessor, to be developed to AT&T specifications and expected to be available in early 1988. The company anticipates this version, combined with the technological advances of the Intel 80386, "to create tremendous growth opportunities for both computer manufacturers and software vendors."

the Houston way



INTELLIGENT PLOTTERS

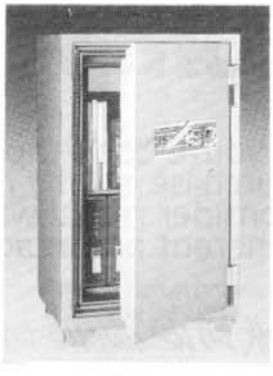
Houston Instrument's DM/PL™ (Digital Micro/Plotter Language) is built into the DMP-42. This means the user has unlimited graphic capabilities. DM/PL enables the DMP-42 plotters to automatically generate curves, arcs, ellipses, and circles of various sizes. Straight and slanted (italic) characters can be drawn to follow any line or angle in 255 different sizes. These plotters draw solid lines, as well as combinations of solids, dots, and dashes. In addition, the user can plot only a portion of a drawing (window) when necessary or scale drawings up or down to suit his graphic needs. All these inherent characteristics make these plotters remarkably "intelligent".
Call NZ Representative for name of your nearest dealer.

MODEL DMP-42
Single pen
A1/A2 Size
Complete with adjustable stand

S.D. MANDENO ELECTRONIC EQUIPMENT CO.
10 WOODHALL RD, EPSOM, AK 3. PH 600-008. FAX NZ (09) 601-720

Safeguard your computer data, paper documents and valuables

FIRE RESISTANT CABINETS
FIRE RESISTANT FILING DRAWERS
SECURITY SAFES



NATIONAL SAFE MARKETING CO.
P.O. BOX 26084 EPSOM PH: (09) 546-096

EXZEL Newsline

DESKTOP Publishing For $10,500.00

The latest EXZEL offer appears to have no parallel in price or performance anywhere!

It has been reported that Computer Imports Limited (to coincide with Southern Business Expo '87 in Christchurch and Computing '87 the following week in Auckland) will be releasing an unparalleled package for serious Desktop Publishing requirements.

Sources disclosed that the package, which is expected to retail at around $10,500, will include Page-maker Software, a Laser printer, and an EXZEL AT complete with a 20Mb winchester disk, PFS: First Choice (Word Processing, Spread-sheet, Database and Communications package) plus the MS-DOS operating system. With similar packages currently retailing in the range of $18,000 to $22,000 or more this package deserves examination by anybody contemplating Desktop Publishing.

Stop Press

Mr Philip Ellis has disclosed that equally attractive packages (to the Desktop Publishing Package) will be released in the areas of serious Word Processing use (including a dual bin laser), a Retailers Cashier System and a General Purpose Business System.

For further details visit the Computer Imports stands at either the Southern Business Expo – Christchurch (May 19-20-21) or Computing '87 – Auckland (May 28-29-30). Contact a Computer Imports branch or an EXZEL dealer.

COMPUTING '87 Supported By

Computer Imports Ltd

28 – 29 – 30 May 1987

All visitors to Computing '87 will find a fast and efficient registration system which has been designed and sponsored by Computer Imports Limited. Sponsorship also includes the provision of a number of EXZEL PC's at the registration desk for the duration of the show. In talking to Mr Hackett, Marketing Manager for Computer Imports Limited, he disclosed that "the software used to run the registration system is called PFS: Professional File (from the same stable as PFS: First Choice) and took less than one hour to prepare."

Mr Hackett also stated that a number of significant computer packages would be launched in conjunction with the show. Computer Imports' stands are number 5 and 6 next to the reception area.

Signing the tender contract between Carrington Technical Institute and Computer Imports Limited.

Winning With Service And Support

Carrington Technical Institute has awarded Computer Imports Limited (marketers of EXZEL computers) their latest tender relating to personal computers.

In awarding the contract for 37 machines, printers and associated hardware to Computer Imports Limited, Mr Ross Clark stated, "The contract was awarded on the basis of competitiveness, proven support, reliability of supply and their proven service record. These areas are of prime importance to Carrington Technical Institute." Mr Ross Clark is the Co-ordinator of Computer Studies for Carrington Technical Institute.

Computer Imports was selected from 26 requests for tender sent out to a range of computer suppliers throughout New Zealand. From these, 18 formal tender responses were received, these in turn were narrowed down to a short list of three potential suppliers. Each of these suppliers machines were then subjected to testing with the result that Computer Imports Limited and their EXZEL range won the contract.

The computers will be installed during the next two months.

Major insurance software export

Laptop portable computers have been aimed at such people as insurance agents, and Assurance Industry Marketing Systems (AIMS), having developed personal finances planning software to run on such machines, has signed a major purchase of the package in Australia.

The sale results from a conference sponsored by NZI Life Australia. "They were highly enthusiastic about the opportunities opened up by our software and systems," reports AIMS managing director Selwyn Keneally. "They saw it as a quite revolutionary change in providing a life assurance service. Seventy per cent of the agents at the conference signed up on the spot."

AIMS says New Zealand agents claim up to 40 per cent increase in productivity in advising on income protection. The company maintains software, distributes the briefcase-size computer and provides sales and technical training.

Major milestone figure

NEC Information Systems Australia passed the $AUS100 million revenue mark for the year ended 31 March with a 60 per cent increase over the previous year. Managing director Graeme Poulton says the $101 million figure, achieved a year ahead of schedule, "represents a major milestone for NEC which only established its Australian operations in 1981."

He predicts similar growth rates in the future, saying that while PC sales have always been high in the government and small business areas, the marked increase in the corporate sector was one of the year's highlights. NEC is ranked number three personal computer supplier in value and volume terms, according to Compass Research's 1986 MicroScoreBoard.

Modem availability

Clarifying the marketing strategy of one range of the modems listed in last month's roundup, CompuSpec managing director Phill Andrews points out that the CompuSpec M50 and M1200 models are available only through his company, while the M100, M1000 and M2000 are sold by both Datacom and IBM.

Wang progress

Wang Laboratories reports a revenue increase of 9 per cent, for the quarter ended 31 March, over the corresponding period last year, with a record $US745.9 million. The figure reflects increased deliveries of VS7000 Series and other high-end systems, and according to Wang president Frederick Wang, "The great progress we have made in this period strengthens our confidence considerably, and we are convinced that our stated goal of solid profitability for the fourth quarter is quite realistic and achievable."

On the local scene, Wang New Zealand's year-to-date revenues of $52.2 million have surpassed last year's by 37 per cent, with "significant inroads into the manufacturing and distribution markplace", says the company.

COMPUTER TO COMPUTER –

The communication possibilities are only a phone call away with a

COMPUSPEC MODEM

MODEMS

M50: 300, 1200/75, Full Duplex, Asyn, Manual Dial, Auto Answer.
Rec Retail: $459.00

M1050: 300/1200/75, Full Duplex, Asyn, Auto Dial, Tone/Pulse Dialing Auto Answer.
Optional: Videotex Emulation
Rec Retail: $845.00

M1200: 1200/1200, full Duplex, Asyn, Auto Dial, Tone Pulse Dialing, Auto Ans. Full Diagnostics.
Optional: Security Redial
Rec Retail: $1145.00

SOFTWARE

INSIGHT: Comprehensive terminal emulation programme, similar to Multicom – but at a much reduced price.
Rec Retail: $225.00 + GST

NEW Opportunities
Step beyond the limits of personal computing and into the Stock Exchange, commercial information via Videotex. Transfer data to any P.C., micro, or mainframe, without leaving your chair.

Experience and Reputation
With over five years solid involvement in computer communications and suppliers to IBM Ltd, Post Office, and major communication companies.

Technical Back-up and Service
Competent technical expertise and quick service ensures the client becomes a long term friend.

Enquire about other modems and options like — Security Redial, and Timekeeping Auto answer
— Products designed with you in mind.

COMPUSPEC INDUSTRIES LTD
9 MAIDSTONE ST, GREY LYNN
PO BOX 26-060, AUCKLAND
Phone (09) 788-529 Telex NZ60063

Please send information on **Compuspec** products
Name: _____
Company: _____
Address: _____

The Blues get bigger

According to a recent issue of *Computing*, IBM Australia chose to use the American version of a PS/2 launch video rather than commission its own. Nobody thought to consider industry compatibility standards, with the result that while the picture came through clearly, the sound said nothing whatsoever.

Unfazed, an IBM Australia executive is said to have offered the audience a typewritten transcript after the show was over.

NEC plans US production

In order to cope with the 100 per cent American import tariffs against Japanese products, plus the increasing value of the yen over the dollar, NEC will shortly start producing its personal computers in the USA. NEC Home Electronics will manufacture the Multispeed laptop, reviewed in this issue, in Dallas, Texas, while the desktop APC series will be made at NEC Information Systems in Boston.

Burgeoning security market

A sevenfold growth in computer sescurity products and services over the past five years is predicted to continue, according to American sources. International Resource Development says large corporate data processing managers are routinely taking "hair-raising risks" with their computer information through neglect of routine backup and safety provisions. "Lack of encryption in corporate data networks, coupled with little or no attention paid to spurious electromagnetc emissions, means that tapping the networks has become quite easy."

However, the greatest threat to security is thought to be from within the computer room itself, with managers more wary of the disgruntled or dishonest employee than physical or telecommunication security.

Equipment growth of access protection into sensitive areas will centre on biometric systems, which measure aspects of personal physiology which are not susceptible to duplication, with sales of $US320 million by 1997 compared with $8 million this year. Another expected growth area is fibre optic modems, as it is not yet possible to tap into the side of a fibre optic strand without being immediately obvious.

Compaq's record sales

A record net income for the first financial quarter of $US20.2 million, an increase of 142 per cent over the corresponding 1986 period, has been announced by Compaq Computer Corporation. President and chief executive officer Rod Canion attributes the record levels to sales of the three newest computers: the portable III, 12MHz models of the Deskpro 286, and the Deskpro 386.

He says, "The strong, increasing demand for our products can be attributed in large part to our focus on compatible, industry standard workstations. We are providing what the market is calling for – the highest performance PCs possible while retaining the benefits of true compatibility with the industry standard."

New multiplexers

Up to eight or 16 simultaneous data connections over a single link are possible with two new data multiplexers introduced by GEC in the UK. The SM0896 and SM1696 both have a maximum input aggregate data rate of 76,800 bps, and can operate over modem links, digital telecommunications circuits, or for back-to-back operation up to 1km using the built-in line drivers.

The back-to-back capability is said to be ideal for data links in large sites or office blocks as it greatly reduces the number of cables and line drivers required, as well as providing error correction.

Engineering students' choice

From the ten major brands of IBM compatibles evaluated by engineering students at the University of Auckland for their purchase for this year's tertiary studies, Mitacs were chosen. Most of the 35 initially ordered have been delivered, and a further order for 30 has been placed.

Networking IBM PS/2

LAN support for the new IBM Personal System/2 series has been announced by Novell. Models 30, 50 and 60 can be used as workstations on existing LANs as NetWare supports PC-DOS 3.3 (required to run on all the machines), while support for the Model 80 is expected to follow when the product becomes available.

Impact Technologies says NetWare also supports all the IBM network adapter cards, with workstation shell software available immediately in both 3.5 and 5.25 inch formats.

New laptop model from Data General

Released in the US on 5 May was a new version of Data General's laptop, the One Model 2T, a PC/XT compatible with backlit supertwist screen, 10Mb hard disk, 80C88-2 dual-speed processor running at 7.16 or 4.77MHz, and up to 2.5Mb RAM. In keeping with its portability, Data General offers a hardware warranty honoured in 23 countries, no matter where the unit was originally purchased.

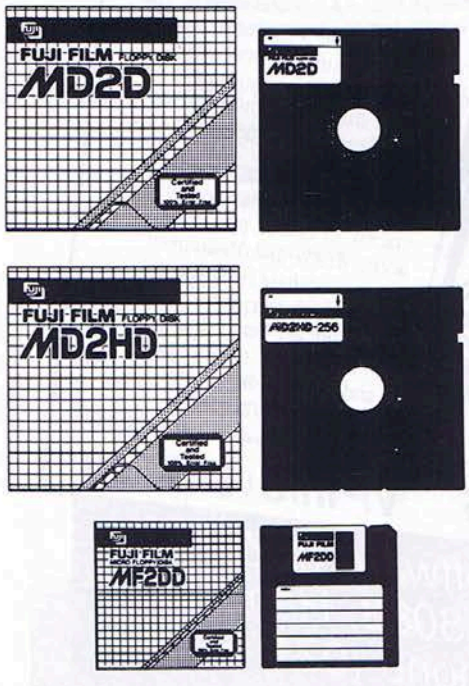
The company sees the insurance industry as one of the most intensive users of such laptop computers, and an initial order of 12 machines running the AIMS package will be used by NZI life insurance representatives in the South Island.

Reducing charges

Solstat Industries is marketing static-control products from Wescorp, California, in the form of wrist straps, sleeve protectors, laboratory coats, seat covers and earthing devices to be worn over shoes.

Ron Blakemore, Solstat area sales manager, points out that microcomputer users and technicians can cause thousands of dollars' worth of damage by delving into their machines without taking precautions against static electricity. Computers are becoming more susceptible to such damage as more components are packed into single chips, he says. "No-one should ever put a hand on a board in a computer without taking appropriate precautions."

FUJI FILM FLOPPY DISK



★ Lifetime Warranty
★ 8", 5¼", 3½"
★ 3% Modulation
★ Coloured Jackets
★ 100% Certified

Available from:

SYSTEMS TECHNOLOGY & ASSOCIATES
47 Fitzherbert Street
Petone
phone (04) 683 815

MR E CHEYNE
PO Box 299
Invercargill
ph (021) 330 444

COMPUTER ADVANCES
182 Great South Road
Remuera
Auckland 5
phone (09) 504 457

DIMENSION SYSTEMS LTD
cnr Hobson & Wellesley Streets
Auckland 1
phone (09) 372 600

RIBBONWORLD COMPUTER SUPPLIES
130 Wairau Road
Glenfield
Auckland 10
phone (09) 444 3575

Distributed by: HANIMEX N.Z. Ltd.
P.O. Box 40041, Takapuna, Ph. 444-4946

Some silly software prices...

$1495

Word Processing
Spread Sheet
Database
Communications

Framework II

$1495

Word Processing
Spread Sheet
Database
Communications

Symphony

$295

Word Processing
Spread Sheet
Database
Communications

First Choice

It's silly. The cost of personal computers has tumbled, while integrated software packages remain at an unrealistic level. Except PFS's First Choice. Here is a package that Pacific Computers recommend without reservation. First Choice gives you all the applications you need: word processor with (British) spelling checker; a forms orientated database with report generator; spread sheet; communications package. It has the power to get things done fast. And it's so easy to use that the office junior will be working productively on the first hour of her first day. (There's no need to battle through a massive manual to put italics in a memo.)

In short, PFS's First Choice is the practical solution at a sensible price. For more information or a demonstration, call into Pacific Computers, or give them a ring.

PACIFIC COMPUTERS

Corporate Headquarters & Showroom
87 Carbine Road, Mt Wellington

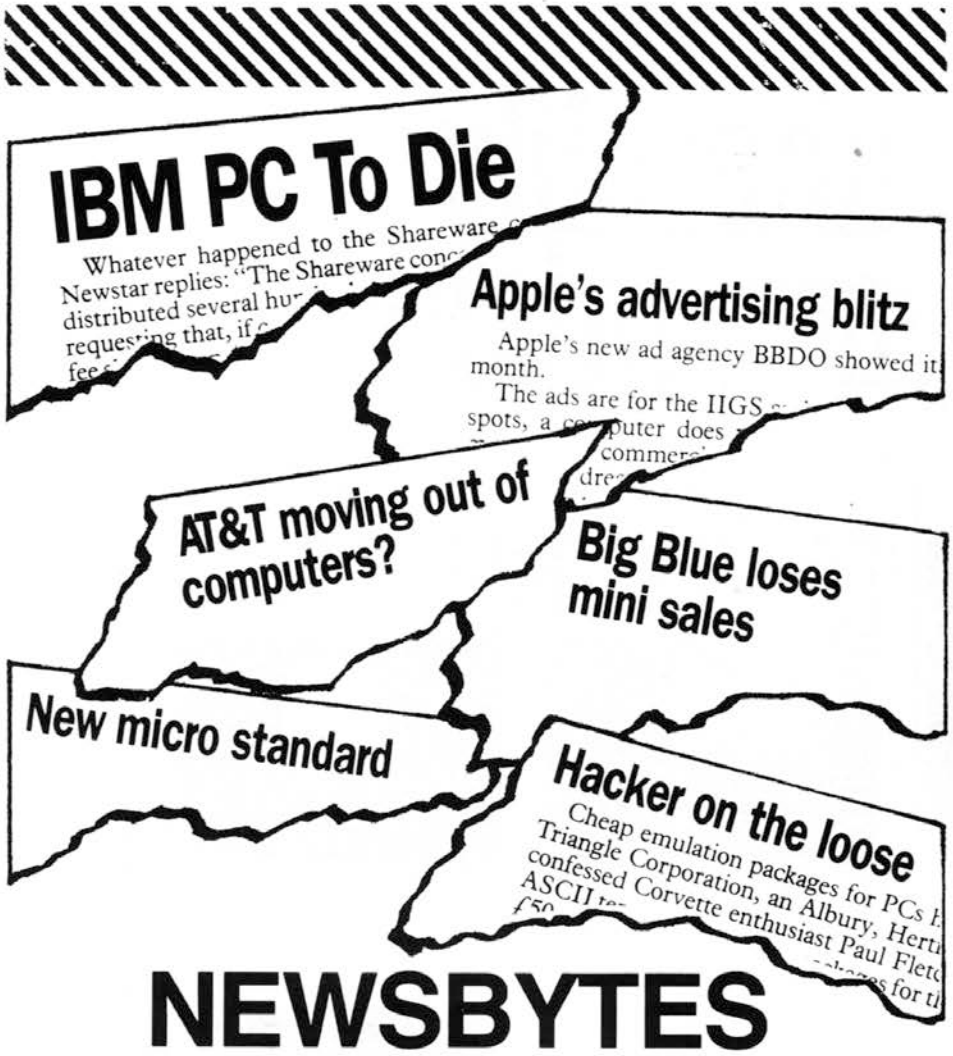
OPEN SATURDAY MORNING

Phone (09)577-246 or (09)577-323

Mail Order Hotline
(09)572-199

VISA BANKCARD AMERICAN EXPRESS

Spectrum | PC/180



NEWSBYTES

NEWSBYTES is an up-to-the-minute report on the computer industry, compiled from world-wide sources, which will be published fornightly.

Newsbytes will keep New Zealand businesses informed about developments in the computer industry world-wide.

This information will be available exclusively to Newsbytes subscribers only.

A year's subscription to Newsbytes currently costs $150 (for Bits and Bytes magazine subscribers) and $170 per annum for those initiating subscriptions to both Newsbytes and Bits and Bytes. There will be 25 issues of Newsbytes within the year.

NEWSBYTES SUBSCRIPTION FORM

NEWSBYTES Bits & Bytes Ltd
P O Box 9870
Newmarket
Auckland.

I wish to subscribe to Newsbytes. I am a current subscriber to Bits & Bytes. My subscription number is

.....

Enclosed is my cheque for $170.00. ☐

I do not currently subscribe to Bits & Bytes. Enclosed is my cheque for $170, being an annual subscription for Bits & Bytes and Newsbytes. ☐

Name .....

Address .....

.....

.....

Machine type and/or particular interests

.....

.....

.....

Information science centre for Auckland University

To be established at the University of Auckland is a Centre for Information Science, funded and supported on a partnership basis by the university and IBM and making available a computer 14 times the power of the largest the university has at present.

In announcing the proposed centre, university vice chancellor Dr Colin Maiden and IBM managing director Basil Logan said that while New Zealand universities have offered courses on computing, computer science and data processing for many years, it has not been possible to expose students the large system computing environments that many will encounter in their careers. The new facility will be used as a teaching aid and also made available to support designated research projects within New Zealand.

IBM will make available key staff and the university will purchase communications equipment and terminals for a campus-wide network. The total contribution over the agreement's five-year period is expected to be worth as much as $20 million.

Copyright laws tightened

Singapore has implemented its Copyright Act 1987 (replacing the previous Act of 1911) and now conforms to international laws and agreements. In the past, many IBM compatibles have been brought into Singapore from Taiwan and software copies have been freely available at cheap prices, a typical package costing $S4.00 with a manual for a further $7.50.

The new Act, which came into force in April, provides for stiffer penalties as well as clarifying the copyright question, making it an offence to authorise, import or sell infringing copies of work or other subject matter.

One New Zealander, in Singapore the weekend before the new Act became law, reported that it was "impossible to get anywhere near a computer store."

Supertwist portable – the NEC MultiSpeed

Its manufacturer claims this truly portable laptop PC-compatible to be the fastest of its type. Mark James takes it through its paces and considers the overall usefulness of such a machine.

Ever since the Grid computer came out four years ago, laptop portable computers have represented something of a Holy Grail for PC manufacturers. It is, to be sure, a marketing manager's dream: you show a busy executive on a plane; he whips out his briefcase, and there inside is a computer with the power, the memory and the storage capacity of yesteryear's mainframe.

The Grail has, true to form, proven elusive. A truly portable computer must run on batteries. This means that either the functionality of the machine must be reduced in order to conserve power, or else the battery has to weigh enough to compromise seriously the computer's portability. Most laptop portables choose the former course, restricting the availability of disk drives and other peripherals, and employing low-power, low-visibility liquid crystal diodes (LCDs) for the screen display. NEC's recently-introduced Multispeed laptop tries to find an optimum design, and the attempt is a good one.

Physical description

At five kilograms, the Multispeed is one of the lightest of those laptops that can claim IBM PC compatibility. It measures 346 mm by 315 mm, and when closed stands a mere 79.5 mm high. The top flips up into an adjustable LCD screen measuring 230 mm by 120 mm, while the keyboard lies underneath. It has 85 keys, whose layout resembles that of the original IBM PC except for the numeric keypad (a feature often sacrificed on laptops), which is located above the main keyboard. The ten function keys are to the left. All of the keys are full-travel and have a nice firmness; however, the repositioning of the numeric keypad requires some getting used to, since the main keyboard is no longer at the centre of things. Touch typists will frequently find their fingers one or two keys off to the left. (The F and J keys are slightly dished, which will help some.) Both the Numlock and Capslock keys have LED indicators.

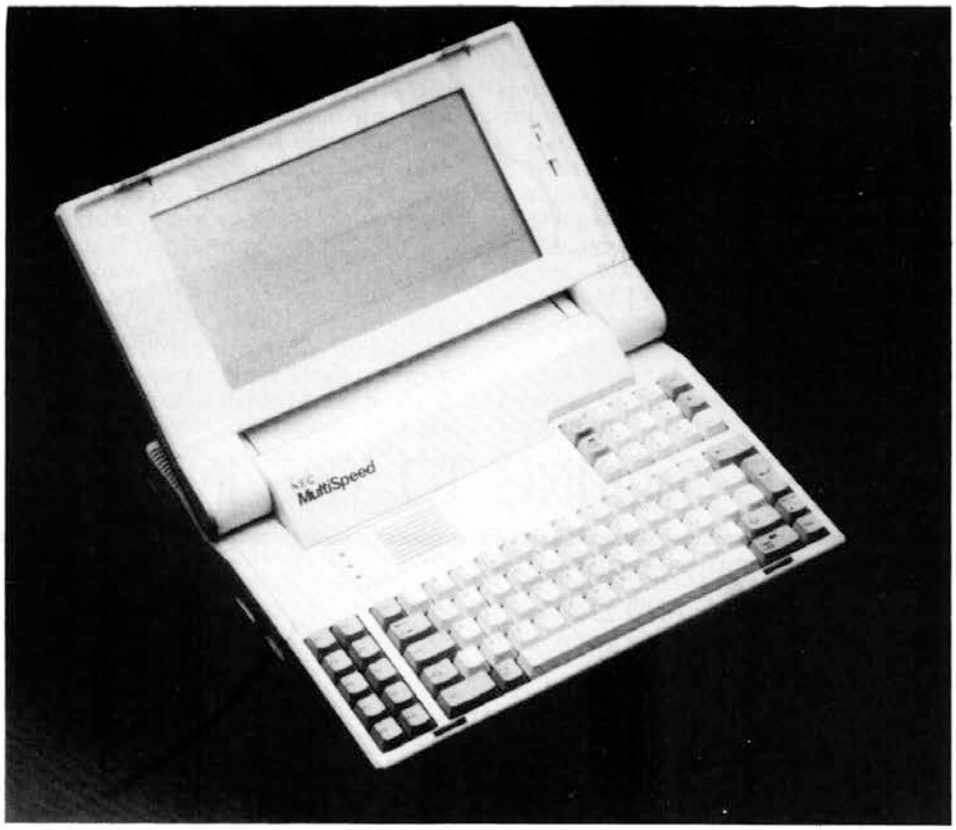
To the left of the numeric keypad are the disk drive indicators, a low-battery warning light, and a terribly tinny speaker.

The display screen uses so-called supertwist technology. This is a means of implanting tiny LCD pixels in such a way that they may be viewed from nearly any angle. Ordinary LCDs are almost invisible unless you look at them straight on and such a reduced viewing angle was a major drawback for the earlier LCD screens such as the one on the Data General One laptop. Supertwist technology solves this problem nicely. The Multispeed crams 640 by 200 pixels onto its screen, allowing decent graphics and a very readable character font.

Supertwist technology has not, however, solved the other major problem with LCD screens: their lack of contrast. The Multispeed screen has a sliding contrast adjustment switch, which permits the user to find the best contrast for a given lighting situation, but even this will produce headaches after an hour or two. The only solution to the contrast problem is a backlit screen, but this uses an unacceptable amount of power for a battery-operated machine.

The Multispeed crams 640 by 200 pixels onto its screen, allowing decent graphics and a very readable character font.

On the right side of the unit are the two 3.5-inch, 720kb diskette drives,



Talk To The Inventors.

DATA CARTRIDGE BACK-UP

A technology developed by 3M that brings new standards of ease and reliability to back-up. Not to mention capacity — the largest for its size of any disk storage system.

From 4 to 134 Mbytes of information can be saved. Data Cartridges are quick, easy, with lowest cost per megabyte. And they are compact too.

You can be certain we'll ensure State-of-the-Art performance and technological advancement.

3M is committed to Data Cartridge Technology.

data cartridge technology™

OTHER 3M DATA RECORDING PRODUCTS

- Diskettes •
- Computer Tape •
- Accessories •
- Static Control Mats •

KEEP TALKING TO THE INVENTORS

DATA RECORDING PRODUCTS
3M NEW ZEALAND LTD,
P.O. Box 33-246 TAKAPUNA
PHONE (09) 444-4760 AUCKLAND
PHONE (04) 720-134 WELLINGTON.

3M

Official
Data Cartridge
1988 Olympic Games.

the same format as used on the IBM PC Convertible laptop. On the left side is the power switch and a gaping hole where the internal modem should go (the New Zealand Post Office – I mean Telecom – strikes again). The rear of the unit contains the standard serial and parallel ports, a floppy-disk controller port (see below), a nine-pin outlet for an external monitor, several switches, and a DC input for either the mains transformer or an optional cable which will run the Multispeed from a car's cigarette lighter.

The LCD screen may be locked anywhere within its 120-degree tilt. When folded down, it snaps securely shut, and a metal handle (the only visible metal part of the machine apart from the connectors on the back) lifts up for easy carrying. Underneath the handle is a compartment for the nickel-cadmium battery, and on the bottom of the unit is another compartment for six PROMs, only four of which are in use.

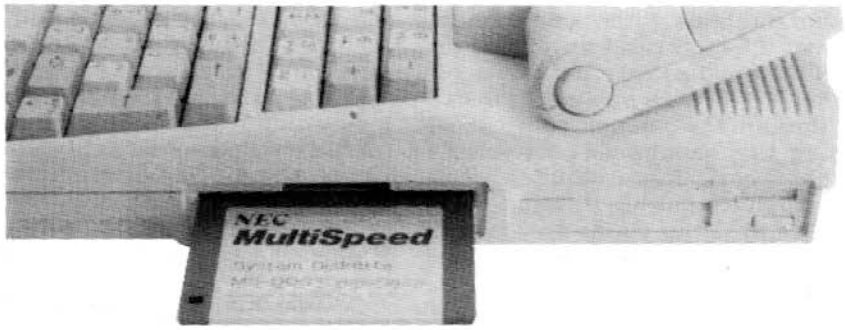
Performance and features

As its name implies, the Multispeed runs its processor at two clock speeds: 4.77 MHz and 9.54 MHz. When the machine boots up, it is in its 9.54 MHz mode; the utility called Setup must be used to slow it down. The 4.77 MHz mode is there essentially for compatibility with the original IBM PC, although few programs now require this.

Ironically, the microprocessor used in the Multispeed is not the Intel 8088 but NEC's own V30, a true 16-bit processor much closer to Intel's faster 8086 chip. As a result, the Multispeed, even in its "compatible" 4.77 MHz mode, actually runs twice as fast as the IBM PC. The Norton Utilities SI index gives the Multispeed a rating of 2.1 (where the IBM PC is 1) at 4.77 MHz, and 3.8 at 9.54 MHz. This is good news for most programs, which will simply run faster, but those which use instruction loops for timing purposes (games, for example, and some early copy-protection schemes) will have trouble.

The computer comes with 640kb of memory as a standard feature, 128kb of which is static RAM, which means that it holds its contents even when the power is off. Static RAM is ideal for use as a RAM disk and the Multispeed provides utilities which can install a RAM disk and vary its size up to 126kb.

Apart from the RAM disk, nearly 100kb of memory is reserved (unless you read the manuals and learn how to specify otherwise) as work areas for a group of bundled programs known collectively as Popup. The Popup routines, as their name suggests, appear in windows on the



screen at the touch of one or two special keys on the Multispeed's keyboard. Unlike Sidekick, however, which undoubtedly inspired them, these are not "Terminate but Stay Resident" programs; they reside in the PROMs on the bottom of the computer, and may be invoked without MS-DOS. The two empty PROM sockets suggest that more Popup routines may be in the offing.

There are two special keys: Popup and Help. The Popup key brings up a Sidekick-like menu with the six Popup utilities while the Help key brings up context-sensitive help windows within the Popup programs. (Even outside Popup, the Help key brings up a window or information about Popup.) The six Popup programs are:

- Notepad: a stripped-down text processor in the manner of Sidekick, but with additional features such as spelling checker; useful for quickie things when you don't want to hassle with Edlin.
- Outliner: an outline processor with more to learn about than is probably useful for most people.
- Filer: a database manager, friendly to a fault, that makes use of a card file metaphor. It includes sort and select functions and a surprisingly comprehensive print feature.
- Telcom: a terminal emulator and communications program. Luckily for New Zealanders, the internal modem is not required to run Telcom. If the modem is not present, Telcom tries to communicate through the COM1 serial port.
- Dialer: a telephone and modem management program, which will be useless to New Zealanders in the absence of the internal modem. (NEC is awaiting type approval of a New Zealand version of the modem.)
- Setup: a configuration manager that allows the user to control the processor clock speed, video mode, RAM disk configuration, the amount of memory used by the Popup programs, and other system variables.

None of these Popup routines is perfect. For example, in the Telcom program's VT-100 emulation, Telcom's own use of six of the function keys conflicts needlessly with the VT-100's four function keys, and the Home key does not work at all.

Taken together, however, the Popup utilities form one of the most attractive features of the Multispeed computer. The fact that they are PROM-resident means that they use the disk infrequently, which is important when you are running on batteries, and that they can interrupt most other programs without disturbing them. I found myself using the Popup routines all the time, and wishing that there were more of them – a calendar and a calculator would be most useful.

The boot-up procedure is nearly a minute long, involving a two-pass memory check and an "Installing Popup" phase in addition to reading in MS-DOS. You can abort the memory check by pressing the space bar (a nice touch), but the Popup installation seems unavoidable. The overhead of this, which involves considerable disk accessing, seems to defeat one of the main purposes of having Popup in PROM.

The User's Guide states that the machine will run on batteries for five to seven hours without recharging. Don't believe it. After 45 minutes of quite ordinary database work, the low-battery light was on and I was getting occasional power-fail messages. On another occasion, running a game for two hours brought the low-battery light on as well; this was a game that did almost no disk work, but ran some fairly intense graphics and played a tune. Most disturbing of all was when I ran some heavy diskette tests. After half an hour I got the low-battery light – and I wasn't even running on the battery; I had the mains adapter plugged in. (This, of course, might have been the adapter's fault.)

Compatibility

Now that IBM's new PS/2 computers have established the 3.5-inch diskette as a standard, more and more programs will become available on them, but for the time being, this is the Multispeed's greatest compatibility problem.

To get existing programs and data from 5.25-inch diskettes onto 3.5-inch ones, the Multispeed offers two data

transfer methods. Either you can use the two 3.5-inch diskette drives on the Multispeed as external drives on another PC, or else you can transfer files through the serial port.

Using the Multispeed's drives on another computer requires the optional External Transfer Cable. This has a 15-pin connector on one end to plug into the floppy-disk controller port on the back of the Multispeed, and a 37-pin connector on the other end, intended for the external drive port of an original IBM PC/XT. Since IBM has not made a controller with such a port in years, this file transfer method will be of limited utility.

The serial port, on the other hand, appears to be 100 per cent compatible with the IBM one (and quite different from the serial ports on NEC's APC III computer). Given a good serial file-transfer program such as Kermit or Xmodem on both ends (the Telcom program supports Xmodem), programs and data may be transferred reliably from any other machine onto the Multispeed.

Even this method has its limits, however, the most important of which is copy protection. Even the flimsiest copy-protection scheme can defeat copies made by serial transfer. Copy-protection schemes provde one of the best tests of a machine's IBM compatibility. Since I was able to obtain only one copy-protected program on 3.5-inch diskette (Lotus 1-2-3), my compatibility testing of the Multispeed must be regarded as incomplete.

As far as it went, however, I found no major incompatibilities. Games which write directly to video RAM, programs which take over keyboard, serial or parallel port interrupts or address physical disk sectors,all work well. If you run Sidekick and Lotus together (each of which attempts to take over keyboard interrupts), one of them may get confused as to the status of Numlock, but this is a problem that afflicts the majority of IBM-compatible keyboards.

I even installed the AMPS operating system, and produced what might have been the world's first multi-user Multispeed. Apart from the amusing fact that the dumb terminal attached to the serial port (which the Multispeed could have emulated anyway) is larger and heavier than the computer itself, it all works fine. In fact, I am writing a part of this review with just such a setup, since the VDU screen gives me less eye-strain than does the LCD screen.

Support and documentation

The Multispeed comes with four well-presented, indexed, spiral-bound manuals: an Introduction to MS-DOS, a User's Guide, and two manuals for the Popup programs. The documents have been prepared with desktop-publishing software and a laser printer. Except for one chapter on the Popup programs in the User's Guide, none of the documentation is of a tutorial nature; you therefore have to wade through a lot of material if you just want to find out something basic.

For example, the single tutorial chapter does not mention the rather important fact that you have to hold the Popup key down for a while before the Popup menu appears. This information appears elsewhere, but I wasted much time wondering why the Help key worked when pressed normally, but not the Popup key.

In most respects, however, the manuals are very helpful. There are glossaries, for example, to help out those not accustomed to computer jargon. The section on Telcom even has an appendix describing the Xmodem protocol in some detail, for programmers who may wish to write their own file-transfer utilities.

NEC scored less well, however, on the question of support. The initial stages of the review coincided with an NEC sales conference in Sydney, and a request for software on 3.5-inch diskettes for testing purposes produced only two blank diskettes and a message to use one of the file transfer methods to get software from another computer.

It should be noted that NEC's New Zealand operation is not yet a year old, and that some organisational bugs might still need to be ironed out. The purchaser or an NEC computer will of course depend upon the dealer, and not NEC, for support. In fact, our Lotus disk came from Kerry Salter Associates, and many of our technical questions were answered by Software Architects.

Conclusion

The NEC Multispeed laptop computer solves some, but not all, of the problems associated with these portable machines. Its use of supertwist LCD technology permits better pixel resolution and a wider viewing angle than most LCD screens can claim, and the nickel-cadmium battery, although ours did not perform as well as advertised, is still adequate for hours of normal usage. The Popup programs make the computer not only portable, but useful as well.

The machine would be better if it had a few extra features which could be invoked when plugged into an external power source: an optional backlighting of the screen, for example, or the ability to attach a hard disk or 5.25-inch floppy. Putting the Popup installation information in static RAM instead of on disk would be a good idea too, as this would speed up the rebooting procedure considerably.

All in all, the Multispeed is a compact, useful, well-designed machine. It is worthy of consideration by anyone who needs portability and IBM compatibility, and doesn't mind a little eye-strain.

MICROCOMPUTER SUMMARY

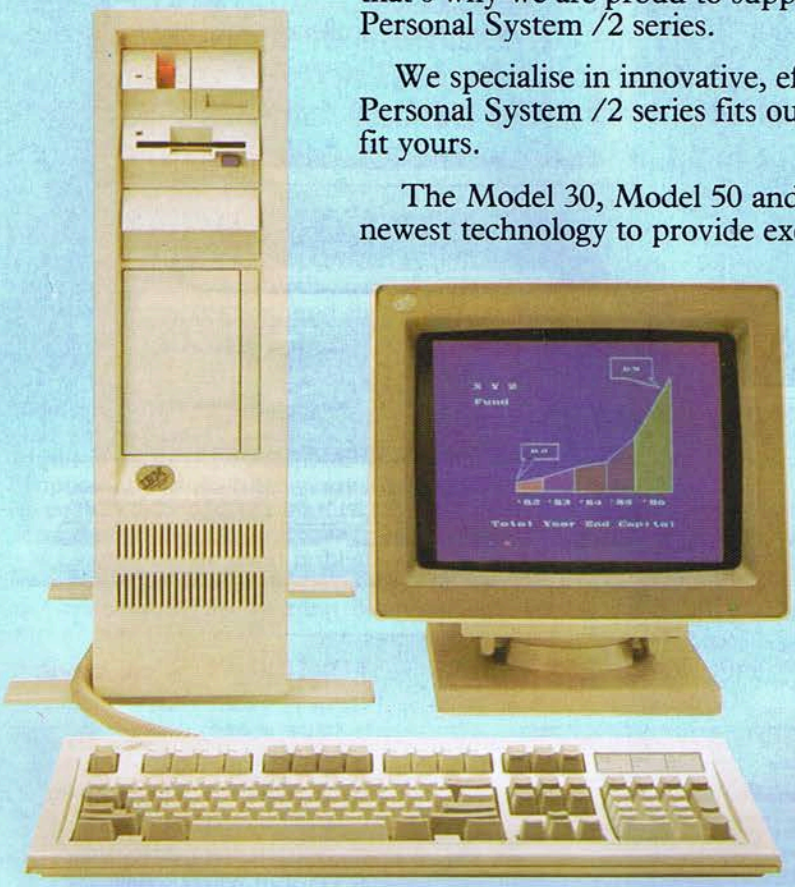
Name:	Multispeed
Manufacturer:	Nippon Electric Corporation, Tokyo
Microprocessor:	NEC uPD70116 (V30), 4.77 and 9.54 MHz (switchable)
RAM:	512kb dynamic, 128kb static, 32kb video
ROM:	512kb
Disk:	twin 3.5-inch 720kb floppy drives; no hard disk option
Video:	integral supertwist LCD screen, 640 by 200 pixels RGB port for connection to optional NEC Multisync monitor
Keyboard:	integral 85-key board, including 10 function keys, numeric/cursor control keypad, special Popup and Help keys
Communications:	one RS-232C serial port (IBM-compatible) one parallel port (IBM-compatible) floppy disk port (for use of Multispeed's disk drives on another computer)
Power supply:	13.5-volt ni-cad battery; port for external power input
Expansion slots:	none
Operating system:	MS-DOS 3.2
Bundled software:	"Popup" routines (Notepad, Outliner, Filer, Telcom, Dialer, Setup)
Price:	$3990 plus GST for base system
Options:	Mains power adapter ($90 plus GST) Carrying case ($125 plus GST) Automobile cigarette lighter cable External transfer cable Serial port cables (2)
Ratings:	ease of use 5; documentation 4; support 3; value for money 4.

NOTHING BUT THE BEST

At Southmark we sell computers. We handle only the very best and that's why we are proud to supply, install and support the new IBM Personal System /2 series.

We specialise in innovative, efficient, reliable equipment and the Personal System /2 series fits our requirements exactly. We know it will fit yours.

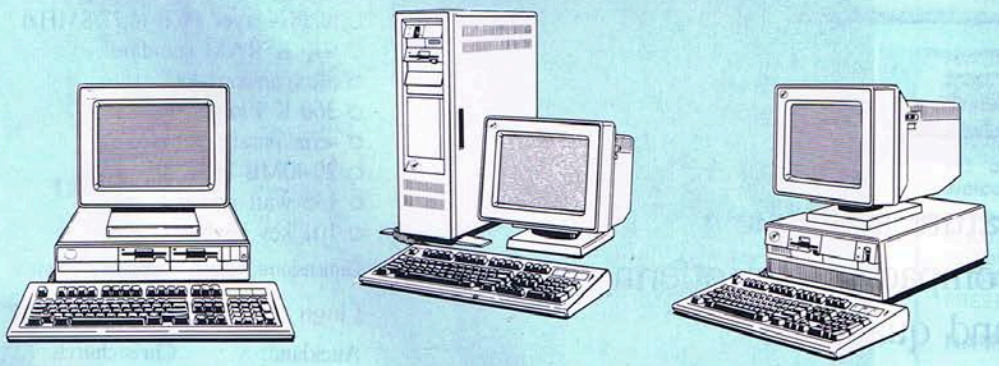
The Model 30, Model 50 and Model 60 each take advantage of the newest technology to provide excellent computing solutions.



Phone us and we'll demonstrate the advantages of the new Personal System /2 Series.

SOUTHMARK
COMPUTERS LIMITED

2 NGAIRE AVENUE, AUCKLAND 3, N.Z. BOX 74-128, PHONE 504-609
LEVEL 12, THE PLIMMER CENTRE, P.O. BOX 10140,
THE TERRACE, WELLINGTON, PHONE 729-007, FAX 727-346



IBM
Authorized Dealer
Personal Computers

IBM PERSONAL SYSTEM/2

LOGI

A Compact Excellence

LOGI 286-AT Specifications:

- 80286 6-layer PCB
- 640 K RAM standard
- 8 expansion slots
- 1.2 MB/360 K Floppy drives
- serial/parallel/game ports
- 20-40MB Hard drives std
- 195 watt power supply
- 101 key keyboard

LOGI 88-XT Specifications:

- 8088 4-layer PCB (4.77/8MHz)
- 640 K RAM standard
- 8 expansion slots
- 360 K Floppy drives
- serial/parallel/game ports
- 20-40MB Hard drives std
- 135 watt power supply
- 101 key keyboard

Dimensions: 365mm x 405mm x 140mm

Logi computers feature a unique fully expandible, compact design offering top performance and quality at competitive prices.

Lingo Computer Systems Ltd

Auckland:	Christchurch
P.O. Box 5354	P.O. Box 3959
Ph (09) 765-595	Ph (03) 294-883

Main Centre Retailers:

Auckland:	Wellington:	Christchurch:
Software Plus	PC Power	Computaccount
172 Ponsonby Rd	95 Ghuznee St	466A Papanui Rd
Ph (09) 31-807	Ph (04) 856-698	Ph (03) 522-333

For other centres contact Lingo for your local distributor.

LOGI ABILITY

Integrated software with the power of a $1200 package

$149 with each Logi Computer

A heavyweight of desktop publishing software

Is the second generation of desktop publishing systems showing the promise the first ones never quite realised? Hylton Tuckett, Computer Centre Manager at Central Institute of Technology, looks at one aimed at the top end of the PC market.

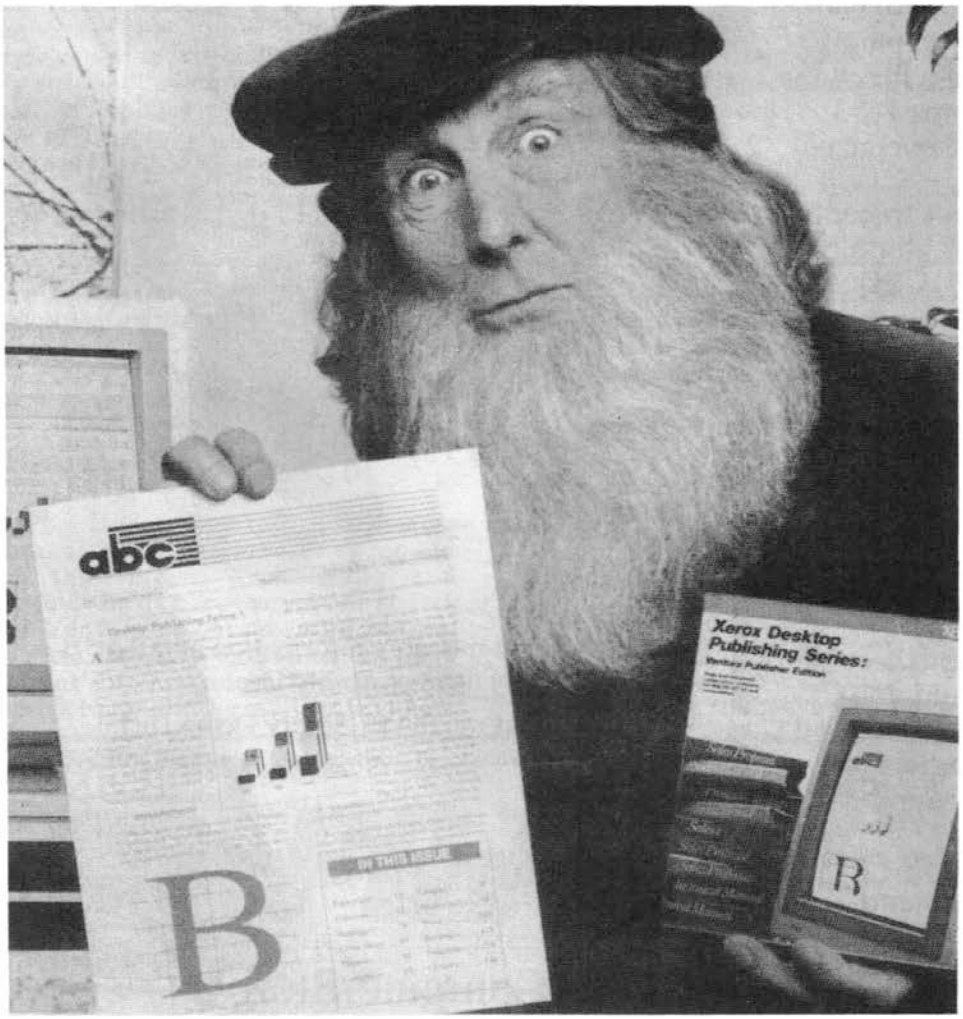
There has been exciting commentary over the past few months about the availability of Desktop Publishing software for the PC/MS-DOS PCs. Desktop publishing products were originally popularised with the Macintosh/ Laserwriter combination, and interest from many corporate users will now undoubtedly heighten with the release of Xerox Ventura Publisher for the IBM PC XT/AT and compatible micros.

Desktop publishing software may be too sophisticated for many users. It requires some high cost hardware for support, but does have many long term cost and corporate benefits.

Most people agree that user training is heavier for desktop publishing than for many other applications. The major portion of the learning curve involves design skills, and some users could easily go overboard and spend an hour or more designing a two-page report.

Venture Publisher provides the user with the facilities to give text a typeset appearance. The user can combine text with pictures and drawings on the screen, and then rearrange the format to achieve just the look required before sending it to a printer.

The first task with any package is to tackle the terminology. At the heart of DTP software is a set of skills almost unknown to anyone outside the typesetting trade. The typographer's language contains items dating back to Gutenberg's time. For example, measurements such as picas, points and the em have to be learned and appreciated. The em is named for the width of the M, the widest letter in a typeface's character set. Different typefaces like Helvetica



What software was voted "The best for 1986" by PC magazine?

askSam™

askSam will store over 4,000,000,000 records and retrieve them within seconds

AskSam is the easiest most versatile and most flexible textbased database programme available today. Requires 256K RAM on any PC or compatible. **Dealer enquiries welcome.**

$599 PLUS **G.S.T.**

If you'd like to order or know more about askSam, return this coupon to FLOPPY DISK EXPRESS CO. LTD FREEPOST 1467, AUCKLAND.

NAME _____

ADDRESS _____

_____

VISA/BANKCARD # **EXPIRY DATE**

_____ _____

_____

SIGNATURE

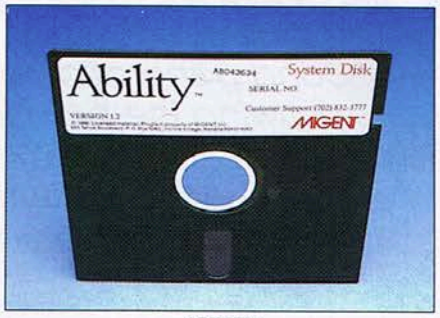
These prices are ridiculous.

See Ability at COMPUTING '87 or your MIGENT authorised LINGO or Amstrad Dealer

$1545† $1500† $295†

FRAMEWORK
Word Processing, Spreadsheets, Business Graphics, Database, Communications.

SYMPHONY
Word Processing, Spreadsheets, Business Graphics, Database, Communications.



ABILITY
Word Processing, Spreadsheets, Business Graphics, Database, Communications, Presentation.

Compared to the other guys, Ability™ is priced so low it's ridiculous. Because now with Ability you can get the same results without learning any exotic commands or reading volumes of arid documentation. All for an unbelievable $295.

Complete set of power tools.

Ability combines six high-powered PC productivity tools into a single, simple package.

You get full-featured wordprocessing with what-you-see-is-what-you-get formatting. Spreadsheets three times larger than Symphony, with all the powerful math and business functions you need, and the ability to import Lotus 1-2-3 files. It'll even print sideways for these oversized spreadsheets.

A forms-oriented database that's easier to use than pfs:File. Professional business graphics from your spreadsheets and databases with just a few keystrokes. Even "slide" shows on your PC!

Easy does it.

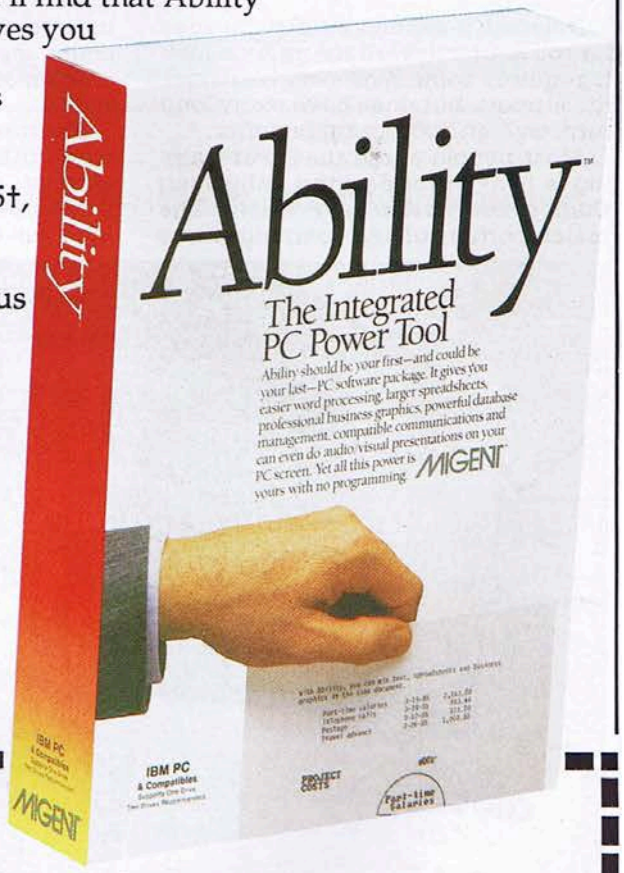
Ability is based on the idea that the computer should do the work. Not you. It's got smooth seamless integration like nothing you've ever seen before. Because with Ability, everything is linked together—live. Text, spreadsheets, graphics and database.

So any changes you make are automatically made in the linked spreadsheet or database. Or change the spreadsheet and your text is updated at the same time. And your graph is automatically redrawn to reflect the changes, either way. It's perfect for those weekly and monthly reports.

Any anybody can do it with no programming at all, because Ability is menu-driven and uses the same instructions in all six applications.

Awesome performance at a sensible price.

Compare the features and performance and you'll find that Ability truly gives you your money's worth. And at just $295†, its price isn't so ridiculous after all.



☐ Please send me more information and the name of my nearest Ability Dealer.

☐ Please send me the $5 Ability Demo Disk
(I enclose a cheque for $5 —deductable from purchase price.)

Name _____

Address _____

_____

Send to ComputerStore✓
DIVISION OF ALBERTLAND ENTERPRISES LTD.
PO Box 31-261, Auckland 9
Phone (9) 499-458 Telex NZ60963

†All prices plus GST Ability and MIGENT are trademarks of Migent, Inc. Other names and products are trademarked by others.

and Times roman become available to the user, and there are now concepts such as kerning and greeking.

Xerox Ventura Publisher is a WYSIWYG page layout system. WYSIWYG means What You See (on the screen) Is What You Get (on a printed page). There are several differences in the technology of screens and printers so there will be some slight differences.

Text file

The user begins laying out a document by recalling a text file. Ventura can place text files up to 150kb in length into a 640kb PC. Text files are created by word processing packages such as Microsoft Word, Word Perfect, Multimate, Word Star, and Writer, although Ventura accepts any ASCII format file as a text file, which opens up the field for possible input text file creation.

All reputable word processing packages have an ASCII text file creation facility. Unfortunately, if your favourite word processing package is not included in the above list then all the formatting commands like tabs and line spacing are lost. This may sound inconvenient, but Ventura has many powerful features which make it so easy for the user to do text formatting. It has a built-in word processor which is ideal for correcting imported text. Indeed, many users may prefer to use the ASCII file facility for input so that formatting commands like tabs and indents will not get in the way.

Ventura uses the original text file, so the user should make a copy of the text file before letting Ventura use it. For example, any text editing changes the user makes in Ventura are also made in the text file. Typographical attributes such as italic and underline and specific typefaces such as Helvetica and Times roman are also added to the text file.

Style sheet

The style sheet the user selects automatically formats the document on the screen, hyphenating and paginating as necessary. Style sheets are Ventura's most powerful feature. A style sheet is a file containing page format information such as margins and column widths, and style sheets also contain typographic attributes, which define the font, type size, leading and justification for text.

Ventura style sheets are impressive. They are best saved and used in many documents of the same style. This provides users with the means to promote a uniform look to the same style of publications. Xerox supplies 21 style sheets and the user can of course create his or her own.

Adding to the power of style sheets is the fact that changes to a style sheet will ripple through every block of text defined by those attributes. This feature provided by Ventura makes it possible to alter a document's formatting all at once, rather than changing text manually. Depending on corporate policy there is one possible danger, or additional benefit, of style sheets: if the user changes a style sheet then any documents created earlier using that style sheet change to the new format the next time the documents are called.

Tagging text

Tagging is the Ventura process for applying typographic attributes to text. For example, the user tags, or selects, the title in the document as a title line. Ventura picks up the title line attributes from the style sheet. Typically, the typographic attributes for title might centre the title and give it both a large and bold type style.

Tagging text is equivalent to the well-known block processing operation of word processing software, which in Ventura works on a paragraph basis. Text is selected (tagged) to an end of paragraph character. The skill comes in specifying the various tags based on the intended layout of the document. For example, tags in a standard report might include title, sub headings, minor headings, first paragraph and body text.

Body text is the standard paragraph tag and will be the most common tag used. The user needs to tag only those paragraphs which differ from body text, and can also specify tags with special effects like bullets and drop capitals. A style sheet can have up to 64 different paragraph tags defined.

Frames

Ventura uses frames, or boxes, to hold text or pictures. The basic page frame is full page in size and is provided on each page. The user has the option of adding smaller frames to a page to hold pictures or additional text from other files. Anytime the user adds or moves a frame on a page, the text automatically rearranges to fit around the frame. When the page itself is the only frame, text automatically flows from page to page. Ventura also automatically flows text from column to column.

The frames function is most powerful with multiple column pages and when the user needs to place pictures or graphic diagrams into the document. Text inside a frame adjusts to fit the changing boundary of the frame, and the user skill comes in defining the size and location of the frames.

Pictures and graphics

Ventura accepts pictures in either

How much do "Fly by Night Enterprises" owe us?

askSam™

askSam will store over 4,000,000,000 records and retrieve them within seconds

AskSam is the easiest most versatile and most flexible textbased database programme available today. Requires 256K RAM on any PC or compatible. **Dealer enquiries welcome.**

$599 PLUS **G.S.T.**

If you'd like to order or know more about askSam, return this coupon to
FLOPPY DISK EXPRESS CO. LTD
FREEPOST 1467, AUCKLAND.

NAME _____

ADDRESS _____

_____

VISA/BANKCARD # _____ **EXPIRY DATE** _____

_____

SIGNATURE

PERSONAL COMPUTER POWER

95 GUZNEE STREET, WELLINGTON
P.O. BOX 27-261, WELLINGTON
TELEPHONE (04) 856-698, (09) 34-543 FAX (04) 850-843

LOTUS 1-2-3
Special while stocks last.
$650.00

line art, image or graphic format. Line art format refers to pictures generated by well known packages like Lotus 1-2-3, GEM Draw, GEM Graph, AutoCAD and Mentor Graphics. Image format refers to art scanned into the PC through an optical scanner or created by the well known PC Paintbrush package. The scanned images need conversion to GEM or PC Paintbrush file format before being able to be used by Ventura, but it provides the conversion programs which is good value for the user. Graphic format refers to the drawing features like lines, circles and squares that Ventura provides.

Chapter files

The user creates a document and Ventura saves the layout information in a chapter file, which contains pointers to the other files used in the layout of the document. The pointers are instructions that tell Ventura how the text, picture and style sheet files relate to one another in the finished layout, so whenever the user recalls a chapter file to the screen it will display the text and pictures in the layout the user has chosen.

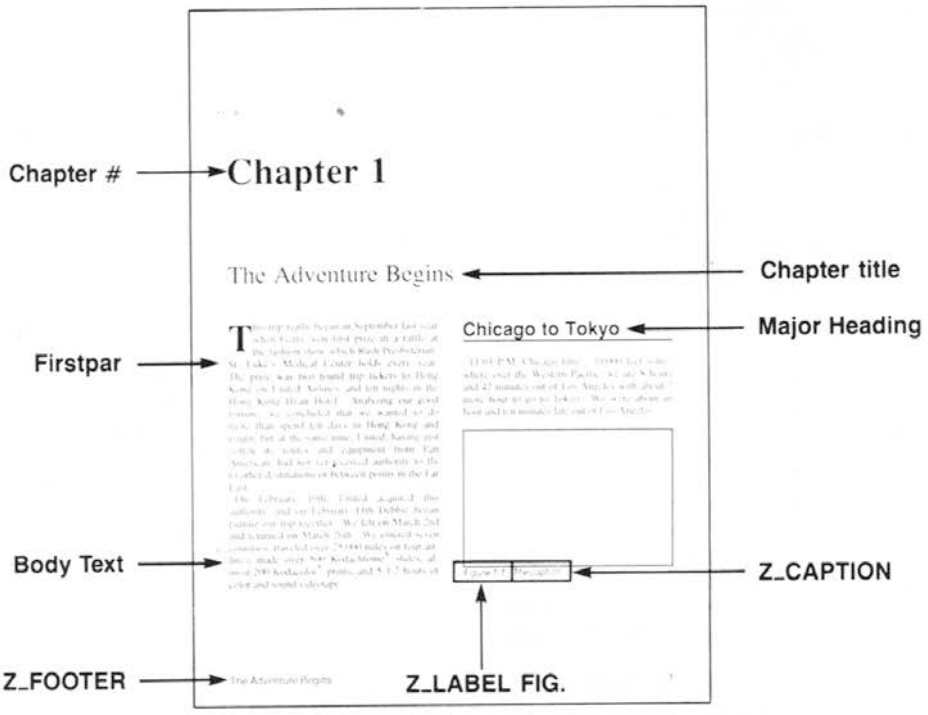
Likewise, when the user takes a graphic image out of one page and places it on another page, Ventura rearranges the necessary pointers in the chapter file instead of physically moving the data around.

Putting it all together

Ventura takes text files and lays them out as separate chapter files, and then combines chapter files into a publication file. Once the user has a publication file then table of contents, index generation and printing are available.

For example, you could have a publication with the following attributes: chapter titles centred in 24-point Helvetica and all the subheadings flushed left in 18-point Times roman; body text in 10-point Times roman; first paragraph of each chapter having the first letter in 24-point Times roman; all left facing pages having the page number flushed left; and all right facing pages having the page number flushed right.

It is all so easy.



Operation

Ventura is easy to work with and doesn't suffer through lack of on an on-line help. It works very well on a standard 640kb XT with Hercules graphic screen, and positively flies on an AT with an EGA screen.

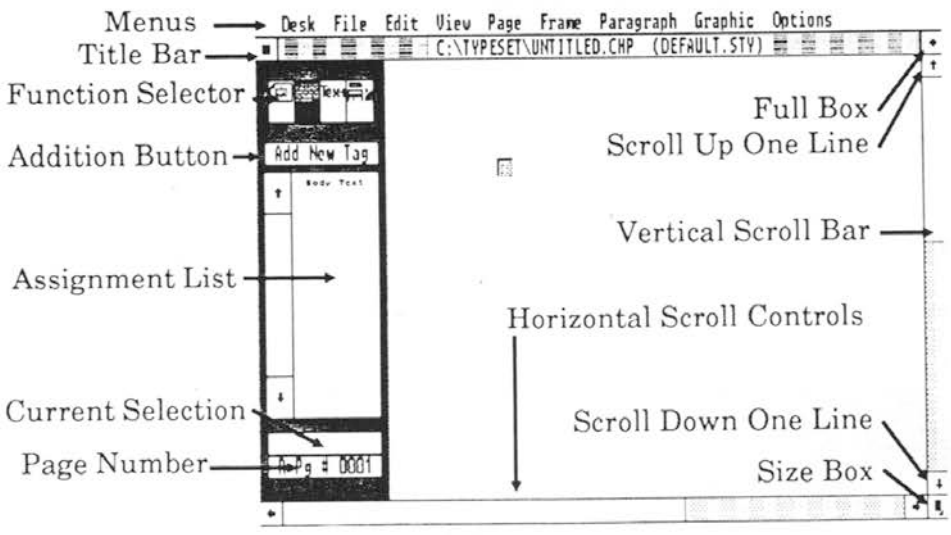
Ventura operates through a run-time version of GEM by Digital Research. Across the top of the screen is a title bar with nine selections, and through the drop down menus are some 32 commands available. A mouse is an essential requirement and in Ventura all the user needs to do is point to a selection on the title bar, when the selected menu automatically drops down so that the user can make a further selection.

Ventura is easy to work with and doesn't suffer through lack of an on-line help.

On the left side of the screen is the function selector, which enables the user to choose between frame setting, paragraph tagging, text editing and graphic drawing. Desktop publishing software requires instant scrolling, and Ventura has scroll bars along the bottom and right side to accommodate this requirement.

Ventura has several word processing features such as block copy, move and delete. It lacks several such important features as search and replace, but the user can still do basic text editing. While editing, the user can easily italicize, boldface, underline, caps, lower case, and strike through. The user also has control over fonts and has the capability to insert special symbols such as copyright and registered trademark symbols.

Ventura gives the user a number of printing options. These range from the Epson FX-80 compatible dot-matrix printers through to PostScript devices like the laser printers and



Ventura Publisher Main Screen

phototypesetters. Printouts at 8 points on the dot matrix are very readable, but laser printers really put the icing on, producing the galley proofs or the near typeset quality output. The laser output at 300 dots per inch is excellent value for many office and corporate publications.

Ventura permits up to five different printers to be installed. Disk storage for installed printers varies between 1Mb for standard laser printers and 3Mb for lasers using downloadable bit-mapped fonts. Ventura also supports PostScript typesetters.

Summary

Ventura Publisher comes with a comprehensive manual. The appendices detail documentation on the 21 supplied style sheets. This is really an invaluable help to the beginning user. Other documentation includes a 30-page quick reference manual and a very useful 118-page tutorial booklet.

Beginning users should use the tutorial booklet to learn this package. It comprises six lessons and takes the user step by step through the basics. Each lesson has a set objective and the approximate completion time. Ventura comes on 11 disks which include the various printer drivers, and is very easy to install on a hard disk. It requires 640kb and hard disk as the minimum PC configuration, and supports Hercules, CGA and EGA screens. A mouse is essential for the user interface.

The software enables normal views of a full page or facing pages and an enlarged twice normal view for detailed work. Ventura has all the standard desktop publishing software features for document and page controls, which include automatic page and section numbering, headers, footers, index generation, widow and orphan control and left and right page formats. It also has many typographical features, including automatic hyphenation, kerning, multiple fonts, tab alignment and horizontal and vertical rules. Ventura, naturally, supports scanners. It is not copy-protected and is quite expensive at almost $2500 although WYpay for IWYG.

Xerox Ventura Publisher software is the first of the second-generation systems (after Aldus Pagemaker) and not surprisingly is full of powerful features. It is fast and for many users will be easy to use, and the ability to satisfactorily run Ventura on a 640kb XT is a major benefit to many users. It excels at handling documents from a few pages up to multiple chapter books or manuals, and is excellent value for the corporate environment.

Where did I see that magazine article on "Assessing offshore loans"?

askSam™

askSam will store over 4,000,000,000 records and retrieve them within seconds

AskSam is the easiest most versatile and most flexible textbased database programme available today. Requires 256K RAM on any PC or compatible. **Dealer enquiries welcome.**

$599 PLUS **G.S.T.**

If you'd like to order or know more about askSam, return this coupon to
FLOPPY DISK EXPRESS CO. LTD
FREEPOST 1467, AUCKLAND.

NAME _____

ADDRESS _____

_____

VISA/BANKCARD # _____ **EXPIRY DATE** _____

_____

SIGNATURE

Control the invisible enemy: STATIC...

with the WESCORP Work Station Kit

Body static can cause damage. Sensitive components are highly vulnerable to electrostatic discharge — ESD. Many can be damaged and even completely destroyed by ESD voltages as low as 20 Volts.

The WESCORP Work Station Kit makes sure that you carry out maintenance and repairs completely free of damaging static electricity.

The Kit includes:
- ☐ wrist grounding strap
- ☐ anti-static work pad
- ☐ grounding cord for connecting to earth point up to 5 metres away

Also available:
- ☐ sleeve protectors
- ☐ laboratory coats
- ☐ seat covers
- ☐ heel protectors for use with conducting door mats
- ☐ leg straps
- ☐ cord to ground table mats and floor mats

See SOLSTAT for Static Control!

solstat®

The Driving Force

SOLSTAT INDUSTRIES LIMITED. 32 Sheffield Crescent. P.O. Box 13-183. Armagh. Christchurch.
Ph: (09) 444-7216 Auckland. (03) 587-079 Christchurch. (04) 856-260 Wellington.

15878 S 876

Now, top shelf multiplexers at bottom shelf prices!

The new low cost Omnimux Multiplexers. At Racal-Milgo we believe there is an increasing demand for lower priced data transmission equipment.

Our response? Two new additions to the Omnimux Series that take all the top quality, reliable Racal-Milgo technology and package it into attractive, efficient and low cost units.

The new Omnimux 4 is a four channel asynchronous statistical multiplexer with individual channel configurations, aggregate and channel loopback capability.

The Omnimux 8 is a four or eight port, field upgradable asynchronous statistical multiplexer with independent channel configurations. Both are fully compatible with any of the multiplexers in the Omnimux Series.

Both provide superbly reliable, flexible and efficient data transmission at truly cost effective prices.

Enjoy top shelf multiplexer technology at bottom shelf prices. Contact the Racal-Milgo office nearest you, for full details about the new Omnimux 4 and 8 Multiplexers.

Racal-Milgo New Zealand Limited
PO Box 26-143, Auckland
Phone 504-309, Auckland: Phone 730-313, Wellington

RACAL

AskSAM anything

by Ewen Green

askSAM is a "free from text-oriented database management system", produced by Seaside Software in the USA. There must be an army of users out there just waiting for a product like askSAM... a decent database package which expects to handle words and free-form records and documents, not rigidly pre-defined file structures with fields of pre-defined length.

Many indeed are the requests I have had over the last years to provide a powerful text-based data retrieval system. Many indeed are the excuses I have given for the computer industry **not** having such a tool readily available. Few of the stand-in solutions have been actioned let alone succeeded, and little indeed has been the user's satisfaction.

Has all that changed with the arrival of askSAM? Reading the extensive user endorsements and product review articles, I thought... YES! After getting into askSAM itself, I still think yes, but with no capitals because of a niggling reservation about the "front end", of which more later.

Yet the manual is almost redundant, as it is all on disk in askSAM files.

askSAM is promoted as a "free-form text-oriented database". It will handle very large text databases and will find a reference or references anywhere and generate reports of its findings. For sensitive information, retrieval and/or update may be password controlled and data-file encryption is available too. Arithmetic, comparison and logical operations are provided for, as well as the standard Min, Max, Sum, Count and Average operations. askSAM also has very flexible and tolerant date handling facilities.

The commitment of the manufacturer of askSAM to decent documentation, support and product development is obvious. The ringbound manual is well designed and printed, with a good use of style and text to distinguish what is going on, and well indexed. The same goes for the Version 3 update, some 70 pages in length. Yet the manual is almost redundant, as it is all on disk in askSAM files. Tutorials are provided as well.

YOU make the rules

The text editor is integral to the package. It is a full-screen editor, with word wrapping, block manipulation, and global operations. No problem there. Templates may be defined to eliminate having to enter standard text.

How does askSAM compare with 'true' databases? A common denominator of database packages is the necessity for the user to determine in advance the data structure (i.e. fields) for a file or files, but askSAM demands no such logical approach from its user.

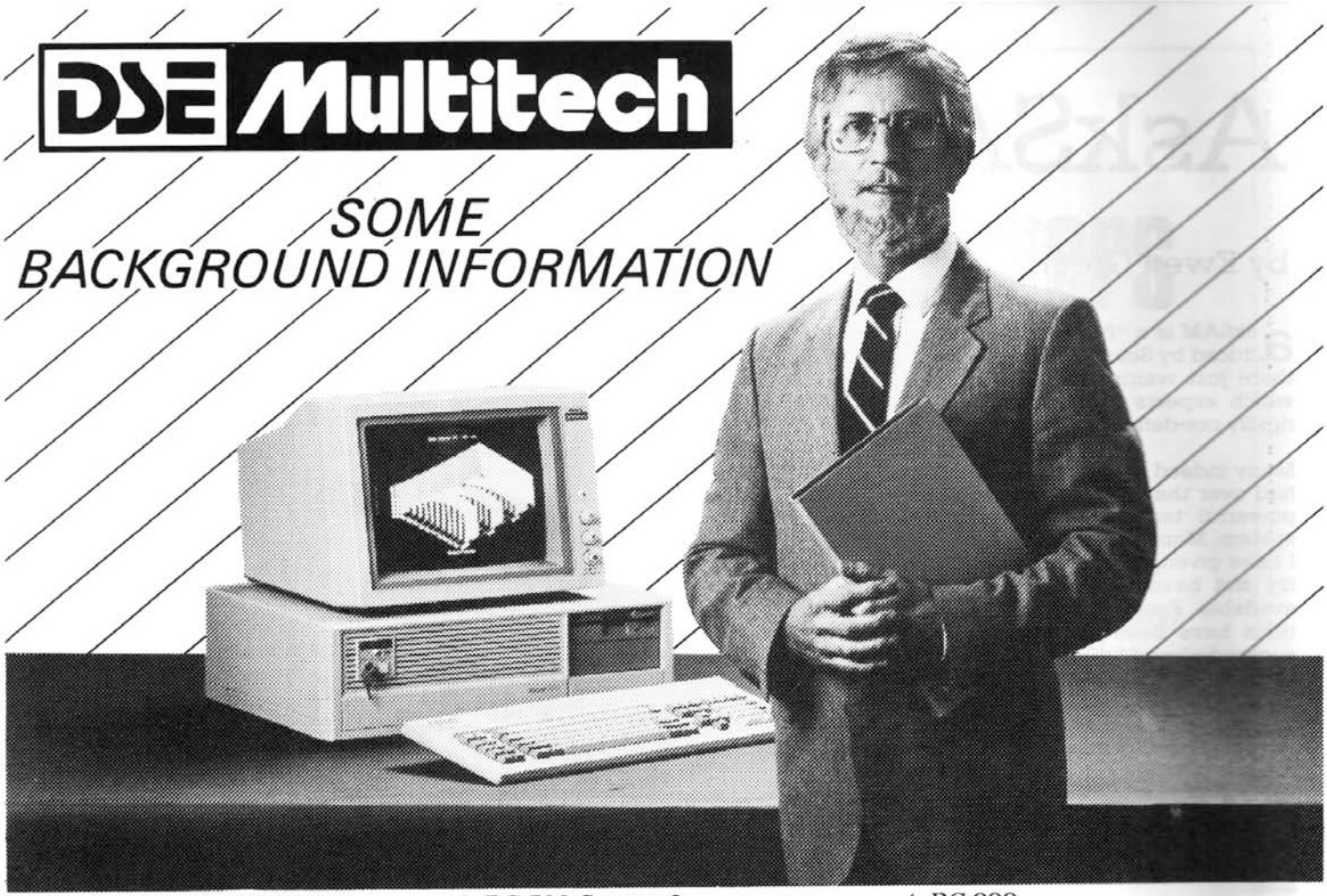
It is a text-oriented database, with equal emphasis on "text-oriented" and "database". So it is important not to expect it to compete with word processors, text outliners, document indexers and the like on the "text-oriented" side, nor to compete with databases such as dBASE III or Paradox on the "database" side. Its place in the spectrum is firmly in the middle, and there's not much competition thereabouts.

Usual problem

dBASE III, as the present de facto PC database, represents the usual problem on the database side of

DSE Multitech

SOME BACKGROUND INFORMATION



THE PERFECT PARTNERS

At DSE, our years of experience have taught us that successful partnerships are built on trust and confidence. That's why we got together with **Multitech**, one of the world's largest and most respected PC manufacturers. Together we've come up with a plan to save your business time and money!

FOUR WAYS TO IMPROVE PROFITS

Trying to find the right PC to suit your needs is a time wasting and confusing business, so we've done all the work for you. We've solved the after-sales service dilemma and the software dilemma and the capital investment dilemma with four fantastic DSE Multitech packages.

1. PC-500 System 1

The low-cost, high performance PC compatible which starts where the competition leaves off. With 256K memory, single 360K disk drive, parallel and serial ports and, of course, MS-DOS 3.2 software. All this and more, for the lowest price in town. Right now you'll save $100! Cat X-8000

Now Only $1495

2. PC-500 System 2

Where business computing gets serious. With dual 360K disk drives, 256K memory (room for expansion to 512K), CGA card, MS-DOS, PLUS Monitor and more! Save hundreds of $$$!! Cat X-8001

Only $1995

3. PC-700

It's fast, it's efficient and, of course, it's reliable. With keyboard selectable 4.77MHz and 8MHz clock speeds it handles those long documents with ease. 640K memory, a huge 20Mb hard disk, 6 expansion slots, MGA card, parallel and serial ports, green mono monitor and MS-DOS 3.2 give you a powerful work tool.

PLUS!

With the PC-700 you get 'First Choice' the software which contains word processing, spreadsheet, database and communications. As well as our 12 month **On-Site-Service** FREE! All this at our one low price. Cat X-8107

Smart business at $4995

4. PC-900

The big daddy of them all. As a single workstation or as a file saver for an entire network — PC-900 with the 80286 CPU chip, 20Mb voice coil hard drive and 40 milli-second access time handles the big stuff. 6 or 10MHz clock speeds (that's twice as fast as the "AT"), a massive 200 watt power supply, green mono monitor, compatible with both 'AT' and 'PC' software PLUS 1.2 Mb floppy disk drive. Now that's real business!

There's more!

Yes, with the PC-900 you get Microsoft 'Windows' plus a mouse, plus our 12 month **On-Site-Service.** All this at a fraction of the cost of comparable systems! Cat X-8115

Complete Automation! $7895

DSE COMPUTER SUPPORT

At DSE we support you all the way, with a huge range of software options, reliable after-sales service and professional advice and assistance. Ring our Toll Free Computer Hotline now, on (09) 37-0539. With DSE, Multitech and You — it's the perfect partnership!

Dick Smith Electronics

COMPUTER CITY

CHRISTCHURCH (03) 50 405 WELLINGTON (04) 73 9858 AUCKLAND (07) 38 9974

NZ337/GU

things – fixed length fields. (Its memo field is a token nod, not to be confused with the real thing.) The crying need for a textual database is obvious just as soon as you don't know how long any field might need to be. It is even more obvious when you don't know what fields may be present in any given record. It is astoundingly obvious when you want to mix various types of records in the same file! askSAM does all this. Word processors' search functions don't let you format output, let alone define contextual relationships beyond the most primitive level. No, a text-oriented database has to be text-oriented from the beginning right through to the end.

Just how good is askSAM? It has evolved into its current state. The release 3 version has been considerably beefed up in the command and output areas. The program has functions, features and flexibility almost to excess. It is a Rolls-Royce engine down there, whether or not the user ever gets beyond first gear at low revs. The typical user doesn't exist, least of all in text-based systems. Text databases are always individual and do have a common structure – almost none!

An askSAM file consists of pages or records. Records are usually page length (20 lines), and may contain as many fields as the user cares to define. Fields need not occur on all records, nor are all records text records – this is where programs are stored. The three almost-unstructured types of fields which askSAM supports are Implied, Contextual and Explicit. A sample record or page will show what is meant:

FN[John Q.]
LN[Doe]
Age34 Income34000
Likes Dogs,bull-baiting
Dislikes Having warrants served

Certainly a nicer-looking front end is possible, but the present one is adequate.

The implied fields are Age and Income, allowing operations on what follows immediately after. The Explicit fields are FN[and LN[. These are terminated by a] or end of line, with maximum length 20 lines. Contextual fields are used mainly when querying a database, and can be anywhere at all in a record, existing perhaps as the result of comparisons, text, or context (for example, before or after a text string). Wildcard and wild character operators are permitted in specifying text strings.

Output may be directed to printer, screen or file, formatted accordingly.

One major enhancement dissolves the earlier constraint of 20 lines maximum per record, which now have no limit on logical length. File import is available, but only ASCII text files are acceptable.

To go on would be to reprint askSAM's index...

Front end

askSAM's front end is where I have a niggly reservation. Front ends are what users keep running into first, and all too often come off second-best. At first I rated askSAM's front end as just too confusing, but this was over-reaction, probably chagrined at not being able to guess where the programs were being stored. "Non-intuitive" was the phrase that kept coming to mind, yet this does not reveal one's bias properly, and should really have been "non-habitual". Certainly a nicer-looking front end is possible, but the present one is adequate.

Over the years users have become smarter and many have evolved into Lotus menu-eaters. Yet it is not just the style of menu, or the familiar keys to be used to perform familiar functions (e.g. F1 = Help, Esc = Escape/Aaaargh). There is also the question of what minimum degree of familiarity with DOS structures and conventions any user needs in order to be able to make effective use of a software product. askSAM needs more familiarity with DOS than Lotus does, perhaps in part because askSAM's main menu is heavily into DOS for terminology.

Complete programming language

Power? There is a complete programming language available behind askSAM, just waiting to be used for customised solutions to the most demanding user's needs. Or so the manual says. It is not wrong, but does beg the question of who is going to do the programming. The key question is the degree of experience required before a user can get sensible data into and sensible results out of the product.

Can someone investing good money in askSAM afford to be "just a user" to get the power out of the engine, or do they have to be the compleat analyst/programmer? One answer to this may be the excellent sample programs provided, and an inexperienced user will get a long way to understanding what is required by experimenting with these. But to get quick results it would be desirable to be able to call upon the assistance of someone familiar with programming constructs... and printers.

A curious thing happened while investigating askSAM's programming abilities. On looking through the manual, it was obvious that programs were being held somewhere, because no user could be expected to type in accurately so many lines – surely? But it wasn't exactly obvious where the programs were being stored.

The answer was neither complex nor simple, just very, very different. The programs were held on pages as part of the file they were to operate on. To execute a program, the user tags a page and executes the program on it. This is disconcerting to the typical programmer, yet possibly very convenient and natural to the typical user.

One of the sample databases in version 3 is aimed at bibliographic uses. The sample application included with askSAM offers several report programs which users could usefully use or enhance. It was interesting to note that the Australian National University (Canberra)'s South East Asia Bibliographic Database Project (SEABDB) listed askSAM as its "preferred" database system.

Some possible applications for askSAM are listed – some with layout and program – in the manual. Some are trivial and stretch the point or even credibility, but many are not. But to give the reader an idea of what is appropriate they are, in roughly descending order of importance: bibliographies, concordance, personnel records, personal notes, research data, text file searches, examining down-loaded text files, client information, catalogues, collections, inventories, budgets and billings, price lists, accounts receivable(!), letter writing and home records.

In conclusion, potential users of askSAM cover a broad spectrum, and have not been adequately catered for to date. The experienced user stands to gain most – it's all there, just waiting to be used – but may require a learning curve on certain concepts. The computer programmer (von Neumann type) may wonder what on earth he or she has struck for a day or two, experiencing a nervous tremor as fields are defined by virtue of not being defined, in no particular sequence, and programs are embedded inside data files.

If none of the above has whetted your textual appetite, then you are probably either too lazy to write anything down, illiterate, a pure mathematician, or dead!

Review copy supplied by The Floppy Disc Express Co, Auckland. Price: $660 incl. GST.

Powerfully familiar – the Access 386

Another 80386-based 32-bit computer has reached the local market. Does its power and speed live up to its promise, or is it another sped-up superclone? Peter Ensor takes a look.

This is the age of the bigger, brighter and better. Computers have been one commodity that has lived up to this slogan, almost literally. The mass market computers have become bigger internally with wider data buses and more memory, bright colour screens are now more common and the average computer is certainly better than that of 10 years ago.

One of the latest machines to appear on the market is the Access 386 from Advanced Logic Research Inc (ALR). This computer uses the 80386 microporcessor chip, the next chip in the family of 8086 compatible processors that are widely used in the IBM and clone computers. The 386 follows directly on from the 286 as used in the IBM AT computer.

This latest chip has a 32-bit path, twice that of its predecessor, enabling it to consume, think about and spit out more information than before. In addition to this, the clock speed has been increased from the standard AT speed of 6 MHz to 16 MHz. All this makes possible a speed increase of nearly three times the AT speed. For software packages that require conformity at the AT speed, there is a software provision to emulate the AT speed when required.

Confirming this calculation is the Norton speed utility which shows an index of at least 15, that is, 15 times the speed of a PC and nearly three times that of the AT's 5.5.

So how is all this packaged?

The computer comes in a cabinet styled on the familiar AT. The cabinet is, however, higher with space for three half-height drives on the right-hand side, one above the other. The review model used two of these spaces for a high capacity disk drive and a streaming tape drive.

Familiar layout

Inside the cabinet the layout is very similar to all the other clones that have gone before. The bus connectors are the only things that appear different, with two 32-bit connectors. It is expected that these connectors will be used for the memory, with all other devices using the two 16-bit and two 8-bit connectors. At this stage there appears to be no agreement on the allocation of pins on the 32-bit connectors with other manufacturers, so until IBM or a similar company can produce a standard there is unlikely to be a large number of second suppliers for the memory boards.

There is also a socket for a 80387 maths coprocessor, but as these are not in production yet a 80287 co-processor was supplied mounted on a sub-board.

The speed of the machine means that these checks are usually concluded by the time the screen has been able to warm up.

The rear of the machine is again laid out in typical PC style except for the addition of a parallel and a serial socket in the centre. Labelling of the ports was notable by its absence. These two ports are provided as standard as they are both wired to the mother board.

The machine was supplied with a 40Mb hard disk which was split up into two logical drives due to the MS-DOS limitation of maximum disk size, 32Mb and an Enhanced Graphics Adapter was supplied as the display.

The keyboard is available in two options, the standard IBM AT layout and the 101-key version. The enhanced keyboard was similar in layout to that of the IBM enhanced AT with separate cursor key pad and twelve function keys instead of the normal ten.

For these who need additional memory above the standard 512kb 32-bit RAM, Access markets a Challenger board, with up to 4Mb as well as additional serial, parallel and games ports. Unfortunately the board is designed as a 16-bit memory card, thereby losing out on some of the potential of the 386's 32-bit wide data bus. To overcome that, however, ALR also offers the standard Intel 2Mb 32-bit RAM card and advises a forthcoming release of a 4Mb card. These Intel products are plug-compatible with the ALR 32-bit bus.

When turned on, the machine performs a test of the RAM, both the main RAM and the extended memory. The speed of the machine means that these checks are usually concluded by the time the screen has been able to warm up.

Software

The review machine was loaded with MS-DOS as its operating system, but this can be replaced by other operating systems such as PICK or UNIX as desired. Bundled with the machine are four software packages. Above Disk utilizes the extended memory as a RAM disk, while Speedstor is used to manage the hard disk. This program enables the drive to be partitioned off to form additional logical drives as well as allowing maintenance and fault finding to be performed on the disk. This program is essential if the machine is purchased with either the 40 Mb or 80Mb or larger disk drives installed.

A third program is included to manage the tape drive. Called Sy-tos, it allows the backing up of programs onto the tape and also later retrieval. The last of the bundled packages is DESQview. This program, which is written for all IBM compatible machines, allows a single machine to run several tasks concurrently. Up to nine programs can be run at the same time, with each displaying the results in a separate user-defined window. The software uses the extended memory to allow programs that are too large to co-exist with other programs to be swapped in and out of the main program memory as requested.

The program can be "hot keyed" into at any time by using the ALT key. Upon doing so a menu appears in the top right hand corner of the screen displaying the options, which can be selected from either the keyboard or a mouse. New programs can be added to one of the screens as desired.

DESQview also has the feature of being able to mark text displayed in one window and transfer it to another. This is very handy for transferring data from a spreadsheet into a word processing program, for example. Loading the program up with as many tasks as I could find, the system was still able to maintain a good response time. This program is a good addition to the machine.

The Access 386 ran all the AT diagnostic programs without failure as well as dBase III Plus, Turbo Pascal and Lotus 123.

Changing the EGA card for an IBM CGA card proved that the machine was also able to run Flight Simulator. The increased speed of the 386 was very noticeable with Flight Simulator, the aircraft behaving as if someone had exchanged the piston engine for a jet.

Speed comparisons

One of the typical applications that a machine such as this will be used for is computer aided draughting. These programs require large amounts of memory and fast processing speed.

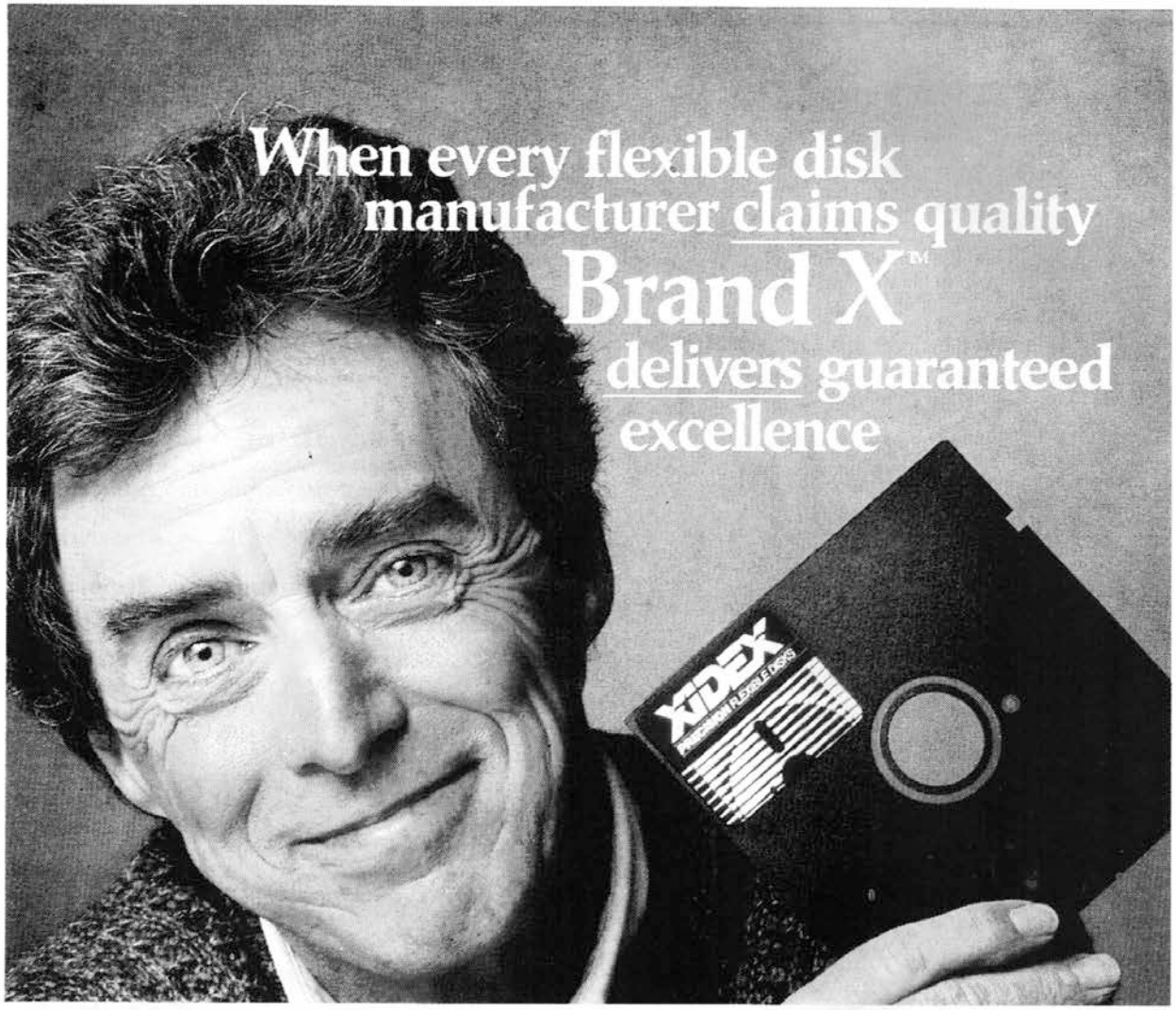
Inside the cabinet the layout is very similar to all the clones that have gone before.

The machine was loaded up with VersaCad, a two-dimensional draughting package, and MegaCad, a 3-D package. An IBM AT was also loaded up with the two programs and the speeds of the two machines were compared. Allowing for differences in the machines due to fragmentation of the disk and the fact that the 386 was using a 15-colour EGA card and the AT was using a 3-colour EGA card, the results were impressive.

Each computer was required to enlarge a section of the drawing as if to work on that section in more detail. Similarly the computers were required to then return to showing the full drawing. This is a function that is performed by an operator many times during the course of producing a drawing and involves the computer calculating the required magnification and then suitably refreshing the screen. A speed difference of over 2.5 times was typical.

Using the three-dimensional draughting package, the most time-consuming function is the drawing of an object with all the detail, not seen from a particular perspective, removed. The sample drawing Prohouse was used. The 386 completed the drawing in 122 seconds while the AT took 353 seconds, nearly three times longer. This speed increase is not only desirable to the operator while drawing but it also minimises the slack periods shared peripherals, such as a plotter, have while plotting out a drawing.

To complement both of these



XIDEX
PRECISION *FLEXIBLE DISKS*

Quite simply, Xidex in Northern California's Silicon Valley, is the world's leader in polyester coating technology. Xidex coats far more polyester film each year than all other manufacturers of flexible disks combined. Unlike most disk manufacturers Xidex maintains total control of the manufacturing process.

For the technically minded Xidex's certification tests are the most demanding in the industry. Performance levels exceed, and in some cases far exceed, the standards set by ANSI, ECMA, ISO, JIS, IBM and Shugart.

Each disk is backed by a final quality control of 18 exacting tests. Each disk is guaranteed 100% error free and backed by a 10 year warranty. Available in 3½", 5¼" and 8" formats.
If you want the best, don't ask for "flexible disks". Ask for Brand X . . . by name.

Unique library file with each pack of 10 x 5¼" disks.

Brand X
XIDEX
PRECISION *FLEXIBLE DISKS*

AVAILABLE FROM YOUR LOCAL COMPUTERLAND STORE
AND OTHER SELECTED DEALERS

packages which have large memory requirements, Turbo Pascal was used to compile a 5469-line program to a .COM file on the disk to evaluate the effect the disk drive has on the system. With this test the 386 was slowed to only half that of the AT.

Turning now to the documentation, the manual that came with the machine was simply presented and appeared to be more of a "rush job" than a professional publication. The photos of the cabinet did not match the machine and were of poor quality. A number of pages were devoted to the standard keyboard, but the advanced keyboard that was supplied with the machine did not get a look-in.

The manual went into good detail on the setting of all the jumpers on the board, but neglected to state where the serial and parallel connectors were on the board. The machine was supplied with MS-DOS, but apart from two pages in the hardware manual there were no details on the MS-DOS operating system.

The manuals for the other bundled software, however, were good, especially that for the DESQview program.

To sum up the machine, it was a good system. The increase in speed will certainly be a benefit as a file server, for desktop publishing, computer aided draughting and for artificial intelligence. By substituting the MS-DOS for another operating system, it would also be good as a multi user processor.

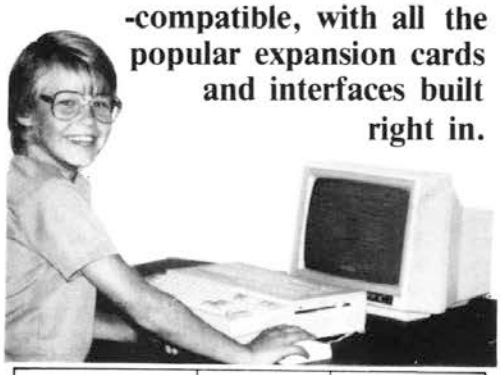
However, until programs are available that are able to use the power of this or any other 386 machine other than using it as a fast 286 clone, the machine has stiff competition from the sped-up clone market.

Microcomputer Summary

Name:	Access 386
Manufacturer:	Advanced Logic Research, Inc, California, USA
Processor:	Intel 80386
Clock Speed:	16MHz, 0 wait state
ROM:	up to 128kb; Phoenix AT compatible BIOS
RAM:	512kb 32-bit interleave expandable
Disk drives:	one 1.2Mb floppy, choice of 40/80/133Mb hard drive
Video:	none standard; choice as per IBM and clones
Keyboard:	choice of 84-key AT or 101-key enhanced AT
Sound:	single-voice IBM compatible
Communications:	serial RS-232C, parallel printer ports
Operating system:	MS-DOS standard, others available on request
Languages:	all MS-DOS
Bundled software:	Above Disk, Speedstor, Sy-tos, DESQview
Prices: ($NZ + GST)	basic system: $5,550; 40Mb model $8,550; 80Mb model $9,550 monochrome system (1Mb RAM, addition serial, parallel ports): 40Mb $9,550; 80Mb $10,550; 133Mb $15,000 colour system(EGA, 2Mb RAM, additional serial, parallel ports): 40Mb $10,550; 80Mb $11,550; 133Mb $16,000
Options:	60Mb streaming tape unit $3,000 80386 high-speed 2Mb RAM kit $2,500
Ratings: (5 highest)	documentation 2; ease of use 4; expansion 3; connectability 3; support 3; value for money 5.

THE PRICE WON'T GIVE YOU THE PIP, AND NEITHER WILL THE SPECS

The all-inclusive portable Apple® -compatible, with all the popular expansion cards and interfaces built right in.



	LASER 128	APPLE IIe
PROCESSOR	65C02	65C02
MEMORY		
ROM	32K	16K
RAM	128K	128K
I/O		
FLOPPY DISK DRIVE	built-in	built-in
SERIAL PRINTER INTERFACE	built-in	built-in
PARALLEL PRINTER INTERFACE	built-in	No
MOUSE INTERFACE	built-in	built-in
SERIAL INTERFACE TO MODEM	built-in	built-in
80 COLUMN TEXT	built-in	built-in
EXPANSION SLOT	One (or Expand Up To Four)	No
Z80 CO-PROCESSOR	optional, built-in	No
KEYBOARD	Full Stroke Keys, N-Rollover, Keypad	No Key Roll Over, N-Rollover, Keypad
VIDEO DISPLAY		
TEXT COLOR	PROGRAMMABLE 16 COLOR	No
BACKGROUND COLOR	PROGRAMMABLE 16 COLOR	No
BACKGROUND COLOR	PROGRAMMABLE 16 COLOR	No
MAXIMUM GRAPHICS RESOLUTION	560H X 384V	560H X 192V

When you buy the new Laser 128 Apple® compatible portable computer, what you see is what you get. There are no hidden disappointments.

It comes standard with 128k of memory (can be upgraded to 640k) and already contains most of the expansion cards you'll ever need. Like parallel and serial printer ports, a modem port, RGB output, 40 or 80 column option, numeric keypad, plus additional interfaces for a mouse, joystick and another disc drive. And if all that is still not enough there is an expansion slot for your own specialised applications.

Weighing in at only 5.3kg, it's light enough to take to work or school. But when it comes to performance it's a real heavy-weight. Being apple® II+, IIE, and IIC compatible means having access to the world's largest software library. Educational, business, games, graphics, plus it will also run PRODOS. The Laser takes it all in its stride.

And it won't cost you a bundle. It comes complete with a money back guarantee and it won't cost you a bundle. It comes complete with a money back guarantee and at only $1265 you won't get the pip. (An Apple® 2E was priced at $2934 in March 1987). Compare the specifications, and if you'd like more information or maybe a demonstration, simply return the freepost coupon.

Educational and dealer inquiries welcome.

ONLY $1265 includes GST.

Fill in the coupon and return to:

The Floppy Disc Express Co.

FREEPOST 1467,
BOX 39-163, AUCKLAND 1030
OR ☎ (09) 395-438

YES, PLEASE SEND ME MORE INFORMATION ON THE LASER 128.

NAME: _____

ADDRESS: _____

The 1987 Wellington Computer Exhibition

Overseas Terminal, July 9-11

For companies who want to sell computer products in Wellington, and to government

Book urgently! *Telephone Paul Crooks or Louise O'Sullivan on Auckland 796 775* ***now!***

Package of many parts

Multi-capable integrated software is becoming increasingly common, and Peter Ensor runs through a new addition which declares itself to have some Ability.

Integrated packages have always seemed to be a bit of a let-down. In order to integrate the features of wordprocessor, spreadsheet, database and graphics packages into one program, each function is usually cut back in order to keep the price down.

Ability, written by Migent, is an integrated low cost package which contains enough features to make it useful.

The program is supplied on four disks, of which only two are needed to run the program, the other two containing a program for creating a slide show presentation and a tutorial. The disks are accompanied by a 13mm thick manual and associated licence agreements, installation and advertising leaflets. Installing the program onto a hard disk machine is simply done as the package is not copy protected, an added advantage if it is to be used on a network.

The tutorial is easy to follow and runs through the basic features of each of the applications. Starting the program requires five parameters, of which only the first is explained in the manual. Omitting the rest of the parameters does not appear to affect the performance of the package.

Installation

The only installation of the package occurs once the program is running. This involves the selection of the printer, plotter and the screen presentation. Two user-defined screen colours are used, the defaults being green and blue. These are used to highlight which of the two files that are able to be open at once is being worked on.

The last parameter to be selected during the installation is the choice of whether the text is to be displayed using the standard character font (text mode) or to use the program's graphics character font (graphics mode). The advantage of using the graphics mode is that the graphics can be drawn on the screen, but this is traded off against the poorer clarity of the lettering.

The main menu, called the library menu, is cursor driven. Under each heading of the application, for example the editor, is a list of the files that are created by that application. Selecting the required file with the cursor causes that appropriate application to be loaded first, followed by the data file.

Upon exiting the application, the data file is saved to disk but an image is kept in memory.

Upon exiting the application, the data file is saved to disk but an image is kept in memory. These disk images are used the next time that file is nominated, thereby eliminating the disk access required. A number of these file images may reside in memory at once until they are no longer required.

The library menu is versatile to allow all the simpler DOS commands such as copy and rename to be performed without leaving the package, and other applications can also be run directly from the library screen.

For commonly entered keystrokes sequences, a macro facility is provided. By using the function keys in conjunction with the Alt, Shift or Control keys, altogether 30 macros are permitted. Each of these is capable of storing up to 250 keystrokes.

Editor

The first of the six applications is the editor. While the commands that are available are minimal, they are able to handle the majority of the reports and letters that are required. Text is able to be centred, justified and indented as required.

To modify the text, the standard range of cut and paste commands is available, as well as a search and replace facility. Pages with headers and footers are available with a range of options such as date formats and layouts including the facility to omit printing on the first page.

By using the "flip" facility of changing between two files, sections of other files can be incorporated into the text file.

When a spreadsheet is included into the text file, it is copied from the original file complete with all the spreadsheet references. If the auto calculation facility of the spreadsheet had been enabled, every time the text file is loaded the spreadsheet information is updated from the original file. This occurs similarly for any graphs that have been included.

The layout of the editor is simple and easy to follow. The screen is updated as it would be printed with the edges of the page shown in pictorial form.

Spreadsheet

The spreadsheet, the second of the applications, is again simple but certainly not underpowered. The maximum spreadsheet size is 9,000 rows by 702 columns or until limited by memory. A standard range of commands is provided to edit the cells, copy formula is and to insert rows and columns.

By using the $ symbol in the formula, portions of the formula can be specified as absolute while the rest of the formula's changed through the use of, for example, the copy command. There are also commands to search for specified data and to sort data, and a provision has been made to allow the importation of data from a Lotus 1-2-3 spreadsheet and to link with other Ability spreadsheets.

The manual style is that of a tutorial with jargon and assumptions kept to a minimum.

One feature that is a welcome inclusion is the ability to perform iterative calculations. These occur when a result calculated at the end of the worksheet is required as input at the beginning of the same worksheet. The Ability spreadsheet has two

options for doing this. The first is to recalculate the worksheet for a specified number of times, while the second option is to recalculate until a specified condition is met.

Database

The third application, the database, allows the storage and manipulation of information to produce both reports in its own right and to be a source of information for the other applications. While there are good commands to manipulate the structure of the database and to select information from it, there are few commands to manipulate the stored data for the production of the reports.

Any standard retrieval operations would, like the spreadsheet, be performed either by the operator each time it is required, or by using the macro facilities of the library menu.

Graphs

The graphing application can draw a mixture of four types of graphs: standard bar graph; stacked bar graph; line graph; and pie graph.

Each of these can present up to seven values simultaneously for each category, of which there may be up to 18 along the horizontal axis. Graphs may also be rotated and scaled as required.

Communications

A communications function is included as another of the applications, enabling data to be exchanged with remote computers. The data can be sent as a file, or Ability can make the computer act as a terminal, as for example when accessing bulletin boards.

The protocols to be used can be either XON/XOFF, EIA or dispensed with altogether.

The application will store relevant information about the computer to be called, including the phone number for an auto dial modem, serial data format and an automatic login file if required.

Presentation

The final application is the presentation portion of the program which requires that a colour screen is used. (An EGA screen produced an error message.)

At any time a copy of the screen can be taken and put into a snapshot file. These snapshots can then be edited, pointers or symbols or text added, and then ordered into a suitable sequence for a slide show.

A musical ditty can be added to each of the slides, along with the style of transition from one slide to the next and the length of the time that the slide is shown. This can then be compiled into a file for later use.

The range of musical tunes and symbols that have been provided can, after many shows, become limited, however, and no provision has been made to add or modify the range available.

Available to all the applications are such things as financial and trigonometric functions. The range supplied appears to be reasonable.

The manual for the package is well presented and easy to read. The style is that of a tutorial with jargon and assumptions kept to a minimum.

The package at a recommended retail price of $295 plus GST appears to be good value for money. It will handle the majority of the everyday tasks required of it and is suitable for general office use, where a high level of training is not available, and staff and financial resources do not warrant a top-level (and expensive) package. With this in mind, Ability is being bundled by Lingo and Amstrad.

Review package supplied by Computer Store, Milford, Auckland.

compact

BRITISH BROADCASTING CORPORATION

MASTER SERIES MICROCOMPUTER

$1,690 PLUS GST

This includes processor, disc drive and enough software to keep you busy indefinitely.

Available from

Computer Terminal
257 Hinemoa Street
Birkenhead, Auckland
Ph (09) 419 0543

John Gilbert Electronics
75 Parnell Rise
P.O. Box 37-245
Auckland
Ph (09) 390 839

Whitcoulls
175 Victoria Street
Hamilton Ph (071) 82 173

Micro-Interface (NZ) Ltd
Baycourt Centre, Shop 1
P.O. Box 14-441
Kilbirnie, Wellington
Ph (04) 873 451

Aftron Computer Services
161 Babadoes Street
P.O. Box 12-228
Christchurch
Ph (03) 797-445

Whitcoulls
111 Cashel Street
Christchurch
Ph (03) 794 580

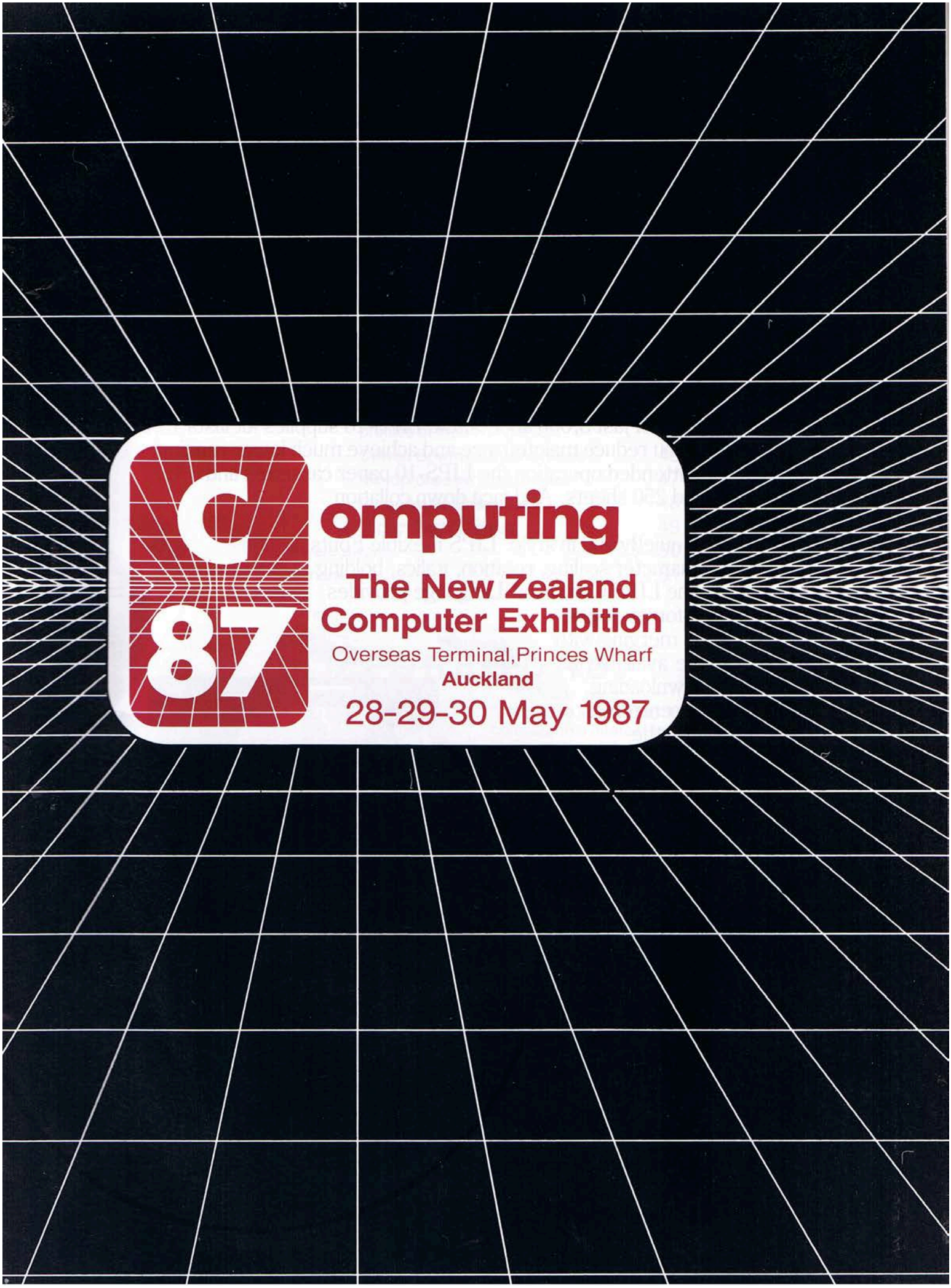
Educomp
8 Kerwood Place
P.O. Box 255 Gore,
Southland Ph (020) 87 365

BARSON COMPUTERS

We're here to help you.

Barson Computers Ltd
1 Ngaire Ave, Auckland
Ph (09) 504-049

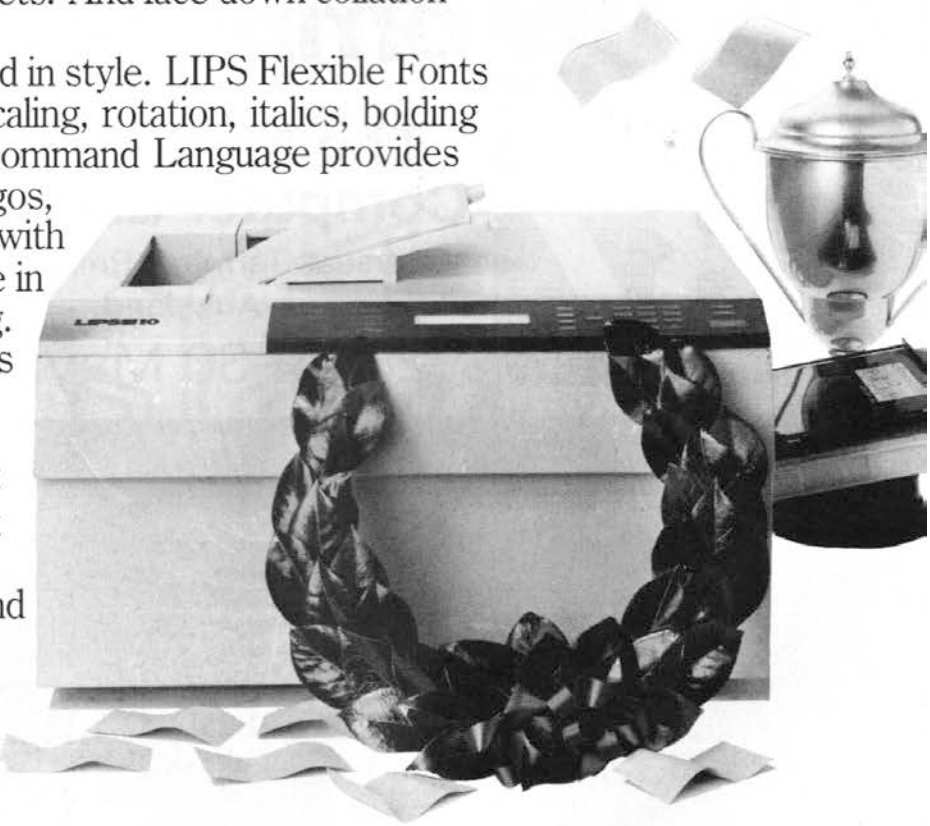
TA3305


C87
omputing
The New Zealand
Computer Exhibition
Overseas Terminal, Princes Wharf
Auckland
28-29-30 May 1987

Hail the Lips 10 laser-

New from C.Itoh: the LIPS-10 **L**aser **I**mage **P**rinting **S**ystem for office computers. It's a real sprinter. **10** pages a minute instead of only 8. Faster warm-up – just 30 seconds instead of 120. Faster print – you can have your first page printed just 40 seconds from switch-on. C.Itoh's LIPS-10 is a speedster that's built for marathons. Built to last 5 years at 500 sheets per day. That's a long way ahead of 150 sheets a day for less than 3 years. There's less servicing too. Instead of just 3,000 sheets, the LIPS-10 supplies kit lasts 15,000 sheets. So overall you reduce maintenance and achieve much lower running costs. To allow unattended operation the LIPS-10 paper cassettes and ouput tray both hold 250 sheets. And face down collation saves sorting time.

And it does it all quietly and in style. LIPS Flexible Fonts provide dynamic character scaling, rotation, italics, bolding and justification. The LIPS Command Language provides business graphics, forms, logos, bar codes and easy merging with text. Extra fonts are available in cartridges or by downloading.



Fitted with both centronics and RS-232-C ports, the LIPS-10 Laser printer is compatible with the IBM-PC range, compatibles and most minicomputers. It emulates the Diablo 630 daisywheel and Epson FX-80 matrix so you won't have to modify your word processing or software.

If you're looking at what's best – and cheapest – in the long run, you'll award your gold to the C.Itoh LIPS-10 Laser Printer. The marathon sprinter. Contact us now for a stockist near you.

CONTROL

PO BOX 68-474 AUCKLAND, NZ TELEX NZ 61102 'DATASYS'
45 NORMANBY ROAD, MT EDEN, AUCKLAND 3. PH (09) 600-687.

it sprints marathons

Computing 87

Exhibition Catalogue

CONTENTS

Floor plan and exhibitors	40
Exhibitor information	41-44
Profiles – four exhibitors present profiles of their companies:	
– Cowan Bowman & Associates	45
– Microprocessor Applications	47
– Remarkable Enterprises	48
– Impact Technologies	49
Software awards	50
Seminars	51

FOREWORD

Welcome to the third annual computer exhibition in Auckland. Since last year the exhibition has undergone a name change to Computing 87. We feel this is more in line with the broad coverage given to all aspects of computing at our exhibitions.

Bits & Bytes has been involved in organising computer exhibitions for the past four years and during that time has established a reputation with the public and exhibitors alike for exhibitions that present a comprehensive picture of computing and a good presentation of trends and developments.

This year, desktop publishing and the release of several new computers almost simultaneously with their release overseas will give visitors to Computing 87 the opportunity of viewing the most recent innovations and advances.

It is also exciting to find there is considerable interest from overseas in Computing 87, particularly in the New Zealand Software Showcase, a sector of the exhibition which focuses on New Zealand software development.

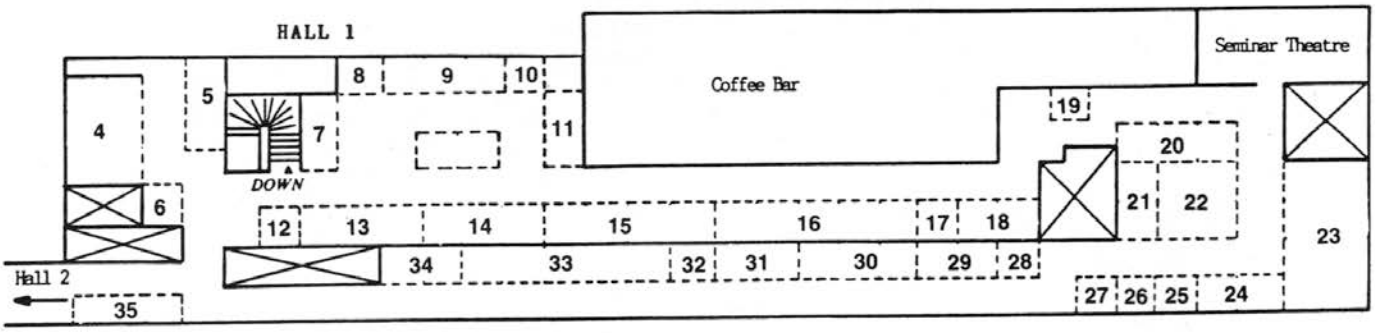
Bits & Bytes has always been committed to encouraging software development in New Zealand. As well as reviewing it regularly in the magazine, we have organised and jointly sponsored the New Zealand Software Awards this year with Verbatim.

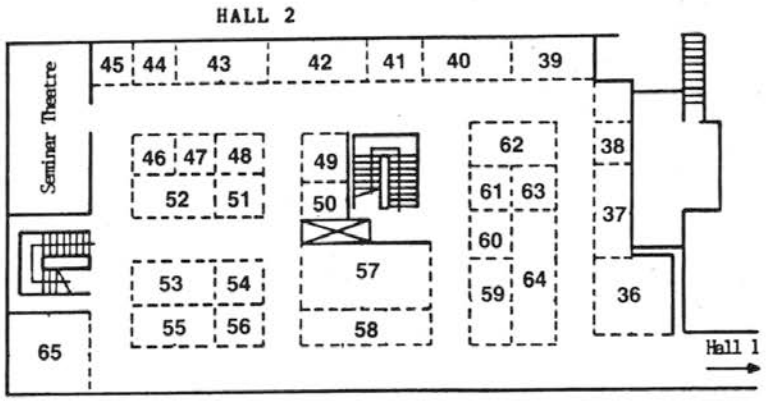
This year the seminar line-up includes a range of seminars from individual companies. These companies are taking the opportunity to give a detailed presentation of their products and capabilities. Whether you are a visitor or exhibitor at Computing 87 we wish you well and good business during the next three days.

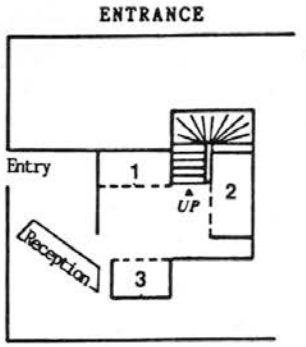
Exhibitors

Stand Number

1. Verbatim
2. Remarkable Enterprises
3. Computer Imports
4. Hewlett Packard/Computer Time
5. Sanyo
6. Cowan Bowman
7. White Knight
8. Auckland University Bookshop
9. Montek
10. Commodore
11. Moore Business Forms
12. Computer Store
13. NEC
14. Pacific Computers
15. Amstrad Computers
16. Commodore
17. Paperback Software
18. Star Micronics
19. Compuspec
20. Computerland
21. Bits — Bytes
22. Impact Technologies
23. Barson Computers
24. Delairco Electronics
25. Computer Enhancements
26. Floppy Disk Express Company
27. M.L. Systems
28. 3M
29. Wickliffe Press
30. Desktop Publishing Systems
31. Datamini
32. The Phoenix Printing Co
33. Southmark
34. Mail Order Systems
35. Micropost
36.
37. The Micro Source
38.
39. Integrated Office Systems
40. Melco Sales
41. Silencer Hoods
42. Control Micro
43. Silkwood
44. Brandt
45. South Pacific Marketing
46. Primesoft Farm Plan
47. Eastwood Microcomputers
48.
49. National Safe
50.
51. Logical Methods
52. Micro Controls and Systems
53. HMS Attache
54. Remarkable Enterprises
55. Archives
56. Computer Suite
57. Rank Xerox
58. Lingo Computers
59. South Pacific Marketing
60. Procom Systems
61.
62. Microprocessor Applications
63. Profile Systems Ltd
64. Ashton Tate
65. New Zealand Microcomputer Club







3M New Zealand Ltd
P.O. Box 33-246
Takapuna
Ph: (09) 444-4760
Personnel: Nick Minogue, John Novak, Gloria Shute, Dick Gabriel, Kim Davies
Products: 5¼" diskettes, flip'n'files, 3½" micro diskettes, data cartridges, static control products, computer tape.

Amstrad Computers
21 Great South Rd
Newmarket
P.O. Box 2353, Auckland
Ph: 504-035, 505-440
Personnel: M. Howard, G. Furley, S. Kenyon, T. Perreau, A. Railton, R. Hammer and others.
Products: Amstrad PC range – single, double floppies and 20 meg IBM-compatibles. Amstrad home computer (CP6128), Amstrad word processor (PCW8256).

Aquarius Financial Systems
29 Great South Road, Newmarket
Ph: (09) 506-159
Products: Money Minder – Sharemarket Analysis System.

Archives Computers (NZ) Ltd
1st Floor, Albert Village
945A New North Rd, Mt Albert,
Auckland 3
Ph: (09) 863-112 or 861-558
Personnel: Tracey Wood, John Smith.
Products: Turnkey network systems using NOVELL SANTA CLARA, MICROFIVE and ARC Computer Products. Single and multi user business software for financial accounting, sales lead control and direct marketing. Distribution accounting for manufacturers, importers, wholesalers, and retailers.

Ashton-Tate New Zealand Ltd
P.O. Box 853, AMP Bldg,
Victoria St, Hamilton
Ph: (071) 393-309
Personnel: Kerry Baillie, Robyn Crawshaw, John Bircham, Grant Waterson, Anne Clark.
Products: dBASE III plus, rapidfile multimate advantage, framework II, master graphics, javelin.

Barsons Computers
P.O. Box 26-287, Auckland
Ph: (09) 504-049
Personnel: Greg Magness, Peter Revell, Chris Young, Robert Burke.
Products: Apricot 286 and 386, Apricot Multi-user, Tandon XT and AT computers, BBC Master and BBC compact. Nth Engine, Citizen Printer, Ricoh and Taxan Monitors.

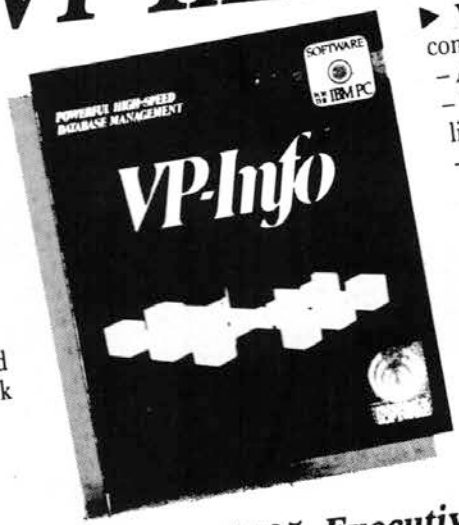
Brandt Corporation Ltd
25a Sheffield Crescent
Christchurch
P.O. Box 14081, Christchurch
Ph: (03) 585-159 (09) 370-602
(09) 590-369
Personnel: Tony Watson, Gerry Ayre, Mark Bennett.
Products: ERGO personal computers, Brandt dialler products, transterm terminal and barcode products, glensys accounting software.

Commodore Computers Ltd
P.O. Box 33-847, Auckland 9
250 Forrest Hill Road
Ph: 410-9182
Personnel: Mike Harrison, David Boyd, Rob Thode, David Sherry, Bob Talbot, Paul Brun.
Products: 128, 64. Commodore AT, Amega 1000, PC's and various peripherals. Retail Stand: software for IBM compatibles and Commodore.

Compuspec Industries Ltd
9 Maidstone St, Grey Lynn
P.O. Box 26-060, Auckland
Ph: (09) 788-529
Personnel: P. Andrews, B. Caulton.
Products: Compuspec modems – the full range of intelligent modems, software. Insight, Kermitt SS.

POWERFUL HIGH SPEED DATABASE MANAGEMENT

VP Info™ $395 + GST



- Reads and writes *dBase II* and dBase III database files
- Access up to 6 database files simultaneously.
- Up to 256 fields and 8k bytes per record. Up to 65,535 records per file.
- Compiles programs for speed and security. Local area network support – standard.
- Extended *dBase* – like programming language.
- Versatile *REPORT* command.
  – Access up to 6 data files.
  – Two levels of subtotalling.
  – Multiline headings.

SELECT specific records.

- Fully relational.
- Communications port I/O.
- Read and write external files in any format.

Also available: VP Planner $395 Executive Writer $250

ALL PRICES EXCLUDE GST. LOOK FOR MORE POPULAR TITLES.

Distributed by Paperback Software (NZ) Ltd
P.O. Box 8083, Hamilton.
Phone (071) 82363.

Computer Enhancements
First Floor, 210 Federal Street,
P.O. Box 39-379
Ph: (09) 395-771
Personnel: Grant Dockery
Products: Printers, terminals (including IBM compatibles) and software.

Computer Imports
Private Bag, Auckland
EXZEL House,
42-48 Upper Queen Street, Auckland
Ph: (09) 395-344
Personnel: A comprehensive team of computer professionals headed by Jim Mather.
Products: The full range of EXZEL PC, XT, AT and AT-386 based PCs.

Computerland Manukau City
Cnr Cavendish Drive and Sharkey Street
Private Bag, Manukau City
Ph: (09) 278-0506, 278-5324
Personnel: Tim Langer, Megan Wall, Alex Hampton, Peter Cox, Alistair Anderson, Robin Taylor, Ian Harvey.
Products: IBM Personnel System/2, NEC Powermate, NEC Multispeed, NEC Silent Writer, NEC Pinwriter, OTC Matrix Printer, Xerox Ventura Publisher, Intel above boards, plus hard cards, Orchid Jet 386 board, Tallgrass tap drives, optical disk drives, Gateway g/Net local area network, Hewlett Packard Laserjet Series II and Scan Jet, and a wide range of software.

Computer Store Division of Albertland Enterprises
48 Kitchener Road,
P.O. Box 31-261, Milford
Auckland 9
Ph: (09) 499-458 Telex NZ60963
Personnel: Mr E.M. Zimmermann
Products: Concurrent PC/DOS and GEM from Digital Research, Super-Project from Computer Associates, Borland range of products, Fastback, dBXL from WordTech Systems, Ability by Migent and Alice by Graham Software. Computer systems by Olivetti and Scala, Bar Code Readers, Micropolis Rigid Disk Drives, Printer Spoolers, PC Share, Disk Minders, Daisywheel print elements.

Computer Time/Hewlett Packard
New North Rd, Auckland
P.O. Box 26-108, Auckland
Ph: 391-932
Personnel: Roger Phare, Gary Webb, Sam Mobsby, Karl Smid, Zara Buksh, Michele Frost, Paul Simons.
Products: Bectra, Scanjet, Laser Jet Series II.
Aldus Pagemaker® Xerox Venturer and Read Right.
Lucky draw competition.

Compusoft Business Systems Ltd
61 Harbour View Road,
P.O. Box 31142, Lower Hutt
Ph: (04) 693-358
Personnel: Peter Walker, Paul Hamilton
Products: ISSAC software – Integrated Service Station Accounting Control, (debtors, stock, payroll, creditors, ECR communications and GST) plus Sanyo Forecourt Control System.

Control Microcomputers
P.O. Box 68-474, Auckland
Ph: (09) 600-687
Personnel: Basil Orr, Brian Groen, Peter Harris.
Products: Thomson monitors, EGA Ultra Scan & Dual scan & C. ITOH printers – Lips 10 Laser, high speed dot matrix & 24 pin dot matrics printers. Irwin tape drives.

Cowan Bowman Associates Ltd
588 Great South Road
P.O. Box 26-048, Greenlane
Ph: (09) 590-295
Personnel: Vicky McCullough, Jac Taylor, Annette Doo, Juliet Dzoja
Products: CBA Business Package, Dataflex, Q & A.

Datamini
P.O. Box 31-396, Auckland
Ph: (09) 419-1868
Personnel: Paul Capper

Delairco Electronics
111 Franklin Rd, Freemans Bay
Auckland
P.O. Box 626, Auckland
Ph: (09) 788-798
Personnel: Mike Taylor, Tere Williams, Alan Williamson, Lee Beck-Williams.
Products: Apple computer products, Abton digital scanners, The Mega Screen (for Macintosh), Abton Optical Character Readers. Also Linotronic typesetting.

Desktop Publishing Systems
P.O. Box 5770, Auckland
Ph: (09) 399-621
Personnel: Warren Cattley

Eastwood Microcomputer Services Ltd
75 Rosebank Road, Auckland 7
Ph: (09) 882, 049
Personnel: Alan Eastwood, Kathy Boyce, Peter Eastwood.
Products: Emcom Commercial Software, Payroll software, Parts system software, workshop costing software.

Floppy Disc Express Company Ltd
P.O. Box 39-163, Auckland
Ground Floor, 128 Khyber Pass Rd
Ph: (09) 395-438
Personnel: Geoffrey Collins, Suzanne Clarke.
Products: Laser 128 Portable computer, Apple compatible expansion cards and peripherals, Fox XT Turbo. Asksam text based management system

Henderson McGeachen systems Ltd (HMS-ATTACHE)
P.O. Box 6967, Wellesley St, Auckland
Ph: (09) 609-087
Personnel: Bill Henderson, Mark McGeachen
Products: Centrons' 'ACCOMMODATA' – Integrated Hotel/Motel management system, the Data Group's 'OMNIBUS' suite of accounting. Software running on ALTOS multi-user computers.

Impact Technologies Ltd
39-45 Porana Rd, Glenfield
P.O. Box 33326, Takapuna
Ph: 444-0760
Personnel: Tony Dixon, James Crossley, Roger Foote, Craig Brownlees, John Forster, Steve Shilham
Products: Novell networking products including file servers and software, televideo computers and networks, impact laser printers.

Lingo Computer Systems Ltd
P.O. Box 5354, Auckland
Ph: (09) 765-595
Personnel: Graeme Hadfield, Robert Hay, Lynda Morely.
Products: Logi computers, Lingo computers, D-Link LAN, accounting software.

Logical Methods
P.O. Box 37-623, Auckland
Ph: (09) 398-105
Personnel: Jon Vincent, Adrian Abraham.
Products: Profax Release 4, Flyfax, Profax XS, Italian computer work stations.

Melco Sales (NZ) Ltd
No 1 Parliament St
Lower Hutt, Wellington
Ph: (04) 697-350
Personnel: Peter Brett.
Products: NEC drives, monitors, Mitsubishi product, Tum, Everex, Archive, Atronics, terminals, controllers, computer peripherals.

Micro Controls and Systems
P.O. Box 9330, Newmarket
Ph: 544-361
Personnel: Warren Cardno, Annette Cameron, Guy Bloomfield.
Products: Financier, VideoManager, StockMaster.

Microprocessor Applications (NZ) Ltd
33 Broadway, Newmarket
P.O. Box 9480, Newmarket
Ph: (09) 503-045
Personnel: Nitya Misra, Guy Goodman, Ian Le Huquet, Sharon Ireland.
Products: Wyse Personal Computers (PC286,PC+), Wyse range of terminals, Link range of terminals, Mannesmann Tally Printers, including the MT910 Laser Beam Printer.

Micropost
P.O. Box 10-383, Wellington
Ph: (04) 720-902
Personnel: Fred Muys

The Micro Source Limited
P.O. Box 33-797, Takapuna
192C Wairau Road, Auckland
Ph: (09) 444-0771
Personnel: John Ewen
Products: Tallgrass Technologies – file server, optical disk system; Orchid Technology – accelerator cards; Output technology – high speed printers; United Innovations – Mural plotter.

MLS Software
29 Keeling Rd, Henderson
P.O. Box 83-091, Edmonton, Auckland 8
Ph: (09) 837-0305
Personnel: Peter Young, Brent Sutton, Lyn Lopez
Products: MLS Point of Sale System (New Release), MLS Consumables, Imported I.B.M. Games, MLS Junior Debtors – Invoicing (New Release), MLS Cashbook.

Montek Equipment Ltd
20 Crummer Rd, Grey Lyn
Ph: (09) 789-956
Personnel: Felix Meijer
Products: Atari 520 St, 1040 ST, ST Mega series, Atari desktop publishing system, with Laser printer, 64XEM computer system, software, Atari PC (IBM compatible).

Moore Business Forms
P.O. Box 3375, Auckland
Ph: (09) 578-149
Personnel: Robert McWilliam
Products: Computer Accessories: a complete range of word processing, lineflo, and printed business forms for all computer systems. Includes entire Readiform range.

MOS Computer Software & Supplies
P.O. Box 46-177, Herne Bay, Auckland
Ph: (09) 760-086
Personnel: Mike Ridgway

National Safe Co
P.O. Box 26-084
Epsom, Auckland
Ph: (09) 546-096
Personnel: John Hayward

NEC
P.O. Box 39-477, Auckland
Ph: (04) 391-449
Personnel: Brian Grounsell, Raj Sharma, Nigel Ekins, NEC Dealers.
Products: APC IV, Powermate & Multi Speed PC's. Silent writer, P7 & P5 XL printers.

Pacific Computers
87 Carbine Rd, Mt Wellington
Ph: (09) 577-246
Personnel: Sales
Products: Mitac XT/AT computers, TSE PC computers, Alphatronics expansion cards, Transnet networking systems, IBM PC software, TSE mouse, Startcom modems, Star printers.

Paperback Software
P.O. Box 8083, Hamilton
Ph: (09) 82-363
Personnel: Bernard Bailey

Primesoft Farm Plan (NZ) Ltd
1st Floor, 381 Parnell Rd
Auckland
Ph: (09) 391-456
Personnel: Tony Lisaman

Profcom Systems Ltd
4 Paramu Ave, Birkdale, Auckland
Ph: (09) 437-892
Personnel: Chon Chai
Products: Sherry Turbo XT, Software: Medata (medical).

Rank Xerox
P.O. Box 5948, Auckland
Ph: (09) 541-949
Personnel: Louise Iseke, Mark Jacobson, Alistair Waugh, Dennis Phipps.
Products: Xerox 4045 Laser Copier Printer, Xerox 4050 Laser Printer.

Remarkable Enterprises Ltd Computer Division
P.O. Box 1415, Dunedin or
7 Crawford Street, Dunedin
Ph: (024) 774-464 or 770-179
Fax: (024) 775-411
Personnel: Noel Ferguson, Chris Diedrichs, Murray Hobbs, Mark Bedford, Judy Knighton, Laurens Meyer.

PHOENIX
for
BUSINESS FORMS

Specialists in
Continuous Computer Stationery
Carbonless and
One Time Carbon Sets

Quality Letterpress and
Colour Offset Printing

Complete Art and Design
Services

The Phoenix Printing Co. Ltd.
113-115 Wellesley Street, Auckland
P.O. Box 5349 Phone 34-027

Products: Hardware: NEC APC IV, Magnum PC2. Software: The Project Accountant, Time Cost & Billing, Stop/Go, The Remarkable General Ledger, and Payroll, Before You Leap Vers 2.0, Bookmark, Tornado Notes, Desk Top Publisher Graphics, DR Halo II, Linear Programming Templates for What's Best.

Sanyo Business Systems
Private Bag, Symonds St, Auckland
Ph: (09) 392-055
Personnel: Mike Moir

Silencer Hoods
P.O. Box 2518, Auckland
Ph: (09) 444-5412
Personnel: Fritz Frost

Silkwood Manufacturing
8 Tironui Rd, Papakura, Auckland
Ph: (09) 298-7089
Personnel: Kevin Shuker, George Forster
Products: Extensive range of ergonomic computer furniture – work stations. Closed units for home computers etc.

Southmark Computers Ltd
P.O. Box 74-128, Auckland
Ph: (09) 504-609
Personnel: Peter Uffindel

South Pacific Marketing
P.O. Box 1180, Auckland
Ph: (09) 393-026
Personnel: Ray Young

Star Micronics (NZ) Ltd
22 Moa Street, Otahuhu, Auckland
Ph: (09) 276-7349 (4 lines)
Products: Star range of dot matrix computer printers ranging from 100 cps to (24 wire) 300 cps.

The Computer Suite Limited
P.O. Box 51-508, Auckland
Ph: (09) 566-902
Personnel: Steve Peacocke
Products: Trader series, Business Programs.

The Phoenix Printing Co Ltd
113-115 Wellesley St West.
P.O. Box 5349, Auckland
Ph: (09) 34-027
Personnel: Tony Dawson, Michael Laycock, Kel Hurford, Peter Gregory, Charles Crotty.
Products: Continuous stationery and business forms specialists, colour and commercial printers.

University Book Shop
19 High Street, Auckland
Ph: (09) 773-936 or 733-749
Personnel: John Pringle, Carolyn Alexander and Sarah Percy.
Products: Computer Books.

Verbatim (NZ) Ltd
1A Charann Place, Avondale, Auckland
Ph: (09) 883-265
Personnel: Paul Woods, Derek Dingle, Sean O'Connor, Mike Rollo.
Products: Floppy disc & full range of computer storage media. Releasing three products – a 20 & 30 Mb databank, 20 & 50 Mb cassette, full range of data cartridges.

White Knight Capital Ltd – Computer Division
P.O. Box 8146, Christchurch
Ph: (03) 797-811
Personnel: Bob Radley, Steve Baker, Paul Radley.
Products: New release IPC AT Turbo & XT Turbo. Sharemarket software, sharedata down loading services.

Wickliffe Press Ltd
19 Great South Road, Newmarket
P.O. Box 5441, Wellesley St
Ph: (09) 547-073
Personnel: Gaylene Varley, Warren Lesley
Products: Business and computer form printers. Range of lineflo and pre-printed business forms. Samples of forms produced.

BECOME A COMPUTERISED INSIDER SHAREMARKET ANALYSIS

METASTOCK

1987 VERSION FOR I.B.M. PC's & COMPATIBLES

Nominated as EDITOR'S CHOICE in prestigious PC MAGAZINE this excellent technical analysis software is now fully supported in New Zealand.

METASTOCK has just released major updates for its already tremendously powerful program. Whether in the hands of amateurs or professionals METASTOCK easily turns raw data into easily interpreted signals which indicate the best shares to buy or sell, and importantly, the most profitable timing.

Your data input is made easy by optional services available from THE WHITE KNIGHT.

MONO OR CGA VERSION
$594.00 *Incl. G.S.T.*

EGA VERSION
$682.00 *Incl. G.S.T.*

WHITE KNIGHT
CAPITAL LIMITED
COMPUTER DIVISION

P.O. Box 8146. Phone (03) 797-811. 194 Gloucester St, Christchurch.

HOW TO BECOME AN INSIDER SHARETRADER

SHAREDATA

Computerised sharemarket database services for investors and analysts

— Enthusiasts to professionals —

This unique facility offers both technical and fundamental information on all New Zealand Listed companies.
Available on Line or on diskette.

Load into your own IBM PC or compatible, and become an expert insider. Supporting software performs highly professional analysis which makes both timing and trading selection astonishingly accurate.

Ask for details today

WHITE KNIGHT
CAPITAL LIMITED
MEDIA+INVESTMENTS

P.O. Box 8146. Phone (03) 797-811. 194 Gloucester St, Christchurch.

Cowan Bowman Associates

Success throughout Australasia

From a standing start just over four years ago, New Zealand software house Cowan Bowman Associates has grown to be one of the biggest suppliers of Australasian microcomputer accounting software.

The Focus Survey, the Australian best seller list for computer software, says that the company's microcomputer accounting package outsold all others in its class last year.

The CBA Business Package also reached the monthly survey's top 10 seller list for all software products – a rare feat for accounting software.

And on June 2, 1986 the package was named "Australian Business Software of the Year" at the seventh annual PC Exhibition in Melbourne.

Both Cowan Bowman Associates and the CBA Business Package have done very well in any one's terms since the company was formed in 1983 by directors John Cowan and Don Bowman.

John Cowan had the computer experience accumulated from working for Ford New Zealand's computer division, and as Auckland manager for a large time share bureau and Don Bowman had management experience from involvement with a number of companies, including his own, Bishman Electrical, now part of Fletcher Challenge.

Having identified a market need for multi-user microcomputer accounting software, they joined forces and formed the new company to develop and distribute the CBA Business Package.

Their developmental work was exhaustive. With his computer background, John flew to the United States to search for the best high level language to develop the package in. The choice was DataFlex, a fourth generation language, produced by the Florida-based company Data Access Corporation.

Cowan Bowman Associates also obtained the New Zealand distributorship for DataFlex, which has since become a de facto industry standard for the development of multi-user microcomputer software.

By the end of 1985, there were 200 installed sites of the CBA Business Package and Cowan Bowman Associated moved offshore to Australia, signing a distributorship deal with the big Australian computer company Intelligence (Australia) Pty Ltd.

Don Bowman, Cowan Bowman Associates.

CBA sold into key sites including the Australian National Safety Council, the Victoria Government's Small Business Development Corporation and subsidiaries of Australia's biggest company BHP.

By mid-1986, Intelligence's CBA division become the company's fastest growing operation.

"It had grown to the point where it could stand on its own two feet," says Don Bowman.

And that's what it did. On June 2, 1986 a new company, Automation One, opened for business. It was formed to take over the Australian distribution of the CBA Business Package and to move into the distribution of other software.

Cowan Bowman Associates holds the reins, with a controlling interest in Automation One, with an Australian associate holding a minority interest.

While Automation One's top priority remains the distribution of the CBA Business Package in Australia, Mr Bowman said the company will import and distribute other software in Australia, and export software to South East Asia.

Currently, the CBA Business Package has some 1800 installed sites in New Zealand and Australia – far exceeding any competitor.

Users in New Zealand include the New Zealand Stock Exchange, the New Zealand Dairy Board, Shell Oil and New Zealand-based international high-flyer ENZED to name a few.

The software package is designed to serve as a fully integrated general accounting system, consisting of nine modules – accounts receivable, accounts payable, purchase order, order entry, inventory, general ledger, payroll, cost management and bill of materials.

Recent extensions to DataFlex, the basis of the CBA Business Package, will enable the package to run on minicomputers using DEC's VAX/VMS or the Unix V operating system.

Don Bowman says the new DataFlex version has opened up new horizons for the CBA Business Package among corporate users.

The successful New Zealand software may also become more widely used outside of Australasia. Mr Bowman says the future direction of the company will be towards South East Asia through Automation One, which has distribution rights for this potentially enormous marketplace.

Cowan Bowman Associates is also widening its activity in the New Zealand market with the distributorship for the Q & A database package.

Q & A was developed in the United States by Symantec and is similar to Software Publishing's PFS:Professional File.

However Q & A is unique in having an "Intelligent Assistant" letting users query the ddatabase with ordinary English phrases which, according to some reviewers gives it the edge over PFS: Professional File.

John Cowan, Cowan Bowman Associates.

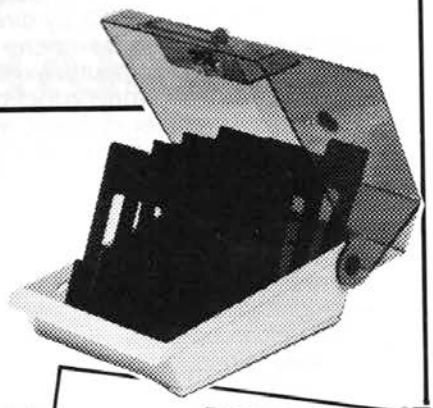
PC 87 SHOW SPECIAL

99c DISK

INC. GST

MAXIMUM 30 DISKS PER CUSTOMER ONLY AVAILABLE 28TH, 29TH & 30TH MAY AT PC87

This is the disk offer to end all disk offers! Double sided, double density disks at only 99c each (incl gst) only when you purchase a 50-way Lockable Disk Cabinet. Maximum of 30 disks per disk cabinett.



50-WAY LOCKABLE DISK CABINET $24.00

NEW BUYERS GUIDE COUPON Spins PC 178

Post To: Pacific Computers, P.O. Box 54-069, Bucklands Bch, Auckland.

Pacific Computers NEW Buyers Guide is out! If you're looking for a PC or extra PC software/hardware then get a copy of this Buyers Guide.

PLEASE RUSH ME A NEW PC BUYERS GUIDE!

NAME _____

COMPANY _____

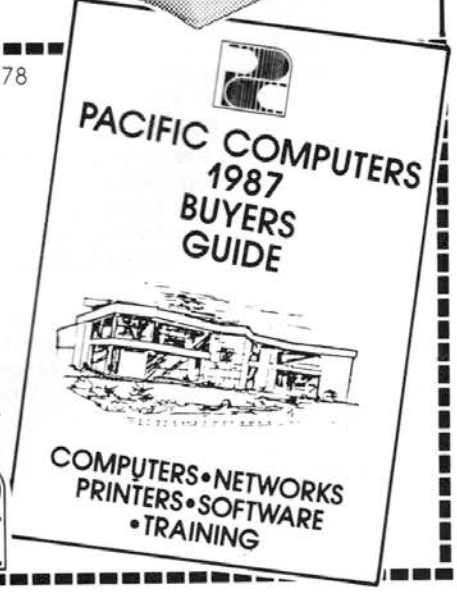
ADDRESS _____

_____

PHONE _____

COMPUTER _____

PACIFIC COMPUTERS



Microprocessor Applications Pty Ltd

Technical knowledge and complete range of options

Microprocessor Applications Pty Limited (MPA) is an Australasian company which has established itself with a philosophy of bringing outstanding technology to the market.

MPA is a computer manufacturer, distributor and marketing organisation which has been supplying advanced computer systems and specialist microcomputer based equipment to a wide range of industries.

Head office is in Blackburn, Victoria with supporting offices in Sydney, Brisbane, Auckland. Currently the company employs 55 people and has a turnover in excess of $14 million.

MPA places a priority on support and product expertise: as a means to this aim it relies heavily on technical knowledge of the products it markets – an advantage over its competitors, MPA considers.

The product range is broad and major suppliers include such well known names as Wyse, Link, Mannesmann Tally, and Plexus Computer Systems along with a range of sub-components aimed at complimenting and enhancing existing product lines. New products will be announced in June from Wyse, Link and Mannesman Tally, products which MPA considers will strengthen its position as a major peripheral and system supplier. It is also likely that MPA will announce several important software products in the next two months, fine tuning the company's stance as a total systems distributor.

MPA has been the top international distributor for Wyse Technology products from 1983 to 1986. In New Zealand the general manager is Nitya Misra and the New Zealand office is situated at 33 Broadway, Newmarket.

Nitya Misra, General Manager of MPA

COWAN BOWMAN ASSOCIATES

distributors of

CBA
BUSINESS PACKAGE

DATAFLEX

Q&A

COWAN BOWMAN ASSOCIATES LIMITED P.O. BOX 26-048 TELEPHONE (09) 590 295

Remarkable Enterprises –

Tuned to domestic and international trends

Remarkable Enterprises was established in 1982 to develop and market the Film Management System. Today that system has been sold into Australia and the United States and is being used by organisations such as the Australian Broadcasting Corporation and Steven Spielberg's company, Amblin Productions, in the United States.

The company was founded in Dunedin and has remained there, able to draw on the talent from the local university, establishing a team of staff that has come to specialise in keeping up with software development and trends worldwide.

With the market for its own software being forged overseas, Remarkable has had to maintain a close watch on developments overseas: this has resulted in their ability to identify and provide good computer related products with prices that relate to the New Zealand market. This ability led to the establishment of a nationwide mail order service in 1985. That department of Remarkable today distributes a wide variety of software solutions throughout New Zealand.

On the development front, the original development for the film industry has provided a basis for the development of other software products. These include:
The Project Accountant
Stop/Go
Film Track
Remarkable Payroll
Time Cost & Billing
Remarkable General Ledger

These products are amongst a comprehensive range being presented at Computing 87. Two of the stars in this lineup are Before You Leap – Version 2.0 and the Linear Programming Templates for What's Best. Both these packages from the United States are likely to attract a lot of attention according to Remarkable's Noel Ferguson. Before You Leap is a function point analysis program for would-be software developers, estimating to within 20% of the development options and costs.

What's Best is a Lotus-style program of benefit to many industry sectors in terms of planning and cost control. It has been heralded overseas as an award winning package offering high cost benefits, using linear programming for the simple management of complex projects.

The Remarkable team, from left to right, back row: Ross Brown, Mark Bedford, Noel Ferguson, Ros Dawkins, Guido Buellins, Laurens Meyer, Suzanne Beadthe. Front row: Murray Hobbs, Sandy Donaldson, Kirten Maiden, Judy Knighton, Chris Diedrichs.

Remarkable are about to put their General Ledger onto the PCSig public domain network, as part of their marketing thrust off-shore. Already they are enjoying some success overseas and they believe the move into public domain will assist in promoting their capability in a visual, demonstration sense. The complete and supported version will be available in the United States at $69.95 and in New Zealand at $295.

Impact Technologies

People and products for performance

Impact Technologies Ltd., formerly Calibre Group, is probably best known as "The Networking Company", being Novell's only authorised distributor in New Zealand. Novell are recognised international market leaders for local area networking, and the range of products includes file servers, terminals, interface cards and Netware operating system software.

Unlike many companies marketing network products, Impact offers a wide range of topologies including Arcnet, G-Net, vLAN, and the high performance Ethernet which runs at a super quick 10 Mbps. This diverse range of options means that a broad spectrum of needs can be catered for, from a low cost system linking two machines together, to systems of the complexity of Novell's own which contains 35 linked file servers and has in excess of 500 users.

Networks of this size provide options in areas that have traditionally been considered the domain of the mainframe, or at least the mini-computer, requiring the experience of personnel with an in-depth knowledge of systems to ensure successful installation.

Impact are especially strong in this area; mindful of the background needed to satisfy this market, most of the company's staff has a background that stems from the mainframe environment and with a wide range of skills – both technical and marketing. It is this level of expertise which has been responsible for the high regard with which Impact are held in the industry.

Impact has the only Novell authorised instructor in the country and a training school with staff who can tutor in most of the popular software packages including; Multimate, Lotus 123, dBase, and Framework, as well as DOS and Netware operating systems.

Other agencies marketed by Impact Technologies include the Impact range of laser printers and the Televideo range of computer products.

Impact laser printers are well established in Australia and have already taken a large portion of the New Zealand laser printer market in the nine months since the range was introduced. Impact Technologies are wholly owned by Impact Systems Ltd., of Australia, who manufacture the Impact range and are Australasia's only manufacturer of laser printers. It is anticipated that production of these machines will commence in New Zealand before the end of 1987.

Televideo are an American manufacturer with a large range of computer products which Impact considers are very aggressively priced. The TeleCAT-286 is considered by them to be one of the best value AT compatible computers available. This is just one machine from a selection which includes file servers, network stations, and V.D.U.'s, as well as the latest offerings which are based on the new state of the art processor, the 80386. The machines which use this high performance processor are the Engineering Workstation, designed primarily for demanding C.A.D. or desktop publishing applications,a nd the TeleNIX, a powerful Unix-based multi user system, allowing Impact to offer the optimum solution for any application whether it be a network or a conventional time sliced processor.

Impact distributes through a nationwide network of Value Added Resellers and dealers as well as direct to Corporates and Government. In New Zealand offices in Auckland, Wellington and Christchurch provide support for end users and resellers alike.

With desktop publishing and networking both considered two of the hottest properties in computing today, Impact believe their product range is well positioned to fill these niches perfectly. Add to this some machines suited to the C.A.D. and Unix markets, and some competitively price AT's, and it is easy to see why Impact Technologies are looking forward keenly to another strong year.

Software Awards Dinner

The third Annual New Zealand Software Awards will be announced at the third annual computer industry dinner at the Hyatt Kingsgate Centre on the evening of May 28.

The awards, Gold, Silver and Bronze will be presented by the Minister of Science and Technology, Mr Tizard. More than thirty entries have been received this year, the majority in the business section. Other sections include education, recreation and farming.

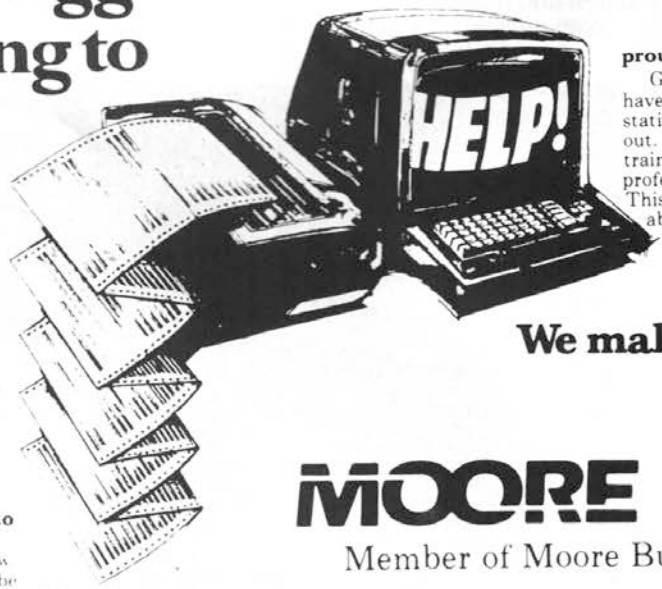
The winners will receive $2,000 and a trophy and this year, a special award of $250 will be presented by Bits & Bytes for the best entry from an under 18 year old.

Guest speaker at the dinner this year is Tim Hartnell, author of more than 60 computer books, two of his best known being Exploring Artificial Intelligence and How To Program the IBM PC – If You've Never Programmed a Computer Before. His latest book is Desktop Publishing – The Book, a guide to desktop publishing and he is currently writing a book on MS-DOS.

Verbatim, the company which is jointly sponsoring the awards and which has also organised an attractive array of trophies, has been going through considerable growth and change in New Zealand during the past 18 months. The company was taken over by Kodak last year and since that time has relocated head office in new premises in Auckland (previously they were in Wellington). Managing director Paul Woods is moving across the Tasman to Sydney where he takes up the position of Asian Pacific Director.

The new manager for Verbatim in New Zealand is Derek Dingle, formerly of Sanyo Business Systems. Tickets for the awards dinner will be available from theinformation office during the first day of the exhibition.

Inside every small computer there's a bigger one struggling to express itself...



...and usually failing. Everywhere small and mini computers are being kept small by uninspired paper systems and second best supply sources.

Moore aims to change things...

By building power into paper.

Instead of churning out raw printout, your computer could be handing you ready enveloped, pre-addressed invoice sets or mailers, or providing a complete internal documentation system. Just by using the right stationery.

By supplying a complete computer diet.

From one supplier you could be receiving not just the continuous forms, source documents and multi-part sets but the data cartridges, floppy discs, forms handling equipment, binders and storage units. They are all compatible with each other and with your system.

By giving you printout to be proud of.

Going over to computer doesn't have to mean swapping your stylish stationery for basic, unimaginative printout. Moore's staff have been highly trained to be able to offer you a professional forms design service. This means your forms will say as much about your company image as about your efficiency.

We make paper work

MOORE BUSINESS FORMS AND SYSTEMS LIMITED

Member of Moore Business System Group

... the Forms Management company

WHANGAREI (089)84E 455 AUCKLAND (09)694 158 HAMILTON (071)72C 591
TAURANGA (075)67 185 ROTORUA (073)83 533 NAPIER (070)48 609
NEW PLYMOUTH (067)63 067 PALMERSTON NORTH (063)61 198 WELLINGTON (04)850 455
CHRISTCHURCH (03)50 254 DUNEDIN (024)770 930 TIMARU (056)86 544
INVERCARGILL (021)41 940

SEMINARS

Selecting a business computer

Establishing the criteria for making the right choice of a business conmputer system. The key issues to consider.

Presented by John Smith of Archives Computers

Session 1, Thursday May 28, 10 am. Theatre 1.

Microcomputers and the Sharemarket

Using a microcomputer to aid your analysis of shares, efficient record keeping and accessing sharemarket databases.

Presented by Bob Radley, author of "Profit from Shares".

Session 2, Thursday, May 28, 10.30. Theatre 2.

Desktop Publishing — a guide

What is desktop publishing, how it can benefit your business, an overview of the competing hardware and software available.

Presented by Tim Hartnell, author of Desktop Publishing: The Book

Session 3, Thursday May 28, 11 am. Theatre 1

A guide to Database Software

What is a database? What role does a database have in business? Major database software available in New Zealand.

Presented by Dr John Bircham of Ashton Tate (NZ)

Session 4, Thursday May 28, 11.30. Theatre 2.

New IBM Personal Computers Unveiled

The first New Zealand public presentation on IBM's new personal computer range announced world-wide only last month.

Presented by IBM and Computerland

Session 5, Thursday May 28, 12 noon. Theatre 1.

Using Computers in Sales and Marketing

Find out how to generate leads and business by using computers in your sales and marketing.

Presented by Archives Computers

Session 6, Thursday May 28, 12.30. Theatre 2.

Desktop Publishing — Using Apple computers

New hardware and software products, including the new Macintush computers, Pagemaker Version 2 software and Adobe Illustrator graphics software, demonstrated for the first time.

Presented by Apple and Desktop Publishing Systems.

Session 7, Thursday May 28, 1 pm. Theatre 1.

Multi-User Operating Systems for 386 Computers

386 computers with all their processing power are arriving in force but what operating systems are available to take advantage of this power? A look at the leading contenders.

Presented by Mark James of Advanced Management Systems

Session 8, Thursday May 28, 1.30. Theatre 2.

Predicting Software Development Costs

The benefits of using modern; low-cost software development estimation methods as decision aids on projects involving between 2000 and 1.2 million lines of code.

Presented by Noel Fergusson of Remarkable Enterprises

Session 9, Thursday May 28, 2pm. Theatre 1.

Advantages of Retail Point of Sale Systems

What are retail point of sale systems? Why retailers need them. The benefits to retailers of the information they capture.

Presented by Kingsley Light, former Managing Director of a 15 store retail chain.

Session 10, Thursday May 28, 2.30. Theatre 2.

Local Area Networks Explained

The fallacies, pitfalls and the benefits of linking computers together in a network.

Presented by Tony Dixon of Impact Technologies

Session 13, Thursday May 28, 4 pm. Theatre 1.

Award winning Linear Programming Software for Lotus 123

Profile of "What's Best", winner of PC Magazine's Technical Excellence Award. Of enormous benefit to Lotus users in manufacturing, financial, transportation, construction, agricultural and service sectors.

Presented by Noel Fergusson of Remarkable Enterprises

Session 14, Thursday May 28, 4.30. Theatre 2

Selecting a Business Computer

See earlier details

Session 15, Friday May 29, 10 am. Theatre 1.

Data Communications

An explanation of the different options, leased line, packet switching etc available for computer to computer communications over long distances.

Presented by Telecoms

Session 16, Friday May 29, 10.30. Theatre 2.

Desktop Publishing — a guide

See earlier details

Session 17, Friday May 29, 11 am. Theatre 1.

Local Area Networks v Multi-User Systems

Pros and cons of local area networks and multi-user systems including the performance of software.

Presented by David Dodds of Altos Computers, Rollo Gillespie of Datagroup and Bill Henderson of Henderson, McGeachen Systems

Session 18, Friday May 29, 11.30 am. Theatre 2.

Improving Project Management Using PC based Software

Enhancing project proposals, predicting success and failure, scheduling projects effectively etc.

Presented by Chris Diedrichs of Remarkable Enterprises.

Session 19, Friday May 29, 12 noon. Theatre 1.

Sharedata — The Sharemarket Database and Software

A demonstration including sharemarket portfolio management, market analysis, subscriber downloading facilities etc.

Presented by Bob Radley of White Knight Services Corporation

Session 20, Friday May 29, 12.30. Theatre 2.

Desktop Publishing — Using IBM and Compatibles

Recently released software packages, Ventura and Pagemaker plus hardware that marked the entry of IBM and compatibles into the desktop publishing field will be covered.

Presented by Computerland

Session 21, Friday May 29, 1 pm. Theatre 1.

Sales Lead and Direct Marketing System

A demonstration of this system designed for use in the sales and marketing department of any company involved in product distribution or direct selling of product services.

Presented by Tracey Wood of Archives Computers

Session 22, Friday May 29, 1.30. Theatre 2.

Check-out Retail Point of Sale System

A low-cost retail point of sale system developed by New Zealand retailers for New Zealand conditions. Already in use at 20 sites.

Presented by Kingsley Light of Ashby Computers

Session 24, Friday May 29, 2.30. Theatre 2.

Selecting and Implementing a CAD System

Evaluation of the right computer aided design system for your business and efficient implementation into the workplace.

Presented by Tim McMahon of Cable Price Engineering

Session 28, Friday May 29, 4.30. Theatre 2.

Trends in the Use of Computers in Education

An insight into where educational computing has come from and where it is going.

Presented by John Buchanan of Barson Computers

Session 30, Saturday May 30, 10.30 am. Theatre 2.

Advanced Interactive Video

Covering the BBC Advanced Interactive Video System including a demonstration of the BBC's Domesday Project.

Presented by Peter Revell of Barson Computers

Session 32, Saturday May 30, 11.30 am. Theatre 2.

IBM®

Authorized Dealer

Personal Computers

IBM Personal System/2
The next generation

SOUTHMARK COMPUTERS LIMITED

2 NGAIRE AVENUE, AUCKLAND 3, N.Z. BOX 74-128, PHONE 504-609
LEVEL 12, THE PLIMMER CENTRE, P.O. BOX 10140, THE TERRACE, WELLINGTON, PHONE 729-007, FAX 727-346.

TCC 0144

Compatible with the New IBM Personal System/2 Model 30

The Original. Plus™ Hardcard

Now also available in both 20 & 40 MByte versions

The Original And Still The Best

Plus Hardcard created the category of a hard disk expansion board (hard disk drive on a single PCB).

Now they announce another breakthrough - the new Hardcard 40. No other hard disk offers so much for so little.

Slim One Inch Width

Only one inch (25.4mm) thick, the Plus Hardcard is the world's thinnest hard disk drive. In fact it's the worlds' only hard disk to fit compactly into a slim, one inch sleek package.

The Only Hard Disk To Occupy Just One Slot

There's no room for fat in a single slot. That's why Plus Development Corporation utilised such unique design elements into the Hardcard such as its patented voice coil actuation, a custom designed spindle motor, and custom VLSI electronics to make a drive so slim that it only occupies one slot.

Totally Reliable

Hardcard is not only rugged it's reliable. From its rigid base casting to its sturdy steel frame and strong shock mounts, Hardcard was built to take it.

Extensive testing has demonstrated Hardcard's ability to take a 100 G non-operating shock without damage. That's two to three times the shock rating of traditional hard drives.

The Easy Way To Add Hard Disk Storage

Hardcard is by far the quickest and easiest hard disk to install. In fact you can put it into your computer (and take it out), in minutes. There's no cables and no switches - just plug it in and go.

The Plus Hardcard is available in both 20 & 40 MByte versions. Both are totally compatible with the new IBM Personal System/2 Model 30.

Totally Portable

Because the Hardcard is so easy to install and remove (and so light to carry around), you can take your office with you - wherever you go Hardcard goes, and so does your important information.

Totally Compatible

The Plus Hardcard was designed to provide the best possible form of hard disk storage for IBM Personal Computers. And it's grown to become the standard in hard disk storage for IBM (and compatible) PC, XT and AT computers.

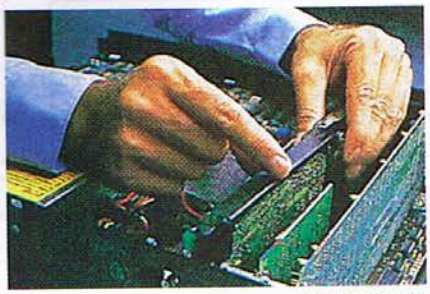
It is also compatible with the new IBM Personal System/2 Model 30.

Try The Hardcard For Yourself

Call Tech Pacific now and find out for yourself why the Plus Hardcard is the most reliable, compatible and totally portable hard disk on the market today.

Wellington (4) 73 6820
Melbourne (03) 690 9055
Sydney (02) 319 2622.

Tech PACIFIC



Interface: Tech Pacific 0122

Plus and Hardcard are trademarks of Plus Development Corporation.

Big changes in data transmission

New Zealand communications have come a long way since the days of hand-cranked telephones and manual exchanges. Warren Meech, product specialist in data communications with Philips New Zealand, takes a look at what's available today in this very specialised field.

New Telecom services will mean more options for any business looking to make its data communications more cost-effective. Telecom has now introduced the Digital Data Network (DDN), which is well worth a second look. On this network Telecom has introduced the Digital Data Service (DDS) and is now moving the existing Packet Switched Service (PSS) onto the DDN.

In New Zealand, anyone wishing to transmit a signal off the premises is obliged to use the services provided by Telecom. Telecom originally provided their network, of open wire lines, cable and transmission equipment, for the transmission of speech. This service was analogue, limited to the frequency range of 0.3-3.4 kHz, and unsuitable for the transmission of data. These factors made it necessary to transmit data through an interface device called a modem (a contraction of the words modulator and demodulator).

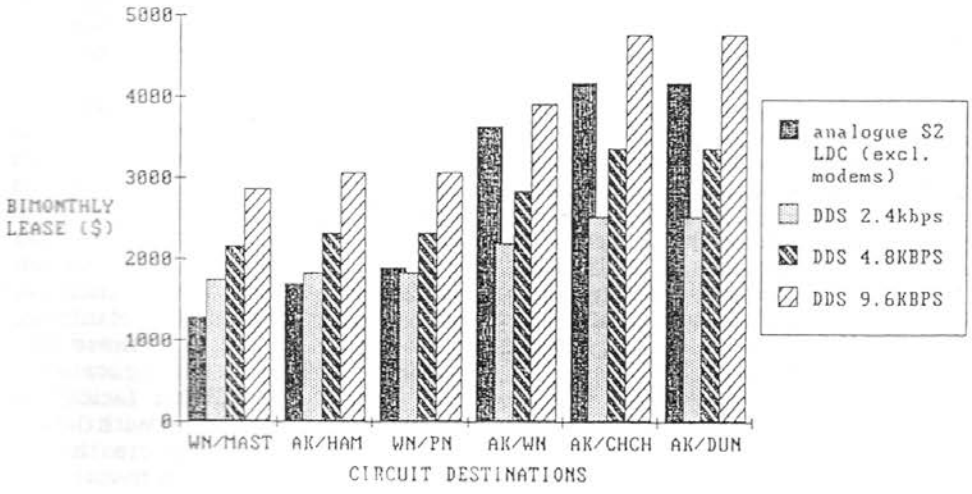
Modems are diverse in their application and variety. In this country, they are subject to the recommendations of the CCITT (Comite Consultatif Internationale de Telegraphie et Telephonie – an international consultative committee that sets communications standards). Modem technology is also a point of competition among manufacturers, each intent upon producing a modem that is sufficiently better than, or different from, its competitors to yield a market advantage.

Until now, there has been only one basic method of transmitting data, with the consequence that the user has had few options. The leased line had to be supplied by Telecom, and modems could be leased from Telecom, or leased/purchased from one of a number of suppliers.

The Analogue Service is now the comon name for this original service, which is currently in widespread use for the carriage of data. Overseas trends show that analogue service users are unlikely to quickly throw away their modems in favour of the DDN, and in fact, indications are that use of analogue leased lines for data transmission will continue to increase.

At the moment, tariffs are so arranged as to make the analogue service cheaper than the DDN, when used at speeds of 9600bps or 14.4kbps over short to medium distances. Comparative costings are shown in graph 1.

GRAPH 1
COMPARATIVE COSTS - ANALOGUE/DDS
(2.4kbps-9.6kbps)



Many of today's users find they need to send several separate data signals over the same route. While this is possible by installing several leased lines, the more economical method is to use a multiplexer. These devices are used to share the line and modem pair with two or more data signals.

Some modern modems are equipped with inbuilt multiplexer cards. An example is the Philips DS3540, a 9600bps modem complying with CCITT V.29 recommendation. It has an optional four-port multiplexer and extensive line testing facilities as well as special facilities to allow the onwards connection of a second modem link.

Modem innovations

The transmission speed of 14.4kbps quoted earlier is the result of recent innovations in modem technology, which have resulted in recommendation V.33 being issued by the CCITT.

A Philips V.33 modem, the DS3540, is now available and features an optional six port multiplexer card. The multiplexer card provides six separate synchronous or asynchronous ports which will operate at various speeds, through the one modem, over one analogue leased line. The modem fitted with the multiplexer card features extensive facilities to allow the onwards connection of a port to a second modem link, while testing facilities, which are very helpful in diagnosing faults on Telecom lines, are standard features of the modem.

Dial-up modems, complying with CCITT V.22, V.22 bis, or V.23 make it possible to transmit data over the Public Switched Telephone Network (PSTN).

The PSTN is a particularly economi-

cal and flexible method of data transfer as it does not require the expense of a leased line, but instead uses the normal two-wire telephone lines. It also allows the transfer of data to any telephone jackpoint. However, this method is somewhat limited in speed and will, of course, tie up a telephone line while in use.

Packet Switched Service

The Packet Switched Service (PSS) is a very flexible method of transmitting small to medium amounts of data between two or more widely scattered sites. Most data communication consists of short bursts of data with intervening spaces, which are usually longer than the bursts of data.

Packet switching takes advantage of this characteristic by interleaving bursts of data from many different users to make maximum use of a shared network. This interleaving is achieved by assembling the bursts of data into "packets", each containing address and control information as well as the "message" information.

A major advantage of the PSS is that the user is connected to a nationwide network and as such can communicate with many other users and services on that network. However, a leased line constrains the user to communicate with the devices on that line only. The tariff for this service is based on a monthly rental charge, plus a connection charge of 60 cents per hour in addition to a traffic volume charge. As none of these charges is distance-related, this service is most cost-efficient when used to transfer small amounts of data over large distances.

Digital Data Service

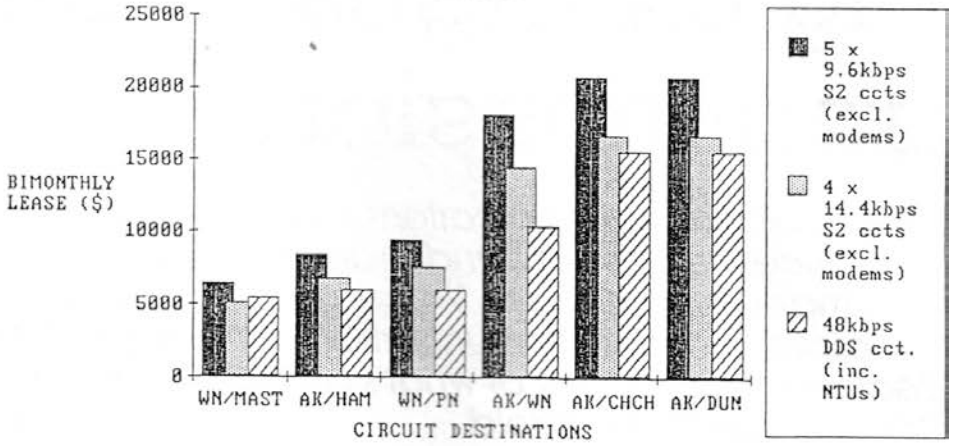
The Digital Data Service offers customers a flexible, high performance data network capable of carrying large volumes of data traffic between fixed locations. It provides dedicated, synchronous, point-to-point or multipoint links at speeds of 2400, 4800, 9600 or 48000 bps (note the large step between9600bps and 48000bps).

The DDS offers improved transmission quality and reliability, and fast restoration of service following a fault. Telecom also claims that DDS offers "fast provision of service", and the flexibility to re-configure and extend networks to accommodate changing operational needs.

However, the DDS does have some limitations.

For example, the distance between the NTUs and the closest Telecoms DDS centre is limited to 5km and, although the number of cities equipped with DDS is quite extensive, in many cases it is available to only part of a city. Such a case is Wellington,

GRAPH 2
COMPARATIVE CIRCUIT COSTS - ANALOGUE/DDS
(48KBPS)



where DDS is available from the Wellington Central and Courtenay Place exchanges, but isnot yet available in the suburbs or the Hutt Valley.

On the other hand, data transmission over the DDS has been found to be more efficient than an analogue line of the same speed. This is because of reduced errors, faster turnaround delays, and the fact that the full bandwidth is available for data, without the overhead of modem-to-modem control signals.

As graph 2 shows, a 48 kbps link is much cheaper than the equivalent analogue service (five S2 analogue lines).

But the large step in transmission speed from 9.6kbps to 48kbps is causing a "Catch-22" problem for many users. Many are caught in the middle with insufficient data to fully justify using 48kbps on the basis of cost, but with a desire to use the service to allow for their future expansion.

For thos customers who need to transmit more data than can be carried on a 9.6kbps DDN or analogue link, Philips offers the Commander TL7, an intelligent low-cost Time Division Multiplexer which allows simultaneous transmission of synchronous, asynchronous and voice communications. It also allows the most efficient use of 48kbps DDN links.

Data switching possible

When a customer needs communication with several geographically-removed sites, he will usually set up a network of point-to-point links. Careful consideration of the design of the network can provide link diversity, and appropriate terminating equipment brings the ability to switch data at the user's command, or when a Telecom link fails.

One such system is the NX4600 intelligent network exchange from Infotron Systems of the USA. When several NX4600s are linked to form a network, they can perform severa functions including:

- Intelligent data switching: since the NX4600 is essentially an intelligent dataswitch, it allows a user tc request access to any one of the hosts, terminals and services on the network.
- Multiplexing: it breaks the datastream down into usable substreams by employing time division multiplexing techniques.
- Automatic re-routing: upon failure of a main link the NX4600 will alsc re-route selected traffic onto alternative links, thus ensuring data continuity.
- Speech integration: the NX4600 can digitalise and integrate speech into the data stream. This facility is often helpful in cost-justifying the use of a DDS 48kbps link and Infotron switching equipment, when the data rate is not high enough to fill a 48kbps link.

So, to summarise:

The analogue network using modems is still viable. It is the traditional method of transmitting data from place to place, and often the most cost-effective.

The Packet Switched Network is very useful for transmitting small amounts of data between sites which are widely scattered.

The Digital Data Service has its strengths when transmitting large amounts of data point-to-point, and medium speed data to multipoint networks.

As this article demonstrates, the choices presented by the various Telecom services are further multiplied by the large variety of equipment that can be used to enhance these services. The result is that today's user of data communications has more decisions to make than ever before, and often a dearth of information upon which to base these decisions. This is further complicated by the recently-introduced facility for transmitting voice along with data on one network, thereby creating an integrated information network.

Apple Accounting

by Grant Cowie, PhD

A couple of months ago I said in this column that people who just wanted a Macintosh to do accounting work would probably be better off to get one of the cheap MS-DOS clones. This would enable them to choose from a vast array of accounting software. After all, in everyday accounting high resolution graphics are of limited utility, and a mouse can be a nuisance for data entry.

This was fairly much my attitude a few months ago when we were looking for an accounting system for a client. Although the client already had a management information system based on a network of Macintoshes, it was my strong feeling that for an accounting system he would be better off exploring the MS-DOS world.

At the outset of this exercise we did, however, take a quick look at Apple Accounting. The system was comprehensive and impressive, offering most of the features that one would expect from a top quality accounting system. But it was not able to address all the client's require-ments (it must be admitted that some of these, particularly concerning stock control, were pretty unusual).

Confident that my initial recommendation for the client to go the MS-DOS route for his accounting needs had been vindicated, we then started wading through the plethora of accounting systems that are available for those machines. This was not an easy task, as every man and his dog is offering accounting systems these days, and there are literally dozens of the things around.

Incidentally, there must be a business opportunity here for someone to offer truly independent advice on accounting systems – it would have been much better from everyone's point of view to hand this whole exercise over to an independent consultant who has a working knowledge of the main accounting system alternatives currently available. Unfortunately, all consultants in this area seem to have a particular barrow to push, so an objective evaluation is impossible.

Anyway, to cut a long story short we looked at about six of the major MS-DOS accounting systems over a period of several weeks. These included the market leaders (CBA, Attache, BOS) and several other lesser known ones. It was a salutory experience to realise that none of these could fulfil the client's requirements, particularly in the area of inventory control. It was also interesting to establish that, by and large, Apple Accounting offered the same sort of functionality as these systems.

Given that we could not find the ideal system for the client, we went back and had another look at Apple Accounting and ultimately ended up installing it. Although not perfect (but then what system is?), it should serve the client well for many years. And, somewhat surprisingly, it was the only system that fell within budget.

Apple Accounting was developed in the United Kingdom and originally sold as Last Accounting. Apparently Apple UK were sufficiently impressed by the system that they took the rare step of endorsing it, so that it now has the distinction to be one of the few software packages bearing Apple's name and logo.

There are five modules available: general ledger, debtors, creditors, inventory and sales invoicing. These can be integrated as little or as much as is required. For example, the debtors and creditors can be totally independent of the general ledger, or can feed directly into it, or can create an intermediate file for subsequent posting. This latter capability means that the creditors, debtors and general ledger can be run on different machines, which provides a form of growth path should transaction volumes increase beyond what one data entry screen can handle.

Information can also be transferred into and out of Apple Accounting by use of the clipboard. This means that it is extremely easy to transfer (for example) account balances to a spreadsheet for further analysis. In fact we saved considerable time by setting up the initial chart of accounts (with balances) for the client using Excel and transferring these directly into Apple Accounting.

The general ledger (which, reflecting the packages' UK origins, is called the Nominal Ledger), is the engine which drives the whole accounting system. Its user-definable ledger code structure, which offers up to three levels, is one of the most flexible we encountered. For example, a simple three digit account numbering system can be used, or you can have a prefix (or suffix) to represent a department or branch, such as 99-999.

The general ledger also has a very flexible report generator. As would be expected with a Macintosh based system, the report layouts are done by pointing and clicking with the mouse. Numerous types of calculation can be done on fields within the report, including totals and percentages. However, for some strange reason user defined reports can only be two pages long, and there are a maximum of eight reports that can be defined. Furthermore the reports are static – they can only operate on specified accounts. Because account ranges cannot be selected at run time it is not possible to create (for example) a generic departmental report and run it over different departments.

There are a few general criticisms that can be made about Apple Accouinting. For one thing, although not unacceptably slow, one cannot help feeling that it could run faster. It is also particularly disk-hungry (it goes without saying that a hard disk is required), so that backups can quite easily run over half a dozen diskettes. And caution must be taken with the backup procesures provided – Apple Accounting automatically erases without verification any disk inserted during backup, so if you put in the wrong disk it will be expunged forever.

Curiously enough for an Apple branded product, Apple Accounting does not follow the Macintosh user interface guidelines. This is a minor criticism, but it is annoying when scroll bars take you to the last page instead of the next page and when Shift-Tab doesn't take you backwards in data entry screens (you have to use the mouse).

Despite these quibbles, Apple Accounting is a very sophisticated system offering heaps of functionality. It compares very favourably indeed with the best systems that the MS-DOS world has available, and hence must be seriously considered by anyone looking for accounting solutions. Importantly, it is also well supported in New Zealand.

So what of my original observation that the Macintosh was not a suitable accounting engine? Clearly Apple Accounting has shot that one to pieces. But it is only the first of a great range of accounting systems that will shortly be available for the Mac – in a month or so most of those MS-DOS systems which we rejected in favour of Apple Accounting will be available for the SE with the Mac86 card.

And that will open up a whole new world of Macintosh-based accounting solutions.

Got problems sorting out claim and counter-claim in the serious Personal Computer market?

TIME TO TAKE A FRESH LOOK...

We know how it is. You've got to make a good business decision. And it's confusing. How much power do you really need? What sort of future expansion? Compatibility? Multi-user systems? Dealer support? The problem is... one brand promises you this and another brand promises you that. When you're looking for a system solution nearly every single brand on the market has some individual advantages you are sure to hear about and some disadvantages you may have to find out about. So, consider our **fresh** approach. Datatronic Systems offer 'Total Systems Solutions'. Our big difference is that we're not dependent on just one brand. We've sourced a complete range of top international personal computer products and put them together in one fully compatible package.

Microprocessors from COMPAQ. Tape/Disk storage and multi-user products from ALLOY. Terminals from AMPEX. Monitors from EIZO and MICROVITEC. Add-on expansion and multi function boards from ABM and PERSYST. All based on the industry standard operating system (MS-DOS) and, best of all, backed by a committed and serious group of N.Z. dealers. Give us a call when you're ready for some fresh thinking. Tell us about the things you want to do and we'll put you in touch with your nearest dealer.

CALL SCOTT GREEN, AUCKLAND,
COLLECT... (09) 444-6085

DATATRONIC

TOTAL SYSTEMS SOLUTIONS

QASARCORP
GROUP OF COMPANIES
P.O. BOX 3273 AUCKLAND Tel (09) 444-6085

Q10

Text file formats

by Selwyn Arrow

This month we will take a look at another aspect of text files. In common with all text files produced and used by DOS, each line of a BATch files stored on disk and in memory (RAM) in ASCII format. This is a code with 256 different combinations representing all the screen characters you can see (plus a few you cannot) which would include such control codes as Line Feed (LF) and Carriage Return (CR).

These two particular codes are used to terminate each line of a BATch file, allowing all of the lines to be stored as a continuous series of codes in RAM and on your disk. You may remember from our recent series on BATch files that we type a Ctrl Z (^ Z) as the only character on the last line of each BATch file. This is the code that DOS uses as the End of Text marker.

Variable length files

This type of file is properly known for obvious reasons as a variable length file as opposed to fixed length files that are necessary in most database programs for instance.

To prove that they are indeed variable length files, take a note of the number of bytes indicated by the DIRectory listing of a small BATch file. As an example, let's use the AUTOEXEC.BAT file on your boot disk. The DIR command will show how many characters are actually used in that file. Now count the number of characters that appear on your screen when you TYPE the file, ie TYPE AUTOEXEC.BAT.

No, nothing is wrong with our maths: you should have fewer characters on the screen than DIR showed as we forgot to add two bytes for the LF and CR at the end of each line of text, plus one byte for the ^ Z on the last (unseen) line.

In example 1 I have shown a printout of the contents of such a file. The left column is the byte count in hexadecimal (base 16), the centre columns are the hexadecimal representation of all the characters in the file, and to make life easier for those not fluent in hex the right column is a translation into the actual characters we see on the screen plus a dot for each unprintable character. For instance you will see two such dots after "echo-off", in the ninth and tenth positions. If you count across the pairs of hex numbers you will see that they are 0d followed by 0a. These translate as our old friends Carriage Return then Line Feed.

As mentioned above, these two characters terminate all lines and you will see that is so by looking at the example. At the end of the printable characters in the centre columns there is a 1a following the last 0a, and it will probably be no surprise to know that 1a translates as ^ Z, the End Of File marker.

So there we have our AUTOEXEC.BAT file just as it is saved to disk. It is made up of text and control characters comprising 61 bytes just as my DIRectory indicated. But wait a minute! What are all those ees for?

Disk files

When our text file, or any program for that matter, is stored on disk it must always occupy a fixed minimum size, so that even if the DIRectory shows only 61 bytes are required, the storage space actually allocated for the file is much larger. For an IBM standard 40-track floppy disk the space for files is allocated in clusters of 1024 bytes under both DOS 2 and 3.

This means that when our text file is only 61 bytes as in our example the remainder of the cluster is empty. In actual fact it is usually padded out with a particular ASCII code of 238

```
000000   65 63 68 6f  3d 6f 66 66  0d 0a 63 6c  73 0d 0a 70   echo=off..cls..p
000010   61 74 68 3d  63 3a 5c 64  6f 73 3b 5c  75 74 69 6c   ath=c:\dos;\util
000020   3b 5c 62 61  74 3b 5c 0d  0a 70 72 6f  6d 70 74 20   ;\bat;\...prompt
000030   24 70 24 67  0d 0a 64 61  74 65 0d 0a  1a ee ee ee   $p$g..date......
000040   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
000050   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
000060   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
000070   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
000080   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
000090   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000a0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000b0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000c0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000d0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000e0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
0000f0   ee ee ee ee  ee ee ee ee  ee ee ee ee  ee ee ee ee   ................
```

Example 1. AUTOEXEC.BAT contents

Alloy...
WE CAN FIT
40M-BYTES OF
BACK-UP DATA
INTO THIS.

Now the fact is that companies with hard disk systems are realising they need the peace of mind that comes from having tape back-up.
Alloy's APT-40 Streaming Tape Cartridge Drive is the perfect solution for PC users looking for high capacity, low cost back-up facilities. Fitted internally into a floppy drive slot and using the existing standard SA-450/475 floppy controller, the system's easy to use Tip-40 software ensures regular, reliable and fully Novell compatible data back-ups. External tape systems are also available.
Datatronics bring you many other pleasant surprises with Alloy's PC expansion products.
Alloy's PC-9 TRACK tape systems provide the perfect medium for small and large scale data transfer between mainframe, mini and PC computer systems.
Then there's Alloy's PC-CARD for totally hassle free magnetic card input. PC-CARD directly inputs the card data into the system, as if it had been typed on the keyboard, without the need for special drivers or software.
So, to get a fresh look at Tape Storage or to find out about the very latest ideas from Alloy for expanding your PC's productivity, call a Datatronics dealer today.

Whangarei: Micro-North Business Systems (089) 483-550. **Auckland**: Yield Systems (09) 794-929. Financial Systems (09) 789-069. Archive Computers (09) 503-548. **Hamilton**: McNeills Office Equipment (071) 82-105. **Tauranga**: Baycom Computer Systems (075) 83-633. **Rotorua**: Hunter Electronics (073) 56-884. **Napier**: The Business Centre (070) 54-444. **New Plymouth**: Trio Business Centre (067) 88-586. **Wanganui**: DJ's Computer Centre (064) 53-632. **Palmerston North**: Business Automation Centre (063) 81-103. **Masterton**: Wairarapa Computer Services (059) 82-899. **Wellington**: Scollay Computers (04) 734-447. Computers for People (04) 859-675. Modular Computer Systems (04) 787-047.

DATATRONICS
TOTAL SYSTEMS SOLUTIONS
QASARCORP
GROUP OF COMPANIES
P O BOX 3273 AUCKLAND Tel (09) 444-6085

Q12

which is of course ee in hexadecimal notation.

This padding may seem wasteful, but it is a tradeoff between ease of access of files from the disk and storage efficiency on the disk. If the cluster size were any smaller then there would be fewer bytes "wasted" for small files, but then larger files would need a lot more accesses to load the entire file so taking a lot longer to load.

When we look at hard disks we find that the cluster size is quite different, being 4,096 with DOS 2 and for a hard disk under DOS 3 the cluster size is doubled again to 8,192 bytes.

Clusters explained

It is a bit confusing with cluster sizes varying depending on which type of disk storage and version of DOS you are using, but one item remains constant: a disk sector, on both floppy and hard disks, is always made up of 512 bytes. Floppy disks allocate space for files in multiples of 2 sectors per file, ie 2 x 512 = 1024 bytes, whereas hard disks allocate space for files in multiples of 8 sectors for DOS 2, or 8 x 512 = 4096, and 16 sectors for DOS 3, or 16 x 512 = 8192 bytes.

This is because the disk head mechanisms can only sit over one point on the rotating disk at a time, so that it reads (or writes) on that one circular track until it is moved inwards or outwards to another of the total of 40 tracks on a floppy disk. Each track holds a bit too much information for the computer to take in one gulp so each track is split up into sectors, like a flat slice of pie.

From DOS 2 onwards each floppy disk has 9 of these sectors allocated and each sector holds 512 bytes of data. By the way, this slicing up of the disk "pie" is what happens when you format a disk. The sector beginning and end markers are permanently recorded on to the disk so that our data can be written and read onto known positions. We won't bother with going any further into that subject as DOS is much better at keeping track of all that technical stuff than we are.

Getting back to our sectors again, we find that the floppy disk drive head can easily handle more than 512 bytes at a time so therefore we end up with multiples of sectors each of 512 bytes comprising a cluster. And that of course is the amount of information read from, or written to, the disk at one time.

We have gone deep enough into technical topics this month, so let's have a look at something for those about to install a hard disk in their computer.

BAT directory

A handy hint is to keep your root directory completely free of all but directory entries by placing all your BATch files in a directory called \BAT which is of course placed in your PATH. You can refer to last months DOS Corner if you need more information on the PATH command. This makes locating that little-used directory much easier to locate as your screen is not cluttered with lots of files when you do a DIR to try to locate that half-forgotten subdirectory.

At my last count I had 27 BATch files so my root directory now looks a lot tidier without them! You could even go so far as to change the attributes of the few necessary files on your root directory such as COMMAND.COM, CONFIG.SYS, ANSI.SYS and AUTOEXEC.BAT so that they are hidden from view. Your root directory would then show only subdirectores, but more on file attributes later, perhaps.

Many thanks for the hint above, for the request for information on the format of text files and for the many other topics that people have requested I cover in future columns. I will do my best to answer them all as time permits. See you next month.

If it worked once, it'll work again.

The first Volkswagen was successful because it did everything other cars promised at less than half price. Using the same reasoning, we thought that most Popular Computer drivers would want dBASE for less than half price.

Introducing dBXL. the dBASEIII+ superclone. At $375* it's going to sell like a Volkswagen.

dBXL is completely compatible with dBASE III+. It is powerful enough for the most sophisticated data management applications, yet offers ease of use for the inexperienced computer user. It completely replaces dBASE III+, offering these advantages:

- Economical Power: is less than one fourth the cost of dBASE III+
- Fully dBASE III+ Compatible: for both files and commands.
- Unique On-Line Help System
- Ease of use: dBXL'S INTRO command does what dBASE III+ Assistant fails to do: it helps the new user get started.
- Windows: dBXL lets you open up to 99 windows in your application.
- Not copy protected

dBXL

ComputerStore
DIVISION OF ALBERTLAND ENTERPRISES LTD.
PO Box 31-261, Auckland 9
48 Kitchener Rd., Milford
Phone (9) 499-458 Telex NZ 60963

dBXL is a trademark of WORDTECH SYSTEMS.
dBASEIII+ is a trademark of Ashton-Tate, Inc.

* *Price subject to GST.*

The Commodore scene

by Timothy Howell

In the last two years or so, the Commodore scene has changed a great deal. Commodore has returned to the business area of the computer industry in force, whereas previously (at least after the demise of the Pet) it had been more concerned about comparatively weaker machines.

The popular trend towards MS-DOS compatible computers has not gone unnoticed by Commodore, who has produced several computers of this type. If Commodore was to stay afloat after its disasterous 1984 year, it had to compete in this area of the market. After some initial instability, Commodore has now found its footing in this highly competitive area, and is becoming much more prominent in the business arena than it has ever been before, much to the relief of Commodore's accountants and its millions of supporters.

With the purchase of Amiga Corp. in 1984, Commodore found itself in possession of a highly powerful computer. Initially the Amiga was designed to be the world's best games machine, easily recognisable with the strength of its graphic and sound capabilities.

Commodore, however, has been caught in a marketing rift over the promotion of this machine. The Amiga has strong recreational characteristics, but its high price seems to put it up into the business/professional category, much to the regret of many computer enthusiasts looking to upgrade to a more powerful computer. These marketing problems have been detrimental to the Amiga's success around the world, particularly in countries like New Zealand where it is extremely expensive in relation to both business and recreational computers.

However, strong rumours are now surfacing about two new Amiga computers. One is said to be a more powerful Amiga with greater memory and storage. The other, which I find much more interesting, is a cut-down version of the Amiga which is thought to sell for £500-600 ($NZ1500-1800). This could change the whole direction of personal/recreational computers, because a powerful 16-bit computer selling at an inexpensive price would be much more attractive than a less powerful 8-bit computer at a similar price.

Commodore has not forgotten this lower end of the market, either. The 64C was introduced late last year and confirmed Commodore's commitment to this area. Meanwhile the 128 is also selling well around the world and is gaining much support from software producers.

Even the forgotten 16 and Plus 4 computers appear to have made a comeback, with many British companies making both software and hardware for them. It is believed that 10 per cent of all software sold in Britain in 1986 was for these two computers.

Things seem quite rosy for Commodore owners at present and also in the future, as Commodore finds its own niche in all the major areas of personal computing. Once the Amiga takes off, Commodore may even find itself at the forefront of personal computer technology as new and innovative hardware and software is bound to be produced to suit the many facets of this computer's character.

If this happens, and as long as the 64 and 128 prosper in the meantime, then Commodore will be around for many years to come.

NEW PRECISION A-1 PLOTTER

Ideal for –
* Accurate Engineering and Architectural Drawings
* Camera-ready PCB Artwork

DPX-3300: Large plotting area 864 x 594mm, Speed 450mm/sec user- adjustable, Accuracy 0.0125mm/step, highly intelligent (auto-Home, auto pen-capping, auto pen recognition speed and pressure set). Eight Pens, fully H-P compatible, parallel and serial inputs. Optional stand makes the DPX-3300 fully inclinable with a small footprint.

DXY-3300 is the latest in a family of 7 Roland plotters sized A1, A2, A3.

Ask for details from the NZ distributors:

Roland DG New Zealand,
Box 8599 Auckland 1.
Phone (09) 398-715 (4 lines)
Fax (09) 391-065.

ACCURATE – RELIABLE – AFFORDABLE

Roland DG

Adventuresome programming

by Joe Colquitt

This month's article includes a listing of the short adventure. There are some minor modifications to the data statements (lines 50000–), which I made to improve the flow and 'programmability' of the game. The original elements are still there, just shuffled a bit. Lines 60000– remain unchanged.

For this example adventure, I've selected a minimum of verbs, nouns and objects, but tried to arrange them, within the limits of a short program, to provide a degree of challenge. To be able to complete the game, you just need to get to location 14 (the road). The stumbling block is at a door in the kitchen. To get out, you need the keys, the dog, the collar, the leads, and a coat if it's raining. There are other techniques involved to make things more difficult, and these will become apparent as the subroutines are explained.

The word data in the game consists of 11 verbs, 16 nouns and eight objects. The response section eamines only the first three letters of the verb/noun, so that is all that's needed in the data statements. The objects are the expanded descriptions of the nouns, used for screen displays. Note that the object descriptions are in the same order as the nouns, which makes for easier cross-referencing.

The verbs: GO INVentory LOOk HELp SCOre TAKe GET DROp OPEn CLOse EXAmine (hint: EXAmine the desk for keys).

The nouns: N S E W NOR SOU EAS WES LEAd COLlar KEY DOOr COAt WELlies DOG DESk.

Objects: a dog lead, a dog collar, a bunch of keys, a closed door, a raincoat, a pair of wellies, a dog, a heavy desk.

The cardinal directions are usually put before the rest of the nouns and together in a block of eight to make detection simpler. In our case, the directions have noun numbers between 1 and 8. The array D$() is used to display the directions in/out of a location. UP and DOWN aren't catered for specifically (except for the cupboard to the loft) but are tested on an ad hoc basis, ie UP is only legal if you're in the cupboard, and DOWN only if you're in the loft. If UP/DOWN were made legitimate nouns, then include six directions for LO%(CP,dir). There would also be less adjusting of NO before line 180. You will likely find the odd bug or quirk in the program. This is mainly due to the lack of comprehensive checking and error routines, left out because a) the program would end up more complicated than it need be at this stage; b) several examples of error checking principles exist in the program as is; and c) the listing gets too long to put in print. A cursory glance will show that even undeveloped, the game is already assuming sizeable arrays and numbers of IF..THEN statements. The latter are particularly efficient at slowing a program down. In the last part, I'll explain the program in detail and suggest refinements. If you like some text adventures, drop me a disk or tape (with sample save) and return postage please. Joe Colquitt, 6 Martin Ave, Mt Albert Auckland.

```
10 PRINT"[clr]":IFRND(.)*4<1THENRAIN=1
20 GOSUB50000:REM READ DATA
30 CP=1:OB%(7)=RND(.)*8+6:IFOB%(7)=9ORO
   B%(7)=12THEN30
40 PRINT"clr YOU'RE ";LO$(CP)
50 PRINT:PRINT"YOU CAN GO ";
60 FORI=0TO3:IFLO%(CP,I)>0THENPRINTD$(I
   );"  ";
70 NEXT:IFCP=13THENPRINT"UP"
75 IFCP=9ORCP=10THENOB%(4)=CP
80 IFCP=14THENPRINT"DOWN"
90 PRINT
100 IFCP=9ANDRA=1ANDRC=0THENPRINT:PRINT
    "IT'S RAINING. DON'T FORGET YOUR CO
    AT"
110 IFCP=9ANDDO=1THENPRINT:PRINT"SHUT T
    HE DOOR BEHIND YOU"
120 GOSUB60000:CT=CT+1
130 GOSUB60050:REM SPLIT RESPONSE
135 IFVB=1ANDNO>16THEN155
140 IFNO$<>""ANDNO=0THENPRINT:PRINT"I D
    ON'T KNOW THAT WORD":GOTO120
145 IFVB=1ANDNO>10THENPRINT:PRINT"YOU C
    AN'T DO THAT":GOTO120
150 IFVB>13ANDNO=0THENPRINT:PRINT"I DON
    'T KNOW WHAT A "N1$" IS":GOTO120
155 IFNO>16AND(CP<>13ANDCP<>14)THENPRIN
    T:PRINT"YOU CAN'T GO THAT WAY YET":
    GOTO120
160 IFCP=13ANDNO=17THENCP=14:GOTO40
162 IFCP=14ANDNO=18THENCP=13:GOTO40
165 IFNO>8THENNO=NO-8:GOTO210
170 NO=NO-1:IFNO<0THENNO=0:GOTO210
175 IFNO>3THENNO=NO-4
180 IFLO%(CP,NO)=0THENPRINT"QYOU CAN'T
    GO THAT WAY YET":GOTO120
190 CP=LO%(CP,NO):GOTO40
210 ONVB-1GOTO1000,2000,3000,9000,4000,
    4000,5000,6000,7000,8000
220 GOTO120

1000 REM INVENTORY
1005 PRINT:PRINT"YOU ARE CARRYING :"
1010 PRINT:Z=0:FORI=1TOOB:IFOB%(I)=-1TH
     ENPRINTOB$(I):Z=1
1015 NEXT:IFZ=0THENPRINT"NOTHING"
1020 GOTO120

2000 REM LOOK
2001 PRINT:PRINT"YOU CAN SEE :":PRINT
2010 YS=0:FORI=1TOOB:IFOB%(I)=CPTHENPRI
     NTOB$(I):PRINT:YS=YS+1
2015 NEXT:IFYS=0THENPRINT"NOTHING SIGNI
     FICANT"
2050 GOTO120

3000 REM HELP
3005 IFCP=2THENPRINT:PRINT"YOU'RE LOOKI
     NG FLUSHED":GOTO120
3010 PRINT:PRINT"NO HELP ON THIS ONE YE
     T"
3050 GOTO120

4000 REM GET,TAKE
4001 REM IFZZ>7THENPRINT:PRINT"YOU CAN
     T CARRY ANY MORE":GOTO120
4003 IFOB%(NO)=-1THENPRINT:PRINT"YOU AL
     READY HAVE ";OB$(NO):GOTO120
4005 IFNO=4THENPRINT:PRINT"DO YOU USUAL
     LY CARRY DOORS AROUND ?":GOTO120
4010 IFNO=8THENPRINT:PRINT"IT'S TOO HEA
     VY":GOTO120
4050 Z=0:FORI=1TOOB:IFOB%(NO)=CPTHENPRI
     NT"OOK":OB%(NO)=-1:Z=1:ZZ=ZZ+1
4055 NEXT:IFZ=0THENPRINT:PRINTN1$" NOT
     HERE"
4060 IFOB%(5)=-1THENRC=1:LO%(9,1)=12
4065 IFOB%(1)=-1ANDOB%(2)=-1ANDOB%(7)=-
     1THEN4080
4070 GOTO120
4080 PRINT:PRINT"THE DOG, LEAD, AND COL
     LAR ARE TOGETHER":DG=1:ZZ=ZZ-2:GOT
     O120

5000 REM DROP
5001 IFOB%(NO)<>-1THENPRINT:PRINT"YOU D
     ON'T HAVE "OB$(NO):GOTO120
5005 IFOB%(1)<>-1OROB%(2)<>-1OROB%(7)<>
     -1THENDG=0
5010 IFNO=5THENRC=0:LO%(9,1)=0
5015 PRINT:PRINT"OK. YOU'VE DROPPED "OB
     $(NO):OB%(NO)=CP:ZZ=ZZ-1:GOTO120

6000 REM OPEN
6005 IFDG=0ANDCP=10THENPRINT:PRINT"YOU
     CAN'T LEAVE YET":GOTO120
6010 IFNO=4ANDOB%(3)=-1ANDDG=1THENPRINT
     :PRINT"THE DOOR OPENS":DO=1
6015 IFDO=1THENLO%(10,3)=9:LO%(9,2)=10:
     OB$(4)="AN OPEN DOOR":GOTO120
6020 IFNO=4ANDOB%(3)<>-1THENPRINT:PRINT
     "YOU DON'T HAVE THE KEYS":GOTO120
6025 PRINT:PRINT"YOU CAN'T OPEN "OB$(NO)
6050 GOTO120

7000 REM CLOSE
7005 IFDO=0THEN7025
7010 IFNO=4ANDOB%(3)=-1ANDDO=1THENPRINT
     :PRINT"THE DOOR CLOSES AND LOCKS":
     DO=0
7015 IFDO=0ANDOB%(3)=-1THENLO%(9,2)=0:L
     O%(10,3)=0:OB$(4)="A CLOSED DOOR"
7023 GOTO120
7025 PRINT:PRINT"THE "N1$" ISN'T OPEN":
     GOTO120
8000 REM EXAMINE
8005 Z=0:FORI=1TOOB:IFOB%(NO)=CPTHENZ=1
8010 NEXT:IFZ=0THENPRINT:PRINTN1$" NOT
     HERE":GOTO120
8015 IFNO=3THENPRINT:PRINT"DOOR KEYS":G
     OTO120
8020 IFNO=8THENPRINT:PRINT"THERE ARE SO
     ME KEYS":OB%(3)=1:GOTO120
8025 PRINT:PRINT"NOTHING SPECIAL"
8030 GOTO120
9000 REM SCORE
9005 PRINT:PRINT"YOU'VE TAKEN"CT"TURNS"
9010 GOTO120

50000 DIMLO$(15),LO%(15,3)
50005 FORI=1TO15:READLO$(I)
50010 FORJ=0TO3:READLO%(I,J)
50015 NEXT:NEXT
50020 DATAIN A ROOM WITH A DESK,0,3,0,0
50025 DATAIN A ROOM WITH PORCELAIN
      FURNITURE,0,0,3,0
50030 DATAIN A HALLWAY,1,6,4,2
50035 DATAIN A BEDROOM,0,0,0,3
50040 DATAIN A CUPBOARD,0,0,6,0
50045 DATAIN THE HALLWAY,3,10,7,5
50050 DATAIN THE LOUNGE,0,0,8,6
50055 DATAIN A GARDEN,8,8,8,7
50060 DATAIN A GARDEN,0,12,10,0
50065 DATAIN THE KITCHEN,6,13,11,0
50070 DATAIN THE DINING ROOM,0,0,0,10
50075 DATAIN THE DRIVE,9,15,0,0
50080 DATAIN A CUPBOARD,10,0,0,0
50085 DATAIN A LOFT,0,0,0,0
50090 DATAON THE PAVEMENT,12,15,15,15

50100 NV=11:NN=18:DIMVB$(NV),NO$(NN)
50105 FORI=1TONV:READVB$(I):NEXT
50110 FORI=1TONN:READNO$(I):NEXT
50125 DATAGO,INV,LOO,HEL,SCO,TAK,GET,DR
      O,OPE,CLO,EXA
50130 DATAN,S,E,W,NOR,SOU,EAS,WES
50135 DATALEA,COL,KEY,DOO,COA,WEL,DOG,D
      ES,UP,DOW

50140 OB=8:DIMOB$(OB),OB%(OB)
50145 FORI=1TOOB:READOB$(I),OB%(I):NEXT
50150 DATA A DOG LEAD,6,A DOG COLLAR,4
50155 DATAA BUNCH OF KEYS,0,A CLOSED DO
      OR,10
50160 DATAA RAINCOAT,5,A PAIR OF WELLIE
      S,13
50165 DATAA DOG,0,A HEAVY DESK,1

50175 FORI=0TO3:READD$(I):NEXT
50180 DATANORTH,SOUTH,EAST,WEST
59000 RETURN
60050 NO$="":VB$="":NO=0:VB=0:N1$=""
```

Animated Atari

by James Palmer

Machine language provides the speed and flexibility to perform tasks normally impossible using Atari BASIC. The sheer speed at which numbers can move around inside your computer is often hard to comprehend.

For example, how long would it take you to count to 50000? Probably over 10 hours. In BASIC the Atari will take under two minutes, but using machine language, this simple, clearly defined and repetitive task takes a fraction of a second. Speed counting is perhaps not the most vital of abilities, but it ably demonstrates the power available from machine code.

For a slightly more practical demonstration of machine language's inherent speed, the following program will allow you to produce simple animation on your Atari. An animated movie works by displaying a sequence of pictures, each slightly different from the previous one – hence the illusion of movement. Our machine code routine will use a similar technique. We must first create a series of pictures, store them in memory, and then be able to print them back on the screen, one after another.

The number of pictures that can be stored depends firstly on the amount of memory your computer has, and secondly on the size of the pictures. This routine considers each picture to be the top left hand corner of a GRAPHICS 7 screen (80 x 32 pixels, which occupies 640 bytes). On the 130 XE this allows about 42 pictures to be stored at once. This program will run regardless of your computer's memory, but the more memory it has, the smoother the animation will be.

Note: You don't have to type in the machine language program, and in fact your computer won't even understand it unless you have an assembler. The DATA statements in lines 1100-1140 of the BASIC program contain the actual machine code in a form that the Atari can handle. Normally it is not really worth printing the listings of machine language routines because most readers will either already know how it works, or else they won't be interested in finding out.

However, in this case it means that if you didn't before, you now know what an assembly listing of a machine code program looks like, and besides, if you wish to learn machine code it provides a good place to start experimenting, as well as giving you practice at deciphering an assembly listing.

Save the program before running it, in case you made a mistake in the DATA statements that causes it to crash.

To make the animation smoother try these changes:

130 FOR P = 0 TO 179 STEP 180/ FRAMES

140 X = 15 + P/4

For a different pattern delete the 175 and RUN the program again.

Explanation

1. The machine code:

X = USR(M, 0 or 1, address of picture)

Here M is the address of the machine code program (ie. M = ADR(ML$)). The first parameter controls whether the picture is taken from the screen and stored in memory (0), or if a previously stored picture is going to be displayed (1). The second parameter tells the computer where to find/store the picture.

2. The program:

100-210 All the pictures are created here. The number of pictures to be drawn is stored in the variable FRAMES, which is calculated at line 1060.

300-490 The previously created pictures are now redisplayed.

1000-1140 The machine code is set up and space is set aside to store the pictures.

1500-1530 Used in creating the pictures.

As you can see this is quite a simple program and it could be easily changed to make your own animation routines.

With any luck you will now have a broad knowledge about machine language, and a reasonable understanding of where and when it can be best used. As you can see, machine language is very powerful. Unfortunately it is not as easily learnt as BASIC, but the satisfaction of stretching your computer to its limits can be ample reward for taking the effort to understand it.

```
10 ; ANIMATE.ASM FOR 'ANIMATOR'
20 ; By James Palmer
30 ; X = USR(ADDR, 0/1, ADDR FOR DATA)
40 ;
50 SCREEN =  220
60 DATA   =  222
70 TEMP   =  224
80 FLAG   =  226
90 ;
0100 DLIST = 560
0110 ;
0120 ;
0130      .ORG 40000
0140 START
0150      PLA
0160 ;
0170 ; GET THE PARAMETERS FROM BASIC
0180      PLA
0190      PLA
0200      STA FLAG
0210      PLA
0220      STA DATA+1
0230      PLA
0240      STA DATA
0250 ;
0260 ; FIND THE START OF SCREEN MEMORY
0270      LDA DLIST
0280      STA TEMP
0290      LDA DLIST+1
0300      STA TEMP+1
0310      LDY #4
0320      LDA (TEMP),Y
0330      STA SCREEN
0340      INY
0350      LDA (TEMP),Y
0360      STA SCREEN+1
0370 ;
0380 ; DEPENDING ON 'FLAG', EITHER DISPL
AY OR STORE THE TOP LEFT HAND CORNER OF
THE SCREEN
0390      LDX #32
0400 LP1  LDY #0
0410 LP2  LDA FLAG
0420      BEQ GET
0430      LDA (DATA),Y
0440      STA (SCREEN),Y
0450      LDA #0
0460      BEQ LA
0470 GET  LDA (SCREEN),Y
0480      STA (DATA),Y
0490 LA   INY
0500      CPY #20
0510      BNE LP2
0520 ;
```

```
10 REM ANIMATOR - A Machine Language
Demonstration
20 REM By James Palmer
30 GRAPHICS 0
40 GOSUB 1000
50 DEG
100 REM SET UP THE FRAMES
110 GRAPHICS 7
120 I=0
130 FOR P=0 TO 359 STEP 360/FRAMES
140 X=15+P/8
150 COLOR 1:A=P:GOSUB 1500
160 COLOR 2:A=P+60:GOSUB 1500
170 COLOR 3:A=P+120:GOSUB 1500
180 X=USR(M,0,D+640*I)
190 GRAPHICS 7
200 I=I+1
210 NEXT P
300 REM This is the Animation
320 GRAPHICS 7
330 FOR I=0 TO FRAMES-1
340 X=USR(M,1,D+640*I)
360 NEXT I
370 FOR I=FRAMES-1 TO 0 STEP -1
380 X=USR(M,1,D+640*I)
390 FOR PAUSE=1 TO 20:NEXT PAUSE
400 NEXT I
490 GOTO 330
999 STOP
1000 REM Set up the Machine Code
1010 DIM ML$(87)
1020 FOR N=1 TO 87
1030 READ A
1040 ML$(N,N)=CHR$(A)
1050 NEXT N
1060 FRAMES=INT((FRE(0)-3500)/640)
1070 DIM DAT$(FRAMES*640)
1080 DAT$(1)="*":DAT$(FRAMES*640)="*":DA
T$(2)=DAT$
1085 M=ADR(ML$):D=ADR(DAT$)
1090 RETURN
1100 DATA 104,104,104,133,226,104,133,22
3,104,133,222,173,48,2,133,224,173
1110 DATA 49,2,133,225,160,4,177,224,133
,220,200,177,224,133,221,162,32
1120 DATA 160,0,165,226,240,8,177,222,14
5,220,169,0,240,4,177,220,145,222
1130 DATA 200,192,20,208,235,169,40,24,1
01,220,133,220,169,0,101,221,133
1140 DATA 221,169,20,24,101,222,133,222,
169,0,101,223,133,223,202,208,204,96
1500 REM Draw a Line
```

Round and round

by Joe Colquitt

This series of articles was written with Commodore 64 6502/6510 in mind. Other 6502 machines (Apple, BBC, VIC 20 etc) will run examples if corrections are made to addresses. The C64 calls ML with SYS; other BASICs may use CALL, USR etc. if you'd like a copy of an assembler (with instructions) for the 64, drop me (with return postage) a disk or tape and sample save.

One of the programs in the last article was a loop to store a value in a block of memory. It used the simplest form of loop, having the X register as a counter. There are several other ways of creating loops, some succint, and some effective but not so elegant. For example, you could use:

- the X or Y register as mentioned
- pre-indexed Y counting
- a memory cell instead of a register

Listed below is an example of each looping method, all doing a similar task, and here are further explanations of each. They're all relocatable except the self-modifying one.

X or Y indexing: first load the accumulator with the value to be stored. In the case of a transfer, this would be index linked. Load the count register with 0 or the count maximum, as counting can be done up or down in most cases. Store the accumulator in the target address (ie base address + counter) and increment or decrement the counter. Check if the count has reached the desired value, 'rolled over' from FF to 0 (or 0 to FF if counting down) and branch appropriately. BPL is Branch if PLus (0 to 127), while BNE is Branch if Not Equal (to 0). A comparison produces 0 if the two comparators are equal.

```
1510 PLOT X+SIN(A)*15,15-COS(A)*15
1520 DRAWTO X-SIN(A)*15,15+COS(A)*15
1530 RETURN
```

```
0530      LDA #40
0540      CLC
0550      ADC SCREEN
0560      STA SCREEN
0570      LDA #0
0580      ADC SCREEN+1
0590      STA SCREEN+1
0600 ;
0610      LDA #20
0620      CLC
0630      ADC DATA
0640      STA DATA
0650      LDA #0
0660      ADC DATA+1
0670      STA DATA+1
0680 ;
0690      DEX
0700      BNE LP1
0710 ;
0720 ; RETURN TO BASIC
0730      RTS
```

The pre-indexed Y loop is more suitable to multi-kilobyte transfers, such as moving text, characters or bit-mapped screens. This is because the only things needed to be changed are the source and destination addresses, with no extra length added to the routine.

The 'ML to Data Lines' program pulls ML values out of the specified area of RAM, and using a dynamic keyboard technique, converts them to BASIC lines, with 10 elements per line (as set in line100), and adds a checksum figure to the end of each line. Input responses must be in decimal (unless you feel like using the Hex To Decimal parts of the converter program from article 1).

I reckon there's enough material here to keep you busy, even though loops have in no way been exhausted. Until next time, happy experimenting.

X (or Y) indexed

```
count is 0 to 255 inclusive (ie 256)
result: 7000-71FF contain 01
C000 A9 01     LDA#$01    ;value to store
C002 A2 00     LDX#$00    ;X=0 (or Y)
C004 9D 00 70 STA$7000,X;A in block 1
C007 9D 00 71 STA$7100,X;and block 2
C00A E8        INX        ;bump counter
C00B D0 F7     BNE$C004   ;if <256 loop
C00D 60        RTS        ;RETURN

count is 15 to 0 inclusive (ie 16)
result: 7000-700F moved to 0400-040F
C000 A0 0F     LDY#$0F    ;counter=15
C002 B9 00 70 LDA$7000,Y;source
C005 99 00 04 STA$0400,Y;destination
C008 88        DEY        ;decrease count
C009 10 F7     BPL$C002   ;if Y>=0 loop
C00B 60        RTS
data (letter codes)
7000 0D 05 20 07 05 14 20 10
7008 01 19 12 09 13 05 20 3F
NB if BNE is used, count is 15 to 1

count is 200 to 100 inclusive
result: 7064 to 70C8 contain 05
C000 A9 05     LDA#$05    ;value to store
C002 A2 C8     LDX#$C8    ;count max
C004 9D 00 70 STA$7000,X;destination
C007 CA        DEX        ;X=X-1
C008 E0 64     CPX#$64    ;compare to 100
C00A 10 F8     BPL$C004   ;if >=64 loop
C00C 60        RTS
```

```
C026 A9 BB     LDA#$BB    ;value
C028 8D 00 70 STA$7000   ;into dest
C02B EE 29 C0 INC$C029   ;dest address+1
C02E D0 F8     BNE$C028   ;if > FF loop
C030 EE 2A C0 INC$C02A   ;else 7x +1
C033 AD 2A C0 LDA$C02A   ;compare
C036 C9 72     CMP#$72    ;to 72
C038 D0 EC     BNE$C026   ;if <72   loop
C03A 60        RTS        ;RETURN

At end of call, C028 reads STA$7200
NB if routine is to be called again use
this  to restore  original destination,
otherwise the routine will blat through
memory till it crashes into itself.

C03A LDA#$70   ;C029 is already 00 in
C03C STA$C02A  ;this case
C03F RTS
```

Pre-indexed Y:time=0.13sec

```
count is 0 to 8191 inclusive (ie 8192)
result: 2000-3FFF moved to 6000-7FFF

C000 A9 00     LDA#$00    ;set F8/F9 pair
C002 85 F88    STA$F8     ;to 2000
C004 85 FA     STA$FA     ;and FA/FB pair
C006 A9 20     LDA#$20    ;to 6000
C008 85 F9     STA$F9     ;
C00A A9 60     LDA#$60    ;
C00C 85 FB     STA$FB     ;
C00E A0 00     LDY#$00    ;count=0
C010 B1 F8     LDA($F8),Y;get 2x00+Y
C012 91 FA     STA($FA),Y;put 6x00+Y
C014 C8        INY        ;bump count
C015 D0 F9     BNE$C010   ;loop
C017 E6 F9     INC$F9     ;else inc addr
C019 E6 FB     INC$FB     ;high bytes
C01B A5 FB     LDA$FB     ;compare dest
C01D C9 80     CMP#$80    ;to 8000
C01F D0 EF     BNE$C010   ;if less, loop
C021 60        RTS        ;else RETURN

BASIC equivalent:time=137sec.

10 H1=32:H2=96:rem 32=20hex 96=60hex
20 FORI=0TO255
30 POKEH2*256+I,PEEK(H1*256)+I
40 NEXT
50 H1=H1+1:H2=H2+1
60 IFH2<128GOTO20:rem 128=80hex
```

Memory count (self-modifying routine)

```
count is 0 to 511 inclusive
result: 7000 to 71FF contain BB

C026 A9 BB     LDA#$BB    ;value
C028 8D 00 70 STA$7000   ;into dest
C02B EE 29 C0 INC$C029   ;dest address+1
C02E D0 F8     BNE$C028   ;if > FF loop
C030 EE 2A C0 INC$C02A   ;else 7x +1
C033 AD 2A C0 LDA$C02A   ;compare
C036 C9 72     CMP#$72    ;to 72
C038 D0 EC     BNE$C026   ;if <72   loop
C03A 60        RTS        ;RETURN

At end of call, C028 reads STA$7200
NB if routine is to be called again use
this  to restore  original destination,
otherwise the routine will blat through
memory till it crashes into itself.

C03A LDA#$70   ;C029 is already 00 in
C03C STA$C02A  ;this case
C03F RTS
```

ML to Data Lines

```
10  INPUT"[clr]FIRST DATA LINE # (>180)
    ";LN
20  INPUT"LINE STEP ";LS
30  INPUT"START OF ML ";A
40  INPUT"END OF ML";EN:EN=EN+1
50  PRINT"[clr]":PRINT:PRINT
60  PRINTLN;"DATA";
70  D$=STR$(PEEK(A)):CK=CK+PEEK(A)
80  IFN>0THEND$=","+MID$(D$,2)
90  PRINTD$;
100 A=A+1:N=N+1:IFN<10ANDA<ENTHEN70
110 CK$=STR$(CK):L=LEN(CK$)-1
120 CK$=LEFT$("000",5-L)+RIGHT$(CK$,L)
130 PRINT",X"CK$
140 PRINT"LS="LS":LN="LN+LS;":A="A;":
    CK="CK;":EN="EN;
150 PRINT":GOTO15"
160 PRINTCHR$(19)
    rem 198 number of keys in k/b queue
    rem 631-640 keyboard queue
170 POKE198,1:IFA<ENTHENPOKE198,2
180 POKE631,13:POKE632,13:END
```

These BASIC lines will read the data created with the previous program. Substitute the beginning address for *****, and the number of data elements for *** (less one to account for the final Xchecksum).

```
10 B=*****:FORI=0TO***:READML$
20 IFLEFT$(ML$,1)="X"THENI=I-1:GOTO40
30 A=VAL(ML$):POKEB+I,A:CK=CK+A:GOTO60
40 C=VAL(RIGHT$(ML$,5))
50 IFC<>CKTHENPRINT"ERROR",ML$,A:END
60 NEXT
```

Joe

MAXAMA
Maximum Quality Diskettes

MAXAMA diskettes give you unsurpassed quality. Produced from the finest material by the most sophisticated techniques available, each MAXAMA diskette is subjected to a rigorous battery of tests before it leaves the factory. The result: a diskette that's certified 100% error-free on and between tracks and performance-proven for 30 million revolutions — the equivalent of your system's drive running continuously for five years.

Maxama — maximum quality diskettes.

Features

*5.25" diskettes : 48 TPI SS.DD, DS.DD
96 TPI DS.DD, DS.HD
*3.50" diskettes : 135 TPI SS.DD, DS.DD

*Lifetime guarantee
*Cerified 100% error-free
*Individually full-surface tested
*Performance-proven for 30,000,000 revolutions
*Write protect labels and file labels included

IGL-anitech

A DIVISION OF INCOME GROUP LTD

HEAD OFFICE
UNIT B, 192 WAIRAU RD., GLENFIELD, AUCKLAND
PRIVATE BAG, TAKAPUNA. TELEX: NZ 60893

TELEPHONE: (09) 444-2645
(04) 693-016 (WELLINGTON DIRECT LINE)
FAX: (09) 444-0060

IBM – will its new PC set another

With IBM's announcement early in April of its entirely new range of business computers, a range that is sufficiently different to cast adrift all the look-alikes, naturally we wonder whether this will set another standard for micros.

The clones, particularly the very cheap Taiwanese sourced computers, have had a huge impact on a market that had traditionally been IBM's. Figures that can be relied upon quote something like 60 per cent of the IBM PC market having been lost to Asian products.

The steps IBM has taken in April are an attempt to win back this market sector by:

- creating a new standard in processing technology, a standard we are told may take two years for the Asian supplies to match; and
- adopting a competitive pricing structure that will create discomfort with the non-Asian look-alike market.

As an example of the new pricing structure, an IBM Model 30 (an advanced PCXT, though they can hardly be compared) with 640kb RAM and 20Mb drive retails at $5,632. With colour screen that becomes $6,577. IBM has narrowed the price gap significantly.

With Compaq heading off down the 80386 chip path and awaiting MS-DOS 4.0, the market is wondering which direction the other significant manufacturers will head. Our guess is that it will be difficult to ignore any new trends that IBM sets.

Word processing/ Telexlink

As people look to extract greater use from their microcomputers, subjects like Telex links become more topical. The Post Office has equipment for rent that can hook up to your computer, and as long as you have a communications program or word processing package with telecommunications ability, Telex hookup becomes a viable application for your computer.

Packages such as Wordstar 2000+ come with the necessary communications module. Extra costs will involve equipment rental from the post office for the modem and interfacing equipment, and a user charge for each time you send a telex.

If you do a lot of word processing and send quantities of telexes it is going to be easier to retain your dedicated telex machine. Remember that you can usually only perform one task at a time on a standard microcomputer.

The other use for communications software is electronic mail. This system has similarities to telex systems: instead of printing a message at the receiver's end, electronic mail holds the messages in a database until the recipient clears it at some time (or times) during the day. This system will also involve equipment rental and usage charges, but will not cause as much interruption in the normal operation of the computer.

Videotex... a sample offering

MicroLab has had a videotex link up on a one-month evaluation. This is the ANZtell system, an information service provided by the ANZ bank. Other institutions, particularly banks

COMMODORE C64C COMPUTER PACKS

Members of our N.Z. Computer Games Club have always enjoyed special pricing on hardware purchases. However, we are now offering special mail order packages to non members. These are several packages available, in fact there are over 40, covering not only the C64C, but also the C128, C128D, AMIGA, PC10 and PC20. Some examples:—

Package Ref No.	C64C Computer	Datasette Recorder	1541 Disk Drive	Bundled Software included	Joysticks	Paddles	Graphics Environment Operating System	Membership N.Z.C.G.C.	$50 voucher for hires or purchases	Pub.Dom.Disks or 5's of blank disks	Thomson Green Screen Monitor	1801 Colour Monitor	MPS 1000 letter quality printer	Star NX10C letter quality printer	Retail value	Special price
1	✓	✓		SOCCER LE MANS CRICKET AM. CUP	2	2	VOUCHER TO PURCHASE FOR $50	✓	✓						1148	765
8	✓		✓	EASYSCRIPT EASYSPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	4					1686	1295
9	✓	✓	✓	SOCCER LE MANS CRICKET AM. CUP	2	2	VOUCHER TO PURCHASE FOR $50	✓	✓	4					1743	1295
10	✓		✓	EASYSCRIPT EASY SPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	9			✓		2556	2090
11	✓		✓	EASYSCRIPT EASYSPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	9				✓	2656	2190
12	✓		✓	EASYSCRIPT EASYSPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	6	✓				2081	1660
13	✓		✓	EASYSCRIPT EASYSPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	8		✓			2441	1990
17	✓		✓	EASYSCRIPT EASYSPELL MANAGER	2		G.E.O.S. INCLUDED	✓	✓	14		✓	✓		3326	2785

THE NEW ZEALAND COMPUTER GAMES CLUB

P.O. Box 18. Phone 82-949.
24 Vauguard Street, Nelson.

Please send details of special Commodore mail order Computer Packs, Software Hire Library, and Public Domain Library.
Name .....
Address .....
.....

(Circle One)
C64C
C128/1280
Amiga
PC10/20

standard?

and industry seekers including the motel association and travel agents, are heavily into videotex as an economical method of providing regularly updated bulletins to clients.

The videotex terminals can be rented from leading television rental firms from $70 per month. ANZtell has three different packages for access to its database of information, each package offering varying lengths of assess time. This basic fee is $550 per annum for 2,000 cumulative minutes' access. In addition to these charges, the Post Office charges 11¢ per minute for utilisation of its lines. No toll charges are payable.

The ANZtell system offers access to:

- exchange rates
- money market
- futures
- share/commodity markets
- financial information
- mailbox (communications between ANZtell users)

and this information is updated regularly during the day.

The only depressing aspect of Videotex is the fact that we are told six times a day that our share portfolio is plunging, rather than once in the newspaper. If only I had gold shares.

First Choice... for whom?

First Choice is the new software package from PFS recently released to replace their old PFS Software Packages. Instead of the earlier modular approach to software, First Choice incorporates four major data processing modules in one package. They are:

- Word processing
- File management
- Spreadsheet analysis
- Electronic communications

The spreadsheet has similar logistical problems for the experienced user. Typing a number over an existing number is a definite taboo. You must erase the original number first. And you can't just enter a calculation unless you have pushed ALT-F to tell it you are going to enter a calculation first. The cell references (C2 for column 2 and R2 for row 2) are clumsy. Novice users would have no trouble learning the standard numbers for rows and letters for columns used by other spreadsheets.

The file management system is very similar to the original PFS file and is easy to use. It is ideal for maintaining information such as client records where the user wishes to keep all clients on file. The select and search facility permits the user to access specific groups of clients based on chosen criteria, e.g. those retailers in Hamilton whose sales volume is greater than 50,000 per annum. Alternatively the file management system would suit a business wishing to maintain details of maintenance contracts held by customers. Files integrate conveniently to the word processor for mailer type letters.

Overall, First Choice has some very attractive features for the first time user, but is too limiting for the experienced user. Those with experience of Wordstar, Multimate, Lotus or Supercalc would be extremely frustrated by the package.

First Choice it may be for novice users, and this is the market at which it is pitched. At $590 we must recognise that it will not have the sophisticated of other software products.

ANNOUNCING THE CHECKOUT

A REVOLUTION IN POINT OF SALE RETAIL MANAGEMENT SYSTEMS.

Checkout uses a unique "active" stock control system which totally eliminates the outdated concepts of maximum and minimum stock levels. Checkout dynamically mersures the rate of sale of every item and optimises the stock levels taking many other factors into account as well. Checkout was written by New Zealand retailers for NZ retailers. It is not a modified accounting package with a fancy new name and old hat ideas. Checkout is available right now as a complete system, comprising the new Commodore Series 2 PC, monitor, casio cash draner, all lables, and checkout software from just $8285 inc. GST. Hard disk versions run from $10285 inc. GST. Additional units for multiple installations start at $6228 inc. GST

CONTACT US FOR A DEMONSTRATION OR DETAILED LITERATURE. ASK FOR KINGLSLEY LIGHT OR GRAHAM TRUEMAN

DEALER ENQUIRIES WELCOME

ASHBY COMPUTER CENTRE LTD

Sole N.Z. Distributor

Ashby Computer Centre Ltd
93 Ashby Avenue
St Heliers
Auckland 5
Telephone (09) 588 301 or 580 522

Learning and the technological revolution

by Liddy Nevile,
Education consultant, Barson Research, Melbourne

(Extracts from her paper to the Auckland Primary Principals' Conference, April 1987.)

I would like to start with a little story. One of my sons chose himself as the stroke of a crew of four who were to row down the river in a tub. He set himself the task of getting the length of his stroke established, and of keeping the strokes even, and started off. Before long he was happy with his achievement and turned around to see how the others were going...

Those of us who have been involved in the use of computers for some time often turn around – sometimes to see where we are all going, often to see what the others are doing, and sometimes because we realise that it is not always true that everyone else is out of step.

I would like to take this as my theme. Where are we going? Can we afford to assume that someone else will know, will be waiting at the crossroads to direct us? Who is qualified to make the decisions? Who does make the decisions? What decisions should we be making? Is there a new race of decision-makers upon whom we will rely?

Technology in education does not mean computer literacy – in the short term it is true that we have to make people (adults and children) comfortable with the technology which has entered their lives, at least where they are aware of it. Many people do not know to be scared of their cars, washing machines etc. because they do not realise that these are computer controlled. Women shy away from explicit technology and retreat to the kitchen where they drive microwave ovens, dishwashers...

Soon, all the children who enter our schools will know about technology in the way they know about bicycles, lightning, and so on. All the children who enter schools from now on will leave after the year 2000. They belong to the technological era and we have a certain responsibility to help them shape that world.

What are the changes the technology makes which are worth supporting? Let's concentrate on the educational arena.

Books will be replaced by electronically published materials. One compact disk can hold a whole bookshelf full of books, and costs far less to produce. So much cheaper is laser disk publishing that people are being given the computers so they can access the publications. Books are different as well – no longer is there a fixed beginning and end. The characters in a story can be directed by the story-reader: interactive stories allow the reader to choose whether the hero should fight the dragon or wait for another occasion.

Science and mathematics are about creative thinking, and this does not develop where children learn to use a collection of established methods of solving prototype problems. Children need the problem solving strategies and the skills to control the use of those strategies so they can actually solve problems.

These are only some examples of the changes which are already with us.

Writing the new curricula

As a result of working on the team finalising the National Evaluation of the Schools Computer Education Programme (the Australian three-year federally-funded computer education project) I have become convinced that many teachers have cheerfully abandoned their values in favour of a culture which has crept into Australia in plastic boxes and not been recognised until it has reached

What does this mean for young children who need to learn to read? Often it means they have already gathered a number of reading skills before they enter primary schools, but it also changes what reading is. Text which can move, be changed, is coloured and interspersed with animation is not what we learned to read.

And no longer is writing different from reading. There are a number of projects around the world with titles such as "the write to read project". The new reading materials are teaching writing.

Mathematics and science by definition should be static in character, if explosive in content, but this is not true. Scientists are no longer prepared to use the so-called scientific method; they are threatened by their discipline's success and speaking out more and more in favour of the role of humanitarian values in scientific work. This is not new – it perhaps started with the dropping of a bomb 40 years ago, but has become more pressing in an era of in-vitro fertilisation.

plague proportions. Australian teachers do not use drill and practice methods to teach history or writing, but somehow there are many who will stand proudly beside a computer which does use this method. I can only assume they do not recognise what is happening.

Let us take writing as an example. The process approach to the teaching of writing is well established in Australia. The word processor (which came with computer technology) offered the final opportunity for teachers to practise their skill in this area: when children don't have to rewrite their whole story to correct the spelling, they will tackle the task cheerfully (and perhaps change a few words along the way too).

The point of this argument is that teachers do have the skills needed to evaluate educational practices but perhaps they don't know how to evaluate what is happening around them (many teachers are, for the first time in their teaching careers, the object of massive advertising campaigns financed by monolithic foreign corporations).

I believe that teachers can evaluate the new teaching tools, but they are not used to allowing the children the freedom and control which these tools introduce into the classroom. I would say that one of the big challenges for the educational systems today is how to give "electronic" classroom evaluation skills to teachers, and how to help them to make the changes they choose to undertake.

I am pleased to say that the three-year computer education programme in Victoria has produced one legacy above all others: teachers may have learned a bit about computers, but they have learned a great deal about curriculum development and many skills which are associated with active research into their own classroom practice.

Finally...

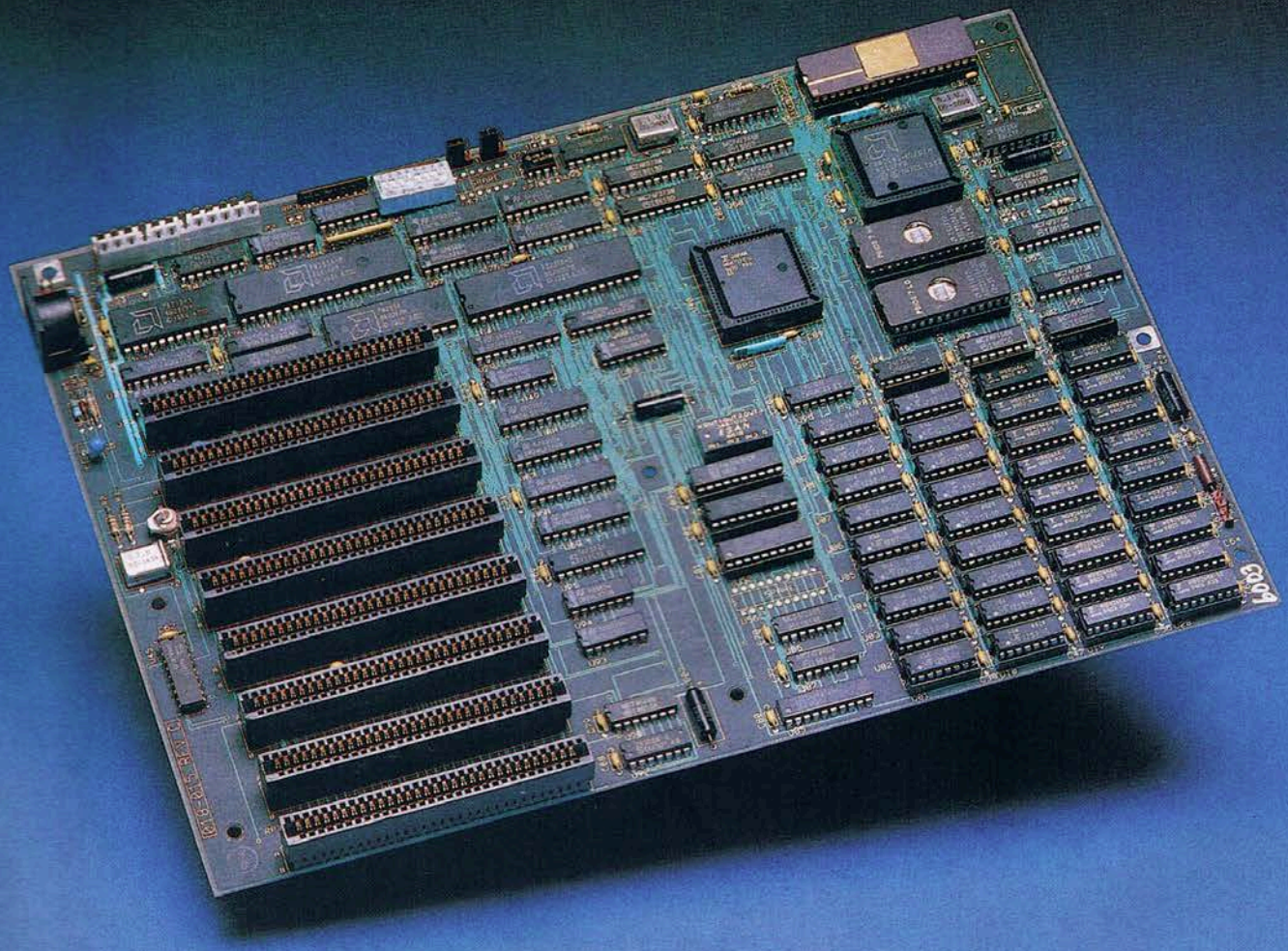
I would like to make some suggestions to you as principals.

Ask your most educationally-critical staff to help you with introducing computers into your schools. There is no merit in having the technology *per se*. It should be in your school only if it improves the curriculum offering in your school. This is a question for those concerned with education, not the computer buffs on staff who were into hifi once, and will probably move on to something else in a few years.

Consider carefully what your school looks like now, and make sure that computers will not create a social imbalance (computer literate elites and the rest). Classrooms are often

(continued on page 84)

386 Performance



at a fraction of the cost

Why pay more if you don't get more? With its 12.5 mHz CPU and no wait state RAM, the Bullet-ii high performance motherboard runs with the best of the 386 machines, but costs far less. Its advanced design, VLSI gate array, and dual-clock operation insure maximum compatibility with the standard PC add-in boards, operating systems, and applications. Its two year warranty and generous quantity discount pricing assure you excellent reliability and unequalled value.

Concord COMPUTERS LTD

CONCORD COMPUTERS LIMITED

James Cook Arcade
296 Lambton Quay
P.O. Box 3946
Wellington, New Zealand
Telephone 739 505, 734 291

FAX 722 690

ANSI escape sequences

by Bryce Utting

MS-DOS version 2.11 will perform various screen functions using the ANSI 55 standard, which can be used by including a copy of NASI55.SYS on whichever disks are used to boot with as long as a CONFIG.SYS file exists which has a line "device+ansi55.sys".

The functions that are allowed control screen mode, colour, cursor positioning and keyboard reassignment, but please note that not all are accepted by DOS (in particular, Sanyo MS-DOS 2.11 cannot use the "ESC[a;*b*p" sequence to redefine keys – but VB-DOS 2.11 can – and MS-DOS 1.25 ignores ANSI altogether). Also, ANSI sequences are transparent to BASIC (which bypasses any device drivers installed for the display, such as ANSI55.SYS) and it is very important not to confuse uppercase and lowercase letters in sequences.

To use a sequence, you should be in DOS or in a program that exclusively uses DOS (BASIC is not included in these). ESC means the escape key, which has a value of 27 decimal and looks like "^[" when pressed. Sequences which set a background colour may cause confusion, as the background colour is used only where a character has been written since the code has been sent – eg., ^[[41mBLUE will print BLUE on a blue background, but the rest of the line (and probably the screen) will have a black background.

To make things worse, ^[[2J sets the background for the entire screen to black, but to get around this, scroll the screen 50 times after setting a background. This will push any black lines off the top of the screen and fill the whole screen with the new background.

To use a sequence from DOS, use COPY CON CON <sequence> or ECHO <sequence>. Italics are used to indicate a parameter that is to be set by the user. If a parameter is missing, ANSI55 uses a default of 1.

CUP ESC[a;*b*H
HVP ESC[a;*b*f

Both place the cursor at line *a*, column *b*.

CUU ESC[*a*A
CUD ESC[*a*B
CUD ESC[*a*C
CUD ESC[*a*D

Moves the cursor Up/Down/Forward/Back *a* lines/columns without moving the cursor past the top line/bottom line/start column/end column of screen.

DSR ESC[6n

The Device Status Report requests that the console driver (which handles user input such as at the A> prompt) sends a Cursor Position Report to the standard input.

CPR ESC[a;*b*R

This should not be sent by the user to the computer. It is used to give the current cursor position to the console. For example, if
ESC[10;40H
ESC[6n
is sent to the computer by the user, the computer (the console, which is an imaginary device used for user I/O) responds with
ESC[10;40R

SCP ESC[s

Saves the current cursor position. Only one position can be stored at a time.

RCP ESC[u

Restores the cursor to the position where it was when a SCP sequence was issued. If SCP hasn't yet been used, RCP normally homes the cursor.

ED ESC[2J

Clears the screen and homes the cursor.

EL ESC[K

Erases the character under the cursor and all other characters from the cursor position to the end of the line.

SGR ESC[*a1;a2;...an*m

Sets various text functions associated with colour etc. The parameters can be any of those in table 1.

SM ESC[=*a*h
ESC[=h
ESC[?7h

Sets the screen mode. This has little effect unless the Video Board is being used. The modes are listed in table 2, and the default for *a* is 0.

RM ESC[=*a*
ESC[=1
ESC[?7l

Resets the screen mode. The only practical difference between RM and SM is that RM 7 (ie., ^[[=7h or ^[[?1) will reset the wrap at end of line.

The last sequence is not strictly ANSI (it was not included in either the ANSI 3.64-1979 or ISO 6429 standards according to the MS-DOS manual) and is not accepted by non-VB Sanyos, but it is still extremely useful. It uses the "p" sequence, which is defined by ANSI/ISO as reserved for private use.

ESC["*string a*"; "*string b*" p

It redefines the key defined by *string a* (which is either one or two characters long) as the text contained in *string b*. *String a* is the ASCII code for a key on the keyboard, and is only two characters long for the function keys (the first code is always 0 in this case). A string is made up of any number of single characters (given by ASCII number) and substrings (ASCII characters enclosed by double quotes) separated by semicolons. The example given in the manual is

^[[0;68;"dir";13p

which redefines the PF10 key on an IBM PC (identified by characters 0 and 68) as the command "dir" followed by a carriage return. The quotes are not included when PF10 is pressed.

Another example is

^[[2;"BASICA";13p

which will load BASICA from VB-DOS when control-B is pressed.

Table 1 Graphic Functions

0	Reset all attributes
1	Boldface on
4	Underscore on (if monochrome)
5	Blink on
7	Reverse video on
8	Concealed on
30	Black foreground
31	Red foreground
32	Green foreground
33	Yellow foreground
34	Blue foreground
35	Magenta foreground
36	Cyan foreground
37	White foreground
40	Black background
41	Red background
42	Green background
43	Yellow background
44	Blue background
45	Magenta background
46	Cyan background
47	White background

Table 2 Screen Modes

0	40 x 25 B&W
1	40 x 25 colour
2	80 x 25 B&W
3	80 x 25 colour
4	320 x 200 colour
5	320 x 200 B&W
6	640 x 200 B&W
7	Teletype mode (wraps at end of line)

Table 3 Summary of Sequences

The command is defined by the last character in the sequence.

H	CUP	Cursor position
f	HVP	Horiz. & Vert. position
A	CUU	Cursor up
B	CUD	down
C	CUF	forward
D	CUB	back
n	DSR	Device status report
R	CPR	Cursor position report
s	SCP	Save cursor position
u	RCP	Restore cursor position
J	ED	Erase display
K	EL	Erase line
m	SGR	Set graphics rendition
h	SM	Set mode
l	RM	Reset mode
p	–	Redefine character

"Accounting for the future"

PROFAX RELEASE 4.0

LOGICAL METHODS

LIMITED

VALUABLE DATA SAVED BY ANTI-STATIC DISK LINER!

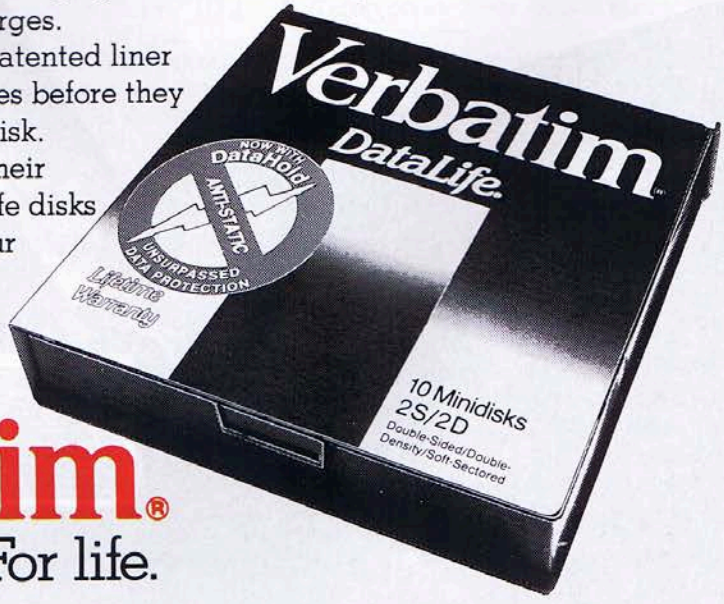
Static charges in offices around the world are wrecking valuable data every day.

More than 1500 volts of static charge can be generated by a walk across a carpet. If you're carrying a normal floppy disk at the time, the charge goes instantaneously into the magnetic media.

One floppy diskmaker has beaten the charges.

Verbatim DataLife diskettes now have a patented liner called DataHold, which disperses static charges before they can penetrate to the data storage area of the disk.

With this exclusive protective liner, plus their 100% error free certification, Verbatim DataLife disks confidently guarantee to store and retrieve your most valuable data without incident for at *least* a human lifetime.



NOW WITH DataHold ANTI-STATIC UNSURPASSED DATA PROTECTION

Verbatim®

Word perfect. For life.

Financial control and computers: a reassessment

by Koos Baars

This is the first of a regular column where I will discuss topics and software which are of interest to present and future computer users in the farming community. If you have any questions or suggestions for this column please write to me c/- Ruakura Agricultural Research Centre, Private Bag, Hamilton.

I will start off with some thoughts on the value of a microcomputer on the farm in the present economic situation and the new user pays environment. In my opinion a computer used for financial analyses will return a dividend for many farmers.

Why is a computer more relevant today?

The need for planning ahead is never greater than when the returns are down. Often farmers are now asked for statements of financial position, budgets, cash flows and propositions for refinancing in clear businesslike terms. It is much easier to communicate with financial partners and bank managers with detailed cash flows, budgets and copies of previous years' accounts. They will be much better informed and more willing to consider continuous support when comprehensive information is readily and quickly available.

Also advice will now have to be paid for. Farmers who have previously obtained free budgeting and financial consultations will now have to pay for the service. Undoubtedly this advice will be produced with a computer package in the consultant's office. You may decide that if you have to pay anyway, why not take the trouble to train yourself or your wife using your own computer?

Good financial packages can be bought. The alternative is an integrated spreadsheet package to get the information in the format you really want. Having your own system should save you time and frustration after overcoming the unavoidable learning period. You do not have to wait for analyses. You are in charge and the feedback is instantaneous.

Owning your own computer and financial package may well be more cost-effective in the long run. This is a considerable change in comparison to the situation of a few years ago, when advice was free, economic conditions different and computers expensive.

If you have well-prepared budgets and cashflows as a result, you can speak ably to bank manager and accountant. You should be in a better position to discuss overdrafts, credit and loans. Your accountant's bill should remain relatively stable over time. You will be in a better position to decide when to put on fertiliser, when to invest.. surpluses for short periods etc. Your own GST calculations may well pay quickly for the computer.

Past and present

In the distant past, farm accounting systems were made up of boxes for filing the bills, where every so often the whole lot was taken into the accountant's office in the neighbouring town and that was the last heard of them except for the final tax bill. This is a thing of the past.

To many farmers a computer seems to be the other extreme, especially when some programs only duplicate what you can do with a cheap calculator. However, many farmers are also unaware of the power of computers for keeping cashbooks and doing cashflows. Of course they can be done in exercise books, but computers make life so much easier.

For example, for doing cash flows you could use a spreadsheet. Spreadsheets used for budgeting, calculation of gross margins and cashflows are impressive pieces of technology by anyone's terms. In some farming operations like bull beef, where buying and selling is a major part of the venture, they are of considerable value to plan ahead in the most flexible way possible.

Paper, pencil, pocket calculator, and rubber will give you the same results, but most computer packages will save you a struggle over many nights and make timely decision-making and action possible. Quick recognition that current store stock prices will have a good chance of a high return is important. Alternatively, it may show that no animals should be bought. Many other examples can be given.

Plan your progress

There have to be ways by which the skills necessary to do the book work, data entry and planning can be developed. In the first phase of improving your financial management with a microcomputer, it pays to visit neighbouring farmers who own computers, and assess what is necessary to do the bookwork and planning. Some farmers may decide to pay for a bureau service rather than buy a computer.

However, if you carry on and buy a computer you can possibly start with a cash book. Attend training courses in basic computer skills and packages at technical institutes. Do not forget the Kellogg Unit at Lincoln College. It would be helpful if you could have access to a computer in a consultant's office, where the consultant can take the analysis further and show you the fundamentals of the package he is using. Then review the results and printouts and make up your mind about its value to you and how you can improve upon it and possibly set up things yourself. You may well decide to use a bureau service for some time before actually buying or setting up your own package!

By using this slow and gradual approach to acquiring basic computer skills and experience with financial packages, you will be able to move confidently into cash flow budgeting and using other financial tools.

My main point is that farmers should make a reassessment of the value of a computer for financial control. This should be done with full consideration of the new user pays philosophy, the cost of bureau services and the continuous and immediate need to plan ahead rather than just do acounting historically. A cost-benefit analysis at this point may well show that owning your own system will demonstrate a financial return within a few years, even during the downturn in the farming industry.

FREE SOFTWARE?

SPECIAL SELECTIONS OF PUBLIC DOMAIN AND USER-SUPPORTED SOFTWARE

Well, almost free. We don't charge for the public domain and usersupported software but there is a small service charge of $18 per disk to cover promotion costs, selection, testing, copying, etc. We have disks for MS-DOS, CP/M, APPLE II, MACINTOSH and COMMODORE 64. Mail and telephone order only.

Out of the thousands of programmes we have collected, we bring you a SELECTION OF THE BEST that have been carefully tested and documented. They'll run on a wide variety of computers that will accept 5¼" disks (MacIntosh 3½").

MS-DOS programmes are intended for the IBM-PC and close compatibles. Documentation is included on the disks, where required.

MS-DOS

GAMES

Disk No.

M1: SPECIAL COLLECTION. A graphic, intelligent adventure, a space trek and a surprise called Bouncing Baby.

M3: ORIGINAL ADVENTURE. The original classic in C, with source.

M4: SELECTED BASIC GAMES. More than 20 games, including Blackjack, Catch88, Eliza, Meteor, and Pacman.

M5: SUPER COMPILED GAMES (1). Eight very good arcade games, including Pango, Gold, Pyramid, 3-Demon, etc.

M6: CHESS. Several extensive versions of this well-written game. Has graphics.

M8: SELECTED FAMILY FUN GAMES. 2 Flight Simulators, Music Generator, excellent Pacgirl, Space Wars, etc.

M11: MONOPOLY. Several excellent computer versions of this popular board game.

M13: DUNGEONS & DRAGONS. Cave Quest — a very good adventure game. If you like monsters and magic this is for you.

M17: PINBALL GAMES. Contains three fascinating games of varying degrees of difficulty. Engrossing.

M1022: SUPER COMPILED GAMES (3). Arcade type games. Includes Kong, Striker, Spavevade, Life2 and Frog.

M1023: GREAT BASIC GAMES. Overs a dozen, including Wizard, Xwing, Combot, Mars, Racecar, CIA. Requires Basic.

M1037: POOLS AND LOTTO. Choose your numbers and the game does the rest.

M1038: TAROT AND I CHING. A choice Aussie contribution. Reads your "cards" or "throws" coins or yarrow sticks.

M1039: JOKES AND INSULTS. Harmless practical jokes on computer users. Also surprises with insults on screen.

M1040: YACHT RACE SIMULATION. Interactive, extensive and fascinating. Based on America's Cup match racing.

UTILITIES

M26: UTILITIES FOR PERSONAL MANAGEMENT. Similar to Sidekick, with calculator, notepad/editor, phone index, alarm clock, calendar, printer controls, etc.

M27+: UNPROTECTION METHODS. Hints and programmes that help you to back-up a variety of copy-protected programmes. 3 disk set for $39.

M32: DISK DOCTOR COLLECTION. Excellent debugging and file repair programmes. Includes Jaz, Easy-Zap, Diskit, etc.

M33: HARD DISK UTILITIES. Special set of dozens of highly useful utilities for greater efficiency.

M34: MULTI-TASKING SHELLS. Two excellent DOS Shells which allow you to operate and execute from a menu-system — Dosamatic and Still River Shell. Interrupt tasks and switch to other programmes.

M35: CP/M EMULATION. Run CP/M software on your PC. Well-documented and source coding is provided.

M2030: SYSTEM SNOOPER. Has device drivers, utility tutorials, marks bad blocks, diagnostics, redirects output, etc.

M2031: STRATFORD UTILITIES. Has demon for backing-up some difficult programmes, replaces joystick commands with cursor control and more.

M2032: NANOVISION UTILITIES. Converts text files to com files for self-display; memory-resident page; visual file deletion. More.

M2033: SELECTED MENU SYSTEM. Menus are created with word processor. 10 options per menu; sub-menus, etc. Makes usage friendlier.

M2034: MULTIPLE FILE CATALOGUER. Catalogues for word processing, databases, games, etc. Searches, sorts, prints reports and directories.

M2035: MORE HARD DISK UTILITIES. A super collection for optimising disk usage. Well worth having.

M2036: PC SPEED-UP. Inexpensive way of getting more out of your hardware. Diagrams need Epson-compatible printer.

M2037: MANAGING MEMORY-RESIDENT UTILITIES. Organise and control memory better.

WORD PROCESSING

M42: TYPING TUTOR. Improve your keyboard work. Menu-driven, easy to use.

M43: MULTI-FONT WRITER. On-screen scientific notation. Greek letters, gothic, bold, italics, etc. Recommended.

M48: OUTLINER FOR WORD PROCESSING. Considered by many to be the best outliner/ideas processor available.

M49: FORM LETTERS. Examples of the most commonly-used business letters — dozens of them.

M3014: SIDEWRITER. Generates printed output sideways to fit wide reports on to a page.

M3019: PROGRAMMERS EDITOR for source code editing in structured languages. Can be memory-resident. Built-in doc.

GRAPHICS

M61: GRAPHICS. Some of the best programmes, including picture-graphics set of commercial standard.

M62: SLIDE PRESENTATION. Prepare transparencies for overhead slides.

M66: EXTENDED FONT CHARACTERS. A utility for Epson-compatible printers that will print all of the printable characters of MS-DOS character set.

M67+: COMPUTER-AIDED DESIGN. Powerful control over drawing, graphics, printing, and slide show. Two-disk set $30. Requires colour monitor.

LANGUAGES

M85: PASCAL. A popular language for general programming. Good choice for learning to programme.

M94+: ARTIFICIAL INTELLIGENCE. These 2 disks contain TWO expert system shells — Esie and Expert. $36. They help you gather information and make a recommendation.

M95+: BASIC LANGUAGE. Interpreter with manual. 2 disks. $36.

COMMUNICATIONS

M101: TWO MAJOR COMMUNICATIONS. Programmes — Qmodem and Kermit. Lots of bells and whistles.

M6010: PROCOMM. Many featured programmes for contacting bulletin boards.

M6012: UK BULLETIN BOARDS. A comprehensive listing of bulletin boards in UK. M107 is an Australian listing.

BUSINESS/CALCULATION

M121: GENERAL LEDGER ACCOUTING. A small-business recording system. Highly regarded. Excellent reports.

M124: STOCK MARKET ANALYSIS. Special aids to help you "think and grow rich". For managing and evaluating portfolios and prospects.

M125: GOAL/TIME MANAGEMENT. For goal-directed organisation. Arranges information, prompts action.

M126: STATISTICAL ANALYSIS. Many programmes in Basic for analysis — Chi, Regression, Fisher, Binomial, Variance, Histogram, Poisson, Correlation, etc.

M128+: INTEGRATED PACKAGE. Three disks. Includes integrated word processor/spreadsheet/database/graphics. $39.

M129: 1-2-3 UTILITIES. Highly regarded collection of utilities that enhance the operations of Lotus 1-2-3.

M132+: 1-2-3 WORKSHEETS. Comprehensive special set of worksheets, aids and utilities. $104 for 8 disks. (Does not include M129).

M136: PROJECT MANAGEMENT. Will handle 1000 tasks and does critical path analysis, cash flow, bar charts, cost reports, etc.

M137: STOCK CHARTING SYSTEM. Records highs, lows, volumes, prices, etc. In Basic.

M7029: INTEGRATED ACCOUNTING. General Ledger, Cash Book, Debtors, Payroll, etc — all on one disk.

M7030: CALCULATORS' COLLECTION. Calculations for various occasions — programming, school, finance, many digits, etc.

M7031: PERSONAL FINANCE MANAGER. Manages cheque and credit card a/cs, savings, purchases, withdrawals, interest budgets.

DATABASE MANAGEMENT

M142+: DBASEII/III APPLICATIONS. Extensive group including: cheque payments, ail management, inventory ctl, budgeting, accounting, depreciation, general ledger, graphics, etc. 5 disk set $65.

M143+: FAMILY TREE/GENEALOGY. Recording, tracing, grouping, printing family tree. In Basic. 2 disks. Vers 4. $36.

M147: DBASEIII SCREEN CODE GENERATOR. Greatly reduces the amount of programming you need to do. Generates coding to include in your own programme.

M150+: DATA BASE MANAGER. Suits sales/stocks/mailing/personnel/ payroll. Calculates, prints invoices etc. 2 disks $36. Has full documentation. Excellent.

M151: MAILING LIST MANAGER. You can add, edit, sort, and print mailing labels for all members or selected groups.

M152+: RBASE LOOKALIKE. Operates as standalone system in menu and command modes or will drive application programmes. 3 disks. $39. Needs hard disk.

M8012: LABEL PRINTING. Collection that allows you to print labels for all sorts of uses, as well as control mailing lists.

M8013: FREE FILE. Menu-driven, easy to use relational data base that allows 100 fields and up to 2 billion records.

M8015: RETAIL INVENTORY. Menudriven, very fast system for keeping inventories up to date.

M8017: PRODUCTION DATABASE. Keeps track of suppliers, materials requirements, product costs, etc.

EDUCATION

M201: BASIC TUTORIAL. How to programme in Basic. Onscreen demonstration and explanation.

M203: MATHS TUTOR. A Basic programme that suits primary classes. Has six grades of arithmetic training.

M204: PC-TUTOR. Learn more about the operation of your computer, the important commands, etc.

M9007: SECONDARY MATHEMATICS. Collection of Basic programmes that provide instruction in key areas.

M9015: FOREIGN LANGUAGES TUTORIAL. Has instruction for French, German, Italian, Spanish and Hebrew.

M9016: LOTUS 1-2-3 TUTORIAL. Advanced techniques when developing spreadsheet skills.

M9017: DOS TIPS AND HINTS. Collection of advice on printing, screen, keyboard, colour, batching, booting, AT keyboard, etc.

GENERAL

M9501: DIETER'S FRIEND. Nutritional analysis programme compares your intake.

M9502: SPORTING ADMINISTRATION. Helps run events, match opponents, report results.

M9503+: BIBLICAL QUOTES. 14,800 cross-references to 7956 verses of new testament for talks, sermons, essays. 2 disks $36.

SHAREWARE REQUIRED FOR INTERNATIONAL DISTRIBUTION

We have extensive marketing and distribution facilities locally and overseas and require quality software for international distribution. Adequate documentation should be on the disk. Please forward submissions to our Chief Executive at the address below.

CPM, APPLE II, MACINTOSH, COMMODORE 64

Call or write for free catalogue.

PUBLIC DOMAIN NEWSLETTER

For news, reviews, views and how to use public domain and user-supported software subscribe to our bi-monthly newsletter and keep informed on the free programmes that help your computer to serve you. Only $18 per annum plus GST. Includes updates to catalogue

ORDERS: Each disk costs $18 (Macintosh $20). The price of sets is specified in adv. Add $3 post/pack and 10% GST.

ORDERS MUST BE PREPAID

PAYMENT BY MAIL TO:
SELECT SOFTWARE,
Box 943 Nelson NZ
(Office: 245 Trafalgar St, Nelson, NZ)

TELEPHONE ORDERS:
(054) 84 622, (054) 84 932
Pay by Bankcard, Mastercard or Visa.

PC PROGRAMMES FOR ONLY $3!

From the thousands of programmes we have collected from public domain and user-supported software we bring you a special selection of the best utilities available – special purpose programmes that you may choose in any combination that you wish.

Choose any number for only $3 each (service charge), with a minimum of six programmes, and we transfer them on to one (or more) of our disks for you.

We include source coding where possible. The programmes are documented, where required. Disks are formatted for MS-DOS 2. or greater. 360 k. Programmes are intended for the IBM-PC or close compatibles.

EFFICIENCY WITH FILES AND COMMANDS

U1. DIRECTORY CONTROL. Returns you to a previous directory whose name it saves.

U2. RAMDISK. Very good ramdisk creator – like a memory-resident disk drive.

U3. WINDOW TOOLS. Mini Sidekick with memory-resident editor, timer, ASCII reference.

U4. FAST DISK. Speeds up activity and processing of many programmes.

U5. FILE MANAGER. Excellent general purpose file manager that copies, deletes, views, etc. Many features.

U6. DIRECTORY LISTER. Creates directory lists for comments. Saves to disk.

U7. DIRECTORY PATHS. Lets programmes write to other directories.

U8. KEYBOARD DEFINER. Redefines keyboard to suit own needs.

U9. SPACE. Shows the amount of free space on disk in thermometer style.

U10. SUPERIOR DIRECTORY Shows disk directory with file attributes which are active. Also sorts by name, date, size, extension. Accurate for hard disk.

U11. BACKED UP. Indicates which hard disk files have not been backed-up.

U12. NEW FILES. Lists files that you created today.

U13. SPEEDKEY. Increase speed of cursor.

FILE PRINTING/EDITING

U101. PRINTER SWAP. Swaps line printer assignments for easier printing.

U102. WORDSTAR CONVERTER. Superior converter of wordstar to ASCII and reverse from document file.

U103. DISK COVER DIRECTORY. Prints directory in size suitable for pasting on disk jacket.

U104. COMMAND EDITOR. Very good editor of operating system commands.

U105. BANNER. Prints wide banners on your printer.

U106. LISTER. Prints documentation, adding page numbers.

U107. PRINT CONTROLLER. Gives extensive control of printer settings – bold, italics, compressed, etc. Epson compatible.

U108. NOT PRINT. Redirects computer output to the screen.

U109. DARKEN. Overstrikes a text file to obtain darker print.

U110. MERGE. Merge sorted files into one sorted file.

U111. TEXT FORMATTER. Processes text files for printing with special features imbedded in output – bold, italics, etc.

U112. SEARCH/REPLACE. Search for and replace characters.

U113. CUT & PASTE. Allows movement of parts of documents between files.

U113. NOTEPAD. Ready at hand notepad. Memory resident.

U114. TEXT INDEX. Indexing for text files. Mark words for listing.

U115. WORDSTAR INDEX. Indexing system for Wordstar.

U116. UNDERLINE STRIPPER. Strip underline from Wordstar files.

U117. KEYBOARD DEFINER. Keyboard redefiner for Wordstar.

U118. WORDSTAR COLOUR. Adds colour to Wordstar.

U119. WORDSTAR NUMBERS. Add and remove numbers to paragraphs in Wordstar files.

U120. WORDSTAR CHARACTERS. Character look-up programme.

U121. EXECUTABLE PATCHES. Standalone Wordstar patches.

U122. WORDSTAR GREEK. Obtain Greek characters in Wordstar documents.

U123. PROGRAMME EDITOR. Editor for programmers, with multiple windows.

U124. TEXT EDITOR. Editor with major commands, without frills.

U125. LAST LINES. Types the last specified number of lines in a file.

U126. FAST LISTING. Fast listing of files by extension.

U127. SQUEEZE LIST. Lists squeezed library files.

U128. COUNT. Counts characters, words, lines, pages in a textfile.

U129. PRINTER PATCHES. Extensive collection of printer patches for wordstar.

FILE LOCATING

U201. SMALL FILE FINDER. Locates files in subdirectories. Small tightly coded.

U203. FILE SEARCH. Memory-resident. Locates files in subdirectories.

U204. CHARACTER SEARCH Searches disk for character or string.

U205. FILE FINDER. Locates and lists files, allows deletion of unwanted files. Act from within programme.

U206. NEW GREP. Matches file patterns. Has 'C' source.

FILE READING/DISPLAY

U301. TEXT READER. Excellent text display utility with many features. Scrolls, reads one page at time, goes to end, beginning, etc.

U302. READ SQUEEZE. Read squeezed files without physically unsqueezing.

U303. READ BACKUPS. Read backup disks of your hard disk. Needs Basic.

U304. TREE DIRECTORY. Displays a tree directory of files, including sub-directories.

U305. TRACK READER. Reads sectors and tracks in hex and ASCII.

U306. BROWSE. Examine files with 4 way scrolling.

U307. DUMP. Gives an ASCII/HEX display of any file.

U308. DIRECTORY READER. Read a directory from or to a certain point.

U309. KEYBOARD BUFFER. Keyboard buffer of 160 characters.

U310. SYSTEM SHELL. Operating system shell that interfaces with Crosstalk, 1-2-3, and Multimate.

EQUIPMENT HANDLING

U401. DRIVE CLEANER. Runs the drive for head cleaning disk.

U402. CORELOOK. Gives memory content in HEX and ASCII.

U403. SCREEN SAVE. Blanks screen if not used for several minutes. Saves screen wear.

U404. DISKPARK. Positions the hard disk head key for safety when travelling or moving computer.

U405. COLOUR CONVERTER. Displays colours as shades of grey.

FILE MOVING

U501. SWEEP. Famous file-handler. Reads, mass copies, deletes, etc.

U502. REDIRECTS output to a disk file.

U503. NIMBLE DISK. Helps you move more easily around a hard disk.

U504. SECTOR RETURN. Recovers deleted first sectors.

U505. SELECTIVE COPYING. Copy programme using menu system.

U506. SELECTIVE DELETION. Programme delete using menu system.

U507. ENHANCED COPYING. Copy several unrelated programmes with the same command.

U508. NEW MOVE. Rename and move programme to another directory without copying.

U509. TOTAL ERASURE. Totally erases disk, including format.

U510. NEW DISKCOPY. Good diskcopy with extra features. Copies whole disk. Sidesteps and signals faulty sectors.

FILE ORGANISATION AND CHECKING.

U601. ARCHIVER. Superior file compressor and library creator.

U602. FILE CORRUPTION. Fast checker for detecting corrupted files.

U603. DISK SQUEEZE/UNSQUEEZE Squeezes and unsqueezes all files on a disk.

U604. PROTECT/UNPROTECT. Avoids accidental erasure of important files..

U605. SECRET FILES. Make, go to, or remove a secret directory.

U606. SQUEEZE/UNSQUEEZE. Compresses files to save space. Also uncompresses.

U607. LIBRARY CREATOR. Combines files into libraries. Adds to, deletes, extracts files.

U608. LIBRARY DISPLAY. Displays the directory of a library. Related to above programme.

U609. NEW NAME. Changes volume name of a disk.

U610. FILE COMPARISON. Intelligent file comparison programme which detects differences between files.

SPECIAL FEATURES

U701. CALENDAR. Display of any month or year.

U702. NEW DATE. Changes date of file entry in disk directory.

U703. BYTE CONVERTER. Converts all bytes to 2 byte (7 bit) for serial transfer.

U704. COMPILING AID. Simplifies, automates compiling and linking.

U705. ALARM. Sets time for alarm to sound.

U706. NEW TIME. Sets system time and clock.

U707. DOS HELP. Assistance with dos commands displayed on screen.

U708. GET TIME. Simplifies getting time and date.

U709. CLOCK. Shows time on screen while you work.

U710. CALCULATOR. Memory-resident for convenient access.

FILE ALTERATION/RECOVERY/ REPAIR

U801. FILE RECOVERY. Retrieves a programme you have just erased.

U802. DEBUG TIPS. Tips on using debugging programme effectively.

U803. DISK PATCHER. Reads and patches disk contents. Altering files, repairing corruptions, allowing unerase and creating files from memory.

U804. LOCK/UNLOCK. Protects files from unauthorised access with simple encrypting technique.

ORDERS:

The service charge for each programme is $3. There is a minimum charge of $18 (six programmes) plus $3 for postage and packaging. Add 10% GST to total. ORDERS MUST BE PREPAID.

PAYMENT BY MAIL TO:

SELECT SOFTWARE, Box 943, Nelson, New Zealand
(Office: 245 Trafalgar St,Nelson, NZ)

TELEPHONE ORDERS:

Pay by Bankcard, Mastercard or Visa. (054) 84 622, (054) 84 932.

We cannot guarantee the suitability of programmes for users needs or equipment.

CIRCLE NUMBERS BELOW AND SEND TO US WITH PAYMENT AND YOUR NAME AND ADDRESS. OR TELEPHONE US WITH THE PARTICULARS. SEE ABOVE.

1 2 3 4 5 6 7 8 9
10 11 12 13 101 102 103 104 105
106 107 108 109 110 111 112 113 114
115 116 117 118 119 120 121 122 123
124 125 126 127 128 129 201 202 203
204 205 206 301 302 303 304 305 306
307 308 309 310 401 402 403 404 405
501 502 503 504 505 506 507 508 509
510 601 602 603 604 605 606 607 608
609 610 701 702 703 704 705 706 707
708 709 710 801 802 803 804

Simple animation

by Bryce Utting

More graphics this month, this time a beginner's guide to animation in Sanyo BASIC, using GET and PUT.

One of the simplest ways of moving shapes around is by drawing a picture, blanking it out, drawing it again, and so on. This is the method used by Program 1, which moves a picture (a double-width 8) in a random direction. The main loop (lines 100 to 150) should be fairly self-explanatory.

Program 2 uses a different technique. The array containing the picture does the erasing automatically. The secret to this is a border in the background colour surrounding the picture. When the sprite is PUT on the screen a second time, the border overlaps the original picture, erasing it. The border must be wide enough to cope with the fastest movement of the sprite – if the sprite moves three pixels at a time, then the border must be three pixels wide. Try speeds of more than 8 (horizonatally) or 4 (vertically) in Program 2 to see why.

Adding a new line

170 SYMBOL (160,50),"ABCDEFGH", 5,12,5

to each program shows the effect each method has on a background. While the first two programs are fairly destructive, Program 3 leaves the background as it was. this is due to the use of the exclusive OR (XOR) function: time to get primal...

Table 1 is the truth table for the XOR function. What may not be immediately obvious is that it is reversible – if a XOR b = c then c XOR b = a (or, more practically, if 3 XOR 5 = 6, 6 XOR 5 = 3). This has applications in such diverse fields as cryptology and (no prizes for guessing!) graphics – XORing a shape twice onto a background will leave the background unharmed.

You may notice from Program 3 that the sprite itself changes colour as it crosses the background. Short of delving into Assembler there is no solution for this, but careful use of the colour tables can limit the effect.

Table 1

0 XOR 0 = 0
0 XOR 1 = 1
1 XOR 0 = 1
1 XOR 0 = 1

Full screen editing

by Nigel Burrell

Onew of the aspects of Spectravideo computing that hasn't yet been covered or looked at in any detail is the full screen editing facility. When the Spectravideo was being developed and on the drawing board some five or six years ago, Steve Ting, originally responsible for the development of the SVI Basic, wanted the system to have full screen editing by use of a set of arrow keys situated on the right hand side of the qwerty keyboard layout.

Not only was the computer designed to have this, but new character codes found only on word processors were built in as well. With all these features combined, it made it much easier for the user to edit a Basic program which effectively contributed to the success of the Spectravideo on the home computer market.

Over the last few years while I have been involved with the Spectravideo computer system, I have noticed a lot of programmers editing a program the long way (using the arrow keys only) and not utilising any of the inbuilt character codes which can easily cut editing time in half. This apparent lack of using these functions has prompted me to write this piece and advise other users what each one of these keyboard accessible codes can do for them as displayed below. Each one of them is selectable by holding down the CTRL key while pushing the appropriate character key.

B: Skips cursor to the start position of the previous word. Colons displayed between each command are totally ignored.

C: Returns cursor to the start position of the next line. Where text wrapping is involved owing to the length of commands in the line number, the cursor may skip up to 7 lines. Also acts as a break in INPUT commands and SOUND output.

D: Not used.

E: Deletes all text from current cursor position to the end of the logical line. Serves as a more powerful extension of the DEL key function.

F: Skips cursor to the beginning of the next word. Like character B, colons between commands are totally ignored as being part of any word.

G: Sounds a beep noise. Also acts as a break to any SOUND output and resets all sound registers that may have been redefined in previous programs.

H: Backspace. Deletes one character to the left of the cursor while the cursor also moves one character position left.

I: Tabulates cursor by eight character spaces to the right, deleting each character in its way.

J: Not used.

K: Returns cursor position to the top/left hand side of the text screen. No deleting is made.

L: Acts in the same way as the CLS command. Clears all text on the screen (except function key display) and returns cursor position to the top/left hand side of the screen.

M: Enters current line into memory. Acts in the same way as the ENTER key function and returns the cursor to the start of the next line.

N: Skips cursor to the absolute end of the line catering for any involved text wrapping.

```
1 ' Program 1
10 DEFINT A-Z
20 DIM SPRITE(25),BLANK(25)
30 COLOR ,1:CLS:GET (0,0)-(15,7),BLANK
40 SYMBOL (0,0),CHR$(56),2,1,7
50 GET (0,0)-(15,7),SPRITE
60 CLS
70 X=320:Y=320
80 XI=4*((RND*3)-2)
90 YI=2*((RND*3)-2)
100 PUT (X,Y),SPRITE
110 FOR N=1 TO 200:NEXT N
120 PUT (X,Y),BLANK
130 X=X+XI:Y=Y+YI
140 IF INKEY$<>"" THEN END
150 GOTO 100
```

```
1 ' Program 2
10 DEFINT A-Z
20 DIM SPRITE(100)
30 COLOR ,1:CLS
40 SYMBOL (8,4),CHR$(56),2,1,7
50 GET (0,0)-(31,15),SPRITE
60 CLS
70 X=320:Y=320
80 INPUT "Y-velocity";YI
90 INPUT "X-velocity";XI
100 PUT (X,Y),SPRITE
110 FOR N=1 TO 200:NEXT N
120 X=X+XI:Y=Y+YI
130 IF INKEY$<>"" THEN END
140 GOTO 100
```

```
1 ' Program 3
10 DEFINT A-Z
20 DIM SPRITE(25)
30 COLOR ,1:CLS
40 SYMBOL (0,0),CHR$(56),2,1,7
50 GET (0,0)-(15,7),SPRITE
60 CLS:PUT (0,0),SPRITE,XOR
70 GET (0,0)-(15,7),SPRITE
80 X=320:Y=320
90 INPUT "Y-velocity";YI
100 INPUT "X-velocity";XI
110 PUT (X,Y),SPRITE,XOR
120 FOR N=1 TO 200:NEXT N
130 PUT (X,Y),SPRITE,XOR
140 X=X+XI:Y=Y+YI
150 IF INKEY$<>"" THEN END
160 GOTO 110
```

O-Q: Not used.
R: Acts as a toggle for the INS key function.
S-T: Not used.
U: Clears all text on the current line. Note: Does not clear the line number from memory.
V-Z: Not used.

INPUT commands that are available under SVI Basic are okay to use throughout your programs for most applications, but problems like accidental CLS key pushing cannot be eliminated unless you design your own input routine that safeguards against these problems. Listed below is an input routine that you can use throughout your own programs.

Feel free to modify it in any way to suit the application.

Variable list:

A = horizontal cursor co-ordinate.
B = vertical cursor position.
F = pause loop between each cursor flash
A$ = single character typed.
B$ = totalmessage string.

Run the program, type in a small message and push the ENTER key. The "Ok" prompt will then appear and variable B$ will contain your message. While you are typing in a small message, push the CLS or any of the arrow keys and you will notice that the message remains on screen and unaffected. This is what sets this particular routine apart from the INPUT command available under Basic.

Personally, I use control characters B,F,E,N, and C quite a lot when editing my Basic programs. The arrow keys of course have their uses as well.

The control characters that are listed as being "Not used" are only in the context of non-accessible functions. These particular codes could in fact be easily incorporated and assigned to do various word processing tasks not normally associated with screen editing. For example, CTRL P could be used to print out a file from a printer, or CTRL O to select the option list.

Get to know the above list of control characters and their individual functions as they will really help you to edit your programs much more quickly and easily.

Function keys

The function keys available on the Spectravideo act as a major assistance to your editing ability. Ten functions are available by utilising the five function keys alone for functions F1-F5 and SHIFTing the same keys for functions F6-F10. Each one of these redefinable keys can hold up to 15 characters.

One function I like to change before editing a program is the F9 key which holds the "LIST." command. The dot displayed after LIST tells the computer to display the contents of the previous line number used. The annoying thing about this command is that the cursor is always displayed underneath the "Ok" prompt after the command has been executed. You then always have to bring the cursor up a couple of lines, using the arrow keys, to edit the commands. So one way in which I eliminate this problem is to redefine function key 9 to suit. Type in the following command to see what I mean.

```
KEY 9,"LIST."+CHR$(13)+STRING$(2,30)
```

Now when you push the F9 key, the last line number used will be called up and displayed with the cursor in the correct editing position. This is just one particular function that I like to use. As there are 10 function keys, there are many more that you can redefine for your own purposes.

```
KEY 1,"COLOR 15,1,1"+CHR$(13) – changes screen colour.
KEY 4,CHR$(12)+"LIST"+CHR$(13) – clear screen/list program.
KEY 6,"SCREEN,0"+CHR$(13) – turns function key display off.
KEY 7,"SCREEN,1"+CHR$(13) – turns function key display on.
```

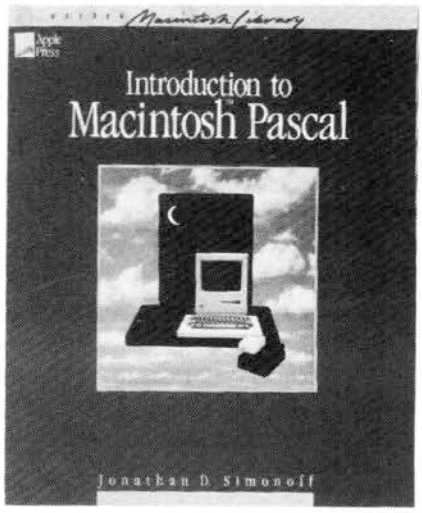
Input routines

Input routines can be very easily associated with screen editing as the programmer must have some basic knowledge of screen editing operations for the routine to be programmed correctly.

```
10 SCREEN 0,0:LOCATE,9,0:PRINT "Type in text:"
20 A=14:B=9:B$=""
30 LOCATE A,B:PRINT " ":FOR F=1 TO 30:A$=INKEY$:IF A$="" THE
N NEXT:LOCATE A,B:PRINT " ":FOR F=1 TO 30:A$=INKEY$:IF A$=""
 THEN NEXT:GOTO 30
40 IF A$=CHR$(13) THEN LOCATE ,,1:END
50 IF A$=CHR$(8) THEN IF LEN(B$) THEN B$=LEFT$(B$,LEN(B$)-1)
:SOUND 0,120:SOUND 8,9:LOCATE A,B:SOUND 8,0:PRINT " ":A=A-1:
GOTO 30 ELSE 30
60 IF A<38 AND ASC(A$)>31 THEN LOCATE A,B:PRINT A$;:SOUND 0,
40:SOUND 8,9:B$=B$+A$:A=A+1:SOUND 8,0
70 GOTO 30
```


Pitman

Wellington Melbourne London Toronto



Introduction to MacIntosh Pascal

—Jonathan D. Simanoff

Emphasises the complete capabilities of Pascal for the MacIntosh. Learn to create and design MacIntosh Pascal programs easily and instantly.

8104-6562-0 $55.00 inc GST

The MacIntosh Advisor — Essential Techniques for Experienced Users

—Cynthia Herriman & Bendon Calica

Techniques, tips and advice on how to shortcut some of the MacIntosh's more elementary procedures and enable you to use your MacIntosh more effectively.

8104-6569-8 $55.00 inc GST

Personal Publishing with the MacIntosh

—Terry Vlick

Hands-on instructions to using Page Maker, as well as a complete introduction to the skills necessary to achieve design success.

8104-6572-8 $55.00 apx

Pitman

PITMAN PUBLISHING 150 YEARS

PO Box 2107 Auckland

PO Box 38688 Petone

BITS & BYTES
COMPUTER BOOK CLUB

BOOKS FOR BEGINNERS

BOOKS FOR PROFESSIONALS

OUR NEW SELECTION

Apple II User's Guide For Apple II Plus and Apple IIe, Third Edition. **Poole, McNiff and Cook**

Revised text to show you how to use the enhanced Apple IIe, as well as the Apple II, Apple II Plus, Apple IIe and all peripherals. Complete instructions for using the Pro-DOS and DOS 3.3 operating systems. Easy-to-follow tutorials in BASIC programming, you'll utilize all the sound and graphics capabilities of your Apple.

Osborne/McGraw Hill **Our Price $52.38. Save $3.72**

Commodore 128 Programming Secret **William M. Wiese Jr**

Much more than a reference manual, this book provides numerous hands-on program examples that are thoroughly explained and ready for immediate use. You will be able to run faster, more powerful programs, gain greater control over screen displays and store and access additional programs in extra memory banks. Plus much more.

Osborne/McGraw Hill **Our Price $44.09. Save $3.32**

Your IBM PC Made Easy **Jonathan Sachs**

For both beginning and advanced users, and excellent tutorial/reference. A very thorough guide to most facets of your IBM PC, from PC-DOS, hardware, software, resources supplies, batch files, etc.

Osborne/McGraw Hill **Our Price $41.33. Save $3.11**

The MS-DOS Users Guide **Hoffman and Nicoloff**

Ideal for beginners and experienced users alike, this guide covers each computer running MS DOS, gives the version it runs and any improvements the manufacturer has made to the system. Additional programs and reference material-make this guide a tool of lasting value.

Osborne/McGraw Hill **Our Price $52.38. Save $3.94**

Armchair Basic **A & D Fox**

An absolute beginner's guide to programming in BASIC. After reading this, you'll have a firm understanding of what programming is all about. Filled with illustrations and examples, it's an unintimidating introduction to the most popular micro-computer language – BASIC.

Osborne/McGraw Hill **Our Price $33.04. Save $0.74**

Desktop Publishing From A to Z **Grout, Athanasopoulos & Kutlin**

This book helps you to choose the software, equipment, and procedures you need to achieve professional results. It discusses software packages and hardware that are available, from project management programs to page make-up. You'll find out how to establish a publishing plan, control costs and profits, handle printing and binding, promotion, and distribution.

Osborne/McGraw Hill **Our Price $49.62. Save $3.73**

Computers and Microprocessors Made Simple **Computerbooks**

This book provides a readable introductory survey of the field of computers. Some mathematical background is assumed, but in general no prior knowledge of computers is needed. With the emphasis nowadays on digital electronics, the major part of the book deals with microprocessors and digital computiers, but other forms of computing have also been discussed. The reader should therefore gain a balanced picture and select the form of computing best suited to his needs and the problem under consideration.

Heinemann Our price $11.11. Save $0.84.

Computer Programming **Made Simple Computerbooks**

Computer Programming Made Simple provides a comprehensive introduction to modern techniques of programming without assuming previous knowledge of mathematics of electronics. This edition includes the home computer explained in simple, non-technical terms and a full course in BASIC, the language of the microprocessor. This book will be of great interest to people ranging from students at schools and further education establishments, to aspiring programmers and general readers seeking a basic knowledge of the subject.

Heinemann Our price $16.69. Save $1.26.

Advanced Macintosh Basic Programming **Phillip Calippe**

A tutorial and reference guide to Microsoft BASIC which shows how to use the Macintosh's advanced features to create impressive programs.
A disk is also available which includes programs in the book.

Compute **Our Price $47.00. Save $3.55.**

Inside Amiga Graphics **Sheldon Leemon**

All about the Amiga, Commodore's new computer. You'll find thorough descriptions of the computer's abilities and the hardware required to create a complete graphics system. Software, too, is central to the Amiga, and complete tutorials show you how to get the best from the machine.

Compute **Our Price $47.00. Save $3.55.**

Using Microsoft Works **Sharon Zardetto Aker**

This is a comprehensive reference guide and tutorial showing some of the tasks which can be done efficiently and easily with Works, including a word processor, database, spreadsheet, telecommunications, and graphics. It describes how to create form letters with the word processor, to home and business budgets and tax forms with the spreadsheet.

Computer **Our Price $47.00. Save $3.55.**

MacOffice: Using the Macintosh for Everything

How to fully utilise commercial programs such as Microsoft Word and Multiplan and Apple MacTerminal, plus how to use programs in an integrated fashion to share information and manage a businesss.

Compute **Our Price $53.15. Save $4.00.**

The Turbo Pascal Handbook **Edward P. Faulk**

You'll be gently guided step by step, until you're creating your own applications in this impressive computer language.
It also shows how to use Turbo Tutor, Turbo Toolbox, and Turbo Graphix Toolbox, the popular extensions to Tu9rbo Pascal.

Compute **Our Price $41.90. Save $3.15**

Operator's and Programmer's Guide for the Amstrad CPC6128 and PCW 8256 **Digital Research Inc.** **Amstrad Consumer Electronics p/c**

This official handbook will be an essential investment for the many thousands of Amstrad owners who wish to get the best from their computers and produce their own programs in CM/M Plus. The book consists of the original Digital Research Corporation's documentation for CP/M Plus and is divided into three sections: User's Guide, Systems Guide and Programmer's Guide.

Heinemann Our price $65.05. Save $4.90.

The club: how it works and what the benefits are.

To join – just buy a book, fill in the coupon and post Freepost.
Prices include GST. Not all books are available ex-stock, but buyers will be notified.
Please allow 3-4 weeks for orders to be processed and the distributrors to get the books to you.
coupon in the middle of magazine

Computer Programming Language in Practice — **Made Simple Computerbooks**

Acknowledges that for many purposes the use of programming languages has been extended by the rapid spread of access to computers. BASIC, Cobol, Fortran, and RPG dominate the available languages and are all dealt with in a manner that will enable the reader to appreciate their similarities and differences and to select the language most appropriate to the required purpose. The text is fully complemented with worked examples of how to put the languages into practice. Serves not only as a guide for students learning programming and the home users, but also as a comprehensive manual for experienced programmers who wish to extend their skills.

Heinemann — Our price $16.69. Save $1.26.

Systems Analysis — **Made Simple Computerbooks**

An introduction to the essential elements of information systems analysis and design, this book covers the five elements which make up a successful information system: How it supports the organisation, how it fits into people's working lives, how the individual user communicates with the system, logical arrangement of the information and the processing that is to be carried out on it, and the specification of the technical system that is needed. It teaches the basic skills required for the tasks involved and can be used as a primer by the relative newcomer or for a technical update by the businessperson or programmer.

Heinemann — Our price $16.69. Save $1.26.

Computer Electronics — **Made Simple Computerbooks**

This book provides a comprehensive introduction to the way in which computers and digital devices are designed and operated. Though some mathematical background is assumed no previous knowledge of electronics is required. The book concentrates on practical design aspects and will appeal particularly to school, university and technical institute students who have some theoretical knowledge but little practical experience. In addition the text provides valuable reference material for electronic engineers.

Heinemann — Our price $16.69. Save $1.26.

COMMUNICATION

Online — **Steve Lambert**

A guide to America's leading electronic information services that includes over 20 hours of free connect time – a value worth over $350.00!

Microsoft — Our price $67.52. Save $5.08.

MacTelecommunications — **Erickson and Cramer**

With this guide, beginners learn to use a Macintosh computer for banking, buying and selling stock, research, and much more. It's all here: an overview of telecommunications, the hardware you'll need, detailed instructions and information for MacTerminal and other communication software, plus the inside story on all the popular network and information services available to your today.

Osborne/McGraw-Hill — Our price $49.62. Save $3.73.

Mico-to-Mainframe Links — **Ronald F. Kopeck**

Data processing and communications professionals can fully understand the major considerations behind PC-to-mainframe integration with this book. A concise, detailed text thoroughly explains the planning and evaluation process used in determining how PC-to-mainframe linking fits into your office environment. Data transfer, security, and use of existing networks are also discussed.

Osborne/McGraw-Hill — Our Price $52.38. Save $3.94.

SOFTWARE

pfs: Software Made easy — **Carl Townsend**

Why pfs Software? Increasingly, business professionals are recognizing the value of integrated software for word processing, maintaining data files, and generating reports and graphics. This book introduces you to this series, explains its unique features, and helps you learn each program, Write, File, Report, Access and Graph. Contains invaluable tips for integrating programs and working with advanced applications.

Osborne/McGraw-Hill — Our price $49.62. Save $3.73.

The SuperCalc Program Made Easy — **Chris Wood**

Learn to produce effective budgets, reports, and business graphics with your powerful SuperCalc software. This complete guide to SuperCalc (versions 1.2, and 3) teaches you all the skills you need to take full advantage of this versatile program – from building and organizing a worksheet to using advanced problem-solving techniques and special SuperCalc features. A reference section that lists and explains every SuperCalc command is also provided which is especially ideal for beginners.

Osborne/McGraw-Hill — Our price $49.62. Save $3.73.

Using Turbo Prolog — **Phillip R. Robinson**

Enables you to maximize your programming skills with Borland's new Prolog compiler. Offers detailed coverage of Prolog syntax and design, and discusses all of Turbo Prolog's statement, functions, and operations. You'll use multiple windows to view and modify programs while watching them run,and you'll learn programming techniques using colour graphics, turtle graphics, and sound.

Osborne/McGraw-Hill — Our price $55.14. Save $4.15.

Multiplan Made Easy — **Walter A. Ettlin**

A step-by-step instruction book to Microsoft's electronic spreadsheet. This book offers you in-depth explanations of the commands and sub-commands for formatting a worksheet and entering data. Each chapter offers practical applications and provides exercises for you to follow. Ideal for use in large corporations, small businesses, and in the home.

Osborne/McGraw-Hill — Our price $41.33. Save $3.11.

The Advanced Guide to Lotus 1-2-3 (2nd edition) — **Edward M. Baras**

Delves into more powerful and complex techniques using the newest software upgrade, Release 2. You'll learn to set up your own command menus; use depreciation functions, matric manipulation, and regression analysis; and convert text files to the 1-2-3 worksheet format.

Osborne/McGraw-Hill — Our price $52.38. Save $3.94.

Using dBASE II — **Carl Townsend**

Organizes the material in a format that is easy to follow for those new to database programs. Using dBASE II does pay careful attention to the order of learning this system. There's plenty of information to get one started, and the book should provide a solid foundation for later reading on the subject.

Osborne/McGraw-Hill — Our price $55.14. Save $4.15.

The MSX Book — **Paul Hoffman**

Your fundamental guide to the MSX computers. Whether it's entertainment, education, business application, or household functions that you've got in mind for your MSX computer, this book outlines the many options available to you. Learn how to use the MSX BASIC programming language and the MSX-DOS operating system so that you can gain greater command of your computer. You'll also learn about graphics, sound, and telecommunications capabilities of the MSX machines.

Osborne/McGraw-Hill — Our price $44.09. Save $3.32.

Using dBASE III PLUS — **Edward Jones**

An update of Using dBASE III, with this book you'll learn to design, create, and display a dBASE III PLUS database, devise entry forms with the dBASE III PLUS screen painter, generate reports, use Query files, and plug into dBASE III networking. In addition you'll find out how to install dBASE III PLUS on a hard disk, conduct data searches, and manipulate assistant pull-down menus. This is a thorough and practical handbook for both beginning and experienced dBASE III users.

Osborne/McGraw-Hill — Our price $52.38. Save $3.94.

The Framework Book — **David Kruglinski**

This guide shows users familiar with the basics of Framework, how to apply its word processing, data base, spreadsheet, and graphics functions. You'll learn about Framework integration – linking spreadsheets to one another and to data bases; data bases to documents; and Framework to external software including WordStar. You'll also learn about using Framework with MITE telecommunications.

Osborne/McGraw-Hill — Our price $49.62. Save $3.73.

---

dBASE III Tips & Traps — **Anderson, Cooper and Demsey**

You'll save computing time and avoid troublesome dBASE traps with this helpful collection of creative shortcuts. Written for beginning and experienced users you'll find hundreds of tips and trap solutions for planning an application system and establishing a database, entering and updating data, ordering and retrieving data, relating databases, customizing screen displays, generating reports, interfacing with other software, and converting files from dBASE II.

Osborne/McGraw-Hill — Our price $49.62. Save $3.73.

Windows: The Official Guide to Microsoft's Operating Environment — **Nancy Andrews**

Microsoft Windows is the state-of-the-art, graphics-based, low-cost operating environment that brings a higher level of efficiency ot every PC user. You will learn to: use all of Windows' built-in desk accessories and the Windows applications, combine specific applications to meet specific business needs, start applications, run them and transfer information among them, use Windows in a network.

Microsoft — Our price $65.47. Save $4.93.

---

100 Programmes for Business and Professional Use — **Paul Garrison**

Each of these 100 short programs fulfills one specific need and runs on IBM PC, PC XT, PCjr, and all Apple II computers. Covering such topics as inventory, loan analysis, accounts payable, name and address lists, advertising cost analysis, invoice printing as well as many other business and personal applications.

COMPUTE — Our price $69.52. Save $5.23.

APPLE

Apple Machine Language for Beginners — **Richard Mansfield**

A clear, detailed and thorough tutorial on programming in machine language for the Apple II, II+, IIe and IIc. Includes LADS, one of the most efficient and powerful machine language assemblers currently available.

Compute — Our price $38.83. Save $2.92.

Machine Language of Beginners — **Richard Mansfield**

Much commercial software is written in machine language because it's faster and more versatile than BASIC. This book is a step-by-step introduction to the subtleties of machine code. Includes an assembler, a disassembler, and utilities, to help beginners write programs more quickly and easily. Covers many popular home computers.

COMPUTE — Our price $41.90. Save $3.15.

Of RAMdisks and large data-types

Part 1

by Mark Lim

I'd originally wanted to open this column with some such line as *I got a memory-expansion card for my Apple //GS the other day and I'm very pleased with it*

but that would have been a lie. Not that I'm not pleased with the card – far from it. It's just that I have this bad habit of not booting up my word processor until a deadline is staring in my face, so that my padded box from the States got here not "the other day" but "the other month".

Be that as it may, you might very well be wondering why I bothered to get a memory-expansion card for my //GS at all. I mean, aren't all Australasian GSes already fitted with one?

Well, yes, they are, but with what cards!

Complaints

It's like this. The 256kb memory-expansion card with which the GS Up Top is brought up to 512kb of total RAM is just that, a 256kb memory-expansion card. You can't use it to go beyond 512kb to, say, 8Mb – the most the GS can address – because there are no sockets into which you can stuff the necessary RAM chips.

But, of course, all this talk of expansion sockets is a bit of a waste of time anyway, seeing as the GS 256kb card comes with no sockets of any kind full-stop. Thus, if you ever decide to buy a real memory-expansion card for your GS, count on not being able to plug the chips on your Apple card into your new one – unless, of course, you know how to desolder RAM chips.

Now, on its own, all of this wouldn't be so bad. After all, just as there is a place in the //e world for both Extended 80-Column Cards and Auxiliary Slot Memory Expansion Boards, so is there a place in the GS one for simple 256kb RAM cards; the first-time user, I believe, shouldn't have to worry about such things as 'buy only 150 ns 41256 DRAMs in lots of 8'.

Bearing in mind, of course, that yesterday's beginner is tomorrow's power user. So it is that when someone like – ahem – myself decides that he'll have need of maybe a megabyte of RAM soon enough, a dealer shouldn't have to tell him that, officially, he cannot not fit a basically throwaway peripheral because someone at CED or Apple Computer Australia said so. (The fact that I was able to get my way in the end is beside the point: I get on well with my local Apple dealer.)

After all, buying a computer is not like buying a car – what you see is not what you get. A computer is a bundle of possibilities, and none of these possibilities should be made impossibilities just so a little business can be sent Australia's way.

RAMdisks

But, you might still be asking yourself, is any of all this worth the lather? After all, what can one **really** do with megabytes of memory?

Well, hear what the GS's sound chip can do for starters. Or edit 15,000-line documents. Or define and use large, RAMdisk-based data-types.

Sorry, did I lose somebody there? RAM-what? Data-what? Maybe I'd better start with the definitions.

A RAMdisk is a block of your computer's memory which has been set up by software to look and act as a disk in a disk drive. If you're using ProDOS on a 128kb Apple //, you automatically have a RAMdisk – named /RAM – set up for you in the auxiliary 64kb bank of memory you would not otherwise be able to use. If you're using an Apple //GS, you also have a second RAMdisk – called /RAM5 – set up in whatever memory you decide, from the control panel, to give it.

In both cases, note these two very important points. Firstly, because a RAMdisk looks just like a floppy disk, it can be used for the storage of program and data files, except that because a RAMdisk is really memory, things move along at a much quicker pace. However, and secondly, precisely because a RAMdisk is really memory, care must be taken that data files stored on a RAMdisk are eventually saved to floppy.

RAMdisks have many uses, many of which have already been dealt with in the pages of this and other magazines. However, there is one which I can't remember ever having read about anywhere. It has to do with these two facts:

1. A RAMdisk allows the 8-bit programmer, ie us Apple // types, to access more memory than he or she otherwise might; and
2. RAMdisk software is memory-management software.

Data-types...

Hence what I said earlier about large, RAMdisk-based data-types. But I'd better explain data-types too.

As we know, everything inside our computers is represented by numbers – machine language instructions, BASIC text, graphics. How our little wonders tell one thing from another is a matter of interpretation. The number 193 ($C1) can, depending on the circumstances, represent the letter A or the machine language CMP instruction.

Thus we have one half of what we mean by data-type – the particular conventions, held in our minds or built into our programming languages, by which we interpret the contents of our computers' memories.

But there's more. While for instance it makes sense to add two integers (basically, whole numbers) together, it doesn't to do the same to two characters. So it is that when we speak of a particular piece of data as being of a particular data-type, we mean both how we're interpreting the contents of the memory locations of which it is composed, and also the set of operations which we may perform on it.

More in Part 2 next month.

Screen Builder

by John Collett

With the system described here a BBC microcomputer user may construct screens containing graphics and/or text easily and with precise control. Such screens may be stored and then rapidly loaded when needed during the running of any other program. Substantial saving of space within a program can be achieved, and the speed at which programs run can be increased.

Apart from initial settings relating to MODE, CURSOR TYPE, and COLOUR SELECTION, there are two main levels to the program. The second or lower level deals with regular shapes and text, while the first or upper level handles all other features. Help screen (drawn up in Mode 1) can be viewed at any time during the use of the program, and displays a brief reminder of the function invoked by each letter at each level. The actual screen has colours, and the set of prompts relating to the level currently in use is highlighted when the screen is displayed.

Initial settings

The user's first choices are Mode (0, 1, or 2) and cursor type. In some features of the program the user can move a cursor to any position on the screen by using the four arrowed keys. One cursor is very small – a single point which can sometimes be hard to see, but is very accurate, and never itself gets in the way when detailed work is carried out. The other is larger and easier to see, but sometimes the cursor itself gets in the way.

A numbered list of the 16 available colours is displayed, and a colour chosen for the screen background. For Mode 0, only one other colour can be selected; for Mode 1, three further colours are needed, and for Mode 2, all colours remain available.

The option "Load screen? (Y/N)" is presented. Either answer will cause the work screen to appear, with a numbered grid around its four margins to help judge screen position. A "Y" reply will cause the existing work screen for the selected mode – SCREEN0, SCREEN1, or SCREEN2 – to be loaded, and work can continue on that screen. If no file of the required name exists, and if there is enough room on the disk, it will be created.

The system is entered at Level 1. All prompts appear at the foot of the screen, and the user's choice is indicated by a single key press.

Level 1

DRAW allows sketches to be built up on the screen by the construction of lines between points. The x and y coordinates of a starting position must be supplied. The grid around the four margins helps to decide the values. Then a colour is chosen, and the required GCOL value. Values of more than 4 are worth exploring; they open up a whole range of possible effects, far too numerous to document, and difficult to predict. Apart from these exotic effects, the user can choose between plain or dotted lines by pressing L or D.

Holding down one of the arrow keys will move the cursor in the required direction. The move will be faster if SHIFT is pressed at the same time, faster still if CTRL is pressed, and extremely fast if CTRL and SHIFT are both pressed. When COPY is pressed a straight line is drawn between the last two points visited, and after each COPY, the prompt shows the current cursor x and y coordinates.

REPEAT makes it possible to reproduce drawings at new positions, at different scales, and in different colours. Further options are superimposing other drawings stored elsewhere, and obtaining mirror images of drawings around either exis or both. There are two methods of using the REPEAT facility, the choice being determined by the response to the query: "Ladder? (Y/N)". If a negative answer is given to this prompt, the user is prompted to supply the following parameters: a new pair of x,y coordinates; a scale factor (twice the size, half size, or whatever is required); a mirror image option (along the x axis, the y axis, or both); and a colour.

A record of the repeated sketch is stored in a file called LOCI, which may be saved under another name for use on future occasions, and in time one can build up a library of such files. They may be edited in a word processor and more than one such file may be merged to create more complex images. This opens up great possibilities – to include, for example, plain and dotted lines and filled areas in the same repeatable sketch.

If Y is selected at the "Ladder?" option, a series of linked sketches can be produced on the screen. Details to be provided are the x,y location of the last one in the series, the relative size of the final sketch, and the number of times the process is to be repeated, or how many steps. Images in the array will be equi-distant, and drawn in a gradually increasing or decreasing size.

Again, a data file called LOCI is created in the process. (Many details of the Arc de Triomphe shown in Figure 2 were produced using this feature, but without any change in scale.)

POINT makes it possible to model a drawing on a paper sketch, using a planning sheet. In this case, before DRAW or REPEAT are used as described above, points can be

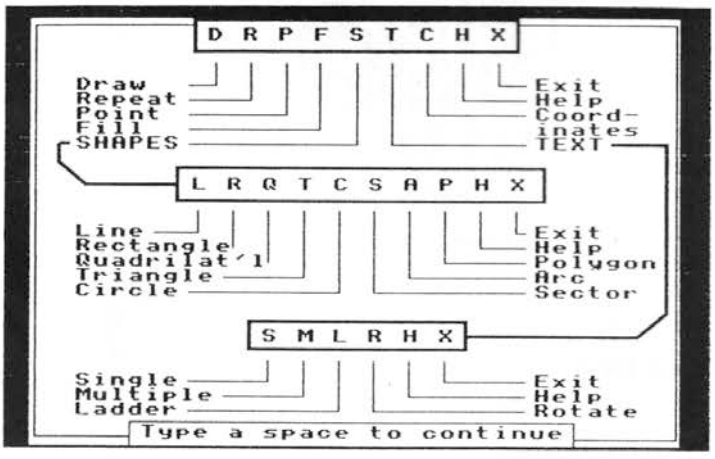


Figure 1: A Help screen available at all times while the Screen Builder is in use

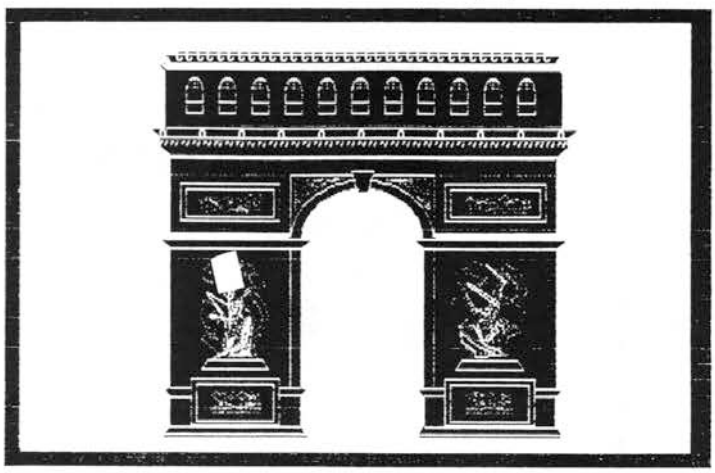
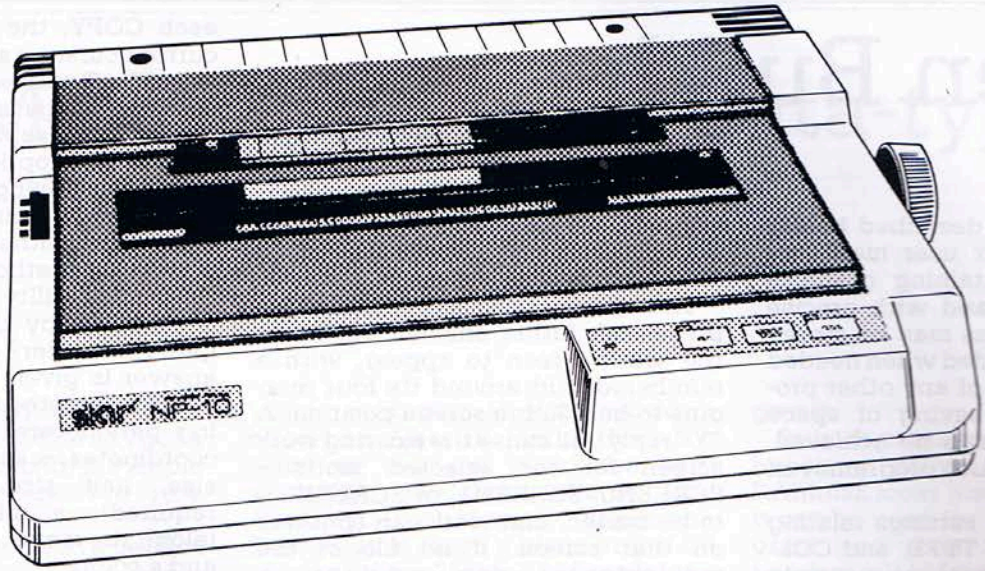


Figure 2: An example of Mode 0 output from the Screen Builder



Star's new NP-10. Everything you always wanted in a printer—for less.

Looking for high performance without paying the price? Then look no further than Star's new economical NP-10 printer. It's a real performer.

The NP-10 is ideal for small business or the home because it gives you reliability plus a front panel control for convenience.

At a touch, Star's front panel gives you control over modes such as high speed draft quality printing at 100 characters per second and precise 25 cps near letter quality.

Besides outstanding printing, the NP-10 offers standards like auto paper feed. A long life ribbon cassette. Standard tractor and friction feeds.

The NP-10. It's everything you always wanted in a printer—for less.

star micronics

Retail
$650 + GST

Send now for details

Name .....

Address .....

.....

Distributed by:
Star Micronics Ltd 22 Moa St, Otahuhu
Phone 276-7349 P.O. Box 6255, Auckland

®IBM is a registered trademark of International Business Machines, Inc.

marked on the screen, leading to a simple "join up the dots" exercise instead of freehand drawing.

FILL may be used on any totally enclosed areia, producing a plain fill, or patterns in one or two colours. There are, again, millions of possible outputs to this command, and the exact sequence of parameters to be supplied depends on circumstances (the Mode, for example).

COORDINATES of a point on the screen sometimes need to be obtained, as for example the exact location of a shape. It works like the initial stages of the FILL command – an approximate x,y setting is supplied, and then the edit keys used to move the cursor to the exact position. The COPY key causes the new parameters to be displayed in the prompt zone, and they can be noted.

Level 2a – shapes

In Level 2a one can select from a set of predefined shapes, in all of which size, position, colour, and so on can be specified, with special features available in some cases.

LINE is an alternative to the DRAW command at Level 1. Lines can be produced by entering the x,y coordinates of each end rather than by moving the cursor from one end to the other. GCOL values higher than 4 are worth exploring!

RECTANGLE requires entry of x and y coordinates of the bottom left corner; width; height; filled-in shape or outline only; and colour. For an outline, plain or dotted lines may be chosen, while a filled-in rectangle with colour set to 0 is a good way to erase any part of a sketch which has gone wrong. In general, procedures to obtain other shapes follow a similar sequence to those needed to produce a rectangle, though of course they each have their own specific requirements. To obtain a quadrilateral, four pairs of x and y values must be supplied, in clockwise or anti-clockwise manner only. For a triangle, three pairs must be supplied.

CIRCLE needs x and y values for the centre of the circle, and then Radius 1 and Radius 2. For a regular circle, these two entries must be the same. If they differ, an ellipse is produced, the width (x axis) being Radius 1 and the height (y axis) Radius 2. Other options are as above.

SECTOR specifications include centre x and y as for circle, then "Start angle", measured in degrees anti-clockwise from 3 o'clock, and "Span angle", measured in degrees from the start angle. For example, to draw a sector from 12 o'clock to 3'clock, the two values will be 90 and 270 (from 3 to 12, anti-clockwise, is 90 degrees; from 12 to 3, 270 degrees).

ARC procedures are the same as for a sector, with the option of having the chord of the arc added or not.

POLYGON requires centre x and y and radius. As with the circle, two radii are entered. If they differ, an elliptical polygon is produced. The number of sides is then specified, anything from 3 upwards. Obviously 3 produces a triangle, 4 a diamond shape, and anything over about 20 is hard to distinguish from a true circle. Filled or outline, colours, and plain or dotted are as before. If an outline is specified, there are further options: displaying the spokes of the polygon or not, and displaying its rim or not. Interesting effects can be obtained by asking for a many-sided polygon (50, 100, 200 ...), and then having the spokes printed.

Level 2b – text

SINGLE entries require the position of the text to be indicated by giving x and y parameters, and colour is selected in the usual way. The option of double-height characters is available. The prompt shows "=>" at the foot of the screen, and the required text is then typed in. The prompt appears at (approximately) the requested position horizontally, to help visualise the effect of the text, and to check on its length.

The red function keys can be used to include user-defined characters in the text, also at single or double hight. Keys can be predefined by entries in a supporting program called KEYS.

MULTIPLE entries may be made, whereby the same sets of letters or defined characters appear in different positions. Once the first position, colour, size, and text have been entered, the cursor can be moved to the next required position, and the COPY key pressed.

LADDER allows any number of appearances of the required characters, in any straight-line arrangement. The text, colour, etc. are defined in the usual way. Then a further pair of x and y values for the end of the intended ladder must be entered, and the number of 'steps' required in the line, i.e. how many more times the letters are to be printed along the defined line.

ROTATE allows letters in any colour, single or double height, to be printed upright, on their side in either direction, or upside down.

When stored screens are used by another program, the MODE setting must match the mode for which the screen was created, and the command *LOAD filename be used. The screen will appear in the default colours of the mode in question, unless VDU19 commands are included in the program to obtain the required alternative colour settings.

ADVANTAGE COMPUTERS LTD.

FREE Public Domain Software
Yes, This is free, no excuses about administration and advertising costs. Just come and copy what you like.

TURBO COMPUTERS $1650

These systems include:
- Turbo mother board
- 135 watt power supply
- Hercules compatible card
- High resolution monitor
- Japanese disk drive
- Not 30 day **but** a

Full 12 month warranty

As above but with
30MB Hard Drive $2930

HARD DISKS & CONTROLLER
30MB $1350
20MB $1200

THE PANASONIC EXEC. PARTNER
640K RAM
~~$5852~~ **$3900**
30 MB AS ABOVE $5340

Back by popular demand
PANASONIC KX–P1091 PRINTER
Retail $847 Last
Priced too low to print!

ABILITY
Integrated software, **Our favourite!** Word Processor, (reads and writes Wordstar files) Data Base, Spreadsheet, (reads Lotus files) Communications, Graphics, and more! **only $250**

Reflex by Borland $195
DSDD DISKS in plastic case $25

ALL PRICES GST INCLUSIVE
Delivery charges $5-$15

ADVANTAGE COMPUTERS LTD.
62 Manawatu St, Palmerston North
Telephone (063) 83-784
Mon-Fri 9am-5pm,Sat 9am-noon

All about RSXs

by James Lawry

Apparently Amstrad would rather the users of its computers didn't know about RSXs. The word RSX is not mentioned once in my manual, although it does say that disk commands are implemented through external commands. (An external command is an RSX built into the firmware.)

RSX stands for resident system extension and means a command added to BASIC. To use such a command, type a bar: "|" (SHIFT–@) and then the command's name. For example, typing "|BASIC" results in the screen being cleared and the words "BASIC (version number)" appearing, followed by the Ready prompt.

This is effectively the same as resetting, in that it wipes the memory, resets the colours and screen mode, etc. Disk users will be familiar with these commands, having at their disposal a wide range. These commands can be added by the programmer but if one has only the user manual, one is left rather in the dark about how this is done.

In fact, practically any machine code routine can be converted to an RSX fairly easily. It takes a short routine to initialize the RSX (which is only executed once), and also the routine that will do the work. RSXs can be named just about whatever you like, and they can take parameters in the same way as BASIC's CALL statement. There are many possible uses of RSXs: within BASIC, they can improve readability of a program. |WAIT is much more meaningful than CALL &BB18, and Program 1 below initializes this RSX.

Many programs can accept RSXs from their command line, for example Hisoft Pascal, Mini Office II and Protext. They can be used to make up for deficiencies in the 464's BASIC, and many utilities have come onto the market adding useful RSXs. for example, Arnor (the maker of Maxam and Protext) has put out Utopia, a ROM which adds commands such as |FORMAT, |DISCCOPY, |TYPE and |DUMP as RSXs so that you don't need to use CP/M. Another is Speech!, a speech synthesizer which requires no hardware, using such RSXs as |SAY and |SPEAK.

Program 2 is a rewrite of Craig Beaumont's Double Height characters program as an RSX, adding the command |PRINTD. This brings to light one problem of incompatibility between BASICs: the use of string parameters. On the 664 and 6128, life is easy. You simply type:

|PRINTD,"Bits and Bytes"

However, 464 users have to use a string variable like this:

A$="Bits and Bytes"
|PRINTD,@A$

Yes, it's the @ function again. This is true for all RSXs which take string parameters on the 464. |PRINTD should be preceded and followed by a LOCATE statement. You will get unusual results if the string has to wrap around the edge of the screen, and it cannot be more than 80 characters long.

If you know a bit about machine code, you can convert your machine code routines to RSXs easily. Simply add this short routine:

```
ENT $ ;this is the entry pt
LD BC,table
LD HL,workspace
CALL &BCD1 ;KL LOG EXT
RET
```

BC is loaded with table, a two-byte address of the RSX table. This table starts with the two-byte address of

Listing 1.

```
900 'WAIT RSX
910 'by J. Lawry
920 '
930 'Initialises the RSX |WAIT
940 'which executes a system call
950 'to &BB18 when used.
960 '|WAIT causes the computer to wait
970 'for a key to be pressed before
980 'continuing.
990 '
1000 address=&A000
1010 IF UNT(HIMEM)>address-1 THEN MEMORY address-1
1020 FOR loop=1 TO 2
1030 sum=0:READ code$,check$
1040 FOR loop2=1 TO 43 STEP 2
1050 byte=VAL("&"+MID$(code$,loop2,2))
1060 POKE address,byte
1070 sum=sum+byte:address=address+1
1080 NEXT
1090 total=total+sum
1100 IF sum<>VAL("&"+check$) THEN PRINT "Error in data in
     line";1990+loop*10:STOP
1110 NEXT
1120 CALL &A000
1130 END
2000 DATA 211AA07EFE01C80111A0211BA0CDD1BCC916A0C318BB,A1D
2010 DATA 574149D400000000000000000000000000000000000000,1B5
```

Listing 2.

```
800 'Double Height Characters
810 'By Craig Beaumont
820 'Rewritten as an RSX by J. Lawry
830 '464 users:
840 'A$="Bits & Bytes"
850 '|PRINTD,@A$
860 '664 and 6128 users:
870 '|PRINTD,"Bits & Bytes"
880 'Strings longer than 80 characters
890 'are ignored.
900 '
1000 address=&A100
1010 IF UNT(HIMEM)>address-1 THEN MEMORY address-1
1020 FOR loop=1 TO 11
1030 sum=0:READ code$,check$
1040 FOR loop2=1 TO 43 STEP 2
1050 byte=VAL("&"+MID$(code$,loop2,2))
1060 POKE address,byte
1070 sum=sum+byte:address=address+1
1080 NEXT
1090 total=total+sum
1100 IF sum<>VAL("&"+check$) THEN PRINT "Error in data in
     line ";1990+loop*10:STOP
1110 NEXT
1120 CALL 41416:END
2000 DATA FE01C0DD6E00DD66017E235E2356FE51D006004F2178,8D3
2010 DATA A1EBEDB01178A1471A3232A1C5D5CD2DA1D1C11310F2,B95
2020 DATA C9CD06B9F53E00CDA5BBDD21329006087EDD7700DD77,AA9
2030 DATA 0123DD23DD2310F2F1CD0CB93EFE213290CDA8BB3EFF,B35
2040 DATA 213A90CDA8BB3EFECD5ABB3E0ACD5ABB3E08CD5ABB3E,AC9
2050 DATA FFCD5ABB3E0BCD5ABBC900000000000000000000000,5D5
2060 DATA 000000000000000000000000000000000000000000,000
2070 DATA 000000000000000000000000000000000000000000,000
2080 DATA 000000000000000000000000000000000000000000,000
2090 DATA 000021E5A13E01BEC8360101DAA121E6A1C3D1BCDFA1,A97
2100 DATA C300A15052494E54C400000000000000000000000000,3B5
```

the table of names, followed by a JP instruction (&C3) to the start of each routine. Several RSXs can be initialized in one go and there should be one JP instruction for each name. The name table consists of the name of each RSX stored byte by byte in order, with the last letter of each name having 128 added onto it. HL contains the address to a small workspace area. Here is an example, adding the command |WAIT to BASIC:

```
&A000: LD BC,&A011 ;table
       LD HL,&A01B ;workspace
       CALL &BCD1
       RET
&A011: DEFB 16,A0,C3,18,BB
&A016: DEFB "W","A","I","T"+128
&A01B: DEFS 4
```

Taking a look at the line starting with &A011, the bytes 16 A0 point to the start of the name table at &A016 (they are in low byte, high byte format of course). C3 is the code for the Z-80 assembler mnemonic JP, and 18 BB is the address of the start of this routine: &BB18. The next line is the name table. Notice how the last letter, "T" has 128 added to it. The last line clears a little workspace.

Now a CALL &A000 will initialize the RSX |WAIT. One very important thing to remember is this: Don't initialize the same RSX twice or you will get very strange results. It is a good idea to add to the start of your initialisation routine:

```
LD HL,flag
LD A,(HL)
CP 1 ;1 if done before
RET z ;stop if so
LD (HL),1 ;otherwise set flag
  and later:
flag: DEFS 1
```

so that the routine does nothing if it has already been used.

If all that was gobbledygook to you, don't worry! The casual BASIC user doesn't need to know any of this to use the routines, but machine code pro-grammers who have searched the manual for this information should be able to follow it.

RSXs are destroyed when you switch off or reset (unless they are in a ROM), so to use the RSXs in programs, the machine code must be put in place and executed each time the program is run (although special care must be taken to avoid initialising the RSX twice). There are two ways of achieving this: either MERGE the BASIC listings into the program, replacing the END at the end of the routine with a RETURN and putting a GOSUB 1000 in your program. Alternatively, run the loader programs as is and save the machine code as a binary file (BEFORE you test it! It will not work if it has been run because of the flag routine):

```
SAVE "RSX'S.BIN",B,start.address,
  length
  replacing start.address and length
with the appropriate values. Then
add in your program:
MEMORY ???? '(lower top of BASIC
  if necessary)
LOAD "RSX'S.BIN",start.address
CALL address '(whatever the start
  address in the listing was)
```

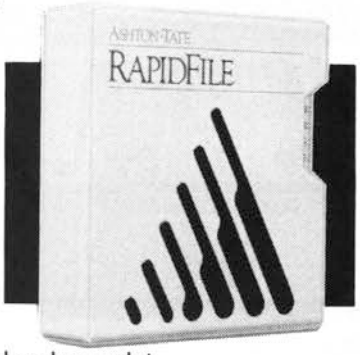
An unfortunate side-effect of these programs is that you cannot have too many user-defined characters. This is for two reasons. Firstly, as written, the programs use the area of RAM that would be used to store user-defined characters if you used SYMBOL AFTER followed by a number less than about 120. Secondly, SYMBOL AFTER cannot be used after a MEMORY statement, and both programs lower the top of BASIC RAM. You could get round these problems by putting the SYMBOL AFTER statement before the MEMORY statement and relocating the code.

I am always keen to hear any contributions you have to this column: problems, tips, infinite lives POKEs, what you want to see in the column, whatever. And what about some short and useful RSXs? I am planning to publish a set of RSXs for 464 owners soon, to remedy some of the omissions from their BASIC. If you've anything to share just drop me a line C/- *Bits and Bytes.*

WHEN YOU WANT TO WORK NOT WORK-OUT!

At last a file management package that doesn't require you to perform mental or physical gymnastics.

★ STATISTIC CALCULATION
★ REPORTS
★ WORD PROCESSING
★ ALL ON ONE DISC
★ FORM LETTERS
★ ADDRESS LISTS
★ FILE MANAGEMENT



Rapidfile is a menu driven, fully integrated, easy to use, comprehensive, fast, versatile system from Ashton Tate, the industry leader who bought you the dBase series. Rapidfile offers pull-down or horizontal menu options, integrated compatibility with Lotus 1-2-3 (in fact if you already use 1-2-3 you know how to use Rapidfile)

and Rapidfile is naturally fully compatible with dBase.

Exchange your track suit for a business suit. Phone Ashton Tate on (071) 393-309 for a demonstration kit.

Rapidfile is available throughout New Zealand through a network of 250 dealers.

RAPIDFILE
no sweat

ASHTON·TATE
ASHTON-TATE (N.Z.) LIMITED
5th Floor A.M.P. Building
Victoria St. P.O. Box 852
Fax 071-82514
HAMILTON.

TCC 11023

Future Knight

Ages 8 upwards; price: $52.00; software company: Gremlin.

Arise Sir Randolph, and rescue the beautiful Princess Amelia from the evil clutches of Spegott The Terrible, armed only with your Omnibot MkIV attack suit and laser pistol. This is where you come in and control all Sir Randolph's movements, including jumping, walking and the inevitable laser gun exercises. You must travel through 20 gruelling levels until you arrive on the planet's surface and into Spegott's castle where Amelia's fate lies in your joystick ability.

Along the way there are many usseful objects to collect and use, including a bomb, safe pass and platform key. The laser weapon you have can be exchanged for any of three different types with either range, penetration or the ability to deflect enemy fire. There are heaps of weirdies, and the end of each level is guarded by a Henchdroid.

This game is similar to Ghosts and Goblins. It has good animation and graphics, but the later levels can become a bit tedious as there are so many nasties and if you fall into one of the big pools of acid the game has to be restarted.

Graphics: very good (good animation and definition); sound: good (no music but very good spot effects); presentation: very good (well thought out instructions but no options); hookability: average (fairly addictive at first but it soon gets a mite tedious); overall: good. If you like the hard tedious type then go for it.

Gunship

Ages: 9 upwards; price: $52.00; software company: Micro Prose.

This is the latest in the line of MicroProse flight simulators. You take the part of flying the AH-64 Apache, one of the most advanced war helicopters to date, equipped with the latest weapons available. As soon as it is loaded you are greeted with a list of vehicles and a picture of one. You have to decide which it is by moving the pointer to the right name and pressing Fire, and there is a list in the book of all the vehicles with pictures to help.

Once this is done you are shown the current pilot with duty, style and reality levels. These can all be changed to suit yourself. Next you are given the briefing which tells you your mission and password, (you have to look in the book for the countersign). After that you can arm your Apache with whatever weapons you choose depending on the mission.

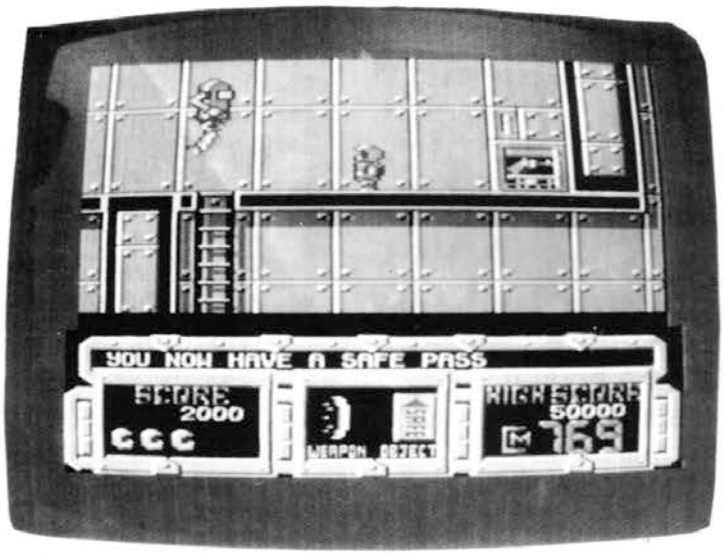
Then it's time for the flying, and you are provided with a keyboard overlay to help with flight. First the two main engines must be started along with the rotors. Next, tap the up fast key until you begin to rise, and by getting this in the middle you can hover. You can then look at the map and head towards your target. On the way you are bound to encounter various enemy vehicles on the way so it is best to have a tactic. The main one it suggests is to move from hill to hill hiding behind each one, then pop up target the enemy and blast it.

When you have destroyed your target you will get a radio message and can head back to base. Once you arrive home you are then promoted with the results of your mission and score and if you performed exceptionally well will receive a medal and perhaps promotion.

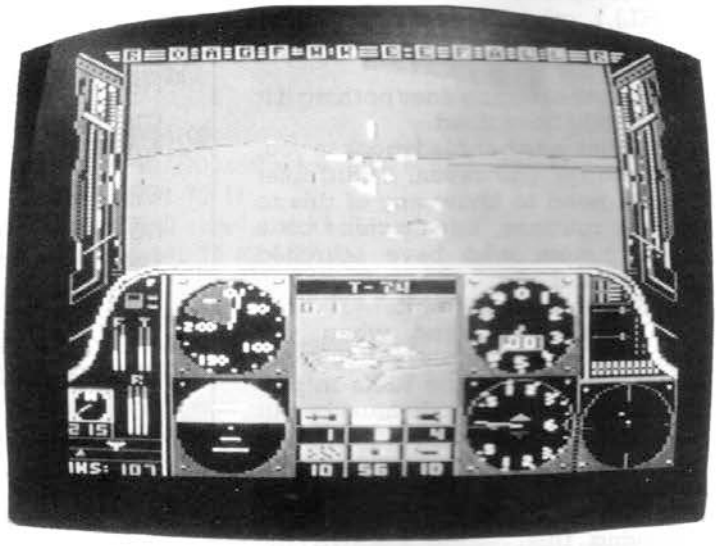
I thought this was an excellent fight simulator with tons of meaty options and stunning graphics. This is definitely the best flight simulator I have seen on the C64 yet and should not be missed.

Graphics: excellent (great in flight graphics as well as the options and medal presentations); sound: very good (very realistic sound effects); presentation: excellent (immaculate – an 83-page booklet plus heaps of options); hookability: very good (instantly stunning and addictive); overall: excellent. The best flight simulator yet on the C64. You'd be a fool to miss it.

These games supplied courtesy of Murrays Computer Village, Lower Hutt.
Reviewed by Brent Dickens.



Future Knight



Gunship

(continued from page 66)

places where many activities evolve around carefully chosen themes which are relevant to the children. Use the computer to enhance this approach, but not to replace it.

To achieve the right mix of in-service teacher training and computer integration, make sure you buy a computer which offers educational activities which you want to support in the long run, and of which you will be proud in the future. Identify your cultural biases, nominate your priorities, choose your software, and then buy the computer which provides what you want.

There is no revolution unless we turn back to something. I'd like to think we use the computers as a catalyst to turning back to good education values – even if the practice looks different, as I think it will.

The way children learn has not changed – can we make the way we teach more closely match the way they learn?

BREAKING THROUGH THE PRICE BARRIER

MoS SUPER SPECIALS

Lotus 123 V 2.01	645.00	dBase III +	985.00
Wordperfect V 4.2	595.00	Microsoft Windows	189.00
Seagate 20 meg (inc conts & cable)	995.00	Javelin	395.00
Microsoft Word	895.00	Fastback	275.00

DESKTOP PUBLISHING

Clickart Personal Publisher	235.00
Drafix	995.00
Freelance Plus	895.00
Harvard Professional Publisher	1350.00
PC Paint	325.00
PC Paintbrush	375.00
Printshop	150.00
Ventura Publisher (Xerox)	2395.00

WORDPROCESSING

Easy Extra	295.00
Executive Writer	185.00
Manuscript	995.00
Microsoft Word V 3.1	895.00
Microsoft Word/Mouse Bundle	1295.00
Multimate 3.6	865.00
Multimate Advantage II	995.00
Perfect Writer	595.00
PFS Professional Write	395.00
Samna Plus	1545.00
The Library – Wordperfect	265.00
Volkswriter 3 (with spell checker)	690.00
Wordperfect 4.2	595.00
Wordstar 2000 Plus	635.00
Wordstar 2000 Plus (site licence)	495.00
Wordstar 2000	735.00
Wordstar Professional	695.00

DATABASES

dBase II	885.00
dBase III Plus LAN Pak	1795.00
dBase III Plus V1.1	985.00
dB XL	325.00
Knowledgeman	985.00
Paradox Application Generator	40.00
Paradox Runtime Version	85.00
Paradox V 1.1	895.00
Perfect Filer	545.00
PFS Professional File	395.00
Powerbase	695.00
Q & A	595.00
RBase 5000	985.00
RBase System 5	1895.00
RBase Tutorial	99.00
Rapid File	685.00
VP Info	199.00

SPREADSHEETS & ADD-ONS

Cambridge Spreadsheet Analyst	199.00
Excel	1195.00
Lotus HAL	275.00
IFPS/Personal	2495.00
Javelin	395.00
Lotus 123. V 2.01	645.00
Lotus Report Writer	239.00
Multiplan V 3.0	575.00
Note-it	185.00
Perfect Calc	545.00
PFS Professional Plan	395.00
Spreadsheet Auditor	299.00
SQZ!	185.00
Supercalc IV	895.00
Twin	385.00
VP Planner	199.00

PROJECT MANAGEMENT

Harvard Total Project Manager II	995.00
Microsoft Project	975.00
Pertmaster	2495.00
Project Scheduler Network	1195.00
Super Project Plus	880.00
Timeline V 2.0	825.00

STATISTICS

SPSS pc	2950.00
Statgraphics	1795.00
Statpac	1075.00

GRAPHICS & CAD

Chartmaster V 6.1	685.00
Diagram Master	645.00
Graphwriter Combo	985.00
Harvard Presentation Graphics	645.00
Mapmaster	795.00
Microsoft Chart	795.00
ProDesign II V2.5	595.00
Signmaster V 3.1	460.00

BORLAND PRODUCTS

Eureka: The Solver	199.00
Reflex	215.00
Reflex plus Workshop	339.00
Reflex/The Workshop	139.00
Reflex (MacIntosh)	199.00
Sidekick (unprotected)	165.00
Sidekick (MacIntosh)	199.00
Superkey	199.00
Travelling Sidekick	185.00
Turbo Basic	199.00
Turbo C	199.00
Turbo Database Toolbox	139.00
Turbo Editor Toolbox	139.00
Turbo Graphix Toolbox	139.00
Turbo Lightning	199.00
Turbo Pascal (BCD + 8087)	199.00
Turbo Pascal (MacIntosh)	199.00
Turbo Pascal Num Methods Toolbox	199.00
Turbo Pascal Tutor	99.00
Turbo Prolog	199.00

PROGRAMMING TOOLS

Advantage C++	1855.00
Basic Compiler	1145.00
Btreive	770.00
Dataflex	1797.00
dB Compiler	1185.00
Fortran Compiler	995.00
Genifer	895.00
Halo	895.00
Latice C Compiler	895.00
Microsoft C Compiler	1095.00
Microsoft Cobol Compiler	1695.00
Microsoft Quickbasic V 2.0	325.00
Nantucket Clipper Compiler	1495.00
Pascal Compiler	845.00
Quicksilver Compiler	1185.00
V P Expert	199.00
Zim V2.53	2295.00
Zim with Compiler	2595.00
Zim (zenix/unix)	5250.00
Catalogue of Programming Tools	25.00

UTILITIES & O.S's

Dan Bricklins Demo Program	225.00
Direct Access	169.00
Disk Optimiser V 2.0	185.00
DS Backup	295.00
Fastback	275.00
Formtool	395.00
Gem collection (write/paint/desktop)	595.00
Gem draw (including Gem desktop)	485.00
Gem graph (including Gem desktop)	685.00
Harvey	99.00
Mace	239.00
Microsoft Windows	189.00
Norton Utilities V 4.0	220.00
PC Dos 3.1	205.00
PC Dos 3.2	235.00
Print Q	295.00
Prokey	335.00
Sideways	125.00
Software Carosel V 2.0	185.00
Sybil	225.00
Tops for IBM (networking)	925.00
Tops for MacIntosh (networking)	325.00
Typing Tutor	125.00
Xenix	1745.00
Xtree	95.00

PRINTERS & PLOTTERS

Brother ND 1409 – includes cable	795.00
Star NX 10 (bdle) ribbons paper cable	920.00
Star NX 15 (bdle) ribbons paper cable	1420.00
Facit 4550 Plotter	1895.00
Facit 4551 Plotter	2385.00

ACCESSORIES

Antiglare Filter (12" & 14")	79.80
Cartridges DC 300 XLP	79.95
DC 600 A	95.95
Disk Holder 3½" 100 PCS	59.95
Disk Holder 5¼" 100 PCS	34.95
Disk Organiser	44.50
Dust Cover and Copy Holder	39.00
Keyboard Software Templates	please call
Kraft Joystick	88.00
MoS Mailer 1	3.95
MoS Mailer 100 Plus	3.50
MoS Mailer 1000 Plus	2.95
Prospect Head Cleaning Kit	29.95
Swivel Monitor Base	99.50
Toner Cartridge (Canon, HP)	275.00
Printer Cables (2m)	39.00
Empty Disk Boxes (Holds 10)	5.95

INTEGRATED PACKAGES

1st Choice	290.00
Ability	225.00
Enable	1545.00
Framework II	745.00
Open Access	1095.00
Symphony V 1.2	1145.00

BOARDS & CHIPS

2Mb Memory Expansion XT	395.00
576 Memory Expansion Card	189.00
384K Multifunction Card XT	415.00
640K Multifunction Card 1SP XT	520.00
640K Multifunction Card 2SP XT	560.00
AST Rampage XT	695.00
Chips 256K (set of 9)	175.00
Chips 64K (set of 9)	49.00
Clock/Calendar Card	109.00
Clock/Cal Card, 1 games pt. 2SP, 1PP	245.00
EGA Colour Graphics	995.00
Hercules Colour Card	445.00
Hercules Graphics Card Plus	895.00
Hercules Incolour Card	1495.00
Hercules Monographics Card	395.00
Monochrome Graphics Card XT/AT	455.00
Multifunction Card 1SP AT	975.00
Multifunction Card 2SP AT	1045.00
Serial only Card	109.00
Vega Deluxe	995.00
8087 Math Coprocessor	425.00
80287 Math Coprocessor	745.00
All other Boards please ring.	

DISKETTES

Allenbach	
COMPLETE RANGE –	please call
Prospect	
DSHD 5¼" *(Per box of 10)*	96.50
DSDD 5¼" *(Per box of 10)*	28.50
DSDD 3½" *(Per box of 10)*	72.00
CIS	
DSDD 5¼" *(Per box of 10)*	17.50

MoS EQUIPMENT RENTALS

Twin Floppy PC (per month)	258.00
20 Meg XT Turbo (per month)	475.00
Wyse pc 286 (per month)	728.00
Hitachi Hifax	please call

TERMINALS

Kimtron KT5	1375.00
Kimtron KT7	1595.00
Wyse 30 Green/Amber	865.00
Wyse 50 Green/Amber	1095.00
Wyse 60 Green/Amber	1295.00
(All terminals include keyboards.)	

MONITORS

ADI Amber/Green 12"	285.00
ADI Amber/Green 14"	345.00
ADI Medium Res RGB	795.00
ADI Hi Res EGA Colour	1095.00
Mitsubishi Green/Amber 12"	255.00
TVM Medium Res RGB	855.00

PC'S

Popular 20 meg XT	3400.00
Datamini PC	2450.00
Datamini Turbo XT	3995.00
Datamini Laptop	6995.00
Wyse pc 286 20 meg AT Turbo	7495.00

ACE TRAINING COURSES

dBase III Plus	225.00
IFPS/Personal	275.00
Introduction to the Computer	225.00
Lotus 123 (Advanced)	275.00
Lotus 123 (Introductory)	225.00
Microsoft Word	225.00
Paradox	225.00
Wordstar 2000 + (Advanced)	225.00
Wordstar 2000 + (Introductory)	225.00

Public and In-House Courses Available.

COMMS, S/W & MODEMS

Crosstalk	265.00
Microsoft Access	685.00
Mirror	195.00
Multicom	395.00
Netcomm Automodem 1200/75	825.00
Netcomm Manual Modem 1200/75	525.00
Sendata Videotex Modem	569.00
Sendata Trimodem; 300, 1200	1755.00
Sendata Xiocon I; 300, 1200	2061.00

All types of Communication Boards available.

HARD DISKS

20 Meg Western Digital Filecard	1685.00
20 Meg Plus Hardcard	1695.00
20 Meg Seagate Disk XT	995.00
30 Meg Seagate Disk XT	1195.00
40 Meg Seagate Disk AT	1875.00
80 Meg Seagate Disk AT	2795.00
20 Meg NEC	1095.00
TEAC 360K Floppy Drive	395.00

Controller, Cable + Inst. Instructions incl

TAPE BACKUP SYSTEMS

Mountain 40 meg Ext/Int	1725.00
Sysgen 60 meg External	2995.00
Sysgen 60 meg Internal	2895.00

MICE

Genius Mouse	199.00
Logimouse C7	299.00
Microsoft Mouse V 6.0	495.00

RIBBONS – PAPER

All main lines held in stock.
For speedy delivery and prices — please call

FURNITURE

PC, Printer Stand & Bookshelf	465.00
PC & Printer Stand	249.00
Printer Stand	199.00

GAMES

Championship Golf	125.00
Flight Simulator	145.00
Gato	99.00
H/Hikers Guide to the Galaxy	125.00
Jet Simulator	125.00
Sargon III	125.00
Zork I	99.00
Zork II	99.00
Zork III	99.00

ALL PRICES EXCLUDE GST AND FREIGHT.

PAYMENT TERMS

All orders under $250.00 must be cash with order. Orders over $250.00 have seven day terms. Visa, Bankcard, Amex and Mastercard are accepted.

TO ORDER: Simply phone one of the MoS Hotlines quoted below or write to MoS Head Office in Auckland stating clearly the products you wish along with the hardware you have and it's operating system.

DELIVERY: Subject to availability all orders received at a MoS branch by 3 p.m. on any day will be despatched out that night for delivery first thing the next morning. All orders are insured by MoS to reach your location in good condition. MoS honours all manufacturers warranty's and any defective goods will be replaced immediately.

MoS Computers Software & Supplies

P.O. Box 46177 Auckland 2

Auckland Branch	(09) 780 555 AUCKLAND
Wellington Branch	(04) 857 906 WELLINGTON
South Island Branch	(03) 69 656 CHRISTCHURCH
Hawkes Bay Branch	(070) 84 980 HASTINGS
Bay of Plenty Branch	(073) 59 121 ROTORUA EAST

The magnum opus of data storage?

a book review by Christine Cade

Laser Optical Disks: products and uses
D.C. Robinson

DSIR Science Information Publishing Centre, 1987; 104 pages, soft-covered.

There is always something new and exciting happening in the world of computing. That's what makes it so interesting. Remember back to when 64kb seemed vast in terms of PC storage capacity? Well folks, we can already store one hundred times that amount on a single CD-ROM, so stand by 'cos the optical disk revolution has only just begun!

Currently in vogue are the developments being made in the field of laser optical disk storage. CD-ROM (compact disk-read only memory), just one of the types of optical laser disk storage, is well-entrenched in every computing buff's vocabulary. Interest in this form of data storage has blossomed over the last 18 months, with an ever-increasing number of articles appearing in both local and international computing magazines.

In the introduction to his book *Laser Optical Disks: products and uses*, Dr Robinson writes clearly and informatively about the different types of optical disk storage. He divides them into three main groups: read-only, write-once and erasable, with an explanation of each category. The type of data stored by optical disks is audio, video, and digital.

The body of the text describes each of these disk storage approaches, a full chapter being devoted to each. Because of the relative progress that has been made in the different groups, the emphasis within each chapter is not the same.

In the 'read-only' chapter, the emphasis is on the practical applications of the technology which have so far been made. Some of these applications may be already familiar to readers, such as audio compact disks, which many readers may already own. The author also describes how this technology can be employed with video images such as cataloguing pictures and interactive videodisk training sequencies.

In the 'write-once' chapter the emphasis, the author states, "is on commercial products and their specifications because there is no standardisation, and a large number of incompatible products are available." These disks may be written to once and read many times but the data may not be altered or erased, making them especially applicable for archival back-up purposes. (Hence the acronym WORM – 'write once, read many.')

However, as the technology of write-once disks is similar to that of read-only, the fact that they may be written to markedly affects their market applications. A table of 20 commercial products currently available is included, showing prices ranging from a mere $US3,495 to $US200,000! Manufacturers of write-once disk media claim the archival life to be at least 10 years, whereas that of nagnetic media is less than five years.

The third and remaining category to be discussed is the 'erasable' laser disk concept. This chapter is short in comparison with the other two, the reason being that at present there are no commercially available products, although considerable work is being done throughout the world.

The book represents the results of the DSIR's Division of Information survey between the second half of 1985 and the first half of 1986, where it was intended to seek out commercial applications of the technology with applicability to archiving data from the earth resources satellite receiving station. Although directed to this end, the results of the survey are comprehensive and would be of use to other readers with a less specific objective.

The book is an accumulation of data on optical laser disk storage: application, products and pricing. It is well researched and systematically presented. The body of the text is supported by a number of useful appendices: write-once products (27pp), sources of information (list of conferences and exhibitions on optical disk technology held in 1986 and research studies) three pages and references (14 pp). Coloured schematics and illustrations also accompany the text.

It is unfortunate that in an ever evolving field such as this, that a great deal of the detailed product information currently available will become dated. This will make the book a rather expensive historical analysis. At $95.00 it is doubtful that this book will be domiciled on other than a librarian's shelf.

Index to Advertisers

3M (NZ) Ltd	16
Advance Imports	IFC
Advantage Computers	81
Amstrad Computers	IBC
Ashby Computers	65
Ashton Tate	83
Barsons	36
Case Communications	33
CompuSpec	10
Computer Broking	Insert
Computer Imports	9
ComputerStore	22,58
Concord Computers	67
Control Micro	38
Cowan Bowman	45,47
Dataplus Peripherals	6
Dick Smith Electronics	28
Floppy Disc Express Co.	21,23,25,33
Hanimex	12
Impact Technologies	49
Lingo	20
Logical Methods	69
MoS	85
Moore Business Forms	50
MPA	47
National Safe Co.	8
NEC	F/C
NZ Computer Games Club	64
Pacific Computers	13,46
Paperback Software	11,41
PC Power	23
Phoenix Printing	43
Qasar Corp	56,57
Remarkable	4,48
Roland DG	59
SD Mandeno	8
Select Software	72,73
Solstat	25
Southmark	19,51
Tainui Enterprise	6
Tech Pacific	52,B/C
Verbatim	70
Warburton Franki	63
White Knight	44
Wiri Marketing	7
Xidex	32

Classifieds

Terminal, ADM3 compatible, green screen, keyboard, RS-232. $150. Phone (059) 82893 evenings.

Brother HR25, Daisy Wheel Printer with cut sheet feeder, 4 daisy wheels in 3 fonts, 9 spare ribbons, $1600. Ph (03) 62-761 during business hours.

Franklin Computer. $500 ono. Please ring collect 608 Ohaeawai between 8.30-3pm.

Compatible with you know who.

The Amstrad PC 1512: a powerful compatible for as little as $1995 plus GST. Who but Amstrad offers you so much for so little.

Even the most junior member of the Amstrad PC 1512 family is a very serious computer. 512K of memory, an 8086 processor, keyboard, monochrome monitor that handles high resolution graphics with consumate ease, disc drive, some very spectacular software, a "mouse", and a full twelve month warranty. All for just $1995 plus GST.

And the Amstrad PC can use all the famous industry standard programs that can run on an IBM PC, at about twice the speed of most other compatibles.

But for all its power and speed, the Amstrad PC is remarkably simple to use. Even for someone without a lot of experience.

For the beginner, the "mouse" makes it simple. No complicated manuals. No complex commands. Just click the "mouse" and you're computing.

Amstrad Computers
You're up and running

While for the expert, the "mouse" makes quick and easy work of graphics, word processing and CAD.

There's an entire family of Amstrad 1512 PCs — mono screens and colour screens, single and twin drive floppies, and super-powerful hard disc models.

In fact, if you want to see something really remarkable, ask your favourite Amstrad dealer to show you the 20 Megabyte HD model.

With a mono screen, the price tag is just $3995 plus GST.

It must keep you know who awake at night.

Priced as only we know how.

FROM **$1,995** PLUS GST

The Amstrad P.C.

P C 1 5 1 2

I'd like to know more about the incredible AMSTRAD.

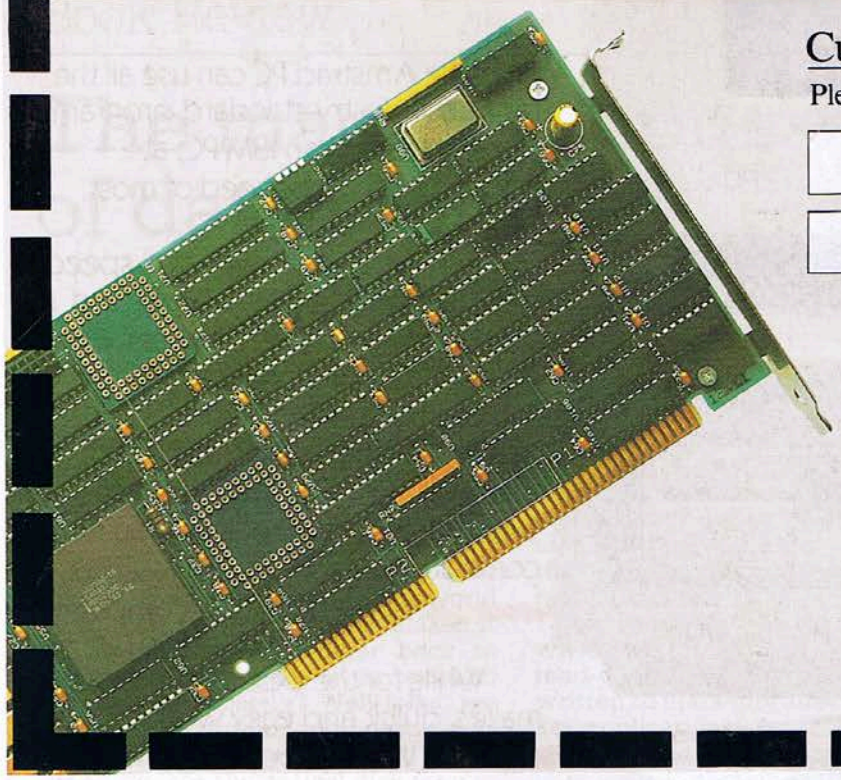
POST TO: Amstrad Computers Ltd., CPO Box 2353, Auckland, 21 Great South Rd, Newmarket, Auckland.
Phone: 504-035 Auckland or Phone 883-121 Christchurch.

NAME _____

ADDRESS _____

PHONE _____

AMSTRAD 5944



Cut Out And Mail Today

Please tick the appropriate

☐ Please contact me, I want to evaluate the Inboard 386/AT.

☐ Please send me more information about the Inboard 386/AT.

Name_____

Title_____

Company_____

Address_____

_____ P/C_____

Telephone_____ Fax_____

TechPACIFIC

1st Floor
57-65 Manners Street
Wellington 1 NZ.

The Intel "Inboard 386/AT" Transforms a very ordinary PC/AT Into An Extraordinary 386/AT.

How To 386 Your PC/AT

It's simple. The Intel Inboard 386/AT fits right into your IBM PC/AT or compatible and gives you all the performance of a 386 system.

Imagine, all the performance of a 386 system without the expensive price tag.

Slice Computer Operations in Half

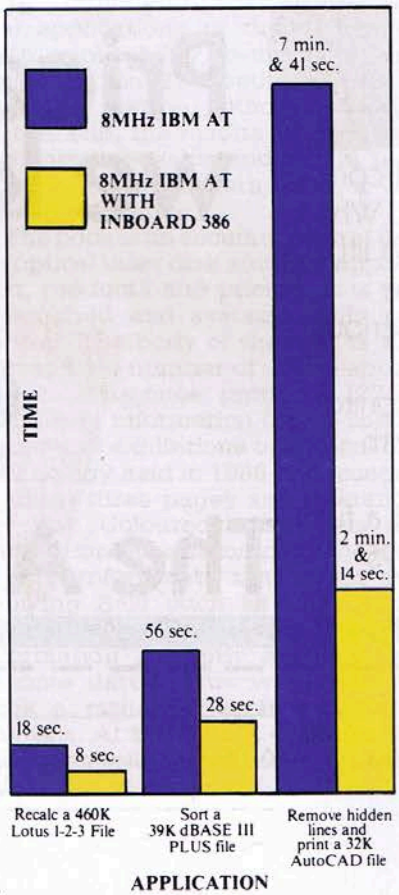
The Intel Inboard 386/AT saves time. It operates at 16 MHz (or twice the speed of the 80286 in the IBM PC/AT).

You can compute intensive applications such as large spreadsheets, CAD screen regeneration, database sorts and statistical analysis twice as fast. You'll whiz through Lotus 1-2-3 recalcs. And watch your network server serve you even faster.

True Concurrent Multitasking

With the Inboard 386/AT you'll be able to do numerous things at the same time. Like typing a memo while your spreadsheet recalcs in the background. Reading your electronic mail while sorting your database. Or downloading an hour's worth of data from the mainframe in the background while, in the foreground, you prepare that big presentation.

You'll also have instant access to several applications at the same time. Press a key and you'll switch between programs - fast - without closing one before opening another. No more wasted time calling up programs from your hard disk. Everything's at your fingertips when you need it.



Evaluate The Inboard 386/AT Now

Find out how to 386 your computer. Call Tech Pacific now or fill in the coupon and reserve your chance to fully evaluate the amazing new Inboard 386/AT.

Wellington (4) 73 6820
Melbourne (03) 690 9055
Sydney (02) 319 2622

TechPACIFIC

Interface/Tech Pacific 0116