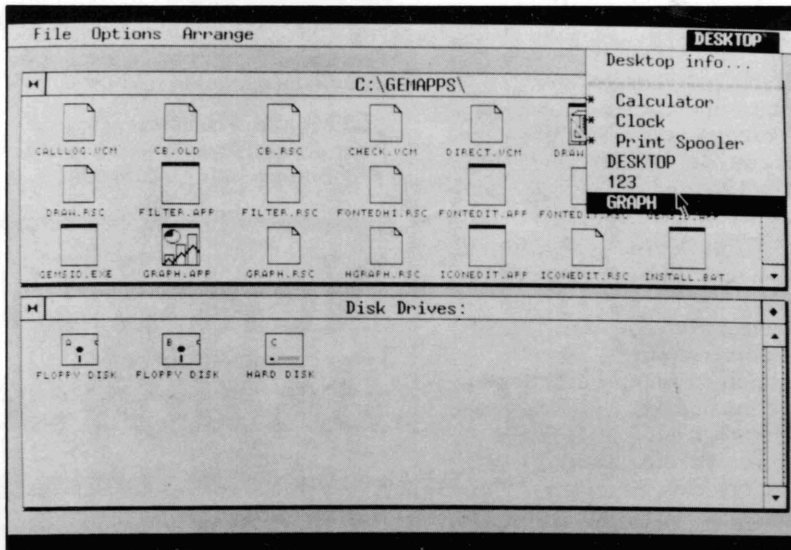# GEM XM™ switches programs under DOS and DOS Plus™

Corporate end-users are the prime target for GEM XM, version 3.0 of the evolving GEM™ user interface standard from Digital Research. Compatible with software written to earlier versions of the GEM system software, GEM XM supports instant task switching between GEM-based and/or standard DOS applications, and retains GEM's full multitasking capability for desk accessories.

This means that major DOS applications such as Lotus 1-2-3 and dBase III can be run alongside GEM Write™, GEM Graph™ or other GEM applications. Said Frank Iveson, Digital Research's UK director: "GEM XM provides a timely upgrade path for manufacturers of 8086 and 80286-based hardware. GEM XM task switching works equally well on IBM DOS, MS-DOS and DOS Plus systems. It provides a more natural and productive working environment allowing the user to move from one task to another and back again at the touch of a button."

GEM XM will be produced in English, German and French versions. Other national languages will be made available through approved distributors.

Task switching

GEM XM supports background operation of desk accessories and context switching between any number of applications. When the system has insufficient free

GEM Desktop™ showing GEM Desktop, GEM Graph™ and Lotus 1-2-3 as switchable tasks under GEM XM

A 'hot-key' brings up the GEM XM™ applications/accessory menu in Lotus 1-2-3.

memory to load or run an additional program, GEM XM spools a resident inactive program or programs to the system's hard disk or RAM disk. The new application is then loaded.
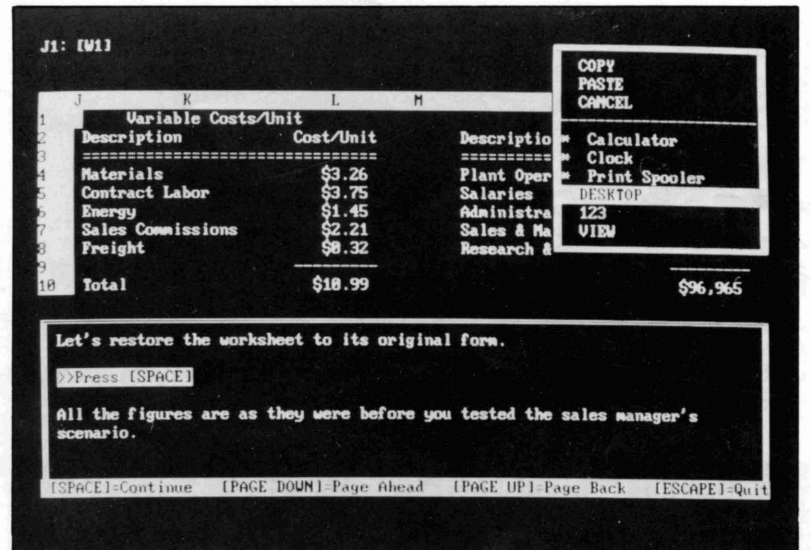
Any number of GEM or DOS applications may be loaded by the user at the new GEM Desktop (version 3.0). The end-user can run any GEM or DOS application by selection with the mouse from the 'Application' menu at the top right of the screen — in both GEM and DOS environments.

When a DOS-based program is activated, GEM steps aside and the DOS-based program takes over the whole screen.

When the GEM XM user is

running a DOS application under DOS or DOS Plus, a 'hot key' is pressed to make the GEM 'Application' menu pop-up in a text-only form. The mouse is then used to select an application or GEM accessory. If a GEM accessory or GEM-based application is selected, the GEM environment is reinstated. Existing GEM accessories are all compatible with GEM XM.

GEM XM's power over the DOS environment also shows in the advanced copy/paste function which can be used to pass data between any installed applications via the GEM clipboard. Such data can be in any format recognised by both programs concerned. A filter function is available to convert data formats.

Hardware manufacturers

GEM XM is available for DOS and DOS Plus on machines based around 8086 and 80286 (real address mode) CPUs. The minimum recommended configuration is 512 Kbytes of RAM with a RAM disk and/or a hard disk. GEM XM also supports expanded memory boards including Intel's Above Board, AST's Rampage! and Interquadram's QuadEMS +. GEM XM uses expanded memory as a RAM disk.

Combined EMS and EGA board manufacturers may exploit GEM XM directly. GEM XM already supports the IBM EGA modes. Systems containing

combined EMS and EGA boards will provide the leading edge technology in icon-based user environments.

Programmers and system builders

There are no changes to the GEM Programmers Toolkit™ to cope with GEM XM, and programming techniques need not be altered in the writing of GEM XM-based applications.

A high productivity environment

For hard-disk systems ranging from low cost Amstrad PCs to IBM PC ATs and compatibles, GEM XM offers a significant productivity bonus compared with earlier versions. GEM XM is also the perfect GEM system upgrade, because it maintains the same high performance user environment provided by GEM for smaller systems.

Amstrad surges ahead with GEM™

The low-cost, IBM-compatible Amstrad PC was launched in the UK, West Germany, France and Spain last autumn. With UK prices ranging from as low as £449 for a single floppy disk drive model to under £1100 for a 20 Mbyte hard disk model with colour monitor, Amstrad will dominate sales of compatibles throughout Europe. Amstrad is forecasting shipments of 300,000 units by the end of 1986.

Complete solutions for national markets

For the large numbers of new Amstrad users the Digital Research products, DOS Plus™ and GEM, will be an integral part of computer use. The bundled software supporting the Amstrad and Schneider PCs includes the multitasking DOS Plus operating system, GEM Desktop™, GEM

Amstrad's Alan Sugar: breaking the PC mould with the help of GEM™

Paint™, and a powerful GEM-based BASIC by Locomotive Software (see inside). These packages, and the Digital Research retail range described below are available in English, German, French and Spanish for the corresponding national markets.

GEM-based retail products

The new GEM-oriented Amstrad users are also supported by an

impressive range of low-cost retail GEM-based business presentation graphics software from Digital Research (see page 2). Furthermore, Digital Research and third party developers have announced new GEM-based retail packages covering other major areas of business computing. These include GEM Comm™, a communications package by Digital Research and AM Technology; G-Base, a database by SPI; and PC Word, a secretarial wordprocessing package by Haba Systems. In France, French language GEM-based packages for the Amstrad PC by third parties include the database JT Base (JT Diffusion); and the wordprocessing package Evolution Sunset (Priam Loriciel).

Planned for launch in the UK in spring 1987, Mirrorsoft's Fleet Street Publisher is a professional desktop publishing package designed by phototypesetting experts.

Corporate end-users

The Amstrad PC will also find its way into the hands of corporate end-users. Major British

corporations, including Shell, ICI and the National Westminster Bank, have plans to assess the Amstrad PC for use stand-alone and networked, or as intelligent terminals. GEM-based business applications will add further value to these highly economic corporate Amstrad PC installations by supporting professionals' growing requirements for easy to use graphics, databases, communications, wordprocessing and desk-top publishing.
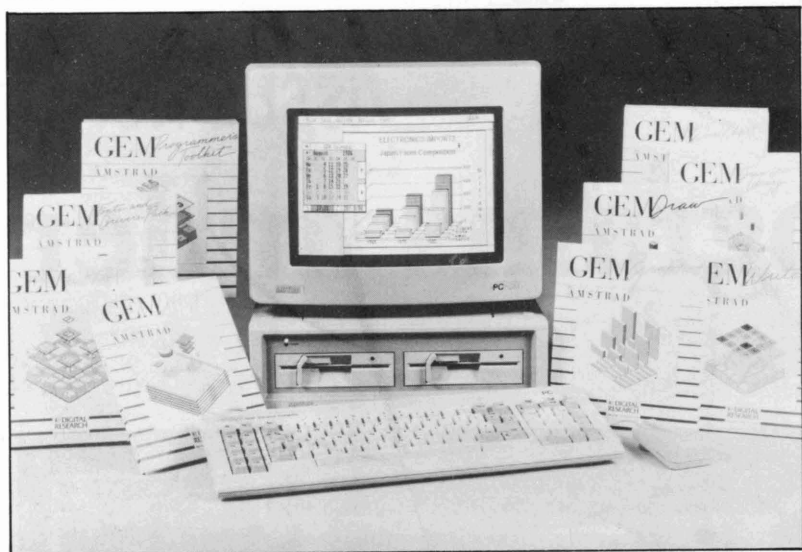
2 million GEM users by end '87

With Amstrad and Atari both bundling GEM, the success of the retail GEM programme for the IBM PC, and the highly creative third party GEM applications for IBM compatibles and the Atari ST range, Digital Research is predicting well over 500,000 GEM users by the end of 1986, rising to nearly 2,000,000 by the end of 1987. This progress makes GEM the most influential system-independent user interface throughout the world.

Digital Research retail GEM™ products for the Amstrad PC

igital Research offers a range of 10 GEM-based retail products for the Amstrad PC. New Amstrad owners may order them directly from Digital Research on an order form enclosed with the Amstrad package. To help new users get started, such orders are subject to once-only discounts of up to 30%. The newest addition to the range is GEM Comm™, a communications package reviewed on this page. All packages are available now in English, German and French except the GEM Programmers Toolkit (English only). GEM system software, GEM Desktop™ and GEM Paint™ are bundled with each Amstrad PC.

Retail GEM products from Digital Research for the Amstrad PC

GEM Diary™: desk accessory with calendar, clock, diary, alarms, notepad and card index

GEM Comm™: a terminal emulator for all types of remote computer communications including viewdata and electronic mail services.

GEM Write™: full-function WYSIWYG (what you see is what you get) wordprocessing package

GEM WordChart™: creates stylised single or multi-column text charts

GEM Draw™: highly functional, structured drawing package

GEM Draw Business Library™: a library of predrawn business art for use with GEM Draw

GEM Graph™: prepares graphs and charts from a variety of numerical data

GEM Fonts and Drivers Pack™: additional fonts and peripheral drivers for most popular printers and plotters.

GEM Font Editor™, font editor/designer and two new text fonts for use with GEM presentation graphics programs.

GEM Programmers Toolkit™: an essential tool for the creation of GEM-based applications
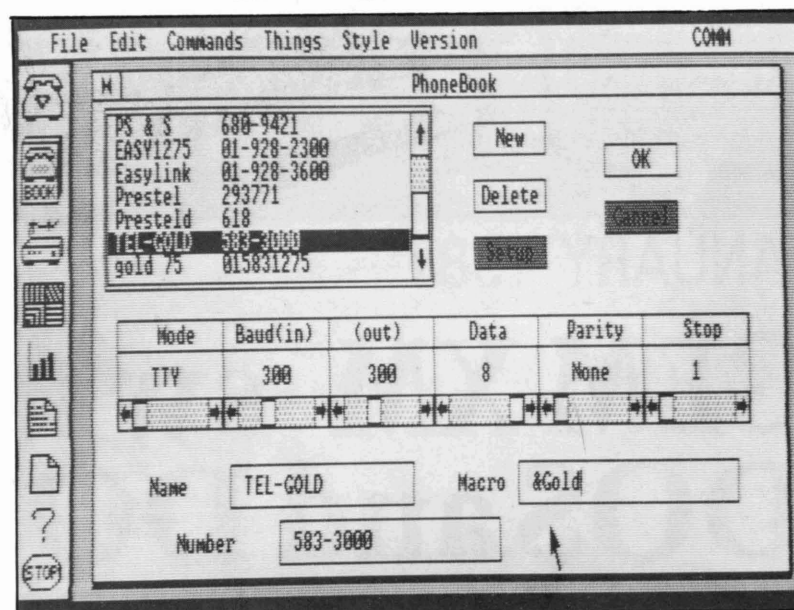
GEM Comm™: communications for the Amstrad PC

G EM Comm, the latest of Digital Research's retail applications dedicated to the Amstrad PC, provides smooth access to viewdata, electronic mail services and remote databases and computers. Developed jointly with AM Technology, GEM Comm offers new users a rapid and effective education in terminal use, while experienced users enjoy shorter connect times and lower cost of communication.

GEM Comm supports standard and intelligent modems from Dacom, Dowty, Hayes, Miracle and Tandata, plus manual dial modems and direct PC to computer connections. Data rates of 300/300, 75/1200, 1200/1200 and 9600/9600 bits/second are supported.

GEM Comm's viewdata and ASCII terminals are controlled by GEM-based features available on screen or from drop-down menus, including: an auto-logon function, viewdata keypad and function buttons, a viewdata page directory, a service telephone number/terminal status directory, a connect time window, a call log, and a text editor for preparing messages off-line. A copy/paste clipboard function allows text and data to be moved between documents and files. The Amstrad colour monitor is supported, while mono users may substitute 6 typefaces for the 6 colours used in viewdata text.

For commercial purposes and for the transmission and receipt of software, GEM Comm supports the X-modem error-checking protocol.

These and many other features make GEM Comm and equivalent packages* the very best value for money in terms of capability and enjoyment for personal computers. GEM Comm is currently available in English.
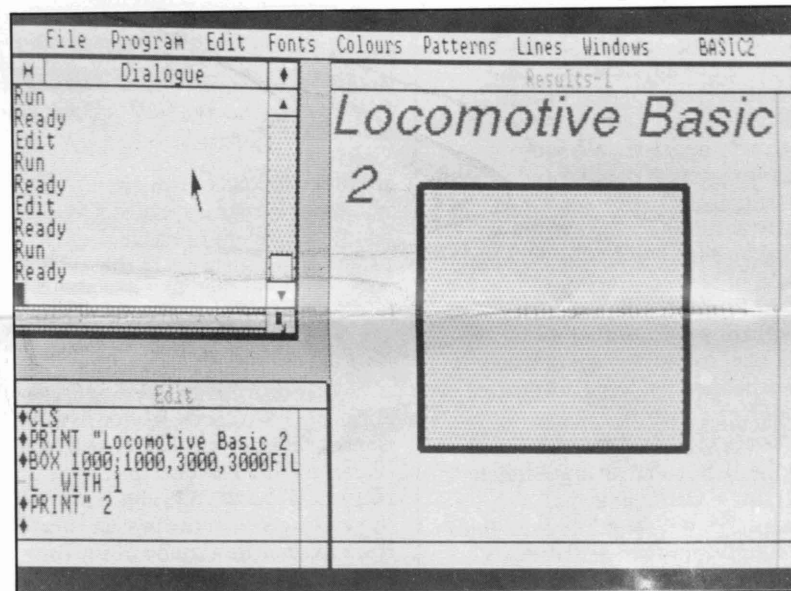

GEM Comm™'s PhoneBook offers 'click-on' autodial and modem configuration, and identifies the appropriate logon macro

* GEM Comm is identical in user interface and functionality to AM Technology's VICOM (for the IBM PC and compatibles) and FaSTcom for the Atari ST range, supplied by Atari.
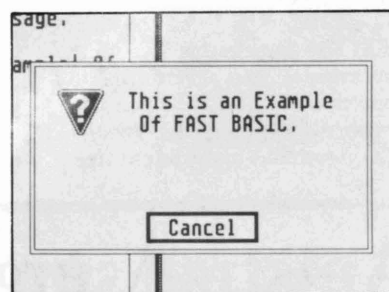
New GEM™-based BASICs are *fast!*

GEM™ routines make a filled square simple to draw with Locomotive BASIC 2

Two new GEM-integrated BASICs are faster than standard BASICs on comparable machines, according to recent tests.

Locomotive Software's **Locomotive BASIC 2** for IBM compatibles (and bundled with the Amstrad PC), and Computer Concepts' **FaST BASIC**, a package for the Atari ST range retailing at £89.95 (UK) as a 128 Kbyte ROM cartridge, were put through the old-style **Personal Computer World** benchmark tests, together with other major BASIC implementations:

It's just as easy to create a GEM™ alert box with FaST BASIC

The comparisions of Microsoft BASIC versus Locomotive BASIC 2 on the Amstrad shows an overall performance advantage for the GEM-based language. As a whole, the comparisons indicate that the GEM-integrated BASICs are amongst the fastest BASICs available today.

Machine/BASIC	PCW Benchmarks Average of 8 tests Seconds
Amstrad PC *Locomotive BASIC 2*	3.2
Amstrad PC *Microsoft BASIC*	7.7
IBM PC *Locomotive BASIC 2*	7.7
IBM PC *BasicA*	17.6
Apricot XENi *Microsoft GWBASIC*	3.5
Atari ST *FaST BASIC*	1.8

PC Word: Habawriter moves from ST to PC

H aba Systems has transfered its low-cost GEM™-based secretarial word processing package Habawriter 2 from the Atari ST range to the IBM compatible world. Costing only £69.95, PC Word is a robust, well tried package suited to the heavy wordprocessing demands of an office but also easy enough for the business professional to use.
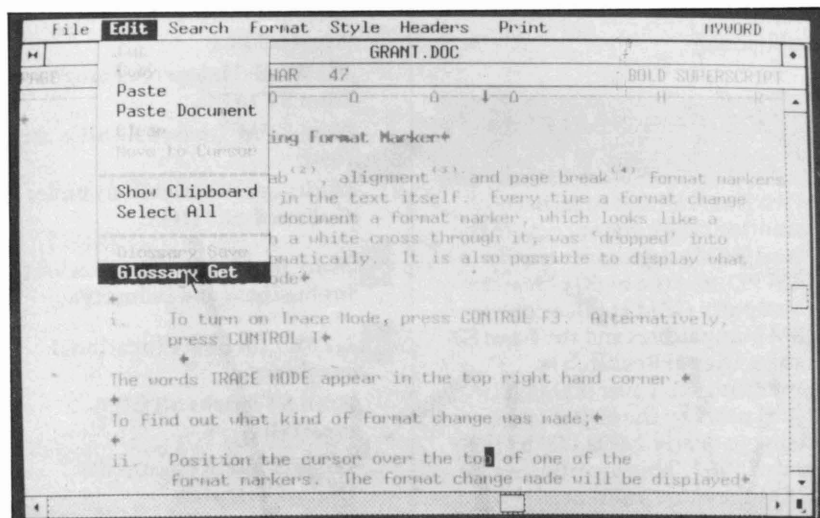
PC Word is a WYSIWYG (what you see is what you get) product. Format, editing and other system commands are selected by mouse from drop-down menus or by pressing a function key.

Up to six open documents may be displayed on screen in individual GEM windows, between which blocks of text may be copied or cut and pasted via PC Word's clipboard. The contents of the clipboard can itself be viewed and edited in a special window. Copy, cut and paste and other block operations are controlled by mouse. Background printing is supported, and may be used in printing whole documents, specified pages or blocks of text, in single or multiple copies.
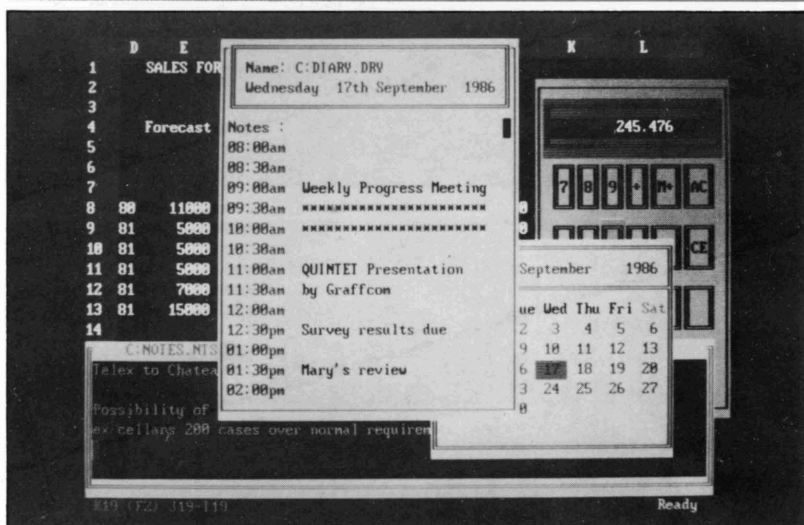
PC Word has a hyphenation function which prompts the user during text input for decisions on the position of word-breaks proposed by the package. Headers and footers are stored separately from text, allowing users to specify automatic insertion of left- and right-handed headers and footers for double-sided documents. Footnotes are written in a footnote window, and options include printing at foot of the same page or at the end of the document, with pagewise or sequential numbering. Page operations include auto and manual pagination and auto page numbering.

PC Word is available from **Haba Systems**, Pier Road, North Feltham Trading Estate, Feltham, Greater London, TW14 0TT, UK. Tel: 01-751 6451

PC Word, exhibiting 'glossary get' selection

Multi-user applications under Concurrent™ DOS

Quintet screen showing calendar, diary and calculator accessories atop the spreadsheet

Corporate end-users are increasingly adopting multi-user solutions based on Digital Research's Concurrent DOS, the standard multitasking environment for multi-user small systems in Europe. In addition to its leading market position, Concurrent DOS is favoured by software developers because it provides highly flexible technical support for applications designed for multiple use. New version 4.11 of Concurrent DOS also offers DOS 2.1 compatibility, and Concurrent DOS XM™ (version 5.1) adds extended memory addressing.

Flexible support for multi-user applications

Concurrent DOS supports multi-user applications in four principal ways:

- Promotes data security through a multilevel password protection scheme for CP/M files.

- Ensures integrity of shared data through locking of CP/M® files and records. The application designer uses this capability to manage multi-user access to files and records. Read-only access is normally always allowed, while read/write access is denied if another user is already updating the file or record in question.

- Allows user consoles to share program code. Applications exploiting this facility are often known as "true multi-user" packages to distinguish them from applications which require copies of program code for each user virtual console. "True multi-user" applications potentially support higher numbers of users than "shared data" applications by allowing more memory for user consoles.

- Allows programs executing in separate virtual consoles to communicate directly through Unix-style 'pipes' or data queues. User or program

identities and requests for service are examples of information passed by data queues between concurrently executing tasks, or to a system monitor. The latter is usually an application-level task which runs in an independent virtual console and dynamically allocates system resources without interfering with user interaction. Fully transparent system management is difficult to implement in the absence of multitasking.

Multi-user applications which exploit Concurrent DOS are to be found in all sectors of the corporate market. For example:

Axis is a fully integrated business accounting system, which supports up to 8 users on 8086-based systems. A 16-user version is planned for Concurrent DOS-based 80286 or 80386 systems in the near future. The package's file manager function controls file access and record locking, maintains a recovery log and monitors user identity. The file manager operates continually as an independent background task under Concurrent DOS, using data queues to monitor activity. **Axis Business Software**, 53/55 St Mary St, Bridgwater, Somerset TA6 3EQ, UK. Tel: 0278-421020.

Quintet is a modular OA system comprising a work organiser; Lotus-style spreadsheet; secretarial wordprocessor; a relational database; graphics; and communications. A system monitor running as an independent background task manages access to shared application code. User consoles pass requests for a module to the monitor via Concurrent DOS data queues. The monitor also acts as a loader/unloader. It loads

a module on the first user request for it, and unloads the module when it finds no user logged-on to it. This scheme economises on amount of memory allocated per user. **Graffcom Systems Ltd**, CP House, 97-107 Uxbridge Road, Ealing, London W5 5TL, UK. Tel: 01-579 9407.

Sensible Solution is Europe's leading fourth generation database management system and application generator. It uses Concurrent DOS password protection, record and file locking and interprocess communication. Future development will add a 'relational word processor' to Sensible Solution to create a powerful text retrieval system. A feature of this new system will be printing and indexing as independent background tasks. **Da Conti Marketing Ltd**, 61 North St, Portslade, East Sussex BN14 1DH, UK. Tel: 0273-420053.

Commissionaire is an extension to Concurrent DOS providing a battery of menu-driven productivity and system control functions, including:

- User-definable menus
- Password-protected access
- Electronic mail and statusline messaging between users on same or networked system
- User identity enquiries
- On-line user diaries, scannable by a scheduler to set up meetings automatically
- Optional activity logging

Commissionaire uses Concurrent DOS data queues in status line messaging and diary scheduling. Messages are routed by an independent monitor running in the background. This scheme applies also over networks, where DR Net™ queues are used. In addition, application code for many system

functions such as password protection and menu handling are shared by user consoles to save memory. **Intelligent Micro Software**, Wey House, 172A High Road, Byfleet, Surrey KT14 7RG, UK. Tel: 09323 43319.

Recall is an information retrieval system aimed at industries needing rapid access to reference texts or archived documents. High retrieval speeds are achieved by automatically indexing every non-trivial word in a library of documents. Recall uses Concurrent DOS password protection to protect libraries from unauthorised inspection, and its file locking function to allow multiple users to operate safely on common archives. **Insoft Ltd**, 35 King St, Bristol BS1 4DZ, UK. Tel: 0272-28893-6.

Concurrent DOS XM and expanded memory systems

Concurrent DOS XM™ allows 8086 machines to address up to 8 Mbytes of RAM held on expanded memory boards like AST's Rampage! and Interquadram's QuadEMS +. Such expanded systems support multitasking with larger single-user applications and allow software developers wide scope for sophistication in multi-user applications. However, **expanded memory is effective only if motherboard RAM can be partly or wholly disabled**.

In this context, Steve Tucker, director of Digital Research's European Development Centre, warns manufacturers against a trend to cut costs by omitting 'secondary' user options. Says Tucker: "PC users want the option of upgrading with expanded memory boards. **Therefore, be sure to provide switches and/or software to let the user disable and enable motherboard RAM!!**"
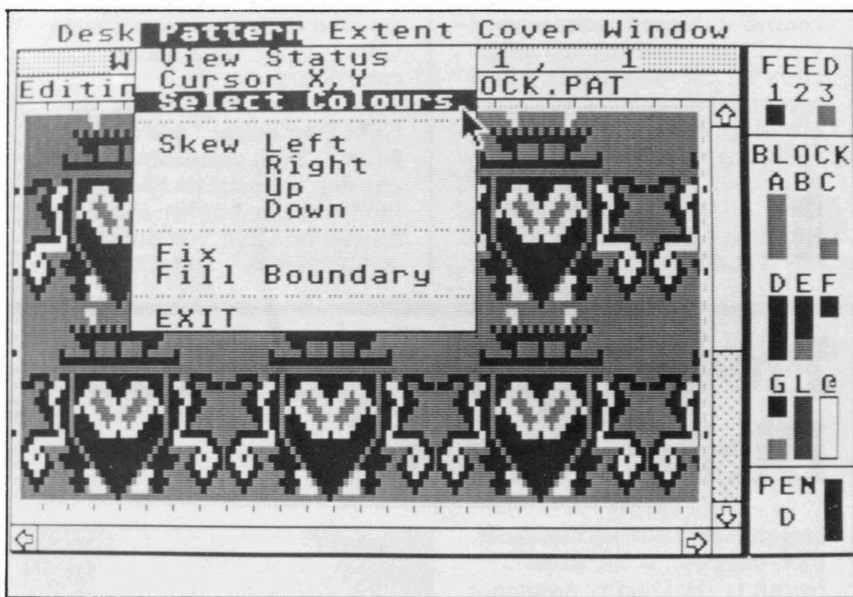

More new GEM™ applications for business and industry

KNITWEAR PATTERN DESIGNER

In an unusual graphic design application, Robinson Associates, a UK engineering consultancy, has produced a low cost pattern design and preparation system for circular industrial knitting machines.

Designed to run on the IBM PC XT/AT and compatibles, and also on Atari's ST range, Robinson's Pattern Design System (PDS) is essentially a screen painting program whose painting functions mimic knitting machine operations.

In PDS, the operator places stitches by mouse in a pattern area defined by a GEM window. A colour palette allows precise specification of shades for each of three stitch feeds, equivalent to the yarns used by the knitting machine. Scrolling and scaling the pattern window allows access to all parts of the pattern. Block manipulation functions like 'copy' and 'mirror' help to generate whole patterns from manually-designed areas. PDS design files are used to drive a circular knitting machine directly over a LAN, or via cassette tape. PDS may also produce patterns for other flat decorative materials such as

GEM™ knits a pattern in PDS

wallpapers and wallcoverings. For full colour hardcopy on paper and projection foils, PDS drives the low cost Canon PJ 1080A 80 column ink-jet printer. **Robinson Associates**, Red Lion House, St Mary's St, Painswick, Gloucs GL6 6QR, UK. Tel: 0452-813699.
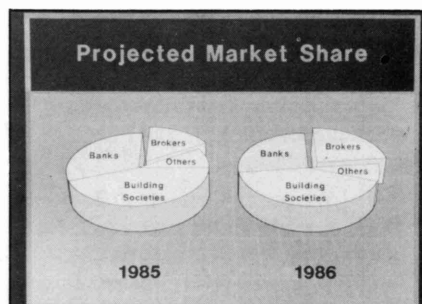
CORPORATE GRAPHICS PRESENTATION SYSTEM

From GEM software house Soft Image Systems, Davrelle is a low-

- Hierarchical database containing files of graphics screens. The database function allows update of complete hierarchies of graphics with new data at the touch of a button.

- Carousel function driven by the graphics database, supporting segmented or arbitrary presentation sessions, which may be menu-controlled and may contain any number of images.

- GEM drivers for laser and colour ink-jet printers, plus separate programs to convert GEM VDI metafile output for the 4000-line Matrix PCR camera (POA) and for the General Parametrics Video Show (£195).

Davrelle's graphics are advanced. Charts and graphs may be in 2 or 3-dimensions, with an unlimited number per screen. Bar charts may contain an unlimited number of bars. 3-D objects may be rotated and manipulated in 3 dimensions. Perspective may be changed by dragging an icon to a new viewing point. GEM Draw™ drawings can be imported as background to Davrelle graphics.

cost but highly powerful tool for graphics presentation in management reporting, management information, sales information and training. Davrelle costs £495 and has these major functions:

- Preparation of full colour graphics from numeric data entered at the keyboard, or from data files prepared by major spreadsheets and wordprocessors or originating from remote corporate computers.

Soft Image has set up a regionally based Davrelle bureau service. Now available for the IBM PC range and compatibles with hard disk, a product for the Amstrad PC will be announced in early 1987. Contact **Soft Image Systems**, 36 Westcott Way, Uxbridge UB8 2RF, UK. Tel: 01-734 1592.

ELECTRONICS CAD GRAPHICS CAPTURE

FrontEnd is a PC-based GEM user interface for electronics CAD (ECAD) packages, such as HILO and SPICE, running remotely on a mini or mainframe. FrontEnd allows the designer to build circuitry by picking and dragging icons which represent the design primitives of the mother ECAD package. FrontEnd also provides:

- Auto-routed or manual wiring.

- Copy/cut/paste and drag editing, with connections maintained when blocks or wire segments are dragged.

- Top-down or bottom-up hierarchical design.

- Independently zoomed and panned GEM windows available at each design level.

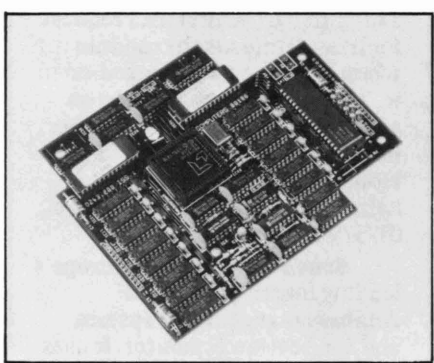- Net lists, parts lists and output of hard copy schematics.

FrontEnd will be modified to drive a range of ECAD packages under a consistent GEM user interface. **FrontEnd**, Howell Building, Cleveland Road, Uxbridge, Greater London UB8 3PH, UK. Tel: 0895-58091.

GEM™ fronts Davrelle's graphics database

GEM™ for educational machines

Besides Amstrad and ICL, the latest computer manufacturers to have implemented and bundled GEM with new hardware products are the UK's Acorn and Norway's TIKI DATA. Both implement GEM in 8/16-bit twin-processor environments intended primarily for educational markets.

Acorn's Master 512 coprocessor board brings GEM™ to the BBC

UK: Acorn's BBC Master 512

Launched last July, the BBC Master 512 from Acorn is a 10MHz 80186 coprocessor board with 512 Kbytes of RAM which converts Acorn's 8-bit 65C12-based BBC Master 128 educational/home machine into
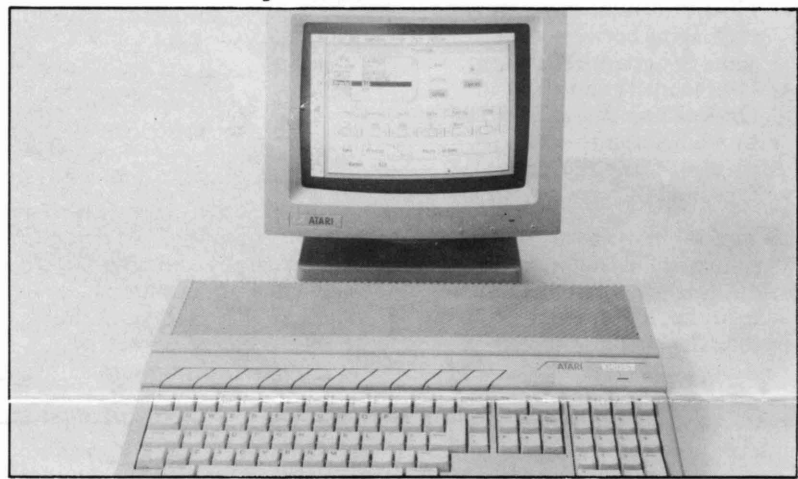
a 16-bit PC. The £199 board comes with Digital Research's DOS Plus™, GEM system software, and GEM Collection™ (GEM Desktop™, GEM Write™ and GEM Paint™). Acorn reports strong sales into educational establishments which are moving up to 16-bit computing while retaining compatibility with the mass of traditional 8-bit BBC educational software.

Norway: TIKI 8/16 PC-System

With 8088 and Z-80 processors and a 20 Mbyte hard disk as standard, the TIKI 8/16 PC-System from Oslo-based TIKI-DATA is aimed at education and business in the Nordic countries. The machine has 640 Kbytes of RAM and is bundled with GEM system software and GEM Desktop running on MS-DOS 3.2. Says TIKI-DATA's managing director Lars Monrad-Krohn: "We already have 80% of the 6-16 year and 45% of the 16-19 year educational markets in Norway with our earlier 8-bit model, which may be upgraded to full 8/16 PC-System compatibility. We also expect the machine to do well amongst small businesses, since it is 100% PC compatible."

Digital Research Offices

Atari ST sparks off GEM™ creativity

FaSTcom: Atari's own GEM™-based ST communications package

Only 15 months after the launch of the 68000-based Atari 520 ST, more than 300,000 machines have been sold worldwide and the ST software catalogue contains over 250 GEM-based titles.

Here follow a few examples of low-cost, high function GEM-based business applications for the ST range. All prices quoted were offered in the UK in September 1986.

1st Word Plus by GST is a full function WYSIWYG wordprocessor. Though it costs only £99, it has a hyphenation dictionary; a spelling checker; GEM graphics merge with text; line, page, word and byte count per document; the ability to maintain 4 documents in separate GEM windows, between which text may be copied, cut and pasted; background printing; and also a bundled mail merge program. **Atari (UK) Ltd**, Atari House, Railway Terrace, Slough, Berks SL2 5BZ, UK. Tel: 0753-33344.

Kuma's **K-Spread** is a £49.95, 256 column, 8192-row spreadsheet and allows up to 5 display windows open at any time. It is file compatible with Kuma's K-Word wordprocessor and K-Graph graphing package, and can also accept standard DIF files from other sources. **Kuma Computers Ltd**, 12 Horseshoe Park, Pangbourne, Berks RG8 7JW, UK. Tel: 07357-4335.

K-Graph from Kuma accepts data from the keyboard or from other K-Series packages, such as K-Spread and K-Data, to produce: line and scatter graphs, pie charts, and stacked, horizontal, 3D and vertical bar

charts in up to 4 GEM windows. £49.95. Contact: see **K-Spread**.

Fleet Street Publisher I available in early January 1987 from Mirrorsoft, is a £115, high value pagemaker, which provides total control over page layout, text and graphics. It offers: multiple fonts and type weights; a range of leading and point sizes; automatic and discretionary hyphenation; auto-computed gutters; column to column text linking; and drivers for dot matrix printers. **Fleet Street Publisher II**, scheduled for launch in summer 1987, is a document-based professional desktop publishing package for hard disk ST systems, offering both standard and non-sequential pagination. In addition to the features of Fleet Street Publisher I, which may be upgraded, it has a font editor, flexible kerning, user-definable widows and orphans and is intended for professionals in the pre-press, typographic and graphic art environments. It will also support laser printers and Postscript-based phototypesetting equipment. **Mirrorsoft**, Maxwell House, 74 Worship Street, London EC2A 2EN, UK. Tel: 01-377 4645.

FaSTcom, Atari's own communications package for the ST range, is visually and functionally equivalent to Digital Research's GEM Comm package for the Amstrad PC (review on page 2).

Computer Concepts' **Back-Pack** is a £49 ROM cartridge containing nine accessories: a scientific calculator, analogue clock with dual time zones and 4 alarms, calendar/diary,

notepad, printer control mode, background printer, address book, mini digital clock and RAM disk. **Computer Concepts**, Gaddesden Place, Hemel Hempstad, Herts HP2 6EX, UK. Tel: 0442-63933.

FaST BASIC from Computer Concepts is supplied in a ROM cartridge. It is very fast (see page 2) and has strong affinities with the well-respected BBC BASIC. It offers procedures and functions, and a large number of options linked directly to GEM AES and VDI, enabling programmers with an understanding of object trees and the structure of GEM to write GEM user interfaces into FaST BASIC programs. Another useful feature is memory segmentation, which allows up to ten FaST BASIC programs to reside in individual memory partitions, from which they may be called at the edit window, or from any other memory segment. £89.95. Contact: see **Back-Pack**.

STAccounts from Silicon Chip is a fast, fully integrated GEM-based business accounting package with sales, purchase and nominal ledgers, plus stock control and report generator, with batch invoicing and order entry for the sales ledger. All accounts are accessed by name, avoiding the potentially confusing use of account and stock item numbers. **Silicon Chip**, 82 London Road, Kingston-upon-Thames, Surrey, UK. Tel: 01-549 6657.

Product quality assured at Digital Research®

Steven Hook, quality assurance (QA) engineer, is the latest recruit to the Quality Assurance Department at Digital Research's European Development Centre (EDC), Hungerford, UK. Reporting to Richard Deane, QA manager, Steven makes sure that EDC- and US-engineered products fulfill their technical specifications and also behave well from the end-user viewpoint. He likewise critically assesses user documentation. His responsibilities include volume sales lines such as Digital Research® GEM™ products and the 8086 operating systems Concurrent™ DOS, Concurrent DOS XM™ and DOS Plus™, in both retail and OEM

Steven Hook, new QA specialist at Digital Research's European Development Centre

implementation forms. Before Digital Research, Steven worked in software development as a scientific officer for the UK Ministry of Defence.

Digital Research® approved training

Five organisations in the UK and Europe have gained the Digital Research seal of approval for their techical training courses on GEM™ and other Digital Research products.

ABC Software, a Dutch GEM software house with accountancy expertise, offers seminars of one-day or 2/3 days (at customer request) on using the GEM Programmers Toolkit. Other ABC seminars deal with professional Pascal programming and language bindings.

CCP Software and **EDTZ** are both West German software houses. They made major contributions to the development, respectively, of GEM Font Editor™ and GEM Diary™. Both companies offer one-day seminars on the GEM Programmers Toolkit; one-day courses on GEM functionality, on GEM Draw™ and GEM

Graph™; they may also develop customised short courses on request.

QA Training is a partnership of ex-Intel engineers and currently offers 2-day introductory courses and 3-day workshops on GEM application programming for IBM compatibles, especially the Amstrad PC. The company also offers corporate on-site Concurrent™ DOS technical courses.

Software Experts specialises in GEM training, and its teaching staff is led by Dylan Harris, author of the Wiley book *Programming for GEM* and of the Programmers WorkBench productivity extension to Digital Research's GEM Programmers Toolkit™. The company offers an introductory 1-day course to GEM technology, which programmers and system builders should follow with the 5-day, in-depth course 'Programming with GEM', or with a modular series of 1-day courses on individual aspects of GEM programming and system building.