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 £149 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 compatible machines 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 memory to load or run an additional program, GEM XP spools a resident inactive program or programs to the system's hard disk or RAM disk. Your new application is thus 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 X 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-based hardware. GEM XM 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.

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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 improvement over earlier versions. Combined 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.

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2 Digital Research® retail GEM™ products for the Amstrad PC+.
3 More new GEM™ applications for business and industry.
4 GEM™ for new educational machines.

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

Digital Research offers a range of 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 one-off discount of up to 30%. The newest range to the IBM compatible world, costing only £89.95 (UK) as a 128K version, is available today. The Amstrad colour monitor is supported, while mono users may substitute 6 colours for the 6 colours used in viewdata text.

Digital Research's VICOM (for the Atari range) identifies the appropriate logon macro for AM Technology's VICOM for the supplied by Atari. Digital Research offers a full-function viewdata package suited to the heavy demands of an office but also easy enough for personal computers. 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.

New GEM™-based BASICs are fast.

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 Amstrad range retailing at £89.95 (UK) as a 128K Kbyte ROM cartridge, were put through the old-style Personal Computer World benchmark tests, together with other major BASIC implementations:

<table>
<thead>
<tr>
<th>Machine/BASIC</th>
<th>Amstrad PC</th>
<th>Locomotive BASIC 2</th>
<th>IBM PC</th>
<th>FaST BASIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amstrad PC</td>
<td>3.2</td>
<td>3.9</td>
<td>7.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Locomotive</td>
<td>3.2</td>
<td>17.6</td>
<td>7.7</td>
<td>3.5</td>
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<tr>
<td>BASIC</td>
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<td>3.2</td>
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<td>3.5</td>
</tr>
<tr>
<td>PCW Benchmarks</td>
<td>Average of 8 tests Seconds</td>
<td></td>
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<td>Amstrad PC</td>
<td>3.2</td>
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<td>3.5</td>
</tr>
</tbody>
</table>

The comparisons 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.

Acknowledgements: Timings for FaST BASIC were reported by Duncan Evans, in Popular Computing Weekly, 25 September – 1 October 1986. Results for Locomotive BASIC 2, Microsoft BASIC on the Amstrad PC, and the BASICA test were supplied by Locomotive Software. Microsoft GWBasic test reported in Personal Computer World, September 1986, page 134.

Contact: Locomotive Software, 1 South Street, Docking, Surrey, RH4 2DY, UK. Tel: 0306 887903. Computer Concepts, Saddensdene Place, Hemel Hempstead, Herts HP1 4XJ, UK. Tel: 0442-639333.
Multi-user applications under Concurrent™ DOS

Corporate end-users are already benefiting from using multi-user solutions based on Digital Research’s Concurrent™ DOS. It is the standard multitasking environment for multi-user small systems in Europe. In addition to its leading market position, Concurrent™ DOS is also being tailored by software developers because it provides highly flexible techniques to support 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 multi-level password protection scheme for CP/M files.
- Ensures integrity of shared data through locking of CP/M files and records. The 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 more 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 machine and dynamically allocates system resources without interfering with the execution of the transparent system management task designed to implement in the absence of multitasking.
- Multi-user applications which exploit Concurrent DOS are to be found in all sectors of the computing 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 communicate with the Business Software, 53/55 St Mary St, Bridgewater, Somerset TA6 3RF, Tel: 01773-241200.
- Quintet is a modular OA system comprising a work organisation; Lotus-style spreadsheets; secretarial word processors; 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. Gecad Ltd, CP House, 97-107 Uxbridge Road, Ealing, London W5 3TL, UK. Tel: 01-792-9407.
- Sensible Solution is Europe’s leading fourth generation database management system and application generator. It uses Concurrent DOS password protection, record and file linking and interprocess communication. Future development will add a ‘relational word processor’ to Sensible Solution to create a powerful text retrieval system. A feature which will be printing and indexing as independent background tasks.
- Daedal Systems Ltd, 4 North St, Portishead, Essex BS21 1DQ, UK. Tel: 0275-428053.

Commissionaire is an extension to Concurrent DOS providing a personal, menu-driven productivity and system control environment:
- User-definable menus
- Password-protected access
- Electronic mail and statusline messages may be sent between users on same or networked system statusline channels.
- On-line help texts, machine-readable, can be added to a scheduler to set up meetings automatically.
- Optional activity logging

Commissionaire uses Concurrent DOS data queues in statusline channels, and can display messages by routing them to open line terminals, or as an independent background task. In addition, application code for many systems include: Concurrent DOS password protection to allow multi-user operation on shared hardware.

More new GEM™ applications for business and industry

Concurrent DOS XM™ and expanded 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™. These expanded memories support multitasking with larger software applications and allow software developers wide scope for sophistication in multi-application systems.

However, expanded memory is effectively shut. Motherboard RAM can be partly or wholly disabled. In the meantime, says Tucker, director of Digital Research’s European Development Centre, manufacturers and users are faced with the problem of upgrading their machines. Tucker: “PC users want the options of expanded memory, but the motherboard RAM must be left free.”

More new GEM™ applications for business and industry

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

Designers, as with the IBM PC XT/AT and compatibles, and also with RS/2 machines, use Robson’s Pattern Design System (PDS) essentially as 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 master 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 wallpapers and wallcoverings.

For full colour hardcopy on paper and protected paper, PFS drives the low cost Canon PJ 200A 8 column printer. Robson Associates, Red Lion House, St Mary’s St, Painswick, Glos GL6 6QR, UK. Tel: (0452) 81669.

CORPORATE GRAPHICS PRESENTATION SYSTEM
From GEM software house Soft Image Systems, Davrelle is a low-cost but highly powerful tool for graphics presentation in management reporting/management information, sales presentations etc. Davrelle costs £495 and has these major functions:

- Preparation of full colour graphics from numeric data entered at the keyboard, or from data entered on large spreadsheets and wordprocessors or originating from real-time computer systems.
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GEM™ is a trademark of Davrelle graphics database

Electronic CAD graphics capture
FrontEnd is a PC-based GEM user interface for electronic CAD packages such as HELD and SPICE, running remotely on a mini or mainframe. FrontEnd allows the user to design a schematic circuitry by picking and dragging components which are available under the design primitives of the mother ECAD package. FrontEnd also provides:
- Auto-routed or manual wiring.
- Copy/cut/paste and drag editing, with all components maintained when blocks or windows are segmented.
- 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 is intended to drive a range of ECAD packages under a consistent GEM user interface. FrontEnd, Howell Building, Clevelan, OH. Uxbridge, Greater London UB8 3PF, UK. Tel: 01895-58091.

Recall is an information retrieval tool designed to assist old industries needing rapid access to reference texts or archived documents. High retrieval speeds are achieved by automatically indexing data and storing it in a library of documents. Recall uses Concurrent DOS and its file locking function to allow multiple users to operate safely on common archives.

Goodman’s, 13, Kit, Bristol BS1 4DZ, UK. Tel: 0272-28896-3.

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**GEM™ for educational machines**

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

**Norway: TIKI 8/16 PC-System**

With 8088 and Z-8 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 managing director Lars Monrad-Krohn: "We already have 80% of the average university campus be upgraded to full 8/16 PC-system compatibility; we expect the machine to do well amongst small businesses, since it is 100% PC compatible."

**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.

GEM™ Technology (review on page 2).

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**Further Information**

Use the reply card enclosed with this issue to get further information on Digital Research products mentioned, or to order additional copies of European Review.

**Digital Research Offices**

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UK

Tel: 044 549 6657.

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**Atari ST sparks off GEM™ creativity**

Only 15 months after the launch of the 60000-based Atari 520 ST, more than 300,000 machines have been sold worldwide. The Atari ST software catalogue contains over 250 GEM-based titles.

A look at 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 hypenation dictionary; a spellchecker; 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, Radlett Place, Slough, Berkshire SL2 5RZ, UK. Tel: 0753-33344

Kuma's K-Spread is a £49 95, 256 column, 8192 line 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 ASCII files from other sources. Kuma Computerards Ltd, 12 Horseshoe Park, Pangbourne, Berks RG8 7WJ, UK. Tel: 07347-4385.

Fastcom, Atari's own communications package for the ST range, is visually and functionally equivalent to Digital Research's GEM Commm package for the Amstrad PC review on page 5.

Computer Components' 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 disk drive.

Fast BASIC from Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 0EX, UK. Tel: 0442-63933.

FST BASIC from Compact Concepts is supplied in a ROM cartridge. It is very fast (see page 2) and has strong advantages when compared to basic 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 user code which can be used both directly to GEM AES and VDI, enabling programmers with an understanding of object trees and the structure of GEM to write user code which can be used both directly to GEM AES and VDI, enabling programmers.

GEM Draw™, GEM Write™, GEM Paint™, GEM Write™ and GEM Paint™.

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**Product quality assured at Digital Research**

Steven Hook, quality assurance manager, 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 made sure that EDI and US-engineered products fulfilled their specifications and also behave well from the end-user viewpoint. "We try to critically assess user documentation. His responsibilities include version control of Electronic Research".

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**Digital Research approved training**

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

ABCD Software, a Dutch GEM software house with an editorial consultancy, 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 the GEM 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 other products.

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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-site Concurrent™ DOS technical courses.

Software Experts specialises in GEM training, and its training material is used by Dylan Harris, author of the Wiley book Programming for GEM and of the Programmers' Workshop 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 because of 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.

ABC Software, Dorpstraat 2, NL-6341 AC, Bornheim, The Netherlands. Tel: +31 (0) 4184 811

CCP Software, Schwanenlaue 14, 3550 Marburg, West Germany. Tel: +49 (0) 6421 12 104

EDTZ Hot- and Soltihou Dotzauer, Hasligraben 18, 8012 Oberbrunn bei München, West Germany. Tel: +49 (0) 89 069 8095

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