IBM selects Concurrent DOS-286™ for PC AT retail system

IBM's new Electronic Point of Sale (EPOS) system includes the Personal Computer AT as Store Controller and a programmable EPOS cash register terminal likewise based on the Intel 80286 central processing unit. In both terminal and Store Controller, the IBM 4680 Store System uses the power of Digital Research's Concurrent DOS-286, the new generation real time multi-user, multitasking, operating system which operates in the full protected mode of the Intel 80286 microprocessor.

European pilot by UK pharmacy chain

At a February press conference held jointly with IBM in London, Boots plc, the leading UK retail pharmacy and domestic goods chain, revealed that the first 4680 Store System site in Europe will be a pilot installation at its Peterborough store. Boots expects to introduce 4680 systems into 170 of its major stores within the next three years.

IBM is a leading player in the retail systems field, and the IBM 4680 Store System is designed to provide the flexibility and versatility to address a variety of vertical markets.

The system's EPOS terminal has a modular design with system unit, keyboard, visual display, cash drawer and a printer as required. Data capture devices which may be connected include scales, a magnetic stripe card reader, an OCR wand and a laser scanner for fast reading of item information from bar codes on packages.

Boots already makes extensive use of the European Article Numbering System in bar-coding.

Two versions of the EPOS terminal exist: the fully programmable Model 1, with 1 Mbyte of RAM and the Concurrent DOS-286 based operating software, and the Model 2 slave terminal which is driven by a Model 1. Up to 64 Model 1 and a further 64 Model 2 terminals may be linked to the PC AT Store Controller in a single store network.

Application and system software

Store Controller and EPOS terminal functions are provided in the 4680 package by the General Sales Application Program (GSAP), which is written in IBM 4680 BASIC. GSAP includes price look up,

Response of IBM's new PC AT based Store System depends on real time capability of Concurrent DOS-286™

credit authorisation, classification of items and returns, plus back office functions such as price and description changes, sales analysis by item, department or operator and store accounting reports. Thanks to concurrent processing by the Concurrent DOS-286 real time kernel within the 4680 operating system, local applications may be run at the PC AT Store Controller without interrupting its vital real time dialogue with the EPOS terminals.

The 4680 operating system is based on Concurrent DOS-286 and this provides the system link with mainframe computers. Multiple communications protocols including SNA, binary synchronous and asynchronous are supported by the 4680 operating system, allowing data refresh and remote processing by host mainframes at company level.

The 4680 operating system is menu driven and store personnel need no data processing experience.

In addition it permits fast development of retailer-specific applications written in IBM 4680 BASIC, a powerful new implementation based on Digital Research's CBasic Compiler™, LINK-86™ and LIB-86™. The operating system also allows the PC AT Store Controller to run well-behaved IBM DOS applications.

Concurrent DOS-286
Major Features

- Modular construction makes for easy reconfiguration
- Real time, device independent, multi-user/preemptive multitasking kernel
- Exploits integral memory protection and task switching circuitry of 80286
- 16 Mbyte address space in protected mode
- DOS and CP/M® front ends
- Device independent file operations
- Developed specifically for applications requiring real time response, including EPOS, EFT-POS, process control, manufacturing, multi-user desktop computers and communications control
- These features are also available in Concurrent DOS-68K™ for 68000 configurations

Olivetti and Comart get own versions of GEM™ software

Olivetti, second only to IBM in the personal computer market place worldwide, has signed a £500,000 licensing agreement with Digital Research to supply the latter's GEM business presentation software in implementations for its personal computer range. A special driver is included to support Olivetti's Enhanced Graphics Controller, which provides 640 × 400 pixel resolution in 16 colours. Olivetti will supply the GEM Collection™ (GEM Desktop™, GEM Paint™ and GEM Write™), and GEM Graph™, GEM Draw™ and GEM Wordchart™.

Comart, a leading UK supplier of multi-user workstations has also announced the availability of GEM software running under Concurrent™ DOS 4.1 on its 80186-based WS 20, 30 and 40 machines.

Hanover Fair '86

Important announcements by Digital Research OEM clients and third party GEM™ software developers are made this year at CeBIT, the annual exhibition in Hanover, West Germany for the European IT industry. Concurrent™ DOS 4.1 is introduced by Triumph Adler and Nixdorf; a GEM application and a GEM accessory are launched by German developers on the Digital Research stand. Germany's Markt & Technik releases Digital Research 8-bit CP/M® software for Schneider Data Systems' versions of Amstrad's machines and for the Commodore C128. GEM software is shown running on Siemens' new PC-D personal computer, on the Olivetti M24 and Tandy 2000 and on the new Atari ST machines which are selling in large volume in the West German market. Dealers on the Philips stand demonstrate DOS Plus™ and GEM on the :YES machine, and there's more…

Further details on page 2

GEM™, DOS Plus™, Concurrent™ DOS and CP/M® are major features of CeBIT

Nixdorf 8810: compact Concurrent DOS machine

CeBIT is a showcase for new GEM software products as well as: DOS Plus; the latest releases of Concurrent DOS; and 8-bit CP/M®, on the Digital Research stand and elsewhere:

New Third party GEM software

CCP FontEdit by CCP Software provides additional fonts for use in Digital Research GEM business presentation software. Type sizes up to 99 X 99 pixels are supported. The fonts supplied are Pica, Swiss Outline and Rustica, and a library of new, low cost fonts is under development. The user can design or edit fonts interactively using mouse and icons. Proportional spacing and zoom functions assist in the precise sizing of letters. CCP FontEdit is available in English and German, and Dutch and French versions are scheduled. Other GEM applications by CCP Software include: Busy Charts 2, a graphing package; Busy Calc, a spreadsheet; and CCP Turbo Tools, which adds graphics power under GEM or GSX™ to the Turbo Pascal environment. These may also use fonts generated by CCP FontEdit. CCP Software EntwicklungsGmbH, Wilhelmstrasse 43, Marburg 3550, West Germany. Tel: +49 64 21 12104

Termin Calendar is a new GEM accessory by EDTZ. Click on the Calendar entry in the GEM application dropdown menu and a one-month calendar appears in its own window. Clicking on any date brings up a schedule for that day, broken down into time periods as specified by the user. Text and alarm times may be inserted, and there is a notepad for other items. Termin Calendar is suitable for dates up to the year 9999; the only restriction on quantity of data stored is the capacity of mass storage. To preserve disk space, records which are 3 months or more out of date may be automatically erased. EDTZ is also developing a simple card index type database application to run under GEM. EDTZ Hard & Software, Chiengaustrasse 135, 8000 München, West Germany. Tel: +49 89 68 01892

## Digital Research integrated GEM business presentation software

The GEM business presentation software range is available in English, French and German to dealers and end users from Digital Research for IBM, Compaq, Commodore and Siemens personal computer ranges. For other machines — contact the manufacturer:

GEM Desktop™
Replaces operating system commands with an intuitive desktop metaphor

GEM Write™
Full function wordprocessing package with the ability to integrate images and wordcharts
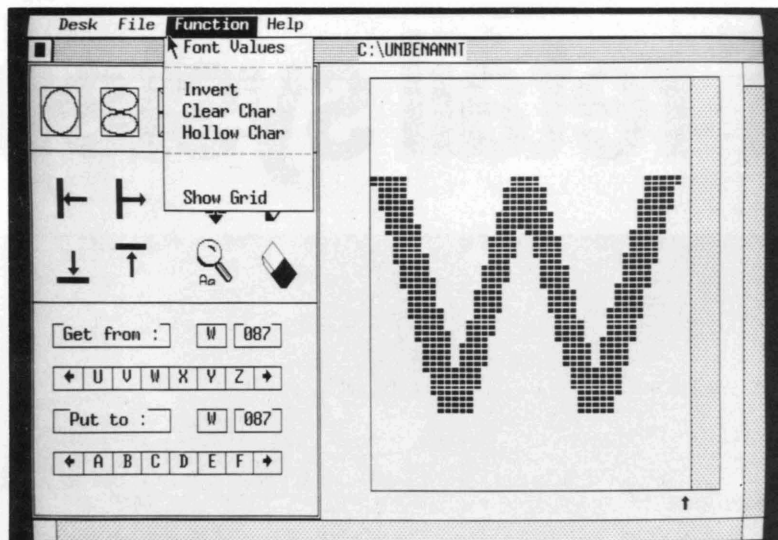
CCP FontEdit expands GEM™ text styles
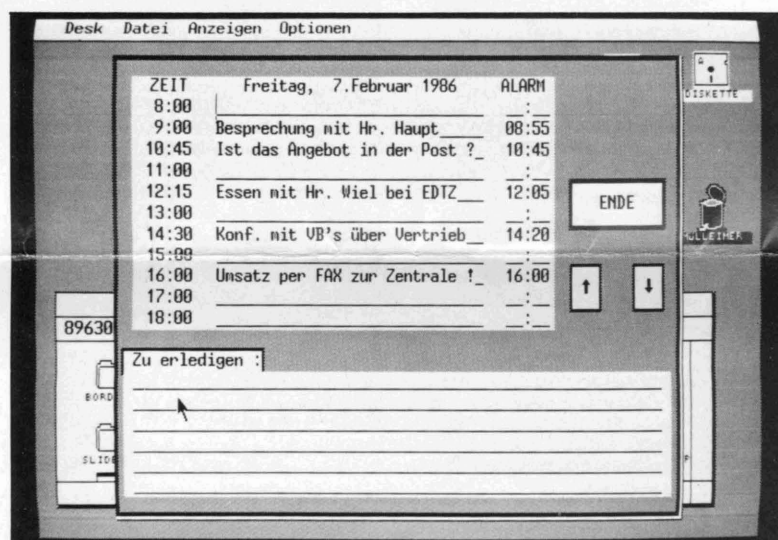
Termin Calendar, an invaluable diary accessory for GEM™

Siemens PC-D, a new addition to the GEM™ machine base

from other GEM packages

GEM Paint™
Full colour, presentation quality drawing and painting, compatible at pixel level with images from other GEM package

GEM Collection™
GEM Desktop, GEM Write and GEM Paint in a single, low cost package

GEM Graph™
Full colour business graphing package which may use files from major spreadsheets; contains a US or Europe map option and accepts images from GEM Draw

GEM Draw™
A presentation quality full colour

structured drawing package with an impressive array of drawing functions and text fonts; accepts images from GEM Graph and GEM Wordchart

GEM Wordchart™
Text foils and charts in full colour; can integrate graphic images from GEM Graph and GEM Draw

Integration of GEM applications encourages creation of highly stylised presentations, foils and charts.

GEM Programmer's Toolkit™
containing all the software necessary, except compilers, to develop GEM based applications

written in virtually any high level language for the IBM PC range and compatibles.

GEM and OEMS

Siemens is showing GEM on its new PC-D machine. This is an 80186 based, 256 Kbyte machine, expandable to 1 Mbyte.

Olivetti and **Tandy** also demonstrate Digital Research GEM software, respectively on the Olivetti M24 and the Tandy 2000.

Atari has sold over 40,000 of its GEM based ST business/home computers in West Germany since August 1985. Based on the Motorola 68000 CPU and proprietary system software derived from Digital Research's GEM DOS™ single user operating system, STs are popular amongst software houses for porting GEM applications from DOS to the 68000 world, as well as for developing original GEM applications. The Atari stand houses 30 software developers, with over 100 products, including wordprocessing, databases and spreadsheets and a wide variety of vertical market applications. Machines on show are the 260ST with 512 Kbyte RAM, the 520ST+ with 1 Mbyte, and the 1040STF with 1 Mbyte memory and an integral floppy disk.

DOS Plus and GEM

On the **Philips** stand, a number of :YES machines are dedicated to applications running under Digital Research's entry level DOS Plus operating system, including GEM software. The :YES machine is an entry level machine with a degree of IBM compatibility, based on the Intel 80186 CPU. It is available in a number of configurations suitable for business, education and for a rich variety of vertical markets. DOS Plus is compact and resides in ROM in the :YES, to maximise user memory. DOS Plus supports DOS 2.1 and CP/M applications and permits one foreground and up to 3 background tasks.

Concurrent DOS

Triumph Adler shows TA PC-Net, a low cost, 0.5 Mbits/sec, twisted pair local network linking up to 32 alphatronic P60 and P50 (80186 based) machines or other IBM compatibles. The network is supported by Concurrent DOS 4.1 and DR Net™, Digital Research's open systems networking extension for its operating system products. An education version of TA PC-Net allows teachers to take over and interact with pupils' terminals singly or in bulk. TA PC-Net may also form a closed user group (with Concurrent DOS gateways to remote services) within Triumph's office equipment network Ergonet.

Nixdorf exhibits its own port of Concurrent DOS, running on its compact new 80186 based multi-user personal computer, the 8810. The new machine is intended as a central computer for individual small businesses and currently supports a single slave terminal. The system's central processor circuitry is compactly housed in the main monitor casing, while peripherals are daisychained from a SASI bus.

AST Europe demonstrates Concurrent DOS 5.0 supporting its 2 Mbyte RAMpage! memory extension board. This latest developmental version of Concurrent DOS enables up to 4 RAMpage! boards to be connected to the IBM PC range and compatibles, creating a DOS compatible environment with up to 8 M byte paged memory for programs and data of virtually any length. In addition, AST shows GEM software operating in conjunction with its ColorGraph Plus graphics adaptor board.

8-bit CP/M®

Schneider Data Systems markets the phenomenally successful Amstrad range of 8-bit Z-80 home/small business CP/M computers under the Schneider trademark in German speaking countries. The range comprises the 64 Kbyte Schneider CPC464 and CPC664, the 128 Kbyte CPC6128 and also the wordprocessor and 256 Kbyte computer, the PCW8256, renamed Joyce by Schneider. Schneider is bundling CP/M 2.2 with the 64 Kbyte machines, and CP/M Plus™, the most advanced personal computing version of CP/M-80™ with the CPC6128 and the Joyce. In addition, Schneider is licenced to bundle the Dr. Logo™ language and GSX, the Digital Research graphics operating system extension.

Markt & Technik, leading West German publisher of computer magazines, personal computer software and computing books, has an exclusive license to distribute four Digital Research products for the Schneider machines and for the Commodore C128 8-bit computer, throughout German-speaking Europe. The products are Pascal/MT+™, CBasic Compiler™, DR Graph™ and DR Draw™, and will be available at prices between DM 174 and DM 199.

Philips :YES, the first DOS Plus™ machine

New DOS Plus machines target business and education

Acorn's Master 512 and DOS Plus™ takes the BBC micro concept into the 16-bit world.

Acorn Computers has announced an 80186 GEM microcomputer within an upgraded range based on the BBC microcomputer. The new machine, the Master 512, is bundled with Digital Research's DOS Plus multitasking operating system and the GEM Collection™, consisting of GEM Desktop™, GEM Paint™ and GEM Write™.

The original BBC micro, Acorn's highly successful 32 Kbyte, 6502 based educational machine, has sold well over half a million copies around the world since its introduction in 1981 as the mainstay of the British Broadcasting Corporation's computer literacy project. However, home, educational, business, scientific and professional users now need more memory and support for standard operating systems and well-known applications. To satisfy these requirements while retaining compatibility with the extensive BBC micro software base, Acorn has equipped the computer literacy project with its

new Master range of 6502 based machines offering paged memory and powerful 8, 16 and 32-bit second processors. The basic machine is the Master 128, with 128 Kbyte paged memory for standard BBC applications. This becomes the Master 512 with the addition of a user installable 80186 coprocessor and 512 Kbyte extra RAM, plus multitasking DOS Plus and the GEM Collection.

Said Bob Coates, Acorn's product manager, BBC microcomputers: "The Master 512 package shows that the BBC microcomputer has come of age. The DOS 2.1 capability of DOS Plus gives access to the vast DOS software base in addition to the 16-bit CP/M applications it supports. This confers on the Master 512 a significant marketing edge in educational as well as business and professional markets because 16-bit computing is becoming increasingly important in educational circles. A number of European governments are favouring 16-bit based software because it encourages more relevant vocational training in computer use. In the UK, too, local authorities responsible for computer training are turning to

the 16-bit world as educational applications begin to outgrow the capacities of 8-bit machines.''

Governmental interest in educational 16-bit computing will be an important factor in discussions between Acorn, its parent company Olivetti, and Thomson, the major French electronics group, which are jointly collaborating over the definition of an educational computing standard.

DOS Plus has high potential in education because at 64 Kbytes it is compact and can be ROMed to preserve user memory in entry level configurations. Although the Master 512 currently uses a disk based version of the operating system, a ROM version remains an important option for Acorn. DOS Plus in ROM is used by Philips for its :YES 80186 based machines, which it is aiming at educational markets in Europe.

Both the Master 512 and the :YES also support Concurrent™DOS 4.1, especially as multitasking file servers.

Presentation graphics with GEM Graph™ and GEM Wordchart™
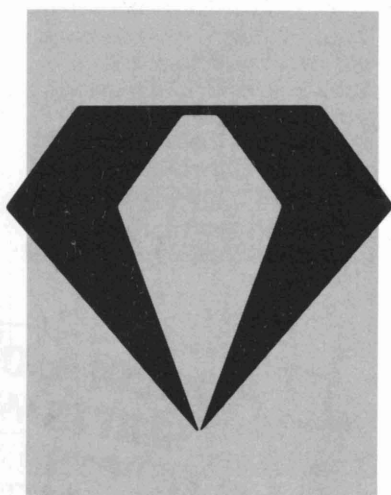

A text chart in GEM Wordchart....

Business presentations artwork ranges from all graphic to text-only charts, with various combinations in between. Generally, in the time it takes to instruct a design studio how to prepare an expensive visual aid, you can do it yourself to a professional standard with GEM™ business presentation software. Minimum hardware requirements are an IBM or compatible personal computer with mouse or other pointer device, a suitable graphics card and a graphics capable dot matrix printer.

GEM Graph and GEM Wordchart are the latest in the line of Digital Research GEM business presentation software to be made available to users of IBM, Compaq, Commodore and Siemens personal computers. Users of other machines should contact their suppliers for further information on current availability.

GEM Graph

GEM Graph accepts data from the keyboard or from files generated by spreadsheet packages like Lotus 1-2-3 and Multiplan, and offers a choice of graph and plot formats into which this data is automatically fitted. GEM Graph may also accept comma separated numerical or statistical files, for example from ASCII files output by wordprocessing packages such as GEM Write™ or Wordstar.

Following data acquisition and titling in GEM Graph's data window, the next step is to select the display window. Once in the display window, the desired type of plot or graph can be selected by mouse or pointer from the Gallery drop-down menu. GEM Graph then draws a pie chart, bar graph (2 or 3-D), line graph, area graph, map chart (US or Europe), bar and line graph or symbol graph as required. The results can be edited in terms of colour, text style, text size, text weight, graph

orientation and size, and position of elements of the overall design. The completed graph or plot can then be output to printer or plotter.

GEM Wordchart

For text-only charts, GEM Wordchart offers a number of templates which show where text can be entered from the keyboard.

GEM Wordchart includes templates for one or multiple column charts, for free-form charts and for outlines. These can be adapted at will. GEM Wordchart also provides a library of borders which can be inserted at top and/or bottom of a chart. In addition, borders can be imported from GEM Draw™, Digital

Research's presentation drawing package, via a common GEM file format. As in GEM Graph, text attributes and colours can be changed with a couple of mouse-clicks.

Integrating images

Like borders in GEM Wordchart, whole images can be imported into a wordchart from GEM Draw, or directly from GEM Graph. This ability to create hybrid images runs right through the GEM presentation software range, and offers a wide range of editing facilities not found in any one package.

In a practical example of this integration, the screen shots show (1) a wordchart in GEM Wordchart, (2) a pie chart in GEM Graph, and (3) the output to screen after both had been combined in GEM Draw. The same could have been done by importing the GEM Graph image directly into GEM Wordchart. Note the change in the circularity of the pie chart: even this can be edited.

Hard copy output devices

Hewlett Packard plotters 7470A, 7475A, 7440 and 7550 are suitable devices for output from GEM Draw or GEM Graph onto paper or overhead transparencies. Also monochrome or colour IBM/Epson dot matrix printers, Epson JX-80 dot matrix printer, IBM Colour Jetprinter, Diablo Model C150 Colour Ink Jet, Hewlett-Packard LaserJet I and LaserJet Plus, and the Apple LaserWriter.
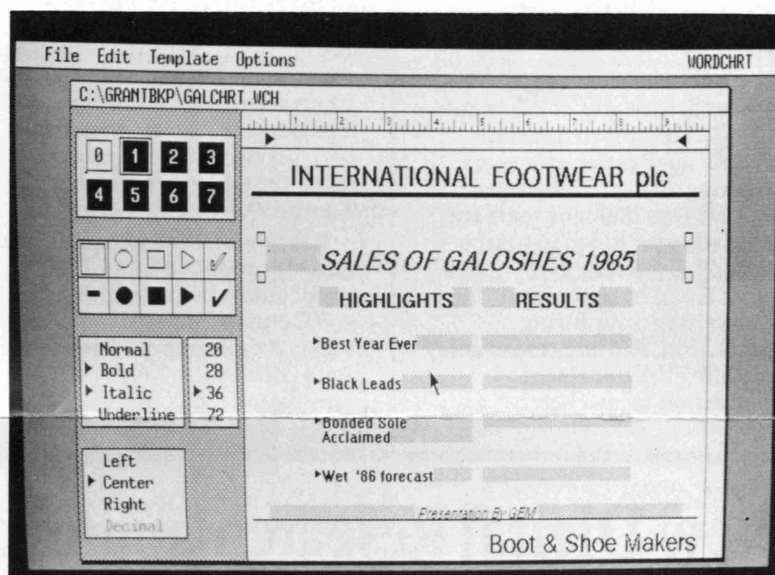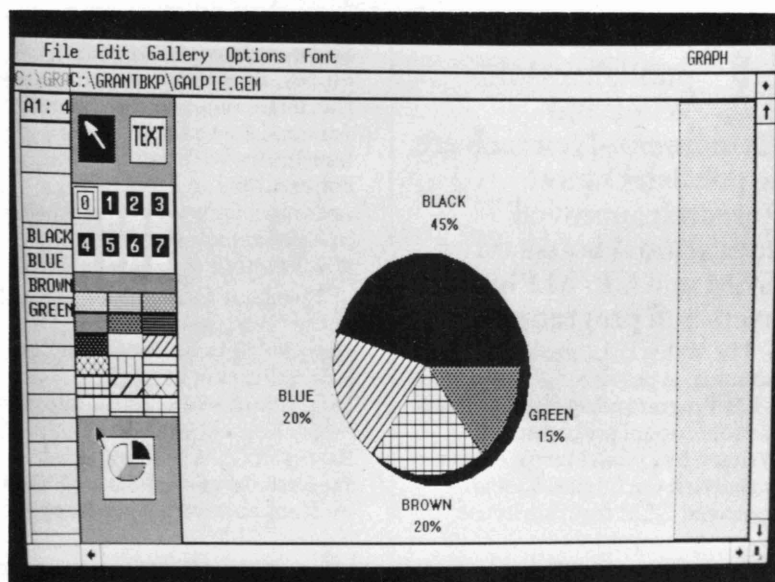
....plus a pie chart in GEM Graph....
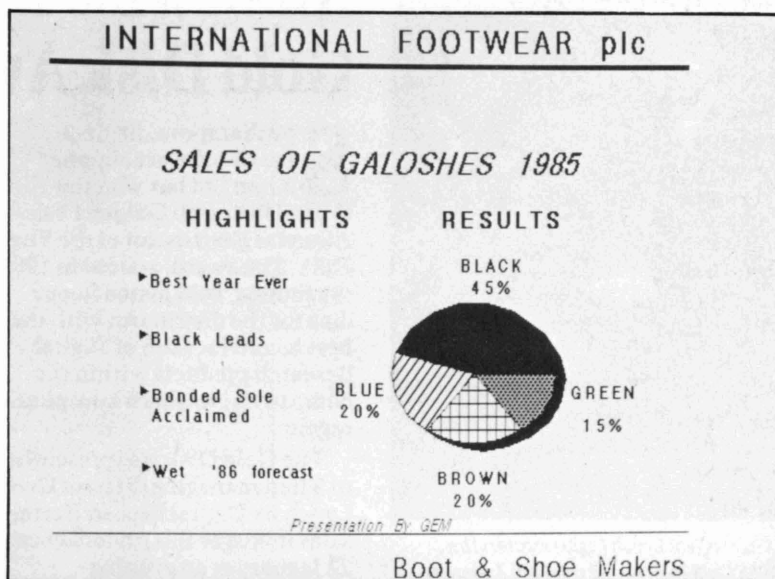
....combined to make a highly effective visual aid

Digital Research launches power CP/M® software for Amstrad machines

Digital Research has launched low cost, full function versions of DR Graph™, DR Draw™, the CBasic Compiler™ and Pascal/MT +™ for the highly successful Amstrad CPC6128 and PCW8256 8-bit CP/M Plus™ machines. The Digital Research products cost £49.95 each in the UK and are available now through normal Amstrad channels and by direct mail from Digital Research. German-speaking countries, however, will be supplied by West German distributor Markt & Technik for Amstrad machines sold by licensee Schneider Data Systems. Paul Bailey, Digital Research European vice president said: "These proven professional products are now moving into high volume markets. Amstrad and Schneider users will get powerful software at very attractive prices."

Amstrad CPC6128 with new low cost CP/M® packages

GEM™ software translates without tears

by Howard Kornstein, Digital Research's technical Director, Europe

Historically, it has been difficult to translate applications for users speaking different languages because user dialogue texts are normally embedded in source code. This practice gives rise to bugs caused by new text overwriting code during translation, and bugs mean delay in getting the translated application to market.

By contrast, a fundamental design feature of GEM is the grouping of user dialogue texts together with associated screen objects in a resource file which is completely distinct from the base application. So, to translate user dialogue it is necessary only to alter part of this resource file using the GEM Programmer's Toolkit™.

It is Digital Research policy to quickly produce all its GEM applications in English, French and German followed by other major West European languages supported by the GEM international character set,

according to demand. Packages now available in English, French and German are: GEM Desktop™, GEM Paint™, GEM Write™ (the GEM Collection™), GEM Draw, GEM Graph™ and GEM Wordchart™ (see also page 3). Third party GEM software developers are also following suit, and French- or German-to-English translations are becoming more common.

Today's marketplace is worldwide, and nothing gives a locally developed package more potential for wider sales than GEM's capacity for trouble-free translations.

The Apricot Collection: GEM™ in joint sales campaign

Digital Research and Apricot have mounted a three month consumer advertising campaign highlighting the Apricot Collection in the UK national and computing press. The Apricot Collection presents a selection of user packages based on Apricot hardware and GEM software. The hardware is a twin-floppy Apricot F2 or a hard disk F10 (both 8086 based), a mouse, two mono and one colour monitors, and Apricot's Writer 22 dot matrix printer. Bundled software includes the GEM Collection™ containing GEM Desktop™, GEM Paint™ and GEM Write™.

The entry level Apricot Collection is based on the F2 and

a 9 inch mono monitor and is priced at £1499 (excluding VAT).

The key message of the campaign, "Apricot Collection starts where others finish — then GEM gives you more" emphasises that the intuitive GEM software gets the user up and running as soon as the new equipment has been unpacked and plugged in.

The advertisements also draw attention to the availability of GEM software across all Apricot computers, comprising the F2, F10, Xi and 80286-based Xen computers. In addition to the GEM Collection, GEM Draw™, GEM Graph™ and other GEM-based applications will be made available for Apricot machines.

New Digital Research approved books on GEM™ and CP/M Plus™

This year, UK publishers John Wiley and Heinemann-Newtech are to publish Digital Research approved educational books on GEM and CP/M Plus for users and programmers.

The Wiley title, due out this autumn, is provisionally called **GEM Programming**, and is aimed at professional programmers. Written by Dylan Harris, senior tutor with the Digital Research approved GEM training house

Software Experts of Egham, Surrey, England, it will provide a thorough, enjoyable and highly personal approach to developing familiarity with the essential conventions and concepts necessary for good programming in GEM applications development.

Two large format books aimed at the GEM user, including the complete novice, are scheduled for publication in April by Heinemann-Newtech. These will be the first volumes in its Digital Research GEM Library series. **Presentation Graphics with GEM** by Stephen Morris, author of over

twenty books on business computing, shows how to use the integrated range of GEM business presentation software with the emphasis on achieving high quality results. **Getting it done with GEM** by Kathy and Terry Lang, business computing journalists, tells why and how to use GEM products for general computing purposes, including presentation graphics.

The Digital Research CP/M Plus Handbook, is another large format book to be published in April by Heinemann-Newtech. This book will be the definitive user and programmer guide for the single user 8-bit CP/M Plus personal computer operating system, and will be of immense value to purchasers of the Amstrad CPC6128 and PCW8256 machines.

Xitan wins Digital Research™ Gold Disk Award

Xitan's Geof Lynch (right) receives the 1985 Gold Disk Award from Bill Anderson of Digital Research

Southampton, England based software supplier Xitan Ltd has won the Digital Research Golden Disk Award as Distributor of the Year 1985. The award, started in 1984, is a framed, gold plated floppy disk for the distributor with the best record for sales of Digital Research products within the company's Northern Europe sales region.

The Gold Disk was presented to Xitan managing director Geof Lynch by Digital Research retail sales manager Bill Anderson on 22 January at an evening reception at the New Forest Moat

Hotel, near Southampton. Anderson said "Digital Research thanks the Xitan team for its strong contribution to our growth in the marketplace in 1985, a year in which the industry as a whole experienced difficulties. Xitan is to be particularly commended for its high level of value-added technical ability."

In his reply, Lynch said that Xitan would continue to diversify into software product streams determined by the new Intel and Motorola CPU families and by the Concurrent™ DOS and GEM™ environments.