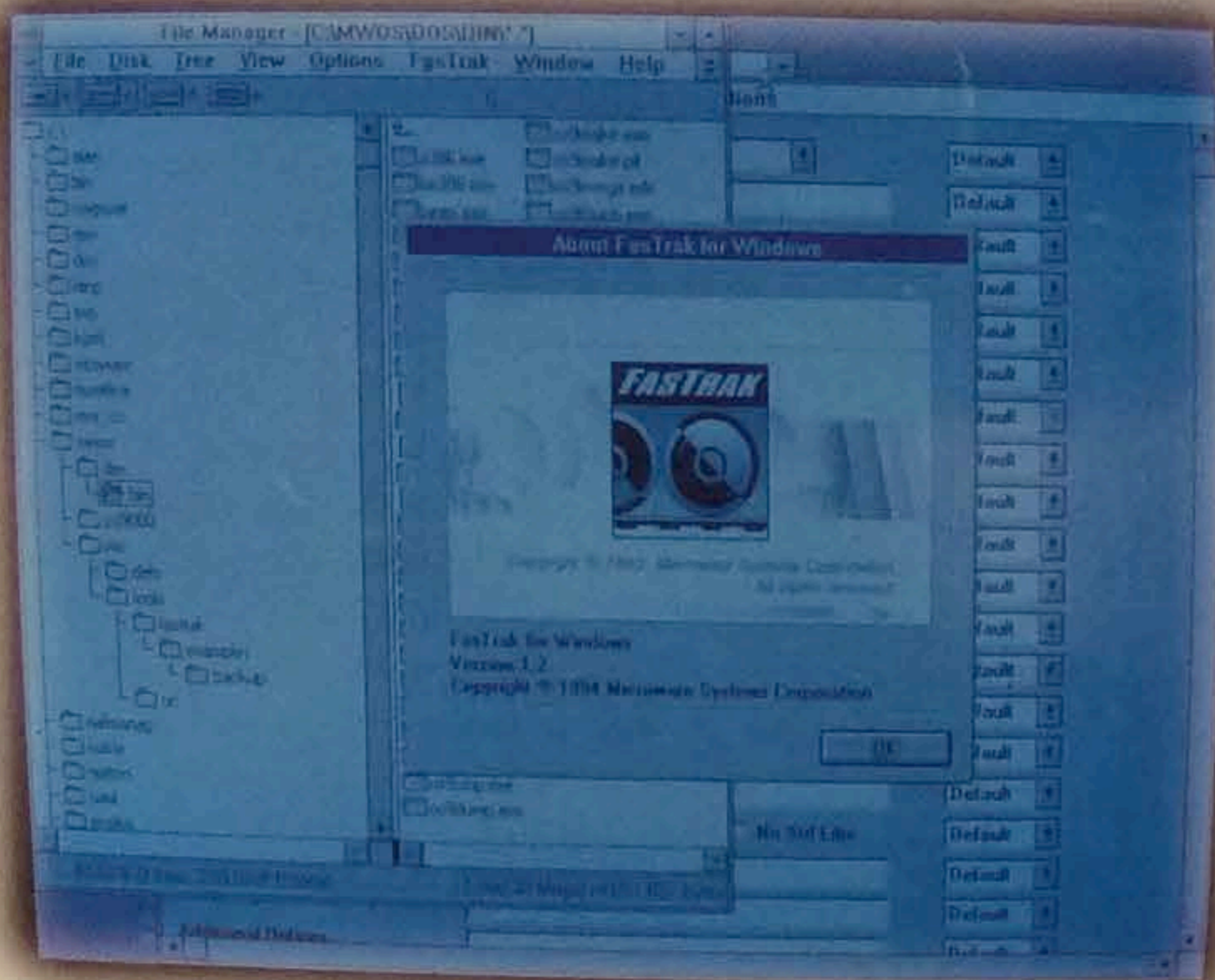# FasTrak V2.0 makes development easier

distinction between user state (applications) and systems state (direct access to the kernel). FasTrak lets developers debug both user and system state code including kernel extensions, file manager and device drivers.

FasTrak emulator support includes the Hewlett Packard line of 68K emulators, which are compatible with HP's software tools, helping to accelerate and enhance development where hardware and software are being developed simultaneously.

FasTrak is currently available for UNIX workstations including Sun 4, HP9000 series 700, RS6000 and Silicon Graphics, as well as for Windows.

The C-based FasTrack for Windows is available for £2,192 for a single-seat license. C++-based FasTrack for Windows is £2,885. Multiple seat pricing is available on request. FasTrack for UNIX (ten seat license) is priced at £11,154 for the C-based version and £14,850 for the C++ version.

Please contact Microware for a demo diskette introducing FasTrak for Windows.

Microware has announced FasTrak V2.0, a comprehensive software programming and management environment designed to increase the efficiency of application development for OS-9.

Version 2.0's newly expanded functionality for Windows and UNIX platforms addresses all phases of software development from initial code creation to software version control. It reduces developer's time-to-market and improves project management by focusing on all aspects of the project development cycle.

FasTrak's inherent tight integration with OS-9 addresses all aspects of the development cycle and gives programmers an edge in their development. Version 2.0 simplifies software development through the addition of more tools granting the system developers the latitude they need to work on other aspects of their embedded designs.

Optimised for a wide variety of processors for greater flexibility, FasTrak V2.0 adds support for the Motorola's 68060, the full line of PowerPC processors and Intel's Pentium. Designers can switch from one system to another with FasTrak without having to learn new systems, saving the designers' time.

FasTrak V2.0 is an integrated cross development solution which simplifies and automates the tasks of debugging, analysing and managing complex real-time software development projects in an integrated developed environment. Designed as a flexible tool to help identify programming errors with minimal effort, FasTrak V2.0 now provides a total solution for a quicker debugging of the system code written in high-level languages such as C and C++. OS-9 makes the

OS-9 training schedule

Microware is committed to providing a variety of training and education that extends your knowledge of the OS-9 real time operating system and development tools.

Courses are available at starter, intermediate, advanced or drivers/network levels. They will be held in Burnham, England in the weeks commencing December 2nd 1996 and January 13th 1997 and in London, England in the week commencing December 9th 1996.

If you are interested in attending a course and would like further information, please contact Microware.

Rack 'em up

Enclosed with this issue is a sticker. Please affix it to the spine of a ring binder and use it to store this and future issues of Microware's European News Update.
If you don't have a binder to hand, please call us, we would be happy to provide one for you.

OS-9 V2.0 for PowerPC
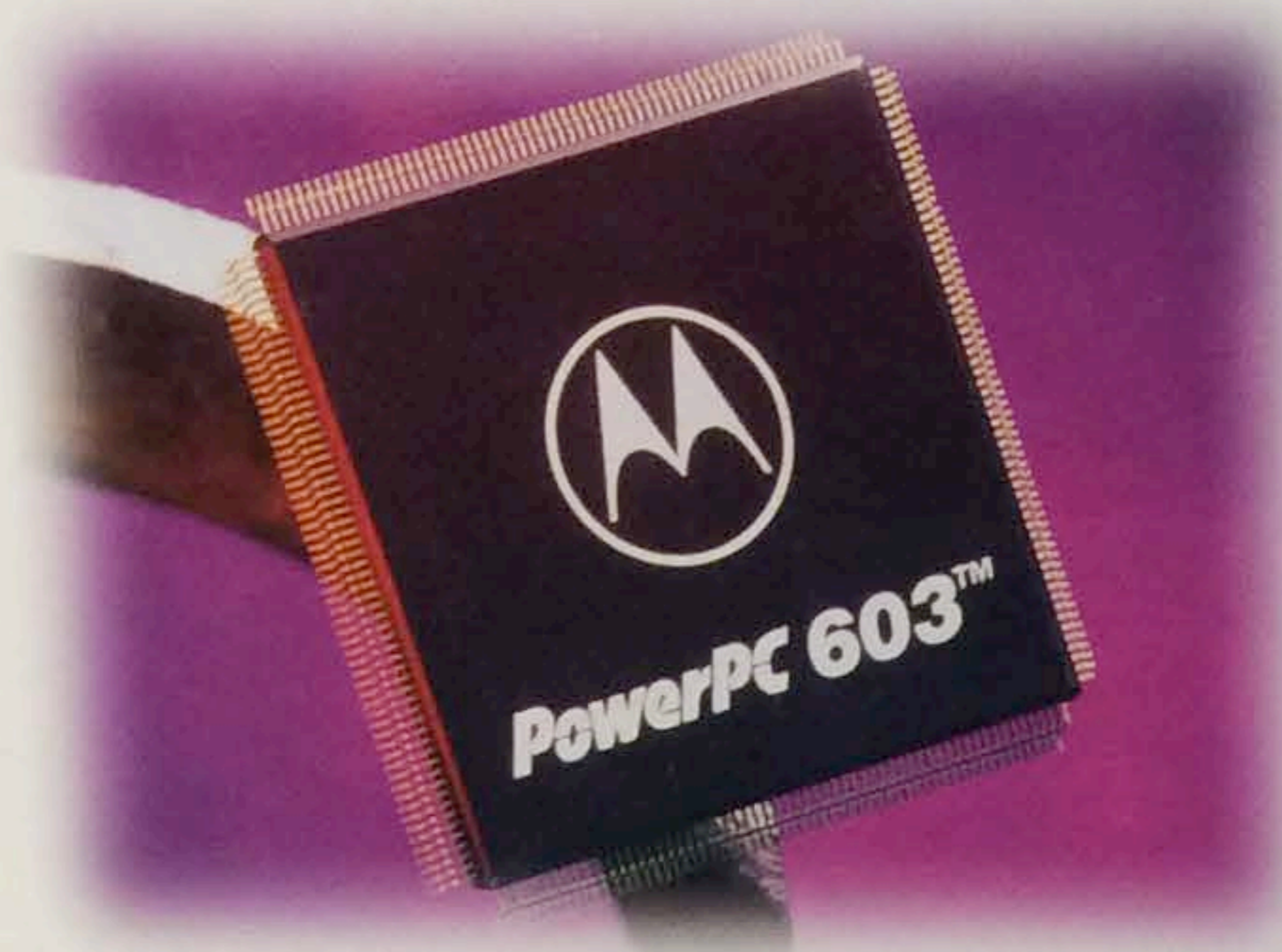
Version 2.0 of Microware's OS-9 for PowerPC is now available. OS-9's scalable architecture means it can be scaled to fit the needs of a design from small embedded devices to large networked systems.

Additionally, OS-9's unique modularity allows system and application modules to be dynamically loaded while the system is up and running - particularly important for consumer devices where transparent software updates are needed.

OS-9 brings a full-function, real-time, operating system to the PowerPC platform featuring the OS-9 Kernel, hierarchical file system, complete I/O management and powerful development tool integration. OS-9 for PowerPC provides the broadest I/O support of any real-time system software. Off-the-shelf support is available for mass storage systems, communications and networking, and multimedia.

For development, Microware offers cross development and resident development options. FasTrak V2.0 for UNIX and Windows is an integrated cross development environment featuring automated makefile generation, source level and system state debugging, and target monitoring. FasTrak is built around Microware's Ultra C and Ultra C++ compilers, with advanced optimisation on individual files or across the entire application. Microware packages OS-9 for PowerPC in development and single board computer packages. The OS-9 for PowerPC Developer's Package contains a complete suite of system software modules from which standard configurations can be built for distribution.

Microware and NEC team to bring ATM to the home

Microware Systems and NEC have announced and demonstrated asynchronous transfer mode (ATM) technology to carry MPEG-2 video to consumer electronic devices such as set-top decoders for the 'intelligent' residential home using NEC's new Broadband Access System (BAX).

ATM technology provides the network platform of choice for network operators because of its reliability and flexibility in delivering a wide variety of services to the home, such as Internet access and video-on-demand via switched digital video (SDV). Furthermore, ATM provides extremely high-speed transmission of various types of data including voice and video to multiple connections on the same fiber optic wire.

NEC's BAX System is coupled with Microware's DAVID system software used in digital interactive set-top decoders developed by NEC Corporation to provide consumers with access to a wide array of ATM-based multimedia services.

"ATM is an important step in enabling the intelligent home because it provides a cost-effective method to bring limitless broadband services to consumers," said Trefor Hooker, European Marketing Manager at Microware. "Microware is pleased to be working with NEC in this developing technological arena."

"The combination of NEC's advanced ATM technology and DAVID's compact, modular architecture provides a comprehensive solution for network operators to deploy ATM to the home," said Nick Satomi, senior manager of the C&C Product Technologies Development Laboratories of NEC Corporation.

Are you up to date?

The latest versions of our products are:

FasTrak for Windows C&C++	2.0.3
FasTrak for Unix	2.0.2
OS-9 Toolkit	1.3.2
ISP/NFSC	2.1
CPU-32/16 & 32 Bit Licence	3.0.2

Please contact Microware if you would like to order any of the above.

Relying on OS-9 for critical transmission service

NTL is renowned for its innovation in worldwide telecommunication and broadcast markets. To achieve its mission it has to be certain it has the very best technology infrastructure to support its services. NTL uses Microware's OS-9 real-time system software to control some of the most critical systems underpinning its transmission service provision.

In the UK, NTL's work surrounds you. When you watch ITV, S4C or Channel 4, and if you have NICAM stereo or use Teletext, then you are an end-user of their television transmission service. Many of the independent local radio stations are brought to you through NTL's radio transmission services. Many satellite television programmes are also uplinked by NTL. And for those with mobile phones or radio communication equipment, it is likely that NTL has assisted in building and maintaining the networks which carry the signals.

Its Advanced Products Division has become the acknowledged world leader in MPEG compression systems technology, which it recently sold to News International. They are also at the forefront of digital television development. More recently they have become preferred broadcast provider to Channel 5 Television.

Current trends in the broadcast world, including the evolution of digital broadcast and video compression in satellite uplinking, are putting ever increasing demands on technology infrastructure. NTL is committed to providing 99.998% availability. This is achieved by providing the right technological infrastructure. The Transmitter Service Controller (TSC) application, based on Microware's OS-9 real-time system software, provides all the required functionality to monitor and control many different types of transmission equipment used in TV, digital PDH and SDH radio, satellite TV and data services. The existing microprocessor hardware for the TSC is a proprietary MP302, manufactured by GSM Syntel of Huddersfield (now trading under the name of Tellima). This is a microprocessor based half sized Eurocard format containing the Motorola family of large scale integrated (LSI) components. It has an on board OS-9 kernel which is licensed for use in the field by NTL. As well as this it has serial I/O capability which is utilised by the software in providing a terminal into the OS-9 system and a communications port to the control centre. It also has a proprietary LAN driver written by Tellima. This LAN is configured with device drivers to support the hardware manufacturers protocol -'TOPAZ 2'. TOPAZ 2 is also utilised by the software. To achieve the required system functionality this card communicates with other G64 based LSI cards. The main G64 card used for providing I/O capability is a Bitbus card. The existing software was written by Science Systems of Bristol. The MP302 based software was written using Microware 'C' under OS-9 version 2.4.

For the Future

Carl Yates, manager of NTL's Control Systems Group, is considering other G64 and VME solutions, so that the system is hardware independent. "OS-9 is flexible and robust enough to allow us to port the TSC application to other hardware." said Yates. "OS-9 is capable of serving many different tasks, or applications running under it, so it is easy to add on different "services" and thereby provide extra functionality to the system."

Yates explained that apart from upgrading the system to be able to expand to meet future business demands, they are also looking to change the front end to a more user-friendly and simpler interface. Microware's FasTrak for Windows development environment would be less arduous to use and would therefore increase productivity.

The Control Systems department has become increasingly aware of the specialist needs of the different business areas and, in future, will be undertaking more systems tailoring to meet specific business area needs. "At the moment the TSC is one large homogenous system." said Yates. "But OS-9's modularity will enable us to do this easily and with minimum effort."

European News Update

Issue 1
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1996

Microware licenses Java and Hotjava

Earlier in 1996, Microware announced it has licensed from Sun Microsystems their Java programming environment and HotJava dynamic World Wide Web browser, to meet the growing demand for Internet accessibility across a spectrum of new, easy-to-use consumer electronics products.

Java and HotJava will be available in OS-9 packages targeted at wireless communications devices such as telephones and PDAs, Internet appliances and other consumer markets. DAVID, Microware's OS-9-based package for Interactive TV (ITV) and digital broadcast, will also support Java.

Currently, Microware's DAVID and DAVIDLite are licensed by more than 20 set-top box manufacturers for ITV and digital broadcast deployments around the world. Adding Java is part of Microware's continuing strategy to extend OS-9 for intelligent consumer devices. OS-9 is the only RTOS with the breadth of I/O to support emerging consumer markets, including networking protocols and consumer oriented graphics, says Microware.

The license allows Microware to ship Java and HotJava as part of its Internet solutions for its OS-9 Real-Time Operating Systems.

"We're pleased to have Microware adding support for Java," says Alan Baratz, President of JavaSoft, an operating company of Sun Microsystems. "Microware's proven track record in embedded consumer technologies matches well with our targeting Java to consumer devices. In addition, they have opened the door on real-time extensions to Java."

http://www.microware.com

Microware and Spyglass target web-enabled smart products

Microware and Spyglass have announced an alliance to address the demands of the rapidly emerging Internet appliance market.

This pairing of industry leaders in embedded system software and Web browser technologies provides a powerful, compact and highly portable solution built on Microware's OS-9 Real-Time Operating System and Spyglass' Web Technology Kit (WTK) for Web-enabled televisions, network computers, two-way pagers, digital cameras, cellular phones and portable communications terminals.

Microware will incorporate Spyglass' WTK into their OS-9 packages targeted at digital televisions, wireless communications devices, Internet appliances and other consumer and professional markets. OS-9's modular and scalable architecture meets the low memory and high functionality requirements of consumer appliances. Its capability to dynamically download software modules allows for transparent updates to devices over both wireless and wired networks. WTK offers a componentised structure that breaks Web client and server technologies into functionally independent components.

This allows customers to develop their own unique browsers. The goal of combining these two technologies is to develop a solution that is seamlessly upgradable, offers ubiquitous Internet access and fits the minimal memory requirements for smart consumer products. The device-independent Spyglass WTK makes it easy for companies to embed Web-viewing functionality directly into their devices.