

Preview: IBM Extends OS/2 to IBM Power Series

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Abstract

In Brief . . .

The PowerPC Edition of IBM OS/2 Warp Connect will combine the award winning features of OS/2 Warp with the advantages of RISC architecture.

- Consistent OS/2 user interfaces and programming APIs for easy migration to IBM Power Series hardware
- Support for advanced applications including 3-D graphics
- Easy installation and usability of the Workplace Shell
- Comprehensive networking and communications software
- Ability to run DOS and Windows 3.x and recompiled 32-bit OS/2 applications
- IBM microkernel technology for easy scalability, portability, and modularity for additional hardware platforms

The IBM microkernel technology and other IBM shared services (for example, system registry, and file server technology) is available by calling 800-816-7493 or 407-443-6805.

OS/2(R) Warp Connect (PowerPC(TM) Edition) will combine the major features of OS/2 Warp with the power to handle a new range of applications made possible by RISC architecture for the Power Series(TM) systems. OS/2 Warp Connect (PowerPC Edition) will continue the growth of the OS/2 product family and reinforces IBM's strong commitment to OS/2.

OS/2 Warp Connect (PowerPC Edition) will support direct execution of x86 DOS and Windows+ 3.x binary applications used on today's personal computers. A comprehensive set of developers tools will be available to assist in porting 16-bit to 32-bit OS/2 applications. Investment in OS/2 32-bit applications is preserved, as most existing applications only require a recompile to exploit the IBM PowerPC microprocessor. OS/2 users and developers can exploit their existing skills because of the single and consistent implementation of the

OS/2 API set.

OS/2 Warp Connect (PowerPC Edition) will also provide a valuable set of networking and communications software as part of the software strategy defined by IBM's Open Blueprint. This software will support NetBIOS, SNA, IEEE 802.2, TCP/IP, and LAN Requester; provides an easy-to-use, integrated installation utility and plugs into your existing network.

OpenGL(R) for OS/2 adds the industry standard 3-D engine and API set granting developers and users access to graphics capabilities previously available only on more expensive workstations.

The IBM microkernel technology within OS/2 Warp Connect (PowerPC Edition) will provide the means of implementing the familiar OS/2 environment on new platforms. The operating environments that can be built using this powerful technology range from special-purpose systems designed for embedded controllers and hand-held devices upward to OS/2 Warp Connect (PowerPC Edition) and beyond.

OS/2 Warp Connect (PowerPC Edition) went into initial beta test in December 1994. IBM will expand the current beta program to allow a larger set of customers to participate. For information on how to participate, members of the IBM Developer Assistance Program should contact their SDO relationship manager. Corporate developers should contact their IBM OS/2 marketing specialist.

General availability in U.S. English for OS/2 Warp Connect (PowerPC Edition) is planned for 4Q95 (depending on beta test results). OS/2 Warp Connect (PowerPC Edition) will be competitively priced. Special bid requests will be accepted immediately. The announcement and availability of these products, features and components is subject to IBM business and technical judgement.

Previews provide insight into IBM plans and directions. General availability, prices, ordering information, and terms and conditions will be provided when the products are announced.

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DESCRIPTION

IBM OS/2 Warp Connect (PowerPC Edition)

Integrated Connectivity: OS/2 Warp Connect (PowerPC Edition) will provide a valuable set of networking and communications software. Network Services will provide a framework to support multiple networking protocols including: NetBIOS, IEEE 802.2, TCP/IP, and SNA APPC and APPN(R) End Node.

A series of communications APIs (based on Berkeley sockets) will be supported for TCP/IP, NetBIOS, and Local Inter-Process Communications (IPC). APPC and CPIC APIs will be provided for SNA.

IBM OS/2 Warp Connect (PowerPC Edition) LAN Requester will provide a subset of function in OS/2 LAN Server 4.0 LAN Requester. IBM OS/2 Warp Connect (PowerPC Edition) LAN Requester will support attachment to:

- OS/2 LAN Server Version 3.x or 4.0
- IBM LAN Server for AIX(R)
- LAN Manager

- Windows for Workgroup 3.11
- Windows NT Advanced Server

The user interface will provide:

- A command line interface for network commands and LAN Server Services support
- Programming interfaces for Net APIs, Named Pipes and Mailslots
- Graphical user interface based on OS/2 LAN Server 4.0 and an OS/2 Warp Connect (PowerPC Edition) Workplace Shell Interface

The LAN Requester Redirector will support the Physical File System, printer devices, and pipes.

Development Tools: OS/2 Warp Connect (PowerPC Edition) includes a new object oriented scripting language, Object REXX. Object REXX is used to drive the user interface as well as other object based technologies. Object REXX is an extension to the REXX language and supports existing REXX programs.

The following application development tools for the IBM Power Series family, although not part of OS/2 Warp Connect (PowerPC Edition), are separately available. For a list of additional application development tools, see the Statement of General Direction section.

- IBM VisualAge(TM) C++ -- The VisualAge family represents IBM's object-oriented offerings for enabling a powerful new vision of programming based on constructions from parts. The VisualAge family is an award-winning, visual development environment for creating line-of-business applications.

VisualAge C++ for OS/2 provides a means of deploying high-performance business applications by combining a high degree of compatibility with VisualAge C++ Version 3 on OS/2 Warp Version 3 (x86) with state of the art RISC optimization. A native version and a version hosted on OS/2 Warp Version 3 (x86) will be provided.

- IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition) -- Available as part of The Developer Connection for OS/2 and IBM VisualAge C++, the toolkit is positioned to assist developers of Power Series specific applications and allow a recompile of existing OS/2 applications running on x86 processors to run on the IBM Power Series family.

The combination of application development function contained in OS/2 Warp Connect (PowerPC Edition), the Developer Connection for OS/2, and these separately available tools, will provide a superior set of development tools and aids.

IBM microkernel technology: The IBM microkernel technology will provide the means to implement the familiar OS/2 environment on new platforms. The microkernel was designed with three express purposes in mind: portability, scalability, and modularity. Because the range of new chipsets coming into the market is growing increasingly more diverse, traditional monolithic operating systems built and written expressly to one chipset architecture may not be able to be quickly and easily moved to new families of processors. This scenario impacts your ability to leverage existing code bases and skillsets in order to take immediate advantage of the new opportunities created by these evolutions of technology.

Use of IBM microkernel technology also establishes a highly modular architecture whereby components written to its interface can be scaled along with the microkernel. These components, known as "services", are written to specific functional purposes such as file systems, transport providers, security systems, or LAN services. Whichever services are needed in a particular environment for a particular purpose are simply "plugged into" the microkernel. A grouping of these services yields the familiar OS/2 operating system.

OS/2-specific elements such as the Workplace Shell user interface, 32-bit API and libraries, command set, and other functions are entirely consistent across all members of the OS/2 family.

The operating environments that can be built using this powerful new technology range from special-purpose systems designed for embedded controllers and hand-held devices upwards to the new PowerPC Edition of OS/2 Warp Connect. OS/2 Warp Connect (PowerPC Edition) over time will scale from powerful user-centric desktops to massively parallel servers.

IBM microkernel technology is available in source code form by calling 800-816-7493 or 407-443-6805.

OpenGL 3-D Graphics Support: OpenGL is a highly functional 3-D API currently available on many workstation platforms. It supports precise immediate mode 3-D rendering of points, lines, polygons, and Non-Uniform Rational B-Spline (NURBS) surfaces. OpenGL contains support for multiple light sources, anti-aliasing, texture mapping, fogging, hidden surface removal, transparency, motion blur, and double buffering. OpenGL is used by CAD, entertainment, industrial design and modeling, biochemistry, and scientific visualization applications.

OpenGL on OS/2 does not require additional 3-D graphics hardware support. It is a complete software implementation whose performance scales with CPU power. The OpenGL graphics pipeline has been tuned extensively for the PowerPC architecture to take advantage of its floating-point power.

OpenGL device driver source code will be available in The IBM Developer Connection Device Driver Kit for OS/2. This device driver source, when tailored to 3-D graphics boards, can bring a much higher level of performance to 3-D graphics applications.

Multimedia Support: The multimedia application development support of OS/2 Warp Version 3 is carried over to OS/2 Warp Connect (PowerPC Edition). Included will be CD Audio, MIDI playback, image support, animation, video support, Kodak** PhotoCD**, and support for the Yamaha** OPL3 FM Synthesizer.

- IBM SoftMIDI Synthesizer

The IBM SoftMIDI Synthesizer will use high-quality audio sampling and supports the General MIDI standard. MIDI files will allow complex musical compositions to be represented in a very compact form and played back on music synthesizers. This exciting music synthesizer will be capable of responding to General MIDI files to produce high quality music. The General MIDI files will provide music for multimedia presentations, games, educational software and any other multimedia application with files much smaller than digitized .WAV files. The IBM SoftMIDI Synthesizer can be configured for different environments, providing entry level to high level music sound quality without additional audio hardware. It supports up to 32 voices. Normally a special add-on card is required to provide wavetable music synthesis. The IBM SoftMIDI Synthesizer is another example of using the advanced architecture and floating point capability of the IBM PowerPC processors.

- Crystal** Business Audio Driver

The IBM Power Series systems will have built-in audio support via the Crystal 4231 or the Crystal 4232 Audio Systems. OS/2 Warp Connect (PowerPC Edition) supports the Crystal 4231 Audio System that is included on the ThinkPad(R) Power Series and the Crystal 4232 Audio System that is included on the IBM Personal Computer Power Series.

OS/2 Warp Connect (PowerPC Edition) will provide the standard support of Wave, Aux, and MIDI functions. In addition to this standard feature set, the audio driver will support a full duplex mode of operation, wherein playback and record can be performed simultaneously, and an enhanced full duplex mode where playback and record can be performed simultaneously at different sample rates. The audio driver will also provide for the control of the volume of sound to be recorded.

Internationalization: OS/2 Warp Connect (PowerPC Edition) will contain XPG/4, a library of APIs, commands, and locales defined by the X/Open Portability Guide, Version 4. This will allow for portability of applications and a code-set independent, locale-based, internationalization model.

Improved Installability:

- CD-ROM availability -- OS/2 Warp Connect (PowerPC Edition) will be bootable and installable from CD-ROM.
- Feature Install program -- will allow use of the same method to install the operating system as well as service updates that may be required in the future; and it provides a means to remove unwanted features, in essence providing an un-install capability.

Improved Operations: The system registry will:

- Provide the capability to dynamically modify the system configuration without having to reboot the system.
- Provide a database to store information such as, system information, process environment variables, and application profile information normally kept in .INI and CONFIG.SYS files.
- Be available in object code form by calling 800-816-7493 or 407-443-6805.

IBM DEVELOPER CONNECTION OFFERINGS

IBM Developer Connection for OS/2

The IBM Developer Connection for OS/2, continuing proof of IBM's commitment to OS/2 developers, can greatly increase your productivity by providing you with the latest IBM Power Series family and x86 application development tools, each under the appropriate software license agreement, pre-release software, which may include the OS/2 Warp Connect (PowerPC Edition) beta, product demos, and information you need on today's most convenient medium -- a CD-ROM.

IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition): The IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition) will be available as part of The Developer Connection for OS/2. The toolkit is positioned to assist developers of Power Series family specific applications and allow a recompile of existing OS/2 applications running on x86 processors to run on the IBM Power Series family.

OS/2 Warp Connect (PowerPC Edition) will provide application enabling services that allow end-user functions such as database, office system support, system management, and multisystem support to operate transparently over a network. By integrating the Open Blueprint elements of networking and communication services, OS/2 Warp Connect (PowerPC Edition) will provide many of the APIs upon which network-aware applications can be written. The network and communications APIs are defined and available through The IBM Developer Connection offering.

The IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition) will include:

- Tools for building programs such as linker, archiver, resource compiler, object, and executable file analysis tools
- Resource editors and build tools (OS/2 Warp Version 3.0 level)

- System Object Model (SOM) compiler and emitters
- Headers and import libraries for defining and resolving OS/2 Warp Connect (PowerPC Edition) API calls
- Online documentation -- programming references and guides
- Code tutorial to demonstrate coding techniques for:
 - Presentation Manager(R)
- Workplace Shell
- Multimedia
- Object REXX
- System Object Model (and others)
- Application debugging aids
 - IBM Code Analysis Tool (ICAT)

Technical support for The IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition) will be available by calling 800-992-4777 and is free for up to 60 days. Electronic support will be provided through CompuServ, OS/2 BBS, and the Internet.

An annual subscription to The IBM Developer Connection for OS/2 keeps your tools and information from becoming dated. Each year you'll receive four volumes including CDs and the Developer Connection News, each packed with the tools and information you need for your OS/2 development efforts. To subscribe and receive IBM Power Series family development tools, call IBM at a number listed below and subscribe to The IBM Developer Connection for OS/2:

800-6-DEVCON (633-8266), 303-330-7655 (fax)

To order The IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition) Technical Library only, call 800-426-7282.

The IBM Developer Connection Device Driver Kit for OS/2

The IBM Developer Connection Device Driver Kit for OS/2 contains sample source code for developing display drivers for OS/2 Warp Connect (PowerPC Edition). This includes the display drivers based on the new layered Graphics Adapter Display Driver (GRADD) architecture, as well as the new printer models that use the Graphics Raster Engine (GRE) and the Generic Printer Library (GenPLib).

The GRADD model simplifies the work of development drivers because the device dependent code has been separated from the device independent code. The printer model allows you to use a common code base for OS/2 Warp Connect (PowerPC Edition) and the x86 platform. This means that all of the printer source code available for x86 platform also runs on OS/2 Warp Connect (PowerPC Edition). The GRE, coupled with the GenPLib, make developing printer drivers simpler and faster than ever.

OpenGL device driver source code will be available in The IBM Developer Connection Device Driver Kit for OS/2. This device driver source, when tailored to 3-D graphics boards, can bring a much higher level of performance to 3-D graphics applications.

To order The IBM Developer Connection Device Driver Kit for OS/2, call:

800-6-DEVCON (633-8266), 303-330-7655 (fax)

STATEMENTS OF GENERAL DIRECTION

The following products, features and components will be offered independently of OS/2 Warp Connect (PowerPC Edition) and will be announced with their own packaging plan, prices, terms and conditions, and availability schedules.

OS/2 Server for IBM Personal Computer Power Series

IBM will provide OS/2 based server software that supports IBM Personal Computer Power Series systems.

OS/2 Application Development Tools for IBM Power Series

IBM offers tools for application developers to help leverage investments in existing systems, find new ways to gain quantum leaps in productivity via workflow-enabled applications, and gain competitive advantage by building applications based on object-oriented technology. These tools will enable the development of software that conforms to many of the standards supported by the Open Blueprint. The tools will allow application developers to be more responsive to the changing business needs of the organization.

IBM application development offerings deliver design and modeling capabilities, a broad set of languages to build applications and an application management environment for effective team development.

IBM intends to deliver application development offerings that will run on OS/2 Warp Connect (PowerPC Edition). Examples include:

- VisualAge Family

The VisualAge family represents IBM's object-oriented offerings for enabling a powerful new vision of programming based on constructions from parts. The VisualAge family is an award-winning, visual development environment for creating line-of-business applications.

VisualAge C++ for OS/2 provides a means of deploying high-performance business applications by combining a high degree of compatibility with VisualAge C++ Version 3 on OS/2 Warp Version 3 (x86) with state of the art RISC optimization. Both a native version and a version hosted on OS/2 Warp Version 3 (x86) will be provided.

VisualAge Smalltalk for OS/2 offers an easy-to-learn and use visual development environment for creating business applications.

- VisualGen(TM) for OS/2

IBM's enterprise 4GL for developing network applications will be enhanced to support application execution on IBM Power Series hardware. VisualGen for OS/2 combines a powerful visual programming facility with a robust 4GL to deliver an object-based application development environment. VisualGen enables programmers to develop distributed, multiplatform applications for complex business solutions.

- VRPG CLIENT/2(TM)

VRPG Client/2 is an integrated development environment for building client/server applications with the AS/400(R) as the target server. With VRPG Client/2 distributed logic, business applications can be built by utilizing existing RPG skills.

- IBM COBOL for OS/2 and IBM PL/I

IBM will extend the capabilities of COBOL and PL/I, third generation programming languages, to take advantage of the capacity of the PowerPC platform and leverage existing investments in line-of-business applications.

- IBM TeamConnection Client for OS/2 Warp Connect (PowerPC Edition)

Software for managing, versioning, and building applications in a team environment.

- DataAtlas

A data dictionary that manages data models and versioning.

The IBM Developer Connection Device Driver Kit

The IBM Developer Connection Device Driver Kit will contain the source code and tools for building device drivers on the PowerPC and x86 platforms. This product will be delivered with The IBM Developer Connection for OS/2, which will contain The IBM Developer's Toolkit for OS/2 Warp Connect (PowerPC Edition).

OS/2 Products for IBM Power Series

IBM intends to offer the following products, features, and components to run on OS/2 Warp Connect (PowerPC Edition):

- Networking
 - IBM Personal Communications/3270 for OS/2 Warp Connect (PowerPC Edition)

This new member of the Personal Communications family will allow seamless integration of your IBM Power Series and 3270 host environments using the 802.2 interface included with the Network Services framework of OS/2 Warp Connect (PowerPC Edition). A beta level of this native full 32-bit application will also be available as part of the OS/2 Warp Connect (PowerPC Edition) beta program.

- CICS(TM) Client for OS/2 Warp Connect (PowerPC Edition)
- MQSeries(TM) client code for OS/2 Warp Connect (PowerPC Edition)
- IBM WebExplorer for OS/2 Warp Connect (PowerPC Edition)
- Systems Management
 - SystemView(R) Agent

The SystemView Agent will provide general-purpose management functions. These functions will be built on industry standards like Simple Network Management Protocol (SNMP) and the Desktop Management Task Force's (DMTF) Desktop Management Interface (DMI). The SystemView Agent will provide for the management of current SNMP sub-agents or DMI-enabled resources up to any SNMP manager.

- NetView(R) Distribution Management Agent

- Distributed Security Manager client
- ADSTAR(R) Distributed Storage Manager (ADSM)
- Data Management
 - DB2(R) Client Application Enabler for OS/2 Warp Connect (PowerPC Edition)
 - IBM DB2 Software Developer's Kit for OS/2 Warp Connect (PowerPC Edition)
 - DataGuide(TM) for OS/2 Warp Connect (PowerPC Edition)
 - DataPropagator(TM) Relational
- Workgroup
 - IBM WorkGroup for OS/2 Warp Connect (PowerPC Edition)

IBM WorkGroup for OS/2 Warp Connect (PowerPC Edition) will deliver a rich palette of modular, customizable, scalable functions that encompass group communications, information management, and workflow. The initial delivery of IBM WorkGroup consists of agent, directory, fax, mail, and scheduling and calendaring. Additional function will be derived from products such as:

- Visual Document Library -- document management
- Visual Info -- image management
- BookManager(R) -- softcopy publication
- FlowMark(TM) -- workflow
- Visualizer -- data analysis
 - UltiMail Lite E-Mail for OS/2 Warp Connect (PowerPC Edition)

IBM OS/2 Warp Connect (PowerPC Edition) Client Function

IBM intends to enhance the function of OS/2 Warp Connect (PowerPC Edition) to provide additional client functions included in OS/2 Warp Connect Version 3.

IBM OS/2 Warp Connect (PowerPC Edition) BonusPak: IBM intends to provide a BonusPak for OS/2 Warp Connect (PowerPC Edition) with a function similar to that contained in the OS/2 Warp Version 3 BonusPak.

RELATED SOFTWARE ANNOUNCEMENT

IBM Human-Centered(TM) Experience (Software Announcement 295-266, dated June 19, 1995)

IBM announces the Human-Centered Experience, a group of applications designed to make working with computers more natural. The Human-Centered Experience will be included with the purchase of an IBM Personal Computer Power Series or IBM ThinkPad Power Series system when OS/2 Warp Connect (PowerPC Edition) is ordered. The Human-Centered Experience will be available in U.S. or U.S. International English only, within 90 days of the availability of OS/2 Warp Connect (PowerPC Edition).

RELATED HARDWARE ANNOUNCEMENTS

- IBM Personal Computer Power Series and IBM ThinkPad Power Series Overview (Refer to Hardware Announcement 195-176, dated June 19, 1995)

- IBM Personal Computer Power Series 850(TM) and Power Series 830(TM) and Supporting Options (Refer to Hardware Announcement 195-177, dated June 19, 1995)
- IBM ThinkPad Power Series 850 and Supporting Options (Refer to Hardware Announcement 195-178, dated June 19, 1995)
- IBM ThinkPad Power Series 820 and Supporting Options (Refer to Hardware Announcement 195-179, dated June 19, 1995)

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