



# IBM XL Fortran Advanced Edition V8.1 for Mac OS X – A new platform supported in the IBM XL Fortran family

## Overview

IBM extends the XL Fortran family to the Apple Mac OS X platform.

XL Fortran Advanced Edition V8.1 for Mac OS X now brings Fortran function to customers running the Mac OS X operating system on the new Apple Power Mac G5 computer (Power Mac G4 also supported). With this release, Apple Mac OS X developers can take advantage of proven IBM compiler technology.

XL Fortran Advanced Edition V8.1 for Mac OS X is based on the mature compiler technology of XL Fortran for AIX® and Linux. It is fully compliant with Fortran 77, Fortran 90, and Fortran 95 standards. It partially supports draft Fortran 2000 standard features. It also supports both IBM and industry extensions.

## Key prerequisites

- Computer: Apple Power Mac G5 (or Power Mac G4)
- Disk space, at minimum:
  - 80 MB for product package
  - 512 MB for paging and temporary files
- Memory: 256 MB minimum (high levels of optimization may require more memory)
- Operating system: Mac OS X V10.2 or V10.3

## Planned availability date

January 16, 2004

- Electronic software delivery
- Media and documentation

## At a glance

XL Fortran Advanced Edition V8.1 for Mac OS X includes:

- Full compliance with Fortran 77, Fortran 90, and Fortran 95 standards
- Partial draft Fortran 2000 standard support
- IBM and industry extensions
- Industry-leading optimization technology
- Exploitation of G5 architecture
- Symbolic debugging support

### For ordering, contact:

Your IBM representative or the Americas Call Centers at

**800-IBM-CALL**

Reference: YE001

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## Description

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The IBM Fortran compiler family extends support to a whole new platform, Apple Mac OS X. XL Fortran Advanced Edition for Mac OS X is based on the mature compiler technology of XL Fortran for AIX and Linux. With this release, Apple Mac OS X developers can take advantage of proven IBM compiler technology.

### Fortran 77, Fortran 90, Fortran 95 standards

XL Fortran Advanced Edition V8.1 for Mac OS X is a compiler that produces highly optimized code that exploits G5 architecture (G4 architecture also supported) and fully complies with Fortran 77, Fortran 90, and Fortran 95 standards. It partially supports draft Fortran 2000 standard features and also supports IBM and industry extensions from various compiler vendors.

Supported draft Fortran 2000 features include:

- Allocatable components
- IEEE floating point exception handling
- Pointer with INTENT attribute
- Stream-access I/O
- VALUE attribute
- PROTECTED attribute

### Exploiting the G5 architecture

XL Fortran Advanced Edition for Mac OS X exploits G5 architecture. The `-qarch` and `-qtune` compiler options instruct the compiler to generate and tune code to a specific architecture. This allows the compiler to take advantage of machine-specific instructions to further improve performance. The `-qarch` option specifies the target architectures on which the resulting programs will run. The `-qtune` and `-qcache` options refine the degree of platform-specific optimization performed.

### Industry-leading optimization technology

XL Fortran Advanced Edition V8.1 for Mac OS X includes the benefits of IBM compiler optimization technology. Through compiler options and directives, programmers are offered a number of ways to optimize their code. A range of optimization levels (`-O2`, `-O3`, `-O4` and `-O5`) allow you to perform comprehensive low-level optimization to more extensive optimization. Other compiler options for optimization include:

- `-qarch` and `-qtune` instruct the compiler to optimize applications to a number of architectures.
- `-qhot` allows for high-order transformations that specifically improve performance of loops.
- `-qipa` invokes interprocedural analysis (IPA) that enables the compiler to optimize across different files (whole-program analysis). This can result in significant performance improvements.
- `-qpdf` tunes optimization through profile-directed feedback. Results from sample program execution are used to fine tune optimizations in conditional branches and frequently executed code sections.

### Symbolic debugger support

Use `gdb` or other symbolic debuggers for your programs.

### Port or migration support

The XL Fortran Advanced Edition for Mac OS X compiler helps you port or migrate source code between Fortran compilers by providing full Fortran 77, Fortran 90, and Fortran 95 language support and selected language extensions (such as intrinsic functions, data types) from

many different compiler vendors. Code ported from XL Fortran for AIX and Linux is highly compatible with Mac OS X.

The `xl`, `f77`, and `fort77` commands provide maximum compatibility with existing Fortran 77 programs. The default options provided with the `xl` command gives access to the full range of Fortran 90 language features. The default options provided with the `xl95` command gives access to the full range of Fortran 95 language features.

XL Fortran Advanced Edition V8.1 for Mac OS X supports interlanguage calls to and from XL C/C++ Advanced Edition so that you may include C and C++ code segments within your Fortran programs.

### Xcode integration

Xcode is Apple's new integrated development environment for developing software on Mac OS X. Xcode provides a powerful user interface to many industry-standard and open-source tools, including GCC, `javac`, `jikes`, and `GDB`. Xcode contains templates for creating applications, frameworks, libraries, plug-ins, Java™ applications and applets, and command-line tools.

XL Fortran Advanced Edition V8.1 for Mac OS X is enabled for the Xcode application development environment by allowing the XL Fortran compiler to be invoked from within Xcode.

### Fortran run-time environment (RTE)

On the same media of XL Fortran Advanced Edition V8.1 for Mac OS X, a run-time environment to support library modules and I/O services and utilities is provided.

### Documentation and online help

XL Fortran Advanced Edition V8.1 for Mac OS X provides product documentation in HTML and Portable Document Format (PDF), and Man page formats. The HTML version has a search function as part of Apple Help Center.

- XL Fortran Advanced Edition for Mac OS X User's Guide
  - Explains how to compile, link, and run programs that are written in the Fortran language
- XL Fortran Advanced Edition for Mac OS X Language Reference
  - Describes the Fortran programming language
- XL Fortran Advanced Edition for Mac OS X Installation Guide
  - Briefly explains what prerequisites are needed and how to install this product

### Technology preview — Selected functions

The selected function below is provided as a "technology preview" with the XL Fortran Advanced Edition V8.1 for Mac OS X product. Technology previews provide insight into IBM plans and directions and information is provided "as-is" and without warranty or condition of any kind. Availability of the selected function will be announced at a later date.

### OpenMP

OpenMP is an industry specification describing a common set of APIs, which support Symmetric Multi-Processing (SMP) programming in C/C++ and Fortran on all architectures, including UNIX and Windows NT™ platforms. OpenMP is a portable, scalable model. This gives shared-memory parallel programmers a simple and

flexible interface for developing parallel applications for platforms ranging from the desktop to the supercomputer.

XL Fortran Advanced Edition V8.1 for Mac OS X provides a technical preview of OpenMP Fortran API V2.0 support. For more information on the OpenMP, visit:

**<http://www.openmp.org/specs/>**

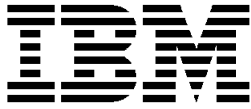
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Windows NT is a trademark of Microsoft Corporation.

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# IBM US Announcement Supplemental Information

January 13, 2004

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## Offering information

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Product information is available through the Offering Information Web site at:

<http://www.ibm.com/common/ssi>

and through the Passport Advantage® Web site at:

<http://www.ibm.com/software/passportadvantage>

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## Publications

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No publications are shipped with this product.

The IBM Publications Center:

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card or customer number. A large number of publications are available online in various file formats, and they can all be downloaded free of charge.

The IBM Publications Notification System:

<http://service5.boulder.ibm.com/pnsrege.nsf/messages/welcome>

The Publications Notification System (PNS) enables subscribers to set up profiles of interest by order number/product number. PNS subscribers automatically receive notifications by e-mail of all new publications defined in their profiles. These may then be ordered/downloaded via the Publications Center.

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## Technical information

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### Hardware requirements

- Computer: Apple Power Mac G5 (or Power Mac G4)
- Disk space, at minimum:
  - 80 MB, for product package
  - 512 MB, for paging and temporary files
- Memory: 256 MB minimum (high levels of optimization may require more memory)
- CD-ROM drive
- Mouse or pointer device

### Software requirements

- Operating system: Mac OS X V10.2 or V10.3
- Mac OS X Developer Tools Package which includes gcc V3.3

- To access and display the documentation:
  - A frames-capable browser to access HTML-format online documentation
  - or
  - A PDF viewer to view PDF files

### Planning information

To find additional details on XL Fortran compiler information, visit:

<http://www.ibm.com/software/awdtools/fortran>

**Customer responsibilities:** XL Fortran Advanced Edition V8.1 is licensed based on a charge unit of one authorized user per operating system. Separate user authorizations are required by individual users for each operating system on which the program is used. For each user authorization on a given operating system, the program may be stored on more than one machine, provided that the program is not in active use by that individual user on more than one machine at the same time.

An authorized user is an individual or specific named user authorized to have access to the program or any portion of the program on a single operating system. The Proof of Entitlement for this program is evidence of your authorization. Each individual or specific named user must obtain a Proof of Entitlement for each operating system on which the program is used.

When XL Fortran Advanced Edition V8.1 is ordered, its run-time component is shipped with the compiler on the same media. Solution developers who sell applications that pre-req the XL Fortran run-time environment may redistribute it to their customers but their customers will not receive support directly from IBM. Solution developers wanting their customers to receive support directly from IBM should require their customers to purchase XL Fortran Advanced Edition V8.1 licenses.

Software Maintenance, previously referred to as Subscription and Technical Support, is now included in the Passport Advantage Agreement. Installation and technical support for the products announced in this letter are provided by the Software Maintenance offering of the IBM International Passport Advantage Agreement. This fee service enhances customer productivity by providing voice and/or electronic access into the IBM support organizations.

For additional information, contact your IBM representative or IBM Business Partner, or refer to the IBM software support Web site at:

<http://www.ibm.com/software/support/>

**Packaging:** XL Fortran Advanced Edition V8.1 for Mac OS X media package:

- One CD-ROM containing XL Fortran Advanced Edition V8.1 for Mac OS X

*This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.*

- Passport Advantage Customer Letter
- PA Media Pack Pointer Sheet
- License Information Booklet
- License Agreement Booklet

### **Security, auditability, and control**

XL Fortran Advanced Edition for Mac OS X uses the security and auditability features of the Mac OS X operating system.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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### **Ordering information**

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This product is only available via Passport Advantage. It is not available as shrinkwrap.

#### **Product information**

<b>Licensed function title</b>	<b>Product group</b>	<b>Product category</b>
IBM XL Fortran Advanced Edition	App Integration Middleware Other	XL Fortran

XL Fortran Advanced Edition V8.1 has one charge unit: Authorized user

It is available in fixed order quantities of one authorized user.

**Note:** XL Fortran Advanced Edition V8.1 is licensed based on a charge unit of one authorized user per operating system. Separate user authorizations are required by individual users for each operating system on which the program is used. For each user authorization on a given operating system, the program may be stored on more than one machine, provided that the program is not in active use by that individual user on more than one machine at the same time.

An authorized user is an individual or specific named user authorized to have access to the program or any portion of the program on a single operating system. The Proof of Entitlement for this program is evidence of your authorization. Each individual or specific named user must obtain a Proof of Entitlement for each operating system on which the program is used.

When XL Fortran Advanced Edition V8.1 is ordered, its run-time component is shipped with the compiler on the same media. Solution developers who sell applications that pre-req the XL Fortran run-time environment may redistribute it to their customers but their customers will not receive support directly from IBM. Solution developers wanting their customers to receive support directly from IBM should require their customers to purchase XL Fortran Advanced Edition V8.1 licenses.

### **Passport Advantage program licenses**

#### **XL Fortran Advanced Edition for Mac OS X**

<b>Part description</b>	<b>Part number</b>
<b>XL Fortran Advanced Edition</b>	
XL Fortran Adv for Mac OS X Users License & SW Maintenance 12 Months	D5308LL
XL Fortran Adv for Mac OS X Users SW Maintenance Reinstatement 12 Months	D5309LL
XL Fortran Adv for Mac OS X Users SW Maintenance Annual Renewal	E012CLL

#### **Passport Advantage supply**

##### **XL Fortran Adv for MAC OS X V8.1.0**

Media Pack English US Apple Macintosh Operating System CD-ROM Digital Disk — ISO 9660 Standard V8.1.0	BA0BRNA
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#### **Passport Advantage customer: media pack entitlement details**

Customers with active maintenance or subscription for the products listed below are entitled to receive the corresponding media pack.

##### **XL Fortran Adv for Mac OS X V8.1.0**

<b>Entitled maintenance offerings description</b>	<b>Media packs description</b>	<b>Part number</b>
XL Fortran Advanced Edition for Mac OS X	XL Fortran Adv for Mac OS X English U.S. Apple Macintosh Operating System	BA0BRNA

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### **Terms and conditions**

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**Agreement:** IBM International Program License Agreement. Proofs of Entitlement (PoE) are required for all authorized use.

Part number products only, offered outside of Passport Advantage, where applicable, are license only and do not include Software Maintenance.

#### **License information form numbers**

<b>Program name</b>	<b>Program number</b>	<b>Form number</b>
XL Fortran Advanced Edition for Mac OS X	5724-G13	CT2J2NA

**Limited warranty:** Yes

**Warranty:** This program has warranty for a minimum of one year from acquisition from IBM or authorized Business Partner. The warranty provided to the customer, for at least one year from acquisition, is access to data bases (read Web sites) for program information, FAQs, including any known fixes to defects, which the customer can download or obtain otherwise and install at their leisure.

**Program technical support:** Technical support of a program product will be available for a minimum of three years from the general availability date, as long as your Software Maintenance is in effect. This technical support allows you to obtain assistance (via telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Maintenance also provides you with access to updates, releases, and versions of the program. Customers will be notified, via announcement letter, of discontinuance of support with 12 months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or Business Partner. This extension may be available for a fee.

**Money-back guarantee:** If for any reason you are dissatisfied with the program, return it within 30 days from the invoice date to the party (either IBM or its reseller) from whom you acquired it for a refund. This applies only to your first acquisition of the program.

**Copy and use on home/portable computer:** Yes

**Volume orders (IVO):** No

**Passport Advantage applies:** Yes, and through the Passport Advantage Web site at:

<http://www.ibm.com/software/passportadvantage>

**Software maintenance applies:** Yes

Software Maintenance, previously referred to as Subscription and Technical Support, is now included in the Passport Advantage Agreement. Installation and technical support for the products announced in this letter are provided by the Software Maintenance offering of the IBM International Passport Advantage Agreement. This fee service enhances customer productivity by providing voice and/or electronic access into the IBM support organizations.

IBM includes one year of Software Maintenance with the initial license acquisition of each program acquired. The initial period of Software Maintenance can be extended by the purchase of a renewal option that is available.

While your Software Maintenance is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, consult your IBM Software Support Guide at:

<http://techsupport.services.ibm.com/guides/handbook.html>

Software Maintenance does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

For more information about the Passport Advantage Agreement, refer to the IBM International Passport Advantage Agreement Software Announcement 201-202, dated July 10, 2001.

You can visit the Passport Advantage Web site at:

<http://www.ibm.com/software/passportadvantage>

**IBM operational support services — support line:** No

**iSeries™ software subscription applies:** No

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## Prices

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### Passport Advantage

For Passport Advantage information and charges, contact your IBM representative or authorized IBM Business Partner. For additional information about the Passport Advantage offering, visit the following Web site:

<http://www.ibm.com/software/passportadvantage>

To order, contact the Americas Call Centers, your local IBM representative, or your IBM Business Partner.

To identify your local IBM Business Partner or IBM representative, call 800-IBM-4YOU (426-4968).

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## IBM electronic services

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IBM Global Services has transformed its delivery of hardware and software support services to put you on the road to higher systems availability. IBM Electronic Services is a Web-enabled solution that provides you with an exclusive, no-additional-charge enhancement to the service and support on the IBM eServer®. You should benefit from greater system availability due to faster problem resolution and preemptive monitoring. IBM Electronic Services is comprised of two separate but complementary elements: IBM Electronic Services news page and IBM Electronic Service Agent™.

IBM Electronic Services news page provides you with a single Internet entry point that replaces the multiple entry points traditionally used by customers to access IBM Internet services and support. By using the news page, it enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The IBM Electronic Service Agent is no-additional charge software that resides on your IBM eServer system. It is designed to proactively monitor events and transmit system inventory information to IBM on a periodic customer-defined timetable. The IBM Electronic Service Agent tracks system inventory, hardware error logs, and performance information. If the server is under a current IBM maintenance service agreement or within the IBM Warranty period, the Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to provide proactive service that maintains higher system availability and performance. In addition, information collected through the Service Agent will be made available to IBM service support representatives when they are helping answer your questions or diagnosing problems.

To learn how IBM Electronic Services can work for you, visit:

<http://www.ibm.com/support/electronic>

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Dept: IBM CALL, 6th Floor  
105 Moatfield Drive  
North York, Ontario  
Canada M3B 3R1

Reference: YE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

**Note:** Shipments will begin after the planned availability date.

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