

Exemplar Fortran V1.00.00

Release Notice

Contents

Introduction	3
How to run Exemplar Fortran	3
Requirements and compatibility	3
Installation notes	4
Known problems	5
Associated documents	5
Getting assistance	6

Exemplar Fortran V1.00.00 Release Notice

Publication Date October 15, 1996

Copyright © Copyright Hewlett-Packard Company 1996

This document may, however, be copied, duplicated, reproduced, translated, stored electronically, or reduced to machine-readable form without prior written consent from Hewlett-Packard Convex Division.

Release Notice Location

Text and postscript versions of this notice are installed as

- /opt/fortran/newconfig/RelNotes/Fortran.exemplar.1.00.00 (text)
- /opt/fortran/newconfig/RelNotes/Fortran.exemplar.1.00.00.ps



Introduction

This document describes the Exemplar V1.00.00 release of the f77 Fortran compiler. This version of Hewlett-Packard's Fortran compiler is derived from the 10.20 version of the HP f77 product. It has been modified to support the Exemplar programming model, allowing for creation, profiling, and debugging of thread-parallel applications on Exemplar S-Class and X-Class systems.

This document is organized as follows:

- How to run Exemplar Fortran
- Requirements and compatibility
- Known problems
- Associated documents
- Getting assistance

Whenever you encounter a new problem with this product, please report it to the Technical Assistance Center (TAC) of the Convex Division of Hewlett-Packard. Reporting procedures are described in the *Getting Assistance* section of this document.

How to run Exemplar Fortran

The installation procedures and directory structure of the Exemplar Fortran compiler are identical to those of the 10.20 version of the HP Fortran compiler. Only one version of the Fortran compiler can exist on a single system. The installation software provides support for replacing the version of the compiler that is installed on a system.

Installation locations

This product is installed in the `/opt/fortran` directory and in the `/opt/langtools` directory.

Running the compiler

The `f77` or `fort77` drivers are used to invoke the compiler. The following instructions will use `f77`. The instructions for using `fort77` are the same, except `f77` is replaced with `fort77`.

The `f77` driver can be invoked in several ways. The recommended method is to add the directory `/opt/fortran/bin` to your `PATH` environment variable. HP recommends that system administrators add this directory to each user's `PATH` variable automatically.

Another approach is to fully specify the complete path to the `f77` driver (`/opt/fortran/bin/f77`). This can be done explicitly, via a shell alias or with a shell script.

Requirements and compatibility

This section describes the hardware and operating system requirements for the product. It also discusses compatibility with other products and previous software versions.

Hardware and operating system requirements

The V1.00.00 release of Exemplar Fortran is supported on the following hardware platforms:

- Convex Exemplar SPP1200 CD and XA systems.

- Convex Exemplar SPP1600 CD and XA systems.
- HP Exemplar S-Class and X-Class systems.

Version 5.0 or greater of the SPP-UX operating system is required to use the Exemplar V1.00.00 Fortran compiler.

Compatibility

Object files containing kernel-threaded parallelism used by the Exemplar programming model are not compatible with object files compiled for other models of parallelism. For this reason, HP recommends that any object files compiled with other versions of the HP Fortran compiler at optimization levels +O2 and higher be recompiled with the Exemplar Fortran 1.00.00 compiler.

Applications and object files compiled for the Exemplar S-Class and X-Class systems may contain PA-RISC 2.0 instructions and therefore will not run on SPP1200 or SPP1600 systems.

The optimization technology used by this compiler differs from that used by previous Convex compilers. As a result of the different transformations available and the limitations or restrictions on each of these transformations, individual codes or code segments may experience a greater or lesser degree of optimization using this compiler than they experienced using previous Convex compilers.

Applications compiled with the Exemplar Fortran V1.00.00 compiler are compatible with the following profiling and debugging tools:

- CXdb version 3.9.1
- CXpa version 3.9.1

Refer to the cxdb(1) and cxpa(1) man pages or the CXdb and CXpa online help systems for information using these tools with Exemplar compilers.

Installation notes

This product has been packaged for use with the SD software distribution package. To install this product, use the swinstall command of SD and specify installation of the product:

```
FORTRAN, r==CXD-1.00.00Beta
```

Selection of this product will automatically select installation of corequisite products if they have not been previously installed.

See the Exemplar Software Installation document for instructions on loading products using SD.

Installing updates

In general, updates to HP Fortran V10.20 are **not compatible** with Exemplar Fortran V1.00.00. Before installing any patch or update, make sure that it applies to the Exemplar Fortran V1.00.00 compiler. If you are not sure whether an update applies to Exemplar Fortran V1.00.00, consult the TAC using the information provided in the *Getting Assistance* section of this release notice.

Product licensing

Exemplar Fortran is a licensed product. Its use is restricted by your agreement with Hewlett-Packard Company. No license key is required to activate the product.

Known problems

This section lists known problems or limitations related to this release of the Exemplar Fortran compiler that are specific to this version of the compiler. Refer to the file `/opt/fortran/newconfig/RelNotes/Fortran.10.20` for known problems that also occur in the HP V10.20 release of the compiler.

x58414

The Exemplar programming model syntax for the `no_side_effects` directive is ignored.

```
C$dir no_side_effects(routinename)
```

is currently ignored. The workaround for this problem is to use the alternate HP f77 syntax:

```
CDIR$ no side effects routinename
```

x58260

The `loop_parallel` directive is ignored if the loop iteration count is less than 7. To work around this problem, turn off dynamic selection using either the `+Onodynsel` command line argument or by using the `nodynsel` directive.

inquire

Calling `inquire()` on a closed file which is larger than 2GB results in an error code being returned via `iostat`.

loop_private parameters

On loops containing both a `loop_parallel` directive and a `loop_private` directive whose argument is a formal parameter, the `loop_parallel` directive is ignored.

save_last

The `save_last` directive is not currently implemented. The `loop_parallel` directive is ignored on loops containing both the `loop_parallel` and `save_last` directives.

synchronization routines

Calling a synchronization routine (`critical_section`, `ordered_section`, or user defined `sync_routine`) from a parallel loop causes unpredictable results in cases where compiler created temporary variables are referenced in the loop. A workaround is to move the call to the synchronization routine to an auxiliary routine and call the auxiliary routine from the parallel loop.

thread_private with alternate entries

Referencing `thread_private` data in a routine with alternate entries results in runtime errors.

Associated documents

Hewlett-Packard Company provides the following documents to help you use the f77 compiler and associated tools:

- *Programming on HP-UX* (B2355-90652): This book describes how to develop software on HP-UX using the HP compilers, assemblers, linker, libraries, and object files.
- *FORTRAN/9000 Programmer's Reference* (B3906-90002): This book is a language reference.
- *FORTRAN/9000 Programmer's Guide* (B3906-90001): This manual is a task reference. It describes features and requirements in terms of the tasks a

programmer might perform. These tasks include how to compile, link, run, debug, and optimize programs.

- *Exemplar Programming Guide* (DSW-067). This book describes efficient programming techniques for SPP1200 and SPP1600 systems.
- *Exemplar C and Fortran 77 Programmer's Guide* (DSW-082). This book is an introduction to the use of the Exemplar C and Fortran 77 compilers.
- *Assembly Language Reference Manual* (92432-90001): This manual describes the use of the Precision Architecture RISC (PA-RISC) Assembler.
- *HP MPI User's Guide* (DSW-493): This book discusses message-passing programming using the Message-Passing Interface library.
- *HP PVM User's Guide* (DSW-501): This book discusses message-passing programming using the Parallel Virtual Machine library.
- *SPP-UX System Administrator's Guide* (DSW-853): This manual describes fundamental concepts and tasks associated with setting up and maintaining an S-Class or X-Class system.

Ordering documents

To order the current edition of this or any other Exemplar document, send requests to:

Convex Division of Hewlett-Packard Company
Customer Service
P.O. Box 833851
Richardson TX 75083-3851 USA

Please include the order number (DSW or DHW number) or the exact title and edition of the document.

Getting assistance

If you have questions that are not answered in this book or in the documents listed in the "Associated documents" section on page 5, contact the Convex Division Technical Assistance Center (TAC) at the following locations:

Within the continental U.S., call 1-800-952-0379.

From Canada, call 1-800-345-2384.

All other locations, contact your local Convex Division office.

You can also use the contact utility, if you would like to report any problems you may have with the Exemplar compilers or the documentation. For more information refer to the contact(1) man page.