

Release Notice
CONVEX Performance Analyzer (CXpa) V1.3
Document No. 710-008130-004

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CONVEX Computer Corporation
Richardson, Texas

Release Notice, CONVEX CXpa V1.3

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Release Notice

CAUTION

CXpa V1.3 will only work with the following combinations of OS releases and Compiler releases. This information is repeated here for completeness. Please refer to the "*Read Me First*" (document number 710-009930-003) for complete details.

CONVEX FORTRAN V6.1 (or later) with ConvexOS V9.0 (or later).

CONVEX Ada V2.0 (or later) with ConvexOS V9.0 (or later).

CONVEX C V4.1 (or later) with ConvexOS V9.1 (or later).

1.1 Introduction

This document describes the V1.3 release of the CONVEX Performance Analyzer, *CXpa*. It supplements the current documentation with information and features that were developed too late to be included in the Performance Analyzer documentation. Always refer to this release notice before reporting questions or problems with *CXpa*; your questions may be answered here. Fixes and workarounds are listed here that may keep you from rediscovering known problems.

The remaining sections in this document describe the contents of this release.

- Section 2 describes the contents of this distribution.
- Section 3 contains notes and warnings about the product.
- Section 4 describes enhancements to previous functionality.
- Section 5 describes fixes to the software.
- Section 6 describes known software problems.
- Section 7 contains fixes to the documentation.
- Section 8 contains known documentation problems.

For instructions on installing the Performance Analyzer, see *Installation Procedures, CONVEX Performance Analyzer V1.3*.

1.2 Contents of This Distribution

The distribution package for this release of the CONVEX Performance Analyzer consists of

- This Release Notice
- Distribution media for the software
- Documentation

The specific contents of the software distribution is described in the following tables:

NOTE

Tape number 1 is in *installsw* format

Table 1-1: Software for USA and International Distribution

Item	Qty	Type	Part Number	Description
1.	1	Mag Tape	710-005715-006	CONVEX Performance Analyzer, V1.3

Table 1-2: Documentation Release Package

Item	Qty	Type	Part Number	Description
1.	1	Document	710-009930-003	READ ME FIRST
2.	1	Document	710-008030-004	Installation Procedures, CONVEX Performance Analyzer V1.3
3.	1	Document	710-008130-004	Release Notice, CONVEX Performance Analyzer V1.3

1.3 Notes and Warnings

This subsection contains general useful information and words of caution about the product.

- Interactive profiling of programs is only supported on C2, C3200, C3400, and C3800 machines. CONVEX no longer supports the use of CXpa on C1's. The profiler checks the machine type when it begins execution. If it detects that it is running on a C1, a user error message is given and execution is aborted.
- The profiler checks the serial number of the machine on which it is running. If the serial number does not match the expected one, a user error message is given and execution is aborted.
- For the Domestic distribution, this release requires the installation of entire contents of the following:
 - CONVEX FORTRAN V6.1 and/or CONVEX C V4.1 and/or CONVEX Ada V2.0 since these compilers instrument compiled code for interactive profiling.
 - ConvexOS and ConvexOS Utilities USA V9.0 as described in the "*Read Me First*".

For the International distribution, this release requires the installation of entire contents of the ConvexOS Utilities International V9.0 in lieu of the ConvexOS Utilities USA V9.0 respectively.

- Some CXpa responses may appear to be profiler bugs, when they are a manifestation of a compiler bug. This occurs when the compiler does not instrument or provide correct information about a routine compiled for interactive profiling. In an attempt to circumvent these manifestations, CXpa performs a consistency check on the information provided by the compiler. However, it may not detect all possible inconsistencies. If the consistency check fails, an appropriate error message is given. Please report such inconsistencies through the Technical Assistance Center (TAC).

- In order to profile a routine, CXpa must have all entries and exits instrumented. As a result, **asm** statements in C may not contain any form of a return instruction (rtn, rtq, etc ...) as the compiler will not instrument the return as an exit from the routine. If such a routine is profiled, CXpa's internal data will become corrupted and it will likely abort on user program termination.
- Restrictions for this release:
 - CXpa is no longer supported on C1's.
 - CONVEX C V3.0 and earlier releases do not support interactive profiling.
 - Loop level profiling is not supported at optimization levels -no and -O0 (see *fc(1F)*, *cc(1)*, or *ada(1A)*).
 - All parallel code executed on a multiheaded C2, C3200, C3400, or C3800 must be compiled at -pa, -pab, or -par. Violation of this restriction cannot be detected by CXpa and will result in incorrect profiles or a fatal error. This restriction often applies with the use of libraries which have not been instrumented for use with CXpa. VECLIB V5.0 and V6.0 have been instrumented to work with CXpa, whereas earlier versions were not.
 - Profiling with the Convex C V4.1 compiler in -std and -str modes is not supported because of ANSI library incompatibilities in the monitor routines.
 - Profiling C or FORTRAN programs with the instrumented version of an ANSI C library may cause CXpa to emit warning messages about improperly instrumented library routines. These library routines may be safely ignored. No profiling data will be collected for such routines. The instrumented versions of the ANSI C libraries can be found in /usr/lib/palib.
 - Profiling C or FORTRAN programs with the instrumented version of an ANSI C library in IEEE mode is not supported. You must use the -fn compiler option on IEEE machines or remove the instrumented library. The instrumented versions of the ANSI C libraries can be found in /usr/lib/palib.

1.4 Enhancements

There were no enhancements for this release.

1.5 Software Fixes

This subsection contains information on enhancements in functionality made to CXpa in this revision.

- Previously, CXpa would emit an error message and exit when it encountered loops which contained flawed compiler instrumentation. Now CXpa will still emit an error message, but will allow profiling to continue normally for all monitorable items except for those containing the flawed instrumentation.

1.6 Known Software Problems

This section contains the known problems with CONVEX Performance Analyzer software and compiler instrumentation as of September, 1991. Any problems reported after this date may not be reflected in the document. Please refer to this list before reporting a problem to ensure that it has not been reported previously. Serious problems include workarounds if they are known.

1.6.1 Compiler Instrumentation Problems

- Instrumentation is incorrect if there are two or more loops on the same line and one of the loops contains an exit. If the exit is executed, the profiling data for the loop will not be correct.
- Instrumentation of a computed GOTO for which control is transferred to a labeled statement outside the loop or the head of a hand rolled loop is incorrect. An instrumentation error will be given when the executable is read.
- At -O3, an empty loop is not instrumented correctly. An instrumentation error will be given when the executable is read.
- For nested loops in which the induction variables were merged (not indicated in the Optimization Report), the loops will have the same line numbers. The loop profile will refer to them as an 'a' and 'b' part from the same line.
- If upon invocation a p-region instrumentation error message occurs, the line mentioned refers to a parallelized loop, and the session is not aborted, the problem probably is the parallelized loop is empty. Profiling at the loop-level will give bogus profiling information for the parallelized loop in question.

1.6.2 Ada 2.0

- *CXpa 1.3* is incompatible with *Ada 1.2* or earlier.

1.7 Documentation Fixes

No documentation enhancements have been made for this release.

1.8 Known Documentation Problems

There are no known documentation problems in this release.