



Software Product Description

PRODUCT NAME: Piercom 2000 DIGITAL Version for Compaq Tru64 UNIX on Alpha, Version 2.1 **SPD 64.93.04**

DESCRIPTION

Piercom 2000™ is a software reengineering system, designed to help assess and remedy Year 2000 data problems on software systems. As part of a Year 2000 conversion project, the Piercom 2000 tool set can speed the process of identifying problems, identifying the appropriate solutions, and implementing those solutions. To identify and resolve Year 2000 problems, Piercom 2000 uses centralized repositories that hold representations of the software to be reengineered. Components of Piercom 2000 add information to, modify information in, and generate information from those repositories. Piercom 2000 is designed and developed by Piercom Ltd.

The Piercom 2000 software comprises the following main components:

- Piercom 2000 Parser™
- Piercom 2000 Examine™
- Piercom 2000 DIAMond™
- Piercom 2000 Track™
- Piercom 2000 Convert™

To help make a software system Year 2000-ready, users of Piercom 2000 must perform the following steps:

1. Copy the system to be reengineered to a workstation that has Piercom 2000 installed, and run a script called *create_application* to arrange the system in a directory structure that Piercom 2000 can use.
2. Perform preprocessing on the system for assessment.

3. Run the Piercom 2000 Parser to parse the system's source code.
4. Run Piercom 2000 Examine to identify the Year 2000 date problems in the system. Piercom 2000 Examine can operate in either date expansion or date windowing modes.
5. Run Piercom 2000 DIAMond to browse the date problems identified by Piercom 2000 Examine. You can either accept the solution suggested by Piercom 2000 Examine, or provide an alternative solution.
6. Run Piercom 2000 Convert to convert the source code.

The result of this process is a number of programs that can be tested, and when it is established that the programs are Year 2000-ready, they can be used in a production environment. The following sections explain this process in more detail.

Arranging the System for Assessment

To begin reengineering a software system, you must first run the Piercom 2000 script called *create_application* on the UNIX® workstation on which Piercom 2000 resides. This automatically creates the required directory structure for the application to be analyzed and converted. This directory structure enables the other components of Piercom 2000 to find all the relevant parts of the system when required. You must then transfer the system's source files from their host system to the UNIX workstation. The source files must include the main source files, the copy libraries, and the dictionary entries that are necessary to build a working system.

Preprocessing the System for Assessment

You may need to carry out further preparation on the source files. This preparation may include the changing of file line delimiters and the normalization of file names. A Piercom 2000 script called *prepare_original_source* removes any formatting characters required by MS-DOS® but not required under UNIX. It also changes all file names to uppercase and can remove version number extensions from files transferred directly from an OpenVMS™ environment.

Running the Piercom 2000 Parser

Piercom 2000 repositories use abstract syntax trees (ASTs) to store software information. ASTs are tree-based representations of programs with all superfluous data removed.

The Piercom 2000 Parser reads source code, divides it into its constituent parts, and stores it as a series of ASTs in a set of databases. These ASTs are the basis for all future date analysis.

If the Piercom 2000 Parser encounters an error while it parses, it stops immediately. This error must be corrected before parsing can continue.

License units for Piercom 2000 are allocated by the number of lines of code that the product can assess or remedy. For example, you can purchase a license for Piercom 2000 that allows you to use the Piercom 2000 tool set to assess and remedy five million lines of code. When the source code is parsed successfully, the number of lines that have been parsed is counted. Comment lines and blank lines are not counted. If an error is encountered during parsing, the number of lines of code that have been parsed is not incremented.

Running Piercom 2000 Examine

You now run Piercom 2000 Examine. This traverses the ASTs in the repository searching for date problems. You can assess the system in either of the following modes:

- Date expansion mode — this involves expanding all data variables and values to include century data.
- Date windowing mode — this involves considering all two-digit dates to fall within one century window. For example, a system can include a century window of 1920 to 2019. The system then considers any date value less than or equal to 19 as a 21st century date, and a date value greater than or equal to 20 as a 20th century date. Piercom 2000 does not provide the subroutines required to evaluate dates within a particular date window. Instead, Piercom 2000 Examine enables you to identify where calls to these subroutines should occur.

The assessment is controlled by a set of parameter tables that define the kind of problems to search for. You can configure Piercom 2000 Examine by editing these parameter tables. Piercom 2000 Examine uses seed-based pattern matching, combined with the maximum space allocation of variables, to identify potential date variables. For example, you can specify patterns in the parameter tables to do the following:

- Include variables with a particular string in the analysis. For example, you can include any variable that includes the string *YR*.
- Exclude variables with a particular string from the analysis.
- Specify literal strings to be included in the analysis. For example, you can include any occurrence of the string *19*.
- Provide details of subroutines called by the system being assessed whose parameters contain date details.

In addition to assessing the ASTs, Piercom 2000 Examine also produces information containing the results of the assessment and recommended actions. This information is encoded in comma-separated value (CSV) format. These files contain statistical information relating to the date and year usages within the system, and can be used in choosing appropriate solutions for the system. Because these files are in CSV format, they can be imported into Piercom 2000 Track. They can also be imported into most spreadsheet and relational database management system (RDBMS) applications.

Piercom 2000 Track is a Microsoft® Access 97 database application. The Piercom 2000 Track database provides you with a graphical user interface (GUI) to view the information generated by Piercom 2000 Examine.

Browsing the Date Problems

You can now use Piercom 2000 DIAMond to browse the date problems identified by Piercom 2000 Examine. You must first run a language-dependent script to prepare the information for browsing.

Piercom 2000 DIAMond is a GUI implemented in hypertext markup language (HTML) that enables you to browse date problems. It allows you to review problem variables identified by the assessment in the context of the original source code. You can accept or reject the solution supplied by Piercom 2000 Examine, or provide another solution.

Piercom 2000 DIAMond uses a special object-oriented format called Meta Information for Source Code (MISC) to record the date problems identified by Piercom 2000 Examine, and HTML to present the original source code in a readable format. As you work through the date problems encoded in the MISC files, the chosen solutions are recorded in the MISC files. When you have finished

reviewing all the problems in an application, the information recorded in the MISC files about remedies is added to the ASTs in the repository. This is used by Piercom 2000 Convert to convert the source code.

If you ran Piercom 2000 Examine in date windowing mode, you can browse the problems identified by the assessment. You can also edit the parameter tables to exclude particular variables from future analysis and then run the Piercom 2000 Examine again. Alternatively, you can choose whether to accept or reject the specific changes.

Converting the System

Piercom 2000 Convert implements the solutions specified by the engineer in Piercom 2000 DIAMOND. This produces programs that can then enter a testing process, before eventually being used in a Year 2000-ready production environment.

LANGUAGES SUPPORTED

This version of Piercom 2000 supports the following versions of COBOL:

- VAX COBOL™ Version 5.4 for OpenVMS, as defined in SPD 25.04.28
- DEC COBOL Version 2.4 for OpenVMS, as defined in SPD 45.92.06
- DEC COBOL Version 2.4 for Compaq Tru64™ UNIX, as defined in SPD 51.16.05

This version of Piercom 2000 supports the following versions of FORTRAN:

- DIGITAL™ Fortran 77 Version 6.5 for OpenVMS VAX™ Systems, as defined in SPD 25.16.49
- DIGITAL Fortran Version 7.1 for OpenVMS Alpha™ Systems, as defined in SPD 58.18.06
- DIGITAL Fortran Version 4.1 for Compaq Tru64 UNIX Alpha Systems, as defined in SPD 37.54.08
- PDP-11 Fortran-77/IAS Version 5.0 as defined in SPD 14.50.16

This version of Piercom 2000 supports the following versions of Pascal:

- DEC™ Pascal Version 5.5 for OpenVMS, as defined in SPD 25.11.42
- DEC Pascal Version 5.5 for Compaq Tru64 UNIX, as defined in SPD 42.46.04

Language Areas Not Supported

Not all areas of these languages are supported by Piercom 2000. For more information, see the *Piercom 2000 User Manual*.

USER ENVIRONMENT REQUIREMENTS

The user environment required to use Piercom 2000 DIGITAL Version for Compaq Tru64 UNIX on Alpha is as follows:

- A local area network (LAN) comprising a VAX, a DEC AlphaServer™ or AlphaStation™, and a number of personal computers (PCs).
- The source code of the system being reengineered, including the copy libraries and data dictionary, is stored on the VAX.
- The Piercom 2000 DIGITAL Version is installed on the Alpha.

HARDWARE REQUIREMENTS

Processors Supported:

The Piercom 2000 DIGITAL Version runs on any Alpha processor that is capable of running the correct version of Compaq Tru64 UNIX operating system.

The Piercom 2000 DIAMOND and Piercom 2000 Track components run on a standard Pentium® PC.

Other Hardware Required:

The Alpha on which the Piercom 2000 DIGITAL Version software is to be installed must have either of the following:

- A CD-ROM reader
- A digital audio tape (DAT) reader, capable of reading tapes of at least 120 meters

The PC that the Piercom 2000 DIAMOND and Piercom 2000 Track components run on must be configured as a host on a LAN that includes the VAX with the source code of the system to be reengineered, and the Alpha that the Piercom 2000 DIGITAL Version is installed on. A 17" SVGA monitor is also recommended.

Disk Space Requirements:

Piercom 2000 DIGITAL Version runs on an Alpha with the following specifications:

Disk space required for Piercom 2000 components: 60 megabytes

Disk space required for processing: Approximately 10 times the disk space used by the source files of the system to be reengineered, including copy libraries and the data dictionary.

The Piercom 2000 DIAmond and Piercom 2000 Track components run on a PC. This PC must have a one gigabyte hard disk to store the data used by these components.

Memory Requirements:

The Piercom 2000 DIGITAL Version software requires an Alpha with 128 megabytes of memory.

The Piercom 2000 DIAmond and Piercom 2000 Track components require a PC with at least 16 megabytes of memory.

SOFTWARE REQUIREMENTS

The following are the software requirements for the Alpha:

- Compaq Tru64 UNIX Version 4.0 or higher
- Perl Version 5.00 or higher
- TCP/IP software

The following are the software requirements for the PC:

- Windows® 95
- Netscape Navigator™ Version 3.X to Netscape™ Communicator Version 4.07
- Telnet Software (supplied with Windows 95)
- Piercom 2000 Track requires Microsoft Access 97

SOFTWARE LICENSING

This software is furnished only under a license. For more information about Compaq's licensing terms and policies, contact your local Compaq office, or visit the Licensing InfoCenter at <http://www.digital.com/info/software-licensing>.

The terms specified for warranty and maintenance service in this SPD supersede the standard licensing terms and policies specified by Compaq.

You need a key to use the Assessment components of the product, and another key to use the Remediation components. To obtain the key, send a request for the appropriate key to the e-mail address specified on the license. The key will be sent to you by e-mail.

License units for this product are allocated by the number of lines of code that the product can assess or remedy. The corporate license is available without a restriction on the number of lines of code.

When the source code is parsed successfully, the number of lines that have been parsed is counted. The number of lines considered for licensing purposes is the number of lines successfully parsed. Blank lines and comment lines are not counted. Lines of code within copy books are counted each time they occur within a program. If an error is encountered during parsing, the number of lines of code that have been parsed is not incremented.

GROWTH CONSIDERATIONS

The minimum hardware and software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

The Piercom 2000 DIGITAL Version is distributed on CD-ROM and on DAT.

ORDERING INFORMATION

There are two types of the Piercom 2000 DIGITAL Version available, as follows:

- Assessment and Remediation
- Assessment only

Each of these types is available for use on 1 million or on 5 million lines of code (LOC). A Corporate license is also available. A Corporate license allows Assessment and Remediation on an unlimited number of lines of code. The Corporate license is date-based.

Customers can order the following Piercom 2000 DIGITAL Version products:

- Licenses
- Kits
- Consultancy and training services
- Maintenance service, including telephone support and software updates

Licenses

One of the following traditional licenses is included with the kit:

- Q2-00IA9-AA Assessment and Remediation
1 M LOC
- Q2-00JA9-AA Assessment and Remediation
5 M LOC
- Q2-00KA9-AA Assessment only
1 M LOC
- Q2-00LA9-AA Assessment only
5 M LOC
- Q2-00WA9-AA Corporate
(Assessment and Remediation)
Unlimited LOC

Kits

Kits are available that comprise the Piercom 2000 DIGITAL Version for all languages.

Software Media and Documentation:

- Q2-00JAA-H8 CD-ROM
- Q2-00JAA-HP DAT
- Q2-00JAA-GZ User documentation only

Consultancy and Training Services

In order to maximize the use of the product, it is recommended that you also purchase consultancy or training services, or both, from Compaq. To determine the right level of services for your individual requirements, please contact your local Compaq sales office.

- QS-00JA9-A9 Consultancy services
- QS-00JAT-A9 Training service

Maintenance Service

Telephone support is supplied free of charge for 90 days. To receive support, you can call the Helpdesk at 353 61 201999, or send an e-mail to the following address:

helpdesk@piercom.ie

Maintenance service is available, after the warranty period has expired, for the following kits:

- Q2-00IAA-79 Assessment and Remediation
1 M LOC
- Q2-00JAA-79 Assessment and Remediation
5 M LOC
- Q2-00KAA-79 Assessment only
1 M LOC
- Q2-00LAA-79 Assessment only
5 M LOC
- Q2-00WAA-79 Corporate (Assessment and Remediation)
Unlimited LOC

SOFTWARE WARRANTY

A 90-day conformance to SPD warranty in accordance with Compaq's applicable standard Terms and Conditions is provided by Compaq with the purchase of a license.

SOFTWARE WARRANTY EXCLUSION

Compaq does not warrant that the software licensed to customers is error free, that the software operates with any hardware and software other than as specified in this SPD, that the software satisfies customers' own specific requirements, or that copies of the software other than those provided or authorized by Compaq conform to the SPD.

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