

**PACKAGE ID** - 000585PSC1200 PICL

**KWIC TITLE** - Portable Instrumented Communication Library

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**LIMITATION CODE** -UNL                   **AUDIENCE CODE** - UNL

**COMPLETION DATE** - 10/02/1990   **PUBLICATION DATE** - 10/01/1990

**DESCRIPTION** - PICL is a subroutine library that can be used to develop parallel programs that are portable across several distributed-memory multiprocessors. PICL provides a portable syntax for key communication primitives and related system calls. It also provides portable routines to perform certain widely-used, high-level communication operations, such as global broadcast and global summation. PICL provides execution tracing that can be used to monitor performance or to aid in debugging.

**PACKAGE CONTENTS** - Media Directory; Software Abstract; PICL Note (7 pages); ORNL/TM-11130; ORNL/TM-11616; Media Includes Source Code, Executables;

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - 4 3.5 Diskettes

**METHOD OF SOLUTION** - NA

**COMPUTER** - INTELIPSC12

**OPERATING SYSTEMS** - UNIX

**PROGRAMMING LANGUAGES** - C

**SOFTWARE LIMITATIONS** - PICL is a compatibility library built on top of the native multiprocessor operating system and message passing primitives. Thus, the portability of PICL programs is not guaranteed, being a function of idiosyncrasies of the different platforms. Predictable differences are captured with standard error trapping routines. PICL is a research tool, not a production software system.

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**SOURCE CODE AVAILABLE (Y/N)** - Y

**UNIQUE FEATURES** - The instrumentation logic is integrated with the message passing library, making the performance data collection portable, simple to invoke, and relatively nonintrusive.

**RELATED SOFTWARE** - PoroGraph, a tool for visualizing performance data related software. PVM, P4, Parmacs, Express.

**OTHER PROG/OPER SYS INFO** - Requires native multiprocessor message passing primitives and operating system. PICL is currently implemented on the Intel iPSC12, iPSC1860 and Touchstone Delta, on the Ncube 13200 and Ncube 16400 families of hypercube multiprocessors, on the Cogent multiprocessor workstation, and on impsion, a multiprocessor simulator.

**REFERENCES** - G.A. Geist, M.T. Heath, B.W. Peyton, and P.H. Worley, A User's Guide to PICL, A Portable Instrumented Communication Library, ORNL/TM-11616, October 1990; G.A. Geist, M.T. Heath, B.W. Peyton, and P.H. Worley, PICL, A Portable Instrumented Communication Library, C Reference Manual, ORNL/TM-11130, July 1990.

**ABSTRACT STATUS** - Submitted 06/10/93. Released AS-IS May 17, 1994. AS-IS due to package is a subroutine library that uses a UNIX shell script to determine the machine code is to be used on. This script then generates the library subroutines, many of which are machine dependent.

**SUBJECT CLASS CODE** - P

**KEYWORDS** -

COMPUTER PROGRAM DOCUMENTATION  
P CODES  
ARRAY PROCESSORS  
DISTRIBUTED DATA PROCESSING  
COMMUNICATIONS  
PROGRAMMING  
PARALLEL PROCESSING  
LIBRARIES  
PERFORMANCE  
HYPERCUBE COMPUTERS

**EDB SUBJECT CATEGORIES** -  
990200

**SPONSOR** - DOE/ER

**PACKAGE TYPE** - AS - IS