

**PACKAGE ID** - 001053MLTPL00 PETSC 2.0

**KWIC TITLE** - Portable Extensible Toolkit for Scientific  
Computation

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

**COMPLETION DATE** - 02/01/1995   **PUBLICATION DATE** - 06/01/1995

**DESCRIPTION** - PETSC2.0 is a software toolkit for portable, parallel  
(and serial) numerical solution of partial differential equations  
and minimization problems. It includes software for the solution of  
linear and nonlinear systems of equations. These codes are written  
in a data-structure-neutral manner to enable easy reuse and  
flexibility.

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - Media Directory; Software Abstract; User's Manual;  
Media Includes Source Code, User's Guide, Auxiliary Material;  
Compilation Instructions, Sample Problem Input/Output Data;  
Programmer Documentation;/ 3 3.5 Diskettes

**METHOD OF SOLUTION** - PETSC2.0 includes Krylov space methods,  
Newton-like methods, domain decomposition methods, and classical  
iterative methods, such as SOR. The package design is modular and  
hierarchical, enabling the user to employ the level of abstraction  
most appropriate for a particular problem.

**COMPUTER** - MLT-PLTFM

**OPERATING SYSTEMS** - Unix without system modification.

**PROGRAMMING LANGUAGES** - C (90%), C++ (5%) and FORTRAN 77 (5%)

**SOFTWARE LIMITATIONS** - None

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

**UNIQUE FEATURES** - PETSC2.0 provides flexibility, extensibility, and  
portability. The package serves a wide range of users with varying

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**UNIQUE FEATURES - (CONT)** needs and different levels of experience, including algorithmic researchers as well as black-box and high-performance application programmers.

**RELATED SOFTWARE** - MPICH, BlockSolve, LAPACK, and the BLAS are identifiable auxiliary software used in conjunction with PETSC2.0..

**OTHER PROG/OPER SYS INFO** - PETSC2.0 may be used with the IBM ESSL proprietary software package, but this is not required.

**HARDWARE REQS** - A minimum of 8 Mbytes of RAM and 32 Mbytes of disk storage is recommended.

**TIME REQUIREMENTS** - Time requirements are machine and problem dependent, generally ranging from 1 second to 1 week.

**REFERENCES** - Smith, B., McInnes, L.C., Gropp, W., PETSC 2.0 Users Manual, ANL-95/11, (06/95)

**ABSTRACT STATUS** - Released AS-IS 4/22/96

**SUBJECT CLASS CODE** - P

**KEYWORDS** -

COMPUTER PROGRAM DOCUMENTATION  
P CODES  
PARTIAL DIFFERENTIAL EQUATIONS  
NUMERICAL ANALYSIS

**EDB SUBJECT CATEGORIES** -  
990200

**SPONSOR** - DOE/ER

**PACKAGE TYPE** - AS - IS