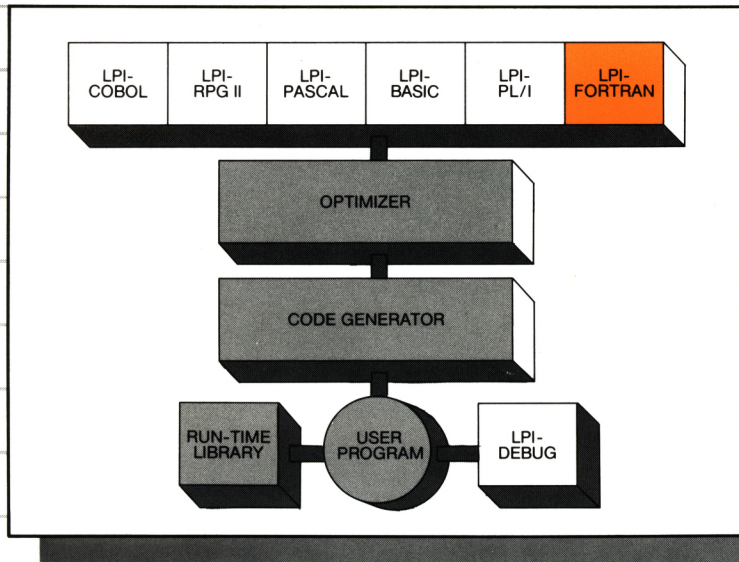


# LPI-FORTRAN™

## IDEAL FOR 386 SYSTEMS



- ▶ Full Implementation of ANSI FORTRAN-77 Standard
- ▶ VAX®-FORTRAN and ANSI FORTRAN-66 Extensions
- ▶ Source-Code Compatible with LPI-FORTRAN on Other Systems
- ▶ Standardized LPI User Interface
- ▶ Powerful Optimization Techniques
- ▶ Comprehensive Listing Options
- ▶ Cross-Language Calling
- ▶ Source-Level Debugging

**LPI**-FORTRAN provides versatile extensions designed to assist in the development of new applications and the conversion of existing applications to run on powerful multiuser, multitasking SCO™ XENIX® 386 systems. Because LPI-FORTRAN generates optimized, native-mode, 80386 object code, it is ideal for the SCO XENIX 386 environment. As part of the family of high-performance LPI programming languages, LPI-FORTRAN uses the unique LPI Component Architecture, which enables each language to be compiled as a component of programs written primarily in one of the other LPI languages.

**Full Implementation of ANSI FORTRAN-77 Standard**  
LPI-FORTRAN is a GSA-certified compiler

that conforms to both the American National Standards Institute (ANSI) programming language FORTRAN X3.9-1978 (FORTRAN-77) and MIL-STD-1753, as well as to the previous ANSI Standard FORTRAN IV (ANSI FORTRAN-66). It also supports SCO CGI,™ SCO's industry-standard library of graphics subroutines. Because LPI-FORTRAN strictly conforms to ANSI standards, developers can maintain established programming practices, even while converting existing applications to the SCO XENIX 386 environment. They can often convert programs already written in LPI-FORTRAN simply by recompiling them.

An enhanced version of FORTRAN-77, LPI-FORTRAN includes recursive subroutines, which allow a subroutine to reference itself, and bit-intrinsic functions, which permit the developer to select the number of bits used to represent internal data types.

### **VAX-FORTRAN and ANSI FORTRAN-66 Extensions**

VAX-FORTRAN and ANSI FORTRAN-66 extensions complement LPI-FORTRAN by assisting in the transportation of VAX-FORTRAN and FORTRAN-66 programs to the SCO XENIX 386 environment. Because developers can quickly and easily convert existing programs, they can spend more time productively developing new applications.

### **Source-Code Compatible with LPI-FORTRAN on Other Systems**

By simply recompiling the source program, LPI-FORTRAN source code easily migrates to SCO XENIX-based systems from other systems, such as the NCR® Tower® and Unisys 5000 Series. This sensible approach provides a cost-effective method for developers to expand into the fast-growing market for PC-based multiuser systems.

### **Standardized User Interface**

Because LPI-FORTRAN is part of the family of LPI languages, once developers master the easy-to-learn, standardized LPI user interface,



they need to learn only the language-specific options.

## Powerful Optimizing Techniques

The LPI-FORTRAN optimizer provides fast compilation speeds and superior run-time performance. It enables developers to select the best optimization level for the application they are porting or developing. LPI's optimization techniques eliminate dead code and common sub-expressions, allow loop induction, move loop invariants out of loops, allow for constant folding, and much more.

## Comprehensive Listing Options

The LPI-FORTRAN comprehensive listing options provide annotated listings of the source program, user symbols and attributes, compilation statistics, and nesting levels.

## Cross-Language Calling

LPI's cross-language calling feature permits the integration of new applications into existing sub-programs written in any LPI language. As a result, it not only protects past investments in software development, but also permits the developer to select the best LPI language for a particular programming task.

## Source-Level Debugging

With LPI-DEBUG™, LPI's optional interactive source-level debugger, programs can be tested and debugged using the conventions and symbols of the source language, without relying on the machine language of the host computer. LPI-DEBUG delivers program execution control, break-pointing with action lists, macro definitions, and many other features.

Complete-sentence error messages accurately diagnose the type, severity, and location of programming errors, maintaining the momentum of development efforts.

## Language Highlights

### Program Structure

BLOCK DATA	ENTRY
FUNCTION	INCLUDE
PROGRAM	SUBROUTINE

### Assignment and Data Statements

ASSIGN	DATA
--------	------

### Data Types

INTEGER*1	COMPLEX*8
INTEGER*2	LOGICAL*1/BYTE
INTEGER*4	LOGICAL*2
REAL*4	LOGICAL*4
REAL*8	CHARACTER
DOUBLE PRECISION	HOLLERITH

## Specification Statements

BYTE	CHARACTER
COMMON	COMPLEX
DIMENSION	DOUBLE PRECISION
EQUIVALENCE	EXTERNAL
IMPLICIT	INTEGER
INTRINSIC	LOGICAL
PARAMETER	REAL
SAVE	

## Control Statements

CALL	CONTINUE
DO	DO WHILE
ELSE	ELSE IF THEN
END	END IF
GOTO	IF
(ASSIGNED)	(ARITHMETIC)
(COMPUTED)	(BLOCK)
(UNCONDITIONAL)	(LOGICAL)
RETURN	PAUSE
	STOP

## Operators

**	EXPONENTIATION
*	MULTIPLICATION
/	DIVISION
+	ADDITION
+	IDENTITY
-	SUBTRACTION
-	NEGATION
//	CONCATENATION
.EQ.	EQUAL TO
.NE.	NOT EQUAL TO
.GT.	GREATER THAN
.GE.	GREATER THAN OR EQUAL TO
.LT.	LESS THAN
.LE.	LESS THAN OR EQUAL TO
.NOT.	LOGICAL NEGATION
.AND.	LOGICAL CONJUNCT
.OR.	LOGICAL DISJUNCT
.EQV.	LOGICAL EQUIVALENCE
.NEQV.	LOGICAL INEQUIVALENCE
.XOR.	LOGICAL EXCLUSIVE OR

## Input/Output Statements

BACKSPACE	OPEN
CLOSE	READ
ENDFILE	REWIND
FORMAT	WRITE
INQUIRE	

## Inquire Specifiers

ACCESS	NAME
BLANK	NAMED
CARRIAGECONTROL	NEXTREC
DIRECT	NUMBER
ERR	OPENED
EXIST	ORGANIZATION
FILE	RECL
FORM	SEQUENTIAL
FORMATTED	UNFORMATTED
IOINTENT	UNIT
IOSTAT	

## Open Specifiers

ACCESS	IOINTENT
BLANK	IOSTAT
CARRIAGECONTROL	ORGANIZATION
ERR	RECL
FILE	STATUS
FORM	UNIT

## LPI-FORTRAN Extensions

32-Character Name Lengths  
 Data Initialization in Type Statement  
 Equivalence of Non-character with Character Entities  
 Conditionally Compiled Lines  
 One-trip DO Loop Compiler Option  
 IMPLICIT NONE Statement

Logical Data Types in Arithmetic Expressions  
 ! as a Comment Indicator  
 Retrieval of Command Line Arguments  
 Hollerith Constants  
 DO WHILE Loops  
 Octal and Hexadecimal Constants  
 Recursion Support for Subprograms  
 INCLUDE External Files Statement  
 Bit Intrinsic Operations  
 Tab Formatted Source Lines  
 Ampersand (&) Continuation Lines  
 # Carriage Control Character  
 No Column 72 Limit  
 Lowercase Characters  
 Case Insensitivity/Sensitivity  
 Non-alphabetic Characters in Names  
 Extended Logical, Integer Data Types  
 Data Initialization Flexibility  
 ". ." or ". ." Character Constants  
 Saveall Compiler Option for Data  
 Common Blocks Treated as Save  
 Subscripts in Equivalence Statement

## Systems Requirements

Hardware: Industry-standard, 80386-based computer with an IBM® PC AT® - or IBM PS/2™-compatible bus

Operating System: SCO XENIX 386 Operating System

RAM: 2 Mbytes (minimum)

Hard Disk: 20 Mbytes (minimum)

NOTE: Currently, the SCO XENIX 386 Development System is required to develop programs written in LPI languages; however, it is not required to run the program once it has been compiled.

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### THE SANTA CRUZ OPERATION, INC.

400 ENCINAL STREET, P.O. BOX 1900  
 SANTA CRUZ, CALIFORNIA 95061  
 SALES AND INFO (U.S. and Canada):  
 (800) 626-UNIX (626-8649)  
 (408) 425-7222 • FAX: (408) 458-4227  
 TWX: 910-598-4510 SCO SACZ

### THE SANTA CRUZ OPERATION, INC.

FEDERAL SYSTEMS GROUP  
 610 HERNDON PARKWAY, SUITE 600  
 HERNDON, VIRGINIA 22070  
 (703) 834-1550 • FAX: (703) 481-5909

### THE SANTA CRUZ OPERATION, LTD.

CROXLEY CENTRE, HATTERS LANE  
 WATFORD WD1 8YN UNITED KINGDOM  
 +44 (0)923 816344 • FAX: +44 (0)923 817781  
 TELEX: 917372 SCOLON G