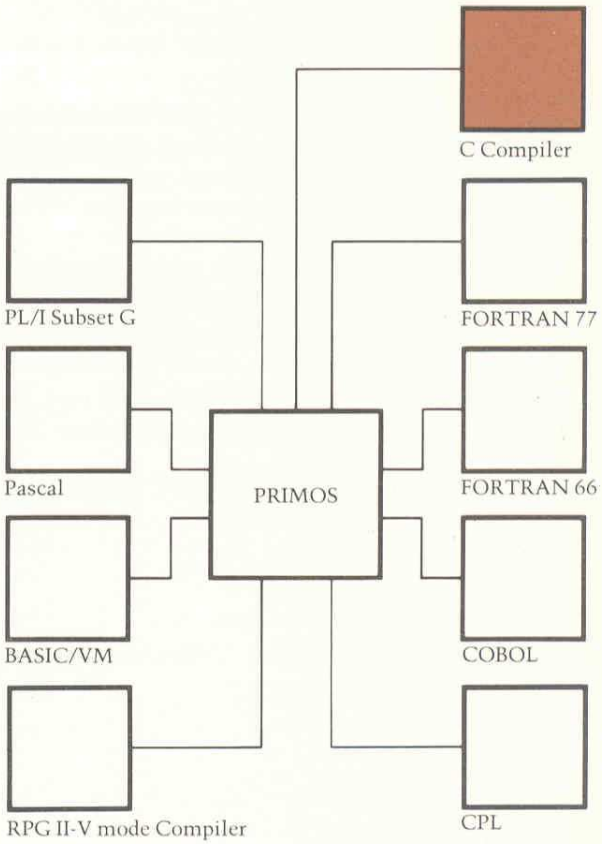
Product Bulletin

PRIME

Prime C Compiler

Features

- Full implementation of the C language as defined in "The C Programming Language" by Brian Kernighan and Dennis Ritchie.
- Compatibility with the current UNIX™ CC version 7, System III, as well as version 6.
- File compatibility with other Prime languages.
- Object code compatibility with other Prime languages.
- Comprehensive error diagnostics and full range of compilation options.
- Up to 32 million bytes of private program space per user for procedure code and data.
- Shared and re-entrant code generation for improved memory utilization in a multi-user environment.
- Program development support for Prime's Source Level Debugger.
- High-level instruction set, virtual memory, and 32-bit architecture of Prime 50 Series systems utilization.



Description

The Prime C compiler is a versatile and powerful programming language which provides modern flow control and data structures as well as a rich set of operators and data types. This high productivity language represents a total implementation of the C language based on "The C Programming Language," by Brian Kernighan and Dennis Ritchie as developed at Bell Laboratories. In addition, the compiler also incorporates the Berkeley and new Unix extensions. It is fully compatible with the current Unix CC version 7, System III, as well as version 6. Prime C includes such features as:

- Modern flow control (case, if-else, for-while loops, statement grouping, break/continue, goto).
- Modern data structures (arrays, structures, unions).
- Rich set of data types (integer long/short, floating long/short, character, unsigned, pointer, function, enumerated and defined types).
- Rich set of operators (7 unary, 18 binary, 11 assignment, 1 ternary).
- Separate compilation.
- Data sharing.
- Data initialization.
- Enumerated types.
- Structure arguments.
- Structure assignments.
- Fortran storage class.
- #list, #nolist, #endincl.
- Void data type.
- Identifiers up to 32 characters long.
- Unix style command line arguments libraries supporting a rich subset of the Unix version 7 subroutines are supplied with the compiler. These routines include:
  - File I/O routines, (Fopen, fprint, fscan...) support for Unix-like files.
  - String/character manipulation routines (isalpha, strcat, index...).
  - Math routines (abs, sqrt, tan...).
  - System routines (abort, set-mp, longjmp, sleep...).

Additionally the C compiler has access to all Prime libraries.

Application Flexibility

Prime C compiler is small and flexible, yet powerful enough to do systems programming logically and efficiently. It provides comprehensive error diagnostics, and it produces listing, object, expanded listings, and cross reference files. The C compiler's unique and explicit messages which fully describe all errors and warnings allow programming to be done easily and quickly. In addition these messages coupled with the compiler's excellent syntactic error recovery insure accurate detection and reporting of program errors. Applications developed in Prime C benefit from complete access to Prime MIDASPLUS, and the PRIMOS® condition mechanism. C is consistent with Prime's other compilers, and is an integral part of Prime core software products. As a result, the C compiler can handle the complex interfaces between mixed language procedures and can offer file flexibility.

Source Level Debugger

By combining the interactive capabilities of the PRIMOS operating system with the Source Level Debugger, a user can create, edit, compile, execute, and test programs interactively online. Debugger commands allow users to dynamically set and clear breakpoints on source statements, examine and modify variables, step through a program, trace statement execution, restart or proceed from a breakpoint, display source statements, and trace back subroutine activation. As a result, the test and debugging time associated with program development is dramatically reduced.

Command Procedure Language

The Command Procedure Language (CPL) is an extremely flexible, highlevel programming language that uses PRIMOS operating system commands for its basic statements. By making PRIMOS utilities available to the C programmer, CPL adds control over the development production environment, saving valuable programming time. CPL allows sequences of operating system commands and CPL directives to be stored in a command procedure file that can be executed by specifying the file name. CPL directives let arguments pass into command procedure files. This controls the statement execution order within the files and handles any errors.

EMACS

As an additional programming aid, Prime C compiler utilizes EMACS, an interactive full-screen display editor. Through EMACS, the user can set appropriate tabs, and create a customized environment to suit individual or project needs. EMACS lets the user compile source code without leaving the editor, disrupting the screen, or leaving the routine which is being debugged. In conjunction with use of the Prime Source Level Debugger, erroneous code is quickly corrected.

Prime System Performance

The sophisticated design of Prime hardware and software offers high performance capabilities normally outside the reach of minicomputer systems. The virtual memory and embedded design of the PRIMOS operating system are complemented by efficient time scheduling, memory management, and procedure data sharing. Data communications is optimized for performance under real-world, multi-user demands. The Prime Distributed Processing Terminal Executive (DPTX), and PRIMENET™ networking software allow users to construct complex communications networks to suit their individual needs. With this state-of-the-art, C users not only benefit from high performance, they also draw upon the full support of a system engineered for total software integration.

Compatibility

Software compatibility is a fundamental design objective at Prime. It ensures long-term return on investment and smooth reliable transitions when software and hardware systems are upgraded. It also promotes ease of use in both central and distributed system installations. For example, programs written in any Prime language can be developed on a smaller Prime 50 Series system and used for production on a larger Prime 50 Series system. Similarly, programs developed on a host system can be run without recompilation on a smaller remote system. Source maintenance, modifications, and compilations can be done at any system site as the need arises.

Further system and software compatibility is provided by PRIMOS, Prime's standard operating system. All users of Prime 50 Series systems enjoy the same multi-user interactive benefits regardless of their particular system type or configuration. PRIMOS insures a uniform, consistent and familiar set of commands and capabilities.

Prime offers an exceptionally broad and comprehensive line of language products to suit user needs in a variety of computer applications. Prime complements its product breadth with two levels of language compatibility. First, all languages generate compatible object code and common call conventions are shared by C, PL/I, Subset G, Pascal, FORTRAN, COBOL, RPG II, and F77. This feature allows for modular, multi-lingual program design, whereby existing programs are incorporated into new programs even when source languages differ. Secondly, file compatibility is maintained throughout the Prime language line. Data files written under one language can be accessed under others, providing that both languages support data types needed to describe the file contents.

Software Services

Prime Software Services are designed to complement and enhance the overall effectiveness of the customer's use of Prime software products.

Prime delivers the same uniform software services to all customers, regardless of location or company size. This includes service to small end users, large account end users, or resellers that purchase Prime software products for resale to their end users.

The Prime Software Services Plan is available to all users who sign a standard software product maintenance contract. Prime Software Services Plan features:

- Software Update Service
- Telephone Assistance
- On-site Assistance
- Software Problem Reporting and Escalation

Services are available for all standard Prime software products during normal business hours, weekdays Monday through Friday. The user is billed on a convenient monthly or quarterly basis.

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