



VS Pascal

Release 2

**Program Numbers 5668-767 (Compiler and Library)
5668-717 (Library Only)**

The VS Pascal Release 2 Compiler and Library is an IBM licensed program that runs under MVS/SP, MVS/XA, MVS/ESA, VM/SP, and VM/XA. VS Pascal is available as two separate products:

- **VS Pascal Compiler and Library**, the complete licensed program containing the compiler, run-time library, and debugging library.
- **VS Pascal Library**, the run-time library only

Highlights of VS Pascal

Extended Address Space. VS Pascal runs on the MVS/XA, MVS/ESA, and VM/XA operating systems on IBM processors supporting these systems. A program and its data are no longer constrained to fit in a 16-megabyte address space. Large applications can run in the extended address space above the 16-megabyte line.

Interactive Debugging. VS Pascal provides the ability to debug VS Pascal programs without writing debugging statements directly into the source code. Basic debugging functions include:

- Tracing program execution
- Viewing the values of program variables
- Halting program execution at specified occurrences of a breakpoint
- Displaying statement frequency counting information at any time during a debugging session.

Interlanguage Communication. VS Pascal can call and be called by:

- VS FORTRAN
- VS FORTRAN Version 2
- ASSEMBLER
- ASSEMBLER H
- OS/VS COBOL
- VS COBOL II
- OS PL/I Optimizing Compiler
- OS PL/I Compiler Version 2.

Code Optimization. VS Pascal reduces the execution time of the programs it produces by optimizing object code. For example, the compiler can evaluate part of an expression once and save the result in a register, rather than re-evaluating the expression later.

Compiler Directives. VS Pascal provides compiler directives to enable or disable many compile-time and run-time options and features. For example, some directives control error checking features, while others offer control over the format of the VS Pascal listing file.

Double-Byte Character Set (DBCS) Support. VS Pascal provides a predefined scalar data type that represents one DBCS character occupying two bytes of storage. VS Pascal also provides a predefined structured data type that represents a DBCS string whose length varies up to a compile-time specified maximum. VS Pascal supports DBCS data in comments, string literals, and some compiler directives. Input and output of DBCS data require terminals and printers with DBCS capability.

National Language Support. VS Pascal provides messages and other generated text in mixed-case English, uppercase English, and Japanese. The uppercase table and the compiler character translation table can be customized at installation.

Transient Run-Time Library. VS Pascal provides an option to control whether the run-time routines are loaded dynamically during execution or included as part of the load module.

Conditional Compilation. VS Pascal provides compiler directives to selectively compile portions of a program without editing the source program.

Communication With Other Products. VS Pascal programs can execute in the IMS environment.

Compile-Time Limits. VS Pascal provides these expanded compile-time limits for debugging larger and more complex programs:

- 999 %INCLUDE directives
- 8192 TYPE declarations
- 32678 characters in identifier names in a routine
- 1024 fields per record.

Industry Standards Support. VS Pascal complies with the specifications of the following standards:

- The International Standards Organization Programming Language - Pascal (ISO 7185-1983) at level 0
- The Federal Information Processing Standard Publication (FIPS PUB) 109
- The American National Standard Pascal Computer Programming Language (ANSI/IEEE770X3.97-1983).

In addition, VS Pascal supports part of the proposed ANSI/IEEE Extended Pascal Standard.

VS Pascal Enhancements. VS Pascal provides features beyond those of the industry standards, including:

- Improved modular programming
- Extensive support of variable-length character strings, including many predefined routines
- Input/output enhancements
- Support of binary integer constants, and hexadecimal integer, floating-point and string constants
- Support of structured constants
- Support of the execution of alternative statements on the CASE statement.

Compatibility with VS Pascal Release 1

VS Pascal Release 2 is upwardly compatible with VS Pascal Release 1 at the source and object levels (when DEBUG is not used), except for some minor enhancements to error checking.

When combining units compiled with VS Pascal

Release 1 and VS Pascal Release 2, the modules must be link-edited with the VS Pascal Release 2 libraries.

Because VS Pascal supports larger debug tables, programs compiled with DEBUG must be recompiled under VS Pascal.

Specified Requirements

Programming Requirements

The VS Pascal Compiler and Library, and its generated object programs, run under the following operating systems:

- **MVS/System Product (MVS/SP):** MVS/System Product (MVS/SP) Version 1, Release 3 or later, with compatible Data Facility Products, and with or without the Time Sharing Option (TSO) or the Time Sharing Option/Extended (TSO/E)
- **MVS/Extended Architecture (MVS/XA):** MVS/System Product (MVS/SP) Version 2, Release 1 or later, with compatible Data Facility Products, and with or without the Time Sharing Option (TSO) or the Time Sharing Option/Extended (TSO/E)
- **MVS/Enterprise Systems Architecture (MVS/ESA):** MVS/System Product (MVS/SP) Version 3, Release 1 or later, with compatible Data Facility Products, and with or without the Time Sharing Option (TSO) or the Time Sharing Option/Extended (TSO/E)
- **VM/System Product (VM/SP):** Virtual Machine/System Product (VM/SP) Version 1, Release 4 or later, with or without the High Performance Option (HPO)

Note: Use of VS Pascal's double-byte character set (DBCS) support requires VM/SP Version 1, Release 5 or later.

VM/Extended Architecture (VM/XA): Virtual Machine/Extended Architecture System Product (VM/XA SP), Release 1 or later

Note: Running the VS Pascal Compiler and Library, and its generated object programs, under the VM/CMS environment requires the OS simulation facility.

Machine Requirements

The VS Pascal Compiler and Library, and its generated object programs, run on any processing unit supported by the host operating system.

VS Pascal storage devices are the same as those allowed by the host operating system, provided they are transparent to the access methods used.

Installation Requirements

For installation under MVS/SP, MVS/XA, or MVS/ESA, the System Modification Program/Extended (SMP/E) or System Modification Program (SMP) Release 4 is required.

Virtual Storage Considerations

Under MVS, the compiler requires a minimum region size of 576K of virtual storage. A compiled and link-edited program can run in a 128K region.

Under CMS, a minimum of 1 megabyte of virtual storage is required to compile a program. A compiled program can run in a 448K CMS machine.

The storage required depends on the size and complexity of the programs.

Licensed Program Materials Availability

Restricted materials - Yes. The Compiler, Library, and Interactive Debug product (5668-767) is available with source licensed program materials for a limited number of modules designated as "RESTRICTED MATERIALS OF IBM". The majority of modules are available without source licensed program materials. All modules are available in object code.

Source material is not available with the Library only (5668-717).

Supplemental Terms

Testing Period:

- Basic License: 2 months.
- Distributed Systems License Option (DSLO) License: Not applicable.

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Warranty

VS Pascal will conform, when shipped to the Customer, to its Licensed Program Specifications which are in effect for it at that time, provided it is properly used in a Specified Operating Environment. If the Customer believes there is a defect in the program such that it does not meet its Licensed Program Specifications, the Customer must notify IBM while Program Services are available for the program. IBM does not warrant that the functions contained in the program will meet the Customer's requirements or will operate in the combinations which may be selected for use by the Customer, or that the operation of the program will be uninterrupted or error free or that all program defects will be corrected.

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