



# Licensed Program Specifications

## IBM C for VSE/ESA Version 1 Release 1 Program Number 5686-A01

The IBM C for VSE/ESA (C/VSE) licensed program is the language-centered C compiler on the VSE/ESA platform.

C/VSE exploits the C run-time environment, C utilities, and library of run-time services available with either of the following:

- IBM Language Environment for VSE/ESA (LE/VSE) Version 1 Release 4
- The VSE C Language Run-Time Support feature of VSE/ESA Version 2 Release 2

### Highlights

C/VSE combines the strengths of the predecessor C compiler on the VSE platform with the following new features:

- 31-bit addressing
- Year 2000 ready
- Packed decimal data type
- Multibyte character support
- Debugging support

### Compatibility

C/VSE provides full source code compatibility with its predecessor product:

IBM C/370 Compiler Version 2 (5688-187)

Programs that compile successfully with this product will, in most cases, also compile successfully with the C/VSE compiler.

### Migration and Coexistence

Considerations for migrating C/370 VSE applications to C/VSE are documented in the *IBM C for VSE/ESA Migration Guide*, SC09-2423.

### C/VSE Compiler Features

The C/VSE compiler includes the following features:

- VSE/ESA extended architecture 31-bit addressing; used by the compiler and applications created using the compiler.

- Coded character set (code page) support; the compiler can process C syntax characters in source code (such as square brackets) regardless of which Latin-1 EBCDIC coded character set is used to create the source file.
- Fixed-point (packed) decimal data type, with up to 31 digits of precision.
- CHECKOUT compile-time option.
- INLINE compile-time option.
- MEMORY compile-time option.
- Full program reentrancy for C/VSE programs.
- Interlanguage communication (ILC) between C/VSE programs and assembler, COBOL, and PL/I programs.
- Longname support so external names can be mixed-case and up to 1024 characters long.
- OPTIMIZE compile-time option to produce faster-running applications.

### Debugging Support

Programs compiled with C/VSE can be debugged using Debug Tool for VSE/ESA, which is included with C/VSE if you order the Full Function Offering. Debug Tool for VSE/ESA is an interactive debugger that features stepping, dynamic breakpoints, variable tracking, dynamic modification of program and variable storage, mixed-language debugging, and test scripts for regression testing.

The Full Function Offerings of IBM COBOL for VSE/ESA and IBM PL/I for VSE/ESA also contain Debug Tool for VSE/ESA. For more information about Debug Tool for VSE/ESA, see the *Debug Tool for VSE/ESA Fact Sheet*, GC26-8925.

### Support for C Utilities

LE/VSE and the VSE C Language Run-Time Support feature of VSE/ESA Version 2 Release 2 include utilities for developing your C/VSE applications:

- Locale definition utility to generate locales for use with C/VSE applications. A locale is a definition of those aspects of each country or culture that a program must recognize, such

as: coded character sets (codepage), national language options, rules and symbols for monetary information, and time zones.

- Code set conversion utilities (`iconv` and `genx1t`) to increase the portability of code that is passed between systems and locales.
- DSECT conversion utility to convert descriptive data produced by the High Level Assembler licensed program into C/VSE data structures, for C/VSE programs that interface with assembler programs.

### Example Source Code

Most substantial examples shown in the C/VSE publications are available in source code form. The examples are indicated in each book by a label in the form, `EDCXbnnn`. The label refers to the member name.

IBM provides the source code examples, both individually and as one or more groups, “as is” without warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. The entire risk as to the quality and performance of the source code examples, both individually and as one or more groups, is with you. Should any part of the source code examples prove defective, you (and not IBM) assume the entire cost of all necessary servicing, repair, or correction.

### Standards Supported

The C/VSE compiler supports the following industry standards, as understood and interpreted by IBM:

- ISO/IEC 9899:1900(E) (International Organization for Standardization/International Electrotechnical Commission, C language standard)
- ANSI/ISO 9899-1990 (1992) (American National Standards Institute, C language standard; formerly ANSI X3J11.159-1989 C)

## Specified Operating Environment

### Machine Requirements

The C/VSE compiler and its generated object programs can be executed on any IBM System/370 or System/390 processor supported by the operating systems listed in the “Programming Requirements” section.

### Storage Requirements

Approximately 8 MB of DASD are required for the installation of the C/VSE compiler. For detailed installation requirements, consult the *IBM C for VSE/ESA Installation and Customization Guide*, GC09-2422.

### Programming Requirements

C/VSE runs under the control of, or in conjunction with, the following IBM licensed programs and their subsequent releases unless otherwise announced by IBM.

**Required Licensed Programs:** The C/VSE compiler and its generated object programs run under the following System/370 and System/390 operating systems:

- VSE/ESA Version 1 Release 4 (5750-ACD)
- VSE/ESA Version 2 Release 1 (5690-VSE)

One of the following is required for the compilation and execution of C applications using C/VSE or its generated object programs:

- IBM Language Environment for VSE/ESA Version 1 Release 4 (5686-094)
- VSE/ESA Version 2 Release 2 (5690-VSE) with integrated VSE C Language Run-Time Support

These programs provide the required execution environment and library of C run-time services. (The compiler is not needed for application execution.)

The following licensed program is required for customizing C/VSE:

High Level Assembler/MVS & VM & VSE  
Release 1 (5696-234)

**Optional Licensed Programs:** Object programs generated by the C/VSE compiler can run with the following IBM licensed programs (later releases are supported unless otherwise indicated) in conjunction with LE/VSE Release 4 or VSE/ESA Version 2 Release 2 (with integrated VSE C Language Run-Time Support):

- CICS/VSE Version 2 Release 3 (5686-026)
- DFSORT/VSE Version 3 Release 1 (5746-SM3)
- IBM DL/I DOS/VS Release 10 (5746-XX1)
- IBM DOS/VS Sort/Merge Version 2 Release 5 (5746-SM2)
- QMF/VSE Version 3 Release 2 (5648-061)
- SQL/DS for VSE Version 3 Release 4 (5688-103)

C/VSE supports interlanguage communication (ILC) to and from:

- Applications running with LE/VSE and written using:
  - IBM COBOL for VSE/ESA (5686-068)
  - VS COBOL II Release 4 (5668-958, 5688-023, or 5688-022)VS COBOL II support is provided only with object code that is relinked with LE/VSE
- IBM PL/I for VSE/ESA (5686-069)
- Applications running with LE/VSE or VSE/ESA Version 2 Release 2 (with integrated VSE C Language Run-Time Support) and written using:
  - High Level Assembler/MVS & VM & VSE Release 1 (5696-234)
  - Cross System Product/Application Execution (CSP/AE) Version 3 Release 3 (5668-814) for calls with programs running under this program

### Licensed Program Materials Availability

Restricted materials—No. This licensed program is available without source licensed program materials. It is available in object code.

## Supplemental Terms

### Designated Machine Identification

Designated Machine Identification Required—Yes.

### Testing Period

Basic License: Two months.

Distributed Systems License Option (DSLO): Not applicable.

### Installation/Location License

Not applicable. A separate license is required for each machine on which the licensed program will be used.

### Usage Restriction

Not applicable.

### Type/Duration of Program Services

Central Service, including the IBM Support Center, will be available until discontinued by IBM upon six months written notice.

### Softcopy Publications

Displayable C/VSE softcopy publications are available with the *VSE Collection*, SK2T-0060.

## Warranty

This program is warranted as specified in the IBM license.

Licensed Program Specifications may be updated from time to time and such updates may constitute a change in specifications.

For Distributed Systems License Option (DSLO) Licenses, warranty service, if any, will be provided only through the Basic License location.

Following the discontinuance of all program services, this program will be provided “As Is” as specified in the IBM license.

## Trademarks

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CICS/VSE	SQL/DS
DFSORT	System/370
IBM	System/390
Language Environment	VSE/ESA

The following terms are trademarks of other companies:

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IEC	International Electrotechnical Commission
ISO	International Organization for Standardization



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December 1996

Printed in U.S.A.

GC09-2421-00

