

1 INTRODUCTION

The C/C++ compiler is part of Analog Devices development software. The software is designed to aid your DSP project development efforts by:

- Processing C and C++ source files in ASCII format, producing machine level versions of the source code and object files
- Providing re-locatable code and debugging information within the object files
- Providing re-locatable data and program memory segments for placement by the linker in the processors memory

Using C++, developers can significantly decrease time-to-market since it gives them the ability to efficiently work with complex signal processing data types. It also allows them to take advantage of specialized DSP operations without having to understand the underlying DSP architecture.

If you develop using the VisualDSP++™ environment, you also get the following:

- An integrated development and debugging environment (IDDE) with support for editing programs, managing projects, and controlling build tools
- A source level, object-oriented debugger with support for DSP simulation and emulation

Supported Processors

- Context-sensitive Help for the Windows® or Solaris™ development environment.
- Online access to all documentation for this product through PDF files

Supported Processors

The name ADSP-219x DSPs refers to a family of Analog Devices processors that includes the following:

- ADSP-2191
- ADSP-2192-12

For Additional Product Information

Analog Devices is online on the internet at www.analog.com. Our Web pages provide information about our broad range of products: analog integrated circuits, amplifiers, converters, and digital signal processors. For information on our digital signal processors, visit our Web site at www.analog.com/dsp. Our Web pages provide access to technical information and documentation, product overviews, and product announcements. You may also obtain additional information about Analog Devices and its products in any of the following ways:

- FAX questions or requests for information to 1(781) 461-3010 (North America) or 089/76 903-557 (Europe Headquarters).
- Access the DSP Division File Transfer Protocol (FTP) site at <ftp://ftp.analog.com> or <ftp://137.71.23.21> or <ftp://ftp.analog.com>.

For Technical or Customer Support

You can reach our Customer Support group in the following ways:

- E-mail development tools questions to dsptools.support@analog.com
- E-mail processor questions to dsp.support@analog.com
- Phone questions to 1800-ANALOGD
- Visit our World Wide web site at www.analog.com/dsp
- Telex questions to 924491, TWX:710/394-6577
- Cable questions to ANALOG NORWOODMASS
- Contact your local ADI sales office or an authorized ADI distributor
- Send questions by mail to:

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Purpose of This Manual

The *VisualDSP++ 2.0 C/C++ Compiler and Library Manual for ADSP-219x DSPs* provides information on the C/C++ compiler and run-time library software, including syntax for command lines, switches, and language extensions. This manual leads you through the process of using library routines and writing mixed C/C++/assembly code.

Intended Audience

The primary audience for this manual are DSP programmers who are familiar with Analog Devices DSPs. This manual assumes that the audience has a working knowledge of the ADSP-219x family DSP architecture and instruction set and the C/C++ programming languages.

DSP programmers who are unfamiliar with ADSP-219x family DSPs can use this manual but should supplement it with other texts, such as the appropriate ADSP-219x DSP hardware reference and instruction set reference.

Manual Contents Description

This manual contains the chapters listed below. Chapters may contain guide and reference sections. Guide sections provide software usage procedures, usage examples, and error message information. Reference sections provide comprehensive information on command syntax and typical usage examples.

- [Chapter 2 Compiler](#)

Provides information on compiler options, language extensions, and C/C++/assembly interfacing.

- [Chapter 3 C/C++ Run-Time Library](#)

Describes the standard C/C++ library functions included in the current release of the run-time library.

- [Chapter 4 DSP Run-Time Library](#)

Describes the library functions provided by Analog Devices.

- [Appendix A Compiler Legacy Support](#)

Provides an overview of legacy support issues for developers porting software developed with other releases of the development tools.

What's New in This Manual

This edition of the *VisualDSP++ 2.0 C/C++ Compiler and Library Manual for ADSP-219x DSPs* documents C++ support for new processors and software development environments.

Related Documents

For additional information on development software and Analog Devices DSPs, see the following publications:

- *VisualDSP++ 2.0 Getting Started Guide for ADSP-21xx DSPs*
- *VisualDSP++ 2.0 User's Guide for ADSP-21xx DSPs*
- *VisualDSP++ 2.0 Assembler and Preprocessor Manual for ADSP-219x DSPs*
- *VisualDSP++ 2.0 Linker and Utilities Manual for ADSP-21xx DSPs*
- *VisualDSP++ Kernel (VDK) User's Guide*
- *The ADSP-2191 (preliminary) and ADSP-219x-2192 (preliminary) data sheets*

All of the manuals are included on the software distribution CD-ROM. To access these documents within VisualDSP++:

1. Choose **Help Topics** from the **VisualDSP++ Help** menu.
2. Select the **Reference book icon**.
3. Select the **Online Manuals topic**.
4. Click the **Click here to view online manuals button**. A list of documents displays.
5. Select the document you want to view.

Conventions

If you are not using VisualDSP++, you can manually access these PDF files from the CD-ROM using Adobe® Acrobat®.

Other related DSP publications, such as hardware and instruction set reference manuals, are available for download from http://www.analog.com/industry/dsp/tech_doc/gen_purpose.html

Conventions

Table 1-1 identifies and describes text conventions used in this manual. These conventions apply to all chapters in the manual.

 Additional conventions, which apply only to specific chapters, appear throughout this document.

Table 1-1. Notation Conventions

Example	Description
<code>Close Command (File Menu)</code>	Titles in reference sections indicate the location of an item within the VisualDSP++ environment's menu system (for example the <code>Close</code> command appears on the <code>File</code> menu)
<code>{this that}</code>	Alternative items in syntax descriptions appear within curly brackets and are separated by vertical bars; read the example as <code>this</code> or <code>that</code> . One or the other is required.
<code>[this that]</code>	Optional items in syntax descriptions appear within brackets and are separated by vertical bars; read the example as an optional <code>this</code> or <code>that</code> .
<code>[this,...]</code>	Optional item lists in syntax descriptions appear within brackets delimited by commas and terminated with an ellipse; read the example as an optional comma-separated list of <code>this</code> .

Table 1-1. Notation Conventions (Cont'd)

<code>.SECTION</code>	Commands, directives, keywords, and feature names are shown in text with <code>letter gothic</code> font.
<i>filename</i>	Non-keyword placeholders appear in text with <i>italic</i> style format.

Conventions