

1 INTRODUCTION

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

- Processing 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

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

- An integrated development and debugging (IDDE) environment with support for editing programs, debugging software, managing projects, and controlling build tools.
- Context-sensitive help for the Windows-based development environment.
- Online access to all documentation for this product through PDF files.

Supported Processors

The name ADSP-218x DSPs refers to a family of Analog Devices processors that includes the following: ADSP-2181, ADSP-2183, ADSP-2184/2184L/2184N, ADSP-2185/2185L/2185M/2185N, ADSP-2186/2186L/2186M/2186N, ADSP-2187L/ADSP-2187N, ADSP-2188M/ADSP-2188N, and ADSP-2189M/ADSP-2189N.

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](ftp://ftp.analog.com) or [ftp 137.71.23.21](ftp://137.71.23.21) or <ftp://ftp.analog.com>.

For Technical or Customer Support

You can reach our DSP Tools Customer Support 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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One Technology Way
P.O. Box 9106
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USA

Purpose of This Manual

The *VisualDSP++ 2.0 C Compiler and Library Manual for ADSP-218x DSPs* provides information on the C compiler software, including syntax for command lines, switches, and language extensions. This manual leads you through the process of using C run-time library routines and writing mixed C/assembly code.

Intended Audience

Programmers who are familiar with Analog Devices DSPs are the primary audience for this manual. This manual assumes that the audience has a working knowledge of Analog Devices DSP architecture, DSP instruction set, and the C programming language.

DSP programmers who are unfamiliar with Analog Devices DSPs can use this manual, but they should supplement this manual with other texts (such as a chip user's manual) describing the Analog Devices DSP architecture and DSP instruction set.

Manual Contents Description

Chapters in this manual may contain guide and reference sections. Guide sections provide software usage procedures, typical usage examples, and error message information. Reference sections provide comprehensive information on command syntax and typical usage examples. For information on compiler software, see the following chapters:

- Chapter 2 — Compiler

Provides information on compiler options, language extensions, preprocessing, the C run-time model, and C/assembly interfacing.

- Chapter 3 — Library

Describes functions included in the current release of the run-time library.

- Appendix A — Compiler Legacy Support

Provides an overview of legacy support issues for developers porting software developed with Release 6.1 development tools.

What's New in This Manual

This edition of the *VisualDSP++ 2.0 C Compiler and Library Manual for ADSP-218x DSPs* documents support for new processors and software development environments.

In addition to documenting the new product features, this revision also provides more information geared to help you learn the product more quickly.

Related Documents

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

- *ADSP-218x DSP Hardware Reference*
- *ADSP-218x DSP Instruction Set Reference*
- *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-218x DSPs*
- *VisualDSP++ 2.0 Linker and Utilities Manual for ADSP-21xx DSPs*
- The *ADSP-2181, ADSP-2183, ADSP-2184/2184L, ADSP-2185/2185L/2185M, ADSP-2186/2186L/2186M, ADSP-2187L, ADSP-2188M, ADSP-2188N (preliminary), or ADSP-2189M* data sheets

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

1. Select the **Help Topics** command from the VisualDSP++ environment's **Help** menu.
2. Select the **Reference book** icon.
3. Select the **Online Manuals** topic from the **Contents** page.

From this **Help** topic, you can open any of the manuals, which are in Adobe Acrobat PDF format.

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

Conventions

The following are conventions that apply to all chapters. Note that additional conventions, which apply only to specific chapters, appear throughout this document.

Table 1-1. Notation Conventions

Example	Description
<code>Close Command</code> (<code>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> .
<code>.SECTION</code>	Commands, directives, keywords, and feature names are in text with letter gothic font.