

# MPLAB® C30 C Compiler

## Summary

The MPLAB® C30 C compiler is a fully ANSI compliant product with standard libraries for the dsPIC® architecture. It is highly optimizing and takes advantage of many dsPIC architecture specific features to provide efficient software code generation. MPLAB C30 also provides extensions that allow for excellent support of the hardware, such as interrupts and peripherals. It is fully integrated with the MPLAB IDE for high level, source debugging.

MPLAB C30 comes complete with its own assembler, linker and librarian. These allow the user to write Mixed mode C and assembly programs and link the resulting object files into a single executable file.

MPLAB C30 is distributed with a complete ANSI C standard library. The library includes functions for string manipulation, dynamic memory allocation, data conversion, timekeeping, and math functions (trigonometric, exponential and hyperbolic). The standard I/O functions for file handling are also included, and, as distributed, they support full access to the host file system using the command-line simulator.

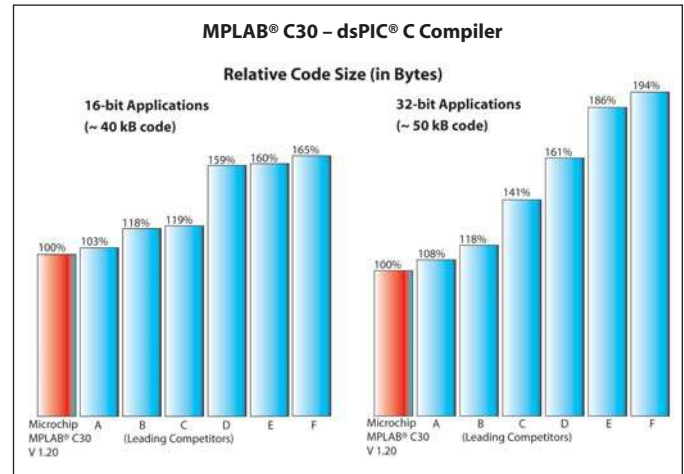
The compiler supports both large and small code and data models. The small code model takes advantage of a more efficient form of call instructions, while the small data model supports the use of compact instructions for accessing data in SFR space.

MPLAB C30 includes a powerful command-line driver program. Using the driver program, application programs can be compiled, assembled, and linked in a single step

## Features

Key features of the MPLAB C30 C Compiler include:

- ANSI-compliant
- Integrated with MPLAB IDE for easy-to-use project management and source-level debugging
- Generates relocatable object modules for enhanced code reuse
- Fully compatible with object modules generated with MPLAB ASM30 Assembler, allowing complete freedom to mix Assembly and C in a single project
- Interrupt code can be written in C or Assembly
- Flexible memory models take advantage of small memory applications and the storage of data in SFR space.
- Strong support for inline assembly when total control is absolutely necessary
- Super-efficient code generator engine with multi-level optimization



## Features (Continued)

- Extensive library support, including standard C, math, DSP and dsPIC30F peripheral libraries
- Application libraries are available options: TCP/IP protocol stack, v.32/v/22 embedded modem solutions, speech recognition, RTOS and OSEK and CAN drivers.

## Package Contents

- MPLAB® C30 C Compiler Software
- MPLAB® IDE Software and Documentation CD
- *MPLAB® ASM30, MPLAB LINK30 and Utilities User's Guide*
- *MPLAB® C30 Compiler User's Guide*
- *dsPIC® Language Tools Getting Started*

## Host System Requirements

- PC-compatible system with an Intel Pentium® class or higher processor, or equivalent
- A minimum of 16 MB RAM
- A minimum of 40 MB available hard drive space
- CD ROM drive
- Microsoft Windows® 98, Windows NT® 4.0, Windows



**MICROCHIP**

Development Systems

Microchip Technology Incorporated

## Part Numbers and Ordering Information

### dsPIC30F Speech Encoding/Decoding Library

| Part Number | Description           | Availability |
|-------------|-----------------------|--------------|
| SW006012    | MPLAB® C30 C Compiler | Now          |

A 60-day full-featured demo is available from the Microchip web site at [www.microchip.com](http://www.microchip.com)

### dsPIC® DSC Development Tools from Microchip

|   |  |
|---|--|
| MPLAB® IDE  | Free   |
| MPLAB® Visual Device Initializer (included in MPLAB® IDE)             |  |
| MPLAB® C30 C Compiler   | SW006012   |
| MPLAB® ICD 2 In-Circuit Debugger/Programmer                           | DV164005, DV164007                                   |
| MPLAB® ICE 4000   | ICE4000  |
| MPLAB® PM3 Universal Device Programmer                                | DV007004   |
| dsPIC30F Math Library (included in download of MPLAB® C30 C Compiler) | Free   |
| dsPIC30F DSP Library  | Free   |
| dsPIC30F Peripheral Library   | Free   |
| dsPICworks™ Data Analysis and DSP Software                            | Free   |
| dsPIC® DSC Digital Filter Design                                      | SW300001   |
| dsPIC30F Soft-Modem Library   | SW300002/3/4/5                                       |
| dsPIC® DSC Speech Recognition Library                                 | SW300010/11/12                                       |
| dsPIC® DSC Symmetric Key Embedded Encryption Library                  | SW300050   |
| dsPIC® DSC Asymmetric Key Embedded Encryption Library                 | SW300055   |
| dsPIC30F Acoustic Echo Cancellation Library                           | SW300060   |
| dsPIC30F Noise Suppression Library                                    | SW300040   |
| CMX-RTX™ for dsPIC30F   | SW300031   |
| CMX-Tiny+™ for dsPIC30F   | SW300032   |
| CMX-Scheduler™ for dsPIC® Devices                                     | Free at <a href="http://www.cmx.com">www.cmx.com</a> |
| dsPICDEM™ Starter Demonstration Board                                 | DM300016   |
| dsPICDEM™ 28-pin Starter Demonstration Board                          | M300017  |
| dsPICDEM™ 1.1 General Purpose Development Board                       | DM300014   |
| dsPICDEM™ MC1 Motor Control Development System                        | DM300020   |
| dsPICDEM.net™ 1 Connectivity Development Boards                       | DM300004-1   |
| dsPICDEM.net™ 2 Connectivity Development Boards                       | M300004-2  |

#### Americas:

Atlanta (770) 640-0034  
 Boston (774) 760-0087  
 Chicago (630) 285-0071  
 Dallas (972) 818-7423  
 Detroit (248) 538-2250  
 Kokomo (765) 864-8360  
 Los Angeles (949) 462-9523  
 San Jose (650) 215-1444  
 Toronto (905) 673-0699

#### Asia/Pacific:

Australia-Sydney 61-2-9868-6733  
 China-Beijing 86-10-8528-2100  
 China-Chengdu 86-28-8676-6200  
 China-Fuzhou 86-591-8750-3506  
 China-Hong Kong SAR 852-2401-1200  
 China-Shanghai 86-21-5407-5533  
 China-Shenyang 86-24-2334-2829  
 China-Shenzhen 86-755-8203-2660  
 China -Shunde 86-757-2839-5507  
 China-Qingdao 86-532-502-7355

#### Asia/Pacific:

India-Bangalore 91-80-2229-0061  
 India-New Delhi 91-11-5160-8631  
 Japan-Kanagawa 81-45-471-6166  
 Korea-Seoul 82-2-554-7200  
 Singapore 65-6334-8870  
 Taiwan-Kaohsiung 886-7-536-4818  
 Taiwan-Taipei 886-2-2500-6610  
 Taiwan-Hsinchu 886-3-572-9526

#### Europe:

Austria-Weis 43-7242-2244-399  
 Denmark-Ballerup 45-4450-2828  
 France- Massy 33-1-69-53-63-20  
 Germany-Ismaning 49-89-627-144-0  
 Italy-Milan 39-0331-742611  
 Netherlands-Drunen 31-416-690399  
 England-Berkshire 44-118-921-5869

(As of 3/05)

Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199 USA • (480) 792-7200 • FAX (480) 792-7277

The Microchip name and logo, the Microchip logo, Accuron, dsPIC, KEELoq, microID, MPLAB, PIC, PICmicro, PICSTART, PRO MATE, PowerSmart, rPIC and SmartShunt are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries. AmLab, FilterLab, Migratable Memory, MXDEV, MXLAB, PICMASTER, SEEVAL, SmartSensor and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A. Analog-for-the-Digital Age, Application Maestro, dsPICDEM, dsPICDEM.net, dsPICworks, ECAN, ECONOMONITOR, FanSense, FlexROM, fuzzyLAB, In-Circuit Serial Programming, ICSP ICEPIC, MPASM, MPLIB, MPLINK, MPSIM, PICKit, PICDEM, PICDEM.net, PICLAB, PICTail, PowerCal, PowerInfo, PowerMate, PowerTool, rLAB, rPICDEM, Select Mode, Smart Serial, SmartTel Total Endurance and WiperLock are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries. SQTP is a service mark of Microchip Technology Incorporated in the U.S.A. All other trademarks mentioned herein are property of their respective companies. © 2005, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved. 4/05

DS51432C

