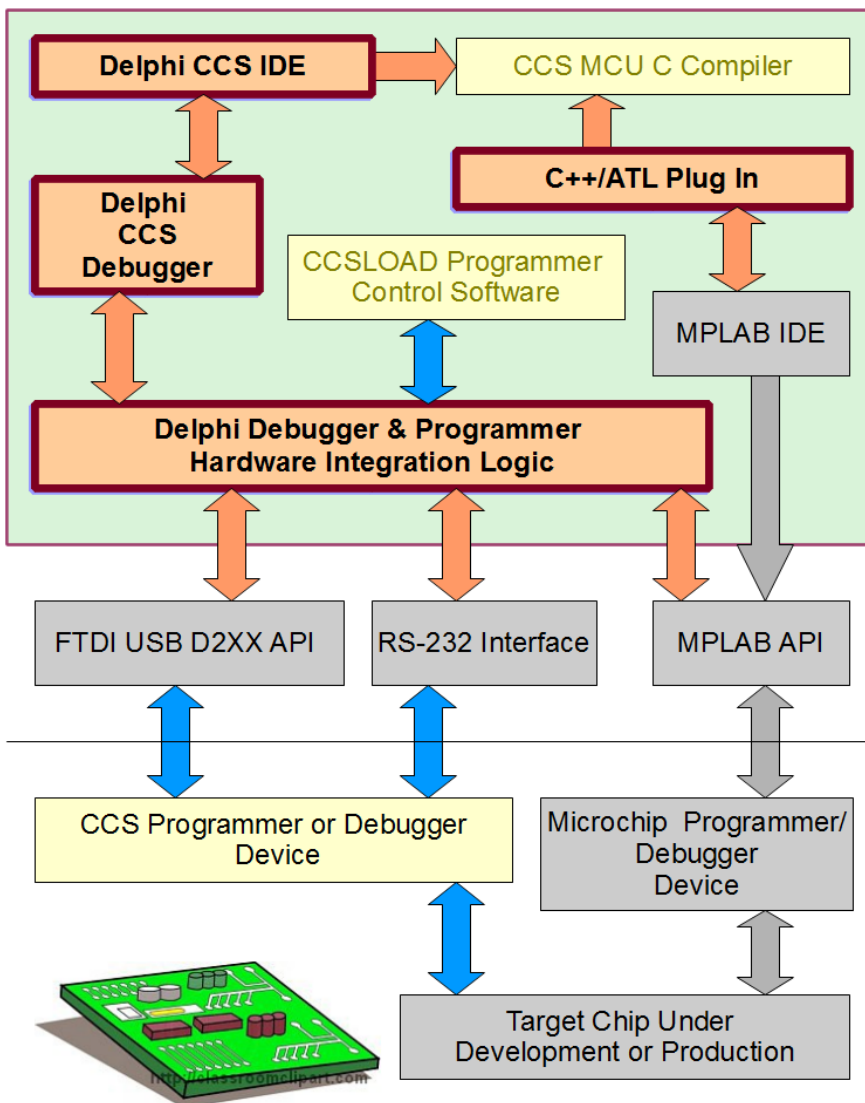


## PIC<sup>®</sup> MCU Development Packages and Utilities

I maintained software related to the Custom Computer Services Inc. (CCS) line of products for developers of embedded systems using the CCS C Compiler. The packages can be used for programming and development of applications running on any of several different kinds of microcontrollers.



Package components that I worked on personally consist of:

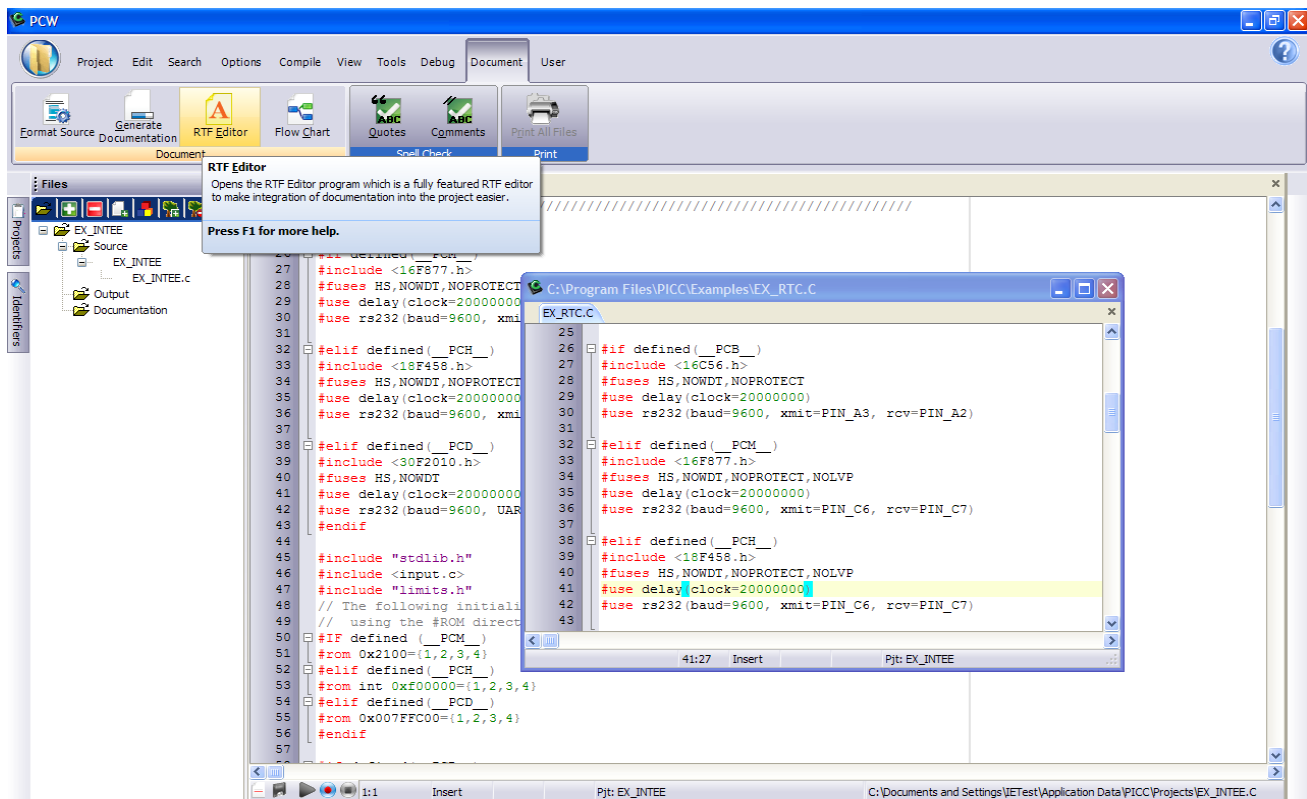
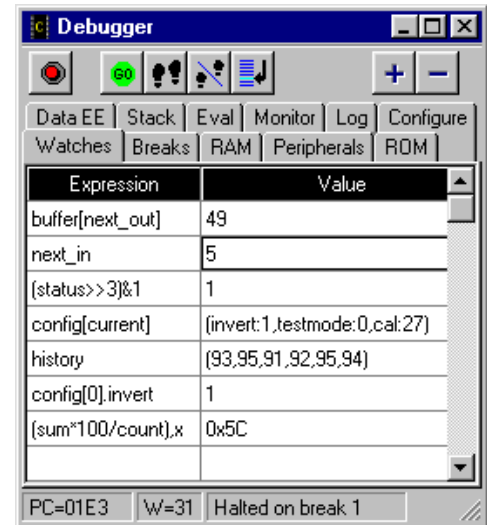
- IDE / Editor written in Delphi.
- Debugger logic written in Delphi.
- MPLAB plug in to integrate the CCS C Compiler with MPLAB written in Visual Studio 2003 C++/ATL.
- Delphi communication logic to integrate and support debugger and programmer tools.
- Other utilities including the SLOW software

# Custom Computer Services' IDE Package

I maintained a Delphi IDE for the Custom Computer Services Inc. (CCS) IDE line of products. The IDE provides a GUI interface to CCS's C compiler for Microchip processors. The IDE contains an editor, syntax highlighting and a debugger.

In working on the IDE, I have incorporated support for

- Code folding
- Code insight
- Code completion
- Bracket matching
- Spell check comments
- Spell check quotes
- Multiple edit windows
- Office 2007 style ribbon menus
- Special file viewers.

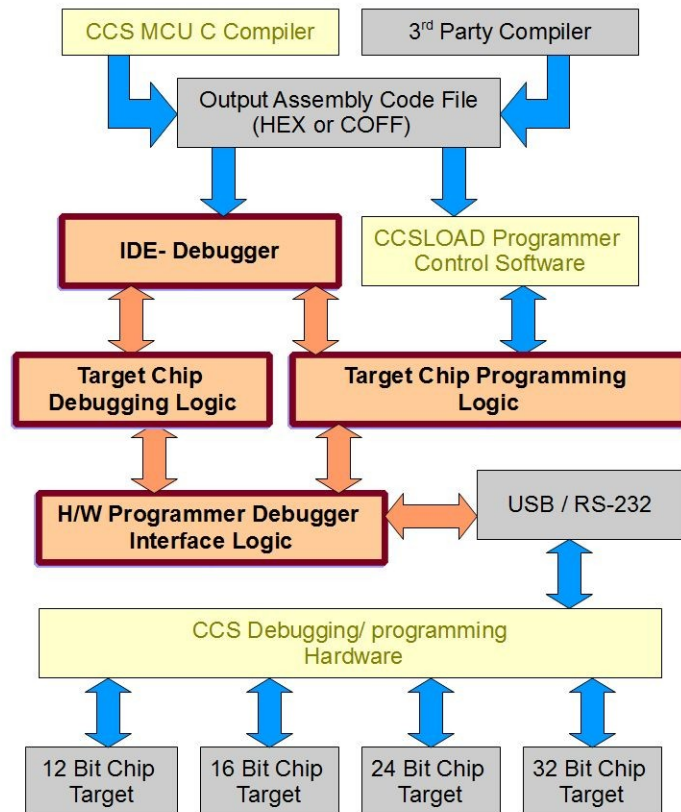


## CCS Debugger / Programmer Integration

I maintained the application communication layer that supports debugging and programming of many Microchip target devices using various programming/debugging hardware products. The logic is implemented as a Delphi DLL.

Major function points include:

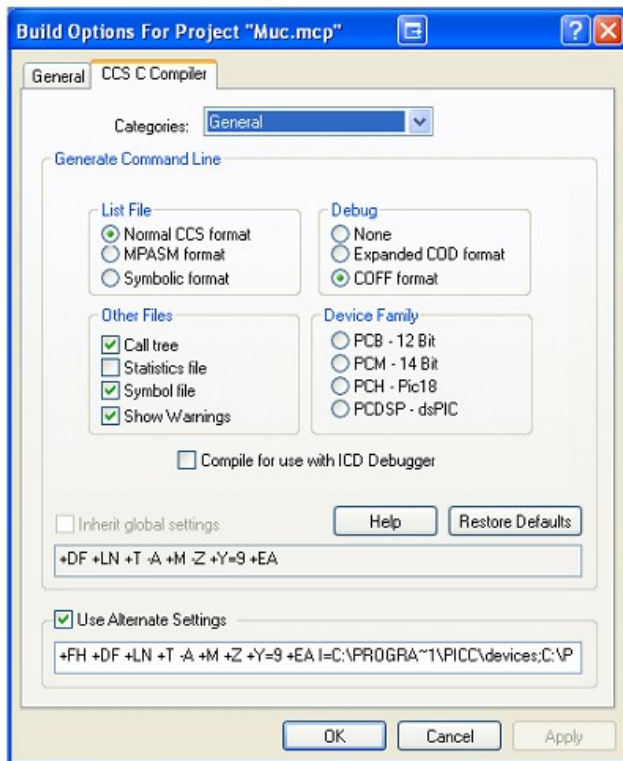
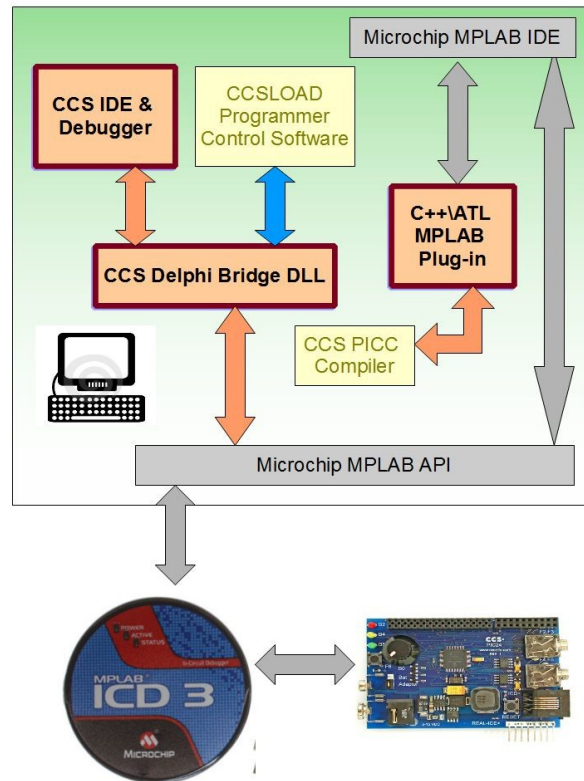
- Support for different programming/debugging logic based on target chip type.
- Send and receive messages to/from hardware using:
  - RS-232
  - FTDI USB D2XX Interface
- Support for multiple programming/debugging tools:
  - CCS ICD-USB In-Circuit Programmer/Debugger
  - CCS ICD-Serial In-Circuit Programmer/Debugger
  - CCS Mach X Programmer.
  - CCS Load-n-Go Hand held Programmer.
- Support for programming with CCS PRIME8 Production Programmer.



# Microchip Tool Integration

I have been involved with several projects that allow customers using Microchip development tools to transition to using CCS Tools including:

- Delivering logic to act as a bridge DLL proving a layer between CCS Software and a Microchip supplied API. This allows Microchip ICD-2, ICD-3, and Real-ICE programmers\debuggers to be used in CCS's software.
- Maintaining a C++/ATL Plug in for the Microchip Tool Suite API. The Plug-in allows for the CCS PICC Compiler to be used inside of the MPLAB IDE.



*CCS PICC Compiler running in MPLAB*

# SLOW (Serial Input/Output Monitor) software

SLOW is a utility used to monitor and log data from the serial port using RS-232 for a protocol. This aids in testing RS-232 PIC<sup>®</sup> projects and helps customers using the CCS boot loader programs.

## Features:

- ASCII terminal window for displaying data from a device in ASCII format.
- Hexadecimal format display for displaying binary data from a device as binary data
- Ability to log data to a file
- Send data in ASCII or Hexadecimal format to a device.
- Download firmware to a device using the CCS boot loader.
- Macros for sending commands to a device.
- Ability to graph CSV data.

