MPLAB® C18 to MPLAB XC8 Migration Overview

This document provides an overview of the migration process from MPLAB® C Compiler for PIC18 MCUs (formerly, and referred to here as, MPLAB C18) and MPLAB XC8 C Compiler, so that you may judge the effort required to convert your project.

MPLAB C18 is nearing end of life. When working with MPLAB C18 projects, you can continue to use the legacy compiler, temporarily compile the project in the MPLAB XC8's C18 compatibility mode, or migrate the project to the native MPLAB XC8 settings and syntax. The latter is recommended if the project is to be further developed.

Technical details of the changes to source code and options are described in the *"MPLAB® C18 to MPLAB XC8 C Migration Guide"* (DS52118). In summary, the process consists of the following steps:

1. **Create a new project**
   There is no automated process that can convert existing MPLAB C18 projects.
2. **Add in the source files**
   Only C and assembly source is read by MPLAB XC8. You must obtain source code for object or library routines used by your project.
3. **Confirm the compiler options**
   The default compiler (or MPLAB X IDE plugin) options, will be suitable for most projects.
4. **Build, working through warnings and errors**
   Most incompatible features will trigger errors in MPLAB XC8, which you can work through.
5. **Convert the source code**
   Source code must have MPLAB XC8 C Compiler native syntax. Conversion is a manual process, but most existing code will compile as-is.

To assist the conversion, make use of compiler-defined preprocessor macros to maintain both original and modified code. Consider the following observations when converting the code.

1. **ANSI compliant code will require no change**
   This covers most code.
2. **Review code making assumptions about implementation-defined behavior**
   Behavior differences are summarized in the migration document. Both compilers' user's guides describe their implementation-defined behavior.
3. **Device-dependent code largely remains identical**
   For both compilers, the special function register and Configuration bit names are derived from the same database. Differences may occur when migrating from early versions of MPLAB C18. The means of accessing SFRs and Configuration bits is identical.

In the following situations, the required MPLAB XC8 code might be structured differently than that for MPLAB C18. Before you try to mimic the MPLAB C18 keywords, consider that MPLAB XC8 may have an easy way of doing what you need.

1. **Pointers are handled differently**
   MPLAB XC8 does not use pointer memory models, nor are pointer qualifiers used. You do not need to write multiple function variants that take pointer arguments.
2. **Interrupt code is defined by one function**
   Typically, a single keyword creates the interrupt function and all the context switch code.
3. **Use alternative ways to allocate objects**
   Consider absolute objects or bank qualifiers before creating user-defined sections.
4. **Stack allocation of variables is different**
   The stack used for variables can only be specified at the function level. Typically, you do not need to use any specifiers or options to obtain the best implementation when using MPLAB XC8.
5. **Linker scripts are not used**
   The default MPLAB XC8 linker options will be suitable for most projects. Linker options can be expanded or adjusted; but, with caution.
6. **Preprocessor macros cannot have variable argument lists**
   If you use these, you will need to use alternate macros or a function.
7. **Assembly code is not portable**
   You will need to review any hand-written assembly code. There are differences in assembly instruction syntax, assembler directives, and the general structure of assembly code.

NOTES:

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