Using the PROTON+ Compiler with MPLABtm

Even though the PROTON+ compiler is now recognised by Microchiptm as third party software, as of yet, no high level tool suite is incorporated in the MPLABtm IDE. This will change, but we all have to be patient.

In the meantime, I have created a Legacy Tool Suite that will allow the PROTON+ compiler version 3.0 onwards to be used in the MPLABtm IDE and allow single stepping of the code on an ASM basis, or the use of the ICD2 or a Microchiptm Programmer.

I'll walk you through the method of operation step by step.

First, download a copy of the latest MPLABtm IDE because this method will only work on versions 7.10 onwards. The release at the time of writing is 7.11, and I recommend using this version.

Locate the files **TLCHILL.INI** and **PROTON.MTC** within the compiler's folder and copy them into MPLAB's folder **CORE\MTC SUITES**. MPLABtm will default to location **C:\Program Files\MPLAB IDE**, so the legacy folder should be: -

C:\Program Files\MPLAB IDE\CORE\MTC SUITES.

Once these files have been copied, locate and run the file **PROTON_MPLAB.REG**. This will add entries into the registry that will register the PROTON+ Compiler as a toolsuite within MPLABtm.

Open MPLABtm, then click on the **Project Wizard** menu option.



And you will be presented by the intro window as shown below.



For this demonstration program, the PICmicrotm of choice is the 16F628A, so in the step 1 window, choose the 16F628A device.

Project Wizard		×
Step One: Select a device		ال ش
	Device:	
-		:
	<pre></pre>	Help

By default the device chosen in this window will be the device that the compiler uses, regardless of a **DEVICE** command within the BASIC listing. The **DEVICE** command will be ignored (see end of document to disable this).

Click **NEXT**, then choose the **Crownhill Associates PROTON+ Compiler** toolsuite, and **browse** to where the PROTON+ compiler's executable is stored. Locate the file named **PR_PLUS_MPLAB.EXE** and enter this in the Location window.

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After clicking **NEXT**, a project name and location needs to be chosen in the step 3 window. The name given to the demonstration project is **MPLAB_TEST**, and it's located, in this case, in the compiler's source code folder. But it can be placed virtually anywhere on the hard drive as long as it is not nested too deeply.

Name your project				
Project Name				
MPLAB_TEST				
Project Directory			-1.14	
C:\Plus_Source\Test_Pr	ograms\MPLAB_T	EST		Browse

Now we need to add the BASIC file to the project. The BASIC file for the demonstration is named **MP_TEST.BAS**.

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MPLAB_	TEST.		<u>></u>

Tick the box in the right hand window only if the chosen **.BAS** file is not located in the projects folder. In this case it is, so leave it unticked.

Clicking **NEXT** a few times after step 4 will create the project. But no BASIC filename has been loaded into the IDE, so right click on **Source File** option located in the **MPLAB_TEST.MCW** window, and choose the appropriate BASIC file.



For the demonstration, the program file name is **MP_TEST.BAS**.

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That's it!

Double click on the **MP_TEST.BAS** text in the **MPLAB_TEST.MCW** window, and the BASIC file will be opened ready to compile. Choose **Project** then **Build** or (Ctrl F10) to compile the program.

Open whatever windows as you require and single step or animate the code at its source level. i.e. Assembler level.

MPLAB IDE v6.42				X
File Edit View Project Debugger Programmer Tools	Configure Window Help			
MPLA8_TEST.mcw	E:\Plus_Source\Test_Pro	U* CP	551.BAS	Special Function Registers
Source Files MP_TEST.BAS MP_TEST.BAS Add SFR CCPTCON Add SFR CCPTCON Add Symbol 16F626 Address Symbol Name Value D020 Watch 1 Watch 2 Watch 3 Watch 4	1 Program HP_TE 2 Program HP_TE 3 Dewnstration 5 Used in HPLAP 6 Program HP_TE 9 XTAL = 10 Dim DWD 11 Dim DWD 12 DWD = 0 13 DWD = 0 14 While 1 15 The 16 ? Z 20 C 21 ? Z 23 ? Z 24 M 25 R 26 C 27 B 28 M 30 C 31 B 25 M 36 M 37 M 38 ? FL 39 G 40 b@LL 41 X 42 4	ST.BAS program testing the Pl 5.40 onwards = 16F628A 4 as Dword = 1 DWD ST.ASM Equ 34 H Equ 36 000013 in (HP_TEST.BAS DWDHH Inf DWDHH Inf DWDHH Inf DWDHH Inf DWDH Inf DWDH ST.BAS 1 000015 in (HP_TEST.BAS ovlw 1 ddwrf DWDH,F Inv tfsc STATUS,0 ovlw 1 ddwrf DWDH,F Inv Status,0 ovlw 1 ddwrf DWDH,F Inv Status,0 ovlw 1 ddwrf DWDH,F Inv Status,0 ovlw 1 ddwrf DWDH,F Inv Status,0 ovlw 1 ddwrf DWDH,F Status,0 ovlw 1 ddwrf DWDH,F Status,0 Status,	ROTON+ compiler Choose a 1696234 device Use a 4MHz crystal Declare a Dword Reset the counting variable Create an infinite loop Thorement the counting variable Do it forever DUD = 0 Reset the counting var Mubile 1 = 1 Create an infinite I DuD 0 Nucrement the counting Wend Do it forever	SFR Name Hex Dec WREG 00 INDP THRO 00 PCL 00 STATUS 1C FSR 00 PORTA 20 PORTA 20 PCLATH 00 INTCON 00 THRI 0000 THRIL 00 THRIL 00 THRIL 00 CCPRI 0000 CCPRI 0000 CCPRIT 00
Build Version Control Find in Files				
Executing: "C\Plus_Source\PROTON_PL.exe Loaded C\Plus_Source\Test_Programs\MPL BUILD SUCCEEDED: Tue Feb 10 22:44:01 20	"-p16F628A-q-m"MP_TEST AB_TEST\MP_TEST.COD 04	BAS"		×
MPLAR STM PIC16E628A pc:0	W/D Zdec	0,0056		

Disabling the Automatic DEVICE Selection.

By default, MPLABtm forces the compiler to ignore any **DEVICE** directives within the BASIC program in favour of whatever device is chosen in the **Configure-**>**Select Device** Options menu. This can be disabled by right clicking on the filename within the **MCW** window and choosing **Build Options**.



You will be presented with a configuration window containing a single switch.

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rocessor	□ On	
Inherit global s	ettings	Restore Defaults
Index Users	d Line Octors	

Untick the **ON** switch and click **APPLY**.

The device that the compiler recognises is now issued by the **DEVICE** directive within the BASIC program, therefore ensure that MPLABtm is configured for the correct PICmicrotm device for any simulations of programming.

This has been a very brief explanation on how to incorporate the PROTON+ compiler into MPLABtm, but it gives you the basics (Pun intended). The rest is up to you. Have fun.