quick start guide

PICC-18

ANSI C

COMPILER
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**Introduction**

Welcome to HI-TECH PICC-18 for Windows 9x, Windows NT/2000/XP, Linux and UNIX. PICC-18 is more than a C compiler - it is a complete development system for C and assembler. With features like an integrated development environment, assembler-free programming, and an intelligent optimizer, you can develop exceptionally tight and fast code with ease.

NOTE: By default, this package runs in a time-limited (21 days) demo mode. After purchasing a license, you will need to register the compiler to take advantage of all the compiler’s features and to remove the time-limitation.

**Environment**

PICC-18 can be run entirely from the HI-TECH Integrated Development Environment (HI-TIDE). This environment allows you to manage all of your PIC18 projects. Source files can be edited using the in-built, fully-customizable editor. You can compile, assemble and link your embedded application with a single step and then perform a fast simulation with the resulting code. The operation of the code may be monitored using source level debugging provided by HI-TIDE. Code interaction with external devices can be tested with virtual I/O and peripherals integrated into the simulator.

**Compiler Features**

PICC-18 includes an ANSI C compiler, supporting all standard data types including floating point. Features of the compiler include:

- Unlimited number of source files
- Multiple optimization levels
- Comprehensive library with source code
- Floating point support (24-bit and 32-bit IEEE)
- Mixed C and assembler programming
- Optimizing assembler
- Full linker, with overlaying of local variables to minimize RAM usage
Introduction

HI-TIDE Features

- Configurable integrated editor
- Simulation of virtual I/O device connection to the microcontroller
- Project manager that maintains all source, library and object files
- Customizable colour and font schemes
- Fast simulation
- Program tracing
- Source level debugging including the ability to watch variables such as arrays, strings, structures and unions

1.1 What’s On the CD-ROM

PICC-18 has everything you need to develop applications for Microchip’s range of low-power PIC18 microcontrollers. This package includes:

- The Windows and Linux versions of the PICC-18 Compiler.
- PICC-18 compiler comprising:
  - ANSI C compiler
  - Intelligent optimizer
  - Optimizing assembler
  - Full relocating linker
  - Comprehensive library including floating point and full source
- HI-TECH Integrated Development Environment (HI-TIDE) comprising:
  - Editor
  - Simulator
  - Project Manager
  - Virtual Peripherals
- PICC-18 manual in:
  - PDF format
  - HTML format
- This Quick Start Guide in PDF format
- Adobe Acrobat reader
- Microchip data sheets for currently available PIC18 processors
Third Party Development Tools, such as:
- Microchip’s MPLAB IDE
- Phyton Project-MC
- Salvo RTOS Demo Version

1.2 Using This Guide

This guide is an introduction to PICC-18. It tells you:
- How to install PICC-18
- How to install HI-TIDE
- How to register your copy of PICC-18
- How to activate your PICC-18 compiler
- How to use the on-line manual
- How to get started with your first program
- How to get technical support

1.3 System Requirements

PICC-18 runs on any Intel based PC and UNIX machines. For use on a PC, the PICC-18 requires:
- Windows 9x (or later), or Windows NT 3.51 (or later, including 2000 and XP), or any version of Linux
- A personal computer with a Pentium processor (or better)
- Hard disk with (typically) 40Mb of available memory, for full installation
- CD-ROM drive

For use on UNIX machines, PICC-18 requires:
- Hard disk with 30Mb of available memory, for full installation

HI-TIDE runs on any Intel based PC machines. HI-TIDE requires:
- Windows 9x (or later), or Windows NT 3.51 (or later, including 2000 and XP), or any version of Linux
Introduction

☐ A personal computer with a minimum Pentium 300MHz processor
☐ Hard disk with (typically) 50Mb of available memory
☐ RAM 64Mb, (preferred 128Mb)
☐ CD-ROM drive
Compiler Installation

The compiler installation procedure depends on the operating system which you are using, however in all cases the procedure followed is:

- Optional installation of software downloaded from HI-TECH’s web site,
- Purchase of a license,
- Receipt of the physical software package via courier along with serial number and registration key,
- Registration of your compiler and customer details with HI-TECH Software, after which, we will send you the activation key; and
- Activation of your compiler using the activation key.

If you have an internet connection, you may be able to perform the registration step on-line.

2.1 Windows Installation

PICC-18 is supplied on a CD-ROM. Insert the CD-ROM into the drive. An autorun program will start up. If you have disabled the autorun feature, you may start the program by running autorun.exe on the CD-ROM drive.

The window displayed by the autorun program has several buttons. These are described below.

- Exit: Selecting this button quits the autorun program.
- About: Selecting this button opens a dialog displaying information regarding the install program.
- Web: Selecting this button will open your default internet browser to our web site, providing you currently have an internet connection.
**Compiler Installation**

**PICC-18 Compiler**

**Install**  
This button runs a separate install program which installs the PICC-18 compiler onto your system. The install program will prompt for information as it proceeds. More information on the installer can be found in section 2.1.1 on page 12.

**Manual (PDF)**  
Select this button to view the PDF version of the PICC-18 user’s guide on the installation CD-ROM.

**Manual (HTML)**  
Select this button to view the HTML version of the PICC-18 user’s guide on the installation CD-ROM.

**HI-TIDE**

**Install**  
This button runs a separate install program which installs HI-TIDE onto your system. More information on the installer can be found in section 2.1.2 on page 13.

**Manual (PDF)**  
Select this button to view the PDF version of the HI-TIDE user’s guide on the installation CD-ROM.

**Manual (HTML)**  
Select this button to view the HTML version of the HI-TIDE user’s guide on the installation CD-ROM.

If desired, you may go straight to the compiler install program by running `compiler\setup.exe` on the CD-ROM drive. The HI-TIDE install program’s path is `hi-tide\setup.exe` on the CD-ROM drive.

### 2.1.1 Compiler Install Program

The install program performs several tasks.

- It installs onto your system, the full version of the compiler including all applications, header files, libraries, and sample and library source code to the specified distribution directory. HI-TIDE is not installed by this install program.

- It sets the `PATH` variable to be the BIN directory of the distribution.

- It sets the `HTC_PIC18` environment variable to be the distribution directory.

- It also installs the PDF and HTML versions of the user’s guide.

The installer does **NOT** register the software. Registration can be performed anytime after you receive a **serial number** and **registration key**. These are supplied with the software CD and printed material shipped after you purchase a compiler.
license. They are located on the inside cover of the printed version of the Quick Start Guide. See section 2.4.2 on page 18 for more information on the security and registration of this compiler.

After the install program is run, you will see several preliminary dialog boxes displayed.

The main install window is entitled “PICC-18 Compiler Setup”. From this point, the installation process is relatively standard. Read the instructions presented in the dialog and follow the prompts. It is required that the compiler is not installed into a directory whose path contains space characters, as this will cause compiler components to read the wrong number of arguments. Read the license agreement shown by the install program, as you are bound by this agreement if you use the software.

The install program will inform you if the installation was not successful. If the compiler does not install and you are unable to resolve the problem yourself, contact technical support. Section 3.3.5 on page 23 has contact details.

2.1.2 HI-TIDE Install Program

- It installs onto your system, the full version HI-TIDE.
- It sets the HTC_HITIDE environment variable to be the HI-TIDE directory.
- It also installs the PDF and HTML versions of the HI-TIDE user’s guide.

The installer will run similar to the compiler install program. Note that HI-TIDE will not run successfully if the compiler is not installed. It is recommended that HI-TIDE is not installed into a directory whose path contains space characters.

2.1.3 Installing Additional Applications

The CD-ROM contains a version of the Abode Acrobat (PDF) reader. This program allows you to view the PDF version of the user’s guide. If you wish to install it, first quit any web browser running, run the self-extracting archive in the manual\acrowin directory of the CD-ROM drive, and follow the instructions on the screen.

The CD-ROM also contains a version of Microchip’s MPLAB IDE. This program is not necessary to run the compiler, but it can be used to perform simulation (or emulation if you have the appropriate hardware) of compiled code. If you wish to install this program onto your system, run the self-extracting archive in the mplab
Compiler Installation

directory on the CD-ROM. MPLAB documentation is also provided in this directory.

2.1.4 Accessing the Compiler

The command-line compiler driver is PICC18 (picc18.exe). This is normally the only command you need to access the compiler, but you may also want to run other applications, such as the assembler or linker, directly. See the user’s manual for more information on the compiler applications.

2.1.5 Accessing HI-TIDE

HI-TIDE can run from the Start | Programs | HI-TECH Software | HITIDE menu.

2.2 Compiler UNIX/Linux Installation

As Linux and specific UNIX systems are similar in their design, the below can be followed for either a Linux OS or a UNIX based system. Note that UNIX versions of the compiler are purchased separately.

To install the compiler, you will first need to create a directory. By default the directory the compiler driver will expect is /usr/hitech but this can be overridden by setting the HTC_PIC18 environment variable. Ensure that you have the necessary permissions to create and modify the area of the file system in which you will be installing the compiler, and to access the CD-ROM drive of the machine.

To extract the compiler, first create the directory into which you will install the compiler (replacing the directory name with whatever you have chosen):

```
mkdir /usr/hitech
```

Then change into the CD-ROM directory and copy the directories from here to the installation directory you have made above. The files on the CD-ROM may be mounted at a different point in your file system - use the appropriate path for your system.

```
cd /mnt/cdrom
cp bin /usr/hitech
```

Also copy the include, libc, lib and help directories to the same location.

The compiler will now be installed. You should add to your PATH environment variable the bin directory, for example /usr/hitech/bin. If the directory is anything other than /usr/hitech then you will need to set the environment
variable in your .cshrc or .profile file. For example, in .cshrc (for the c-shell) add the line:

    setenv HTC_PIC18 /home/hitech

A Bourne shell user will require the following lines in .profile:

    HTC_PIC18=/home/hitech
    export HTC_PIC18

Again replace the directory name with whatever you have chosen.

Run the command:

    picc18 -setup

as a user with write permissions to the distribution directory. The compiler will then operate in demo mode and can be used immediately by an ordinary user. Registration of the compiler will need to performed to remove the demo mode restrictions. See 2.4.3 on page 19 for more information on activating the compiler.

If you wish to install the acrobat reader, this is located in the directory acrobat. Uncompress and extract this package using the following:

    gzip -d filename.gz
    tar xf filename.tar

where filename is the name of the file present in the directory. Run the INSTALL program to install the package onto your system.

### 2.2.1 Accessing the Compiler

The UNIX/Linux command-line compiler driver is picc18. This is normally the only command you need to access the compiler, but you may also want to run other applications, such as the assembler or linker, directly. See the user’s manual for more information on the compiler applications.

The command line options are the same as for MS-DOS - just use the picc18 command as described later.

### 2.3 HI-TIDE Linux Installation

To install HI-TIDE, you will first need to install the PICC-18 compiler. Then you will need to create a directory. By default the directory /usr/hitech is expected by HI-TIDE, but this can be overridden by setting the HTC_HITIDE environment
Compiler Installation

variable. Ensure that you have the necessary permissions to create and modify the area of the file system in which you will be installing HI-TIDE, and to access the CD-ROM drive of the machine.

To install HI-TIDE, first create the directory into which you will install the compiler (replacing the directory name with whatever you have chosen):

    mkdir /usr/hitech

Then change into the Linux directory in the CD-ROM directory and copy hi-tide directory from here to the installation directory you have made above. The files on the CD-ROM may be mounted at a different point in your file system - use the appropriate path for your system.

    cd /mnt/cdrom/Linux
    cp -r hi-tide /usr/hitech

You should add the hi-tide directory to your PATH environment variable, to allow HI-TIDE to be easily run.

If HI-TIDE is installed in a directory other than /usr/hitech then you will need to set the environment variable HTC_HITIDE in your .cshrc or .profile file. For example, in .cshrc (for the c-shell) add the line:

    setenv HTC_HITIDE /home/hitech

A Bourne shell user will require the following lines in .profile:

    HTC_HITIDE=/home/hitech
    export HTC_HITIDE

Again replace the directory name with whatever you have chosen.

Once copied and the environment variables are set, some directories and files permissions need to be made writable to the user. There is a script provided in the hi-tide directory that will automatically set usable permissions. The script can be viewed and modified to suite permissions on your machine.

2.3.1 Accessing the HI-TIDE

To start HI-TIDE run the hitide program in the hi-tide directory.
2.4 Registration and Security Information

2.4.1 Overview

Both the Windows and Linux version of this compiler have new in-built security features. The registration process is also different from earlier versions of the compiler. A new on-line registration program is currently being developed, however registration of this product can be performed via our web site.

If you are updating from version 8.10 or later and you have already registered and activated this compiler, you should not need to perform any action other than removing the previous version when prompted by the installer. If, however, the compiler begins operating in demo mode, you can re-activate it with the information supplied to you previously.

After installation, this version of the compiler will run in demo mode. Compilation of programs may take place in demo mode, but the compilation process will be slower and certain command line options will be disabled, in particular:

-\texttt{-Ipath} to add include paths
-\texttt{-M} for map file generation
-\texttt{-Dmacro} to redefine macro symbols
-\texttt{-Umacro} to undefine macro symbols
-\texttt{-PRE} to preprocess only source modules
-\texttt{-NORT} to disable runtime code inclusion
-\texttt{-L} to specify libraries to be scanned by the linker
-\texttt{-L-opt} to allow specification of additional linker options
-\texttt{-RESROM} to reserve ROM locations
-\texttt{-RESRAM} to reserve RAM locations
-\texttt{-V} for verbose compilation messages

There are no code limitations in demo mode. Since you can download this compiler from HI-TECH Software's web site and use it immediately, albeit in demo mode, you do not need to wait for the physical compiler to be shipped before starting on urgent projects.

The compiler will continue to operate in demo mode for 21 days, after which it will expire and cease to function. If you have purchased and registered the software, you may activate it to remove the time-limited operation, even if it has expired.

If you have purchased a version of the PICC-18 compiler prior to version 8.10 and you are updating to this version, you will need to re-register. Either use the
registration page on our web site or mailto://register@htsoft.com the regform.txt file located in the distribution directory. You will receive a modified serial number, registration key and activation key to allow you to fully activate this update. Please supply your existing serial number, but you can omit the registration key since that has not been shipped to you. You have 21 days in which to complete this procedure, however you can still activate the compiler even if it has expired.

If you have purchased this version of the compiler, the serial number and registration key are supplied on the inside front cover of the Quick Start Guide which is shipped with the physical compiler package.

Once you have your new serial number and registration key you can register one of several ways.

- On our web site http://www.htsoft.com. Go to the registration page and submit your details (recommended).
- mailto://register@htsoft.com the completed regform.txt file which is located in the top directory of your distribution.
- Fax to +61 7 3552 7778 either the regform.pdf located in the top level of the compiler distribution directory, or the completed registration card.
- You may use the registration card that was shipped with the package and send that to the address on the card.

In future, an on-line registration program will be supplied to simplify the registration process.

After registering you will receive an activation key via e-mail which will fully activate the compiler and remove the time-limited operation. Keep your serial number, registration key, activation key and the exact user name you specified when registering in a safe place for future reference. This way you do not need to contact us again if you need to re-install the compiler. Details of how to register your compiler will be sent with the activation key.

**2.4.2 Activating the Compiler under Windows**

To activate your installed PICC-18 compiler, run from the Start Menu the following program, Start | Programs | HI-TECH Software | PICC-18 | Compiler Activation. This program will activate your PICC-18 compiler and remove all demo mode limitations.
After running the Compiler Activation program, click **Next** to begin the activation process. First enter your **serial number**, the serial number prefix has already been inserted. Next enter the owner’s first and last name as specified when registering the license, then your registration number. Finally enter the **activation key** that was provided to you when you registered your compiler. Select the **Next** button to complete the activation process. A window will tell you whether your activation has succeeded or failed. If the process failed, try again making sure you have not entered spaces after any of the information inserted.

Once activated the demo-mode disclaimer should not be displayed when subsequently running the compiler.

### 2.4.3 Activating the Compiler under Linux/UNIX

Once you have your **activation key**, you can activate the installed compiler. Activation must be performed by a user with write permissions to the distribution directory. The registration information sent to you, or which you obtained on-line, will have the appropriate command line to execute.

After running the command, the compiler should be activated. The demo-mode disclaimer should not be displayed when subsequently running the compiler.
Getting Information

3.1 Online Help

The command line compiler will give a list of available options via the –HELP option.

3.2 Online Manuals

The online manual is a comprehensive guide to using the compiler. It is provided on the CD-ROM under the manual directory, but is also copied to your distribution directory by the installer. The manual is provided in both Acrobat format (manual.pdf) and HTML format (html\index.htm). A printed version of the manual can also be purchased, through either HI-TECH Software directly or any of our resellers.

The PDF version of the manual may be viewed using any PDF display program. The Acrobat Reader for Windows is supplied on the CD-ROM for viewing the manual in this format.

The HTML version of the manual may be viewed using any HTML browser with support for HTML version 1 or greater.

3.3 Technical Support

This section provides details of technical support for products purchased directly from HI-TECH Software. If you did not purchase this product directly from HI-TECH Software, always contact your supplier first for technical support. Please make sure when requesting technical support to always supply your serial number.

3.3.1 Registration and Free Technical Support

In order to receive free technical support, you will need to register your copy of the compiler. This can be done in one of the following ways:

☐ On our web site http://www.htsoft.com. Go to the registration page and submit your details (recommended).

☐ mailto://register@htsoft.com the completed regform.txt file which is located in the top directory of your distribution.
**Getting Information**

- Fax to +61 7 3552 7778 either the `regform.pdf` located in the top level of the compiler distribution directory, or the completed registration card.
- You may use the registration card that was shipped with the package and send that to the address on the card.

Once you have registered, you are then entitled to 90 days of free technical support, starting from your first contact with us. You are also entitled to one free update, this can be found on our web site or sent out to you on request.

If you change your contact details, please let HI-TECH Software know.

### 3.3.2 Compiler Update

A compiler update may be purchased at any time to update your compiler to the current version. Please note that when purchasing a compiler update it comes with no added technical support and is a one off compiler update only.

### 3.3.3 Extended Support Option

An Extended Support Option can be purchased at any time and offers the customer the following items:

- 12 months unlimited technical support
- The current version of the compiler, for those customers who require it
- All specific compiler updates released during the extended support period, via our web site.

The Extended Support Option may be ordered via our online ordering page on our web site. If you choose not to take out the Extended Support Option, you may still send technical support requests, but considerable delays may be experienced.

### 3.3.4 Minor Updates

From time to time, minor updates of the compiler will be made available on the HI-TECH Software web and ftp servers:

```plaintext
www  http://www.htsoft.com/
```

These updates may be downloaded free of charge. Please note that updates will not upgrade from one major version to another. Upgrades may be purchased individually as stated above.
3.3.5 Contacting Technical Support

Technical support may be contacted in one of the following ways:

email          support@htsoft.com

Using the on-line support request form on our web site may speed up your request.

fax/voice mail (USA only)  (408) 490 2885
fax          +61 7 3552 7778
phone       +61 7 3552 7782
post        HI-TECH Software Technical Support

            PO Box 103
            Alderley QLD 4051
            Australia

3.4 Ordering Parts

The following can be ordered either directly through HI-TECH Software or from your original point of purchase:

☐ Additional licences
☐ Printed copies of the manual
☐ Extended Support Option
☐ Additional Media

3.5 HI-TECH Software Resellers Worldwide

This is a list of HI-TECH software resellers worldwide.

Australia. . . . . . HI-TECH Software
Phone +61735527777
Fax +61735527778
Email sales@htsoft.com

AUSTRIA . . . . . COMSOL GmbH
Phone +430316721700
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Fax +81528777192
Email jcl@k7.dion.ne.jp

JAPAN . . . . . . . International Parts and Information Co
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Fax +81298503114
Email sales@ipic.co.jp

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Getting Information
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4.1 Getting Started with PICC-18

For new users of the PICC-18 compiler, the following section provides a step-by-step guide to getting your first program running in a target system. You'll need a working PIC18 system, and some means of programming the PIC18. And, of course, you'll need to have installed the compiler as described in the previous chapter.

You will find a complete guide to using PICC18 in the chapter PICC18 Command Line Driver, inside the user’s guide.

One thing should be made clear; with embedded programming there really is no such thing as a “quick start”. There are several variables, e.g. the hardware, memory, I/O devices and the software, all of which must be exactly right or the program will simply not work. There are no error messages when your embedded program crashes - it is a black box. Be prepared to check everything carefully, and if possible start with known working hardware. Debugging hardware and software at the same time squares the degree of difficulty.

4.1.1 A Sample Program

```c
#include <pic18.h>

/*
 * a trivial program to count up in binary the value
 * on PORT D.
 * The program will run on PIC18C4x2 chips.
 */

void delay(unsigned int count);

unsigned char value;

void main(void)
{
    PORTD = 0x00;
}```
TRISD = 0x00;
value = 0;

while(1) {
    PORTD = value++;
    delay(10000);
}

void
delay(unsigned int count)
{
    while(count--)
    {
    
    return;
    }
}

The small sample program shown is written for the PIC18C4X2 processors running on a board which has 8 LEDs attached to Port D. It loops forever flashing the LEDs. If your hardware is different, as it almost certainly is, you should write a similar program tailored for your particular hardware. Flashing LEDs is however a good place to start, as it provides a visual indication of program function. If you don't have LEDs attached, then you could monitor an output port line with an oscilloscope or logic probe. Alternatively, you could even monitor address lines with an oscilloscope or logic analyser. The idea is to be able to determine that the program is running correctly using a minimum of resources, so as to remove as many variables as possible from the problem.

Once the first program is running, it is easier to progress from that point than to try and run a complex program from the beginning. To get this program running, you will need to compile it, using PICC18.

4.1.2 Using PICC18

To use PICC18 to compile your sample program, you will first need to create a file containing the program. The above program is very similar to one provided in the samples directory of your distribution, called led.c, so you may use that as a starting point, or create your own program from scratch. You can use whatever text editor you are familiar with, as long as it can create a plain ASCII file. The MS-DOS EDIT command is satisfactory. Save the file as led.c. To run PICC18, type:
PICC18 -18C452 led.c

if you are compiling for the 18C452, for example. Change this processor option if you are compiling for a different chip, but note that not all PIC18 devices have a D port.

If you have correctly entered the sample program, no error messages should result. If you do get error messages, edit the program to correct the errors, and recompile with PICC18 as before. Here is sample output from PICC18:

```
HI-TECH PICC-18 COMPILER (Microchip PIC18) V8.30
Copyright (C) 1984-2003 HI-TECH SOFTWARE
Serial number: HCPIC18-123456
Licensed to : HI-TECH SOFTWARE

Memory Usage Map:

Program ROM  $000000 - $000013  $000014 ( 20) bytes
Program ROM  $000018 - $000077  $000060 ( 96) bytes
               $000074 ( 116) bytes total Program ROM
RAM data     $0000FE - $0000FF  $000002 (  2) bytes
RAM data     $0005FF - $0005FF  $000001 (  1) bytes
               $000003 (  3) bytes total RAM data
Near RAM     $000000 - $000001  $000002 (  2) bytes total Near RAM

Program statistics:

Total ROM used   116 bytes (0.4%)
Total RAM used    5 bytes (0.3%)  Near RAM used    2 bytes (1.6%)

4.1.3 Useful Options

The compiler supports various output file formats. The two most commonly used for input into a programmer are Intel HEX and binary. The default is both Bytecraft COD and Intel HEX, but can be changed with one of the following options to PICC18:

- MOT Produce Motorola S1/S9 HEX file
- BIN Produce a binary output file

Full optimization of the output code can be obtained by using the options -O to invoke the assembler optimizer and -Zg, to invoke the global optimizer.

A linker map file can be created by using the option -Mfile.map, where file is the base name of the map file you require, e.g. -Mled.map.

An assembler listing file can be produced using the option -asmlist.
4.1.4 Running your program

Once you have compiled the program, you will have a file called `led.cod` and a file called `led.hex` in the current directory. How you get this into your hardware will vary depending on just what you have to work with, but generally speaking you will need a programmer to allow you to get the program into the memory of your target system. The exact procedures for doing so are beyond the scope of this manual.

4.2 Getting Started with HI-TIDE

For new users of HI-TIDE, the following section provides a step-by-step guide to getting the demo supplied with HI-TIDE to simulate.

When HI-TIDE is first run a demo project is loaded. The demo project, `demo18.prj`, can also be loaded from the `\samples\demo` directory of the HI-TIDE installation. To load a project go to the **Project | Open Project...** menu. A file dialog will then appear allowing you to select the project you want to open.

Once the demo project is loaded you can then compile the project. To compile select the **Build | Make** menu. After you have compiled your project, then you can simulate the project by selecting the menu **Debug | Run** for full speed simulation or **Debug | Animate** for simulation that will show the source code as it is being executed.

The demo project demonstrates some of the key features of HI-TIDE via some Virtual I/O devices attached to a Microchip PIC 18C452 processor. In this demonstration there is an LCD, two LED panels, two switches and two push buttons attached to various ports of the processor. Serial I/O is also used and is displayed in the Serial I/O view. When simulating, the LCD will show a scrolling message, the status of the switches (on/off), push button counter and serial data. You can change the state of the switches by clicking on them with the mouse. When this is done the LCD will be updated. Similarly, pressing one of the push buttons will either increase or decrease the button counter shown on the LCD. The Serial I/O window will display a prompt where you can type. When you type, the characters will be echoed in the Serial I/O window and on the LCD display.

Tutorial 1 in the HI-TIDE manual is also a good place for getting started with HI-TIDE as it shows how to create and simulate a project from scratch.