Configuring the IAR Workbench Debugger to use a P&E Microcomputer Systems Interface

The debugger settings may be configured to select a P&E Microcomputer Systems connection by using the Options dialog. The P&E hardware interfaces currently supported are: the OSJtag interface embedded into Freescale Tower boards, the USB Multilink, and the Cyclone MAX. To open the Options dialog, you may either:

1) Select the desired project name in the Workspace area, select Project from the menu bar, and then choose Options from the drop-down list. Or,
2) Right-click the desired project name in the Workspace area and then choose Options from the right-click menu.

In the Category list on the left side of the Options dialog, select Debugger. Then, in the Setup tab to the right, choose PE Micro from the Driver drop-down menu.
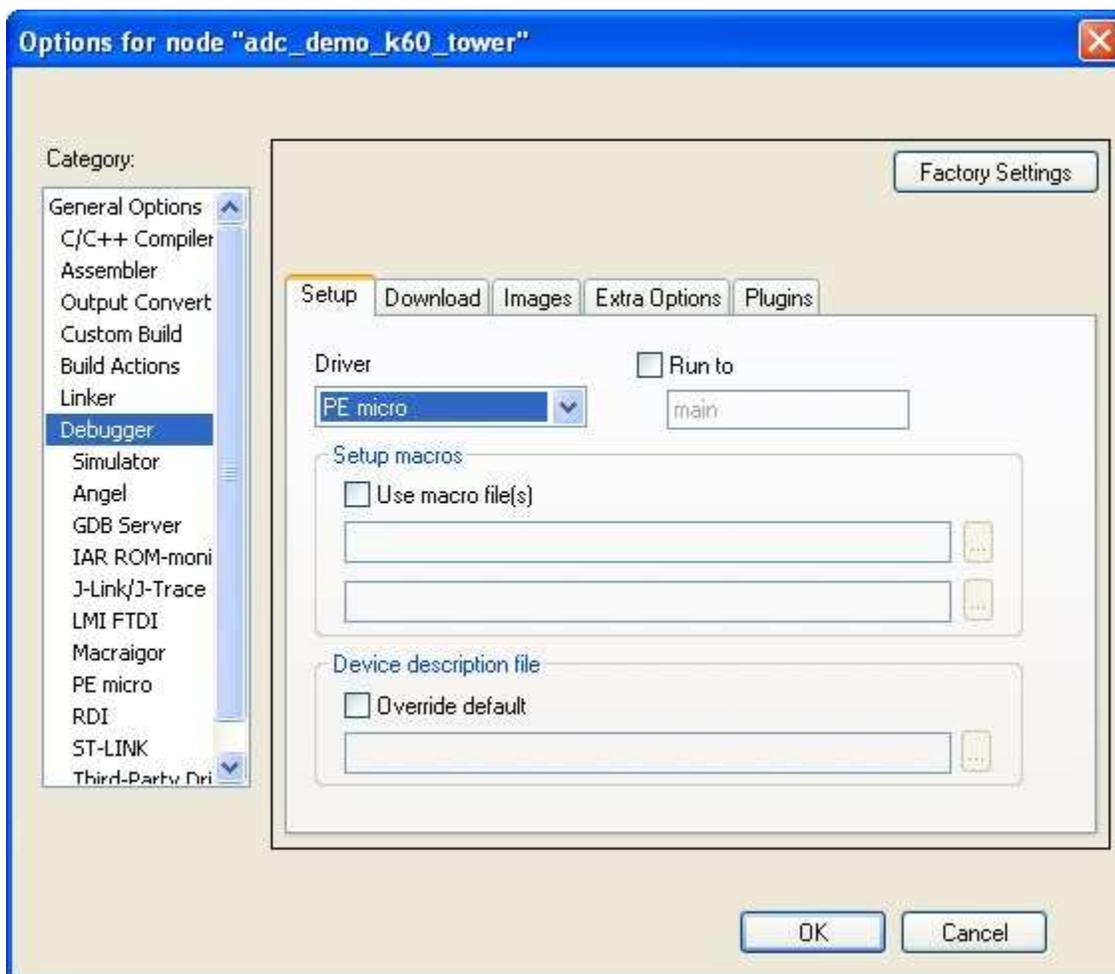
Options Dialog – Opening PE Micro Settings

To make changes to the PE Micro settings, go to the Category list on the left side of the Options dialog and select PE Micro from the list under the Debugger category. This will display a Setup tab in the Options dialog that contains the PE Micro settings.

PE Micro Settings
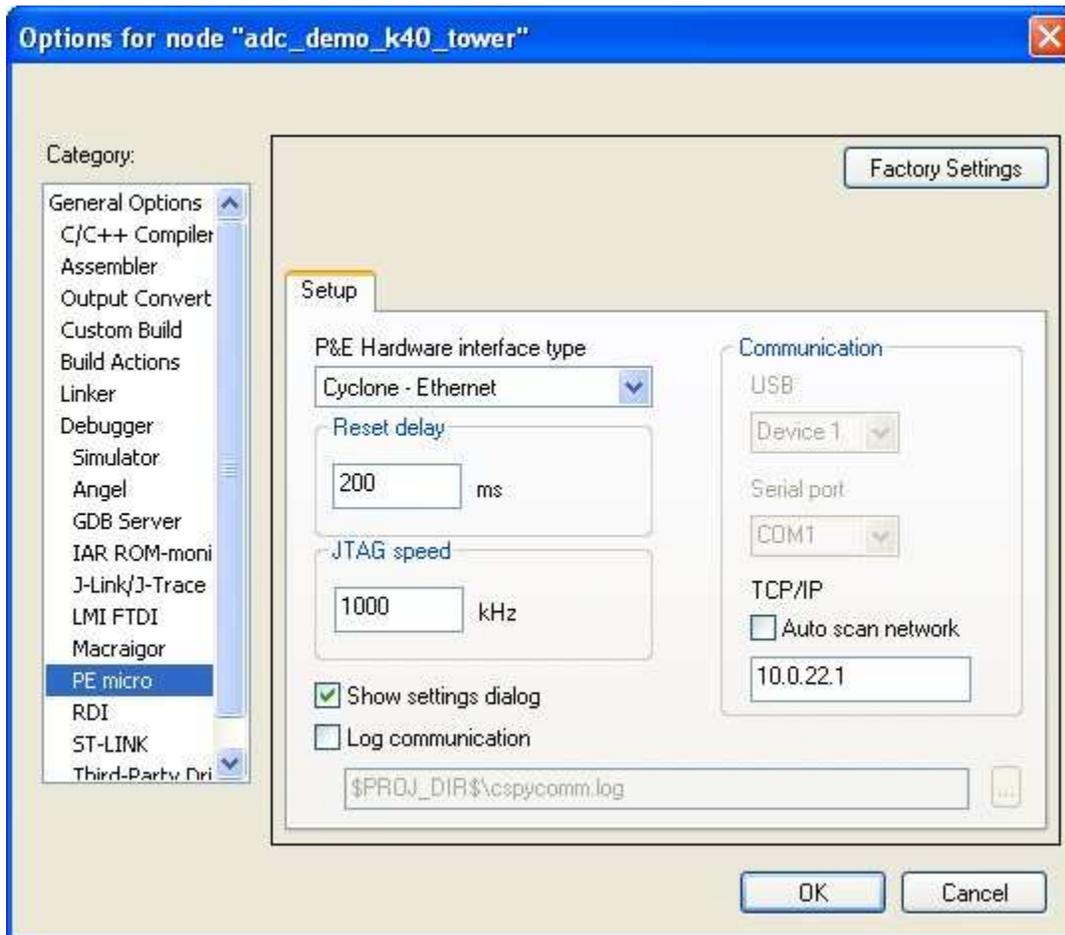
The following PE Micro settings are available in the Options dialog:

> **P&E Hardware Interface type**
> Select the appropriate hardware interface type for the interface that you are using. The other available PE Micro settings will change depending on the specific hardware interface type that you choose. The options are:
> - OSJtag
> - USB Multilink
> - Cyclone – Serial
> - Cyclone – USB
> - Cyclone - Ethernet

Reset Delay

"Reset Delay" allows the user to set an additional delay in milliseconds in order to make sure that reset is recognized (0ms is the recommended setting).

JTAG speed

"JTAG speed" allows the user to set the communications rate to the target.

- For the OSJtag interface, the communications rate is fixed at several hundred KHz and may not be changed.
- For the USB Multilink interface, the communications rate may be set between 0-1,000 KHz (1,000 KHz is the recommended speed).
- For any of the Cyclone interface types, the communications rate may be set between 0-10,000KHz (5,000 KHz is recommended).

Communication

These settings allow you to select a specific hardware interface when one or more are available. The options will vary depending on the type of hardware interface that you are using.

- USB – Choose which USB device to use. Device 1 will almost always be the appropriate setting.
- Serial Port – Choose which Serial port to use. COM 1 will almost always be the appropriate setting.
- TCP/IP – To manually specify the IP address for your Cyclone hardware interface, un-check the "Auto scan network" box and type the IP address of the Cyclone into the box below. To auto-select the Cyclone hardware interface, check the "Auto scan network" box and the "Show Settings dialog" box to the left. When you exit the Options dialog and start debug, a PE Micro Connection Manager dialog will display all auto-detected Cyclone options (with your other settings pre-selected).
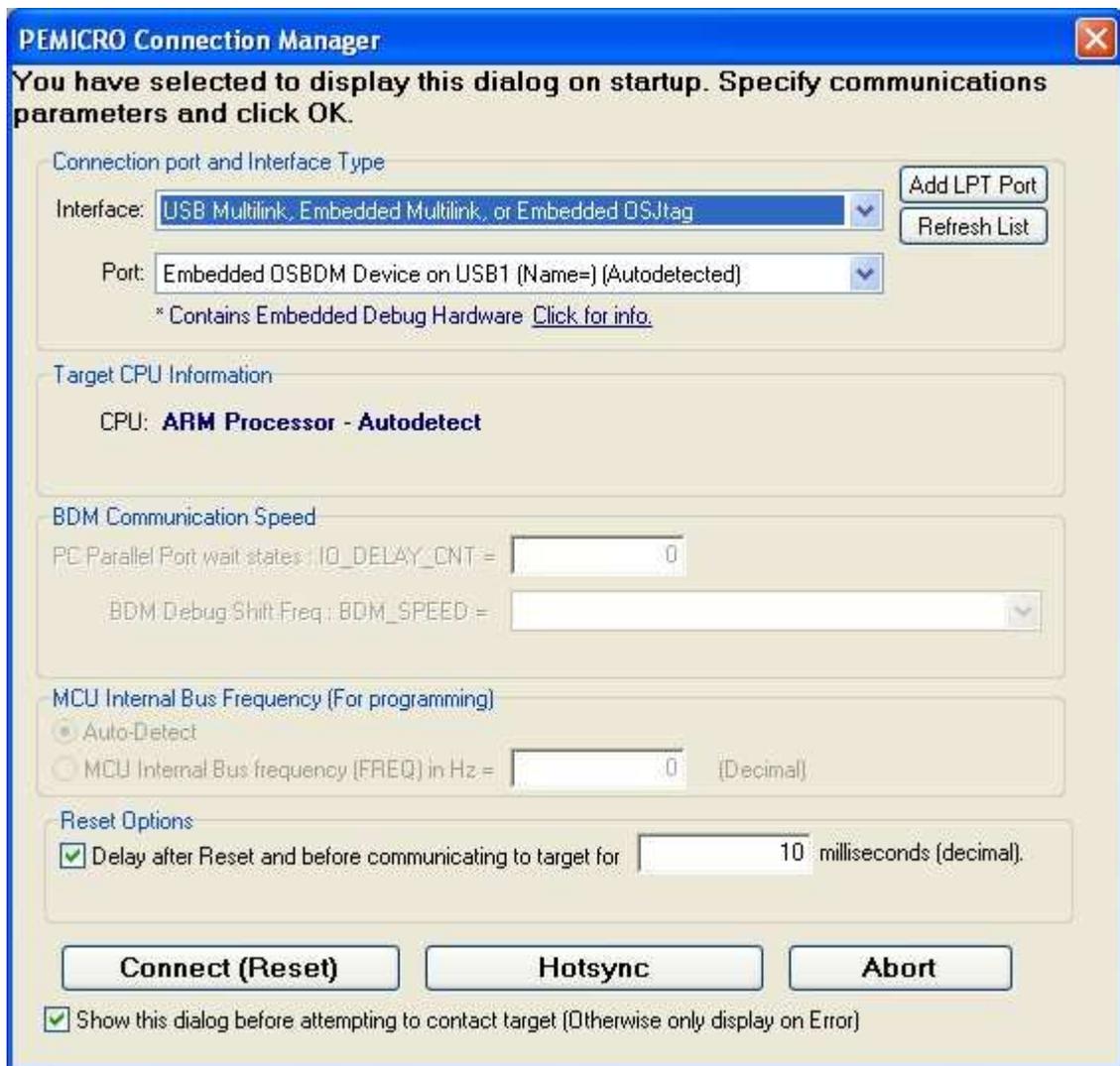
Show settings dialog

If this checkbox is checked, the P&E Connection Assistant will pop up whenever a debug session is launched, but before attempting to connect to the debug hardware. The Connection Assistant has many of the same settings as the Options dialog, but will allow the user to interactively select the hardware that will be used to connect. The Connection Assistant automatically displays the actual USB and Ethernet hardware that is currently detected. If this checkbox is left un-checked, the Connection Assistant will only pop up if a communication error is detected (default).

Log communication

If this checkbox is checked, a log of communication details will be saved to the file path specified in the box below. Use the browse button to select the file that you wish to use to log the information. The default setting is un-checked.

Firmware Update

When connecting to a USB Multilink or Cyclone hardware interface, the firmware of the unit will be updated automatically.

The process for updating the embedded OSJtag firmware in a Freescale Tower card is an interactive one. When Workbench starts a debug session, it will automatically check the version of the OSJTAG firmware. If it needs to be updated, the following dialog will appear:
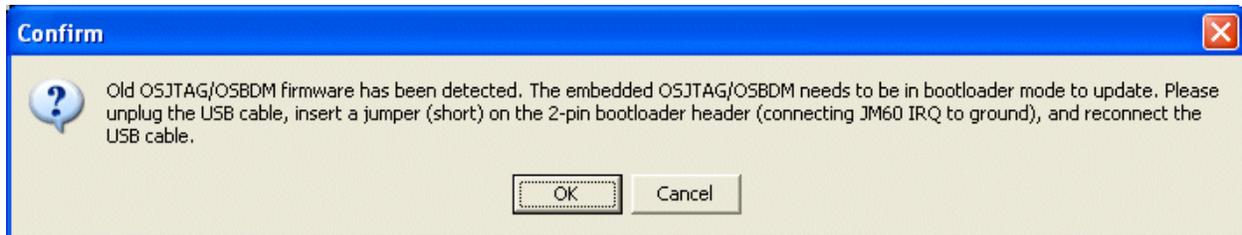
The user should unplug the Tower card from the PC and place a jumper on the 2-pin "JM60 Boot" header. For example, on the TWR-K40X256 board or the TWR-K60N512 board, a jumper should be placed on header J21. When the unit is plugged back into the PC, the user may need to wait for the drivers to properly install before continuing (first time update only). Once the driver installation is complete, or if the driver installation wizard does not appear, click OK.

At this point the firmware will automatically update.
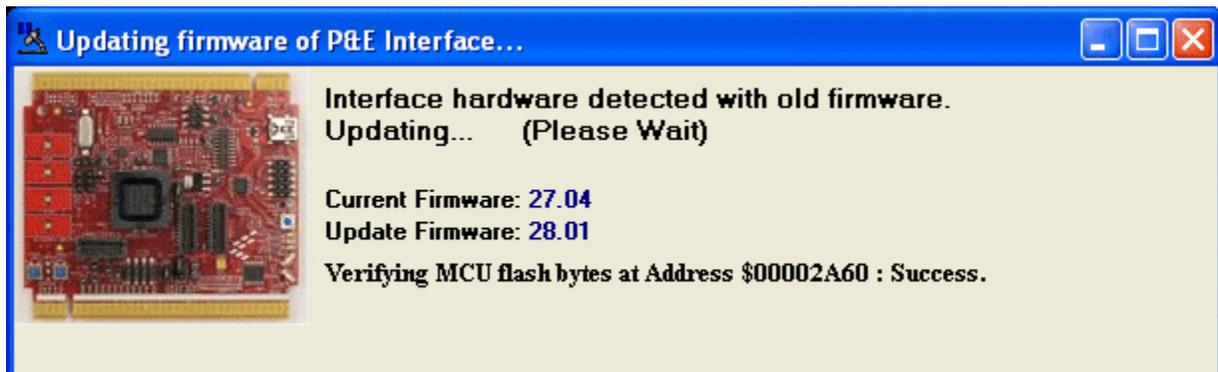
The user is then prompted to remove the jumper. Remove the jumper, unplug the Tower card from the PC, and then plug it back into the PC. Once this is done, click the Ok button to continue with the debug session. You will only need to update the firmware once.

Confirm

The embedded OSJTAG/OSBDM needs to enter run mode to start the debug/programming session. Please unplug the USB cable, remove the jumper (short) from the 2-pin bootloader header, and reconnect the USB cable.

[OK] [Cancel]