QuickSTART ProcessorPM Development Kit

This document provides a brief introduction and instructions to install and run the ProcessorPM™ Development Kit on Windows 2000/XP/Vista versions. Please refer to the complete documentation at www.latticesemi.com/processorpm-kit.

1 Check Kit Contents

The ProcessorPM development kit should contain the following items:

- ProcessorPM evaluation board pre-loaded with Processor Support Demo
- USB connector cable
- QuickSTART Guide



Storage and Handling Tips

Static electricity can shorten the lifespan of electronic components. Please observe these tips to prevent any damage that could occur from electro-static discharge:

- Use anti-static precautions such as operating on an anti-static mat and wearing an anti-static wristband.
- Store the ProcessorPM evaluation board in the pink anti-static packaging foam provided.
- Touch a metal USB housing to equalize voltage potential between you and the board.

2 Connect to the ProcessorPM Evaluation Board

In this step, connect the evaluation board to your PC using the USB cable provided.

Note: If your PC does not provide a USB port, refer to the ProcessorPM Development Kit User's Guide for details on how to power and program the evaluation board using an external power source and the Lattice ispDOWNLOAD Cable.

1. Connect the USB cable provided from a USB port on your PC to the board's USB interface socket (J1) on the side of the board as shown in the layout diagram shown in this step.

   After connection is made, a blue Power LED (D1 - PWR) will light up indicating the board is powered on. Depending on the DIP Switch settings one or more red LEDs may light up.

2. If you are prompted, "Windows may connect to Windows Update" select "No, not this time" from available options and click Cancel.

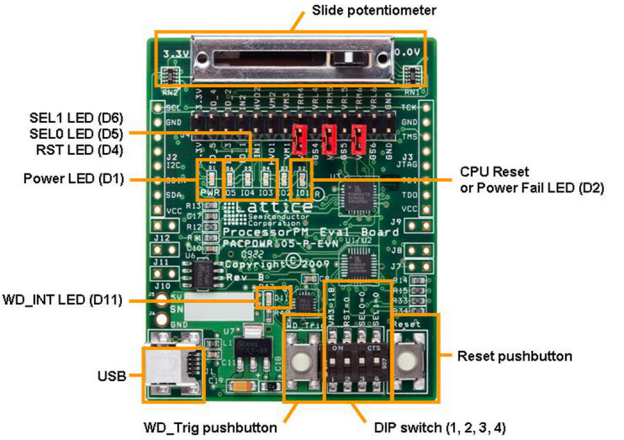
This procedure is continued on the next page.

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2 Connect to the ProcessorPM Evaluation Board (cont.)

3. You will be prompted with the "Found New Hardware Wizard" dialog twice. Click Cancel each time. The ProcessorPM board does not require hardware drivers for the basic demonstration.

ProcessorPM Board Evaluation Layout Diagram



3 Run the Processor Support Demo

This step introduces you to the pre-configured processor support functionality of the ProcessorPM: voltage supervisor, reset generator, and watchdog timer (WDT). The block diagram of the evaluation board design shown on the next page shows the ProcessorPM interface to a simulated processor/DSP. LEDs and switches are used to emulate the processor interface.

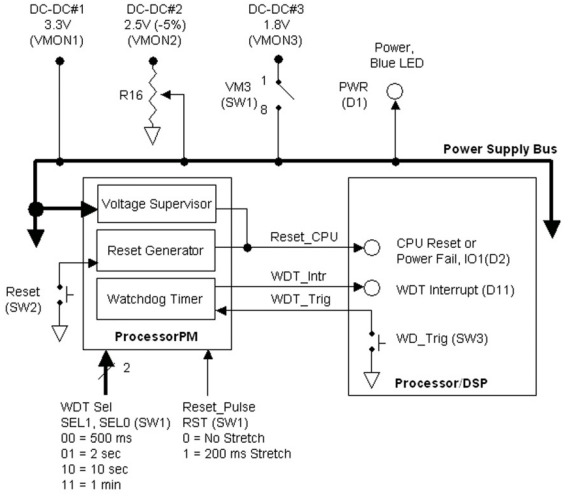
Many processor power management scenarios can be shown with the ProcessorPM evaluation board. Follow the procedure below to emulate one particular case.

1. Set the ProcessorPM configuration to indicate 1.8V Supply OK, disable reset pulse stretch and enable a two-second watchdog timer period. Select DIP Switch (1, 2, 3, 4) = 0010 (Note: To indicate a logical 1, slide the switch towards the 1, 2, 3, or 4 numeral mark on the case.) Also select the R16 Slider = 3.3V position.

This procedure is continued on the next page.

3 Run the Processor Support Demo (cont.)

ProcessorPM Evaluation Board Design Block Diagram



2. Press and then release the Reset pushbutton. The ProcessorPM board is reset. The CPU Reset LED (D2) lights to indicate the reset condition. The WDT timer is reset and the two-second WDT count begins.
3. Press and release the WD_Trig pushbutton. The WDT_Trig signal is asserted by the processor/DSP. The ProcessorPM timer/counter is reset and the two-second watchdog timer restarts. Continue pressing the WD_Trig to "pet" the watchdog timer to prevent the two-second timeout.
4. Wait for two seconds and allow the WDT timer period to expire.The ProcessorPM asserts the WDT_Intr output signal and the WDT_Interrupt LED (D11) lights momentarily to indicate the interrupt condition.

   In the next step you'll increase the watchdog timer period from 2 seconds to 10 seconds and enable Reset Pulse Stretch.
5. Select SW1 (1, 2, 3, 4) = 0101. Also select the R16 Slider = 3.3V position.
6. Press and release the Reset pushbutton on the ProcessorPM board. The CPU Reset LED (D3) light indicates the reset condition. The WDT timer is reset and the 10-second WDT count begins. The following steps emulate a brown out condition of a 2.5V supply rail output of a DC-to-DC converter (DC-DC#2) monitored by the ProcessorPM.

   This procedure is continued on the next page.

3 Run the Processor Support Demo (cont.)

7. Slowly slide R16 towards the 0.0V position. Once the ProcessorPM voltage monitor detects the 2.5V supply rail has dropped below a 2.5V-5% threshold value a supply fault will be triggered and the Reset CPU output signal is asserted. The CPU Reset LED (D3) light indicates the reset condition. Note that the ProcessorPM watchdog timer is also disabled.
8. Slide R16 towards the 3.3V position.Once the ProcessorPM voltage monitor detects that the 2.5V rail is above a threshold value of 2.5V -5%, the Reset CPU output signal is released. The CPU Reset LED (D3) light goes out.

4 Done!

Congratulations! You have successfully demonstrated the ProcessorPM development kit. Please refer to the kit User's Guide available on the Lattice web site at www.latticesemi.com/processorpm-kit for the following:

- Running advanced demos including voltage monitoring via I2C using the POWR6AT6
- Details on additional development board features and operation
- Modifying the generating the demo program files from the PAC-Designer project sources
- Schematics
- Gerber PCB layout artwork

Technical Support

If you experience problems running the kit demos please refer to the Troubleshooting appendix in the User's Guide. If problems persist or if any kit contents are missing, please email us at techsupport@latticesemi.com or call 1-800-528-8423 (USA) or +1 503-268-8001 (other locations). The part number for this guide is DK PROCESSORPM QUICK START GUIDE.

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