*Quick*START

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

1 Check Kit Contents

The MachXO Control Development Kit should contain the following items:

- MachXO Control Evaluation Board pre-loaded with Control SoC Demo
- USB connector cable
- AC adapter (international plugs)
- QuickSTART Guide

Note: Detailed information about the evaluation board is provided in the MachXO Control Development Kit User's Guide at www.latticesemi.com/machxo-control-kit.

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 MachXO Control Evaluation Board in the pink anti-static packaging foam provided.
- Touch the metal USB housing to equalize voltage potential between you and the board.

2 Download Windows Hardware Drivers

Before you begin, you will need to obtain the necessary hardware drivers for Windows from the Lattice web site.

1. Browse to www.latticesemi.com/machxo-control-kit and locate the hardware device drivers for the USB interface.
2. Download the ZIP file to your system and unzip it to a location on your PC.
3. After power is applied to the board the red power LED D10 will illuminate.

Linux Support:

The USB interface drivers for the evaluation board are included in Linux kernel v.2.4.20 or later, including distributions compatible with ispLEVER® 7.2 (Red Hat Enterprise v.3, v.4 or Novell SUSE Enterprise v.10).

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3 **Assemble and Connect to the MachXO Control Evaluation Board**

In this step, power the board and connect it to your PC using the USB cable provided. .

1. Install jumper (J17).

2. Connect the AC adapter from a wall outlet to the power socket. After a connection is made, a red Power LED (D18) will light up indicating the board is powered on.

3. Connect the USB cable provided from a USB port on your PC to the board's USB interface socket on the side of the board as shown in the layout diagram below.

MachXO Control Evaluation Board Layout Diagram
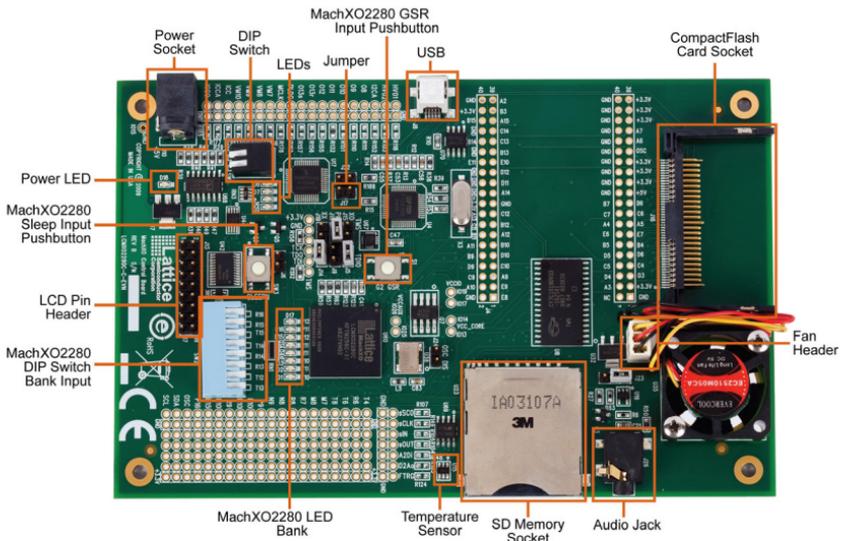
4. If you are prompted "Windows may connect to Windows Update" select **No, not this time** from available options and click **Next** to proceed with the installation. Choose the **Install from specific location (Advanced)** option and click **Next**.

5. Select **Search for the best driver in these locations** and click the **Browse** button to navigate to the Windows driver folder created in Step 2 of the QuickSTART. Select the **CDM 2.04.06 WHQL Certified** folder and click **OK**.

6. Click **Next**. A screen will display as Windows copies the required driver files. Windows will display a message indicating that the installation was successful.

7. Click **Finish** to install the USB driver.

4 Set Up a Terminal Program

You will use a terminal program to com-
municate with the evaluation board. The
following instructions describe the Windows
HyperTerminal program which is found on
most Windows PCs. You may use another
terminal program but setup will be different.
For Linux, Minicom is a good alternative.

*Note: This step uses the procedure for
Windows XP users. Steps may vary slightly if
using another Windows version.*

1. From the **Start** menu, select **Control
   Panel > System**. The "System Properties"
   dialog appears.

2. Select the **Hardware** tab and click
   Device Manager. The "Device Manager"
   dialog appears.

3. Expand the Ports (COM & LPT) entry and note the COM port number for the USB Serial Port.

4. From the **Start** menu, select **Programs > Accessories > Communications > HyperTerminal**.
   The HyperTerminal application and a "Connection Description" dialog appear.

5. Specify a Name and Icon for the new connection. Click **OK**. The "Connect To" dialog ap-
   pears.

6. Select the COM port identified in Step 3 from the Connect using: list. Click **OK**.

7. The "COMn Properties" dialog appears where n is the COM port selected from the list.

8. Select the following Port Settings and click **OK**:
   Bits per second: 115200
   Data bits: 8
   Parity: None
   Stop bits: 1
   Flow control: None

The HyperTerminal window appears.
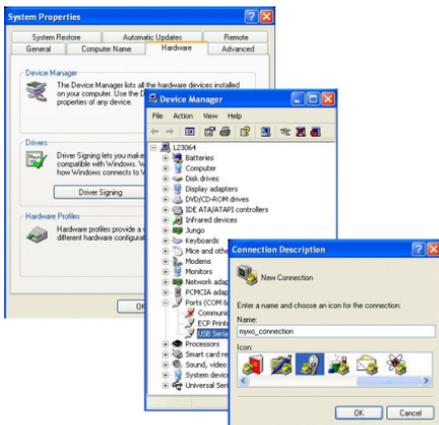
5 Run the Control SoC Demo

These instructions highlight the PWM fan control, I²C and UART modules of the Control SoC demo.

1. On the evaluation board, press the **G2** push-button (GSR). The Control SoC demo main menu appears in HyperTerminal.
   Note: Press 0 to redisplay the main menu if it scrolls off screen. Refer to the MachXO Control Development Kit User's Guide for all main menu command usage.

2. In the terminal window, press **2**. The status of the board will appear including uptime since last reset, board temperature, fan speed, and voltage/current measurements of three supply rails.

3. Remove the jumper from J17. This disconnects the I/O supply rail. From the terminal window, press **2**. The I/O supply rail measurement indicates ~0V.

4. Place your finger on the on-board I²C Temperature Sensor (U15) for 2 to 5 seconds. Notice how your skin temperature influences the temperature monitor.

5. From the terminal window, press **t**. The current temperature in degrees Celsius appears.

6. Try other demo options by pressing their corresponding keys in the main menu.
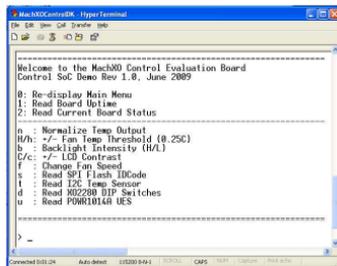
6 Done!

Congratulations! You have successfully connected and demonstrated the MachXO Control Development Kit. Please refer to the MachXO Control Kit User's Guide available on the Lattice web site at www.latticesemi.com/machxo-control-kit for the following:

- Running advanced demos
- Details on additional evaluation board features and operation
- Programming the MachXO Control Evaluation Board with the USB cable
- Modifying and generating the demo bitstreams from the ispLEVER project source files
- Schematics

Technical Support

If you experience problems running the kit demos please refer to the Troubleshooting appendix in the MachXO Control Development Kit 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).

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