MachXO2 Dual Sensor Interface Board

This document provides a brief introduction and instructions to install and demonstrate the MachXO2™ Dual Sensor Interface Board (DSIB) on Windows 7/Vista/XP/2000. Further information, including the *MachXO2 Dual Sensor Interface Board User's Guide* (EB69), is available on the Lattice website at www.latticesemi.com/dualsensorbridge.

1 Check Kit Contents

The MachXO2 Dual Sensor Interface Board box includes the following items:

- MachXO2 Dual Sensor Interface Board
- QuickSTART Guide

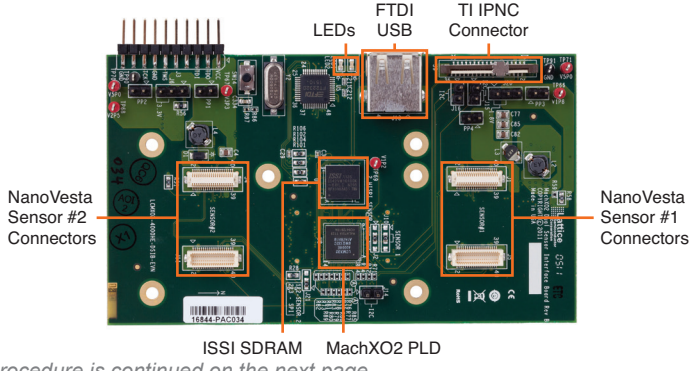
Storage and Handling Tips:

Static electricity can shorten the lifespan of electronic components. Please observe these tips to prevent 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 MachXO2 Dual Sensor Interface Board in the anti-static bag provided.
- Touch the metal USB housing to equalize voltage potential between you and the board.

2 Connect the DSIB, HDR-60 and NanoVesta Boards

The DSIB plugs into an HDR-60 Base board, which is required and is available separately. In addition, at least one 9MT024 NanoVesta board is required. Two 9MT024 NanoVesta boards are needed for dual sensor or 3D video support. Optionally, the AR0331 NanoVesta (Aptina) or MN34041 NanoVesta (Panasonic) boards can be plugged in to the DSIB. Dual implementation of those boards is currently not supported.



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To Connect the DSIB, HDR-60 and NanoVesta Boards:

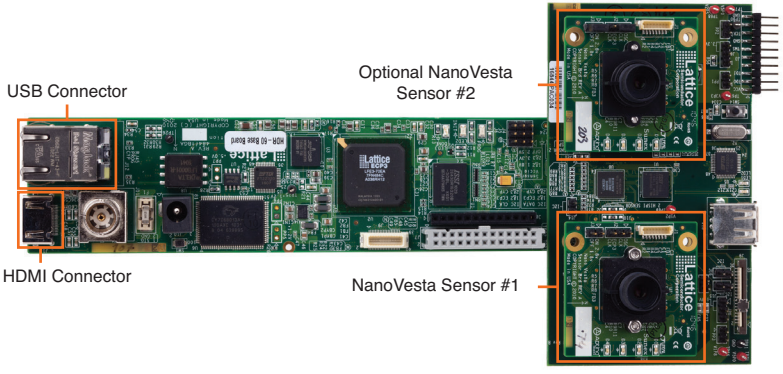
a. Plug the bottom connectors of the DSIB into the HDR-60 Base Board. The two connectors align on the bottom of the DSIB to the HDR-60 Base Board, as shown below. These connectors permit mating only one configuration, so no misconnection is possible.

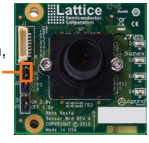
b. Plug a 9MT024 NanoVesta sensor into sensor location #1. Both sensor board connectors permit mating only one way. Make sure jumper J2 on the NanoVesta board has pins 1 and 2 shorted, as shown below. You can optionally insert another NanoVesta sensor into sensor location #2, however jumper settings and soldered resistors will need to be modified accordingly as the default configuration is for one sensor. For further details on these options, see EB69, *MachXO2 Dual Sensor Interface Board User's Guide*.

c. Plug in the 12V power supply of the HDR-60 Base Board into the power connector.

d. Connect the HDMI cable to the HDR-60 Base Board and then to a digital monitor. It is not necessary to use the HDMI-to-DVI connector if the display accepts HDMI. It can be directly connected. If the display has a DVI connector, use the HDMI-to-DVI adapter.

e. Plug the USB cable into the USB connector on the HDR-60 Base Board and the other end to a PC.





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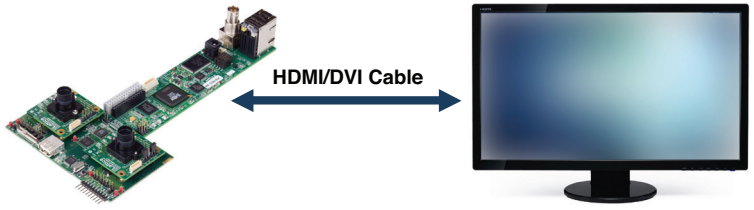
f. Run Lattice Diamond® Programmer software on the PC and program the LatticeECP3™ FPGA on the HDR-60 Base Board with the parallel-to-HDMI bitstream which can be found at www.latticesemi.com/dualsensorbridge. The MachXO2 device on the DSIB is preprogrammed to support one 9MT024 NanoVesta sensor. For details on supporting two sensors or other NanoVesta boards, go to www.latticesemi.com/dualsensorbridge.

Visit www.latticesemi.com/dualsensorbridge for further information on the DSIB and the latest design software or to download EB69, *MachXO2 Dual Sensor Interface Board User's Guide*.

3 Run the Demonstration

After the AC adapter is plugged in and the HDMI/DVI cable is connected, the DSIB sensor's input will be seen on a monitor. When the DSIB is running, the two LEDs on the DSIB will be on, indicating that the device and sensor are running correctly.



Other DSIB Features

- FTDI USB for programming the MachXO2 device. This is only possible if the DSIB is powered up by the HDR-60 Base Board.

4 Done!

Congratulations! You have successfully connected and demonstrated the MachXO2 Dual Sensor Interface Board. Please refer to the *MachXO2 Dual Sensor Interface Board User's Guide* available on the Lattice website at www.latticesemi.com/dualsensorbridge for the following:

- Schematic details
- Gerber PCB layout artwork
- Documentation for supporting two sensors and other NanoVesta sensor boards
- JEDEC files for the MachXO2 to support other NanoVesta boards

5 Possible Next Steps

A 36-pin Texas Instruments (TI) IP network camera connector can also be used. This connector allows the DSIB to interface to a TI ISP base board. This requires a flat cable connection and a TI IP network camera board. When the DSIB is used with the TI ISP base board, the DSIB is not plugged into the HDR-60 Base Board. For further information, see EB69, *MachXO2 Dual Sensor Interface Board User's Guide*. For details on the TI IP network camera, visit www.ti.com/ipcamera.

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