MAXQ USB-to-JTAG/1-Wire Adapter

Evaluates: MAXQ Microcontrollers

General Description

The MAXQ® USB-to-JTAG/1-Wire® adapter is a convenient way to interface either the JTAG or 1-Wire port on MAXQ microcontrollers to a PC. The EV kit can be used with compatible software tools running on a host PC to load and debug code on programmable MAXQ microcontrollers. The EV kit contains the MAXQ USB-to-JTAG/1-Wire adapter, an interface cable, and a USB Mini-B cable.

EV Kit Contents

♦ **MAXQ USB-to-JTAG/1-Wire Adapter (inside enclosure)**
♦ **Keyed 10-Pin Interface Ribbon Cable**
♦ **USB Mini-B Cable**

Features

♦ **Easily Load and Debug Code**
♦ **Interface Provides In-Application Debugging Features**
  ◊ **Step-by-Step Execution Tracing**
  ◊ **Breakpointing by Code Address, Data Memory Address, or Register Access**
  ◊ **Data Memory View and Edit**
♦ **Supports Logic Levels from 1.1V to 3.6V**
♦ **Supports JTAG and 1-Wire Protocols**
♦ **Each Adapter Has Its Own Unique Serial ID, Allowing Multiple Adapters to be Connected Without COM Port Conflicts**
♦ **Has In-Field Upgradable Capability if Firmware Needs to be Upgraded**
♦ **Enclosure Protects from Shorts and ESD**

Ordering Information **appears at end of data sheet.**

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C3, C6, C8–C11, C15, C16, C18	10	0.1µF, 16V ceramic X7R capacitors (0603) ECJ-1VB1C104K
C2, C4, C7, C14, C17	5	1.0µF, 16V ceramic X7R capacitors (0603) GCM188R71C105KA64D
C5	1	10µF, 6.3V ceramic X7R capacitor (0805) JMK212B7106KG-T
C12, C13	2	18pF, 50V ceramic NP0 capacitors (0402) GRM1555C1H180JZ01D
CN1	1	USB receptacle (Mini-B)
DS1	1	3mm yellow LED WP132XYD
DS2	1	3mm bi-color LED (red/green) 3BC-3-CA-F
F1	1	PTC resettable fuse MF-FSMF035

DESIGNATION	QTY	DESCRIPTION
FB1	1	2000Ω ferrite bead HZ1206C202R-10
P1	1	10-pin 0.1in pitch right-angle male shrouded box header SBH11-PBPC-D05-RA-BK
P2	1	10-position side male shrouded connector header SM10B-SRSS-TB(LF)(SN)
Q1, Q2	2	20V, 2.4A p-channel MOSFETs (SSOT3) FDN304PCT-ND
Q3	1	25V, 220mA n-channel MOSFET (SOT23) FDV301NCT-ND
R1, R2, R13	3	0Ω resistors ERJ-2GE0R00X
R3–R5, R9	4	47kΩ resistors CRCW060347K0FKEA
R6, R14, R16	3	1kΩ resistors CRCW06031K00FKEA

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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maximintegrated.com.

Component List (continued)

DESIGNATION	QTY	DESCRIPTION
R7, R8	2	150Ω resistors CRCW0603150RFKEA
R10, R15	2	200Ω resistors CRCW0603200RFKEA
R11, R12	2	10kΩ resistors CRCW060310K0FKEA
SW1	1	3-pin SPST slide switch
U1	1	500mA, 3.3V LDO linear regulator (8 µMAX®) Maxim MAX1806EUA33+

DESIGNATION	QTY	DESCRIPTION
U2, U3	2	4-bit signal translators FXL4TD245BQX
U4	1	16-bit RISC microcontroller with USB SIE (64 LQFP) Maxim MAXQ622G-0000+
U5	1	Dual high-speed differential ESD-protection IC (6 SOT23) Maxim MAX3207EAUT+
Y1	1	12MHz crystal ABM3-12.000MHZ-D2Y-T

Figure 1. MAXQ USB-to-JTAG/1-Wire Adapter

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Detailed Description

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the EV kit software. Text in **bold and underlined** refers to items from the Windows operating system.

The MAXQ USB-to-JTAG/1-Wire Adapter is designed to operate as a USB-to-JTAG or USB-to-1-Wire adapter between programming/debugging tools on the host PC (such as MAX-IDE, MTK, or IAR Embedded Workbench® IDE) and a programmable MAXQ microcontroller. The MAXQ622 acts as a USB-to-UART converter and allows the host PC to communicate with the MAXQ622 over a virtual COM port. The MAXQ622 receives commands and data from the PC and handles the task of either driving the four JTAG communication lines (TCK, TMS, TDO, and TDI) or driving the 1-Wire communication line ($\overline{RST}$) that connect to another MAXQ microcontroller on a separate EV kit board.

The adapter has two connectors. The first of these is a standard mini-B USB connector that is used to connect the adapter to a USB port on the host PC. The adapter is powered directly over the USB cable. The second connector is the standard 10-pin JTAG interface used by all MAXQ microcontroller EV kits, allowing the adapter to be connected to another MAXQ microcontroller using a 2x5-pin header and 10-pin ribbon cable.

The driver software can be downloaded at **www.maximintegrated.com/evkit** under MAXQUSBJTAGOW EVKIT Software. Programming and debugging tools can be found at **www.maximintegrated.com/products/microcontrollers/development_tools.cfm**.

For more information on the adapter, refer to the *MAXQ USB-to-JTAG/1-Wire Adapter: User's Guide*.
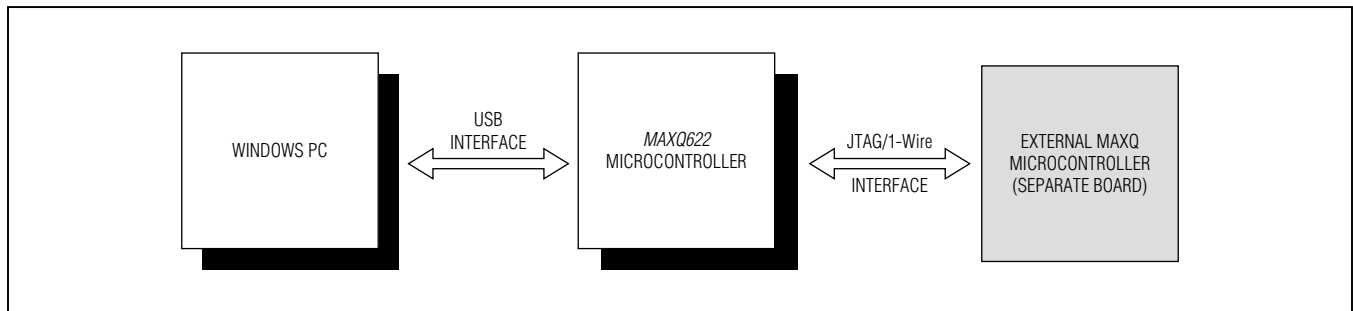
Figure 2. MAXQ USB-to-JTAG/1-Wire Adapter Communications Interface

IAR Embedded Workbench is a registered trademark of IAR Systems AB.

Installing the Drivers for Windows XP®

- Download the required driver software. Unzip the driver package (**maxusbjtagow.INF**) into a working directory.
- Connect the adapter to the PC with the USB cable.
- Open **Device Manager** in the control panel under **System and Security** → **System** under the **Hardware** tab.
- Look for the adapter under **Ports (COM & LPT)**. It should show up as **MAXQ622 USB-to-JTAG/OWL Dongle**. Right-click and select the option **Update Driver…**
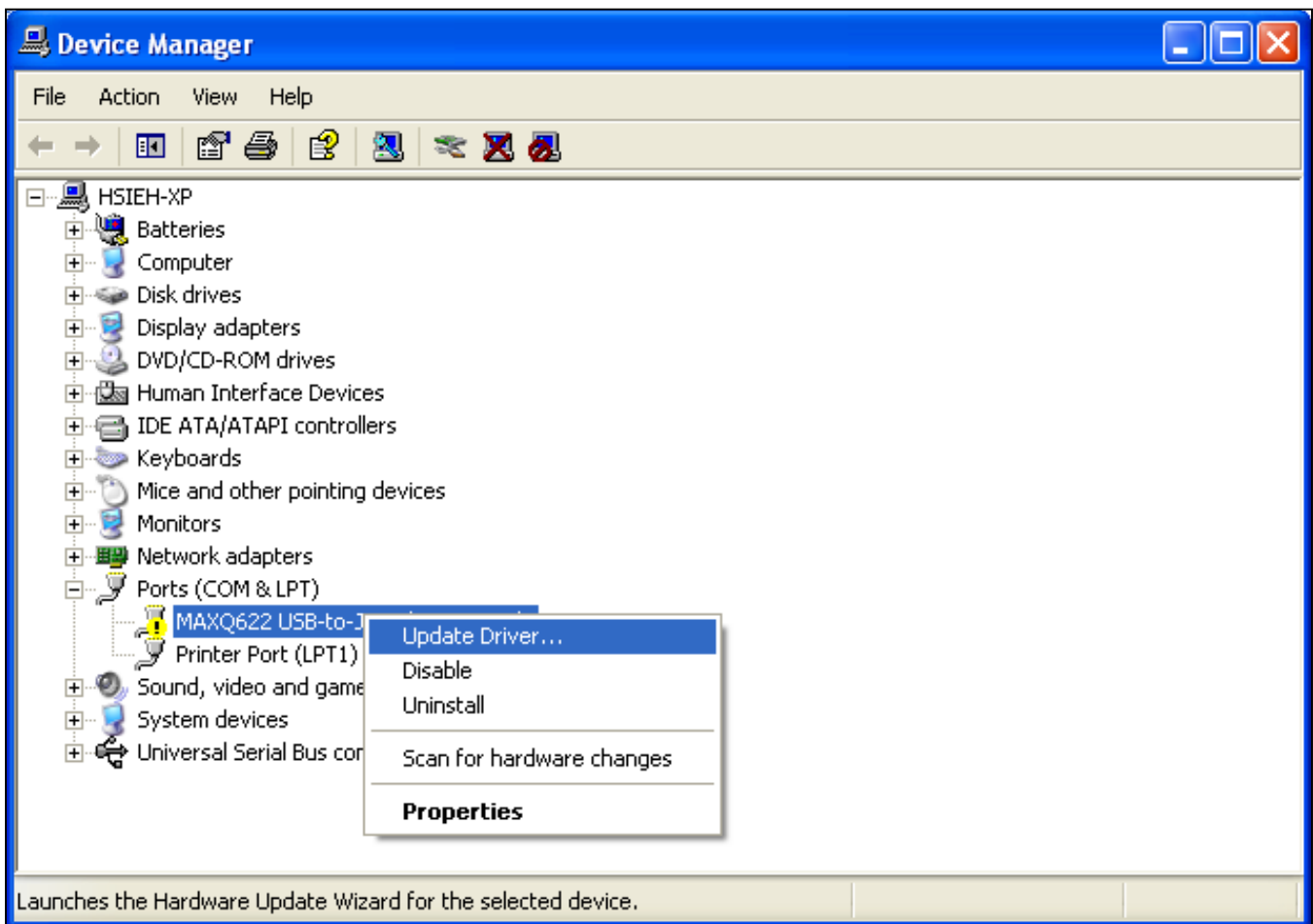

Figure 3. Installing the Driver Through the Device Manager on XP

- Select **Install from a list or specific location (Advanced)** and click **Next**.
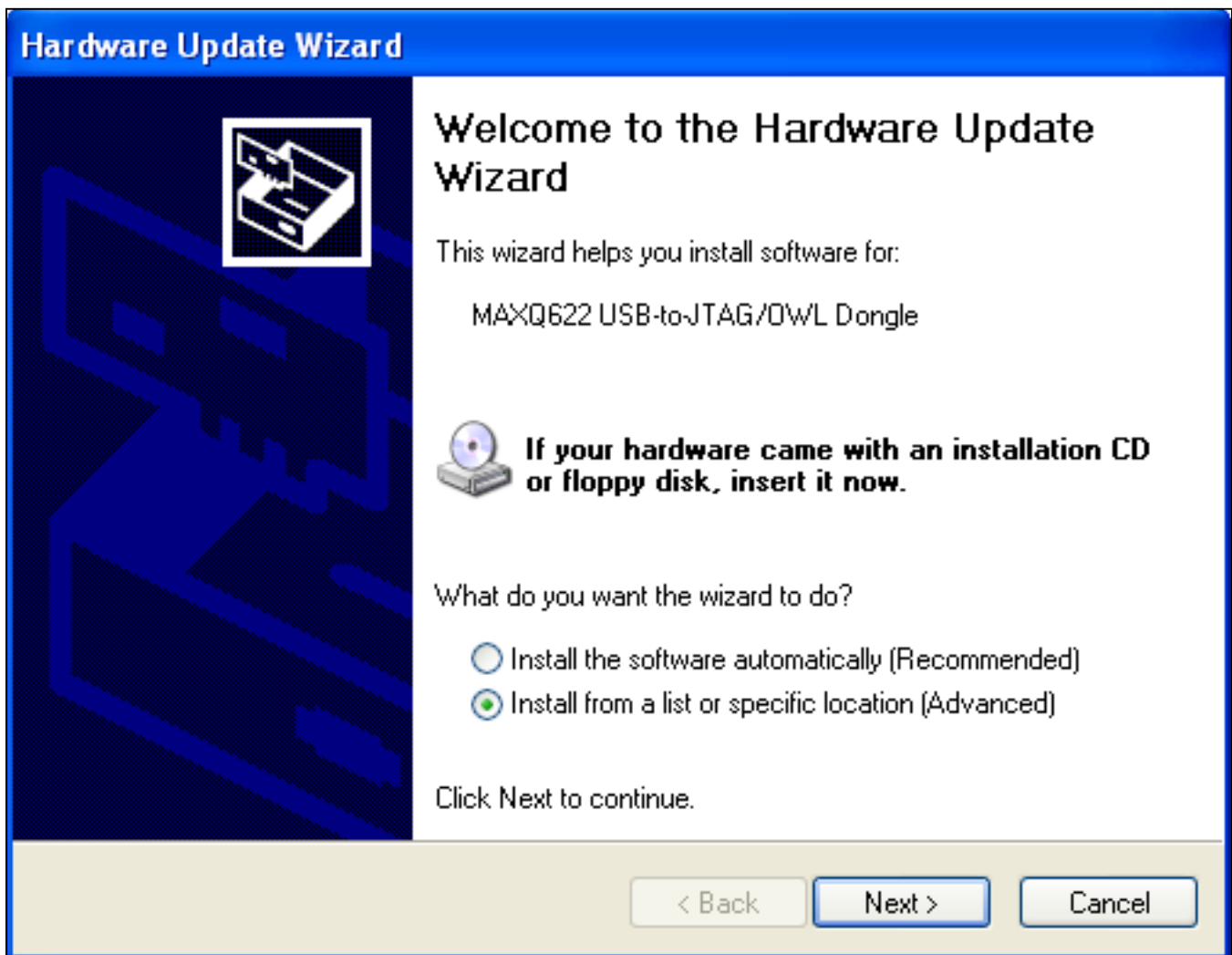
Figure 4. Hardware Update Wizard—Install from a Specific Location

- Select **Don't search. I will choose the driver to install** and click **Next**.
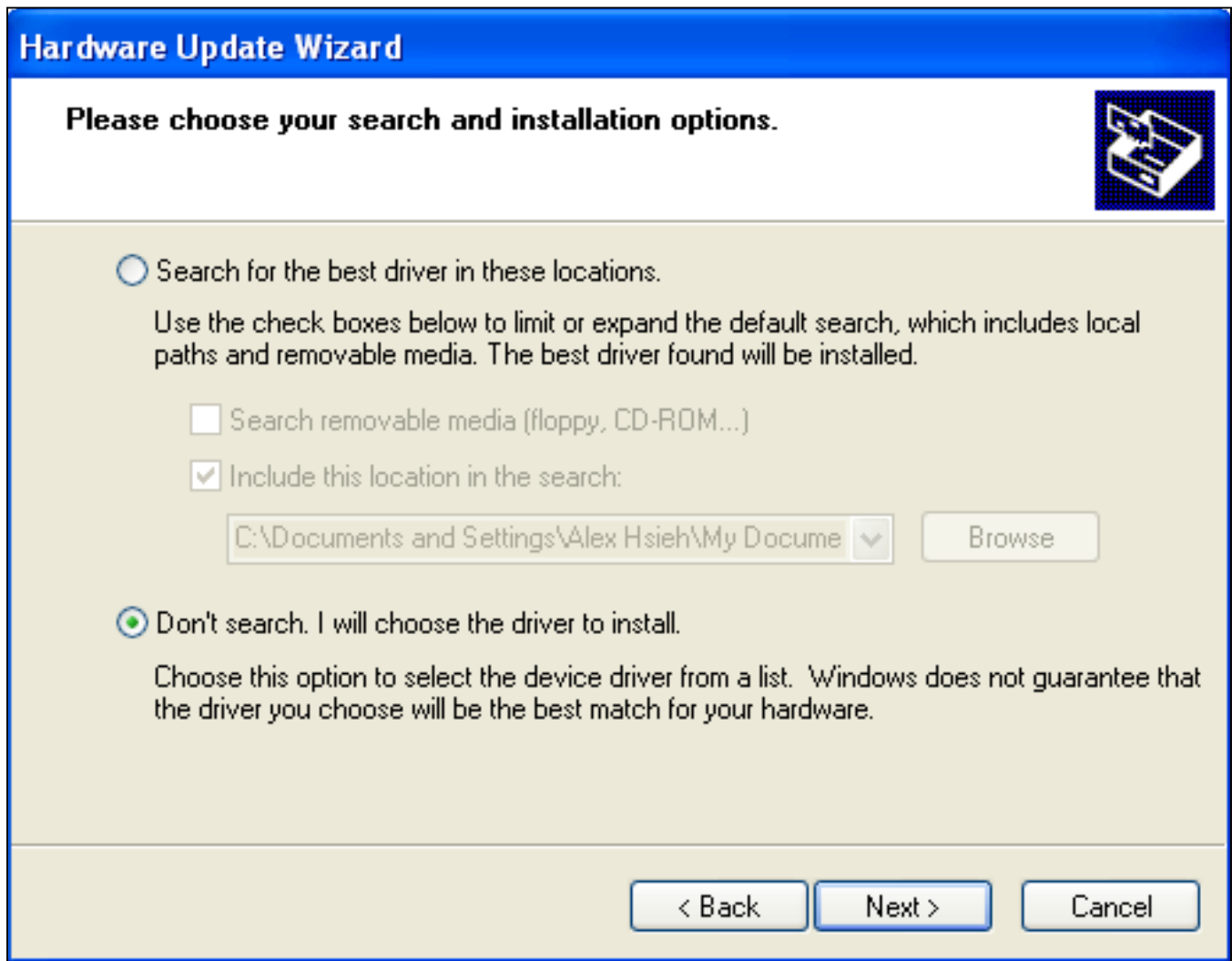
Figure 5. Hardware Update Wizard—Choose the Driver to Install

- Click **Have Disk...** to select the INF file.
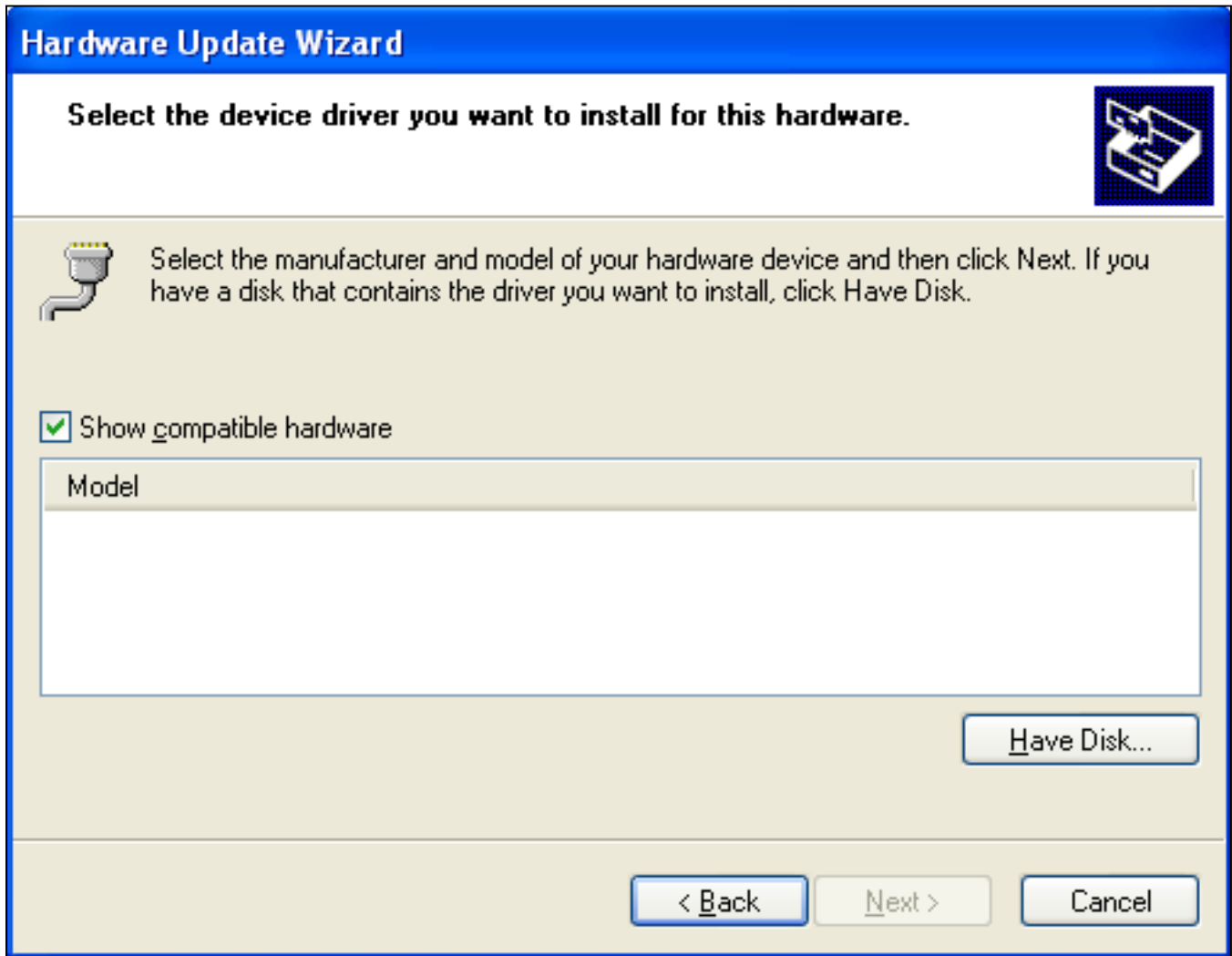
Figure 6. Hardware Update Wizard—Select Device Driver

- Click **Browse…**, then select the INF file, **maxusbjtagow.INF**. Click **OK**, then **Next**.
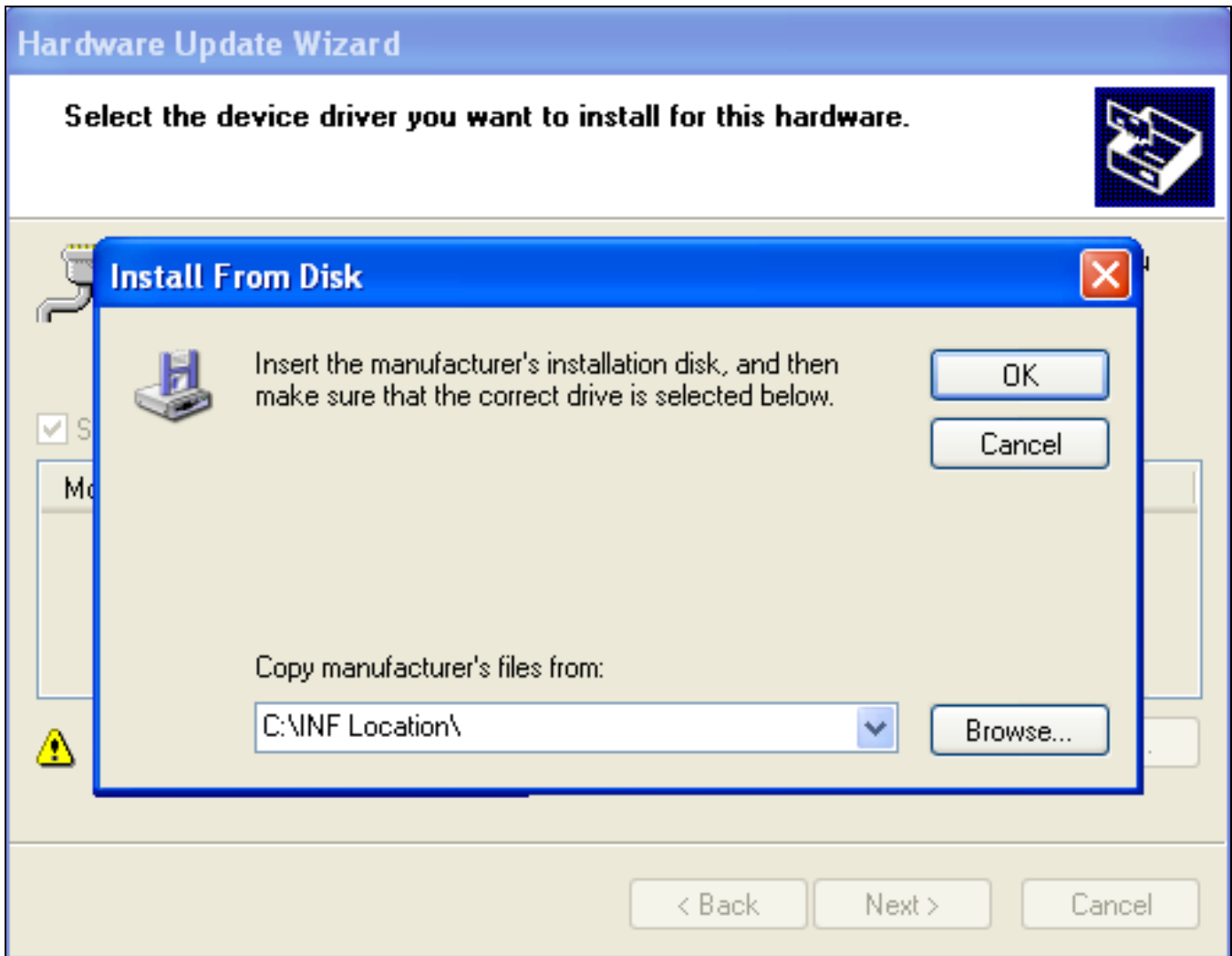
Figure 7. Hardware Update Wizard—Install from Disk

• A hardware installation warning pops up. Click **Continue Anyway**.
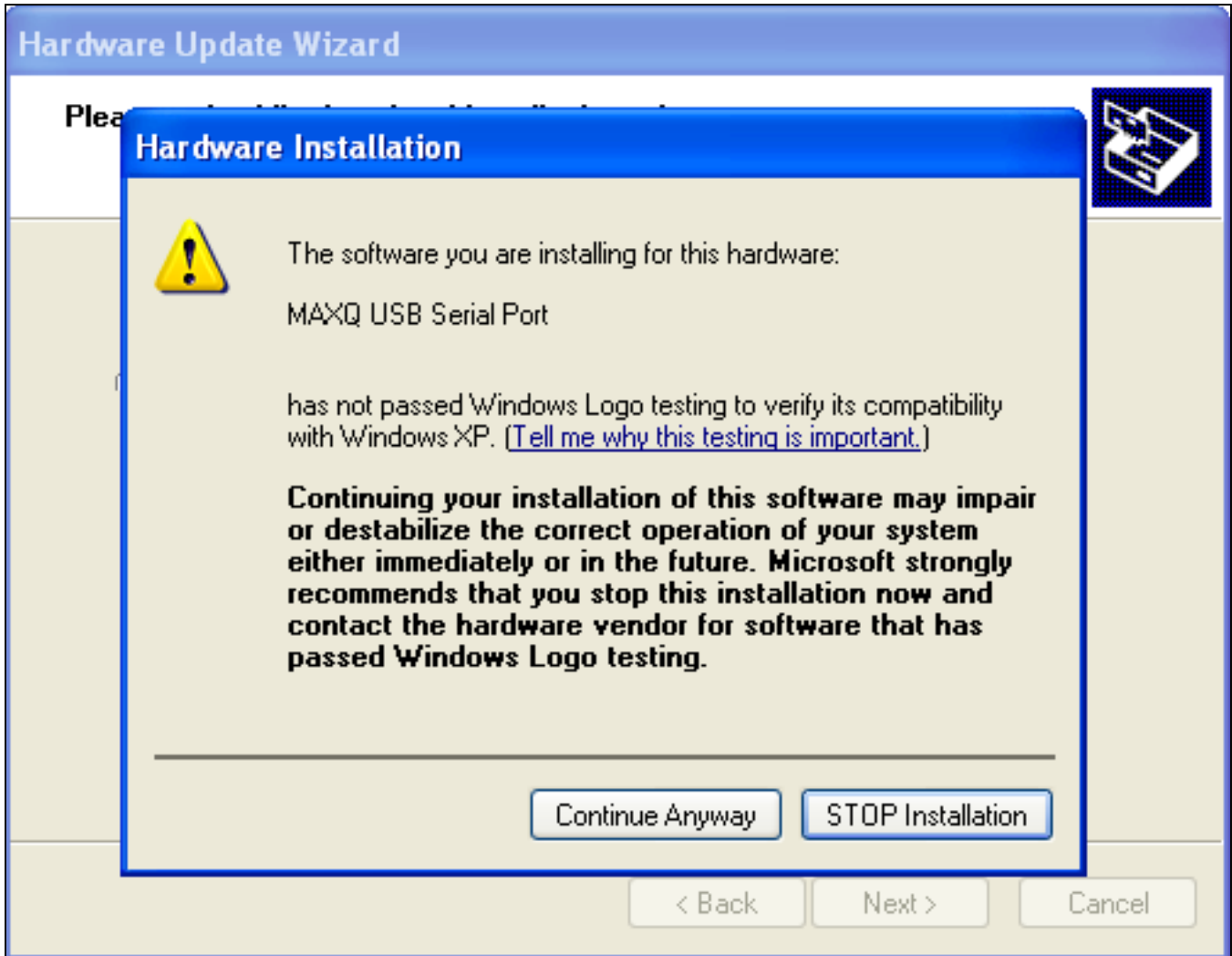
Figure 8. Hardware Update Wizard—Hardware Installation

- After the Windows OS completes installing the software, click **<u>Finish</u>** to close the **<u>Hardware Update Wizard</u>**.
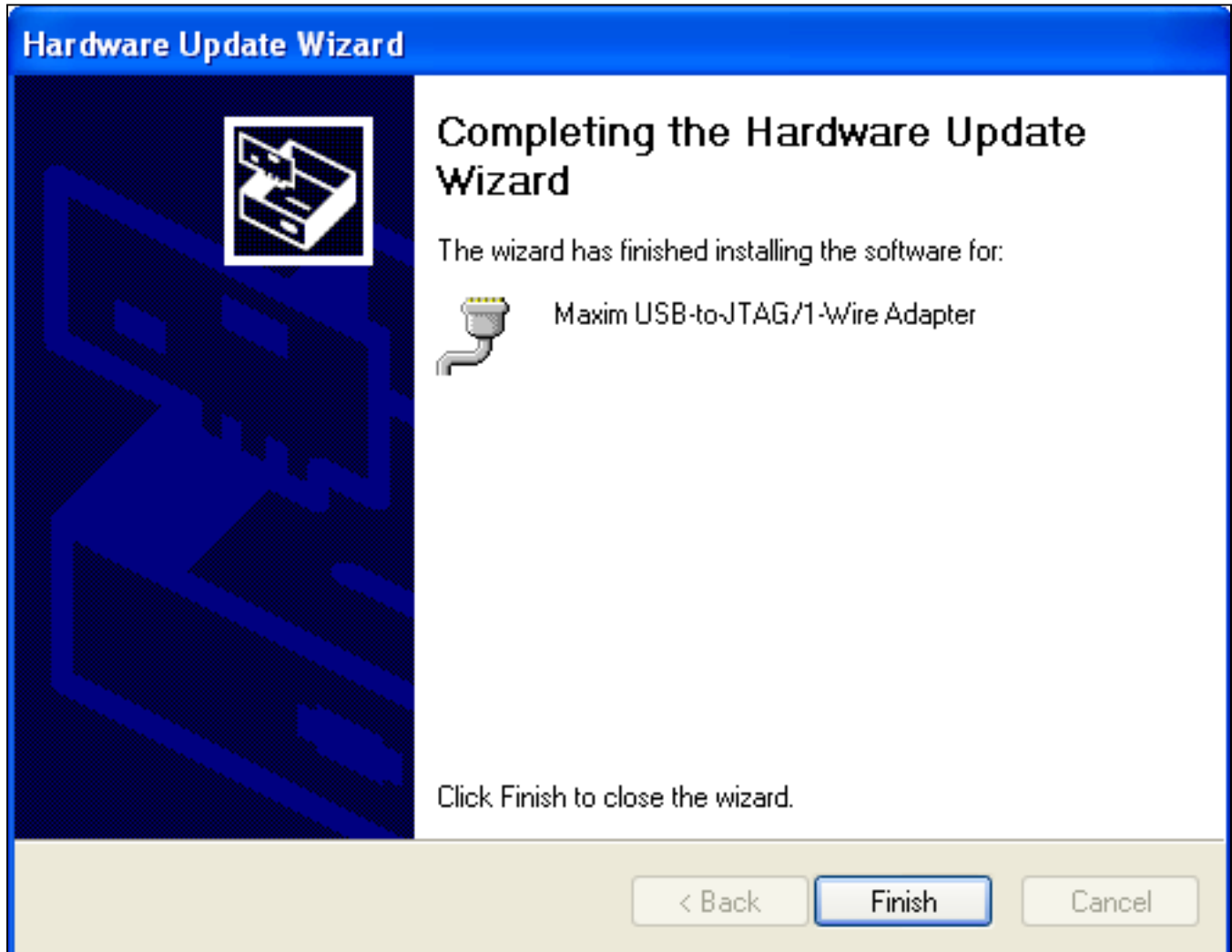
Figure 9. Hardware Update Wizard—Completing the Hardware Update Wizard

- Now, in the **Device Manager**, the adapter should appear under **Ports (COM & LPT)** as **Maxim USB-to-JTAG/1-Wire Adapter (COMx)**, where x is the port number.
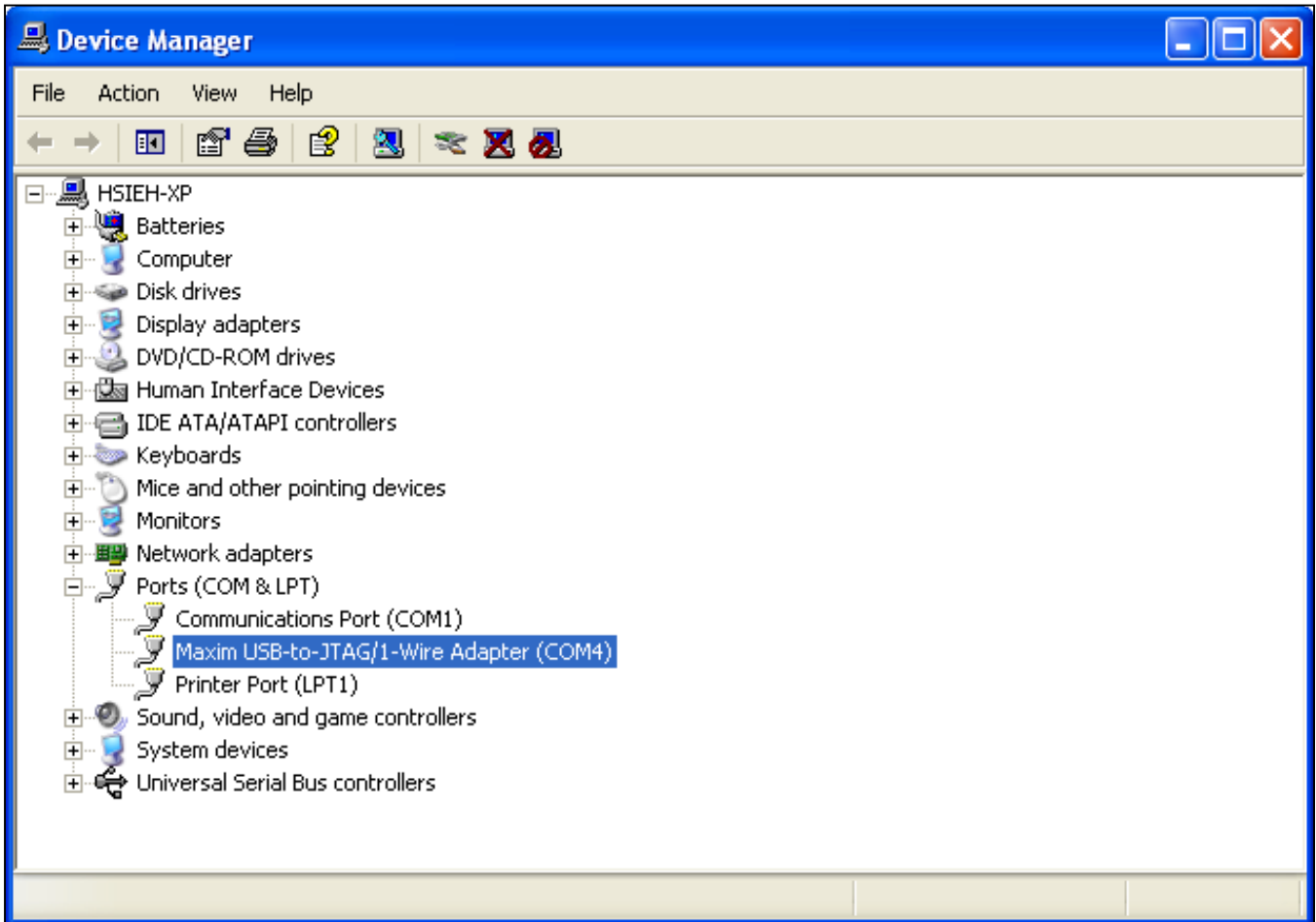
Figure 10. Device Manager After Successful Installation

Installing the Drivers for Windows® 7

- Download the required driver software. Unzip the driver package (**maxusbjtagow.INF**) into a working directory
- Connect the adapter to the PC with the USB cable
- Open **Device Manager** in the control panel under **System and Security**
- Look for the adapter under **Ports (COM & LPT)**. It should show up as **MAXQ622 USB-to-JTAG/OWL Dongle**. Right-click and select the option **Update Driver Software…**
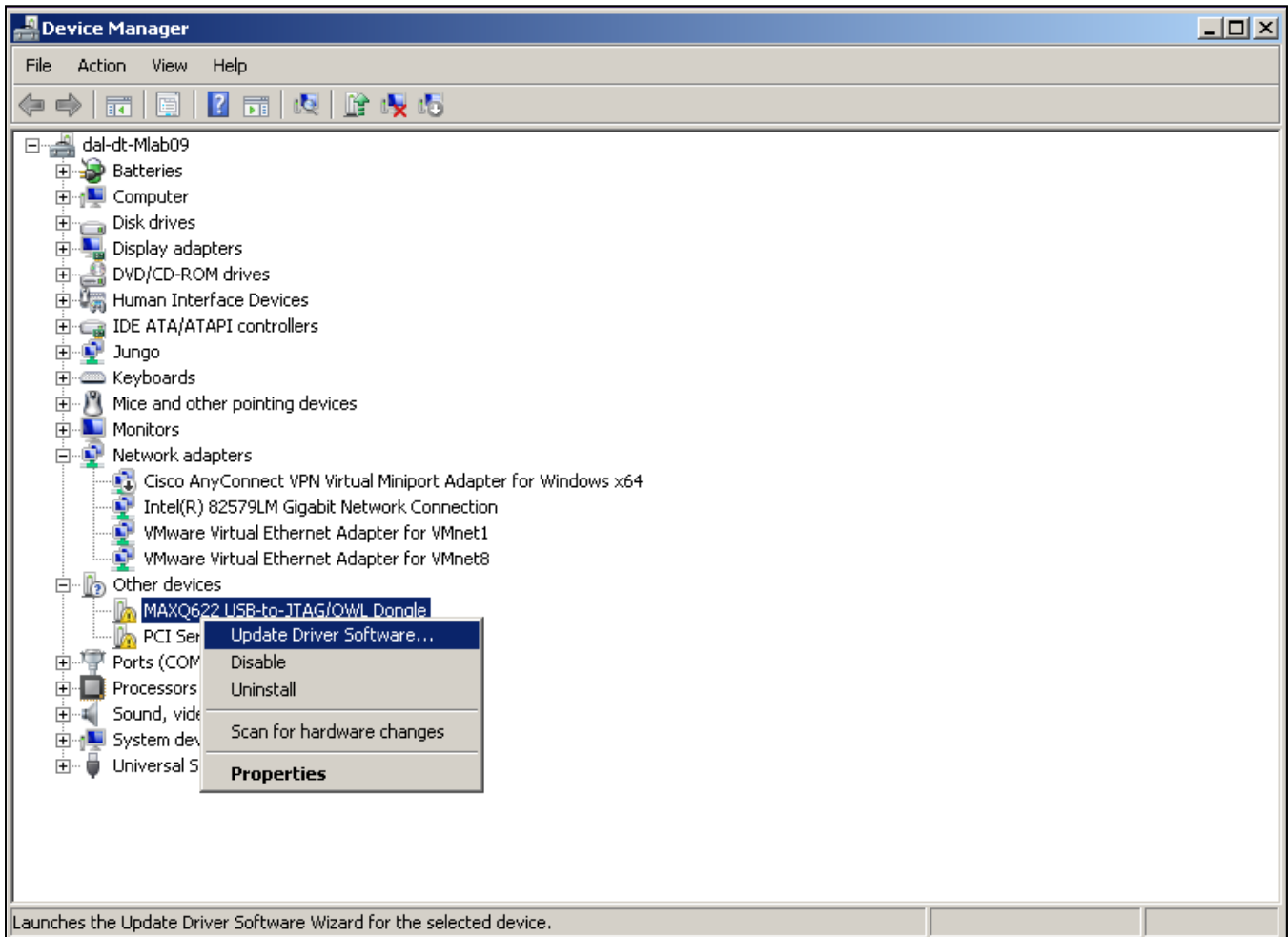
Figure 11. Installing the Driver Through the Device Manager on Windows 7

- Click the **Browse my computer for driver software**.
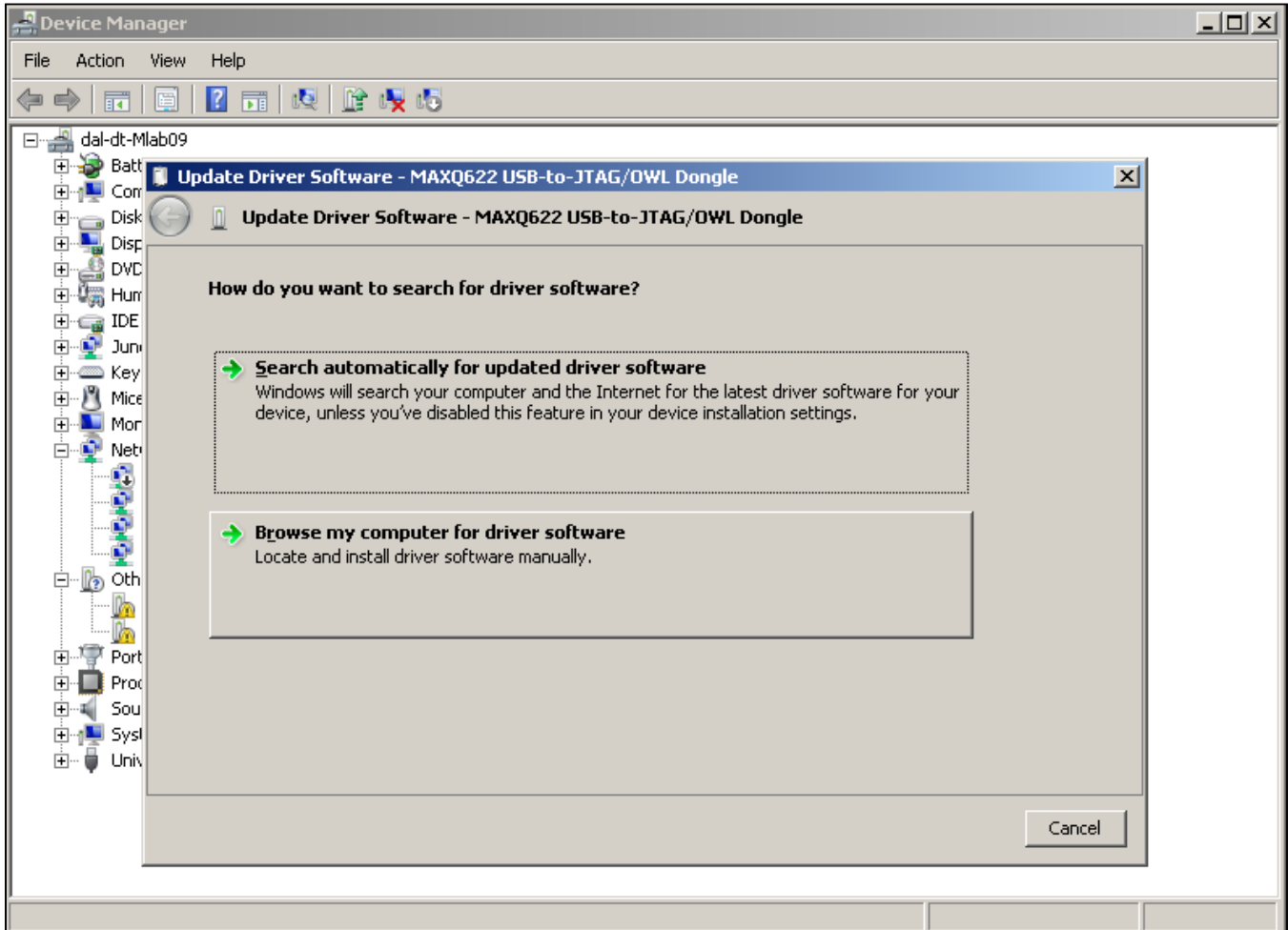
Figure 12. Update Driver Software—Search for Driver Software

- Select **Let me pick from a list of device drivers on my computer**.
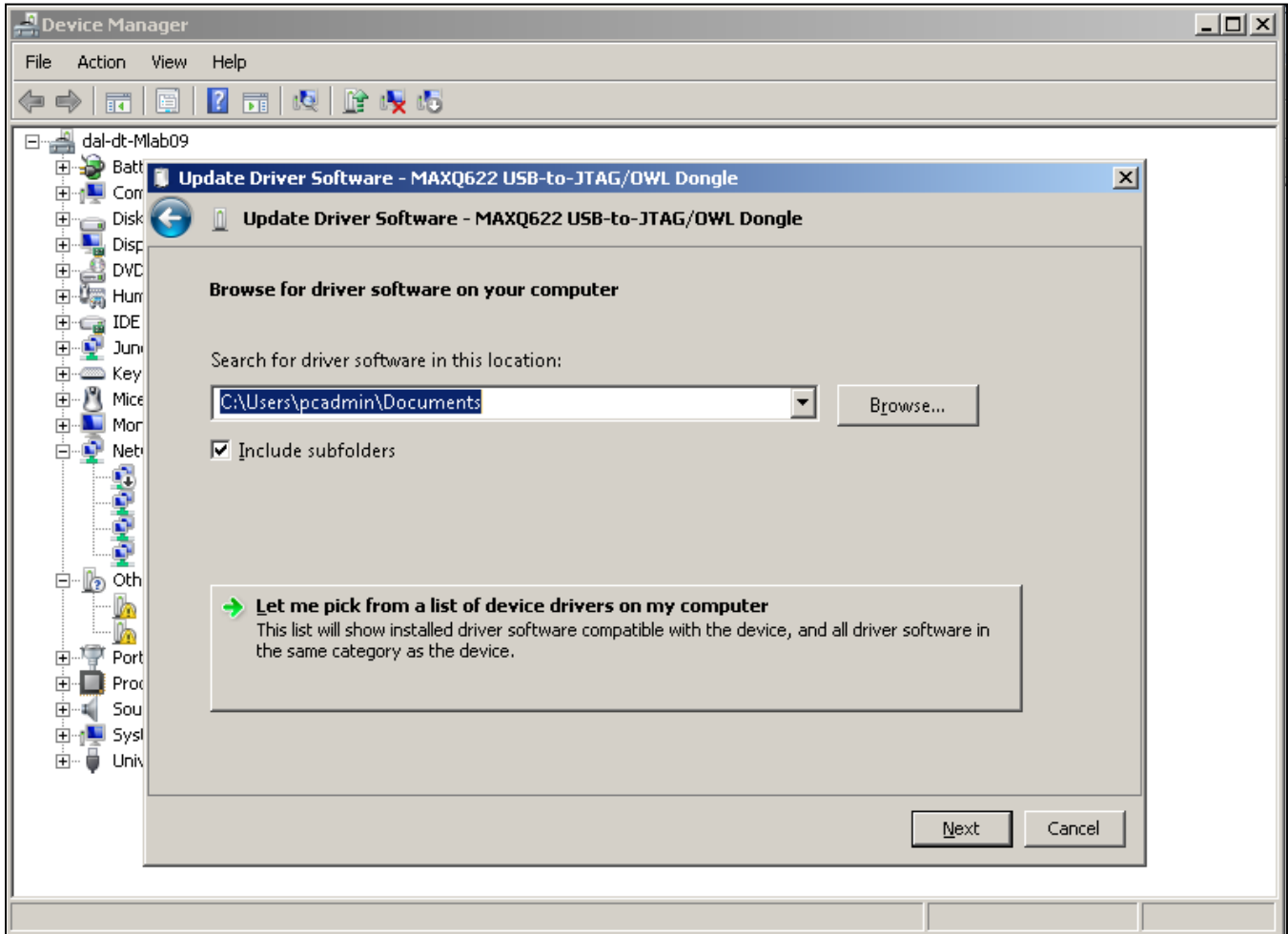
Figure 13. Update Driver Software—Browse for Driver Software

- Select **Ports (COM & LPT)** as the device type.
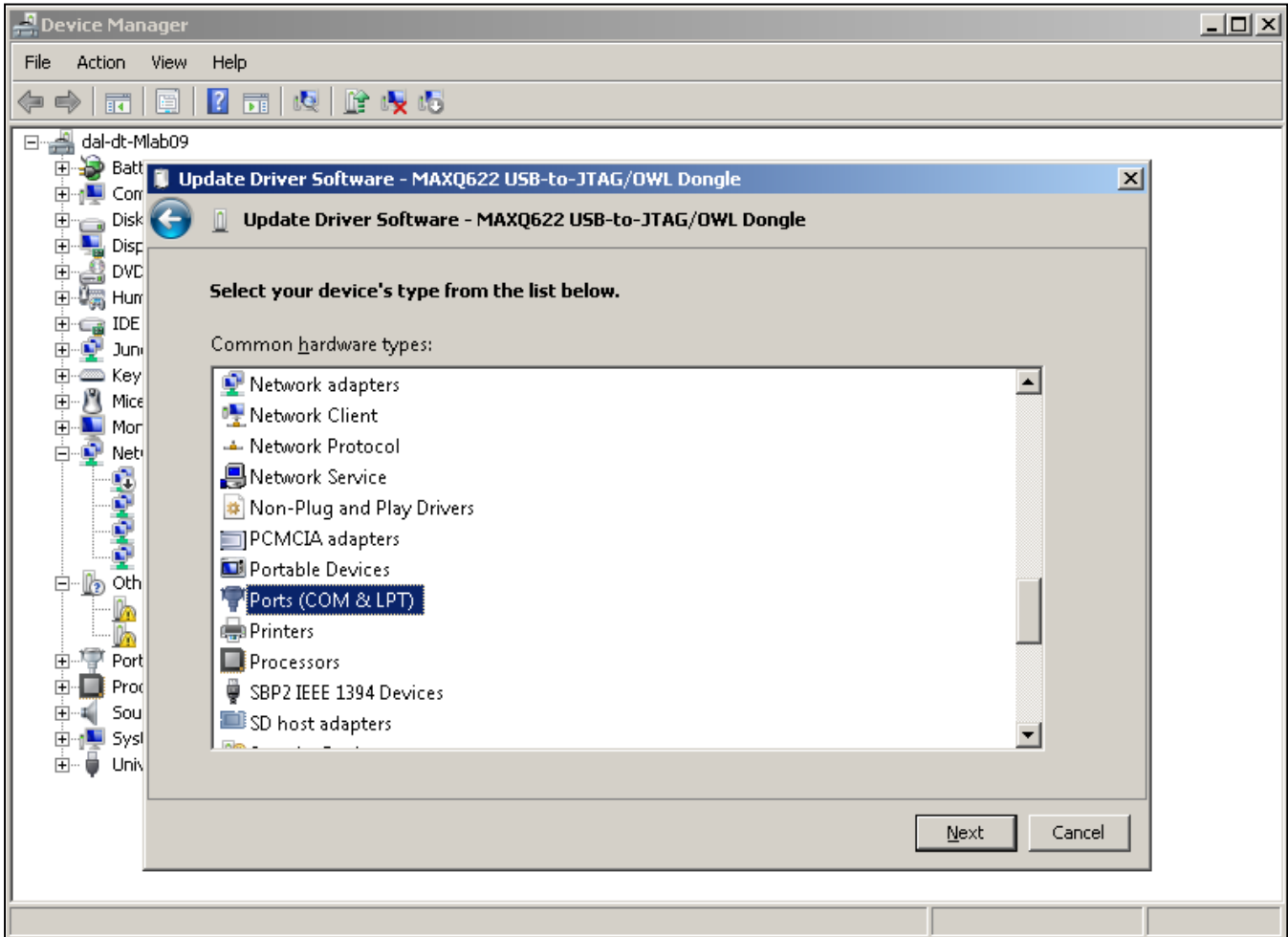
Figure 14. Update Driver Software—Select Device Type

- In the next window, select **Have Disk…** and select the INF file, **maxusbjtagow.INF**. Click **OK** then **Next**.
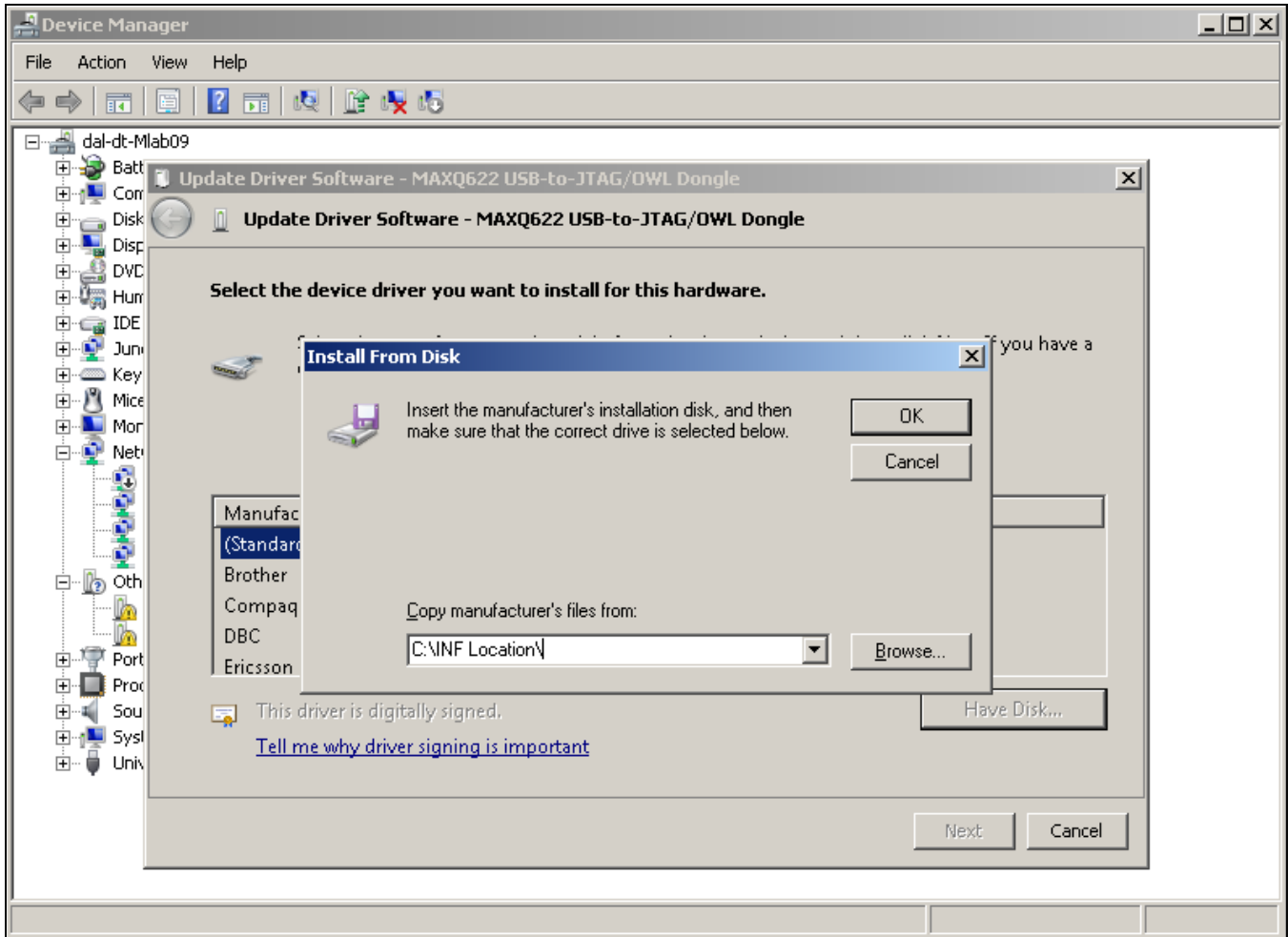
Figure 15. Update Driver Software—Install From Disk

- While installing the driver software, **Windows Security** warns about the driver not being signed. Click **Install this driver software anyway**.
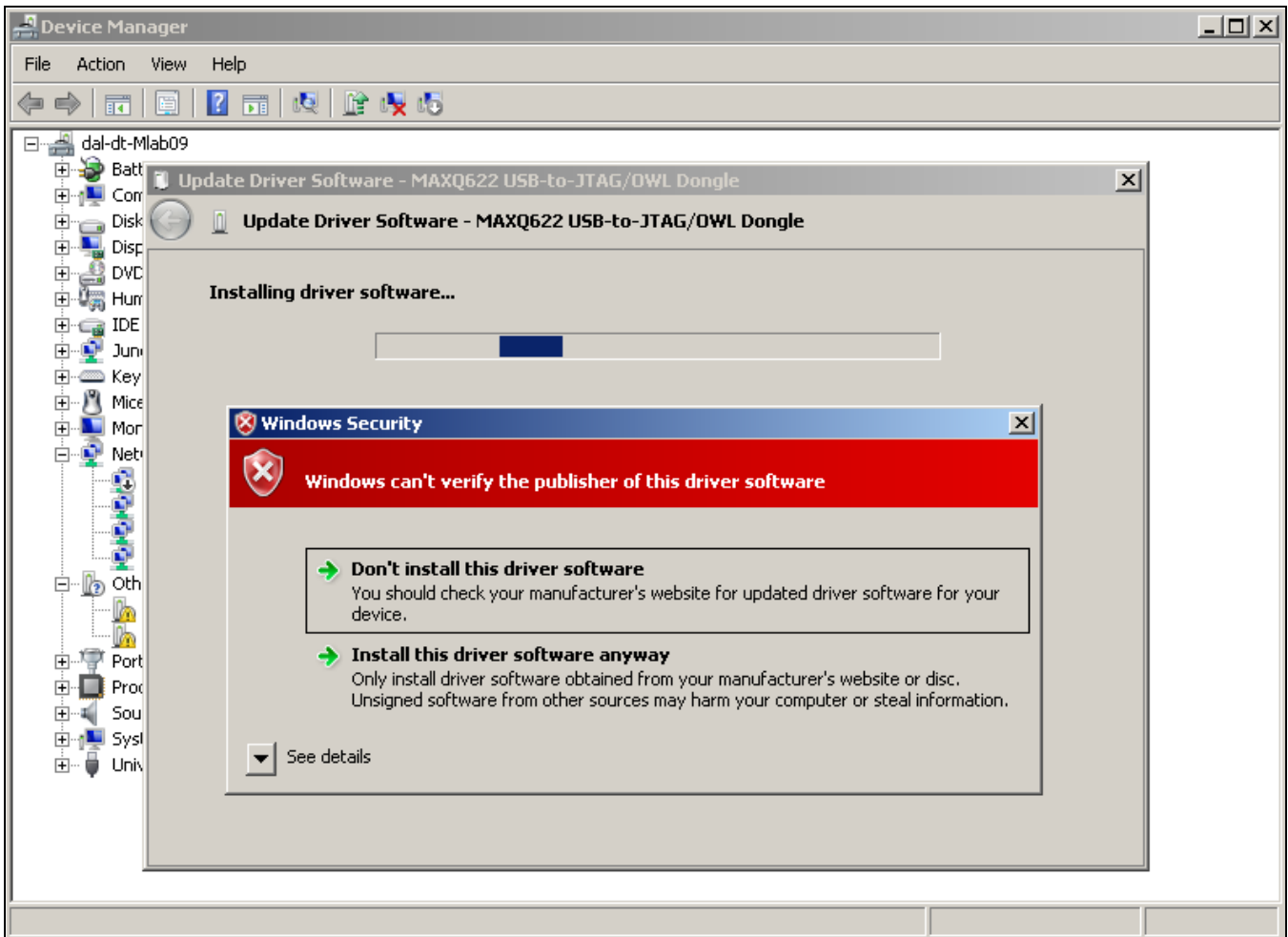
Figure 16. Update Driver Software—Bypassing Windows Security

- After Windows completes software installation, click **<u>Close.</u>**
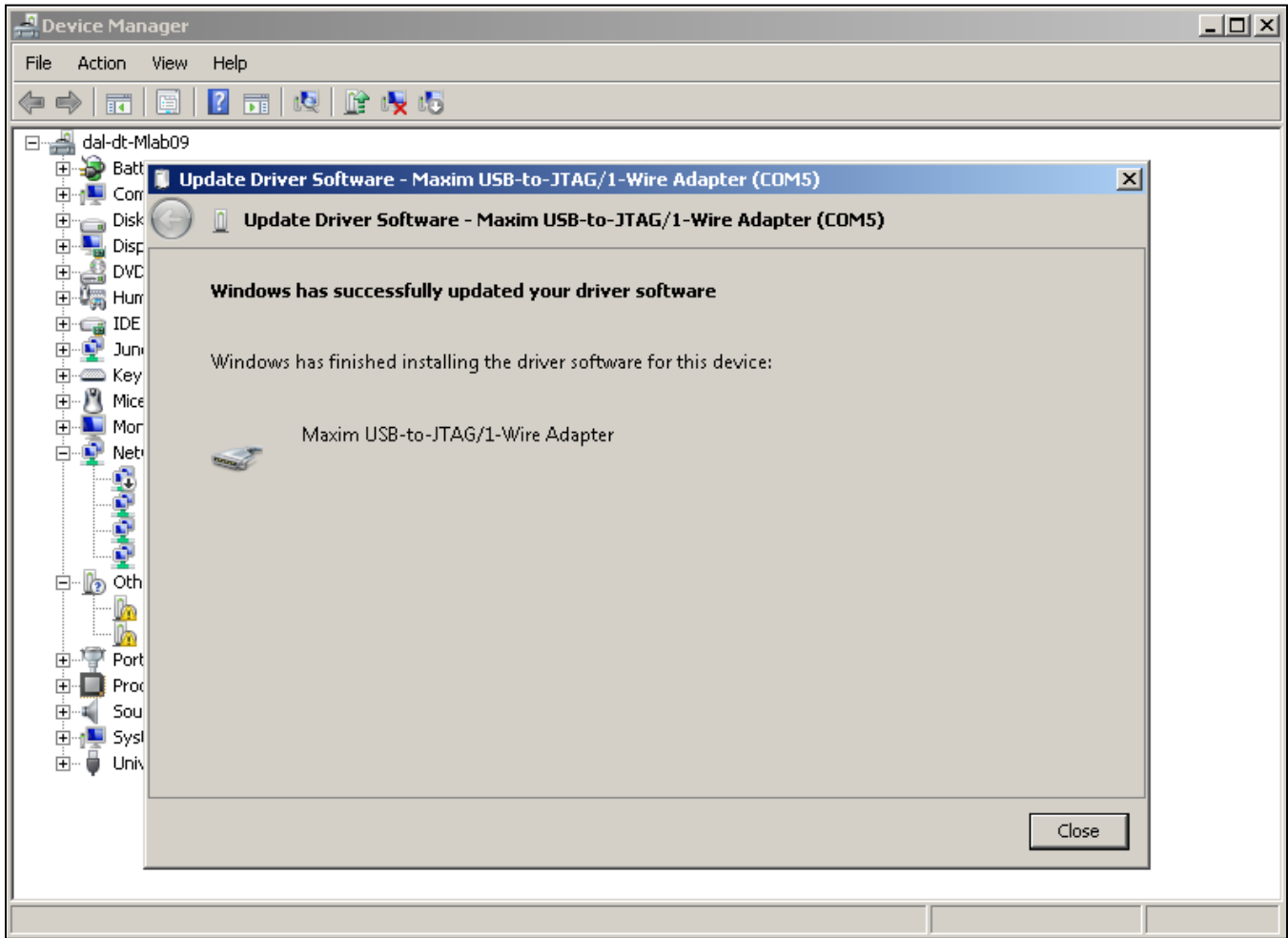
Figure 17. Update Driver Software—Update Done

- Now, in the **Device Manager**, the adapter should appear under **Ports (COM & LPT)** as **Maxim USB-to-JTAG/1-Wire Adapter (COMx)**, where x is the port number.
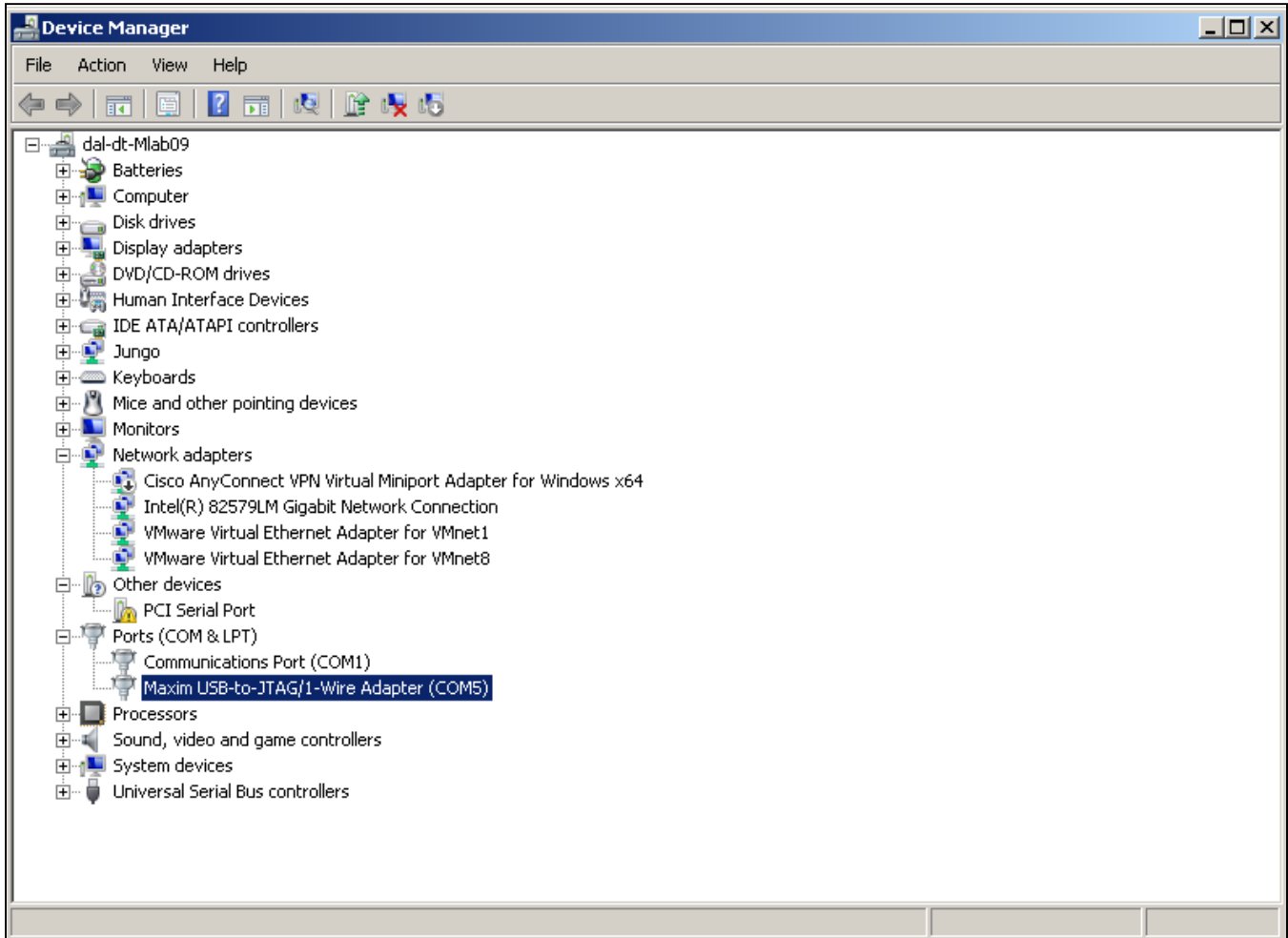

Figure 18. Device Manager After Installation on Windows 7

Figure 19. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 1 of 3)
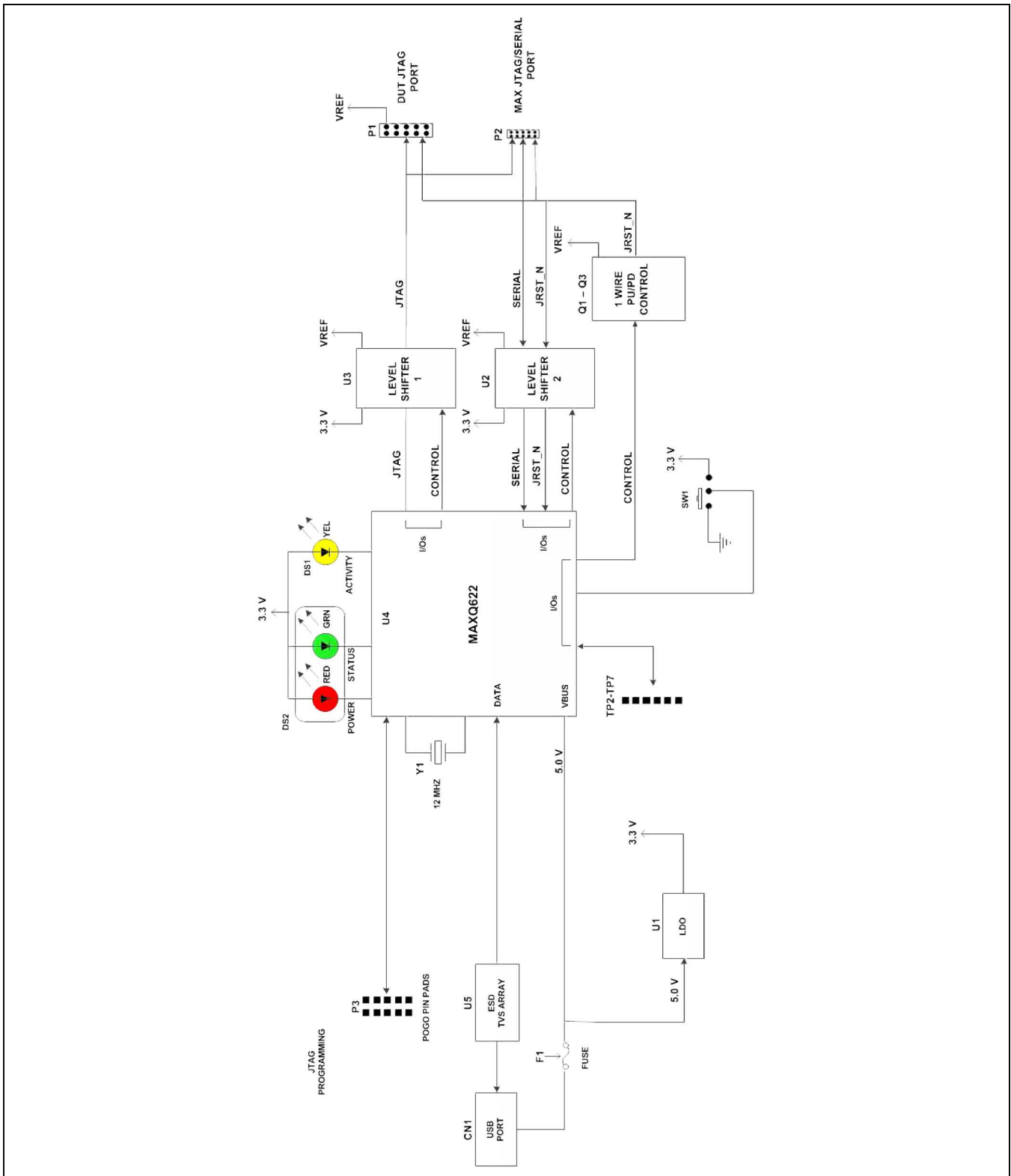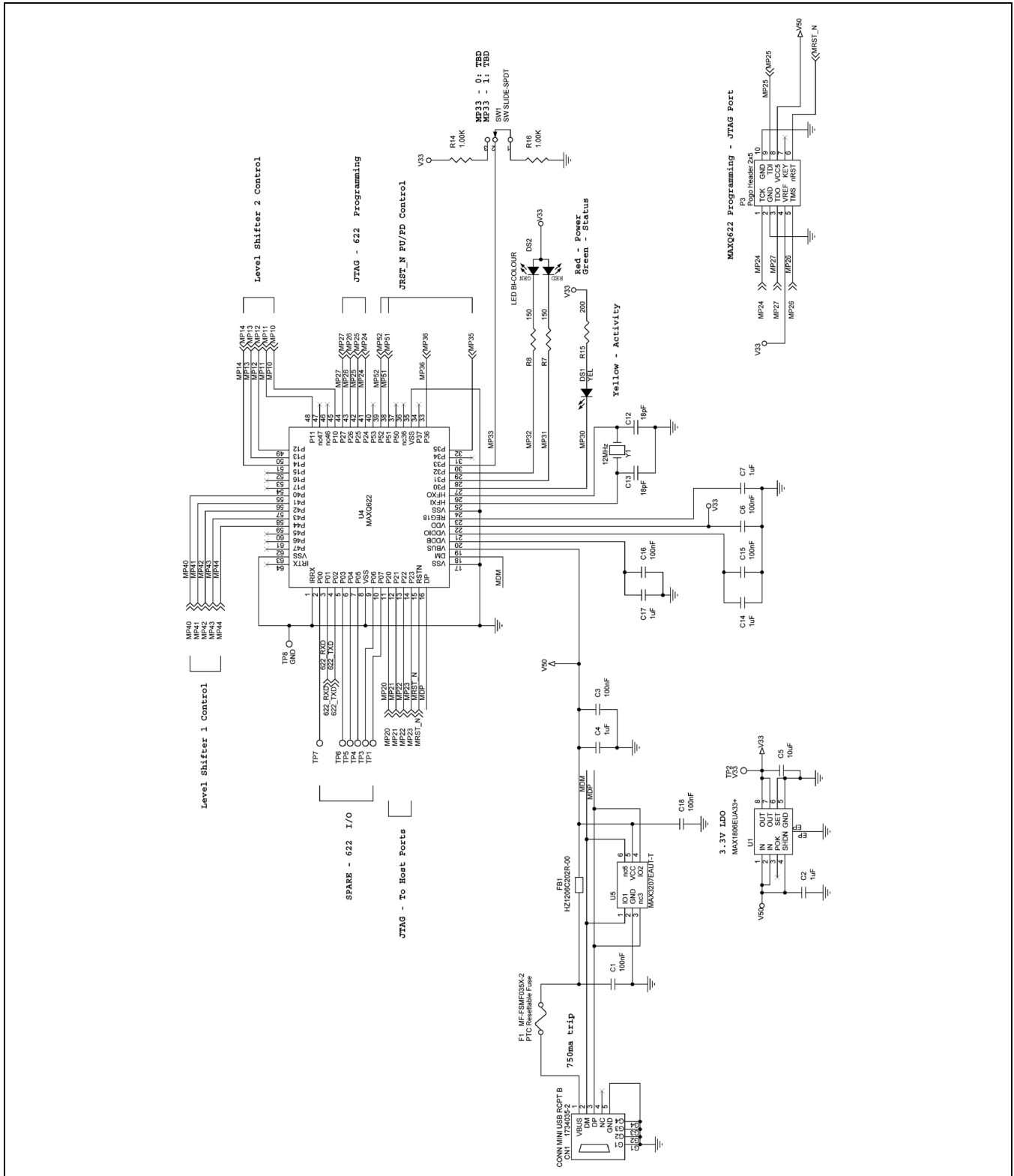
Figure 20. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 2 of 3)

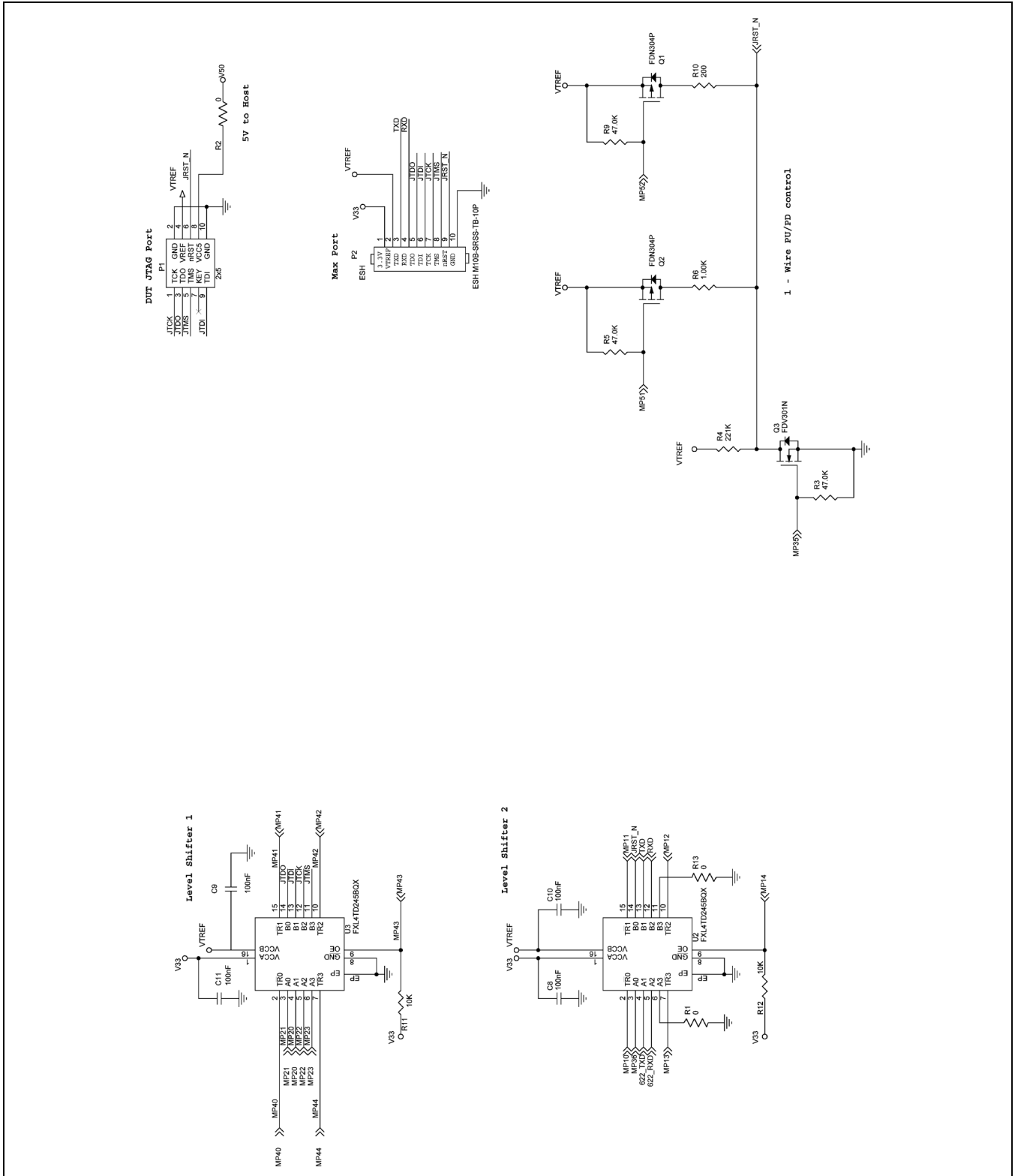*Figure 21. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 3 of 3)*

Evaluates: MAXQ Microcontrollers

Ordering Information

PART	TYPE
MAXQUSBJTAGOW-KIT#	Adapter

#Denotes a RoHS-compliant device that may include lead that is exempt under the RoHS requirements.