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
- 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

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1, C3, C6, C8-C11, C15, C16, C18</td>
<td>10</td>
<td>0.1µF, 16V ceramic X7R capacitors (0603) ECJ-1VB1C104K</td>
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<tr>
<td>C2, C4, C7, C14, C17</td>
<td>5</td>
<td>1.0µF, 16V ceramic X7R capacitors (0603) GCM188R71C105KA64D</td>
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<tr>
<td>C5</td>
<td>1</td>
<td>10µF, 6.3V ceramic X7R capacitor (0805) JMK212B7106KG-T</td>
</tr>
<tr>
<td>C12, C13</td>
<td>2</td>
<td>18pF, 50V ceramic NP0 capacitors (0402) GRM1555C1H180JZ01D</td>
</tr>
<tr>
<td>CN1</td>
<td>1</td>
<td>USB receptacle (Mini-B)</td>
</tr>
<tr>
<td>DS1</td>
<td>1</td>
<td>3mm yellow LED WP132XYD</td>
</tr>
<tr>
<td>DS2</td>
<td>1</td>
<td>3mm bi-color LED (red/green) 3BC-3-CA-F</td>
</tr>
<tr>
<td>F1</td>
<td>1</td>
<td>PTC resettable fuse MF-FSMF035</td>
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<tr>
<td>FB1</td>
<td>1</td>
<td>2000µH ferrite bead HZ1206C202R-10</td>
</tr>
<tr>
<td>P1</td>
<td>1</td>
<td>10-pin 0.1in pitch right-angle male shrouded box header SBH11-PBPC-D05-RA-BK</td>
</tr>
<tr>
<td>P2</td>
<td>1</td>
<td>10-position side male shrouded connector header SM10B-SRSS-TB(LF)(SN)</td>
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<tr>
<td>Q1, Q2</td>
<td>2</td>
<td>20V, 2.4A p-channel MOSFETs (SSOT3) FDN304PCT-ND</td>
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<tr>
<td>Q3</td>
<td>1</td>
<td>25V, 220mA n-channel MOSFET (SOT23) FDV301NCT-ND</td>
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<tr>
<td>R1, R2, R13</td>
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<td>0Ω resistors ERJ-2GE0R00X</td>
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<td>R3-R5, R9</td>
<td>4</td>
<td>47kΩ resistors CRCW060347K0FKEA</td>
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<td>R6, R14, R16</td>
<td>3</td>
<td>1kΩ resistors CRCW06031K00FKEA</td>
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</table>

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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.

19-6503; Rev 0; 10/12
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Component List (continued)

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<thead>
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<th>DESIGNATION</th>
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<th>DESCRIPTION</th>
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<td>R7, R8</td>
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<td>150Ω resistors CRCW0603150RFKEA</td>
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<tr>
<td>R10, R15</td>
<td>2</td>
<td>200Ω resistors CRCW0603200RFKEA</td>
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<tr>
<td>R11, R12</td>
<td>2</td>
<td>10kΩ resistors CRCW060310K0FKEA</td>
</tr>
<tr>
<td>SW1</td>
<td>1</td>
<td>3-pin SPST slide switch</td>
</tr>
<tr>
<td>U1</td>
<td>1</td>
<td>500mA, 3.3V LDO linear regulator (8 µMAX®) Maxim MAX1806ELUA33+</td>
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</tbody>
</table>

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

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

µMAX is a registered trademark of Maxim Integrated Products, Inc.
**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 (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](http://www.maximintegrated.com/evkit) under MAXQUSBJTAGOW EVKIT Software. Programming and debugging tools can be found at [www.maximintegrated.com/products/microcontrollers/development_tools.cfm](http://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.

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**Figure 2. MAXQ USB-to-JTAG/1-Wire Adapter Communications Interface**

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*IAR Embedded Workbench is a registered trademark of IAR Systems AB.*
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MAXQ USB-to-JTAG/1-Wire Adapter

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…

![Device Manager](image)

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

Windows XP is a registered trademark and registered service mark of Microsoft Corporation.
• 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*
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- Click **Browse...**, then select the INF file, `maxusbjtagow.INF`. Click **OK**, then **Next**.

Figure 7. Hardware Update Wizard—Install from Disk
**MAXQ USB-to-JTAG/1-Wire Adapter**

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- A hardware installation warning pops up. Click **Continue Anyway**.

![Hardware Update Wizard—Hardware Installation](image)

*Figure 8. Hardware Update Wizard—Hardware Installation*
• After the Windows OS completes installing the software, click Finish to close 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.
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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...

![Device Manager](image)

Figure 11. Installing the Driver Through the Device Manager on Windows 7

Windows is a registered trademark and registered service mark of Microsoft Corporation.
• 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.
• In the next window, select **Have Disk...** and select the INF file, *maxusbjtagow.INF*. Click **OK** then **Next**.
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 **Close**.

![Update Driver Software—Update Done](image)

**Figure 17. Update Driver Software—Update Done**
MAXQ USB-to-JTAG/1-Wire Adapter

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- 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*
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Figure 19. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 1 of 3)
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Figure 20. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 2 of 3)
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Figure 21. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 3 of 3)
### Ordering Information

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<th>PART</th>
<th>TYPE</th>
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<td>MAXQUSBJTAGOW-KIT#</td>
<td>Adapter</td>
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# Denotes a RoHS-compliant device that may include lead that is exempt under the RoHS requirements.
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Revision History

<table>
<thead>
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<th>REVISION NUMBER</th>
<th>REVISION DATE</th>
<th>DESCRIPTION</th>
<th>PAGES CHANGED</th>
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<tbody>
<tr>
<td>0</td>
<td>11/12</td>
<td>Initial release</td>
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