

# BitHound

an FPGA-based Logic Analyzer

Manual

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Mario Mauerer  
Lukas Schrittwieser

[www.bastli.ethz.ch](http://www.bastli.ethz.ch)

# Network Prerequisites

As Ethernet is used to connect the Logic Analyzer with the PC that runs the client software, several aspects have to be kept in mind.

There are two ways that the BitHound can connect to the PC:

**1.) A DHCP-Server is present in the Network.**

If this is the case, the BitHound and the client can be connected anywhere in the network, as long as there is no router between. Switches are OK.

**2.) The BitHound and the client-PC are connected directly.**

Now, the client-PC has to assign a fixed IP in the following scheme: 10.0.0.x (e.g. 10.0.0.1). However, (only) 10.0.0.2 does NOT work!

# Client Software

The client software is provided for Windows and Linux and requires Java.

Start the client by executing run.sh under Linux or analyzer.jar under Windows.

If the BitHound could be found in the network, there will be no error. Otherwise, a window will pop up and the client will terminate. Make sure that the BitHound can be found in the network by the client software. (It can last some 10 seconds until the BitHound is found in the network.)

First, we want to set up a trigger. Click on the „red rocket“ icon in the toolbar.

**Analyzer Port:** Do nothing

**Sampling Clock:** As desired.

**Sampling Rate:** As desired.

**Channel Groups:** As desired.

**Recording Size:** As desired.

**Noise Filter:** As desired (suppresses short spikes)

**Trigger: Enable**

**Before/After Ratio:** As desired, move the trigger point in the sampled data.

**Type:** Simple (Complex is for staged Triggers)

**Mode:**

**Serial:** This mode triggers on a rising or falling edge of a selected channel. Select the desired channel with the dropdown menu.

To trigger on a rising edge, set the checkboxes as pictured below.

Mode: Serial Channel: 0

0

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<input type="checkbox"/>	<input checked="" type="checkbox"/>															

To trigger on a falling edge, set the checkboxes as pictured below.

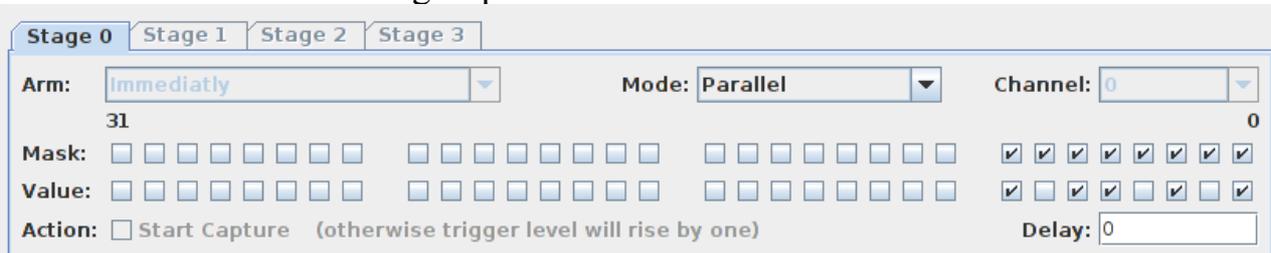
Mode: Serial Channel: 0

0

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<input type="checkbox"/>	<input checked="" type="checkbox"/>															

Il rise by one) Delay: 0

**Parallel:** This mode triggers, when a specific bit-combination is detected at the inputs. Mask the desired bits and their desired values using the checkboxes. In the following picture, the trigger fires, as soon as the byte „0b10110101“ is detected at the first channel group.



Now, Click on „**Capture**“. The client now waits until the BitHound triggers. As soon as this has happened, the data will be transferred to the client PC where it will be displayed.

In the **toolbar**, there are a few tools to help you analyze the waveforms.



Button 1 can set a marker.

Button 2 will delete a marker, when the cursor is positioned exactly on the marker and this button is pressed.

When holding the left mousebutton down and drawing the cursor over the screen, the „lapsed“ time and frequency are displayed at the bottom of the screen.

Button 3 and 4 will run to the next marker.

Button 5 and 6 will run to the next edge.