Blackhawk XDS560v2 Configuration Utility

User Guide

Bh560v2Config-UG-04
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Blackhawk
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IMPORTANT IMFORMATION

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Warranty – this manual

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About This Manual

This document represents the User Guide for the Blackhawk™ XDS560v2 Configuration Utility (Bh56v2Config). The utility is a JAVA-based application that allows developers to quickly and easily find, configure and test XDS560v2 System Trace emulators.

Related Documents
1. Blackhawk XDS560v2 STM Installation Guide
2. Blackhawk USB560v2 STM Installation Guide

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1   Overview

The Blackhawk XDS560v2 Configuration Utility (Bh560v2Config) allows users to search for, configure, and test Blackhawk XDS560v2 System Trace Emulators (BH560v2) connected directly to a USB port or remotely on the local area network. This utility works with all Blackhawk XDS560v2 models, including the USB560v2 (USB-only model).

Bh560v2Config is a graphical user interfaced (GUI) based application.

1.1   Prerequisites

If the Bh560v2Config utility fails to start or produces an error, the most common cause it that JAVA is not installed. **The utility recommends using JAVA version 6 Update 20.** You can download this version from http://www.java.com . Once there, you can select the "Free JAVA Download" or "Download Java Now" button or another download link on the page.

1.2   Key Features

The Bh560v2Config GUI has three sections.

- Devices

  The *devices* section contains a list of available BH560v2 units and allows the user to search for, add or remove devices from the list. A help button is also available.

- Output Log

  The *output log* section keeps track of all commands and results executed by the utility. This section can be copied, saved to a file and cleared. This is helpful for checking status and contacting Blackhawk with any support issues.

- Device Configuration Options

  The *device configuration options* section is designed to allow the user to configure, update, and test a BH560v2 selected in the device list in the *devices* section. In this section you can perform operations such as:

  – List or edit parameters (i.e. IP address)

  – Reboot the device

  – Clear safe mode (reboot device into normal operating mode)

  – Update the device firmware

  – Test communication USB or Ethernet

  – Run target tests (i.e. scan-path and integrity tests)

2 Bh560v2Config GUI

The Bh560v2Config GUI is shown below in Figure 1. Each of the sections, *Devices*, *Output Log*, and *Device Configuration Options*, are describe in more detail in the subsequent sections.
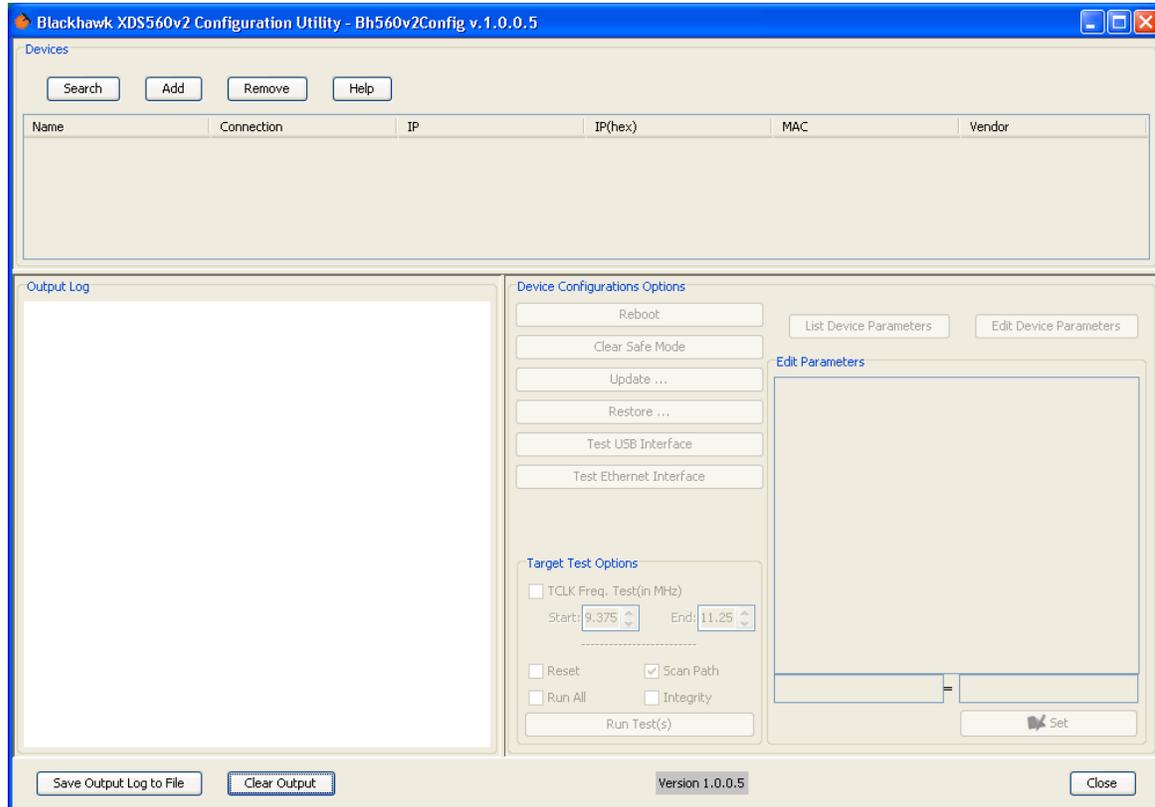
Figure 1 - Bh560v2Config GUI

2.1 Devices

The devices section of the Bh560v2Config GUI includes four (4) buttons and multi-column table that displays a list of Bh560v2 devices. Each button and table is described below.

2.1.1 Search Button

The search button (see Figure 1), when pressed, will automatically activate the search for available Blackhawk XDS560v2 System Trace Emulators connected to the local area network (LAN) and to the local USB ports on the computer running the utility. A search is performed by default when the utility is started.

Once you invoke the search function the utility will display a pop-up dialog (see Figure 2), and will scan your network using a broadcast ping to all the emulators on your subnet.

The utility uses the subnet based on the computer running the utility. For example if your computer's IP address is 192.168.100.1 then the utility will scan all devices in the 192.168.100.255 subnet.

Figure 2 - Emulator Search dialog

After the network scan is completed, the computer's USB ports will be scanned.

Then utility will populate the Output Log with all of the network and USB devices found, but it will only load the Device List with Bh560v2 devices. What this means is that you may see a number of network IP addresses in the output log during the search, such as other computers on the same subnet, but only those that are Bh560v2 devices will be listed in the device list.

2.1.2 Add Button

The add button (see Figure 1) allows you to manually add an XDS560v2 System Trace Emulator into the devices list. The most common use for this is if the search failed. This may happen depending on your network configuration and this provides a means to get to the Bh560v2 device.

You can add an emulator using a known IP address of an XDS560v2 System Trace Emulator, or using an IP and a device name combination. (See Figure 3).
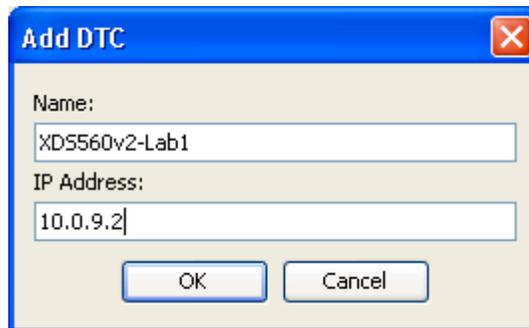
Figure 3 – Manually Adding a Bh560v2 Device

NOTE:
Any manually added device will stay resident in the device list until removed by the user for the current session.

2.1.3 Remove Button

The remove button (see Figure 1) allows a Bh560v2 device to be manually removed from device list. To remove a device, just highlight it (select with the mouse) and press the remove button.

NOTE:
You may be asking why this is necessary and the answer is that you may have a Bh560v2 attached to the network and USB at the same time and only want to configure or test it from one interface.

2.1.4 Help Button

The help button (see Figure 1) will open the help documentation, such as this file.

2.1.5 Device List

The device list contains a table that displays all the active Bh560v2 devices found on your network, and USB ports along with ant other manually added devices. See Figure 4 below for sample device list content.

Name	Connection	IP	IP(hex)	MAC	Vendor
none	USB:0	none		00-0F-D2-02-00-02	Blackhawk
XDS560v2-Lab1	LAN	10.0.9.59	0a 00 09 3b	00-0F-D2-02-00-14	Blackhawk

Figure 4 – Sample Device List

The device list shows additional emulator attributes. Some attributes are based on connection type.

Table 1.   Device List Column Definitions

| Column Name	Description	Depends On Field
Name	The device name of the Bh560v2. This is a user settable parameter to help users identify devices and their location. Default value: `none`	n/a
Connection	This identifies the connection interface to the device, which is either USB (`USB:<port index>`) or Ethernet (`LAN`)	n/a
IP	The IP address of the device in n.n.n.n (octet) notation.	Connection
IP (hex)	The IP address of the device in hex, which is used by some CCS settings.	Connection
MAC	Media Access Control address of the device, which is also the serial number.	n/a
Vendor	Manufacturer of the device (i.e. Blackhawk, TI, etc.)	n/a

2.2   Output Log

The output log (shown in Figure 1) is an area of the utility that displays command execution, status and results. For example, during a device search, the output log will display the progress of the search and any devices that respond to network broadcasts.

2.2.1   Save Output Log to File Button

The save output log to file button will allow the contents to be written out and saved to a text file. This is provided so that users can save information for their records or send problematic output to Blackhawk for support.

Just press the button and you will see a Windows "file save as" dialog similar to that in Figure 5 below prompting for a location and filename. Once you select a folder and filename, click the save button.
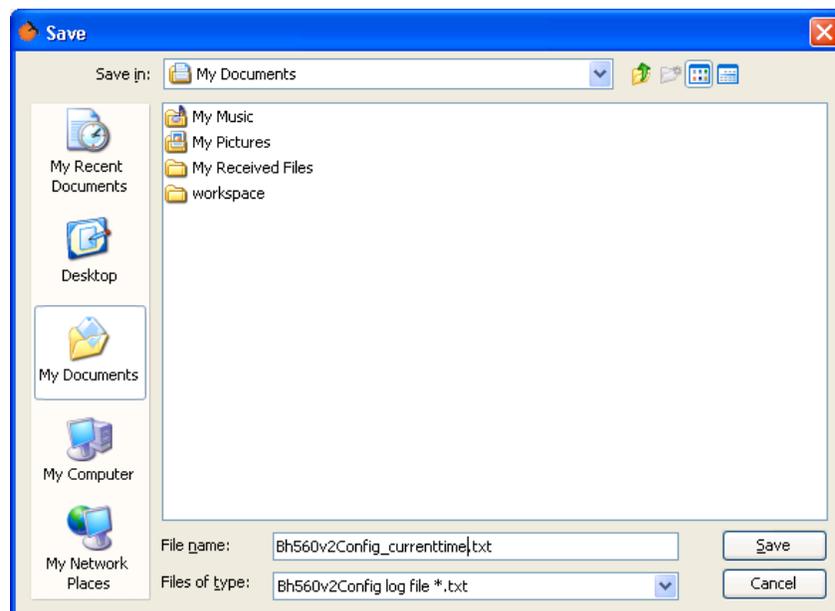


Figure 5 - Save Output Log location

NOTE:
You can also select all or part of the text in the output log using the mouse, copy and paste it into another application, such as an email.

2.2.2   Clear Output Button

The clear output button simply clears the content of the output log window.

2.3   Device Configuration Options

The device configuration options section, shown in Figure 6, is an area that enables users to view, edit, and test Bh560v2 devices. In order to use this section you must first select a device in the device list.
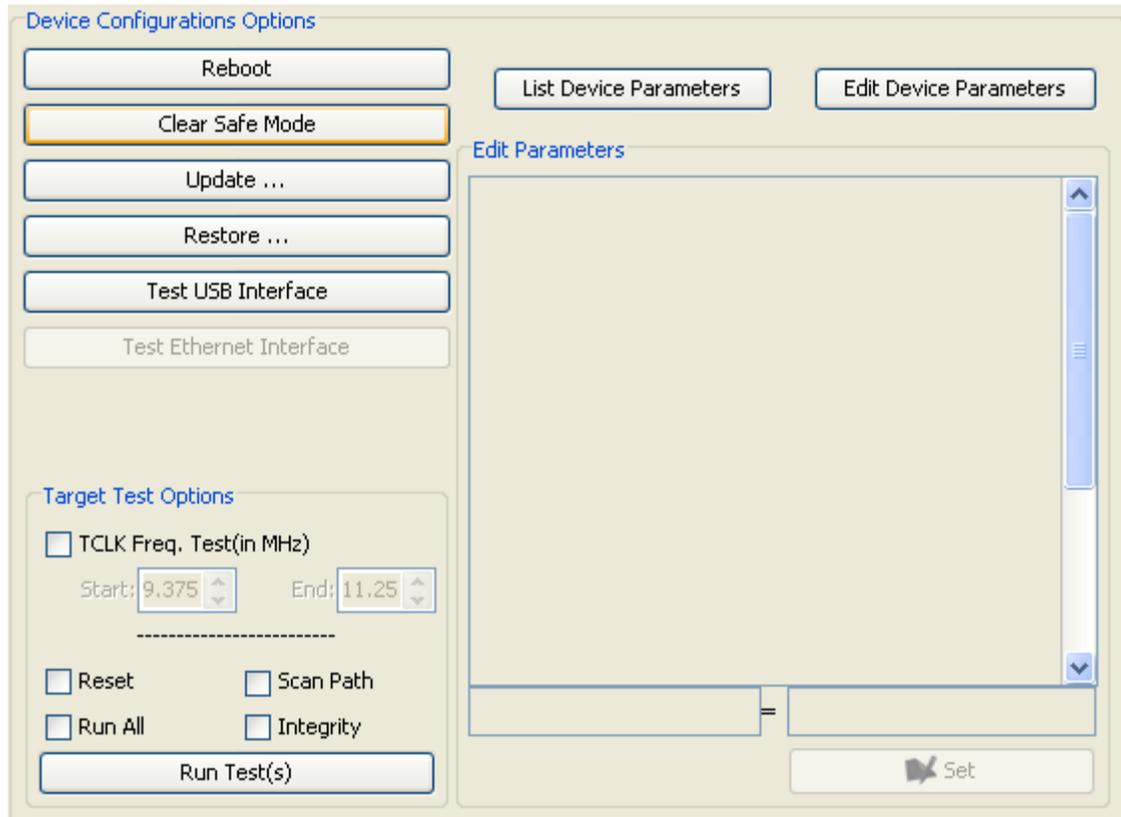
Figure 6- Device Configuration Options Section

2.3.1   Reboot Button

The reboot button will initiate a shutdown and a restart of the highlighted emulator. This is necessary, for example, if device boot modes are changed.

When pressed, a confirmation dialog will be displayed, such as the one shown in Figure 7. If you select yes, the output log will display information showing the device being rebooted (restarted) and indicate when the reboot cycle has completed.

In Figure 7 you will notice that the device selected had no name assigned, hence the value "none" was used.
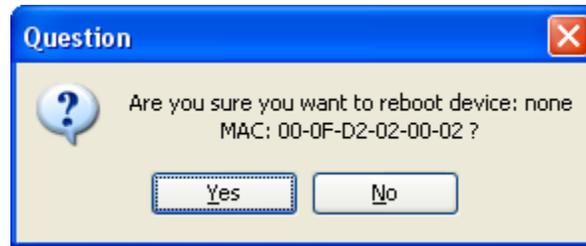
Figure 7 - Reboot confirmation dialog

2.3.2 Clear Safe Mode Button

The clear safe mode button will reconfigure and reboot the Bh560v2 to run on normal mode.

2.3.2.1 What is safe mode?

If you are asking yourself this question, here is a quick description. The Bh560v2 device is running an embedded version of the Linux operating system. Because the Bh560v2 is running an operating system, it maintains some of the OS characteristics, such as boot modes. Similar to Microsoft Windows®, Linux has normal and safe boot modes. Safe mode exists to prevent the device from being put into a state where it can't boot or be restored to a normal mode of operation.

Depending on certain events the Bh560v2 may boot into safe mode. For example, if the device does not complete a boot cycle into normal operating mode after ~8-10 tries, safe mode is activated. This example is normal and the most common reason for seeing safe mode if you power cycle the device too many times and don't allow it to complete the boot cycle. The following sections describe how you can identify these operating modes.

2.3.2.2 Indentifying Safe Mode (BH-XDS-560v2)

Safe mode can be identified when the device completed its boot sequence, which could take up to 60 seconds, and LED **5v** is on steady and LEDs **S1**, **A2**, and **A3** blink on and off together in sequence. See Figure 8for location and orientation of these LEDs on the Bh560v2 end panel.

Figure 8- Bh560v2 End Panel LEDs (safe mode)

2.3.2.3 Identifying Normal Mod e (BH-XDS-560v2)

Normal operating mode can be identified when the device completed its boot sequence, which could take up to 60 seconds, and LEDs **5v**, **S2**, and **S3** are on steady. See Figure 9 for location and orientation of these LEDs on the Bh560v2 end panel.

Figure 9 - Bh560v2 End Panel LEDs (normal mode)

CAUTION:
In order to debug a target board using the Bh560v2 it must boot into normal operating mode. The clear safe mode button will fix this condition and boot the Bh560v2 into normal operating mode. However, if this persists and does not clear safe mode, contact Blackhawk support.

2.3.2.4 Indentifying Safe Mode (BH-USB-560v2)

Safe mode can be identified when the device is powered and the MODE LED is on blinking Red.

Figure 10 - USB560v2 End Panel LEDs (safe mode)

2.3.2.5 Identifying Normal Mod e (BH-USB-560v2)

Normal operating mode can be identified when the device completed its boot sequence, which could take between 20 and 30 seconds, and both LEDs are on steady Green.

Figure 11 - USB560v2 Normal Operating Mode LED States[1]

The clear safe mode button of this utility, when pressed, will clear the mode from the device and reboot the device back into normal operating mode.

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[1] The USB cable must be connected to PC and **Error! Reference source not found.Error! Reference source not found.** for power, but has been omitted for better clarity.

2.3.3 Update Button

The update button allows the end user to update a Bh560v2 device's firmware. When this button is pressed you will be prompted with a Windows open dialog similar to that shown in Figure 5. After you select the firmware file to update the selected Bh560v2 device, a confirmation dialog will display similar to that shown in Figure 12.

NOTE:
The update process will take approximately 2-3 minutes.

Figure 12 - Update confirmation dialog

WARNING:
The update feature should only be used if directed by Blackhawk Support or Blackhawk CCS v4 driver update installer.

2.3.4 Restore Button

The restore button allows you to modify a Bh560v2's parameters back to their factory settings. When pressed a confirmation dialog shown in Figure 14 will display asking you to confirm or cancel the restore operation.

If accepted, you will be prompted to reboot the device so the restored values can be loaded.

NOTE:
Restoring a device's parameters will erase all previously made changes and is not reversible, unless you manually set them again.
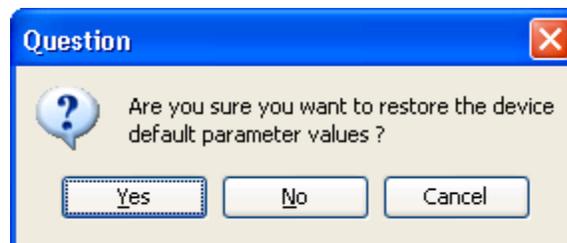

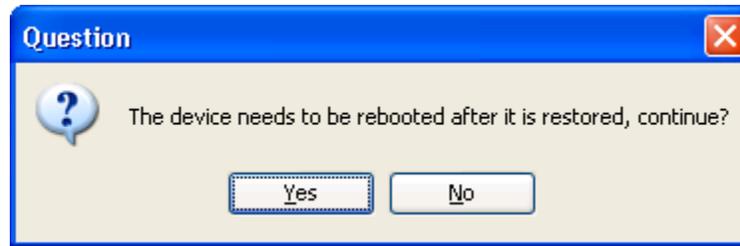**Figure 13 - Restore Confirmation Dialog**

Figure 14 - Reboot Confirmation Dialogs

2.3.5 Test USB Interface

The test USB interface button, when pressed, performs a simple USB communication test on the selected device.

NOTE:
This button is enabled only if the selected device is connected to the host computer via USB connection.

2.3.6 Test LAN Interface

The test LAN interface button, when pressed, performs a basic Ethernet communication test to the selected device.

NOTE:
This button is enabled only if the selected device is connected to the host computer via Ethernet connection.

2.3.7 List Device Parameters

The list device parameters button will refresh the parameters table shown in the Edit Parameters section. Figure 15 shows an example of the parameter list.

Figure 15 - Edit Parameters Area (read-only)

2.3.8 Edit Device Parameters

The edit device parameters button will enable the Edit Parameters area for the selected device so that values can be modified.

To modify a parameter's value you need to select one in the list. When selected (highlighted), the edit boxes at the bottom of the list will also be enabled. The edit box on the right is the area to enter the value for the selected parameter. The box holding the parameter name is not editable. Once you enter a new value, click the set button and the new value will be displayed in the list above.

For example, a typical parameter to change is the "ipConfig" parameter. This parameter will modify the emulator's IP value to be set dynamically (value of "dhcp") or statically (actual IP address, such as "192.168.100.3").

The default value is "dhcp" for dynamic host configuration protocol where the device will obtain an IP address from a DHCP server on the local area network. For a static (fixed, non-dynamic) IP address, just enter the desired IP octets in the edit box as shown in Figure 16.

Figure 16 - Edit Parameters section

A complete list of device parameters, their values, and description can be found in Table 2 below.

Table 2. Bh560v2 Device Parameters

Name	Values [Default]	Read Only	Description
addrConf	[:55756]	No	Not defined
addrIo	[:55755]	No	Not defined
boardRev	2	YES	
dtcName	[none] <user text Value>	No	User Specified Emulator's Name
epkRev	2.0.1.0	YES	Current firmware EPK build
fpgaRev	1.4	YES	Current FPGA firmware revision
ipAddress	[none] <IP Value>	No	IP address over the LAN
ipBroadcast	[none] <IP Value>	No	Network broadcast IP address [n.n.n.255]
ipConfig	[dhcp] <IP Value>, <off>	No	Defined the IP boot configuration, such as DHCP or Static IP. For a Static IP, enter the IP address here (i.e. 192.168.10.2)
ipGateway	[none] <IP Value>	No	Network Gateway IP address [n.n.n.1]
ipHwaddress	[none] <IP Value>	No	Not defined
ipLeasehours	[none] <IP Value>	No	Length of lease obtained from the DHCP server
ipLeasetime	[none] <IP Value>	No	Time obtained a IP from the DHCP server
ipMtu	[none] <IP Value>	No	Network MTU size
ipNetmask	[none] <IP Value>	No	Network subnet IP address [255.255.255.0]
ipNetwork	[none] <IP Value>	No	Not defined
ipPointtopoint	[none] <IP Value>	No	Not defined
productClass	XDS560V2	YES	Product class
productName	Blackhawk XDS506v2 System Trace	No	Product name
safeMode	[false] <true>	No	Current boot mode
serialNum	[xx:xx:xx:xx:xx:xx]	YES	Emulator's MAC address and serial number
swBuildTime	[Jan 27 2010 15:15:41]	YES	Blackhawk bh560v2 firmware build time
swRev	2.0.1.2	YES	Blackhawk bh560v2 firmware revision
Time	[none] <yyyy/mm/dd hh:mm:ss>	No	Current UDP time
vendorName	[Blackhawk]	YES	

2.3.9 Target Test Options

The target test options area allows a user to test Bh560v2 communication to a connected target. Please refer to Figure 17 for all the target test controls described below in the next subsections.

2.3.9.1 Test Check Boxes

☐ TCK Freq. Test

This option will run a data test over the frequency range defined by the start and end parameters.

☐ Reset

This option will perform an emulator reset.

☐ Scan Path

This option will test the scan path by sending bits through the scan JTAG scan chain.

☐ Integrity

This option will test the integrity of the JTAG scan chain.

☐ Run All

This check box will enable all tests to be run and override any other selections.

2.3.9.2 Run Test(s) Button

The run test(s) button, when pressed, will execute the selected tests. Output from the tests will be displayed in the output log area.
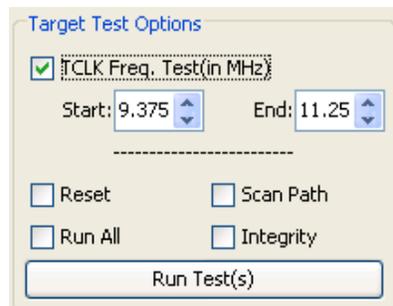

Figure 17 - Target Test Options

2.4 Close Button

The close button is used to terminate the utility. Alternately, the utility can be closed by pressing the "X" button in the top right area of the Window on the title bar shown in Figure 1.