

# LoadSlammer™ Pro Graphical User Interface Guide

Rev 0.1

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# **1 INTRODUCTION**

The LoadSlammer<sup>™</sup> Pro GUI (Graphical User Interface) helps with running tests and updating firmware on LoadSlammer Pro devices. This guide will go through step by step instructions to help the user navigate the GUI and use all functions with ease.

## **1.1 DOWNLOADING THE GUI**

The LoadSlammerTM Pro GUI can be downloaded from the website at: <u>https://loadslammer.com/downloads/</u>

### LoadSlammer GUI

Standard Family	Pro Family
Version 1.0.0.2	Version 0.3,1.1
Windows x86/x64 (32/64bit) - Click Here to Download	Windows x86/x64 (32/64bit) – Click Here to Download

## **1.2 INSTALLING**

Open the LoadSlammerGUI application from the location it was saved. Select the language that you wish for the program to use for installation and click OK. The install will then ask if you wish to create a shortcut, then click Next in the bottom right of the window. Finally, click the Install button on the bottom right of the window and allow time for the program to install.

## **1.3 WORKSPACE OVERVIEW**

When installation is finished, run the LoadSlammerTM Pro GUI which will present a window as shown in the image below. By default, the LoadSlammerTM Pro GUI starts with a new workspace, along with the Selected Devices and Tests panels. On the top right of the window, you will be able to find the LoadSlammer Login button. Within the workspace the Voltage Regulator Module, or VRM, can be configured by setting the Minimum, Nominal, and Maximum voltages based on the power rail being used. The Power Limit of a device will be displayed when connected to the LoadSlammerTM Pro GUI.



Tests #	Workspace		
+ / - + =	Workspace VRM Settings		
T Vccint	Main		
	VRM Settings		
	Power Limit 0 w		
	Minimum Nominal Maximum		
	Voltage 820 mV 850 mV 880 mV		
	Selected Davice		
	1 -		

Any of these panels can be moved freely and can be pulled out as new windows, as seen in the image below. Simply click and hold on the panel you wish to move, then drag and release at the desired location.

⊘ File View Test Look Window Layout H	elp LoadSlammer	چې م	-	×
Tests ∓ + ≁ − ▶ ■	Worksapce VRM			
	Main VRM Settings			
	Power Limit Ow Minimum			

#### 1.3.1 LOGGING INTO LOADSLAMMER

After pressing the LoadSlammer Login button, a new window will open asking to sign in. A new account can be created by pressing the Register button located in the bottom left of the Login window. This will open a link in the default browser allowing the user to create an account.

## 1.3.2 ADDING DEVICE

Once the program running, connect the data wire and power barrel jack (24V)(LSP1000/1000RS/ Orac-Jr only) to the LoadSlammer device. Click on the green plus button in the Selected Devices panel. A new window will open with the LoadSlammer Pro that has been connected to the computer. If this window is empty, check connection of data and power wires.

Select Device	
LoadSlammer Pro 200 - Progranalog	

#### 1.3.3 UPDATING FIRMWARE

Once your device is listed, open the View menu in the top-left and select Device Management. Double click on the firmware that you wish to use, opening the Update Firmware window. Click on the flash button located on the bottom right of the window and do not disconnect device until the flash has completed.

5-	×



# 2 GETTING STARTED

## 2.1 CREATING A TEST

A device needs to be connected first

In the workspace on the left of the window, there is a green plus button that allows for the creation of a new test under the Tests panel. A new tab will open with a list of available tests that the LoadSlammerTM Pro GUI offers, either double click the desired test or select the test by clicking on it then clicking Next located in the bottom right. Venter specific tests are available upon request. Contact us at <a href="mailto:support@loadslammer.com">support@loadslammer.com</a>. We work with many ASIC vendors and can offer specific pass/ fail tests for fast and confidant testing.

ests	₹	orkspace Test - 1 ×	
<i>₽</i> − <i>▶</i> =		Available Tests	Test - 1
? Test - 1			Na series
		Transient Test	
		Thansient toad step with adjustable rise times, current, and purse with	
		Pulse Train	
		Repeating load steps with a configurable frequency and duty cycle.	
		Impedance (Z)	
		Large signal output impedance with adjustable current amplitude an	10 0113ct.
		DC Load	
		DC Load with timer.	

#### 2.1.1 TRANSIENT

Transient mode is the most basic mode of operation. In this mode, the main goal is to understand the step response of the DUT. A load transient is applied to the DUT to determine the output voltage response. Some of the primary measurements are the Drop and Liftoff amplitudes, and the recovery time of the regulator. Additionally, the load line can be calculated, and the recovery response gives an indication of phase margin.





#### 2.1.2 PULSE TRAIN

Pulse Train mode is very similar to the transient mode. The main difference is the current step from the transient pulse is modulated with a square wave to give a specific frequency and duty cycle. This allows for the frequency and duty cycle to be swept over a range to generate a 3D graph or frequency alone to look for resonant peaks.





By clicking the button with three arrows located to the left of the Configure button, the user will be able to open a 3D plot of the results. This allows the user to find weaknesses based on frequency in the build easily.



#### 2.1.3 IMPEDANCE

Impedance mode applies a sinusoidal current load transient and measures voltage ripple to determine the large signal impedance.

There are several ways to interpret this data. One way is to look at the amplitude response of the voltage over frequency. Complementary, analyzing the spectral content at each applied frequency can inform on where the non-linarites of the system are located.





#### 2.1.4 DC LOAD

#### The DC Load applies a constant load with desired amplitude and on time.



#### 2.1.5 VENDER SPECIFIC

Vender specific tests are available upon request. Contact us at <a href="mailto:support@loadslammer.com">support@loadslammer.com</a>.



## 2.2 CONFIGURING TESTS

Now that the test is created, it needs to be configured. For example, how much current and the rise time. The graph will show a preview based on the selected settings, and either a live or historical view of sampled data. The tabs in the test window allow configuration, creating measurements, and review of results with Pass/Fail graphics. Some parameters can be swept to collect a set of data to be analyzed. The LoadSlammerTM Pro GUI provides multiple features that allows the user to easily modify the tests listed within the Tests panel. By right clicking any test in the panel, a drop-down menu will open that allows the user to quickly adjust the tests within the panel. If multiple tests have been created, these tests can be ran sequentially by pressing the green play button. When configuring a test, the LoadSlammerTM Pro GUI will automatically set the range so that the user cannot surpass the minimum or maximum values listed for that device.



## 2.3 REVIEWING TEST DATA

After running a test, or multiple tests by pressing the green play button under tests, the user can find the Results tab within each test tab. The Results tab allows the user to view the setting used for that test on the right, and the output associated with it on the right. The output of each line has a Pass/Fail graphic to let the user know how the test went. The VRM that was set within the Workspace sets the Max and Min bars used when graphing results.





## 2.4 SAVING DATA AND TESTS

The workspace can be saved to recall previous tests configurations and results. This can be done by selecting the File menu in the top left of the window and selecting either Save or Save As from the dropdown menu, or by clicking on either Save or Save As on the toolbar.

Tests	푸	Workspace	Test -	Te	est - 2	Test - 3	Test	-4 ×					
		6 V 3 V											Current Voltage
P Test - 2 Test - 3		0 s	100 µs	200 µs	300 µs	400 µs	500 µs	600 µs	700 µs	800 µs	900 µs	1 ms	Previev
Test - 4		3 A											

Results from a test can be exported by right clicking the result you desire to export and selecting Export from the drop-down menu. The data results are placed into a CSV file to be used with Excel.

## 2.5 RECALLING DATA AND TESTS

To open saved workspaces, simply click on the File menu and select Open from the drop-down menu or by clicking on the Open button from the toolbar. Then select the workspace that you wish to open from the browser window that opens.



Once the workspace has been loaded into the LoadSlammerTM Pro GUI, the tests that were saved with that workspace can now be found under the test panel. To recall previous results from a test, double click the test you wish to open.

Tests #	Workspace	Vccint					
=	Wor	kspace VRM	l Settings				
Vccint	Main						
	VRM Settings						
	Power Limit	0 w	-				
		Minimum	Nominal	Maximum			
	Voltage	820 mV	850 mV	880 mV	Í		

# 2.6 IMPORTING XPE FILES AND CREATING XILINX SPECIFIC TESTS

After clicking the File menu from the toolbar, one of the features available from the drop-down menu is the Import feature. This allows the user to import Xilinx Power Estimator, or \*.xpe, files into the LoadSlammerTM Pro GUI. These files define the power of the Xilinx and creates a test using the imported settings. Multiple tests can be selected within the window, provided the selected tests all have the same voltage.

	Name		Voltage	Dynamic	Static	Total	PowerUp
	~	Vccint	850 mV	44.8 A	36.9 A	81.7 A	0 A 0
	~	Vccint_io	850 mV	2.71 A	852 mA	3.56 A	6.4 A
	~	Vccbram	850 mV	17 mA	365 mA	382 mA	1.09 A
		Vccaux	1.8 V	608 mA	2.09 A	2.7 A	5.23 A
		Vccaux_io	1.8 V	1.31 A	286 mA	1.59 A	0 A
		Vcco18	1.8 V	2.23 A	1 mA	2.23 A	0 A
		Vcco12	1.2 V	1.03 A	1 mA	1.03 A	0 A
		MGTYVccaux	1.8 V	280 mA	10 mA	290 mA	0 A
		MGTYAVcc	900 mV	4.34 A	501 mA	4.84 A	0 A
		MGTYAVtt	1.2 V	9.68 A	117 mA	9.8 A	0 A
		Vccadc	1.8 V	0 A	32 mA	32 mA	0 A
Rail	- Vcci	nt				Req	uires PowerUp pulse
olta	ige: 85	0 mV					Static Current: 38.1 A
olta	ige To	lerance: 3 %					Dynamic Current: 47

# 3 PARALLEL TESTING (LSP1000/1000RS ONLY)

The LoadSlammer<sup>™</sup> Pro 1000/1000RS supports the ability to parallel multiple devices to support very high current requirements. To enable the parallel mode, all devices need to be connected to the parallel cable and the devices must have their power plugged in. Only once device needs a USB data connection; This device is referred to as the 'master'. Any device in the chain can be the master device.

Operation of the LoadSlammer in parallel is the same as a single device. The slave devices simply 'mirror' the current in the master device. The minimum and maximum values on the LoadSlammer<sup>™</sup> GUI will be the minimum and maximum of the device multiplied by the number of devices connected automatically.

If you take external measurements with the sense outputs, the current sense output will only take readings from the device it is connected to. Measure the output of a single device and multiply the conversion factor by the number of devices in parallel.

While all devices will produce the same load response, only the master will sample the voltage and current to be transmitted up to the PC. Select the device closest to the point of interest to use as the master to get the best results. Currently a maximum of 3 devices can be used in parallel.





# **4 UPDATING THE GUI**

The LoadSlammer<sup>™</sup> Pro GUI can be updated by running the installer that was downloaded from the website. When running the installer again, the program will download the most recent version of the program during install.

## **5 SUPPORT**

For all other questions, please contact us at <a href="mailto:support@loadslammer.com">support@loadslammer.com</a>.

# **6 CHANGE HISTORY**

Revision Number	Date	Reason for change
0.1	December 2, 2020	Initial Release

