SLS USB Mass Storage Solution
Using SD Card
Quick Start Guide

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About this Guide

Introduction

This document describes the steps for evaluating reference design of SLS USB Mass Storage Solution Using SD Card.

Table below shows the revision history of this document.

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.1</td>
<td>June 2015</td>
<td>Updated steps and figures for USB Mass Storage reference design</td>
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<tr>
<td>1.0</td>
<td>April 2015</td>
<td>First release</td>
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How to Contact SLS

For the most up-to-date information about SLS products, go to the SLS worldwide website at http://www.slscorp.com. For additional information about SLS products, consult the source shown below.

<table>
<thead>
<tr>
<th>Information Type</th>
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<tr>
<td>Product literature services, SLS literature services, Non-technical customer services, Technical support.</td>
<td><a href="mailto:support@slscorp.com">support@slscorp.com</a></td>
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## Typographic Conventions

The document uses the typographic conventions shown as below.

<table>
<thead>
<tr>
<th>Visual Cue</th>
<th>Meaning</th>
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<tbody>
<tr>
<td><strong>Bold Type with Initial Capital Letters</strong></td>
<td>All Headings and Sub Headings Titles in a document are displayed in bold type with initial capital letters; Example: Introduction</td>
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<tr>
<td><strong>Bold Type with Italic Letters</strong></td>
<td>All Definitions, Figure and Table Headings are displayed in Italics. Examples: <strong>Figure 1. USB Mass Storage using SD Card</strong></td>
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<td><strong>1. 2.</strong></td>
<td>Numbered steps are used in a list of items, when the sequence of items is important. such as steps listed in procedure.</td>
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<tr>
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<td>Bullets are used in a list of items when the sequence of items is not important.</td>
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<td><img src="hand.png" alt="Hand Pointing" /></td>
<td>The hand points to information that requires special attention.</td>
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<tr>
<td><img src="caution.png" alt="Caution" /></td>
<td>The caution indicates required information that needs special consideration and understanding and should be read prior to starting or continuing with the procedure or process.</td>
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<tr>
<td><img src="warning.png" alt="Warning" /></td>
<td>The warning indicates information that should be read prior to starting or continuing the procedure or processes.</td>
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<td><img src="feet.png" alt="Feet" /></td>
<td>The feet direct you to more information on a particular topic.</td>
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This document explains about USB Mass Storage solution using SD Card and step for evaluating the reference design.

Hardware Requirements for evaluating the reference design:

- Altera MAX 10 FPGA Evaluation Kit
- SLS MAX 10 Evaluation Kit Add On board
- USB Mini Cable
- USB Blaster

Please contact us for evaluation License regarding SLS IP Cores.

Below section describes the details of USB Mass Storage using SD Card.

USB Mass Storage using SD Card

Aim of this bridge is to provide the external USB Mass storage device. The MAX10 Evaluation Kit Add On Board is having a SD Card interface to implement the mass storage bridge. As shown in Figure 1., this design uses SLS USB 2.0 Device IP Core and SLS SD Host Controller IP Core to implement the USB mass storage solution. On successfully enumeration of the device, it appears as a new drive in the Host machine. This allows to read/write the data to/from the SD card using the USB interface.

![Figure 1. USB Mass Storage using SD Card Architecture](image-url)
Follow the steps to evaluate the reference design.

1. Connect the MAX 10 Evaluation Kit Add On Board on MAX 10 Evaluation Kit.
2. Connect the USB Blaster to the board.
3. Plug the SD card in SD connector CON2.
4. Power ON the board.
5. Go to <MAX10 EV Kit AOB Installation Path>/hardware/demo/usb_mass_storage_sd_max10ev folder.
6. Double click on usb_mass_storage_sd_max10ev.bat file. This will program SOF file on the board. You will see the message as shown in Figure 2.

Figure 2. Console Message Window for USB Mass Storage

After successful download, connect the USB 2.0 mini cable at connector CON1 of the MAX10 EV AO board.

7. This will enumerate the USB device as a mass storage device in the Host machine.
9. Once formatted, you will be able to read/write the files in the SD card.