IP Module – SD/SDIO/MMC Host Controller.

Overview:
iW-SD Controller interfaces SD/MMC/SDIO card to any processor with a generic interface. The interface towards the SD card is realized by the SD protocol implemented in the controller.

Features:
- Compliant with SD Physical Layer Specification Version 2.0.
- Compliant with SDIO Specification 2.0.
- Compliant with eMMC Specification Version 4.41.
- Supports 1-bit, 4-bit SD/eMMC modes and 8-bit eMMC modes.
- Supports SD Card Detection input pin.
- Supports SD Card Write Protection input pin.
- Supports programmable clock frequency generation to the SD/eMMC card.
- Supports Interrupt and ADMA2 transfer mode of operation.
- Individual 2Kbyte data buffer for read and write.
- Cyclic Redundancy Check (CRC) for command and data.
- Supports timeout monitoring for response, data, CRC token & busy.
- Supports a maximum block length of 2K-byte.
- Supports both single block and multi block data transfer.
- Supports power ON/OFF control to SD/eMMC card.
- Compliant with SDIO specification version 2.0, SD specification version 2.0, MMC.
specification version 4.41.

- Controller provides simple slave interface for control & status access and master interface for DMA data transfer.

Target Applications:
- Handheld devices and consumer electronics.
- SOC Integration with processor, where the processor in the platform doesn’t support SD/SDIO/MMC interface.

Resource Utilization:

<table>
<thead>
<tr>
<th>Family</th>
<th>Device</th>
<th>Speed Grade</th>
<th>LUT¹</th>
<th>DFF²</th>
<th>RAM</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmartFusion2</td>
<td>M2S050</td>
<td>-1</td>
<td>1532</td>
<td>1313</td>
<td>2</td>
<td>149.1</td>
</tr>
<tr>
<td>Igloo2</td>
<td>M2GL060T</td>
<td>-1</td>
<td>1532</td>
<td>1313</td>
<td>2</td>
<td>149.1</td>
</tr>
</tbody>
</table>

Deliverables:
- Design Document
- Verilog RTL or Netlist Source code
- Test Bench
- IP User Guide

Licensing:
1. Single Product Licensing - The single product license is valid for only one type of product, you cannot use the license for different product, but you can have the production of the same product. (Non-transferable and resell of the IP is not allowed)
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3. Netlist Version - The Netlist version is the time limited evaluation version available with us using that you can evaluate before coming up the actual hardware.

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¹ 4-input LUT (Look Up Table)
² D Flip Flops