**SD CARD INTERFACE USING FPGA FOR MULTIMEDIA APPLICATIONS**

**A PROJECT REPORT**

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****

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**ABSTRACT**

Based on FPGA (Field Programming Gate Array) chips, this application is used for audio, video and image processing. At the same time, applications require more memory in addition to on-chip memory to resolve additional data. Onboard memory can be used to meet the requirements of FPGA systems but cannot be expanded by adding just a few cards. More convenient is SD card (Secure Digitals) is a microcontroller which can read and write to SD card. The main goal is to provide a storage solution for FPGA, a low-cost, removable, non-volatile, flash memory, portable and easy-to-use storage solution for FPGA for storing large files. The hardware design is done in Verilog HDL language and implemented in FPGA. All data access from the SD card is through Verilog, eliminating the need for an on-chip microcontroller or general-purpose processor. Spartan 6 (XC6SLX9-3csg324) FPGA is used. The FPGA runs on 5V power supply with a built-in oscillator frequency of 100 MHz. 4GB micro SDHC card (class 6) from Strontium is used in this particular project. FAT32 is formatted by SD card. The ultimate aim of this project is to read a BMP image file from the SD card. FAT32 is formatted by SD card before interfacing. The code for the FAT32 is written to interface the SD card.

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**LIST OF SYMBOLS AND ABBREIVATIONS**

|  |  |  |
| --- | --- | --- |
| LUT | - | Look Up Table |
| SD | - | Secure Digitals |
| CLK | - | Clock |
| CMD | - | Command |
| FIFO | - | First In First Out |
| SPI | - | Serial Peripheral Interface |
| I2C | - | Inter-Integrated Circuit |
| UART | - | Universal Asynchronous Receiver-Transmitter |
| USB | - | Universal Serial Bus |
| WI-FI | - | Wireless Fidelity |
| DDR | - | Double Data Rate |
| VGA | - | Video Graphics Array |
| CPU | - | Central Processing Unit |
| PCB | - | Printed Circuit Board |
| OTP | - | One Time Programmable |
| DSP - | | Digital Signal Processing |