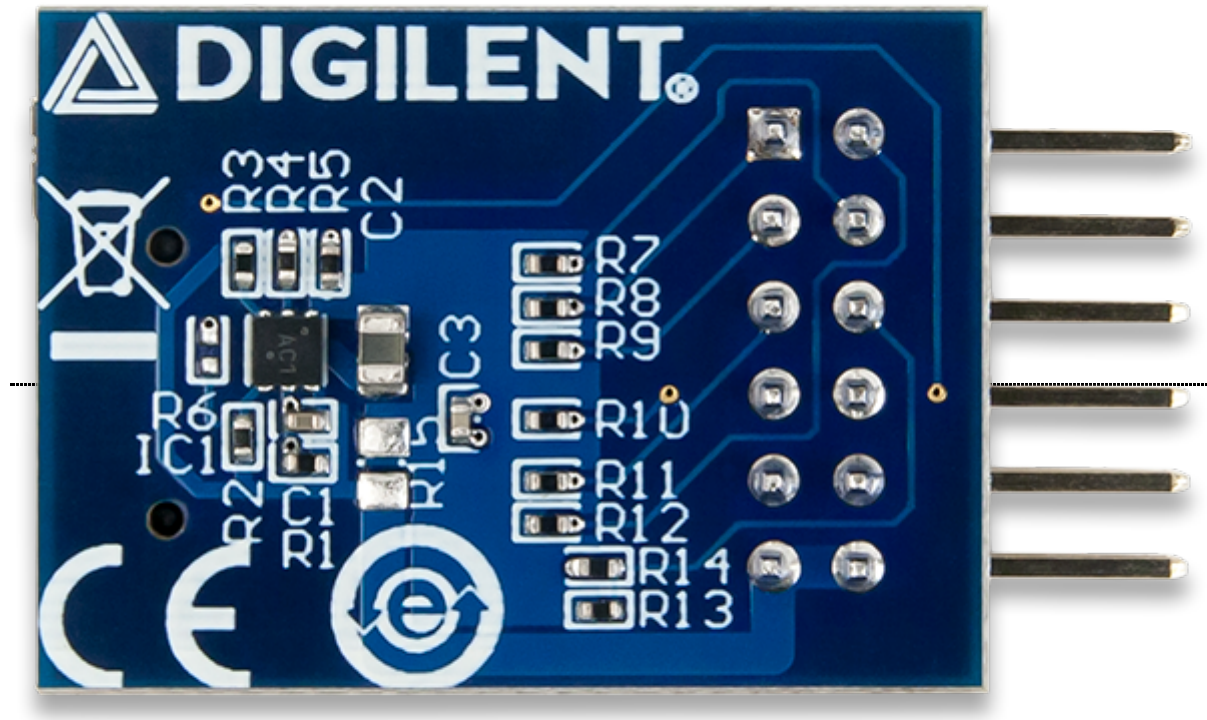
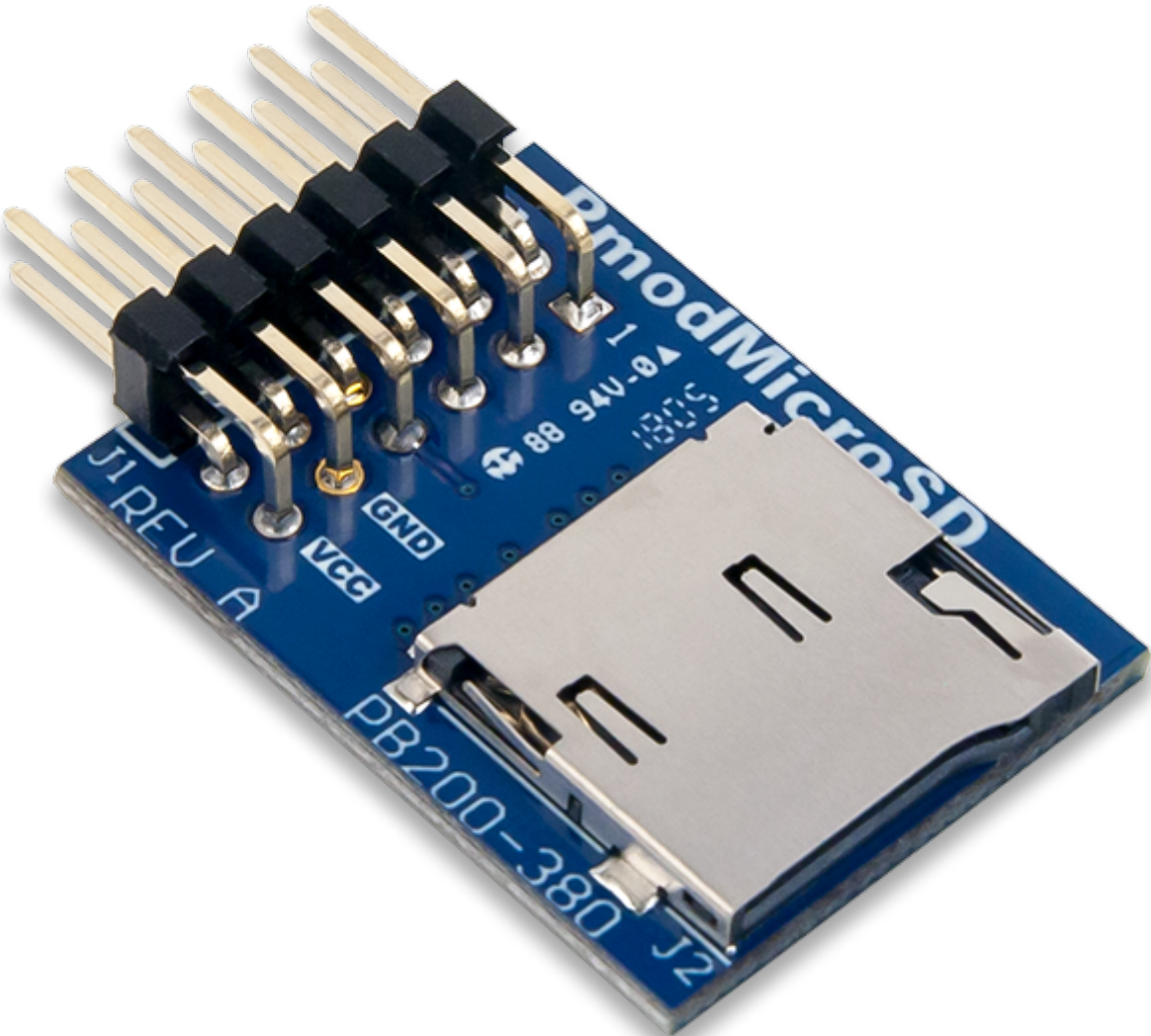


Pmod MicroSD Reference Manual

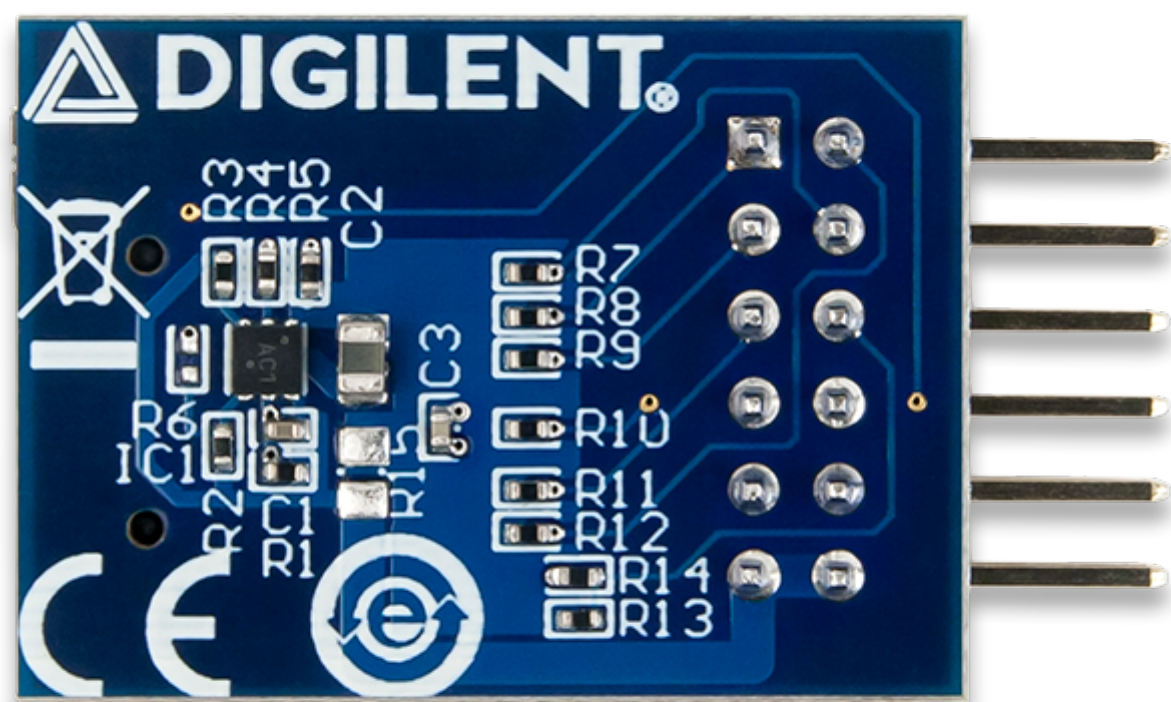
The Digilent Pmod MicroSD (Revision A) allows system boards to read from and write to microSD cards. With no limitation on the file system or memory size of the microSD card, users will be able to store and access large amounts of data from their system board.

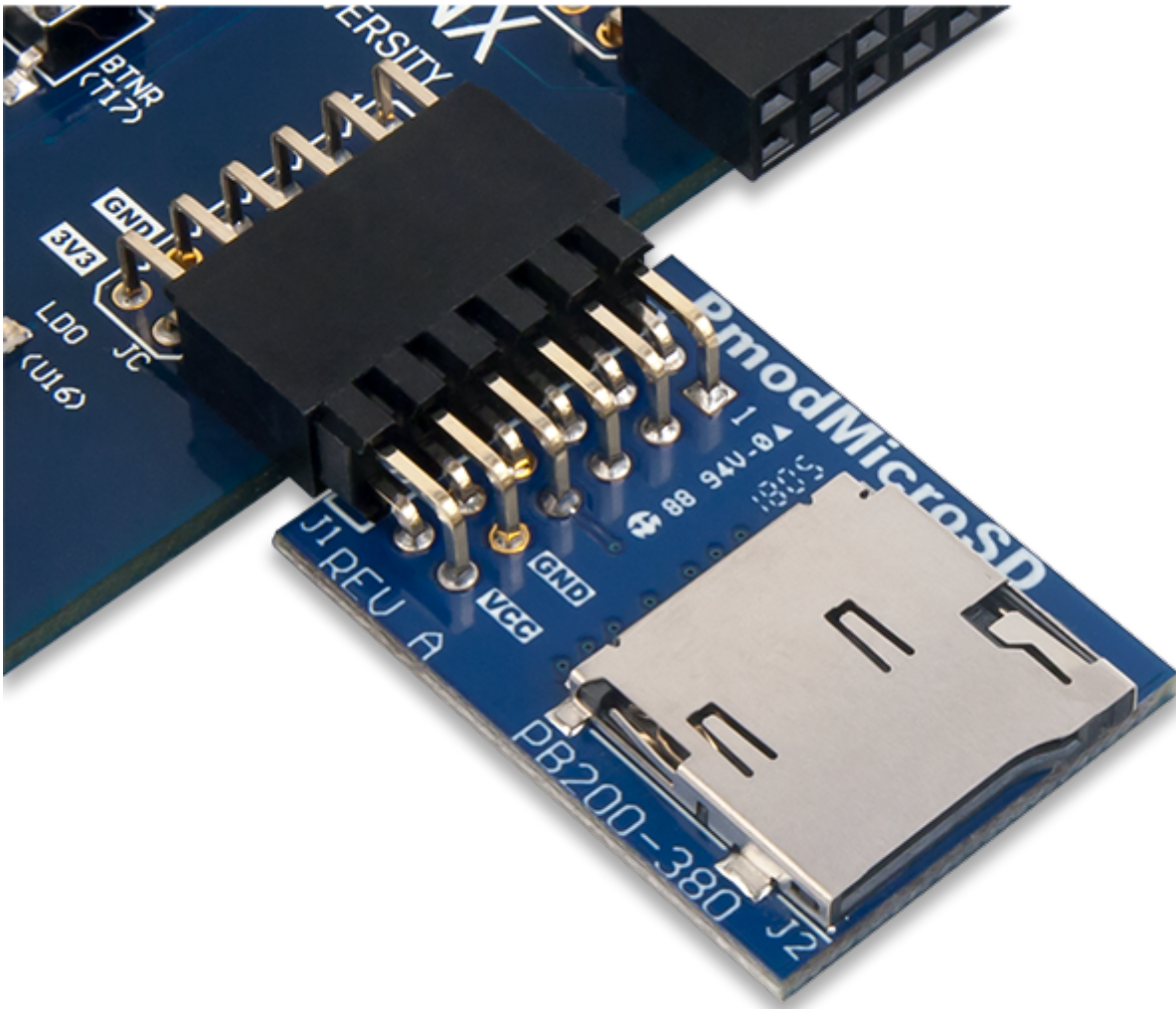


(https://digilent.com/reference/_media/reference/pmod/pmodmicrosd/pmodmicrosd-bottom.png)









Features

- MicroSD card slot
- Store and access large amounts of data from your system board
- No limitation on file system or memory size of microSD card used
- 1-bit and 4-bit communication
- 12-pin Pmod port with SPI interface

Functional Description


The Pmod MicroSD is a great way to store and access information on a device that can then be accessed by outside devices such as a phone or computer.

Interfacing with the Pmod

The Pmod MicroSD is designed to communicate with the host board primarily through the SPI protocol (https://digilent.com/reference/pmod/communication_protocols/spi). By default, the microSD card itself is defined to boot up in SD mode, but will enter into SPI mode when the Chip Select line is pulled low. The actual technique of writing to and reading from specific locations on an microSD goes beyond the scope of this document, but the complexity of the process is nicely abstracted away within the chipKIT SD library and Digilent PmodSD() IP Core.

A pinout description table for the 2×6 pin header on the Pmod MicroSD can be found below:


Connector J1- Pin Descriptions					
Pin	Signal	Description	Pin	Signal	Description
1	<u>\simCS()</u>	Chip Select / Data3	7	DAT1	Data 1
2	<u>MOSI()</u>	<u>MOSI()</u> / Command	8	DAT2	Data 2
3	<u>MISO()</u>	<u>MISO()</u> / Data0	9	CD	Card Detect
4	SCK	Serial Clock	10	<u>NC()</u>	<i>Not Connected</i>
5	<u>GND()</u>	Power Supply Ground	11	<u>GND()</u>	Power Supply Ground
6	<u>VCC()</u>	Power Supply (3.3V)	12	<u>VCC()</u>	Power Supply (3.3V)


Any external power applied to the Pmod MicroSD must be within the specifications of the inserted microSD card. As determined by the  SD card association (<https://www.sdcard.org/developers/overview/capacity/>), this voltage range must be within 2.7 to 3.6 volts. The 3.3 operating voltage on Digilent system boards nicely complies with this standard.

Physical Dimensions


The pins on the pin header are spaced 100 mil apart. The PCB is 1.8 inches long on the sides parallel to the pins on the pin header and 1.8 inches long on the sides perpendicular to the pin header.

Additional Information

The schematics of the Pmod MicroSD are available [here](https://digilent.com/reference/pmod/pmodmicrosd/schematic) (<https://digilent.com/reference/pmod/pmodmicrosd/schematic>). Additional information about the standard SD protocol can be found from the SD Card Association here in the  Physical Layer Simplified Specification (Version 4.0) (<https://www.sdcard.org/downloads/pls/>)

The open source  Arduino IDE (<https://www.arduino.cc/en/Main/Software>) software comes pre-loaded with an SD library that can be used to interface the Pmod MicroSD with microcontroller boards.

Digilent's library of Vivado IPs contains the PmodSD() IP core, which can be used to interface the Pmod MicroSD with a baremetal Zynq or Microblaze processor. A tutorial for how to do this can be found [here](https://digilent.com/reference/learn/programmable-logic/tutorials/pmod-ips/start) (<https://digilent.com/reference/learn/programmable-logic/tutorials/pmod-ips/start>).

If you have any questions or comments about the Pmod MicroSD, feel free to post them under the appropriate section (“Add-on Boards”) of the  Digilent Forum (<https://forum.digilentinc.com/>).

[rm](https://digilent.com/reference/tag/rm?do=showtag&tag=rm) (<https://digilent.com/reference/tag/rm?do=showtag&tag=rm>), [doc](https://digilent.com/reference/tag/doc?do=showtag&tag=doc) (<https://digilent.com/reference/tag/doc?do=showtag&tag=doc>), [pmodmicrosd](https://digilent.com/reference/tag/pmodmicrosd?do=showtag&tag=pmodmicrosd) (<https://digilent.com/reference/tag/pmodmicrosd?do=showtag&tag=pmodmicrosd>)

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