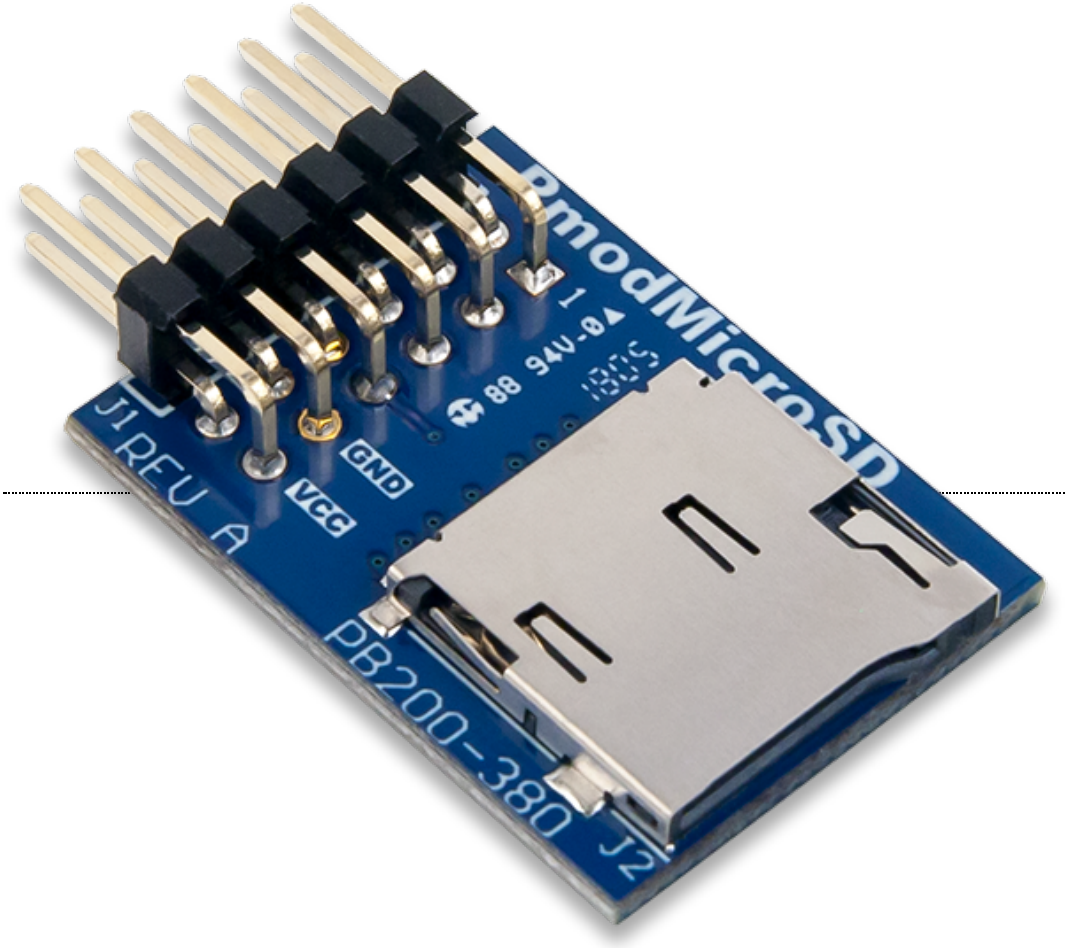
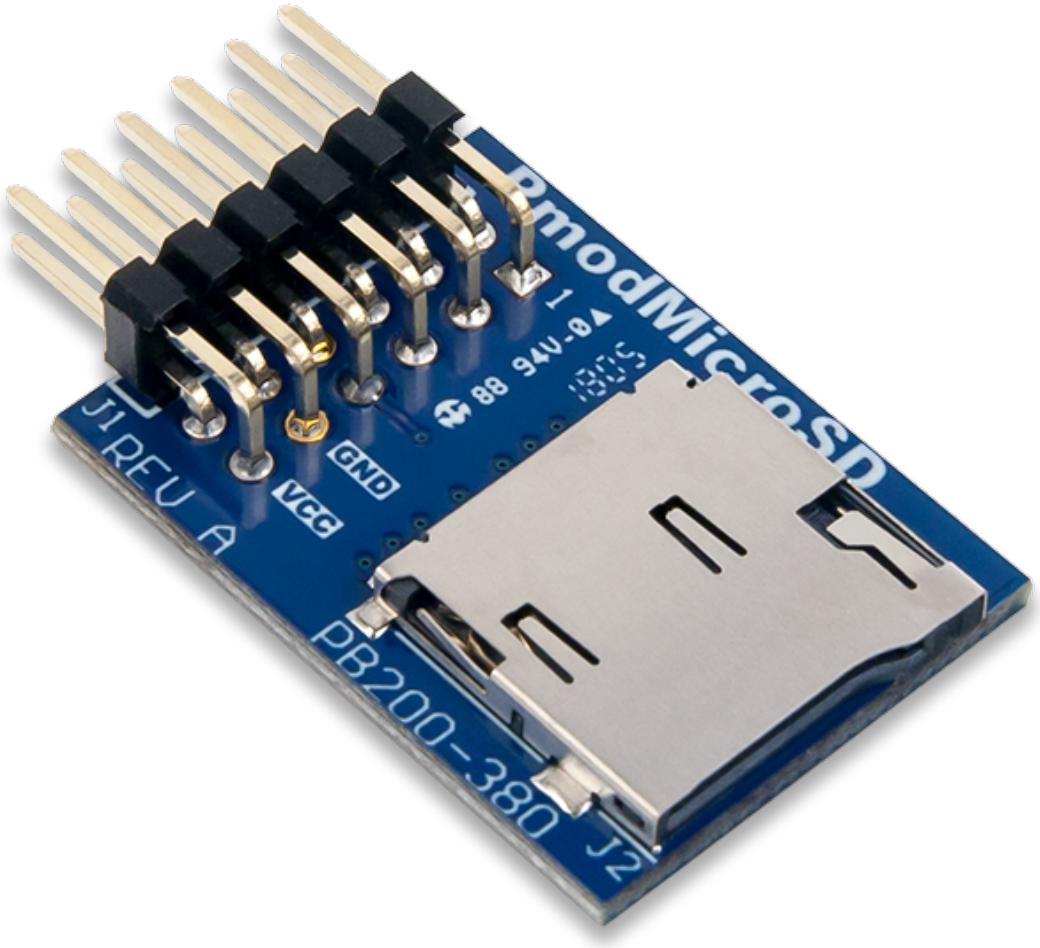
Pmod MicroSD Reference Manual

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://reference.digilentinc.com/_media/reference/pmod/pmodmicrosd/pmodmicrosd-oblique.png)


PmodMicroSD
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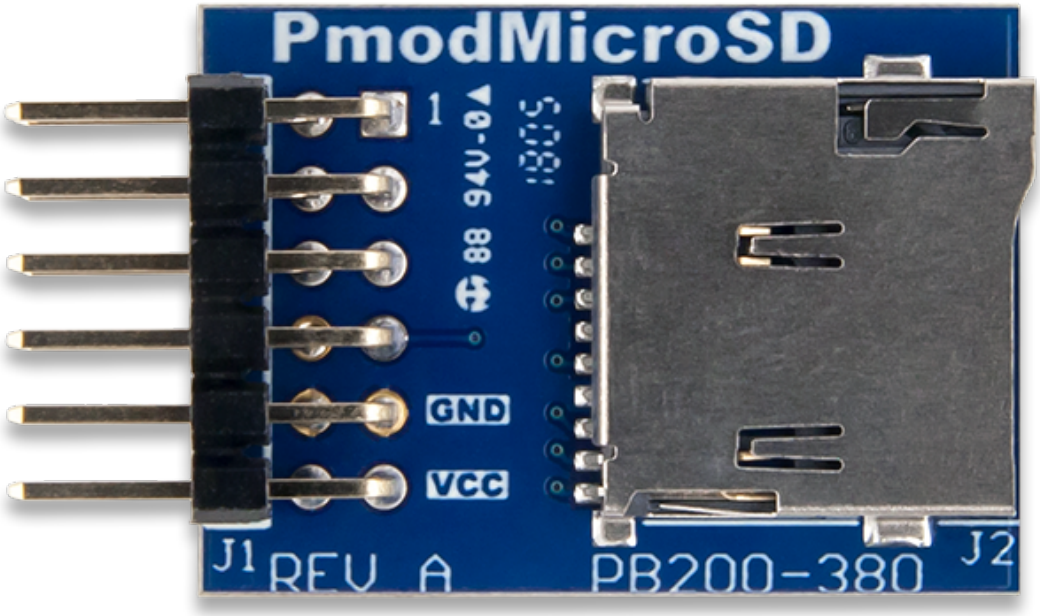
REV A
GND
VCC
PB200-380
J2


PmodMicroSD
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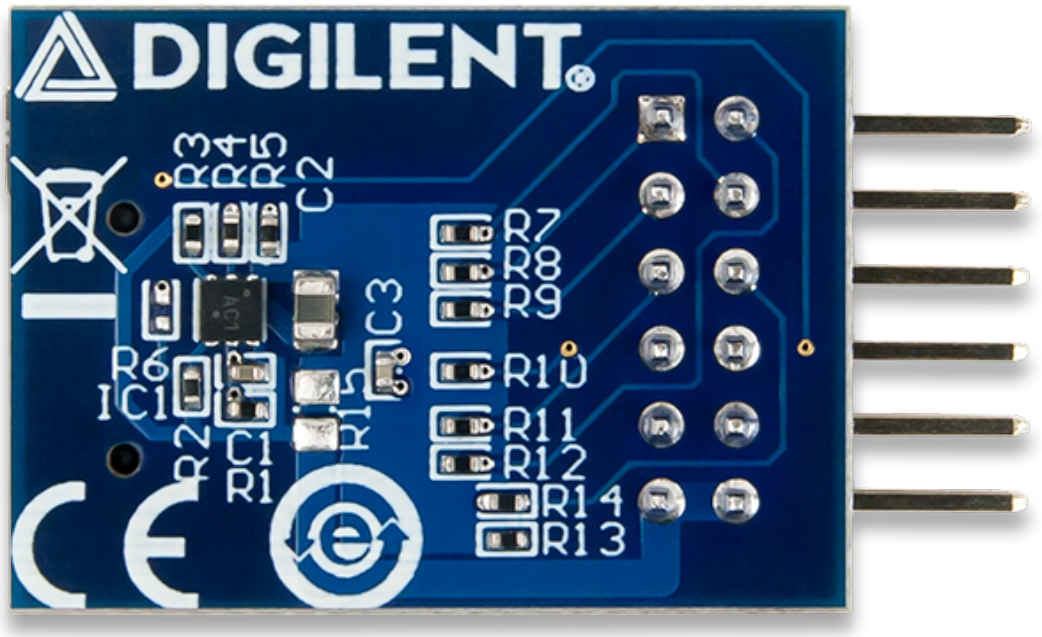
GND
VCC
J1
REV A
PB200-380
J2


DIGILENT
R3
R4
R5
C2
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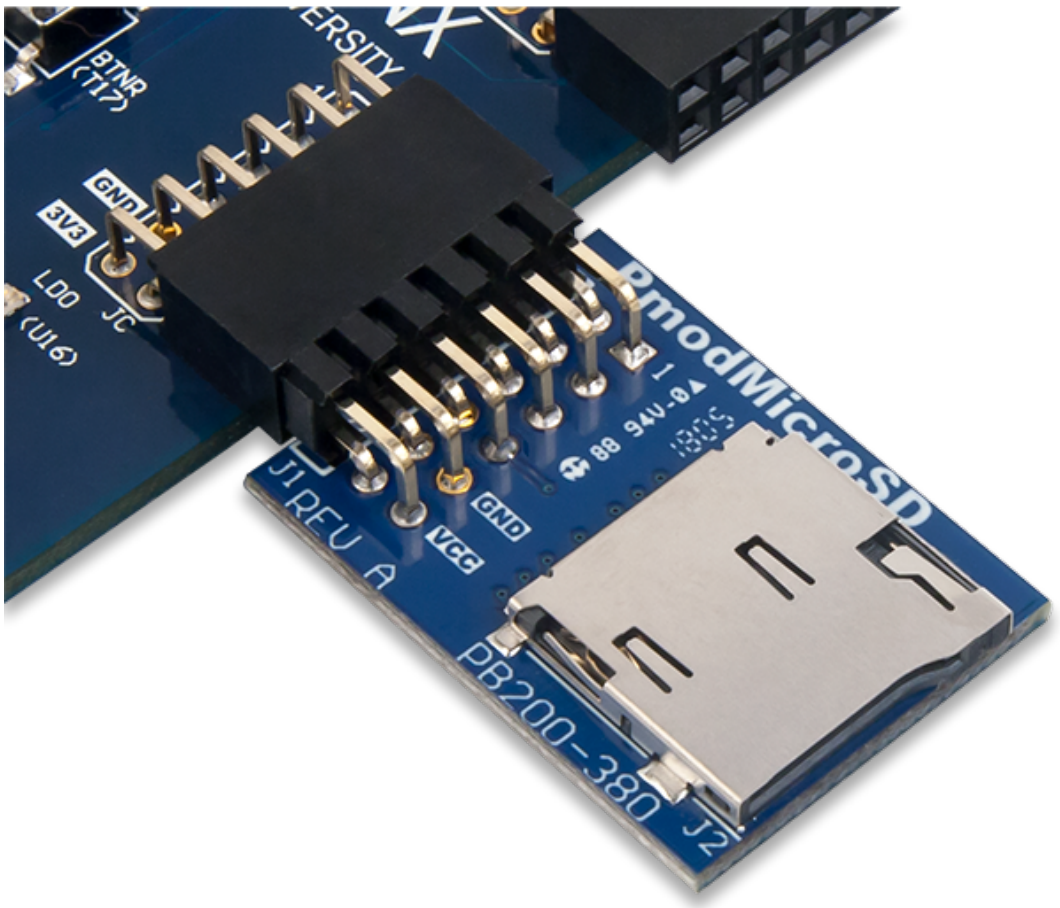
R6
IC1
R10
R11
R12
R14
R13
R2
C1
R1



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://reference.digilentinc.com/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	~CS ()	Chip Select / Data3	7	DAT1	Data 1

2	MOSI ()	MOSI () / Command	8	DAT2	Data 2
3	MISO ()	MISO () / Data0	9	CD	Card Detect
4	SCK	Serial Clock	10	NC ()	*Not Connected*
5	GND ()	Power Supply Ground	11	GND ()	Power Supply Ground
6	VCC ()	Power Supply (3.3V)	12	VCC ()	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://reference.digilentinc.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://reference.digilentinc.com/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://reference.digilentinc.com/tag/rm?do=showtag&tag=rm), doc (https://reference.digilentinc.com/tag/doc?do=showtag&tag=doc), pmodmicrosd (https://reference.digilentinc.com/tag/pmodmicrosd?do=showtag&tag=pmodmicrosd)

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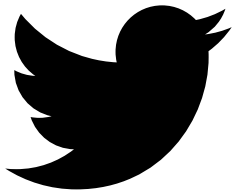
-  (https://twitter.com/digilentinc)
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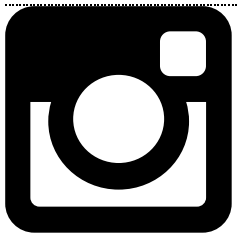
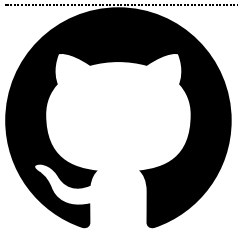
-  (https://instagram.com/digilentinc)
-  (https://github.com/digilent)
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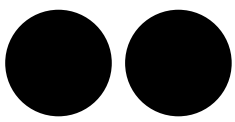
-  (https://www.flickr.com/photos/127815101@N07)