

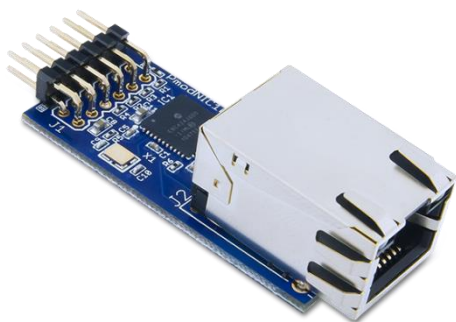
## PmodNIC100™ Reference Manual

Revised May 26, 2016

This manual applies to the PmodNIC100 rev. B

### Overview

The Digilent PmodNIC100 is a standalone Ethernet Controller to provide Ethernet functionality to any system board.



*The PmodNIC100.*

Features include:

- IEEE 802.3 compatible Ethernet controller
- 10/100 Mb/s data rates
- MAC and PHY support
- 10BASE-T support and 100Base-TX support
- Small PCB size for flexible designs 1.8" × 0.8" (4.6 cm × 2.0 cm)
- 12-pin Pmod connector with SPI interface
- Follows [Digilent Pmod Interface Specification](#) Type 2A

## 1 Functional Description

The PmodNIC100 utilizes Microchip's [ENC424J600 Stand-Alone 10/100 Ethernet Controller](#). By providing both MAC and PHY support, Ethernet functionality at data rates up to 10 Mbit/s is achievable for any system board.

## 2 Interfacing with the Pmod

The PmodNIC100 communicates with the host board via the SPI protocol. By leaving the Interrupt/SPI Select (INT/SPISEL) pin floating or at a logic level high voltage within the first 1 to 10  $\mu$ s, the SPI mode is enabled. Users may then bring the Chip Select (CS) line to a logic low voltage state to initiate communication with the Ethernet Controller.

Note that this Pmod only provides the hardware at the physical layer (PHY) and the media access control (MAC) for a network interface. Users must provide their own protocol stack software (such as TCP/IP). Digilent provides a set of libraries providing Ethernet support that is available for download on the PmodNIC100 product page.

## 2.1 Pinout Description Table

| Pin | Signal      | Description                 |
|-----|-------------|-----------------------------|
| 1   | CS          | Chip Select                 |
| 2   | MOSI        | Master-Out-Slave-In         |
| 3   | MISO        | Master-In-Slave-Out         |
| 4   | SCLK        | Serial Clock                |
| 5   | GND         | Power Supply Ground         |
| 6   | VCC         | Power Supply (3.3V)         |
| 7   | ~INT/SPISEL | Interrupt Signal/SPI Enable |
| 8   | NC          | Not Connected               |
| 9   | NC          | Not Connected               |
| 10  | NC          | Not Connected               |
| 11  | GND         | Power Supply Ground         |
| 12  | VCC         | Power Supply (3.3V)         |

Table 1. Header J1 pinouts on the PmodNIC100.

Any external power applied to the PmodNIC100 must be within 3V and 3.6V; however, it is strongly recommended that the Pmod is operated at 3.3V.

## 3 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 (2.05 inches long including the Ethernet port) and 0.8 inches long on the sides perpendicular to the pin header.