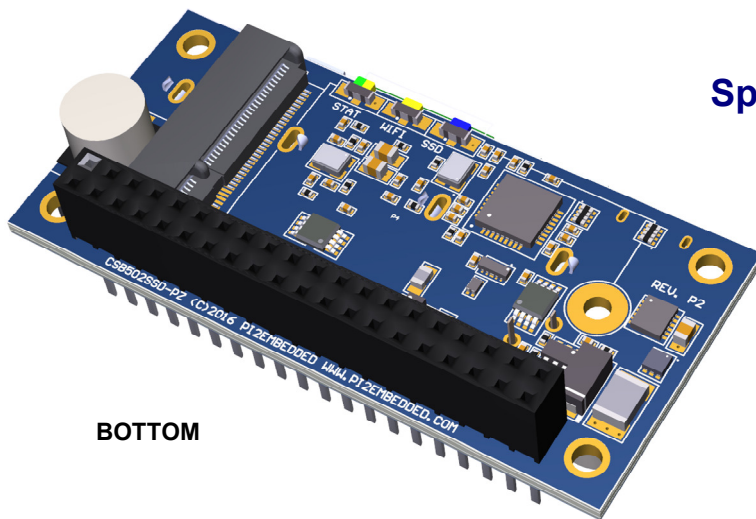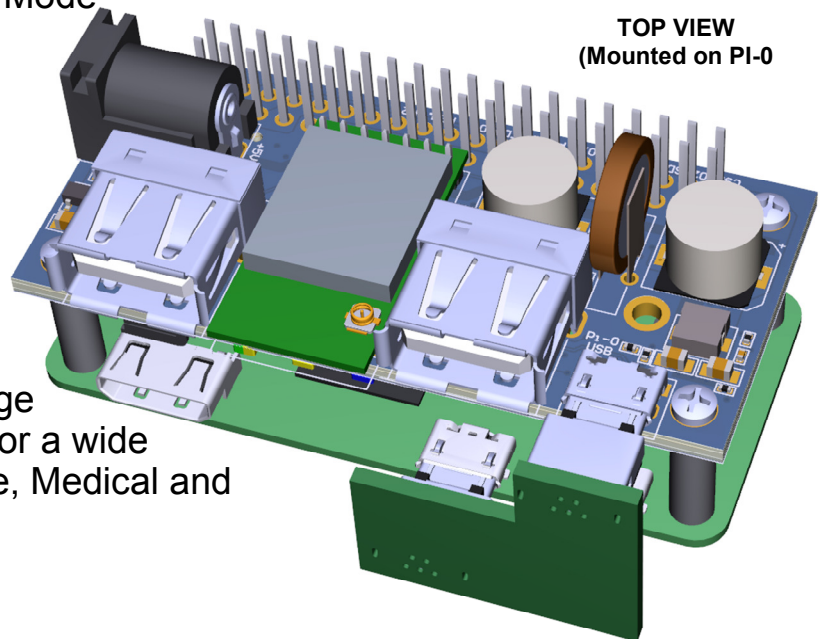# CSB502SSD-PZ Raspberry Pi Zero Shield

Introduction and Overview

The CSB502SSD-PZ, designed and manufactured by Pi2Embedded (a division of PI 2 Design), is a professional I/O Shield designed for the ultra low cost Raspberry PI Zero (RPi 0) computer. This shield converts the RPi 0 USB Host Port to a high capacity M.2 NGFF SSD (up to 256GB), Dual USB 2.0 Host Ports, 802.11b/g/n WiFi w/Soft-AP Mode Support, and Battery Backed RTC.
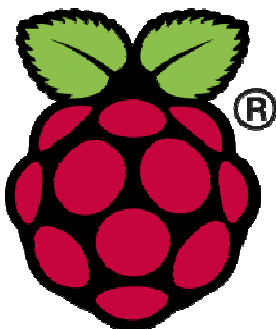
Coupled with the compact, low power Raspberry Pi Zero with 1Ghz ARM11, 512MB Memory, and removable Micro SD-Card, the CSB502SSD-PZ creates a very low cost, embedded network storage device. This powerful combination enables you to leverage the vast Raspberry Pi Ecosystem for a wide variety of Embedded, Data Storage, Medical and Industrial applications.
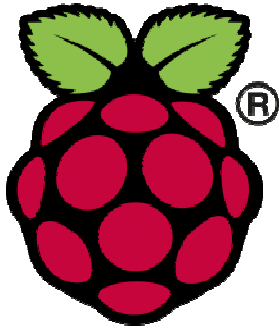
TOP VIEW
(Mounted on PI-0

BOTTOM

Specifications and Features

- **FORM FACTOR –** Reduced Size 65mm x 30mm Raspberry Pi Zero I/O Shield with 40-Pin mating connector.
- **USB PORTS –** Two USB2.0 Type A (5V @ 500ma power) for additional USB expansion.
- **SSD –** PL2571 Controller and M.2 NGFF 2242 Socket for up to 256GByte on-board Storage.
- **WiFi –** GWF-3M08 Module (Based on Ralink RT5370) provides 802.11b/g/n for up to 150Mbps. On-Module IPEX connector allows for optimal antenna placement.
- **RTC WITH BATTERY** – DS1339 Real Time Clock with 12mm Rechargeable Coin Cell.
- **TEMP SENSOR** – 1-Wire DS18B20 Temperature Sensor mounted below SSD to monitor health of drive. Additionally the DS18B20 has a unique 64-Bit ID that can be used to identify the shield for advanced Asset Management.

Pi 2 Design

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CSB502SSD-PZ BLOCK DIAGRAM

Block diagram components:
- 5V @ 4A Power Brick
- 2.5MM DC Jack
- Backpower Protection Circuit
- 3V @ 3A Switching Supply
- 5V @ 500ma Power Switch x 2
- Raspberry Pi 0
  - USB MICRO-B
  - Mini-HDMI
  - 40-Pin Expansion Header (+5V, GPIO, I2C, GPIO)
- Micro USB-B to Micro USB-B Patch Cable
- USB MICRO-B
- 40-Pin Socket
- USB2514 HUB (UPSTREAM PORT, HOST PORT 1, HOST PORT 2, HOST PORT 3, HOST PORT 4)
- PL2571 SATA Controller (USB Port, SATA Port)
- M.2 NGFF 2242 Socket 32GB to 256GB
- 1-Wire DS18B20 Temp. Sensor w/64-Bit ID
- USB Type-A
- USB Type-A
- OGEMRAY GWF-3M08 802.11b/g/n
- IPEX (U.FL) Antenna Jack
- Bi-Color Status LED
- DS1339 Real Time Clock