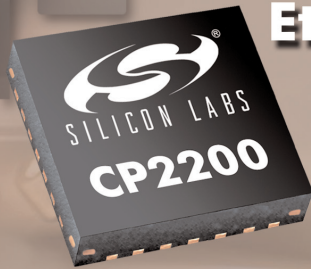
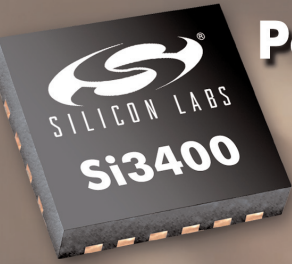


# Embedded Ethernet Solutions

HIGHLY-INTEGRATED, GLOBALLY-COMPLIANT

## Power over Ethernet PD Controller



## Ethernet Controller

### FEATURES

#### PoE Powered Device Controller

- Complete power management solution
- Integrated diode bridges; transient surge suppressor
- Switching regulator with integrated driver FET
- Comprehensive protection including UVLO, thermal overload, foldback current limiting, and programmable soft start
- IEEE 802.3af PD interface with hot swap switch
- Support for non-isolated and isolated supply designs
- Pb-free 5 x 5 mm 20-pin QFN package

#### Ethernet Controller

- Integrated IEEE 802.3 MAC; 10BASE-T PHY
- Fully compatible with 100/1000BASE-T networks
- Full/half duplex with auto-negotiation
- Automatic polarity detection and correction
- Automatic retransmission on collision
- Automatic padding and CRC generation
- Supports broadcast and multi-cast MAC addressing
- Pb-free 5 x 5 mm 20-pin QFN package, or Pb-free 9 x 9 mm 48-pin TQFP package

#### Software

- CMX Micronet™ TCP/IP protocol stack provided free of cost and royalties
- TCP/IP configuration wizard
- Supported by multiple Silicon Labs MCUs

### APPLICATIONS

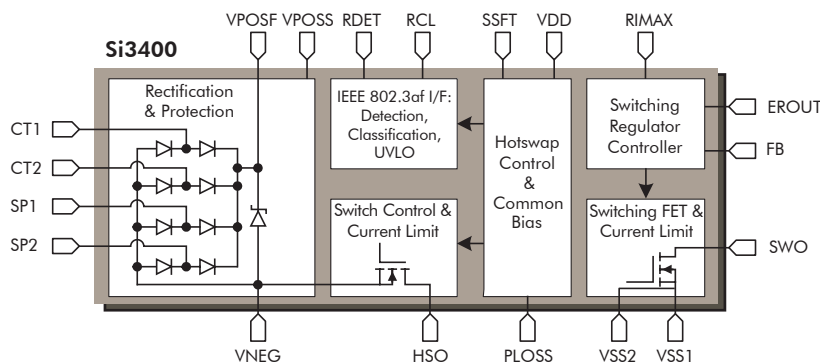
- Voice over IP telephones and adapters
- Wireless access points
- Security cameras
- Point-of-sale terminals
- Internet appliances
- Network devices
- Remote sensing and monitoring
- Inventory management
- Network clocks
- Embedded web server
- Remote Ethernet-to-UART bridge

### COMPLETE EMBEDDED ETHERNET SOLUTIONS

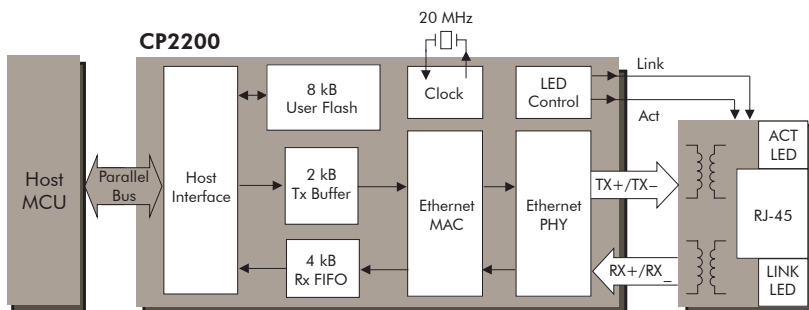
Silicon Labs' Si3400 power over Ethernet (PoE) powered device controller (PD) converts the high-voltage signal from a 10/100/1000BASE-T PoE connection into a regulated, low-voltage output supply. With integrated diode bridges and transient surge suppressor, the Si3400 enables direct connection of the IC to the Ethernet RJ-45 connector.

The CP220x single-chip embedded Ethernet controller contains an integrated IEEE 802.3 Ethernet media access controller (MAC), a 10BASE-T physical layer (PHY), and 8 kB of non-volatile Flash memory. The CP220x adds Ethernet connectivity to any MCU or host processor with 11 or more port I/O pins.

### POE PD CONTROLLER BLOCK DIAGRAM



### ETHERNET CONTROLLER BLOCK DIAGRAM



## SOLUTIONS GUIDE

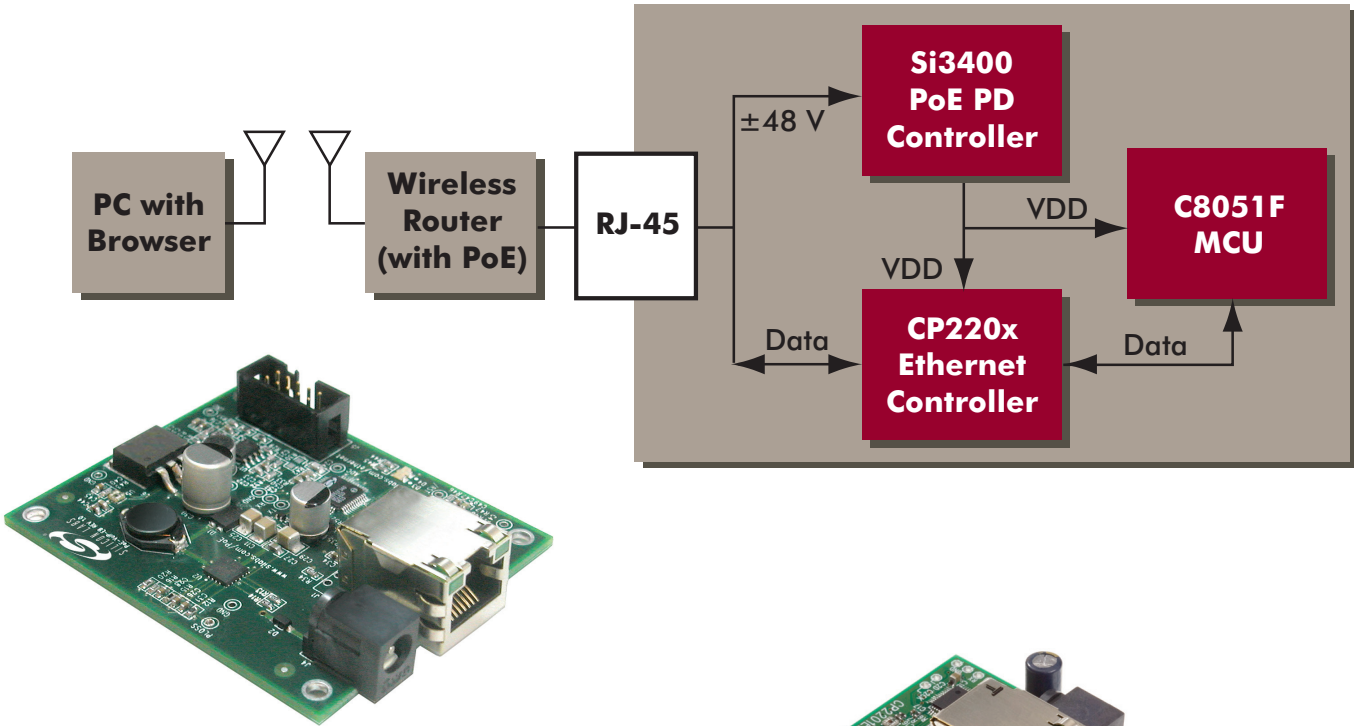
COMPLETE SOLUTIONS FOR  
EMBEDDED ETHERNET SYSTEMS



## Designing Embedded Ethernet Systems Has Never Been Easier

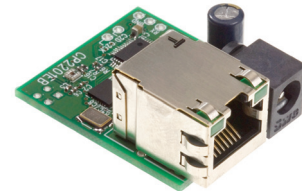
The Si3400 PD controller is a complete power management solution for PD applications that supports both IEEE 802.3af compliant and pre-standard products, while the CP220x Ethernet controller makes it easy to add Ethernet functionality to any design. Combined with Silicon Labs' high-performance, mixed-signal MCUs, the low-cost Si844x digital isolators, and a full suite of evaluation kits development tools and reference designs, designing embedded Ethernet systems has never been easier.

### Sample Embedded System



## Power Over Ethernet Reference Design

- Demonstrates PoE functionality
  - Power device directly from Ethernet cable or 9 V adapter
  - Can be used for code development
- Preconfigured PoE applications include the following:
  - Transmission of voice over network
  - Microphone sampling system using ADC
  - Remote temperature and light sensing from browser
  - Sensor data transmission via email
  - Automatic network detection using netfinder utility
- Si3400, CP2201 and C8051F340 on-board



## CP2201EK Evaluation Kit

- Demonstrates simplicity of adding Ethernet connectivity
- Preconfigured applications include the following:
  - Remote temperature and light sensing from browser
  - Sensor data transmission via email
  - Automatic network detection using netfinder utility
- CP2201 and C8051F340 on-board

## Ethernet Development Kit

The Ethernet Development Kit provides all the necessary hardware and software to develop real-world embedded systems using the CP2200, C8051F MCU and industry-proven CMX Micronet™ protocol stack. Included in the kit is a CP2200 Ethernet development board, 100 MHz C8051F120 MCU target board, integrated development environment, a TCP/IP configuration wizard that generates TCP/IP libraries, a USB debug adapter and all necessary cables to debug the MCU and connect it to an Ethernet network.

