

Microchip

TCP/IP Stack Software (ENC28J60 Driver)

Summary

Communication over the Internet is accomplished by implementing the TCP/IP protocol. Microchip offers a Free TCP/IP software stack optimized for the PIC18 microcontroller family and all 16-bit devices. The stack is a suite of programs that provide services to all TCP/IP-based applications. Users do not need to know all the intricacies of the TCP/IP specifications in order to use the stack. Based on the TCP/IP reference model, the stack is divided into multiple layers, where each layer accesses services from one or more layers directly below it. Per specifications, many of the TCP/IP layers are “live,” in the sense that they not only act when a service is requested, but also when events like time-out or new packet arrival occurs. The stack is modular in design and is written in the ‘C’ programming language. Effective implementations can be accomplished in roughly 20 Kbytes of code leaving plenty of code space available for the user’s application.

The advantages of Ethernet connectivity for data distribution, remote monitoring and remote control of embedded applications are widely acknowledged. Ethernet’s infrastructure, performance, interoperability, scalability and ease of development are unrivalled amongst communication standards. Microchip is unveiling embedded Ethernet solutions that meet market demands and requirements.

Microchip’s ENC28J60 is a 28-pin, IEEE 802.3-compliant stand-alone Ethernet controller with on board MAC & PHY, 8 Kbytes of buffer RAM and SPI interface. These features, combined with Microchip’s Free TCP/IP software stack, provide the smallest whole-product Ethernet solution for embedded applications. With a small package size including a 6x6 mm QFN, the ENC28J60 provides a low-pin count, cost-effective, easy-to-use solution for remote communication with embedded applications.



Features

Key features of the Microchip TCP/IP Stack (ENC28J60 Driver) include:

- Available free for use on Microchip microcontrollers
- Socket support for TCP and UDP
- Portable across all PIC18, PIC24, dsPIC30F and dsPIC33F products
- Support for MPLAB® C18, MPLAB® C30 and Hi-TECH PIC-18 C compilers
- RTOS independent
- Full TCP state machine
- Modular design
- Supported by Ethernet PICtail™ Plus Daughter Board (AC164123)
- Supports the ENC28J60 Ethernet controller

Supported Protocols and Approximate Resource Requirements

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|---------|------------|
| • ARP: | 800 bytes |
| • IP: | 400 bytes |
| • ICMP: | 300 bytes |
| • UDP: | 800 bytes |
| • TCP: | 3.8 Kbytes |
| • DHCP: | 1.3 Kbytes |
| • SNMP: | 2.8 Kbytes |
| • HTTP: | 1.4 Kbytes |