

W5300 Hardwired TCP/IP Embedded Internet Controller



The W5300 integrates Layer 1 (PHY) and 2 (MAC) in addition to Layer 3 and 4 of the Ethernet protocol in hardware. It supports TCP, IPv4, UDP, ICMP, IGMP, ARP, PPPoE, and multicast. The W5300 provides TCP / IP + MAC + PHY for embedded Ethernet applications on a single chip. The W5300 can independently set up TCP / IP connections and run the handshaking. Thus, the system controller is relieved of all protocol tasks. Even 8-bit Controller e.g. 8051, AVR or PIC can be connected quickly and easily.

The 8/16bit address/databus supports up to 84MBit/s (DMA) at the application level.

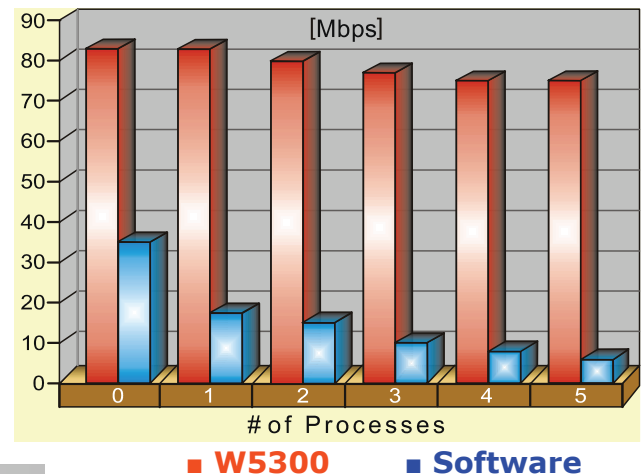
As TX/RX buffer free configurable 128kByte Dual-port SRAM are available.

The W5300 is IEEE 802.3 (10Base-T) and 802.3u (100Base-TX) compliant and qualified for the industrial temperature range.

Open Source Drivers and examples for various microcontroller platforms are available for free. An operating system is not needed for web, FTP nr DHCP client and servers.

Performance

- ◆ Loopback-Test, Hardware vs. Software Stack
- ◆ Graph: data thrupt vs. No. of simultaneous Tasks
- ◆ MCU: ARM9 (S3C2510)
- ◆ OS: Linux 2.4
- ◆ Testing Program: "iperf" Network Performance Test
- ◆ Task : 1,000,000 Factorial p/g

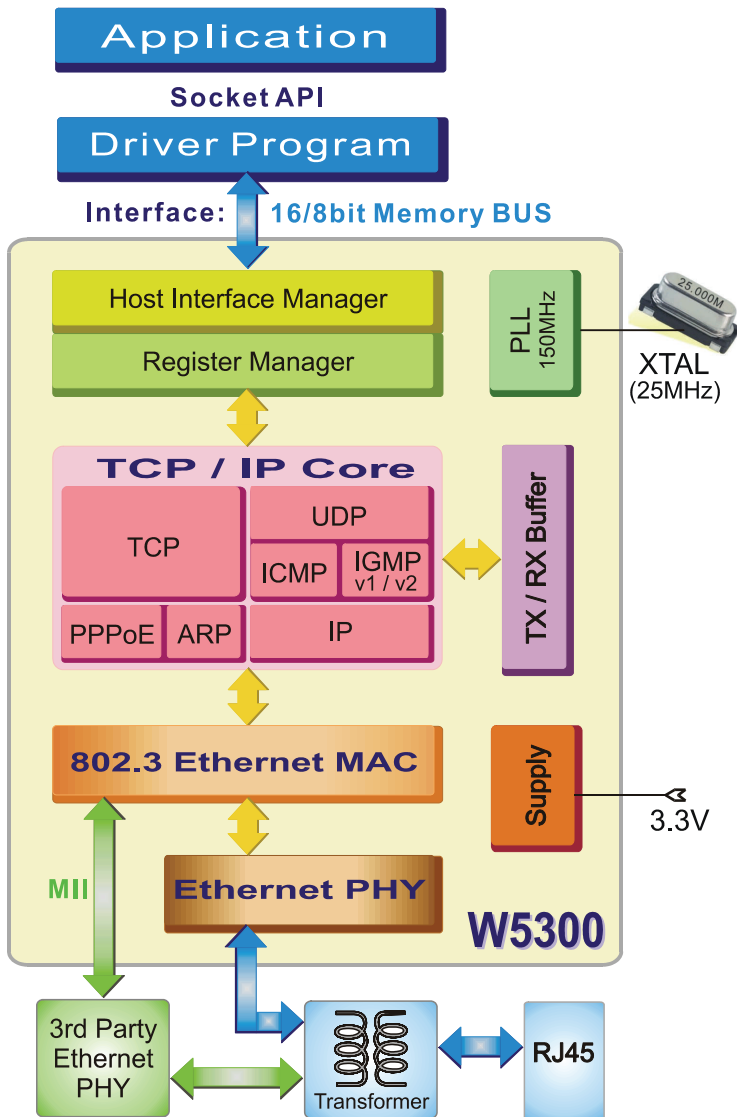


Features

- ◆ Hardwired TCP/IP protocols:
 - TCP, UDP, ICMP, IPv4, ARP, IGMPv2, PPPoE, Ethernet
- ◆ Embedded Ethernet-MAC:
 - Multicast, Connection PPPoE protocol with PAP/CHAP authentication mode for ADSL
- ◆ Embedded 10BaseT/100BaseTX PHY:
 - Auto Negotiation for full- and half-duplex
 - Auto MDI/MDIX for auto crossover
 - External PHY via MII alternatively possible
- ◆ 8 Independent sockets simultaneously
- ◆ High network performance:
 - Up to 50Mbps via Memory-Bus
 - and up to 84Mbps via DMA
- ◆ 3.3V operation with 5V I/O signal tolerance
- ◆ Temperature range: -40°C to 85°C
- ◆ 100 Pin LQFP Package
- ◆ Internal 128kB memory for data communication (TX/RX memory)
- ◆ Interface: 8 & 16 Bit Address/Data Bus for direct- & indirect-mode
- ◆ Network Indicator LEDs: TX, RX, full/half duplex, collision, link, speed



Block Diagram WIZ830MJ Module



Applications

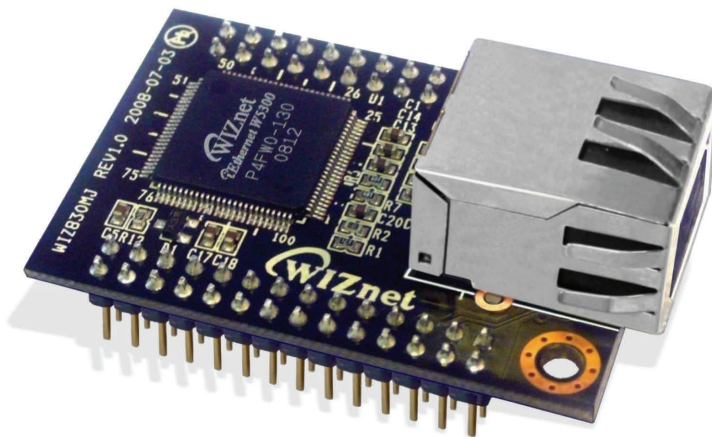
- ◆ Netzwerkkameras
- ◆ Sensornetze
- ◆ RF, Industriebus Gateways
- ◆ Mess- & Medizinische Geräte
- ◆ Video- & Audio Streaming
- ◆ Set-Top Boxen
- ◆ Triple Play Services

Hybrid Architecture

The W5100 supports up to 8 connections at the same time over the TCP/IP-core. One of these sockets can be used as a normal MAC-controller over the so called "MAC-RAW"-mode. This hybrid architecture allows direct access to the MAC-layer.

Therefore proprietary protocols can be implemented in software and additional connections can be established.

WIZ830MJ Embedded Network Module



- ◆ **Board size:**
53x 34 x 23.5mm
- ◆ **Interface Connector:**
two 2x14 pin headers
2.54mm pitch