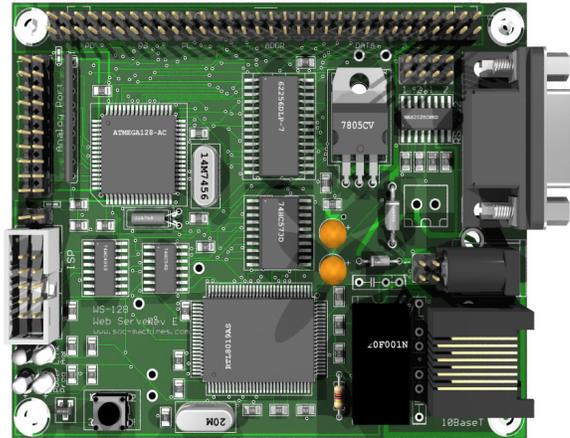


### Features:

- Atmel AVR Atmega128 14.756MHz processor
- 128Kbytes Flash
- 512K, 1024K or 2048Kbyte SPI Flash
- 4K SRAM on chip
- 2K EEPROM
- 32Kbytes SRAM
- Temperature and light sensor
- Dual Axis 2G accelerometer
- 10BaseT Ethernet Port
- RS-232 and RS-485 Port
- 8 10 bit A/D
- 32 Bidirectional I/O ports
- ISP Programming Port
- Extensive Source code examples
- Open source TCP/IP stack, web server
- 9-12VDC power input (5VDC board)
- Small form factor (3.85x3.00 in)



### Overview

The WS128 Plus Amber Micro Web Server is a general purpose, small form factor, micro-controller with 128K Flash, 512K, 1M or 2M SPI Flash, 8 10bit A/D channels, 2 serial ports – RS-232 and RS-485, 32 digital IO, 2-Wire port, SPI port, temperature and light sensors, dual axis 2G accelerometer and 10BaseT Ethernet port. The board comes with extensive open source software support including a GNU C compiler, open source OS and an open source TCP/IP stack. The 10BaseT Ethernet interface provides IP interfacing to the desktop for high speed program downloading, communication and general web application development. The WS128 is an excellent platform for industrial control, dedicated web server, hobbyist and robotic control applications.

### Hardware

The WS128 Plus processor is a 14.756MHz AVR Atmega128 8 bit RISC processor with clock crystal real time clock for dynamic power management. The processor has 128K of Sector Programmable Flash, 4K SRAM, 2K EEPROM, 8 10bit A/D channels, 32 multi-function digital IO, two serial ports (an RS-232 compatible with 9pin D sub connector and a RS-485 full duplex to four pin header), 2-Wire port for party line remote processor communication, ISP programming port, SPI communications port. The board has 32K SRAM, 10BaseT Ethernet port with Power Over Ethernet (7-12VDC only) capability, 9 pin D Sub RS-232 connector, 10 pin ISP programming port and a 64 pin AVR Expansion bus for daughter card connection options.

The WS128 is programmed using the ISP10 programming cable connected to the parallel port of a desktop PC. Other third party programming cables

are available to program the board. A comprehensive PC based programming utility allows Flash, EEPROM and fuse bits to be set and cleared.

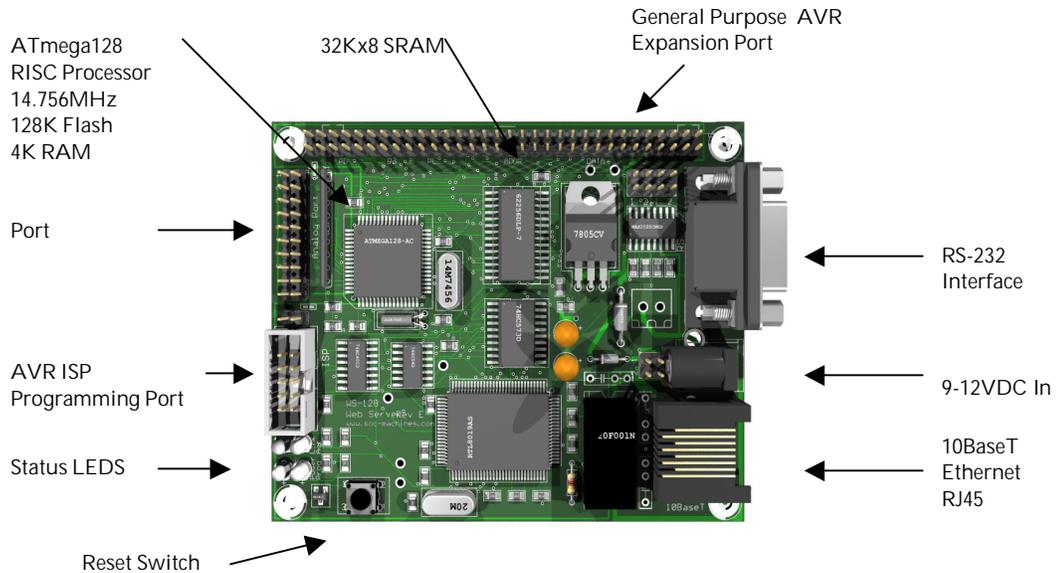
The Ethernet Port provides a comprehensive venue for IP based application development. The open source TCP/IP stack provides tight product control for embedded applications.

The AVR 2-Wire interface is a shared bus serial communications protocol supported by most of the AVR processor family. 2-Wire supports remote wake-up, node ID identification and high speed communication (>400Kbits/sec). The WS128 can operate as an IP master to a group of up to 128 2-Wire processors allowing extensive and sophisticated data acquisition and control networks to be IP enabled.

### Software Tools

A comprehensive set of development tools is available for applications development. A Windows and Linux GNU C compiler provides high level application development. An assembler/simulator is available from Atmel for assembly development and programming. Extensive technical documentation and source code is available including detailed chip operation/management and application programs.

An open source OS, TCP/IP stack and web server code base with broad industry support is available for IP centric application development. Many of the on chip peripherals are supported with drivers and application examples ensuring rapid application development. The sector programmed Flash memory includes a small boot kernel for rapid IP based code download and support in multi-WS128 applications.



### Expansion Options

The WS128 AVR Expansion Port connector contains most of the functional pins of the ATmega128 processor. Several daughter cards are available for video IO, LCD display, general purpose IO, TinyOS Mote programming/communication, and prototype hardware development. The video adapter contains a special JPEG compression engine with web server application examples. The TinyOS Mote Adapter provides a wireless communications IP gateway for Mote application development and communications. The Mote adapter is compatible with the Mica2, Mica2Dot and tSquare.

### Hardware Development Kit (HDK)

The Hardware Development Kit (HDK) includes everything you need to start development. Included is a CD with all necessary application software development tools, a parallel port ISP programming cable and serial cable. The HDK can be ordered with additional Expansion adapters for custom application development.

### Specifications

#### Electrical

Input power: 7-12VDC @ 80ma  
Board power: 5V DC @ 50ma

#### Mechanical

Dimensions: 3.00x3.85 in (four mounting holes)  
Weight: 40grams

### Additional Options

The WS128 Plus supports a number of interface adapters:

- WV224 4 Ch Video Adapter
- WLC72 LCD Display/Sensor Adapter
- WP102 TinyOS Mote Programming Adapter
- WP12 Prototyping board
- QP104 Power Distribution Adapter
- ST285 RS-232 to RS-485 Adapter
- ISP10 ISP Programming Adapter

### Ordering Information

The WS128 is available as a bare board or as a Hardware Development Kit (HDK):

- WS128 Plus Amber Micro Web Server
- AWS-HDK Amber Hardware Development Kit

The WS128 interface adapters are available:

- WV224 4 Ch Video Adapter
- WLC72 LCD Display/Sensor Adapter
- WP102 TinyOS Mote Programming Adapter
- WP12 Prototyping board
- QP104 Power Distribution Adapter
- ST285 RS-232 to RS-485 Adapter
- ISP10 ISP Programming Adapter

You may order directly from SOC Machines by placing an order on the web site: [www.soc-machines.com](http://www.soc-machines.com), calling (604) 628-7227 or by contacting one of our sales representatives or distributors.