

# AVR<sup>®</sup> STK502 Expansion Board

## SUPPORT FOR MEGA169 WITH ON-CHIP LCD CONTROLLER TO STK500

The STK502 board is a hardware expansion module for the STK500 Starter Kit adding support for the ATmega169 device featuring an on-chip LCD controller.

The STK502 includes connectors, jumpers and hardware allowing full support for all features on the mega169, including a LCD-display. The Zero Insertion Force socket allows easy use of TQFP packages. STK502 includes a demonstration application for temperature monitoring, using an on-board temperature sensor.



The STK502 demonstrates all the capabilities of the Low Power ATmega169 AVR<sup>®</sup> Flash microcontroller. Two application notes designed to run on the STK502 hardware help reduce time-to-market for designers using the ATmega169.

- AVR Studio<sup>®</sup> Operated
- Plug-in Module for STK500
- Serial In-System Programming
- Parallel High-voltage Programming
- LCD Display for Demonstrating ATmega169 LCD-driver
- LCD Display Header for Using an External LCD Display
- Temperature Sensor for Temperature Monitoring Demonstration
- All I/O Ports Easily Accessible through Pin Header Connectors
- Expansion Connectors for Plug-in Modules and Prototype Areas
- TQFP Footprint for Emulator Adapters
- JTAG Connector for On-chip Debugging using the JTAG ICE
- On-board 32 kHz Clock Crystal for Easy Real Time Clock Implementation
- Target Voltage 1.8 - 5.5V
- Powered by STK500



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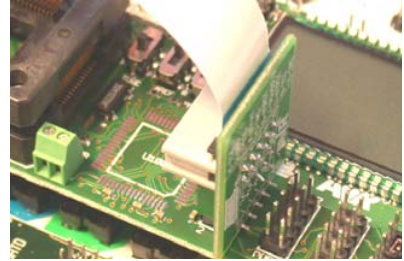
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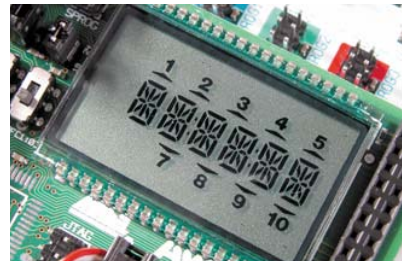
Together with the STK500 starter kit, the STK502 provides programming and development support for the ATmega169.

- The STK502 has a header for direct connection of the JTAG In-Circuit Emulator.

JTAG ICE offers a complete Background Debug Monitor solution with visibility of all ATmega169 internal resources, including full LCD emulation. STK502 and JTAG ICE makes a perfect pair for ATmega169 firmware development and debug.



- Generic 120 segment LCD display with six 14-segment characters plus additional segments for status information.



- Two-screw-terminal block for sensor connection.
- The NTC-thermistor is included in the STK502 kit.



- Application note "AVR064: STK502 – A Temperature Monitoring System with LCD Output" describes the demonstration application pre-programmed in the kit.
- Application note "AVR065: LCD Driver for STK502" describes how to write an ATmega169 LCD driver for alphanumeric characters.

STK502 supports both the In-System Programming mode and the High-voltage Programming mode. AVR Studio, Atmel's front-end tool for the STK500 Development Board, provides support for STK502.

### Supported Device

ATmega169V, ATmega169L

### Ordering Information

The STK502 is available from Atmel's franchised distributors.

The ordering code is **ATSTK502**.

The latest version of AVR Studio is available free of charge from Atmel web site: [www.atmel.com](http://www.atmel.com)