

# CAST

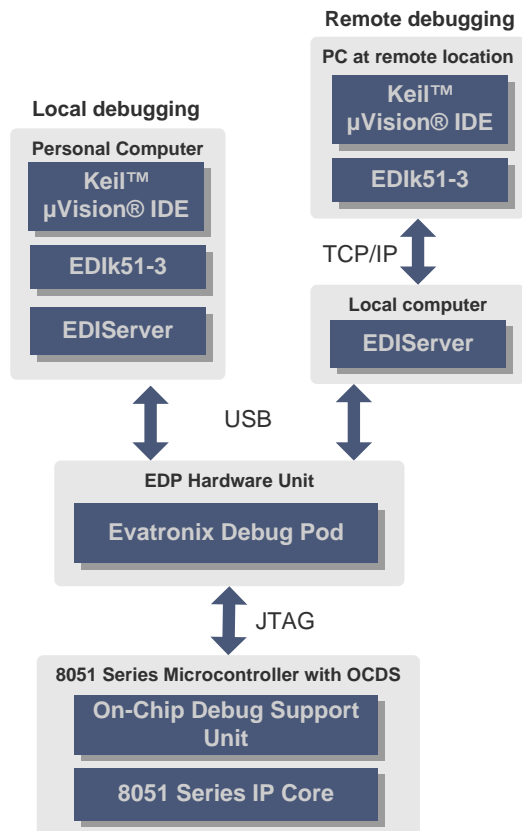
## EASE-8051

### Evatronix Application- Debugging Support Environment

The EASE-8051 is a combination of hardware and software elements for all variations of the 8051 Series Microcontrollers that allows in-system core debugging while a user application is being executed. The EASE is very easy to connect, configure and use thanks to an industry standard USB 2.0 interface between the system and the debugging environment. In addition, the modular architecture of the EASE enables remote debugging via network (TCP/IP). A complete solution includes the following components:

- 8051 Series On Chip Debug Support (OCDS) unit, which allows for control and execution of user programs, reading or writing memories and registers and many other functions such as single step, stop, and more
- Evatronix Debug Interface (EDIk51-3) – a dedicated software package for Keil™  $\mu$ Vision® Integrated Development Environment (IDE). It integrates and works with the debugger environment and responds to its requests
- Evatronix Debug Pod (EDP) – an external hardware unit. It transmits data between the debugger and the debug target through two interfaces: USB and JTAG. The first one is used to communicate with the PC while the second establishes connection with the 8051 Series Microcontroller.

#### Block Diagram



#### Features

- Program control and memory access
  - Program execution control reset, stop, go and step in ANSI C or ASM instruction mode
  - Software breakpoints (SWBP) to stop program execution on code fetch
  - Hardware breakpoints (HWBP) to stop program execution on code fetch from selected address or address range (data breakpoint)
- Register and memory access:
  - full read/write access to memory
  - read/write access for internal processor registers including program counter

#### Benefits

- Provides a convenient and fast environment for debugging all 8051 programs thus speeding time to market
- Remote debugging via network
- Simple and easy installation (user friendly Install Guide)

#### Applications

- Debugging and testing embedded software in the target environment. It is especially recommended when the project integrates a Real Time Operating System and/or advanced peripheral controllers such as USB or Ethernet devices
- Testing additional peripheral controllers via the debugger interface

## Functional Description

The EASE-8051 is partitioned into modules as shown above and described below.

### EDIk51-3

The EDIk51-3 is the plug-in created for 8051 Series micro-controllers and the Keil™  $\mu$ Vision® IDE. Thanks to EDIk51-3's compatibility with the Advanced Generic Debugger Interface standard, the original Keil™ simulation environment can be easily replaced by this plug-in without losing any of the important debug features.

### EDP

The Evatronix Debug Pod transfers data between the software on the PC and the target hardware. To communicate with the 8051 Series Microcontroller the EDP uses a JTAG interface. The USB 2.0 High Speed interface is used as the data exchange channel between the EDP and the PC.

### EDIServer

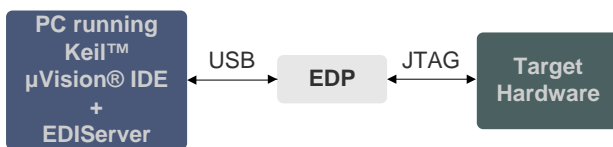
The EDIServer is an application that transmits data from the debugger to the EDP device. Thanks to this unit, it is possible to communicate between the Keil™  $\mu$ Vision® IDE and the EDP over the network using the TCP/IP protocol.

### 8051 Series Microcontroller with OCDS Unit

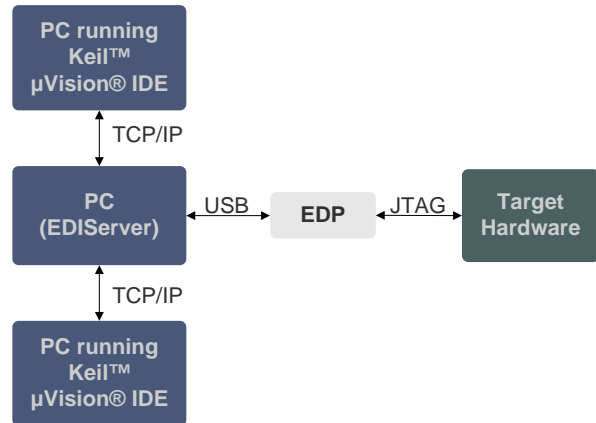
Any Evatronix 8051 Series Microcontroller is a fully 8051 ISA-compliant IP core. Together with the OCDS hardware it simplifies embedded software development directly in the target system - either FPGA prototype or final ASIC.

## Configuration Options

Thanks to the EDIServer which can transmit data from the Keil™  $\mu$ Vision® IDE to the EDP device over any network one can do either local or remote debugging. This greatly facilitates team software development. Both are shown below.



Keil™  $\mu$ Vision® IDE is running on a PC and EDP with hardware target connected directly to it.



Keil™  $\mu$ Vision® IDE is running on one PC while EDP with hardware target is connected to the other PC, so an engineer can work on target hardware which is placed in a different room, building or any other location. All he needs is a network connection.

At any given time only one connection between the Keil™  $\mu$ Vision® IDE and the target hardware may be active.

## Standard Deliverables

The EASE-8051 is delivered with:

- EDP package (with full documentation, cables, etc.)
- EDIk51-3 and EDIServer software installation pack
- User Manual and Installation Guide

## Development Environment

To facilitate the assembly of a successful prototyping process, the following elements can be provided as an option

- EB-5 Tiny development board
- FPGA adapter with Xilinx® or Altera® FPGA

## Related Products

**R8051XC** – the fastest, most configurable single-chip 8-bit microcontroller core that can implement a variety of fast processor variations executing the MCS® 51 instruction set.

**T8051** - the world's smallest microcontroller that executes ASM51 instruction set. It provides an interface for serial communication, timer, multi-purpose I/O ports, hardware interrupts and a debugger interface.