



First Silicon Solutions

# Technical Data for System Navigator for Tensilica Xtensa Processors

The FS2<sup>®</sup> System Navigator<sup>™</sup> supports the Tensilica<sup>®</sup> Xtensa<sup>®</sup> processors. The System Navigator provides many capabilities such as hardware breakpoints, triggers and trace common to logic analyzers and in-circuit emulation tools. These features provide a powerful debug tool at a competitive price.

The System Navigator is contained in a compact chassis that connects to the target system using a 14-pin EJTAG debug connector. The software runs on a Windows<sup>®</sup> 2000/XP PC with a USB 2.0 port and/or optional 10/100 Ethernet. System Navigator supports the Tensilica XT-GDB debugger for a complete source level debug solution with Xtensa cores.

## Software Breakpoints

An unlimited number of software breakpoints can be set anywhere in the physical address space of the processor.

## Hardware Breakpoints and Watchpoints

Xtensa cores contain a configurable number of hardware breakpoints recognizing instruction execution and data loads and/or stores.

## Source Level Debug

The System Navigator is integrated with the GNU-based Tensilica XT-GDB debugger running on Windows. All the FS2 probe features are available from the GDB or Insight debugger interface. This provides an intuitive and easy to use interface.

## Features Overview

- Supports Tensilica Xtensa cores
- Unlimited software breakpoints
- Single step by assembly or C source line
- Read-write all CPU registers
- Supports Xtensa hardware breakpoints
- Flash programming support
- Supports simultaneous debug of multiple Xtensa cores
- Go, halt processor run control
- Low-level access to JTAG functions for silicon verification
- Single line assembler and disassembler
- Command-line interface with Tcl/tk scripting language standard
- Binary software interface for support of third party source debuggers
- Probe supports all capabilities of Tensilica XT-GDB with OCD, including run control and access to TIE (Tensilica Instruction Extension) and hardware breakpoints
- USB 2.0 host connection
- 10/100 Ethernet connection optional



## FS2 Command line interface

The System Navigator also includes a command line interface (CLI). The CLI can be used when the source level debugger is not available and also for writing sophisticated automated sequences such as for regression tests. The CLI is based on the widely used Tcl/tk command language.

## Testing

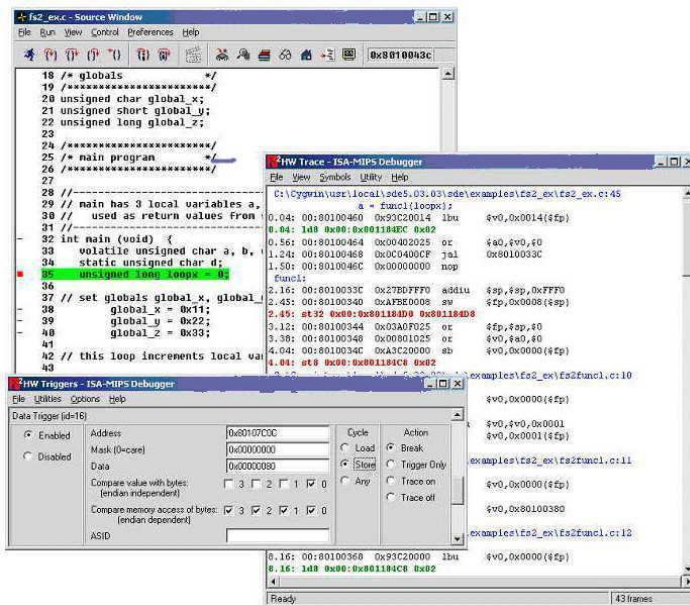
A comprehensive self-test capability is included with the system. For system verification, a loop-back board is provided which is plugged onto the end of the target interface cable. The self-test process exercises internal nodes and tests to ensure the cable signal integrity.

## Host Requirements

Pentium class PC with minimum 32 Mbytes of memory, USB 1.1 or 2.0 port or 10/100 Ethernet port and Windows® 2000/XP operating system are required.

## Product Codes

SNAV-XTENSA-USB System Navigator for Xtensa processor, USB 2.0 interface  
SNAV-XTENSA-ETH System Navigator with USB 2.0 and 10/100 Ethernet



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