

Overview

Atmel's AVR32 family is a new high performance 32-bit RISC microprocessor core, designed for cost sensitive embedded applications, with particular emphasis on low power consumption and high code density. Developed in co-operation with Atmel, the Ashling toolset offers a comprehensive solution for AVR32 application development. The toolset includes:

- **PathFinder for AVR32** Source-level Debugger
- **Opella for AVR32** Entry-Level, USB based Emulator
- **Vitra for AVR32** Networked Emulator with Real-time Trigger and Trace

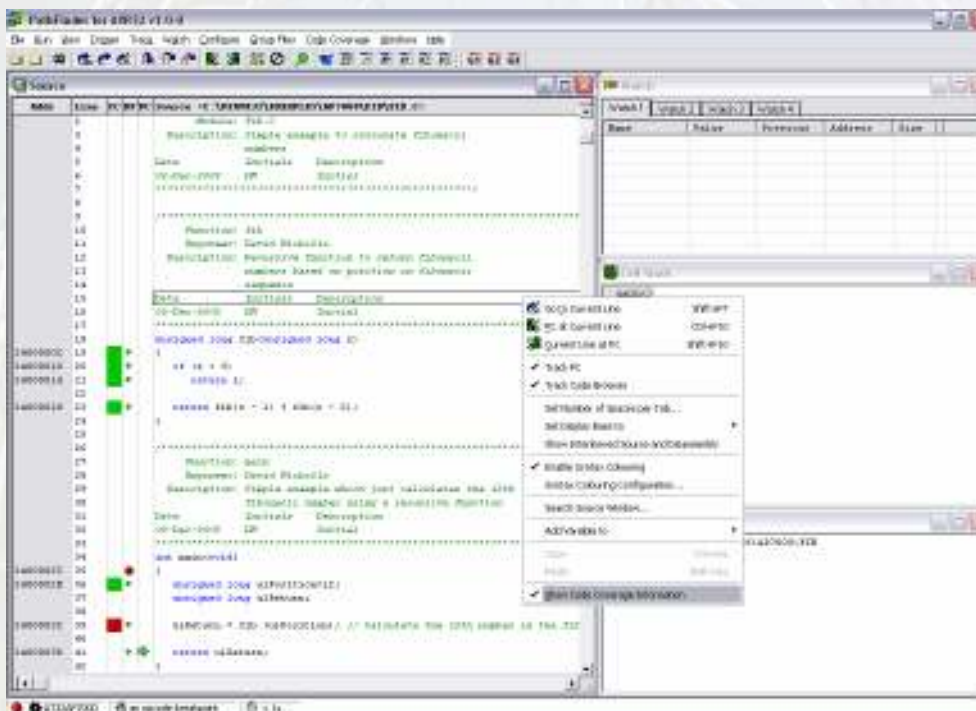


Figure 1. PathFinder source-level debugger

PathFinder Source-level Debugger

PathFinder is Ashling's Source-level Debugger for AVR32 devices, with multiple user-configurable windows, point-and-click, drag-and-drop, hover data display, splitter windows, menu-bar, and script (macro)-file controls. PathFinder's Object-Oriented Monitoring and Editing System provides tree-structured "click to expand" access to all memory-areas, register sets, registers and bits of the AVR32 core and other co-processors, with a logical and friendly Windows-XP-style display.

PathFinder is the user Interface for all Ashling products including the Ashling **Opella** and **Vitra** Emulators.

PathFinder features include:

- Full C and assembly source level debug support including step-into, step-over and step-out-of
- Built-in Code Browser allowing rapid navigation of application source code
- Call Stack (Backtrace) window shows current function stack with optional parameter display
- Full debugging/downloading support for IAR and GNU AVR32 C/C++ compilers.
- Powerful script language to control, monitor and log all Emulator functions from within **PathFinder**
- Remote Control Interface allows external applications to control **PathFinder**/Emulator via TCP/IP based API
- Operating System Debug using integrated RTOS monitoring window based on open-standard Kernel Debug Interface (KDI) API
- "On-the-fly" support allows viewing of program memory and breakpoint operations without halting your program
- Support for on-chip AVR32 trace (Nano trace) and off-chip trace using the Ashling Vitra Emulator.
- Data Watchpoints, Hardware breakpoints and unlimited software breakpoint support
- Support for Windows 9x/Me/NT/2000/XP

Opella Entry Level Emulator

Opella for AVR32 is a NEXUS Class 1 compliant emulator and permits run/stop control of Atmel AVR32 implementations using control of the target's NEXUS debug control port. Opella is a compact stand alone unit, controlled by **PathFinder** for AVR32 source level debugger via the PC's USB interface. Debug control is non-intrusive and requires no target system resources.

Opella for AVR32 Features Include:

- Run/stop control of the target application including single step (assembly-level or C source-level) and C function step into/over/out-of.
- Examination/modification of target processor registers including all core and peripheral registers.
- Read/write access to both on-chip and target system memory.
- Simultaneous display of source and assembly application code (including interleaved source and associated disassembly).
- High speed application code download.
- Support for all on-chip hardware breakpoints/watchpoints.
- Unlimited number of software breakpoints.
- Automatic sensing of target operating voltage levels (from 1.8v to 5.0v). Opella will sense the target system's operating voltage and will set its control signal levels accordingly.
- Flash programming support.
- Full target reset control.



Vitra Networked Emulator with Trace

Vitra for AVR32 is a complete system for both run-time control (NEXUS Class 1) and Code, Data and Ownership trace (NEXUS Class 2 and 3) debugging. The Vitra for AVR32 Emulator incorporates full run-time control and real time instruction, data and ownership trace as provided by the NEXUS port. Vitra supports Ethernet, USB and serial connections to the host PC.

Real-Time Trace: Vitra traces instruction execution and data accesses at target system clock speeds up to 200MHz. **PathFinder** shows traced data as bus trace (data access), symbolic disassembly or source code with time-stamp. Trace buffer is 512K by 128-bits.



Vitra for AVR32 Features Include:

- Instruction flow tracing
- Data flow tracing
- Ownership message tracing
- Trace message time-stamping
- Optional External Trigger and Trace Cable allows:
 - Trace of more than 12 user defined signals
 - 3 external trigger inputs to be used to qualify trace capture
 - 2 Trigger output signals asserted whenever PathFinder's start or stop trigger conditions are true
- Automatic sensing of target operating voltage levels (from 1.8v to 5.0v). Vitra will sense the target system's operating voltage and will set its control signal levels accordingly.

Device Support List

AP7000, AP7001, AP7002, AP7003, AP7004

Order Codes

Product	Order Code	Product	Order Code
PathFinder for AVR32 Source Debugger	PF-AVR32	10-way IDC Primary Debug cable with Run-Time Control support for use with Opella	TPA-AVR32-NEXUS-10
Opella Entry Level Emulator for AVR32	OPELLA-AVR32-USB	Target Debug and Trace Probe Cable for use with Vitra, suitable for 38-pin MICTOR connector	TPA-AVR32-NEXUS-38
Vitra for AVR32 Networked Emulator with Trace	Vitra-AVR32-T512K	Extended Trigger and Trace Probe Assembly for Vitra	TPA-TRIG-TRACE

DS307 V2

Ashling Microsystems Ltd. is Certified to I.S. EN ISO 9001:2000, NSAI Registration No. 19.09069

Ashling Microsystems Ltd
National Technology Park
Limerick
Ireland
Tel: +353 61 334466
Fax: +353 61 334477
Email: sales@ashling.com

Ashling Microsystems Ltd reserves the right to alter product specifications at any time and without notice

Distributors in Australia, Austria, Belgium, Canada, China, Cyprus, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, India, Israel, Italy, Japan, Korea, Luxembourg, Malaysia, Netherlands, Norway, Poland, Russia, Singapore, Spain, Sweden, Switzerland, Taiwan, Turkey and USA