

## Ashling Debug and Trace Tools for MIPS cores

### Ashling’s range of debug tools for MIPS cores

<i>Emulator model</i>	<i>Probe-interface cable</i>	<i>EJTAG support</i>	<i>Debugger</i>	<i>Multicore debug</i>	<i>On-chip trace</i>	<i>Emulator trace depth</i>	<i>Max trace freq.</i>	<i>Interface to debug host</i>
<b>Ashling “Opella” Series: low-cost Universal Emulators</b>								
<b>Opella-MIPS</b>	TPA-MIPS-EJTAG-14	Yes; EJTAG v2.5/2.6	PathFinder-MIPS; or API for use with TPV debuggers	Yes; see note	No	n/a	n/a	USB or parallel-port
	TPA-MIPS-EJTAG-20	Yes; EJTAG v1.5/2.0						
<b>Ashling “Genia” Series: Networked high-speed Universal Emulators</b>								
<b>Genia-MIPS</b>	TPA-MIPS-EJTAG-14	Yes; EJTAG v2.5/2.6	PathFinder-MIPS; or API for use with TPV debuggers	Yes; see note	No	n/a	n/a	USB port; Ethernet RJ45 port; and serial RS232 port
	TPA-MIPS-EJTAG-20	Yes; EJTAG v1.5/2.0						
<b>Ashling “Vitra” Series: Networked high-speed Universal Emulators with real-time Program and Data Trace</b>								
<b>Vitra-MIPS</b>	TPA-MIPS-PDTRACE-38	Yes; EJTAG v2.5/2.6 with PDTRACE	PathFinder-MIPS; or API for use with TPV debuggers	Yes; see note	Yes: MIPS-PDTRACE	64K-frames x 128-bits standard; optional 512K-Frames x 128-bits	200MHz; see note	USB port; Ethernet RJ45 port; and serial RS232 port
	TPA-MIPS-EJTAG-14	Yes; EJTAG v2.5/2.6						
	TPA-MIPS-EJTAG-20	Yes; EJTAG v1.5/2.0						

Table 1: Ashling’s range of Emulators for MIPS cores

*Notes to Table 1:*

Emulator model:	You can choose from Ashling's range of three Universal Emulators: <b>Opella:</b> low-cost, entry-level EJTAG/JTAG/BDM Emulator <b>Genia:</b> high-speed Networked EJTAG/JTAG/BDM/NEXUS Emulator <b>Vitra:</b> high-speed Networked EJTAG/JTAG/BDM/NEXUS Emulator with Trace
Probe-interface cable:	Ashling supplies a range of Probe-Cables for EJTAG (VJTAG ver. 2.5/2.6; or EJTAG ver. 1.5/2.0), for use with Opella, Genia or Vitra.
EJTAG support:	Individual Probe-Cables are available for EJTAG ver. 2.5/2.6 (14-pin); EJTAG ver. 1.5/2.0 (20-pin); and EJTAG ver. 2.5/2.6 with PDTRACE (38-pin).
Debugger:	All Ashling Emulators can be used with Ashling's <b>PathFinder-MIPS</b> Source Debugger. Alternatively, Ashling can supply an API software driver for use with third-party debuggers that conform to MIPS Technologies' MDI debug interface.
Multicore debug:	You can configure the PathFinder-MIPS Debugger to address a specific EJTAG scan-chain node, allowing you to select a specific MIPS core for debugging on a multi-core system.
On-chip trace:	The Vitra-MIPS Emulator with Trace, and the PathFinder-MIPS Debugger, provide full support for capture and display of Real-Time Trace data, using either the MIPS TCB-PDTRACE (Trace Control Block, with Program and Data Trace Interface) silicon module, or the MIPS EJTAG ver. 2.0 trace silicon module.
Emulator trace depth:	The Vitra-MIPS Emulator includes a Trace Memory Buffer with a size of either 64K-Frames by 128-bits (total 8 Mbits trace memory, standard configuration), or 512K-Frames by 128-bits (total 64 Mbits trace memory, Vitra-MIPS-T512K option),
Max trace freq.:	The Vitra-MIPS Networked Emulator with Trace uses a high-speed LVDS link to the target-under-test that supports real-time trace on MIPS cores operating at clock frequencies to 200MHz and beyond.
Interface to debug host:	The Opella Emulator is supplied with either a parallel-port or USB interface to the host PC. The Genia and Vitra high-speed Networked Emulators include an Ethernet, USB and RS232 interface to the host PC.

## Benefits of the Ashling debug solutions for MIPS cores

Taken together, the performance advantages of Ashling's MIPS Emulators, Debuggers and Trace systems make them the recommended solution for real-time debugging on MIPS-based systems, with benefits that include:

1. Choice of three Emulator platforms to match the needs and budgets of large or small development teams.
2. Universal Emulator platforms, with support for all popular RISC cores.
3. Full Trigger and Trace support for MIPS PDTRACE Program and Data Trace.
4. Probe cable assemblies for a wide range of debug ports: JTAG, EJTAG, PDTRACE, BDM, COP, NEXUS.
5. Multi-core debug support for homogenous or heterogeneous multiple-core ASICs.
6. Plug-and-play installation, with a convenient Setup program and USB auto-detect, ensures that installation time is minimized.
7. High-speed download minimizes time lost when downloading large code images.
8. Debug support for all popular Compilers for the MIPS architecture.
9. Support for low-voltage targets: Probe cable interface automatically adapts to target logic levels in the range 1.8V to 5.0V.
10. Fully engineered Probe cable assemblies with complete interface documentation provide plug-and-play operation.
11. Access to Ashling's Emulator Engineering team for support.

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