ASHLING'S DEVELOPMENT TOOLS FOR THE PIC32™ FAMILY FROM MICROCHIP

Overview

The new Microchip PIC32™ family is based upon the high performance MIPS32 M4K Core. Building on Microchip's 8- & 16-bit PIC® microcontrollers, the PIC32™ MCU family delivers 32-bit performance to solve increasingly complex embedded designs

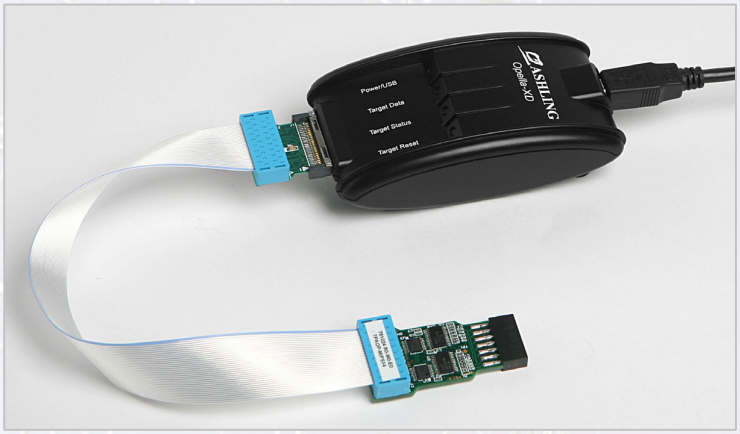
Developed in co-operation with Microchip, the Ashling toolset offers a comprehensive solution for PIC32™ application development. The toolset includes:

- **Opella-XD** Hardware Emulator
- **PathFinder** Source-level Debugger
- **GDB-Server-MIPS** GNU GDB Server allows Ashling hardware emulators to be used with GNU GDB/Insight/Eclipse CDT and Debuggers. Supported under Windows and Linux hosts.

Opella-XD Emulator

Ashling's **Opella-XD EJTAG Debug Probe** is the fastest available debug probe for embedded development on MIPS™ RISC cores.

Advanced features of Opella-XD include:



- Fast, easy-to-install USB 2.0 High-Speed Interface (480Mb/s)
- Supports all popular hardware debug protocols
- Unique Auto-conditioning Probe provides maximum possible download speed to target with fastest JTAG clock frequencies
- Hot-plug support allows post-mortem debugging
- Fast, trouble-free Plug-and-Play installation
- Small, versatile Target Probe Cable
- Fast in-target Flash Programming
- Supports latest EJTAG 4.10 MIPS™ debug protocol
- Wide target voltage range: 0.9V to 3.6V
- Versatile Target-Reset and Test-Port-Reset support
- Works with Windows and Linux hosts
- Built-in diagnostics instantly show status of Target, Debug Probe and USB link
- Universal Hardware-Debug platform for all popular target architectures and compilers

Benefits of Opella-XD to the embedded hardware developer:

- Accelerates the entire embedded-hardware debug process: ultra-fast installation, code download and flash programming saves time at every code rebuild
- Instantly autoconfigures to target system
- Long-term investment: works with all popular target architectures and compilers
- Helps with the most difficult debugging tasks: hardware bring-up, operating-system booting, post-mortem debugging
- Future-proof: works with latest hardware-debug protocols, all popular host operating-systems
- Compact, easy-to-install target probe cables support all popular debug interfaces

Opella-XD Debug Probe Specification

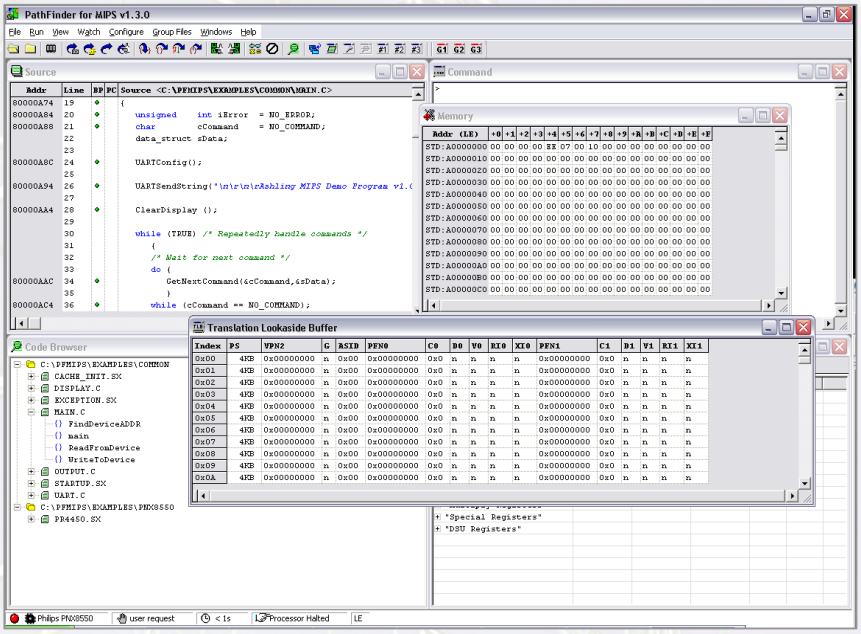
- High-speed USB2.0 (480Mb/s) interface to host PC or Linux workstation
- Target EJTAG clock rates up to 100MHz
- Auto-conditioning for fast EJTAG clock frequencies
- Sustained code download to target at over 3MB/s (using 100MHz EJTAG clock)
- Supports all MIPS™ hardware-debug standards: EJTAG 4.10, 3.10, 2.6x, 2.5x, 2.0x and 1.5x
- 14-way or 20-way IDC target EJTAG connectors
- Configurable Target-Reset and Test-Port-Reset, under full user control
- Fine-grained adjustment of JTAG clock frequency from 1KHz to 100MHz
- Supports target operating voltages from 0.9V to 3.6V. Opella-XD detects and automatically configures for the appropriate target voltage.
- Supports RTCK adaptive clocking of debug data from target (EJTAG 4.10)
- "Hot-plug" support; allows connection to a running target without resetting or halting
- Fully powered by USB interface; no external power-supply needed
- Support for all on-chip hardware breakpoints; unlimited number of software breakpoints
- Big-endian and little-endian target architectures supported
- Full support for MIPS16™/MIPS16e™ code compression

PathFinder Source-level Debugger

PathFinder is Ashling's Source-level Debugger for Microchip PIC32 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 MIPS core and co-processors, with a logical and friendly Windows-XP-style display.

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
- Support for all PIC32™ toolsets including Microchip's C32 (MPLAB), MIPS™ SDE and all other ELF/DWARF compliant 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
- Full run-time control debug support for cached applications
- Hardware and unlimited software breakpoint support



- Translation Lookaside Buffer (TLB) window allowing easy setup and interrogation of the TLB
- Integrated flash programming and debug support
- Support for Windows 9x/Me/NT/2000/XP

GDB-Server-MIPS

Ashling's **GDB-Server-MIPS** software package allows Ashling's Target Debug Probes to be used with the GNU GDB open-source debugger. The Ashling GNU GDB Server is available for Windows and Linux (x86 based) hosts and supports GNU GDB and all Eclipse CDT based debuggers (e.g. MontaVista Devrocket).

Device Support

PIC32MX300, PIC32MX320, PIC32MX340, PIC32MX360

Order Codes

Product	Order Code
Opella-XD for MIPS Debug Probe. Includes USB 2.0 cable, documentation and diagnostic software	Opella-XD-MIPS
14-pin Target Probe Cable with 0.1"-pitch IDC connector for EJTAG versions 2.5 – 4.10. Supports target voltages 0.9V to 3.6V	TPAOP-MIPS14
PathFinder for MIPS Source Debugger software for Windows hosts; supports all popular MIPS compilers.	PF-MIPS
GDB-Server for GNU GDB MIPS. Connects GNU GDB open-source debugger (Windows and Linux hosts) to Opella-XD Debug Probe.	GDB-Server-MIPS

DS318 v1.2

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 : asahling.sales@nestgroup.net