

# usb<sup>2</sup>Demon™



The usb<sup>2</sup>Demon is a BDM/JTAG interface used in the design, debug, and programming of microprocessor and microcontroller based embedded systems. One side of the usb<sup>2</sup>Demon interfaces to a USB 1.1 or USB 2.0 port of a host PC and the other side connects to an OCD (On-Chip Debug) port on the target system. As with all Macraigor interface devices, the usb<sup>2</sup>Demon can simultaneously debug up to 255 devices on a single scan chain. In addition, up to 16 usb<sup>2</sup>Demons can be connected to a single host machine.

The usb<sup>2</sup>Demon is designed to be a major upgrade from the Wiggler series of OCD connections and, for many targets, is also significantly faster than a Raven. It supports configurable JTAG/BDM clock rates up to 20 MHz .

The usb<sup>2</sup>Demon is compatible with Windows and Linux hosts. Supported versions of Linux are Red Hat 7.2 – 9 and Fedora Core 2.

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**Macraigor Systems**  
Complete JTAG Debug Support

## Supported Debuggers and Tools

The usb<sup>2</sup>Demon is fully compatible with all of Macraigor's software tools, including our free OCD Commander debugger, free GNU toolkit distributions, OCD Flash Programmer application, and our production line test tools.

In addition, several commercial third-party debuggers can interface to the usb<sup>2</sup>Demon. A partial list of our debugger partners includes:

- Accelerated Technology/ Mentor Graphics
- Allant (ARM)
- Arc (Metaware)
- Altium
- DDC-I
- Green Hills Software
- IAR Systems
- Metrowerks
- Microcross
- Microsoft
- Paradigm Systems
- Red Hat
- Viosoft

*For a complete list of compatible debuggers, please visit our web site.*

## Theory of Operation

The usb<sup>2</sup>Demon operates as a converter between the target JTAG/BDM signals and host debugging commands. Power is supplied by the USB interface so that no external supply is necessary. The buffers that interface to the target OCD signals are powered by the target itself, allowing the usb<sup>2</sup>Demon to automatically match target voltages between 5.0 V and 2.2 V.

## Supported Processors

<b>AMCC:</b>	PPC405, PPC440
<b>AMD:</b>	SC520, Athlon, Duron, AU1000, AU1100, AU15x0
<b>ARM:</b>	7TDMI, 710T, 720T, 740T, 9TDMI, 920T, 922T, 940T, 946T, 1136J-S
<b>Broadcom:</b>	BCM1250, BCM7115
<b>Freescal:</b>	MC9328MX1, 56300, 56600, 56800, StarCore, 683xx, MPC603e, MPC8xx, MPC5xx, MPC5554, MPC740, MPC745, MPC750, MPC755, MPC8240, MPC8245, MPC8247/8248, MPC8250, MPC8255, MPC8260, MPC8264/65/66, MPC8270/71/72, MPC8280, MPC8540, MPC8560, MPC8541, MPC8555
<b>IBM:</b>	PPC603e, PPC740, PPC750
<b>IDT:</b>	RC323xx
<b>Intel XScale® Technology:</b>	PXA21x, PXA25x, PXA26x, PXA27x, IOP3xx, IXC1100, IXP42x, IXP46x, IXP24xx, IXP28xx, 80200, 80219, 8032x, 8033x
<b>MIPS:</b>	4Kc/p/m/e, 5Kc
<b>NEC:</b>	VR5432, VR5500
<b>Net Silicon:</b>	NetARM+10, NetARM+40, NetARM+50, NS7520, NS9750
<b>PLX:</b>	IOP480
<b>Phillips:</b>	PR1900
<b>Toshiba:</b>	TX49
<b>Transmeta:</b>	Efficeon
<b>Triscend:</b>	E5, A7

*For a more complete and up to date list of supported processors, please visit our web site.*

## Macraigor Systems LLC

**www.macraigor.com • Sales Inquiries: 206-855-9269**

Macraigor Systems is a leading supplier of BDM/JTAG connection solutions for on-chip debugging of 32 and 64-bit embedded microprocessors. Macraigor Systems' solutions are designed for price-sensitive customers. These solutions include a suite of software tools that supports Windows 9x, NT, ME, XP, Linux and Solaris host systems. Macraigor Systems supports all major embedded microprocessor architectures, including AMD, ARM, ColdFire, CPU32 Series, PowerPC, MIPS and the XScale microarchitecture.