
Application Notes for Professional Developers of Embedded Systems

BDI2000 and BDI3000 BDM/JTAG Probes and How They Differ.

For years, Abatron has been shipping the BDI2000 hardware and today thousands are deployed for every day use by many professional embedded developers. In 2008, Abatron released the BDI3000, which is replacing the BDI2000. Many users are concerned that the new probe will not work within their development environment so we thought it would be helpful to publish this application note to better explain the differences between the two product.

Section I:

Below are a list of features and enhancements the BDI3000 offers over the BDI2000.

- A smaller form factor (160 x 85 x 35 mm)
- A 10/100 Base-T Ethernet interface vs. 10 MB only
- Faster download speeds of up to 1,500 MB or (5x) the performance of the 2000
- Supports target CPUs down to 1.2 volts vs. 1.8
- The BDI3000's logic has been optimally prepared for further enhancements

Both Abatron and Ultimate Solutions will continue to support the BDI2000 with software updates and technical support. In addition, any new CPU support or enhancements that are added to the BDI3000 firmware will also be added to the BDI2000 firmware as it relates to **bdiGDB**, **bdiPro**, **bdiAccess** and **bdiRDI**. In the case of multi-core processors, the BDI3000 will inherently provide better support, as is the case of Cavium's OCTEON family of processors.

If you are using any other configuration such as **bdiNDI**, **bdiCW**, **bdiSCI** or **bdiWind**, you should contact your USI representative to get a definitive release schedule on these products. As it stands today, users who need to use these options are required to purchase the older BDI2000 hardware.

As an end-user, it is important for you to know that firmware that was purchased for use with the BDI2000 will **NOT** work with the BDI3000 hardware. However, any “Configuration” files, .PRO files or “Register Definition” files you have in your library can still be used with the BDI3000 hardware. You may also continue to use any version of GCC/GDB you already have installed in your environment. Finally, all versions of Linux running on your host or embedded target are supported as usual no matter what BDI probe you use.

If you’re using or plan to use USI’s optimized Eclipse environment, **LinuxScope-JTD**, all versions will run on either the BDI2000 or BDI3000. For more information on this product, visit: http://www.ultsol.com/mfgrs_comp_linuxscope.htm

Section II:

It is important to note that you may be required to make some minor modifications to your configuration files or .pro files depending on the CPU you intend to target. Below are some common changes we have documented. If this application note doesn’t help to solve your problem, we encourage you to contact our office to obtain the support you need to get you up and running with your new BDI3000.

Compatibility of BDI3000 & BDI2000 Config Files

JTAG Clock Selection

The BDI3000 is compatible with the BDI2000 configuration files except for the JTAG clock selection. The same JTAG clock number selects a faster clock on the BDI3000 than on the BDI2000. But normally you can run with the faster JTAG clock.

Increase Access Delays

Because the BDI3000 executes its code significantly faster than the BDI2000, it maybe necessary to increase or add access delays where possible.

For MIPS targets you may add a JTAGDELAY entry:

```
JTAGDELAY 6 ;48 TCK's access delay
```

For Cortex-A8 you may have to increase memory access delays:

```
MEMACCESS CORE 10 ;memory access via core (80 TCK's access delay)  
MEMACCESS AHB 8 ;memory access via AHB (64 TCK's access delay)
```

Add a Wakeup Delay

If a reset sequence fails that worked with a BDI2000, try to add a wakeup delay. This maybe the case if there is a slow rising reset signal on your board.

```
WAKEUP 100 ;give reset time to complete
```

Summary:

For most of you, the transition from the BDI2000 to the BDI3000 will be seamless. We are confident that you will be impressed with the overall improvements made to the new BDI3000. Like the BDI2000, the 3000 will prove to be a tool you will rely on for years to come. If by chance, you need to tweak your .cfg or .pro file, the time spent performing this task will be time well spent. All of us at Ultimate Solutions are committed to insuring you experience a smooth transition from the BDI2000 to the BDI3000 so don't hesitate to contact our office if you need further assistance.

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