

# WinMIPS64

**WinMIPS64** is an instruction set simulator, and is designed as a replacement for the popular Microsoft Windows utility **WinDLX**. The classic text

## [Computer Architecture - a Quantitative Approach, by Hennessy & Patterson, 3rd edition](#)

in its 3<sup>rd</sup> edition has switched from the 32-bit DLX architecture, to the 64-bit MIPS architecture. Hence the need for a new teaching tool. **WinDLX** had a very nice friendly user interface, including a full graphical simulation of the 5-stage pipeline. Therefore it was decided to create a similar tool for the MIPS64 with a very similar interface.

If you know how to use **WinDLX** then the look-and-feel of **WinMIPS64** will be very familiar. However there are a few changes.

- Forwarding is indicated by colouring the forwarded register. The colour indicates the stage in the pipeline that it is being forwarded from.
- A delay slot can be implemented if desired. With V1.30 a simple branch-target-buffer can also be simulated. A << in the code window beside a jump or branch instruction indicates that it is predicted as being taken.
- The full instruction set is not currently implemented. In particular there is no support for single precision floating-point, or "paired single" floating-point.
- Registers and memory can be changed by left-double-clicking on the target. Right-double-clicking on memory displays it in double-precision decimal floating point format.
- Break-points are set and cleared by simply left-double-clicking on the code window.

The software is available for download in a .ZIP archive. This includes the Windows '98/2000/NT/whatever executable, a simple stand-alone DOS assembler, and several example programs. It may be used freely without restriction. If you find any bugs, or would like to see an additional feature, please let me know at [mike@compapp.dcu.ie](mailto:mike@compapp.dcu.ie).

Download from [WinMIPS64](#). A simple [tutorial](#) in Microsoft Word format is also available. Here are a couple of lab exercises [ex2.doc](#) and [ex3.doc](#)

Full Visual C++ source code is available on request - but tell me who you are and why you want it.

Update History:

#### V1.12

- displays the currently loaded file on status line (press F10).
- remembers last folder used for input.

#### V1.13

- Bug fix - registers modified by double-clicking stay modified.
- Integer **dmul** and **ddiv** instructions disabled (they make many tutorial problems too easy!)

#### V1.14

- Support for network installations
- Various minor bug -fixes

#### V1.15

- System far less tolerant of silly syntax errors
- Open file name appears on title bar.

#### V1.20

- Some fonts fixed
- Possibility of WAR hazards for FP instructions recognized.

#### V1.21

- F5 removed
- Bug in Cycles window fixed

#### V1.30

- Branch Target Buffer option added
- Minor bugs eliminated
- More example programs

Mike Scott, May 2005