



Why Use Proteus VSM ?



Proteus VSM was the first product to bridge the gap between schematic and PCB for embedded design, offering system level simulation of microcontroller based designs inside the schematic package itself. Use your Proteus schematic as a virtual prototype for testing and debugging your microcontroller firmware, quickly evolving both the hardware and software to arrive at a design solution before making a physical prototype.

Micro-controller Co-Simulation

Flexibility

- An experimental canvas for design
- Write firmware for virtual hardware.
- Change either firmware or hardware design quickly and easily
- Freedom to create, test and perfect designs prior to production.

Productivity

- Fix bugs faster with system level simulation and advanced debugging tools.
- Fewer design iterations as both hardware and software design are tested pre-production.
- Make more efficient use of resources with parallel development.
- Get your product out to market faster.

Cost Advantage

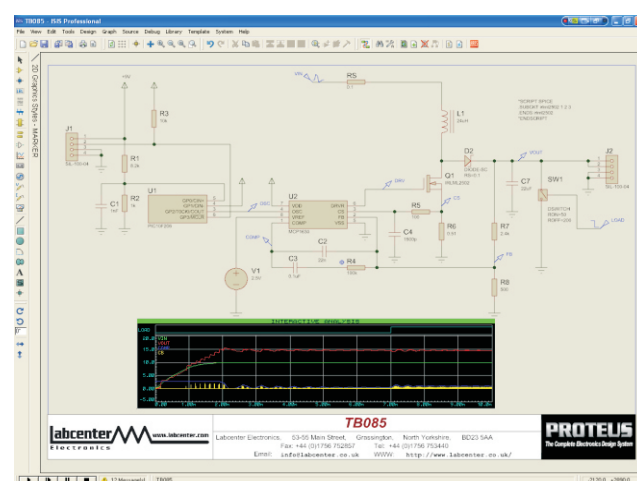
- Reduce development time on both firmware and hardware.
- Slash testing and fault finding with system level debugging and analysis.
- Cut manufacturing delays with fewer product iterations.
- Save on equipment costs by testing both hardware and firmware together in the software domain.
- Save on ownership costs. Proteus products are modular, competitively priced and have flexible licensing options.

Flexibility

Proteus VSM provides a unique development platform for the embedded engineer. It allows you to specify a program (HEX file, COF File etc.) as a property of the microcontroller part on the schematic and during simulation will show you the effects of the program on the schematic you have created.

You can change your 'hardware' by rewiring the schematic, changing component values for resistors, capacitors etc. and deleting or adding new components to the design. You can change your firmware in the IDE of your choice and, once compiled, test the new code on the new system at the press of a button.

This gives you total freedom to experiment with different ideas and to find the optimal design solution for your project. The schematic serves as a 'virtual prototype' for the firmware and it's quick and easy to make changes to either.



Analysis of Microchip App Note TB085 - Microcontroller Friendly PWM Generators.

Productivity

Typically, engineers spend as much time finding and fixing problems and testing projects as they do in creating them in the first place. This is an area where Proteus VSM excels.

When working in Proteus and a breakpoint is set in the code the entire system stops when that line of code is reached. This effectively stops time, allowing the engineer to focus on debugging while protecting the design from unwanted real world effects (e.g. capacitors discharging, motors losing momentum) which often hinder static analysis.

Single step debugging then advances the entire system, showing the effects of the execution of that line of code on

the schematic (virtual prototype). This unique ability to control the program flow through the electronics of a design makes it easier to work out where a particular problem lies and whether the software design or hardware design is at fault.

If multiple engineers are working on a project it is perfectly possible to divide tasks and for one person to develop the PCB layout while another uses the schematic as the basis for writing, testing and debugging the firmware.

Alternatively, a single developer can evolve both hardware and firmware simultaneously, testing and advancing the project without needing a physical development board or testing equipment.

In either case it means that when the physical prototype finally arrives from the manufacturer the firmware has already been completed and tested. In turn this means that the system will require fewer physical design iterations and the product will therefore be market ready sooner.

Cost Advantage

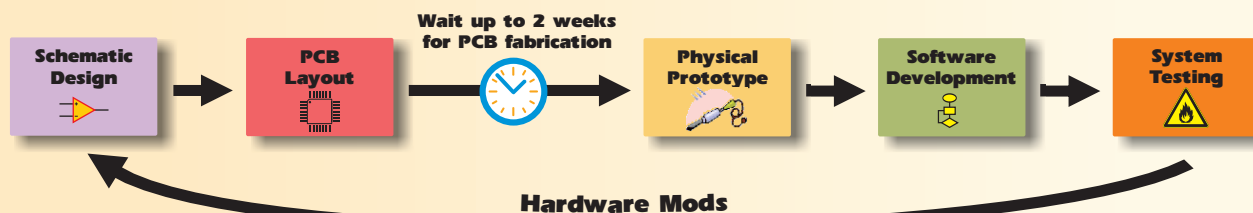
Proteus VSM will save time and effort during the design phase and in the testing/debugging phase. Both of these translate into cost savings for a project and these savings multiply with each additional project undertaken.

The ability to use the schematic in Proteus as a virtual prototype for firmware design and debugging improves the quality of the physical prototype. Less design iterations mean less delays at manufacturing and lower manufacturing costs.

Proteus comes equipped with a rich suite of instrumentation and analysis tools, from DSO to Logic Analyser to I2C and SPI Protocol Analysers. This makes it a mobile electronic workbench and reduces the need for expensive physical equipment.

The purchase price of Proteus VSM is itself extremely competitive and Labcenter is committed to maintaining the highest levels of price/performance.

The VSM Advantage



With traditional design tools, software development and system testing cannot begin until a PCB and physical prototype are available - incurring a delay of up to 2-3 weeks. And if something is wrong with the hardware design, the whole process must be repeated.



Using Proteus VSM, software development can begin as soon as the schematic is drawn, and the combination of hardware and software can be thoroughly tested before physical prototyping.

"I use Proteus VSM for PIC and the IAR C compiler which allows me to run PIC's to emulate all my mechanical devices as my 'test harness' prior to developing the system proper. I estimate that my development time is now 20% of what it was before for any given design, and because of the general flexibility and information views, simulations can be run as a virtual world tests in their harnesses for days at a time and I can minimise the testing when I build in the real world."

Rob Youngs - Tempus Consulting