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Proteus VSM for 8051/52;

System Level Simulation for 80C51/52 Variants.

Summary

Proteus Virtual System Modelling (VSM) combines mixed mode SPICE circuit simulation, animated components and microprocessor models to facilitate co-simulation of complete microcontroller based designs.The 'Proteus VSM for 8051/52' product includes the following main software modules:

- Professional Schematic Capture module

- ProSPICE professional Simulation Engine

- All supported VSM microcotroller variants in the 8051/52 Family.

- All of the Proteus Embedded Simulation Peripheral Libraries.

- VSM Studio IDE with automatic compiler configuration.

- Over 10,000 standard simulation models.

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Variants

The following is a current list of supported variants in the 8051/52 family:

- Generic 80C31, 80C32, 80C51, 80C52, 80C54 and 80C58.
- AT89C51, AT89C52 and AT89C55.
- AT89C51RB2, AT89C51RC2 and AT89C51RD2
- P87C51FA, P87C51FB, P87C51FC
- P87C51RA+, P87C51RB+, P87C51RC+, P87C51RD+

Features

We believe our simulation models are the most accurate and the most complete on the market today. A summary of model capabilities is listed below:

- The entire instruction set and SFR's.
- Supports all port and other I/O pin operations.
- All on-chip peripherals including timers and UART in all modes of operation (see limitations).
- All interrupt modes.
- Internally generated processor clock for performance. Event timing accurate to one clock period.
- Provides internal consistency checks on code (e.g. execution of invalid op-codes, illegal memory accesses, stack overflow checking, etc.).
- Fully integrated in to the VSM source level debugging system.
- Fully integrated into the Proteus Diagnostic Control System.

Limitations

The following is a listing of known limitations in the current version of the 8051/52:

x The X2, SPI and keyboard interrupt mode of the AT89C51Rx2 Variants are not modelled.

Compilers

Supported Third Party Compilers

Proteus VSM models will fundamentally work with the exact same HEX file as you would program the physical device with. However, far more debugging information is available when using a compiler to write the firmware and providing these object files to Proteus in place of the HEX file provides a much richer working environment.

We recommend you use the free Labcenter VSM Studio IDE. This will greatly simplify the task as it will automatically configure supported compilers to work with a Proteus VSM simulation.

If you prefer to work inside your own IDE then you will need to set your compiler options manually. After compiling for debug, all you need to do is specify the debug file from the compiler as the program property of the microcontroller on the schematic.

VSM Studio supported toolchains

- IAR
- Raisonance
- SDCC
- KEIL

With continual development on the Proteus Design Suite we endeavour to keep all content updated with the latest product details. On rare occasions this may not happen immediately, and website content will then be incomplete or inaccurate. We will attempt to correct any such errors as soon as possible, E&OE.