SIMCODER MODULE

For automatic code generation

POWERSIM

Generating C code from control schematic with the click of a button

The SimCoder Module provides the capability to generate C code automatically from the control schematic.

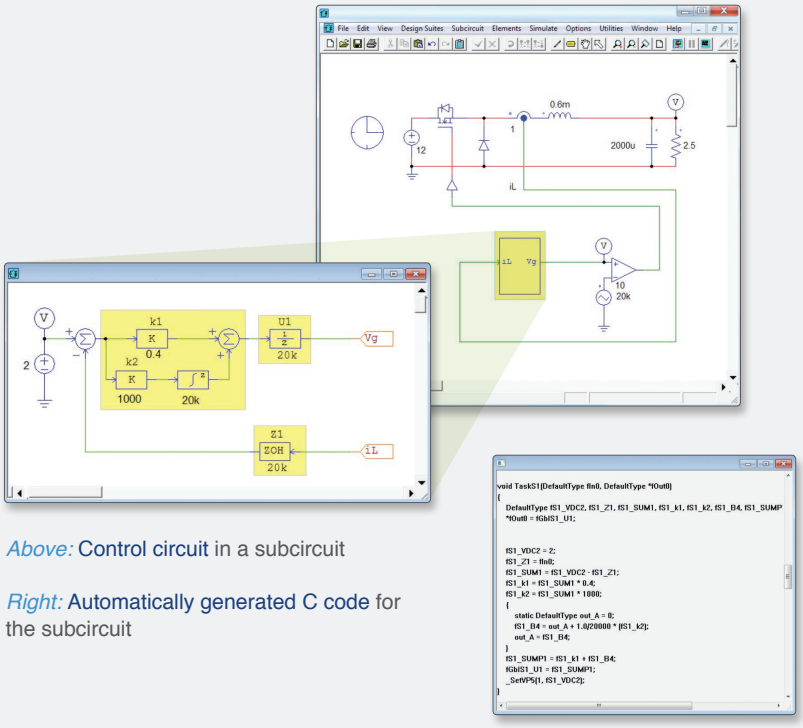
In many applications, control algorithms are implemented in microcontrollers/DSPs. Engineers are faced with the task of translating a control schematic into C code. This requires engineers with good programming skills. Also, since hand written code is prone to bugs and human errors, extensive testing is required.

Automatic code generation, on the other hand, offers significant advantages over hand code writing. After the control algorithm is verified in a simulation, the C code is generated automatically with the click of a button, greatly reducing the time of code development. Also, since the code is generated automatically, it is consistent in quality, and is less prone to errors.

Furthermore, together with one of PSIM's hardware targets (such as F2833x Target or F2803x Target), SimCoder can generate code that is ready to run on the specific target DSP hardware. The ability to go from control schematic to hardware code generation provides a seamless integration between simulation and hardware implementation, and greatly speeds up the development and design process.

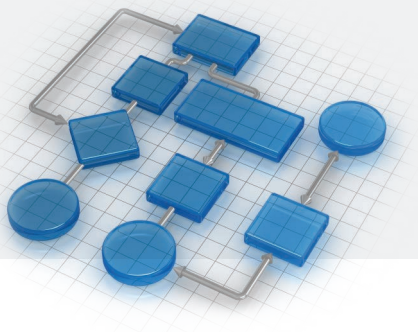
FEATURES AND BENEFITS

- Automatic code generation; no programming skills needed
- High-quality and consistent code with no human errors
- Hardware code generation together with hardware targets



Above: Control circuit in a subcircuit

Right: Automatically generated C code for the subcircuit



For more information and to purchase: WWW.POWERSIMTECH.COM

HARDWARE TARGET MODULES

Automatic code generation for microcontroller/DSP hardware

POWERSIM

One-stop solution from simulation to hardware implementation

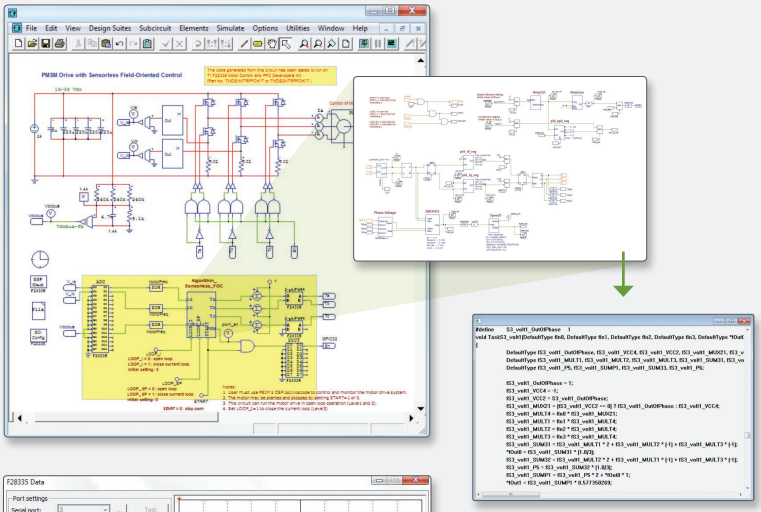
PSIM's Hardware Target Modules, together with the SimCoder Module, provide the capability to automatically generate C code that is ready to run on specific target DSP hardware.

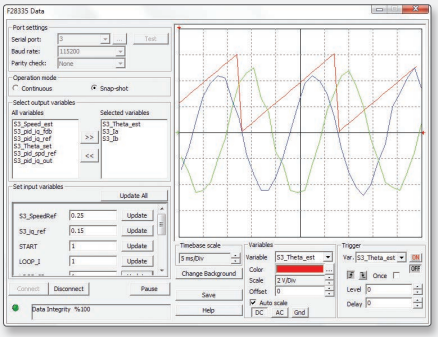
Digital control implementation in a microcontroller/DSP is a time-consuming process due to the fact that the learning curve to write hardware control code is very steep. Also, debugging the control code is not easy as intermediate quantities are inside DSP and are not readily available. This often results in long development time and high development cost.

With the Hardware Target Modules one can simulate a system in PSIM at the schematic level, then generate the hardware code from the control circuit automatically. This offers significant advantages over manual code writing in that the control algorithm can be validated thoroughly in simulation. Also, engineers can concentrate on control algorithm development and performance enhancement rather than on learning the details of the hardware.

Automatic hardware code generation offers additional benefit that, for fixed-point programming, factors such as scaling and overflow, which are difficult to deal with in the hardware implementation, can be easily handled in simulation.

In addition, PSIM offers the DSP Oscilloscope function that allows DSP waveforms and parameters to be displayed and changed in real time. This makes it very easy for code testing and debugging.





Above: PMSM drive system with auto generated code

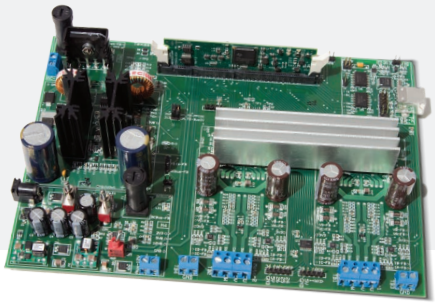
Left: DSP Oscilloscope for real time DSP waveform display

FEATURES AND BENEFITS

- Hardware code generation directly from control schematic
- Support of both floating-point and fixed-point DSP
- DSP Oscilloscope for real-time control and waveform display

HARDWARE TARGETS CURRENTLY OFFERED:

- F2833x Target: For TI F2833x series DSP
- F2803x Target: For TI F2803x series DSP
- PE-Pro/F28335 Target: For Myway's PE-Pro/F28335 board
- PE-Expert3 Target: For Myway's PE-Expert3 development system



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