

Simplify your power electronics and motor drive design



POWER SUPPLY DESIGN

Power converter and inductor losses can be easily evaluated in PSIM. Also, going from open loop to closed loop with a standard or novel topology is a straightforward and efficient process. AC analysis can be performed on switching models directly, and digital delay can be included to design directly in the z-domain. A library of PWM control ICs is also available for a full power supply simulation.



MOTOR DRIVE DESIGN

Use the Motor Control Design Suite to implement a sensed or sensorless PMSM or induction machine drive. The Design Suite greatly speeds up your design process with a stable closed loop solution. A comprehensive electric machine library is provided, including PMSM model with the effect of spatial harmonics and saturation.



SCRIPTING & SCHEDULED SIMULATIONS

PSIM provides a powerful scripting language that allows you to automate your simulations and analysis. Any circuit attribute or simulation parameter can be changed by the script. Simulations can run sequentially with initial conditions being passed. Analyze waveforms on the fly to generate custom waveforms or reports.

Fast simulation. Friendly user interface. Trusted results. Built by engineers, for engineers. PSIM delivers a powerful simulation environment.

Speed up development and reduce costs with PSIM. Validate designs quickly and accurately, with the ability to integrate with popular engineering platforms.

DIGITAL CONTROL IMPLEMENTATION

Users can design control directly in the z-domain with a full suite of discrete elements. C code can be automatically generated from the schematic for seamless implementation on a supported TI C2000/6000 DSP. The automatic embedded code generation capability provides a true Rapid Control Prototyping workflow with either floating point or IQmath fixed point code.

MULTI-LEVEL SWITCH MODELS

Using one switch model to simulate control, gate drive, switching & conduction losses, conducted EMI, etc. is not practical when simulation time and complexity is considered. PSIM provides a selection of switch models for optimal simulation performance: Ideal, Level 1, Level 2, Thermal, and SPICE.

SOLAR AND WIND POWER SYSTEMS

Photovoltaic, wind turbine, and battery models with varying complexity are provided for renewable energy and microgrid simulations. Sample MPPT and complete wind power system examples are available. With no limit on switch numbers or topology, systems of any size and complexity can be simulated efficiently.

MAGNETICS DESIGN

Magnetic circuits with air gaps, leakage, and saturable cores can be defined. Additionally, inductor losses can be simulated with a database of manufacturer core materials and shapes. Winding configuration, wire type (round, square, litz), and proximity to core allow the model to provide winding and core losses that include proximity and skin effect impacts.

WIDE BAND GAP DEVICES (SIC & GAN)

Evaluating the benefits of SiC/GaN and comparing with traditional devices is straightforward with PSIM's multi-level switch models. Thermal loss models specifically for WBG operating characteristics are available along with novel WBG SPICE models which feature more robust simulation performance than standard behavioral models.

CODE VERIFICATION

A built-in C compiler allows code to execute with a simulated power stage. IQmath data type can be assigned to check for fixed-point overflow. A processor-in-the-loop simulation can test how your code actually executes on the MCU, critical for time sensitive or fixed point implementations. FPGA users can validate Verilog/VHDL code with ModelSim co-simulation.

ADD-ON MODULES

SPICE

Support for SPICE models and SPICE simulation

Motor Drive

Adjustable speed drives & motion control

Digital Control

Digital control systems in z-domain

SimCoupler

Co-simulation with Matlab/Simulink®

Thermal

Quick power loss calculation

Renewable Energy

Solar/wind power & energy storage systems

HEV Design Suite

Hybrid electric vehicle powertrain system design

Motor Control Design Suite

Motor drive system controller design

SimCoder

Automatic code generation from schematic to C code

Hardware Targets

Auto code generation for TI's F2833x, F2837x, F2803x, F2802x, F2806x series DSP, and Myway PE-Expert4 hardware

PIL

Processor-In-the-Loop simulation with TI DSP

MagCoupler & MagCoupler-RT

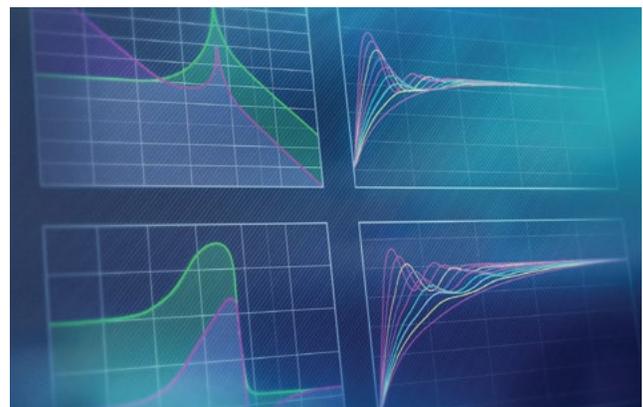
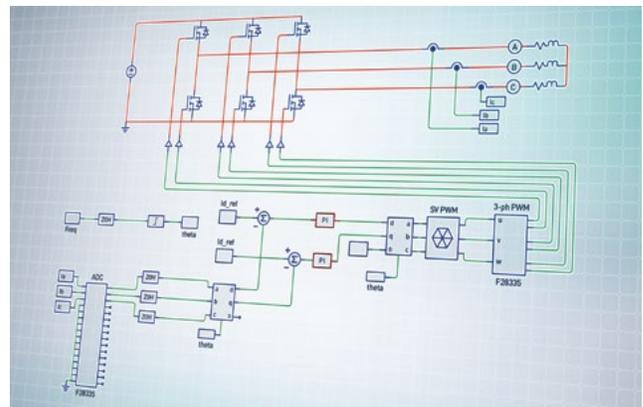
Co-simulation with JMAG® and link to JMAG-RT files for finite element analysis

ModCoupler-VHDL & ModCoupler-Verilog

Co-simulation with ModelSim® for VHDL & Verilog support

PsimBook Exercise

Interactive, electronic textbook to master circuit simulations



SMARTCTRL PRO SOFTWARE

A complimentary software tool to design controllers of power converters.

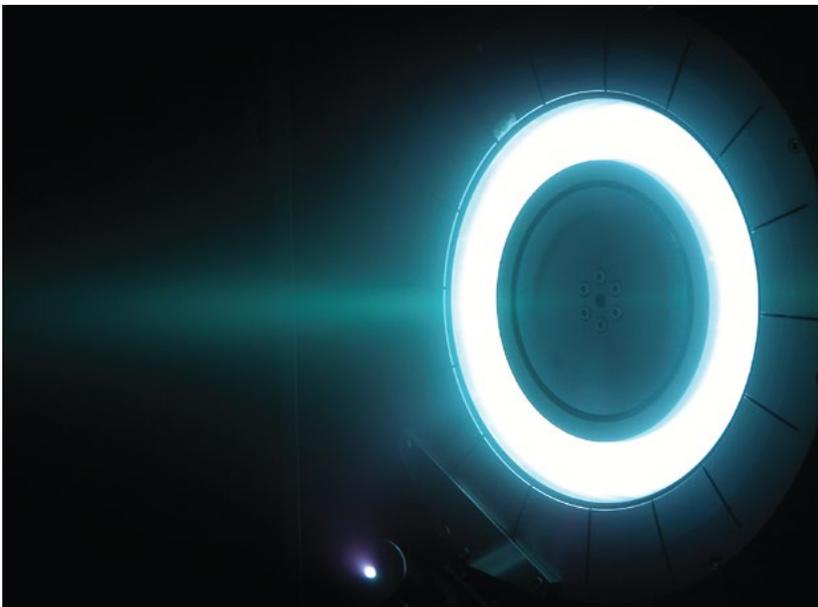
MORE:

<https://powersimtech.com/products/smartctrl/>



PSIM has a comprehensive library of generic power electronics components, signal sources, control blocks, and measurement functions. It is quick and easy to set up, simulate, and probe even a very complicated system... It became an indispensable tool that I am turning to on a daily basis.”

— Richard Redl, Redl Consulting



SUPPORT/TRAINING RESOURCES

We provide expert technical support from power electronic engineers with a direct line of contact to a committed support team. A fast learning curve means easy implementation and seamless adoption. Through email, online, or phone support, access PSIM's resources on your terms and when you need it.

VIDEOS

Getting started to advanced topics, on demand. 50+ videos available.

APPLICATION EXAMPLES

Hundreds of models & pre-built schematic files.

LIVE WEBINARS

Interactive & catered to current interests.

Try PSIM, explore the possibilities: powersimtech.com/try-psim/



+1 301 841 7445

powersimtech.com