eHS32 Solver | OP4510

Power electronics HIL simulator

BDL45-300

COMPLETE AND FLEXIBLE SOLUTION FOR YOUR HIL SIMULATION NEEDS

Dimensions: 17” (W) x 10.8” (D) x 3.5” (H)

HIGHLIGHTS

- Optimal power/speed ratio with a powerful combination of CPU/FPGA.
- Fast optimized I/O and a comprehensive library for power electronics applications.
- High precision three-phase PWM capture and generation, and other timed signals (Encoder, Resolver, Hall Effect).

DESCRIPTION

Powered by our renowned eHS electrical solver, the OP4510 HIL system offers the best performance at an affordable price. Equipped with four core processors and FPGA, it delivers a scalable solution for your power electronics simulations.

PURPOSE

Evolve from introductory to advanced model simulations using power electronics schematics (designed with MATLAB/Simulink®, PLECS®, PSIM® or NI MULTISIM®) in RT-LAB to run your most innovative HIL tests and validations.

APPLICATIONS

Battery management system and battery simulation, power electronics converters, electric motors, power grid connected HIL simulation, supervisory control and data acquisition systems, high-level control and low-level control for microgrid, renewable, sun, wind, battery, energy storage and other.

KEY PERFORMANCE SPECS

- Switching Frequency - up to 200 KHZ
- Control loop minimum delay - 1.5 µs
- Model minimum time step - 3 µs (CPU), 125 ns (FPGA)
- Number of electrical motors on FPGA – 2 motors
- Number of power electronics switches: 48 switches on 1 FPGA

TYPICAL USE CASE

HIL Process

System Configuration

System Configuration	Baseline
HARDWARE	
OP4510 Simulator Intel Xeon CPU - 4 cores - 3.5 GHz, Xilinx FPGA Kintex®-7 325T Connectivity - Ethernet port 10/100/1000 Mbps (2x RJ45). RS232 (DB9), USB2.0, 5-Gbit/s high-speed fiber optic link (4x SFP)	✓
Digital input | 32 channels, 4.5V to 50V, 40 ns high-speed digital I/O	***
Digital output | 32 channels, 5V to 30V, 200 ns to 65 ns	***
Analog input | 16 channels, 16 bits, 500 kS/s, +-20V	***
Analog output | 16 channels, 16 bits, 1MS/s, +-16V	***
Analog input | 16 channels, 2MS/s, 16bits, +-20V	***
Timed generation and measurement firmware | Selectable 32 timed digital inputs and 32 timed digital outputs	***
RS422 Adapter	***
SOFTWARE	
RT-LAB | Real-time simulation software	✓
eHS32 power electronics solver provides 48 coupled switches	✓
RT-XSG | RT-XSG toolbox for FPGA real-time simulation	***
COMMUNICATION PROTOCOLS	
CAN bus interface board	***

*** Optional