

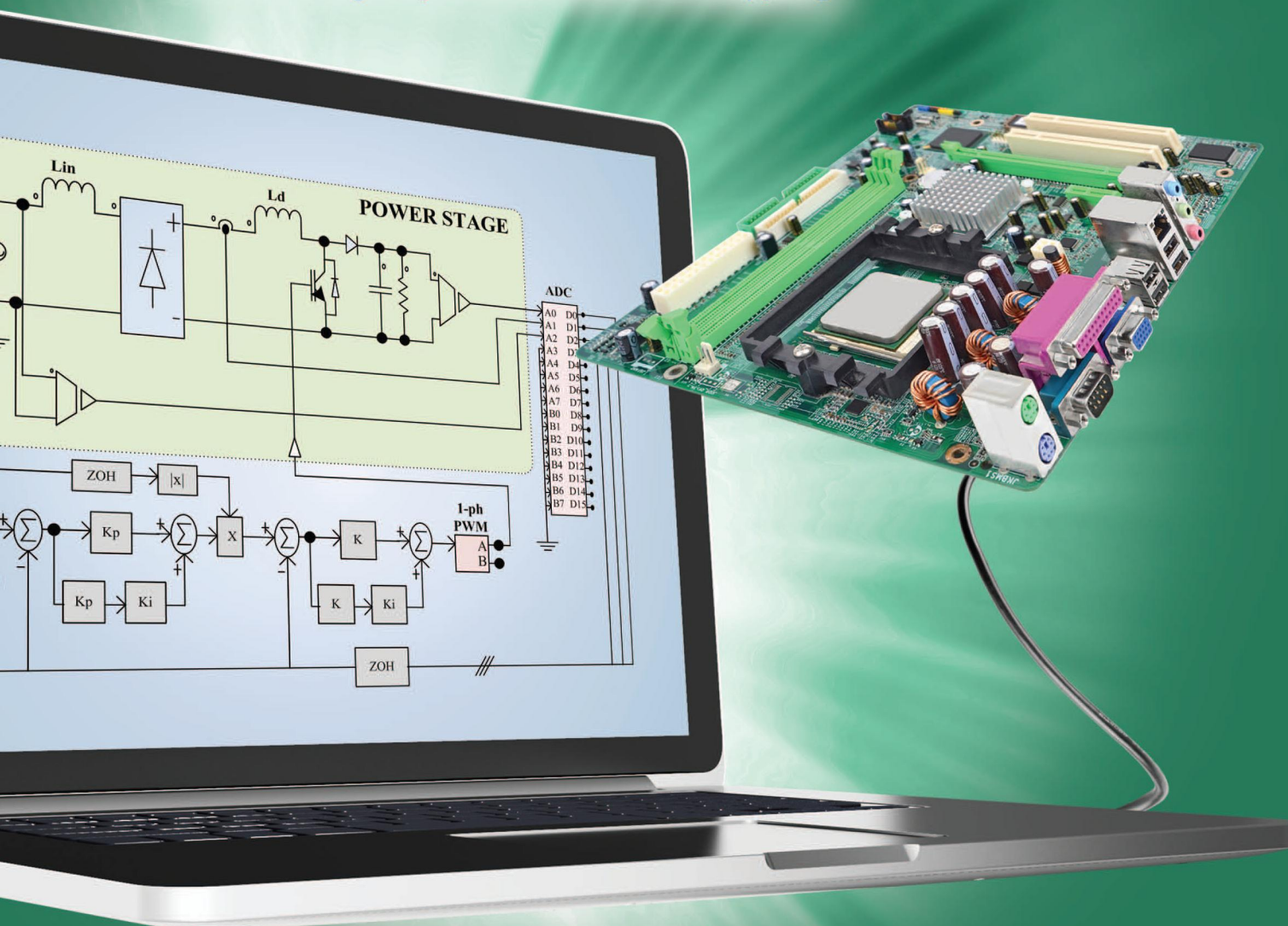
IEEE Power Electronics Magazine

For your engineering success

Magazine

Processor-in-the-Loop

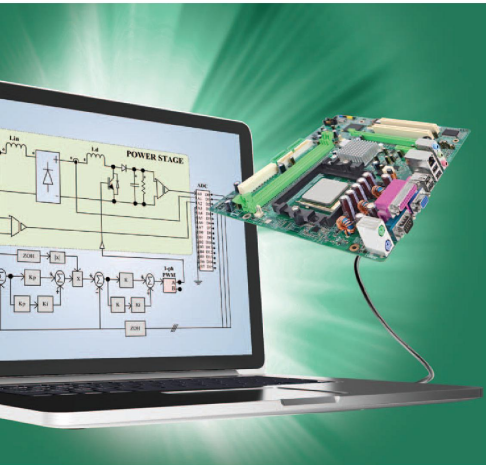
Facilitating Rapid Hardware Prototyping



IEEE Power Electronics

For your engineering success

Magazine



On the cover

Dare to be different! In our first feature article, "A Low-Cost, High-Fidelity Processor-in-the-Loop Platform," a different way of developing and testing controllers is examined. In the authors' approach, the actual power stage (hardware) is replaced by a simulated power stage modeled in a simulation software.

BACKGROUND IMAGE ©ISTOCKPHOTO.COM/IVANASTAR, LAPTOP IMAGE LICENSED BY GRAPHIC STOCK, CIRCUIT IMAGE ©ISTOCKPHOTO.COM/UNKAS_PHOTO, CABLE IMAGE LICENSED BY INGRAM PUBLISHING

Departments & Columns

- 4 From the Editor
- 8 President's Message
- 13 Letter to the Editor
- 16 Patent Reviews
- 64 Entrepreneur Viewpoint
- 66 Society News
- 71 Event Calendar
- 76 White Hot



Features

- 18 A Low-Cost, High-Fidelity Processor-in-the-Loop Platform**
For rapid prototyping of power electronics circuits and motor drives
Harsh Vardhan, Bilal Akin, and Hua Jin
- 29 Medium-Voltage Drives**
Challenges and the existing technology
Haitham Abu-Rub, Sertac Bayhan, Shaikh Moinoddin, Mariusz Malinowski, and Jaroslaw Guzinski
- 42 Power System Infrastructure**
Do we face a complete power-electronics-based power system and energy-storage infrastructure?
Johan H. Enslin
- 46 Understanding the Challenges of Converter Networks and Systems**
Better opportunities in the future
Braham Ferreira
- 50 Transportation Electrification**
Challenges and opportunities
Don Tan
- 53 Power-Semiconductor Devices and Components for New Power Converter Developments**
A key enabler for ultrahigh efficiency power electronics
Juan Carlos Balda and Alan Mantooth
- 57 APEC Signals Emerging Trends**
A focus on advancements in GaN integration, SiC devices, high step-down converters, and passives
Ashok Bindra