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## Efficient Power Supply Design Competition Winners Announced at APEC

*Power supply manufacturers and university teams respond to  
Efficiency Challenge 2004 with exemplary designs*

### Applied Power Electronics Conference (APEC) – Austin, Texas – March 7, 2005 – The U.S.

Environmental Protection Agency (EPA) and the California Energy Commission will announce the winners of Efficiency Challenge 2004, an international design competition for power supply efficiency, at APEC's Monday plenary session. Power Integrations will be awarded Grand Champion in the Market Ready Category and the Hong Kong Polytechnic University will be awarded Grand Champion in the Open Category. The winning entries are more energy efficient, and in many cases radically smaller, than typical power supplies on the market today, demonstrating what is possible in future consumer electronics products.

The *Market Ready Category* covers internal and external designs that can cost-effectively save energy in particular types of consumer electronics products. The *Open Category* showcases the most efficient power supply designs from industry and academia without cost or packaging constraints. Entries were received from companies and universities in the United States, Taiwan and Hong Kong. All winners are listed below along with the product types the units are intended to power.

Category	Award	Organization	Type of Product Powered
Market Ready	Grand Champion	Power Integrations	Cordless phone
Market Ready	Best in Class A1	Power Integrations	Cordless phone
Market Ready	Best in Class A	AcBel Polytech, Inc.	Desktop computer
Market Ready	Best in Class D2	AcBel Polytech, Inc.	Laptop Computer
Open	Grand Champion	The Hong Kong Polytechnic University	Stand alone battery charger
Open	Best in Class A2	The Hong Kong Polytechnic University	Stand alone battery charger
Open	Best in Class A1	The University of Illinois	Cordless vacuum, stand alone AA battery charger
Open	Best in Class B2	The Hong Kong Polytechnic University	Cordless phone
Open	Best in Class C2	Dartmouth College	Office phone, computer peripheral
Open	Best in Class D1	National Taiwan University of Science and Technology	LCD Monitor
Open	Best in Class D2	Texas A&M Lite-On Technology Corporation	Laptop computer, all-in-one small form factor desktop
Open	Honorable Mention	BIAS Power Technology, Inc.	Substitute for car-type charger

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When the contest was first announced at APEC 2004, the intent was to showcase highly efficient technologies and foster their success in the marketplace. Since then, the Energy Commission passed mandatory standards in December 2004 and the EPA's ENERGY STAR® program launched a voluntary labeling specification in January 2005 – both for external power supplies. Most of the winning entries not only meet those programs' requirements, but also go well beyond them, cutting energy bills for the devices they power. More than 3.1 billion power supplies are currently in use in the United States, consuming about 3 percent to 4 percent of the nation's electricity bill. More efficient designs could cut total U.S. electricity use by 1 percent to 2 percent, saving \$2.5 billion to \$5 billion per year, according to research by Ecos Consulting.

"The vision for Efficiency Challenge was to achieve dramatic improvements in the energy efficiency of the most widely purchased types of power supplies," said Art Rosenfeld, California Energy Commissioner and presiding member of its research and development committee. "We congratulate the winners in the Market Ready Category for leading their industry, and applaud the winners in the Open Category for demonstrating what is possible in the future."

"EPA invested in Efficiency Challenge to encourage power supply innovations that will lead to more energy-efficient ENERGY STAR consumer and office electronic products," said Andrew Fanara of the EPA's ENERGY STAR program, who unveiled the ENERGY STAR specification for energy-efficient external power supplies on Jan. 6. "These more energy-efficient designs will save energy and money while also helping to combat the risk of global warming."

Efficiency Challenge 2004 also marked an unusual collaboration between industry and government. The Power Sources Manufacturers Association (PSMA) endorsed the contest, and several companies from the industry provided key support:

- ON Semiconductor (Nasdaq: ONNN) provided technical assistance and sample parts to university teams submitting entries, as well as financial awards totaling \$8,500 for winning submissions (see [www.onsemi.com](http://www.onsemi.com)).
- Yokogawa served as the official metering sponsor, providing its WT1600 six-channel digital power meter for testing entries.
- Intel, Sony and Pace Micro served as Industry Champions for the competition, providing suggested form factors, loading guidelines and other market-relevant design constraints for several internal power supply categories.

Power supplies are devices that convert incoming AC (alternating current) power from wall outlets into low voltage DC (direct current) power needed for numerous consumer and office electronic products, such as cellular and cordless phones, computers, televisions, etc. The EPA's ENERGY STAR program and the Energy Commission's Public Interest Energy Research (PIER) program have identified AC-DC power supplies as a major opportunity for reducing global energy consumption and greenhouse gas emissions.

Highly efficient power supplies offer powerful advantages to consumers. They tend to be much smaller and lighter than typical power supplies, increasing portability and convenience. They produce very little waste heat as well, so rarely require noisy cooling fans. EPA estimates that efficient external power supplies alone could save the United States 5 billion kWh per year, equivalent to preventing the emissions of 700,000 cars.

Visit <http://www.efficientpowersupplies.org/competition.html> for more information on power supply efficiency or to download the complete Efficiency Challenge 2004 press kit. Visit [www.energystar.gov/powersupplies](http://www.energystar.gov/powersupplies) for more information about the ENERGY STAR external power supply specification, and [http://www.energy.ca.gov/releases/2004\\_releases/2004-12-15\\_appliances.html](http://www.energy.ca.gov/releases/2004_releases/2004-12-15_appliances.html) to learn more about the California Energy Commission's external power supply standard.

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