

A look forward from electronica



With electronica now receding in our collective rearview mirrors, we can look forward along the road we are travelling into the future and think about what we saw at the event that will help us along the way. Trade shows can be a great way to discover where we are and where we are heading.

Power had a strong presence at the show, from the micro to the macro. At the component level, new gallium nitride (GaN) and silicon carbide (SiC) devices are pushing the envelope for what can be done with a transistor. Examples include IR's 100-W (RMS) audio power amp using a single GaN chip and Cree's half-bridge hard-switched SiC MOSFET DC/DC converter delivering 10.38 kW at 97.5% efficiency (they also showed me a 6-inch(!) SiC wafer). At the board level, more and more high-power inductor-included point-of-load power supplies are available from companies like Murata and TI, and [highly-integrated advanced power ICs](#) [1] are being created by more and more manufacturers. Alternate energy was also a notable topic, with companies like [Nextreme showing devices that can harness power](#) [2] from temperature differentials of as little as 15 degrees.

In optoelectronics, solid-state lighting (SSL) is getting much-needed support from power suppliers with new solid-state lighting drivers (SSLD), thermal materials, and packaging options to give designers the ability to create new and better luminaires. Molex, a newcomer to the SSL industry, has taken the market by storm with their Helion modular SSL building blocks, enabling traditional lamp manufacturers to create SSL luminaires with minimal EE support. Light-guide manufacturer GLT was showing some new and interesting ways to use LED light guide technology to create cool new illuminated facades for next-generation set-top boxes and consumer electronics.

Packaging and interconnects are also rising to the new performance demands of the latest electronics at every level, from high-amperage [e-vehicle charging e-nozzles \(we do need to call them something\)](#) from companies like ITT [3] that enable fast recharge times to new board-level connectors from AVX that give the engineer more flexibility (no pun intended) in their system design.

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As for trends, building-block subsystems and design tools were very prevalent in every product category, as companies address the designer's need to get solutions developed, tested, and built in ever-shrinking design cycles with increasing pressure to add across-the-board functionality and systems integration. Ubiquitous computing is now only a matter of deployment, as all the elements are now in place, from advanced microcontrollers with included wireless, memory, and peripherals on-chip to better touchscreens, displays, and power systems.

Soon the pervasive computing environment will be apparent from all the screens everywhere that link to everything, regardless of location (does the explosion of kiosk-oriented touchscreen deployment mean that keyboards will only exist in docking stations on desktops?) Phone apps and peripherals will add to this, as the web-based "Cloud" cover extends from the thin-client kiosk at the bus stop to the phone in your hand. Augmented reality, now in its infancy, will also continue to develop as these tools are harnessed to overlay the world around us with virtual signage, games, and art (and maybe even some real functionality).

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