Synopsys and Acceleware Deliver Hardware Accelerated Solution for Design of Optoelectronic Devices

New Solution Speeds Electromagnetic Simulation of CMOS Image Sensors by Up to 20 Times

CALGARY, Alberta, and MOUNTAIN VIEW, Calif., Jan. 22 /PRNewswire-FirstCall/ -- Acceleware Corp. (TSXV: AXE), a leading developer of high performance computing (HPC) applications, and Synopsys, Inc. (NASDAQ: SNPS), a world leader in software and IP for semiconductor design and manufacturing, today announced a new hardware solution that enables up to 20-times faster electromagnetic simulation of optoelectronic devices such as CMOS image sensors. The solution, which links Synopsys' technology-leading TCAD Sentaurus™ Device simulation software and Acceleware's ClusterInABox Quad Q30 workstation, enables an order-of-magnitude speed-up of the high accuracy finite-difference time-domain (FDTD) electromagnetic modeling algorithm used in Sentaurus Device. This performance increase allows engineers to leverage the rigor and accuracy of the FDTD method in designing and optimizing optoelectronic devices while shortening the product development cycle. Synopsys and Acceleware will demonstrate the joint solution at Photonics West 2008 (Jan. 19-24, 2008, San Jose, CA) in Synopsys' booth #6067.

In the rapidly growing optoelectronics market, manufacturers are under constant pressure to produce higher performance devices in a shorter time. For example, CMOS image sensors, which are used widely in camera phones, webcams, digital cameras, and camcorders, have to pack more pixels into each device generation, as well as be cost-effective to produce. TCAD tools are well-suited for optoelectronics manufacturers designing more sophisticated devices and performing complete characterization of their device structures over a wide range of light incidence angles, lens shapes, pixel sizes, and other factors prior to manufacturing. This high-performance, cost-effective solution also allows the statistical analysis of the impact of manufacturing variations, such as lens misalignment, through multiple simulations.

Due to the complex nature of optoelectronic devices, FDTD simulations typically require tens of hours to fully characterize a CMOS image sensor design in 3D. The new hardware acceleration solution reduces the FDTD simulation time by up to 20 times, allowing engineers to carry out more extensive simulation studies, reducing development costs and time. TCAD Sentaurus Device simulation software utilizes the ClusterInABox Quad Q30's built-in NVIDIA graphics processing units (GPUs), which deliver up to two Teraflops of computational power, to significantly accelerate FDTD simulations of optoelectronic devices.

"The collaboration between Synopsys and Acceleware brings powerful TCAD simulation capabilities to our mutual customers, who are constantly looking for ways to reduce costs and time in developing advanced semiconductor devices," said Terry Ma, group director, TCAD Business Unit at Synopsys. "Customers can now take advantage of this combined software and hardware solution to explore more design options and to optimize performance, manufacturability and yield for these complex optoelectronics device structures."

"Process and device engineers are continuously challenged with improving product performance in a shorter development cycle," said Ryan Schneider, Acceleware's chief technology officer. "Our deskside supercomputing solutions provide the fastest FDTD processing on the market, opening up new possibilities in innovation and product delivery for engineers working with Synopsys' sophisticated TCAD solution. The end result for manufacturers of optoelectronic devices is the ability to deliver higher quality products to their customers more quickly, without raising costs."

Availability

The Synopsys interface, TCAD Sentaurus™ Device EMW-X, is now available through TCAD Sentaurus™ Device EMW. The ClusterInABox Quad Q30 workstation is available for purchase directly from Acceleware. To view a demo of this joint solution from Synopsys and Acceleware, please visit booth #6067 at Photonics West, or visit: https://www.synopsys.com/news/events/conference08/photonics_west08.html for more information.

About Acceleware

Acceleware specializes in the development and marketing of special purpose software/hardware acceleration products used to reduce design simulation and data processing run-times of high performance computing (HPC) applications such as cell phone design, seismic data processing, printed circuit board design, drug discovery, photonic/communications devices design, oil reservoir simulation, bio-medical imaging and others.

Acceleware products are distributed to end-users at the world's largest organizations in a wide range of industries. In each vertical market, Acceleware's third-generation board-level and engineering workstation products accelerate simulation and processing algorithms by a factor of 10 times or more, on average, reducing runtimes from multiple hours to minutes.

Acceleware is a public company on Canada's TSX Venture Exchange under the trading symbol AXE.

For more information about Acceleware, please visit http://www.acceleware.com/.

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About Synopsys TCAD

Technology CAD (TCAD) refers to the use of computer simulation to model semiconductor processing and device operation. TCAD provides insight into the fundamental physical phenomena that ultimately impact performance and yield. The Synopsys DFM solution incorporates TCAD to provide a bidirectional link between manufacturing and design.

About Synopsys

Synopsys, Inc. (NASDAQ: SNPS) is a world leader in electronic design automation (EDA) software for semiconductor design. The company delivers technology-leading system and semiconductor design and verification platforms, IC manufacturing and yield optimization solutions, semiconductor intellectual property and design services to the global electronics market. These solutions enable the development and production of complex integrated circuits and electronic systems. Through its comprehensive solutions, Synopsys addresses the key challenges designers and manufacturers face today, including power management, accelerated time to yield and system-to-silicon verification. Synopsys is headquartered in Mountain View, Calif., and has more than 60 offices located throughout North America, Europe, Japan and Asia. Visit Synopsys online at https://www.synopsys.com/.

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Editorial Contacts:
Sheryl Gulizia
Synopsys, Inc.
650-584-8635
sgulizia@synopsys.com

Lisa Gillette-Martin
MCA, Inc.
650-968-8900 x115
lgmartin@mcapr.com

Heidi Lowell
Liaison, Inc.
503-796-9822
heidi@liaisonpr.com

Kerry Tescher
Liaison, Inc.
415-391-0859
kerry@liaisonpr.com

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CONTACT: Sheryl Gulizia of Synopsys, Inc., +1-650-584-8635, sgulizia@synopsys.com; or Lisa Gillette-Martin of MCA, Inc., +1-650-968-8900, ext. 115, lgmartin@mcapr.com; or Heidi Lowell, +1-503-796-9822, heidi@liaisonpr.com; or Kerry Tescher, +1-415-391-0859, kerry@liaisonpr.com, both of Liaison, Inc.

Web site: https://www.synopsys.com/
http://www.acceleware.com/