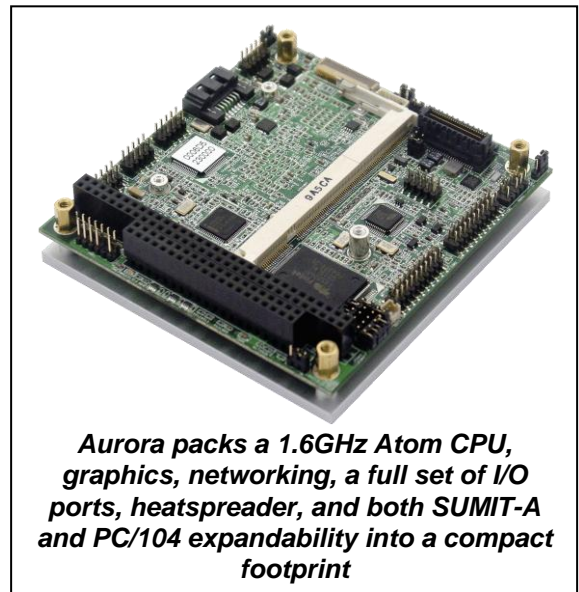# DIAMOND SYSTEMS CORPORATION

Conduction Cooling Augments Legacy PC/104 Market
Breakthrough Intel® Atom SBC from Diamond Systems Renews Interest in Stackable Architectures

September 14, 2010; San Francisco, Calif. -- Diamond Systems Corp., a leading supplier of ruggedized single-board computers (SBCs) and expansion modules for real-world applications, launched today at the Intel Developer Forum (IDF) the Aurora single board computer (SBC) as a much-needed technological breakthrough in small form factor (SFF) embedded computing. Featuring the 1.6GHz Atom™ Z530 processor from Intel, Aurora combines US-based rugged design know-how with advanced manufacturing process techniques to achieve a rich feature set in the tiny 3.6x3.8" PC/104 form factor. Best of all, Aurora uses a simple yet unprecedented thermal design among stackable SBCs to reduce size, weight and power and cost (SWaPaC) compared to legacy VME and PC/104 SBCs.

"With the end-of-life of the 855 chipset in all form factors, popular Pentium® M and Celeron® M SBCs need to be replaced with power-efficient Atom-class products," said Colin McCracken, vice president of marketing at Diamond Systems. "Featuring conduction cooling, Diamond's new Aurora SBC stretches program budgets by providing an unmatched feature set. Half the size, weight, power AND cost is a compelling migration value proposition. For basic command, control, data collection, portable, vehicle upgrade and communications applications, the days of $1,000+ mid-range rugged SBCs are numbered thanks to Aurora's perfect-fit solution."

Aurora packs a 1.6GHz Atom CPU, graphics, networking, a full set of I/O ports, heatspreader, and both SUMIT-A and PC/104 expandability into a compact footprint

Aurora combines the 1.6GHz Atom Z530 processor with SODIMM RAM up to 2GB, Gigabit Ethernet, USB Flashdisk, Serial ATA (SATA), four RS-232 serial ports (two with RS-422/485 capability), four USB 2.0 ports, PS/2 keyboard and mouse, and both SUMIT-A and PC/104 ISA bus expansion. Prior to Aurora, this extensive feature set was typically accomplished by two-board stacks or SBCs with "wings" (form factor excursions). Compared to COM Express® modules which require +12V input and full custom carrier card designs, Aurora saves power by operating off a single low voltage +5V input, yet still allows I/O customization in the form of a plug-in SUMIT module. Diamond supports Windows® Embedded Standard and Linux® 2.6 operating systems.

Rugged features include -40°C to +71°C operation and an innovative new SO-DIMM solution with optional mounting holes for ruggedness. Diamond's rugged RAM offering will be manufactured by multiple embedded suppliers. The on-board SATA connector interfaces to SSDs with short 3" latching cables and no need for external SATA convertor. Diamond chose to convert IDE (PATA) to SATA on-board since IDE drives are EOL and SSDs are at risk of higher prices and shorter lifecycle compared to 2.5" SATA SSDs. Conduction cooling is the ideal solution for sealed (waterproof / dustproof) metal enclosures in order to prevent thermal runaway and maximize the reliability and longevity of electronics.

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Aurora is well suited as a basic x86 controller for a range of applications. SUMIT-A is a space-efficient interface for PCI Express x1, USB, LPC and I2C buses. The combination of SUMIT and PC/104 expansion interfaces is on a growth trajectory to support the largest overall ecosystem of stackable I/O cards, as PCI chips are becoming EOL in favor of PCI Express chips. System OEMs who use PC/104 I/O cards can now continue to use such cards without having to increase their stack height with a bridge card, or completely re-engineer their software and stack for PCI-based I/O cards.

Supported operating systems currently include Windows XP and Linux 2.6, with support for additional OSes and RTOSes (real-time OSes) available on request.

Pricing and Availability

Aurora samples are shipping within 30 days. Aurora pricing in OEM volumes starts in the upper $400s.

About Diamond

Founded in 1989, Diamond Systems was an early adopter of PC/104 technology and today is one of the leading worldwide suppliers of PC/104 I/O modules and highly integrated single board computers combining CPU and data acquisition on a single board. Diamond Systems is leading a paradigm shift in embedded computing offering perfect-fit system solutions. Our single board computers use conduction-cooling heat spreaders instead of traditional heat sinks for improved thermal dissipation and increased reliability. Expansion I/O modules can easily be stacked above the SBC or can even be inserted between boards in the stack. Privately held, Diamond Systems is based in Mountain View, California, in the heart of Silicon Valley.

For more information, visit www.diamondsystems.com or call 1-800-36-PC104.

Media Resources

High resolution images of Aurora may be downloaded by clicking on these links:

- Aurora angled view

Aurora's complete datasheet is available for download here:

- Aurora Data Sheet

For further information on Aurora, visit its web page:

- Aurora Web Page