

HyperX™ Technology

Next Generation Processor Chip for the Battlefield



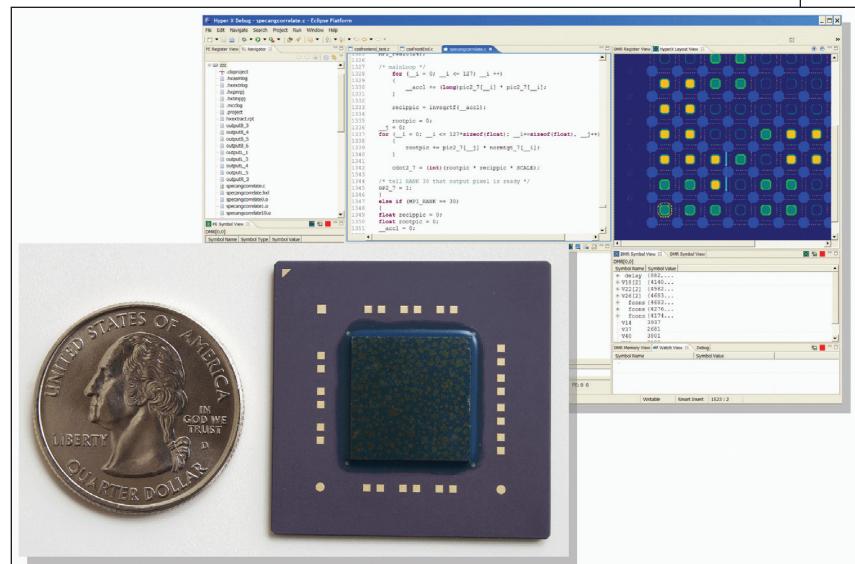
Technology and Innovation

Next generation embedded signal processing solutions must be able to transform dynamically to meet emergent threats and respond in real time to the demands of a network-centric battlefield. This requires immense computational speed in a reconfigurable, compact, low-power device.

HyperX™ technology from Coherent Logix, Incorporated is a new integrated hardware and software platform to enable embedded system solutions from algorithm to hardware. The HyperX processor is real-time reconfigurable and adaptable, and completely under software control—an approach that supports field upgrades and thus lowers system lifecycle costs. At the core of the HyperX processor is resource-balanced unit-cell-based hardware fabric that is designed to produce families of single chip processors.

Coherent Logix's companion software development tools provide a complete system-to-algorithm-to-hardware development flow for the HyperX processor families based on the American National Standards Institute's (ANSI) standard for C programming language.

The chip's ten-fold increase in both power and throughput performance over current state-of-the-art reconfigurable and general programmable processors will lead to small, lightweight, low-power, high-performance, real-time signal processing solutions that are



not feasible or deployable today. And HyperX's unique automated optimization capabilities will facilitate production of high-quality, fast and efficient designs, resulting in a rapid time-to-market development process.

Military applications for HyperX technology include hyperspectral and multispectral image/data fusion, software-defined radio (SDR), Synthetic Aperture Radar (SAR), portable sensor systems, remote sensor platforms, surveillance receivers, anti-jam Global Positioning System (GPS), automatic target recognition and threat cueing, ad-hoc networking, and secure data transmission.

Potential commercial applications include software-defined radio, video and image processing, data compression, encryption, and industrial and medical imaging.

HyperX Technology-based development methodology to enable real-time software-defined systems

Joint Collaborations

The HyperX technology has been developed in collaboration with military and civilian application sponsors as well as a prime contractor to ensure the technology meets the requirements of next generation commercial and military platforms. In addition to funds from DARPA, Coherent Logix received matching funds and sponsorship from the U.S. Air Force, U.S. Army, and the Joint Program Offices (JPEO/PEO/PM) to help implement HyperX technology for deployment in a variety of military systems.

Lessons Learned

- Consistently monitor both DoD research and operational programs to identify where the company's ideas for new technologies can be best aligned to meet current or emerging requirements.
- Be prepared to seize opportunities — such as DARPA SBIR solicitations — that allow you to prove the efficacy of your ideas
- Create a user feedback mechanism for the technology development phase of a program by gaining end-user sponsorship
- Build support with more than one DoD sponsor for a broadly enabling technology that cuts across multiple platforms and fulfills multiple program requirements.

Economic Impact

Coherent Logix has had substantial growth as a direct result of DARPA and other DoD SBIR funding. DARPA was instrumental in helping Coherent Logix secure funds from other DoD agencies and the venture capital community.

About the Company

Coherent Logix, Incorporated is enabling real-time software-defined systems through its HyperX technology-based development methodologies. Coherent Logix has two research and development facilities in Austin, Texas and Silicon Valley (Milpitas, California). Enjoying access to a wide variety of laboratories, resources, and intellectual capital in both markets, Coherent Logix possesses all the elements for successful growth. ■

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