

# » Application Story «

CompactPCI® in Military



## Kontron and Azimuth Sharpen the Department of Defense's Stiletto Boat Drug Interdiction



Azimuth, Incorporated has a long history as a government contractor successfully implementing and integrating the company's specialty, ruggedized systems and software into a variety of U.S. Navy and Department of Defense (DoD) programs. Working in some of the harshest environmental conditions imaginable in terms of corrosive saltwater, extreme shock and vibration and temperature fluctuations, systems and software from Azimuth have weathered them all without fail.



Image 1: The Azimuth/Kontron collaboration enables an unprecedented level of plug and play operations for the Office of the Secretary of Defense's (OSD's) Maritime Test Platform Stiletto.

## The Challenge

A powerful, scalable and open embedded computing system for today's specialized and complex boats operating in ultra rugged environments.

The Department of Defense designed the Stiletto program to be a challenge; testing contractors to find and implement new technologies and methodologies allowing the DoD to take full advantage of latest advancements. Wanting to rise to the challenge as the company had done in previous nautical programs; the engineers at Azimuth knew it would be no easy task to build a distributed leading-edge embedded system that could withstand the rigors of high-speed pursuits in rough seas. The embedded computing platform must perform flawlessly within the carbon fiber material used in Stiletto's hull, which has been known to put special demands on electronics. It was crucial to match Azimuth's CIES® software with an equally powerful, reliable and modular computing platform that would enable the Stiletto crew to manage all its integrated systems – situational awareness sensors and navigation, communications and networking, and craft control as well as integrated video capabilities.

Azimuth had previously used an embedded computing solution for other programs, but its designers knew it would not be scalable or flexible enough for the Stiletto boat implementation. Also, Azimuth wanted to use the DoD Stiletto program as its incentive to broaden its system integration resources and future product differentiation. So what was the solution to match the DoD and Azimuth's integrated rugged system goals?

## The Solution

Utilizing a proven commercial-off-the-shelf (COTS) approach in a Kontron CompactPCI®-based platform gave the Stiletto program the full system functionality demanded by the Department of Defense (DoD) in its fight against drug traffickers.

Because of its stringent requirement for system scalability and flexibility, Azimuth conducted a thorough evaluation of available embedded computing platforms from a variety of suppliers. After the company's assessment, it found the open modular platform it was looking for with the Kontron CP6012, a 6U CompactPCI® CPU board with an Intel® Core Duo processor. This high performance, PCI Express-based computing blade enables the Azimuth system to handle data throughput like a server, and because of its dual-core processor technology, it gives the Stiletto crew approximately twice the performance of previous generation processors at similar power consumption for its bandwidth-intensive operations. The CompactPCI®-based solution also provided easy expansion capabilities for Azimuth allowing 14 blades per chassis.

The critical nature of the operations on the Stiletto boat demand high availability systems. The Kontron CompactPCI® platform provides hot-swap support and IPMI (PICMG 2.9-compliant Intelligent Platform Management Interface). These features also enable the crew to attach their own additional blades to add or perform upgrades to the system on the fly. The flexibility of the system is further enhanced by a high degree of integration in a small form factor including memory and networking slots and rear I/O support.

Compatibility with the latest interface technologies such as PCI Express and Serial ATA meant that Azimuth could design its software based on the latest and user-familiar operating systems. Plus, the embedded computing integration of the Kontron CompactPCI® solution enabled Azimuth to design CIES® in consideration to the Integrated Bridge System (IBS) ORD (2000) for small craft systems.F

## The Benefit

The Azimuth/Kontron collaboration enables an unprecedented level of plug and play operations for the Office of the Secretary of Defense's (OSD's) Maritime Test Platform Stiletto.

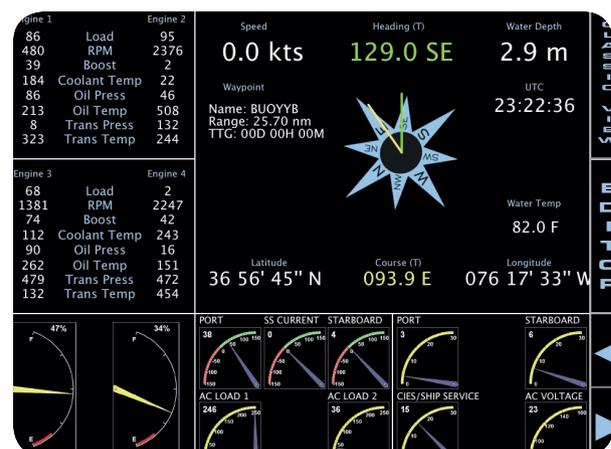


Figure 2: Shows a screen shot of the BridgeIT (Bridge Information Technology) which allows users to customize the functions in which he/she is monitoring. This particular shot shows engine, navigation, fuel levels and power.

As many government programs will see budget cuts due to the current economic climate, it is crucial for contractors to provide technology that can satisfy many missions and multiple roles. This has been proven by the range of missions where the Stiletto boat has been deployed. From naval exercises to the possibility of networking between a Special Forces team and an unmanned aerial vehicle (UAV), the Stiletto can use its powerful computing capabilities to provide critical reconnaissance information or real-time images. And because the Azimuth CIES® system has a modular design, the company can broaden its usage and tailor it to a variety of craft and missions beyond the Stiletto program.

Azimuth and the DoD are also pleased that due to the COTS approach of the Kontron CompactPCI® product portfolio, they will be able to significantly reduce future system integration

time and upgrades – no cabling or chassis changes will be required. Azimuth also praised Kontron’s COTS approach citing that initial integration was virtually a “plug and play” process, and the scalable nature of next-generation technologies will enable them to integrate upgrades and future projects just as smoothly and easily, which will reduce costs and enhance the company’s competitiveness.

As its history and success with maritime projects has demonstrated, Azimuth is already developing its next DoD project. It will be able to take its knowledge of advanced system integration methodologies it gained on the Stiletto program, the scalability and embedded computing performance advantages of Kontron’s CompactPCI® platforms and put this winning combination to work on the next craft for installation, the Guardian.

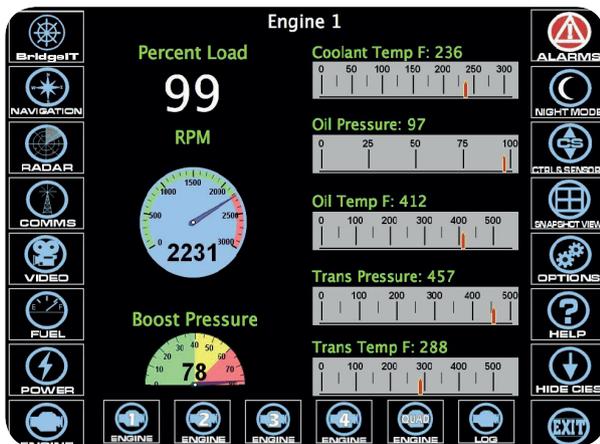


Figure 3: Illustrates the monitoring capabilities of CIES which watches all 4 engines on the Stiletto and offers the user various sensor readings for critical engine attributes.



Figure 4: Shows a close up of the chassis including the Kontron CP6012's.

## About Kontron

Kontron is a global leader in embedded computing technology. With more than 40% of its employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms. Kontron's product longevity, local engineering and support, and value-added services, helps create a sustainable and viable embedded solution for OEMs and system integrators.

Kontron works closely with its customers on their embedded application-ready platforms and custom solutions, enabling them to focus on their core competencies. The result is an accelerated time-to-market, reduced total-cost-of-ownership and an improved overall application with leading-edge, highly-reliable embedded technology.

Kontron is listed on the German TecDAX stock exchanges under the symbol "KBC". For more information, please visit: [www.kontron.com](http://www.kontron.com)

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