



SEAHAWK Helicopters Take Flight with Parvus' Rugged Switch Cards

Lockheed Martin Systems Integration – Owego selected Parvus to design a ruggedized VME Ethernet switch cards for the Navy's MH-60 R and MH-60S SEAHAWK helicopters. Parvus uses advanced ruggedization techniques to ensure the Ethernet switch cards can endure the SEAHAWK's multiple missions.

SEAKHAWK helicopters Demand Rugged Design

Military electronics must be engineered with a robust design philosophy to meet stringent avionics requirements and military standards. Parvus' proven expertise in delivering highly reliable board-level products led Lockheed Martin Systems Integration – Owego to select Parvus' rugged VME Ethernet switch cards for the Navy's MH-60 R and MH-60S SEAHAWK helicopters. Parvus began delivering its rugged VME Ethernet switches in support of the Navy helicopter program in 2004, and seven years later, Parvus continues delivering ruggedized VME Ethernet switches for the Seahawk helicopters.



The MH-60R model is the world's most capable naval helicopter available today and is designed to operate from frigates, destroyers, cruisers and aircraft carriers. Similarly, the MH-60S Seahawk helicopter is designed to perform vertical replenishment, combat search and rescue, special warfare support, airborne mine countermeasures missions and can conduct anti-surface warfare. Rugged Ethernet switches are critical to the SEAHAWK's multiple missions as the switches interface with a variety of instrumentation systems used onboard the helicopters.

Ruggedized VME Ethernet Switch Provides Military-Grade Feature Set

The VME Ethernet switch being delivered to Lockheed Martin is similar to Parvus' new COTS COM-8000 – an ultra-rugged, conduction-cooled 6U single-slot VME Ethernet Switch card compliant with IPv6 traffic and developed for command & control/situational awareness subsystems. Designed for continuous extended temperature operation over the range of -40 to +85C and MIL-STD-810G shock and vibration profiles per jet-helo aircraft conditions, the COM-8000 incorporates a reliable mechanical design with an integrated heatsink/board stiffener, wedgelocks, and injector/ejector handles.



VME Ethernet Switch

Case Study

Featuring a non-blocking Ethernet switch architecture, the COM-8000 supports simple plug-and-play operation with auto-MDI-MDIX network installation for up to 18 computing devices. It comes standard in an unmanaged configuration with sixteen (16) 10/100 Fast Ethernet ports brought out through P2 VME user connector and optionally also two (2) 10/100/1000 Gigabit Ethernet ports on the front panel available through either locking Molex headers or RJ-45 connectors. The card integrates fully independent media access controllers (MACs), an embedded frame buffer memory, and a high-speed address look-up engine, along with support for auto-crossover, auto-polarity, auto-negotiation, and bridge loop prevention.



Advanced Ruggedization Techniques Ensure High Reliability, Low Costs

To meet stringent US Naval Helicopter environmental and performance requirements, Parvus qualified the VME switch card to extreme temperature and vibration profiles experienced on the platform. Parvus' unique approach to shock and vibration testing helps deliver the VME switch cards to Lockheed Martin in a timely and cost-effective manner. One such approach is having vibration and shock testing apparatus in-house, such as a vibration table, thermal chamber and GTEM cell. With access to this type of testing equipment, Parvus engineers can perform immediate confidence testing on the product before sending it to an outside laboratory for formal certification. This significantly slashes product development cycles and the overall cost of designing a rugged solution.

By strategically designing its rugged Ethernet switches to endure the harsh and unpredictable conditions encountered by the SEAHAWK helicopters, Parvus can quickly deliver a validated product to withstand the SEAKHAWK's multi-mission platform.

