MEDIA RELEASE

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Curtiss-Wright Controls is First to License Northrop Grumman's Air Flow Through (AFT) Cooling Technology for use in Embedded Aerospace & Defense Systems

AFT System's Rugged, Sealed Modules Boost Cooling, Support Two-Level Maintenance for In-the-Field Replacement and Upgrades

ASHBURN, VA – April 19, 2012 -- Curtiss-Wright Controls Defense Solutions (CWCDS), a leading supplier of deployed modules and subsystems for the aerospace and defense C4ISR market, has announced that it has licensed Northrop Grumman Corporation's (NYSE:NOC) recently patented air-flow-through (AFT) cooling technology for use in CWCDS's rugged, deployed embedded systems. Compliant with the new ANSI/VITA 48.5-2010 standard, CWCDS will offer Northrop Grumman's AFT cooling technology, which uses highly rugged, sealed processor modules, on several of its VPX (VITA 46/48/65) systems for use in dense, high performance systems such as those deployed in C4ISR applications, including SIGINT, ELINT, COMINT and radar processing.

Northrop Grumman's AFT technology (U.S. Patent Number 7,995,346) improves the air cooling of advanced electronic modules through the use of a compact core style heat exchanger design that significantly increases the cooling efficiency of removable electronic modules such as VPX (VITA 46/48) cards. CWCDS will offer Northrop Grumman's AFT cooling technology on its wide range of rugged fully integrated VPX-based embedded systems. This new advanced thermal management approach provides a highly efficient open standards-based cooling method that ensures optimal performance from densely integrated host boards and mezzanine modules. In addition, AFT modules are sealed in rugged "shells" that support Two-Level Maintenance, for in-the-field replacement of individual card assemblies without requiring specialized technicians or the removal of the entire sub-system to ensure safe module replacement or technology upgrades.

"We are very excited to be the first embedded COTS vendors to announce the licensing of Northrop Grumman's new AFT cooling technology," said Lynn Bamford, senior vice president and general manager of Curtiss-Wright Controls Defense Solutions. "It is a great addition to our

current range of advanced thermal solutions, joining the forced air, conduction, spray cooling and liquid cooled heat frame technologies we currently provide to our military customers."

"This innovation opens the door to developing more powerful, rugged electronic systems across the military and commercial electronics fields," said Pat Antkowiak, vice president and general manager of Northrop Grumman's Advanced Concepts and Technologies Division. "This improvement in a key method of cooling electronic modules can serve a wide variety of applications."

About Air-Flow-Through (AFT) Cooling

AFT modules are housed in rugged, sealed "shells" that enable cooling without directly exposing a module's electronics to direct contact with air. This eliminates the risk of exposure to contaminants in the air, which is an occasional peril in systems for both commercial and military applications. Northrop Grumman's AFT technology employs sliding air seals at the inlet and outlet of AFT cards. This enables the modules to be removed and replaced in the field, which can be a priority for military systems.

One of the most reliable active cooling solutions available, AFT cooling is ideal for systems that require high power densities. AFT provides a thermal path to the cooling air with the least possible resistance, making it possible for CWCDS's AFT-cooled chassis to handle thermal densities up to 200W per system slot. Each AFT card is provided with a heat frame through which the cooling air is passed. On both the inlet and the exhaust sides of the card a gasket mounted inside the chassis seals the card's internal air passage to the chassis side walls. These seals prevent air from being blown into the chassis and protect the internal electronics from the harsh external environment.

The AFT air frame both prevents the ambient system air from contacting the electronics directly and dramatically decreases the thermal path to the cooling air. Each of the high power components on an AFT board is interfaced to the AFT heat frame through a conductive, flexible gap pad. This technology enables cooling air to be brought into very close proximity to a module's high power components. And because each individual module's thermal path is isolated, each card is provided its own cooling air inlet and exhaust channels, AFT eliminates the need for multiple cards to share cooling air or thermal interfaces. AFT cooling can be directed both to components on the base card, and to components on high performance mezzanine modules such as XMC cards.

CWCDS's Thermal Management Expertise

For over three decades, CWCDS has been a recognized leader in thermal management for rugged deployed systems. This unmatched expertise provides us with the ability to understand and perform trade studies for a wide range of solutions to handle the thermal load presented in program requirements. At the system level CWCDS has developed solutions that utilize forced air internal, forced air external, forced air via a rugged and compact air conditioning unit, conduction/baseplate cooled, natural convection, liquid cooled chassis and AFT thermal management technologies.

Sales & Editorial Contacts

Please contact factory for price and availability. For additional product information please visit: www.cwcdefense.com.

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About Northrop Grumman
Northrop Grumman is a leading global security company providing innovative systems, products and solutions in aerospace, electronics, information systems, and technical services to government and commercial customers worldwide. Please visit **www.northropgrumman.com** for more information.

About Curtiss-Wright Controls Defense Solutions
Curtiss-Wright Controls Defense Solutions (CWCDS) is a long established technology leader in the development of rugged electronic modules and systems for defense applications. CWCDS serves as a technology and integration partner to its customers, providing a full range of advanced, highly engineered solutions from modular open systems approaches to fully custom optimized solutions. Our unmatched capabilities and product breadth span from industry standard based COTS modules to complete electronic subsystems. The company's modules and systems are currently deployed in a wide range of demanding defense & aerospace applications including C4ISR systems, unmanned subsystems, mission computing, fire control, turret stabilization, and recording & storage solutions. Additionally, the company's broad engineering capabilities combine systems, software, electrical, and mechanical design expertise with comprehensive program management and a broad range of life-cycle support services. For more information visit http://www.cwcdefense.com.

About Curtiss-Wright Controls, Inc.
Headquartered in Charlotte, North Carolina, Curtiss-Wright Controls is the motion control segment of Curtiss-Wright Corporation (NYSE: CW). With manufacturing facilities around the world, Curtiss-Wright Controls is a leading technology-based organization providing niche motion control products, subsystems and services internationally for the aerospace and defense markets. For more information, visit http://www.cwcontrols.com.

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