For Immediate Release
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North Atlantic Industries to Provide Flight Control Systems for ARES Unmanned Demonstrator

Bohemia, New York, July 10, 2014 – North Atlantic Industries (NAI) has been chosen by Lockheed Martin Skunk Works® to provide navigation system solutions for the Aerial Reconfigurable Embedded System (ARES) vertical takeoff and landing (VTOL) demonstrator. Vehicle management computer (VMC) and actuator interface unit (AIU) requirements were met utilizing NAI's Commercial-off-the-Shelf (COTS) SIU6 chassis. Built on NAI's Custom-On-Standard Architecture™ (COSA™) platform, the SIU6 chassis is populated with highly configurable PowerPC-based single board computer (SBC) and multi-function I/O 6U VME boards (64EP3 & 64C3). This provides a flexible system solution that allows Lockheed Martin to quickly mix and match functionality based on the ARES application demands.

As part of the ARES navigation system, the SIU6 sensor interface unit enables Lockheed Martin to populate each board with function specific modules. This unique modular architecture offers a selection of up to 10 different or same functions from a broad assortment of low-power, high density modules. Functions include: programmable discretes, analog I/O (A/D, D/A & RTD), communications (RS-232/422/485 & ARINC-429), LVDT measurement, RVDT simulation and LVDT/RVDT AC Excitation. The SWaP-C efficient design increases packaging density, saves enclosure slots and reduces power consumption. In addition, the SIU6 incorporates automatic background Built-in-Test (BIT) testing that is always enabled and continually checks the health of each channel.

Utilizing the 64EP3 6U VME single board computer with configurable multi-function I/O, combined with the U3 PowerPC Processor, ARES' VMC is triple redundant and controls actuators and various I/O for advanced autonomous flight control. The VMC also communicates with the AIU, which has redundancy by using two AIUs in the system.

The Defense Advanced Research Projects Agency's (DARPA) ARES program is currently in its third and final phase. "Transporting and resupplying troops in rugged, austere terrain has become a major challenge, especially as the U.S. military shifts to using smaller and more distributed combat units," said Kevin Renshaw, Lockheed Martin Skunk Works® senior principal engineer for ARES. "ARES seeks to demonstrate several key technologies to achieve an operational VTOL system with a more compact footprint than those of conventional helicopters and couple this with higher cruise speeds."

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The ARES program is an example of how NAI's modular and adaptive Custom-On-Standard Architecture delivers SWaP-C efficient, I/O-intensive boards and systems with more processing power in less time at a lower system cost. "Our ability to mix and match functions gives customers a solution without the high costs typically associated with other vendors' custom box designs," explained Lino Massafra, NAI VP of Sales & Marketing. "We were able to quickly provide Lockheed Martin distributed I/O and processing solutions that met their demanding requirements, all with no NRE."

For more information about the ARES program, visit http://www.darpa.mil/Our_Work/TTO/Programs/Aerial_Reconfigurable_Embedded_System_(ARES).aspx and http://www.lockheedmartin.com/us/products/ares.html

For more information about North Atlantic Industries' rugged systems, SBCs and multi-function I/O modules, visit http://www.naii.com

North Atlantic Industries
NAI is a specialized provider of embedded electronics and computing for sense & response-intensive, Mil-Aero applications. We accelerate our clients' time-to-mission with a unique approach based on a Custom-on-Standard Architecture™ (COSA™) that delivers the best of both worlds: custom solutions from standard COTS components. For over 50 years, major defense systems integrators have leveraged our capabilities to meet the demanding requirements of a wide range of I/O- and communication-centric applications, with uncompromising quality, efficiency and responsiveness.

NAI SIU6

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