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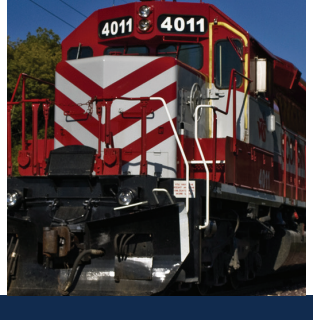

The Lockheed Martin Skunk Works® team, in partnership with NASA, Selects North Atlantic Industries' Vehicle Management Computer (VMC) and Remote Interface Unit (RIU) Configurations for X-59 QueSST Aircraft

BOHEMIA, NY -- North Atlantic Industries, Inc. (NAI), a leading supplier of embedded computing solutions and power supplies, announces that the Lockheed Martin Skunk Works® team, in partnership with NASA, selected the SIU35 Rugged COTS Systems Vehicle Management Computer (VMC) and Remote Interface Unit (RIU) configurations for the X-59 QueSST. The SIU35 is a Modular Open System Approach (MOSA) based sensor interface unit, supporting 5 x 3U cPCI slots – for installation of up to 15 I/O and communication function modules built on a Configurable Open Systems Architecture™ (COSA®).

The X-59 QueSST (Quiet SuperSonic Technology) will be used to collect community response data on the acceptability of a quiet sonic boom generated by the unique design of the aircraft. The data will help NASA provide regulators with the information needed to establish an acceptable commercial supersonic noise standard to lift the ban on commercial supersonic travel over land.

NAI's solution begins with two rugged SIU35 systems; a Vehicle Management Computer (VMC) and Remote Interface Unit (RIU), connected via Gig-E. The VMC hosts Lockheed's vehicle management control and application software program on NAI's 75PPC1 - an NXP PowerPC Quad QorIQ® P2041 @ 1.25 GHz Single Board Computer, configured with additional Gigabit Ethernet (Gig-E) interfaces and modular I/O and includes four additional 3U 75G5 cPCI multifunction I/O boards. The VMC also integrates Lockheed Martin's tuned FPGA PID control loops for direct LVDT measurement-D/A drive actuator control, greatly minimizing the host processing burden. The RIU houses an additional five 3U 75G5 cPCI multifunction I/O boards, communicating to the VMC over GbE ports. The system supports hundreds of digital and analog I/O, including programmable Discrete, A/D, D/A, Thermocouple, RTD, SYN/RSL/LVDT/RVDT and AC Reference measurement signals along with several communications interfaces including MIL-STD-1553, RS-422, ARINC-429 and Ethernet. Finally, three sets of VMC-RIUs are connected via Ethernet CCDL (cross-channel data link) for a complete high-reliability triple-redundant flight vehicle management system solution.

About North Atlantic Industries

NAI is a leading independent supplier of embedded computing, Input/Output, communications, measurement, simulation, power and systems products for commercial, industrial and military applications built on a Configurable Open Systems Architecture™ (COSA®). COSA offers the greatest modularity, flexibility, adaptability and configurability in the industry that accelerates our customers' time-to-mission. COSA supports a Modular Open Systems Approach (MOSA) that delivers the best of both worlds: custom solutions from COTS components with No NRE. For over 50 years, companies like Lockheed Martin, Boeing, Northrop Grumman and Raytheon have leveraged NAI's capabilities to meet the demanding requirements of a wide range of processing, I/O and communication-centric applications, and do so with uncompromising quality, efficiency and responsiveness. Information about NAI and its products can be found at www.naii.com.

X-59 QueSST Tri-Redundant, COTS Flight Control Computer

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Features

- Vehicle Management Computer (VMC) and Remote Interface Unit (RIU) Configurations
- Tri-Redundant
- 5x 3U cPCI Card Slots
- Dimensions w/ Connectors (w x h x d): 7.7” x 4.8” x 8.7”, < 16 lbs.
- Est. Typ. Power Dissipation: 90 W
- 3U 150-Watt DC/DC Converter w/Holdup Power Supply
- Ethernet: 4 x 10/100/1000Base-T

VEHICLE MANAGEMENT COMPUTER (VMC)

75PPC1 P2041 SBC	TTL/CMOS TL2 (24)	NIC Interface EM1 (2)	MIL-STD-1553 FT3 (4, Redundant)
75G5 3U cPCI MFIO	SYN/RSL/LVDT/ RVDT LR2 (4)	High Current D/A DA3 (4)	Discrete I/O DTB (24)
75G5 3U cPCI MFIO	LVDT Measurement LD2 (4)	High CV D/A DA5 (4)	AC Excitaion AC2 (2)
75G5 3U cPCI MFIO	Analog Input AD4 (16)	ARINC429 AR1 (12)	RS-232/422/485 SC3 (8)
75G5 3U cPCI MFIO	RS-232/422/485 SC3 (8)	RS-232/422/485 SC3 (8)	ARINC429 AR1 (12)

REMOTE INTERFACE UNIT (RIU)

75G5 3U cPCI MFIO	SYN/RSL/LVDT/ RVDT LR2 (4)	High Current D/A DA3 (4)	AC Excitaion AC2 (2)
75G5 3U cPCI MFIO	Discrete I/O DT1 (24)	TC/RTD Measurement TR1 (8)	Analog Output DA2 (16)
75G5 3U cPCI MFIO	Analog Input AD4 (16)	Analog Output DA1 (12)	Discrete I/O DT1 (24)
75G5 3U cPCI MFIO	Discrete I/O DT1 (24)	Discrete I/O DT1 (24)	Discrete I/O DT1 (24)
75G5 3U cPCI MFIO	SYN/RSL/LVDT/ RVDT LR2 (4)	High Current D/A DA3 (4)	AC Excitaion AC2 (2)

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