North Atlantic Industries, Inc. (NAI) is a leading, independent provider of specialized embedded electronic and computing solutions for rugged defense, industrial, and commercial applications. NAI accelerates their 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 commercial-off-the-shelf (COTS) components.

By deploying highly configurable, readily available solutions on standard platforms, NAI is able to respond to unique requirements without the additional engineering costs and lead times normally associated with custom solutions.

As the industry and technology have developed, so has NAI, where today it is home to some of the most advanced technologies, and is equipped with a highly trained multi-disciplined staff of professionals. By leveraging talented people with the most advanced and sophisticated tools available, NAI has transformed the landscape of computing systems within a wide range of industries.

The company’s diverse range of products include: Multi-function Input/Output (I/O) boards, Single Board Computers (SBC), Rugged Power Supplies, Rugged Systems, and Calibration Instruments. These products are accelerating the time-to-mission of companies.
around the world. To facilitate this, NAI understands that it has to respond to their broad customer base in a quick and effective way. By offering innovative, state-of-the-art, USA-based design and manufacturing capabilities, NAI can offer their customers high-quality products that meet schedule and budget constraints every time.

NAI is pioneering a new age of embedded and electronic computing systems for a broad range of programs around the world. A commitment to best-of-breed services is entrenched in the company’s unique corporate culture, and as President and CEO Bill Forman explains, it is this commitment which continues to drive the firm's success. “It’s about offering a smarter, faster, more efficient system design that requires complex I/O requirements — that’s where we excel. There are many single board computers (SBCs), I/O and communications boards and power supplies available in the market from a wide range of suppliers. Individually, many of them meet demanding customer requirements and deliver solid performance. Problems arise when engineers need to design a functional system around these individual boards, which often come from different suppliers. That system I/O integration is not always so easy. In fact, it usually
involves making some difficult tradeoffs in terms of price, performance, footprint and time,” states Forman.

I/O and communications-centric applications have become an industry of increasing importance in the past fifty years. Every day we come in contact with, or benefit from the use of these technologies without ever realizing it. There is a good chance you have come across NAI’s work; if not, you can be sure that multiple branches of the military and homeland security are using it to keep us safe. NAI’s product offerings in this arena make full use of the COSA architecture and provide their clients with more flexibility and lower risk than similar systems.

NAI’s long list of world-renowned clients are evidence of the company’s achievements in quality and innovation for 50+ years. Boeing, Northrop Grumman and Raytheon are just a few of the names in the company’s portfolio, and the list is growing. From the likes of Delta and American Airlines to SAAB and Honeywell, NAI’s products serve a diverse range of global leaders. Building systems for some of the largest air, land and sea programs requires not only advanced technical capabilities, but also commitment and professional expertise.

“NAI is pioneering a new age of embedded and electronic computing systems for a broad range of applications around the world.”

The global defense sector is arguably the most difficult and complex of all markets. NAI has maintained longstanding relationships with the world’s largest defense contractors and all branches of the U.S. Armed Services.

NAI’s success in these often difficult to serve markets is the result of the revolutionary COSA architecture and cutting-edge manufacturing principles. Through the development of this unique architecture, NAI has been able to eliminate customers’ need to design custom boards or data acquisition systems. Highly configurable hardware enables faster system integration and accelerates deployment of highly optimized systems in air, land, and sea applications. NAI’s approach also reduces the size, weight and power requirements (SWaP) and overall cost of their systems.
Additionally, by investing in cutting-edge manufacturing equipment including the latest Surface Mount Technology (SMT), automated soldering and inspection systems, and by maintaining in-house control, NAI has become a single-source for versatile, innovative, field-proven solutions.

NAI’s success is also built on providing the services necessary to complete the design, development and integration of advanced systems and doing this with reliability and repeatability. By offering design, manufacturing, final assembly and ongoing mainte-

“The customizability of NAI’s products is one of the company’s foremost advantages.”
nance in-house, the integrity of NAI products is assured. A rigid manufacturing and quality program that adheres to international standards, such as AS9100:2009 and ISO 9001:2008, Federal Aviation Regulations, as well as military standards defining environmental and electromagnetic emissions, ensures that NAI’s products are developed and built to satisfy the highest standards possible. This means less downtime for NAI’s clients and quality that is built into the product.

“NAI’s systems serve a diverse range of global leaders.”

The benefits of COTS products are numerous, but often the downfall of such products is the inability to adapt to custom requirements in a market controlled by rigid schedules and constrained budgets. The customizability of NAI’s products is one of the company’s foremost advantages. Using NAI, customers reduce the risk of procuring custom solutions whose design concept has not been
proven. Combine that with the ability to package an unprecedented number of custom I/O and communications functions in a common unit, and the custom solution that the customer is looking for is available pretty much as a standard off-the-shelf system from NAI. Furthermore, the client can easily swap functions if they decide they require more or less I/O functionality than they originally specified. If this change was made midway through the process in a conventionally designed solution, it would surely have an adverse impact on schedule and cost.

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NAI provides extended lifecycle support, which means clients are assured that their systems will be supported over one to three decades. NAI maintains close relationships with clients, offering long-term assistance with each of its systems. “You might see a product which is thirty years old, that we are still supporting, repairing or calibrating thirty years after it’s made,” states Forman. NAI has the storage facilities on-site to store critical components to support clients in case the parts become obsolete. However, in many cases, the part can just be replaced with a newer, better part with no impact on the product’s operating performance. The defense industry and the other sectors NAI serves operate in extreme and rugged environments. “When a client has a multibillion-dollar program they are supporting, they cannot afford to work with a company which is poorly managed. [For this reason] we don’t have a parent company, which allows us to focus on the customer and the team… and everything else takes care of itself,” says Forman. Thus, although a commitment to cutting-edge technology is of crucial importance, NAI’s other primary differentiator is a commitment to people on both sides of the business table.

The implementation of this innovative technology and management philosophy has improved efficiency across the board. To continue to develop, test and manufacture such sophisticated equipment requires a highly advanced level of engineering, design and technical know-how. The reason NAI has thrived for more than fifty years is based on cutting-edge technology, but these technologies are only as good as the staff that design and employ them. NAI’s in-house staff ranges from designers to mechanical engineers and everything in between. The NAI culture is one that encourages and nurtures high performance. “We have a great mix of younger people fresh out of school, along with some of the foremost experts in the field. This creates a high-energy environment, where nothing is sacred and all ideas are entertained for the benefit of the product,” states Forman.

NAI’s portfolio testifies to a company-wide investment into not only high-end technology but high-end relationships. Through fostering a people-centric approach that emphasizes specialization, NAI has created some of the most innovative technologies and a legacy that shows no signs of stopping.