

We help our clients  
reduce the size and  
cost of embedded systems  
while increasing reliability  
and performance.



# EMBEDDED SYSTEMS

## Increase Complexity Without Compromise

Multicore technologies, contemporary warfare systems, cloud technologies, and other factors are all driving the need for embedded systems that deliver increasing complexity without compromising on size, weight, or cost.

### THE NEED TO DO MORE WITH LESS

These systems must do more with less — be able to operate as a stand-alone system, be connected for multi-mode operation, or be integrated into an existing common operating picture — to perform critical tasks without costing more or complicating upgrades or lifecycle support.

Mission success in today's operational environment requires the intelligent, nimble development and integration of these systems to support the long-term combat effectiveness of U.S. military platforms. With recent advancements in artificial intelligence (AI), the application of machine and deep learning methods into embedded systems design will be essential to producing platforms that can perform against sophisticated adversaries and in changing environments.

### SCALE MEETS REAL-TIME PERFORMANCE

At Huntington Ingalls Industries (HII), we design, develop, integrate, and optimize embedded systems to reduce size and

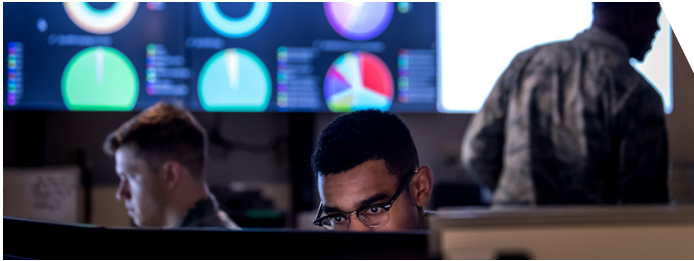
cost while increasing reliability and performance. Our engineers use state-of-the-art field programmable gate arrays (FPGA), ARM processors, and system-on-a-chip (SOC) processors with firmware and software definition to drastically improve processing performance in various metrics.

We work with clients to develop and deliver these systems, including microprocessors with increased computational power, by combining functional and domain experience with commercial off-the-shelf (COTS) hardware components.

Our rapid development process — paired with SoC designs — provides lower size, weight, and power (SWaP) solutions in a fraction of typical development cycle times. With our deep understanding of defense and national security applications as well as expertise in deep and machine learning, we deliver embedded hardware, software, and technical components to support every mission.

# HII'S EMBEDDED SYSTEMS SOLUTIONS

We've been trusted, tireless partners to the national security community for more than 80 years, with a track record of quality and the credentials to prove it. By applying our vendor-agnostic approach and agile engineering methodology to every project and program, we help clients save time and money while delivering industry-leading embedded systems solutions.



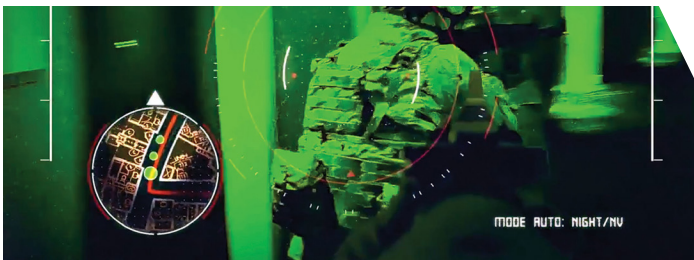
## CYBER SYSTEMS

HII's cyber team specializes in cyber resiliency for embedded systems, including dynamic crypto key management, secure boot, and recovery capabilities.



## ELECTRONIC WARFARE

From ground-based to airborne platforms, HII provides wide-band, low SWaP solutions for sensing and cyber-enabled electronic attack.



## ISR SYSTEMS

Our engineers and technologists specialize in reducing sensor processing SWaP through hardware acceleration in FPGAs and SoC devices.

## SPOTLIGHT ON: MISSION PROCESSOR

Our experts support a confidential DoD client as part of a cross-functional team to develop a cyber-resilient mission processor capable of identifying cyber attacks, fighting through the attack, completing the mission, and returning the asset to base.

We began with systems-level analysis to identify vulnerabilities in manned and unmanned platforms that informed development of resiliency techniques to mitigate and respond to attacks. From that insight, we developed

hardware-based resiliency techniques to defend against attacks, which augment common software-only solutions. HII engineers also developed custom-printed circuit boards — using system-on-a-chip (SoC) technology such as Xilinx Zynq UltraScale+ Multi Processor System on a Chip (MPSoC) — to reduce size, weight, and power (SWaP). We are now developing techniques to measure, analyze, and verify signal integrity in critical systems for uncompromised performance and security.

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### About Huntington Ingalls Industries, Technical Solutions:

Building on a legacy of more than a century of naval shipbuilding, Huntington Ingalls Industries' Technical Solutions division provides mission-critical national security solutions to a wide variety of government and commercial customers worldwide. Comprising more than 7,000 professionals worldwide, our unique national security services portfolio includes unmanned systems, nuclear and environmental services, intelligence, surveillance and reconnaissance (ISR), cyber and electronic warfare, live, virtual and constructive (LVC) training solutions, and fleet sustainment and logistics. For more information, visit [tsd.huntingtoningalls.com](http://tsd.huntingtoningalls.com).