

# Intel® Solution Center

## Delivering leading-edge commercial technology for the defense and government agencies

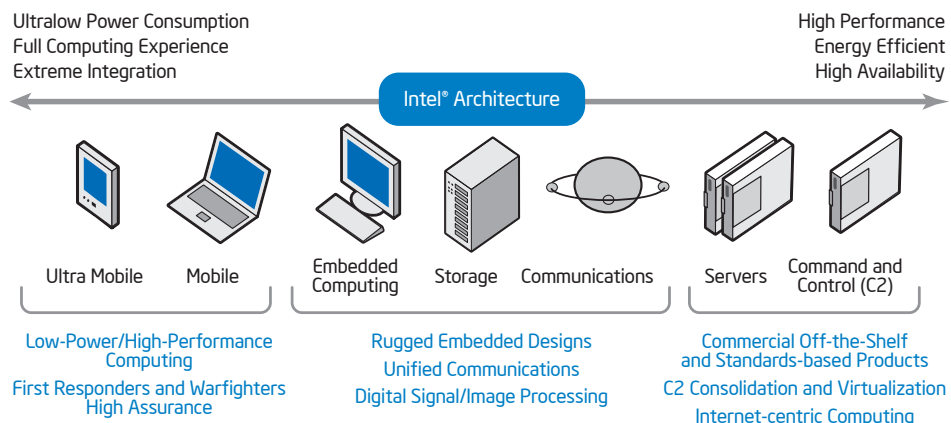
Solution Brief  
**Intel® Solution Center**  
 Military Industry

Facing tight budgets, the military industry is looking for solutions that withstand the test of time while meeting stringent performance, size, weight and power (SWaP) requirements. Adding to these high expectations, system developers also need to integrate legacy and future systems, enhance security and reduce product cost.

To meet these requirements, it takes leading-edge technologies and a vibrant ecosystem delivering cost-effective solutions supported by life-cycle management programs. Such solutions are on exhibit at the Intel® Solution Center, which showcases the latest platforms and technology advancements. Intel works with federal agencies and ecosystem partners to create end-to-end solutions (see figure below) that military system developers can deploy to solve real-world challenges, such as:

- **Greater mobility** and improved SWaP for first responders, warfighters and healthcare professionals
- **Faster design cycles** enabled by standards-based components supplied by a broad ecosystem
- **Lower power** for space- and battery-constrained devices
- **Lower OPEX** from decreasing IT management effort
- **Greater protection** for sensitive data, military personnel and the privacy of civilian workers using advanced Information Assurance systems with hardware support
- **More performance** to process and exchange huge amounts of data

### End-to-End Intel® Solutions for Defense and Government Agencies



# List of demos at the Intel® Solution Center

## 1. Accelerate COTS solution performance by tightly coupling FPGAs with Intel® processors (XtremeData, Intel)

**Technology:** Intel® QuickAssist technology

To solve the most demanding tasks, military systems designers can develop hardware-based accelerators, like small plug-in modules that contain FPGAs, memory and support circuitry, but this approach has previously dictated a custom design route. Now, there's a standard way that COTS-based solutions connect FPGAs to Intel® processors (via the processor front side bus), which reduces development effort, increases performance and saves time. As an example, this demo uses an FPGA-based accelerator, connected directly to the processor, to perform cryptography.

## 2. Improve target resolution with synthetic aperture radar and moving target indicator (SARMTI) application (Intel)

**Technology:** Intel® Xeon® processors with quad-core technology

Multi-threading and running a revolutionary SARMTI algorithm on Intel® multi-processor systems reduced image resolution times by as much as 33 times, which enables slow and fast moving targets to be precisely located against cluttered urban backgrounds. With these systems, it's easier to detect targets and monitor enemy positions, regardless of target movement speed. This demo shows the SARMTI performance acceleration when the algorithm runs on four Intel Xeon processors L7345, each of which has six cores, for a total of 24 threads.

## 3. Optimize client management using Intel's business client solution (Dell, HP, Intel)

**Technology:** Intel® vPro™ technology

From a TCO perspective, ongoing operations and management costs are typically much greater than the actual purchase price of the computing system. For many military scenarios, such IT costs are amplified because it's expensive to maintain high government security levels, repair systems in the battlefield and track systems residing all over the world. Now hardware-based technology, shown in the demo, improves remote management (e.g., software updates, repairs and inventory) and implements proactive security, which can produce substantial OPEX savings.

## 4. Step up notebook protection with anti-theft technology (Lenovo, Intel)

**Technologies:** Intel® Anti-Theft technology – PC Protection (Intel® AT-p) and Absolute Computrace\* technology

When laptops fall into the wrong hands, IT professionals must prevent unauthorized individuals from accessing military and government assets. What's needed is a tamper-resistant defense that acts like a poison pill and disables the computer even if the operating system is re-imaged, a new hard drive is installed or the notebook is disconnected from the network. This is achieved by the demo, which remotely secures a notebook by erasing the data and disabling it, thereby rendering the notebook useless in the event of theft.

## 5. Decrease TCO by dynamically streaming operating systems and applications to virtual clients (Dell, Symantec, Citrix)

**Technologies:** Intel® vPro™ technology, Symantec application streaming and Citrix OS streaming

For large organizations, updating everyone's operating system and application suites could take six months to a year and require 30 to 40 resources. It's far easier to manage virtual clients, where every time the machine boots, a master operating system image and application icons are sent to the PC. The demo shows how IT can ensure employees get only the software they need, based on their credentials, while cutting the marginal cost of adding new client workstations to zero.

## 6. Learn why it's time to abandon traditional hard disk drives (Intel)

**Technology:** Intel® Solid-State Drive (SSD) technology

Despite all the advances of recent times, the hard disk drive remains the weak link in computer systems with relatively high failure rates and considerable spin up latency. Unlike traditional hard disk drives, Intel solid-state drives have no moving parts, resulting in a quiet, cool, highly rugged storage solution that also offers faster system responsiveness. The demo presents the advantages solid-state drives bring to military and government laptop PCs, including lower power consumption that translates into longer battery life and lighter systems.



**7. Facilitate field-based decision making with a mobile, extremely rugged PC** (Panasonic)

**Technology:** Intel® Atom™ processor

Connecting to critical information and applications in real-time, remote military and government workers require mobile PCs that improve organizational efficiency, increase information accuracy and enable field-based decision-making. These PCs should be sealed for all-weather use, able to survive drops (e.g., four feet), and be viewable in any lighting condition. The mobile rugged PC on display also features integrated Wi-Fi,\* USB and SD card slots, backlit QWERTY keyboard and a 5.6" WSVGA sunlight-viewable touchscreen.

**8. Satisfy the unique requirements for mobile point of care with a rugged PC** (Panasonic)

**Technology:** Intel® Atom™ processor

Military doctors and nurses, who may not have the luxury of comfortable healthcare facilities, are mission-critical users who work in a range of environments. They require mobile PCs that offer very high levels of durability and reliable connectivity and combine lightweight, long battery life and an integrated handle. The demo showcases a fully rugged and sealed mobile clinical assistant (MCA) specifically developed for healthcare professionals (patient care applications demo requires an appointment).

**9. Reduce cost and increase interoperability with standards-based, ruggedized server for mobile deployment** (Emerson Network Power)

**Technology:** Intel® Core™2 Duo processor

Military systems deployed in command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) applications and programs must typically comply with mil specs requiring a higher level of shock and vibration, EMI and extended temperature operation than civilian infrastructure. Such ruggedized systems can be based on MicroTCA and ATCA components, widely used in telecommunications that benefit from economies of scale and interoperability associated with standards-based solutions. This demo has a video of the rigorous testing conducted on the exhibited air transport rack (ATR) format box, comprising a shock-mounted MicroTCA cage, suitable connectors and EMI shielding.

**10. Run demanding applications on a high-performance, low-power (3W) embedded computer module** (Eurotech)

**Technology:** Intel® Atom™ processor

Devices used in the battlefield must run compute-intensive applications on a Windows\* (XP or CE) or Linux\* operating system, like radar image processing, GPS-based services and on-demand communications, under battery power for missions lasting as long as 18 hours. This requires a computing platform that, while performing the most intensive of computations and processes, consumes less than 3 watts of power and generates very low heat, thereby eliminating the need for fans and heat sinks to reduce weight and size of the device for field operations. While the computer module runs a high-definition video, watch as the power consumption stays at 3W or less and physically touch the CPU without getting burned.

**11. Increase data center efficiency with service-oriented architecture and infrastructure** (SOA/SOI) (Cassatt)

**Technologies:** Intel® Xeon® processor 5400 and 7400 series-based servers

The Cassatt internal cloud environment shows the most cost-effective means to run a data center using the Intel® platform. It provides an automated environment for operations management of a data center. It uses automation to demonstrate real-world cross virtualization management, high availability for servers, server repurposing to do more with less, server monitoring and metering and energy-savings strategies for data center environments.

**12. Customize a rugged ultra-mobile PC with reconfigurable internal FPGA architecture** (RMT, Inc.)

**Technology:** Intel® Celeron® M processor, RMT SwitchBack\* rugged, ultra-mobile PC

Can hardware acceleration be added to a COTS mobile PC for specialized, compute-intensive applications, like radar image processing and cryptography, without developing relatively expensive, yet fragile PCMCIA cards? Yes – a reconfigurable FPGA on a PC platform is “virtual hardware” that can be adapted to satisfy many unique application requirements with a simple download and without redesigning the electronics. This demo functions as a standard PC, but it can also perform complex, sophisticated tasks at record speed thanks to its revolutionary FPGA technology.



A demo room at the Intel Solution Center in Chantilly, Virginia



Example of Live Demo

## Logistics

The Intel Solution Center is open Monday through Friday from 8am to 5pm, except for holidays. Please use the contact information below to schedule a visit.

**Customers:** Local Intel Field Sales Representative  
**Intel Field Sales:** Greg Clifton [greg.clifton@intel.com](mailto:greg.clifton@intel.com)  
703-217-3088 (cell)  
Ajit Patel [ajit.d.patel@intel.com](mailto:ajit.d.patel@intel.com)  
480-552-6491

## Directions

The Intel Solution Center is located at:

4040 Lafayette Center Dr.  
Chantilly, VA 20151

**From Dulles Airport:** Take State Hwy 28 South to US-50 West. Turn left onto Pleasant Valley Road heading south, and then take the first right onto Lafayette Center Dr. Take your first right into the complex and bear left. The Intel facility is located on the right.

**From Washington DC:** Take I-66 West to 28 North to US-10 West. Turn left onto Pleasant Valley Road heading south, and then take the first right onto Lafayette Center Dr. The Intel facility is located on the right, Building 4040. Look for the Intel sign in front of the entrance.

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