

## SOLUTION BRIEF

Intel® Xeon® Processor E5 Product Family  
Government Data Center

# Tracking Weather, Saving Lives

GST helps NASA to deploy a mission-critical data delivery system featuring the Intel® Xeon® processor E5 product family

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—Henry Ngo  
Senior Vice President, GST

## CHALLENGES

- Populations are at the mercy of unpredictable weather patterns
- Technology resources for weather forecasting are fragmented and not always coordinated
- Potential billion-dollar losses can result from epic storms

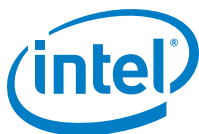
## SOLUTIONS

- Polar-orbiting NASA satellites that monitor global weather
- A worldwide network of ground stations to receive and share satellite data
- Accurate predictions aid in evacuations and other critical responses
- Intel® Xeon® processors provide the server and storage capabilities required for this demanding workload
- Intel® processor performance and reliability in remote operational sites around the world enable the overall success of the project

Technology can’t control the weather, but it can predict and pinpoint dangerous conditions accurately enough to help emergency response teams prepare for the worst. As NASA prepared to deploy the ground stations for a next-generation satellite network to monitor global weather conditions, it relied on the expertise of Golden Star Technology (GST) to deploy a network of ground-based servers based on Intel® architecture.

The Joint Polar Satellite System (JPSS) is the newest generation of U.S. polar-orbiting satellites that monitor environmental conditions globally. The JPSS program includes a series of advanced spacecraft, five satellites, and 88 highly sensitive instruments. The satellites transmit weather-related data and imagery back to a worldwide network of receiving stations linked to the National Oceanic and Atmospheric Administration (NOAA). That data is distributed publicly worldwide, enabling meteorologists and forecasters to make timely, accurate weather predictions that help save lives, protect property, and mitigate the devastating effects of severe weather.

In October 2012, GST was brought in by a principal JPSS project contractor along with HP and IBM to provide and configure the fully populated server racks that would collect data in the ground control stations for the satellites orbiting overhead.



To ensure reliable, standards-based performance under sometimes-adverse conditions at the Arctic and Antarctic Circles, the hardware procured by GST for servers, as well as storage and networking systems, runs on the Intel® Xeon® processor E5 product family. These components and GST's services helped provide maximum performance, scalability, and data accuracy for JPSS. Intel® technologies such as error correcting code (ECC) memory, Intel® Virtualization Technology (Intel® VT), and Intel® Trusted Execution Technology (Intel® TXT) were utilized to provide the best performance and data accuracy in these environments.<sup>1,2</sup> GST integrated this equipment to meet NASA standards at its headquarters in Cerritos, California.

"We accelerated our normal integration preparation spending by a month to meet the guidelines, making sure our tools and facility were compliant, a whole list of things to go through to meet their certifications," said Henry Ngo, GST senior vice president. "Of course, they gave very strict deadlines and even sent a team down to help us with the QC process." It was a very aggressive schedule, Henry said, "but we stuck to it and were able to meet all deadlines, delivering the Intel technology-based products to spec based on agreed-upon designs." NASA was so impressed that its representatives are planning a visit to review GST's facility and the work it provided for the project. Henry added, "They were thoroughly impressed."

Today, the Intel technology-based servers integrated by GST are deployed all over the world, including Antarctica. The systems are designed to work in extreme temperature ranges for five to ten years. As each server rack extracts and accumulates data, real-time reports are shared with weather organizations globally.

#### **More Than "Mission-Critical"**

The federally funded JPSS project has been escalated in status from "mission-critical" to "lifesaving" for the proven value of the satellite information that has been produced: everything from storm tracking to search-and-rescue operations for ships lost at sea. The project will only grow in scope as NASA launches another satellite in 2014 to provide enhanced tracking services.

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## **About GST**

Based in Cerritos, California, Golden Star Technology (GST) strives to earn its role as each client's trusted adviser, delivering best of breed IT solutions that increase productivity and scalability while lowering operational costs. Learn more about GST's consultative approach to technology at [www.gstes.com](http://www.gstes.com) or call us at 800-833-0128.



1. Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, and virtual machine monitor (VMM). Functionality, performance, or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit <http://www.intel.com/go/virtualization>.

2. No computer system can provide absolute security under all conditions. Intel® Trusted Execution Technology (Intel® TXT) requires a computer with Intel® Virtualization Technology, an Intel TXT-enabled processor, chipset, BIOS, Authenticated Code Modules, and an Intel TXT-compatible measured launched environment (MLE). Intel TXT also requires the system to contain a TPM v1.s. For more information, visit [www.intel.com/technology/security](http://www.intel.com/technology/security).