

Enabling Space Missions

Honeywell



SYSTEMS AND TECHNOLOGY SOLUTIONS

Beyond the Box

Vital Connections that Drive Mission Success.

At the Heart of it All

Systems. Technologies. Experience. Expertise. It's not always possible to see these Honeywell contributions that are so critically important to space missions. Yet for decades, Honeywell has been at the very heart of space programs, providing vital technologies, systems, and ground satellite maintenance and operations that enable mission success.

Subsystems

For decades, customers have relied on Honeywell for mission-critical subsystems in support of the International Space Station, Orion, satellites, and more. Some of these subsystems include:

Avionics Subsystems

Honeywell's displays suit numerous aircraft and all U.S. Space Shuttles. For tomorrow's next-generation spacecraft, Honeywell is applying its proven avionics architecture, which will include advanced displays and flight controls, on Orion.

See more Subsystems on overleaf.

Honeywell is providing systems integration and subsystems for future programs like Orion.



Honeywell is a proven Ground Systems provider with a legacy of reliability and success.



Honeywell Guidance and Control systems keep THAAD missiles on course.



From the Beginning

Honeywell has been a key player from the beginning of flight to the dawn of space exploration, providing highly reliable systems, services and technologies for a range of applications.

- **Subsystems** technology supports commercial/military satellites, restricted and human space applications.
- **Systems Integration** makes space exploration possible, including human flight and robotic missions.
- **Ground Systems** technologies and systems services enable space networks from the ground up.
- **Guidance and Control** systems technology is critical to the performance of rockets and other military and commercial applications.

Subsystems *(continued from page 1)*

Command & Data Handling Systems

On the International Space Station, Honeywell process controllers provide internal communication among the on-board computers, such as the Multiplexer/Demultiplexers (MDMs) that make up the Station's Command and Data Handling (C&DH) system and internal subsystem controllers.

Electronic Systems

Honeywell is applying reconfigurable computing to future payload computing applications — enabling mission flexibility.

Momentum Control Systems

The next-generation Momentum Control System provides cost-effective system performance through superior pointing and stabilization for satellites.

Mechanical Systems

Honeywell has supplied more than 15,000 systems and components since the first crewed spacecraft. Honeywell is a leader in environmental control and life support systems with over 500 million aircraft flight hours logged since 1945 and 8,000 flight hours in space.

Expert systems integration is mission-critical for advanced aircraft such as the F-22.



Guidance and Control systems guide the Atlas rocket with extreme precision.



Systems Integration

Honeywell's systems integration expertise is broad and deep, spanning all of aerospace and encompassing space, commercial, and military systems ranging from the Orion spacecraft to the 777 commercial airliner to the F-22 military aircraft. Our mechanical systems integration is equally impressive and is applied to programs ranging from the F-35 to the A380 — expertise that is now applicable to Space. The Power and Thermal Management System (PTMS) developed for the F-35 integrates auxiliary power, environmental controls, and emergency power into a single system — resulting in significant cost and operational savings.

Time-Triggered (TT) Ethernet

Working with TTEch, Honeywell is dramatically improving the way

critical high-speed data is managed and integrated from various networks for Orion. Using a global time base, TTEthernet simplifies communication and agreement protocols for prompt error detection, and guaranteed timeliness of real-time applications. The result is that more mission-critical, time-sensitive data can be processed more reliably and safely than ever before. Future applications include commercial satellites and military payloads.

Ground Systems

Honeywell's ground and space systems experts have more than 50 years' experience in the design, fabrication, installation, operation and maintenance of satellite command and control systems. These services have been instrumental in the operation of major NASA

satellite tracking and communication systems and in the U.S.'s two largest unclassified satellite networks. In addition, we have delivered major cost savings to our customers, gained through the use of best commercial practices.

Guidance & Control Systems

Honeywell has nearly five decades of experience, including development of navigation and control systems and products for space platforms. Our next-generation guidance systems and radiation hardened solutions deliver accuracy, reliability, flexibility and maximum capability for a range of applications including launch vehicles and satellites.

The International Space Station benefits from reliable subsystems.



Display subsystems equip U.S. Space Shuttles.



Satellites benefit from the accuracy and reliability of Honeywell systems.



Honeywell

SYSTEMS EXPERTISE

Subsystems

Systems Integration

Ground Systems

Guidance & Control Systems

SYSTEMS INTEGRATOR CAPABILITIES

- Systems Design and Analysis
- Systems Modeling and Simulation
- Mission Architecture and Evaluation
- Platform Domain Knowledge

CONCEPT TO DESIGN

- Systems Engineering
- Electrical Design
- Software Development
- Mechanical Design

FULL ENVIRONMENTAL TESTING

- Test Engineering
- Integration

ANALYSIS TO PRODUCTION

- Reliability Analysis
- Material Analysis
- Radiation Effects Analysis/Test
- Parts Management
- Supply Chain Management

MISSION OPERATIONS

- Network Engineering
- Maintenance & Operations
- Systems Sustainment
- Program Management

Honeywell control subsystems are available for future applications, including robotics.

The Multifunction Electronic Display Subsystem provides U.S. Space Shuttles with critical flight parameters.



Find out more

For more information visit
www.honeywell.com/space

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