Defense, Space & Security
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Boeing Space Mission Systems

OVERVIEW

Space Mission Systems within Boeing Defense, Space & Security delivers mission-critical capabilities to government and commercial customers worldwide. We bring together advanced satellites and payloads, open and modular ground systems, as well as mission operations and lifecycle services. We also deliver rapid small-sat constellations via Millennium Space Systems, high-efficiency solar power from Spectrolab, and experimental systems including the X-37B Orbital Test Vehicle. With more than six decades of space heritage and a team of roughly 6,000 people across nearly a dozen U.S. locations, we scale capability and sustain performance from design to factory to orbit.

Value to the mission

- Flexibility: Software-defined payloads let operators evolve capabilities to meet mission needs.
- Assured operations: Products designed for contested environments improve resilience, availability, and recovery.
- Integration: Open, modular ground and common product approaches streamline integration and shorten delivery timelines.

Integrated capability across space + ground + ops

- Spacecraft and payloads: From rapid small-sat constellations to high-assurance GEO platforms our integrated Payload Array (IPA) technology is proven on orbit with O3b mPOWER, enabling flexible capacity and dynamic beamforming.

- Dual use technology: We continue evolving our core technologies, including the software-defined IPA, hardening it for military use on the latest Wideband Global SATCOM (WGS) satellites for the U.S. Space Force, as well as the Protected Tactical SATCOM (PTS)-Prototype, and the United States' nuclear command and control Evolved Strategic SATCOM constellation.

- Missile warning / missile tracking: Standardized, modular constellations with agile, open ground enable proliferated sensing and responsive operations, including on the U.S. Space Force's Missile Track Custody system and FOO Fighter satellite constellation for the Space Development Agency.

- Ground architecture and integration: Open, modular ground systems support multi-orbit operations, automation, protected communications, and rapid reconfiguration, reducing operator workload and accelerating response.

- Mission operations and services: Network operations, on-orbit support, performance analytics, anomaly resolution, and upgrades keep missions online, secure, and performing to plan.

Portfolio and focus areas

- Advanced MILSATCOM: Protected, resilient communications for joint and allied forces. Integration of next-gen software-defined payloads and anti-jam features, coupled with modern ground infrastructure enhances availability and throughput.

- Commercial SATCOM: The world's most advanced software-defined payload capability with dynamic bandwidth allocation and beamforming—proven with O3b mPOWER—helps operators evolve service quality while improving cost-per-bit.

- Rapid constellations via Millennium Space Systems: Agile small-sat constellations and end-to-end missions delivered on compressed timelines for national security missions.

- High-efficiency solar power from Spectrolab: Industry-leading solar cells and panels with decades of flight heritage, enabling more reliable payload performance, longer mission duration, and higher availability.

- Experimental and prototype programs: Flight-proven experimentation across autonomy, advanced payloads, and resilient architectures. The X-37B extends learning about operations in the space environment and informs future

capabilities.

- National security programs: Purpose built capabilities for the most critical missions. We deliver proven capability with schedule credibility and operational availability at scale, backed by proven execution and disciplined program management.

- Ground systems: Open architectures that integrate across orbits and networks, enabling automation, orchestration, and interoperability.

- Common product architecture: Shared building blocks to ensure performance, interoperability, schedule reliability and rapid reconstitution capability.

- Technology innovation: Mission-focused R&D that balances near-term impact with long-horizon capabilities. This includes a number of promising avenues, including but not limited to advancing AI for factory efficiency, on-orbit optimization and autonomous ops, in addition to maturing photonics for next-generation payload architectures, and exploring quantum technology to enhance sensing and future networking.

We've come a long way since the world's first geosynchronous communications satellite, Syncom II, was built by Boeing heritage company, Hughes, and launched in 1963. Since Syncom, the company has delivered satellites to more than 50 customers in more than 20 countries. These systems are designed and built in the world's largest satellite manufacturing factory at the Boeing campus in El Segundo, California. We take great pride in our history and harness that same entrepreneurial energy to invest in our future.

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October 2025