

# Axient Program Highlight: NASA's Space Launch System (SLS) Program

## Axient's Work on the SLS Program

Axient is the SLS **primary structural loads contractor** providing the following:

- Integrated vehicle and element level loads analysis
- Structure fracture and fatigue analysis support
- Shock and acoustic propagation support
- Vibro-acoustic component loads and spectra development
- Debris impact analysis

Axient is the SLS **primary developer** of the SLS Avionics System Integration Lab (SIL) and the Avionics Real-Time Environment for Modeling, Integration and Simulation (ARTEMIS) tools for NASA's Marshall Space Flight Center. Models and tools include:

- Real-time M&S used for SLS hardware-in-the-loop (HWIL)
- Closed loop physics-based M&S running across multiple computer nodes (multi-CPU) running at 400hz.
- Developed to easily switch models for real HW to support off-nominal
- SLS vehicle emulator deliveries to external organizations used for their development and testing (Launch Control and Crew Vehicle)

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**ACCELERATING POSSIBLE.**

## CUSTOMER

# NASA

## NASA'S SLS PROGRAM

NASA's Space Launch System, or SLS, is a super-heavy-lift launch vehicle that provides the foundation for human exploration beyond Earth's orbit. With its unprecedented power and capabilities, SLS is the only rocket that can send Orion, astronauts, and cargo to the Moon on a single mission. (NASA Fact Sheet)

## GET TO KNOW US

Axient is the result of the merger of four leaders in the defense and civil markets: QuantiTech LLC, Millennium Engineering and Integration LLC, Systems Engineering Group, and Dynamic Concepts LLC. Axient is headquartered in Huntsville, Alabama and has provided premier services and solutions to the Federal Government for more than three decades. With over 2200 employees and locations in Alabama, Tennessee, Florida, California, New Mexico, Colorado, and the National Capital Region, we provide local expertise and program management to our customers which means faster response times and an easier partner to reach. Axient is certified in the following: ISO 9001:2015, AS9100 Rev D, CMMI-DEV Maturity Level 3, and has a DCMA Purchasing System, DCMA Property System, and DCAA Accounting System. Our history of success is attributable to our core philosophy of putting mission and customers first, empowering our program leaders, and providing value-added, mission-oriented services and solutions.



[www.axientcorp.com](http://www.axientcorp.com)

## BREAKTHROUGH SOLUTIONS FOR MISSION SUCCESS

New challenges demand new thinking. The changing landscape and our nation's critical missions demand adaptive, innovative, and accelerated solutions and new ideas. At Axient, we're driven to new solutions for what comes next, whether new approaches, new insights or new technology to advance mission forward. From mission to operations and sustainment to cyber threats, we provide expertise and technical insight that enables customer missions to rise to every challenge.

## DELIVERING AT MISSION SPEED

Innovation without responsiveness only solves yesterday's problems. At Axient, we leverage our engineering, customer expertise and proven development process to drive solutions at the speed of mission, to ensure our customers are always ahead of the threat and clear of the challenge.

Axient provides **primary guidance**, navigation and control (GN&C) design, modeling, simulation, and analysis, and verification and validation (V&V) for SLS. This work includes:

- Mission design, trajectory design, navigation design & analysis, flight control design & analysis, plant & environmental modeling, liftoff & separation analyses, and Monte Carlo technique
- Model Based Design (MBD) delivery of executable GN&C for SLS FSW

Axient was also the **SLS Ground Systems systems engineering and integration (SE&I) contractor**, providing the following:

- SE&I of the exploration ground system for the SLS vehicle processing
- Verification and validation
- Logistics planning for vehicle processing

## DOMAIN EXPERTISE FOR DECISIVE OUTCOMES

## CERTAINTY IN PARTNERSHIPS

### Locations

Huntsville, AL (HQ) • Arlington, VA • Wallops Island, VA • Dahlgren, VA • Washington DC • Greenbelt, MD • Columbia, MD • Pax River, MD • Aberdeen Proving Ground, MD • Tullahoma, TN • Warner Robins AFB, GA • Eglin AFB, FL • Melbourne, FL • Cape Canaveral, FL • Johnson Space Center, TX • Corpus Christi, TX • Albuquerque, NM • Cannon AFB, NM • Holloman AFB, NM • Yuma Proving Ground, AZ • Colorado Springs, CO • Hill AFB, UT • Moffitt Field, CA • Vandenberg AFB, CA • Armstrong Flight Research, CA • Los Angeles, CA • Pasadena, CA • Glendale, CA • Michoud Assembly Facility, LA •