



Defense Testing Solutions

Integrated Measurement, Control, and Simulation Systems

AND

Discover Precision

Reliable, repeatable, and automated test solutions that help defense programs meet aggressive timelines and budget constraints in high-consequence testing environments.

Ground Mobility

We have deep experience supporting engine and powertrain development for military ground vehicles, where durability, repeatability, and safety are critical.

- Engine and powertrain testing on dynamometers (steady-state, transient, calibration support, and durability)
- Automated test sequencing for development, validation, and regression testing
- Integration of thermal conditioning, fluid systems, and emissions-adjacent instrumentation
- Standardized procedures and reporting to support program continuity and configuration control

Marine

We deliver test solutions for marine and naval platforms, where power generation, reliability, and long-duration testing are essential.

- Engine, generator, and drivetrain testing for shipboard and auxiliary power
- Electrified and hybrid power system validation
- Thermal management, fluid systems, and cooling loop testing
- Automated durability and regression test execution

Drones & Robotics

We support the development and validation of uncrewed, autonomous, and robotic defense platforms with scalable test automation, controls, and data workflows that improve repeatability and system confidence.

- Propulsion and actuator testing for electric, hybrid, and small engine-driven systems
- Power, battery, and energy storage validation for aerial and ground robotic platforms
- Controller and autonomy system validation using hardware-in-the-loop (HIL) environments
- Automated functional, performance, and regression testing across software and hardware revisions
- Integrated data acquisition and analysis to support rapid iteration and design comparison
- Safe, repeatable test execution for high-consequence or unattended test scenarios

Aviation

We support aerospace defense programs with scalable test automation and data workflows for propulsion and supporting subsystems.

- Engine and subsystem development and validation
- Controls integration and automated test execution
- Data management and comparison across builds and test sites
- HIL-ready environments for controller and system validation

Energy Systems

Electrification and energy storage play a growing role across defense platforms, from vehicles to vessels.

- Battery module and pack characterization
- Power electronics, inverter, and electric drive unit (EDU) testing
- Motor and electrified propulsion subsystem validation
- Efficiency mapping and thermal performance analysis



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Test System Integration

A&D Technology evaluates your current test systems, constraints, and program goals to design and deliver an integrated test solution that streamlines defense testing from concept through operation. From consulting and system architecture, to project management and custom software development, through installation, commissioning, and training, we bring together hardware, software, automation, and data into a cohesive test environment—getting your team up and running quickly with a new or improved testing solution.

Some A&D Solutions Include:

iTest – Test control and automation software for repeatable, standardized test execution across dynos and test stands

Phoenix – Combustion analysis system for detailed pressure-based insights and performance characterization

Orion – Automated calibration solution to accelerate development and support consistent regression workflows

BEX-1000ft – Gas analysis and emissions testing connectivity for distributed and large-scale test environments



Lab Management

A&D Technology's LabWorX process and asset lab management system enables defense organizations to oversee and coordinate multiple test labs from a single platform. Whether managing a ground vehicle lab at one site, an aviation test facility at another, or marine testing near the coast, LabWorX provides centralized visibility into lab assets, workflows, data, and test activity—helping teams operate consistently across geographically distributed environments.

Simulation

A&D Technology delivers hardware-in-the-loop (HIL) and real-time simulation solutions that help defense programs validate controllers early, reduce risk, and standardize testing across sites where access to completed components may be limited. Using Helios HILS and Procyon HILS, teams can use models to simulate engine, battery, motor, thermal, and ADAS systems for ECU development in closed-loop environments, while ADX and Selene enable compact deployable real-time simulation and rapid prototyping to support efficient, repeatable validation in a lab or in-vehicle throughout the program lifecycle.

Benefits of A&D:

- Flexible software can be customized to be integrated with most 3rd party equipment and platforms
- Solutions are built to order to meet the customer's budget and requirements
- Team with decades of experience working in vehicle test cell environments
- On-Demand custom application programming and modifications
- Engineered, assembled, serviced, supported in Ann Arbor, MI, USA
- Supported by A&D locations in more than a dozen countries around the world
- Expansive project application portfolio with world-renowned OEMs
- Save time, money, and man-hours with automated test cells & lab management system

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